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M60 TANK PRODUCTION PIANO ROLL USER'S GUIDE.(U)
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M60 TANK PRODUCTION PIANO ROLL USER'S GUIDE

MAY 1977

BY

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SYSTEMS AND COST ANALYSIS OFFICE
U.S. ARMY TANK AUTOMOTIVE RESEARCH & DEVELOPMENT COMMAND

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The automated piano roll was prepared by TARADCOM Systems Analysis Division at the request of the M60 Project Manager. It is a system of computer programs that forecasts and monitors production on a monthly basis. This manual describes the relevant computer programs and their inputs and outputs. The manual was prepared as a joint effort of the TARADCOM Systems and Cost Analysis Office and the M60 Tank Production PM's Office.

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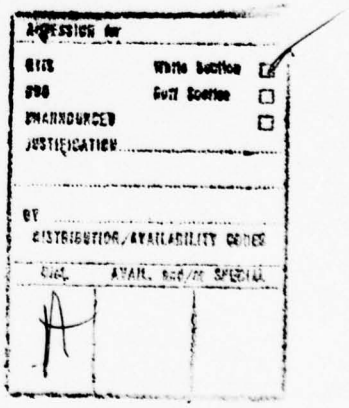


CHAPTER I

Introduction

A. BACKGROUND:

The automated production plan computer program was originally developed by the TACOM Systems Analysis Office based on a request from LTC Michael K. Gray, Assistant Project Manager of the newly formed Project Manager Office for M60 Tank Production. Overall coordination, concept, and output development was accomplished by CPT Robert J. Ament, Chief of the Systems Management Information Office for M60 Tank Production. Execution and maintenance of the automated production plan was carried out by 2LT Stanton Brown and 2LT Stephen Overall, also from M60's Systems Management Information Office.

Due to the increased demand for new tanks resulting from the October 1973 Mid-East Conflict, in the fall of 1974 the M60 Project Manager Office was split into Development and Production. This split allowed the appointment of a separate Project Manager's Office solely dedicated to tank production. The goal was to accelerate the tank production rate as fast as possible under peacetime restraints. A facilitization plan was executed whereby many existing suppliers were expanded and dual sources were brought on stream. For example, the sole supplier of hull and turret castings, Blaw-Knox, East Chicago, could only produce a maximum of 40 casting sets per month. With facilitization, the East Chicago foundry will be producing at 80 per

month by late calendar year '77. Correspondingly, a second foundry source was brought on stream in Wheeling West Virginia and by the end of 1977, they will be producing 40 casting sets per month. This combined production will provide sufficient hulls and turrets to produce M60A1 tanks at 120 per month starting in January 1978.

Expanding the M60A1 tank production rate from 12 per month in 1973 to 120 per month by January 1978 required intensified management on the part of the M60 Tank Production Project Manager Office. Spearheading the efforts to find new managerial tools were LTC Gray and CPT Ament. A plan needed to be developed that would schedule components into the Army Tank Plant, in Warren, Michigan, to accommodate the tank five year production plan. The following discussion provided by CPT Ament will serve to explain the resulting automated production plan.

B. DISCUSSION:

Due to its appearance, the production plan is most often referred to as a "piano roll". Another title for the piano roll is component flow down chart. This name was obviously derived from the fact that monthly schedules for components are usually layed out above the end item with appropriate lead times involved. Perhaps the piano roll can best be described by providing an example. The following example can be used to determine component requirements for a six month tank build program. Lead time for the power pack will be two months and lead time for the M24 periscope will be one month.

Example A

		J	F	M	A	M	J	J	A
Power Packs	R	10	20	30	40	50	50		
	RC	10	30	60	100	150	200		
M24 Periscopes	R		10	20	30	40	50	50	
	RC		10	30	60	100	150	200	
Tanks	R			10	20	30	40	50	50
	RC			10	30	60	100	150	200

The "R" line indicates the minimum monthly requirement to support the tank production schedule. "RC" represents the cumulative requirement for a given month. In this simplistic example, "RC" is synonymous with the line of balance requirements.

The end product of either a manual or automated piano roll is usually the same, i.e., a formally printed chart mounted on a wall for posting purposes. The difference is that with the "APR", the logic and computations are performed by the computer. Therefore, when there are program changes a new printout can be obtained by making the appropriate changes in the data files and printing out the new piano roll.

Other advantages of the "APR" are obvious. Since all computations are made by the computer, errors are minimized. In addition, if a formal chart is required, there is less chance for a transcribing or legibility error. Finally, the data base that is developed can be used to answer "what if" questions (e.g., impact of slippage in an individual component schedule).

The automated piano roll, as described in this manual, offers a new dimension to line of balance - - the concept of mandatory float (MP). When the maximum production rate of a component is less than the required tank production rate, a mandatory float is required above the line of balance. Example "B" assumes that the maximum monthly production rates for M24 periscopes is 45. Since the monthly tank production rate for July and August is 50, we cannot follow the LOB requirements for M24 periscopes. Remember, the LOB for the M24 periscope would be the monthly cumulative (RC) for tanks backed off one month (assuming a one month lead time). If the LOB for periscopes was followed, we would have an RC for periscopes in May of 100, and in June "R" would have to be 50 to support tanks being completed in July. However, we are assuming that monthly production for periscopes cannot be greater than 45. Therefore, we must build up a surplus (mandatory float) in the early months to support tank production when the monthly tank production rate (considering lead time) is greater than the maximum monthly component rate. In the example 'B', the computer scans the tank production schedule and determines that mandatory float (MF) must be built into the periscope schedule. Seeing the tank production rate of 50 in July and August, the computer realizes that the tank monthly rate is 5 greater than periscope maximum production for the last two months. Therefore, 10 periscopes must be built above the line of balance requirement prior to the last two months of periscope production. The computer looks to May to see if 10 additional

periscopes can be made. But, since the normal requirement for May would have been 40, only 5 additional periscopes can be required for May (since 45 is maximum for any one month). Working backwards, the computer looks to April to see if the remaining 5 periscopes can be produced. Since only 30 periscopes would normally be required in April, the 5 remaining periscopes can be added to the monthly "R" and still remain well below the 45 per month maximum allowable for periscopes. As a result, the mandatory float for April is 5, and the 5 additional "R" for May results in a cumulative mandatory float for May of 10. Since only five of the additional 10 periscopes are consumed in June (for July tanks), the remaining mandatory float for June is five. Finally, in July (for August tanks) all mandatory float is consumed, and once again, "RC" (200) equals LOB (200).

Example B

		J	F	M	A	M	J	J	A
Power Packs	R	10	20	30	40	50	50		
	RC	10	30	60	100	150	200		
	MF	0	0	0	0	0	0		
M24 Periscopes	R		10	20	35	45	45	45	
	RC		10	30	65	110	155	200	
	MF		0	0	5	10	5	0	
Tanks	R			10	20	30	40	50	50
	RC			10	30	60	100	150	200

In all months shown for the power pack, the cumulative requirements (RC) equals the line of balance (LOB). However, in the case of the M24

periscope, the RC for April, May, and June is above the line of balance. Mandatory float for these three months indicates the amount the RC is above the LOB. Therefore, RC = LOB + MF.

The piano roll provides the minimum components schedule (RC) necessary to meet tank production. The reason that minimum or "Red Flag" is emphasized is that the piano roll schedule for components should not be confused with the contractual schedule from vendors or PRON schedules from the Arsenals. In almost all cases, the RC for components is lower than the actual quantity planned. Let's look at the M24 periscope again. Assume that in reality the contractor planned to ship 40 periscopes per month starting in February and ending in June. The total 200 periscopes would be delivered one month ahead of the minimum requirement. Let's further assume that it is now the end of April and we received 25 periscopes per month for the last three months. Would we have a "line stopper" situation? If we were only monitoring the contract schedule of 40 per month we would have to manually determine our actual requirement for the end of April (RC) before we knew if we were in trouble. However, with the piano roll, this work has already been done for us and we can see that a cumulative receipt for April of 75 is 10 above our RC for April. Therefore, we know that tank production for May (one month lead for periscopes) can be met. Although the piano roll schedule (RC) for components is the minimum necessary to satisfy tank production, the tank requirements (RC) could be associated with a variety of plans. For example, the

tank schedule (RC) could be in terms of a formal government commitment, or an accelerated target schedule above baseline requirements. In either case, the RC for components would be the minimum necessary to support the respective tank schedule. Correspondingly, the contract schedules should be reviewed to assure that they are equal to or greater than the piano roll RC for each respective component so that the tank production piano roll schedule can be satisfied.

Finally, surplus float (SF) is added to the automated piano roll. Example B can be expanded to consider future requirements based on actual figures to date. (See example C.) Assume that it is now the end of February and 15 power packs were received in January and 30 in February. Likewise, assume 8 periscopes were received in February.

Example C

		J	F	M	A	M	J	J	A
Power Packs	R	10	20	15	40	50	50		
	RC	10	30	60	100	150	200		
	MF	0	0	0	0	0	0		
	SF	5	15						
	A	15	30						
	AC	15	45						
M24 Periscopes	R		10	22	35	45	45	45	
	RC		10	30	65	110	155	200	
	MF		0	0	5	10	5	0	
	SF		-2						
	A		8						
	AC		8						
Tanks	R			10	20	30	40	50	50
	RC			10	30	60	100	150	200
	A								
	AC								

In the case of power packs, the surplus float was 15 above the RC for February. Therefore, instead of requiring 30 more power packs for March to meet the March "RC", only 15 are required. Since the actual for the M24 periscope was 2 below the February requirement, the March requirement would be 22 rather than the 20 indicated in Example B.

In conclusion, one can readily appreciate the work involved in updating a piano roll; especially considering a six year plan. Computations for 72 months are required for each component being considered. The degree of difficulty associated with the making of a piano roll is further exemplified when considering more than one series tank (e.g., engines are required for M60A1 tanks, armored vehicle launch bridges, combat engineer vehicles and M48A1-A5 conversions). In addition, a component may have different lead times associated with the different end items. Perhaps most important, the automated piano roll has taken a manual task requiring approximately 100 man hours and reduced the time required to about four man hours.

SUMMARY OF PIANO ROLL TERMINOLOGY

R: Monthly Requirement

RC: Cumulative Requirement

MF: Mandatory Float

SF: Surplus Float

A: Monthly Actual

AC: Actual Cumulative

LOB: Line of Balance Cumulative Requirement

CHAPTER 2

In chapter 2 we describe the input files associated with the piano roll. There are three input files associated with the program: the vehicle file, the component file, and the contract file. Note that all input files are fixed format and are column dependant.

Vehicle File:

The first file to be described is the vehicle file which contains the monthly production schedules for all of the vehicles tracked by the program. The following is a breakdown of important elements within the file with their formats. Figure 2-1 shows the location of each element.

1. This column is the record number within the file. (I2)
2. The number of the line within the record designated by Item #1. (I2)
3. The beginning month and year of the program. (The beginning month must be December). 2(I2)
4. The last month and year of the program. 2(I2)
5. The last month for which production data has been entered. 2(I2)
6. Planned initial for the individual vehicle. (I4)
7. Actual initial for the individual vehicle. (I4)
8. Vehicle name. 40A2
9. The planned production both past and future. There should be a line for each year of the program beginning with the year following that designated by Item #2. (4X, 12I5)
10. The actual production. There should be an entry for each month from the month following Item #2 to the month designated by Item #4. (4X, 12I5)

Component File:

The second file is the component file. This file contains the past planned amounts and the maximum production schedules for each component used. The following is a description of important elements found in this file. Figure 2-2 shows the location of each element.

1. Data Line. This must correspond to the date line in the vehicle file.

2. Number of Vehicles. This number must correspond to the number of vehicles in the tank file. (I2)

3. Vehicle Names. (40A2)

4. Record Number (L2)

5. Line Within the Record. (I2)

6. Actual Initial for the Component. If there is more than "1" supplier, this number is zero. (I4)

7. Planned initial for the component. If there is more than one supplier, this number is zero. (I4)

8. Number of Suppliers.

9. Component Name. (40A2)

10. This line is formated I2, I2, I2(I2, I3). The I2(I2, I3) represents the lead time and percent uses of the component for each that contains the component there must be a non-zero entry for each vehicle in Item #3. If the component is not used in a vehicle, a 99 should be placed in the I2 field and a zero in the I3 field.

11. Actual Initial for the Supplier. (Not present if one supplier.) (I4)

12. Planned Initial for the Supplier. (Not present if one supplier.) (I4)

13. Priority All priority numbers are summed and a percentage of this total is assigned to each supplier based on their individual priority number. When the planned production schedule is split among the suppliers, each supplier gets

their maximum production, whichever is less. (I4)

14. Supplier's Name. 40A2

15. This section represents the most important data in the file. There is a line for each year in the program, both past and future. In the past (outlined in our example) the entries represent the planned production for the supplier/component while in the future, the entries represent the maximum production possible for the component/supplier. (4X, 12I5)

16. The month by month actual production. There is a line for each year you are into the program. (4X, 12I5)

The last file (optional) which is used by the program is the contract file. This file contains the contract schedule for the given component and supplier. The file must be identical to the component file except each lead time/percent usage line is deleted. In the place of this line, a line formatted (I2, I2, 2X, I3) is inserted. The first two I2's must be identical to the corresponding elements in the component file. The I3 field must contain the length of the contract in months beginning with the first month of the program.

```
00001  0 11274 878 376APR PIANO ROLL
00002  0 2 3
00003  0 3M60A1
00004  0 4M60A3
00005  0 5AVLB
00006  1 1   5   0   1POWER PACK
00007  1 2 2100 2100 2100 0  0 0  0 0  0 0  0 0  0 0  0 0  0 0  0 0  0
00008  1 4   40   40   40   40   40   40   43   47   47   47   50   52
00009  1 5   55   59   60   63   70   70   75   75   75   75   75   75
00010  1 6   75   75   75   75   75   75   75   75   75   75   75   75
00011  1 7   75   75   75   75   75   75   75   75    0    0    0    0
00012  1 8   40   40   40   40   40   40   45   50   50   50   50   50
00013  1 9   50   55   60    0    0    0    0    0    0    0    0    0
00014  2 1    0    0   2GUN MOUNT
00015  2 2 3100 310099  0 0  0 0  0 0  0 0  0 0  0 0  0 0  0 0  0 0  0
00016  2 4  40  40   1ROCK ISLAND ARSENAL
00017  2 5   40   40   40   40   40   43   47   47   47   50   52   55
00018  2 6   44   30   33   45   45   45   45   45   45   45   45   45
00019  2 7   45   45   45   45   45   45   45   45   45   45   45   45
00020  2 8   45   45   45   45   45   45   45   45    0    0    0    0
00021  2 9   40   40   40   40   40   43   47   47   47   50   50   50
00022  210   44   30   33    0    0    0    0    0    0    0    0    0
00023  211    0    0  99CHRYSLER
00024  212    0    0    0    0    0    0    0    0    0    0    0    0
00025  213   15   30   30   30   30   30   30   30   30   30   30   30
00026  214   30   30   30   30   30   30   30   30   30   30   30   30
00027  215   30   30   30   30   30   30   30   30    0    0    0    0
00028  216    0    0    0    0    0    0    0    0    0    0    0    0
00029  217   15   30   30    0    0    0    0    0    0    0    0    0
```

```
00001  0  11274  878  376
00002  1  1    0    OM60A1
00003  1  2    0    0    40   40   40   40   40   40   43   47   47   47
00004  1  3    50   52   55   59   60   63   63   63   63   70   70   70
00005  1  4    73   77   80   80   80   80   80   75   73   69   60   55
00006  1  5    50   45   40   35   33   30   25   20   0    0    0    0
00007  1  6    0    0    40   40   40   40   40   40   43   49   49   45
00008  1  7    49   52   57   0    0    0    0    0    0    0    0    0
00009  2  1    0    OM60A3
00010  2  2    00   00   00   0    0    0    0    0    0    0    0    0
00011  2  3    0    0    0    0    0    0    0    0    0    0    0    0
00012  2  4    0    0    0    0    0    0    0    0    0    0    0    0
00013  2  5    3    5    7    8    8    8    10   10   0    0    0    0
00014  2  6    0    0    0    0    0    0    0    0    0    0    0    0
00015  2  7    0    0    0    0    0    0    0    0    0    0    0    0
00016  3  1    0    OAVLB
00017  3  2    0    0    0    0    0    0    0    0    0    0    0    0
00018  3  3    0    0    0    0    0    0    0    0    0    0    0    0
00019  3  4    0    0    0    0    0    0    2    2    4    4    5    5
00020  3  5    5    7    8    8    8    8    8    8    0    0    0    0
00021  3  6    0    0    0    0    0    0    0    0    0    0    0    0
00022  3  7    0    0    0    0    0    0    0    0    0    0    0    0
```

CHAPTER 3

In chapter 3 we describe the key elements found in the output. There are two sample outputs presented which show the relationship between the selection of options and subsequent output. The actual runs which produced the outputs are found in Appendix A.

A. Sample Run

1. Options utilized. The following set of options were used to produce the first set of output.

Smoothing.

Complete output printed.

Float rows printed.

No contract schedule [1].

Tank production schedule printed.

Date printed in header information.

Time printed in tank production schedule.

Variance rows printed.

Header section. Figure 3-1 shows the header which is printed at the beginning of each set of output. The elements printed are:

a. Last Update - This is the inclusive date for the output.

b. Date of Report - This is the exact date on which the output was generated.

c. Time of Report - This is the exact time the output was generated.

[1] The program is set up to use a contract file but it is not currently being used.

d. Tank File Name - This is the file which contains the production schedules for the vehicles being tracked. In this case it is named TNK. A copy of this file was included in the preceding chapter.

e. Component File Name - This file contains the key components to be tracked. For a discussion of this file see the preceding chapter.

f. This section prints the components included in the output. The components used are determined at run time, see Appendix A.

2. First Component - Figure 3-2 shows the header for the first component to be printed, the power pack. The significant elements in this section are:

a. Actual Initial - This is the number of components on hand at the beginning of the tracking period.

b. Actual Planned - This is the number of components planned to be on hand at the beginning of the tracking period.

c. Lead Time - This is the number of months the component must be received prior to the completion date of the vehicle containing that component.

d. Percent Use - The number of this component used by the vehicle. It may vary from 001 to 999, but it is written in percent.

e. Component Name - This is the name of the component being tracked.

3. First Component Totals - Figure 3-3 shows the information generated for the power pack. The key elements are:

a. Required (REQ) - In the past, this is the month by month planned historical data. In the future, this is the month by month total necessary for the meeting of the vehicle production schedules.

b. Required Cumulative (REQCUM) - This is the cumulative total of the REQ line.

c. Mandatory Float - In the past, this is the difference between the Line of Balance (LOB) and the cumulative of the planned historical data. In the future, it is the amount above the LOB that is necessary to maintain vehicle production, (REQCUM-LOB). In short, the mandatory float is a build up of components necessary to take care of a short fall in the future brought about when the production rate of the vehicles is greater than the maximum production rate of the component.

d. Surplus Float (SUPFLT) - In the past, the surplus float is the difference between the cumulative actual production and the cumulative planned historical data (ACTCUM - REQCUM). In the future, the surplus float is the difference between the smoothed cumulative required production schedule and the unsmoothed cumulative required production schedule (the second set of output in this chapter shows the unsmoothed schedule).

e. Actual (ACT) - This is the past actual production.

f. Actual Cumulative (ACTCUM) - This is the cumulative of the Actual.

Note: The ACTCUM (at last month in past) + REQ (at lst month in future) = REQCUM (at lst month in future). This is due to the fact that all future requirements are based on the actual value at the last month of the past.

4. Second Component.

a. Header information - Figure 3-4 is the header for the second component, the gun mount. There is one major difference between this component and the previous one. It has more than one supplier. This is shown as element "a" on the figure.

b. Supplier Output - Figure 3-5 shows the output for the first

supplier, Rock Island Arsenal. It should be noted that the float lines do not appear for the individual suppliers. The remaining elements were explained in the section concerning the output for the power pack. Figure 3-6 shows the output associated with the second supplier, Chrysler.

c. Totals - Figure 3-7 shows the total for both suppliers of the gun mount. Note that the "total" page, contains the float lines. All elements in this output were previously explained.

5. Weapons System Section - This section of the output shows the month by month vehicle requirement. Figures 3-8, 3-9, and 3-10 show the requirements for the three vehicles tracked in the sample run. The following is a breakdown of the significant elements in this output:

a. Required (REQ) - This line represents the monthly required production rates for the given vehicle.

b. Required Cumulative (REQCUM) - This is the cumulative totals of the required line.

c. Actual (ACT) - This line represents the actual monthly production.

d. Actual Cumulative (ACTCUM) - This line is the cumulative total of the "Actual" line.

e. Monthly Variance (MTHVAR) - This line represents the difference between the monthly required total and the monthly actual total (REQ-ACT).

f. Cumulative Variance (CUMVAR) - This line represents the difference between the required cumulative and the actual cumulative (REQCUM-ACTCUM).

B. Sample Run 2.

This section represents another run of the program. The following options were used in this run:

1. No smoothing used.

2. Complete output printed.

3. No float rows printed.

4. No contract schedule printed.

5. No tank file printed.

6. Date not printed.

7. Time not printed.

8. Variance rows not printed.

By comparing figures 3-11 to 3-16 with the corresponding tables from the first run, it is possible to see the differences associated with the use of the smoothing routine.

One useful option not illustrated in this chapter is the summary output option. If this option is utilized only the totals will be printed for each components. The separate supplier information would not be printed. This option saves considerable execution time.

Figure 3.1

```
**********************************************************
 M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS
**********************************************************

LAST UPDATE OF REPORT:  3/31/76
DATE OF REPORT: MON   05/24/76
TIME OF REPORT: 13:37
TANK FILE NAME: TNK
COMPONENT FILE NAME: BBYY

COMPONENTS INCLUDED IN THIS LINE
OF BALANCE PRODUCTION REPORT

    1)  POWER PACK
    2)  GUN MOUNT
```

Figure 3.2

```
**********************************************************
 M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS
**********************************************************

COMPONENT: POWER PACK

INITIAL VALUES, ACTUAL:     5
                PLANNED:    0

LEAD    PERCENT
TIME     USE     WEAPONS SYSTEMS NAME

  2      100     M60A1
  2      100     M60A3
  2      100     AVLB
```

Figure 3.3

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	40	43	47	47	47	50	52
REQCUM:	40	80	120	160	200	240	283	330	377	424	474	526
MANFLT:	0	0	0	0	0	0	0	0	0	0	0	0
SUPFLT:	5	5	5	5	5	5	7	10	13	16	16	14
ACT:	40	40	40	40	40	40	45	50	50	50	50	50
ACTCUM:	45	85	125	165	205	245	290	340	390	440	490	540

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	55	59	60	63	63	63	74	75	75	75	75	75
REQCUM:	581	640	700	768	831	894	968	1043	1118	1193	1268	1343
MANFLT:	0	0	0	0	0	4	16	21	26	31	33	31
SUPFLT:	9	5	5	5	5	1	0	0	0	0	0	0
ACT:	50	55	60									
ACTCUM:	590	645	705									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	75	75	75	75	75	75	75	73	65	60	58	57
REQCUM:	1418	1493	1568	1643	1718	1793	1868	1941	2006	2066	2124	2181
MANFLT:	26	21	16	11	4	2	0	0	0	0	0	0
SUPFLT:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	55	51	49	46	43	38	0	0				
REQCUM:	2236	2287	2336	2382	2425	2463	2463	2463				
MANFLT:	0	0	0	0	0	0	0	0				
SUPFLT:	0	0	0	0	0	0	0	0				
ACT:												
ACTCUM:												

****

Figure 3.4

****
M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS
****

COMPONENT: GUN MOUNT

SUPPLIERS: ROCK ISLAND ARSENAL
CHRYSLER

LEAD TIME	PERCENT USE	WEAPONS SYSTEMS NAME
3	100	M60A1
3.	100	M60A3

Figure 3.5

SUPPLIER: ROCK ISLAND ARSENAL

INITIAL VALUES, ACTUAL: 40
PLANNED: 40

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	43	47	47	47	50	52	55
REQCUM:	80	120	160	200	240	283	330	377	424	474	526	581
ACT:	40	40	40	40	40	43	47	47	47	50	50	50
ACTCUM:	80	120	160	200	240	283	330	377	424	474	524	574

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	44	30	33	40	40	44	44	44	44	44	44	44
REQCUM:	625	655	688	721	761	805	849	893	937	981	1025	1069
ACT:	44	30	33									
ACTCUM:	618	648	681									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	44	44	45	45	45	43	39	30	25	23	20	17
REQCUM:	1113	1157	1202	1247	1292	1335	1374	1404	1429	1452	1472	1489
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	13	11	8	5	0	0	0	0				
REQCUM:	1502	1513	1521	1526	1526	1526	1526	1526				
ACT:												
ACTCUM:												

Figure 3.6
SUPPLIER: CHRYSLER

INITIAL VALUES, ACTUAL: 0
PLANNED: 0

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0	0	0	0	0	0	0	0	0	0
ACTCUM:	0	0	0	0	0	0	0	0	0	0	0	0

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	15	30	30	30	30	30	30	30	30	30	30	30
REQCUM:	15	45	75	105	135	165	195	225	255	285	315	345
ACT:	15	30	30									
ACTCUM:	15	45	75									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	30	30	30	30	30	30	30	30	30	30	30	30
REQCUM:	375	405	435	465	495	525	555	585	615	645	675	705
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	30	30	30	30	30	0	0	0				
REQCUM:	735	765	795	825	855	855	855	855				
ACT:												
ACTCUM:												

Figure 3.7

TOTALS FOR: GUN MOUNT

INITIAL VALUES, ACTUAL: 40
PLANNED: 40

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	43	47	47	47	50	52	55
REQCUM:	80	120	160	200	240	283	330	377	424	474	526	581
MANFLT:	0	0	0	0	0	0	0	0	0	0	0	0
SUPFLT:	0	0	0	0	0	0	0	0	0	0	-2	-7
ACT:	40	40	40	40	40	43	47	47	47	50	50	50
ACTCUM:	80	120	160	200	240	283	330	377	424	474	524	574

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	59	60	63	70	70	74	74	74	74	74	74	74
REQCUM:	640	700	763	826	896	970	1044	1118	1192	1266	1340	1414
MANFLT:	0	0	0	0	0	10	15	20	25	27	25	20
SUPFLT:	-7	-7	-7	0	7	8	7	6	5	4	3	2
ACT:	59	60	63									
ACTCUM:	633	693	756									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	74	74	75	75	75	73	69	60	55	53	50	47
REQCUM:	1488	1562	1637	1712	1787	1860	1929	1989	2044	2097	2147	2194
MANFLT:	15	10	5	0	0	0	0	0	0	0	0	0
SUPFLT:	1	0	0	0	0	0	0	0	0	0	0	0
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	43	41	36	35	30	0	0	0				
REQCUM:	2237	2278	2316	2351	2381	2381	2381	2381				
MANFLT:	0	0	0	0	0	0	0	0				
SUPFLT:	0	0	0	0	0	0	0	0				
ACT:												
ACTCUM:												

Figure 3.8

M60/M13 TANK PRODUCTION REQUIREMENTS

WEAPONS SYSTEM NAME: M60A1

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	40	40	40	40	40	40	43	47	47	47
REQCUM:	0	0	40	80	120	160	200	240	283	330	377	424
ACT:	0	0	40	40	40	40	40	40	43	49	49	49
ACTCUM:	0	0	40	80	120	160	200	240	283	332	381	430
MTHVAR:	0	0	0	0	0	0	0	0	0	2	2	-2
CUMVAR:	0	0	0	0	0	0	0	0	0	2	4	2

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	50	52	55	59	60	63	63	63	63	70	70	70
REQCUM:	474	526	581	640	700	763	826	889	952	1022	1092	1162
ACT:	49	52	57									
ACTCUM:	475	527	584									
MTHVAR:	-1	0	2									
CUMVAR:	1	1	3									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	73	77	80	80	80	80	80	75	73	69	60	55
REQCUM:	1235	1312	1392	1472	1552	1632	1712	1787	1860	1929	1989	2044
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	50	45	40	35	33	30	25	20				
REQCUM:	2094	2139	2179	2214	2247	2277	2302	2322				
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

Figure 3.9

M60/M1 TANK PRODUCTION REQUIREMENTS

WEAPONS SYSTEM NAME: M60A3

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0	0	0	0	0	0	0	0	0	0
ACTCUM:	0	0	0	0	0	0	0	0	0	0	0	0
MTHVAR:	0	0	0	0	0	0	0	0	0	0	0	0
CUMVAR:	0	0	0	0	0	0	0	0	0	0	0	0

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0									
ACTCUM:	0	0	0									
MTHVAR:	0	0	0									
CUMVAR:	0	0	0									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	3	5	7	8	8	8	10	10				
REQCUM:	3	8	15	23	31	39	49	59				
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

Figure 3.10

****
M60/M48 TANK PRODUCTION REQUIREMENTS
****

WEAPONS SYSTEM NAME: AVLB

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0	0	0	0	0	0	0	0	0	0
ACTCUM:	0	0	0	0	0	0	0	0	0	0	0	0
MTHVAR:	0	0	0	0	0	0	0	0	0	0	0	0
CUMVAR:	0	0	0	0	0	0	0	0	0	0	0	0

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0									
ACTCUM:	0	0	0									
MTHVAR:	0	0	0									
CUMVAR:	0	0	0									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	2	2	4	4	5	5
REQCUM:	0	0	0	0	0	0	2	4	8	12	17	22
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	5	7	8	8	8	8	8	8				
REQCUM:	27	34	42	50	58	66	74	82				
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

Figure 3.11

M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS

LAST UPDATE OF REPORT: 3/31/76
TANK FILE NAME: TNK
COMPONENT FILE NAME: BRYY

COMPONENTS INCLUDED IN THIS LINE
OF BALANCE PRODUCTION REPORT

1) POWER PACK
2) GUN MOUNT

M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS

COMPONENT: POWER PACK

INITIAL VALUES, ACTUAL: 5
PLANNED: 0

LEAD TIME	PERCENT USE	WEAPONS SYSTEMS NAME
2	100	M60A1
2	100	M60A3
2	100	AVLB

Figure 3.12

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	40	43	47	47	47	50	52
REQCUM:	40	80	120	160	200	240	283	330	377	424	474	526
ACT:	40	40	40	40	40	40	45	50	50	50	50	50
ACTCUM:	45	85	125	165	205	245	290	340	390	440	490	540

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	55	59	60	58	63	67	75	75	75	75	75	75
REQCUM:	581	640	700	763	826	893	968	1043	1118	1193	1268	1343
ACT:	50	55	60									
ACTCUM:	590	645	705									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	75	75	75	75	75	75	75	73	65	60	58	57
REQCUM:	1418	1493	1568	1643	1718	1793	1868	1941	2006	2066	2124	2181
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	55	51	49	46	43	38	0	0				
REQCUM:	2236	2287	2336	2382	2425	2463	2463	2463				
ACT:												
ACTCUM:												

Figure 3.13

M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS

COMPONENT: GUN MOUNT

SUPPLIERS: ROCK ISLAND ARSENAL
CHRYSLER

LEAD TIME	PERCENT USE	WEAPONS SYSTEMS NAME
3	100	M60A1
3	100	M60A3

Figure 3.14

SUPPLIER: ROCK ISLAND ARSENAL

INITIAL VALUES, ACTUAL: 40
PLANNED: 40

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	43	47	47	47	50	52	55
REQCUM:	80	120	160	200	240	283	330	377	424	474	526	581
ACT:	40	40	40	40	40	43	47	47	47	50	50	50
ACTCUM:	80	120	160	200	240	283	330	377	424	474	524	574

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	44	30	33	40	33	43	45	45	45	45	45	45
REQCUM:	625	655	688	721	754	797	842	887	932	977	1022	1067
ACT:	44	30	33									
ACTCUM:	618	648	681									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	45	45	45	45	45	43	39	30	25	23	20	17
REQCUM:	1112	1157	1202	1247	1292	1335	1374	1404	1429	1452	1472	1489
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	13	11	8	5	0	0	0	0				
REQCUM:	1502	1513	1521	1526	1526	1526	1526	1526				
ACT:												
ACTCUM:												

Figure 3.15
SUPPLIER: CHRYSLER

INITIAL VALUES, ACTUAL: 0
PLANNED: 0

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0	0	0	0	0	0	0	0	0	0
ACTCUM:	0	0	0	0	0	0	0	0	0	0	0	0

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	15	30	30	30	30	30	30	30	30	30	30	30
REQCUM:	15	45	75	105	135	165	195	225	255	285	315	345
ACT:	15	30	30									
ACTCUM:	15	45	75									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	30	30	30	30	30	30	30	30	30	30	30	30
REQCUM:	375	405	435	465	495	525	555	585	615	645	675	705
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	30	30	30	30	30	0	0	0				
REQCUM:	735	765	795	825	855	855	855	855				
ACT:												
ACTCUM:												

Figure 3.16

TOTALS FOR: GUN MOUNT

INITIAL VALUES, ACTUAL: 40
PLANNED: 40

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	43	47	47	47	50	52	55
REQCUM:	80	120	160	200	240	283	330	377	424	474	526	581
ACT:	40	40	40	40	40	43	47	47	47	50	50	53
ACTCUM:	80	120	160	200	240	283	330	377	424	474	524	574

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	59	60	63	70	63	73	75	75	75	75	75	75
REQCUM:	640	700	763	826	889	962	1037	1112	1187	1262	1337	1412
ACT:	59	60	63									
ACTCUM:	633	693	756									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	75	75	75	75	75	73	69	60	55	53	50	47
REQCUM:	1487	1562	1637	1712	1787	1860	1929	1989	2044	2097	2147	2194
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	43	41	38	35	30	0	0	0				
REQCUM:	2237	2278	2316	2351	2381	2381	2381	2381				
ACT:												
ACTCUM:												

CHAPTER 4

INTRODUCTION

In chapter 4 we give detailed instruction for running the piano roll, subprogram relationships, program flowcharts and a listing of the program.

Main Program

The purpose of the main Piano Roll routine is to choose options to be used, set flags, and maintain supervisory control of called subroutines. The options are chosen by responding to the following computer generated message (responses to computer underlined):

```
TYPE IN THE CONTROL VECTOR
        (SMT,SUM,FLT,CTS,TAK,DAT,TIM,VAR)
DEFAULT ( 0 , 1 , 1 , 0 , 1 , 1 , 1 , 1 )
FOR FURTHER INSTRUCTIONS TYPE -1
? 0 , 1 , 0 , 1
```

In this example the following options would be chosen (to be discussed in detail later):

SMT=0 No smoothing.

SUM=1 Complete output printed.

FLT=0 No float rows to be included in output.

CTS=1 Contract schedule to be included in output.

TAK=1 Tank production schedule to be printed at the end of output.

DAT=1 Date to be printed on output file header.

TIM=1 Time to be printed on output file header.

VAR=1 Variance rows to print in tank production schedule.

Note that default options were chosen for TAK, DAT, TIM and VAR. If, in fact, all options are to be default, a carriage return after the question mark will suffice.

If -1 was your response, then the program would respond:

SMT=1 IF THE SMOOTHING ROUTINE IS TO BE USED AND
SMT=0 OTHERWISE

SUM=2 IF NO COMPONENTS ARE TO BE USED,
SUM=1 IF COMPLETE OUTPUT IS TO BE PRINTED
SUM=0 OF ONLY SUMMARY OUTPUT IS TO BE PRINTED AND

FLT=1 IF THE FLOAT ROWS ARE TO BE PRINTED AND
FLT=0 IF THEY ARE NOT

CTS=1 IF THE CONTRACTOR SCHEDULE IS TO BE PRINED AND
CTS=0 IF NOT

TAK=1 IF THE TANK FILE IS TO BE PRINTED AT THE END
OF THE OUTPUT
TAK=0 IF IT IS NOT TO BE PRINTED

DAT=1 IF THE CURRENT DATE IS TO BE PRINTED AT THE
TOP OF THE OUTPUT AND
DAT=0 IF IT IS NOT TO BE PRINTED

TIM=1 IF THE TIME OF THE REPORT IS TO BE PRINTED
TIM=0 IF IT IS NOT TO BE PRINTED

VAR=1 IF VARIANCE AND CUM VARIANCE TO BE PRINTED
VAR=0 IF NOT

The various options are discussed in detail below:

Smoothing (SMT): If SMT=1, this option engages the smoothing routine, and if SMT=0, disengages it; the default is 0. The smoothing routine is used to prevent large monthly changes in the required production of the various components. The required production schedule (RPS) produced by this routine is always at least as far above the LOB (Line of Balance) as the non-smoothed schedule. This routine is semi-automatic; that is, for each component the user makes relative changes to the maximum production schedule (MPS). The machine then calculates the RPS, displays it, and asks if it is satisfactory. If it is not satisfactory, the machine repeats the above procedure until the user is satisfied with the results. (For more details, see ROLLER).

INITP

Summary Output (SUM): Summary output has three options. If SUM=2, the Line of Balance is not prepared for any components (useful only for listing the tank files). If SUM=1, complete output is to be printed, to include the complete distribution of each component's RPS among its suppliers. If SUM=0, the output is the same as SUM=1, except there is no distribution of RPS among suppliers. (See sample outputs for examples.)

Float (FLT): If FLT=1, the mandatory float (MANFLT) and surplus float (SUPFLT) rows are to be printed. If FLT=0, they are not. Mandatory float up to current date is the difference between the LOB and the cumulative of the planned historical data, and in the future, the mandatory float is the amount above the pure LOB that is necessary to maintain vehicle production. Surplus float in the past is the difference between the cumulative actual production and the cumulative planned production. In the future, it is the difference between the smoothed cumulative RPS and the unsmoothed cumulative RPS. (For examples, see sample outputs.)

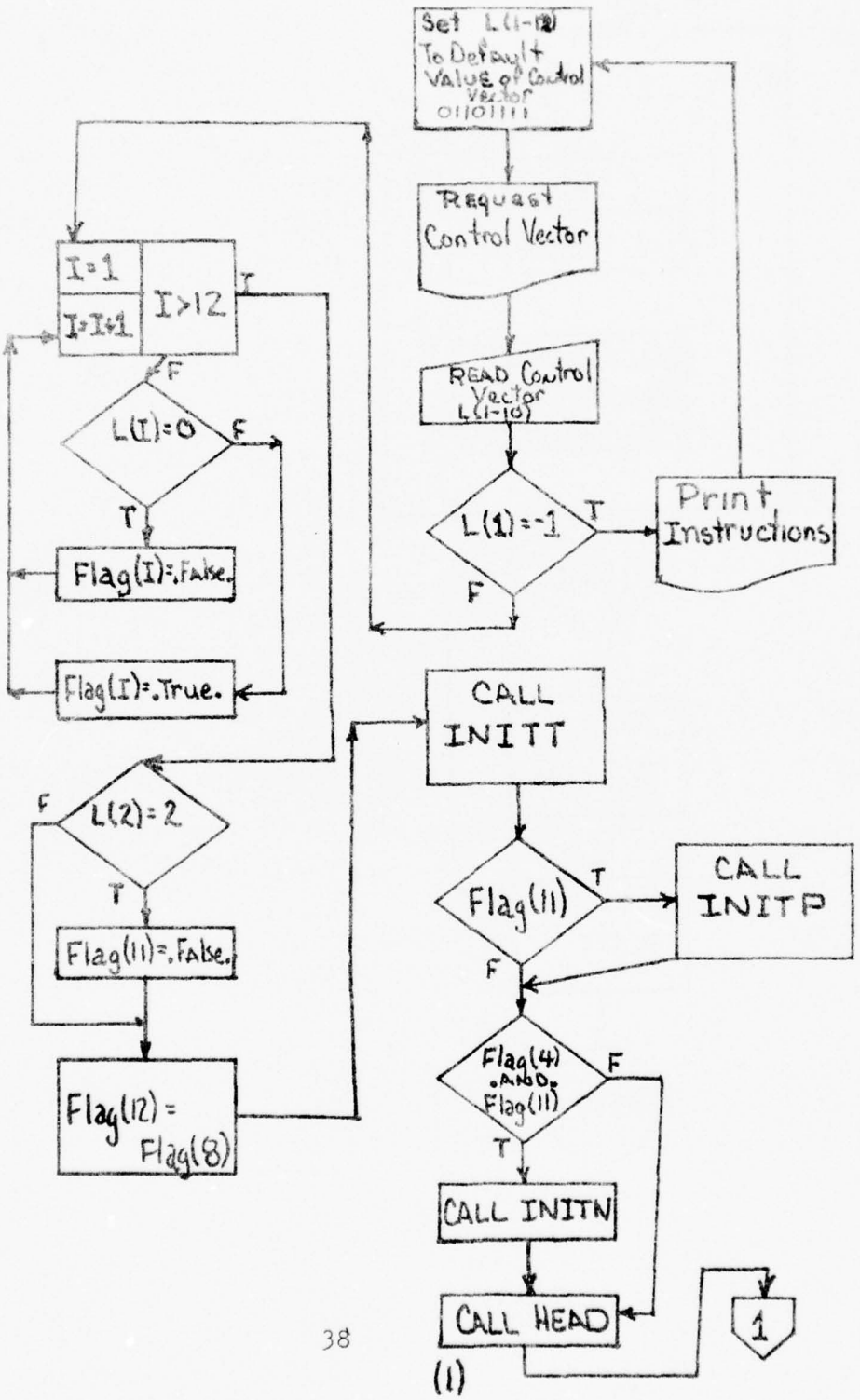
Contract (CTS): If CTS=1, a file, called the contractor file, is to be included in the output file. If CTS=0, it is not to be included.

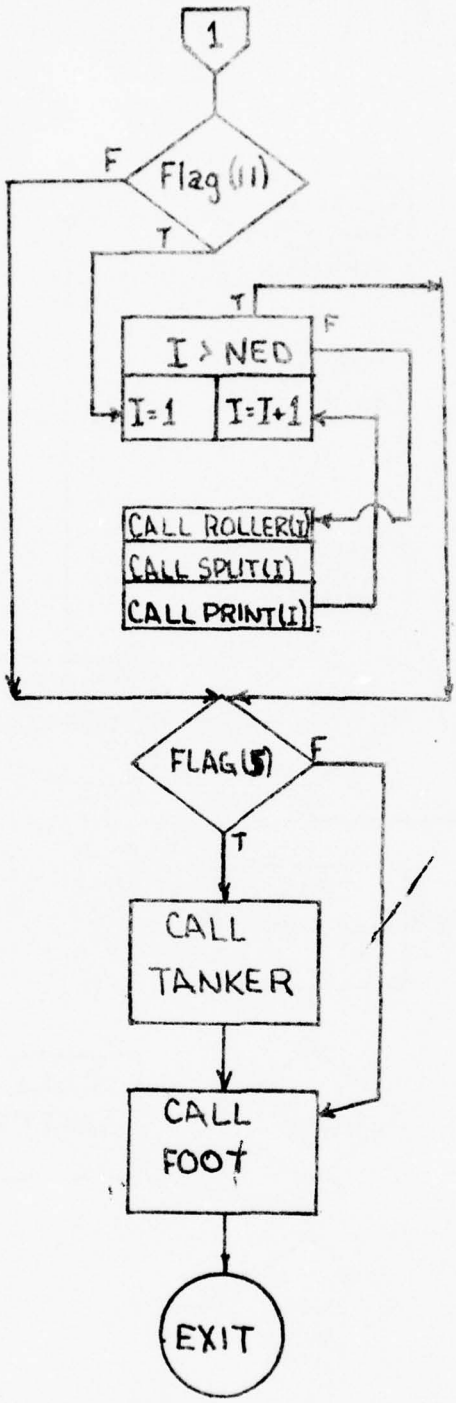
Date (DAT): If DAT=1, the date is to be printed on the output file header. If DAT=0, it is not to be printed.

Time (TIM): If TIM=1, the time is to be printed on the output file header. If TIM=0, it is not to be printed.

Variance (VAR): If VAR=1, the variance is to be printed in the tank file output. If VAR=0, it is not to be printed. There are two variances: monthly variance (MTHVAR), which is the difference between the monthly actual production schedule and the planned monthly production schedule in the tank file, and CUMVAR, which is the cumulative of the monthly variance.

