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J. D. Drinan  
Editor

Haystack Pointing System:  
Peripheral Programs

17 February 1966

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
LINCOLN LABORATORY

HAYSTACK POINTING SYSTEM: PERIPHERAL PROGRAMS

*J. D. DRINAN, Editor*

*Group 62*

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### ABSTRACT

A set of eight non-real-time service programs was written in support of the Haystack Pointing System to facilitate system maintenance and updating. Peripheral functions afforded by this set of programs include: (1) format conversion and remote printing facility of the SPURT assembler printer outputs 210, 211 and 212; (2) magnetic tape dumping; (3) "effective" punched card input to SPURT assembler; (4) Cal Comp plotting of system output; (5) punched card equivalents of Common Storage Allocation Tape; (6) automatic program loading with bootstrap tape generation facilities; (7) magnetic tape duplication; and (8) automatic updating of system tapes.

Accepted for the Air Force  
Franklin C. Hudson  
Chief, Lincoln Laboratory Office

## HAYSTACK POINTING SYSTEM: PERIPHERAL PROGRAMS

### INTRODUCTION

Each of the programs described in this document was written with an eye toward automating, in so far as possible, the manifold "off-line" steps necessary in the creation, maintenance and evaluation of the Haystack Pointing System.

The write-ups have assumed a certain familiarity on the part of the reader with regard to system fundamentals, to the SPURT assembler and to the TOPS utility routine.

A brief abstract of each program as well as the name of each author is given below:

|          |                 |        |
|----------|-----------------|--------|
| LIST 210 | A. A. Mathiasen | Page 3 |
|----------|-----------------|--------|

SPURT assembler outputs 210, 211 and 212 are format converted for printing by the IBM 1401 computer.

|                            |             |         |
|----------------------------|-------------|---------|
| MAGNETIC TAPE DUMP PROGRAM | S. J. White | Page 13 |
|----------------------------|-------------|---------|

The contents of virtually any U-490 produced magnetic tape may be listed on the Haystack high-speed printer. A variety of user options is available.

|            |              |         |
|------------|--------------|---------|
| MAKEA301TP | J. D. Drinan | Page 16 |
|------------|--------------|---------|

This is a pre-assembler program which effectively enables the programmer to use the punched card medium as an input to the SPURT assembler.

|                    |             |         |
|--------------------|-------------|---------|
| PLOTTER (CAL COMP) | S. J. White | Page 20 |
|--------------------|-------------|---------|

Certain of the recorded outputs of the Haystack Pointing System can be presented in the form of Cal Comp plots.

|            |            |         |
|------------|------------|---------|
| PUNCHALLOC | D. Hafford | Page 25 |
|------------|------------|---------|

The Common Storage symbol table maintained on cards is transposed onto flexo-tape.

|           |              |         |
|-----------|--------------|---------|
| SYSLOADER | J. D. Drinan | Page 29 |
|-----------|--------------|---------|

The single Master Bootstrap System Tape as well as a map of allocated memory are produced under the direction of the user.

TAPECOPY

A. A. Mathiasen      Page 37

Most high density binary tapes can be duplicated.

UPDATER

D. M. Hafford      Page 38

Any system program can be added to, replaced or deleted from the particular master file tape to which it belongs.

## LIST 210

### INTRODUCTION

The List 210 program reads the 210, 211, or 212 Fielddata output of the SPURT assembler and makes up a BCD output for printing by an IBM 1401 computer or similar device.

### INPUT

#### A. Tape Input

##### Record 1

| Word  | Upper                                          | Lower                   |
|-------|------------------------------------------------|-------------------------|
| 1     | (not used)                                     | 00210<br>00211<br>00212 |
| 2 - 7 | Name of program and programmer<br>in Fielddata |                         |
| 8     | 0                                              | 0                       |
| 9     | 0                                              | not used                |
| 10    | 0                                              | 32                      |

Word 1 from this record tells the kind of output.

##### Record 2 through n

| Word                           | Upper                 | Lower        |
|--------------------------------|-----------------------|--------------|
| 1                              | $\ell$                | $26\ell + 1$ |
| 2 - 26                         | Fielddata information |              |
| 27                             | Spacing control       |              |
| 28 - 52                        | Fielddata information |              |
| 53                             | Spacing control       |              |
| .....                          | .....                 |              |
| $26(\ell - 1) + 2$ to $26\ell$ | Fielddata information |              |
| $26\ell + 1$                   | Spacing control       |              |

$l$  stands for the number of output printer lines in this record. Each line consists of 125 Fieldata characters.

Record  $n + 1$  (last record)

| Word | Upper | Lower |
|------|-------|-------|
| 1    | 12231 | 12413 |
| 2    | 11322 | 22505 |

Record  $n + 1$  has the Fieldata characters for ENDOFDUMP.

1. The 210 Tape

In the 210 tape the first line (of Record 2) contains the legend SPURT OUTPUT NO. 210 enclosed in apostrophes. (In the translation, these are interpreted as periods.)

The second line is a succession of apostrophes and is skipped by the program.

The third line contains the name of the program and usually the programmer and date.

The fourth line is the legend "NO. OF INSTRUCTIONS  $m$ " followed by lines of the form " $n_1$  thru  $n_2$ " until a line exactly like line 1 is encountered.

The next line after this is a succession of apostrophes.

The line after this is like the third line above (program name, programmer, and date).

The next line is the column headings

- CARDS LL CD LABEL TA STATEMENT LOC F JKB Y NOTES.

Following this are the successive lines of program listing.

2. The 211 or 212 Tape

Both the 211 and 212 tapes contain a listing of labels and their associated addresses. In the former, these are alphabetically ordered; in the latter, numerically ordered.

The first line (of Record 2) is the legend "SPURT OUTPUT NO. 21Y" where Y is 1 or 2, enclosed in apostrophes.

The second line is a succession of apostrophes.

The third line is the program name, programmer and date.

The fourth line contains the column headings

- LABEL LOC LABEL LOC LABEL LOC.

B. Jump Buttons

1. Key 1

If Key 1 is depressed at the completion of translation of a logical file, the Fieldata input type and the BCD output tape will be rewound, and the program will stop. Starting after this will cause the program to reinitialize.

2. Key 2

If Key 2 is depressed at the completion of translation of a logical file, the program will continue with the next logical file of the input.

3. Key 3

If Key 3 is depressed at the completion of translation of a logical file, the Fieldata input tape will be rewound, the BCD output tape will be left where it is, and the program will stop. Upon starting, it will translate the next logical file of the Fieldata input tape (which presumably will be a newly mounted tape).

## OUTPUT

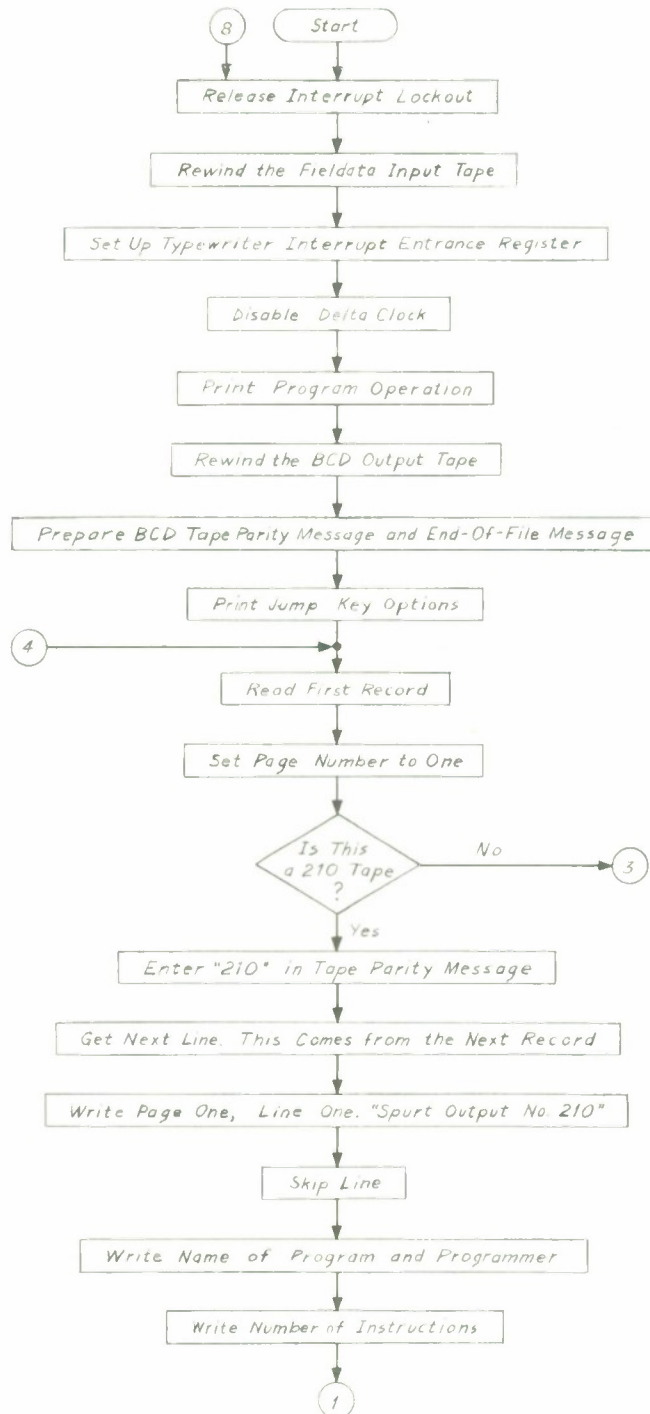
The output will be a magnetic tape with the BCD equivalent of the Fieldata 210, 211, or 212 listing. There will, however, be added a heading including page number on each new page. Examples of such a 210, 211, or 212 output listing will be found in the Appendix.

The operation of the keys is printed on the console typewriter. Also printed is the current program being translated and the kind of listing.

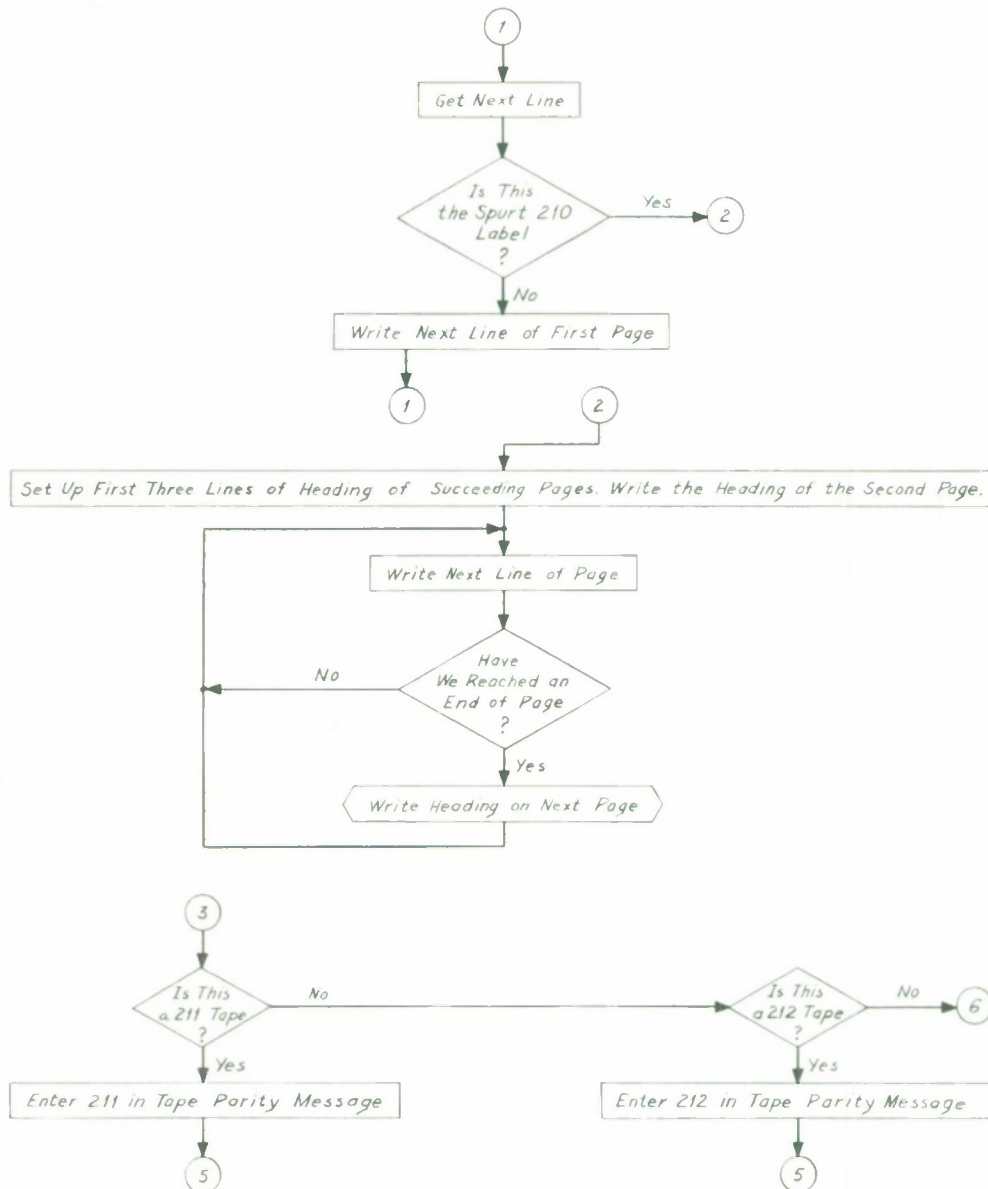
## OPERATION

The flow diagram of the program details the operation.

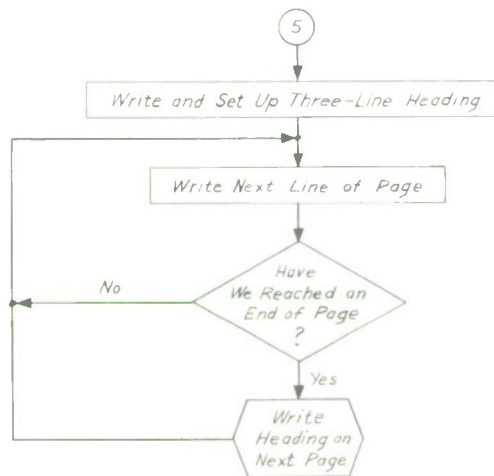
## LIST 210 PROGRAM



3-62-4243

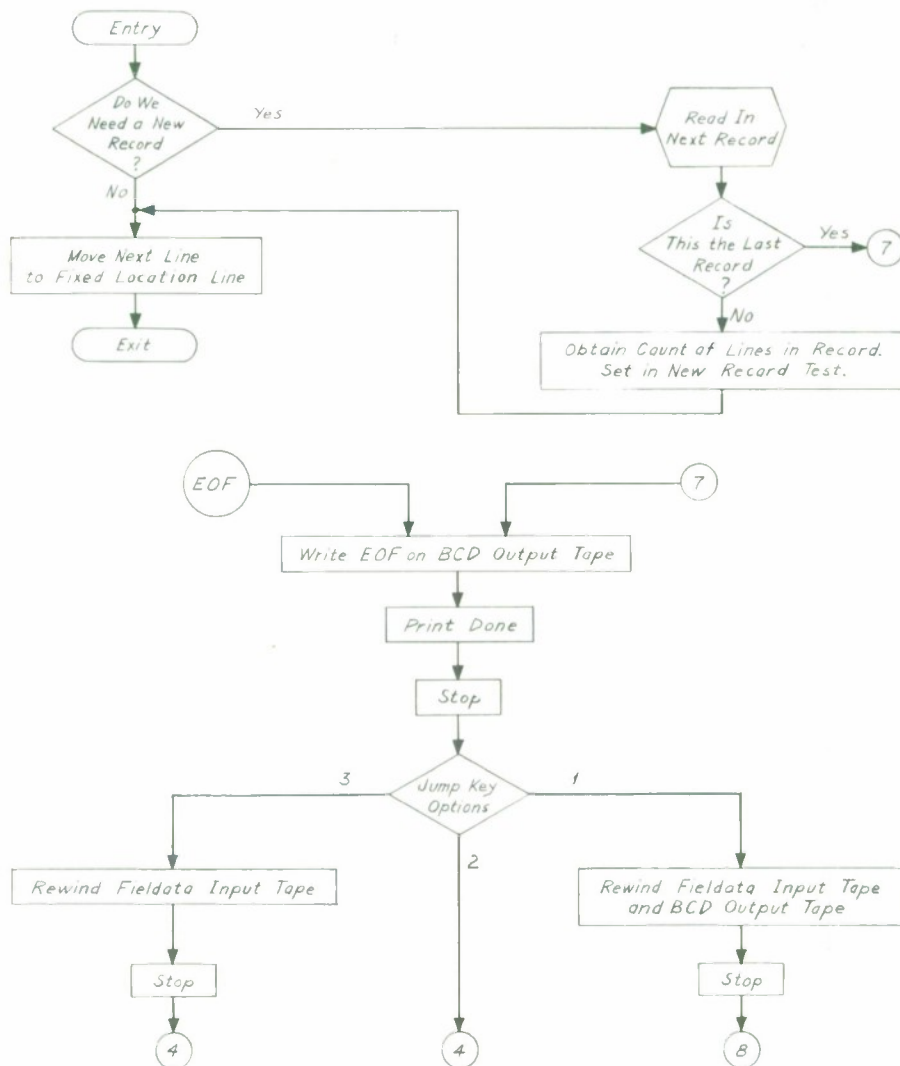


3-62-4242



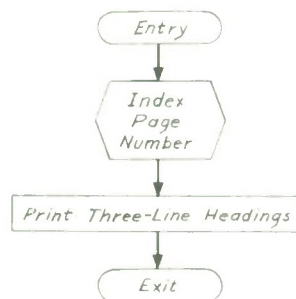
3-62-4241

# GET ON-LINE ROUTINE

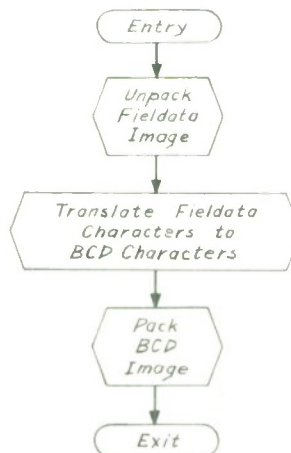


3-62-4240

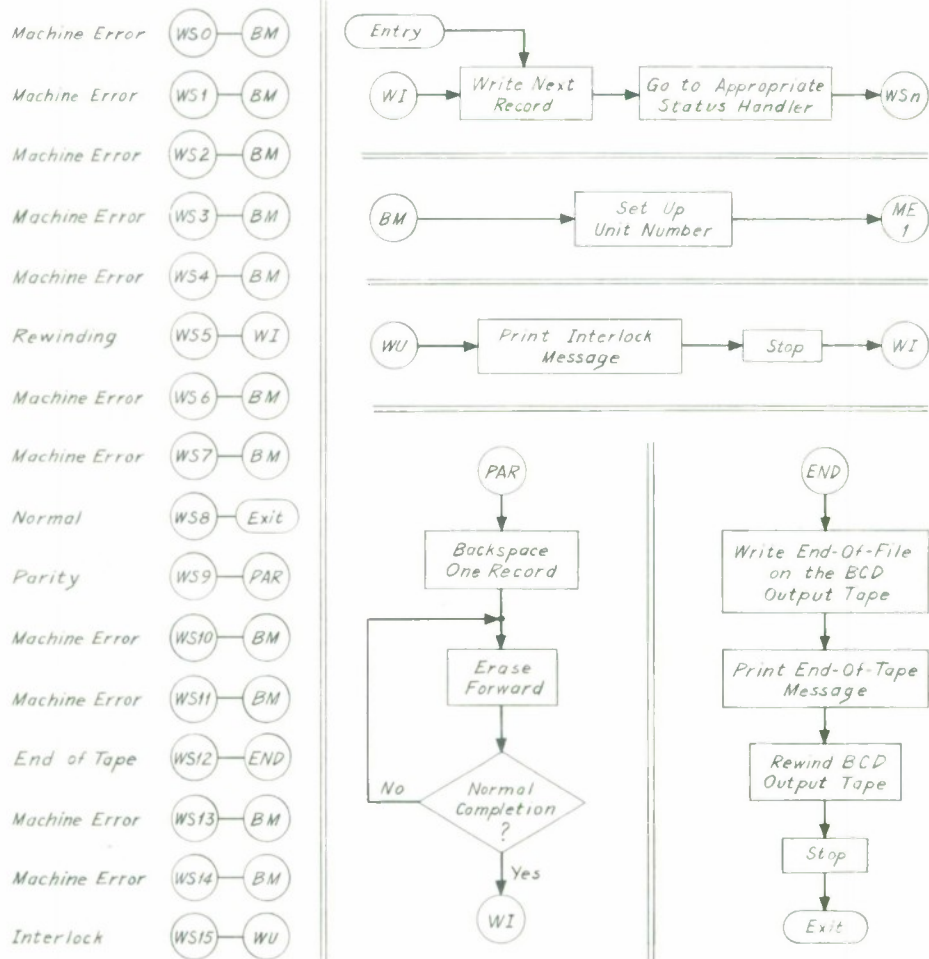
PAGE HEADING ROUTINE



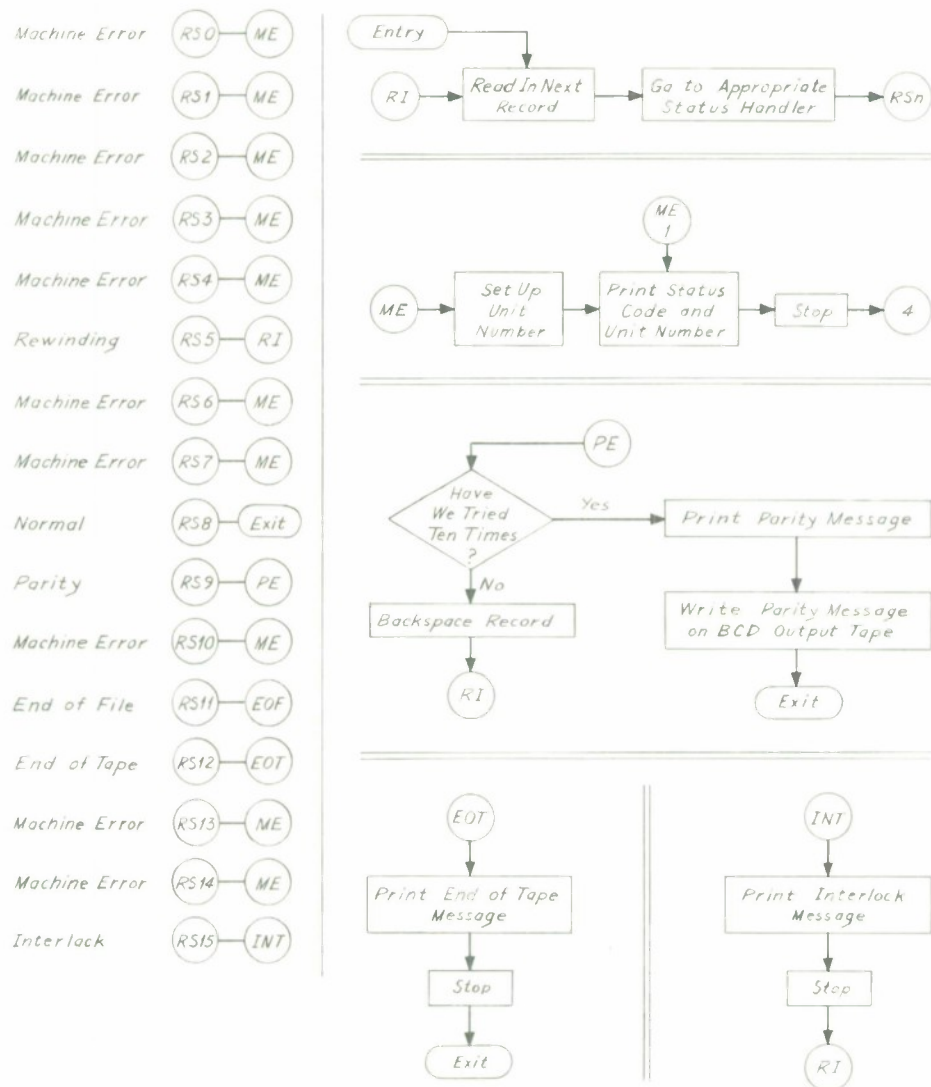
UNDERSTAND ROUTINE



## WRITE ROUTINE



## READ ROUTINE



## MAGNETIC TAPE DUMP PROGRAM

### GENERAL

A Univac 490 program called Magnetic Tape Dump Program has been written to list the contents of a magnetic tape on the Haystack high-speed printer. The program has the ability to process a tape in high or low density with an even or odd parity, and in BCD, FD, or octal format. It also has the capability of skipping files or records, of dumping files or records, and of rewinding a tape.

Input is from both magnetic tape and the on-line console typewriter. The magnetic tape may be mounted on any one of the four tape drives (A, B, C or D). Tape drive, density, parity, format, file and record skipping, file and record dumping, and rewinding are specified via the console.

Selected contents of the magnetic tape are printed on the high-speed printer.

### OPERATION

Mount the tape to be processed on one of the tape drives. The Magnetic Tape Dump Program is included as one of the utility programs on the SPURT System Tape. To call the program, type (via TOPS):

LS ☐ MTDMP

The Magnetic Tape Dump is also on a separate "321" magnetic tape labeled "MGTAPEDUMP." To load the program, mount this tape on one of the tape servos ( $S_N$ ) where  $N$  = servo where the tape has been mounted, then type:

LD ☐  $S_n$  ☐ 321 ☐ 10000 

PS ☐ 10000 

When the program has been called by either method, the following message will appear on the on-line console:

"STANDARD (A, B, C, OR D) OR NO (N)"

Selecting one of the standard A, B, C, or D tape units followed by a stop code  will initiate a listing in octal, high density of many files. To limit the output, the program has to be stopped manually by depressing the step-operate switch in

the operate position. If the program has been stopped manually, clear the printer channel before continuing with other tape dumps.

Selecting "N" (NO) followed by a stop code " " types an output of requests: "TAPE-DENSITY-PARITY-FORMAT-SKREC-DPREC-DPFILE-REW." Answers are entered below the line of requests. The program spaces to allow the answers to be directly under the appropriate request. Answers to each request are as follows:

TAPE → A, B, C, or D (Uniservo 0, 1, 2, or 3, respectively)

DENSITY → H or L (High or Low)

PARITY → E or O (Even or Odd)\*

FORMAT → F, B, or D (Field Data, BCD, or Octal)

SKFILE → Number of files to be skipped before dumping.<sup>†</sup>

SKREC → Number of records to be skipped before dumping.<sup>†</sup>

DPFILE → Number of files to dumped.<sup>†</sup>

DPREC → Number of records to be dumped.<sup>†</sup>

REW (REWIND) → Y or N (Yes or No)

During typing of answers if a mistake is made, a carriage return will initiate the output of requests anew.

The following are examples of typical requests:

#### EXAMPLE 1

STANDARD (A, B, C or D) or NO (N)

N 

TAPE-DENSITY-PARITY-FORMAT-SKFILE-SKREC-DPFILE-DPREC-REW

A        H        E        B        001        000        000        010        Y

In response to this request, the program will rewind tape, skip one file, dump ten records (from the second file) of Tape A, in BCD high density, even parity.

---

\*Ability to select parity has been included for special cases. Normally, BCD and Fielddata are even parity and octal (binary) is odd.

<sup>†</sup>Answer must have 3 decimal digits; for no action, answer 000.

### EXAMPLE 2

STANDARD (A, B, C or D) or NO (N)

N 

TAPE-DENSITY-PARITY-FORMAT-SKFILE-SKREC-DPFILE-DPREC-REW

D        L        E        F        000        000        003        009        N

In response to this request, the program dumps first three files and nine records from the fourth file. From Tape D, in Fielddata, low density, even parity.

### EXAMPLE 3

STANDARD (A, B, C or D) or NO (N)

B 

In response to this request, the program dumps the first 511 files from Tape B, in octal, high density, odd parity.

## MAKEA301TP

### INTRODUCTION

A U-490 program is available which permits U-490 users to have their program manuscripts transcribed directly onto IBM cards by the Lincoln Laboratory card room facility in a format to be described below. The resulting card deck is loaded onto magnetic tape (see 1401 Procedures below for details) by the IBM 1401 off-line facility. The resulting BCD magnetic tape, then, is the input to the program being described, whose output is a SPURT 301 Tape which becomes immediately available for compilation by SPURT.

### CARD FORMAT

#### A. Label Field

Columns 1 through 10 of the 80-column card will contain the label (if any) associated with this line of SPURT coding.

#### B. Continuation Column

Column 11 has been reserved for possible continuation purposes. Leave it blank.

#### C. Operator/Operator + $V_o$ Field

Columns 12 through 21 must contain an operator beginning in column 12. The operator may stand alone in this field or it may be accompanied by the  $V_o$  operand if the  $V_o$  operand is either the "r" (Register) or "e" (Expression) type of operand. When both appear in this field, they are separated by exactly one blank.

#### D. Operand/Commentary Field

Columns 22 through 80 comprise this field. Any remaining operands (including  $V_o$ ) to be included in this line must begin in column 22. The point separator in this field is the comma (,). The commentary field for those operators which may have notation (see Special Operators) is defined as beginning in the column following the first blank in columns 22 to 80. Commas (point separators in the operand field) may be freely used as such in the commentary field.

## PROGRAM FORMAT

The first card of every program must have the program label in the label field. Additionally the symbol, PROGRAM, appears in the operator field while the programmer's name and the date occupy the operand/commentary field separated by the point separator (,). A typical first card might appear:

|        |         |                 |
|--------|---------|-----------------|
| SORTER | PROGRAM | JSMITH, 6/10/65 |
|--------|---------|-----------------|

No end card should be present. The end of file signals the end of program.

## SPECIAL OPERATORS

### A. DEC

This pseudo operation (not present in SPURT) permits the entry of fixed-point mixed numbers into the SPURT program by means of a pre-assembly conversion of the mixed number to its octal integer equivalent. The Format:

|                |               |
|----------------|---------------|
| Operator Field | Operand Field |
| DEC            | + III. FFFBDD |

CAUTION! The sum of the decimal places represented by the I's and F's must be less than or equal to 9 and the number considered as a decimal integer (decimal point removed) must be within the range of the 29-bit word size. ( $536870912 > |N|$ )

The binary point position is indicated by the non-negative decimal integer(s) following the B in the format above. A "B" of zero connotes an integer. Depending on the number being entered, the number of I's or F's may be zero or non-zero, the decimal point may or may not be present, but the B must appear.

### B. TYPET

The  $V_O$  operand starts in column 22 and extends to the right in blocks of 5 columns until the rightmost non-blank column is found. No commentary is permitted. Commas are permitted in the  $V_O$  operand. NOTE: The vertical bar (|) is entered as a dollar sign (\$)

### C. FD

The count for the FD pseudo-op must appear as the  $V_O$  operand in the OPERATOR FIELD, i.e., columns 15 or 15 and 16 must contain a decimal

count. The D (for decimal) must be present when the count is greater than 7.

The text starts in column 22 and no commentary is allowed. A count of zero results in a search for the rightmost non-blank character which determines how many columns are presented to SPURT for assembly.

#### D. FORM-TEXT

Because of the nature of this macro-type operation, no commas are permitted in the text portion of the operand field.

#### E. Constants

##### Upper Half - Lower Half

For this arrangement, the upper half begins in column 12 and the lower half begins in column 22. No point separator is used.

##### Whole Word

Any whole word entry which, because of a preceding minus sign or a trailing D (decimal indicator), does not fit entirely in the operator field must be entered by the "upper half - lower half" method for octal integers and by the DEC pseudo op for decimal integers.

#### 1401 PROCEDURES

The card-to-tape procedure at the 1401 is normal except that the card-to-tape load program must be the special "80-column loader" written especially for this application.

SUGGESTION: To minimize the possibility of trouble at Haystack, it is probably worthwhile loading a given program twice, creating a second back-up file on the same BCD tape.

Print the tape and examine columns 81 to 84 of the listing. If zeros are present in these columns, the wrong loader has been used.

#### U-490 PROCEDURES

The program that converts the BCD tape to the SPURT 301 tape is called MAKEA301TP. It is currently a utility program on the SPURT tape.

Mount the SPURT tape on logical 0 (A).

Mount the BCD tape to be converted on logical 2 (C).

Mount a spare (output 301 tape) on logical 3 (D).

Under TOPS control

Type in

LS ☐ MK 301 (carriage return)

## PLOTTER (CAL COMP)

### INTRODUCTION

The Haystack Plotter Program was written to give a graphical representation of the recorded output from the Haystack Pointing System.

The program was written in Fortran to operate on the IBM 7094. The output of the program is a tape to be used as an input to an IBM 1401 Computer Program. The output of the IBM 1401 Computer Program is plotted on a Cal Comp Plotter. The plot size, its scaling, over printing etc., are controlled by parameter cards used by the Haystack Plotter Program.

### INPUT

A magnetic tape produced by the Haystack Printout Program is the primary input to the Haystack Plotter Program. Control cards are used by the Plotter Program, to control the size of the plot, the scaling, etc.

### OUTPUT

A plot from the Cal Comp Plotter is the final output using the Haystack Plotter Program. The plot is not an output directly from the Haystack Plotter Program, but rather an output from an IBM 1401 Computer Program that utilizes as input a magnetic tape generated by the Haystack Plotter Program on the IBM 7094.

### OPERATION

The Haystack Plotter Program was written in Fortran to be compiled and executed on the IBM 7094 computer.

An IBM compatible BCD magnetic tape, generated by the Printout program from the Haystack System Recording Tape, is one of the inputs to the Haystack Plotter Program, the other input is from cards, as follows:

## INPUT CARDS

|        |                |                                                                         |
|--------|----------------|-------------------------------------------------------------------------|
| Card 1 | Col. 1 and 2   | Start Hour                                                              |
|        | Col. 4 and 5   | Start Minute                                                            |
|        | Col. 7 and 8   | Start Second                                                            |
|        | Col. 12 and 13 | End Hour                                                                |
|        | Col. 15 and 16 | End Minute                                                              |
|        | Col. 18 and 19 | End Second                                                              |
| Card   | Col. 1-3       | X-Axis (for time, leave max and min points blank)                       |
|        | Col. 6-13      | Minimum Point (Floating Point)                                          |
|        | Col. 16-23     | Maximum Point (Floating Point)                                          |
| Card 3 | Col. 1-3       | Y-Axis                                                                  |
|        | Col. 6-13      | Minimum Point (Floating Point)                                          |
|        | Col. 16-23     | Maximum Point (Floating Point)                                          |
| Card 4 | Col. 1         | Ø = Solid Line Plot (Fixed Point)<br>1 = Broken Line Plot (Fixed Point) |
|        | Col. 3-5       | Number Points per frame (Fixed Point)                                   |
|        | Col. 7-10      | No. Inches in X-axis (Floating Point) (Leave Blank for Time)            |
|        | Col. 12-15     | No. Inches in Y-Axis (Floating Point)                                   |
|        |                |                                                                         |
| Card 5 | Col. 1         | 1 = Completed Request                                                   |
|        |                | 2 = Over Plot (No new scaling)                                          |
|        |                | 3 = Additional Plot same File                                           |
|        |                | 4 = Plot From Next File                                                 |

The selections of X-Axis versus Y-Axis are:

| <u>X-Axis</u> |     | <u>Y-Axis</u>           |
|---------------|-----|-------------------------|
| TIM (TIME)    | vs. | AAZ (Actual Azimuth)    |
| TIM (TIME)    | vs. | AEL (Actual Elevation)  |
| TIM (TIME)    | vs. | CAZ (Command Azimuth)   |
| TIM (TIME)    | vs. | CEL (Command Elevation) |
| AAZ           | vs. | AEL                     |
| AAZ           | vs. | CAZ                     |
| AAZ           | vs. | CEL                     |
| AEL           | vs. | CAZ                     |
| AEL           | vs. | CEL                     |
| CAZ           | vs. | CEL                     |

These are the only combinations available in the program.

Each file of each input tape has a title associated with it. The title along with the start and end times are written on the output tape to be plotted. Following these are the axes, the axes scaling, and the data converted from BCD to plotter units to make the curve.

Plotter Program requirements:

System; FMS  
Input Tape; B6 556 LPI  
Output Tape; A6 800 LPI  
Control Cards must follow the program deck

A sample listing of an Input Tape, and a plot from the Cal Comp Plotter will be found in the following pages.

## ACQUI UN LES 11

WEDNESDAY OCTOBER 6, 1965 SATELLITE SYSTEM

HH MM SS RA(DEC) DEC(DEG) DISTANCE DISTOOT RADOT AZIM ELEV CAZIM TRUE RANGE RA(HMS) DECI(MS)  
 18 29 16 175.8643 9.2440 1.54481578 -0.77944 6.3109443 243.3681 -1.8594 243.3681 1.2100787 11 43 27.44 0 14 38.3

SRA SDEC CRANGE RANGEOUT DECOOT SAZIM SELEV CELEV SIDERTIME  
 175.8643 9.2440 257346 -2.84574 3.7797949 243.3681 -1.8594 0.6579 221.0220

| TIME SECS | INCOMING | COMMAND   | COMMAND  | RECEIVED  | R/A         | RECEIVED     | DECLIN      | COMND       | R/A          | COMND       | DECLIN       | COMND       | DOPLR | MODES |
|-----------|----------|-----------|----------|-----------|-------------|--------------|-------------|-------------|--------------|-------------|--------------|-------------|-------|-------|
| SECS      | AZIMUTH  | ELEVATION | AZIMUTH  | ELEVATION | HH MM SS.SS | DDD MM SS.SS | HH MM SS.SS | HH MM SS.SS | DDD MM SS.SS | HH MM SS.SS | DDD MM SS.SS | CYCLES/SEC. | ARCDE |       |
| 0.000     | 328.1190 | 359.9966  | 243.3685 | 0.6578    | 8 58 48.5   | 65 52 12.4   | 11 47 30.92 | 10 21 43.2  | 11 47 30.92  | 10 21 43.2  | 10 21 43.2   | 272695      |       |       |
| 0.080     | 328.1184 | 359.9973  | 243.3671 | 0.6578    | 8 58 48.46  | 65 52 11.0   | 11 47 31.19 | 10 21 40.5  | 11 47 31.19  | 10 21 40.5  | 10 21 40.5   | 272696      |       |       |
| 0.160     | 328.1190 | 359.9973  | 243.3664 | 0.6578    | 8 58 48.44  | 65 52 12.8   | 11 47 31.36 | 10 21 39.4  | 11 47 31.36  | 10 21 39.4  | 10 21 39.4   | 272697      |       |       |
| 0.240     | 328.1190 | 359.9973  | 243.3650 | 0.6578    | 8 58 48.52  | 65 52 12.9   | 11 47 31.63 | 10 21 36.8  | 11 47 31.63  | 10 21 36.8  | 10 21 36.8   | 272698      |       |       |
| 0.320     | 328.1190 | 359.9973  | 243.3643 | 0.6585    | 8 58 48.60  | 65 52 12.9   | 11 47 31.87 | 10 21 36.7  | 11 47 31.87  | 10 21 36.7  | 10 21 36.7   | 272699      |       |       |
| 0.400     | 328.1190 | 359.9973  | 243.3630 | 0.6585    | 8 58 48.68  | 65 52 12.8   | 11 47 32.15 | 10 21 34.1  | 11 47 32.15  | 10 21 34.1  | 10 21 34.1   | 272700      |       |       |
| 0.480     | 328.1197 | 359.9973  | 243.3623 | 0.6585    | 8 58 48.67  | 65 52 13.7   | 11 47 32.32 | 10 21 32.9  | 11 47 32.32  | 10 21 32.9  | 10 21 32.9   | 272701      |       |       |
| 0.560     | 328.1190 | 359.9986  | 243.3616 | 0.6585    | 8 58 49.30  | 65 52 13.7   | 11 47 32.50 | 10 21 31.6  | 11 47 32.50  | 10 21 31.6  | 10 21 31.6   | 272702      |       |       |
| 0.640     | 328.1197 | 359.9973  | 243.3602 | 0.6585    | 8 58 48.83  | 65 52 14.7   | 11 47 32.77 | 10 21 29.1  | 11 47 32.77  | 10 21 29.1  | 10 21 29.1   | 272703      |       |       |
| 0.720     | 328.1184 | 359.9973  | 243.3595 | 0.6585    | 8 58 49.10  | 65 52 11.0   | 11 47 32.94 | 10 21 27.8  | 11 47 32.94  | 10 21 27.8  | 10 21 27.8   | 272704      |       |       |
| 0.800     | 328.1190 | 359.9979  | 243.3582 | 0.6585    | 8 58 49.31  | 65 52 13.3   | 11 47 33.21 | 10 21 25.3  | 11 47 33.21  | 10 21 25.3  | 10 21 25.3   | 272705      |       |       |
| 0.880     | 328.1190 | 359.9979  | 243.3575 | 0.6592    | 8 58 49.16  | 65 52 12.8   | 11 47 33.45 | 10 21 25.1  | 11 47 33.45  | 10 21 25.1  | 10 21 25.1   | 272706      |       |       |
| 0.960     | 328.1190 | 359.9979  | 243.3568 | 0.6592    | 8 58 49.47  | 65 52 13.3   | 11 47 33.63 | 10 21 23.8  | 11 47 33.63  | 10 21 23.8  | 10 21 23.8   | 272707      |       |       |
| 1.040     | 328.1190 | 359.9966  | 243.3554 | 0.6592    | 8 58 49.9   | 65 52 12.4   | 11 47 33.90 | 10 21 21.3  | 11 47 33.90  | 10 21 21.3  | 10 21 21.3   | 272708      |       |       |
| 1.120     | 328.1190 | 359.9966  | 243.3547 | 0.6592    | 8 58 49.17  | 65 52 12.4   | 11 47 34.8  | 10 21 20.0  | 11 47 34.8   | 10 21 20.0  | 10 21 20.0   | 272709      |       |       |
| 1.200     | 328.1190 | 359.9966  | 243.3533 | 0.6592    | 8 58 49.25  | 65 52 12.4   | 11 47 34.35 | 10 21 17.5  | 11 47 34.35  | 10 21 17.5  | 10 21 17.5   | 272710      |       |       |
| 1.280     | 328.1184 | 359.9973  | 243.3527 | 0.6592    | 8 58 49.66  | 65 52 11.0   | 11 47 34.52 | 10 21 16.2  | 11 47 34.52  | 10 21 16.2  | 10 21 16.2   | 272711      |       |       |
| 1.360     | 328.1190 | 359.9966  | 243.3520 | 0.6599    | 8 58 49.41  | 65 52 12.4   | 11 47 34.76 | 10 21 16.0  | 11 47 34.76  | 10 21 16.0  | 10 21 16.0   | 272712      |       |       |
| 1.440     | 328.1190 | 359.9966  | 243.3506 | 0.6599    | 8 58 49.44  | 65 52 12.4   | 11 47 35.4  | 10 21 13.5  | 11 47 35.4   | 10 21 13.5  | 10 21 13.5   | 272713      |       |       |
| 1.520     | 328.1190 | 359.9973  | 243.3499 | 0.6599    | 8 58 49.80  | 65 52 12.9   | 11 47 35.21 | 10 21 12.2  | 11 47 35.21  | 10 21 12.2  | 10 21 12.2   | 272714      |       |       |
| 1.600     | 328.1190 | 359.9973  | 243.3485 | 0.6599    | 8 58 49.88  | 65 52 11.0   | 11 47 35.48 | 10 21 9.7   | 11 47 35.48  | 10 21 9.7   | 10 21 9.7    | 272715      |       |       |
| 1.680     | 328.1184 | 359.9973  | 243.3479 | 0.6599    | 8 58 50.6   | 65 52 11.0   | 11 47 35.66 | 10 21 8.4   | 11 47 35.66  | 10 21 8.4   | 10 21 8.4    | 272716      |       |       |
| 1.760     | 328.1190 | 359.9959  | 243.3472 | 0.6599    | 8 58 49.58  | 65 52 12.0   | 11 47 35.83 | 10 21 7.2   | 11 47 35.83  | 10 21 7.2   | 10 21 7.2    | 272717      |       |       |
| 1.840     | 328.1197 | 359.9979  | 243.3458 | 0.6599    | 8 58 50.26  | 65 52 15.1   | 11 47 36.10 | 10 21 4.6   | 11 47 36.10  | 10 21 4.6   | 10 21 4.6    | 272718      |       |       |
| 1.920     | 328.1197 | 359.9979  | 243.3451 | 0.6606    | 8 58 50.34  | 65 52 15.1   | 11 47 36.35 | 10 21 4.5   | 11 47 36.35  | 10 21 4.5   | 10 21 4.5    | 272719      |       |       |

## ACQUI ON LES 11

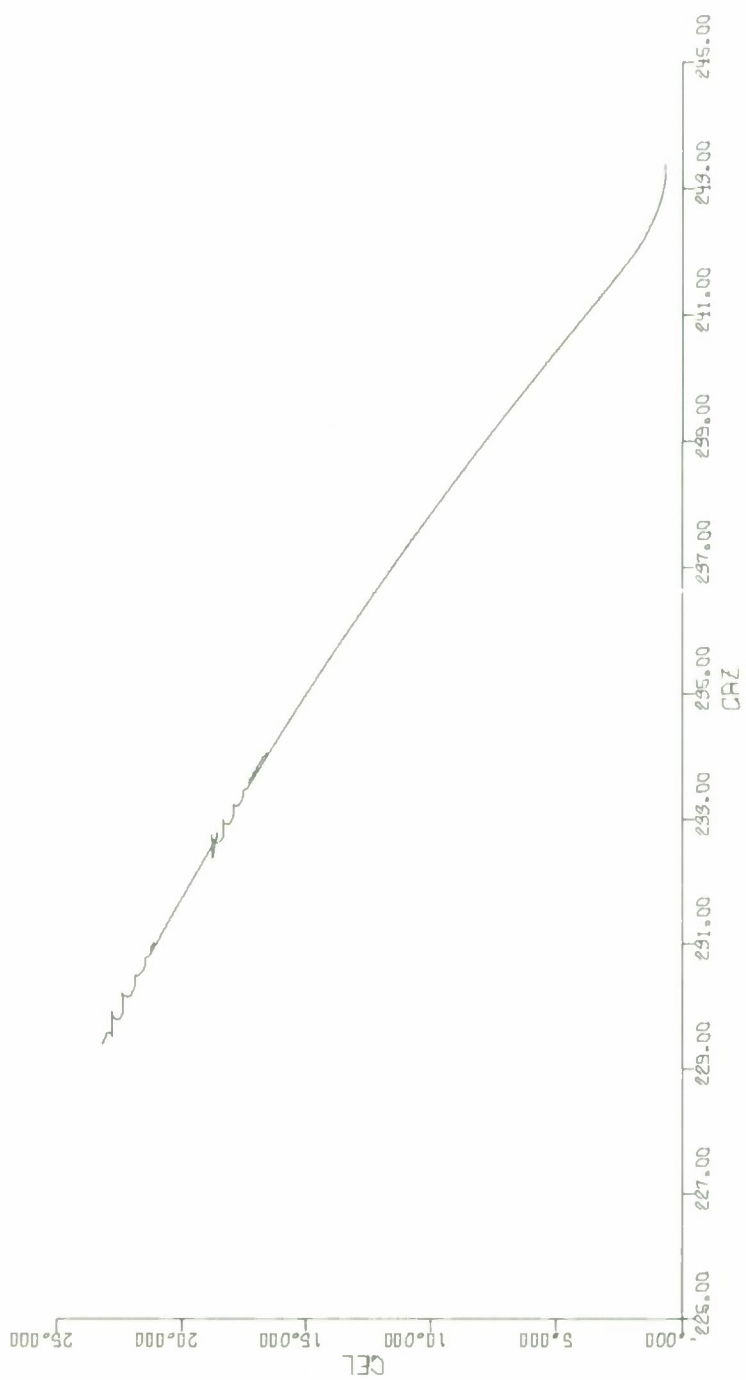
WEDNESDAY OCTOBER 6, 1965 SATELLITE SYSTEM

HH MM SS RA(DEC) DEC(DEG) DISTANCE DISTOOT RADOT AZIM ELEV CAZIM TRUE RANGE RA(HMS) DECI(MS)  
 18 29 16 175.9377 9.2873 1.54436326 -0.77811 6.3154240 243.3440 -1.8001 243.3440 1.2084258 11 43 45.4 0 17 14.2

SRA SDEC CRANGE RANGEOUT DECOOT SAZIM SELEV CELEV SIDERTIME  
 175.9377 9.2873 256994 -2.84590 3.7807016 243.3440 -1.8001 0.6604 221.0303

| TIME SECS | INCOMING | COMMAND   | COMMAND  | RECEIVED  | R/A         | RECEIVED     | DECLIN      | COMND       | R/A          | COMND       | DECLIN       | COMND       | DOPLR | MODES |
|-----------|----------|-----------|----------|-----------|-------------|--------------|-------------|-------------|--------------|-------------|--------------|-------------|-------|-------|
| SECS      | AZIMUTH  | ELEVATION | AZIMUTH  | ELEVATION | HH MM SS.SS | DDD MM SS.SS | HH MM SS.SS | HH MM SS.SS | DDD MM SS.SS | HH MM SS.SS | DDD MM SS.SS | CYCLES/SEC. | ARCDE |       |
| 0.000     | 328.1190 | 359.9973  | 243.3437 | 0.6606    | 8 59 11.89  | 65 52 54.6   | 11 47 42.83 | 10 22 43.3  | 11 47 42.83  | 10 22 43.3  | 10 22 43.3   | 272720      |       |       |
| 0.080     | 328.1197 | 359.9966  | 243.3430 | 0.6606    | 8 59 11.64  | 65 52 55.9   | 11 47 43.1  | 10 22 42.0  | 11 47 43.1   | 10 22 42.0  | 10 22 42.0   | 272721      |       |       |
| 0.160     | 328.1190 | 359.9973  | 243.3424 | 0.6606    | 8 59 12.5   | 65 52 54.5   | 11 47 43.18 | 10 22 40.8  | 11 47 43.18  | 10 22 40.8  | 10 22 40.8   | 272722      |       |       |
| 0.240     | 328.1190 | 359.9979  | 243.3410 | 0.6606    | 8 59 12.35  | 65 52 55.0   | 11 47 43.65 | 10 22 38.2  | 11 47 43.65  | 10 22 38.2  | 10 22 38.2   | 272723      |       |       |
| 0.320     | 328.1190 | 359.9973  | 243.3403 | 0.6612    | 8 59 12.21  | 65 52 54.5   | 11 47 43.70 | 10 22 38.1  | 11 47 43.70  | 10 22 38.1  | 10 22 38.1   | 272724      |       |       |
| 0.400     | 328.1190 | 359.9973  | 243.3389 | 0.6612    | 8 59 12.29  | 65 52 54.5   | 11 47 43.97 | 10 22 35.8  | 11 47 43.97  | 10 22 35.8  | 10 22 35.8   | 272725      |       |       |
| 0.480     | 328.1184 | 359.9979  | 243.3382 | 0.6612    | 8 59 12.69  | 65 52 53.2   | 11 47 44.14 | 10 22 34.3  | 11 47 44.14  | 10 22 34.3  | 10 22 34.3   | 272726      |       |       |
| 0.560     | 328.1190 | 359.9973  | 243.3376 | 0.6612    | 8 59 12.45  | 65 52 54.5   | 11 47 44.32 | 10 22 33.0  | 11 47 44.32  | 10 22 33.0  | 10 22 33.0   | 272727      |       |       |
| 0.640     | 328.1190 | 359.9973  | 243.3362 | 0.6612    | 8 59 12.53  | 65 52 54.5   | 11 47 44.59 | 10 22 30.5  | 11 47 44.59  | 10 22 30.5  | 10 22 30.5   | 272728      |       |       |
| 0.720     | 328.1190 | 359.9966  | 243.3355 | 0.6612    | 8 59 12.38  | 65 52 54.1   | 11 47 44.76 | 10 22 29.2  | 11 47 44.76  | 10 22 29.2  | 10 22 29.2   | 272729      |       |       |
| 0.800     | 328.1190 | 359.9959  | 243.3341 | 0.6619    | 8 59 12.23  | 65 52 53.7   | 11 47 45.10 | 10 22 27.8  | 11 47 45.10  | 10 22 27.8  | 10 22 27.8   | 272730      |       |       |
| 0.880     | 328.1184 | 359.9966  | 243.3334 | 0.6619    | 8 59 12.63  | 65 52 52.3   | 11 47 45.28 | 10 22 26.5  | 11 47 45.28  | 10 22 26.5  | 10 22 26.5   | 272731      |       |       |
| 0.960     | 328.1190 | 359.9973  | 243.3321 | 0.6619    | 8 59 12.85  | 65 52 54.6   | 11 47 45.55 | 10 22 24.0  | 11 47 45.55  | 10 22 24.0  | 10 22 24.0   | 272732      |       |       |
| 1.040     | 328.1190 | 359.9966  | 243.3314 | 0.6619    | 8 59 12.70  | 65 52 54.1   | 11 47 45.72 | 10 22 22.7  | 11 47 45.72  | 10 22 22.7  | 10 22 22.7   | 272733      |       |       |
| 1.120     | 328.1184 | 359.9979  | 243.3307 | 0.6619    | 8 59 13.33  | 65 52 53.2   | 11 47 45.90 | 10 22 21.4  | 11 47 45.90  | 10 22 21.4  | 10 22 21.4   | 272734      |       |       |
| 1.200     | 328.1190 | 359.9973  | 243.3293 | 0.6626    | 8 59 13.9   | 65 52 54.6   | 11 47 46.24 | 10 22 20.0  | 11 47 46.24  | 10 22 20.0  | 10 22 20.0   | 272735      |       |       |
| 1.280     | 328.1197 | 359.9973  | 243.3286 | 0.6626    | 8 59 13.7   | 65 52 53.9   | 11 47 46.41 | 10 22 18.7  | 11 47 46.41  | 10 22 18.7  | 10 22 18.7   | 272736      |       |       |
| 1.360     | 328.1184 | 359.9979  | 243.3273 | 0.6626    | 8 59 13.57  | 65 52 53.2   | 11 47 46.68 | 10 22 16.2  | 11 47 46.68  | 10 22 16.2  | 10 22 16.2   | 272737      |       |       |
| 1.440     | 328.1190 | 359.9973  | 243.3266 | 0.6626    | 8 59 13.33  | 65 52 54.5   | 11 47 46.86 | 10 22 14.9  | 11 47 46.86  | 10 22 14.9  | 10 22 14.9   | 272738      |       |       |

ACQUI ON LES II  
 18 29 14 18 39 14



## PUNCHALLOC

In the Haystack Pointing System certain quantities are of interest to, or shared by, many programs. It is essential that separate programs reference the same memory cell when using common symbolic notation within a program. A Flexowriter tape called the SPURT allocation tape\* provides this assurance. This tape is really an external symbol table used by the SPURT compiler to equate symbolic labels with absolute memory cells. Because it is tedious to update paper tape whenever a change is made, a card deck containing this information is maintained. The PUNCHALLOC program transfers the card images on magnetic tape to a System Allocation paper tape.

### INPUT

The deck of input cards containing allocation data must be loaded on magnetic tape at 556 characters-per-inch density with the 80 column loader at the Building J computer facility.

The card deck consists of a heading card followed by allocation cards interspersed with comment cards.

### CARD FORMAT

|                  |                                                                                                                                                        |                                                                                      |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Heading Card     | Col. 1-10                                                                                                                                              | Label (must start in column 1)                                                       |
|                  | Col. 12-21                                                                                                                                             | <u>ALLOCATION</u>                                                                    |
|                  | Col. 22-80                                                                                                                                             | A comma followed by comments, terminated by a blank (these comments will be punched) |
| Allocation Cards | Col. 1-10                                                                                                                                              | Label (must start in column 1)                                                       |
|                  | Col. 12-16                                                                                                                                             | Location, five digits in octal.                                                      |
|                  | Col. 17-80                                                                                                                                             | Comments (these will not be punched)                                                 |
| Comment Cards    | If column one is blank, none of the card will be punched. (This card was designed to expand comments for IBM 1401 printout, not for U490 application.) |                                                                                      |

### OUTPUT

The format for the punched paper Allocation tape is as follows:

---

\* SPURT General Reference Manual, Sect. 9, pp. 1 and 2.

```

←
↑ ←
Label → Allocation @ Notes ←
Label → Value ←
Label → Value ←
Label → Value ←
↓ . .

```

The notation used is as follows:

```

←      Carriage Return
↑      Upper Case
→      Tab
@      Point Separator
↓      Lower Case
.      Period

```

#### PROGRAM LOGIC

SPURT listings 210, 211, 212 appear in Appendix C.

At location BEGIN the paper tape punch connected to the U490 is turned on and a leader is punched. Buffer control is set to write from BUF1 first and BUFSW is set to alternate output buffers.

The first card is then read from magnetic tape. All input from magnetic tape is accomplished using the subroutine READTAPE. This subroutine reads BCD records from tape into a location designated in the calling sequence and checks the status of the tape unit after reading. Control is passed to EOF whenever an end-of-file mark is encountered.

The contents of the operation field (Cols. 12-21) of the card is verified to contain the letters ALLOCATION to be certain that the correct input is being used. In the event of a mismatch, the program stops and pressing the high-speed button will restart the program at the beginning. With no mismatch, the first buffer is started with carriage return, upper case, carriage return.

Now the location field, up to the first blank, is converted to Flexowriter characters by the subroutine BCDTOFLEXO. The subroutine converts BCD, starting with the word in 1NBUF + B1 and puts each Flexowriter character in a separate word starting at 0 + B5. Therefore, B1 must be set before BCDTOFLEXO is called. B5 is reset when the buffers are switched and is stepped whenever a character is stored.

A tab is then inserted into the card image immediately ahead of the operation field (Col. 11) and the rest of the card, to the first blank, is converted to Flexowriter characters.

Location L14D is the beginning of the main loop. Beginning at this location, a carriage return is added to the output buffer, the output buffer control is set up, the buffers are switched and output of the full buffer is initiated.

At location NOTHERCARD the next card is read from tape using READTAPE. Column one of this card is checked. If it is blank the card is a comment card, which is skipped and another card is read and checked.

If column one is non-blank the word in the location field of the card is converted to Flexowriter characters with BCDTOFLEXO, a tab is added to the output buffer and the five digit location field is converted.

Control is then returned to L14D and the program cycles until it is interrupted when READTAPE finds an end-of-file mark and control is transferred to EOF.

EOF finishes the paper tape with carriage return, lower case, period, period and a trailer, turns the paper tape punch off and stops.

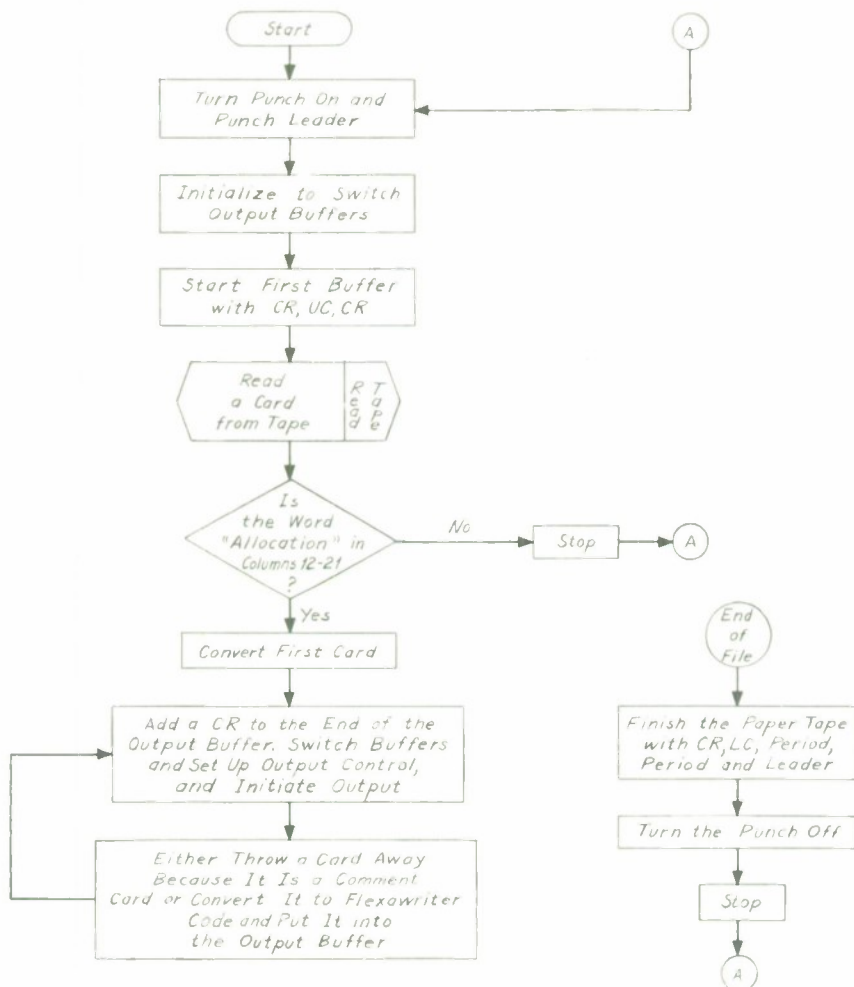
Pressing the high-speed button will recycle the program from the beginning.

## OPERATION

- A. Load the Allocation cards on tape at the density of 556 characters-per-inch as one file with the IBM 1401 using the 80 column loader.
- B. Load the program at a convenient location using TOPS.
- C. Mount the BCD input tape on servo 3 (normally drive D).
- D. Start at the load location.

3-62-4235

PUNCH ALLOCATION TAPE: FLOW DIAGRAM



## SYSLOADER

### INTRODUCTION

The SYSLOADER program is a Haystack Pointing System Peripheral program whose major purpose is to load and merge the presently thirty individual system programs onto a Master Pointing Program magnetic tape so as to optimize the loading and operation of the Pointing System.

### INPUT

Inputs to the program are: 1) Instructions from the user via the teleprinter, 2) the Master In-Core Programs Tape, 3) the Master Celestial Computation Programs Tape and 4) the Master Data Processing Programs Tape. Inputs 2, 3 and 4 are generated by the System Updater program and are in the Spurt 321 format.

### OUTPUT

Principal output is the Master Bootstrap Pointing Program Tape whose format will be discussed in some detail. Additionally, SYSLOADER affords a teleprinter type-out which includes a map of allocated memory as well as a log of all proceedings. An example of this type-out is given in Fig. 1.

### OPERATION

SYSLOADER was designed as an upper loader and is usually loaded by TOPS at 70000; the dynamic start point is at load location +2 hence 70002.

Transfer to this point will cause SYSLOADER to type:

KEY 1 ON = NO LOG, KEY 2 ON = DUP INPUT ... ENTER DATE ETC ...

This is a memory jog to the user which says that if jump key 1 is turned on, there will be no type out of the memory map whereas if jump key 2 is turned on, all magnetic tape records read from unit 2 (usually servo C) will be copied onto unit 3 (usually servo D). Finally, the user is invited to type in any number of alphanumeric characters he wishes for identification purposes. The terminating character here (as well as elsewhere in SYSLOADER) is the C. R. (carriage return).

Core memory location  $137_8$  at this point contains the entry to Univac's utility package known as TOPS. Because this location might be overlayed in the

process of making the Master Pointing Program Tape, SYSLOADER transfers the contents of this location to the C/S (common storage) register SKIP for later use by the control program MCP.

Now SYSLOADER types out the message ...

I/C (1) B/S (2) CCP (3) DPP (4)

which when translated means: to process the Master In-Core Programs Tape enter 1 followed by a C. R. ; for the Master Celestial Programs Tape enter 3 and a C. R. ; for the Master Data Processing Programs Tape enter 4 and a C. R. ; finally, if you are ready to make a "bootstrap" record, enter a 2 and a C. R.

It should be noted that the ordering of the activities is left to the user and not determined by the program. Thus, it is that SYSLOADER can be used just to load the Master In-Core Program Tape or just to duplicate any one of the three master tapes that are inputs to the program. We shall, however, follow the program in what is the normal course of events. We shall assume that the user has on hand an up-to-date version of each of the input masters and wishes to obtain a Master Bootstrap Pointing Program System Tape and a type-out of allocated memory.

A. Phase I: Processing the Master In-Core Programs Tape

In answer to the question posed above, the user would first elect choice (1), the in-core programs.

Next, SYSLOADER will type-out

B/A (UNLESS 6000)

which asks where in memory (base address) you wish to originate the system. If the answer is not 6000, type in up to 5 octal digits and C. R. or if 6000 is your choice only C. R. (Memory locations ~ 0 to ~ 6000 contain TOPS. Because the Pointing System and TOPS can coexist, system origin has been arbitrarily placed at 6000. If the need for more storage arises, there is nothing to prevent electing a lower system origin, say  $200_8$ , at this point.)

Now SYSLOADER types out the headings of the columns as follows:

| SYSTEM | PROGRAM | PROGRAMMER + DATE | FIRST | LAST  | RUN   | INIT  |
|--------|---------|-------------------|-------|-------|-------|-------|
| NAME   | NAME    |                   | LOCTN | LOCTN | ENTRY | ENTRY |

and proceeds to load program after program provided each is in the correct format, density, parity, etc. Each program is loaded one behind the other with a spacing

between programs that can be varied. As each program is loaded, that program's five fielddata character "name" is placed in the SYSNAMES table in C/S and its U-TAG is added to the SYSENTRIES table in C/S. When SYSLOADER detects that it is loading the control program, MCP, that U-TAG is additionally placed in C/S register MCPGM for reasons to be seen later.

This business of stacking the individual programs goes on until either an incompatible format (non Spurt 321 or 320) or an end-of-file is detected. If at this point SYSLOADER has been copying the input records onto magnetic tape unit 3, it will type . . .

EOF ON D (1)

meaning . . . if you desire to write an end-of-file on servo D (unit 3) answer with a 1 and a C.R. Otherwise, just a C.R. In either event the program again asks the basic question . . .

IC (1) B/S (2) CCP (3) DPP (4)

Assuming we have arrived here as a result of an end-of-file being found on the Master In-Core Program Tape, which was just correctly read and loaded, we are now ready to copy out this image of core memory onto tape as a bootstrap record and this is done in Phase II.

#### B. Phase II: Bootstrap

"Bootstrap" is the name given to the mechanism whereby a magnetic tape of indefinite length in the correct format is automatically loaded, checksummed, and executed by the UNIVAC hardware. The Pointing Program bootstrap record is made on unit 0 (normally servo A).

Thus when the bootstrap option is elected, SYSLOADER positions the tape on unit 0 to the loadpoint since the bootstrap record (by definition) is the first record on a bootstrap tape.

Now the question . . .

FWA

which asks the user to type in up to 5 octal digits to specify the first word address of the record to be bootstrapped. A carriage return here is equivalent to answering  $140_8$  and this is usually the case since it permits recording TOPS which is normally in core at this time.

Next the question . . .

LWA

which analogously is the last word address of the block. A carriage return is equivalent to typing 7776. (The checksum must be placed in  $LWA + 1 = 7777$ .) Thus, it is that virtually all of core memory is set up for recording in the single bootstrap record. Before the record is actually written, two things occur:

First, a JPL(MCPGM) is inserted in the record such that this will be the instruction that is executed when the record is successfully bootstrapped. Thus it is that control will pass automatically to the control program, MCP, upon bootstrapping irrespective of where in memory SYSLOADER has placed it.

Second, the entire block which is about to be written is check summed and this sum complemented is made the last word in the block.

Now the record is written. If the record is non-normal in any respect, SYSLOADER repositions the tape and retries indefinitely. A successful recording results in the typing of

B/S DONE . . .

followed again by the basic question

I/C (1) B/S (2) CCP (3) DPP (4)

The tape on Unit Ø is now positioned at the end of the bootstrap record. The next step is to add the individual Celestial Computation Programs and this is done in Phase III.

C. Phase III: Processing the Master Celestial Computation Programs Tape

As SYSLOADER loads the in-core programs, it keeps a running base address, i.e., where in memory the next program will go. Thus, it is that when CCP is elected as an option SYSLOADER will ask . . .

B/A OTHER THAN NNNNN

when NNNNN is the location where the next in-core program would have gone. If this location is satisfactory, the user merely touches the carriage return. Otherwise he enters a five digit octal number and this will be the common origin of all the celestial computation programs.

Now SYSLOADER begins the process of reading in the celestial computation programs one after the other. As each is read in to the common origin specified SYSLOADER forms a self-contained image of the program which is written out as a single record for each program onto the Master Pointing Program Tape on unit 0. Each program is written out in such a way that it can be later loaded by MCP in the highly efficient UNIVAC search read mode. The format of these search mode records is included in Fig. 2 - Layout of the Master Pointing Program System Tape.

As SYSLOADER loads and records the celestial computation programs, a note is made as to the amount of storage required by the largest of these programs. This is done so that SYSLOADER will be able to recommend a common origin for the Data Processing Programs which must occupy a place in core memory behind the longest celestial computation program.

Loading of the celestial computation programs is terminated upon encounter of a change of format or an end-of-file on the Master Celestial Computation Programs Tape. At this point SYSLOADER asks . . .

EOF (1)

which in effect says that if the celestial computation program just loaded was the last one to be loaded and if there are no data processing programs to be added to the Master Pointing Program Tape, an end-of-file should be written here and will be written by responding with a 1 and a C.R. If no end-of-file is desired merely carriage return. And again the basic question . . .

I/C (1) B/S (2) CCP (3) DPP (4)

At this point the user may elect to add the last class of programs to the Master tape, the Data Processing Programs.

#### D. Phase IV: Processing the Master Data Processing Programs Tape

Here SYSLOADER will type out . . .

B/A OTHER THAN MMMMM

where MMMMM is a five digit octal integer representing a location in memory behind the longest celestial computation program at which the data processing programs may share a common origin. From this point on the loading of the data processing programs exactly parallels that for the celestial computation programs. When this phase of loading is completed the user is again invited to write an end-of-file on the

Master Tape. Since at this point there is nothing further to add to the tape, the user must elect to write the end-of-file.

Now the user is ready to test the new tape and initiates this procedure by pressing the "start Pointing Program" button. This action automatically rewinds the tape and activates the bootstrap mechanism. A successful write-out of the bootstrap record will be indicated when the type-out TITLE appears on the teleprinter.

| SYSTEM<br>NAME | PROGRAM<br>NAME | PROGRAMMER + DATE      | FIRST<br>LOCTN. | LAST<br>LOCTN. | RUN<br>ENTRY | INIT<br>ENTRY |
|----------------|-----------------|------------------------|-----------------|----------------|--------------|---------------|
| MCPGM          | MCP             | JDD*6/1/65             | 06000           | 12161          | 06002        | 06002         |
| KYBRD          | INTERCOM        | ADAMS-ASSOC*18 JUNE 65 | 12163           | 22052          | 12165        | 12167         |
| CORCT          | CORCT           | CLARK*9 JUNE 64        | 22054           | 24272          | 24107        | 22056         |
| INTER          | INTER           | TEOSTE* 6/3/65         | 24274           | 26155          | 25573        | 24276         |
| AESCN          | DUMSCAN         | W. R.CROWTHER*JAN. 28* | 26157           | 26171          | 26163        | 26161         |
| RECRD          | RECORDING       | JDD+AAM*4/28/65        | 26173           | 26760          | 26265        | 26175         |
| PRLOG          | PRLOG           | WHITE* 2 JULY 65       | 26762           | 30641          | 27001        | 26764         |
| RADEC          | RADEC           | STYLOS*11 JUNE 65      | 30643           | 32305          | 31031        | 30645         |
| DYDMP          | DYDMPPGM        | S. J. WHITE*6/23/64    | 32307           | 32727          | 32311        | 32473         |
| CHCOR          | CHANGECORE      | S.J. WHITE*MAR. 25*64  | 32731           | 33035          | 32733        | 32733         |
| ADSCN          | SCAN            | P. CROWTHER*26 JAN. 65 | 33037           | 35114          | 33764        | 33042         |
| COCON          | COCON           | P. STYLOS*20 APRIL 65  | 35116           | 37251          | 35626        | 35120         |
| CHPAR          | PARAMETER       | MATHIASSEN*3/26/65     | 37253           | 37475          | 37255        | 37257         |
| ACQUI          | ACQUI           | TEOSTE*6/14/65         | 37477           | 42452          | 40031        | 37501         |
| PLANP          | PLANNER         | JDD*6/26/64            | 42454           | 42575          | 42462        | 42456         |
| WFORD          | WESTFORD        | JDD*1/29/65            | 42577           | 43140          | 42626        | 42601         |
| TIMEP          | TIMING          | JDD*4/21/65            | 43142           | 44370          | 43511        | 43144         |
| PLOTP          | PLOTP           | R. TEOSTE*4/9/65       | 44372           | 44634          | 44610        | 44374         |
| PRINT          | PRINTOUT        | SATTEST*1/28/65        | 44636           | 54350          | 44640        | 44640         |
| FRADC          | FXRADEC         | MATHIASSEN*2/17/65     | 44636           | 45473          | 44640        | 44643         |
| MOONP          | MOONTRACK       | HJF+DMH*11/30/64       | 44636           | 50610          | 45072        | 44640         |
| STARP          | STARTRACK       | FRACTMAN*1/26/65       | 44636           | 53455          | 44717        | 44640         |
| SUNPG          | SUNTRACK        | HJF+DMH*11/30/64       | 44636           | 50166          | 45037        | 44640         |
| PLNET          | PLANETRACK      | HJF+DMH*11/30/64       | 44636           | 50505          | 45071        | 44640         |
| FXANE          | FXAZEL          | MATHIASSEN*4/20/65     | 44636           | 45065          | 44640        | 44643         |
| BELTP          | BELTP           | PONTON*29 OCT. 64      | 44636           | 54572          | 45502        | 44640         |
| SATEL          | SATEL           | MCQUILKIN*21 JUNE 65   | 44636           | 54461          | 52676        | 52652         |
| PDMTR          | RDMTRSCAN       | P. CROWTHER*2 JULY 65  | 54574           | 62121          | 53723        | 53462         |
| RDMTR          | RADIOMETER      | STYLOS*18 JUNE 65      | 54574           | 61320          | 55053        | 54576         |

Fig. 1.

|               |                                                             |  |  |  |  |  |  |  |  |  |                                                    |    |     |                                           |    |    |     |    |   |
|---------------|-------------------------------------------------------------|--|--|--|--|--|--|--|--|--|----------------------------------------------------|----|-----|-------------------------------------------|----|----|-----|----|---|
| Load<br>Point | Bootstrap Record<br>(Memory Cells $140_8$ To $7777_8$ )     |  |  |  |  |  |  |  |  |  | C                                                  | C  | ... | C                                         | D  | D  | ... | D  | F |
|               |                                                             |  |  |  |  |  |  |  |  |  | C                                                  | C  |     | C                                         | P  | P  |     | P  | d |
|               |                                                             |  |  |  |  |  |  |  |  |  | P                                                  | P  |     | P                                         |    |    |     | P  | F |
|               |                                                             |  |  |  |  |  |  |  |  |  | No                                                 | No |     | No                                        | No | No |     | No | l |
|               |                                                             |  |  |  |  |  |  |  |  |  | 1                                                  | 2  |     | n                                         | 1  | 2  |     | n  | e |
|               | Contains all "In-core" Programs<br>and Tops Utility Program |  |  |  |  |  |  |  |  |  | Individual<br>Celestial<br>Computation<br>Programs |    |     | Individual<br>Data Processing<br>Programs |    |    |     |    |   |

| WORD No.                   | U    | L       | COMMENTS                                        |
|----------------------------|------|---------|-------------------------------------------------|
| 1 = FWA-2                  | LWA  | FWA-1   | Formed in Memory at FWA-2                       |
| 2 = FWA-1                  | JP·L | (MCPGM) | Indirect Jump to MCP                            |
| 3 = FWA                    |      |         | First Word to Be Restored in Memory = FWA       |
|                            |      |         |                                                 |
|                            |      |         |                                                 |
|                            |      |         |                                                 |
|                            |      |         |                                                 |
|                            |      |         |                                                 |
|                            |      |         |                                                 |
|                            |      |         |                                                 |
| $n = LWA$<br>$n+1 = LWA+1$ |      |         | Last Word in Memory To Be Restored              |
|                            | C/S' |         | Check Sum Complemented = $\sum_{i=FWA-1}^{LWA}$ |

N.B. Recording Is Made From FWA-Z to LWA+1

**WORD No.**

1 = B/A - 2  
 2 = B/A - 1  
 3 = B/A  
 4 = B/A + 1

| U               | L      |
|-----------------|--------|
| PGM             | "NAME" |
| LWA             | FWA    |
| PGM             | U-TAG  |
| PGM             | NAME   |
| Body of Program |        |
| C/S'            |        |

**COMMENTS**

Formed in Memory at Base Address - 2  
 Where in Memory Program Will Be  
 Working Entry; Initialization Entry  
 Five Field data Character Name

$n = LWA$   
 $n+1 = LWA+1$

Check Sum Complemented =  $\sum_{i=LWA}^{FWA} r_i$

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## TAPECOPY

### INTRODUCTION

To permit duplication of ephemeris tapes, and of the master in-core, celestial, and data processing program tapes, a tape copying program (TAPECOPY) was written for the U-490.

### INPUT

The input is a binary format, high density, magnetic tape on Servo unit 2, of any number of files and records. The maximum size record that can be handled is 77711-K (in octal) where K is the storage location at which the program is loaded. Since K is at least 136, the master bootstrap tape which has an initial record of 77642 words cannot be duplicated by this program. Duplicate copies of the bootstrap tape must be made by SYSLOADER (see the write-up elsewhere in this memo for details).

### OUTPUT

The output is a copy of the input tape. It is written on Servo unit 3.

When each file is written the number of records in that file is displayed (in octal) in index register 2. The total number of files written on the tape is displayed in index register 1.

Any other status word, but a normal or end-of-file indication, causes the program to stop. Any troubles with the tape must be fixed, or a new tape loaded. Pushing HIGH SPEED initiates duplication of the next tape.

## UPDATER

### INTRODUCTION

Each program included in the dynamic Haystack Pointing System is recorded on one of three Master System magnetic tapes\* in SPURT 321 format<sup>†</sup>. As individual programs change, a method is needed to update the particular Master System Tape (MST) on which it appears. A Haystack Pointing System support program, called UPDATER, was written for this purpose.

### INPUT

There are three inputs to UPDATER, the particular MST to be updated, the tape containing new versions of existing programs and/or additional new programs, and, via the typewriter, the deletions (if any) that are to be made from the new MST.

#### A. Old Master System Tape

The primary input is the old MST. This must contain at least one program in SPURT 321 format. These programs must be separated from each other by end-of-record marks and not end-of-file marks. The last program is followed by an end-of-file mark or a change of format (non-SPURT 321).

#### B. Correction Tape

All programs to replace programs on the old MST and all programs to be added to the new MST must appear on a second magnetic tape in format identical to the old tape.

One system convention demands that the second word of memory occupied by each program contain a five Fieldata character System Name which is that program's unique identifier. This System Name is the means by which UPDATER distinguishes each program.

---

\* (1) Master In-Core Programs Tape (2) Master Celestial Computation Programs Tape (3) Master Data Processing Programs Tape.

† SPURT 321 format is a relative bi-octal format used as input to SPURT III. It is described in the REX manual, Appendix A, section B.

When the same System Name appears on both the old MST and the correction tape, the program from the correction tape will replace the old one on the new MST being written. Any programs which appear on the correction tape but not on the old tape will be added at the end of the new MST.

#### C. Deletions

At the outset, the program stops and asks for the System Names of programs to be erased from the old tape. The five character System Names should be typed, separated by the special character  $\square$  on the keyboard and ended by a carriage return.

Programs whose names are listed here will not appear on the new MST. If there are to be no erasures, simply carriage return.

Errors at the keyboard can be corrected by striking the  $\uparrow$  key for each character to be changed.

#### OUTPUT

The output is a new Master System Tape in the same format as the input. It is simply the old tape with additions, replacements and deletions.

#### PROGRAM LOGIC

SPURT listings 210, 211, 212 appear in Appendix A.

From BEGIN through FIRSTERASE the program asks for erasures and makes a table, called ERASELIST, from the list typed at the console.

From FIRSTERASE + 4 through CSLISTED, UPDATER searches the correction tape and makes a table, called CHANGELIST, of all the System Names it finds.

Starting at CKNEXTOLD it picks up a System Name from the old tape and checks it with both CHANGELIST and ERASELIST.

If the name is on neither list, the program is copied from the old tape to the new. If it is in CHANGELIST, the program is skipped on the old tape and the program of the same name is copied from the correction tape to the new tape. If it is in ERASELIST the program is simply skipped on the old and new tapes. After any of these three alternatives the program returns to CKNEXTOLD.

This loop is terminated by either an end-of-file mark or a change of format on the old tape. At that time, UPDATER jumps to EOF where CHANGELIST is

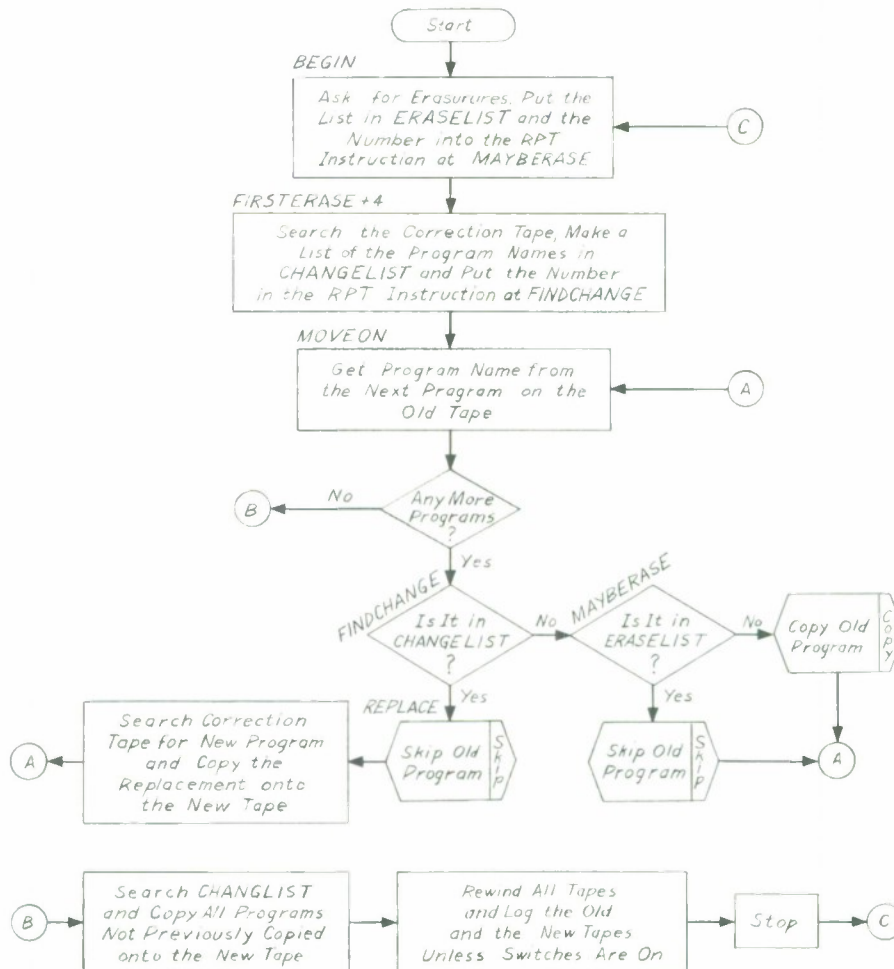
searched and all programs not previously copied to the new tape are added to the end of it. The program then writes an end-of-file mark on the new tape and rewinds all three tapes. Unless jump key 1 is on, a log of the old MST is typed on the console typewriter and, unless jump key 2 is on, a log of the new MST is typed on the console typewriter. UPDATER now stops ready to recycle when the high-speed button is depressed.

#### OPERATION

- A. Load the UPDATER program at some convenient location using TOPS.
- B. Mount the old Master System Tape to be updated on servo 1 (normally drive B).
- C. Mount a corrective tape, containing new programs and/or new versions of old programs on servo 2 (tape unit C).
- D. Mount a blank tape on servo 3 (tape unit D) to receive the new version of the particular Master System Tape.
- E. Start at the load location.
- F. The program will stop and ask for any deletions. If there are any, type their five character system names, separated by the ☐ character and terminated with a carriage return. If there are none, type a carriage return.

