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M.S. J-10
HED AZ07

September, 1982
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APPENDIX A DPS8 52/70 OPERATOR MANUAL

APPENDIX B DPU
Figure 1-1
FOUR DPS8 PRODUCT LINE MODELS

- DPS8/70
- DPS8/52
- DPS8/44
- DPS8/20

POWER RANGE OF ALMOST 17 TIMES,
FROM SMALLEST TO LARGEST

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Figure 1-3
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# DPS8 Model Numbers

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Figure 1-3
Sheet 2 of 2
DPS8 FEATURES

DPS 8/70 AND DPS 8/52

• Use New LSI and MSI Circuits

• High Density Boards
  - 33% Reduction in Board Count
  - 25% Reduction in Footprint
  - 22% Reduction in Power Requirements

• Microprocessor Based Maintenance/Diagnostic Features
  - Future Growth of DMS Concept
  - Future Remote Diagnosis

• Microprocessor in New Console Controller
  - Utilization of Standard Terminals

• Automatic Switching of Blower Speed
  - Temperature Dependent
  - Reduced Noise Levels

Figure 1-4
DPS8/70 - NEW TOP-OF-THE LINE POWER

- Power range of 40% to 70% greater than previous single processor models
- GCOS 3, GCOS 8, and CP6 are supported
- Central System includes: min.
  - Central Processor with 32KB Cache 8K words
  - IOM
  - SCU
  - One MB Memory
- Up to three additional processors, IOM's, SCU's, can be configured.
- Additional Memory supported
  - GCOS - 16 MB Maximum
  - GCOS 8/CP6 - 64 MB Maximum Virtual
- Up to eight FNP's are supported.
  - DATANET 6641 or DATANET 6651
- All standard Level 66/DPS Peripherals are supported.
- Up to four consoles supported.
  - One CSU6601 Console is required
  - CM66 is supported.

DPS8/70 Power Range
Figure 1-5
NEW OPERATING SYSTEM - GCOS 8

• Based on proven multidimensional, multi-processing design of GCOS.

• Features full compatibility with GCOS, a design first, with a major new operating system.

• Designed to improve efficiency and ease of use.

• Features "Integrated Transaction Processing" (ITP)
  • Improved efficiency, ease of use
  • Major departure from traditional Execs TP an inherent characteristic.

• Features dynamic memory management for unlimited program size (virtual).

Figure 1-6
EXTENDED STORAGE ADDRESSING CAPACITIES

VIRTUAL STORAGE (DISK)

REAL STORAGE (MAIN FRAME)

- TO 8 TRILLION BYTES
- "WILL THAT BE ENOUGH, SIR?"

TO 64 MILLION BYTES

- GREATER MULTIPROGRAMMING DEPTH
- LARGER PROCEDURES -
  - BASICALLY UNLIMITED SIZE
- SUPPORT OF FASTER PROCESSORS
- SUPPORT OF LARGE POOLED BUFFERS

Figure 1-7
SOPHISTICATED STORAGE MANAGEMENT - REAL AND VIRTUAL

- Storage Hierarchy

VIRTUAL STORAGE size of system

WORKING SPACES

SEGMENTS

PAGES

REAL STORAGE

Transfer

Figure 1-8
System Memory
Figure 1-9

REV. 1
"FIELD ENGINEERING DIVISION'S SYSTEMATIC APPROACH TO MAINTENANCE"

- **REMOTE MAINTENANCE CONTRACTS**
  - Customer calls single 800 toll-free number for service. (Nationwide response center)
  - Technical Assistance Center specialist returns customer's call for problem diagnosis over the phone (remote maintenance).
  - TAC access to customer system is via the DPU remote comm line.
  - TAC specialist performs extensive hardware/software diagnosis of customer problem.
  - TAC specialist determines failing component (optimum replaceable unit, or ORU).
  - TAC calls response center with identical ORU for dispatch of local Level 1 FER for replacement and test.
  - Further troubleshooting by on-site FER with TAC support if identified ORU is not the fix.

- **ON-SITE MAINTENANCE CONTRACTS**
  - Customer requests on-site FER give assistance with the problem.
  - Level 1 FER runs Test and Diagnostic programs locally, to obtain automatic ORU call out.
  - FER replaces called out ORU and re-tests for proper operation.
  - For failures not diagnosed by T&D to an ORU, the Level 1 FER calls TAC directly for support.
  - On-site Level 2 FER does diagnosis to ORU as TAC specialist would do remotely.

- **CUSTOMER SERVICE ACCOUNT REPRESENTATIVE "CSAR"**
  - Individual FER assigned as Honeywell's representative to personally deal with the customer and his/her problems.
MAJOR UNIT DESCRIPTION: FREE-STANDING CENTRAL PROCESSOR SYSTEM WITH MEMORY

INCLUDES:
Central Processor
Central Processor Addressing
Free-standing I/O Multiplexer w/35 Channel Function Slots
I/O Multiplexer Addressing
I/O Multiplexer Data Rate Expansion
System Control Unit (Supports up to 8MB Memory)
1MB of Main Memory
Memory Addressing Included

CONFIGURABILITY:
Additional CPU: None
CM66: Available with CCOS (III) only
Memory Sizes: 1MW, 2MW, 4MW
Memory Addressing: Included
Additional SCU: None
Additional IOM: None
Mass Storage: (Processors) MSP0606/0609
(Units) MSU0400/0402/0451/0500/0501
Magnetic Tape: (Processors) MTP0610
(Units) MT0400/0419/0411/0412/0500/0606/0610
Unit Record: (Processors) URP0600/0602
(Printers) PRU1100/1200/1600
(Cards) CRU0501/1050, CCU0401,
PCU0210/0121, PCU0300
Document Handler: (Processors) DHP0700/0701
(Units) DHU0800/1600 Series
Communications: DCU6641/6651 (Two Maximum)
IOM Expansion: 19 Additional Channel Function Slots (MXF6005)
System Console: CSU6601, CSU6004, CSU6005
(Two Maximum)

Figure 2-2
MAJOR UNIT DESCRIPTION: FREE-STANDING CENTRAL PROCESSOR SYSTEM WITH MEMORY

INCLUDES:

Central Processor
Central Processor Addressing
Free-standing I/O Multiplexer w/35 Channel Function Slots
I/O Multiplexer Addressing
I/O Multiplexer Data Rate Expansion
System Control Unit (Supports up to 16MB Memory GCOS 8: 8MB Memory GCOS III)
1MB of Main Memory
Memory Addressing Included

CONFIGURABILITY:

Additional CPU: Three*
CM66: Available with GCOS (III) only
Memory Sizes: 1MW, 2MW, 4MW, 8MW, 16MW
Memory Addressing: Included
Additional SCU: Three MXC8001
Additional IOM: Three MUX6002
Mass Storage: (Processors) MSP0607/0609
(Units) MSU0400/0402/0451/0500/0501
Magnetic Tape: (Processors) MTP0610
(Units) MTU0400/0410/0411/0412 0500/0600/0610
Unit Record: (Processors) URPO600/0602
(Printers) PRU1100/1200/1600
(Cards) CRU0501/1050, CCU0401, PRU0120/0121, PCU0300
Document Handler: (Processors) DHP0700/0701
(Units) DHU0800/1600 Series
Communications: DCU6641/6651 Maximum of Eight
IOM Expansion: 19 Additional Channel Function Slots (MXF6005)
System Console: CSU6601, CSU6004, CSU6005,
(Maximum of Four)

Figure 2-3
WCPU66EA, DPS-E PROCESSOR

Interim CPU-5
Figure 2-5
Interim CPU-66E Logic Board Layout

Figure 2-6
Early Cycle Control SCUMB/SCUMM*
2 B
2 C Store Select SCUNE
2 D
2 E Late Cycle Control SCUMB/SCUMJ**
2 F
2 G XEC Cells SCUMD
2 H
2 J Configuration SCUMC
2 K
2 L Clock/History Registers SCUMF
2 M
2 N Store Port A SCUMP
2 P Store Port A1 SCUMP
2 Q Store Port B SCUMP
2 R Store Port B1 SCUMP
2 S System Port 0 SCUMX
2 T System Port 1 SCUMX
2 U System Port 2 SCUMX
3 A System Port 3 SCUMX
3 B System Port 4 SCUMX
3 C System Port 5 SCUMX
3 D System Port 6 SCUMX
3 E System Port 7 SCUMX
3 F Termination Board SCUMT
3 G
3 H Cache Clear Option SCUMH***
3 J

*WSCUMMA uses SCUMB.
WSCUNSA uses SCUMM.

**WSCU003 uses SCUMB unless WHCC001A is installed, then SCUMJ is used.
WSCU004 uses SCUMJ Standard.

***Installed when Hardware Cache Clear (8K Cache) Option used. All models
WSCUNSA must also be installed.

4-Megaword SCU Physical Layout
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<th>NSBIM Scratchpad Board</th>
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<td>NSAM6 Data Board 2</td>
</tr>
<tr>
<td>NSAIG Parts Board</td>
<td>NSAIG Boms Board</td>
</tr>
<tr>
<td>6451D Data Board 2</td>
<td>6451D Data Board 2</td>
</tr>
<tr>
<td>NSAIF Data Board 4 Size Plug</td>
<td>NSAIF Maint. Board 1</td>
</tr>
<tr>
<td>NSAIF Maint. Board 1</td>
<td>NSAIF Maint. Board 2</td>
</tr>
<tr>
<td>NSAIK Overhead Board</td>
<td>NSAIK Overhead Board</td>
</tr>
<tr>
<td>NSAIB Control Board 2</td>
<td>NSAIB Control Board 2</td>
</tr>
<tr>
<td>NSAIA Control Board 1</td>
<td>NSAIA Control Board 1</td>
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**NSA IOM Physical Layout**

Figure 2-8
DPS-E Central Processor Unit Physical Layout

Figure 2-9

LOW PROFILE
DPS-E Central Processor Unit Board Layout
Figure 2-10 Low Profile
Lo Profile SCU Physical Layout
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<th>ACTIVE PORTS</th>
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<td>J</td>
</tr>
<tr>
<td>B</td>
<td>K</td>
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<tr>
<td>C</td>
<td>L</td>
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<td>D</td>
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<td>L</td>
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</table>

Lo Profile SCU Memory Board Layout
Figure 2-12
25
REV. 1
LO PROFILE INPUT/OUTPUT MULTIPLEXER

Physical Layout (IOM-E)
Figure 2-13
DPU with Minimum Diagnostic Hook-up

Figure 2-16
CPU-E Diagnostic Bulkhead Connector
Figure 2-17
CONJK Board Installed
Figure 2-18

Console Bulkhead Connectors
Figure 2-19
DPS Sample Hookup
Figure 2-20

REV. 2
33/34
DC CONVERTER
4 PIN PLUG

TWISTED PAIR

WZ01 WHITE

WZ03 BLACK

WA

WE

WZ

WF

WJ

WK

WA08

WK18

DC CONVERTER CONNECTIONS TO CONJK BOARD BACKPANEL PINS

CONJK Board Auxiliary Backpanel Power Connection
Figure 2-21
REMOTE MAINTENANCE PROM CHIP

CONJK Board Physical Layout
Figure 2-22
DOT ON SWITCH INDICATES POSITION

CHAN. NO
LOCAL - REMOTE

1 2 3 4 5 6 7

IF SWITCHES 6 AND 7 ARE THE SAME, SINGLE CHAN. IF DIFFERENT, DUAL CHAN.

UPPER BITS OF CHANNEL NUMBER

LOWER BITS OF CHANNEL NUMBER

0 1 1 1 1 0 -
3 68

30_{10} PRIMARY CHANNEL NUMBER (LOCAL)

0 1 1 1 1 - 1
3 78

31_{10} SECONDARY CHANNEL NUMBER (REMOTE)

CONJK Board Channel Number Select Switches
Figure 2-23
CPU-E PORT CABLE INSTALLATION

LD  LC  LB  LA  RD  RC  RB  RA
PORT A PORT B PORT C PORT D

ETCCD1

P2

ETCCD2

P3

ETCCD3

P4

DATA BOARDS

ETCCD4

P5

ETCCD5

P6

ETCCD6

P7

PORT A PORT B PORT C PORT D

ETCCOM (COMMAND)

P10

CPU

CABLE 58066549

EXAMPLE SHOWS PORT D CONNECTED

REV. 2
Figure 2-24
39/40
CPU-E CONFIGURATION PANEL

This is a new configuration panel which contains the combined features of the LKAB standard configuration panel and the NSA configuration panel. In addition to containing all of the capabilities of the LKAB processor panel, the new configuration panel includes certain features of the processor configuration panel, including the Test-Normal switch which provides the operator with the capability to initialize and clear the CPU as well as to execute a fault condition. The Test-Normal switch is used as a security feature to prevent accidental maintenance access to an active processor. When the Test-Normal switch is in the "NORMAL" position, only the SMP self-test may be executed. In the "TEST" position, the SMP allows the complete range of CPU and SMP MAINTENANCE FUNCTIONS.

On multiprocessor systems where one of the CPU’s is to be tested while the system (and other processors) remain up, it is recommended that the processor ports of the processor being tested be disabled by the adjacent processor configuration panel. This would limit the number of diagnostic tests only. These ports would then be enabled for any additional tests that involve CPU or memory. In other words, remote maintenance will require assistance since the operation of removing the system may be breached by leaving the CPU in the Test mode during normal operation. This is a decision to be made by the site operator and PEO to facilitate local or remote maintenance.

The switching of the Test-Normal to either of its modes will not affect the operation of the processor.

A "BUST" indicator is provided on the configuration panel to indicate that the CPU is in an active state. (DMAC).

CONFIGURATION PANEL OPERATION

The Configuration Panel provides basically the same functions as previous panels. The difference is that functions of separate panels have been consolidated and enhanced. The INITIALIZE-CLEAN and EXECUTE pushbuttons have been added for operator convenience.

PORT

Four 52U ports, A through D, may be designated 0 through 7 by their respective ASSIGNMENT switches. Processor interface blocks of 2 or 4 words may be selected by the three position INTERLACE OFF Port switches. The Port Enable switches allow enabling of the individual 52U ports, while the INITIALIZE ENABLE switch permits initialization at the system console, when enabled.

STORE SIZE

Thumbscrew switches are used to select one of eight Memory sizes for the four ports. Selection is from 32 to 4096 thousand words.

PROCESSOR FAULT BASE ADDRESS

The Processor Fault Base Address may be selected by modulo 32 between 0,040, and 1,740.

PROCESSOR NUMBER

The Processor may be assigned numbers 0 through 7.

MODE

The operator may select GOOS or VMS mode of operation.

ALARM

The alarm for fault detection may be enabled or disabled.

INITIALIZE - CLEAR

The INITIALIZE - CLEAR pushbutton allows the operator to initialize and clear the system. This includes the microprocessor and its supporting circuitry.

EXECUTE

The EXECUTE pushbutton allows the operator to initiate an Execute Fault to a designated location.

Operator’s View of the Configuration Panel

Figure 2-25

REV. 3

41/42
Basic DFU Layout
**DPU BOOTLOAD SEQUENCE**

LINE 1.  

***** DIAGNOSTIC PROCESSOR UNIT (REV A.1) *****

LINE 2.  

RMI ACTIVE  
(RMI = REMOTE MAINTENANCE INTERFACE)

LINE 3.  

C[ ]

LINE 4.  

SYS CMDS  
(U = UNIT KEY_NAME REQUIRED)

  OFL U
  OML U
  CLST
  CBLD
  IDLE

LINE 5.  

C[ ]
WORKING...

LINE 6.  

<table>
<thead>
<tr>
<th>SPD DEVICE NAME</th>
<th>CHANNEL NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>* DSK00</td>
<td>* 0400</td>
</tr>
<tr>
<td>* LOCAL.</td>
<td>* 0500</td>
</tr>
<tr>
<td>* DSK01</td>
<td>* 0480</td>
</tr>
<tr>
<td>* REMOT</td>
<td>* 1000</td>
</tr>
</tbody>
</table>

SYSTEM COMMANDS

OFL U - INVOKES OFF-LINE FUNCTION ON UNIT XX.
OML U - INVOKES ON-LINE FUNCTION THROUGH LCCXX.
CLST - LIST DPU CONFIGURATION.
CBLD - BUILD OR ALTER SITE CONFIGURATION FILE.
IDLE - RUN DMP SELF-TESTS.

Each unit that cables to the DPU (CPU, SCU, IOM, LCC) has an associated KEY NAME that the DPU uses to identify that unit by type and number. These KEY NAMES are:

L66-E CPU = CPUXX
L68-E CPU = CPXX
SCU = SCUXX
IOM = IOMXX
LCC = LCCXX
FEP = FEPXX

XX is a number from 00 to 99 that uniquely identifies a Central Unit. A four processor, one SCU, one IOM system would be configured as CPU00, CPU01, CPU02, CPU03 to identify CPU, 0, 1, 2, 3, and SCU00, IOM00 to identify the SCU and IOM.

