

# NO. 1A AUTOMATIC MESSAGE ACCOUNTING RECORDING CENTER (AMARC) OPERATING PROCEDURES FOR GENERIC 2 AND 3

## 1. GENERAL

1.01 This section provides loading procedures for the No. 1A AMARC generic program as well as procedures for updating an out-of-service (OOS) processor by use of the processor-to-processor (PTP) channel, loading generic program overwrites, and verifying data channel operation. This section also contains information for switching the status of a system and removing and restoring (initializing) a system that may have been or will be affected by the following:

- Routine tape change
- Failures in communication paths to remote locations
- Failure of Automatic Message Accounting (AMA) tape hardware
- System errors
- Detector test failures.

**Note:** These procedures are *not* for use in an emergency situation. Refer to Section 201-900-323 should an emergency situation arise. In addition, no procedure in this section should be used to perform a normal tape change. Refer to Section 201-900-321 for routine operations of this type.

1.02 Due to the deletion of Generic 1, the information in this section has been revised. Since this reissue is a general revision, no revision arrows have been used to denote significant changes. Equipment Test Lists are not affected.

1.03 The procedures provided are as follows:

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**A. Loading Procedure for No. 1A AMARC Generic Program:**

This procedure gives the steps for loading the No. 1A AMARC generic program into one, or both, processor(s) of the No. 1A AMARC System. This procedure also verifies that the latest generic program has been loaded. This procedure is for initially placing a system into operation (initial load) and for assisting in the implementation of other procedures. . . . .

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**B. System Removal (Conditional):**

This procedure is used to remove the standby system from service during maintenance or trouble conditions. . . . .

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**C. System Removal (Unconditional):**

This procedure is used in place of Procedure B when the conditional removal (RMV SYS!) input message cannot be typed on the standby system (due to faulty input/output [I/O] terminal, standby system halted, or bad PTP channel). This procedure, like that of the conditional system removal, removes the standby system from service during maintenance or trouble conditions. . . . .

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**D. System Restoral (Conditional):**

This procedure gives the steps for initializing and restoring an OOS system to standby mode. . . . .

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**E. System Restoral (Unconditional):**

This procedure is used in place of Procedure D when the conditional restoral (RST SYS!) input message is not acceptable on the OOS system. This procedure, like that of the conditional system

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restoral, restores the OOS system to service (standby) after maintenance or trouble conditions. (No transient memory update is performed under this condition.) . . . . .	15
<b>F. System Switch (Conditional):</b> This procedure provides the steps for performing a system switch where the standby system becomes active and the active system becomes standby. . . . .	16
<b>G. System Switch (Unconditional):</b> This procedure provides the steps for performing an unconditional system switch and is used in place of Procedure F when the conditional system switch cannot be enacted via the active processor. . . . .	16
<b>H. No. 1A AMARC Generic Status Check:</b> This procedure gives a check of the status and validity of the No. 1A AMARC generic program after a trouble condition or routine maintenance condition of the processor has been cleared or completed. . . . .	17
<b>I. OOS Processor Update Via PTP Channel:</b> This procedure is used to update the generic program to the OOS processor. . . . .	19
<b>J. Transient Initialization:</b> This procedure provides the steps for initializing a system should the INIT SYS input message not be accepted or if it causes the system to place itself in an "initialization loop." . . . . .	21
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emergency program overwrite is received via teletypewriter exchange (TWX) and is to be inserted. . . . .	24
<b>M. Verifying Proper Channel Operation:</b> This procedure provides a method for testing a primary data channel using the TEST LOOP CHL input message. The looparound test can only be performed on a primary data channel that is removed from service or that is polling on dialup. . . . .	27
<b>1.04</b> 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.	
<b>1.05</b> 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.	
<b>1.06</b> Reference should be made to the No. 1A AMARC input/output manuals for detailed explanations of input and output messages where the need arises.	
<b>1.07</b> 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.	
<b>Note:</b> Other symbols used and their explanations may be obtained in Section B of both the IM and OM.	
<b>1.08</b> 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, 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 data set interface and auxiliary functions (DSIAF) frame (Generic 2 program) or the status, alarm, and maintenance panel of the processor interface cabinet (Generic 3). The state of the processor may also be determined by use of the **REPT SYS!** input message.

**1.11** 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 TAPE), is for direction to the Input Message Manual table of contents to the message RMV TAPE for obtaining variable field data, clearing trouble conditions, etc. Likewise (OM—RMV TAPE) is for direction to the Output Message Manual table of contents to the message RMV TAPE for obtaining information.

**1.12** No. 1A AMARC Generic 2 application provides for a functional I/O terminal arrangement feature. This feature assigns the terminal associated with processor 0 to the active processor and becomes the alerting terminal. The other terminal, normally associated with processor 1, becomes the standby terminal or the analysis terminal. All active system input and output messages are entered and printed at the alerting terminal. All input and output messages for the standby system are entered and printed 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. The state of the I/O terminals is provided in this report.

**1.13** The No. 1A AMARC Generic 3 provides for interfacing up to 16 I/O terminals through a flexport arrangement. Flexports are identified as FP00 through FP07 and FP10 through FP17. Flexports FP00 and FP01 have been dedicated to the system consoles (SC) 0 and 1, respectively. The SC0 is used for active processor messages, and SC1 is used for other processor messages. The system consoles (0 and 1) can be dedicated to messages associated with the active processor and the standby or OOS processor, respectively. Manual isolation of the OOS central processing unit (CPU) does not affect active (ACT) CPUs access to ACT console. However, the OOS console is cut off from both CPUs.

**1.14** Prior to Generic 3 of No. 1A AMARC, erased or new AMA magnetic tapes are required for the recording of call data. With Generic 3, AMA magnetic tapes are received at the No. 1A AMARC without having been degaussed. These tapes are mounted and used for the recording of call data. Each tape, as received at AMARC, contains a volume label (VOL1), an incomplete data set header label (HRD1), and a tape mark. For reused tapes, an expiration date is included on the tape. This date is verified with a proper recent change entry to the nongeneric parameter data (NPD). When a tape is mounted prior to the expiration date, the tape will be rejected. If a tape is rejected, it should be sent back to the regional accounting office (RAO). New tapes not written on should be forwarded to the RAO for preparation.