BROWN1


Set L(1-12) To Default Value of Control Vector 01101111
Request Control Vector
READ Control Vector L(1-10)
L(1)=-1
T
Print Instructions
F
I=1
I=I+1
I>12
T
F
L(I)=0
F
T
Flag(I)=.False.
Flag(I)=.True.
CALL INITT
L(2)=2
F
T
Flag(11)=.False.
Flag(12) = Flag(8)
Flag(11)
T
CALL INITP
F
Flag(4) .AND. Flag(11)
F
T
CALL INITN
CALL HEAD
1
(1)


1
Flag(11)
F
T
T
I > NED
F
I=1
I=I+1
CALL ROLLER(I)
CALL SPLIT(I)
CALL PRINT(I)
FLAG(5)
F
T
CALL
TANKER
CALL
FOOT
EXIT

(2)

```
10010$SAV
10020C CURRENT AS OF 28 JULY 1976
10030C THIS IS THE MAIN PIANO ROLL PROGRAM
10040$NDM
10050$RPC
10060$TTY,76
10070 LOGICALFLAG(12),ONES(121)
10080 COMMONFLAG,NED,NEL,L(120),X(120),XX,J1M,J1Y,J2M,J2Y,J3M,J3Y,ONES,
10090&IDIV,IDIV1,LEN,LINE,NUMZ,NUMV,NUMY,NUMMER,LENO,LEN1,YY,Y(120),
10100&TANK,COMP,CONT,OUTPUT,TOD,DATE(3),ZZ,Z(120),LE(120),LPU(120),IA(120),
10110&LQ(120),ICI(120),ICP(120),ITT(120),ITP(120),JEPM,JEPY,LN,LP,LENF,NUM,
10120&IBBM,IBBY,IEBM,IEBY,IEND,IB(120,10),IBB(10),AB(10),IBC
10130 100D0105I=1,12
10140 105L(I)=1
10150 L(1)=0
10160 L(4)=0
10170 PRINT," TYPE IN THE CONTROL VECTOR"
10180 PRINT,"          (SMT,SUM,FLT,CTS,TAK,DAT,TIM,VAR)"
10190 PRINT," DEFAULT ( 0 , 1 , 1 , 0 , 1 , 1 , 1 , 1 )"
10200 PRINT," FOR FURTHER INSTRUCTIONS TYPE -1"
10210 READ,(L(I),I=1,10)
10220 IF(L(1).NE.-1)GOTO110
10230 PRINT,
10240 PRINT," SMT=1 IF THE SMOOTHING ROUTINE IS TO BE USED AND "
10250 PRINT," SMT=0 OTHERWISE"
10260 PRINT,
10270 PRINT," SUM=2 IF NO COMPONENTS ARE TO BE USED,"
10280 PRINT," SUM=1 IF COMPLETE OUTPUT IS TO BE PRINTED"
10290 PRINT," SUM=0 OF ONLY SUMMARY OUTPUT IS TO BE PRINTED AND"
10300 PRINT,
10310 PRINT," FLT=1 IF THE FLOAT ROWS ARE TO BE PRINTED AND"
10320 PRINT," FLT=0 IF THEY ARE NOT"
10330 PRINT,
10340 PRINT," CTS=1 IF THE CONTRACTOR SCHEDULE IS TO BE PRINED AND"
10350 PRINT," CTS=0 IF NOT"
10360 PRINT,
10370 PRINT," TAK=1 IF THE TANK FILE IS TO BE PRINTED AT THE END"
10380 PRINT,"        OF THE OUTPUT"
10390 PRINT," TAK=0 IF IT IS NOT TO BE PRINTED"
10400 PRINT,
10410 PRINT," DAT=1 IF THE CURRENT DATE IS TO BE PRINTED AT THE"
10420 PRINT,"        TOP OF THE OUTPUT AND"
10430 PRINT," DAT=0 IF IT IS NOT TO BE PRINTED"
10440 PRINT,
10450 PRINT," TIM=1 IF THE TIME OF THE REPORT IS TO BE PRINTED"
10460 PRINT," TIM=0 IF IT IS NOT TO BE PRINTED"
10470 PRINT,
10480 PRINT," VAR=1 IF VARIANCE AND CUM VARIANCE TO BE PRINTED"
10490 PRINT," VAR=0 IF NOT"
10500 PRINT,
```

```
10510 GOTO100
10520 110CONTINUE
10530 DO120I=1,12
10540 FLAG(I)=.TRUE.
10550 120IF(L(I).EQ.0)FLAG(I)=.FALSE.
10560 IF(L(2).EQ.2)FLAG(11)=.FALSE.
10570 FLAG(12)=FLAG(8)
10580 CALLINITT
10590 IF(FLAG(11))CALLINITP
10600 IF(FLAG(4).AND.FLAG(11))CALLINITN
10610 CALLHEAD
10620C********************* END  MAIN-2 ***********************************
10630 IF(.NOT.FLAG(11))GOTO16
10640 DO130I=1,NED
10650 CALLROLLER(I)
10660 CALLSPLIT(I)
10670 CALLPRINT(I)
10680 130CONTINUE
10690 16CONTINUE
10700 IF(FLAG(5))CALLTANKER
10710 CALLFOOT
10720 CALLEXIT
10730 STOP
10740 END
10750C********************* END  MAIN-2 ***********************************
```

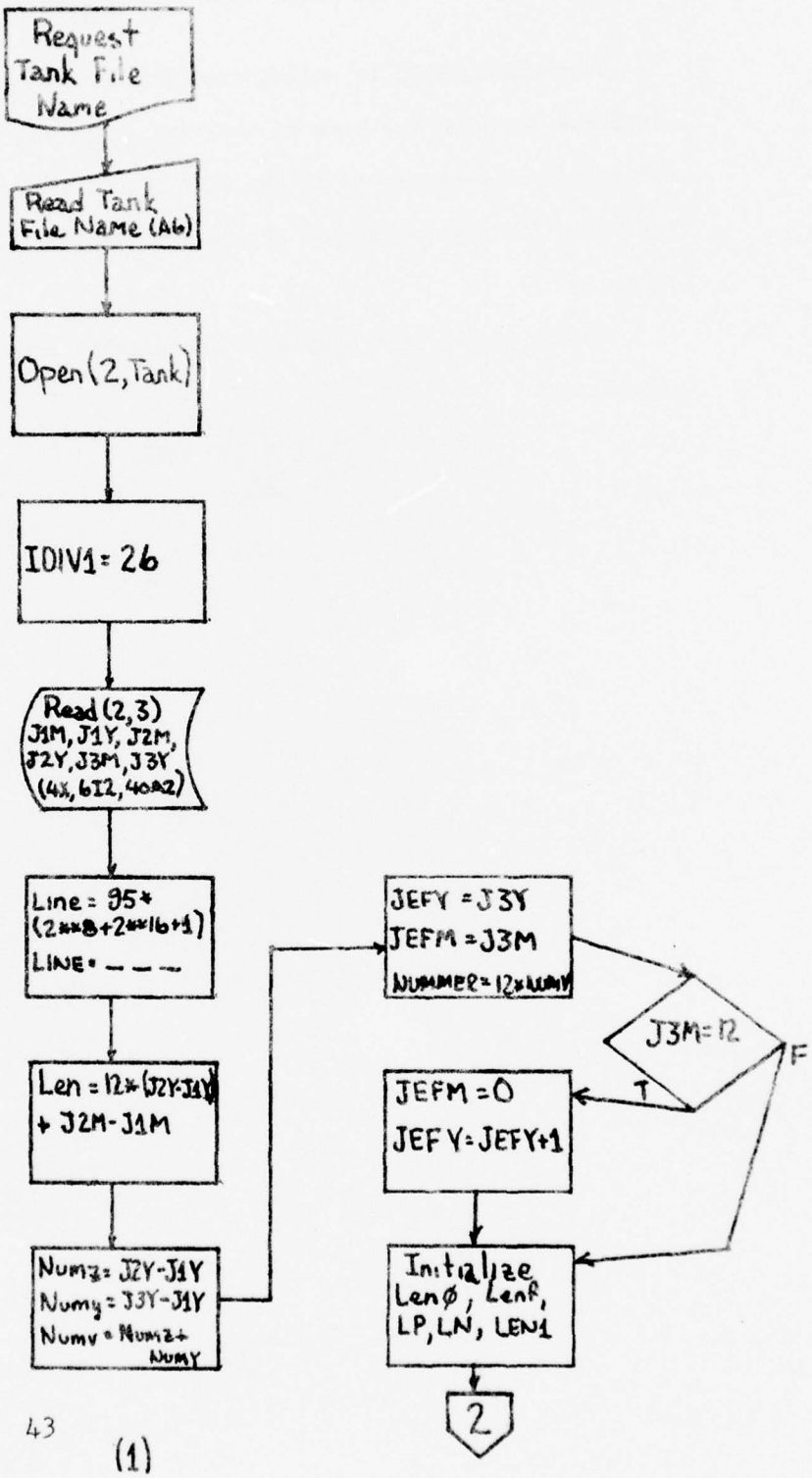
INITT (TANK FILE INITIALIZATION)

Subroutine INITT is called from the main program, and it initializes variables, obtains the name of the tank file, and sets pointers to the first line of each record in the tank file. (See the list of global variables for the definition of those variables initialized in this subroutine.)

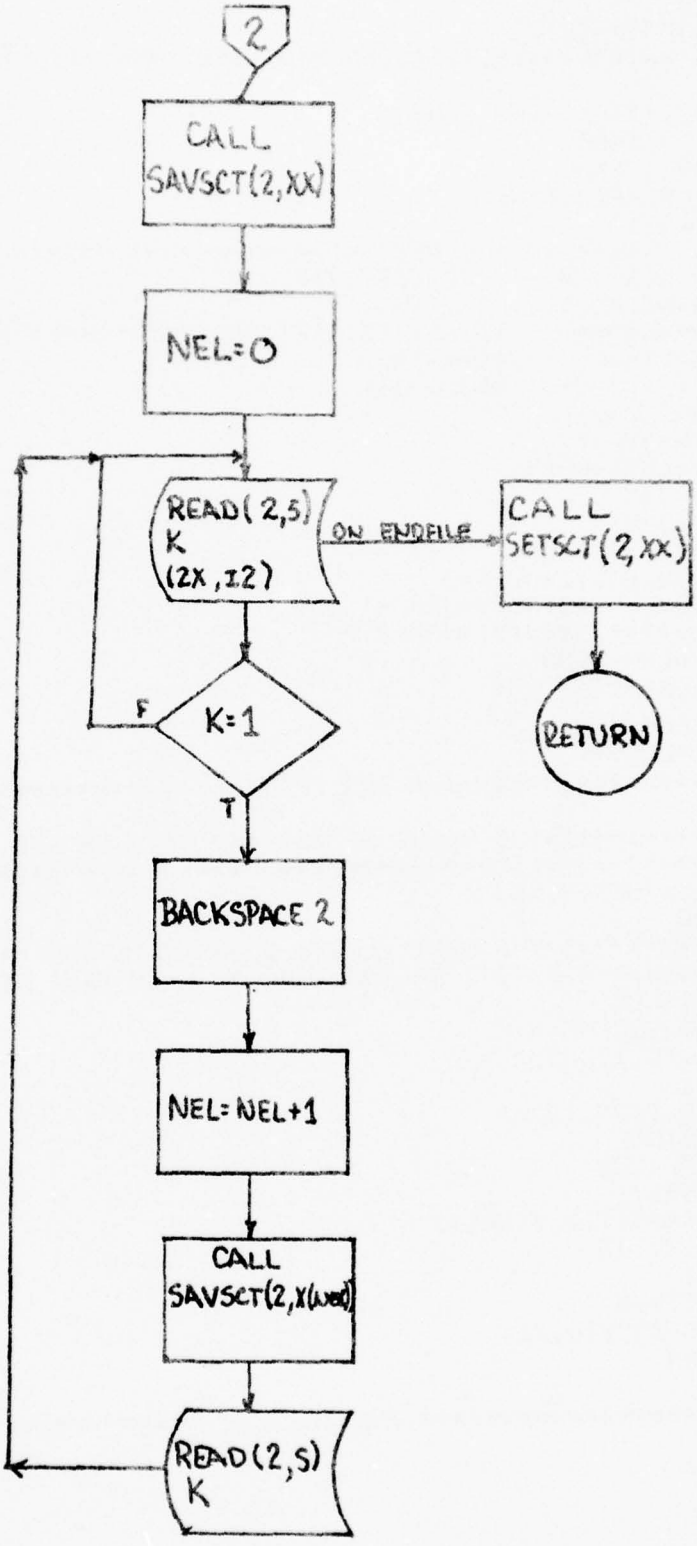
The following is a sample of the printed output produced by the subroutine:

```
TANK FILE NAME
? TNK
```

Subroutine Initt



(1)


2
CALL SAVSCT(2,XX)
NEL=0
READ(2,5) K (2X,I2)
ON ENDFILE
CALL SETSCT(2,XX)
RETURN
F
K=1
T
BACKSPACE 2
NEL=NEL+1
CALL SAVSCT(2,X(
READ(2,5) K

(2)

```
10760 SUBROUTINEINITT
10770C**************INITIALIZES VARIABLES AND SETS POINTERS IN TANK FILE***
10780$RPC
10790 PRINT,"TANK FILE NAME"
10800 READ10,TANK
10810 10FORMAT(A6)
10820 CALLOPENF(2,TANK)
10830 IDIV1=26
10840C**************READS DATES*****************************************
10850 READ(2,3)J1M,J1Y,J2M,J2Y,J3M,J3Y
10860 3FORMAT(4X,6I2,40A2)
10870C**************INITIALIZES VARIABLES*******************************
10880 LINE=95*(1+2**8+2**16)
10890 LEN=12*(J2Y-J1Y)+J2M-J1M
10900 NUMZ=J2Y-J1Y
10910 NUMY=J3Y-J1Y
10920 NUMV=NUMZ+NUMY
10930 JEFY=J3Y
10940 JEFM=J3M
10950 NUMMER =12*NUMV
10960 IF(J3M.EQ.12)JEFM=0
10970 IF(J3M.EQ.12)JEFY=JEFY+1
10980 LENO=12*(J3Y-J1Y)+J3M-J1M
10990 LENF=LEN-LENO
11000 LP=LENF+1
11010 LN=LENF-1
11020 LEN1=LENO+1
11030C********************* END INITT-1 ********************************
11040C
11050C**************THE VALUE OF POINTER  XX  IS SET TO THE TOP OF THE TANK*
11060C**************FILE********?***************************************
11070 CALLSAVSCT(2,XX)
11080 NEL=0
11090C**************THE NEXT ELEVEN LINES SETS THE VALUE OF POINTERS' ******
11100C**************X(I)  TO THE TOPS OF EACH TANK FILE RECORD**************
11110 1CONTINUE
11120 READ(2,5,END=4)K
11130 IF(K.EQ.1)GOTO2
11140 GOTO1
11150 5FORMAT(2X,I2)
11160 2CONTINUE
11170 BACKSPACE2
11180 NEL=NEL+1
11190 CALLSAVSCT(2,X(NEL))
11200 READ(2,5)K
11210 GOTO1
11220 4CONTINUE
11230 CALLSETSCT(2,XX)
11240 RETURN
11250 END
11260C********************* END INITT-2 ********************************
```

INITP (COMPONENT FILE INITIALIZATION SUBROUTINE)

INITP is called, if used, from the main program, and it is used to obtain the name of the component file and set pointers to the desired records in the component file. The two sample outputs printed below explain the methods used to obtain the desired components on the Piano Roll.

Example 1:

```
CHOOSE THE COMPONENTS FROM THE FOLLOWING LIST
THAT YOU WANT TO CONSTRUCT A PIANO ROLL FOR.
TYPE -1 FOR A PIANO ROLL OF ALL COMPONENTS

    1)  HULLS POURED
    2)  HULLS TO MACHINING
    3)  HULLS -- MACHINE COMPLETE
    4)  TURRETS POURED
    5)  TURRETS TO MACHINING
    6)  TURRETS -- MACHINE COMPLETE
    7)  TOTAL PLANNED PRODUCTION
    8)  TOTAL PLANNED CONVERSIONS
    9)  ENGINES
   10)  TRANSMISSIONS
   11)  TRANSMISSION KITS
   12)  POWER PACKS
   13)  GUN
   14)  GUN MOUNT
   15)  GUN MOUNT KITS
   16)  GUN & MOUNT ASSEMBLY

? 1,2,16,14,14
```

This response will cause the following components to be included in the Piano Roll in the order listed:

1. Hulls poured
2. Hulls to machining

3. Gun and mount assembly

4. Gun Mount

5. Gun Mount

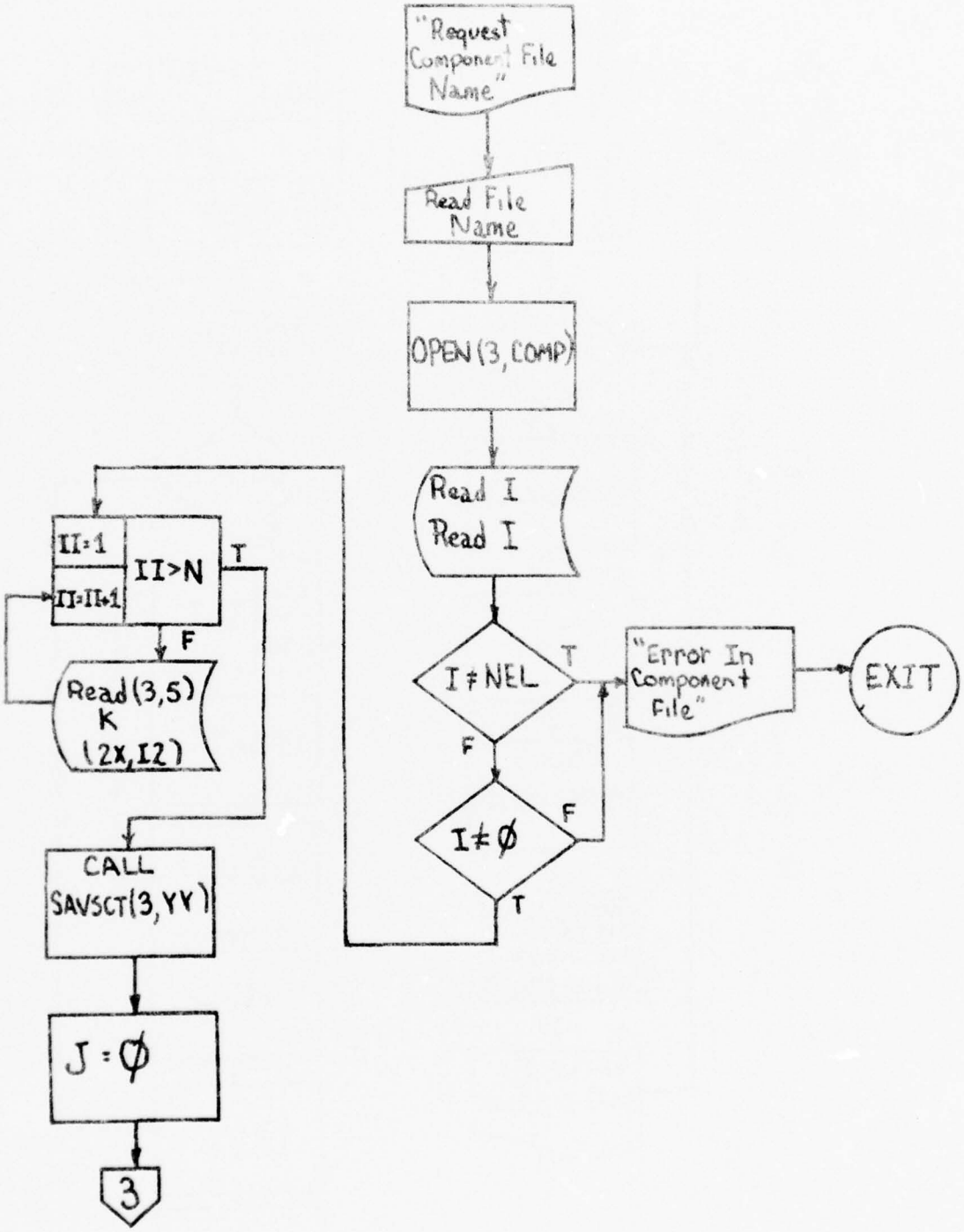
Example 2:

```
CHOOSE THE COMPONENTS FROM THE FOLLOWING LIST
THAT YOU WANT TO CONSTRUCT A PIANO ROLL FOR.
TYPE  -1  FOR A PIANO ROLL OF ALL COMPONENTS


    1)  HULLS POURED
    2)  HULLS TO MACHINING
    3)  HULLS -- MACHINE COMPLETE
    4)  TURRETS POURED
    5)  TURRETS TO MACHINING
    6)  TURRETS -- MACHINE COMPLETE
    7)  TOTAL PLANNED PRODUCTION
    8)  TOTAL PLANNED CONVERSIONS
    9)  ENGINES
   10)  TRANSMISSIONS
   11)  TRANSMISSON KITS
   12)  POWER PACKS
   13)  GUN
   14)  GUN MOUNT
   15)  GUN MOUNT KITS
   16)  GUN & MOUNT ASSEMBLY
```

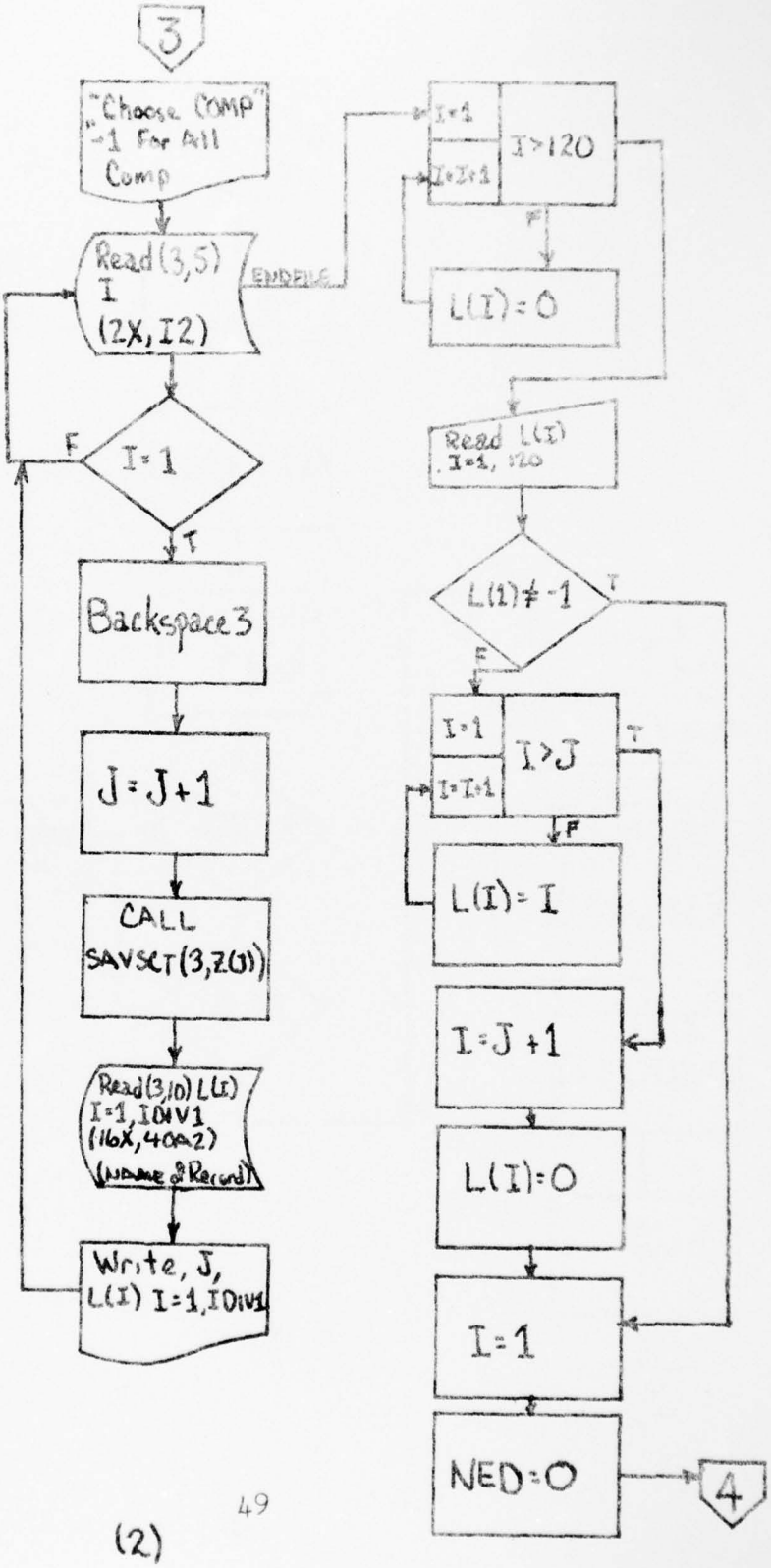
? -1

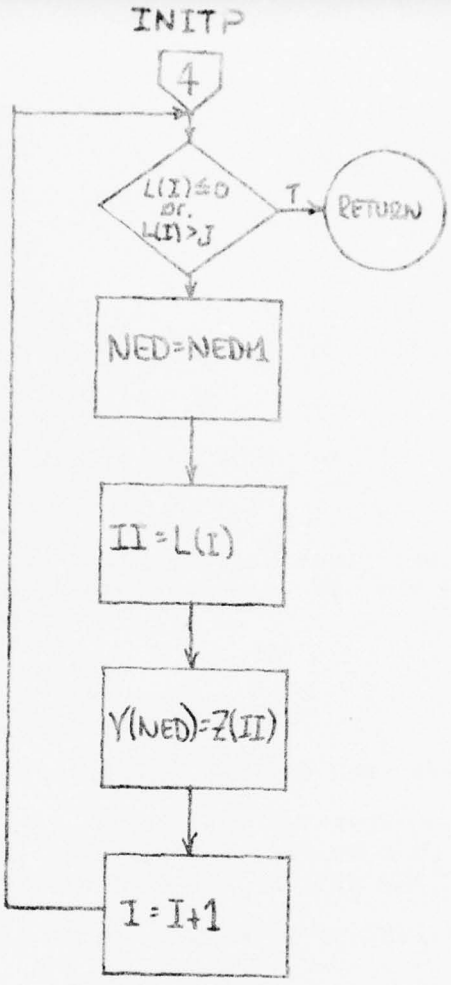
This response will cause all components to be included in the order given above.

Subroutine INITP



(1)


3
"Choose Comp"
-1 For All
Comp
Read(3,5)
I
(2X,I2)
ENDFILE
I=1
I=I+1
I>120
L(I)=0
Read L(I)
,I=1, 120
F
T
I=1
Backspace 3
L(1)≠-1
J=J+1
I=1
I=I+1
I>J
CALL
SAVSET(3,Z(1))
L(I)=I
Read(3,10) L(I)
I=1,IDIV1
(16X,40A2)
(Name of Record)
I=J+1
L(I)=0
Write, J,
L(I) I=1,IDIV1
I=1
NED=0
4



(3)

```
11270 SUBROUTINEINITP
11280C************SETS POINTER IN COMPONENT FILE**************************
11290$RPC
11300 PRINT,"COMPONENT FILE NAME"
11310 READ1,COMP
11320 1FORMAT(A6)
11330 CALLOPENF(3,COMP)
11340 READ(3,2)I
11350 2FORMAT(4X,I2)
11360 READ(3,2)I
11370C************CHECKS IF # OF VEHICLES IS THE SAME AS IN TANK FILE*****
11380 IF(I.NE.NEL)GOTO7
11390 IF(I.NE.0)GOTO4
11400 7PRINT20,NEL,I
11410 20FORMAT(////,"THEIR IS AN ERROR IN THE COMPONENT FILE"
11420&,"  NEL=",I5," AND I=",I5,////)
11430 CALL EXIT
11440 4CONTINUE
11450C************THE NEXT LINES SKIP TO FIRST RECORD AND SETS VALUE OF***
11460C************  POINTER  YY  ***************************************
11470 DO3II=1,I
11480 3READ(3,5)K
11490 5FORMAT(2X,I2)
11500 CALLSAVSCT(3,YY)

11510 J=0
11520C********************* END INITP-1 ***************************************
11530 PRINT21
11540 21FORMAT(/////,5X,"CHOOSE THE COMPONENTS FROM THE FOLLOWING LIST",/,
11550&5X,"THAT YOU WANT TO CONSTRUCT A PIANO ROLL FOR.",/,5X,
11560&"TYPE  -1  FOR A PIANO ROLL OF ALL COMPONENTS",///)
11570 6CONTINUE
11580C************SETS VALUE OF POINTER TO FIRST LINE OF EACH RECORD******
11590 READ(3,5,END=9)I
11600 IF(I.EQ.1)GOTO8
11610 GOTO6
11620 8CONTINUE
11630 BACKSPACE3
11640 J=J+1
11650 CALLSAVSCT(3,Z(J))
11660C*************PRINTS OUT ACTUAL COMPONENTS*************************
11670 READ(3,10)(L(I),I=1,IDIV1)
11680 10FORMAT(16X,40A2)
11690 PRINT11,J,(L(I),I=1,IDIV1)
11700 11FORMAT(5X,I5,")  ",40A2)
11710 GOTO6
11720 9CONTINUE
11730 PRINT28
11740 28FORMAT(///)
11750 DO12I=1,120
11760 12L(I)=0
11770C************READ IN DESIRED COMPONENTS*****************************
11780 READ),(L(I),I=1,120)
11790 IF(L(1).NE.-1)GOTO13
```

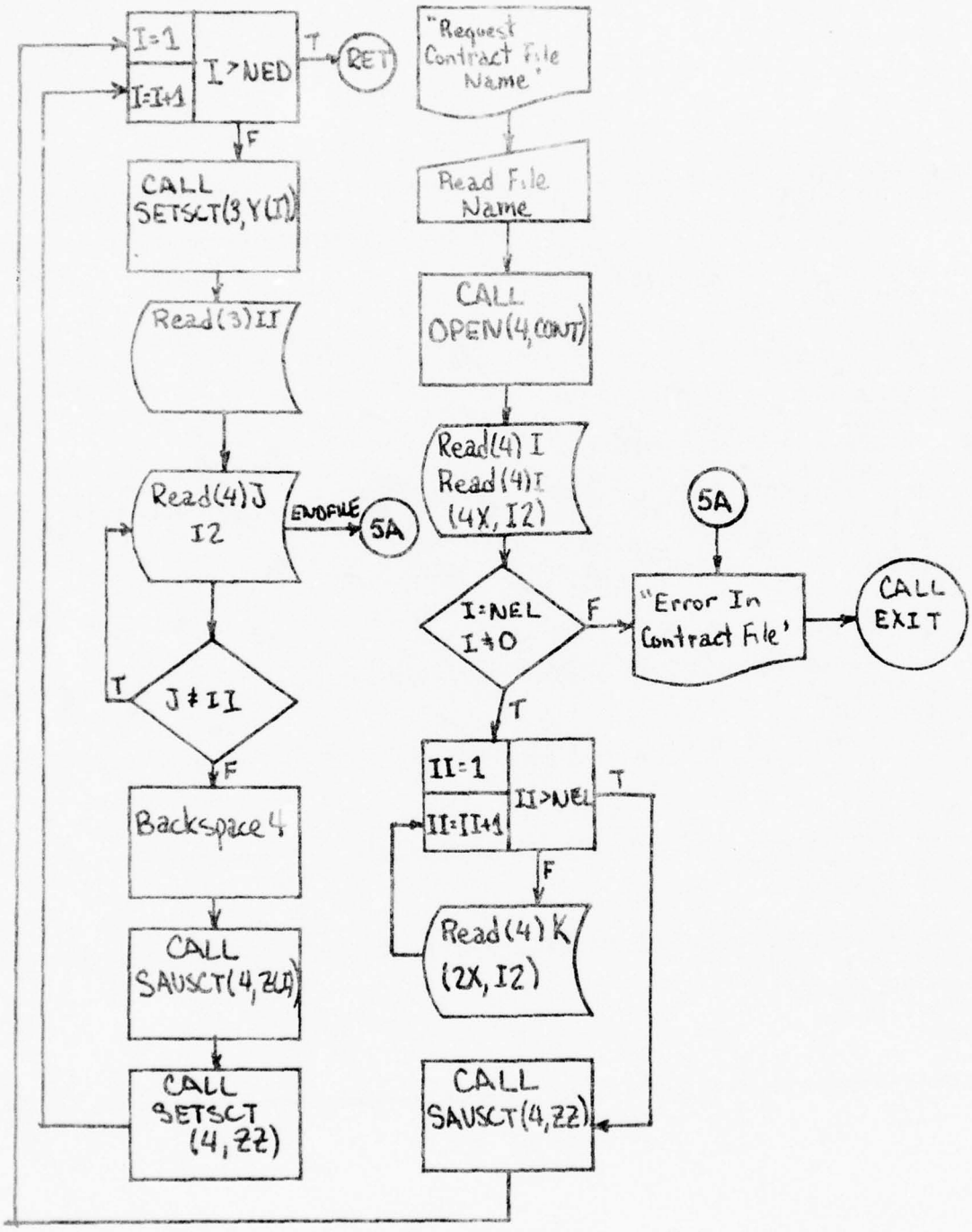
```
11800 DO14I=1,J
11810 14L(I)=I
11820 I=J+1
11830 L(I)=0
11840 13CONTINUE
11850 I=1
11860 NED=0
11870C********************* END INITP-2 ********************************
11880C
11890C************SETS Y(I) TO DESIRED COMPONENTS THAT IS Y(I) POINTS*****
11900C************TO THE FIRST RECORD TO BE PUT ON PIANO ROLL, AND NED****
11910C************IS THE NUMBER OF COMPONENTS TO BE PUT ON PIANO ROLL*****
11920 15IF(L(I).LE.0.OR.L(I).GT.J)GOTO16
11930 NED=NED+1
11940 II=L(I)
11950 Y(NED)=Z(II)
11960 I=I+1
11970 GOTO15
11980 16CONTINUE
11990 RETURN
12000 END
```

INITN (CONTRACT FILE INITIALIZATION SUBROUTINE)

Subroutine INITN is called, if used, from the main program, and it is used to obtain the name of the contract file, open it, and set pointers to the first line of each record in the contract file that corresponds to a desired record in the component file. A sample output from this subroutine is shown below:

```
CONTRACT FILE NAME
? CONTR
```

Subroutine INITN



```
12010C********************* END INITP-3 ***********************************
12020 SUBROUTINEINITN
12030C*************SETS POINTER IN CONTRACT FILE*************************
12040SRPC
12050 PRINT,"CONTRACT FILE NAME"
12060 READ1,CONT
12070 1FORMAT(A6)
12080 CALLOPENF(4,CONT)
12090 READ(4,2)I
12100 2FORMAT(4X,I2)
12110 READ(4,2)I
12120 IF(I.EQ.NEL.AND.I.NE.0)GOTO4
12130 7PRINT20,NEL,I
12140 20FORMAT(////,"THEIR IS AN ERROR IN THE CONTRACT FILE, NEL=",I5,
12150&" AND I=",I5,////)
12160 CALL EXIT
12170 4CONTINUE
12180 DO3II=1,I
12190 3READ(4,5)K
12200 5FORMAT(2X,I2)
12210CC*************SETS VALUE OF ZZ TO FIRST RECORD IN CONTRACT FILE*******
12220 CALLSAVSCT(4,ZZ)
12230 DO100II=1,NED
12240C*************FINDS NUMBER OF I'th RECORD  TO BE PRINTED IN PIANO ROLL
12250 CALLSETSCT(3,Y(I))
12260 READ(3,44)II
12270 44FORMAT(I2)
12280C*************FINDS COOR. RECORD IN CONTRACT FILE**********************
12290 12READ(4,44,END=7)J
12300 IF(J.NE.II)GOTO12
12310 BACKSPACE4
12320C*************SETS VALUE OF POINTER x'Z(I) TO CORRESPONDING RECORD****
12330 CALLSAVSCT(4,Z(I))
12340 CALLSETSCT(4,ZZ)
12350 100CONTINUE
12360 RETURN
12370 END
12380C********************* END INITN-1 ***********************************
```

HEAD (Output File Initialization Routine)

Subroutine HEAD is called from the main program, if it is used, and it obtains the name of, opens, and prints the header data on the output file. The routine makes several checks on the output file name. These checks are shown in the example below:

```
OUTPUT FILE NAME
  ? ROLL

THIS FILE IS ALREADY OPEN YOU CURRENTLY CAN'T USE IT AS A
OUTPUT FILE, TRY AGAIN
OUTPUT FILE NAME
  ? DON3

THE FILE COULD NOT BE OPENED.  IT MAY HAVE A PASSWORD
TRY AGAIN; CONDITION CODE=        10
OUTPUT FILE NAME
  ? SAUSE

THE FILE ALREADY EXISTS.  DO YOU WANT TO OVERWRITE IT?
ANS. YES OR NO.
  ? NO

OUTPUT FILE
  ? EDIR
```

1. In this case, the file "ROLL" is currently in use and thus cannot be opened.

2. In the second case, the file already exists and cannot be opened because it has a bad condition code.

Condition code = 6: Implies incorrect access privileges since this happens only if the output file is on another user number than the one the program is run on. This condition code should normally not appear.

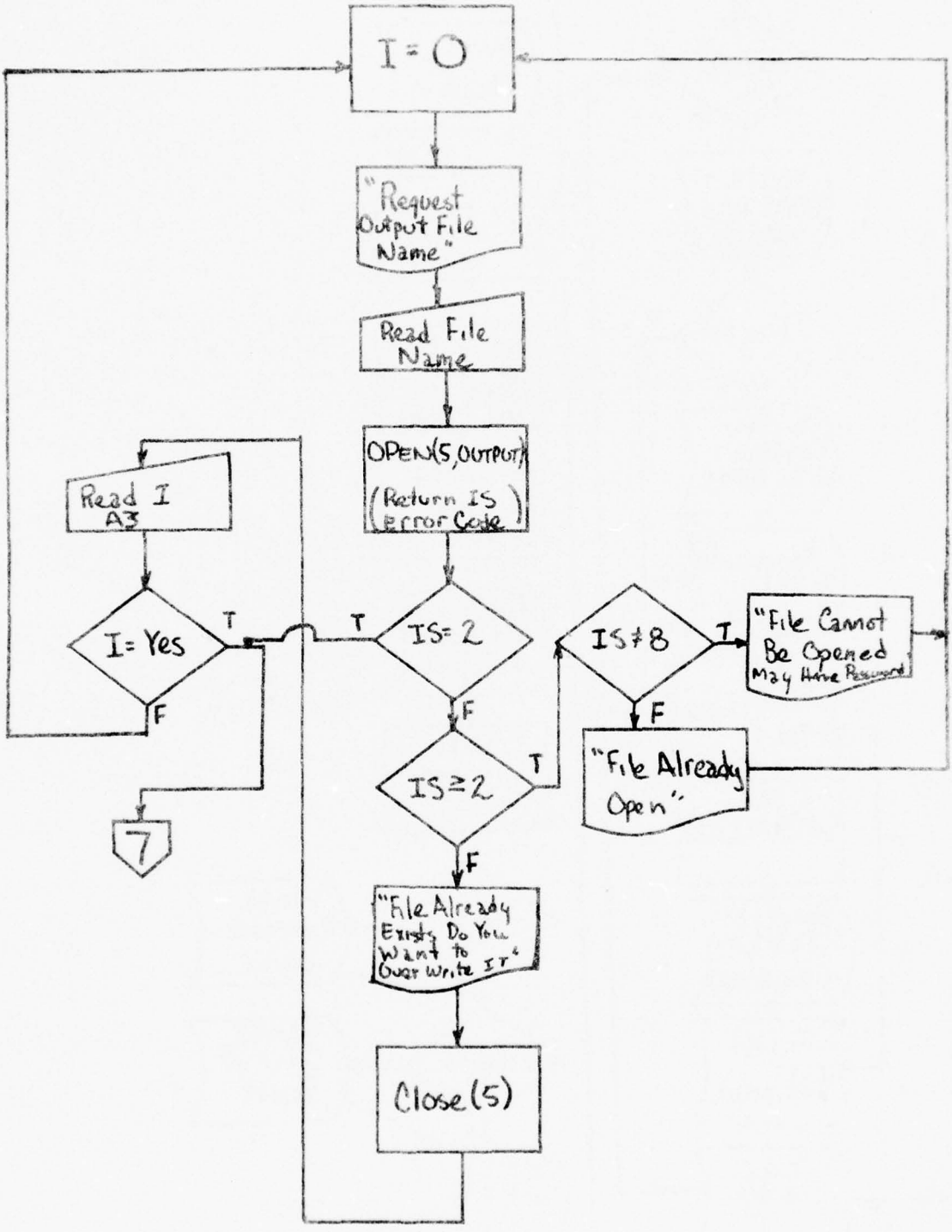
Condition Code = 10: The output file has a password.

Condition Code = 14: Incorrect Library name. NOTE: The only condition code that should occur is 10.

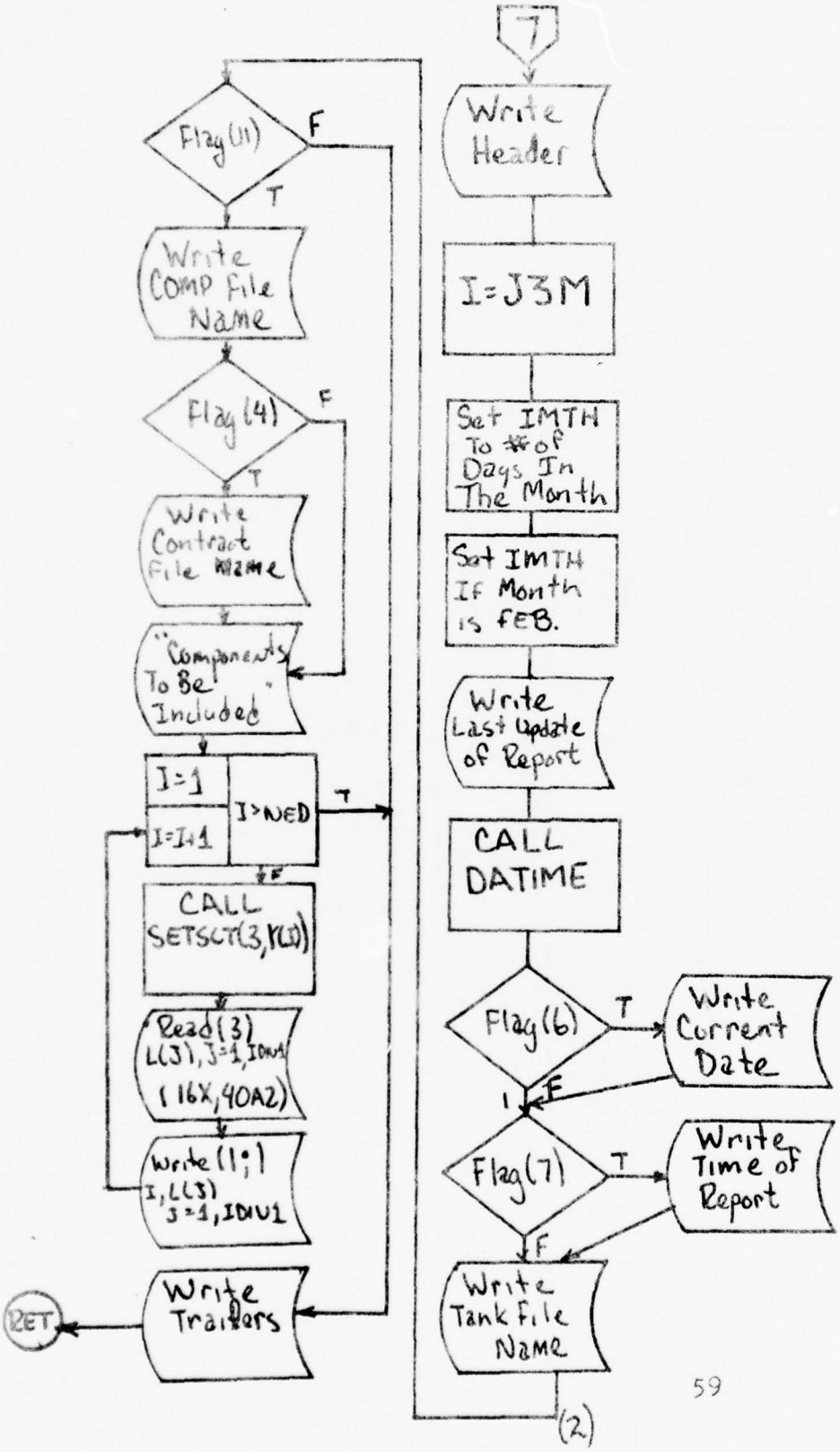
3. In this case, the file already exists and it is possible to overwrite what is currently on the file by answering "yes". NOTE: If this option occurs and you do answer "yes", whatever is currently on the file will be destroyed. If you answer "no", the program will request another file name.

4. In the last case, the output file was not in use, and thus the program creates it.

Subroutine HEAD



(11)


7
Write Header
I=J3M
Set IMTH To # of Days In The Month
Set IMTH IF Month is FEB.
Write Last Update of Report
CALL DATIME
Flag(6)
T
Write Current Date
F
Flag(7)
T
Write Time of Report
F
Write Tank File Name
(2)
Flag(11)
F
T
Write COMP File Name
Flag(4)
F
T
Write Contract File Name
"Components To Be Included"
I=1
I=I+1
I>NED
T
F
CALL SETSCT(3,KLU)
Read(3) L(J), J=1,IDIM1 (16X,40A2)
Write(1;) I,L(J) J=1,IDIM1
Write Trailers
RET

```
12390 SUBROUTINEHEAD
12400$REPC
12410C**********CHECKS FOR PRE-EXISTING COPIES OF THE OUTPUT FILE*******.
12420 1013I=0
12430 PRINT,"OUTPUT FILE NAME"
12440 READ1,OUTPUT
12450 CALLOPENF(5,OUTPUT,7,"S172","      ",I,IS)
12460 IF(IS.EQ.2)GOTO1
12470 IF(IS.GE.2)GOTO1011
12480 PRINT,"THE FILE ALREADY EXISTS. DO YOU WANT TO OVERWRITE IT?"
12490 PRINT,"ANS. YES OR NO."
12500 CALLCLOSEF(5)
12510 READ1012,I
12520 1012FORMAT(A3)
12530 IF(I.EQ."YES")GOTO1
12540 GOTO1013
12550 1011CONTINUE
12560 IF(IS.NE.8)GOTO1014
12570 PRINT,"THIS FILE IS ALREADY OPEN YOU CURRENTLY CAN'T USE IT AS A"
12580 PRINT,"OUTPUT FILE, TRY AGAIN"
12590 GOTO1013
12600 1014CONTINUE
12610 PRINT,"THE FILE COULD NOT BE OPENED. IT MAY HAVE A PASSWORD"
12620 PRINT,"TRY AGAIN; CONDITION CODE=",IS
12630 GOTO1013
12640C**********PRINTS OUT FILE HEADER ON OUTPUT FILE**********
12650 1FORMAT(A6)
12660 WRITE(1;2)
12670 WRITE(1;2)
12680 2FORMAT(76("*"))
12690 WRITE(1;3)
12700 3FORMAT(///)
12710 4FORMAT(14X,49("*"))
12720 5FORMAT(15X,"M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS")
12730 WRITE(1;4)
12740 WRITE(1;5)
12750 WRITE(1;4)
12760 WRITE(1;17)
12770 17FORMAT(/)
12780C**********DETERMINES NUMBER OF DAYS IN MONTH**********
12790 I=J3M
12800 IF(I.EQ.1.OR.I.EQ.3.OR.I.EQ.5.OR.I.EQ.7.OR.I.EQ.8.OR.I.EQ.10.OR.
12810&I.EQ.12)IMTH=31
12820 IF(I.EQ.4.OR.I.EQ.6.OR.I.EQ.9.OR.I.EQ.11)IMTH=30
12830 K=J3Y-(J3Y/4)*4
12840 IF(I.EQ.2.AND.K.EQ.0)IMTH=29
12850 IF(I.EQ.2.AND.K.NE.0)IMTH=28
12860 WRITE(1;167)J3M,IMTH,J3Y
12870 167FORMAT(10X,"LAST UPDATE OF REPORT: ",2(I2,"/"),I2)
12880 CALLDATIME(I,TOD,DATE)
12890 IF(FLAG(6))WRITE(1;10)(DATE(I),I=1,3)
12900 10FORMAT(10X,"DATE OF REPORT: ",3A6)
12910 IF(FLAG(7))WRITE(1;40)TOD
12920 40FORMAT(10X,"TIME OF REPORT: ",A6)
```

```
12930 WRITE(1,11)TANK
12940 11FORMAT(10X,"TANK FILE NAME: ",A6)
12950 IF(.NOT.FLAG(11))GOTO1873
12960 WRITE(1,12)COMP
12970 12FORMAT(10X,"COMPONENT FILE NAME: ",A6)
12980 IF(FLAG(4))WRITE(1,13)CONT
12990 13FORMAT(10X,"CONTRACT FILE NAME: ",A6)
13000 WRITE(1,17)

13010 WRITE(1,18)
13020 18FORMAT(10X,"COMPONENTS INCLUDED IN THIS LINE",
13030$/,10X,"OF BALANCE PRODUCTION REPORT",//)
13040 DO20I=1,NED
13050 CALLSETSCT(3,Y(I))
13060 READ(3,30)(L(J),J=1,IDIV1)
13070 30FORMAT(16X,40A2)
13080 WRITE(1,31)I,(L(J),J=1,IDIV1)
13090 31FORMAT(13X,I5,")  ",40A2)
13100 20CONTINUE
13110 1873CONTINUE
13120 WRITE(1,3)
13130 WRITE(1,2)
13140 RETURN
13150 END
```

ROLLER (Calculation Routine)

Subroutine ROLLER is called from the main routine and it calculates the total required lines of the Piano Roll for each component. It also smooths the total required line, if desired. If the component is not to be smoothed, then this routine prints out:

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

    COMPONENT:  POWER PACK

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

For each component, the routine requires no input from the user in this case. If the component is smoothed, then the sample run below will demonstrate how to use it.

```
*****************************************************************************

THE CURRENT COMPONENT TO BE SMOOTHED IS:
      POWER PACK


*****************************************************************************


         TRIAL COMPONENT SCHEDULE:
         THE FIRST YEAR IS: 1976 <-- (1)

  (2)       J    F    M    A    M    J    J    A    S    O    N    D

  (3)    888888888888888  58   63   67   75   75   75   75   75   75
            75   75   75   75   75   85   75   73   65   60   58   57
            55   51   49   46   43   38    0    0


DO YOU WISH TO PRINT THIS COMPONENT, YES OR NO.
 ? NO <-- (4)

*****************************************************************************

     (5) --> MODIFIED MAXIMUM PRODUCTION SCHEDULE:

         THE FIRST YEAR IS: 1976
                                                 (8a)
            J    F    M    A    M    J    J    A    S    O    N    D

         888888888888888  63   70   70   75   75   75   75   75   75
            75   75   75   75   75   75   75   75   75   75   75   75
            75   75   75   75   75   75   75   75
TYPE IN RELATIVE CHANGES TO THE SCHEDULE IN THE FOLLOWING
FORMAT    YY,J,F,M,...,N,D  .
CARRAIGE RETURN AFTER LAST CHANGE
 ? 76 0,0,0,0,0,0,-5,-5,-5
 (6)        (7)        (8)

*****************************************************************************
```

```
        TRIAL COMPONENT SCHEDULE:
        THE FIRST YEAR IS: 1976
                                              (9)
           J     F     M     A     M     J     J     A     S     O     N     D

        888888888888888    63    70    70    70    70    70    75    75    75
           75    75    75    75    75    75    75    73    65    60    58    57
           55    51    49    46    43    38     0     0


DO YOU WISH TO PRINT THIS COMPONENT, YES OR NO.
 ? NO


**************************************************************************


        MODIFIED MAXIMUM PRODUCTION SCHEDULE:

        THE FIRST YEAR IS: 1976
                                                    (10)
           J     F     M     A     M     J     J     A     S     O     N     D

        888888888888888    63    70    70    70    70    70    75    75    75
           75    75    75    75    75    75    75    75    75    75    75    75
           75    75    75    75    75    75    75    75
TYPE IN RELATIVE CHANGES TO THE SCHEDULE IN THE FOLLOWING
FORMAT    YY,J,F,M,...,N,D  .
CARRAIGE RETURN AFTER LAST CHANGE
 ? 76,0,0,0,0,-2
                     (11)
 ?


        BAD SCHEDULE  <------------------(12)

        IT GOES BAD ON  7/77
        AND IT RECOVERS ON  8/77

        YOU MUST ADD AT LEAST    2 UNITS EARLY IN THE SCHEDULE
        UNRECOVERABLE SHORTFALL OF     0 UNITS


**************************************************************************
```

```
TRIAL COMPONENT SCHEDULE:
THE FIRST YEAR IS: 1976

     J    F    M    A    M    J    J    A    S    O    N    D

888888888888888   63   68   70   70   70   70   75   75   75
   75   75   75   75   75   75   75   75   65   60   58   57
   55   51   49   46   43   38    0    0

DO YOU WISH TO PRINT THIS COMPONENT, YES OR NO.
 ? NO
```

****

```
MODIFIED MAXIMUM PRODUCTION SCHEDULE:

THE FIRST YEAR IS: 1976

     J    F    M    A    M    J    J    A    S    O    N    D

888888888888888   63   68   70   70   70   70   75   75   75
   75   75   75   75   75   75   75   75   75   75   75   75
   75   75   75   75   75   75   75   75
TYPE IN RELATIVE CHANGES TO THE SCHEDULE IN THE FOLLOWING
FORMAT    YY,J,F,M,...,N,D  .
CARRAIGE RETURN AFTER LAST CHANGE
 ? 76,0,0,0,0,0,0,0,0,2

 ?
```

****

```
TRIAL COMPONENT SCHEDULE:
THE FIRST YEAR IS: 1976

     J    F    M    A    M    J    J    A    S    O    N    D

888888888888888   63   68   70   70   70   72   75   75   75
   75   75   75   75   75   75   75   73   65   60   58   57
   55   51   49   46   43   38    0    0

DO YOU WISH TO PRINT THIS COMPONENT, YES OR NO.
 ? YES
```

****

Notes on ROLLER Output:

1. 1976 is the initial year in the schedule, and the years in this schedule are 1976, 1977 and 1978.

