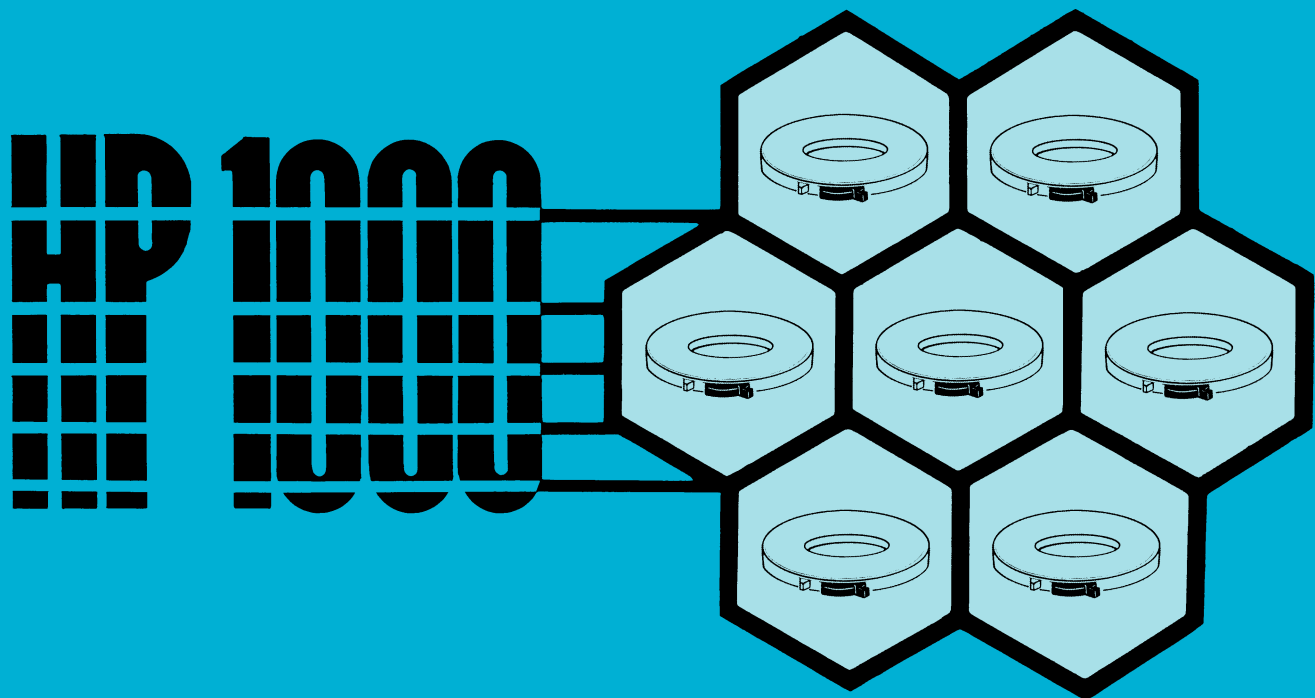


GETTING STARTED WITH YOUR PRIMARY SYSTEM

HP 1000 RTE-IVB Operating System



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PRINTING HISTORY

The Printing History below identifies the Edition of this Manual and any Updates that are included. Periodically, Update packages are distributed which contain replacement pages to be merged into the manual, including an updated copy of this Printing History page. Also, the update may contain write-in instructions.

Each reprinting of this manual will incorporate all past Updates, however, no new information will be added. Thus, the reprinted copy will be identical in content to prior printings of the same edition with its user-inserted update information. New editions of this manual will contain new information, as well as all Updates.

To determine what software manual edition and update is compatible with your current software revision code, refer to the appropriate Software Numbering Catalog, Software Product Catalog, or Diagnostic Configurator Manual.

First Edition	Jan 1983	Introduction of Primary System disc
Update 1	Oct 1983	2176E and 2177F

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PREFACE

This manual is intended to familiarize you with the RTE-IVB Primary System as quickly as possible. After you have gone through this manual, you can go to other manuals for more detailed information. A list of manuals is provided in the RTE-IVB Software Numbering Catalog (92068-90011).

Chapter 1 introduces the Primary System and the Primary System disc.

Chapter 2 leads you through the system start-up and shut-down procedures.

Chapter 3 guides you through certain system housekeeping operations to familiarize you with system management.

Chapter 4 describes more system maintenance procedures. These are steps to allow additional concurrent program execution, to change your system configuration, and to generate your own system.

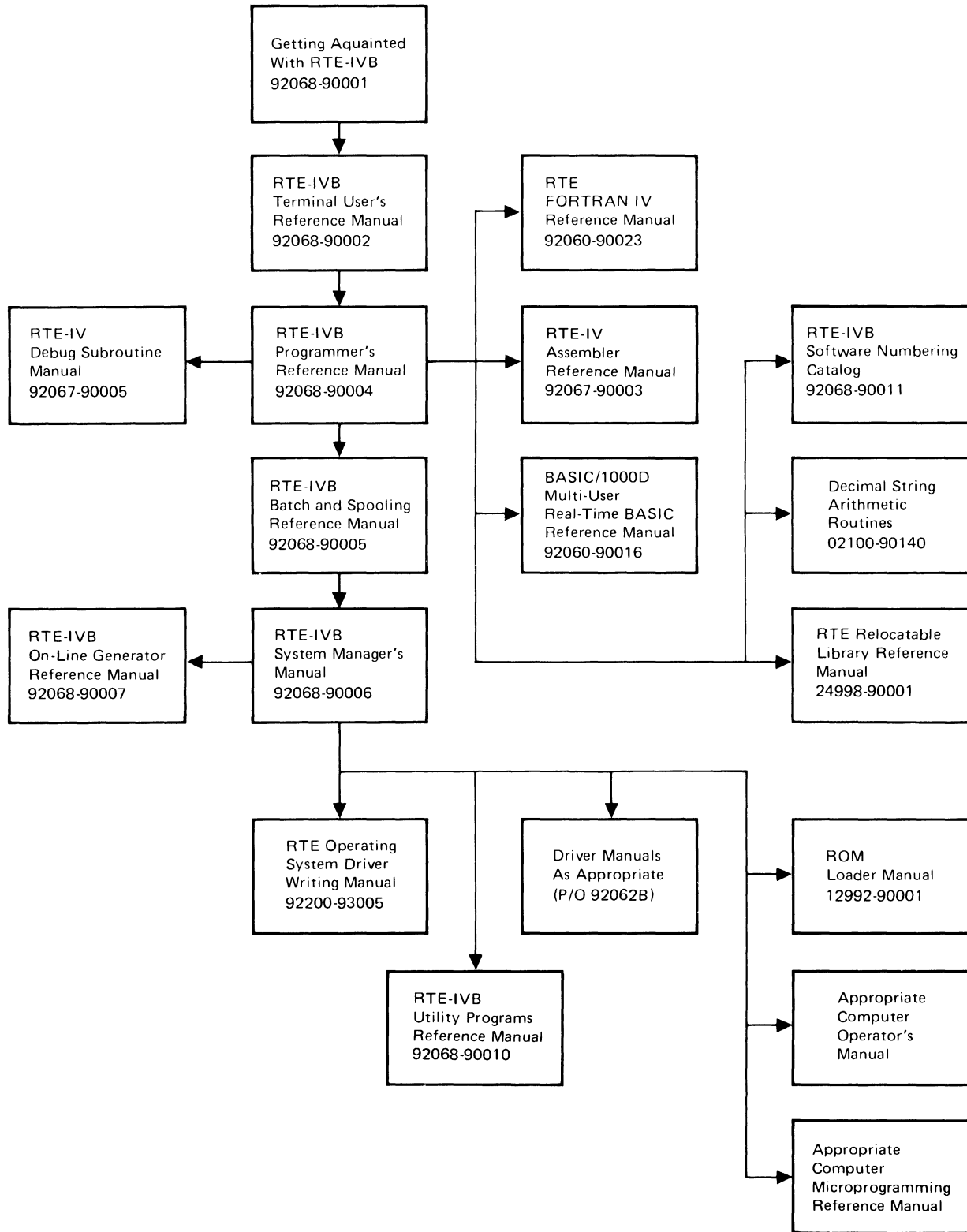
Appendix A describes boot-up troubleshooting.

Appendix B describes the manual system start-up procedure.

Appendix C describes restoring your software onto disc.

Other sources of information for the system manager are found in the RTE-IVB System Manager's Reference Manual.

RTE-IVB DOCUMENTATION MAP



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Chapter 1

INTRODUCTION

PRIMARY SYSTEM

The Primary System is a preconfigured system designed to facilitate software installation of the HP 1000 Computer System with RTE-IVB. The Primary System is supplied on a Primary System disc that can be booted up by the HP Customer Engineer installing the system. A tested, working operating system is available to test the functionality of the install hardware and to demonstrate the operations without performing a system generation. The Primary System is a starter system with sufficient capabilities that can be used by system users until a customized system is generated by the System Manager.

