# Testing the System

## CBS Diagnostics and Troubleshooting

The information in this chapter will assist trained NCR Customer Service personnel or other trained personnel in analyzing and isolating problems with the DecisioNet System. The available tools include the DecisioNet System log, a SmarTalker check called Bedcheck, CBS diagnostics, and Failure Detection and Analysis (FDA) software.

FDA uses the Base Hardware configuration information to detect and log hardware failures. FDA is included on the optional EPL System Information package that must be installed and running to benefit from its diagnostic and logging capability. For error code descriptions refer to Chapter 8, "DecisioNet System Messages," in the *NCR DecisioNet System User's Guide* (B005-0000-1087).

Site-specific documents created during initial installation as specified in the *Certification/Re-Certification Site Survey Procedure* (497-0410343) and provided to the DecisioNet Technical Support Specialist at your area Managed Service Center includes the following information:

- Installation Site Survey/Checklist

- General site data

- EPL requirements

- Software types and versions

- Price lookup information

- Dial-in support data (passwords, etc.)

Using the dial-in support data, the Managed Service Center can perform all of the DecisioNet System software testing and troubleshooting described in this chapter.

Training for the DecisioNet System includes a 7710 Hardware class, and the DecisioNet Software Support and Programming WBT.

# Initiating CBS Diagnostics

The following CBS diagnostics are available:

- Self-Diagnostics (Level 0 tests)

- DIP Switch Diagnostics (Level 1 factory tests)

- EPL Administration Diagnostics (Level 3 tally tests) – requires EPL Base and Application Runtime software

- Failure Detection and Analysis (Level 2 tests) – requires EPL Base and Application Runtime and EPL System Information Package

### Opening the CBS

The CBS must be opened to access the switches and Light Emitting Diodes (LEDs) described in the following sections. Refer to the illustrations in the "Installing Primary and Secondary CBSs" section of Chapter 4 for instructions on opening the CBS and mounting the CBS. The safety strap shown around the CBS handle in the CBS Mounting System illustration must be removed before opening the CBS.

**Caution:**  When opening the CBS with the cables attached, be careful not to lift the CBS off the mounting bolts or to disconnect any cables.

### DIP Switch Settings

When running diagnostic tests, set DSW1 as noted in the following table.

| Test Name | DSW1–Switch 4 | DSW1–Switch 3 |
|---|---|---|
| Self-Diagnostics | Off | Off |
| DIP Switch Diagnostics | Off | On |
| EPL Administration Diagnostics | Off | Off |
| Failure Detection and Analysis | Off | Off |

The following illustration shows the rotary switch, DIP switch, and LED positions.
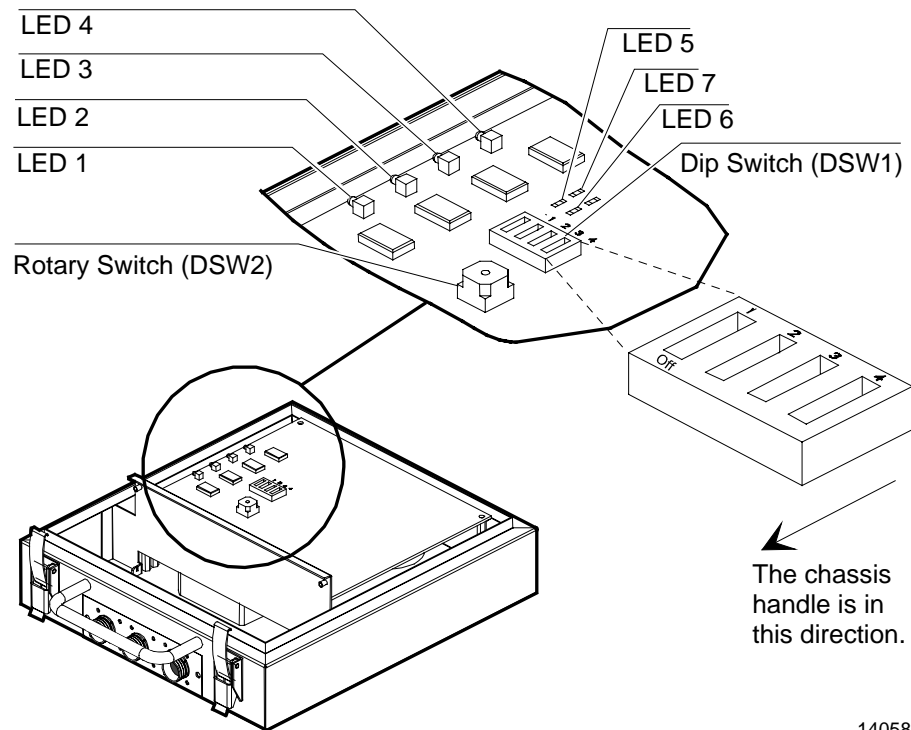


14058

## Self-Diagnostics

Self-Diagnostics are ROM-Based (Level 0) diagnostic tests that run under control of the resident firmware each time the CBS is powered up with the DSW1 switches set as follows:

- DSW1-Switch 4: Off

- DSW1-Switch 3: Off

## With EPL Software Not Running

With the EPL Software not running, check the basic functionality of the CBS by turning the power on. Self-Diagnostics performs the following tests and indicates the test in progress on the LEDs.

| Test No. | Test Name | LED 3 | LED 4 | LED 5 | LED 6 | LED 7 |
|----------|-----------|-------|-------|-------|-------|-------|
| 1 | CPU Instruction and Register Test | On | Off | On | On | On |
| 2 | ROM Test with Sum Check | On | Off | On | Off | Off |
| 3 | RAM Test | On | Off | Off | On | Off |
| 4 | CPU Timer Test | On | Off | On | On | On |
| 5 | CPU ASIC Register Test | On | Off | On | On | On |
| 6 | DSP Test | Off | On | Off | Off | On |

All LEDs are turned off following a successful completion of all the tests. If an error occurs, the LEDs continue to indicate the test in progress when the error occurred. Replace the CBS for any condition other than a successful completion.

