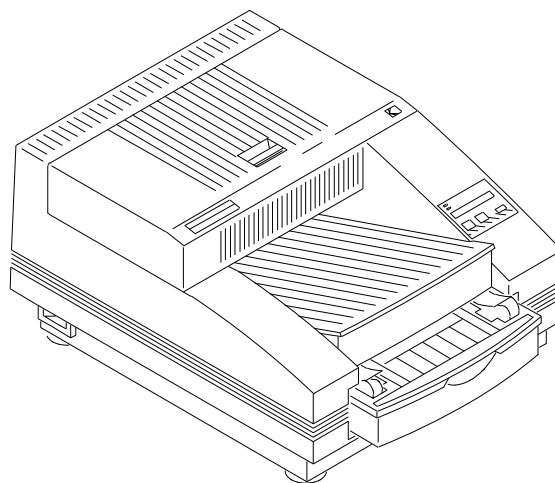


**DIAGNOSTICS**  
for the  
*Kodak Professional 8670 PS THERMAL PRINTER*  
**Service Code: 3179**  
*Kodak PICTURE MAKER PS4 PRINTER*  
**Service Code: 2913**  
and the  
*Kodak Image Magic EI 8651 DIGITAL COLOR PRINTER*  
**Service Code: 2677**



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GLOBAL CUSTOMER SERVICE AND SUPPORT

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This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

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## Section 1: Error Codes

### Descriptions

**Table 1 User Correctable Error Codes - PS4 PRINTER and 8670 PS THERMAL PRINTER Only**

Error Code	Description
400	DONOR advance failure
401	DONOR rewind failure
402	DONOR TYPE CODE not read
403	DONOR TYPE not supported
408	Failure to pick RECEIVER
520	No RECEIVER at lead edge before rewind

**Table 2 Machine Generated Error Codes**

Error Code	Description
500	No RECEIVER at LEAD EDGE SENSOR when expected
501	RECEIVER stuck at LEAD EDGE SENSOR
502	RECEIVER size change without removing TRAY
503	Invalid TRAY size input
510	BAR CODE LABEL not correct/BAR CODE SENSOR or FRU malfunction
511	BAR CODE LABEL not correct or has damage/BAR CODE SENSOR or FRU malfunction
520	No RECEIVER at lead edge before rewind
600	LCD busy time out
601, 602, 603	CONTROLLER PROM or BD failure
608, 609, 60A, 60C	THERMAL HEAD/CABLE, CONTROLLER BD
610	CONTROLLER EEPROM check sum error
611	CONTROLLER EEPROM write timeout
612	CONTROLLER EEPROM write verify fail
613	CONTROLLER EEPROM format mismatch
614	CONTROLLER EEPROM marked bad
618, 60B	EEPROM, THERMAL HEAD
620	Enable width base greater than max
630	Pulse position table for printing missing
631	Multi-toning mask for printing missing
632	Cal clip for printing missing
640	Line time for printing missing
641	Line time for laminating missing
642	Base enable width for printing missing
643	Base enable width for laminating missing
644	Raw sensitometry for printing missing

<b>Error Code</b>	<b>Description</b>
645	Density for printing missing
646	Transient parasitic data for printing missing
647	Sampled pulse eff for printing missing
650	THERMAL smear factors for printing missing
651	THERMAL scale factors for printing missing
652	THERMAL scale factors for laminating missing
653	SPE line time factor for printing missing
660	Temperature regulation for printing missing
680	HEAD EEPROM checksum error
681	HEAD EEPROM write timeout
682	HEAD EEPROM write verify failure
683	HEAD EEPROM write ack failure
684	HEAD EEPROM format mismatch
685	HEAD EEPROM marked bad
690	HEAD correction for printing missing
6a0	Pulse position scale factor for printing missing
6a1	SPE HEAD scale factor for printing missing
700	Inboard THERMAL HEAD POSITION SENSOR 2 open
701	Inboard THERMAL HEAD POSITION SENSOR 2 blocked
702	Outboard THERMAL HEAD POSITION SENSOR 1 open
703	Outboard THERMAL HEAD POSITION SENSOR 1 blocked
708	DONOR PATCH SENSING EMITTERS not sensing DONOR
709	DONOR SENSORS not stable
710, 711, 712	DSP Linetime response times out
718	CONTROLLER BD
719	THERMAL HEAD/CABLE, CONTROLLER BD
720, 721	CONTROLLER BD/CABLE
"722" "INIT ERROR"	PLATFORM
728	DOOR open interrupt failure
729	Cancel PUSH BUTTON interrupt failure
730	THERMAL HEAD Cooling malfunction
733	THERMAL HEAD Heating malfunction
738, 739	CONTROLLER, RAM
740	PROGRAM PROMS or CONTROLLER BD
741, 742	PROGRAM PROMS or CONTROLLER BD
741 (PS4 and 8670 only)	Boot region check sum error
742 (PS4 and 8670 only)	Program region check sum error
743 (PS4 and 8670 only)	Config region check sum error

Error Code	Description
748, 749, 74A, 74B, 74C, 74D	PHM Failure
750 - 756	Unexpected write from DSP
757 - 759	DSP Set Verify/Processing Failure
760-773, 76E, 76F, 76A, 76B, 76C, 76D	CONTROLLER BD - Failure during Image Processing
800-858	General CONTROLLER BD
900-940, 90B, 91B, 92B, 93B, 94B, 9B0 - 9B4	DSP BLOCK, CHECKSUM
1000 - 1a1e	1284 Interface failure

Table 3 Other LCD Errors

Error Condition	Description
Change RIBBON/Clear RIBBON jam Open COVER/Change RIBBON Change RIBBON	The DONOR does not advance due to a malfunction in sensing, the MOTOR, CONTROLLER BD, or there is a jam, or the PRINTER is out of alignment.
Insert TRAY	The PRINTER will not pick and/or correctly sense media or TRAYS
Check TRAY	The PRINTER will not pick and/or correctly sense media or TRAYS.
Bad MEM or NONE	No functions on the PRINTER operate
Clear paper path	The PRINTER will not pick and/or correctly sense media or TRAYS.
Load A/A4 Paper or TRANSPARENCY 8670 and EI 8651 only	The PRINTER will not pick and/or correctly sense media or TRAYS.
Remove TRAY	The PRINTER will not pick and/or correctly sense media or TRAYS.
"DNR: TYPE > NONE" This error occurs in the diagnostic mode. The end user error code reads "LOAD RIBBON XLS".	No DONOR installed, DONOR for <i>Kodak ColorEase</i> PS PRINTER installed, BAR CODE LABEL not correct, BAR CODE FRU malfunction, CONTROLLER BD malfunction, BAR CODE HARNESS not connected to CONTROLLER BD
"DNR: TYPE BAD > ##" This error occurs in the diagnostic mode. The end user error code reads "LOAD RIBBON XLS".	DONOR type is not supported

Table 4 Observable Errors

Error Condition	Description
POWER INDICATOR LED not illuminated	LCD POWER INDICATOR not illuminated, or PRINTER does not operate.
No printed image on TRANSPARENCY/RECEIVER	The PRINTER completes the print cycle, but there is no image on the RECEIVER.

**Table 5 Reference Errors (Malfunctions in Power Distribution) - 8670 and EI 8651**

<b>Error Condition</b>	<b>Description</b>
No Power to the FEE BD	The PRINTER operates in the ENGINE mode. "INIT ERROR" or "722" might be displayed on the LCD in failure history.

**Table 6 Communications Errors - 8670 and EI 8651**

<b>Error Condition</b>	<b>Description</b>
<i>Centronics/Parallel PORT</i>	PLATFORM
<i>Ethernet</i>	PLATFORM
SCSI PORTS	PLATFORM



## Section 2: LCD - Diagnostics

---

### Purpose and Overview

---

#### Introduction

The service diagnostics are located on the CONTROLLER BD in the PRINTER. External communications devices are not necessary to use the diagnostics. The diagnostics allow the service technician to operate the PRINTER, retrieve service information, and do tests to diagnose malfunctions in the PRINTER only.

#### Summary

Diagnostics can be accessed from the ENGINE/READY, ERROR and IDLE modes after the main power for the PRINTER is ON, energized, and is not processing or printing any documents. The PRINTER cannot receive documents in the diagnostic mode.

### FRONT PANEL



#### Caution

Prevent malfunctions. Do not use a sharp object to press the BUTTONS on the DISPLAY PANEL.

Use the FRONT PANEL to access all diagnostic menus except for the PICTURE MAKER PS4 PRINTER. The PICTURE MAKER PS4 PRINTER with serial numbers > G3304623 does not have the LCD DISPLAY PANEL. You must use the DISPLAY TOOL TL-5269 to access the FRONT PANEL. The FRONT PANEL includes:

- POWER INDICATOR
- ERROR INDICATOR
- 16-character one-line LCD (LIQUID CRYSTAL DISPLAY)
- PRINT BUTTON
- CANCEL BUTTON
- SET-UP/SELECT BUTTONS

### Test Prints

All PRINTERS can make the diagnostic test print. There are 3 test prints that can be made by the 8670 PS THERMAL PRINTER, 2 test prints for the EI 8651 DIGITAL COLOR PRINTER, and 1 for the PICTURE MAKER PS4 PRINTER.

When the LCD displays “ENGINE READY”, press the “PRINT” BUTTON. The 8670 and the EI 8651 can make the test print for the FRONT END by pressing the “PRINT” BUTTON when the LCD displays ‘READY’. The test print for the NETWORK INTERFACE is made from the test BUTTON of the NETWORK INTERFACE CARD or the FRONT PANEL DISPLAY for the 8670 PS THERMAL PRINTER.

### External Mode

For the EI 8651 DIGITAL COLOR PRINTER, the external mode is the normal user mode of the PRINTER. The external mode is controlled by the EXTERNAL/ENGINE MODE SWITCH located on the CONTROLLER BD.

The ENGINE mode is used during ENGINE diagnostics and any time the service technician wants to operate the PRINTER without interfacing with the FEE BD. The ENGINE mode is controlled by the EXTERNAL/ENGINE MODE SWITCH located on the CONTROLLER BD.



#### Note

By selecting the ENGINE mode, the ENGINE is isolated for troubleshooting malfunctions.

## Preliminary Set-Up

The chart below lists the preliminary set-up conditions necessary to operate each diagnostic test. For example, "TRAY INSTALLED = YES" indicates the TRAY must be installed.

TRAY INSTALLED	YES/NO
DONOR INSTALLED	YES/NO
RECEIVER INSTALLED	YES/NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES/NO
POWER ON	YES
SPECIAL FUNCTIONS	YES/NO
SPECIAL ACTIONS	

# Diagnostics Menu Tree - PS4 PRINTER and 8670 PS THERMAL PRINTER

## Diagnostics Menu Tree

On Display Panel: Push and Hold Set-Up and push PRINTER, PRINTER, then CANCEL, CANCEL, and RELEASE Set-Up.

DIAG: EXIT  
 DIAG: PANEL TEST  
 DIAG: ENG VER. #S

V:PG: PGOSXXXX  
 V:CS: CSOSXXXX  
 V:CE: EOSXXXX  
 V:SE: SEKBXXXX  
 V:DP: DPKBXXXX  
 V:L3R: L3R\_6504  
 V:L4R: L4R\_6504  
 V:L1R: L1R\_6504  
 V:L2R: L2R\_6504  
 V:LLR: LLR\_6504  
 V:L3T: L3T\_6504  
 V:L4T: L4T\_6504  
 V:L1T: L1T\_6504  
 V:L2T: L2T\_6504  
 V:L3D: L3D\_6504  
 V:L1D: L1D\_6504  
 V:LLT: LLT\_6504  
 V:E3RL: E3RL6504  
 V:E3RN: E3RN6504  
 V:E4PH: E4PH6504  
 V:E4CM: E4CM6504  
 V:E4PB: E4PB6504  
 V:E1RL: E1RL6504  
 V:E1RN: E1RN6504  
 V:E2RL: E2RL6504  
 V:E2RN: E2RN6504  
 V:ELR: ELR\_6504  
 V:E3TL: E3TL6504  
 V:E3TN: E3TN6504  
 V:E4T: E4T\_6504  
 V:E1TL: E1TL6504  
 V:E1TN: E1TN6504  
 V:E2TL: E2TL6504  
 V:E2TN: E2TN6504  
 V:E3DL: E3DL6504  
 V:E3DN: E3DN6504  
 V:E1DL: E1DL6504  
 V:E1DN: E1DN6504  
 V:ELT: ELT\_6504  
 V:S3RL: S3RL6504  
 V:S3RN: S3RN6504  
 V:S4PH: S4PH6504  
 V:S4CM: S4CM6504  
 V:S4PB: S4PB6504  
 V:S1RL: S1RL6504  
 V:S1RN: S1RN6504  
 V:S2RL: S2RL6504  
 V:S2RN: S2RN6504  
 V:S3TL: S3TL6504  
 V:S3TN: S3TN6504  
 V:S4T: S4T\_6504  
 V:S1TL: S1TL6504  
 V:S1TN: S1TN6504  
 V:S2TL: S2TL6504  
 V:S2TN: S2TN6504  
 V:S3DL: S3DL6504  
 V:S3DN: S3DN6504  
 V:S1DL: S1DL6504  
 V:S1DN: S1DN6504  
 V:D3R: D3R\_6504  
 V:D4PH: D4PH6504  
 V:D4CM: D4CM6504  
 V:D4PB: D4PB6504  
 V:D1R: D1R\_6504  
 V:D2R: D2R\_6504  
 V:D3T: D3T\_6504  
 V:D4T: D4T\_6504

V:D1T: D1T\_6504  
 V:D2T: D2T\_6504  
 V:D3D: D3D\_6504  
 V:D1D: D1D\_6504  
 V:T3R: T3R\_6504  
 V:T4R: T4R\_6504  
 V:T1R: T1R\_6504  
 V:T2R: T2R\_6504  
 V:T3T: T3T\_6504  
 V:T4T: T4T\_6504  
 V:T1T: T1T\_6504  
 V:T2T: T2T\_6504  
 V:T3D: T3D\_6504  
 V:T1D: T1D\_6504  
 V:G3R: G3R\_6504  
 V:G4R: G4R\_6504  
 V:G1R: G1R\_6504  
 V:G2R: G2R\_6504  
 V:G3T: G3T\_6504  
 V:G4T: G4T\_6504  
 V:G1T: G1T\_6504  
 V:G2T: G2T\_6504  
 V:G3D: G3D\_6504  
 V:G1D: G1D\_6504  
 V:TS0: TS0\_6504  
 V:TS1: TS1\_6504  
 V:TS2: TS2\_6504  
 V:TS3: TS3\_6504  
 V:TS4: TS4\_6504  
 V:TS5: TS5\_6504  
 V:TS6: TS6\_6504  
 V:TS7: TS7\_6504  
 V:TS8: TS8\_6504  
 V:TS9: TS9\_6504  
 V:TA0: TA0\_6504  
 V:TA1: TA1\_6504  
 V:TA2: TA2\_6504  
 V:TA3: TA3\_6504  
 V:TA4: TA4\_6504  
 V:TA5: TA5\_6504  
 V:TA6: TA6\_6504  
 V:TA7: TA7\_6504  
 V:TA8: TA8\_6504  
 V:TA9: TA9\_6504  
 V:GS0: GS0\_6504  
 V:GS1: GS1\_6504  
 V:GS2: GS2\_6504  
 V:GS3: GS3\_6504  
 V:GS4: GS4\_6504  
 V:GS5: GS5\_6504  
 V:GS6: GS6\_6504  
 V:GS7: GS7\_6504  
 V:GS8: GS8\_6504  
 V:GS9: GS9\_6504  
 V:PPR: PPR\_6504  
 V:MTM: MTM\_6504  
 V:CCL: CCL\_6504  
 V:TDN: TDN\_6504  
 V:TDF: TDF\_6504  
 V:TDB: TDB\_6504  
 V:HCR: H7E6393B  
 V:HCT: H7E6393B  
 V:PPF: HC\_PPF\_1  
 V:GSH: HC\_GSH\_1  
 V:EXIT

DIAG: PRN USAGE  
 USE:PWR XXXX  
 USE:P-S XXXX  
 USE:P-C XXXX  
 USE:PLN XXXX  
 USE:RFL XXXX  
 USE:TRN XXXX  
 USE:LOOP XXXX  
 USE:EXIT

DIAG: FAIL HIST  
 HIST: SELECT  
 >SELECT: SERVICE  
 SELECT: USER  
 SELECT: EXIT

HIST: VIEW  
 01 EXXXX CXXXXXX  
 ↓  
 32 EXXXX CXXXXXX  
 VIEW: EXIT  
 HIST: EXIT

DIAG: TRAY  
 SIZE AND TYPE

DIAG: HEAD TEMP  
 TEMP:FAN  
 TEMP:HEATER  
 TEMP:REG TYPE  
 >REG:NORMAL  
 REG:FIXED EW  
 REG:BURN IN  
 REG:EXIT  
 TEMP:REGULATE  
 S4 ADCXXX EW0XXX  
 TEMP:EXIT

DIAG: HEAD TEST  
 HEAD:RETRACT  
 HEAD:LOAD  
 HEAD:ENGAGE  
 HEAD:EXIT

DIAG: DONOR TEST  
 DNR: TAKE SLACK  
 DNR: ADVANCE  
 DNR: REWIND  
 DNR: READ TYPE  
 DNR: EXIT

DIAG: PINCH TEST  
 PINCH: OPEN  
 PINCH: CLOSE  
 PINCH: EXIT

DIAG: MOTORS  
 MTRS: STEP FWD  
 MTRS: STEP REV  
 MTRS: PICK FWD  
 MTRS: PICK REV  
 MTRS: PLTN BRAKE  
 MTRS: URGE  
 MTRS: EXIT

DIAG: OPTIONS  
 OPT: RECEIVER  
 >RCVR OPT: PHOTO  
 RCVR OPT: TRANS  
 RCVR OPT: COMM  
 RCVR OPT: PUBL  
 RCVR OPT: EXIT

OPT: CYCLE TYPE  
 >CYCLE: XLS8600  
 CYCLE: BURN-IN  
 CYCLE: 1 PLANE  
 CYCLE: PICK/EJECT  
 CYCLE: LNG DNR  
 CYCLE: LNG RCVR  
 CYCLE: DNR EDGE  
 CYCLE: EXIT

OPT: LOOP ENABLE  
 >LOOP OPT: OFF  
 LOOP OPT: ON  
 LOOP OPT: EXIT

OPT: LOOP COUNT  
 INC COUNT ###  
 DEC COUNT ###  
 COUNT: EXIT

OPT: SPE SCALING  
 SPE: LT = 5.0 MS  
 INC: 5.0  
 DEC: 5.0  
 EXIT: 5.0

SPE: LT = 6.5 MS  
 INC: 6.5  
 DEC: 6.5  
 EXIT: 6.5

SPE: LT = 8.0 MS  
 INC: 8.0  
 DEC: 8.0  
 EXIT: 8.0

SPE: LT = 16.7 MS  
 INC: 16.7  
 DEC: 16.7  
 EXIT: 16.7

SPE: LT = 25.0 MS  
 INC: 25.0  
 DEC: 25.0  
 EXIT: 25.0

SPE: EXIT

OPT: EXIT MODE  
 >MODE: EXIT/ NORM  
 MODE: EXIT/ DIAG  
 MODE: INT/ NORM  
 MODE: EXIT

OPT: EXIT

DIAG: CTRLR TEST  
 CTRLR: TEST ALL  
 CTRLR: BOOT CKSM  
 0007D9B6  
 CTRLR: CFG CKSM  
 000003F7  
 CTRLR: PROG CKSM  
 0072DBCD  
 CTRLR: DSP PROM  
 0779F0F7  
 CTRLR: RAM 0  
 CTRLR: RAM 1  
 CTRLR: C EEPROM  
 CTRLR: H EEPROM  
 CTRLR: ADC  
 CTRLR: PHM  
 CTRLR: DSP  
 CTRLR: EXIT

KEY PAD FUNCTIONS

PRINT - SCROLL BACK  
 CANCEL - SCROLL FORWARD  
 SET-UP/SELECT SELECTION OR ENTER

NOTE

RESET MODE TO "EXIT" AND POWER CYCLE THE PRINTER

A087\_9066EC

# Diagnosics Menu Tree - EI 8651 DIGITAL COLOR PRINTER

On Display Panel: Push and Hold Set-Up and push PRINTER, PRINTER, then CANCEL, CANCEL, and RELEASE Set-Up.

DIAG: EXIT  
 DIAG: PANEL TEST  
 DIAG: ENG VER. #S

V:PG: PGKBXXXX  
 V:CS: CSKBXXXX  
 V:CE: EEKBXXXX  
 V:SE: SEKBXXXX  
 V:DP: DPKBXXXX  
 V:SCRN SCRN VER9  
 V:SCRL SCRL VER9  
 V:SCTN SCTN VER9  
 V:SCTL SCTL VER9  
 V:SKRN SKRN VER9  
 V:SKRL SKRL VER9  
 V:SKT1 SKT1 VER9  
 V:SKT2 SKT2 VER9  
 V:DCR DCR\_VER9  
 V:DCT DCT\_VER9  
 V:DKR DKR\_VER9  
 V:DKT1 DKT1VER9  
 V:DKT2 DKT2VER9  
 V:ECRN ECRNVER9  
 V:ECRL ECRLVER9  
 V:ECTN ECTNVER9  
 V:ECTL ECTLVER9  
 V:EKRN EKRNVER9  
 V:EKRL EKRLVER9  
 V:EKT1 EKT1VER9  
 V:EKT2 EKT2VER9  
 V:TCR TCR\_VER9  
 V:TCT TCT\_VER9  
 V:TKR TKR\_VER9  
 V:TKT1 TKT1VER9  
 V:TKT2 TKT2VER9  
 V:GCR GCR\_VER9  
 V:GKR GKR\_VER9  
 V:GKT1 GKT1VER9  
 V:SF SF\_VER9  
 V:SM SM\_VER9  
 V:SS SS\_VER9  
 V:TF TF\_VER9  
 V:TM TM\_VER9  
 V:TS TS\_VER9  
 V:PF PF\_VER9  
 V:PM PM\_VER9  
 V:PS PS\_VER9  
 V:PPR PPR\_VER9  
 V:MTM MTM\_VER9  
 V:CCL CCL\_VER9  
 V:H H4D0XXXX  
 V:EXIT

DIAG: PRINT USAGE  
 USE:PWR XXXX  
 USE:P-S XXXX  
 USE:P-C XXXX  
 USE:PLN XXXX  
 USE:RFL XXXX  
 USE:TRN XXXX  
 USE:B-I XXXX  
 USE:EXIT

DIAG: FAIL HIST  
 01 EXXXX PXXXX  
 02 EXXXX PXXXX

32 EXXXX PXXXX  
 HIST:EXIT

DIAG:RECEIVER  
 SIZE AND TYPE

DIAG: HEAD TEMP  
 TEMP:FAN  
 TEMP:HEATER  
 TEMP:EXIT

DIAG: HEAD TEST  
 HEAD:RETRACT  
 HEAD:LOAD  
 HEAD:ENGAGE  
 HEAD:EXIT

DIAG: DONOR TEST  
 DNR: TAKE SLACK  
 DHR: ADVANCE  
 DNR: REWIND  
 DNR: READ TYPE  
 DNR: EXIT

DIAG: PINCH TEST  
 PINCH: OPEN  
 PINCH: CLOSE  
 PINCH: EXIT

DIAG: MOTORS  
 MTRS: STEP FWD  
 MTRS: STEP REV  
 MTRS: PICK FWD  
 MTRS: PICK REV  
 MTRS: PLTN BRAKE  
 MTRS: URGE  
 MTRS: EXIT

DIAG: OPTIONS  
 OPT: RECEIVER  
 >RCVR OPT: PAPER  
 RCVR OPT: TRANS  
 RCVR OPT: EXIT

OPT: CYCLE TYPE  
 >CYCLE: XLS 8600 OR CYCLE: XLS 8657  
 CYCLE: BURN-IN  
 CYCLE: 1 PLANE  
 CYCLE: PICK/EJECT  
 CYCLE: EXIT

OPT: LOOP ENABLE  
 >LOOP OPT: OFF  
 LOOP OPT: ON  
 LOOP OPT: EXIT

OPT: LOOP COUNT  
 INC COUNT ###  
 DEC COUNT ###  
 COUNT: EXIT

DIAG: CTRLR TEST  
 CTRLR: TEST ALL  
 CTRLR: MATCH VERS  
 CTRLR: PROM 0  
 CTRLR: PROM 1  
 CTRLR: DSP PROM  
 CTRLR: RAM 0  
 CTRLR: C EEPROM  
 CTRLR: H EEPROM  
 CTRLR: ADC  
 CTRLR: PHM  
 CTRLR: DSP  
 CTRLR: EXIT

KEY PAD FUNCTIONS

PRINT - SCROLL BACK  
 CANCEL - SCROLL FORWARD  
 SET-UP/SELECT SELECTION OR ENTER

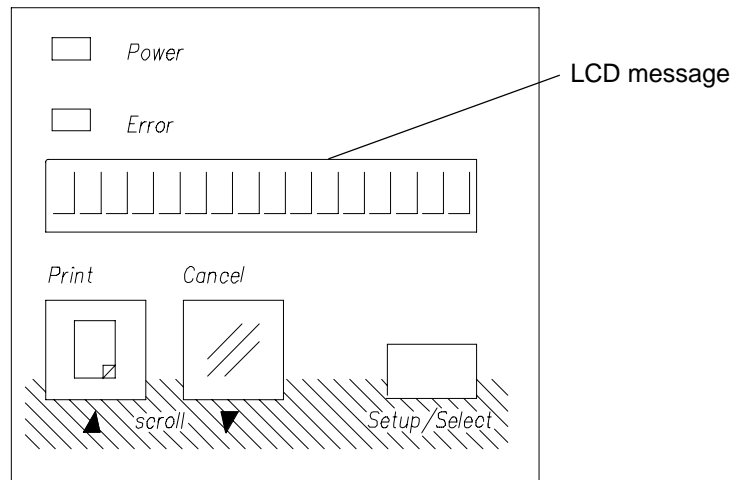
NOTE

RESET MODE TO "EXIT" AND POWER CYCLE THE PRINTER

A087\_9026C

## Diagnostics

### LCD - Messages



A087\_0058BCA  
A087\_0058BC

- [1] Check that the POWER SUPPLY or CONTROLLER BD is operating correctly to access diagnostics.