The Primary System software consists of the factory generated operating system and the RTE-IVB relocatable modules. It is delivered on a medium appropriate to your system. There are four Primary Systems (400 through 403) to support the HP 1000 Computer System with the E- or F-Series processor. The medium on which the Primary System is supplied is determined by your disc model.

PRIMARY SYSTEM DISC

The Primary System disc number is found on the front of the disc or the top of the disc pack. Compare this number with the list of numbers given below to verify that the correct Primary System medium has been supplied for your system.

Logical Primary System Number	Part Number	Medium
400	92068-13002	7905M/7906M disc
	92068-13006	7920M disc
401	92068-13003	7925M disc
402	92068-13004	7906H disc
	92068-13007	7920H disc
403	92068-13005	7925H disc

The Primary System provides a configured operating system that is not processor dependent. However, an option is provided to allow reconfiguration of the processor if needed. Each disc also contains all the HP 92068A RTE-IVB operating system components. These are the relocatable modules located on LU 10 of the Primary System disc. The configuration of the Primary System is described in Appendix A of the RTE-IVB System Manager's Reference Manual (92068-90006).

Introduction

The configuration of the Primary System is shown in the system answer file and list file that are included in the Primary System. Identification of the system answer file and list file is shown below.

System Number	Disc Type	Answer File Name	List File Name
400	7905M, 7906M, 7920M	#AN400	<input checked="" type="checkbox"/> LF400
401	7925M	#AN401	<input checked="" type="checkbox"/> LF401
402	7906H, 7920H	#AN402	<input checked="" type="checkbox"/> LF402
403	7925H	#AN403	<input checked="" type="checkbox"/> LF403

SYSTEM BACKUP

The Primary System disc should be backed up immediately after system installation. This will ensure that a working system is always available for troubleshooting in case of any catastrophic system problems. The off-line backup procedure is given in the RTE-IVB Utility Programs Reference Manual (92068-90010).

Chapter 2

SYSTEM START-UP AND SHUT-DOWN

STARTING UP YOUR SYSTEM

When your disc-based HP1000 system is installed, the RTE-IVB Primary System resides on the Primary System disc cartridge. The only procedure necessary to load the Primary System into memory and make your system operational is to turn on the components and insert the Primary System disc cartridge into the disc drive. The Primary System loading and start-up are entirely automatic. To start-up your system it is assumed that your system has been shut down following the SYSTEM SHUT-DOWN procedure given later in this chapter.

If you want to reconfigure your system for any reason, perform steps 1 through 4 given below and then perform the manual boot-up procedure as described in Appendix B of this manual.

AUTO BOOT-UP

Given below is the simple procedure to be followed in starting up your system. If you have previously been through these steps and have followed the SYSTEM SHUT-DOWN procedure, you may wish to skip ahead to the SYSTEM START-UP SUMMARY at the end of this section, otherwise proceed to the procedure given below.

STEP 1. TURN ON DISC DRIVE POWER

Ensure that the Battery Switch is set to "OFF".

If your system is the 2176C or 2177C (vertically racked model), go to the front of the cabinet and locate the system ON/OFF power switch in the upper right corner of the rack, as shown in Figure 2-1. Press this switch, which should light up.

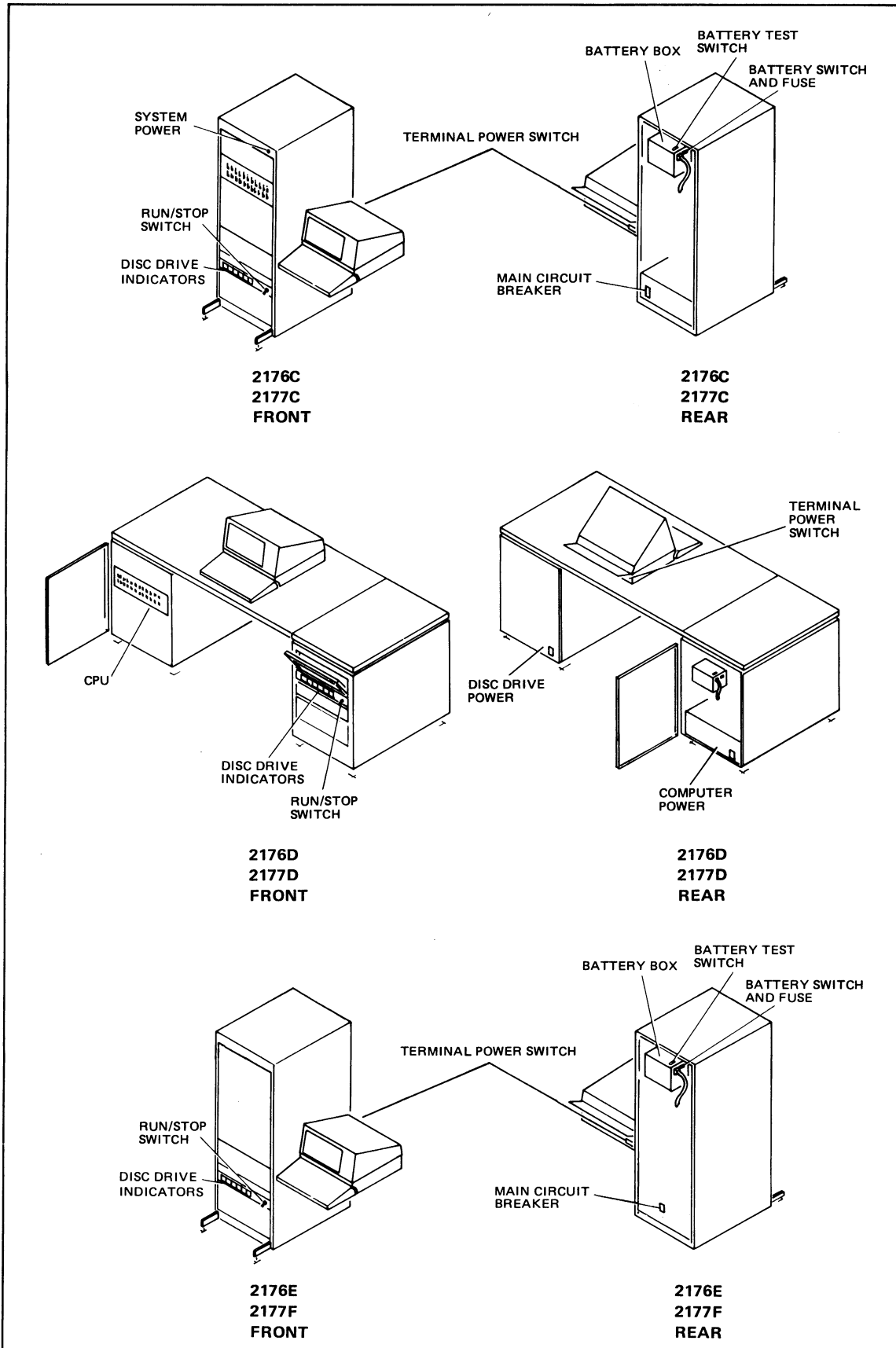
If your system is the 2176D or 2177D (desk model), go to the rear of the disc drive unit. Locate the power switch in the lower left corner as shown in Figure 2-1 and set it to ON.

STEP 2. TURN ON MAIN POWER TO COMPUTER

If you have a 2176C or 2177C (vertically racked model), you turned on the main power to the computer when you set the system ON/OFF switch to ON. Proceed to Step 3.

If you have a 2176D or 2177D (desk model), set the Battery Switch to "OFF" and locate the POWER switch at the rear of the computer mini-rack in the bottom left corner, shown in Figure 2-1. Set the POWER switch to ON.

System Start-Up And Shut-Down



7700-454A

Figure 2-1. System Switches

STEP 3. INSERT DISC CARTRIDGE/PACK

If you want to change or insert a disc cartridge, first set the RUN/STOP switch on the front of the disc drive (see Figure 2-1) to STOP. When the DOOR UNLOCKED light comes on, open the door of the drive, pulling the top of the door firmly out towards you, and pull out the cartridge. Insert a new cartridge by grasping the handle of the cartridge, and with the labeled surface up, slide the disc in and close the door.

STEP 4. SET RUN/STOP SWITCH

On the front of the disc drive cabinet, locate the RUN/STOP switch. Set it to RUN and observe that the door unlocked light goes out.

If manual boot-up is to be performed, proceed to Appendix B.

STEP 5. VERIFY CORRECT SYSTEM START-UP

Turn the power switch at the rear of the terminal to ON. If power is already on, press the RESET button twice in rapid succession.

“TERMINAL READY” should be displayed at the top of the screen of the system console. Look at the DISC READY indicator on the front of the disc drive unit. It will take about 30 seconds for the disc to come up to speed, and the DRIVE READY indicator will light. Now look at the system console. A message will be displayed indicating that the various subsystems in your Primary System are being initialized. Then you will see the message:

```
* *****  
*  
*           HP 1000 SYSTEM           *  
*  
*      System Start Up Completed      *  
*  
*      System Date Code: XXXX         *  
*  
* *****
```

Your Primary System is running and ready for use.