3-62-4237

# UPDATER FLOW DIAGRAM



SPURT OUTPUT NO. 210  
MATHIASSEN\*8/21/64

LIST210

| CARDS | L1 ID LABEL | TA STATEMENT                | LOC   | F | J | K | B | Y     | NOTES                      |
|-------|-------------|-----------------------------|-------|---|---|---|---|-------|----------------------------|
| .     | CC000       | LIST210                     |       |   |   |   |   |       | CONSOLE TYPEWRITER CHANNEL |
| .     | CC001       | MEANS C2                    |       |   |   |   |   |       | MAGNETIC TAPE CHANNEL      |
| .     | CC002       | MEANS C15                   |       |   |   |   |   |       | FO INPUT TAPE UNIT         |
| .     | CC003       | EQUALS 00004                |       |   |   |   |   |       | BCO OUTPUT TAPE UNIT       |
| .     | CC004       | ALSPUT 00010                |       |   |   |   |   |       |                            |
| .     | CC005       | EQUALS 35                   |       |   |   |   |   |       |                            |
| .     | CC006       | TAPEEXTINT                  |       |   |   |   |   |       |                            |
| .     | CC007       | RIL                         |       |   |   |   |   |       |                            |
| .     | CC008       | RJP TAPEHANDLE              | 00000 |   |   |   |   | 60000 | 00000                      |
| .     | CC009       | 0 REWFO                     | 00001 |   |   |   |   | 65000 | 01546                      |
| .     | CC010       | PUT W(JPPRINTOVR)*W(62)     | 00002 |   |   |   |   | 00000 | 02436                      |
| .     | CC011       |                             | 00003 |   |   |   |   | 10030 | 02056                      |
| .     | CC012       | PUT 12000*U(36)             | 00004 |   |   |   |   | 14030 | 00062                      |
| .     | CC013       | RJP PRINT                   | 00005 |   |   |   |   | 10000 | 12000                      |
| .     | CC014       | 110 INITPRINT1              | 00006 |   |   |   |   | 14020 | 00036                      |
| .     | CC015       | RJP PRINT                   | 00007 |   |   |   |   | 65000 | 02032                      |
| .     | CC016       | 7 INITPRINT2                | 00010 |   |   |   |   | 00013 | 01310                      |
| .     | CC017       | RJP TAPEHANDLE              | 00011 |   |   |   |   | 65000 | 02032                      |
| .     | CC018       | 0 REWBCO                    | 00012 |   |   |   |   | 00007 | 01323                      |
| .     | CC019       | ENT A*UNPACKIMG             | 00013 |   |   |   |   | 65000 | 01546                      |
| .     | CC020       |                             | 00014 |   |   |   |   | 00000 | 02437                      |
| .     | CC021       | RJP UNPACK                  | 00015 |   |   |   |   | 11000 | 00765                      |
| .     | CC022       | 110 FOTAPEPAR               | 00016 |   |   |   |   | 65000 | 02226                      |
| .     | CC023       | RJP TRANSLATE               | 00017 |   |   |   |   | 00013 | 01477                      |
| .     | CC024       | 550 UNPACKIMG               | 00020 |   |   |   |   | 65000 | 02257                      |
| .     | CC025       | PUT L(00UBLES)*U(CARRIAGEC) | 00021 |   |   |   |   | 00067 | 00765                      |
| .     | CC026       |                             | 00022 |   |   |   |   | 10010 | 01167                      |
| .     | CC027       | ENT A*TAPEPARMSG            | 00023 |   |   |   |   | 14020 | 00764                      |
| .     | CC028       | RJP PACK                    | 00024 |   |   |   |   | 11000 | 01464                      |
| .     | CC029       | 550 CARRIAGEC               | 00025 |   |   |   |   | 65000 | 02403                      |
| .     | CC030       | ENT A*UNPACKIMG             | 00026 |   |   |   |   | 00067 | 00764                      |
| .     | CC031       | RJP UNPACK                  | 00027 |   |   |   |   | 11000 | 00765                      |
| .     | CC032       | 3 EOFMESSAGE                | 00030 |   |   |   |   | 65000 | 02226                      |
| .     | CC033       | RJP TRANSLATE               | 00031 |   |   |   |   | 00003 | 01515                      |
| .     | CC034       | 150 UNPACKIMG               | 00032 |   |   |   |   | 65000 | 02257                      |
| .     | CC035       | PUT L(00UBLES)*U(CARRIAGEC) | 00033 |   |   |   |   | 00017 | 00765                      |
| .     | CC036       |                             | 00034 |   |   |   |   | 10010 | 01167                      |
| .     | CC037       | ENT A*EOFMSG                | 00035 |   |   |   |   | 14020 | 00764                      |
| .     | CC038       | RJP PACK                    | 00036 |   |   |   |   | 11000 | 01512                      |
| .     | CC039       | 150 CARRIAGEC               | 00037 |   |   |   |   | 65000 | 02403                      |
| .     | CC040       | RJP PRINT                   | 00040 |   |   |   |   | 00017 | 00764                      |
| .     | CC041       |                             | 00041 |   |   |   |   | 65000 | 02032                      |
| .     | CC042       | 130 LISTOVER                | 00042 |   |   |   |   | 00015 | 01563                      |
| .     | CC043       | RJP PRINT                   | 00043 |   |   |   |   | 65000 | 02032                      |
| .     | CC044       | 110 KOPTION1                | 00044 |   |   |   |   | 00013 | 01600                      |
| .     | CC045       | RJP PRINT                   | 00045 |   |   |   |   | 65000 | 02032                      |
| .     | CC046       | 6 KOPTION2                  | 00046 |   |   |   |   | 00006 | 01613                      |
| .     | CC047       | RJP PRINT                   | 00047 |   |   |   |   | 65000 | 02032                      |
| .     | CC048       | 120 KOPTION3                | 00050 |   |   |   |   | 00014 | 01621                      |
| .     | CC049       | RJP READTAPE                | 00051 |   |   |   |   | 65000 | 01333                      |
| .     | CC050       | U-TAG FRECORD+90*FRECORD    | 00052 |   |   |   |   | 00423 | 00412                      |
| .     | CC051       |                             |       |   |   |   |   |       |                            |
| .     | CC052       |                             |       |   |   |   |   |       |                            |
| .     | CC053       | CCNTINUE                    |       |   |   |   |   |       |                            |
| .     | CC054       |                             |       |   |   |   |   |       |                            |

| CARCS | L1    | IC | LABEL | TA    | STATEMENT               | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------|----|-------|-------|-------------------------|-------|-------|-------|---|--------------------------------|
| .     | CC055 |    |       | PUT   | 60*L(HUNCRED5)          | 00053 | 10000 | 00060 |   | SET PAGE NUMBER TO 001         |
| .     | CC056 |    |       | STR   | Q*L(TENS)               | 00054 | 14010 | 00222 |   |                                |
| .     | CC057 |    |       | PUT   | 61*L(UNIT)              | 00055 | 14010 | 00223 |   |                                |
| .     | CC060 |    |       | CL    | L(WHEREAT)              | 00056 | 10000 | 00061 |   |                                |
| .     | CC061 |    |       | CL    | L(TESTLINE01)           | 00057 | 14010 | 00224 |   |                                |
| .     | CC062 |    |       | ENT   | A*L(FREGORO1)           | 00060 | 16010 | 00306 |   |                                |
| .     | CC063 |    |       | SUB   | A*210*AZERO             | 00061 | 16010 | 00260 |   |                                |
| .     | CC064 |    |       | JP    | CHECK211                | 00062 | 11010 | 00412 |   | IS THIS A 210 TAPE             |
| .     | CC065 |    |       | PUT   | L(L2101*L(FDTAPEPAR+5)  | 00063 | 21400 | 00210 |   | NO                             |
| .     | CC066 |    |       | RJP   | GETONELINE              | 00064 | 61000 | 00307 |   |                                |
| .     | CC067 |    |       | MOVE  | 2*PAGE*LINE+230         | 00065 | 10010 | 01520 |   | SPURT OUTPUT NO. 210 (LABEL1)  |
| .     | CC070 |    |       | RJP   | UNDERSTAND              | 00066 | 14010 | 01504 |   | SET UP FO PAGE 1               |
| .     | CC071 |    |       | U-TAG | LINE*TOPOFFPAGE         | 00067 | 65000 | 00256 |   |                                |
| .     | CC072 |    |       | MOVE  | 260*BCOIMAGE*PAGEHEAD1  | 00070 | 10030 | 00226 |   | WRITE PAGE 1, LINE 1           |
| .     | CC073 |    |       | RJP   | PRINT                   | 00071 | 14030 | 00730 |   |                                |
| .     | CC074 |    |       | 5     | LINE+90                 | 00072 | 10030 | 00227 |   |                                |
| .     | CC075 |    |       | RJP   | GETONELINE              | 00073 | 14030 | 00731 |   |                                |
| .     | CC076 |    |       | RJP   | GETONELINE              | 00074 | 65000 | 00230 |   |                                |
| .     | CC077 |    |       | RJP   | UNDERSTAND              | 00075 | 00701 | 01166 |   |                                |
| .     | CC10C |    |       | U-TAG | LINE*DOUBLESP           | 00076 | 12700 | 00031 |   |                                |
| .     | CC101 |    |       | RJP   | PRINT                   | 00077 | 10037 | 00732 |   |                                |
| .     | CC102 |    |       | 110   | LINE+7                  | 00100 | 14037 | 01171 |   |                                |
| .     | CC103 |    |       | RJP   | GETONELINE              | 00101 | 72700 | 00077 |   |                                |
| .     | CC104 |    |       | RJP   | UNDERSTAND              | 00102 | 65000 | 02032 |   | SKIP ONE LINE                  |
| .     | CC105 |    |       | U-TAG | LINE*DOUBLESP           | 00103 | 00005 | 00712 |   | PROGRAM AND PROGRAMMER         |
| .     | CC106 |    |       | RJP   | GETONELINE              | 00104 | 65000 | 00256 |   | WRITE LINE 2                   |
| .     | CC107 |    |       | ENT   | A*W(LINE+4)             | 00105 | 65000 | 00256 |   |                                |
| .     | CC110 |    |       | SUB   | A*73737373*AN01         | 00106 | 65000 | 00230 |   | NUMBER OF INSTRUCTIONS         |
| .     | CC111 |    |       | JP    | MAKEUPHEAD              | 00107 | 00701 | 01167 |   | WRITE LINE 3                   |
| .     | CC112 |    |       | RJP   | UNDERSTAND              | 00110 | 65000 | 02032 |   |                                |
| .     | CC113 |    |       | U-TAG | LINE*SINGLESP           | 00111 | 00013 | 00710 |   |                                |
| .     | CC114 |    |       | JP    | FIRSTPAGE               | 00112 | 65000 | 00256 |   |                                |
| .     | CC115 |    |       | RJP   | PAGINATION              | 00113 | 65000 | 00230 |   |                                |
| .     | CC116 |    |       | RJP   | WRITE                   | 00114 | 00701 | 01167 |   |                                |
| .     | CC117 |    |       | U-TAG | PAGEHFA01+250*PAGEHEAD1 | 00115 | 65000 | 00256 |   |                                |
| .     | CC120 |    |       | RJP   | GETONELINE              | 00116 | 11030 | 00705 |   | IS THIS THE SPURT OUTPUT NO. 2 |
| .     | CC121 |    |       | RJP   | GETONELINE              | 00117 | 21530 | 02451 |   | 10 (LABEL1)                    |
| .     | CC122 |    |       | RJP   | UNDERSTAND              | 00120 | 61000 | 00124 |   | YES                            |
| .     | CC123 |    |       | U-TAG | LINE*SINGLESP           | 00121 | 65000 | 00230 |   | WRITE NEXT LINE OF FIRST PAGE  |
| .     | CC124 |    |       | JP    | FIRSTPAGE               | 00122 | 00701 | 01170 |   |                                |
| .     | CC125 |    |       | RJP   | PAGINATION              | 00123 | 61000 | 00115 |   |                                |
| .     | CC126 |    |       | RJP   | WRITE                   | 00124 | 65000 | 00175 |   | INDEX BCO PAGE NUMBER          |
| .     | CC127 |    |       | U-TAG | PAGEHFA01+250*PAGEHEAD1 | 00125 | 65000 | 01713 |   | WRITE FIRST LINE OF PAGE       |
| .     | CC128 |    |       | RJP   | GETONELINE              | 00126 | 01222 | 01171 |   |                                |
| .     | CC129 |    |       | RJP   | GETONELINE              | 00127 | 65000 | 00256 |   |                                |
| .     | CC130 |    |       | RJP   | GETONELINE              | 00130 | 65000 | 00256 |   |                                |
| .     | CC131 |    |       | RJP   | UNDERSTAND              | 00131 | 65000 | 00230 |   | WRITE SECOND LINE OF PAGE      |
| .     | CC132 |    |       | U-TAG | LINE*SINGLESP           | 00132 | 00701 | 01170 |   |                                |
| .     | CC133 |    |       | MOVE  | 260*BCOIMAGE*PAGEHEAD2  | 00133 | 12700 | 00031 |   |                                |
| .     | CC134 |    |       |       |                         | 00134 | 10037 | 00732 |   |                                |
| .     | CC135 |    |       |       |                         | 00135 | 14037 | 01223 |   |                                |
| .     | CC136 |    |       |       |                         | 00136 | 72700 | 00134 |   |                                |

| CARDS | LI    | IC | LABEL | TA        | STATEMENT               | LOC   | F     | JKB   | Y | NOTES                               |
|-------|-------|----|-------|-----------|-------------------------|-------|-------|-------|---|-------------------------------------|
| .     | CC125 |    |       | RJP       | GETONELINE              | 00137 | 65000 | 00256 |   | WRITE THIRD LINE OF PAGE            |
| .     | CC126 |    |       | RJP       | UNDERSTAND              | 00140 | 65000 | 00230 |   |                                     |
| .     | CC127 |    |       | U-TAG     | LINE*OOBLES             | 00141 | 00701 | 01167 |   |                                     |
| .     | CC130 |    |       | MOVE      | 260*BOOIMAGE*PAGEHEAD3  | 00142 | 12700 | 00031 |   |                                     |
|       |       |    |       |           |                         | 00143 | 10037 | 00732 |   |                                     |
|       |       |    |       |           |                         | 00144 | 14037 | 01255 |   |                                     |
|       |       |    |       |           |                         | 00145 | 72700 | 00143 |   | SPACE A LINE                        |
|       |       |    |       |           |                         | 00146 | 65000 | 01713 |   |                                     |
| .     | CC131 |    |       | RJP       | WRITE                   | 00147 | 01307 | 01307 |   |                                     |
| .     | CC132 |    |       | U-TAG     | SKIPLINE*SKIPLINE       | 00150 | 16030 | 00174 |   |                                     |
| .     | CC133 |    |       | CL        | W(LINESPERPG)           | 00151 | 65000 | 00256 |   |                                     |
| .     | CC134 |    |       | RJP       | GETONELINE              | 00152 | 65000 | 00230 |   | WRITE NEXT LINE OF OUTPUT           |
| .     | CC135 |    |       | RJP       | UNDERSTAND              | 00153 | 00701 | 01170 |   |                                     |
| .     | CC136 |    |       | U-TAG     | LINE*SINGLES            | 00154 | 36030 | 00174 |   |                                     |
| .     | CC137 |    |       | RPL       | Y+1*W(LINESPERPG)       | 00155 | 21700 | 00065 |   | HAVE WE REACHED ENO OF PAGE         |
| .     | CC140 |    |       | SUB       | A*530*ANEG              | 00156 | 65000 | 00160 |   | YES                                 |
| .     | CC141 |    |       | RJP       | PAGEPRINT               | 00157 | 61000 | 00151 |   | WRITE PAGE HEADING                  |
| .     | CC142 |    |       | JP        | LISTLINE                | 00160 | 61000 | 00000 |   |                                     |
| .     | CC143 |    |       | ENTRY     |                         | 00161 | 65000 | 00175 |   |                                     |
| .     | CC144 |    |       | RJP       | PAGINATION              | 00162 | 65000 | 01713 |   |                                     |
| .     | CC145 |    |       | RJP       | WRITE                   | 00163 | 01222 | 01171 |   |                                     |
| .     | CC146 |    |       | U-TAG     | PAGEHEAD1*250*PAGEHEAD1 | 00164 | 65000 | 01713 |   |                                     |
| .     | CC147 |    |       | RJP       | WRITE                   | 00165 | 01254 | 01223 |   |                                     |
| .     | CC150 |    |       | U-TAG     | PAGEHEAD2*250*PAGEHEAD2 | 00166 | 65000 | 01713 |   |                                     |
| .     | CC151 |    |       | RJP       | WRITE                   | 00167 | 01306 | 01255 |   |                                     |
| .     | CC152 |    |       | U-TAG     | PAGEHEAD3*250*PAGEHEAD3 | 00170 | 65000 | 01713 |   |                                     |
| .     | CC153 |    |       | RJP       | WRITE                   | 00171 | 01307 | 01307 |   |                                     |
| .     | CC154 |    |       | U-TAG     | SKIPLINE*SKIPLINE       | 00172 | 16030 | 00174 |   |                                     |
| .     | CC155 |    |       | CL        | W(LINESPERPG)           | 00173 | 61010 | 00160 |   |                                     |
| .     | CC156 |    |       | EXIT      |                         | 00174 | 00000 | 00000 |   | NUMBER OF LISTING LINE PAST HEADING |
| .     | CC157 |    |       | O         |                         |       |       |       |   |                                     |
|       |       |    |       |           |                         |       |       |       |   |                                     |
| .     | CC160 |    |       | ENTRY     |                         | 00175 | 61000 | 00000 |   |                                     |
| .     | CC161 |    |       | RPL       | Y+1*L(UNIT)             | 00176 | 36010 | 00224 |   | INDEX UNITS                         |
| .     | CC162 |    |       | COM       | A*72*YLESS              | 00177 | 04600 | 00072 |   | IS UNITS DIGIT GREATER THAN 9       |
| .     | CC163 |    |       | JP        | NOOVERFLOW              | 00200 | 61000 | 00213 |   | NO                                  |
| .     | CC164 |    |       | PUT       | 60*L(UNIT)              | 00201 | 10000 | 00060 |   | YES. RESET UNITS TO 0               |
|       |       |    |       |           |                         | 00202 | 14010 | 00224 |   |                                     |
| .     | CC165 |    |       | RPL       | Y+1*L(TENS)             | 00203 | 36010 | 00223 |   | IS TENS DIGIT GREATER THAN 9        |
| .     | CC166 |    |       | COM       | A*72*YLESS              | 00204 | 04600 | 00072 |   | IS TENS DIGIT GREATER THAN 9        |
| .     | CC167 |    |       | JP        | NOOVERFLOW              | 00205 | 61000 | 00213 |   | NO                                  |
| .     | CC170 |    |       | STR       | Q*L(TENS)               | 00206 | 14010 | 00223 |   | YES. RESET TENS TO 0                |
| .     | CC171 |    |       | RPL       | Y+1*L(HUNDREDS)         | 00207 | 36010 | 00222 |   | INDEX HUNDREDS                      |
| .     | CC172 |    |       | COM       | A*72*YLESS              | 00210 | 04600 | 00072 |   | IS HUNDREDS DIGIT GREATER THAN 9    |
|       |       |    |       |           |                         | 00211 | 61000 | 00213 |   | NO                                  |
| .     | CC173 |    |       | JP        | NOOVERFLOW              | 00212 | 14010 | 00222 |   | YES. RESET HUNDREDS TO 0            |
| .     | CC174 |    |       | STR       | Q*L(HUNDREDS)           | 00213 | 65000 | 00227 |   |                                     |
| .     | CC175 |    |       | RJP       | TRANSLATE               | 00214 | 00003 | 00222 |   |                                     |
| .     | CC176 |    |       | 3         | HUNDREDS                | 00215 | 10000 | 01221 |   |                                     |
| .     | CC177 |    |       | ENT       | A*PAGEHEAD1+24d         | 00216 | 65000 | 02403 |   |                                     |
| .     | CC200 |    |       | RJP       | PACK                    | 00217 | 00005 | 00221 |   |                                     |
| .     | CC201 |    |       | 5         | THOUSANDS               | 00220 | 61010 | 00175 |   |                                     |
| .     | CC202 |    |       | EXIT      |                         | 00221 | 00020 | 00005 |   |                                     |
| .     | CC203 |    |       | THOUSANDS |                         |       |       |       |   |                                     |

| CARDS | L1    | IO | LABEL      | TA      | STATEMENT                | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------|----|------------|---------|--------------------------|-------|-------|-------|---|--------------------------------|
| .     | CC204 |    | HUNDREDS   | 46      | 60                       | 00222 | 00046 | 00060 |   |                                |
| .     | CC205 |    | TENS       | 46      | 60                       | 00223 | 00046 | 00060 |   |                                |
| .     | CC206 |    | UNIT       | 46      | 61                       | 00224 | 00046 | 00061 |   |                                |
| .     | CC207 |    |            | 20      | 05                       | 00225 | 00020 | 00005 |   |                                |
| .     | CC210 |    | PAGE       | F0      | 2*PAGE I                 | 00226 | 25061 | 41205 |   | ROUTINE FOR WRITING BCO FROM F |
| .     | CC211 |    | UNDERSTAND | ENTRY   |                          | 00227 | 05056 | 10505 |   | 0                              |
| .     | CC212 |    |            | PUT     | L(UNDERSTAND)*L(SETLINE) | 00230 | 61000 | 00000 |   |                                |
| .     | CC213 |    |            | STR     | Q*(SETCARRIAG)           | 00231 | 10010 | 00230 |   |                                |
| .     | CC214 |    | SETCARRIAG | PUT     | L(10)*L(CONTCAR)         | 00232 | 14010 | 00236 |   |                                |
| .     | CC215 |    | SETLINE    | PUT     | U(10)*L(LINELOC)         | 00233 | 14010 | 00234 |   | SET UP FOR CARRIAGE CONTROL    |
| .     | CC216 |    |            | ENT     | A*UNPACKING              | 00234 | 10010 | 00000 |   |                                |
| .     | CC217 |    |            | RJP     | UNPACK                   | 00235 | 14010 | 00245 |   | SET UP FOR LOCATION OF INPUT L |
| .     | CC220 |    | LINELOC    | 250     | 0                        | 00236 | 10020 | 00000 |   | INE                            |
| .     | CC221 |    |            | RJP     | TRANSLATE                | 00237 | 14010 | 00242 |   | ADDRESS OF UNPACKED IMAGE      |
| .     | CC222 |    |            | 1250    | UNPACKING                | 00240 | 11000 | 00765 |   | UNPACK FIELOATA WORO           |
| .     | CC223 |    | CNTCAR     | PUT     | L(10)*U(CARRIAGEC)       | 00241 | 65000 | 02226 |   | LENGTH AND LOCATION OF INPUT L |
| .     | CC224 |    |            | ENT     | A*BCOIMAGE               | 00242 | 00031 | 00000 |   | INE                            |
| .     | CC225 |    |            | RJP     | PACK                     | 00243 | 65000 | 02257 |   | TRANSLATE FROM FIELOATA TO BCO |
| .     | CC226 |    |            | 1300    | CARRIAGEC                | 00244 | 00175 | 00765 |   | SET CARRIAGE CONTROL           |
| .     | CC227 |    |            | RJP     | WRITE                    | 00245 | 10010 | 00000 |   |                                |
| .     | CC230 |    |            | U-TAG   | RCOIMAGE+250*BCOIMAGE    | 00246 | 14020 | 00764 |   | PACK BCO WOROS                 |
| .     | CC231 |    |            | RPL     | Y+1*L(UNDERSTAND)        | 00247 | 11000 | 00732 |   | WRITE BCO TAPE                 |
| .     | CC232 |    |            | EXIT    |                          | 00250 | 65000 | 02403 |   |                                |
| .     | CC233 |    |            | COMMENT | ROUTINE                  | 00251 | 00202 | 00764 |   |                                |
| .     | CC234 |    | GFTONELINE | ENTRY   |                          | 00252 | 65000 | 01713 |   | FOR READING IN NEXT LINE       |
| .     | CC235 |    |            | ENT     | R2*L(WHEREAT)            | 00253 | 00763 | 00732 |   |                                |
| .     | CC236 |    | TESTLINE0  | BSK     | R2*0                     | 00254 | 36010 | 00230 |   | OO WE NEED NEW RECORD          |
| .     | CC237 |    |            | JP      | STR82                    | 00255 | 61010 | 00230 |   | NO.                            |
| .     | CC240 |    |            | RJP     | REAO TAPE                | 00256 | 61000 | 00000 |   | YES.                           |
| .     | CC241 |    |            | U-TAG   | FRECORO+1820*FRECORO     | 00257 | 12210 | 00306 |   |                                |
| .     | CC242 |    |            | ENT     | A*(FRECORO)              | 00260 | 71200 | 00000 |   | IS THIS LAST RECORD            |
| .     | CC243 |    |            | SUB     | A*1223112413*ANOT        | 00261 | 61000 | 00272 |   | YES                            |
| .     | CC244 |    |            | JP      | WRITEEOF                 | 00262 | 65000 | 01333 |   | NO. OBTAIN COUNT OF LINES IN   |
| .     | CC245 |    |            | RPL     | Y-1*U(FRECORO)           | 00263 | 00700 | 00412 |   | RECORD - 1                     |
| .     | CC246 |    |            | STR     | A*(TESTLINE0)            | 00264 | 11030 | 00412 |   | N-1                            |
| .     | CC247 |    |            | CL      | R2*                      | 00265 | 21530 | 02452 |   |                                |
| .     | CC250 |    | STR82      | STR     | R2*L(WHEREAT)            | 00266 | 61000 | 01523 |   |                                |
| .     | CC251 |    |            | STR     | R2*0                     | 00267 | 37020 | 00412 |   |                                |
| .     | CC252 |    |            | MUL     | 260                      | 00270 | 15010 | 00260 |   | ADDRESS OF FIRST WORD OF LINE  |
| .     | CC253 |    |            | A00     | Q*FRECORO+1              | 00271 | 12200 | 00000 |   |                                |
| .     | CC254 |    |            | STR     | Q*(MOVELINE)             | 00272 | 16210 | 00306 |   |                                |
| .     | CC255 |    |            | ENT     | A*LINE                   | 00273 | 16200 | 00000 |   |                                |
| .     | CC256 |    |            | STR     | A*0*0                    | 00274 | 22000 | 00032 |   |                                |
| .     | CC257 |    |            | ENT     | A*0*0                    | 00275 | 26000 | 00413 |   |                                |
| .     | CC258 |    |            | STR     | Q*(MOVELINE)             | 00276 | 14010 | 00304 |   |                                |
| .     | CC259 |    |            | ENT     | A*LINE                   | 00277 | 11000 | 00701 |   |                                |
| .     | CC260 |    |            | STR     | A*0*0                    | 00300 | 33000 | 00000 |   | DIFFERENCE OF ADDRESSES        |

SPURT OUTPUT NO. 210  
MATHIASSEN 8/21/64

LIST 210

| CARDS | LI    | ID LABEL  | TA STATEMENT                | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------|-----------|-----------------------------|-------|-------|-------|---|--------------------------------|
| •     | CC257 |           | ENT R6•A                    | 00301 | 12670 | 00000 |   |                                |
| •     | CC260 |           | CL Q•                       | 00302 | 10000 | 00000 |   | MOVE LINE FROM WHERE IT WAS RE |
| •     | CC261 |           | RPT 25D•AOVR                | 00303 | 70500 | 00031 |   | AD IN                          |
| •     | CC262 | MCVELINE  | RPL Y+Q•W(O)                | 00304 | 34030 | 00000 |   |                                |
| •     | CC263 |           | EXIT                        | 00305 | 61010 | 00256 |   |                                |
| •     | CC264 | WHEREAT   | O                           | 00306 | 00000 | 00000 |   |                                |
| •     | CC265 | CHECK211  | SUB A•I•AZERO               | 00307 | 21400 | 00001 |   | IS THIS A 211 TAPE             |
| •     | CC266 |           | JP CHECK212                 | 00310 | 61000 | 00363 |   | NO.                            |
| •     | CC267 |           | PUT L(L211)•L(FDTAPEPAR+5)  | 00311 | 10010 | 01521 |   |                                |
| •     | CC270 | ITISRIGHT | RJP GETONELINE              | 00312 | 14010 | 01504 |   | SPURT OUTPUT NO. 21X (X = 1 0  |
| •     | CC271 |           | MOVE 2•PAGE•LINE+230        | 00313 | 65000 | 00256 |   | K 2)                           |
| •     | CC272 |           | RJP UNDERSTAND              | 00314 | 10030 | 00226 |   |                                |
| •     | CC273 |           | U-TAG LINE•TOPOF PAGE       | 00315 | 14030 | 00730 |   |                                |
| •     | CC274 |           | RJP PRINT                   | 00316 | 10030 | 00227 |   |                                |
| •     | CC275 |           | 5 LINE+90                   | 00317 | 14030 | 00731 |   |                                |
| •     | CC276 |           | MOVE 260•BCDIMAGE•PAGEHEAD1 | 00320 | 65000 | 00230 |   | WRITE FIRST LINE OF PAGE       |
| •     | CC277 |           | RJP GETONELINE              | 00321 | 00701 | 01166 |   |                                |
| •     | CC300 |           | RJP GETONELINE              | 00330 | 65000 | 00256 |   | SKIP NEXT LINE                 |
| •     | CC301 |           | RJP UNDERSTAND              | 00331 | 65000 | 00256 |   | PROGRAM AND PROGRAMMER         |
| •     | CC302 |           | U-TAG LINE•DOUBLESP         | 00332 | 65000 | 00230 |   | WRITE SECOND LINE OF PAGE      |
| •     | CC303 |           | RJP PRINT                   | 00333 | 00701 | 01167 |   |                                |
| •     | CC304 |           | 110 LINE+7                  | 00334 | 65000 | 00232 |   |                                |
| •     | CC305 |           | MOVE 260•BCDIMAGE•PAGEHEAD2 | 00335 | 00013 | 00710 |   |                                |
| •     | CC306 |           | RJP GETONELINE              | 00336 | 12700 | 00031 |   |                                |
| •     | CC307 |           | RJP UNDERSTAND              | 00337 | 10037 | 00732 |   |                                |
| •     | CC310 |           | U-TAG LINE•DOUBLESP         | 00340 | 14037 | 01223 |   |                                |
| •     | CC311 |           | MOVE 260•BCDIMAGE•PAGEHEAD3 | 00341 | 72700 | 00337 |   | COLUMN HEADINGS                |
| •     | CC312 |           | RJP WRITE                   | 00342 | 65000 | 00256 |   | WRITE THIRO LINE OF PAGE       |
| •     | CC313 |           | U-TAG SKIPLINE•SKIPLINE     | 00352 | 01307 | 01307 |   |                                |
| •     | CC314 |           | CL W(LINESPERPG)            | 00353 | 16030 | 00174 |   | SPACE ONE LINE                 |
| •     | CC315 | LISTLABEL | RJP GETONELINE              | 00354 | 65000 | 00256 |   | WRITE NEXT LINE OF OUTPUT      |
| •     | CC316 |           | RJP UNDERSTAND              | 00355 | 65000 | 00230 |   |                                |
| •     | CC317 |           | U-TAG LINE•SINGLESP         | 00356 | 00701 | 01170 |   |                                |
| •     | CC320 |           | RPL Y+1•W(LINESPERPG)       | 00357 | 36030 | 00174 |   |                                |
| •     | CC321 |           | SUB A•51D•ANEG              | 00360 | 21700 | 00063 |   | HAVE WE REACHED END OF PAGE    |
| •     | CC322 |           | RJP PAGEPRINT               | 00361 | 65000 | 00160 |   |                                |
| •     | CC323 |           | JP LISTLABEL                | 00362 | 61000 | 00354 |   |                                |
| •     | CC324 | CHECK212  | SUB A•I•AZERO               | 00363 | 21400 | 00001 |   | IS THIS A 212 TAPE             |

| CARDS | LI    | IO | LABEL      | TA  | STATEMENT                                                    | LOC       | F     | JKB   | Y | NOTES                       |
|-------|-------|----|------------|-----|--------------------------------------------------------------|-----------|-------|-------|---|-----------------------------|
| •     | CC325 |    |            | JP  | WRONGTAPE                                                    | 00364     | 61000 | 00370 |   | NO.                         |
| •     | CC326 |    |            | PUT | L(L212)*L(FOTAPEPAR+5)                                       | 00365     | 10010 | 01522 |   |                             |
|       |       |    |            |     |                                                              | 00366     | 14010 | 01504 |   |                             |
| •     | CC327 |    |            | JP  | ITISRIGHT                                                    | 00367     | 61000 | 00313 |   |                             |
| •     | CC330 |    | WRONGTAPE  | RJP | PRINT                                                        | 00370     | 65000 | 02032 |   | PRINT WRONG TAPE MESSAGE    |
| •     | CC331 |    |            | 15D | WRTAPEMSG                                                    | 00371     | 00017 | 00373 |   |                             |
| •     | CC332 |    |            | JP  | CONTINUE*STOP                                                | 00372     | 61400 | 00051 |   |                             |
| •     | CC333 |    | WRTAPEMSG  | FO  | 11D*THIS IS NOT A 210, 211, OR 212<br>TAPE. PUT CORRECT TAPE | 00373     | 31151 | 63005 |   |                             |
|       |       |    |            |     |                                                              | 00374     | 16300 | 52324 |   |                             |
|       |       |    |            |     |                                                              | 00375     | 31050 | 60562 |   |                             |
|       |       |    |            |     |                                                              | 00376     | 61245 | 60562 |   |                             |
|       |       |    |            |     |                                                              | 00377     | 61615 | 60524 |   |                             |
|       |       |    |            |     |                                                              | 00400     | 27056 | 26162 |   |                             |
|       |       |    |            |     |                                                              | 00401     | 05310 | 62512 |   |                             |
|       |       |    |            |     |                                                              | 00402     | 75050 | 52532 |   |                             |
|       |       |    |            |     |                                                              | 00403     | 31051 | 02427 |   |                             |
|       |       |    |            |     |                                                              | 00404     | 27121 | 03105 |   |                             |
|       |       |    |            |     |                                                              | 00405     | 31062 | 51205 |   |                             |
|       |       |    |            |     |                                                              | 00406     | 24230 | 53223 |   |                             |
|       |       |    |            |     |                                                              | 00407     | 16310 | 51005 |   |                             |
|       |       |    |            |     |                                                              | 00410     | 06231 | 10530 |   |                             |
|       |       |    |            |     |                                                              | 00411     | 31062 | 73175 |   |                             |
|       |       |    |            |     |                                                              | 00412     | 00000 | 00000 |   | INPUT RECORD IN FIELDATA    |
|       |       |    |            |     |                                                              | 00701     | 00000 | 00000 |   | CURRENT LINE                |
|       |       |    |            |     |                                                              | 00732     | 00000 | 00000 |   | OUTPUT RECORD IN BCD PACKED |
|       |       |    |            |     |                                                              | 00764     | 00000 | 00000 |   | OUTPUT BCD IMAGE UNPACKED   |
|       |       |    |            |     |                                                              | 00765     | 00000 | 00000 |   |                             |
|       |       |    |            |     |                                                              | 01162     | 00020 | 00000 |   |                             |
|       |       |    |            |     |                                                              | 01163     | 00020 | 00000 |   |                             |
|       |       |    |            |     |                                                              | 01164     | 00020 | 00000 |   |                             |
|       |       |    |            |     |                                                              | 01165     | 00020 | 00000 |   |                             |
|       |       |    |            |     |                                                              | 01166     | 00000 | 00001 |   |                             |
|       |       |    |            |     |                                                              | 01167     | 00000 | 00012 |   |                             |
|       |       |    |            |     |                                                              | 01170     | 00000 | 00020 |   |                             |
|       |       |    |            |     |                                                              | 01171     | 00000 | 00000 |   | PAGE HEADING                |
|       |       |    |            |     |                                                              | 01223     | 00000 | 00000 |   | PAGE HEADING                |
|       |       |    |            |     |                                                              | 01255     | 00000 | 00000 |   | PAGE HEADING                |
|       |       |    |            |     |                                                              | 01307     | 20202 | 02020 |   |                             |
|       |       |    |            |     |                                                              | 101310    | 30253 | 22731 |   |                             |
|       |       |    |            |     |                                                              | 01311     | 05626 | 12456 |   |                             |
|       |       |    |            |     |                                                              | 01312     | 05626 | 16156 |   |                             |
|       |       |    |            |     |                                                              | 01313     | 05242 | 70562 |   |                             |
|       |       |    |            |     |                                                              | 01314     | 61620 | 52432 |   |                             |
|       |       |    |            |     |                                                              | 01315     | 31253 | 23105 |   |                             |
|       |       |    |            |     |                                                              | 01316     | 16300 | 50712 |   |                             |
|       |       |    |            |     |                                                              | 01317     | 16231 | 40527 |   |                             |
|       |       |    |            |     |                                                              | 01320     | 12061 | 10513 |   |                             |
|       |       |    |            |     |                                                              | 01321     | 27242 | 20532 |   |                             |
|       |       |    |            |     |                                                              | 01322     | 23163 | 10510 |   |                             |
|       |       |    |            |     |                                                              | 140101323 | 13242 | 70524 |   |                             |
| •     | CC356 |    | INITPRINT2 | FD  | 7*FOR OUTPUT ON UNIT D FOR IBM                               | 140101323 |       |       |   |                             |

| CAROS | LI    | ID | LABEL      | TA | STATEMENT                          | LOC    | F     | JKB   | Y | NOTES                          |
|-------|-------|----|------------|----|------------------------------------|--------|-------|-------|---|--------------------------------|
|       | CC357 |    | FOKTYFIVE  |    | 45454                              | 101324 | 32312 | 53231 |   |                                |
|       | CC360 |    | READTAPE   |    | ENTRY                              | 101325 | 05242 | 30532 |   |                                |
|       | CC361 |    |            |    | PUT L(RFAOTAPF)*L(INBUFFER)        | 101326 | 23163 | 10511 |   |                                |
|       | CC362 |    |            |    | RPL Y+1*(READTAPE)                 | 101327 | 05132 | 42705 |   |                                |
|       | CC363 |    |            |    | CL R1                              | 101330 | 16072 | 20561 |   |                                |
|       | CC364 |    | INBUFFER   |    | IN TAPE*W(D)                       | 101331 | 64246 | 17505 |   | READ SPURT LISTING TAPE        |
|       | CC365 |    |            |    | RJP TAPEHANDLE                     | 101332 | 45454 | 54545 |   |                                |
|       | CC366 |    |            |    | O RDO                              | 101333 | 61000 | 00000 |   |                                |
|       | CC367 |    |            |    | ENT A*(STATUS)                     | 101335 | 14010 | 01340 |   |                                |
|       | CC370 |    |            |    | RSH A*110                          | 101336 | 36010 | 01333 |   | INDEX RETURN POINT             |
|       | CC371 |    |            |    | ADD A*STATUSCODE                   | 101337 | 12100 | 00000 |   | CLEAR PARITY COUNTER           |
|       | CC372 |    |            |    | STR A*(INTERJUMP)                  | 101340 | 73670 | 00000 |   | ESTABLISH INPUT BUFFER         |
|       | CC373 |    | INTERJUMP  |    | JP L(0)                            | 101341 | 65000 | 01546 |   | MAGNETIC TAPE HANDLER          |
|       | CC374 |    | BACK       |    | EXIT                               | 101342 | 00000 | 02440 |   | READ FO (BINARY HO)            |
|       | CC375 |    | INTERLOCK  |    | PUT W(UNITNDINT)*W(LOCKP)          | 101343 | 11020 | 01667 |   |                                |
|       | CC376 |    |            |    | RJP PRINT                          | 101344 | 02000 | 00013 |   | GO TO APPROPRIATE STATUS ROUTE |
|       | CC377 |    |            |    | 110 INTERLOCKP                     | 101345 | 20000 | 01372 |   | NE                             |
|       | CC400 |    |            |    | JP INBUFFER*STOP                   | 101346 | 15010 | 01347 |   |                                |
|       | CC401 |    | INTERLDCKP |    | FD 6*THREF IS AN INTERLOCK ON UNIT | 101347 | 61010 | 00000 |   |                                |
|       | CC402 |    | LOCKP      |    | FD 5*C. CORRECT AND START.         | 101350 | 61010 | 01333 |   | INTERLOCK ROUTINE              |
|       | CC403 |    | UNITNDINT  |    | FD 1*C. C                          | 101351 | 10030 | 01371 |   |                                |
|       | CC404 |    | STATUSCODE |    | 00 MACHERR                         | 101352 | 14030 | 01364 |   | PRINT INTERLOCK MESSAGE        |
|       | CC405 |    |            |    | 04 MACHERR                         | 101353 | 65000 | 02032 |   |                                |
|       | CC406 |    |            |    | 10 MACHERR                         | 101354 | 00013 | 01356 |   |                                |
|       | CC407 |    |            |    | 14 MACHERR                         | 101355 | 61400 | 01340 |   |                                |
|       | CC410 |    |            |    | 20 MACHERR                         | 101356 | 31151 | 22712 |   |                                |
|       | CC411 |    |            |    | 24 INBUFFER                        | 101357 | 05163 | 00506 |   |                                |
|       | CC412 |    |            |    | 30 MACHERR                         | 101360 | 23051 | 62331 |   |                                |
|       | CC413 |    |            |    | 34 MACHERR                         | 101361 | 12272 | 12410 |   |                                |
|       | CC414 |    |            |    | 40 BACK                            | 101362 | 20052 | 42305 |   |                                |
|       | CC415 |    |            |    | 44 PARITY                          | 101363 | 32231 | 63105 |   |                                |
|       | CC416 |    |            |    | 50 MACHERR                         | 101364 | 10750 | 50510 |   |                                |
|       | CC417 |    |            |    | 54 WRITEEOF                        | 101365 | 24272 | 71210 |   |                                |
|       | CC420 |    |            |    | 60 INPUTAPEND                      | 101366 | 31050 | 62311 |   |                                |
|       | CC421 |    |            |    | 64 MACHERR                         | 101367 | 05303 | 10627 |   |                                |
|       |       |    |            |    |                                    | 101370 | 31750 | 50505 |   |                                |
|       |       |    |            |    |                                    | 101371 | 10750 | 50510 |   | NOT USED                       |
|       |       |    |            |    |                                    | 101372 | 00000 | 01637 |   | NOT USED                       |
|       |       |    |            |    |                                    | 101373 | 00004 | 01637 |   | NOT USED                       |
|       |       |    |            |    |                                    | 101374 | 00010 | 01637 |   | NOT USED                       |
|       |       |    |            |    |                                    | 101375 | 00014 | 01637 |   | NOT USED                       |
|       |       |    |            |    |                                    | 101376 | 00020 | 01637 |   | CHARACTER SYNC SEQUENCE ERROR  |
|       |       |    |            |    |                                    | 101377 | 00024 | 01340 |   | REWINDING                      |
|       |       |    |            |    |                                    | 101400 | 00030 | 01637 |   | CHAR SYNC CHAR COUNT ERROR     |
|       |       |    |            |    |                                    | 101401 | 00034 | 01637 |   | FUNCTION WORD ERROR            |
|       |       |    |            |    |                                    | 101402 | 00040 | 01350 |   | NORMAL COMPLETION              |
|       |       |    |            |    |                                    | 101403 | 00044 | 01433 |   | PARITY ERROR                   |
|       |       |    |            |    |                                    | 101404 | 00050 | 01637 |   | CONGRUOL UNIT SEQUENCE ERROR   |
|       |       |    |            |    |                                    | 101405 | 00054 | 01523 |   | END OF FILE                    |
|       |       |    |            |    |                                    | 101406 | 00060 | 01670 |   | END OF TAPE                    |
|       |       |    |            |    |                                    | 101407 | 00064 | 01637 |   | NOT USED                       |



| CAROS | LI | ID | LABEL | TA | STATEMENT | LOC   | F     | JK8   | Y | NOTES                         |
|-------|----|----|-------|----|-----------|-------|-------|-------|---|-------------------------------|
|       |    |    |       |    |           | 01503 | 05302 | 53227 |   |                               |
|       |    |    |       |    |           | 01504 | 31056 | 26124 |   |                               |
|       |    |    |       |    |           | 01505 | 05310 | 62512 |   |                               |
|       |    |    |       |    |           | 01506 | 05162 | 30513 |   |                               |
|       |    |    |       |    |           | 01507 | 24212 | 12434 |   |                               |
|       |    |    |       |    |           | 01510 | 16231 | 40521 |   |                               |
|       |    |    |       |    |           | 01511 | 16231 | 23005 |   |                               |
|       |    |    |       |    |           | 01512 | 00000 | 00000 |   | BCO EOF MESSAGE               |
|       |    |    |       |    |           | 01515 | 12231 | 10524 |   |                               |
|       |    |    |       |    |           | 01516 | 13052 | 11630 |   |                               |
|       |    |    |       |    |           | 01517 | 31162 | 31405 |   |                               |
|       |    |    |       |    |           | 01520 | 05056 | 26124 |   |                               |
|       |    |    |       |    |           | 01521 | 05056 | 26161 |   |                               |
|       |    |    |       |    |           | 01522 | 05056 | 26162 |   |                               |
|       |    |    |       |    |           | 01523 | 65000 | 01713 |   |                               |
|       |    |    |       |    |           | 01524 | 01514 | 01512 |   |                               |
|       |    |    |       |    |           | 01525 | 65000 | 01546 |   | MAGNETIC TAPE HANDLER         |
|       |    |    |       |    |           | 01526 | 00000 | 02442 |   | WRITE END OF FILE ON BCO TAPE |
|       |    |    |       |    |           |       |       |       |   | HO                            |
|       |    |    |       |    |           | 01527 | 65000 | 02032 |   |                               |
|       |    |    |       |    |           | 01530 | 00001 | 01635 |   |                               |
|       |    |    |       |    |           | 01531 | 61400 | 01532 |   | TERMINATE OPTION              |
|       |    |    |       |    |           | 01532 | 61100 | 01541 |   | CONTINUE OPTION               |
|       |    |    |       |    |           | 01533 | 61200 | 00051 |   |                               |
|       |    |    |       |    |           | 01534 | 61300 | 01536 |   |                               |
|       |    |    |       |    |           | 01535 | 61000 | 01532 |   |                               |
|       |    |    |       |    |           | 01536 | 65000 | 01546 |   | REWIND FO TAPE W/INTERLOCK    |
|       |    |    |       |    |           | 01537 | 00000 | 02444 |   |                               |
|       |    |    |       |    |           | 01540 | 61400 | 00051 |   |                               |
|       |    |    |       |    |           | 01541 | 65000 | 01546 |   | MAGNETIC TAPE HANDLER         |
|       |    |    |       |    |           | 01542 | 00000 | 02444 |   | REWIND FO TAPE W/INTERLOCK    |
|       |    |    |       |    |           | 01543 | 65000 | 01546 |   | MAGNETIC TAPE HANDLER         |
|       |    |    |       |    |           | 01544 | 00000 | 02443 |   | REWIND BCO TAPE W/INTERLOCK   |
|       |    |    |       |    |           | 01545 | 61400 | 00000 |   |                               |
|       |    |    |       |    |           | 01546 | 61000 | 00000 |   | MAGNETIC TAPE HANDLER         |
|       |    |    |       |    |           | 01547 | 10030 | 01562 |   |                               |
|       |    |    |       |    |           | 01550 | 14030 | 00035 |   |                               |
|       |    |    |       |    |           | 01551 | 10010 | 01546 |   |                               |
|       |    |    |       |    |           | 01552 | 14010 | 01553 |   |                               |
|       |    |    |       |    |           | 01553 | 10010 | 00000 |   |                               |
|       |    |    |       |    |           | 01554 | 14010 | 01555 |   |                               |
|       |    |    |       |    |           | 01555 | 13670 | 00000 |   |                               |
|       |    |    |       |    |           | 01556 | 61000 | 01556 |   |                               |
|       |    |    |       |    |           | 01557 | 17670 | 01667 |   |                               |
|       |    |    |       |    |           | 01560 | 36010 | 01546 |   |                               |
|       |    |    |       |    |           | 01561 | 61010 | 01546 |   |                               |
|       |    |    |       |    |           | 01562 | 60100 | 01557 |   |                               |
|       |    |    |       |    |           | 01563 | 34151 | 22305 |   |                               |
|       |    |    |       |    |           |       |       |       |   |                               |
|       |    |    |       |    |           | 01564 | 13162 | 11205 |   |                               |
|       |    |    |       |    |           | 01565 | 15063 | 00507 |   |                               |
|       |    |    |       |    |           | 01566 | 12122 | 30521 |   |                               |
|       |    |    |       |    |           | 01567 | 16303 | 11211 |   |                               |

| CAROS | L1    | IO LABEL  | TA STATEMENT                                                 | LOC   | F     | JKB   | Y | NOTES |
|-------|-------|-----------|--------------------------------------------------------------|-------|-------|-------|---|-------|
| .     | C0513 |           | F0 2* OPTIONS                                                | 01570 | 56053 | 62432 |   |       |
| .     | C0514 | KCPTION1  | F0 110*KEY 1 TERMINATE (TAPES WILL BE REWOUND BY COMPUTER)   | 01571 | 05341 | 62121 |   |       |
| .     |       |           |                                                              | 01572 | 05150 | 63312 |   |       |
| .     |       |           |                                                              | 01573 | 05311 | 51205 |   |       |
| .     |       |           |                                                              | 01574 | 05132 | 42121 |   |       |
| .     |       |           |                                                              | 01575 | 24341 | 62314 |   |       |
| .     |       |           |                                                              | 01576 | 05242 | 53116 |   |       |
| .     |       |           |                                                              | 01577 | 24233 | 00505 |   |       |
| .     |       |           |                                                              | 01600 | 20123 | 60561 |   |       |
| .     |       |           |                                                              | 01601 | 05311 | 22722 |   |       |
| .     |       |           |                                                              | 01602 | 16230 | 63112 |   |       |
| .     |       |           |                                                              | 01603 | 05513 | 10625 |   |       |
| .     |       |           |                                                              | 01604 | 12300 | 53416 |   |       |
| .     |       |           |                                                              | 01605 | 21210 | 50712 |   |       |
| .     |       |           |                                                              | 01606 | 05271 | 23424 |   |       |
| .     |       |           |                                                              | 01607 | 32231 | 10507 |   |       |
| .     |       |           |                                                              | 01610 | 36051 | 02422 |   |       |
| .     |       |           |                                                              | 01611 | 25323 | 11227 |   |       |
| .     |       |           |                                                              | 01612 | 40050 | 50505 |   |       |
| .     | C0515 | KCPTION2  | F0 6*KEY 2 CONTINUE WITH NEXT FILE                           | 01613 | 20123 | 60562 |   |       |
| .     |       |           |                                                              | 01614 | 05102 | 42331 |   |       |
| .     |       |           |                                                              | 01615 | 16233 | 21205 |   |       |
| .     |       |           |                                                              | 01616 | 34163 | 11505 |   |       |
| .     |       |           |                                                              | 01617 | 23123 | 53105 |   |       |
| .     |       |           |                                                              | 01620 | 13162 | 11205 |   |       |
| .     | C0516 | KCPTION3  | F0 110*KEY 3 CONTINUE WITH NEW SPURT APE (UNIT 2 WILL BE REW | 01621 | 20123 | 60563 |   |       |
| .     |       |           |                                                              | 01622 | 05102 | 42331 |   |       |
| .     |       |           |                                                              | 01623 | 16233 | 21205 |   |       |
| .     |       |           |                                                              | 01624 | 34163 | 11505 |   |       |
| .     |       |           |                                                              | 01625 | 23123 | 40530 |   |       |
| .     |       |           |                                                              | 01626 | 25322 | 73105 |   |       |
| .     |       |           |                                                              | 01627 | 31062 | 51205 |   |       |
| .     |       |           |                                                              | 01630 | 51322 | 31631 |   |       |
| .     |       |           |                                                              | 01631 | 05620 | 53416 |   |       |
| .     |       |           |                                                              | 01632 | 21210 | 50712 |   |       |
| .     |       |           |                                                              | 01633 | 05271 | 23424 |   |       |
| .     |       |           |                                                              | 01634 | 32231 | 14005 |   |       |
| .     | C0517 | LISTEO    | F0 1*UINO1                                                   | 01635 | 11242 | 31275 |   |       |
| .     | C0520 | UNIT210   | F0 1*OONE.                                                   | 01636 | 10750 | 50505 |   |       |
| .     | C0521 | UNIT210   | F0 1*OONE.                                                   | 01637 | 10020 | 01636 |   |       |
| .     | C0522 | MACHERR   | PUT U(UNIT210)*U(UNITNO1)                                    | 01640 | 14020 | 01424 |   |       |
| .     | C0523 | MACHERROR | ENT Q*W(STATUS1)                                             | 01641 | 10030 | 01667 |   |       |
| .     | C0524 |           | RJP COCTTOFO                                                 | 01642 | 65000 | 01651 |   |       |
| .     | C0525 |           | STR A*W(FOSTATCOOE1)                                         | 01643 | 15030 | 01431 |   |       |
| .     | C0526 |           | RJP COCTTOFO                                                 | 01644 | 65000 | 01651 |   |       |
| .     | C0527 |           | STR A*W(FOSTATCOOE+11)                                       | 01645 | 15030 | 01432 |   |       |
| .     | C0530 |           | RJP PRINT                                                    | 01646 | 65000 | 02032 |   |       |
| .     | C0531 |           | 170 MACHFAULT                                                | 01647 | 00021 | 01412 |   |       |
| .     | C0532 |           | JP CONTINUE*STOP                                             | 01650 | 61400 | 00051 |   |       |
| .     | C0533 | CCCTTOFO  | ENTRY                                                        | 01651 | 61000 | 00000 |   |       |

| CARDS | LI    | IC | LABEL      | TA    | STATEMENT                                | LOC   | F     | JK8   | Y | NOTES                                                        |
|-------|-------|----|------------|-------|------------------------------------------|-------|-------|-------|---|--------------------------------------------------------------|
| .     | CC534 |    |            | CL    | A*                                       | 01652 | 11000 | 00000 |   |                                                              |
| .     | CC535 |    |            | LSH   | AQ*3                                     | 01653 | 07000 | 00003 |   |                                                              |
| .     | CC536 |    |            | LSH   | A*3                                      | 01654 | 06000 | 00003 |   |                                                              |
| .     | CC537 |    |            | LSH   | AQ*3                                     | 01655 | 07000 | 00003 |   |                                                              |
| .     | CC540 |    |            | LSH   | A*3                                      | 01656 | 06000 | 00003 |   |                                                              |
| .     | CC541 |    |            | LSH   | AQ*3                                     | 01657 | 07000 | 00003 |   |                                                              |
| .     | CC542 |    |            | LSH   | A*3                                      | 01660 | 06000 | 00003 |   |                                                              |
| .     | CC543 |    |            | LSH   | AQ*3                                     | 01661 | 07000 | 00003 |   |                                                              |
| .     | CC544 |    |            | LSH   | A*3                                      | 01662 | 06000 | 00003 |   |                                                              |
| .     | CC545 |    |            | LSH   | AQ*3                                     | 01663 | 07000 | 00003 |   |                                                              |
| .     | CC546 |    |            | A00   | A*W(EXCESS60)                            | 01664 | 20030 | 01666 |   |                                                              |
| .     | CC547 |    |            | EXIT  |                                          | 01665 | 61010 | 01651 |   |                                                              |
| .     | CC550 |    | EXCESS60   | 60606 | 06060                                    | 01666 | 60606 | 06060 |   |                                                              |
| .     | CC551 |    | STATUS     | 0     | 0                                        | 01667 | 00000 | 00000 |   |                                                              |
| .     | CC552 |    | INPUTAPEND | PUT   | W(ENOTAPU)*W(ENOTAPEM)                   | 01670 | 10030 | 01712 |   |                                                              |
| .     | CC553 |    |            | RJP   | PRINT                                    | 01671 | 14030 | 01704 |   |                                                              |
| .     | CC554 |    |            | 130   | ENOOF TAPM                               | 01672 | 65000 | 02032 |   |                                                              |
| .     | CC555 |    |            | EXIT  | STOP                                     | 01673 | 00015 | 01675 |   |                                                              |
| .     | CC556 |    | ENOOF TAPM | FO    | 7*AN END OF TAPE HAS OCCURRED ON UN01675 | 01674 | 61410 | 01651 |   |                                                              |
|       |       |    |            | IT    |                                          | 06230 | 51223 |       |   | PRINT END-OF-TAPE MESSAGE                                    |
| .     | CC557 |    | ENDTAPEM   | FD    | 6* MOUNT NEW TAPE AND START.             | 01676 | 11052 | 41305 |   |                                                              |
|       |       |    |            |       |                                          | 01677 | 31062 | 51205 |   |                                                              |
|       |       |    |            |       |                                          | 01700 | 15063 | 00524 |   |                                                              |
|       |       |    |            |       |                                          | 01701 | 10103 | 22727 |   |                                                              |
|       |       |    |            |       |                                          | 01702 | 12110 | 52423 |   |                                                              |
|       |       |    |            |       |                                          | 01703 | 05322 | 31631 |   |                                                              |
|       |       |    |            |       |                                          | 01704 | 05050 | 50505 |   |                                                              |
|       |       |    |            |       |                                          | 01705 | 22243 | 22331 |   |                                                              |
|       |       |    |            |       |                                          | 01706 | 05231 | 23405 |   |                                                              |
|       |       |    |            |       |                                          | 01707 | 31062 | 51205 |   |                                                              |
|       |       |    |            |       |                                          | 01710 | 06231 | 10530 |   |                                                              |
|       |       |    |            |       |                                          | 01711 | 31062 | 73175 |   |                                                              |
|       |       |    |            |       |                                          | 01712 | 05107 | 50505 |   |                                                              |
|       |       |    |            |       |                                          | 01713 | 61000 | 00000 |   |                                                              |
|       |       |    |            |       |                                          | 01714 | 10010 | 01713 |   | WRITE U401 BCO TAPE<br>SET ADDRESS OF BUFFER CONTROL<br>WORO |
|       |       |    |            |       |                                          | 01715 | 14010 | 01723 |   |                                                              |
|       |       |    |            |       |                                          | 01716 | 36010 | 01713 |   | SET FOR NORMAL RETURN                                        |
|       |       |    |            |       |                                          | 01717 | 10000 | 01725 |   | SET INTERRUPT REGISTER                                       |
|       |       |    |            |       |                                          | 01720 | 14010 | 00035 |   | WRITE BCO HO                                                 |
|       |       |    |            |       |                                          | 01721 | 13670 | 02445 |   |                                                              |
|       |       |    |            |       |                                          | 01722 | 60000 | 00000 |   |                                                              |
|       |       |    |            |       |                                          | 01723 | 74670 | 00000 |   | WAIT FOR EXTERNAL INTERRUPT                                  |
|       |       |    |            |       |                                          | 01724 | 61000 | 01724 |   |                                                              |
|       |       |    |            |       |                                          | 01725 | 17670 | 01761 |   | PICK UP STATUS WORO                                          |
|       |       |    |            |       |                                          | 01726 | 11020 | 01761 |   |                                                              |
|       |       |    |            |       |                                          | 01727 | 02000 | 00013 |   | LOCATION OF STATUS JUMP TABLE                                |
|       |       |    |            |       |                                          | 01730 | 20000 | 01764 |   |                                                              |
|       |       |    |            |       |                                          | 01731 | 15010 | 01732 |   | JUMP TO APPROPRIATE STATUS ROU                               |
|       |       |    |            |       |                                          | 01732 | 61010 | 00000 |   | TIME                                                         |
| .     | CC577 |    | BAOMCH     | PUT   | U(WRITESERV01*U(UNITNO1                  | 01733 | 10020 | 02004 |   |                                                              |

| CARDS | LI    | IO | LABEL      | TA   | STATEMENT                                 | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------|----|------------|------|-------------------------------------------|-------|-------|-------|---|--------------------------------|
| .     | CC600 |    | REDUNDANT  | JP   | MACHERROR                                 | 01734 | 14020 | 01424 |   |                                |
| .     | CC601 |    |            | RJP  | TAPEHANDLE                                | 01735 | 61000 | 01641 |   | MAGNETIC TAPE HANDLER          |
| .     | CC602 |    |            | O    | BSBCO                                     | 01736 | 65000 | 01546 |   | BACKSPACE BCO TAPE             |
| .     | CC603 |    | ERASE      | RJP  | TAPEHANDLE                                | 01737 | 00000 | 02446 |   | MAGNETIC TAPE HANDLER          |
| .     | CC604 |    |            | O    | ERASEBCO                                  | 01740 | 65000 | 01546 |   | ERASE FORWARD BCD TAPE         |
| .     | CC605 |    |            | ENT  | A*U(STATUS)                               | 01741 | 00000 | 02447 |   | STATUS WORD                    |
| .     | CC606 |    |            | RSH  | A*110                                     | 01742 | 11020 | 01667 |   |                                |
| .     | CC607 |    |            | SUB  | A*10*AZERO                                | 01743 | 02000 | 00013 |   |                                |
| .     | CC610 |    |            | JP   | ERASE                                     | 01744 | 21400 | 00010 |   | DIO WE GET A NORMAL COMPLETION |
| .     | CC611 |    |            | JP   | WRITEAGAIN                                | 01745 | 61000 | 01740 |   | NO.                            |
| .     | CC612 |    | ENOTAPE    | RJP  | TAPEHANDLE                                | 01746 | 65000 | 01717 |   | REWRITE RECORD                 |
| .     | CC613 |    |            | O    | EOFBCO                                    | 01747 | 65000 | 01546 |   | MAGNETIC TAPE HANDLER          |
| .     |       |    |            |      |                                           | 01750 | 00000 | 02442 |   | WRITE END OF FILE ON BCO TAPE  |
| .     |       |    |            |      |                                           |       |       |       |   | HO                             |
| .     | CC614 |    |            | RJP  | PRINT                                     | 01751 | 65000 | 02032 |   |                                |
| .     | CC615 |    |            | 9D   | NEWTAPE                                   | 01752 | 00011 | 02005 |   |                                |
| .     | CC616 |    |            | RJP  | TAPEHANDLE                                | 01753 | 65000 | 01546 |   | MAGNETIC TAPE HANDLER          |
| .     | CC617 |    |            | O    | REWFOWI                                   | 01754 | 00000 | 02444 |   | REWIND FD TAPE W/INTERLOCK     |
| .     | CC620 |    | INTERLOCK  | EXIT | STOP                                      | 01755 | 61410 | 01713 |   |                                |
| .     | CC621 |    |            | RJP  | PRINT                                     | 01756 | 65000 | 02032 |   |                                |
| .     | CC622 |    |            | 12D  | WAKEUP                                    | 01757 | 00014 | 02016 |   |                                |
| .     | CC623 |    |            | JP   | WRITEAGAIN*STOP                           | 01760 | 61400 | 01717 |   |                                |
| .     | CC624 |    | CHANNEL    | O    | O                                         | 01761 | 00000 | 00000 |   |                                |
| .     | CC625 |    | CHANNEL 1  | O    | O                                         | 01762 | 00000 | 00000 |   |                                |
| .     | CC626 |    | CHANNEL 2  | O    | O                                         | 01763 | 00000 | 00000 |   |                                |
| .     | CC627 |    | STATCODE   | O    | O                                         | 01764 | 00000 | 01733 |   |                                |
| .     | CC630 |    |            | O    | BADMCH                                    | 01765 | 00004 | 01733 |   | NOT USED                       |
| .     | CC631 |    |            | 10   | BADMCH                                    | 01766 | 00010 | 01733 |   | NOT USED                       |
| .     | CC632 |    |            | 14   | BADMCH                                    | 01767 | 00014 | 01733 |   | NOT USED                       |
| .     | CC633 |    |            | 20   | BADMCH                                    | 01770 | 00020 | 01733 |   | CHAR SYNC SEQUENCE ERROR       |
| .     | CC634 |    |            | 24   | WRITEOUT                                  | 01771 | 00024 | 01723 |   | REWINDING                      |
| .     | CC635 |    |            | 30   | BADMCH                                    | 01772 | 00030 | 01733 |   | CHARACTER COUNT ERROR          |
| .     | CC636 |    |            | 34   | BADMCH                                    | 01773 | 00034 | 01733 |   | FUNCTION WORD ERROR            |
| .     | CC637 |    |            | 40   | WRITE                                     | 01774 | 00040 | 01713 |   | NORMAL COMPLETION              |
| .     | CC640 |    |            | 44   | REDUNDANT                                 | 01775 | 00044 | 01736 |   | PARITY                         |
| .     | CC641 |    |            | 50   | BADMCH                                    | 01776 | 00050 | 01733 |   | CONTROL UNIT SEQUENCE ERROR    |
| .     | CC642 |    |            | 54   | BADMCH                                    | 01777 | 00054 | 01733 |   | END OF FILE                    |
| .     | CC643 |    |            | 60   | ENDTAPE                                   | 02000 | 00060 | 01747 |   | END OF TAPE                    |
| .     | CC644 |    |            | 64   | BADMCH                                    | 02001 | 00064 | 01733 |   | NOT USED                       |
| .     | CC645 |    |            | 70   | BADMCH                                    | 02002 | 00070 | 01733 |   | ABNORMAL FRAME COUNT           |
| .     | CC646 |    |            | 74   | INTERLOCK                                 | 02003 | 00074 | 01756 |   | INTERLOCK                      |
| .     | CC647 |    | WRITESERVO | FD   | 1*D. C                                    | 02004 | 11750 | 50510 |   |                                |
| .     | CC650 |    | NEWTAPE    | FD   | 90* MOUNT NEW OUTPUT TAPE ON UNIT AN02005 | 02005 | 22243 | 22331 |   |                                |
| .     |       |    |            |      | D START.                                  |       |       |       |   |                                |
| .     |       |    |            |      |                                           | 02006 | 05231 | 23405 |   |                                |
| .     |       |    |            |      |                                           | 02007 | 24323 | 12532 |   |                                |
| .     |       |    |            |      |                                           | 02010 | 31053 | 10625 |   |                                |
| .     |       |    |            |      |                                           | 02011 | 12052 | 42305 |   |                                |
| .     |       |    |            |      |                                           | 02012 | 32231 | 63105 |   |                                |
| .     |       |    |            |      |                                           | 02013 | 06231 | 10530 |   |                                |
| .     |       |    |            |      |                                           | 02014 | 31062 | 73175 |   |                                |
| .     |       |    |            |      |                                           | 02015 | 05050 | 50505 |   |                                |
| .     | CC651 |    | WAKEUP     | FD   | 10D*INTERLOCK FAULT ON OUTPUT TAPE        | 02016 | 16233 | 11227 |   |                                |

| CAROS | L1 10 LABEL | TA STATEMENT                   | LOC   | F     | JKB   | Y | NOTES                        |
|-------|-------------|--------------------------------|-------|-------|-------|---|------------------------------|
|       |             | UNIT - FIX IT AND              |       |       |       |   |                              |
|       |             | FO 2*START.                    | 02017 | 21241 | 02005 |   |                              |
|       | 00652       |                                | 02020 | 13063 | 22131 |   |                              |
|       | 00653 PRINT | ENTRY                          | 02021 | 05242 | 30524 |   |                              |
|       | 00654       | PUT L(PRINT)*L(SETUP)          | 02022 | 32312 | 53231 |   |                              |
|       | 00655 SETUP | PUT W(0)*W(UNPACKCODE)         | 02023 | 05310 | 62512 |   |                              |
|       |             |                                | 02024 | 05322 | 31631 |   |                              |
|       |             |                                | 02025 | 05057 | 50513 |   |                              |
|       |             |                                | 02026 | 16350 | 51631 |   |                              |
|       |             |                                | 02027 | 05062 | 31105 |   |                              |
|       |             |                                | 02030 | 30310 | 62731 |   |                              |
|       |             |                                | 02031 | 75050 | 50505 |   |                              |
|       |             | ENTRY                          | 02032 | 61000 | 00000 |   | PRINT ON CONSOLE TYPEWRITER  |
|       | 00656       | PUT L(PRINT)*L(SETUP)          | 02033 | 10010 | 02032 |   |                              |
|       | 00657       | PUT W(0)*W(UNPACKCODE)         | 02034 | 14010 | 02035 |   |                              |
|       | 00660       | UNPACKCODE                     | 02035 | 10030 | 00000 |   |                              |
|       | 00661       | RPL Y+1*L(PRINT)               | 02036 | 14030 | 02042 |   |                              |
|       | 00662       | ENT A*BUFFERPRNT+2             | 02037 | 36010 | 02032 |   | INDEX RETURN POINT           |
|       | 00663       | RJP UNPACK                     | 02040 | 11000 | 02062 |   | UNPACK FIELOATA TEXT         |
|       | 00664       | O 0                            | 02041 | 65000 | 02226 |   |                              |
|       | 00665       | ENT Q*U(UNPACKCODE)            | 02042 | 00000 | 00000 |   | COUNT OF WORDS               |
|       | 00666       | MUL 5                          | 02043 | 10020 | 02042 |   | COUNT OF CHARACTERS          |
|       | 00667       | A00 Q*BUFFERPRNT+1             | 02044 | 22000 | 00005 |   |                              |
|       | 00668       | STR Q*A                        | 02045 | 26000 | 02061 |   | LWA OF UNPACKED TEXT         |
|       | 00669       | LSH A*150                      | 02046 | 14040 | 00000 |   |                              |
|       | 00670       | SEL SET*BUFFERPRNT             | 02047 | 06000 | 00017 |   | A00 FWA OF UNPACKED TEXT     |
|       | 00671       | STR A*W(PRINTBUFFC)            | 02050 | 50000 | 02060 |   | SET PRINT BUFFER W/INTERRUPT |
|       | 00672       | OUT TYPE*W(PRINTBUFFC)*MONITOR | 02051 | 15030 | 02057 |   |                              |
|       | 00673       | RIL \$                         | 02052 | 76130 | 02057 |   |                              |
|       | 00674       | RILJP L(PRINT)                 | 02053 | 60000 | 00000 |   |                              |
|       | 00675       | JPPRINTOVR                     | 02054 | 61000 | 02054 |   | RETURN AFTER PRINTING        |
|       | 00676       | PRINTBUFFC                     | 02055 | 60110 | 02032 |   |                              |
|       | 00677       | BUFFERPRNT                     | 02056 | 61000 | 02055 |   |                              |
|       | 00678       | O 0                            | 02057 | 00000 | 00000 |   |                              |
|       | 00679       | O 04                           | 02060 | 00000 | 00004 |   |                              |
|       | 00680       | O 03                           | 02061 | 00000 | 00003 |   |                              |
|       | 00681       | RESERVE 1000                   | 02062 | 00000 | 00000 |   | UNPACK 1 CHARACTER TO WORD   |
|       | 00682       | ENTRY                          | 02226 | 61000 | 00000 |   | FWA OF UNPACKED TABLE        |
|       | 00683       | STR A*L(STOREUNPAK)            | 02227 | 15010 | 02250 |   |                              |
|       | 00684       | PUT L(UNPACK)*L(PUTCOUNTER)    | 02230 | 10010 | 02226 |   |                              |
|       | 00685       | PUT W(0)*W(COUNTER)            | 02231 | 14010 | 02232 |   |                              |
|       | 00686       | RPL Y+1*L(UNPACK)              | 02232 | 10030 | 00000 |   |                              |
|       | 00687       | CL B3                          | 02233 | 14030 | 02256 |   | INDEX RETURN POINT           |
|       | 00688       | PUT L(COUNTER)*L(GETPACK)      | 02234 | 36010 | 02226 |   | FWA OF PACKED TABLE          |
|       | 00689       | ENT A*U(COUNTER)               | 02235 | 12300 | 00000 |   |                              |
|       | 00690       | SUB A*1                        | 02236 | 10010 | 02256 |   | WORD COUNT                   |
|       | 00691       | STR A*L(LOOPLIMIT)             | 02237 | 14010 | 02245 |   | WORD COUNT MINUS ONE         |
|       | 00692       | CL B4                          | 02240 | 21000 | 00001 |   |                              |
|       | 00693       | ENT B5                         | 02241 | 15010 | 02253 |   | CLEAR CHARACTER COUNTER      |
|       | 00694       | LCOPSTART                      | 02242 | 12400 | 00000 |   | SET TO LOOP FIVE TIMES       |
|       | 00695       | ENT Q*W(B3)                    | 02243 | 12500 | 00004 |   | PACKED WORD                  |
|       | 00696       | GETPACK                        | 02244 | 10033 | 00000 |   |                              |

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LIST 210

| CARD  | IO         | LABEL                     | STATEMENT | LOC   | F     | J | K | B | Y | NOTES                             |
|-------|------------|---------------------------|-----------|-------|-------|---|---|---|---|-----------------------------------|
| 08717 | LOOP1      | CL A                      | 02246     | 11000 | 00000 |   |   |   |   | CLEAR ACCUMULATOR                 |
| 08720 |            | LSM AQ=6                  | 02247     | 07000 | 00006 |   |   |   |   | NEXT CHARACTER OF PACKED WORD     |
| 08721 | STOREUNPAK | STR A=L(1841              | 02250     | 15014 | 00000 |   |   |   |   | STORE IN UNPACK TABLE             |
| 08722 |            | BSK 84=77777              | 02251     | 71400 | 77777 |   |   |   |   | INDEX UNPACK TABLE                |
| 08723 |            | BJP 85=LOOP1              | 02252     | 72500 | 02246 |   |   |   |   | HAVE WE FINISHED THIS WORD        |
| 08724 | LOOPLIMIT  | BSK 83=                   | 02253     | 71300 | 00000 |   |   |   |   | YES. HAVE WE FINISHED ALL WORDS   |
| 08725 |            | JP LOOPSTART              | 02254     | 61000 | 02244 |   |   |   |   | NO.                               |
| 08726 |            | EXIT                      | 02255     | 61010 | 02226 |   |   |   |   | YES.                              |
| 08727 | COUNTER    | O O=                      | 02256     | 00000 | 00000 |   |   |   |   | U = WORD COUNT L = FWA PACKED     |
| 08730 | TRANSLATE  | ENTRY                     | 02257     | 61000 | 00000 |   |   |   |   | TABLE                             |
| 08731 |            | PUT L(TRANSLATE1=L(TRANS1 | 02260     | 10010 | 02257 |   |   |   |   | TRANSLATE FIELD DATA TO BCO       |
| 08732 | TRANS      | PUT W(O)=W(COUNT1         | 02261     | 14010 | 02262 |   |   |   |   |                                   |
| 08733 |            | PUT L(COUNT1=L(TRANS11    | 02262     | 10030 | 00000 |   |   |   |   |                                   |
| 08734 |            | STR Q=L(TRANS31           | 02263     | 14030 | 02302 |   |   |   |   | FWA OF FIELD DATA TEXT            |
| 08735 |            | RPL Y+1=L(TRANSLATE1      | 02264     | 10010 | 02302 |   |   |   |   |                                   |
| 08736 |            | RPL Y-1=L(COUNT1          | 02265     | 14010 | 02272 |   |   |   |   |                                   |
| 08737 |            | CL B2                     | 02266     | 14010 | 02276 |   |   |   |   | INDEX RETURN POINT                |
| 08740 | TRANS1     | ENT A=L(1821              | 02267     | 36010 | 02257 |   |   |   |   | CHARACTER COUNT MINUS ONE         |
| 08741 |            | ADD A=DICTIONARY          | 02270     | 37020 | 02302 |   |   |   |   | CLEAR CHARACTER COUNTER           |
| 08742 |            | STR A=L(TRANS21           | 02271     | 12200 | 00000 |   |   |   |   | NEXT CHARACTER OF FIELD DATA TEXT |
| 08743 | TRANS2     | ENT A=L(O1                | 02272     | 11012 | 00000 |   |   |   |   |                                   |
| 08744 | TRANS3     | STR A=L(1821              | 02273     | 20000 | 02303 |   |   |   |   | ADDRESS OF BCO CHARACTER          |
| 08745 |            | BSK B2=U(COUNT1           | 02274     | 15010 | 02275 |   |   |   |   | BCO TRANSLATION OF FO CHARACTER   |
| 08746 |            | JP TRANS1                 | 02275     | 11010 | 00000 |   |   |   |   | R                                 |
| 08747 | COUNT      | EXIT                      | 02276     | 15022 | 00000 |   |   |   |   | STORE BCO IN UPPER HALF OF FD     |
| 08750 | DICTIONARY | O O                       | 02277     | 71220 | 02302 |   |   |   |   | TEXT                              |
| 08751 |            | O1 20                     | 02300     | 61000 | 02272 |   |   |   |   | HAVE WE TRANSLATED ALL CHARACTER  |
| 08752 |            | O1 20                     | 02301     | 61010 | 02257 |   |   |   |   | ERS...                            |
| 08753 |            | O2 20                     | 02302     | 00000 | 00000 |   |   |   |   | NO.                               |
| 08754 |            | O3 13                     | 02303     | 00000 | 00020 |   |   |   |   | YES. RETURN                       |
| 08755 |            | O4 20                     | 02304     | 00001 | 00020 |   |   |   |   | SPACE                             |
| 08756 |            | O5 20                     | 02305     | 00002 | 00020 |   |   |   |   | SPACE                             |
| 08757 |            | O6 61                     | 02306     | 00003 | 00013 |   |   |   |   | SPACE                             |
| 08760 |            | O7 62                     | 02307     | 00004 | 00020 |   |   |   |   | SPACE                             |
| 08761 |            | 10 63                     | 02310     | 00005 | 00020 |   |   |   |   | SPACE                             |
| 08762 |            | 11 64                     | 02311     | 00006 | 00061 |   |   |   |   | A                                 |
| 08763 |            | 12 65                     | 02312     | 00007 | 00062 |   |   |   |   | B                                 |
| 08764 |            | 13 66                     | 02313     | 00010 | 00063 |   |   |   |   | C                                 |
| 08765 |            | 14 67                     | 02314     | 00011 | 00064 |   |   |   |   | D                                 |
| 08766 |            | 15 70                     | 02315     | 00012 | 00065 |   |   |   |   | E                                 |
| 08767 |            | 16 71                     | 02316     | 00013 | 00066 |   |   |   |   | F                                 |
| 08770 |            | 17 41                     | 02317     | 00014 | 00067 |   |   |   |   | G                                 |
| 08771 |            | 20 42                     | 02320     | 00015 | 00070 |   |   |   |   | H                                 |
|       |            |                           | 02321     | 00016 | 00071 |   |   |   |   | I                                 |
|       |            |                           | 02322     | 00017 | 00041 |   |   |   |   | J                                 |
|       |            |                           | 02323     | 00020 | 00042 |   |   |   |   | K                                 |

| CARD | LI    | ID       | LA | RE | TA                      | STATEMENT | LOC   | F     | J     | K | R | Y | NOTES                      |
|------|-------|----------|----|----|-------------------------|-----------|-------|-------|-------|---|---|---|----------------------------|
| •    | CC772 |          |    |    | 21                      | 43        | 02324 | 00021 | 00043 |   |   |   | L                          |
| •    | CC773 |          |    |    | 22                      | 44        | 02325 | 00022 | 00044 |   |   |   | M                          |
| •    | CC774 |          |    |    | 23                      | 45        | 02326 | 00023 | 00045 |   |   |   | N                          |
| •    | CC775 |          |    |    | 24                      | 46        | 02327 | 00024 | 00046 |   |   |   | O                          |
| •    | CC776 |          |    |    | 25                      | 47        | 02330 | 00025 | 00047 |   |   |   | P                          |
| •    | CC777 |          |    |    | 26                      | 50        | 02331 | 00026 | 00050 |   |   |   | Q                          |
| •    | C1000 |          |    |    | 27                      | 51        | 02332 | 00027 | 00051 |   |   |   | R                          |
| •    | C1001 |          |    |    | 30                      | 22        | 02333 | 00030 | 00022 |   |   |   | S                          |
| •    | C1002 |          |    |    | 31                      | 23        | 02334 | 00031 | 00023 |   |   |   | T                          |
| •    | C1003 |          |    |    | 32                      | 24        | 02335 | 00032 | 00024 |   |   |   | U                          |
| •    | C1004 |          |    |    | 33                      | 25        | 02336 | 00033 | 00025 |   |   |   | V                          |
| •    | C1005 |          |    |    | 34                      | 26        | 02337 | 00034 | 00026 |   |   |   | W                          |
| •    | C1006 |          |    |    | 35                      | 27        | 02340 | 00035 | 00027 |   |   |   | X                          |
| •    | C1007 |          |    |    | 36                      | 30        | 02341 | 00036 | 00030 |   |   |   | Y                          |
| •    | C1010 |          |    |    | 37                      | 31        | 02342 | 00037 | 00031 |   |   |   | Z                          |
| •    | C1011 |          |    |    | 40                      | 74        | 02343 | 00040 | 00074 |   |   |   | •                          |
| •    | C1012 |          |    |    | 41                      | 40        | 02344 | 00041 | 00040 |   |   |   | -                          |
| •    | C1013 |          |    |    | 42                      | 60        | 02345 | 00042 | 00060 |   |   |   | +                          |
| •    | C1014 |          |    |    | 43                      | 20        | 02346 | 00043 | 00020 |   |   |   | =                          |
| •    | C1015 |          |    |    | 44                      | 13        | 02347 | 00044 | 00013 |   |   |   | LESS THAN = BLANK          |
| •    | C1016 |          |    |    | 45                      | 20        | 02350 | 00045 | 00020 |   |   |   | =                          |
| •    | C1017 |          |    |    | 46                      | 60        | 02351 | 00046 | 00060 |   |   |   | GREATER THAN = BLANK       |
| •    | C1020 |          |    |    | 47                      | 53        | 02352 | 00047 | 00053 |   |   |   | AMPERASANO                 |
| •    | C1021 |          |    |    | 50                      | 54        | 02353 | 00050 | 00054 |   |   |   | DOLLAR SIGN                |
| •    | C1022 |          |    |    | 51                      | 34        | 02354 | 00051 | 00034 |   |   |   | ASTERISK                   |
| •    | C1023 |          |    |    | 52                      | 14        | 02355 | 00052 | 00014 |   |   |   | (                          |
| •    | C1024 |          |    |    | 53                      | 13        | 02356 | 00053 | 00013 |   |   |   | QUOTATION MARK             |
| •    | C1025 |          |    |    | 54                      | 20        | 02357 | 00054 | 00020 |   |   |   | COLON                      |
| •    | C1026 |          |    |    | 55                      | 20        | 02360 | 00055 | 00020 |   |   |   | SPACE                      |
| •    | C1027 |          |    |    | 56                      | 33        | 02361 | 00056 | 00033 |   |   |   | SPACE                      |
| •    | C1030 |          |    |    | 57                      | 20        | 02362 | 00057 | 00020 |   |   |   | SPACE                      |
| •    | C1031 |          |    |    | 60                      | 46        | 02363 | 00060 | 00046 |   |   |   | LETTER O, NOT NUMERAL ZERO |
| •    | C1032 |          |    |    | 61                      | 01        | 02364 | 00061 | 00001 |   |   |   | 1                          |
| •    | C1033 |          |    |    | 62                      | 02        | 02365 | 00062 | 00002 |   |   |   | 2                          |
| •    | C1034 |          |    |    | 63                      | 03        | 02366 | 00063 | 00003 |   |   |   | 3                          |
| •    | C1035 |          |    |    | 64                      | 04        | 02367 | 00064 | 00004 |   |   |   | 4                          |
| •    | C1036 |          |    |    | 65                      | 05        | 02370 | 00065 | 00005 |   |   |   | 5                          |
| •    | C1037 |          |    |    | 66                      | 06        | 02371 | 00066 | 00006 |   |   |   | 6                          |
| •    | C1040 |          |    |    | 67                      | 07        | 02372 | 00067 | 00007 |   |   |   | 7                          |
| •    | C1041 |          |    |    | 70                      | 10        | 02373 | 00070 | 00010 |   |   |   | 8                          |
| •    | C1042 |          |    |    | 71                      | 11        | 02374 | 00071 | 00011 |   |   |   | 9                          |
| •    | C1043 |          |    |    | 72                      | 14        | 02375 | 00072 | 00014 |   |   |   | APOSTROPHE                 |
| •    | C1044 |          |    |    | 73                      | 73        | 02376 | 00073 | 00073 |   |   |   | SEMICOLON = PERIOD         |
| •    | C1045 |          |    |    | 74                      | 21        | 02377 | 00074 | 00021 |   |   |   | /                          |
| •    | C1046 |          |    |    | 75                      | 73        | 02400 | 00075 | 00073 |   |   |   | •                          |
| •    | C1047 |          |    |    | 76                      | 20        | 02401 | 00076 | 00020 |   |   |   | SPACE                      |
| •    | C1050 |          |    |    | 77                      | 20        | 02402 | 00077 | 00020 |   |   |   | STOP                       |
| •    | C1051 | PACK     |    |    | ENTRY                   |           | 02403 | 61000 | 00000 |   |   |   | PACK 5 CHARACTERS PER WORD |
| •    | C1052 |          |    |    | STR A*(STOREPACK)       |           | 02404 | 15010 | 02431 |   |   |   | FWA OF PACKED TABLE        |
| •    | 01053 |          |    |    | PUT L(PACK)*L(PUTCOUNT) |           | 02405 | 10010 | 02403 |   |   |   |                            |
| •    |       |          |    |    |                         |           | 02406 | 14010 | 02407 |   |   |   |                            |
| •    |       |          |    |    |                         |           | 02407 | 10030 | 00000 |   |   |   |                            |
| •    | C1054 | PLTCOUNT |    |    | PUT W(0)*W(WORDCOUNT)   |           | 02410 | 14030 | 02435 |   |   |   |                            |

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| CAROS | LI    | IO       | LABEL   | TA         | STATEMENT               | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------|----------|---------|------------|-------------------------|-------|-------|-------|---|--------------------------------|
| .     | 01055 |          |         | RPL        | Y+1*(PACK)              | 02411 | 36010 | 02403 |   | INDEX RETURN POINT             |
| .     | 01056 |          |         | CL         | B3*                     | 02412 | 12300 | 00000 |   | CLEAR WORO COUNTER             |
| .     | 01057 |          |         | PUT        | L(WOROCOUNT)*L(GETCHAR) | 02413 | 10010 | 02435 |   |                                |
| .     | 01060 |          |         | ENT        | Q*U(WOROCOUNT)          | 02414 | 14010 | 02426 |   | CHARACTER COUNT                |
| .     | 01061 |          |         | CL         | A*                      | 02416 | 11000 | 00000 |   |                                |
| .     | 01062 |          |         | OIV        | S                       | 02417 | 23000 | 00005 |   | (CHARACTER COUNT)/5            |
| .     | 01063 |          |         | SUB        | Q*1                     | 02420 | 27000 | 00001 |   | PACKED WORO COUNT MINUS ONE    |
| .     | 01064 |          |         | STR        | Q*L(LOOPLIMIT2)         | 02421 | 14010 | 02432 |   |                                |
| .     | 01065 |          |         | CL         | B4*                     | 02422 | 12400 | 00000 |   | CLEAR CHARACTER COUNTER        |
| .     | 01066 |          |         | ENT        | B5*                     | 02423 | 12500 | 00004 |   | SET TO LOOP FIVE TIMES         |
| .     | 01067 |          |         | CL         | A*                      | 02424 | 11000 | 00000 |   |                                |
| .     | 01070 |          |         | LSH        | A*6                     | 02425 | 06000 | 00006 |   | ADD NEXT CHARACTER             |
| .     | 01071 |          |         | SEL        | SET*(B4)                | 02426 | 50024 | 00000 |   | INDEX UNPACK TABLE             |
| .     | 01072 |          |         | BSK        | B4*7777                 | 02427 | 71400 | 77777 |   | FINISHEO THIS WORO...          |
| .     | 01073 |          |         | BJP        | B5*LOOP2                | 02430 | 72500 | 02425 |   | YES. STORE UNPACKED WORO       |
| .     | 01074 |          |         | STOREPACK  | STR A*(B3)              | 02431 | 15033 | 00000 |   | FINISHEO STORING PACKED WORO.  |
| .     | 01075 |          |         | LOOPLIMIT2 | BSK B3*0                | 02432 | 71300 | 00000 |   |                                |
| .     | 01076 |          |         | JP         | LOOPSTART2              | 02433 | 61000 | 02423 |   | ..                             |
| .     | 01077 |          |         | EXIT       |                         | 02434 | 61010 | 02403 |   | NO                             |
| .     | 01100 |          |         | WOROCOUNT  | O                       | 02435 | 00000 | 00000 |   | YES.                           |
| .     | 01101 |          |         | COMMENT    | MAGNETIC                |       |       |       |   | TAPE EXTERNAL FUNCTION CODES W |
| .     | 01102 |          | REWF0   | 30100      | EINPUT                  | 02436 | 30100 | 00004 |   | /INTERRUPT                     |
| .     | 01103 | REWB0    | 30100   | AUSPUT     |                         | 02437 | 30100 | 00010 |   | REWIND FO INPUT                |
| .     | 01104 | ROF0     | 52000   | EINPUT     |                         | 02440 | 52000 | 00004 |   | REWIND BCO OUTPUT              |
| .     | 01105 | BSF0     | 30300   | EINPUT     |                         | 02441 | 30300 | 00004 |   | READ FO INPUT (BINARY A01      |
| .     | 01106 | EOFBC0   | 12300   | AUSPUT     |                         | 02442 | 12300 | 00010 |   | BACKSPACE FO INPUT             |
| .     | 01107 | REWB0WI  | 31100   | AUSPUT     |                         | 02443 | 31100 | 00010 |   | WRITE END OF FILE ON BCO TAPE  |
| .     | 01110 | REWF0WI  | 31100   | EINPUT     |                         | 02444 | 31100 | 00004 |   | HO                             |
| .     | 01111 | WRBC0    | 12200   | AUSPUT     |                         | 02445 | 12200 | 00010 |   | REWIND BCO OUTPUT W/INTERLOCK  |
| .     | 01112 | BSBC0    | 30300   | AUSPUT     |                         | 02446 | 30300 | 00010 |   | WRITE BCO OUTPUT HO            |
| .     | 01113 | ERASEBC0 | 10300   | AUSPUT     |                         | 02447 | 10300 | 00010 |   | BACKSPACE BCO OUTPUT           |
| .     | 01114 |          | RESERVE | 1          |                         | 02450 | 00000 | 00000 |   | ERASE FORWARD BCO OUTPUT       |
| .     |       |          |         |            |                         | 02451 | 73737 | 37373 |   |                                |
| .     |       |          |         |            |                         | 02452 | 12231 | 12413 |   |                                |

END OF LISTING

SPURT OUTPUT NO. 211

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LIST210

| LABEL       | LOC   | LABEL       | LOC   | LABEL       | LOC   | LABEL       | LOC   |
|-------------|-------|-------------|-------|-------------|-------|-------------|-------|
| AS\$S\$1111 | 00077 | AS\$S\$1112 | 02451 | AS\$S\$1113 | 00134 | AS\$S\$1116 | 00325 |
| AS\$S\$1114 | 00143 | AS\$S\$1115 | 02452 | AS\$S\$1116 | 00010 | AS\$S\$1116 | 00732 |
| AS\$S\$1117 | 00337 | AS\$S\$1118 | 00346 | AS\$S\$1116 | 00732 | AS\$S\$1116 | 02060 |
| BACK        | 01350 | RADMC       | 01733 | AS\$S\$1116 | 00051 | AS\$S\$1116 | 00764 |
| BSBCO       | 02446 | BSFD        | 02441 | AS\$S\$1116 | 00764 | AS\$S\$1116 | 01763 |
| COCITOFD    | 01651 | COUNTER     | 02256 | AS\$S\$1116 | 01167 | AS\$S\$1116 | 01515 |
| COUNT       | 02302 | CHANNEL1    | 01762 | AS\$S\$1116 | 01675 | AS\$S\$1116 | 01712 |
| CHANNEL     | 01761 | CHECK212    | 00363 | AS\$S\$1116 | 01666 | AS\$S\$1116 | 01477 |
| CHECK211    | 00307 | EORCO       | 02442 | AS\$S\$1116 | 00412 | AS\$S\$1116 | 00000 |
| CITIONARY   | 02303 | EINPUT      | 00004 | AS\$S\$1116 | 01670 | AS\$S\$1116 | 01356 |
| EOMSG       | 01512 | ENOTAPM     | 01704 | AS\$S\$1116 | 01732 | AS\$S\$1116 | 01600 |
| ENDTAPE     | 01747 | ERASFCO     | 02447 | AS\$S\$1116 | 01532 | AS\$S\$1116 | 01532 |
| ERASE       | 01740 | FOSTATCODE  | 01431 | AS\$S\$1116 | 02253 | AS\$S\$1116 | 02423 |
| FORTYFIVE   | 01332 | FIRSTPAGE   | 00115 | AS\$S\$1116 | 01521 | AS\$S\$1116 | 00242 |
| FINISH      | 01541 | GETCHAR     | 02426 | AS\$S\$1116 | 01635 | AS\$S\$1116 | 00304 |
| GETONELINE  | 00256 | INRUFFER    | 01340 | AS\$S\$1116 | 01412 | AS\$S\$1116 | 02005 |
| HUNGREOS    | 00222 | INITPRINT2  | 01323 | AS\$S\$1116 | 00226 | AS\$S\$1116 | 01255 |
| INITPRINT1  | 01310 | INTERLOCK   | 01351 | AS\$S\$1116 | 01433 | AS\$S\$1116 | 02032 |
| INTERJUMP   | 01347 | INTERRUPT   | 02056 | AS\$S\$1116 | 02407 | AS\$S\$1116 | 01333 |
| INTERLUCK   | 01756 | JPRINTOVR   | 01621 | AS\$S\$1116 | 02443 | AS\$S\$1116 | 00234 |
| ITISRIGHT   | 00313 | KOPTION3    | 02425 | AS\$S\$1116 | 00234 | AS\$S\$1116 | 01170 |
| KOPTION2    | 01613 | LOOP2       | 02244 | AS\$S\$1116 | 02250 | AS\$S\$1116 | 01372 |
| LOOP1       | 02246 | LOCSTART    | 01520 | AS\$S\$1116 | 01166 | AS\$S\$1116 | 01546 |
| LOOPLIMIT2  | 02432 | L210        | 00701 | AS\$S\$1116 | 00260 | AS\$S\$1116 | 02272 |
| LOCKP       | 01364 | LINE        | 01563 | AS\$S\$1116 | 02257 | AS\$S\$1116 | 00224 |
| L212        | 01522 | LISTOVER    | 00151 | AS\$S\$1116 | 01371 | AS\$S\$1116 | 00765 |
| LINESPERPG  | 00174 | LISTLINE    | 01641 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| LISTLABEL   | 00354 | MACHERR     | 00213 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| MACHERR     | 01637 | NOOVERFLOW  | 02403 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| MAKEUPHFAO  | 00124 | PACK        | 01223 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| NEXTJOR     | 01536 | PAGEHEAD02  | 00175 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| PAGEHEAD01  | 01171 | PAGINATION  | 01463 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| PAGEPRINT   | 00160 | PRINTBUFFC  | 02057 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| PARITYMSG   | 01451 | RGFO        | 02440 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| PRINTOVER   | 02055 | REBOWI      | 02437 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| PUTCOUNTER  | 02232 | REBOWI      | 02444 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| REUNOANT    | 01736 | SETUP       | 02035 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| REWFO       | 02436 | STOREPACK   | 02431 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| SETLINE     | 00236 | STATUS      | 01667 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| SKIPLINE    | 01307 | STRCHAN     | 00035 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| STATCODE    | 01764 | TAPEEXTINT  | 00223 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| STR2        | 00272 | TENS        | 02262 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| TAPEOONE    | 01562 | TRANS       | 02276 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| TAPEPARMSG  | 01464 | TRANS3      | 00230 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| THOUSANCS   | 00221 | UNDERSTAND  | 01424 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| TRANS2      | 02275 | UNITNO      | 02042 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| TRYAGAIN    | 01446 | UNPACKCODE  | 02016 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| UNIT210     | 01636 | WAKEUP      | 02445 | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| UNPACK      | 02226 | WRCD        |       | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| WORDCOUNT   | 02435 |             |       | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |
| WRONGTAPE   | 00370 |             |       | AS\$S\$1116 | 00306 | AS\$S\$1116 | 01713 |

..... SPURT OUTPUT NO. 211 .....

