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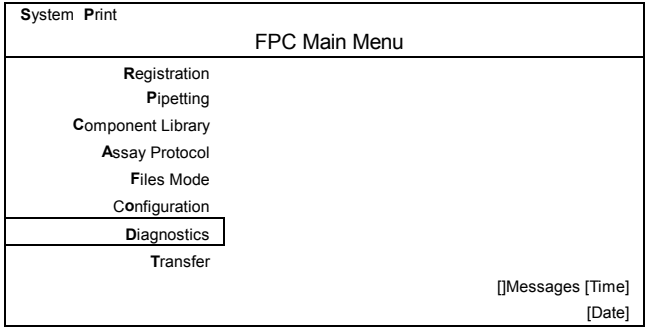
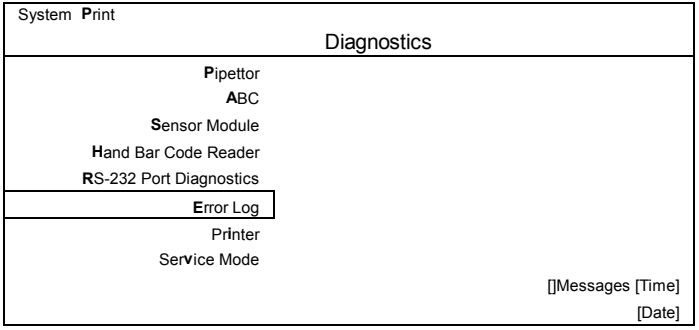
DIAGNOSTICS ERROR LOG

To act on errors, they must be retrieved from the Diagnostics Error Log.

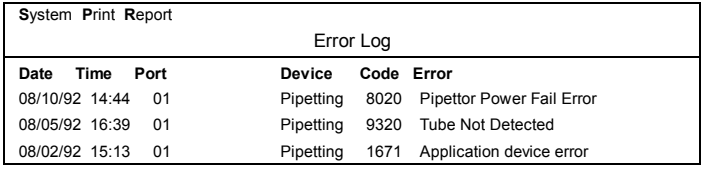
1. To retrieve the Error Log, select **Diagnostics** from the Main Menu and press ↵**Enter**.



2. From the Diagnostics Menu, select **Error Log** and press ↵**Enter**.



A sample Error Log is shown below.



3. Your Abbott Representative may require a more technical review of an error condition. To print a detailed report of a specific error(s), use the **Arrow** keys to highlight the error then select **Report** from the menu bar. Press **Esc** to return to the Diagnostics Menu.

Note: Some error codes do not generate reports

ABC ERRORS (MECHANICAL)

ABC GENERAL ERROR MESSAGE #1
TRANSPORT JAM ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:

ABC Jam on
Port xx

Retry
Cancel

General Cause: ABC Instrument jams during processing or reset.

ERROR RESOLUTION PROCEDURE:

Retry: If the cause of the jam can be located and fixed, the ABC/Pipettor will retry and continue. **Cancel** will cancel the current ABC/Pipetting process if the ABC/Pipettor is unable to resolve the problem.

Cancel: Cancels the current run.

FSR Error Codes

POSSIBLE ERROR CODES FOR ABC GENERAL ERROR MESSAGE #1.

Error Code	Definition
9300	Transport jamming error.
9301	Right Shuttle Home Sensor not Home when expected.
9302	Right Shuttle Code Wheel Sensor not over hole when expected.
9303	Right Shuttle Wheel count not correct.
9311	Left Shuttle Home Sensor not home when expected.
9312	Left Shuttle Code Wheel Sensor not over hole when expected.
9313	Left Shuttle Wheel count not correct.
9320	Tube not detected.
9321	Right Indexer not home when expected.
9322	Right Indexer home when not expected.
9330	
9331	Left Indexer not home when expected.
9332	Left Indexer home when not expected.
9341	Lifter not home when expected.
9342	Lifter home when not expected.
9351	Carrier not in Right Shuttle when expected.
9352	Carrier in Right Shuttle when not expected.
9361	Carrier not in Left Shuttle when expected.
9362	Carrier in Left Shuttle when not expected.
9371	Carrier not in Left Indexer when expected.
9372	Carrier in Left Indexer when not expected.

1. Refer to the Diagnostics Error Log to determine the specific Error Code.

2. After identifying the specific Error Code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9300 **TRANSPORT JAMMING ERROR**	A mechanical movement did not complete a commanded motion. Carrier is not in position expected following an index or shuttle operation. This error code is a general error and has been separated into specific errors for all the mechanical assemblies.	1. Refer to the appropriate Error Code listed below for corrective action. 2. Remove all carriers and clean track of any debris/spills. 3. Replace any worn/damaged carriers.
9301 **RIGHT SHUTTLE HOME SENSOR ERROR**	The Right Shuttle Home Sensor is not at the home position when expected.	1. Check the Home Sensor by manually moving the shuttle and observe the LED #1 on the Right Header Board (LED #1 should be ON when at the home position). 2. Check connector at the Right Header Board. 3. Check the DS1 Fuse on the Main Controller Board. 4. Check +24VDC on the Power Supply Drawer and at the Main Controller Board. Replace Power Supply Drawer Assembly. 5. Check for a defective motor. Replace Right Shuttle Assembly. 6. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9302 **RIGHT SHUTTLE CODE WHEEL SENSOR ERROR**	The Right Shuttle Code Wheel Sensor is not over the hole when expected.	1. Check Code Wheel Slot Sensor. 2. Check Header Board DS1 Indicator. 3. Check Shuttle Home Slot Sensor. 4. Check Right Header Board Sensor LED #2 and Connection J2. 5. Check Home Flag Setting. 6. Check Code Wheel alignment and Shuttle Home alignment. 7. Replace Slot Sensor. 8. Replace Main Controller Bd.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9303 **RIGHT SHUTTLE CODE WHEEL COUNT NOT CORRECT**	The Right Shuttle Code Wheel count and position are not correct.	1. Check the belt tension. 2. Check Code Wheel alignment. 3. Check Home Flag setting.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9311 **LEFT SHUTTLE HOME SENSOR ERROR**	The Left Shuttle Home Sensor is not at the home position when expected.	1. Check the Home Sensor by manually moving the shuttle and observe the LED #1 on the Right Header Board (LED #1 should be ON when at the home position). 2. Check connector at the Left Header Board. 3. Check the DS1 Fuse on the Main Controller Board. 4. Check +24VDC on the Power Supply Drawer and at the Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9312 **LEFT SHUTTLE CODE WHEEL SENSOR ERROR**	The Left Shuttle Code Wheel Sensor is not over the hole when expected.	1. Check the Code Wheel Sensor Slot. 2. Check Header Board DS1 Indicator. 3. Check Shuttle Home Sensor Slot. 4. Check the Left Header Board Sensor LED #2 and Connection J2. 5. Check Home Flag setting. 6. Check Code Wheel alignment and Shuttle Home alignment. 7. Replace Slot Sensor. 8. Replace Main Controller Bd.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9313 **LEFT SHUTTLE CODE WHEEL COUNT NOT CORRECT**	The Left Shuttle Code Wheel Sensor count and position are not correct.	1. Check belt tension. 2. Check Code Wheel alignment. 3. Check the Home Flag setting.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9320 **TUBE NOT DETECTED**	Tube not positioned properly in carrier.	1. Verify tube present. 2. Reposition tube.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9321 **RIGHT INDEXER HOME SENSOR ERROR**	Right Indexer not in home position.	1. Check Indexer Home Sensor. 2. Check Header Board DS1 Indicator. 3. Check Right Header Board Sensor LED #3 Connection J3. 4. Check Indexer Flag setting. 5. Replace Slot Sensor. 6. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9322 **RIGHT INDEXER HOME SENSOR ERROR**	Right Indexer Home when not expected.	1. Check Fuse F3 on Main Controller Board 2. Check Main Controller Board DS2 and DS3 Indicators. 3. Check for 24VAC on the Power Supply Drawer. Replace Power Supply Drawer. 4. Check connection at Right Header Board. 5. Check for defective motor. Replace Right Indexer Assembly. 6. Replace Main Controller Board. 7. Replace Right Indexer Assembly.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9331 **LEFT INDEXER HOME SENSOR ERROR (Not at the home position)**	Left Indexer not home when expected.	1. Check Indexer Home Sensor. Replace Slot Sensor. 2. Check Header Board DS1 Indicator. 3. Check Left Header Board Sensor LED #3 and Connection J3. 4. Check Indexer Flag setting. 5. Replace Slot Sensor. 6. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9332 **LEFT INDEXER HOME SENSOR ERROR (At the home position)**	Left Indexer not home when expected.	1. Check Fuse F3 on Main Controller Board. 2. Check Main Controller Board DS2 and DS3 Indicators. 3. Check for 24VAC on the Power Supply Drawer. Replace Power Supply Drawer. 4. Check connection at the Right Header Board. 5. Check for defective motor. 6. Replace Right Indexer Assembly. 7. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9341 **LIFTER HOME SENSOR ERROR (not at the home position)**	Lifter not home when expected.	1. Check Lifter Home Sensor. Replace Slot Sensor. 2. Check Header Board DS1 Indicator. 3. Check Right Header Board Sensor LED #4 and Connection J4. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9342 **LIFTER HOME SENSOR ERROR (at the home position)**	Lifter home when not expected.	1. Check Fuse F3 on Main Controller Board. 2. Check Main Controller Board DS2 and DS3 Indicators. 3. Check for 24VAC on Power Supply Drawer. 4. Check connection at Right Header Board. 5. Check for defective motor. Replace Lifter Assembly. 6. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9351 **CARRIER AT RIGHT SHUTTLE ERROR (Present)**	Carrier not in Right Shuttle when expected.	1. Verify the Reflective Sensor detects if the Carrier is at the Right Shuttle position. Replace Reflective Sensor. 2. Check for the correct amount of Carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9352 **CARRIER AT RIGHT SHUTTLE ERROR (Not present)**	Carrier in Right Shuttle when not expected.	1. Verify the Reflective Sensor detects if the carrier is at the Right Shuttle position. Replace Reflective Sensor. 2. Check for the correct number of Carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9361 **CARRIER AT LEFT SHUTTLE ERROR (Present)**	Carrier not in Left Shuttle when expected.	1. Verify the Reflective Sensor detects if the carrier is at the Left Shuttle position. 2. Check for the correct amount of Carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Bd.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9362 **CARRIER AT LEFT SHUTTLE ERROR (Not Present)**	Carrier is in Left Shuttle when not expected.	1. Verify the Reflective Sensor detects if the carrier is at the Left Shuttle position. 2. Check for the correct amount of Carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9371 **CARRIER AT LEFT INDEXER ERROR (Present)**	Carrier not in Left Indexer when expected.	1. Verify the Reflective Sensor detects if the carrier is at the Left Shuttle position. 2. Check for the correct amount of Carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9372 **CARRIER AT LEFT INDEXER ERROR (not present)**	Carrier in Left Indexer when not expected.	1. Check that the Reflective Sensor shows Carrier present at Left Shuttle. 2. Check for the correct amount of carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ABC GENERAL ERROR MESSAGE #2
TUBE TOO HIGH ON PORT XX