### Using the Diagnostics

- [1] Do the access procedure for the CONTROLLER ENCLOSURE AND DRAWER AY.



#### Important

If the CONNECTOR P13 is not removed, the ENGINE might start into the initialization state while using the diagnostics.

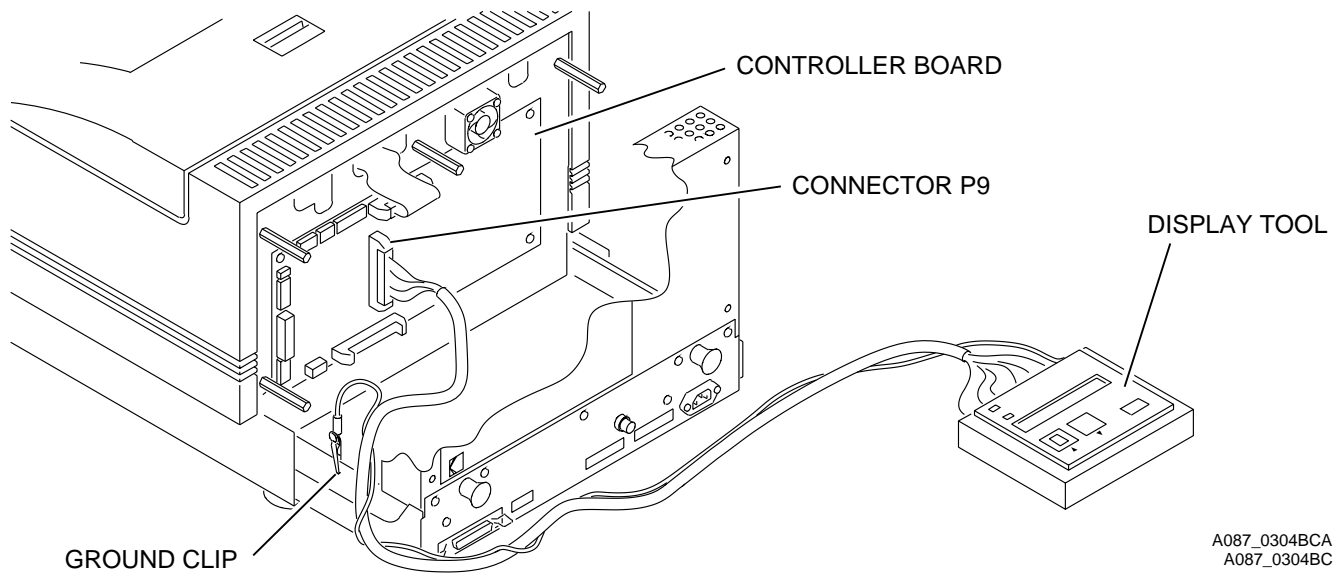
- [2] Remove the CONNECTOR P13 from the CONTROLLER BD. See Page 53.



#### Important

Step 3 is for the EI 8651 DIGITAL COLOR PRINTER only.

- [3] Check that the DIAGNOSTIC SELECTION SWITCH or the CONTROLLER BD is in the ENGINE mode.



**Important**

Steps 4 and 5 are only for the PICTURE MAKER PS4 PRINTER with serial•numbers > G3304623.

- [4] Connect the DISPLAY TOOL TL-5269 to the CONNECTOR P9 on the CONTROLLER BD.
- [5] Fasten the GROUND CLIP.
- [6] Energize the PRINTER.
- [7] Check that the LCD reads "READY", "SERVICE REQ", "SERVICE REQ\_\_\_\_" (4-digit error code) or any of the user errors such as "CLOSE COVER", "CHANGE DONOR", "LOAD DONOR", "INSERT TRAY", or "ENGINE READY".
- [8] Open the DOOR.
- [9] Install:
  - the DONOR if necessary
  - TRAY

**Entering the Diagnostics**

- [1] Press and hold the SETUP/SELECT BUTTON down. Do not release the SETUP/SELECT BUTTON at this time.
- [2] While pressing and holding the SETUP/SELECT BUTTON down, press the PRINT BUTTON and the CANCEL BUTTON 2 times.
- [3] Release the SETUP/SELECT BUTTON.
- [4] The LCD will read "DIAG: EXIT". You are now in the diagnostic menu.
- [5] Press the CANCEL or PRINT BUTTONS to scroll through the diagnostic menu levels.
- [6] After you select the main or top diagnostic menu, press the SETUP/SELECT BUTTON to select a SUB-MENU.
- [7] To exit the diagnostics, scroll through the top menus until you reach and select "DIAG: EXIT".
- [8] Press the SETUP/SELECT BUTTON to initialize the PRINTER again and return you to where you began with "ENGINE READY", "READY", "SERVICE REQ\_\_\_\_" (4-digit error code), "READY\_CALL SERVC", "LOAD DONOR", "INSERT TRAY", "CHANGE DONOR", or any of the user errors.

## "DIAG: PANEL TEST"

The preliminary conditions are listed below. An LCD or CONTROLLER BD malfunction will cause PANEL TEST failures.

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	NO
SPECIAL ACTIONS	

- [1] Enter the diagnostics.
- [2] Press and release the CANCEL BUTTON. The LCD will read "DIAG: PANEL TEST".
- [3] To operate the "DIAG: PANEL TEST" and begin a scrolling of characters across the LCD from right to left, press and hold the SETUP/SELECT BUTTON. The error LED will also illuminate and flash. The LCD will read "HI#HI#HI#". You are now in the SUB-MENU test. The message indicates to the technician that the LCD is operating correctly.
- [4] Release the SETUP/SELECT BUTTON and the LCD will return to "DIAG: PANEL TEST".
- [5] Press the CANCEL or PRINT BUTTONS to scroll to the correct menu, exit the diagnostics, or continue.

## "DIAG: ENG VER #S"



### Important

ENGINE VER#s allows you to check which versions are installed in the CONTROLLER BD.

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	NO
SPECIAL ACTIONS	

- [1] Enter the diagnostics.
- [2] Press the CANCEL BUTTON or PRINT BUTTON to scroll to the ENGINE version numbers. The LCD will read "ENG: VER #S".
- [3] Press and release the SETUP/SELECT BUTTON. The LCD will read "VER:PG XXXX".
- [4] You are now in the SUB-MENUs.
- [5] The messages in the SUB-MENUs indicate the software and/or firmware versions. This allows you to know the software version installed in the ENGINE and to check that all of the data is in these versions.
- [6] To exit the SUB-MENU "ENG VER #S", press the PRINT or CANCEL BUTTON.
- [7] After you select "V: EXIT", press the SETUP/SELECT BUTTON. The LCD will read "DIAG: ENG VER #S".
- [8] Press the CANCEL or PRINT BUTTON to scroll to the correct menu, exit the diagnostics, or continue.

## "DIAG: PRN USAGE"

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	NO
SPECIAL ACTIONS	

- [1] Enter the diagnostics.
- [2] Press and release the CANCEL or PRINT BUTTON to scroll to "DIAG: PRN USAGE". The LCD will read PRN .
- [3] Press and release the SETUP/SELECT BUTTON. The LCD will read "USE: PWR XXXX".
- [4] Press the CANCEL or PRINT BUTTON to scroll through all the possible messages/descriptions. See the table below.

### Note

All information is stored on the E<sup>2</sup> ROM on the CONTROLLER BD except for the plane count, which is stored in the THERMAL HEAD.

**Table 7 LCD Messages**

LCD Message	Description
"USE: PWR ____"	Number of times the PRINTER has been energized.
"USE: P-S ____"	Number of prints the PRINTER has started.
"USE: P-C ____"	Number of prints that have been completed.
"USE: PLN ____"	Number of PLANES that have been completed by the PRINTER.
"USE: RFL ____"	Number of completed reflective paper prints made by the PRINTER.
"USE: TRN ____"	Number of completed TRANSPARENCIES made by the PRINTER.
"USE: LOOP ____"	Number of prints generated in the LOOP mode.
"USE: EXIT"	Exits the SUB-MENU to the top diagnostic menu.

- [5] The "DIAG: PRN USAGE" allows you to check the operation of the PRINTER for feedback and possible malfunctions.
- [6] To exit the "DIAG: PRN USAGE" versions, when the LCD reads "USE: EXIT", press the SETUP/SELECT BUTTON. The LCD will read "DIAG: PRN USAGE".
- [7] Press the CANCEL or PRINT BUTTON to scroll to the correct menu, exit the diagnostics, or continue.



**"DIAG: FAIL HIST"****Important**

The failure history "DIAG: FAIL HIST" indicates the latest failures. The last failure (error code) should match with the print count as listed in print usage. The correct failure should always be fed back. Sometimes the failure history will read "BAD MEM" or "NONE", indicating the loss of data in the E<sup>2</sup> (U9) for the 8670 PS THERMAL PRINTER and the PS4 PRINTER. There are 2 Failed History Buffers, "SERVICE" and "USER" for the PS4 PRINTER and the 8670 PS THERMAL PRINTER. There is 1 Failed History Buffer for the EI 8651 DIGITAL COLOR PRINTER.

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	NO
SPECIAL ACTIONS	

- [1] Enter the diagnostics.
- [2] Press and release the CANCEL or PRINT BUTTON to scroll to "DIAG: FAIL HIST". The LCD will read "DIAG: FAIL HIST".
- [3] Press and release the SETUP/SELECT BUTTON. The LCD will read >SELECT:SERVICE.
- [4] Press:
  - CANCEL BUTTON to scroll the 2 Failed History Buffers, "SERVICE" and "USER"
  - SETUP/SELECT BUTTON to select the Failed History Buffer that you want to view
  - CANCEL BUTTON to the "SELECT:EXIT"
  - SETUP/SELECT BUTTON, display should read "HIST:SELECT"
  - CANCEL BUTTON, display should read "HIST:VIEW"
- [5] Press SETUP/SELECT BUTTON. The LCD will read "01 E \_\_\_ C \_\_\_" through "32 E \_\_\_ C \_\_\_". See the descriptions below:
  - 01 through 32 are the failure numbers.
  - E is for error number.
  - C is for the print count at which the error occurred.

**Note**

The lower the failure number is, indicates the most recent error. This information can be used by the technician to determine what the error is, the number of times the error occurs, and the failure history. See the Error Code Section for a description of the error codes.

- [6] Press:
  - CANCEL BUTTON to scroll down to "VIEW: EXIT"
  - SETUP/SELECT BUTTON, the LCD will read "HIST: VIEW"
  - CANCEL BUTTON, the LCD will read "HIST: EXIT"
  - SETUP/SELECT BUTTON to exit the "FAIL HIST"

## "DIAG: TRAY"



### Important

This test allows you to check the operation of the 3 TRAY SENSORS, RECEIVER TYPE SENSOR, and the CONTROLLER BD.

The preliminary conditions are:

TRAY INSTALLED	YES
DONOR INSTALLED	NO
RECEIVER INSTALLED	YES
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	1. Do the TRAY test. Install and remove the TRAY. 2. Do the RECEIVER TYPE test. Install paper or TRANSPARENCY.

- [1] Enter the diagnostics.
- [2] Press and hold the CANCEL or PRINT BUTTON to scroll to "DIAG: TRAY" menu.
- [3] Press and hold the SETUP/SELECT BUTTON. For the 8670 PS THERMAL PRINTER and the EI 8651 DIGITAL COLOR PRINTER, the display will read RECEIVER size that is selected by the TRAY SLIDER and the type of RECEIVER in the TRAY. If the TRAY is not installed, the display will read "NO PHOTO". For the PS4 PRINTER, it will display "TRAY PRESENT" if installed, and "NO TRAY" if not installed.
- [4] Release the SETUP/SELECT BUTTON. The display will read "DIAG: TRAY".

## "DIAG: HEAD TEMP"

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	1. The approximate temperature for the THERMAL HEAD is 20 - 55 degrees C.

- [1] Enter the diagnostics.



### Important

If the temperature does not decrease when "TEMP: FAN" is selected, the FANS might not be operating.

- [2] Press and release the SETUP/SELECT BUTTON. The LCD will read "TEMP: FAN".
- [3] Press and hold the SETUP/SELECT BUTTON. The LCD will read "TEMP: \_\_\_\_C". This is the present centigrade temperature of the THERMAL HEAD. The 4 FANS that regulate the temperature will turn on. The digits on the LCD should also decrease as the FANS continue to operate. This test allows you to check the FAN operation, ADC, SENSORS, and the CONTROLLER BD for a change in temperature.

**Important**

If the temperature does not increase when the HEATER is on, the CONTROLLER BD is not pulsing the THERMAL HEAD to increase the temperature. The HEATER LIGHT located on the lower right corner of the CONTROLLER BD illuminates if the CONTROLLER BD is providing 12 V DC to the THERMAL HEAD. If the HEATER LIGHT does not illuminate, there is a CONTROLLER BD malfunction or 12 V DC is not present. There are 3 types of temperature regulations for the THERMAL HEAD:

- “NORMAL”
- “FIXED EW”
- “BURN-IN”

[4] Release the SETUP/SELECT BUTTON.

[5] Press the CANCEL BUTTON to scroll to "TEMP: HEATER".

[6] Press and hold the SETUP/SELECT BUTTON. The LCD will read "TEMP: \_\_\_\_ C". These numbers indicate the THERMAL HEAD temperature. These numbers should increase as you continue to hold the SETUP/SELECT BUTTON because you are turning the HEATER on. This test allows the service technician to check the operation of the THERMAL HEAD HEATER, ADC, SENSORS, CONTROLLER BD, and CONTROLLER LED.

[7] Release the SETUP/SELECT BUTTON.

[8] Press the CANCEL BUTTON and scroll to "TEMP: EXIT".

[9] To exit "DIAG: HEAD TEMP", when the LCD reads "TEMP: EXIT", press the SETUP/SELECT BUTTON. The LCD will read "DIAG: HEAD TEMP".

[10] Press the CANCEL or PRINT BUTTON to scroll to the correct menu, exit the diagnostics, or continue.

**Important**

You must select “NORMAL”.

[11] Press the SETUP/SELECT BUTTON.

[12] If the display does not read “>REG: NORMAL”, press the SETUP/SELECT BUTTON again. Select “NORMAL”. The arrow indicates the type of regulation selected.

[13] Press:

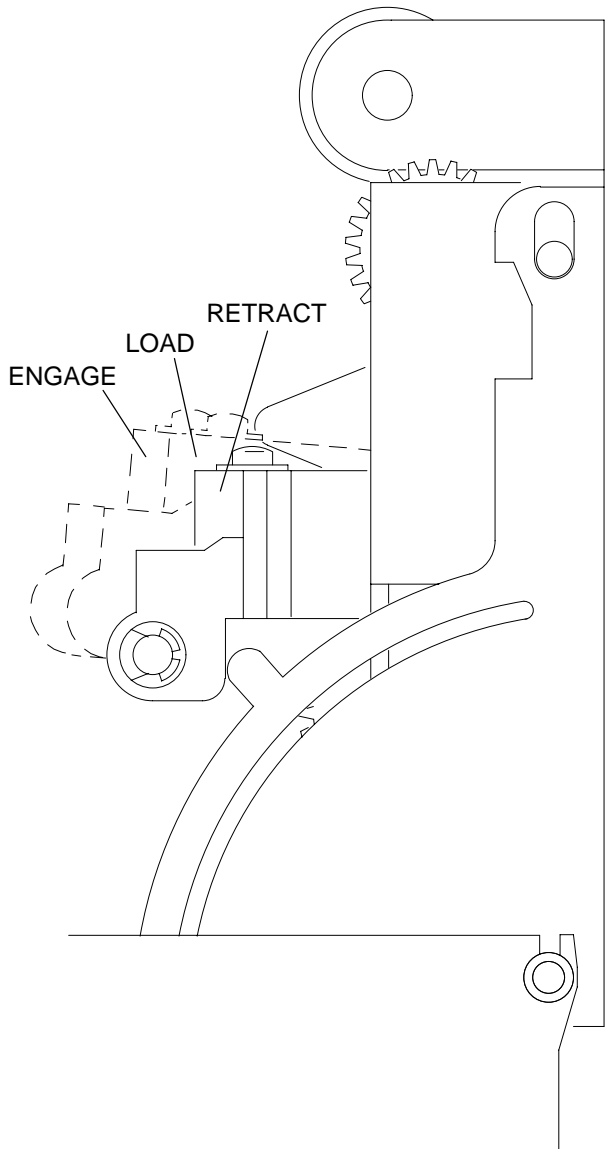
- CANCEL BUTTON, scroll to “REG: EXIT”
- SETUP/SELECT BUTTON to “EXIT”

**Note**

When the display reads “TEMP:REGULATE” by pressing the SETUP/SELECT BUTTON, the ADC output of the THERMAL HEAD Temperature Regulation will be displayed. See the table for the THERMAL HEAD Temperature Regulation to change the ADC output rating to actual HEAD temperature degrees centigrade.

[14] To exit the ADC screen, press any BUTTON.

# "DIAG: HEAD TEST"



## Caution

Do not close the DOOR until the THERMAL HEAD is fully retracted.

If the THERMAL HEAD moves into the retract, load, or engage positions, the THERMAL HEAD LIFT MOTOR is operating correctly. When checking the positions, observe the THERMAL HEAD moving into the correct position. This test is also used to check the THERMAL HEAD LIFT SENSORS for correct operation.

A087\_0059CCB  
A087\_0059CC

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	1. CAUTION: Prevent damage to the THERMAL HEAD. Before opening or closing the DOOR, check that the THERMAL HEAD is in the retract position.

- [1] Enter the diagnostics.
- [2] Press and release the CANCEL or PRINT BUTTON to scroll to "DIAG: HEAD TEST". The LCD will read "DIAG: HEAD TEST".
- [3] Press and release the SETUP/SELECT BUTTON. The LCD will read "HEAD: RETRACT".

- [4] Press the SETUP/SELECT BUTTON and release. The LCD will read "HEAD: RETRACTING" until the THERMAL HEAD has reached the retracted position. When the LCD reads "HEAD: RETRACT", the test is complete.
- [5] Press the CANCEL BUTTON and scroll to "HEAD: LOAD".
- [6] Press and release the SETUP/SELECT BUTTON. The LCD will read "HEAD: LOADING" and the THERMAL HEAD will move into the load position. When the LCD reads "HEAD: LOAD", the test is complete.
- [7] Press the CANCEL BUTTON and scroll to "HEAD: ENGAGE".
- [8] Press and release the SETUP/SELECT BUTTON. The LCD will read "HEAD: ENGAGING". The THERMAL HEAD will move into the engage position. When the LCD reads "HEAD: ENGAGE", the test is complete.

### Note

These tests allow you to test the THERMAL HEAD LIFT MOTOR, THERMAL HEAD LIFT MECHANISM, THERMAL HEAD LIFT SENSORS, and CONTROLLER BD.

- [9] Press the CANCEL BUTTON and scroll to exit. The LCD will read "HEAD: EXIT".
- [10] To exit the "DIAG: HEAD TEST", when the LCD reads "HEAD: EXIT", press the SETUP/SELECT BUTTON, the LCD will read "DIAG: HEAD TEST".
- [11] Press the CANCEL or PRINT BUTTON to scroll to the correct menu, exit the diagnostics, or continue.

## "DIAG: DONOR TEST"

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	YES
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES at beginning of test, then NO
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	<ol style="list-style-type: none"> <li>1. When the DOOR is open with DONOR installed, the LCD will always read DNR: COLOR = CYN because the DONOR is not sensed.</li> <li>2. Check the procedure when the DOOR should be open or closed.</li> </ol>

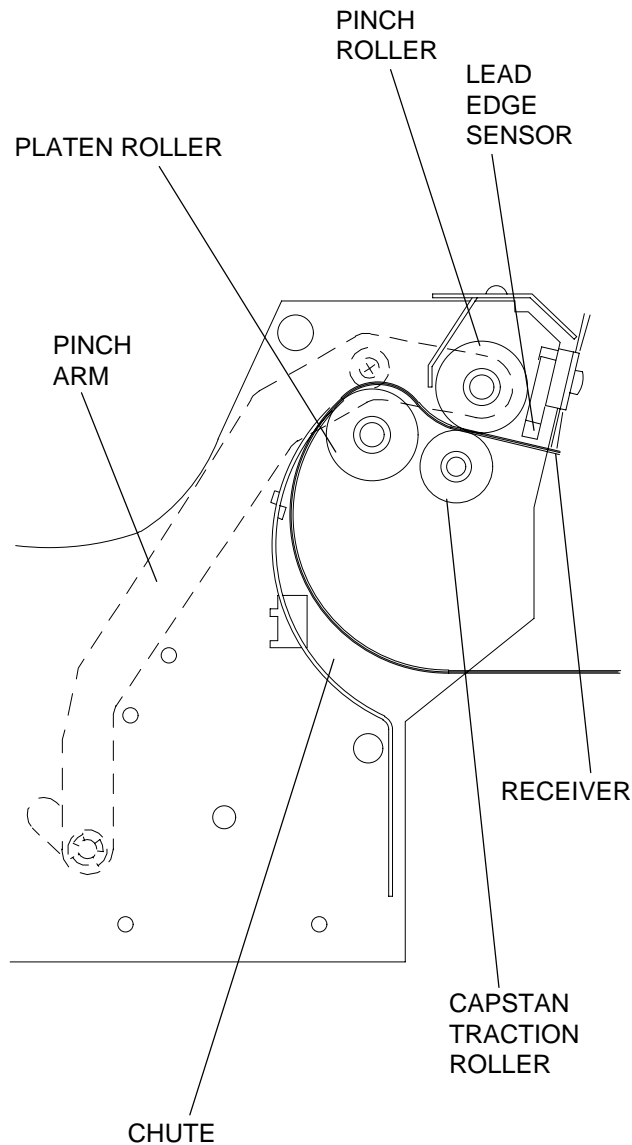
- [1] Enter the diagnostics with the DOOR open.
- [2] Press and release the CANCEL or PRINT BUTTON to scroll to "DIAG: DONOR TEST". The LCD will read "DIAG: DONOR TEST."
- [3] Press and release the SETUP/SELECT BUTTON. The LCD will read "DNR: TAKE SLACK".
- [4] Press and hold the SETUP SELECT BUTTON. The LCD will read "DNR: COLOR = CLR=MAG/BLK". The DONOR SUPPLY CLUTCH will turn clockwise, adjusting the tension in the DONOR. This test allows you to check the operation of the SUPPLY MOTOR, SPINDLE, CLUTCH, SPOOL, and CONTROLLER BD.
- [5] Close the DOOR.
- [6] Press and hold the SETUP/SELECT BUTTON. The LCD will read "DNR: COLOR = YEL, MAG, CYN or LAM", depending on the position of the DONOR PATCH in reference to the DONOR SENSORS and EMITTERS. This test allows you to check the operation of the sensing system of the DONOR and CONTROLLER BD.
- [7] Press the CANCEL BUTTON and scroll to "DNR: ADVANCE".