LIST210 MATHIASSEN\*8/21/64

| LABEL      | LOC   | LABEL      | LOC   |
|------------|-------|------------|-------|
| WRITEOUT   | 01723 | WRITEAGAIN | 01717 |
| WRITESERV0 | 02004 | WRITAPMSG  | 00373 |
|            |       | WRITEEOF   | 01523 |

END OF LISTING

| LIST210       |       |               | MATHIASFN*8/21/64 |               |       |
|---------------|-------|---------------|-------------------|---------------|-------|
| LABEL         | LOC   | LABEL         | LOC               | LABEL         | LOC   |
| INITIAL       | 00000 | EINPUT        | 00004             | AUSPUT        | 00010 |
| TAPEEXTINT    | 00035 | CONTINUE      | 00051             | A\$A\$A\$1111 | 00077 |
| FIRSTPAGE     | 00115 | MAKEUPHEAD    | 00124             | A\$A\$A\$1113 | 00134 |
| A\$A\$A\$1114 | 00143 | LISTLINE      | 00151             | PAGEPRINT     | 00160 |
| LINESPERPG    | 00174 | PAGINATION    | 00175             | NOOVERFLUH    | 00213 |
| THOUSANDS     | 00221 | HUNDREDS      | 00222             | TENS          | 00223 |
| UNIT          | 00224 | PAGE          | 00226             | UNDERSTAND    | 00230 |
| SETCARRIAG    | 00234 | SFTLINE       | 00236             | LINELOC       | 00242 |
| CONTCAR       | 00245 | GETONELINE    | 00256             | TESTLINENO    | 00260 |
| STRB2         | 00272 | MOVELINE      | 00304             | WHEREAT       | 00306 |
| CHECK211      | 00307 | ITISRIGHT     | 00313             | A\$A\$A\$1116 | 00325 |
| A\$A\$A\$1117 | 00337 | A\$A\$A\$1118 | 00346             | LISTLABEL     | 00354 |
| CHECK212      | 00363 | WRONGTAPE     | 00370             | WRTAPEMSG     | 00373 |
| FRECULO       | 00412 | LINE          | 00701             | BCDIMAGE      | 00732 |
| CARRIAGEC     | 00764 | UNPACKING     | 00765             | TOPEPAGE      | 01166 |
| DOUBLESP      | 01167 | SINGLESP      | 01170             | PAGEHEAD1     | 01171 |
| PAGEHEAD2     | 01223 | PAGEHEAD3     | 01255             | SKIPLINE      | 01307 |
| INITPRINT1    | 01310 | INITPRINT2    | 01323             | FORTYFIVE     | 01332 |
| READTAPE      | 01333 | INRUFFER      | 01340             | INTERJUMP     | 01347 |
| PACK          | 01350 | INTERLOCK     | 01351             | INTERLOCKP    | 01356 |
| LOCKP         | 01364 | INITNOINT     | 01371             | STATUSCODE    | 01372 |
| MACHFAULT     | 01412 | UNITNO        | 01424             | FOSTATCODE    | 01431 |
| PARITY        | 01433 | TRYAGAIN      | 01446             | PARITYMSG     | 01451 |
| PM5G          | 01463 | TAPEPARMSG    | 01464             | FOTAPEPAR     | 01477 |
| EUFMSG        | 01512 | EOFMESSAGE    | 01515             | L210          | 01520 |
| L211          | 01521 | L212          | 01522             | WRITEEOF      | 01523 |
| KEYJUMPS      | 01532 | NEXTJOB       | 01536             | FINISH        | 01541 |
| TAPEHANGLE    | 01546 | STRCHAN       | 01557             | TAPEONE       | 01562 |
| LISTOVER      | 01563 | KOPTION1      | 01600             | KUPTION2      | 01613 |
| KOPTION3      | 01621 | LISTEO        | 01635             | UNIT210       | 01636 |
| MACHERR       | 01637 | MACHERRR      | 01641             | COCTIOFD      | 01651 |
| EXCESS60      | 01666 | STATUS        | 01667             | INPUTAPENO    | 01670 |
| ENDOFAPM      | 01675 | ENDTAPEM      | 01704             | ENOTAPU       | 01712 |
| WRITE         | 01713 | WRITEAGAIN    | 01717             | WRITEOUT      | 01723 |
| INTERRUPT     | 01725 | INTJUMP       | 01732             | BAOMCH        | 01733 |
| REOUNOANT     | 01736 | FRASE         | 01740             | ENDTAPE       | 01747 |
| INTERLCK      | 01756 | CHANNEL       | 01761             | CHANNEL1      | 01762 |
| CHANNEL2      | 01763 | STATCODE      | 01764             | WRITESFRVO    | 02004 |
| NEWTAPE       | 02005 | WAKEUP        | 02016             | PRINT         | 02032 |
| SETUP         | 02035 | UNPACKCODE    | 02042             | PRINTOVER     | 02055 |
| JPPRINTOVR    | 02056 | PRINTBUFFC    | 02057             | BUFFERPRNT    | 02060 |
| UNPACK        | 02226 | PUTCOUNTER    | 02232             | LOOPSTART     | 02244 |
| GETPACK       | 02245 | LOOP1         | 02246             | STOREUNPAK    | 02250 |
| LOOPLIMIT     | 02253 | COUNTER       | 02256             | TRANSLATE     | 02257 |
| TRANS         | 02262 | TRANS1        | 02272             | TRANS2        | 02275 |
| TRANS3        | 02276 | COUNT         | 02302             | UCTIONARY     | 02303 |
| PACK          | 02403 | PUTCOUNT      | 02407             | LOOPSTARI2    | 02423 |
| LOOP2         | 02425 | GETCHAR       | 02426             | STOREPACK     | 02431 |
| LOOPLIMIT2    | 02432 | WOROCOUNT     | 02435             | REWFO         | 02436 |
| REWRCD        | 02437 | RDFC          | 02440             | BSFO          | 02441 |
| EORFCD        | 02442 | REWRCONI      | 02443             | REWFOWI       | 02444 |





| LI    | IO      | LABEL | TA                         | STATEMENT                           | LOC   | F     | JKB   | Y | NOTES |
|-------|---------|-------|----------------------------|-------------------------------------|-------|-------|-------|---|-------|
| CC036 |         |       | TYPET                      | TAPE-DENSITY-PARITY-FORMAT-SKF00065 | 00063 | 00000 | 00004 |   |       |
|       |         |       | ILE-SKREC-OPFILE-OPREC-REW |                                     | 00064 | 00000 | 00061 |   |       |
|       |         |       |                            |                                     | 00065 | 61000 | 00102 |   |       |
|       |         |       |                            |                                     | 00066 | 31062 | 51241 |   |       |
|       |         |       |                            |                                     | 00067 | 11122 | 33016 |   |       |
|       |         |       |                            |                                     | 00070 | 31364 | 12506 |   |       |
|       |         |       |                            |                                     | 00071 | 27163 | 13641 |   |       |
|       |         |       |                            |                                     | 00072 | 13242 | 72206 |   |       |
|       |         |       |                            |                                     | 00073 | 31413 | 02013 |   |       |
|       |         |       |                            |                                     | 00074 | 16211 | 24130 |   |       |
|       |         |       |                            |                                     | 00075 | 20271 | 21041 |   |       |
|       |         |       |                            |                                     | 00076 | 11251 | 31821 |   |       |
|       |         |       |                            |                                     | 00077 | 12411 | 12527 |   |       |
|       |         |       |                            |                                     | 00100 | 12104 | 12712 |   |       |
|       |         |       |                            |                                     | 00101 | 34050 | 50505 |   |       |
|       |         |       |                            |                                     | 00102 | 64120 | 00142 |   |       |
|       |         |       |                            |                                     | 00103 | 00000 | 00074 |   |       |
|       |         |       |                            |                                     | 00104 | 00000 | 00066 |   |       |
|       |         |       |                            |                                     | 00105 | 61000 | 00107 |   |       |
|       |         |       |                            |                                     | 00106 | 04050 | 00000 |   |       |
|       |         |       |                            |                                     | 00107 | 64120 | 00142 |   |       |
|       |         |       |                            |                                     | 00110 | 00000 | 00002 |   |       |
|       |         |       |                            |                                     | 00111 | 00000 | 00106 |   |       |
|       |         |       |                            |                                     | 00112 | 11510 | 01744 |   |       |
|       |         |       |                            |                                     | 00113 | 61000 | 00120 |   |       |
|       |         |       |                            |                                     | 00114 | 74130 | 01476 |   |       |
|       |         |       |                            |                                     | 00115 | 63100 | 00115 |   |       |
|       |         |       |                            |                                     | 00116 | 16010 | 01744 |   |       |
|       |         |       |                            |                                     | 00117 | 61000 | 00000 |   |       |
|       |         |       |                            |                                     | 00120 | 10000 | 00131 |   |       |
|       |         |       |                            |                                     | 00121 | 14010 | 00117 |   |       |
|       |         |       |                            |                                     | 00122 | 10000 | 01500 |   |       |
|       |         |       |                            |                                     | 00123 | 14020 | 01476 |   |       |
|       |         |       |                            |                                     | 00124 | 74130 | 01462 |   |       |
|       |         |       |                            |                                     | 00125 | 63100 | 00125 |   |       |
|       |         |       |                            |                                     | 00126 | 11000 | 00005 |   |       |
|       |         |       |                            |                                     | 00127 | 70100 | 00002 |   |       |
|       |         |       |                            |                                     | 00130 | 15030 | 01477 |   |       |
|       |         |       |                            |                                     | 00131 | 65000 | 01612 |   |       |
|       |         |       |                            |                                     | 00132 | 43600 | 00012 |   |       |
|       |         |       |                            |                                     | 00133 | 43600 | 00006 |   |       |
|       |         |       |                            |                                     | 00134 | 61000 | 01346 |   |       |
|       |         |       |                            |                                     | 00135 | 15030 | 01501 |   |       |
|       |         |       |                            |                                     | 00136 | 10000 | 00154 |   |       |
|       |         |       |                            |                                     | 00137 | 14010 | 00117 |   |       |
|       |         |       |                            |                                     | 00140 | 10000 | 01506 |   |       |
|       |         |       |                            |                                     | 00141 | 14020 | 01476 |   |       |
|       |         |       |                            |                                     | 00142 | 21000 | 00006 |   |       |
|       |         |       |                            |                                     | 00143 | 12370 | 00000 |   |       |
|       |         |       |                            |                                     | 00144 | 11013 | 01342 |   |       |
|       |         |       |                            |                                     | 00145 | 15010 | 01721 |   |       |
|       |         |       |                            |                                     | 00146 | 15010 | 01727 |   |       |
| CC037 | GG01    |       | TYPET                      | \$CR\$                              |       |       |       |   |       |
| CC040 |         |       | ENT                        | A*L(TYPMESSW1*ANOT                  |       |       |       |   |       |
| CC041 |         |       | JP                         | SEEUNIT                             |       |       |       |   |       |
| CC042 |         |       | OUT                        | C2*W(TYPMESRUF1                     |       |       |       |   |       |
| CC043 |         |       | JP                         | \$C2*ACTIVEOUT                      |       |       |       |   |       |
| CC044 |         |       | CL                         | L(TYPMESSW)                         |       |       |       |   |       |
| CC045 | GG02    |       | JP                         | 0                                   |       |       |       |   |       |
| CC046 | SEEUNIT |       | PUT                        | ZW01*L(GGG021                       |       |       |       |   |       |
| CC047 |         |       | PUT                        | TYPMES+1*U(TYPMESRUF1               |       |       |       |   |       |
| CC050 |         |       | OUT                        | C2*W(SPACE2)                        |       |       |       |   |       |
| CC051 |         |       | JP                         | \$C2*ACTIVEOUT                      |       |       |       |   |       |
| CC052 |         |       | ENT                        | A*5                                 |       |       |       |   |       |
| CC053 |         |       | RPT                        | 2*AOV                               |       |       |       |   |       |
| CC054 |         |       | STR                        | A*W(TYPFMS1                         |       |       |       |   |       |
| CC055 | Z4D1    |       | RJP                        | BRINGIN                             |       |       |       |   |       |
| CC056 |         |       | COM                        | MASK*10D*AP0S                       |       |       |       |   |       |
| CC057 |         |       | COM                        | MASK*6*AP0S                         |       |       |       |   |       |
| CC060 |         |       | JP                         | SERV0ERR                            |       |       |       |   |       |
| CC061 |         |       | STR                        | A*W(TYPFMS+21                       |       |       |       |   |       |
| CC062 |         |       | PUT                        | ZW02*L(GGG021                       |       |       |       |   |       |
| CC063 |         |       | PUT                        | TYPMES+7*U(TYPMESRUF1               |       |       |       |   |       |
| CC064 |         |       | SUB                        | A*6                                 |       |       |       |   |       |
| CC065 |         |       | ENT                        | R3*A                                |       |       |       |   |       |
| CC066 |         |       | ENT                        | A*L(WHUNIT+831                      |       |       |       |   |       |
| CC067 |         |       | STR                        | A*L(RF*INO)                         |       |       |       |   |       |
| CC070 |         |       | STR                        | A*L(RDFUNCW0)                       |       |       |       |   |       |

| CARDS | L1    | IC | LABEL      | TA  | STATEMENT                   | LOC   | F     | JK8   | Y | NOTES |
|-------|-------|----|------------|-----|-----------------------------|-------|-------|-------|---|-------|
| .     | CC071 |    | SENSITYREQ | OUT | C2*(W(SPACES)               | 00147 | 74130 | 01465 |   |       |
| .     | CC072 |    |            | JP  | \$*C2*ACTIVEOUT             | 00150 | 63100 | 00150 |   |       |
| .     | CC073 |    |            | ENT | A*5                         | 00151 | 11000 | 00005 |   |       |
| .     | CC074 |    |            | RPT | S*AOV                       | 00152 | 70100 | 00005 |   |       |
| .     | CC075 |    |            | STR | A*(TYPEMES+3)               | 00153 | 15030 | 01502 |   |       |
| .     | CC076 |    | ZK02       | RJP | BRINGIN                     | 00154 | 65000 | 01612 |   |       |
| .     | CC077 |    |            | COM | MASK*15*AZERO               | 00155 | 43400 | 00015 |   |       |
| .     | CC100 |    |            | JP  | SEEIFLOW                    | 00156 | 61000 | 00162 |   |       |
| .     | CC101 |    |            | PUT | 1*(OENSITYSW)               | 00157 | 10000 | 00001 |   |       |
| .     | CC102 |    |            | JP  | AHEAO2                      | 00160 | 14030 | 01726 |   |       |
| .     | CC103 |    | SEEIFLOW   | ENT | Q*77                        | 00161 | 61000 | 00166 |   |       |
| .     | CC104 |    |            | COM | MASK*21*AZERO               | 00162 | 10000 | 00077 |   |       |
| .     | CC105 |    |            | CL  | DENERR                      | 00163 | 43400 | 00021 |   |       |
| .     | CC106 |    |            | CL  | WIDENSITYSW                 | 00164 | 61000 | 01361 |   |       |
| .     | CC107 |    | APEAO2     | STR | A*(TYPEMES+80)              | 00165 | 16030 | 01726 |   |       |
| .     | CC110 |    |            | PUT | ZW03*L(GOG02)               | 00166 | 15030 | 01507 |   |       |
| .     | CC111 |    |            | PUT | TYPEMES+15D*(TYPEMESBUF)    | 00167 | 10000 | 00200 |   |       |
| .     | CC112 |    |            | OUT | C2*(W(SPACE7)               | 00170 | 14010 | 00117 |   |       |
| .     | CC113 |    |            | JP  | \$*C2*ACTIVEOUT             | 00171 | 10000 | 01516 |   |       |
| .     | CC114 |    |            | ENT | A*5                         | 00172 | 14020 | 01476 |   |       |
| .     | CC115 |    |            | RPT | 7*AOV                       | 00173 | 74130 | 01467 |   |       |
| .     | CC116 |    |            | STR | A*(TYPEMES+90)              | 00174 | 63100 | 00174 |   |       |
| .     | CC117 |    | ZW03       | RJP | BRINGIN                     | 00175 | 11000 | 00005 |   |       |
| .     | CC12C |    |            | COM | MASK*12*AZERO               | 00176 | 70100 | 00007 |   |       |
| .     | CC121 |    |            | JP  | SEEIFOOD                    | 00177 | 15030 | 01510 |   |       |
| .     | CC122 |    |            | ENT | A*(OENSITYSW)*AZERO         | 00200 | 65000 | 01612 |   |       |
| .     | CC123 |    |            | JP  | HIOEN                       | 00201 | 43400 | 00012 |   |       |
| .     | CC124 |    |            | PUT | 53200*(IROFUNCW0)           | 00202 | 61000 | 00213 |   |       |
| .     | CC125 |    |            | JP  | AHEAO3                      | 00203 | 11430 | 01726 |   |       |
| .     | CC126 |    | HIDEN      | PUT | 52200*(IROFUNCW0)           | 00204 | 61000 | 00210 |   |       |
| .     | CC127 |    | SEEIF000   | JP  | AHEAO3                      | 00205 | 10000 | 53200 |   |       |
| .     | CC131 |    |            | COM | MASK*24*AZERO               | 00206 | 14020 | 01727 |   |       |
| .     | CC132 |    |            | JP  | PARERR                      | 00207 | 61000 | 00225 |   |       |
| .     | CC133 |    |            | ENT | A*(OENSITYSW)*AZERC         | 00210 | 10000 | 52200 |   |       |
| .     | CC134 |    |            | JP  | KOOHIOEN                    | 00211 | 14020 | 01727 |   |       |
| .     | CC135 |    |            | PUT | 53000*(IROFUNCW0)           | 00212 | 61000 | 00225 |   |       |
| .     | CC136 |    |            | JP  | AHEAO3                      | 00213 | 10000 | 00077 |   |       |
| .     | CC137 |    | KCOOHIOEN  | PUT | 52000*(IROFUNCW0)           | 00214 | 43400 | 00024 |   |       |
| .     | CC140 |    | APEAO3     | PUT | L(TEMPORARY)*W(TYPEMES+160) | 00215 | 61000 | 01374 |   |       |
| .     | CC141 |    |            | PUT | ZW04*L(GOG02)               | 00216 | 11430 | 01726 |   |       |
| .     | CC142 |    |            | PUT | TYPEMES+23D*(TYPEMESBUF)    | 00217 | 61000 | 00223 |   |       |
| .     | CC143 |    |            | OUT | C2*(W(SPACE7)               | 00220 | 10000 | 53000 |   |       |
| .     | CC144 |    |            | PUT | ZW04*L(GOG02)               | 00221 | 14020 | 01727 |   |       |
| .     | CC145 |    |            | PUT | L(TEMPORARY)*W(TYPEMES+160) | 00222 | 61000 | 00225 |   |       |
| .     | CC146 |    |            | PUT | ZW04*L(GOG02)               | 00223 | 10000 | 52000 |   |       |
| .     | CC147 |    |            | PUT | ZW04*L(GOG02)               | 00224 | 14020 | 01727 |   |       |
| .     | CC148 |    |            | PUT | ZW04*L(GOG02)               | 00225 | 10010 | 01714 |   |       |
| .     | CC149 |    |            | PUT | ZW04*L(GOG02)               | 00226 | 14030 | 01517 |   |       |
| .     | CC150 |    |            | PUT | ZW04*L(GOG02)               | 00227 | 10000 | 00240 |   |       |
| .     | CC151 |    |            | PUT | ZW04*L(GOG02)               | 00230 | 14010 | 00117 |   |       |
| .     | CC152 |    |            | PUT | ZW04*L(GOG02)               | 00231 | 10000 | 01526 |   |       |
| .     | CC153 |    |            | PUT | ZW04*L(GOG02)               | 00232 | 14020 | 01476 |   |       |
| .     | CC154 |    |            | PUT | ZW04*L(GOG02)               | 00233 | 74130 | 01467 |   |       |

| CAROS | LI ID LABEL | TA STATEMENT                  | LOC   | F JKR Y | NOTES |
|-------|-------------|-------------------------------|-------|---------|-------|
| •     | CC144       | JP \$C2*ACTIVEOUT             | 00234 | 63100   | 00234 |
| •     | CC145       | ENT A*5                       | 00235 | 11000   | 00005 |
| •     | CC146       | RPT 7*AOV                     | 00236 | 70100   | 00007 |
| •     | CC147       | STR A*W(TYPEMES+1701          | 00237 | 15030   | 01520 |
| •     | CC150       | RJP BRINGIN                   | 00240 | 65000   | 01612 |
| •     | CC151       | COM MASK*7*AZERO              | 00241 | 43400   | 00007 |
| •     | CC152       | JP SEEIFFORO                  | 00242 | 61000   | 00246 |
| •     | CC153       | PUT 1*W(TYPEFORM)             | 00243 | 10000   | 00001 |
|       |             |                               | 00244 | 14030   | 01730 |
| •     | CC154       | JP AHEAO4                     | 00245 | 61000   | 00261 |
| •     | CC155       | ENT Q*77                      | 00246 | 10000   | 00077 |
| •     | CC156       | COM MASK*13*AZERO             | 00247 | 43400   | 00013 |
| •     | CC157       | JP SEEIFOCT                   | 00250 | 61000   | 00254 |
| •     | CC16C       | PUT 2*W(TYPEFORM)             | 00251 | 10000   | 00002 |
|       |             |                               | 00252 | 14030   | 01730 |
| •     | CC161       | JP AHEAO4                     | 00253 | 61000   | 00261 |
| •     | CC162       | ENT Q*77                      | 00254 | 10000   | 00077 |
| •     | CC163       | COM MASK*24*AZERO             | 00255 | 43400   | 00024 |
| •     | CC164       | JP FORMERR                    | 00256 | 61000   | 01407 |
| •     | CC165       | PUT 3*W(TYPEFORM)             | 00257 | 10000   | 00003 |
|       |             |                               | 00260 | 14030   | 01730 |
| •     | CC166       | A*W(TYPEMES+2401              | 00261 | 15030   | 01527 |
| •     | CC167       | PUT ZIP1*L(GOG02)             | 00262 | 10000   | 00273 |
|       |             |                               | 00263 | 14010   | 00117 |
| •     | CC170       | PUT TYPEMES+29D*U(TYPEMESBUF) | 00264 | 10000   | 01534 |
|       |             |                               | 00265 | 14020   | 01476 |
| •     | CC171       | OUT C2*W(SPACE51              | 00266 | 74130   | 01465 |
| •     | CC172       | JP \$C2*ACTIVEOUT             | 00267 | 63100   | 00267 |
| •     | CC173       | ENT A*5                       | 00270 | 11000   | 00005 |
| •     | CC174       | RPT 5*AOV                     | 00271 | 70100   | 00005 |
| •     | CC175       | STR A*W(TYPEMES+2501          | 00272 | 15030   | 01530 |
| •     | CC176       | RJP BRINGIN                   | 00273 | 65000   | 01612 |
| •     | CC177       | COM MASK*71*AP0S              | 00274 | 43600   | 00071 |
| •     | CC200       | COM MASK*60*AP0S              | 00275 | 43600   | 00060 |
| •     | CC201       | JP NO01C                      | 00276 | 61000   | 01431 |
| •     | CC202       | STR A*L(XMANY+B1)             | 00277 | 15011   | 01473 |
| •     | CC203       | STR A*W(TYPEMES+30C+B1)       | 00300 | 15031   | 01535 |
| •     | CC204       | BSK R1*2                      | 00301 | 71100   | 00002 |
| •     | CC205       | JP ZIP1                       | 00302 | 61000   | 00273 |
| •     | CC206       | PUT ZIP2*L(GOG02)             | 00303 | 10000   | 00320 |
|       |             |                               | 00304 | 14010   | 00117 |
| •     | CC207       | PUT TYPEMES+35D*U(TYPEMESBUF) | 00305 | 10000   | 01542 |
|       |             |                               | 00306 | 14020   | 01476 |
| •     | CC210       | RJP CVOTO                     | 00307 | 65000   | 01566 |
| •     | CC211       | STR Q*LICNT11                 | 00310 | 14010   | 01740 |
| •     | CC212       | STR Q*W(FILECT)               | 00311 | 14030   | 01732 |
| •     | CC213       | RPL Y+1*W(FILECT)             | 00312 | 36030   | 01732 |
| •     | CC214       | A*EAC5                        | 00313 | 74130   | 01463 |
| •     | CC215       | OUT C2*W(SPACE31              | 00314 | 63100   | 00314 |
| •     | CC216       | JP \$C2*ACTIVEOUT             | 00315 | 11000   | 00005 |
| •     | CC217       | ENT A*5                       | 00316 | 70100   | 00003 |
| •     | CC220       | RPT 3*AOV                     | 00317 | 15030   | 01540 |
| •     | CC221       | STR A*W(TYPEMES+330)          | 00320 | 65000   | 01612 |
| •     | CC221       | RJP BRINGIN                   |       |         |       |

| CAROS | L1    | IO     | LABEL | TA  | STATEMENT                 | LOC   | F     | JK8   | Y | NOTES |
|-------|-------|--------|-------|-----|---------------------------|-------|-------|-------|---|-------|
| .     | CC222 |        |       | COM | MASK*71*AP0S              | 00321 | 43600 | 00071 |   |       |
| .     | CC223 |        |       | COM | MASK*60*AP0S              | 00322 | 43600 | 00060 |   |       |
| .     | CC224 |        |       | JP  | NO01G                     | 00323 | 61000 | 01431 |   |       |
| .     | CC225 |        |       | STR | A*(IXMANY+81)             | 00324 | 15011 | 01473 |   |       |
| .     | CC226 |        |       | STR | A*(TYPEMES+360+81)        | 00325 | 15031 | 01543 |   |       |
| .     | CC227 |        |       | BSK | B1*2                      | 00326 | 71100 | 00002 |   |       |
| .     | CC230 |        |       | JP  | ZIP2                      | 00327 | 61000 | 00320 |   |       |
| .     | CC231 |        |       | PUT | ZIP3*L(G0G02)             | 00330 | 10000 | 00344 |   |       |
| .     | CC232 |        |       | PUT | TYPEMES+420*U(TYPEMESRUF) | 00331 | 14010 | 00117 |   |       |
| .     | CC233 |        |       | RJP | CV0T0                     | 00332 | 10000 | 01551 |   |       |
| .     | CC234 |        |       | STR | Q*(LCNT2)                 | 00333 | 14020 | 01476 |   |       |
| .     | CC235 |        |       | STR | Q*(RECORON0)              | 00334 | 65000 | 01566 |   |       |
| .     | CC236 | A-EAD6 |       | OUT | C2*(SPACE4)               | 00335 | 14010 | 01741 |   |       |
| .     | CC237 |        |       | JP  | \$*C2*ACTIVEOUT           | 00336 | 14030 | 01733 |   |       |
| .     | CC240 |        |       | ENT | A*5                       | 00337 | 74130 | 01464 |   |       |
| .     | CC241 |        |       | RPT | 4*AOV                     | 00340 | 63100 | 00340 |   |       |
| .     | CC242 |        |       | STR | A*(TYPEMES+390)           | 00341 | 11000 | 00005 |   |       |
| .     | CC243 | ZIP3   |       | RJP | BRINGIN                   | 00342 | 70100 | 00004 |   |       |
| .     | CC244 |        |       | COM | MASK*71*AP0S              | 00343 | 15030 | 01546 |   |       |
| .     | CC245 |        |       | COM | MASK*60*AP0S              | 00344 | 65000 | 01612 |   |       |
| .     | CC246 |        |       | JP  | NO01G                     | 00345 | 43600 | 00071 |   |       |
| .     | CC247 |        |       | STR | A*(IXMANY+81)             | 00346 | 43600 | 00060 |   |       |
| .     | CC250 |        |       | STR | A*(TYPEMES+430+81)        | 00347 | 61000 | 01431 |   |       |
| .     | CC251 |        |       | BSK | B1*2                      | 00350 | 15011 | 01473 |   |       |
| .     | CC252 |        |       | JP  | ZIP3                      | 00351 | 15031 | 01552 |   |       |
| .     | CC253 |        |       | PUT | ZIP4*L(G0G02)             | 00352 | 71100 | 00002 |   |       |
| .     | CC254 |        |       | PUT | TYPEMES+480*U(TYPEMESRUF) | 00353 | 61000 | 00344 |   |       |
| .     | CC255 |        |       | RJP | CV0T0                     | 00354 | 10000 | 00367 |   |       |
| .     | CC256 |        |       | STR | Q*(LCNT3)                 | 00355 | 14010 | 00117 |   |       |
| .     | CC257 | A-EA07 |       | OUT | C2*(SPACE3)               | 00356 | 10000 | 01557 |   |       |
| .     | CC260 |        |       | JP  | \$*C2*ACTIVEOUT           | 00357 | 14020 | 01476 |   |       |
| .     | CC261 |        |       | ENT | A*5                       | 00360 | 65000 | 01566 |   |       |
| .     | CC262 |        |       | RPT | 3*AOV                     | 00361 | 14010 | 01742 |   |       |
| .     | CC263 |        |       | STR | A*(TYPEMES+460)           | 00362 | 74130 | 01463 |   |       |
| .     | CC264 | ZIP4   |       | RJP | BRINGIN                   | 00363 | 63100 | 00363 |   |       |
| .     | CC265 |        |       | COM | MASK*71*AP0S              | 00364 | 11000 | 00005 |   |       |
| .     | CC266 |        |       | COM | MASK*60*AP0S              | 00365 | 70100 | 00003 |   |       |
| .     | CC267 |        |       | JP  | NO01G                     | 00366 | 15030 | 01555 |   |       |
| .     | CC270 |        |       | STR | A*(IXMANY+81)             | 00367 | 65000 | 01612 |   |       |
| .     | CC271 |        |       | STR | A*(TYPEMES+490+81)        | 00370 | 43600 | 00071 |   |       |
| .     | CC272 |        |       | BSK | B1*2                      | 00371 | 43600 | 00060 |   |       |
| .     | CC273 |        |       | JP  | ZIP4                      | 00372 | 61000 | 01431 |   |       |
| .     | CC274 |        |       | PUT | ZW05*L(G0G02)             | 00373 | 15011 | 01473 |   |       |
| .     | CC275 |        |       | PUT | TYPEMES+540*U(TYPEMESRUF) | 00374 | 15031 | 01560 |   |       |
| .     | CC276 |        |       | RJP | CV0T0                     | 00375 | 71100 | 00002 |   |       |
| .     | CC277 |        |       | STR | Q*(LCNT4)                 | 00376 | 61000 | 00367 |   |       |
| .     | CC300 | A-EAD8 |       | OUT | C2*(SPACE3)               | 00377 | 10000 | 00412 |   |       |
| .     |       |        |       |     |                           | 00400 | 14010 | 00117 |   |       |
| .     |       |        |       |     |                           | 00401 | 10000 | 01565 |   |       |
| .     |       |        |       |     |                           | 00402 | 14020 | 01476 |   |       |
| .     |       |        |       |     |                           | 00403 | 65000 | 01566 |   |       |
| .     |       |        |       |     |                           | 00404 | 14010 | 01743 |   |       |
| .     |       |        |       |     |                           | 00405 | 74130 | 01463 |   |       |

| CAROS | LI    | ID | LABEL     | TA     | STATEMENT        | LOC   | F     | JKB   | Y | NOTES |
|-------|-------|----|-----------|--------|------------------|-------|-------|-------|---|-------|
| .     | CC301 |    |           | JP     | \$C2*ACTIVEOUT   | 00406 | 63100 | 00406 |   |       |
| .     | CC302 |    |           | ENT    | A*5              | 00407 | 11000 | 00005 |   |       |
| .     | CC303 |    |           | RPT    | 3*AOV            | 00410 | 70100 | 00003 |   |       |
| .     | CC304 |    |           | STR    | A*W(TYPES+520)   | 00411 | 15030 | 01563 |   |       |
| .     | CC305 |    | ZWD5      | RJP    | RRINGIN          | 00412 | 65000 | 01612 |   |       |
| .     | CC306 |    |           | COM    | MASK*23*ANOT     | 00413 | 43500 | 00023 |   |       |
| .     | CC307 |    |           | JP     | AHEAD9           | 00414 | 61000 | 00422 |   |       |
| .     | CC310 |    |           | COM    | MASK*36*AZERO    | 00415 | 43400 | 00036 |   |       |
| .     | CC311 |    |           | JP     | ANSREW           | 00416 | 61000 | 01443 |   |       |
| .     | CC312 |    |           | PUT    | 30100*U(REWINO)  | 00417 | 10000 | 30100 |   |       |
| .     | CC313 |    |           | JP     | PROCESSER        | 00420 | 14020 | 01721 |   |       |
| .     | CC314 |    | AHEAD9    | CL     | U(REWINO)        | 00421 | 61000 | 00423 |   |       |
| .     | CC315 |    | PROCESSER | RPT    | 550*AOV          | 00422 | 16020 | 01721 |   |       |
| .     | CC316 |    |           | CL     | W(TYPES)         | 00423 | 70100 | 00067 |   |       |
| .     | CC317 |    |           | TYPEI  | \$CR\$LF\$       | 00424 | 16030 | 01477 |   |       |
| .     |       |    |           |        |                  | 00425 | 61000 | 00427 |   |       |
| .     |       |    |           |        |                  | 00426 | 04030 | 50500 |   |       |
| .     |       |    |           |        |                  | 00427 | 64120 | 00142 |   |       |
| .     |       |    |           |        |                  | 00430 | 00000 | 00004 |   |       |
| .     |       |    |           |        |                  | 00431 | 00000 | 00426 |   |       |
| .     | CC320 |    |           | IN     | C2*W(ATTENIN)    | 00432 | 73130 | 01471 |   |       |
| .     | CC321 |    |           | ENT    | A*U(REWINO)*ANOT | 00433 | 11520 | 01721 |   |       |
| .     | CC322 |    |           | JP     | FORWARD1         | 00434 | 61000 | 00441 |   |       |
| .     | CC323 |    |           | EX-FCT | C15*W(REWINO)    | 00435 | 13670 | 01721 |   |       |
| .     | CC324 |    | WAIT1     | JP     | WAIT1            | 00436 | 61000 | 00436 |   |       |
| .     | CC325 |    |           | EX-FCT | C15*W(REWINO)    | 00437 | 13670 | 01721 |   |       |
| .     | CC326 |    | WAIT1A    | JP     | WAIT1A           | 00440 | 61000 | 00440 |   |       |
| .     | CC327 |    | FORWARD1  | RJP    | ATTENTION        | 00441 | 65000 | 01601 |   |       |
| .     | CC330 |    |           | ENT    | A*W(CNT1)*ANOT   | 00442 | 11530 | 01740 |   |       |
| .     | CC331 |    |           | JP     | FORWARD2         | 00443 | 61000 | 00453 |   |       |
| .     | CC332 |    |           | IN     | C15*W(BUFFERIN)  | 00444 | 73670 | 02034 |   |       |
| .     | CC333 |    |           | NO-OP  |                  | 00445 | 12000 | 00000 |   |       |
| .     | CC334 |    |           | EX-FCT | C15*W(ROFUNCWO)  | 00446 | 13670 | 01727 |   |       |
| .     | CC335 |    | WAIT2     | JP     | WAIT2            | 00447 | 61000 | 00447 |   |       |
| .     | CC336 |    |           | JP     | FORWARD1         | 00450 | 61000 | 00441 |   |       |
| .     | CC337 |    |           | RPL    | Y-1*W(CNT1)      | 00451 | 37030 | 01740 |   |       |
| .     | CC340 |    |           | JP     | FORWARD1         | 00452 | 61000 | 00441 |   |       |
| .     | CC341 |    | FORWARD2  | RJP    | ATTENTION        | 00453 | 65000 | 01601 |   |       |
| .     | CC342 |    |           | ENT    | A*W(CNT2)*ANOT   | 00454 | 11530 | 01741 |   |       |
| .     | CC343 |    |           | JP     | FORWARD3         | 00455 | 61000 | 00464 |   |       |
| .     | CC344 |    |           | IN     | C15*W(BUFFERIN)  | 00456 | 73670 | 02034 |   |       |
| .     | CC345 |    |           | NO-CP  |                  | 00457 | 12000 | 00000 |   |       |
| .     | CC346 |    |           | EX-FCT | C15*W(ROFUNCWO)  | 00460 | 13670 | 01727 |   |       |
| .     | CC347 |    | WAIT3     | JP     | WAIT3            | 00461 | 61000 | 00461 |   |       |
| .     | CC350 |    |           | RPL    | Y-1*W(CNT2)      | 00462 | 37030 | 01741 |   |       |
| .     | CC351 |    |           | JP     | FORWARD2         | 00463 | 61000 | 00453 |   |       |
| .     | CC352 |    | FORWARD3  | RJP    | ATTENTION        | 00464 | 65000 | 01601 |   |       |
| .     | CC353 |    |           | ENT    | A*W(CNT3)*ANOT   | 00465 | 11530 | 01742 |   |       |
| .     | CC354 |    |           | JP     | FORWARD4         | 00466 | 61000 | 00511 |   |       |
| .     | CC355 |    |           | IN     | C15*W(BUFFERIN)  | 00467 | 73670 | 02034 |   |       |
| .     | CC356 |    |           | NO-OP  |                  | 00470 | 12000 | 00000 |   |       |
| .     | CC357 |    |           | EX-FCT | C15*W(ROFUNCWO)  | 00471 | 13670 | 01727 |   |       |
| .     | CC360 |    | WAIT4     | JP     | WAIT4            | 00472 | 61000 | 00472 |   |       |

| CARDS | L1    | IO | LABEL     | TA     | STATEMENT             | LOC   | F     | JK8   | Y | NOTES |
|-------|-------|----|-----------|--------|-----------------------|-------|-------|-------|---|-------|
| •     | CC361 |    |           | JP     | WORKONBUF             | 00473 | 61000 | 00542 |   |       |
| •     | CC362 |    |           | RPL    | Y-1*W(CNT3)*AZERO     | 00474 | 37430 | 01742 |   |       |
| •     | CC363 |    |           | JP     | \$+2                  | 00475 | 61000 | 00477 |   |       |
| •     | CC364 |    |           | JP     | FORWARD4              | 00476 | 61000 | 00511 |   |       |
| •     | CC365 |    |           | STR    | 80*W(RECORDNO)        | 00477 | 16030 | 01733 |   |       |
| •     | CC366 |    |           | RPL    | Y+1*W(FILECT1)        | 00500 | 36030 | 01732 |   |       |
| •     | CC367 |    |           | MOVE   | 90*FILEINFO*PRINTAREA | 00501 | 12700 | 00010 |   |       |
|       |       |    |           |        |                       | 00502 | 10037 | 01662 |   |       |
|       |       |    |           |        |                       | 00503 | 14037 | 01745 |   |       |
|       |       |    |           |        |                       | 00504 | 72700 | 00502 |   |       |
| •     | CC370 |    |           | ENT    | A*00020               | 00505 | 11000 | 00020 |   |       |
| •     | CC371 |    |           | STR    | A*U(PRINTPKT*11       | 00506 | 15020 | 01230 |   |       |
| •     | CC372 |    |           | RJP    | PRINTIT               | 00507 | 65000 | 01225 |   |       |
| •     | CC373 |    |           | JP     | FORWARD3              | 00510 | 61000 | 00464 |   |       |
| •     | CC374 |    | FORWARD4  | RJP    | ATTENTION             | 00511 | 65000 | 01601 |   |       |
| •     | CC375 |    |           | ENT    | A*W(CNT4)*ANOT        | 00512 | 11530 | 01743 |   |       |
| •     | CC376 |    |           | JP     | FORWARD5              | 00513 | 61000 | 00522 |   |       |
| •     | CC377 |    |           | IN     | C15*W(BUFFERIN)       | 00514 | 73670 | 02034 |   |       |
| •     | CC400 |    |           | NO-OP  |                       | 00515 | 12000 | 00000 |   |       |
| •     | CC401 |    |           | EX-FCT | C15*W(RDFUNCW01       | 00516 | 13670 | 01727 |   |       |
| •     | CC402 |    | WAIT5     | JP     | WAIT5                 | 00517 | 61000 | 00517 |   |       |
| •     | CC403 |    |           | RPL    | Y-1*W(CNT41           | 00520 | 37030 | 01743 |   |       |
| •     | CC404 |    |           | JP     | WORKONBUF             | 00521 | 61000 | 00542 |   |       |
| •     | CC405 |    | FORWARD5  | PRINT  | PRINTERA*0*0          | 00522 | 64120 | 00140 |   |       |
|       |       |    |           |        |                       | 00523 | 00000 | 00061 |   |       |
|       |       |    |           |        |                       | 00524 | 03145 | 00000 |   |       |
|       |       |    |           |        |                       | 00525 | 11000 | 00000 |   |       |
| •     | CC406 |    |           | CKSTAT | FORWARD5              | 00526 | 64110 | 00140 |   |       |
|       |       |    |           |        |                       | 00527 | 00523 | 00000 |   |       |
|       |       |    |           |        |                       | 00530 | 00000 | 00001 |   |       |
|       |       |    |           |        |                       | 00531 | 61000 | 00536 |   |       |
|       |       |    |           |        |                       | 00532 | 10242 | 22521 |   |       |
|       |       |    |           |        |                       | 00533 | 12311 | 21105 |   |       |
|       |       |    |           |        |                       | 00534 | 27122 | 63212 |   |       |
|       |       |    |           |        |                       | 00535 | 30310 | 50505 |   |       |
|       |       |    |           |        |                       | 00536 | 64120 | 00142 |   |       |
|       |       |    |           |        |                       | 00537 | 00000 | 00024 |   |       |
|       |       |    |           |        |                       | 00540 | 00000 | 00532 |   |       |
|       |       |    |           |        |                       | 00541 | 61000 | 00000 |   |       |
| •     | CC410 |    | WORKONBUF | JP     | UNITREQ               | 00542 | 11010 | 00115 |   |       |
| •     | CC411 |    |           | ENT    | A*L(115)              | 00543 | 21010 | 02034 |   |       |
| •     | CC412 |    |           | SUB    | A*L(BUFFERIN)         | 00544 | 15030 | 01731 |   |       |
| •     | CC413 |    |           | STR    | A*W(NUMWRDS1          | 00545 | 37030 | 01731 |   |       |
| •     | CC414 |    |           | RPL    | Y-1*W(NUMWRDS1        | 00546 | 12100 | 00000 |   |       |
| •     | CC415 |    |           | CL     | B1*                   | 00547 | 12200 | 00000 |   |       |
| •     | CC416 |    |           | CL     | B2*                   | 00550 | 12300 | 00000 |   |       |
| •     | CC417 |    |           | CL     | B3*                   | 00551 | 12400 | 00000 |   |       |
| •     | CC420 |    |           | CL     | B4*                   | 00552 | 11030 | 01730 |   |       |
| •     | CC421 |    | LCBCD     | ENT    | A*W(TYPEFORM)         | 00553 | 21600 | 00002 |   |       |
| •     | CC422 |    |           | SUB    | A*2*AP05              | 00554 | 10000 | 00560 |   |       |
| •     | CC423 |    |           | JP     | TYPEBCD               | 00555 | 10570 | 00000 |   |       |
| •     | CC424 |    |           | ENT    | Q*A*ANOT              | 00556 | 61000 | 00615 |   |       |
| •     | CC425 |    |           | JP     | TYPEFO                | 00557 | 61000 | 00635 |   |       |
| •     | CC426 |    |           | JP     | TYPEOCT               |       |       |       |   |       |

NUMBER OF WORDS IN BUFFER

DATA IS LOW DEN BCD  
PSEUDO OPERATION  
DATA IS LOW DEN FD  
DATA IS DOW DEN OCT

| CARDS | LI    | ID | LABEL   | TA  | STATEMENT              | LOC   | F     | JKB   | Y | NOTES |
|-------|-------|----|---------|-----|------------------------|-------|-------|-------|---|-------|
| .     | CC427 |    | TYPEBCO | RPT | 250*ADV                | 00560 | 70100 | 00031 |   |       |
| .     | CC430 |    |         | STR | BO*W(PRINTAREA)        | 00561 | 16030 | 01745 |   |       |
| .     | CC431 |    |         | ENT | Q*W(INPUTBUF+R2)       | 00562 | 10032 | 02035 |   |       |
| .     | CC432 |    |         | CL  | A*                     | 00563 | 11000 | 00000 |   |       |
| .     | CC433 |    |         | LSH | AQ*6                   | 00564 | 07000 | 00006 |   |       |
| .     | CC434 |    |         | AOO | A*CONVTAB              | 00565 | 20000 | 01242 |   |       |
| .     | CC435 |    |         | STR | A*(NEXT1)              | 00566 | 15010 | 00567 |   |       |
| .     | CC436 |    | NEXT1   | ENT | A*(O)                  | 00567 | 11010 | 00000 |   |       |
| .     | CC437 |    |         | LSH | A*240                  | 00570 | 06000 | 00030 |   |       |
| .     | CC440 |    |         | STR | A*(SAVEIT+83)          | 00571 | 15033 | 01777 |   |       |
| .     | CC441 |    |         | BSK | R3*4                   | 00572 | 71300 | 00004 |   |       |
| .     | CC442 |    |         | JP  | TYPEBCO+3              | 00573 | 61000 | 00563 |   |       |
| .     | CC443 |    | NEXT2   | ENT | Q*(SAVEIT+83)          | 00574 | 10033 | 01777 |   |       |
| .     | CC444 |    |         | LSH | AQ*6                   | 00575 | 07000 | 00006 |   |       |
| .     | CC445 |    |         | BSK | R3*4                   | 00576 | 71300 | 00004 |   |       |
| .     | CC446 |    |         | JP  | NEXT2                  | 00577 | 61000 | 00574 |   |       |
| .     | CC447 |    |         | STR | A*(PRINTAREA+81)       | 00600 | 15031 | 01745 |   |       |
| .     | CC450 |    |         | BSK | R1*240                 | 00601 | 71100 | 00030 |   |       |
| .     | CC451 |    |         | JP  | \$+2                   | 00602 | 61000 | 00604 |   |       |
| .     | CC452 |    |         | JP  | NEXT3                  | 00603 | 61000 | 00611 |   |       |
| .     | CC453 |    |         | BSK | B2*W(NUMWROS)          | 00604 | 71230 | 01731 |   |       |
| .     | CC454 |    |         | JP  | TYPEBCO+2              | 00605 | 61000 | 00562 |   |       |
| .     | CC455 |    |         | CL  | B1*                    | 00606 | 12100 | 00000 |   |       |
| .     | CC456 |    |         | RJP | PRINT11                | 00607 | 65000 | 01225 |   |       |
| .     | CC457 |    |         | JP  | FORWARO3               | 00610 | 61000 | 00464 |   |       |
| .     | CC460 |    | NEXT3   | RJP | PRINT11                | 00611 | 65000 | 01225 |   |       |
| .     | CC461 |    |         | BSK | R2*W(NUMWROS)          | 00612 | 71230 | 01731 |   |       |
| .     | CC462 |    |         | JP  | TYPEBCO                | 00613 | 61000 | 00560 |   |       |
| .     | CC463 |    |         | JP  | FORWARO3               | 00614 | 61000 | 00464 |   |       |
| .     | CC464 |    | TYPEFO  | RPT | 250*ADV                | 00615 | 70100 | 00031 |   |       |
| .     | CC465 |    |         | STR | BO*W(PRINTAREA)        | 00616 | 16030 | 01745 |   |       |
| .     | CC466 |    |         | ENT | A*(INPUTBUF+R2)        | 00617 | 11032 | 02035 |   |       |
| .     | CC467 |    |         | STR | A*(PRINTAREA+81)       | 00620 | 15031 | 01745 |   |       |
| .     | CC470 |    |         | BSK | R1*240                 | 00621 | 71100 | 00030 |   |       |
| .     | CC471 |    |         | JP  | \$+2                   | 00622 | 61000 | 00624 |   |       |
| .     | CC472 |    |         | JP  | F1                     | 00623 | 61000 | 00631 |   |       |
| .     | CC473 |    |         | BSK | R2*W(NUMWROS)          | 00624 | 71230 | 01731 |   |       |
| .     | CC474 |    |         | JP  | TYPEFO+2               | 00625 | 61000 | 00617 |   |       |
| .     | CC475 |    |         | CL  | B1*                    | 00626 | 12100 | 00000 |   |       |
| .     | CC476 |    |         | RJP | PRINT11                | 00627 | 65000 | 01225 |   |       |
| .     | CC477 |    |         | JP  | FORWARO3               | 00630 | 61000 | 00464 |   |       |
| .     | CC500 |    | F1      | RJP | PRINT11                | 00631 | 65000 | 01225 |   |       |
| .     | CC501 |    |         | BSK | B2*W(NUMWROS)          | 00632 | 71230 | 01731 |   |       |
| .     | CC502 |    |         | JP  | TYPEFO                 | 00633 | 61000 | 00615 |   |       |
| .     | CC503 |    |         | JP  | FORWARO3               | 00634 | 61000 | 00464 |   |       |
| .     | CC504 |    | TYPEOCT | PUT | W(FOZERO)*W(WOROBLOCK) | 00635 | 10030 | 02012 |   |       |
| .     | CC505 |    |         | STR | RO*W(NUMBER)           | 00636 | 14030 | 02013 |   |       |
| .     | CC506 |    |         | ENT | Q*(FILECT)             | 00637 | 16030 | 01720 |   |       |
| .     | CC507 |    |         | ENT | B3*4                   | 00640 | 10030 | 01732 |   |       |
| .     | CC510 |    | AWOCT1  | CL  | A*                     | 00641 | 12300 | 00004 |   |       |
| .     | CC511 |    |         | OIV | 100                    | 00642 | 11000 | 00000 |   |       |
| .     | CC512 |    |         | AOO | A*60                   | 00643 | 23000 | 00012 |   |       |
| .     |       |    |         |     |                        | 00644 | 20000 | 00060 |   |       |



| CARDS | LI    | IO | LABEL   | TA  | STATEMENT           | LOC   | F     | J     | K | R | Y | NOTES |
|-------|-------|----|---------|-----|---------------------|-------|-------|-------|---|---|---|-------|
| .     | CC572 |    |         | JP  | LOADBUF-1           | 00732 | 61000 | 00754 |   |   |   |       |
| .     | CC573 |    |         | ENT | Q*W(NUMBER)         | 00733 | 10030 | 01720 |   |   |   |       |
| .     | CC574 |    |         | ADD | Q*10                | 00734 | 26000 | 00010 |   |   |   |       |
| .     | CC575 |    |         | STR | Q*W(NUMBER)         | 00735 | 14030 | 01720 |   |   |   |       |
| .     | CC576 |    |         | LSH | Q*150               | 00736 | 05000 | 00017 |   |   |   |       |
| .     | CC577 |    | THERE1  | CL  | A*                  | 00737 | 11000 | 00000 |   |   |   |       |
| .     | CC600 |    |         | LSH | AQ*3                | 00740 | 07000 | 00003 |   |   |   |       |
| .     | CC601 |    |         | ADD | A*60                | 00741 | 20000 | 00060 |   |   |   |       |
| .     | CC602 |    |         | STR | A*W(HOCTDEC+R3)     | 00742 | 15033 | 02004 |   |   |   |       |
| .     | CC603 |    |         | BSK | R3*4                | 00743 | 71300 | 00004 |   |   |   |       |
| .     | CC604 |    |         | JP  | THERE1              | 00744 | 61000 | 00737 |   |   |   |       |
| .     | CC605 |    | THERE2  | CL  | A*                  | 00745 | 11000 | 00000 |   |   |   |       |
| .     | CC606 |    |         | LSH | A*6                 | 00746 | 06000 | 00006 |   |   |   |       |
| .     | CC607 |    |         | ADD | A*W(HOCTDEC+R3)     | 00747 | 20033 | 02004 |   |   |   |       |
| .     | CC610 |    |         | BSK | R3*4                | 00750 | 71300 | 00004 |   |   |   |       |
| .     | CC611 |    |         | JP  | THERE2+1            | 00751 | 61000 | 00746 |   |   |   |       |
| .     | CC612 |    |         | STR | A*W(WORDBLOCK)      | 00752 | 15030 | 02013 |   |   |   |       |
| .     | CC613 |    |         | JP  | LOADBUF             | 00753 | 61000 | 00755 |   |   |   |       |
| .     | CC614 |    |         | RPL | Y+1*W(SPECSW)       | 00754 | 36030 | 01735 |   |   |   |       |
| .     | CC615 |    | LCAORUF | ENT | A*2                 | 00755 | 11000 | 00002 |   |   |   |       |
| .     | CC616 |    |         | STR | A*W(VISA)           | 00756 | 15030 | 01717 |   |   |   |       |
| .     | CC617 |    |         | ENT | Q*W(INPUTRUF+R2)    | 00757 | 10032 | 02035 |   |   |   |       |
| .     | CC620 |    |         | CL  | A*                  | 00760 | 11000 | 00000 |   |   |   |       |
| .     | CC621 |    |         | LSH | AQ*3                | 00761 | 07000 | 00003 |   |   |   |       |
| .     | CC622 |    |         | ADD | A*60                | 00762 | 20000 | 00060 |   |   |   |       |
| .     | CC623 |    |         | STR | A*W(SAVEQ)          | 00763 | 15030 | 01736 |   |   |   |       |
| .     | CC624 |    |         | ENT | A*W(WORDBLOCK+1+R3) | 00764 | 11033 | 02014 |   |   |   |       |
| .     | CC625 |    |         | LSH | A*6                 | 00765 | 06000 | 00006 |   |   |   |       |
| .     | CC626 |    |         | ADD | A*W(SAVEQ)          | 00766 | 20030 | 01736 |   |   |   |       |
| .     | CC627 |    |         | STR | A*W(WORDBLOCK+1+R3) | 00767 | 15033 | 02014 |   |   |   |       |
| .     | CC630 |    |         | BSK | R4*4                | 00770 | 71400 | 00004 |   |   |   |       |
| .     | CC631 |    |         | JP  | LOADBUF+3           | 00771 | 61000 | 00760 |   |   |   |       |
| .     | CC632 |    |         | BSK | R3*150              | 00772 | 71300 | 00017 |   |   |   |       |
| .     | CC633 |    |         | JP  | MOREWRDS            | 00773 | 61000 | 01023 |   |   |   |       |
| .     | CC634 |    |         | ENT | R3*R3+1             | 00774 | 12303 | 00001 |   |   |   |       |
| .     | CC635 |    | THERE3  | ENT | A*W(WORDBLOCK-1+R3) | 00775 | 11033 | 02012 |   |   |   |       |
| .     | CC636 |    |         | STR | A*W(PRINTAREA+R1)   | 00776 | 15031 | 01745 |   |   |   |       |
| .     | CC637 |    |         | CL  | A*                  | 00777 | 11000 | 00000 |   |   |   |       |
| .     | CC640 |    |         | ENT | Q*W(WORDBLOCK+R3)   | 01000 | 10033 | 02013 |   |   |   |       |
| .     | CC641 |    |         | LSH | AQ*6                | 01001 | 07000 | 00006 |   |   |   |       |
| .     | CC642 |    |         | STR | A*W(PRINTAREA+1+R1) | 01002 | 15031 | 01746 |   |   |   |       |
| .     | CC643 |    |         | LSH | AQ*300              | 01003 | 07000 | 00036 |   |   |   |       |
| .     | CC644 |    |         | STR | A*W(PRINTAREA+2+R1) | 01004 | 15031 | 01747 |   |   |   |       |
| .     | CC645 |    |         | ENT | R1*R1+3             | 01005 | 12101 | 00003 |   |   |   |       |
| .     | CC646 |    |         | ENT | R3*R3+1             | 01006 | 12303 | 00001 |   |   |   |       |
| .     | CC647 |    |         | BSK | R3*160              | 01007 | 71300 | 00020 |   |   |   |       |
| .     | CC650 |    |         | JP  | THERE3              | 01010 | 61000 | 00775 |   |   |   |       |
| .     | CC651 |    |         | ENT | A*W(WORDBLOCK+160)  | 01011 | 11030 | 02033 |   |   |   |       |
| .     | CC652 |    |         | STR | A*W(PRINTAREA+R1)   | 01012 | 15031 | 01745 |   |   |   |       |
| .     | CC653 |    |         | CL  | R1*                 | 01013 | 12100 | 00000 |   |   |   |       |
| .     | CC654 |    |         | ENT | A*00020             | 01014 | 11000 | 00020 |   |   |   |       |
| .     | CC655 |    |         | STR | A*U(PRINTPRT+1)     | 01015 | 15020 | 01230 |   |   |   |       |
| .     | CC656 |    |         | RJP | PRINTIT             | 01016 | 65000 | 01225 |   |   |   |       |

| CARCS | L1 IC LABEL | TA STATEMENT                               | LOC   | F JKB Y     | NOTES   |
|-------|-------------|--------------------------------------------|-------|-------------|---------|
| •     | CC657       | BSK B2*(NUMWRDS)                           | 01017 | 71230 01731 |         |
| •     | CC660       | JP TYPEOCT1                                | 01020 | 61000 00725 |         |
| •     | CC661       | STR B0*(SPEC SW)                           | 01021 | 16030 01735 |         |
| •     | CC662       | JP FORWARD3                                | 01022 | 61000 00464 |         |
| •     | CC663       | MCREWRDS                                   | 01023 | 37430 01717 |         |
| •     | CC664       | RPL Y-1*(VISA)*AZERO                       | 01024 | 61000 00760 |         |
| •     | CC665       | JP LOA0BUF*3                               | 01025 | 71230 01731 |         |
| •     | CC666       | BSK B2*(NUMWRDS)                           | 01026 | 61000 00755 |         |
| •     | CC667       | JP LOA0BUE                                 | 01027 | 12100 00000 |         |
| •     | CC670       | CL R1*                                     | 01030 | 12300 00000 |         |
| •     | CC671       | CL B3*                                     | 01031 | 12210 01731 |         |
| •     | CC672       | ENT B2*(NUMWRDS)                           | 01032 | 61000 00774 |         |
| •     | CC673       | JP THERE3-1                                | 01033 | 00000 00000 |         |
| •     | CC674       | RESERVE 1                                  | 01034 | 65000 01171 |         |
| •     | CC675       | RJP SAVEALL                                | 01035 | 17670 01170 |         |
| •     | CC676       | STR C15*(SAVECHAN)                         | 01036 | 11020 01170 |         |
| •     | CC677       | ENT A*(SAVECHAN)                           | 01037 | 02000 00013 |         |
| •     | CC70C       | RSH A*11D                                  | 01040 | 20000 01044 |         |
| •     | CC70C       | ADO A*CAUSEINTR                            | 01041 | 15010 01043 |         |
| •     | CC701       | STR A*(DOWN1)                              | 01042 | 60000 00000 |         |
| •     | CC702       | RIL                                        | 01043 | 61000 00000 | 00      |
| •     | CC703       | DCWN1                                      | 01044 | 61000 01146 | 04      |
| •     | CC704       | CAUSEINTR                                  | 01045 | 61000 01146 | 10      |
| •     | CC705       | JP RECYCLE                                 | 01046 | 61000 01146 | 14      |
| •     | CC706       | JP RECYCLE                                 | 01047 | 61000 01146 | 20      |
| •     | CC707       | JP RECYCLE                                 | 01050 | 61000 01146 | 24      |
| •     | CC710       | JP RECYCLE                                 | 01051 | 61000 01124 | 30      |
| •     | CC711       | JP UNITREW                                 | 01052 | 61000 01146 | 34      |
| •     | CC712       | JP RECYCLE                                 | 01053 | 61000 01146 | 44      |
| •     | CC713       | JP RECYCLE                                 | 01054 | 61000 01117 | 50      |
| •     | CC714       | JP ENDREC                                  | 01055 | 61000 01064 | 60(EOI) |
| •     | CC715       | JP REDUN                                   | 01056 | 61000 01146 | 64      |
| •     | CC716       | JP RECYCLE                                 | 01057 | 61000 01121 | 74      |
| •     | CC717       | JP ENOFILF                                 | 01060 | 61000 01107 |         |
| •     | CC720       | JP ENOTAPE                                 | 01061 | 61000 01146 |         |
| •     | CC721       | JP RECYCLE                                 | 01062 | 61000 01117 |         |
| •     | CC722       | JP ENOREC                                  | 01063 | 61000 01126 |         |
| •     | CC723       | JP INTERLCK                                | 01064 | 61000 01075 |         |
| •     | CC724       | REDUN                                      |       |             |         |
|       |             | TYPE T PARITY ERR-START RE00-KEY 1 IG01064 |       |             |         |
|       |             | NORE\$CR\$                                 |       |             |         |
|       |             |                                            | 01065 | 25062 71631 |         |
|       |             |                                            | 01066 | 36051 22727 |         |
|       |             |                                            | 01067 | 41303 10627 |         |
|       |             |                                            | 01070 | 31052 71211 |         |
|       |             |                                            | 01071 | 24412 01236 |         |
|       |             |                                            | 01072 | 05610 51614 |         |
|       |             |                                            | 01073 | 23242 71204 |         |
|       |             |                                            | 01074 | 05050 00000 |         |
|       |             |                                            | 01075 | 64120 00142 |         |
|       |             |                                            | 01076 | 00000 00045 |         |
|       |             |                                            | 01077 | 00000 01065 |         |
|       |             |                                            | 01100 | 61400 01101 |         |
|       |             |                                            | 01101 | 61100 01103 |         |
|       |             |                                            | 01102 | 61000 00000 |         |
| •     | CC725       | DCWN2*STCP                                 |       |             |         |
| •     | CC726       | OCWN2                                      |       |             |         |
| •     | CC727       | JP IGNORE*KEY 1                            |       |             |         |
| •     | CC727       | JP UNITREQ                                 |       |             |         |





| CARDS | LI    | ID | LABEL  | TA | STATEMENT | LOC   | F     | JKB   | Y | NOTES |
|-------|-------|----|--------|----|-----------|-------|-------|-------|---|-------|
| .     | C1030 |    |        | 16 | 00        | 01260 | 00016 | 00000 |   |       |
| .     | C1031 |    |        | 17 | 00        | 01261 | 00017 | 00000 |   |       |
| .     | C1032 |    |        | 20 | 00        | 01262 | 00020 | 00000 |   |       |
| .     | C1033 |    |        | 21 | 74        | 01263 | 00021 | 00074 |   |       |
| .     | C1034 |    |        | 22 | 30        | 01264 | 00022 | 00030 |   |       |
| .     | C1035 |    |        | 23 | 31        | 01265 | 00023 | 00031 |   |       |
| .     | C1036 |    |        | 24 | 32        | 01266 | 00024 | 00032 |   |       |
| .     | C1037 |    |        | 25 | 33        | 01267 | 00025 | 00033 |   |       |
| .     | C1040 |    |        | 26 | 34        | 01270 | 00026 | 00034 |   |       |
| .     | C1041 |    |        | 27 | 35        | 01271 | 00027 | 00035 |   |       |
| .     | C1042 |    |        | 30 | 36        | 01272 | 00030 | 00036 |   |       |
| .     | C1043 |    |        | 31 | 37        | 01273 | 00031 | 00037 |   |       |
| .     | C1044 |    |        | 32 | 53        | 01274 | 00032 | 00053 |   |       |
| .     | C1045 |    |        | 33 | 56        | 01275 | 00033 | 00056 |   |       |
| .     | C1046 |    |        | 34 | 51        | 01276 | 00034 | 00051 |   |       |
| .     | C1047 |    |        | 35 | 00        | 01277 | 00035 | 00000 |   |       |
| .     | C1050 |    |        | 36 | 00        | 01300 | 00036 | 00000 |   |       |
| .     | C1051 |    |        | 37 | 00        | 01301 | 00037 | 00000 |   |       |
| .     | C1052 |    |        | 40 | 41        | 01302 | 00040 | 00041 |   |       |
| .     | C1053 |    |        | 41 | 17        | 01303 | 00041 | 00017 |   |       |
| .     | C1054 |    |        | 42 | 20        | 01304 | 00042 | 00020 |   |       |
| .     | C1055 |    |        | 43 | 21        | 01305 | 00043 | 00021 |   |       |
| .     | C1056 |    |        | 44 | 22        | 01306 | 00044 | 00022 |   |       |
| .     | C1057 |    |        | 45 | 23        | 01307 | 00045 | 00023 |   |       |
| .     | C1060 |    |        | 46 | 24        | 01310 | 00046 | 00024 |   |       |
| .     | C1061 |    |        | 47 | 25        | 01311 | 00047 | 00025 |   |       |
| .     | C1062 |    |        | 50 | 26        | 01312 | 00050 | 00026 |   |       |
| .     | C1063 |    |        | 51 | 27        | 01313 | 00051 | 00027 |   |       |
| .     | C1064 |    |        | 52 | 00        | 01314 | 00052 | 00000 |   |       |
| .     | C1065 |    |        | 53 | 47        | 01315 | 00053 | 00047 |   |       |
| .     | C1066 |    |        | 54 | 47        | 01316 | 00054 | 00047 |   |       |
| .     | C1067 |    |        | 55 | 00        | 01317 | 00055 | 00000 |   |       |
| .     | C1070 |    |        | 56 | 00        | 01320 | 00056 | 00000 |   |       |
| .     | C1071 |    |        | 57 | 00        | 01321 | 00057 | 00000 |   |       |
| .     | C1072 |    |        | 60 | 42        | 01322 | 00060 | 00042 |   |       |
| .     | C1073 |    |        | 61 | 06        | 01323 | 00061 | 00006 |   |       |
| .     | C1074 |    |        | 62 | 07        | 01324 | 00062 | 00007 |   |       |
| .     | C1075 |    |        | 63 | 10        | 01325 | 00063 | 00010 |   |       |
| .     | C1076 |    |        | 64 | 11        | 01326 | 00064 | 00011 |   |       |
| .     | C1077 |    |        | 65 | 12        | 01327 | 00065 | 00012 |   |       |
| .     | C1100 |    |        | 66 | 13        | 01330 | 00066 | 00013 |   |       |
| .     | C1101 |    |        | 67 | 14        | 01331 | 00067 | 00014 |   |       |
| .     | C1102 |    |        | 70 | 15        | 01332 | 00070 | 00015 |   |       |
| .     | C1103 |    |        | 71 | 16        | 01333 | 00071 | 00016 |   |       |
| .     | C1104 |    |        | 72 | 42        | 01334 | 00072 | 00042 |   |       |
| .     | C1105 |    |        | 73 | 75        | 01335 | 00073 | 00075 |   |       |
| .     | C1106 |    |        | 74 | 40        | 01336 | 00074 | 00040 |   |       |
| .     | C1107 |    |        | 75 | 00        | 01337 | 00075 | 00000 |   |       |
| .     | C1110 |    |        | 76 | 00        | 01340 | 00076 | 00000 |   |       |
| .     | C1111 |    |        | 77 | 00        | 01341 | 00077 | 00000 |   |       |
| .     | C1112 |    | WFUNIT | 0  | 1         | 01342 | 00000 | 00001 |   |       |
| .     | C1113 |    |        | 0  | 2         | 01343 | 00000 | 00002 |   |       |
| .     | C1114 |    |        | 0  | 4         | 01344 | 00000 | 00004 |   |       |

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***** SPUPT OUTPUT NO. 210 *****
***** MGTAPEDUMP S.J.WHITE-09/25/64 *****

