Honeywell

Maintenance Test Operations

SW11-502

Honeywell

LCN Service - 1

Maintenande Test Operations

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About This Publication

This Reference Manual documents the use of the Maintenance Personality overlay of the Engineering Personality used in the TDC 3000^X Universal Station. As the name indicates, this publication is a reference manual for trained technicians and is intended to supplement TDC 3000^X service training, not replace it.

The scope of this manual does not include complete explanations of content for each Maintenance Personality display because some of the detailed information is intended only for use by the Honeywell Technical Assistance Center (TAC) specialists.

This publication supports TDC 3000^X software release 500.

Table of Contents

INTRODUCTION
Section 1

Section 1 of this manual describes the uses of the Maintenance Personality Overlay of the Engineering Personality and how to call up the SMCC displays used to diagnose hardware and software failures in the system.

1.1 USES OF THE MAINTENANCE PERSONALITY

The Maintenance Personality of the Universal Station contains a number of display-driven functions that are used in the diagnosis of system hardware or software problems. The functions provided are:

- Display Module Memory
- Display System Maintenance Journal*
- Display Active Maintenance Recommendations Journal*
  - Enter Corrective Action
  - Enter Maintenance Action
  - Initiate On-Process Analysis
  - Print Active Maintenance Recommendations
  - Print Maintenance Recommendations Error Aggregates
  - Print All Error Aggregates
- Display Revision/Configuration Status
- Display Module Errors
- Display Hiway Box Memory
- Probe a Failed Module
- Initialize or reassign a corrupted sector on a WREN III disk

The following is the typical use-scenario for the Maintenance Personality Overlay:

- Load the Engineering Personality into the selected Universal Station. Then, from the Engineering Personality Main Menu display, select `SMCC/MAINTENANCE`.
- From the SMCC Main Menu display, select the desired function (this may require going through a submenu).
- Insert any required parameter values and/or select subfunctions through the function display.
- View the selected data and take appropriate actions.
- Select other functions by changing to other Maintenance Personality displays.

*Journal functions require the presence of a History Module.

1.2 RELATED PUBLICATIONS

The following are other TDC 3000^X publications that will be of use during maintenance of TDC 3000^X systems:

Title	Binder
Test System Executive Hardware Verification	LCN Service - 3
Test System	LCN Service - 3
Core Module Test System	LCN Service - 3
LCNI Network Communications Test	LCN Service - 3
Universal Station Service	LCN Service - 1
History Module Service	LCN Service - 2
Five/Ten-Slot Module Service	LCN Service - 2
Dual Node Module Service	LCN Service - 2
Process Operations Manual	Operations/Process Operations
Process Manager Service	PM/APM Service
Logic Manager Service	LM Service
PLC.Gateway Planning, Installation, and Service	Implementation/PLC Gateway
8 Node Multinode Module Service	Implementation/8 Node Micro TDC 3000

LOADING AND USING THE MAINTENANCE PERSONALITY
Section 2

Section 2 of this manual describes the use of the SMCC Main Menu, and the SMCC special keys.

2.1 LOADING THE PERSONALITY

Loading a Universal Station with the Maintenance Personality requires the following steps:

1. Load the Engineering Personality into the Universal Station, and bring up the Engineering Personality Main Menu (see Figure 2-1). Refer to the *Operator's Digest*, in the *Process Operations* binder, for the procedure on loading the Engineering Personality from either floppies/cartridges or from the network.

2. Select the target labeled SMCC/MAINTENANCE from the Engineering Personality Main Menu. This target calls up the SMCC Main Menu (see Figure 2-2, next page).

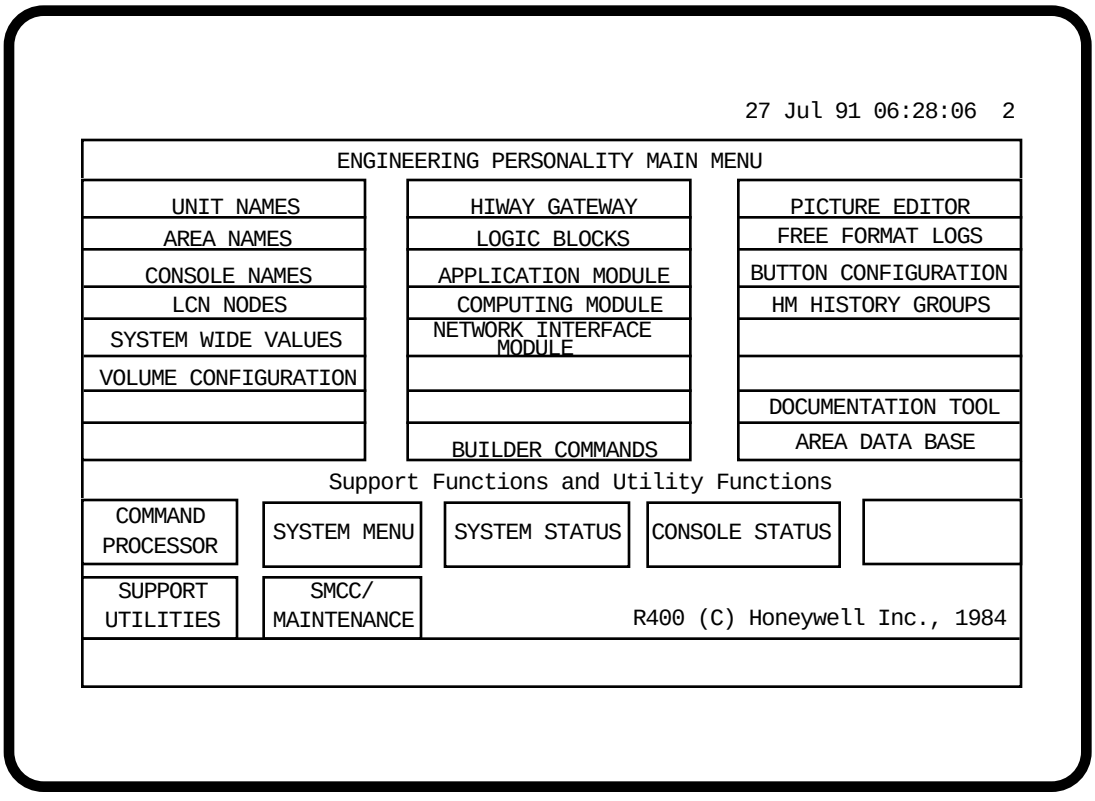

Figure 2-1 — Engineering Personality Main Menu Display 6134

2.2 MAINTENANCE PERSONALITY MAIN MENU DISPLAY

The SMCC Main Menu display shown in Figure 2-2 is the entry point for all functions contained within the Maintenance Personality. To select a function, touch the target or move the cursor within the boxed area by tab keys, then press the SELECT key.

Note that a target named MAIN MENU is provided on the SMCC Main Menu display (Figure 2-2) that returns you to the Engineering Personality Main Menu display whenever it is selected.

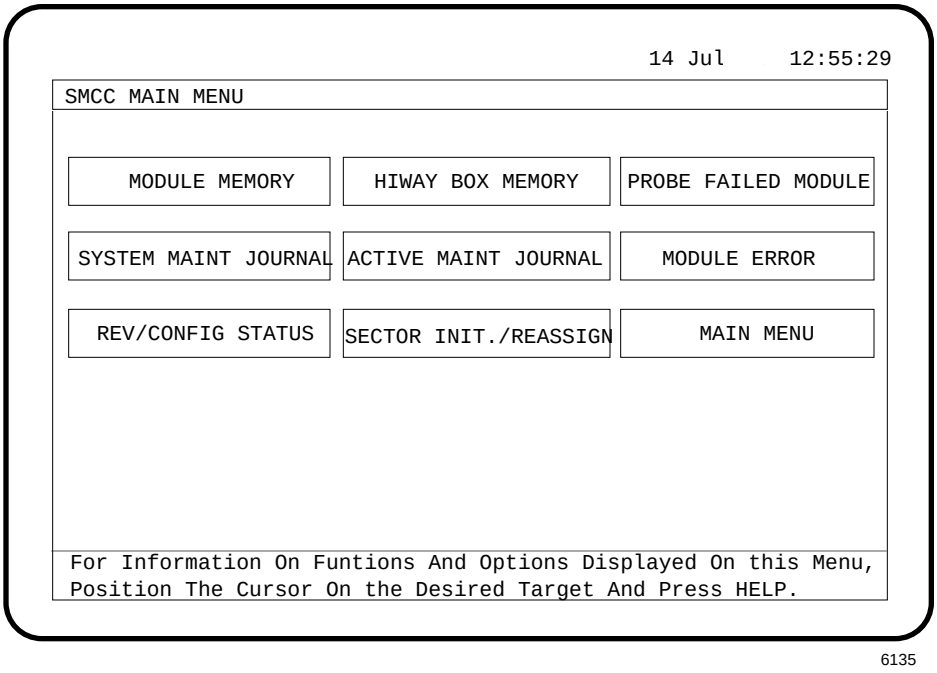

Figure 2-2 — System Maintenance Personality Main Menu Display

2.3 MAN-MACHINE INTERACTION

Before beginning an examination of the individual Maintenance Personality functions, you first need to become acquainted with the ways in which the user and the system interact to exchange information.

2.3.1 Interface Hardware

The principle device for entry of data and commands is a Universal Station (or Universal Work Station) keyboard. While in the Maintenance Personality, all entry actions can be accomplished from either the Engineers Keyboard or the Operator or Supervisor Keyboards and, touch-screen use is optional.

See Figure 2-3 and 2-4 for illustrations of the Operator or Supervisor Keyboard keys used by the Maintenance Personality. Keyboard information is found in the *Process Operations Manual,* (Appendix A), in the *Process Operations* binder.

For information on Engineers Keyboard functions and layout, refer to the *Process Operations Manual,* (Appendix B).

2.3.2 Function Selection and Data Entry

The two methods of data or command entry are called "picks" and "ports."

