

DIAGNOSTICS

for the

Kodak XLS 8600/8600 PS PRINTERS

Service Code: 2935, 2936

Kodak XLS 8657 DIGITAL PRINTER

Service Code: 0741

Kodak XLS 8400 PS PRINTER

Service Code: 0760

Kodak Digital Science™ 8650/8650 PS COLOR PRINTERS/32/48 MB

Service Codes: 2930, 2931, 2932, 2947

Kodak Digital Science™ MEDICAL COLOR IMAGER 2000

Service Code: 3441

Kodak Professional 8650R THERMAL PRINTER

Service Code: 3829

Kodak XLS 8660 PRINTER OEM

Kodak XLS 8680 PRINTER OEM



Important

Use qualified personnel to service this equipment.



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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: General Information

Purpose and Overview

The service diagnostics are located on the CONTROLLER BOARD. External communication 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.

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

FRONT PANEL



Caution

Do not use a sharp object to press the BUTTONS on the DISPLAY PANEL. This could cause malfunctions.

Use the FRONT PANEL to access all diagnostic menus. The FRONT PANEL includes:

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

Test Prints

There are 2 types of test prints, user test print, and a diagnostic test print. Test prints can only be activated when the LCD DISPLAY reads “READY”. The user test print can only be accessed when the PRINTER is in the EXTERNAL MODE. The diagnostic test print can only be accessed in the ENGINE MODE.

EXTERNAL and ENGINE MODES

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 BOARD.

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



Note

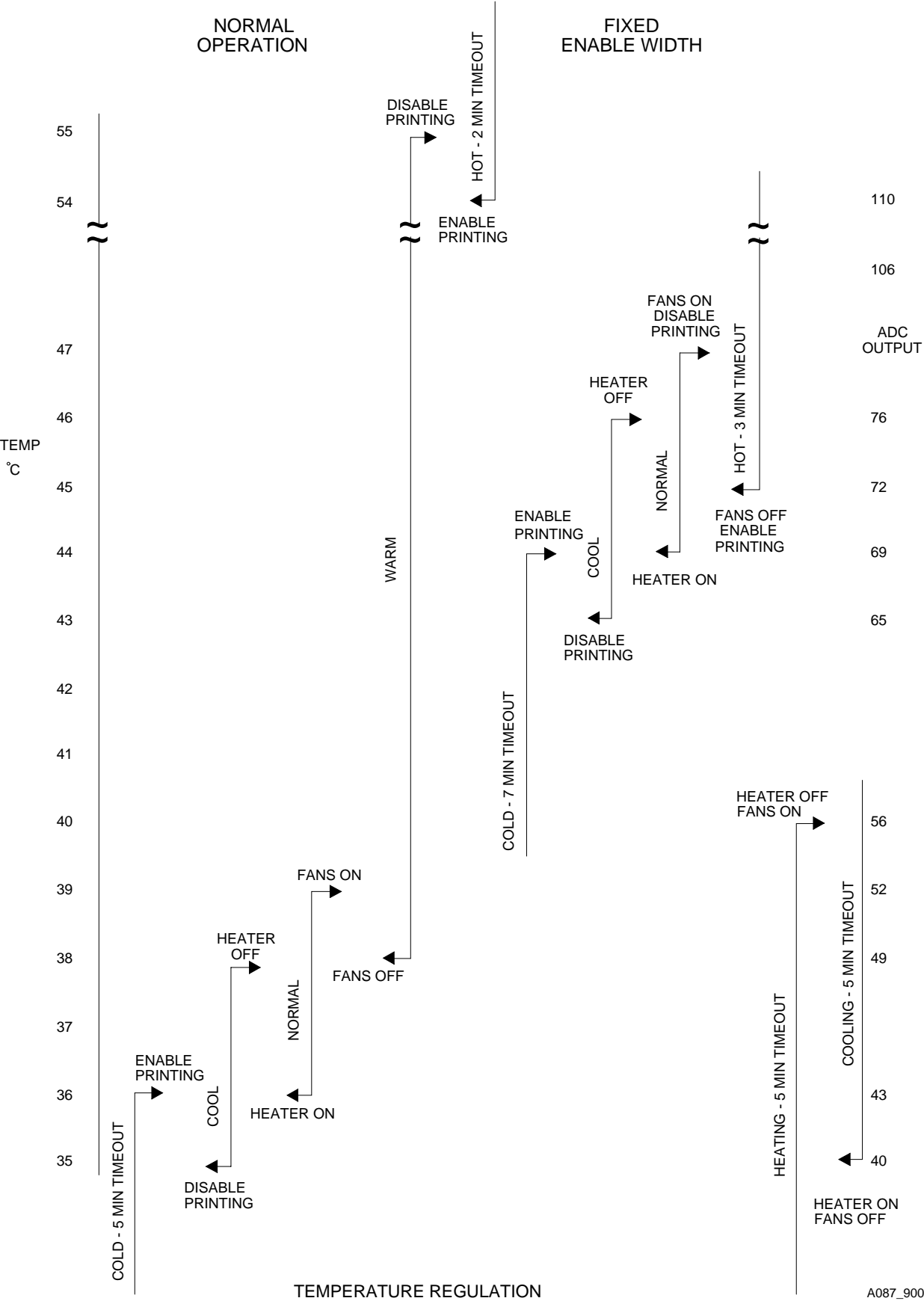
By selecting only the ENGINE MODE, the ENGINE is isolated for troubleshooting malfunctions

Preliminary Setup

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

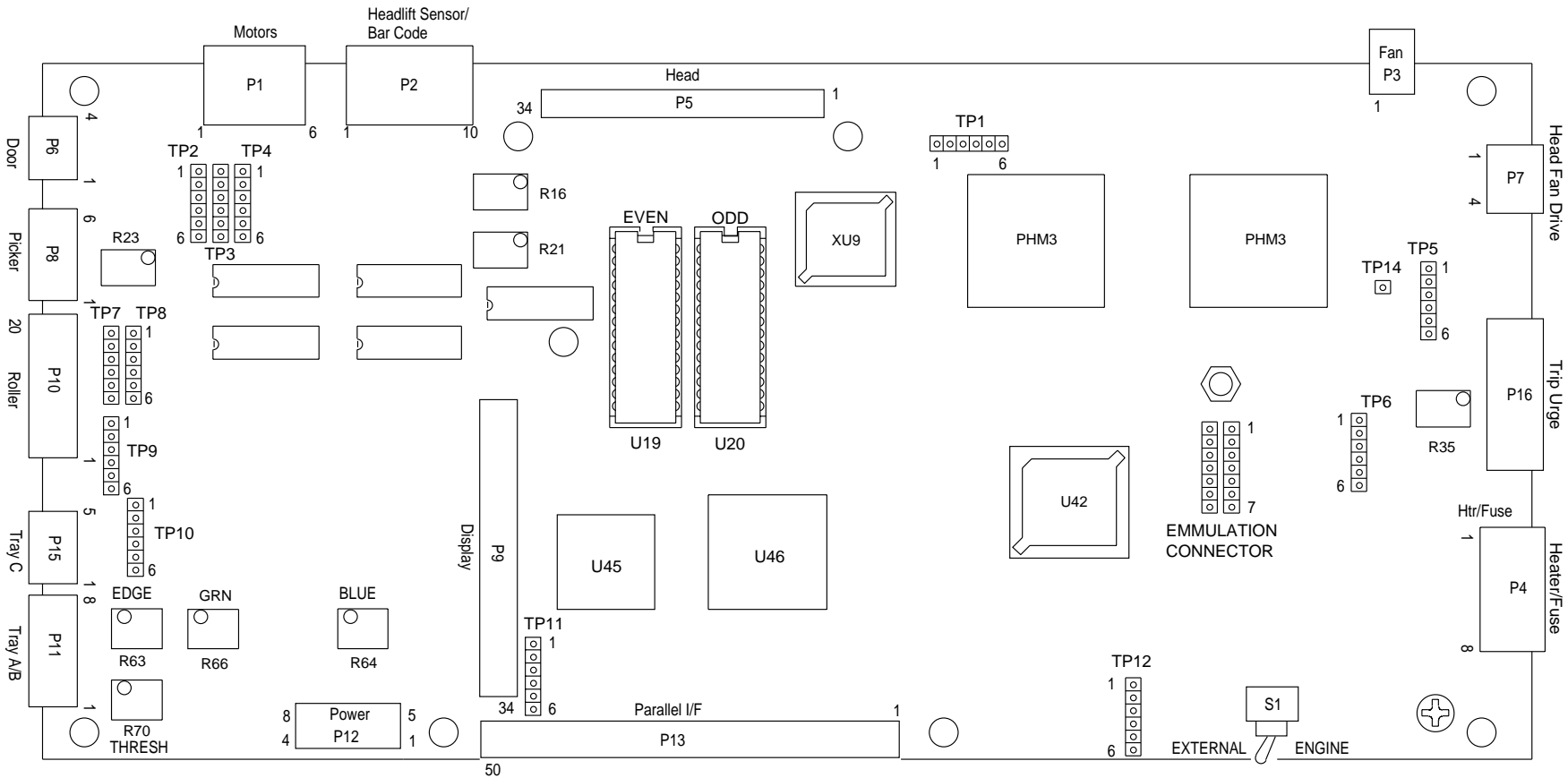
TRAY INSTALLED	YES/NO
DONOR INSTALLED	YES/NO
RECEIVER INSTALLED	YES/NO
RECEIVER TYPE	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES/NO
POWER ON	YES
SPECIAL FUNCTIONS	YES/NO
SPECIAL ACTIONS	

THERMAL HEAD - Temperature Regulation



CONTROLLER BOARD - Components

CONTROLLER BOARD



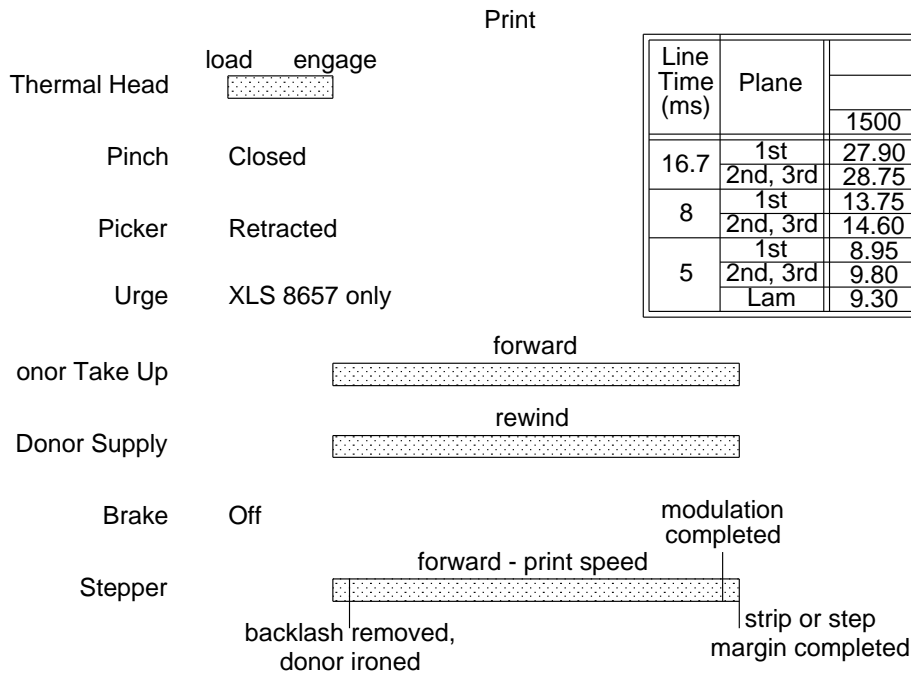
S1 ALLOWS YOU TO RUN DIAGNOSTICS IN ENGINE MODE.