Printout of Console/VIP Configuration Dialogue for Basic DPU

Figure 2-27
Basic DPU with System Console and Dynamic Maintenance Panel Connections
LINE 1. ***** DIAGNOSTIC PROCESSOR UNIT (REV A.1) *****

LINE 2. RMI ACTIVE

LINE 3. C? [CLST] (YOU ENTER CLST AND HIT RETURN KEY.)
        WORKING...

LINE 4.       SPD
       DEVICE NAME  CHANNEL NUMBER
       ******************************
       * DSK00   * 0400 *
       * LOCAL   * 0500 *
       * DSK1    * 0400 *
       * REMOT   * 1000 *

       VIRGIN PACK

LINE 5. C? [CBLD] (START CONFIG DIALOGUE)
        WORKING...

LINE 6. ENTER UPDATE OPTION: BUILD, ADD, CHANGE, OR LIST
        ? [BUILD]
        LIST
        BUILD
        ADD
        CHANGE
        DONE
        ABORT

       (SEE TABLE BELOW.)

LINE 7. ENTER UPDATE OPTION: BUILD, ADD, CHANGE, OR LIST
        ?[BUILD]
        NAME  CHAN  BAUD  MODEM

LINE 8. REMOT  1000  1200  1
        ENTER DEVICE NAME: [LCC00]
        ENTER CHANNEL NUMBER: [1080]
        ENTER DEVICE NAME: [CPU00]
        ENTER CHANNEL NUMBER: [1100]
        ENTER DEVICE NAME: [DONE]
        NAME  CHAN  BAUD  MODEM

LINE 9. REMOT  1000  1200  1
        LCC00  1080  1200  0 }
        CPU00  1100  1200  0 }
        NEW INFORMATION
        C?

CONFIGURATION UPDATE OPTIONS

?  - PROVIDE A LIST OF ALL CONFIG OPTIONS.
LIST - LIST ALL UNITS CURRENTLY IN CONFIG FILE.
BUILD - BUILD NEW CONFIGURATION FILE.
ADD  - NEW UNITS WILL BE ADDED TO EXISTING CONFIG FILE.
CHANGE - MODIFY EXISTING CONFIG FILE.
DONE  - ALL INPUT OF NEW INFORMATION IS COMPLETED.
ABORT - IGNORE ALL INPUTS (DO NOT CHANGE EXISTING FILE).

Figure 2-29
LINE 1.  ***** DIAGNOSTIC PROCESSOR UNIT (REV A.1)  *****

LINE 2. RMI ACTIVE

LINE 3. C? [?]  
SYS CMDS (U = UNIT KEY_NAME REQUIRED)
  OFL  U
  ONL  U
  CLST
  CBLD
  IDLE

LINE 4. C? [CLST]
  WORKING...

LINE 5.  
<table>
<thead>
<tr>
<th>SPD</th>
<th>DEVICE NAME</th>
<th>CHANNEL NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>DSK00</td>
<td>0400</td>
</tr>
<tr>
<td>*</td>
<td>LOCAL</td>
<td>0500</td>
</tr>
<tr>
<td>*</td>
<td>DSK01</td>
<td>0480</td>
</tr>
<tr>
<td>*</td>
<td>REMOT</td>
<td>1000</td>
</tr>
<tr>
<td>*</td>
<td>LCC00</td>
<td>1080</td>
</tr>
<tr>
<td>*</td>
<td>CPU00</td>
<td>1100</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NEW CONFIGURATION

Verification of Newly-Built CONFIG File
Figure 2-30
Figure 2-31

Layout of Rebuilt CONFIG File Containing SCU00
Site Layout of Seven COMM Lines

Figure 2-33

55/56

REV. 2
Device "Keyname" Number Assignments

<table>
<thead>
<tr>
<th>COMM LINE</th>
<th>CHANNEL NO.</th>
<th>DEVICE NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1000</td>
<td>REMOT (MODEM)</td>
</tr>
<tr>
<td>1</td>
<td>1080</td>
<td>LCU00</td>
</tr>
<tr>
<td>2</td>
<td>1100</td>
<td>CPU11</td>
</tr>
<tr>
<td>3</td>
<td>1180</td>
<td>CPU12</td>
</tr>
<tr>
<td>4</td>
<td>1200</td>
<td>SCU20</td>
</tr>
<tr>
<td>5</td>
<td>1280</td>
<td>SCU21</td>
</tr>
<tr>
<td>6</td>
<td>1300</td>
<td>IOM10</td>
</tr>
<tr>
<td>7</td>
<td>1380</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2-34
REV. 2
57/58
RMI ACTIVE

LINE 1.
C? [CLST]
WORKING...

<table>
<thead>
<tr>
<th>SPD</th>
<th>CHANNEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVICE NAME</td>
<td>NUMBER</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>* DSK00</td>
<td>* 0400</td>
</tr>
<tr>
<td>* LOCAL</td>
<td>* 0500</td>
</tr>
<tr>
<td>* DSK01</td>
<td>* 0480</td>
</tr>
<tr>
<td>* REMOT</td>
<td>* 1000</td>
</tr>
</tbody>
</table>

NEW DISKETTE

LINE 2.
C? [CBLD]
WORKING...

LINE 3.
ENTER UPDATE OPTION: BUILD, ADD, CHANGE, OR LIST
?D]
LIST
BUILD
ADD
CHANGE
DONE
AORT

LINE 4.
ENTER UPDATE OPTION: BUILD, ADD, CHANGE, OR LIST
LIST
NAME CHAN BAUD MODEM

LINE 5.
ENTER UPDATE OPTION: BUILD, ADD, CHANGE, OR LIST
BUILD
NAME CHAN BAUD MODEM

LINE 6.

REMOT 1000 1200 1
ENTER DEVICE NAME:[LCC00]
ENTER CHANNEL NUMBER:[1080]
ENTER DEVICE NAME:[CPU00]
ENTER CHANNEL NUMBER:[1100]
ENTER DEVICE NAME:[CPU01]
ENTER CHANNEL NUMBER:[1180]
ENTER DEVICE NAME:[SCU00]
ENTER CHANNEL NUMBER:[1200]
ENTER DEVICE NAME:[SCU01]
ENTER CHANNEL NUMBER:[1280]
ENTER DEVICE NAME:[DONE]
NAME CHAN BAUD MODEM

These two entries will cause an error code of OB33 during the next Bootload sequence.

Sample Printout of "Building" a New Diskette
Figure 2-37

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***** DIAGNOSTIC PROCESSOR UNIT (REV A.1) *****

RMI ACTIVE

**LINE 1.**   C? [CLST]
              WORKING...

**LINE 2.**  

<table>
<thead>
<tr>
<th>SPD</th>
<th>CHANNEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEVICE NAME</td>
</tr>
<tr>
<td>--------</td>
<td>--------------</td>
</tr>
<tr>
<td>*</td>
<td>DSK00</td>
</tr>
<tr>
<td>*</td>
<td>LOCAL</td>
</tr>
<tr>
<td>*</td>
<td>DSK01</td>
</tr>
<tr>
<td>*</td>
<td>REMOT</td>
</tr>
<tr>
<td>*</td>
<td>LCC00</td>
</tr>
<tr>
<td>*</td>
<td>CPU00</td>
</tr>
<tr>
<td>*</td>
<td>CPU01</td>
</tr>
<tr>
<td>*</td>
<td>SCU00</td>
</tr>
<tr>
<td>*</td>
<td>SCU01</td>
</tr>
</tbody>
</table>

* CHANNEL NUMBERS SHOULD BE 1200 AND 1280.*

**LINE 3.**   C? [CBLD]
              WORKING...

**LINE 4.**   ENTER UPDATE OPTION: BUILD, ADD, CHANGE, OR LIST
              ?[LIST]
              NAME   CHAN  BAUD  MODEM

**LINE 5.**   REMOT  1000  1200  1
              LCC00  1080  1200  0
              CPU00  1100  1200  0
              CPU01  1180  1200  0
              SCU00  1200  1200  0
              SCU01  1280  1200  0

ENTER UPDATE OPTION: BUILD, ADD, CHANGE, OR LIST

Figure 2-38

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REV. 1
SITE CONFIGURATION

On initial start-up of the DPU, the site configuration must be entered via the "CBLD" command. The "BUILD" option may now be used to inform the DPU where the mainframe units are cabled.

Each unit that cables to the DPU (CPU, SCU, IOM, LCC) has an associated KEY_NAME that the DPU uses to identify that unit by type and number. These KEY_NAMES are:

L66-E CPU = CPUXX
L68-E CPU = CPMXX (Multics)
SCU = SCUXX
IOM = IOMXX
LCC = LCCXX
FEP = FEPXX

XX is a number from 00 to 99 that uniquely identifies a Central Unit. A four processor, one IOM system would be configured as CPU00, CPU01, CPU02, CPU03 to identify CPU, 0, 1, 2, 3, and SCU00, IOM00 to identify the SCU and IOM.

CONFIGURATION BUILD PROCEDURES

First, verify the DPU cable connections on the MLCP’s.

- Line 0, Channel 1000 is reserved for the Remote DPU Terminal modem.
- Line 1, Channel 1080 is reserved for the LCC by convention.
- Lines 2 thru 7, Channels 1100, 1180, 1280, 1300, 1380, respectively, are available for unit connection.
- Lines 8 thru 15 (on MLCP 2), Channels 1400, 1480, ... 1780 are also for unit connections.

Second, record the line number, channel number, unit cabled, and then assign appropriate KEY_NAMES:

<table>
<thead>
<tr>
<th>LINE</th>
<th>CHANNEL</th>
<th>UNIT</th>
<th>KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1000</td>
<td>MODEM</td>
<td>REMOTE</td>
</tr>
<tr>
<td>2</td>
<td>1100</td>
<td>CP0</td>
<td>CPU00</td>
</tr>
<tr>
<td>7</td>
<td>1380</td>
<td>CP1</td>
<td>CPU01</td>
</tr>
<tr>
<td>11</td>
<td>1080</td>
<td>CP2LCC</td>
<td>CPU02</td>
</tr>
<tr>
<td>5</td>
<td>1280</td>
<td>CP3</td>
<td>CPU03</td>
</tr>
<tr>
<td>3</td>
<td>1180</td>
<td>SCU</td>
<td>SCU00</td>
</tr>
<tr>
<td>6</td>
<td>1300</td>
<td>IOM</td>
<td>IOM00</td>
</tr>
</tbody>
</table>

At the DPU terminal, enter CBLD at the system command level (denoted by "C?").
When CBLD responds, enter the BUILD option and proceed as instructed to enter the device name (KEY_NAME) and associated channel number. When complete, enter DONE after the device name prompt.

The DPU must now be rebooted to include the new configuration information in the system. Thereafter, subsequent boots will include the site configuration as entered.

The CBLD ADD and CHANGE options are available to alter the site configuration to accommodate system expansion, field upgrades, ... etc.

The KEY_NAMES used in the site configuration are later used to identify the unit to be acted upon by various DPU Function commands, such as OFL, ONL, TST, ...etc.

Typical usage would be:

C2  OFL CPU00    invokes Off-Line function on CPU.
C7  ONL LCC00    invokes On-Line function through LCC0.

Figure 2-39
DPU ERROR CODES

RL = OBXX  Software COMM Module Errors
RL = OB13  Invalid channel number
RL = OB23  Invalid channel number, already assigned
RL = OB48  MLCP busy, cannot load software module
RL = OB49  Main memory error during software loading
RL = OB4A  Incorrect parity during load
RL = OBXX  Other codes* (See footnote.)
RL = OB33  Undefined (This halt will occur with hardware holes.)

RL = 13XX  Software "CMD" Module Errors

These errors may be caused by invalid entries to the "CBLD" command of the DPU.

RL = 1301  Command directive invalid
RL = 1302  Command argument required decimal digit
RL = 1303  Command argument requires smaller digit
RL = 1306  Command includes an argument error.
RL = 130F  Command error due to missing or faulty argument
RL = 1324  Command specifies invalid device tape
RL = 132A  Command specifies duplicate channel
RL = 1339  Command Device error, cannot read label
RL = 13XX  Other codes* (See footnote.)
RL = 1330  Undefined

R2 = CDXX  SMTCS Command Processor INIT Errors

R2 = CD0C  Fatal I/O error
R2 = CD0D  Non-fatal I/O error
R2 = CDXX  Other codes* (See footnote.)

This is the final stage of bootload. Failures detected during this INIT phase will halt the DPU with error codes in RL and R2. To retry, clear RL and hit RUN.

*All codes listed as XX are concerned with the DPU operating system software. The DPU O/S is not accessible by, or manipulated by the DPU user.

Figure 2-40
ETCMP Physical Location
Figure 3-1
ETCMP BASIC BLOCK DIAGRAM

*PLUGGABLE CHIPS TO BE CHANGED.

Figure 3-2
SELF-TEST CAPABILITY

On Start-up or Init. Clear P.B. the DMP will run through a series of self-tests. The startup self-tests will initialize the DMP and clear the DMP RAM memory. The self-test will not change the state of the DMP or CPU.

As each self-test is entered, the associated free-edge LED is turned on, and if that test is not completed successfully, that LED will remain on.

The following subtests make up the DMP self-test:

<table>
<thead>
<tr>
<th>TEST IN PROGRESS</th>
<th>FREE-EDGE LED'S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microprocessor Test</td>
<td>5</td>
</tr>
<tr>
<td>RAM Test</td>
<td>2</td>
</tr>
<tr>
<td>EPROM Test</td>
<td>1 (Leftmost)</td>
</tr>
<tr>
<td>TIMER Test</td>
<td>3</td>
</tr>
<tr>
<td>USART Test</td>
<td>4</td>
</tr>
<tr>
<td>Self-Tests Complete</td>
<td>6 (Green)</td>
</tr>
</tbody>
</table>

If one of the above test LED's remains on, indicating a failure, the remaining LED's are used to present a code identifying the failed device.

Refer to Figure 3-3, Sheet 2 for display codes.
**LED DISPLAY CHART**

<table>
<thead>
<tr>
<th>LED's (a)</th>
<th>CHIP</th>
<th>LOC</th>
<th>PART NUMBER</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6</td>
<td>R R R R R G</td>
<td>CHIP</td>
<td>LOC</td>
<td>PART NUMBER</td>
</tr>
<tr>
<td>0 0 0 0 1</td>
<td>____</td>
<td>____</td>
<td>____</td>
<td>ALL TESTS PASSED</td>
</tr>
<tr>
<td>1 0 0 0 0</td>
<td>2R3646</td>
<td>65W</td>
<td>58002646-XXX</td>
<td>EPROM 0 (d)</td>
</tr>
<tr>
<td>1 0 0 0 1</td>
<td>2R3646</td>
<td>65U</td>
<td>58002646-XXX</td>
<td>EPROM 1</td>
</tr>
<tr>
<td>1 0 0 1 0</td>
<td>2R3646</td>
<td>65S</td>
<td>58002646-XXX</td>
<td>EPROM 2</td>
</tr>
<tr>
<td>1 0 0 1 1</td>
<td>2R3646</td>
<td>52W</td>
<td>58002646-XXX</td>
<td>EPROM 3</td>
</tr>
<tr>
<td>1 0 1 0 0</td>
<td>2R3646</td>
<td>52U</td>
<td>58002646-XXX</td>
<td>EPROM 4</td>
</tr>
<tr>
<td>1 0 1 0 1</td>
<td>2R3646</td>
<td>52S</td>
<td>58002646-XXX</td>
<td>EPROM 5</td>
</tr>
<tr>
<td>1 0 1 1 0</td>
<td>____</td>
<td>39W</td>
<td>____</td>
<td>EPROM 6</td>
</tr>
<tr>
<td>1 0 1 1 1</td>
<td>____</td>
<td>39U</td>
<td>____</td>
<td>EPROM 7</td>
</tr>
<tr>
<td>1 1 0 0 0</td>
<td>2R3646</td>
<td>26W</td>
<td>58002646-XXX</td>
<td>EPROM 8</td>
</tr>
<tr>
<td>1 1 0 0 1</td>
<td>2R3646</td>
<td>26U</td>
<td>58002646-XXX</td>
<td>EPROM 9</td>
</tr>
<tr>
<td>1 1 0 1 0</td>
<td>2R3646</td>
<td>26S</td>
<td>58002646-XXX</td>
<td>EPROM 10</td>
</tr>
<tr>
<td>1 1 0 1 1</td>
<td>2R3646</td>
<td>13W</td>
<td>58002646-XXX</td>
<td>EPROM 11</td>
</tr>
<tr>
<td>1 1 1 0 0</td>
<td>2R3646</td>
<td>13U</td>
<td>58002646-XXX</td>
<td>EPROM 12</td>
</tr>
<tr>
<td>1 1 1 0 1</td>
<td>2R3646</td>
<td>13S</td>
<td>58002646-XXX</td>
<td>EPROM 13</td>
</tr>
<tr>
<td>1 1 1 1 0</td>
<td>2R3646</td>
<td>00W</td>
<td>58002646-XXX</td>
<td>EPROM 14</td>
</tr>
<tr>
<td>1 1 1 1 1</td>
<td>____</td>
<td>00U</td>
<td>____</td>
<td>EPROM 15</td>
</tr>
<tr>
<td>0 0 0 0 0</td>
<td>____</td>
<td>____</td>
<td>____</td>
<td>MICROPROCESSOR</td>
</tr>
<tr>
<td>0 0 0 0 1</td>
<td>2V-613</td>
<td>47M</td>
<td>58002613-001</td>
<td>TIMER TEST</td>
</tr>
<tr>
<td>0 0 0 1 0</td>
<td>2V-574</td>
<td>68M</td>
<td>58002574-001</td>
<td>LOCAL USART</td>
</tr>
<tr>
<td>0 0 1 1 0</td>
<td>2V3605</td>
<td>42P</td>
<td>58002605-001</td>
<td>REMOT USART</td>
</tr>
<tr>
<td>0 1 x x x</td>
<td>____</td>
<td>____</td>
<td>____</td>
<td>RAM TEST (c)</td>
</tr>
</tbody>
</table>

(a) R=Red, G=Green, 1=On, 0=Off
(b) Dead microprocessor symptom-check microprocessor. XTAL and LED's.
(c) LED's 3, 4, 5 indicate failed bit in byte.
(d) EPROM part numbers XXX must be replaced by same TAB numbers as the one removed.

