▶OPERATING PROCEDURES◀
NO. 1 AUTOMATIC MESSAGE ACCOUNTING RECORDING CENTER (AMARC)
GENERIC 3, 4, AND 5

1. GENERAL

1.01 This section provides loading procedures of the No. 1 AMARC generic program. This section also contains information for switching the status of a system, removing and restoring (initializing) a system that may have been or will be affected by such things as routine tape change, failures in communication paths to remote locations, failure of AMA tape hardware, system errors, or detection test failures. Procedures are also provided for updating an out-of-service (OOS) processor by use of the processor-to-processor (PTP) channel, and loading generic program overwrites.

> ***Note:*** These procedures are ***not*** intended for use in an emergency situation. Refer to Section 201-900-303 should an emergency situation arise. In addition, no procedure of this section should be used in performing a normal tape change. Refer to Section 201-900-301 for routine operation of this type.

1.02 This section is reissued to provide information up to and pertaining to Generic 5 of the program and to eliminate reference to Generic 1 and 2 which are rated Manufacture Discontinued. This section has also been revised to make a revision to the section title and to make minor changes as required.

1.03 The procedures provided are as follows.

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1.04 System responses that occur as a result of an input message entry are designated in the procedures of this section as RSP. In addition, output messages that occur as a result of an input message are designated in the procedures of this section as MSG.

1.05 If system response or output messages are invalid, refer to Input Message Manual (IM) and Output Message Manual (OM) for analysis of failure messages to determine possible cause of trouble. Reference is made within parentheses throughout the procedures of this section to either the input or output messages as they are referenced in the associated table of contents of the IM or OM.

1.06 Reference should be made to the No. 1 AMARC input/output manuals for detailed explanations of input and output messages where the need arises.

1.07 Execute commands, acknowledgment messages, and priority symbols are used throughout the procedures of this section. Some of the most commonly used are:

! = execute command

PF = printout follows

M = manual action

tt = minutes after hour.

Other symbols used and their explanations may be obtained in Section B of both the IM and OM.

1.08 Examination of the IM and OM are required for explanation of the variable fields of the input and output messages. Reference is made within parentheses to the input and output message as it appears in the IM or OM.

1.09 While performing the procedures of this section, various other output messages may be printed due to time period or configuration of the system. All messages that occur should be investigated, and any automatic output messages ***not*** associated with a trouble condition may be disregarded. Any trouble conditions generated by the system, either automatically or in response to an input message request, should be analyzed using the IM and OM before continuing with the procedure.

1.10 Certain procedures of this section require that the input messages used be entered by either the active or standby processor I/O terminal only. The active or standby processor, in this case, can be determined by the lamps located atop the DSIAF frame or by use of the REPT SYS! input message.

1.11 ▶Generic 4 and 5 program applications provide for a functional I/O terminal arrangement feature (FTTY). When this feature is enabled, the terminal normally associated with processor 0 is dedicated to the active processor and becomes the alerting terminal. The other terminal normally associated with processor 1 is dedicated to the standby processor and becomes the analysis terminal. All active system input and output messages are entered and printed out at the alerting terminal. All input and output messages for the standby system are entered and printed out at the analysis terminal. To determine if the I/O terminals are in the functional mode before beginning a procedure in this section, a REPT SYS! input message is entered at either terminal for a REPT SYS STA report. Provided in this report is the state of the I/O terminals.◀

1.12 Information provided in parentheses is either supplemental information describing action that is taking place or reference information.

> ***Example:*** The reference information such as (IM—RMV SYS) is intended for direction to the Input Message Manual table of contents to the message RMV SYS for obtaining variable field data, clearing trouble conditions, etc. Likewise (OM—RMV SYS) is intended for direction to the Output Message Manual table of contents to the message RMV SYS for obtaining information.

1.13 The procedures of this section are ▶intended to be used as operational procedures. These procedures, however, may be used in conjunction with other sections to aid in clearing failure and trouble conditions. Detailed tape change procedures are given in Section 201-900-301.◀ If an EMERGENCY condition exists, see Section 201-900-303.

1.14 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Part 2 of this section indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION/INPUT MESSAGE column, and all steps governed by the same condition are designated by the same letter within a procedure. Where a condition does not apply, all steps designated by that letter should be omitted.

2. PROCEDURES

A. Loading Procedure for No. 1 AMARC Generic Program

- **Determination of Available ROM**
- **Loading No. 1 AMARC Generic Mag Tape**
- **Running No. 1 AMARC Generic Program**
- **Loading Procedures for Other Processor (Optionally Performed)**
- **Copying No. 1 AMARC Generic Program From One Processor to Other Processor Via PTP Channel (Optionally Performed)**
- **Loading NPD and Transferring NPD to Other Processor**

Preliminary Requirements and Information For Performing Loading of No. 1 AMARC Generic Program Procedure

2.01 ▶This procedure should only be used when the generic program is to be loaded into both processors of the No. 1 AMARC and neither processor has had an AMARC generic program. Procedure I of this section should be used when

loading of the No. 1 AMARC generic program into one processor is necessary.