A "pick" is a boxed area on the screen that contains information to be selected; for example, the name of a display to be selected from a menu. The selection is accomplished either from the touch screen or from the keyboard. To select from the touch screen, place your fingertip at the screen face within the boxed area; removal of the finger triggers the selection action. To select from a keyboard, move the cursor to the box by use of tab keys, then press the SELECT key.

A "port" is an empty boxed area on the screen where data is to be entered. To enter data, use tab keys to position the cursor within the box, then key in the information. When all required ports have data, press the ENTER key.

2.3.3 HELP Key Use

In cases where there may be questions regarding the use of specific "picks" and "ports" on a display, press the HELP key. The system responds by providing additional information. First, position the cursor within the "target" box, then press the HELP key. The help message appears at the bottom of the display screen.

2.3.4 Error Indications/Corrections

If the system detects an error in data-entry formatting or a necessary field has not been filled in before the "enter" command, the offending port is outlined in red, the keyboard beeps once, and an error message (which applies to the first error encountered) appears at the bottom of the display screen. To correct an error, enter or reenter the required data and press the ENTER key again.

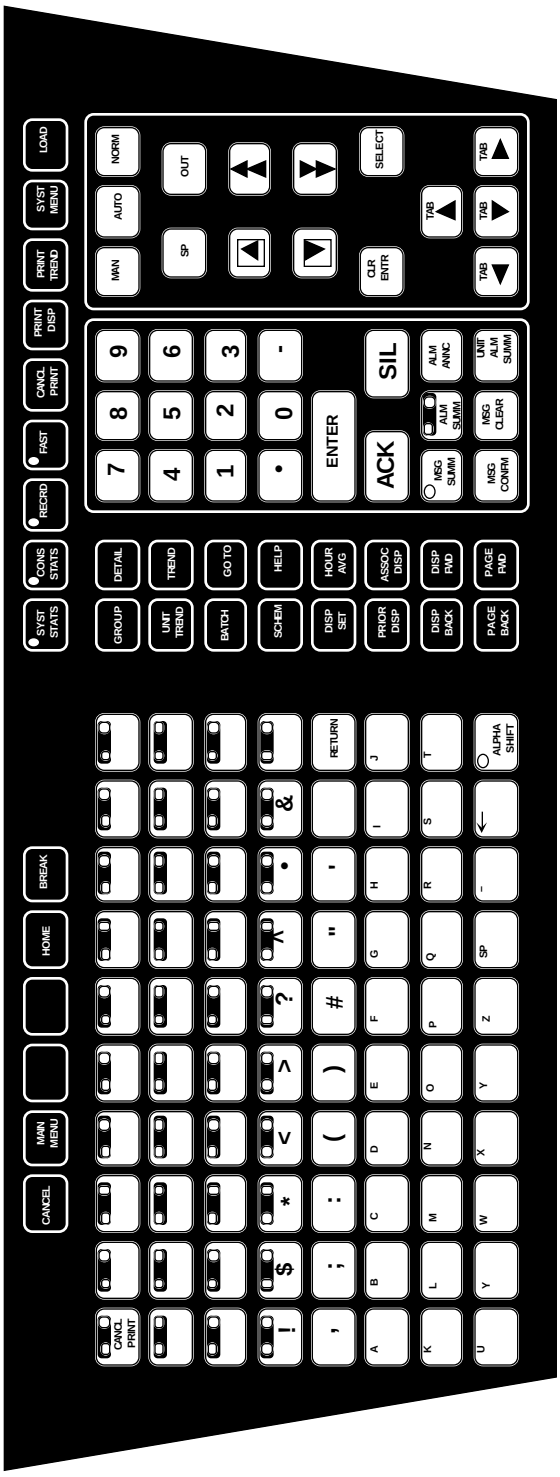

Figure 2-3 — Keys Used on Operator or Supervisor Keyboards

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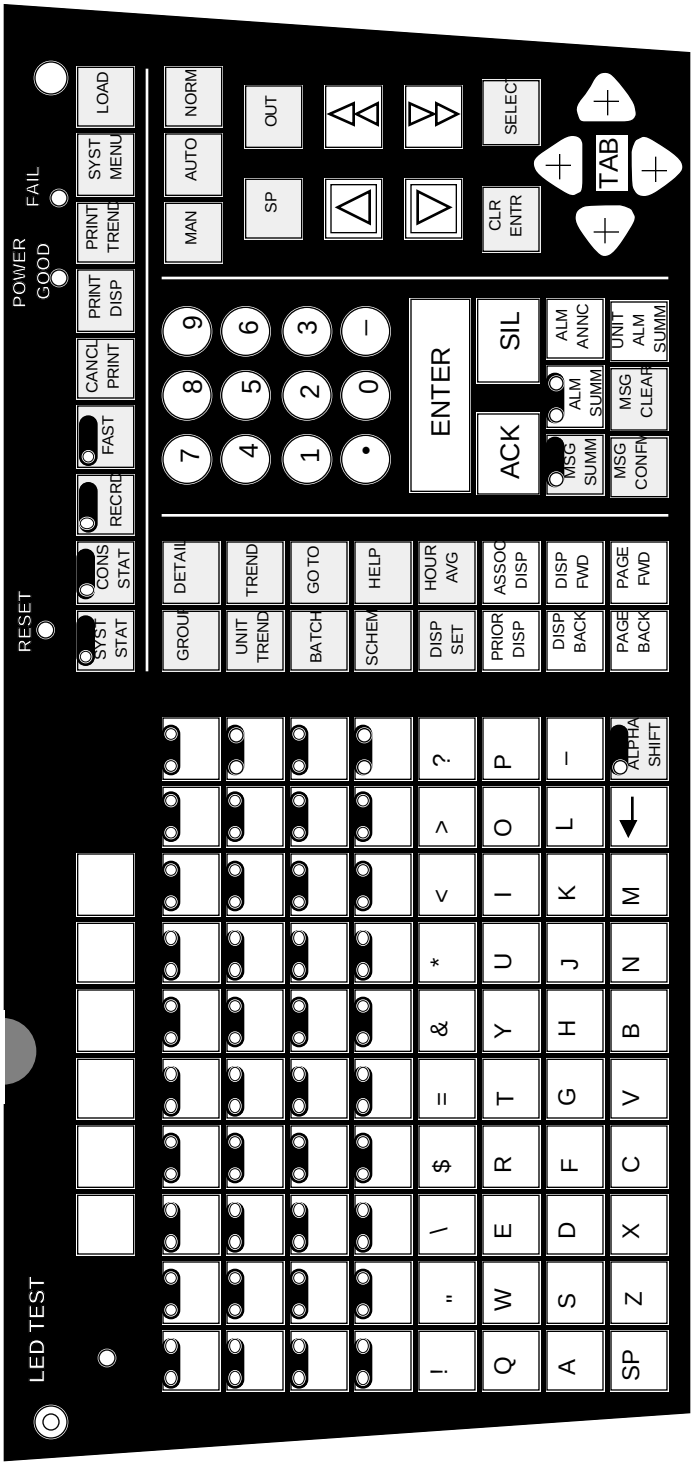

Figure 2-4 — Keys Used on QWERTY Keyboard

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2.3.5 Moving within a Display

The primary method of cursor movement on a display page is by use of the tab keys. The touch-screen action combines cursor movement with selection, and therefore is not suitable for help selection.

2.3.6 Moving between Displays

For those displays that have more than one page of information, you move from page to page by use of the PAGE FORWARD and PAGE BACK keys. Movement between displays is part of the function-selection process, but you may also use the DISPLAY FORWARD and DISPLAY BACK keys once you have progressed along a path from main menu to a function. You can always return to the main menu by use of the MAIN MENU key.

2.3.7 Other SMCC Special Keys

Two other keys used by SMCC functions deserve mention:

- The CANCEL key aborts the current operator request. This is useful in ending long-running requests when no additional information is needed.
- The CANCEL PRINT key aborts an SMCC printout at completion of a page. Queued print requests are aborted in the sequence they were entered.

USING SMCC FUNCTIONS
Section 3

Section 3 of this manual describes the use of the SMCC functions in the diagnosis of system failures.

3.1 MODULE MEMORY

3.1.1 Call-Up Steps for Module Memory

From the SMCC Main Menu, select `MODULE MEMORY` to bring up the Module Memory display (Figure 3-1). Completion of entry of required and optional data in that display calls up the Module Memory Data display (Figure 3-2), which contains the requested memory display.

3.1.2 Purpose and Options for Module Memory

This function provides the ability to view the memory contents (in hexadecimal format) of any LCN module that is in the "running" state (this requires that the target node is loaded with its "personality" software).

Required entries made from the Module Memory display are `ENTER Module Number` and `ENTER First Memory Address`.

The module's memory contents are shown by the Module Memory Data display (Figure 3-2) in 64-word groups, starting with the specified first memory address. You may "page" forward or backward from this point.

When the Cyclic Update option is selected, the memory segment on display is updated at the specified rate.

The Change Detect option monitors the display updates; any changed locations are displayed in white. Change Detect Reset clears the changed values back to the original color, but does not interfere with the change-detect option on subsequent cyclic updates.

3.1.3 Uses for Module Memory

- Decoding system-defined error structures from the displayed values.
- Observing suspicious data changes.
- Observing sequencing by counters.
- Observing key system parameters in real time.

