TABLE OF CONTENTS

Description - Power-up diagnostics verify communications paths to and from system hardware, and identify major hard errors within the system when power is applied (cold start), or prior to initialization of application software (warm start). This is accomplished through both EPROM/ PROM/ROM-based and disk-based tests.

1- OVERVIEW

The power-up diagnostics are intended, at a minimum, to test all functions of software-controlled devices that are used by application or diagnostic software. The scope of power-up diagnostics is to test each device as thoroughly as possible within the constraints of the overall allowable execution time for each subsystem.

Typically, for microprocessor-based subsystems or circuit boards, the following firmware-resident power-up tests are performed before attempting to load any additional tests from disk:

• CPU Test: Checks registers, accumulator, basic instructions, and status flags.

• EPROM Test: Checksum test to verify integrity of firmware.

• Local RAM Test: Consists of data bus, memory cell, refresh and address bus checks (as applicable) on RAM which is resident on the board, or in the subsystem, and is used to store downloaded code/tests from the system disk.

• Communications Path Test: If remaining power-up tests are booted from a mass storage device, the applicable communication path (e.g., USART, PPI, Ethernet Link, etc.) is tested next.

2- INITIATING POWER-UP DIAGNOSTICS

2-1 Cold Start Power-up Diagnostics

"Cold" start implies that power is first being applied to a particular subsystem, or the system as a whole. The cold start power-up diagnostics are automatically executed by each applicable subsystem when power is applied, or when a local reset occurs (some subsystems have an auxiliary reset switch). Only EPROM/ PROM/ROM-based tests are executed (i.e., no disk-downloaded tests are used). Since the operating system is not yet loaded, all errors are reported only on the appropriate local indicators (except for the main computer).

2-2 Warm Start Power-up Diagnostics

The warm start power-up diagnostics are automatically executed when the MR system executive process is brought up. The appropriate I/O reset(s) are issued by the main computer to cause the EPROM-based power-up tests to re-execute as applicable. The status of these initial power-up tests is displayed by local indicators (e.g., A/N display on IPG board) until the communication paths to the host computer have been verified.

REVISION HISTORY

REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
0	July 28, 1998	M. Whitlow	Initial conversion from Toolbook to Word.