Installation Engineering Handbook 59
Western Electric
Columbus Works

Section 205B
Date: 02-04-83
Replaces: Section 205B
Dated: 07-28-80
Replaces UIS: Section 205B
Dated: 11-13-80

AMARS
NO. 1A AUTOMATIC MESSAGE ACCOUNTING AND RECORDING CENTER
BASIC DIAGNOSTIC TESTING
(INITIAL NO. 1A AMARC INSTALLATIONS ONLY)

CONTENTS

---

1. **GENERAL INFORMATION**

1.1 The purpose of this section is to verify the proper operation of the J1P040D, J1P040V-1, List 1, and J1P040V-1, List 2 cabinets using a diagnostic program.

1.2 The diagnostic program is run on a PDP11 computer under a UNIX operating system.

1.3 The diagnostic programs will be loaded onto a RP06 disk pack from tape. Once the diagnostic program has been loaded onto disk, that disk will only be used for diagnostic testing.

1.4 The RP06 disk pack which is to be used to contain the diagnostic programs, must have been previously formatted. This should have been done by the supplier representative. Refer to Handbook 59, Section 203A.

1.5 The 'CAPS LOCK' key should <u>not</u> be depressed on the TTY's for tests in this section. After the tests in this section have been completed, depress the 'CAPS LOCK' key on both TTY's.

1.6 All TTY input and output will be done using System Console 1 during diagnostic testing.

1.7 All TTY inputs are terminated with a carriage return.

1.8 Cabling

NOTE: In connecting the ED-5P284-31 cables to the male connector on a DEC circuit board, the triangle on the cable (female) connectors should be inserted to mate with the "A" designation on the circuit board. When connecting to the isolation backplane, the triangle should always be on the bottom. When connecting cables to the ACU interface test connectors of the ITE-8900, the triangles should mate.

1.9 The tests in this section are intended for new No. 1A AMARC installations, only. Do <u>not</u> run the tests in this section on growth systems.

2. RECORDS AND REQUIREMENTS

2.1 The test trouble record forms (SD-97-1313 and SD-97-1315) should be used to record all troubles which may be encountered when running the tests in this handbook section.

3. TEST EQUIPMENT

3.1 One ITE-5237B (or equivalent) oscilloscope.

3.2 One SPP-832 spare packs package.

3.3 One RP06 disk pack for diagnostic use.

3.4 One SACOPY PROGRAM magnetic tape (TP-5P355-03).

3.5 One DIAGNOSTIC PROGRAM magnetic tape (TP-5P355-02).

3.6 ITE-8900 Data Set, Flexport and ACU interface loop-around cables.

3.7 One ITE-9169B Test Cord (clip lead).

3.8 One ITE-5356 Digital Multimeter (or equivalent).

4. MOUNT THE RP06 DISK PACK FOR DIAGNOSTICS ON CPU0

4.1 If the disk pack that is mounted in the RP06 disk drive on CPU0 is the one to be used for diagnostics, proceed to Paragraph 4.2.

4.11 Remove the RP06 disk pack from the disk drive on CPU0.

4.111 Depress the START/STOP switch on the disk drive to the STOP position.

4.112 When the 'DOOR LOCKED' lamp extinguishes, slide the door open.

4.113 Place the top portion of the disk pack cover over and onto the disk.

4.114 Turn the handle on the disk pack cover counter clockwise until clicking sounds can be heard.

4.115 Lift the disk pack straight up and out of the disk drive.

4.116 Install the bottom cover onto the disk pack and store the disk pack.

NOTE: This disk pack will be reinstalled in the drive, in Paragraph 12.4.

4.12 Mount the RP06 disk pack for diagnostic use onto the disk drive on CPU0.

4.121 Remove the bottom portion of the disk pack cover.

4.122 Place the disk pack with the top portion of the disk pack cover into the disk drive.

4.123 Turn the handle on the disk pack cover clockwise until it stops. Do not overtighten.

4.124 Lift the disk pack cover straight up and out of the disk drive.

4.125 Close the door securely on the disk drive.

4.2 Perform a lamp test at the disk drive.

4.21 Depress the lamp test button located under the front display panel.

4.22 Observe that all disk drive lamps are lighted.

4.3 Depress the 'CONTROL A' switch to the 'CONTROL A' position. Observe that the 'CONTROL A' lamp is lighted.

4.4 Place the 'WRITE PROTECT' switch to the NON-WRITE PROTECT mode.

4.5 Ensure that lap plug 0 is installed in the disk drive on CPU0.

4.6 Start the Disk Drive on CPU0.

4.61 Depress the START/STOP switch on the disk drive to the START position.

4.62 Observe that the START indicator and the DOOR LOCKED indicator are lighted and the disk pack starts to rotate.

NOTE: The disk drive will not start if the door is not closed securely and the DOOR LOCKED lamp is not lighted.