A087_2004EC

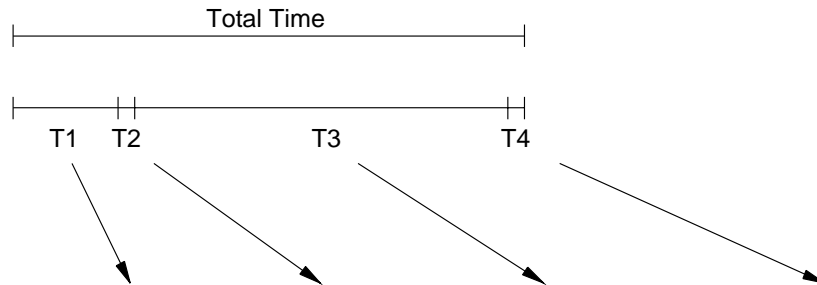
Section 2: Sequence of Operation

Cycles

PRINT



Line Time (ms)	Plane	Total Time (sec)				
		Lines per Plane				
		1500	2680	2890	3000	3600
16.7	1st	27.90	47.60	51.10	52.95	62.95
	2nd, 3rd	28.75	48.45	51.95	53.80	63.80
8	1st	13.75	23.20	24.85	25.75	30.55
	2nd, 3rd	14.60	24.05	25.70	26.60	31.40
5	1st	8.95	14.85	15.90	16.45	19.45
	2nd, 3rd	9.80	15.70	16.75	17.30	20.30
	Lam	9.30	15.20	16.25	16.80	19.80

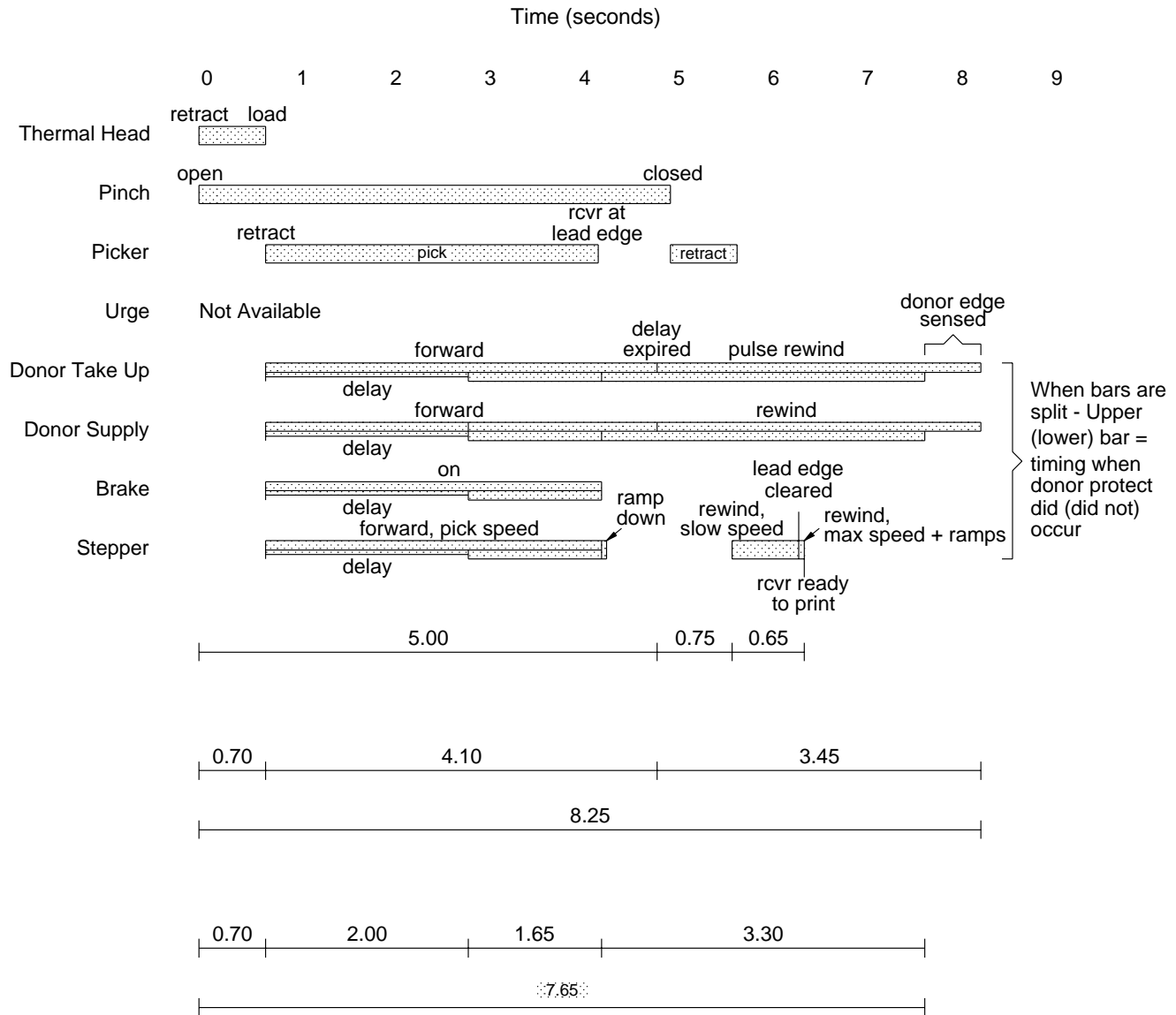


	T1 (sec)
Before first plane	0.70
Before 2nd, 3rd, or Lamination planes	1.55

Line Time (ms)	T2 (sec)	T3 (sec)					T4 (sec)
		Lines per Plane					
		1500	2680	2890	3000	3600	
16.7	0.50	25.05	44.75	48.25	50.10	60.10	1.65
8	0.25	12.00	21.45	23.10	24.00	28.80	0.80
5	0.20	7.50	13.40	14.45	15.00	18.00	0.55
Lam	0.15	7.55	13.45	14.50	15.05	18.05	0.05

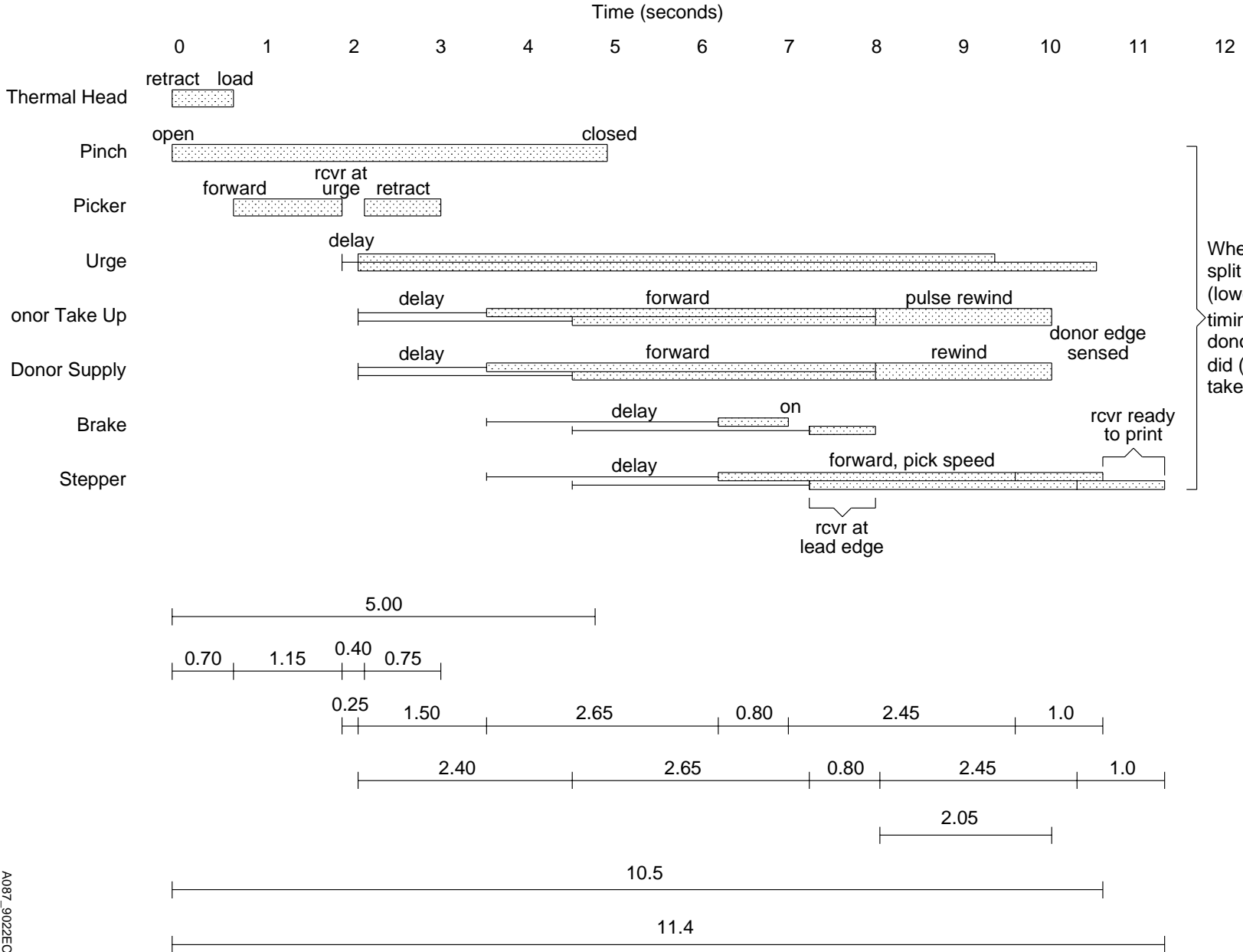
A087_9023DC

PICK



A087_9019DC

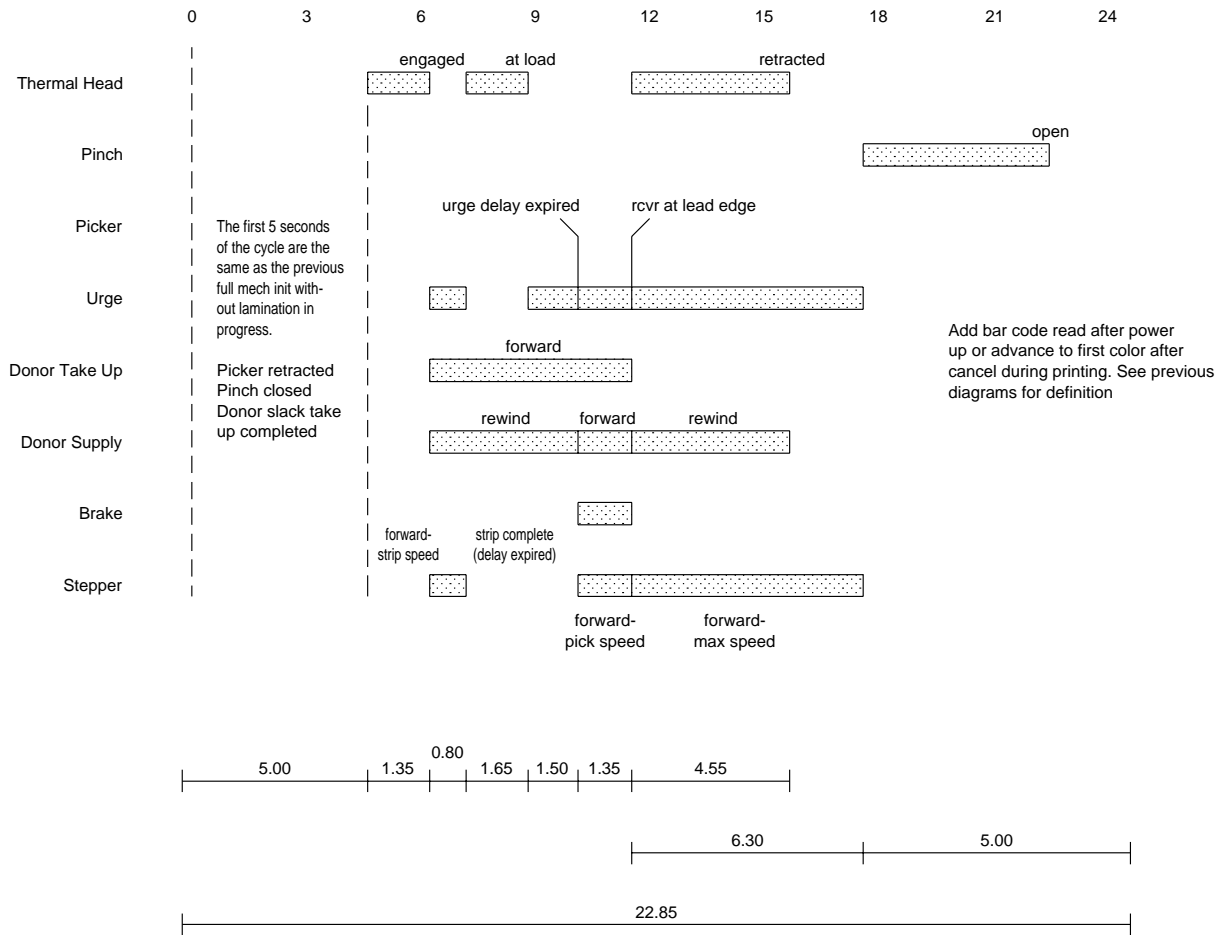
PICK - XLS 8657 DIGITAL PRINTER



A087_9022EC

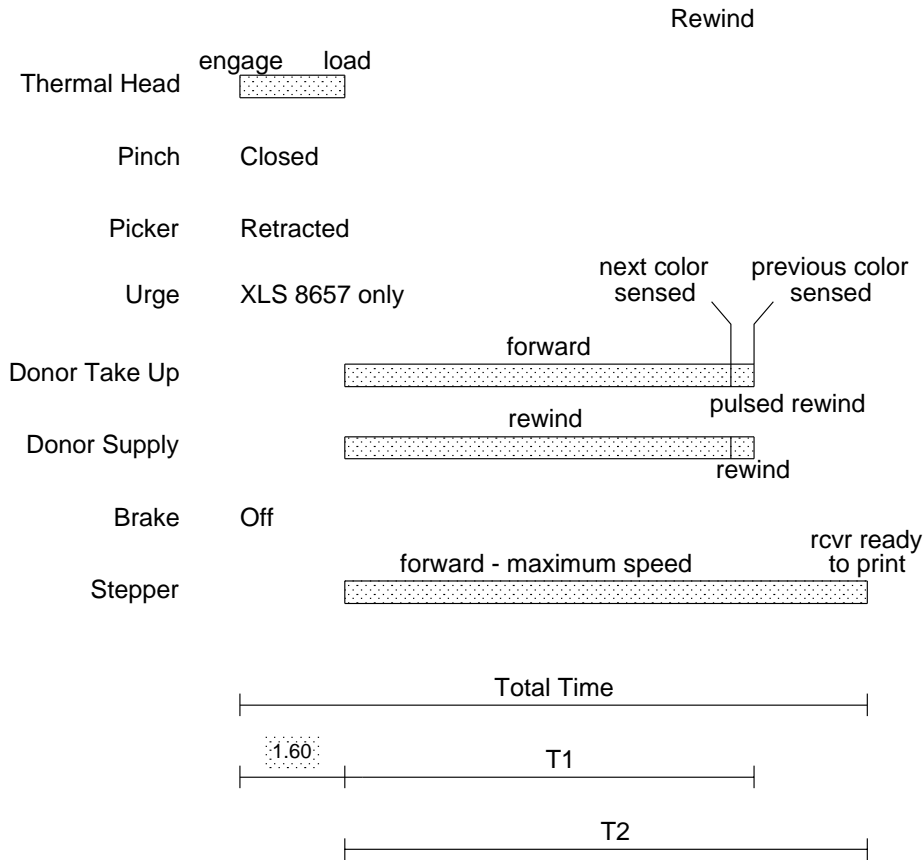
Mechanical Initialization

Mechanical Initialization with a Receiver At The Urge Sensor And Not At The Lead Edge Sensor - Model XLS 8657
Time (seconds)