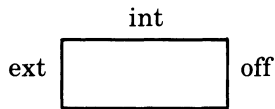
If you have no display on the system console:

- a. Check to make sure the terminal is plugged in and that the power switch under the rear door of the terminal is set to ON.
- b. Perform the SHUT-DOWN procedure and then wait 5-10 seconds.
- c. Perform the START-UP procedure again.

If you still have no display, see “Boot-up Trouble-Shooting” in Appendix A.

STEP 6. TURN ON POWER FAIL BATTERY

Now that the system is running, locate the battery box inside the rear of the computer cabinet. Find the battery switch marked:



behind the battery cable as shown at the top of Figure 2-1. Set this switch to int. This turns the power-fail battery ON, which protects the main memory of the computer for up to two hours if the power should fail. When power returns, the computer will then be able to resume operation with no loss of memory.

If the real time clock is to be kept by your system, enter the time using the TM command. See the RTE-IVB Terminal User's Reference Manual for details of this command.

Now proceed to Chapter 3, "Getting Acquainted with Your System", for your first steps in system operation.

SYSTEM START-UP SUMMARY

1. Set Battery Switch to "OFF".
2. Turn on MAIN POWER for disc drive and computer.
3. Insert your System disc cartridge/pack into the disc drive.
4. Set RUN/STOP switch to RUN.
5. Verify correct system start-up.
6. Set Power Fail Battery switch to "INT".

SYSTEM SHUT-DOWN

CAUTION

Always set the Disc Drive RUN/STOP switch to STOP prior to turning MAIN POWER off.

When you want to shut down your system, perform the procedure given below. If the system is in the session environment, begin with Step 1. If not, proceed to Step 2.

STEP 1. SHUT-DOWN SESSION MONITOR

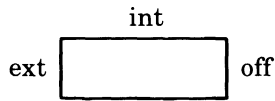
Ensure that there are no active sessions, then perform the shut-down procedure as described in the RTE-IVB System Manager's Reference Manual.

STEP 2. SET RUN/STOP SWITCH

To unload the heads from the disc before powering the system down, set the RUN/STOP switch on the front of the disc unit to STOP. Then, if desired, remove the disc cartridge from the drive and close the door. It takes approximately 30 seconds for the drive to stop turning and the door to unlock.

STEP 3. TURN OFF POWER-FAIL BATTERY

To prevent your power-fail battery from running down when you shut your system down, it must be shut off. Locate the battery box at the rear of the computer unit marked:



and set the switch to off.

STEP 4. TURN OFF MAIN POWER

If you have a vertical racked configuration, go to the front of the unit and locate the system ON/OFF switch in the upper right corner. Press this switch and the light will go out and power will be off.

If you have a desk configuration, go to the rear of the desk and locate the disc drive POWER switch and the computer MAIN power switch. These are located in the lower left corner of their respective units. Set these to OFF.

SYSTEM SHUT-DOWN SUMMARY

1. Shut-down Session Monitor (if used).
2. Set RUN/STOP switch to STOP.
3. Remove disc cartridge if desired.
4. Turn off power-fail battery.
5. Turn off MAIN power for disc drive and computer.

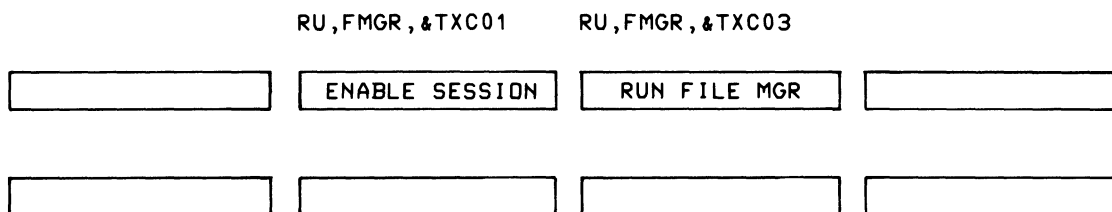
Chapter 3

GETTING ACQUAINTED WITH YOUR SYSTEM

PRIMARY SYSTEM OVERVIEW

Your system console comes with a set of eight keys (labeled f1 through f8) located on the upper right section of the keyboard. These are your softkeys which can be programmed to execute frequently used command strings with only one keystroke. This convenient feature saves time and can reduce errors when typing in commands. Each key can be configured to issue a command string of up to 80 characters.

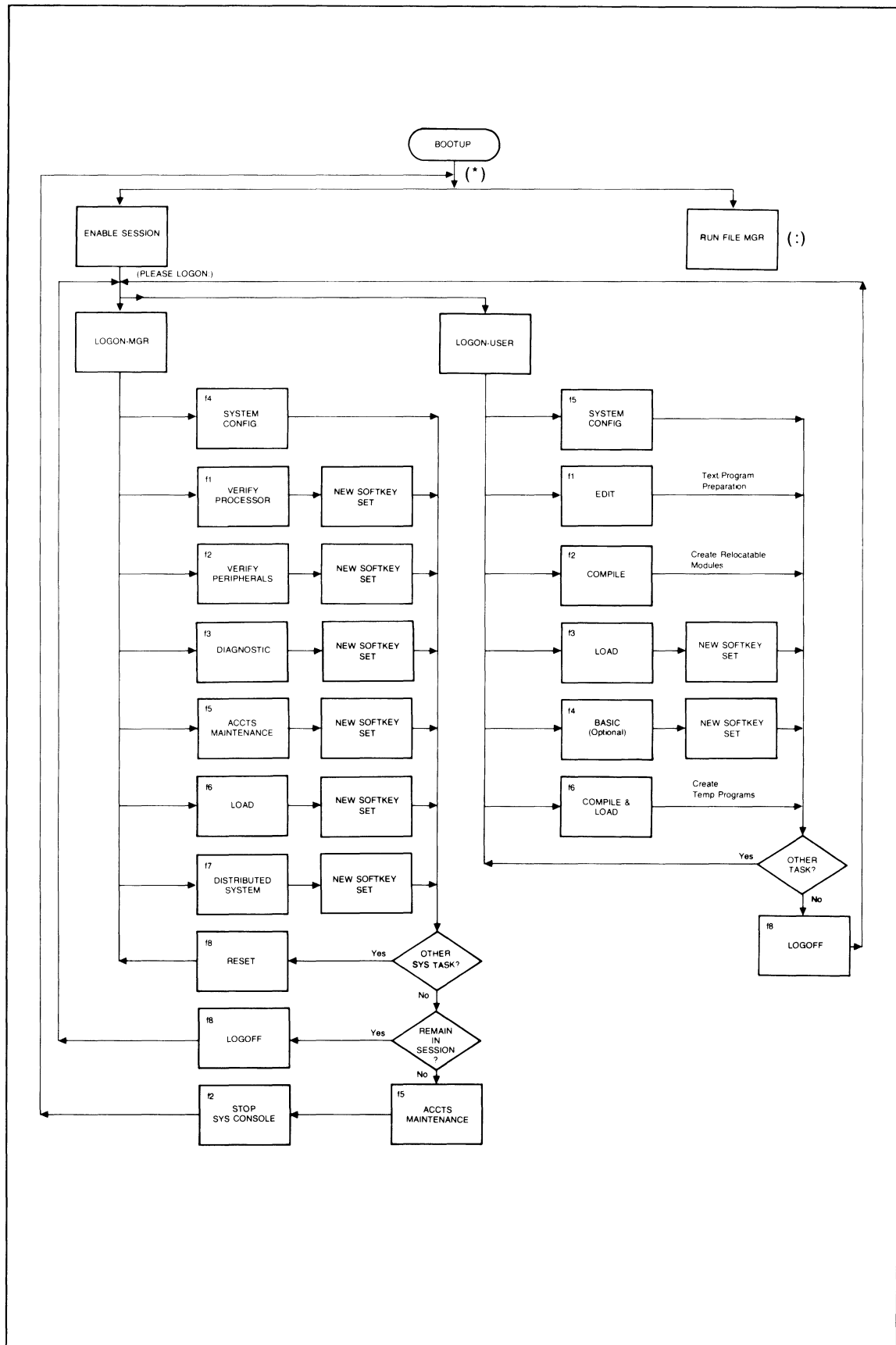
Many master softkey sets and subsets have been pre-defined in your Primary System to allow you to become familiar with both the softkeys and system operation. It is designed to provide you with a quick and easy means to learn system operations and to implement and test your applications. It gets you to the appropriate environment so that you may perform the desired task following instructions provided by the appropriate manuals from your manual set. After the system has been booted up, you should see:



Note that the command strings shown above the softkey labels are not displayed. For terminals without softkeys, these commands must be entered manually. The command strings are shown in all softkey labels illustrated in this chapter. At this point, you may select either the session or non-session environment. A simplified flowchart for each is shown in Figure 3-1 and Figure 3-2. The operations that have been configured in your Primary System are briefly explained in this chapter. Detailed information for certain operations can be found in the appropriate manuals. Before performing any tasks, be sure you are familiar with the procedures described in the following paragraphs in this section.

NOTE

Before pressing any softkey, you must get the appropriate prompt. Otherwise, your terminal may be locked up. If this occurs, press ONCE the black RESET TERMINAL key on the left corner of your keyboard to unlock the terminal. DO NOT press the reset key twice. Doing so erases the terminal memory and thus your terminal display and the softkey configuration.



