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Research Product 80-012

**User Manual for the Short System  
Tape Generator (SSTGEN)**

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**Manpower & Educational Systems  
Technical Area**

**May 1977**

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DDC TAB	<input type="checkbox"/>
Unannounced Justification	<input type="checkbox"/>
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SECTION 1  
INTRODUCTION

1.1 PURPOSE

The Short System Tape Generator (SSTGEN) is a utility program that executes on the AN/GYK-12(V) under the Programming Support System (B) Operating System (PSS/OS). SSTGEN converts compiler object decks and data decks into a system load tape, compatible with PLANIT and MADCAP system loading and operation. The input (object and data decks) may be from cards, commercial tape or disk and output is to commercial tape, Tape Transport Cartridge (TTC) or punched cards.

1.2 REFERENCE DOCUMENTS

586000-906 PSS(B) User Manual,-

USACSCS-TF-1-1/2-1

SECTION 2  
CONTROL CARD FORMATS

The purpose of the control cards is to select execution time options, the output media, the input media and file identification and other control directives. The control commands recognized by SSTGEN are shown in Figure 2-1.

COMMAND	CLASS	PARAGRAPH
*OPTA *OPTB *OPTC *OPTD	options	2.2
*TEST *TTC *TAPE *DECK	output	2.3
*BOOT *OBJ *OBJ,NNNN *DATA	input	2.4
*MADEOF *END	control	2.5

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Figure 2-1. SSTGEN Control Card Commands

### 2.1 GENERAL CONTROL CARD RULES

The following rules are applicable to SSTGEN control cards:

- a. The control card must begin with asterisk (\*) in column 1, followed by the command, without any intervening blanks.
- b. The operand field of the control card begins in column 10 for control cards requiring parameters. Multiple required or optional parameters are separated by commas with no intervening blanks. Positional parameters must precede keyword parameters.

- c. The last parameter must be followed by at least one blank column. The remainder of the card is available for user comments.

### 2.1.1 Positional Parameters

Positional parameters must be coded first in the operand field. The first positional parameter on an SSTGEN control card is always the FILENAME, the second positional parameter on the card is always the MEMBERNAME. Absence of either positional parameter is indicated by a comma (a null field).

#### EXAMPLES:

Col	Col
1	10
*XXX	blank in col 10 indicates blank filename,membername
*XXX	.,ID=22 blank filename,membername keyword parameter
*XXX	TAPE,.,VOL=9832 filename specified, blank membername
*XXX	TAPE filename specified blank membername
*XXX	DISK,FILEA filename, membername specified
*XXX	DISK,FILEA,ID=88 keyword parameter used

### 2.1.2 Keyword Parameters

Keyword parameters may be placed in the operand field, in any order, following all positional parameters. The absence or default value of a keyword parameter need not be specified. Keyword parameters are in the form "KEYWORD=parameter". The three keyword parameters recognized by SSTGEN are as follows:

- a. VOL. Volume serial number identifier; this allows a particular volume to be specified for access, e.g., VOL=9832. If an ampersand (&) precedes the parameter (e.g. &TAPEF), the volume assignment is deferred until run-time when it is assigned by the computer operator. A maximum 6-character parameter is permitted (including the ampersand). By convention the serial number of a Tape Transport Cartridge (TTC) is its reel number. The default

value for an input tape is &INPUT, the default value for an output tape is &LOAD.

- b. VERS. A one to three digit version identifier (i.e. level number) for an SPS disk file. The default value is the latest version.
- c. ID. Program identifier: A one to four digit hexadecimal program identifier which will be converted to a right justified 32-bit binary number to be stored in the program at address 0000 for MADCAP programs and at address 0002 for PLANIT programs (see \*OPTD description). The default is that no program identification will be stored.

## 2.2 OPTION SELECTION

Four option selection control cards are permitted. If they are used they must be the first control cards input to SSTGEN. The option cards and their effects are as follows:

- a. \*OPTA no parameters. The \*OPTA card causes local data to be dumped on the printer for up to 10 object deck errors. With analysis, the dump can be used to determine the cause of the error.
- b. \*OPTB no parameters. The \*OPTB card causes an IS/WAS printout of the program addressed affected by each patch card. See Figure 2-2.