- [8] Press and hold the SETUP/SELECT BUTTON. The LCD will read "DNR: CLR = YEL, MAG/BLK, CYN, or LAM". The LCD will change between YEL, MAG, and CYN in that sequence. This operates the DONOR TAKE-UP and SUPPLY MOTORS. The sensing system for the DONOR is also detecting the 3 patches of DONOR. This test allows you to check the operation of the sensing system of the DONOR, CONTROLLER BD, and the advance function of the DONOR.
- [9] Release the SETUP/SELECT BUTTON.
- [10] Open the DOOR.
- [11] Press and hold the SETUP/SELECT BUTTON. The LCD will read "CLR=MAG/BLK". The DONOR SUPPLY CLUTCH GEAR will turn counterclockwise and the DONOR TAKE-UP CLUTCH GEAR will turn clockwise. This test allows you to check the DONOR TAKE-UP and SUPPLY MOTORS, CLUTCHES, SPINDLES, and the CONTROLLER BD.
- [12] Release the SETUP/SELECT BUTTON.
- [13] Press the CANCEL BUTTON to scroll to rewind. The LCD will read "DNR: REWIND".
- [14] Press and hold the SETUP/SELECT BUTTON. The LCD will read "CLR=MAG/BLK". This operates the TAKE-UP CLUTCH GEAR counterclockwise in a step function. The SUPPLY CLUTCH GEAR will turn in a clockwise movement. This test allows you to check the DONOR TAKE-UP and SUPPLY MOTORS, CLUTCHES, SPINDLES, and the CONTROLLER BD.
- [15] Release the SETUP/SELECT BUTTON.
- [16] Close the DOOR.
- [17] Press and hold the SETUP/SELECT BUTTON. The LCD will read "DNR: CLR=CYN, MAG/BLK, YEL, or LAM". The LCD will change between CYN, MAG, and YEL in that sequence. This operates the DONOR TAKE-UP and SUPPLY MOTORS. The sensing system of the DONOR is also detecting the 3 patches of DONOR. This test allows you to check the operation of the sensing system of the DONOR, CONTROLLER BD, and the advance function of the DONOR.
- [18] Release the SETUP/SELECT BUTTON. The LCD will read "DNR: REWIND".
- [19] Open the DOOR. The DOOR can remain open.
- [20] Press and release the CANCEL BUTTON. The LCD will read "DNR: READ TYPE".
- [21] Press and release the SETUP/SELECT BUTTON. The LCD will read "DNR: TIGHTENING, READING, REWIDING and then TYPE OK - > 02". This test checks the BAR CODE SENSOR and BAR CODE LABEL. The number indicates the type of DONOR.
- [22] Press the CANCEL BUTTON and scroll to exit. The LCD will read "DNR: EXIT".
- [23] To exit the "DIAG: DONOR TEST", when the LCD reads "DONOR EXIT", press the SETUP/SELECT BUTTON. The LCD will read "DIAG: DONOR TEST".
- [24] Press the CANCEL or PRINT BUTTON to scroll to the correct menu, exit the diagnostics, or continue.

**"DIAG: PINCH TEST"**

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	1. Install a RECEIVER between the CAPSTAN TRACTION ROLLER and the PINCH ROLLER to check that the PINCH holds the RECEIVER when closed and releases when open.



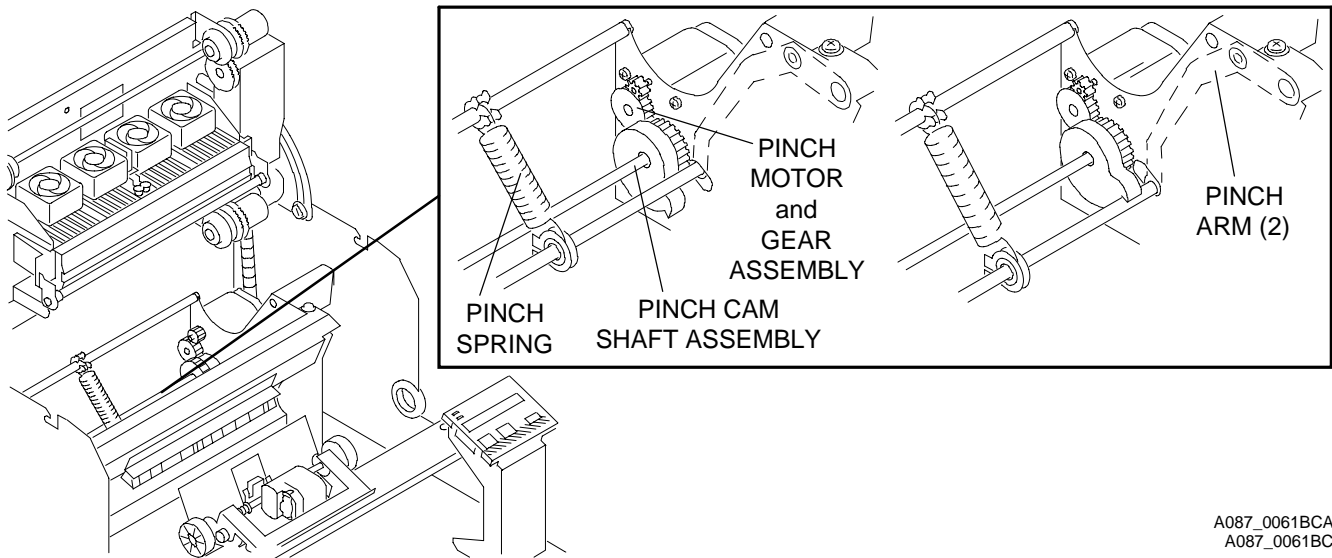
A087\_0054CCA  
A087\_0054CC

- [1] Enter the diagnostics.
- [2] Press and release the CANCEL or PRINT BUTTON to scroll to "DIAG: PINCH TEST". The LCD will read "DIAG: PINCH TEST".
- [3] Press and release the SETUP/SELECT BUTTON. The LCD will read "PINCH: OPEN".
- [4] Install a RECEIVER until it reaches the LEAD EDGE SENSOR.
- [5] Press the CANCEL BUTTON and scroll to close. The LCD will read "PINCH: CLOSE".
- [6] Press and release the SETUP/SELECT BUTTON. The LCD will read "PINCH: CLOSE" when it is complete. This operates the PINCH MOTOR, PINCH CAM/SHAFT, PINCH ARMS, SPRING, and PINCH ROLLER.
- [7] Check that the PINCH is closed.

#### Note

The PINCH is closed if you cannot rotate the PINCH ROLLER. This test allows you to check the PINCH operation and CONTROLLER BD.

- [8] Pull on the RECEIVER on both front corners. The RECEIVER should:
  - be pinched evenly
  - not move



A087\_0061BCA  
A087\_0061BC

[9] Press the PRINT BUTTON and scroll to "OPEN". The LCD will read "PINCH: OPEN".

[10] Press and release the SETUP/SELECT BUTTON. The LCD will read "PINCH: OPENING" until it is complete.

**Note**

This operates the PINCH MOTOR and GEAR AY, PINCH CAM SHAFT AY, PINCH ARMS, and PINCH ROLLER. This test allows you to check the PINCH operation and CONTROLLER BD.

[11] Press the CANCEL BUTTON and scroll to exit. The LCD will read "PINCH: EXIT".

[12] To exit the "DIAG: PINCH TEST", when the LCD reads "PINCH: EXIT", press the SETUP/SELECT BUTTON. The LCD will read "DIAG: PINCH TEST".

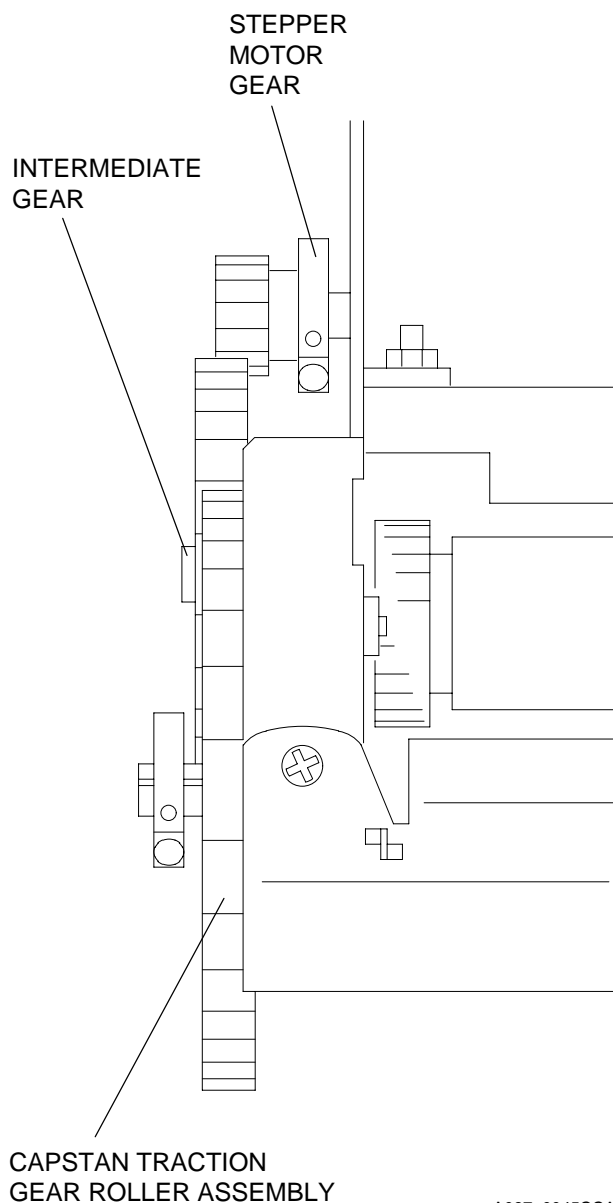
[13] Press the CANCEL or PRINT BUTTON to scroll to the correct menu, exit the diagnostics, or continue.



**"DIAG: MOTORS"**

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	NO
SPECIAL ACTIONS	

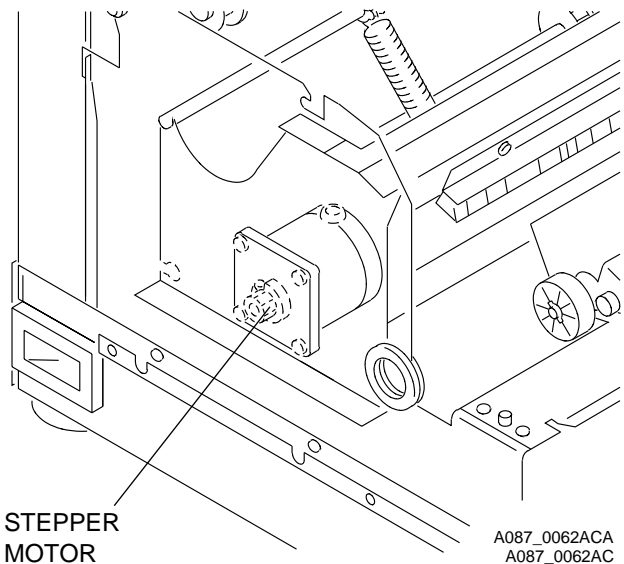


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A087\_0045CC

- [1] Enter the diagnostics.
- [2] Press and release the CANCEL or PRINT BUTTON to scroll to "DIAG: MOTORS". The LCD will read "DIAG: MOTORS".
- [3] Press and release the SETUP/SELECT BUTTON. The LCD will read "STEP: FWD".
- [4] Press and hold the SETUP/SELECT BUTTON. The LCD will read "MOTORS: STEPPING".
- [5] Release the SETUP/SELECT BUTTON.

**Note**

This operates the STEPPER MOTOR GEAR, INTERMEDIATE GEAR, and CAPSTAN TRACTION GEAR ROLLER AY in the forward position. This test allows you to check the STEPPER MECHANISM and CONTROLLER BD.



- [6] Press the CANCEL BUTTON and scroll to reverse. The LCD will read "MTRS: STEP REV".
- [7] Press and hold the SETUP/SELECT BUTTON. The LCD will read "MTRS: STEPPING".
- [8] Press the CANCEL BUTTON and scroll to "MTRS: PICK FWD". This operates the STEPPER MOTOR, INTERMEDIATE GEAR, and CAPSTAN TRACTION GEAR ROLLER AY in the rewind position.
- [9] Press and hold the SETUP/SELECT BUTTON. The LCD will read "MTRS: PICKING". This operates the PICKER mechanism and picks a sheet of paper or TRANSPARENCY.
- [10] Press the CANCEL BUTTON and scroll to "PICK REV:". The LCD will read "MTRS: PICK REV".

[11] Press and hold the SETUP/SELECT BUTTON. The LCD will read "MTRS: RETRACTING". This test retracts the PICKER MECHANISM.

[12] Press the CANCEL BUTTON and scroll to "PLTN BRAKE". The LCD will read "MTRS: PLTN BRAKE".

**Note**

This test checks the operation of the PLATEN BRAKE. If the PLATEN BRAKE is operating correctly, the PLATEN ROLLER will rotate forward with resistance. The PLATEN ROLLER will rotate approximately 1/4 turn in reverse then stop.

[13] Press and hold the SET/UP SELECT BUTTON. The LCD will read "MTRS: BRAKE ON".

[14] Scroll to "EXIT" to exit the diagnostics.

**"DIAG: OPTIONS"**

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	<ol style="list-style-type: none"> <li>1. These tests allow the technician to select the necessary options: RECEIVER, CYCLE TYPE, LOOP ENABLE, LOOP COUNT. For PS4 and 8670, 2 additional options: SPE SCALING and EXIT MODE.</li> <li>2. RECEIVER allows you to select Photographic Publication Commercial Grade Paper or TRANSPARENCY.</li> <li>3. CYCLE TYPE allows you to select the print cycle operation.</li> <li>4. LOOP COUNT allows you select the number of prints to be made.</li> <li>5. SPE SCALING is not functional at this time.</li> <li>6. EXIT MODE allows you to setup the PRINTER mode when you exit diagnostics.</li> </ol>

- [1] Enter the diagnostics.
- [2] Press and release the CANCEL or PRINT BUTTON to scroll to "DIAG: OPTIONS". The LCD will read "DIAG: OPTIONS".
- [3] Press and release the SETUP/SELECT BUTTON. The LCD will read "OPT: RECEIVER".
- [4] Press the SETUP/SELECT BUTTON. The LCD will read ">RCVR OPT: PHOTO".
- [5] Press and release the CANCEL BUTTON. The LCD will read "Select a different RECEIVER". The symbol > indicates which option was selected. You can scroll between the options.

- [6] After you select your option, press the SETUP/SELECT BUTTON, the symbol > will be in front to verify your option selection. This option is used to select the RECEIVER type used during the print cycle in the diagnostic mode.
- [7] After you select RECEIVER TYPE, press the CANCEL BUTTON and scroll to exit. The LCD will read "RCVR OPT: EXIT".
- [8] Press and RELEASE the SETUP/SELECT BUTTON. The LCD will read "OPT: RECEIVER".
- [9] Press the CANCEL BUTTON and scroll. The LCD will read "OPT: CYCLE TYPE".
- [10] Press and release the SETUP/SELECT BUTTON. The LCD will read "CYCLE: XLS 8600" or the correct model.
- [11] Press the CANCEL BUTTON.
- [12] The LCD reads:
- "CYCLE: BURN-IN" (used during manufacturing)
  - "CYCLE: 1-PLANE" (prints the magenta pass and laminate)
  - "CYCLE: PCK/EJECT" (operates the PICKER, PINCH STEPPER, with no actual printing, picks and ejects the RECEIVER)
  - "CYCLE: LNG DNR (oversized RIBBON) - PS4 and 8670 only
  - "CYCLE: LNG RCVR (91/2 x 14 in. RECEIVER, 24.3 X 35.8 cm RECEIVER) - PS4 and 8670 only
  - "CYCLE: DNR EDGE (RECEIVER is transported to LEAD EDGE SENSOR) - PS4 and 8670 only
  - "CYCLE: EXIT"
- [13] This test allows you to operate a series of configurations and to test the pick and eject operation.
- [14] Press the CANCEL BUTTON and scroll. The LCD will read "OPT: LOOP-ENABLE".
- [15] Press and release the SETUP/SELECT BUTTON. The LCD will read "LOOP OPT: OFF" or "LOOP OPT: ON". The symbol > indicates which option was selected. You can scroll through the options.
- [16] After you determine the correct option, select the option by pressing the SETUP/SELECT BUTTON. The symbol > will be in front to verify your option.

### Note

This function allows you to make multiple test prints when "LOOP OPT: ON" is selected by pressing the TEST PRINT BUTTON in the READY Mode.

- [17] Press the CANCEL BUTTON and scroll to exit. The LCD will read "LOOP OPT: EXIT".
- [18] Press and release the SETUP/SELECT BUTTON. The LCD will read "OPT: LOOP-ENABLE".
- [19] Press the CANCEL BUTTON and scroll to "LOOP COUNT". The LCD will read "OPT: LOOP COUNT".
- [20] Press and release the SETUP/SELECT BUTTON. The LCD will read "OPT INC COUNT ####" or "OPT DEC COUNT ####". The symbol > indicates the option selected. This operation allows you to increment or decrement the test counter during burn-in.
- [21] Press and release the SETUP/SELECT BUTTON. The LCD will read "COUNT: EXIT".
- [22] Press the CANCEL BUTTON and scroll to the next option. LCD will display SPE: SCALING not functional. This will be used to match the POWER SUPPLY with the THERMAL HEAD to decrease parasitic resistance.
- [23] Press:
- CANCEL BUTTON and scroll to the next option, the LCD will read "OPT: EXIT MODE"
  - SETUP/SELECT BUTTON, the LCD will read ">MODE: EXT/NORM"
  - SETUP/SELECT BUTTON to select the EXTERNAL/NORMAL exit mode

### Note

This will place the PRINTER in the External Communication, normal operation mode.

[24] Press:

- CANCEL BUTTON to allow you to scroll to the “EXT/DIAG” or the “INT/NORM” mode
- CANCEL BUTTON to the “EXIT” mode
- SETUP/SELECT BUTTON to exit mode option
- CANCEL BUTTON to display “OPT: EXIT”
- SETUP/SELECT BUTTON to display “DIAG: OPTIONS”
- CANCEL BUTTON to the next text and display will read “DIAG: CTRLR TEST”

## "DIAG: CTRLR TEST"

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE - 8670 and EI 8651 only	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	1. These tests indicate error codes if there is a malfunction. See the Error Code table.

[1] Enter the diagnostics.

[2] Press and release:

- CANCEL or PRINT BUTTON to scroll to "DIAG: CTRLR TEST", the LCD will read "DIAG: CTRLR TEST"
- SETUP/SELECT BUTTON, the LCD will read "CTRLR: TEST ALL"
- SETUP/SELECT BUTTON, the LCD will read "CTRLR: TESTING"

[3] To test the individual components, see:

- 2 Diagnostic Menu Trees, Pages 11 and 12
- below table for the definitions for the CONTROLLER Test Options

<b>CONTROLLER Test Option</b>	<b>Definition</b>
TEST ALL	Performs all tests in the CONTROLLER Test Section.
MATCH VERS, PROM 0, and PROM 1 - EI 8651 only	Performs a code check for U8 and U17, the PROGRAM PROMS located on the CONTROLLER BD.
BOOT CKSM, CFG CKSM, and PROG CKSM -PS4 and 8670 only	Performs a test on the functions of the FLASH ROM on the CONTROLLER BD.
DSP PROM	Performs a test on the DSP PROM.
RAM 0 and RAM 1	Performs a memory check on the RAM located in the CONTROLLER BD.
C EEPROM	Performs a contents check on the CONTROLLER EEPROM.
H EEPROM	Performs a contents check on the EEPROMS located on the THERMAL HEAD.
ADC (Analog-Digital Converter)	Performs a check on the ANALOG-DIGITAL CONVERTER located on the CONTROLLER BD.
PHM (PULSE HEAD MODULATOR	Performs a check on the PULSE HEAD MODULATOR IC located in the CONTROL BD.
DSP (DIGITAL SIGNAL PROESSOR)	Performs a check on the DSP on the CONTROLLER BD. Does not check the checksum.

[4] Press the CANCEL BUTTON and scroll to the SUB-MENUs.

[5] After you select SUB-MENU, press and release the SETUP/SELECT BUTTON to access a SUB-MENU test.

[6] During each SUB-MENU test, the LCD will read "CTRLR: TESTING". This allows you to check that the tests operate correctly.

[7] Press the CANCEL BUTTON and scroll to exit. The LCD will read "CTRLR: EXIT".

[8] Press and release the SETUP/SELECT BUTTON. The LCD will read "DIAG: CTRLR: TEST".

#### **Note**

It is now possible to scroll through the diagnostic main menu by using the PRINT or CANCEL BUTTONS.

[9] To exit the diagnostics, scroll to "DIAG: EXIT".

[10] Press the SETUP/SELECT BUTTON, the LCD will read "INITIALIZING".

#### **Note**

After initialization is complete, the LCD will read "READY", "SERVICE REQ \_\_\_\_" (4-digit error code), or any of the user error states such as "CLOSE COVER", "CHANGE RIBBON", or "INSERT TRAY" depending on the condition of the PRINTER.



## Section 3: Power Distribution Troubleshooting

### Safety



#### Warning

Dangerous Voltage

120/240 V AC is present.

### Functional Description

The power distribution for the PRINTER is distributed from a POWER SUPPLY which supplies power to the CONTROLLER BD, HOST INTERFACE, and THERMAL HEAD.

The POWER SUPPLY automatically senses the AC input and changes to the correct input. There are 2 AC input ranges. Range 1 = 90-132 V AC. Range 2 = 175 - 264 V AC. The AC frequency input operational range is 47-63 Hz. The THERMAL HEAD VOLTAGE output range is adjustable at R523 on the POWER SUPPLY.

The CONTROLLER and FEE BD CONNECTORS are directly connected into the POWER SUPPLY. V DC to the system is supplied through the P12 and J14 CONNECTORS:

- 5 V DC (5.0 minimum to 5.2 maximum V DC peak output at 4.0 amps)
- 12 V DC (11.8 minimum to 12.2 maximum V DC peak output at 1.0 amps)
- -12 V DC (-11.4 to -12.6 V DC peak output at 0.86 amps)
- Operating amps: 2.5 amps, 0.5 amps, 0.5 amps

### Tools

Part Number	Description
TL-3190	ELECTROSTATIC DISCHARGE PORTABLE FIELD SERVICE KIT
TL-3386	DIGITAL VOLT METER, <i>Fluke</i> Manufacturing Co., #77

### Specifications

Country	Voltage/Frequency
Voltage Range 1	90 - 132 V AC
Voltage Range 2	175 - 264 V AC
U.S., Canada	120 V AC, 60 Hz
Europe (except U.K.)	220 V AC, 50 Hz 240 V AC, 50 Hz Autosense 90-264 V AC Autosense 47-63 Hz

Item	Specification
Power Consumption	≈ 180 Watts during printing ≈ 107 Watts during THERMAL HEAD pre-heat ≈ 67 Watts in the READY or STAND-BY modes
Power Connection	Maximum distance to outlet = 198.12 cm (6.5 ft)

## Voltage Verification Figure

BOARD	CONNECTOR	PIN + and - (GND)	Voltages	Wire Color
CONTROLLER	P12	4, 8 (2,5)	+12 V DC	Orange
CONTROLLER	P12	1, 5 (2,5)	+5 V DC	Red
CONTROLLER	P12	7 (2,5)	Power fail ( $\approx$ 4.5 V DC)	Violet
CONTROLLER	P12	2, 3, 6	GND	Black
POWER SUPPLY	J1	1-7	HEAD V (12-16.5 V DC)	Red
POWER SUPPLY	J1	7-14	HEAD V (GND)	Black
PLATFORM FAN	J20	NA	Red = -12 V DC Black = GND	
POWER SWITCH	NA	2, HOT	black wire, 120/240 V AC to plug	
POWER SWITCH	NA	3, HOT	brown wire, 120/240 V AC to POWER SUPPLY	
PLUG	NA	NA	black wire is HOT and 120/240 V AC to SWITCH PIN 2	
PLUG	NA	NA	blue wire is NEUTRAL and 120/240 V AC to POWER SUPPLY	
PLUG	NA	NA	green wire is GND	

## Preliminary Check

[1] Check:

- POWER CORD is correctly connected into the receptacle of the PRINTER and the power outlet
- POWER SWITCH is on (I = ON HIGH)
- Power outlet does not have a malfunction

## POWER INDICATOR LED Not Illuminated

The PRINTER does not operate.

[1] Check for DC voltage.

[2] De-energize the PRINTER.

[3] See the Replacement procedure for the POWER SWITCH. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.

[4] Set the DIGITAL VOLT METER to AC voltage. See the range table below.

Range	Voltage	Area
1	$\approx$ 115 V AC	North America
2	$\approx$ 250 V AC	Where 220 V AC is used



[5] Energize the PRINTER.

[6] Check:

- POWER SWITCH is on (I = ON HIGH)
- there is AC voltage at the back of the PLUG

[7] Connect:

- red PROBE to black wire CONNECTOR
- black PROBE to blue wire CONNECTOR

[8] Is AC voltage present?

