

## Entering Diagnostics

Apply power to the unit. Press **Transpose** button one time while three dots blinking in the 7-segment. After a while, segment display the following message:



Figure 2-1 7-segment example, entering diagnostics




Press either the **Yes** or **No** button until  appears in the segment. Press the **Rhythm** button for enter into menu item. The segment displays the following:



Figure 2-2 7-segment example, diagnostic main menu

Press **Rhythm** to select the run one test mode. To select the run burn-in test mode, press either the **Yes** or **No** button then press the **Rhythm** button to begin the tests.

## Diagnostic Test Modes

### Run One Test

Run One Test allows you to select an individual test, or to step through and run each available test. To step through the different tests, the **Yes** or **No** button. Press the **Rhythm** button to select the test.



**Figure 2-3 7-segment example, Run One Test**

At the completion of a test, whether pass or fail, press the **Program** button to exit the test. Press either the **Yes** or **No** button to advance to the next test or another test in the sequence.

At the completion of a test, press the **Program** button to return to the test menu. To exit diagnostics, turn the power off and on to return to normal operation.

### Run Burn-in



Burn-in mode, segment displays and following sequence of tests,.

continuously runs the

- ROM
- RAM
- MARA
- Sound ROM
- DRAM
- MIDI

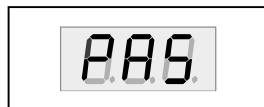
The segment displays the test results at the completion of each test. To stop the burn-in process and view the test results for each test run, press the **Program** button. Use the **Yes** or **No** button to scroll through the results of each test.

To exit Run Burn-in and return to the main menu, press the **Program** button. To exit diagnostics, turn the power off and on to return to normal operation.

### Test Results

At the completion of an individual test, the segment displays the test results. An expected

result is



means passed,



means failed.

## Description of Tests

### ROM



This test checks the software data (engine, boot, and setups) stored in FlashROM on the Engine Board.

A failure of this test may indicate a problem with the Flash ROM chip (U5 on the Engine Board), associated circuitry, or the Engine Board.

### RAM



The RAM test writes to the microprocessor RAM space and verifies that the write was successful. A failure of this test may indicate a problem with the RAM or related circuitry on the Engine Board.

### MARA



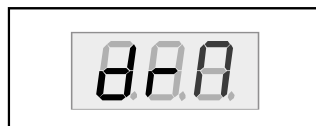
This test performs a read-write of the MARA registers and verifies that the data written can be read back successfully. A failure of this test may indicate a problem with a MARA, related circuitry or the Engine Board.

### Sound ROM



This test confirms that the Sound ROMs can be read by the MARAs by performing a checksum of the Sound ROMs. The computed checksum is then compared to the stored checksum. A failure of this test may indicate a problem with a Sound ROM (U47), or the Engine Board.

### Delay RAM



This test performs a quick read-write of the internal RAM and verifies that the data was successfully written and retained. A failure of this test may indicate a problem with the RAM or the Engine Board.

## Diagnostics

### Description of Tests

---

#### Sine Wave



This test generate sine wave from MARA, wave sample located in SoundROM, and plays through DAC and analog audio output. A failure of this test may indicate a problem with a MARA or Sound ROM (U47), or the analog audio section including DAC and OP-AMPs.



**Caution:** The output level of sinewave test is very loud!.

#### MIDI



The MIDI test performs a loop-back of the serial port by sending a 23-byte pattern over the external MIDI link. This test requires a MIDI loop (a MIDI cable that connects two MIDI jacks). The test will fail if a MIDI cable is not connected between two MIDI jacks. Be sure to run this test with MIDI cables connected as follows:

**Note:** Be sure to use a known working MIDI cable!



1. Connect a MIDI cable to the MIDI In and MIDI out jacks and run the test.

A failure of this test could be caused by failure of the serial port, other MIDI circuitry, or a problem on the Connector Board or the Engine Board.

#### NVRAM



The NVRAM(rM2) test performs part of the SRAM back up by built in lithium coin cell battery. Test starts with write test pattern to NVRAM area and after power cycle, read pattern again.

A failure of this test could be caused by low battery voltage or problem of battery-back related circuit.