**1.15** In AMARC installations where a No. 1A AMARC Generic 3 is collocated with prior No. 1A AMARC Generic 2 and No. 1 AMARC systems, both types of tape will be needed. The automatic checking procedures that accompany mounting a tape should prevent mixups, but with sufficient determination (ie, using unconditional [UCL] commands), the checking can be bypassed.

**1.16** The use of UCL commands as a bypass of checking the tapes must be regarded as hazardous. If unprocessed records are remounted, the UCL command would allow overwriting of these records.

**1.17** Where a shortage of one type of tape exists, the UCL command may be necessary to keep systems operating. To avoid careless mixups that

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necessitate unusual actions with risk of outages, tape labels must be obviously distinctive. To minimize mounting mistakes, a strip of pressure-sensitive colored tape has been applied to the outside surface of the tape-transport equipment, adjacent to the supply reel position. The tape strip color matches the color of the label on magnetic tape of the proper type.

**1.18** This section contains 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 201-900-321. If an emergency condition arises, refer to Section 201-900-323.

**1.19** For all operations at the processor console, the keys should have the following settings:

- (a) Power Switch (with key lock)—POWER position to use the console. LOCK position to disable console. OFF to remove power.
- (b) Address Display Select Switch (8-positions)—CONS PHY (Console Physical) position.
- (c) DATA Display Select Switch (4-positions)—DATA PATHS position.
- (d) LAMP TEST SWITCH (white)—Normal position.
- (e) Control Switches (with settings) are as follows:
  - (1) LOAD ADRS—Load Address—Used during some operations; if not used, should be normal.
  - (2) EXAM—Examine data—Used during some operations; if not used, should be normal.

**3. METHOD**

<b>STEP</b>	<b>ACTION/INPUT MESSAGE</b>	<b>RESPONSE (RSP)/MESSAGE (MSG)</b>
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**A. Loading Procedure for No. 1A AMARC Generic Program**

**Note 1:** This procedure will be used when the generic program is to be loaded into both processors of the No. 1A AMARC and neither processor has ever had a generic program resident in its memory. Use Procedure I of this section when loading of the No. 1A AMARC generic program into only one processor is necessary.

- (3) DEP—Deposit—Normal position.
- (4) CONT—Continue—Normal position.
- (5) ENABLE/HALT—Used to stop processor when operated to HALT position. For the processor to run, it must be in the normal or ENABLE position.
- (6) S INST/S BUS CYCLE—Single Instruction/Single Bus Cycle—Should be in normal position (S INST).
- (f) START—This key starts processor execution after it has been halted using the ENABLE/HALT key. To restart processor, place ENABLE/HALT key in ENABLE position; then operate START key. When the start key is released, it will restore to its normal position, and the processor will start.

**1.20 Lettered Steps:** A letter a, b, c, etc, added to a step number in Part 3 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. APPARATUS**

**2.01** No test equipment or tools are required in performing the procedures contained in this section.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
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**Note 2:** 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 display panel of the data set control circuit (DSCC) cabinet (Generic 2) or the main alarm, status, and maintenance panel of the processor interface cabinet (Generic 3) for a particular processor, begin loading the program into this processor. If not lighted, either processor may be used for loading. When the ACTIVE lamp is lighted on both sides, depress the HALT key on each processor and momentarily depress the START key at each processor. This will extinguish the ACTIVE lamp associated with this processor.

1 Perform disk initialization per Section 201-900-330.

2a If operating with Generic 2 program—  
Mount No. 1A AMARC generic program magnetic tape (TP-5P290-01).

3b If operating with Generic 3 program—  
Mount No. 1A AMARC generic program magnetic tape (TP-5P355-01).

**Note:** The "write-enable" ring should be removed from the reel.

4 At tape drive—  
Depress LOAD key.

Tape winds onto take-up reel until load point is reached.  
LOAD lamp lighted.

5 Depress ONLINE key.

ONLINE and LOAD lamps lighted.

6 At processor console—  
Set console switches to 17773030 (octal).

7 Depress LOAD ADRS key.

8 Release HALT key.

9 Depress START key.

**Note:** No. 1A AMARC generic program is now properly loaded into memory of processor.

Magnetic tape moves forward, and the message "CORE MEMORY SIZE IS XXXK WORDS" prints at processor I/O terminal. The tape then continues to move forward for a few seconds and then rewinds.

**Note:** Processor will automatically initialize after No. 1A AMARC generic program is loaded and messages are printed. A REPT TAPE OOS message also occurs.

MSG: †† REPT TAPDSK INITIALIZATION IP  
(See OM—REPT TAPDSK INITIALIZATION IP.)

†† REPT TAPDSK BILLING DATA NOT ON DISK  
(See OM—REPT TAPDSK BILLING DATA.)

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<b>STEP</b>	<b>ACTION/INPUT MESSAGE</b>	<b>RESPONSE (RSP)/MESSAGE (MSG)</b>
10	To complete No. 1A AMARC generic tape removal— Depress tape drive RESET key; then, depress REWIND key.	Tape totally rewinds onto upper reel.
11	Remove tape.	
12	Zero disk. Refer to Section 201-900-330.	
13	Referring to Program Application Instructions of associated No. 1A AMARC generic program	
	Generic 2 PA-	
	Generic 3 PA-	
	Locate cyclic redundancy check (CRC) characters (memory location and contents).	
14	Set console switches to first memory location provided.	
15	Depress LOAD ADRS key.	
16	Depress EXAM key.	
17	Verify contents displayed against contents specified in appropriate drawing information of generic program (PA-).	Contents displayed match contents specified in appropriate drawing information of the generic program.
18	Repeat Steps 13 through 17 for each memory location provided in generic program (PA-).	
19c	If responses are not in agreement with PA- of generic program— Improper generic program was loaded.	
20d	If overwrites affecting this program exist— Set console switches to first absolute address specified on TWX.	
21d	Depress LOAD ADRS key.	
22d	Depress EXAM key.	Contents displayed match old data specified on TWX.
23d	Set console switches to new data to be inserted.	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
24d	Lift DEP key.	
25d	Depress EXAM key.	Contents displayed match new data specified on TWX.
26e	If other addresses are specified— Repeat Steps 20d through 25d for each address specified on TWX.	
27f	If there are no overwrites affecting this program or any overwrites which do affect this program have been entered— Set console switches to 1000.	
28f	Depress LOAD ADRS key.	
29f	Release HALT key.	
30f	Depress START key.	RSP: None
		MSG: **tt INIT SYS x OOS, etc (See OM—INIT SYS.)
31f	At OOS processor I/O terminal— Type: <b>TEST DET 3!</b> (Used to request execution of detection test 3— program memory cyclic redundancy check.)	RSP: <b>PF</b> (See IM—TEST DET.) MSG: <b>M tt REPT DET PRG PASSED</b> (See OM—REPT DET PASSED.)
32g	If detection test 3 of Step 31f fails (REPT DET PRG FAILED)— Verify that overwrites were correctly inserted by examining each address specified on TWX. Correct any errors and repeat Steps 27f through 31f.	
33	At processor console— Depress HALT key.	
34a	If operating with Generic 2 program— Mount new AMA tape fitted with a “write-enable” ring.	
35b	If operating with Generic 3 program— Mount new AMA tape with prepared header label information.	
	<b>Note:</b> Ensure tape has “write-enable” ring.	