2.02 For Generic 3 through 5 program applications, a difference in program load procedures exists depending upon whether the No. 1 AMARC is provided with a BM792-YA Read Only Memory (ROM) Bootstrap Loader or a BM873-SI ROM Bootstrap Loader. The BM792-YA loader requires that a paper tape bootstrap (PT BOOT—TP5P208-01) be loaded from the paper tape reader. This bootstrap enables the bootstrap program which precedes the magnetic tape generic program to be read into memory. The generic program reads in immediately following the bootstrap.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
	Determination of Available ROM	
	Note 1: For initial load of a system, begin with both processors halted and no tape on either tape drive. If the ACTIVE lamp is lighted on the DSCC cabinet for a particular processor, begin loading the program into this processor. If not lighted, either processor may be used for loading. ***Note 2:*** Prior to performing generic program load, a determination must be made as to whether the No. 1 AMARC is equipped with a BM792-YA or BM873-SI ROM. The following steps are used to make this determination:	
1	At console of processor to be checked— Set console switches to 773400.	
2	Depress LOAD ADRS key.	
3	Depress EXAM key.	When number displayed is 177570— No. 1 AMARC is equipped with a BM792-YA ROM. When number displayed is 000005— No. 1 AMARC is equipped with a BM873-SI ROM.
4	Restore keyswitches except HALT.	
	Loading No. 1 AMARC Generic Mag Tape	
5	At processor console of system in which program is to be loaded— Depress HALT key if not already depressed.	
6	Mount No. 1 AMARC generic magnetic tape. ***Note:*** The write-enable ring should be removed from the reel.	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
7	At tape drive of processor— Depress LOAD key.	Tape winds onto take-up reel until load point is reached. LOAD lamp lighted.
8	Depress ONLINE key.	ONLINE and LOAD lamps lighted.
9a	If processor is equipped with a BM873-SI loader— Proceed to Step 13.	
10b	If processor is equipped with a BM792-YA loader— Mount paper tape labeled PT BOOT onto I/O terminal paper tape reader. ***Note:*** This can be accomplished by positioning green key at "stop" and depressing red button to lift top of reader up. Lay beginning of tape on reader (with header strip on top of I/O terminal and the lower portion of the tape, the end, streaming down to the floor). Mount little holes in middle of tape on drive wheel (with rough part facing up). Push top of reader down.	
11b	Set mode dial to K.	
12b	Set green key on I/O terminal console to RUN.	
13	At processor console— Depress START key.	
14a	If processor is equipped with a BM873-SI loader— Set console switches to 773600.	
15b	If processor is equipped with a BM792-YA loader— Set console switches to 773000.	
16	Depress LOAD ADRS key.	
17	Restore all keyswitches.	
18	Release HALT key.	
19	Depress START key.	When provided with BM873-SI loader— Magnetic tape moves forward and message "CORE MEMORY SIZE IS XXXK WORDS" occurs at processor terminal. Tape moves forward for a few seconds and

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
		then rewinds. A system initialization message then occurs. When provided with BM792-YA loader— Paper tape reads in and stops just past last character punched. Magnetic tape moves forward and message "CORE MEMORY SIZE IS XXXK WORDS" occurs at processor terminal. Tape moves forward for a few seconds and then rewinds. A system initialization message then occurs. REPT TAPE OOS message also occurs.
20c	If paper tape does not stop at position identified or magnetic tape verifications do not occur as identified— Repeat entire procedure.	
21	Depress HALT key. ***Note:*** No. 1 AMARC generic program is now properly loaded into processor memory.	
22	To remove No. 1 AMARC generic tape— Depress tape drive RESET key, then depress REWIND key.	Tape totally rewinds onto upper reel.
23	Remove tape.	
24	Referring to Program Document Index (PG) of associated No. 1 AMARC generic program— Locate cyclic redundancy check characters (memory location and contents).	
25	Set console switches to first memory location provided.	
26	Depress LOAD ADRS key.	
27	Depress EXAM key.	
28	Verify contents displayed against contents specified in PG of generic program.	Contents displayed match contents specified in PG of the generic program.
29	Set console switches to second memory location provided in appropriate drawing information of generic program.	
30	Depress LOAD ADRS key.	
31	Depress EXAM key.	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
32	Verify contents displayed against contents specified in PG of generic program.	Contents displayed match contents specified in PG of generic program.
33d	If response of either Step 28 or 32 is not in agreement with appropriate drawing information of generic program— Wrong generic program was loaded or loaded incorrectly.	
34e	If overwrites affecting this program exist— Set console switches to first absolute address specified on TWX.	
35e	Depress LOAD ADRS key.	
36e	Depress EXAM key.	Contents displayed matches old data specified on TWX.
37e	Set console switches to new data to be inserted.	
38e	Lift DEP key.	
39e	Depress EXAM key.	Contents displayed matches new data specified on TWX.
40f	If other addresses are specified— Repeat Steps 34e through 39e for each address specified on TWX.	
41e	If overwrites affecting this program exist— Set console switches to 400.	
42e	Depress LOAD ADRS key.	
43e	Release HALT key.	
44e	Depress START key.	RSP: None MSG: **tt INIT SYS x yyyyy aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii iiiiii kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu (See OM—INIT SYS.)
45e	At OOS processor I/O terminal— Type: **TEST DET 3!**	RSP: **PF** (See IM—TEST DET.) MSG: **M tt REPT DET PRG PASSED XXXXXX** (See OM—REPT DET PASSED.)
46g	If detection test 3 of Step 45e fails **(REPT DET PRG FAILED)**—	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
	Verify that overwrites were correctly inserted by examining each address specified on TWX. Correct any errors and repeat Steps 41e through 45e.	
47	At processor console— Depress HALT key.	
48	Mount new AMA tape fitted with a write-enable ring.	
49	Depress LOAD key.	LOAD lamp lighted.
50	Depress ONLINE key.	ONLINE, LOAD, and WRITE ENABLE lamps lighted.
Running No. 1 AMARC Generic Program		
51	At processor console— Set console switches to 400.	
52	Depress LOAD ADRS key.	
53	Release HALT key.	
54	Depress START key.	No. 1 AMARC initialized and running. MSG: ****tt INIT SYS X ACTIVE** (See OM—INIT SYS.) ****tt RMV TAPE AMA**, etc, message also occurs. ***Note:*** No. 1 AMARC generic program now running in this processor.
55	Restore all console switches.	
Loading Procedures for Other Processor (Optionally Performed)		
56	At processor console of system in which program is to be loaded— Depress HALT key.	
57	Set console switches to 773400.	
58	Depress LOAD ADRS key.	
59	Depress EXAM key.	When number displayed is 177570— No. 1 AMARC equipped with BM792-YA ROM. When number displayed is 000005— No. 1 AMARC equipped with BM873-SI ROM.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
60h	If using Generic 4 or 5 program and processor is equipped with BM873-SI loader— Restore all keyswitches except HALT.	
61h	Depress START key at OOS processor.	
62h	Release HALT key.	
63h	Depress START key.	No. 1 AMARC running.
64h	To copy generic program from other processor via PTP channel— Go to Step 77.	
65	Mount No. 1 AMARC generic magnetic tape. ***Note:*** The write-enable ring should be removed from the reel.	
66	At tape drive of processor— Depress LOAD key.	Tape winds onto take-up reel until load point is reached. LOAD lamp lighted.
67	Depress ONLINE key.	ONLINE and LOAD lamps lighted.
68b	If processor is equipped with a BM792-YA loader— Mount paper tape labeled No. 1 AMARC Mag Tape Loader onto I/O terminal paper tape reader. ***Note:*** This can be accomplished by positioning green key at "stop" and depressing red button to lift top of reader up. Lay beginning of tape on reader (with header strip on top of I/O terminal and the lower portion of the tape, the end, streaming down to the floor). Mount little holes in middle of tape on drive wheel (with rough part facing up). Push top of reader down.	
69b	Set green key on I/O terminal console to RUN.	
70	At processor console— Depress START key.	
71i	If provided with Generic 3 program and processor equipped with BM873-SI loader— Set console switches to 773600.	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
72b	If processor is equipped with a BM792-YA loader— Set console switches to 773000.	
73	Depress LOAD ADRS key.	
74	Set console switches to 000001.	
75	Release HALT key.	
76	Depress START key. ***Note:*** Only PTP bootstrap program has been loaded from mag tape and is running. This processor is now ready to receive No. 1 AMARC generic program from other processor across PTP channel.	When provided with BM873-SI loader— Magnetic tape moves forward and message "CORE MEMORY SIZE IS XXXK WORDS" occurs at processor terminal. Tape rewinds immediately following the printing of this message. When provided with BM792-YA loader— Paper tape reads in and stops just past last character punched. Magnetic tape moves forward and message "CORE MEMORY SIZE IS XXXK WORDS" occurs at processor terminal. Tape rewinds immediately following the printing of this message.