OPERATOR MESSAGE & RESOLUTION SCREEN:

Tube Too High On Port xx

Retry
Cancel

General Cause: Tube sensed as being too high on ABC.

ERROR RESOLUTION PROCEDURE:

Retry: Verify that all tubes are correctly seated in the Carrier. Press **Retry** and the ABC/Pipettor will retry and continue.

Cancel: If the operator is unable to fix the problem, this cancels the pipetting in process

FSR Error Codes

POSSIBLE ERROR CODES FOR GENERAL ERROR MESSAGE #2.

Error Log: No entry for this error.

ABC GENERAL ERROR MESSAGE #3
PIPETTING ERROR DURING SETUP

OPERATOR MESSAGE & RESOLUTION SCREEN:

Press ↵**Enter** to return
to the Pipetting Menu.

OK

General Cause: ABC power failure detected prior to the start of the pipetting run.

ERROR RESOLUTION PROCEDURE:

OK - By pressing ↵**Enter** (**OK**), the operator is returned to the Pipetting Menu and must re-select the assays to be processed.

FSR Error Codes

POSSIBLE ERROR CODES FOR GENERAL ERROR MESSAGE #3.

Error Code	Definition
9020	Power Failure.

1. Refer to the Diagnostics Error Log (refer to Page 4C-4) to determine the specific error code.
2. After identifying the specific Error Code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9020 **POWER FAILURE**	The AC power to the ABC has been turned off or experienced a Power Sag (verify a power sag by checking the Power Failure LED #5 on the Main Controller Board).	1. Verify that the AC Power Cord is plugged in to a "live" receptacle. 2. Check Input AC Voltage. 3. Verify that the F-Link Cable is plugged in. 4. Check the fuse on the ABC. 5. Check the Internal Fuse on the Pipettor (F2 +12V on the Main Controller Assembly). 6. Replace the Power Supply Drawer Assembly. 7. Replace the Controller Board.

ABC GENERAL ERROR MESSAGE #4

UNRECOVERABLE ERROR DURING ABC PROCESSING

OPERATOR MESSAGE & RESOLUTION SCREEN:

Unrecoverable Pipetting error on Port xx **OK**

General Cause: An unrecoverable error occurred on the ABC during processing.

ERROR RESOLUTION PROCEDURE:

OK - By pressing ↵**Enter (OK)**, the run is processed and the destination voided.

FSR Error Codes

POSSIBLE ERROR CODES FOR ABC GENERAL ERROR MESSAGE #4.

Error Code	Definition
9020	Power up error.
9030	ABC RAM read/write error.
9040	ABC ROM read error.
9200	ABC communication error.
9350	ABC run error.
9400	ABC command error.
9410	ABC parameter error.
9990	Undefined ABC error.

1. Refer to the Diagnostics Error Log (refer to Page 4C-4) to determine the specific error code.
2. After identifying the specific Error Code, refer to the Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9020 **POWER FAILURE**	The AC power to the ABC has been turned off or experienced a Power Sag (verify a power sag by checking the Power Failure LED #5 on the Main Controller Board).	1. Verify that the AC Power Cord is plugged in to a "live" receptacle. 2. Check Input AC Voltage. 3. Verify that the F-Link Cable is plugged in. 4. Check the fuse on the ABC. Check the Internal Fuse on the Pipettor (F2 +12V on the Main Controller Assembly). 5. Replace the Power Supply Drawer Assembly. 6. Replace the Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9030 **POWER-UP SELF TEST (POST) RAM ERROR**	A read or write error occurred with the system RAM during the Power-On Self Test (POST). Verify that a RAM error has occurred by checking the RAM Error LED #6 on the Main Controller Board.	1. Check all the voltages on the Main Controller Board. 2. Check the power on the Controller. 3. Replace the Power Supply Drawer if there is a missing voltage. 4. Reseat or replace the Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9040 **POWER-UP SELF TEST (POST) ROM ERROR**	A ROM checksum error occurred during the Power-On Self Test (POST).	1. Check all the voltages on the Main Controller Board. 2. Check the power on the Controller. 3. Replace the Power Supply Drawer if there is a missing voltage. 4. Reseat the Main Controller Board. 5. Replace the Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9200 **POWER-ON SELF TEST (POST) COMMUNICATION ERROR**	A communication error occurred during the Power-On Self test (POST).	1. Check communication cable to HP Computer. 2. Check all the voltages on the Main Controller Board. 3. Check the power on the Controller. 4. Replace the Power Supply Drawer if there is a missing voltage. 5. Reseat the Main Controller Board. 6. Replace the Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9350 **ABC RUN ERROR**	An ABC command was sent while another command was in progress.	1. Reset the ABC. 2. Check voltages on Main Controller Board. 3. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9400 **UNDEFINED COMMAND (Not part of the command set)**	The ABC received an undefined command from the computer.	1. Incorrect keyboard entry. 2. Check communication cable. 3. Reboot FPC Application Software. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9410 **UNEXPECTED PARAMETER**	The ABC received an unexpected command parameter.	1. Check that the Reflective Sensor shows Carrier present at Right Shuttle. 2. Check for the correct amount of Carrier in the instrument. 3. Check voltages on Main Controller Board. 4. Replace Main Controller Board.

PIPETTOR ERRORS

PIPETTOR GENERAL ERROR MESSAGE #1
PIPETTOR JAM

OPERATOR MESSAGE & RESOLUTION SCREEN:

Tip Jam on Port xx **R**etry **C**ancel

General Cause: The Pipettor jammed due to tip interference in the Z-Axis direction movement, a hardware problem, or a broken signal cable connected to the Jamming Sensor

ERROR RESOLUTION PROCEDURE:

Retry: Locate the cause of the jam, verify which wells were affected, and correct the problem. Void any wells in question. Select **R**etry from the Error Menu and press ↵**Enter**. The instrument will then try to run.

Cancel: If the operator is unable to correct the problem, or is unable to clearly define which wells were affected, the operator should select **C**ancel from the Error Menu and press ↵**Enter**. This will cancel pipetting and void all destinations.

FSR Error Codes

POSSIBLE ERROR CODES FOR PIPETTOR GENERAL ERROR MESSAGE #1.

Error Code	Definition
8300	Jam error.

1. Refer to the Diagnostics Error Log (refer to Page 4C-4) to determine the specific error code.
2. After identifying the specific Error Code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8300 **TIP JAMMING ERROR**	Jamming occurred during nozzle operation. Tip Jamming Sensor out of place. Cable is broken or disconnected (in relation to the jamming signal).	1. Perform all alignments. 2. Verify that collapsible tip holders are seated properly. 3. Verify that Tip Jamming Sensor is connected. 4. Verify that Tip Jamming Sensor (via LED #10 on Board #6 in the Main Control Assembly) is working properly.

PIPETTOR GENERAL ERROR MESSAGE #2
PIPETTOR UNABLE TO LOCATE TIPS

OPERATOR MESSAGE & RESOLUTION SCREEN:

Out Of Tips On Port xx

Retry
Cancel

General Cause: The Pipettor was unable to locate tips in 5 consecutive positions.

ERROR RESOLUTION PROCEDURE:

Retry: Replenish the tip supply. Press **R**etry and the Pipettor will go to the Right Tip Rack Position A1 for the first tip

Cancel: If the operator is unable to replenish the tip supply, pipetting will be canceled and the destinations voided by pressing **C**ancel.

Error Log: No Error Log entry

PIPETTOR GENERAL ERROR MESSAGE #3
PIPETTOR CLOGGED TIPS

OPERATOR MESSAGE & RESOLUTION SCREEN:

Clogged Tips On Port xx **R**etry **C**ancel

General Cause The Pipettor detected 5 consecutively clogged tips prior to aspiration of sample. The tips being used are contaminated with either dust or debris, the Tip Nozzle/Tubing Assembly is clogged, or the Tip Threshold level is incorrect.