0005 3,4,5,6,7,8,9 HALF WORD PATCH CARD

0004	IS	03000	0003	(0600	0003)	WAS	03000	0000	(0600	0000)
0006	IS	00004	0005	(0004	0005)	WAS	00000	0000	(0000	0000)
0008	IS	00006	0007	(0006	0007)	WAS	00000	0000	(0000	0000)
000A	IS	00010	0009	(0008	0009)	WAS	26284	4649	(4D44	4649)

ADDRESS — INSTRUCTION FORMATS — HALFWORD FORMATS

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Figure 2-2. \*OPTB Printout Sample

- c. \*OPTC no parameters. The \*OPTC card causes type-1 and type-9 cards to be printed when they are read by the program. This option may be useful for diagnosing errors. Type-1 cards are always printed at the end of the job as a separate report.
- d. \*OPTD no parameters. The \*OPTD card causes the program identifier, if present to be stored in location 0002, the standard convention for PLANIT tapes. Absence of this control card causes program ID to be stored at location 0000, the MADCAP convention.

### 2.3 OUTPUT SELECTION

The output selection card is any one of 4 cards which specify the output device. The output selection card must be the first control card input to SSTGEN immediately following any \*OPT- control cards. The output selection cards and their requirements are as follows:

- a. \*TEST no parameters. The \*TEST control card specifies no card nor tape output is to be generated. It is useful in verifying files or diagnosing problems in conjunction with the option control cards. Initially it causes error messages 00 thru 11 to be printed with their corresponding text. Processing is otherwise identical to \*DECK or \*TAPE processing.
- b. \*TTC FILENAME,,VOL=999  
The \*TTC control card specifies output to a Tape Transport Cartridge (TTC). The filename is a required parameter, the volume identifier is optional. Default volume selection is "ELOAD".

#### EXAMPLES:

```
Col 1          10
      *TTC      MAD,,VOL=999
      *TTC      PLOAD
```

- c. \*TAPE FILENAME,,VOL=9283  
The \*TAPE control card specifies output to commercial tape. The filename is a required parameter, the volume identifier is optional. Default volume selection is "ELOAD".

## EXAMPLES:

```

Col 1      10
      *TAPE  CTMAD,,VOL=0120
      *TAPE  CTPLANIT

```

- d. \*DECK no parameters. The \*DECK control card specifies the card punch as the output device.

## 2.4 INPUT SELECTION

Input selection cards select the input device, volume or version and filename,membername of the data sets to be used in building a system tape. The ordering of the input selection cards, along with patch cards, determine the contents of the system load tape.

## 2.4.1 Unit Selection

The unit selection (card reader, tape unit or disk file) is determined by the contents of the FILENAME and MEMBERNAME fields on the following control cards:

```

*BOOT
*OBJ
*OBJ,NNNN
*DATA

```

The FILENAME and MEMBERNAME fields are used to determine the device type as follows:

- a. FILENAME blank. Source data is cards following the control card, until the next control card is encountered.
- b. FILENAME non-blank, MEMBERNAME blank. Source data is from labeled commercial tape with FILENAME specified.
- c. FILENAME non-blank, MEMBERNAME non-blank. Source data is from SPS disk with the FILENAME and MEMBERNAME specified.

### 2.4.2 Input Data Process Selection

Four types of input data process selection cards are available. Three of these cards indicate the input data is an object deck to be converted to a bootable or object format on tape. The fourth indicates the input is a data deck to be converted to data format on tape. The control cards and their requirements are as follows:

- a. \*BOOT FILENAME,MEMBERNAME,VOL=7756,VERS=123  
The \*BOOT control card specifies the input data is an object deck to be converted to bootable format on the output device.
- b. \*OBJ FILENAME,MEMBERNAME,VOL=7756,VERS=123,ID=71  
The \*OBJ control card specifies the input data is an object deck to be converted to loadable object format on the output device.
- c. \*OBJ,NNNN FILENAME,MEMBERNAME,VOL=7756,VERS=123  
The \*OBJ,NNNN control card specifies the input is an object deck to be converted to loadable object format on the output device. NNNN is replaced by a one to four digit hexadecimal address which specifies the halfword address of the first instruction word to be written on the output device. NNNN may be thought of as an offset to the program. The first NNNN (0000 to NNNN-2) instructions of the program will be thrown away.
- d. \*DATA FILENAME,MEMBERNAME,VOL=7756,VERS=100  
The \*DATA control card specifies the input is a data deck to be converted to blank suppressed, blocked data records on the output device. Appendix C gives further information on the blank suppressed, blocked data records.