5. TAPE TO DISK TRANSFER PROGRAM AND DATA

5.1 Mounting the SACOPY Program Tape

5.11 In order to protect the information stored on the tape, remove the plastic "write enable" ring on the spool. Depress the "Reset" key on tape unit 0.

5.12 Place the SACOPY program tape on the uppermost mount in tape unit 0 by:

1. Pulling the handle out on the mount;
2. Placing the spool on the mount; and,
3. Pushing the handle back in place.

Verify tape is securely held. If not securely held, repeat mounting.

5.13 Unwinding sufficient slack, thread the tape through the guides and rollers, as indicated on the printed diagram on the tape drive unit, and onto the empty "take up" reel on the lower mount. Wind the tape around the take up reel only twice. Leave slack in tape after completing the threading.

5.14 After closing the tape unit door, depress the "LOAD" key. The tape should then wind forward (on to the take up reel) and then stop. "LOAD" lamp should come on. Repeat Paragraphs 5.12 through 5.14 if the above does not occur. Do not proceed unless the "LOAD" lamp is lit.

5.15 Depress the "ON LINE" key on tape unit 0. Do not continue unless the only two lights that are lit are ON LINE and LOAD.

5.2 Loading the SACOPY Program Tape

5.21 Set console switches on CU-0 to 17773030. Then depress LOAD ADDR key.

5.22 Set the SWR keys to zero - all down.

5.23 Place the ENABLE/HALT key to ENABLE.

5.24 Depress the START key. The magnetic tape should move forward and the messge:

CORE MEMORY SIZE IS XXXK WORDS

is typed on the processor terminal. The tape then continues to move forward for a few seconds then rewinds.

NOTE: XXXK is the core memory size.

5.25 The following message will be printed on the processor terminal:

STAND ALONE COPY/VERIFY PROGRAM MODE: COPY, VRFY, OR VCOPY?

5.26 Remove the SACOPY program tape by depressing the 'RESET' key then the 'REWIND' key and then remove the tape from the tape drive.

5.3 Loading the DIAGNOSTIC PROGRAM Tape

5.31 Mount the DIAGNOSTIC PROGRAM tape onto tape unit 0 in the same manner as Paragraph 5.1.

5.32 At System Console 1:

TYPE: VCOPY (CR)
RESPONSE: VERIFIED COPY
              FROM:
TYPE: TM0 (CR)
RESPONSE: TO:
TYPE: HP0 (CR)

NOTE: (CR) means the carriage return key.

5.33 The DIAGNOSTIC PROGRAM tape will begin to be read. The tape will take several seconds to be read. When the tape has completed being read, the tape will rewind. The tape will then be read a second time and will rewind. The following will be typed on the terminal during the process.

NO. OF BLOCKS: XXX
NO BAD SECTORS ON HP0
VERIFY
NO. OF BLOCKS: XXX
NO BAD SECTORS ON HP0
NEXT COPY/VERIFY
MODE: COPY, VRFY, OR VCOPY?

where: XXX = some numerical value.

5.34 Halt CU-0 by placing the HALT/ENABLE key to the HALT position.

5.35 Remove the DIAGNOSTIC PROGRAM tape from the tape drive by depressing the 'RESET' key then the 'REWIND' key and then remove the tape from the tape drive.

6. DIAGNOSTIC SET-UP

6.1 Test Program

6.11 A small program needs to be loaded in the processor not running diagnostics. This small program is the same one that was loaded in Handbook 59, Section 204H. This small program should still be residing in CPU1; if it is, proceed to Paragraph 6.13; if the program was destroyed, continue with this procedure. When diagnostics are to be run on CPU1, the small program must be reentered into CPU0.

6.12   Enter test program.

6.121   At the processor console, which is not running diagnostics, place the HALT/ENABLE key to HALT.

6.122   On the Switch Register (SWR), toggle in an octal 1000, then depress LOAD ADDRESS. Address 1000 should be displayed in the address lamps on the CPU console.

6.123   Toggle in the first instruction code from Table A into the SWR, then depress the DEPOSIT key. Note that the address displayed on the address lamps on the CPU console has automatically been incremented by 2.

6.124   Toggle in the next instruction code from Table A into the SWR, then depress the DEPOSIT key. Note that the address lamps on the CPU console have again incremented by 2.

6.125   Repeat Paragraph 6.124 until all instruction codes in Table A have been inserted into memory.

6.126   Toggle into the SWR an octal 1000, then depress the LOAD ADDRESS key. Depress the EXAMINE key and verify that the data displayed in the data lamps match with the instruction code and address listed in Table A.