ERROR-RESOLUTION PROCEDURE:

Retry: Replenish the tip supply and press **R**etry. The Pipettor will go to position A1 of the Right Tip Rack for the next tip. If the problem persists, rerun the Tip Threshold test in configuration. If the problem continues, an FSE may need to clean the tip nozzle or replace the assembly.

Cancel: Pressing **C**ancel will cancel the run in process and void all destinations in process.

FSR Error Codes

POSSIBLE ERROR CODES FOR PIPETTOR GENERAL ERROR MESSAGE #3.

Error Code	Definition
8320	Clogged Tips error.

1. Refer to the Diagnostics Error Log (refer to Page 4C-4) to determine the specific error code.

2. After identifying the specific Error Code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

NOTE
For all 8330/8340 errors, perform Leak Test to ensure system integrity BEFORE running Tip Threshold. DO NOT run Tip Threshold if Leak Test fails. Determine cause of Leak Test failure and correct the problem first.

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8320 **CLOGGED TIPS ERROR**	Tip is clogged. Five consecutive tips are clogged. Air Detection Level set by the Tip Threshold is incorrect. **NOTE**: The operator will not be aware of Tip Threshold errors. The error is displayed only in the Error Log.	1. Replace clogged tips. 2. Perform Tip Threshold. 3. Verify Sample Syringe is properly lubricated. 4. Replace Sample Syringe. 5. Replace Sample Nozzle Assembly. 6. Replace Pressure Sensor Board. 7. Reseat and/or replace the Sensor Interface/ ADC Board (slot #6 in the Main Control Assembly).

PIPETTOR GENERAL ERROR MESSAGE #4

ASPIRATION ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:

Aspiration Error On Port xx

Retry
Void Remaining Reps
Void **T**his Assay
Cancel Run

General Cause: An aspiration error occurred during processing of source material to be handled as control material.

ERROR RESOLUTION PROCEDURE:

Retry: Determine if the problem exists with the sample prior to selecting **R**etry for the same sample.

Void All Remaining Reps: Void all remaining replicates for this sample and continue. Void any replicates that must be pipetted from the source in question. Replicates that were pipetted prior to the error message are considered good. The Pipettor continues with the next source.

Void This Assay: When the source being pipetted is specific to a particular assay, the operator has the option to cancel that assay and continue processing other assays

Cancel Run: The run is canceled.

FSR Error Codes

POSSIBLE ERROR CODES FOR PIPETTOR GENERAL ERROR MESSAGE #4

Error Code	Definition
8330	Aspiration error - Unknown error.
8331	Aspiration error - Air in tip.
8332	Aspiration error - Short sample.
8333	Aspiration error - Clot detected.
8334	Aspiration error - Short sample detected in Double Dilution Assay from Diluter Tray.
8335	Aspiration error - Clot detected (ABC).
8340	Dispense error.

1. Refer to the Diagnostics Error Log (refer to Page 4C-4) to determine the specific error code.

2. After identifying the specific Error Code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8330 **ASPIRATION ERROR**	Air detection. Short Sample detection. Clot detection.	1. Verify all Sample Tubing is dry. 2. Perform Leak Test 3. Perform Tip Threshold. 4. Verify correct sample preparation and volume in tube. 5. Verify that Sample Syringe is correctly lubricated. 6. Replace Sample Syringe. 7. Check tightness of Sample Nozzle Assy. 8. Replace Sample Nozzle Assembly. 9. Replace Pressure Sensor Board. 10. Reseat and/or replace Sensor Interface/ADC Board (slot #6 in the Main Control Assembly).

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8331 **ASPIRATION ERROR - AIR IN TIP**	Air in Tip.	Refer to Error Code 8330 on Page 4C-22.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8332 **ASPIRATION ERROR - SHORT SAMPLE**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-22.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8333 **ASPIRATION ERROR - CLOT DETECTED**	Clot detected.	Refer to Error Code 8330 on Page 4C-22.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8334 **ASPIRATION ERROR - SHORT SAMPLE DETECTED IN DOUBLE DILUTION ASSAY FROM DILUTER TRAY**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-22.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8335 **ASPIRATION ERROR - CLOT DETECTED (ABC)**	Clot detected (ABC).	Refer to Error Code 8330 on Page 4C-22.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8340 **DISPENSE ERROR**	Leak in Sample Lines. Component Failure.	1. Replace Sample Nozzle Tubing. 2. Replace all tubing and Sample Syringe. 3. Perform Leak Test. 4. Perform Tip Threshold. 5. Replace Pump Assembly. 6. Replace Pressure Sensor Assembly. 7. Replace Pressure Sensor Board. 8. Replace Sensor/ADC Board. 9. Replace LSU Board.

PIPETTOR GENERAL ERROR MESSAGE #5
FAILURE TO ASPIRATE A SOURCE MATERIAL

OPERATOR MESSAGE & RESOLUTION SCREEN:

Aspiration Error On Port xx

Retry
Void
Cancel Run

General Cause: Two unsuccessful attempts to aspirate a source material that is to be handled as an unknown occurs.

ERROR RESOLUTION PROCEDURE:

Retry: Determine if a problem exists with the sample prior to selecting **R**etry for the same sample

Void All Reps: Void all remaining replicates for this sample and continue. Any replicates still to be pipetted from the source in question will be voided; replicates pipetted prior to the error are considered good. The Pipettor will continue with the next source available.

Cancel Run: The current run is canceled.

FSR Error Codes

POSSIBLE ERROR CODES FOR PIPETTOR GENERAL ERROR MESSAGE #5.

Error Code	Definition
8330	Aspiration error - Unknown error.
8331	Aspiration error - Air in tip.
8332	Aspiration error - Short sample.
8333	Aspiration error - Clot detected.
8334	Aspiration error - Short sample detected in Double Dilution Assay from Diluter tray.
8335	Aspiration error - Clot detected (ABC).
8340	Dispense error.

1. Refer to the Diagnostics Error Log (refer to Page 4C-4) to determine the specific error code.

2. After identifying the specific Error Code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

NOTE
If the operator does not respond to the message within 20 seconds, the sample will be automatically voided, the pipettor will continue with the next sample, and the message will be removed from the queue.

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8330 **ASPIRATION ERROR**	Air detection. Short Sample detection. Clot detection.	1. Verify all Sample Tubing is dry. 2. Perform Leak Test 3. Perform Tip Threshold. 4. Verify correct sample preparation and volume in tube. 5. Verify that Sample Syringe is correctly lubricated. 6. Replace Sample Syringe. 7. Check tightness of Sample Nozzle Assembly. 8. Replace Sample Nozzle Assembly. 9. Replace Pressure Sensor Board. 10. Reseat and/or replace Sensor Interface/ADC Board (slot #6 in the Main Control Assembly).

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8331 **ASPIRATION ERROR - AIR IN TIP**	Air in Tip.	Refer to Error Code 8330 on Page 4C-22.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8332 **ASPIRATION ERROR - SHORT SAMPLE**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-22.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8333 **ASPIRATION ERROR - CLOT DETECTED**	Clot detected.	Refer to Error Code 8330 on Page 4C-22.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8334 **ASPIRATION ERROR - SHORT SAMPLE DETECTED IN DOUBLE DILUTION ASSAY FROM DILUTER TRAY**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-22.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8335 **ASPIRATION ERROR - CLOT DETECTED (ABC)**	Clot detected (ABC).	Refer to Error Code 8330 on Page 4C-22.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8340	Leak in Sample Lines.	1. Replace Sample Nozzle Tubing.
DISPENSE ERROR	Component Failure.	2. Replace all tubing and Sample Syringe. 3. Perform Leak Test. 4. Perform Tip Threshold. 5. Replace Pump Assembly. 6. Replace Pressure Sensor Assembly. 7. Replace Pressure Sensor Board. 8. Replace Sensor/ADC Board. 9. Replace LSU Board.

PIPETTOR GENERAL ERROR MESSAGE #6
ERROR DURING DISPENSE OF SOURCE MATERIAL

OPERATOR MESSAGE & RESOLUTION SCREEN:

Dispense Error On Port xx

Void All Reps
Void **T**his Assay
Cancel Run

General Cause: An error occurred during dispense of source material defined as a CONTROL. Dispense errors that occur on source materials defined as UNKNOWNS will automatically void all replicates of the sample and dispensing will continue with the next available source material. No message is displayed.

ERROR RESOLUTION PROCEDURE:

Void All Reps: Selecting this will void all replicates for this sample and continue with the next source material.

Void This Assay: When the source being pipetted is assay specific, the operator has the option of canceling that assay and continuing processing the remaining assays.

Cancel Run: Cancels current run.

FSR Error Codes

POSSIBLE ERROR CODES FOR PIPETTOR GENERAL ERROR MESSAGE #6

Error Code	Definition
8330	Aspiration error - Unknown error.
8331	Aspiration error - Air in tip.
8332	Aspiration error - Short sample.
8333	Aspiration error - Clot detected.
8334	Aspiration error - Short sample detected in Double Dilution Assay from Diluter tray.
8335	Aspiration error - Clot detected (ABC).
8340	Dispense error.

1. Refer to the Diagnostics Error Log (refer to Page 4C-4) to determine the specific error code.

2. After identifying the specific Error Code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8330 **ASPIRATION ERROR**	Air detection. Short Sample detection. Clot detection.	1. Verify Sample Tubing is dry. 2. Perform Leak Test. 3. Perform Tip Threshold. 4. Verify correct sample preparation and volume in tube. 5. Verify Sample Syringe is correctly lubricated. 6. Replace Sample Syringe. 7. Check tightness of Sample Nozzle Assembly. 8. Replace Sample Nozzle Assembly. 9. Replace Pressure Sensor Board. 10. Reseat and/or replace Sensor Interface/ADC Board (slot #6 in the Main Control Assembly).