AC Voltage Present?	Procedure
Yes	Advance to next step.
No	Install a new PLUG.

[9] Check that AC voltage is present on the POWER SWITCH CONNECTOR.

[10] Connect:

- red PROBE to PIN 2 of the POWER SWITCH
- black PROBE to the blue wire CONNECTOR on back of the PLUG

[11] If the voltage is present, advance to PIN 3 of the POWER SWITCH. If voltage is present on PIN 3, advance to the next step.

[12] Is voltage present at PIN 2? If no, check the wire from the PLUG and install a new wire if necessary.

[13] Is voltage present on PIN 2 but not PIN 3? If yes, install a new POWER SWITCH.

[14] Set the DIGITAL VOLT METER to DC voltage.

[15] Check the output of the POWER SUPPLY. Seat P12 on the CONTROLLER BD.

[16] Place the PROBE in PINS 2, 3, or 6 (GND) on P12.

[17] Measure the outputs. The correct voltages are:

- P12: PINS 1 and 5 = 5 V DC
- P12: PINS 4 and 8 = 12 V DC
- P12: PIN 7 =  $\approx 4.5$  V DC



### Warning

Dangerous Voltage

[18] Connect:

- black PROBE to P12 on CONTROLLER BD, PINS 2, 3, or 6
- red PROBE to P12, PIN 4 - the DIGITAL VOLT METER should read  $\approx 12$  V DC
- red PROBE to P12, PIN 8 - the DIGITAL VOLT METER should read  $\approx 12$  V DC
- red PROBE to P12, PIN 1 and then PIN 5 - the DIGITAL VOLT METER should read  $\approx 5$  V DC on both PINS

[19] If the voltages are present, advance to Step 21.

[20] If any of the voltages are not present, install a new 5/12 V DC POWER SUPPLY.

[21] If the LEDs on the CONTROLLER BD are illuminated, the voltages are present at P12, and the PRINTER does not operate, install a new CONTROLLER BD.

[22] If the 5 and 12 V DC LEDs are not illuminated and the voltages are present, install a new CONTROLLER BD.



### Note

If the PRINTER operates correctly and the LED is illuminated, the procedure is complete.

**No Printed Image**

The PRINTER completes the print cycle, but there is no image on the completed print.

- [1] Do the Preliminary Check.
- [2] De-energize the PRINTER.
- [3] Seat:
  - CONNECTOR J1 on the POWER SUPPLY
  - CONNECTORS on the THERMAL HEAD
- [4] See the Replacement procedure for the POWER SWITCH. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.
- [5] Set the DIGITAL VOLT METER to AC voltage. See the range table below.

**Table 8 DVM AC Ranges**

Range	Voltage	Area
1	≈ 115 V AC	North America
2	≈ 250 V AC	Where 220 V AC is used

- [6] Energize the PRINTER.
- [7] Check:
  - the POWER SWITCH is in the I position
  - there is AC voltage at the back of the PLUG
- [8] Connect:
  - red PROBE to the black wire CONNECTOR
  - black PROBE to the blue wire CONNECTOR
- [9] If there is AC voltage, advance to the next step. If not, install a new PLUG.
- [10] Check that there is AC voltage present at the POWER SWITCH CONNECTORS.
- [11] Connect:
  - red PROBE to PIN 2 of the POWER SWITCH
  - black PROBE to the blue wire CONNECTOR on the back of the PLUG
- [12] Is voltage present? If yes, advance to PIN 3 of the POWER SWITCH. If voltage is present on PIN 3, advance to the next step.
- [13] Is voltage present on PIN 2? If no, check the wire from the PLUG and install a new PLUG if necessary.
- [14] Is voltage present on PIN 2 but not PIN 3? If yes, install a new POWER SWITCH.
- [15] Check that there is DC output from the J1 CONNECTOR on the POWER SUPPLY.
- [16] Set the DIGITAL VOLT METER to DC.
- [17] Connect:
  - the red PROBE to J1, PINS 1 - 7 (red wires)
  - black PROBE to J1, PINS 8 - 14. The DIGITAL VOLT METER should read 12 - 16.5 V DC
- [18] Is voltage present on PINS 1 - 7?
  - Yes - install a new POWER SUPPLY
  - No - advance to the next step
- [19] De-energize the PRINTER.
- [20] Is there continuity from the HARNESS from J1 to the THERMAL HEAD?
  - Yes - install a new THERMAL HEAD HEAT SINK AY
  - No - install a new HARNESS

## No Power to the FEE BD - Error Code 722

### 8670 PS THERMAL PRINTER and the EI 8651 DIGITAL COLOR PRINTER



#### Warning

Dangerous Voltage

- [1] De-energize the PRINTER.
- [2] Open the CONTROLLER ENCLOSURE AND DRAWER AY. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.
- [3] Set the DIGITAL VOLT METER to DC voltage.

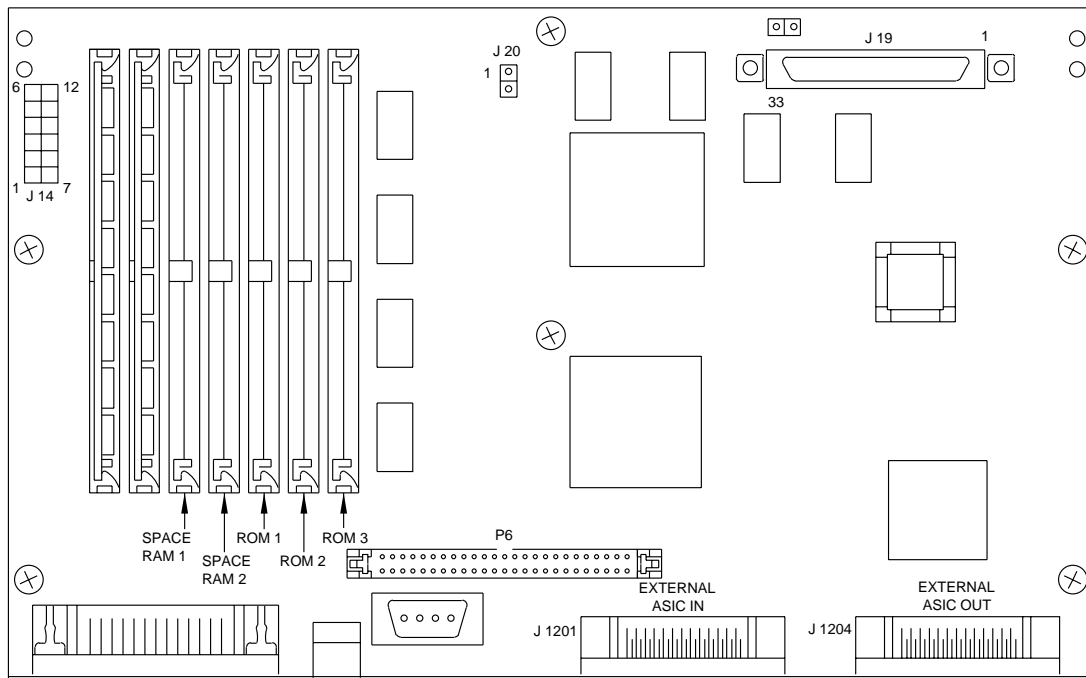


#### Warning

Dangerous Voltage

- [4] Energize the PRINTER.

FEE BOARD



A087\_2017HC

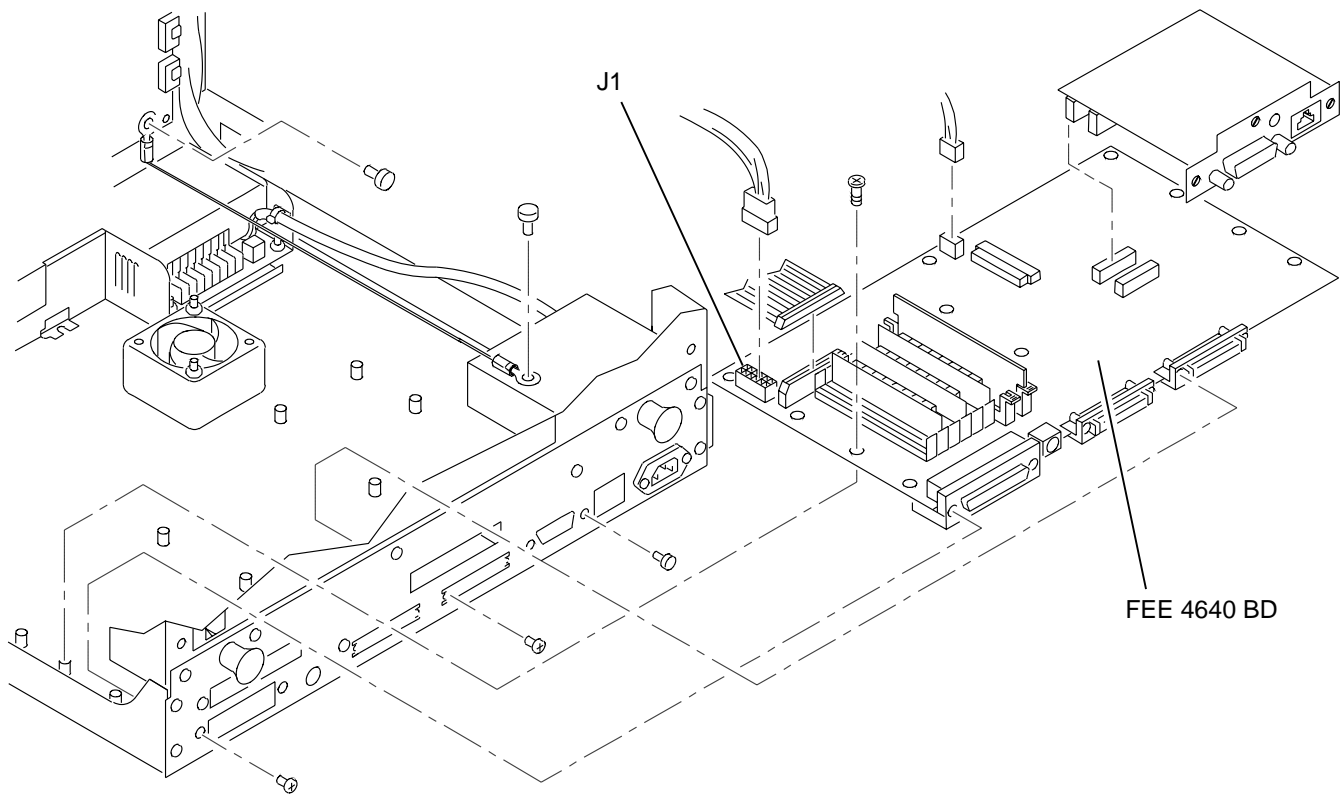


#### Important

For the EI 8651 DIGITAL COLOR PRINTER, do Steps 5 through 8.

For the 8670 PS THERMAL PRINTER, do Steps 9 through 12.

- [5] Check the voltage at CONNECTOR J14 for the EI 8651 DIGITAL COLOR PRINTER.
- [6] Connect:
  - black PROBE to PINS 3, 4, 9, and 10 on CONNECTOR J14
  - red PROBE to PINS 1, 2, 7, and 8 - DIGITAL VOLT METER (DVM) should read  $\approx +5$  V DC
  - red PROBE to PINS 5 and 11 - DVM should read  $\approx +12$  V DC
  - red PROBE to PINS 12 - DVM should read  $\approx -12$  V DC
  - red PROBE to PIN 6 - DVM should read  $\approx 4.5$  V DC
- [7] If there are no voltages, install a new 5 and 12 V DC POWER SUPPLY.
- [8] If there is voltage, install a new FEE BOARD.



A114\_0046HCB  
A114\_0046HC

[9] Check the voltage at CONNECTOR J1 on the FEE 4640 BD for the 8670 PS THERMAL PRINTER.

[10] Connect:

- black PROBE to PINS 3, 4, 9, and 10 on CONNECTOR J14
- red PROBE to PINS 1, 2, 7, and 8 - DIGITAL VOLT METER (DVM) should read  $\approx +5$  V DC
- red PROBE to PINS 5 and 11 - DVM should read  $\approx +12$  V DC
- red PROBE to PINS 12 - DVM should read  $\approx -12$  V DC
- red PROBE to PIN 6 - DVM should read  $\approx 4.5$  V DC

[11] If there are no voltages, install a new 5 and 12 V DC POWER SUPPLY.

[12] If there is voltage, install a new FEE 4640 BD.

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## Section 4: DONOR TRANSPORT SENSING SYSTEM

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### Functional Description

The DONOR TRANSPORT and SENSING SYSTEM is divided into 2 systems that are interdependent on each other. Part of the system mechanically advances and rewinds the DONOR and adjusts tension. The other part of the system detects the DONOR PATCH. The second part of the system detects DONOR type. This part of the system is used to inform the CONTROLLER which patch (yellow, magenta, or cyan) is being sensed by the DONOR EMITTERS or SENSORS. It also detects what type of DONOR is installed as sensed by the BAR CODE READER.

The DONOR TRANSPORT SYSTEM includes the SUPPLY BRACKET (SUPPLY SPINDLES, CLUTCH, ONE-WAY INSERTION BRACKET) and the TAKE-UP SYSTEM which is integrated into the DOOR AY (TAKE-UP SPINDLES and CLUTCH). The TAKE-UP and SUPPLY MOTORS are uni-directional. The SUPPLY MOTOR operates at  $\approx -10.54$  V DC while advancing,  $\approx 10.44$  V DC during rewind, and  $\approx 10.42$  V DC during tension adjustment. The SUPPLY BRACKET is adjustable to provide the correct distance between the TAKEUP and SUPPLY SPINDLES for both sides.

The TAKE-UP MOTOR operates at  $\approx -10.3$  V DC while advancing,  $\approx 3.85$  V DC during rewind, and at 0 V DC while adjusting tension. The DONOR TRANSPORT SYSTEM not only advances, rewinds, and adjusts tension on the DONOR PATCHES, it also moves the RECEIVER into the correct position at the beginning of the print cycle.

The DONOR PATCH SENSING SYSTEM includes the DONOR EMITTERS (BLUE and GREEN LEDs), and the DONOR SENSORS. The DONOR EMITTERS are mounted to the FAN BRACKET, the DONOR SENSORS are mounted to the ROLLER AY. With DONOR installed and the DOOR closed, the DONOR SENSORS are correctly aligned. The DONOR SENSORS are used to detect the correct patch/color (cyan, magenta, yellow, and laminate) and metering the DONOR. The BLUE and GREEN SENSORS can be adjusted to the correct range. The DONOR SENSORS sense DONOR movement during the print cycle and checks that the correct color patch is printed at the correct time.

The DONOR TYPE BAR CODE SENSING SYSTEM is connected to the DONOR SUPPLY BRACKET and includes a BAR CODE SENSOR. The DONOR type is determined by reading the BAR CODE LABEL on the DONOR SUPPLY SPOOL. The software can read the LABEL in the rewind and advance modes. A 2-of-8 BAR CODE is used.

The DONOR TYPE BAR CODE will read when a new DONOR SUPPLY SPOOL is installed. Since the ENGINE does not contain SENSORS that detect the DONOR SUPPLY SPOOL, the DONOR BAR CODE is read when the PRINTER is energized and when the DOOR is closed. This checks that the DONOR TYPE is known after the end-user has installed a new DONOR SUPPLY SPOOL.

If a malfunction occurs during a read, a valid 2-of-8 code is not read or the DONOR TYPE code read is invalid. The LCD displays a message indicating to load the correct type of DONOR.

## Tools

Part Number	Description
TL-3190	ELECTROSTATIC DISCHARGE PORTABLE FIELD SERVICE KIT
TL-3386	DIGITAL VOLT METER, <i>Fluke</i> Manufacturing Co., #77

## Voltage Verification Figure

CONTROLLER BD CONNECTOR	PIN	Voltage
SUPPLY MOTOR TP3 (-)	6	≈ - 10.7 V DC advance, ≈ 10.6 V DC rewind, ≈ 10.6 V DC take slack
SUPPLY MOTOR TP3 (+)	5	
TAKE-UP MOTOR TP3 (-)	3	≈- 10.6 V DC advance, ≈ 4.5 V DC rewind, 0 V DC take slack
TAKE-UP MOTOR TP3 (+)	4	
CONTROLLER BD - P2	9*	≈12 V DC
CONTROLLER BD - P2	10*	≈12 V DC
CONTROLLER BD - P2	3	GND
GREEN DONOR SENSOR, TP8 (-)	5*	See table below.
BLUE DONOR SENSOR, TP8 (+)	6*	See table below.

\* Use TP4, PIN 6 for GND

Color	BLUE LED, TP8-6	GREEN LED, TP8-5
YEL	H > 3.2 V DC	L < 0.25 V DC
MAG/BLK	H > 3.2 V DC	H > 3.2 V DC
CYN	L < 0.25 V DC	H > 3.2 V DC
LAM	L <.0.25 V DC	L < 0.25 V DC

H = Logic high of 1 L = Logic low of 0

**Table 9 FAN BRACKET BD - 3-PIN CONNECTOR**

Wire	Voltage
black	GND
yellow	≈ 12 V DC
red	≈ 12 V DC

## Specifications

Voltages:

- TAKE-UP, SUPPLY, MOTOR:  $\approx$  3-12 V DC
- BLUE DONOR SENSOR: On yellow patch, 4.40 0.05 V DC
- GREEN DONOR SENSOR: On cyan patch, 4.4 0.05 V DC for the 8670 and EI 8651; 3.9 0.05 V DC for the PS4

## Preliminary Check

[1] De-energize the PRINTER.

[2] Check:

- the DONOR is installed correctly. The BAR CODE LABEL should be on the right side of the DONOR SUPPLY SPOOL
- for damage on the DONOR BAR CODE LABEL
- the DONOR SUPPLY SPOOL should not be empty
- the 5 and 12 V DC LED is illuminated on the CONTROLLER BD
- the GREEN and BLUE DONOR EMITTERS are illuminated on the FAN BRACKET AY

[3] Close the DOOR.

## Change DONOR/Clear Jam

[1] Do the CONTROLLER ENCLOSURE AND DRAWER AY Access procedure.

[2] Energize the PRINTER.

[3] Check:

- the DONOR is installed correctly. The BAR CODE LABEL should be on the right side of the DONOR SUPPLY SPOOL
- for damage on the DONOR BAR CODE LABEL
- the DONOR SUPPLY SPOOL should not be empty

## DONOR TRANSPORT



### Important

Check the 12 V DC input on the P12 CONNECTOR first before doing this procedure.

[1] Access the diagnostic "DIAG: DONOR TEST".

[2] Do the take slack, advance, and rewind tests.

[3] Check:

- that the DONOR rewinds, advances, and has the correct tension
- the MOTOR voltages and set the DIGITAL VOLT METER to DC voltage

[4] Connect:

- black PROBE to TP3, PIN 6
- red PROBE to TP3 PIN 5 (SUPPLY MOTOR)

[5] The DVM should read:

- $\approx$  -10.7 in advance
- $\approx$  10.6 V DC in rewind
- $\approx$  10.6 V DC while in take slack

[6] Connect:

- black PROBE to TP3, PIN 3
- red PROBE to TP3, PIN 4 (TAKE-UP MOTOR)

[7] The DIGITAL VOLT METER should read as listed below. If the voltages are present, advance to the next step. If all of the voltages are not present, install a new CONTROLLER BD:

- $\approx -10.5$  V DC in advance
- $\approx 4.3$  to  $4.6$  V DC in rewind
- $\approx 0$  V DC while in take slack

[8] Check for continuity. Disconnect P1:

**Table 10 DONOR TRANSPORT and SENSING SYSTEM - Continuity Check**

CONNECTOR P1	PINS	W
TAKE-UP MOTOR	3, 4	$\approx 20.5$ W
SUPPLY MOTOR	5, 6	$\approx 20.5$ W

[9] Are the resistances present?

- Yes - Measure the resistance:
  - Connect P1 to the CONTROLLER BD.
  - Measure the resistance at TP3, PINS 6 and 5 (SUPPLY MOTOR). The resistance should be  $\approx 20.5$  W. If not, install a new CONTROLLER BD.
- No - Install a new MOTOR BRACKET AY.

## DONOR PATCH SENSING EMITTERS

[1] Check if the BLUE and GREEN DONOR EMITTERS are illuminated.

[2] If the DONOR EMITTERS are not illuminated, check for the 12 V DC on the FAN BD AY, P2 CONNECTOR (red, yellow and black wires).

[3] Set the DIGITAL VOLT METER to + DC VOLTAGE.

[4] Connect:

- red (+) PROBE to the FAN BD CONNECTOR red wire, then the yellow wire
- black (-) PROBE to the FAN BD CONNECTOR black wire

[5] Is the voltage present?

- Yes - 12 V DC is present. Install a new FAN BRACKET AY.
- No - advance to the next step.

[6] Check the continuity of the EMITTER CABLE. Disconnect P7 on the CONTROLLER BD and the 3-PIN CONNECTOR on the FAN BRACKET.

**Table 11 DONOR TRANSPORT and SENSING SYSTEM - Continuity Check**

CONTROLLER BD CONNECTOR	PIN	FAN BD CONNECTOR (3-PIN)	Resistance
P7	3 to	black wire	$\approx 0.1$ ohm
P7	1 to	red wire	$\approx 0.1$ ohm
P7	2 to	yellow wire	$\approx 0.1$ ohm

[7] Is continuity present?

- Yes - advance to next step.
- No - install a new EMITTER/FAN BRACKET HARNESS.



- [8] Connect P7 and the 3-PIN CONNECTOR on the FAN BRACKET AY.
- [9] Check the voltage at P7 on the CONTROLLER BD:
- (a) Set the DIGITAL VOLT METER to DC voltage.
  - (b) Connect:
    - red PROBE to P7 and PIN 1, then PIN 2 on the CONTROLLER BD
    - black PROBE to any GROUND. The DIGITAL VOLT METER should read 12 V DC (TP10-PIN 6)
- [10] If 12 V DC is not present at P7 PIN 1, install a new CONTROLLER BD.

## DONOR PATCH SENSING - Detectors - Error Codes 708, 709



### Important

You must do the adjustments for the DONOR before doing this test.

- [1] Check:
- that the DONOR is installed.
  - that the BARCODE LABEL is present and does not have damage on the DONOR SUPPLY BRACKET.
  - that the EMITTER BD (FAN BRACKET BD) is installed correctly.
  - that the BLUE/GREEN EMITTERS are illuminated.
- [2] Set the DIGITAL VOLT METER to DC voltage.
- [3] Connect:
- red PROBE to TP8, PIN 5 (GREEN LED) on the CONTROLLER BD
  - black PROBE to TP4, PIN 6 (GROUND)
- [4] Access the diagnostic test "DIAG: DONOR TEST".
- [5] Close the DOOR.
- [6] Advance the DONOR. The LCD DISPLAY should read as the DONOR advances:
- DNR: COLOR = YEL
  - DNR: COLOR = MAG/BLK
  - DNR: COLOR = CYN
  - DNR: COLOR = LAM
- [7] As the DONOR advances in the diagnostics, the DIGITAL VOLT METER should read as in the table below for TP8, PIN 5.
- [8] Connect the red (+) PROBE to TP8, PIN 6 (BLUE LED).
- [9] Advance the DONOR. The DVM should read as in the table below for TP8, PIN 6.

**Table 12 CONTROLLER BD DONOR Voltages**

COLOR	TP	PIN	Undepleted V
YEL	8	5 GREEN	< 0.25
MAG/BLK	8	5 GREEN	> 3.2
CYN	8	5 GREEN	> 3.2
YEL	8	6 BLUE	> 3.2
MAG/BLK	8	6 BLUE	> 3.2
CYN	8	6 BLUE	< 0.25
LAM (CLEAR)	8	5 GREEN	< 0.25
LAM (CLEAR)	8	6 BLUE	< 0.25

[10] Check:

- Voltages are close to threshold, the alignment is not correct. Install a new FAN BRACKET AY.
- Voltages do not change, DONOR DETECTOR malfunction. Install a new DONOR SENSOR BRACKET AY.
- Voltages are correct, CONTROLLER BD malfunction. Install a new CONTROLLER BD.

## DONOR TYPE BAR CODE SENSING

### General Information



**Important**

Do the Adjustment procedure for the BAR CODE SENSOR before doing these tests. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.

### DONOR TYPE Not Supported

Normal Mode - OCP Read	DONOR TEST Diagnostic Mode Read	Description
LOAD RIBBON DONOR	"DNR: TYPE_BAD>##"	The DONOR TYPE is not supported. A valid 2-of-8 BAR CODE was read but the type of DONOR is not supported by the PRINTER.

[1] Check in DNR: READ TYPE that a DNR: TYPE\_OK->## is displayed. If a DNR: TYPE\_BAD># is displayed, it means that ## is not useable. Install a new DONOR. For example: DNR: TYPE\_OK->2 is for a YMCX DONOR.