TABLE A

ADDRESS	INSTRUCTION OCTAL CODE
1000	005037
1002	167730
1004	012700
1006	177777
1010	005300
1012	001376
1014	013737
1016	177570
1020	167732
1022	005237
1024	167730
1026	012700
1030	177777
1032	005300
1034	001376
1036	000137
1040	001000

6.127   Depress the EXAMINE key and verify that the next instruction code from Table A is displayed in the DATA LAMPS.

6.128   Repeat Paragraph 6.127 until all addresses and instruction codes from Table A have been verified.

6.13   After the test program has been entered, start the execution of the test program.

6.131   Load address 1000 into the SWR and depress the LOAD ADDRESS key.

6.132   Load an octal 20 into the SWR keys.

6.133   Restore the HALT/ENABLE key to the ENABLE position.

6.134   Depress the START key. The program should now be executing.

6.14   The red PROGRAM TIMEOUT LED should extinguish and the green ACTIVE LED should illuminate for the processor not running diagnostics at the Main Alarm Control and Display panel.

6.2   General Description of Diagnostic

6.21   Once the diagnostics have been booted from disk, the operating system will instruct the user on the proper operation of each diagnostic test.

6.22   The operating system will first instruct the user to input the system configuration information, e.g. multiplexor numbers. Once this information has been entered, it will be stored on disk such that these parameters need not be entered a second time. These parameters may be changed by the user, if necessary.

6.23   The operating system will provide instructions to the user if improper inputs are entered.

6.3   Boot the Diagnostics

6.31   Set the console switches on CPU0 to 17773000. Then depress the LOAD ADDR key.

6.32   Set the SWR keys to zero, all down, then place the ENABLE/HALT key to enable.

6.33   Depress the START key. A response will be typed on System Console 1; a group of numbers followed by a '$'.

6.34   Input the following in capital letters:

       INPUT: DBØ (Return key)
       RESPONSE: hpboot:hpboot
                  hpboot2:

       NOTE: All other inputs will be made
       in small letters.

6.35   INPUT: mmtest (Return key)

       A response should be printed indicating
       that the memory management diagnostic
       tests have passed.

6.36   INPUT: unix.diag (Return key)

       A response will be printed indicating
       that the No. 1A AMARC diagnostics have
       been selected.

6.37   Input the following for the run level
       request:

       INPUT: 7 (Return key)
       RESPONSE: INIT:SINGLE USER MODE
                  PASSWORD:

6.38   Input the following for the password
       request. (The characters will not be
       echoed back on this input.)

       INPUT: amarc (Return key)
       RESPONSE: #

6.39   Input the following to select the
       diagnostics.

       INPUT: diagnostics (Return key)

       A response will be printed indicating
       that the diagnostics were requested
       with a list of all available diagnos-
       tic programs. The operating system
       will enter into a conversational mode
       of operation. All necessary run in-
       formation will be printed on the TTY.

6.4   Configure the System

6.41   System configuration information need
       only be entered once, since the infor-
       mation is stored on disk after it is
       entered. Therefore, Paragraph 6.41
       through Paragraph 6.46 need not be
       repeated when running diagnostics on
       CPU1.

6.42   Input the following on system console
       1:

       INPUT: examples

A response will be printed of examples
for testing in the 'q' mode of opera-
tion. Save this printout for refer-
ence as an aid in testing.

6.43   Select the 'init' mode of operation
       per the instructions printed on the
       TTY.

6.44   Select all available diagnostic pro-
       grams.

6.45   Enter all appropriate data as re-
       quested by the operating system for
       your particular AMARC installation;
       e.g., the number of multiplexors may
       vary between different AMARC installa-
       tions.

       NOTE: Select the "p" option when re-
       quested. Do not select the "l" option.

6.46   A message will be printed:

       "Do you want to execute the diagnos-
       tics program(s) you selected now?"

       To start the execution of the diagnos-
       tics, input a "y" for yes then proceed
       to Paragraph 7.2.

7.   STANDARD DIAGNOSTICS

7.1   To start the execution of all avail-
       able diagnostics enter the "e" mode of
       operation by typing in an "e" on sys-
       tem console 1.

7.2   The diagnostic programs will now be
       executing. Follow all instructions
       that are printed on the TTY. Examine
       the test result printouts. Verify
       that the actual data is equal to the
       expected data, where applicable con-
       tinue with the following procedure if
       you pass or fail any diagnostic test.

7.3   Input 'n' for no to the following mes-
       sages typed on the TTY:

       "Do you want to execute the same diag-
       nostic again?" and,

       "Do you want to select any other diag-
       nostic program?"

7.4   Do not input "stop" as a response to
       the following message:

       RESPONSE: "If you want to terminate
                  the diagnostics type stop."

7.5   If any of the diagnostic tests failed, reexecute the failing diagnostic in the "q" mode of operation and select the appropriate options. For information on the "q" mode of operation, refer to the printout obtained in Paragraph 6.42 or type in "examples".

8.   LAMP AND ALARM TESTS

8.1   General

8.11   The "display.panel" test contained within the "alarm.control" diagnostic will be used to check for proper visual and/or audible alarm functions on the Auxiliary Alarm and Display Panel, TASC interface, Room alarms and Building alarms. This diagnostic test will also be used to test the alarm cut-off features. This diagnostic test will be executed as many times as necessary to complete the tests in this section.