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8331 **ASPIRATION ERROR - AIR IN TIP**	Air in Tip.	Refer to Error Code 8330 on Page 4C-28.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8332 **ASPIRATION ERROR - SHORT SAMPLE**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-28.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8333 **ASPIRATION ERROR - CLOT DETECTED**	Clot detected.	Refer to Error Code 8330 on Page 4C-28.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8334 **ASPIRATION ERROR - SHORT SAMPLE DETECTED IN DOUBLE DILUTION ASSAY FROM DILUTER TRAY**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-28.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8335 **ASPIRATION ERROR - CLOT DETECTED (ABC)**	Clot detected (ABC).	Refer to Error Code 8330 on Page 4C-28.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8340 **DISPENSE ERROR**	Leak in Sample Lines. Component Failure.	1. Replace Sample Nozzle Tubing. 2. Replace all tubing and Sample Syringe. 3. Perform Leak Test. 4. Perform Tip Threshold. 5. Replace Pump Assembly. 6. Replace Pressure Sensor Assembly. 7. Replace Pressure Sensor Board. 8. Replace Sensor/ADC Board. 9. Replace LSU Board.

PIPETTOR GENERAL ERROR MESSAGE #7

ERROR DURING ASPIRATION

OPERATOR MESSAGE & RESOLUTION SCREEN:

Diluent Aspiration Error On Port xx

Void **T**his Assay
Cancel Run

General Cause: An error was detected during the aspiration of the source material diluent from the bottle (D1 or D2).

ERROR RESOLUTION PROCEDURE:

Void This Assay: The operator has the option of canceling the assay which required the diluent and continuing the processing of the other assays.

Cancel Run: Cancels the current run.

FSR Error Codes

POSSIBLE ERROR CODES FOR PIPETTOR GENERAL ERROR MESSAGE #7.

Error Code	Definition
8330	Aspiration error - Unknown error.
8331	Aspiration error - Air in tip.
8332	Aspiration error - Short sample.
8333	Aspiration error - Clot detected.
8334	Aspiration error - Short sample detected in Double Dilution Assay from Diluter tray.
8335	Aspiration error - Clot detected (ABC).
8340	Dispense error.

1. Refer to the Diagnostics Error Log (refer to Page 4C-4) to determine the specific error code.

2. After identifying the specific Error Code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8330 **ASPIRATION ERROR**	Air detection. Short Sample detection. Clot detection.	1. Verify all Sample Tubing is dry. 2. Perform Leak Test. 3. Perform Tip Threshold. 4. Verify correct sample preparation and volume in tube. 5. Verify that Sample Syringe is correctly lubricated. 6. Replace Sample Syringe. 7. Check tightness of Sample Nozzle Assembly. 8. Replace Sample Nozzle Assembly. 9. Replace Pressure Sensor Board. 10. Reseat and/or replace Sensor Interface/ADC Board (slot #6 in the Main Control Assembly).

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8331 **ASPIRATION ERROR - AIR IN TIP**	Air in Tip.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8332 **ASPIRATION ERROR - SHORT SAMPLE**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8333 **ASPIRATION ERROR - CLOT DETECTED**	Clot detected.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8334 **ASPIRATION ERROR - SHORT SAMPLE DETECTED IN DOUBLE DILUTION ASSAY FROM DILUTER TRAY**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8335 **ASPIRATION ERROR - CLOT DETECTED (ABC)**	Clot detected (ABC).	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8340 **DISPENSE ERROR**	Leak in Sample Lines. Component Failure.	1. Replace Sample Nozzle Tubing. 2. Replace all tubing and Sample Syringe. 3. Perform Leak Test. 4. Perform Tip Threshold. 5. Replace Pump Assembly. 6. Replace Pressure Sensor Assembly. 7. Replace Pressure Sensor Board. 8. Replace Sensor/ADC Board 9. Replace LSU Board.

PIPETTOR GENERAL ERROR MESSAGE # 8
ERROR DURING DISPENSE OF DILUENT

OPERATOR MESSAGE & RESOLUTION SCREEN:

Diluent Dispense Error On Port xx

Void This Assay
Cancel Run

General Cause: An error is detected during the dispense of diluent from a bottle (D1 or D2), when it is defined as the type of source material in pipetting protocol.

ERROR RESOLUTION PROCEDURE:

Void This Assay: The operator will have the option of canceling the assay which required the diluent and continuing processing of the other assays.

Cancel Run: Cancels the current run. All trays in process will be voided.

FSR Error Codes

POSSIBLE ERROR CODES FOR GENERAL ERROR MESSAGE #8

Error Code	Definition
8330	Aspiration error - Unknown error.
8331	Aspiration error - Air in tip.
8332	Aspiration error - Short sample.
8333	Aspiration error - Clot detected.
8334	Aspiration error - Short sample detected in Double Dilution Assay from Diluter tray.
8335	Aspiration error - Clot detected (ABC).
8340	Dispense error.

1. Refer to the Diagnostics Error Log to determine the specific error code.

2. After determining the specific error code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8330 **ASPIRATION ERROR**	Air detection. Short Sample detection. Clot detection.	1. Verify all Sample Tubing is dry. 2. Perform Leak Test. 3. Perform Tip Threshold. 4. Verify correct sample preparation and volume in tube. 5. Verify that Sample Syringe is correctly lubricated. 6. Replace Sample Syringe. 7. Check tightness of Sample Nozzle Assembly. 8. Replace Sample Nozzle Assembly. 9. Replace Pressure Sensor Board. 10. Reseat and/or replace Sensor Interface/ADC Board (slot #6 in the Main Control Assembly).

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8331 **ASPIRATION ERROR - AIR IN TIP**	Air in Tip.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8332 **ASPIRATION ERROR - SHORT SAMPLE**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8333 **ASPIRATION ERROR - CLOT DETECTED**	Clot detected.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8334 **ASPIRATION ERROR - SHORT SAMPLE DETECTED IN DOUBLE DILUTION ASSAY FROM DILUTER TRAY**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8335 **ASPIRATION ERROR - CLOT DETECTED (ABC)**	Clot detected (ABC).	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8340 **DISPENSE ERROR**	Leak in Sample Lines. Component Failure.	1. Replace Sample Nozzle Tubing. 2. Replace all tubing and Sample Syringe. 3. Perform Leak Test. 4. Perform Tip Threshold. 5. Replace Pump Assembly. 6. Replace Pressure Sensor Assembly. 7. Replace Pressure Sensor Board. 8. Replace Sensor/ADC Board. 9. Replace LSU Board.

GENERAL ERROR MESSAGE #9

UNRECOVERABLE FPC ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:

Unrecoverable Pipetting Error
on Port xx
OK

General Cause: An error is detected during the dispense of diluent from a bottle (D1 or D2.

OPERATOR RESOLUTION PROCEDURE:

Pressing **OK** returns the operator to the previous screen. The run in process is canceled and all of the destinations are voided.

FSR Error Codes

POSSIBLE ERROR CODES FOR GENERAL ERROR MESSAGE #9

Error Code	Definition
8010	Pipettor backup RAM error.
8020	Pipettor power fail error.
8030	Pipettor RAM write/read/error.
8040	Pipettor ROM checksum error.
8050	Pipettor EEPROM data error.
8070	Pipettor motor control error
8100	PCL-240K Pulse Motor Control LSI error.
8110	Pipettor LSU error.
8120	Pipettor ADC error.
8300	Tip Jam.
8320	Clogged Tips.
8330	Aspiration Error-Unknown Error.
8331	Aspiration Error-Air in Tip.
8332	Aspiration Error-Short Sample.
8333	Aspiration Error-Clot detected.
8334	Aspiration Error Short Sample detected in Double Dilution Assay from Diluter Tray.
8335	Aspiration Error-Clot Detected (ABC).
8340	Dispense Error.
8350	Pipettor run error.
8380	Pipettor Rest-unexecuted error.
8400	Pipettor command error.
8410	Pipettor parameter error.
8990	Undefined Pipettor error.

1. Refer to the Diagnostics Error Log procedure to determine the specific error code.
2. After determining the specific error code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8010 **PIPETTOR BACKUP RAM ERROR**	MPU Board battery pack is run down. MPU Board battery voltage is low. Contents of backup RAM were destroyed due to the above faults (checked during self-test).	1. Verify battery pack is connected. 2. Verify battery pack voltage (refer to Section 5, Component Replacement, for this procedure). 3. Replace battery pack and perform all alignments. 4. Replace MPU Board and perform all alignments.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8020 **PIPETTOR POWER FAIL ERROR**	Power Supply was shut off or momentarily interrupted (checked during self-test). NOTE: This error occurs on “NORMAL” shutdown of the pipettor.	1. Verify the instrument was not powered OFF and then ON. 2. Monitor the AC power at the lab. 3. Replace Power Fail Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8030 **PIPETTOR RAM READ/WRITE ERROR**	Data cannot be correctly written to or read from a specific RAM address (checked during Power On Self Test).	1. Verify +5V, ±15V, ±12V. 2. Reseat or replace MPU Board and perform all alignments.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8040 **PIPETTOR ROM CHECKSUM ERROR**	The ROM checksum does not match.	1. Verify +5V, ±15V, ±12V. 2. Reseat or replace MPU Board and perform all alignments.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8050 **PIPETTOR EEPROM DATA ERROR**	Checksum of EEPROM does not match (checked during Power-On Self Test).	1. Verify +5V, ±15V, ±12V. 2. Reseat or replace MPU Board and perform all alignments.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8070 **PIPETTOR GENERAL MOVEMENT ERROR**	Mechanical movement. Component failure.	1. Verify X, Y, Z, and Syringe Origin Sensor alignments and operation. 2. Listen and check for binding. 3. Replace Sample Nozzle Assembly. 4. Replace Pulse Motor Controller Board. 5. Replace Pulse Motor Driver Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8100 **PULSE MOTOR CONTROL LSI ERROR**	Data cannot be correctly sent to the Pulse Motor Control (checked during Power-On Self Test).	1. Verify +5V, ±15V, ±12V. 2. Reseat or replace Controller 1 and Controller 2 Boards (slots #4 and #5 in the Main Control Assembly).