### DONOR TYPE CODE Not Detected - Error Code 510

Normal Mode - OCP Read	DONOR TEST Diagnostic Mode Read	Description
LOAD RIBBON	"DNR: TYPE>NONE"	The DONOR TYPE CODE is not detected. The BAR CODE SENSOR did not detect any BARS. This could indicate the following malfunctions: <ul style="list-style-type: none"> <li>• No DONOR installed</li> <li>• BAR CODE SENSOR not in correct alignment</li> <li>• BAR CODE READ FRU malfunction</li> <li>• BAR CODE LABEL missing</li> <li>• BAR CODE LABEL not aligned correctly</li> <li>• BAR CODE FRU not connected</li> <li>• CONTROLLER BD malfunction</li> </ul>

[1] Check:

- Correct DONOR is installed. If not, install the correct DONOR.
- BAR CODE LABEL is installed on the DONOR SUPPLY SPOOL. If not, install new DONOR.
- BAR CODE LABEL is parallel with the end of the DONOR SUPPLY SPOOL. If not, install new DONOR.
- BAR CODE SENSOR is not loose and is correctly aligned with the BAR CODE LABEL on the DONOR SUPPLY SPOOL. If not, install a new DONOR SUPPLY BRACKET.
- BAR CODE SENSOR CABLE is connected to P2 on the CONTROLLER BD. If not, seat the CABLE CONNECTOR.

- [2] Set the DVM to DC voltage.
- [3] Connect on the CONTROLLER BD:
  - red PROBE to TP 4, PIN 3
  - black PROBE to TP 4, PIN 6



**Important**

Do the Adjustment procedure for the BAR CODE SENSOR first. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.

- [4] With the DONOR installed, rotate the DONOR SUPPLY SPOOL.
- [5] Check the voltage against the table below.

Patch	Voltage	In Specification	Out of Specification
Wide black	4.7 V DC	Install a new CONTROLLER BD.	Install a new DONOR SUPPLY BRACKET AY.
White	< 0.25 V DC	Install a new CONTROLLER BD.	Install a new DONOR SUPPLY BRACKET AY.

**DONOR TYPE BAR CODE Read Not Complete - Error Code 511**

Normal Mode - OCP Read	DONOR TEST Diagnostic Mode Read	Description
SR#0510	"DNR: SR#0510"	The DONOR TYPE BAR CODE read is not complete. The BAR CODE SENSOR sensed at least 1 BAR but not the number of BARS necessary for a valid code. This might indicate the following malfunctions: <ul style="list-style-type: none"> <li>• DONOR SUPPLY SPOOL moves too slow</li> <li>• BAR CODE SENSOR not in correct alignment</li> <li>• BAR CODE LABEL not correctly aligned</li> <li>• BAR CODE READ FRU malfunction</li> <li>• BAR CODE SENSOR not operating for TYPE:NONE</li> </ul>

- [1] Check:
  - DONOR SUPPLY SPOOL rotates correctly and at normal speed in the "DNR: ADVANCE" and "DNR: REWIND" modes.
  - BAR CODE SENSOR is not loose and is correctly aligned with the BAR CODE LABEL on the DONOR SUPPLY SPOOL. If not, install a new DONOR SUPPLY BRACKET.
  - BAR CODE SENSOR CABLE is connected to P2 on the CONTROLLER BD. If not, seat the CABLE CONNECTOR.
- [2] Do the adjustment for the BAR CODE SENSOR.
- [3] If the BAR CODE SENSOR adjustments cannot be set to specification, install a new DONOR SUPPLY BRACKET.
- [4] If all of the adjustments for the BAR CODE SENSOR are to specification, and the PRINTER does not operate, install a new CONTROLLER BD.

**DONOR TYPE BAR CODE Not 2-of-8 Code**

Normal Mode - OCP Read	DONOR TEST Diagnostic Mode Read	Description
SR#0511	"DNR: SR# 0511"	<p>The DONOR TYPE BAR CODE read is not a 2-of-8 code. The number of BARS necessary for a valid DONOR TYPE BAR CODE was sensed. When the BARS were decoded, the resulting code was not a valid 2-of-8 code. This might indicate the following malfunctions:</p> <ul style="list-style-type: none"> <li>• BAR CODE LABEL not correct</li> <li>• BAR CODE LABEL has damage</li> <li>• DONOR SUPPLY SPOOL speed is erratic</li> <li>• BAR CODE SENSOR not in correct alignment</li> <li>• BAR CODE LABEL not aligned correctly</li> <li>• BAR CODE READ FRU malfunction</li> </ul>

**[1]** Check:

- BAR CODE LABEL is installed on the DONOR SUPPLY SPOOL. If not, install new DONOR.
- BAR CODE LABEL is parallel with the end of the DONOR SUPPLY SPOOL. If not, install new DONOR.
- BAR CODE LABEL for damage. If the BAR CODE LABEL has damage, install new DONOR.
- BAR CODE SENSOR is not loose and is correctly aligned with the BAR CODE LABEL on the DONOR SUPPLY SPOOL. If not, install a new DONOR SUPPLY BRACKET.
- "DNR: ADVANCE" and "DNR: REWIND" modes operate correctly.

**[2]** If an error occurs, (such as SR 510), check that the DONOR does not cause a bind due to the THERMAL HEAD gap malfunction in the LOAD position. Check for MOTOR BRACKET damage. If there is no bind in the DONOR, advance to the next step.

**[3]** Install the DONOR SUPPLY BRACKET AY and check for correct operation.

**[4]** If the PRINTER still does not operate correctly, install a new CONTROLLER BD and/or CABLE from the DONOR SUPPLY BRACKET AY to the CONTROLLER BD.

## Section 5: Picking

### Functional Description

Picking occurs when the RECEIVER (paper/reflective or TRANSPARENCY) is moved into the ROLLER MECHANISM. This procedure uses the PAPER TRAY, TRAY TYPE SENSORS, RECEIVER TYPE SENSORS (paper/reflective or TRANSPARENCY), and the PICKER MECHANISM. Some actions must be completed before the picking cycle begins to start the print cycle. A TRAY must be detected - A, A4, or CID, the media selection must match the media installed, and the CONTROLLER BD must detect both states.

After the conditions above occurred, the PRINTER begins the print cycle. Then the PICKING MECHANISM will turn on and move the RECEIVER into the ROLLER MECHANISM. If the RECEIVER does not move to the ROLLER MECHANISM in the correct time, the PRINTER will “time out”. This could be caused if a RECEIVER is not installed, the TRAY or PICKER MECHANISM has a malfunction, the environmental condition is not within specification, or there is a paper jam in the PAPER CHUTE or NIP area of the ROLLER MECHANISM.

### Tools

Part Number	Description
TL-3190	ELECTROSTATIC DISCHARGE PORTABLE FIELD SERVICE KIT
TL-3386	DIGITAL VOLT METER, <i>Fluke</i> Manufacturing Co., #77

### Specifications

Table 13 PICKER MOTOR Voltages (Use TP2, PIN 5 for GROUND/- PIN)

CONNECTOR	PIN	Operating PICKER MOTOR Voltage
TP2 (+)	4	≈ - 10.5 V DC Forward ≈ 10.5 V DC Reverse

Table 14 TRAY Voltage Verification Figure - Measured in V DC - 8670 and EI 8651 Only

TP	A	A long	8 1/2 x 14 in.	9 1/2 by 14 in.	A4	A4 long	A4 x 14 in.	No TRAY
2	> 2.0	< 1.0	> 2.0	> 2.0	> 2.0	< 1.0	< 1.0	> 2.0
3	> 2.0	> 2.0	< 1.0	> 2.0	< 1.0	< 1.0	> 2.0	> 2.0
4	< 1.0	< 1.0	< 1.0	> 2.0	> 2.0	> 2.0	> 2.0	> 2.0



#### Important

Use TP11, PIN 5 for GND.

Table 15 STEPPER MOTOR Phase Voltage

Phase	Voltage
All 4 phases	≈10.8 1 V AC in diagnostics



**Important**

During the picking/eject test, the PLATEN BRAKE is on for 1-2 seconds.

**Table 16 PLATEN BRAKE (Use TP9, PIN 6 for GROUND/- PIN)**

CONNECTOR	PIN	Picking/Ejecting V	Printing/Ready V
TP9 (+)	5	< - 10.9 V DC	Approximately 1 11.0 V DC in diagnostics



**Important**

The voltages are read during MOTOR operation.

**Table 17 PINCH ROLLER Voltage (Use TP7, PIN 2 for GROUND/- PIN)**

CONNECTOR	PIN	PINCH Closing V	PINCH Opening V
TP7	1	≈ - 11.20 V DC in diagnostics	≈ 11.1 V DC in diagnostics

**Table 18 LEAD EDGE SENSOR Voltages (Use TP4, PIN 6 for GROUND.)**

CONNECTOR	PIN	RECEIVER in PINCH	No RECEIVER
TP8	3	< 1 V DC	> 2.5 V DC

**Table 19 Picking Adjustment Voltages**

Adjustment	Voltage
RECEIVER Threshold	1.0 0.1 V DC, Paper in TRAY
RECEIVER Bias	Paper in TRAY = > 1.5 V DC TRANSPARENCY in TRAY = < 0.75 V DC
DRIVE STEPPER MOTOR	0.5 0.1 V DC
LEAD EDGE SENSOR (TRANSPARENCY installed in PINCH)	0.18 - 0.005 + 0.07 V DC

**Preliminary Check**

[1] Check:

- TRAY is seated and installed correctly.
- You have selected the correct size of TRAY (8.5 x 11 in., 8.5 x 12 in.) and it matches the RECEIVER size installed.
- RECEIVER is installed and it matches the type selected PAPER/TRANSPARENCY.
- Media damage could cause a paper jam in the TRAY.
- Curl in the RECEIVER. The curl should not be more than 0.500 in. If the curl is greater than 0.500 in, it might be necessary to recommend that the customer install 50 or fewer sheets at a time.
- BASE ENCLOSURE WALLS are in the correct position. If not, the following malfunctions can occur:
  - media jams
  - DONOR - advance malfunctions
  - DONOR unwinds into the EXIT TRAY
  - print artifacts
  - PRINTER does not operate

- [2] If the WALLS are not in the correct position, do the adjustment procedures for the BASE ENCLOSURE WALLS and THERMAL HEAD LOAD GAP. Only do the adjustment for the THERMAL HEAD LOAD GAP if the BASE ENCLOSURE WALLS are not in the correct position. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.
- [3] Do the Adjustment procedure for the PICKER PENETRATION. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.
- [4] Check that the adjustment for the THERMAL HEAD LOAD GAP is correct.

**Malfunctions - TRAY - Error Codes 502, 503**

- [1] Do these replacement and access procedures. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.
  - DOOR COVER
  - ENCASEMENT
  - CONTROLLER ENCLOSURE AND DRAWER AY
- [2] Check that the TRAY CODE LABEL is correctly installed and is not partially removed from the TRAY.

**Note**

With the UNI-TRAY, always check that the selection of REFLECTIVE LABELS matches the RECEIVER size.

- [3] Access the diagnostics and advance to "DIAG: RECEIVER". Check that the LCD DISPLAY changes from "NO PAPER" to 1 of the sizes below when removing and inserting the TRAY:
  - "8.5 x 11 in. \_\_\_\_\_"
  - "8.5 x 12 in. \_\_\_\_\_"
  - "8.5 x 14 in. \_\_\_\_\_"
  - "9.5 x 14 in. \_\_\_\_\_"
  - "A4 \_\_\_\_\_"
  - "210 x 307 mm \_\_\_\_\_"
  - "210 x 358 mm \_\_\_\_\_"
  - "7 x 8 1/2 in. \_\_\_\_\_"

**Note**

The \_\_\_\_\_ after the TRAY size will display "PAPER" or "TRANSPARENCY" (TRANS) if a RECEIVER is installed. If no RECEIVER is installed, "PAPER" will display.

- [4] If the TRAY selection matches the TRAY, the system is operating correctly. If the TRAY selection does not change or read the correct type, advance to the next step.
- [5] Check that the TRAY CODE SENSOR is not loose or has any damage.
- [6] Insert the TRAY and check that the TRAY CODE SENSORS align with the TRAY LABELS.
- [7] Check the voltages from the TRAY CODE SENSORS.
  - (a) Set the DIGITAL VOLT METER to DC voltage.
  - (b) Connect the black PROBE (-) to TP4, PIN 6 for GROUND.
  - (c) Use the following table to measure the voltages for the A TRAY, A4 TRAY, CID TRAY, and NO TRAY.

TP	A	A long	8 1/2 x 14 in.	9 1/2 by 14 in.	A4	A4 long	A4 x 14 in.	No TRAY
2	> 2.0	< 1.0	> 2.0	> 2.0	> 2.0	< 1.0	< 1.0	> 2.0
3	> 2.0	> 2.0	< 1.0	> 2.0	< 1.0	< 1.0	> 2.0	> 2.0
4	< 1.0	< 1.0	< 1.0	> 2.0	> 2.0	> 2.0	> 2.0	> 2.0



### Important

Use TP4, PIN 6 for GND.

- [8] Remove the TRAY CODE SENSORS and align them facing toward the ALUMINUM BASE. Both TEST POINTS (TP) should be below 1.0 V DC.
- [9] Check the voltages:
  - If the TRAY CODE SENSORS change state under the voltage specification, align the TRAY CODE LABELS to the TRAY CODE SENSORS.
  - If the voltages are not correct or do not change state, advance to the next step
- [10] Check the TRAY CODE CABLE from the TRAY CODE SENSORS to P11 on the CONTROLLER BD. Check that P11 is correctly seated.
- [11] Do the TRAY CODE SENSORS change?
  - No - TRAY CODE SENSORS still do not change at the TEST POINTS listed, install a new TRAY CODE SENSOR AY.
  - Yes - TRAY CODE SENSORS TEST POINTS change within the specifications, but the TRAY size or removal is not indicated during the diagnostic test, install a new CONTROLLER BD.

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### Media Sensing Malfunctions

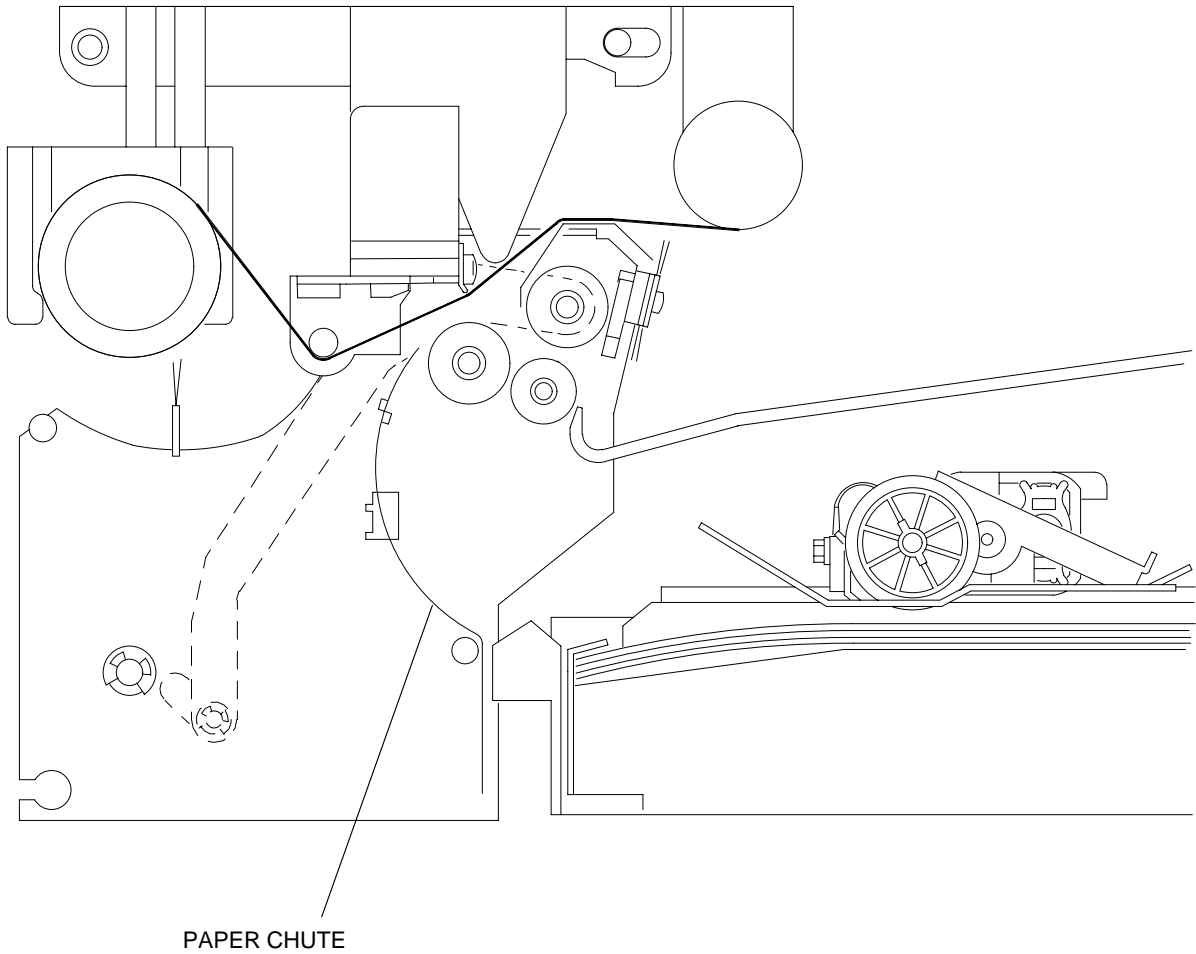
- [1] Do the following replacement and access procedures. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.
  - DOOR COVER
  - ENCASEMENT
  - CONTROLLER ENCLOSURE AND DRAWER AY
- [2] Set the DIGITAL VOLT METER to DC voltage.
- [3] If the voltages are not within specification, check that the RECEIVER TYPE SENSOR is not loose on the PICKER MECHANISM.
- [4] Check that the RECEIVER TYPE SENSOR is correctly seated on the CONTROLLER BD (CONNECTOR P8).
- [5] If the RECEIVER TYPE SENSOR voltage is not within specification, install a new PICKER AY.
- [6] If the voltages at TP2, PIN 6 (+) and TP4, PIN 6 (-) from the RECEIVER THRESHOLD are within specification but change is not sensed, advance to the next step.
- [7] Access the diagnostics. Advance to "DIAG: RECEIVER".
- [8] Install paper or TRANSPARENCY. The LCD DISPLAY should read "8 1/2 x 11 in. PAPER" or "8 1/2 x 11 in. TRANS" depending on the TRAY and RECEIVER size selected.
- [9] If change does not occur on the LCD DISPLAY, and the voltages are changing at TP2, PIN 6 and TP4, PIN 6, install a new CONTROLLER BD.

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### Malfunctions - PICKING - Error Code 501

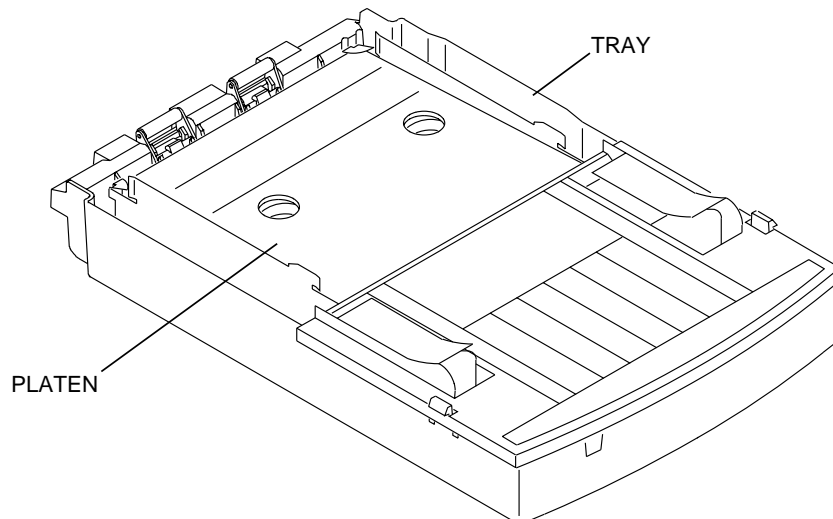
- [1] Do the following replacement and access procedures. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.
  - DOOR COVER
  - ENCASEMENT
  - CONTROLLER ENCLOSURE AND DRAWER AY





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A087\_0075DC

- [2] Check that there is paper installed and it does not have curl or damage that could cause a paper jam in the PAPER CHUTE.
- [3] Install RECEIVER and DONOR.



A106\_0006BCA  
A106\_0006BC

- [4] Insert only 25 RECEIVERS into the TRAY.



**Important**

User error 408 can be a non-fatal error that occurs when there is a picking malfunction. This might be caused by not having RECEIVER installed, paper curl, damage on the BASE ENCLOSURE AY WALLS, or the THERMAL HEAD LOAD GAP is not correct.

- [5] Access the diagnostics. Advance to "OPTIONS". Select the pick and eject cycle "<CYCLE: PCK/EJCT". The < indicates that the option is on in the cycle type set up.
- [6] Select Loop Enable and exit the diagnostics.
- [7] Press the PRINT BUTTON in ENGINE Ready to start the pick and eject cycle.
- [8] Does the PRINTER pick?
  - Yes - Picking malfunction might be caused by low humidity (< 15% relative humidity).
  - No - advance to next step.
- [9] If the PRINTER does not pick, check that the TRAY PLATEN and SPRINGS operate correctly:
  - (a) Press your hand down on the TRAY PLATEN then release. The TRAY PLATEN should move back up when you release your hand and all 3 PLATEN SPRINGS should be in place.
  - (b) If the TRAY PLATEN moves back up, it is operating correctly. Advance to the next step. If the TRAY PLATEN does not move back up, install a new TRAY.
- [10] Check:
  - PICKER MOTOR operates correctly
  - CONNECTOR P8 is correctly seated on the CONTROLLER BD
- [11] Check the voltage on the PICKER MOTOR:
  - (a) Set the DIGITAL VOLT METER to DC voltage.
  - (b) Connect the red PROBE to TP6, PIN 5.
  - (c) Connect the black PROBE to TP6, PIN 1.
  - (d) Access the diagnostics. Advance to OPTIONS, "OPT: CYCLE TYPE" and start the pick cycle. The DIGITAL VOLT METER should read  $\approx - 10.5$  V DC when the PICKER MOTOR is picking and  $\approx 10.5$  V DC when the MOTOR is returning to position.
- [12] Is voltage present and does PICKER MOTOR operate?
  - Yes - Voltages is present and PICKER MOTOR does not operate, install a new PICKER AY.
  - Yes - Voltage is present and the PICKER MOTOR operates. There might be a RECEIVER jam in the ROLLER AY. Advance to the next step.
  - No - Voltage is not present and PICKER MOTOR does not operate, install a new CONTROLLER BD.
- [13] Access the diagnostics. Advance to "DIAG: MOTORS". Select "MTRS: FWD".
- [14] Check:
  - P10 is correctly seated on the CONTROLLER BD
  - AC voltage on the STEPPER PHASES
- [15] Connect the DIGITAL VOLT METER PROBES to the STEPPER PHASES. Use the following tables.



**Important**

The red PROBE table indicates where to connect the red PROBE, the black PROBE table indicates where to connect the black PROBE.

**Table 20 Red PROBE - STEPPER PHASES**

CONNECTOR	PIN	PHASE
TP9	2	B
TP9	4	A

**Table 21 Black PROBE - STEPPER PHASES**

CONNECTOR	PIN	PHASE
TP9	1	B1
TP9	3	A1

[16] The DIGITAL VOLT METER should read  $\approx 10.8$  V AC across each phase in diagnostics.

[17] Are the voltages present?

- Yes - Voltages are present and the STEPPER MOTOR does not operate. Install a new ROLLER AY.
- Yes - Voltages are present and the STEPPER MOTOR operates. Advance to the next step.
- No - Voltages are not present and the STEPPER MOTOR does not operate. Install a new CONTROLLER BD.

[18] Check that the PLATEN ROLLER rotates.