Copying No. 1 AMARC Generic Program From One Processor to Other Processor Via PTP Channel (Optionally Performed)

77	At active processor I/O terminal— Type: **RMV PTP!**	RSP: **OK** (See IM—RMV PTP.)
78	Type: **UPD MEM PRG!**	RSP: **PF** (See IM—UPD MEM PRG.) At OOS processor— **MSG: **tt INIT SYS X OOS aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii jjjjjj kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu** (See OM—INIT SYS.) ****tt RMV TAPE AMA**, etc, message also occurs. At active processor— MSG: **M tt UPD MEM PRG COMPLETE** (See OM—UPD MEM COMPLETE.) ***Note:*** Both processors now running with No. 1 AMARC generic program.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
Loading NPD and Transferring NPD to Other Processor		
79	At OOS system— Restore nongeneric parameter data from magnetic tape using appropriate procedure of Section 201-900-307. ***Note:*** If NPD does not already exist on tape, it will have to be manually generated and a tape made. Refer to Section 201-900-307.	Nongeneric and special number data, if it exists, is now resident in memory of OOS processor.
80	At OOS system— Mount new AMA tape. ***Note:*** Verify tape has write-enable ring.	
81	Depress LOAD key.	LOAD lamp lighted.
82	Depress ONLINE key.	ONLINE, LOAD, and WRITE ENABLE lamps lighted.
83	At OOS processor I/O terminal— Type: **INIT SYS!** (Request initialization of system.) ***Note:*** Exclamation point ! will not print.	RSP: None MSG: ****tt INIT SYS x yyyyy aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii jjjjjj kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu** (See OM—INIT SYS.) ***tt REPT TAPE OOS**, etc
84	At OOS processor I/O terminal— Type: **RST TAPE!** (Initializes tape unit, writes an ID burst on the newly mounted tape, checks for an empty tape, and restores unit to service. This message also requests a transient memory update and system restoral.)	RSP: **PF** (See IM—RST TAPE.) Within 2 minutes— At both system I/O terminals— MSG: **tt UPD MEM TRN COMPLETE** (See OM—UPD MEM COMPLETE.) **M tt RST SYS n STANDBY** (See OM—RST SYS.) **M tt RST TAPE AMA**, etc
85	At active processor I/O terminal— Type: **SW SYS!** (Request switch of systems—standby to active, and active to standby.)	RSP: **PF** (See IM—SW SYS.) At both I/O terminals— MSG: **M tt SW SYS 0 aaaaaa 1 bbbbbb cccccc** (See OM—SW SYS.)

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
		Note: Active processor has now been switched to standby mode.
86	At current standby processor I/O terminal— Type: **RMV SYS!** (Request removal of standby system from service.)	RSP: **PF** (See IM—RMV SYS.) At both I/O terminals— MSG: **M tt RMV SYS n OOS aaaaaa** (See OM—RMV SYS.)
87	At active processor I/O terminal— Type: **UPD MEM NPD!** (Used to update NPD from active to OOS system.)	RSP: **PF** (See IM—UPD MEM NPD.) At both I/O terminals— MSG: **M tt UPD MEM NPD COMPLETE** (See OM—UPD MEM COMPLETE.)
88	To verify NPD input data— At OOS processor I/O terminal— Type: **TEST DET 4!**	RSP: **PF** MSG: **M tt REPT DET NPD PASSED**
89	At OOS processor I/O terminal— Type: **TEST DET 6!** (Used to test CRC computation.)	RSP: **PF** (See IM—TEST DET.) MSG: **M tt REPT DET CMP PASSED XXXXXX** (See OM—REPT DET PASSED.) ***Important:*** ID of this step should match ID computed for NPD on magnetic tape (Step 79). Matched ID numbers indicate NPD has been properly loaded into OOS processor.
90	At OOS processor I/O terminal— Type: **INIT SYS!** (Request initialization of system.) ***Note:*** Exclamation point ! will not print.	RSP: None MSG: ***tt INIT SYS x yyyyyy aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii iiiiii kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu** (See OM—INIT SYS.)
91	At OOS processor I/O terminal— Type: **RST TAPE!** (Initializes tape unit, writes an ID burst on the newly mounted tape, checks for an empty tape, and restores unit to service. This message also requests a transient memory update and system restoral.)	RSP: **PF** (See IM—RST TAPE.) Within 2 minutes— At both system I/O terminals— MSG: **tt UPD MEM TRN COMPLETE** (See OM—UPD MEM COMPLETE.) **M tt RST SYS n STANDBY** (See OM—RST SYS.) **M tt RST TAPE AMA**, etc, also occurs.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
92	At active processor— Set clock date and time. Refer to Section 201-900-305. Suggestion: If clock is set on the hour, output count channel (OP CNT CHL) and hourly summary message will occur. It is therefore suggested that a time other than an hourly interval be chosen so as to cut down on the I/O terminal activity which is unnecessary at this time.	
93	When polling of connected offices is desired— At active I/O terminal— Type: **RST CHL abb!** (Used to restore a channel to service and start polling on that channel.)	RSP: **PF** MSG: **M tt RST CHL abb** (Channel abb has been successfully restored to service and is issuing polling commands to initiate data transmission from the remote site.)◀