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8110 **PIPETTOR LSU ERROR**	An error occurred during LSU (Liquid Surface Detection Unit) Self Test.	1. Verify +5V, ±15V, ±12V. 2. Reseat or replace Liquid Surface Detection Board (slot #3 in the Main Control Assembly).

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8120 **PIPETTOR ADC ERROR**	An Analog to Digital Converter error occurred during LSU Self Test.	1. Verify +5V, ±15V, ±12V. 2. Reseat or replace Sensor Interface/ADC Board (slot #6 in the Main Control Assembly).

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8300 **PIPETTOR TIP JAMMING ERROR**	Jamming occurred during Nozzle operation. Tip Jamming Sensor out of place. Cable is broken or disconnected (related to jamming signal).	1. Perform all alignments. 2. Verify that Collapsible Tip Holders are seated properly. 3. Verify that Tip Jamming Sensor is connected. 4. Verify that Tip Jamming Sensor (via LED #10 on Board #6 in the Main Control Assembly) senses properly. 5. Replace Sample Nozzle Assembly. 6. Reseat or replace the Sensor Interface/ADC Board (slot #6 in the Main Control Assembly).

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8320 **CLOGGED TIPS ERROR**	Tip is clogged. Five consecutive tips are clogged. Air Detection Level set by the Tip Threshold is not correct. NOTE: The operator will not be aware of Tip Threshold Errors. The error is displayed in the error log file.	1. Replace clogged tips. 2. Perform Tip Threshold Adjustment. 3. Verify correct Sample Syringe lubrication. 4. Replace Sample Syringe. 5. Replace Sample Nozzle Assembly. 6. Replace Pressure Sensor Board. 7. Reseat or replace the Sensor Interface/ADC Board (slot #6 in the Main Control Assembly.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8330 **ASPIRATION ERROR**	Air detection. Short Sample detection. Clot detection.	1. Verify all Sample Tubing is dry. 2. Perform Leak Test. 3. Perform Tip Threshold. 4. Verify correct sample preparation and volume in tube. 5. Verify that Sample Syringe is correctly lubricated. 6. Replace Sample Syringe. 7. Check tightness of Sample Nozzle Assembly. 8. Replace Sample Nozzle Assembly. 9. Replace Pressure Sensor Board. 10. Reseat and/or replace Sensor Interface/ADC Board (slot #6 in the Main Control Assembly).

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8331 **ASPIRATION ERROR - AIR IN TIP**	Air in Tip.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8332 **ASPIRATION ERROR - SHORT SAMPLE**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8333 **ASPIRATION ERROR - CLOT DETECTED**	Clot detected.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8334 **ASPIRATION ERROR - SHORT SAMPLE DETECTED IN DOUBLE DILUTION ASSAY FROM DILUTER TRAY**	Short Sample detected.	Refer to Error Code 8330 on Page 4C-31.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8335 **ASPIRATION ERROR - CLOT DETECTED (ABC)**	Clot detected (ABC).	Refer to Error Code 8330 on Page 4C-31.

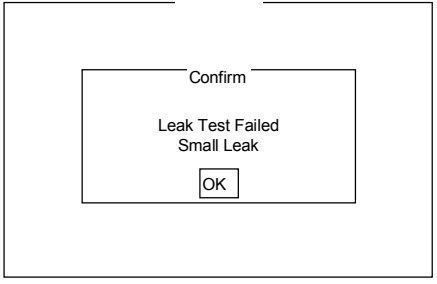
ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8340 **DISPENSE ERROR**	Leak in Sample Lines. Component Failure.	1. Replace Sample Nozzle Tubing. 2. Replace all tubing and Sample Syringe. 3. Perform Tip Threshold. 4. Perform Leak Test. 5. Replace Pump Assembly. 6. Replace Pressure Sensor Assembly. 7. Replace Pressure Sensor Board. 8. Replace Sensor/ADC Board. 9. Replace LSU Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8990 **UNDEFINED PIPETTOR ERROR**	Data could not be sent from the Pipettor to the HP Computer.	1. Reseat or replace the communication cable between the Pipettor and HP Computer. 2. Reseat or replace the Digiboard™ Cable on the HP Computer. 3. Reseat or replace the MPU Board (slot #1 in the Main Control Assembly) and perform all alignments. 4. Replace the HP Computer (faulty Digiboard).

GENERAL ERROR MESSAGE #10

LEAK TEST FAILURE ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:



General Cause: An error is detected during the leak test and indicates that the test failed with a small, medium, or large leak.

OPERATOR RESOLUTION PROCEDURE:

Pressing **OK** returns the operator to the previous screen.

Leak Test Error Codes

POSSIBLE ERROR CODES FOR GENERAL ERROR MESSAGE #10

Error Code	Definition
8361	Leak Test Failed: Large Leak.
8362	Leak Test Failed: Medium Leak.
8363	Leak Test Failed: Small Leak.

1. Refer the Diagnostics Error Log to determine the specific error code.
2. After determining the specific error code, refer to the FSR Error Code Corrective Action Procedures shown below and perform the appropriate corrective action.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8361 **LEAK TEST FAILED:** **LARGE LEAK**		1. Replace Sample Tips. 2. Verify/Adjust the Tip Rack 1 & 2 Z-Height. 3. Replace Sample Tubing, LN 3A46-36. 4. Replace Sample Syringe, LN 3A46-32. 5. Replace Sample Syringe Block, CN 1-42863-01. 6. Replace Sample Nozzle Assembly. 7. Replace Pump Assembly.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8362 **LEAK TEST FAILED:** **MEDIUM LEAK**		1. Replace Sample Tips. 2. Verify/Adjust the Tip Rack 1 & 2 Z-Height. 3. Replace Sample Tubing, LN 3A46-36. 4. Replace Sample Syringe, LN 3A46-32. 5. Replace Sample Syringe Block, CN 1-42863-01. 6. Replace Sample Nozzle Assembly. 7. Replace Pump Assembly

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
8363 **LEAK TEST FAILED:** **SMALL LEAK**		1. Replace Sample Tips. 2. Verify/Adjust the Tip Rack 1 & 2 Z-Height. 3. Replace Sample Tubing, LN 3A46-36. 4. Replace Sample Syringe, LN 3A46-32. 5. Replace Sample Syringe Block, CN 1-42863-01. 6. Replace Sample Nozzle Assembly. 7. Replace Pump Assembly

ABC CORRECTIVE PROCEDURES

FSR Error Code Corrective Action Procedures

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9020 **POWER FAILURE**	The AC power to the ABC has been turned off or experienced a power sag.	1. Reseat or replace the communication cable between the Pipettor and HP Computer. 2. Reseat or replace the Digiboard™ Cable on the HP Computer. 3. Reseat or replace the MPU Board (slot #1 in the Main Control Assembly) and perform all alignments. 4. Replace the HP Computer (faulty Digiboard).
9030 **POWER-ON SELF TEST RAM ERROR**	A read or write error occurred with the system RAM during Power-On Self Test.	1. Verify RAM error LED #6 on the #6 on the Main Controller Board. 2. Check all of the voltages on the Main Controller Board. 3. Check Power Cable to the motherboard. 4. Replace the Power Supply Drawer for missing voltage. 5. Reseat or replace the Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9040 **POWER-ON SELF TEST ROM ERROR**	A ROM checksum error occurred during the Power-On Self Test.	1. Check all of the voltages on the Main Controller Bd. 2. Check Power Cable to the motherboard. 3. Replace the Power Supply Drawer for missing voltage. 4. Reseat or replace the Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9200 **POWER-ON SELF TEST COMMUNICATION ERROR**	A communication error occurred during the Power-On Self Test.	1. Check the communication cable to the HP Computer. 2. Check all of the voltages on the Main Controller Board. 3. Check Power Cable to the motherboard. 4. Replace the Power Supply Drawer for missing voltage. 5. Reseat or replace the Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9300 **TRANSPORT JAMMING ERROR**	A mechanical movement did not complete a commanded motion. Carrier is not in a position expected following an index or shuttle operation. The 9300 transport jamming error is a general error and has been separated into specific errors for all the mechanical assemblies.	