CARDS  LI  IC LABEL      TA STATEMENT      LOC  F  JKR  Y  NOTES
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      .  C1115          0  10
      .  C1116  SERVOERR  TYPET  SERVO ERROR(A,B,C,D)
                                01345 00000 00010
                                01346 61000 01353
                                01347 30122 73324
                                01350 05122 72724
                                01351 27510 65607
                                01352 56105 61140
                                01353 64120 00142
                                01354 00000 00024
                                01355 00000 01347
                                01356 10000 00001
                                01357 14010 01744
      .  C1120          JP  GOG01
      .  C1121  DENERR  TYPET  DENSITY ERROR(H,L)
                                01360 61000 00105
                                01361 61000 01366
                                01362 11122 33016
                                01363 31360 51227
                                01364 27242 75115
                                01365 56214 00505
                                01366 64120 00142
                                01367 00000 00024
                                01370 00000 01362
                                01371 10000 00001
                                01372 14010 01744
      .  C1122          PUT  1*(TYPEMESSW)
      .  C1123          JP  GOG01
      .  C1124  PARERR  TYPET  PARITY ERROR(E,O)
                                01373 61000 00105
                                01374 61000 01401
                                01375 25062 71631
                                01376 36051 22727
                                01377 24275 11256
                                01400 24400 50505
                                01401 64120 00142
                                01402 00000 00024
                                01403 00000 01375
                                01404 10000 00001
                                01405 14010 01744
                                01406 61000 00105
                                01407 61000 01414
                                01410 13242 72206
                                01411 31051 22727
                                01412 24275 10756
                                01413 13562 44005
                                01414 64120 00142
                                01415 00000 00024
                                01416 00000 01410
                                01417 10000 00001
                                01420 14010 01744
                                01421 61000 00105
                                01422 61000 01425
                                01423 31273 60506
                                01424 14061 62305
                                01425 64120 00142
                                01426 00000 00012
                                01427 00000 01423
                                01430 61000 00000
                                01431 61000 01434
      .  C1125          PUT  1*(TYPEMESSW)
      .  C1126          JP  GOG01
      .  C1127  FCRMERR TYPET  FORMAT ERROR(B,F,O)
                                01405 14010 01744
                                01406 61000 00105
                                01407 61000 01414
                                01410 13242 72206
                                01411 31051 22727
                                01412 24275 10756
                                01413 13562 44005
                                01414 64120 00142
                                01415 00000 00024
                                01416 00000 01410
                                01417 10000 00001
                                01420 14010 01744
                                01421 61000 00105
                                01422 61000 01425
                                01423 31273 60506
                                01424 14061 62305
                                01425 64120 00142
                                01426 00000 00012
                                01427 00000 01423
                                01430 61000 00000
                                01431 61000 01434
      .  C1130          PUT  1*(TYPEMESSW)
      .  C1131          JP  GOG01
      .  C1132  TRYAGAIN TYPET  TRY AGAIN
                                01405 14010 01744
                                01406 61000 00105
                                01407 61000 01414
                                01410 13242 72206
                                01411 31051 22727
                                01412 24275 10756
                                01413 13562 44005
                                01414 64120 00142
                                01415 00000 00024
                                01416 00000 01410
                                01417 10000 00001
                                01420 14010 01744
                                01421 61000 00105
                                01422 61000 01425
                                01423 31273 60506
                                01424 14061 62305
                                01425 64120 00142
                                01426 00000 00012
                                01427 00000 01423
                                01430 61000 00000
                                01431 61000 01434
      .  C1133          JP  UNITREQ
      .  C1134  NCDIG  TYPET  NUM PLS
                                01405 14010 01744
                                01406 61000 00105
                                01407 61000 01414
                                01410 13242 72206
                                01411 31051 22727
                                01412 24275 10756
                                01413 13562 44005
                                01414 64120 00142
                                01415 00000 00024
                                01416 00000 01410
                                01417 10000 00001
                                01420 14010 01744
                                01421 61000 00105
                                01422 61000 01425
                                01423 31273 60506
                                01424 14061 62305
                                01425 64120 00142
                                01426 00000 00012
                                01427 00000 01423
                                01430 61000 00000
                                01431 61000 01434

```

| CARDS | LI    | ID | LABEL  | TA | STATEMENT          | LOC   | E     | J     | K | R | Y | NOTES |
|-------|-------|----|--------|----|--------------------|-------|-------|-------|---|---|---|-------|
| .     | C1135 |    |        |    | CL B1              | 01432 | 23322 | 20525 |   |   |   |       |
| .     | C1136 |    |        |    | PUT 1*L(TYPEMESSW) | 01433 | 21300 | 50505 |   |   |   |       |
| .     | C1137 |    |        |    | JP GOGOI           | 01434 | 64120 | 00142 |   |   |   |       |
| .     | C1140 |    | ANSREW |    | Y-N                | 01435 | 00000 | 00012 |   |   |   |       |
|       |       |    |        |    |                    | 01436 | 00000 | 01432 |   |   |   |       |
|       |       |    |        |    |                    | 01437 | 12100 | 00000 |   |   |   |       |
|       |       |    |        |    |                    | 01440 | 10000 | 00001 |   |   |   |       |
|       |       |    |        |    |                    | 01441 | 14010 | 01744 |   |   |   |       |
|       |       |    |        |    |                    | 01442 | 61000 | 00105 |   |   |   |       |
|       |       |    |        |    |                    | 01443 | 61000 | 01445 |   |   |   |       |
|       |       |    |        |    |                    | 01444 | 36412 | 30505 |   |   |   |       |
|       |       |    |        |    |                    | 01445 | 64120 | 00142 |   |   |   |       |
|       |       |    |        |    |                    | 01446 | 00000 | 00005 |   |   |   |       |
|       |       |    |        |    |                    | 01447 | 00000 | 01444 |   |   |   |       |
|       |       |    |        |    |                    | 01450 | 10000 | 00001 |   |   |   |       |
|       |       |    |        |    |                    | 01451 | 14010 | 01744 |   |   |   |       |
|       |       |    |        |    |                    | 01452 | 61000 | 00105 |   |   |   |       |
|       |       |    |        |    |                    | 01453 | 00000 | 00005 |   |   |   |       |
|       |       |    |        |    |                    | 01454 | 00000 | 00005 |   |   |   |       |
|       |       |    |        |    |                    | 01455 | 00000 | 00005 |   |   |   |       |
|       |       |    |        |    |                    | 01456 | 00000 | 00005 |   |   |   |       |
|       |       |    |        |    |                    | 01457 | 00000 | 00005 |   |   |   |       |
|       |       |    |        |    |                    | 01460 | 00000 | 00005 |   |   |   |       |
|       |       |    |        |    |                    | 01461 | 00000 | 00005 |   |   |   |       |
|       |       |    |        |    |                    | 01462 | 01454 | 01453 |   |   |   |       |
|       |       |    |        |    |                    | 01463 | 01455 | 01453 |   |   |   |       |
|       |       |    |        |    |                    | 01464 | 01456 | 01453 |   |   |   |       |
|       |       |    |        |    |                    | 01465 | 01457 | 01453 |   |   |   |       |
|       |       |    |        |    |                    | 01466 | 01460 | 01453 |   |   |   |       |
|       |       |    |        |    |                    | 01467 | 01461 | 01453 |   |   |   |       |
|       |       |    |        |    |                    | 01470 | 01714 | 01714 |   |   |   |       |
|       |       |    |        |    |                    | 01471 | 01472 | 01472 |   |   |   |       |
|       |       |    |        |    |                    | 01472 | 00000 | 00000 |   |   |   |       |
|       |       |    |        |    |                    | 01473 | 00000 | 00000 |   |   |   |       |
|       |       |    |        |    |                    | 01476 | 01566 | 01477 |   |   |   |       |
|       |       |    |        |    |                    | 01477 | 00000 | 00000 |   |   |   |       |
|       |       |    |        |    |                    | 01566 | 61000 | 00000 |   |   |   |       |
|       |       |    |        |    |                    | 01567 | 12300 | 00000 |   |   |   |       |
|       |       |    |        |    |                    | 01570 | 10000 | 00017 |   |   |   |       |
|       |       |    |        |    |                    | 01571 | 70100 | 00003 |   |   |   |       |
|       |       |    |        |    |                    | 01572 | 44030 | 01473 |   |   |   |       |
|       |       |    |        |    |                    | 01573 | 10033 | 01473 |   |   |   |       |
|       |       |    |        |    |                    | 01574 | 22000 | 00012 |   |   |   |       |
|       |       |    |        |    |                    | 01575 | 26033 | 01474 |   |   |   |       |
|       |       |    |        |    |                    | 01576 | 71300 | 00001 |   |   |   |       |
|       |       |    |        |    |                    | 01577 | 61000 | 01574 |   |   |   |       |
|       |       |    |        |    |                    | 01600 | 61010 | 01566 |   |   |   |       |
|       |       |    |        |    |                    | 01601 | 61000 | 00000 |   |   |   |       |
|       |       |    |        |    |                    | 01602 | 62100 | 01611 |   |   |   |       |
|       |       |    |        |    |                    | 01603 | 11010 | 01472 |   |   |   |       |
|       |       |    |        |    |                    | 01604 | 10000 | 00077 |   |   |   |       |
|       |       |    |        |    |                    | 01605 | 43400 | 00077 |   |   |   |       |
|       |       |    |        |    |                    | 01606 | 43500 | 00057 |   |   |   |       |





S.J.WHITE-09/25/64

MGTAPE DUMP

| LABEL       | LOC   | LABEL       | LOC   | LABEL       | LOC   | LABEL       | LOC   |
|-------------|-------|-------------|-------|-------------|-------|-------------|-------|
| AS\$S\$1111 | 00031 | AS\$S\$1112 | 00022 | AS\$S\$1113 | 00062 | AS\$S\$1113 | 00062 |
| AS\$S\$1114 | 00061 | AS\$S\$1115 | 00102 | AS\$S\$1116 | 00066 | AS\$S\$1116 | 00066 |
| AS\$S\$1117 | 00107 | AS\$S\$1118 | 00106 | AS\$S\$1119 | 00427 | AS\$S\$1119 | 00427 |
| AS\$S\$111A | 00426 | AS\$S\$111R | 00502 | AS\$S\$111C | 00536 | AS\$S\$111C | 00536 |
| AS\$S\$111C | 00532 | AS\$S\$111F | 00712 | AS\$S\$111F | 00721 | AS\$S\$111F | 00721 |
| AS\$S\$111G | 01075 | AS\$S\$111H | 01065 | AS\$S\$111I | 01113 | AS\$S\$111I | 01113 |
| AS\$S\$111J | 01110 | AS\$S\$111K | 01141 | AS\$S\$111L | 01127 | AS\$S\$111L | 01127 |
| AS\$S\$111M | 01163 | AS\$S\$111N | 01147 | AS\$S\$111O | 01353 | AS\$S\$111O | 01353 |
| AS\$S\$111P | 01347 | AS\$S\$111Q | 01366 | AS\$S\$111R | 01362 | AS\$S\$111R | 01362 |
| AS\$S\$111S | 01401 | AS\$S\$111T | 01375 | AS\$S\$111U | 01414 | AS\$S\$111U | 01414 |
| AS\$S\$111V | 01410 | AS\$S\$111W | 01425 | AS\$S\$111X | 01423 | AS\$S\$111X | 01423 |
| AS\$S\$111Y | 01434 | AS\$S\$111Z | 01432 | AS\$S\$1121 | 01445 | AS\$S\$1121 | 01445 |
| AS\$S\$1122 | 01444 | AHEAD2      | 00166 | AHEAD3      | 00225 | AHEAD3      | 00225 |
| AHEAD4      | 00261 | AHEAD5      | 00313 | AHEAD6      | 00337 | AHEAD6      | 00337 |
| AHEAD7      | 00362 | AHEAD8      | 00405 | AHEAD9      | 00422 | AHEAD9      | 00422 |
| AM001       | 00642 | AM002       | 00650 | ANSREW      | 01443 | ANSREW      | 01443 |
| ATTEN       | 01472 | ATTENIN     | 01471 | ATTENTION   | 01601 | ATTENTION   | 01601 |
| RAD         | 00041 | BRINGIN     | 01612 | BUFFERIN    | 02034 | BUFFERIN    | 02034 |
| COMMON      | 01217 | CONVAR      | 01242 | CAUSEINTR   | 01044 | CAUSEINTR   | 01044 |
| CHAR1       | 01470 | CKMO        | 01625 | CNT1        | 01740 | CNT1        | 01740 |
| CNT2        | 01741 | CNT3        | 01742 | CNT4        | 01743 | CNT4        | 01743 |
| CVOTO       | 01566 | DOWN1       | 01043 | DOWN2       | 01101 | DOWN2       | 01101 |
| DENERR      | 01361 | DENSITYREQ  | 00147 | DENSITYSW   | 01726 | DENSITYSW   | 01726 |
| ENDFILE     | 01121 | ENDREC      | 01117 | ENORECTINFO | 01712 | ENORECTINFO | 01712 |
| ENDTAPE     | 01107 | FORMERR     | 01407 | FORWARD1    | 00441 | FORWARD1    | 00441 |
| FORWARD2    | 00453 | FORWARD3    | 00464 | FORWARD4    | 00511 | FORWARD4    | 00511 |
| FORWARD5    | 00522 | F1          | 00631 | FDZERO      | 02012 | FDZERO      | 02012 |
| FILFCT      | 01732 | FILEINFO    | 01662 | FILENUMCT   | 01675 | FILENUMCT   | 01675 |
| GOOD        | 00044 | GOGO        | 00060 | GOG01       | 00105 | GOG01       | 00105 |
| GOG02       | 00117 | GMOF        | 01574 | HOCIDE      | 02004 | HOCIDE      | 02004 |
| HIDEN       | 00210 | IGNORE      | 01103 | INDEX1      | 01734 | INDEX1      | 01734 |
| INIT2       | 00005 | INPUTBUF    | 02035 | INTERLCK    | 01126 | INTERLCK    | 01126 |
| INTERRUPT   | 01033 | KODDHIDEN   | 00223 | LOADBUF     | 00755 | LOADBUF     | 00755 |
| LORCO       | 00552 | MOD1        | 00660 | MOD2        | 00666 | MOD2        | 00666 |
| MOREWRDS    | 01023 | NOCFWRDS    | 01710 | NOOIG       | 01431 | NOOIG       | 01431 |
| NOT         | 01611 | NEXT1       | 00567 | NEXT2       | 00574 | NEXT2       | 00574 |
| NEXT3       | 00611 | NUMBER      | 01720 | NUMWROS     | 01731 | NUMWROS     | 01731 |
| PARERR      | 01374 | PROCESSER   | 00423 | PROCFILE    | 01724 | PROCFILE    | 01724 |
| PRUCREC     | 01725 | PRINTOUT    | 01713 | PRINTAREA   | 01745 | PRINTAREA   | 01745 |
| PRINTIT     | 01225 | PRINTPKT    | 01227 | R2          | 00676 | R2          | 00676 |
| R3          | 00704 | RDFUNCWD    | 01727 | RECORDINFO  | 01673 | RECORDINFO  | 01673 |
| RECORDNO    | 01733 | RECNUMCT    | 01702 | RECYCLE     | 01146 | RECYCLE     | 01146 |
| REDUN       | 01064 | RESTOALL    | 01204 | REWIND      | 01721 | REWIND      | 01721 |
| SAVEALL     | 01171 | SAVECHAN    | 01170 | SAVEIT      | 01777 | SAVEIT      | 01777 |
| SAVEQ       | 01736 | SEEFOCT     | 00254 | SEEIFODD    | 00213 | SEEIFODD    | 00213 |
| SEEIFFORD   | 00246 | SEEIFLOW    | 00162 | SEEUNIT     | 00120 | SEEUNIT     | 00120 |
| SERVERR     | 01346 | SKIPFILE    | 01722 | SKIPREC     | 01723 | SKIPREC     | 01723 |
| SPACE       | 01453 | SPACE2      | 01462 | SPACE3      | 01463 | SPACE3      | 01463 |
| SPACE4      | 01464 | SPACE5      | 01465 | SPACE6      | 01466 | SPACE6      | 01466 |
| SPACE7      | 01467 | SPECSW      | 01735 | STOCOUNT    | 01737 | STOCOUNT    | 01737 |
| TAPFINTR    | 02011 | TEMPORARY   | 01714 | THEKE1      | 00737 | THEKE1      | 00737 |

..... SPURT OUTPUT NO. 211 .....

MGTAPEDUMP S.J.WHITE\*09/25/64

| LABEL      | LOC   | LABEL      | LOC   | LABEL     | LOC   |
|------------|-------|------------|-------|-----------|-------|
| THERE2     | 00745 | THERE3     | 00775 | TRYAGAIN  | 01422 |
| TYPEOCT    | 00635 | TYPEOCT1   | 00725 | TYPEBCO   | 00560 |
| TYPEFORM   | 01730 | TYPEFD     | 00615 | TYPEMES   | 01477 |
| TYPEMESBUF | 01476 | TYPEFMESSW | 01744 | UNITREQ   | 00000 |
| UNITREW    | 01124 | VISA       | 01717 | WOROBLOCK | 02013 |
| WORDINFO   | 01631 | WORKONBUF  | 00542 | WAIT1     | 00436 |
| WAIT1A     | 00440 | WAIT2      | 00447 | WAIT3     | 00461 |
| WAIT4      | 00472 | WAIT5      | 00517 | WHUNIT    | 01342 |
| XMANY      | 01473 | ZIP1       | 00273 | ZIP2      | 00320 |
| ZIP3       | 00344 | ZIP4       | 00367 | ZW01      | 00131 |
| ZW02       | 00154 | ZW03       | 00200 | ZW04      | 00240 |
| ZW05       | 00412 |            |       |           |       |

END OF LISTING

SPURT OUTPUT NO. 212

S. J. WHITE 09/25/64

.....

MGTAPEOUMP

| LABEL          | LOC   | LABEL          | LOC   | LABEL          | LOC   | LABEL | LOC |
|----------------|-------|----------------|-------|----------------|-------|-------|-----|
| UNITREQ        | 00000 | INIT2          | 00005 | AS\$S\$S\$1112 | 00022 |       |     |
| AS\$S\$S\$1111 | 00031 | BAD            | 00041 | GOOD           | 00044 |       |     |
| GOGO           | 00060 | AS\$S\$S\$1114 | 00061 | AS\$S\$S\$1113 | 00062 |       |     |
| AS\$S\$S\$1115 | 00066 | AS\$S\$S\$1115 | 00102 | GOG01          | 00105 |       |     |
| AS\$S\$S\$1118 | 00106 | AS\$S\$S\$1117 | 00107 | GOG02          | 00117 |       |     |
| SEFUNIT        | 00120 | ZWD1           | 00131 | DENSITYREQ     | 00147 |       |     |
| ZWD2           | 00154 | SEEIFLOW       | 00162 | AHEA02         | 00166 |       |     |
| ZWD3           | 00200 | HIDEN          | 00210 | SEEIFODO       | 00213 |       |     |
| KODDHIDEN      | 00223 | AHEAD3         | 00225 | ZWD4           | 00240 |       |     |
| SEEIFFORO      | 00246 | SEEIFOOT       | 00254 | AHEAD4         | 00261 |       |     |
| ZIP1           | 00273 | AHEAD5         | 00313 | ZIP2           | 00320 |       |     |
| AHEAD6         | 00337 | ZIP3           | 00344 | AHEAD7         | 00362 |       |     |
| ZIP4           | 00367 | AHEAD8         | 00405 | ZWD5           | 00412 |       |     |
| AHEAD9         | 00422 | PROCFSSER      | 00423 | AS\$S\$S\$111A | 00426 |       |     |
| AS\$S\$S\$1119 | 00427 | WAIT1          | 00436 | WAIT1A         | 00440 |       |     |
| FORWARD1       | 00441 | WAIT2          | 00447 | FORWARD2       | 00453 |       |     |
| WAIT3          | 00461 | FORWARD3       | 00464 | WAIT4          | 00472 |       |     |
| AS\$S\$S\$111A | 00502 | FORWARD4       | 00511 | WAIT5          | 00517 |       |     |
| FORWARD5       | 00522 | AS\$S\$S\$111D | 00532 | AS\$S\$S\$111C | 00536 |       |     |
| WORKONRAUF     | 00542 | LOPCD          | 00552 | TYPEPCD        | 00560 |       |     |
| NEXT1          | 00567 | NEXT2          | 00574 | NEXT3          | 00611 |       |     |
| TYPEFD         | 00615 | F1             | 00631 | TYPEOCT        | 00635 |       |     |
| AMOD1          | 00642 | AM002          | 00650 | MOD1           | 00660 |       |     |
| M002           | 00666 | R2             | 00676 | R3             | 00704 |       |     |
| AS\$S\$S\$111E | 00712 | AS\$S\$S\$111F | 00721 | TYPEOCT1       | 00725 |       |     |
| THERE1         | 00737 | THERE2         | 00745 | LOADHUF        | 00755 |       |     |
| THERE3         | 00775 | MOREWRDS       | 01023 | INTERRUPT      | 01033 |       |     |
| DOWN1          | 01043 | CAUSEFINTR     | 01044 | REOUN          | 01064 |       |     |
| AS\$S\$S\$111H | 01065 | AS\$S\$S\$111G | 01075 | DOWN2          | 01101 |       |     |
| IGNORE         | 01103 | ENDTAPE        | 01107 | AS\$S\$S\$111J | 01110 |       |     |
| AS\$S\$S\$1111 | 01113 | ENDREC         | 01117 | ENDFILE        | 01121 |       |     |
| UNITREW        | 01124 | INTERLCK       | 01126 | AS\$S\$S\$111L | 01127 |       |     |
| AS\$S\$S\$111K | 01141 | RECYCLE        | 01146 | AS\$S\$S\$111N | 01147 |       |     |
| AS\$S\$S\$111M | 01163 | SAVECHAN       | 01170 | SAVEALL        | 01171 |       |     |
| RESTOALL       | 01204 | COMMON         | 01217 | PRINTIT        | 01225 |       |     |
| PRNTPKT        | 01227 | CONVTAB        | 01242 | WHUNIT         | 01342 |       |     |
| SERVOERR       | 01346 | AS\$S\$S\$111P | 01347 | AS\$S\$S\$111O | 01353 |       |     |
| GENERR         | 01361 | AS\$S\$S\$111R | 01362 | AS\$S\$S\$111Q | 01366 |       |     |
| PARERR         | 01374 | AS\$S\$S\$111T | 01375 | AS\$S\$S\$111S | 01401 |       |     |
| FORMERR        | 01407 | AS\$S\$S\$111V | 01410 | AS\$S\$S\$111U | 01414 |       |     |
| TRYAGAIN       | 01422 | AS\$S\$S\$111X | 01423 | AS\$S\$S\$111W | 01425 |       |     |
| NODIG          | 01431 | AS\$S\$S\$1117 | 01432 | AS\$S\$S\$111Y | 01434 |       |     |
| ANSREW         | 01443 | AS\$S\$S\$1112 | 01444 | AS\$S\$S\$1121 | 01445 |       |     |
| SPACE          | 01453 | SPACE2         | 01462 | SPACE3         | 01463 |       |     |
| SPACE4         | 01464 | SPACE5         | 01465 | SPACE6         | 01466 |       |     |
| SPACE7         | 01467 | CHART          | 01470 | ATTENIN        | 01471 |       |     |
| ATTEN          | 01472 | XMANY          | 01473 | TYPEMESRUF     | 01476 |       |     |
| TYPEMES        | 01477 | CVOTO          | 01566 | GMORE          | 01574 |       |     |
| ATTENTION      | 01601 | NOT            | 01611 | BRINGIN        | 01612 |       |     |
| CKMO           | 01625 | WORDINFO       | 01631 | FILEINFO       | 01662 |       |     |
| RECORDINFO     | 01673 | FILENUMCT      | 01675 | RECNUMCT       | 01702 |       |     |

..... SPURT OUTPUT NO. 212 .....

| MGTAPEDUMP |       | S. J. WHITE*09/25/64 |       |
|------------|-------|----------------------|-------|
| LABEL      | LOC   | LABEL                | LOC   |
| NOOFWRDS   | 01710 | ENDRECINFO           | 01712 |
| TEMPORARY  | 01714 | VISA                 | 01717 |
| REWIND     | 01721 | SKIPFILE             | 01722 |
| PROCFILE   | 01724 | PROCREC              | 01725 |
| RDFUNCWD   | 01727 | TYPEFORM             | 01730 |
| FILECT     | 01732 | RECORDNO             | 01733 |
| SPECSW     | 01735 | SAVEQ                | 01736 |
| CNT1       | 01740 | CNT2                 | 01741 |
| CNT4       | 01743 | TYPEMESSW            | 01744 |
| SAVEIT     | 01777 | HOCTDEC              | 02004 |
| FDZERO     | 02012 | WORDLOCK             | 02013 |
| INPUTBUF   | 02035 |                      |       |
|            |       | PRINTOUT             | 01713 |
|            |       | NUMBER               | 01720 |
|            |       | SKIPREC              | 01723 |
|            |       | DENSITYSW            | 01726 |
|            |       | NUMWROS              | 01731 |
|            |       | INDEXT               | 01734 |
|            |       | STOCOUNT             | 01737 |
|            |       | CNT3                 | 01742 |
|            |       | PRINTAREA            | 01745 |
|            |       | TAPEINTR             | 02011 |
|            |       | BUFFERIN             | 02034 |

END OF LISTING

| CARDS | LI    | ID        | LABEL      | TA                            | STATEMENT   | LOC   | F     | JKB   | Y | NOTES                            |
|-------|-------|-----------|------------|-------------------------------|-------------|-------|-------|-------|---|----------------------------------|
| •     | CC000 |           | MAKFA301TP | PROGRAM                       | J00*2/20/64 |       |       |       |   |                                  |
| •     | CC001 |           | INITIAL    | EQUALS                        | 10000       | 10000 | 10030 | 11664 |   |                                  |
| •     | CC002 |           | INITIAL    | PUT W(ENTRANCE)*W(35)         |             | 10001 | 14030 | 00035 |   | SFT CONSOLE TYPEWRITER INTERRUPT |
| •     | CC003 |           |            | PUT W(JPPRINTOVR)*W(62)       |             | 10002 | 10030 | 12232 |   | PT                               |
| •     | CC004 |           |            | PUT 12000*U(36)               |             | 10003 | 14030 | 00062 |   | SFT DELTA CLOCK INTERRUPT TO N   |
| •     | CC005 |           |            | CLFAR 100D*MYUNP              |             | 10004 | 10000 | 12000 |   |                                  |
| •     | CC006 |           |            | RJP READTAPE                  |             | 10005 | 14020 | 00036 |   |                                  |
| •     | CC007 |           |            | U-TAG INPUTAREA+150*INPUTAREA |             | 10006 | 70100 | 00144 |   |                                  |
| •     | CC010 |           |            | ENT A*W(INPUTAREA+2)          |             | 10007 | 16030 | 11140 |   |                                  |
| •     | CC011 |           |            | SUB A*W(PROGCODE)*ANDT        |             | 10010 | 65000 | 12403 |   |                                  |
| •     | CC012 |           |            | JP P1                         |             | 10011 | 11704 | 11665 |   | CHECK FOR PROG ON FIRST CARO     |
| •     | CC013 |           |            | RJP PRINT                     |             | 10012 | 11030 | 11667 |   |                                  |
| •     | CC014 |           |            | 11D WRNGTAPE                  |             | 10013 | 21530 | 11706 |   |                                  |
| •     | CC015 |           |            | JP INITIAL*STOP               |             | 10014 | 61000 | 10020 |   |                                  |
| •     | CC016 | P1        |            | ENT A*MYUNP                   |             | 10015 | 65000 | 12177 |   |                                  |
| •     | CC017 |           |            | RJP UNPACK                    |             | 10016 | 00013 | 11707 |   |                                  |
| •     | CC020 |           |            | 160 INPUTAREA                 |             | 10017 | 61400 | 10000 |   | UNPACK FIRST RECORD              |
| •     | CC021 |           |            | RJP TRANSLATE                 |             | 10020 | 11000 | 11140 |   |                                  |
| •     | CC022 |           |            | R00 MYUNP                     |             | 10021 | 65000 | 12113 |   |                                  |
| •     | CC023 |           |            | ENT A*FKSTREC+1               |             | 10022 | 00020 | 11665 |   |                                  |
| •     | CC024 |           |            | RJP PACK                      |             | 10023 | 65000 | 11767 |   |                                  |
| •     | CC025 |           |            | 100 MYUNP                     |             | 10024 | 00120 | 11140 |   | PUT IN PROGRAM LABEL ON 10 REC   |
| •     | CC026 |           |            | RJP PRINT                     |             | 10025 | 11000 | 11130 |   | ORO                              |
| •     | CC027 |           |            | 2 FRSTRFC+1                   |             | 10026 | 65000 | 12144 |   |                                  |
| •     | CC030 |           |            | ENT A*FKSTREC+3               |             | 10027 | 00012 | 11140 |   |                                  |
| •     | CC031 |           |            | RJP PACK                      |             | 10030 | 65000 | 12177 |   |                                  |
| •     | CC032 |           |            | 250 MYUNP+21D                 |             | 10031 | 00002 | 11130 |   |                                  |
| •     | CC033 |           |            | RJP WRITE                     |             | 10032 | 11000 | 11132 |   | PUT IN NAME AND DATE             |
| •     | CC034 | BASICLOOP |            | U-TAG FRSTREC+8D*FRSTREC      |             | 10033 | 65000 | 12144 |   | WRITE PROGRAM I O RECORD         |
| •     | CC035 |           |            | ENT A*PACKED                  |             | 10034 | 00031 | 11165 |   |                                  |
| •     | CC036 |           |            | STR A*L(PREPACKVAR)           |             | 10035 | 65000 | 10535 |   |                                  |
| •     | CC037 |           |            | RJP PREPACK                   |             | 10036 | 11137 | 11127 |   |                                  |
| •     | CC040 |           |            | 100 MYUNP                     |             | 10037 | 11000 | 11411 |   |                                  |
| •     | CC041 |           |            | RJP KOPFIELD                  |             | 10040 | 15010 | 10447 |   |                                  |
| •     | CC042 |           |            | RJP LOOKAT                    |             | 10041 | 65000 | 10442 |   |                                  |
| •     | CC043 |           |            | RJP KOPRANDFLD                |             | 10042 | 00012 | 11140 |   |                                  |
| •     | CC044 | PACKFOR   |            | RJP PREPACK                   |             | 10043 | 65000 | 10224 |   |                                  |
| •     | CC045 |           |            | 5 WHEOR                       |             | 10044 | 65000 | 10664 |   |                                  |
| •     | CC046 |           |            | RPL Y-1*L(PREPACKVAR)         |             | 10045 | 65000 | 10322 |   |                                  |
| •     | CC047 |           |            | STR A*U(WRPARA)               |             | 10046 | 65000 | 10442 |   |                                  |
| •     | CC050 | WRPARA    |            | RJP WRITE                     |             | 10047 | 00005 | 10611 |   |                                  |
| •     | CC051 |           |            | O KOUTPUT                     |             | 10050 | 37010 | 10447 |   |                                  |
| •     | CC052 |           |            | RJP READTAPE                  |             | 10051 | 15020 | 10053 |   |                                  |
| •     | CC053 |           |            | U-TAG INPUT+15D*INPUT         |             | 10052 | 65000 | 10535 |   |                                  |
| •     | CC054 |           |            | ENT A*MYUNP                   |             | 10053 | 00000 | 11407 |   |                                  |
| •     | CC055 |           |            | RJP UNPACK                    |             | 10054 | 65000 | 12403 |   |                                  |
| •     |       |           |            |                               |             | 10055 | 11405 | 11366 |   |                                  |
| •     |       |           |            |                               |             | 10056 | 11000 | 11140 |   |                                  |
| •     |       |           |            |                               |             | 10057 | 65000 | 12113 |   |                                  |

| CARCS | LI    | ID | LABEL   | TA    | STATEMENT               | LOC   | F     | JXR   | Y | NOTES                         |
|-------|-------|----|---------|-------|-------------------------|-------|-------|-------|---|-------------------------------|
| .     | CC056 |    |         | 160   | INPUT                   | 10060 | 00020 | 11366 |   |                               |
| .     | CC057 |    |         | RJP   | TRANSLATE               | 10061 | 65000 | 11767 |   |                               |
| .     | CC060 |    |         | 800   | MYUNP                   | 10062 | 00120 | 11140 |   |                               |
| .     | CC061 |    |         | JP    | BASICLOOP               | 10063 | 61000 | 10037 |   |                               |
| .     | CC062 |    | LCOKAT  | ENTRY |                         | 10064 | 61000 | 00000 |   | CHECK FOR SPECIAL OPERATORS   |
| .     | CC063 |    |         | ENT   | A*THISCODE              | 10065 | 11000 | 11475 |   | PACK OPERATOR FIELD COL 12-16 |
| .     | CC064 |    |         | RJP   | PACK                    | 10066 | 65000 | 12144 |   |                               |
| .     | CC065 |    |         | 5     | MYUNP+110               | 10067 | 00005 | 11153 |   |                               |
| .     | CC066 |    |         | ENT   | A*05050505              | 10070 | 11030 | 13113 |   |                               |
| .     | CC067 |    |         | ENT   | C*W(THISCODE)           | 10071 | 10030 | 11475 |   |                               |
| .     | CC070 |    |         | LSH   | AQ*120                  | 10072 | 07000 | 00014 |   |                               |
| .     | CC071 |    |         | STR   | A*W(TWOCHAR)            | 10073 | 15030 | 11476 |   |                               |
| .     | CC072 |    |         | LSH   | AQ*6                    | 10074 | 07000 | 00006 |   |                               |
| .     | CC073 |    |         | STR   | A*W(THRECHAR)           | 10075 | 15030 | 11477 |   |                               |
| .     | CC074 |    |         | LSH   | AQ*6                    | 10076 | 07000 | 00006 |   |                               |
| .     | CC075 |    |         | STR   | A*W(FOURCHAR)           | 10077 | 15030 | 11500 |   |                               |
| .     | CC076 |    |         | LSH   | AQ*6                    | 10100 | 07000 | 00006 |   |                               |
| .     | CC077 |    |         | STR   | A*W(FIVECHAR)           | 10101 | 15030 | 11501 |   |                               |
| .     | CC100 |    |         | ENT   | Q*X77777                | 10102 | 10040 | 77777 |   |                               |
| .     | CC101 |    |         | CL    | R1*                     | 10103 | 12100 | 00000 |   |                               |
| .     | CC102 |    | ENTLP   | ENT   | LP*W(TWOCHAR+R1)        | 10104 | 40031 | 11476 |   |                               |
| .     | CC103 |    |         | COM   | MASK*W(FDCCDE+R1)*ANOT  | 10105 | 43531 | 11502 |   |                               |
| .     | CC104 |    |         | JP    | L(WHICH+R1)             | 10106 | 61011 | 10120 |   |                               |
| .     | CC105 |    |         | BSK   | R1*1                    | 10107 | 71100 | 00001 |   |                               |
| .     | CC106 |    |         | JP    | ENTLP                   | 10110 | 61000 | 10104 |   |                               |
| .     | CC107 |    |         | CL    | R1                      | 10111 | 12100 | 00000 |   |                               |
| .     | CC110 |    |         | FNT   | LP*W(FIVECHAR)          | 10112 | 40030 | 11501 |   |                               |
| .     | CC111 |    | PVAL    | COM   | MASK*W(FIVEFIG+R1)*ANOT | 10113 | 43531 | 11504 |   |                               |
| .     | CC112 |    |         | JP    | SPECCASE                | 10114 | 61000 | 10460 |   |                               |
| .     | CC113 |    |         | RSK   | R1*2                    | 10115 | 71100 | 00002 |   |                               |
| .     | CC114 |    |         | JP    | PVAL                    | 10116 | 61000 | 10113 |   |                               |
| .     | CC115 |    |         | EXIT  |                         | 10117 | 61010 | 10064 |   | NOT A SPECIAL                 |
| .     | CC116 |    | WHICH   | 0     | AFOOP                   | 10120 | 00000 | 13066 |   |                               |
| .     | CC117 |    |         | 0     | RYADAMS                 | 10121 | 00000 | 10126 |   |                               |
| .     | CC120 |    |         | 0     | SPECCASE                | 10122 | 00000 | 10460 |   |                               |
| .     | CC121 |    |         | 0     | SPECCASE                | 10123 | 00000 | 10460 |   |                               |
| .     | CC122 |    |         | 0     | SPECCASE                | 10124 | 00000 | 10460 |   |                               |
| .     | CC123 |    |         | 0     | SPECCASE                | 10125 | 00000 | 10460 |   |                               |
| .     | CC124 |    | RYADAMS | ENT   | A*JTEMP                 | 10126 | 11000 | 11605 |   | IS A DEC OP                   |
| .     | CC125 |    |         | RJP   | PACK                    | 10127 | 65000 | 12144 |   |                               |
| .     | CC126 |    |         | 150   | MYUNP+210               | 10130 | 00017 | 11165 |   | PACK COLS 22-36 INTO JTEMP+   |
| .     | CC127 |    |         | MOVE  | 3*JTEMP*NUMBER          | 10131 | 10030 | 11605 |   | SET UP FOR DECON              |
|       |       |    |         |       |                         | 10132 | 14030 | 13060 |   |                               |
|       |       |    |         |       |                         | 10133 | 10030 | 11606 |   |                               |
|       |       |    |         |       |                         | 10134 | 14030 | 13061 |   |                               |
|       |       |    |         |       |                         | 10135 | 10030 | 11607 |   |                               |
|       |       |    |         |       |                         | 10136 | 14030 | 13062 |   |                               |
|       |       |    |         |       |                         | 10137 | 12700 | 00000 |   |                               |
|       |       |    |         |       |                         | 10140 | 11027 | 11165 |   | FIND B- BINARY POINT IND      |
| .     | CC130 |    |         | CL    | B7                      | 10141 | 21500 | 00007 |   |                               |
| .     | CC131 |    | SEARCHB | ENT   | A*U(MYUNP+210*B7)       | 10142 | 61000 | 10146 |   | FOUND THE B                   |
| .     | CC132 |    |         | SUB   | A*7*ANOT                | 10143 | 71700 | 00016 |   | 15 COLS                       |
| .     | CC133 |    |         | JP    | FN0THEB                 |       |       |       |   |                               |
| .     | CC134 |    |         | RSK   | B7*140                  |       |       |       |   |                               |

| LI    | IC | LABEL     | TA    | STATEMENT              | LOC   | F     | J     | K | R | Y | NOTES             |
|-------|----|-----------|-------|------------------------|-------|-------|-------|---|---|---|-------------------|
| CC135 |    |           | JP    | SEARCHB                | 10144 | 61000 | 10140 |   |   |   |                   |
| CC136 |    |           | JP    | RISO                   | 10145 | 61000 | 10216 |   |   |   | LOOK AT NEXT COL  |
| CC137 |    | ENDTHEB   | BSK   | R7*777                 | 10146 | 71700 | 00777 |   |   |   | LOOK AT NEXT COL  |
| CC140 |    |           | ENT   | A*U(MYUNP+21D*B71      | 10147 | 11027 | 11165 |   |   |   |                   |
| CC141 |    |           | SUB   | A*60*APCS              | 10150 | 21600 | 00060 |   |   |   | SKIP IF OK        |
| CC142 |    |           | JP    | RISO                   | 10151 | 61000 | 10216 |   |   |   | SET B TO ZERO     |
| CC143 |    |           | STR   | A*W(JTEMP+5)           | 10152 | 15030 | 11612 |   |   |   | TENS DIGIT        |
| CC144 |    |           | BSK   | R7*777                 | 10153 | 71700 | 00777 |   |   |   | NEXT COL          |
| CC145 |    |           | ENT   | A*U(MYUNP+21D*B71      | 10154 | 11027 | 11165 |   |   |   |                   |
| CC146 |    |           | SUR   | A*60*APCS              | 10155 | 21600 | 00060 |   |   |   |                   |
| CC147 |    |           | JP    | UNITSONLY              | 10156 | 61000 | 10220 |   |   |   | NO TENS DIGIT     |
| CC150 |    |           | STR   | A*W(JTEMP+61           | 10157 | 15030 | 11613 |   |   |   | UNITS             |
| CC151 |    | CONVERT   | ENT   | Q*U(JTEMP+51           | 10160 | 10010 | 11612 |   |   |   | TENS              |
| CC152 |    |           | MUL   | 100                    | 10161 | 22000 | 00012 |   |   |   |                   |
| CC153 |    |           | ADD   | Q*U(JTEMP+6)           | 10162 | 26010 | 11613 |   |   |   | UNITS             |
| CC154 |    |           | STR   | Q*U(LTRINPNT)          | 10163 | 14010 | 13063 |   |   |   | BINARY SCALER     |
| CC155 |    | TODAN     | RJP   | DECON                  | 10164 | 65000 | 12733 |   |   |   |                   |
| CC156 |    |           | CL    | R1                     | 10165 | 12100 | 00000 |   |   |   |                   |
| CC157 |    |           | ENT   | Q*W(IACCUM1            | 10166 | 10030 | 13064 |   |   |   | TRANSLATE RESULTS |
| CC160 |    | WASHA     | CL    | A                      | 10167 | 11000 | 00000 |   |   |   |                   |
| CC161 |    |           | LSH   | AG*3                   | 10170 | 07000 | 00003 |   |   |   | TO F0             |
| CC162 |    |           | ADD   | A*60                   | 10171 | 20000 | 00060 |   |   |   |                   |
| CC163 |    |           | STR   | A*U(SHIFTAREA+B1       | 10172 | 15021 | 11511 |   |   |   |                   |
| CC164 |    |           | BSK   | R1*90                  | 10173 | 71100 | 00011 |   |   |   |                   |
| CC165 |    |           | JP    | WASHA                  | 10174 | 61000 | 10167 |   |   |   |                   |
| CC166 |    |           | ENT   | A*PACKED+2             | 10175 | 11000 | 11413 |   |   |   |                   |
| CC167 |    |           | RJP   | PACK                   | 10176 | 65000 | 12144 |   |   |   |                   |
| CC170 |    |           | 10D   | SHIFTAREA              | 10177 | 00012 | 11511 |   |   |   | STORE 10 F0       |
| CC171 |    |           | ENT   | A*5                    | 10200 | 11000 | 00005 |   |   |   |                   |
| CC172 |    |           | RPT   | 60D*ADV                | 10201 | 70100 | 00074 |   |   |   |                   |
| CC173 |    |           | STR   | A*U(INDOTATION1        | 10202 | 15020 | 10713 |   |   |   |                   |
| CC174 |    | TRY       | CL    | R1                     | 10203 | 12100 | 00000 |   |   |   |                   |
| CC175 |    |           | ENT   | A*U(MYUNP+11D*B11*ANOT | 10204 | 11521 | 11153 |   |   |   |                   |
| CC176 |    |           | JP    | INDEXIT                | 10205 | 61000 | 10207 |   |   |   |                   |
| CC177 |    |           | STR   | A*U(INDOTATION*B11     | 10206 | 15021 | 10713 |   |   |   |                   |
| CC200 |    | INDEXIT   | BSK   | R1*490                 | 10207 | 71100 | 00061 |   |   |   |                   |
| CC201 |    |           | JP    | TRY                    | 10210 | 61000 | 10204 |   |   |   |                   |
| CC202 |    |           | PUT   | 50D*0(FCRNOTES1        | 10211 | 10000 | 00062 |   |   |   |                   |
| CC203 |    |           | RJP   | PREPACK                | 10212 | 14020 | 10425 |   |   |   |                   |
| CC204 |    |           | S     | WHMASTSEP              | 10213 | 65000 | 10442 |   |   |   |                   |
| CC205 |    |           | JP    | BREAKIN                | 10214 | 00005 | 10577 |   |   |   |                   |
| CC206 |    | RISO      | CL    | L(RINPNT)              | 10215 | 61000 | 10404 |   |   |   |                   |
| CC207 |    |           | JP    | TODAN                  | 10216 | 16010 | 13063 |   |   |   |                   |
| CC210 |    | UNITSONLY | PUT   | L(JTEMP+51*L(JTEMP+61  | 10217 | 61000 | 10164 |   |   |   |                   |
| CC211 |    |           | CL    | W(JTEMP+51             | 10220 | 10010 | 11612 |   |   |   |                   |
| CC212 |    |           | JP    | CONVERT                | 10221 | 14010 | 11613 |   |   |   |                   |
| CC213 |    | KCPFIELD  | ENTPY |                        | 10222 | 16030 | 11612 |   |   |   |                   |
| CC214 |    |           | CLEAR | 10D*MYEXPLCODE         | 10223 | 61000 | 10160 |   |   |   |                   |
| CC215 |    |           | ENT   | R7*90                  | 10224 | 61000 | 00000 |   |   |   |                   |
| CC216 |    | NEWLABEL  | ENT   | Q*U(MYUNP+11D*B71      | 10225 | 70100 | 00012 |   |   |   |                   |
|       |    |           |       |                        | 10226 | 16030 | 11723 |   |   |   |                   |
|       |    |           |       |                        | 10227 | 12700 | 00011 |   |   |   |                   |
|       |    |           |       |                        | 10230 | 10027 | 11153 |   |   |   |                   |

| CARDS | L1 ID LABEL | TA STATEMENT                   | LOC   | F     | J     | K | B | Y | NOTES                       |
|-------|-------------|--------------------------------|-------|-------|-------|---|---|---|-----------------------------|
| •     | CC217       | STR Q*U(MYEXPLCODE*871         | 10231 | 14027 | 11723 |   |   |   |                             |
| •     | CC220       | RJP R7*NEWLREL                 | 10232 | 72700 | 10230 |   |   |   |                             |
| •     | CC221       | CLEAR 10D*EXPLODEDW            | 10233 | 70100 | 00012 |   |   |   |                             |
| •     | CC222       | CLEAR 10D*EXPLODEOVO           | 10234 | 16030 | 11735 |   |   |   |                             |
| •     | CC223       | CL W(COLCNTW1                  | 10235 | 70100 | 00012 |   |   |   |                             |
| •     | CC224       | CL W(COLCNTV01                 | 10236 | 16030 | 11747 |   |   |   |                             |
| •     | CC225       | CL B2                          | 10237 | 16030 | 11761 |   |   |   |                             |
| •     | CC226       | CL R5                          | 10240 | 16030 | 11762 |   |   |   |                             |
| •     | CC227       | EXAMIN                         | 10241 | 12200 | 00000 |   |   |   |                             |
| •     | CC230       | FNT A*W(MYEXPLCODE*821         | 10242 | 12500 | 00000 |   |   |   |                             |
| •     | CC231       | STR A*W(EXPLODEDW*821*ANOT     | 10243 | 11032 | 11723 |   |   |   |                             |
| •     | CC232       | JP FNOFRST                     | 10244 | 1532  | 11735 |   |   |   |                             |
| •     | CC233       | RPL Y+1*LC(COLCNTW1            | 10245 | 61000 | 10252 |   |   |   |                             |
| •     | CC234       | RSK R2*90                      | 10246 | 36010 | 11761 |   |   |   |                             |
| •     | CC235       | JP EXAMIN                      | 10247 | 71200 | 00011 |   |   |   | NO VO                       |
| •     | CC236       | JP CONTIN                      | 10250 | 61000 | 10243 |   |   |   |                             |
| •     | CC237       | BSK R2*90                      | 10251 | 61000 | 10277 |   |   |   |                             |
| •     | CC238       | JP RTHRE+2                     | 10252 | 71200 | 00011 |   |   |   |                             |
| •     | CC240       | JP CONTIN                      | 10253 | 61000 | 10255 |   |   |   |                             |
| •     | CC241       | ENT A*W(MYEXPLCODE*821*ANOT    | 10254 | 61000 | 10277 |   |   |   |                             |
| •     | CC242       | JP CONTIN                      | 10255 | 11532 | 11723 |   |   |   |                             |
| •     | CC243       | LKAGN                          | 10256 | 61000 | 10277 |   |   |   | TWO BLANKS IN A ROW NO VO   |
| •     | CC244       | ENT A*W(MYEXPLCODE*821         | 10257 | 11032 | 11723 |   |   |   |                             |
| •     | CC245       | STR A*W(EXPLODEDV0*851*ANOT    | 10260 | 15535 | 11747 |   |   |   | END OF VO FIELD             |
| •     | CC246       | JP FND2ND                      | 10261 | 61000 | 10266 |   |   |   |                             |
| •     | CC247       | RPL Y+1*LC(COLCNTV01           | 10262 | 36010 | 11762 |   |   |   |                             |
| •     | CC248       | RSK R5*7777                    | 10263 | 71500 | 07777 |   |   |   |                             |
| •     | CC249       | RSK R2*90                      | 10264 | 71200 | 00011 |   |   |   |                             |
| •     | CC250       | JP LKAGN                       | 10265 | 61000 | 10257 |   |   |   |                             |
| •     | CC251       | ENT A*50                       | 10266 | 11000 | 00050 |   |   |   |                             |
| •     | CC252       | FNO2ND                         | 10267 | 15025 | 11747 |   |   |   | END OF VO PUT, IN SEPARATOR |
| •     | CC253       | STR A*U(EXPLODEDV0*851         | 10270 | 10000 | 00005 |   |   |   |                             |
| •     | CC254       | PUT 5*U(PARAX1                 | 10271 | 14020 | 10320 |   |   |   |                             |
| •     | CC255       | RPL Y+1*LC(COLCNTV01           | 10272 | 36010 | 11762 |   |   |   |                             |
| •     | CC256       | SUB A*6*AP0S                   | 10273 | 21600 | 00006 |   |   |   |                             |
| •     | CC257       | JP CONTIN                      | 10274 | 61000 | 10277 |   |   |   |                             |
| •     | CC260       | PUT 10D*U(PARAX1               | 10275 | 10000 | 00012 |   |   |   |                             |
| •     | CC261       | CCNTIN                         | 10276 | 14020 | 10320 |   |   |   | AT LEAST ONE WORD           |
| •     | CC262       | ENT C*1                        | 10277 | 10000 | 00001 |   |   |   |                             |
| •     | CC263       | ENT A*5                        | 10300 | 11000 | 00005 |   |   |   |                             |
| •     | CC264       | SUB A*LC(COLCNTW1*AP0S         | 10301 | 21610 | 11761 |   |   |   |                             |
| •     | CC265       | AOO Q*1                        | 10302 | 26000 | 00001 |   |   |   |                             |
| •     | CC266       | STR G*LC(NOW*W0RCS1            | 10303 | 14010 | 11763 |   |   |   |                             |
| •     | CC267       | PUT LC(COLCNTV01*LC(NOV0WORD51 | 10304 | 10010 | 11762 |   |   |   |                             |
| •     | CC268       | ENT Q*LC(NOW*W0RCS1            | 10305 | 14010 | 11764 |   |   |   |                             |
| •     | CC269       | MUL 5                          | 10306 | 10010 | 11763 |   |   |   |                             |
| •     | CC270       | STR Q*U(PARAX1                 | 10307 | 22000 | 00005 |   |   |   |                             |
| •     | CC271       | RJP PREPACK                    | 10310 | 14020 | 10312 |   |   |   |                             |
| •     | CC272       | O EXPLODEDW                    | 10311 | 65000 | 10442 |   |   |   |                             |
| •     | CC273       | PARAM                          | 10312 | 00000 | 11735 |   |   |   |                             |
| •     | CC274       | RJP PREPACK                    | 10313 | 65000 | 10442 |   |   |   |                             |
| •     | CC275       | S WHMASTSEP                    | 10314 | 00005 | 10577 |   |   |   |                             |
| •     | CC276       | ENT A*LC(NOV0WORD51*ANOT       | 10315 | 11510 | 11764 |   |   |   |                             |

| CARDS | LI    | ID         | LABEL | TA    | STATEMENT              | LOC   | F     | JKR   | Y | NOTES |
|-------|-------|------------|-------|-------|------------------------|-------|-------|-------|---|-------|
| .     | CC277 |            |       | EXIT  |                        | 10316 | 61010 | 10224 |   |       |
| .     | CC300 |            |       | RJP   | PREPACK                | 10317 | 65000 | 10442 |   |       |
| .     | CC301 | PARAX      |       | 5     | EXPLOECVO              | 10320 | 00005 | 11747 |   |       |
| .     | CC302 |            |       | EXIT  |                        | 10321 | 61010 | 10224 |   |       |
| .     | CC303 | KCPRANDFLD |       | ENTRY |                        | 10322 | 61000 | 00000 |   |       |
| .     | CC304 |            |       | CL    | B5*                    | 10323 | 12500 | 00000 |   |       |
| .     | CC305 |            |       | CL    | B4*                    | 10324 | 12400 | 00000 |   |       |
| .     | CC306 |            |       | CLEAR | 60D*COLS22T080         | 10325 | 70100 | 00074 |   |       |
|       |       |            |       |       |                        | 10326 | 16030 | 10617 |   |       |
| .     | CC307 |            |       | ENT   | A*5                    | 10327 | 11000 | 00005 |   |       |
| .     | CC310 |            |       | RPT   | R00*AOV                | 10330 | 70100 | 00120 |   |       |
| .     | CC311 |            |       | STR   | A*(INOTATION)          | 10331 | 15020 | 10713 |   |       |
| .     | CC312 | ENDABLNK   |       | ENT   | A*(I*MYUNP+210+B4)     | 10332 | 11024 | 11165 |   |       |
| .     | CC313 |            |       | STR   | A*(COLS22T080+B4)*ANOT | 10333 | 15524 | 10617 |   |       |
| .     | CC314 |            |       | JP    | ENDOPRANC              | 10334 | 61000 | 10337 |   |       |
| .     | CC315 |            |       | RSK   | B4*590                 | 10335 | 71400 | 00073 |   |       |
| .     | CC316 | NARYARLNK  |       | JP    | ENDABLNK               | 10336 | 61000 | 10332 |   |       |
| .     | CC317 | ENDOPRANO  |       | STR   | B4*(MAGICCOL)          | 10337 | 16430 | 10616 |   |       |
| .     | CC320 |            |       | ENT   | B4*(H4+1)              | 10340 | 12404 | 00001 |   |       |
| .     | CC321 |            |       | ENT   | Q*7700000              | 10341 | 10030 | 13114 |   |       |
| .     | CC322 | KEFPON     |       | ENT   | LP*(MYUNP+210+B4)*ANOT | 10342 | 40534 | 11165 |   |       |
| .     | CC323 |            |       | JP    | INDEXR                 | 10343 | 61000 | 10347 |   |       |
| .     | CC324 |            |       | COM   | MASK*(ACOMPA)*ANOT     | 10344 | 43530 | 11722 |   |       |
| .     | CC325 |            |       | JP    | FNOCOMMA               | 10345 | 61000 | 10433 |   |       |
| .     | CC326 |            |       | STR   | A*(INOTATION+B5)       | 10346 | 15035 | 10713 |   |       |
| .     | CC327 | INDEXR     |       | RSK   | B5*777                 | 10347 | 71500 | 07777 |   |       |
| .     | CC330 |            |       | RSK   | B4*590                 | 10350 | 71400 | 00073 |   |       |
| .     | CC331 |            |       | JP    | KEFPON                 | 10351 | 61000 | 10342 |   |       |
| .     | CC332 |            |       | CL    | A*                     | 10352 | 11000 | 00000 |   |       |
| .     | CC333 |            |       | ENT   | Q*(MAGICCOL)           | 10353 | 10030 | 10616 |   |       |
| .     | CC334 |            |       | DIV   | 5                      | 10354 | 23000 | 00005 |   |       |
| .     | CC335 |            |       | STR   | A*(JTEMP+3)            | 10355 | 15030 | 11610 |   |       |
| .     | CC336 |            |       | MUL   | 5                      | 10356 | 22000 | 00005 |   |       |
| .     | CC337 |            |       | ENT   | A*(JTEMP+3)*AZERO      | 10357 | 11430 | 11610 |   |       |
| .     | CC340 |            |       | ADD   | G*5                    | 10360 | 26000 | 00005 |   |       |
| .     | CC341 |            |       | STR   | Q*(IFOROPRND)          | 10361 | 14020 | 10365 |   |       |
| .     | CC342 |            |       | ENT   | A*(IFOROPRND)*ANOT     | 10362 | 11520 | 10365 |   |       |
| .     | CC343 |            |       | JP    | FOROPRND+1             | 10363 | 61000 | 10366 |   |       |
| .     | CC344 | FCOPRND    |       | RJP   | PREPACK                | 10364 | 65000 | 10442 |   |       |
| .     | CC345 |            |       | 0     | COLS22T080             | 10365 | 00000 | 10617 |   |       |
| .     | CC346 |            |       | ENT   | A*580                  | 10366 | 11000 | 00072 |   |       |
| .     | CC347 |            |       | SUB   | A*(MAGICCOL)           | 10367 | 21010 | 10616 |   |       |
| .     | CC350 |            |       | STR   | A*(MINCTES)            | 10370 | 15010 | 10371 |   |       |
| .     | CC351 | MINOTES    |       | RPT   | O*BACK                 | 10371 | 70200 | 00000 |   |       |
| .     | CC352 |            |       | ENT   | A*(I*MYUNP+790)*ANOT   | 10372 | 11520 | 11257 |   |       |
| .     | CC353 |            |       | JP    | NONOTES                | 10373 | 61000 | 10403 |   |       |
| .     | CC354 |            |       | ENT   | Q*(R7+1)               | 10374 | 10007 | 00001 |   |       |
| .     | CC355 |            |       | CL    | A                      | 10375 | 11000 | 00000 |   |       |
| .     | CC356 |            |       | DIV   | 5*AZERO                | 10376 | 23400 | 00005 |   |       |
| .     | CC357 |            |       | ADD   | Q*1                    | 10377 | 26000 | 00001 |   |       |
| .     | CC360 |            |       | MUL   | 5                      | 10400 | 22000 | 00005 |   |       |
| .     | CC361 |            |       | STR   | Q*(IFORNOTES)          | 10401 | 14020 | 10425 |   |       |
| .     | CC362 |            |       | JP    | BREAKIN                | 10402 | 61000 | 10404 |   |       |

OUT THE OPERANO FIELD

EX COLS 23 TO 80 FOR NOTES  
 MINUS OPERAND FIELD

.....

.....  
WAKEA301TP

| CAROS | L1 ID | LABEL      | TA STATEMENT             | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------|------------|--------------------------|-------|-------|-------|---|--------------------------------|
| .     | CC363 | MCNOTES    | CL U(FORMNOTES)          | 10403 | 16020 | 10425 |   |                                |
| .     | CC364 | BREAKIN    | RJP PREPACK              | 10404 | 65000 | 10442 |   | NOTE SEPARATOR                 |
| .     | CC365 |            | S WHNOTESEP              | 10405 | 00005 | 10604 |   |                                |
| .     | CC366 |            | ENT A*U(FORMNOTES)*ANOT  | 10406 | 11520 | 10425 |   | NO NOTES                       |
| .     | CC367 |            | JP L(KOPRANCFLO)         | 10407 | 61010 | 10322 |   |                                |
| .     | CC370 |            | ENT A*NOTATION           | 10410 | 11000 | 10713 |   |                                |
| .     | CC371 |            | STR A*L(FORMNOTES)       | 10411 | 15010 | 10425 |   |                                |
| .     | CC372 |            | CL H6*                   | 10412 | 12600 | 00000 |   |                                |
| .     | CC373 | LCOPER     | ENT A*U(NTATION+R6)      | 10413 | 11026 | 10713 |   |                                |
| .     | CC374 |            | SUB A*S*ANOT             | 10414 | 21500 | 00005 |   |                                |
| .     | CC375 |            | JP MOONOTES              | 10415 | 61000 | 10427 |   |                                |
| .     | CC376 | FL*WORDS   | CL A*                    | 10416 | 11000 | 00000 |   |                                |
| .     | CC377 |            | ENT G*U(FORMNOTES)       | 10417 | 10020 | 10425 |   |                                |
| .     | CC400 |            | OIV S*AZERO              | 10420 | 23400 | 00005 |   |                                |
| .     | CC401 |            | A00 Q*1                  | 10421 | 26000 | 00001 |   |                                |
| .     | CC402 |            | MUL S                    | 10422 | 22000 | 00005 |   |                                |
| .     | CC403 |            | STR G*U(FORMNOTES)       | 10423 | 14020 | 10425 |   |                                |
| .     | CC404 |            | RJP PREPACK              | 10424 | 65000 | 10442 |   |                                |
| .     | CC405 | FORNOTES   | O NOTATION               | 10425 | 00000 | 10713 |   |                                |
| .     | CC406 |            | EXIT                     | 10426 | 61010 | 10322 |   |                                |
| .     | CC407 | MCNOTES    | RPL Y+1*L(FORMNOTES)     | 10427 | 36010 | 10425 |   |                                |
| .     | CC410 |            | RPL Y-1*U(FORMNOTES)     | 10430 | 37020 | 10425 |   |                                |
| .     | CC411 |            | BSK H6*77                | 10431 | 71600 | 00077 |   |                                |
| .     | CC412 |            | JP LOOPER                | 10432 | 61000 | 10413 |   |                                |
| .     | CC413 | FNDCOMMA   | PUT 56*U(NTATION+85)     | 10433 | 10000 | 00056 |   |                                |
| .     | CC414 |            | ENT Q*770000C            | 10434 | 14025 | 10713 |   |                                |
| .     | CC415 |            | JP INDEXR                | 10435 | 10030 | 13114 |   |                                |
| .     | CC416 | NOPRAND    | ENT A*600                | 10436 | 61000 | 10347 |   |                                |
| .     | CC417 |            | STR A*U(FORMNOTES)       | 10437 | 11000 | 00074 |   |                                |
| .     | CC420 |            | JP HREAKIN               | 10440 | 15020 | 10425 |   |                                |
| .     | CC421 | PREPACK    | ENTRY                    | 10441 | 61000 | 10404 |   |                                |
| .     | CC422 |            | PUT L(PREPACK)*L(STORIT) | 10442 | 61000 | 00000 |   | MAINTAIN PACKING ADDRESS       |
| .     | CC423 | STORIT     | ENT A*W(0)               | 10443 | 10010 | 10442 |   |                                |
| .     | CC424 |            | STR A*W(SETFOR)          | 10444 | 14010 | 10445 |   |                                |
| .     | CC425 | PREPACKVAR | ENT A*PACKED             | 10445 | 11030 | 00000 |   | Y HERE TO BE UPDATED FOR UNPAC |
| .     | CC426 |            | RJP PACK                 | 10446 | 15030 | 10451 |   | K SR                           |
| .     | CC427 | SETFOR     | O O                      | 10447 | 11000 | 11411 |   | FMA OF PACKED                  |
| .     | CC430 |            | CL A*                    | 10450 | 65000 | 12144 |   |                                |
| .     | CC431 |            | ENT Q*U(SETFOR)          | 10451 | 00000 | 00000 |   | UPDATE FMA ADDR OF NEXT RESULT |
| .     | CC432 |            | OIV S                    | 10452 | 11000 | 00000 |   | S                              |
| .     | CC433 |            | PPL Y+Q*W(PREPACKVAR)    | 10453 | 10020 | 10451 |   | NO CHARS JUST WRITTEN          |
| .     | CC434 |            | RPL Y+1*L(PREPACK)       | 10454 | 23000 | 00005 |   | NO WORDS                       |
| .     | CC435 |            | EXIT                     | 10455 | 34030 | 10447 |   |                                |
| .     | CC436 | SPECCASE   | RPT 590*BACK             | 10456 | 36010 | 10442 |   |                                |
| .     | CC437 |            | ENT A*U(MYUMP+790)*ANOT  | 10457 | 61010 | 10442 |   |                                |
| .     | CC440 |            | JP ALLBLNK               | 10460 | 70200 | 00073 |   |                                |
| .     | CC441 |            | ENT A*U(MYUMP+150)       | 10461 | 11520 | 11257 |   |                                |
| .     | CC442 |            | SUB A*1*AZERO            | 10462 | 61000 | 10532 |   | COLS 22-72 ALL BLANK           |
| .     | CC443 |            | JP LOTHEQ                | 10463 | 11020 | 11157 |   |                                |
| .     |       |            |                          | 10464 | 21400 | 00041 |   |                                |
| .     |       |            |                          | 10465 | 61000 | 10470 |   |                                |

| CARDS | LI    | IC        | LAPEL | TA     | STATEMENT                   | LOC   | F     | JKB   | Y | NOTES |
|-------|-------|-----------|-------|--------|-----------------------------|-------|-------|-------|---|-------|
| .     | CC444 |           |       | PUT    | 50*L(I\$COMMA)              | 10466 | 10000 | 00050 |   |       |
| .     | CC445 | LCTHEQ    |       | ENT    | Q*87+1                      | 10467 | 14010 | 10526 |   |       |
| .     | CC446 |           |       | CL     | A*                          | 10470 | 10007 | 00001 |   |       |
| .     | CC447 |           |       | CLV    | 5*ANOT                      | 10471 | 11000 | 00000 |   |       |
| .     | CC450 |           |       | JP     | EVENCOL                     | 10472 | 23500 | 00005 |   |       |
| .     | CC451 |           |       | CL     | A*                          | 10473 | 61000 | 10501 |   |       |
| .     | CC452 |           |       | MUL    | 5                           | 10474 | 11000 | 00000 |   |       |
| .     | CC453 |           |       | ADD    | Q*5                         | 10475 | 22000 | 00005 |   |       |
| .     | CC454 | PP3       |       | STR    | Q*U(I\$VARPARA)             | 10476 | 26000 | 00005 |   |       |
| .     | CC455 |           |       | JP     | PP2                         | 10477 | 14020 | 10522 |   |       |
| .     | CC456 | EVENCOL   |       | MUL    | 5                           | 10500 | 61000 | 10503 |   |       |
| .     | CC457 |           |       | JP     | PP3                         | 10501 | 22000 | 00005 |   |       |
| .     | CC460 | PP2       |       | ENT    | A*5                         | 10502 | 61000 | 10477 |   |       |
| .     | CC461 |           |       | RPT    | 600*AOV                     | 10503 | 11000 | 00005 |   |       |
| .     | CC462 |           |       | STR    | A*U(SPECIFIELD)             | 10504 | 70100 | 00074 |   |       |
| .     | CC463 |           |       | ENT    | R6*1                        | 10505 | 15020 | 11033 |   |       |
| .     | CC464 |           |       | ENT    | Q*7700000                   | 10506 | 12600 | 00001 |   |       |
| .     | CC465 | MCRE      |       | ENT    | LP*W(I\$MULNP+200+861)*ANOT | 10507 | 10030 | 13114 |   |       |
| .     | CC466 |           |       | JP     | HSKR6                       | 10510 | 40536 | 11164 |   |       |
| .     | CC467 |           |       | COM    | MASK*W(ACOMMA)*ANOT         | 10511 | 61000 | 10515 |   |       |
| .     | CC470 |           |       | JP     | I\$COMMA                    | 10512 | 43530 | 11722 |   |       |
| .     | CC471 |           |       | STR    | A*W(SPECIFIELD-1+861)       | 10513 | 61000 | 10526 |   |       |
| .     | CC472 | RSKR6     |       | BSK    | R6*U(I\$VARPARA)            | 10514 | 15036 | 11032 |   |       |
| .     | CC473 |           |       | JP     | MORE                        | 10515 | 71620 | 10522 |   |       |
| .     | CC474 |           |       | PUT    | 56*L(I\$COMMA)              | 10516 | 61000 | 10510 |   |       |
| .     |       |           |       | RJP    | PREPACK                     | 10517 | 10000 | 00056 |   |       |
| .     | CC475 | JST1      |       | O      | SPECIFIELD                  | 10520 | 14010 | 10526 |   |       |
| .     | CC476 | VARPARA   |       | RJP    | PREPACK                     | 10521 | 65000 | 10442 |   |       |
| .     | CC477 |           |       | S      | WHNOTESEP                   | 10522 | 00000 | 11033 |   |       |
| .     | CC500 |           |       | JP     | PACKEOR                     | 10523 | 65000 | 10442 |   |       |
| .     | CC501 | I\$COMMA  |       | PUT    | 56*U(SPECIFIELD-1+861)      | 10524 | 00005 | 10604 |   |       |
| .     | CC502 |           |       | ENT    | Q*7700000                   | 10525 | 61000 | 10046 |   |       |
| .     | CC503 |           |       | JP     | RSKR6                       | 10526 | 10000 | 00056 |   |       |
| .     | CC504 |           |       | PUT    | 5*U(I\$VARPARA)             | 10527 | 14026 | 11032 |   |       |
| .     | CC505 | ALLBLNK   |       | JP     | JST1                        | 10530 | 10030 | 13114 |   |       |
| .     | CC506 |           |       | ENTRY  |                             | 10531 | 61000 | 10515 |   |       |
| .     | CC507 | WRITE     |       | PUT    | W(ENTRANCE)*W(35)           | 10532 | 10000 | 00005 |   |       |
| .     | CC510 |           |       | PUT    | L(WRITE)*L(WRITEOUT)        | 10533 | 14020 | 10522 |   |       |
| .     | CC511 |           |       | RPL    | Y+1*L(WRITE)                | 10534 | 61000 | 10521 |   |       |
| .     | CC512 | FCREWINO  |       | EX-ECT | C15*1200000010              | 10535 | 61000 | 00000 |   |       |
| .     | CC513 |           |       | RIL    | C15*W(01)                   | 10536 | 10030 | 11664 |   |       |
| .     | CC514 | WRITEOUT  |       | OUT    |                             | 10537 | 14030 | 00035 |   |       |
| .     | CC515 | HERE      |       | JP     | HERE                        | 10540 | 10010 | 10535 |   |       |
| .     | CC516 | INTERRUPT |       | STR    | C15*W(CHANNEL)              | 10541 | 14010 | 10545 |   |       |
| .     | CC520 |           |       | ENT    | A*U(CHANNEL)                | 10542 | 36010 | 10535 |   |       |
| .     | CC521 |           |       | RSH    | A*110                       | 10543 | 13670 | 13115 |   |       |
| .     | CC522 |           |       | A00    | A*STATCOGE                  | 10544 | 60000 | 00000 |   |       |
| .     |       |           |       |        |                             | 10545 | 74670 | 00000 |   |       |
| .     |       |           |       |        |                             | 10546 | 61000 | 10546 |   |       |
| .     |       |           |       |        |                             | 10547 | 17670 | 11620 |   |       |
| .     |       |           |       |        |                             | 10550 | 11020 | 11620 |   |       |
| .     |       |           |       |        |                             | 10551 | 02000 | 00013 |   |       |
| .     |       |           |       |        |                             | 10552 | 20000 | 11621 |   |       |

WRITE + WAIT FOR 1 RECORD

PICK UP BUFFER CONTROL WORD

SET FOR NORMAL RJP +2

WAIT FOR INTERRUPT

PICK UP STATUS WORD

LOCATION OF TABLE OF JUMPS

.....

SPURT OUTPUT NO. 210  
JDD\*2/20/64

.....  
MAKEA301TP

| CARCS | LI    | IC | LABEL      | TA         | STATEMENT             | LOC   | F     | JKB   | Y | NOTES                           |
|-------|-------|----|------------|------------|-----------------------|-------|-------|-------|---|---------------------------------|
| .     | CC523 |    |            | STR        | A*(INTJUMP)           | 10553 | 15010 | 10554 |   |                                 |
| .     | CC524 |    | INTJUMP    | JP         | L(01)                 | 10554 | 61010 | 00000 |   | JUMP CONTROLLING S.R.           |
| .     | CC525 |    | BACMCH     | PUT        | U(MYSERV01*U(UNITNO)) | 10555 | 10020 | 11641 |   | MACHINE ERROR OR NOT USED       |
| .     | CC526 |    |            | JP         | MACHERROR             | 10556 | 14020 | 12500 |   | ART S ROUTINE                   |
| .     | CC527 |    | REDUNDANT  | EX-FCT     | C15*20300000010       | 10557 | 61000 | 12642 |   | PARITY ON OUTPUT TAPE, BACKSPAC |
| .     | CC530 |    |            | RPT        | 77777                 | 10560 | 13670 | 13116 |   | E                               |
| .     | CC531 |    |            | NO-OP      |                       | 10561 | 70000 | 77777 |   |                                 |
| .     | CC532 |    |            | EX-FCT     | C15*00300000010       | 10562 | 12000 | 00000 |   |                                 |
| .     | CC533 |    |            | JP         | WRITEOUT              | 10563 | 13670 | 13117 |   | ERASE FORWARD                   |
| .     | CC534 |    | ENCTAPE    | EX-FCT     | C15*02300000010       | 10564 | 61000 | 10545 |   |                                 |
| .     | CC535 |    |            | RPT        | 77777                 | 10565 | 13670 | 13120 |   | WRITE E O F HO                  |
| .     | CC536 |    |            | NO-CP      |                       | 10566 | 70000 | 77777 |   |                                 |
| .     | CC537 |    |            | EX-FCT     | C15*21100000010       | 10567 | 12000 | 00000 |   |                                 |
| .     | CC540 |    |            | RJP        | PRINT                 | 10570 | 13670 | 13121 |   | REW W/ INTLCK                   |
| .     | CC541 |    |            | RO         | NEWTAPE               | 10571 | 65000 | 12177 |   |                                 |
| .     | CC542 |    |            | EXIT       | STOP                  | 10572 | 00010 | 11642 |   |                                 |
| .     | CC543 |    | INTERLCK   | RJP        | PRINT                 | 10573 | 61410 | 10535 |   |                                 |
| .     | CC544 |    |            | 100        | WAKEUP                | 10574 | 65000 | 12177 |   |                                 |
| .     | CC545 |    |            | JP         | WRITEOUT*STOP         | 10575 | 00012 | 11652 |   |                                 |
| .     | CC546 |    | WFMSTSEP   | 50         | 0                     | 10576 | 61400 | 10545 |   |                                 |
| .     | CC547 |    |            | 0          | 0                     | 10577 | 00050 | 00000 |   |                                 |
| .     | CC550 |    |            | 0          | 0                     | 10600 | 00000 | 00000 |   |                                 |
| .     | CC551 |    |            | 0          | 0                     | 10601 | 00000 | 00000 |   |                                 |
| .     | CC552 |    |            | 0          | 0                     | 10602 | 00000 | 00000 |   |                                 |
| .     | CC553 |    | WFMSTSEP   | 3          | 0                     | 10603 | 00000 | 00000 |   |                                 |
| .     | CC554 |    |            | 0          | 0                     | 10604 | 00003 | 00000 |   |                                 |
| .     | CC555 |    |            | 0          | 0                     | 10605 | 00000 | 00000 |   |                                 |
| .     | CC556 |    |            | 0          | 0                     | 10606 | 00000 | 00000 |   |                                 |
| .     | CC557 |    |            | 0          | 0                     | 10607 | 00000 | 00000 |   |                                 |
| .     | CC560 |    | WFMFOR     | 4          | 0                     | 10610 | 00000 | 00000 |   |                                 |
| .     | CC561 |    |            | 0          | 0                     | 10611 | 00004 | 00000 |   |                                 |
| .     | CC562 |    |            | 0          | 0                     | 10612 | 00000 | 00000 |   |                                 |
| .     | CC563 |    |            | 0          | 0                     | 10613 | 00000 | 00000 |   |                                 |
| .     | CC564 |    |            | 0          | 0                     | 10614 | 00000 | 00000 |   |                                 |
| .     | CC565 |    | MAGICCOL   | 0          | 0                     | 10615 | 00000 | 00000 |   |                                 |
| .     | CC566 |    | CCL522T080 | RESERVE    | 600                   | 10616 | 00000 | 00000 |   |                                 |
| .     | CC567 |    | NOTATION   | RESERVE    | 800                   | 10617 | 00000 | 00000 |   |                                 |
| .     | CC570 |    | SPECFIELD  | RESERVE    | 600                   | 10713 | 00000 | 00000 |   |                                 |
| .     | CC571 |    | FRSTREC    | 7474700301 |                       | 11033 | 00000 | 00000 |   | SEARCH KEY                      |
| .     | CC572 |    |            | 0          | 0                     | 11127 | 74747 | 00301 |   | SEARCH KEY                      |
| .     | CC573 |    |            | 0          | 0                     | 11130 | 00000 | 00000 |   | SEARCH KEY                      |
| .     | CC574 |    |            | 0          | 0                     | 11131 | 00000 | 00000 |   | OF PROGRAM                      |
| .     | CC575 |    |            | 0          | 0                     | 11132 | 00000 | 00000 |   | NAME OR PROGRAMMER              |
| .     | CC576 |    |            | 0          | 0                     | 11133 | 00000 | 00000 |   | SEPARATOR                       |
| .     | CC577 |    |            | 0          | 0                     | 11134 | 00000 | 00000 |   | AND DATE                        |
| .     | CC600 |    |            | 0          | 0                     | 11135 | 00000 | 00000 |   |                                 |
| .     | CC601 |    | MYUNP      | 7474700301 |                       | 11136 | 00000 | 00000 |   |                                 |
| .     | CC602 |    |            | RESERVE    | 1000                  | 11137 | 74747 | 00301 |   | SEARCH KEY                      |
| .     | CC603 |    | MYPACK     | RESERVE    | 500                   | 11140 | 00000 | 00000 |   |                                 |
| .     | CC604 |    | INPUT      | RESERVE    | 170                   | 11304 | 00000 | 00000 |   |                                 |
| .     | CC605 |    | KCUTPUT    | 0          | 0                     | 11366 | 00000 | 00000 |   |                                 |
| .     |       |    |            |            |                       | 11407 | 00000 | 00000 |   |                                 |

| CAROS | LI    | ID        | LABEL | TA      | STATEMENT                                             | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------|-----------|-------|---------|-------------------------------------------------------|-------|-------|-------|---|--------------------------------|
| .     | CC606 |           |       | 0       | 0                                                     | 11410 | 00000 | 00000 |   |                                |
| .     | CC607 | PACKED    |       | RESERVE | 50D                                                   | 11411 | 00000 | 00000 |   |                                |
| .     | CC610 |           |       | 0       | 0                                                     | 11473 | 00000 | 00000 |   |                                |
| .     | CC611 |           |       | 40060   | 0                                                     | 11474 | 40000 | 00000 |   | END OF RECORD KEY              |
| .     | CC612 | THISCODE  |       | 0       | 0                                                     | 11475 | 00000 | 00000 |   |                                |
| .     | CC613 | TWOCHAR   |       | 0       | 0                                                     | 11476 | 00000 | 00000 |   |                                |
| .     | CC614 | THRECHAR  |       | 0       | 0                                                     | 11477 | 00000 | 00000 |   |                                |
| .     | CC615 | FCURCHAR  |       | 0       | 0                                                     | 11500 | 00000 | 00000 |   |                                |
| .     | CC616 | FIVECHAR  |       | 0       | 0                                                     | 11501 | 00000 | 00000 |   |                                |
| .     | CC617 | FOURCODE  |       | FD      | 1* FO                                                 | 11502 | 05050 | 51311 |   |                                |
| .     | CC620 | DFCCODE   |       | FD      | 1* OEC                                                | 11503 | 05051 | 11210 |   |                                |
| .     | CC621 | FIVEFIG   |       | FD      | 1*FORM-                                               | 11504 | 13242 | 72241 |   |                                |
| .     | CC622 | TYPETCODE |       | FD      | 1*TYPE                                                | 11505 | 31362 | 51231 |   |                                |
| .     | CC623 | COMMECODE |       | FD      | 1*COMME                                               | 11506 | 10242 | 22212 |   |                                |
| .     | CC624 |           |       | FD      | 1*FORM-                                               | 11507 | 13242 | 72241 |   |                                |
| .     | CC625 | SRECTIND  |       | 0       | 0                                                     | 11510 | 00000 | 00000 |   | NON ZERO SPECIAL OPERATOR      |
| .     | CC626 | SHIFAREA  |       | RESERVE | 60D                                                   | 11511 | 00000 | 00000 |   |                                |
| .     | CC627 | JTEMP     |       | RESERVE | 10C                                                   | 11605 | 00000 | 00000 |   | TEMPORARY STORAGE              |
| .     | CC630 | BCWORD    |       | 0       | 0                                                     | 11617 | 00000 | 00000 |   |                                |
| .     | CC631 | CHANNEL   |       | 0       | 0                                                     | 11620 | 00000 | 00000 |   |                                |
| .     | CC632 | STATCODE  |       | 00      | BADMCH                                                | 11621 | 00000 | 10555 |   | 0 NOT USED                     |
| .     | CC633 |           |       | 04      | BADMCH                                                | 11622 | 00004 | 10555 |   | 1 00                           |
| .     | CC634 |           |       | 10      | BADMCH                                                | 11623 | 00010 | 10555 |   | 2 00                           |
| .     | CC635 |           |       | 14      | BADMCH                                                | 11624 | 00014 | 10555 |   | 3 00                           |
| .     | CC636 |           |       | 20      | BADMCH                                                | 11625 | 00020 | 10555 |   | 4 CHAR SYNC SEQUENCE ERRO      |
| .     | CC637 |           |       | 24      | FOREWIND                                              | 11626 | 00024 | 10543 |   |                                |
| .     | CC640 |           |       | 30      | BADMCH                                                | 11627 | 00030 | 10555 |   | 6 CHAR COUNT ERROR             |
| .     | CC641 |           |       | 34      | BADMCH                                                | 11630 | 00034 | 10555 |   | 7 FUNCTION WORD ERROR          |
| .     | CC642 |           |       | EXIT    |                                                       | 11631 | 61010 | 10535 |   | 10 NORMAL COMPLETION           |
| .     | CC643 |           |       | 44      | REDUNDANT                                             | 11632 | 00044 | 10560 |   | 11 PARITY                      |
| .     | CC644 |           |       | 50      | BADMCH                                                | 11633 | 00050 | 10555 |   | 12 CONTROL UNIT SEQUENCE ERROR |
| .     | CC645 |           |       | 54      | BADMCH                                                | 11634 | 00054 | 10555 |   | 13 END OF FILE                 |
| .     | CC646 |           |       | 60      | ENDTAPE                                               | 11635 | 00060 | 10565 |   | 14 END OF TAPE                 |
| .     | CC647 |           |       | 64      | BADMCH                                                | 11636 | 00064 | 10555 |   | 15 NOT USED                    |
| .     | CC650 |           |       | 70      | BADMCH                                                | 11637 | 00070 | 10555 |   | 16 ABNORMAL FRAME COUNT        |
| .     | CC651 |           |       | 74      | INTERLOCK                                             | 11640 | 00074 | 10574 |   | 17 INTERLOCK                   |
| .     | CC652 | MYSERVO   |       | FD      | 1* C.                                                 | 11641 | 05107 | 50505 |   |                                |
| .     | CC653 | NEWTAPE   |       | FD      | 20* MOUNT ANOTHER OUTPUT TAPE AND RE                  | 11642 | 22243 | 22331 |   |                                |
|       |       |           |       | SUME    |                                                       |       |       |       |   |                                |
|       |       |           |       |         |                                                       | 11643 | 05062 | 32431 |   |                                |
|       |       |           |       |         |                                                       | 11644 | 15122 | 70524 |   |                                |
|       |       |           |       |         |                                                       | 11645 | 32312 | 53231 |   |                                |
|       |       |           |       |         |                                                       | 11646 | 05310 | 62512 |   |                                |
|       |       |           |       |         |                                                       | 11647 | 05062 | 31105 |   |                                |
|       |       |           |       |         |                                                       | 11650 | 27123 | 03222 |   |                                |
|       |       |           |       |         |                                                       | 11651 | 12050 | 50505 |   |                                |
|       |       |           |       |         |                                                       | 11652 | 16233 | 11227 |   |                                |
| .     | CC654 | WAKEUP    |       | FD      | 100*INTERLOCK FAULT ON OUTPUT TAPE. REMEDY AND RESUME |       |       |       |   |                                |
|       |       |           |       |         |                                                       | 11653 | 21241 | 02005 |   |                                |
|       |       |           |       |         |                                                       | 11654 | 13063 | 22131 |   |                                |
|       |       |           |       |         |                                                       | 11655 | 05242 | 30524 |   |                                |
|       |       |           |       |         |                                                       | 11656 | 32312 | 53231 |   |                                |
|       |       |           |       |         |                                                       | 11657 | 05310 | 62512 |   |                                |

| LI    | ID         | LABEL   | TA                      | STATEMENT                                   | LOC   | F     | JKB   | Y | NOTES |
|-------|------------|---------|-------------------------|---------------------------------------------|-------|-------|-------|---|-------|
| CC655 | ENTRANCE   | JP      | INTERRUPT               |                                             | 11660 | 75757 | 52712 |   |       |
| CC656 | INPUTAREA  | RESERVE | 17D                     |                                             | 11661 | 22121 | 13605 |   |       |
| CC657 | PRGCODE    |         |                         |                                             | 11662 | 06231 | 10527 |   |       |
| CC660 | WRNGTAPE   |         |                         |                                             | 11663 | 12303 | 22212 |   |       |
|       |            |         |                         |                                             | 11664 | 61000 | 10547 |   |       |
|       |            |         |                         |                                             | 11665 | 00000 | 00000 |   |       |
|       |            |         |                         |                                             | 11706 | 20475 | 14667 |   |       |
|       |            |         |                         |                                             | 11707 | 34272 | 42314 |   |       |
|       |            |         |                         | FO 11D*WRONG FORMAT ON FIRST INPUT REC11707 |       |       |       |   |       |
|       |            |         |                         | ORO...REMEDY AND RESUME                     |       |       |       |   |       |
| CC661 | ACOMMA     | 50      | 0                       |                                             | 11710 | 05132 | 42722 |   |       |
| CC662 | MYEXPLCODE | RESERVE | 100                     |                                             | 11711 | 06310 | 52423 |   |       |
| CC663 | EXPLODEOW  | RESERVE | 100                     |                                             | 11712 | 05131 | 62730 |   |       |
| CC664 | EXPLODEOVO | RESERVE | 100                     |                                             | 11713 | 31051 | 62325 |   |       |
| CC665 | CLCNTW     | 0       | 0                       |                                             | 11714 | 32310 | 52712 |   |       |
| CC666 | CLCNTVO    | 0       | 0                       |                                             | 11715 | 10242 | 71175 |   |       |
| CC667 | NCWORDS    | 0       | 0                       |                                             | 11716 | 75271 | 22212 |   |       |
| CC670 | NCVOWROS   | 0       | 0                       |                                             | 11717 | 11360 | 50623 |   |       |
| CC671 | MASTERSEP  | 50000   | 0                       |                                             | 11720 | 11052 | 71230 |   |       |
| CC672 | LASTWORD   | 04000   | 0                       |                                             | 11721 | 32221 | 20505 |   |       |
| CC673 | TRANSLATE  | ENTRY   |                         |                                             | 11722 | 00050 | 00000 |   |       |
| CC674 |            | PUT     | L (TRANSLATE)*L (TRANS) |                                             | 11723 | 00000 | 00000 |   |       |
| CC675 | TRANS      | PUT     | W (0)*W (COUNT)         |                                             | 11735 | 00000 | 00000 |   |       |
| CC676 |            | PUT     | L (COUNT)*L (TRANS1)    |                                             | 11747 | 00000 | 00000 |   |       |
| CC677 |            | STR     | Q*L (TRANS3)            |                                             | 11761 | 00000 | 00000 |   |       |
| CC700 |            | RPL     | Y+1*L (TRANSLATE)       |                                             | 11762 | 00000 | 00000 |   |       |
| CC701 |            | RPL     | Y-1*U (COUNT)           |                                             | 11763 | 00000 | 00000 |   |       |
| CC702 |            | CL      | R2*                     |                                             | 11764 | 00000 | 00000 |   |       |
| CC703 | TRANS1     | ENT     | A*L (B2)                |                                             | 11765 | 50000 | 00000 |   |       |
| CC704 |            | ADD     | A*O (DICTIONARY         |                                             | 11766 | 04000 | 00000 |   |       |
| CC705 |            | STR     | A*L (TRANS2)            |                                             | 11767 | 61000 | 00000 |   |       |
| CC706 | TRANS2     | ENT     | A*L (0)                 |                                             | 11770 | 10010 | 11767 |   |       |
| CC707 | TRANS3     | STR     | A*U (B2)                |                                             | 11771 | 14010 | 11772 |   |       |
| CC710 |            | BSK     | B2*U (COUNT)            |                                             | 11772 | 10030 | 00000 |   |       |
| CC711 |            | JP      | TRANS1                  |                                             | 11773 | 14030 | 12012 |   |       |
| CC712 |            | EXIT    |                         |                                             | 11774 | 10010 | 12012 |   |       |
| CC713 | COUNT      | 0       | 0                       |                                             | 11775 | 14010 | 12002 |   |       |
|       |            |         |                         |                                             | 11776 | 14010 | 12006 |   |       |
|       |            |         |                         |                                             | 11777 | 36010 | 11767 |   |       |
|       |            |         |                         |                                             | 12000 | 37020 | 12012 |   |       |
|       |            |         |                         |                                             | 12001 | 12200 | 00000 |   |       |
|       |            |         |                         |                                             | 12002 | 11012 | 00000 |   |       |
|       |            |         |                         |                                             | 12003 | 20000 | 12013 |   |       |
|       |            |         |                         |                                             | 12004 | 15010 | 12005 |   |       |
|       |            |         |                         |                                             | 12005 | 11010 | 00000 |   |       |
|       |            |         |                         |                                             | 12006 | 15022 | 00000 |   |       |
|       |            |         |                         |                                             | 12007 | 71220 | 12012 |   |       |
|       |            |         |                         |                                             | 12010 | 61000 | 12002 |   |       |
|       |            |         |                         |                                             | 12011 | 61010 | 11767 |   |       |
|       |            |         |                         |                                             | 12012 | 00000 | 00000 |   |       |

TRANSLATE FIELDATA TO BCD

FMA OF FIELOATA TEXT

INDEX RETURN POINT  
CHARACTER COUNT - 1  
CLEAR CHARACTER COUNTER  
NEXT CHARACTER OF FIELDATA TEX  
T

ADDRESS OF BCD CHARACTER  
BCD TRANSLATION OF FO CHARACTE  
R

STORE BCD IN UPPER HALF OF FO  
TEXT  
HAVE WE TRANSLATED ALL CHARACT  
ERS...

NO.  
YES. RETURN  
U

| CARDS | LI    | ID | LAHEL      | TA | STATEMENT | LOC   | F     | JKE   | Y                       | NOTES            |
|-------|-------|----|------------|----|-----------|-------|-------|-------|-------------------------|------------------|
| .     | CC714 |    | DICTIONARY | 00 | CC        | 12013 | 00000 | 00000 |                         | NG               |
| .     | CC715 |    |            | 01 | 61        | 12014 | 00001 | 00061 | 1                       |                  |
| .     | CC716 |    |            | 02 | 62        | 12015 | 00002 | 00062 | 2                       |                  |
| .     | CC717 |    |            | 03 | 63        | 12016 | 00003 | 00063 | 3                       |                  |
| .     | CC720 |    |            | 04 | 64        | 12017 | 00004 | 00064 | 4                       |                  |
| .     | CC721 |    |            | 05 | 65        | 12020 | 00005 | 00065 | 5                       |                  |
| .     | CC722 |    |            | 06 | 66        | 12021 | 00006 | 00066 | 6                       |                  |
| .     | CC723 |    |            | 07 | 67        | 12022 | 00007 | 00067 | 7                       |                  |
| .     | CC724 |    |            | 10 | 70        | 12023 | 00010 | 00070 | 8                       |                  |
| .     | CC725 |    |            | 11 | 71        | 12024 | 00011 | 00071 | 9                       |                  |
| .     | CC726 |    |            | 12 | 60        | 12025 | 00012 | 00060 | 0                       |                  |
| .     | CC727 |    |            | 13 | 44        | 12026 | 00013 | 00044 |                         | = EQUALS = MINUS |
| .     | CC730 |    |            | 14 | 41        | 12027 | 00014 | 00041 |                         | DASH EQU LS      |
| .     | CC731 |    |            | 15 | 00        | 12030 | 00015 | 00000 |                         | NG               |
| .     | CC732 |    |            | 16 | 00        | 12031 | 00016 | 00000 |                         | NG               |
| .     | CC733 |    |            | 17 | 00        | 12032 | 00017 | 00000 |                         | NG               |
| .     | CC734 |    |            | 20 | 00        | 12033 | 00020 | 00000 |                         | BLANK            |
| .     | CC735 |    |            | 21 | 74        | 12034 | 00021 | 00074 | /                       |                  |
| .     | CC736 |    |            | 22 | 30        | 12035 | 00022 | 00030 | S                       |                  |
| .     | CC737 |    |            | 23 | 31        | 12036 | 00023 | 00031 | T                       |                  |
| .     | CC740 |    |            | 24 | 32        | 12037 | 00024 | 00032 | U                       |                  |
| .     | CC741 |    |            | 25 | 33        | 12040 | 00025 | 00033 | V                       |                  |
| .     | CC742 |    |            | 26 | 34        | 12041 | 00026 | 00034 | W                       |                  |
| .     | CC743 |    |            | 27 | 35        | 12042 | 00027 | 00035 | X                       |                  |
| .     | CC744 |    |            | 30 | 36        | 12043 | 00030 | 00036 | Y                       |                  |
| .     | CC745 |    |            | 31 | 37        | 12044 | 00031 | 00037 | Z                       |                  |
| .     | CC746 |    |            | 32 | 53        | 12045 | 00032 | 00053 | COLON                   |                  |
| .     | CC747 |    |            | 33 | 50        | 12046 | 00033 | 00050 | ,                       |                  |
| .     | CC750 |    |            | 34 | 51        | 12047 | 00034 | 00051 | !                       |                  |
| .     | CC751 |    |            | 35 | 00        | 12050 | 00035 | 00000 | NG                      |                  |
| .     | CC752 |    |            | 36 | 00        | 12051 | 00036 | 00000 | NG                      |                  |
| .     | CC753 |    |            | 37 | 00        | 12052 | 00037 | 00000 | NG                      |                  |
| .     | CC754 |    |            | 40 | 41        | 12053 | 00040 | 00041 | -                       |                  |
| .     | CC755 |    |            | 41 | 17        | 12054 | 00041 | 00017 | J                       |                  |
| .     | CC756 |    |            | 42 | 20        | 12055 | 00042 | 00020 | K                       |                  |
| .     | CC757 |    |            | 43 | 21        | 12056 | 00043 | 00021 | L                       |                  |
| .     | CC760 |    |            | 44 | 22        | 12057 | 00044 | 00022 | M                       |                  |
| .     | CC761 |    |            | 45 | 23        | 12060 | 00045 | 00023 | N                       |                  |
| .     | CC762 |    |            | 46 | 60        | 12061 | 00046 | 00060 | O                       |                  |
| .     | CC763 |    |            | 47 | 25        | 12062 | 00047 | 00025 | P                       |                  |
| .     | CC764 |    |            | 50 | 26        | 12063 | 00050 | 00026 | Q                       |                  |
| .     | CC765 |    |            | 51 | 27        | 12064 | 00051 | 00027 | R                       |                  |
| .     | CC766 |    |            | 52 | 00        | 12065 | 00052 | 00000 | NG                      |                  |
| .     | CC767 |    |            | 53 | 47        | 12066 | 00053 | 00047 | DOLLAR SIGN             |                  |
| .     | CC770 |    |            | 54 | 47        | 12067 | 00054 | 00047 | CANT RE POINT SEPARATOR |                  |
| .     | CC771 |    |            | 55 | 00        | 12070 | 00055 | 00000 | NG                      |                  |
| .     | CC772 |    |            | 56 | 00        | 12071 | 00056 | 00000 | NG                      |                  |
| .     | CC773 |    |            | 57 | 00        | 12072 | 00057 | 00000 | NG                      |                  |
| .     | CC774 |    |            | 60 | 42        | 12073 | 00060 | 00042 | +                       |                  |
| .     | CC775 |    |            | 61 | 06        | 12074 | 00061 | 00006 | A                       |                  |
| .     | CC776 |    |            | 62 | 07        | 12075 | 00062 | 00007 | B                       |                  |
| .     | CC777 |    |            | 63 | 10        | 12076 | 00063 | 00010 | C                       |                  |
| .     | C1000 |    |            | 64 | 11        | 12077 | 00064 | 00011 | D                       |                  |

| CAROS | LI    | ID         | LABEL | TA    | STATEMENT               | LOC   | F     | JKB   | Y | NOTES                         |
|-------|-------|------------|-------|-------|-------------------------|-------|-------|-------|---|-------------------------------|
| •     | C1001 |            |       | 65    | 12                      | 12100 | 00065 | 00012 |   | F                             |
| •     | C1002 |            |       | 66    | 13                      | 12101 | 00066 | 00013 |   | F                             |
| •     | C1003 |            |       | 67    | 14                      | 12102 | 00067 | 00014 |   | G                             |
| •     | C1004 |            |       | 70    | 15                      | 12103 | 00070 | 00015 |   | H                             |
| •     | C1005 |            |       | 71    | 16                      | 12104 | 00071 | 00016 |   | I                             |
| •     | C1006 |            |       | 72    | 42                      | 12105 | 00072 | 00042 |   | • LINE ABOVE IS +             |
| •     | C1007 |            |       | 73    | 75                      | 12106 | 00073 | 00075 |   | J                             |
| •     | C1010 |            |       | 74    | 40                      | 12107 | 00074 | 00040 |   | NG                            |
| •     | C1011 |            |       | 75    | 00                      | 12110 | 00075 | 00000 |   | NG                            |
| •     | C1012 |            |       | 76    | 00                      | 12111 | 00076 | 00000 |   | NG                            |
| •     | C1013 |            |       | 77    | 00                      | 12112 | 00077 | 00000 |   | NG                            |
| •     | C1014 | UNPACK     |       | ENTRY |                         | 12113 | 61000 | 00000 |   | UNPACK 1 CHARACTER TO WORO    |
| •     | C1015 |            |       | STR   | A*L(STOREUNPAK)         | 12114 | 15010 | 12135 |   | FWA OF UNPACKED TABLE         |
| •     | C1016 |            |       | PUT   | L(UNPAK)*L(PUTCOUNTER)  | 12115 | 10010 | 12113 |   |                               |
| •     | C1017 | PLTCOUNTER |       | PUT   | W(0)*W(COUNTER)         | 12116 | 14010 | 12117 |   |                               |
| •     | C1020 |            |       | RPL   | Y+1*L(UNPAK)            | 12120 | 14030 | 12143 |   | INDEX RETURN POINT            |
| •     | C1021 |            |       | CL    | R3*                     | 12121 | 36010 | 12113 |   | CLEAR WORD COUNTER            |
| •     | C1022 |            |       | PUT   | L(COUNTER)*L(GETPAK)    | 12122 | 12300 | 00000 |   | FWA OF PACKED TABLE           |
| •     | C1023 |            |       | ENT   | A*U(COUNTER)            | 12124 | 14010 | 12132 |   | WORD COUNT                    |
| •     | C1024 |            |       | SUB   | A*1                     | 12125 | 11020 | 12143 |   | WORD COUNT - 1                |
| •     | C1025 |            |       | STR   | A*L(LOOPLIMIT)          | 12126 | 21000 | 00001 |   |                               |
| •     | C1026 |            |       | CL    | R4*                     | 12127 | 15010 | 12140 |   | CLEAR CHARACTER COUNTER       |
| •     | C1027 | LCOPSTART  |       | ENT   | R5*4                    | 12130 | 12400 | 00000 |   | SET TO LOOP 5 TIMES           |
| •     | C1030 | GETPAK     |       | ENT   | R5*W(R3)                | 12131 | 12500 | 00004 |   | PACKED WORO                   |
| •     | C1031 | LCCP1      |       | CL    | A*                      | 12132 | 10033 | 00000 |   | CLEAR ACCUMULATOR             |
| •     | C1032 |            |       | LSH   | AQ*6                    | 12133 | 11000 | 00000 |   | NEXT CHARACTER OF PACKED WORO |
| •     | C1033 | STOREUNPAK |       | STR   | A*L(B4)                 | 12134 | 07000 | 00006 |   |                               |
| •     | C1034 |            |       | RSK   | R4*77777                | 12135 | 15014 | 00000 |   | STORE IN UNPACK TABLE         |
| •     | C1035 |            |       | RJP   | R5*LOOP1                | 12136 | 71400 | 77777 |   | INDEX UNPACK TABLE            |
| •     | C1036 | LCOPLIMIT  |       | RSK   | B3*0                    | 12137 | 72500 | 12133 |   | FINISHED THIS WORD...         |
| •     | C1037 |            |       | JP    | LOOPSTART               | 12140 | 71300 | 00000 |   | YES, FINISHED ALL WORDS...    |
| •     | C1040 |            |       | EXIT  |                         | 12141 | 61000 | 12131 |   | NO.                           |
| •     | C1041 | CCUNTER    |       | O     | 0                       | 12142 | 61010 | 12113 |   | YES.                          |
| •     | C1042 | PACK       |       | ENTRY |                         | 12143 | 00000 | 00000 |   | U                             |
| •     | C1043 |            |       | STR   | A*L(STOREPAK)           | 12144 | 61000 | 00000 |   | PACK 5 CHARACTERS PER WORO    |
| •     | C1044 |            |       | PUT   | L(PACK)*L(PUTCOUNTER)   | 12145 | 15010 | 12172 |   | FWA OF PACKED TABLE           |
| •     | C1045 | PLTCOUNT   |       | PUT   | W(0)*W(WORDCOUNT)       | 12146 | 10010 | 12144 |   |                               |
| •     | C1046 |            |       | RPL   | Y+1*L(PACK)             | 12147 | 14010 | 12150 |   |                               |
| •     | C1047 |            |       | CL    | R3*                     | 12150 | 10030 | 00000 |   |                               |
| •     | C1050 |            |       | PUT   | L(WORDCOUNT)*L(GETCHAP) | 12151 | 14030 | 12176 |   | INDEX RETURN POINT            |
| •     | C1051 |            |       | ENT   | C*U(WORDCOUNT)          | 12152 | 36010 | 12144 |   | CLEAR WORO COUNTER            |
| •     | C1052 |            |       | CL    | A*                      | 12153 | 12300 | 00000 |   |                               |
| •     | C1053 |            |       | CIV   | 5                       | 12154 | 10010 | 12176 |   | CHARACTER COUNT               |
| •     | C1054 |            |       | SUB   | Q*1                     | 12156 | 10020 | 12176 |   |                               |
| •     | C1055 |            |       | STR   | C*L(LOOPLIMIT2)         | 12157 | 11000 | 00000 |   | (CHARACTER COUNT)/5           |
| •     | C1056 |            |       | CL    | R4*                     | 12160 | 23000 | 00005 |   | PACKED WORD COUNT - 1         |
| •     |       |            |       |       |                         | 12161 | 27000 | 00001 |   |                               |
| •     |       |            |       |       |                         | 12162 | 14010 | 12173 |   | CLEAR CHARACTER COUNTER       |
| •     |       |            |       |       |                         | 12163 | 12400 | 00000 |   |                               |

| CARDS | LI    | ID         | LABEL   | TA                      | STATEMENT | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------|------------|---------|-------------------------|-----------|-------|-------|-------|---|--------------------------------|
| •     | C1057 | LOOPSTART2 | ENT     | P5*4                    |           | 12164 | 12500 | 00004 |   | SET TO LOOP 5 TIMES            |
| •     | C1060 |            | CL      | A*                      |           | 12165 | 11000 | 00000 |   | CLEAR ACCUMULATOR              |
| •     | C1061 | LCOP2      | LSH     | A*6                     |           | 12166 | 06000 | 00006 |   | ADD NEXT CHARACTER             |
| •     | C1062 | CETCHAR    | SEL     | SET*U(841               |           | 12167 | 50024 | 00000 |   | INDEX UNPACK TABLE             |
| •     | C1063 |            | BSK     | R4*77777                |           | 12170 | 71400 | 77777 |   | FINISHED THIS WORD....         |
| •     | C1064 |            | BJP     | B5*LOOP2                |           | 12171 | 72500 | 12166 |   | YES. STORE PACKED WORD         |
| •     | C1065 | STOREPACK  | STR     | A*W(83)                 |           | 12172 | 15033 | 00000 |   | FINISHED STORING PACKED WORDS  |
| •     | C1066 | LCOPLIMIT2 | BSK     | R3*0                    |           | 12173 | 71300 | 00000 |   |                                |
| •     | C1067 |            | JP      | LOOPSTART2              |           | 12174 | 61000 | 12164 |   | NO                             |
| •     | C1070 |            | EXIT    |                         |           | 12175 | 61010 | 12144 |   | YES.                           |
| •     | C1071 | WCRDCOUNT  | O       |                         |           | 12176 | 00000 | 00000 |   | U                              |
| •     | C1072 | PRINT      | ENTRY   |                         |           | 12177 | 61000 | 00000 |   | PRINT ON CONSOLE TYPEWRITER    |
| •     | C1073 |            | PUT     | L(PRINT)*L(SETUP1       |           | 12200 | 10010 | 12177 |   |                                |
| •     | C1074 | SETUP      | PUT     | W(O1*(UNPACKCODE)       |           | 12201 | 14010 | 12202 |   |                                |
| •     | C1075 |            | RPL     | Y+1*(LPRINT)            |           | 12202 | 10030 | 00000 |   | INDEX RETURN POINT             |
| •     | C1076 |            | ENT     | A*BUFFERPRNT+3          |           | 12203 | 14030 | 12207 |   |                                |
| •     | C1077 |            | RJP     | UNPACK                  |           | 12204 | 36010 | 12177 |   | UNPACK FIELDATA TEXT           |
| •     | C1100 | UNPACKCODE | O       |                         |           | 12205 | 11000 | 12237 |   |                                |
| •     | C1101 |            | ENT     | Q*U(UNPACKCODE1         |           | 12206 | 65000 | 12113 |   | COUNT OF WORDS                 |
| •     | C1102 |            | MUL     | 5                       |           | 12207 | 00000 | 00000 |   | COUNT OF CHARACTERS            |
| •     | C1103 |            | ADO     | Q*BUFFERPRNT+3          |           | 12210 | 10020 | 12207 |   |                                |
| •     | C1104 |            | STR     | Q*L(STOREC1             |           | 12211 | 22000 | 00005 |   | TERMINATE LINE WITH CARRIAGE R |
| •     | C1105 |            | ADD     | Q*1                     |           | 12212 | 26000 | 12237 |   | ETURN                          |
| •     | C1106 |            | STR     | Q*L(STORELF)            |           | 12213 | 14010 | 12217 |   |                                |
| •     | C1107 |            | ENT     | A*L(BUFFERPRNT)         |           | 12214 | 26000 | 00001 |   |                                |
| •     | C1110 | STOREC     | STR     | A*L(O)                  |           | 12215 | 14010 | 12221 |   |                                |
| •     | C1111 |            | ENT     | A*L(BUFFERPRNT+1)       |           | 12216 | 11010 | 12234 |   |                                |
| •     | C1112 | STURELF    | STR     | A*L(O1                  |           | 12217 | 15010 | 00000 |   |                                |
| •     | C1113 |            | STR     | O*A                     |           | 12220 | 11010 | 12235 |   |                                |
| •     | C1114 |            | LSH     | A*150                   |           | 12221 | 15010 | 00000 |   | LWA OF UNPACKED TEXT           |
| •     | C1115 |            | SEL     | SET*BUFFERPRNT          |           | 12222 | 14040 | 00000 |   |                                |
| •     | C1116 |            | STR     | A*W(PRINTBUFFC)         |           | 12223 | 06000 | 00017 |   |                                |
| •     | C1117 |            | OUT     | C2*(PRINTBUFFC)*MONITOR |           | 12224 | 50000 | 12234 |   |                                |
| •     | C1120 |            | RIL     |                         |           | 12225 | 15030 | 12233 |   |                                |
| •     | C1121 | WAITPRINT  | JP      | WAITPRINT               |           | 12226 | 76130 | 12233 |   |                                |
| •     | C1122 | PRINTOVER  | EXIT    |                         |           | 12227 | 60000 | 00000 |   | RETURN AFTER PRINTING          |
| •     | C1123 | JPRINTOVR  | JP      | PRINTOVER               |           | 12230 | 61000 | 12230 |   |                                |
| •     | C1124 | PRINTBUFFC | O       |                         |           | 12231 | 61010 | 12177 |   | BUFFER CONTROL FOR PRINTING    |
| •     | C1125 | BUFFERPRNT | O       | U4                      |           | 12232 | 61000 | 12231 |   |                                |
| •     | C1126 |            | O       | O3                      |           | 12233 | 00000 | 00000 |   | CARRIAGE RETURN                |
| •     | C1127 |            | O       | O3                      |           | 12234 | 00000 | 00003 |   | LINE FEED                      |
| •     | C1130 |            | RESERVE | 100C                    |           | 12235 | 00000 | 00003 |   |                                |
| •     | C1131 | READTAPE   | ENTRY   |                         |           | 12236 | 00000 | 00000 |   | READ SPURT 210 TAPE            |
| •     | C1132 |            | PUT     | L(READTAPE)*L(INRUFFER1 |           | 12403 | 61000 | 00000 |   |                                |
| •     | C1133 |            | RPL     | Y+1*(L(READTAPE)        |           | 12404 | 10010 | 12403 |   | INDEX RETURN POINT             |
| •     | C1134 |            | CL      | R2*                     |           | 12405 | 14010 | 12410 |   |                                |
| •     | C1135 | INBUFFER   | IN      | C15*W(O1                |           | 12406 | 36010 | 12403 |   | ESTABLISH INPUT BUFFER         |
| •     |       |            |         |                         |           | 12407 | 12200 | 00000 |   |                                |
| •     |       |            |         |                         |           | 12410 | 73670 | 00000 |   |                                |

| CARDS | LI    | ID         | LABEL | TA     | STATEMENT                                | LOC   | F     | JKB   | Y | NOTES                            |
|-------|-------|------------|-------|--------|------------------------------------------|-------|-------|-------|---|----------------------------------|
| .     | C1136 |            |       | PUT    | W(JPC15EXT1*W(35)                        | 12411 | 10030 | 12507 |   |                                  |
| .     | C1137 |            |       | EX-FCT | C15*52200000004                          | 12412 | 14030 | 00035 |   |                                  |
| .     | C1140 |            |       | RIL    |                                          | 12413 | 13670 | 13122 |   |                                  |
| .     | C1141 | WAIT1      |       | JP     | WAIT1                                    | 12414 | 60000 | 00000 |   | WAIT FOR INTERRUPT               |
| .     | C1142 | CISEXTINT  |       | STR    | C15*W(STATUS)                            | 12415 | 10000 | 12415 |   | STATUS WORD                      |
| .     | C1143 |            |       | ENT    | A*U(STATUS)                              | 12416 | 17670 | 12671 |   |                                  |
| .     | C1144 |            |       | RSH    | A*110                                    | 12417 | 11020 | 12671 |   |                                  |
| .     | C1145 |            |       | ADD    | A*STATUSCODE                             | 12420 | 02000 | 00013 |   |                                  |
| .     | C1146 |            |       | STR    | A*L(INTERJUMP)                           | 12421 | 20000 | 12446 |   |                                  |
| .     | C1147 | INTERJUMP  |       | JP     | L101                                     | 12422 | 15010 | 12423 |   | GO TO APPROPRIATE STATUS ROUTINE |
| .     | C1150 | BACK       |       | EXIT   |                                          | 12423 | 61010 | 00000 |   | NE                               |
| .     | C1151 | INTERLOCK  |       | PUT    | W(UNITNOINT1*W(LOCKPI                    | 12424 | 61010 | 12403 |   | INTERLOCK ROUTINE                |
| .     | C1152 |            |       | RJP    | PRINT                                    | 12425 | 10030 | 12445 |   |                                  |
| .     | C1153 |            |       | 110    | INTERLOCKP                               | 12426 | 14030 | 12440 |   |                                  |
| .     | C1154 |            |       | JP     | INRUFFER*STOP                            | 12427 | 65000 | 12177 |   | PRINT INTERLOCK MESSAGE          |
| .     | C1155 | INTERLOCKP |       | FD     | 6*THRE IS AN INTERLOCK ON UNIT           | 12430 | 00013 | 12432 |   |                                  |
|       |       |            |       |        |                                          | 12431 | 61400 | 12410 |   |                                  |
|       |       |            |       |        |                                          | 12432 | 31151 | 22712 |   |                                  |
|       |       |            |       |        |                                          | 12433 | 05163 | 00506 |   |                                  |
|       |       |            |       |        |                                          | 12434 | 23051 | 62331 |   |                                  |
|       |       |            |       |        |                                          | 12435 | 12272 | 12410 |   |                                  |
|       |       |            |       |        |                                          | 12436 | 20052 | 42305 |   |                                  |
|       |       |            |       |        |                                          | 12437 | 32231 | 63105 |   |                                  |
|       |       |            |       |        |                                          | 12440 | 10750 | 50510 |   |                                  |
|       |       |            |       |        |                                          | 12441 | 24272 | 71210 |   |                                  |
|       |       |            |       |        |                                          | 12442 | 31050 | 62311 |   |                                  |
|       |       |            |       |        |                                          | 12443 | 05303 | 10627 |   |                                  |
|       |       |            |       |        |                                          | 12444 | 31750 | 50505 |   |                                  |
|       |       |            |       |        |                                          | 12445 | 10750 | 50505 |   |                                  |
|       | C1157 | UNITNOINT  |       | FD     | 1*G.                                     | 12446 | 00000 | 12640 |   | NOT USED                         |
|       | C1160 | STATUSCODE |       | 00     | MACHERR                                  | 12447 | 00004 | 12640 |   | NOT USED                         |
|       | C1161 |            |       | 04     | MACHERR                                  | 12450 | 00010 | 12640 |   | NOT USED                         |
|       | C1162 |            |       | 10     | MACHERR                                  | 12451 | 00014 | 12640 |   | NOT USED                         |
|       | C1163 |            |       | 14     | MACHERR                                  | 12452 | 00020 | 12640 |   | CHARACTER SYNC SEQUENCE ERROR    |
|       | C1164 |            |       | 20     | MACHERR                                  | 12453 | 00024 | 12410 |   | REWINDING                        |
|       | C1165 |            |       | 24     | INRUFFER                                 | 12454 | 00030 | 12640 |   | CHAR SYNC CHAR COUNT ERROR       |
|       | C1166 |            |       | 30     | MACHERR                                  | 12455 | 00034 | 12640 |   | FUNCTION WORD ERROR              |
|       | C1167 |            |       | 34     | MACHERR                                  | 12456 | 00040 | 12424 |   | NORMAL COMPLETION                |
|       | C1170 |            |       | 40     | BACK                                     | 12457 | 00044 | 12510 |   | PARITY ERROR                     |
|       | C1171 |            |       | 44     | PARITY                                   | 12460 | 00050 | 12640 |   | CONTROL UNIT SEQUENCE ERROR      |
|       | C1172 |            |       | 50     | MACHERR                                  | 12461 | 00054 | 12570 |   | END OF FILE                      |
|       | C1173 |            |       | 54     | WRITEEOF                                 | 12462 | 00060 | 12672 |   | END OF TAPE                      |
|       | C1174 |            |       | 60     | INPUTAPE                                 | 12463 | 00064 | 12640 |   | NOT USED                         |
|       | C1175 |            |       | 64     | MACHERR                                  | 12464 | 00070 | 12640 |   | ABNORMAL FRAME COUNT             |
|       | C1176 |            |       | 70     | MACHERR                                  | 12465 | 00074 | 12425 |   | INTERLOCK FAULT                  |
|       | C1177 |            |       | 74     | INTERLOCK                                | 12466 | 06052 | 20610 |   |                                  |
|       | C120C | MACH-FAULT |       | FD     | 100*4 MACHINE FAULT HAS OCCURRED ON12466 |       |       |       |   |                                  |
|       |       |            |       |        | MAGNETIC TAPE UNIT                       |       |       |       |   |                                  |
|       |       |            |       |        |                                          | 12467 | 15162 | 31205 |   |                                  |
|       |       |            |       |        |                                          | 12470 | 13063 | 22131 |   |                                  |
|       |       |            |       |        |                                          | 12471 | 05150 | 63005 |   |                                  |
|       |       |            |       |        |                                          | 12472 | 24101 | 03227 |   |                                  |
|       |       |            |       |        |                                          | 12473 | 27121 | 10524 |   |                                  |



| CARDS | LI    | ID | LABEL     | TA     | STATEMENT                                | LOC   | F     | J     | K | R | Y | NOTES                          |
|-------|-------|----|-----------|--------|------------------------------------------|-------|-------|-------|---|---|---|--------------------------------|
| .     | C1226 |    |           | FD     | 1*NE.                                    | 12567 | 23127 | 50505 |   |   |   |                                |
| .     | C1227 |    | WRITEEOF  | RJP    | WRITE                                    | 12570 | 65000 | 10535 |   |   |   |                                |
| .     | C1230 |    |           | U-TAG  | HYERVE*LASTRECORO                        | 12571 | 12730 | 12715 |   |   |   |                                |
| .     | C1231 |    |           | RJP    | WRITE                                    | 12572 | 65000 | 10535 |   |   |   |                                |
| .     | C1232 |    |           | U-TAG  | ENDALL+1*ENDALL                          | 12573 | 12732 | 12731 |   |   |   |                                |
| .     | C1233 |    |           | NO-CP  |                                          | 12574 | 12000 | 00000 |   |   |   |                                |
| .     | C1234 |    |           | JP     | FINISH*KEY1                              | 12575 | 61100 | 12610 |   |   |   |                                |
| .     | C1245 |    |           | JP     | GOINGON*KEY2                             | 12576 | 61200 | 12615 |   |   |   |                                |
| .     | C1236 |    |           | JP     | WAITUP*KEY3                              | 12577 | 61300 | 12620 |   |   |   |                                |
| .     | C1237 |    |           | RJP    | PRINT                                    | 12600 | 65000 | 12177 |   |   |   |                                |
| .     | C1240 |    |           | BD     | LISTOVER                                 | 12601 | 00010 | 12623 |   |   |   |                                |
| .     | C1241 |    | KEYJUMPS  | JP     | FINISH*KEY1                              | 12602 | 61100 | 12610 |   |   |   |                                |
| .     | C1242 |    |           | JP     | INITIAL*KEY2                             | 12603 | 61200 | 10000 |   |   |   |                                |
| .     | C1243 |    |           | JP     | \$+2*KEY3                                | 12604 | 61300 | 12606 |   |   |   |                                |
| .     | C1244 |    |           | JP     | \$+2                                     | 12605 | 61000 | 12607 |   |   |   |                                |
| .     | C1245 |    |           | JP     | INITIAL*STOP                             | 12606 | 61400 | 10000 |   |   |   |                                |
| .     | C1246 |    |           | JP     | KEYJUMPS                                 | 12607 | 61000 | 12602 |   |   |   |                                |
| .     | C1247 |    | FINISH    | EX-FCT | C15*2110000004                           | 12610 | 13670 | 13124 |   |   |   | REWIND INPUT TAPE W/INTERLOCK  |
| .     | C1250 |    |           | RPT    | 77777                                    | 12611 | 70000 | 77777 |   |   |   |                                |
| .     | C1251 |    |           | NO-OP  |                                          | 12612 | 12000 | 00000 |   |   |   |                                |
| .     | C1252 |    |           | EX-FCT | C15*2010000010                           | 12613 | 13670 | 13125 |   |   |   | REW                            |
| .     | C1253 |    |           | JP     | 137                                      | 12614 | 61000 | 00137 |   |   |   |                                |
| .     | C1254 |    | GOINGON   | RJP    | PRINT                                    | 12615 | 65000 | 12177 |   |   |   |                                |
| .     | C1255 |    |           | 2      | GO\$X                                    | 12616 | 00002 | 12633 |   |   |   |                                |
| .     | C1256 |    |           | JP     | INITIAL                                  | 12617 | 61000 | 10000 |   |   |   |                                |
| .     | C1257 |    | WAITUP    | RJP    | PRINT                                    | 12620 | 65000 | 12177 |   |   |   |                                |
| .     | C1260 |    |           | 2      | HURRYUP                                  | 12621 | 00002 | 12635 |   |   |   |                                |
| .     | C1261 |    |           | JP     | INITIAL*STOP                             | 12622 | 61400 | 10000 |   |   |   |                                |
| .     | C1262 |    | LISTOVER  | FO     | RD*DONE...KEY1=TOPS,KEY2=GO ON,KEY3=WAIT | 12623 | 11242 | 31275 |   |   |   |                                |
| .     | C1263 |    | GCGX      | FD     | 2*CONTINUING                             | 12624 | 75752 | 01236 |   |   |   |                                |
| .     | C1264 |    | HARRYUP   | FD     | 2*WAITING                                | 12625 | 61443 | 12425 |   |   |   |                                |
| .     | C1265 |    | UNIT210   | FD     | 1* C.                                    | 12626 | 30562 | 01236 |   |   |   |                                |
| .     | C1266 |    | MACHERR   | PUT    | U(UNIT210I*U(UNITN01                     | 12627 | 62441 | 42405 |   |   |   |                                |
| .     | C1267 |    | MACHERROR | ENT    | C*(STATUS)                               | 12630 | 24235 | 62012 |   |   |   |                                |
| .     | C1270 |    |           | RJP    | KOCTOFD                                  | 12631 | 36634 | 43406 |   |   |   |                                |
| .     | C1271 |    |           | STR    | A*(FOSTATCODEI                           | 12632 | 16310 | 50505 |   |   |   |                                |
| .     | C1272 |    |           | RJP    | KOCTOFD                                  | 12633 | 10242 | 31116 |   |   |   |                                |
| .     | C1273 |    |           | STR    | A*(FOSTATCODE*11                         | 12634 | 23321 | 62314 |   |   |   |                                |
| .     | C1274 |    |           | RJP    | PRINT                                    | 12635 | 34061 | 63116 |   |   |   |                                |
| .     | C1275 |    |           | 170    | MACHFAULT                                | 12636 | 23140 | 50505 |   |   |   |                                |
| .     |       |    |           |        |                                          | 12637 | 05107 | 50505 |   |   |   |                                |
| .     |       |    |           |        |                                          | 12640 | 10020 | 12637 |   |   |   |                                |
| .     |       |    |           |        |                                          | 12641 | 14020 | 12500 |   |   |   |                                |
| .     |       |    |           |        |                                          | 12642 | 10030 | 12671 |   |   |   | CONVERT STATUS CODE TO FIELDAT |
| .     |       |    |           |        |                                          |       |       |       |   |   |   | A                              |
| .     |       |    |           |        |                                          | 12643 | 65000 | 12652 |   |   |   |                                |
| .     |       |    |           |        |                                          | 12644 | 15030 | 12505 |   |   |   |                                |
| .     |       |    |           |        |                                          | 12645 | 65000 | 12652 |   |   |   |                                |
| .     |       |    |           |        |                                          | 12646 | 15030 | 12506 |   |   |   |                                |
| .     |       |    |           |        |                                          | 12647 | 65000 | 12177 |   |   |   | PRINT MACHINE ERROR MESSAGE    |
| .     |       |    |           |        |                                          | 12650 | 00021 | 12466 |   |   |   |                                |

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***** SPUPT OUTPUT NO. 210 *****
MAKEA301TP J00*2/20/64

CAROS L1 ID LABEL TA STATEMENT JP INITIAL*STCP
* C1276 KCCTTOFO ENTRY
* C1300 CL A*
* C1301 LSH AQ*3
* C1302 LSH A*3
* C1303 LSH AQ*3
* C1304 LSH A*3
* C1305 LSH AQ*3
* C1306 LSH A*3
* C1307 LSH AQ*3
* C1310 LSH A*3
* C1311 LSH AQ*3
* C1312 NO-OP
* C1313 DUMMY ADO A*W(EXCESS60)
* C1314 EXIT
* C1315 EXCESS60 0606
* C1316 STATUS 0 0
* C1317 INPUTAPEN0 PUT W(ENOTAPEU)*W(ENDTAPEM)

* C1320 RJP PRINT
* C1321 130 ENOFTAPM
* C1322 EXIT STOP
* C1323 ENOFTAPM F0 7*AN ENO OF TAPE HAS OCCURREO ON UN12677
IT

* C1324 ENOTAPEM FD 6* . HANG NEW TAPE AND START*

* C1325 ENOTAPEU FC 1* C*
* C1326 LASTRECuro 0 0
* C1327 0 0
* C1330 0 0
* C1331 0 0
* C1332 2712301227
* C1333 3312000000
* C1334 500000000
* C1335 610000000
* C1336 030000000
* C1337 0505050500
* C1340 0404000000
* C1341 BYEPE 7474747474
* C1342 ENCALL F0 2*ENDOF00MP

* C1343 OECON RESKVE 1
* C1344 STR A*W(ASAVE)

LOC F JKB Y NOTES
12651 61400 10000
12652 61000 00000
12653 11000 00000
12654 07000 00003
12655 06000 00003
12656 07000 00003
12657 06000 00003
12660 07000 00003
12661 06000 00003
12662 07000 00003
12663 06000 00003
12664 07000 00003
12665 12000 00000
12666 20030 12670
12667 61010 12652
12670 60606 06060
12671 00000 00000
12672 10030 12714
12673 14030 12706
12674 65000 12177
12675 00015 12677
12676 61410 12652
12677 06230 51223

PRINT ENO-OF-TAPE MESSAGE

12700 11052 41305
12701 31062 51205
12702 15063 00524
12703 10103 22727
12704 12110 52423
12705 05322 31631
12706 05057 50515
12707 06231 40523
12710 12340 53106
12711 25120 50623
12712 11053 03106
12713 27317 50505
12714 05107 50505
12715 00000 00000
12716 00000 00000
12717 00000 00000
12720 00000 00000
12721 27123 01227
12722 33120 00000
12723 50000 00000
12724 61000 00000
12725 03000 00000
12726 05050 50500
12727 04040 00000
12730 74747 47474
12731 12231 12413
12732 11322 22505
12733 00000 00000
12734 15030 13055

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END OF TAPE

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| CARCS | LI    | IO | LABEL   | TA  | STATEMENT            | LOC   | F     | JKB   | Y | NOTES |
|-------|-------|----|---------|-----|----------------------|-------|-------|-------|---|-------|
| •     | C1345 |    |         | STR | Q*W(QSAVE)           | 12735 | 14030 | 13057 |   |       |
| •     | C1346 |    |         | STR | R1*U(RSAVE)          | 12736 | 16120 | 13056 |   |       |
| •     | C1347 |    |         | STR | R2*L(RSAVF)          | 12737 | 16210 | 13056 |   |       |
| •     | C1350 |    |         | CL  | W(NDEC)              | 12740 | 16030 | 13065 |   |       |
| •     | C1351 |    |         | CL  | W(DECSIGNFLG)        | 12741 | 16030 | 13047 |   |       |
| •     | C1352 |    |         | CL  | W(FIRST)             | 12742 | 16030 | 13050 |   |       |
| •     | C1353 |    |         | CL  | W(ACCUM)             | 12743 | 16030 | 13064 |   |       |
| •     | C1354 |    |         | CL  | R1*                  | 12744 | 12100 | 00000 |   |       |
| •     | C1355 |    | LCOPA   | CL  | A*                   | 12745 | 11000 | 00000 |   |       |
| •     | C1356 |    |         | ENT | Q*W(NUMBER+R1)       | 12746 | 10031 | 13060 |   |       |
| •     | C1357 |    |         | ENT | R2*4                 | 12747 | 12200 | 00004 |   |       |
| •     | C1360 |    | LCOPB   | LSH | AG*6                 | 12750 | 07000 | 00006 |   |       |
| •     | C1361 |    |         | STR | A*W(ITEMC)           | 12751 | 15030 | 13053 |   |       |
| •     | C1362 |    |         | SUB | A*7*ANOT             | 12752 | 21500 | 00007 |   |       |
| •     | C1363 |    |         | JP  | SCALING              | 12753 | 61000 | 13011 |   |       |
| •     | C1364 |    |         | ENT | A*W(ITEMC)           | 12754 | 11030 | 13053 |   |       |
| •     | C1365 |    |         | SUB | A*1*ANOT             | 12755 | 21500 | 00041 |   |       |
| •     | C1366 |    |         | JP  | AMINUS               | 12756 | 61000 | 13007 |   |       |
| •     | C1367 |    |         | ENT | A*W(ITEMC)           | 12757 | 11030 | 13053 |   |       |
| •     | C1370 |    |         | SUB | A*4*ANOT             | 12760 | 21500 | 00042 |   |       |
| •     | C1371 |    |         | JP  | CECRET               | 12761 | 61000 | 13000 |   |       |
| •     | C1372 |    | GCODY   | ENT | A*W(ITEMC)           | 12762 | 11030 | 13053 |   |       |
| •     | C1373 |    |         | SUB | A*75*ANOT            | 12763 | 21500 | 00075 |   |       |
| •     | C1374 |    |         | JP  | DECIMAL              | 12764 | 61000 | 13005 |   |       |
| •     | C1375 |    |         | ENT | A*W(ITEMC)           | 12765 | 11030 | 13053 |   |       |
| •     | C1376 |    |         | STR | Q*W(ITEMA)           | 12766 | 14030 | 13051 |   |       |
| •     | C1377 |    |         | ENT | Q*17                 | 12767 | 10000 | 00017 |   |       |
| •     | C1400 |    |         | STR | LP*W(ITEMB)          | 12770 | 47030 | 13052 |   |       |
| •     | C1401 |    |         | ENT | Q*W(ACCUM)           | 12771 | 10030 | 13064 |   |       |
| •     | C1402 |    |         | MUL | 100                  | 12772 | 22000 | 00012 |   |       |
| •     | C1403 |    |         | A00 | Q*W(TEMB)            | 12773 | 26030 | 13052 |   |       |
| •     | C1404 |    |         | STR | Q*W(ACCUM)           | 12774 | 14030 | 13064 |   |       |
| •     | C1405 |    |         | ENT | Q*W(TEMA)            | 12775 | 10030 | 13051 |   |       |
| •     | C1406 |    |         | ENT | A*U(DECIGNFLG)*AZERO | 12776 | 11420 | 13047 |   |       |
| •     | C1407 |    |         | RPL | Y*1*W(NDEC)          | 12777 | 36030 | 13065 |   |       |
| •     | C1410 |    | CECRET  | CL  | A*                   | 13000 | 11000 | 00000 |   |       |
| •     | C1411 |    |         | RJP | R2*LOOPB             | 13001 | 72200 | 12750 |   |       |
| •     | C1412 |    |         | BSK | R1*2                 | 13002 | 71100 | 00002 |   |       |
| •     | C1413 |    |         | JP  | LOOPA                | 13003 | 61000 | 12745 |   |       |
| •     | C1414 |    |         | JP  | SCALING              | 13004 | 61000 | 13011 |   |       |
| •     | C1415 |    | CEGIMAL | RPL | Y*1*U(DECIGNFLG)     | 13005 | 36020 | 13047 |   |       |
| •     | C1416 |    |         | JP  | DECRET               | 13006 | 61000 | 13000 |   |       |
| •     | C1417 |    | AMINUS  | RPL | Y*1*U(DECIGNFLG)     | 13007 | 36010 | 13047 |   |       |
| •     | C1420 |    |         | JP  | CECRET               | 13010 | 61000 | 13000 |   |       |
| •     | C1421 |    | SCALING | RPL | Y*1*W(NDEC)*APOS     | 13011 | 37630 | 13065 |   |       |
| •     | C1422 |    |         | JP  | NOSCALE              | 13012 | 61000 | 13020 |   |       |
| •     | C1423 |    |         | ENT | Q*100                | 13013 | 10000 | 00012 |   |       |
| •     | C1424 |    |         | RPT | W(NDEC)              | 13014 | 70030 | 13065 |   |       |
| •     | C1425 |    |         | MUL | 100                  | 13015 | 22000 | 00012 |   |       |
| •     | C1426 |    |         | STR | Q*W(TENPOWER)        | 13016 | 14030 | 13054 |   |       |
| •     | C1427 |    |         | JP  | RINSCALE             | 13017 | 61000 | 13022 |   |       |
| •     | C1430 |    | NCSALE  | ENT | C*1                  | 13020 | 10000 | 00001 |   |       |
| •     | C1431 |    |         | STR | Q*W(TENPOWER)        | 13021 | 14030 | 13054 |   |       |

| CARDS | LI    | ID | LABEL      | TA STATEMENT            | LOC   | F     | JKB   | Y | NOTES |
|-------|-------|----|------------|-------------------------|-------|-------|-------|---|-------|
| .     | C1432 |    | HINSCALE   | ENT Q*(ACCUM)           | 13022 | 10030 | 13064 |   |       |
| .     | C1433 |    |            | ENT A*(BINPNT)*AZERO    | 13023 | 11420 | 13063 |   |       |
| .     | C1434 |    |            | JP B*VEG                | 13024 | 61000 | 13031 |   |       |
| .     | C1435 |    |            | CL A*                   | 13025 | 11000 | 00000 |   |       |
| .     | C1436 |    |            | LSH A0*(BINPNT)         | 13026 | 07010 | 13063 |   |       |
| .     | C1437 |    |            | DIV W(TENPOWER)         | 13027 | 23030 | 13054 |   |       |
| .     | C1440 |    |            | JP SIGNFIX              | 13030 | 61000 | 13035 |   |       |
| .     | C1441 |    | HINEG      | CL A*                   | 13031 | 11000 | 00000 |   |       |
| .     | C1442 |    |            | DIV W(TENPOWER)         | 13032 | 23030 | 13054 |   |       |
| .     | C1443 |    |            | CL A*                   | 13033 | 11000 | 00000 |   |       |
| .     | C1444 |    |            | RSH Q*(BINPNT)          | 13034 | 01010 | 13063 |   |       |
| .     | C1445 |    | SIGNFIX    | STR Q*(ACCUM)           | 13035 | 14030 | 13064 |   |       |
| .     | C1446 |    |            | ENT A*(DECSIGNFLG)*ANOT | 13036 | 11510 | 13047 |   |       |
| .     | C1447 |    |            | JP THRU                 | 13037 | 61000 | 13042 |   |       |
| .     | C1450 |    |            | ENT A*(ACCUM)           | 13040 | 11030 | 13064 |   |       |
| .     | C1451 |    |            | STR A*CPW(ACCUM)        | 13041 | 15070 | 13064 |   |       |
| .     | C1452 |    | THRU       | ENT A*(ASAVE)           | 13042 | 11030 | 13055 |   |       |
| .     | C1453 |    |            | ENT C*(QSAVE)           | 13043 | 10030 | 13057 |   |       |
| .     | C1454 |    |            | ENT B1*(BSAVE)          | 13044 | 12120 | 13056 |   |       |
| .     | C1455 |    |            | ENT B2*(BSAVE)          | 13045 | 12210 | 13056 |   |       |
| .     | C1456 |    |            | JP LDOCON               | 13046 | 61010 | 12733 |   |       |
| .     | C1457 |    | DECSIGNFLG | RESERVE 1               | 13047 | 00000 | 00000 |   |       |
| .     | C1460 |    | FIRST      | RESERVE 1               | 13050 | 00000 | 00000 |   |       |
| .     | C1461 |    | TEMA       | RESERVE 1               | 13051 | 00000 | 00000 |   |       |
| .     | C1462 |    | TEMA       | RESERVE 1               | 13052 | 00000 | 00000 |   |       |
| .     | C1463 |    | TEMC       | RESERVE 1               | 13053 | 00000 | 00000 |   |       |
| .     | C1464 |    | TENPOWER   | RESERVE 1               | 13054 | 00000 | 00000 |   |       |
| .     | C1465 |    | ASAVE      | RESERVE 1               | 13055 | 00000 | 00000 |   |       |
| .     | C1466 |    | BSAVE      | RESERVE 1               | 13056 | 00000 | 00000 |   |       |
| .     | C1467 |    | QSAVE      | RESERVE 1               | 13057 | 00000 | 00000 |   |       |
| .     | C1470 |    | NUMBER     | RESERVE 3               | 13060 | 00000 | 00000 |   |       |
| .     | C1471 |    | BINPNT     | RESERVE 1               | 13063 | 00000 | 00000 |   |       |
| .     | C1472 |    | ACCUM      | RESERVE 1               | 13064 | 00000 | 00000 |   |       |
| .     | C1473 |    | NDEC       | RESERVE 1               | 13065 | 00000 | 00000 |   |       |
| .     | C1474 |    | AFCOP      | ENT Q*72                | 13066 | 10000 | 00072 |   |       |
| .     | C1475 |    |            | ENT A*57                | 13067 | 11000 | 00057 |   |       |
| .     | C1476 |    |            | COM A*(MYUNP+140)*YIN   | 13070 | 04420 | 11156 |   |       |
| .     | C1477 |    |            | JP SPECCASE             | 13071 | 61000 | 10460 |   |       |
| .     | C1500 |    |            | COM A*(MYUNP+150)*YIN   | 13072 | 04420 | 11157 |   |       |
| .     | C1501 |    |            | JP SINGLENO             | 13073 | 61000 | 13104 |   |       |
| .     | C1502 |    |            | ENT Q*(MYUNP+140)       | 13074 | 10020 | 11156 |   |       |
| .     | C1503 |    |            | SUR Q*60                | 13075 | 27000 | 00060 |   |       |
| .     | C1504 |    |            | MUL 100                 | 13076 | 22000 | 00012 |   |       |
| .     | C1505 |    |            | ADD Q*(MYUNP+150)       | 13077 | 26020 | 11157 |   |       |
| .     | C1506 |    | GCHERE     | SUR Q*60                | 13100 | 27000 | 00060 |   |       |
| .     | C1507 |    |            | MUL 5                   | 13101 | 22000 | 00005 |   |       |
| .     | C1510 |    |            | STR Q*(VARPARA)         | 13102 | 14020 | 10522 |   |       |
| .     | C1511 |    |            | JP PP2                  | 13103 | 61000 | 10503 |   |       |
| .     | C1512 |    | SINGLENO   | ENT Q*(MYUNP+140)       | 13104 | 10020 | 11156 |   |       |
| .     | C1513 |    |            | SUR Q*60                | 13105 | 27000 | 00060 |   |       |
| .     | C1514 |    |            | STR Q*A*AZERO           | 13106 | 14440 | 00000 |   |       |
| .     | C1515 |    |            | JP GCHERE+1             | 13107 | 61000 | 13101 |   |       |
| .     | C1516 |    |            | JP SPECCASE             | 13110 | 61000 | 10460 |   |       |

SPURT OUTPUT NO. 210  
J00\*2/20/64

HAKEA301TP

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| CARDS | LI    | ID | LABEL | TA STATEMENT | LOC   | F     | JKB   | Y | NOTES |
|-------|-------|----|-------|--------------|-------|-------|-------|---|-------|
| .     | C1517 |    |       | 7777777777   | 13111 | 77777 | 77777 |   | 0EC   |
| .     | 01520 |    |       | RESERVE 1    | 13112 | 00000 | 00000 |   | -080  |
|       |       |    |       |              | 13113 | 05050 | 50505 |   |       |
|       |       |    |       |              | 13114 | 00077 | 00000 |   |       |
|       |       |    |       |              | 13115 | 12000 | 00010 |   |       |
|       |       |    |       |              | 13116 | 20300 | 00010 |   |       |
|       |       |    |       |              | 13117 | 00300 | 00010 |   |       |
|       |       |    |       |              | 13120 | 02300 | 00010 |   |       |
|       |       |    |       |              | 13121 | 21100 | 00010 |   |       |
|       |       |    |       |              | 13122 | 52200 | 00004 |   |       |
|       |       |    |       |              | 13123 | 20300 | 00004 |   |       |
|       |       |    |       |              | 13124 | 21100 | 00004 |   |       |
|       |       |    |       |              | 13125 | 20100 | 00010 |   |       |

END OF LISTING

SPURT OUTPUT NO. 211

MAKEA301TP

JDD\*2/20/64

| LABEL       | LOC   | LABEL       | LOC   | LABEL       | LOC   |
|-------------|-------|-------------|-------|-------------|-------|
| AS\$S\$1111 | 13113 | AS\$S\$1112 | 13114 | AS\$S\$1113 | 13115 |
| AS\$S\$1114 | 13116 | AS\$S\$1115 | 13117 | AS\$S\$1116 | 13120 |
| AS\$S\$1117 | 13121 | AS\$S\$1118 | 13122 | AS\$S\$1119 | 13123 |
| AS\$S\$111A | 13124 | AS\$S\$111P | 13125 | ACOMMA      | 11722 |
| ACCUM       | 13064 | AFDOP       | 13066 | ALLBLNK     | 10532 |
| AMINUS      | 13007 | ASAVE       | 13055 | BACK        | 12424 |
| BDMCH       | 10555 | RASICLOOP   | 10037 | BCWORO      | 11617 |
| BNEG        | 13031 | RINPNT      | 13063 | BINSKALE    | 13022 |
| BISO        | 10216 | BREAKIN     | 10404 | BSAVE       | 13056 |
| BSK86       | 10515 | BUFFERPNT   | 12234 | RYADAMS     | 10126 |
| BYERVE      | 12730 | COLCNTVO    | 11762 | COLCNTW     | 11761 |
| COLS22T080  | 10617 | COMWCODE    | 11506 | CONTIN      | 10277 |
| CONVERT     | 10160 | COUNT       | 12012 | COUNTER     | 12143 |
| C15EXTINT   | 12416 | CHANNEL     | 11620 | DECON       | 12733 |
| DECODE      | 11503 | DECIMAL     | 13005 | DECRET      | 13000 |
| DESIGNFLG   | 13047 | DICIONARY   | 12013 | DOUMY       | 12666 |
| ENDOFAPM    | 12677 | ENDOPRAND   | 10337 | ENOALL      | 12731 |
| ENDTAPE     | 10565 | ENDTAPEM    | 12706 | ENDTAPEU    | 12714 |
| ENTLP       | 10104 | ENTRANCE    | 11664 | EVENCOL     | 10501 |
| EXAMIN      | 10243 | EXCESS60    | 12670 | EXPLODEOVO  | 11747 |
| EXPLODEOW   | 11735 | FOROPRND    | 10365 | FOREWINO    | 10543 |
| FORNOTES    | 10425 | FOURCHAR    | 11500 | FOCODE      | 11502 |
| F0STATCODE  | 12505 | FOYAPEPAR   | 12555 | FINISH      | 12610 |
| FIRST       | 13050 | FIVECHAR    | 11501 | FIVEFIG     | 11504 |
| FIXWORDS    | 10416 | FND2NO      | 10266 | FNOABLNK    | 10332 |
| FNDCOMMA    | 10433 | FNDPRST     | 10252 | FNOTHEB     | 10146 |
| FRSTREC     | 11127 | GOODY       | 12762 | G0GX        | 12633 |
| GOHERF      | 13100 | GOINGON     | 12615 | GETCHAR     | 12167 |
| GETPACK     | 12132 | HERE        | 10546 | HURRYUP     | 12635 |
| INRUFFER    | 12410 | INDEXIT     | 10207 | INOFXR      | 10347 |
| INITIAL     | 10000 | INPUT       | 11366 | INPUTAPENO  | 12672 |
| INPUTAREA   | 11665 | INFRJUMP    | 12423 | INTERLOCK   | 12425 |
| INTERLOCKP  | 12432 | INTERLCK    | 10574 | INTERRUPT   | 10547 |
| INTJUMP     | 10554 | ISCOMMA     | 10526 | JPC15EXT    | 12507 |
| JPRINTOVR   | 12232 | JSTI        | 10521 | JTEMP       | 11605 |
| K0CT0FD     | 12652 | K0PFILO     | 10224 | KOPRANOFLO  | 10322 |
| K0UTPUT     | 11407 | KEEPOH      | 10342 | KEYJUMPS    | 12602 |
| LOOKAT      | 10064 | LOOP1       | 12133 | LOOP2       | 12166 |
| LOOPA       | 12745 | LOOPI       | 12750 | LOOPER      | 10413 |
| LOOPLIMIT   | 12140 | LOOPLIMIT2  | 12173 | LOOPSTART   | 12131 |
| LOOPISTART2 | 12164 | LOCKP       | 12440 | LASTRECORD  | 12715 |
| LASTWORD    | 11766 | LOTHEQ      | 10470 | L1STOVER    | 12623 |
| LKAGN       | 10257 | M0PNOTES    | 10427 | MORE        | 10510 |
| MACHERR     | 12640 | MACHERROK   | 12642 | MACHFAULT   | 12466 |
| MAGICCOL    | 10616 | MASTERSEP   | 11765 | MINNOTES    | 10371 |
| MYEXPLCODE  | 11723 | MYPACK      | 11304 | MYSERVO     | 11641 |
| WYUNP       | 11140 | N00PRAND    | 10437 | NONOTES     | 10403 |
| NOSCALE     | 13020 | NOTATION    | 10713 | NOVOWORDS   | 11764 |
| NCWORDS     | 11763 | NARYABLNK   | 10336 | NDEC        | 13065 |
| NEWLABEL    | 10230 | NEWTAPE     | 11642 | NUMBER      | 13060 |
| PI          | 10020 | PACK        | 12144 | PACKEOR     | 10046 |

..... SPURT OUTPUT NO. 211 .....

JDD\*2/20/64

MAKEA3010

| LABEL      | LOC   | LABEL      | LOC   | LABEL      | LOC   |
|------------|-------|------------|-------|------------|-------|
| PACKED     | 11411 | PARAM      | 10312 | PARAX      | 10320 |
| PARITY     | 12510 | PARITYMSG  | 12527 | PATCH      | 10306 |
| PMSC       | 12541 | PP2        | 10503 | PP3        | 10477 |
| PROSCODE   | 11706 | PRFPACK    | 10442 | PREPACKVAR | 10447 |
| PRINT      | 12177 | PRINTOVER  | 12231 | PRINTRUFFC | 12233 |
| PUTCOUNT   | 12150 | PUTCOUNTER | 12117 | PVAL       | 10113 |
| QSAVE      | 13057 | READTAPE   | 12403 | REOUNOANT  | 10560 |
| RTHRE      | 10253 | SCALING    | 13011 | SEARCB     | 10140 |
| SETFOR     | 10451 | SETUP      | 12202 | SHIFTAREA  | 11511 |
| SIGNFIX    | 13035 | SINGLNO    | 13104 | SPECCASE   | 10460 |
| SPECFIEL0  | 11033 | SPECIND    | 11510 | STORECR    | 12217 |
| STORELF    | 12221 | STOREPACK  | 12172 | STOREUNPAK | 12135 |
| STORIT     | 10445 | STATCODE   | 11621 | STATUS     | 12671 |
| STATUSCODE | 12446 | TOCAN      | 10164 | TAPEPARMSG | 12542 |
| TEMA       | 13051 | TEMP       | 13052 | TEMC       | 13053 |
| TENPOWER   | 13054 | THISCODE   | 11475 | THRECHAR   | 11477 |
| THRU       | 13042 | TRANS      | 11772 | TRANS1     | 12002 |
| TRANS2     | 12005 | TRANS3     | 12006 | TRANSLATE  | 11767 |
| TRY        | 10204 | TRYAGAIN   | 12523 | TWOCHAR    | 11476 |
| TYPETCODE  | 11505 | UNIT210    | 12637 | UNITNO     | 12500 |
| UNITNOINT  | 12445 | UNITSONLY  | 10220 | UNPACK     | 12113 |
| UNPACKCODE | 12207 | VARPARA    | 10522 | WORDCOUNT  | 12176 |
| WAITI      | 12415 | WAITPRINT  | 12230 | WAITUP     | 12620 |
| WAKEUP     | 11652 | WASHA      | 10167 | WHEOR      | 10611 |
| WHICH      | 10120 | WHMASTSEP  | 10577 | WHNOTESEP  | 10604 |
| WRITE      | 10535 | WRITEOUT   | 10545 | WRITEOF    | 12570 |
| WRNGTAPE   | 11707 | WRPARA     | 10053 |            |       |

END OF LISTING

..... SPURT OUTPUT NO. 212 .....

JDD\*2/20/64

MAKEA301TP

| LABEL      | LOC   | LABEL      | LOC   | LABEL      | LOC   |
|------------|-------|------------|-------|------------|-------|
| INITIAL    | 10000 | P1         | 10020 | BASICLOOP  | 10037 |
| PACKEDR    | 10046 | WRPARA     | 10053 | LOOKAT     | 10064 |
| ENTLP      | 10104 | PVAL       | 10113 | WHICH      | 10120 |
| BYADAMS    | 10126 | SEARCHB    | 10140 | FNOTHB     | 10146 |
| CONVERT    | 10160 | TODAN      | 10164 | WASHA      | 10167 |
| TRY        | 10204 | INDEXIT    | 10207 | BTSU       | 10216 |
| UNITSONLY  | 10220 | KOPFIELD   | 10224 | NEWLABEL   | 10230 |
| EXAMIN     | 10243 | FINDERST   | 10252 | RTHERE     | 10253 |
| LKAGN      | 10257 | FND2NO     | 10266 | CONTIN     | 10277 |
| PATCH      | 10306 | PARAM      | 10312 | PARAX      | 10320 |
| KOPRANDELO | 10322 | FNDARLNK   | 10332 | MARYABLNK  | 10336 |
| ENOOPRAND  | 10337 | KEEPOH     | 10342 | INOEXR     | 10347 |
| FUROPRND   | 10365 | MINNOTES   | 10371 | NONOTES    | 10403 |
| BREAKIN    | 10404 | LOOPER     | 10413 | FIXWORDS   | 10416 |
| FORNOTES   | 10425 | MODNOTES   | 10427 | FNOCUMMA   | 10433 |
| NOOPRANO   | 10437 | PREPACK    | 10442 | STORIT     | 10445 |
| PREPACKVAR | 10447 | SETEOR     | 10451 | SPECCASF   | 10460 |
| LDIHEQ     | 10470 | PP3        | 10477 | EVENCOL    | 10501 |
| PP2        | 10503 | MORE       | 10510 | BKSR6      | 10515 |
| JSTI       | 10521 | VARPARA    | 10522 | ISCOMMA    | 10526 |
| ALLBLNK    | 10532 | WRITE      | 10535 | FOREWIND   | 10543 |
| WRITEOUT   | 10545 | HERE       | 10546 | INTERRUPT  | 10547 |
| INTJUMP    | 10554 | BADMCH     | 10555 | REUNOANT   | 10560 |
| ENOTAPE    | 10565 | INTERLCK   | 10574 | WHMASTSEP  | 10577 |
| WHNOTSEFP  | 10604 | WHEOR      | 10611 | MAGICCOL   | 10616 |
| COLS22T080 | 10617 | NOTATION   | 10713 | SPECFIELD  | 11033 |
| FRSTREC    | 11127 | MYUNP      | 11140 | MYPACK     | 11304 |
| INPUT      | 11366 | KOUTPUT    | 11407 | PACKED     | 11411 |
| THISCODE   | 11475 | TWOCHAR    | 11476 | THRECHAR   | 11477 |
| FOURCHAR   | 11500 | FIVECHAR   | 11501 | FOCODE     | 11502 |
| CECCODE    | 11503 | FIVEFIG    | 11504 | TYPECODE   | 11505 |
| COMMECODE  | 11506 | SPECIND    | 11510 | SHIFTAREA  | 11511 |
| JTFMP      | 11605 | RCWORO     | 11617 | CHANNEL    | 11620 |
| STATCODE   | 11621 | MYSERVO    | 11641 | NEWTAPE    | 11642 |
| WAKEUP     | 11652 | ENTRANCE   | 11664 | INPUTAREA  | 11665 |
| PROGCODE   | 11706 | WRNGTAPF   | 11707 | ACOMMA     | 11722 |
| MYEXPLCODE | 11723 | EXPLOOEOW  | 11735 | EXPLOODEVO | 11747 |
| COLCNTW    | 11761 | COLCNTVO   | 11762 | NOWWORDS   | 11763 |
| NOVOWORDS  | 11764 | MASTERSEP  | 11765 | LASTWORD   | 11766 |
| TRANSLATE  | 11767 | TRANS      | 11772 | TRANS1     | 12002 |
| TRANS2     | 12005 | TRANS3     | 12006 | COUNT      | 12012 |
| DICTIONARY | 12013 | UNPACK     | 12113 | PUTCOUNTER | 12117 |
| LOOPSTART  | 12131 | GETPACK    | 12132 | LOOP1      | 12133 |
| STOREUNPAK | 12135 | LOOPLIMIT  | 12140 | COUNTER    | 12143 |
| PACK       | 12144 | PUTCOUNT   | 12150 | LOOPSTART2 | 12164 |
| LOOP2      | 12166 | GETCHAR    | 12167 | STOREPACK  | 12172 |
| LOOPLIMIT2 | 12173 | WOROCOUNT  | 12176 | PRINT      | 12177 |
| SETUP      | 12202 | UNPACKCODE | 12207 | STORECR    | 12217 |
| STORELF    | 12221 | WAITPRINT  | 12230 | PRINTOVER  | 12231 |
| JPPRINTOVR | 12232 | PRINTBUFC  | 12233 | BUFFERPRNT | 12234 |
| REAOITAPE  | 12403 | INBUFC     | 12410 | WAIT1      | 12415 |

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MAKEA301TP

| LABEL       | LOC   | LABEL       | LOC   | LABEL       | LOC   |
|-------------|-------|-------------|-------|-------------|-------|
| CISEXTINT   | 12416 | INTERJUMP   | 12423 | BACK        | 12424 |
| INTERLOCK   | 12425 | INTERLOCKP  | 12432 | LOCKP       | 12440 |
| UNITNOINT   | 12445 | STATUSCODE  | 12446 | MACHFAULT   | 12466 |
| UNITNO      | 12500 | FDSTATCODE  | 12505 | JPC15EXT    | 12507 |
| PARITY      | 12510 | TRYAGAIN    | 12523 | PARITYMSG   | 12527 |
| MSG         | 12541 | TAPEPARMSG  | 12542 | FOTAPEPAR   | 12555 |
| WRITEEOF    | 12570 | KEYJUMPS    | 12602 | FINISH      | 12610 |
| GOINGON     | 12615 | WAITUP      | 12620 | LISTOVER    | 12623 |
| GOGX        | 12633 | HURRYUP     | 12635 | UNIT210     | 12637 |
| MACHERR     | 12640 | MACHERROR   | 12642 | KOCTIOFD    | 12652 |
| CUMY        | 12666 | EXCFSS60    | 12670 | STATUS      | 12671 |
| INPUTAPENO  | 12672 | FN00FTAPM   | 12677 | ENOTAPEM    | 12706 |
| ENDTAPEU    | 12714 | LASTRECORD  | 12715 | BYEYF       | 12730 |
| ENDALL      | 12731 | OECON       | 12733 | LOOPA       | 12745 |
| LOOPB       | 12750 | GOOY        | 12762 | DECKET      | 13000 |
| DECIMAL     | 13005 | AMINUS      | 13007 | SCALING     | 13011 |
| NOSCALE     | 13020 | BINSCALE    | 13022 | RINFG       | 13031 |
| SIGNFIX     | 13035 | THRU        | 13042 | OFCSIGNFLG  | 13047 |
| FIRST       | 13050 | TEMA        | 13051 | TEMR        | 13052 |
| TEC         | 13053 | TENPOWER    | 13054 | ASAVE       | 13055 |
| BSAVE       | 13056 | QSAVE       | 13057 | NUMBFR      | 13060 |
| BINPNT      | 13063 | ACCUM       | 13064 | NOFC        | 13065 |
| AFDOP       | 13066 | GOHERE      | 13100 | SINGLENO    | 13104 |
| AS\$S\$1111 | 13113 | AS\$S\$1112 | 13114 | AS\$S\$1113 | 13115 |
| AS\$S\$1114 | 13116 | AS\$S\$1115 | 13117 | AS\$S\$1116 | 13120 |
| AS\$S\$1117 | 13121 | AS\$S\$1118 | 13122 | AS\$S\$1119 | 13123 |
| AS\$S\$111A | 13124 | AS\$S\$111B | 13125 |             |       |

ENC OF LISTING

6/28/65

S.J. WHITE HAYSTACK PLOTTER PROGRAM

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DIMENSION NAME(5),ITIME(4),XK(3),BUFFER(200)
CALL PLOTS (BUFFER(200),200)
100 FORMAT (3(I2,1X),2X,3(I2,1X))
101 FORMAT (A3,2X,F8.4,2X,F8.4)
102 FORMAT (I1,1X,I3,2(I1,F4.1),1X,I3,A1)
103 FORMAT (1X,5A6)
104 FORMAT (2X,3(I2,1X))
105 FORMAT (11)
106 FORMAT (4A6)
200 FORMAT ( 28HIMPROPER ENTRY OF THE X-AXIS )
201 FORMAT ( 41HWITH TIME AS THE X-AXIS NO MATCH W/Y-AXIS )
202 FORMAT ( 41HWITH AAZ AS THE X-AXIS NO MATCH W/Y-AXIS )
203 FORMAT ( 41HWITH AEL AS THE X-AXIS NO MATCH W/Y-AXIS )
204 FORMAT ( 41HWITH CAZ AS THE X-AXIS NO MATCH W/Y-AXIS )
TIM = 3HTIM
AAZ = 3HAZ
AEL = 3HAEL
CAZ = 3HCAZ
CEL = 3HCEL
XM=1HM
1001 CALL PLOT (XMLEN,-29.0,-3)
CALL PLOT (0.0,4.5,-3)
ASSIGN 400 TO K
1000 READ INPUT TAPE 2,100,ISTHR,ISTMIN,ISTSEC,IEOHR,IEOMIN,IEOSEC
BACKSPACE 2
READ INPUT TAPE 2,106,ITIME(4),ITIME(3),ITIME(2),ITIME(1)
READ INPUT TAPE 2,101,XAXIS,XMIN,XMAX
READ INPUT TAPE 2,101,YAXIS,YMIN,YMAX
READ INPUT TAPE 2,102,JTYPE,NPNTS,XINCH,YINCH,NUMB,UNIT
NPNTS1=1
NPNTS2=NPNTS
TIMIC = 0.
I3=3
FINO XAXIS
TEST = (TIM*XAXIS)*(-(TIM*XAXIS))
IF (TEST) 60,61,60
B 60 TEST = (AAZ*XAXIS)*(-(AAZ*XAXIS))
IF (TEST) 62,63,62
B 62 TEST = (AEL*XAXIS)*(-(AEL*XAXIS))
IF (TEST) 64,65,64
B 64 TEST = (CAZ*XAXIS)*(-(CAZ*XAXIS))
IF (TEST) 66,67,66
C WITH TIME AS THE XAXIS FINO YAXIS
B 61 TEST = (AAZ*YAXIS)*(-(AAZ*YAXIS))
IF (TEST) 70,71,70
B 70 TEST = (AEL*YAXIS)*(-(AEL*YAXIS))
IF (TEST) 72,73,72
B 72 TEST = (CAZ*YAXIS)*(-(CAZ*YAXIS))
IF (TEST) 74,75,74
B 74 TEST = (CEL*YAXIS)*(-(CEL*YAXIS))
IF (TEST) 76,77,76
C WITH AAZ AS XAXIS FINO YAXIS
B 63 TEST = (AEL*YAXIS)*(-(AEL*YAXIS))
IF (TEST) 80,81,80
B 80 TEST = (CAZ*YAXIS)*(-(CAZ*YAXIS))

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S.J.J. WHITE HAYSTACK PLOTTER PROGRAM