2. 888----888 months in current year that are in the past; in this case, January, February and March 1976.

3. This schedule is a tentative total required schedule for the future. In this case, it runs from April 1976 to August 1978.

4. If this tentative schedule is as you desire, type "yes", otherwise, type "no".

5. The modified maximum production schedule, the first time thru, it is the sum of all suppliers maximum production schedule.

6. The year that is to be changed in this case is 1976.

7. Type zero for the months in which there is no change. In this case, January, February, March, April, May and June.

8, 8a. Type in the relative changes to the schedule. In this case, the maximum production schedule for July, August and September of 1976 is changed from 75 to 70.

9. A new trial component schedule. Note the changes from the first trial component schedule.

10. Note the changes in the modified maximum production schedule.

11. Note the change in May 1976 from 70 to 68.

12. Because the production schedule could not be met, subroutine ROLLER called subroutine BAD.

13. Note the change to the modified maximum production schedule.

Subroutine BAD

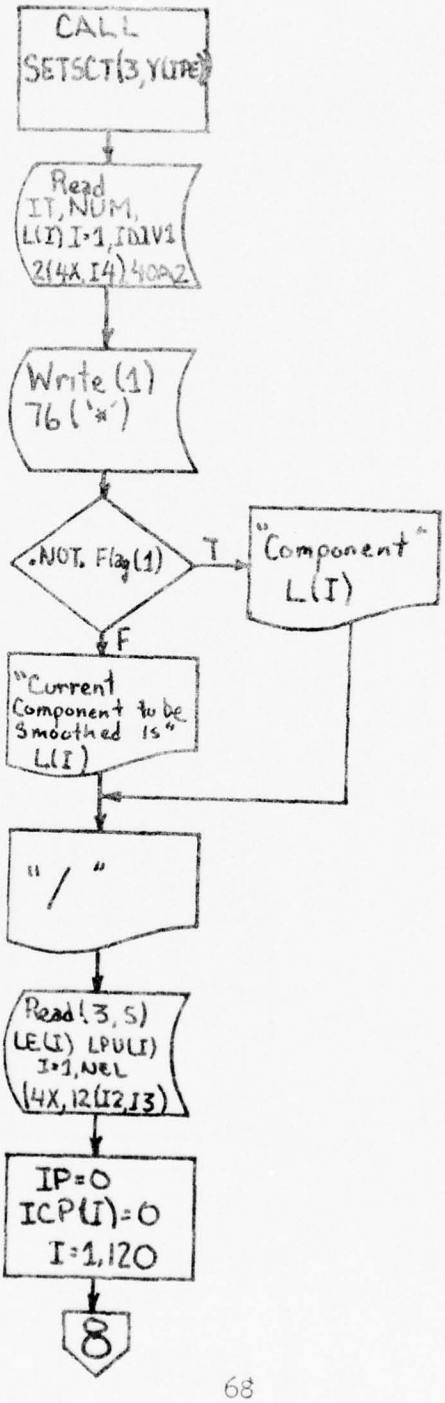
14. Note the change in September 1976 from 70 to 72 units per month. If we had added 10 units to September 1976, the maximum would still only be 75 units per month, because of the original maximum schedule.

15. Note the change to the trial schedule.

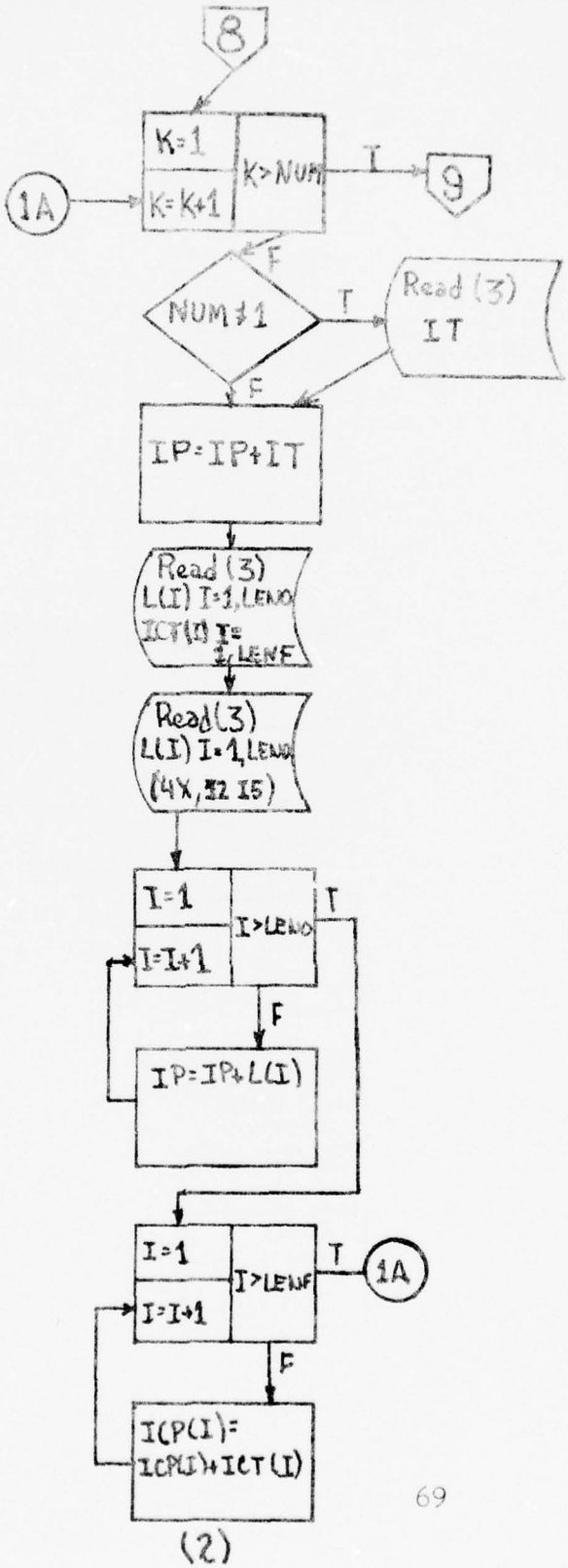
16. Print the last trial schedule.

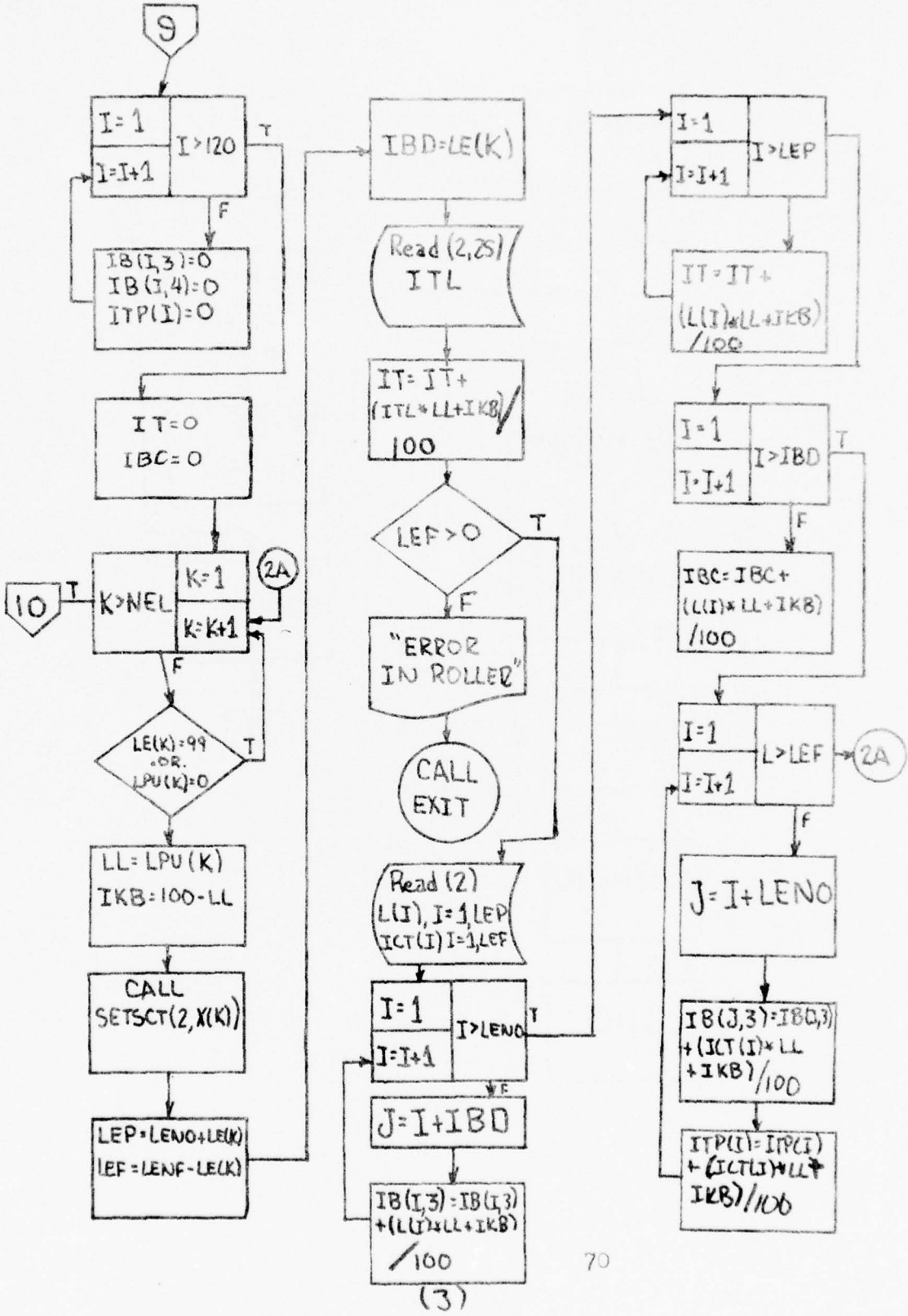

```
1532C SUBROUTINE BAD
1533C**************THIS SUBROUTINE CALLED FROM ROLLER IF A TENTATIVE ******
1534C**************SCHEDULE IS BAD IT DETERMINES WHEN THE SCHEDULE WENT BAD
1535C**************AND WHEN, IF IT DOES, CATCH UP AGAIN **********
```

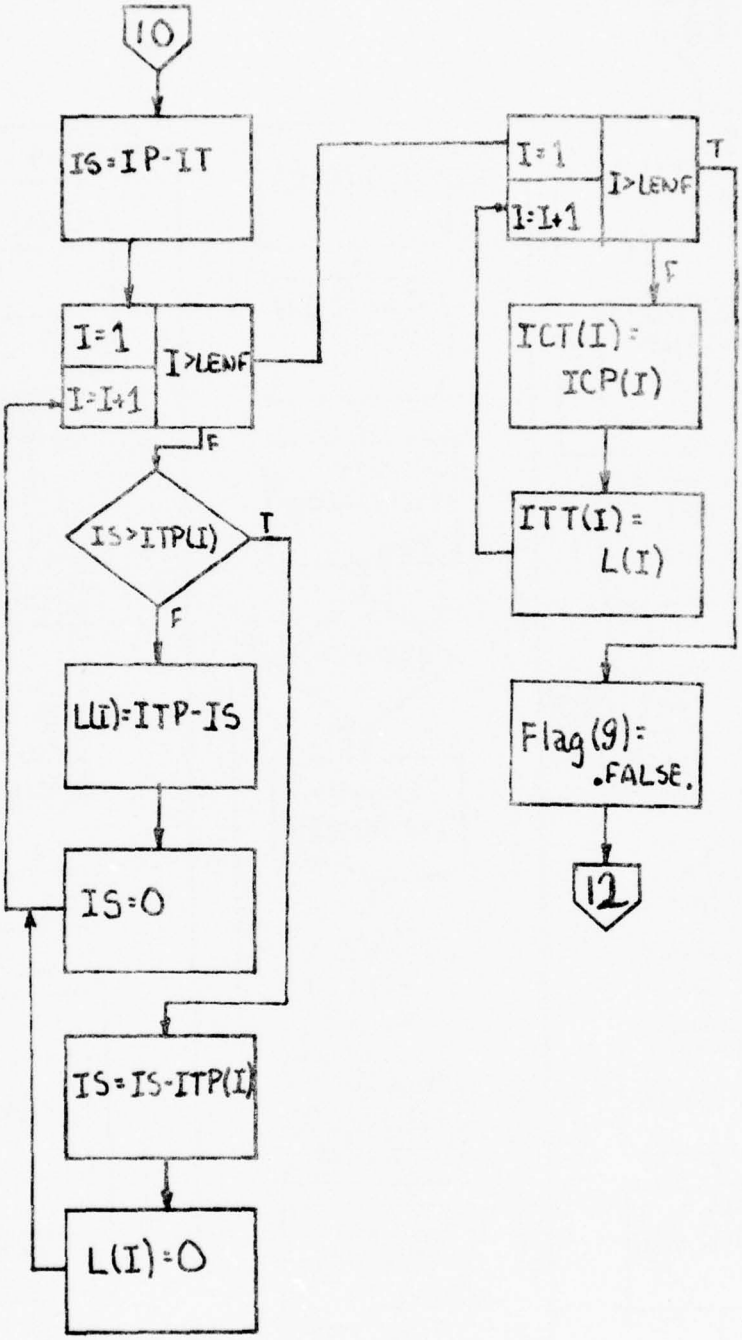
Subroutine ROLLER(IPE)



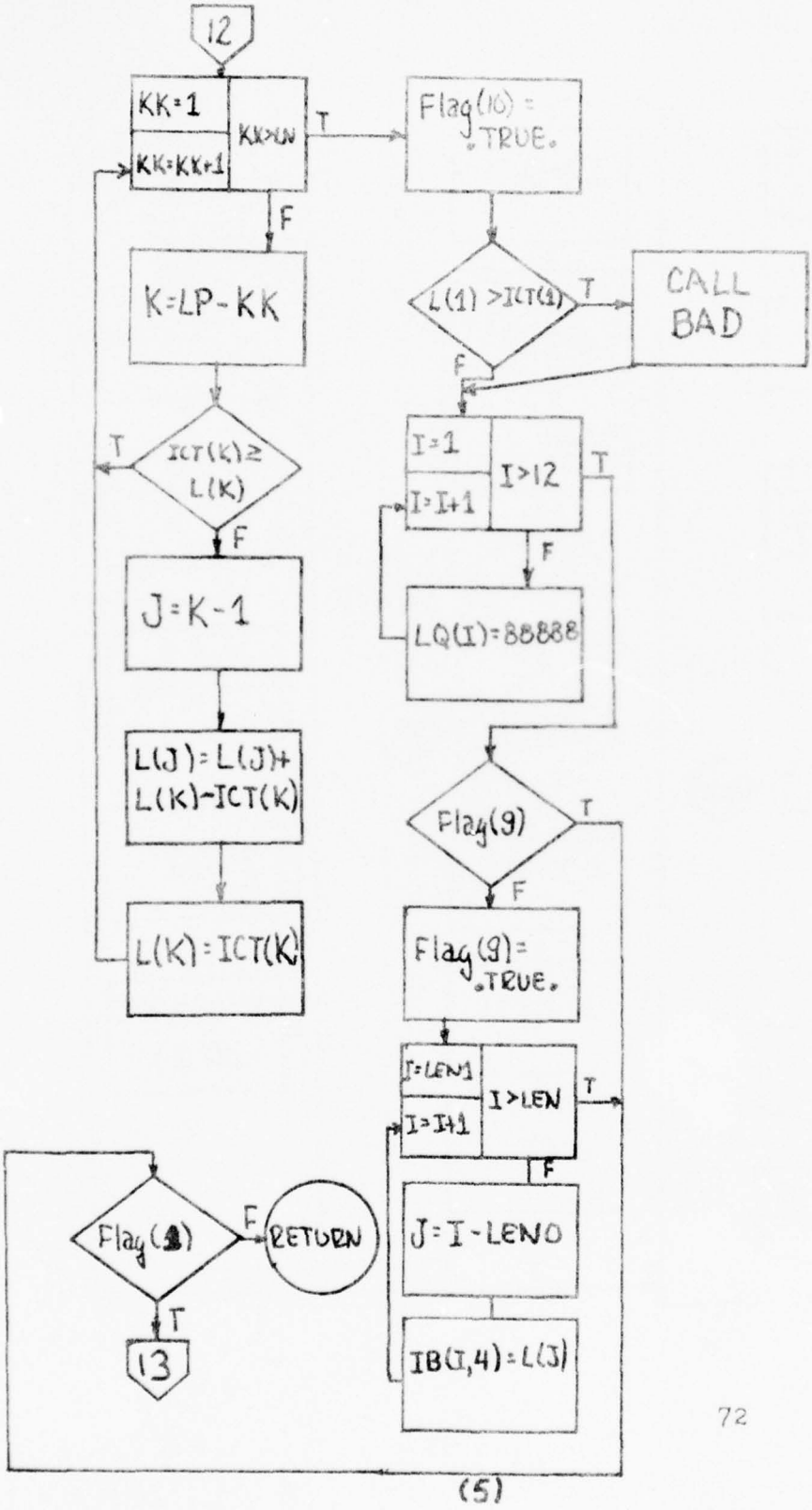
(1)


8
K=1
K=K+1
K>NUM
T
9
1A
F
NUM≠1
T
Read (3)
IT
F
IP=IP+IT
Read (3)
L(I) I=1,LENO
ICT(I) I=
1,LENF
Read(3)
L(I) I=1,LENO
(4X,32 I5)
I=1
I=I+1
I>LENO
T
F
IP=IP+L(I)
I=1
I=I+1
I>LENF
T
1A
F
I(P(I)=
I(P(I)+ICT(I)
(2)

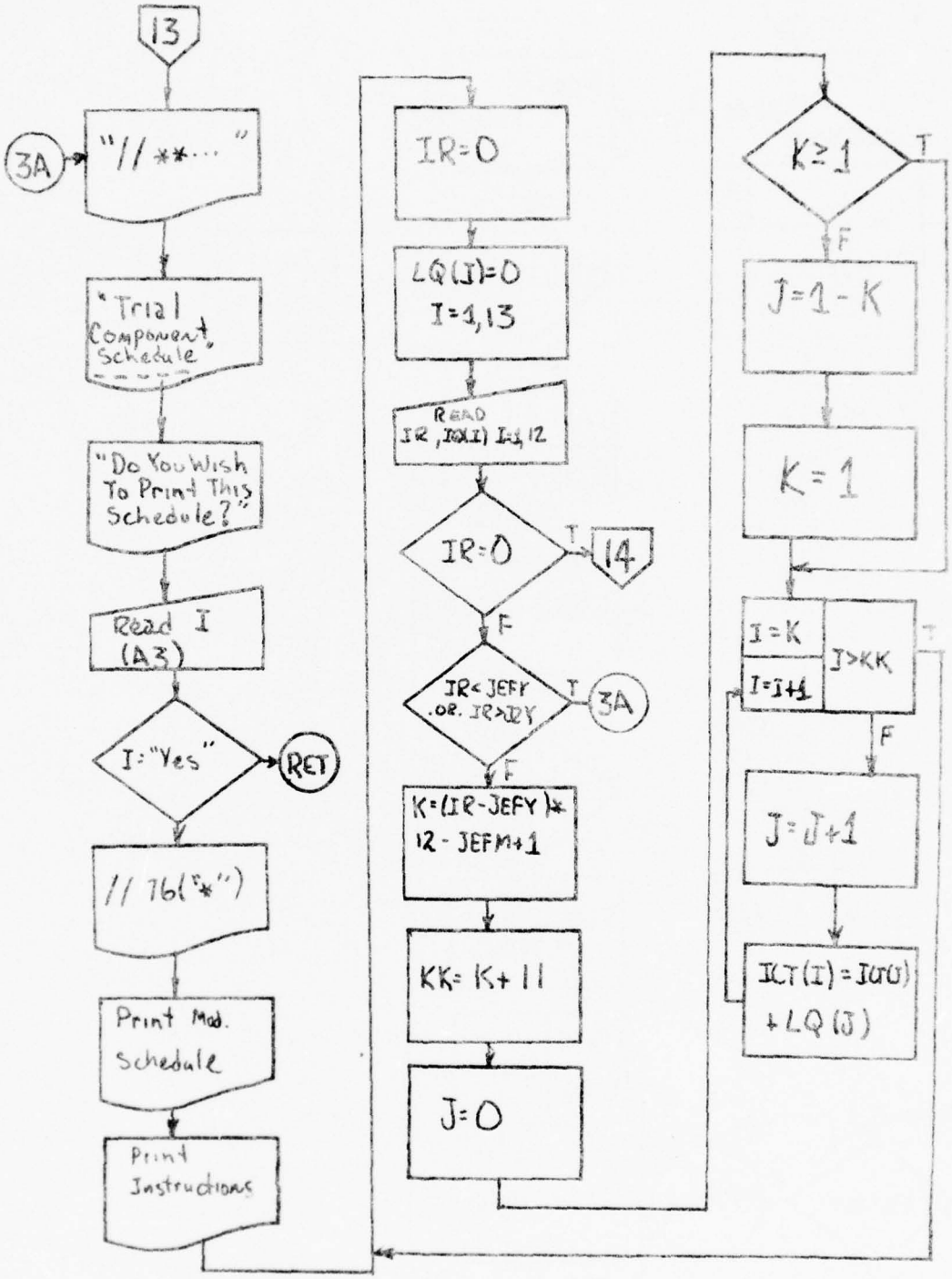

9
I=1
I=I+1
I>120
T
F
IB(I,3)=0
IB(I,4)=0
ITP(I)=0
IT=0
IBC=0
10
K>NEL
K=1
K=K+1
2A
LE(K)=99 .OR. LPU(K)=0
LL=LPU(K)
IKB=100-LL
CALL SETSCT(2,X(K))
LEP=LENO+LE(K)
LEF=LENF-LE(K)
IBD=LE(K)
Read (2,25) ITL
IT=IT+(ITL*LL+IKB)/100
LEF>0
"ERROR IN ROLLER"
CALL EXIT
Read (2) L(I), I=1,LEP ICT(I) I=1,LEF
I=1
I=I+1
I>LENO
J=I+IBD
IB(I,3)=IB(I,3)+(L(I)*LL+IKB)/100
(3)
I=1
I=I+1
I>LEP
IT=IT+(L(I)*LL+IKB)/100
I=1
I=I+1
I>IBD
IBC=IBC+(L(I)*LL+IKB)/100
I=1
I=I+1
L>LEF
J=I+LENO
IB(J,3)=IBD,3)+(ICT(I)*LL+IKB)/100
ITP(I)=ITP(I)+(ICT(I)*LL+IKB)/100

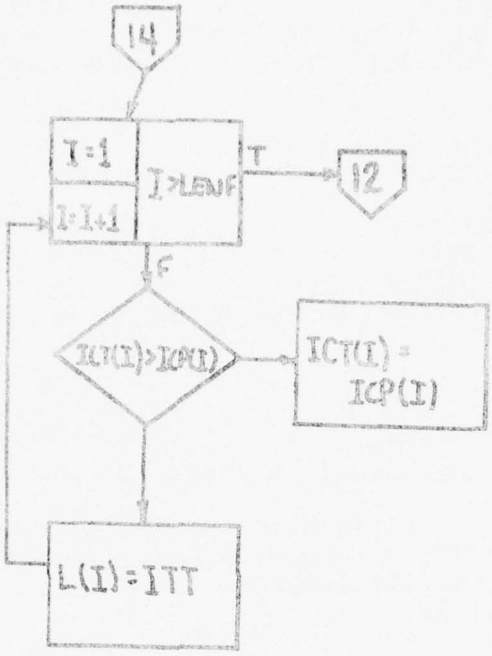

10
IS=IP-IT
I=1
I=I+1
I>LENF
T
F
IS>ITP(I)
I
F
LL(I)=ITP-IS
IS=0
IS=IS-ITP(I)
L(I)=0
I=1
I=I+1
I>LENF
T
F
ICT(I)=
ICP(I)
ITT(I)=
L(I)
Flag(9)=
.FALSE.
12

(4)




```
 15250 SUBROUTINESPLIT(IPE)
 15260C
 15270C SPLIT IS CALLED FROM THE MAIN PROGRAM
```


13
3A
"// **..."
"Trial Component Schedule"
"Do You Wish To Print This Schedule?"
Read I (A3)
I: "Yes"
RET
// 76("*")
Print Mod. Schedule
Print Instructions
IR=0
LQ(J)=0 I=1,13
READ IR, IQ(I) I=1,12
IR=0
I
14
F
IR< JEFY .OR. IR>JDY
I
3A
F
K=(IR-JEFY)* 12 - JEFM+1
KK= K+ 11
J=0
K≥1
I
F
J=1 - K
K=1
I=K
I=I+1
J>KK
T
F
J=J+1
ICT(I) = IQ(J) + LQ(J)



(7)

```
13160 SUBROUTINEROLLER2(IPE)
13170C**************FIGURES PROJECTED SCHELULE FOR EACH COMPONENT AND******
13180C*************SMOOTHS THIS SCHELULE IF DESIRED*************************
13190SRPC
13200 CALLSETSCT(3,Y(IPE))
13210 READ(3,1)IT,NUM,(L(I),I=1,IDIV1)
13220 1FORMAT(2(4X,I4),40A2)
13230 PRINT200
13240 IF(.NOT.FLAG(1))GOTO3
13250 200FORMAT(//,76("*"))
13260 PRINT2,(L(I),I=1,IDIV1)
13270 2FORMAT(//," THE CURRENT COMPONENT TO BE SMOOTHED IS: ",
13280 3/,7X,40A2)
13290 4FORMAT(/)
13300 GOTO1817
13310 3CONTINUE
13320 PRINT1817,(L(I),I=1,IDIV1)
13330 1817FORMAT(//,5X,"COMPONENT: ",40A2)
13340 PRINT4
13350C**************READS LEADTIMES AND PERCENTAGE USE FOR EACH VEHICLE*****
13360C**************FROM THE COMPONENT FILE*************************************
13370 READ(3,5)((LE(I),LPU(I)),I=1,NEL)
13380 5FORMAT(4X,12(I2,I3))
13390 IP=0
13400 DO28I=1,120
13410 28ICP(I)=0
13420C*************** ****** END ROLLER-1 ***********************************
13430C
13440C**************NUM IS THE NUMBER OF SUPPLIERS, AND THIS DO LOOP WILL****
13450C**************READ THE DATA FROM THE COMPONENT FILE*******************
13460 DO10K=1,NUM
13470C**************IT IS THE ACTUAL INITIAL FOR THIS SUPPLIER**************
13480 IF(NUM.NE.1)READ(3,6)IT
13490 6FORMAT(4X,I4)
13500C**************IP IS THE SUM ALL ACTUAL INITIAL FOR THIS COMPONENT******

13510C**************PLUS ALL PAST ACTUAL PRODUCTION FOR THIS COMPONENT******
13520 IP=IP+IT
13530C**************READ, L , THE PAST PLANNED, NOT USED HERE, AND********
13540C************** ICT , THE MAXIMUN PRODUCTION RATE FOR THIS SUPPLIER****
13550 READ(3,7)(L(I),I=1,LENO),(ICT(I),I=1,LENF)
13560 7FORMAT(4X,12I5)
13570C**************READ, L , THE PAST ACTUAL PRODUCTION FOR THIS SUPPLIER***
13580 READ(3,7)(L(I),I=1,LENO)
13590 DO8I=1,LENO
13600 8IP=IP+L(I)
13610 DO9I=1,LENF
13620C**************ICP IS THE SUM OF THE MAXIMUN PRODUCTION RATE OVER******
13630C**************ALL SUPPLIERS, MONTH BY MONTH***************************
13640 9ICP(I)=ICP(I)+ICT(I)
13650 10CONTINUE
13660C**************END ROLLER-2 ***************************************
```

```
13670C
13680 DO23I=1,120
13690 IB(I,3)=0
13700 IP(I,4)=0
13710 23ITP(I)=0
13720 IT=0
13730 IBC=0
13740 DO20K=1,NFL
13750C**************IF NEXT STATEMENT IS TRUE THEN VEHICLE DOES NOT USE*****
13760C*************THIS COMPONENT*************************************
13770 IF(LE(K).EQ.99.OR.LPU(K).EQ.0)GOTO20
13780C************* % USE ***************************************************
13790 LL=LPU(K)
13800C*************IKB IS THE ROUNDING FACTOR*****************************
13810 IKB=100-LL
13820C************** SET POINTER TO VEHICLE CONTAINING COMPONENT************
13830 CALLSETSCT(2,X(K))
13840C************* # OF MONTHS IN PAST PLUS LEAD TIME**********************
13850 LEP=LENO+LE(K)
13860C************* REMAINING MONTHS IN THE PROGRAM ************************
13870 LEF=LENF-LE(K)
13880 IBD=LE(K)
13890 READ(2,25)ITL
13900 IT=IT+(ITL*LL+IKB)/100
13910 IBC=IBC+(ITL*LL+IKB)/100
13920 25FORMAT(8X,I4)
13930 IF(LEF.GT.0)GOTO11
13940 PRINT,"ERROR IN ROLLER, LEF,K,IPE=",LEF,K,IPE
13950 CALLEXIT
13960 11CONTINUE
13970C*************MONTH BY MONTH PLANNED INCL LEAD TIME IS  L  ***  ******
13980C*************MONTH VBY MONTH PLANNED IN FUTURE IS ICT  **************
13990 READ(2,7)(L(I),I=1,LEP),(ICT(I),I=1,LEF)
14000 DO605I=1,LENO
14010 J=I+IBD
14020C*************SUM OF ALL VEH PUSHED BACK BY LEAD TIME WILL BE IP *****
14030C*************HISTORICAL LOB ***************************************
14040 IB(I,3)=IB(I,3)+(L(J)*LL+IKB)/100
14050 605CONTINUE
14060 DO21I=1,LEP
14070C*************TOTAL OF ALL VEH REQUIREMENTS IN PAST INCL LEAD TIME  II
14080 IT=II+(L(I)*LL+IKB)/100
14090 21CONTINUE
14100 DO604I=1,IBD
14110C*************VEH PLANNED BEFORE LEAD TIME  WILL BE COMPENSATED LATER*
14120C************* IS IBC ***********************************************
14130 604IBC=IBC+(L(I)*LL+IKB)/100
14140 DO22I=1,LEF
14150 J=I+LENO
14160C*************TOTAL FUTURE REQUIREMENTS LOB IS IB(*,3) AND ITP(*) ****
14170 IB(J,3)=IB(J,3)+(ICT(I)*LL+IKB)/100
14180 ITP(I)=ITP(I)+(ICT(I)*LL+IKB)/100
14190 22CONTINUE
14200 20CONTINUE
14210C********************** END ROLLER 3 ***********************************
```

```
14220C*************INITIAL SURPLUS OR DEFICIT AT 1st MONTH IN THE FUTURE*
14230C************* IS  IS  ***************************************************
14240 IS=IP-IT
14250C*************ZEROING OUT SURPLUS  IN FIRST MONTHS OF PROGRAM ********
14260 DO42I=1,LENF
14270 IF(IS.GT.ITP(I))GOTO41
14280 L(I)=ITP(I)-IS
14290 IS=0
14300 GOTO42
14310 41IS=IS-ITP(I)
14320 L(I)=0
14330 42CONTINUE
14340 DO30I=1,LENF
14350C*************MOVE THE FIRST TENTATIVE SCHEDULE TO IB(*,4)***********
14360 ICI(I)=ICP(I)
14370C*************ITT AND L IS THE REQUIREMENTS SCHEDULE ****************
14380 30ITT(I)=L(I)
14390 FLAG(9)=.FALSE.
14400C*****************END ROLLER 4 ***********************************
14410C
14420C
14430 107CONTINUE
14440C
14450C
14460C*************FIRST WE COMPARE THE MAX PRO SCH TO THE REQUIRED PRO SCH
14470C*************FROM LAST MONTH TO FIRST*****************************
14480 DO50KK=1,LN
14490 K=LP-KK
14500C*************MAX PROD GREATER THAN REQUIRED ************************
14510 IF(ICT(K).GE.L(K))GOTO50
14520 J=K-1
14530C*************ADD DEFICIT TO PREVIOUS MONTH*************************
14540 L(J)=L(J)+L(K)-ICT(K)
14550C*************SET PROD TO MAX ***************************************
14560 L(K)=ICT(K)
14570 50CONTINUE
14580 FLAG(10)=.TRUE.
14590C************* IF REQUIRED FOR 1st MONTH IN FUTURE IS GREATER THAN****
14600C*************MAX PRODUCTION SCHEDULE  THEN SCHEDULE IS BAD**********
14610 IF(L(1).GT.ICT(1))CALLBAD
14620C*************START OF SMOOTHING ROUTINE L(*) CONTAINS A TENTATIVE PRO
14630C*************SCHEDULE*********************************************
14640 DO51I=1,12
14650 LQ(I)=88888
14660 51CONTINUE
14670 IF(FLAG(9))GOTO602
14680 FLAG(9)=.TRUE.
14690 DO601I=LENI,LEN
14700 J=I-LENO
14710 601IB(I,4)=L(J)
14720 602CONTINUE
14730C*************RETURN OF NO SMOOTHING IS TO BE DONE*****************
14740 IF(.NOT.FLAG(1))RETURN
14750C*****************END OF ROLLER 5 ***********************************
```

```
14760 PRINT200,
14770 PRINT58
14780 58FORMAT(//,10X,"TRIAL COMPONENT SCHEDULE:")
14790C************WRITE TRIAL PRODUCTION SCHEDULE ************************
14800 PRINT52,JEFY,(LQ(I),I=1,JEFM),(L(I),I=1,LENF)
14810 52FORMAT(10X,"THE FIRST YEAR IS: 19",I2,///,13X,
14820&"J    F    M    A    M    J    J    A    S    O    N    D",
14830&//,10(10X,12I5,/))
14840 PRINT53,
14850 53FORMAT(//)
14860 PRINT,"DO YOU WISH TO PRINT THIS COMPONENT, YES OR NO."
14870 READ54,I
14880 54FORMAT(A3)
14890C************RETURN IF SCHEDULE IS GOOD ****************************
14900 IF(I.EQ."YES")RETURN
14910 110CONTINUE
14920 PRINT200
14930 PRINT59
14940 59FORMAT(//,10X,"MODIFIED MAXIMUN PRODUCTION SCHEDULE:",/)
14950 PRINT52,JEFY,(LQ(I),I=1,JEFM),(ICT(I),I=1,LENF)
14960 PRINT,"TYPE IN RELATIVE CHANGES TO THE SCHEDULE IN THE FOLLOWING"
14970 PRINT,"FORMAT    YY,J,F,M,...,N,D  ."
14980 PRINT,"CARRAIGE RETURN AFTER LAST CHANGE"
14990 108CONTINUE
15000 IR=0
15010 DO60I=1,13
15020 60LQ(I)=0
15030C************READ CHANGES TO MAX PROD SCHEDULE ***********************
15040C************  IR IS THE YEAR THE CHANGES ARE TO BE MADE TO *********
15050 READ,IR,(LQ(I),I=1,12)
15060 IF(IR.EQ.0)GOTO109
15070 IF(IR.LT.JEFY.OR.IR.GT.J2Y)GOTO110
15080C************K IS THE 1st WHERE CHANGES OCCUR ************************
15090 K=(IR-JEFY)*12-JEFM+1
15100C************ KK IS THE LAST MONTH  WHERE CHANGES OCCUR ***************
15110 KK=K+11
15120 J=0
15130 IF(K.GE.1)GOTO61
15140 J=1-K
15150 K=1
15160 61CONTINUE
15170C************CHANGE MAX PROD SCHEDULE +*******************************
15180 DO64I=K,KK
15190 J=J+1
15200 ICT(I)=ICT(I)+LQ(J)
15210 64CONTINUE
15220 GOTO108
15230 109CONTINUE
15240C**********************END ROLLER 6 ********************************
15250C************CHECK TO SEE IF NEW MAX PROD SCHEDULE IS ABOVE LIMIT ***
15260 DO70I=1,LENF
15270 IF(ICT(I).GT.ICP(I))ICT(I)=ICP(I)
15280 70L(I)=ITT(I)
15290 GOTO107
15300 RETURN
15310 END
```

BAD (Error Routine)

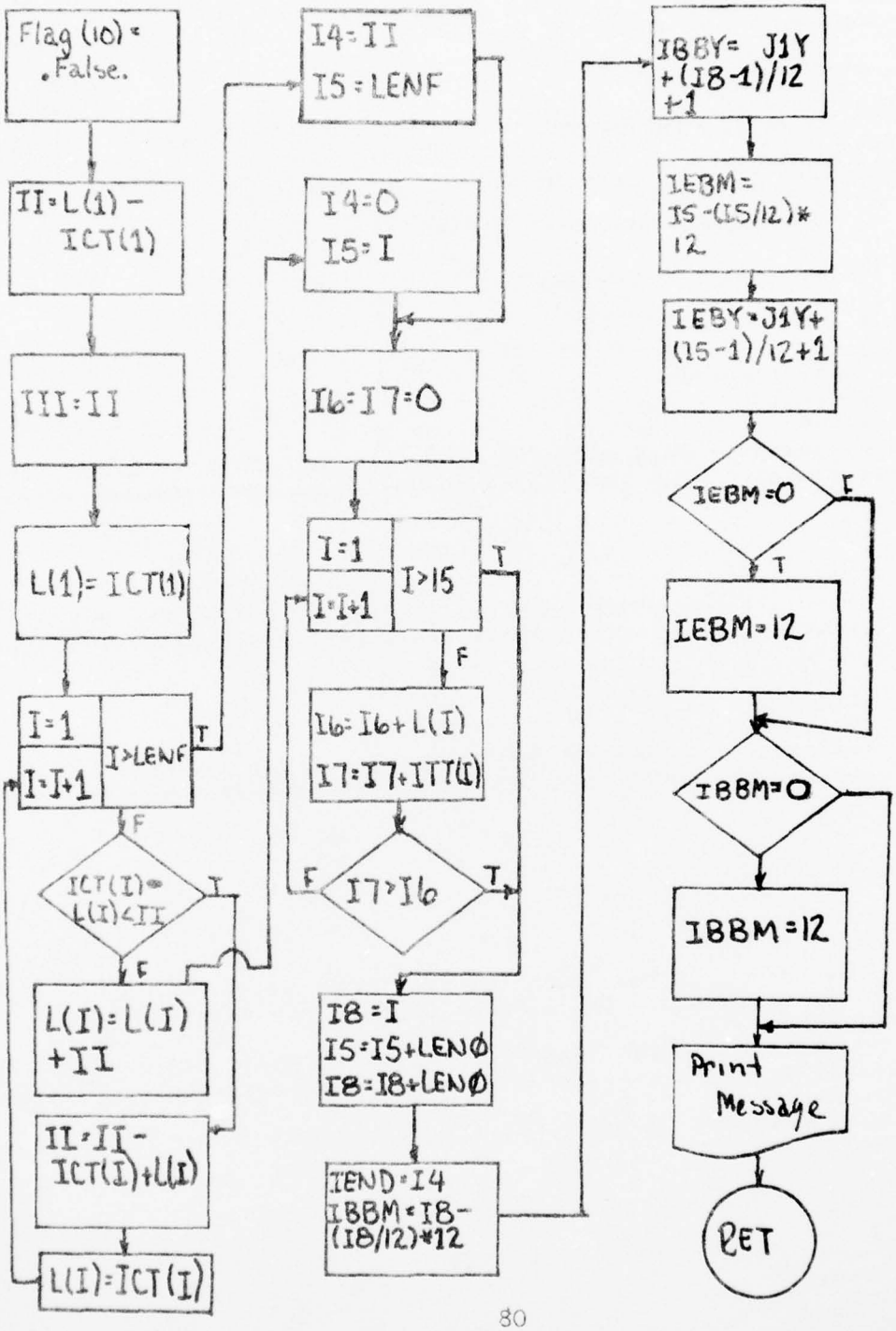
Subroutine BAD is called from subroutine ROLLER, if the trial schedule does not meet the production requirements. The printout from subroutine BAD is:

```
BAD SCHEDULE

IT GOES BAD ON 4/76
AND IT RECOVERS ON  8/78

YOU MUST ADD AT LEAST  488 UNITS EARLY IN THE SCHEDULE
UNRECOVERABLE SHORTFALL OF  108 UNITS
```

NOTES:

1. The first month the schedule goes bad, at least some units must be added before this date, in order to make the schedule good again.
2. The last bad month in the schedule. In this case, it is the last month.
3. The number of units you would need to have stockpiled at the first month in the future to have a good schedule.
4. Total shortfall at the end of the program.