B. System Removal (Conditional)

Preliminary Requirements and Information for Performing Conditional System Removal Procedure

2.03 This procedure is used to remove the standby system from service. It cannot be used to remove the active system from service unless the active is first switched to the standby mode. ▶Follow Procedure F when switching the active system to standby mode.

2.04 If a conditional removal (**RMV SYS!**) cannot be typed on◀ the standby processor (I/O terminal bad, standby system halted), an unconditional removal must be performed. Refer to Procedure C for performing an unconditional system removal.

2.05 After performing Procedure B, the system should be restored to service, as soon as possible, following the steps provided in Procedure D.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	At current standby processor I/O terminal— Type: **RMV SYS!** (Request removal of standby system from service.)	RSP: **PF** (See IM—RMV SYS.) At both system I/O terminals— MSG: **M tt RMV SYS n OOS 000001** (See OM—RMV SYS.)

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
		Note: This message should output on both system I/O terminals. If message does not print on both systems, an unconditional removal must be performed. Refer to Procedure C of this section for performing an unconditional system removal.

C. System Removal (Unconditional)

Preliminary Requirements and Information for Performing Unconditional System Removal Procedure

2.06 This procedure is intended to be performed on the active processor only. This procedure will remove the standby system from service and is used only when the conditional removal (Procedure B) cannot be typed on the standby system (I/O terminal bad, standby system halted, or PTP channel faulty).

2.07 Should the PTP channel appear faulty, removal of the standby system must be input on both the standby and active system terminals. This essentially places the standby system OOS on both processors.

2.08 After performing Procedure C, the system should be restored to service, as soon as possible, following the steps provided in Procedure D.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	At current active processor I/O terminal— Type: **RMV SYS UCL!** (Request removal of standby system from service, when a RMV SYS message cannot be accepted by the standby processor.)	RSP: **PF** (See IM—RMV SYS.) At both system I/O terminals— MSG: **M tt RMV SYS n OOS 000001** (See OM—RMV SYS.) (Standby system n has been removed from service.) *Note:* This message should output on both system I/O terminals. If message does not print on standby system I/O terminal, a system removal must also be typed on the standby processor in accordance with Step 2a.
2a	If output message of Step 1 does not print on standby system I/O terminal (possible faulty PTP channel)— At standby processor I/O terminal— Type: **RMV SYS!** (Places standby system OOS on both systems.)	RSP: **PF** (See IM—RMV SYS.) MSG: **M tt RMV SYS n OOS 000001** (See OM—RMV SYS.) (Standby system n OOS on both systems.)

D. System Restoral (Conditional)

Preliminary Requirements and Information for Performing System Restoral Procedure

2.09 This procedure is intended for use immediately after performing Procedure B or C ▶or when called for in another procedure. A conditional system restoral is the normal preferred method for placing an OOS system in standby mode. When a conditional system restoral cannot be performed, Procedure E provides steps needed to perform an unconditional system restoral.◀

2.10 Whenever normal recovery procedures fail to provide a working configuration or cause system run failure, manual initialization procedures are necessary. Procedures J and K provide transient and stable initialization procedures accordingly.

Note: Should an INIT SYS input message fail to initialize the system of this procedure, the system must be halted and a transient initialization performed per Procedure J.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1a	▶If OOS processor has no tape— Proceed to Step 8c.	
2b	If OOS processor is equipped with AMA tape that contains no billing data— Proceed to Step 10c.	
3c	If OOS processor is equipped with AMA tape that contains billing data or requires removal— Type: **RMV TAPE!**	RSP: **PF** MSG: **M tt RMV TAPE AMA**, etc. (See OM—RMV TAPE AMA.)
4c	Depress tape drive RESET key.	
5c	Depress REWIND key.	Tape rewinds from lower reel to upper reel until load point reached. Tape drive RESET lamp lighted.
6c	When tape ceases moving— Depress REWIND key again.	Tape totally rewinds onto upper reel.
7c	Remove AMA tape.	
8c	Mount new AMA tape.	
9c	Depress LOAD key.	LOAD lamp lighted.
10c	Depress ONLINE key.	ONLINE, LOAD, and WRITE ENABLE lamps lighted.◀
11	At OOS processor I/O terminal— Type: **INIT SYS!** (Request initialization of system.) ***Note:*** Exclamation point ! will not print.	RSP: None MSG: ****tt INIT SYS x yyyyy aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii jjjjjj kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu** (See OM—INIT SYS.) ****tt REPT TAPE OOS**, etc, message occurs.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
12	At OOS processor I/O terminal— Type: **RST TAPE!** (Initializes tape unit, writes an ID burst on the newly mounted tape, checks for an empty tape, and restores unit to service. This message also requests a transient memory update and system restoral.)	RSP: **PF** (See IM—RST TAPE AMA.) Within 2 minutes— At both system I/O terminals— MSG: **tt UPD MEM TRN COMPLETE** (See OM—UPD MEM COMPLETE.) **M tt RST SYS n STANDBY** (See OM—RST SYS.) **M tt RST TAPE AMA**, etc, message also occurs. ***Note:*** Should the output message not print on both system I/O terminals, repeat this step.

E. System Restoral (Unconditional)

Preliminary Requirements and Information for Performing Unconditional System Restoral Procedures

2.11 This procedure is intended for use immediately after performing Procedure B or C in the event Procedure D will not accomplish a conditional system restoral.