[19] Check the DC voltage across the PLATEN BRAKE:

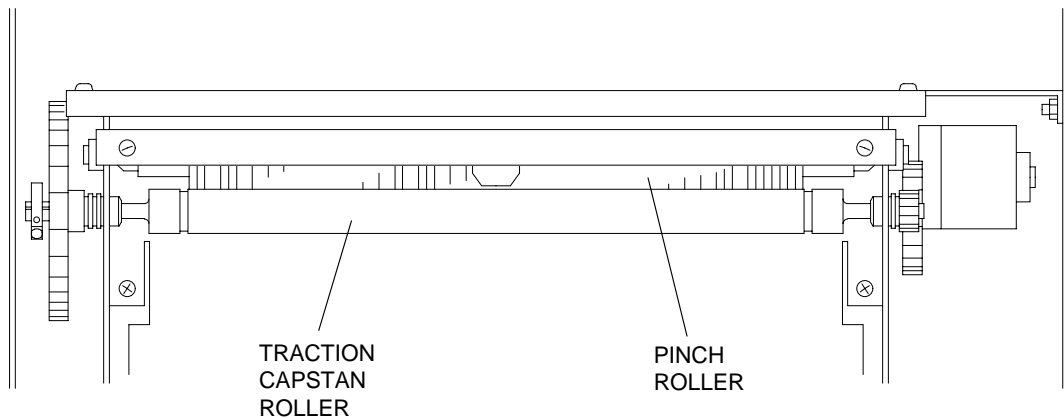
- (a) Set the DIGITAL VOLT METER to DC voltage.
- (b) Connect the red PROBE to TP9, PIN 5, black PROBE to TP9, PIN 6.
- (c) Check that the P10 CONNECTOR is inserted into PINS 1 and 3.

[20] Make a test print.

[21] The DIGITAL VOLT METER should read  $\approx 10.9$  V DC.

[22] Do the voltages change?

- No - Voltages do not change. Install a new CONTROLLER BD.
- Yes - Voltages are present and change, but the PLATEN ROLLER has a bind. Install a new ROLLER AY.
- Yes - Voltages are present and change and there is no bind in the PLATEN ROLLER. Advance to the next step.



A087\_0046BCA  
A087\_0046BC

[23] Check the operation of the PINCH ROLLER:

- (a) Check that CONNECTOR P10 is correctly seated.
- (b) Access the diagnostics. Advance to "DIAG: PINCH TEST".
- (c) Install a RECEIVER between the PINCH ROLLER and the TRACTION CAPSTAN ROLLER.
- (d) Select "PINCH: CLOSE" in the diagnostics. The RECEIVER should be held in place by the PINCH.

[24] Check the voltage at TP7 PINS 1 and 2:

- (a) Set the DIGITAL VOLT METER to DC voltage.
- (b) Connect the red PROBE to TP7, PIN 1, black PROBE to TP7, PIN 2.
- (c) The DIGITAL VOLT METER should read  $\approx 11.0$  V DC when closing. The DIGITAL VOLT METER should read  $\approx -11.0$  V DC when opening.

[25] Are voltages present?

- Yes - Voltages are present and the PINCH does not open or close. Check that the PINCH MOTOR is not loose and install a new ROLLER AY if necessary.
- Yes - Voltages are present and the PINCH operates. Advance to the next step.
- No - Voltages are not present. Check the wires of the PINCH MOTOR. Install a new CONTROLLER BD if necessary.

[26] Check that the LEAD EDGE SENSOR operates:

- (a) Do the adjustment for the LEAD EDGE SENSOR.
- (b) Access the diagnostics. Advance to "DIAG: PINCH TEST", then "PINCH: OPEN".
- (c) Insert a sheet of paper under the LEAD EDGE SENSOR.

[27] Check the voltage at TP8, PIN 3:

- (a) Set the DIGITAL VOLT METER to DC voltage.
- (b) Connect the red PROBE to TP8, PIN 3.
- (c) Connect the black PROBE to any GROUND.
- (d) The DIGITAL VOLT METER should read  $< 1$  V DC with a RECEIVER in the PINCH.
- (e) The DIGITAL VOLT METER should read  $> 2.5$  V DC with no RECEIVER in the PINCH.

[28] Are the voltages present?

- Yes - 1 of the voltages is present but does not change. Install a new ROLLER AY.
- Yes - voltages are present and change with and without a RECEIVER. Advance to the next step.
- No - voltage is not present. Install a new CONTROLLER BD.

[29] If there is still a malfunction in picking, determine the position of the RECEIVER when the malfunction occurs. Environmental conditions or no DONOR movement can cause a jam or malfunction.

[30] Check the adjustment for the THERMAL HEAD LOAD GAP.

---

### TRAY Not Present - PS4 PRINTER Only

[1] If the "TRAY NOT PRESENT" message is displayed when the TRAY is in the PRINTER, do the following:

- CONTROLLER ENCLOSURE AND DRAWER AY access
- connect the METER LEADS to the CONTROLLER BD - TP2, PIN 6 (red) and TP4, PIN 6 (black)

[2] Check:

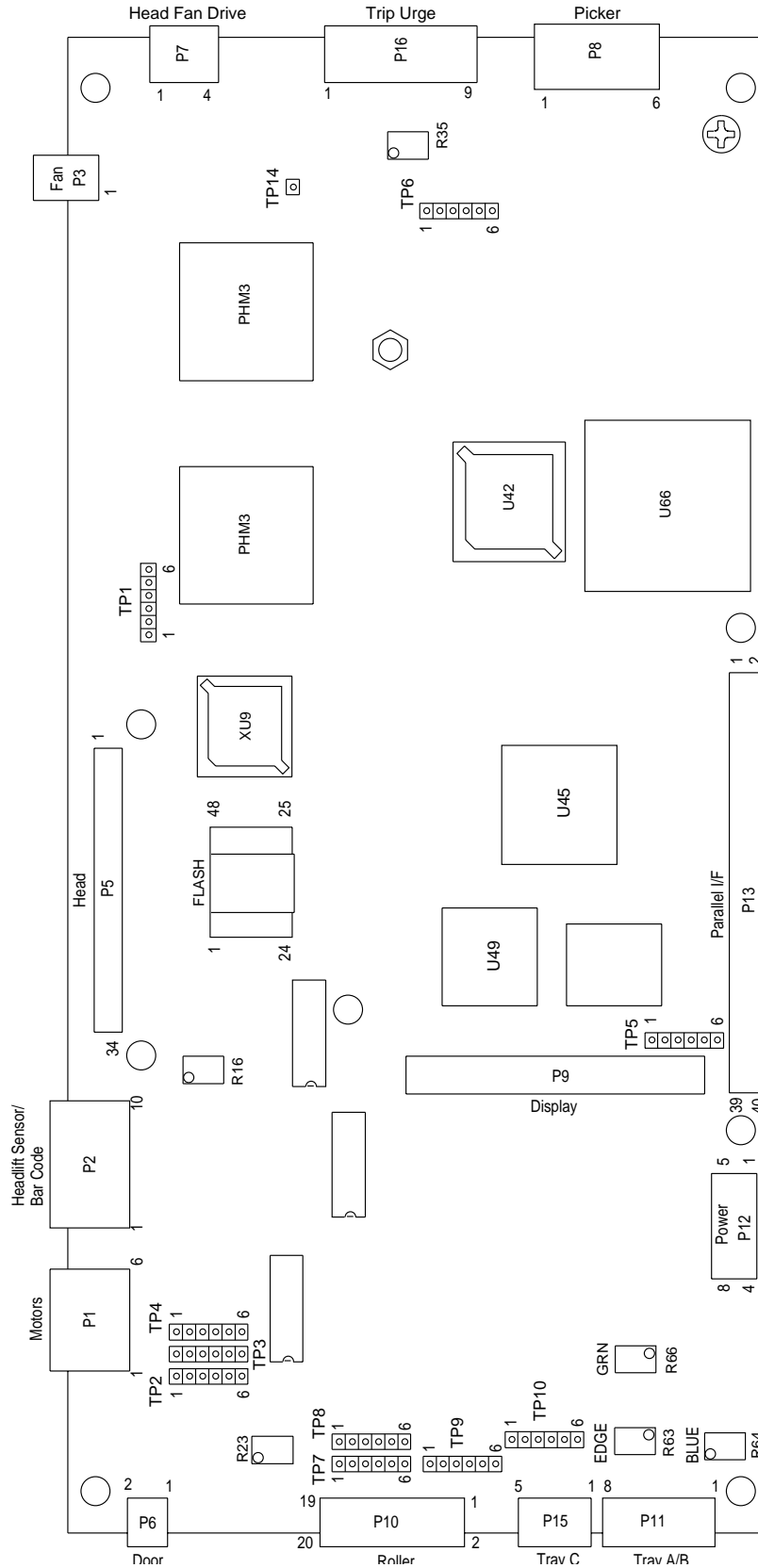
- with the TRAY installed, reading should be  $< 0.75$  V DC
- with the TRAY removed, reading should be  $> 10$  V DC

[3] If the readings are not correct, install a new PICKER AY.

# Section 6: CONTROLLER BD

## Component Location - PS4 PRINTER and 8670 PS THERMAL PRINTER

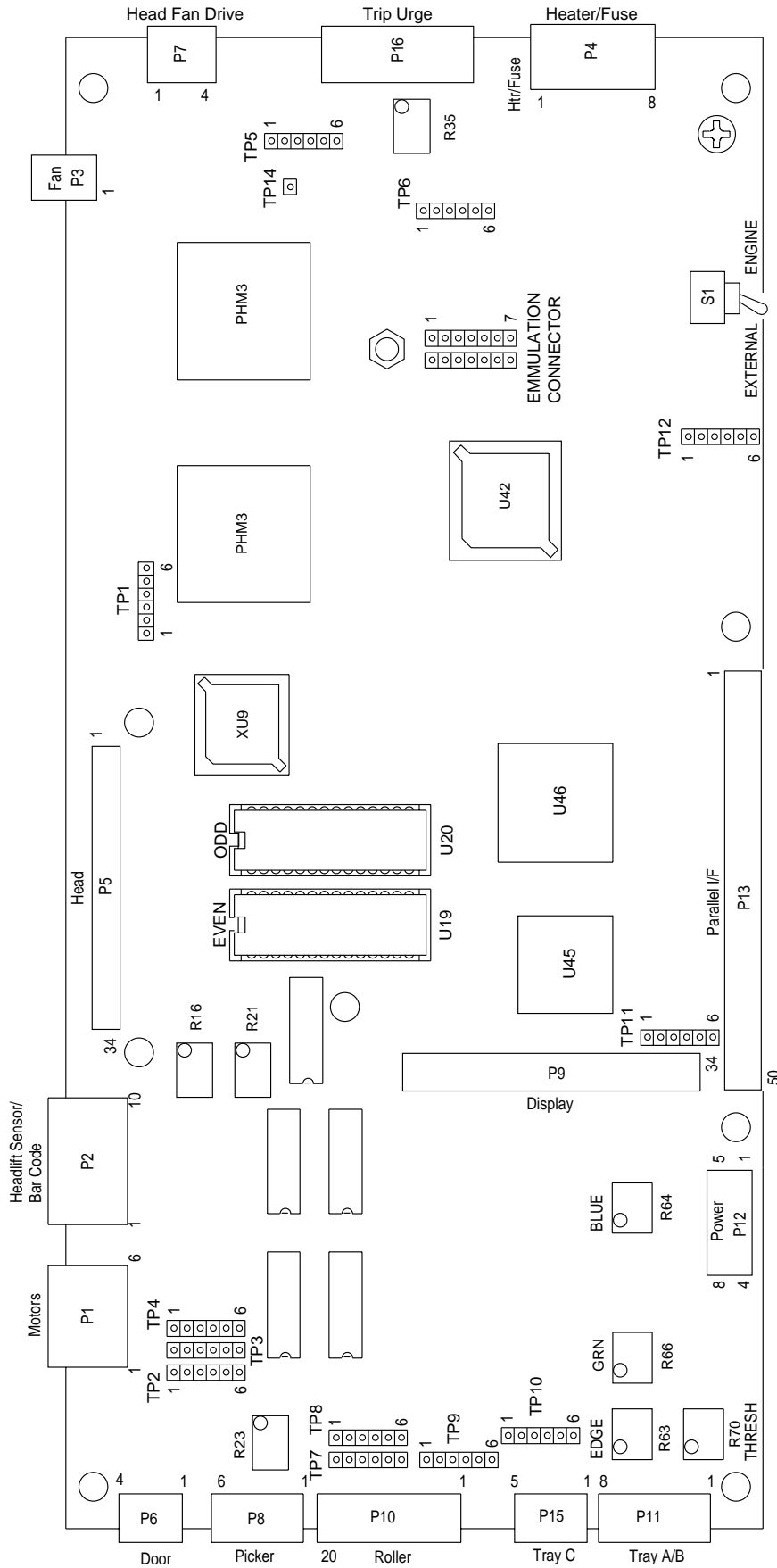
CONTROLLER BOARD



A106\_0015EC

Component Location - EI 8651 DIGITAL COLOR PRINTER

CONTROLLER BOARD



S1 ALLOWS YOU TO RUN DIAGNOSTICS IN ENGINE MODE.

A087\_2004EC

## Safety



### Warning

The CONTROLLER BD operates on 5 and 12 V DC.

## Functional Description

The CONTROLLER BD is the electronic CIRCUIT BD that operates the print ENGINE. It also interfaces with the PLATFORM through the PRINT ENGINE INTERFACE (PEI). The CONTROLLER BD controls all of the necessary operations of the mechanical ENGINE necessary to convert the digital image data into a hard copy print.

The CONTROLLER BD includes the CENTRAL PROCESSING UNIT (CPU), PULSE HEAD MODULATOR (PHM), FLASH RAM, PROGRAMMABLE READ ONLY MEMORY (PROM), INTERFACE CONTROL PAL (I/F), DSP, DSP PROM, INPUT/OUTPUT PAL (I/O), MEMORY CHECK PAL (MEM), ADJUSTABLE RESISTORS (VR), TESTPOINTS (TP), and the CONNECTORS to both the electromechanical components on the ENGINE and the electronics on the PLATFORM.

## Tools

Part Number	Description
TL-3190	ELECTROSTATIC DISCHARGE PORTABLE FIELD SERVICE KIT
TL-3386	DIGITAL VOLT METER, <i>Fluke</i> Manufacturing Co., #77

## Specifications

The supply voltage is 5 and 12 V DC.

## Preliminary Check

[1] Check:

- CONNECTORS are correctly seated
- POWER LEDs are illuminated

[2] Open the CONTROLLER ENCLOSURE AND DRAWER AY.

## Error Codes 601, 602, 603 - EI 8651 DIGITAL COLOR PRINTER Only



### Important

Most of the error codes occur when the PRINTER initializes.

[1] Access the diagnostics and select "DIAG: ENG VER #s".

[2] Scroll through the versions and check that the ENGINE version information does not display "BAD MEM" or "NONE" in the following versions:

- "VER: CR\_\_\_\_"
- "VER: CT\_\_\_\_"
- "VER: PR\_\_\_\_"
- "VER: ER\_\_\_\_"
- "VER: ET\_\_\_\_"

- [3] Access the diagnostics and select "DIAG: PRN USAGE". Scroll through the usage information and check that it does not display "BAD MEM" or "NONE" in the messages:
- "USE: PWR\_\_\_\_\_ "
  - "USE: P-S\_\_\_\_\_ "
  - "USE: P-C\_\_\_\_\_ "
  - "USE: PLN\_\_\_\_\_ "
  - "USE: RFL\_\_\_\_\_ "
  - "USE: TRN\_\_\_\_\_ "
  - "USE: B-1\_\_\_\_\_ "
- [4] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through the tests and select "CTRLR: C EEPROM" or "CTRLR: TEST ALL".
- [5] Check selecting and doing these tests that "CTRLR: SR# 600", "CTRLR SR# 601" or "SR# 602" is not displayed.
- [6] If "BAD MEM", "NONE", or "SR# 600", "SR# 601", or "SR# 602" is displayed in any of the previous steps, install a new PROM U43 and energize the PRINTER.
- [7] If the error code is still present:
- download the new FLASH PROM PROGRAM and energize the PRINTER.
  - install a new CONTROLLER BD.

---

## Error Codes 608, 609, 60A, 60C, 719 - EI 8651 DIGITAL COLOR PRINTER



### Important

Most of these error codes occur when the PRINTER initializes or during the print cycle.

- [1] Access the diagnostics and select:
- "DIAG: ENG VER #s". Scroll through the versions and check that the ENGINE version information in the version "VER: H \_\_\_\_" does not display "BAD MEM" or "NONE".
  - "DIAG: PRN USAGE". Scroll through and check that the usage information in "USE: PLN" does not display "BAD MEM" or "NONE".
  - "DIAG: CTRLR TEST". Scroll through the test and select "CTRLR: TEST ALL" or "CTRLR: H EEPROM".
- [2] Check selecting and doing these tests that "CTRLR: SR# 608", "SR# 609", "SR# 60a", "SER # 60b", or "SR# 719" are not displayed.
- [3] If "BAD MEM", "NONE", "CTRLR: SR# 608", "SR# 609", "SR# 60a", "SER # 60b", or "SR# 719" are displayed in any of the previous steps, check that the THERMAL HEAD DATA CABLE is correctly installed and seated, then energize the PRINTER.
- [4] If the error codes are still present:
- install a new THERMAL HEAD DATA CABLE or THERMAL HEAD AY and energize the PRINTER.
  - install a new CONTROLLER BD.

---

## Error Code 600 - No Display Message

- [1] Check that the DISPLAY CABLE is connected.
- [2] Energize the PRINTER.
- [3] If the 16-SEGMENT LCD does not illuminate, install a new DISPLAY PANEL and energize the PRINTER.
- [4] If the 16-SEGMENT LCD still does not illuminate, install a new CONTROLLER BD.



## Error Codes 610-614, 618, 680-685, 60B



### Important

This error occurs if the data is missing from the CONTROLLER EEPROM or the THERMAL HEAD EEPROM.

- [1] Access the diagnostics and select "DIAG: ENG VER #s". Scroll through the versions and check that the ENGINE version information in the following versions does not display "NONE":
  - "VER: CR\_\_\_\_"
  - "VER: CT\_\_\_\_"
  - "VER: PR\_\_\_\_"
  - "VER: ER\_\_\_\_"
  - "VER: ET\_\_\_\_"
  - "VER: H\_\_\_\_"
- [2] Access the diagnostics and select "DIAG: PRN USAGE". Scroll through and check that the usage information in the following versions does not display "NONE":
  - "USE: PWR\_\_\_\_"
  - "USE: P-S\_\_\_\_"
  - "USE: P-C\_\_\_\_"
  - "USE: PLN\_\_\_\_"
  - "USE: RFL\_\_\_\_"
  - "USE: TRN\_\_\_\_"
  - "USE: B-1\_\_\_\_"
- [3] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through the test and select "CTRLR: TEST ALL", "CTRLR: C EEPROM", and "CTRLR: H EEPROM".
- [4] Check after selecting and doing all of the tests that "CTRLR: SR# (error #)" is not displayed.
- [5] If "NONE" is displayed in any of the versions below, and "SR# (error #)" is displayed in "DIAG: CTRLR TEST" and "CTRLR: C EEPROM", install a new EEPROM U43.
  - "VER: CR"
  - "VER: CT"
  - "VER: PR"
  - "VER: PT"
  - "VER: ER"
  - "VER: ET"
  - "USE: PWR"
  - "USE: P-S"
  - "USE: P-C"
  - "USE: RFL"
  - "USE: TRN"
  - "USE: B-1"
- [6] If "NONE" is displayed in version "VER: H NONE" and in print usage "USE: PLN NONE" and "SR# (error #)" is displayed in "DIAG: CTRLR TEST" "CTRLR: H EEPROM", install a new THERMAL HEAD.

### **Error Codes 718, 719**

- [1] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through the tests and select "CTRLR: ADC" or "CTRLR: TEST ALL".
  - [2] Check after selecting and doing these tests that "CTRLR: SR# 718" or "719" is not displayed.
  - [3] If error code 718 or 719 is displayed, install a new CONTROLLER BD.
- 

### **Error Codes 720, 721**

- [1] De-energize the PRINTER.
  - [2] Seat the FEE BD to the CONTROLLER CABLE.
  - [3] Energize the PRINTER.
  - [4] If the error codes are still present, advance to the next step. If not, make a test print.
  - [5] De-energize the PRINTER.
  - [6] Install a new FEE BD to the CONTROLLER CABLE.
  - [7] Energize the PRINTER.
  - [8] If the error codes are still present, advance to the next step.
  - [9] De-energize the PRINTER.
  - [10] Install a new CONTROLLER BD.
  - [11] Energize the PRINTER.
  - [12] Make a test print.
- 

### **Error Codes 738, 739**

- [1] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through and select "CTRLR: RAM 0", "CTRLR: RAM 1" or "CTRLR: TEST ALL".
  - [2] Check after selecting and doing these tests that "CTRLR: SR# 738" or "SR# 739" is not displayed.
  - [3] If error codes 738 or 739 are displayed, install a new CONTROLLER BD.
- 

### **Error Code 740 - EI 8651 DIGITAL COLOR PRINTER Only**

- [1] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through the tests and select "CTRLR: MATCH VERS" or "CTRLR: TEST ALL".
  - [2] Check after selecting and doing these tests that "CTRLR: SR# 740" is not displayed.
  - [3] If error code 740 is displayed, install new PROMS U19 and U20.
  - [4] If error code 740 is still displayed, install a new CONTROLLER BD.
- 

### **Error Codes 741, 742 - EI 8651 DIGITAL COLOR PRINTER Only**

- [1] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through and select "CTRLR: PROM 0", "PROM 1", or "CTRLR: TEST ALL".
- [2] Check after selecting and doing these tests that "CTRLR: SR# 741" or "SR# 742" is not displayed.
- [3] If error code 741 or 742 is displayed, install new PROMS U19 and U20.
- [4] If error code 741 or 742 is still displayed, install a new CONTROLLER BD.

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**Error Codes 741, 742, 743 - PS4 PRINTER and 8670 PS THERMAL PRINTER**

- [1] Access diagnostics and select "DIAG: CTRLR TEST".
  - [2] Scroll through and select:
    - "CTRLR: BOOT CKSM"
    - "CTRLR: CFG CKSM"
    - "CTRLR: PROG CKSM"
  - [3] The "CKSM" should read:
    - "CTRLR: BOOT CKSM 0007D9B6"
    - "CTRLR: CFG CKSM 000003F7"
    - "CTRLR: PROG CKSM 0072DBCD"
  - [4] If the "CKSM" is not correct, install a new CONTROLLER BD.
- 

**Error Codes 748, 749, 74A, 74B, 74C, 74D**

- [1] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through the tests and select "CTRLR: PHM" or "CTRLR: TEST ALL".
  - [2] Check after selecting and doing these tests that "CTRLR: SR# 748, 749, 74A, 74B, 74C, 74D" is not displayed.
  - [3] If the error codes are displayed, install a new CONTROLLER BD.
- 

**Error Code 750-759**

- [1] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through the tests and select "CTRLR: DSP" or "CTRLR: DSP PROM".
  - [2] Check if "CTRLR: SR# 750-759" is displayed.
  - [3] If error code 750-759 is displayed, install a new DSP PROM.
  - [4] If error code 750-759 is still displayed, install a new CONTROLLER BD.
- 

**Error Codes 760-769, 76A-76F, 770-773**

- [1] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through the tests and select "CTRLR: PHM" or "CTRLR: TEST ALL".
  - [2] Check after selecting and doing these tests that "CTRLR: SR# 760- 773" is not displayed.
  - [3] If the error codes are displayed, install a new CONTROLLER BD.
- 

**Error Codes 800-858**

- [1] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through and select "CTRLR: TEST ALL".
  - [2] Check after selecting and doing "CTRLR: TEST ALL" that no errors "CTRLR: SR# 800 - 858" are displayed.
  - [3] If the error codes are displayed, install a new CONTROLLER BD.
- 

**Error Codes 900-940, 90B, 91B, 92B, 93B, 94B, 9B0-9B4**

- [1] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through and select "CTRLR: TEST ALL".
- [2] Check after selecting and doing "CTRLR: TEST ALL" that "NO ERRORS" are displayed.
- [3] If the error codes are displayed, install a new CONTROLLER BD.

## Error Code 710, 711 and 712



### Important

Error codes 710, 711 and 712 sometimes display when the PRINTER is in the external mode and connected to a computer. The error codes might not display through the diagnostics or when the PRINTER is not connected to a computer.

- [1] Access the diagnostics and select "DIAG: CTRLR TEST". Scroll through and select "CTRLR: TEST ALL".
- [2] Check after selecting and doing "CTRLR: TEST ALL" that no errors are displayed.
- [3] If error codes 710, 711, and 712 are displayed, install a new CONTROLLER BD.

---

## Error Code BAD MEM or NONE

- [1] If BAD MEM or NONE displays in the external mode, there is a malfunction of the PROM or CONTROLLER BD.
- [2] Install the PROMS on the CONTROLLER BD (U42 and U9) If this does not remove the malfunction, install a CONTROLLER BD.

## Section 7: THERMAL HEAD

### Functional Description

The THERMAL HEAD is the part of the PRINTER that prints the image. The THERMAL HEAD transfers heat in the form of pulses into the DONOR material, which then transfers dye into the RECEIVER material. This process occurs 4 times for the 3 DONOR colors with laminate (yellow, magenta, cyan) to make the complete image.