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Figure 3-1. Session Softkey Functions

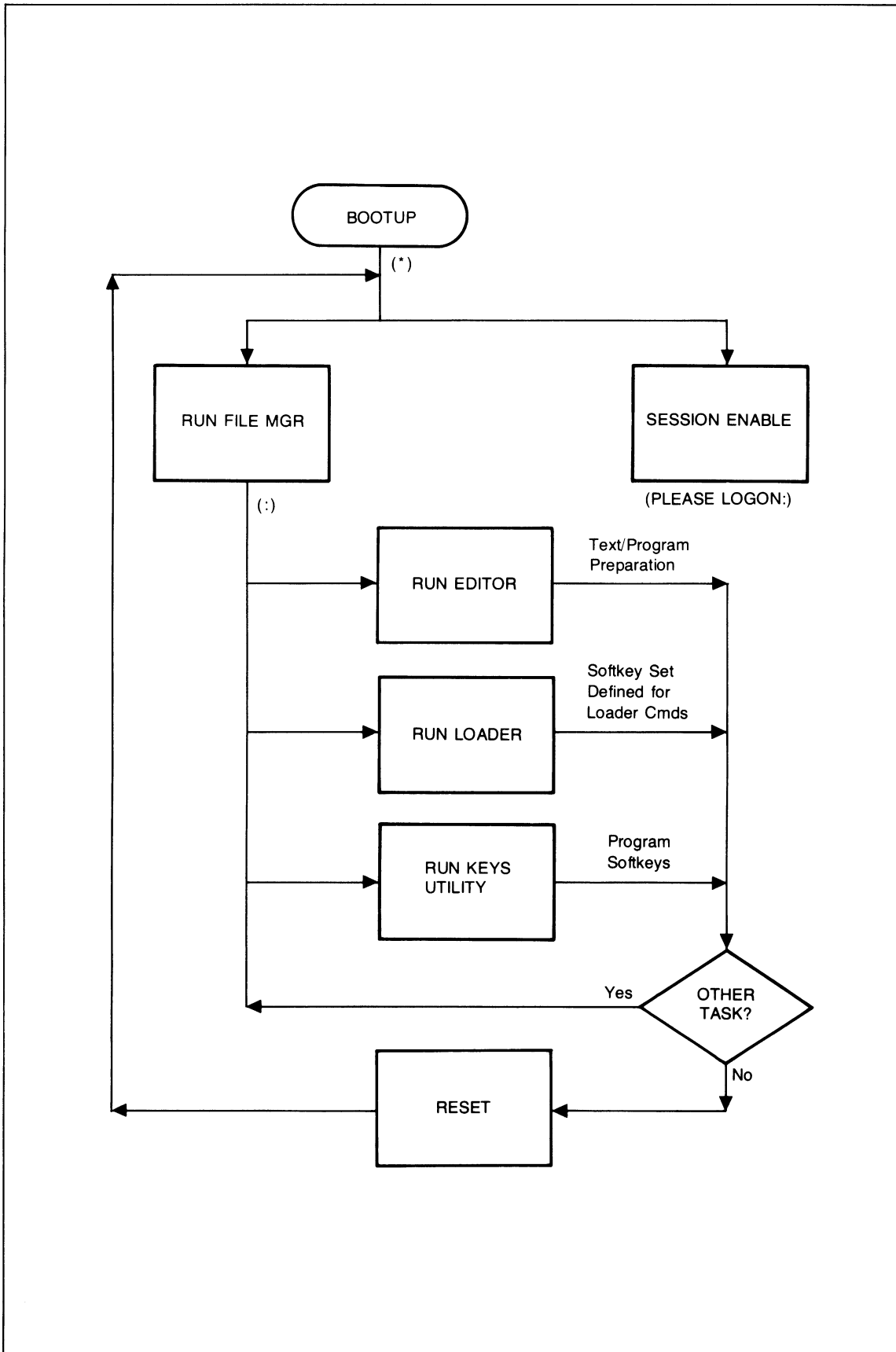


Figure 3-2. FMGR Softkey Operations

SYSTEM PROMPT

After bootup, the Primary System will be waiting for an interrupt. Get the attention of the system by pressing any key on your system console. An astrisk (*) prompt will be displayed. This is the system prompt. Now you may select the system environment, session or FMGR.

FILE MANAGER PROMPT

The File Manager prompt is a colon (:). It will be displayed if you press the RUN FILE MGR key after system startup. This prompt will also appear in the session environment after you have logged on as either general user or manager. The procedure for selecting any function indicated by the softkey display is the same as previously described. Refer to the NOTE about softkey lockup.

SESSION PROMPT

In the session environment, press any key to get the logon prompt:

PLEASE LOG-ON:

To initiate a session via the soft keys, you must logon as either the manager or the user. The logon procedure is described later in this chapter.

PROGRAM PROMPT

After selecting a particular system function, certain programs may be run to allow you to perform the selected task. The prompt for the individual program is described in the corresponding manual describing that program. Some common interactive programs are shown below. To get back to the softkey set to select another task, you must exit from the active program.

Program	Prompt	Exit
Editor	/	EC<namr> or : (or A to abort)
Loader	/LOADR:	/E
BASIC (optional)	>	BYE
REMAT (optional)	\$	EX

SOFTKEY ERROR RECOVERY

If you try to operate a softkey without the system FMGR or the session logon prompt, the keyboard on the console will lock up. To restore the terminal, press the black RESET TERMINAL key once.

If the RESET TERMINAL key is pressed twice, the softkey configuration on your terminal will be erased. To get the softkeys back, you can either restart your system or else enter the File Manager command string:

DU, &TXKM0, 1	(system manager)	}	session
or			
DU, &TXKU0, 1	(general user)		
or			
DU, &TXK04, 1	(non-session)		

and the master set for each environment will be configured into your system console.

LOGICAL UNIT NUMBERS

In a control command, a numerical parameter, called a Logical Unit (LU) number, is used to address a particular Input/Output (I/O) device. Each such number is assigned to a specific device to be input (read) from or output (written) to. I/O devices are assigned LU numbers at system generation time, and the numbers are used thereafter to address each device.

LU numbers are decimal integers between 0 and 63. Numbers 1 through 6 are referred to as "standard LU's" and are generally assigned to the following devices (and are so assigned in your Primary System).

LU 1 System console (2645A or 2648A terminal)

LU 2 System mass storage (system disc)

LU 3 Auxiliary mass storage

LU 4 Left cartridge tape unit on system console

LU 5 Right cartridge tape unit on system console

LU 6 Standard list device (usually a line printer)

LU 0 is not associated with any particular device; it has a special purpose internal to the system. The remaining LU's (7-63) may be assigned to any type of device. In the Primary System some of these may be assigned to devices already. To see the Primary System LU assignments, press the softkey SYSTEM CONFIGURATION, in the SYSTEM STATUS set.

It is important to realize that you can reassign any LU number from one device to another, except LU 1, the system console and LU 2 or LU 3, the system discs. Reassigning LU's is useful when a particular output device is down for some reason or for the convenience of the user. The system console can have its LU number reassigned only if the second device can perform all the tasks of a system console. See the LU, and EQ control commands, in the RTE-IVB Terminal User's Reference Manual for the correct procedures to switch LU assignments.

SELECTING THE OPERATION ENVIRONMENT

Immediately after bootup, two softkeys are programmed to allow you to select the proper operating environment. You may select the session environment to take advantage of the Session Monitor features of the RTE-IVB software. A sample session account file has been established in your Primary System. You may also wish to simply run the File Manager. A few functions have been programmed into the softkeys for your convenience.

Press the space bar to get the "*" system prompt. Then press the ENABLE SESSION key f2 to place the system console in the session environment. A new softkey set is displayed to allow you to logon either as the system manager or a general user. You need a password to logon as the system manager. The password is HP and is programmed in key f5 which is unlabeled. The password entered will not be echoed for security reason. Upon successful logon, a master softkey set is displayed to allow you to select various functions. Operations provided in the session environment are described below.

If you have the HP 2621A or 2635A as the system console, the appropriate command strings are displayed (or printed). These commands are also given in the illustrations of the master softkey sets.

Press the space bar to get the "*" system prompt. Then press the RUN FILE MGR key f3 to run the File Manager. A master File Manager softkey set is programmed for your convenience. Operations provided in this set are described in this chapter.

LOGON - MGR

In the session environment, to log-on as the system manager, press the space bar to get the logon prompt "PLEASE LOG-ON:". Press the LOGON - MGR key (f2) or enter MANAGER.SYS. After the system prompts for a password, press key f5 or enter HP. You will not see the password on the display. Initially, the Primary System password is "HP". You may want to change it as soon as applicable. Refer to the RTE-IVB System Manager's Reference Manual for the procedure of changing the password.

SYSTEM MANAGER OPERATIONS

After successful log-on, the master system manager softkey set is displayed, see Figure 3-3, along with the File Manager prompt (:). Press the proper softkey corresponding to the function you wish performed. These operations are described below.