```

8 82 IF (TEST) 82,83,82
   TEST = (CEL+YAXIS)*(-(CEL+YAXIS))
C   IF (TEST) 84,85,84
   WITH AEL AS XAXIS FINO YAXIS
8 65 TEST = (CAZ+YAXIS)*(-(CAZ+YAXIS))
C   IF (TEST) 86,87,86
8 86 TEST = (CEL+YAXIS)*(-(CEL+YAXIS))
C   IF (TEST) 88,89,88
8 67 TEST = (CEL+YAXIS)*(-(CEL+YAXIS))
C   IF (TEST) 90,91,90
   TIME VS. AAZ
71 XK(1)= 6H(2X,F5
   XK(2)= 6H.3,1X,
   XK(3)= 5HF8.4)
   GO TO 300
C   TIME VS. AEL
73 XK(1)= 6H(2X,F5
   XK(2)= 6H.3,10X
   XK(3)= 6H,F8.4)
   GO TO 300
C   TIME VS. CAZ
75 XK(1)= 6H(2X,F5
   XK(2)= 6H.3,19X
   XK(3)= 6H,F8.4)
   GO TO 300
C   TIME VS. CEL
77 XK(1)= 6H(2X,F5
   XK(2)= 6H.3,28X
   XK(3)= 6H,F8.4)
   GO TO 300
C   AAZ VS. AEL
81 XK(1)= 6H(8X,F8
   XK(2)= 6H.4,1X,
   XK(3)= 5HF8.4)
   GO TO 300
C   AAZ VS. CAZ
83 XK(1)= 6H(8X,F8
   XK(2)= 6H.4,10X
   XK(3)= 6H,F8.4)
   GO TO 300
C   AAZ VS. CEL
85 XK(1)= 6H(8X,F8
   XK(2)= 6H.4,19X
   XK(3)= 6H,F8.4)
   GO TO 300
C   AEL VS. CAZ
87 XK(1)= 6H(18X,F
   XK(2)= 6H7.4,1X
   XK(3)= 6H,F8.4)
   GO TO 300
C   AEL VS. CEL
89 XK(1)= 6H(17X,F
   XK(2)= 6H8.4,10
   XK(3)= 6HXF8.4)
   GO TO 300
C   CAZ VS. CEL

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## S.-J. WHITE HAYSTACK PLOTTER PROGRAM

```

91 XK11)= 6H126X,F
XK12)= 6H8.4,1X
XK13)= 6H,F8.4)
300 GO TO K,1400,1)
8 400 TEST= 1 TIM *-XAXIS))
IF ITEST) 10,11,10
10 DX =(11XMAX-XMIN)/XINCH)*10.
DY =(11YMAX-YMIN)/YINCH)*10.
CALL AXIS 10.0,0.0,XAXIS,3,XINCH,0.0,XMIN,DX)
CALL AXIS 10.0,0.0,YAXIS,3,YINCH,0.0,YMIN,DY)
XMLEN =XINCH
GO TO 12
11 DY =(11YMAX-YMIN)/YINCH)*10.
IHR1 = IEDHR*3600
IMIN1 = IEDMIN*60
MSEC1 = IEDSEC + IMIN1 + IHR1
IHR2 = ISTR*3600
IMIN2 = ISTMIN*60
MSEC2 = ISTSEC + IMIN2 + IHR2
MSECS = MSEC1 - MSEC2
TEST = (XM*UNIT)*I-1XM*UNIT))
8 IF ITEST) 500,501,502
500 MSECS = MSECS/3600
GO TO 502
501 MSECS = MSECS/60
502 XNUMB = NUMB*10
XMLEN = MSECS/NUMB
CALL AXIS 10.0,0.0,4,4HTIME,4,XMLEN,0.0,XMIN,XNUMB)
CALL AXIS 10.0,0.0,YAXIS,3,YINCH,90.0,YMIN,DY)
12 READ INPUT TAPE 16,103,NAME15),NAME14),NAME13),NAME12),NAME11)
CALL SKIP 11,3)
YNAME1=YINCH*1.
YNAME2=YINCH*.5
CALL SYMBL4 (0.5,YNAME1,.21,NAME15),0.0,30)
CALL SYMBL4 10.5,YNAME2,.21,ITIME14),0.0,24)
) CALL SKIP 12,2)
READ INPUT TAPE 16,104,IHR,IMIN,ISEC
IF (IHR-ISTR) 50,51,51
51 IF (IMIN-ISTMIN) 50,52,52
52 IF (ISEC-ISTSEC) 50,53,53
50 ISKIP=NPNTS+4
CALL SKIP 1ISKIP,2)
GO TO 1
53 CALL SKIP 14,2)
DD 2 N=1,NPNTS
READ INPUT TAPE 16,XK,AXAXIS,AYAXIS
TEST= 1 TIM*(-XAXIS))
8 IF ITEST) 13,14,13
14 AXAXIS=AXAXIS+TIMIC
13 IF IJTYPE) 15,22,15
15 IF (IBROK) 17,18,17
17 13=3
NAYNIE=NAYNIE-1
IF 1NAYNIE) 30,30,31
30 IBROK=0
NAYNIE=NPNTS/50

```

```

31 GO TO 22
18 NAYNVE=NAYNVE-1
  IF (NAYNVE) 32,32,22
32 IBROK=1
  NAYNVE=NPNTS/50XIS
22 TEST= (TIM*(-XAXIS))
  IF ITTEST 20,21,20
20 AXAXIS=(IAXAXIS-XMIN)/(XMAX-XMIN)*XINCH
  AYAXIS=(IAYAXIS-YMIN)/(YMAX-YMIN)*YINCH
  GO TO 16
21 AXAXIS= AXAXIS/2.
  AYAXIS=(IAYAXIS-YMIN)/(YMAX-YMIN)*YINCH
16 CALL PLOT (AXAXIS,AYAXIS,I3)
2 I3=2
  CALL SKIP (2,2)
  READ INPUT TAPE 16,104,IHR,IMIN,ISEC
  IF (IHR-IEOHR) 40,41,42
  41 IF (IMIN-IEOMIN) 40,43,42
  43 IF (ISEC-IEOSEC) 40,42,42
  40 TIMC = TIMIC * 2.
  GO TO 53
42 READ INPUT TAPE 2,105,VEXT00
  GO TO I45,46,47,48,NEXTDO
46 CALL SKIP (1,4)
  ASSIGN 1 TO K
  CALL PLOT (0.0,-29.0,-3)
  CALL PLOT (0.0,4.5,-3)
  GO TO 1000
47 CALL SKIP(1,4)
  XMLEN =XMLEN+2.
  GO TO 1001
48 CALL SKIP (1,1)
  XMLEN =XMLEN+2.
  GO TO 1001
66 PRINT 200
  STOP 70707
76 PRINT 201
  STOP 70707
84 PRINT 202
  STOP 70707
88 PRINT 203
  STOP 70707
90 PRINT 204
  STOP 70707
45 XMLEN =XMLEN+2.
  CALL PLOT (XMLEN,-29.0,-3)
  CALL EXIT
  END(1.0,0.0,0.0,0.0,0.0,0.0,0.0,0.0,0.0)

```

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## STORAGE NOT USED BY PROGRAM

DEC OCT  
1219 02303  
32561 77461

## STORAGE LOCATIONS FOR VARIABLES APPEARING IN DIMENSION AND EQUIVALENCE STATEMENTS

DEC OCT ITIME NAME DEC OCT XK DEC OCT  
1206 02266 1213 02275 1218 02302 1209 02271

## STORAGE LOCATIONS FOR VARIABLES NOT APPEARING IN COMMON, DIMENSION, OR EQUIVALENCE STATEMENT

DEC OCT DEC OCT DEC OCT DEC OCT DEC OCT  
1006 01756 AEL 1005 01755 AXAXIS 1004 01754 AYAXIS 1003 01753 CAZ  
1001 01751 OX 1000 01750 OY 999 01747 I3 998 01746 I3ROK 997 01745  
996 01744 IEOMIN 995 01743 IEOSEC 994 01742 IHR1 993 01741 IHR2 992 01740  
991 01737 IMIN1 990 01736 IMIN2 989 01735 ISTMIN 988 01734 ISEC 987 01733  
986 01732 ISTHR 985 01731 MSEC1 984 01730 MSEC2 983 01727 JTYPE 982 01726  
981 01725 MSEC1 980 01724 NPNTS1 979 01723 NPNTS2 978 01722 NAYNVE 977 01721  
976 01720 TIMIC 975 01717 TIM 969 01716 UNIT 973 01715 NUMB 972 01714  
971 01713 XMAX 965 01705 XMIN 964 01704 XMLEN 963 01703 XAXIS 962 01702  
966 01706 YAXIS 960 01700 YINCH 959 01677 YMAX 958 01676 YMIN 957 01675  
956 01674 YNAME2 955 01673

## SYMBOLS AND LOCATIONS FOR SOURCE PROGRAM FORMAT STATEMENTS

EFN LOC EFN LOC EFN LOC EFN LOC  
8134 100 01665 8135 101 01661 8136 102 01655 8137 103 01647  
8139 105 01642 813A 106 01641 8169 200 01640 8169 201 01632  
8168 203 01610 816C 204 01577

## LOCATIONS FOR OTHER SYMBOLS NOT APPEARING IN SOURCE PROGRAM

DEC OCT DEC OCT DEC OCT DEC OCT DEC OCT  
950 01666 2) 785 01421 3) 872 01550 4) 32767 77777  
881 01561 8) 798 01436 C1G1 953 01671 C1200 954 01672  
01102 51 00063 0111R 729 01331 E110 595 01123 E11E 597 01125  
720 01320 E11Q 728 01330

## LOCATIONS OF NAMES IN TRANSFER VECTOR

DEC OCT DEC OCT DEC OCT DEC OCT DEC OCT  
6 00006 EXIT 11 00013 PLOT 2 00002 PLOTS 1 00001  
8 00010 (BST) 5 00005 (FIL) 10 00012 (FPT) 0 00000  
9 00011 (TSH) 3 00003 (TSH)

## ENTRY POINTS TO SUBROUTINES NOT OUTPUT FROM LIBRARY

DEC OCT DEC OCT DEC OCT DEC OCT DEC OCT  
7 00007 AXIS 7 00007  
4 00004 SYMBL4 4 00004  
5) 783 01417  
33 00041  
699 01273

# EXTERNAL FORMULA NUMBERS WITH CORRESPONDING INTERNAL FORMULA NUMBERS AND OCTAL LOCATIONS

[illegible]

|       |       |       |   |       |       |        |         |
|-------|-------|-------|---|-------|-------|--------|---------|
| 00000 | -0520 | 60    | 4 | 00000 | 00000 | ENTRY  | SKIP    |
| 00001 | 0020  | 00    | 4 | 00003 | 00003 | NZI*   | 1,4     |
| 00002 | 0634  | 00    | 1 | 00051 | 00051 | TRA    | 3,4     |
| 00003 | 0500  | 60    | 4 | 00002 | 00002 | TAPENO | B6L     |
| 00004 | -0734 | 00    | 1 | 00000 | 00000 | SXA    | XR,1    |
| 00005 | 0500  | 60    | 4 | 00001 | 00001 | CLA*   | 2,4     |
| 00006 | 0020  | 00    | 1 | 00013 | 00013 | POX    | 1       |
| 00007 | 0020  | 00    | 0 | 00037 | 00037 | CLA*   | 1,4     |
| 00010 | 0020  | 00    | 0 | 00013 | 00013 | TRA    | *+5,1   |
| 00011 | 0020  | 00    | 0 | 00031 | 00031 | FILFO  | BACK    |
| 00012 | 0020  | 00    | 0 | 00017 | 00017 | TRA    | REC     |
| 00013 | -0734 | 00    | 1 | 00000 | 00000 | TRA    | FILE    |
| 00014 | 0764  | 00    | 0 | 02206 | 02206 | PDX    | 1       |
| 00015 | 2     | 00001 | 1 | 00014 | 00014 | BSRX   | *-1,1,1 |
| 00016 | 0020  | 00    | 0 | 00051 | 00051 | TIX    | XR      |
| 00017 | -0734 | 00    | 1 | 00000 | 00000 | TRA    | 1       |
| 00020 | 0762  | 00    | 0 | 02206 | 02206 | POX    | 1       |
| 00021 | -0540 | 00    | 0 | 00026 | 00026 | RTOX   | IOI     |
| 00022 | 0061  | 00    | 0 | 00022 | 00022 | RCHX   | *       |
| 00023 | -0030 | 00    | 0 | 00024 | 00024 | TCOX   | *+1     |
| 00024 | 2     | 00001 | 1 | 00020 | 00020 | TEFX   | *-4,1,1 |
| 00025 | 0020  | 00    | 0 | 00051 | 00051 | TIX    | XR      |
| 00026 | -0    | 00001 | 2 | 00030 | 00030 | TRA    | DUM,1   |
| 00027 | 1     | 00000 | 0 | 00026 | 00026 | IOCPN  | IOI     |
| 00030 | 0     | 00000 | 0 | 00000 | 00000 | TCH    | 1       |
| 00031 | -0734 | 00    | 1 | 00000 | 00000 | PZE    | 1       |
| 00032 | 0762  | 00    | 0 | 02206 | 02206 | POX    | *       |
| 00033 | 0061  | 00    | 0 | 00033 | 00033 | RTDX   | *+1     |
| 00034 | -0030 | 00    | 0 | 00035 | 00035 | TEFX   | *-3,1,1 |
| 00035 | 2     | 00001 | 1 | 00032 | 00032 | TIX    | XR      |
| 00036 | 0020  | 00    | 0 | 00051 | 00051 | TRA    | 1       |
| 00037 | -0734 | 00    | 1 | 00000 | 00000 | PDX    | BSFX    |
| 00040 | -0764 | 00    | 0 | 02206 | 02206 | BSFX   | TCOX    |
| 00041 | 0061  | 00    | 0 | 00041 | 00041 | TCOX   | *+1     |
| 00042 | -0030 | 00    | 0 | 00043 | 00043 | TEFX   | *-3,1,1 |
| 00043 | 2     | 00001 | 1 | 00040 | 00040 | TIX    | *       |
| 00044 | 0762  | 00    | 0 | 02206 | 02206 | RTOX   | *+3     |
| 00045 | 0061  | 00    | 0 | 00045 | 00045 | TCOX   | *       |
| 00046 | -0030 | 00    | 0 | 00051 | 00051 | TEFX   | *+3     |
| 00047 | 0772  | 00    | 0 | 02206 | 02206 | REWX   | *       |
| 00050 | 0061  | 00    | 0 | 00050 | 00050 | TCOX   | *+1     |
| 00051 | 0774  | 00    | 1 | 00000 | 00000 | AXT    | 3,4     |
| 00052 | 0020  | 00    | 4 | 00003 | 00003 | TRA    | ENO     |

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POST PROCESSOR ASSEMBLY DATA

53 IS THE FIRST LOCATION NOT USED BY THIS PROGRAM

REFERENCES TO DEFINED SYMBOLS

|      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| 2206 | X     | 2,  | 14, | 20, | 21, | 22, | 23, | 32, | 33, | 34, | 40, | 41, | 42, | 44, | 45, | 46, | 47, | 50 |
| 51   | XR    | 2,  | 16, | 25, | 36  |     |     |     |     |     |     |     |     |     |     |     |     |    |
| 30   | QUM   | 26  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| 26   | IOI   | 21, | 27  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| 31   | REC   | 11  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| 13   | BACK  | 10  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| 17   | FILE  | 12  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| 0    | SKIP  | 0   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| 37   | FILFO | 7   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |

NO ERROR IN ABOVE ASSEMBLY.

| CARD | LI    | ID | LABEL     | TA      | STATEMENT              | LOC   | F     | J     | K | B | Y | NOTES                                                                                                                |
|------|-------|----|-----------|---------|------------------------|-------|-------|-------|---|---|---|----------------------------------------------------------------------------------------------------------------------|
| •    | CC000 |    | PUNCHALLO | PROGRAM | HAFORD*11/24/64        |       |       |       |   |   |   |                                                                                                                      |
| •    | CC001 |    | PUNCHTAPE | MEANS   | C4                     |       |       |       |   |   |   |                                                                                                                      |
| •    | CC002 |    | BEGIN     | EX-FC   | PUNCHTAPE*0000C00020   | 00000 | 13230 | 00764 |   |   |   | TURN THE PAPER PUNCH ON                                                                                              |
| •    | CC003 |    |           | ENT     | R2*240                 | 00001 | 12200 | 00030 |   |   |   |                                                                                                                      |
| •    | CC004 |    | L77A      | JP      | *PUNCHTAPE*ACTIVEOUT   | 00002 | 63200 | 00002 |   |   |   |                                                                                                                      |
| •    | CC005 |    |           | OUT     | PUNCHTAPE*W(LEADEROUT) | 00003 | 74230 | 00143 |   |   |   |                                                                                                                      |
| •    | CC006 |    |           | RJP     | R2*L77A                | 00004 | 72200 | 00002 |   |   |   |                                                                                                                      |
| •    | CC007 |    |           | RJP     | READTAPE               | 00005 | 65000 | 00515 |   |   |   | READ THE FIRST CARD                                                                                                  |
| •    | CC008 |    |           | U-TAG   | INRUF+17*INRUF         | 00006 | 00355 | 00336 |   |   |   | CHECK TO SEE THAT THIS THE ALL                                                                                       |
| •    | CC009 |    |           | ENT     | Q*W(INRUF+2)           | 00007 | 10030 | 00340 |   |   |   | LOCATION TAPE                                                                                                        |
| •    | CC010 |    |           |         |                        |       |       |       |   |   |   |                                                                                                                      |
| •    | CC011 |    |           |         |                        |       |       |       |   |   |   |                                                                                                                      |
| •    | CC012 |    |           | SUB     | C*W(ALLOC)*QZER0       | 00010 | 27430 | 00366 |   |   |   |                                                                                                                      |
| •    | CC013 |    |           | JP      | REGIN*STOP             | 00011 | 61400 | 00000 |   |   |   |                                                                                                                      |
| •    | CC014 |    |           | ENT     | Q*W(INRUF+3)           | 00012 | 10030 | 00341 |   |   |   |                                                                                                                      |
| •    | CC015 |    |           | SUB     | Q*W(ATION)*QZER0       | 00013 | 27430 | 00367 |   |   |   |                                                                                                                      |
| •    | CC016 |    |           | JP      | REGIN*STOP             | 00014 | 61400 | 00000 |   |   |   |                                                                                                                      |
| •    | CC017 |    |           | ENT     | A*RU2                  | 00015 | 11000 | 00314 |   |   |   | SET TO WRITE FROM BUFI FIRST,<br>THEN ALTERNATE                                                                      |
| •    | CC018 |    |           |         |                        |       |       |       |   |   |   |                                                                                                                      |
| •    | CC019 |    |           | LSH     | A*15D                  | 00016 | 06000 | 00017 |   |   |   |                                                                                                                      |
| •    | CC020 |    |           | SEL     | SET*BUFI               | 00017 | 50000 | 00162 |   |   |   |                                                                                                                      |
| •    | CC021 |    |           | STR     | A*W(BUFSW)             | 00020 | 15030 | 00357 |   |   |   | SET UP BUFFER SWITCH                                                                                                 |
| •    | CC022 |    |           | ENT     | R5*L(BUFSW)            | 00021 | 12510 | 00357 |   |   |   | R5 CONTAINS THE 1ST EMPTY CHAR<br>ACTER IN                                                                           |
| •    | CC023 |    |           |         |                        |       |       |       |   |   |   |                                                                                                                      |
| •    | CC024 |    |           | ENT     | A*W(LR)                | 00022 | 11030 | 00361 |   |   |   | THE CURRENT BUFFER                                                                                                   |
| •    | CC025 |    |           | STR     | A*W(0+05)              | 00023 | 15035 | 00000 |   |   |   | START THE FIRST OUTPUT BUFFER<br>WITH A                                                                              |
| •    | CC026 |    |           | STR     | A*W(2+85)              | 00024 | 15035 | 00002 |   |   |   | CARRIAGE RETURN, UPPER CASE, C<br>ARRAIGE<br>RETURN                                                                  |
| •    | CC027 |    |           | ENT     | A*W(LUC)               | 00025 | 11030 | 00362 |   |   |   |                                                                                                                      |
| •    | CC028 |    |           | STR     | A*W(1+85)              | 00026 | 15035 | 00001 |   |   |   |                                                                                                                      |
| •    | CC029 |    |           | ENT     | R5*R5+3                | 00027 | 12505 | 00003 |   |   |   |                                                                                                                      |
| •    | CC030 |    |           | CL      | B1                     | 00030 | 12100 | 00000 |   |   |   | CONVERT THE FIRST WORD TO FLEX<br>O                                                                                  |
| •    | CC031 |    |           |         |                        |       |       |       |   |   |   |                                                                                                                      |
| •    | CC032 |    |           |         |                        |       |       |       |   |   |   |                                                                                                                      |
| •    | CC033 |    |           | RJP     | RCDT0FLEX0             | 00031 | 65000 | 00124 |   |   |   |                                                                                                                      |
| •    | CC034 |    |           | ENT     | Q*W(INRUF+2)           | 00032 | 10030 | 00340 |   |   |   |                                                                                                                      |
| •    | CC035 |    |           | LSH     | AC*6                   | 00033 | 07000 | 00006 |   |   |   |                                                                                                                      |
| •    | CC036 |    |           | ENT     | A*W(BCOTAR)            | 00034 | 11030 | 00364 |   |   |   | FROM COLUMN ELEVEN ON                                                                                                |
| •    | CC037 |    |           | RSH     | AQ*6                   | 00035 | 03000 | 00006 |   |   |   |                                                                                                                      |
| •    | CC038 |    |           | STR     | Q*W(INRUF+2)           | 00036 | 14030 | 00340 |   |   |   |                                                                                                                      |
| •    | CC039 |    |           | ENT     | B1*2                   | 00037 | 12100 | 00002 |   |   |   | CONVERT TO THE FIRST BLANK<br>IS THE START OF THE MAIN LOOP<br>WHICH CONTINUES TO EOF<br>FOLLOW BY A CARRIAGE RETURN |
| •    | CC040 |    |           | RJP     | RCDT0FLEX0             | 00040 | 65000 | 00124 |   |   |   |                                                                                                                      |
| •    | CC041 |    |           | COMMENT | THIS                   |       |       |       |   |   |   |                                                                                                                      |
| •    | CC042 |    |           |         |                        |       |       |       |   |   |   |                                                                                                                      |
| •    | CC043 |    |           |         |                        |       |       |       |   |   |   |                                                                                                                      |
| •    | CC044 |    | L14D      | PUT     | W(CR)*W(0+85)          | 00041 | 10030 | 00361 |   |   |   |                                                                                                                      |
| •    | CC045 |    |           | JP      | *PUNCHTAPE*ACTIVEOUT   | 00042 | 14035 | 00000 |   |   |   |                                                                                                                      |
| •    | CC046 |    |           | ENT     | A*W(BUFSW)             | 00043 | 63200 | 00043 |   |   |   | WAIT FOR FREE OUT CHANNEL                                                                                            |
| •    | CC047 |    |           | STR     | A*L(HUFOUT)            | 00044 | 11030 | 00357 |   |   |   | SET OUTPUT BUFFER CONTROL FROM<br>BUFSW (BL1                                                                         |
| •    | CC048 |    |           | STR     | R5*U(BUFSW)            | 00045 | 15010 | 00356 |   |   |   | AND R5 (EL-1)                                                                                                        |
| •    | CC049 |    |           | STR     | A*U(BUFSW)             | 00046 | 16520 | 00356 |   |   |   |                                                                                                                      |
| •    | CC050 |    |           | STR     | A*15D                  | 00047 | 15020 | 00357 |   |   |   | SWITCH BUFFER SWITCH                                                                                                 |
| •    | CC051 |    |           | RSH     | A*15D                  | 00050 | 02000 | 00017 |   |   |   | \$                                                                                                                   |
| •    | CC052 |    |           | STR     | A*L(BUFSW)             | 00051 | 15010 | 00357 |   |   |   | \$                                                                                                                   |
| •    | CC053 |    |           | ENT     | R5*L(BUFSW)            | 00052 | 12510 | 00357 |   |   |   | \$                                                                                                                   |
| •    | CC054 |    |           |         |                        |       |       |       |   |   |   |                                                                                                                      |

| CARDS | LI    | ID | LAPEL | TA STATEMENT                | LOC   | F     | JKR   | Y | NOTES                         |
|-------|-------|----|-------|-----------------------------|-------|-------|-------|---|-------------------------------|
| •     | CC055 |    |       | OUT PUNCHTAPE*W(BUFOU1)     | 00053 | 74230 | 00356 |   | PUNCH                         |
| •     | CC056 |    |       | RJP READTAPE                | 00054 | 65000 | 00515 |   | READ A CARO                   |
| •     | CC057 |    |       | U-TAG INBU*4*INBUF          | 00055 | 00342 | 00336 |   |                               |
| •     | CC060 |    |       | ENT A*W(INBUF1)             | 00056 | 11030 | 00336 |   | \$                            |
| •     | CC061 |    |       | SEL CL*W(MSK2)              | 00057 | 52030 | 00157 |   |                               |
| •     | CC062 |    |       | SUR A*W(LEFTBLANK)*ANOT     | 00060 | 21530 | 00160 |   | IGNURE IF BLANK               |
| •     | CC063 |    |       | JP NOTHERCARO               | 00061 | 61000 | 00054 |   | CONVERT LABEL                 |
| •     | CC064 |    |       | CL H1*                      | 00062 | 12100 | 00000 |   | ADD A TAB                     |
| •     | CC065 |    |       | RJP BCDTOFLEXO              | 00063 | 65000 | 00124 |   |                               |
| •     | CC066 |    |       | PUT W(TAB1*W(O+B5)          | 00064 | 10030 | 00360 |   |                               |
| •     | CC067 |    |       | BSK H5*77777                | 00065 | 14035 | 00000 |   |                               |
| •     | CC070 |    |       | ENT A*W(INBU*2)             | 00066 | 71500 | 77777 |   | CONVERT THE LOCATION          |
| •     | CC071 |    |       | ENT Q*W(INBU*3)             | 00067 | 11030 | 00340 |   |                               |
| •     | CC072 |    |       | ENT B2*4                    | 00070 | 10030 | 00341 |   |                               |
| •     | CC073 |    |       | RSH AQ*180*ANOT             | 00071 | 12200 | 00004 |   | GET THE RIGHT FOUR CHARACTERS |
| •     | CC074 |    |       | LSH AQ*6                    | 00072 | 03500 | 00022 |   | IN THE Q                      |
| •     | CC075 |    |       | SEL CL*W(MSK1)              | 00073 | 07000 | 00006 |   |                               |
| •     | CC076 |    |       | ENT H7*A                    | 00074 | 52030 | 00156 |   | ISOLATE THE BCD CHARACTER     |
| •     | CC077 |    |       | FNT A*W(TABLERCD+B71)       | 00075 | 12770 | 00000 |   | GET IT TO B7                  |
| •     | CC100 |    |       | STR A*W(O+B5)               | 00076 | 11037 | 00370 |   |                               |
| •     | CC101 |    |       | BSK R5*77777                | 00077 | 15035 | 00000 |   |                               |
| •     | CC102 |    |       | RJP R2*LI40                 | 00100 | 71500 | 77777 |   |                               |
| •     | CC103 |    |       | JP LI40                     | 00101 | 72200 | 00073 |   |                               |
| •     | CC104 |    |       | JP \$PUNCHTAPE*ACTIVEOUT    | 00102 | 61000 | 00041 |   |                               |
| •     | CC105 |    |       | PUT W(CR1*W(BUF1)           | 00103 | 63200 | 00103 |   |                               |
| •     | CC106 |    |       | PUT W(LC)*W(RUF1+1)         | 00104 | 10030 | 00361 |   | FINISH WITH CR,LC,...         |
| •     | CC107 |    |       | PUT W(PERIOD)*W(BUF1+2)     | 00105 | 14030 | 00162 |   |                               |
| •     | CC110 |    |       | STR Q*W(BUF1+3)             | 00106 | 10030 | 00363 |   |                               |
| •     | CC111 |    |       | OUT PUNCHTAPE*W(FINISHPCH1  | 00107 | 14030 | 00163 |   |                               |
| •     | CC112 |    |       | ENT R2*120                  | 00110 | 10030 | 00365 |   |                               |
| •     | CC113 |    |       | JP \$PUNCHTAPE*ACTIVEOUT    | 00111 | 14030 | 00164 |   |                               |
| •     | CC114 |    |       | OUT PUNCHTAPE*W(LEADEROUT)  | 00112 | 14030 | 00165 |   |                               |
| •     | CC115 |    |       | RJP B2*L77R                 | 00113 | 74230 | 00123 |   |                               |
| •     | CC116 |    |       | JP \$PUNCHTAPE*ACTIVEOUT    | 00114 | 12200 | 00014 |   |                               |
| •     | CC117 |    |       | EX-FCI PUNCHTAPE*0000000200 | 00115 | 63200 | 00115 |   |                               |
| •     | CC120 |    |       | JP BEGIN*STOP               | 00116 | 74230 | 00143 |   |                               |
| •     | CC121 |    |       | U-TAG RUF1*3*BUET           | 00117 | 72200 | 00115 |   |                               |
| •     | CC122 |    |       | COMMENT ENTER               | 00120 | 63200 | 00120 |   |                               |
| •     | CC123 |    |       | COMMENT SET                 | 00121 | 13230 | 00765 |   |                               |
| •     | CC124 |    |       | COMMENT THE                 | 00122 | 61400 | 00000 |   |                               |
| •     | CC125 |    |       | COMMENT BY                  | 00123 | 00165 | 00162 |   |                               |
| •     | CC126 |    |       | COMMENT B1                  |       |       |       |   |                               |
| •     | CC127 |    |       | COMMENT OUTPUT              |       |       |       |   |                               |

WITH R1 SET WITH THE WORD IN I  
NPUT (0-1101, AND B5  
WITH THE FIRST EMPTY CHARACTER  
IN OUTPUT STORAGE.  
PROGRAM THEN CONVERTS BCO TO E  
LEXO AND STORES CHARACTER  
CHARACTER IN THE OUTPUT BUFFER  
• IT STOPS ON A BLANK.  
CONTROLS WORDS IN, R2 IS CHARA  
CTER COUNT, B5 IS  
CONTROL

| CARDS | LI    | IC | LABEL      | TA                     | STATEMENT | LOC   | F     | JKB   | Y | NOTES                        |
|-------|-------|----|------------|------------------------|-----------|-------|-------|-------|---|------------------------------|
| .     | CC130 |    | RCOTOFLEX0 | ENTRY                  |           | 00124 | 61000 | 00000 |   |                              |
| .     | CC131 |    | L13C       | ENT C*W(INGUF+P1)      |           | 00125 | 10031 | 00336 |   | GET A WORD OF BCD            |
| .     | CC132 |    |            | ENT B2*4               |           | 00126 | 12200 | 00004 |   |                              |
| .     | CC133 |    | L13D       | LSH A0*6               |           | 00127 | 07000 | 00006 |   | GET A CHARACTER              |
| .     | CC134 |    |            | SEL CL*W(MSK11         |           | 00130 | 52030 | 00156 |   | ISOLATE IT                   |
| .     | CC135 |    |            | ENT A7*4               |           | 00131 | 12770 | 00000 |   |                              |
| .     | CC136 |    |            | SUB A*W(PLANK)*ANOT    |           | 00132 | 21530 | 00161 |   | IS IT A BLANK                |
| .     | CC137 |    |            | JP L(HCOTOFLEX0)       |           | 00133 | 61010 | 00124 |   | YES                          |
| .     | CC140 |    |            | ENT A*W(TABLERCC+P7)   |           | 00134 | 11037 | 00370 |   | NO, GET ITS FLEXO EQUIVALENT |
| .     | CC141 |    |            | STR A*W(0+85)          |           | 00135 | 15035 | 00000 |   | INTO THE OUTPUT TABLE        |
| .     | CC142 |    |            | RSK H5*77777           |           | 00136 | 71500 | 77777 |   | INCREMENT OUTPUT CONTROL     |
| .     | CC143 |    |            | RJP R2*L130            |           | 00137 | 72200 | 00127 |   | ARE THERE MORE CHARACTERS    |
| .     | CC144 |    |            | FSK R1*20              |           | 00140 | 71100 | 00020 |   | NO, SET TO GET ANOTHER WORD  |
| .     | CC145 |    |            | JP L13C                |           | 00141 | 61000 | 00125 |   |                              |
| .     | CC146 |    |            | JP L(HCOTOFLEX0)       |           | 00142 | 61010 | 00124 |   |                              |
| .     | CC147 |    | LEADERROUT | U-TAG LEADER*90*LEADER |           | 00143 | 00155 | 00144 |   |                              |
| .     | CC150 |    | LEADER     | 0 0                    |           | 00144 | 00000 | 00000 |   |                              |
| .     | CC151 |    |            | 0 0                    |           | 00145 | 00000 | 00000 |   |                              |
| .     | CC152 |    |            | 0 0                    |           | 00146 | 00000 | 00000 |   |                              |
| .     | CC153 |    |            | 0 0                    |           | 00147 | 00000 | 00000 |   |                              |
| .     | CC154 |    |            | 0 0                    |           | 00150 | 00000 | 00000 |   |                              |
| .     | CC155 |    |            | 0 0                    |           | 00151 | 00000 | 00000 |   |                              |
| .     | CC156 |    |            | 0 0                    |           | 00152 | 00000 | 00000 |   |                              |
| .     | CC157 |    |            | 0 0                    |           | 00153 | 00000 | 00000 |   |                              |
| .     | CC160 |    |            | 0 0                    |           | 00154 | 00000 | 00000 |   |                              |
| .     | CC161 |    |            | 0 0                    |           | 00155 | 00000 | 00000 |   |                              |
| .     | CC162 |    | MSK1       | 77777 77777            |           | 00156 | 77777 | 77700 |   |                              |
| .     | CC163 |    | MSK2       | 777 77777              |           | 00157 | 00777 | 77777 |   |                              |
| .     | CC164 |    | LEFTBLANK  | 20000 0                |           | 00160 | 20000 | 00000 |   |                              |
| .     | CC165 |    | BLANK      | 0 20                   |           | 00161 | 00000 | 00020 |   |                              |
| .     | CC166 |    | RUF1       | RESERVE 900            |           | 00162 | 00000 | 00000 |   |                              |
| .     | CC167 |    | RUF2       | RESERVE 180            |           | 00314 | 00000 | 00000 |   |                              |
| .     | CC170 |    | INRUF      | RESERVE 160            |           | 00336 | 00000 | 00000 |   |                              |
| .     | CC171 |    | RUFOUT     | 0 0                    |           | 00356 | 00000 | 00000 |   |                              |
| .     | CC172 |    | RUF5W      | 0 0                    |           | 00357 | 00000 | 00000 |   |                              |
| .     | CC173 |    | TAB        | 0 51                   |           | 00360 | 00000 | 00051 |   |                              |
| .     | CC174 |    | CR         | 0 45                   |           | 00361 | 00000 | 00045 |   |                              |
| .     | CC175 |    | UC         | 0 47                   |           | 00362 | 00000 | 00047 |   |                              |
| .     | CC176 |    | LC         | 0 57                   |           | 00363 | 00000 | 00057 |   |                              |
| .     | CC177 |    | BCOTAB     | 0 15                   |           | 00364 | 00000 | 00015 |   |                              |
| .     | CC200 |    | PERIOO     | 0 42                   |           | 00365 | 00000 | 00042 |   |                              |
| .     | CC201 |    | ALLOO      | 20614 34346            |           | 00366 | 20614 | 34346 |   |                              |
| .     | CC202 |    | ATIOO      | 63612 37146            |           | 00367 | 63612 | 37146 |   |                              |
| .     | CC203 |    | TABLERCO   | 0 4                    |           | 00370 | 00000 | 00004 |   | 0                            |
| .     | CC204 |    |            | 0 52                   |           | 00371 | 00000 | 00052 |   | 1                            |
| .     | CC205 |    |            | 0 74                   |           | 00372 | 00000 | 00074 |   | 2                            |
| .     | CC206 |    |            | 0 70                   |           | 00373 | 00000 | 00070 |   | 3                            |
| .     | CC207 |    |            | 0 64                   |           | 00374 | 00000 | 00064 |   | 4                            |
| .     | CC210 |    |            | 0 62                   |           | 00375 | 00000 | 00062 |   | 5                            |

STARTS WITH BUF2,BUF1

SPURT OUTPUT NO. 210  
HAFFORD 11/24/64

PUNCHALLOCC

| CAROS | L1 ID LABEL | TA STATEMENT | LOC   | F JKR Y     | NOTES         |
|-------|-------------|--------------|-------|-------------|---------------|
| •     | CC211       | 0 66         | 00376 | 00000 00066 | 5             |
| •     | CC212       | 0 72         | 00377 | 00000 00072 | 6             |
| •     | CC213       | 0 60         | 00400 | 00000 00060 | 7             |
| •     | CC214       | 0 33         | 00401 | 00000 00033 | 8             |
| •     | CC215       | 0 37         | 00402 | 00000 00037 | 9             |
| •     | CC216       | 0 4          | 00403 | 00000 00004 | 10            |
| •     | CC217       | 0 4          | 00404 | 00000 00004 | 11            |
| •     | CC220       | 0 51         | 00405 | 00000 00051 | 12 PSEUDO TAB |
| •     | CC221       | 0 4          | 00406 | 00000 00004 | 13            |
| •     | CC222       | 0 4          | 00407 | 00000 00004 | 14            |
| •     | CC223       | 0 4          | 00410 | 00000 00004 | 15            |
| •     | CC224       | 0 54         | 00411 | 00000 00054 | 16            |
| •     | CC225       | 0 24         | 00412 | 00000 00024 | 17            |
| •     | CC226       | 0 01         | 00413 | 00000 00001 | 18            |
| •     | CC227       | 0 34         | 00414 | 00000 00034 | 19            |
| •     | CC230       | 0 17         | 00415 | 00000 00017 | 20            |
| •     | CC231       | 0 31         | 00416 | 00000 00031 | 21            |
| •     | CC232       | 0 27         | 00417 | 00000 00027 | 22            |
| •     | CC233       | 0 25         | 00420 | 00000 00025 | 23            |
| •     | CC234       | 0 21         | 00421 | 00000 00021 | 24            |
| •     | CC235       | 0 4          | 00422 | 00000 00004 | 25            |
| •     | CC236       | 0 44         | 00423 | 00000 00044 | 26            |
| •     | CC237       | 0 46         | 00424 | 00000 00046 | 27 COMRA      |
| •     | CC240       | 0 4          | 00425 | 00000 00004 | 28            |
| •     | CC241       | 0 4          | 00426 | 00000 00004 | 29            |
| •     | CC242       | 0 4          | 00427 | 00000 00004 | 30            |
| •     | CC243       | 0 4          | 00430 | 00000 00004 | 31            |
| •     | CC244       | 0 32         | 00431 | 00000 00032 | 32            |
| •     | CC245       | 0 36         | 00432 | 00000 00036 | 33            |
| •     | CC246       | 0 11         | 00433 | 00000 00011 | 34            |
| •     | CC247       | 0 7          | 00434 | 00000 00007 | 35            |
| •     | CC250       | 0 6          | 00435 | 00000 00006 | 36            |
| •     | CC251       | 0 3          | 00436 | 00000 00003 | 37            |

| CARDS | LI    | IC | LABEL    | TA                | STATEMENT | LOC   | F     | J     | K | Y | NOTES |
|-------|-------|----|----------|-------------------|-----------|-------|-------|-------|---|---|-------|
| .     | CC252 |    |          | 0                 | 15        | 00437 | 00000 | 00015 |   |   | P 38  |
| .     | CC253 |    |          | 0                 | 35        | 00440 | 00000 | 00035 |   |   | Q 39  |
| .     | CC254 |    |          | 0                 | 12        | 00441 | 00000 | 00012 |   |   | R 40  |
| .     | CC255 |    |          | 0                 | 4         | 00442 | 00000 | 00004 |   |   | 42    |
| .     | CC256 |    |          | 0                 | 4         | 00443 | 00000 | 00004 |   |   | 43    |
| .     | CC257 |    |          | 0                 | 4         | 00444 | 00000 | 00004 |   |   | 44    |
| .     | CC260 |    |          | 0                 | 4         | 00445 | 00000 | 00004 |   |   | 45    |
| .     | CC261 |    |          | 0                 | 4         | 00446 | 00000 | 00004 |   |   | 46    |
| .     | CC262 |    |          | 0                 | 4         | 00447 | 00000 | 00004 |   |   | 47    |
| .     | CC263 |    |          | 0                 | 4         | 00450 | 00000 | 00004 |   |   | 48    |
| .     | CC264 |    |          | 0                 | 30        | 00451 | 00000 | 00030 |   |   | A 49  |
| .     | CC265 |    |          | 0                 | 23        | 00452 | 00000 | 00023 |   |   | B 50  |
| .     | CC266 |    |          | 0                 | 16        | 00453 | 00000 | 00016 |   |   | C 51  |
| .     | CC267 |    |          | 0                 | 22        | 00454 | 00000 | 00022 |   |   | O 52  |
| .     | CC270 |    |          | 0                 | 20        | 00455 | 00000 | 00020 |   |   | E 53  |
| .     | CC271 |    |          | 0                 | 25        | 00456 | 00000 | 00026 |   |   | F 54  |
| .     | CC272 |    |          | 0                 | 13        | 00457 | 00000 | 00013 |   |   | G 55  |
| .     | CC273 |    |          | 0                 | 5         | 00460 | 00000 | 00005 |   |   | H 56  |
| .     | CC274 |    |          | 0                 | 14        | 00461 | 00000 | 00014 |   |   | I 57  |
| .     | CC275 |    |          | 0                 | 4         | 00462 | 00000 | 00004 |   |   | 58    |
| .     | CC276 |    |          | 0                 | 44        | 00463 | 00000 | 00044 |   |   | 59    |
| .     | CC277 |    |          | 0                 | 42        | 00464 | 00000 | 00042 |   |   | J 60  |
| .     | CC300 |    |          | 0                 | 4         | 00465 | 00000 | 00004 |   |   | 61    |
| .     | CC301 |    |          | 0                 | 4         | 00466 | 00000 | 00004 |   |   | 62    |
| .     | CC302 |    |          | 0                 | 4         | 00467 | 00000 | 00004 |   |   | 63    |
| .     | CC303 |    | PRINT    | ENTRY             |           | 00470 | 61000 | 00000 |   |   |       |
| .     | CC304 |    |          | RPL Y+1*L(PRINT)  |           | 00471 | 36010 | 00470 |   |   |       |
| .     | CC305 |    |          | JP L(PRINT)*STOP  |           | 00472 | 61410 | 00470 |   |   |       |
| .     | CC306 |    | INTAPE   | 52200 00010       |           | 00473 | 52200 | 00010 |   |   |       |
| .     | CC307 |    | TAPE     | MEANS C15         |           |       |       |       |   |   |       |
| .     | CC310 |    | STOREXRS | ENTRY             |           | 00474 | 61000 | 00000 |   |   |       |
| .     | CC311 |    |          | STR P2*(UR2L03)   |           | 00475 | 16220 | 00512 |   |   |       |
| .     | CC312 |    |          | STR R3*(UR2L03)   |           | 00476 | 16310 | 00512 |   |   |       |
| .     | CC313 |    |          | STR R4*(UR4L05)   |           | 00477 | 16420 | 00513 |   |   |       |
| .     | CC314 |    |          | STR R5*(UR4L05)   |           | 00500 | 16510 | 00513 |   |   |       |
| .     | CC315 |    |          | STR R6*(UR6)      |           | 00501 | 16620 | 00514 |   |   |       |
| .     | CC316 |    |          | RTLJP LISTOREXRS) |           | 00502 | 60110 | 00474 |   |   |       |
| .     | CC317 |    | ENTERXRS | ENTRY             |           | 00503 | 61000 | 00000 |   |   |       |

MAGNETIC TAPES  
STORE INDEX REGISTERS R2-R6

RESTORE INDEX REGISTERS B2-B6

| CARDS | LI    | ID | LAPEL      | TA STATEMENT                      | LOC   | F     | JK0   | Y | NOTES                          |
|-------|-------|----|------------|-----------------------------------|-------|-------|-------|---|--------------------------------|
| •     | CC320 |    |            | ENT 02*U(UR2LR3)                  | 00504 | 12220 | 00512 |   |                                |
| •     | CC321 |    |            | ENT 03*U(UR2LR3)                  | 00505 | 12310 | 00512 |   |                                |
| •     | CC322 |    |            | ENT 04*U(UR4LR5)                  | 00506 | 12420 | 00513 |   |                                |
| •     | CC323 |    |            | ENT 05*U(UR4LR5)                  | 00507 | 12510 | 00513 |   |                                |
| •     | CC324 |    |            | ENT 06*U(UR61)                    | 00510 | 12620 | 00514 |   |                                |
| •     | CC325 |    |            | EXIT                              | 00511 | 61010 | 00503 |   |                                |
| •     | CC326 |    | UP2LR3     | 0 0                               | 00512 | 00000 | 00000 |   |                                |
| •     | CC327 |    | UR4LR5     | 0 0                               | 00513 | 00000 | 00000 |   |                                |
| •     | CC330 |    | UP6        | 0 C                               | 00514 | 00000 | 00000 |   |                                |
| •     | CC331 |    | READTAPE   | ENTRY                             | 00515 | 61000 | 00000 |   | READ SPURT 210 TAPE            |
| •     | CC332 |    |            | RJP STOREXRS                      | 00516 | 65000 | 00474 |   |                                |
| •     | CC333 |    |            | PUT L(READTAPE)*L(INBUFFER)       | 00517 | 10010 | 00515 |   |                                |
| •     | CC334 |    |            | RPL Y+1*L(READTAPE)               | 00520 | 14010 | 00523 |   |                                |
| •     | CC335 |    |            | CL R2*                            | 00521 | 36010 | 00515 |   | INOFX RETURN POINT             |
| •     | CC336 |    | INBUFFER   | IN TAPE*W(0)                      | 00522 | 12200 | 00000 |   |                                |
| •     | CC337 |    |            | PUT W(JPC15EXT)*W(35)             | 00523 | 73670 | 00000 |   | ESTABLISH INPUT BUFFER         |
| •     | CC340 |    |            | EX-ECT TAPE*W(1NTAPE)             | 00524 | 10030 | 00623 |   |                                |
| •     | CC341 |    | WAITI      | JP WAITI                          | 00525 | 14030 | 00035 |   |                                |
| •     | CC342 |    | C15EXTINT  | STR TAPE*W(STATUS)                | 00526 | 13670 | 00473 |   | BINARY-HO TAPE ON UNIT 2 OR 3  |
| •     | CC343 |    |            | ENT A*U(STATUS)                   | 00527 | 61000 | 00527 |   | WAIT FOR INTERRUPT             |
| •     | CC344 |    |            | RSH A*110                         | 00530 | 17670 | 00735 |   | STATUS WORD                    |
| •     | CC345 |    |            | AND A*STATUSCODE                  | 00531 | 11020 | 00735 |   |                                |
| •     | CC346 |    |            | STR A*L(1NTEJUMP)                 | 00532 | 02000 | 00013 |   |                                |
| •     | CC347 |    |            | RIL                               | 00533 | 20000 | 00562 |   |                                |
| •     | CC350 |    | INTERJUMP  | JP L(0)                           | 00534 | 15010 | 00536 |   | GO TO APPROPRIATE STATUS ROUTI |
| •     | CC351 |    | BACK       | RJP ENTERXRS                      | 00535 | 60000 | 00000 |   | NE                             |
| •     | CC352 |    |            | EXIT                              | 00537 | 65000 | 00503 |   |                                |
| •     | CC353 |    | INTERLOCK  | PUT W(UNITNOINT)*W(LOCKP)         | 00540 | 61010 | 00515 |   | INTERLOCK ROUTINE              |
| •     | CC354 |    |            | RJP PRINT                         | 00541 | 10030 | 00561 |   |                                |
| •     | CC355 |    |            | 110 INTERLOCKP                    | 00542 | 14030 | 00554 |   |                                |
| •     | CC356 |    |            | JP INBUFFER*STOP                  | 00543 | 65000 | 00470 |   | PRINT INTERLOCK MESSAGE        |
| •     | CC357 |    | INTERLOCKP | FD 4*THRE IS AN INTERLOCK ON UNIT | 00544 | 00013 | 00546 |   |                                |
|       |       |    |            |                                   | 00545 | 61400 | 00523 |   |                                |
|       |       |    |            |                                   | 00546 | 31151 | 22712 |   |                                |
|       |       |    |            |                                   | 00547 | 05163 | 00506 |   |                                |
|       |       |    |            |                                   | 00550 | 23051 | 62331 |   |                                |
|       |       |    |            |                                   | 00551 | 12272 | 12410 |   |                                |
|       |       |    |            |                                   | 00552 | 20052 | 42305 |   |                                |
|       |       |    |            |                                   | 00553 | 32231 | 63105 |   |                                |
|       |       |    |            |                                   | 00554 | 10750 | 50510 |   |                                |
|       |       |    |            |                                   | 00555 | 24272 | 71210 |   |                                |
|       |       |    |            |                                   | 00556 | 31050 | 62311 |   |                                |
|       |       |    |            |                                   | 00557 | 05303 | 10627 |   |                                |
|       |       |    |            |                                   | 00560 | 31750 | 50505 |   |                                |
|       |       |    |            |                                   | 00561 | 10750 | 50505 |   |                                |
|       |       |    |            |                                   | 00562 | 00000 | 00710 |   | NOT USED                       |
|       |       |    |            |                                   | 00563 | 00004 | 00710 |   | NOT USED                       |
|       |       |    |            |                                   | 00564 | 00010 | 00710 |   | NOT USED                       |
|       |       |    |            |                                   | 00565 | 00014 | 00710 |   | NOT USED                       |
|       |       |    |            |                                   | 00566 | 00020 | 00710 |   | CHARACTER SYNC SEQUENCE ERROR  |

..... PUNCHALLOCC ..... SPIRT OUTPUT NO. 210  
 HAFORD•11/24/64

| CARDS | LI    | LD | LABEL     | TA | STATEMENT                           | LOC   | F     | JKB   | Y | NOTES                           |
|-------|-------|----|-----------|----|-------------------------------------|-------|-------|-------|---|---------------------------------|
| •     | CC367 |    |           | 24 | INBUFFER                            | 00567 | 00024 | 00523 |   | REWINDING                       |
| •     | CC370 |    |           | 30 | MACHERR                             | 00570 | 00030 | 00710 |   | CHAR SYNC CHAR COUNT ERROR      |
| •     | CC371 |    |           | 34 | MACHERR                             | 00571 | 00034 | 00710 |   | FUNCTION WORD ERROR             |
| •     | CC372 |    |           | 40 | PACK                                | 00572 | 00040 | 00537 |   | NORMAL COMPLETION               |
| •     | CC373 |    |           | 44 | PARITY                              | 00573 | 00044 | 00624 |   | PARITY ERROR                    |
| •     | CC374 |    |           | 50 | MACHERR                             | 00574 | 00050 | 00710 |   | CONTROL UNIT SEQUENCE ERROR     |
| •     | CC375 |    |           | 54 | WRITEDEF                            | 00575 | 00054 | 00705 |   | END OF FILE                     |
| •     | CC376 |    |           | 60 | INPUTAPEND                          | 00576 | 00060 | 00736 |   | END OF TAPE                     |
| •     | CC377 |    |           | 64 | MACHERR                             | 00577 | 00064 | 00710 |   | NOT USED                        |
| •     | CC400 |    |           | 70 | MACHERR                             | 00600 | 00070 | 00710 |   | ABNORMAL FRAME COUNT            |
| •     | CC401 |    |           | 74 | INTERLOCK                           | 00601 | 00074 | 00541 |   | INTERLOCK FAULT                 |
| •     | CC402 |    | MACHFAULT | FD | 100•A MACHINE FAULT HAS OCCURRED ON | 00602 | 00052 | 20610 |   |                                 |
|       |       |    |           |    | MAGNETIC TAPE UNIT                  |       |       |       |   |                                 |
|       |       |    |           |    |                                     | 00603 | 15162 | 31205 |   |                                 |
|       |       |    |           |    |                                     | 00604 | 13063 | 22131 |   |                                 |
|       |       |    |           |    |                                     | 00605 | 05150 | 63005 |   |                                 |
|       |       |    |           |    |                                     | 00606 | 24101 | 03227 |   |                                 |
|       |       |    |           |    |                                     | 00607 | 27121 | 10524 |   |                                 |
|       |       |    |           |    |                                     | 00610 | 23052 | 20614 |   |                                 |
|       |       |    |           |    |                                     | 00611 | 23123 | 11610 |   |                                 |
|       |       |    |           |    |                                     | 00612 | 05310 | 62512 |   |                                 |
|       |       |    |           |    |                                     | 00613 | 05322 | 31631 |   |                                 |
|       |       |    |           |    |                                     | 00614 | 10057 | 50505 |   |                                 |
|       |       |    |           |    |                                     | 00615 | 31151 | 20530 |   |                                 |
|       |       |    |           |    |                                     | 00616 | 31063 | 13230 |   |                                 |
|       |       |    |           |    |                                     | 00617 | 05102 | 41112 |   |                                 |
|       |       |    |           |    |                                     | 00620 | 05163 | 00505 |   |                                 |
|       |       |    |           |    |                                     | 00621 | 05050 | 50505 |   |                                 |
|       |       |    |           |    |                                     | 00622 | 05050 | 50505 |   |                                 |
|       |       |    |           |    |                                     | 00623 | 60100 | 00530 |   |                                 |
|       |       |    |           |    |                                     | 00624 | 71200 | 00011 |   | PARITY ROUTINE HAVE WE READ 10  |
|       |       |    |           |    |                                     |       |       |       |   | .....                           |
|       |       |    |           |    |                                     |       |       |       |   | NO. READ RECORD AGAIN           |
|       |       |    |           |    |                                     | 00625 | 61000 | 00636 |   |                                 |
|       |       |    |           |    |                                     | 00626 | 10020 | 00561 |   |                                 |
|       |       |    |           |    |                                     | 00627 | 14020 | 00656 |   |                                 |
|       |       |    |           |    |                                     | 00630 | 65000 | 00470 |   | PRINT PARITY MESSAGE            |
|       |       |    |           |    |                                     | 00631 | 00013 | 00644 |   |                                 |
|       |       |    |           |    |                                     | 00632 | 71600 | 00062 |   |                                 |
|       |       |    |           |    |                                     | 00633 | 71600 | 00063 |   |                                 |
|       |       |    |           |    |                                     | 00634 | 61010 | 00515 |   | NORMAL EXIT                     |
|       |       |    |           |    |                                     | 00635 | 20300 | 00004 |   |                                 |
|       |       |    |           |    |                                     | 00636 | 10010 | 00473 |   |                                 |
|       |       |    |           |    |                                     | 00637 | 14010 | 00635 |   |                                 |
|       |       |    |           |    |                                     | 00640 | 13670 | 00635 |   | BACKSPACE REC WITHOUT INTERRUPT |
|       |       |    |           |    |                                     |       |       |       |   | T                               |
|       |       |    |           |    |                                     | 00641 | 70000 | 77777 |   |                                 |
|       |       |    |           |    |                                     | 00642 | 12000 | 00000 |   |                                 |
|       |       |    |           |    |                                     | 00643 | 61000 | 00523 |   | READ RECORD AGAIN               |
|       |       |    |           |    |                                     | 00644 | 04052 | 50627 |   |                                 |
|       |       |    |           |    |                                     | 00645 | 14313 | 60524 |   |                                 |
|       |       |    |           |    |                                     | 00646 | 10103 | 22727 |   |                                 |
|       |       |    |           |    |                                     | 00647 | 12110 | 56124 |   |                                 |

..... PUNCHALLOCCARDSPURT OUTPUT NO. 210  
HAFFORD 11/24/64.....