### 2.5 CONTROL SELECTION

There are two control selection cards which function as follows:

- a. \*MADEOF no parameters. The \*MADEOF control card causes a 20-word record of all ones to be written on the output device. This record is recognized by MADCAP and PLANIT as an End-of-File indicator, indicating there are no more loadable program records on the tape.

- b. \*END no parameters. The \*END card is the last control card in an SSTGEN jobstep and causes the output device to be closed and the summary list to be printed.

## SECTION 3

## PATCH CARD FORMATS

## 3.1 GENERAL FORMAT

The general format of a patch or set of patches is:

## AAAA PATCHES

Where AAAA starts in column 1 and is replaced by a 1-thru 4-digit hexadecimal address, indicating where the data on the patch card is to be stored. This address may exceed the length of the program and the highest address will be saved as the new program end address. The address is followed by one and only one blank, then by zero or more data fields separated by commas. The last data field is terminated by a blank or by the end of the card. The remainder of the card after the last data field may be used for comments.

Each data field specifies one halfword (16 bits) of data. The data is stored in sequential halfwords. If the data field contains from one to four hexadecimal digits, the digits are converted to a right-justified 16-bit binary number. Leading zeroes are allowed but are not required.

## 3.2 INSTRUCTION FORMAT

If the data field contains five hexadecimal digits, they are interpreted in OPMHS instruction format where:

- O = First 3 bits of opcode (legal range: 0-7)
- P = Last 4 bits of opcode (legal range: 0-F)
- M = Mode field (legal range: 0-3)
- H = Accumulator designator (legal range: 0-F)
- S = Index register designator (legal range: 0-7)

A patch data field containing more than five digits is illegal.

## 3.3 RELATIVE ADDRESS FORMAT

A patch data field may also contain a dollar sign as the first character. This is used for transfer instructions and instructions that fetch data from program literal pools. These instructions use relative mode addressing (mode 2) which means that the DAW field of an instruction contains

not the address of the operand but rather the distance (in halfwords) from the instruction to its operand (minus two halfwords).

As an example, the patch card

0400 30200,\$800

causes the following instruction to be stored at location 0400:

30200 03FE

## SECTION 4

## DECK STRUCTURE

The structure of an SSTGEN job requires the use of PSS/OS job control language (JCL) cards, SSTGEN control cards, and patch cards. PSS/OS JCL cards are described in the PSS/OS User Manual. Appendix B contains several typical jobs with explanations.

The following simple rules are to clarify the location of patch cards in relationship with object decks and input control cards:

- a. The first card defines the process and source of the data. It must be one of the following types:
  - \*BOOT
  - \*OBJ
  - \*OBJ,NNNN
- b. If the input is from cards, the object deck must immediately follow the \*BOOT, \*OBJ or \*OBJ,NNNN card.
- c. Next comes the optional patch card area of the deck. The patch card area is defined as all the cards until a card containing an asterisk (\*) in column 1 is encountered. Within this space, cards with column 1 blank or containing an ampersand will be treated as comment cards and simply are printed. Patch cards conforming to the Section 3 description are the only other cards permitted in this space. The patch cards are applied to the program in memory as they are encountered.
- d. When the next asterisk (\*) card is encountered, the program currently in memory is written on the output device.

Figure 4-1 shows an example of this deck structure.