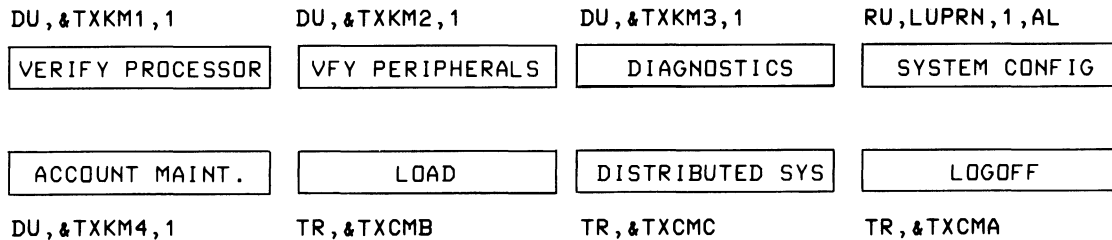


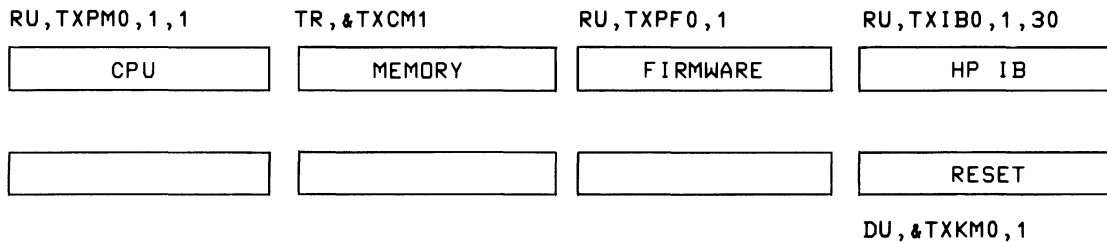
Figure 3-3. Master System Manager Softkeys

SYSTEM CONFIGURATION

From the master system manager softkey set, press key f4 to check the system configuration. A sample configuration display is shown in Figure 3-4.

VERIFY PROCESSOR

From the master system manager softkey set, press key F1. The following softkey configuration will be displayed:



These functions are described in the 91711 Diagnostic and Verification Reference Manual (91711-90006). Note that some operations will display program aborted messages between tests. This is normal because of control transfer between the test programs and the File Manager.

Getting Acquainted With Your System

CONFIGURED MEMORY SIZE IS \$\$\$\$ K BYTES

TIME BASE GENERATOR IS IN S.C. 11

LU	EQT	S.CHNL	S.C.	QT	STATUS	DRIVER	DEVICE NAME	LU
1	2	0	15		B S	DV.05	2645/2648 TRMNL	1
2	1	0	14		D	DV.32	7906/20 DISC	2
3	*****	LU	UNASSIGNED	*****				3
4	2	1	15		B S	DV.05	2645/2648 TRMNL	4
5	2	2	15		B S	DV.05	2645/2648 TRMNL	5
6	2	0	15		B S	DV.05	2645/2648 TRMNL	6
7	*****	LU	UNASSIGNED	*****				7
8	*****	LU	UNASSIGNED	*****				8
9	3	1	12		PS	DV.65	DS/1000 LINK	9
10	1	1	14		D	DV.32	7906/20 DISC	10
11	1	2	14		D	DV.32	7906/20 DISC	11
12	1	3	14		D	DV.32	7906/20 DISC	12
13	1	4	14		D	DV.32	7906/20 DISC	13
14	1	5	14		D	DV.32	7906/20 DISC	14
15	1	6	14		D	DV.32	7906/20 DISC	15
16	*****	LU	UNASSIGNED	*****				16
17	*****	LU	UNASSIGNED	*****				17
18	*****	LU	UNASSIGNED	*****				18
19	*****	LU	UNASSIGNED	*****				19
20	*****	LU	UNASSIGNED	*****				20
21	*****	LU	UNASSIGNED	*****				21
22	*****	LU	UNASSIGNED	*****				22
23	*****	LU	UNASSIGNED	*****				23
24	*****	LU	UNASSIGNED	*****				24
25	*****	LU	UNASSIGNED	*****				25
26	*****	LU	UNASSIGNED	*****				26
27	*****	LU	UNASSIGNED	*****				27
28	*****	LU	UNASSIGNED	*****				28
29	*****	LU	UNASSIGNED	*****				29
30	*****	LU	UNASSIGNED	*****				30
31	*****	LU	UNASSIGNED	*****				31
32	*****	LU	UNASSIGNED	*****				32
33	*****	LU	UNASSIGNED	*****				33
34	*****	LU	UNASSIGNED	*****				34
35	*****	LU	UNASSIGNED	*****				35
36	*****	LU	UNASSIGNED	*****				36
37	*****	LU	UNASSIGNED	*****				37
38	*****	LU	UNASSIGNED	*****				38
39	*****	LU	UNASSIGNED	*****				39
40	*****	LU	UNASSIGNED	*****				40
41	*****	LU	UNASSIGNED	*****				41
42	*****	LU	UNASSIGNED	*****				42
43	*****	LU	UNASSIGNED	*****				43
44	*****	LU	UNASSIGNED	*****				44
45	*****	LU	UNASSIGNED	*****				45
46	19	0	04			DV.43	PWR FAIL/SPOOL	46
47	*****	LU	UNASSIGNED	*****				47
48	*****	LU	UNASSIGNED	*****				48
49	*****	LU	UNASSIGNED	*****				49
50	*****	LU	UNASSIGNED	*****				50
51	*****	LU	UNASSIGNED	*****				51
52	*****	LU	UNASSIGNED	*****				52
53	*****	LU	UNASSIGNED	*****				53
54	*****	LU	UNASSIGNED	*****				54
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56	*****	LU	UNASSIGNED	*****				56
57	*****	LU	UNASSIGNED	*****				57
58	*****	LU	UNASSIGNED	*****				58
59	*****	LU	UNASSIGNED	*****				59
60	*****	LU	UNASSIGNED	*****				60
61	*****	LU	UNASSIGNED	*****				61
62	*****	LU	UNASSIGNED	*****				62
63	*****	LU	UNASSIGNED	*****				63

EQT STATUS LEGEND:

D= DMA REQUIRED
 B= AUTOMATIC OUTPUT BUFFERING USED
 P= DRIVER PROCESSES POWER FAIL
 S= DRIVER PROCESSES TIME-OUT
 T= DEVICE HAS TIMED OUT

7700-455

Figure 3-4. Sample System Configuration

VERIFY PERIPHERALS

Press key f2 from the master system manager set to check the peripherals. The following softkey configuration will be displayed.

TR, &TSCM2	RU, TXMT0, 1, 8	RU, TXWL0, 1, 6	RU, TXTT0, 1, 1, 4, 5
DISC	MAG TAPE	LINE PRINTER	PTP TERMINALS
MP TERMINALS	DATA CAPTURE TRM	RS-232 TERMINALS	RESET
TR, &TXCM4	TR, &TXCM5	TR, &TXCM6	DU, &TXKM0, 1

Note that certain tests are interactive. For example, the optional Data Capture Terminal test and the point-to-point terminals. In the Data Capture Terminal test, a list of the operator commands will be displayed. In the case of the point-to-point terminal test, a blank mini-cassette is required.

For more peripheral test information, refer to the 91711 Diagnostic and Verification Reference Manual.

RUN DIAGNOSTICS

Press key f3 from the master system manager softkey set to run the diagnostic tests. The following softkey configuration will be displayed.

RU, TXPF3, 1, 1	RU, TXPF1, 1, 1	RU, TXPF2, 1, 1	RU, TXPF4, 1, 1, 1
EXTENDED MEMORY	FP PROCESSOR*	SCIENTIFIC INST*	VECTOR INST*
			RESET
			DU, &TXKM0, 1

***CAUTION: Execute on F-Series only!**

Note that if you have the HP 2177C/D system, keys f1 through f4 and f8 are labeled. If you have the HP 2176C/D system, keys f2, f3, and f4 will be blank. For a complete check on the extended memory firmware, more than 96k bytes of memory is required. Otherwise, some tests are omitted with informative messages displayed. Refer to the 91711 Diagnostic and Verification Reference Manual for more diagnostic tests information.

RUN LOADER

To run the Loader Program, press key f6 from the master system manager softkey set. The following softkey configuration will be displayed as well as the loader prompt.

RU,LOADR	OP,	REL,	SE,
<input type="text" value="RUN LOADER"/>	<input type="text" value="OP, opcode"/>	<input type="text" value="RELOCATE, file"/>	<input type="text" value="SEARCH, file"/>
<input type="text" value="Undefined Refs?"/>	<input type="text" value="END LOADER"/>	<input type="text" value="ABORT LOADER"/>	<input type="text" value="RESET"/>
DI	EN	/A	DU,&TXKU0,1

Loader commands other than those programmed into the softkeys may be entered. Refer to the Interactive Loader chapter of the RTE-IVB Terminal User's Reference Manual for details.