| CARDS | LI | IC LABEL | TA STATEMENT | LOC   | F     | J     | K | F | Y | NOTES                     |
|-------|----|----------|--------------|-------|-------|-------|---|---|---|---------------------------|
|       |    |          |              | 00650 | 05311 | 62212 |   |   |   |                           |
|       |    |          |              | 00651 | 30052 | 42305 |   |   |   |                           |
|       |    |          |              | 00652 | 22061 | 42312 |   |   |   |                           |
|       |    |          |              | 00653 | 31161 | 00531 |   |   |   |                           |
|       |    |          |              | 00654 | 06251 | 20532 |   |   |   |                           |
|       |    |          |              | 00655 | 23163 | 10505 |   |   |   |                           |
|       |    |          |              | 00656 | 10750 | 50505 |   |   |   |                           |
|       |    |          |              | 00657 | 00000 | 00000 |   |   |   | BCO PARITY MESSAGE        |
|       |    |          |              | 00672 | 06052 | 50627 |   |   |   |                           |
|       |    |          |              | 00673 | 16313 | 60524 |   |   |   |                           |
|       |    |          |              | 00674 | 10103 | 22727 |   |   |   |                           |
|       |    |          |              | 00675 | 12110 | 52423 |   |   |   |                           |
|       |    |          |              | 00676 | 05162 | 32532 |   |   |   |                           |
|       |    |          |              | 00677 | 31053 | 10625 |   |   |   |                           |
|       |    |          |              | 00700 | 12051 | 62305 |   |   |   |                           |
|       |    |          |              | 00701 | 13242 | 12124 |   |   |   |                           |
|       |    |          |              | 00702 | 34162 | 31405 |   |   |   |                           |
|       |    |          |              | 00703 | 21160 | 50505 |   |   |   |                           |
|       |    |          |              | 00704 | 23127 | 50505 |   |   |   |                           |
|       |    |          |              | 00705 | 65000 | 00503 |   |   |   |                           |
|       |    |          |              | 00706 | 61900 | 00103 |   |   |   |                           |
|       |    |          |              | 00707 | 05107 | 50505 |   |   |   |                           |
|       |    |          |              | 00710 | 10020 | 00707 |   |   |   |                           |
|       |    |          |              | 00711 | 14020 | 00614 |   |   |   |                           |
|       |    |          |              | 00712 | 65000 | 00470 |   |   |   |                           |
|       |    |          |              | 00713 | 00012 | 00602 |   |   |   |                           |
|       |    |          |              | 00714 | 65000 | 00503 |   |   |   |                           |
|       |    |          |              | 00715 | 61410 | 00515 |   |   |   |                           |
|       |    |          |              | 00716 | 61000 | 00000 |   |   |   |                           |
|       |    |          |              | 00717 | 11000 | 00000 |   |   |   |                           |
|       |    |          |              | 00720 | 07000 | 00003 |   |   |   |                           |
|       |    |          |              | 00721 | 06000 | 00003 |   |   |   |                           |
|       |    |          |              | 00722 | 07000 | 00003 |   |   |   |                           |
|       |    |          |              | 00723 | 06000 | 00003 |   |   |   |                           |
|       |    |          |              | 00724 | 07000 | 00003 |   |   |   |                           |
|       |    |          |              | 00725 | 06000 | 00003 |   |   |   |                           |
|       |    |          |              | 00726 | 07000 | 00003 |   |   |   |                           |
|       |    |          |              | 00727 | 06000 | 00003 |   |   |   |                           |
|       |    |          |              | 00730 | 07000 | 00003 |   |   |   |                           |
|       |    |          |              | 00731 | 12000 | 00000 |   |   |   |                           |
|       |    |          |              | 00732 | 20030 | 00734 |   |   |   |                           |
|       |    |          |              | 00733 | 61010 | 00716 |   |   |   |                           |
|       |    |          |              | 00734 | 50606 | 06060 |   |   |   |                           |
|       |    |          |              | 00735 | 00000 | 00000 |   |   |   |                           |
|       |    |          |              | 00736 | 10030 | 00762 |   |   |   |                           |
|       |    |          |              | 00737 | 14030 | 00754 |   |   |   |                           |
|       |    |          |              | 00740 | 65000 | 00470 |   |   |   |                           |
|       |    |          |              | 00741 | 00015 | 00745 |   |   |   |                           |
|       |    |          |              | 00742 | 65000 | 00503 |   |   |   |                           |
|       |    |          |              | 00743 | 61400 | 00000 |   |   |   |                           |
|       |    |          |              | 00744 | 61410 | 00716 |   |   |   |                           |
|       |    |          |              | 00745 | 06230 | 51223 |   |   |   |                           |
|       |    |          |              |       |       |       |   |   |   | PRINT END-OF-TAPE MESSAGE |

| CARDS | LI | ID LABEL | TA STATEMENT | SPURT OUTPUT NO. 210<br>HAFFORD 11/24/64 | LOC   | F | JKB   | Y     | NOTES |
|-------|----|----------|--------------|------------------------------------------|-------|---|-------|-------|-------|
|       |    |          | IT           |                                          | 00746 |   | 11052 | 41305 |       |
|       |    |          |              |                                          | 00747 |   | 31062 | 51205 |       |
|       |    |          |              |                                          | 00750 |   | 15063 | 00524 |       |
|       |    |          |              |                                          | 00751 |   | 10103 | 22727 |       |
|       |    |          |              |                                          | 00752 |   | 12110 | 52423 |       |
|       |    |          |              |                                          | 00753 |   | 05322 | 31631 |       |
|       |    |          |              |                                          | 00754 |   | 05057 | 50515 |       |
|       |    |          |              |                                          | 00755 |   | 06231 | 40523 |       |
|       |    |          |              |                                          | 00756 |   | 12340 | 53106 |       |
|       |    |          |              |                                          | 00757 |   | 25120 | 50623 |       |
|       |    |          |              |                                          | 00760 |   | 11053 | 03106 |       |
|       |    |          |              |                                          | 00761 |   | 27317 | 50505 |       |
|       |    |          |              |                                          | 00762 |   | 05107 | 50505 |       |
|       |    |          |              |                                          | 00763 |   | 00000 | 00000 |       |
|       |    |          |              |                                          | 00764 |   | 00000 | 00020 |       |
|       |    |          |              |                                          | 00765 |   | 00000 | 00200 |       |

END OF LISTING

SPURT OUTPUT NO. 211

| PUNCHALLOCC |       | HAFFORD•11/24/64 |       | .....       |       |
|-------------|-------|------------------|-------|-------------|-------|
| LABEL       | LOC   | LABEL            | LOC   | LABEL       | LOC   |
| AS\$S\$1111 | 00764 | AS\$S\$1112      | 00765 | ACQAZIM     | 63071 |
| ACQLEV      | 63075 | ACQUI            | 63427 | ACTUALTIME  | 63142 |
| AOSCN       | 63416 | AESCN            | 63417 | ALLOCC      | 00366 |
| ALNGOFFSET  | 63517 | ARCOFAZIM        | 63524 | ARCOFDEC    | 63526 |
| ARCOFFLEV   | 63522 | ARCOFRA          | 63530 | ASTRODEC    | 63106 |
| ASTORRA     | 63105 | ATTDN            | 00367 | AUPEREQUAT  | 63341 |
| AZELOTIME   | 63532 | A7ELRXSCAN       | 63500 | AZIN        | 63053 |
| AZIMOFFSET  | 63512 | A7IMOUT          | 64000 | AZIMOVER    | 63325 |
| AZIMARD     | 63442 | A7IMIN           | 75000 | AZMTHSCAN   | 63501 |
| BODYSIZE    | 63462 | BACK             | 00537 | 8COT0FLFX0  | 00124 |
| BCDTAH      | 00364 | REGIN            | 00000 | BLANK       | 00161 |
| BLASTOFF    | 63146 | BUFOUT           | 00356 | BUFI        | 00162 |
| RUF2        | 00314 | RUF5W            | 00357 | COCON       | 63414 |
| CONVERTIME  | 63135 | CORCT            | 63420 | COSORIENT   | 63065 |
| COSAZEL     | 63070 | C1EXTINT         | 00530 | CAZIM       | 63060 |
| CELRODY     | 63113 | CFLCOMP5M        | 63424 | CELEV       | 63061 |
| CELTIME     | 63133 | CHCOR            | 63422 | CHPAR       | 63431 |
| CR          | 00361 | CRANGF           | 63057 | CRSSOFFSET  | 63516 |
| DOPPOUT     | 66000 | ONPPA00          | 63444 | DATANALYZE  | 63425 |
| DAY         | 63150 | DFC              | 63003 | DECOFFSET   | 63515 |
| DECDOT      | 63010 | DECLINSCAN       | 63505 | DELTATEE    | 63316 |
| DSFCONDS    | 63141 | DUMWY            | 00732 | FLEV        | 63154 |
| DYDMP       | 63421 | EOF              | 00103 | OUMSECTTG   | 63054 |
| ELEVOFFSET  | 63513 | ELFVOUT          | 65000 | ELEVADO     | 63443 |
| ELEVIN      | 76000 | ELVTNSCAN        | 63502 | ENDOTAPM    | 00745 |
| EVNTAPEM    | 00754 | ENDTAPEU         | 00762 | ENTERXRS    | 00503 |
| EQUATOR     | 63323 | ESTSHIFTED       | 63143 | EXCESS60    | 00734 |
| EXPNAME     | 63350 | FDSTATCODE       | 00421 | FOTAPEPAR   | 00672 |
| FINISHCH    | 00123 | FIRSTELEV        | 63104 | FIRSTTHRU   | 63153 |
| FLATTENING  | 63337 | FRAMESIZE        | 63101 | FREQUENCY   | 63317 |
| GEOCENLAT   | 63322 | GEODETLAT        | 63321 | GMTMOD024   | 63145 |
| GMTSHIFTED  | 63144 | HOLDNDHOLD       | 63511 | HOURLMINUTE | 63137 |
| HOURREG     | 63151 | HFLGHT           | 63326 | ID10RADID   | 66777 |
| ID11RADID   | 67776 | ID12RADID        | 67777 | ID13RADID   | 70775 |
| ID14RADID   | 70776 | ID15RADID        | 71776 | ID16RADID   | 71777 |
| ID17RADID   | 72776 | ID18RADID        | 72777 | ID19RADID   | 73776 |
| ID1ECLCOR   | 63000 | ID1FNTPNT        | 63410 | ID1RADCOR   | 63050 |
| ID1RADID    | 63440 | ID1RECRD         | 63210 | ID1SYSENT   | 77576 |
| ID1SYSNAM   | 77676 | ID1SYSPAR        | 63310 | ID1TIME     | 63130 |
| ID20RADID   | 73777 | ID21RADID        | 74776 | ID22RADID   | 74777 |
| ID23RADID   | 75776 | ID24RADID        | 75777 | ID25RADID   | 76775 |
| ID26RADID   | 76776 | ID2ECLCOR        | 63001 | ID2ENTPNT   | 63411 |
| ID2RADCOR   | 63051 | ID2RADID         | 63441 | ID2RECRD    | 63211 |
| ID2SYSENT   | 77577 | ID2SYSNAM        | 77677 | ID2SYSPAR   | 63311 |
| ID2TIME     | 63131 | ID3RADID         | 63776 | ID4RADID    | 63777 |
| ID5RADID    | 64776 | ID6RADID         | 64777 | ID7RADID    | 65776 |
| ID8RADID    | 65777 | ID9RADID         | 66776 | INAZIMAOO   | 63446 |
| INPUF       | 00336 | INBUFER          | 00523 | INELVA00    | 63447 |
| INPUTAPEND  | 00736 | INTAPE           | 00473 | INTER       | 63413 |
| INTERAZIM   | 72000 | INTERCOM         | 63426 | INTERDOPP   | 74000 |
| INTERFLEV   | 73000 | INTERJUMP        | 00536 | INTERLOCK   | 00541 |

SPURT OUTPUT NO. 211

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HAFF00\*11/24/64

PUNCHALLCC

| LABEL      | LOC   | LABEL      | LOC   | LABEL      | LOC   |
|------------|-------|------------|-------|------------|-------|
| INTERLOCKP | 00546 | INTERLCKSW | 63460 | INTERRANGE | 76777 |
| JPC15EXT   | 00623 | KOCTTOD    | 00716 | KMPERNM    | 63342 |
| KYRDLEVEL  | 63110 | LOCKP      | 00554 | LONGITUOE  | 63320 |
| L13C       | 00125 | L130       | 00127 | L140       | 00041 |
| L14Q       | 00073 | L77A       | 00002 | L77B       | 00115 |
| LC         | 00363 | LEADER     | 00144 | LEADEROUT  | 00143 |
| LEFTBLANK  | 00160 | LSPERAU    | 63336 | MACHERR    | 00710 |
| MACHERROR  | 00712 | MACHFAULT  | 00602 | MAINSWITCH | 63334 |
| MCPEILLER  | 71000 | MCPGM      | 63412 | MILLSTNADD | 63451 |
| MINREG     | 63152 | MSERFQ     | 63332 | MSK1       | 00156 |
| MSK2       | 00157 | NOTHCARD   | 00054 | NMPERAU    | 63340 |
| POLE       | 63324 | PARITY     | 00624 | PARITYMSG  | 00644 |
| PERIOD     | 00365 | PERIODAZIM | 63523 | PERIODDEC  | 63525 |
| PERIODELEV | 63521 | PERIODRA   | 63527 | PLOIP      | 63436 |
| PLANP      | 63434 | PMSG       | 00656 | PREVIOUSM  | 63461 |
| PRINT      | 00470 | PRLOG      | 63423 | ROTATEAEBX | 63507 |
| ROTATERAON | 63506 | ROTATEROEX | 63510 | RA         | 63002 |
| RAOFFSET   | 63514 | RADOT      | 63007 | RAARMODE   | 63312 |
| RADCBXSCAN | 63503 | RADECOTIME | 63531 | RADIODEC   | 63541 |
| RADIOMETER | 63102 | RADIORA    | 63540 | RADIUS     | 63006 |
| RADIUSDOT  | 63011 | RANGE      | 63052 | RANGEOUT   | 70777 |
| RANGEADO   | 63445 | RANGEDOT   | 63062 | RASCTNSCAN | 63504 |
| ROMTR      | 63430 | RDXXX      | 63433 | READTAPF   | 00515 |
| RECORDSIZE | 63112 | RECAZIM    | 67000 | RECELEV    | 70000 |
| RECFILE    | 63212 | RECRD      | 63415 | RECRDSWICH | 63155 |
| RELEASESW  | 63156 | RETRY      | 00635 | SAZIM      | 63055 |
| SCELTIME   | 63134 | SDEC       | 63005 | SECONDS    | 63140 |
| SELEV      | 63056 | SIDERTIME  | 63012 | SINORIENT  | 63064 |
| SINAZEL    | 63066 | SKIP       | 63331 | SRA        | 63004 |
| SRADTIME   | 63136 | STOREXRS   | 00474 | STATUS     | 00735 |
| STATUSCODE | 00562 | SYNCTIMING | 63542 | SYSOMREG1  | 63452 |
| SYSOMREG2  | 63453 | SYSOMREG3  | 63454 | SYSOMREG4  | 63455 |
| SYSOMREG5  | 63456 | SYSOMREG6  | 63457 | SYSENTRIES | 77600 |
| SYSNAMES   | 77700 | SYSTAT1    | 63313 | SYSTAT2    | 63314 |
| SYSTATD    | 63315 | TAB        | 00360 | TABLERCD   | 00370 |
| TAPEPARMSG | 00657 | TIMECORR   | 63107 | TIMECODE   | 63103 |
| TIMEP      | 63435 | TIMEHOLD   | 63520 | TRUERANGE  | 63063 |
| TRUETIME   | 63132 | TRYAGAIN   | 00636 | TTYSTATUS  | 63111 |
| TWOSECDOP  | 63017 | UR2LR3     | 00512 | UB4LR5     | 00513 |
| UP6        | 00514 | UC         | 00362 | UNIT210    | 00707 |
| UNITNO     | 00614 | UNITNOINT  | 00561 | VELOFLIGHT | 63335 |
| VIZOEC1    | 63014 | VIZDEC2    | 63016 | VIZRA1     | 63013 |
| VIZRA2     | 63015 | WAIT1      | 00527 | WFORO      | 63432 |
| WFA00      | 63450 | WEEREQ     | 63333 | WRITEEOF   | 00705 |
| YEARMONTH  | 63147 | YRTRAN     | 63327 | ZRTRAN     | 63330 |

END OF LISTING

| LABEL       | LOC   | LABEL        | LOC   | LABEL       | LOC   |
|-------------|-------|--------------|-------|-------------|-------|
| REGIN       | 00000 | L77A         | 00002 | L140        | 0004  |
| NOTHEPCARD  | 00054 | L14Q         | 00073 | EOF         | 00103 |
| L77B        | 00115 | FINISHPCH    |       | RCOTOFLEXO  | 00124 |
| L13C        | 00125 |              |       | LEADEROUT   | 00143 |
| LEADER      | 00144 | MSK1         | 00156 | MSK2        | 00157 |
| LEFTBLANK   | 00160 | BLANK        | 00161 | ROF1        | 00162 |
| BUF2        | 00314 | INPROF       | 00336 | ROFOOT      | 00356 |
| BOFSW       | 00357 | TAB          | 00360 | CP          | 00361 |
| UC          | 00362 | LC           | 00363 | BCDTAB      | 00364 |
| PERIOD      | 00365 | ALLOC        | 00366 | ATION       | 00367 |
| TARLEBCD    | 00370 | PRINT        | 00470 | INTAPE      | 00473 |
| STOPEXRS    | 00474 | ENTEXPXRS    | 00503 | 082LB3      | 00512 |
| 084LR5      | 00513 | UB6          | 00514 | READTAPE    | 00515 |
| INRUFFER    | 00523 | WAIT1        | 00527 | C15EXTINT   | 00530 |
| INTERJUMP   | 00536 | BACK         | 00537 | INTERLOCK   | 00541 |
| INTERLOCKR  | 00546 | LOCKR        | 00554 | UNITNOINT   | 00561 |
| STATOSCODE  | 00562 | MACHFAULT    | 00602 | UNITNO      | 00614 |
| FDSTATCODE  | 00621 | JPC15EXT     | 00623 | PARITY      | 00624 |
| RETPY       | 00635 | TRYAGAIN     | 00636 | PARITYMSG   | 00644 |
| PM5G        | 00656 | TAPEPAPMSG   | 00657 | FOATAPEPAR  | 00672 |
| WRITEEOF    | 00705 | UNIT210      | 00707 | MACHERR     | 00710 |
| MACHERRCP   | 00712 | KOCTTFOU     | 00716 | 00MY        | 00732 |
| EXCESS60    | 00734 | STATUS       | 00735 | INPUTAPENO  | 00736 |
| ENDOFFAPM   | 00745 | ENDTAPEM     | 00754 | ENDTAPEU    | 00762 |
| AS\$5\$5111 | 00764 | AS\$5\$51112 | 00765 | ID1CELCOP   | 63000 |
| 102CELCOP   | 63001 | RA           | 63002 | DEC         | 63003 |
| SRA         | 63004 | SDFC         | 63005 | RADIUS      | 63006 |
| RAOOT       | 63007 | 0ECOOT       | 63010 | RADIUSOOT   | 63011 |
| SIDERTIME   | 63012 | VIZPA1       | 63013 | VIZOEC1     | 63014 |
| VIZRA2      | 63015 | VIZOEC2      | 63016 | TWOSECDOP   | 63017 |
| 101PAOCOR   | 63050 | 102RADCOR    | 63051 | RANGE       | 63052 |
| SELEV       | 63053 | ELEV         | 63054 | SAZIM       | 63055 |
| CELEV       | 63056 | CRANGE       | 63057 | CAZIM       | 63060 |
| SINORIEN    | 63061 | RANGEDOT     | 63062 | TPUERANGE   | 63063 |
| COSAZEL     | 63070 | COSORIEN     | 63065 | SINAZEL     | 63066 |
| FPAMESIZE   | 63101 | ACQAZIM      | 63071 | ACQCELEV    | 63075 |
| FIRSTELEV   | 63104 | RADIOMETER   | 63102 | TIMEWODE    | 63103 |
| TIMECORR    | 63107 | ASTROPA      | 63105 | ASTRODEC    | 63106 |
| RECORDSIZE  | 63112 | KYHROLEVEL   | 63110 | TTYSTATUS   | 63111 |
| ID2TIME     | 63131 | CELRDY       | 63113 | IDITIME     | 63130 |
| SCELTIME    | 63134 | TRUETIME     | 63132 | CELTIME     | 63133 |
| HOORMINUTE  | 63137 | CONVEPTIME   | 63135 | SPADTIME    | 63136 |
| ACTUALTIME  | 63142 | SECONOS      | 63140 | 0SECONDS    | 63141 |
| GTMODU024   | 63145 | ESTSHIFTEO   | 63143 | GMTSHIFTED  | 63144 |
| DAY         | 63150 | BLASTOFF     | 63146 | YEARMONTH   | 63147 |
| FIRSTPHU    | 63153 | HOUREG       | 63151 | MINREG      | 63152 |
| RELEASESW   | 63156 | 00WSECTTG    | 63154 | RECRDUSWICH | 63155 |
| RECFILE     | 63212 | ID1PECRD     | 63210 | ID2RECRD    | 63211 |
| PADARMODE   | 63312 | 101SYSPAR    | 63310 | 102SYSPAR   | 63311 |
| SYSTATO     | 63315 | SYSTAT1      | 63313 | SYSTAT2     | 63314 |
|             |       | DELTAEE      | 63316 | FPEYENCY    | 63317 |

SPURT OUTPUT NO. 212

HAFFORD\*11/24/64

.....

PUNCHALLOCC

| LABEL      | LOC   | LABEL       | LDC   | LABEL      | LOC   |
|------------|-------|-------------|-------|------------|-------|
| LONGITUDE  | 63320 | GEODETLAT   | 63321 | GEOCENLAT  | 63322 |
| EQUATOR    | 63323 | POLE        | 63324 | AZIMOVER   | 63325 |
| HEIGHT     | 63326 | YRTRAN      | 63327 | ZRTRAN     | 63330 |
| SKIP       | 63331 | MSFREO      | 63332 | WFFREQ     | 63333 |
| MAINSWITCH | 63334 | VELDFLIGHT  | 63335 | LSPERAU    | 63336 |
| FLATTENING | 63337 | NMPERAU     | 63340 | AUPEREQUAT | 63341 |
| KMPERMM    | 63342 | EXPNAME     | 63350 | I01ENTPNT  | 63410 |
| ID2ENTPNT  | 63411 | MCPGMM      | 63412 | INTER      | 63413 |
| COCDN      | 63414 | RECRD       | 63415 | AOSCN      | 63416 |
| AESCN      | 63417 | CORCT       | 63420 | OYOMP      | 63421 |
| CHCOR      | 63422 | PRLOG       | 63423 | CELCOMPGM  | 63424 |
| DATANALYZE | 63425 | INTERCOM    | 63426 | ACQUI      | 63427 |
| RDWTR      | 63430 | CHPAR       | 63431 | WFORO      | 63432 |
| RDXXX      | 63433 | PLANP       | 63434 | TIMEP      | 63435 |
| PLOTP      | 63436 | ID1RAOIO    | 63440 | I02RAOIO   | 63441 |
| AZIMADO    | 63442 | ELEVAO0     | 63443 | DOPPAO0    | 63444 |
| RANGEADD   | 63445 | INAZIMADD   | 63446 | INELEVAO0  | 63447 |
| WFADO      | 63450 | MILLSTNADO  | 63451 | SYSCOMREG1 | 63452 |
| SYSCOMREG2 | 63453 | SYSCOMREG3  | 63454 | SYSCOMREG4 | 63455 |
| SYSCOMREG5 | 63456 | SYSCOMREG6  | 63457 | INTERLCKSH | 63460 |
| PREVIDUSTM | 63461 | BODYSIZE    | 63462 | AZELBXSCAN | 63500 |
| AMTHSCAN   | 63501 | EVLTVSCAN   | 63502 | RAOGBXSCAN | 63503 |
| RASCTNSCAN | 63504 | DECLINSCAN  | 63505 | ROTATERAON | 63506 |
| ROTATEAEBX | 63507 | ROTATEROBX  | 63510 | HOLONOHLO  | 63511 |
| AZIMOFFSET | 63512 | ELEVDOFFSET | 63513 | RAOFFSET   | 63514 |
| DECDOFFSET | 63515 | CRSSOFFSET  | 63516 | ALNGOFFSET | 63517 |
| TIMETHDLO  | 63520 | PERIDOELEV  | 63521 | ARCOFELEV  | 63522 |
| PERIOCAZIM | 63523 | ARCOFAZIM   | 63524 | PERIDOELEV | 63525 |
| ARCOFDEC   | 63526 | PERIDORA    | 63527 | ARCOFRA    | 63530 |
| RACECDTIME | 63531 | AZELOTIME   | 63532 | RADIDRA    | 63540 |
| RADIODEC   | 63541 | SYNCTIMING  | 63542 | I03RAOIO   | 63776 |
| ID4RADID   | 63777 | AZIMOUT     | 64000 | I05RAOIO   | 64776 |
| ID6RADID   | 64777 | ELEVOUT     | 65000 | I07RAOIO   | 65776 |
| ID8RADID   | 65777 | OOPPOUT     | 66000 | I09RAOIO   | 66776 |
| I01DRADID  | 66777 | RECAZIM     | 67000 | I011RAOIO  | 67776 |
| I012RAOIO  | 67777 | RECCELEV    | 70000 | I013RAOIO  | 70775 |
| I014RADID  | 70776 | RANGEOUT    | 70777 | MCPFILLER  | 71000 |
| I015RADID  | 71776 | I016RADID   | 71777 | INTERAZIM  | 72000 |
| I017RADID  | 72776 | I018RADID   | 72777 | INTERELFV  | 73000 |
| I019RADID  | 73776 | I020RADID   | 73777 | INTEROOPP  | 74000 |
| I021RADID  | 74776 | I022RADID   | 74777 | AZIMIN     | 75000 |
| I023RADID  | 75776 | I024RADID   | 75777 | ELEVIN     | 76000 |
| I025RADID  | 76775 | I026RADID   | 76776 | INTERANGE  | 76777 |
| ID1SYSENT  | 77576 | ID2SYSENT   | 77577 | SYSENTRIES | 77600 |
| ID1SYSNAM  | 77676 | ID2SYSNAM   | 77677 | SYSNAME5   | 77700 |

END OF LISTING

| CARDS | LI    | ID        | LAPEL   | TA                       | STAICTMENT | LCC   | F     | JKB   | Y | ACTES                          |
|-------|-------|-----------|---------|--------------------------|------------|-------|-------|-------|---|--------------------------------|
| .     | CC000 | SYSLoader | PROGRAM | JDD*4/8/65               |            |       |       |       |   | FCR RPT FOR B/S                |
| .     | CC001 |           | COMMENT | BJP                      |            |       |       |       |   | TYPEWRITER KEYBOARD            |
| .     | CC002 | SYSLoader | EQUALS  | 70000                    |            |       |       |       |   | BRCMEGAN CLCCK                 |
| .     | CC003 | TYPE      | MEANS   | C2                       |            |       |       |       |   | MAGNETIC TAPES                 |
| .     | CC004 | CLCCK     | MEANS   | C7                       |            |       |       |       |   |                                |
| .     | CC005 | TAPE      | MEANS   | C15                      |            |       |       |       |   |                                |
| .     | CC006 | SYSLoader | U-TAG   | SYSLOR*SYSLDR            |            | 7C000 | 70CC2 | 7CC02 |   |                                |
| .     | CC007 |           | FC      | 1*SYSLD                  |            | 7C001 | 30363 | C2111 |   |                                |
| .     | CC010 | SYSLOR    | RJP     | PRINT                    |            | 7C002 | 65CC0 | 7C767 |   |                                |
| .     | CC011 |           | LID     | ASKID                    |            | 7C003 | CC13  | 7C1C7 |   |                                |
| .     | CC012 | PUTNCE    | PUT     | W(137)*W(SKIP)           |            | 7C004 | ICC3C | CC137 |   |                                |
| .     | CC013 | TYPEID    | RJP     | CLFPT                    |            | 7C005 | 14C3C | 63331 |   |                                |
| .     | CC014 |           | RJP     | INCME                    |            | 7C006 | 65CC0 | 7C211 |   |                                |
| .     | CC015 |           | IN      | TYPE*W(BC*REPLY)*MONITOR |            | 7C007 | 65CC0 | 7C225 |   |                                |
| .     | CC016 |           | AC-OP   |                          |            | 7C010 | 7513C | 7C3C4 |   |                                |
| .     | CC017 | LOGINFC   | RJP     | PRINT                    |            | 7C011 | 12CC0 | CCCC  |   |                                |
| .     | CC020 |           | 6       | ELECT                    |            | 7C012 | 65CC0 | 7C767 |   |                                |
| .     | CC021 |           | RJP     | INCME                    |            | 7C013 | CCCC6 | 71642 |   | WHICH PART CF PROGRAM IS WANTE |
| .     | CC022 |           | IN      | TYPE*W(BC*REPLY)*MONITOR |            | 7C014 | 65CC0 | 7C225 |   | C                              |
| .     | CC023 |           | AC-OP   |                          |            | 7C015 | 7513C | 7C3C4 |   | NC CONVERSION TO FO            |
| .     | CC024 |           | ENT     | A*W(NUMBER)              |            | 7C016 | 12CC0 | CCCC  |   | MUST BE 1,2 CR 3               |
| .     | CC025 |           | JP      | LOGINFC*ANEG             |            | 7C017 | 11C3C | 7C31C |   |                                |
| .     | CC026 |           | CCM     | A*5*YMORE                |            | 7C020 | 6C7CC | 7CC12 |   |                                |
| .     | CC027 |           | JP      | LOGINFC                  |            | 7C021 | C47CC | CCCC  |   |                                |
| .     | CC030 |           | ENT     | R1*L(NUMBER)             |            | 7C022 | 61CC0 | 7CC12 |   | 1,LCAD 2=RCCT 3=SEARCH         |
| .     | CC031 | WHICHONE  | JP      | L(WHICHONE*BI)           |            | 7C023 | 1211C | 7C31C |   |                                |
| .     | CC032 |           | C       | LOGINFC                  |            | 7C024 | 61C11 | 7CC25 |   | C IS ERRCP                     |
| .     | CC033 |           | 0       | ASKRASE                  |            | 7C025 | CCCCC | 7CC12 |   | 1 IS LCALER                    |
| .     | CC034 |           | 0       | RCCTSTRAP                |            | 7C026 | CCCCC | 7CC32 |   | 2 IS BCCISTRAPPER              |
| .     | CC035 |           | 0       | CCP                      |            | 7C027 | CCCCC | 717C6 |   | 3 IS MAKE SEARCH FORMAT        |
| .     | CC036 |           | 0       | DPP                      |            | 7C030 | CCCCC | 72C3C |   | 4 IS DATA PR PGMS              |
| .     | CC037 | ASKRASE   | RJP     | PRINT                    |            | 7C031 | CCCCC | 72125 |   | ASK BASE ADDRESS IF NOT 10000  |
| .     | CC040 |           | 4       | WHATBASE                 |            | 7C032 | 65CC0 | 7C767 |   |                                |
| .     | CC041 |           | CL      | W(PMODE)                 |            | 7C033 | CCCC4 | 7C122 |   | LCG BASE ADDRESS IF NOT 10000  |
| .     | CC042 |           | RJP     | INCME                    |            | 7C034 | 16C3C | 7165C |   |                                |
| .     | CC043 |           | IN      | TYPE*W(BC*REPLY)*MONITOR |            | 7C035 | 65CC0 | 7C225 |   |                                |
| .     | CC044 |           | AC-OP   |                          |            | 7C036 | 7513C | 7C3C4 |   |                                |
| .     | CC045 |           | ENT     | A*W(NUMBER)              |            | 7C037 | 12CC0 | CCCC  |   | BASE ACRS 10000 IF NC REPLY    |
| .     | CC046 |           | JP      | USE10000*AZERO           |            | 7C040 | 11C3C | 7C31C |   | BASE ADDRESS CF SYSTEM LOADING |
| .     | CC047 |           | PUT     | W(NUMBER)*W(STOREBASE)   |            | 7C041 | 6C4CC | 7CC47 |   |                                |
| .     |       |           |         |                          |            | 7C042 | 1CC3C | 7C31C |   |                                |
| .     | CC050 |           | PUT     | W(NUMBER)*W(BASEADRS)    |            | 7C043 | 14C3C | 7C127 |   |                                |
| .     |       |           |         |                          |            | 7C044 | 1CC3C | 7C31C |   | BASE ADDRESS CF PROGRAM BEING  |
| .     |       |           |         |                          |            |       |       | LCAD  |   |                                |
| .     | CC051 |           | JP      | CKKEY1                   |            | 7C045 | 14C3C | 7C4C4 |   |                                |
| .     | CC052 | USE10000  | PUT     | 6CC0*L(STOREBASE)        |            | 7C046 | 61CC0 | 7CC52 |   |                                |
| .     |       |           |         |                          |            | 7C047 | 1CC0C | C6CC0 |   |                                |
| .     | CC053 |           | STR     | C*W(BASEADRS)            |            | 7C050 | 14C1C | 7C127 |   |                                |
| .     | CC054 | CKKEY1    | STR     | C*L(CLEAROUT)            |            | 7C051 | 14C3C | 7C4C4 |   | CLEAR CCRE STARTING AT BASE AD |
| .     |       |           |         |                          |            | 7C052 | 14C1C | 7CC57 |   | DRESS                          |

SPURT OUTPUT NO. 21C  
J00\*4/8/65

SYSLDAGER

| CARDS | LI    | IO LABEL    | TA STATEMENT                                | LOC   | F     | JKB   | Y | NCIES                          |
|-------|-------|-------------|---------------------------------------------|-------|-------|-------|---|--------------------------------|
| .     | CC055 |             | CP C*                                       | 7C053 | 14CCC | CCCC  |   |                                |
| .     | CC056 |             | ACC Q*70000                                 | 7C054 | 26CCC | 7CCC  |   | BASE ADDRESS OF SYSLDAGER      |
| .     | CC057 |             | STR C*L(NUMCLEARS)                          | 7C055 | 14C10 | 7C5E  |   |                                |
| .     | CC06C | NUMCLEARS   | RPT C*ADV                                   | 7C056 | 70100 | CCCC  |   |                                |
| .     | CC061 | CLEAROUT    | CL W(C)                                     | 7C057 | 16C30 | CCCC  |   |                                |
| .     | CC062 |             | PUT W(137)*W(SKIP)                          | 7C060 | 1CC30 | CC137 |   |                                |
| .     | CC063 |             | JP \$+2*KEY1                                | 7C061 | 14C30 | 63331 |   |                                |
| .     | CC064 |             | RJP HEADCOLMS                               | 7C062 | 61100 | 7CC64 |   |                                |
| .     | CC065 |             | CL W(TABCT)                                 | 7C063 | 65000 | 7C132 |   |                                |
| .     | CC066 | LOADTAPE    | RJP MAINLOAD                                | 7C065 | 65000 | 7C314 |   | NAME AND ENTRANCE TABLE COUNT  |
| .     | CC067 | ATENDOFFILE | RJP PRINT                                   | 7C066 | 65000 | 7C767 |   |                                |
| .     | CC07C |             | 1 COMPLETE                                  | 7C067 | CC001 | 7C13C |   | SYSTEM LOADING COMPLETE        |
| .     | CC071 | END         | ENT B2*W(TABCT)                             | 7C070 | 12230 | 7C131 |   |                                |
| .     | CC072 |             | CL W(SYSENAMES*B2)                          | 7C071 | 16C32 | 777CC |   |                                |
| .     | CC073 |             | CL W(SYSENTRIES*B2)                         | 7C072 | 16C32 | 776CC |   |                                |
| .     | CC074 |             | ENT A*W(PMOCE)                              | 7C073 | 11030 | 7165C |   |                                |
| .     | CC075 |             | JP RETCCP*ANOT                              | 7C074 | 6C500 | 72107 |   |                                |
| .     | CC076 |             | JP \$+2*KEY2                                | 7C075 | 612CC | 7CC77 |   |                                |
| .     | CC077 |             | JP ASKAGAIN                                 | 7C076 | 61C00 | 72C14 |   |                                |
| .     | CC10C |             | RJP PRINT                                   | 7C077 | 65000 | 7C767 |   |                                |
| .     | CC101 | 3           | ECFON4                                      | 7C100 | CC003 | 71623 |   |                                |
| .     | CC102 |             | RJP INCCME                                  | 7C101 | 65000 | 7C225 |   |                                |
| .     | CC103 |             | IN TYPE*W(BCWREPLY)*MONITOR                 | 7C102 | 75130 | 7C304 |   |                                |
| .     | CC104 |             | AC-OP                                       | 7C103 | 12000 | CCCC  |   |                                |
| .     | CC105 |             | ENT A*W(NUMBER)*AZERC                       | 7C104 | 11430 | 7C31C |   |                                |
| .     | CC106 |             | EX-FCI TAPE*023000001C                      | 7C105 | 13670 | 72362 |   |                                |
| .     | CC107 |             | JP ASKAGAIN                                 | 7C106 | 61C00 | 72C14 |   |                                |
| .     | CC11C | ASKIO       | FC 110*KEY1 ON=NO LCG. KEY2 ON= OLP IN7C107 | 20123 | 66105 |       |   |                                |
| .     |       |             | PUT... ENTER DATE ETC.                      |       |       |       |   |                                |
| .     | CC111 | WHATBASE    | FC 4*B/ATUNLESS 60CC)                       | 70110 | 24234 | 42324 |   |                                |
| .     |       |             |                                             | 7C111 | C5212 | 41475 |   |                                |
| .     |       |             |                                             | 7C112 | C5201 | 23662 |   |                                |
| .     |       |             |                                             | 7C113 | C5242 | 34405 |   |                                |
| .     |       |             |                                             | 7C114 | 11322 | 5C516 |   |                                |
| .     |       |             |                                             | 7C115 | 23253 | 23175 |   |                                |
| .     |       |             |                                             | 7C116 | 75750 | 51223 |   |                                |
| .     |       |             |                                             | 7C117 | 31122 | 7C511 |   |                                |
| .     |       |             |                                             | 7C120 | C6311 | 2C512 |   |                                |
| .     |       |             |                                             | 7C121 | 31107 | 5C505 |   |                                |
| .     |       |             |                                             | 7C122 | C7740 | 65132 |   |                                |
| .     |       |             |                                             | 7C123 | 23211 | 23C3C |   |                                |
| .     |       |             |                                             | 7C124 | C5662 | 42424 |   |                                |
| .     |       |             |                                             | 7C125 | 4CC50 | 5C505 |   |                                |
| .     |       |             |                                             | 7C126 | 22102 | 51422 |   |                                |
| .     |       |             |                                             | 7C127 | CCCCC | CCCC  |   | BASE ADDRESS FOR CURRENT LOAD  |
| .     | CC112 | MCPIO       | FC 1*MCPIGM                                 |       |       |       |   | NG                             |
| .     | CC113 | STCREBASE   | C C                                         |       |       |       |   |                                |
| .     | CC114 | COMPLETE    | FC 1*EOF                                    | 7C130 | 12241 | 3C505 |   | COUNTER FOR TABLE ENTRIES      |
| .     | CC115 | TAPCT       | C C                                         | 7C131 | CCCCC | CCCC  |   | HEAD COLUMNS FOR PROGRAM LOG I |
| .     | CC116 | HEADCOLMS   | ENTRY                                       | 7C132 | 61000 | CCCC  |   | F KEY 1 CN                     |
| .     | CC117 |             | RJP CRLFRT                                  | 7C133 | 65000 | 7C211 |   |                                |

| CARDS | L1 ID LABEL | TA STATEMENT                       | LOC              | F     | JKB   | Y | ACTES                                          |
|-------|-------------|------------------------------------|------------------|-------|-------|---|------------------------------------------------|
| .     | CC120       | PUT L(DESIRE)*L(CHGADR)            | 70134            | 10C10 | 7C151 |   | TC ENABLE PRINT WITHOUT LINE F<br>EEDS         |
| .     | CC121       | PUT W(NOCRLFS)*W(STORECR-1)        | 70135            | 14C10 | 71C16 |   |                                                |
| .     | CC122       | RJP PRINT                          | 70136            | 10C30 | 70147 |   |                                                |
| .     | CC123       | 15C COLUMNHEAD                     | 70137            | 14030 | 71C11 |   |                                                |
| .     | CC124       | RJP PRINT                          | 70140            | 65C00 | 70767 |   |                                                |
| .     | CC125       | 15D SECNDHEAD                      | 70141            | 00C17 | 7C153 |   |                                                |
| .     | CC126       | PUT L(ASWAS)*L(CHGADR)             | 70142            | 65C00 | 70767 |   |                                                |
| .     |             |                                    | 70143            | 00C17 | 7C172 |   | PUT LINE FEEDS BACK IN PRINT R                 |
| .     |             |                                    | 70144            | 10C10 | 7C152 |   |                                                |
| .     | CC127       | EXIT                               | 70145            | 14C10 | 71C16 |   |                                                |
| .     | CC130       | NOCRLFS                            | 70146            | 61C10 | 7C132 |   |                                                |
| .     | CC131       | ACRLFS                             | 70147            | 11C00 | CCCC  |   |                                                |
| .     | CC132       | DESIRE                             | 70150            | 11C10 | 71C30 |   |                                                |
| .     | CC133       | ASWAS                              | 70151            | 00C00 | 71C32 |   |                                                |
| .     | CC134       | COLUMNHEAD                         | 70152            | 00C00 | 71C30 |   |                                                |
| .     |             | FC 110*SYSTEM PROGRAM              | PROGRAMMER*70153 | 30363 | C3112 |   |                                                |
| .     |             | DATE FIRST LAST                    |                  |       |       |   |                                                |
| .     |             |                                    | 70154            | 22C50 | 5C525 |   |                                                |
| .     |             |                                    | 70155            | 27241 | 42708 |   |                                                |
| .     |             |                                    | 70156            | 22C50 | 5C505 |   |                                                |
| .     |             |                                    | 70157            | 25272 | 41427 |   |                                                |
| .     |             |                                    | 70160            | 06222 | 21227 |   |                                                |
| .     |             |                                    | 70161            | 42110 | 63112 |   |                                                |
| .     |             |                                    | 70162            | 05C50 | 5C505 |   |                                                |
| .     |             |                                    | 70163            | 13162 | 73C31 |   |                                                |
| .     |             |                                    | 70164            | 05C50 | 5C505 |   |                                                |
| .     |             |                                    | 70165            | 21063 | C3105 |   |                                                |
| .     | CC135       | FC C* RUN INIT.                    | 70166            | 05C50 | 5C505 |   |                                                |
| .     |             |                                    | 70167            | 05273 | 22305 |   |                                                |
| .     |             |                                    | 70170            | 05C50 | 5C516 |   |                                                |
| .     |             |                                    | 70171            | 23163 | 17505 |   |                                                |
| .     | CC136       | SECNDHEAD                          | 70172            | 05230 | 62212 |   |                                                |
| .     |             | FC 110* NAME NAME<br>LOCIN. LOCIN. | 70173            | 05C50 | 5C505 |   |                                                |
| .     |             |                                    | 70174            | 23062 | 21205 |   |                                                |
| .     |             |                                    | 70175            | 05C50 | 5C505 |   |                                                |
| .     |             |                                    | 70176            | 05C50 | 5C505 |   |                                                |
| .     |             |                                    | 70177            | 05C50 | 5C505 |   |                                                |
| .     |             |                                    | 70200            | 05C50 | 5C505 |   |                                                |
| .     |             |                                    | 70201            | 05C50 | 5C505 |   |                                                |
| .     |             |                                    | 70202            | 21241 | C3123 |   |                                                |
| .     | CC137       | FC C* ENTRY ENTRY                  | 70203            | 75C50 | 5C521 |   |                                                |
| .     |             |                                    | 70204            | 24103 | 12375 |   |                                                |
| .     |             |                                    | 70205            | 05C50 | 5C505 |   |                                                |
| .     |             |                                    | 70206            | 12233 | 12736 |   |                                                |
| .     |             |                                    | 70207            | 05C50 | 5C512 |   |                                                |
| .     |             |                                    | 70210            | 23312 | 73605 |   |                                                |
| .     | CC140       | CRLEF                              | 70211            | 61C00 | CCCC  |   | CARRIAGE RETURN-LINE FEED-LINE<br>FEED ROUTINE |
| .     | CC141       | RIL                                | 70212            | 66C00 | CCCC  |   |                                                |
| .     | CC142       | OUT TYPE*W(RCWCRLF)*MONITOR        | 70213            | 76130 | 70220 |   |                                                |

| CARDS | LI    | ID        | LABEL | TA    | STATEMENT                | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------|-----------|-------|-------|--------------------------|-------|-------|-------|---|--------------------------------|
| .     | CC143 |           |       | PUT   | W(JPCRLF)*W(£2)          | 70214 | 1CC3C | 7C221 |   |                                |
| .     | CC144 |           |       | JP    | £                        | 70215 | 14C3C | CCC62 |   |                                |
| .     | CC145 | GRLF      |       | EXIT  |                          | 70216 | 61CCC | 7C216 |   |                                |
| .     | CC146 | BCWRLF    |       | U-TAG | CRLFCODE+2*CRLFCODE      | 70217 | 61C1C | 7C211 |   |                                |
| .     | CC147 | JPCRLF    |       | RILJP | CRLF                     | 70220 | 7C224 | 7C222 |   |                                |
| .     | CC150 | CRLFCODE  |       | C     | 4                        | 70221 | 6C1CC | 7C217 |   |                                |
| .     | CC151 |           |       | C     | 3                        | 70222 | CCCC  | CCCC4 |   |                                |
| .     | CC152 |           |       | C     | 3                        | 70223 | CCCC  | CCCC3 |   |                                |
| .     | CC153 | INCOME    |       | ENTRY |                          | 70224 | CCCC  | CCCC3 |   |                                |
| .     | CC154 |           |       | PUT   | L(INCOME)*L(NEXPLA)      | 70225 | 61CCC | CCCC  |   | INPUT AND TYPE OCTAL OR FD WOR |
| .     | CC154 |           |       | PUT   | L(INCOME)*L(NEXPLA)      | 70226 | 1CC1C | 7C225 |   | CS                             |
| .     | CC155 | NEXPLA    |       | PUT   | W(C)*W(LCOPREPLY)        | 70227 | 14C1C | 7C23C |   | INPUT INSTR. STORED            |
| .     | CC156 |           |       | RPL   | Y+1*L(INCOME)            | 70230 | 1CC3C | CCCC  |   |                                |
| .     | CC157 |           |       | PUT   | L(INCOME)*L(CEXPLO)      | 70231 | 14C3C | 7C243 |   |                                |
| .     | CC160 | DEXPLA    |       | PUT   | W(C)*W(CKIN+1)           | 70232 | 36C1C | 7C225 |   | NC-CP IF FD CR ACC A 6C IF OCT |
| .     | CC161 |           |       | RPL   | Y+1*L(INCOME)            | 70233 | 1CC1C | 7C225 |   | AL                             |
| .     | CC162 |           |       | CL    | B2*                      | 70234 | 14C1C | 7C235 |   |                                |
| .     | CC163 |           |       | CL    | W(NUMBER)                | 70235 | 1CC3C | CCCC  |   |                                |
| .     | CC164 |           |       | RJP   | CRLFRT                   | 70236 | 14C3C | 7C25C |   |                                |
| .     | CC165 | LCCPREPLY |       | C     |                          | 70237 | 36C1C | 7C225 |   |                                |
| .     | CC166 |           |       | PUT   | W(JPCKIN)*W(£2)          | 70240 | 12C0C | CCCC  |   |                                |
| .     | CC167 |           |       | JP    | £                        | 70241 | 16C3C | 7C31C |   | CARRIAGE RETURN-LF-LF          |
| .     | CC170 | CKIN      |       | ENT   | A*W(REPLY)               | 70242 | 65CCC | 7C211 |   | INPUT INSTR (CLOCK CR TYPEWRIT |
| .     | CC171 |           |       | NC-OP |                          | 70243 | CCCC  | CCCC  |   | ER)                            |
| .     | CC172 |           |       | STR   | A*W(REPLY)               | 70244 | 1CC3C | 7C3C5 |   |                                |
| .     | CC173 |           |       | SUB   | A*4                      | 70245 | 14C3C | CCC42 |   |                                |
| .     | CC174 |           |       | JP    | ALDCONE*AZERO            | 70246 | 61CCC | 7C246 |   | NUMBER INPUT (1 FD CR CCTAL CH |
| .     | CC175 |           |       | BSK   | R2*5                     | 70247 | 11C3C | 7C313 |   | AR)                            |
| .     | CC176 |           |       | JP    | COIT                     | 70250 | 12CCC | CCCC  |   | NC-CP IF FD CR ACC A 6C IF CCT |
| .     | CC177 |           |       | JP    | CONTDO                   | 70251 | 15C3C | 7C313 |   | AL                             |
| .     | CC200 | OGIT      |       | ENT   | A*W(NUMBER)              | 70252 | 21CCC | CCCC4 |   | CHARACTER INPUT NEW IN FD      |
| .     | CC201 |           |       | LSH   | A*3                      | 70253 | 64CCC | 7C275 |   | CHECK IF CARRIAGE RETURN       |
| .     | CC202 |           |       | ACC   | A*W(REPLY)               | 70254 | 712CC | CCCC5 |   |                                |
| .     | CC203 |           |       | SUB   | A*6C                     | 70255 | 61CCC | 7C257 |   |                                |
| .     | CC204 |           |       | STR   | A*W(NUMBER)              | 70256 | 61CCC | 7C264 |   | STORE FIRST 5 CHARS (NEED BASE |
| .     | CC205 | QUANTDO   |       | ENT   | A*W(REPLY)               | 70257 | 11C3C | 7C31C |   | ADDRESS)                       |
| .     | CC206 |           |       | SUB   | A*W(ERASURE)             | 70260 | 66CCC | CCCC3 |   |                                |
| .     | CC207 |           |       | JP    | CCRLF*AZERO              | 70261 | 20C3C | 7C313 |   | 5 PLACE CCTAL NUMBER STORED.   |
| .     | CC210 |           |       | OUT   | TYPE*W(BCWREPLY)*MCNITOR | 70262 | 21CCC | CCC6C |   |                                |
| .     | CC211 |           |       | PUT   | W(JPGORACK)*W(£2)        | 70263 | 15C3C | 7C31C |   |                                |
| .     | CC211 |           |       | PUT   | W(JPGORACK)*W(£2)        | 70264 | 11C3C | 7C313 |   |                                |
| .     | CC211 |           |       | PUT   | W(JPGORACK)*W(£2)        | 70265 | 21C3C | 7C306 |   | CHECK FOR ERASURE              |
| .     | CC211 |           |       | PUT   | W(JPGORACK)*W(£2)        | 70266 | 64CCC | 7C276 |   | CUTPUT TC TYPEWRITER FD INFO   |
| .     | CC211 |           |       | PUT   | W(JPGORACK)*W(£2)        | 70267 | 7613C | 7C3C4 |   |                                |
| .     | CC211 |           |       | PUT   | W(JPGORACK)*W(£2)        | 70270 | 1CC3C | 7C3C7 |   |                                |
| .     | CC211 |           |       | PUT   | W(JPGORACK)*W(£2)        | 70271 | 14C3C | CCC62 |   |                                |

| CARDS | LI    | IG | LABEL     | TA STATEMENT               | LCC   | F     | JKB   | Y | NOTES                          |
|-------|-------|----|-----------|----------------------------|-------|-------|-------|---|--------------------------------|
| •     | CC212 |    | GGRACK    | JP \$                      | 7C272 | 61CCC | 7C272 |   | INPUT UP TO RCC CHAR OR UNTIL  |
| •     | CC213 |    |           | BSK 82*800                 | 7C273 | 712CC | CC12C |   | CR FOUND                       |
| •     | CC214 |    |           | JP LCCPREPLY               | 7C274 | 61CCC | 7C243 |   | RETURN                         |
| •     | CC215 |    | ALLCNE    | LXII                       | 7C275 | 61C1C | 7C225 |   | REPEAT INPUT RT WHEN ERASURE   |
| •     | CC216 |    | DCRPLF    | OUT TYPE*(HCHERAS)*MONITOR | 7C276 | 76130 | 7C312 |   |                                |
| •     | CC217 |    |           | PUT W(JPOVERJP)*W(62)      | 7C277 | 1CC3C | 7C311 |   |                                |
| •     | CC22C |    |           | JP \$                      | 7C30C | 14C3C | CC062 |   |                                |
| •     | CC221 |    | NVEPJP    | RJP CRLFR                  | 7C301 | 61CCC | 7C301 |   | GC BACK TO BEGIN INPUT AGAIN   |
| •     | CC222 |    |           | JP LCCPREPLY-3             | 7C302 | 65CCC | 7C211 |   |                                |
| •     | CC223 |    | RC*REPLY  | U-TAG REPLY*REPLY          | 7C303 | 61CCC | 7C24C |   |                                |
| •     | CC224 |    | JPCKIN    | RILJP CKIN                 | 7C304 | 76313 | 7C313 |   |                                |
| •     | CC225 |    | ERASURE   | C 77                       | 7C305 | 6C1CC | 7C247 |   | FD CCCE FOR ERASURE            |
| •     | CC226 |    | JPCCBACK  | RILJP GORACK               | 7C306 | CC0CC | CC077 |   | FIRST 5 DIGITS INPUT(CCTAL BAS |
| •     | CC227 |    | NUMBER    | U C                        | 7C307 | 6C1CC | 7C273 |   | E ACR)                         |
| •     | CC23C |    | JPCEVERJP | RILJP NVERJP               | 7C311 | 6C1CC | 7C3C2 |   | GCW FOR OUTPUT OF ERASURE      |
| •     | CC231 |    | BCWERAS   | U-TAG ERASURE*ERASURE      | 7C312 | 7C306 | 7C3C6 |   | INPUT STORC (CCTAL FROM CLCCK  |
| •     | CC232 |    | REPLY     | U C                        | 7C313 | CC0CC | CC0CC |   | CR FD FROM TYPEWRITER)         |
| •     | CC233 |    | MAINLOAD  | ENTRY                      | 7C314 | 61CCC | CC0CC |   | CHECK U(FIRST MORE CF HEADING) |
| •     | CC234 |    |           | RJP READTAPE               | 7C315 | 65CCC | 7123C |   | FCR 74747                      |
| •     | CC235 |    |           | U-TAG HEADING+8C*HEADING   | 7C316 | 7C403 | 7C373 |   |                                |
| •     | CC236 |    | ANAL      | CL W(CEPIND)               | 7C317 | 16C3C | 72344 |   |                                |
| •     | CC237 |    |           | ENT A*U(HEADING)           | 7C320 | 11C2C | 7C373 |   |                                |
| •     | CC24C |    |           | SUB A*74747                | 7C321 | 21CCC | 74747 |   |                                |
| •     | CC241 |    |           | JP RADHEAD*ANOT            | 7C322 | 6C50C | 7C336 |   |                                |
| •     | CC242 |    |           | JP \$+2*KEY2               | 7C323 | 612CC | 7C325 |   |                                |
| •     | CC243 |    |           | JP \$+3                    | 7C324 | 61CCC | 7C327 |   |                                |
| •     | CC244 |    |           | RJP WRITE                  | 7C325 | 65CCC | 715C2 |   |                                |
| •     | CC245 |    |           | U-TAG HEADING+8D*HEADING   | 7C326 | 7C403 | 7C373 |   |                                |
| •     | CC246 |    |           | ENT A*(HEADING)            | 7C327 | 11C1C | 7C373 |   |                                |
| •     | CC247 |    |           | SUB A*CC0321               | 7C330 | 21CCC | CC321 |   |                                |
| •     | CC25C |    |           | JP MAYBE320*ANOT           | 7C331 | 6C50C | 7C333 |   |                                |
| •     | CC251 |    |           | JP CC321                   | 7C332 | 61CCC | 7C343 |   |                                |
| •     | CC252 |    | MAYBE32C  | ENT A*(HEADING)            | 7C333 | 11C1C | 7C373 |   |                                |
| •     | CC253 |    |           | SUB A*CC0320               | 7C334 | 21CCC | CC32C |   | CHECK IF 32C FORMAT, IF YES GO |
| •     | CC254 |    |           | JP CC320*AZERO             | 7C335 | 6C40C | 72212 |   | IC CC32C                       |
| •     | CC255 |    | BACHEAD   | EX-FCT TAPE*2110CC004      | 7C336 | 13670 | 72364 |   |                                |
| •     | CC256 |    |           | RJP PRINT                  | 7C337 | 65CCC | 7C767 |   |                                |
| •     | CC257 |    |           | 3 FORMATER                 | 7C340 | CC0C3 | 72334 |   |                                |
| •     | CC25C |    |           | RJP CRLFR                  | 7C341 | 65CCC | 7C211 |   | AC MORE ANALYSIS SINCE BAD FOR |
| •     | CC261 |    |           | JP END                     | 7C342 | 61CCC | 7CC7C |   | MAT                            |
| •     | CC262 |    | CC321     | ENT A*(BASEADRS)           | 7C343 | 11C3C | 7C4C4 |   | ANALYZE 321 TAPE               |
| •     | CC263 |    |           | ADD A*U(HEADING+7)         | 7C344 | 2CC2C | 7C4C2 |   |                                |
| •     | CC264 |    |           | SUB A*1                    | 7C345 | 21CCC | CC0C1 |   | BASE ADDRESS + MEMORY LCC USED |
| •     | CC265 |    |           | STR A*(LASTADR)            | 7C346 | 15C3C | 7C4C6 |   | =LAST ADDRESS                  |

| CARDS | LI    | ID       | LAPEL | TA STATEMENT                     | LOC   | F     | JKR   | Y | NTES                                                |
|-------|-------|----------|-------|----------------------------------|-------|-------|-------|---|-----------------------------------------------------|
| •     | CC266 |          |       | CL W(CKSUM)                      | 70347 | 16C30 | 7C7C2 |   | FIRST ADDRESS OF BLCKC LOADED                       |
| •     | CC267 |          |       | RJP READTAPE                     | 70350 | 65C00 | 7123C |   |                                                     |
| •     | CC270 |          |       | U-TAG RECORD+55C*RECORD          | 70351 | 70525 | 7C436 |   | READ 56 DEC WERC BLCKC FROM UN<br>IT 2              |
| •     | CC271 |          |       | JP \$+2*KEY2                     | 70352 | 612CC | 7C354 |   |                                                     |
| •     | CC272 |          |       | JP \$+3                          | 70353 | 61CC0 | 7C356 |   |                                                     |
| •     | CC273 |          |       | RJP WRITE                        | 70354 | 65C00 | 715C2 |   |                                                     |
| •     | CC274 |          |       | U-TAG RECORD+55C*RECORD          | 70355 | 70525 | 7C436 |   |                                                     |
| •     | CC275 |          |       | RJP PUTABLE                      | 70356 | 65C00 | 7C41C |   |                                                     |
| •     | CC276 |          |       | JP \$+2*KEY1                     | 70357 | 61CC0 | 7C361 |   | LOG DATA IN COLUMNS IF KEY 1 =<br>C                 |
| •     | CC277 |          |       | RJP UCLCG                        | 70360 | 65C00 | 7C54C |   |                                                     |
| •     | CC300 |          |       | ENT R4*W(BASEADRS)               | 70361 | 1243C | 7C4C4 |   | R4 USED AS CURRENT LOCATION CO<br>UNTER             |
| •     | CC301 | STORPRUG |       | RJP MODIFSTORE                   | 70362 | 65C00 | 7C616 |   | DC MODIFICATIONS AND LOAD CORE                      |
| •     | CC302 |          |       | STR R4*W(BASEADRS)               | 70363 | 1643C | 7C4C4 |   | FIRST ADDRESS OF CURRENT BLCKC                      |
| •     | CC303 |          |       | RJP READTAPE                     | 70364 | 65C00 | 7123C |   |                                                     |
| •     | CC304 |          |       | U-TAG RECORD+55C*RECORD          | 70365 | 70525 | 7C436 |   | READ 56 DEC WERC BLCKC FROM UN<br>IT 2              |
| •     | CC305 |          |       | JP \$+2*KEY2                     | 70366 | 612CC | 7C37C |   |                                                     |
| •     | CC306 |          |       | JP \$+3                          | 70367 | 61C00 | 7C372 |   |                                                     |
| •     | CC307 |          |       | RJP WRITE                        | 70370 | 65C00 | 715C2 |   |                                                     |
| •     | CC310 |          |       | U-TAG RECORD+55C*RECORD          | 70371 | 70525 | 7C436 |   | CONTINUE PROCESS TIL END OF PR<br>CG MODIF FCUNE(S) |
| •     | CC311 |          |       | JP STORPRUG                      | 70372 | 61CC0 | 7C362 |   | STORAGE FOR READING RECORD                          |
| •     | CC312 | HEADING  |       | RESERVE 90                       | 70373 | CCCCC | CCCCC |   | FIRST ADDRESS OF BLCKC LOADED                       |
| •     | CC313 | BASEADRS |       | C C                              | 70404 | CCCCC | CCCCC |   |                                                     |
| •     | CC314 | CHAPS    |       | O C                              | 70405 | CCCCC | CCCCC |   | LAST WERC ADDRESS OF PROGRAM L                      |
| •     | CC315 | LASTADR  |       | O C                              | 70406 | CCCCC | CCCCC |   | CACEC INTO CORE                                     |
| •     | CC316 | BCPAD    |       | U-TAG CHARS*CHAPS                | 70407 | 7C405 | 7C4C5 |   | BCW IC WHITE BAD FORMAT                             |
| •     | CC317 | PUTABLE  |       | ENTRY                            | 70410 | 61C00 | CCCCC |   | STORE IN ENTRANCE AND ANME TAB<br>LES               |
| •     | CC320 |          |       | ENT R2*W(TABCT)                  | 70411 | 1223C | 7C131 |   | CCUAT CF CURRENT PLACE IN TABL<br>ES                |
| •     | CC321 |          |       | ENT A*U(INSTR)                   | 70412 | 11C20 | 7C443 |   | MCCIFY BLTH UPPER AND LOWER PA<br>RT CF ENT         |
| •     | CC322 |          |       | ADD A*W(STOREBASE)               | 70413 | 20C3C | 7C127 |   |                                                     |
| •     | CC323 |          |       | STR A*U(SYSENTRIES+R2)           | 70414 | 15C22 | 776CC |   |                                                     |
| •     | CC324 |          |       | ENT A*L(INSTR)                   | 70415 | 11C1C | 7C443 |   |                                                     |
| •     | CC325 |          |       | ADD A*W(STOREBASE)               | 70416 | 20C3C | 7C127 |   |                                                     |
| •     | CC326 |          |       | STR A*L(SYSENTRIES+R2)           | 70417 | 15C12 | 776CC |   |                                                     |
| •     | CC327 |          |       | PUT A(SYSENTRIES+R2)*W(MCCIFENT) | 70420 | 1CC32 | 776CC |   |                                                     |
| •     | CC330 |          |       | ENT A*W(INSTR+1)                 | 70421 | 14C3C | 7C435 |   |                                                     |
| •     | CC331 |          |       | STR A*W(SYSENTRIES+R2)           | 70422 | 11C30 | 7C444 |   |                                                     |
| •     | CC332 |          |       | STR A*W(LOCK)                    | 70423 | 15C32 | 777CC |   |                                                     |
| •     | CC333 |          |       | SUB A*W(MCPID)                   | 70424 | 15C3C | 7C577 |   | STORE IN COLUMN OUTPUT AREA                         |
| •     | CC334 |          |       | JP ACTMCP*ANDI                   | 70425 | 1C03C | 7C126 |   |                                                     |
| •     | CC335 |          |       | PUT A(SYSENTRIES+R2)*W(MCPGM)    | 70426 | 6C5CC | 7C431 |   |                                                     |
| •     |       |          |       |                                  | 70427 | 1CC32 | 776CC |   |                                                     |

| CARDS | LI    | ID | LAPEL      | TA STATEMENT              | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------|----|------------|---------------------------|-------|-------|-------|---|--------------------------------|
| .     | CC336 |    | NCINCP     | ENT A*2                   | 70430 | 14C30 | 63412 |   |                                |
| .     | CC337 |    | ACC        | A*1                       | 70431 | 11C02 | CCCC  |   |                                |
| .     | CC340 |    | STR        | A*(TARCT)                 | 70432 | 20CCC | CCCC  |   | UPDATE TABLE COUNTER           |
| .     | CC341 |    | EXIT       |                           | 70433 | 15C30 | 7C131 |   |                                |
| .     | CC342 |    | MODIFENT   | O C                       | 70434 | 61C10 | 7C41C |   | TEMP STORAGE FOR MODIFIED RUN  |
| .     | CC343 |    | RECCRO     | RESERVE 5                 | 70435 | CCCCC | CCCC  |   | AND INIT. ENTRY                |
| .     | CC344 |    | INSTR      | RESERVE 510               | 70436 | CCCCC | CCCC  |   | MODIFIERS                      |
| .     | CC345 |    | DDMODIF    | ENTRY                     | 70443 | CCCCC | CCCC  |   | INSTRUCTIONS TO BE LOADED INTO |
| .     | CC346 |    |            | ENT R6*A                  |       |       |       |   | CCRE                           |
| .     | CC347 |    |            | RJP L(MODIFIABLE+R6)*ANCT | 70526 | 61CCC | CCCC  |   |                                |
| .     | CC350 |    |            | EXIT                      | 70527 | 12670 | CCCC  |   | GC TO MCCIEY INSTR             |
| .     | CC351 |    | MODIFIABLE | O C                       | 70530 | 64516 | 7C532 |   |                                |
| .     | CC352 |    |            | O ADDLOWER                | 70531 | 61C10 | 7C526 |   |                                |
| .     | CC353 |    |            | O ACUPPER                 | 70532 | CCCCC | CCCC  |   | MCCIFIER=C                     |
| .     | CC354 |    |            | O ACBOTH                  | 70533 | CCCCC | 7C705 |   | =1                             |
| .     | CC355 |    |            | O EXECINSTR               | 70534 | CCCCC | 7C712 |   | =2                             |
| .     | CC356 |    |            | O ENDPROC                 | 70535 | CCCCC | 7C717 |   | =3                             |
| .     | CC357 |    | DDLCG      | ENTRY                     | 70536 | CCCCC | 7C723 |   | =4                             |
| .     | CC360 |    |            | ENT A*0505050505          | 70537 | CCCCC | 7C731 |   | =5                             |
| .     | CC361 |    |            | RPT 140*ADV               | 70540 | 61CCC | CCCC  |   |                                |
| .     | CC362 |    |            | STR A*(BLOCK+1)           | 70541 | 11C30 | 72365 |   |                                |
| .     | CC363 |    |            | MVCG 6*HEADINC+1*BLOCK+2  | 70542 | 7C10C | CCCC  |   |                                |
| .     | CC364 |    |            | ENT A*(STOREBASE)         | 70543 | 15C30 | 7C60C |   |                                |
| .     | CC365 |    |            | RSH AQ*150                | 70544 | 1270C | CCCC  |   |                                |
| .     | CC366 |    |            | RJP KCCTTOFD              | 70545 | 11C37 | 7C374 |   |                                |
| .     | CC367 |    |            | STR A*(BLOCK+80)          | 70546 | 14C37 | 7C6C1 |   |                                |
| .     | CC370 |    |            | ENT A*(LASTADR)           | 70547 | 7270C | 7C545 |   |                                |
| .     | CC371 |    |            | RSH AQ*150                | 70550 | 11C10 | 7C127 |   |                                |
| .     | CC372 |    |            | RJP KCCTTOFD              | 70551 | 03CCC | CCC17 |   |                                |
| .     | CC373 |    |            | STR A*(BLOCK+100)         | 70552 | 65CCC | 71436 |   |                                |
| .     | CC374 |    |            | ENT A*(MODIFENT)          | 70553 | 15C30 | 7C607 |   |                                |
| .     | CC375 |    |            | RSH AQ*150                | 70554 | 11C10 | 7C406 |   |                                |
| .     | CC376 |    |            | RJP KCCTTOFD              | 70555 | 03CCC | CCC17 |   |                                |
| .     | CC377 |    |            | STR A*(BLOCK+120)         | 70556 | 65CCC | 71436 |   |                                |
| .     | CC400 |    |            | ENT A*(MODIFENT)          | 70557 | 15C30 | 7C611 |   |                                |
| .     | CC401 |    |            | RSH AQ*150                | 70560 | 11C20 | 7C435 |   |                                |
| .     | CC402 |    |            | RJP KCCTTOFD              | 70561 | 03CCC | CCC17 |   |                                |
| .     | CC403 |    |            | STR A*                    | 70562 | 65CCC | 71436 |   |                                |
| .     | CC404 |    |            | ENT A*0505050505          | 70563 | 15C30 | 7C613 |   |                                |
| .     | CC405 |    |            | LSH AQ*120                | 70564 | 11C10 | 7C435 |   |                                |
| .     | CC406 |    |            | STR A*(BLOCK+130)         | 70565 | 03CCC | CCC17 |   |                                |
| .     | CC407 |    |            | STR Q*(BLOCK+140)         | 70566 | 65CCC | 71436 |   |                                |
| .     | CC410 |    |            | RJP PRINT                 | 70567 | 15CCC | CCCC  |   |                                |
| .     | CC411 |    |            | 150 BLOCK                 | 70570 | 11C30 | 72365 |   |                                |
| .     | CC412 |    |            | EXIT                      | 70571 | 07CCC | CCC14 |   |                                |
| .     | CC413 |    | ALCK       | RESERVE 150               | 70572 | 15C30 | 7C614 |   |                                |
| .     | CC414 |    | MODIFSTORE | ENTRY                     | 70573 | 14C30 | 7C615 |   |                                |
| .     |       |    |            |                           | 70574 | 65CCC | 7C767 |   |                                |
| .     |       |    |            |                           | 70575 | 00C17 | 7C577 |   |                                |
| .     |       |    |            |                           | 70576 | 61C10 | 7C54C |   |                                |
| .     |       |    |            |                           | 70577 | CCCCC | CCCC  |   |                                |
| .     |       |    |            |                           | 70616 | 61CCC | CCCC  |   | MODIFY AND STORE INSTRUCTIONS  |

| CARDS                                                             | LI ID LABEL | TA STATEMENT            | LCC   | F JKB Y | ACTES |
|-------------------------------------------------------------------|-------------|-------------------------|-------|---------|-------|
| .                                                                 | CC415       | CL W(CKSUM)             | 7C617 | 16C30   | 7C7C2 |
| .                                                                 | CC416       | CL B2*                  | 7C620 | 12C00   | CCCCC |
| .                                                                 | CC417       | ENT A*(CKSUM)           | 7C621 | 11C30   | 7C7C2 |
| .                                                                 | CC420       | ADD A*(RECORD+B2)       | 7C622 | 20C32   | 7C436 |
| .                                                                 | CC421       | STR A*(CKSUM)           | 7C623 | 15C30   | 7C7C2 |
| .                                                                 | CC422       | RSK B2*4                | 7C624 | 71200   | CCCC4 |
| .                                                                 | CC423       | JP ATTHS                | 7C625 | 61000   | 7C621 |
| .                                                                 | CC424       | CL B5*                  | 7C626 | 12500   | CCCCC |
| .                                                                 | CC425       | CL B2*                  | 7C627 | 12200   | CCCCC |
| WRK CN 50 INSTRS<br>WRK WITH 5 MODIFICATION REGIS<br>TERS         |             |                         |       |         |       |
| .                                                                 | CC426       | RETNUP                  | 7C630 | 10C32   | 7C436 |
| .                                                                 | CC427       | CL B3*                  | 7C631 | 12300   | CCCCC |
| IC MODIFIERS PER MODIFICATION<br>REG.<br>COMPUTE CURRENT CHECKSUM |             |                         |       |         |       |
| .                                                                 | CC430       | ENT A*(CKSUM)           | 7C632 | 11C30   | 7C7C2 |
| .                                                                 | CC431       | ADD A*(INSTR+B5)        | 7C633 | 20C35   | 7C443 |
| .                                                                 | CC432       | STR A*(CKSUM)           | 7C634 | 15C30   | 7C7C2 |
| .                                                                 | CC433       | CL A*                   | 7C635 | 11000   | CCCCC |
| .                                                                 | CC434       | LSH AC*3                | 7C636 | 07000   | CCCC2 |
| .                                                                 | CC435       | RJP COMODIF             | 7C637 | 65000   | 7C526 |
| .                                                                 | CC436       | ENT A*(INSTR+B5)        | 7C640 | 11C35   | 7C443 |
| .                                                                 | CC437       | STR A*(B4)              | 7C641 | 15C34   | CCCCC |
| .                                                                 | CC440       | ENT A*B4                | 7C642 | 11004   | CCCCC |
| MODIFY INSTR IF REQUESTED                                         |             |                         |       |         |       |
| UPDATE CURRENT LCC COUNTER FOR<br>LEADING                         |             |                         |       |         |       |
| .                                                                 | CC441       | ADD A*1                 | 7C643 | 20000   | CCCC1 |
| .                                                                 | CC442       | ENT B4*A                | 7C644 | 12470   | CCCCC |
| .                                                                 | CC443       | ENT A*B5                | 7C645 | 11005   | CCCCC |
| .                                                                 | CC444       | ACC A*1                 | 7C646 | 20000   | CCCC1 |
| .                                                                 | CC445       | ENT B5*A                | 7C647 | 12570   | CCCCC |
| .                                                                 | CC446       | BSK B3*90               | 7C650 | 71300   | CCCC1 |
| .                                                                 | CC447       | JP RETNUP*2             | 7C651 | 61000   | 7C632 |
| .                                                                 | CC450       | BSK B2*40               | 7C652 | 71200   | CCCC4 |
| .                                                                 | CC451       | JP RETNUP               | 7C653 | 61000   | 7C630 |
| .                                                                 | CC452       | RJP COMPOCKSM           | 7C654 | 65000   | 7C656 |
| .                                                                 | CC453       | EXIT                    | 7C655 | 61010   | 7C616 |
| .                                                                 | CC454       | ENTRY                   | 7C656 | 61000   | CCCCC |
| COMPARE CKSUMS                                                    |             |                         |       |         |       |
| COMPARE CHECKSUM COMPUTED WITH<br>THAT OF BLOCK                   |             |                         |       |         |       |
| .                                                                 | CC455       | ENT A*(CKSUM)           | 7C657 | 11C30   | 7C7C2 |
| .                                                                 | CC456       | SUB A*(INSTR+50C)       | 7C660 | 21C30   | 7C525 |
| .                                                                 | CC457       | JP COAGAIN*ANDT         | 7C661 | 60500   | 7C664 |
| IF UNALIKE, BACKSPACE BLOCK AN<br>C REAC AGAIN                    |             |                         |       |         |       |
| .                                                                 | CC460       | NKCLEAR                 | 7C662 | 16C30   | 7C677 |
| .                                                                 | CC461       | EXIT                    | 7C663 | 61010   | 7C656 |
| .                                                                 | CC462       | COAGAIN                 | 7C664 | 11430   | 7C677 |
| .                                                                 | CC463       | JP NKCLEAR              | 7C665 | 61000   | 7C662 |
| .                                                                 | CC464       | PUT W(JPTOIT)*W(35)     | 7C666 | 10C30   | 7C7C3 |
| BACKSPACE A BLOCK ON UNIT 2                                       |             |                         |       |         |       |
| .                                                                 | CC465       | EX-FCI TAPE*(FCIBACKUP) | 7C667 | 14C30   | CCCC3 |
| .                                                                 | CC466       | JP \$                   | 7C670 | 13670   | 7C7C4 |
| .                                                                 | CC467       | STR TAPE*(STATUS)       | 7C671 | 61000   | 7C671 |
| .                                                                 | CC470       | TOIT                    | 7C672 | 17670   | 71455 |
| .                                                                 | CC470       | PUT W(INNE)*W(NNLYTWO)  | 7C673 | 10C30   | 7C7CC |
| INDICATE BACKSPACE                                                |             |                         |       |         |       |
| .                                                                 | CC471       | ENT B4*W(BASEADRS)      | 7C674 | 14C30   | 7C677 |
| FIRST ADDRESS OF BLOCK TO BE R                                    |             |                         |       |         |       |
| .                                                                 | CC471       | ENT B4*W(BASEADRS)      | 7C675 | 12430   | 7C4C4 |

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SYSLoader

| CARDS | 11    | 10 | LAPEL     | TA    | STATEMENT        | LOC   | F     | JKH | Y     | ACTES                          |
|-------|-------|----|-----------|-------|------------------|-------|-------|-----|-------|--------------------------------|
| .     | CC472 |    | NNLYTWC   | JP    | STORPROG+1       | 70676 | 61000 |     | 70762 |                                |
| .     | CC473 |    |           | C     | C                | 70677 | 00000 |     | 00000 | HAC CHECKSUM COUNTER (ALLOW 1) |
| .     | CC474 |    | ANF       | C     | 1                | 70700 | 00000 |     | 00000 |                                |
| .     | CC475 |    | ZPC       | C     | C                | 70701 | 00000 |     | 00000 | ELCACEC                        |
| .     | CC476 |    | CKSUM     | C     | C                | 70702 | 00000 |     | 00000 |                                |
| .     | CC477 |    | JPTCII    | RILJP | TOIT             | 70703 | 60100 |     | 70672 |                                |
| .     | CC500 |    | FCRACKUP  | 3C300 | 00004            | 70704 | 30300 |     | 00004 | BACKSPACE A BLOCK ON UNIT 2    |
| .     | CC501 |    | ADLCWER   | ENTRY |                  | 70705 | 61000 |     | 00000 |                                |
| .     | CC502 |    |           | ENT   | A*(INSTR+R5)     | 70706 | 11015 |     | 70443 |                                |
| .     | CC503 |    |           | ACC   | A*(STOREBASE)    | 70707 | 20030 |     | 70127 |                                |
| .     | CC504 |    |           | STR   | A*(INSTR+R5)     | 70710 | 15015 |     | 70443 |                                |
| .     | CC505 |    |           | EXIT  |                  | 70711 | 61010 |     | 70705 |                                |
| .     | CC506 |    | ADLCUPPER | ENTRY |                  | 70712 | 61000 |     | 00000 |                                |
| .     | CC507 |    |           | ENT   | A*(INSTR+R5)     | 70713 | 11025 |     | 70443 |                                |
| .     | CC510 |    |           | ACC   | A*(STOREBASE)    | 70714 | 20030 |     | 70127 |                                |
| .     | CC511 |    |           | STR   | A*(INSTR+R5)     | 70715 | 15025 |     | 70443 |                                |
| .     | CC512 |    |           | EXIT  |                  | 70716 | 61010 |     | 70712 |                                |
| .     | CC513 |    | ADLCPTH   | ENTRY |                  | 70717 | 61000 |     | 00000 |                                |
| .     | CC514 |    |           | RJP   | ADLCUPPER        | 70720 | 65000 |     | 70712 |                                |
| .     | CC515 |    |           | RJP   | ADLCLOWER        | 70721 | 65000 |     | 70705 |                                |
| .     | CC516 |    |           | EXIT  |                  | 70722 | 61010 |     | 70717 |                                |
| .     | CC517 |    | EXECINSTR | ENTRY |                  | 70723 | 61000 |     | 00000 |                                |
| .     | CC520 |    |           | ENT   | A*(INSTR+R5)     | 70724 | 11035 |     | 70443 |                                |
| .     | CC521 |    |           | STR   | A*(NEXT00)       | 70725 | 15030 |     | 70726 |                                |
| .     | CC522 |    | NEXT00    | U     | C                | 70726 | 00000 |     | 00000 |                                |
| .     | CC523 |    |           | ENT   | R4#R4-1          | 70727 | 12404 |     | 77776 |                                |
| .     | CC524 |    |           | EXIT  |                  | 70730 | 61010 |     | 70723 |                                |
| .     | CC525 |    | ENUPROG   | ENTRY |                  | 70731 | 61000 |     | 00000 |                                |
| .     | CC526 |    |           | RJP   | COMPCKSM         | 70732 | 65000 |     | 70656 |                                |
| .     | CC527 |    | UPLATBASE | ENT   | A#H4             | 70733 | 11004 |     | 00000 |                                |
| .     | CC530 |    |           | ACC   | A#14             | 70734 | 20000 |     | 00014 |                                |
| .     | CC531 |    |           | SEL   | CL#7             | 70735 | 52000 |     | 00007 |                                |
| .     | CC532 |    |           | STR   | A*(BASEADDR)     | 70736 | 15030 |     | 70404 |                                |
| .     | CC533 |    |           | STR   | A*(STOREBASE)    | 70737 | 15030 |     | 70127 |                                |
| .     | CC534 |    |           | STR   | BD*CPW(EOPTINC)  | 70740 | 16070 |     | 72344 |                                |
| .     | CC545 |    |           | RJP   | REAC2WDS         | 70741 | 65000 |     | 72261 |                                |
| .     | CC536 |    | DOAF320   | STR   | PC*CPW(EOPTINC)  | 70742 | 16070 |     | 72344 |                                |
| .     | CC537 |    |           | ENT   | A*(PMODE)        | 70743 | 11030 |     | 71650 |                                |
| .     | CC540 |    |           | JP    | L(MAINLOAD)*ANOT | 70744 | 60510 |     | 70314 |                                |
| .     | CC541 |    |           | RJP   | MAINLOAD         | 70745 | 65000 |     | 70314 | STCPE INDEX REGISTERS B2-B6    |
| .     | CC542 |    | STCPEXRS  | ENTRY |                  | 70746 | 61000 |     | 00000 |                                |
| .     | CC543 |    |           | STR   | P2*U(UR2L83)     | 70747 | 16220 |     | 70764 |                                |
| .     | CC544 |    |           | STR   | B3*U(UR2L83)     | 70750 | 16310 |     | 70764 |                                |
| .     | CC545 |    |           | STR   | P4*U(UR4L85)     | 70751 | 16420 |     | 70765 |                                |
| .     | CC546 |    |           | STR   | P5*U(UR4L85)     | 70752 | 16510 |     | 70765 |                                |
| .     | CC547 |    |           | STR   | P6*U(UR6)        | 70753 | 16620 |     | 70766 |                                |
| .     | CC550 |    |           | RILJP | L(STOPEXRS)      | 70754 | 60110 |     | 70746 |                                |
| .     | CC551 |    | ENTERXRS  | ENTRY |                  | 70755 | 61000 |     | 00000 | RESTORE INDEX REGISTERS B2-B6  |
| .     | CC552 |    |           | ENT   | P2*U(UR2L83)     | 70756 | 12220 |     | 70764 |                                |
| .     | CC553 |    |           | ENT   | B3*U(UR2L83)     | 70757 | 12310 |     | 70764 |                                |

| CARDS | LI (D | LAPEL      | TA STATEMENT                   | LCC   | F     | JKR    | Y | NOTES                         |
|-------|-------|------------|--------------------------------|-------|-------|--------|---|-------------------------------|
| •     | CC554 |            | ENT R4•U(UB4LB5)               | 70760 | 1242C | 7C765  |   |                               |
| •     | CC555 |            | ENT R5•L(UB4LB5)               | 70761 | 1251C | 7C765  |   |                               |
| •     | CC556 |            | ENT R6•U(UB6)                  | 70762 | 1262C | 7C766  |   |                               |
| •     | CC557 |            | EXIT                           | 70763 | 61C1C | 7C755  |   |                               |
| •     | CC560 | UB2LB3     | C C                            | 70764 | CCCCC | CCCCC  |   |                               |
| •     | CC561 | UB4LB5     | C C                            | 70765 | CCCCC | CCCCC  |   |                               |
| •     | CC562 | UB6        | C C                            | 70766 | CCCCC | CCCCC  |   |                               |
| •     | CC563 | PRINT      | ENTRY                          | 70767 | 61C0C | CCCCC  |   | PPRINT CN CCONSOLE TYPEWRITER |
| •     | CC564 |            | RJP STOREXRS                   | 70770 | 65C0C | 7C746  |   |                               |
| •     | CC565 |            | PUT W(JPPRINTOVR)*W(62)        | 70771 | 1C03C | 71C26  |   |                               |
| •     | CC566 |            | PUT L(PRINT)*L(SETUP)          | 70772 | 14C3C | CCCC62 |   |                               |
| •     | CC567 | SETUP      | PUT W(C)*W(UNPACKCODE)         | 70774 | 14C1C | 7C775  |   |                               |
| •     | CC570 |            | RPL Y+1•L(PRINT)               | 70775 | 1C03C | CCCCC  |   |                               |
| •     | CC571 |            | ENT A•BUFFCPRNT*3              | 70776 | 14C3C | 71C02  |   |                               |
| •     | CC572 |            | RJP UNPACK                     | 70777 | 36C1C | 7C767  |   | INDEX RETURN POINT            |
| •     | CC573 | UNPACKCODE | C C                            | 71000 | 11C0C | 71C33  |   | UNPACK FIELDATA TEXT          |
| •     | CC574 |            | ENT C•U(UNPACKCODE)            | 71001 | 65C0C | 71177  |   |                               |
| •     | CC575 |            | MUL 5                          | 71002 | CCCCC | CCCCC  |   |                               |
| •     | CC576 |            | ACD G•BUFFCPRNT*3              | 71003 | 1C03C | 71C02  |   |                               |
| •     | CC577 |            | STR G•L(STORECR)               | 71004 | 22C0C | CCCCC  |   | COUNT CF WPCRS                |
| •     | CC600 |            | ACC C•1                        | 71005 | 26C0C | 71C33  |   | COUNT CF CHARACTERS           |
| •     | CC601 |            | STR C•L(STORELF)               | 71006 | 14C1C | 71C12  |   |                               |
| •     | CC602 |            | CL A•                          | 71007 | 26C0C | CCCCC  |   |                               |
| •     | CC603 | STORECR    | STR A•L(C)                     | 71010 | 14C1C | 71C12  |   |                               |
| •     | CC604 | STORELF    | STR A•L(N)                     | 71011 | 11C0C | CCCCC  |   |                               |
| •     | CC605 |            | STR C•A                        | 71012 | 15C1C | CCCCC  |   |                               |
| •     | CC606 | CHCADR     | LSH A•15D                      | 71013 | 15C1C | CCCCC  |   | LWA CF UNPACKEC TEXT          |
| •     | CC607 |            | SEL SET•BUFFCPRNT              | 71014 | 14C4C | CCCCC  |   |                               |
| •     | CC610 |            | STR A•W(PRINTBUFFC)            | 71015 | 6C0C  | CC17   |   |                               |
| •     | CC611 |            | CUT TYPE•W(PRINTBUFFC)*MCNITOR | 71016 | 5C0C  | 71C3C  |   |                               |
| •     | CC612 | WAITPRINT  | JP WAITPRINT                   | 71017 | 15C3C | 71C27  |   |                               |
| •     | CC613 | PRINTOVR   | RJP ENTERXRS                   | 71020 | 7613C | 71C27  |   |                               |
| •     | CC614 |            | RPT 1C0C0                      | 71021 | 61C0C | 71C21  |   |                               |
| •     | CC615 |            | CIV 1                          | 71022 | 65C0C | 7C755  |   |                               |
| •     | CC616 |            | EXIT                           | 71023 | 7C0C  | C175C  |   |                               |
| •     | CC617 | JPPRINTCV3 | RILJP PRINTOVR                 | 71024 | 23C0C | CCCCC  |   |                               |
| •     | CC620 | PRINTBUFFC | C C                            | 71025 | 61C1C | 7C767  |   |                               |
| •     | CC621 | BUFFCPRNT  | C C3                           | 71026 | 6C1C  | 71C22  |   | HUFFER CONTROL FOR PRINTING   |
| •     | CC622 |            | C C                            | 71027 | CCCCC | CCCCC  |   |                               |
| •     | CC623 |            | C C4                           | 71030 | CCCCC | CCCCC  |   | LINE FEED                     |
| •     | CC624 |            | RESERVE 100D                   | 71031 | CCCCC | CCCCC  |   | CARRIAGE RETURN               |
| •     | CC625 | UNPACK     | ENTRY                          | 71032 | CCCCC | CCCCC  |   |                               |
| •     | CC626 |            | STR A•L(STOREUNPAK)            | 71033 | 61C0C | CCCCC  |   | UNPACK 1 CHARACTER TO WCRD    |
| •     | CC627 |            | PUT L(UNPACK)*L(PUTCOUNTER)    | 71034 | 15C1C | 71221  |   | FWA CF UNPACKED TABLE         |
| •     | CC630 | PUTCOUNTER | PUT W(C)*W(COUNTER)            | 71035 | 1C03C | 71C02  |   |                               |
| •     | CC631 |            | RPL Y+1•L(UNPACK)              | 71036 | 14C3C | 71C27  |   |                               |
| •     | CC632 |            | CL E3•                         | 71203 | 1C03C | CCCCC  |   |                               |
| •     |       |            |                                | 71204 | 14C3C | 71227  |   | INDEX RETURN POINT            |
| •     |       |            |                                | 71205 | 36C1C | 71177  |   | CLEAR WPC COUNTER             |
| •     |       |            |                                | 71206 | 123C  | CCCCC  |   |                               |

| CARDS | LI    | ID | LABEL      | TA     | STATEMENT                        | LOC   | F     | JKH   | Y | ACTES                          |
|-------|-------|----|------------|--------|----------------------------------|-------|-------|-------|---|--------------------------------|
| •     | CC633 |    |            | PUT    | L(COUNTER)*L(GETPACK)            | 71207 | 10C10 | 71227 |   | FMA CF PACKED TABLE            |
| •     | CC634 |    |            | ENT    | A*(COUNTER)                      | 71210 | 14C10 | 71216 |   | WCRG CCUNT                     |
| •     | CC635 |    |            | SUB    | A*1                              | 71211 | 11C20 | 71227 |   | WCRG CCUNT - 1                 |
| •     | CC636 |    |            | STR    | A*(LOOPLIMIT)                    | 71212 | 21C00 | CCCC  |   |                                |
| •     | CC637 |    |            | CL     | R4*                              | 71213 | 15C10 | 71224 |   | CLEAR CHARACTER CCOUNTER       |
| •     | CC640 |    | LCCPSTART  | ENT    | R5*4                             | 71214 | 124C0 | CCCC  |   | SET TO LCCP 5 TIMES            |
| •     | CC641 |    | GETPACK    | ENT    | G*(R3)                           | 71215 | 125C0 | CCCC  |   | PACKED WCRG                    |
| •     | CC642 |    | LCCP1      | CL     | A*                               | 71216 | 10C33 | CCCC  |   | CLEAR ACCUMULATOR              |
| •     | CC643 |    |            | LSH    | AQ*6                             | 71217 | 11C00 | CCCC  |   | NEXT CHARACTER CF PACKED WORD  |
| •     | CC644 |    | STCPEUNPAK | STR    | A*(R4)                           | 71220 | C7C00 | CCCC  |   |                                |
| •     | CC645 |    |            | BSK    | R4*77777                         | 71221 | 15C14 | CCCC  |   | STORE IN UNPACK TABLE          |
| •     | CC646 |    |            | RJP    | R5*LOOPL                         | 71222 | 714C0 | 77777 |   | INDEX UNPACK TABLE             |
| •     | CC647 |    | LCCPLIMIT  | BSK    | R3*0                             | 71223 | 725C0 | 71217 |   | FINISHED THIS WCRG...          |
| •     | CC650 |    |            | JP     | LCCPSTART                        | 71224 | 713C0 | CCCC  |   | YES. FINISHED ALL WCRGS...     |
| •     | CC651 |    |            | EXIT   | C                                | 71225 | 61C00 | 71215 |   | NC.                            |
| •     | CC652 |    | COUNTER    | ENTRY  | C                                | 71226 | 61C10 | 71177 |   | YES.                           |
| •     | CC653 |    | READTAPE   | RJP    | STOREXRS                         | 71227 | CCCC  | CCCC  |   | U                              |
| •     | CC654 |    |            | PUT    | L(READTAPE)*L(INPUFFER)          | 71230 | 61C00 | CCCC  |   | REAC SPUPT 21C TAPE            |
| •     | CC655 |    |            | RPL    | Y*1*(READTAPE)                   | 71231 | 65C00 | 7C746 |   |                                |
| •     | CC656 |    |            | CL     | R2*                              | 71232 | 10C10 | 71230 |   |                                |
| •     | CC657 |    | INPUFFER   | IN     | TAPE*(R10)                       | 71233 | 14C10 | 71236 |   | INDEX RETURN PCINT             |
| •     | CC660 |    |            | PUT    | W(JPC15EXT)*W(35)                | 71234 | 36C10 | 71230 |   | ESTABLISH INPUT BUFFER         |
| •     | CC661 |    |            | EX-FCI | TAPE*52UCCCC004                  | 71235 | 122C0 | CCCC  |   |                                |
| •     | CC662 |    | WAIT1      | JP     | WAIT1                            | 71237 | 1CC30 | 71336 |   |                                |
| •     | CC663 |    | CL5EXTINT  | STR    | TAPE*(STATUS)                    | 71240 | 14C30 | CCC35 |   | BINARY-HE TAPE CN UNIT 2       |
| •     | CC664 |    |            | ENT    | A*(STATUS)                       | 71241 | 13670 | 72366 |   | WAIT FOR INTERRUPT             |
| •     | CC665 |    |            | RSH    | A*110                            | 71242 | 61C00 | 71242 |   | STATUS WCRG                    |
| •     | CC666 |    |            | ADD    | A*STATUSCODE                     | 71243 | 17670 | 71455 |   |                                |
| •     | CC667 |    |            | STR    | A*(INTERJUMP)                    | 71244 | 11C20 | 71455 |   |                                |
| •     | CC670 |    |            | RIL    | L(C)                             | 71245 | 22C00 | CCC13 |   |                                |
| •     | CC671 |    | INTERJUMP  | JP     | L(C)                             | 71246 | 20C00 | 71275 |   |                                |
| •     | CC672 |    |            | RJP    | ENTERXRS                         | 71247 | 15C10 | 71251 |   | GC TO APPROPRIATE STATUS ROUTE |
| •     | CC673 |    | BACK       | EXIT   |                                  | 71250 | 60C00 | CCCC  |   | NE                             |
| •     | CC674 |    | INTERLUCK  | PUT    | W(UNITNOINT)*W(LCCKP)            | 71251 | 61U10 | CCCC  |   |                                |
| •     | CC675 |    |            | RJP    | PRINT                            | 71252 | 65C00 | 7C755 |   | INTERLUCK ROUTINE              |
| •     | CC676 |    |            | 110    | INTERLUCKP                       | 71253 | 61C10 | 71230 |   |                                |
| •     | CC677 |    |            | JP     | INPUFFER*STOP                    | 71254 | 10C30 | 71274 |   | PRINT INTERLUCK MESSAGE        |
| •     | CC700 |    |            | FC     | 6* THERE IS AN INTERLUCK ON UNIT | 71255 | 14C30 | 71267 |   |                                |
| •     | CC701 |    | INTERLUCKP |        |                                  | 71256 | 65C00 | 7C767 |   |                                |
| •     |       |    |            |        |                                  | 71257 | CCC13 | 71261 |   |                                |
| •     |       |    |            |        |                                  | 71260 | 614C0 | 71236 |   |                                |
| •     |       |    |            |        |                                  | 71261 | 31151 | 22712 |   |                                |
| •     |       |    |            |        |                                  | 71262 | 05163 | CC506 |   |                                |
| •     |       |    |            |        |                                  | 71263 | 23C51 | 62331 |   |                                |
| •     |       |    |            |        |                                  | 71264 | 12272 | 12410 |   |                                |
| •     |       |    |            |        |                                  | 71265 | 20C52 | 42305 |   |                                |
| •     |       |    |            |        |                                  | 71266 | 32231 | 63105 |   |                                |
| •     |       |    |            |        |                                  | 71267 | 10750 | 5C510 |   |                                |
| •     |       |    |            |        |                                  | 71270 | 24272 | 71210 |   |                                |
| •     |       |    |            |        |                                  | 71271 | 31C50 | 62311 |   |                                |





| CARDS | L1    | ID         | LABEL | TA     | STATEMENT                                | LCC   | F     | JKR   | Y | NCIES                           |
|-------|-------|------------|-------|--------|------------------------------------------|-------|-------|-------|---|---------------------------------|
| .     | C1003 |            |       | LSH    | AC*3                                     | 71450 | 07000 | 00000 |   |                                 |
| .     | C1004 |            |       | NC-OP  |                                          | 71451 | 12000 | 00000 |   |                                 |
| .     | C1005 | DUMMY      |       | ACC    | A*(EXCESS60)                             | 71452 | 20030 | 71454 |   |                                 |
| .     | C1006 |            |       | EXIT   |                                          | 71453 | 61010 | 71436 |   |                                 |
| .     | C1007 | CXCESS60   |       | 6C606  | 06060                                    | 71454 | 60606 | 60606 |   |                                 |
| .     | C1010 | STATUS     |       | G      | C                                        | 71455 | 00000 | 00000 |   |                                 |
| .     | C1011 | INFUTAPEND |       | PUT    | W(ENDTAPEU)*W(ENDTAPEU)                  | 71456 | 10030 | 71501 |   |                                 |
| .     | C1012 |            |       | RJP    | PRINT                                    | 71457 | 14030 | 71473 |   |                                 |
| .     | C1013 |            |       | 130    | ENDOFAPM                                 | 71460 | 65000 | 70767 |   | PRINT ENC-CF-TAPE MESSAGE       |
| .     | C1014 |            |       | JP     | ATENDOFFILE                              | 71461 | 00015 | 71464 |   |                                 |
| .     | C1015 |            |       | EXIT   | STOP                                     | 71462 | 61000 | 70066 |   |                                 |
| .     | C1016 | ENDCFTAPM  |       | FC     | 7*AN END OF TAPE HAS OCCURRED ON UN71464 | 71463 | 61410 | 71436 |   |                                 |
| .     |       |            |       | IT     |                                          |       | 66230 | 51223 |   |                                 |
| .     | C1017 | ENDTAPEM   |       | FC     | 6* . HANG NEW TAPE AND START.            | 71465 | 11052 | 41305 |   |                                 |
| .     |       |            |       |        |                                          | 71466 | 31062 | 51205 |   |                                 |
| .     |       |            |       |        |                                          | 71467 | 15063 | 00524 |   |                                 |
| .     |       |            |       |        |                                          | 71470 | 10103 | 22727 |   |                                 |
| .     |       |            |       |        |                                          | 71471 | 12110 | 52423 |   |                                 |
| .     |       |            |       |        |                                          | 71472 | 05322 | 31631 |   |                                 |
| .     |       |            |       |        |                                          | 71473 | 05057 | 50515 |   |                                 |
| .     |       |            |       |        |                                          | 71474 | 06231 | 40522 |   |                                 |
| .     |       |            |       |        |                                          | 71475 | 12340 | 53106 |   |                                 |
| .     |       |            |       |        |                                          | 71476 | 25120 | 50622 |   |                                 |
| .     |       |            |       |        |                                          | 71477 | 11053 | 03106 |   |                                 |
| .     |       |            |       |        |                                          | 71500 | 27317 | 50505 |   |                                 |
| .     |       |            |       |        |                                          | 71501 | 05107 | 50505 |   |                                 |
| .     | C1020 | ENDTAPEU   |       | FC     | 1* C.                                    | 71502 | 61000 | 00000 |   | WRITE + WAIT FOR 1 RECCRO       |
| .     | C1021 | WRITE      |       | ENTRY  |                                          | 71503 | 10030 | 71410 |   |                                 |
| .     | C1022 |            |       | PUT    | W(ENTRANCE)*W(35)                        | 71504 | 14030 | 00035 |   | PICK UP BUFFER CONTROL WORD     |
| .     | C1023 |            |       | PUT    | L(WRITE)*L(WRITEUT)                      | 71505 | 10010 | 71502 |   | SET FOR ACRMAL RJP +2           |
| .     | C1024 | FORWARD    |       | RPL    | Y+1*(WRITE)                              | 71506 | 14010 | 71512 |   |                                 |
| .     | C1025 |            |       | EX-FCI | C15*12000000C10                          | 71507 | 36010 | 71502 |   |                                 |
| .     | C1026 |            |       | RIL    |                                          | 71510 | 13670 | 72370 |   |                                 |
| .     | C1027 | WRITEOUT   |       | CUT    | C15*W(0)                                 | 71511 | 60000 | 00000 |   |                                 |
| .     | C1030 | HEFF       |       | JP     | HERE                                     | 71512 | 74670 | 00000 |   |                                 |
| .     | C1031 | INTERRUPT  |       | STR    | C15*W(CHANNEL)                           | 71513 | 61000 | 71512 |   | WAIT FOR INTERRUPT              |
| .     | C1032 |            |       | ENT    | A*U(CHANNEL)                             | 71514 | 17670 | 71544 |   | PICK UP STATUS WORD             |
| .     | C1033 |            |       | RSH    | A*110                                    | 71515 | 11020 | 71544 |   | LOCATION OF TABLE OF JUMPS      |
| .     | C1034 |            |       | ACC    | A*STATCODE                               | 71516 | 02000 | 00012 |   |                                 |
| .     | C1035 |            |       | STR    | A*LL(INTJUMP)                            | 71520 | 15010 | 71521 |   | JUMP CONTROLLING S.R.           |
| .     | C1036 | INTJUMP    |       | JP     | L(0)                                     | 71521 | 61010 | 00000 |   | MACHINE ERROR OR NOT USED       |
| .     | C1037 | BADMCH     |       | PUT    | U(MYSERV0)*U(UNITNO)                     | 71522 | 10020 | 71565 |   |                                 |
| .     | C1040 |            |       | JP     | MACHERROR                                | 71523 | 14020 | 71327 |   | ART S RELTINE                   |
| .     | C1041 | REDUNDANT  |       | EX-FCI | C15*20300000C10                          | 71524 | 61000 | 71424 |   | PARITY ON CLIPUT TAPE, BACKSPAC |
| .     | C1042 |            |       | RPT    | 77777                                    | 71525 | 13670 | 72371 |   | E                               |
| .     | C1043 |            |       | NC-OP  |                                          | 71526 | 70000 | 77777 |   |                                 |
| .     | C1044 |            |       | EX-FCI | C15*00300000C10                          | 71527 | 12000 | 00000 |   | ERASE FORWARD                   |
| .     | C1045 |            |       | JP     | WRITEUT                                  | 71530 | 13670 | 72372 |   |                                 |
| .     | C1046 | ENDTAPE    |       | EX-FCI | C15*02300000C10                          | 71531 | 61000 | 71512 |   | WRITE E C F HC                  |
| .     |       |            |       |        |                                          | 71532 | 13670 | 72363 |   |                                 |