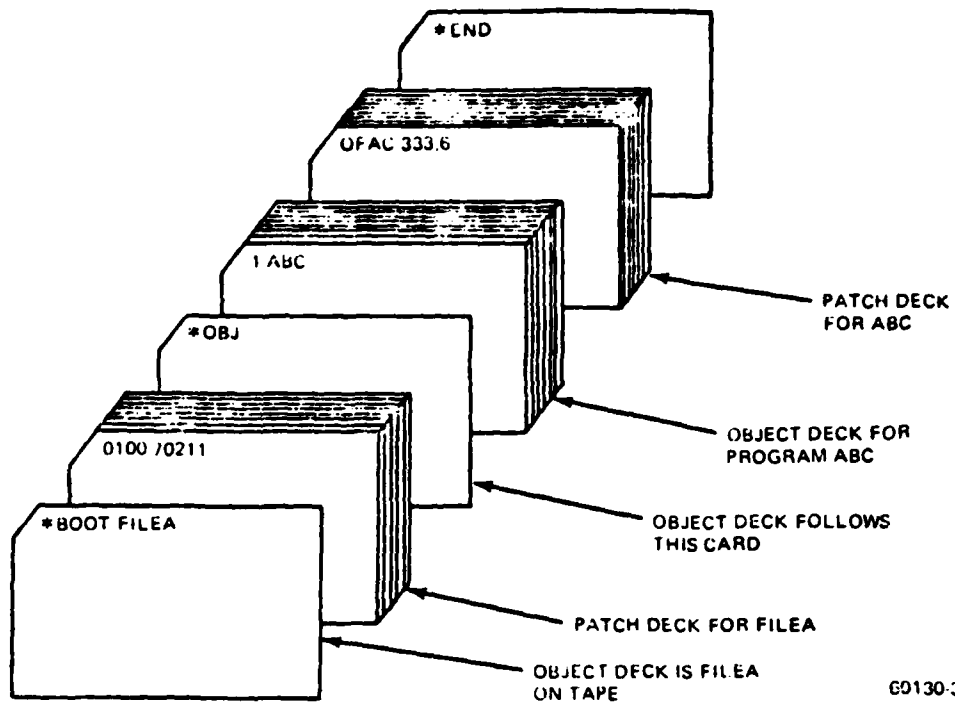


Figure 4-1. Sample Deck Structure

## SECTION 5

## INPUT FILE FORMATS

SSTGEN is set up to accept input from disk or tape files or directly from cards. This section describes these formats and restrictions.

## 5.1 CARD INPUT

If card input is used it must be a legal object deck from the compiler or a data deck. If the #DATA card is used and input is cards, then a data card containing an asterisk (\*) in column 1 is illegal, as it marks the end of the data deck. If such a data card is required then the deck will first have to be transferred to a tape or disk file.

## 5.2 TAPE OR DISK FILE INPUT

Data will be accepted properly from a disk or tape file blocked from 1 to 10 logical records per physical record. The logical record size for an object deck is 20 words (80 characters). The logical record size for data files is 21 (84 characters).

These file formats are specifically oriented to the tape and disk librarian programs available under PSS/OS. The library types used are OBJECT for object decks, and SOURCE for data decks. Only the first 72 characters of a data card are used so as not to defeat the trailing blank suppression feature of the packed format. Several characteristics of tape and disk files require additional consideration.

## 5.2.1 Tape Files

Tape files should be generated in file sequential order by the program LIBGEN. This allows files to be used by SSTGEN sequentially without rewinding the tape. If both object and data files are to be used they should be generated on the same tape in the correct order, for example:

- a. Library AAAA,OBJECT - contains object decks in order.
- b. Library BBBB,SOURCE - contains data decks in order.

### 5.2.2 Disk Files

Normally disk files will be generated by the program SPSLIB. They may also be generated directly by the compile in the case of object decks. Unlike tape files there is no ordering problems with files on disk. SSTGEN will automatically read the latest version of a disk file unless the VERS parameter is specified on the control card.

## SECTION 6

### OUTPUT FORMATS

#### 6.1 DECK OUTPUT

The deck output is normally only useful for a single boot output. The output for a boot deck is the normal program in EBCDIC preceded by 7-boot words also in EBCDIC.

#### 6.2 TTC OUTPUT

TTC output format is one record per program. Boot records will be preceded by 7-boot bytes. Data files will be written as one or more 2000 word ASCII records with the format described in Appendix C.

#### 6.3 TAPE OUTPUT

##### 6.3.1 IBM-PEBU Tape Format

The output for commercial tapes written on an IBM-PEBU are the same as TTC output with the exception of boot records which are preceded by 7-boot words rather than boot bytes.