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9301 **RIGHT SHUTTLE HOME SENSOR ERROR**	The Right Shuttle Home Sensor is not at the home position when expected.	1. Check the Home Sensor by manually moving the shuttle and observing the LED #1 on the Right Header Board (LED #1 should be ON when at the home position). 2. Check Connector at Right Header Board. 3. Check Fuse DS1 on the Main Controller Board. 4. Check +24VDC on the Power Supply Drawer and at the Main Controller Board. 5. Check for a defective motor. 6. Replace the Main Controller Board. 7. Replace the Power Supply Drawer Assembly. 8. Replace the Right Shuttle Assembly.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9302 **RIGHT SHUTTLE CODE WHEEL SENSOR ERROR**	The Right Shuttle Code Wheel Sensor is not over the hole when expected.	1. Check Code Wheel Slot Sensor. 2. Check Header Board DS1 Indicator. 3. Check Shuttle Home Slot Sensor. 4. Check Right Header Board Sensor LED #2 and Connection J2. 5. Check Home Flag Setting. 6. Check Code Wheel Alignment. 7. Replace Slot Sensor. 8. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9303 **RIGHT SHUTTLE CODE WHEEL COUNT NOT CORRECT**	The Right Shuttle Code Wheel count and position are not correct.	1. Check the Belt Tension. 2. Check Code Wheel Alignment. 3. Check Home Flag Setting.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9311 **LEFT SHUTTLE HOME SENSOR ERROR**	The Left Shuttle Home Sensor is not at the home position when expected.	1. Check the Home Sensor by manually moving the shuttle and observing the LED #1 on the Right Header Board (LED #1 should be ON when at the home position). 2. Check Connector at Left Header Board. 3. Check Fuse DS1 on the Main Controller Board. 4. Check +24VDC on the Power Supply Drawer and at the Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9312 **LEFT SHUTTLE CODE WHEEL SENSOR ERROR**	The Left Shuttle Code Wheel Sensor is not over the hole when expected.	1. Check Code Wheel Slot Sensor. 2. Check Header Board DS1 Indicator. 3. Check Shuttle Home Slot Sensor. 4. Check Left Header Board Sensor LED #2 and Connection J2. 5. Check Home Flag Setting. 6. Check Code Wheel Alignment. 7. Replace Slot Sensor. 8. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9313 **LEFT SHUTTLE CODE WHEEL COUNT NOT CORRECT**	The Left Shuttle Code Wheel count and position are not correct.	1. Check the Belt Tension. 2. Check Code Wheel Alignment. 3. Check Home Flag Setting.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9320 **TUBE NOT DETECTED**	Tube not positioned properly in Carrier.	1. Verify that a Tube is present. 2. Reposition Tube.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9321 **RIGHT INDEXER HOME SENSOR ERROR (not at the home position)**	The Right Indexer is not home when expected.	1. Check Indexer Home Sensor. 2. Check Header Board DS1 Indicator. 3. Check Right Header Board Sensor LED #3 Connection (J3). 4. Check Indexer Flag Setting. 5. Replace Slot Sensor. 6. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9322 **RIGHT INDEXER HOME SENSOR ERROR (at the home position)**	The Right Indexer is home when not expected.	1. Check for blown AC Motor Fuse. 2. Check Main Controller Board DS2 and DS3 Indicators. 3. Check for 24VAC on Main Controller Board. 4. Check connection at Right Header Board. 5. Check for defective motor. 6. Replace Main Controller Board. 7. Replace Right Indexer Assembly. 8. Replace Power Supply Drawer Assembly.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9331 **LEFT INDEXER HOME SENSOR ERROR (not at the home position)**	The Left Indexer not home when expected.	1. Check Indexer Home Sensor. 2. Check Header Board DS1 Indicator. 3. Check the Left Header Board Sensor LED #3 Connection (J3). 4. Check Indexer Flag Setting. 5. Replace Slot Sensor. 6. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9341 **LIFTER HOME SENSOR ERROR (not at the home position)**	Lifter not home when expected.	1. Check Lifter Home Sensor. 2. Check Header Board DS1 Indicator. 3. Check the Right Header Board Sensor LED #4 Connection (J4). 4. Replace Slot Sensor. 5. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9342 **LIFTER HOME SENSOR ERROR (at the home position)**	Lifter home when not expected.	1. Check for blown AC Motor Fuse. 2. Check Main Controller Board DS2 and DS3 Indicators. 3. Check for 24VAC on the Right Header Board. 4. Check for defective Motor. 5. Replace Main Controller Board. 6. Replace Lifter Assembly. 7. Replace Power Supply Drawer Assembly.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9350 **ABC RUN ERROR**	ABC command is sent while another command is in progress.	1. Reset ABC. 2. Check voltages on Main Controller Board. 3. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9351 **CARRIER AT RIGHT SHUTTLE ERROR (present)**	Carrier not in Right Shuttle when expected.	1. Verify the Reflective Sensor detects if the carrier is at the Right Shuttle position. 2. Check for the correct amount of carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9361 **CARRIER AT LEFT SHUTTLE ERROR (present)**	Carrier not in Left Shuttle when expected.	1. Verify the Reflective Sensor detects if the carrier is at the Left Shuttle position. 2. Check for the correct amount of carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9352 **CARRIER AT RIGHT SHUTTLE ERROR (not present)**	Carrier in Right Shuttle when not expected.	1. Verify the Reflective Sensor detects if the carrier is at the Right Shuttle position. 2. Check for the correct amount of carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9362 **CARRIER AT LEFT SHUTTLE ERROR (not present)**	Carrier in Left Shuttle when not expected.	1. Verify the Reflective Sensor detects if the carrier is at the Left Shuttle position. 2. Check for the correct amount of carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9371 **CARRIER AT LEFT INDEXER ERROR (present)**	Carrier not in Left Indexer when expected.	1. Verify the Reflective Sensor detects if the carrier is at the left shuttle position. 2. Check for the correct amount of carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9372 **CARRIER AT LEFT INDEXER ERROR (not present)**	Carrier in Left Indexer when not expected.	1. Verify the Reflective Sensor detects if the carrier is at the Left Shuttle position. 2. Check for the correct number of carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9400 **UNDEFINED COMMAND (not part of the command set)**	ABC received an undefined command from the computer.	1. Incorrect keyboard entry. 2. Check communication cable. 3. Reboot FPC Application Software. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9410 **UNEXPECTED PARAMETER**	ABC received an unexpected command parameter	1. Verify the Reflective Sensor detects if the carrier is at the Right Shuttle position. 2. Check for the correct number of carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

ERROR CODE	PROBABLE CAUSE	CORRECTIVE ACTION
9490 **UNDEFINED ERROR**	ABC received an undefined error.	1. Verify the Reflective Sensor detects if the carrier is at the Right Shuttle position. 2. Check for the correct number of carriers in the instrument. 3. Check voltages on the Main Controller Board. 4. Replace Main Controller Board.

COMMUNICATION/READER ERRORS

FPC TIMEOUT

OPERATOR MESSAGE & RESOLUTION SCREEN:

Report From Reader Timed Out
Reader Port: xx
OK

General Cause: FPC times out if it takes longer than five (5) minutes to receive an IMx® data file.

OPERATOR ERROR RESOLUTION PROCEDURE:

1. Check the cable connection.
2. Transmit the report again.

Error Log: No entry.

TRANSMISSION ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:

Unexpected Start Of File Received
Reader Port: xx
OK

General Cause: Data transmission error. One file not completed when another one has started

OPERATOR ERROR RESOLUTION PROCEDURE:

1. View the analyzer file to determine if the file is missing data. Transmit the run again if the analyzer is capable.
2. Repeat the run.

Error Log: No entry.

I/O DATA ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:

Reader System Error Reader Port: xx **OK**

General Cause: An I/O error occurred on a file (normally an analyzer file).

OPERATOR ERROR RESOLUTION PROCEDURE:

1. View the analyzer file to determine if the file is missing data. Transmit the run again if the analyzer is capable.
2. Repeat the run.

Error Log: 1190 Application file error.

INVALID DESTINATION DATA

OPERATOR MESSAGE & RESOLUTION SCREEN:

Invalid Destination Object Type Reader Port: xx **OK**

General Cause: The Destination ID entered on the analyzer is invalid.

OPERATOR ERROR RESOLUTION PROCEDURE:

Verify that the number entered is correct.

Error Log: 1502 Application device error.

CHECKSUM DATA ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:

Checksum Error Reader Port: xx **OK**

General Cause: A checksum error occurred on data being transmitted from the analyzer to the FPC. The checksum is calculated on a per line basis for the QUANTUMATIC™ instrument and PPC, and on a per file (run) basis for the IMx® Analyzer. A checksum is not calculated on the QUANTUM™ II instrument.

OPERATOR ERROR RESOLUTION PROCEDURE:

1. Data will not be stored in the database results. The analyzer file will be saved. View the analyzer file for results information.
2. If the analyzer has the capability, transmit the run again or repeat the run.

Error Log: 1500 Application device error.

ERROR CONDITION

OPERATOR MESSAGE & RESOLUTION SCREEN:

General Cause: Errors occur under three conditions:

1. An IMx® instrument error occurs during the run; for example, a code 172, a code 173, or a % neutralization assay was transmitted is displayed.
2. The destination ID entered or read on the analyzer has the status of empty or void.
3. The destination ID read or entered on the analyzer is for a destination-type incompatible with the analyzer or test that is currently running. For example; MEIA Carousel for a FPIA assay.

Received Analyzer Error Reader Port: xx **OK**

OPERATOR ERROR RESOLUTION PROCEDURE:

1. View the destination information in Files Mode or the ID in question. Verify that both the destination type and status are acceptable with the assay to be run on the analyzer.

2. For IMx® instrument errors, verify that the IMx® instrument is calibrated and operating properly.

Error Log: 1501, 1504, or 1506 Application device error.

TEST NUMBER DOES NOT MATCH ANALYZER NUMBER

OPERATOR MESSAGE & RESOLUTION SCREEN:

Test Numbers Do Not Match
Sample IDs Are Not Available
Reader Port: xx
OK

General Cause: The test number in the pipetting protocol for the destination ID that was read or entered does not match the number on the analyzer.