---

Figure 3-3
Sheet 2 of 4

REV. 1

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ETCMP SELF-TEST - CONT'D.

ETCMP STATUS

After the self-tests are completed, the DMP will indicate ready by lighting the green LED (6). The Ready LED will remain on during operation. The remaining LED's (1-5) will now display the Central Processor status as follows:

<table>
<thead>
<tr>
<th>CPU STATUS</th>
<th>FREE-EDGE LED'S</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS BUSY</td>
<td>1</td>
</tr>
<tr>
<td>DIS</td>
<td>2</td>
</tr>
<tr>
<td>STOP ON FAULT</td>
<td>3</td>
</tr>
<tr>
<td>STOP ON ADDRESS</td>
<td>4</td>
</tr>
<tr>
<td>UNUSED</td>
<td>5</td>
</tr>
<tr>
<td>MICRO READY</td>
<td>6</td>
</tr>
</tbody>
</table>

Figure 3-3
Sheet 4 of 4
LESSON 3 CONJK SELF-TEST

To run CONJK self-test, turn Console VIP off line and then back on line.

LED DISPLAY CHART

<table>
<thead>
<tr>
<th>LED's (a)</th>
<th>CHIP</th>
<th>LOC</th>
<th>PART NUMBER</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 0 0 0 0 0</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>(b) ALL TESTS PASSED</td>
</tr>
<tr>
<td>0 0 0 0 0 1</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>MICROPROCESSOR</td>
</tr>
<tr>
<td>0 0 0 0 1 0</td>
<td>2V-613</td>
<td>29P</td>
<td>58002613-001</td>
<td></td>
</tr>
<tr>
<td>0 0 0 1 0 0</td>
<td>-----</td>
<td>----</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>0 0 0 1 1 0</td>
<td>2R3646</td>
<td>20H</td>
<td>58002646-XXX</td>
<td>EPROM 0 (f)</td>
</tr>
<tr>
<td>0 0 1 0 0 0</td>
<td>2R3646</td>
<td>10P</td>
<td>58002646-XXX</td>
<td>EPROM 1</td>
</tr>
<tr>
<td>0 0 1 0 1 0</td>
<td>2R3646</td>
<td>20D</td>
<td>58002646-XXX</td>
<td>EPROM 2</td>
</tr>
<tr>
<td>0 0 1 1 0 0</td>
<td>2R3646</td>
<td>20B</td>
<td>58002646-XXX</td>
<td>EPROM 3</td>
</tr>
<tr>
<td>0 1 0 0 0 0</td>
<td>1A0351</td>
<td>19N</td>
<td>58002646-XXX</td>
<td></td>
</tr>
<tr>
<td>0 1 0 0 1 0</td>
<td>1A0351</td>
<td>20M</td>
<td>58002646-XXX</td>
<td>RAM 0</td>
</tr>
<tr>
<td>0 1 0 1 0 0</td>
<td>1A0351</td>
<td>20L</td>
<td>58002646-XXX</td>
<td>RAM 1</td>
</tr>
<tr>
<td>0 1 0 1 1 0</td>
<td>1A0351</td>
<td>20K</td>
<td>58002646-XXX</td>
<td>RAM 2</td>
</tr>
<tr>
<td>0 1 1 0 0 0</td>
<td>1A0351</td>
<td>30L</td>
<td>58002646-XXX</td>
<td>RAM 3</td>
</tr>
<tr>
<td>0 1 1 0 1 0</td>
<td>1A0351</td>
<td>30K</td>
<td>58002646-XXX</td>
<td>RAM 4</td>
</tr>
<tr>
<td>0 1 1 1 0 0</td>
<td>1A0351</td>
<td>40L</td>
<td>58002646-XXX</td>
<td>RAM 5</td>
</tr>
<tr>
<td>0 1 1 1 1 0</td>
<td>1A0351</td>
<td>40K</td>
<td>58002646-XXX</td>
<td>RAM 6</td>
</tr>
<tr>
<td>1 0 0 0 0 0</td>
<td>2V-574</td>
<td>35R</td>
<td>58002574-001</td>
<td>TIMER</td>
</tr>
<tr>
<td>1 0 0 0 1 0</td>
<td>2V3605</td>
<td>20R</td>
<td>58002605-001</td>
<td>USART 0 (d)</td>
</tr>
<tr>
<td>1 0 0 1 0 0</td>
<td>2V3605</td>
<td>17T</td>
<td>58002605-001</td>
<td>USART 1 (e)</td>
</tr>
</tbody>
</table>

(a) R=Red, G=Green, l=On, 0=Off
(b) Dead microprocessor symptom—check microprocessor. XTAL and LED's.
(c) Microprocessor tests which use RAM could be microprocessor or RAM subsystem.
(d) Problem may be caused by timer, 2V574, or chips 08N, 25V, 08Q, 08L, 08M.
(e) Problem may be caused by timer, 2V574 or chips 08M, 00L, 08P, 08L, 08M.
(f) EPROM part numbers XXX must be replaced by same tab number as the one removed.

Figure 3-4
Sheet 1 of 2  REV. 2

73
### LESSON 3 CONJK BOARD LAYOUT

#### REMOVABLE CHIPS

<table>
<thead>
<tr>
<th>FREE</th>
<th>EDGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA</td>
<td>LA</td>
</tr>
<tr>
<td>RB</td>
<td>LB</td>
</tr>
<tr>
<td>RC</td>
<td>LC</td>
</tr>
<tr>
<td>RD</td>
<td>LD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>G</th>
<th>R</th>
<th>R</th>
<th>R</th>
<th>R</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>00</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>P</th>
<th>Q</th>
<th>R</th>
<th>S</th>
<th>T</th>
<th>U</th>
<th>V</th>
<th>W</th>
<th>X</th>
<th>Y</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>20</th>
<th>---</th>
<th>---</th>
<th>---</th>
<th>---</th>
<th>---</th>
<th>---</th>
<th>17T</th>
</tr>
</thead>
<tbody>
<tr>
<td>20B</td>
<td>20D</td>
<td>20F</td>
<td>20H</td>
<td>20R</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 30  | --- | --- | --- | --- | --- | --- | --- |
|     |     |     |     |     |     |     |     |

<table>
<thead>
<tr>
<th>40</th>
<th>33B</th>
<th>33H</th>
<th>29P</th>
<th>35R</th>
</tr>
</thead>
</table>

| 50  | --- | --- | --- | --- |
|-----|-----|-----|-----|

| 60  | --- | --- | --- | --- |
|-----|-----|-----|-----|

"LONG LIVE THE RED, WHITE, AND BLUE"

<table>
<thead>
<tr>
<th>90</th>
<th>---</th>
</tr>
</thead>
</table>

| 99  | --- |

| WA  | WB  | WC  | WD  | WE  | WZ  | WF  | WG  | WH  | WJ  | WK  |

*** FOR REMOTE MAINTENANCE 58036802-001 EPROM KIT

---

Figure 3-4
Sheet 2 of 2

---
DPU/RMI Relation Off-Line
Figure 4-3
RMI ACTIVE
C?

NOTE: Normal message upon completion of bootloading the system Maintenance Test Control Software diskettes (SMTCs).

RMI Active
Figure 4-4
**RMI ACTIVE**

**C? [*STA]*

**SEE TABLE 1 BELOW FOR MEANING**

<table>
<thead>
<tr>
<th>#STA</th>
<th>DISPLAY RMI OPERATING STATUS TO ISSUING TERMINAL.</th>
</tr>
</thead>
<tbody>
<tr>
<td>#REM DIS#</td>
<td>REMOTE DISABLED</td>
</tr>
<tr>
<td>#REM ENA#</td>
<td>REMOTE ENABLED</td>
</tr>
<tr>
<td>#LOC ACT#</td>
<td>LOCAL KEYBOARD IS ACTIVE</td>
</tr>
<tr>
<td>#REM ACT#</td>
<td>REMOTE KEYBOARD IS ACTIVE</td>
</tr>
<tr>
<td>#MAI ENA#</td>
<td>MAINTENANCE MODE ENABLED</td>
</tr>
<tr>
<td>#TEX ENA#</td>
<td>TEXT MODE ENABLED</td>
</tr>
<tr>
<td>#MON DIS#</td>
<td>MONITOR DISABLED</td>
</tr>
<tr>
<td>#MON ENA#</td>
<td>MONITOR ENABLED</td>
</tr>
<tr>
<td>#CPY DIS#</td>
<td>COPY DISABLED</td>
</tr>
<tr>
<td>#CPY ENA#</td>
<td>COPY ENABLED</td>
</tr>
</tbody>
</table>

**TABLE 1**

*Maintenance Interface Status*

*Figure 4-5*
RMI ACTIVE
C?

#REM REQ#

[ #ENA REM ] C/R

#REM CON#

TAC/Site Dialogue
Figure 4-6
THE OFF-LINE FUNCTIONS

Provides interactive manipulation of the Unit Maintenance Panel functions.
Invoked at the system command level:

C? OFL [ KEY_NAME ]

Key name is the unit to be accessed:
- CPU00
- SCU00
- IOM00
- CPM00

NOTE: XX = DPU OUTPUT (UNDER-SCORED)
□ = SPACE

When ready, Off-line will prompt for input:
OFL ?

Maintenance panel troubleshooting is done under VIP mode.

To ENTER the VIP mode of Off-line operation:
OFL? VIP OFF

When ready, the VIP will prompt for input:
CMD [ ]

The "CMD" prompt designates the VIP mode of operation.

To exit VIP mode and return to offline:
CMD TM

When ready, Off-line will prompt (as before):
OFL ?

To terminate the Off-line function, enter:
OFL ? QUIT or Q

This will return control to the system command level:
C?

Off-Line Prompts
Figure 4-7
DISPLAY COMMANDS

: DS DISPLAY CPU STATUS
: CU DISPLAY CU/OU REGISTERS
: DU DISPLAY DECIMAL UNIT REGISTERS
: VR DISPLAY VU REGISTERS
: VC DISPLAY VU CONTROL REGISTERS
: SC DISPLAY SCROLL POINT REGISTERS
: HS DISPLAY OU,CU, AND PARTIAL HISTORY REGISTER
: HC DISPLAY CU,DU, AND OU HISTORY REGISTER
: HV DISPLAY VU HISTORY REGISTER
: CF DISPLAY SWITCHES CONFIG
: MR DISPLAY L66E MEMORY
: CR DISPLAY CACHE DIRECTORY AND MEMORY
: AM DISPLAY VU PTW AND ASSOC. MEMORY
: MD DISPLAY MICRO MEMORY
C?
NRM REQ
[NENA REM] - RSD
NRM CONM 2Y5
NRM ACT # TAC

C?
NENA MON TAC
NENA CYP TAC

C?
OFL CPU0 TAC

WORKING...
RD CMD FILE

OFL? System
VIF

=== DPB-9/L66 CPU MAINTENANCE PANEL = REV D.0 === System
END

CF TAC

CONFIGURATION PANEL System
PROCESSOR 0 TYPE 70200 MODE BOS DATA 00000000000 ADDR 000000000000
PORT INIT STORE
ASSIGN ENABLE ENABLE INTERFACE SIZE MARGINS STATUS
PORT A 0 ON ON OFF 256K VU NORM RUN CACHE 1 ON
PORT B 0 OFF OFF OFF 32K DU NORM RUN CACHE 2 ON
PORT C 0 OFF OFF OFF 32K CU NORM RUN CACHE FORCE OFF
PORT D 0 OFF OFF OFF 32K CU NORM RUN
STOP ON ADDRESS STOP ON FAULTS MEMP RUN FAULT BASE
CFG SW 0 A MEM IN 0 UWS 0 SCL2 0 SGL 0 DLF 0 SSB 0 2200
V-ADDR 0 WRK-STR 0 MSEG 0 MPGE 0 FTG 0 DRL 0 HME 0
STORE 0 OPMD 0 IPR 0 OVFL 0 VXCK 0 SHF 0 TRG 0
INSTR 0 DBL PCSW 0 CNF 0 STR 0 CMD 0 PAR 0 XEC DATA CLR
BLK LOADS 0 LUF 0 ONC 0 SUF 0 INHS 0

ARB DIS SOF SOA OUS CUS DUS VUS XIP
0 1 0 0 0 0 0 0

END System

CF TAC

OFL? System

OFL TAC

C?

(TAC/Site Printout)
Figure 4-9

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REV. 1
*OPTIONS?
LINE 1 # REMOTE REQUEST # TAC
LINE 2 [# ENA REM ] system console
LINE 3 # REMOTE CONNECTED # system

TAC/LCC Dialogue
Figure 4-11
LINE 1.       ***** DIAGNOSTIC PROCESSOR UNIT (REV A.1)  *****

RMI ACTIVE
C? [?]—— Your Action (C/R)

LINE 2.  SYS CMDs  (U = UNIT KEY_NAME REQUIRED)

OFL  U
ONL  U
CLST
CBLD
IDLE

See definition below.

Command List as a result of "?" with "C" prompt.

OFL  UNITXX = Invokes Off-line function on Unit XX.

UNIT = CPUXX
SCUXX
IOMXX

ONL  UNITXX = LCCXX (only) Invokes On-Line function through LCCXX.

CLST    Used to get DPU Configuration.