##### 6.3.2 SPS Tape Format

The SPS has a restriction on the size of tape records written, limiting them to 2048 words per record maximum. A single program may be written as one or more records on tape. In the case of a bootable program, the hardware will ignore any inter-record gaps and read the complete program in. In the case of object programs greater than 2048 words, the loading program will have to provide the additional processing to read in the complete program.

#### 6.4 LISTINGS

The first part of the listing generated by SSTGEN is during the processing of the input job stream. Control cards, patch cards, and error messages along with optional selections (\*OPTA, \*OPTB and \*OPTC) are printed during the process. When the \*PNO card is encountered, a Summary Report is printed which contains the type-1 cards which identify the object decks utilized. The SSTGEN control cards \*DATA and \*MAEOF are used in place of type-1 cards in this report. The summary report also lists the following items for each entry:

- a. RCDS - The count of type-0 cards in an object deck or count of data cards in a data deck.
- b. PTCH - The count of patch cards applying to a particular program.
- c. ADRS - The last word address of the program record. This value will be the program size or highest patch address if greater than the program size.
- d. BOOT BYTES - If the program is bootable, the boot bytes will be listed.

Following the last type-1 card (or equivalent), the message "ITEMS = nnnn ERRORS = eeee" is printed. The items count is the number type-1 cards (or equivalent) and the error count is the number of errors. The items and error counts would normally be checked first to see if a tape was made correctly.

APPENDIX A  
ERROR MESSAGES

The following messages will be output by SSTGEN when errors are detected. Messages 01 thru 10 will be printed with the text indicated in capital letters. Other messages will be printed with the caption "ERROR, SEE USER MANUAL".

<u>EPRCF</u>	<u>DESCRIPTION</u>
01	NO MODE CARD, SET TO TEST. The first card after any option cards was not an output selection card.
02	OUTPUT FILE ERR, SET TO TEST. Output file description not correctly accepted by PSS/OS; verify output selection card.
03	CONTROL CARD ERPOP, CARD IGNORED. Invalid control card or invalid field on control card.
04	INPUT FILE ERR, FILE IGNORED. Output file description not correctly accepted by PSS/OS; verify input selection card.
05	NO TYPE1 CARD, DECK IGNORED. *OPTA dump if selected.
06	NO TYPE9 CARD, DECK IGNORED. *OPTA dump if selected.
07	OBJECT DECK NOT IN ORDER. *OPTA dump if selected.
08	OBJECT CARD CHECKSUM ERROR. *OPTA dump if selected.
09	BAD OBJECT CARD, DECK IGNORED. *OPTA dump if selected. Card was other than type 0, 5, 6, 8 or 9.
10	PATCH CARD ERROR. Address was greater than 3FFF or otherwise did not comply with Section 3 rules.

<u>ERRCB</u>	<u>DESCRIPTION</u>
20	SSTGEN program entry table exceeded 99 entries (program limit).
21	Type-0 ADDRESS ERROR. Address greater than 3FFF. *OPTA dump if selected.
22 thru 26	Input tape file description not correctly accepted by PSS/OS. Verify input selection cards.
27,28	Input disk file description not correctly accepted by PSS/OS. Verify input selection cards.
44	Illegal ID value found in ID, parameter. It should be a 1-to 4-digit hexadecimal number.

## APPENDIX B

## SAMPLE JOBS

This appendix contains typical standard job decks and various modifications that might be made to the standard job decks during the course of program development. Each figure includes explanatory notes.