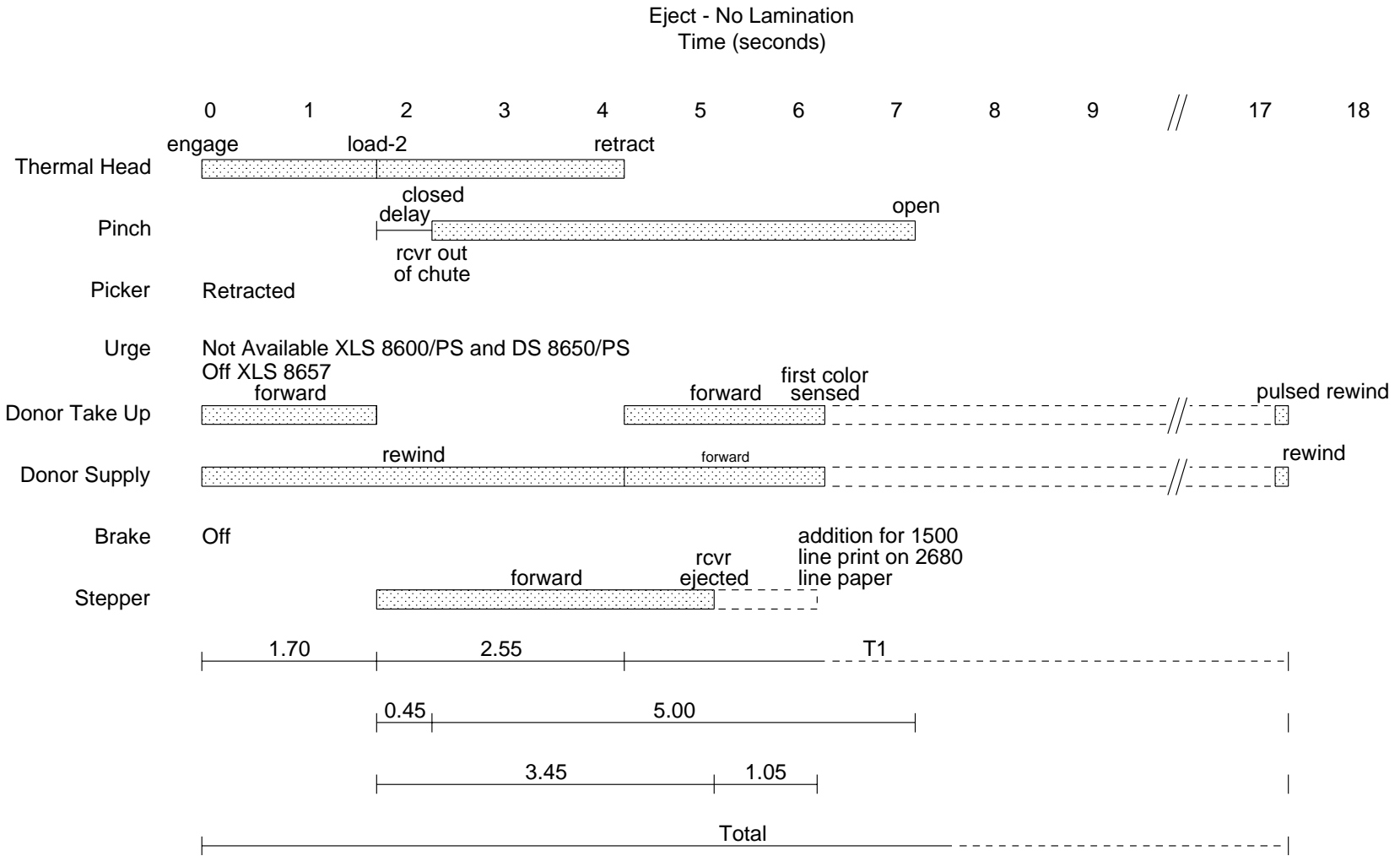
A087_9020DC

Rewind



Lines	T1 (sec)			T2 (sec)	Total Time (sec)		
	Donor Length (inches)				Donor Length (inches)		
	7	12	14		7	12	14
1500	1.05	3.80	5.00	1.60	1.05	5.40	6.60
2680	-	1.65	2.75	2.85	-	4.45	4.45
2890	-	1.25	2.35	3.05	-	4.65	4.65
3000	-	1.05	2.15	3.20	-	4.80	4.80
3600	-	-	1.05	3.85	-	-	5.45

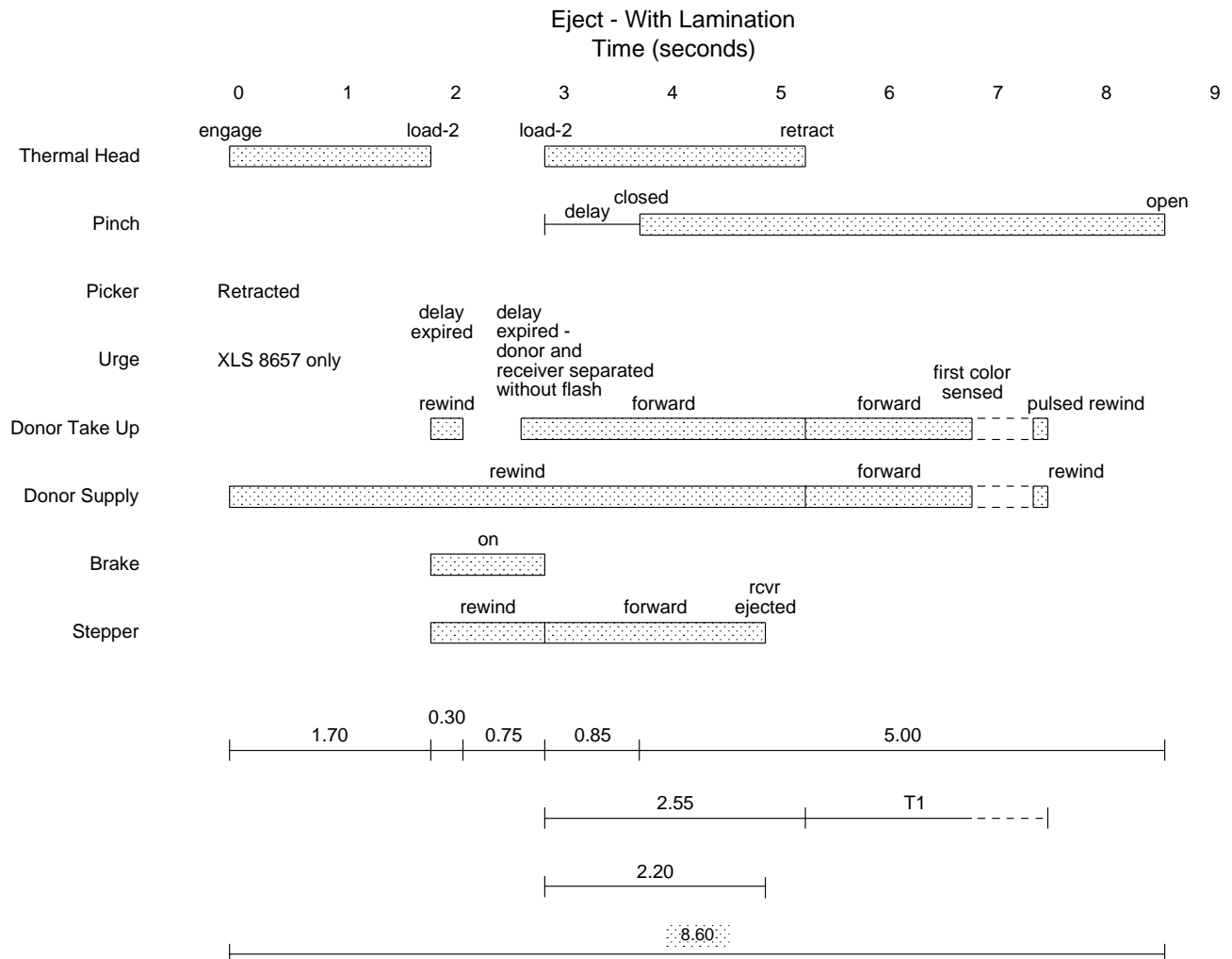
A087_9025DC



Lines	T1 (sec)					Total Time (sec)				
	Donor Length (inches)					Donor Length (inches)				
	7-WO/Lam	12-WO/Lam	14-WO/Lam	12-W/Lam	14-W/Lam	7-WO/Lam	12-WO/Lam	14-WO/Lam	12-W/Lam	14-W/Lam
1500	1.65	4.40	5.50	11.00	13.20	7.15	8.65	9.75	15.25	17.45
2680	-	2.15	3.35	8.75	11.05	-	7.15	7.60	13.00	15.30
2890	-	1.75	2.85	8.35	10.55	-	7.15	7.15	12.60	14.80
3000	-	1.65	2.75	8.25	10.45	-	7.15	7.15	12.50	14.70
3600	-	-	1.65	-	9.35	-	-	7.15	-	13.60

A087_9024EC

Eject Timing - With Lamination



Lines	Donor Length (inches)	T1 (sec)
3600	14	1.55
3000	12	1.55
2890	12	1.75
2680	12	2.15

A087_9021DC

Overview

- [1] The DONOR BRACKET BARCODE ASSEMBLY reads the DONOR BAR CODE.
- [2] The PRINTER:
 - receives a print command
 - senses and verifies the type of TRAY
- [3] The RECEIVER is moved into the PRINTER.
- [4] A 4 pass process is used to print the image in 4 passes, yellow, magenta, cyan, and a laminant.
- [5] After the laminant is completed, the print is complete.
- [6] The print is ejected from the PRINTER.

RECEIVER

- [1] The PRINTER receives a print command.
- [2] The DONOR TAKE-UP and the SUPPLY MOTORS energize. This causes the DONOR to pass the depleted cyan from the previous print and advance to yellow. The DONOR TAKE-UP and SUPPLY MOTORS de-energize. The DONOR BRACKET BAR CODE ASSEMBLY reads the DONOR BAR CODE.
- [3] The HEAD POSITION MOTOR energizes, moving the THERMAL HEAD in the LOAD POSITION to allow the DONOR and the RECEIVER to help in the process of RECEIVER LOADING. The HEAD POSITION MOTOR de-energizes.
- [4] The PICK MOTOR energizes, causing the RECEIVER to be picked into the paper path, the CHUTE.
- [5] As the RECEIVER is being picked, the CAPSTAN MOTOR, the PLATEN BRAKE, and the DONOR TAKE-UP and SUPPLY MOTORS are energized. The DONOR advances, allowing the RECEIVER to enter the NIP and reach the LEAD EDGE SENSOR.
- [6] The PINCH MOTOR energizes, PINCHING the RECEIVER in between the PINCH ROLLER and the CAPSTAN TRACTION ROLLER.
- [7] At this point, the PICK MOTOR, the CAPSTAN MOTOR, the PLATEN BRAKE, and the DONOR TAKE-UP and SUPPLY MOTORS de-energize. The PICK MOTOR reverses to return the PICKER to its original position.
- [8] The CAPSTAN MOTOR energizes in reverse at ≈ 5 times the print speed to position the RECEIVER for the yellow transfer. The THERMAL HEAD reaches the operating temperature and the image data is obtained.
- [9] The DONOR TAKE-UP and SUPPLY MOTORS are sent pulses in reverse to move the DONOR to the start of the yellow patch.
- [10] The CAPSTAN MOTOR and the DONOR TAKE-UP and SUPPLY MOTORS de-energize.

Yellow Transfer

- [1] The THERMAL HEAD POSITION MOTOR energizes, the THERMAL HEAD moves into the ENGAGE POSITION and de-energizes.
- [2] The CAPSTAN MOTOR and the DONOR TAKE-UP and SUPPLY MOTORS are energized simultaneously.
- [3] The CAPSTAN MOTOR moves in the forward direction to prevent GEAR TRAIN backlash and for correct registration.
- [4] The TAKE-UP MOTOR adjusts the tension of the DONOR during the print cycle.
- [5] The DONOR SUPPLY MOTOR operates in reverse to cause a reduction of variability in brake slip friction.
- [6] The yellow section of the image is printed.
- [7] Once the transfer of image data is complete and the DONOR and RECEIVER are separated, the CAPSTAN and DONOR MOTORS de-energize.
- [8] The HEAD POSITION MOTOR energizes and moves the THERMAL HEAD back into the LOAD POSITION and de-energizes.
- [9] The CAPSTAN MOTOR energizes in reverse at ≈ 5 times the print speed to rewind the RECEIVER to the correct position.
- [10] At the same time, the CAPSTAN and DONOR MOTORS are energized to advance the DONOR to the magenta patch. The rewind of the RECEIVER is complete and the DONOR is at the magenta patch.
- [11] The CAPSTAN and the DONOR MOTORS de-energize.

Magenta Transfer

- [1] The THERMAL HEAD POSITION MOTOR energizes and the THERMAL HEAD moves into the ENGAGE POSITION and de-energizes.
- [2] The CAPSTAN MOTOR and the DONOR MOTORS are energized at the same time.
- [3] The CAPSTAN MOTOR moves in the forward direction to remove the backlash of the GEAR TRAIN.
- [4] The TAKE-UP MOTOR adjusts the tension of the DONOR during the print cycle.
- [5] The DONOR SUPPLY MOTOR operates in reverse to cause a reduction of variability in brake slip friction.
- [6] The magenta section of the image is printed.
- [7] Once the transfer of image data is complete and the DONOR and the RECEIVER are separated, the CAPSTAN and the DONOR MOTORS de-energize.
- [8] The HEAD POSITION MOTOR energizes and moves the THERMAL HEAD back into the LOAD POSITION and de-energizes.
- [9] The CAPSTAN MOTOR energizes in reverse at ≈ 5 times the print speed to rewind the RECEIVER to the correct position.
- [10] Simultaneously, the CAPSTAN and DONOR MOTORS are energized to advance the DONOR to the cyan patch. The rewind for the RECEIVER is complete and the DONOR is at the cyan patch.
- [11] The CAPSTAN and DONOR MOTORS de-energize.