OPERATOR ERROR RESOLUTION PROCEDURE:

The data will be saved from the analyzer, but without the sample ID information and destination ID in question.

Error Log: 1505 Application device error.

COMMUNICATION/HOST (LIS) ERRORS

ASSAY CODES DO NOT EXIST FOR DOWNLOAD TEST REQUESTS

OPERATOR MESSAGE & RESOLUTION SCREEN:

Data Is Not Validated
Cannot Send Requested Data
Reader Port: xx
OK

General Cause: The host (LIS) is downloading test requests and the assay codes do not exist for those requests.

OPERATOR ERROR RESOLUTION PROCEDURE:

The data will be saved from the analyzer, but without the sample ID information and destination ID in question.

Error Log: 1512 Application device error.

ERROR CONDITION

OPERATOR MESSAGE & RESOLUTION SCREEN:

Host Transmission Error Reader Port: xx **OK**

General Cause: Errors may occur under three conditions:

1. If a transmission/reception failure occurs between the FPC and the host system. For example, too many time-outs and invalid checksums.
2. If the host sends more than one query at a time to the FPC system.
3. If the traffic on the host system is very busy and the number of files the FPC queues to send to the host exceeds 100.

OPERATOR ERROR RESOLUTION PROCEDURE:

1. Verify that the cable is properly connected between the host and the FPC.
2. Reduce the number of files to send at one time.
3. Transmit the file again.

Error Log: 1509 Application device error.

NEW PROCESSOR ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:

Host System Internal Error Reader Port: xx **OK**

General Cause: This error is caused by an internal processor error that occurs when the host tries to create a new process and fails.

OPERATOR ERROR RESOLUTION PROCEDURE:

1. Shut down the FPC application and retry.
2. If the problem continues, reboot the host interface software.

Error Log: 1510 Application device error.

ASSAY PROTOCOL

No messages in the cautionary message queue.

FILES MODE

No messages in the cautionary message queue.

CONFIGURATION

No messages in the cautionary message queue.

DIAGNOSTICS

Errors generated only by the Pipettor/ABC are placed in the cautionary message queue. Refer to the previous section for Pipettor and ABC error messages.

TRANSFER

No messages in the cautionary message queue.

DATABASE AND DEVICE ERRORS

There are five (5) categories of errors that **require shutdown** of the FPC application:

1. Database Error
2. Device Error
3. File Error
4. Logic Error
5. Operational Error

The cause of a problem, its resolution, and the error code and a definition are listed below.

DATABASE ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:

Application database error Press any key to exit the application.

General Cause: A problem occurred with the FPC ORACLE ™ database. Two types of general errors cause this message:

1. An access error occurred while trying to open, close, read, or write to the database.

2. A database data integrity error was discovered by the FPC application.

OPERATOR ERROR RESOLUTION PROCEDURE:

Shut down the FPC system. If the problem continues, the database may need to be reloaded.

Error Log: The message **Application database error** and the four-digit error code associated with the error will be displayed in the error log.

FSR Error Codes

POSSIBLE ERROR CODES DATABASE ERROR

Error Code	Definition
1101	Destination Object-record read fail.
1103	Destination Object-record update fail.
1104	
1111	Well Records-record read fail.
1113	
1115	Well Records-record create fail.
1121	Source Objects-record close fail.
1123	Source Objects-record update fail.
1124	Source Objects-record delete fail.
1125	Source Objects-record create fail.
1126	Source Objects-record select for update fail.
1127	Source Objects-record corruption.
1130	Tube Records-cursor open fail.
1131	Tube Records-record read fail.
1132	Tube Records-cursor close fail.
1133	Tube Records-record update fail.
1135	Tube Records-record create fail.
1137	Tube Records-record corruption.
1144	Sample Records-record delete fail.
1145	Sample Records-record create fail.
1146	Sample Records-record select for update fail.
1147	Sample Records-record corruption.
1150	Assay Records-cursor open fail.
1151	Assay Records-record read fail.
1152	Assay Records-cursor open fail.
1153	
1154	Assay Records-record delete fail.
1155	
1157	
1160	Assay Protocol-(pipe info) record-cursor open fail.
1161	Assay Protocol-(pipe info) records-record read fail.
1162	Assay Protocol-(pipe info) records-cursor close fail.
1164	

Error Code	Definition
1165	
1170	Configuration Records-cursor open fail.
1171	Configuration Records-record read fail.
1172	Configuration Records-cursor close fail.
1173	Configuration Records-record update fail.
1174	Configuration Records-record delete fail.
1175	Configuration Records-record create fail.
1180	Error Log Records-cursor open fail.
1181	Error Log Records-record read fail.
1182	Error Log Records-cursor close fail.
1213	Result-record update fail.
1221	Assay Version-record read fail.
1230	Checksum cursor open fail.
1231	Checksum-record close fail.
1232	Checksum-cursor close fail.
1240	
1241	Device-record read fail.
1242	
1250	Language-cursor open fail.
1251	Language-record read fail.
1252	Language-cursor close fail.
1270	
1271	
1272	Printer-cursor close fail.
1280	System Parameters-cursor open fail.
1281	System Parameters-record read fail.
1282	System Parameters-cursor close fail.
1285	System Parameters-record create fail.
1507	Parser database update error.
1704	Initialization Error-database connection failure.

PROBLEMS ACCESSING DEVICES

OPERATOR MESSAGE & RESOLUTION SCREEN:

Application device error

Press any key to exit the application.

General Cause: The operating system encountered a problem while attempting to access one of the devices connected to the FPC or its corresponding I/O port. These errors are typically associated with trying to open, close, read, write, or change the I/O port characteristics when the operating system detects an error.

Error Log: The message **Application device error** and the four-digit error code associated with the error will be displayed in the error log.

FSR Error Codes

POSSIBLE ERROR CODES FOR PROBLEMS ACCESSING DEVICES

Error Code	Definition
1190	File Error, not seql-open fail.
1192	File Error, not seql-close fail.
1193	File Error, not seql-write fail.
1501	Run terminal error.
1502	Tray ID missing.
1504	Invalid assay.
1505	Assay test number failure.
1506	Assay size failure.
1509	LIS Queue fail.
1670	ABC fatal communications error.
1671	Pipettor fatal communications error.
1682	Internal Operation error-background process response.
1683	Invalid Assay: Replicates don't fit destination address.
1684	Invalid Assay: source doesn't fit destination object.
1686	Invalid Assay: bad diluent volume.
1687	Invalid start address to void remaining wells.
1688	Invalid bar code ID convention.

ERROR ACCESSING OR TRYING TO ACCESS DATA

OPERATOR MESSAGE & RESOLUTION SCREEN:

Application file error

Press any key to exit the application.

General Cause: The operating system encountered a problem while attempting to access or trying to access data in a non-ORACLE™ database file. Typical errors that cause this message include the file is not present, the file is incorrect, or data in the file is incomplete.

Error Log: The message **Application file error** and the four-digit error code associated with the error will be displayed in the error log.

FSR Error Codes

POSSIBLE ERROR CODES FOR ACCESSING OR TRYING TO ACCESS DATA

Error Code	Definition
1190	File errors, not sql-open fail.
1195	
1300	Environmental error-no PIPSTAT-FILE found.
1301	Environmental error-no PIPEDEF-FILE found.

LOGIC ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:

Application logic error Press any key to exit the application.

General Cause: This error usually indicates that the FPC application program has detected an internal error.

The Pipettor was not able to Level Sense during a Tip Threshold process.

Error Log: The message **Application logic error** and the four-digit error code associated with the error will be displayed in the error log:

FSR Error Codes

POSSIBLE ERROR CODES FOR LOGIC ERROR

Error Code	Definition
1508	Unknown parser error code.
1600	Internal operational errors-unknown message type.
1602	Internal operational errors-signal send failed.
1612	Internal operational errors-UNIX system call error.
1622	Internal operational errors-illogical parameters passes.
1623	Application Logic error.
1672	Well reserve/allocate mismatch.
1673	Invalid Assay: unknowns-control-unknowns.
1674	Invalid source position.
1675	Invalid Assay: both extra sample and extra air.
1676	Invalid Assay: invalid pipetting sequence number.
1680	Invalid object type.
1681	Invalid diagnostic cycle pattern.
1689	Invalid event from ABC protocol driver.
1690	Invalid event from Pipettor protocol driver.
1691	
1700	Initialization failure-fork failure.
1701	Initialization failure-exec failure.

OPERATING SYSTEM ERRORS

SYSTEM OPERATIONAL ERROR

SYSTEM OPERATIONAL ERROR - APPLICATION DEVICE ERROR

OPERATOR MESSAGE & RESOLUTION SCREEN:

System Operational Error

Press any key to exit the application.

General Cause: The FPC application detects an operating system error beyond its control. This occurs when the FPC application requests system resources which the operating system cannot grant due to either system resource limitations or an internal error. The Pipettor had pressure sensing problems during a Tip Threshold process - Pipettor could not Level Sense.

Error Log: The message **System operational error** and the four-digit error code associated with the error will be displayed in the error log.

FSR Error Codes

POSSIBLE ERROR CODES FOR OPERATING SYSTEM ERROR

Error Code	Definition
1157	Assay records-record corruption.
1160	
1175	
1190	File errors, not sql open fail.
1193	File errors, not sql write fail.
1503	Unable to message DMS.
1600	Internal operational error-unknown message type.
1601	Internal operational error-cannot place message on queue.
1602	Internal operational error-signal send fail.
1604	Internal operational error-background process response failed.
1605	Internal operational error-fork failed.
1607	
1611	Internal operational error-background process wait time-out.
1612	Internal operational error-UNIX system call error.
1615	Internal operations error-device read error.
1616	Internal operations error-message send failed.
1618	Internal operational error-background process failed.
1619	Internal operational error-malloc failed.
1624	Internal operational error-message receive failed.