DISTRIBUTED SYSTEM TEST

To test the optional Distributed System, press key f7 from the master system managers softkey set. The programmed softkey labels are displayed as follows:

RU,REMAT	LC	DL	LI,
<input type="text" value="RUN REMAT"/>	<input type="text" value="LOCAL NODE #"/>	<input type="text" value="NODE 1 DIRECTORY"/>	<input type="text" value="LIST, file, lu"/>
<input type="text" value="LIST/LOG DEVICES"/>	<input type="text" value="SEND MESSAGE"/>	<input type="text" value="VERIFY DS LINK"/>	<input type="text" value="RESET"/>
LL	TE,	TR,&TXCM3	TR,&TXCMD

Refer to the DS/1000 Manuals for detailed information.

SESSION ACCOUNT MAINTENANCE

Press key f5 from the master softkey set to run the ACCTS program. The following softkey definition will be displayed:

RU,ACCTS	TR,&TXCME	RU,ACCTS,&TXCM8	RU,ACCTS,&TXCM9
ONLINE USAGE	STOP SYS CONSOLE	LIST ALL GROUPS	LIST ALL USERS
			RESET
HP			DU,&TXKM0,1

You can exit from the session environment by pressing key f5 (STOP SYS CONSOLE). This will return the system to the system environment select stage (see Figure 3-1).

You may check the status of all users and groups by pressing keys f3 and f4 respectively.

To alter the account file, press key f1. The system will ask you for the system password, which is programmed into key f6 (HP unless you changed it). The program prompt "NEXT?" will be displayed.

To get a summary of the ACCTS Program commands, enter HE (HELP). Refer to the Maintaining the Account System chapter of the RTE-IVB System Manager's Manual for details.

Exiting from the ACCTS program will return you to the account maintenance softkeys shown above. Press reset to return to the master system manager softkeys, see Figure 3-3.

LOGON-USER

To log-on as a general system user in the session environment press the LOGON-USER key or enter USER.SYS after the "PLEASE LOG-ON:" prompt. No password is required. A master user softkey set is programmed and the labels are displayed, see Figure 3-5.

RU,EDITR	RU,COMPL,&	TR,&TXCU1	TR,&TXCU2
EDIT	COMPILE	LOAD	BASIC
SYSTEM CONFIG	COMPILE & LOAD		LOGOFF
RU,LUPRN,1,AL	RU,CLOAD,&		TR,&TXCMA

Figure 3-5. Master User Softkey Set.

SESSION USER OPERATIONS

To perform any of the functions indicated by the master user softkey set, press the appropriate softkey. These operations are briefly described below. Refer to the RTE-IVB Terminal User's Reference Manual for more information.

CHECK SYSTEM CONFIGURATION

Check system configuration by pressing key f5. The system resources such as line printer, cassette units, etc., are accessed by the same LU number even at different terminals. A sample system configuration is shown on Figure 3-4.

TEXT/PROGRAM PREPARATION

Run the Editor Program to prepare or modify text files or source programs. Press EDIT key f1.

After the Editor prompt and the source file request are displayed, enter a 0 (zero) and then carriage return.

You may now enter your text or program statements. Refer to the Getting Acquainted with RTE-IVB or the Interactive Editor chapter of the RTE-IVB Terminal User's Reference Manual. Note that if you wish to exit from the Editor without entering any text, you must enter a colon (:) prompt. Normal exit is either creating or replacing a file. You should begin the name of all program source files with an ampersand (&) in order to take advantage of some of the automatic functions of the interactive utilities COMPL and CLOAD. You may also abort the Editor with the A command if there is text on the work file.

CREATE RELOCATABLE FILES

To create relocatable files, run the compiler program by means of the COMPILE key f2. You will see:

```
:RU,COMPL,&
```

with the screen cursor immediately after the ampersand. You can enter the source program name and the desired Compiler parameters. Refer to the RTE-IVB Terminal User's Reference Manual for details.

LOAD AND RUN PROGRAMS

Use the LOAD key f3 to obtain the Loader program prompt (/LOADR:). Enter REL <relo file name>CR then END after the next Loader prompt.

When your program has been successfully loaded, terminate the Loader program with /END. If necessary, save your temporary program with the SP command. If not, you must reload your program the next time you logon to the system.

You may execute your program with the RUN (RU) command.

Refer to the RTE-IVB Terminal User's Reference Manual for more information on the loader and the operator commands.

COMPILE AND LOAD PROGRAMS

When you are developing a program, you may want to ensure that the syntax is correct by running the compiler. Then run your program to ensure your logic is correct. If you are reasonably sure that there are no errors in your program, you may want to compile and load your program in one step. Do this with the COMPILE & LOAD key f6. You will see:

```
:RU,CLOAD,&
```

with the cursor positioned after the ampersand, enter the source program file name and press return. Your program will be compiled and loaded. When your program has been loaded, control is returned to the File Manager with the colon (:) prompt displayed. Next, execute your program with the RUN (RU) command. Refer to the RTE-IVB Terminal User's Reference Manual for more information.

RUN BASIC

To run the optional BASIC program, press key f4 from the master user softkey set (see Figure 3-5). A new set of softkeys is provided to perform some of the BASIC operations. The BASIC softkeys are shown below. Refer to the BASIC/1000 Reference Manual for detailed information on BASIC.

RU,BASIC	TABLES BTBL,MTBL	LOAD	LIST
RUN BASIC	ENABLE B&M TABLE	LOAD file	LIST PROGRAM
RUN PROGRAM	SAVE file	END BASIC	RESET
RUN	SAVE	BYE	TR,&TXCU3

RUN FILE MGR

If the RUN FILE MGR softkey is pressed when the environment-select softkey set is displayed, the File Manager softkey definition is displayed. See Figure 3-6 for the softkey labels. A flowchart of these functions is shown in Figure 3-2.

RU,EDITR	TR,&TXC02	RU,KEYS	
EDIT	LOAD	KEYS	
			RESET
			TR,&TXC04

Figure 3-6. File Manager Softkey Labels.

Running the Editor and Loader programs is as described in the session environment. The Keys utility program is described in the RTE-IVB Terminal User's Reference Manual.

Chapter 4

CUSTOMIZING YOUR SYSTEM

INTRODUCTION

The full range of features and capabilities of the HP 1000 System is available to the System Manager. After performing the operations given in Chapter 3, you may wish to tailor the system to your needs. You may want to add or decrease the number of programs to be executed concurrently in the system, change the system I/O or memory configuration, generate a new operating system, etc. For considerations in planning and changing your system, and system modifications and expansions, refer to the RTE-IVB System Manager's Reference Manual.

RECONFIGURING YOUR SYSTEM

The RTE-IVB operating system contains a program that can be scheduled at boot-up (system start up) to allow reconfiguration of your system's Input/Output (I/O), and memory, without performing an entire regeneration of your system. This allows you to adapt your generated system to the physical I/O configuration in an existing system. The reconfigurator program also allows you to change the size of System Available Memory (SAM), alter the program partition requirements, and repartition the system to avoid bad pages of memory. These changes can either be temporary, changing the memory resident copy of the operating system, or permanent by changing the system on the disc as well as the memory resident copy.

For instruction on the use of the reconfigurator, refer to the I/O and memory reconfiguration chapter in the RTE-IVB System Manager's Reference Manual. If you are already familiar with the reconfigurator, refer to Appendix B in this manual for instructions on the register settings to enable the reconfigurator.

GENERATING YOUR OWN SYSTEM

When you have become familiar with the HP 1000 system through the use of the Primary System, you may want to generate a new operating system tailored to your specific requirements. System generation consists of building an operating system by collecting and organizing various software modules, which include RTE-IVB and various user programs necessary for a particular application. The result is a computer system with its memory and peripheral devices configured to meet your specific requirements. This system also contains the resources (programs and files) necessary for your particular application.

To perform a generation, follow these steps:

1. Study the RTE-IVB On-Line Generator Reference Manual and Chapter 3 of the RTE-IVB System Manager's Reference Manual, to become familiar with the procedures required to generate a system.
2. Plan your new system in detail by deciding which software modules to include and what your I/O and memory structure will be like, using the guidelines in the RTE-IVB System Manager's Reference Manual. Fill out the worksheets mentioned and illustrated in the RTE-IVB System Manager's Reference Manual.
3. If your system has only 64k of memory, certain restrictions apply to the type of system you will be able to configure and generate. The only type of system smaller than the RTE-IVB Primary System is one without any of the DS/1000 modules currently generated into it. Reconfiguring such a system leaves about 25k of memory, whereas, with the DS/1000 subsystem generated in, you have only 19k. You should not generate a system with more subsystems or drivers or both than currently generated into an RTE-IVB Primary System with only 64k of memory, since that would leave less than 19k of memory in which to load and run user and system programs.
4. Fill out the generation worksheets in the manuals and use them to modify a copy of the existing Primary System answer file residing on the Primary System disc, or to create an answer file that contains the answers to the queries of RT4GN, the RTE-IVB On-Line Generator.
5. If you have a 7906 disc subsystem, use the Primary System disc cartridge as the source of your software modules and run RT4GN storing the system file in a file on the fixed platter that will remain when you take the Primary System cartridge out. It is recommended that on completion of your generation, you should have a copy of your software archives on your Primary System disc cartridge, and your new system on the second or third cartridge supplied with the system. This arrangement saves the Primary System software modules (stored on LU 10) for future generations, and gives you a storage medium for one or two copies of your new operating system.
6. When you have generated your new system file you must put it on your target disc in order to use it. To do this, use the SWTCH program, which transfers the system in your system file to a target disc. Refer to the RTE-IVB System Manager's Reference Manual for instructions.