       NOTE: The Main Alarm Control and Display panel was tested in Paragraph 7.2.

8.12   It is the responsibility of the TELCo to provide cabling and equipment for the TASC Interface, Room and Building alarms. If the TELCo has provided these facilities, responses at these facilities must be verified. If the TELCo has not provided these facilities, contact closures must be verified, during testing, at the associated terminals listed in Table 4.

8.13   It is the responsibility of the TELCo to provide cabling to the Auxiliary Alarm and Display Panel (if provided).

8.14   Audible and visual alarms will be activated during tests in this section. The minor audible is a self-retiring three second continuous burst of sound. The major audible has a regular pattern of a single burst of sound followed by a quiet period. The critical audible has a regular pattern of two bursts of sound followed by a silent period.

8.2   Auxiliary Display Panel Tests (if provided)

8.21   The system should be in the INTERFACE ISOLATE state. Depress the TEST LAMP & AUDIBLE button on the Auxiliary Alarm and Display Panel (if provided). All LED's should illuminate and the critical audible should sound at the panel.

8.22   Start the execution of the "display.panel" test contained within the "alarm.control" diagnostic using the "q" mode of operation. Perform this test using the Auxiliary Alarm and Display Panel (if provided). Follow all instructions as printed on the TTY.

8.3   Room and Building Alarm Tests

8.31   General

8.311 If Room and Building Alarm facilities have been provided, verify the proper operation of these alarms during the tests.

8.312 If Room and Building Alarm facilities have not been provided, verify the appropriate contact closures, as listed in Table 4, during the tests.

8.32   Procedure

8.321 Execute the "display.panel" test using the "q" mode of operation as many times as is necessary until all contact closures or Room and Building alarms have been tested.

       NOTE: If verifying contact closures, use the step by step option for the diagnostic (i.e. display.panel -X). (Be sure to use a capital 'X'.)

8.4   TASC Interface Tests

8.41   General

8.411 Before starting the test, all alarm cut-off's should be activated. (i.e., The amber LED's above the alarm cutoff buttons should be illuminated.) Operate the appropriate alarm cut-off button, if necessary, to obtain this state.

8.412 All LED and alarm indications, as seen on the Main Alarm Control and Display Panel, are sent to TASC. Contact closures must be verified, as listed in Table 5, during the tests, if the TASC interface facilities are not provided. If the TASC interface facilities are provided, proper system status and alarm conditions must be verified at the TASC Interface facility.

8.413 The alarm cut-off functions will be tested during the tests from the TASC interface facility, if provided. If the TASC interface facility has not been provided, the alarm cut-off functions will be tested using the ITE-9169B test cord (clip lead) as listed in Table 6.

8.413 (Continued)

> NOTE: Only momentary contact, using the ITE-9169B, is needed to either activate or deactivate the alarm cut-off function.

8.42 Procedure

8.421 Execute the "display.panel" test using the "q" mode of operation as many times as is necessary until all contact closures or TASC features have been tested.

> NOTE: If verifying contact closures, use the step by step option for the diagnostic (i.e. display.panel -X). (Be sure to use a capital 'X'.)

9.   ACU INTERFACE LOOP-AROUND TESTS

9.1   Preliminary

9.11   All the loop-around tests must be executed with the CPU, presently not being used for testing, in the halted condition and in the 'PROCESSOR ISOLA-TION' state. Halt the processor not running diagnostics by placing the HALT/ENABLE key to the HALT position. The red PROGRAM TIMEOUT LED should illuminate for the associated CPU at the Main Alarm and Control Panel. Place the processor not running diagnostics into the 'PROCESSOR ISOLATION' state from the Main Alarm Control and Display Panel.

9.12   All the loop-around tests must be executed with the CPU, presently being used for testing, in the 'ISOLATION OVERRIDE' state. Place the processor that is to run diagnostics into the 'ISOLATION OVERRIDE' state from the Main Alarm Control and Display Panel. Verify that all TN102 circuit packs in the Western Cabinets associated with the processor to run diagnostics are indicating an Active State (i.e. green LED's illuminated).

9.13   The "async.dsif" diagnostic will be used to perform the ACU Interface Loop-Around tests. This diagnostic will be run in the 'q' mode of operation specifying only multiplexor 00.

9.14   The ACU Interface Loop-Around cables from the ITE-8900 package consists of three items.

(a)   The first item has three connectors, one 50 pin connector and two 40 pin connectors. If testing from CPU0, the cable end designated as CB70-0, OASYN, 06-017 will be plugged into the 50 pin connector. If testing from CPU1, the cable end designated as CB70-1, OASYN, 10-033 will be plugged into the 50 pin connector. The cable plugged into the 50 pin connector will remain in place until all ACU interface loop-around tests have been completed from one processor. The cables to be plugged into the 40 pin connectors are listed in Table 1 and are dependent on the test number. Connect the appropriate cable into the 50 pin connector.