## With EPL Software Running

With EPL Software running, the LEDs in each CBS should be on or blinking, as follows, after a successful CBS power up.

| LED # - Color | Condition/Description |
|---------------|----------------------|
| 1 - Red | On/Power On (This LED is not controlled by the firmware but is directly connected to the power line.) |
| 2 - Green | On/Primary CBS (This LED identifies CBS connected to the RS-232/RS-422 Converter) |
| 3 - Red | Blinking/RS-485 communications active with the EPL Controller or Primary CBS |
| 4 - Yellow | Blinking/RF communications active with SmarTalker tags |
| 8 - Red | Blinking/Master Clock Indicator |

## Using the CBS LEDs to Diagnose Problems

The following sections recommend areas to check when the LEDs do not indicate a successful completion of the Self Diagnostics with EPL Software running. Refer to the following sections in this guide for details about system components, cable identification, cable installation, and cable connector pin out diagrams.

- Chapter 4 – Installing the Hardware Infrastructure

- Appendix B – DecisioNet System Cables

### If LED #1 is NOT On
Perform the following steps:

1. Check power supply indicator light to verify that the power supply is on. If not on, turn on the power switch. Verify that the power cord is plugged in to a proper power source.

2. Check power supply connections (C048 cable).

3. Check C048 cable connections. Be aware that the C048 cable blocks DC power.

4. Check cable connections for all extensions.

5. Verify that the RS-495/DC cables (C046 and C048) connector's pins match the cable diagrams shown in Appendix B.

### If LED #2 is NOT On for the Primary CBS
Perform the following steps:

1. Verify that the RS-422 cable (C051) is properly connected to the RS-232/RS-422 Converter and make sure the C051 cable is connected to CBS CON-3.

2. Verify that the RS-485/DC cable (C048) is properly connected to the power supply and make sure the C048 cable is connected to CBS CON-1 or CBS CON-2.

3. Verify that the RS-232/RS-422 Converter power light is on. If not, verify that the power block is plugged in to a proper power source.

4. Verify that the RS-232/RS-422 Converter is connected to the EPL controller (RS-232 cable).

5. Verify that the Rx/Tx LEDs are blinking on the RS-232/RS-422 Converter.

6. Make sure that the EPL software is running on the EPL controller.

7. If problems persist, call your NCR Representative and review the original site certification documents for support.

*If LED #3, LED #4 or LED #8 is NOT Blinking*
Perform the following steps:

1. Make sure the EPL Software is running.

2. Verify the C046 and C049 cable connections between CBSs.

3. Verify that the Rx/Tx LEDs are blinking on the RS-232/RS-422 Converter.

## DIP Switch Diagnostics

These Level 1 Diagnostics are typically performed at the factory to validate CBS functionality. They are shown here for reference purposes only. DIP switch diagnostics tests may be run by setting DSW1 switches as follows:

- DSW1-Switch 4: Off

- DSW1-Switch: On

The DIP switch diagnostics tests and their LED indications are as follows:

| Test No. | Test Name | LED 3 | LED 4 | LED 5 | LED 6 | LED 7 |
|----------|-----------|-------|-------|-------|-------|-------|
| 1 | ROM Test with CRC | On | Off | On | Off | Off |
| 2 | RS-485 Loop Test | Off | Off | Off | On | On |
| 3 | Master Clock Test | Off | Off | On | Off | On |

All LEDs are turned off following a successful completion of all the tests. If an error occurs, the LEDs continue to indicate the test in progress when the error occurred. Replace the CBS for any condition other than a successful completion.

## EPL Administration Diagnostics

The EPL Administration Diagnostics are used to analyze system performance and to view the CBS tally for function being tested. The CBS resets all tallies each time the CBS powers up. Tallies are Level 3 diagnostics information.

**Note:**  The installer and/or customer may not need some of this information, but NCR may request it if contacted for remote support.

When Diagnostics is selected from the EPL Administration screen, the following functions are available:

- CBS Level 1 Diagnostics - Read

- CBS Level 1 Diagnostics - Read/Reset

- CBS Tally - Read

- CBS Tally - Read/Reset

- CBS Initial Reset

- CBS Address Check

- CBS Manager Tally - Read

- CBS Manager Tally - Read/Reset

- RS-232 Loop Test

The following menu is displayed when Diagnostics is selected from EPL Administration.
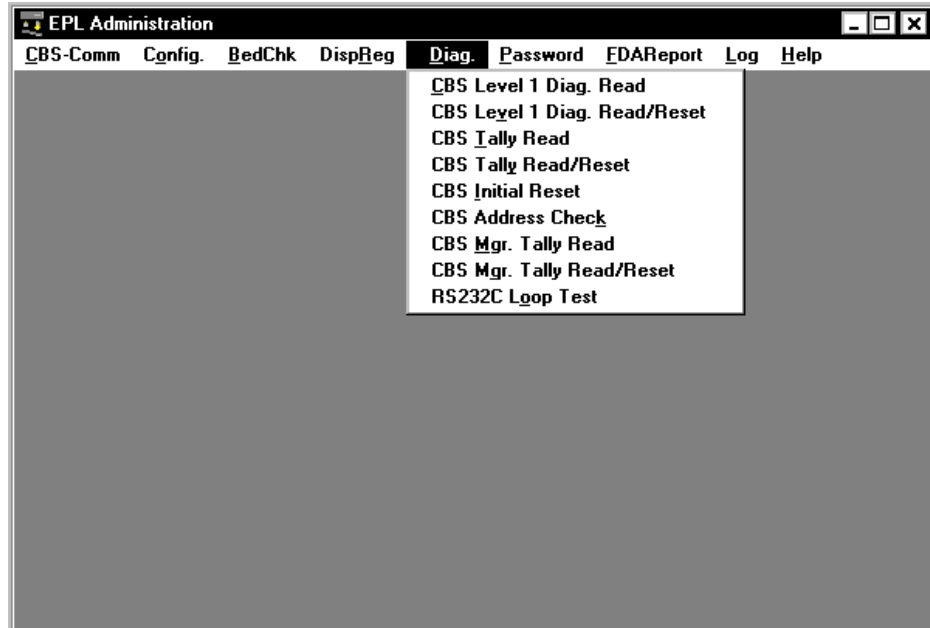