( ) JOB	DZMJAH57.HOFF,CLAS=A	
( ) FILE	MADOBJ,SSTGEN,UNIT=7,ACSS=READ,IDIS=SHR	
( ) EXEC	TPBUILD,NODUMP	
FTLE	MADOBJ	SSTGEN
&&DLIM		
( ) EXEC	SSTGEN	
*TTC	LOAD, VOL=ETTC	OUTPUT TO TTC
*BOOT	DBMDOBJ,MDF102	CPU FAULT ISOLATION
*OBJ	DRMDOBJ,MDF103	CMU FAULT ISOLATION
*OBJ,7F6	MADOBJ,MADCAP	MADCAP
*BOOT	MADOBJ,UTSPACER	UNIT TEST SPACER
*OBJ	MADOBJ,PSMDF104	PSSB RAM FAULT ISOLATION
*OBJ	MADOBJ,MDCLO1, ID=2110	FIELD SCHEDULER
*OBJ	MADOBJ,MADSUP40, ID=3120	MADCAP SUP40 PROCESSOR
*OBJ	MADOBJ,PSMDCLO3, ID=3130	PSSB SCHEDULEP
*OBJ	MADOBJ,PSMDCLO4, ID=2190	PSSB EXECUTIVE
*OBJ	MADOBJ,MDF01, ID=20	LOCAL LOOP TEST
*OBJ	MADOBJ,MDF02, ID=30	CPU FAULT DETECTION
*OBJ	MADOBJ,MDF03, ID=40	MEM FAULT DETECTION
*OBJ	MADOBJ,MDF05, ID=60	ARM FAULT DETECTION
*OBJ	MADOBJ,MDF06, ID=70	ACC FAULT DETECTION
*OBJ	MADOBJ,MDF07, ID=80	ETD FAULT DETECTION
*OBJ	MADOBJ,MDF08, ID=90	OPM FAULT DETECTION
*OBJ	MADOBJ,MDF09, ID=A0	ELP FAULT DETECTION
*OBJ	MADOBJ,MDF10, ID=R0	DDT FAULT DETECTION
*OBJ	MADOBJ,MDF11, ID=C0	VFMED LOOP TEST
*OBJ	MADOBJ,MDF12, ID=D0	FFMED LOOP TEST
*OBJ	MADOBJ,MDF13, ID=E0	HOU LOOP TEST
*OBJ	MADOBJ,MDF14, ID=F0	FDC/FDC LOOP TEST
*OBJ	MADOBJ,MDF15, ID=100	RG FAULT DETECTION
*OBJ	MADOBJ,MDF105, ID=130	ARM FAULT ISOLATION
*OBJ	MADOBJ,MDF106, ID=140	ACC FAULT ISOLATION
*OBJ	MADOBJ,MDF107, ID=150	ETD FAULT ISOLATION
*OBJ	MADOBJ,MDF108, ID=160	OPM FAULT ISOLATION
*OBJ	MADOBJ,MDF109, ID=170	ELP FAULT ISOLATION
*OBJ	MADOBJ,MDFX04, ID=1F0	RAM DISTURB

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Figure B-1. Standard MADCAP Job Deck (1 of 2)

*OBJ	MAD08J, MDF02, ID=1A0	CPU FAULT DETECTION
*OBJ	MAD08J, MDF03, ID=1B0	MFM FAULT DETECTION
*OBJ	MAD08J, PSMDF04, ID=1C0	PSSR RAM FAULT DETECTION
*OBJ	MAD08J, M0FD05, ID=1D0	ARMM FAULT DETECTION
*OBJ	MAD08J, PSMDF21, ID=210	PSSR CTS FAULT DETECTION
*OBJ	MAD08J, PSMDF121, ID=260	PSSB CTS FAULT ISOLATION
*OBJ	MAD08J, MDF105, ID=2B0	ARMM FAULT ISOLATION
*MADEOF		
*BOOT	MAD08J, CPUUT	CPU UNIT TEST
*BOOT	MAD08J, ARMUT	ARMM UNIT TEST
*BOOT	MAD08J, ETDUT	ETD UNIT TEST
*BOOT	MAD08J, ELPUT	ELP UNIT TEST
*BOOT	MAD08J, ACCUT	ACC UNIT TEST
*BOOT	MAD08J, DDTUT	DDT UNIT TEST
*BOOT	MAD08J, VFMUT	VFMED UNIT TEST
*BOOT	MAD08J, BDUT	BDU UNIT TEST
*BOOT	MAD08J, FMDUT	FMED UNIT TEST
*BOOT	MAD08J, RAMUT	RAM UNIT TEST
*BOOT	MAD08J, DPMUT	DPM UNIT TEST
*BOOT	MAD08J, COMDUPE	COMDUPE (COPY FIELD TAPE)
*BOOT	MAD08J, CCCUT	CCC UNIT TEST (TEST SET)
*BOOT	MAD08J, BERT	BERT (BIT ERROR RATE TEST)
*BOOT	MAD08J, DMDUT	DMD UNIT TEST
*BOOT	MAD08J, IOUIT	IOU UNIT TEST
*END		
( )END		

NOTE: All files, including SSTGEN, are located on disk data sets.