..... SPURT OUTPUT NO. 210  
JCD\*4/8/65

..... SYSLOADER

| CARDS | LI    | ID | LABEL    | TA                        | STATEMENT                                 | LCC   | F     | JKB   | Y | ACTES                        |
|-------|-------|----|----------|---------------------------|-------------------------------------------|-------|-------|-------|---|------------------------------|
| *     | C1047 |    |          | RPT                       | 7777                                      | 71533 | 7CCCC | 7777  |   |                              |
| *     | C1050 |    |          | NC-OP                     |                                           | 71534 | 12C00 | CCCC  |   |                              |
| *     | C1051 |    |          | EX-FCI                    | C15*211C00CCCC10                          | 71535 | 13670 | 72373 |   | REW W/ INTLCK                |
| *     | C1052 |    |          | RJP PRINT                 |                                           | 71536 | 65C00 | 70767 |   |                              |
| *     | C1053 |    |          | 8C NEWTAPE                |                                           | 71537 | CCC10 | 71566 |   |                              |
| *     | C1054 |    |          | EXIT STOP                 |                                           | 71540 | 61410 | 71502 |   |                              |
| *     | C1055 |    | INTERLCK | RJP PRINT                 |                                           | 71541 | 65C00 | 70767 |   |                              |
| *     | C1056 |    |          | 100 WAKEUP                |                                           | 71542 | 00C12 | 71576 |   |                              |
| *     | C1057 |    |          | JP WRITEDOUT*STOP         |                                           | 71543 | 61400 | 71512 |   |                              |
| *     | C1060 |    | CHANNEL  | 0 C                       |                                           | 71544 | CCCCC | CCCC  |   | 0 ACT USED                   |
| *     | C1061 |    | STATCIDE | 00                        | RADMCH                                    | 71545 | CCCCC | 71522 |   | 1 CC                         |
| *     | C1062 |    |          | 04                        | RADMCH                                    | 71546 | 00C04 | 71522 |   | 2 CC                         |
| *     | C1063 |    |          | 10                        | RADMCH                                    | 71547 | CCC10 | 71522 |   | 3 CC                         |
| *     | C1064 |    |          | 14                        | RADMCH                                    | 71550 | CCC14 | 71522 |   | 4 CHAR SYNC SEQUENCE ERRO    |
| *     | C1065 |    |          | 20                        | RADMCH                                    | 71551 | CCC20 | 71522 |   |                              |
| *     | C1066 |    |          | 24                        | FCREWIND                                  | 71552 | 00C24 | 7151C |   |                              |
| *     | C1067 |    |          | 30                        | RADMCH                                    | 71553 | CCC30 | 71522 |   | 6 CHAP COUNT ERROR           |
| *     | C1070 |    |          | 34                        | RADMCH                                    | 71554 | CCC34 | 71522 |   | 7 FUNCTION WCRD ERROR        |
| *     | C1071 |    |          | EXIT                      |                                           | 71555 | 61C10 | 71502 |   | 10 ACRMAL CCMPLTION          |
| *     | C1072 |    |          | 44                        | REDUNDANT                                 | 71556 | CCC44 | 71525 |   | 11 PARITY                    |
| *     | C1073 |    |          | 50                        | RADMCH                                    | 71557 | CCC50 | 71522 |   | 12 CNTPL UNIT SEQUENCE ERROR |
| *     | C1074 |    |          | 54                        | RADMCH                                    | 71560 | CCC54 | 71522 |   | 13 END CF FILE               |
| *     | C1075 |    |          | 60                        | ENDTAPE                                   | 71561 | CCC60 | 71532 |   | 14 END CF TAPE               |
| *     | C1076 |    |          | 64                        | RADMCH                                    | 71562 | 00C64 | 71522 |   | 15 ACT USED                  |
| *     | C1077 |    |          | 70                        | RADMCH                                    | 71563 | CCC70 | 71522 |   | 16 ABNORMAL FRAME COUNT      |
| *     | C1100 |    | MYSERVC  | 74                        | INTERLCK                                  | 71564 | CCC74 | 71541 |   | 17 INTERLCK                  |
| *     | C1101 |    |          | FC 1* C.                  |                                           | 71565 | C5107 | 5C505 |   |                              |
| *     | C1102 |    | NEWTAPE  | FC                        | BC* MOUNT ANOTHER OUTPUT TAPE AND RE71566 | 22243 | 22331 |       |   |                              |
|       |       |    |          | SCME                      |                                           |       |       |       |   |                              |
|       |       |    |          |                           |                                           | 71567 | C5C62 | 32431 |   |                              |
|       |       |    |          |                           |                                           | 71570 | 15122 | 7C524 |   |                              |
|       |       |    |          |                           |                                           | 71571 | 32312 | 53231 |   |                              |
|       |       |    |          |                           |                                           | 71572 | C531C | 62512 |   |                              |
|       |       |    |          |                           |                                           | 71573 | C5C62 | 31105 |   |                              |
|       |       |    |          |                           |                                           | 71574 | 27123 | C3222 |   |                              |
|       |       |    |          |                           |                                           | 71575 | 12C50 | 5C505 |   |                              |
|       |       |    |          |                           |                                           | 71576 | 16233 | 11227 |   |                              |
|       |       |    |          | FC                        | 100*INTERLOCK FAULT CN OUTPUT TAPE.71576  |       |       |       |   |                              |
|       |       |    |          | **REMECY AND RESUME       |                                           |       |       |       |   |                              |
|       |       |    |          |                           |                                           | 71577 | 21241 | C2C05 |   |                              |
|       |       |    |          |                           |                                           | 71600 | 13C63 | 22131 |   |                              |
|       |       |    |          |                           |                                           | 71601 | C5242 | 3C524 |   |                              |
|       |       |    |          |                           |                                           | 71602 | 32312 | 53231 |   |                              |
|       |       |    |          |                           |                                           | 71603 | C531C | 62512 |   |                              |
|       |       |    |          |                           |                                           | 71604 | 75757 | 52712 |   |                              |
|       |       |    |          |                           |                                           | 71605 | 22121 | 13605 |   |                              |
|       |       |    |          |                           |                                           | 71606 | C6231 | 1C527 |   |                              |
|       |       |    |          |                           |                                           | 71607 | 12303 | 22212 |   |                              |
|       |       |    |          |                           |                                           | 71610 | 61C00 | 71514 |   |                              |
|       |       |    |          | JP INTERRUPT              |                                           | 71611 | CCCCC | CCCC  |   |                              |
|       |       |    |          | RESERVE 2                 |                                           | 71613 | 12231 | 12412 |   |                              |
|       |       |    |          | FC 2*ENDOFDUMP            |                                           | 71614 | 11322 | 22505 |   |                              |
|       |       |    |          |                           |                                           | 71615 | 1C203 | C3222 |   |                              |
|       |       |    |          | FD 4*CKSUM...HSP TO RETRY |                                           | 71616 | 75757 | 5153C |   |                              |

| CARDS | LI | ID | LAPEL | TA STATEMENT                        | LOC   | F     | JKB | Y | ACTES |
|-------|----|----|-------|-------------------------------------|-------|-------|-----|---|-------|
| .     |    |    |       |                                     | 71617 | 25053 |     |   | 12405 |
| .     |    |    |       | RILJP RET1                          | 71620 | 27123 |     |   | 12736 |
| .     |    |    |       | RILJP RET2                          | 71621 | 60100 |     |   | 72325 |
| .     |    |    |       | FC 3*EDF ON D (1)                   | 71622 | 60100 |     |   | 72332 |
|       |    |    |       |                                     | 71623 | 12241 |     |   | 30524 |
|       |    |    |       |                                     | 71624 | 23051 |     |   | 10551 |
|       |    |    |       |                                     | 71625 | 61400 |     |   | 50505 |
| .     |    |    |       | FC 1*FWA                            | 71626 | 13340 |     |   | 60505 |
| .     |    |    |       | FC 1*LWA                            | 71627 | 21340 |     |   | 60505 |
| .     |    |    |       | C                                   | 71630 | 00000 |     |   | 00000 |
| .     |    |    |       | C                                   | 71631 | 00000 |     |   | 00000 |
| .     |    |    |       | 140                                 | 71632 | 00000 |     |   | 00140 |
| .     |    |    |       | 77776                               | 71633 | 00000 |     |   | 77776 |
| .     |    |    |       | RILJP LINCPEW)                      | 71634 | 60110 |     |   | 63412 |
| .     |    |    |       | RILJP BSINT                         | 71635 | 60100 |     |   | 71774 |
| .     |    |    |       | C                                   | 71636 | 00000 |     |   | 00000 |
| .     |    |    |       | RILJP WRITERS                       | 71637 | 60100 |     |   | 71755 |
| .     |    |    |       | FC 2*P/S DONE..                     | 71640 | 07743 |     |   | 00511 |
| .     |    |    |       |                                     | 71641 | 24231 |     |   | 27575 |
| .     |    |    |       | FC 6*1/C(1) H/S(2) CCP(3) DPP(4)    | 71642 | 16741 |     |   | 05161 |
|       |    |    |       |                                     | 71643 | 40050 |     |   | 77430 |
|       |    |    |       |                                     | 71644 | 51624 |     |   | 00510 |
|       |    |    |       |                                     | 71645 | 10255 |     |   | 16340 |
|       |    |    |       |                                     | 71646 | 05112 |     |   | 52551 |
|       |    |    |       |                                     | 71647 | 64400 |     |   | 50505 |
|       |    |    |       |                                     | 71650 | 00000 |     |   | 00000 |
| .     |    |    |       | C                                   | 71651 | 00000 |     |   | 00000 |
| .     |    |    |       | C                                   | 71652 | 00000 |     |   | 00000 |
| .     |    |    |       | C                                   | 71653 | 00000 |     |   | 00000 |
| .     |    |    |       | FC 2*EDF(1)                         | 71654 | 12241 |     |   | 35161 |
| .     |    |    |       |                                     | 71655 | 40050 |     |   | 50505 |
| .     |    |    |       | FC 3*CCPGMS DONE...                 | 71656 | 10102 |     |   | 51422 |
|       |    |    |       |                                     | 71657 | 30051 |     |   | 12423 |
|       |    |    |       |                                     | 71660 | 12757 |     |   | 57505 |
| .     |    |    |       | FC 3*DDPGMS DONE...                 | 71661 | 11252 |     |   | 51422 |
|       |    |    |       |                                     | 71662 | 30051 |     |   | 12423 |
|       |    |    |       |                                     | 71663 | 12757 |     |   | 57505 |
| .     |    |    |       | C                                   | 71664 | 00000 |     |   | 00000 |
| .     |    |    |       | RILJP INTSRCH                       | 71665 | 60100 |     |   | 72153 |
| .     |    |    |       | FC 90*OUTPUT TAPE IPOURLE.. H1 SPEC | 71666 | 24323 |     |   | 12532 |
|       |    |    |       | C TRY AGAIN                         |       |       |     |   |       |
|       |    |    |       |                                     | 71667 | 31053 |     |   | 10625 |
|       |    |    |       |                                     | 71670 | 12053 |     |   | 12724 |
|       |    |    |       |                                     | 71671 | 32072 |     |   | 11275 |
|       |    |    |       |                                     | 71672 | 75051 |     |   | 51605 |
|       |    |    |       |                                     | 71673 | 30251 |     |   | 21211 |
|       |    |    |       |                                     | 71674 | 05312 |     |   | 40531 |
|       |    |    |       |                                     | 71675 | 27360 |     |   | 50614 |
|       |    |    |       |                                     | 71676 | 06162 |     |   | 30505 |
|       |    |    |       |                                     | 71677 | 16233 |     |   | 11227 |
| .     |    |    |       | FC 5*INTERLOCK CN SERVO H...        | 71700 | 21241 |     |   | 02005 |
|       |    |    |       |                                     | 71701 | 24230 |     |   | 53012 |
|       |    |    |       |                                     | 71702 | 27332 |     |   | 40507 |

| CARDS | LI    | ID | LABEL     | TA     | STATEMENT               | LUC   | F     | JK    | Y | NTES                                |
|-------|-------|----|-----------|--------|-------------------------|-------|-------|-------|---|-------------------------------------|
| .     | 01142 |    | SAVEBASE  | 0      |                         | 71703 | 75757 | 5C505 |   |                                     |
| .     | 01143 |    | SAVESTORE | 1      |                         | 71704 | CCCCC | CCCCC |   |                                     |
| .     | 01144 |    | ECSTSTRAP | EX-FCI | TAPE*2010000001         | 71705 | CCCCC | CCCCC |   | REMEMBER TC STR CHAN (REW SERV C A) |
| .     | 01145 |    | ASKFWA    | RJP    | PRINT                   | 71707 | 65000 | 70767 |   | ASK FWA                             |
| .     | 01146 |    |           | 1      | FWA                     | 71710 | CCCCC | 71826 |   | PICK UP FWA                         |
| .     | 01147 |    |           | RJP    | INCOME                  | 71711 | 65000 | 70225 |   |                                     |
| .     | 01150 |    |           | IN     | TYPE*(RCRREPLY)*MONITOR | 71712 | 75130 | 70304 |   | (F FWA IS C USE STANDARD VALUE      |
| .     | 01151 |    |           | NC-UP  |                         | 71713 | 12000 | CCCCC |   |                                     |
| .     | 01152 |    |           | CNT    | A*(NUMBER)*ANCT         | 71714 | 11530 | 70310 |   |                                     |
| .     | 01153 |    |           | ENT    | A*(STDFWA)              | 71715 | 11030 | 71632 |   |                                     |
| .     | 01154 |    |           | STR    | A*(THEFWA)              | 71716 | 15010 | 71830 |   |                                     |
| .     | 01155 |    |           | SUB    | A*1                     | 71717 | 21000 | CCCCC |   | L-1                                 |
| .     | 01156 |    |           | STR    | A*(STRJPI)              | 71720 | 15010 | 71743 |   | JP IC CENTREL                       |
| .     | 01157 |    |           | STR    | A*(LSUMMIT)             | 71721 | 15010 | 71762 |   | BEGIN CKSUM AT L-1                  |
| .     | 01158 |    |           | SUB    | A*1                     | 71722 | 21000 | CCCCC |   |                                     |
| .     | 01161 |    |           | STR    | A*(STOULL)              | 71723 | 15010 | 71746 |   | L-2                                 |
| .     | 01162 |    |           | STR    | A*(STOULL2)             | 71724 | 15010 | 71751 |   | FIRST WCHD CF RECCR                 |
| .     | 01163 |    |           | STR    | A*(BSRCW)               | 71725 | 15010 | 71636 |   | PCW FOR ECSTSTRAP                   |
| .     | 01164 |    | ASKLWA    | RJP    | PRINT                   | 71726 | 65000 | 70747 |   |                                     |
| .     | 01165 |    |           | 1      | LWA                     | 71727 | CCCCC | 71627 |   |                                     |
| .     | 01166 |    |           | RJP    | INCOME                  | 71730 | 65000 | 70225 |   |                                     |
| .     | 01167 |    |           | IN     | TYPE*(RCRREPLY)*MONITOR | 71731 | 75130 | 70304 |   |                                     |
| .     | 01170 |    |           | NC-UP  |                         | 71732 | 12000 | CCCCC |   |                                     |
| .     | 01171 |    |           | ENT    | A*(NUMBER)*ANCT         | 71733 | 11530 | 70310 |   |                                     |
| .     | 01171 |    |           | ENT    | A*(STDFWA)              | 71734 | 11030 | 71632 |   |                                     |
| .     | 01172 |    |           | STR    | A*(THELWA)              | 71735 | 15010 | 71631 |   |                                     |
| .     | 01173 |    |           | ACC    | A*1                     | 71736 | 20000 | CCCCC |   |                                     |
| .     | 01174 |    |           | STR    | A*(BSRCW)               | 71737 | 15020 | 71636 |   | RECCR L-2 TC U+1                    |
| .     | 01175 |    |           | STR    | A*(STRCSUM)             | 71740 | 15010 | 71744 |   | CKSUM IN U+1                        |
| .     | 01176 |    |           | STR    | A*(STRCSUM)             | 71741 | 15010 | 72011 |   |                                     |
| .     | 01177 |    |           | ENT    | C*(JPCONTROL)           | 71742 | 10030 | 71634 |   | IN L-1 JP IC CENTREL                |
| .     | 01200 |    | STRJP     | STR    | C*(ID)                  | 71743 | 14030 | LC000 |   |                                     |
| .     | 01201 |    |           | ENT    | A*(THELWA)              | 71744 | 11010 | 71831 |   |                                     |
| .     | 01202 |    |           | ACC    | A*1                     | 71745 | 20000 | CCCCC |   |                                     |
| .     | 01203 |    |           | STR    | A*(ID)                  | 71746 | 15020 | CCCCC |   | IN L-2 U=U                          |
| .     | 01204 |    | STRULL    | ENT    | C*(THEFWA)              | 71747 | 10010 | 71830 |   |                                     |
| .     | 01205 |    |           | SUB    | C*1                     | 71750 | 27000 | CCCCC |   |                                     |
| .     | 01206 |    |           | STR    | C*(ID)                  | 71751 | 14010 | CCCCC |   | PLCCK SET EXCEPT CKSUM              |
| .     | 01207 |    | STRULL2   | ENT    | A*(THELWA)              | 71752 | 11010 | 71831 |   |                                     |
| .     | 01210 |    |           | STR    | A*(THEFWA)*APCS         | 71753 | 21610 | 71630 |   |                                     |
| .     | 01211 |    |           | SUB    | A*(THEFWA)*APCS         | 71754 | 61000 | 71707 |   | SET TC WRITEOUT 800TSTRAP RECO      |
| .     | 01212 |    |           | JP     | ASKFWA                  | 71755 | 17670 | 71544 |   | AT                                  |
| .     | 01213 |    | WRITER5   | STR    | TAPE*(CHANNEL)          |       |       |       |   |                                     |
| .     | 01214 |    |           | ACC    | A*2                     | 71756 | 20000 | CCCCC |   |                                     |
| .     | 01215 |    |           | STR    | A*(APICKSUM)            | 71757 | 15010 | 71761 |   |                                     |
| .     | 01216 |    |           | CL     | A*                      | 71760 | 11000 | CCCCC |   |                                     |
| .     | 01217 |    | RPTCKSUM  | RPT    | C*ADV                   | 71761 | 70100 | CCCCC |   |                                     |
| .     | 01220 |    | SUMMIT    | ACC    | A*(ID)                  | 71762 | 20030 | CCCCC |   |                                     |
| .     | 01221 |    |           | CP     | A*                      | 71763 | 15040 | CCCCC |   |                                     |
| .     | 01222 |    | STRCSUM   | STR    | A*(ID)                  | 71764 | 15030 | CCCCC |   | U+1 = CKSUM                         |

| CARDS | LI    | IO | LABEL    | TA     | STATEMENT                | LOC   | F     | J | K | R | Y | NOTES |
|-------|-------|----|----------|--------|--------------------------|-------|-------|---|---|---|---|-------|
| .     | 01223 |    |          | RIL    |                          | 71765 | 60000 |   |   |   |   | CCCC  |
| .     | 01224 |    |          | PUT    | W(JPBSINT)*W(35)         | 71766 | 10030 |   |   |   |   | 71635 |
| .     | 01225 |    |          | EX-FCI | TAPE*120000C001          | 71767 | 14030 |   |   |   |   | CCCC  |
| .     | 01226 |    |          | NO-OP  |                          | 71770 | 13670 |   |   |   |   | 72375 |
| .     | 01227 |    |          | OUT    | TAPE*W(BSBCW)            | 71771 | 12000 |   |   |   |   | CCCC  |
| .     | 01230 |    |          | JP     | \$                       | 71772 | 74670 |   |   |   |   | 71636 |
| .     | 01231 |    | BSINT    | STR    | TAPE*W(CHANNEL)          | 71773 | 61000 |   |   |   |   | 71773 |
| .     | 01232 |    |          | ENT    | A*U(CHANNEL)             | 71774 | 17670 |   |   |   |   | 71544 |
| .     | 01233 |    |          | RIL    |                          | 71775 | 11020 |   |   |   |   | 71544 |
| .     | 01234 |    |          | RSH    | A*110                    | 71776 | 60000 |   |   |   |   | CCCC  |
| .     | 01235 |    |          | SUB    | A*10*ANOT                | 71777 | 02000 |   |   |   |   | CCCC  |
| .     | 01236 |    |          | JP     | GOODREC                  | 72000 | 21500 |   |   |   |   | CCCC  |
| .     | 01237 |    |          | EX-FCI | TAPE*3010000001          | 72001 | 61000 |   |   |   |   | 72007 |
| .     | 01240 |    |          | PUT    | W(JPWRBS)*W(35)          | 72002 | 13670 |   |   |   |   | 72376 |
| .     | 01241 |    |          | RIL    |                          | 72003 | 10030 |   |   |   |   | 71637 |
| .     | 01242 |    |          | JP     | \$                       | 72004 | 14030 |   |   |   |   | CCCC  |
| .     | 01243 |    | GOODREC  | RJP    | PRINT                    | 72005 | 60000 |   |   |   |   | CCCC  |
| .     | 01244 |    |          | 2      | BSDONE                   | 72006 | 61000 |   |   |   |   | 72006 |
| .     | 01245 |    | SHCWCS   | ENT    | A*W(0)                   | 72007 | 65000 |   |   |   |   | 70767 |
| .     | 01246 |    |          | STR    | A*Q                      | 72010 | 00002 |   |   |   |   | 71640 |
| .     | 01247 |    |          | JP     | \$+1*STOP5               | 72011 | 11030 |   |   |   |   | CCCC  |
| .     | 01250 |    | ASKAGAIN | RJP    | PRINT                    | 72012 | 15000 |   |   |   |   | 72014 |
| .     | 01251 |    |          | 6      | ELECT                    | 72013 | 61500 |   |   |   |   | 72014 |
| .     | 01252 |    |          | RJP    | INCOME                   | 72014 | 65000 |   |   |   |   | 70767 |
| .     | 01253 |    |          | IN     | TYPE*W(BCWREPLY)*MONITOR | 72015 | 00006 |   |   |   |   | 71642 |
| .     | 01254 |    |          | NO-OP  |                          | 72016 | 65000 |   |   |   |   | 70225 |
| .     | 01255 |    |          | ENT    | B1*(NUMBER)              | 72017 | 75130 |   |   |   |   | 70304 |
| .     | 01256 |    |          | JP     | L(WHATNOW*B1)            | 72020 | 12000 |   |   |   |   | CCCC  |
| .     | 01257 |    | WHATNDW  | 0      | ASKAGAIN                 | 72021 | 12110 |   |   |   |   | 70310 |
| .     | 01260 |    |          | 0      | LOADTAPE                 | 72022 | 61011 |   |   |   |   | 72023 |
| .     | 01261 |    |          | 0      | BOOTSTRAP                | 72023 | 00000 |   |   |   |   | 72014 |
| .     | 01262 |    |          | 0      | CCP                      | 72024 | 00000 |   |   |   |   | 70065 |
| .     | 01263 |    |          | 0      | CCP                      | 72025 | 00000 |   |   |   |   | 71706 |
| .     | 01264 |    | CCF      | STR    | BO*CPW(PMODE)            | 72026 | 00000 |   |   |   |   | 72030 |
| .     | 01265 |    |          | ENT    | A*(BASEAORS)             | 72027 | 00000 |   |   |   |   | 72125 |
| .     | 01266 |    |          | RJP    | PRINTBA                  | 72030 | 16070 |   |   |   |   | 7165C |
| .     | 01267 |    |          | STR    | A*(BASEAORS)             | 72031 | 11010 |   |   |   |   | 70404 |
| .     | 01270 |    |          | STR    | A*(STOREBASE)            | 72032 | 65000 |   |   |   |   | 72345 |
| .     | 01271 |    |          | STR    | A*(CCPADRS)              | 72033 | 15010 |   |   |   |   | 70404 |
| .     | 01272 |    |          | CL     | W(OPPAORS)               | 72034 | 15010 |   |   |   |   | 70127 |
| .     | 01273 |    |          | PUT    | CCPOONE*L(PRPARAM)       | 72035 | 15010 |   |   |   |   | 71651 |
| .     | 01274 |    |          | PUT    | CPPAORS*L(THISTDC)       | 72036 | 16030 |   |   |   |   | 71652 |
| .     | 01275 |    | ENTFMOPP | ENT    | A*(CCPAORS)              | 72037 | 10000 |   |   |   |   | 71656 |
| .     | 01276 |    |          | STR    | A*(RPTIT)                | 72040 | 14010 |   |   |   |   | 72117 |
| .     | 01277 |    |          | SUB    | A*1                      | 72041 | 10000 |   |   |   |   | 71652 |
| .     | 01300 |    |          | STR    | A*(STRLA)                | 72042 | 14010 |   |   |   |   | 72102 |
| .     | 01301 |    |          | STR    | A*(STRFA)                | 72043 | 11010 |   |   |   |   | 71651 |
| .     |       |    |          |        |                          | 72044 | 15010 |   |   |   |   | 72073 |
| .     |       |    |          |        |                          | 72045 | 21000 |   |   |   |   | CCCC  |
| .     |       |    |          |        |                          | 72046 | 15010 |   |   |   |   | 72064 |
| .     |       |    |          |        |                          | 72047 | 15010 |   |   |   |   | 72056 |

REWINO SERVO A WITH INTERRUPT

0 IS ILLEGAL  
1 IS IN CCRE  
2 IS B/S  
3 IS LOAO CELPGMS  
4 IS LDAO DATA PROCESSING PGMS

C= IN CCRE -O = CCP OR DPP

THIS TO BE UPDATED

REAC IN A CELCCMP PGM

BA-1

| CARDS | LI    | ID | LABFL | TA | STATEMENT                  | LOC   | F     | JK0   | Y | NTES                                     |
|-------|-------|----|-------|----|----------------------------|-------|-------|-------|---|------------------------------------------|
| .     | 01302 |    |       |    | SUB A*1                    | 72050 | 21000 |       |   |                                          |
| .     | 01303 |    |       |    | STR A*1(STRNAME)           | 72051 | 15010 | 72061 |   | BA-2                                     |
| .     | 01304 |    |       |    | STR A*1(ENTQRCW)           | 72052 | 15010 | 72333 |   | BA+1                                     |
| .     | 01305 |    |       |    | ACC A*3                    | 72053 | 20000 | 00000 |   |                                          |
| .     | 01306 |    |       |    | STR A*1(ENTNAME)           | 72054 | 15010 | 72060 |   |                                          |
| .     | 01307 |    |       |    | ENT A*1(CCPADRS)           | 72055 | 11010 | 71651 |   |                                          |
| .     | 01308 |    |       |    | STR A*1(ENT)               | 72056 | 15010 | 00000 |   | FWA IN L(WCP2)                           |
| .     | 01310 |    |       |    | RJP MA(NLOAD)              | 72057 | 65000 | 70314 |   |                                          |
| .     | 01311 |    |       |    | ENT A*1(0)                 | 72060 | 11030 | 00000 |   |                                          |
| .     | 01312 |    |       |    | STR A*1(0)                 | 72061 | 15030 | 00000 |   | PEM NAME IN W(WCP01 OF SEARCH<br>PECCRD) |
| .     | 01313 |    |       |    | STR A*1(0)                 |       |       |       |   |                                          |
| .     | 01314 |    |       |    | ENT A*1(LASTADR)           | 72062 | 11010 | 70406 |   |                                          |
| .     | 01315 |    |       |    | ACC A*1                    | 72063 | 20000 | 00000 |   | LWA IN U(WCR02)                          |
| .     | 01316 |    |       |    | STR A*1(0)                 | 72064 | 15020 | 00000 |   |                                          |
| .     | 01317 |    |       |    | STR A*1(FORKSUM)           | 72065 | 15010 | 72075 |   | STR CKSUM BA TO LAST WORD IN<br>PGM      |
| .     | 01320 |    |       |    | STR A*1(ENTQRCW)           | 72066 | 15020 | 72333 |   |                                          |
| .     | 01321 |    |       |    | SUB A*1(CCPADRS)           | 72067 | 21010 | 71651 |   |                                          |
| .     | 01322 |    |       |    | STR A*1(RPTN)              | 72070 | 15010 | 72072 |   |                                          |
| .     | 01323 |    |       |    | CL A*                      | 72071 | 11000 | 00000 |   |                                          |
| .     | 01324 |    |       |    | RPT C*ADV                  | 72072 | 20030 | 00000 |   |                                          |
| .     | 01325 |    |       |    | ACC A*1(0)                 | 72073 | 20030 | 00000 |   |                                          |
| .     | 01326 |    |       |    | CP A*                      | 72074 | 15040 | 00000 |   |                                          |
| .     | 01327 |    |       |    | STR A*1(0)                 | 72075 | 15030 | 00000 |   |                                          |
| .     | 01330 |    |       |    | ENT C*W(ENTQRCW)           | 72076 | 10030 | 72333 |   |                                          |
| .     | 01331 |    |       |    | RJP WSEARCH                | 72077 | 65000 | 72142 |   |                                          |
| .     | 01332 |    |       |    | ENT A*1(0)                 | 72100 | 11010 | 70404 |   |                                          |
| .     | 01333 |    |       |    | CCN A*1(OPPADRS)*VMOPE     | 72101 | 04710 | 71652 |   |                                          |
| .     | 01334 |    |       |    | STR A*1(OPPADRS)           | 72102 | 15010 | 71652 |   | RUNNING START PCINT FOR CP PGM<br>S      |
| .     | 01335 |    |       |    | ENT A*1(CCPADRS)           | 72103 | 11010 | 71651 |   |                                          |
| .     | 01336 |    |       |    | STR A*1(RASEADRS)          | 72104 | 15030 | 70404 |   |                                          |
| .     | 01337 |    |       |    | STR A*1(STOREBASE)         | 72105 | 15030 | 70127 |   |                                          |
| .     | 01340 |    |       |    | JP TCMATNLOAD              | 72106 | 61000 | 72057 |   |                                          |
| .     | 01341 |    |       |    | RJP PR(NT)                 | 72107 | 65000 | 70767 |   | FINISHED LOADING CCPS                    |
| .     | 01342 |    |       |    | 2 ASKEOF                   | 72110 | 00000 | 71654 |   |                                          |
| .     | 01343 |    |       |    | RJP (NCCME                 | 72111 | 65000 | 70225 |   |                                          |
| .     | 01344 |    |       |    | IN TYPE*(RCWREPLY)*MONITOR | 72112 | 75130 | 70304 |   |                                          |
| .     | 01345 |    |       |    | NC-UP                      | 72113 | 12000 | 00000 |   |                                          |
| .     | 01346 |    |       |    | ENT A*1(NUMBER)*AZERC      | 72114 | 11430 | 70310 |   |                                          |
| .     | 01347 |    |       |    | EX-FCI TAPE*0230000001     | 72115 | 13670 | 72377 |   | WECF SERVC A                             |
| .     | 01347 |    |       |    | RJP PR(NT)                 | 72116 | 65000 | 70767 |   |                                          |
| .     | 01350 |    |       |    | 3 CCPCONE                  | 72117 | 00000 | 71656 |   |                                          |
| .     | 01351 |    |       |    | CL W(PMODE)                | 72120 | 16030 | 71650 |   |                                          |
| .     | 01352 |    |       |    | ENT A*1(CCPADRS)           | 72121 | 11010 | 71651 |   |                                          |
| .     | 01354 |    |       |    | STR A*1(RASEADRS)          | 72122 | 15030 | 70404 |   |                                          |
| .     | 01355 |    |       |    | STR A*1(STOREBASE)         | 72123 | 15030 | 70127 |   |                                          |
| .     | 01356 |    |       |    | JP ASKAGA(N                | 72124 | 61000 | 72014 |   |                                          |
| .     | 01357 |    |       |    | STR RC*CPW(PMODE)          | 72125 | 16070 | 71650 |   |                                          |
| .     | 01360 |    |       |    | PUT CPPCONE*(PPAPAM)       | 72126 | 10000 | 71661 |   |                                          |
| .     | 01361 |    |       |    | ENT A*1(OPPADRS)           | 72127 | 14010 | 72117 |   |                                          |
| .     | 01362 |    |       |    | RJP PR(NT)                 | 72130 | 11010 | 71652 |   |                                          |
| .     | 01362 |    |       |    |                            | 72131 | 65000 | 72345 |   |                                          |

BACK-SPACE 1 RECCRD SERV A

| CARDS | LI    | IC | LAPEL | TA | STATEMENT                     | LCC   | F     | JK0   | Y | ACTES |
|-------|-------|----|-------|----|-------------------------------|-------|-------|-------|---|-------|
| •     | C1445 |    |       |    | PUT W(STOREBASE)*W(SAVESTORE) | 72217 | 14C3C | 71704 |   |       |
| •     | C1446 |    |       |    | CL W(BASEADDRS)               | 72220 | 1CC3C | 7C127 |   |       |
| •     | C1447 |    |       |    | CL W(STOREBASE)               | 72221 | 14C3C | 7C127 |   |       |
| •     | C1450 |    |       |    | ENT A*(IDREC)                 | 72222 | 14C3C | 7C4C4 |   |       |
| •     | C1451 |    |       |    | STR A*(PICUTAG)               | 72223 | 14C3C | 7C127 |   |       |
| •     | C1452 |    |       |    | ADD A+1                       | 72224 | 11C1C | 71611 |   |       |
| •     | C1453 |    |       |    | STR A*(PICNAME)               | 72225 | 15C1C | 7223C |   |       |
| •     | C1454 |    |       |    | PUT W(0)*W(INSTR)             | 72226 | 2CC0C | CC0C1 |   |       |
| •     | C1455 |    |       |    | PUT W(0)*W(INSTR+1)           | 72227 | 15C1C | 72232 |   |       |
| •     | C1456 |    |       |    | RJP PUTABLE                   | 72230 | 1CC3C | CC0C0 |   |       |
| •     | C1457 |    |       |    | ENT A*(IDREC)                 | 72231 | 14C3C | 7C442 |   |       |
| •     | C1460 |    |       |    | STR A*(STOREBASE)             | 72232 | 1CC3C | CC0C0 |   |       |
| •     | C1461 |    |       |    | ADD A*(HEADING+7)             | 72233 | 14C3C | 7C444 |   |       |
| •     | C1462 |    |       |    | SUB A+1                       | 72234 | 65C0C | 7C41C |   |       |
| •     | C1463 |    |       |    | STR A*(LASTADR)               | 72235 | 11C1C | 71611 |   |       |
| •     | C1464 |    |       |    | JP \$+2*KEY1                  | 72236 | 15C3C | 7C127 |   |       |
| •     | C1465 |    |       |    | RJP CCLCG                     | 72237 | 21C2C | 7C4C2 |   |       |
| •     | C1466 |    |       |    | PUT W(SAVEBASE)*W(BASEADDRS)  | 72240 | 21C0C | CC0C1 |   |       |
| •     | C1467 |    |       |    | PUT W(SAVESTORE)*W(STOREBASE) | 72241 | 15C3C | 7C4C6 |   |       |
| •     | C1470 |    |       |    | RJP READ2WDS                  | 72242 | 611C0 | 72244 |   |       |
| •     | C1471 |    |       |    | ENT A*(IDREC)                 | 72243 | 65C0C | 7C54C |   |       |
| •     | C1472 |    |       |    | SUB A*(EOPSENT)*AZERO         | 72244 | 1CC3C | 71704 |   |       |
| •     | C1473 |    |       |    | JP ACTEND                     | 72245 | 14C3C | 7C4C4 |   |       |
| •     | C1474 |    |       |    | ENT A*(IDREC+1)               | 72246 | 1CC3C | 717C5 |   |       |
| •     | C1475 |    |       |    | SUB A*(EOPSENT+1)*MAGT        | 72247 | 14C3C | 7C127 |   |       |
| •     | C1476 |    |       |    | JP CDEF320                    | 72250 | 65C0C | 72261 |   |       |
| •     | C1477 |    |       |    | RJP READNWD                   | 72251 | 11C3C | 71611 |   |       |
| •     | C1500 |    |       |    | JP CYCLEA                     | 72252 | 2143C | 71613 |   |       |
| •     | C1501 |    |       |    | ENTRY                         | 72253 | 61C0C | 72257 |   |       |
| •     | C1502 |    |       |    | RJP READTAPE                  | 72254 | 11C3C | 71612 |   |       |
| •     | C1503 |    |       |    | U-TAG IDREC+1*IDREC           | 72255 | 2153C | 71614 |   |       |
| •     | C1504 |    |       |    | JP \$+2*KEY2                  | 72256 | 61C0C | 7C742 |   |       |
| •     | C1505 |    |       |    | JP \$+3                       | 72257 | 65C0C | 72274 |   |       |
| •     | C1506 |    |       |    | RJP WRITE                     | 72261 | 61C0C | CC0C0 |   |       |
| •     | C1507 |    |       |    | U-TAG IDREC+1*IDREC           | 72262 | 65C0C | 7123C |   |       |
| •     | C1510 |    |       |    | ENT A*(IDREC)                 | 72263 | 71612 | 71611 |   |       |
| •     | C1511 |    |       |    | STR A*(HIGH1)                 | 72264 | 612C0 | 72266 |   |       |
| •     | C1512 |    |       |    | STR A*(HIGH2)                 | 72265 | 61C0C | 7227C |   |       |
| •     | C1513 |    |       |    | EXIT                          | 72266 | 65C0C | 715C2 |   |       |
| •     | C1514 |    |       |    | ENTRY                         | 72267 | 71612 | 71611 |   |       |
| •     | C1515 |    |       |    | RJP READTAPE                  | 72270 | 11C3C | 71611 |   |       |
| •     | C1516 |    |       |    | C                             | 72271 | 15C3C | 72276 |   |       |
| •     | C1517 |    |       |    | JP \$+2*KEY2                  | 72272 | 15C3C | 723C2 |   |       |
| •     | C1520 |    |       |    | JP \$+3                       | 72273 | 61C1C | 72261 |   |       |
| •     | C1521 |    |       |    | RJP WRITE                     | 72274 | 61C0C | CC0C0 |   |       |
| •     | C1522 |    |       |    | C                             | 72275 | 65C0C | 7123C |   |       |
|       |       |    |       |    |                               | 72276 | CC0C0 | CC0C0 |   |       |
|       |       |    |       |    |                               | 72277 | 612C0 | 723C1 |   |       |
|       |       |    |       |    |                               | 723C0 | 61C0C | 723C3 |   |       |
|       |       |    |       |    |                               | 723C1 | 65C0C | 715C2 |   |       |
|       |       |    |       |    |                               | 723C2 | CC0C0 | CC0C0 |   |       |

LCAC (ANC CCY) VARIABLE BLCK

| CARDS | LI    | ID      | LAPEL | TA      | STATEMENT               | LCC   | F     | JKH   | Y | NCIES                |
|-------|-------|---------|-------|---------|-------------------------|-------|-------|-------|---|----------------------|
| .     | 01523 |         |       | ENT     | A*(01GPI)               | 72303 | 11C20 | 72276 |   | LWA                  |
| .     | 01524 |         |       | SUB     | A*(01GPI)               | 72304 | 21C10 | 72276 |   | FWA                  |
| .     | 01525 |         |       | ADD     | A*1                     | 72305 | 20CCC | CCCC  |   | +1 = AC WGRES TO SUM |
| .     | 01526 |         |       | STR     | A*(01GPI)               | 72306 | 15C10 | 72312 |   | RPT INSTR            |
| .     | 01527 |         |       | ENT     | A*(01GPI)               | 72307 | 11C10 | 72312 |   |                      |
| .     | 01530 |         |       | STR     | A*(01GPI)               | 72310 | 15C10 | 72312 |   | LCCACTION CF FW      |
| .     | 01531 |         |       | CL      | A*                      | 72311 | 11CCC | CCCC  |   |                      |
| .     | 01532 | OSLM    |       | RPT     | C*ADV                   | 72312 | 20C30 | CCCC  |   |                      |
| .     | 01533 | STRHRE  |       | ADD     | A*(01GPI)               | 72313 | 21C30 | 71612 |   |                      |
| .     | 01534 |         |       | SUB     | A*(01GPI)               | 72314 | 11C10 | 72274 |   |                      |
| .     | 01535 |         |       | EXIT    |                         | 72315 | 65CCC | 70767 |   | CHECK SUM CK         |
| .     | 01536 |         |       | RJP     | PRINT                   | 72316 | 65CCC | 70767 |   |                      |
| .     | 01537 |         |       | 4       | INKSUM                  | 72317 | 00CCC | 71615 |   |                      |
| .     | 01540 |         |       | PUT     | W(RSRET1)*W(35)         | 72320 | 10C30 | 71621 |   |                      |
| .     | 01541 |         |       | RIL     |                         | 72321 | 14C30 | CCCC  |   |                      |
| .     | 01542 |         |       | EX-FCI  | TAPE*2020CCCC004        | 72322 | 60CCC | CCCC  |   |                      |
| .     | 01543 |         |       | JP      | \$                      | 72323 | 13670 | 72401 |   |                      |
| .     | 01544 | REI     |       | PUT     | W(RSRET2)*W(35)         | 72324 | 61CCC | 72324 |   |                      |
| .     | 01545 |         |       | RIL     |                         | 72325 | 10C30 | 71622 |   |                      |
| .     | 01546 |         |       | EX-FCI  | TAPE*2020CCCC004        | 72326 | 14C30 | CCCC  |   |                      |
| .     | 01547 |         |       | JP      | \$                      | 72327 | 60CCC | CCCC  |   |                      |
| .     | 01550 | PET2    |       | JP      | ENTERBS                 | 72330 | 13670 | 72401 |   |                      |
| .     | 01551 | ENTERC* |       | Q       |                         | 72331 | 61CCC | 72262 |   |                      |
| .     | 01552 | FCWATER |       | FC      | 3*NOT 320/321           | 72332 | 60CCC | CCCC  |   |                      |
| .     | 01553 | PGRA    |       | Q       |                         | 72333 | 23243 | 10563 |   |                      |
| .     | 01554 | ASRA    |       | FC      | 2*0/A OTHER THAN        | 72334 | 62247 | 46362 |   |                      |
| .     | 01555 | WILLUSE |       | Q       |                         | 72335 | 61C50 | 50C05 |   |                      |
| .     | 01556 | EOPIND  |       | Q       |                         | 72336 | 60CCC | CCCC  |   |                      |
| .     | 01557 | PRINTHA |       | ENTRY   |                         | 72337 | 07740 | 60524 |   |                      |
| .     | 01560 |         |       | STR     | A*(01GPI)               | 72340 | 31151 | 22705 |   |                      |
| .     | 01561 |         |       | PSH     | A*150                   | 72341 | 31150 | 62305 |   |                      |
| .     | 01562 |         |       | RJP     | KCCTOFU                 | 72342 | 60CCC | CCCC  |   |                      |
| .     | 01563 |         |       | STR     | A*(WILLUSE)             | 72343 | 60CCC | CCCC  |   |                      |
| .     | 01564 |         |       | RJP     | PRINT                   | 72344 | 60CCC | CCCC  |   |                      |
| .     | 01565 |         |       | 4       | ASRA                    | 72345 | 61CCC | CCCC  |   |                      |
| .     | 01566 |         |       | RJP     | INCME                   | 72346 | 15C10 | 72337 |   |                      |
| .     | 01567 |         |       | IN      | TYPE*(BCWREPLY)*MONITOR | 72347 | 03CCC | CCC17 |   |                      |
| .     | 01570 |         |       | NC-UP   |                         | 72348 | 65CCC | 71436 |   |                      |
| .     | 01571 |         |       | ENT     | A*(NUMBER)*NOT          | 72350 | 65CCC | 71436 |   |                      |
| .     | 01572 |         |       | ENT     | A*(PGMBA)               | 72351 | 15C30 | 72343 |   |                      |
| .     | 01573 |         |       | EXIT    |                         | 72352 | 65CCC | 70767 |   |                      |
| .     | 01574 |         |       | RESERVE | 1                       | 72353 | 00C04 | 72340 |   |                      |
| .     |       |         |       |         |                         | 72354 | 65CCC | 70225 |   |                      |
| .     |       |         |       |         |                         | 72355 | 75130 | 70304 |   |                      |
| .     |       |         |       |         |                         | 72356 | 12CCC | CCCC  |   |                      |
| .     |       |         |       |         |                         | 72357 | 11530 | 70310 |   |                      |
| .     |       |         |       |         |                         | 72360 | 11C10 | 72337 |   |                      |
| .     |       |         |       |         |                         | 72361 | 61C10 | 72345 |   |                      |
| .     |       |         |       |         |                         | 72362 | 00CCC | CCCC  |   |                      |
| .     |       |         |       |         |                         | 72363 | 02300 | CCCC  |   |                      |
| .     |       |         |       |         |                         | 72364 | 21100 | CCCC  |   |                      |
| .     |       |         |       |         |                         | 72365 | 05C50 | 50C05 |   |                      |
| .     |       |         |       |         |                         | 72366 | 52CCC | CCCC  |   |                      |
| .     |       |         |       |         |                         | 72367 | 20300 | CCCC  |   |                      |

|          |                       |               |
|----------|-----------------------|---------------|
| .....    | SPURT CLUTPUT NO. 21C | .....         |
| SYSLADER | J00*4/8/65            |               |
| CARDS    | LI IO LABEL           | IA STATEMENT  |
|          | LOC                   | F JKB Y ACIES |
|          | 72370                 | 12000 CCCC1C  |
|          | 72371                 | 20900 CCCC1C  |
|          | 72372                 | CC300 CCCC1C  |
|          | 72373                 | 21100 CCCC1C  |
|          | 72374                 | 20100 CCCC1C  |
|          | 72375                 | 12000 CCCC1C  |
|          | 72376                 | 30100 CCCC1C  |
|          | 72377                 | 02300 CCCC1C  |
|          | 72400                 | 20300 CCCC1C  |
|          | 72401                 | 30300 CCCC04  |

END OF LISTING

| LABEL     | LCC   | LABEL       | LCC   | LABEL       | LCC   | LABEL       | LCC   |
|-----------|-------|-------------|-------|-------------|-------|-------------|-------|
| AS\$11111 | 72363 | AS\$5\$1112 | 72364 | AS\$5\$1113 | 72365 | AS\$5\$1114 | 72366 |
| AS\$11112 | 70545 | AS\$5\$1115 | 72367 | AS\$5\$1116 | 72368 | AS\$5\$1117 | 72369 |
| AS\$11113 | 72370 | AS\$5\$1118 | 72371 | AS\$5\$1119 | 72372 | AS\$5\$1120 | 72373 |
| AS\$11114 | 72375 | AS\$5\$1121 | 72376 | AS\$5\$1122 | 72377 | AS\$5\$1123 | 72378 |
| AS\$11115 | 72379 | AS\$5\$1124 | 72380 | AS\$5\$1125 | 72381 | AS\$5\$1126 | 72382 |
| AS\$11116 | 72385 | AS\$5\$1127 | 72386 | AS\$5\$1128 | 72387 | AS\$5\$1129 | 72388 |
| AS\$11117 | 72390 | AS\$5\$1130 | 72391 | AS\$5\$1131 | 72392 | AS\$5\$1132 | 72393 |
| AS\$11118 | 72395 | AS\$5\$1133 | 72396 | AS\$5\$1134 | 72397 | AS\$5\$1135 | 72398 |
| AS\$11119 | 72400 | AS\$5\$1136 | 72401 | AS\$5\$1137 | 72402 | AS\$5\$1138 | 72403 |
| AS\$11120 | 72405 | AS\$5\$1139 | 72406 | AS\$5\$1140 | 72407 | AS\$5\$1141 | 72408 |
| AS\$11121 | 72410 | AS\$5\$1142 | 72411 | AS\$5\$1143 | 72412 | AS\$5\$1144 | 72413 |
| AS\$11122 | 72415 | AS\$5\$1145 | 72416 | AS\$5\$1146 | 72417 | AS\$5\$1147 | 72418 |
| AS\$11123 | 72420 | AS\$5\$1148 | 72421 | AS\$5\$1149 | 72422 | AS\$5\$1150 | 72423 |
| AS\$11124 | 72425 | AS\$5\$1151 | 72426 | AS\$5\$1152 | 72427 | AS\$5\$1153 | 72428 |
| AS\$11125 | 72430 | AS\$5\$1154 | 72431 | AS\$5\$1155 | 72432 | AS\$5\$1156 | 72433 |
| AS\$11126 | 72435 | AS\$5\$1157 | 72436 | AS\$5\$1158 | 72437 | AS\$5\$1159 | 72438 |
| AS\$11127 | 72440 | AS\$5\$1160 | 72441 | AS\$5\$1161 | 72442 | AS\$5\$1162 | 72443 |
| AS\$11128 | 72445 | AS\$5\$1163 | 72446 | AS\$5\$1164 | 72447 | AS\$5\$1165 | 72448 |
| AS\$11129 | 72450 | AS\$5\$1166 | 72451 | AS\$5\$1167 | 72452 | AS\$5\$1168 | 72453 |
| AS\$11130 | 72455 | AS\$5\$1169 | 72456 | AS\$5\$1170 | 72457 | AS\$5\$1171 | 72458 |
| AS\$11131 | 72460 | AS\$5\$1172 | 72461 | AS\$5\$1173 | 72462 | AS\$5\$1174 | 72463 |
| AS\$11132 | 72465 | AS\$5\$1175 | 72466 | AS\$5\$1176 | 72467 | AS\$5\$1177 | 72468 |
| AS\$11133 | 72470 | AS\$5\$1178 | 72471 | AS\$5\$1179 | 72472 | AS\$5\$1180 | 72473 |
| AS\$11134 | 72475 | AS\$5\$1181 | 72476 | AS\$5\$1182 | 72477 | AS\$5\$1183 | 72478 |
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| AS\$11137 | 72490 | AS\$5\$1190 | 72491 | AS\$5\$1191 | 72492 | AS\$5\$1192 | 72493 |
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| AS\$11142 | 72515 | AS\$5\$1205 | 72516 | AS\$5\$1206 | 72517 | AS\$5\$1207 | 72518 |
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| AS\$11166 | 72635 | AS\$5\$1277 | 72636 | AS\$5\$1278 | 72637 | AS\$5\$1279 | 72638 |
| AS\$11167 | 72640 | AS\$5\$1280 | 72641 | AS\$5\$1281 | 72642 | AS\$5\$1282 | 72643 |
| AS\$11168 | 72645 | AS\$5\$1283 | 72646 | AS\$5\$1284 | 72647 | AS\$5\$1285 | 72648 |
| AS\$11169 | 72650 | AS\$5\$1286 | 72651 | AS\$5\$1287 | 72652 | AS\$5\$1288 | 72653 |
| AS\$11170 | 72655 | AS\$5\$1289 | 72656 | AS\$5\$1290 | 72657 | AS\$5\$1291 | 72658 |
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| AS\$11172 | 72665 | AS\$5\$1295 | 72666 | AS\$5\$1296 | 72667 | AS\$5\$1297 | 72668 |
| AS\$11173 | 72670 | AS\$5\$1298 | 72671 | AS\$5\$1299 | 72672 | AS\$5\$1300 | 72673 |
| AS\$11174 | 72675 | AS\$5\$1301 | 72676 | AS\$5\$1302 | 72677 | AS\$5\$1303 | 72678 |
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| AS\$11185 | 72730 | AS\$5\$1334 | 72731 | AS\$5\$1335 | 72732 | AS\$5\$1336 | 72733 |
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| AS\$11240 | 73005 | AS\$5\$1499 | 73006 | AS\$5\$1500 | 73007 | AS\$5       |       |

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SPURT CLPUT NO. 211

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JDD\*4/5/65

SYSLOADER

| LABEL      | LCC   | LABEL      | LCC   | LABEL      | LCC | LABEL | LCC   |
|------------|-------|------------|-------|------------|-----|-------|-------|
| ENTERS     | 70758 | ENTFMDPR   | 72043 | ENTNAME    |     |       |       |
| ENTRCW     | 72349 | ENTRANCE   | 71610 | ECUATCR    |     |       | 72060 |
| ERASURE    | 70306 | ESTSHIFTED | 63143 | EXCESS6C   |     |       | 63323 |
| EXECUTSTR  | 70723 | EXPNAME    | 63150 | FCREWIND   |     |       | 71454 |
| FORKSUM    | 72075 | FORMATER   | 72334 | FCIBACKUP  |     |       | 70704 |
| FDSATCODE  | 71834 | FDTAPEPAR  | 71402 | FIRSTELEV  |     |       | 63104 |
| FIRSTTHRU  | 63153 | FLATTENING | 63337 | FRAMESIZE  |     |       | 63101 |
| FREQUENCY  | 63317 | FWA        | 71626 | GCCDREC    |     |       | 72007 |
| GOBACK     | 70273 | GEOCENLAT  | 63322 | GFCCEITLAT |     |       | 63321 |
| GETPACK    | 71216 | GMTMGDU24  | 63145 | GMTSHIFTED |     |       | 63144 |
| HOLDNCHOLD | 63511 | FOURMINUTE | 63137 | HCLRREG    |     |       | 63151 |
| HEADCULMS  | 70132 | FEADING    | 70373 | HEIGHT     |     |       | 63326 |
| HERE       | 71513 | IOLCK      | 72210 | IDICRADIO  |     |       | 66777 |
| ID11RADIO  | 67776 | ID12RADIO  | 67777 | ID13RADIO  |     |       | 70775 |
| ID14RADIO  | 70776 | ID15RADIO  | 71776 | ID16RADIO  |     |       | 71777 |
| ID17RADIO  | 72775 | ID16RADIO  | 72777 | ID19RADIO  |     |       | 73776 |
| ID18RADIO  | 63000 | ID1ENTRNT  | 63410 | ID19ADCCR  |     |       | 63050 |
| ID19RADIO  | 63440 | ID1RECRD   | 63210 | ID1SYSENT  |     |       | 77576 |
| ID1SYSNAM  | 77676 | ID1SYSPAR  | 63310 | ID1TIME    |     |       | 63130 |
| ID20RADIO  | 73777 | ID21RADIO  | 74776 | ID22RADIO  |     |       | 74777 |
| ID23RADIO  | 75776 | ID24RADIO  | 75777 | ID25RADIO  |     |       | 76775 |
| ID26RADIO  | 76776 | ID2CELCOR  | 63001 | ID2ENTPNT  |     |       | 63411 |
| ID28RADIO  | 63051 | ID2RADIO   | 63441 | ID2RECRD   |     |       | 63211 |
| ID2SYSENT  | 77577 | ID2SYSNAM  | 77677 | ID2SYSRAR  |     |       | 63211 |
| ID2TIME    | 63131 | ID3RADIO   | 63776 | ID4RADIO   |     |       | 63777 |
| ID5RADIO   | 64776 | ID6RADIO   | 64777 | ID7RADIO   |     |       | 65776 |
| ID6RADIO   | 65777 | ID9RADIO   | 66776 | IDREC      |     |       | 71611 |
| IN21MADD   | 63446 | INRUFFER   | 71236 | INCCME     |     |       | 70225 |
| INELEVADD  | 63447 | INXSUM     | 71615 | INPLTAPENC |     |       | 71456 |
| INSTR      | 70443 | INTER      | 63413 | INTERAZIM  |     |       | 72000 |
| INTERCOM   | 63426 | INTERDPP   | 74000 | INTERELEV  |     |       | 73000 |
| INTERJUMP  | 71251 | INTERLOCK  | 71254 | INTERLCCRP |     |       | 71261 |
| INTERLCK   | 71541 | INTERLCKSW | 63460 | INTERRANCE |     |       | 76777 |
| INTERUPT   | 71514 | INTJUMP    | 71521 | INTSRCH    |     |       | 72153 |
| JPCVERJUP  | 70311 | JPSINT     | 71635 | JPCCNTRCL  |     |       | 71634 |
| JPC15EXT   | 71336 | JPCIN      | 70305 | JRCRLF     |     |       | 70221 |
| JPCORACK   | 70307 | JPPRINTCVR | 71026 | JPSARCH    |     |       | 71665 |
| JPTCIT     | 70703 | JPWRRS     | 71637 | KCCITCFD   |     |       | 71436 |
| KMPERM     | 63342 | KY8RDLEVEL | 63110 | LCCPI      |     |       | 71217 |
| LCCRLIMIT  | 71224 | LOOPREPLY  | 70243 | LCCRSTART  |     |       | 71215 |
| LOADTAPE   | 70065 | LOCKEOUT   | 71677 | LCCRP      |     |       | 71267 |
| LOGINFO    | 70012 | LONGITUDE  | 63320 | LASTADR    |     |       | 70406 |
| LSRERAU    | 63336 | LWA        | 71627 | MCCIFENT   |     |       | 70435 |
| MCCIFSTORE | 70616 | MOOIFTABLE | 70532 | MACHERR    |     |       | 71422 |
| MACHERROR  | 71424 | MACHFAULT  | 71315 | MAINLCAD   |     |       | 70314 |
| MAINSWITCH | 63334 | MAYRE320   | 70333 | MCRFILLER  |     |       | 71000 |
| MCRGM      | 63412 | MCPID      | 70126 | MILLSTNACC |     |       | 63451 |
| MINREG     | 63152 | MSEREQ     | 63332 | MYSERVC    |     |       | 71565 |
| MCCRUPS    | 70147 | NOTEND     | 72257 | NCTMCP     |     |       | 70431 |
| NEWTAPE    | 71566 | NEXRLA     | 70230 | NEXTDC     |     |       | 70726 |
| NG         | 72202 | NKCLAR     | 70662 | NMRERAU    |     |       | 63340 |

SPURT CLUTPUT NO. 211

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JDD\*4/8/65

SYSLOADER

| LABEL      | LCC   | LABEL      | LCC   | LABEL      | LCC   |
|------------|-------|------------|-------|------------|-------|
| ANNE       | 7C7C0 | ANLYTWD    | 7C677 | NUMBER     | 7C31C |
| NUMCLEAR   | 7C056 | AVERJP     | 7C302 | PCLE       | 63224 |
| PARITY     | 71337 | PARITYMSG  | 71354 | PERICDAZIM | 63523 |
| PERICDDC   | 63525 | PERIDDELEV | 63521 | PERICDRA   | 63527 |
| PGMRA      | 72337 | PICNAME    | 72232 | PICLTAG    | 7223C |
| PL0TP      | 63436 | PLANP      | 63434 | PMCE       | 7165C |
| PM5G       | 71366 | PREVIOUSIM | 63461 | PRINT      | 7C767 |
| PRINTUIVER | 71022 | PRINTBA    | 72345 | PRINTBUFC  | 71C27 |
| PRLOG      | 63423 | PPARAM     | 72117 | PUTENCE    | 7C0C4 |
| PUTABLE    | 7C410 | PUTCOUNTCR | 712C3 | CSUM       | 72312 |
| ROTATEAERX | 63507 | ROTATCRADN | 63506 | RCTATERCER | 6351C |
| RA         | 63C02 | RAIOFFSET  | 63514 | RACCT      | 63C07 |
| RADARMODE  | 63312 | RADCBXSOAN | 63503 | RACECOTIME | 63531 |
| RADICDEC   | 63541 | RADIOMETER | 63102 | RACICRA    | 6354C |
| RADIUS     | 63C06 | RADIUSDOT  | 63011 | RANGC      | 63C52 |
| RANGEOUT   | 7C777 | RANGEADD   | 63445 | RANGCCT    | 63C62 |
| RASCINSCAN | 63504 | RCMTR      | 63430 | RCXXX      | 63433 |
| READ2WDS   | 72261 | READNWS    | 72274 | REACTAPE   | 7123C |
| RECORD     | 7C436 | RECORDSIZE | 63112 | RECAZIM    | 67C0C |
| RECELEV    | 7C0C0 | RECFILE    | 63212 | RECRD      | 63415 |
| RECPCSWTCH | 63155 | REDUNDANT  | 71525 | RELEASESW  | 63156 |
| REPLY      | 7C313 | RETI       | 72325 | REF2       | 72332 |
| RETCOP     | 72107 | REINUP     | 7C63C | REW        | 72147 |
| RPTCKSUM   | 71761 | RPTIT      | 72073 | RPTN       | 72C72 |
| SAVEBASE   | 71704 | SAVESTORE  | 71705 | SAZIM      | 63C55 |
| SECLTIME   | 63134 | SECC       | 63005 | SECCNDS    | 6314C |
| SECDHEAD   | 70172 | SELEV      | 63056 | SETUP      | 7C775 |
| SHOWCS     | 72011 | SIDERTIME  | 63012 | SINCRIENT  | 63C64 |
| SINAZEL    | 63066 | SKIP       | 63311 | SRA        | 63C04 |
| SRADTIME   | 63136 | SRCW       | 71664 | SICREPAR   | 70127 |
| SICRECR    | 71012 | STORELF    | 71013 | SICREUNPAK | 71221 |
| SICREXRS   | 7C746 | STORPRIG   | 70362 | STATCCCE   | 71545 |
| STATUS     | 71455 | STATUSCODE | 71275 | SICFNA     | 71632 |
| STCLWA     | 71633 | STRCSUM    | 71764 | STRFA      | 72C56 |
| STRUP      | 71743 | STRLA      | 72064 | STRNAME    | 72C61 |
| STRUPR     | 72313 | STRLI      | 71746 | STRL2      | 71751 |
| SUMMIT     | 71762 | SYNCTIMING | 63542 | SYSCCMREG1 | 63452 |
| SYSCCYREG2 | 63453 | SYSOONREG3 | 63454 | SYSCCMREG4 | 63455 |
| SYSCCYREG5 | 63456 | SYSOONREG6 | 63457 | SYSENTRIES | 7760C |
| SYSLOADER  | 7C0C0 | SYSLOC     | 7C002 | SYSNAMES   | 7770C |
| SYSSTAT1   | 63314 | SYSSTAT2   | 63314 | SYSSTATC   | 63315 |
| T0IT       | 7C672 | T0MAINLOAD | 72057 | TARCT      | 70131 |
| TAPEPARMSG | 71367 | THEFWA     | 71630 | THELWA     | 71631 |
| THISTOU    | 721C2 | TIMECORR   | 63107 | TIMEPCCE   | 63103 |
| TIMEP      | 63435 | TIMEIOHOLD | 6352C | TRANSFER   | 71653 |
| TRUERANGE  | 63064 | TRUETIME   | 63132 | TRYAGAIN   | 7135C |
| TYSTATUS   | 63111 | TWOSECOOP  | 63017 | TYPEID     | 7C0C6 |
| UB2L03     | 70764 | UB4L03     | 7C765 | UB6        | 7C766 |
| UNIT12L0   | 71421 | UNITRD     | 71327 | UNINCINT   | 71274 |
| UNPACK     | 71177 | LNPACCODE  | 71002 | UPDATABE   | 70733 |
| USELC000   | 7C047 | VARYTHIS   | 72103 | VELCLICHT  | 63235 |

..... SPURT CLTPUT NO. 211 .....

JCD\*4/8/65

SYSLOADER

| LABEL    | LCC   | LABEL    | LCC   | LABEL     | LCC   |
|----------|-------|----------|-------|-----------|-------|
| VIZDEC1  | 63014 | VIZDEC2  | 63016 | VIZRA1    | 63013 |
| VIZRA2   | 63015 | WAIT1    | 71242 | WAITPRINT | 71021 |
| WAKEUP   | 71576 | WFORO    | 63432 | WFACC     | 63450 |
| WFFREQ   | 63333 | WHATBASE | 70122 | WHAINCH   | 72023 |
| WHICHUNE | 70025 | WHRJP    | 72162 | WILLUSE   | 72343 |
| WRITE    | 71502 | WRITEOUT | 71512 | WRITERS   | 71755 |
| WRITEEOF | 71415 | WRSEARCH | 72142 | YEARMCNTF | 63147 |
| YRTQAN   | 63327 | ZERO     | 70701 | ZRTQAN    | 63330 |

END OF LISTING

| SYSLANDER     |       |             |       | J00*4/8/65 |       |       |     | ..... |     |       |     |
|---------------|-------|-------------|-------|------------|-------|-------|-----|-------|-----|-------|-----|
| LABEL         | LCC   | LABEL       | LCC   | LABEL      | LCC   | LABEL | LCC | LABEL | LCC | LABEL | LCC |
| IDCELOUR      | 63000 | ID2CELCOR   | 63001 | RA         | 63004 | 63002 |     |       |     |       |     |
| DEC           | 63003 | SPA         | 63004 | SDC        | 63007 | 63005 |     |       |     |       |     |
| RADIUS        | 63006 | RADOT       | 63007 | DECCCT     | 63012 | 63010 |     |       |     |       |     |
| RADIC>PORT    | 63011 | SIDERTIME   | 63012 | VIZRA1     | 63015 | 63013 |     |       |     |       |     |
| VIZDECI       | 63014 | VIZRA2      | 63015 | VIZDEC2    | 63050 | 63016 |     |       |     |       |     |
| INCS&COOP     | 63017 | IDIRADCOR   | 63050 | ID2RACCCR  | 63051 | 63018 |     |       |     |       |     |
| RANGE         | 63052 | AZIM        | 63053 | ELEV       | 63054 | 63019 |     |       |     |       |     |
| S&IM          | 63055 | SELEV       | 63056 | CRANGE     | 63057 | 63020 |     |       |     |       |     |
| CAZIV         | 63060 | CELEV       | 63061 | RANGCCT    | 63062 | 63021 |     |       |     |       |     |
| TR&EXAVE      | 63063 | SINORIENT   | 63064 | CCSCIENT   | 63065 | 63022 |     |       |     |       |     |
| SINAZEL       | 63066 | COSAZEL     | 63070 | ACCAZIM    | 63071 | 63023 |     |       |     |       |     |
| ACCELEV       | 63075 | FRAMESIZE   | 63101 | RADICMETER | 63102 | 63024 |     |       |     |       |     |
| TIMEMODE      | 63103 | FIRSTELEV   | 63104 | ASTRCRA    | 63105 | 63025 |     |       |     |       |     |
| ASTRODEC      | 63106 | TIMECORR    | 63107 | KYPRDLEVEL | 63110 | 63026 |     |       |     |       |     |
| ITSSTATUS     | 63111 | RECORDSIZE  | 63112 | CELPCCY    | 63113 | 63027 |     |       |     |       |     |
| ITTSSTATUS    | 63111 | ID2TIME     | 63131 | TRUETIME   | 63132 | 63028 |     |       |     |       |     |
| CELTIME       | 63133 | SCELTIME    | 63134 | CONVERTIME | 63135 | 63029 |     |       |     |       |     |
| S&ADTIME      | 63136 | FOURMINUTE  | 63137 | SECCNDS    | 63140 | 63030 |     |       |     |       |     |
| USECCNDS      | 63141 | ACTUALTIME  | 63142 | ESTSHIFTEC | 63143 | 63031 |     |       |     |       |     |
| SMISHTSHIFTEC | 63144 | ENTMODU24   | 63145 | BLASTCFF   | 63146 | 63032 |     |       |     |       |     |
| YEARMONTH     | 63147 | DAY         | 63150 | HCMREG     | 63151 | 63033 |     |       |     |       |     |
| MINRES        | 63152 | FIRSTHRU    | 63153 | DUMSECTIC  | 63154 | 63034 |     |       |     |       |     |
| RECORDSWITCH  | 63155 | RELEASESW   | 63156 | ICIRECRC   | 63210 | 63035 |     |       |     |       |     |
| ID2RECORD     | 63211 | RECFILE     | 63212 | ICISYSPAR  | 63310 | 63036 |     |       |     |       |     |
| ID2SYSPAR     | 63311 | RADARMODE   | 63312 | SYSTAT1    | 63312 | 63037 |     |       |     |       |     |
| SYSTAT2       | 63314 | SYSTATD     | 63315 | DELTALEE   | 63316 | 63038 |     |       |     |       |     |
| FREQUENCY     | 63317 | LONGITUDE   | 63320 | GECCETLAT  | 63321 | 63039 |     |       |     |       |     |
| GECCETLAT     | 63322 | EQUATOR     | 63323 | PCLE       | 63324 | 63040 |     |       |     |       |     |
| AZIMCOVER     | 63325 | HEIGHT      | 63326 | YRTRAN     | 63327 | 63041 |     |       |     |       |     |
| Z&TRAN        | 63330 | SKIP        | 63331 | MSFREQ     | 63332 | 63042 |     |       |     |       |     |
| WFFRE         | 63333 | MAINSWITCH  | 63334 | VELFLIGHT  | 63335 | 63043 |     |       |     |       |     |
| LSPFRUJ       | 63336 | FLATTENING  | 63337 | NMPERAU    | 63340 | 63044 |     |       |     |       |     |
| AUPEREQUAT    | 63341 | KMPERNM     | 63342 | EXPNAME    | 63350 | 63045 |     |       |     |       |     |
| IDIENTPNT     | 63410 | ID2ENTPNT   | 63411 | MCPEM      | 63412 | 63046 |     |       |     |       |     |
| INTER         | 63413 | COCOR       | 63414 | RECPD      | 63415 | 63047 |     |       |     |       |     |
| ACSCA         | 63416 | AESCN       | 63417 | CCPCT      | 63420 | 63048 |     |       |     |       |     |
| DYCMP         | 63421 | CHCOR       | 63422 | PRLCG      | 63423 | 63049 |     |       |     |       |     |
| CELCOMP&M     | 63424 | CATANALYZE  | 63425 | INTERCOM   | 63426 | 63050 |     |       |     |       |     |
| ACCU          | 63427 | RDMT        | 63430 | CHPAR      | 63431 | 63051 |     |       |     |       |     |
| WFLPD         | 63432 | RDXXX       | 63433 | PLANP      | 63434 | 63052 |     |       |     |       |     |
| TIMEP         | 63435 | PLUOT       | 63436 | ICIRADIC   | 63440 | 63053 |     |       |     |       |     |
| ID2RADIO      | 63441 | AZIMADD     | 63442 | ELEVACC    | 63443 | 63054 |     |       |     |       |     |
| DOPPAJ        | 63444 | RANGEADD    | 63445 | INAZIMACC  | 63446 | 63055 |     |       |     |       |     |
| IN&LEVADD     | 63447 | W&ADD       | 63450 | MILLSTNACC | 63451 | 63056 |     |       |     |       |     |
| SYSCCMREG1    | 63452 | SYSCCMREG2  | 63453 | SYSCCMREG3 | 63454 | 63057 |     |       |     |       |     |
| SYSCCMREG4    | 63455 | SYSCCMREG5  | 63456 | SYSCCMREG6 | 63457 | 63058 |     |       |     |       |     |
| INTERLOCKSW   | 63460 | PREVIOUSSTM | 63461 | REDYSIZE   | 63462 | 63059 |     |       |     |       |     |
| AZEL&XSCAN    | 63500 | AZITHSCAN   | 63501 | ELVNSCAN   | 63502 | 63060 |     |       |     |       |     |
| RADCR&SCAN    | 63503 | RASCINSCAN  | 63504 | DECLINSCAN | 63505 | 63061 |     |       |     |       |     |
| ROTATERADN    | 63506 | ROTATE&BX   | 63507 | ROTATERDBX | 63510 | 63062 |     |       |     |       |     |
| HOLDN&HOLD    | 63511 | AZIMOFFSET  | 63512 | ELEV&FFSET | 63513 | 63063 |     |       |     |       |     |

| SYSLOADER  |       | JCD#4/3/65    |       |
|------------|-------|---------------|-------|
| LABEL      | LCC   | LABEL         | LCC   |
| RACFFSET   | 63514 | DECFFSET      | 63515 |
| ALNGFFSET  | 63517 | TIMEHOLD      | 63520 |
| ARCCFELEV  | 63522 | PERIODAZIM    | 63523 |
| PERIODDEC  | 63525 | ARCODEC       | 63526 |
| APCOPRA    | 63530 | RADECODE TIME | 63531 |
| RACICRA    | 63540 | RADIODEC      | 63541 |
| IO3RAD10   | 63776 | IO4RAD10      | 63777 |
| IO5RAD10   | 64776 | IO6RAD10      | 64777 |
| IO7RAD10   | 65776 | IO8RAD10      | 65777 |
| IO9RAD10   | 66776 | IO10RAD10     | 66777 |
| IO11RAD10  | 67776 | IO12RAD10     | 67777 |
| RECELEV    | 70000 | SYSLOR        | 70002 |
| TYPEID     | 70006 | LOGINFO       | 70012 |
| ASKBASE    | 70032 | LSE10000      | 70047 |
| NUMCLEAR   | 70056 | CLEAROUT      | 70057 |
| ATENCOPLE  | 70066 | END           | 70070 |
| WHATBASE   | 70122 | MCPID         | 70126 |
| COMPLETE   | 70130 | TABCT         | 70131 |
| NOCLRLS    | 70147 | ACRLFS        | 70150 |
| ASWAS      | 70152 | COLUMNHEAD    | 70153 |
| CLRLFT     | 70211 | CRLF          | 70217 |
| JPCRLF     | 70221 | CRLFCODE      | 70222 |
| NEAPLA     | 70230 | DEXPLA        | 70235 |
| CKIN       | 70247 | COIT          | 70257 |
| GURACK     | 70273 | ALDONE        | 70275 |
| VERJUP     | 70302 | PCWREPLY      | 70304 |
| ERASURE    | 70306 | JPGOBACK      | 70307 |
| JPCVERJUP  | 70311 | PCWERAS       | 70312 |
| MAINLOAD   | 70314 | ANAL          | 70320 |
| BADHEAD    | 70335 | CO321         | 70343 |
| HEADING    | 70373 | RASEADR       | 70404 |
| LASTADR    | 70406 | BCWBAD        | 70407 |
| NOIMCP     | 70431 | MODIFENT      | 70435 |
| INSTR      | 70443 | COMODIF       | 70526 |
| DELCC      | 70540 | AS\$S\$1114   | 70545 |
| MODIFSTORE | 70616 | ATTHIS        | 70621 |
| CUMPKSM    | 70656 | AKCLEAR       | 70662 |
| IUIT       | 70672 | NLYTWO        | 70677 |
| ZERO       | 70701 | CKSUM         | 70702 |
| FCRACKUP   | 70704 | ACLOWER       | 70705 |
| ADUPCIH    | 70717 | EXECINSTR     | 70723 |
| ENDPRUG    | 70731 | LPDATABSE     | 70733 |
| STREXRS    | 70746 | ENTERXRS      | 70755 |
| UB4LRS     | 70765 | LB6           | 70766 |
| SEIUP      | 70775 | IO13RAD10     | 70775 |
| RANGEOUT   | 70777 | MCPFILLER     | 71000 |
| STRECR     | 71012 | STORELF       | 71013 |
| WAITPRINT  | 71021 | PRINTOVER     | 71022 |
| PRINTBUFFC | 71027 | PUFFERPRNT    | 71030 |
| POICOUNTER | 71203 | LOOPSTART     | 71215 |
| LOOPI      | 71217 | STOREUNPAK    | 71221 |
|            |       | LCCPLIMIT     | 71224 |
|            |       | UNPACK        | 71177 |
|            |       | JPPRINTCVR    | 71C26 |
|            |       | CHGACR        | 71C16 |
|            |       | UNPACKOCLE    | 71C02 |
|            |       | IO14RACIL     | 70776 |
|            |       | PRINT         | 70767 |
|            |       | UP2LR3        | 70764 |
|            |       | CNE32C        | 70742 |
|            |       | NEXTCC        | 70726 |
|            |       | RECCRC        | 70436 |
|            |       | PUTABLE       | 70410 |
|            |       | CHARS         | 70405 |
|            |       | STCRPRCG      | 70362 |
|            |       | MAYRE32C      | 70333 |
|            |       | REPLY         | 70313 |
|            |       | NUMBER        | 70310 |
|            |       | JPKIN         | 70276 |
|            |       | CCRLF         | 70264 |
|            |       | CCNICC        | 70225 |
|            |       | INCCME        | 70220 |
|            |       | PCWCRLF       | 70220 |
|            |       | SECNDHEAL     | 70172 |
|            |       | DESIREC       | 70151 |
|            |       | HEATCCCLMS    | 70132 |
|            |       | STCREBASL     | 70127 |
|            |       | ASKIC         | 70107 |
|            |       | LCACTAPE      | 70065 |
|            |       | CKKEY1        | 70052 |
|            |       | WPICHCKE      | 70025 |
|            |       | PLTCNCE       | 70004 |
|            |       | SYSLCAGER     | 70000 |
|            |       | RECAZIM       | 67000 |
|            |       | ELEVOUT       | 65000 |
|            |       | CCPPCUI       | 66000 |
|            |       | ALIMCUT       | 64000 |
|            |       | SYNCTIMING    | 63542 |
|            |       | AZELOTIME     | 63532 |
|            |       | PERICDRA      | 63527 |
|            |       | ARCCFAZIM     | 63524 |
|            |       | PERIGCELEV    | 63521 |
|            |       | CROSSOFFSET   | 63516 |

SPURT CLTPUT NO. 212

JDD#4/8/65

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SYSLOADER

| LABEL        | LCC   | LABEL        | LCC   | LABEL        | LCC   |
|--------------|-------|--------------|-------|--------------|-------|
| COUNTER      | 71227 | READTAPE     | 71230 | INPLFFER     | 71236 |
| WAIT1        | 71242 | C15EXTINT    | 71243 | INTERJUMP    | 71251 |
| BACK         | 71252 | INTERLOCK    | 71254 | INTERLOCKP   | 71261 |
| LOCKP        | 71267 | UNITNOINT    | 71274 | STATUSCCCE   | 71275 |
| MACHFAULT    | 71315 | UNITNO       | 71327 | FCSTATCCCE   | 71234 |
| JPC15EXT     | 71335 | PARITY       | 71337 | TPYAGAIN     | 71350 |
| PARITYMSG    | 71354 | PM5G         | 71366 | TAPEPARMSG   | 71367 |
| FOTAPEPAR    | 71402 | WRITEEOF     | 71415 | UNIT21C      | 71421 |
| MACHERR      | 71422 | MACHERROR    | 71424 | KCCITCFC     | 71436 |
| DUMMY        | 71452 | EXCESS6C     | 71454 | STATUS       | 71455 |
| INPUTAPEND   | 71456 | ENDOFITAPM   | 71464 | ENDTAPEM     | 71473 |
| ENDOTAPEU    | 71501 | WRITE        | 71502 | FOREWINC     | 71510 |
| WRITEGUT     | 71512 | HERE         | 71513 | INTERRUPT    | 71514 |
| INTJUMP      | 71521 | BADMCH       | 71522 | RECUONANI    | 71525 |
| ENDTAPE      | 71532 | INTERLCK     | 71541 | CHANNEL      | 71544 |
| STATCODE     | 71545 | MYSERVO      | 71565 | NEWTAPE      | 71566 |
| WAKEUP       | 71576 | ENTRANCE     | 71610 | ICREC        | 71611 |
| EPSSENT      | 71613 | INKSUM       | 71615 | PSRET1       | 71621 |
| RSRET2       | 71622 | EOFUN4       | 71623 | FWA          | 71626 |
| LWA          | 71627 | THEFWA       | 71630 | THELWA       | 71631 |
| STCFWA       | 71632 | STDLWA       | 71633 | JPCCNTRCL    | 71634 |
| JPSINT       | 71635 | BSRCW        | 71636 | JPWRBS       | 71637 |
| RSOCNC       | 71640 | ELECT        | 71642 | PMCE         | 71650 |
| CCPACRS      | 71651 | CPPAORS      | 71652 | TRANSFER     | 71653 |
| ASKECF       | 71654 | CCPOONE      | 71656 | OPPCNE       | 71661 |
| SRECH        | 71664 | JPSEARCH     | 71665 | PACNEWS      | 71666 |
| LOCKEDOUT    | 71677 | SAVEBASE     | 71704 | SAVESTORE    | 71705 |
| HOCSTRAP     | 71706 | ASKFWA       | 71707 | ASKLWA       | 71726 |
| STRJP        | 71743 | STRUL1       | 71746 | STRLL2       | 71751 |
| WAITERS      | 71755 | RPICKSUM     | 71761 | SUMMIT       | 71762 |
| STRCSUM      | 71764 | BSINT        | 71774 | IC15RATIC    | 71776 |
| LOLRADIO     | 71777 | INTERAZIM    | 72000 | GCCCREC      | 72007 |
| SHORCS       | 72011 | ASKAGAIN     | 72014 | WHAINCW      | 72023 |
| CCP          | 72030 | ENTFMDPP     | 72043 | STRFA        | 72056 |
| TOMAINLOAD   | 72057 | ENTNAME      | 72060 | STRNAME      | 72061 |
| STRLA        | 72064 | RPTN         | 72072 | RPT11        | 72073 |
| FORKSUM      | 72075 | TF1STOD      | 72102 | VARYTHIS     | 72103 |
| RETCOP       | 72107 | PREPARAM     | 72117 | OPP          | 72125 |
| WRSEARCH     | 72142 | REW          | 72147 | INTSRCH      | 72153 |
| WH4JP        | 72162 | NG           | 72202 | ICLCK        | 72210 |
| DC32C        | 72213 | PICUTAG      | 72230 | PTCNAME      | 72232 |
| CYCLEA       | 72250 | NOTEND       | 72257 | REAE2WCS     | 72261 |
| ENTERBS      | 72262 | READWDS      | 72274 | BIGPI        | 72276 |
| BIGP2        | 72302 | CSUM         | 72312 | STRTHRE      | 72313 |
| RET1         | 72325 | RET2         | 72332 | ENTCPCW      | 72333 |
| FORMATERR    | 72334 | PGMBA        | 72337 | ASKPA        | 72340 |
| WILLUSE      | 72343 | EOPIND       | 72344 | PRINTA       | 72345 |
| AS\$S\$S1111 | 72363 | AS\$S\$S1112 | 72364 | AS\$S\$S1113 | 72365 |
| AS\$S\$S1115 | 72366 | AS\$S\$S1116 | 72367 | AS\$S\$S1117 | 72370 |
| AS\$S\$S111H | 72371 | AS\$S\$S1119 | 72372 | AS\$S\$S111A | 72373 |
| AS\$S\$S111H | 72374 | AS\$S\$S111C | 72375 | AS\$S\$S111C | 72376 |

..... SPUPT CLIPUT UC. 212 .....