Subroutine DAU



```
      SUBROUTINEBAD
C*************THIS SUBROUTINE CALLED FROM ROLLER IF A TENTATIVE ******
C*************SCHEDULE IS BAD IT DETERMINES WHEN THE SCHEDULE WENT BAD
C*************AND WHEN, IF IT DOES, CATCH UP AGAIN **********************
$RPC
      FLAG(10)=.FALSE.
      II=L(1)-ICT(1)
C*************II IS THE TOTAL PERDICTED SHORTFALL **********************
      III=II
C************** SETS L(I) TO THE MAX PROD RATE ***************************
      L(1)=ICI(1)
C*************THIS DO-LOOP DISTRIBUTS THE SHORTFALL  INTO THE FUTURE***
      DO21I=1,LENF
      IF(ICT(I)-L(I).LT.II)GOTO3
      L(I)=L(I)+II
      GOTO4
3     CONTINUE
      II=II-ICT(I)+L(I)
      L(I)=ICT(I)
2     CONTINUE
C*************IN THIS CASE THE LINE WILL NOT CATCH UP BEFORE THE END**
C*************OF THE PROGRAM*****************************************
      I4=II
      I5=LENF
      GOTO6
4     CONTINUE
C************** THE SHORTFALL WILL BE MADE UP IN THE Ith MONTH IN THE**
C*************FUTURE*************************************************
      I4=0
      I5=I
6     CONTINUE
      I6=I7=0
C*************THIS DO-LOOP DETERMINES THE FIRST MONTH WHERE THE ******
C*************SCHEDULE GOES BAD ******************************************
      DO7I=1,I5
      I6=I6+L(I)
      I7=I7+ITT(I)
      IF(I7.GT.I6)GOTO8
7     CONTINUE
8     CONTINUE
      I8=I
C*************I5 IS THE NUMBER OF MONTHS TO WHERE THE SCHEDULE RETURNS
C*************TO ABOVE THE LINE OF BALENCE ******************************
      I5=I5+LENO
C*************I8 IS THE NUMBER OF MONTHS TO WHERE THE SCHEDULE GOES **
C*************BAD ****************************************************
      I8=I8+LENO
C*************IEND IS THE SHORTFALL AT THE END OF THE PROGRAM********
      IEND=I4
```

```
15810 IBBM=I8-(I8/12)*12
15820 IBBY=JIY+(I8-1)/12+1
15830 IEBM=I5-(I5/12)*12
15840 IEBY=JIY+(I5-1)/12+1
15850 IF(IEBM.EQ.0)IEBM=12
15860 IF(IBBM.EQ.0)IBBM=12
15870 PRINT11,IBBM,IBBY,IEBM,IEBY,III,I4
15880 11FORMAT(//,10X,"BAD SCHEDULE",//,10X,"IT GOES BAD ON",I3,"/",I2,
15890&/,10X,"AND IT RECOVERS ON",I3,"/",I2,//,10X,"YOU MUST ADD AT LEAST",
15900&I5," UNITS EARLY IN THE SCHEDULE",/,10X,
15910&"UNRECOVERABLE SHORTFALL OF",I5," UNITS",//)
15920 RETURN
15930 END
15940C********** END OF BAD ********************************************
```

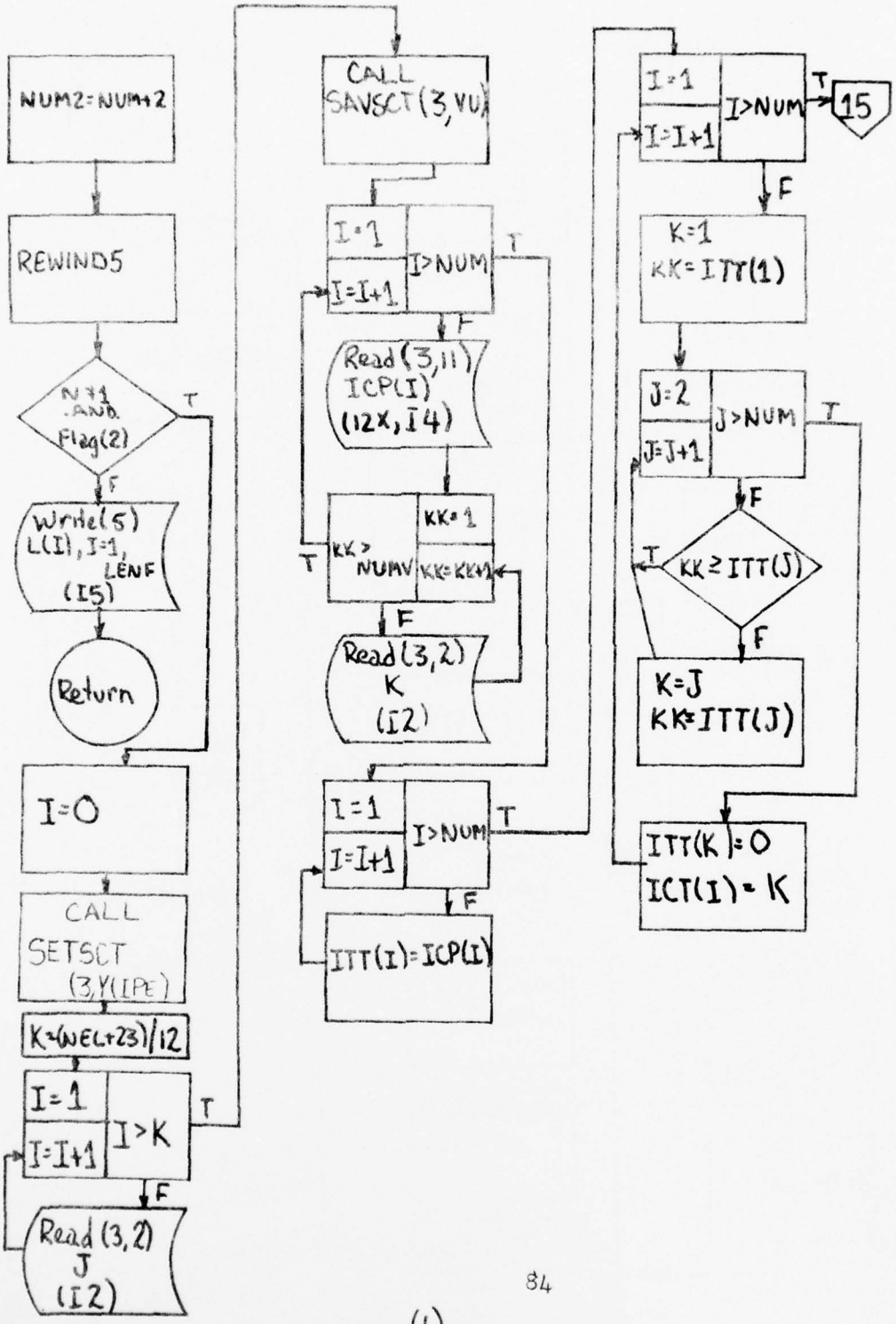
SPLIT (Splitting Routine)

Subroutine SPLIT is called from the main program. Its function is to split, in the case when there is more than one supplier, the output schedule from ROLLER into the amounts for each supplier. The only printed output this subroutine produces is:

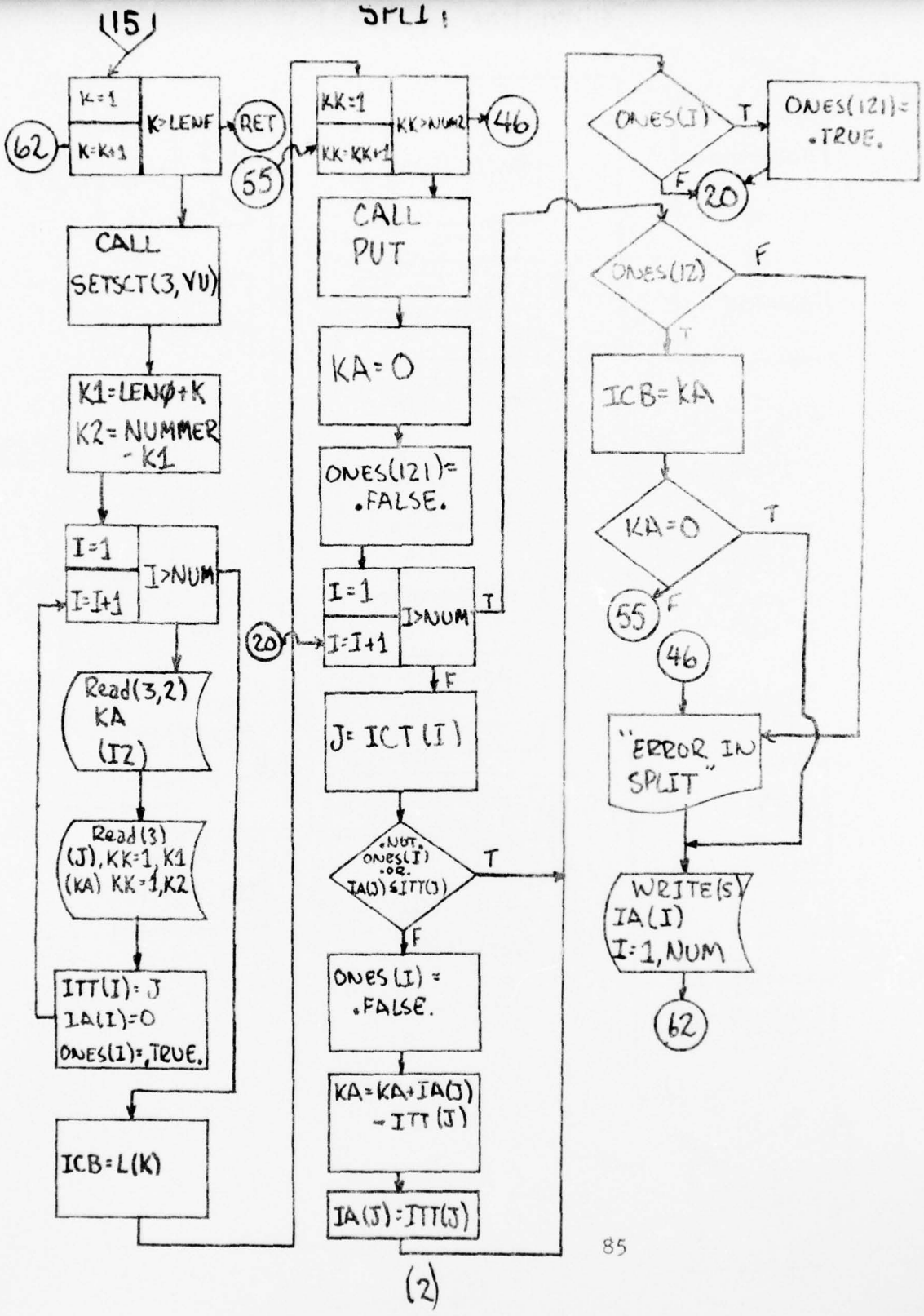
```
ERROR IN SPLIT K=   46
```

where K is the month in the future that cannot be successfully split. However, this message will not appear, unless there is an error in the program.

Subroutine JPLI1



(1)


(15)
SPLIT:
K=1
K=K+1
K>LENF
RET
(62)
CALL SETSCT(3,VU)
K1=LENØ+K
K2=NUMMER -K1
I=1
I=I+1
I>NUM
Read(3,2) KA (I2)
Read(3) (J),KK=1,K1 (KA) KK=1,K2
ITT(I)=J
IA(I)=0
ONES(I)=.TRUE.
ICB=L(K)
(55)
KK=1
KK=KK+1
KK>NUM2
(46)
CALL PUT
KA=0
ONES(121)= .FALSE.
(20)
I=1
I=I+1
I>NUM
T
F
J=ICT(I)
.NOT. ONES(I) .OR. IA(J)≤ITT(J)
T
F
ONES(I)= .FALSE.
KA=KA+IA(J) -ITT(J)
IA(J)=ITT(J)
(2)
ONES(I)
T
ONES(121)= .TRUE.
F
(20)
ONES(12)
F
T
ICB=KA
KA=0
T
(55)
F
(46)
"ERROR IN SPLIT"
WRITE(5) IA(I) I=1,NUM
(62)

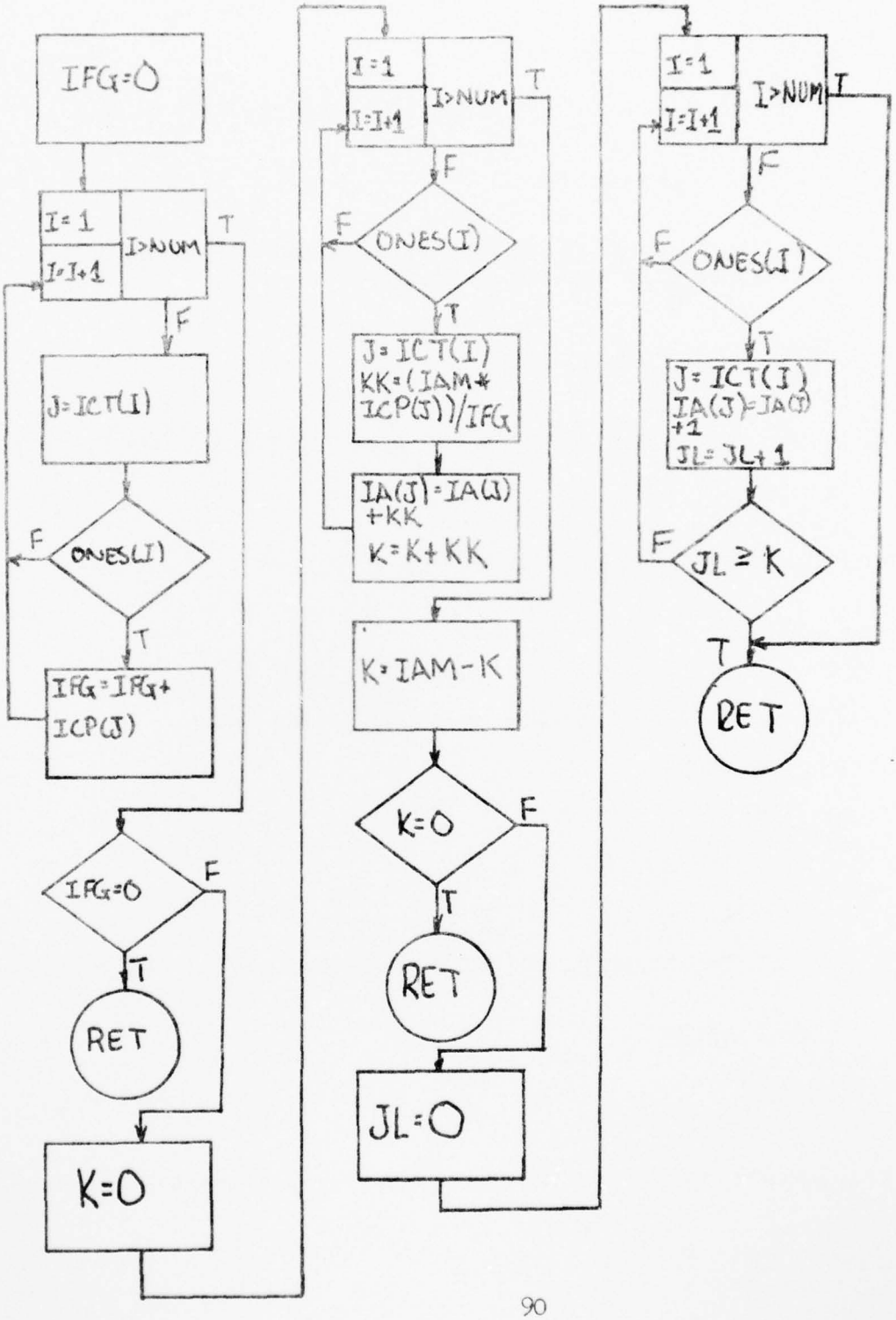
```
15950 SUBROUTINESPLIT(IPE)
15960C
15970C SPLIT IS CALLED FROM THE MAIN PROGRAM
15980C
15990SRPC
16000 NUM2=NUM+2
16010 REWIND5
16020 IF(NUM.NE.1.AND.FLAG(2))GOTO1
16030C
16040C NUM IS THE NUMBER OF SUPPLIERS AND FLAG(2) IS FOR COMPLETE OUTPUT
16050C
16060 WRITE(5,161)(L(I),I=1,LENF)
16070 161FORMAT(I5)
16080 16FORMAT(12I5)
16090 RETURN
16100 1CONTINUE
16110 I=0
16120 8CONTINUE
16130 CALLSETSCT(3,Y(IPE))
16140 K=(NEL+23)/12
16150 D04I=1,K
16160 2FORMAT(I2)
16170 4READ(3,2)J
16180 CALLSAVSCT(3,VU)
16190C
16200C SET POINTER VU TO FIRST SUPPLIER
16210C
16220 D01OI=1,NUM
16230C
16240C THIS DO LOOP READS THE % SPLIT FOR EACH SUPPLIER
16250C
16260 READ(3,11)ICP(I)
16270 11FORMAT(12X,I4)
16280 D01OKK=1,NUMV
16290 READ(3,2)K
16300 10CONTINUE
16310 D015I=1,NUM
16320 ITT(I)=ICP(I)
16330 15CONTINUE
16340 D020I=1,NUM
16350C
16360C THIS DO LOOP DETERMINES THE  % SPLIT RANK ORDER
16370C
16380 K=1
16390 KK=ITT(I)
```

```
16400 DO21J=2,NUM
16410C
16420C THIS DO LOOP DETERMINES THE MAXIMUN % SPLIT OF THOSE THAT ARE LEFT
16430C
16440 IF(KK.GE.ITT(J))GOTO21
16450 K=J
16460 KK=ITT(J)
16470 21CONTINUE
16480 ITT(K)=0
16490C
16500C ICT(I) IS THE NUMBER OF THE SUPPLIER WITH THE HIGHEST % SPLIT
16510C
16520 ICT(I)=K
16530 20CONTINUE
16540C**********END OF SPLIT-1**********
16550 DO40K=1,LENF
16560 CALLSETSCT(3,VU)
16570C
16580C K1 IS THE MONTH IN THE PROGRAM TO BE SPLIT
16590C
16600 K1=LEN0+K
16610 K2=NUMMER-K1
16620 DO41I=1,NUM
16630 READ(3,2)KA
16640C
16650C THE NEXT STATEMENT READS THE Ith SUPPLIERS K1th MONTH INTO J
16660C THE LAST IMPLIED DO LOOP ((KA),KK=1,K2) READS THE REMAINING MONTHS
16670C
16680 READ(3,42)((J),KK=1,K1),((KA),KK=1,K2)
16690 ITT(I)=J
16700C ICT(I) CONTAINS THE NUMBER OF THE Ith PRIORTY SUPPLIERS NUMBER
16710C
16720 IA(I)=0
16730 ONES(I)=.TRUE.
16740 41CONTINUE
16750 42FORMAT(4X,1215)
16760C
16770C  L(K)  IS THE TOTAL SCHEDULE FOR THE MONTH WE ARE WORKING WITH
16780C
16790 ICB=L(K)
16800 DO45KK=1,NUM2
16810 CALLPUT(ICB)
16820 KA=0
16830 ONES(121)=.FALSE.
16840 DO46I=1,NUM
16850C
16860 J=ICT(I)
```

```
16870 IF(.NOT.ONES(I).OR.IA(J).LE.ITT(J))GOTO43
16880C
16890C THIS BRANCH IS TAKEN IF THE FIRST TIME IA(I) IS OVER THE MAXIMUN
16900C PRODUCTION RATE
16910C
16920 ONES(I)=.FALSE.
16930C
16940C KA IS THE AMOUNT  OVER MAX PRODUCTION SCHEDULE FOR ALL SUPPLIERS
16950C
16960 KA=KA+IA(J)-ITT(J)
16970C
16980C IA(J) IS SET TO MAXIMUN PRODUCTON RATE ITT(J)
16990C
17000 IA(J)=ITT(J)
17010 43CONTINUE
17020C
17030C SET ONES(121) TO  .TRUE.  IT AT LEAST ONE SUPPLIER IS STILL GOOD
17040C
17050 IF(ONES(I))ONES(121)=.TRUE.
17060 48CONTINUE
17070 IF(.NOT.ONES(121))GOTO46
17080 ICB=KA
17090 IF(KA.EQ.0)GOTO50
17100 45CONTINUE
17110 46CONTINUE
17120 PRINT,"ERROR IN SPLIT, K=",K
17130 50CONTINUE
17140C
17150C WRITE OUT SPLIT PRODUCTION SCHEDULE FOR THE  Kth MONTH
17160C
17170 WRITE(5,16)(IA(I),I=1,NUM)
17180 40CONTINUE
17190 RETURN
17200 END
17210C**********END OF SPLIT-2**********
```

Subroutine PUT is called from subroutine SPLIT. Its purpose is to split a given month's production among the suppliers subject to certain constraints put upon it by subroutine SPLIT. It provides no output.

Subroutine PUT



```
17220 SUBROUTINEPUT(IAM)
17230$RPC
17240 IFG=0
17250 DO1I=1,NUM
17260C
17270C J  IS THE NUMBER OF THE SUPPLIER WITH Ith PRIORITY
17280C
17290 J=ICT(I)
17300 IF(ONES(I))IFG=IFG+ICP(J)
17310 1CONTINUE
17320C
17330C IFG  TOTAL OF ALL SPLIT PERCENTAGES THAT ARE STILL ACTIVE
17340C IF IFG IS ZERO THEN YOU HAVE AN ERROR
17350 IF(IFG.EQ.0)RETURN
17360 K=0
17370 DO2I=1,NUM
17380 IF(.NOT.ONES(I))GOTO2
17390 J=ICT(I)
17400C
17410C KK IS THE TENTATIVE AMOUNT TO BE ADDED TO THE Jth SUPPLIERS AMOUNT
17420C
17430 KK=(IAM*ICP(J))/IFG
17440 IA(J)=IA(J)+KK
17450C
17460C K  IS THE TOTAL AMOUNT GIVEN TO ALL SUPPLIERS
17470C
17480 K=K+KK
17490 2CONTINUE
17500 K=IAM-K
17510C
17520C IF K EQUAL TO ZERO THEN ALL UNITS ARE GIVEN OUT
17530C
17540 IF(K.EQ.0)RETURN
17550 JL=0
17560 124CONTINUE
17570 DO3I=1,NUM
17580 IF(.NOT.ONES(I))GOTO3
17590 J=ICT(I)
17600 IA(J)=IA(J)+1
17610C
17620C JL  IS THE TOTAL AMOUNT OF UNITS GIVEN OUT IN THIS DO LOOP
17630C
17640 JL=JL+1
17650 IF (JL.GE.K)RETURN
17660 3CONTINUE
17670 GOTO124
17680 4CONTINUE
17690 RETURN
17700 END
17710C**********END OF SUBROUTINE PUT **********
```

AD-A040 680 ARMY TANK AUTOMOTIVE RESEARCH AND DEVELOPMENT COMMAND--ETC F/G 9/2
M60 TANK PRODUCTION PIANO ROLL USER'S GUIDE.(U)
FEB 77 C C JOHN

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2 OF 3
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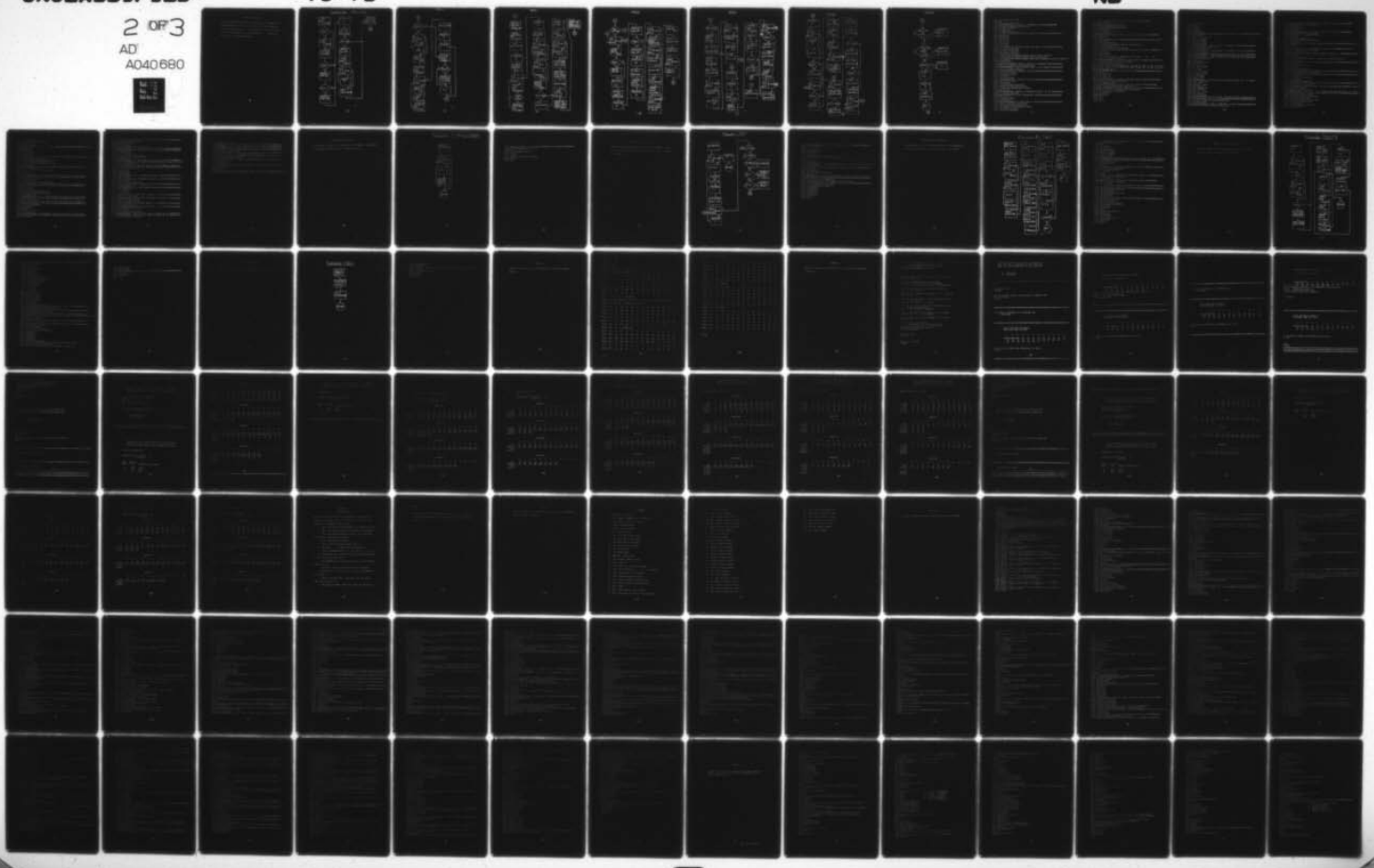
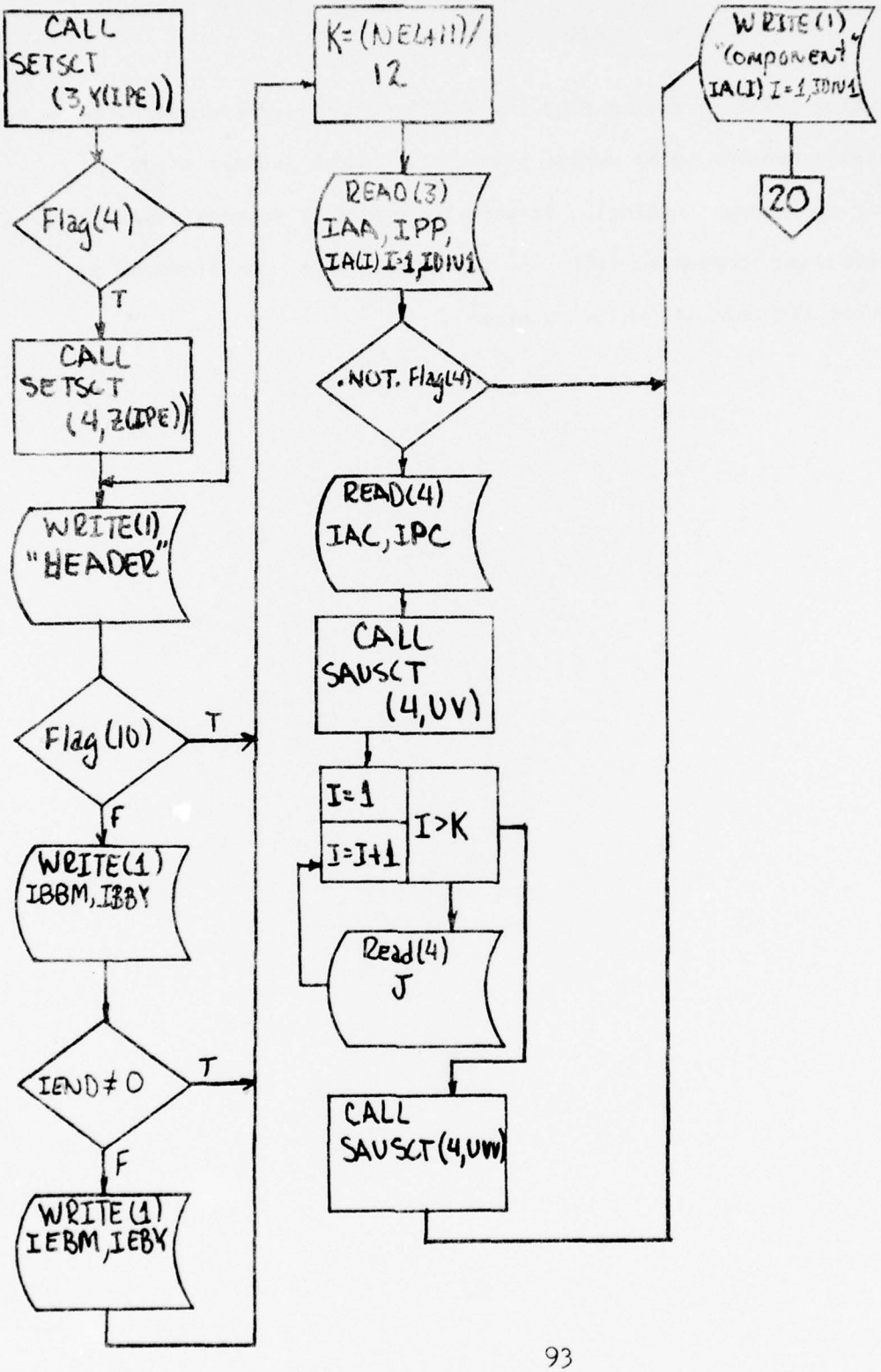
A040680



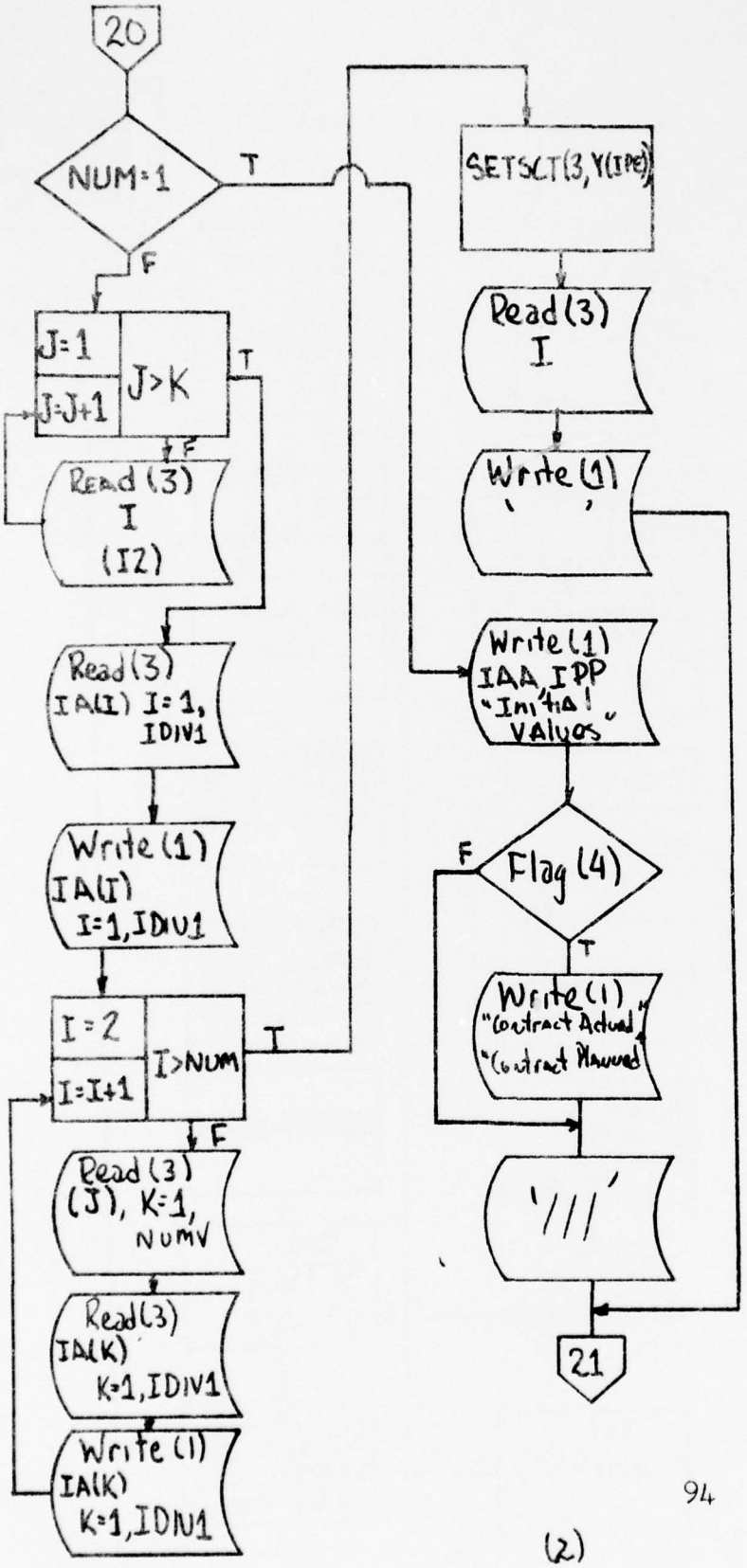
PRINT (Print Routine)

Subroutine PRINT is called from the main program, and transfers the computed schedules to an output print file (to be printed after the program is through running). It also incorporates various other data from its input component file into the output file. It produces no output on the terminal while running.

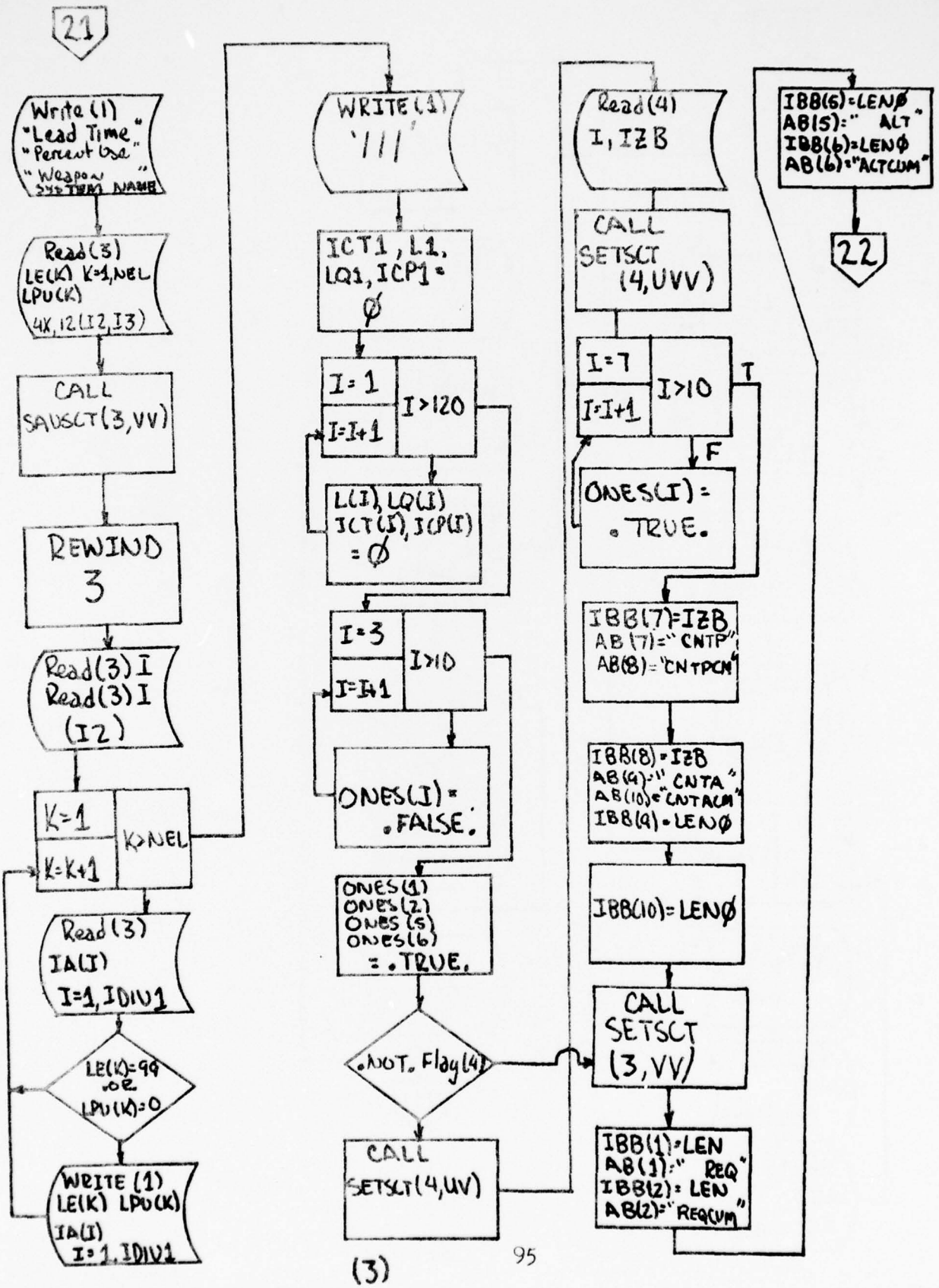
Subroutine PRINT



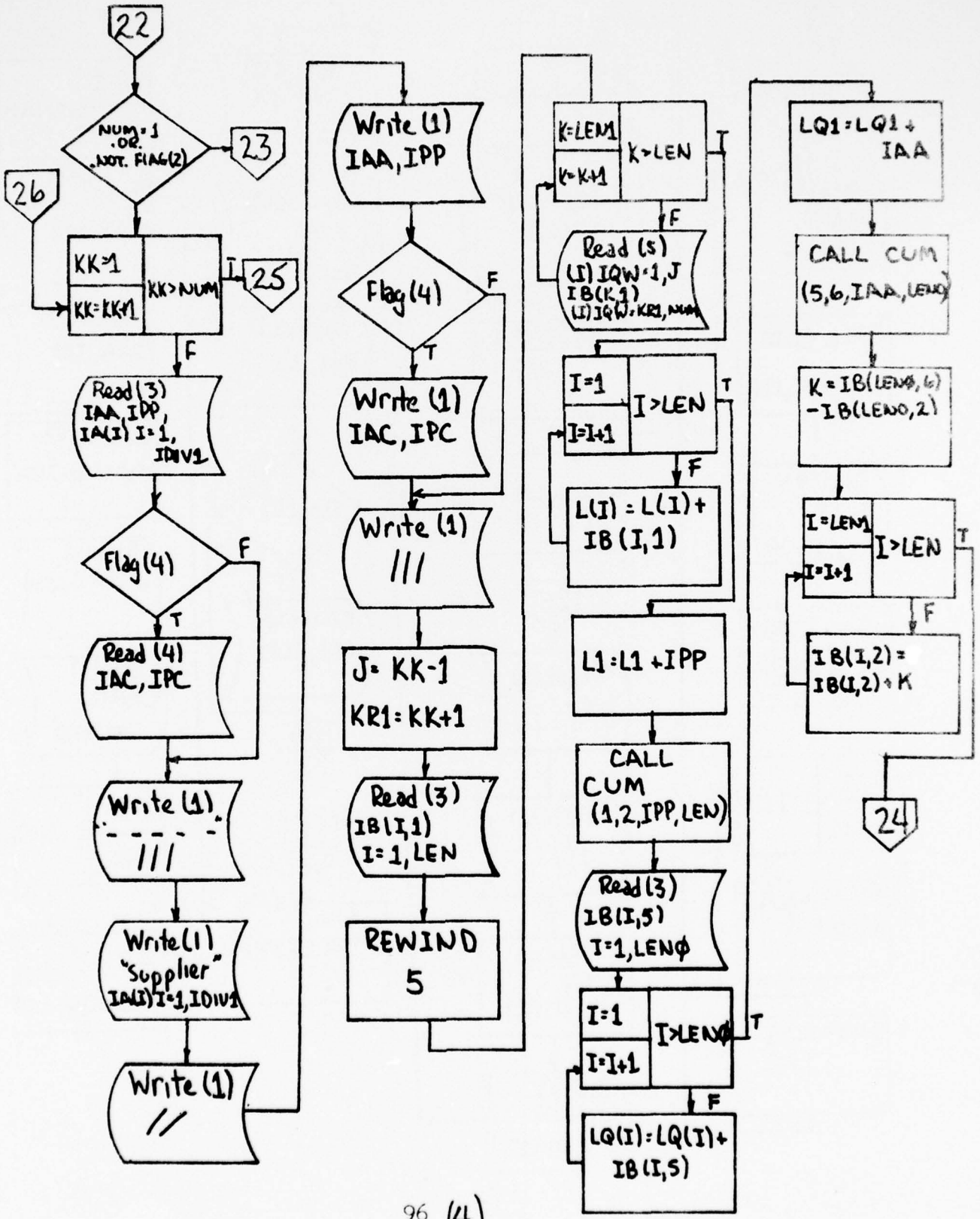
(1)


20
NUM=1
T
F
SETSLCT(3,Y(IPE))
Read(3)
I
Write(1)
J=1
J=J+1
J>K
T
F
Read(3)
I
(I2)
Read(3)
IA(I) I=1,
IDIV1
Write(1)
IAA, IPP
"Initial
Values"
Write(1)
IA(I)
I=1,IDIV1
F
Flag(4)
T
Write(1)
"Contract Actual"
"Contract Planned"
I=2
I=I+1
I>NUM
T
F
'///'
Read(3)
(J), K=1,
NUMV
Read(3)
IA(K)
K=1,IDIV1
Write(1)
IA(K)
K=1,IDIV1
21

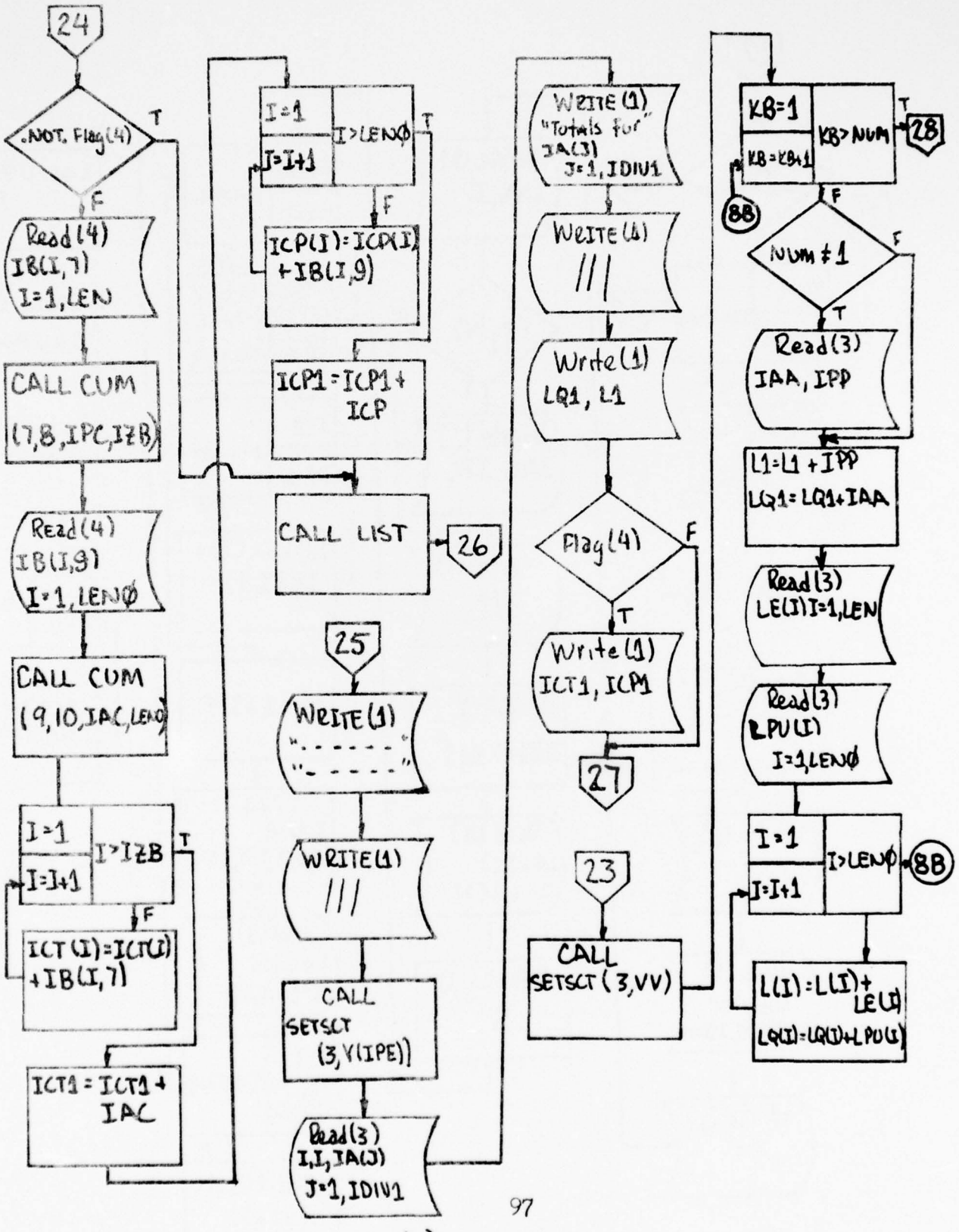
PRINT


21
Write (1)
"Lead Time"
"Percent Use"
"Weapon System NAME"
Read (3)
LE(K) K=1,NEL
LPU(K)
4X,12(I2,I3)
CALL
SAUSCT(3,VV)
REWIND
3
Read(3) I
Read(3) I
(I2)
K=1
K=K+1
K>NEL
Read(3)
IA(I)
I=1,IDIV1
LE(K)=99
.OR.
LPU(K)=0
WRITE (1)
LE(K) LPU(K)
IA(I)
I=1,IDIV1
WRITE(1)
'1I'
ICT1, L1,
LQ1, ICP1 =
Ø
I=1
I=I+1
I>120
L(I), LQ(I)
ICT(I), ICP(I)
=Ø
I=3
I=I+1
I>10
ONES(I) =
.FALSE.
ONES(1)
ONES(2)
ONES(5)
ONES(6)
= .TRUE.
.NOT. Flag(4)
CALL
SETSCT(4,UV)
Read(4)
I, IZB
CALL
SETSCT
(4,UVV)
I=7
I=I+1
I>10
I
F
ONES(I) =
.TRUE.
IBB(7)=IZB
AB(7)=" CNTP"
AB(8)="CNTPCM"
IBB(8)=IZB
AB(9)=" CNTA"
AB(10)="CNTACM"
IBB(9)=LENØ
IBB(10)=LENØ
CALL
SETSCT
(3,VV)
IBB(1)=LEN
AB(1)=" REQ"
IBB(2)=LEN
AB(2)="REQCUM"
IBB(6)=LENØ
AB(5)=" ALT"
IBB(6)=LENØ
AB(6)="ALTCUM"
22
(3)

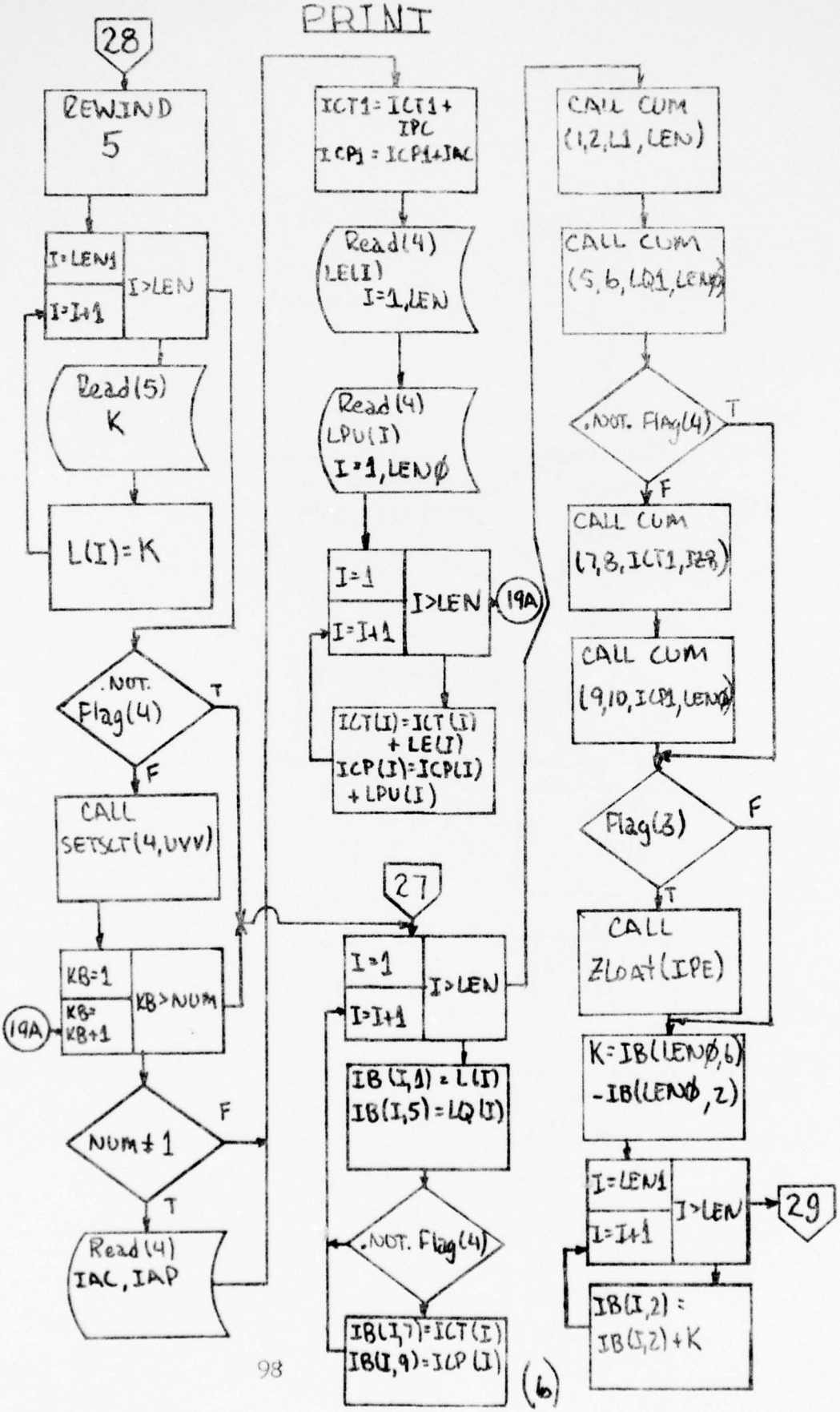
PRINT


22
NUM=1 .OR. .NOT. FLAG(2)
23
26
KK=1
KK=KK+1
KK>NUM
I
25
F
Read (3) IAA, IPP, IA(I) I=1, IDIV1
Flag (4)
F
T
Read (4) IAC, IPC
Write (1) - - - - -
///
Write (1) "Supplier" IA(I) I=1, IDIV1
Write (1) //
Write (1) IAA, IPP
Flag (4)
F
T
Write (1) IAC, IPC
Write (1)
///
J= KK-1
KR1= KK+1
Read (3) IB(I,1) I=1, LEN
REWIND 5
K=LEN1
K=K+1
K>LEN
I
F
Read (5) (I) IQW=1, J IB(K,1) (I) IQW=KR1, NUM
I=1
I=I+1
I>LEN
T
F
L(I) = L(I) + IB(I,1)
L1=L1+IPP
CALL CUM (1,2,IPP,LEN)
Read (3) IB(I,5) I=1, LEN0
I=1
I=I+1
I>LEN0
T
F
LQ(I)=LQ(I)+ IB(I,5)
LQ1=LQ1+ IAA
CALL CUM (5,6,IAA,LEN0)
K=IB(LEN0,6) -IB(LEN0,2)
I=LEN1
I=I+1
I>LEN
T
F
IB(I,2)= IB(I,2)+K
24