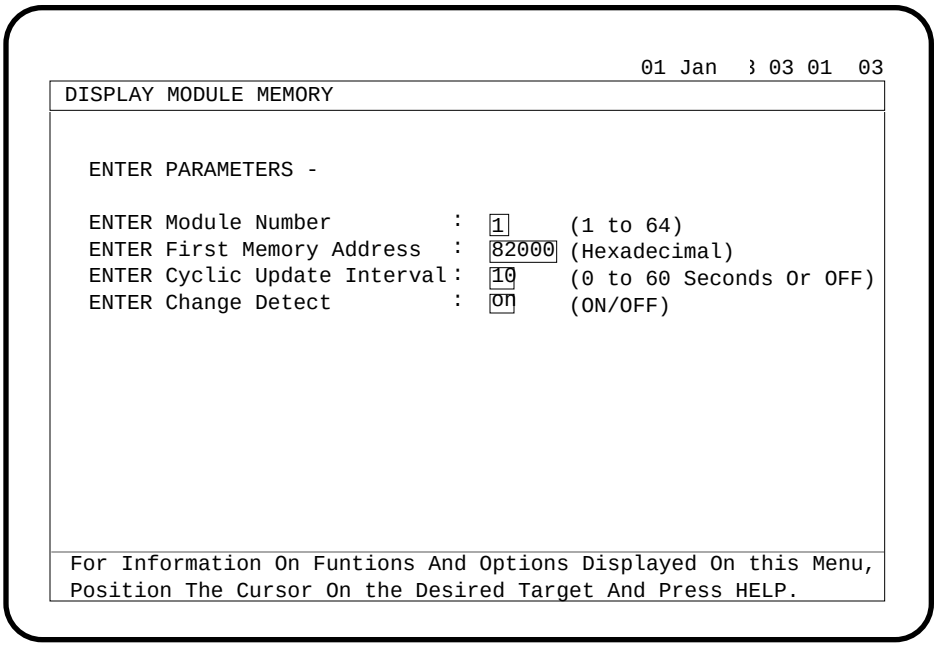

Figure 3-1 — Module Memory Display

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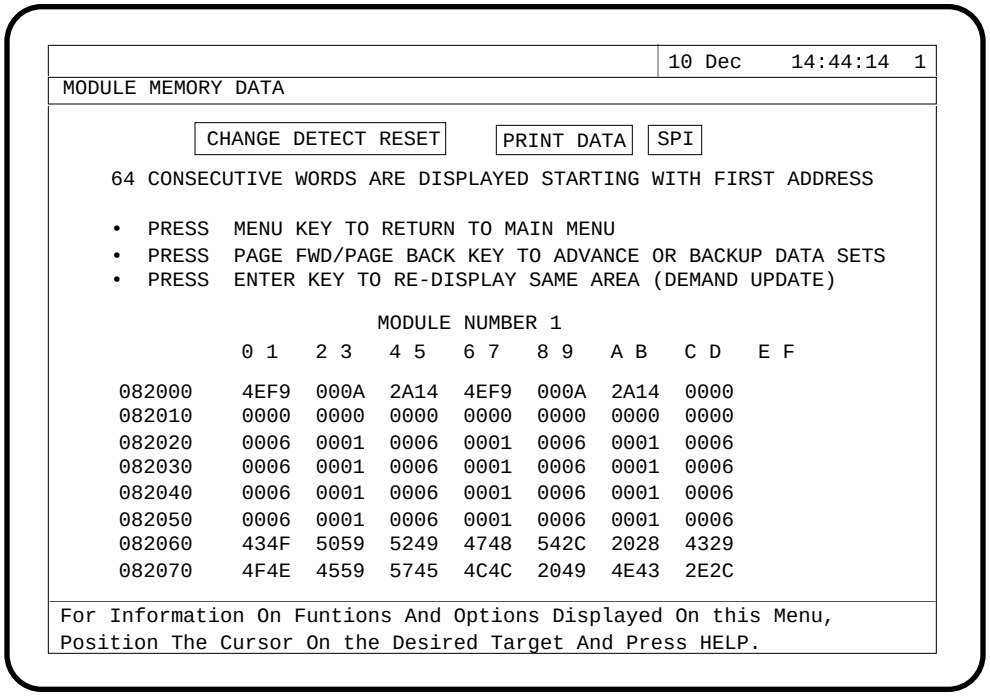

Figure 3-2 — Module Memory Data Display

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3.2 SYSTEM MAINTENANCE JOURNAL

3.2.1 Call-Up Steps for System Maintenance Journal

From the SMCC Main Menu, select SYST MAINT JOURNAL to bring up the Display System Maintenance display (Figure 3-3). Completion of entry of required and optional data in that display calls up the Display System Maintenance Data display (Figure 3-4), which shows the requested Maintenance Journal data. If SYST MAINT JOURNAL is selected in a system without a History Module, an error message appears.

Note that the RM field found on Maintenance Journal displays contains the module number of the node that generated the Maintenance Report.

3.2.2 Purpose and Options for System Maintenance Journal

The System Maintenance display enables you to select, for either display or print, all or portions of journaled maintenance information. You can specify a time period (start and end date and time of day) and/or search keys (Parameter Fields) that narrow the focus of the data to be reviewed.

The optional search keys (Parameter Fields) enable you to specify a single module by its LCN address, all modules of a certain type, only certain events, or a specific event by its node-specific serial number. Any combination of two search keys is permitted. If you exceed that limit, the excess search key boxes must be cleared before the selection will be acted upon.

The "Event Types" shown are:

CA—Corrective Actions performed
CLR—Operator 'Clears' of Maintenance Recommendation messages
MA—Maintenance Actions performed
MR—Maintenance Recommendations messages
TC—TAC Connects (future)
TD—TAC Disconnects (future)
TIM—Operator-initiated time changes
SE—Journal Manager Special Events (indication of history discontinuities)

Once the search options have been keyed in, you can either press ENTER to initiate the search and display or touch the PRINT SEARCH KEY SELECTED DATA target. Depending on selections made, multiple pages may be required to display all the data (the most recent events are displayed or printed first).

When printed, Maintenance Recommendation messages within the journal include data not shown in the maintenance displays. This data consists of a message source abbreviation (HM, HG, OPA, QLT, SEH, CLK, or OPT) and an error-specific descriptive text. See Figure 3-11 for an example of the expanded Maintenance Recommendations format.

To print the complete contents of the System Maintenance Journal, just touch the PRINT ENTIRE SMJ target at any time.

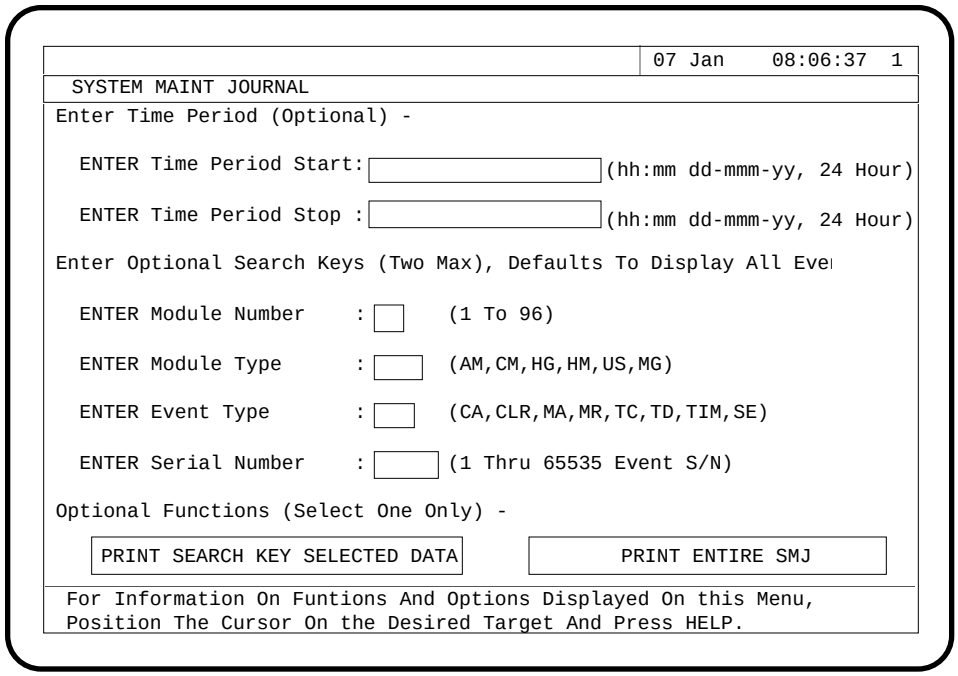

Figure 3-3 — System Maintenance Menu Display 3872

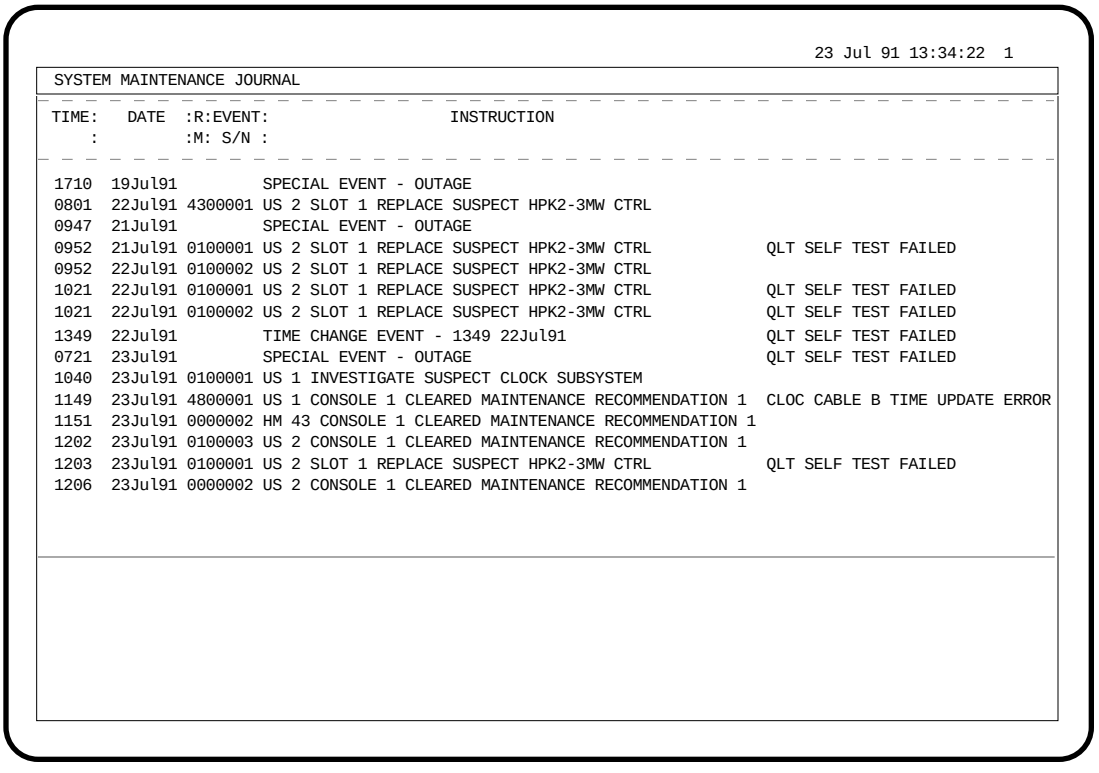

Figure 3-4 — System Maintenance Journal Display 6136

```
         2240 09 Sep 86                          SYSTEM MAINTENANCE JOURNAL
EVENTS ARE FOR TIME PERIOD 0000 01 Jan 79 THROUGH 2240 09 Sep 86
SEARCH KEYS USED:  MODULE NUMBER 42

TIME:  DATE: :R:EVENT:                                          INSTRUCTION
   :       :M  S/N :

1138 02Jan83 4300004 HG 42 SLOT 3 REPLACE MARGINAL 768KW MEMORY BOARD          OPA EXCESS SOFT EDAC ERRORS
```