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Figure B-1. Standard MADCAP Job Deck (2 of 2)

( ) JOB	DZARA499, HOFF, CLAS=A, TAPE=1	
( ) EXEC	TPBUILD, NODUMP	
CARD		
1 SSTGEN		OBJECT DECK FOR SSTGEN
	.	OBJECT DECK FOR SSTGEN
	.	OBJECT DECK FOR SSTGEN
	.	OBJECT DECK FOR SSTGEN
9 SSTGEN		OBJECT DECK FOR SSTGEN
E&DLIM		
( ) EXEC	SSTGEN	
*OPTD		SET PLANIT ID OPTION
*TTC	LOAD,,VOL=666	OUTPUT TO TTC S/N 666
*BOOT	POS,,VOL=6PLN	
*OBJ	RAMCHECK,,ID=10	
*OBJ	M IOP,,ID=20	
*OBJ	TM IOP,,ID=21	
*OBJ	PLANIT,,ID=30	
*OBJ	PLAN1,,ID=41	
*OBJ	PLAN2,,ID=42	
*OBJ	PLAN3,,ID=43	
*OBJ	PLAN4,,ID=44	
*OBJ	PLAN5,,ID=45	
*OBJ	PLAN6,,ID=46	
*OBJ	PLAN7,,ID=47	
*OBJ	PLAN8,,ID=48	
*OBJ	FINAL,,ID=5F	
*OBJ	START,,ID=60	
*MADE CF		
*DATA	CFILF9L	3 MCMU CARDS FILE
*END		
( ) END		

NOTE: SSTGEN is a card deck. All the other files are located on a single tape volume.

Figure B-2. Standard PLANIT Job Deck

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REMOVE THE FOLLOWING CARD  
FROM THE STANDARD MADCAP JOB DECK

\*OBJ    MADOBJ,MDFD01,ID=20            LOCAL LOOP TEST

REPLACE WITH THE FOLLOWING CARD

\*OBJ    OBJDECK,HBMDFD01,ID=20        \*\*\*\* DEVELOPMENT \*\*\*\*

NOTE: The above are the changes to make a  
MADCAP TTC with a development version of  
MDFD01 located on the disk data set OBJDECK.

60130-7

Figure B-3. Development Program from Disk for MADCAP TTC

REMOVE THE FOLLOWING CARDS  
FROM THE STANDARD PLANIT JOB DECK

```
#OBJ PLAN4,,ID=44  
#OBJ PLAN5,,ID=45
```

REPLACE WITH THE FOLLOWING CARDS

```
#OBJ PLAN4,,ID=44,VOL=&DEV    ** DEVELOPMENT **  
#OBJ PLAN5,,ID=45,VOL=&PLN    (RETURN TO ORIG TAPE)
```

NOTE: The above are the changes to make a  
PLANIT TTC with a development version of  
PLAN4 located on a different tape volume.  
Especially note that the original volume  
(&PLN) must be called out again on the  
PLAN5 control card.

60130-9

Figure B-4. Development Program From Tape For PLANIT TTC

REMOVE THE FOLLOWING CARD  
 FROM THE STANDARD MADCAP JOB DECK

```
#OBJ      MADOBJ,MDFDO2,ID=30      CPU FAULT DETECTION
```

REPLACE WITH THE FOLLOWING CARDS

```
#OBJ      ,ID=30      ** DEVELOPMENT FDO2 FROM CARDS **
1 MDFDC2  }
0         }
0         }      the object deck for MDFDC2
C         }
...      }
9 MDFDO2  }
```

NOTE: The above are the changes to make a MADCAP  
 TTC with a development version of MDFDO2  
 in card deck format.

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Figure B-5. Development Program From Cards For MADCAP TTC

Figure 4-6 shows a portion of the job deck as it might appear for creating a released MADCAP TTC with patch ECOS to MDFI02, MDFI03, PSMDFI04 and MDFD01. Note that the library patch deck used to make the TACFIRE FIELD TAPP is acceptable for use in SSIGEN job decks with the following exceptions:

- a. MDFI02 - The patches required by the library are offset by 14-halfwords from the true address to accommodate boot bytes.
- b. MDFI03 and PSMDFI04 - The patches required by the library are offset by fixed constants and are located in the INITIAL1 file.