**Note:** After a function is specified in the diagnostics menu, any specific CBS can be targeted for testing.

### CBS Level 1 Diagnostics - Read or CBS Level 1 Diagnostics - Read/Reset

This function reads the results of the Level 1 Diagnostics. (CBS Level 1 Diagnostics - Read/Resets reads the results and also resets the tallies.)

The following is an example CBS Level 1 Diagnostics - Read selection screen.

```
Level 1 Read Diagnostics                                          [×]

   CBS:  0    Level 1 Diagnostic Result:

   Description                                    Result

   ROM Test:                                      No Error
   RAM Test:                                      No Error
   DSP Busy:                                      Not Busy
   DSP echo command test in Level 0 Diag.:        No Error
   Master clock test in Level 0 Diag.:            No Error
   RS-485 Loop Test in Level 0 Diag.:             No Error
   RAM/ROM Test finish or not:                    Finished
   RF Unit Power:                                 PowerOn
   Synth unlocked/TX Low Status:                  No Error/No Error
   Antenna A (Open/Short Status):                 Open
   Antenna B (Open/Short Status):                 Open
   Antenna C (Open/Short Status):                 Open
   Antenna D (Open/Short Status):                 No Error
   DSP version number:                            8_4

                         [      OK      ]
```

**Note:  Synth unlocked/TX Low Status:** means Synthesizer Unlock/Transmit Power Level.

For Antennas A – D, the status indications are:
Open:       Receive antenna is not connected
No Error:   No error state (receive antenna is connected)
Short:       Error state (receive antenna is connected)

These are the tallies shown in the Level 1 Read Diagnostics screen.

**ROM Test:** Indicates if the CBS's ROM is working properly.

**RAM Test:** Indicates if the CBS's Ram is working properly.

**DSP Busy:** Indicates if a CBS's Digital Signal Processor (DSP) firmware queries are full.

**DSP echo command test in Level 0 Diag.**: Indicates if a CBS's DSP firmware is working properly.

**Master clock test in Level 0 Diag.**: Indicates if the Master CBS's clock is working properly.

**RS-485 Loop Test in Level 0 Diag.**: Indicates if a CBS's RS-485 Port is working properly. (This is used at the factory only.)

**RAM/ROM Test finish or not**: Indicates if the RAM/ROM tests have completed.

**RF Unit Power**: Indicates if the transmitter is on or off.

**Synth unlocked/TX Low Status**: Indicates if the two parts of the RF board are operational. Both need to be working for the RF to be on.

**Antenna A (Open/Short Status)**: Indicates if Antenna A is connected to the CBS and is working properly.

**Antenna B (Open/Short Status)**: Indicates if Antenna B is connected to the CBS and is working properly.

**Antenna C (Open/Short Status)**: Indicates if Antenna C is connected to the CBS and is working properly.

**Antenna D (Open/Short Status)**: Indicates if Antenna D is connected to the CBS and is working properly.

**DSP version number**: This is the version number of the CBS's ROM.

### CBS Tally - Read or CBS Tally - Read/Reset

This function retrieves the CBS tallies from each CBS. (CBS Tally - Read/Reset retrieves the tallies and also resets the tallies.)

The following shows an example CBS Tally - Read selection screen.

```
┌─────────────────────────────────────────────────────────────┐
│ CBS Tally Read - Page 1                                    ☒ │
├─────────────────────────────────────────────────────────────┤
│                                                             │
│   CBS: 0   Tally Result:                                    │
│                                                             │
│   Description                                    Result     │
│   ─────────────────────────────────────────     ──────     │
│   No. of received messages from the processor:   23908      │
│   No. of sent messages to the processor:         23907      │
│   No. of erroneous msg. from the processor:      0          │
│   No. of resent messages to the processor:       0          │
│   No. of reception of DC3:                       0          │
│   No. of framing error in comm. with the proc.:  15         │
│   No. of overrun error in comm. with the proc.:  0          │
│   No. of received messages from CBSs:            0          │
│   No. of sent messages to CBSs:                  3423       │
│   No. of erroneous received messages from CBSs:  0          │
│   No. of resent messages to CBSs:                0          │
│   No. of framing error in comm. with CBSs:       0          │
│   No. of overrun error in comm. with CBSs:       0          │
│                                                             │
│          ┌──────────────┐      ┌──────────────┐            │
│          │  Next Page    │      │    Cancel    │            │
│          └──────────────┘      └──────────────┘            │
└─────────────────────────────────────────────────────────────┘
```

These are the tallies shown in the CBS Tally Read screen.

**No. of received messages from the processor**: This is the number of messages the Master CBS received from the ISP.

**No. of send messages to the processor**: This is the number of messages the Master CBS has sent to the ISP.

**No. of erroneous msg. from the processor**: This is the number of messages received from the ISP that have errors.

**No. of resent messages to the processor**: This is the number of messages the Master CBS had to resend to the ISP.

**No. of reception of DC3**: This is the number of DC3 messages the CBS received telling it to be idle.

**No. of framing error in comm. with the proc.**: This is the number of framing errors that have occurred in messages sent to the CBS from the ISP.

**No. of overrun error in comm. with the proc.**: This is the number of times the CBS could not process a message from the ISP because of messages being sent too quickly to the CBS from the ISP.

