System Tests

Configuration Tests 2-2
Board Handler Tests 2-5
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The System tests are numbered in the 0000s.
Board handler tests do not apply to the i3070 Series 5i Inline In-Circuit Test Systems.

Configuration Tests

- Test 0001
- Test 0002
- Test 0003
- Test 0005
- Test 0006

Test 0001

Manual Intervention Tests Flag

This test determines whether Manual Intervention tests are run. It reads the data entered in the DGN Config screen's Manual Intervention field. If Manual Intervention is set to **Yes**, Test 1 passes and the Manual Intervention tests are run. If Manual Intervention is set to **No**, Test 1 fails and the Manual Intervention tests are not run.

Exception: If a Manual Intervention test is executed from Test Number Entry, and Disable Test Restrictions is set to **Yes** in the DGN Config screen, the result of Test 1 is ignored and the test is run.

Test 1 is an internal test: it reads a flag. If Test 1 fails, no error message is produced.

Test 0002

Verify Actual vs. Official Testhead Configuration

This test compares the testhead's **actual** configuration with its **official** configuration and reports if there is a discrepancy. To determine the **actual** configuration, it reads the card IDs of all cards in all modules. To determine the **official** configuration, it reads the `config` file. Test 2 (0002) fails if there is a difference: a card missing, a card present that shouldn't be, or a card that is different from what it should be.

Diagnostics runs based on the **actual** configuration, not the **official** configuration, so all cards will be tested, even if Test 2 fails.

NOTE **If Test 2 fails, the testhead cannot be booted except from a calibrate login. Therefore, Test 2 must pass for operators or programmers to use the system from a user login.**

Troubleshooting Tips

If Test 2 fails, determine whether the config file is incorrect (a software problem) or the system is not reading all of the cards in the modules (a hardware problem). If a card is not being read, try re-seating the card (after unbooting the testhead).

Test 0003

Board Handler Tests Flag

This test determines whether board handler tests are run. It reads the `config` file, looking for a `board handler` statement. If it finds a `board handler` statement, Test 3 passes and the board handler tests are run. If it doesn't find a `board handler` statement, Test 3 fails and the board handler tests are not run.

NOTE **If a board handler test is executed from Test Number Entry, and Disable Test Restrictions is set to Yes in the DGN Config screen, the result of Test 3 is ignored and the test is run.**

If a board handler is present in the system `config` file, this test tries to communicate with it. If communication fails, Diagnostics aborts with an error.

Test 3 is an internal test: it reads a flag. If Test 3 fails, no error message is produced.

Test 0005

Verify AutoAdjust Temperature Valid

This test measures all modules' temperatures and compares them to the temperatures stored from the last AutoAdjust. If a module's old and present temperatures differ by more than five degrees Centigrade, Test 5 fails.

Troubleshooting Tips

If Test 5 fails, and the testhead is cold, allow its temperature to stabilize for one-half hour and re-run Diagnostics. If Test 5 still fails, run AutoAdjust All and re-run Diagnostics. If AutoAdjust fails, run full Diagnostics to troubleshoot the failure. Verify that the fans are running and that air flow is not impeded. Suspect a bad ASRU Card.

Test 0006

Compare Actual FPGA Firmware to Expected

This test verifies that any cards with programmable hardware (FPGAs) are at the correct revision for the current release of software. It compares the actual firmware revision to the expected revision. For the Mux system, this test is only supported on the ControlXTP card.

Troubleshooting Tips

If Test 6 fails, the actual firmware revision on the card does not match the expected firmware revision. From the Service Package Level 1 Menu, select **Configuration** > **Programmable Card Config** > **Update All**.

Board Handler Tests

These tests are for i3070 Series 5 Mux systems only.

- Test 0250
- Test 0251
- Test 0252
- Test 0253
- Test 0254
- Test 0255
- Test 0256
- Test 0257
- Test 0258
- Test 0259
- Test 0261

These tests are the diagnostic tests for the 44990A EFS Board Handler. They are described in more detail in the board handler manual.

CAUTION **There must not be any fixture of any kind — neither a Pin Verification Fixture nor a customer's fixture — in the board handler when running Diagnostics, or damage to the fixture or board handler may result.**

Test 0250

Checksum / Revision Code Test

Requires: EFS Board Handler

This test uses board handler statements to verify that the board handler's operating system is not corrupt and is the currently-supported revision.

