Installation Engineering Handbook 59
Western Electric
Columbus Works

Section 208
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NO. 1A AUTOMATIC MESSAGE ACCOUNTING RECORDING CENTER
(NO. 1A AMARC)
INSTALLATION OF EMERGENCY PROGRAM
OVERWRITERS FOR THE NO. 1A AMARC GENERIC
PROGRAMS

CONTENTS

1. GENERAL INFORMATION

1.1 Description

1.11 Emergency Program Overwrites for the No. 1A AMARC Generic programs are normally distributed as part of a Change Notice package via the "TELE-DAT Message". These overwrites or patches are to be installed as soon as possible into the No. 1A AMARC. For active AMARC's (AMARC's currently handling "live" billing information), these overwrites are to be installed by TELCo personnel following BSP procedures. For AMARC's in the installation interval, these overwrites are to be installed by the Western Electric Installer following the procedure given in this section. This section assumes the AMARC is not handling live traffic, and therefore, certain precautions required for a live system are not included in this section.

1.12 This section provides a general procedure for applying overwrites during the installation period. If a specific overwrite requires special handling or added procedures, the Installation cover sheet (EFG-114A) attached to the Change Notices will indicate the procedure to be followed.

1.13 System console 0 is associated with the ACTIVE system. System console 1 is associated with the NON-ACTIVE system.

1.2 Sequence of Operation

1.21 Refer to the appropriate Change Notice to obtain the issue of Generic which must be running in both processors prior to application of the Emergency Overwrite.

1.22 A copy of the latest nongeneric parameters should be available on magnetic tape if the parameters are currently in program memory.

1.23 One processor at a time should be updated with the Emergency Overwrites due to the possibility of easily making an error on loading an overwrite. If an error is made, the original issue of Generic without overwrites must be loaded from magnetic tape.

1.3 References

1.31 Refer to Input/Output Manuals for the appropriate generic issue.

2. RECORDS AND REQUIREMENTS

2.1 Records

2.11 The Test Trouble Record form (SD-97-1313 and SD-97-1315) should be used to record all troubles which are encountered when performing this section.

3. TEST EQUIPMENT

3.1 Test Sets

3.11 None required.

4. PROCEDURE

4.01 In order to install the Overwrites the following switches must be set to the correct position on the CPU console.

POWER SWITCH - POWER POSITION
DATA DISPLAY SELECT SWITCH - DATA PATHS
ADDRESS DISPLAY SELECT SWITCH - CONS
PHY

4.02 Review and Change Notice to be incorporated. The issue of the Generic required for the overwrites will be stated on the first sheet of the CN package. The overwrite number will also be on this sheet. All overwrites per issue of the Generic must be incorporated in order. Therefore if a number of overwrites are to be incorporated at one time, they must be applied in consecutive order. The actual overwrite information is listed in three columns. The first column gives the ABSOLUTE ADDRESS of the program word to be modified. This address is accessed by the operator's console on the PDP11/70. After loading the specified address into the processor ADDRESS REGISTER and depressing the EXAMINE key, the DATA DISPLAY lamps must correspond with the "OLD DATA" specified in column two. If the old data was correct, the "NEW DATA" per Column 3 is loaded into memory using the Deposit key. The octal digits below each data word in the Emergency Overwrite is the "CHECK 8" word. When the "CHECK 8" word is added decimally to the data word above it (ADDRESS, OLD DATA, or NEW DATA), the sum must equal 888888. This check is a verification that the Overwrite has been accurately typed. Before attempting any Change Notice, verify all "CHECK 8" words agree. The last address of addresses within a part of the Change Notice is the CRC OF CRC modification. This modification of the CRC OF CRC must be the last address to be altered at end of the Change Notice segment (usually ending the specific overwrite Change Notice). After updating the required CRC OF CRC address(es) the processor may be brought up OUT-OF-SERVICE so that Test Detection #3 can be performed. Test Detection #3 is a CRC check of the Generic program and it must pass after correctly altering the Generic per the Emergency Overwrite. REVIEW INSTALLATION COVER SHEET TO DETERMINE IF SPECIAL PROCEDURE IS REQUIRED FOR THE SPECIFIC CHANGE NOTICE.