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<b>STEP</b>	<b>ACTION/INPUT MESSAGE</b>	<b>RESPONSE (RSP)/MESSAGE (MSG)</b>
36	Depress LOAD key.	LOAD lamp lighted.
37	Depress ONLINE key.	ONLINE, LOAD, and WRITE-ENABLE lamps lighted.

**Running No. 1A AMARC Generic Program**

38	At processor console— Set console switches to 1000.	
39	Depress LOAD ADRS key.	
40	Release HALT key.	
41	Depress START key.	No. 1A AMARC initialized and running. MSG: **tt INIT SYS x ACTIVE (See OM—INIT SYS.) ** tt RMV TAPE AMA, etc, message also occurs.
		<b>Note:</b> No. 1A AMARC generic program now running in this processor.
42	Restore all console switches.	

**Load Procedures for Other Processor (Optionally Performed)**

43	At processor console of system in which generic program is to be loaded— Depress HALT key.	
44	Perform disk initialization per Section 201-900-330.	
45a	If operating with Generic 2 program— Mount No. 1A AMARC generic program magnetic tape (TP-5P290-01).	
46b	If operating with Generic 3 program— Mount No. 1A AMARC generic program magnetic tape (TP-5P355-01).	
	<b>Note:</b> The “write-enable” ring should be removed from the reel.	
47	At tape drive— Depress LOAD key.	Tape winds onto take-up reel until load point is reached. LOAD lamp lighted.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
48	Depress ONLINE key.	ONLINE and LOAD lamps lighted.
49	Perform Steps 6 through 39 of this procedure (Generics 2 and 3 program loading).	
50	Release HALT key.	
51	Depress START key.	MSG: **tt INIT SYS x OOS, etc (See OM—INIT SYS.)
		** tt RMV TAPE AMA, etc, message also occurs. (See OM—RMV TAPE AMA.)
		<b>Note:</b> No. 1A AMARC generic program now running in this processor.
52	Restore all console switches.	
<b>Copying No. 1A AMARC Generic Program From One Processor to Other Processor Via PTP Channel</b>		
53	Type: <b>UPD MEM PRG!</b> (Request update of all system program memory from the active processor to the other processor.)	RSP: <b>PF</b> (See IM—UPD MEM PRG.) At OOS processor— MSG: **tt INIT SYS x OOS, etc (See OM—INIT SYS.)
		** tt RMV TAPE AMA, etc, message also occurs. (See OM—RMV TAPE AMA.)
		At active processor— MSG: <b>M tt UPD MEM PRG COMPLETE</b> (See OM—UPD MEM COMPLETE.)
		<b>Note:</b> Both processors now running with No. 1A AMARC generic program.
54	Zero disk. Refer to Section 201-900-330.	
<b>Loading NPD and Transferring NPD to Other Processor</b>		
55	At OOS system— Restore NPD from magnetic tape and any special number data using appropriate procedure of Section 201-900-327.	Nongeneric and special number data, if it exists, is now resident in memory of OOS processor.
	<b>Note:</b> If NPD does not already exist on tape, it will have to be manually generated and a tape made. Refer to Section 201-900-327.	

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STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
56a	<p>If operating with Generic 2 program— At OOS system— Mount new AMA tape.</p> <p><b>Note:</b> Ensure tape has “write-enable” ring.</p>	
57b	<p>If operating with Generic 3 program— Mount new AMA tape with prepared header label information or an unerased tape on or after its expiration date.</p> <p><b>Note:</b> Ensure tape has “write-enable” ring.</p>	
58	Depress LOAD key.	LOAD lamp lighted.
59	Depress ONLINE key.	ONLINE, LOAD, and WRITE-ENABLE lamps lighted.
60	<p>At OOS processor I/O terminal— Type: <b>INIT SYS!</b> (Request initialization of system.)</p> <p><b>Note:</b> Exclamation point (!) will not print.</p>	<p>RSP: None</p> <p>MSG: <b>**tt INIT SYS x OOS</b>, etc (See OM—INIT SYS.) <b>**tt REPT TAPE OOS</b>, etc (See OM—REPT TAPE OOS.)</p>
61	<p>At OOS processor I/O terminal— Type: <b>RST TAPE!</b> (Initializes tape unit, writes an identification [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.)</p>	<p>RSP: <b>PF</b> (See IM—RST TAPE AMA.)</p> <p>Within 4.5 minutes, Generic 2; within 18 min- utes, Generic 3— At both system I/O terminals— MSG: <b>tt UPD MEM TRN COMPLETE</b> (See OM—UPD MEM COMPLETE.) <b>M tt RST SYS n STANDBY</b> (See OM—RST SYS.) <b>M tt RST TAPE AMA</b>, etc (See OM—RST TAPE AMA.)</p>
62	Place disk into service. (Refer to procedure in Section 201-900-330.)	
63	<p>At active processor I/O terminal— Type: <b>SW SYS!</b> (Request switch of systems—standby to active, and active to standby.)</p>	<p>RSP: <b>PF</b> (See IM—SW SYS.) At both I/O terminals— MSG: <b>M tt SW SYS O aaaaaa, 1 bbbbbb ccccc</b> (See OM—SW SYS.)</p> <p><b>Note:</b> Active processor has now been switched to standby mode.</p>