2.12 An unconditional system restoral is acceptable on either the active or OOS system. This procedure immediately restores the OOS system to service (standby) without performing a transient memory update.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	At OOS processor I/O terminal— Type: **RST SYS UCL!** (Requests restoral of the OOS system to service [standby] without performing a transient memory update.)	RSP: **PF** (See IM—RST SYS.) At both system I/O terminals— MSG: **M tt RST SYS n STANDBY** (See OM—RST SYS.) (OOS system restored to standby state.)
2a	If output message of Step 1 does not print on active system I/O terminal (possible faulty PTP channel)— At active system I/O terminal— Type: **RST SYS UCL!** (Places OOS system standby on both systems.)	RSP: **PF** (See IM—RST SYS.) MSG: **M tt RST SYS n STANDBY** (See OM—RST SYS.) (OOS system restored to standby on both systems.)

F. System Switch (Conditional)

Preliminary Requirements and Information for Performing Conditional System Switch Procedure

2.13 This procedure is used for performing a system switch (active to standby, standby to active).

2.14 Should this procedure not be acceptable by the active processor, an unconditional system switch must be performed. Refer to Procedure G for performing an unconditional system switch.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	At active processor I/O terminal— Type: **SW SYS!** (Request switch of systems—standby to active and active to standby.)	RSP: **PF** (See IM—SW SYS.) MSG: **M tt SW SYS 0 aaaaaa 1 bbbbbb 000001** (See OM—SW SYS.)

G. System Switch (Unconditional)

Preliminary Requirements and Information for Performing Unconditional System Switch Procedure

2.15 This procedure provides steps necessary for performing an unconditional switch of the systems.

2.16 If a SW SYS UCL message is typed on the active processor, the active processor places itself in standby mode and automatically lets the other processor go active. If a SW SYS UCL message is typed on the standby processor, it places itself in an active mode and permits the other processor to go standby.

▶***Note:*** When a SW SYS UCL message is used, a counter for scoring emergency switches is pegged. The count of this emergency switch is indicated in the c field, bits 1 and 2, of the REPT SYS STA message. This counter should be cleared whenever an emergency switch has occurred. This can be accomplished by removing the standby system from service and initializing and restoring the system in a normal manner.◀

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1a	If being typed from active processor— Type: **SW SYS UCL!** (Requests an unconditional switch of the systems [active places itself standby and permits the other system to automatically become active].)	RSP: **PF** (See IM—SW SYS.) At both I/O terminals— MSG: **M tt SW SYS 0 aaaaaa 1 bbbbbb 000001** (See OM—SW SYS.)
2b	If being typed from standby processor— Type: **SW SYS UCL!** (Requests an unconditional switch of the systems [standby places itself active and permits the active system to become standby].)	RSP: **PF** (See IM—SW SYS.) At both I/O terminals— MSG: **M tt SW SYS 0 aaaaaa 1 bbbbbb 000001** (See OM—SW SYS.)

H. No. 1 AMARC Generic Status Check

Preliminary Requirements and Information for Performing No. 1 AMARC Generic Status Check Procedure

2.17 The existence and/or state of the generic program may be unknown after a trouble condition or maintenance routine. To determine its existence and/or state, this procedure should be performed.

2.18 The results of this procedure may lead to reloading the generic program or transferring the program via the PTP channel from the active processor.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
	Note: ▶Corrective action is provided in Steps 9b through 19d for any detection test failure (**M tt REPT DET XXX FAIL**) in Steps 1 through 7.◀	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	At OOS processor I/O terminal— Type: **TEST DET 0!** (Used to request execution of detection test 0—Memory address register memory test.)	RSP: **PF** (See IM—TEST DET.) MSG: **M tt REPT DET MAR PASSED** (See OM—REPT DET PASSED.)
2	At OOS processor I/O terminal— Type: **TEST DET 1!** (Used to request execution of detection test 1—Device selector memory test.)	RSP: **PF** (See IM—TEST DET.) MSG: **M tt REPT DET DVS PASSED** (See OM—REPT DET PASSED.)
3	At OOS processor I/O terminal— Type: **TEST DET 2!** (Used to request execution of detection test 2—Line memory test.)	RSP: **PF** (See IM—TEST DET.) MSG: **M tt REPT DET LIN PASSED** (See OM—REPT DET PASSED.)
4	At OOS processor I/O terminal— Type: **TEST DET 3!** (Used to request execution of detection test 3—Program memory CRC check.)	RSP: **PF** (See IM—TEST DET.) MSG: **M tt REPT DET PRG PASSED** (See OM—REPT DET PASSED.)
5	At OOS processor I/O terminal— Type: **TEST DET 4!** (Used to request execution of detection test 4—NPD memory CRC check.)	RSP: **PF** (See IM—TEST DET.) MSG: **M tt REPT DET NPD PASSED** (See OM—REPT DET PASSED.)
6	At OOS processor I/O terminal— Type: **TEST DET 5!** (Used to request execution of detection test 5—Bit-to-bit short test.)	RSP: **PF** (See IM—TEST DET.) MSG: **M tt REPT DET BIT PASSED** (See OM—REPT DET PASSED.)
7	▶At OOS processor I/O terminal Type: **TEST DET 6!** (Used to request execution of detection test 6—NPD memory CRC computation.)	RSP: **PF** (See IM—TEST DET.) MSG: **M tt REPT DET CMP PASSED XXXXXX** (See OM—REPT DET PASSED.) ***Important:*** The CRC sum XXXXXX should match that on the magnetic tape used for loading NPD.
8a	If no failure exists— Proceed to Step 21.◀	
9b	If a failure in either detection test 0, 1, 2, or 5 occurred—	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
	Refer to OM for DET TEST response and trouble explanation (hardware failure likely).	
10c	▶If failure occurred in detection test 3 or 6— Depress HALT key at OOS processor.	
11c	Set console switches to either 773400 when equipped with BM873-SI ROM loader or 30014 when equipped with BM792-YA ROM loader.	
12c	Depress LOAD ADRS key.	
13c	When equipped with BM792-YA ROM— Depress EXAM key.	Data address contents are displayed. ***Note:*** When 000005 displayed, this indicates that there is a possibility the bootstrap is still OK. CONSOLE lamp extinguished at processor console indicates that program is running.
14c	When data address contents displayed in Step 13c are other than 000005— Proceed to Step 20e.	
15c	When equipped with BM873-SI ROM or when equipped with BM792-YA ROM and address contents displayed are 000005, release HALT and depress START.	System should be initialized and running.◀
16c	At active processor I/O terminal— Type: **RMV PTP!** (Remove PTP channel from service.)	RSP: **OK** (See IM—RMV PTP.) ***Note:*** Command successfully carried out.
17c	At active processor I/O terminal— Type: **UPD MEM PRG!** (Request update of all system program memory from the active processor to the other processor.)	RSP: **PF** (See IM—UPD MEM PRG.) (Active processor) ▶MSG: **M tt UPD MEM PRG COMPLETE** (See OM—UPD MEM COMPLETE.) (Updating of specified memory has been completed.) (OOS processor) MSG: ****tt INIT SYS x OOS aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii jjjjjj kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu** (See OM-INIT SYS.)◀
18c	At active processor I/O terminal— Type: **UPD MEM NPD!**	RSP: **PF** (See IM—UPD MEM NPD.)