The THERMAL HEAD is moved into the correct position by the THERMAL HEAD LIFT MOTOR and SHAFT/CAM. The correct positions are detected through the use of 2 SENSORS that monitor the position of the THERMAL HEAD.

The THERMAL HEAD moves into 3 positions during the print and idle states:

- RETRACT
  - This is the position of the THERMAL HEAD during the READY and any idle state.
- LOAD
  - This is the position of the THERMAL HEAD when the RECEIVER is picked and rewound.
- ENGAGE
  - This is the position of the THERMAL HEAD when it is in contact with the PLATEN ROLLER of the ROLLER AY. The print cycle occurs in the ENGAGE position.

The THERMAL HEAD, CONTROLLER BD, and THERMISTOR makes the Temperature Control System maintain the correct temperature of the THERMAL HEAD. The THERMAL HEAD includes the resistive elements (pixels) that transfer data. Pulses for the CONTROLLER BD are used to heat the THERMAL HEAD to the correct operating temperature. The THERMISTOR also senses changes in temperature. The changes from the THERMISTOR are fed back to the ANALOG-to-DIGITAL CIRCUIT (A/D). The A/D circuit energizes the FANS or request pulses to maintain the temperature in the correct range.

### Tools

Part Number	Description
TL-3190	ELECTROSTATIC DISCHARGE PORTABLE FIELD SERVICE KIT
TL-3386	DIGITAL VOLT METER, <i>Fluke</i> Manufacturing Co., #77

### Specifications

Description	Voltage/Resistance
THERMAL HEAD	11.4 - 15.7 V DC
THERMAL HEAD LIFT MOTOR	≈ 10.5 V DC
THERMAL HEAD FAN	≈ 12 V DC
THERMISTOR	10 0.5 K W

### **Preliminary Check**

- [1] De-energize the PRINTER.
- [2] Check that the POWER LEDs are illuminated.
- [3] Seat all CABLES on the CONTROLLER BD and THERMAL HEAD.
- [4] Open the CONTROLLER ENCLOSURE AND DRAWER AY.

---

### **THERMAL HEAD LIFT MOTOR - Error Codes 700, 701, 702, 703**

- [1] Access the diagnostics and select "DIAG: HEAD TEST".
- [2] Scroll to "DIAG: RETRACT", "DIAG: LOAD" or "DIAG: ENGAGE".
- [3] Select "DIAG: RETRACT", "DIAG: LOAD" or "DIAG: ENGAGE".
- [4] Does the THERMAL HEAD move?
  - Yes - THERMAL HEAD moves in all 3 positions. Advance to the THERMAL HEAD LIFT SENSOR Error Code.
  - No - advance to the next step.
- [5] Set the DIGITAL VOLT METER to DC voltage.
- [6] Connect:
  - red PROBE to TP3, PIN 2
  - black PROBE to TP4, PIN 6 GROUND
- [7] Select "DIAG: LOAD", "DIAG: ENGAGE", or "DIAG: RETRACT".
- [8] The DVM should read  $\approx 10.5$  V DC. Is the voltage correct?
  - Yes - advance to next step.
  - No - Voltage is not  $\approx 10.5$  V DC. Install a new CONTROLLER BD.
- [9] Connect the DVM to PINS 1 and 2 on CONNECTOR P1.
- [10] The DVM should read  $\approx 10.5$  V DC. Is the voltage correct?
  - Yes - DVM reads  $\approx 10.5$  V DC. Install a new MOTOR BRACKET AY.
  - No - DVM does not read  $\approx 10.5$  V DC. Install a new CONTROLLER BD.

---

### **THERMAL HEAD LIFT SENSOR - Error Codes 700, 701, 702, 703**

- [1] Set the DVM to DC voltage.
- [2] Connect:
  - red PROBE to TP3, PIN 2
  - black PROBE to TP4, PIN 6 GROUND
- [3] Access the diagnostics.
- [4] Select "DIAG: RETRACT".
- [5] The DVM should read:
  - RETRACT Mode: 0 V DC to 5 V DC to 0 V DC during RETRACT
  - LOAD Mode: 0 V DC to 5 V DC from the RETRACTED position to the LOAD position
  - ENGAGE Mode: 0 V DC to 5 V DC from the RETRACTED position to the ENGAGE position
- [6] Do Steps 1 to 5 again using TP4, PIN 1.
- [7] Does the voltage change?
  - Yes - voltage changes from 5 V DC to 0 V DC. Install a new CONTROLLER BD.
  - No - install a new THERMAL HEAD LIFT CABLE and/or THERMAL HEAD LIFT SENSOR.

---

## Cooling Malfunction - Error Code 730

- [1] Access the diagnostics and scroll to "DIAG: HEAD TEMP".
- [2] Press and release the SET-UP/SELECT BUTTON. The LCD will read "TEMP: FAN".
- [3] Press and hold the SET-UP/SELECT BUTTON. The LCD will read "TEMP: \_\_. \_ C". This energizes the 4 THERMAL HEAD FANS. The TEMP output should decrease as the FANS continue to operate.
- [4] Do the FANS operate?
  - Yes - advance to Step 11.
  - No - advance to the next step.
- [5] Set the DVM to DC voltage.
- [6] Connect:
  - red PROBE to TP6, PIN 3
  - black PROBE to TP4, PIN 6
- [7] The DVM should read  $\approx 12$  V DC when the FANS are not operating and  $\approx 0.9$  V DC when the FANS are operating. Is voltage present?
  - Yes - voltage is present and the FANS do not operate. Advance to the next step.
  - No - voltage is not present. Install a new CONTROLLER BD.
- [8] Connect the red PROBE to P7, PIN 2.
- [9] Use the diagnostics to operate the FANS.
- [10] The DVM should read  $\approx 9$  V DC. Is the voltage present?
  - Yes - voltage is present and the FANS do not operate. Install a new FAN BRACKET HARNESS AY and/or FAN BRACKET AY.
  - No - voltage is not present. Install a new CONTROLLER BD.
- [11] De-energize the PRINTER.
- [12] Disconnect P5, THERMAL HEAD DATA CABLE.
- [13] Set the DVM to W.
- [14] Measure the resistance across CONNECTOR P5, PINS 3 and 4.
- [15] The DVM should read 10 0.5 K W. If the resistance is not 10 0.5 K W, it might be necessary to install a new THERMAL HEAD.

---

## Error Code 733

- [1] Access the diagnostics and scroll to "DIAG: HEAD TEMP".
- [2] Press and release the SET-UP/SELECT BUTTON. The LCD will read "TEMP: FAN".
- [3] Press the CANCEL BUTTON to scroll to "TEMP: HEATER".
- [4] Press and hold the SET-UP SELECT BUTTON. The LCD will read "TEMP: \_\_. \_ C".
- [5] Observe the display:
  - If the temperature output increases on the DISPLAY, the circuit is operating.
  - If the temperature output does not increase, install a new CONTROLLER BD or THERMAL HEAD AY.

## **Error Code 719**

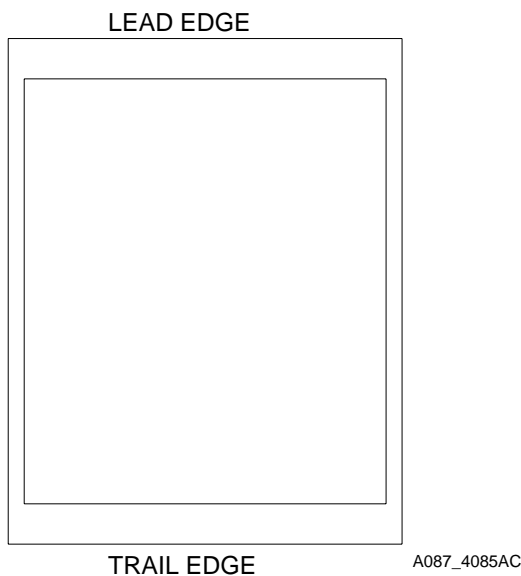
- [1] De-energize the PRINTER.
- [2] Seat the THERMAL HEAD DATA CABLE at P5 on the CONTROLLER BD and at the THERMAL HEAD CONNECTOR.
- [3] Energize the PRINTER. Is error code 719 present?
  - Yes - advance to the next step.
  - No - make a test print to check for correct operation.
- [4] De-energize the PRINTER.
- [5] Disconnect P5.
- [6] Install a new THERMAL HEAD DATA CABLE.
- [7] Energize the PRINTER. Is error code 719 present?
  - Yes - install a new THERMAL HEAD AY.
  - No - make a test print to check for correct operation.



## Section 8: Image Quality

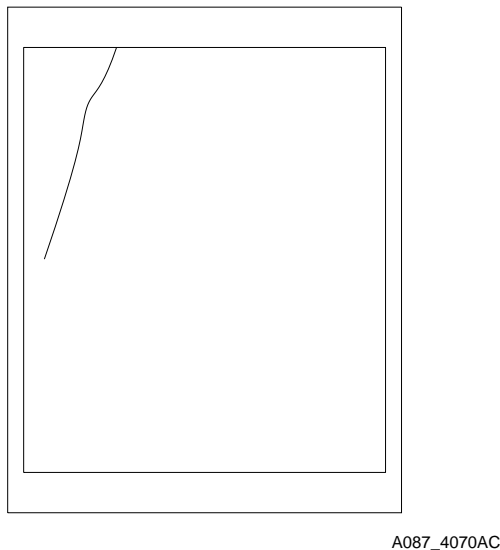
### Artifact Descriptions

#### Lead Edge/Trail Edge



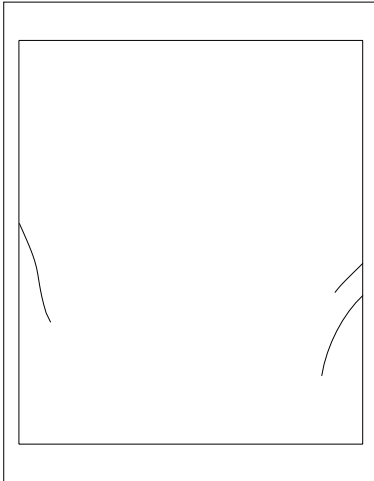
**Lead Edge/Trail Edge** - Lead edge is the edge of the image that is printed first and exits the PRINTER first. Trail edge is the end of the image that exits the PRINTER last.

#### Lead Edge Fold



**Lead Edge Fold** - Lead Edge Fold only occurs on reflective material. It is a colored streak or fold starting at the lead edge of the print. The fold is caused by the folding of the DONOR starting in the previous patch and continues into the next patch. Normally, the patch where the fold starts is of higher density. The fold can be observed in the used DONOR.

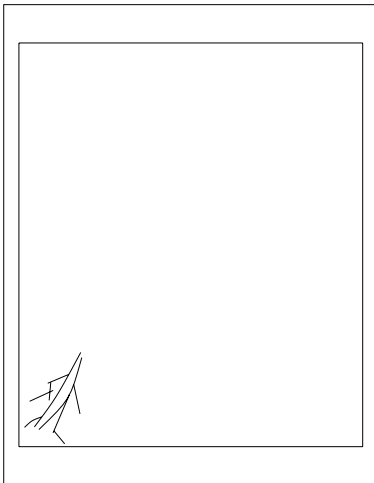
**Side Edge Fold**



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**Side Edge Fold** - Side Edge Fold only occurs on reflective material. The folds start at the edge of the image caused by excessive wrinkling between the printed and not printed DONOR borders.

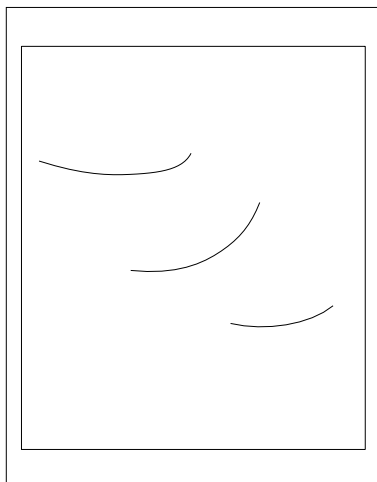
**Stretch**



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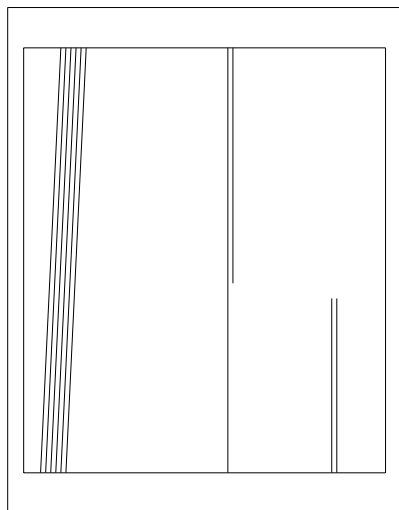
**Stretch** - Stretch only occurs on reflective material. Folds that look like lightning bolts. They start within the image and normally extend to the bottom and toward the corners branching out as they go. This occurs when there is an excessive amount of small text or lines on the image without much other density. The text becomes different colors because of the folds. This can be decreased by adding a little density to the image background. In extreme cases, even flat field minimum densities exhibit this problem.

**Smiles**



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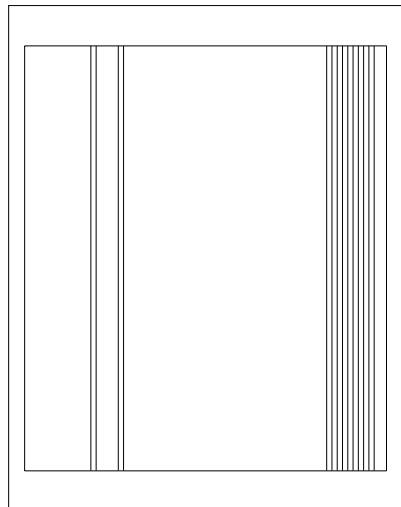
**Smiles** - Smiles occur on TRANSPARENCY material only. Smiles are 1 or more folds that occur within the image. They always occur in high density areas and are across the page. There is not much difference between 1 smile and many smiles.

**DONOR and THERMAL HEAD - Comb Lines - Wit Code = 1238**Figure 1 **DONOR - Comb Lines**

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Comb lines are several evenly spaced lines, 1 or 2 mm (1/64 to 1/8 in.) wide close together and alternately positive and negative density, running in the print direction. Comb lines occur in random patches lengthwise in a print and/or print to print. They are observed most often in mid-scale densities, especially in magenta or cyan images unless they were calibrated into the THERMAL HEAD, see below.

DONOR - Comb lines do not necessarily run the complete length of the image. They are not of consistent density and can fade away or start within an image. They can be throughout the image. These lines are often observed in 1 color more than another (magenta, flesh tones, or light flat fields). The lines are sometimes at a slight angle to the image. To remove the lines, install a new DONOR ROLL.

Figure 2 **THERMAL HEAD - Comb Lines**

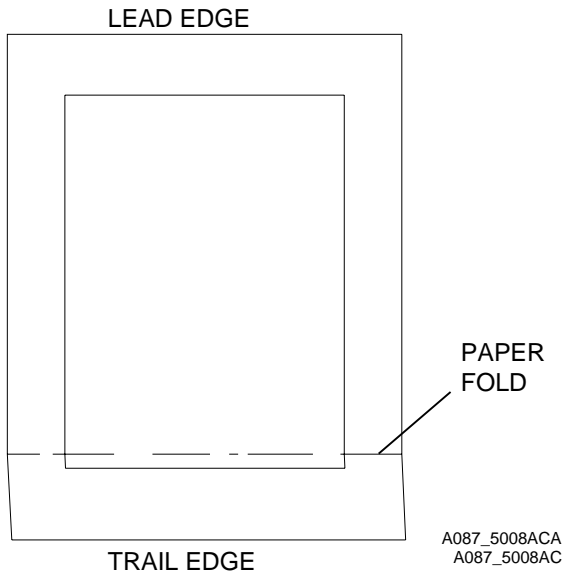
A087\_4069AC

THERMAL HEAD - Comb lines are comb lines that have been compensated into the THERMAL HEAD. The lines are a result of compensating THERMAL HEADS with DONOR that has comb lines. The lines run straight through the complete image and do not vary in width or density from top to bottom. They show up in every color because the calibration of the pixels was effected by the DONOR. To test for these lines, install new DONOR and see if this removes the lines. If the lines still occur, install a new THERMAL HEAD.

**Note**

The figures shown here are not intended to dictate a pattern or frequency of the lines on the images. They are an example of what the individual lines look like.

**Paper Fold at Trail Edge/Paper Jam**



Symptom: The RECEIVER is folded 2.54 cm (1 in.) from the trail edge and/or only the yellow pass completes.

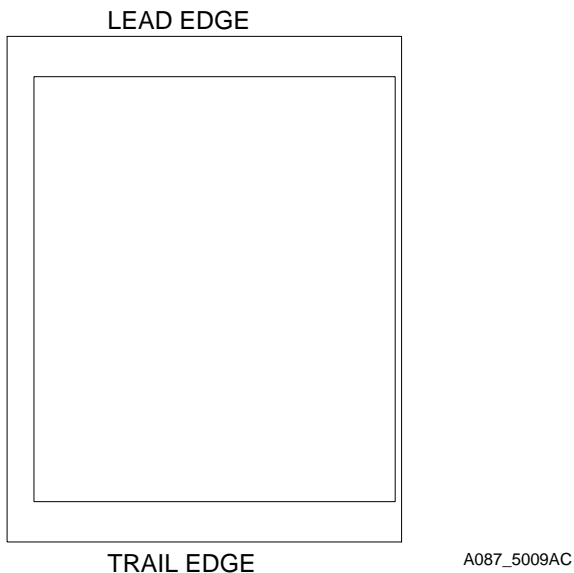
Cause: With the new UNI-TRAY, the RECEIVER and TRAY are not compatible. This might be caused if the TRAY setting selected is not correct for the RECEIVER in use.

Solution: Check that the TRAY CODE LABELS on the side of the UNI-TRAY match the size of the RECEIVER in use.

Cause: The RECEIVER might be adhering to the ROLLER AY CHUTE during REWIND. The DONOR might be stripped.

Solution: The humidity might be above 60% RH, the RH must be decreased.

**Border Size Not Correct**



Symptom: The border on the right side of the print as it exits the PRINTER is too narrow compared to the left side of the print. the sides should be approximately the same. See the Image Placement Specifications.

Cause: The LEFT WALL on the UNI-TRAY is damaged.

Solution: Install a new UNI-TRAY.

Cause: The RECEIVER is damaged.

Solution: Install a new RECEIVER.

Cause: The THERMAL HEAD LIFT CAM or BEARING is missing a WASHER.

Solution: Check that the WASHER is installed.

---

## Lead/Side Edge Fold, Stretch - After Normal to High Usage

Parts Effected: THERMAL HEAD, ROLLER AY, DONOR SUPPLY BRACKET, DOOR AY, BASE ENCLOSURE WALLS

Cause: DONOR or RECEIVER, the system has been moved by the customer, or parts malfunctions.

Solution:

- [1] Check for damage to the PRINTER.
- [2] Install new DONOR and/or RECEIVER.
- [3] Do the stretch adjustment for the ROLLER AY and DONOR SUPPLY BRACKET.
- [4] Check the THERMAL HEAD LOAD GAP and adjust if necessary. See the ADJUSTMENTS AND REPLACEMENTS, Publication AR3179-1.

---

## Lead/Side Edge Fold, Stretch - New PRINTER Removed From Box

Cause: The PRINTER was damaged during shipment.

Conditions: The THERMAL HEAD has a tolerance of 0.0011 to 0.0022 in. over the complete useable area. If the PRINTER experiences over 25 to 30 g of shock, the tolerance might change, which causes this artifact.

Solutions:

- [1] Check the PRINTER for shipping damage to the following areas:
  - THERMAL HEAD
  - DONOR SUPPLY BRACKET AY
  - BASE ENCLOSURE WALLS
  - MOTOR BRACKET AY
    - Do all the GEARS mesh and have the correct backlash?
  - DOOR/DONOR TAKE-UP AY
  - Check that no wires or other parts are causing an obstruction with the DONOR.
- [2] Install a new roll of DONOR and new RECEIVERS.
- [3] Do the following Adjustment procedures. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.
  - THERMAL HEAD LOAD GAP
  - ROLLER AY
  - DONOR SUPPLY BRACKET

---

## Lead/Side Edge Fold, Stretch - After Installing a New THERMAL HEAD

Causes:

- DONOR or RECEIVER
- obstructions in the path of the DONOR
- adhesive from the DONOR is causing a localized stall on the THERMAL HEAD
- THERMAL HEAD not installed correctly
- the wrong THERMAL HEAD was installed
- there is a THERMAL HEAD malfunction

Solution:

- Install new DONOR and/or RECEIVER.
- Clean the THERMAL HEAD.
- Move any wires or HARNESSES in the correct position.

## DIAGNOSTICS

[1] Do the following adjustments:

- THERMAL HEAD LOAD GAP
- ROLLER AY
- DONOR SUPPLY BRACKET

[2] Use another THERMAL HEAD.

### Note

The ROLLER AY, DONOR SUPPLY BRACKET, and DOOR AY can cause or increase the stretch artifact.

## Image Quality Troubleshooting



### Important

For cleaning procedures, see the PERIODIC MAINTENANCE, Publication No. PM3179-1.

Malfunction	Possible Cause	Procedure
Print very light	Setup for the THERMAL HEAD	Check that the correct THERMAL HEAD is installed and that the voltage settings are correct.
	THERMAL HEAD POWER SUPPLY	Troubleshoot THERMAL HEAD POWER SUPPLY, output voltage, and POWER CABLE CONNECTION.
Scratches appear from image to image that run the full length of print, including border	Dirt on PAPER CHUTE or ROLLER AY	Clean the CHUTE and ROLLER AY.
Scratches appear from image to image that run the full length of image only	Dirt on THERMAL HEAD	Clean THERMAL HEAD, then make a test print. Install a new THERMAL HEAD if necessary.
White line running full length of image(s)	Blown pixel	Clean THERMAL HEAD, then make a test print. Install a new THERMAL HEAD if necessary.
Horizontal bands of color across complete print, a line from 1 color plane is missing and might appear in different spots on the print, in different planes	THERMAL HEAD POWER SUPPLY - dropping out	Install a new THERMAL HEAD POWER SUPPLY.
Lead edge fold - reflective only, Multi-color streak in lead edge of print - can occur when previous color patch had high density at trailing edge	DONOR SUPPLY BRACKET THERMAL HEAD LOAD GAP	Adjust the DONOR SUPPLY BRACKET or THERMAL HEAD LOAD GAP.
	THERMAL HEAD	Install a new THERMAL HEAD.
	DOOR AY	Install a new DOOR AY.
Side edge fold - reflective only, "Finger" of color that moves inward from the edge of the image, usually down toward the bottom of the print.	DOOR AY	Install a new DOOR AY.
	THERMAL HEAD out of tolerance	Check, and if necessary, install a new THERMAL HEAD.

<b>Malfunction</b>	<b>Possible Cause</b>	<b>Procedure</b>
Folds that look like lightening bolts or comet trails. These start within the image and branch out towards the corners. Normally occurs with areas of high density, such as text, with no background	THERMAL HEAD	Install a new THERMAL HEAD.
Smiles - TRANSPARENCY only		
1 or more curving folds across the image in high density areas	THERMAL HEAD needs voltage adjustment	Check the THERMAL HEAD voltage and compare to the value written on the THERMAL HEAD. If necessary, adjust the voltage down in increments of 0.1 V until the problem is removed.
Comb lines evenly spaced lines running down the print. -Through the full image -Consistent width and density -Appears in every color	DONOR or THERMAL HEAD	Install a new DONOR ROLL and make another print. If the pattern continues, install a new THERMAL HEAD.
Spots that have colors	Contamination in the PRINTER	Clean the CHUTE and ROLLER AY, WALLS and RAILS, and CONTROLLER ENCLOSURE AND DRAWER AY.

**DONOR/RECEIVER - Image Quality Troubleshooting**

<b>Malfunction</b>	<b>Possible Cause</b>	<b>Procedure</b>
Print very light	RECEIVER condition (reflective)	Test with new RECEIVER that has been stored and handled correctly.
Print very light	RECEIVER upside down (TRANSPARENCY)	Check for correct orientation of TRANSPARENCY RECEIVER in the TRAY.
Lead edge fold (reflective only) Multi-color streak in lead edge of print - can occur when previous color patch had high density at trailing edge	DONOR wrinkled on spool	Check and correct DONOR winding or obvious obstruction in path of the DONOR. Install a new DONOR ROLL.
Side edge fold (reflective only) "Finger" of color that moves inward from the edge of the image, usually down toward the bottom of the print	DONOR wrinkled on spool	Check and correct the winding of the DONOR, alignment of the DONOR, or obvious obstruction in path of the DONOR. Install a new DONOR ROLL.
Stretch (reflective only)		
Folds that look like lightning bolts or comet trails. These start within the image and branch out towards the corners. Normally occurs with areas of high density, such as text, with no background	Spool alignment - DONOR	Correct the installation of the DONOR and make another print.
	DONOR	Install a new DONOR ROLL and make another print.
Comb lines		
Evenly spaced lines running down the print. -Random patches, varying width, density -might be at a slant - Normally more in 1 color than another -might fade or start within image	DONOR	Install a new DONOR ROLL.
Comb lines evenly spaced lines running down the print. -Through the full image -Consistent width and density -Appears in every color	DONOR or THERMAL HEAD	Install a new DONOR ROLL and make another print. If the pattern continues, install a new THERMAL HEAD.