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
64	At current standby processor I/O terminal— Type: <b>RMV SYS!</b> (Requests removal of standby system from service.)	RSP: <b>PF</b> (See IM—RMV SYS.)  At both system I/O terminals— MSG: <b>M tt RMV SYS n OOS aaaaaa</b> (See OM—RMV SYS.)
65	At active processor I/O terminal— Type: <b>UPD MEM NPD!</b> (Used to update NPD from active to OOS system.)	RSP: <b>PF</b> (See IM—UPD MEM NPD.) At both I/O terminals— MSG: <b>M tt UPD MEM UPD COMPLETE</b> (See OM—UPD MEM COMPLETE.)
66	To verify NPD input data— At OOS processor I/O terminal— Type: <b>TEST DET 4!</b> (Used to perform an NPD memory CRC check.)	RSP: <b>PF</b> (See IM—TEST DET.)  MSG: <b>REPT DET NPD PASSED</b> (See OM—REPT DET PASSED.)
67	At OOS processor I/O terminal— Type: <b>TEST DET 6!</b> (Used to perform an NPD memory CRC computation.)	RSP: <b>PF</b> (See IM—TEST DET.) MSG: <b>M tt REPT DET CMP PASSED</b> (See OM—REPT DET PASSED.)
		<b>Important:</b> The ID of this step should match ID computed for NPD (from Step 55). Matched ID numbers indicate NPD has been properly loaded into OOS processor.
68	At OOS processor I/O terminal— Type: <b>INIT SYS!</b> (Request initialization of system.)  <b>Note:</b> Exclamation point (!) will not print.	RSP: None  MSG: <b>**tt INIT SYS x OOS, etc</b> (See OM—INIT SYS.)
69	At OOS processor I/O terminal— Type: <b>RST TAPE!</b> (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: <b>PF</b> (See IM—RST TAPE AMA.)  Within 4.5 minutes, Generic 2; within 18 minutes, Generic 3— At both system I/O terminals— MSG: <b>tt UPD MEM TRN COMPLETE</b> (See OM—UPD MEM COMPLETE.) <b>M tt RST SYS n STANDBY</b> (See OM—RST SYS.) <b>M tt RST TAPE AMA, etc</b> (See OM—RST TAPE AMA.)
70	Place disk into service. (Refer to Procedure in Section 201-900-330.)	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
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71 At active processor—  
Set clock date and time.  
Refer to Section 201-900-325.

**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.

72 When polling of connected offices is desired—  
At active processor I/O terminal—  
Type: **RST CHL aab!**  
(Used to restore a channel to service and start polling on that channel.)

RSP: **PF**  
(See IM—RST CHL [MAINT].)

MSG: **M tt RST CHL aab**  
(Channel aab has been successfully restored to service and is issuing polling commands to initiate data transmission from the remote site.)

**B. System Removal (Conditional)**

**Note 1:** Use this procedure 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.

**Note 2:** 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.

**Note 3:** After performing this procedure, the system should be restored to service as soon as possible, following the steps provided in Procedure D.

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.)

**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.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
<b>C. System Removal (Unconditional)</b>		
<p><b>Note 1:</b> This procedure is 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).</p>		
<p><b>Note 2:</b> Should the PTP channel appear faulty, removal of the standby system must be input on both the standby and active system terminals. This places the standby system out of service on both processors. After performing this procedure, the system should be restored to service as soon as possible, following the steps provided in Procedure D.</p>		
1	<p>At current active processor I/O terminal— Type: <b>RMV SYS UCLI</b> (Request removal of standby system from service when a RMV SYS message cannot be accepted by the standby processor.)</p>	<p>RSP: <b>PF</b> (See IM—RMV SYS.)</p> <p>At both system I/O terminals— MSG: <b>M tt RMV SYS n OOS 000001</b> (See OM—RMV SYS.) (Standby system n has been removed from service.)</p>
<p><b>Note:</b> This message should output on both system I/O terminals. If message does not print on standby I/O terminal, a system removal must also be typed on the standby processor in accordance with Step 2a.</p>		
2a	<p>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: <b>RMV SYS!</b> (Places standby system out of service on both systems.)</p>	<p>RSP: <b>PF</b> (See IM—RMV SYS.)</p> <p>MSG: <b>M tt RMV SYS n OOS 000001</b> (See OM—RMV SYS.) (Standby system n out of service on both systems.)</p>

**D. System Restoral (Conditional)**

**Note 1:** Use this procedure immediately after performing Procedure B or C or when called for in another procedure. A conditional system restoral is the preferred method for placing an OOS system in standby mode. When a conditional system restoral cannot be performed, Procedure E provides the steps needed to perform an unconditional system restoral.