J00\*4/8/65

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SYSLOADER

| LABEL     | LCC   | LABEL      | LCC   | LABEL      | LCC   |
|-----------|-------|------------|-------|------------|-------|
| A6555111E | 72377 | A55555111F | 72400 | A55555111G | 72401 |
| I017RAD10 | 72776 | I018RAD10  | 72777 | INTERELEV  | 73000 |
| I019RAD10 | 73776 | I020RAD10  | 73777 | INTERDCPP  | 74000 |
| I021RAD10 | 74776 | I022RAD10  | 74777 | AZIMIN     | 75000 |
| I023RAD10 | 75776 | I024RAD10  | 75777 | ELEVIN     | 76000 |
| I025RAD10 | 76776 | I026RAD10  | 76777 | INTERRANCE | 76777 |
| I015YSENT | 77576 | I02SYSENT  | 77577 | SYSENTRIES | 77600 |
| I01SYSNAM | 77676 | I02SYSNAM  | 77677 | SYSNAMES   | 77700 |

END OF LISTING

| CARD | LI    | ID | LABEL      | TA      | STATEMENT                 | LOC   | F     | JKR   | Y | NOTES                                    |
|------|-------|----|------------|---------|---------------------------|-------|-------|-------|---|------------------------------------------|
| •    | CC000 |    | TAPECOPY   | PROGRAM | MATHIASSEN*8/21/64        |       |       |       |   | MAGNETIC TAPE CHANNEL                    |
| •    | CC001 |    | TAPE       | MFANS   | C15                       |       |       |       |   | TAPE UNIT FOR ORIGINAL TAPE              |
| •    | CC002 |    | TAPEINPUT  | EQUALS  | 00004                     |       |       |       |   | TAPE UNIT FOR DUPLICATE TAPE             |
| •    | CC003 |    | TAPEOUTPUT | EQUALS  | 00010                     |       |       |       |   |                                          |
| •    | CC004 |    | BCWINPUT   | EQUALS  | 115                       |       |       |       |   | INPUT BUFFER CONTROL ADDRESS             |
| •    | CC005 |    | TAPEINTER  | EQUALS  | 35                        |       |       |       |   | MAGNETIC TAPE EXTERNAL INTERRUPT ADDRESS |
| •    | CC006 |    | RENEW      | CL      | R1                        | 00000 | 12100 | 00000 |   | CLEAR FILE COUNT                         |
| •    | CC007 |    |            | PUT     | W(RJPCHECK1*W(TAPEINTER1) | 00001 | 10030 | 00061 |   | SET UP INTERRUPT ANSWERING               |
| •    | CC010 |    | ECFSTART   | CL      | L(RECORDS)                | 00002 | 14030 | 00035 |   | CLEAR RECORD COUNT                       |
| •    | CC011 |    | START      | IN      | TAPE*W(BCWREAD)           | 00003 | 16010 | 00066 |   | READ IN NEXT RECORD OF ORIGINAL TAPE     |
| •    | CC012 |    |            | NO-OP   |                           | 00005 | 12000 | 00000 |   |                                          |
| •    | CC013 |    |            | EX-FC   | TAPE*W(READBINH01         | 00006 | 13670 | 00062 |   |                                          |
| •    | CC014 |    |            | JP      | \$                        | 00007 | 61000 | 00007 |   | WAIT FOR INTERRUPT                       |
| •    | CC015 |    |            | ENT     | A*L(BCWINPUT)             | 00010 | 11010 | 00115 |   | NEXT WORD ADDRESS OF INPUT               |
| •    | CC016 |    |            | SUR     | A*1                       | 00011 | 21000 | 00001 |   |                                          |
| •    | CC017 |    |            | STR     | A*U(BCWWRITE)             | 00012 | 15020 | 00021 |   | LWA OF OUTPUT                            |
| •    | CC020 |    |            | EX-FC   | TAPE*W(WRITEBINH01        | 00013 | 13670 | 00063 |   |                                          |
| •    | CC021 |    |            | RPL     | Y+1*L(RECORDS)            | 00014 | 36010 | 00066 |   | WRITE NEXT RECORD OF DUPLICATE TAPE      |
| •    | CC022 |    |            | OUT     | TAPE*W(BCWWRITE)          | 00015 | 74670 | 00021 |   | WAIT FOR INTERRUPT                       |
| •    | CC023 |    |            | JP      | \$                        | 00016 | 61000 | 00016 |   |                                          |
| •    | CC024 |    |            | JP      | START                     | 00017 | 61000 | 00004 |   |                                          |
| •    | CC025 |    | BCWREAD    | 7777    | BUFFER                    | 00020 | 77777 | 00067 |   | INPUT BUFFER CONTROL WORD                |
| •    | CC026 |    | BCWWRITE   | 0       | BUFFER                    | 00021 | 00000 | 00067 |   | OUTPUT BUFFER CONTROL WORD               |
| •    | CC027 |    | CHECK      | ENTRY   |                           | 00022 | 61000 | 00000 |   |                                          |
| •    | CC030 |    |            | RPL     | Y+1*L(CHECK)              | 00023 | 36010 | 00022 |   |                                          |
| •    | CC031 |    |            | STR     | TAPE*W(STATUS)            | 00024 | 17670 | 00065 |   |                                          |
| •    | CC032 |    |            | ENT     | A*U(STATUS)               | 00025 | 11020 | 00065 |   |                                          |
| •    | CC033 |    |            | RSH     | A*110                     | 00026 | 02000 | 00013 |   |                                          |
| •    | CC034 |    |            | ENT     | R7*A                      | 00027 | 12770 | 00000 |   |                                          |
| •    | CC035 |    |            | RILJP   | L(TABLE*87)               | 00030 | 60117 | 00041 |   | GO TO APPROPRIATE STATUS ROUTINE         |
| •    | CC036 |    | NCRMAL     | EXIT    |                           | 00031 | 61010 | 00022 |   |                                          |
| •    | CC037 |    | WEOF       | EX-FC   | TAPE*W(EOFH01             | 00032 | 13670 | 00064 |   | WRITE END OF FILE                        |
| •    | CC040 |    |            | JP      | \$                        | 00033 | 61000 | 00033 |   | WAIT FOR INTERRUPT                       |
| •    | CC041 |    |            | ENT     | B2*L(RECORDS)             | 00034 | 12210 | 00066 |   | DISPLAY NUMBER OF RECORDS IN 8           |
| •    | CC042 |    |            | ENT     | B1*81+1                   | 00035 | 12101 | 00001 |   |                                          |
| •    | CC043 |    |            | STR     | B1*U(RECORDS)             | 00036 | 16120 | 00066 |   |                                          |
| •    | CC044 |    |            | JP      | EOFSTART                  | 00037 | 61000 | 00003 |   |                                          |
| •    | CC045 |    | STOP       | JP      | RENEW*STOP                | 00040 | 61400 | 00000 |   |                                          |
| •    | CC046 |    | TABLE      | 00      | STOP                      | 00041 | 00000 | 00040 |   |                                          |
| •    | CC047 |    |            | 01      | STOP                      | 00042 | 00001 | 00040 |   |                                          |
| •    | CC050 |    |            | 02      | STOP                      | 00043 | 00002 | 00040 |   |                                          |
| •    | CC051 |    |            | 03      | STOP                      | 00044 | 00003 | 00040 |   |                                          |
| •    | CC052 |    |            | 04      | STOP                      | 00045 | 00004 | 00040 |   |                                          |
| •    | CC053 |    |            | 05      | STOP                      | 00046 | 00005 | 00040 |   |                                          |
| •    | CC054 |    |            | 06      | STOP                      | 00047 | 00006 | 00040 |   |                                          |
| •    | CC055 |    |            | 07      | STOP                      | 00050 | 00007 | 00040 |   |                                          |

| CARDS | L1 IC LABEL | TA STATEMENT | LOC   | F     | JKB   | Y | NOTES                          |
|-------|-------------|--------------|-------|-------|-------|---|--------------------------------|
| .     | CC056       | 10 NORMAL    | 00051 | 00010 | 00031 |   |                                |
| .     | CC057       | 11 STOP      | 00052 | 00011 | 00040 |   |                                |
| .     | CC060       | 12 STOP      | 00053 | 00012 | 00040 |   |                                |
| .     | CC061       | 13 WEOF      | 00054 | 00013 | 00032 |   |                                |
| .     | CC062       | 14 STOP      | 00055 | 00014 | 00040 |   |                                |
| .     | CC063       | 15 STOP      | 00056 | 00015 | 00040 |   |                                |
| .     | CC064       | 16 STOP      | 00057 | 00016 | 00040 |   |                                |
| .     | CC065       | 17 STOP      | 00060 | 00017 | 00040 |   |                                |
| .     | CC066       | RJP CHECK    | 00061 | 65000 | 00022 |   | RJP TO INTERRUPT ANSWERING ROU |
| .     | CC067       | READBINHO    |       |       |       |   | LINE                           |
| .     | CC070       | WRITEBINHD   | 00062 | 52000 | 00004 |   | READ BINARY HO                 |
| .     | CC071       | ECFHO        | 00063 | 12000 | 00010 |   | WRITE BINARY HO                |
| .     | CC072       | STATUS       | 00064 | 12300 | 00010 |   | WRITE END OF FILE HO           |
| .     | CC073       | RECOROS      | 00065 | 00000 | 00000 |   | MAGNETIC TAPE CHANNEL STATUS W |
| .     | CC074       | RESERVE      | 00066 | 00000 | 00000 |   | ORO                            |
| .     | CC075       | RESERVE      | 00067 | 00000 | 00000 |   | U = FILE COUNT, L = RECORD COU |
| .     | CC075       | RESERVE      | 20067 | 00000 | 00000 |   | NT                             |

END OF LISTING

SPURT OUTPUT NO. 211

| TAPECOPY  |       | MATHIASSEN*8/21/64 |       |
|-----------|-------|--------------------|-------|
| LABEL     | LOC   | LABEL              | LOC   |
| PCWINPUT  | 00115 | BCWREAD            | 00020 |
| BUFFER    | 00067 | CHECK              | 00022 |
| EOFSTART  | 00003 | NORMAL             | 00031 |
| RECORDS   | 00066 | RENEW              | 00000 |
| STOP      | 00040 | START              | 00004 |
| TARLE     | 00041 | TAPEOUTPUT         | 00010 |
| TAPEINTER | 00035 | WEOF               | 00032 |
|           |       |                    |       |
|           |       | BCWRITE            | 00021 |
|           |       | EUFHD              | 00064 |
|           |       | READBINHD          | 00062 |
|           |       | RJPCHECK           | 00061 |
|           |       | STATUS             | 00065 |
|           |       | TAPEINPUT          | 00004 |
|           |       | WRITEBINHD         | 00063 |

END OF LISTING

..... SPURT OUTPUT NO. 212 .....

| TAPECOPY   |       | MATHIASFN#8/21/64 |       |           |       |
|------------|-------|-------------------|-------|-----------|-------|
| LABEL      | LOC   | LABEL             | LOC   | LABEL     | LOC   |
| RENEW      | 00000 | EOFSTART          | 00003 | TAPEINPUT | 00004 |
| START      | 00004 | TAPEOUTPUT        | 00010 | BCWREAD   | 00020 |
| BCWRITE    | 00021 | CHECK             | 00022 | NORMAL    | 00031 |
| WEOF       | 00032 | TAPEINTER         | 00035 | STOP      | 00040 |
| TABLE      | 00041 | RJPCHECK          | 00061 | REAORINHO | 00062 |
| WRITERINHO | 00063 | EOFHO             | 00064 | STATUS    | 00065 |
| RECORDS    | 00066 | BUFFER            | 00067 | BCWINPUT  | 00115 |

END OF LISTING

..... SPURT OUTPUT NO. 210  
 HAFORD\*12\*AUG\*64  
 .....  
 UPDATER  
 .....  
 TA STATEMENT

| CARDS | LI    | ID         | LABEL                       | TA STATEMENT     | LOC   | F     | JKB   | Y | NOTES                                   |
|-------|-------|------------|-----------------------------|------------------|-------|-------|-------|---|-----------------------------------------|
| •     | C0C00 | UPDATER    | PROGRAM                     | HAFORD*12*AUG*64 |       |       |       |   |                                         |
| •     | C0C01 | BEGIN      | EQUALS                      | 10000            | 10000 | 10030 | 63614 |   |                                         |
| •     | C0C02 | BEGIN      | PUT W(JP)*W(35)             |                  | 10001 | 1403C | 00035 |   |                                         |
| •     | C0C03 |            | RJP PRINT                   |                  | 10002 | 65000 | 64151 |   |                                         |
| •     | C0C04 |            | 100 REMINO                  |                  | 10003 | 00012 | 636C1 |   | GO FIND WHICH PROGRAMS TO ERASE         |
| •     | C0C05 |            | RJP PRINT                   |                  | 10004 | 65000 | 64151 |   | E                                       |
| •     | C0C06 |            | 6 ASKERASE                  |                  | 10005 | 00006 | 63573 |   |                                         |
| •     | C0C07 |            | CL B2                       |                  | 10006 | 1220C | 0C0C0 |   |                                         |
| •     | C0C10 |            | RJP CRLFRT                  |                  | 10007 | 65000 | 64114 |   | GET ONE LETTER INTO REPLY               |
| •     | C0C11 | GETCHAR    | IN TYPE*(RCWREPLY)          |                  | 10010 | 7313C | 64074 |   |                                         |
| •     | C0C12 |            | JP \$*TYPE*ACTIVEIN         |                  | 10011 | 6210C | 10011 |   |                                         |
| •     | C0C13 |            | ENT A*(REPLY)               |                  | 10012 | 11030 | 64075 |   |                                         |
| •     | C0C14 |            | SUB A*4*ANOT                |                  | 10013 | 21500 | 0C0C4 |   | CARRIAGE RETURN                         |
| •     | C0C15 |            | JP NOMOREASE                |                  | 10014 | 6100C | 10031 |   | JP IF IS STOP CODE                      |
| •     | C0C16 |            | ENT A*(REPLY)               |                  | 10015 | 11030 | 64075 |   |                                         |
| •     | C0C17 |            | SUB A*7*ANOT                |                  | 10016 | 21500 | 00077 |   | ERASURE                                 |
| •     | C0C20 |            | COMMENT HANOLE              |                  |       |       |       |   | AN ERASURE HERE                         |
| •     | C0C21 | ERASURE    | RJP B2*TYPEERASE            |                  | 10017 | 7220C | 10026 |   | BACK UP LIST POINTER                    |
| •     | C0C22 |            | CUMMENT HANOLE              |                  |       |       |       |   | A STOP CODE OR A GOOD CHARACTER         |
| •     | C0C23 | HANDLCHAR  | ENT A*(REPLY)               |                  | 10020 | 11030 | 64075 |   |                                         |
| •     | C0C24 |            | SUB A*76*ANOT               |                  | 10021 | 21500 | 00076 |   | SPECIAL CHARACTER                       |
| •     | C0C25 |            | JP TYPEERASE                |                  | 10022 | 61000 | 10026 |   | PRINT AND IGNORE                        |
| •     | C0C26 |            | COMMENT SAVE                |                  |       |       |       |   | ONE CHARACTER                           |
| •     | C0C27 |            | PUT W(REPLY)*W(100F2*82)    |                  | 10023 | 10030 | 64075 |   |                                         |
| •     | C0C30 |            | BSK B2*77777                |                  | 10024 | 14032 | 63636 |   |                                         |
| •     | C0C31 | TYPEERASE  | CUT TYPE*(RCWREPLY)         |                  | 10025 | 71200 | 77777 |   | TYPE SYMBOL                             |
| •     | C0C32 |            | JP \$*TYPE*ACTIVEOUT        |                  | 10026 | 74130 | 64074 |   |                                         |
| •     | C0C33 |            | JP GETCHAR                  |                  | 10027 | 6310C | 10027 |   |                                         |
| •     | C0C34 |            | COMMENT TAKE                |                  | 10030 | 6100C | 1C010 |   |                                         |
| •     | C0C35 |            | COMMENT STARTS              |                  |       |       |       |   | ERASES FROM BUF2 TO ERASE FOR SEARCH    |
| •     | C0C36 | NOMOREASE  | CL P4                       |                  | 10031 | 12400 | 0C0C0 |   | WITH B2 SET TO 5N ENDS WITH BY SET TO N |
| •     | C0C37 |            | RJP CRLFRT                  |                  | 10032 | 65000 | 64114 |   |                                         |
| •     | C0C40 |            | JP FIRSTERASE               |                  | 10033 | 61000 | 10043 |   |                                         |
| •     | C0C41 | ANOTHER*   | ENT B1*4                    |                  | 10034 | 1210C | 0C0C4 |   |                                         |
| •     | C0C42 | ANOTHERC   | BJP B2*ANDOTHERC*1          |                  | 10035 | 7220C | 1C036 |   |                                         |
| •     | C0C43 |            | ENT A*(BUF2*82)             |                  | 10036 | 11032 | 63636 |   |                                         |
| •     | C0C44 |            | RSH AQ*6                    |                  | 10037 | 03000 | 0C0C6 |   |                                         |
| •     | C0C45 |            | BJP B1*ANOTHERC             |                  | 10040 | 7210C | 1C035 |   |                                         |
| •     | C0C46 |            | STR Q*(ERASELIST+84)        |                  | 10041 | 14034 | 64076 |   |                                         |
| •     | C0C47 |            | BSK B4*77777                |                  | 10042 | 7140C | 77777 |   |                                         |
| •     | C0C50 | FIRSTERASE | ENT A*82                    |                  | 10043 | 11002 | 0C0C0 |   |                                         |
| •     | C0C51 |            | JP ANOTHER*ANOT             |                  | 10044 | 6050C | 1C034 |   |                                         |
| •     | C0C52 |            | ENT A*84                    |                  | 10045 | 11004 | 0C0C0 |   |                                         |
| •     | C0C53 |            | STR A*(MAYBERASE)           |                  | 10046 | 15010 | 1C154 |   | SET RPT FOR SEARCH                      |
| •     | C0C54 |            | RJP REMINOCORR              |                  | 10047 | 65000 | 63344 |   |                                         |
| •     | C0C55 |            | CL B2                       |                  | 10050 | 1220C | 0C0C0 |   |                                         |
| •     | C0C56 |            | PUT L(CORRECTAPE)*L(INTAPE) |                  | 10051 | 1001C | 63620 |   | SET TO READ CORRECTION TAPE             |

| CARCS | LL IO LABEL | TA STATEMENT                   | LOC   | F JKB Y     | NOTES                          |
|-------|-------------|--------------------------------|-------|-------------|--------------------------------|
| .     | COC57       | PUT CSLISTED*L(MACHEOF)        | 10052 | 14010 63622 | GO TO (CSLISTED) ON AN EOF     |
| .     | COC60       | STR Q*L(IFEOF)                 | 10053 | 10000 10073 | A MACHINE ERROR SHOULD BE TREA |
| .     | COC61       | COMMENT IT                     | 10054 | 14010 64611 | ED AS AN EOF WHEN              |
| .     | COC62       | LISTCHANGE                     | 10055 | 14010 64600 | COMES IMMEDIATELY AFTER AN END |
| .     | COC63       | RJP READTAPE                   |       |             | OF PROGRAM RECORD              |
| .     | COC64       | U-TAG BUF1*80*8UF1             | 10056 | 65000 64402 | READ A NINE WORD RECORD        |
| .     | COC65       | CL W(JUSTEOP)                  | 10057 | 63635 63625 |                                |
| .     | COC66       | ENT A*W(BUF1)                  | 10060 | 16030 63616 |                                |
| .     | COC67       | SUB A*W(MSK321)*AZERO          | 10061 | 11030 63625 | CHECK FOR 74747                |
| .     | COC70       | JP CSLISTED                    | 10062 | 21430 63623 | \$ SKIP IF IT IS               |
| .     | COC71       | RJP READTAPE                   | 10063 | 61000 10073 | FOR NOW CONSIDER THIS THE END  |
| .     | COC72       | U-TAG BUF2*55D*8UF2            | 10064 | 65000 64402 | OF TAPE                        |
| .     | COC73       | PUT W(BUF2*6)*W(CHANGELIST*82) | 10065 | 63725 63636 | GET SECOND RECORD              |
| .     | COC74       | RJP SKIP                       | 10066 | 10030 63644 | SAVE THE PROGRAM SYSTEM NAME   |
| .     | COC75       | BSK B2*144                     | 10067 | 14032 63726 | SKIP THE REST OF THE PROGRAM   |
| .     | COC76       | JP LISTCHANGE                  | 10070 | 65000 63331 | INDEX CORRECTION COUNT BY ONE  |
| .     | COC77       | COMMENT GET                    | 10071 | 71200 00144 |                                |
| .     | COC78       | COMMENT PROGRAMS               | 10072 | 61000 10056 | HERE FROM EOF OR PSEUDO EOF AF |
| .     | COC79       | COMMENT IN                     |       |             | TER THE NAMES OF ALL           |
| .     | COC80       | STR B2*W(NUMBERNEW)            |       |             | ON THE CORRECTION TAPE HAVE BE |
| .     | COC81       | STR B2*L(FINDCHANGE)           | 10073 | 16230 64072 | EN LISTED                      |
| .     | COC82       | RJP REMINDOLD                  |       |             | (CHANGELIST)                   |
| .     | COC83       | RJP REMINDCORR                 | 10074 | 16210 10123 | SAVE THE NUMBER OF CORRECTIONS |
| .     | COC84       | RJP REMINDNEW                  | 10075 | 65000 63350 |                                |
| .     | COC85       | PUT EOFOLD*L(MACHEOF)          | 10076 | 65000 63344 | GO TO (EOFOLD) ON AN EOF       |
| .     | COC86       | STR Q*L(IFEOF)                 | 10077 | 65000 63354 |                                |
| .     | COC87       | COMMENT THE                    | 10100 | 10000 10161 | GO TO (EOFOLD) ON A PSEUDO EOF |
| .     | COC88       | COMMENT PROGRAM                | 10101 | 14010 64611 | PROGRAM, FROM HERE TO EOFOLD,  |
| .     | COC89       | COMMENT CORRECTION             | 10102 | 14010 64600 | COPIES EITHER THE              |
| .     | COC90       | PUT L(AULTAPE)*L(INTAPE)       |       |             | FROM THE OLD TAPE OR ITS REPLA |
| .     | COC91       | JP MOVEUN                      | 10103 | 10010 63617 | CEMENT FROM THE                |
| .     | COC92       | RJP COPY                       | 10104 | 14010 63622 | TAPE TO THE NEW TAPE           |
| .     | COC93       | RJP READTAPE                   | 10105 | 61000 10107 | SET TO READ OLD TAPE           |
| .     | COC94       | U-TAG BUF1*80*8UF1             | 10106 | 65000 63415 |                                |
| .     | COC95       | CL W(JUSTEOP)                  | 10107 | 65000 64402 | READ A NINE WORD RECORD        |
| .     | COC96       | ENT A*W(BUF1)                  | 10110 | 63635 63625 |                                |
| .     | COC97       | SUB A*W(MSK321)*AZERO          | 10111 | 16030 63616 | CHECK FOR 74747                |
| .     | COC98       | JP EOFOLD                      | 10112 | 11030 63625 | AND SKIP IF IT IS              |
| .     | COC99       |                                | 10113 | 21430 63623 | NOT A 321 RECORD, END OF OLD T |
| .     | COC100      |                                | 10114 | 61000 10161 |                                |

| CARDS | LI    | ID | LABEL      | TA      | STATEMENT                 | LOC   | F     | JK8   | Y | NOTES                                             |
|-------|-------|----|------------|---------|---------------------------|-------|-------|-------|---|---------------------------------------------------|
| •     | C0124 |    |            | RJP     | READTAPE                  | 10115 | 65000 | 64402 |   | APE FOR NOW                                       |
| •     | C0125 |    |            | U-TAG   | BUF2+550*BUF2             | 10116 | 63725 | 63636 |   | GET SECOND RECORD                                 |
| •     | C0126 |    |            | COMMENT | CHECK                     |       |       |       |   | PROGRAM NAME TO THE LIST OF CHANGES               |
| •     | C0127 |    |            | ENT     | Q*W(BUF2+6)               | 10117 | 10030 | 63644 |   |                                                   |
| •     | C0130 |    |            | STR     | Q*W(AULTNAME)             | 10120 | 14030 | 64073 |   |                                                   |
| •     | C0131 |    |            | STR     | Q*A                       | 10121 | 14040 | 00000 |   |                                                   |
| •     | C0132 |    |            | SUB     | A*W(I1)                   | 10122 | 21030 | 64111 |   |                                                   |
| •     | C0133 |    | FINDCHANGE | RPT     | 1000*BACK                 | 10123 | 70200 | 00144 |   | RY THE TIME THIS INSTRUCTION IS REACHED,          |
| •     | C0134 |    |            | COMMENT | THE                       |       |       |       |   | L(1) CONTAINS THE NUMBER OF PROGRAMS TO CHANGE    |
| •     | C0135 |    |            | COM     | AQ*W(CHANGELIST-1+87)*YIN | 10124 | 04437 | 63725 |   |                                                   |
| •     | C0136 |    |            | JP      | MAYBERASE                 | 10125 | 61000 | 10154 |   |                                                   |
| •     | C0137 |    | REPLACE    | CL      | W(CHANGELIST+87)          | 10126 | 16037 | 63726 |   | ZERO THE (CHANGELIST) ENTRY                       |
| •     | C0140 |    |            | RJP     | SKIP                      | 10127 | 65000 | 63331 |   | SKIP THE REST OF THE PROGRAM ON THE OLD TAPE      |
| •     | C0141 |    |            | PUT     | L(CORRECTAPE)*L(INTAPE)   | 10130 | 10010 | 63620 |   | SET TO READ CORRECTION TAPE                       |
| •     | C0142 |    |            | ENT     | A*87*ANOT                 | 10131 | 14010 | 63622 |   |                                                   |
| •     | C0143 |    |            | JP      | L158                      | 10132 | 11507 | 00000 |   |                                                   |
| •     | C0144 |    |            | SUB     | A*W(I1)                   | 10133 | 61000 | 10140 |   |                                                   |
| •     | C0145 |    |            | ENT     | 87*A                      | 10134 | 21030 | 64111 |   |                                                   |
| •     | C0146 |    | L15A       | RJP     | SKIP                      | 10135 | 12770 | 00000 |   |                                                   |
| •     | C0147 |    |            | RJP     | 87*L15A                   | 10136 | 65000 | 63331 |   | SKIP TO THE PROPER PROGRAM ON THE CORRECTION TAPE |
| •     | C0150 |    | L15B       | RJP     | READTAPE                  | 10137 | 72700 | 10136 |   |                                                   |
| •     | C0151 |    |            | U-TAG   | BUF1+8C*BUF1              | 10140 | 65000 | 64402 |   | READ A NINE WORD RECORD                           |
| •     | C0152 |    |            | CL      | W(JUSTEOP)                | 10141 | 63635 | 63625 |   |                                                   |
| •     | C0153 |    |            | RJP     | READTAPE                  | 10142 | 16030 | 63616 |   |                                                   |
| •     | C0154 |    |            | U-TAG   | BUF2+550*BUF2             | 10143 | 65000 | 64402 |   | READ THE SECOND RECORD                            |
| •     | C0155 |    |            | ENT     | A*W(BUF2+6)               | 10144 | 63725 | 63636 |   | THIS SHOULD BE THE PROGRAM I M LOOKING FOR        |
| •     | C0156 |    |            | SUB     | A*W(AULTNAME)*AZERO       | 10145 | 11030 | 63644 |   |                                                   |
| •     | C0157 |    |            | JP      | L15C*STOP                 | 10146 | 21430 | 64073 |   |                                                   |
| •     | C0160 |    | L15C       | RJP     | COPY                      | 10147 | 61400 | 10150 |   |                                                   |
| •     | C0161 |    |            | RJP     | REWINDCORR                | 10150 | 65000 | 63415 |   | IT IS, COPY IT                                    |
| •     | C0162 |    |            | CL      | W(JUSTEOP)                | 10151 | 65000 | 63344 |   | REWIND THE TAPE                                   |
| •     | C0163 |    |            | JP      | CKNEXTOLO                 | 10152 | 16030 | 63616 |   |                                                   |
| •     | C0164 |    | MAYBERASE  | RPT     | 1000*BACK                 | 10153 | 61000 | 10103 |   | THE 100 IS REPLACED BY THE PROPER VALUE           |
| •     | C0165 |    |            | COMMENT | EASIER                    | 10154 | 70200 | 00012 |   | IN THE PROGRAM                                    |
| •     | C0166 |    |            | COM     | AQ*W(ERASELIST-1+87)*YIN  | 10155 | 04437 | 64075 |   |                                                   |
| •     | C0167 |    |            | JP      | GCCOPY                    | 10156 | 61000 | 10106 |   |                                                   |
| •     | C0170 |    |            | RJP     | SKIP                      | 10157 | 65000 | 63331 |   | SKIP THE PROGRAM TO BE ERASED                     |
| •     | C0171 |    |            | JP      | CKNEXTOLO                 | 10160 | 61000 | 10103 |   | GO CHECK THE NEXT OLD PROGRAM                     |
| •     | C0172 |    |            | COMMENT | REACH                     |       |       |       |   | THIS POINT WHEN THE END OF OLD TAPE IS FOUND      |
| •     | C0173 |    | ECFCLC     | RJP     | REWINDOLD                 | 10161 | 65000 | 63350 |   |                                                   |
| •     | C0174 |    |            | PUT     | L(CORRECTAPE)*L(INTAPE)   | 10162 | 10010 | 63620 |   | SET TO READ THE CORRECTION TAP                    |





| CARDS | LI    | ID       | LABEL | TA STATEMENT                                | LOC   | F     | JKB   | Y | NOTES                                 |
|-------|-------|----------|-------|---------------------------------------------|-------|-------|-------|---|---------------------------------------|
| •     | C0325 |          |       | ENT Q*(ENDOF+1)                             | 63432 | 1003C | 64113 |   |                                       |
| •     | C0326 |          |       | SUB A*(BUF2)*ANOT                           | 63433 | 2153D | 63636 |   |                                       |
| •     | C0327 |          |       | SUB Q*(BUF2+1)*QZERO                        | 63434 | 2743D | 63637 |   |                                       |
| •     | C0330 |          |       | JP L14A                                     | 63435 | 6100D | 63420 |   | NOT ENO-OF-PROGRAM                    |
| •     | C0331 |          |       | PUT W(FULL)*W(JUSTEOP)                      | 63436 | 1003D | 63615 |   |                                       |
| •     | C0332 | L14C     |       | RJP WRITE                                   | 63437 | 1403D | 63616 |   |                                       |
| •     | C0333 |          |       | U-TAG BUF2+1*BUF2                           | 63440 | 6500D | 64665 |   | WRITE LAST RECORD OUT                 |
| •     | C0334 |          |       | JP L(COPY)                                  | 63441 | 63637 | 63636 |   |                                       |
| •     | C0335 | L14D     |       | RJP PRINT                                   | 63442 | 6101D | 63415 |   |                                       |
| •     | C0336 |          |       | RD L14PR1                                   | 63443 | 6500D | 64151 |   |                                       |
| •     | C0337 |          |       | RJP PRINT                                   | 63444 | 0001D | 63450 |   |                                       |
| •     | C0340 |          |       | 6 L14PR2                                    | 63445 | 6500D | 64151 |   |                                       |
| •     | C0341 |          |       | JP L148*STOP                                | 63446 | 00006 | 63460 |   |                                       |
| •     | C0342 | L14PR1   |       | FO 8D*FOUND A BAD 321 PARITY WHILE CDP63450 | 63447 | 6140D | 63425 |   |                                       |
|       |       |          |       | YING                                        | 13243 | 22311 |       |   |                                       |
| •     | C0343 | L14PR2   |       | FD 6*HIT START TO ACCEPT IT ANYWAY          | 63451 | 0506D | 507C6 |   |                                       |
|       |       |          |       |                                             | 63452 | 11056 | 36261 |   |                                       |
|       |       |          |       |                                             | 63453 | 0525D | 62716 |   |                                       |
|       |       |          |       |                                             | 63454 | 3136D | 53415 |   |                                       |
|       |       |          |       |                                             | 63455 | 16211 | 20510 |   |                                       |
|       |       |          |       |                                             | 63456 | 24253 | 61623 |   |                                       |
|       |       |          |       |                                             | 63457 | 1405D | 5C505 |   |                                       |
|       |       |          |       |                                             | 63460 | 15163 | 1D530 |   |                                       |
|       |       |          |       |                                             | 63461 | 31062 | 731C5 |   |                                       |
|       |       |          |       |                                             | 63462 | 3124D | 5C610 |   |                                       |
|       |       |          |       |                                             | 63463 | 10122 | 53105 |   |                                       |
|       |       |          |       |                                             | 63464 | 1631D | 5C623 |   |                                       |
|       |       |          |       |                                             | 63465 | 3634D | 636C5 |   |                                       |
|       |       |          |       |                                             | 63466 | 6500D | 64151 |   |                                       |
|       |       |          |       | RJP PRINT                                   | 63467 | 00013 | 63536 |   |                                       |
| •     | C0344 | L1STAPES |       | L1D L1ST1PR                                 | 63470 | 6110D | 63524 |   |                                       |
| •     | C0345 |          |       | JP L19Q*KEY1                                | 63471 | 1001D | 63617 |   | SET TO READ OLD TAPE                  |
| •     | C0346 | L19L     |       | PUT L(AULTAPE)*L(1NTAPE)                    | 63472 | 1401D | 63622 |   | GO TO (L19Q) ON EOF                   |
| •     | C0347 |          |       |                                             | 63473 | 1000D | 63524 |   |                                       |
| •     | C0350 |          |       | PUT L19Q*L(MACHEOF)                         | 63474 | 1401D | 64611 |   | GO TO (L19Q) ON PSEUDO EOF            |
|       |       |          |       |                                             | 63475 | 1401D | 646C0 |   |                                       |
| •     | C0351 |          |       | STR Q*(IFEDF)                               | 63476 | 6500D | 64151 |   |                                       |
| •     | C0352 |          |       | RJP PRINT                                   | 63477 | 00004 | 63551 |   |                                       |
| •     | C0353 |          |       | 4 L1ST4PR                                   | 63500 | 6500D | 64151 |   |                                       |
| •     | C0354 | L19M     |       | RJP PRINT                                   | 63501 | 00007 | 63555 |   |                                       |
| •     | C0355 |          |       | 7 L1ST5PR                                   | 63502 | 6500D | 64151 |   |                                       |
| •     | C0356 |          |       | RJP PRINT                                   | 63503 | 00003 | 63564 |   |                                       |
| •     | C0357 |          |       | 3 L1ST6PR                                   | 63504 | 6500D | 64402 |   | READ A NINE WORD RECORD               |
| •     | C0360 | L19N     |       | RJP READTAPE                                | 63505 | 63635 | 63626 |   |                                       |
| •     | C0361 |          |       | U-TAG BUF1*8C*BUF1+1                        | 63506 | 1603D | 63616 |   |                                       |
| •     | C0362 |          |       | CL W(JUSTEOP)                               | 63507 | 1103D | 63626 |   |                                       |
| •     | C0363 |          |       | ENT A*(BUF1+1)                              | 63510 | 2143D | 63623 |   |                                       |
| •     | C0364 |          |       | SUB A*(MSK321)*AZERO                        | 63511 | 6101D | 646C0 |   | NON-74747, TREAT AS EOF               |
| •     | C0365 |          |       | JP L(IFEDF)                                 | 63512 | 6500D | 644C2 |   | READ EIGHT WORDS FROM THE NEXT RECORD |
| •     | C0366 |          |       | RJP READTAPE                                | 63513 | 63645 | 63636 |   |                                       |
| •     | C0367 |          |       | U-TAG BUF2+7*BUF2                           |       |       |       |   |                                       |

| CARDS | LI    | IO      | LABEL | TA  | STATEMENT                                  | LOC   | F     | JKB   | Y | NOTES                                    |
|-------|-------|---------|-------|-----|--------------------------------------------|-------|-------|-------|---|------------------------------------------|
| .     | C0370 |         |       | PUT | W(RUF2+6)*W(RUF1)                          | 63514 | 10030 | 63644 |   | PUT THE SYSTEM NAME WITH THE REST OF THE |
| .     | C0371 |         |       | PUT | W(BLANK)*W(RUF1+1)                         | 63515 | 14030 | 63625 |   | INFORMATION AND PRINT OUT                |
| .     | C0372 |         |       | RJP | PRINT                                      | 63516 | 10030 | 63613 |   |                                          |
| .     | C0373 |         |       | 80  | RUF1                                       | 63517 | 14030 | 63626 |   |                                          |
| .     | C0374 |         |       | RJP | SKIP                                       | 63520 | 65000 | 64151 |   |                                          |
| .     | C0375 |         |       | JP  | L19N                                       | 63521 | 00010 | 63625 |   | SKIP THE REST OF THE PROGRAM             |
| .     | C0376 | L19Q    |       | JP  | L19Z*KEY2                                  | 63522 | 65000 | 63331 |   |                                          |
| .     | C0377 |         |       | PUT | L(NEWTAPE)*L(INTAPE)                       | 63523 | 61000 | 63504 |   |                                          |
| .     | C04C0 |         |       | PUT | L19Z*L(MACHEOF)                            | 63524 | 61200 | 63535 |   | SET TO READ THE NEW TAPE                 |
| .     | C04C1 |         |       | STR | Q(L1FEOF)                                  | 63525 | 10010 | 63621 |   |                                          |
| .     | C04C2 |         |       | RJP | PRINT                                      | 63526 | 14010 | 63622 |   | GO TO (L19Z) ON EOF                      |
| .     | C04C3 |         |       | 4   | L1ST7PR                                    | 63527 | 10000 | 63535 |   |                                          |
| .     | C04C4 |         |       | JP  | L19M                                       | 63530 | 14010 | 64611 |   |                                          |
| .     | C04C5 | L19Z    |       | JP  | BEGIN*STOP                                 | 63531 | 14010 | 64600 |   | GO TO (L19Z) ON PSEUDO EOF               |
| .     | C04C6 | L1ST1PR |       | FD  | L10*KEY1 ON=NO LOG OLD, KEY2 ON=NO LOC NEW | 63532 | 65000 | 64151 |   | AND GO BACK INTO THE PRINT LOOP          |
| .     | C04C7 | L1ST4PR |       | FD  | 4*LISTING OF OLD TAPE                      | 63533 | 00004 | 63567 |   |                                          |
| .     | C0410 | L1ST5PR |       | FD  | 7*SYSTEM PROGRAM PROGRAMMER+DA63555        | 63534 | 61000 | 63500 |   |                                          |
| .     |       |         |       | TE  |                                            | 63535 | 20123 | 66105 |   |                                          |
| .     |       |         |       |     |                                            | 63537 | 24234 | 42324 |   |                                          |
| .     |       |         |       |     |                                            | 63540 | 05212 | 41405 |   |                                          |
| .     |       |         |       |     |                                            | 63541 | 24211 | 15605 |   |                                          |
| .     |       |         |       |     |                                            | 63542 | 20123 | 66205 |   |                                          |
| .     |       |         |       |     |                                            | 63543 | 24234 | 42324 |   |                                          |
| .     |       |         |       |     |                                            | 63544 | 05212 | 41405 |   |                                          |
| .     |       |         |       |     |                                            | 63545 | 23123 | 40505 |   |                                          |
| .     |       |         |       |     |                                            | 63546 | 05050 | 50505 |   |                                          |
| .     |       |         |       |     |                                            | 63547 | 05050 | 50505 |   |                                          |
| .     |       |         |       |     |                                            | 63550 | 05050 | 50505 |   |                                          |
| .     |       |         |       |     |                                            | 63551 | 21163 | 03116 |   |                                          |
| .     |       |         |       |     |                                            | 63552 | 23140 | 52413 |   |                                          |
| .     |       |         |       |     |                                            | 63553 | 05242 | 11105 |   |                                          |
| .     |       |         |       |     |                                            | 63554 | 31062 | 51205 |   |                                          |
| .     |       |         |       |     |                                            | 63555 | 30363 | 03112 |   |                                          |
| .     |       |         |       |     |                                            | 63556 | 22050 | 50525 |   |                                          |
| .     |       |         |       |     |                                            | 63557 | 27241 | 42706 |   |                                          |
| .     |       |         |       |     |                                            | 63560 | 22050 | 50505 |   |                                          |
| .     |       |         |       |     |                                            | 63561 | 25272 | 41427 |   |                                          |
| .     |       |         |       |     |                                            | 63562 | 06222 | 21227 |   |                                          |
| .     |       |         |       |     |                                            | 63563 | 42110 | 63112 |   |                                          |
| .     |       |         |       |     |                                            | 63564 | 05230 | 62212 |   |                                          |
| .     |       |         |       |     |                                            | 63565 | 05050 | 50505 |   |                                          |
| .     |       |         |       |     |                                            | 63566 | 23062 | 21205 |   |                                          |
| .     |       |         |       |     |                                            | 63567 | 21163 | 03116 |   |                                          |
| .     |       |         |       |     |                                            | 63570 | 23140 | 52413 |   |                                          |
| .     |       |         |       |     |                                            | 63571 | 05231 | 23405 |   |                                          |
| .     |       |         |       |     |                                            | 63572 | 31062 | 51205 |   |                                          |
| .     |       |         |       |     |                                            | 63573 | 21163 | 03105 |   |                                          |
| .     |       |         |       |     |                                            | 63574 | 25272 | 41427 |   |                                          |

.....  
UPDATER

CARDS 11 10 LABEL

|                                       |       |       |       |
|---------------------------------------|-------|-------|-------|
| 0414 REMIND                           | 63575 | 06223 | 00531 |
|                                       | 63576 | 24050 | 71205 |
|                                       | 63577 | 12270 | 63012 |
|                                       | 63600 | 11050 | 50505 |
| FD 10C*DRIVE B OLD TAPE, C CORRECTION | 63601 | 11271 | 63312 |

| NO.   | DESCRIPTION | DATE  | AMOUNT | BALANCE |
|-------|-------------|-------|--------|---------|
| 63602 |             | 05070 | 52421  |         |
| 63603 |             | 11053 | 10625  |         |
| 63604 |             | 12560 | 51005  |         |
| 63605 |             | 10242 | 72712  |         |
| 63606 |             | 10311 | 62423  |         |
| 63607 |             | 56051 | 10530  |         |
| 63610 |             | 10270 | 63110  |         |
| 63611 |             | 15051 | 32427  |         |
| 63612 |             | 05231 | 23405  |         |
| 63613 |             | 05050 | 50505  |         |
| 63614 |             | 61000 | 00000  |         |
| 63615 |             | 77777 | 77777  |         |
| 63616 |             | 00000 | 00000  |         |

| NO   | DATE     | TIME  | REMARKS      | COMMENTS | END-OF-PROGRAM |
|------|----------|-------|--------------|----------|----------------|
| 0001 | 01/01/01 | 00:00 | START        |          |                |
| 0002 | 01/01/01 | 00:01 | INITIALIZE   |          |                |
| 0003 | 01/01/01 | 00:02 | LOAD DATA    |          |                |
| 0004 | 01/01/01 | 00:03 | PROCESS DATA |          |                |
| 0005 | 01/01/01 | 00:04 | SAVE RESULTS |          |                |
| 0006 | 01/01/01 | 00:05 | END          |          |                |

|                  | C       | 2    |                 |
|------------------|---------|------|-----------------|
| C0423 ALLIAPE    | 0       |      |                 |
| C0424 CRRCTAPE   | 0       | 4    |                 |
| C0425 NEWTAPE    | 0       | 80   |                 |
| C0426 INTAPE     | 52000   |      |                 |
| C0427 MSK321     | 74747   |      | 00001           |
| C0428            |         |      | 00321           |
| C0430 MSK1       | U-TAG   |      | BUF2+550*BUF2+1 |
| C0431 BUF1       | RESERVE | 90   |                 |
| C0432 BUF2       | RESERVE | 560  |                 |
| C0433 CHANGELIST | RESERVE | 1000 |                 |

C0434 LUMBERNEW

|       |           |         |   |            |             |
|-------|-----------|---------|---|------------|-------------|
| CO435 | ALLNAME   | C       |   |            |             |
| CO436 | BCWREPLY  | U-TAG   |   |            | REPLY*REPLY |
| CO437 | REPLY     | C       | 0 |            |             |
| CO440 | ERASELIST | RESERVE |   | 110        |             |
| CO441 | 11        | C       | 1 |            |             |
| CO442 | ENOOF     | FC      |   | 2*ENOOFUMP |             |

| CO443 | TYPE | MEANS | C2      |
|-------|------|-------|---------|
| CO444 | TYPE | MEANS | C15     |
| CO445 | CRLF | ENTRY |         |
| CO446 |      | R/L   |         |
| CO447 |      | OUT   | TYPE=WB |
| CO450 |      | PUT   | WJPCRLF |

|       | JP    | \$ |
|-------|-------|----|
| C0451 | EXIT  |    |
| C0452 | U-TAG |    |
| C0453 |       |    |

THIS REGISTER IS ON JUST FOLLO  
WING DISCOVERY OF AN  
RECORD SO A MACHINE ERROR STAT  
US RETURN  
A TAPE READ CAN BE RECOGNIZED  
AS A PSEUDO ENO-OF-FILE

LIST OF PROGRAM NAMES FROM CHANGING TAPE  
NUMBER OF NAMES IN CHANGELIST

TYPEWRITER KEYBOARD  
MAGNETIC TAPES

|       |       |       |       |
|-------|-------|-------|-------|
| 64072 | 00000 | 00000 | 00000 |
| 64073 | 00000 | 00000 | 00000 |
| 64074 | 64075 | 64075 | 64075 |
| 64075 | 00000 | 00000 | 00000 |
| 64076 | 00000 | 00000 | 00000 |
| 64111 | 00000 | 00001 |       |
| 64112 | 1231  | 12413 |       |
| 64113 | 11322 | 22505 |       |
| 64114 | 61000 | 00000 |       |
| 64115 | 60000 | 00000 |       |
| 64116 | 76130 | 64123 |       |
| 64117 | 10030 | 64124 |       |
| 64118 | 14030 | 00062 |       |
| 64121 | 61000 | 64121 |       |
| 64122 | 61010 | 64114 |       |
| 64123 | 64127 | 64125 |       |

| CARDS | LI    | ID         | LABEL   | TA                         | STATEMENT | LOC   | F     | JKB   | Y | NOTES                         |
|-------|-------|------------|---------|----------------------------|-----------|-------|-------|-------|---|-------------------------------|
| .     | C0454 | JPCRLF     | RILJP   | CRLF                       |           | 64124 | 60100 | 64122 |   |                               |
| .     | C0455 | CRLFCDE    | C       | 4                          |           | 64125 | 00000 | 00004 |   |                               |
| .     | C0456 |            | C       | 3                          |           | 64126 | 00000 | 00003 |   |                               |
| .     | C0457 |            | C       | 3                          |           | 64127 | 00000 | 00003 |   |                               |
| .     | C0460 | STCERXRS   | ENTRY   |                            |           | 64130 | 61000 | 00000 |   | STORE INDEX REGISTERS B2-B6   |
| .     | C0461 |            | STR     | B2*U(U82L83)               |           | 64131 | 16220 | 64146 |   |                               |
| .     | C0462 |            | STR     | B3*U(U82L83)               |           | 64132 | 16310 | 64146 |   |                               |
| .     | C0463 |            | STR     | B4*U(U84L85)               |           | 64133 | 16420 | 64147 |   |                               |
| .     | C0464 |            | STR     | B5*U(U84L85)               |           | 64134 | 16510 | 64147 |   |                               |
| .     | C0465 |            | STR     | B6*U(U86)                  |           | 64135 | 16620 | 64150 |   |                               |
| .     | C0466 |            | RILJP   | L(STOREXRS)                |           | 64136 | 60110 | 64130 |   |                               |
| .     | C0467 | ENTERXRS   | ENTRY   |                            |           | 64137 | 61000 | 00000 |   | RESTORE INDEX REGISTERS B2-B6 |
| .     | C047C |            | ENT     | B2*U(U82L83)               |           | 64140 | 12220 | 64146 |   |                               |
| .     | C0471 |            | ENT     | B3*U(U82L83)               |           | 64141 | 12310 | 64146 |   |                               |
| .     | C0472 |            | ENT     | B4*U(U84L85)               |           | 64142 | 12420 | 64147 |   |                               |
| .     | C0473 |            | ENT     | B5*U(U84L85)               |           | 64143 | 12510 | 64147 |   |                               |
| .     | C0474 |            | ENT     | B6*U(U86)                  |           | 64144 | 12620 | 64150 |   |                               |
| .     | C0475 |            | EXIT    |                            |           | 64145 | 61010 | 64137 |   |                               |
| .     | C0476 | U82L83     | C       | 0                          |           | 64146 | 00000 | 00000 |   |                               |
| .     | C0477 | U84L85     | C       | 0                          |           | 64147 | 00000 | 00000 |   |                               |
| .     | C05C0 | U86        | C       | 0                          |           | 64150 | 00000 | 00000 |   |                               |
| .     | C05C1 | PRINT      | ENTRY   |                            |           | 64151 | 61000 | 00000 |   |                               |
| .     | C0502 |            | RJP     | STCERXRS                   |           | 64152 | 65000 | 64130 |   | PRINT ON CONSOLE TYPEWRITER   |
| .     | C0503 |            | PUT     | W(JPPRINTOVR)*W(62)        |           | 64153 | 10030 | 64201 |   |                               |
| .     | C0504 |            | PUT     | L(PRINT)*L(SETUP)          |           | 64154 | 14030 | 00062 |   |                               |
| .     | C0505 | SETUP      | PUT     | W(0)*W(UNPACKCODE)         |           | 64155 | 10010 | 64151 |   |                               |
| .     | C0506 |            | RPL     | Y+1*L(PRINT)               |           | 64156 | 14010 | 64157 |   |                               |
| .     | C0507 |            | ENT     | A*BUFFERPRNT+2             |           | 64160 | 14030 | 00000 |   | INDEX RETURN POINT            |
| .     | C0510 |            | RJP     | UNPACK                     |           | 64161 | 36010 | 64151 |   |                               |
| .     | C0511 | UNPACKCCE  | C       | 0                          |           | 64162 | 11000 | 642C5 |   | UNPACK FIELDATA TEXT          |
| .     | C0512 |            | ENT     | Q*U(UNPACKCODE)            |           | 64163 | 65000 | 64351 |   |                               |
| .     | C0513 |            | MUL     | 5                          |           | 64164 | 00000 | 00000 |   | COUNT OF WORDS                |
| .     | C0514 |            | ACC     | Q*BUFFERPRNT+1             |           | 64165 | 22000 | 00005 |   | COUNT OF CHARACTERS           |
| .     | C0515 |            | STR     | Q*A                        |           | 64167 | 26000 | 642C4 |   | LWA OF UNPACKED TEXT          |
| .     | C0516 |            | LSH     | A*150                      |           | 64170 | 14040 | 00000 |   |                               |
| .     | C0517 | CHGADR     | SEL     | SET*BUFFERPRNT             |           | 64171 | 06000 | 00017 |   |                               |
| .     | C0520 |            | STR     | A*W(PRINTBUFFC)            |           | 64172 | 50000 | 642C3 |   |                               |
| .     | C0521 |            | CUT     | TYPE*W(PRINTBUFFC)*MONITOR |           | 64173 | 15030 | 642C2 |   |                               |
| .     | C0522 |            | RIL     |                            |           | 64174 | 76130 | 642C2 |   |                               |
| .     | C0523 | WAITPRINT  | JP      | WAITPRINT                  |           | 64175 | 60000 | 00000 |   |                               |
| .     | C0524 | PRINTCVR   | RJP     | ENTERXRS                   |           | 64176 | 61000 | 64176 |   |                               |
| .     | C0525 |            | RILJP   | L(PRINT)                   |           | 64177 | 65000 | 64137 |   |                               |
| .     | C0526 | JPPRINTCVR | RILJP   | PRINTOVER                  |           | 64200 | 60110 | 64151 |   |                               |
| .     | C0527 | PRINTBUFFC | C       | 0                          |           | 64201 | 60100 | 64177 |   | BUFFER CONTROL FOR PRINTING   |
| .     | C0530 | BLFERPRNT  | C       | C4                         |           | 64202 | 00000 | 00000 |   | CARRIAGE RETURN               |
| .     | C0531 |            | C       | 03                         |           | 64203 | 00000 | 00004 |   | LINE FEED                     |
| .     | C0532 |            | RESERVE | 1000                       |           | 64205 | 00000 | 00000 |   |                               |
| .     | C0533 | UNPACK     | ENTRY   |                            |           | 64351 | 61000 | 00000 |   | UNPACK 1 CHARACTER TO WORD    |

| ..... SPURT OUTPUT NO. 210<br>UPDATER HAFORD*12*Aug*64 |       |             |                                     | ..... |       |       |                                                                                                                                                     |
|--------------------------------------------------------|-------|-------------|-------------------------------------|-------|-------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| CARDS                                                  | LI    | IO LABEL    | TA STATEMENT                        | LUC   | F     | JKB Y | NOTES                                                                                                                                               |
| •                                                      | C0534 |             | STR A*LISTOREUNPAK)                 | 64352 | 15010 | 64373 | FMA OF UNPACKED TABLE                                                                                                                               |
| •                                                      | C0535 |             | PUT LIUNPAK)*LIINPUTCOUNTER)        | 64353 | 10010 | 64351 |                                                                                                                                                     |
| •                                                      | C0536 | PLTCCOUNTER | PUT WIO)*WICOUNTER)                 | 64354 | 14010 | 64355 |                                                                                                                                                     |
| •                                                      | C0537 |             | RPL Y+1*L(UNPAK)                    | 64355 | 10030 | 00000 |                                                                                                                                                     |
| •                                                      | C0540 |             | CL B3*                              | 64356 | 14030 | 64401 | INDEX RETURN POINT<br>CLEAR WORD COUNTER<br>FMA OF PACKED TABLE                                                                                     |
| •                                                      | C0541 |             | PUT LICOUNTER)*LICETPACK)           | 64357 | 36010 | 64351 |                                                                                                                                                     |
| •                                                      | C0542 |             | ENT A*UICOUNTER)                    | 64360 | 12300 | 00000 |                                                                                                                                                     |
| •                                                      | C0543 |             | SUB A1                              | 64361 | 10010 | 64401 |                                                                                                                                                     |
| •                                                      | C0544 |             | STR A*LILOOPLIMIT)                  | 64362 | 14010 | 64370 | WORD COUNT<br>WORD COUNT - 1<br>CLEAR CHARACTER COUNTER<br>SET TO LOOP 5 TIMES<br>PACKED WORD<br>CLEAR ACCUMULATOR<br>NEXT CHARACTER OF PACKED WORD |
| •                                                      | C0545 |             | CL B4*                              | 64363 | 11020 | 64401 |                                                                                                                                                     |
| •                                                      | C0546 | LCCPSTART   | ENT R5*4                            | 64364 | 21000 | 00001 |                                                                                                                                                     |
| •                                                      | C0547 | GETPACK     | ENT C*WIB3)                         | 64365 | 15010 | 64376 |                                                                                                                                                     |
| •                                                      | C0550 | LCCP1       | CL A*                               | 64366 | 12400 | 00000 | STORE IN UNPACK TABLE<br>INDEX UNPACK TABLE<br>FINISHED THIS WORD...<br>YES. FINISHED ALL WORDS...<br>NO.<br>YES.<br>U<br>READ SPURT 210 TAPE       |
| •                                                      | C0551 |             | LSH AQ*6                            | 64367 | 12500 | 00004 |                                                                                                                                                     |
| •                                                      | C0552 | STREUNPAK   | STR A*LI184)                        | 64370 | 10030 | 00000 |                                                                                                                                                     |
| •                                                      | C0553 |             | RSK B4*77777                        | 64371 | 11000 | 00000 |                                                                                                                                                     |
| •                                                      | C0554 |             | RJP B5*LOOPL                        | 64372 | 07000 | 00006 | INDEX RETURN POINT<br>ESTABLISH INPUT BUFFER<br>BINARY-HD TAPE ON UNIT 2 OR 3<br>WAIT FOR INTERRUPT<br>STATUS WORD                                  |
| •                                                      | C0555 | LCCPLIMIT   | RSK B3*0                            | 64373 | 15014 | 00000 |                                                                                                                                                     |
| •                                                      | C0556 |             | JP LOOPSTART                        | 64374 | 71400 | 77777 |                                                                                                                                                     |
| •                                                      | C0557 |             | EXIT                                | 64375 | 72500 | 64371 |                                                                                                                                                     |
| •                                                      | C0560 | CCOUNTER    | C O                                 | 64376 | 71300 | 00000 | INDEX RETURN POINT<br>ESTABLISH INPUT BUFFER<br>BINARY-HD TAPE ON UNIT 2 OR 3<br>WAIT FOR INTERRUPT<br>STATUS WORD                                  |
| •                                                      | C0561 | READTAPE    | ENTRY                               | 64377 | 61000 | 64367 |                                                                                                                                                     |
| •                                                      | C0562 |             | RJP STREXRS                         | 64400 | 61010 | 64351 |                                                                                                                                                     |
| •                                                      | C0563 |             | PUT LIREADTAPE)*LIINBUFFER)         | 64401 | 00000 | 00000 |                                                                                                                                                     |
| •                                                      | C0564 |             | RPL Y+1*L(READTAPE)                 | 64402 | 61000 | 00000 | INDEX RETURN POINT<br>ESTABLISH INPUT BUFFER<br>BINARY-HD TAPE ON UNIT 2 OR 3<br>WAIT FOR INTERRUPT<br>STATUS WORD                                  |
| •                                                      | C0565 |             | CL B2*                              | 64403 | 65000 | 64130 |                                                                                                                                                     |
| •                                                      | C0566 | INRUFFER    | IN TAPE)*W(O)                       | 64404 | 10010 | 64402 |                                                                                                                                                     |
| •                                                      | C0567 |             | PUT WJPC15EXT)*W135)                | 64405 | 14010 | 64410 |                                                                                                                                                     |
| •                                                      | C0570 |             | EX-FCT TAPE)*W1INTAPE)              | 64406 | 36010 | 64402 | INDEX RETURN POINT<br>ESTABLISH INPUT BUFFER<br>BINARY-HD TAPE ON UNIT 2 OR 3<br>WAIT FOR INTERRUPT<br>STATUS WORD                                  |
| •                                                      | C0571 | WAIT1       | JP WAIT1                            | 64407 | 12200 | 00000 |                                                                                                                                                     |
| •                                                      | C0572 | C15EXTINT   | STR TAPE)*W1STATUS)                 | 64410 | 73670 | 00000 |                                                                                                                                                     |
| •                                                      | C0573 |             | ENT A*U1STATUS)                     | 64411 | 10030 | 64512 |                                                                                                                                                     |
| •                                                      | C0574 |             | RSH A*110                           | 64412 | 14030 | 00035 | INDEX RETURN POINT<br>ESTABLISH INPUT BUFFER<br>BINARY-HD TAPE ON UNIT 2 OR 3<br>WAIT FOR INTERRUPT<br>STATUS WORD                                  |
| •                                                      | C0575 |             | ADD A*STATUSCODE                    | 64413 | 13670 | 63622 |                                                                                                                                                     |
| •                                                      | C0576 |             | STR A*LIINTERJUMP)                  | 64414 | 61000 | 64414 |                                                                                                                                                     |
| •                                                      | C0577 |             | KIL                                 | 64415 | 17670 | 64635 |                                                                                                                                                     |
| •                                                      | C0600 | INTERJUMP   | JP LIC)                             | 64416 | 11020 | 64635 | INDEX RETURN POINT<br>ESTABLISH INPUT BUFFER<br>BINARY-HD TAPE ON UNIT 2 OR 3<br>WAIT FOR INTERRUPT<br>STATUS WORD                                  |
| •                                                      | C0601 | BACK        | RJP ENTERXRS                        | 64417 | 02000 | 00013 |                                                                                                                                                     |
| •                                                      | C0602 |             | EXIT                                | 64420 | 20000 | 64451 |                                                                                                                                                     |
| •                                                      | C0603 | INTERLOCK   | PUT W(UNITNOINT)*W(LOCKP)           | 64421 | 15010 | 64423 |                                                                                                                                                     |
| •                                                      | C0604 |             | RJP PRINT                           | 64422 | 60000 | 00000 | INDEX RETURN POINT<br>ESTABLISH INPUT BUFFER<br>BINARY-HD TAPE ON UNIT 2 OR 3<br>WAIT FOR INTERRUPT<br>STATUS WORD                                  |
| •                                                      | C0605 |             | I10 INTERLOCKP                      | 64423 | 61010 | 00000 |                                                                                                                                                     |
| •                                                      | C0606 |             | JP INBUFFER*STCP                    | 64424 | 65000 | 64137 |                                                                                                                                                     |
| •                                                      | C0607 | INTERLOCKP  | FD 6* THERE IS AN INTERLOCK ON UNIT | 64425 | 61010 | 64402 |                                                                                                                                                     |





| CARDS | LI    | IO | LABEL      | TA STATEMENT                                | LOC   | F     | JKB   | Y | NOTES                       |
|-------|-------|----|------------|---------------------------------------------|-------|-------|-------|---|-----------------------------|
| .     | C07C3 |    |            | 110 MACHFAULT                               | 64613 | 00013 | 64471 |   |                             |
| .     | C07C4 |    |            | RJP ENTERXRS                                | 64614 | 65000 | 64137 |   |                             |
| .     | C07C5 |    |            | JP L(READTAPE)*STOP                         | 64615 | 61410 | 64402 |   |                             |
| .     | C07C6 |    | KCCTIGFC   | ENTRY                                       | 64616 | 61000 | 00000 |   |                             |
| .     | C07C7 |    |            | CL A*                                       | 64617 | 11000 | 00000 |   |                             |
| .     | C0710 |    |            | LSH AQ*3                                    | 64620 | 07000 | 00003 |   |                             |
| .     | C0711 |    |            | LSH A*3                                     | 64621 | 06000 | 00003 |   |                             |
| .     | C0712 |    |            | LSH AQ*3                                    | 64622 | 07000 | 00003 |   |                             |
| .     | C0713 |    |            | LSH A*3                                     | 64623 | 06000 | 00003 |   |                             |
| .     | C0714 |    |            | LSH AQ*3                                    | 64624 | 07000 | 00003 |   |                             |
| .     | C0715 |    |            | LSH A*3                                     | 64625 | 06000 | 00003 |   |                             |
| .     | C0716 |    |            | LSH AQ*3                                    | 64626 | 07000 | 00003 |   |                             |
| .     | C0717 |    |            | LSH A*3                                     | 64627 | 06000 | 00003 |   |                             |
| .     | C0720 |    |            | LSH AQ*3                                    | 64630 | 07000 | 00003 |   |                             |
| .     | C0721 |    |            | NO-OP                                       | 64631 | 12000 | 00000 |   |                             |
| .     | C0722 |    | OLMMY      | ADD A*(EXCESS60)                            | 64632 | 20030 | 64634 |   |                             |
| .     | C0723 |    |            | EXIT                                        | 64633 | 61010 | 64616 |   |                             |
| .     | C0724 |    | EXCESS60   | 60606 06060                                 | 64634 | 60606 | 06060 |   |                             |
| .     | C0725 |    | STATUS     | C 0                                         | 64635 | 00000 | 00000 |   |                             |
| .     | C0726 |    | INPUTAPEND | ENT A*(INTAPE)                              | 64636 | 11010 | 63622 |   |                             |
| .     | C0727 |    |            | RSH A*2                                     | 64637 | 02000 | 00002 |   |                             |
| .     | C0730 |    |            | ENT B1*A                                    | 64640 | 12170 | 00000 |   |                             |
| .     | C0731 |    |            | ENT A*(UNITNOINT+81)                        | 64641 | 11031 | 64446 |   |                             |
| .     | C0732 |    |            | STR A*(ENOTAPLM)                            | 64642 | 15020 | 64657 |   |                             |
| .     | C0733 |    |            | RJP PRINT                                   | 64643 | 65000 | 64151 |   |                             |
| .     | C0734 |    |            | L3C ENDOFTAPM                               | 64644 | 00015 | 64650 |   |                             |
| .     | C0735 |    |            | RJP ENTERXRS                                | 64645 | 65000 | 64137 |   |                             |
| .     | C0736 |    |            | JP EOFOL                                    | 64646 | 61000 | 10161 |   |                             |
| .     | C0737 |    |            | EXIT STOP                                   | 64647 | 61410 | 64616 |   |                             |
| .     | C0740 |    | ENDOFAPM   | FD 7*AN END UF TAPE HAS OCCURRED ON UN64650 | 64650 | 06230 | 51223 |   | PRINT ENO-OF-TAPE MESSAGE   |
|       |       |    |            | IT                                          |       |       |       |   |                             |
|       |       |    |            |                                             | 64651 | 11052 | 41305 |   |                             |
|       |       |    |            |                                             | 64652 | 31062 | 51205 |   |                             |
|       |       |    |            |                                             | 64653 | 15063 | 00524 |   |                             |
|       |       |    |            |                                             | 64654 | 10103 | 22727 |   |                             |
|       |       |    |            |                                             | 64655 | 12110 | 52423 |   |                             |
|       |       |    |            |                                             | 64656 | 05322 | 31631 |   |                             |
|       |       |    |            |                                             | 64657 | 05057 | 50515 |   |                             |
|       |       |    |            |                                             | 64660 | 06231 | 40523 |   |                             |
|       |       |    |            |                                             | 64661 | 12340 | 53106 |   |                             |
|       |       |    |            |                                             | 64662 | 25120 | 50623 |   |                             |
|       |       |    |            |                                             | 64663 | 11053 | 03106 |   |                             |
|       |       |    |            |                                             | 64664 | 27317 | 50505 |   |                             |
| .     | C0742 |    | WRITE      | ENTRY                                       | 64665 | 61000 | 00000 |   | WRITE * WAIT FOR 1 RECORD   |
| .     | C0743 |    |            | PUT W(ENTRANCE)*W(35)                       | 64666 | 10030 | 64777 |   |                             |
|       |       |    |            |                                             | 64667 | 14030 | 00035 |   |                             |
| .     | C0744 |    |            | PUT L(WRITE)*L(WRITEOUT)                    | 64670 | 10010 | 64665 |   | PICK UP BUFFER CONTROL WORD |
|       |       |    |            |                                             | 64671 | 14010 | 64675 |   |                             |
| .     | C0745 |    | FCREWIND   | RPL Y*1*L(WRITE)                            | 64672 | 36010 | 64665 |   | SET FOR NORMAL RJP +2       |
| .     | C0746 |    |            | EX-FCT C15*1200000010                       | 64673 | 13670 | 65002 |   |                             |
| .     | C0747 |    |            | RIL                                         | 64674 | 60000 | 00000 |   |                             |
| .     | C0750 |    | WRITECUT   | CUT C15*W(0)                                | 64675 | 74670 | 00000 |   |                             |
| .     | C0751 |    | HERE       | JP HERE                                     | 64676 | 61000 | 64676 |   | WAIT FOR INTERRUPT          |

| CARDS | L1    | IO | LABEL     | TA     | STATEMENT                          | LOC   | F     | JK8   | Y | NOTES                          |
|-------|-------|----|-----------|--------|------------------------------------|-------|-------|-------|---|--------------------------------|
| .     | C0752 |    | INTERRUPT | STR    | C15*W(CHANNEL)                     | 64677 | 17670 | 64733 |   |                                |
| .     | C0753 |    |           | ENT    | A*U(CHANNEL)                       | 64700 | 11020 | 64733 |   | PICK UP STATUS WORD            |
| .     | C0754 |    |           | RSH    | A*110                              | 64701 | 02000 | 00013 |   | LOCATION OF TABLE OF JUMPS     |
| .     | C0755 |    |           | AOC    | A*STATCODE                         | 64702 | 20000 | 64734 |   |                                |
| .     | C0756 |    |           | STR    | A*L(INTJUMP)                       | 64703 | 15010 | 64704 |   |                                |
| .     | C0757 |    | INTJUMP   | JP     | L(0)                               | 64704 | 61010 | 00000 |   | JUMP CONTROLLING S.R.          |
| .     | C0760 |    | BADMCH    | PUT    | U(MYSERVO)*U(UNITNO)               | 64705 | 10020 | 64754 |   | MACHINE ERROR OR NOT USED      |
| .     | C0761 |    |           | JP     | MACHERROR                          | 64706 | 14020 | 64503 |   |                                |
| .     | C0762 |    | REDUNDANT | PUT    | L20A*L(35)                         | 64707 | 61000 | 64612 |   | ART S ROUTINE                  |
| .     | C0763 |    |           | EX-FCI | C15*30300000010                    | 64710 | 10000 | 64714 |   |                                |
| .     | C0764 |    |           | JP     | S                                  | 64711 | 14010 | 00035 |   |                                |
| .     | C0765 |    | L2CA      | STR    | C15*W(CHANNEL)                     | 64712 | 13670 | 65003 |   |                                |
| .     | C0766 |    |           | PUT    | INTERRUPT*L(35)                    | 64713 | 61000 | 64713 |   |                                |
| .     | C0767 |    |           | EX-FCI | C15*10300000010                    | 64714 | 17670 | 64733 |   |                                |
| .     | C0770 |    | ENDTAPE   | JP     | WRITEOUT                           | 64715 | 10000 | 64677 |   |                                |
| .     | C0771 |    |           | EX-FCI | C15*02300000010                    | 64716 | 14010 | 00035 |   |                                |
| .     | C0772 |    |           | RPT    | 77777                              | 64717 | 13670 | 65004 |   | WRITE E O F HO                 |
| .     | C0773 |    |           | NO-OP  |                                    | 64720 | 61000 | 64675 |   |                                |
| .     | C0774 |    |           | EX-FCI | C15*21100000010                    | 64721 | 13670 | 65005 |   |                                |
| .     | C0775 |    |           | RJP    | PRINT                              | 64722 | 70000 | 77777 |   | REW W/ INTLCK                  |
| .     | C0776 |    |           | B0     | NEWTAPEPR                          | 64723 | 12000 | 00000 |   |                                |
| .     | C0777 |    | INTERLCK  | EXIT   | STOP                               | 64724 | 13670 | 65006 |   |                                |
| .     | C1C00 |    |           | RJP    | PRINT                              | 64725 | 65000 | 64151 |   |                                |
| .     | C1C01 |    |           | 100    | WAKEUP                             | 64726 | 00010 | 64755 |   |                                |
| .     | C1C02 |    | CHANNEL   | JP     | WRITEOUT*STOP                      | 64727 | 61410 | 64665 |   |                                |
| .     | C1C03 |    |           | C      | 0                                  | 64730 | 65000 | 64151 |   |                                |
| .     | C1C04 |    | STATCODE  | C0     | BADMCH                             | 64731 | 00012 | 64765 |   |                                |
| .     | C1C05 |    |           | C4     | BADMCH                             | 64732 | 61400 | 64675 |   | 0 NOT USED                     |
| .     | C1C06 |    |           | 10     | BADMCH                             | 64733 | 00000 | 00000 |   | 1 00                           |
| .     | C1C07 |    |           | 14     | BADMCH                             | 64734 | 00000 | 64705 |   | 2 00                           |
| .     | C1C10 |    |           | 20     | BADMCH                             | 64735 | 00004 | 64705 |   | 3 00                           |
| .     | C1C11 |    |           | 24     | FOREWIND                           | 64736 | 00014 | 64705 |   | 4 CHAR SYNC SEQUENCE ERRO      |
| .     | C1C12 |    |           | 30     | BADMCH                             | 64740 | 00020 | 64705 |   | 6 CHAR COUNT ERROR             |
| .     | C1C13 |    |           | 34     | BADMCH                             | 64741 | 00024 | 64673 |   | 7 FUNCTION WORD ERROR          |
| .     | C1C14 |    |           | EXIT   |                                    | 64742 | 00030 | 64705 |   | 10 NORMAL COMPLETION           |
| .     | C1C15 |    |           | 44     | REDUNOANT                          | 64743 | 00034 | 64705 |   | 11 PARITY                      |
| .     | C1C16 |    |           | 50     | BADMCH                             | 64744 | 61010 | 64665 |   | 12 CONTROL UNIT SEQUENCE ERROR |
| .     | C1C17 |    |           | 54     | BADMCH                             | 64745 | 00044 | 64710 |   | 13 ENO OF FILE                 |
| .     | C1C20 |    | ENDTAPE   | 60     | ENDTAPE                            | 64746 | 00050 | 64705 |   | 14 ENO OF TAPE                 |
| .     | C1C21 |    |           | 64     | BADMCH                             | 64747 | 00054 | 64705 |   | 15 NOT USED                    |
| .     | C1C22 |    |           | 70     | BADMCH                             | 64750 | 00060 | 64721 |   | 16 ABNORMAL FRAME COUNT        |
| .     | C1C23 |    |           | 74     | INTERLCK                           | 64751 | 00064 | 64705 |   | 17 INTERLOCK                   |
| .     | C1C24 |    | MYSERVO   | FD     | 1*0.                               | 64752 | 00070 | 64705 |   |                                |
| .     | C1C25 |    | NEWTAPEPR | FO     | BO*OUNT ANOTHER OUTPUT TAPE AND RE | 64753 | 00074 | 64730 |   |                                |
| .     |       |    |           | SUNE   |                                    | 64754 | 11750 | 50505 |   |                                |
| .     |       |    |           |        |                                    | 64755 | 22243 | 22331 |   |                                |
| .     |       |    |           |        |                                    | 64756 | 05062 | 32431 |   |                                |
| .     |       |    |           |        |                                    | 64757 | 15122 | 70524 |   |                                |
| .     |       |    |           |        |                                    | 64760 | 32312 | 53231 |   |                                |
| .     |       |    |           |        |                                    | 64761 | 05310 | 62512 |   |                                |

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..... SPURT OUTPUT NO. 210 .....
UPDAIER HAFORD 12 AUG 64
.....

CARDS  LI ID LABEL  TA STATEMENT  LOC  F  JKB Y  NOTES
      .  C1026 WAKEUP  FD 100 INTERLOCK FAULT ON OUTPUT TAPE.64765 16233 11227
      ..REMEDY AND RESUME
      64766 21241 02005
      64767 13063 22131
      64770 05242 30524
      64771 32312 53231
      64772 05310 62512
      64773 75757 52712
      64774 22121 13605
      64775 06231 10527
      64776 12303 22212
      64777 60100 64677
      65000 12000 00000
      65001 12300 00010
      65002 12000 00010
      65003 30300 00010
      65004 10300 00010
      65005 02300 00010
      65006 21100 00010
      OUMMY

      :  C1027 ENTRANCE  RILJP  INTERRUPT
      :  C1030  NO-OP

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END OF LISTING

SPURT OUTPUT NO. 211

HAFFORD-12-AUG-64

UPDATER

| LABEL      | LOC   | LABEL      | LOC   | LABEL      | LOC   |
|------------|-------|------------|-------|------------|-------|
| A\$S\$1111 | 65001 | A\$S\$1112 | 65002 | A\$S\$1113 | 65003 |
| A\$S\$1114 | 65004 | A\$S\$1115 | 65005 | A\$S\$1116 | 65006 |
| ACGAZIM    | 63071 | ACOELEV    | 63075 | ACQUI      | 63427 |
| ACTUALTIME | 63142 | ADSCN      | 63416 | AESCN      | 63417 |
| ALNGOFFSET | 63517 | ANOTHERC   | 10035 | ANOTHERW   | 10034 |
| ARCCFAZIM  | 63524 | ARCOFDEC   | 63526 | ARCOFELEV  | 63522 |
| ARCCFRA    | 63530 | ASKERASE   | 63573 | ASTRODEC   | 63106 |
| ASTORCA    | 63105 | AULTAPE    | 63617 | AULTNAME   | 64073 |
| AUPEREQUAT | 63341 | AZELOTIME  | 63532 | AZELBXSCAN | 63500 |
| AZIM       | 63053 | AZIMOFFSET | 63512 | AZIMOUT    | 64000 |
| AZIMCVER   | 63325 | AZIMADD    | 63442 | AZIMIN     | 75000 |
| AZMTHSCAN  | 63501 | BODYSIZE   | 63462 | BACK       | 64424 |
| BADMCH     | 64705 | BCWCRLF    | 64123 | BCWREPLY   | 64074 |
| BEGIN      | 10000 | BLANK      | 63613 | BLASTOFF   | 63146 |
| BSKIP3     | 10201 | BUFI       | 63625 | RUF2       | 63636 |
| RUFFERPRNT | 64203 | COCON      | 63414 | CONVERTIME | 63135 |
| CCPY       | 63415 | COPYOUT    | 63403 | CORCT      | 63420 |
| CORRECTAPE | 63620 | COSORIENT  | 63065 | CDSAZEL    | 63070 |
| COUNTER    | 64401 | CL5EXTINT  | 64415 | CAZIM      | 63060 |
| CELRODY    | 63113 | CELCOMPOM  | 63424 | CELEV      | 63061 |
| CELTIME    | 63133 | CHANGELIST | 63726 | CHANNEL    | 64733 |
| CHCCR      | 63422 | CHGADR     | 64172 | CHPAR      | 63431 |
| CKNEXTOLD  | 10103 | CRANGE     | 63057 | CRLF       | 64122 |
| CRLFCODE   | 64125 | CRLFRIT    | 64114 | CRSSOFFSET | 63516 |
| CSLISTEC   | 10073 | DONECDRR   | 10203 | DOPPOUT    | 66000 |
| DCPPADD    | 63444 | DATANALYZE | 63425 | DAY        | 63150 |
| DEC        | 63003 | DECOFFSET  | 63515 | DECDOT     | 63010 |
| DECLINSCAN | 63505 | DELTATEE   | 63316 | DSECONDS   | 63141 |
| CUMY       | 64632 | DUMSECTTG  | 63154 | DYOMP      | 63421 |
| ECFOLD     | 10161 | ELEV       | 63054 | ELEVOFFSET | 63513 |
| ELEVOUT    | 65000 | ELEVADD    | 63443 | ELEVIN     | 76000 |
| ELVINSCAN  | 63502 | ENDOF      | 64112 | ENDOFAPM   | 64650 |
| ENTAPE     | 64721 | ENDTAPEM   | 64657 | ENTERXRS   | 64137 |
| ENTRANCE   | 64777 | EQUATOR    | 63323 | ERASELIST  | 64076 |
| ERASURE    | 10017 | ESTSHIFTED | 63143 | EXCESS60   | 64634 |
| EXPNAME    | 63350 | FOREWIND   | 64673 | FDSTATCODE | 64510 |
| FDTAPEAR   | 64564 | FINDCHANGE | 10123 | FINSHCURR  | 10174 |
| FIRSTELEV  | 63104 | FIRSTERASE | 10043 | FIRSTTHRU  | 63153 |
| FLATTENING | 63337 | FRAMESIZE  | 63101 | FREQUENCY  | 63317 |
| FULL       | 63615 | GOCOPY     | 10106 | GEOCENLAT  | 63322 |
| GEOCETLAT  | 63321 | GETCHAR    | 10010 | GETPACK    | 64370 |
| GTMCDU24   | 63145 | GMTSHIFTED | 63144 | HOLDNOHOLD | 63511 |
| HOURMINUTE | 63137 | HOURREG    | 63151 | HEIGHT     | 63326 |
| HERE       | 64676 | HNULCHAR   | 10020 | II         | 64111 |
| IC1CRADIO  | 66777 | ID11RADIO  | 67776 | ID12RADIO  | 67777 |
| IC13RADIO  | 70775 | ID14RADIO  | 70776 | ID15RADIO  | 71776 |
| ID16RADIO  | 71777 | ID17RADIO  | 72776 | ID18RADIO  | 72777 |
| ID19RADIO  | 73776 | ID1CELCDR  | 63000 | ID1ENTPNT  | 63410 |
| IC1RDCR    | 63050 | ID1RADIO   | 63440 | ID1RECRD   | 63210 |
| ID1SYSENT  | 77576 | ID1SYSNAM  | 77676 | ID1SYSPAR  | 63310 |
| IC1TIME    | 63130 | ID2ORADIO  | 73777 | ID21RADIO  | 74776 |

..... SPURT OUTPUT NO. 211 ..... HAFORD\*12\*Aug\*64

UPDATER

| LABEL      | LOC   | LABEL       | LOC   | LABEL      | LOC   | LABEL      | LOC   |
|------------|-------|-------------|-------|------------|-------|------------|-------|
| IC22RADIO  | 74777 | ID23RADIO   | 75776 | ID24RADIO  | 75777 | ID24RADIO  | 75777 |
| IC25RADIO  | 76775 | ID26RADIO   | 76776 | ID2CELCOR  | 63001 | ID2CELCOR  | 63001 |
| IC2ENTPNT  | 63411 | ID2RADIO    | 63051 | ID2RADIO   | 63441 | ID2RADIO   | 63441 |
| ID2RECR    | 63211 | ID2SYSENT   | 77577 | ID2SYSNAM  | 77677 | ID2SYSNAM  | 77677 |
| IC2SYSPAR  | 63311 | ID2TIME     | 63131 | ID3RADIO   | 63776 | ID3RADIO   | 63776 |
| ID4RADIO   | 63777 | ID5RADIO    | 64776 | ID6RADIO   | 64777 | ID6RADIO   | 64777 |
| IC7RADIO   | 65776 | IDBRADIO    | 65777 | ID9RADIO   | 66776 | ID9RADIO   | 66776 |
| IFEOF      | 64600 | INAZINADD   | 63446 | INBUFFER   | 64410 | INBUFFER   | 64410 |
| INELEVACC  | 63447 | INPUTAPPEND | 64636 | INTAPE     | 63622 | INTAPE     | 63622 |
| INTER      | 63413 | INTERAZIM   | 72000 | INTERCOM   | 63426 | INTERCOM   | 63426 |
| INTERDOPP  | 74000 | INTERLEV    | 73000 | INTERJUMP  | 64423 | INTERJUMP  | 64423 |
| INTERLOCK  | 64426 | INTERLOCKP  | 64433 | INTERLCK   | 64730 | INTERLCK   | 64730 |
| INTERLCKSW | 63460 | INTERANGE   | 76777 | INTERRUPT  | 64677 | INTERRUPT  | 64677 |
| INTJUMP    | 64704 | JP          | 63614 | JPC15EXT   | 64512 | JPC15EXT   | 64512 |
| JPCRUF     | 64124 | JPPRINTOVR  | 64201 | JUSTEOP    | 63616 | JUSTEOP    | 63616 |
| KCCTIOFC   | 64616 | KMPERNM     | 63342 | KYBRDLEVEL | 63110 | KYBRDLEVEL | 63110 |
| LCOPI      | 64371 | LOOPLIMIT   | 64376 | LOOPSTART  | 64367 | LOOPSTART  | 64367 |
| LCCKP      | 64441 | LONGITUDE   | 63320 | L14A       | 63420 | L14A       | 63420 |
| L14B       | 63425 | L14C        | 63440 | L140       | 63443 | L140       | 63443 |
| L14PR1     | 63450 | L14PR2      | 63460 | L15A       | 10136 | L15A       | 10136 |
| L15B       | 10140 | L15C        | 10150 | L19L       | 63470 | L19L       | 63470 |
| L19M       | 63500 | L19N        | 63504 | L19Q       | 63524 | L19Q       | 63524 |
| L19Z       | 63535 | L20A        | 64714 | LIST1PR    | 63536 | LIST1PR    | 63536 |
| LIST4PR    | 63551 | LIST5PR     | 63555 | LIST6PR    | 63564 | LIST6PR    | 63564 |
| LIST7PR    | 63567 | LISTAPES    | 63466 | LISTCHANGE | 10056 | LISTCHANGE | 10056 |
| LSPERAU    | 63336 | MOVEON      | 10107 | MACHEOF    | 64611 | MACHEOF    | 64611 |
| MACHERR    | 64602 | MACHERROR   | 64612 | MACHFAULT  | 64471 | MACHFAULT  | 64471 |
| MAINSWITCH | 63334 | MAYBERASE   | 10154 | MCPFILLER  | 71000 | MCPFILLER  | 71000 |
| MCPGM      | 63412 | MILLSTNADD  | 63451 | MINREG     | 63152 | MINREG     | 63152 |
| MSFREQ     | 63332 | MSK1        | 63624 | MSK321     | 63623 | MSK321     | 63623 |
| MYSERVO    | 64754 | NOMORERASE  | 10031 | NEWTAPE    | 63621 | NEWTAPE    | 63621 |
| NEWTAPEPR  | 64755 | NMPERAU     | 63340 | NUMBERNEW  | 64072 | NUMBERNEW  | 64072 |
| PCLE       | 63324 | PARITY      | 64513 | PARITYMSG  | 64536 | PARITYMSG  | 64536 |
| PERIODAZIM | 63523 | PERIODDEC   | 63525 | PERIODELEV | 63521 | PERIODELEV | 63521 |
| PERIODRA   | 63527 | PLOTP       | 63436 | PLANP      | 63434 | PLANP      | 63434 |
| PMSG       | 64550 | PREVIOUSUM  | 63461 | PRINT      | 64151 | PRINT      | 64151 |
| PRINTOVER  | 64177 | PRINTBUFC   | 64202 | PRLOG      | 63423 | PRLOG      | 63423 |
| PUTCOUNTER | 64355 | ROTATEABX   | 63507 | ROTATERADN | 63506 | ROTATERADN | 63506 |
| RCTATERCBX | 63510 | RA          | 63002 | RAOFFSET   | 63514 | RAOFFSET   | 63514 |
| RADQT      | 63007 | RADARMODE   | 63312 | RADCBXSCAN | 63503 | RADCBXSCAN | 63503 |
| RAECOTIME  | 63531 | RADIODEC    | 63541 | RADIOMETER | 63102 | RADIOMETER | 63102 |
| RADIDRA    | 63540 | RADIUS      | 63006 | RADIUSDOT  | 63011 | RADIUSDOT  | 63011 |
| RANGE      | 63052 | RANGEDUT    | 70777 | RANGEADU   | 63445 | RANGEADU   | 63445 |
| RANGEDOT   | 63062 | RASCTNSCAN  | 63504 | RDTR       | 63430 | RDTR       | 63430 |
| RCXXX      | 63433 | READTAPE    | 64402 | RECORDSIZE | 63112 | RECORDSIZE | 63112 |
| RECAZIM    | 67000 | RECELEV     | 70000 | RECFILE    | 63212 | RECFILE    | 63212 |
| RECR       | 63415 | RECRDSTWCH  | 63155 | REDUNDANT  | 64710 | REDUNDANT  | 64710 |
| RELEASESW  | 63156 | RECRD       | 63601 | REPLACE    | 10126 | REPLACE    | 10126 |
| REPLY      | 64075 | REMIN       | 64527 | REWIND     | 63360 | REWIND     | 63360 |
| REWINDOLD  | 63350 | RETRY       | 63344 | REWINDNEW  | 63354 | REWINDNEW  | 63354 |
| REWINDR    | 63367 | REWINDCORR  | 63344 | SAZIM      | 63055 | SAZIM      | 63055 |

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UPDATER

| LABEL      | LOC   | LABEL      | LOC   | LABEL      | LOC   |
|------------|-------|------------|-------|------------|-------|
| SCELTIME   | 63134 | SOEC       | 63005 | SECONDS    | 63140 |
| SELEV      | 63056 | SETUP      | 64157 | SIODERTIME | 63012 |
| SINGRIENT  | 63064 | SINAZEL    | 63066 | SKIP       | 63331 |
| SKIPPED    | 10200 | SRA        | 63004 | SRAOTIME   | 63136 |
| STOREUNPAK | 64373 | STOREXRS   | 64130 | STATCODE   | 64734 |
| STATUS     | 64635 | STATUSCODE | 64451 | SYNCTIMING | 63542 |
| SYSOUMREG1 | 63452 | SYSOUMREG2 | 63453 | SYSOUMREG3 | 63454 |
| SYSOUMREG4 | 63455 | SYSOUMREG5 | 63456 | SYSOUMREG6 | 63457 |
| SYSOUMREG5 | 77600 | SYSOUMREG6 | 77700 | SYSSTAT1   | 63313 |
| SYSOUMREG6 | 63314 | SYSOUMREG7 | 63315 | TAPEPARMSG | 64551 |
| SYSOUMREG7 | 63107 | SYSOUMREG8 | 63103 | TIMEP      | 63435 |
| TIMECORR   | 63520 | TIMEMODE   | 63063 | TRUETIME   | 63132 |
| TIMEOHLCD  | 64530 | TRUERANGE  | 63111 | TWOSECDOP  | 63017 |
| TRYAGAIN   | 10026 | TTYSTATUS  | 64146 | UB4LB5     | 64147 |
| TYPEERASE  | 64150 | UR2LB3     | 64601 | UNITNO     | 64503 |
| UB6        | 64446 | UNIT21D    | 64351 | UNPACKCODE | 64164 |
| UNITNDINT  | 63335 | UNPACK     | 63014 | VIZDEC2    | 63016 |
| VELCFLIGHT | 63013 | VIZDEC1    | 63015 | WAIT1      | 64414 |
| VIZRAL     | 64176 | VIZRA2     | 64765 | WEOFNEW    | 63372 |
| WAITPRINT  | 63400 | WAKEUP     | 63432 | WFOAD      | 64675 |
| WEOFNEW    | 63333 | WFORD      | 64665 | WRITEOUT   | 63450 |
| WFFREQ     | 64577 | WRITE      | 63147 | YRTRAN     | 63327 |
| WRITEEOF   | 63330 | YEARMONTH  |       |            |       |
| ZRTRAN     |       |            |       |            |       |

END OF LISTING

| LOC   | LABEL       | LOC   |
|-------|-------------|-------|
| 10010 | ERASURE     | 10017 |
| 10026 | NOMORERASE  | 10031 |
| 10035 | FIRSTERASE  | 10043 |
| 10073 | CKNEXTOLO   | 10103 |
| 10107 | FINDCHANGE  | 10123 |
| 10136 | L158        | 10140 |
| 10154 | EFOLO       | 10161 |
| 10200 | BSKIP3      | 10201 |
| 63000 | 102CELCOR   | 63001 |
| 63003 | SRA         | 63004 |
| 63006 | RAOUT       | 63007 |
| 63011 | SIOERTIME   | 63015 |
| 63014 | V1ZR2       | 63015 |
| 63017 | 101RAOCOR   | 63050 |
| 63052 | AZIM        | 63053 |
| 63055 | SELEV       | 63056 |
| 63060 | CELEV       | 63061 |
| 63063 | SINORIENT   | 63064 |
| 63066 | GOSAZEL     | 63070 |
| 63075 | FRAMESIZE   | 63101 |
| 63103 | FIRSTELEV   | 63104 |
| 63106 | TIMECORR    | 63107 |
| 63111 | RECOROSIZE  | 63112 |
| 63130 | 102TIME     | 63112 |
| 63133 | SCELTIME    | 63131 |
| 63136 | HOURLMINUTE | 63137 |
| 63141 | ACTUALTIME  | 63142 |
| 63144 | GHTMOO024   | 63145 |
| 63147 | OAY         | 63150 |
| 63152 | FIRSTTHRU   | 63153 |
| 63155 | RELEASESW   | 63156 |
| 63211 | RECFILE     | 63212 |
| 63311 | RAOARMOOE   | 63312 |
| 63314 | SYSTATO     | 63315 |
| 63317 | LONGITUDE   | 63320 |
| 63322 | EQUATOR     | 63323 |
| 63325 | HEIGHT      | 63326 |
| 63330 | SKIP        | 63331 |
| 63333 | MAINSWITCH  | 63334 |
| 63336 | FLATTENING  | 63337 |
| 63341 | KMPERNM     | 63342 |
| 63350 | EXPNAME     | 63350 |
| 63360 | REWINDR     | 63367 |
| 63372 | WEOFNEW     | 63400 |
| 63410 | 102ENTPNT   | 63411 |
| 63413 | COCON       | 63414 |
| 63415 | AOSCN       | 63416 |
| 63420 | L14A        | 63420 |
| 63422 | PRLOG       | 63423 |
| 63425 | L14B        | 63425 |
| 63427 | KOMTR       | 63430 |

UPDATER

LOC 63433 63436 63441 63443 63446 63450 63453 63456 63460 63466 63500 63503 63505 63510 63513 63516 63521 63524 63526 63531 63536 63542 63564 63601 63615 63620 63623 63636 63777 64073 64076 64114 64124 64137 64150 64164 64177 64203 64367 64373 64402 64415 64426 64453 64513 64536 64564 64601 64612 64634

SPURT OUTPUT NO. 212

HAFFORO\*12\*AUG\*64

UPDATER

| LABEL         | LOC   | LABEL         | LOC   | LABEL         | LOC   |
|---------------|-------|---------------|-------|---------------|-------|
| STATUS        | 64635 | INPUTAPEND    | 64636 | ENDOFAPM      | 64650 |
| ENDTAPEM      | 64657 | WRITE         | 64665 | FOREWIND      | 64673 |
| WRITEDUT      | 64675 | HERE          | 64676 | INTERRUPT     | 64677 |
| INTJUMP       | 64704 | BADMCH        | 64705 | REDUNDANT     | 64710 |
| L2OA          | 64714 | ENOTAPE       | 64721 | INTERLCK      | 64730 |
| CHANNEL       | 64733 | STATCODE      | 64734 | MYSERVO       | 64754 |
| NEWTAPEPR     | 64755 | WAKEUP        | 64765 | IOBRAID       | 64776 |
| ID6RADIO      | 64777 | ENTRANCE      | 64777 | ELEVOUT       | 65000 |
| A\$\$\$\$1111 | 65001 | A\$\$\$\$1112 | 65002 | A\$\$\$\$1113 | 65003 |
| A\$\$\$\$1114 | 65004 | A\$\$\$\$1115 | 65005 | A\$\$\$\$1116 | 65006 |
| ID7RADIO      | 65776 | IOBRADIO      | 65777 | DOPPOUT       | 66000 |
| ID9RADIO      | 66776 | IO10RADIO     | 66777 | RECAZIM       | 67000 |
| ID11RADIO     | 67776 | ID12RADIO     | 67777 | RECELEV       | 70000 |
| ID13RADIO     | 70775 | ID14RADIO     | 70776 | RANGEDUT      | 70777 |
| MCPFILLER     | 71000 | ID15RADIO     | 71776 | IO16RADIO     | 71777 |
| INTERAZIM     | 72000 | ID17RADIO     | 72776 | IO18RADIO     | 72777 |
| INTERELEV     | 73000 | ID19RADIO     | 73776 | IO20RADIO     | 73777 |
| INTERDOPP     | 74000 | ID21RADIO     | 74776 | ID22RADIO     | 74777 |
| AZIMIN        | 75000 | ID23RADIO     | 75776 | IO24RADIO     | 75777 |
| ELEVIN        | 76000 | ID25RADIO     | 76775 | IO26RADIO     | 76776 |
| INTERRANGE    | 76777 | ID1SYSENT     | 77576 | IO2SYSENT     | 77577 |
| SYSENTRIES    | 77600 | ID1SYSNAM     | 77676 | ID2SYSNAM     | 77677 |
| SYSNAMES      | 77700 |               |       |               |       |

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| 13. ABSTRACT<br><br>A set of eight non-real-time service programs was written in support of the Haystack Pointing System to facilitate system maintenance and updating. Peripheral functions afforded by this set of programs include: (1) format conversion and remote printing facility of the SPURT assembler printer outputs 210, 211 and 212; (2) magnetic tape dumping; (3) "effective" punched card input to SPURT assembler; (4) CalComp plotting of system output; (5) punched card equivalents of Common Storage Allocation Tape; (6) automatic program loading with bootstrap tape generation facilities; (7) magnetic tape duplication; and (8) automatic updating of system tapes. |  |                                                                                              |                      |
| 14. KEY WORDS<br><br>Haystack Pointing System<br>magnetic tape<br>Fieldata<br><br>SPURT assembler<br>BCD tape<br>Univac-490<br><br>CalComp<br>Fortran<br>Flexowriter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                              |                      |