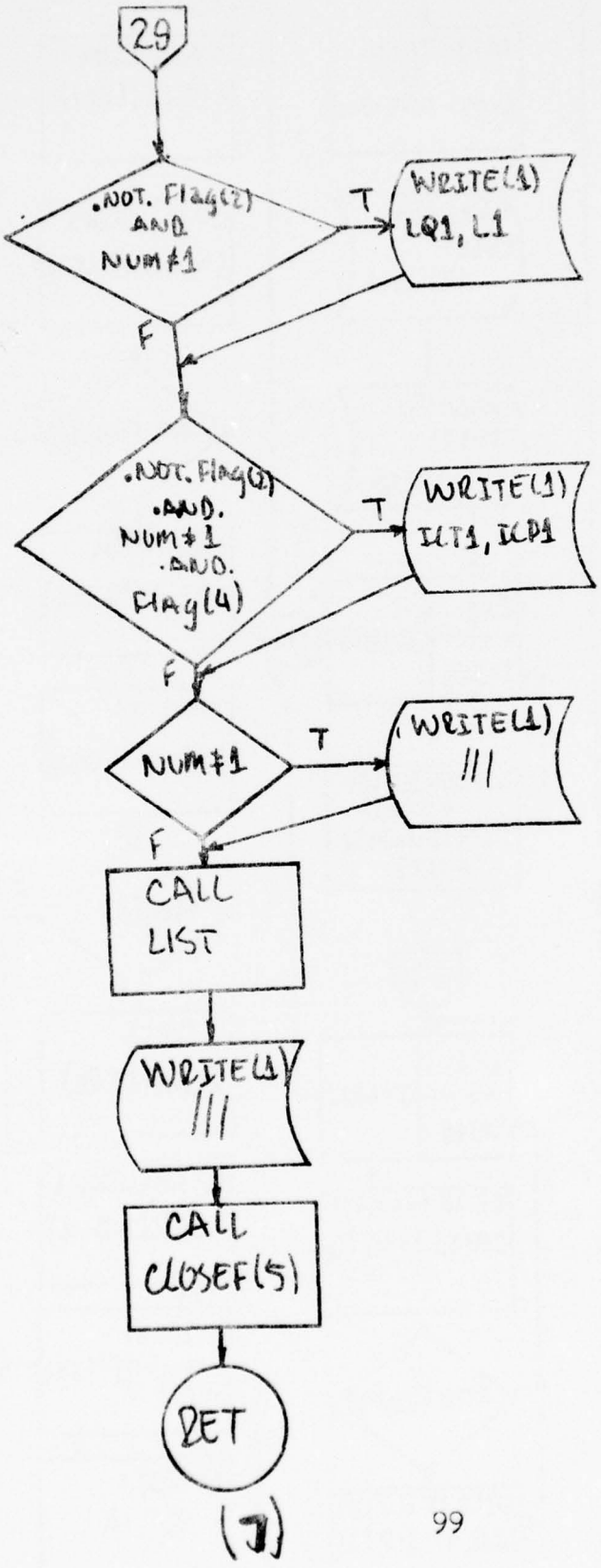
PRINT


24
.NOT. Flag(4)
T
F
Read(4)
IB(I,7)
I=1,LEN
CALL CUM
(7,8,IPC,IZB)
Read(4)
IB(I,9)
I=1,LEN∅
CALL CUM
(9,10,IAC,LEN∅)
I=1
I=I+1
I>IZB
T
F
ICT(I)=ICT(I)
+IB(I,7)
ICT1=ICT1+
IAC
I=1
J=I+1
I>LEN∅
T
F
ICP(I)=ICP(I)
+IB(I,9)
ICP1=ICP1+
ICP
CALL LIST
26
25
WRITE(1)
"- - - - - -"
"- - - - -"
WRITE(1)
///
CALL
SETSCT
(3,V(IPE))
Read(3)
I,I,IA(J)
J=1,IDIV1
WRITE(1)
"Totals for"
IA(J)
J=1,IDIV1
WRITE(1)
///
Write(1)
LQ1, L1
Flag(4)
F
T
Write(1)
ICT1, ICP1
27
23
CALL
SETSCT(3,VV)
KB=1
KB=KB+1
KB>NUM
T
28
88
F
NUM≠1
F
T
Read(3)
IAA, IPP
L1=L1+IPP
LQ1=LQ1+IAA
Read(3)
LE(I) I=1,LEN
Read(3)
LPU(I)
I=1,LEN∅
I=1
I=I+1
I>LEN∅
8B
L(I)=L(I)+
LE(I)
LQ(I)=LQ(I)+LPU(I)

PRINT


28
REWIND 5
I=LEN1
I=I+1
I>LEN
Read(5) K
L(I)=K
.NOT. Flag(4)
T
F
CALL SETSLT(4,UVV)
KB=1
KB=KB+1
KB>NUM
19A
NUM ± 1
F
T
Read(4) IAC, IAP
ICT1=ICT1+IPC
ICP1=ICP1+IAC
Read(4) LE(I) I=1,LEN
Read(4) LPU(I) I=1,LEN∅
I=1
I=I+1
I>LEN
19A
ICT(I)=ICT(I)+LE(I)
ICP(I)=ICP(I)+LPU(I)
27
I=1
I=I+1
I>LEN
IB(I,1)=L(I)
IB(I,5)=LQ(I)
.NOT. Flag(4)
IB(I,7)=ICT(I)
IB(I,9)=ICP(I)
(6)
CALL COM (1,2,L1,LEN)
CALL COM (5,6,LQ1,LEN)
.NOT. Flag(4)
T
F
CALL COM (7,8,ICT1,IP8)
CALL COM (9,10,ICP1,LEN∅)
Flag(3)
F
T
CALL ZLOAT(IPE)
K=IB(LEN∅,6)-IB(LEN∅,2)
I=LEN1
I=I+1
I>LEN
29
IB(I,2)=IB(I,2)+K

PRINT


29
.NOT. Flag(2)
AND
NUM≠1
T
WRITE(1)
LQ1, L1
F
.NOT. Flag(3)
.AND.
NUM≠1
.AND.
Flag(4)
T
WRITE(1)
ILT1, ICP1
F
NUM≠1
T
WRITE(1)
///
F
CALL
LIST
WRITE(1)
///
CALL
CLOSEF(5)
RET

(J)

```
17720 SUBROUTINEPRINT(IPE)
17730$RPC
17740 CALLSETSCT(3,Y(IPE))
17750C*************SET POINTER TO CONTRACT FILE***************
17760 IF(FLAG(4))CALLSETSCT(4,Z(IPE))
17770 2FORMAT(76("*"))
17780 3FORMAT(///)
17790 4FORMAT(14X,49("*"))
17800 5FORMAT(15X,"M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS")
17810 6FORMAT(/)
17820 WRITE(1;2)
17830 WRITE(1;3)
17840 WRITE(1;4)
17850 WRITE(1;5)
17860 WRITE(1;4)
17870 WRITE(1;6)
17880C*************IF FLAG(10) .TRUE. YOU HAVE A GOOD SCHEDULE*******
17890 IF(FLAG(10))GOTO100
17900 WRITE(1;7)IBBM,IBBY
17910 IF(IEND.NE.0)GOTO100
17920 WRITE(1;8)IEBM,IEBY
17930 7FORMAT(10X,"PRODUCTION FALLS BEHIND IN",I3,"/",I2)
17940 8FORMAT(10X,"RECOVERY OCCURES IN",I3,"/",I2,//)
17950 1371FORMAT(10X,"UNRECOVERABLE PRODUCTION SHORTFALL OF",I5," UNITS",//
17960 100CONTINUE
17970 K=(NEL+11)/12
17980C*************READ INITIAL VALUES AND COMPONENT NAME***********
17990 READ(3,101)IAA,IPP,(IA(I),I=1,IDIV1)
18000C*************IF .NOT. FLAG(4) THERE IS NO CONTRACT FILE*******
18010 IF(.NOT.FLAG(4))GOTO316
18020C*************READ CONTRACT INITIALS**************************
18030 READ(4,101)IAC,IPC
18040 CALLSAVSCT(4,UV)
18050 DO318I=1,K
18060 318READ(4,103)J
18070C*************SET POINTER TO FIRST SUPPLIER*******************
18080 CALLSAVSCT(4,UVV)
18090 316CONTINUE
18100 101FORMAT(4X,2I4,4X,40A2)
18110 WRITE(1;9)(IA(I),I=1,IDIV1)
18120 9FORMAT(10X,"COMPONENT: ",40A2)
18130 WRITE(1;6)
18140C*************IF NUMBER OF SUPPLIERS EQUALS 1 GO TO 102********
18150 IF(NUM.EQ.1)GOTO102
18160C*************SKIP LEAD TIME/%USAGE LINES**********************
18170 DO121J=1,K
18180 121READ(3,103)I
18190 103FORMAT(I2)
18200C*************READ & WRITE NAME OF SUPPLIER********************
18210 READ(3,106)(IA(I),I=1,IDIV1)
18220 WRITE(1;10)(IA(I),I=1,IDIV1)
18230 10FORMAT(10X,"SUPPLIERS: ",40A2)
18240 11FORMAT(21X,40A2)
18250 106FORMAT(16X,40A2)
```

```
18260CREAD & WRITE NAMES OF THE REMAINING SUPPLIERS*******
18270 DO104I=2,NUM
18280 READ(3,103)((J),K=1,NUMV)
18290 READ(3,106)(IA(K),K=1,IDIV1)
18300 WRITE(1;11)(IA(K),K=1,IDIV1)
18310 104CONTINUE
18320 CALLSETSCT(3,Y(IPE))
18330 READ(3,103)I
18340C**********FILE IS SET TO LEAD TIME/%USAGE LINE**********
18350 WRITE(1;6)
18360 GOTO107
18370C**********HAVE ONE SUPPLIER*****************************
18380 102CONTINUE
18390 WRITE(1;12)IAA,IPP
18400 12FORMAT(10X,"INITIAL VALUES, ACTUAL:",I5,/,
18410&25X,"PLANNED:",I5)
18420 IF(FLAG(4))WRITE(1;13)IAC,IPC
18430 13FORMAT(17X,"CONTRACT ACTUAL:",I5,/,16X,"CONTRACT PLANNED:",I5)
18440 WRITE(1;6)
18450 107CONTINUE
18460 WRITE(1;14)
18470 14FORMAT(10X,"LEAD   PERCENT",/,10X,"TIME     USE     ",
18480&"WEAPONS SYSTEMS NAME",/)
18490C**********READ LEAD TIMES AND PERCENT USE***************
18500 READ(3,109)((LE(K),LPU(K)),K=1,NEL)
18510 109FORMAT(4X,12(I2,I3))
18520C***VV POINTS TO THE FIRST LINE OF DATA IF THERE IS ONE SUPPLIER
18530C***OR TO THE FIRST SUPPLIER IF THERE THERE ARE SEVERAL SUPPLIERS
18540 CALLSAVSCT(3,VV)
18550C**********SET THE FILE TO THE TOP************************
18560 REWIND3
18570 READ(3,103)I
18580 READ(3,103)I
18590 DO110K=1,NEL
18600C**********READ VEHICLE NAMES*****************************
18610 READ(3,111)(IA(I),I=1,IDIV1)
18620 111FORMAT(4X,40A2)
18630C**********Kth VEHICLE DOES NOT CONTAIN COMPONENT*****
18640 IF(LE(K).EQ.99.OR.LPU(K).EQ.0)GOTO110
18650C**********WRITE LEAD TIMES AND PERCENT USE***************
18660 WRITE(1;15)LE(K),LPU(K),(IA(I),I=1,IDIV1)
18670 15FORMAT(8X,I5,I9,4X,40A2)
18680 110CONTINUE
18690 WRITE(1;3)
18700 ICT1=0
18710 LI=0
18720 LQ1=0
18730 ICP1=0
```

```
18740 DO220I=1,120
18750 L(I)=0
18760 LQ(I)=0
18770 ICI(I)=0
18780 ICP(I)=0
18790 220CONTINUE
18800C********** ONES(I),I=1,10 ARE THE FLAGS FOR SUBROUTINE LIST********
18810 DO201I=3,10
18820 201ONES(I)=.FALSE.
18830 ONES(1)=.TRUE.
18840 ONES(2)=.TRUE.
18850 ONES(5)=.TRUE.
18860 ONES(6)=.TRUE.
18870C**********IF .NOT. FLAG(4) NO CONTRACT FILE***************
18880 IF(.NOT.FLAG(4))GOTO200
18890 CALLSETSCT(4,UV)
18900C**********IZB EQUALS LENGTH OF CONTRACT IN MOUNTHS*********
18910 READ(4,109)I,IZB
18920C**********SET POINTER TO THE 1st SUPPLIER IF MORE THAN******
18930C**********ONE SUPPLIER*****************************************
18940C**********OR TO THE 1st LINE OF DATA IF ONLY ONE SUPPLIER***
18950 CALLSETSCT(4,UVV)
18960 DO300I=7,10
18970 300ONES(I)=.TRUE.
18980 IBB(7)=IZB
18990 AB(7)="  CNTP"
19000 AB(8)="CNTPCM"
19010 IBB(8)=IZB
19020 AB(9)="  CNTA"
19030 AB(10)="CNTACM"
19040 IBB(9)=LENO
19050 IBB(10)=LENO
19060 200CONTINUE
19070C**********SET AT THE 1st LINE OF DATA OR THE 1st SUPPLIER**>
19080 CALLSETSCT(3,VV)
19090 IBB(1)=LEN
19100 AB(1)="   REQ"
19110 IBB(2)=LEN
19120 AB(2)="REQCUM"
19130 IBB(5)=LENO
19140 AB(5)="   ACT"
19150 IBB(6)=LENO
19160 AB(6)="ACTCUM"
19170C**********THERE IS ONLY ONE SUPPLIER OR ONLY SUMMARY********
19180C**********OUTPUT IS DESIRED*********************************
19190 IF(NUM.EQ.1.OR..NOT.FLAG(2))GOTO1000
19200 DO999KK=1,NUM
19210C**********READ NAME OF SUPPLIER & INITIAL VALUES***********
19220 READ(3,101)IAA,IPP,(IA(I),I=1,IDIVI)
```

```
19230C************IF FLAG(4) READ THE CONTRACT INITIALS*************
19240 IF(FLAG(4))READ(4,101)IAC,IPC
19250 WRITE(1,20)
19260 20FORMAT(76("-"))
19270 WRITE(1,3)
19280C************WRITE THE SUPPLIER NAME & THE INITIALS***********
19290 WRITE(1,21)(IA(I),I=1,IDIV1)
19300 21FORMAT(10X,"SUPPLIER: ",40A2)
19310 WRITE(1,6)
19320 WRITE(1,12)IAA,IPP
19330 IF(FLAG(4))WRITE(1,13)IAC,IPC
19340 WRITE(1,6)
19350C********** KK IS THE KKth SUPPLIER ***************************************
19360 J=KK-1
19370 KR1=KK+1
19380C************READ THE HISTORICAL PLANNED DATA*****************
19390 READ(3,203)(IB(I,1),I=1,LEN)
19400 203FORMAT(4X,12I5)
19410C********** READ THE PLANNED SCHEDULE FROM FILE 5 ********************
19420 REWIND5
19430 DO1204K=LEN1,LEN
19440 1204READ(5,204)((I),IQW=1,J),IB(K,1),((I),IQW=KR1,NUM)
19450 204FORMAT(12I5)
19460C************ SUM IB(*,1) TO TOTAL HOLDER L ************************
19470 DO221I=1,LEN
19480 221L(I)=L(I)+IB(I,1)
19490 L1=L1+IPP
19500 CALLCUM(1,2,IPP,LEN)
19510C********** READ THE HISTORICAL ACTUALPRODUCTION *********************
19520 READ(3,203)(IB(I,5),I=1,LENO)
19530C************ SUM IB(*,5) TO TOTAL HOLDER LQ ************************
19540 DO222I=1,LENO
19550 222LQ(I)=LQ(I)+IB(I,5)
19560 LQ1=LQ1+IAA
19570 CALLCUM(5,6,IAA,LENO)
19580C********** FILAL PLANNED CUM CORRECTION FACTOR **********************
19590 K=IB(LENO,6)-IB(LENO,2)
19600C************ CORRECT PLANNED CUM ***********************************
19610 DO2017I=LEN1,LEN
19620 2017IB(I,2)=IB(I,2)+K
19630C************ SKIP AROUND IF NO CONTRACT FILE/OTHERWISE IT SETS ******
19640C************ UP CONTRACT  AND CONTRACT CUM LINES ********************
19650 IF(.NOT.FLAG(4))GOTO210
19660 READ(4,203)(IB(I,7),I=1,LEN)
19670 CALLCUM(7,8,IPC,IZB)
19680 READ(4,203)(IB(I,9),I=1,LENO)
19690 CALLCUM(9,10,IAC,LENO)
19700 DO223I=1,IZB
19710 223ICT(I)=ICT(I)+IB(I,7)
19720 ICT1=ICT1+IAC
```

```
19730 DO224I=1,LENO
19740 224ICP(I)=ICP(I)+IB(I,9)
19750 ICP1=ICP1+IPC
19760 210CONTINUE
19770C************ LIST THE SUPPLIER ***********************************
19780 CALLLIST
9790 999CONTINUE
19800 WRITE(1;20)
19810 WRITE(1;20)
19820 WRITE(1;3)
19830C ********** PREPARE TO WRITE TOTAL SECTION ************************
19840 CALLSETSCT(3,Y(IPE))
19850 READ(3,101)I,I,(IA(J),J=1,IDIV1)
19860 WRITE(1;30)(IA(I),I=1,IDIV1)
19870 30FORMAT(10X,"TOTALS FOR: ",40A2)
19880 WRITE(1;6)
19890C************WRITE ACTUAL & PLANNED INITIALS*********************
19900 WRITE(1;12)LQ1,LI
19910 IF(FLAG(4))WRITE(1;13)ICT1,ICP1
19920 GOTO1001
19930 1000CONTINUE
19940C************BRANCH HERE IF ONLY ONE SUPPLIER OR IF ONLY*******
19950C************SUMMARY OUTPUT IS DESIRED**************************
19960 CALLSETSCT(3,VV)
19970 DO302KB=1,NUM
19980 IF(NUM.NE.1)READ(3,101)IAA,IPP
19990C************LI & LQ1 WILL CONTAIN ACTUAL & PLANNED INITIALS **
20000C************SUMMED OVER ALL SUPPLIERS**************************
20010 LI=LI+IPP
20020 LQ1=LQ1+IAA
20030 READ(3,203)(LE(I),I=1,LEN)
20040 READ(3,203)(LPU(I),I=1,LENO)
20050 DO302I=1,LENO
20060C************L(I) WILL CONTAIN MONTH BY MONTH PAST PLANNED******
20070C************SUMMED OVER ALL SUPPLIERS**************************
20080 L(I)=L(I)+LE(I)
20090C************LQ(I) WILL CONTAIN MONTH BY MONTH ACTUALS*********
20100C************SUMMED OVER ALL SUPPLIERS**************************
20110 LQ(I)=LQ(I)+LPU(I)
20120 302CONTINUE
20130 REWIND5
20140 DO231I=LEN1,LEN
20150 READ(5,204)K
20160C************L(I) WILL CONTAIN THE MONTH BY MONTH SCHEDULE******
20170C************FOR THE COMPONENT SUMMED OVER ALL SUPPLIERS*******
20180 231L(I)=K
```

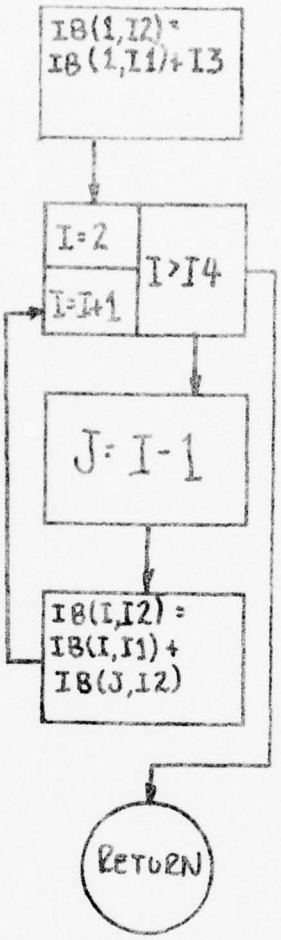
```
20190C************NO CONTRACT FILE*********************************
20200 IF(.NOT.FLAG(4))GOTO1001
20210 CALLSETSCT(4,UVV)
20220 DO301KB=1,NUM
20230 IF(NUM.NE.1)READ(4,101)IAC,IPC
20240C************ICT1 & ICP1 WILL CONTAIN CONTRACT ACTUAL & *******
20250C************PLANNED SUMMED OVER ALL SUPPLIERS****************
20260 ICT1=ICT1+IPC
20270 ICP1=ICP1+IAC
20280 READ(4,203)(LE(I),I=1,LEN)
20290 READ(4,203)(LPU(I),I=1,LENO)
20300 DO301I=1,LEN
20310C************ICT(I) WILL CONTAIN THE MONTH BY MONTH************
20320C************PLANNED CONTRACT SCHEDULE SUMMED OVER ALL SUPPLIERS**
20330 ICT(I)=ICT(I)+LE(I)
20340C************ICP(I) WILL CONTAIN THE ACTUAL CONTRACT VALUES****
20350C************SUMMED OVER ALL SUPPLIERS*********************
20360 ICP(I)=ICP(I)+LPU(I)
20370 301CONTINUE
20380 1001CONTINUE
20390 DO400I=1,LEN
20400C************COMPONENT SCHEDULE PAST AND FUTURE***************
20410 IB(I,1)=L(I)
20420C************ACTUAL COMPONENT PRODUCTION LINE*****************
20430 IB(I,5)=LQ(I)
20440 IF(.NOT.FLAG(4))GOTO401
20450C************CONTRACT SCHEDULE PAST & FUTURE******************
20460 IB(I,7)=ICT(I)
20470C************CONTRACT ACTUALS*********************************
20480 IB(I,9)=ICP(I)
20490 401CONTINUE
20500 400CONTINUE
20510C************THE REQCUM LINE IS PLACED IN IB(I,2) I=1,LEN******
20520 CALLCUM(1,2,L1,LEN)
20530C************THE ACTCUM LINE IS PLACED IN IB(I,6) I=1,LENO*****
20540 CALLCUM(5,6,LQ1,LENO)
20550 IF(.NOT.FLAG(4))GOTO402
20560C************IB(I,8) I=1,IZB CONTAINS THE CONTRACT REQCUM******
20570 CALLCUM(7,8,ICT1,IZB)
20580C************IB(I,10) I=1,LENO CONTAINS THE CONTRACT ACTCUM****
20590 CALLCUM(9,10,ICP1,LENO)
20600 402CONTINUE
20610 IF(FLAG(3))CALLZLOAT(IPE)
20620C************K EQUALS THE DIFFERENCE BETWEEN THE ACTCUM********
20630C************AND THE REQCUM AT THE LAST MONTH IN THE PAST******
20640 K=IB(LENO,6)-IB(LENO,2)
```

```
20650 D020181=LENT,LEN
20660C*****ADD K TO ALL FUTURE REOCUM. THIS IS NECESSARY **********
20670C*****BECAUSE THE FUTURE REQUIREMENTS ARE BASED ON THE**********
20680C*****ACTCUM AT THE LAST MONTH OF THE PAST RATHER THAN THE*****
20690C*****PAST PLANNED.**********
20700 2018IB(I,2)=IB(I,2)+K
20710C***********WRITE INITIALS**********
20720 IF(.NOT.FLAG(2).AND.NUM.NE.1)WRITE(1,12)LQI,LI
20730 IF(.NOT.FLAG(2).AND.NUM.NE.1.AND.FLAG(4))WRITE(1,13)ICT1,ICP1
20740 IF(NUM.NE.1)WRITE(1,6)
20750C*********WRITE SUMMARY OUTPUT**********
20760 CALLLIST
20770 WRITE(1,6)
20780C****CLOSE FILE IN ORDER TO PREPARE FILE FOR THE NEXT COMPONENT**
20790 CALLCLOSEF(5)
20800 RETURN
20810 END
20820C********** END OF SUBROUTINE PRINT **********
```

CUM (Accumulates Arrays)

Subroutine CUM is called from subroutines PRINT and TANKER. It accumulates arrays for use in subroutine LIST. It produces no output

Subroutine CUM (I1,I2,I3,I4)

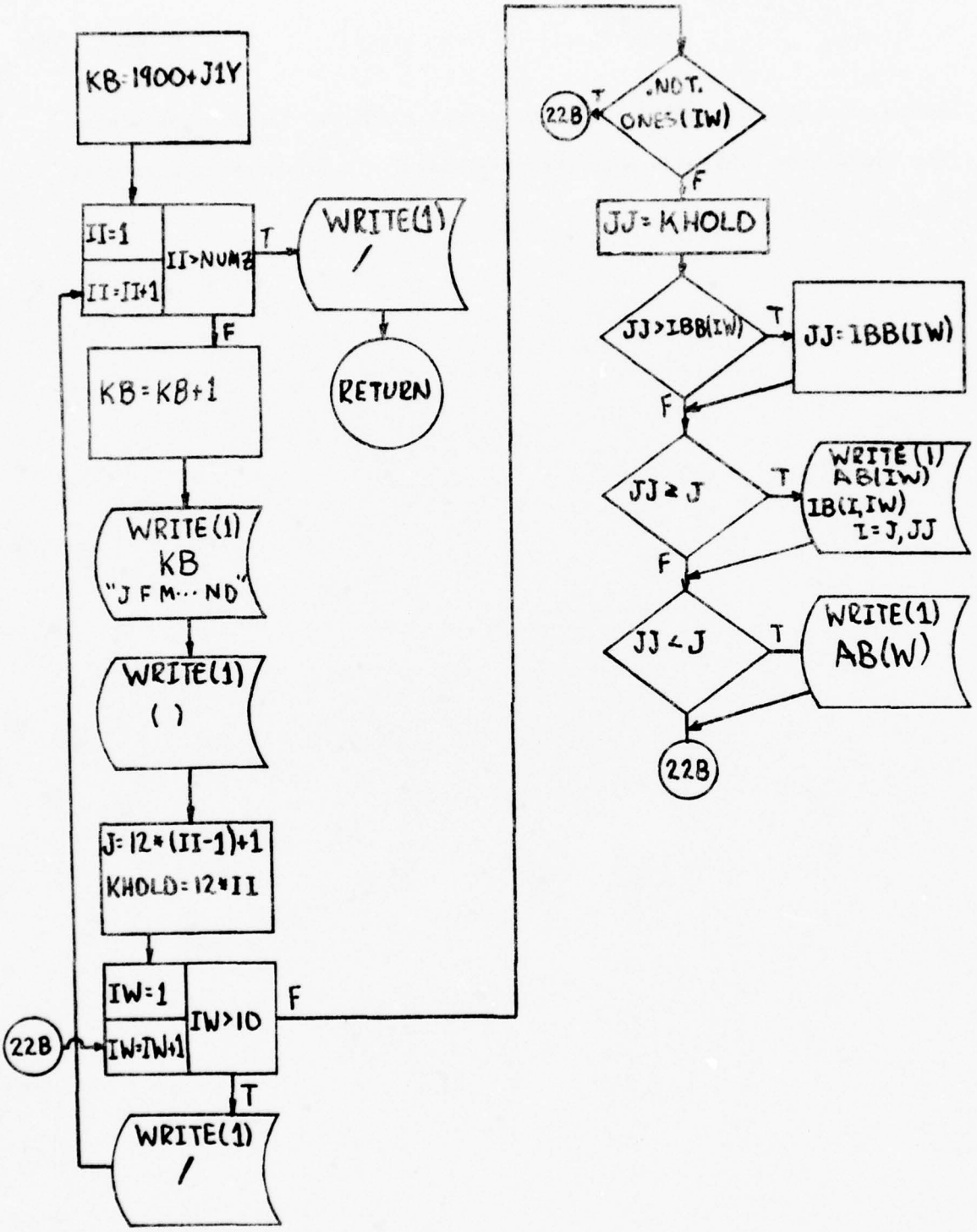


```
20830C****CUM IS USED TO SUM ARRAYS**********************************
20840 SUBROUTINECUM(I1,I2,I3,I4)
20850$RPC
20860 IB(1,I2)=IB(1,I1)+I3
20870 DOII=2,I4
20880 J=I-1
20890 IIB(I,I2)=IB(I,I1)+IB(J,I2)
20900 RETURN
20910 END
```

LIST (Lists to Print Files)

Subroutine LIST is called from subroutines PRINT and TANKER. It lists the production schedules onto the print file. It produces no output at the terminal

Subroutine LIST

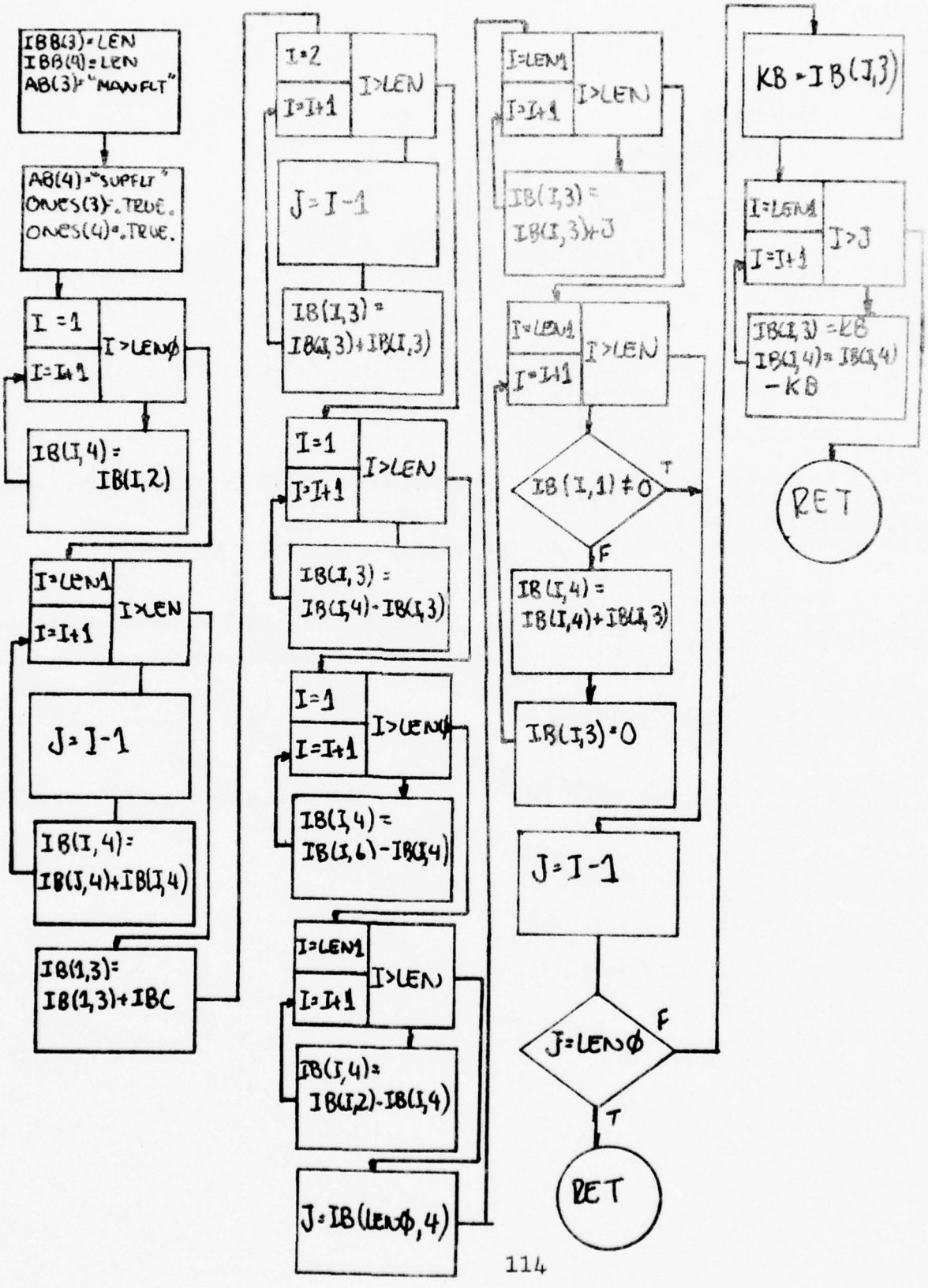


```
20920C************LIST IS USED TO OUTPUT THE TABLES*******************
20930 SUBROUTINELIST
20940$RPC
20950 KB=1900+JIY
20960 DO100II=1,NUMZ
20970 KB=KB+1
20980 WRITE(1;1)KB
20990 1FORMAT(29X,"**",I4,"**",//,12X,
21000&"J    F    M    A    M    J    J    A    S    O    N    D")
21010 WRITE(1;5)
21020 5FORMAT()
21030C************J IS THE BEGINNING MONTH OF THE YEAR BEING OUTPUT***
21040 J=12*(II-1)+1
21050C*****KHOLD IS THE LAST MONTH OF THE YEAR BEING OUTPUT*********
21060 KHOLD=12*II
21070 DO120IW=1,10
21080 IF(.NOT.ONES(IW))GOTO120
21090 JJ=KHOLD
21100C******IBB(IW) IS THE TOTAL LENGTH IN MONTHS OF THE LINE ******
21110C******BEING PRINTED**********************************************
21120 IF(JJ.GT.IBB(IW))JJ=IBB(IW)
21130 IF(JJ.GE.J)WRITE(1;2)AB(IW),(IB(I,IW),I=J,JJ)
21140C*************WRITE ONLY HEADER INFORMATION**********************
21150 IF(JJ.LT.J)WRITE(1;2)AB(IW)
21160 2FORMAT(X,A6,": ",12I5)
21170 120CONTINUE
21180 WRITE(1;10)
21190 100CONTINUE
21200 WRITE(1;10)
21210 10FORMAT(/)
21220 RETURN
21230 END
```

FLOAT (Caluculates Float Rows)

Subroutine FLOAT is called from subroutine PRINT, and it calculates the float rows in the output. It produces no output at the terminal.

Subroutine ZLOAT

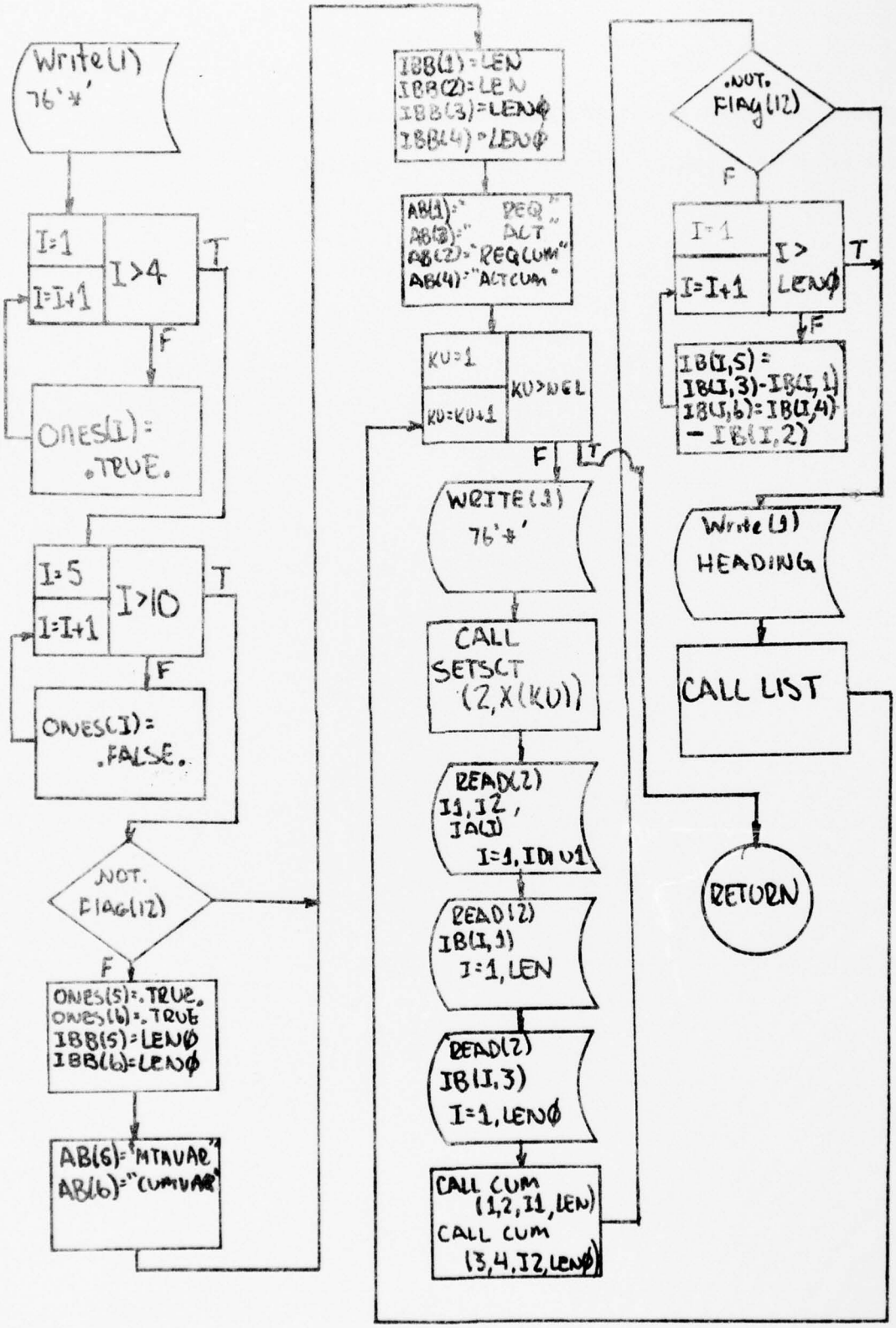


```
21240C**********ZLOAT FIGURES OUT THE FLOAT RONS**********
21250 SUBROUTINEZLOAT(IPE)
21260$RPC
21270 IBB(3)=LEN
21280 IBB(4)=LEN
21290 AB(3)="MANFLT"
21300 AB(4)="SUPFLT"
21310 ONES(3)=.TRUE.
21320 ONES(4)=.TRUE.
21330 DO1I=1,LENO
21340C******yIB(I,4),I=1,LAST MONTH IN PAST, EQUALS THE PAST********
21350C******REQCUM LINE(CUM PLANNED HISTORICAL)**********
21360 1IB(I,4)=IB(I,2)
21370 DO2I=LEN1,LEN
21380 J=I-1
21390C******IB(I,4) IN FUTURE CONTAINS THE CUM UNSMOOTHED SCHEDULE**
21400 2IB(I,4)=IB(J,4)+IB(I,4)
21410 IB(I,3)=IB(I,3)+IBC
21420 DO3I=2,LEN
21430 J=I-1
21440C******IB(I,3) CONTAINS THE CUMULATIVE LINE OF BALANCE*********
21450 3IB(I,3)=IB(J,3)+IB(I,3)
21460 DO4I=1,LEN
21470C******IB(I,3) CONTAINS THE MANDATORY FLOAT LINE*********
21480 4IB(I,3)=IB(I,4)-IB(I,3)
21490 DO5I=1,LENO
21500C******IB(I,4) CONTAINS THE SURPLUS FLOAT LINE**********
21510C******AFTER THE NEXT TWO DO LOOPS**********
21520 5IB(I,4)=IB(I,6)-IB(I,4)
21530 DO6I=LEN1,LEN
21540 6IB(I,4)=IB(I,2)-IB(I,4)
21550 J=IB(LENO,4)
21560 DO7I=LEN1,LEN
21570C******ADD CORRECTION FACTOR TO THE MANFLT LINE**********
21580 7IB(I,3)=IB(I,3)+J
21590 DO8I=LEN1,LEN
21600 IF(IB(I,1).NE.0)GOTO9
21610 IB(I,4)=IB(I,4)+IB(I,3)
21620 8IB(I,3)=0
21630 9CONTINUE
21640 J=I-1
21650 IF(J.EQ.LENO)RETURN
21660 KB=IB(I,3)
21670 DO10I=LEN1,J
21680 IB(I,3)=KB
21690 IB(I,4)=IB(I,4)-KB
21700 10CONTINUE
21710 RETURN
21720 END
```

TANKER (Lists Tank Production)

Subroutine TANKER is called from the MAIN program and it produces a listing of the tank production file, if so desired.

Subroutine TANKER



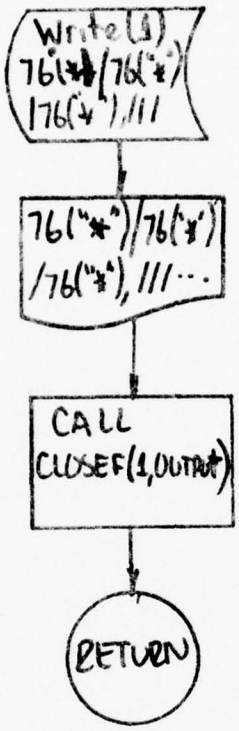
```
21730C************TANKER OUTPUTS THE TANK FILE**********************
21740 SUBROUTINETANKER
21750$RPC
21760 WRITE(1,1)
21770 1FORMAT(76("*"))
21780 DO2I=1,4
21790 2ONES(I)=.TRUE.
21800 DO3I=5,10
21810 3ONES(I)=.FALSE.
21820 IF(.NOT.FLAG(12))GO TO 256
21830 ONES(5)=ONES(6)=.TRUE.
21840 IBB(5)=IBB(6)=LENO
21850 AB(5)="MTHVAR"
21860 AB(6)="CUMVAR"
21870 256CONTINUE
21880 IBB(1)=LEN
21890 IBB(2)=LEN
21900 IBB(3)=LENO
21910 IBB(4)=LENO
21920 AB(1)="   REQ"
21930 AB(2)="REQCUM"
21940 AB(3)="   ACT"
21950 AB(4)="ACTCUM"
21960 DO1000KU=1,NEL
21970 WRITE(1,1)
21980 CALLSETSCT(2,X(KU))
21990C************READ INITIALS AND NAME OF KUth VEHICLE***********
22000 READ(2,30)I1,I2,(IA(I),I=1,IDIV1)
22010C************READ THE REQUIRED PRODUCTION LINE*****************
22020 READ(2,4)(IB(I,1),I=1,LEN)
22030C************READ THE ACTUAL PRODUCTION LINE*******************
22040C****** IB(I,4),I=1,LAST MONTH IN PAST, EQUALS THE PAST **************
22050 30FORMAT(4X,2I4,40A2)
22060 4FORMAT(4X,12I5)
22070C************IB(I,2) WILL CONTAIN THE REQCUM LINE**************
22080 CALLCUM(1,2,I1,LEN)
22090C************IB(I,4) WILL CONTAIN THE ACTCUM LINE**************
22100 CALLCUM(3,4,I2,LENO)
22110 DO 871 I=1,LENO
22120 IB(I,5)=IB(I,3)-IB(I,1)
22130 871 IB(I,6)=IB(I,4)-IB(I,2)
22140 WRITE(1,7)
22150 7FORMAT(///)
22160 WRITE(1,5)
22170 WRITE(1,6)
22180 WRITE(1,5)
22190 5FORMAT(14X,38("*"))
22200 6FORMAT(15X,"M60/M48 TANK PRODUCTION REQUIREMENTS")
22210 WRITE(1,13)(IA(I),I=1,IDIV1)
22220 13FORMAT(///,1X,"WEAPONS SYSTEM NAME: ",40A2,//)
```

```
22230 WRITE(1,48)
22240 48FORMAT(/)
22250C**********OUTPUT THE VEHICLE INFORMATION**********
22260 CALLLIST
22270 1000CONTINUE
22280 RETURN
22290 END
```

FOOT (Ends Program)

Subroutine FOOT is called from the MAIN program. It closes the output file and prints 3 lines of stars and spaces upon the terminal.