**No. of received messages from CBSs**: This is the number of messages a CBS has received from other CBSs.

**No. of sent messages to CBSs**: This is the number of messages a CBS has sent to other CBSs.

**No. of erroneous received messages from CBSs**: This is the number of messages a CBS has received with errors from other CBSs.

**No. of resent messages to CBSs**: This is the number of messages a CBS has resent to other CBSs because there was an error with the original message sent to the other CBS.

**No. of framing error in comm. with CBSs**: This is the number of messages received with framing errors from other CBSs.

**No. of overrun error in comm. with CBSs**: This is the number of times the CBS could not process a message from another CBS because messages were being sent to quickly from the other CBS.

```
┌─────────────────────────────────────────────────────────────┐
│ CBS Tally Read - Page 2                                   ⊠ │
├─────────────────────────────────────────────────────────────┤
│                                                             │
│   CBS:  0    Tally Result:                                  │
│                                                             │
│   Description                           Result              │
│   ─────────────────────────────────    ───────             │
│   No. of No responses from slave CBSs:   0                  │
│   No. of sent messages to EPLs:          20538              │
│   No. of received data from EPLs:        20529              │
│   No. of lost EPL receive data due                          │
│        to no poll from Master CBS:       0                  │
│   No. of DSP board no acknowledgement:   0                  │
│   No. of DSP board no response of                           │
│        RF/DSP status:                    1677               │
│   No. of frequency coincidence:          0                  │
│   No. of restart of frequency hopping:   0                  │
│                                                             │
│                    ┌──────────────────┐                     │
│                    │  Previous Page    │                     │
│                    └──────────────────┘                     │
│                                                             │
└─────────────────────────────────────────────────────────────┘
```

**No. of No responses from slave CBSs**: This is the number of times a CBS sent a message to a satellite CBS and did not get a response.

**No. of sent messages to EPLs**: This is the number of messages a CBS sent to a SmarTalker.

**No. of received data from EPLs:** This is the number of times a CBS received data from a SmarTalker.

**No. of lost EPL rcv. data due to no poll from Master CBS**: This is the number of times EPL data was lost because the Master CBS did not send a poll for the data.

**No. of DSP board no acknowledgment**: This is the number of times the DSP firmware in the CBS did not return an acknowledgment of a message.

**No. of DSP board no response of RF/DSP status**: This is the number of times the DSP firmware in the CBS did not return an RF/DSP status when requested.

**No. of frequency coincidence**: This is the number of times the Master CBS received a message back from multiple satellite CBSs using the same frequency for the same EPL request.

**No. of restart of frequency hopping**: This is the number of times the Master CBS restarted frequency hopping.

## Using CBS Tally Read Information to Diagnose Problems

If **No. of erroneous msg. from the processor:** exceeds 1 percent of the total messages, there is a serious problem with the DecisioNet System. Check the following:

- The EPL controller is functioning properly.

- The RS-232 and RS-422 cables are properly connected.

- There is not a faulty component on the primary CBS.

If **No. of erroneous received messages from CBSs:** exceeds 1 percent of the total messages, there is a CBS problem. Check the following:

- The cables between CBSs are not too long. Refer to the section on "Cables Required for Installation" in Chapter 4, "Installing the Hardware Infrastructure," for more information.

- There is not a faulty component on the primary CBS.

If **No. of frequency coincidence:** is greater than 100, the limit of 20 CBSs installed in the site may have been exceeded or the basesw.cfg frequency range parameter may be too limited.

## CBS Initial Reset

This command resets the CBS to its initial power on state. All CBS Tallies are set to zero. CBS Manager tallies are not reset.
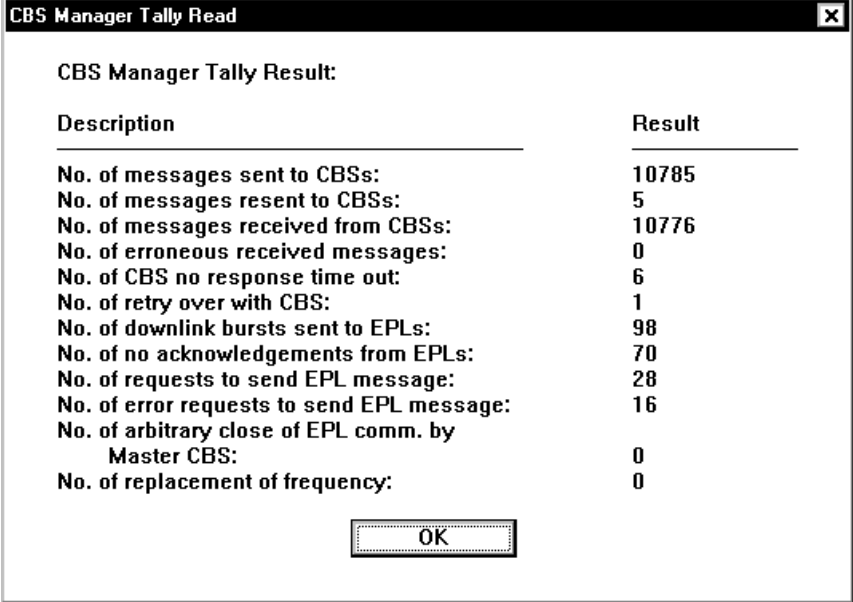
## CBS Address Check

This command is for checking CBS addresses. It causes each CBS to indicate its address on LEDs 3 and 4 when DSW1 Switch 4 is set to "On" and DSW1 Switch 3 is set to "Off" as described in the table at the beginning of this chapter. LED 3 blinks once to indicate the start of the address, then LED 4 blinks the same number of times as the number of the address, then LED 3 blinks a final time to indicate the end of the address.

### CBS Manager Tally - Read or CBS Manager Tally - Read/Reset

This function retrieves the CBS manager tallies from the primary CBS. (The CBS Manager Tally - Read/Reset also resets the tallies.)