Figure 3-5 — System Maintenance Journal (Print Selected) 3874

```
        2240 09 Sep 86                          SYSTEM MAINTENANCE JOURNAL
EVENTS ARE FOR TIME PERIOD 0000 01 Jan 79 THROUGH 2240 09 Sep 86

TIME:  DATE: :R:EVENT:                                          INSTRUCTION
   :       :M  S/N :

0000 01Jan83         SPECIAL EVENT - OUTAGE
0016 01Jan83 4300001 US 35 SLOT 2 REPLACE FAILED TDC3000 LCNI CTRL             QTL LCNI MEDIA DEAD
0030 01Jan83 4300002 US 35 SLOT 2 REPLACE FAILED TDC3000 LCNI CTRL             QTL LCNI MEDIA DEAD
0236 01Jan83 4300003 US 35 SLOT 2 REPLACE FAILED TDC3000 LCNI CTRL             QTL LCNI MEDIA DEAD
0450 01Jan83         TIME CHANGE EVENT - 0450 01Jan83
1138 02Jan83 4300004 HG 42 SLOT 3 REPLACE MARGINAL 768KW MEMORY BOARD          OPA EXCESS SOFT EDAC ERRORS
2335 04Jan83         TIME CHANGS EVENT - 0000 09Sep86
```

Figure 3-6 — System Maintenance Journal (Print All) 3875

3.3 ACTIVE MAINTENANCE JOURNAL

3.3.1 Call-Up Steps for Active Maintenance Journal

From the SMCC Main Menu, select ACTIVE MAINT JOURN to bring up the Active Maintenance Journal display (Figure 3-7). This display is a submenu with six choices (picks). The displays and functions called by these picks are discussed in the following paragraphs.

If ACTIVE MAINT JOURNAL is selected in a system without a History Module, an error message appears.

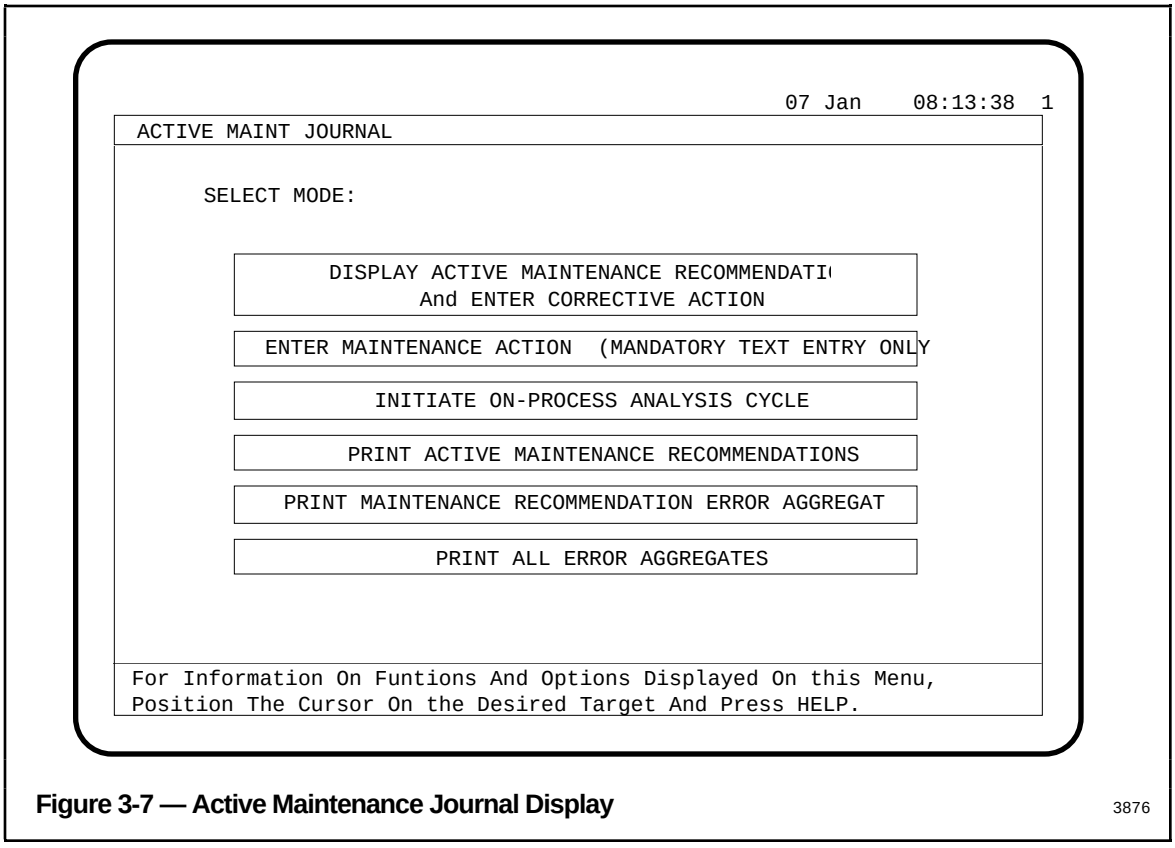

Figure 3-7 — Active Maintenance Journal Display 3876

3.3.2 Purpose and Options for Active Maintenance Journal

3.3.2.1 Display Active Maintenance Recommendations and Enter Corrective Action

This display is used both as a reference source for viewing current maintenance recommendations and as the method for indicating that a recommended action has been acted upon. When this option is picked from the Active Maintenance Journal display, the Active Maintenance Recommendations and Enter Corrective Action display shown in Figure 3-8 appears. The only option is the choice of selecting the display of recommendations for a single module (by its LCN address) or selecting the display of recommendations for ALL modules.

```
 0758 27 Jul 90   ACTIVE MAINTENANCE RECOMMENDATIONS JOURNAL   PAGE 1

 TIME:   DATE  :EVENT:                INSTRUCTION
     :         : S/N :

                        NO SELECTED ENTRIES IN JOURNAL
```

Figure 3-8 — Selection of Active Maintenance Recommendations 3877

The resulting multipage display of Active Maintenance Journal Data is shown in Figure 3-9. You can enter a Corrective Action message while the Maintenance Recommendation that you are interested in is on view. This requires entry of text that specifies the action taken. This text does not need to match the recommended action text, because an alternative solution may have been selected, but there is an audible signal given if it does not. Entry without text is not accepted.

To make a Corrective Action entry, first key the action text into the ENTER CA TEXT port at the bottom of the screen. Then, move the cursor to anywhere on the line that shows the Maintenance Recommendation and press ENTER.

Entry of the corrective action produces several results. The Corrective Action message is recorded in the System Maintenance Journal and on the Real Time Journal. The Maintenance Recommendation is removed from the Active Maintenance Journal and OPA prepares the printable error-aggregate file associated with that recommendation (see paragraph 3.3.2.5 for an explanation of the content and use of this file).

Tracking mechanisms within On-Process Analysis ensure that the problem associated with the Maintenance Recommendation has been taken care of before error information associated with it is deleted from the files of error aggregates.

CAUTION

If you fail to make corrective action entries whenever an ORU is replaced or other repair action is taken, new problems with that ORU may not be annunciated.

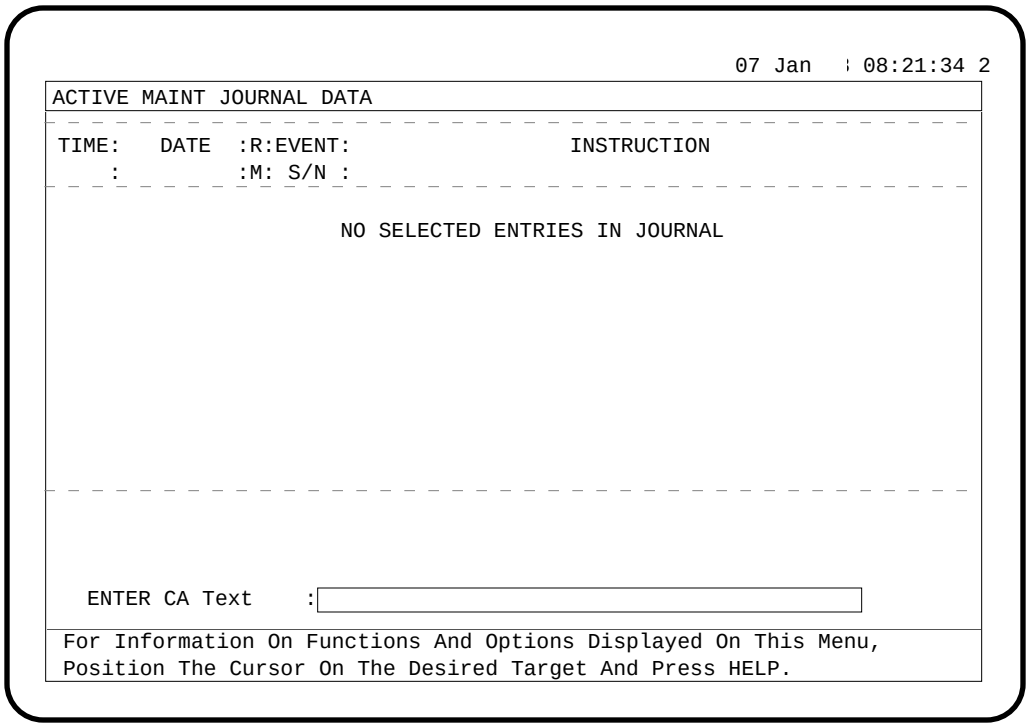

Figure 3-9 — Active Maintenance Journal Data Display

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3.3.2.2 Enter Maintenance Actions

This function allows entry of a maintenance action not associated with a Maintenance Recommendations Message to the Real Time Journal and the System Maintenance Journal (e.g., air filter changes, printer ribbon change, etc.).