Cyan Transfer

- [1] The THERMAL HEAD POSITION MOTOR energizes and the THERMAL HEAD moves into the ENGAGE POSITION and de-energizes.
- [2] The CAPSTAN MOTOR and the DONOR MOTORS are energized at the same time.
- [3] The CAPSTAN MOTOR moves in the forward direction to remove the backlash of the GEAR TRAIN.
- [4] The TAKE-UP MOTOR adjusts tension during the print cycle.
- [5] The DONOR SUPPLY MOTOR operates in reverse to cause a reduction of variability in brake slip friction.
- [6] The cyan section of the image is printed.

Black Transfer

- [1] The THERMAL HEAD POSITION MOTOR energizes and the THERMAL HEAD moves into the ENGAGE POSITION and de-energizes.
- [2] The CAPSTAN MOTOR and the DONOR MOTORS are energized at the same time.
- [3] The CAPSTAN MOTOR moves in the forward direction to remove the backlash of the GEAR TRAIN.
- [4] The TAKE-UP MOTOR adjusts the tension of the DONOR during the print cycle.
- [5] The DONOR SUPPLY MOTOR operates in reverse to cause a reduction of variability in brake slip friction.
- [6] The black section of the image is printed.
- [7] Once the transfer of image data is complete and the DONOR and RECEIVER are separated, the CAPSTAN and DONOR MOTORS de-energize.
- [8] The HEAD POSITION MOTOR energizes and moves the THERMAL HEAD back into the LOAD POSITION and de-energizes.
- [9] The CAPSTAN MOTOR energizes in reverse at ≈ 5 times the print speed to rewind the RECEIVER to the correct position.
- [10] Simultaneously, the CAPSTAN and DONOR MOTORS are energized to advance the DONOR to the cyan patch. The rewind of the RECEIVER is complete and the DONOR is at the cyan patch.
- [11] The CAPSTAN and DONOR MOTORS de-energize.

Lamination

- [1] The THERMAL HEAD POSITION MOTOR de-energizes and the THERMAL HEAD moves into the ENGAGE POSITION and de-energizes.
- [2] The DONOR MOTOR operates in rewind to cause a variability reduction in brake slip friction.
- [3] The TAKE-UP MOTOR adjusts the tension during the lamination cycle.
- [4] The STEPPER rewinds for a minute, then moves forward.
- [5] The DONOR is advanced to the yellow patch and the CAPSTAN and DONOR MOTORS de-energize.

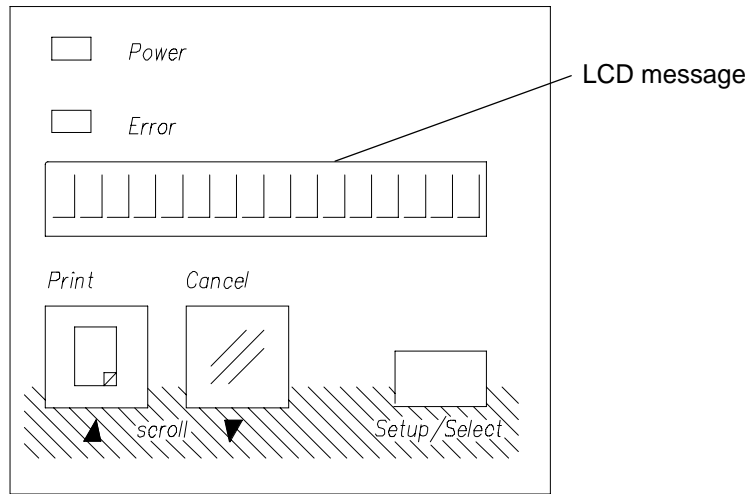
Eject

- [1] Once the transfer of image data is complete and the DONOR and the RECEIVER are disconnected, the edge of the RECEIVER is advanced past the CHUTE. The CAPSTAN and the DONOR MOTORS de-energize.
- [2] The HEAD POSITION MOTOR energizes and moves the THERMAL HEAD into the RETRACT POSITION.
- [3] Simultaneously, the PINCH MOTOR opens the PINCH and the DONOR SUPPLY MOTOR energizes in reverse to apply tension to the DONOR.
- [4] With the PLATEN BRAKE energized, the CAPSTAN MOTOR energizes at 10 times the print speed to eject the print.
- [5] The PRINT CYCLE is complete when the print is ejected and the CAPSTAN DRIVE and the PLATEN BRAKES are de-energized.

Section 3: LCD DISPLAY - Diagnostics

ENGINE

LCD Messages



A087_0058BCA
A087_0058BC



Important

All of the LCD Messages are in [BOXES]. The messages will be displayed on the LCD.

If the operation of the POWER SUPPLY or CONTROLLER BOARD is not correct, you will not be able to access the diagnostics.

Preparing to Use the Diagnostics

- [1] Open the CONTROLLER ENCLOSURE and DRAWER ASSEMBLY.



Important

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

- [2] Remove the P13 CONNECTOR from the CONTROLLER BOARD. See Page 8.
- [3] Check that the DIAGNOSTIC SELECTION SWITCH is in the ENGINE MODE. See Page 8.
- [4] Energize the PRINTER.
- [5] 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].
- [6] Open the DOOR.
- [7] Install:
- 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 2 times 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.
 - (a) Press the CANCEL or PRINT BUTTONS to scroll through the diagnostic menu levels.
 - (b) After you select the main or top diagnostic menu, press the SETUP/SELECT BUTTON to select a SUB-MENU.
 - (c) To exit the diagnostics, scroll through the top menus until you reach and select [DIAG: EXIT].
 - (d) 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.
- [5] If you have exited the diagnostics, do Steps 1, 2, 3, 4, and 4a to enter them again.

Diagnostic 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: 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
 OPT: 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

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[DIAG: PANEL TEST]

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

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE	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 (ENGINE versions) allows the technician to check which versions are installed in the CONTROLLER BOARD.

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE	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 version numbers for the ENGINE. 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 the technician to know the software version installed in the ENGINE and to check that all of the data is in these versions. See Pages 8 and 21 for a list of all 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	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 [DIAG: PRN USAGE].
- [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 EEPROM on the CONTROLLER BOARD except for the plane count, which is stored in the THERMAL HEAD.

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: B-I ____]	Number of burn-in actuations completed using the burn-in cycle.
[USE: EXIT]	Exits the SUB-MENU to the top diagnostic menu.

- [5] The [DIAG: PRN USAGE] allows the technician 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.

Note

The data should be used with the FAIL HIST (failure history). If the print count matches the print count next to the error in FAIL HIST, the failure or error is the present failure and should be diagnosed. If the print counts do not match, it might be caused by a previous error that was left in the history during the manufacturing process. This data can also be used during feedback.

[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 E² (U9).

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE	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 [01 E__ C_____].
- [4] Press and release the CANCEL BUTTON. The LCD will scroll through all possible 32 failure logs. The LCD will read [01 E__ C___] through [32 E__ C_____].
 - (a) 01 through 32 are the failure numbers, E is for error number, and C is for the print count at which the error occurred.
 - (b) The lower the failure number is, this indicates the most recent error. This information can be used by the technician to determine what the error is, the number of times it occurs, and the PRINTER failure history. See the section on Error Codes for a description of the error codes.
- [5] The last SUB-MENU will read [USE: EXIT].
- [6] To exit [DIAG: FAIL HIST], when the LCD reads [USE: EXIT], press and release the SETUP/SELECT BUTTON. The LCD will return to [DIAG: FAIL HIST].
- [7] Press the CANCEL or PRINT BUTTON to scroll to the correct menu, exit the diagnostics, or continue.

[DIAG: RECEIVER]



Important

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

The preliminary conditions are:

TRAY INSTALLED	YES
DONOR INSTALLED	NO
RECEIVER INSTALLED	YES
RECEIVER TYPE	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	<ol style="list-style-type: none"> 1. To do the TRAY test, it is necessary to install and remove the TRAY. 2. To do the RECEIVER TYPE test, it is necessary to install paper or a TRANSPARENCY in the TRAY.

- [1] Enter the diagnostics.
- [2] Press and hold the CANCEL or PRINT BUTTON to scroll to [DIAG: RECEIVER]. The LCD will indicate the RECEIVER type and size.
- [3] Press and release the SETUP/SELECT BUTTON The LCD will read [RCVR:TRAY].
- [4] Press the CANCEL BUTTON and scroll to [RCVR: TYPE].
- [5] Depending on the RECEIVER installed and the size selected, the display reads one of the following:
 - 8.5 x 11-in. paper or the type media installed
 - No TRAY = [NO PAPER]
 - Empty TRAY
- [6] To exit press the CANCEL or PRINT BUTTON.

[DIAG: HEAD TEMP]

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	<ol style="list-style-type: none"> 1. The correct approximate range for the THERMAL HEAD temperature is 20 - 55 degrees C. 2. CAUTION: Do not exceed a THERMAL HEAD temperature of 55 degrees C.

- [1] Enter the diagnostics.
- [2] Press and release the CANCEL or PRINT BUTTON to scroll to [DIAG: HEAD TEMP].



Important

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

- [3] Press and release the SETUP/SELECT BUTTON. The LCD will read [TEMP: FAN].
- [4] Press and hold the SETUP/SELECT BUTTON. The LCD will read [TEMP:___°C]. This is the present centigrade temperature of the THERMAL HEAD. This will energize the 4 FANS that regulate the temperature of the THERMAL HEAD. The digits on the LCD should also decrease as the FANS continue to operate. This is the temperature.



Note

This test allows the technician to check the operation of the FAN, ADC, SENSORS, and the CONTROLLER BOARD for a change in cooling.

- [5] Release the SETUP/SELECT BUTTON.
- [6] Press the CANCEL BUTTON to scroll to [TEMP: HEATER].



Important

If the temperature does not increase when the HEATER is energized, for Style 1 THERMAL HEADS, the THERMAL HEAD FUSE might be open or the JUMPER on TP6 on the CONTROLLER BOARD might not be installed. The HEATER LIGHT, on the lower right corner of the CONTROLLER BOARD, illuminates even if the THERMAL HEAD FUSE is open or the JUMPER on TP6 is missing. If the HEATER LIGHT does not illuminate, there is a malfunction on the CONTROLLER BOARD or 12 V DC is not present. The HEATER LIGHT is not used for Style 2 THERMAL HEADS. For Style 2 THERMAL HEADS, the temperature is increased by pulsing the THERMAL HEAD.

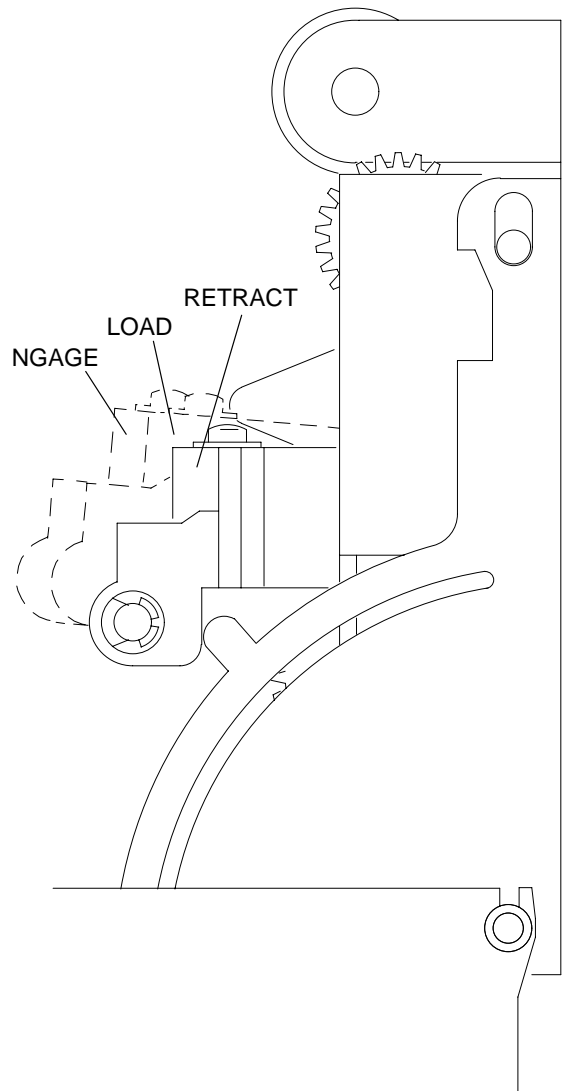
- [7] Press and hold the SETUP/SELECT BUTTON. The LCD will read [TEMP: ____ °C]. These numbers indicate the temperature of the THERMAL HEAD. These numbers should increase as you continue to hold the SETUP/SELECT BUTTON because you are energizing the HEATER or pulsing the THERMAL HEAD.



Note

This test allows the service technician to check the operation of the THERMAL HEAD HEATER, ADC, SENSORS, CONTROLLER BOARD, and CONTROLLER LED.

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

[DIAG: HEAD TEST]

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**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.

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	

1. CAUTION: Before opening or closing the DOOR, check that the THERMAL HEAD is in the RETRACT POSITION. If not, this could cause damage to the THERMAL HEAD or PRINTER.

DIAGNOSTICS

- [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 RETRACT POSITION.