Equivalent patch decks must be prepared for the above programs using the true address as shown in the program listing.

```

...
*BOOT DBMDDRJ,MDFI02 CPU FAULT ISOLATION
EQUIVILANT TO S-88888 TO MDFI02 599168-4253-001
2062 0,0 NOP XFR SW ERROR STOP
2064 0,0 NOP XFR SW ERROR STOP
2066 0,0 NOP XFR SW ERROR STOP
2068 0,0 NOP XFR SW ERROR STOP
*OBJ DBMDDRJ,MDFI03 CPU FAULT ISOLATION
EQUIVILANT TO S-77777 TO MDFI03 599193-4254-001
0366 0,0 NOP PORT B TEST
*OBJ,7F6 MAD03J,MADCAP MADCAP
*ROOT MAD03J,UTSPACER UNIT TEST SPACER
*OBJ MAD03J,PSMDFI04 PSSB RAM FAULT ISOLATION
EQUIVILANT TO S-66666 TO PSMDFI04 599381-4231-001
07AF $333 CORRECT TRANSFER TO ADDRESS
*OBJ MAD03J,MDCLO1,ID=2110 FIELD SCHEDULER
*OBJ MAD03J,MADSUP40,ID=3120 MADCAP SUP40 PROCESSOR
*OBJ MAD03J,PSMDCLO3,ID=3180 PSSB SCHEDULEP
*OBJ MAD03J,PSMDCLO4,ID=2190 PSSB EXECUTIVE
*OBJ MAD03J,MDFD01,ID=20 LOCAL LOOP TEST
&&PGM=MDFD01 SAMPLE S-99999 MDFD01 599153-4253-001
0200 30200,$106 CORRECT XFR S-99999 MDFD01 599153-4253-001
0300 0,1,2,3 REVISE TABLE S-99999 MDFD01 599153-4253-001
*OBJ MAD03J,MDFD02,ID=30 CPU FAULT DETECTION
...

```

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Figure B-6. MADCAP Job Deck With Patch ECOS

## APPENDIX C

## BLANK SUPPRESSED, BLOCKED DATA RECORDS

This appendix describes the blank suppressed, blocked data record format generated by SSTGEN and used by PLANIT for ASCII card data on tape. The process consists of dropping the trailing blanks from a 72-column card image and packing the truncated card image in 2000-word blocks to be written on tape. Three special characters are also packed with the data for control purposes. The special characters are as follows:

- a. FC (hexadecimal) - indicates the end of a card image.
- b. FD (hexadecimal) - indicates the end of a physical tape record (no more card data in this record).
- c. FE (hexadecimal) - the end-of-file indicator for the entire data set. This is not to be confused with nor take the place of the PLANIT End-of-File indicator \$\$\$\$.

Figure C-1 shows portions of a typical source deck and the resultant packed format.

ORIGINAL CARDS

DATA (CARD SOURCE DATA DECK)  
 THIS IS THE SOURCE FOR  
 A TYPICAL DATA  
 DECK. THE  
 ...  
 ...  
 ...  
 THESE LAST CARDS REPRESENT THE CARDS  
 NEAR THE END OF THE "TO BE WRITTEN"  
 DATA BLOCK.  
 FOLLOWING IS THE LAST CARD OF THE SET.  
 \$\$\$\$  
 END

RESULTANT PACKING

THIS IS THE SOURCE FOR <sup>FC</sup><sub>V</sub> TYPICAL DATA <sup>FC</sup><sub>V</sub> DECK. THE <sup>FC</sup><sub>V</sub>...

... <sup>FC</sup><sub>V</sub> DATA BLOCK. <sup>FC</sup><sub>V</sub> <sup>FD</sup><sub>V</sub>

FOLLOWING IS THE LAST CARD OF THE SET. <sup>FC</sup><sub>V</sub> \$\$\$\$ <sup>FC</sup><sub>V</sub> <sup>FE</sup><sub>V</sub>

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Figure C-1. Typical Source And Packed Data Format