CBLD

IDLE  = Used for testing DMP's

System Commands
Figure 5-1.
### Diagnostic Processor Unit (Rev A.1)

**Line 1.** RMI Active

**Line 2.** C? [CLST]
  WORKING...

<table>
<thead>
<tr>
<th>SPD</th>
<th>CHANNEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVICE NAME</td>
<td>NUMBER</td>
</tr>
<tr>
<td>* DSKDO</td>
<td>0400 *</td>
</tr>
<tr>
<td>* LOCAL</td>
<td>0500 *</td>
</tr>
<tr>
<td>* DSK01</td>
<td>0480 *</td>
</tr>
<tr>
<td>* REMOT</td>
<td>1000 *</td>
</tr>
<tr>
<td>* LCC00</td>
<td>1080 *</td>
</tr>
<tr>
<td>* CPU00</td>
<td>1100 *</td>
</tr>
<tr>
<td>* SCU00</td>
<td>1180 *</td>
</tr>
</tbody>
</table>

**Line 3.** C? [OFL CPU00]
  WORKING...
  KD CMD FILE

**Line 4.** OFL? [VIP]√
  *** DPS-8/L66 CPU MAINTENANCE PANEL * REV D.0 ***

**Line 5.** CMD [CF]
  *CONFIGURATION PANEL*
  PROCESSOR# 0 TYPE 70200
  MODE GCOS DATA 00000000710000 ADOR 0000000000000000
  PORT ASSIGN ENABLE ENABLE INTERFACE SIZE MARGINS STATUS
  PORT A 0 ON ON OFF 256K UU NORM RUN CACHE 1 ON
  PORT B 0 OFF OFF OFF 32K DU NORM RUN CACHE 2 ON
  PORT C 0 OFF OFF OFF 32K CU NORM RUN CACHE FORCE OFF
  PORT D 0 OFF OFF OFF 32K OU NORM RUN
  STOP ON ADDRESS STOP ON FAULTS MEM RUN FAULT BASE
  CFG SW 0 A MEM IN 0 UMS 0 SCL2 0 SCL1 0 DLF 0 SSSF 0 2200
  V-ADDR 0 WRK-STR 0 MSEG 0 MPGE 0 FTG 0 DRL 0 MME 0
  STORE 0 OPND 0 IPR 0 OVFLO 0 TVECK 0 SHF 0 TR0 0
  INSTR 0 OBL PCSW 0 CNF 0 STR 0 CMD 0 PAR 0 XEC DATA CLR
  BLK LOADS 0 LUF 0 ONC 0 SUF 0 INHS 0

**Line 6.** ARB DIS SOF SOA OUS CUS DUS VUS XIP
  0 1 0 0 0 0 0 0 0

**Line 7.** CMD [TM]

**Line 8.** OFL? [Q]

**Line 9.** C?

CPU Configuration
Figure 5-2

---

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REV. 2
CONFIGURATION COMMANDS

CMD △ CO △ X △ XX

X = FUNCTION
D = DATA
A = ADDRESS
SOA = STOP ON ADDRESS
SOF = STOP ON FAULT
MRG = MARGIN
C = CACHE

CACHE △ XX

0 0 = Enable Cache 1 and 2 both ON.
0 1 = Cache 1 Off.
    Cache 2 On.
0 2 = Cache 1 On.
    Cache 2 Off.
0 3 = Disable Cache (1 and 2 both Off.)
1 0 = Cache Force On. (Enables Mode Register.)
0 X = Cache Force on. (Selective 1 or 2)

Configuration Commands (CACHE)
Figure 5-3
Cache Disabled
Figure 5-4
DISPLAY COMMANDS

: DS    DISPLAY CPU STATUS.
: CU    DISPLAY CU/OU REGISTERS
: DU    DISPLAY DECIMAL UNIT REGISTERS
: VR    DISPLAY VU REGISTERS
: VC    DISPLAY VU CONTROL REGISTERS
: SC    DISPLAY SCROLL POINT REGISTERS
: HS    DISPLAY OU, CU, AND PARTIAL HISTORY REGISTER
: HC    DISPLAY CU, DU, AND OU HISTORY REGISTER
: HV    DISPLAY VU HISTORY REGISTER
: CF    DISPLAY SWITCHES CONFIG
: MR    DISPLAY L66E MEMORY
: CR    DISPLAY CACHE DIRECTORY AND MEMORY
: AM    DISPLAY VU PTW AND ASSOC MEMORY
: MD    DISPLAY MICRO MEMORY

VIP Mode Display Commands
Figure 5-5
$EMD[DS]$ Display CPU status

ARB DIS SOF SOA OUS CUS DUS VUS XIP
0 1 0 0 0 0 0 0 0

ARB = ADDRESS REGISTER BUSY (PORT CYCLE OUTSTANDING)
DIS = DELAY UNTIL INTERRUPT
SOF = STOP ON FAULT
SOA = STOP ON ADDRESS
OUS = OPERATION UNIT STEP
CUS = CONTROL UNIT STEP
DUS = DECIMAL UNIT STEP
VUS = VIRTUAL UNIT STEP
XIP = INTERRUPT PRESENT

CPU Status Display
Figure 5-6

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CU Register Printout

Figure 5-7
### INDICATOR REGISTER

<table>
<thead>
<tr>
<th>BIT POSITION</th>
<th>INDICATOR</th>
<th>INDICATOR INSTRUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Zero</td>
<td>1. Load Indicators (LDI)</td>
</tr>
<tr>
<td>19</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Carry</td>
<td>2. Store Indicators (STI)</td>
</tr>
<tr>
<td>21</td>
<td>Overflow</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Exponent Overflow</td>
<td>3. Store Instruction Counter Plus 1 and Indicators (STC1)</td>
</tr>
<tr>
<td>23</td>
<td>Exponent Underflow</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Overflow Mask</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Tally Runout</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Parity Error</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Parity Mask</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Master Mode</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Truncation (EIS only)</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Multiword Instr. Interpt. (EIS only)</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>0</td>
<td>4. Return (RET)</td>
</tr>
<tr>
<td>32</td>
<td>Hex Indicator</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Must be Zero**

Indicator Register Bit Decode
Figure 5-8
MODE REGISTER

ETCCG

0-15

16

17-19

20

21

22,23

24,25

26,27

28

29

30

31

UNUSED

ENABLE FOR BITS 20 25

UNUSED

Set Store Incorrect Data Parity. The CU shall cause incorrect data parity to be sent to the store for the next Store instruction and then reset Bit 20.

Set Store Incorrect ZAC Parity. The CU shall cause incorrect ZAC parity to be generated on each memory cycle until the $DA of the next Store instruction. At this time Bit 21 will be reset.

Set Timing Margin accordingly:

<table>
<thead>
<tr>
<th>22</th>
<th>23</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLOW</td>
<td>0 1</td>
</tr>
<tr>
<td>FAST</td>
<td>1 1</td>
</tr>
<tr>
<td>NORMAL</td>
<td>X 0</td>
</tr>
</tbody>
</table>

Set Voltage (+5) Margins accordingly:

<table>
<thead>
<tr>
<th>24</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
<td>0 1</td>
</tr>
<tr>
<td>HIGH</td>
<td>1 0</td>
</tr>
<tr>
<td>NORMAL</td>
<td>OTHERWISE</td>
</tr>
</tbody>
</table>

UNUSED

Stop HR Strobe on HR Counter Overflow. (Setting Bit 28 shall cause the HR counter to be reset to zero.)

Strobe the HR on Transfer Mode. If Bits 29, 30, and 35 are = 1, the HR will be strobed on all transfers made. Bits 36-53 of the OU/DU Register will indicate the "From" location and Bits 36-59 of the CU Register will contain the real address of the final "To" location.

Enable History Registers. If Bit 30 = 1, the HR's may be strobed. If Bit 30 = 0 or Bit 35 = 0, they will be locked out. This bit will be reset by either an LCPR with the bit corresponding to 30 = 0, or by an Op Not Complete fault. It may be reset by other faults (See Bit 31). After being reset, it must be enabled by another LCPR instruction before the History Registers may be strobed again.

Additional Resetting of Bit 30. If Bit 31 = 1, the following faults will also reset Bit 30:
- Lock Up
- Parity
- Command
- Store
- Illegal Procedure
- Shutdown

Mode Register Decode (Bits 0-35)
Figure 5-9
Sheet 1 of 2
Mode Register - Cont'd.

**ETCCG**

32 Margin Control. Bit 32 shall be used to inform the Software when it can control margins. A One shall indicate that software has control. When the LOCAL/REMOTE switch on the power supply is in REMOTE and Bit 35 = 1, Bit 32 shall be set to a one by occurrence of the following conditions: the NORMAL/TEST switch is in the TEST position, the Memory and CU overlap inhibit switches are OFF, the Timing Margins for the OU, CU, DU and VU are NORMAL, and the Forced Data and ZAC Parity are OFF.

33 Hexadecimal Exponent Floating Point Arithmetic Mode can be set. When this bit is set, the Hex Mode will become effective when the Indicator Register Bit 32 is set to a ONE.

34 Unused

35 Use Mode Register. Unless Bit 35 = 1, all other bits in the Mode Register will be ignored and the History Register will be locked.

**ETCCG**

36-48 13 Most Significant Address Bits (On GCOS III, E0 – E5, A0 – A6).

49-50 Unassigned

51 CACHE DIRECTORY PARITY BIT

52 CACHE DIRECTORY LEVEL FULL/EMPTY

53 Unused

54 CACHE CSH1 ENABLED

55 CACHE CSH2 ENABLED

56

57 CACHE INSTRUCTIONS ENABLED TO CACHE

58 Unused

59 CACHE CACHE TO REGISTER ENABLED to Mode Register for display.

60 Unused

**ETCCG**

61 CACHE LEVEL - LEAST RECENTLY USED - LEVEL 1/2

62 CACHE LEVEL - LEAST RECENTLY USED - LEVEL 1/3

63 CACHE LEVEL - LEAST RECENTLY USED - LEVEL 1/4

64 CACHE LEVEL - LEAST RECENTLY USED - LEVEL 2/3

65 CACHE LEVEL - LEAST RECENTLY USED - LEVEL 2/4

66 CACHE LEVEL - LEAST RECENTLY USED - LEVEL 3/4

67-69 Unused

70-71 **ETCCG**

LOCK UP FAULT TIMER REGISTER 00 = 2 MIL. S.
01 = 4 "
10 = 8 "
11 = 16 "
(32 = MASTER MODE)

Mode Register Decode (Bits 36-71)
Figure 5-9
Sheet 2 of 2
MISC: COMMANDS

: CD  Cache test, checks the main and duplicate directories for a mismatch and then checks directory parity.

: DS  Display contents of CPU Status Register

: CW AAAAAA Write Cache Entry
Where AAAA = Address
(C/R) - Skips to next entry without change to current entry.

: CR AAAAAA Read Cache Entry, all four levels are displayed and any parity errors reported.
(C/R) - Displays next index block.

: MR AAAAAA Read Main Memory starting at the input address and report parity errors. (Default Address is Zero) (DEL will return to CMD level.) 4/8

: MRS AAAAAA Read a single memory location continuously.

: WM AAAAAA Write Main Memory.

: WMS AAAAAA Write a single memory location continuously
Where A = Address  D = Data.

VIP Mode Miscellaneous Commands
Figure 5-10

for review
C? [OFL CPU00]
WORKING...
RD CMD FILE

OFL? [VIP]

*** DPS-8/L66 CPU MAINTENANCE PANEL * REV D.0 ***
Tape will not boot CPU stop in DIS

000000010000 474400060020 256723000044
000000010002 000000055252 202020202020
000000010004 202020202020 000000010410
000000010006 000000000000 202567253854
000000010010 633152520047 514627512144
000000010012 000000000000 000000000000
000000010014 000000000000 000000000000
000000010016 000000000000 000000000000
000000010020 000000000000 000000000000
000000010022 000000000000 000000000000
000000010024 475144472551 637020462620
000000010026 30445257066 254343203145
000000010030 264651442163 314465204670
000000010032 626325462220 31452337320
000000010034 264651203046 452570662543
000000010036 432025444743 467025256220
000000010040 464543702020 770154472162
000000010042 200600000002 256725236463
000000010044 316525205125 65332017717
000000010046 442020202020 1717171717
000000010050 1717171717 00000201000
000000010052 000000000000 000000000000
000000010054 000000000000 000000000000
000000010056 000000000000 000000000000
012010000520 075201062020

Hit DEL and CR.

Memory Read Listing
Figure 5-11
### T&D Tape Contents (As of Revision A.5)

<table>
<thead>
<tr>
<th>Primitive Function (Basic Checks of Processor)</th>
<th>PAS Executive</th>
<th>IRC, IF Driver</th>
<th>I/O Monitor Executive</th>
<th>Display APC</th>
<th>Update FW Tape</th>
<th>Update T&amp;D Tape (See Notes Below)</th>
<th>Peripheral Tests</th>
<th>End of File</th>
<th>Processor and Tests</th>
<th>End of File</th>
</tr>
</thead>
<tbody>
<tr>
<td>P M M M M M M M M M M M M M M M M M M M M</td>
<td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td>
<td>O M</td>
<td>102 thru</td>
<td>E</td>
<td>700 thru</td>
<td>E</td>
<td>980 thru</td>
<td>E</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Primitive Function Error Identification

If an error occurs on one of the PFT's, the Processor will stop in a DIS. To determine the cause of an error it is necessary to determine the record in which the error occurred. The record I.D. word will be in Location 010000g. Location 010000g will contain the following octal format:

\[
4 7 4 4 0 0 \text{X X X X} 2 0 \text{ (T&D Rev. A.2)}
\]

\[
P \quad M \quad 0 \quad \text{X X X X} \quad 2 \quad 0
\]

- \(0121 = 1A\)
- \(0171 = 1Z\)
- \(0221 = 2A\)
- \(0321 = 3A\)
- \(0421 = 4A\)
- \(0521 = 5A\)

To determine the function in error, use the following procedure:

1. Check Tape Controller Status = Ready.
2. Determine record number (Read Location 010000g)
4. Look up value of IC in appropriate listing. Comments in listing will indicate the function that failed. DIS (616g).

**Primitive Function Errors**  
**Figure 5-12**

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<td>13</td>
<td>ILLEGAL SLAVE PROCEDURE</td>
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<td>14</td>
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<td>15</td>
<td>NONEXISTENT ADDRESS</td>
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<tr>
<td>16</td>
<td>OUT OF BOUNDS</td>
</tr>
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<td>2</td>
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<tr>
<td>3</td>
<td>PROCESSOR PARITY (UPPER)</td>
</tr>
<tr>
<td>4</td>
<td>PROCESSOR PARITY (LOWER)</td>
</tr>
<tr>
<td>5</td>
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<td>6</td>
<td>CONNECT PORT B</td>
</tr>
<tr>
<td>7</td>
<td>CONNECT PORT C</td>
</tr>
<tr>
<td>8</td>
<td>CONNECT PORT D</td>
</tr>
<tr>
<td>9</td>
<td>SC TO PROCESSOR CONTROL SEQUENCE ERROR #1</td>
</tr>
<tr>
<td>13**</td>
<td>NOT USED</td>
</tr>
<tr>
<td>14**</td>
<td>IA0 PORT A</td>
</tr>
<tr>
<td>15**</td>
<td>IA1 PORT A</td>
</tr>
<tr>
<td>16**</td>
<td>IA2 PORT A</td>
</tr>
<tr>
<td>17**</td>
<td>IA3 PORT A</td>
</tr>
<tr>
<td>18**</td>
<td>IA4 PORT B</td>
</tr>
<tr>
<td>19**</td>
<td>IA5 PORT B</td>
</tr>
<tr>
<td>20**</td>
<td>IA6 PORT C</td>
</tr>
<tr>
<td>21**</td>
<td>IA7 PORT C</td>
</tr>
<tr>
<td>22**</td>
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<tr>
<td>23**</td>
<td>IA9 PORT D</td>
</tr>
<tr>
<td>24**</td>
<td>IA10 PORT D</td>
</tr>
<tr>
<td>25**</td>
<td>IA11 PORT D</td>
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<td>26**</td>
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<td>30**</td>
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<td>31**</td>
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<td>41**</td>
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<td>42**</td>
<td>IA28 PORT D</td>
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<td>45**</td>
<td>IA31 PORT D</td>
</tr>
<tr>
<td>46**</td>
<td>IA32 PORT D</td>
</tr>
<tr>
<td>47**</td>
<td>ZEROS</td>
</tr>
</tbody>
</table>

** No Fault, No Flush, and Cache Miss Occurs
** No Fault and Cache Flush
* Does not Cause a Fault

Fault Register Bit Decode
Figure 5-13
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INTRODUCTION

This manual provides information which is intended for use by you for familiarization with the DPS 8 System, Models 52/70, and associated hardware, firmware, and software.

Instructions and illustrations provide the proper sequence and methods for power-up and configuring the entire system in accordance with your requirements.

Distributed Maintenance Service (DMS) concepts are defined for you. Maintenance objectives and procedures, including calling the Response Center and remote hookup to the Technical Assistance Center (TAC), are presented for test and diagnosis of your system in the event of a suspected or actual malfunction.

The adjoining diagram represents the sequence of events that occur prior to, and during system operation. Initially, the system hardware is defined. Subsequent sections contain equipment power and configurations, procedures for interfacing with TAC, and methods of monitoring, testing and diagnosing suspected or actual equipment failures.
SECTION 1 HARDWARE

1.1 DPS 8 MODELS 52/70 SYSTEM

Distributed Processing System 8 (DPS 8) is Honeywell's family of large scale, general purpose information systems, one of the most capable and versatile available today. A basic DPS 8 Central System configuration includes a Central Processor Unit (CPU), an Input/Output Multiplexer (IOM), and a single Central Memory Unit (CMU) that contains one System Control Unit and 264K words of Main Memory.

The DPS 8 Model 52 is comprised of a Central System, one System Console and an optional Front-End Network Processor. In addition, a second System Console and Front-End Network Processor may be used. Main Memory may be expanded to a maximum of one megaword.