Note

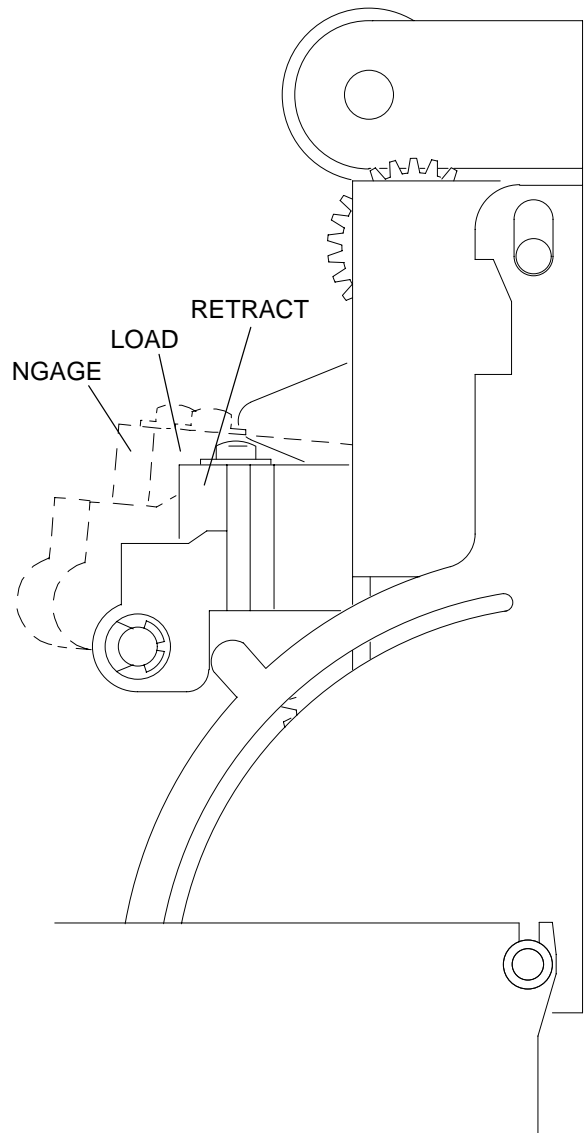
This test allows the technician to test the THERMAL HEAD LIFT MOTOR, THERMAL HEAD LIFT MECHANISM, THERMAL HEAD LIFT SENSORS, and CONTROLLER BOARD. See the “Diagnostic Menu Tree” on Page 21.

- [5] When the LCD reads [HEAD: RETRACT], the test is complete.
- [6] Press the CANCEL BUTTON and scroll to [HEAD: LOAD].
- [7] Press and release the SETUP/SELECT BUTTON. The LCD will read [HEAD: LOADING] and the THERMAL HEAD will move into the LOAD POSITION.

Note

This test allows the technician to test the THERMAL HEAD LIFT MOTOR, THERMAL HEAD LIFT MECHANISM, THERMAL HEAD LIFT SENSORS, and CONTROLLER BOARD. See the “Diagnostic Menu Tree” on Page 21.

- [8] When the LCD reads [HEAD: LOAD], the test is complete.
- [9] Press the CANCEL BUTTON and scroll to [HEAD: ENGAGE].



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- [10] Press and release the SETUP/SELECT BUTTON. The LCD will read [HEAD: ENGAGING]. The THERMAL HEAD will move into the ENGAGE POSITION.

Note

This test allows the technician to test the THERMAL HEAD LIFT MOTOR, THERMAL HEAD LIFT MECHANISM, THERMAL HEAD LIFT SENSORS. See the “Diagnostic Menu Tree” on Page 21.

- [11] When the LCD reads [HEAD: ENGAGE], the test is complete.
- [12] Press the CANCEL BUTTON and scroll to [HEAD: RETRACT].
- [13] Press and release the SETUP/SELECT BUTTON. The LCD will read [HEAD: RETRACTING].
- [14] When the LCD reads [HEAD: RETRACT], check that the THERMAL HEAD is in the RETRACT POSITION.
- [15] Press the CANCEL BUTTON and scroll to exit. The LCD will read [HEAD: EXIT].
- [16] To exit the [DIAG: HEAD TEST] when the LCD reads [HEAD: EXIT], press the SET-UP SELECT BUTTON. The LCD will read [DIAG: HEAD TEST].
- [17] 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	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"> 1. When the DONOR is first installed with the DOOR open, or anytime the DOOR is open with DONOR installed, the LCD will always read DNR: COLOR = CYN because the DONOR is not sensed. 2. Follow the procedure to check when the DOOR should be open or closed.

- [1] Open the DOOR. Enter the diagnostics.
- [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.

 **Note**

This test allows the technician to check the operation of the SUPPLY MOTOR, SPINDLE, CLUTCH, SPOOL, and CONTROLLER BOARD.

- [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.

 **Note**

This test allows the technician to check the operation of the DONOR SENSING SYSTEM and CONTROLLER BOARD.

- [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 DONOR SENSING SYSTEM is also detecting the 3 patches of DONOR.

 **Note**

This test allows the technician to check the operation of the DONOR SENSING SYSTEM, CONTROLLER BOARD 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.

 **Note**

This test allows the technician to check the DONOR TAKE-UP and SUPPLY MOTORS, CLUTCHES, SPINDLES, and the CONTROLLER BOARD.

- [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.

Note

This test allows the technician to check the DONOR TAKE-UP and SUPPLY MOTORS, CLUTCHES, SPINDLES, and the CONTROLLER BOARD.

- [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 DONOR SENSING SYSTEM is also detecting the 3 patches of DONOR.

Note

This test allows the technician to check the operation of the DONOR SENSING SYSTEM, CONTROLLER BOARD, 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 - > ##]. This test checks the BAR CODE SENSOR and BAR CODE LABEL. The number indicates the type of DONOR. See the procedure "DONOR TYPE BAR CODE SENSING" on Page 55 for the list of DONOR TYPES.
- [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 SET-UP 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	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	1. It is necessary to install a RECEIVER between the CAPSTAN TRACTION ROLLER and the PINCH ROLLER; this is done to check that the PINCH holds the RECEIVER when it is closed and releases it when it is open.

- [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]. The position of the PINCH MECHANISM is open.

DIAGNOSTICS

- [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] Use your THUMB to rotate the PINCH ROLLER. If it does not move, the PINCH is closed.

Note

This test allows the technician to check the PINCH MECHANISM and CONTROLLER BOARD.

- [8] Pull on the RECEIVER on both front corners. It should be pinched evenly. The RECEIVER should not move. If the RECEIVER moves or can be pulled out from either corner, the PINCH is not operating correctly.
- [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. The LCD will read [PINCH: OPEN].
- [11] This operates the PINCH MOTOR, PINCH CAM SHAFT, PINCH ARMS, and PINCH ROLLER.

Note

This test allows the technician to check the PINCH MOTOR MECHANISM and CONTROLLER BOARD.

- [12] Remove the RECEIVER.
- [13] Press the CANCEL BUTTON and scroll to exit. The LCD will read [PINCH: EXIT].
- [14] To exit the [DIAG: PINCH TEST] versions when the LCD reads [PINCH: EXIT], press the SETUP/SELECT BUTTON. The LCD will read [DIAG: PINCH TEST].
- [15] 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	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: 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]. This operates the STEPPER MOTOR, INTERMEDIATE GEAR, and TRACTION ROLLER in the forward position.

Note

This test allows the technician to check the STEPPER MECHANISM and CONTROLLER BOARD.

- [5] Release the SETUP/SELECT BUTTON.
- [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]. This operates the STEPPER MOTOR, INTERMEDIATE GEAR, and TRACTION ROLLER in the REWIND POSITION.
- [8] Press the CANCEL BUTTON and scroll to [MTRS: PICK FWD].
- [9] Press and hold the SETUP/SELECT BUTTON. The LCD will read [MTRS: PICKING]. This operates the PICKER MECHANISM and picks either 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].
- [13] Press and hold the SET/UP SELECT BUTTON. The LCD will read [MTRS: BRAKE ON]. This test checks the operation of the PLATEN BRAKE.
- (a) 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.
 - (b) If this is not an XLS 8657 DIGITAL PRINTER, scroll to EXIT to exit the diagnostics.



Important

The steps below are for the XLS 8657 DIGITAL PRINTER only.

- [14] Press the CANCEL BUTTON and scroll to [URGE]. The LCD will read [MTRS: URGE].
- [15] Press and hold the SETUP/SELECT BUTTON. The LCD will read [URGE ON]. The URGE MOTOR and ROLLERS will operate.
- [16] Press the CANCEL or PRINT BUTTON to scroll to the correct menu.
- [17] Exit the diagnostics or continue.

[DIAG: OPTIONS]

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE	REFLECTIVE/TRANSPARENCY
DOOR OPEN	YES
POWER ON	YES
SPECIAL FUNCTIONS	YES
SPECIAL ACTIONS	1. These tests allow the technician to select the necessary options: RECEIVER TYPE OPTION, LOOP OPTION, and the BURN IN OPTION. The RECEIVER TYPE OPTION allows you to select paper or a TRANSPARENCY. The LOOP OPTION allows the technician to make continual test prints when selected. The BURN IN OPTION is used by the manufacturer.

- [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: PAPER]. Press and release the CANCEL BUTTON, the LCD will read [RCVR OPT: TRANS]. The symbol > indicates which option was selected. You can scroll between the options.
- [5] After you select your option, press the SETUP/SELECT BUTTON, the symbol > will be in front to check your option selection.



Note

This option is used to select either paper or TRANSPARENCY during the print cycle in the STAND-ALONE MODE.

- [6] After you select paper or TRANSPARENCY, press the CANCEL BUTTON and scroll to exit. The LCD will read [RCVR OPT: EXIT].

DIAGNOSTICS

- [7] Press and RELEASE the SETUP/SELECT BUTTON. The LCD will read [OPT: RECEIVER].
- [8] Press the CANCEL BUTTON and scroll. The LCD will read [OPT: CYCLE TYPE].
- [9] Press and release the SETUP/SELECT BUTTON. The LCD will read [CYCLE: XLS 8600] or the correct model.
- [10] Press the CANCEL BUTTON.
- [11] The LCD will read:
- [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: EXIT]
- [12] This test allows the technician to operate a series of configurations and to test the operations of the PICK and EJECT.
- [13] Press the CANCEL BUTTON and scroll. The LCD will read [OPT: LOOP-ENABLE].
- [14] 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.
- [15] After you determine the correct option, select the option by pressing the SETUP/SELECT BUTTON. The symbol > will be in front to check your option.

Note

This function allows the technician to make multiple test prints when [LOOP OPT: ON] is selected by pressing the TEST PRINT BUTTON in the **READY MODE**.

- [16] Press the CANCEL BUTTON and scroll to exit. The LCD will read [LOOP OPT: EXIT].
- [17] Press and release the SETUP/SELECT BUTTON. The LCD will read [OPT: LOOP-ENABLE].
- [18] Press the CANCEL BUTTON and scroll to [LOOP COUNT]. The LCD will read [OPT: LOOP COUNT].
- [19] 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 the technician to increment or decrement the test counter during burn-in.
- [20] Press and release the SETUP/SELECT BUTTON. The LCD will read [COUNT: EXIT].
- [21] Press the CANCEL BUTTON and scroll to the next option.

[DIAG: CTRLR TEST]

The preliminary conditions are:

TRAY INSTALLED	NO
DONOR INSTALLED	NO
RECEIVER INSTALLED	NO
RECEIVER TYPE	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 the CANCEL or PRINT BUTTON to scroll to [DIAG: CTRLR TEST]. The LCD will read [DIAG: CTRLR TEST].
- [3] Press and release the SETUP/SELECT BUTTON. The LCD will read [CTRLR: TEST ALL].
- [4] Press and release the SETUP/SELECT BUTTON. The LCD will read [CTRLR: TESTING].

- [5] When the test is completed, the LCD will read [CTRLR: TEST ALL].
- [6] This test is used to check that the test for the CONTROLLER operate correctly, allowing the technician to diagnose malfunctions in the area of the CONTROLLER. The versions are:
- [DIAG: CTRLR TEST]
 - [CTRLR: TEST ALL]
 - [CTRLR: MATCH VERS]
 - [CTRLR: PROM 0]
 - [CTRLR: PROM 1]
 - [CTRLR: RAM 0]
 - [CTRLR: RAM 1]
 - [CTRLR: C EEPROM]
 - [CTRLR: H EEPROM]
 - [CTRLR: ADC]
 - [CTRLR: PHM]
 - [CTRLR: EXIT]

CONTROLLER Test Option Definitions

- TEST ALL
 - Performs all the tests listed in the CONTROLLER test section.
 - MATCH VERS
 - Performs a code check for U19 and U20, the PROGRAM PROMS located on the CONTROLLER BOARD.
 - PROM 0 and PROM 1
 - Performs a test on U19 and U20, the PROGRAM PROMS located on the CONTROLLER BOARD.
 - DSP PROM
 - Performs a test on the DSP PROM, U42.
 - RAM 0 and RAM 1
 - Performs a memory check on the RAM located in the CONTROLLER BOARD.
 - C EEPROM
 - Performs a contents check on the CONTROLLER EEPROM, U9.
 - 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 BOARD.
 - PHM (PULSE HEAD MODULATOR)
 - Performs a check on the PULSE HEAD MODULATOR IC located in the CONTROLLER BOARD.
 - DSP (Digital Signal Processor)
 - Performs a check on the DSP on the CONTROLLER BOARD - does not check the checksum.
- [7] Press the CANCEL BUTTON and scroll to the SUB-MENUs. See the list of SUB-MENUs above.
- [8] After you select SUB-MENU, press and release the SETUP/SELECT BUTTON to access a SUB-MENU test.
- [9] During each SUB-MENU test, the LCD will read [CTRLR: TESTING].