> NOTE: The cable ends to be plugged into the 40 pin connectors were not connected in Sections 204D and 204F.

(b)   The other two items consist of EIA connectors wired internally to produce a loop-around. The designation on these connectors are "ACU (2N-2)" and "ACU (2N-1)". These connectors are plugged into the appropriate locations listed in Table 1, dependent on the test number.

9.2   Execution of ACU Interface Loop-Around Test

9.21   Refer to TABLE 1. Connect the appropriate cables into the 40 pin connectors on the ACU interface loop-around for the test number to be executed. Connect the ACU (2N-2) and ACU (2N-1) connectors to the appropriate connectors for the test number to be executed.

> NOTE: Start with test Number 1.

9.22   Select the "async.dsif" diagnostic to be run in the 'q' mode for multiplexor 00 only. Also select the 'd' and 'p' options (e.g. async.dsif -dp 00 00).

9.23   This test requires that the processor, presently used for testing, be in the ISOLATION OVERRIDE state. A message will be printed indicating that the processor must be in the isolation state. Respond to this message by indicating that the processor is in the isolation state, even though the processor is in the ISOLATION OVERRIDE state.

9.24 The diagnostic program will now execute. Examine the printout. Continue with the following procedure if you pass or fail the diagnostic test.

9.25 If the diagnostic failed, refer to the DZ11 manual for detailed trouble analysis and reexecute the diagnostic program for the same test number starting at Paragraph 9.22. If the diagnostic passed, reexecute the diagnostic program for the next test number starting at Paragraph 9.21 until all tests have passed.

9.3 End of ACU Loop-Around Test

9.31 Remove the two DN11 40 pin connectors from the ACU interface loop-around. Remove the ACU (2N-2) and ACU (2N-1) connectors. These connectors were left in place from the last test.

9.32 Remove CB70-0 or CB70-1 from the ACU interface loop-around. If testing was being done from CPU0, connect CB70-0 to OASYN Location 06-017 in the J1P040V-1, List 1 cabinet. If testing was being done from CPU1, connect CB70-1 to OASYN Location 10-033 in the J1P040V-1, List 1 cabinet.

NOTE: The DN11 cables will be connected to the CPUs at the end of this handbook section.

9.33 Verify proper reconnection of CB70-0 or CB70-1 cable.

9.331 Place the processor running diagnostics into the 'PROCESSOR ISOLATE' state from the Main Alarm Control and Display Panel.

9.332 Reexecute the "async.dsif" diagnostic program for multiplexor 00 in the same manner as Paragraph 9.22.

9.333 Restore the processor running diagnostics to the ISOLATION OVERRIDE state from the Main Alarm Control and Display Panel in the same manner as Paragraph 9.12 (including verification of TN102 status).

10. DATA SET LOOP-AROUND TESTS

10.1 General

10.11 The data set loop-around tests will utilize the data set loop-around cables contained in the ITE-8900 package.

NOTE: The LED in each connector should illuminate as the connector is inserted.

10.12 The "async.dsif" diagnostic program will be executed with all associated cabinets in the ISOLATION OVERRIDE state.

10.13 One multiplexor will be tested at a time.

10.2 Instructions

10.21 Install the data set loop-around cables contained in the ITE-8900 package as listed in Table 2 for the first multiplexor.

10.22 Select the "async.dsif" diagnostic program to be executed in 'q' mode on the first multiplexor (use options 'd' and 'p' (e.g., async.dsif -dp 00 00).

10.23 At the start of the diagnostic program, the following message may be printed:

"Is the PROCESSOR ISOLATE light (red LED) on?"

Disregard the printout.

10.24 Verify that the processor is in the ISOLATION OVERRIDE state. Reply by inputting a 'y'.

10.25 If the multiplexor tests fail, refer to the detailed printouts and the DZ11 manuals. Also refer to the SD for cable and circuit pack information.

10.26 After the multiplexor tests pass, remove the ITE-8900 cables.

10.27 Refer to TABLE 2. Reconnect the ITE-8900 cables for the next multiplexor to be tested. Reexecute the "async.dsif" diagnostics for the associated multiplexor. Repeat this procedure until all multiplexors have been tested (e.g., if testing multiplexor 01, input:
async.dsif -dp 01 01).

11. FLEXPORT LOOP-AROUND TESTS

11.1 General

11.11 The Flexport loop-around tests will utilize the Flexport loop-around cables contained in the ITE-8900 package.

NOTE 1: The clip lead associated with each Flexport loop-around cable should be connected to the closest +12 volt bug in the cabinet.

NOTE 2: The LED in each connector should illuminate as the connector is inserted.