The DPS 8 Model 70 is comprised of the same named units as the Model 52, but with a much larger degree of expansion capability. The Model 70 can accommodate up to four Central Processor Units, four Input/Output Multiplexers and four Central Memory Units comprised of a total of four System Control Units and up to 4 megawords (GCOS VIII) of Main Memory. In addition, up to eight Front-End Network Processors and four System Consoles may be added.

*Refers to only that equipment required to be operated in accordance with procedures contained within this manual.
1.2 CENTRAL SYSTEM

1.2.1 CENTRAL PROCESSOR UNIT (CPU)

The Central Processor is the primary unit to execute all information processing instructions. It performs many system control functions independently, overlapping most operations for highly efficient instruction execution.

The Central Processor operates in three modes: master mode, privileged master modes, and slave mode. Master and privileged master modes are reserved for GCOS VIII. They allow unrestricted access to all memory, permit initiation of data transfers operations through the IOM's and permit the setting of control registers. Slave mode is used by GCOS VIII when appropriate, and for the execution of all user programs. Programs executing in slave mode cannot perform certain control operations. This tri-mode operation allows for effective operating control and security in a multiprogramming environment.
1.2.2 CENTRAL MEMORY UNIT (CMU)

The Central Memory Unit contains both the System Control Unit and Main Memory Unit.

The System Control Unit (SCU) is the principal interface between all Central System components. It handles all accesses to Memory for both the Central Processor and Input/Output Multiplexers. It also provides complete system interrupt control, regulates communication between components, and services all demands on Memory. The SCU switches control signals, addresses, and data in and out of the Memory Units, while monitoring data and control paths for accuracy. It also provides memory reconfiguration facilities to bypass memory modules with an irrecoverable error. This allows service personnel to work on a failed module without disturbing the operation of the remaining modules.

The Main Memory Unit features current solid state technology for reduced access time and automatic error detection and correction to help minimize data errors. The minimum Main Memory size is 264K words and may be expanded up to 16 megawords.
1.2.3 INPUT/OUTPUT MULTIPLEXER (IOM)

The IOM provides for a variable number of data channels that connect with the peripherals and Front-End Network Processors. All transfers of data between memory and peripheral devices or communication lines pass via the IOM. The IOM is responsible for coordinating the input/output operations of the System Control Units, Peripheral Controllers and Network Processors. All input/output operations occur independently of, and asynchronously with processing.
1.3 DPU SUBSYSTEM

The DPU Subsystem is utilized to facilitate remote hook-up of the Central System to the Technical Assistance Center (TAC) for diagnosis of suspected or actual equipment failures.

1.3.1 VIDEO DISPLAY UNIT

The Visual Information Projection (VIP) 7205 Video Display Unit consists of a CRT display with a separate keyboard interconnected via a ribbon cable. Normally, all data transfers are accomplished at a data rate of 1200 baud. An extension port for connecting an additional input or output device, such as a serial printer, is provided for user versatility.
1.3.2 DATA SET

The Data Set is provided by the customer as the necessary interface between the customers computer site and the Technical Assistance Center (TAC). The Data Set is a modulator/demodulator which converts digital computer data for transmission over commercial telephone lines.
1.3.3 DPU SYSTEM

A. DISKETTE DRIVE UNIT

The Diskette Drive Unit is a double-sided, two spindle flexible disk handling device. It provides the operator with a method of entering bootloader, operational, and diagnostic programs into the DPU.
B. CONTROL/MAINTENANCE PANEL

The full panel allows the DPU register and main memory contents to be entered and displayed. It controls, in a step-by-step fashion, the DPU initialization sequence.

REGISTER DISPLAY

A six-digit hexadecimal (hex) display in the upper part of the panel marked REGISTER indicates the two-digit LOCATION and four-digit CONTENTS of any one of the various user-visible registers.

HEXADECIMAL-PAD KEYS

The set of 16 hexadecimal keys in the right part of the control panel marked REGISTERS is called the hex pad. These keys provide access to the user-visible registers. In the select mode, a hex pad key-in selects the register to be operated on and the entered digits light up under LOCATION in the register display. In the change mode, a hex pad key-in changes the contents of the selected register and the entered digits light up under CONTENTS in the register display. Each keystroke shifts and loads one hexadecimal digit into the least significant hexadecimal position of the selected register and the display.
1.4 MICROPROGRAMMED PERIPHERAL CONTROLLER (MPC)

The MPC is a multipurpose peripheral device controller. It may be factory configured to control either tape, disk or card handling devices.

1.4.1 MAGNETIC TAPE CONTROLLER (MTC)

The MTC is a free standing, single or dual channel peripheral control device that is comprised of:

<table>
<thead>
<tr>
<th>MODEL 601</th>
<th>MODEL 610</th>
</tr>
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<tbody>
<tr>
<td>Basic MPC</td>
<td>Basic MPC</td>
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<tr>
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<td>Tape Unit Matrix</td>
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<td>Basic Tape Channel</td>
<td>Tape Control Adapter</td>
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<tr>
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</table>

The controller is capable of governing the operation of up to sixteen Magnetic Tape Handlers (MTH's). All data transfers between the Central System and associated peripheral devices are routed and controlled by the MTC.

Two different MPC control panels are available on either of the two controller models. One panel incorporates both maintenance and control functions while the other furnishes operator controls along with an input/output connector for use with the external maintenance panel.
1.5 SYSTEM CONSOLE

The System Console enables the operator to control and interact with the total DPS 8 system, entering messages, commands and responding to queries and requests from the system.

1.5.1 VIDEO DISPLAY UNIT

The Visual Information Projection (VIP) 7205 Video Display Unit consists of a CRT display with a separate keyboard interconnected via a ribbon cable. Normally, all data transfers are accomplished at a data rate of 1200 baud. An extension port for connecting an additional input or output device, such as a serial printer, is provided for user versatility.
1.5.2 SERIAL PRINTER - ROSY 26

The basic ROSY 26 Printer (slave terminal) provides the capability of printing 120 CPS in a 9x7 dot-matrix scheme. The interface is a serial EIA RS232/C which operates in asynchronous mode at 1200 baud (BPS) with TTY-like procedures.

The printer provides:

- Up to 132 print columns
- Paper handling of the tractor type
- Upper/lower case character set
1.5.3 PROCESSOR ACTIVITY MONITOR POD

The Processor Activity Monitor Pod furnishes the operator with the capability to bootload and initialize the Central System. The percentage of the maximum data traffic load experienced by the Central Processor is displayed via LED indicators.
SECTION 2  POWER AND CONFIGURATION

2.1  APPLYING SYSTEM POWER

2.1.1  CENTRAL SYSTEM

A. Central Processor-Power Supply

1. Set the Central Processor cabinet AC circuit breaker ① to the ON position.

2. Verify that the AC BKR ON indicator ③ is illuminated.

3. Ensure that the LOCAL-REMOTE switch ② is in the REMOTE position.

4. Set the Main Power circuit breaker (CBl) ② to the ON position.

5. Verify that the MAIN POWER ON and AC CONF indicators ② are illuminated.

6. Press and release the POWER ON switch-indicator ③.

7. Verify that the DC CONF indicator ② and POWER ON switch-indicator ③ are illuminated.

8. Verify that the POWER OFF switch-indicator ③ is extinguished.
B. Central Memory

1. Set the Central Memory cabinet AC circuit breaker ① to the ON position.

2. Verify that the AC BKR ON indicator ② is illuminated.

3. Ensure that the LOCAL-REMOTE switch ① is in the REMOTE position.

4. Set the Main Power circuit breaker (CBl) ① to the ON position.

5. Verify that the MAIN POWER ON and AC CONF indicators ① are illuminated.

6. Press and release the POWER ON switch-indicator ②.

7. Verify that the DC CONF indicator ① and POWER ON switch-indicator ② are illuminated.

8. Verify that the POWER OFF switch-indicator ② is extinguished.
C. Input/Output Multiplexer

1. Set the Input-Output Multiplexer cabinet AC circuit breaker \(1\) to the ON position.

2. Verify that the AC BKR ON indicator \(2\) is illuminated.

3. Ensure that the LOCAL-REMOTE switch \(1\) is in the REMOTE position.

4. Set the Main Power circuit breaker (CB1) \(1\) to the ON position.

5. Verify that the MAIN POWER ON and AC CONF indicators \(1\) are illuminated.

6. Press and release the POWER ON switch-indicator \(2\).

7. Verify that the DC CONF indicator \(1\) and POWER ON switch-indicator \(2\) are illuminated.

8. Verify that the POWER OFF switch-indicator \(2\) is extinguished.
2.1.2 DPU SUBSYSTEM

2.1.2.1 DPU SYSTEM

A. DPU POWER APPLICATION

1. At the Control/Maintenance panel ensure that the PANEL SECURITY key (1) is fully COUNTERCLOCKWISE.

2. Press the dust cover latch release (2) on Diskette Drive #0 and #1, remove any Diskette Media present.

   CAUTION

   THE DISKETTE MEDIA MUST BE REMOVED FROM THE DISKETTE DRIVE UNITS OR DAMAGE TO THE MEDIA OR DRIVE MAY RESULT.

3. Place the MAIN POWER ON-OFF switch (3) to the ON position.

4. Verify that the D.C. ON indicator (4) illuminates after approximately 20 seconds.

5. Place the Diskette Drive POWER OFF-ON switch (5) to the ON position.

6. Proceed to paragraph 2.1.2.1B, DPU AUTO BOOTLOAD.
(2.1.2.1 cont.)

B. DPU AUTO BOOTLOAD

1. Insert the bootload diskette media \(1\) into Diskette Drive \#0 as shown in the illustration.

2. Close both Diskette Drive Unit \#0 and \#1 dust covers by pulling down on the tab located at the center edge of the open covers.

3. Verify that Diskette Drive Unit \#0 monitor lamp \(2\) is flashing, indicating that data is being transferred.

NOTE

DPU bootload takes approximately three minutes during which time you will hear the diskette drive heads accessing data.

4. Verify the presence of the following message on the DPU Subsystem Video Display Unit \(3\).

\[***D\underline{P}_U_{\text{Rev.}}***\]

RMI ACTIVE

C?
(2.1.2.1B Cont.)

NOTE

If the correct message does not appear repeat steps 1 through 4 using the spare bootload diskette media. If the correct message still does not appear perform steps 6 through 9.

5. Remove and safeguard the diskette media then proceed to paragraph 2.1.2.2, DPU VIDEO DISPLAY UNIT.

6. Press the dust cover latch release 1 on Diskette Drive #0 and carefully remove the diskette media.

CAUTION

THE DISKETTE MEDIA MUST BE REMOVED FROM THE DRIVE UNIT OR DAMAGE TO THE MEDIA OR DRIVE MAY RESULT.

7. Place the MAIN POWER OFF-ON switch 2 in the OFF position then back to ON.
NOTE

Approximately 30 seconds time delay is required for the DPU system to reach an operational state.

8. At the Monitor lamps verify that the DC ON indicator is illuminated.

9. Repeat steps 1 through 5 using the original bootload diskette media.

NOTE

If bootload is still not successful proceed to paragraph 2.1.2.1C, DPU MANUAL BOOTLOAD.
C. CPU MANUAL BOOTLOAD

1. At the Control/Maintenance panel turn the PANEL SECURITY key 1 fully CLOCKWISE.

2. At the Control Keyboard 2 press the identified keys in sequential order:

3. At the Monitor lamps verify that the CHECK and TRAFFIC indicators 3 extinguish after approximately 30 seconds.

NOTE
If the CHECK and TRAFFIC lamps have not extinguished after the first attempt repeat the procedure. If the indicators do not extinguish after the second attempt, note the error and continue with paragraph 2.1.2.2 DPU VIDEO DISPLAY UNIT.
4. At the Control Keyboard press EXECUTE E to initiate software bootload.

NOTE
DPU bootload takes approximately three minutes during which time you will hear the diskette drive heads accessing data.

5. Verify the presence of the following message on the DPU Subsystem Video Display Unit 2.

*** D ___ P ___ U ___ (Rev.) ***
RMI ACTIVE C?

NOTE
If the correct message does not appear repeat steps 2 through 5. If after the second attempt the correct message still does not appear proceed to paragraph 2.1.2.1D DPU MANUAL BOOT ALTERNATE METHOD.

6. Remove and safeguard the diskette media then proceed to paragraph 2.1.2.2, DPU Video Display Unit.
D. DPU MANUAL BOOT ALTERNATE METHOD

1. Press the dust cover latch release 1 on Diskette Drive Unit #0 and remove the diskette media present.

2. Press the dust cover latch release 2 on Diskette Drive Unit #1.

3. Insert the bootload diskette removed from Diskette Drive #0 into Diskette Drive #1 as shown in the illustration 3.

4. Close both Diskette Drive Unit #0 and #1 dust covers by pulling down on the tab located at the center edge of the open covers.

5. At the Control Keyboard 4 press the identified keys in sequential order:

   L
   CLR
   EXECUTE E

   1
   2
   3
   4
6. At the Monitor lamps verify that the CHECK and TRAFFIC indicators extinguish after approximately 30 seconds.

NOTE
If the CHECK and TRAFFIC indicators do not extinguish repeat steps 5 and 6. If they do not extinguish after the second attempt note the error and continue with paragraph 2.1.2.2, DPU VIDEO DISPLAY UNIT.

7. At the Control Keyboard press the identified keys in sequential order:

8. At the Alpha-Numeric keyboard type in:

D 1
9. At the Control Keyboard ① press the identified key:

☐ C ☐ ☐ ☐ ☐ ☐ ☐

☐ CLR ☐ ☐ EXECUTE ☐

10. At the Alpha-Numeric Keyboard ② type in:

0 4 8 0

11. At the Control Keyboard ① press the identified keys in sequential order:

☐ ☐ ☐ ☐ ☐ ☐ ☐

① R ② EXECUTE ☐ E

NOTE

DPU bootloader takes approximately three minutes during which time you will hear the diskette drive heads accessing data.
12. Verify the presence of the following message on the DPU Subsystem Video Display Unit.

*** D__ P__ U__ (Rev.)***

RMI ACTIVE
C?

NOTE

If the correct message does not appear repeat steps 5 through 12. If after the second attempt the correct message still does not appear note the failure and proceed to 2.1.2.2, DPU Video Display Unit.
2.1.2.2 DPU VIDEO DISPLAY UNIT

A. POWER APPLICATION

1. Place the POWER OFF-ON switch to the ON position.

2. Verify that the POWER ON indicator is illuminated.

B. SWITCH CONFIGURATION

NOTE

Normal switch positions are underscored.

Place the identified switches to their NORMAL positions.

SWITCH ③

<table>
<thead>
<tr>
<th>ROLL</th>
<th>DUPLEX</th>
<th>MODEM</th>
<th>BAUD</th>
<th>STOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAGE</td>
<td>HALF</td>
<td>FULL</td>
<td>HI</td>
<td>LO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RATE</th>
<th>BITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

SWITCH ④

<table>
<thead>
<tr>
<th>Character</th>
<th>Line</th>
<th>On Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer</td>
<td>Page</td>
<td>Local</td>
</tr>
</tbody>
</table>

POWER AND CONFIGURATION
No operator power up or configuration requirements exist for this unit.
2.1.3 MICROPROGRAMMED PERIPHERAL CONTROLLER (MPC)

A. MAGNETIC TAPE CONTROLLER (MTC)—MODEL 601, 610

1. Set the Magnetic Tape Controller cabinet AC circuit breaker 1 to the ON position.

2. Verify that the AC BKR ON indicator 3 is illuminated.

3. Ensure that the LOCAL-REMOTE switch 2 is in the REMOTE position.

4. Set the Main Power circuit breaker (CB1) 2 to the ON position.

5. Verify that the MAIN POWER ON and AC CONF indicators 2 are illuminated.

6. Press and release the POWER ON switch indicator 3.

7. Verify that the DC CONF indicator 2 and the POWER ON switch—indicator 3 are illuminated.

8. Verify that the POWER OFF switch—indicator 3 is extinguished.

POWER AND CONFIGURATION
2.1.4 SYSTEM CONSOLE

A. VIDEO DISPLAY UNIT

1. Place the **POWER OFF-ON** switch ① to the **ON** position.

2. Verify that the **POWER ON** indicator ② is illuminated.
B. SERIAL PRINTER-ROSY 26

1. Place the POWER OFF-ON switch 1 to the ON position.

2. Verify that the STANDBY and ON-LINE indicators 2 are illuminated.
(2.1.4 Cont.)

C. PROCESSOR ACTIVITY MONITOR POD

No operator power up or configuration requirements exist for this unit.
2.2 CONFIGURING THE SYSTEM

2.2.1 SYSTEM CONSOLE

A. VIDEO DISPLAY UNIT

NOTE

Normal switch positions are underscored.