Error Code	Definition
1630-1633	System Operational Error
1634-1636	System Operational Error - Application Device Error
1702	Initialization failure-device open fail.
1705	Initialization failure-cannot set port characteristics.

OPERATOR ERROR RESOLUTION PROCEDURE:

Verify connections, cables, and RS-232 port configuration. Do not power off/on the analyzer while processing. If the error persists, contact Abbott Customer Support (CSC).

GENERAL TROUBLESHOOTING SUGGESTIONS FOR OPERATORS

AIR BUBBLE IN DILUENT LINE

Prime the diluent line until the air bubbles disappear. Follow the procedures in the Maintenance Section of the Operator's Manual to prime the diluent line.

COMMUNICATION PROBLEMS

1. Check the cables and cable connections. Make sure the cables are not frayed, cut, or kinked. Ensure the pins are correctly aligned and the connections are firm and secure.
2. Check the RS-232 Port Diagnostics screen. Confirm that the port and communications parameters are correct. If they are not correct, reset the RS-232 Port configuration. For specific instructions on how to reset the RS-232 Port configuration, refer to the RS-232 Port Configuration Section of the Operator's Manual.
3. Try the Loopback Test and the Echo Test. For specific instructions on how to perform the Loopback Test and Echo Test, refer to the RS-232 Port Diagnostics Section of the Operator's Manual.

SLUGGISH COMPUTER OPERATION

If the FPC Computer System seems to be operating in a sluggish manner, the cause may be a database that has become too large. When this happens, the Computer System needs to be purged of unneeded data through the initialization procedure as explained in the Installation Guide Section of this manual.

1. Perform a manual initialization to completely purge the system of accumulated data. Any data that needs to be saved should be copied to a floppy diskette before performing the initialization procedure.
2. Check the specified interval for an automatic initialization to be performed. Set the system for a more frequent initialization, even on a daily basis if needed.

DILUTOR NOZZLE PROBLEMS

1. Check Dilutor Nozzle Delivery Tubing. Ensure the tubing is not kinked, cut, or frayed.
2. Ensure tubing is extended 0.5 mm - 1.0 mm from the dilutor nozzle.
3. Verify that Dilutor Nozzle Assembly is properly aligned and not bent or warped.
4. While the delivery nozzle is delivering diluent, verify proper placement and alignment of the destination type. An incorrectly positioned Pipettor Nozzle Assembly can affect proper delivery of diluent from the dilutor nozzle.

HAND BAR CODE READER PROBLEMS

1. While powering up the Hand Bar Code Reader, verify that the red lights on the reader flash. If they do not, then the reader may not be receiving power. Verify the condition of cables and connections. Verify that fuses on the Main Controller Board are not blown.
2. Ensure the Bar Code Reader is clean and free of dust.
3. Use the appropriate diagnostics procedure to diagnose the Bar Code Reader.

HOMING PROBLEMS

1. Confirm proper positioning of destination types. Confirm the platform is correctly configured for the current pipetting setup. Ensure tips are firmly seated on the tip rack.
2. Verify pipette nozzle properly picks up tips. Ensure that pipette tips are straight.
3. Run the X-Y Function of Arm Test. Run the proper configuration and confirm the Pipettor is correctly targeting each position.
4. Lubricate the X, Y, and Z-Axis according to the appropriate lubrication procedure.

KEYBOARD PROBLEMS

1. Ensure the keyboard cable is not damaged and is properly plugged into the computer.
2. Ensure the keyboard is clean and the all of the keys have their proper range of motion.
3. If there is a plastic protector covering the keyboard, ensure that it does not interfere with the motion of the keys.

MONITOR PROBLEMS

1. Verify cable connections and power cord are securely connected.
2. Adjust brightness and contrast controls.
3. Clean monitor screen.
4. Reduce glare by using an anti-glare screen.
5. Do not put the monitor in direct sunlight.

PRINTER PROBLEMS

1. Verify cable connections and power cord are securely connected.
2. Check paper supply.
3. Check for paper jams in the printer.
4. Ensure the ink print cartridge has adequate ink to print and printer print head is clean.
5. Run printer test pattern.
6. If running “Cancel Print,” turn off printer or all pages stored in the print queue will be printed.
7. If a problem persists, turn printer off and then on.
8. Consult printer manual for other possible solutions.

WATER BUBBLE IN SAMPLE PIPETTE TUBING

If the Pipettor has bubbles in the sample line, the sample pipetting tubing must be replaced. Refer to Maintenance Section of the Operator’s Manual or the Installation Section of this manual for specific instructions.

PIPETTOR FAILURE OR “DEAD” INSTRUMENT

Pipettor failure is caused by a communication error between the Computer System and the Pipettor, or a mechanical failure on the Pipettor.

1670 Communication problem with the Pipettor.
1671 Mechanical movement problem with the Pipettor.

After determining the kind of failure that occurred, proceed with the following steps according to the kind of failure.

Communication Failure

1. Verify power cable connection.
2. Verify X, Y, and Z Sample and Diluent Syringe Origin Sensor alignment and calibration.
3. Verify Digiboard™ Cable is securely connected to Pipettor Port.
4. Perform Loopback Test on all ports.
5. Verify proper connection of RS-232 conversion cable to Pipettor.
6. Check port configuration and then power down computer.
7. Verify the pause switch is not pressed.
8. Verify power fuses are not blown.
9. Verify AC Power Supply using procedure listed below.
   - Check for 100VAC between pins 1 and 2 on J1 of AC Power Supply.
   - Check for 100VAC between pins 1 and 2 on J2 of AC Power Supply.
   - Check for 14VAC between pins 1 and 2 on J3 of AC Power Supply.
   - Check for 100VAC between pins 2 and 3 on J3 of AC Power Supply.

NOTE
If one of the above voltage readings is missing, replace AC Power Supply.

10. Verify DC Power Supply using procedure listed below.
    - Check for +5VDC between pin 1 (+5) and pin 2 (Gnd) of J5.
    - Check for +15VDC between pin 3 (+15) and pin 4 (Gnd) of J5.
    - Check for -15VDC between pin 5 (-15) and pin 4 (Gnd) of J5.
    - Check for +12VDC between pin 6 (+12) and pin 1 (Gnd) of J6.
    - Check for -12VDC between pin 4 (-12) and pin 1 (Gnd) of J6.

NOTE
If one of the +5, +15, or -15VDC voltage readings is missing, replace the Switching Power Supply.

NOTE
If one of the +12 or -12VDC voltage readings is missing, replace Power Fail Board.

11. Replace MPU Board.
12. Replace Sensor Interface/ADC Board.

Sensor Module Troubleshooting

1. Perform Loopback Test to verify Sensor Module Port.

   If it fails the Loopback Test:

   - Replace Digiboard™ Cable.
   - Replace CPU portion of Computer System.

2. Check Sensor Module voltages.
3. Replace Sensor Module.
4. Perform +5VDC alignment procedure listed in the Alignments and Calibration Section of this manual.
5. Replace DC Power Supply.

Bar Code Reader Troubleshooting

1. Perform RS-232 Diagnostics Loopback Test on Bar Code Reader Port.

   If it fails the Loopback Test:

   - Replace Digiboard Cable.
   - Replace HP Computer.

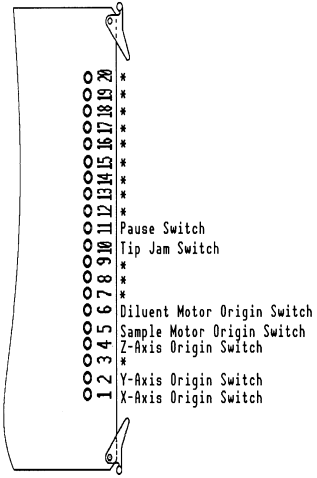
2. Check Sensor Module voltages.
3. Replace Sensor Module.
4. Perform Bar Code Reader Diagnostics and verify the reading of labels.

NOTE
If the Bar Code Reader fails to read labels, replace the Bar Code Reader.

Pressure Sensing Troubleshooting

1. Perform Leak Test.
2. Perform Tip Threshold.
3. Verify correct connection between Sample Tubing and Nozzle Assembly and Sample Block.

4. Verify Sample Syringe installation.
5. Verify Tip Rack Left, Right, and Z-Height alignments.
6. Replace Sample Nozzle Assembly.
7. Replace disposable tip.



8. Replace Sample Syringe.
9. Replace Pressure Sensor Board.
10. Replace Liquid Surface Detection Board.

Origin Sensor Troubleshooting

1. If the Origin Sensor is actuated by a mechanical switch, interrupt it by pressing the appropriate actuator. If the Origin Sensor is actuated by an optical sensor, block the appropriate light path.
2. Confirm that the appropriate LED toggles on and off on the Sensor Interface/ADC Board.

Mechanical Failure

1. Check AC power to Pipettor.
2. Verify all DC voltages.
3. Verify Home, Z-Home, and Jam Sensors according to procedures found in this section.
4. Replace Pulse Motor Controller #1 Board.
5. Replace Pulse Motor Controller #2 Board.
6. Replace Sensor Interface/ADC Board.

7. Replace Pulse Motor Driver or Driver Assembly.
8. Replace Liquid Surface Detector Board.
9. Perform an Ohm meter test of the motor.