The following shows a CBS Manager Tally - Read selection screen.

```
CBS Manager Tally Read                                               ×

    CBS Manager Tally Result:

    Description                                    Result
    _____               _____

    No. of messages sent to CBSs:                  10785
    No. of messages resent to CBSs:                5
    No. of messages received from CBSs:            10776
    No. of erroneous received messages:            0
    No. of CBS no response time out:               6
    No. of retry over with CBS:                    1
    No. of downlink bursts sent to EPLs:           98
    No. of no acknowledgements from EPLs:          70
    No. of requests to send EPL message:           28
    No. of error requests to send EPL message:     16
    No. of arbitrary close of EPL comm. by
        Master CBS:                                0
    No. of replacement of frequency:               0

                        ┌──────────────┐
                        │      OK      │
                        └──────────────┘
```

These are the tallies shown in the CBS Manager Tally screen.

**No. of messages sent to CBSs**: This is the number of messages the CBS Manager sent to the CBSs since the last time tallies were reset.

**No. of messages resent to CBSs**: This is the number of messages the CBS Manager had to resend to the CBSs due to a failure while sending a request since the last time tallies were reset.

**No. of messages received from CBSs**: This is the number of messages the CBS Manager received back from the CBSs.

**No. of erroneous received messages**: This is the number of messages the CBS Manager has received with errors from the CBSs.

**No. of CBS no response time out**: This is the number of times the CBS timed out waiting for a response from a CBS or a SmarTalker.

**No. of retry over with CBS**: This is the number of times the CBS Manager reached the retry limit in trying to communicate with a CBS.

**No. of downlink bursts sent to EPLs**: This is the number of downlink bursts sent to SmarTalkers.

**No. of no acknowledgments from EPLs**: This is the number of time the CBS Manager did not get an acknowledgment from a message sent to a SmarTalker.

**No. of requests to send EPL message**: This is the number of requests from the DecisioNet Applications to send a message to a SmarTalker.

**No. of error requests to send EPL message**: This is the number of times the CBS Manager received a request to send a message to a SmarTalker.

**No. of arbitrary close of EPL comm. by Master CBS**: This is the number off times the Master CBS was powered-off, then -on, plus the number of times it was reset with the Initial Reset command.

**No. of replacement of frequency**: This is the number of times the CBS Manager had to change or replace a frequency in the frequency-hopping screen.

### RS-232 Loop Test

The RS-232 port on the controller may be tested using this function. A turnaround plug must be installed before initiating this test.
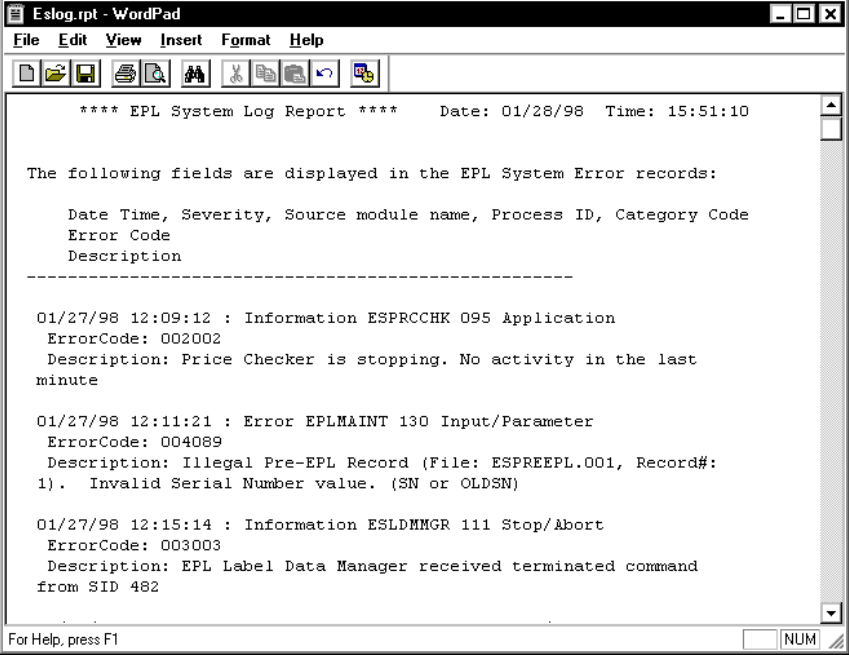
# Diagnostic Logs

Access the following logs from the EPL Administration or EPL Maintenance application Log menu:

* EPL System Error Log

* EPL Data Send Log

* EPL Audit Log

## EPL System Error Log

The following shows an example EPL System Error Log report. The EPL System Error Log contains a record of all errors logged by the EPL base software and applications.

```
┌──────────────────────────────────────────────────────────────────┐
│ ▤ Eslog.rpt - WordPad                                  _ □ ✕      │
│ File  Edit  View  Insert  Format  Help                             │
│ ┌──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┐                               │
│ │ ▯│ ⌨│ ▯│ 🖶│ ▯│ M│ ✂│ ▯│ ▯│ ▯│ ▯│ ▯│                               │
│ └──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┘                               │
│        **** EPL System Log Report ****    Date: 01/28/98  Time: 15:51:10 │
│                                                                    │
│                                                                    │
│   The following fields are displayed in the EPL System Error records: │
│                                                                    │
│       Date Time, Severity, Source module name, Process ID, Category Code │
│       Error Code                                                   │
│       Description                                                  │
│   ------------------------------------------------------           │
│                                                                    │
│    01/27/98 12:09:12 : Information ESPRCCHK 095 Application         │
│     ErrorCode: 002002                                              │
│     Description: Price Checker is stopping. No activity in the last │
│    minute                                                          │
│                                                                    │
│    01/27/98 12:11:21 : Error EPLMAINT 130 Input/Parameter          │
│     ErrorCode: 004089                                              │
│     Description: Illegal Pre-EPL Record (File: ESPREEPL.001, Record#: │
│    1).  Invalid Serial Number value. (SN or OLDSN)                 │
│                                                                    │
│    01/27/98 12:15:14 : Information ESLDMMGR 111 Stop/Abort         │
│     ErrorCode: 003003                                              │
│     Description: EPL Label Data Manager received terminated command │
│    from SID 482                                                    │
│                                                                    │
│ For Help, press F1                                        NUM      │
└──────────────────────────────────────────────────────────────────┘
```