Figure 3-10 illustrates this display. The message is not accepted if there is no text.

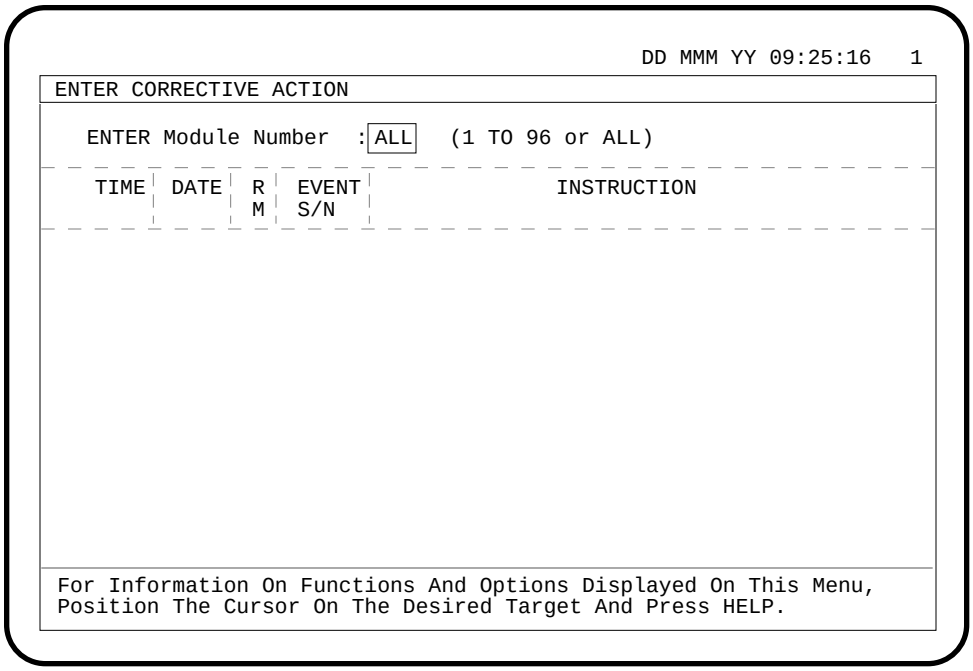

Figure 3-10 — Enter Maintenance Action Display

3.3.2.3 Initiate the On-Process Analysis Cycle

There is no display associated with this function. Its selection results in the invocation of an immediate On-Process Analysis cycle (normally occurs at 8-hour intervals).

NOTE

If the board type for a slot with recorded errors changes, OPA ignores subsequent errors for that slot until either the original board type reappears in that slot or the HM is reconfigured, thus clearing OPA files.

3.3.2.4 Print Active Maintenance Recommendations

This selection initiates printout on the local printer of all Active Maintenance recommendations as shown in Figure 3-11. There is no associated display.

```
        2241 09 Sep 86              ACTIVE MAINTENANCE RECOMMENDATIONS JOURNAL                    PAGE 1
TIME:  DATE: :R:EVENT:                                          INSTRUCTION
   :       :M  S/N :

0016 01Jan83 4300001 US 35 SLOT 2 REPLACE FAILED TDC3000 LCNI CTRL              QTL LCNI MEDIA DEAD
0030 01Jan83 4300002 US 35 SLOT 2 REPLACE FAILED TDC3000 LCNI CTRL              QTL LCNI MEDIA DEAD
0236 01Jan83 4300003 US 35 SLOT 2 REPLACE FAILED TDC3000 LCNI CTRL              QTL LCNI MEDIA DEAD
1138 02Jan83 4300004 HG 42 SLOT 3 REPLACE MARGINAL 768KW MEMORY BOARD           OPA EXCESS SOFT EDAC ERRORS
```

Figure 3-11 — Sample Active Maintenance Recommendations Listing 3880

3.3.2.5 Print Maintenance Recommendations Error Aggregate

This selection initiates printout of the error aggregate associated with the the most recent Maintenance Recommendation for which there was a Corrective Action entry. The form of the printout is shown in Figure 3-12. There is no associated display.

This printout must be requested in a timely manner, because the file will be overwritten by the next Corrective Action entry. The intent is that this printout will be included with the replaced ORU when it is returned to a repair facility.

```
        1036 21 Nov 85              CORRECTED MAINTENANCE RECOMMENDATION ERROR AGGREGATE
US    35  SLOT  10  256KW MEMORY BOARD
   EXCESS SOFT EDAC ERRORS                 001.0 PER DAY                INCREASING
```

Figure 3-12 — Sample Corrected Maintenance Recommendations Error Aggregate Listing 3881

3.3.2.6 Print All Error Aggregates

This selection initiates printout of all error aggregates held by OPA. The form of the printout is shown in Figure 3-13. There is no associated display.

This printout provides visibility of "hidden" system errors and provides the maintenance technician with an overview of hardware and communication errors. This file does not include software errors.

```
        1410 27 JUL 90                          ALL ERROR AGGREGATES
US    1 SLOT  3 FLOPPY DISC DRIVE 01
   FD CRC DATA ERROR                   001.5 PER MILLION TRANSACTION DECREAS:     0.00
   FD MISS AD MARK DATA ERR            000.5 PER MILLION TRANSACTION DECREAS:     0.00
   FD CRC ERROR ID FIELD               000.5 PER MILLION TRANSACTION DECREAS:     0.00
   FD MISS AD MARK ID FUELD            000.5 PER MILLION TRANSACTION DECREAS:     0.00
   FD SECTOR NOT FOUND                 000.5 PER MILLION TRANSACTION DECREAS:     0.00
   FD SEEK ERROR                       000.5 PER MILLION TRANSACTION DECREAS:     0.00
   FD SEEK TIMEOUT                     000.5 PER MILLION TRANSACTION DECREAS:     0.00
   FD DEVICE FAULT                     000.5 PER MILLION TRANSACTION DECREAS:     0.00
```

Figure 3-13 — Sample All Error Aggregates Listing 3882

3.4 REV/CONFIG STATUS

3.4.1 Call-Up Steps for Rev/Config Status

From the SMCC Main Menu, select `REV/CONFIG STATUS` to bring up the Rev/Config Status display (Figure 3-14).

3.4.2 Purpose and Options for Rev/Config Status

This function provides display of the revision status (hardware, firmware, and software) and the operational status of all Optimum Replaceable Units (ORUs) in a selected module. The only data entry for this function is the module physical address.

Where information does not apply or is not available, the appropriate field in the display is blanked out. For modules requiring more than one page of data, the display can be paged.

If the node is not loaded with a personality, or data has been corrupted (failed module), the data is not displayed.

3.4.3 Uses for Rev/Config Status

- Verify hardware-/firmware-/software-revision compatibility.
- Check that memory size is adequate to support personalities.
- Verify suitability (type and revision status) of replacement boards.
- Check operational status and configuration of the module.

```
                                                    27 JUL    14:14:43  2
REV / CONFIG STATUS

                  Module Number     01              PRINT    $PI

SLT:ORU/DEVICE: BOARD  :DEVICE : HW: HW: FW: FW:  FW  :     COMMENTS
 # :   TYPE   : STATUS :STATUS :VER:REV:VER:REV: TYPE :
 1   HPK2-3MW   GOOD             4   G   0   B     1
      RS232              GOOD                              MEDIA GOOD
 2   LCNI       GOOD             0   H   0   C     1
      LCN-A              GOOD
      LCN-B              GOOD
 3   FDC        GOOD             0   J   0   J     1
      DRV-1              PRESENT
      DRV-2              PRESENT
      PWR                GOOD
 4   EPDG/SCSI  GOOD             2   E   1   D     1
                GOOD             2   E   1   D     1
      KBD                GOOD
      EXPAN              GOOD
 10  EMEM1024   GOOD             1   E                 START 680000 HEX
    SOFTWARE  =  30.18  (VERSION.REVISION

 For Information On Functions And Options Displayed On This Menu,
 Position The Cursor On The Desired Target And Press HELP.
```

Figure 3-14 — Rev/Config Status Display 3883

3.5 MODULE ERROR

3.5.1 Call-Up Steps for Module Error

From the SMCC Main Menu, select MODULE ERROR to bring up the Module Error submenu (Figure 3-15). Now, select either MODULE ERRORS SUMMARY or DETAILED MODULE ERRORS.