1. Place the identified rear panel switches \(1\) to their NORMAL positions.

<table>
<thead>
<tr>
<th>ROLL</th>
<th>DUPLEX</th>
<th>MODEM</th>
<th>RATE</th>
<th>BITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAGE</td>
<td>HALF</td>
<td>FULL</td>
<td>HI</td>
<td>LO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,2</td>
<td></td>
</tr>
</tbody>
</table>

2. Place the identified front panel switches \(2\) to their NORMAL positions.

Character Line On Line
Buffer Page Local
B. PROCESSOR ACTIVITY MONITOR POD
   o No operator configuration requirements exist for this unit.

C. SERIAL PRINTER-ROSY 26
   o No operator configuration requirements exist for this unit.
2.2.2 MICROPROGRAMMED PERIPHERAL CONTROLLER (MPC)

MAGNETIC TAPE CONTROLLER (MTC) – MODEL 601, 610

- Verify that all panel switches are in the site configuration position.

CONFIGURATION SWITCH APPLICATION
IN NORMAL FIRMWARE ENVIRONMENT

<table>
<thead>
<tr>
<th>SWITCH #</th>
<th>MTS 500</th>
<th>MTP 601</th>
<th>MTP 610</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UP</td>
<td>DOWN</td>
<td>UP</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SEE TABLE 1

TABLE 1

SWITCHES 4, 5, 6, 7

<table>
<thead>
<tr>
<th>TAPE BOOTLOAD</th>
<th>DEVI. NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 0 0 1</td>
<td>DEVICE NO. ONE</td>
</tr>
<tr>
<td>0 0 0 10</td>
<td>DEVICE NO. TWO</td>
</tr>
<tr>
<td>0 0 1 1</td>
<td>DEVICE NO. THREE</td>
</tr>
<tr>
<td>0 1 0 0</td>
<td>DEVICE NO. FOUR</td>
</tr>
<tr>
<td>0 1 0 1</td>
<td>DEVICE NO. FIVE</td>
</tr>
<tr>
<td>0 1 1 0</td>
<td>DEVICE NO. SIX</td>
</tr>
<tr>
<td>0 1 1 1</td>
<td>DEVICE NO. SEVEN</td>
</tr>
<tr>
<td>0 0 0 0</td>
<td>DEVICE NO. EIGHT</td>
</tr>
</tbody>
</table>

SEE TABLE 2

TABLE 2

EQUIP. TYPE

<table>
<thead>
<tr>
<th>TAPE DENSITY</th>
<th>555</th>
<th>800</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTS 500</td>
<td>DN</td>
<td>UP</td>
</tr>
<tr>
<td>MTP 601</td>
<td>DN</td>
<td>UP</td>
</tr>
<tr>
<td>MTP 610</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

REQUIRES OPERATOR INPUT DURING TAPE HANDLER SELECTION AND LOADING.

CONFIDENCE

MICROPROGRAM READABLE

58009853

POWER AND CONFIGURATION
2.2.3 CENTRAL SYSTEM

A. CENTRAL PROCESSOR UNIT (CPU)

- Verify that all switches are in the normal site configuration position.

<table>
<thead>
<tr>
<th>CPU #</th>
<th>PORTS</th>
<th>ASSIGNMENT</th>
<th>INTERLACE</th>
<th>ENABLE PORT INIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Store Size</td>
<td>PROCESSOR</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROCESSOR FAULT BASE ADDRESS (SWITCHES)</th>
<th>6 7 8 9 10 11 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON UP ON</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROCESSOR NUMBER</th>
<th>2^2 2^1 2^0</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODE</td>
<td></td>
</tr>
</tbody>
</table>

---

**POWER AND CONFIGURATION**

---

- Configuration Diagram
- Store Size
- Processor Fault Base Address
- Processor Number
- Mode
- Alarm
- Init-Clear
- Execute

---

**REV C**
## Power and Configuration

**CPU #2**

<table>
<thead>
<tr>
<th>PORTS</th>
<th>ASSIGNMENT 0</th>
<th>ASSIGNMENT 1</th>
<th>ASSIGNMENT 2</th>
<th>INTERLACE</th>
<th>ENABLE PORT INIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Store Size**

Processor

**Processor Fault Base Address (Switches)**

6 7 8 9 10 11 12

**Processor Number**

$2^2$ $2^1$ $2^0$

**Mode**

---

**CPU #3**

<table>
<thead>
<tr>
<th>PORTS</th>
<th>ASSIGNMENT 0</th>
<th>ASSIGNMENT 1</th>
<th>ASSIGNMENT 2</th>
<th>INTERLACE</th>
<th>ENABLE PORT INIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Store Size**

Processor

**Processor Fault Base Address (Switches)**

6 7 8 9 10 11 12

**Processor Number**

$2^2$ $2^1$ $2^0$

**Mode**

---

**Configuration**

<table>
<thead>
<tr>
<th>PORTS</th>
<th>ASSIGNMENT 0</th>
<th>ASSIGNMENT 1</th>
<th>ASSIGNMENT 2</th>
<th>INTERLACE</th>
<th>ENABLE PORT INIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Store Size**

<table>
<thead>
<tr>
<th>POSITION</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>32K</td>
</tr>
<tr>
<td>1</td>
<td>64K</td>
</tr>
<tr>
<td>2</td>
<td>128K</td>
</tr>
<tr>
<td>3</td>
<td>256K</td>
</tr>
<tr>
<td>4</td>
<td>512K</td>
</tr>
<tr>
<td>5</td>
<td>1M</td>
</tr>
<tr>
<td>6</td>
<td>2M</td>
</tr>
<tr>
<td>7</td>
<td>4M</td>
</tr>
</tbody>
</table>

**Processor Fault Base Address**

**Processor Number**

$2^2$ $2^1$ $2^0$
### B. CENTRAL MEMORY UNIT (CPU)

- Verify that all switches are in the normal site configuration positions.

#### SCU A

<table>
<thead>
<tr>
<th>PORT ENABLE</th>
<th>PANEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Cyclic Priority</td>
<td></td>
</tr>
<tr>
<td>Non-Existent Address</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Mask Port Assignment</td>
<td></td>
</tr>
<tr>
<td>Store</td>
<td></td>
</tr>
</tbody>
</table>

#### SCU B

<table>
<thead>
<tr>
<th>PORT ENABLE</th>
<th>PANEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Cyclic Priority</td>
<td></td>
</tr>
<tr>
<td>Non-Existent Address</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Mask Port Assignment</td>
<td></td>
</tr>
<tr>
<td>Store</td>
<td></td>
</tr>
</tbody>
</table>
C. INPUT/OUTPUT MULTIPlexer UNIT (IOM)

- Verify that all switches are in the normal site configuration positions.

<table>
<thead>
<tr>
<th>IOM 0</th>
<th>SYSTEM</th>
<th>SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORT ENABLE</td>
<td>INIT ENABLE</td>
<td>ASSIGNMENT</td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IOM 1</th>
<th>SYSTEM</th>
<th>SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORT ENABLE</td>
<td>INIT ENABLE</td>
<td>ASSIGNMENT</td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IOM BASE</th>
<th>ON</th>
<th>ON</th>
<th>UP</th>
<th>UP</th>
<th>ON</th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERRUPT BASE</td>
<td>ON</td>
<td>ON</td>
<td>UP</td>
<td>UP</td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>CHANNEL NUMBER CODE</th>
<th>OPERATING MODE</th>
</tr>
</thead>
</table>

POWER AND CONFIGURATION
### POWER AND CONFIGURATION

<table>
<thead>
<tr>
<th>PORT ENABLE</th>
<th>INIT ENABLE</th>
<th>ASSIGNMENT</th>
<th>RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td>A &amp; B</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td>C &amp; D</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td>E &amp; F</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td>E &amp; F</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
<td>G &amp; H</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
<td>G &amp; H</td>
</tr>
<tr>
<td>G</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### IOM 2

- IOM BASE: ON ON ON ON ON
- INTERRUPT BASE: ON UP UP UP ON

### IOM 3

- IOM BASE: ON UP UP UP ON
- INTERRUPT BASE: ON UP UP UP UP

### Configuration Diagram

- [Diagram showing power and configuration setup]
D. SOFTWARE STARTUP

At the System Console:

1. Having mounted your system task media, press the INITIALIZE button located on the Processor Activity Monitor Pod ①.

2. Press the RETURN key on the Video Display Unit Keyboard ②.

3. Verify the presence of the following message on the Video Display Unit ③.

$$\text{CONSOLE READY VER 1.4}$$

NOTE

If the message is not present repeat the procedure. If after the second attempt the message still does not appear perform paragraph 4.1, PRIOR TO CALLING THE RESPONSE CENTER.
4. Press the **BOOT** button located on the Processor Activity Monitor Pod \(1\).  

5. Verify the presence of operator messages and answer, via the Video Display Unit Keyboard, any questions displayed \(2\), \(3\).  

A. Typical Bootload in progress messages:

```
NOTE

Your replies to central system questions should be made in accordance with your particular installation operating instructions.

*REPLACE?  
*RESTART?  
*SCF CONTINUATION?  
*DATE 000000?  
*TIME 00.000?  
*INITIALIZE?  
*SYSOUT FOUND: A BACKDOOR FILE, TOO
```
B. Typical Bootload failure messages:

*BOOTLOAD DEVICE ERROR
*COMMAND FAULT AT 00154046,
CAN NOT PROCEED

NOTE

If failure messages appear perform paragraph 4.1, PRIOR TO CALLING THE RESPONSE CENTER.

6. Proceed with normal job processing.
2.3 POWER SHUTDOWN

2.3.1 NORMAL SHUTDOWN (Central System)

NOTE

Prior to normal central system shut-down perform a boot-down of the operating system.

A. INPUT-OUTPUT MULTIPLEXER UNIT (IOM)

1. Press and release the POWER OFF switch indicator (1).

2. Set the Main Power circuit breaker (CBI) (2) to OFF.

3. Set the AC circuit breaker (3) to OFF.

B. CENTRAL MEMORY UNIT (CMU)

1. Press and release the POWER OFF switch-indicator (4).

2. Set the Main Power circuit breaker (CBI) (5) to the OFF position.

3. Set the AC circuit breaker (6) to the OFF position.
C. CENTRAL PROCESSOR UNIT (CPU)

1. Press and release the POWER OFF switch-indicator 1.

2. Set the Main Power circuit breaker (CBI) 2 to OFF.

3. Set the AC circuit breaker 3 to OFF.

2.3.2 EMERGENCY SHUTDOWN (CENTRAL SYSTEM)

In the event that emergency shutdown is required due to equipment malfunction or hazardous conditions, the following procedure shall be followed.

A. If your system is so configured, at the Processor Activity Monitor Pod on the System Console 4 press the EMERGENCY POWER OFF switch.

B. Set equipment circuit breaker at the Site Main Power Distribution Panel to the OFF position.
SECTION 3 DISTRIBUTED MAINTENANCE SERVICE (DMS)

3.1 GENERAL

Honeywell's Distributed Maintenance Services (DMS) provides large systems users with a comprehensive program of installation and maintenance support and services. DMS is designed to coordinate Honeywell's full service capabilities, thereby providing customers with improved product system performance and availability. Through responsive, competent service offerings, the proper technical support resources will provide rapid response to customer needs and focus on effective solutions which reduce downtime and improve overall system availability.

3.2 THE BENEFITS OF DMS

To achieve improved system performance and availability and increase the probability of no-visit or first-visit repairs, the DMS maintenance philosophy emphasizes:

- Advanced remote diagnostic capabilities.
- Remote software support and hardware technical assistance.
- A single-point dispatch for service.
- Adequate parts inventory at a point near the user.
- Fully trained technical specialists who can provide the broadest spectrum of maintenance services.

3.3 THE ELEMENTS OF DMS

DMS is implemented to provide full service capabilities through a number of major elements including:

- Technical Assistance Center (TAC) - a remote software support and hardware technical assistance service.
- Response Center System - for single-point dispatch of service requests.
- Logistics Inventory Data System - a major network for control and distribution of spare parts.
- Service Account Representative - for personalized efficient service and direct interaction with user's data processing staff.
- Field Engineering Representatives.
- Specialized Services.
SECTION 4  TECHNICAL ASSISTANCE CENTER (TAC)

4.1 PRIOR TO CALLING THE RESPONSE CENTER

When you feel that it has become necessary to call for Honeywell technical assistance please take a few additional moments to assure yourself that you have not overlooked a small procedural step. A careful review of the following symptom-related-questions will provide you with increased confidence prior to CALLING THE RESPONSE CENTER.

A. SYSTEM DOWN—WON'T BOOT

- Did you attempt the startup more than once? Refer to paragraph 2.2.3D

- Did you double-check the system configuration? Refer to paragraphs 2.2.3A,B,C.

- Did you successfully boot the DPU System? Refer to paragraphs 2.2.4.3A,B,C,D.

B. SYSTEM INTERMITTENT FAILURES/JOB ABORTS

- Can your provide the TAC specialist with a clear description of the problem and symptoms?

- What error message did you receive at the time of failure?

- Is the problem a reoccurring problem? If yes, is there a specific time interval or type of job being performed correlation?

DPU WON'T BOOT

- Did you try both the Autoboot and Manual Boot procedures? Refer to paragraphs 2.2.4.3A,B,C,D.

PERIPHERAL PROBLEM—SYSTEM RUNS

- What type of peripheral is experiencing the problem?

- Did you attempt to alleviate the problem using the pertinent unit manual?

- Can you provide the TAC specialist with a clear description of the problem and symptoms?

Proceed to paragraph 4.2, CALLING THE RESPONSE CENTER.
CALLING THE RESPONSE CENTER

When it becomes necessary to call Honeywell for technical assistance you will call the Response Center.

The Response Center will ask you for following information:

1. System Number
2. Confirmation of the name and address of the company.
3. Type of problem i.e. Hardware or Software.

Having collected the above information the Response Center will forward these system particulars to the Technical Assistance Center (TAC). Please wait for the TAC specialist to contact you.
4.3 PROBLEM & SYSTEM DESCRIPTION

Having received your call from the Technical Assistance Center (TAC) you will be required to furnish the TAC specialist with parts or all of the following information.

4.3.1 FAULT SYMPTOMS

A. System Down - Won't Boot
B. System Intermittent Failures
C. DPU Down - Won't Boot
D. Peripheral Problem - System Runs

4.3.2 SYSTEM DESCRIPTION

Each installation is characterized by differing amounts and types of equipment. Your installation is described within the chart on the following page. This information may be required by the TAC Specialist in his efforts to isolate and resolve faults within the system. It is critical that these system particulars be accurate and up-to-date.
## System Configuration Chart

<table>
<thead>
<tr>
<th>Port #</th>
<th>CPU# / PORT#</th>
<th>IOM# / PORT#</th>
<th>CPU# / PORT#</th>
<th>IOM# / PORT#</th>
<th>CPU# / PORT#</th>
<th>IOM# / PORT#</th>
<th>CPU# / PORT#</th>
<th>IOM# / PORT#</th>
<th>CPU# / PORT#</th>
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</tbody>
</table>

## Memory Assignment/Size

<table>
<thead>
<tr>
<th>Port #</th>
<th>Memory A OR B</th>
<th>Memory Size</th>
<th>Port #</th>
<th>Memory A OR B</th>
<th>Memory Size</th>
<th>Port #</th>
<th>Memory A OR B</th>
<th>Memory Size</th>
<th>Port #</th>
<th>Memory A OR B</th>
<th>Memory Size</th>
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</tr>
</tbody>
</table>

### Numbering System
- **SCU ID:** A, B, C, D
- **IOM ID:** 0-3
- **SCU Port #:** 0-7
- **IOM Port #:** A, B, C, D
- **CPU ID:** 0-3
- **Memory ID:** A OR B
- **Memory Size:** 256K, 512K, 768K, 1024K
- **DPU ID:** CPU--, IOM--, SCU--
4.4 DPU REMOTE HOOKUP TO TAC

4.4.1 ACTIVATE REMOTE MAINTENANCE

A. Ensure that the DPU is operational by observing the presence of data messages on the DPU Video Display Unit.  

B. Upon receiving instructions from TAC switch the telephone from the talk mode to the data mode via the line selection buttons ② and hang up.

NOTE

Additional DPU commands not utilized within this section are contained under the tab entitled RMI COMMANDS.
C. Wait for the TAC remote maintenance request ①.

D. Respond to the request by:
   Type in:  #ENA REM
   Depress: RETURN ②

E. Wait for the remote connected message ③.

F. Indicates that TAC has control and is ready to test your system ④.

G. Proceed to paragraph 4.4.2, TAC INSTRUCTIONS.

NOTE

All messages to the operator from TAC will be prefaced with a right parenthesis character ⑤.
4.4.2 TAC INSTRUCTIONS

The TAC specialist has a variety of methods at his disposal to diagnose your equipment problems. His selection will be based upon the failure description that you provided during your initial contact. The following troubleshooting methods represent the choices at his disposal.