Information in the System Error Log includes:

**Date and Time** the error occurred

**Severity** Code: Information, Warning, Error

**Source module name** of the application that logged the error

**Process ID** number for the application that logged the error

**Category Code** for the application that logged the error

**Error Code** that identifies the error

**Description** of the error

For more information on interpreting errors, refer to Chapter 8 in the *NCR DecisioNet System User's Guide* (B005-0000-1087).

## EPL Data Send Log

The following is an example of the EPL Data Send Log. A Data Send log record is recorded when an EPL update is scheduled.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│ ▤ Esslog.rpt - WordPad                                               _ □ ✕    │
├─────────────────────────────────────────────────────────────────────────────┤
│ File  Edit  View  Insert  Format  Help                                        │
├─────────────────────────────────────────────────────────────────────────────┤
│ [D][🖿][🖫] [🖶][🔍] [🔍][✂][📋][📋][↻] [🔳]                                   │
├─────────────────────────────────────────────────────────────────────────────┤
│ |                                                                       ▲     │
│        **** EPL Send Log Report ****      Date: 01/28/98  Time: 16:02:20      │
│                                                                               │
│                                                                               │
│ The following fields are displayed in the EPL Send Data records:              │
│                                                                               │
│ Function, Plu Number, Plu Description,                                        │
│     EPL Location, EPL Serial Number, Batch Number, Send Status                │
│     No. of fail, Send Start date time, Send due date time                    │
│ ---------------------------------------------------------------------         │
│                                                                               │
│ Func=EID CHG PluNo=0000000001178 Desc=Oatmeal                                 │
│     Loc.=C2 SerNo=000135e5 BatNo=00001 Status=-1310 [No response received from EPL ]│
│     ErrCnt=0003 StartTOD=9801270919 DueTOD=9801270929                         │
│                                                                               │
│ Func=EID CHG PluNo=0000000072849 Desc=Sobo                                    │
│     Loc.=a7 SerNo=000135e3 BatNo=00001 Status=-1310 [No response received from EPL ]│
│     ErrCnt=0003 StartTOD=9801270919 DueTOD=9801270929                         │
│                                                                               │
│ Func=EID CHG PluNo=0000000073280 Desc=Cranberry Juice                         │
│     Loc.=f2 SerNo=00036202 BatNo=00001 Status=-1310 [No response received from EPL ]│
│     ErrCnt=0003 StartTOD=9801270919 DueTOD=9801270929                         │
│                                                                               │
│ Func=EID CHG PluNo=0000000113048 Desc=Sashimi                                 │
│     Loc.=D1 SerNo=00013503 BatNo=00001 Status=-1310 [No response received from EPL ] ▼│
├─────────────────────────────────────────────────────────────────────────────┤
│ For Help, press F1                                              |   | NUM     │
└─────────────────────────────────────────────────────────────────────────────┘
```

Information in the EPL Data Send Log includes:

**Function:** The function that started this operation

**PLU Number:** The item number

**PLU Description:** A description of the item

**Location:** The SmarTalker location

**Serial Number:** The SmarTalker serial number

**Batch Number:** The EPL Maintenance Batch Number

**Send Status:**
An EPL's status is indicated by a number and brief message

0:  Successful
1:  Waiting
2:  Communicating
Any Negative Number: Resend the data using the instructions in the
section "Resending the EPL Data" in Chapter 9. Refer to Chapter 8,
"DecisioNet System Messages," in the *NCR DecisioNet System User's
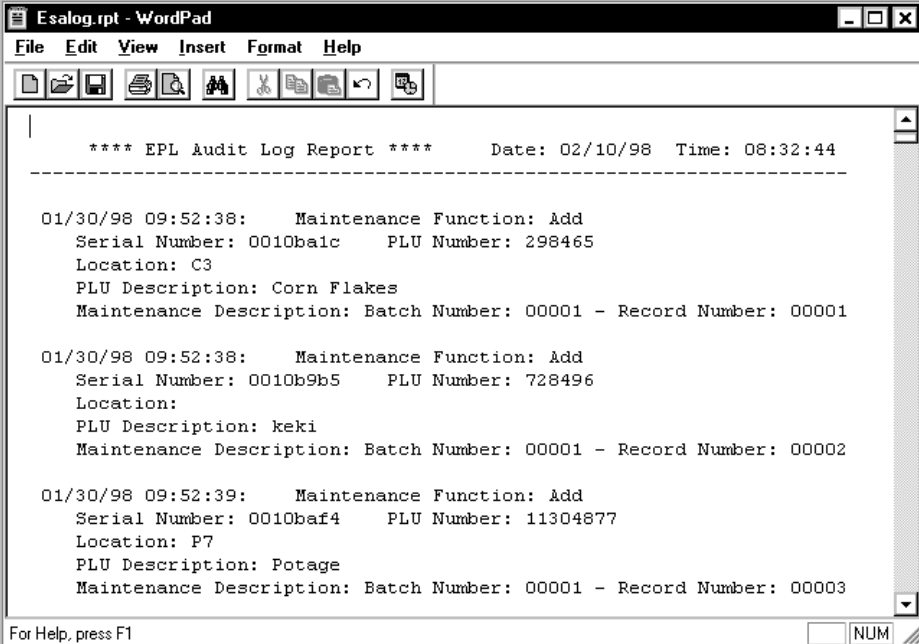Guide* (B005-0000-1087), for message descriptions.

**No. of Fail: T**he number of communication errors

**StartTOD:** Date and time when communication starts
(9708302102 = YYMMDD and 24-hour time)

**DueTOD:** Date and time when communication is due to be completed
(9708302112 = YYMMDD and 24-hour time)

### EPL Audit Log

The following is an example of the EPL Audit Log, which shows information relating to the updating of the EPL Table.