11.12 The "flexport" diagnostic program will be executed with all associated cabinets in the ISOLATION OVERRIDE state.

11.13 Flexports 0-7 will be tested first, followed by Flexports 10-17.

11.2 Flexports 0-7 Tests

11.21 Disconnect Cables CB21 and CB22 from equipment Locations 02-016 and 14-016, respectively, in the VO cabinet.

11.22 Connect the Flexport loop-around cables for Flexports 0-7 (refer to TABLE 3). Connect the associated clip lead to the closest +12 volt bug in the cabinet.

11.23 Select the "flexport" diagnostic to test Flexports 0-7 in the 'q' mode of operation selecting 'd' and 'p' options (e.g., flexport -dp 00 00).

11.24 At the start of the diagnostic programs, disregard any printout indicating that the processor must be in the "PROCESSOR ISOLATE" state.

11.25 Verify that the processor is in the ISOLATION OVERRIDE state. Reply by inputting a "y".

11.26 If any diagnostic program fails, refer to the detailed printout and the DZ11 and DR11 manuals. Also refer to the SD for cable and circuit pack information. Then reexecute the failing diagnostics starting at Paragraph 11.23.

11.27 After the diagnostic tests pass, remove the Flexport loop-around cables and reconnect Cables CB21 and CB22 to equipment Locations 02-016 and 14-016, respectively, in the VO cabinet.

11.3 Flexports 10-17 Tests

11.31 Connect the Flexport loop-around cables for Flexports 10-17 (refer to TABLE 3). Connect the associated clip lead to the closest +12 volt bug in the cabinet.

11.32 Select the "flexport" diagnostic to test Flexports 10-17 in the 'q' mode of operation selecting the 'd' and 'p' options (e.g., flexport -dp 01 01).

11.33 Disregard any printout indicating that the processor must be in the "PROCESSOR ISOLATE" state.

11.34 Verify that the processor is in the ISOLATION OVERRIDE state. Reply by inputting a "y", if necessary.

11.35 If any diagnostic program fails, refer to the detailed printout and the DZ11 and DR11 manuals. Also refer to the SD for cable and circuit pack information. Then, reexecute the failing diagnostic starting at Paragraph 11.32.

11.36 After the diagnostic tests pass, remove the Flexport loop-around cables.

11.37 Place the processor that is running diagnostics into the PROCESSOR ISOLATION state using the Main Alarm Control and Display Panel.

11.38 Input the following messages:

mon (Return key)
stop (Return key)
sync (Return key)

11.39 Halt the processor that is running diagnostics by placing its HALT/ENABLE key to HALT.

12. MOUNT THE RP06 DISK PACK FOR DIAGNOSTICS ON CPU1

12.1 Remove the RP06 disk pack from CPU1 in the same manner as Paragraph 4.11.

NOTE: This disk pack will be reinstalled in the drive in Paragraph 14.2.

12.2 Remove the RP06 diagnostic disk pack from CPU0 in the same manner as Paragraph 4.11.

12.3 Mount the RP06 diagnostic disk pack, just removed in Paragraph 12.2, onto the RP06 disk drive on CPU1 using the procedure in Paragraph 4.12 through 4.62 using CPU1.

12.4 Install the RP06 disk pack assigned for CPU0 into the RP06 disk drive on CPU0 using the procedure in Paragraphs 4.12 through 4.62.

13. DIAGNOSTICS ON CPU1

13.1 Reexecute Paragraphs 6.1 through 11.39 on CPU1.

14. END OF DIAGNOSTICS

14.1 If this installation is equipped with a J1P040W-1 cabinet, and testing of that cabinet is to be performed immediately after the tests in this handbook section, proceed as follows:

1) Do not remove the RP06 diagnostic disk pack and
2) Proceed to Paragraph 15.

14.2 Remove the RP06 diagnostic disk pack from CPU1 in the same manner as Paragraph 4.11.

14.3 Install the RP06 disk pack assigned for CPU1 into the RP06 disk drive on CPU1 using the procedure in Paragraphs 4.12 through 4.6.

15. CONNECT DN11 CABLES TO CPUs

15.1 The DN11 cables which were temporarily run to the J1P040V-1, List 1 cabinet to enable ACU interface loop-around tests will be connected to the CPUs. Connect all equipped DN11 cables to the CPUs as listed in Table 7.

ATTACHMENT
Tables 1-7

No changes are indicated due to extensive revision.

Manager, Product Engineering
Control Center

Reason for Reissue
To include UIS information, a memory management test and some minor changes.