At this point set the RUN/STOP switch to STOP and remove the Primary System disc cartridge. Then insert your system disc cartridge and set the switch to RUN. When the DRIVE READY indicator lights, continue with SWTCH.

7. If you have the 7920/25 disc subsystem, generate your system using the Primary System disc pack as the source for your software modules. Put your system file on one of the alternate logical cartridges of the pack (not on the same logical cartridge as your software archives). When RT4GN is finished, transfer this file to your back up device. Then remove the Primary System disc pack and insert your disc pack. At this point your Primary System should be backed up on your system back-up device. Now copy the system file to one of the logical cartridges on your disc pack, and run SWTCH on the file to put it on the correct place on the disc.

FREING PROGRAM ID SEGMENTS

Each program loaded on-line requires an ID segment, which is a 34-word array that the system uses to identify a program. Your Primary System has approximately 5 free long ID segments for use by programs loaded on-line. This means that you can have 5 extra programs at one time that are loaded and ready to be executed. However, you may want to have more temporary programs available for concurrent execution. This can be done by using the afile Manager to store these programs.

SAVING TEMPORARY PROGRAMS

When you are finished executing a temporarily loaded program and would like to save it and free its ID segment for use by other programs, get the FMGR prompt (:) and type

```
: SP<program>(CR)
```

where:

SP is the FMGR, "save program" operator command

<program> is the name of the program to be saved.

(CR) is carriage return

The program will be stored in a File Manager file. Now type

```
: OF , <program>(CR)
```

where:

OF is the FMGR command to "off" the program. This releases the program's ID segment.

The program is now saved in a File Manager file and its ID segment is available to some other program loaded on-line.

Saved programs can be executed by the File Manager. An ID segment is temporarily assignee to the program and automatically released after the program terminates.

To restore an ID segment to the program so that it can be executed under operating system control, type

```
: RP , <program name>(CR)
```

where:

RP is the FMGR command that restores the program's ID segment, so that the RTE-IVB operating system will once again recognize the existence of the program.

To keep some ID segments free, use the SP command to save the program, and then use the OF command to free the ID segment.

For further explanation of the SP and RP commands, see the File Manager Command section of the RTE-IVB Terminal User's Reference Manual.

PURGING FILES

As you develop your programs or applications, you often create new files and update old ones. It is useful to be able to delete all but the current files to keep your records up to date. To purge a file you no longer need, type

```
:PU, namr (CR)
```

where:

PU is the FMGR command to purge a file from the system.

namr is the name (and location) of the file to be purged.

Now that the program is stored in a FMGR file, the relocatable binary file, prefaced with %, is no longer needed, so type

```
:PU, %xxxx (CR)
```

where:

%xxxx is the file name of the relocatable binary code.

This command will permanently remove a file from the system. This is the command you would use to remove a program saved in a type 6 file from the system if that was necessary. You may recover the disc space by using the PK command.

For additional information on the FMGR commands, refer to the RTE-IVB Terminal User's Reference Manual.

Appendix A

BOOT-UP TROUBLESHOOTING

INTRODUCTION

To start up your system, be sure all the components are set up as described below then follow the SHUT DOWN procedure, wait 5-10 seconds, and follow the SYSTEM START-UP procedure given in this manual. If you continue to have trouble, check the installation manual for the proper configuration of your system.

DISC DRIVE

Check that the disc drive POWER switch at the rear of the disc drive unit is set to ON.

Check the unit number of the drive. You should see a 0 displayed next to the drive indicator lights. If not, open the grill on the front of the disc drive unit (7906) by pushing the bottom of the grill in. Locate the rotary LU SELECT switch, and set it to 0.

COMPUTER POWER

2176C AND 2177C, VERTICALLY RACKED MODEL

Check that the computer is plugged in and the ON/OFF switch on the front, upper right corner of the cabinet is depressed, and lit. This indicates that power is on to the system.

2176D AND 2177D, DESK MODEL

Check that the computer is plugged in and the ~POWER switch at the rear of the computer in the lower left corner is set to ON.

2176E AND 2177F, VERTICALLY RACKED MODEL

Check that the computer is plugged in and the ON/OFF switch on the rear center of the cabinet is set to ON.

2176 AND 2177C/D, BOTH CONFIGURATIONS

If the keys to the computer are available to unlock the front door and the front panel of the computer at your installation, do so. Inside you will see two switches labeled



Set the LOCK/OPERATE switch to LOCK for auto boot-up, and the ~POWER switch to ON, then close and lock the front panel of the computer. At this point, a few of the register lights on the front panel of the computer should be lit.

TERMINAL POWER

Press twice the **RESET TERMINAL** key on the upper left side of the keyboard. **TERMINAL READY** should be displayed on the screen. If not, check to be sure the terminal is plugged in, then check that the power switch under the rear door of the terminal is set to **ON**.

Check that the **REMOTE** key, just below the **RESET TERMINAL** key, is depressed. If not, press it and it will lock in the depressed position.

POWER FAIL BATTERY

Be sure the Power Fail Battery and the battery cable or the Battery Load Simulator Plug are attached at the rear of the computer and plugged into the **BATT INPUT** plug.

REGISTER HALTS

IF you are still unable to start up your system, check the front panel of the computer. Displayed in the register you will see an octal halt code. For the explanation of this code see the Loader ROM Installation Manual.

Appendix B

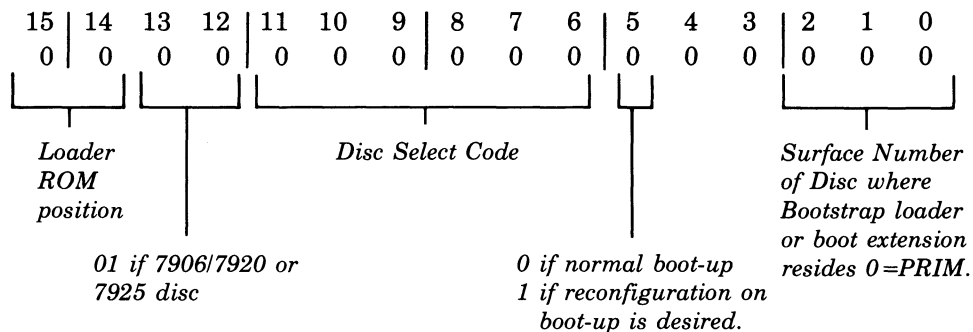
MANUAL SYSTEM START-UP PROCEDURE

MANUAL START-UP

The procedure below assumes that the system power and all devices are on, as described in Chapter 2, "System Start-up and Shut-down".

To start up your HP 1000 manually, follow this procedure.

1. Open the front door of the cabinet containing the computer with the key provided.
2. Open the front panel of the CPU with the key provided and set the LOCK/OPERATE switch inside to OPERATE.
3. Close the front panel.
4. Press the HALT switch.
5. Display the S register by pressing the register select switch until the indicator light is over the S label.
6. Press the clear display switch.
7. Enter the following numbers into the Display Register.

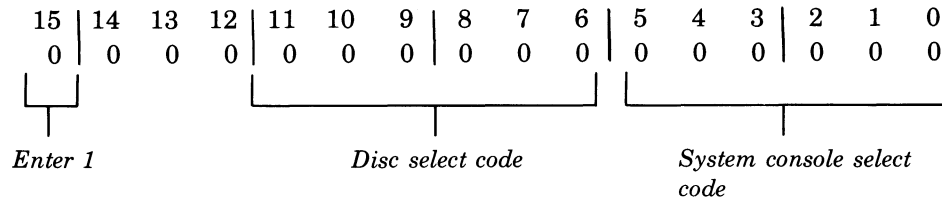


8. Press the STORE switch.
9. Press the PRESET, IBL, PRESET and then the RUN switches.
10. If bit 5 was NOT set, and the procedure has been followed correctly, your RTE-IV Primary System is now running. Proceed to Chapter 3, "Getting Acquainted with Your System".

If you chose to reconfigure your system (bit 5 was set) you will see 102077 displayed in the Display Register. To continue with the reconfiguration, follow the procedure below.

RECONFIGURATION

1. Display the S Register as described above, and press the Clear Display switch.
2. Enter the following numbers into the S Register



Disc select code: given in the Primary System answer file. A summary of the register settings is given in Table B-1.

System console select code: given in the Primary System answer file.

3. Press the STORE switch.
4. Press the PRESET switch and then the RUN switch.
5. The configurator program now has control and will display the message

```
START RECONFIGURATION
LIST DEVICE LU#?
```

on the system console.

To perform the reconfiguration, follow the instructions given in Chapter 9 of the RTE-IVB System Manager's Reference Manual.