## Section 9: PLATFORM - Troubleshooting

### Safety



#### Warning

Dangerous Voltage

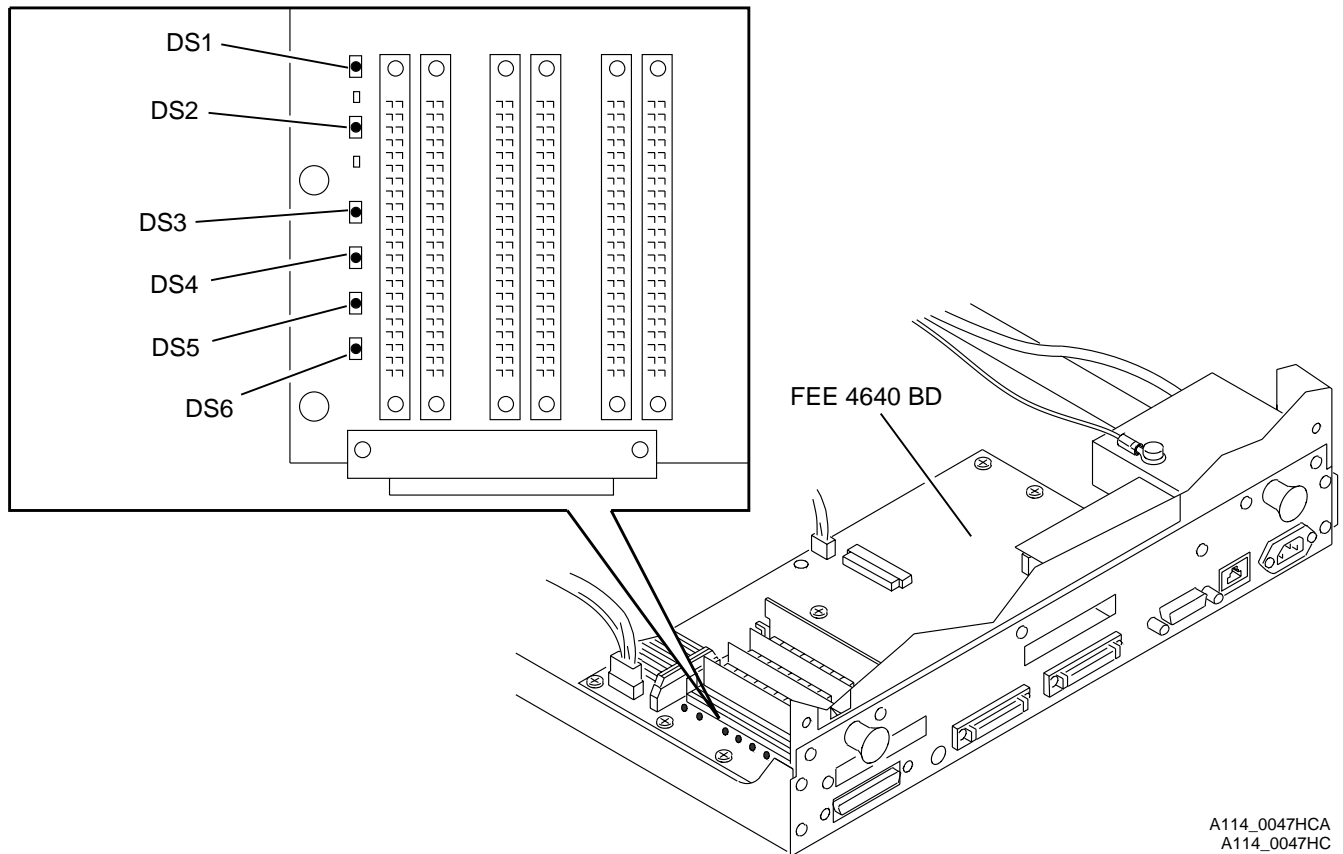
The FEE BDs operate on +5 and  $\pm$  12 V DC.

### Tools

Part No.	Description
TL-3190	ELECTROSTATIC DISCHARGE PORTABLE FIELD SERVICE KIT
TL-3386	DIGITAL VOLT METER, <i>Fluke</i> Manufacturing Co., #77

### Hardware Diagnostics

#### 8670 PS THERMAL PRINTER



A114\_0047HCA  
A114\_0047HC

There are 6 LEDs on the FEE 4640 BD that are used for diagnostic purposes:

- red LED, DS1, indicates 5 V is present
- green LED, DS2, indicates 3 V is present - 3 V is generated from the 5 V source
- LEDs DS3 through DS6 are used to indicate the status of the FEE 4640 BD

If the FEE 4640 BD does not correctly initialize, the LED will indicate the failure status. Use the following tables to determine the status of the FEE 4640 BD.

Table 22 Power LEDs

Red (DS1)	Green (DS2)	Description
OFF	OFF	No power applied to FEE BD.
ON	OFF	5 V power OK, 3 V power off.
OFF	ON	5 V is off. 3 V power is OK. This indicates 5 V has damage.
ON	ON	5 V and 3 V power is OK.

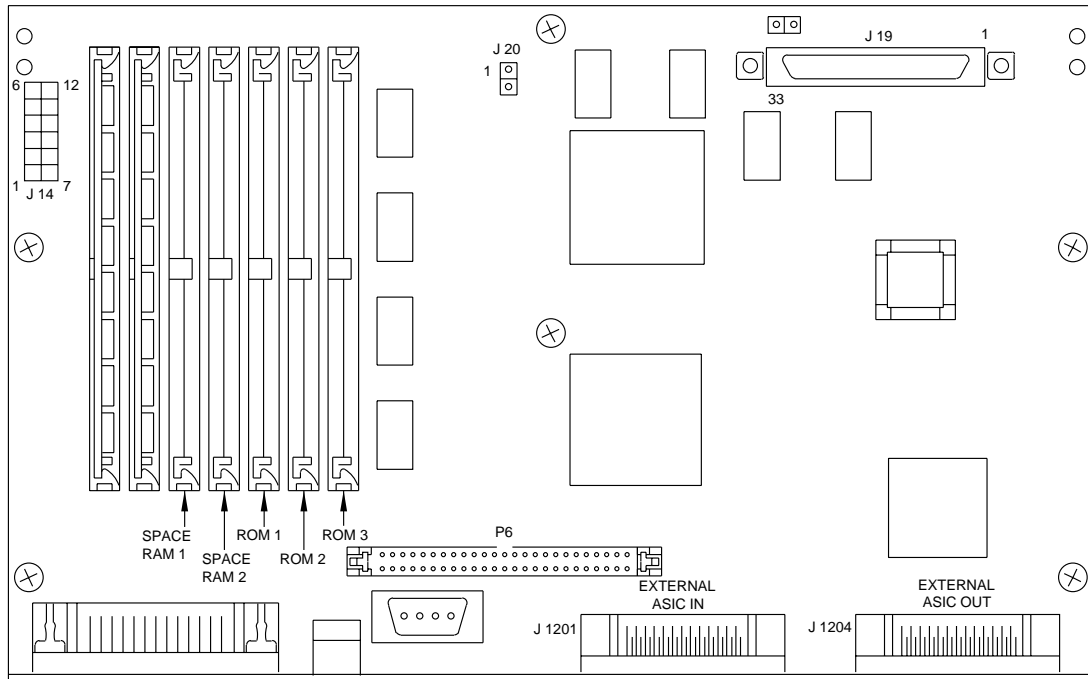
Table 23 Power Up LED Sequence

DS6	DS5	DS4	DS3	Description
				Initial setting is random. Very short display time.
ON	ON	ON	ON	CPU and Galileo setup complete. 3 quick flashes.
OFF	OFF	OFF	OFF	CPU and Galileo setup complete.
OFF	OFF	OFF	ON	Serial diagnostics PORT CHIP setup complete.
OFF	OFF	ON	OFF	ENGINE 1284 PORT CHIP setup complete.
OFF	OFF	ON	ON	NVRAM test complete.
OFF	ON	OFF	OFF	FIFO and CONTROL PLD test complete.
OFF	ON	OFF	ON	LUT PLD test complete.
OFF	ON	ON	OFF	LEDs are FLASHING. RAM in first socket is damaged.
OFF	ON	ON	OFF	RAM in first socket test complete.
OFF	ON	ON	ON	Low FEE initialization complete.
ON	OFF	OFF	OFF	Data and Instruction Cache Initialization complete.
				LEDs scan up and down 2 times.
				If ENGINE is not detected, LEDs scan up and down 4 times.
OFF	OFF	ON	ON	ENGINE detected.
ON	OFF	OFF	OFF	Real-time Clock initialized.
ON	OFF	OFF	ON	Memory Initialization complete. ENGINE communications initialization complete.
ON	OFF	ON	OFF	All subsystems initialization complete. All RAM memory has been configured.
ON	OFF	ON	ON	Additional system variables set.
ON	ON	OFF	OFF	All Power On Self Tests complete. NIC initialized. Remains in this state until FLASH code is copied to RAM.
ON	ON	OFF	ON	No valid application FLASH code detected.
ON	ON	ON	OFF	Development Mode - no ENGINE detected.
*	*	*	*	<b>BLINKING sequence.</b> See note below.

\* BLINKING indicates normal operation. When DS3 and DS4 are ON, DS5 and DS6 are OFF. When DS3 and DS4 are OFF, DS5 and DS6 are ON.

EI 8651 DIGITAL COLOR PRINTER

FEE BOARD



A087\_2017HC

An LED on the FEE BD next to the LocalTalk CONNECTOR indicates if a Field Replaceable Unit (FRU) malfunctioned during initialization. The initialization sequence is described below.

Immediately after initialization, the LED intermittently illuminates or BLINKS once. This indicates that the CPU and some basic IO operations are operating correctly. The CPU then does a Power On Self Test (POST). Since the memory is checked during this process, this might take approximately 60 seconds. If any errors are found within a FRU, the FEE LED intermittently illuminates or BLINKS a specific number of pulses followed by a pause. This cycle continues until the PRINTER is de-energized. FRUs with errors must be repaired before the PRINTER will execute the produce code. The mapping between FRUs and LED pulse counts are in the table below. If the FEE passes its POST, the LED pulses rapidly as long as the FEE BD has power, indicating the FEE BD is operating correctly.

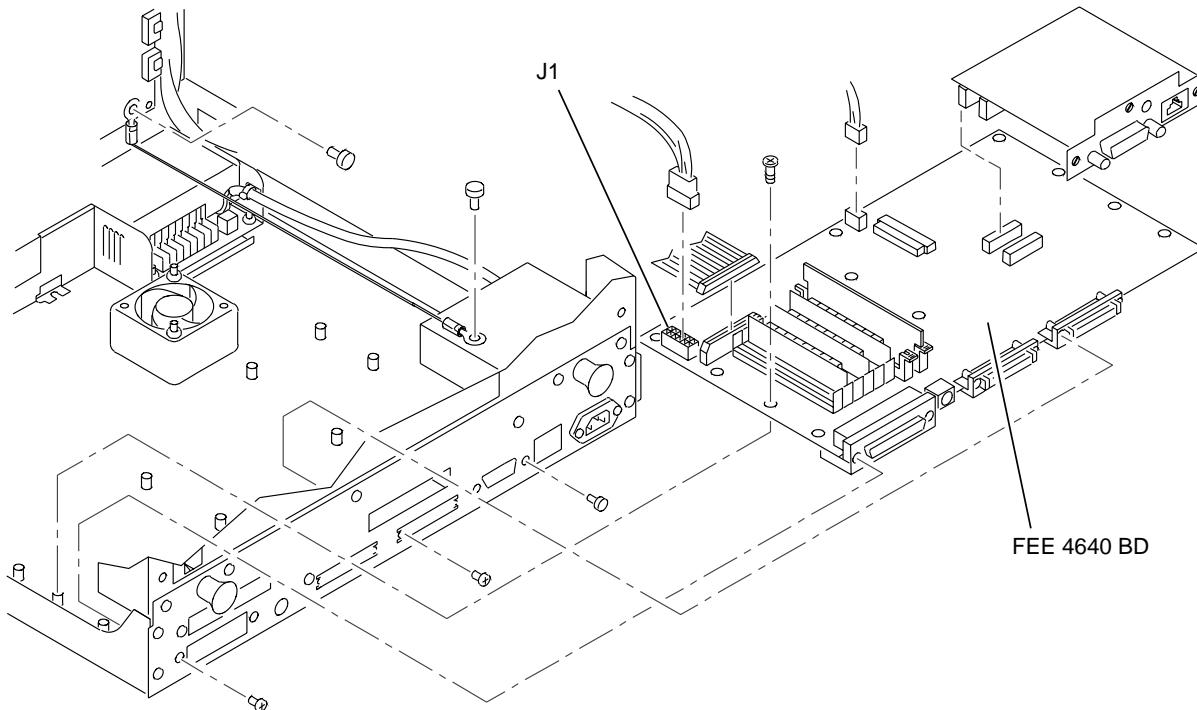
The FEE BD might have an error which causes a FRU to malfunction. The LED sequence might indicate a FRU malfunction even though the FEE BD is causing the error. The FEE BD does not distinguish a FRU malfunction from a FEE BD malfunction caused by the electronics driving the FRU. Other than this exception, there is no other mechanism that will cause the LED to indicate a FRU malfunction when it is not the FRU.

FRU	Number of LED Pulses
DRAM SIMM 1	1
DRAM SIMM 2	2
ROM SIMM 1	5
MARKING ENGINE INTERFACE	9
FEE BD and ONBOARD I/O REGISTERS	10

**“INIT ERROR” - Error Code 722**

**Preliminary Check**

- [1] Check and seat all HOST connections to the back of the PRINTER.
- [2] Energize the PRINTER.

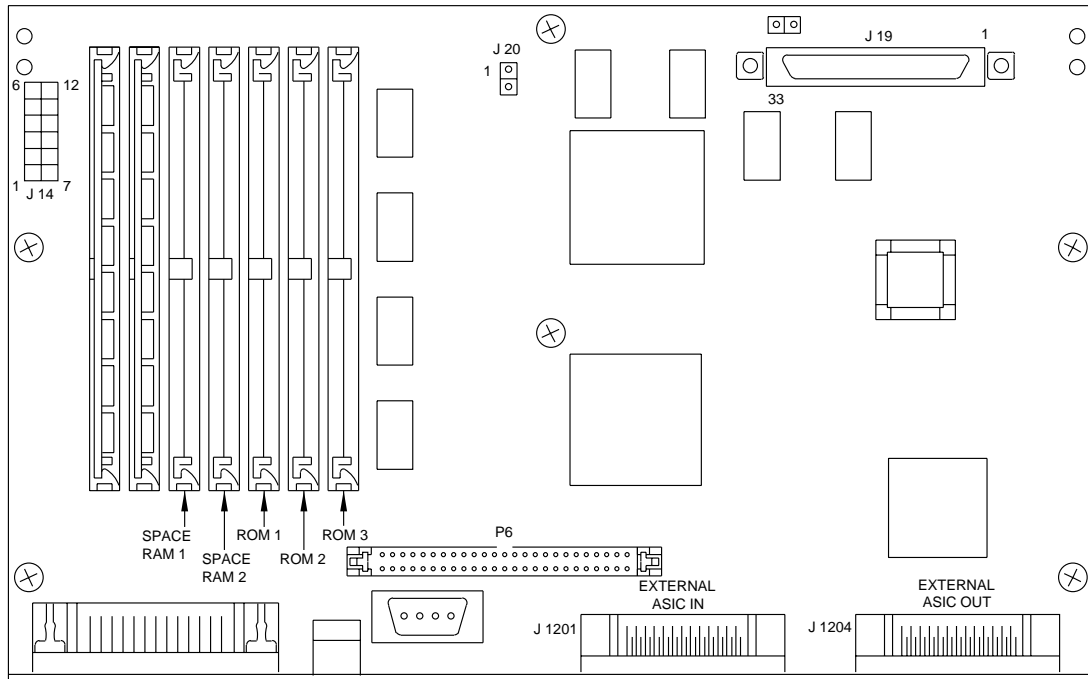


A114\_0046HCB  
A114\_0046HC

- [3] For the 8670 PS THERMAL PRINTER, check the following on CONNECTOR J1 on the FEE 4640 BD:

Voltage	Pin
+5	1, 2, 7 and 8
+12	5 and 11
-12	12
ground	3, 4, 9 and 10

FEE BOARD



A087\_2017HC

[4] For the EI 8651 DIGITAL COLOR PRINTER, check the following on CONNECTOR J14 on the FEE BD:

Voltage	Pin
+5	1, 2, 7 and 8
+12	5 and 11
-12	12
ground	3, 4, 9 and 10

[5] If “INIT ERROR” occurs, advance to the procedure for HOST CABLES Off. See Page 77.

[6] If “INIT ERROR” does not occur, see the procedure for Test PRINTER. See Page 79.

### HOST CABLES Off

- [1] De-energize the PRINTER.
- [2] Remove all HOST connections.
- [3] Energize the PRINTER.
- [4] If “INIT ERROR” occurs, advance to the procedure for Open DRAWER - No HOST Connections. See Page 78.
- [5] If “INIT ERROR” does not occur, advance to the procedure for HOST Connection On. See Page 77.

### HOST Connection On

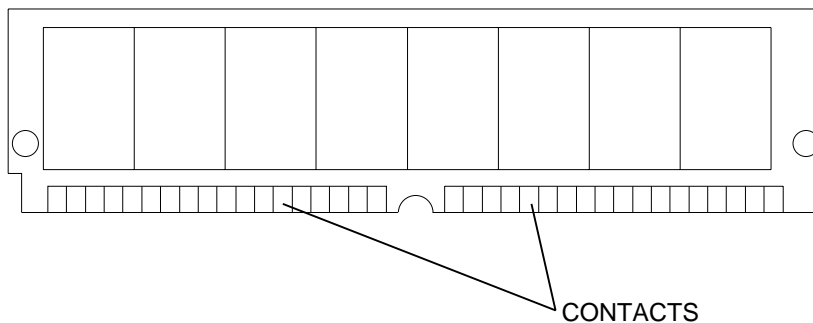
- [1] De-energize the PRINTER.
- [2] Remove and install 1 HOST connection at a time.
- [3] Energize the PRINTER.
- [4] If “INIT EROR” occurs, check:
  - end user/HOST CABLE for damage
  - CABLE is correctly seated
- [5] If the CABLE is damaged, recommend that the end user install a new CABLE and boot the computer.

- [6] If "INIT ERROR" still occurs, observe which interface caused the error. Advance to the procedure for Open DRAWER - SUSPECT HOST Connections. See Page 78.
- [7] Do Step 1 through Step 6 again for all HOST connections.
- [8] If "INIT ERROR" does not occur with all HOST connections connected, advance to the procedure for Test PRINTER. See Page 79.

---

### Open DRAWER - No HOST Connections

- [1] De-energize the PRINTER.
- [2] Do the Replacement procedure for the CONTROLLER ENCLOSURE AND DRAWER AY, Publication No. AR3179-1.
- [3] Check and seat all CONNECTORS and BOARDS.
- [4] Remove the DRAM SIMM STRIPS 1 at a time.



A087\_5010BCA  
A087\_5010BC

- [5] Clean the CONTACTS. Use alcohol and a cloth.
- [6] Energize the PRINTER.
- [7] If "INIT ERROR" does not occur, advance to the procedure for the Test PRINTER. See Page 79.
- [8] If "INIT ERROR" occurs, install a new FEE BD.

---

### Open DRAWER - SUSPECT HOST Connections

- [1] De-energize the PRINTER.
- [2] Do the Replacement procedure for the CONTROLLER ENCLOSURE AND DRAWER AY, Publication No. AR3179-1.
- [3] Check and seat all CONNECTORS and BOARDS.
- [4] Install the SUSPECT HOST CABLE Connections.
- [5] Energize the PRINTER.
- [6] If "INIT ERROR" does not occur, advance to the procedure for the Test PRINTER. See Page 79.
- [7] If "INIT ERROR" occurs, continue with the next step.
- [8] De-energize the PRINTER.
- [9] Remove the connections for the SUSPECT HOST CABLE.
- [10] If "INIT ERROR" does not occur, have the end user install a new SUSPECT HOST CABLE.
- [11] If "INIT ERROR" occurs, do the procedure for the Open DRAWER - No HOST Connection. See Page 78.

---

## NETWORK INTERFACE CARD - 8670 PS THERMAL PRINTER

- [1] Do the following to check that the NETWORK INTERFACE CARD is installed correctly:
- Press the test BUTTON, located between the *Ethernet* PORT and the SERIAL PORT, for 1 second but not more than 5 seconds.
  - If the test page does not print, de-energize the PRINTER.
  - Check that the NETWORK INTERFACE CARD is correctly installed.
  - Energize the PRINTER.
  - If the test page does not print, install a new NETWORK INTERFACE CARD.

### Note

The test print gives you important information when installing and configuring the PRINTER.

---

## Initialization of the PRINT ENGINE

- [1] If the PRINTER does not initialize in 1 minute 36 seconds after energizing, check for a PRINTER error. See the procedure for the Diagnostics, Page 13.

---

## FAN Check

- [1] Check the FAN BLADES for obstructions or jams.
- [2] Measure the voltages for the FAN at the POWER SUPPLY and/or FAN CONNECTOR.
- [3] If there is voltage at the FAN CONNECTOR and/or POWER SUPPLY and the FAN does not operate, install a new FAN.

---

## Test PRINTER

### Important

Do this procedure only if the “INIT ERROR” has been removed.

- [1] Energize the PRINTER.
- [2] Make a test print of the FRONT END.
- [3] Have the end user download and print an image from the HOST computer.
- [4] If the test print can be made but the end user cannot download and print an image, see the procedure for the Open DRAWER- SUSPECT HOST Connections, Page 78.

---

## Communication Errors

### *Centronics/Parallel PORT*

- [1] Check that the PARALLEL CABLE is correctly connected to the PRINTER and HOST Computer.
- [2] Have the end user:
- energize the PRINTER, then the computer.
  - send an image to the PRINTER.
- [3] If the end user can send an image, stop doing this procedure and send another image.
- [4] If the end user cannot send an image, go to the next step.
- [5] Use the SETUP GUIDE in the USER’S MANUAL to check for the correct setup of the PRINTER.
- [6] Have the end user:
- check that the LPT1 PORT is setup
  - send a different image
- [7] If the image prints, this could be an application malfunction.

## DIAGNOSTICS

---

- [8] If the end user cannot send an image, continue with the next step.
- [9] De-energize the PRINTER.
- [10] Do the procedure for the CONTROLLER ENCLOSURE AND DRAWER AY. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.
- [11] Seat all CABLES and BOARDS on the PLATFORM.
- [12] Energize the PRINTER.
- [13] Have the end user send an image.
- [14] If the end user cannot send an image, continue with the next step.
- [15] De-energize the PRINTER.
- [16] Install a new FEE BD.
- [17] Energize the PRINTER.
- [18] The Communication Error should be removed.
- [19] Have the end user send an image to check for correct operation.

### *Ethernet*

- [20] Check:
  - the CABLE for the correct connections to the PRINTER and HOST Computer.
  - that the WORKSTATIONS are configured to print to the 8670 PS THERMAL PRINTER - use the SETUP GUIDE.
- [21] Have the end user:
  - send an image
  - send an image to another PRINTER
- [22] If the above steps do not correct the malfunction, continue with the next step. If the malfunction is corrected, see the procedure for the Test PRINTER, Page 79.
- [23] Do the procedure for the NETWORK INTERFACE CARD, Page 79.
- [24] De-energize the PRINTER.
- [25] Do the procedure for the CONTROLLER ENCLOSURE AND DRAWER AY. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR3179-1.
- [26] Seat all CABLES and BOARDS on the PLATFORM.
- [27] Energize the PRINTER.
- [28] Have the end user send an image.
- [29] If the above steps do not correct the malfunction, continue with the next step.
- [30] De-energize the PRINTER.
- [31] Install a new NETWORK INTERFACE CARD.

### SCSI PORTS

- [32] Check:
  - CABLE is correctly installed to the PRINTER
  - TERMINATOR is installed on 1 of the SCSI PORTS
  - length of the EXTERNAL CABLE is a maximum of 6 meters (18 feet)
- [33] If the steps above do not correct the malfunction, install a new FEE BD.



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