TABLE 1

ACU INTERFACE LOOP-AROUND

TEST NO. (N) (OCTAL)	CABLE DESIG. TO BE PLUGGED INTO ITE ACU INTERFACE LOOP-AROUND (SEE NOTE 1)		ITE ACU INTERFACE LOOP-AROUND PLUG. PLUG INTO:				ACU CHANNELS UNDER TEST (OCTAL)	TN102 UNDER TEST		
			ACU (2N-2)		ACU (2N-1)					
	CONN.1	CONN.2	UNIT	LOC.	UNIT	LOC.		UNIT	LOC. if CPU0	LOC. if CPU1
1	CB40-X	CB41-X	0ACU	02-016	0ACU	02-032	0 & 1	0ACU	08-022	08-038
2	CB42-X	CB43-X	0ACU	02-048	0ACU	02-064	2 & 3	0ACU	08-054	08-070
3	CB44-X	CB45-X	0ACU	02-080	0ACU	02-096	4 & 5	0ACU	08-010	08-106
4	CB46-X	CB47-X	0ACU	02-112	0ACU	02-128	6 & 7	0ACU	08-122	08-138
5	CB48-X	CB49-X	1ACU	02-016	1ACU	02-032	10 & 11	1ACU	08-022	08-038
6	CB50-X	CB51-X	1ACU	02-048	1ACU	02-064	12 & 13	1ACU	08-054	08-070
7	CB52-X	CB53-X	1ACU	02-080	1ACU	02-096	14 & 15	1ACU	08-010	08-106
10	CB54-X	CB55-X	1ACU	02-112	1ACU	02-128	16 & 17	1ACU	08-122	08-138

NOTE 1:   The X represents a '0' or '1' depending on which CPU is being used for testing.
          Example: Use CB40-0 and CB41-0 if doing Test No. 1 using CPU0.

TABLE 2

DATA SET LOOP-AROUND
ITE-8900 CABLE CONNECTIONS

FOR MUX #	CONNECTOR END MARKED							
	CHL--0	CHL--1	CHL--2	CHL--3	CHL--4	CHL--5	CHL--6	CHL--7
	CONNECT IN VO CABINET (0 ASYN) TO EQUIPMENT LOCATION							
00	02-016	14-016	02-024	14-024	02-032	14-032	02-040	14-040
01	02-048	14-048	02-056	14-056	02-064	14-064	02-072	14-072
02	02-080	14-080	02-088	14-088	02-096	14-096	02-104	14-104
03	02-112	14-112	02-120	14-120	02-128	14-128	02-136	14-136
	CONNECT IN VO CABINET (1 ASYN) TO EQUIPMENT LOCATION							
04	02-016	14-016	02-024	14-024	02-032	14-032	02-040	14-040
05	02-048	14-048	02-056	14-056	02-064	14-064	02-072	14-072
06	02-080	14-080	02-088	14-088	02-096	14-096	02-104	14-104
07	02-112	14-112	02-120	14-120	02-128	14-128	02-136	14-136
	CONNECT IN V1 CABINET (2 ASYN) TO EQUIPMENT LOCATION							
10	02-016	14-016	02-024	14-024	02-032	14-032	02-040	14-040
11	02-048	14-048	02-056	14-056	02-064	14-064	02-072	14-072
12	02-080	14-080	02-088	14-088	02-096	14-096	02-104	14-104
13	02-112	14-112	02-120	14-120	02-128	14-128	02-136	14-136

TABLE 3

FLEXPORT LOOP-AROUND
ITE-8900 CABLE CONNECTIONS

CONNECTOR END MARKED	CONNECT TO EQUIPMENT LOCATION IN VO CABINET	
	FOR FLEXPORTS 0-7	FOR FLEXPORTS 10-17
TTY-0	02-016	02-048
TTY-1	14-016	14-048
TTY-2	02-024	02-056
TTY-3	14-024	14-056
TTY-4	02-032	02-064
TTY-5	14-032	14-064
TTY-6	02-040	02-072
TTY-7	14-040	14-072

TABLE 4

| ALARM | ROOM ALARM CONTACT CLOSURE | | BUILDING ALARM CONTACT CLOSURE | |
	PIN DESIG.	ALM CONN. 02-072 PIN	PIN DESIG.	ALM CONN. 02-136 PIN
CRT	RCRT	25	BCRT	25
AUD.	RCRTR	24	BCRTR	24
CRT	RCRTV	19	BCRTV	19
VISUAL	RCRTVR	18	BCRTVR	18
MJ	RMJ	23	BMJ	23
AUD.	RMJR	22	BMJR	22
MJ	RMJV	17	BMJV	17
VISUAL	RMJVR	16	BMJVR	16
MN	RMN	21	BMN	21
AUD.	RMNR	20	BMNR	20
MN	RMNV	15	BMNV	15
VISUAL	RMNVR	14	BMNVR	14

NOTE: Refer to SD-5P013-01, CAD 39 and 40, if necessary.