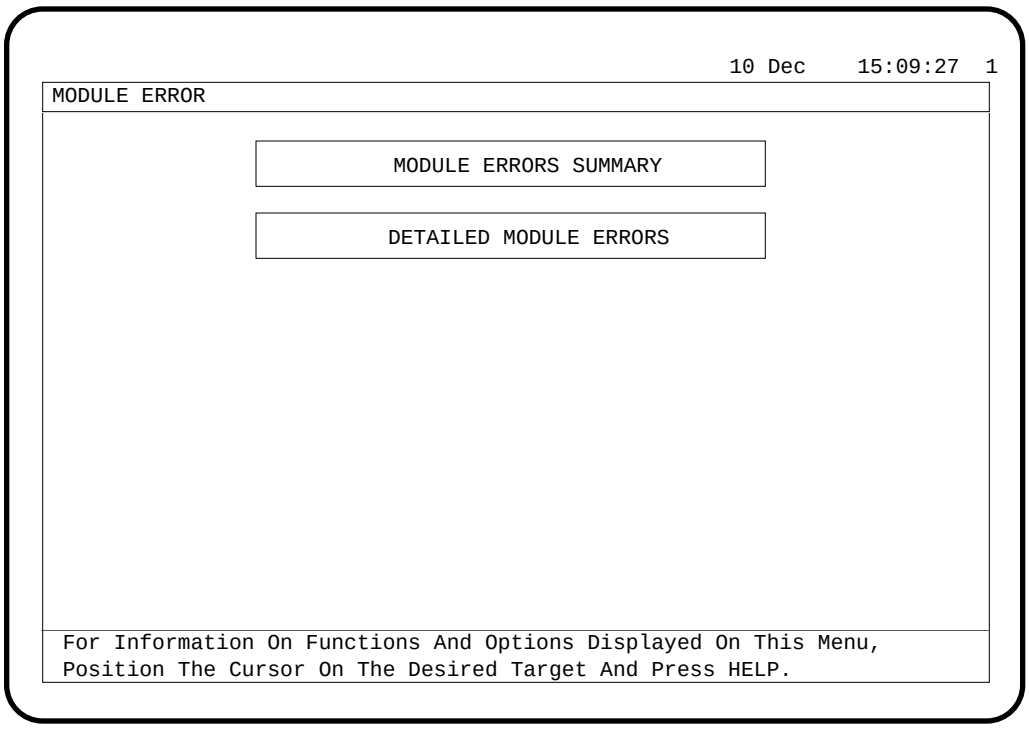

Figure 3-15 — Module Error Submenu

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3.5.2 Purpose and Options for Module Error Displays

The Module Error Summary display, when first called up (Figure 3-16), allows selection of a module. Any module can be selected, including the Universal Station running the SMCC functions.

After entry of a physical node address, the display is updated to show the oldest 16 of up to 32 stored errors—hardware, software, and communication—for the selected module (Figure 3-17). The display can be paged.

If the node is not loaded with a personality or data has been corrupted (failed module), the data is not displayed.

The Detailed Module Errors display, when first called up, provides for module selection (Figure 3-18).

After module selection, the display is updated to show detail of the oldest stored error for the selected module (Figure 3-19). You can now page through the display to view the details of all stored errors for that module.

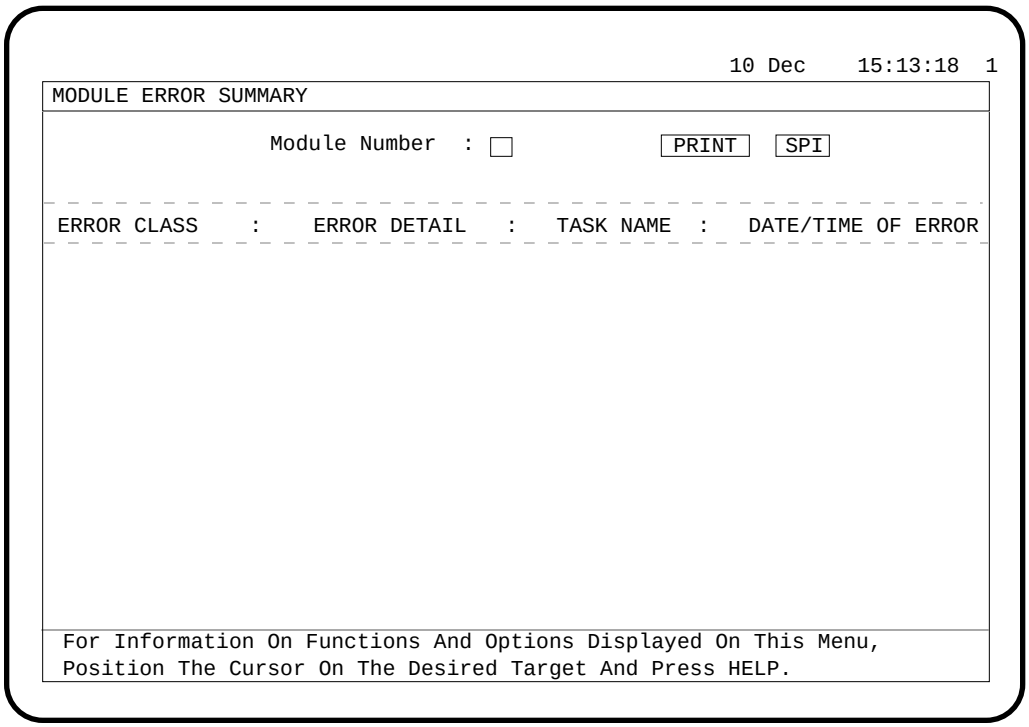

Figure 3-16 — Module Error Summary Display 3886

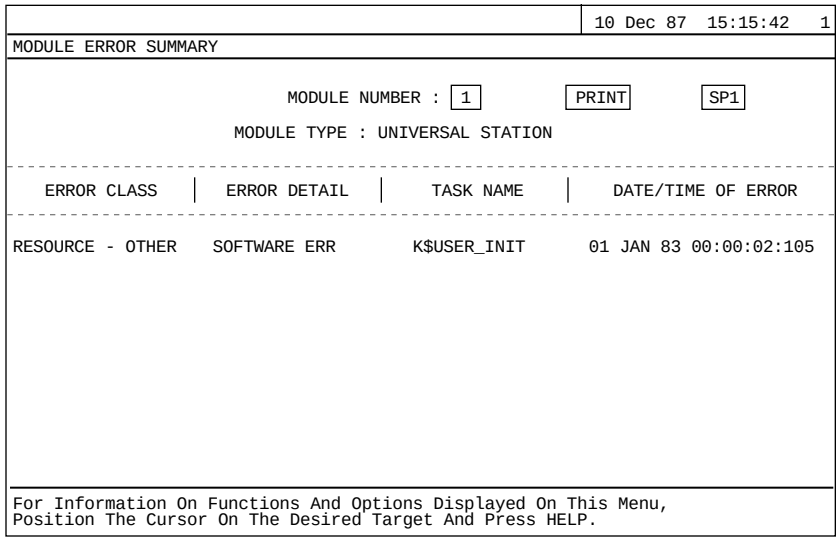

Figure 3-17 — Module Error Summary Display 6137

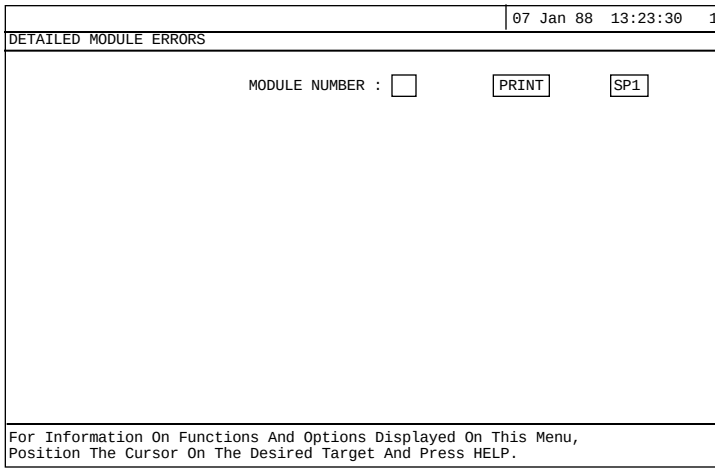

Figure 3-18 — Detailed Module Errors Display 3101

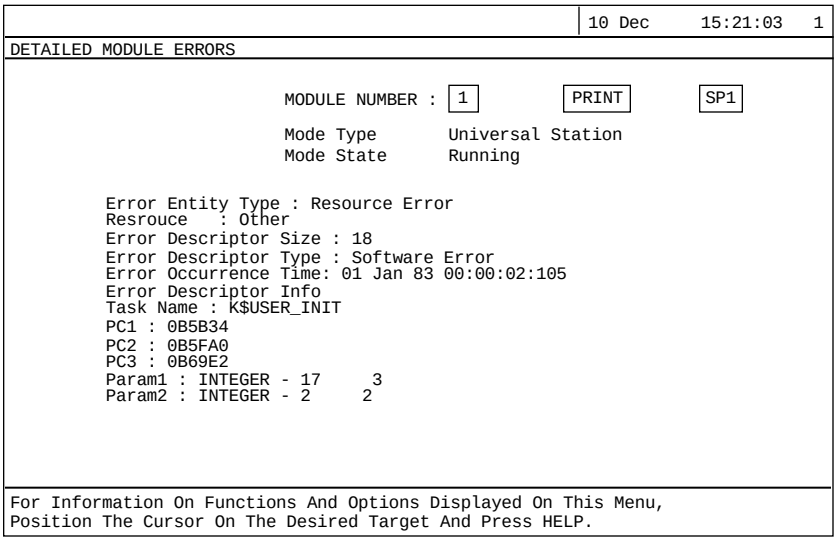

Figure 3-19 — Detailed Module Errors Display 3102

The top line of text in the display contains an error message. The error message in Table 3-1 identifies the recoverable situations in which the user-correctable errors are located. These errors are correctable by the user.

Table 3-1 — Category A Error Messages—User Usage

Message	Example
SYS: Unable to Open NCF File	$D_Open_File(NCF),$Read_NCF,$Open_NCF, etc
SYS:Unable to Read Unit Directory File	Read_Record_From NCF(NCF_Dir.begin_ Units),etc
FS:Unable to Define Logical Device	$Define_LDID,$FM_Define_Logical_Device, etc
SYS:Unable to Mount NCF Volume	$Mount_NCF,etc
SYS:Firmware Revision Mismatch	MCT^(Counter) Board_Id.Board.Hardware_Revision<X,etc
SYS:NCF File I/O Error	FMRB^.Status<>$FMS_Success {NCF},etc
SYS:Operator Aborted Load	Operator enters other than 'N','1','2','3','4' on node lode
SYS:Not Enough Physical Memory	Self-Explanatory
SYS:Unable to Read Area Database	Read_Record_From NCF(NCF Directory. Begin_Units),etc
SYS:Unable to Read Console Data	Read_Record_From NCF(NCF Directory. Begin_Consoles),etc
SYS:Node Number Not Configured in NCF	Self-Explanatory
SYS:Possible NCF Corruption	Self-Explanatory
SYS:Unable to Reset Annunciator Or Backlights	Self-Explanatory
SYS:Hardware Revision Mismatch	Self-Explanatory
SYS:Software Revision Mismatch	Self-Explanatory
SYS:Personality Not Found	Self-Explanatory
SYS:NCF Not Found On Net>&ASY	Self-Explanatory
SYS:Unable to Enable Floating Point Exception	Self-Explanatory
SYS:NCF File Revision Error	Self-Explanatory
SYS:Node Number Error or Invalid Console Error	Node Number not configured in NCF or console error

Table 3-2 messages indicate a situation that is unrecoverable by the user. These situations cannot be arrived at normally. Call the Honeywell Technical Assistance Center (TAC) at the number listed on the Reader's Comments sheet at the back of this publication.