Note

This allows the technician to check that the tests operate correctly.

DIAGNOSTICS

- [10] Press the CANCEL BUTTON and scroll to exit. The LCD will read [CTRLR: EXIT].
- [11] Press and release the SETUP/SELECT BUTTON. The LCD will read [DIAG: CTRLR: TEST].
- [12] It is now possible to scroll through the “Diagnostic Main Menu” by using the PRINT or CANCEL BUTTONS.
- [13] To exit the diagnostics, scroll to [DIAG: EXIT].
- [14] Press the SETUP/SELECT BUTTON, the LCD will read [INITIALIZING].
- [15] 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 4: Error Codes

Descriptions

Machine Generated

Condition/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
508	XLS 8657 DIGITAL PRINTER only: RECEIVER stuck at URGE SENSOR
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
600, 601, 602 603	CONTROLLER PROM or BOARD failure
608, 609, 60A, 60C	THERMAL HEAD/CABLE, CONTROLLER BOARD
610	LCD or CONTROLLER BOARD
618, 60B	EEPROM, THERMAL HEAD
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 BOARD

Condition/Error Code	Description
719	THERMAL HEAD/CABLE, CONTROLLER BOARD
720, 721	CONTROLLER BOARD/CABLE
[722][INIT ERROR]	PLATFORM
730	THERMAL HEAD Cooling malfunction
733	THERMAL HEAD Heating malfunction
738, 739	CONTROLLER, RAM
740	PROGRAM PROMS or CONTROLLER BOARD
741, 742	PROGRAM PROMS or CONTROLLER BOARD
748, 749, 74A, 74B, 74C, 74D	PHM Failure
750-756	Unexpected write from DSP
757	DSP Set Verify Failure
760-773, 76E, 76F, 76A, 76B, 76C, 76D	CONTROLLER BOARD
800-857	General CONTROLLER BOARD
900-930, 090B, 091B, 092B, 093B, 094B	DSP BLOCK, CHECKSUM

Section 5: Troubleshooting

Power Distribution

Safety



Warning

Dangerous Voltage

Functional Description

The power distribution for the PRINTER is distributed from a POWER SUPPLY. This supplies power to the CONTROLLER BOARD, FEE BOARD, and THERMAL HEAD.

The POWER SUPPLY automatically senses the AC input and SWITCHES to the correct input. There are 2 AC input ranges, range 1 = 90-132 V AC, and range 2 = 175 - 264 V AC. The AC frequency input operational range is 47 - 63 Hz.

The DELTA POWER SUPPLY is an integrated POWER SUPPLY that includes:

- 5 and 12 V DC POWER SUPPLY

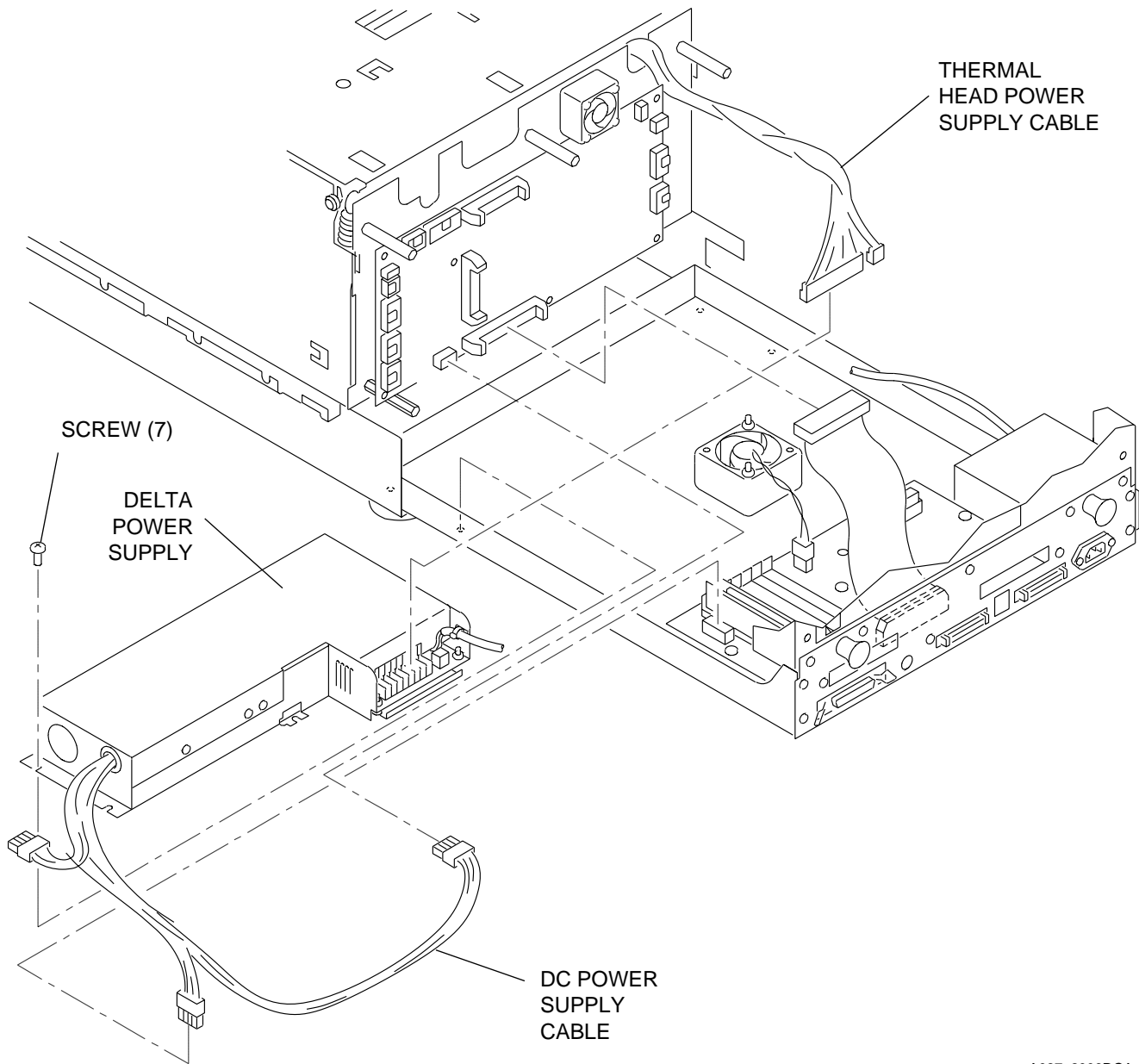
This POWER SUPPLY provides power to the CONTROLLER and FEE BOARDS. There are 3 different voltages, 5 V DC, 12 V DC, and -12 V DC. The CONTROLLER BD uses 5 V DC and 12 V DC. The FEE BD uses 5 V DC, 12 V DC, and -12 V DC.

- THERMAL HEAD POWER SUPPLY

This POWER SUPPLY provides power to the THERMAL HEAD only. The voltage output range for the THERMAL HEAD is adjustable at R523 on the POWER SUPPLY.

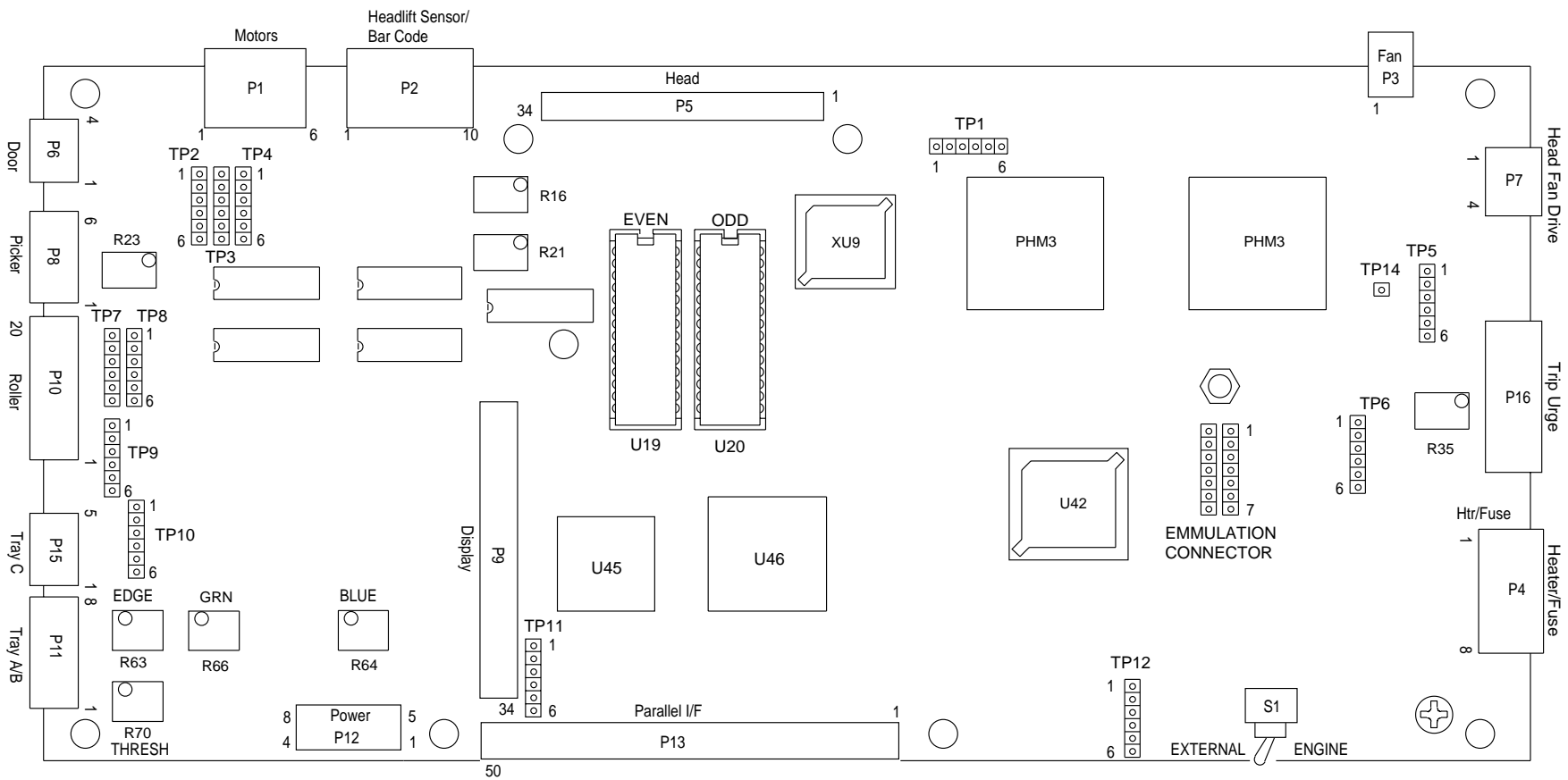
The CONNECTORS for the CONTROLLER and FEE BOARDS are directly connected into the POWER SUPPLY. V DC to the system is supplied through the P12 and J14 CONNECTORS.

- 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



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A087_2006DC

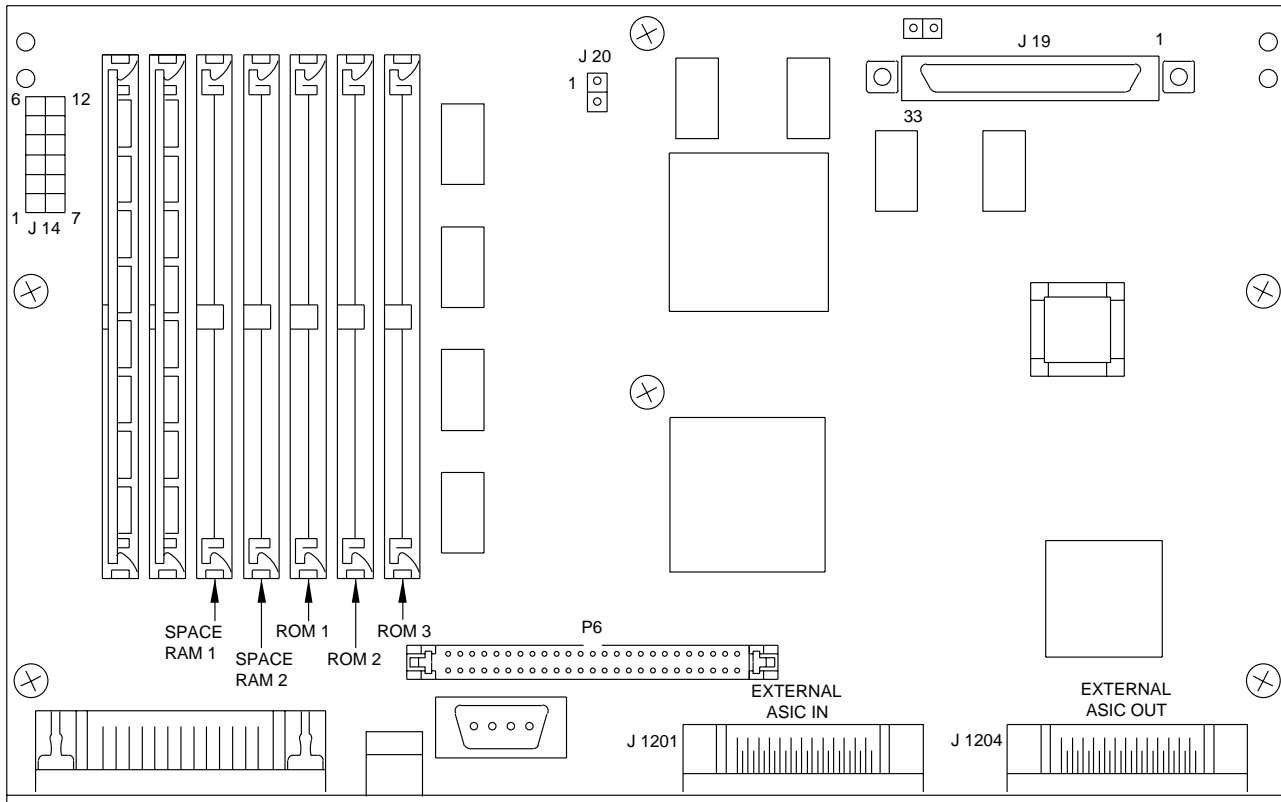
CONTROLLER BOARD



S1 ALLOWS YOU TO RUN
DIAGNOSTICS IN ENGINE
MODE.