TABLE 5

CONTACT CLOSURES TO TASC INTERFACE

VISUAL		
ALARM	CHECK FOR CONTINUITY IN ALM UNIT	
	From Location	To Location
Critical	16-088-19	16-088-18
Proc. 0 Maj.	16-048-25	16-048-24
Proc. 1 Maj.	16-048-23	16-048-22
Proc. 0 Mn.	16-056-25	16-056-24
Proc. 1 Mn.	16-056-23	16-056-22
Int. Cab. Maj.	16-048-19	16-048-18
Int. Cab. Mn.	16-056-19	16-056-18
Sen/DL Maj.	16-048-21	16-048-20
Sen/DL Mn.	16-056-21	16-056-20
Aux. Maj.	16-088-21	16-088-20
Aux. Mn.	16-088-23	16-088-22
Active Proc. 0	16-048-8	16-048-7
Active Proc. 1	16-088-8	16-088-7
Sby Proc. 0	16-048-6	16-048-5
Sby Proc. 1	16-088-6	16-088-5
OOS Proc. 0	16-048-4	16-048-3
OOS Proc. 1	16-088-4	16-088-3
Prog. T.O. Proc. 0	16-048-2	16-048-1
Prog. T.O. Proc. 1	16-088-2	16-088-1
AMA on TP Proc. 0	16-056-8	16-056-7
AMA on TP Proc. 1	16-080-8	16-080-7
AMA on DSK Proc. 0	16-056-6	16-056-5
AMA on DSK Proc. 1	16-080-6	16-080-5
Normal Proc. 0	16-048-12	16-048-11
Normal Proc. 1	16-088-12	16-088-11
Proc. Iso. Proc. 0	16-048-10	16-048-9
Proc. Iso. Proc. 1	16-088-10	16-088-9
Int. Iso. Proc. 0	16-056-12	16-056-11
Int. Iso. Proc. 1	16-080-12	16-080-11
Iso. OVRD Proc. 0	16-056-10	16-056-9
Iso. OVRD Proc. 1	16-080-10	16-080-9
Cut-off Aud.	16-080-17	16-080-16
Cut-off Building	16-080-15	16-080-14
Cut-off Remote	16-088-15	16-088-14
ADDITIONAL ALARMS (See Note 1)		
System Maj.	16-080-19	16-080-18
System Mn.	16-080-21	16-080-20

NOTE 1: The System Maj./Mn. contact closure should occur on any Maj./Mn. alarm.

TABLE 6

TASC RETIRE/CUT-OFF ALARMS

FUNCTION	ATTACH CLIP LEAD IN ALM UNIT	
	From	To
Retire Alarms	16-048-17	16-048-16
Cut-off Audible	16-048-15	16-048-14
Cut-off Building	16-056-17	16-056-16
Cut-off Remote	16-056-15	16-056-14

TABLE 7

DESIG.	GROUP	STAMPED	CONNECT TO
CB40-0	51	CPU0 00DN11	CPU0 00DN11
CB41-0	51	CPU0 01DN11	CPU0 01DN11
CB42-0	51	CPU0 02DN11	CPU0 02DN11
CB43-0	51	CPU0 03DN11	CPU0 03DN11
CB44-0	52	CPU0 04DN11	CPU0 04DN11
CB45-0	52	CPU0 05DN11	CPU0 05DN11
CB46-0	52	CPU0 06DN11	CPU0 06DN11
CB47-0	52	CPU0 07DN11	CPU0 07DN11
CB48-0	73	CPU0 10DN11	CPU0 10DN11
CB49-0	73	CPU0 11DN11	CPU0 11DN11
CB50-0	73	CPU0 12DN11	CPU0 12DN11
CB51-0	73	CPU0 13DN11	CPU0 13DN11
CB52-0	73	CPU0 14DN11	CPU0 14DN11
CB53-0	73	CPU0 15DN11	CPU0 15DN11
CB54-0	73	CPU0 16DN11	CPU0 16DN11
CB55-0	73	CPU0 17DN11	CPU0 17DN11
CB40-1	53	CPU1 00DN11	CPU1 00DN11
CB41-1	53	CPU1 01DN11	CPU1 01DN11
CB42-1	53	CPU1 02DN11	CPU1 02DN11
CB43-1	53	CPU1 03DN11	CPU1 03DN11
CB44-1	53	CPU1 04DN11	CPU1 04DN11
CB45-1	53	CPU1 05DN11	CPU1 05DN11
CB46-1	53	CPU1 06DN11	CPU1 06DN11
CB47-1	53	CPU1 07DN11	CPU1 07DN11
CB48-1	72	CPU1 10DN11	CPU1 10DN11
CB49-1	72	CPU1 11DN11	CPU1 11DN11
CB50-1	72	CPU1 12DN11	CPU1 12DN11
CB51-1	72	CPU1 13DN11	CPU1 13DN11
CB52-1	72	CPU1 14DN11	CPU1 14DN11
CB53-1	72	CPU1 15DN11	CPU1 15DN11
CB54-1	72	CPU1 16DN11	CPU1 16DN11
CB55-1	72	CPU1 17DN11	CPU1 17DN11