**Note 2:** 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 3:** Should the INIT SYS input message of this procedure fail to initialize the system, the system must be halted and a transient initialization performed per Procedure J. Should Procedure J fail to initialize the system, a stable initialization (Procedure K) must be performed.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1a	If operating with Generic 2 or 3 program and not requiring mounting of a clean AMA tape— At OOS processor I/O terminal— Type: <b>INIT SYS!</b> (Request initialization of system.)	RSP: None  MSG: <b>**tt INIT SYS x OOS</b> , etc (See OM—INIT SYS.) <b>**tt REPT TAPE OOS</b> , etc, message also occurs. (See OM—REPT TAPE AMA.)
2a	At OOS processor I/O terminal— Type: <b>RST SYS!</b>	RSP: <b>PF</b> (See IM—RST SYS.)  Within 4.5 minutes, Generic 2; within 18 minutes; Generic 3— MSG: <b>tt UPD MEM TRN COMPLETE</b> (See OM—UPD MEM COMPLETE.) <b>M tt RST SYS n STANDBY</b> (See OM—RST SYS.)  <b>Note:</b> Should the output message not print on both system I/O terminals, repeat this step.
3b	If operating with Generic 2 program— Mount a clean AMA tape equipped with “write-able” ring on system to be restored.	
4b	Depress LOAD key on the tape unit.	LOAD lamp lighted.
5b	Depress ONLINE key on the tape unit.	ONLINE, LOAD, and WRITE-ENABLE lamps lighted.
6b	At OOS processor I/O terminal— Type: <b>INIT SYS!</b> (Request initialization of system.)  <b>Note:</b> Exclamation point (!) will not print.	RSP: None  MSG: <b>**tt INIT SYS x OOS</b> , etc (See OM—INIT SYS.) <b>**tt REPT TAPE OOS</b> , etc, message also occurs. (See OM—REPT TAPE AMA.)
7b	At OOS processor I/O terminal— Type: <b>RST TAPE!</b> (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: <b>PF</b> (See IM—RST TAPE AMA.)  Within 4.5 minutes— At both system I/O terminals— MSG: <b>tt UPD MEM TRN COMPLETE</b> (See OM—UPD MEM COMPLETE.) <b>M tt RST SYS n STANDBY</b> (See OM—RST SYS.) <b>M tt RST TAPE AMA</b> , etc (See OM—RST TAPE AMA.)  <b>Note:</b> Should the output message not print on both system I/O terminals, repeat this step.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
8c	If operating with Generic 3 program mount a new AMA tape with prepared header label information or an unerased tape on or after its expiration date.  <b>Note:</b> Ensure tape has "write-enable" ring.	
9c	Depress LOAD key on the tape unit.	LOAD lamp lighted.
10c	Depress ONLINE key on the tape unit.	ONLINE, LOAD, and WRITE-ENABLE lamp lighted.
11c	At OOS processor I/O terminal— Type: <b>INIT SYS!</b> (Request initialization of system.)  <b>Note:</b> Exclamation point (!) will not print.	RSP: NONE  MSG: ** <b>tt INIT SYS x OOS</b> , etc (See OM—INIT SYS.) <b>**tt REPT TAPE OOS</b> , etc, message also occurs. (See OM—REPT TAPE AMA.)
12c	At OOS processor I/O terminal— Type: <b>RST TAPE!</b> (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: <b>PF</b> (See IM—RST TAPE AMA.)  Within 18 minutes— At both system I/O terminals— MSG: <b>tt UPD MEM TRN COMPLETE</b> (See OM—UPD MEM COMPLETE.) <b>M tt RST SYS n STANDBY</b> (See OM—RST SYS.) <b>M tt RST TAPE AMA</b> , etc (See OM—RST TAPE AMA.)  <b>Note:</b> Should the output message not print on both system I/O terminals, repeat this step.
13d	If disk is not in service— Place disk into service (refer to procedure in Section 201-900-330).	

#### E. System Restoral (Unconditional)

**Note 1:** Use this procedure immediately after performing Procedure B or C in the event Procedure D will not accomplish a conditional system restoral. The UCL command should be avoided in normal operation; it is to be used in emergency situations only.

**Note 2:** An unconditional system restoral is acceptable on either the active or OOS system. This procedure restores the OOS system to service (standby) without performing a transient memory update.

**Caution:** *An unconditional system restoral will cause loss of billing if processor is made active before all calls in progress at the time of restoral are completed.*

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	At OOS processor I/O terminal— Type: <b>RST SYS UCL!</b> (Requests restoral of the OOS system to service [standby] without performing a transient memory update.)	RSP: <b>PF</b> (See IM—RST SYS.)  At both system I/O terminals— MSG: <b>M tt RST SYS n STANDBY</b> (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: <b>RST SYS UCL!</b> (Places OOS system standby on both systems.)	RSP: <b>PF</b> (See IM—RST SYS.)  MSG: <b>M tt RST SYS n STANDBY</b> (See OM—RST SYS.) (OOS system restored to standby on both systems.)
3b	If disk not in service— Place disk into service (refer to procedure in Section 201-900-330).	

#### F. System Switch (Conditional)

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

1	At active processor I/O terminal— Type: <b>SW SYS!</b> (Request switch of systems—standby to active and active to standby.)	RSP: <b>PF</b> (See IM—SW SYS.)  (Generic 2) MSG: <b>M tt SW SYS 0 aaaaaa, 1 bbbbbb 000001</b> (See OM—SW SYS.)  (Generic 3) MSG: <b>M tt SW SYS aaaaaa</b> (See OM—SW SYS.)
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#### G. System Switch (Unconditional)

**Note 1:** This procedure provides steps necessary for performing an unconditional switch of the systems. This procedure is used only if Procedure F fails to switch the systems.

**Note 2:** If an SW SYS UCL message is typed on the active processor, the active processor places itself in standby mode and automatically lets other processor go active. If an 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 3:** For Generic 2 when an 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 then initializing and restoring the system in a normal manner.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
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**Note 4:** For Generic 3 after an emergency switch, the emergency hardware should be cleared. After one emergency switch has occurred, a normal system switch cannot be executed. The INIT EMG! input message should be typed on the standby CPU. After two emergency switches have occurred, no further emergency switches can be done. The INIT EMG! input message must be typed on both CPUs in the following order: first on the active CPU, and then on the standby CPU. The message will be rejected if either CPU is out of service.

- |    |  |   |
|----|--|---|
| 1a | If being typed from active processor—<br>Type: <b>SW SYS UCL!</b><br>(Requests an unconditional switch of the systems [active places itself standby and permits the other system to automatically become active].) | RSP: <b>PF</b><br>(See IM—SW SYS.)<br><br>(Generic 2)<br>At both I/O terminals—<br>MSG: <b>M tt SW SYS aaaaaa, 1 bbbbbb 000001</b><br>(See OM—SW SYS.)<br><br>(Generic 3)<br>MSG: <b>M tt REPT EMG SW COMPLETE</b><br>(See OM—REPT EMG SW COMPLETE.)  |
| 2b | If being typed from standby processor—<br>Type: <b>SW SYS UCL!</b><br>(Requests an unconditional switch of the systems [standby places itself active and permits the active system to become standby].)            | RSP: <b>PF</b><br>(See IM—SW SYS.)<br><br>(Generic 2)<br>At both I/O terminals<br>MSG: <b>M tt SW SYS 0 aaaaaa, 1 bbbbbb 000001</b><br>(See OM—SW SYS.)<br><br>(Generic 3)<br>MSG: <b>M tt REPT EMG SW COMPLETE</b><br>(See OM—REPT EMG SW COMPLETE.) |

#### H. No. 1A AMARC Generic Status Check

**Note 1:** 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. The results of this procedure may lead to reloading the generic program or transferring the program from the active processor via the PTP channel.

**Note 2:** Detection tests 3 and 4 check the integrity of the generic and NPD programs in memory. Detection test 6 recomputes the CRC for NPD memory. Tests 1, 2, 5, and 7 check hardware.

**Note 3:** While performing the following detection tests in Steps 1 through 7 should a detection test fail (**M tt REPT DET XXX FAIL**), refer to note in Step 7 for corrective action to be taken.