Table 3-2 — Category B Error Messages—Technical Assistance Center (TAC) Usage

Message	Example
No Message Available	Self-Explanatory
OS:Error Building NA Database	$Add_PN_To_DB,$Allocate_LNI_From Pool,etc.
OS:Unable to Allocate Internal Structure	$Allocate_Semophore,$Get_Semaphore,etc
OS:Error Building WM Database	$Create_Job_Directory_Entry,etc
DA:Error Building Name Table	$D_Establish Name_Directory,$D_ Enter Name_Locally,etc
OS:Unable To Allocate Heap Memory	$D_Get_FM_Request_Block,$Get_ Memory,etc
OS:Internal MTOS Error	$Establish_Task,$Synchronize,etc
OS:Unable to Access Internal Structure	$Read_Pointer,$Write_Pointer,etc
CPU:Trap Exception	Self-Explanatory
AR:Unable to Copy Critical Display to Memory	Self-Explanatory
SYS: Verification Error	Self-Explanatory
SYS:Unable to Establish LNA/LNI	Self-Explanatory
SYS:Global Console LDID Table Overflow	
SYS:Logic Error	Program Logic Errors and Miscellaneous

3.5.3 Uses for Module Error Displays

- Observing network errors between modules.
- Observing local-node hardware/software errors.
- Reporting program counters for software errors.

NOTE

These error codes are not listed here—they are intended for Honeywell error analysis only.

3.6 HIWAY BOX MEMORY

3.6.1 Call-Up Steps for Hiway Box Memory

From the SMCC Main Menu, select HIWAY BOX MEMORY to bring up the Hiway Box Memory display (Figure 3-20). Completion of entry of required and optional data in that display calls up the Hiway Box Memory Data display (Figure 3-21), which contains the requested memory display.

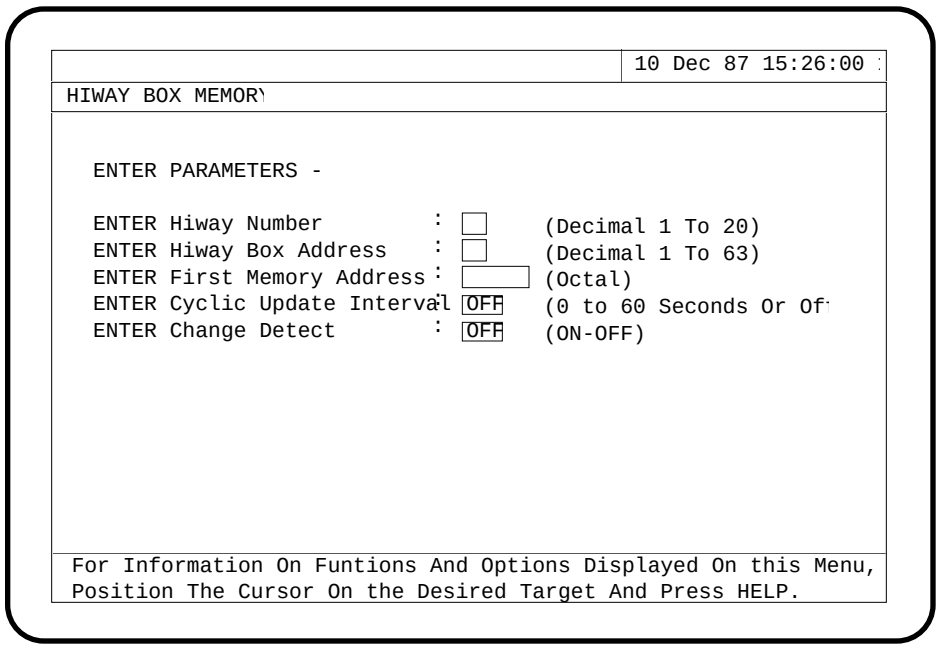

Figure 3-20 — Hiway Box Memory Display 3887

3.6.2 Purpose and Options for Hiway Box Memory

This function provides the ability to view the memory contents (in octal format) of any Data Hiway box connected to this LCN by an on-process Hiway Gateway.

Required entries made from the Hiway Box Memory display are Hiway Number, Hiway Box Address, and First Memory Address.

The box's memory contents are shown by the Hiway Box Memory display in 64-word groups, starting with the specified memory address. You can "page" forward or backward from this point.

When the Cyclic Update option is selected, the memory segment on display is updated at the specified rate.

The Change Detect option monitors the display updates, and any changed locations are displayed in white. Change Detect Reset clears the changed values back to the original color, but does not interfere with the Change Detect option on subsequent cyclic updates.

3.6.3 Uses for Hiway Box Memory

- Decoding system-defined error structures from the displayed values.
- Observing suspicious data changes.
- Observing sequencing by counters.
- Observing key system parameters in real time.

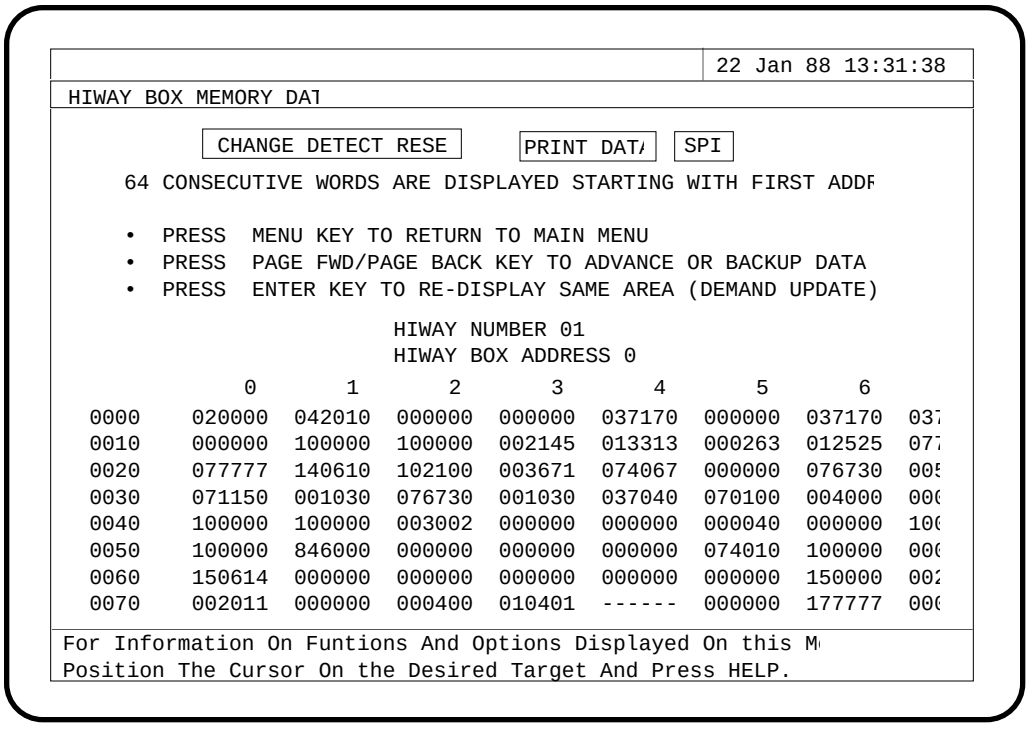

Figure 3-21 — Hiway Box Memory Data Display 3888

3.7 PROBE FAILED MODULE

3.7.1 Call-Up Steps for Probe Failed Module

From the SMCC Main Menu, select PROBE FAILED MODULE to bring up the SMCC Probe Failed Module display (Figure 3-22). Completion of entry of required data in that display calls up the Probe Failed Module Memory Data display (Figure 3-23), which contains the requested memory display.

3.7.2 Purpose and Options for Probe Failed Module

This is the only function that allows display of memory of a module not in the "running" state. It provides display of both memory and any memory-mapped board-status registers of a module in "failed" state, as long as its LCN interface is not affected.

Required value entries made from the Probe Failed Module display are Module Number and First Memory Address.

The module's memory contents are shown by the Probe Failed Module Memory Data display in 64-word groups, starting with the specified memory address. You can "page" forward or backward from this point.

3.7.3 Uses for Probe Failed Module

- After a catastrophic failure of a module, observing its memory contents to allow the decoding of indications of what software task has failed.