Table B-1. Primary System Register Settings

PRIMARY SYSTEM #	5	6	7	8
Disc Select code (octal)	13	13	14	14
System console Select code (octal)	14	14	15	15
Loader ROM Position	3	3	3	3
Boot Extension Bootstrap loader Disc Surface Number	0	0	0	0
Double Disc surface # (1=no) (2=yes)	1	1	1	1

APPENDIX C

RESTORING SOFTWARE ONTO DISC

To restore the 92068A update software supplied on either minicartridges or magnetic tape onto a disc cartridge in the RTE-IVB operating system, proceed as follows:

1. Log on to the RTE-IVB system.
2. If you are using minicartridge tapes, load the first one into the cassette tape unit (CTU) of your terminal and find out the session logical unit (LU) number of the CTU. If you are using magnetic tape, mount a reel into the tape drive, and find out its LU number. Typically, the left CTU is LU 4, the right CTU is LU 5, and the magnetic tape drive is LU 8. Your system manager should know the session LU assignment.
3. Run the READR program and enter the interactive READR commands as shown below. The user entries are underlined. The READR program prompt is "Command?". You also need to know the cartridge reference number (crn) of the disc cartridge to which your software is to be restored.

:RU,READR

COMMAND? MT,lu Parameter lu is the logical unit number of the CTU where the minicartridge (or magnetic tape) is located.

COMMAND? DC,crn Specifies the disc cartridge reference number (crn) where the files are to be restored.

COMMAND? OS,n Assigns a new security code (n) or changes the one already assigned. Otherwise, this entry may be omitted.

COMMAND? AL Specifies that all the files on the minicartridge (or magnetic tape) will be restored. Note that the first file (TR0000) is a directory of all the files on the minicartridge (or magnetic tape).

COMMAND? /E Starts the restoring process. Restoring Software onto Disc.

COMMAND? Restoration completed.

4. If you are restoring from magnetic tape, remove the tape from the drive, and exit READR by entering the command "/A". You have finished. If you are restoring from minicartridge tapes, remove the minicartridge tape, exit READR by entering the command "/A", and proceed to step 5.

Restoring Software Onto Disc

5. Repeat steps 2 through 4 for each of the remaining minicartridge tapes. The tape directory files of all minicartridges have the same name (TR0000). READR displays the error message, "duplicate file name," and prompts for direction. Skip this file (by entering the command "SK") to continue restoring the 92068A software onto disc. A sample message and the response are shown below.

```
CREAT error    -2 on TR0000:    0:    EC
    /A, HElp, PUrge, ALter, DC,n, OS,n or SKip this file? SK
```

In the above example, the duplicate file error message displays the file name (TR0000), security code (0), and the CRN (EC). READR skips the directory file and restores the other files on this tape.

The READR commands can also be entered in the run string or in a command file. For more information, refer to the READR utility program description in the READR/SAVER Reference Manual.

GLOSSARY

ANSWER FILE - A file that contains a list of the responses to the On-Line Generator queries. These responses must be ordered in the same sequence as the generator queries. The file may be a disc file or a logical unit (e.g., a mini-cartridge, magnetic tape, or a paper tape device).

AUTO BOOT-UP - A feature that automatically starts up the computer when the system is powered up.

BOOTSTRAP LOADER - A program produced by the on-line generator that loads the Boot Extension into memory and then transfers control to the Boot Extension.

BOOT-UP - The process of bringing the Bootstrap Loader or ROM Loader contents into memory. Control is then transferred to the Boot Extension to begin the initialization process.

CARTRIDGE - See **LOGICAL CARTRIDGE** or **DISC CARTRIDGE**.

COMMON - An area of memory that can be accessed by a program and its subprograms. Usually used to pass data from a program to a subprogram. In RTE, system COMMON may be used to pass data from one program to another.

COMPUTER - The main processor of a computer system (the Central Processing Unit; CPU). It is the unit which performs the computations and controls overall system operation.

COMPUTER SYSTEM - The CPU, peripherals and software interfaced to work together to perform data manipulation, I/O, and storage tasks.

CONFIGURATOR - A two-part program that allows reconfiguration of an RTE system's I/O and physical memory structures without going through a new system generation. The configurator is initiated as an option during the start-up process.

DIRECTORY - A list of programs and files currently stored on a disc subchannel that can be displayed by the user.

DISC - Strictly speaking, the term means the platters with the storage medium only; however the term is also loosely used to mean the entire peripheral, including the drive.

DISC-BASED - Refers to an operating system using a disc storage device as an integral part of the operating system.

DISC CARTRIDGE - The removable cartridge that comes with a 7900 or 7906 disc subsystem, for example. It is also referred to as the removable platter.

DISC-RESIDENT - A term applied to programs in executable form (absolute) that are stored on disc and brought into main memory for execution by the system in response to a program or operator request, time-of-day schedule or an I/O interrupt.

DOWN - The status of a device or I/O controller that is not available for use.

DRIVER - A software module that interfaces a device and its controller to an operating system.

FILE - A defined section of memory on a mass storage device (usually a magnetic disc) where data or programs are stored.

GLOSSARY (continued)

FIRMWARE - A set of microcoded routines, permanently stored in ROMs in the system.

ID SEGMENT - A block of words associated with each resident program that is used by the system to keep track of the program's name, software priority field, current scheduling status and other characteristics. Each resident program must have its own ID segment.

I/O (INPUT/OUTPUT) - A general term referring to any activity between a computer and its peripheral devices.

LIST DEVICE - The peripheral device to which listings are directed for output, usually a line printer or terminal.

LOADING - A process that converts the relative addresses of relocatable programs to absolute addresses compatible with the memory layout of a particular system.

LOGICAL CARTRIDGE - A group of contiguous tracks on a disc addressed as a unit through LU numbers or CR (cartridge reference) numbers.

LOGICAL UNIT NUMBER (LU) - A number used by a program to refer to an I/O device. Programs do not refer directly to the physical I/O device select code number, but rather through the LU number that has a cross-reference to the device.

MAIN PROCESSOR - See **COMPUTER**

OFF-LINE - Refers to the use of the computer or I/O devices by resources other than the RTE operating system or subsystems.

ON-LINE - Refers to software or I/O devices recognized and controlled by the main operating system at the time they are being used.

OPERATING SYSTEM - An organized collection of programs designed to optimize the usage of a computer system. It provides the means by which user programs interact with hardware and other software.

OPERATOR COMMAND - A command addressed to the currently controlling program (for example FMGR) by the operator.

PAGE - The largest block of memory (1024 words) that can be directly addressed by the address field of a one-word memory reference instruction.

PARTITION - A predefined block of memory with a fixed number of pages (redefinable at system bootup) located in the disc resident program area of memory. Disc resident programs run in partitions and at least one partition of sufficient size must be defined during system generation to run disc resident programs.

PERIPHERAL TESTS - A set of test configured into the Primary System set of softkeys. These tests are designed to test the peripheral devices included in the Primary System.

POWER FAIL/AUTO RESTART - The ability of a computer system to save the current state of the system in permanent memory when power is lost and to restore the system to defined conditions when power returns.

PRIMARY SYSTEM - An RTE operating system configured to run with the principal parts of an ordered system immediately on installation.

GLOSSARY (continued)

PROMPT - The character displayed by a program to indicate that it is waiting for input. FMGR uses a colon prompt (:).

SOFTKEYS - The set of programmable keys on each terminal keyboard. These are configured in the Primary System to perform various functions and tests in the system.

START-UP - The start-up process is initiated by the Boot Extension. During the start-up process, the tables, registers and pointers required by the system are established.

SYSTEM CONSOLE - The interactive console or terminal (LU 1) that controls system operation and to which all system and some utility error messages are issued. In a multi-terminal environment, a system console is distinguished from "user consoles" from which users develop programs.

SYSTEM DISC CARTRIDGE - The disc cartridge that contains a copy of the Primary System and the relocatable software modules used to update your software.

SYSTEM GENERATION - A process using the On-line generator and an existing RTE operating system to build a new operating system. This uses the relocatable software modules found on LU 10 of the system disc. This new system can then be transferred to the desired location on a disc and then control can be transferred to the new system, all through a program called SWTCH.

SYSTEM TESTS - A set of tests configured into the Primary System set of softkeys designed to test the computer system.

UP - The status of a device or I/O controller that is available for use.

READER COMMENT SHEET

**GETTING STARTED WITH
YOUR PRIMARY SYSTEM**

92068-90023

January 1983

Update No. _____
(If Applicable)

We welcome your evaluation of this manual. Your comments and suggestions help us improve our publications. Please use additional pages if necessary.

FROM:

Name _____

Company _____

Address _____

Phone No. _____ **Ext.** _____

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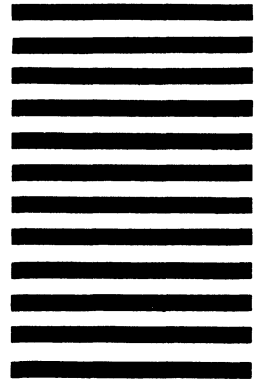


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