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|---|--|---|
| 1 | At OOS processor I/O terminal—<br>Type: <b>TEST DET 0!</b><br>(Used to request execution of detection test 0—memory address register memory test.) | RSP: <b>PF</b><br>(See IM—TEST DET.)<br><br>MSG: <b>M tt REPT DET MAR PASSED</b><br>(See OM—REPT DET PASSED.) |
|---|--|---|

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
2	Type: <b>TEST DET 1!</b> (Used to request execution of detection test 1— device selector memory test.)	RSP: <b>PF</b> (See IM—TEST DET.)  MSG: <b>M ff REPT DET DVS PASSED</b> (See OM—REPT DET PASSED.)
3	Type: <b>TEST DET 2!</b> (Used to request execution of detection test 2— line memory test.)	RSP: <b>PF</b> (See IM—TEST DET.)  MSG: <b>M ff REPT DET LIN PASSED</b> (See OM—REPT DET PASSED.)
4	Type: <b>TEST DET 3!</b> (Used to request execution of detection test 3— program memory CRC check.)	RSP: <b>PF</b> (See IM—TEST DET.)  MSG: <b>M ff REPT DET PRG PASSED</b> (See OM—REPT DET PASSED.)
5	Type: <b>TEST DET 4!</b> (Used to request execution of detection test 4— NPD memory CRC check.)	RSP: <b>PF</b> (See IM—TEST DET.)  MSG: <b>M ff REPT DET NPD PASSED</b> (See OM—REPT DET PASSED.)
6	Type: <b>TEST DET 5!</b> (Used to request execution of detection test 5— bit-to-bit short test.)	RSP: <b>PF</b> (See IM—TEST DET.)  MSG: <b>M ff REPT DET BIT PASSED</b> (See OM—REPT DET PASSED.)
7	Type: <b>TEST DET 6!</b> (Used to perform NPD memory CRC computa- tion.)	RSP: <b>PF</b> (See IM—TEST DET.)  MSG: <b>M ff REPT DET CMP PASSED</b> (See OM—REPT DET PASSED.)
		<b>Note:</b> The output messages of Steps 1 through 7 verify that the program still resides in the processor. Should any of these outputs “fail,” proceed to Steps 9b, 10c, or 11d. Should all outputs “pass,” proceed to Step 17.
8a	If no failure exists— Proceed to Step 17.	
9b	If a failure in either detection test 0, 1, 2, or 5 occurs— Refer to OM for DET TEST response and trou- ble explanation (hardware failure likely).	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
10c	If a failure occurs in detection test 4— Proceed to Step 16d.	
11d	If failure occurs in detection test 3 or 6— Depress HALT key at OOS processor.	
12d	Depress START key.	
13d	Release HALT key.	System is initialized and running.
14d	At active processor I/O terminal— Type: <b>RMV PTP!</b> (Remove PTP channel from service.)	RSP: <b>OK</b> (See IM—RMV PTP.)  <b>Note:</b> Command successfully carried out.
15d	Type: <b>UPD MEM PRG!</b> (Request update of all system program memory from the active processor to the other proces- sor.)	RSP: <b>PF</b> (See IM—UPD MEM PRG.)  At active processor— MSG: <b>M H UPD MEM PRG COMPLETE</b> (See OM—UPD MEM COMPLETE.) (Updating of specified memory has been com- pleted.)  At OOS processor— MSG: <b>*H INIT SYS x OOS</b> , etc (See OM—INIT SYS.)
16d	Type: <b>UPD MEM NPD!</b> (Request update of NPD from active to OOS system.)	RSP: <b>PF</b> (See IM—UPD MEM NPD.)  MSG: <b>M H UPD MEM NPD COMPLETE</b> (See OM—UPD MEM COMPLETE.) (Updating of specified memory completed.)
17	Restore OOS system to standby operation.	
18	Type: <b>TEST DET 7!</b> (Used to request execution of detection test 7— real-time clock detection test. Type in from standby only.)	RSP: <b>PF</b> (See IM—TEST DET.)  MSG: <b>M H REPT DET CLK PASSED</b> (See OM—REPT DET PASSED.)

#### I. OOS Processor Update Via PTP Channel

**Note:** 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 or, in some way, it becomes known that the generic program has been lost, this procedure should be used.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	At OOS processor console— Depress HALT key.	
2	Depress START key.	
3	Release HALT key.	
4	Type: <b>UPD MEM PRG!</b> (Updates all system program memory from active processor to the other processor.)	RSP: <b>PF</b> (See IM—UPD MEM PRG.)  MSG: <b>M tt UPD MEM PRG COMPLETE</b> (See OM—UPD MEM COMPLETE.)  MSG: <b>**tt INIT SYS x OOS</b> , etc (See OM—INIT SYS.)
5	Type: <b>UPD MEM NPD!</b> (Updates NPD from active to OOS system.)	RSP: <b>PF</b> (See IM—UPD MEM NPD.)  MSG: <b>M tt UPD MEM NPD COMPLETE</b> (See OM—UPD MEM COMPLETE.)
6a	If operating with Generic 2 program— Mount new or erased tape fitted with a “write-enable” ring.	
7b	If operating with Generic 3 program— Mount new AMA tape with prepared header label information or an unerased tape on or after its expiration date.  <b>Note:</b> Ensure tape has “write-enable” ring.	
8	Depress tape drive LOAD key.	LOAD lamp lighted.
9	Depress ONLINE key.	ONLINE, LOAD, and WRITE-ENABLE lamps lighted.
10	At OOS processor I/O terminal— Type: <b>INIT SYS!</b> (Request initialization of system.)	RSP: None (See IM—INIT SYS.)  MSG: <b>**tt INIT SYS x OOS</b> , etc (See OM—INIT SYS.)
11	Type: <b>RST TAPE!</b> (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: <b>PF</b> (See IM—RST TAPE AMA.)  Within 4.5 minutes, Generic 2; within 18 minutes, Generic 3.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
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MSG: UPD MEM TRN COMPLETE  
(See OM—UPD MEM COMPLETE.)

M tt RST SYS n STANDBY  
(See OM—RST SYS.)

M tt RST TAPE AMA tttttt ssssss mmmmmm rrrrrr  
cccccc llllll pppppp  
(See OM—RST TAPE AMA.)