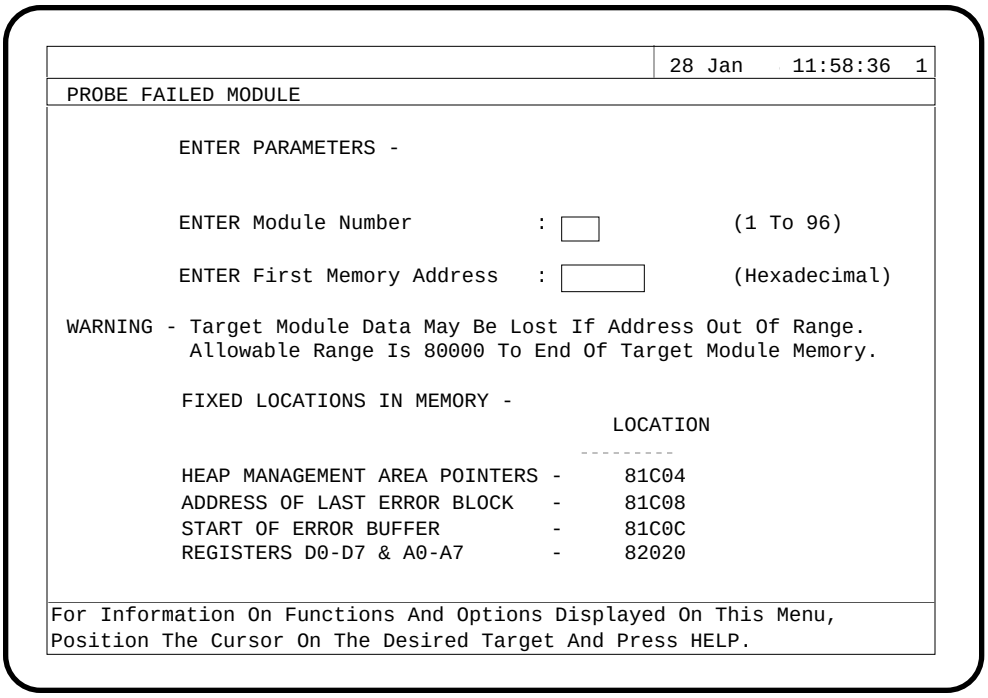

Figure 3-22 — Probe Failed Module Display 3889

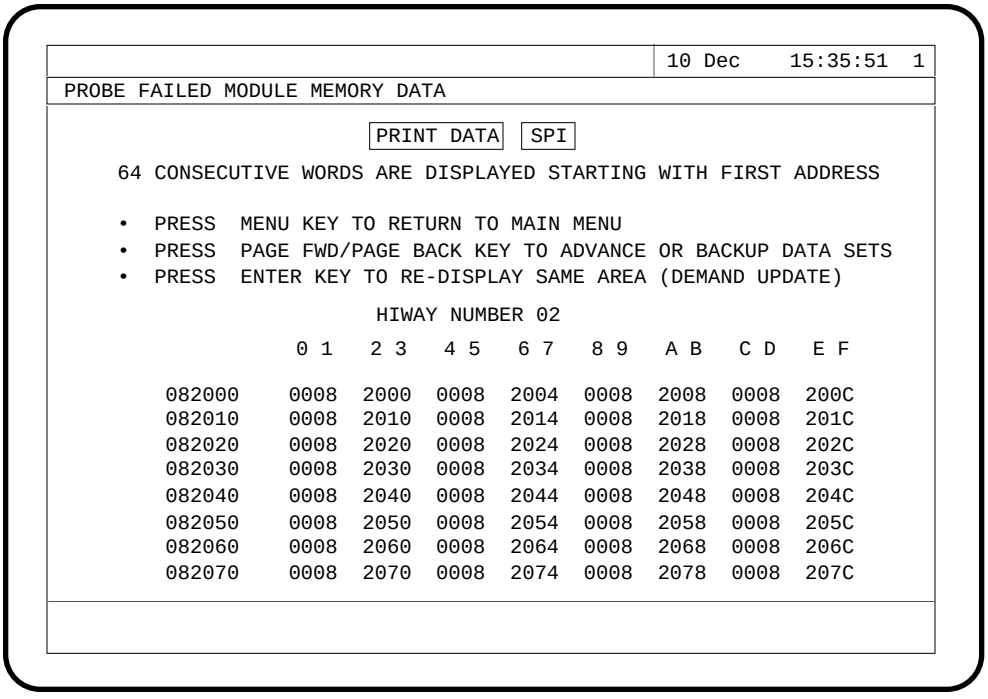

Figure 3-23 — Probe Failed Module Memory Data Display 3890

3.8 SECTOR INITIALIZATION/REASSIGNMENT

3.8.1 Callup Steps for Sector Initialization/Reassignment

From the SMCC Main Menu, select `SECTOR INIT./REASSIGN` to bring up the SMCC Sector Initialization/Reassignment display (Figure 3-24). After entry of required data in that display, an ENTER will call up another version of the Sector Initialization/ Reassignment display (Figure 3-25) that will ask for verification of the entries.

The input data is validated in the following manner.

- Module Number — the module number is type and range checked. If the input is a valid number, SMCC then verifies that it is an HM module type.
- Drive Number — the drive number is checked against the drive numbers associated with the requested HM and that it is in the proper state.
- Sector Number — the sector number must be nonzero and a valid hex address.

3.8.2 Purpose and Options for Sector Initialization/Reassignment

The purpose of the display is to allow initialization or reassignment of the specified sector.

3.8.3 Uses for Sector Initialization/Reassignment

The input data for the display comes from a system event; either a maintenance recommendation or an auxiliary node status message.

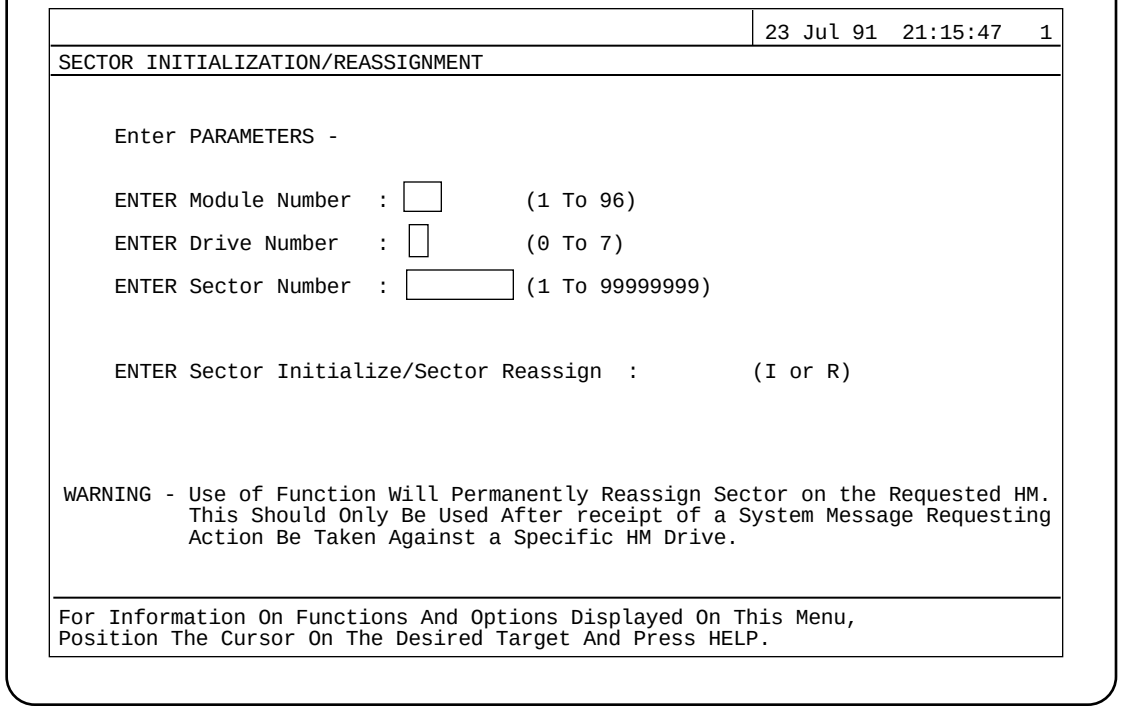

Figure 3-24 — Sector Initialization/Reassignment Display 6138

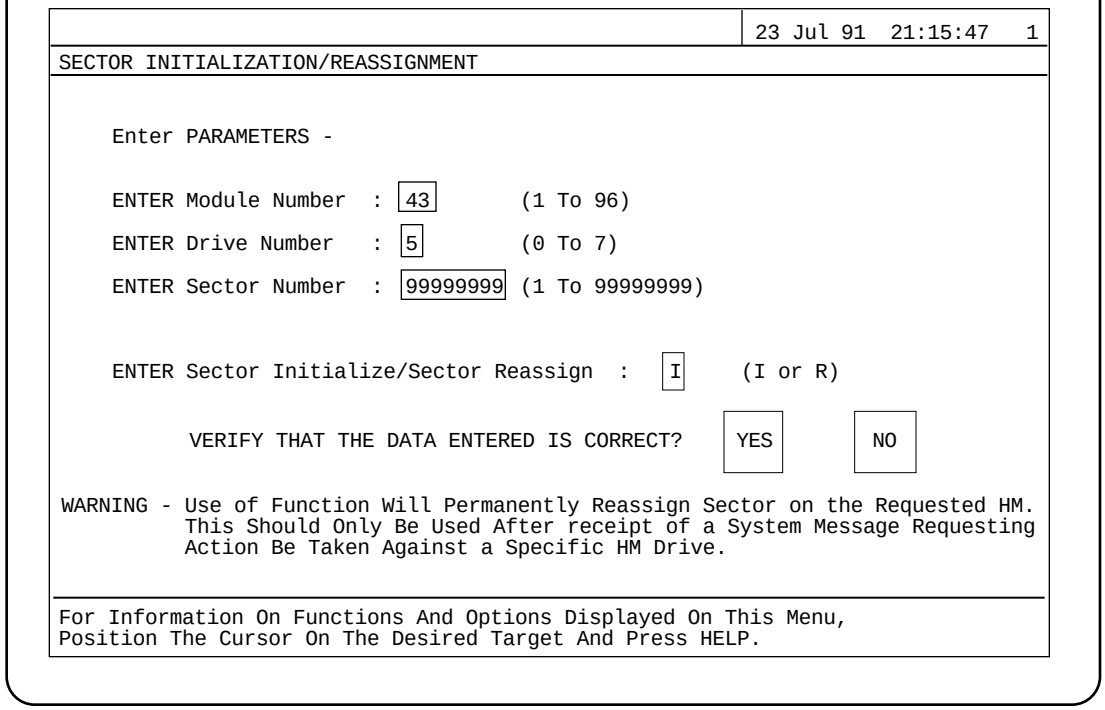

Figure 3-25 — Sector Initialization/Reassignment Display After Verification 6139

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