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
	(Request update of nongeneric parameter data from active to out-of-service system.)	MSG: **M tt UPD MEM aaa COMPLETE** (See OM—UPD MEM COMPLETE.) (Updating of specified memory completed.)
19d	▶If a failure occurred in detection test 4— Type: **UPD MEM NPD!** (Action and response same as for Step 18c.)	
20e	If response of Step 13c does not equal 5— Reload the generic program per Procedure I and return to next step.	
21	Restore OOS system to standby mode by using Procedure D of this section.◀	

I. OOS Processor Update Via PTP Channel

Preliminary Requirements and Information for Performing OOS Processor Update Via PTP Channel Procedure

2.19 This procedure is used to update the OOS processor using the PTP channel. Should it be found, through a status check according to Procedure H, that the generic program does not reside in memory of OOS processor, this procedure should be used.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
	▶***Note:*** Prior to performing OOS processor update via PTP channel, a determination must be made as to whether the No. 1 AMARC is equipped with a BM792-YA or BM873-SI ROM. The following four steps are used to make this determination:	
1	At console of processor to be checked— Depress HALT key.	
2	Set console switches to 773400.	
3	Depress LOAD ADRS key.	
4	Depress EXAM key.	When number displayed is 177570— No. 1 AMARC is equipped with a BM792-YA ROM. When number displayed is 000005— No. 1 AMARC is equipped with a BM873-SI ROM.
5	At active processor I/O terminal— Type: **RMV PTP!** (Remove PTP channel from service.)	RSP: **OK** (See IM—RMV PTP.)

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
6a	If provided with BM873-SI ROM— Depress LOAD ADRS key.	
7a	Release HALT key.	
8a	Depress START key.	Magnetic tape moves forward and message "CORE MEMORY SIZE IS XXXK WORDS" occurs at processor terminal. Tape moves forward for a few seconds and then rewinds.
9a	Proceed to Step 28.	
10b	If provided with BM792-YA ROM— Set console switches to 30014.	
11b	Depress LOAD ADRS key.	
12b	Depress EXAM key.	
13c	If contents displayed are 000005— Release HALT key.	
14c	Depress START key.	
15c	Proceed to Step 28.	
16d	If contents displayed are anything other than 000005— Depress HALT key.	
17d	At tape drive of OOS processor— Mount No. 1 AMARC generic magnetic tape. ***Note:*** The write-enable ring must be removed from the reel.	
18d	Depress LOAD key.	LOAD lamp lighted.
19d	Depress ONLINE key.	ONLINE lamp lighted.
20d	Set console switches to 773000.	
21d	Mount paper tape labeled PT BOOT onto I/O terminal paper tape reader. ***Note:*** This can be accomplished by positioning green key at "stop" and depressing red button to lift top of reader up. Lay beginning of tape on reader (with header strip on top of I/O terminal and the lower portion of the tape, the end, streaming down to the floor). Mount little holes in middle of tape on drive wheel	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
	(with rough part facing up). Push top of reader down.	
22d	Set mode dial to K.	
23d	Set green key on I/O terminal to RUN.	
24d	Depress LOAD ADRS key.	
25	Set console switches to 000001.	
26	Release HALT key.	
27	Depress START key.	Paper tape reads in and stops just past last character punched. Magnetic tape moves forward and message "CORE MEMORY SIZE IS XXXK WORDS" occurs at processor terminal. Tape moves forward for a few seconds and then rewinds.
28	At active processor I/O terminal— Type: **UPD MEM PRG!** (Updates all system program memory from active processor to the other processor.)	RSP: **PF** (See IM—UPD MEM PRG.) MSG: **M tt UPD MEM PRG COMPLETE** (See OM—UPD MEM COMPLETE.) At OOS processor— ****tt INIT SYS x OOS**, etc ****tt RMV TAPE AMA**, etc, or ****tt REPT TAPE OOS**, etc
29	At active processor I/O terminal— Type: **UPD MEM NPD!** (Updates nongeneric parameter data from active to OOS system.)	RSP: **PF** (See IM—UPD MEM NPD.) At both I/O terminals— MSG: **M tt UPD MEM NPD COMPLETE** (See OM—UPD MEM COMPLETE.)
30	Perform Procedure D to restore OOS system to standby.◀	

J. Transient Initialization

Preliminary Requirements and Information for Performing Transient Initialization Procedure

2.20 This procedure is to be used only when a manual INIT SYS! I/O terminal input message fails to initialize the system. When **INIT SYS!** is typed and the system fails to initialize, the generic program probably is not current. Should the system fail to initialize or the system works itself into an "initialization loop" which may be identified by constant printing of INIT SYS output messages, the system must be halted and a transient initialization performed. ▶Performing a transient initialization could resolve the condition which the I/O terminal input messages were unable to resolve.◀

Note: The transient initialization procedure always produces a level 1 initialization.

Transient initialization clears ▶monitor line, trace line, and monitor channel and other◀ parts of transient memory and arranges other parts to fixed values.