4.03 Remove the standby processor by typing the following input statement using the standby TTY (System Console 1).

```
Input:     RMV SYS!
Repsonse: M tt yz RMV SYS n OOS---
Where: tt = time
       y = Processor state (A,S or O)
       z = Processor I.D. (0 or 1)
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4.04 Half the out-of-service processor using the console's HALT/ENABLE Key.

4.05 Install Emergency Overwrites per Change Notice. Use the following procedure.

4.051 Verify appropriate issue of the Generic is presently loaded into the processor.

4.052 Verify all previous Emergency Overwrites have already been installed.

4.053 Obtain the memory address of the next word to be changed (from the Change Notice). Verify the "CHECK 8" feature for all three data fields (ADDRESS, OLD DATA, and NEW DATA).

4.054 Load the ABSOLUTE ADDRESS into the SWR keys on the console and then momentarily depress the LOAD ADR key.

4.055 Momentarily depress the EXAMine key. The DATA DISPLAY lamps on the console must agree with the OLD DATA per CN.

4.056 After verifying the OLD DATA is accurate and with ADDRESS lamps still displaying the same address as per Paragraph 4.054, set the SWR keys as specified in the NEW DATA field in the CN. Momentarily lift up the DEPosit key.

4.057 Load the same address again as in Paragraph 4.054 and examine the contents, verifying that the address contains the correct NEW DATA.

4.058 Repeat Paragraphs 4.053 through 4.057 until all the appropriate addresses have been modified, including the CRC of CRC address(es). After modifying the CRC OF CRC address(es), the processor can be temporarily brought to the running out-of-service state in order to be able to perform Test Detection #3 prior to applying other CN Emergency Overwrites.

4.059 Apply all other required Change Notices for Emergency Overwrites by repeating Paragraphs 4.051 through 4.058.

4.06 After completing all of the required Overwrites, the updated processor is ready to be brought to the running, out-of-service state. Use the following procedure.

4.061 Load address 00001034 into the out-of-service processor's console. Momentarily depress the LOAD ADR key. Place ENABLE/HALT key to ENABLE.

4.062 Start program execution by momentarily depressing the START key. The following response should be obtained.

Response: **tt yz INIT SYS n OOS---

Note: Other message may be printed.

4.063 Verify that all overwrites were correctly made by typing the following input on the out-of-service TTY (System Console 1):

Input: TEST DET 3!
Response: M tt yz REPT DET PRG PASSED

4.064 Verify nongeneric parameters (if present) have not been altered during this procedure by tying the following input statement on the out-of-service processor's TTY (System Console 1):

Input: TEST DET 4!
Response: M tt yz REPT DET NPD PASSED

4.07 If no AMARC error printouts are reported on either TTY, the out-of-service processor is ready to be placed in the standby state. Mount a clean AMA tape (optional since AMARC is in the installation state) on the out-of-service processor's tape drive. With the out-of-service processor's tape unit having its LOAD, ONLINE, and WRITE ENABLE lamps lit, type the following input on the out-of-service TTY (Sytem Console 1):

Input: RST TAPE! (If tape has been previously written on, restore tape unconditionally, and then after response, transfer transient data from active to new standby.)
Response: M tt yz RST TAPE AMA---
              tt yz UPD MEM TRN COMPLETE
              tt yz RST SYS n STANDBY

4.08 After the updated (Generic overwrites installed) processor has been brought to the STANDBY state, verify no AMARC system problems occur (i.e. problems not related to channel failure messages.)

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Update for Phase III.

NOTE: If too many equipped channels are automatically removed from service, processor switching will interfere with this procedure. Therefore, manually remove all equipped channels which are not presently being polled by typing the "RMV CHL abb!" input messages on the active TTY (System Console 0). If the STANDBY is operating properly, switch processors by typing the following input on the active TTY:

Input: SW SYS!
Response: M tt yz SW SYS 0 aaaaaa,
              1 bbbbbb 000001
Where: aaaaaa = ACTIVE or STANDBY
              bbbbbb = ACTIVE or STANDBY

4.09 Using the STANDBY TTY (System Console 1), type the following input message:

Input: RMV SYS!
Response: M tt yz RMV SYS n ØØS 000001

4.10 Halt the out-of-service processor using the HALT/ENABLE key.

4.11 Mount a clean AMA magnetic tape (optional) on the out-of-service processor's tape unit. The tape drive's LOAD, ON-LINE and WRITE ENABLE lamps must be lit.

4.12 Repeat Paragraphs 4.05 and 4.06 for this CPU.

4.13 With the out-of-service processor's tape unit mounted with a clean AMA tape and with its LOAD, ONLINE, and WRITE ENABLE lamps lit, restore tape drive and processor by typing the following input on the out-of-service TTY (System Console 1):

Input: RST TAPE! (If tape has been previously written on, restore tape unconditionally and after response, transfer transient data from active to standby.)
Response: M tt yz RST TAPE AMA---
              tt yz UPD MEM TRN COMPLETE
              tt yz RST SYS n STANDBY

4.14 Monitor system to be sure the updated Generic is operating satisfactorily. The Emergency Overwrite Procedure is completed. Continue Installation testing per Handbook 59 on section which was interrupted by this procedure.

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