Subroutine FOOT



```
22300 SUBROUTINEFOOT
22310 WRITE(1,1)
22320 1FORMAT(76("*"),/,76("*"),/,76("*"),////////////////////)
22330 ENDFILE1
22340 CALLCLOSEF(1,OUTPUT)
22350 PRINT1
22360 RETURN
22370 END
```

Appendix A

Appendix A contains the input files described in Chapter 2 and used in chapter 3.

```
00001   0 11274 878 3764PR PIANO ROLL
00002   0 2 3
00003   0 3[illegible]AI
00004   0 4MC013
00005   0 5AVLB
00006   1 1    5    0    1POWER PACK
00007   1 2 2100 2100 2100 0  0 0  0 0  0 0  0 0  0 0  0 0  0 0  0 0  0
00008   1 4   40   40   40   40   40   40   43   47   47   47   50   52
00009   1 5   55   59   60   63   70   70   75   75   75   75   75   75
00010   1 6   75   75   75   75   75   75   75   75   75   75   75   75
00011   1 7   75   75   75   75   75   75   75   75    0    0    0    0
00012   1 8   40   40   40   40   40   40   45   50   50   50   50   50
00013   1 9   50   55   60    0    0    0    0    0    0    0    0    0
00014   2 1    0    0    2GUN MOUNT
00015   2 2 3100 310099  0 0  0 0  0 0  0 0  0 0  0 0  0 0  0 0  0 0  0
00016   2 4   40   40    1ROCK ISLAND ARSENAL
00017   2 5   40   40   40   40   40   43   47   47   47   50   52   55
00018   2 6   44   30   33   45   45   45   45   45   45   45   45   45
00019   2 7   45   45   45   45   45   45   45   45   45   45   45   45
00020   2 8   45   45   45   45   45   45   45   45    0    0    0    0
00021   2 9   40   40   40   40   40   43   47   47   47   50   50   50
00022   210   44   30   33    0    0    0    0    0    0    0    0    0
00023   211    0    0   99CHRYSLER
00024   212    0    0    0    0    0    0    0    0    0    0    0    0
00025   213   15   30   30   30   30   30   30   30   30   30   30   30
00026   214   30   30   30   30   30   30   30   30   30   30   30   30
00027   215   30   30   30   30   30   30   30   30    0    0    0    0
00028   216    0    0    0    0    0    0    0    0    0    0    0    0
00029   217   15   30   30    0    0    0    0    0    0    0    0    0

READY
```

```
00001  0 11274 873 376
00002  1 1   0   0160A1
00003  1 2   0   0   40  40  40  40  40  40  43  47  47  47
00004  1 3  50  52  55  59  60  63  63  63  63  70  70  70
00005  1 4  73  77  80  80  80  80  80  75  73  69  60  55
00006  1 5  50  45  40  35  33  30  25  20   0   0   0   0
00007  1 6   0   0  40  40  40  40  40  40  43  49  49  45
00008  1 7  49  52  57   0   0   0   0   0   0   0   0   0
00009  2 1   0   0M60A3
00010  2 2  00  00  00   0   0   0   0   0   0   0   0   0
00011  2 3   0   0   0   0   0   0   0   0   0   0   0   0
00012  2 4   0   0   0   0   0   0   0   0   0   0   0   0
00013  2 5   3   5   7   8   8   8  10  10   0   0   0   0
00014  2 6   0   0   0   0   0   0   0   0   0   0   0   0
00015  2 7   0   0   0   0   0   0   0   0   0   0   0   0
00016  3 1   0   0AVLB
00017  3 2   0   0   0   0   0   0   0   0   0   0   0   0
00018  3 3   0   0   0   0   0   0   0   0   0   0   0   0
00019  3 4   0   0   0   0   0   0   2   2   4   4   5   5
00020  3 5   5   7   8   8   8   8   8   8   0   0   0   0
00021  3 6   0   0   0   0   0   0   0   0   0   0   0   0
00022  3 7   0   0   0   0   0   0   0   0   0   0   0   0

READY
```

Appendix B

Appendix B contains the terminal output for the production run described in chapter 3.

```
TYP  IN THE CONTROL VECTOR
        (SMT,SUM,FLT,CTS,TAK,DAT,TIM,VAR)
DEFAULT ( 0 , 1 , 1 , 0 , 1 , 1 , 1 , 1 )
FOR FURTHER INSTRUCTIONS TYPE -1
? -1


SMT=1 IF THE SMOOTHING ROUTINE IS TO BE USED AND
SMT=0 OTHERWISE

SUM=2 IF NO COMPONENTS ARE TO BE USED,
SUM=1 IF COMPLETE OUTPUT IS TO BE PRINTED
SUM=0 OF ONLY SUMMARY OUTPUT IS TO BE PRINTED AND

FLT=1 IF THE FLOAT ROWS ARE TO BE PRINTED AND
FLT=0 IF THEY ARE NOT

CTS=1 IF THE CONTRACTOR SCHEDULE IS TO BE PRINED AND
CTS=0 IF NOT

TAK=1 IF THE TANK FILE IS TO BE PRINTED AT THE END
      OF THE OUTPUT
TAK=0 IF IT IS NOT TO BE PRINTED

DAT=1 IF THE CURRENT DATE IS TO BE PRINTED AT THE
      TOP OF THE OUTPUT AND
DAT=0 IF IT IS NOT TO BE PRINTED

TIM=1 IF THE TIME OF THE REPORT IS TO BE PRINTED
TIM=0 IF IT IS NOT TO BE PRINTED

VAR=1 IF VARIANCE AND CUM VARIANCE TO BE PRINTED
VAR=0 IF NOT

TYPE IN THE CONTROL VECTOR
        (SMT,SUM,FLT,CTS,TAK,DAT,TIM,VAR)
DEFAULT ( 0 , 1 , 1 , 0 , 1 , 1 , 1 , 1 )
FOR FURTHER INSTRUCTIONS TYPE -1
? 1,1,1,0,1,1,1,1


TANK FILE NAME
 ? TNK


COMPONENT FILE NAME
 ? B3YY
```

```
CHOOSE THE COMPONENTS FROM THE FOLLOWING LIST
THAT YOU WANT TO CONSTRUCT A PIANO ROLL FOR.
TYPE  -1  FOR A PIANO ROLL OF ALL COMPONENTS


     1)  POWER PACK
     2)  GUN MOUNT

 ? -1

e
OUTPUT FILE NAME
 ? STVEE

THE FILE ALREADY EXISTS. DO YOU WANT TO OVERWRITE IT?
ANS. YES OR NO.
 ? YES

**********************************************************************

 THE CURRENT COMPONENT TO BE SMOOTHED IS:
       POWER PACK

**********************************************************************

          TRIAL COMPONENT SCHEDULE:
          THE FIRST YEAR IS: 1976

            J    F    M    A    M    J    J    A    S    O    N    D

 8888888888888   58   63   67   75   75   75   75   75   75
           75   75   75   75   75   75   75   73   65   60   58   57
           55   51   49   46   43   38    0    0

DO YOU WISH TO PRINT THIS COMPONENT, YES OR NO.
 ? NO
```


****

```
MODIFIED MAXIMUN PRODUCTION SCHEDULE:

THE FIRST YEAR IS: 1976

    J     F     M     A     M     J     J     A     S     O     N     D

88888888888888    63    70    70    75    75    75    75    75    75
   75    75    75    75    75    75    75    75    75    75    75    75
   75    75    75    75    75    75    75    75

TYPE IN RELATIVE CHANGES TO THE SCHEDULE IN THE FOLLOWING
FORMAT     YY,J,F,M,...,N,D  .
CARRAGE RETURN AFTER LAST CHANGE
 ? 76,,,,,-7,-7,-1

 ?
Z
```

```
TRIAL COMPONENT SCHEDULE:
THE FIRST YEAR IS: 1976

    J     F     M     A     M     J     J     A     S     O     N     D

88888888888888    63    63    63    74    75    75    75    75    75
   75    75    75    75    75    75    75    73    65    60    58    57
   55    51    49    46    43    38     0     0

DO YOU WISH TO PRINT THIS COMPONENT, YES OR NO.
 ? YES
```

****

THE CURRENT COMPONENT TO BE SMOOTHED IS:
GUN MOUNT

****

TRIAL COMPONENT SCHEDULE:
THE FIRST YEAR IS: 1976

J	F	M	A	M	J	J	A	S	O	N	D
88888888888888			70	63	73	75	75	75	75	75	75
75	75	75	75	75	73	69	60	55	53	50	47
43	41	38	35	30	0	0	0				

DO YOU WISH TO PRINT THIS COMPONENT, YES OR NO.
? NO

****

```
          MODIFIED MAXIMUN PRODUCTION SCHEDULE:

          THE FIRST YEAR IS: 1976

              J    F    M    A    M    J    J    A    S    O    N    D

          888888888888888    75   75   75   75   75   75   75   75   75
            75   75   75   75   75   75   75   75   75   75   75   75
            75   75   75   75   75   75   75   75
TYPE IN RELATIVE CHANGES TO THE SCHEDULE IN THE FOLLOWING
FORMAT    YY,J,F,M,...,N,D  .
CARRAGE RETURN AFTER LAST CHANGE
 ? 76,,,,-5,-5,-1,-1,-1,-1,-1,-1,-1

 ? 77,-1,-1

 ?

**********************************************************************

          TRIAL COMPONENT SCHEDULE:
          THE FIRST YEAR IS: 1976

              J    F    M    A    M    J    J    A    S    O    N    D

          888888888888888    70   70   74   74   74   74   74   74   74
            74   74   75   75   75   73   69   60   55   53   50   47
            43   41   38   35   30    0    0    0

DO YOU WISH TO PRINT THIS COMPONENT, YES OR NO.
 ? YES

WHAT?
:):)S=M
**********************************************************************
**********************************************************************
**********************************************************************
```

```
 TYPE IN THE CONTROL VECTOR
        (SMT,SUM,PLT,CTS,TAK,DAT,TIM,VAR)
 DEFAULT ( 0 , 1 , 1 , 0 , 1 , 1 , 1 , 1 )
 FOR FURTHER INSTRUCTIONS TYPE -1
 ? 0,1,0,0,0,0,0,0

TANK FILE NAME
 ? TNK

COMPONENT FILE NAME
 ? BBYY



      CHOOSE THE COMPONENTS FROM THE FOLLOWING LIST
      THAT YOU WANT TO CONSTRUCT A PIANO ROLL FOR.
      TYPE  -1  FOR A PIANO ROLL OF ALL COMPONENTS


          1)  POWER PACK
          2)  GUN MOUNT


 ? -1

OUTPUT FILE NAME
 ? STVEEE

THE FILE ALREADY EXISTS. DO YOU WANT TO OVERWRITE IT?
ANS. YES OR NO.
 ? YES

**********************************************************************

      COMPONENT: POWER PACK

**********************************************************************

      COMPONENT: GUN MOUNT
```



```
**********************************************************************
**********************************************************************
**********************************************************************
```

****
M60/A3 LINE OF BALANCE PRODUCTION REQUIREMENTS
****

LAST UPDATE OF REPORT: 3/31/75
DATE OF REPORT: MON 05/24/76
TIME OF REPORT: 13:57
TASK FILE NAME: TSK
COMPONENT FILE NAME: M6YY

COMPONENTS INCLUDED IN THIS LINE
OF BALANCE PRODUCTION REPORT

1) POWER PACK
2) GUN MOUNT

****
M60/A3 LINE OF BALANCE PRODUCTION REQUIREMENTS
****

COMPONENT: POWER PACK

INITIAL VALUES, ACTUAL: 5
PLANNED: 0

LEAD TIME	PERCENT USE	WEAPONS SYSTEMS NAME
2	100	M60A1
2	100	M60A3
2	100	AVLB

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	40	43	47	47	47	50	52
REQCUM:	40	80	120	160	200	240	283	330	377	424	474	526
MANFLT:	0	0	0	0	0	0	0	0	0	0	0	0
SUPFLT:	5	5	5	5	5	5	7	10	13	16	16	14
ACT:	40	40	40	40	40	40	45	50	50	50	50	50
ACTCUM:	45	85	125	165	205	245	290	340	390	440	490	540

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	55	59	60	63	63	63	74	75	75	75	75	75
REQCUM:	581	640	700	768	831	894	968	1043	1118	1193	1268	1343
MANFLT:	0	0	0	0	0	4	16	21	26	31	33	31
SUPFLT:	9	5	5	5	5	1	0	0	0	0	0	0
ACT:	50	55	60									
ACTCUM:	590	645	705									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	75	75	75	75	75	75	75	73	65	60	58	57
REQCUM:	1418	1493	1568	1643	1718	1793	1868	1941	2006	2066	2124	2181
MANFLT:	26	21	16	11	4	2	0	0	0	0	0	0
SUPFLT:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	55	51	49	46	43	38	0	0				
REQCUM:	2236	2287	2336	2382	2425	2463	2463	2463				
MANFLT:	0	0	0	0	0	0	0	0				
SUPFLT:	0	0	0	0	0	0	0	0				
ACT:												
ACTCUM:												

****

M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS

COMPONENT: GUN MOUNT

SUPPLIERS: ROCK ISLAND ARSENAL
CHRYSLER

LEAD TIME	PERCENT USE	WEAPONS SYSTEMS NAME
3	100	M60A1
3,	100	M60A3

SUPPLIER: ROCK ISLAND ARSENAL

INITIAL VALUES, ACTUAL: 40
PLANNED: 40

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	43	47	47	47	50	52	55
REQCUM:	80	120	160	200	240	283	330	377	424	474	526	581
ACT:	40	40	40	40	40	43	47	47	47	50	50	50
ACTCUM:	80	120	160	200	240	283	330	377	424	474	524	574

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	44	30	33	40	40	44	44	44	44	44	44	44
REQCUM:	625	655	688	721	761	805	849	893	937	981	1025	1069
ACT:	44	30	33									
ACTCUM:	618	648	681									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	44	44	45	45	45	43	39	30	25	23	20	17
REQCUM:	1113	1157	1202	1247	1292	1335	1374	1404	1429	1452	1472	1489
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	13	11	8	5	0	0	0	0				
REQCUM:	1502	1513	1521	1526	1526	1526	1526	1526				
ACT:												
ACTCUM:												

SUPPLIER: CHRYSLER

INITIAL VALUES, ACTUAL: 0
PLANNED: 0

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0	0	0	0	0	0	0	0	0	0
ACTCUM:	0	0	0	0	0	0	0	0	0	0	0	0

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	15	30	30	30	30	30	30	30	30	30	30	30
REQCUM:	15	45	75	105	135	165	195	225	255	285	315	345
ACT:	15	30	30									
ACTCUM:	15	45	75									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	30	30	30	30	30	30	30	30	30	30	30	30
REQCUM:	375	405	435	465	495	525	555	585	615	645	675	705
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	30	30	30	30	30	0	0	0				
REQCUM:	735	765	795	825	855	855	855	855				
ACT:												
ACTCUM:												

TOTALS FOR: GUN MOUNT

INITIAL VALUES, ACTUAL: 40
PLANNED: 40

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	43	47	47	47	50	52	55
REQCUM:	80	120	160	200	240	283	330	377	424	474	526	581
MANFLT:	0	0	0	0	0	0	0	0	0	0	0	0
SUPFLT:	0	0	0	0	0	0	0	0	0	0	-2	-7
ACT:	40	40	40	40	40	43	47	47	47	50	50	50
ACTCUM:	80	120	160	200	240	283	330	377	424	474	524	574

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	59	60	63	70	70	74	74	74	74	74	74	74
REQCUM:	640	700	763	826	896	970	1044	1118	1192	1266	1340	1414
MANFLT:	0	0	0	0	0	10	15	20	25	27	25	20
SUPFLT:	-7	-7	-7	0	7	8	7	6	5	4	3	2
ACT:	59	60	63									
ACTCUM:	633	693	756									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	74	74	75	75	75	73	69	60	55	53	50	47
REQCUM:	1488	1562	1637	1712	1787	1860	1929	1989	2044	2097	2147	2194
MANFLT:	15	10	5	0	0	0	0	0	0	0	0	0
SUPFLT:	1	0	0	0	0	0	0	0	0	0	0	0
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	43	41	38	35	30	0	0	0				
REQCUM:	2237	2278	2316	2351	2381	2381	2381	2381				
MANFLT:	0	0	0	0	0	0	0	0				
SUPFLT:	0	0	0	0	0	0	0	0				
ACT:												
ACTCUM:												

****
M60/M48 TANK PRODUCTION REQUIREMENTS
****

WEAPONS SYSTEM NAME: M60A1

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	40	40	40	40	40	40	43	47	47	47
REQCUM:	0	0	40	80	120	160	200	240	283	330	377	424
ACT:	0	0	40	40	40	40	40	40	43	49	49	45
ACTCUM:	0	0	40	80	120	160	200	240	283	332	381	426
MTHVAR:	0	0	0	0	0	0	0	0	0	2	2	-2
CUMVAR:	0	0	0	0	0	0	0	0	0	2	4	2

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	50	52	55	59	60	63	63	63	63	70	70	70
REQCUM:	474	526	581	640	700	763	826	889	952	1022	1092	1162
ACT:	49	52	57									
ACTCUM:	475	527	584									
MTHVAR:	-1	0	2									
CUMVAR:	1	1	3									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	73	77	80	80	80	80	80	75	73	69	60	55
REQCUM:	1235	1312	1392	1472	1552	1632	1712	1787	1860	1929	1989	2044
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	50	45	40	35	33	30	25	20				
REQCUM:	2094	2139	2179	2214	2247	2277	2302	2322				
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

****
M60/M13 TANK PRODUCTION REQUIREMENTS
****

WEAPONS SYSTEM NAME: M60A3

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0	0	0	0	0	0	0	0	0	0
ACTCUM:	0	0	0	0	0	0	0	0	0	0	0	0
MTHVAR:	0	0	0	0	0	0	0	0	0	0	0	0
CUMVAR:	0	0	0	0	0	0	0	0	0	0	0	0

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0									
ACTCUM:	0	0	0									
MTHVAR:	0	0	0									
CUMVAR:	0	0	0									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	3	5	7	8	8	8	10	10				
REQCUM:	3	8	15	23	31	39	49	59				
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

****
M60/M48 TANK PRODUCTION REQUIREMENTS
****

WEAPONS SYSTEM NAME: AVLB

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0	0	0	0	0	0	0	0	0	0
ACTCUM:	0	0	0	0	0	0	0	0	0	0	0	0
MTHVAR:	0	0	0	0	0	0	0	0	0	0	0	0
CUMVAR:	0	0	0	0	0	0	0	0	0	0	0	0

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0									
ACTCUM:	0	0	0									
MTHVAR:	0	0	0									
CUMVAR:	0	0	0									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	2	2	4	4	5	5
REQCUM:	0	0	0	0	0	0	2	4	8	12	17	22
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	5	7	8	8	8	8	8	8				
REQCUM:	27	34	42	50	58	66	74	82				
ACT:												
ACTCUM:												
MTHVAR:												
CUMVAR:												

```
TYPE IN THE CONTROL VECTOR
        (SNF,SUM,FLT,CTS,TAK,DAT,TIM,VAR)
DEFAULT ( 0 , 1 , 1 , 0 , 1 , 1 , 1 , 1 )
FOR FURTHER INSTRUCTIONS TYPE -1
? 0,1,0,0,0,0,0,0

TANK FILE NAME
 ? TNK

COMPONENT FILE NAME
 ? BBYY



     CHOOSE THE COMPONENTS FROM THE FOLLOWING LIST
     THAT YOU WANT TO CONSTRUCT A PIANO ROLL FOR.
     TYPE  -1  FOR A PIANO ROLL OF ALL COMPONENTS


          1)  POWER PACK
          2)  GUN MOUNT


 ? -1

OUTPUT FILE NAME
 ? STVEEE

THE FILE ALREADY EXISTS. DO YOU WANT TO OVERWRITE IT?
ANS. YES OR NO.
 ? YES

**********************************************************************

     COMPONENT: POWER PACK

**********************************************************************

     COMPONENT: GUN MOUNT
```


****
****
****

M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS

LAST UPDATE OF REPORT: 3/31/76
TANK FILE NAME: TNK
COMPONENT FILE NAME: BBYY

COMPONENTS INCLUDED IN THIS LINE
OF BALANCE PRODUCTION REPORT

1) POWER PACK
2) GUN MOUNT

M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS

COMPONENT: POWER PACK

INITIAL VALUES, ACTUAL: 5
PLANNED: 0

LEAD TIME	PERCENT USE	WEAPONS SYSTEMS NAME
2	100	M60A1
2	100	M60A3
2	100	AVLB

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	40	43	47	47	47	50	52
REQCUM:	40	80	120	160	200	240	283	330	377	424	474	526
ACT:	40	40	40	40	40	40	45	50	50	50	50	50
ACTCUM:	45	85	125	165	205	245	290	340	390	440	490	540

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	55	59	60	58	63	67	75	75	75	75	75	75
REQCUM:	581	640	700	763	826	893	968	1043	1118	1193	1268	1343
ACT:	50	55	60									
ACTCUM:	590	645	705									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	75	75	75	75	75	75	75	73	65	60	58	57
REQCUM:	1418	1493	1568	1643	1718	1793	1868	1941	2006	2066	2124	2181
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	55	51	49	46	43	38	0	0				
REQCUM:	2236	2287	2336	2382	2425	2463	2463	2463				
ACT:												
ACTCUM:												

M60/A3 LINE OR BALANCE PRODUCTION REQUIREMENTS

COMPONENT: GUN MOUNT

SUPPLIERS: ROCK ISLAND ARSENAL
CHRYSLER

LEAD TIME	PERCENT USE	WEAPONS SYSTEMS NAME
3	100	M60A1
3	100	M60A3

SUPPLIER: CHRYSLER

INITIAL VALUES, ACTUAL: 0
PLANNED: 0

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	0	0	0	0	0	0	0	0	0	0	0	0
REQCUM:	0	0	0	0	0	0	0	0	0	0	0	0
ACT:	0	0	0	0	0	0	0	0	0	0	0	0
ACTCUM:	0	0	0	0	0	0	0	0	0	0	0	0

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	15	30	30	30	30	30	30	30	30	30	30	30
REQCUM:	15	45	75	105	135	165	195	225	255	285	315	345
ACT:	15	30	30									
ACTCUM:	15	45	75									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	30	30	30	30	30	30	30	30	30	30	30	30
REQCUM:	375	405	435	465	495	525	555	585	615	645	675	705
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	30	30	30	30	30	0	0	0				
REQCUM:	735	765	795	825	855	855	855	855				
ACT:												
ACTCUM:												

SUPPLIER: ROCK ISLAND ARSENAL

INITIAL VALUES, ACTUAL: 40
PLANNED: 40

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	43	47	47	47	50	52	55
REQCUM:	80	120	160	200	240	283	330	377	424	474	526	581
ACT:	40	40	40	40	40	43	47	47	47	50	50	50
ACTCUM:	80	120	160	200	240	283	330	377	424	474	524	574

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	44	30	33	40	33	43	45	45	45	45	45	45
REQCUM:	625	655	688	721	754	797	842	887	932	977	1022	1067
ACT:	44	30	33									
ACTCUM:	618	648	681									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	45	45	45	45	45	43	39	30	25	23	20	17
REQCUM:	1112	1157	1202	1247	1292	1335	1374	1404	1429	1452	1472	1489
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	13	11	3	5	0	0	0	0				
REQCUM:	1502	1513	1521	1526	1526	1526	1526	1526				
ACT:												
ACTCUM:												

TOTALS FOR: GUN MOUNT

INITIAL VALUES, ACTUAL: 40
PLANNED: 40

1975

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	40	40	40	40	40	43	47	47	47	50	52	55
REQCUM:	80	120	160	200	240	283	330	377	424	474	526	581
ACT:	40	40	40	40	40	43	47	47	47	50	50	50
ACTCUM:	80	120	160	200	240	283	330	377	424	474	524	574

1976

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	59	60	63	70	63	73	75	75	75	75	75	75
REQCUM:	640	700	763	826	889	962	1037	1112	1187	1262	1337	1412
ACT:	59	60	63									
ACTCUM:	633	693	756									

1977

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	75	75	75	75	75	73	69	60	55	53	50	47
REQCUM:	1487	1562	1637	1712	1787	1860	1929	1989	2044	2097	2147	2194
ACT:												
ACTCUM:												

1978

	J	F	M	A	M	J	J	A	S	O	N	D
REQ:	43	41	38	35	30	0	0	0				
REQCUM:	2237	2278	2316	2351	2381	2381	2381	2381				
ACT:												
ACTCUM:												

Appendix C

GSA Dependence

There are several elements within the program which might have to be changed if the program is placed on any system other than GSA. The following is a breakdown of these statements.

a. $SAV - This causes an object listing of the program to be saved.

b. $NDM - This statement causes the diagnostics to be eliminated.

c. $RPC - This causes the common statement to be implied within all subroutines containing this statement.

d. PRINT - Same as a write statement.

e. READ 10 - Read from terminal using format 10.

f. CALL OPENF ( ) - Open a file for input/output.

g. LINE N = 95*(1+2**8+2**16) - Sets line equal to ____ ____ ____

h. CALL SAVSCT(2,IA) - Causes the location currently being pointed at within file 2 to be placed in IA.

i CALL SETSCT(2,IA) - Sets the pointer to file 2 at the location indicated by IA.

j. CALL EXIT - Closes all files and exits from the program.

k. WRITE (1;5)A - Write the value of "A" onto file 1 suppressing line numbers.

l. READ (3,42)(J),KK=1,20) - J will contain the last element read (20th) from file "3".

m CALL CLOSEF(1,OUTPUT) - Close file 1 using the name found in

output.

These are the most obvious differences which might occur, but other incompatibilities may occur when this program is implemented on other systems.

Appendix D

Appendix D contains a list of the global variables used in the main M60 program described in chapter 4.

VARIABLES

1. FLAG(12) - Control Flag
2. NED - Number of components to be worked with
3. NEL - Number of vehicles in tank file
4. L(120) - Working variable
5. X(120) - Pointer variable
6. XX - Pointer variable
7. J1M - First month of the program
8. J1Y - First year of the program
9. J2M - Last month of the program
10. J2Y - Last year of the program
11. J3M - Current month
12. J3Y - Current year
13. ONES(121) - Control Flag
14. IDIV - Length of names in files
15. IDIV1 - IDIV + 2
16. LEN - Total number of months in program
17. LINE - 95*(1+2**8+2**16)=____ ____ ____ (3 Underlines)
18. NUMZ - Calendar years in the program
19. NUMU - Number of lines per record - 1
20. NUMY - Number of historical calendar years
21. LENØ - Number of months of historical data
22. LEN1 - LENØ + 1
23. LENZ - Total number of items in record
24. LENU - Total number of items in historical period