- Run the system with TAC interaction (Job Monitoring) - paragraph 4.4.2.1
- Run TOLTS (Total On-Line Test System) - paragraph 4.4.2.2
- Run PAS2 (Off-Line Test and Diagnostics) - paragraph 4.4.2.3
- Use the MPC portable maintenance panel - paragraph 4.4.2.4

At the direction of TAC proceed to the appropriate paragraph.

4.4.2.1 JOB MONITORING

A. Having previously established DPU REMOTE HOOKUP TO TACK, paragraph 4.4.1, TAC will invoke the DPU ON-LINE function. Please move to the System Console.
(4.4.2.1 Cont.)

B. At the System Consoles Video Display Unit
Keyboard respond to the \texttt{#REM REQ#} by:

- Depress and hold \texttt{ESC}
- Type in \texttt{#ENA REM SPACE REM}
- Release \texttt{ESC}
- Depress \texttt{RETURN}

C. TAC has gained control and is capable of monitoring all of your System Console activities.

\textbf{NOTE}

SHOULD YOU DESIRE TO TEMPORARILY TERMINATE TAC CONTROL:

- Depress and hold \texttt{CTL}
- Type in \texttt{X}
- Release \texttt{CTL}

D. Should you desire to communicate with the TAC specialist there are three methods at your disposal.
1. **QUICKEST METHOD** - This method of communicating is ideal for transmission of short messages and it does not inhibit the System Consoles ability to communicate with the Central System.

   o At the DPU Video Display Unit Keyboard:
     
     Depress )
     
     Type in the text of message - maximum one line
     
     Depress RETURN 1
   
   o Wait for TAC to reply to your message 3.

2. **ALTERNATE METHOD** - This method would be used if the text of the message will exceed a single line.

   o At the DPU Video Display Unit Keyboard:
     
     Type in # E N A SPACE T E X
     
     Type in the message text lines
     
     Depress RETURN 2 to transmit each line
   
   o Wait for TAC to reply to your message 3.
3. **LEAST DESIRABLE METHOD** - This method while being the most convenient should be considered the least desirable because when you enter the text mode on the System Console you are diminishing your capability to easily respond to Central System requests and instructions. You also risk losing TAC replies to your communications while you are responding to the Central System.

- At the System Console Video Display Unit Keyboard:
  
  Type in `# E N A SPACE T E X`
  
  Depress **RETURN**

  **NOTE**

  You have now inhibited your ability to communicate with the Central System. Your only connection via the Keyboard is directly to TAC.

- Type in the text of the message.
  
  Depress **RETURN** to transmit each line
(4.4.2.1 Cont.)

- Wait for TAC to reply to your message 1.

NOTE

If you receive instructions or messages from the Central System while in the text mode you must restore the communications link between the Central System and the console keyboard before attempting to reply. During this period any communications received from TAC will be lost at the Central Console, but may be viewed at the DPU Video Display Unit.

- Re-establish the communications link between the Central System and the console keyboard by:
  
  Type in # E N A SPACE C O N

  Depress RETURN 2

- Reply to the Central Systems question or instruction.

- Return to the text mode using the Normal #ENA TEX command if so desired.
(4.4.2.1 Cont.)

E. Normally TAC will relinquish control of the System Console. At the completion of JOB MONITORING, Notification will appear at the Video Display Unit 1.

NOTE

If for any reason you desire to terminate the TAC Remote System Console connection perform step F.

F. At the System Console terminate the TAC remote connection by:

- Depress and hold **ESC**
- Type in **#D I S** SPACE **R E M**
- Release **ESC**
- Depress **RETURN** 2
4.4.2.2 TAC RUN TOLTS

A. Perform paragraph 4.4.2.1, steps A-C allowing TAC to gain control and monitor your system console activities.

B. TAC will inform you that they are running the total On-Line Test System (TOLTS), (Example Only).

NOTE
Ignore all test message data that may appear.

C. No further action is required unless instructed to do so by the TAC specialist. Please standby the DPU Subsystem.

NOTE
If you must enter the text mode to communicate with the TAC specialist refer to paragraph 4.2.2.1, step D.
4.4.2.3 TAC RUN PAS2

A. Mount the PAS2 and firmware tapes on convenient tape handlers 1. Note each tape handler number.

B. Locate the tape MPC configuration panel 2 and enter the octal equivalent to the PAS2 tape handler number in switches 5, 6, 7.

<table>
<thead>
<tr>
<th>TAPE HANDLER</th>
<th>SWITCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(5)</td>
</tr>
<tr>
<td>1</td>
<td>DN</td>
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<tr>
<td>2</td>
<td>DN</td>
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<td>3</td>
<td>DN</td>
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<td>7</td>
<td>UP</td>
</tr>
<tr>
<td>8</td>
<td>DN</td>
</tr>
</tbody>
</table>

C. At the IOM CONFIGURATION panel 3, place the identified switches in their appropriate position.

<table>
<thead>
<tr>
<th>SWITCH NAME</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOM BASE</td>
<td>OCTAL 1400 (As indicated)</td>
</tr>
<tr>
<td>INTERRUPT BASE</td>
<td>OCTAL 1340 (As indicated)</td>
</tr>
<tr>
<td>SOURCE</td>
<td>TAPE</td>
</tr>
<tr>
<td>CHANNEL NUMBER CODE</td>
<td>OCTAL 20 (As indicated)*</td>
</tr>
<tr>
<td>OPERATING MODE</td>
<td>EXT. GCOS</td>
</tr>
</tbody>
</table>

*Check your particular site configuration, paragraph 2.2.3 C and D.
D. Press the INITIALIZE button located on the Processor Activity Monitor Pod 1.

E. Press the RETURN key on the Video Display Unit Keyboard 2.

F. Verify the presence of the following message on the Video Display Unit 3.

#CONSOLE READY VER 1.4#
(4.4.2.3 Cont.)

G. At the DPU Video Display Unit Keyboard type in:

) SYSTEM SPACE IS SPACE INITIALIZED

Depress RETURN 1

H. Wait for TAC to invoke the DPU ON-LINE function 2.
(4.4.2.3 Cont.)

I. At the System Console Video Display Unit verify the presence of TAC's remote maintenance request 1.

J. Respond to the request by:

Depress and hold ESC
Type in # ENA SPACE REM
Release ESC
Depress RETURN

K. Verify the presence of the $REMOTE CONNECTED$ message 2 indicating that TAC is capable of controlling/monitoring your system console activities.

L. Press the BOOT button located on the Processor Activity Monitor 3.

NOTE
At the System Console Video Display Unit various PAS options will be listed 4. If the message, "IS MTS F/W ALREADY LOADED?" is to be answered "N" for No perform step M. If answered "Y" for Yes go to step N.
M. At the MPC configuration panel enter the octal equivalent to the firmware tape handler number noted in step A.

<table>
<thead>
<tr>
<th>TAPE HANDLER #</th>
<th>SWITCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(5)</td>
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</tr>
<tr>
<td>8</td>
<td>DN</td>
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</tbody>
</table>

N. No further action is required unless directed by TAC.

NOTE
Should \texttt{REMOTE DISCONNECTED} appear on the System Console Video Display screen it indicates that TAC has completed their task and relinquished control of the System Console. Additional messages from TAC, if any, will appear on the DPU Video Display Unit.
4.4.2.4 MPC PORTABLE MAINTENANCE PANEL

A. Locate the MPC Portable Maintenance Panel 1.

B. Connect the two plugs to the MPC Configuration Panel 2.
   - Note that the plugs are not interchangeable.
   - Rotate the plugs as necessary to insert them. Turn the locking ring to secure each plug.

C. TAC will direct you in the setting of switches and reading of display information on the Maintenance and Configuration panels.
SECTION 5    REMOTE MAINTENANCE INTERFACE (RMI) COMMANDS

5.1 RMI PROTOCOL

- All command inputs are entered as upper case, fixed format, prefixed with a $ sign and terminated by RETURN.

   Example: $ ENA REM RETURN

- RMI commands may be entered at any time from either the REMOTE (TAC) or local (DPU) Video Display Unit, whether the keyboard is active or inactive.

- RMI acknowledges command input by issuing a carriage return and linefeed.

- All RMI responses are bracketed by $ signs.

- For inputs other than RMI commands only one keyboard (Local or Remote) is active at a time. Control may be taken from the active keyboard by issuing a BRK or CTRL X. The remote connection may be terminated by issuing a command of DIS REM from either the remote or local location.

5.1.1 RMI COMMANDS AND RESPONSES

<table>
<thead>
<tr>
<th>COMMAND</th>
<th>EXPLANATION</th>
<th>RESPONSE</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>$STA</td>
<td>Display RMI status to issuing terminal</td>
<td>$REM DIS#</td>
<td>Remote Disabled</td>
</tr>
<tr>
<td>$REM ENA#</td>
<td>Remote Enabled</td>
<td>$REM ENA#</td>
<td>Remote Enabled</td>
</tr>
<tr>
<td>$LOC ACT#</td>
<td>Local Keyboard Active</td>
<td>$REM ACT#</td>
<td>Remote Keyboard Active</td>
</tr>
<tr>
<td>$REM ACT#</td>
<td>Remote Keyboard Active</td>
<td>$REM ACT#</td>
<td>Remote Keyboard Active</td>
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<tr>
<td>$MAI ENA#</td>
<td>Maintenance Mode Enabled</td>
<td>$MAI ENA#</td>
<td>Maintenance Mode Enabled</td>
</tr>
<tr>
<td>$TEK ENA#</td>
<td>Test Mode Enabled</td>
<td>$TEK ENA#</td>
<td>Test Mode Enabled</td>
</tr>
<tr>
<td>$MON DIS#</td>
<td>Monitor Disabled</td>
<td>$MON DIS#</td>
<td>Monitor Disabled</td>
</tr>
<tr>
<td>$MON ENA#</td>
<td>Monitor Enabled</td>
<td>$MON ENA#</td>
<td>Monitor Enabled</td>
</tr>
<tr>
<td>$CPY DIS#</td>
<td>Copy Disabled</td>
<td>$CPY DIS#</td>
<td>Copy Disabled</td>
</tr>
<tr>
<td>$CPY ENA#</td>
<td>Copy Enabled</td>
<td>$CPY ENA#</td>
<td>Copy Enabled</td>
</tr>
<tr>
<td>$REM RBQ#</td>
<td>Remote is connected and requesting control</td>
<td>$REM RBQ#</td>
<td>Remote is connected and requesting control</td>
</tr>
</tbody>
</table>

#ENA REM (DPU Only) Allows the remote keyboard (TAC) to input to the control system. Disables the local keyboard

#DIS REM Terminate the remote connection

#REM DIS# Remote Disconnected

RMI COMMANDS
<table>
<thead>
<tr>
<th>COMMAND</th>
<th>EXPLANATION</th>
<th>RESPONSE</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ENA MON</td>
<td>Enable local monitor to view DPU data to TAC</td>
<td>data....</td>
<td>Designates data going to TAC</td>
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<tr>
<td>(DPU only)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>$DIS MON</td>
<td>Disable local monitor</td>
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<td></td>
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<tr>
<td>(DPU only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$ENA CPY</td>
<td>Enable remote copy of local input and output.</td>
<td></td>
<td>Designates input</td>
</tr>
<tr>
<td>(DPU only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$DIS CPY</td>
<td>Disable remote copy</td>
<td></td>
<td>Designates output</td>
</tr>
<tr>
<td>(DPU only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$ENA MAI</td>
<td>Enable maintenance mode (Normal DPU mode)</td>
<td></td>
<td>Designates text mode</td>
</tr>
<tr>
<td>(DPU only)</td>
<td>Disable text mode</td>
<td></td>
<td>Designates received text</td>
</tr>
<tr>
<td>$ENA CON</td>
<td>Exit text mode</td>
<td></td>
<td></td>
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<tr>
<td>$ENA TEX</td>
<td>Enables text mode</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMAND</th>
<th>EXPLANATION</th>
<th>RESPONSE</th>
<th>DEFINITION</th>
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</thead>
</table>
| CTL X        | Enables issuing keyboard, Disables other keyboard| $LOC ACT$
|              |                                                 |          |                             |
|              | Designates text string to be transmitted without enabling text mode
| (DPU only)   |                                                 |          |                             |
| CX           | DPU captures system console                     | $REM ACTIVE$
| (DPU only)   |                                                 |          |                             |
|              |                                                 |          | Illegal RMI Command         |
|              |                                                 | $?$      |                             |
## APPENDIX B

<table>
<thead>
<tr>
<th>Section</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
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<td>B-1 thru B-7</td>
</tr>
<tr>
<td>Section 2: System Commands</td>
<td>B-9 thru B-14</td>
</tr>
<tr>
<td>Section 3: Console Troubleshooting Guide</td>
<td>B-15 thru B-18</td>
</tr>
</tbody>
</table>
APPENDIX B - SECTION 1

1.0 DPU START-UP

1.1 FIELD CONFIG

<table>
<thead>
<tr>
<th>UNIT</th>
<th>BOARD</th>
<th>CHANNEL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diskette 0</td>
<td>MDC</td>
<td>0400x</td>
<td>Boot Record, O/S, and &quot;SMTCS&quot;</td>
</tr>
<tr>
<td>Diskette 1</td>
<td>MDC</td>
<td>0480x</td>
<td>Lib &amp; User Scratch</td>
</tr>
<tr>
<td>Local VIP</td>
<td>MDC</td>
<td>0500x</td>
<td></td>
</tr>
<tr>
<td>Remote</td>
<td>MLCPl</td>
<td>1000x</td>
<td>(Sys. Maint/Test)</td>
</tr>
<tr>
<td>Site Config</td>
<td>MLCPl</td>
<td>1080, 1100, 1180, ...</td>
<td>(Contro Software)</td>
</tr>
</tbody>
</table>

1.2 FACTORY CONFIG

<table>
<thead>
<tr>
<th>UNIT</th>
<th>BOARD</th>
<th>CHANNEL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSU00</td>
<td>MSC</td>
<td>0400x</td>
<td>Boot &amp; System SFWR</td>
</tr>
<tr>
<td>Diskette 0</td>
<td>MDC</td>
<td>0800x</td>
<td>Bkup Media</td>
</tr>
<tr>
<td>Diskette 1</td>
<td>MDC</td>
<td>0880x</td>
<td>Bkup Media</td>
</tr>
<tr>
<td>8 Bit GPI</td>
<td>MDC</td>
<td>0900x</td>
<td>Factory Auto Interface</td>
</tr>
<tr>
<td>Local Rosy</td>
<td>MLCPl</td>
<td>1000x</td>
<td>Console</td>
</tr>
<tr>
<td>Lev II Comm</td>
<td>MLCPl</td>
<td>1080x</td>
<td>Unit(s) Under Test/FFICS (Factory Floor Info. Cont. Sys.)</td>
</tr>
</tbody>
</table>

1.3 POWER-UP

Floppy Drives Mass Store Drive
VIP Rosy

1.4 MANUAL BOOTLOAD (Key switch must be unlocked) (Enable Maintenance)
Depress Maintenance Panel keys:
- STEP
- CLEAR
- LOAD
- EXECUTE

QLT's are invoked - CHECK and TRAFFIC indicators should be illuminated. When CHECK and TRAFFIC indicators extinguish, QLT's are complete.

Mount system Diskette on Drive 0. (System Pack on MSM for factory system)
Depress EXECUTE.

Bootload begins.

1.5 AUTO BOOTLOAD
- Disable Maintenance Panel via Key switch (to lock position)
- Switch on DPU power
- Mount system diskette on drive 0 (READY Mass Store Drive if factory)

DPU will automatically sequence through the steps outlined in Section 1.4 and begin the bootload.
1.6 START-UP COMPLETE

The DPU is ready when the prompt "C?" appears on the local VIP. Proceed to Section 2, "DPU Function Commands".

If DPU operating system trouble occurs after this point there will be a "SYS ERROR" code reported on the local/remote terminal, or the DPU will halt with error codes in registers 1 and 2.

- **SYS ERROR CODES:** Are reported on local VIP and/or remote terminal. See Table 2 for "OPERATIONAL ERROR CODES (OEC)" and recovery procedures.

- **DPU ERROR HALT:** Display and record registers 1 and 2 on the DPU Maintenance Panel. Proceed to Table 1 for error codes and any possible recovery procedures.

1.7 START-UP ERRORS (Bootload and Init. of DPU Operating System)

- **Quality Logic Tests (QLT's)**

  These hardware-resident QLT's are automatically run as the first phase of the Bootload sequence. If the CHECK or TRAFFIC indicators remain illuminated longer than approximately 30 seconds after LOAD/EXECUTE, there is a QLT failure. (Reference course K910 for repair or DPU hardware.)