Troubleshooting Tips

Test 250 sometimes fails due to inability to establish communication with the board handler. Verify that the cables, adapters, and controller's RS-232 port are correct. If Test 250 fails due to a wrong software revision code, cycle power on the handler and reboot the testhead via Test Cell Manager (TCM). TCM will automatically download a new operating system to the handler.

Test 0251

Handler Self-Test

Requires: EFS Board Handler

This test causes the board handler to execute its self-tests.

Test 0252

Verify the Analog Sensors

Requires: EFS Board Handler

This test verifies the handler's three analog optical sensors. These are the board (DUT) position sensors. A failure indicates a weak or inoperative sensor.

Test 0253

Verify Movement of the Rails

Requires: EFS Board Handler

This test verifies that the drive and support rails can move in and out. The test relies on the operator to answer questions while observing rail movement; this is a Manual Intervention test.

Test 0254

Verify Fan Speed

Requires: EFS Board Handler

This test measures the speed of the handler's cooling fan. If the fan measures below 2,000 revolutions per minute, Test 254 will fail.

Test 0255

Verify Tab Sensor, Conveyor and Entry Pinch Wheel

Requires: EFS Board Handler

This test runs the conveyor mechanism, verifying that the tab sensor, entry pinch wheel and conveyor are functional.

Test 0256

Verify Press Sensors

Requires: EFS Board Handler

This test verifies the functionality of the digital sensors that detect fixture presence, press position, and tooling pin engagement.

Test 0257

Verify Exit Pinch Wheel

Requires: EFS Board Handler and manual intervention

This test verifies that the exit pinch wheel turns. The test relies on the operator to answer questions while observing the exit pinch wheel; this is a Manual Intervention test.

Test 0258

Verify Board Handler Functionality

Requires: EFS Board Handler and manual intervention

This test performs a single pass-back board handling cycle using the 44990-04116 Test Board. It is a functional test that proves most of the board handler subsystems are good. This is a Manual Intervention test.

Test 0259

Read Board Handler Cycle Counter

Requires: EFS Board Handler

This test reads the cycle counter to determine how many boards have been tested since the board handler was overhauled. The test passes unless a communication error occurs. If you run Test 259 with Manual Intervention, you can set the cycle counter; without Manual Intervention you can only read it.

Test 0261

Interrogate Whether a Fixture is Present in the Board Handler

Requires: EFS Board Handler

This test interrogates whether a fixture is present in the board handler. If the operator answers **Yes** (fixture is present), Diagnostics is aborted and an error message appears. Test 261 requires manual intervention, but it runs regardless of how Manual Intervention is set.

Fixture Manipulation Tests

- Test 0500
- Test 0501
- Test 0502
- Test 0503
- Test 0504
- Test 0600

Test 0500

Pull Down the Pin Verification Fixture

Requires: Pin Verification Fixture

This test pulls down the fixture, then waits two seconds to ensure closure.

Test 0501

Release the Pin Verification Fixture

Requires: Pin Verification Fixture

This test releases the fixture, then waits two seconds to ensure release.

Test 0502

Determine the Presence of the Pin Verification Fixture

This test locks down any fixture that is on the testhead, and determines whether it is a Pin Verification Fixture by reading the fixture's autofile code. If a fixture other than a Pin Verification Fixture is found, it is released. If a Pin Verification Fixture is found, it is kept locked for testing. Test 502 also prints to the screen a graphic of the testhead with asterisks showing which modules are connected to the Pin Verification Fixture.

Test 0503

Print Message to Move the Pin Verification Fixture

Requires: Pin Verification Fixture

This test prints the message that requests the operator to move the fixture if that is required.

Test 0504

Release the Pin Verification Fixture

Requires: Pin Verification Fixture

This test releases the fixture, then waits two seconds to ensure release.

If there is a board handler described in the system config file, this test attempts to raise the press at this time. If this fails, Diagnostics aborts with an error.

Test 0600

Verify Auxiliary (Vacuum) Relays

Requires: Manual intervention

This test verifies the operation of the auxiliary (vacuum control) relays on the System Card.

Table 2-1

Subtest	Function
Subtest 0	All relays open
Subtest 1	Relay 1 closed
Subtest 2	Relay 2 closed
Subtest 3	Relay 3 closed
Subtest 4	Relay 4 closed
Subtest 5	Relay 5 closed