2.21 After performing a transient initialization, a system restoral should be performed per Procedure D.

2.22 Should a transient initialization fail to initialize the system, a stable initialization per Procedure K should be performed.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	At processor console of system to be initialized— Depress HALT key.	
2	Depress START key.	
3	Set console switches to 420.	
4	Depress LOAD ADRS key.	
5	Release HALT key.	
6	Depress START key.	RSP: None MSG: **tt INIT SYS x OOS aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii iiiiii kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu (See OM—INIT SYS.) **tt INIT TAPE AMA**, etc ****tt RMV TAPE AMA**, etc
7a	▶If OOS processor is equipped with AMA tape— Type: **RMV TAPE!**	RSP: **PF** MSG: **M tt RMV TAPE AMA**, etc
8a	Depress tape drive RESET key.	
9a	Depress REWIND key.	Tape rewinds from lower reel to upper reel until load point is reached. Tape drive RESET lamp lighted.
10a	When tape ceases moving— Depress REWIND key again.	Tape totally rewinds onto upper reel.
11a	Remove AMA tape.	
12a	Mount new AMA tape.	
13a	Depress LOAD key.	LOAD lamp lighted.
14a	Depress ONLINE key.	ONLINE, LOAD, and WRITE ENABLE lamps lighted.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
15	At OOS processor I/O terminal— Type: **INIT SYS!** (Request initialization of system.) ***Note:*** Exclamation point ! will not print.	RSP: None MSG: ****tt INIT SYS x yyyyy aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii iiiiii kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu** (See OM—INIT SYS.) ****tt REPT TAPE OOS**, etc, message occurs.
16	At OOS processor I/O terminal— Type: **RST TAPE!** (Initializes tape unit, writes an ID burst on the newly mounted tape, checks for an empty tape, and restores unit to service. This message also requests a transient memory update and system restoral.)	RSP: **PF** (See IM—RST TAPE) Within 2 minutes— At both system I/O terminals— MSG: **tt UPD MEM TRN COMPLETE** (See OM—UPD MEM COMPLETE.) **M tt RST SYS n STANDBY** (See OM—RST SYS.) **M tt RST TAPE AMA**, etc, message also occurs. ***Note:*** Should the output message not print on both system I/O terminals, repeat this step.

K. Stable Initialization

Preliminary Requirements and Information for Performing Stable Initialization Procedure

2.23 This procedure should be performed only after a transient initialization per Procedure J has been performed and has failed to initialize the system.

> ***Note:*** A stable initialization performs everything a transient initialization performs and also clears nongeneric parameter data, plant counters, system time, and initialization dumps.

2.24 After performing a stable initialization, nongeneric parameter data must be restored before a system restoral per Procedure D can be made. Refer to appropriate procedure in Section 201-900-307 for restoring nongeneric parameter data.

2.25 If a stable initialization is being performed on the active processor, ***the clock must be reset*** and any line traces, line monitors, or channel monitors must also be reentered.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	At processor console of system to be initialized— Depress HALT key.	
2	Depress START key.	
3	Set console switches to 400.	
4	Depress LOAD ADRS key.	
5	Release HALT key.	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
6	Depress START key.	RSP: None MSG: ****tt INIT SYS x OOS aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii jjjjjj kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu** (See OM—INIT SYS.) **tt INIT TAPE AMA**, etc ****tt RMV TAPE AMA**, etc
7a	If OOS processor is equipped with AMA tape— Type: **RMV TAPE!**	RSP: **PF** MSG: **M tt RMV TAPE AMA**, etc. (See OM—RMV TAPE AMA.)
8a	Depress tape drive RESET key.	
9a	Depress REWIND key.	Tape rewinds from lower reel to upper reel until load point is reached. Tape drive RESET lamp lighted.
10a	When tape ceases moving— Depress REWIND key again.	Tape totally rewinds onto upper reel.
11a	Remove AMA tape.	
12a	Mount new AMA tape.	
13a	Depress LOAD key.	LOAD lamp lighted.
14a	Depress ONLINE key.	ONLINE, LOAD, and WRITE ENABLE lamps lighted.
15	At OOS processor I/O terminal— Type: **INIT SYS!** (Request initialization of system.) ***Note:*** Exclamation point ! will not print.	RSP: None MSG: ****tt INIT SYS x yyyyy aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii jjjjjj kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu** (See OM—INIT SYS.) ****tt REPT TAPE OOS**, etc, message also occurs.
16	At OOS processor I/O terminal— Type: **RST TAPE!** (Initializes tape unit, writes an ID burst on the newly mounted tape, checks for an empty tape, and restores unit to service. This message also requests a transient memory update and system restoral.)	RSP: **PF** (See IM—RST TAPE.) Within 2 minutes— At both system I/O terminals— MSG: **tt UPD MEM TRN COMPLETE** (See OM—UPD MEM COMPLETE.) **M tt RST SYS n STANDBY** (See OM—RST SYS.)

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
		M tt RST TAPE AMA, etc, message also occurs. *Note:* Should the output message not print on both system I/O terminals, repeat this step.◀

L. Inserting Program Overwrites

Preliminary Requirements and Information for Inserting Program Overwrites

2.26 Emergency program overwrites will be received via teletypewriter exchange (TWX). Each overwrite to a given generic program issue will be sequentially numbered, and ***all*** overwrites must be inserted in sequential order to maintain the cyclic redundancy check (CRC) characters correctly.