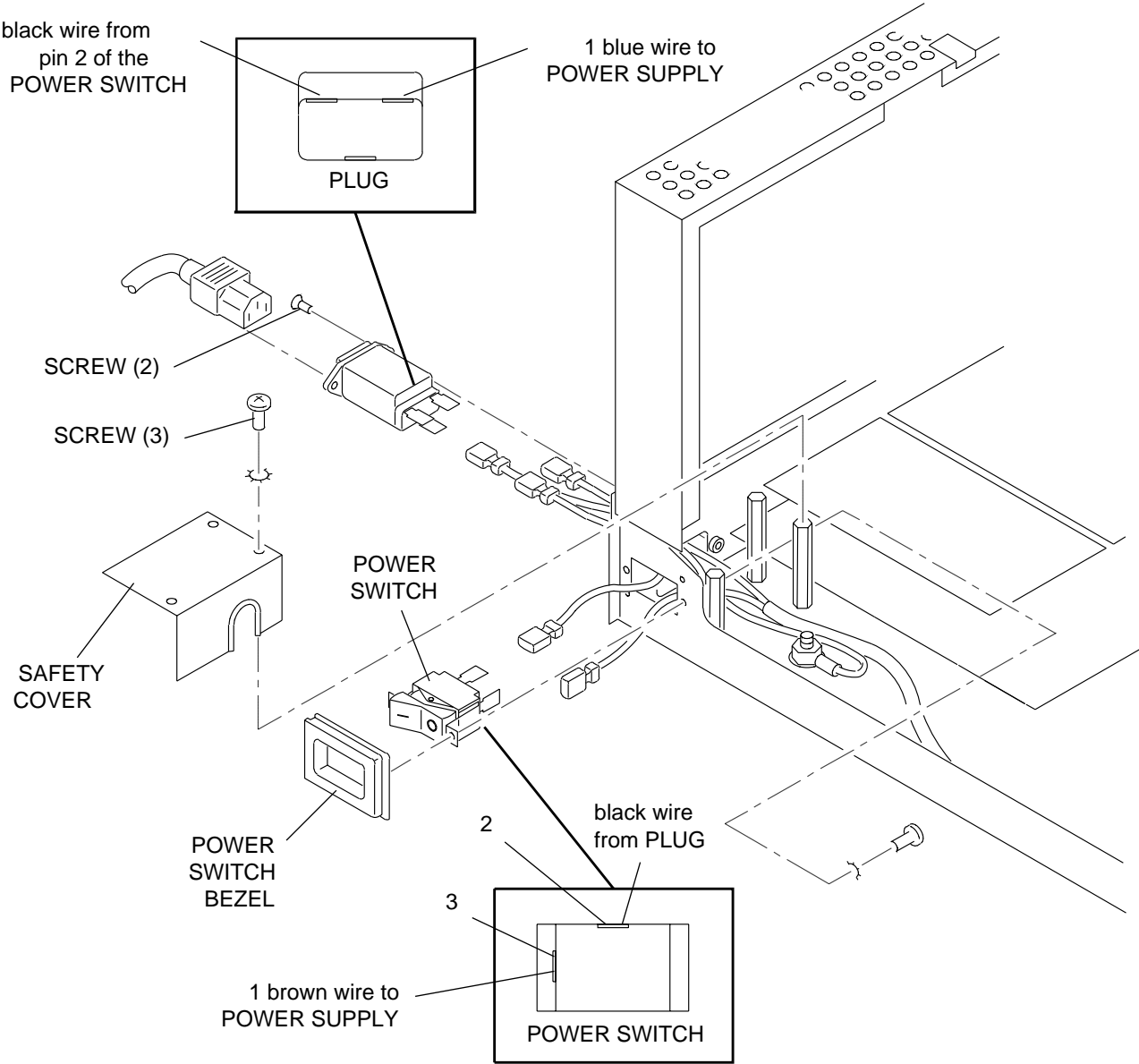
FEE BOARD

FEE BOARD



A087_2017DC

POWER SWITCH



A087_2023DCA
A087_2023DC

Tools

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

Specifications

- Voltage
 - Range 1: 90 - 132 V AC, Range 2: 175 - 264 V AC
- Watts
 - 180 W for printing
 - 107 W during THERMAL HEAD pre-heat
 - 67 W in the idle/ready modes
- Frequency
 - 47 - 63 Hz
- Ambient Temperature
 - 15 - 30°C (59 - 86°F)
- Ambient Humidity
 - 20 - 76% (relative humidity)
- Standard Safety
 - UL1950, CSA 1402C, TUV/VDE: IEC 950

Voltage Verification Chart

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 4.5 V DC	Violet
CONTROLLER	P12	2, 3, 6	GND	Black
FEE	J14	5, 11 (3, 4)	+12 V DC	Orange
FEE	J14	12 (3, 4)	-12 V DC	Yellow
FEE	J14	1, 2, 7, 8 (3, 4)	+5 V DC	Red
FEE	J14	3, 4, 9, 10	GND	Black
FEE	J14	6 (3, 4)	Power fail 4.5 V DC	Violet
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	120/240 V AC to PLUG	Black
POWER SWITCH	NA	3, HOT	120/240 V AC to POWER SUPPLY	Brown
PLUG	NA	NA	HOT and 120/240 V AC to SWITCH PIN 2	Black
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 plugged into the PRINTER and the POWER OUTLET
- POWER SWITCH is on (I = ON HIGH)
- POWER OUTLET does not have a malfunction
- POWER CORD does not have a malfunction

POWER INDICATOR LED Not Illuminated

The PRINTER does not operate.

[1] Do Steps 12 - 22 to check for DC voltage.

[2] De-energize the PRINTER.

[3] Remove the POWER COVER for the POWER SWITCH. If necessary, see the removal procedure for the "POWER SWITCH" in the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.

[4] Set the DIGITAL VOLT METER to AC voltage; the ranges are Range 1: ≈ 115 V AC, and Range 2: ≈ 250 V AC. Use Range 1 for North America and Range 2 for areas where 220 V AC is used.

[5] Energize the PRINTER.

[6] Check:

- POWER SWITCH is in the I position
- AC voltage at the back of the PLUG

[7] Connect:

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

[8] If AC voltage is present, advance to the next step. If not, 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 the back of the PLUG

[11] If voltage is present, advance to PIN 3 of the POWER SWITCH. If voltage is present on PIN 3, advance to the next step. If voltage is not present on PIN 2, check the wire from the PLUG and/or install a new wire. If voltage is present on PIN 2 but not on PIN 3 install a new POWER SWITCH.

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

[13] Check the output of the POWER SUPPLY. Seat P12 on the CONTROLLER BOARD.

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

[15] 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 = ≈ 4.5 V DC



Warning

Dangerous Voltage

[16] Seat CONNECTOR P12 on the CONTROLLER BOARD.

[17] Connect:

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

[18] If the voltages are present, advance to Step 20 of this procedure.

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

[20] If the LEDS on the CONTROLLER BOARD are illuminated, the voltages are present at P12, and the PRINTER does not operate, install a new CONTROLLER BOARD.

[21] If the 5 and 12 V DC LEDS are not illuminated and the voltages are present, install a new CONTROLLER BOARD.

[22] 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 on page 45.

[2] De-energize the PRINTER.

[3] Seat:

- CONNECTOR J1 on the POWER SUPPLY
- CONNECTORS on the THERMAL HEAD

[4] Remove the POWER COVER for the POWER SWITCH. If necessary, see the removal procedure for the "POWER SWITCH" in the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.

[5] Set the DIGITAL VOLT METER to AC voltage; the correct range is Range 1: ≈ 115 V AC, and Range 2: ≈ 250 V AC. Use Range 1 for North America and Range 2 for areas where 220 V AC is used.

[6] Energize the PRINTER.

[7] Check:

- POWER SWITCH is in the I position
- that 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] If voltage is present, advance to PIN 3 of the POWER SWITCH. If voltage is present on PIN 3, advance to the next step. If voltage is not present on PIN 2, check the wire from the PLUG and/or install a new PLUG. If voltage is present on PIN 2 but not PIN 3, install a new POWER SWITCH.

[13] Check that there is DC output from the J1 CONNECTOR on the POWER SUPPLY.

- [14] Set the DIGITAL VOLT METER to DC.
- [15] Connect:
- red PROBE to J1, PINS 1 - 7
 - black PROBE to J1, PINS 8 - 14; the DIGITAL VOLT METER should read 12 - 16.5 V DC
- [16] If voltage is not present on PINS 1 - 7, install a new POWER SUPPLY.
- [17] If voltage is present, advance to the next step.
- [18] De-energize the PRINTER.
- [19] Check the continuity from the HARNESS from J1 to the THERMAL HEAD.
- [20] If continuity is present, install a new THERMAL HEAD HEAT SINK ASSEMBLY.
- [21] If continuity is not present, install a new HARNESS.

No Power to the FEE BOARD - Error 722

The PRINTER operates in the ENGINE MODE.

- [1] De-energize the PRINTER.
- [2] Open the CONTROLLER ENCLOSURE AND DRAWER AY.
- [3] Set the DIGITAL VOLT METER to DC voltage.
- [4] Energize the PRINTER.
- [5] Check the voltage at the 12-PIN CONNECTOR, J14 on the FEE BOARD.
- [6] Connect:
- black PROBE to PINS 3, 4, 9 and 10 on J14 on the FEE BOARD
 - red PROBE to PINS 1, 2, 7, and 8; the DIGITAL VOLT METER should read $\approx +5$ V DC
 - red PROBE to PINS 5 and 11; the DIGITAL VOLT METER should read $\approx +12$ V DC
 - red PROBE to PIN 12; the DIGITAL VOLT METER should read ≈ -12 V DC
 - red probe to PIN 6; the DIGITAL VOLT METER should read ≈ 4.5 V DC
- [7] If any of the voltages are not present, install a new 5 and 12 V DC POWER SUPPLY.
- [8] If there is voltage present, see Error Code 722 of the “Error Codes” Section.

DONOR TRANSPORT and SENSING SYSTEM

Safety

The DONOR TRANSPORT and SENSING SYSTEM is a low voltage area.

Functional Description

The DONOR TRANSPORT and SENSING SYSTEM is divided into 2 systems that are interdependent on each other. 1 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 type of DONOR. 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 ASSEMBLY, TAKE-UP SPINDLES and CLUTCH. The TAKE-UP and SUPPLY MOTORS are unit-directional. The SUPPLY MOTOR operates at ≈ -10.54 V DC while advancing, ≈ 10.44 V DC during rewind, and ≈ 10.42 V DC during tension adjustment.

The TAKE-UP MOTOR operates at ≈ -10.3 V DC while advancing, ≈ 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.

DIAGNOSTICS

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 ASSEMBLY. 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 check that the correct color patch is printed at the correct time.

The DONOR type BAR CODE SENSING SYSTEM is attached 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.

Installation: DONOR

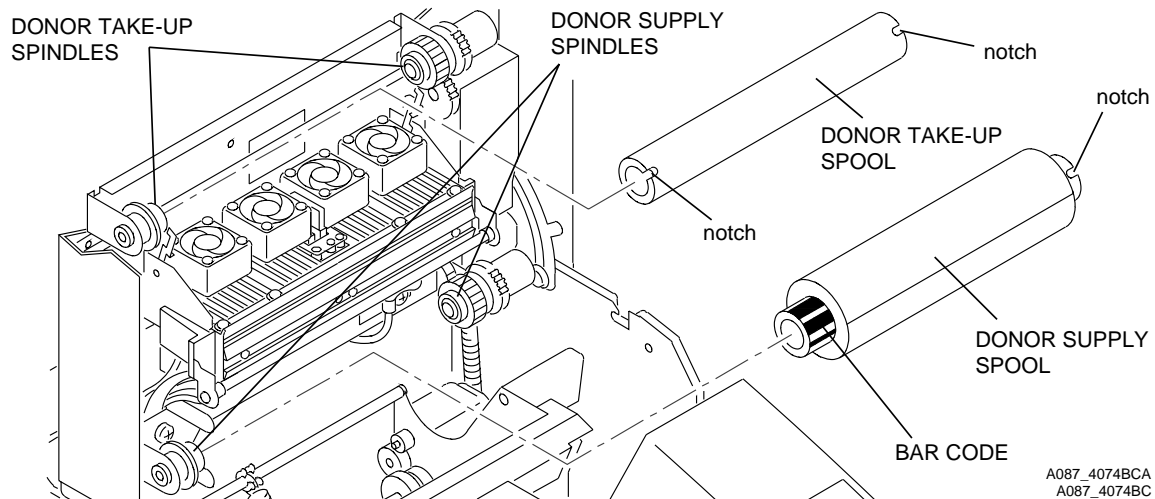
For more information on the DONOR and software versions, see the SITE SPECIFICATIONS, Publication No. SS2935-1.



Caution

Prevent damage. Do not touch the DONOR. Contamination will occur.

- [1] Remove the DONOR from the package and place the DONOR on its end on a surface that is not contaminated.