```
 Esalog.rpt - WordPad                                           _ □ ×
File  Edit  View  Insert  Format  Help

 D ☞ ◫  ⧄ ◹  ⋒  ✂ ◨ ◨ ⍉  ◪

 |
       **** EPL Audit Log Report ****    Date: 02/10/98  Time: 08:32:44
  ---------------------------------------------------------------------

  01/30/98 09:52:38:    Maintenance Function: Add
     Serial Number: 0010ba1c    PLU Number: 298465
     Location: C3
     PLU Description: Corn Flakes
     Maintenance Description: Batch Number: 00001 - Record Number: 00001

  01/30/98 09:52:38:    Maintenance Function: Add
     Serial Number: 0010b9b5    PLU Number: 728496
     Location:
     PLU Description: keki
     Maintenance Description: Batch Number: 00001 - Record Number: 00002

  01/30/98 09:52:39:    Maintenance Function: Add
     Serial Number: 0010baf4    PLU Number: 11304877
     Location: P7
     PLU Description: Potage
     Maintenance Description: Batch Number: 00001 - Record Number: 00003

For Help, press F1                                              NUM
```

Information in the EPL Audit Log includes:

- **Date and Time** EPL Table entry occurred

- The type of **Maintenance Function** performed

- SmarTalker **Serial Number**

- Price Lookup (**PLU) Number**

- Shelf or Store **Location** (optional)

- **PLU Description**

- Maintenance information including **Batch Number and Record Number** within the Batch

## Using Failure and Detection Analysis Software

Failure Detection and Analysis (FDA) software can be used as a background service to report on the condition of DecisioNet System hardware. FDA is one of the applications on the optional EPL System Information Package.

Power supply, CBS, and antenna failures are reported to the EPL System Error Log. Errors related to SmarTalker tags are logged in the Bedcheck log and a corresponding entry in the EPL System Error Log indicates the number of tags affected.

In a Windows NT system, FDA also logs error conditions to the Windows NT Event Log. These entries include Probable Cause and Recommended Action information.

The following types of errors are logged by FDA:

| Error | Description |
| --- | --- |
| CBS communication closed | CBS not communicating with SmarTalkers |
| Master CBS link down | ISP cannot communicate with Master CBS |
| RS-485 cable failure | FDA software identifies faulty cable |
| Power supply failure | FDA software identifies faulty power supply |
| CBS not connected | CBS cannot be detected |
| Too many CBSs connected | RS-485 link cannot handle traffic |
| CBS diagnostic errors have occurred | FDA software identifies faulty CBS |
| Unconfigured CBS detected | CBS not configured |
| CBS connected, but not communicating | CBS Manager is not using CBS |
| CBS not receiving master | RS-485 cable problem |

| Error | Description |
| --- | --- |
| clock signal | |
| Unconfigured CBS detected and communicating | CBS not configured |
| CBS RF power is off | CBS RF board is not working properly |
| Receive antenna not working properly | Receive antenna needs to be replaced |
| Unconfigured receive antenna is functioning | Receive antenna not configured |
| Ambient noise exceeds threshold | CBSs cannot communicate with SmarTalkers properly |
| Signal level threshold is too high | CBSs cannot communicate with SmarTalkers properly |
| SmarTalkers not responding | Quantity specified |
| SmarTalkers have battery low condition | Quantity specified |
| SmarTalkers have hardware error condition | Quantity specified |

FDA also records the CBS tally information in the tally files and forwards tallies to Store Minder. See the "EPL Administration Diagnostics" section in this chapter for information about accessing tally information.

### Running FDA from a System Prompt

When started with other EPL Applications, FDA runs continuously and logs errors as they occur. Use the following procedures to run FDA in single-pass mode. The results of the report are sent to the console and placed in the EPL System Error Log. Use the -f command line option to save the report to a file for viewing and printing.

1. At a DOS or UNIX prompt, enter esfda to start FDA in single-pass mode.

2. Review the information output to the console screen, the EPL System Error Log and Windows NT Event Log (if testing on Windows NT system).

The syntax and options for esfda are as follows:

```
esfda [-r][-x][-y][-f<filename>]
```

| | |
|---|---|
| `-r` | Report on software and hardware components |
| `-x` | Report only on the hardware components |
| `-y` | Report only on the software components |
| `-f<x>` | Save report in the file specified by <x>. If a path is not specified, the file is placed in the epl/data/status directory. |

Example:

- Run a hardware and software test and place the report in a file named fdatest.

```
esfda -rf fdatest
```

The following is our report created for the example above.

```
-----------------------------------------------------------------
(04/16/99)15:39            System Status Report            NCR
Corp
-----------------------------------------------------------------

Component    : EPL
Status       : Ok


Component      : CBS Link
Status         : Ok


Component      : Failure Detection and Analysis
Status         : Ok


Component      : CBS 0
Status         : NOT OK
Meaning          : Unconfigured receive antenna A for CBS 0
Probable Cause   : An unconfigured functional receive antenna
was found.
Recommended Action  : The specified receive antenna is
improperly configured.

Component        : CBS 0
Status           : NOT OK
Meaning          : Receive antenna B failure for CBS 0
Probable Cause       :
Recommended Action  : The specified receive antenna is
improperly connected or faulty.