2.27 The TWX will provide the absolute addresses to be overwritten, the old contents of each location, and the new data to be inserted. The number of locations overwritten will also be specified. A 6-digit check 8 number will appear below each 6-digit number of the overwrite data. The sum of each digit and its corresponding check 8 digit must equal eight. Verify that the TWX is correct before attempting to insert any data. Any AMA tape on drive of standby processor should be removed prior to performing this procedure.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	At OOS processor— Depress HALT key.	
2	Set console switches to ▶first absolute◀ address specified on TWX.	
3	Depress LOAD ADRS key.	
4	Depress EXAM (examine) key.	Contents displayed matches old data specified on TWX.
5	Set console switches to new data to be inserted.	
6	▶Lift DEP◀ key.	
7	Depress EXAM (examine) key.	Contents displayed matches new data specified on TWX.
8a	If other addresses are specified— Repeat Steps 2 through 7 for each address specified on TWX.	
9	Set console switches to 400.	
10	Depress LOAD ADRS key.	
11	Release HALT key.	
12	Depress START key.	RSP: None

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
		MSG: **tt INIT SYS x yyyyy aaaaaa bbbbbb cccccc dddddd eeeeee ffffff gggggg hhhhhh iiiiii jjjjjj kkkkkk llllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu (See OM—INIT SYS.)
13	At OOS processor I/O terminal— Type: **TEST DET 3!**	RSP: **PF** (See IM—TEST DET.) MSG: **M tt REPT DET PRG PASSED XXXXXX** (See OM—REPT DET PASSED.)
14b	If detection test 3 of Step 13 fails (**REPT DET PRG FAILED**)— Verify that overwrites were correctly inserted by examining each address specified on TWX. Correct any errors and repeat Steps 9 through 13.	
15	At active processor I/O terminal— Type: **UPD MEM NPD!** (Request update of nongeneric parameter data from active to OOS system.)	RSP: **PF** (See IM—UPD MEM NPD.) MSG: **M tt UPD MEM NPD COMPLETE** (See OM—UPD MEM COMPLETE.) (Updating of specified memory completed.)
16	▶To restore OOS system to standby— Perform Procedure D. Return to next step when finished.◀	
17	Verify that system operates properly in standby mode before switching system to active.	
18	▶To switch systems— Perform Procedure F. Return to next step when finished.◀	
19	Verify that system operates properly in active mode before updating program with overwrites to other system (now standby).	
20	At standby processor I/O terminal— Type: **RMV SYS!**	RSP: **PF** At both system I/O terminals— MSG: **M tt RMV SYS n OOS aaaaaa**
21	At OOS processor— Depress HALT key.	
22	▶To update program to other system— At active processor I/O terminal— Type: **RMV PTP!**	RSP: **OK** (See IM—RMV PTP.)

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
23	Type: **UPD MEM PRG!**	RSP: **PF** (See IM—UPD MEM PRG.) At OOS processor— MSG: ****tt INIT SYS X OOS**, etc ****tt RMV TAPE AMA**, etc At active processor— MSG: **M tt UPD MEM PRG COMPLETE** (See OM—UPD MEM COMPLETE.) ***Note:*** Overwrite data has now been transferred to other processor.
24	Examine addresses overwritten to verify contents.	
25	After verifying contents to be that desired for all overwrites entered— Depress CONT key. ***Note:*** Overwrites now exist in both processors.	

M. Verifying Proper Channel Operation

Preliminary Requirements and Information for Verifying Proper Channel Operation

2.28 The TEST CHL (for single-entry channels) and TEST LOOP CHL (remote test not applicable to single-entry channels) input messages are used to verify the proper operation of No. 1 AMARC primary data channels. The TEST LOOP CHL message applies only to Generic 4 and 5 programs and may be used to isolate primary data channel troubles at the No. 1 AMARC, at the data link, or at the remote end (billing terminal). This test checks the data channel from the processor through the data set control circuits, the data link, and back to the processor for each primary data channel.

2.29 The system should be in a duplex configuration (active and standby) to check data path integrity through both processors.

2.30 Either a local or entire loop-around test may be performed on a primary data channel that is removed from service or that is polling on dialup using the TEST LOOP CHL message. Local loop-around testing verifies only the primary data channel at the No. 1 AMARC end. This test does not establish the condition of the data link or remote terminal. To test the entire data loop (remote test), the data link must be a 4-wire loop and continuous carrier (option ZO) must be installed in the 202T data set on each end of the data link.

2.31 The loop-around test may be prematurely terminated with the STOP LOOP input message.

Channel Testing for ETS and LAMA-C Remote Terminals

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	To test single-entry AMA channel— At active processor I/O terminal— Type: **TEST CHL abb!**	RSP: **PF** (See IM—TEST CHL.)

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
	(Requests transmit of a test message over primary channel to the local office.)	MSG: **M tt TEST CHL abb ccc ddd...ddd** (Indicates result of channel test.) (See OM—TEST CHL.)
	Note 1: The following local loop-around test is applicable to single-, double-, and triple-entry channels.	
	Note 2: For the following local and remote test procedures, primary data channel removed from service or polling on dialup.	
	Local Loop-Around Test	
2	At 202T data set of primary channel being tested— Operate AL button.	
3	At active processor I/O terminal— Type: **TEST LOOP CHL abb cc dddd!** (Requests transmit of a known test pattern sequence for primary channel being tested.)	RSP: **PF** (See IM—TEST LOOP CHL.) MSG: **tt TEST CHL abb IP** **tt REPT CHL abb LOOP-AROUND TEST COMPLETE or FAILURE x y** **cccccc . . .** **dddddd . . .** (See OM—REPT CHL LOOP-AROUND TEST.)
4	At 202T data set of primary channel being tested— Restore AL button to normal position. (This completes the local loop-around test for a primary channel.)	
	Note: The following loop-around channel test procedure is not applicable for ETS and LAMA-C remote terminals.	
	Entire Loop-Around Test (Remote)	
5a	If operating with No. 3 ESS— Proceed to Step 7.	
6	At the remote end— Operate RT button on 202T data set of channel being tested.	
	Note: The AL button is in normal position on the 202T at the No. 1 AMARC.	
7	At active processor I/O terminal— Type: **TEST LOOP CHL abb cc dddd!**	RSP: **PF** (See IM—TEST LOOP CHL.)

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
	(Request transmit of a known test pattern sequence over primary channel being tested.)	MSG: **tt TEST CHL abb IP** **tt REPT CHL abb LOOP-AROUND TEST COMPLETE or FAILURE x y** **ccccccc . . .** **ddddddd . . .** (See OM—REPT CHL LOOP-AROUND TEST.) ***Note:*** For No. 3 ESS, the test message is looped through the remote end 202T data set and some associated hardware before being returned to the No. 1 AMARC.
8	When RT button operated on 202T data set at remote end— Return RT button to normal position. (This completes the entire loop-around test.)	
9	When possible, return channel tested to normal operation.	