25. YY - Pointer variable

26. Y(120) - Pointer variable

27. TANK - Contains tank file name

28. COMP - Contains component file name

29. CONT - Contains contract file name

30. OUTPUT - Contains output file name

31. TOD - Time of day program run

32. DATE(3) - Current date

33. ZZ - Pointer variable

34. Z(120) - Pointer variable

35. LE(120) - Working variable

36. LPU(120) - Working variable

37. IA(120) - Working variable

38. LQ(120) - Working variable

39. ICT(120) - Working variable

40. ITT(120) - Working variable

41. ITP(120) - Working variable

42. ICP(120) - Working variable

43. JEFM - Print parameters

44. JEFY - Print parameters

45. LN - Number of months in future -1

46. LP - Number of months in future +1

47. LENF - Number of months in future

48. NUM - Number of suppliers in record

49. IBBM - Month a schedule goes bad

50. IBBY - Year a schedule goes bad

51. IEBM - Month a schedule recovers

52. IEBY - Year a schedule recovers

53. IEND - Deficit at end of program

54. IB(120,10) - Working variable

55. IBB (10) - Working variable

56. IBL - Working variable

Appendix E

Appendix E contains a complete listing of this piano roll program.

```
10010$SAV
10020C CURRENT AS OF 28 JULY 1976
10030C THIS IS THE MAIN PIANO ROLL PROGRAM
10040$NDM
10050$RPC
10060$TTY,76
10070 LOGICALFLAG(12),ONES(121)
10080 COMMONFLAG,NED,NEL,L(120),X(120),XX,J1M,J1Y,J2M,J2Y,J3M,J3Y,ONES,
10090&IDIV,IDIV1,LEN,LINE,NUMZ,NUMV,NUMY,NUMMER,LENO,LENT,YY,Y(120),
10100&TANK,COMP,CONT,OUTPUT,TOD,DATE(3),ZZ,Z(120),LE(120),LPU(120),IA(120),
10110&LO(120),ICT(120),ICP(120),ITT(120),ITP(120),JEFM,JEFY,LN,LP,LENF,NUM,
10120&IBBM,IBBY,IEBM,IEBY,IEND,IB(120,10),IBB(10),AB(10),IBC
10130 100D0105I=1,12
10140 105L(I)=1
10150 L(1)=0
10160 L(4)=0
10170 PRINT," TYPE IN THE CONTROL VECTOR"
10180 PRINT,"          (SMT,SUM,FLT,CTS,TAK,DAT,TIM,VAR)"
10190 PRINT," DEFAULT ( 0 , 1 , 1 , 0 , 1 , 1 , 1 , 1 )"
10200 PRINT," FOR FURTHER INSTRUCTIONS TYPE -1"
10210 READ,(L(I),I=1,10)
10220 IF(L(1).NE.-1)GOTO110
10230 PRINT,
10240 PRINT," SMT=1 IF THE SMOOTHING ROUTINE IS TO BE USED AND "
10250 PRINT," SMT=0 OTHERWISE"
10260 PRINT,
10270 PRINT," SUM=2 IF NO COMPONENTS ARE TO BE USED,"
10280 PRINT," SUM=1 IF COMPLETE OUTPUT IS TO BE PRINTED"
10290 PRINT," SUM=0 OF ONLY SUMMARY OUTPUT IS TO BE PRINTED AND"
10300 PRINT,
10310 PRINT," FLT=1 IF THE FLOAT ROWS ARE TO BE PRINTED AND"
10320 PRINT," FLT=0 IF THEY ARE NOT"
10330 PRINT,
10340 PRINT," CTS=1 IF THE CONTRACTOR SCHEDULE IS TO BE PRINED AND"
10350 PRINT," CTS=0 IF NOT"
10360 PRINT,
10370 PRINT," TAK=1 IF THE TANK FILE IS TO BE PRINTED AT THE END"
10380 PRINT,"       OF THE OUTPUT"
10390 PRINT," TAK=0 IF IT IS NOT TO BE PRINTED"
10400 PRINT,
10410 PRINT," DAT=1 IF THE CURRENT DATE IS TO BE PRINTED AT THE"
10420 PRINT,"       TOP OF THE OUTPUT AND"
10430 PRINT," DAT=0 IF IT IS NOT TO BE PRINTED"
10440 PRINT,
10450 PRINT," TIM=1 IF THE TIME OF THE REPORT IS TO BE PRINTED"
10460 PRINT," TIM=0 IF IT IS NOT TO BE PRINTED"
10470 PRINT,
10480 PRINT," VAR=1 IF VARIANCE AND CUM VARIANCE TO BE PRINTED"
10490 PRINT," VAR=0 IF NOT"
10500 PRINT,
```

```
10510 GOTO100
10520 110CONTINUE
10530 DO120I=1,12
10540 FLAG(I)=.TRUE.
10550 120IF(L(I).EQ.0)FLAG(I)=.FALSE.
10560 IF(L(2).EQ.2)FLAG(11)=.FALSE.
10570 FLAG(12)=FLAG(8)
10580 CALLINITT
10590 IF(FLAG(11))CALLINITP
10600 IF(FLAG(4).AND.FLAG(11))CALLINITN
10610 CALLHEAD
10620C********************* END  MAIN-2 ***********************************
10630 IF(.NOT.FLAG(11))GOTO16
10640 DO130I=1,NED
10650 CALLROLLER(I)
10660 CALLSPLIT(I)
10670 CALLPRINT(I)
10680 130CONTINUE
10690 16CONTINUE
10700 IF(FLAG(5))CALLTANKER
10710 CALLFOOT
10720 CALLEXIT
10730 STOP
10740 END
10750C********************* END  MAIN-2 ***********************************
10760 SUBROUTINEINITI
10770C*************INITIALIZES VARIABLES AND SETS POINTERS IN TANK FILE***
10780$RPC
10790 PRINT,"TANK FILE NAME"
10800 READ10,TANK
10810 10FORMAT(A6)
10820 CALLOPENF(2,TANK)
10830 IDIV1=26
10840C*************READS DATES*************************************************
10850 READ(2,3)J1M,J1Y,J2M,J2Y,J3M,J3Y
10860 3FORMAT(4X,6I2,40A2)
10870C*************INITIALIZES VARIABLES*****************************************
10880 LINE=95*(1+2**8+2**16)
10890 LEN=12*(J2Y-J1Y)+J2M-J1M
10900 NUMZ=J2Y-J1Y
10910 NUMY=J3Y-J1Y
10920 NUMV=NUMZ+NUMY
10930 JEFY=J3Y
10940 JEFM=J3M
10950 NUMBER =12*NUMV
10960 IF(J3M.EQ.12)JEFM=0
10970 IF(J3M.EQ.12)JEFY=JEFY+1
10980 LENO=12*(J3Y-J1Y)+J3M-J1M
10990 LENF=LEN-LENO
11000 LP=LENF+1
```

```
11010 LN=LENF-1
11020 LEN1=LEN0+1
11030C********************* END INITT-1 ***********************************
11040C
11050C*************THE VALUE OF POINTER  XX  IS SET TO THE TOP OF THE TANK*
11060C*************FILE********?*************************************************
11070 CALLSAVSCT(2,XX)
11080 NEL=0
11090C*************THE NEXT ELEVEN LINES SETS THE VALUE OF POINTERS *******
11100C*************X(I)  TO THE TOPS OF EACH TANK FILE RECORD**************
11110 1CONTINUE
11120 READ(2,5,END=4)K
11130 IF(K.EQ.1)GOTO2
11140 GOTO1
11150 5FORMAT(2X,I2)
11160 2CONTINUE
11170 BACKSPACE2
11180 NEL=NEL+1
11190 CALLSAVSCT(2,X(NEL))
11200 READ(2,5)K
11210 GOTO1
11220 4CONTINUE
11230 CALLSETSCT(2,XX)
11240 RETURN
11250 END
11260C********************* END INITT-2 ***********************************
11270 SUBROUTINEINITP
11280C************SETS POINTER IN COMPONENT FILE*****************************
11290$RPC
11300 PRINT,"COMPONENT FILE NAME"
11310 READ1,COMP
11320 1FORMAT(A6)
11330 CALLOPENF(3,COMP)
11340 READ(3,2)I
11350 2FORMAT(4X,I2)
11360 READ(3,2)I
11370C************CHECKS IF # OF VEHICLES IS THE SAME AS IN TANK FILE*****
11380 IF(I.NE.NEL)GOTO7
11390 IF(I.NE.0)GOTO4
11400 7PRINT20,NEL,I
11410 20FORMAT(////,"THEIR IS AN ERROR IN THE COMPONENT FILE"
11420&,"  NEL=",I5," AND I=",I5,////)
11430 CALL EXIT
11440 4CONTINUE
11450C*************THE NEXT LINES SKIP TO FIRST RECORD AND SETS VALUE OF***
11460C*************  POINTER  YY  ***************************************
11470 DO31I=1,I
11480 3READ(3,5)K
11490 5FORMAT(2X,I2)
11500 CALLSAVSCT(3,YY)
```

```
11510 J=0
11520C********** END INITP-1 **********
11530 PRINT21
11540 21FORMAT(/////,5X,"CHOOSE THE COMPONENTS FROM THE FOLLOWING LIST",/,
11550&5X,"THAT YOU WANT TO CONSTRUCT A PIANO ROLL FOR.",/,5X,
11560&"TYPE  -1  FOR A PIANO ROLL OF ALL COMPONENTS",///)
11570 6CONTINUE
11580C**********SETS VALUE OF POINTER TO FIRST LINE OF EACH RECORD******
11590 READ(3,5,END=9)I
11600 IF(I.EQ.1)GOTO8
11610 GOTO6
11620 8CONTINUE
11630 BACKSPACE3
11640 J=J+1
11650 CALLSAVSCT(3,Z(J))
11660C**********PRINTS OUT ACTUAL COMPONENTS**********
11670 READ(3,10)(L(I),I=1,IDIV1)
11680 10FORMAT(16X,40A2)
11690 PRINT11,J,(L(I),I=1,IDIV1)
11700 11FORMAT(5X,I5,")  ",40A2)
11710 GOTO6
11720 9CONTINUE
11730 PRINT28
11740 28FORMAT(///)
11750 DO12I=1,120
11760 12L(I)=0
11770C**********READ IN DESIRED COMPONENTS**********
11780 READ,(L(I),I=1,120)
11790 IF(L(1).NE.-1)GOTO13
11800 DO14I=1,J
11810 14L(I)=I
11820 I=J+1
11830 L(I)=0
11840 13CONTINUE
11850 I=1
11860 NED=0
11870C********** END INITP-2 **********
11880C
11890C**********SETS Y(I) TO DESIRED COMPONENTS THAT IS Y(1) POINTS*****
11900C**********TO THE FIRST RECORD TO BE PUT ON PIANO ROLL, AND NED****
11910C**********IS THE NUMBER OF COMPONENTS TO BE PUT ON PIANO ROLL*****
11920 15IF(L(I).LE.0.OR.L(I).GT.J)GOTO16
11930 NED=NED+1
11940 II=L(I)
11950 Y(NED)=Z(II)
11960 I=I+1
11970 GOTO15
11980 16CONTINUE
11990 RETURN
12000 END
```

```
12010C********** END INITP-3 **********
12020 SUBROUTINEINIT.
12030C**********SETS POINTER IN CONTRACT FILE**********
12040$RPC
12050 PRINT,"CONTRACT FILE NAME"
12060 READ1,CONT
12070 1FORMAT(A6)
12080 CALLOPENF(4,CONT)
12090 READ(4,2)I
12100 2FORMAT(4X,I2)
12110 READ(4,2)I
12120 IF(I.EQ.NEL.AND.I.NE.0)GOTO4
12130 7PRINT20,NEL,I
12140 20FORMAT(////,"THEIR IS AN ERROR IN THE CONTRACT FILE, NEL=",I5,
12150$" AND I=",I5,////)
12160 CALL EXIT
12170 4CONTINUE
12180 DO3II=1,I
12190 3READ(4,5)K
12200 5FORMAT(2X,I2)
12210CC**********SETS VALUE OF ZZ TO FIRST RECORD IN CONTRACT FILE*******
12220 CALLSAVSCT(4,ZZ)
12230 DO100II=1,NED
12240C**********FINDS NUMBER OF I'th RECORD TO BE PRINTED IN PIANO ROLL
12250 CALLSETSCT(3,Y(I))
12260 READ(3,44)II
12270 44FORMAT(I2)
12280C**********FINDS COOR. RECORD IN CONTRACT FILE**********
12290 12READ(4,44,END=7)J
12300 IF(J.NE.II)GOTO12
12310 BACKSPACE4
12320C**********SETS VALUE OF POINTER x^Z(I) TO CORRESPONDING RECORD****
12330 CALLSAVSCT(4,Z(I))
12340 CALLSETSCT(4,ZZ)
12350 100CONTINUE
12360 RETURN
12370 END
12380C********** END INITN-1 **********
12390 SUBROUTINEHEAD
12400$RPC
12410C**********CHECKS FOR PRE-EXISTING COPIES OF THE OUTPUT FILE*******
12420 10131=0
12430 PRINT,"OUTPUT FILE NAME"
12440 READ1,OUTPUT
12450 CALLOPENF(5,OUTPUT,7,"S172","      ",I,IS)
12460 IF(IS.EQ.2)GOTO1
12470 IF(IS.GE.2)GOTO1011
12480 PRINT,"THE FILE ALREADY EXISTS. DO YOU WANT TO OVERWRITE IT?"
12490 PRINT,"ANS. YES OR NO."
12500 CALLCLOSEF(5)
```

```
12510 READ1012,I
12520 1012FORMAT(A3)
12530 IF(I.EQ."YES")GOTO1
12540 GOTO1013
12550 1011CONTINUE
12560 IF(IS.NE.8)GOTO1014
12570 PRINT,"THIS FILE IS ALREADY OPEN YOU CURRENTLY CAN'T USE IT AS A"
12580 PRINT,"OUTPUT FILE, TRY AGAIN"
12590 GOTO1013
12600 1014CONTINUE
12610 PRINT,"THE FILE COULD NOT BE OPENED. IT MAY HAVE A PASSWORD"
12620 PRINT,"TRY AGAIN; CONDITION CODE=",IS
12630 GOTO1013
12640C**********PRINTS OUT FILE HEADER ON OUTPUT FILE**********
12650 1FORMAT(A6)
12660 WRITE(1;2)
12670 WRITE(1;2)
12680 2FORMAT(76("*"))
12690 WRITE(1;3)
12700 3FORMAT(///)
12710 4FORMAT(14X,49("*"))
12720 5FORMAT(15X,"M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS")
12730 WRITE(1;4)
12740 WRITE(1;5)
12750 WRITE(1;4)
12760 WRITE(1;17)
12770 17FORMAT(/)
12780C**********DETERMINES NUMBER OF DAYS IN MONTH**********
12790 I=J3Y
12800 IF(I.EQ.1.OR.I.EQ.3.OR.I.EQ.5.OR.I.EQ.7.OR.I.EQ.8.OR.I.EQ.10.OR.
12810&I.EQ.12)IMTH=31
12820 IF(I.EQ.4.OR.I.EQ.6.OR.I.EQ.9.OR.I.EQ.11)IMTH=30
12830 K=J3Y-(J3Y/4)*4
12840 IF(I.EQ.2.AND.K.EQ.0)IMTH=29
12850 IF(I.EQ.2.AND.K.NE.0)IMTH=28
12860 WRITE(1;167)J3I,IMTH,J3Y
12870 167FORMAT(10X,"LAST UPDATE OF REPORT: ",2(I2,"/"),I2)
12880 CALLDATIME(I,TOD,DATE)
12890 IF(FLAG(6))WRITE(1;10)(DATE(I),I=1,3)
12900 10FORMAT(10X,"DATE OF REPORT: ",3A6)
12910 IF(FLAG(7))WRITE(1;40)TOD
12920 40FORMAT(10X,"TIME OF REPORT: ",A6)
12930 WRITE(1;11)TANK
12940 11FORMAT(10X,"TANK FILE NAME: ",A6)
12950 IF(.NOT.FLAG(11))GOTO1873
12960 WRITE(1;12)COMP
12970 12FORMAT(10X,"COMPONENT FILE NAME: ",A6)
12980 IF(FLAG(4))WRITE(1;13)CONT
12990 13FORMAT(10X,"CONTRACT FILE NAME: ",A6)
13000 WRITE(1;17)
```

```
13010 WRITE(1;18)
13020 18FORMAT(10X,"COMPONENTS INCLUDED IN THIS LINE",
13030&/,10X,"OF BALANCE PRODUCTION REPORT",//)
13040 DO20I=1,NED
13050 CALLSETSCT(3,Y(I))
13060 READ(3,30)(L(J),J=1,IDIV1)
13070 30FORMAT(16X,40A2)
13080 WRITE(1;31)I,(L(J),J=1,IDIV1)
13090 31FORMAT(13X,I5,")  ",40A2)
13100 20CONTINUE
13110 1873CONTINUE
13120 WRITE(1;3)
13130 WRITE(1;2)
13140 RETURN
13150 END
13160 SUBROUTINEROLLER(IPE)
13170C**********FIGURES PROJECTED SCHELULE FOR EACH COMPONENT AND*******
13180C**********SMOOTHS THIS SCHELULE IF DESIRED**********************
13190$RPC
13200 CALLSETSCT(3,Y(IPE))
13210 READ(3,1)IT,NUM,(L(I),I=1,IDIV1)
13220 1FORMAT(2(4X,I4),40A2)
13230 PRINT200
13240 IF(.NOT.FLAG(1))GOTO3
13250 200FORMAT(//,76("*"))
13260 PRINT2,(L(I),I=1,IDIV1)
13270 2FORMAT(//," THE CURRENT COMPONENT TO BE SMOOTHED IS: ",
13280&/,7X,40A2)
13290 4FORMAT(/)
13300 GOTO1817
13310 3CONTINUE
13320 PRINT1817,(L(I),I=1,IDIV1)
13330 1817FORMAT(//,5X,"COMPONENT: ",40A2)
13340 PRINT4
13350C**********READS LEADTIMES AND PERCENTAGE USE FOR EACH VEHICLE*****
13360C**********FROM THE COMPONENT FILE**********************************
13370 READ(3,5)((LE(I),LPU(I)),I=1,NEL)
13380 5FORMAT(4X,12(I2,I3))
13390 IP=0
13400 DO28I=1,120
13410 28ICP(I)=0
13420C********** END ROLLER-1 ***********************************
13430C
13440C**********NUM IS THE NUMBER OF SUPPLIERS, AND THIS DO LOOP WILL***
13450C**********READ THE DATA FROM THE COMPONENT FILE*******************
13460 DO10K=1,NUM
13470C**********IT IS THE ACTUAL INITIAL FOR THIS SUPPLIER**************
13480 IF(NUM.NE.1)READ(3,6)IT
13490 6FORMAT(4X,I4)
13500C**********IP IS THE SUM ALL ACTUAL INITIAL FOR THIS COMPONENT*****
```

```
13510C************PLUS ALL PAST ACTUAL PRODUCTION FOR THIS COMPONENT******
13520 IP=IP+IT
13530C************READ, L , THE PAST PLANNED, NOT USED HERE, AND*********
13540C************ ICT , THE MAXIMUN PRODUCTION RATE FOR THIS SUPPLIER***
13550 READ(3,7)(L(I),I=1,LENO),(ICT(I),I=1,LENF)
13560 7FORMAT(4X,12I5)
13570C************READ, L , THE PAST ACTUAL PRODUCTION FOR THIS SUPPLIER*
13580 READ(3,7)(L(I),I=1,LENO)
13590 DO8I=1,LENO
13600 8IP=IP+L(I)
13610 DO9I=1,LENF
13620C************ICP IS THE SUM OF THE MAXIMUN PRODUCTION RATE OVER*****
13630C************ALL SUPPLIERS, MONTH BY MONTH**************************
13640 9ICP(I)=ICP(I)+ICT(I)
13650 10CONTINUE
13660C************END ROLLER-2 ******************************************
13670C
13680 DO23I=1,120
13690 IB(I,3)=0
13700 IB(I,4)=0
13710 23ITP(I)=0
13720 IT=0
13730 IBC=0
13740 DO20K=1,NEL
13750C************IF NEXT STATEMENT IS TRUE THEN VEHICLE DOES NOT USE*****
13760C************THIS COMPONENT*****************************************
13770 IF(LE(K).EQ.99.OR.LPU(K).EQ.0)GOTO20
13780C************ * USE ***************************************************
13790 LL=LPU(K)
13800C************IKB IS THE ROUNDING FACTOR*****************************
13810 IKB=100-LL
13820C************ SET POINTER TO VEHICLE CONTAINING COMPONENT*************
13830 CALLSETSCT(2,X(K))
13840C************ # OF MONTHS IN PAST PLUS LEAD TIME**********************
13850 LEP=LENO+LE(K)
13860C************ REMAINING MONTHS IN THE PROGRAM ************************
13870 LEF=LENF-LE(K)
13880 IBD=LE(K)
13890 READ(2,25)ITL
13900 IT=IT+(ITL*LL+IKB)/100
13910 IBC=IBC+(ITL*LL+IKB)/100
13920 25FORMAT(8X,I4)
13930 IF(LEF.GT.0)GOTO11
13940 PRINT,"ERROR IN ROLLER, LEF,K,IPE=",LEF,K,IPE
13950 CALLEXIT
13960 11CONTINUE
13970C************MONTH BY MONTH PLANNED INCL LEAD TIME IS L ************
13980C************MONTH BY MONTH PLANNED IN FUTURE IS ICT ***************
13990 READ(2,7)(L(I),I=1,LEP),(ICT(I),I=1,LEF)
14000 DO60SI=1,LENO
```

```
14010 J=I+IBD
14020C**********SUM OF ALL VEH PUSHED BACK BY LEAD TIME WILL BE IB *****
14030C**********HISTORICAL LOB ***************************************
14040 IB(I,3)=IB(I,3)+(L(J)*LL+IKB)/100
14050 605CONTINUE
14060 D021I=1,LEP
14070C**********TOTAL OF ALL VEH REQUIREMENTS IN PAST INCL LEAD TIME  IT
14080 IT=IT+(L(I)*LL+IKB)/100
14090 21CONTINUE
14100 D0604I=1,IBD
14110C**********VEH PLANNED BEFORE LEAD TIME  WILL BE COMPENSATED LATER*
14120C********** IS IBC ***************************************************
14130 604IBC=IBC+(L(I)*LL+IKB)/100
14140 D022I=1,LEF
14150 J=I+LENO
14160C**********TOTAL FUTURE REQUIREMENTS LOB IS IB(*,3) AND ITP(*) ****
14170 IB(J,3)=IB(J,3)+(ICT(I)*LL+IKB)/100
14180 ITP(I)=ITP(I)+(ICT(I)*LL+IKB)/100
14190 22CONTINUE
14200 20CONTINUE
14210C********** END ROLLER 3 ***************************************
14220C**********INITIAL SURPLUS OR DEFICIT AT 1st MONTH IN THE FUTURE*
14230C********** IS  IS  ********************************************
14240 IS=IP-IT
14250C**********ZEROING OUT SURPLUS  IN FIRST MONTHS OF PROGRAM ********
14260 D042I=1,LENF
14270 IF(IS.GT.ITP(I))GOTO41
14280 L(I)=ITP(I)-IS
14290 IS=0
14300 GOTO42
14310 41IS=IS-ITP(I)
14320 L(I)=0
14330 42CONTINUE
14340 D030I=1,LENF
14350C**********MOVE THE FIRST TENTATIVE SCHEDULE TO IB(*,4)***********
14360 ICT(I)=ICP(I)
14370C**********IIT AND L IS THE REQUIREMENTS SCHEDULE ****************
14380 30IIT(I)=L(I)
14390 FLAG(9)=.FALSE.
14400C**********END ROLLER 4 ****************************************
14410C
14420C
14430 107CONTINUE
14440C
14450C
14460C**********FIRST WE COMPARE THE MAX PRO SCH TO THE REQUIRED PRO SCH
14470C**********FROM LAST MONTH TO FIRST*****************************
14480 D050KK=1,LN
14490 K=LP-KK
14500C**********MAX PROD GREATER THAN REQUIRED **********************
```

```
14510 IF(ICT(K).GE.L(K))GOTO50
14520 J=K-1
14530C**********ADD DEFICIT TO PREVIOUS MONTH**********
14540 L(J)=L(J)+L(K)-ICT(K)
14550C**********SET PROD TO MAX **********
14560 L(K)=ICT(K)
14570 50CONTINUE
14580 FLAG(10)=.TRUE.
14590C********** IF REQUIRED FOR 1st MONTH IN FUTURE IS GREATER THAN****
14600C**********MAX PRODUCTION SCHEDULE  THEN SCHEDULE IS BAD**********
14610 IF(L(1).GT.ICT(1))CALLBAD
14620C**********START OF SMOOTHING ROUTINE L(*) CONTAINS A TENTATIVE PROD
14630C**********SCHEDULE**********
14640 DO51I=1,12
14650 LO(I)=88888
14660 51CONTINUE
14670 IF(FLAG(9))GOTO602
14680 FLAG(9)=.TRUE.
14690 DO601I=LEN1,LEN
14700 J=I-LEN0
14710 601B(I,4)=L(J)
14720 602CONTINUE
14730C**********RETURN OF NO SMOOTHING IS TO BE DONE**********
14740 IF(.NOT.FLAG(1))RETURN
14750C**********END OF ROLLER 5 **********
14760 PRINT200,
14770 PRINT58
14780 58FORMAT(//,10X,"TRIAL COMPONENT SCHEDULE:")
14790C**********WRITE TRIAL PRODUCTION SCHEDULE **********
14800 PRINT52,JEFY,(LO(I),I=1,JEFM),(L(I),I=1,LENF)
14810 52FORMAT(10X,"THE FIRST YEAR IS: 19",I2,///,13X,
14820&"J    F    M    A    M    J    J    A    S    O    N    D",
14830&//,10(10X,12I5,/))
14840 PRINT53,
14850 53FORMAT(//)
14860 PRINT,"DO YOU WISH TO PRINT THIS COMPONENT, YES OR NO."
14870 READ54,I
14880 54FORMAT(A3)
14890C**********RETURN IF SCHEDULE IS GOOD **********
14900 IF(I.EQ."YES")RETURN
14910 110CONTINUE
14920 PRINT200
14930 PRINT59
14940 59FORMAT(//,10X,"MODIFIED MAXIMUN PRODUCTION SCHEDULE:",/)
14950 PRINT52,JEFY,(LO(I),I=1,JEFM),(ICT(I),I=1,LENF)
14960 PRINT,"TYPE IN RELATIVE CHANGES TO THE SCHEDULE IN THE FOLLOWING"
14970 PRINT,"FORMAT    YY,J,F,M,...,N,D  ."
14980 PRINT,"CARRAIGE RETURN AFTER LAST CHANGE"
14990 108CONTINUE
15000 IR=0
```

```
15010 DO60I=1,13
15020 60LO(I)=0
15030C************READ CHANGES TO MAX PROD SCHEDULE **********************
15040C************  IR IS THE YEAR THE CHANGES ARE TO BE MADE TO *********
15050 READ,IR,(LO(I),I=1,12)
15060 IF(IR.EQ.0)GOTO109
15070 IF((IR.LT.JEFY.OR.IR.GT.J2Y)GOTO110
15080C************K IS THE 1st WHERE CHANGES OCCUR **********************
15090 K=(IR-JEFY)*12-JEFM+1
15100C************ KK IS THE LAST MONTH  WHERE CHANGES OCCUR ************
15110 KK=K+11
15120 J=0
15130 IF(K.GE.1)GOTO61
15140 J=1-K
15150 K=1
15160 61CONTINUE
15170C************CHANGE MAX PROD SCHEDULE **************************
15180 DO64I=K,KK
15190 J=J+1
15200 ICT(I)=ICT(I)+LO(J)
15210 64CONTINUE
15220 GOTO108
15230 109CONTINUE
15240C**********END ROLLER 6 ***************************************
15250C************CHECK TO SEE IF NEW MAX PROD SCHEDULE IS ABOVE LIMIT ***
15260 DO70I=1,LENF
15270 IF(ICT(I).GT.ICP(I))ICT(I)=ICP(I)
15280 70L(I)=ITT(I)
15290 GOTO107
15300 RETURN
15310 END
15320 SUBROUTINEREAD
15330C************THIS SUBROUTINE CALLED FROM ROLLER IF A TENTATIVE ******
15340C************SCHEDULE IS BAD IT DETERMINES WHEN THE SCHEDULE WENT BAD
15350C************AND WHEN, IF IT DOES, CATCH UP AGAIN ******************
15360$RPC
15370 FLAG(10)=.FALSE.
15380 II=L(1)-ICT(1)
15390C************II IS THE TOTAL PERDICTED SHORTFALL ********************
15400 III=II
15410C************ SETS L(1) TO THE MAX PROD RATE **********************
15420 L(1)=ICT(1)
15430C************THIS DO-LOOP DISTRIBUTS THE SHORTFALL  INTO THE FUTURE**
15440 DO2I=1,LENF
15450 IF((ICT(I)-L(I).LT.II)GOTO3
15460 L(I)=L(I)+II
15470 GOTO4
15480 3CONTINUE
15490 II=II-ICT(I)+L(I)
15500 L(I)=ICT(I)
```

```
15510 2CONTINUE
15520C**************IN THIS CASE THE LINE WILL NOT CATCH UP BEFORE THE END**
15530C**************OF THE PROGRAM*****************************************
15540 I4=II
15550 I5=LENF
15560 GOTO6
15570 4CONTINUE
15580C************** THE SHORTFALL WILL BE MADE UP IN THE Ith MONTH IN THE***
15590C**************FUTURE*************************************************
15600 I4=0
15610 I5=I
15620 6CONTINUE
15630 I6=I7=0
15640C**************THIS DO-LOOP DETERMINES THE FIRST MONTH WHERE THE ******
15650C**************SCHEDULE GOES BAD ***************************************
15660 DO7I=1,I5
15670 I6=I6+L(I)
15680 I7=I7+ITT(I)
15690 IF(I7.GT.I6)GOTO3
15700 7CONTINUE
15710 8CONTINUE
15720 I8=I
15730C**************I5 IS THE NUMBER OF MONTHS TO WHERE THE SCHEDULE RETURNS
15740C**************TO ABOVE THE LINE OF PALENCE ****************************
15750 I5=I5+LENO
15760C**************I8 IS THE NUMBER OF MONTHS TO WHERE THE SCHEDULE GOES **
15770C**************BAD *****************************************************
15780 I8=I8+LENO
15790C**************IEND IS THE SHORTFALL AT THE END OF THE PROGRAM*********
15800 IEND=I4
15810 IBBM=I8-(I8/12)*12
15820 IBBY=JIY+(I8-1)/12+1
15830 IEBM=I5-(I5/12)*12
15840 IEBY=JIY+(I5-1)/12+1
15850 IF(IEBM.EQ.0)IEBM=12
15860 IF(IBBM.EQ.0)IBBM=12
15870 PRINT11,IBBM,IBBY,IEBM,IEBY,III,I4
15880 11FORMAT(//,10X,"BAD SCHEDULE",//,10X,"IT GOES BAD ON",I3,"/",I2,
15890&/,10X,"AND IT RECOVERS ON",I3,"/",I2,//,10X,"YOU MUST ADD AT LEAST",
15900&I5," UNITS EARLY IN THE SCHEDULE",/,10X,
15910&"UNRECOVERABLE SHORTFALL OF",I5," UNITS",//)
15920 RETURN
15930 END
15940C********** END OF BAD ***********************************************
15950 SUBROUTINESPLIT(IPE)
15960C
15970C SPLIT IS CALLED FROM THE MAIN PROGRAM
15980C
15990$RPC
16000 NUM2=NUM+2
```

```
16010 REWIND5
16020 IF(NUM.NE.1.AND.FLAG(2))GOTO1
16030C
16040C NUM IS THE NUMBER OF SUPPLIERS AND FLAG(2) IS FOR COMPLETE OUTPUT
16050C
16060 WRITE(5,161)(L(I),I=1,LENF)
16070 161FORMAT(I5)
16080 16FORMAT(12I5)
16090 RETURN
16100 1CONTINUE
16110 I=0
16120 8CONTINUE
16130 CALLSETSCT(3,Y(IPE))
16140 K=(NEL+23)/12
16150 DO4I=1,K
16160 2FORMAT(I2)
16170 4READ(3,2)J
16180 CALLSAVSCT(3,VJ)
16190C
16200C SET POINTER VJ TO FIRST SUPPLIER
16210C
16220 DO10I=1,NUM
16230C
16240C THIS DO LOOP READS THE % SPLIT FOR EACH SUPPLIER
16250C
16260 READ(3,11)ICP(I)
16270 11FORMAT(12X,I4)
16280 DO10KK=1,NUMV
16290 READ(3,2)K
16300 10CONTINUE
16310 DO15I=1,NUM
16320 ITT(I)=ICP(I)
16330 15CONTINUE
16340 DO20I=1,NUM
16350C
16360C THIS DO LOOP DETERMINES THE % SPLIT RANK ORDER
16370C
16380 K=1
16390 KK=ITT(1)
16400 DO21J=2,NUM
16410C
16420C THIS DO LOOP DETERMINES THE MAXIMUN % SPLIT OF THOSE THAT ARE LEFT
16430C
16440 IF(KK.GE.ITT(J))GOTO21
16450 K=J
16460 KK=ITT(J)
16470 21CONTINUE
16480 ITT(K)=0
16490C
16500C ICT(I) IS THE NUMBER OF THE SUPPLIER WITH THE HIGHEST % SPLIT
```

```
16510C
16520 ICT(I)=K
16530 20CONTINUE
16540C**********************END Of SPLIT-1**********************************
16550 DO40K=1,LENF
16560 CALLSETSCT(3,VJ)
16570C
16580C K1 IS THE MONTH IN THE PROGRAM TO BE SPLIT
16590C
16600 K1=LENO+K
16610 K2=NUMBER-K1
16620 DO41I=1,NUM
16630 READ(3,2)KA
16640C
16650C THE NEXT STATEMENT READS THE Ith SUPPLIERS K1th MONTH INTO J
16660C THE LAST IMPLIED DO LOOP ((KA),KK=1,K2) READS THE REMAINING MONTHS
16670C
16680 READ(3,42)((J),KK=1,K1),((KA),KK=1,K2)
16690 ITT(I)=J
16700C ICT(I) CONTAINS THE NUMBER OF THE Ith PRIORTY SUPPLIERS NUMBER
16710C
16720 IA(I)=0
16730 ONES(I)=.TRUE.
16740 41CONTINUE
16750 42FORMAT(4X,1215)
16760C
16770C  L(K)  IS THE TOTAL SCHEDULE FOR THE MONTH WE ARE WORKING WITH
16780C
16790 ICB=L(K)
16800 DO45KK=1,NUM2
16810 CALLPUT(ICB)
16820 KA=0
16830 ONES(121)=.FALSE.
16840 DO43I=1,NUM
16850C
16860 J=ICT(I)
16870 IF(.NOT.ONES(I).OR.IA(J).LE.ITT(J))GOTO43
16880C
16890C THIS BRANCH IS TAKEN IF THE FIRST TIME IA(I) IS OVER THE MAXIMUN
16900C PRODUCTION RATE
16910C
16920 ONES(I)=.FALSE.
16930C
16940C KA IS THE AMOUNT  OVER MAX PRODUCTION SCHEDULE FOR ALL SUPPLIERS
16950C
16960 KA=KA+IA(J)-ITT(J)
16970C
16980C IA(J) IS SET TO MAXIMUN PRODUCTON RATE ITT(J)
16990C
17000 IA(J)=ITT(J)
```

```
17010 43CONTINUE
17020C
17030C SET ONES(121) TO  .TRUE.  IT AT LEAST ONE SUPPLIER IS STILL GOOD
17040C
17050 IF(ONES(I))ONES(121)=.TRUE.
17060 48CONTINUE
17070 IF(.NOT.ONES(121))GOTO46
17080 ICR=KA
17090 IF(KA.EQ.0)GOTO50
17100 45CONTINUE
17110 46CONTINUE
17120 PRINT,"ERROR IN SPLIT, K=",K
17130 50CONTINUE
17140C
17150C WRITE OUT SPLIT PRODUCTION SCHEDULE FOR THE  Kth MONTH
17160C
17170 WRITE(5,16)(IA(I),I=1,NUM)
17180 40CONTINUE
17190 RETURN
17200 END
17210C**********************END OF SPLIT-2*****************************
17220 SUBROUTINEPUT(IAM)
17230$RPC
17240 IFG=0
17250 DO11I=1,NUM
17260C
17270C J  IS THE NUMBER OF THE SUPPLIER WITH Ith PRIORITY
17280C
17290 J=ICT(I)
17300 IF(ONES(I))IFG=IFG+ICP(J)
17310 1CONTINUE
17320C
17330C IFG  TOTAL OF ALL SPLIT PERCENTAGES THAT ARE STILL ACTIVE
17340C IF IFG IS ZERO THEN YOU HAVE AN ERROR
17350 IF(IFG.EQ.0)RETURN
17360 K=0
17370 DO2I=1,NUM
17380 IF(.NOT.ONES(I))GOTO2
17390 J=ICT(I)
17400C
17410C KK IS THE TENTATIVE AMOUNT TO BE ADDED TO THE Jth SUPPLIERS AMOUNT
17420C
17430 KK=(IAM*ICP(J))/IFG
17440 IA(J)=IA(J)+KK
17450C
17460C K IS THE TOTAL AMOUNT GIVEN TO ALL SUPPLIERS
17470C
17480 K=K+KK
17490 2CONTINUE
17500 K=IAM-K
```

```
17510C
17520C IF K EQUAL TO ZERO THEN ALL UNITS ARE GIVEN OUT
17530C
17540 IF(K.EQ.0)RETURN
17550 JL=0
17560 124CONTINUE
17570 DO3I=1,NUM
17580 IF(.NOT.ONES(I))GOTO3
17590 J=ICT(I)
17600 IA(J)=IA(J)+1
17610C
17620C JL  IS THE TOTAL AMOUNT OF UNITS GIVEN OUT IN THIS DO LOOP
17630C
17640 JL=JL+1
17650 IF (JL.GE.K)RETURN
17660 3CONTINUE
17670 GOTO124
17680 4CONTINUE
17690 RETURN
17700 END
17710C*********END OF SUBROUTINE PUT ***********************************
17720 SUBROUTINEPRINT(IPE)
17730$RPC
17740 CALLSETSCT(3,Y(IPE))
17750C************SET POINTER TO CONTRACT FILE**********
17760 IF(FLAG(4))CALLSETSCT(4,Z(IPE))
17770 2FORMAT(76("*"))
17780 3FORMAT(///)
17790 4FORMAT(14X,49("*"))
17800 5FORMAT(15X,"M60/M48 LINE OF BALANCE PRODUCTION REQUIREMENTS")
17810 6FORMAT(/)
17820 WRITE(1;2)
17830 WRITE(1;3)
17840 WRITE(1;4)
17850 WRITE(1;5)
17860 WRITE(1;4)
17870 WRITE(1;6)
17880C************IF FLAG(10) .TRUE. YOU HAVE A GOOD SCHEDULE*******
17890 IF(FLAG(10))GOTO100
17900 WRITE(1;7)IBBM,IBBY
17910 IF(IEND.NE.0)GOTO100
17920 WRITE(1;8)IEBM,IEBY
17930 7FORMAT(10X,"PRODUCTION FALLS BEHIND IN",I3,"/",I2)
17940 8FORMAT(10X,"RECOVERY OCCURES IN",I3,"/",I2,//)
17950 1371FORMAT(10X,"UNRECOVERABLE PRODUCTION SHORTFALL OF",I5," UNITS",/
17960 100CONTINUE
17970 K=(NEL+11)/12
17980C************READ INITIAL VALUES AND COMPONENT NAME***********
17990 READ(3,101)IAA,IPP,(IA(I),I=1,IDIV1)
18000C************IF .NOT. FLAG(4) THERE IS NO CONTRACT FILE*******
```

```
18010 IF(.NOT.FLAG(4))GOTO316
18020C************READ CONTRACT INITIALS**********************
18030 READ(4,101)IAC,IPC
18040 CALLSAVSCT(4,UV)
18050 DO318I=1,K
18060 318READ(4,103)J
18070C************SET POINTER TO FIRST SUPPLIER*****************
18080 CALLSAVSCT(4,UVV)
18090 316CONTINUE
18100 101FORMAT(4X,2I4,4X,40A2)
18110 WRITE(1;9)(IA(I),I=1,IDIV1)
18120 9FORMAT(10X,"COMPONENT: ",40A2)
18130 WRITE(1;6)
18140C************IF NUMBER OF SUPPLIERS EQUALS 1 GO TO 102********
18150 IF(NUM.EQ.1)GOTO102
18160C************SKIP LEAD TIME/%USAGE LINES**********************
18170 DO121J=1,K
18180 121READ(3,103)I
18190 103FORMAT(I2)
18200C************READ & WRITE NAME OF SUPPLIER*******************
18210 READ(3,106)(IA(I),I=1,IDIV1)
18220 WRITE(1;10)(IA(I),I=1,IDIV1)
18230 10FORMAT(10X,"SUPPLIERS: ",40A2)
18240 11FORMAT(21X,40A2)
18250 106FORMAT(16X,40A2)
18260CREAD & WRITE NAMES OF THE REMAINING SUPPLIERS*****
18270 DO104I=2,NUM
18280 READ(3,103)((J),K=1,NUMV)
18290 READ(3,106)(IA(K),K=1,IDIV1)
18300 WRITE(1;11)(IA(K),K=1,IDIV1)
18310 104CONTINUE
18320 CALLSETSCT(3,Y(IPE))
18330 READ(3,103)I
18340C************FILE IS SET TO LEAD TIME/%USAGE LINE**********
18350 WRITE(1;6)
18360 GOTO107
18370C************HAVE ONE SUPPLIER*****************************
18380 102CONTINUE
18390 WRITE(1;12)IAA,IPP
18400 12FORMAT(10X,"INITIAL VALUES, ACTUAL:",I5,/,
18410&25X,"PLANNED:",I5)
18420 IF(FLAG(4))WRITE(1;13)IAC,IPC
18430 13FORMAT(17X,"CONTRACT ACTUAL:",I5,/,16X,"CONTRACT PLANNED:",I5)
18440 WRITE(1;6)
18450 107CONTINUE
18460 WRITE(1;14)
18470 14FORMAT(10X,"LEAD   PERCENT",/,10X,"TIME     USE     ",
18480&"WEAPONS SYSTEMS NAME",/)
18490C************READ LEAD TIMES AND PERCENT USE*****************
18500 READ(3,109)((LE(K),LPU(K)),K=1,NEL)
```

```
18510 109FORMAT(4X,12(I2,I3))
18520C***VV POINTS TO THE FIRST LINE OF DATA IF THERE IS ONE SUPPLIER
18530C***OR TO THE FIRST SUPPLIER IF THERE THERE ARE SEVERAL SUPPLIERS
18540 CALLSAVSCT(3,VV)
18550C************SET THE FILE TO THE TOP**************************
18560 REWIND3
18570 READ(3,103)I
18580 READ(3,103)I
18590 DO110K=1,NEL
18600C************READ VEHICLE NAMES*****************************
18610 READ(3,111)(IA(I),I=1,IDIV1)
18620 111FORMAT(4X,40A2)
18630C************Kth VEHICLE DOES NOT CONTAIN COMPONENT*****
18640 IF(LE(K).EQ.99.OR.LPU(K).EQ.0)GOTO110
18650C************WRITE LEAD TIMES AND PERCENT USE*****************
18660 WRITE(1,115)LE(K),LPU(K),(IA(I),I=1,IDIV1)
18670 115FORMAT(8X,I5,I9,4X,40A2)
18680 110CONTINUE
18690 WRITE(1,3)
18700 ICT1=0
18710 L1=0
18720 LQ1=0
18730 ICP1=0
18740 DO220I=1,120
18750 L(I)=0
18760 LQ(I)=0
18770 ICT(I)=0
18780 ICP(I)=0
18790 220CONTINUE
18800C********** ONES(I),I=1,10 ARE THE FLAGS FOR SUBROUTINE LIST***
18810 DO201I=3,10
18820 201ONES(I)=.FALSE.
18830 ONES(1)=.TRUE.
18840 ONES(2)=.TRUE.
18850 ONES(5)=.TRUE.
18860 ONES(6)=.TRUE.
18870C************IF .NOT. FLAG(4) NO CONTRACT FILE**************
18880 IF(.NOT.FLAG(4))GOTO200
18890 CALLSETSCT(4,UV)
18900C************IZB EQUALS LENGTH OF CONTRACT IN MOUNTHS*********
18910 READ(4,109)I,IZB
18920C************SET POINTER TO THE 1st SUPPLIER IF MORE THAN******
18930C************ONE SUPPLIER*************************************
18940C************OR TO THE 1st LINE OF DATA IF ONLY ONE SUPPLIER***
18950 CALLSETSCT(4,UVV)
18960 DO300I=7,10
18970 300ONES(I)=.TRUE.
18980 IRP(7)=IZB
18990 AB(7)="  CNTP"
19000 AB(8)="CNTPCM"
```

```
19010 IBB(8)=IZP
19020 AB(9)="  CNTA"
19030 AB(10)="CNTACM"
19040 IBB(9)=LEN0
19050 IBB(10)=LEN0
19060 200CONTINUE
19070C**********SET AT THE 1st LINE OF DATA OR THE 1st SUPPLIER***
19080 CALLSETSCI(3,VV)
19090 IBB(1)=LEN
19100 AB(1)="   REQ"
19110 IBB(2)=LEN
19120 AB(2)="REQCUM"
19130 IBB(5)=LEN0
19140 AB(5)="   ACT"
19150 IBB(6)=LEN0
19160 AB(6)="ACTCUM"
19170C**********THERE IS ONLY ONE SUPPLIER OR ONLY SUMMARY********
19180C**********OUTPUT IS DESIRED**********************************
19190 IF(NUM.EQ.1.OR..NOT.FLAG(2))GOTO1000
19200 DO999KK=1,NUM
19210C**********READ NAME OF SUPPLIER & INITIAL VALUES************
19220 READ(3,101)IAA,IPP,(IA(I),I=1,IDIV1)
19230C**********IF FLAG(4) READ THE CONTRACT INITIALS**************
19240 IF(FLAG(4))READ(4,101)IAC,IPC
19250 WRITE(1;20)
19260 20FORMAT(76("-"))
19270 WRITE(1;3)
19280C**********WRITE THE SUPPLIER NAME & THE INITIALS************
19290 WRITE(1;21)(IA(I),I=1,IDIV1)
19300 21FORMAT(10X,"SUPPLIER: ",40A2)
19310 WRITE(1;6)
19320 WRITE(1;12)IAA,IPP
19330 IF(FLAG(4))WRITE(1;13)IAC,IPC
19340 WRITE(1;6)
19350C********** KK IS THE KKth SUPPLIER **************************
19360 J=KK-1
19370 KR1=KK+1
19380C**********READ THE HISTORICAL PLANNED DATA******************
19390 READ(3,203)((IB(I,1),I=1,LEN)
19400 203FORMAT(4X,12I5)
19410C********** READ THE PLANNED SCHEDULE FROM FILE 5 ***************
19420 REWIND5
19430 DO1204K=LEN1,LEN
19440 1204READ(5,204)((I),IQN=1,J),IB(K,1),((I),IQN=KR1,NUM)
19450 204FORMAT(12I5)
19460C********** SUM IB(*,1) TO TOTAL HOLDER L ***********************
19470 DO221I=1,LEN
19480 221L(I)=L(I)+IB(I,1)
19490 L1=L1+IPP
19500 CALLCUM(1,2,IPP,LEN)
```

```
19510C********** READ THE HISTORICAL ACTUALPRODUCTION **********
19520 READ(3,203)(IB(I,5),I=1,LENO)
19530C********** SUM IB(*,5) TO TOTAL HOLDER LO **********
19540 DO2221=1,LENO
19550 222LO(I)=LO(I)+IB(I,5)
19560 LOI=LOI+IAA
19570 CALLCUM(5,6,IAA,LENO)
19580C********** FILAL PLANNED CUM CORRECTION FACTOR **********
19590 K=IB(LENO,6)-IB(LENO,2)
19600C********** CORRECT PLANNED CUM **********
19610 DO2017I=LEN1,LEN
19620 2017IB(I,2)=IB(I,2)+K
19630C********** SKIP AROUND IF NO CONTRACT FILE/OTHERWISE IT SETS ******
19640C********** UP CONTRACT  AND CONTRACT CUM LINES **********
19650 IF(.NOT.FLAG(4))GO10210
19660 READ(4,203)(IB(I,7),I=1,LEN)
19670 CALLCUM(7,8,IPC,IZB)
19680 READ(4,203)(IB(I,9),I=1,LENO)
19690 CALLCUM(9,10,IAC,LENO)
19700 DO223I=1,IZB
19710 223ICT(I)=ICT(I)+IB(I,7)
19720 ICTI=ICTI+IAC
19730 DO224I=1,LENO
19740 224ICP(I)=ICP(I)+IB(I,9)
19750 ICPI=ICPI+IPC
19760 210CONTINUE
19770C********** LIST THE SUPPLIER **********
19780 CALLLIST
9790 999CONTINUE
19800 WRITE(1;20)
19810 WRITE(1;20)
19820 WRITE(1;3)
19830C ********** PREPARE TO WRITE TOTAL SECTION **********
19840 CALLSETSCT(3,Y(IPE))
19850 READ(3,101)I,I,(IA(J),J=1,IDIVI)
19860 WRITE(1;30)(IA(I),I=1,IDIVI)
19870 30FORMAT(10X,"TOTALS FOR: ",40A2)
19880 WRITE(1;6)
19890C**********WRITE ACTUAL & PLANNED INITIALS**********
19900 WRITE(1;12)LOI,LI
19910 IF(FLAG(4))WRITE(1;13)ICTI,ICPI
19920 GOTO1001
19930 1000CONTINUE
19940C**********BRANCH HERE IF ONLY ONE SUPPLIER OR IF ONLY*******
19950C**********SUMMARY OUTPUT IS DESIRED**********
19960 CALLSETSCT(3,VV)
19970 DO302K3=1,NUM
19980 IF(NUM.NE.1)READ(3,101)IAA,IPP
19990C**********LI & LOI WILL CONTAIN ACTUAL & PLANNED INITIALS **
20000C**********SUMMED OVER ALL SUPPLIERS**********
```

```
20010 LI=LI+IPP
20020 LOI=LOI+IAA
20030 READ(3,203)(LE(I),I=1,LEN)
20040 READ(3,203)(LPU(I),I=1,LENO)
20050 DO302I=1,LENO
20060C**********L(I) WILL CONTAIN MONTH BY MONTH PAST PLANNED*****
20070C**********SUMMED OVER ALL SUPPLIERS**********
20080 L(I)=L(I)+LE(I)
20090C**********LO(I) WILL CONTAIN MONTH BY MONTH ACTUALS*********
20100C**********SUMMED OVER ALL SUPPLIERS**********
20110 LO(I)=LO(I)+LPU(I)
20120 302CONTINUE
20130 REWIND5
20140 DO231I=LENI,LEN
20150 READ(5,204)K
20160C**********L(I) WILL CONTAIN THE MONTH BY MONTH SCHEDULE*****
20170C**********FOR THE COMPONENT SUMMED OVER ALL SUPPLIERS*******
20180 231L(I)=K
20190C**********NO CONTRACT FILE**********
20200 IF(.NOT.FLAG(4))GOTO1001
20210 CALLSETSCT(4,UVV)
20220 DO301KK=1,NUM
20230 IF(NUM.NE.1)READ(4,101)IAC,IPC
20240C**********ICTI & ICPI WILL CONTAIN CONTRACT ACTUAL & *******
20250C**********PLANNED SUMMED OVER ALL SUPPLIERS**********
20260 ICTI=ICTI+IPC
20270 ICPI=ICPI+IAC
20280 READ(4,203)(LE(I),I=1,LEN)
20290 READ(4,203)(LPU(I),I=1,LENO)
20300 DO301I=1,LEN
20310C**********ICT(I) WILL CONTAIN THE MONTH BY MONTH**********
20320C**********PLANNED CONTRACT SCHEDULE SUMMED OVER ALL SUPPLIERS**
20330 ICT(I)=ICT(I)+LE(I)
20340C**********ICP(I) WILL CONTAIN THE ACTUAL CONTRACT VALUES****
20350C**********SUMMED OVER ALL SUPPLIERS**********
20360 ICP(I)=ICP(I)+LPU(I)
20370 301CONTINUE
20380 1001CONTINUE
20390 DO400I=1,LEN
20400C**********COMPONENT SCHEDULE PAST AND FUTURE**********
20410 IB(I,1)=L(I)
20420C**********ACTUAL COMPONENT PRODUCTION LINE**********
20430 IB(I,5)=LO(I)
20440 IF(.NOT.FLAG(4))GOTO401
20450C**********CONTRACT SCHEDULE PAST & FUTURE**********
20460 IB(I,7)=ICT(I)
20470C**********CONTRACT ACTUALS**********
20480 IB(I,9)=ICP(I)
20490 401CONTINUE
20500 400CONTINUE
```

```
20510C**********THE REQCUM LINE IS PLACED IN IB(I,2) I=1,LEN******
20520 CALLCUM(1,2,LI,LEN)
20530C**********THE ACTCUM LINE IS PLACED IN IB(I,6) I=1,LEN0*****
20540 CALLCUM(5,6,LQI,LEN0)
20550 IF(.NOT.FLAG(4))GOTO402
20560C**********IB(I,8) I=1,IZB CONTAINS THE CONTRACT REQCUM******
20570 CALLCUM(7,8,ICI1,IZB)
20580C**********IB(I,10) I=1,LEN0 CONTAINS THE CONTRACT ACTCUM*****
20590 CALLCUM(9,10,ICP1,LEN0)
20600 402CONTINUE
20610 IF(FLAG(3))CALLZLOAT(IPE)
20620C*********K EQUALS THE DIFFERENCE BETWEEN THE ACTCUM********
20630C**********AND THE REQCUM AT THE LAST MONTH IN THE PAST******
20640 K=IB(LEN0,6)-IB(LEN0,2)
20650 DO2018I=LEN1,LEN
20660C*****ADD K TO ALL FUTURE REQCUM. THIS IS NECESSARY **********
20670C*****BECAUSE THE FUTURE REQUIREMENTS ARE BASED ON THE*********
20680C*****ACTCUM AT THE LAST MONTH OF THE PAST RATHER THAN THE*****
20690C*****PAST PLANNED.**********
20700 2018IB(I,2)=IB(I,2)+K
20710C**********WRITE INITIALS**********
20720 IF(.NOT.FLAG(2).AND.NUM.NE.1)WRITE(1,12)LQI,LI
20730 IF(.NOT.FLAG(2).AND.NUM.NE.1.AND.FLAG(4))WRITE(1,13)ICI1,ICP1
20740 IF(NUM.NE.1)WRITE(1,6)
20750C**********WRITE SUMMARY OUTPUT**********
20760 CALLLIST
20770 WRITE(1,6)
20780C****CLOSE FILE IN ORDER TO PREPARE FILE FOR THE NEXT COMPONENT**
20790 CALLCLOSEF(5)
20800 RETURN
20810 END
20820C********** END OF SUBROUTINE PRINT **********
20830C****CUM IS USED TO SUM ARRAYS**********
20840 SUBROUTINECUM(I1,I2,I3,I4)
20850$RPC
20860 IB(1,I2)=IB(1,I1)+I3
20870 DO1I=2,I4
20880 J=I-1
20890 1IB(I,I2)=IB(I,I1)+IB(J,I2)
20900 RETURN
20910 END
20920C**********LIST IS USED TO OUTPUT THE TABLES**********
20930 SUBROUTINELIST
20940$PPC
20950 KB=1900+JIY
20960 DO160II=1,NUMZ
20970 KB=KB+1
20980 WRITE(1,1)KB
20990 1FORMAT(29X,"**",I4,"**",//,12X,
21000&"J   F   M   A   M   J   J   A   S   O   N   D")
```

```
21010 WRITE(1;5)
21020 5FORMAT()
21030C**********J IS THE BEGINNING MONTH OF THE YEAR BEING OUTPUT***
21040 J=12*(II-1)+1
21050C*****KHOLD IS THE LAST MONTH OF THE YEAR BEING OUTPUT*********
21060 KHOLD=12*II
21070 DO120IW=1,10
21080 IF(.NOT.ONES(IW))GOTO120
21090 JJ=KHOLD
21100C******IBB(IW) IS THE TOTAL LENGTH IN MONTHS OF THE LINE ******
21110C******BEING PRINTED*************************************************
21120 IF(JJ.GT.IBB(IW))JJ=IBB(IW)
21130 IF(JJ.GE.J)WRITE(1;2)AB(IW),(IB(I,IW),I=J,JJ)
21140C**********WRITE ONLY HEADER INFORMATION**********************
21150 IF(JJ.LT.J)WRITE(1;2)AB(IW)
21160 2FORMAT(X,A6,": ",12I5)
21170 120CONTINUE
21180 WRITE(1;10)
21190 100CONTINUE
21200 WRITE(1;10)
21210 10FORMAT(/)
21220 RETURN
21230 END
21240C**********ZLOAT FIGURES OUT THE FLOAT ROWS******************
21250 SUBROUTINEZLOAT(IPE)
21260$RPC
21270 IBB(3)=LEN
21280 IBB(4)=LEN
21290 AB(3)="MANFLT"
21300 AB(4)="SUPFLT"
21310 ONES(3)=.TRUE.
21320 ONES(4)=.TRUE.
21330 DO11I=1,LENO
21340C******yIB(I,4),I=1,LAST MONTH IN PAST, EQUALS THE PAST*********
21350C******REOCUM LINE(CUM PLANNED HISTORICAL)**********************
21360 11B(I,4)=IB(I,2)
21370 DO2I=LEN1,LEN
21380 J=I-1
21390C******IB(I,4) IN FUTURE CONTAINS THE CUM UNSMOOTHED SCHEDULE**
21400 2IB(I,4)=IB(J,4)+IB(I,4)
21410 IB(1,3)=IP(1,3)+IBC
21420 DO3I=2,LEN
21430 J=I-1
21440C******IB(I,3) CONTAINS THE CUMULATIVE LINE OF BALANCE*********
21450 3IB(I,3)=IB(J,3)+IB(I,3)
21460 DO4I=1,LEN
21470C******IB(I,3) CONTAINS THE MANDATORY FLOAT LINE**********
21480 4IB(I,3)=IB(I,4)-IB(I,3)
21490 DO5I=1,LENO
21500C******IB(I,4) CONTAINS THE SURPLUS FLOAT LINE**************
```

```
21510C*******AFTER THE NEXT TWO DO LOOPS**********************************
21520 5IB(I,4)=IB(I,3)-IB(I,4)
21530 DO6I=LENI,LEN
21540 6IB(I,4)=IB(I,2)-IB(I,4)
21550 J=IB(LENO,4)
21560 DO7I=LENI,LEN
21570C******ADD CORRECTION FACTOR TO THE MANPLT LINE***************
21580 7IB(I,3)=IB(I,3)+J
21590 DO8I=LENI,LEN
21600 IF(IB(I,1).NE.0)GOTO9
21610 IB(I,4)=IB(I,4)+IB(I,3)
21620 8IB(I,3)=0
21630 9CONTINUE
21640 J=I-1
21650 IF(J.EQ.LENO)RETURN
21660 KB=IB(I,3)
21670 DO10I=LENI,J
21680 IB(I,3)=KB
21690 IB(I,4)=IB(I,4)-KB
21700 10CONTINUE
21710 RETURN
21720 END
21730C**********INITIALIZER OUTPUTS THE TANK FILE**********************
21740 SUBROUTINETANKER
21750RPC
21760 WRITE(1;1)
21770 1FORMAT(76("*"))
21780 DO2I=1,4
21790 2ONES(I)=.TRUE.
21800 DO3I=5,10
21810 3ONES(I)=.FALSE.
21820 IF(.NOT.FLAG(12))GO TO 256
21830 ONES(5)=ONES(6)=.TRUE.
21840 IBB(5)=IBB(6)=LENO
21850 AB(5)="MTHVAR"
21860 AB(6)="CUMVAR"
21870 256CONTINUE
21880 IBB(1)=LEN
21890 IBB(2)=LEN
21900 IBB(3)=LENO
21910 IBB(4)=LENO
21920 AB(1)="   REQ"
21930 AB(2)="REQCUM"
21940 AB(3)="   ACT"
21950 AB(4)="ACTCUM"
21960 DO1000KU=1,NEL
21970 WRITE(1;1)
21980 CALLSETSCT(2,X(KU))
21990C**************READ INITIALS AND NAME OF KUth VEHICLE*********
22000 READ(2,30)I1,I2,(IA(I),I=1,IDIVI)
```

```
22010C**********READ THE REQUIRED PRODUCTION LINE**********
22020 READ(2,4)(IB(I,1),I=1,LEN)
22030C**********READ THE ACTUAL PRODUCTION LINE**********
22040C****** IB(I,4),I=1,LAST MONTH IN PAST, EQUALS THE PAST **********
22050 30FORMAT(4X,2I5,40A2)
22060 4FORMAT(4X,12I5)
22070C**********IB(I,2) WILL CONTAIN THE REOCUM LINE**********
22080 CALLCUM(1,2,11,LEN)
22090C**********IB(I,4) WILL CONTAIN THE ACTCUM LINE**********
22100 CALLCUM(3,4,12,LENO)
22110 DO 871 I=1,LENO
22120 IB(I,5)=IB(I,3)-IB(I,1)
22130 871 IB(I,6)=IB(I,4)-IB(I,2)
22140 WRITE(1;7)
22150 7FORMAT(///)
22160 WRITE(1;5)
22170 WRITE(1;6)
22180 WRITE(1;5)
22190 5FORMAT(14X,33("*"))
22200 6FORMAT(15X,"M50/M48 TANK PRODUCTION REQUIREMENTS")
22210 WRITE(1;13)(IA(I),I=1,IDIVI)
22220 13FORMAT(///,1X,"WEAPONS SYSTEM NAME: ",40A2,//)
22230 WRITE(1;48)
22240 48FORMAT(/)
22250C**********OUTPUT THE VEHICLE INFORMATION**********
22260 CALLIST
22270 1000CONTINUE
22280 RETURN
22290 END
22300 SUBROUTINEFOOT
22310 WRITE(1;1)
22320 1FORMAT(76("*"),/,76("*"),/,76("*"),////////////////////)
22330 ENDFILE1
22340 CALLCLOSEF(1,OUTPUT)
22350 PRINT1
22360 RETURN
22370 END
```

APPENDIX F

Appendix F is the listing of two Auxiliary programs. The first is used to build the vehicle file and the second is used to build the component file.

PG. 181 OMITTED

```
90C TANK FILE BUILDING ROUTINE
100$NOM
110$TTY,76
120 DIMENSIONIA(40),MB(241),ABC(12),L(241),IB(13),IC(10)
130C
140 PRINT," FILE NAME"
150 IDIV=24
160 LINE=95*(1+2**8+2**16)
170 IDIV1=IDIV+2
180 IDIV2=IDIV1+4
190 READ369,FNAME
200 369FORMAT(A6)
240 CALLOPENF(1,FNAME)
220 CALLSAVSCT(1,XX)
230 WRITE(2,3)IDIV
240 BACKSPACE2
250 DO691I=1,40
260 691IA(I)="  "
270 CALLSAVSCT(2,YY)
280C
290 13PRINT," IS THE FILE BEING 1) UPDATED OR 2) CREATED."
300 READ(50,,ERR=12)J
310 I2=1
320 IF(.NOT.J.EQ.2)GOTO876
330C
340 I1=0
350 PRINT,^," WHAT YEAR DOES THIS PROJECT BEGIN IN",^*
360 READ,J1Y
370 J1Y=J1Y-1
380 J1M=12
390 19PRINT,^," WHAT MONTH AND YEAR DOES THIS PROJECT END IN",^*
400 READ,J2M,J2Y
410 IF(J2M.LT.1.OR.J2M.GT.12)GOTO19
420 21PRINT,^,"WHAT IS THE CURRENT MONTH AND YEAR OF THE PROJECT",^*
430 READ,J3M,J3Y
440 IF(J3M.LT.1.OR.J3M.GT.12)GOTO21
450 WRITE(1,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV)
460 WRITE(2,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV)
470 3FORMAT(8I2,40A2)
480 I1=1
490 ENDFILE2
500 CALLSAVSCT(1,XXX)
510 CALLSAVSCT(2,YYY)
520 GOTO10
530C
540 12PRINT,"TYPE 1 OR 2."
550 GOTO13
560C
570 876CONTINUE
580 J=1
```

```
590 READ(1,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV)
600 WRITE(2,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV)
610 5CONTINUE
620 READ(1,8,END=71)I1,I2,IK,IL,(IA(I),I=1,IDIV1)
630 IF(I2.NE.1)GOTO5
640 WRITE(2,8)I1,I2,IK,IL,(IA(I),I=1,IDIV1)
650 J=J+1
660 GOTO5
670 71BACKSPACE1
680 I1=I1+1
690 I2=1
700 JKID=J-1
710 CALLSAVSCT(1,XXX)
720 CALLSAVSCT(2,YYY)
730C
740 10CONTINUE
750 IL=J1Y
760 LEN=12*(J2Y-J1Y)+J2M-J1M
770 NUB=J2Y-J1Y
780 NUMY=J3Y-J1Y
790 NUB1=NUB
800C
810 910PRINT," DO YOU WISH TO:  1)  ADD A RECORD,"
820 PRINT,"                     2)  UPDATE ALL RECORDS,"
830 PRINT,"                     3)  CHANGE A RECORD,"
840 PRINT,"                     4)  DELETE A RECORD,"
850 PRINT,"                     5)  LIST A RECORD,"
860 PRINT,"                     6)  STOP THE PROGRAM."
870 24READ(50,,ERR=23)IBB
880 IF(IBB.EQ.1)GOT0901
890 IF(IBB.EQ.2)GOT0902
900 IF(IBB.EQ.3)GOT00903
910 IF(IBB.EQ.4)GOT0904
920 IF(IBB.EQ.5)GOT0905
930 IF(IBB.EQ.6)GOT09999
940C
950 23PRINT," TYPE IN 1,2,3,4,5 OR 6."
960 GOT024
970C
980C
990 901CONTINUE
995 CALL SETSCT(1,XXX)
996 CALL SETSCT(2,YYY)
1000 PRINT," NAME OF WEAPONS SYSTEM"
1010 READ(50,1)(IA(I),I=1,IDIV)
1020 1FORMAT(40A2)
1030 PRINT,^," THE ACTUAL INITIAL NUMBER ON HAND IS",^*
1040 READ,IJ
1050 PRINT,^,"THE PLANNED INITIAL NUMBER ON HAND IS",^*
1060 READ,KBC
```

```
1070 WRITE(1,8)I1,I2,IJ,KBC,(IA(I),I=1,IDIV1)
1080 WRITE(2,8)I1,I2,IJ,KBC,(IA(I),I=1,IDIV1)
1090 ENDFILE2
1100 8FORMAT(2I2,2I4,40A2)
1110C
1120 JKID=JKID+1
1130 I2=I2+1
1140 KK=1
1150 NUB1=NUB
1160 NUM1=12
1170 NUMM=J2M
1180 123CONTINUE
1190 IB(13)=1
1200 DO672IJ=1,NUB1
1210 IF(IJ.EQ.NUB1)NUM1=NUMM
1220 IF(IB(13).EQ.-1)GOTO41
1230 IF(IB(13).EQ.-3)GOTO111
1240 108CONTINUE
1250 IF(KK.EQ.1)WRITE(66,6)IL+IJ
1260 IF(KK.EQ.0)WRITE(66,7)IL+IJ
1270 6FORMAT(" TYPE IN THE PRODUCTION SCHEDULE FOR THIS WEAPONS SYSTEM",
1280& " FOR 19",I2)
1290 READ,(IB(IY),IY=1,NUM1)
1300 111CONTINUE
1310 IK=1
1320 107KL=IK
1330 IF(IB(13).EQ.-3)IB(1)=-1
1340 DO32IY=KL,NUM1
1350 IF(IB(IY).GE.0)GOTO32
1360 CALLZAPPER(IB,IY,IK)
1370 IF(IB(13).EQ.-2)GOTO108
1380 IF(IB(13).EQ.-4)GOTO32
1390 IF(IB(13).LT.0)GOTO41
1400 IF(IK.GT.NUM1)GOTO41
1410 IF(IK.LE.NUM1)GOTO107
1420 32CONTINUE
1430 41CONTINUE
1440 IF(NUM1.GE.12)GOTO51
1450 LL=NUM1+1
1460 DO52IY=LL,12
1470 52IB(IY)=0
1480 51CONTINUE
1490 PRINT 53,I1,I2,(IB(IY),IY=1,12)
1500 WRITE(1,53)I1,I2,(IB(IY),IY=1,12)
1510 I2=I2+1
1520 53FORMAT(2I2,12I5)
1530 672CONTINUE
1540C
1550 IF(KK.EQ.0)GOTO124
1560 KK=0
```

```
1570 7FORMAT("TYPE IN THE ACTUAL PRODUCTION FOR 19",I2)
1580 NUB1=NUMY
1590 NUM1=12
1600 NUMM=J3M
1610 GOTO123
1620 124CONTINUE
1630 920I1=I1+1
1640 I2=1
1650 CALLSAVSCT(1,XXX)
1660 CALLSAVSCT(2,YYY)
1670 GOTO910
1680C
1690 902CONTINUE
1700 CALLSETSCT(1,XX)
1710C
1720 700PRINT,"HOW MANY MONTHS DO YOU WISH TO UPDATE THE FILE"
1730 READ,KB
1740 J3M1=J3M+KB
1750 JS=J3M1
1760 J3Y1=J3Y
1770 701IF(J3M1.LE.12)GOTO702
1780 J3Y1=J3Y1+1
1790 J3M1=J3M1-12
1800 GOTO701
1810 702CONTINUE
1820 LENP=12*(J3Y1-J1Y)+J3M1-J1M
1830 IF(LENP.GT.LEN)GOTO700
1840 LEN0=12*(J3Y-J1Y)+J3M-J1M
1850 LEN1=LEN0+1
1860 LENA=14*(J3Y1-1-J1Y)+2+J3M
1870 JF2=14*J3Y1-14*J1Y
1880 LENZ=14*NUB
1890 JF=J3Y-J1Y
1900 LENU=JF*14
1910 JFF=MIN0(12-J3M,KB)
1920 JF1=J3Y1-J3Y
1930C
1940 READ(1,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV)
1950 WRITE(3,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M1,J3Y1,(IA(I),I=1,IDIV)
1960C
1970 71OREAD(1,8,END=799)I1,I2,IJ,KBC,(IA(IY),IY=1,IDIV1)
1980 WRITE(3,8)I1,I2,IJ,KBC,(IA(IY),IY=1,IDIV1)
1990 READ(1,703)(L(I),I=1,LENZ)
2000 703FORMAT(2I2,12I5)
2010 WRITE(3,703)(L(I),I=1,LENZ)
2020C
2030 DO742I=1,241
2040 L(I)=0
2050 742MB(I)=0
2060C
```

```
2070 READ(1,703)(L(I),I=1,LENU)
2080 PRINT," TYPE IN THE UPDATE DATA FOR:"
2090 PRINT762,(IA(IY),IY=1,IDIV1)
2100 762FORMAT(8X,40A2)
2110 READ,(MB(I),I=1,KB)
2120C
2130 IF(J3M.EQ.12)GOTO731
2140 DO707I=1,JFF
2150 LB=LENU-(12-J3M)+I
2160 707L(LB)=MB(I)
2170 731CONTINUE
2180 I2=1+J3Y-J1Y+J2Y-J1Y
2190 IF(J3Y.EQ.J3Y1)GOTO708
2200 DO709I=1,JF1
2210 II=LENU+14*(I-1)+1
2220 J=II+1
2230 L(II)=I1
2240 I2=I2+1
2250 L(J)=I2
2260 II=II+1
2270 JJ=12*(I-1)+JFF
2280 DO709J=1,12
2290 K=II+J
2300 KK=JJ+J
2310 L(K)=MB(KK)
2320 709CONTINUE
2330C
2340 708CONTINUE
2350C
2360 WRITE(3,703)(L(I),I=1,JF2)
2370 GOTO710
2380C
2390 799CONTINUE
2400 CALLUNSAVE(1)
2410 CALLCLOSEF(3,FNAME)
2420 CALLOPENF(1,FNAME)
2430 CALLSAVSCT(1,XX)
2440 CALLSETSCT(2,YY)
2450 GOTO876
2460C
2470C
2480 903CONTINUE
2490 IDIV3=IDIV1+4
2500 IZAP1=I1
2510 IZAP2=I2
2520 PRINT301
2530 301FORMAT(//,5X,"TYPE IN THE NUMBERS OF THE RECORDS YOU WISH TO "
2540&,"CHANGE",//)
2550 JVUV=0
2560 CALLLISTER(JVUV,YY,JKID,IDIV1)
```

```
2570 DO309I=1,241
2580 309L(I)=-2
2590 305READ,(L(I),I=1,241)
2600C
2610 IZIK=1
2620 306CALLSETSCT(1,XX)
2630 CALLSETSCT(2,YY)
2640 I1=L(IZIK)
2650C
2660 302CONTINUE
2670 READ(1,3,END=303)I2
2680 IF(I2.EQ.I1)GOTO304
2690 GOTO302
2700C
2710 303PRINT," YOU MADE AN ERROR TRY AGAIN"
2720 GOTO903
2730C
2740 304READ(2,333)I2,I3,(IA(I),I=1,IDIV1)
2750 IF(I1.NE.I2)GOTO304
2760 BACKSPACE1
2770 BACKSPACE2
2780 CALLSAVSCT(1,X4)
2790C
2800 313CONTINUE
2810 READ(1,334)I3,I4,(IA(J),J=1,IDIV3)
2820 334FORMAT(2I2,40A2)
2830 CALLSETSCT(1,X4)
2840 PRINT331,(IA(J),J=5,IDIV3)
2850 331FORMAT(5X,"TYPE IN THE NUMBERS CORRESPONDING TO THE CHANGES YOU",
2860&" WISH TO",/,5X,"MAKE TO: ",40A2,/)
2870 PRINT,"                    1)  NAME OF WEAPONS SYSTEM"
2880 PRINT,"                    2)  PLANNED INITIAL"
2890 PRINT,"                    3)  ACTUAL INITIAL"
2900 PRINT,"                    4)  PLANNED SCHEDULE "
2910 PRINT,"                    5)  ACTUAL PRODUCTION "
2920 DO335I=1,5
2930 335IC(I)=-2
2940 READ,(IC(I),I=1,5)
2950 DO310I=1,5
2960 IF(0.GT.IC(I))GOTO311
2970 IF(IC(I).GT.5)GOTO313
2980C
2990 310CONTINUE
3000 311NEWER=MINO(5,I-1)
3010 IF(NEWER.EQ.0)GOTO330
3020C
3030 IKIF=1
3040C
3050 312IF(IC(IKIF).EQ.1)GOTO321
3060 IF(IC(IKIF).EQ.2)GOTO322
```