Component    : Bedcheck
Status       : Ok


Component      : EPL Bridge
Status         : Ok


Component      : CBS Manager
Status         : Ok


Component     : External Data Interface
Status        : Ok


Component     : Label Data Manager
Status        : Ok
```

```
Component     : Logger
Status        : Ok


Component     : PLU Reader
Status        : Ok


Component     : Price Checker
Status        : Ok


Component     : Price Verifier
Status        : Ok


Component     : Promotional Message Verifier
Status        : Ok


Component     : Data Scheduler
Status        : Ok


Component     : Sales Price Verifier
Status        : Ok


Component     : Table Manager
Status        : Ok


-------------------------------------------------------------
```
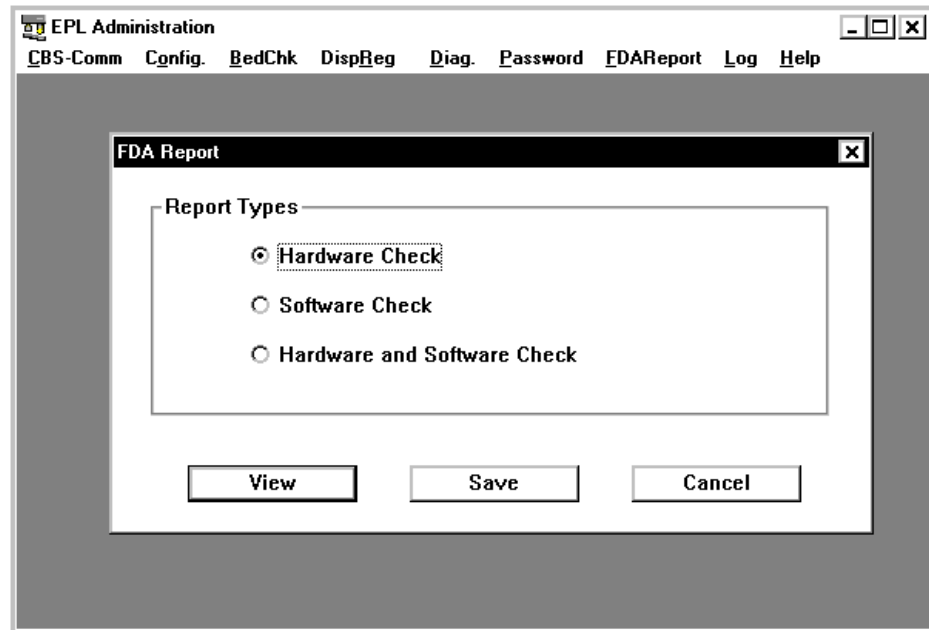
### Running FDA from EPL Administration

A single–pass Failure Detection and Analysis (FDA) report on the condition of DecisioNet System hardware and software can be created by selecting FDA Report from the EPL Administration screen.

The following menu is displayed when FDA Report is selected from EPL Administration.



After selecting the Report Type, select View or Save. If View is selected, the report is created and displayed. If Save is selected, you are prompted to enter a path and file name. After entering a path and file name, select Save to create the report and save it in the specified location.

Refer to the FDA error and description table in the previous section "Using Failure and Detection Analysis Software" for an explanation of any errors.

## Bedcheck

Bedcheck verifies if SmarTalkers are working properly. Access the Bedcheck functions on the EPL Administration application BedChk menu.

When this function starts, it continues execution as a background process until completion or until execution is aborted. The bedcheck errors are stored in the bedcheck log file for later analysis by the user.

The DecisioNet software provides the following functions to control the bedcheck process.

| Function Name | Function |
| --- | --- |
| Start Bedcheck | This function is used to start the bedcheck process to a specified SmarTalker. |
| Stop Bedcheck | This function is used to terminate bedcheck execution. |
| Query Status | This function is used to get bedcheck status when running. The DecisioNet software returns the number of passed or failed SmarTalkers that have been processed already. |
| Read Bedcheck Log | This function is used to read one record sequentially from the bedcheck log file. |
| Purge Bedcheck Log | This function is used to delete the log records that have been read by the "Read Bedcheck Log" function. |

For more information on the Bedcheck function, refer to the *NCR DecisioNet System User's Guide* (B005-0000-1087).

## Analyzing SmarTalker Problems

The following table shows some of the errors that may occur with SmarTalkers and the possible remedies. These types of errors are logged in the EPL System Error Log if the Failure Detection and Analysis software is installed in your system.

| Error | Causes | Possible Remedies |
|---|---|---|
| No Response<br><br>A black dot (●) displays on the LCD | Out of sync. | Remove the obstacle between the CBS and the SmarTalker. Contact your NCR representative and review the original site certification documents to see what change may have caused the problem. Reference the *Certification/Re-certification Site Survey Procedure* (497-0410343) for details on the site certification process. |
| EPL No Response | Hardware trouble including battery loss | Replace with new SmarTalker. Refer to Chapter 10 or 11. |
| EPL No Response | No existence in the store. | Perform a Replace EPL function as described in the "Replace EPL" section of the EPL Maintenance chapter in the *NCR DecisioNet System User's Guide* (B005-0000-1087). |
| EPL Battery Low<br>The low battery symbol (🔋) displays. | EPL Battery Low | Replace with new SmarTalker. Refer to Chapter 10 or 11. |

FDA uses the Base Hardware configuration information to detect and log hardware failures. FDA is included on the optional EPL System Information package that must be installed and running to benefit from its diagnostic and logging capability. For error code descriptions refer to Chapter 8, "DecisioNet System Messages," in the *NCR DecisioNet System User's Guide* (B005-0000-1087).

Site-specific information created during the initial installation as specified in the *Certification/Re-Certification Site Survey Procedure* (497-0410343) and provided to the DecisioNet Technical Support Specialist at your area Managed Service Center includes the following information:

- Installation Site Survey/Checklist

- General site data

- EPL requirements

- Software types and versions

- Price lookup information

- Dial-in support data (passwords, etc.)

Using the dial-in support data, the Managed Service Center can perform all of the DecisioNet System software testing and troubleshooting described in this chapter.