#### J. Transient Initialization

**Note 1:** This procedure is to be used only when a manual **INIT SYS!** I/O terminal input message fails to initialize the system. Should the system fail to initialize or work 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 2:** The transient initialization procedure always produces a level 1 initialization. Transient initialization clears monitor line, trace line, monitor channel, and other parts of transient memory and arranges other parts to fixed values.

**Note 3:** After performing a transient initialization, a system restoral should be performed per Procedure D. Should a transient initialization fail to initialize the system, a stable initialization per Procedure K should be performed.

- 1 At processor console of system to be initialized—  
Depress HALT key.
- 2 Depress START key.
- 3 Set console switches to 1034.
- 4 Depress LOAD ADRS key.
- 5 Release HALT key.
- 6 Depress START key.

RSP: None

MSG: \*\*tt INIT SYS x yyyyy aaaaaa bbbbbb  
cccccc ddddddd eeeeeee ffffff gggggg hhhhhh iiiiii  
jjjjj kkkkkk llllll mmmmmm nnnnnn oooooo  
pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu  
(See OM—INIT SYS.)  
tt INIT TAPE AMA, etc  
(See OM—INIT TAPE.)  
\*\*tt RMV TAPE AMA, etc  
(See OM—RMV TAPE AMA.)

- 7a If associated processor is equipped with an  
AMA tape—  
Remove tape.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
8a	Remove "write-enable" ring from tape.	
9b	If operating with Generic 2 program— Mount clean AMA tape equipped with "write-enable" ring.	
10c	If operating with Generic 3 program— Mount new AMA tape with prepared header label information or an unerased tape on or after its expiration date.  <b>Note:</b> Ensure tape has "write-enable" ring.	
11	At tape drive— Depress LOAD key.	LOAD lamp lighted.
12	Depress ONLINE key.	ONLINE, LOAD, and WRITE-ENABLE lamps lighted.
13	At associated processor I/O terminal— Type: <b>INIT SYS!</b> (Request initialization of system.)  <b>Note:</b> Exclamation point (!) will not print.	RSP: None. (See IM—INIT SYS.)  MSG: ** <b>tt</b> <b>INIT SYS x OOS</b> , etc (See OM—INIT SYS.)  ** <b>tt</b> <b>REPT TAPE OOS</b> , etc (See OM—REPT TAPE AMA.)
14	Type: <b>RST TAPE!</b> (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: <b>PF</b> (See IM—RST TAPE AMA.)  Within 4.5 minutes, Generic 2; within 18 minutes, Generic 3— At both system I/O terminals— MSG: <b>tt</b> <b>UPD MEM TRN COMPLETE</b> (See OM—UPD MEM COMPLETE.) <b>M</b> <b>tt</b> <b>RST SYS n STANDBY</b> (See OM—RST SYS.) <b>M</b> <b>tt</b> <b>RST TAPE AMA</b> , etc (See OM—RST TAPE AMA.)  <b>Note:</b> Should the output message not print on both system I/O terminals, repeat this step.

#### K. Stable Initialization

**Note 1:** This procedure should be performed only after a transient initialization per Procedure J has been performed and has failed to initialize the system.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
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**Note 2:** A stable initialization performs everything a transient initialization performs and also clears NPD, all plant counters, system time, and initialization dumps.

**Note 3:** After performing a stable initialization, NPD must be restored before a system restoral can be made. When a stable initialization is performed on the active processor, **the clock must be reset** and any line traces, line monitors, or channel monitors must also be reentered.

1 At processor console of system to be initialized—  
Depress HALT key.

2 Depress START key.

3 Set console switches to 1000.

4 Depress LOAD ADRS key.

5 Release HALT key.

6 Depress START key.

RSP: None

**Note:** Processor stable initialization has been completed. Return to section referencing this procedure if processor is not to be restored to service at this time. The remaining steps will restore the processor to service.

MSG: \*\*tt INIT SYS x OOS 000003 bbbbbb  
 cccccc dddddd eeeeeee ffffff gggggg hhhhhh iiiiii  
 jiiiii kkkkkk llllll mmmmmm nnnnnn oooooo  
 pppppp qqqqqq rrrrrr ssssss tttttt uuuuuu  
 (See OM—INIT SYS.)  
 tt INIT TAPE AMA, etc  
 (See OM—INIT TAPE.)  
 \*\*tt RMV TAPE AMA, etc  
 (See OM—RMV TAPE AMA.)

7a If associated processor is equipped with an AMA tape—  
Remove tape.

8a Remove “write-enable” ring from tape.

9b If operating with Generic 2 program—  
Mount clean AMA tape equipped with “write-enable” ring.

10c If operating with Generic 3 program—  
Mount new AMA tape with prepared header label information or an unerased tape on or after its expiration date.

**Note:** Ensure tape has “write-enable” ring.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
11	Depress <b>LOAD</b> key.	LOAD lamp lighted.
12	Depress <b>ONLINE</b> key.	ONLINE, LOAD, and WRITE-ENABLE lamps lighted.
13	At associated processor I/O terminal— Type: <b>INIT SYS!</b> (Request initialization of system.)  <i>Note:</i> Exclamation point (!) will not print.	RSP: None (See IM—INIT SYS.)  MSG: ** <b>tt INIT SYS x OOS</b> , etc (See OM—INIT SYS.) <b>**tt REPT TAPE OOS</b> , etc (See OM—REPT TAPE AMA.)
14	At active processor I/O terminal— Type: <b>UPD MEM NPD!</b> (Used to update NPD from active to OOS system.)	RSP: <b>PF</b> (See IM—UPD MEM NPD.) At both I/O terminals— MSG: <b>M tt UPD MEM NPD COMPLETE</b> (See OM—UPD MEM COMPLETE.)
15	At associated processor I/O terminal— Type: <b>RST TAPE!</b> (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: <b>PF</b> (See IM—RST TAPE AMA.)  Within 4.5 minutes, Generic 2; within 18 minutes, Generic 3— At both system I/O terminals— MSG: <b>tt UPD MEM TRN COMPLETE</b> (See OM—UPD MEM COMPLETE.) <b>M tt RST SYS n STANDBY</b> (See OM—RST SYS.) <b>M tt RST TAPE AMA</b> , etc (See OM—RST TAPE AMA.)  <i>Note:</i> Should the output message not print on both system I/O terminals, repeat this step.