- **Bootload Phase**

  If trouble occurs during the actual Bootload phase the DPU will halt with error codes in registers 1 and 2. Display and record the values of registers 1 and 2 on the DPU Maintenance Panel. Proceed to Table 1 for error codes and recovery procedures.

- **DPU Config Processing**

  Two error types which will halt the DPU are reported by the Config Load Manager software module during initial DPU Config. Processing.

  - **Comm errors (R1 = 0BXX)**
    Indicate an invalid COMM Configuration.

  - **CMD errors (R1 = 13XX)**
    Indicate an improper CLM CMD directive or argument.

Unless a DPU hardware failure has occurred, appearance of these error types indicates an improper entry has been made during the previous "CBLD" activity.
1.7 START-UP ERRORS (Cont'd.)

- DPU Config Processing (Cont'd.)

To bypass the error, follow the restart procedure at 1.8 until the DPU completes start-up with the prompt "C?". Then enter the "CBLD" function to correct the indicated errors. Reboot the DPU after the "CBLD" command.

GENERAL INFORMATION

The DPU config is contained on two separate files within the SMTCS (System Maintenance and Test Control Software) diskette:

- System Attributes and non-comm directives are on the file CLM_USER, which is fixed and not accessible by the DPU user. CLM_USER contains diskette, and local terminal configuration information.

- COMM directives (MLCP connections) are on the file CLM_SITE, which is site dependent and accessible by the DPU user via the "CBLD" command. CLM_SITE contains remote, system console, and unit connection (CPUXX, SCUXX) configuration information.

The Config Load Manager (CLM) processes the DPU config sequentially, starting with CLM_USER, then CLM_SITE.

1.8 CONFIG COMMAND RESTART PROCEDURE

Config errors (OBXX and 13XX) may be bypassed and processing continued by clearing RL (DI on DPU Maintenance Panel) and resuming:

On the DPU Maintenance Panel:
- Depress STEP
  SELECT.
- Key in "DI" to select register 1.
- Depress CHANGE.
- Key in "0000" to clear RL.
- Depress RUN
  EXECUTE to resume processing.

If additional errors are detected (as is generally the case), repeat the above procedure until all config errors are bypassed. Start-up is complete with the prompt "C?" on the local VIP.

Once the DPU is ready ("C?"), enter the "CBLD" function to correct the indicated errors, then reboot the DPU.
APPENDIX B - SECTION 1

TABLE 1

DPU ERROR CODES

The error types listed in this table usually indicate a DPU hardware failure or a bad system diskette. Replace the diskette or see course K910 for DPU hardware repair.

**NOTE:** It is possible that error types OBXX and 13XX could be caused by an improper entry being made during the previous "CBLD" activity. See Section 1.7, DPU Config Processing, for information and recovery procedure.

Further error definition should not be needed in the field or factory floor environment. If additional information is desired on an error code see LEVEL 6 Manual.

R1 and R2 and D1 and D2 on the DPU Maintenance Panel.

<table>
<thead>
<tr>
<th>R1</th>
<th>INITIAL BOOTLOAD FAILURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>R2 = Operational Error Code (OEC) (Secondary information) See Table 2.</td>
</tr>
<tr>
<td>R1</td>
<td>9900</td>
</tr>
<tr>
<td>R1</td>
<td>9908</td>
</tr>
<tr>
<td>R1</td>
<td>9911</td>
</tr>
<tr>
<td>R1</td>
<td>9924</td>
</tr>
<tr>
<td>R1</td>
<td>9926</td>
</tr>
<tr>
<td>R1</td>
<td>9927</td>
</tr>
<tr>
<td>R1</td>
<td>99XX</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R1</th>
<th>BOOTSTRAP HALT</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>1616</td>
</tr>
<tr>
<td>R1</td>
<td>16XX</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R1</th>
<th>SOFTWARE COMM MODULE ERRORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>OBXX</td>
</tr>
<tr>
<td>R1</td>
<td>OB13</td>
</tr>
<tr>
<td>R1</td>
<td>OB23</td>
</tr>
<tr>
<td>R1</td>
<td>OB48</td>
</tr>
<tr>
<td>R1</td>
<td>OB49</td>
</tr>
<tr>
<td>R1</td>
<td>OB4A</td>
</tr>
<tr>
<td>R1</td>
<td>OBXX</td>
</tr>
</tbody>
</table>
APPENDIX B - SECTION 1

TABLE 1

DPU ERROR CODES - CONT'D

R1 = 13XX SOFTWARE "CMD" MODULE ERRORS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1301</td>
<td>Command Directive invalid</td>
</tr>
<tr>
<td>1302</td>
<td>Command argument required decimal digit</td>
</tr>
<tr>
<td>1303</td>
<td>Command argument requires smaller digit</td>
</tr>
<tr>
<td>1306</td>
<td>Command includes an argument error</td>
</tr>
<tr>
<td>130F</td>
<td>Command error due to missing or faulty argument</td>
</tr>
<tr>
<td>1324</td>
<td>Command specifies invalid device type</td>
</tr>
<tr>
<td>132A</td>
<td>Command specifies duplicate channel</td>
</tr>
<tr>
<td>1339</td>
<td>Command device error, cannot read label</td>
</tr>
<tr>
<td>13XX</td>
<td>Other codes (See footnote at bottom of this page.)</td>
</tr>
</tbody>
</table>

R2 = CDXX SMTCS COMMAND PROCESSOR INIT ERRORS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDXX</td>
<td>Other codes (see footnote below.)</td>
</tr>
</tbody>
</table>

These errors may be caused by invalid entries to the "CBLD" command of the DPU. Follow recovery procedure in Section 1.8.

This is the final stage of bootload. Failures detected during this init phase will halt the DPU with error codes in R1 and R2. To retry, clear R1 and press RUN. (Ref. CMD Error Retry Section 1.8.)

Footnote: All codes listed as XX are concerned with the DPU operating system software. The DPU O/S is not accessible by, or manipulated by the DPU user. However, for your information, all codes are defined in LEVEL 6 Manual.
APPENDIX B - SECTION 1

TABLE 2

OPERATIONAL ERROR CODES

The BASIC EXEC generates these error types on behalf of SMTCS, and SMTCS generally reports them as "SYS ERROR" codes on the DPU terminal (local and/or remote).

During bootload, these error codes may accompany other primary errors, as indicated in Table 1, to further isolate failures or report unexpected occurrences.

The OEC errors will be registered in R1 or R2, depending on primary error.

<table>
<thead>
<tr>
<th>OEC = 01XX</th>
<th>I/O ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEC = 0105</td>
<td>Device not ready</td>
</tr>
<tr>
<td>OEC = 0106</td>
<td>Device timeout no interrupt</td>
</tr>
<tr>
<td>OEC = 0107</td>
<td>Hardware error in status word</td>
</tr>
<tr>
<td>OEC = 0108</td>
<td>Device software disabled</td>
</tr>
<tr>
<td>OEC = 0109</td>
<td>File mark encountered</td>
</tr>
<tr>
<td>OEC = 010A</td>
<td>Controller unavailable</td>
</tr>
<tr>
<td>OEC = 010B</td>
<td>Device unavailable</td>
</tr>
<tr>
<td>OEC = 01XX</td>
<td>Other codes (See footnote on Page B-5.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OEC = 02XX</th>
<th>COMM SOFTWARE ERROR CODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEC = 02XX</td>
<td>All codes (See footnote on page B-5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OEC = 03XX</th>
<th>SOFTWARE TRAP CODE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEC = 0311</td>
<td>Memory or MEGABUS error</td>
</tr>
<tr>
<td>OEC = 0318</td>
<td>Memory bus error</td>
</tr>
<tr>
<td>OEC = 03XX</td>
<td>Other codes (See footnote on page B-5.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OEC = 06XX</th>
<th>MEMORY MANAGEMENT ERRORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEC = 06XX</td>
<td>All codes (See footnote or page B-5.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OEC = 08XX</th>
<th>EXEC SERVICE ERRORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEC = 081E</td>
<td>Unrecoverable media error on roll in/out.</td>
</tr>
<tr>
<td>OEC = 0821</td>
<td>Error loading system overlay.</td>
</tr>
<tr>
<td>OEC = 08XX</td>
<td>Other codes (See footnote on page B-5.)</td>
</tr>
</tbody>
</table>
APPENDIX B - SECTION 1

TABLE 2

OPERATIONAL ERROR CODES - CONT’D.

<table>
<thead>
<tr>
<th>OEC = 16XX</th>
<th>LOADER ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEC = 1607</td>
<td>Unrecoverable media error</td>
</tr>
<tr>
<td>OEC = 16XX</td>
<td>Other codes (See footnote on page B-5.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OEC = DXXX</th>
<th>DYNAMIC MAINTENANCE PANEL ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEC = D108</td>
<td>DMP Read task disabled - fatal error</td>
</tr>
<tr>
<td>OEC = D108</td>
<td>DMP Read terminated - DMP unavailable</td>
</tr>
<tr>
<td>OEC = D110</td>
<td>DMP connect timeout; check cables</td>
</tr>
<tr>
<td>OEC = D204</td>
<td>Expected response from DMP not received</td>
</tr>
<tr>
<td>OEC = D801</td>
<td>DMP Read or Write is busy - fatal error</td>
</tr>
<tr>
<td>OEC = DXXX</td>
<td>Unexpected response from DMP</td>
</tr>
</tbody>
</table>

| OEC = XXXX | OTHER OEC ERRORS REPORTED BY EXEC |

The error types listed on this table usually indicate a DPU hardware failure or a bad system diskette. Replace the diskette or see course K910 for DPU hardware repair.

Further error definition should not be needed in the field or factory environment. If additional information is desired on an error code, see LEVEL 6 Manual.
THIS PAGE INTENTIONALLY LEFT BLANK.
APPENDIX B - SECTION 2
SYSTEM COMMANDS

At the "C?" prompt on the 7200 VIP, if you type in a "?" carriage return (C/R) you get the following display:

C?  ?

SYS CMDS  (U = UNIT KEY_NAME REQUIRED)

OFL  U
ONL  U
CLST
CBLD
IDLE

This is a list of all commands that can be entered at the C? prompt.
All commands must be terminated by a carriage return.
APPENDIX B - SECTION 2

SYSTEM COMMANDS - CONT'D.

The DPU has been hooked up to the devices, and software was boot-
ed into the DPU. The software must be made aware of what devices
are hooked to what cables. This is accomplished with the "CBLD"
verb.

Typing the "CBLD" verb at the C? prompt results in the following
display:

```
C? CBLD
WORKING...

ENTER UPDATE OPTIONS BUILD, ADD, CHANGE, OR LIST
??
```

Entering a "?" in response to the above message will give a list
of permissible commands that can be entered at this time.

Resultant display to your ? input

```
? LIST
    BUILD
    ADD
    CHANGE
    DONE
    ABORT
```
APPENDIX B - SECTION 2

SYSTEM COMMANDS - CONT'D.

At the end of the display just received, "ENTER UPDATE OPTION" was printed again and a response of "BUILD" was typed in as shown below.

The two lines printed after "BUILD" was entered show the fixed remote modem configuration.

Next, response to the "ENTER DEVICE NAME" is a '?' . This will give a listing of all acceptable device names.

The "XX" in the device name can be 00 through 99.

```
ENTER UPDATE OPTION: BUILD, ADD, CHANGE, OR LIST
?BUILD
NAME   CHAN   BAUD   MODEM

REMTOT 1000 1200  1
ENTER DEVICE NAME: ?
REMTOT
LOCAL
CPUXX
CPMXX
LCCXX
SCUXX
FEPXX
```
SYSTEM COMMANDS - CONT'D.

At the end of the listing just received, the "ENTER UPDATE OPTION:" was asked again, and a response of "BUILD" was given. A question/answer sequence is now entered and the configuration of the devices can be given to the "DPU" software.

```
ENTER UPDATE OPTION: BUILD, ADD, CHANGE, OR LIST
7BUILD
NAME   CHAN   BAUD   MODEM
REMT0  1000  1200   1
ENTER DEVICE NAME: CPU00
ENTER CHANNEL NUMBER: 1100
ENTER DEVICE NAME: LCC00
ENTER CHANNEL NUMBER: 1080
ENTER DEVICE NAME: DONE
NAME   CHAN   BAUD   MODEM
REMT0  1000  1200   1
CPU00  1100  1200   0
LCC00  1080  1200   0
```

When you have entered all key names and channel numbers and you wish to exit this operation, type in "DONE". This will result in a heading line and a type out of the configuration just entered. You must now wait until the C? prompt is displayed. When this occurs, and the configuration just generated is to be made permanent, you must now reboot the DPU.
APPENDIX B - SECTION 2

SYSTEM COMMANDS - CONT'D.

To enable the "ONL" function so that the "TAC" personnel can use their console (at the TAC center) as the system console, perform the following:

At C? prompt type in: ONL space LCC00

At the site's system console and at the DPU display, #REMOTE REQUEST # will be displayed.

Type in #ENA REM, which will result in # REMOTE CONNECTED # being displayed on the site's system console and on the DPU console.

C? ONL LCC00
WORKING...

# REMOTE REQUEST #

#ENA REM

# REMOTE CONNECTED #

To enter/exit the Maintenance mode, do the following:

At the C? prompt enter: OFL space CPU00.

As a result of this command the display will be an OFL? prompt. Now enter the command VIP. This will result in a display of CMD prompt.

To go back to the OFL? prompt from the CMD prompt, type in TM.

To go back to the C? prompt from the OFL?, type in Q.

C? OFL CPU00
WORKING...
RD CMD FILE

OFL? VIP
*** DPS-8/L66 CPU MAINTENANCE PANEL * REV D.O ***
CMD TM
OFL? Q
C?
APPENDIX B - SECTION 2

SYSTEM COMMANDS - CONT'D.

You may desire to get a listing of the DPU configuration. This may be accomplished by two different commands, CLST and CBLD.

CLST gives the following display:

```
C?  CLST
WORKING...
```

<table>
<thead>
<tr>
<th>SPD DEVICE NAME</th>
<th>CHANNEL NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>* DSK00</td>
<td>* 0400 *</td>
</tr>
<tr>
<td>* LOCAL</td>
<td>* 0500 *</td>
</tr>
<tr>
<td>* DSK01</td>
<td>* 0480 *</td>
</tr>
<tr>
<td>* REM0T</td>
<td>* 1000 *</td>
</tr>
<tr>
<td>* LCC00</td>
<td>* 1080 *</td>
</tr>
<tr>
<td>* CPU00</td>
<td>* 1100 *</td>
</tr>
<tr>
<td>* FEP01</td>
<td>* 1160 *</td>
</tr>
</tbody>
</table>

OR

The "LIST" option under the "CBLD" verb will give the following display:

```
C?  CBLD
WORKING...
```

ENTER UPDATE OPTION: BUILD, ADD, CHANGE, OR LIST

?LIST

NAME    CHAN  BAUD MODEM
RE0T    1000  1200  1
LCC00   1080  1200  0
CPU00   1100  1200  0
FEP01   1160  1200  0
CONJK BOARD GREEN LIGHT ON?

- TURN VIP OFF-LINE.
- TURN VIP SWITCH ON REAR TO "LOCAL COPY" POSITION.
- DEPRESS SEVERAL KEYS ON THE VIP KEYBOARD.

CHARACTERS DISPLAY PROPERLY?

- REFERENCE JPA TO REPAIR/REPLACE THE CONJK BOARD.
- REPAIR VIP, USING T&R GUIDE.
- RETURN VIP SWITCHES TO ON-LINE AND ECHO.
APPENDIX B - SECTION 3

FROM SHEET 1

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- RETURN ROSY TO ON-LINE STATUS.
- TURN VIP OFF-LINE AND BACK ON-LINE.
- PRESS CARRIAGE RETURN KEY ON THE VIP.

CONSOLE MESSAGE PRINT ON ROSY?

YES

- SOMETHING INTERMITTENT IN ROSY OR CONJK INITIALIZATION ROUTINES.

NO

GARBAGE PRINTED ON ROSY?

YES

- CHECK VIP BAUD RATE SWITCH--SHOULD BE 9.
- REPAIR ROSY, USING T&R GUIDE (NOT RECEIVING PROPERLY).
- REFERENCE JPA TO REPLACE CONJK BOARD (TRANSMITTING GARBAGE).
- CHECK INTERNAL OPTIONING IF THIS IS AN INSTALLATION PROBLEM.

TO SHEET 1

C B-15

Console/DPU Subsystem Troubleshooting Guide
Sheet 3 of 3