AD-A040 680 ARMY TANK AUTOMOTIVE RESEARCH AND DEVELOPMENT COMMAND--ETC F/G 9/2
M60 TANK PRODUCTION PIANO ROLL USER'S GUIDE.(U)
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```
3070 IF(IC(IKIF).EQ.3)GOTO323
3080 IF(IC(IKIF).EQ.4)GOTO324
3090 IF(IC(IKIF).EQ.5)GOTO325
3100 GOTO330
3110C
3120 321CONTINUE
3130 314READ(1,333,END=332)I3,I4,(IA(J),J=1,IDIV3)
3140 333FORMAT(2I2,40A2)
3150 CALLSETSCT(1,X4)
3160 PRINT315,(IA(J),J=5,IDIV3)
3170 315FORMAT(5X,"THE OLD NAME WAS:",//,8X,40A2)
3180 PRINT316
3190 316FORMAT(/,5X,"TYPE IN THE NEW NAME")
3200 READ,(IA(J),J=5,IDIV3)
3210 WRITE(1,333)I3,I4,(IA(J),J=1,IDIV3)
3220 WRITE(2,333)I3,I4,(IA(J),J=1,IDIV3)
3230 CALLSETSCT(1,X4)
3240 BACKSPACE2
3250 GOTO332
3260C
3270 322CONTINUE
3280 READ(1,8,END=332)I3,I4,I5,I6,(IA(J),J=1,IDIV1)
3290 CALLSETSCT(1,X4)
3300 PRINT336,I6
3310 336FORMAT(/,5X,"THE OLD PLANNED INITIAL IS:",I4)
3320 PRINT,^,"TYPE IN THE NEW PLANNED INITIAL",^*
3330 READ,I6
3340 338WRITE(1,8)I3,I4,I5,I6,(IA(J),J=1,IDIV1)
3350 WRITE(2,8)I3,I4,I5,I6,(IA(J),J=1,IDIV1)
3360 CALLSETSCT(1,X4)
3370 BACKSPACE2
3380 GOTO332
3390C
3400 323CONTINUE
3410 READ(1,8,END=332)I3,I4,I5,I6,(IA(J),J=1,IDIV1)
3420 CALLSETSCT(1,X4)
3430 PRINT337,I5
3440 337FORMAT(/,5X,"THE OLDACTUAL INITIAL IS:",I4)
3450 PRINT,^,"TYPE IN THE NEW ACTUAL INITIAL INITIAL",^*
3460 READ,I5
3470 GOTO338
3480C
3490 324CONTINUE
3500 KPUT=0
3510 READ(1,8)I3
3520 GOTO89
3530 340CALLSETSCT(1,X4)
3540 READ(1,8)I3
3550 CALLSAVSCT(1,X5)
3560 344PRINT," TYPE INT THE LAST TWO DIGITS OF THE YEAR AND THE FIRST"
```

```
3570 PRINT," MONTH YOU WISH TO CHANGE IN THAT YEAR.  DO THIS FOR",
3580&" EACH YEAR."
3590 PRINT," YOU WISH TO CHANGE.  "
3600 DO342I=1,241
3610 342MB(I)=-2
3620 READ,(MB(I),I=1,241)
3630 II=J1Y-1
3640 DO343I=1,99,2
3650 J=MB(I)
3660 K=MB(I+1)
3670 IF(J.LT.0)GOTO348
3680 IF(J.LE.II.OR.J.GT.J2Y)GOTO344
3690 IF(K.LT.1.OR.K.GT.12)GOTO344
3700 343CONTINUE
3710C
3720 348JKB=I-2
3730 JK=1
3740 347CONTINUE
3750 II=MB(JK)
3760 JJ=MB(JK+1)
3770 DO346I=1,NUMY
3780 READ(1,53),I3,I4,(IB(J),J=1,12)
3790 IF(J1Y+I.EQ.II)GOTO349
3800 346CONTINUE
3810 349FORMAT(5X,"TYPE THE NEW SCHEDULE FOR 19",I2," STARTING WITH THE ",
3820&I2,"th MONTH",/)
3830 PRINT349,II,JJ
3840C
3850 READ,(IB(J),J=JJ,12)
3860 BACKSPACE1
3870 WRITE(1,53)I3,I4,(IB(J),J=1,12)
3880 JK=JK+2
3890 CALLSETSCT(1,X5)
3900 IF(JKB.GE.JK)GOTO347
3910 GOTO332
3920C
3930C
3940 325CONTINUE
3950 N=J2Y-J1Y+1
3960 DO388I=1,N
3970 388READ(1,8)I3
3980 CALLSAVSCT(1,X5)
3990 KPUT=0
4000 GOTO386
4010 387CONTINUE
4020 CALLSETSCT(1,X5)
4030 GOTO344
4040 332CONTINUE
4050 CALLSETSCT(1,X4)
4060 IKIF=IKIF+1
```

```
4070 GOTO312
4080C
4090 330CONTINUE
4100 IZIK=IZIK+1
4110 IF(L(IZIK).GT.0)GOTO306
4120 CALLSETSCT(1,XXX)
4130 CALLSETSCT(1,YYY)
4140 I1=IZAP1
4150 I2=IZAP2
4160 GOTO910
4170C
4180C
4190 904CONTINUE
4200 CALLSETSCT(1,XX)
4210 NAP=NUB+NUMY
4220 NAP1=14*NAP
4230 PRINT,"  TYPE IN THE NUMBER OF EACH RECORD YOU WISH TO KEEP IN THE ",
4240&"ORDER YOU WANT THEM"
4250 JVUV=0
4260 CALLLISTER(JVUV,YY,JKID,IDIV1)
4270 READ,(L(I),I=1,241)
4280 READ(1,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV)
4290 CALLSAVSCT(1,X4)
4300 WRITE(3,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV)
4310 III=1
4320 IK=L(1)
4330 802I2=1
4340 803READ(1,8,END=804)I1
4350 IF(I1.NE.IK)GOTO803
4360 GOTO805
4370 804PRINT,"YOU MADE AN ERROR!"
4380 CALLCLOSEF(3)
4390 GOTO904
4400 805CONTINUE
4410 BACKSPACE1
4420 READ(1,8)I1,I2,IJ,KBC,(IA(I),I=1,IDIV1)
4430 WRITE(3,8)I11,I2,IJ,KBC,(IA(I),I=1,IDIV1)
4440 READ(1,53)(MB(I),I=1,NAP1)
4450 DO808I=1,NAP1,14
4460 808MB(I)=I11
4470 WRITE(3,53)(MB(I),I=1,NAP1)
4480 I11=I11+1
4490 CALLSETSCT(1,X4)
4500 IK=L(I11)
4510 IF(IK.GT.0)GOTO802
4520 CALLSETSCT(2,YY)
4530 CALLUNSAVE(1)
4540 CALLCLOSEF(3,FNAME)
4550 CALLOPENF(1,FNAME)
4560 CALLSAVSCT(1,XX)
```

```
4570 GOTO876
4580C
4590C
4600 905CONTINUE
4610C
4620 IZAP1=I1
4630 IZAP2=I2
4640 PRINT 73
4650 73FORMAT(5X,"TYPE IN THE NUMBERS OF THE RECORDS WHICH YOU WISH TO ",
4660&/,5X,"LIST, TYPE IN -1 FOR A LIST OF ALL RECORDS:")
4670 JVUV=1
4680 CALLLISTER(JVUV,YY,JKID,IDIV1)
4690 CALLSETSCT(1,XX)
4700 DO741=1,241
4710 74L(I)=-2
4720 READ,(L(I),I=1,241)
4730 PRINT673,((LINE),J=1,26)
4740 77CONTINUE
4750 DO751=1,241
4760 IF(L(I).GE.0)GOTO76
4770 IF(L(I).LT.-1)GOTO9987
4780 LB=JKID+1
4790 DO78J=1,LB
4800 78L(J)=J-1
4810 LB=LB+1
4820 DO79J=LB,241
4830 79L(J)=-2
4840 GOTO77
4850 76CONTINUE
4860 IF(L(I).GT.0)GOTO81
4870 673FORMAT(/,25A3,A1,/)
4880 PRINT 82
4890 82FORMAT(//,5X,"HEADER (DATES)")
4900 PRINT 788
4910 788FORMAT(/)
4920 PRINT83,J1M,J1Y,J3M,J3Y,J2M,J2Y
4930 83FORMAT(8X,"MONTH AND YEAR PROJECT BEGAN",2X,I2,"/",I2,/,
4940&          8X,"CURRENT MONTH AND YEAR OF PROJECT",I4,"/",I2,/,
4950&           8X,"FINAL MONTH AND YEAR OF PROJECT",I4,"/",I2,//)
4960 GOTO184
4970 81CONTINUE
4980 291FORMAT(/)
4990 PRINT291
5000 CALLSETSCT(1,XX)
5010 READ(1,84)I1
5020 9765CONTINUE
5030 READ(1,84,END=85)I1,I2,(IA(J),J=1,IDIV2)
5040 IF(I1.NE.L(I))GOTO9765
5050 GOTO86
5060 84FORMAT(2I2,40A2)
```

```
5070 85PRINT ,"RECORD ",L(I), " ISNOT IN THE FILE"
5080 GOTO75
5090 86PRINT87,(IA(J),J=5,IDIV2)
5100 87FORMAT(5X,"WEAPONS SYSTEM NAME:",//,8X,40A2)
5110 PRINT 291
5120 KPUT=1
5130 PRINT89,IA(3),IA(4),IA(1),IA(2)
5140 89FORMAT(5X,"PLANNED INITIAL IS: ",2A2,/,5X,"ACTUAL INITIAL IS:  ",
5150&2A2,/)
5160 K=0
5170 NUMY=J2Y-J1Y
5180 NUMM=J2M
5190 NUM1=12
5200 PRINT 181
5210 181FORMAT(30X,"PLANNED",/)
5220 194CONTINUE
5230 180FORMAT("  YEAR",3X,"J    F    M    A    M    J    J    A    S    O"
5240&,"    N    D",/)
5250 PRINT180
5260 LFMFT=1900+J1Y
5270 DO183J=1,NUMY
5280 IF(J.EQ.NUMY)NUM1=NUMM
5290 READ(1,53)I1,I2,(IB(IY),IY=1,NUM1)
5300 PRINT182,LFMFT+J,(IB(IY),IY=1,NUM1)
5310 182FORMAT(2X,I4,12I5)
5320 183CONTINUE
5330 PRINT291
5340 IF(K.EQ.1.AND.KPUT.EQ.0)GOTO387
5350 IF(K.EQ.1)GOTO184
5360 IF(KPUT.EQ.0)GOTO340
5370 386CONTINUE
5380 K=1
5390 PRINT185
5400 185FORMAT(30X,"ACTUAL",/)
5410 NUMM=J3M
5420 NUMY=J3Y-J1Y
5430 NUM1=12
5440 GOTO180
5450 184CONTINUE
5460 PRINT673,((LINE),J=1,26)
5470 75CONTINUE
5480 9987CONTINUE
5490 I1=IZAP1
5500 I2=IZAP2
5510 CALLSETSCT(1,XXX)
5520 GOTO910
5530 9999CALLSETSCT(1,XXX)
5540 ENDFILE1
5550 CALLCLOSEF(1)
5560 STOP
```

```
5570 END
5580 SUBROUTINEZAPPER(IB,IY,IK)
5590 DIMENSIONIB(13)
5600 K=IB(IY)
5610 J=IB(IY+1)
5620 IF(IB(13).EQ.-3)GOTO13
5630 IF(IY.NE.1)GOTO2
5640 3IB(13)=-2
5650 PRINT,"YOU MADE AN ERROR RETYPE THE LAST LINE OF INPUT"
5660 RETURN
5670 2CONTINUE
5680 I=IB(IY-1)
5690 IF(K.NE.-1)GOTO4
5700 IF(J.LT.3)GOTO3
5710 IF(IY.GT.11)GOTO3
5720 IK=IY+J-1
5730 J=J-3
5740 IB(IY)=I
5750 IB(IY+1)=I
5760 IF(IY.LT.11.AND.J.GT.0)GOTO7
5770 IK=IY+2
5780 IB(13)=-4
5790 RETURN
5800 7CONTINUE
5810 KJH=IY+2
5820 KJN=IY+2+J
5830 IF(KJN.GT.12)GOTO9
5840 IB(13)=-4
5850 KJM=KJN
5860 DO8L=KJM,12
5870 LK=12+KJM-L
5880 LKK=LK-J
5890 IB(LK)=IB(LKK)
5900 8CONTINUE
5910 9CONTINUE
5920 DO10L=1,J
5930 KKH=IY+1+L
5940 IB(KKH)=I
5950 10CONTINUE
5960 RETURN
5970 4IF(K.NE.-2)GOTO3
5980 IF(IY.LT.2)GOTO3
5990 I=IB(IY-1)
6000 IB(13)=-3
6010 IK=13
6020 DO11L=IY,12
6030 IB(L)=I
6040 11CONTINUE
6050 RETURN
6060 13CONTINUE
```

```
6070 DO14L=1,11
6080 IB(L)=IB(12)
6090 14CONTINUE
6100 IB(13)=-1
6110 RETURN
6120 END
6130 SUBROUTINELISTER(JVUV,YY,JKID,IDIV1)
6140 DIMENSIONIA(40)
6150 PRINT10
6160 10FORMAT()
6170 IF(JVUV.EQ.0)GOTO12
6180 PRINT1
6190 1FORMAT(7X,"0)  HEADER(DATES)")
6200 12CONTINUE
6210 CALLSAVSCT(2,YYY)
6220 CALLSETSCT(2,YY)
6230 READ(2,8)I1
6240 8FORMAT(I2,10X,40A2)
6250 READ(2,8,END=3)I1,(IA(J),J=1,IDIV1)
6260 PRINT3,I1,(IA(J),J=1,IDIV1)
6270 GOTO8
6280 3FORMAT(5X,I3,")",2X,40A2)
6290 CALLSETSCT(2,YYY)
6300 RETURN
6310 END
```

```
80$SAV
90$NDM
100C THIS IS THE TANK COMPONENT PRODUCTION SCHEDULE PROGRAM
110C
120$TTY,76
130$RPC
140 COMMONIA(40),IB(40),IC(100),ID(13,2),J1M,J1Y,J2M,J2Y,J3M,J3Y,IDIV
150&,IZ1,LEN,LINE,NUM,NUMY,LEN0,LEN1,LEN2,LEN3,IDIV1,IDIV2,I1,I2,XX,XXX,
160&IE(40),IF(100),IDIV3,L(1000),NAP1,YY,YYY,TY,TYY,NUMV,KNUM
170&,IDIV4,XYZ,TNAME,FNAME
180&,KBQ1,KBQ2
190 PRINT," FILE NAME"
200 READ256,FNAME
210 256FORMAT(A6)
220 13PRINT," IS THE FILE BEING 1) UPDATED OR 2) CREATED."
230 READ(50,,ERR=12)J
240 IF(J.NE.2)GOTO876
250 PRINT," TANK FILE NAME"
260 READ256,TNAME
270 CALLSTART
280 GOTO876
290 12PRINT,"TYPE 1 OR 2."
300 GOTO13
310 876CONTINUE
320 CALLINIT
330 910PRINT," DO YOU WISH TO:  1)  ADD A RECORD,"
340 PRINT,"                     2)  UPDATE ALL RECORDS,"
360 PRINT,"                     3)  DELETE A RECORD,"
370 PRINT,"                     4)  LIST A RECORD,"
380 PRINT,"                     5)  STOP THE PROGRAM."
390 24READ(50,,ERR=23)IB
400 IF(IB.EQ.1)GOTO901
410 IF(IB.EQ.2)GOTO902
430 IF(IB.EQ.3)GOTO904
440 IF(IB.EQ.4)GOTO905
450 IF(IB.EQ.5)GOTO9999
460 23PRINT,"TYPE IN 1,2,3,4, OR 5."
470 GOTO24
480 901CONTINUE
490 I2=1
500 I1=IZ1+1
510 CALLSETSCT(1,XXX)
520 PRINT," NAME OF ITEM"
530 READ(50,1)(IA(I),I=1,IDIV1)
540 1FORMAT(40A2)
550 CALLSETSCT(2,YYY)
560 WRITE(2,1)(IA(I),I=1,IDIV1)
570 CALLSAVSCT(2,YYY)
580 PRINT,^," THE NUMBER OF SUPPLIERS IS",^*
590 READ,IK
```

```
600 IJ=0
610 IJ=0
620 KBC=0
630 IF(IK.NE.1)GOTO46
640 PRINT,^," THE ACTUAL INITIAL IS",^*
650 READ,IJ
660 PRINT,^," THE PLANNED INITIAL IS",^*
670 READ,KBC
680 46WRITE(1,9)I1,I2,IJ,KBC,IK,(IA(I),I=1,IDIV1)
690 9FORMAT(2I2,3I4,40A2)
700 IF(KNUM.NE.0)CALLPERCEN
710 IRR=0
720 I2=I2+1
730 DO671 I=1,IK
740 IF(IK.EQ.1)GOTO670
750 PRINT,"NAME OF SUPPLIER"
760 READ1,(IA(IZ),IZ=1,IDIV1)
770 PRINT,^,"THIS SUPPLIERS PERCENTAGE OF TOTAL",^*
780 READ,IR
790 IRR=IRR+IR
800 PRINT,^,"SUPPLIERS ACTUAL INITIAL ON HAND",^*
810 READ,IQ
820 PRINT,^,"SUPPLIERS PLANNED INITIAL ON HAND",^*
830 READ,IQQ
840 WRITE(1,9)I1,I2,IQ,IQQ,IR,(IA(IZ),IZ=1,IDIV1)
850 I2=I2+1
860 670CONTINUE
870 CALLWRITER
880 671CONTINUE
890 IF(IK.EQ.1)GOTO920
900 IF(IRR.NE.100)PRINT,"CHECK YOUR PERCENTAGES",IRR
910 920I1=I1+1
920 IZ1=I1-1
930 I2=1
940 CALLSAVSCT(1,XXX)
950 GOTO910
960 902CONTINUE
970 CALLUPDATE
980 GOTO876
1020 904CONTINUE
1030 CALLDEOR
1040 GOTO876
1050 905CONTINUE
1060 CALLLISTY
1070 GOTO910
1080 9999CALLSETSCT(1,XXX)
1090 ENDFILE1
1100 CALLCLOSEF(1)
1110 STOP
1120 END
```

```
1130 SUBROUTINEWRITER
1140$RPC
1150 KK=1
1160 IL=JIY
1170 NUB1=NUM
1180 NUM1=12
1190 NUMM=J24
1200 123CONTINUE
1210 IB(13)=1
1220 DO672IJ=1,NUB1
1230 IF(IJ.EQ.NUB1)NUM1=NUMM
1240 IF(IB(13).EQ.-1)GOTO41
1250 IF(IB(13).EQ.-3)GOTO111
1260 108CONTINUE
1270 IF(KK.EQ.1)WRITE(66,6)IL+IJ
1280 IF(KK.EQ.0)WRITE(66,7)IL+IJ
1290 6FORMAT(" TYPE IN THE MAXIMUM PRODUCTION SCHEDULE FOR THIS SUPPLIER",
1300$ " FOR 19",I2)
1310 READ,(IB(IY),IY=1,NUM1)
1320 111CONTINUE
1330 IK=1
1340 107KL=IK
1350 IF(IB(13).EQ.-3)IB(1)=-1
1360 DO32IY=KL,NUM1
1370 IF(IB(IY).GE.0)GOTO32
1380 CALLZAPPER(IY,IK)
1390 IF(IB(13).EQ.-2)GOTO108
1400 IF(IB(13).EQ.-4)GOTO32
1410 IF(IB(13).LT.0)GOTO41
1420 IF(IK.GT.NUM1)GOTO41
1430 IF(IK.LE.NUM1)GOTO107
1440 32CONTINUE
1450 41CONTINUE
1460 IF(NUM1.GE.12)GOTO51
1470 LL=NUM1+1
1480 DO52IY=LL,12
1490 52IB(IY)=0
1500 51CONTINUE
1510 PRINT 53,I1,I2,(IB(IY),IY=1,12)
1520 WRITE(1,53)I1,I2,(IB(IY),IY=1,12)
1530 I2=I2+1
1540 53FORMAT(2I2,12I5)
1550 572CONTINUE
1560C
1570 IF(KK.EQ.0)GOTO124
1580 KK=0
1590 7FORMAT("TYPE IN THE ACTUAL PRODUCTION FOR 19",I2)
1600 NUB1=NUMY
1610 NUM1=12
1620 NUMM=J34
```

```
1630 GOTO123
1640 124CONTINUE
1650 RETURN
1660 END
1670 SUBROUTINEZAPPER(IY,IK)
1680$RPC
1690 K=IB(IY)
1700 J=IB(IY+1)
1710 IF(IB(13).EQ.-3)GOTO13
1720 IF(IY.NE.1)GOTO2
1730 3IB(13)=-2
1740 PRINT,"YOU MADE AN ERROR RETYPE THE LAST LINE OF INPUT"
1750 RETURN
1760 2CONTINUE
1770 I=IB(IY-1)
1780 IF(K.NE.-1)GOTO4
1790 IF(J.LT.3)GOTO3
1800 IF(IY.GT.11)GOTO3
1810 IK=IY+J-1
1820 J=J-3
1830 IB(IY)=I
1840 IB(IY+1)=I
1850 IF(IY.LT.11.AND.J.GT.0)GOTO7
1860 IK=IY+2
1870 IB(13)=-4
1880 RETURN
1890 7CONTINUE
1900 KJH=IY+2
1910 KJN=IY+2+J
1920 IF(KJN.GT.12)GOTO9
1930 IB(13)=-4
1940 KJM=KJN
1950 DO8MRT=KJM,12
1960 LK=12+KJH-MRT
1970 LKK=LK-J
1980 IB(LK)=IB(LKK)
1990 8CONTINUE
2000 9CONTINUE
2010 DO10MRT=1,J
2020 KKH=IY+1+MRT
2030 IB(KKH)=I
2040 10CONTINUE
2050 RETURN
2060 4IF(K.NE.-2)GOTO3
2070 IF(IY.LT.2)GOTO3
2080 I=IB(IY-1)
2090 IB(13)=-3
2100 IK=13
2110 DO11MRT=IY,12
2120 IB(MRT)=I
```

```
2130 11CONTINUE
2140 RETURN
2150 13CONTINUE
2160 DO14MBT=1,11
2170 IB(MBT)=I3(12)
2180 14CONTINUE
2190 IB(13)=-1
2200 RETURN
2210 END
2220 SUBROUTINELISTEN(JVUV)
2230$RPC
2240 PRINT10
2250 10FORMAT()
2260 IF(JVUV.EQ.0)GOTO12
2270 PRINT1
2280 1FORMAT(7X,"0)  HEADER(DATES)")
2290 12CONTINUE
2300 CALLSETSCT(2,YY)
2310 IK=1
2320 8FORMAT(40A2)
2330 READ(2,8,END=3)(IA(J),J=1,IDIV1)
2340 PRINT3,IK,(IA(J),J=1,IDIV1)
2350 IK=IK+1
2360 GOTO4
2370 3FORMAT(5X,I3,")",2X,40A2)
2380 CALLSETSCT(2,YYY)
2390 RETURN
2400 END
2410 SUBROUTINEPERCEN
2420$RPC
2430 PRINT," GIVE THE LEAD TIME AND PERCENTAGE USE FOR EACH OF THE "
2440 PRINT," FOLLOWING SYSTEMS. (PUT 99,0 IF THE ITEM IS NOT USED)"
2450 CALLSETSCT(3,TY)
2460 I0=99
2470 45CONTINUE
2480 I2=I2+1
2490 DO41I=1,12
2500 READ(3,1,END=43)(IA(J),J=1,IDIV)
2510 1FORMAT(40A2)
2520 PRINT8,(IA(J),J=1,IDIV1)
2530 8FORMAT(3X,40A2)
2540 ID(I,1)=I0
2550 ID(I,2)=100
2560 READ,ID(I,1),ID(I,2)
2570 I0=ID(I,1)
2580 41CONTINUE
2590 WRITE(1,17)I1,I2,((ID(I,J),J=1,2),I=1,12)
2600 17FORMAT(2I2,12(I2,I3))
2610 GOTO45
2620 43CONTINUE
```

```
2630 IF(I.EQ.1)GOTO63
2640 DO40J=I,12
2650 ID(J,1)=0
2660 40ID(J,2)=0
2670 WRITE(1,17)I1,I2,((ID(I,J),J=1,2),I=1,12)
2680 I2=I2+1
2690 63CONTINUE
2700 RETURN
2710 END
2720 SUBROUTINELISTY
2730$RPC
2740C
2750 IZAP1=I1
2760 IZAP2=I2
2770 PRINT 73
2780 73FORMAT(5X,"TYPE IN THE NUMBERS OF THE RECORDS WHICH YOU WISH TO ",
2790&/,5X,"LIST, TYPE IN -1 FOR A LIST OF ALL RECORDS:")
2800 JVUV=1
2810 CALLLISTER(JVUV)
2820 CALLSETSCT(1,XX)
2830 DO74I=1,100
2840 74L(I)=-2
2850 READ,(L(I),I=1,100)
2860 PRINT673,((LINE),J=1,26)
2870 77CONTINUE
2880 DO75I=1,100
2890 IF(L(I).GE.0)GOTO76
2900 IF(L(I).LT.-1)GOTO9937
2910 LB=IZ1+1
2920 DO78J=1,LB
2930 78L(J)=J-1
2940 LB=LB+1
2950 DO79J=LB,241
2960 79L(J)=-2
2970 GOTO77
2980 76CONTINUE
2990 IF(L(I).GT.0)GOTO81
3000 673FORMAT(/,25A3,A1,/)
3010 PRINT 82
3020 82FORMAT(//,5X,"CONTROL DATA")
3030 PRINT 788
3040 788FORMAT(/)
3050 PRINT16,IZ1,KNUM
3060 16FORMAT(8X,"NUMBER COMPONENTS:",I3,/,8X,"NUMBER TASKS:",I3,/)
3070 PRINT83,J1M,J1Y,J3M,J3Y,J2M,J2Y
3080 83FORMAT(8X,"MONTH AND YEAR PROJECT BEGAN",2X,I2,"/",I2,/,
3090&          8X,"CURRENT MONTH AND YEAR OF PROJECT",I4,"/",I2,/,
3100&          8X,"FINAL MONTH AND YEAR OF PROJECT",I4,"/",I2,//)
3110 GOTO126
3120 81CONTINUE
```

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3130 291FORMAT(/)
3140 PRINT291
3150 CALLSETSCT(1,XX)
3160 9765CONTINUE
3170 READ(1,84,END=85)I1,I2,M1,M2,M3,(IA(J),J=1,IDIV1)
3180 IF(I1.NE.L(I))GOTO9765
3190 GOTO86
3200 84FORMAT(2I2,3I4,40A2)
3210 85PRINT ,"RECORD ",L(I), " ISNOT IN THE FILE"
3220 GOTO75
3230 86PRINT87,(IA(J),J=1,IDIV1)
3240 87FORMAT(5X,"COMPONENT NAME:",//,8X,40A2)
3250 PRINT788
3260 CALLSETSCT(3,TY)
3270 IF(TY.EQ.TYY)GOTO2
3280 PRINT,"    USE AND LEAD TIME FOR EACH WEAPONS SYSTEM:"
3290 JK=13
3300 194CONTINUE
3310 READ(3,456,END=2)(IA(I5),I5=1,IDIV1)
3320 456FORMAT(40A2)
3330 1FORMAT(4X,3I4,40A2)
3340 IF(JK.LT.13)GOTO5
3350 READ(1,6)((ID(I5,J),J=1,2),I5=1,12)
3360 6FORMAT(4X,12(I2,I3))
3370 JK=0
3380 5JK=JK+1
3390 PRINT3,(IA(I5),I5=1,IDIV1),ID(JK,1),ID(JK,2)
3400 3FORMAT(/,7X,"NAME: ",26A2,/,7X,"LEAD TIME: ",I3,/,
3410&7X,"PERCENTAGE USE: ",I3,/)
3420 GOTO194
3430 2CONTINUE
3440 PRINT788
3450 DO126IK=1,M3
3460 IF(M3.EQ.1)GOTO128
3470 READ(1,1)M1,M2,M4,(IA(I5),I5=1,IDIV1)
3480 PRINT17,(IA(I5),I5=1,IDIV1)
3490 17FORMAT(/,5X,"SUPPLIERS NAME:",1X,26A2)
3500 128PRINT19,M1,M2
3510 19FORMAT(5X,"ACTUAL INITIAL:",I4,/,5X,"PLANNED INITIAL:",I4)
3520 IF(M3.NE.1)PRINT21,M4
3530 21FORMAT(5X,"PERCENT OF TOTAL:",I4)
3540 PRINT788
3550 CALLLISTZ(1,NUM,J2M,"PLANNE","D      ")
3560 CALLLISTZ(1,NUMY,J3M,"ACTUAL","       ")
3570 126CONTINUE
3580 PRINT673,((LINE),J=1,26)
3590 75CONTINUE
3600 9987CONTINUE
3610 184CONTINUE
3620 I1=IZAP1
```

```
3630 I2=IZAP2
3640 CALLSETSCT(1,XXX)
3650 RETURN
3660 END
3670 SUBROUTINELISTZ(K,NUMZ,NUMM,A,B)
3680$RPC
3690 NUM1=12
3700 PRINT181,A,B
3710 181FORMAT(30X,2A6,/)
3720 194CONTINUE
3730 180FORMAT("  YEAR",3X,"J    F    M    A    M    J    J    A    S    O"
3740&,"    N    D",/)
3750 PRINT180
3760 LEMFT=1900+J1Y
3770 DO183J=1,NUMZ
3780 53FORMAT(2I2,12I5)
3790 IF(J.EQ.NUMZ)NUM1=NUMM
3800 READ(K,53)I1,I2,(IB(IY),IY=1,NUM1)
3810 PRINT182,LEMFT+J,(IB(IY),IY=1,NUM1)
3820 182FORMAT(2X,I4,12I5)
3830 183CONTINUE
3840 291FORMAT(//)
3850 PRINT291
3860 RETURN
3870 END
3880 SUBROUTINESTART
3890$RPC
3900 CALLOPENF(2,TNAME)
3910 IDIV1=26
3920 PRINT,"TYPE IN THE FILES DISCRIPTIVE HEADING"
3930 READ47,(IA(I),I=1,IDIV1)
3940 47FORMAT(40A2)
3950 READ(2,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y
3960 WRITE(1,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV1)
3970 3FORMAT(8I2,40A2)
3980 CALLSAVSCT(1,XX)
3990 I2=I2+1
4000 WRITE(1,3)I1,I2,J1M
4010 I2=I2+1
4020 K=0
4030 4READ(2,3,END=5)KP,KK
4040 IF(KK.NE.1)GOTO4
4050 BACKSPACE2
4060 READ(2,6)(IA(I),I=1,IDIV1)
4070 6FORMAT(12X,40A2)
4080 WRITE(1,7)I1,I2,(IA(I),I=1,IDIV1)
4090 7FORMAT(2I2,40A2)
4100 K=K+1
4110 I2=I2+1
4120 GOTO4
```

```
4130 5CONTINUE
4140 CALLCLOSEF(2)
4150 CALLSAVSCT(1,XXX)
4160 CALLSETSCT(1,XX)
4170 I2=2
4180 WRITE(1,3)I1,I2,K
4190 CALLSETSCT(1,XXX)
4200 ENDFILE1
4210 CALLCLOSEF(1,FNAME)
4220 RETURN
4230 END
4240 SUBROUTINEINIT
4250$RPC
4260 CALLOPENF(1,FNAME)
4270 IDIV=24
4280 IDIV1=IDIV+2
4290 IDIV2=IDIV1+4
4300 IDIV3=IDIV2+1
4310 READ(1,3)J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV1)
4320 READ(1,3)KNUM
4330 3FORMAT(4X,6I2,40A2)
4340 LINE=95*(1+2**8+2**16)
4350 LEN=12*(J2Y-J1Y)+J2M-J1M
4360 NUM=J2Y-J1Y
4370 NUMY=J3Y-J1Y
4380 NUMV=NUM+NUMY
4390 LEN0=12*(J3Y-J1Y)+J3M-J1M
4400 LEN1=LEN0+1
4410 LENZ=14*NUM
4420 LENU=14*NUMY
4430 NAP1=LENU+LENZ
4440 KBQ1=(KNUM+11)/12
4450 KBQ2=NUM+NUMY+1
4460 IF(KNUM.EQ.0)GOTO56
4470 WRITE(3,3)KNUM
4480 BACKSPACE3
4490 CALLSAVSCT(3,TY)
4500 DO234J=1,KNUM
4510 READ(1,6)(IA(I),I=1,IDIV1)
4520 6FORMAT(4X,40A2)
4530 WRITE(3,7)(IA(I),I=1,IDIV1)
4540 234CONTINUE
4550 CALLSAVSCT(1,XX)
4560 7FORMAT(40A2)
4570 CALLSAVSCT(3,TYY)
4580 GOTO57
4590 56CONTINUE
4600 WRITE(3,4)IDIV
4610 BACKSPACE3
4620 CALLSAVSCT(3,TY)
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```
4630 CALLSAVSCT(1,XX)
4640 ENDFILE3
4650 IYY=IY
4660 57CONTINUE
4670 IZ1=0
4680 5CONTINUE
4690 READ(1,13,END=71)II,(IA(I),I=1,IDIV1)
4700 IF(II.NE.1)GOTO5
4710 WRITE(2,7)(IA(I),I=1,IDIV1)
4720 IZ1=IZ1+1
4730 IF(IZ1.NE.1)GOTO5
4740 BACKSPACE2
4750 CALLSAVSCT(2,YY)
4760 READ(2,7)II
4770 GOTO5
4780 13FORMAT(2X,I2,12X,40A2)
4790 71BACKSPACE1
4800 BACKSPACE1
4810 IF(IZ1.NE.0)GOTO61
4820 I1=1
4830 I2=1
4840 XXX=XX
4850 READ(1,4)I2
4860 WRITE(2,4)I1
4870 4FORMAT(12I2)
4880 BACKSPACE2
4890 CALLSAVSCT(2,YY)
4900 ENDFILE2
4910 YYY=YY
4920 RETURN
4930 61CONTINUE
4940 READ(1,41)I1
4950 41FORMAT(I2)
4960 I1=I1+1
4970 I2=1
4980 CALLSAVSCT(1,XXX)
4990 CALLSAVSCT(2,YYY)
5000 RETURN
5010 END
5020 SUBROUTINEPU1(KO,LY,LM)
5030$RPC
5040 I=14*(LY-JIY-1)+LM+2
5050 J=0
5060 16I=I+1
5070 LBJ=MOD(I,14)
5080 IF(LBJ.EQ.1.OR.LBJ.EQ.2)GOTO16
5090 J=J+1
5100 L(I)=IC(J)
5110 IF(J.LT.KO)GOTO16
5120 RETURN
```

```
5130 END
5140 SUBROUTINEUPDATE
5150$REC
5160 700PRINT,"HOW MANY MONTHS DO YOU WISH TO UPDATE THE FILE"
5170 READ,KB
5180 CALLCLOSEF(3)
5190 CALLCLOSEF(2)
5200 J3M1=J3M+KB
5210 JS=J3M1
5220 J3Y1=J3Y
5230 701IF(J3M1.LE.12)GOTO702
5240 J3Y1=J3Y1+1
5250 J3M1=J3M1-12
5260 GOTO701
5270 702CONTINUE
5280 LENP=12*(J3Y1-J1Y)+J3M1-J1M
5290 IF(LENP.GT.L50)GOTO700
5300 LENA=14*(J3Y1-1-J1Y)+2+J3M
5310 JF2=14*J3Y1-14*J1Y
5320 JFF=MIN0(12-J3M,KB)
5330 JF1=J3Y1-J3Y
5340 LOF=14*(J3Y1-J1Y)
5350 REWIND1
5360 READ(1,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV1)
5370 WRITE(3,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M1,J3Y1,(IA(I),I=1,IDIV1)
5380 3FORMAT(6I2,40A2)
5390 READ(1,3)I1,I2,KNUM
5400 WRITE(3,3)I1,I2,KNUM
5410 1FORMAT(2I2,40A2)
5420 IF(KNUM.EQ.0)GOTO59
5430 DO17J=1,KNUM
5440 READ(1,1)I1,I2,(IA(I),I=1,IDIV1)
5450 17WRITE(3,1)I1,I2,(IA(I),I=1,IDIV1)
5460 59CONTINUE
5470 IF(IZ1.EQ.0)GOTO107
5480 DO1$JP=1,IZ1
5490 READ(1,5)I1,I2,IJ,KBC,IK,(IA(IY),IY=1,IDIV1)
5500 WRITE(3,5)I1,I2,IJ,KBC,IK,(IA(IY),IY=1,IDIV1)
5510 5FORMAT(2I2,3I4,40A2)
5520 IF(KNUM.EQ.0)GOTO61
5530 IJ=(KNUM-1)/12+1
5540 DO14KBC=1,IJ
5550 READ(1,9)I1,I2,((ID(I,J),J=1,2),I=1,12)
5560 WRITE(3,9)I1,I2,((ID(I,J),J=1,2),I=1,12)
5570 9FORMAT(2I2,12(I2,I3))
5580 14CONTINUE
5590 61I21=I2
5600 DO2$I=1,LENZ
5610 2$L(I)=0
5620 PRINT,"  THE NEXT ITEM TO BE UPDATED IS THE:"
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5630 PRINT11,(IA(IY),IY=1,IDIV1)
5640 DO1KKORZ=1,IK
5650 IF(IK.EQ.1)GOTO23
5660 READ(1,8)I1,I2,IJ,KBC,IY,(IA(I),I=1,IDIV1)
5670 WRITE(3,8)I1,I21,IJ,KBC,IY,(IA(I),I=1,IDIV1)
5680 I21=I21+1
5690 23CONTINUE
5700 READ(1,10)(L(I),I=1,LENZ)
5710 PRINT,"  TYPE IN THE UPDATE DATA FOR THE PLANNED SCHEDULE FOR:"
5720 PRINT11,(IA(IY),IY=1,IDIV1)
5730 10FORMAT(2I2,12I5)
5740 11FORMAT(/,8X,40A2)
5750 READ,(IC(I),I=1,KB)
5760 CALLPU1(KB,J3Y,J3M)
5770 DO20I=2,LENZ,14
5780 L(I)=I21
5790 20I21=I21+1
5800 WRITE(3,10)(L(I),I=1,LENZ)
5810 DO1256I=1,LOF
5820 1256L(I)=0
5830 READ(1,10)(L(I),I=1,LENU)
5840 PRINT,"  TYPE IN THE UPDATE DATA FOR THE ACTUAL SCHEDULE FOR:"
5850 PRINT11,(IA(IY),IY=1,IDIV1)
5860 READ,(IC(I),I=1,KB)
5870 CALLPU1(KB,J3Y,J3M)
5880 DO30I=2,LOF,14
5890 L(I)=I21
5900 30I21=I21+1
5910 WRITE(3,10)(L(I),I=1,LOF)
5920 18CONTINUE
5930 107CONTINUE
5940 CALLUNSAVE(1)
5950 CALLCLOSEF(3,FNAME)
5960 RETURN
5970 END
5980 SUBROUTINEREORD
5990$RPC
6000 CALLCLOSEF(3)
6010 REWIND1
6020 PRINT,"  TYPE IN THE NUMBER OF EACH RECORD YOU WISH TO KEEP IN THE ",
6030&"ORDER YOU WANT THEM."
6040 JVUV=0
6050 CALLLISTER(JVUV)
6060 DO123I=1,100
6070 123IC(I)=0
6080 READ,(IC(I),I=1,100)
6090 READ(1,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV1)
6100 WRITE(3,3)I1,I2,J1M,J1Y,J2M,J2Y,J3M,J3Y,(IA(I),I=1,IDIV1)
6110 3FORMAT(8I2,40A2)
6120 READ(1,3)I1,I2,KNUM
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```
6130 WRITE(3,3)I1,I2,KNUM
6140 3FORMAT(2I2,40A2)
6150 IF(KNUM.EQ.0)GOTO59
6160 DO17J=1,KNUM
6170 READ(1,1)I1,I2,(IA(I),I=1,IDIV1)
6180 17WRITE(3,1)I1,I2,(IA(I),I=1,IDIV1)
6190 59CONTINUE
6200 IF(IZ1.EQ.0)GOTO107
6210 I11=1
6220 IKK=IC(1)
6230 IF(IKK.EQ.0)GOTO107
6240 802I2=1
6250 803READ(1,8,END=804)I1
6260 IF(I1.NE.IKK)GOTO803
6270 GOTO805
6280 804PRINT,"YOU MADE AN ERROR!"
6290 CALLCLOSEF(3)
6300 CALLCLOSEF(1)
6310 RETURN
6320 805CONTINUE
6330 BACKSPACE1
6340 READ(1,8)I1,I2,IJ,KBC,IK,(IA(IY),IY=1,IDIV1)
6350 WRITE(3,8)I11,I2,IJ,KBC,IK,(IA(IY),IY=1,IDIV1)
6360 8FORMAT(2I2,3I4,40A2)
6370 IF(KNUM.EQ.0)GOTO61
6380 IJ=(KNUM-1)/12+1
6390 DO14KBC=1,IJ
6400 READ(1,9)I1,I2,((ID(I,J),J=1,2),I=1,12)
6410 WRITE(3,9)I11,I2,((ID(I,J),J=1,2),I=1,12)
6420 9FORMAT(2I2,12(I2,I3))
6430 14CONTINUE
6440 61CONTINUE
6450 DO26K=1,IK
6460 IF(IK.EQ.1)GOTO25
6470 READ(1,8)I1,I2,IJ,KBC,IY,(IA(I),I=1,IDIV1)
6480 WRITE(3,8)I11,I2,IJ,KBC,IY,(IA(I),I=1,IDIV1)
6490 25CONTINUE
6500 READ(1,10)(L(I),I=1,NAP1)
6510 10FORMAT(2I2,12I5)
6520 DO20I=1,NAP1,14
6530 20L(I)=I11
6540 WRITE(3,10)(L(I),I=1,NAP1)
6550 26CONTINUE
6560 I11=I11+1
6570 CALLSETSCI(1,XX)
6580 IKK=IC(I11)
6590 IF(IKK.GT.0)GOTO802
6600 107CONTINUE
6610 CALLUNSAVE(1)
6620 CALLCLOSEF(3,FNAME)
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6630 RETURN
6640 END
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Verification and Validation of Literature Search Under the Army Study Program

Bibliographies, abstracts, reports and other media from the following agencies/commands were reviewed prior to initiation of the study entitled to verify that duplication of study effort does not exist.

Agency	Yes	NO	(check one)
DDC	✓		
DLSIE	✓		
TARCOM	✓		
TARADCOM	✓		
Other (Identify)_____			

18 Feb 1977
Date

Action Officer

Date

Approved by Study Reviewer