#### L. Inserting Program Overwrites

**Note 1:** Emergency program overwrites will be received via 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 CRC characters correctly.

**Note 2:** 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.

**Note 3:** Any AMA tape on tape drive 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 match 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 match 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 1000.	
10	Depress LOAD ADRS key.	
11	Release HALT key.	
12	Depress START key.	RSP: None  MSG: **tt INIT SYS x yyyyy aaaaaa bbbbbb cccccc dddddd eeeee fffff gggggg hhhhhh iiiii jjjjj kkkkkk lllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrr ssssss ttttt uuuuuu (See OM—INIT SYS.)
13	At OOS processor I/O terminal— Type: <b>TEST DET 3!</b>	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— <b>(REPT DET PRG FAILED)</b> — Verify that overwrites were correctly inserted by examining each address specified on TWX. Correct any errors, and repeat Steps 9 through 13.	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
15	At active processor I/O terminal— Type: <b>UPD MEM NPD!</b> (Request update of NPD from active to OOS system.)	RSP: <b>PF</b> (See IM—UPD MEM NPD.)  MSG: <b>M tt UPD MEM NPD COMPLETE</b> (See OM—UPD MEM COMPLETE.) (Updating of specified memory completed.)
16	At OOS processor I/O terminal— Type: <b>INIT SYS!</b> (Initializes the system.)	RSP: None  MSG: <b>**tt INIT SYS x yyyyy aaaaaa bbbbbb cccc dddddd eeeee fffff gggggg hhhhhh iiiii iiii kkkkk lllll mmmmmm nnnnnn oooooo pppppp qqqqqq rrrrr ssssss ttttt uuuuuu</b> (See OM—INIT SYS.)
17	At active processor I/O terminal— Type: <b>UPD CLK!</b> (Updates clock to standby.)	RSP: <b>PF</b> (See IM—UPD CLK.)  MSG: <b>M tt yz OP CLK mm/dd/yy hh:nn:ss.a</b> (See OM—OP CLK.)
18c	If operating with Generic 2 program— Mount a clean AMA tape equipped with a “write-enable” ring.	
19d	If operating with Generic 3 program— Mount new AMA tape with prepared header label information or an unerased tape on or after its expiration date.  <b>Note:</b> Ensure tape has “write-enable” ring.	
20	At OOS processor I/O terminal— Type: <b>RST TAPE!</b>	RSP: <b>PF</b> (See IM—RST TAPE AMA.)  MSG: <b>tt UPD MEM TRN COMPLETE</b> (See OM—UPD MEM COMPLETE.) <b>M tt RST SYS n STANDBY</b> (See OM—RST SYS.) <b>M tt RST TAPE AMA ttttt ssssss mmmmmm rrrrr ccccc lllll ppppp</b> (See OM—RST TAPE AMA.)
21	Verify that the system operates properly in standby mode before switching system to ac- tive.	
22	Perform Procedure F to switch systems.  <b>Note:</b> Return to this point after completing Procedure F.	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
23	Verify that the system operates properly in active mode before updating program with overwrites to other system (now standby).	
24	Perform Procedure I to update program to other system.	

#### M. Verifying Proper Channel Operation

**Note 1:** The TEST CHL (for single-entry channels) and the TEST LOOP CHL (remote test not applicable to single-entry channels) input messages are used to verify the proper operation of No. 1A AMARC primary data channels. The TEST LOOP CHL message is used to isolate primary data channel troubles at the No. 1A 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.

**Note 2:** The system should be in a duplex configuration (active and standby) to check data path integrity through both processors.

**Note 3:** Either a local or entire looparound test may be performed on a primary data channel using the TEST LOOP CHL message. Local looparound testing verifies only the primary data channel at the No. 1A AMARC end. This test does not establish the condition of the data link or remote terminal. To test the entire data loop, the data link must be a 4-wire loop and continuous carrier (option ZN) must be installed in the 202T data set on each end of the data link.

**Note 4:** The looparound test may be prematurely terminated with the STOP LOOP input message.

#### Channel Testing for Electronic Translator System (ETS)

1	To test single-entry channel— At active processor I/O terminal— Type: <b>TEST CHL aab!</b> (Requests transmit of a test message over primary channel to the local office.)	RSP: <b>PF</b> (See IM—TEST CHL.)  MSG: <b>M tt TEST CHL aab ccc ddd...ddd</b> (Indicates result of channel test.) (See OM—TEST CHL.)
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**Note 1:** The following local looparound test procedure is applicable to single-, double-, and triple-entry channels.

**Note 2:** For the following tests, primary data channel is removed from service or polling on dialup.

#### Local Looparound Test

2	At 202T data set of primary channel being tested— Operate AL button.	
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STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
3	At active processor I/O terminal— Type: <b>TEST LOOP CHL aab cc dddd!</b> (Requests transmit of a known test pattern sequence for primary channel being tested.)	RSP: <b>PF</b> (See IM—TEST LOOP CHL.)  MSG: <b>†† TEST CHL aab IP †† REPT CHL aab LOOP-AROUND TEST COMPLETE or FAILURE x y cccccc . . . ddddd . . .</b> (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 looparound test for a primary channel.)  <b>Note:</b> The following looparound channel test procedure is not applicable to ETS.	
<b>Entire Looparound Test (Remote)</b>		
5a	If operating with No. 3 Electronic Switching System (ESS) or call data transmitter (CDT)— Proceed to Step 7.	
6	At the remote end— Operate RT button on 202T data set of channel being tested.  <b>Note:</b> The AL button is in normal position on the 202T at the No. 1A AMARC.	
7	At active processor I/O terminal— Type: <b>TEST LOOP CHL aab cc dddd!</b> (Requests transmit of a known test pattern sequence over primary channel being tested.)	RSP: <b>PF</b> (See IM—TEST LOOP CHL.)  MSG: <b>†† TEST CHL aab IP †† REPT CHL aab LOOP-AROUND TEST COMPLETE or FAILURE x y cccccc . . . ddddd . . .</b> (See OM—REPT CHL LOOP-AROUND TEST.)  <b>Note:</b> For No. 3 ESS, the test message is looped through the remote end 202T data set and some associated hardware before being returned.
8	When RT button operated on 202T data at remote end— Restore RT button to normal position. (This completes the entire looparound test.)	
9	Return channel tested to normal operation.	