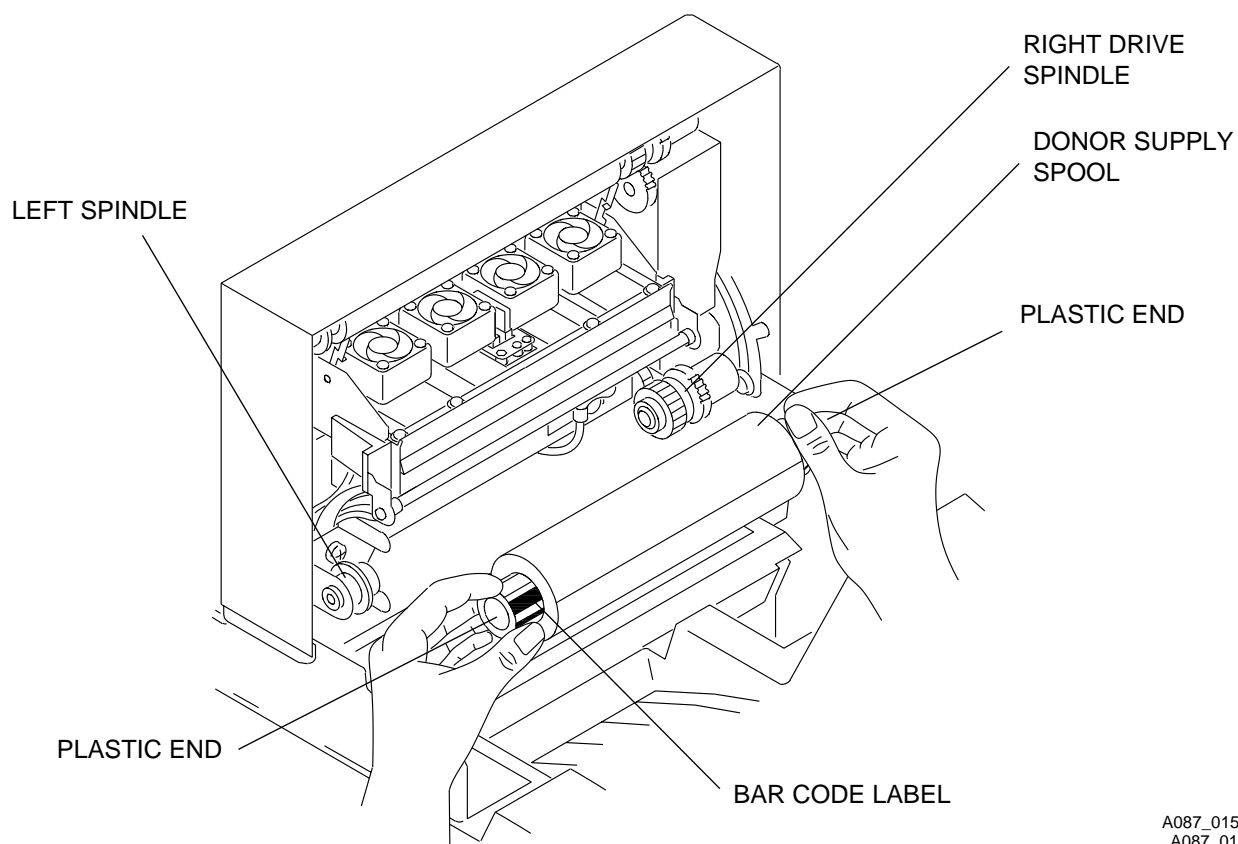
- [2] Open the DOOR to the DONOR.
- [3] Locate the DONOR TAKE-UP SPINDLE.



Important

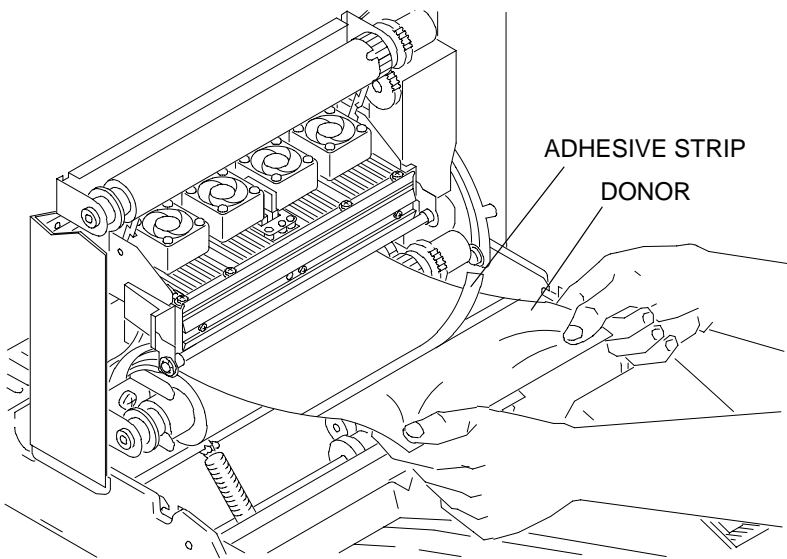
When you install the DONOR TAKE-UP SPOOL, the notches must be to the right of the PRINTER.

- [4] Insert the DONOR TAKE-UP SPOOL on the left side of the DONOR TAKE-UP SPINDLE by moving the SPOOL to the left and compressing the TAKE-UP SPINDLE SPRING.
- [5] With the left TAKE-UP SPINDLE SPRING compressed by the TAKE-UP SPOOL, insert the right side of the DONOR TAKE-UP SPOOL on the right TAKE-UP SPINDLE and release.



A087_0157HCA
A087_0157HC

- [6] Locate the area of the DONOR SUPPLY.
- [7] Hold the DONOR SUPPLY SPOOL from the plastic ends with the BAR CODE LABEL to the left.
- [8] Insert the right end of the DONOR SUPPLY SPOOL on the DRIVE SPINDLE while holding the DONOR SUPPLY SPOOL from the left plastic end.
- [9] Compress the LEFT SPINDLE with your left hand.
- [10] Place the left end of the DONOR SUPPLY SPOOL on the LEFT SPINDLE and release the SPINDLE.
- [11] Rotate the DONOR SUPPLY SPOOL by either plastic end in the direction of the DOOR until the SUPPLY SPOOL seats onto the SPINDLE TABS.



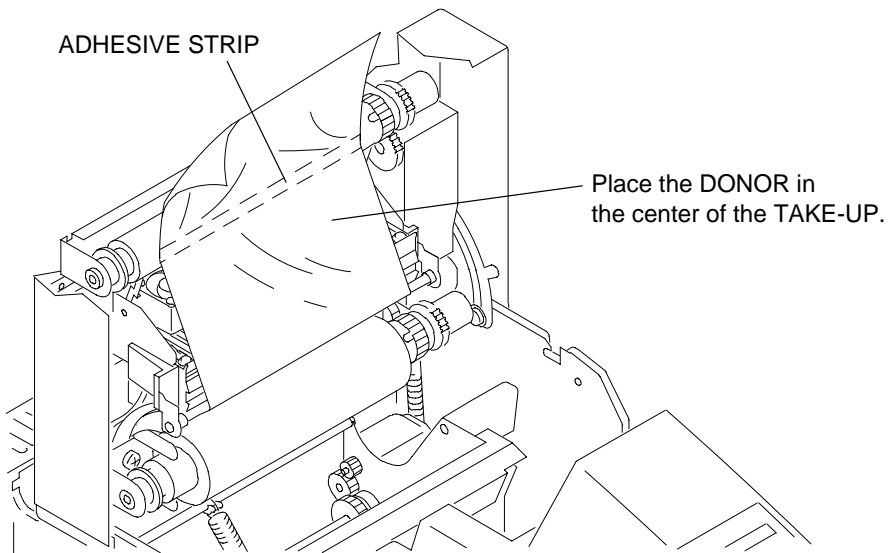
A087_0079BCA
A087_0079BC



Caution

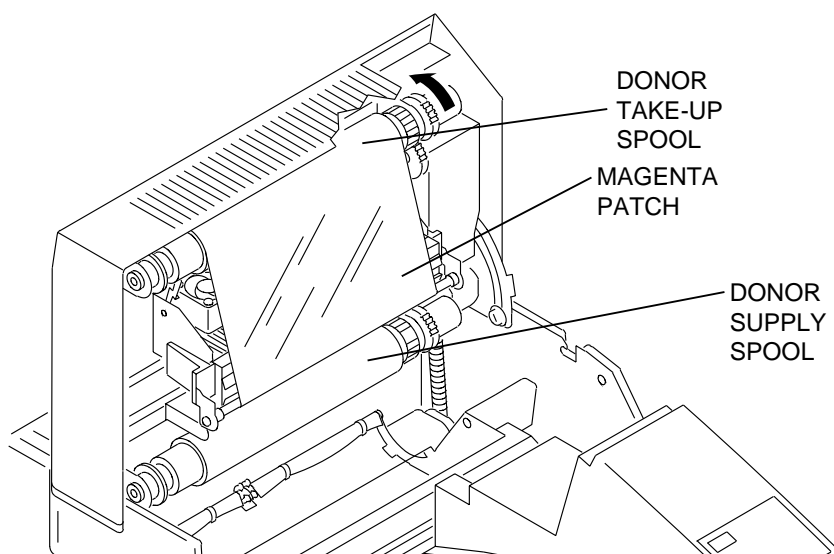
Prevent damage. Do not touch the DONOR. Contamination will occur.

- [12] Unwind the DONOR from the DONOR SUPPLY ROLL.
- [13] Locate and remove the tape covering the ADHESIVE STRIP on the DONOR.
- [14] Hold the DONOR up and place the ADHESIVE STRIP in the center of the DONOR TAKE-UP SPOOL.
- [15] Check that the ADHESIVE STRIP is correctly adhered to the DONOR TAKE-UP SPOOL by moving your finger across the DONOR TAKE-UP SPOOL over the ADHESIVE STRIP from left to right.



A087_0084BCA
A087_0084BC

- [16] Place the DONOR in the center of the TAKE-UP.



A087_4082BCA
A087_4082BC

[17] Rotate the DONOR TAKE-UP SPOOL 2 complete rotations to the magenta patch to correctly wrap the DONOR on the DONOR TAKE-UP SPOOL. Check that the DONOR EMITTERS are behind the magenta patch.

[18] Close the DOOR.



Important

You must clean the THERMAL HEAD after removing or installing the DONOR.

[19] Do the cleaning procedure for the THERMAL HEAD. See the PERIODIC MAINTENANCE, Publication No. PM2935-1.

[20] Check for correct operation.

Tools

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

Specification

Voltages:

- TAKE-UP, SUPPLY, MOTOR: $\approx 3-12$ V DC
- BLUE DONOR SENSOR: on yellow patch, 4.4 ± 0.05 V DC, on cyan patch < 0.5 V DC, on magenta patch > 3.5 V DC
- GREEN DONOR SENSOR: on cyan patch, 3.9 ± 0.05 V DC, on magenta patch > 3.5 V DC, on yellow patch < 0.5 V DC

Voltage

CONTROLLER BOARD while in Diagnostic Donor Test

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
BLUE DONOR SENSOR, TP8 (+)	6*	See Table

* Use TP4, PIN 6 for GND.

DONOR SENSING TRUTH

Color	BLUE LED, TP8-6	GREEN LED, TP8-5
YEL	H > 3.5 V DC	L < 0.5 V DC
MAG/BLK	H > 3.5 V DC	H > 3.5 V DC
CYN	L < 0.5 V DC	H > 3.5 V DC
LAM	L < 0.5 V DC	L < 0.5 V DC

H = Logic high of 1

L = Logic low of 0

FAN BRACKET BOARD - 3-PIN CONNECTOR

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

Preliminary Check

[1] De-energize the PRINTER.

[2] Check:

- DONOR is installed correctly
- for damage on the BAR CODE LABEL located on the right side of the DONOR SUPPLY SPOOL
- DONOR SUPPLY SPOOL is not empty
- 5 and 12 V DC LED is illuminated on the CONTROLLER BOARD
- GREEN and BLUE DONOR EMITTERS are illuminated on the FAN BRACKET ASSEMBLY

[3] Close the DOOR.

DONOR TRANSPORT



Important

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

- [1] Enter 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.
- [4] Check the MOTOR voltages; set the DIGITAL VOLT METER to DC voltage.
- [5] Connect the black PROBE to TP3, PIN 6 and the red PROBE to TP3 PIN 5, SUPPLY MOTOR. The DIGITAL VOLT METER will read:
 - \approx - 10.7 V DC in ADVANCE
 - \approx 10.6 V DC in REWIND
 - \approx 10.6 V DC while in TAKE SLACK
- [6] Connect the black PROBE to TP3, PIN 3. Connect the red PROBE to TP3, PIN 4, TAKE-UP MOTOR. 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 BOARD.
 - \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
- [7] Check for continuity. Disconnect:

CONNECTOR P1	PINS	Resistance
TAKE-UP MOTOR	3, 4	$\approx 20 \pm 5$ ohms
SUPPLY MOTOR	5, 6	$\approx 20 \pm 5$ ohms

- [8] If the resistances are not correct, install a new MOTOR BRACKET ASSEMBLY.
- [9] If the resistances are correct, do the following:
 - (a) Connect P1 to the CONTROLLER BOARD.
 - (b) Measure the resistance at TP3, PINS 6 and 5, SUPPLY MOTOR. The resistance should be $\approx 20 \pm 5$ ohms. If not, install a new CONTROLLER BOARD.

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 BOARD ASSEMBLY, CONNECTOR P2, red, yellow and black wires.
- [3] Set the DIGITAL VOLT METER to + DC VOLTAGE.
- [4] Connect the red (+) PROBE to the FAN BOARD CONNECTOR red wire, then the yellow wire.
- [5] Connect the black (-) PROBE to the FAN BOARD CONNECTOR black wire.
 - (a) If the voltage + 12 V DC is present, install a new FAN BRACKET ASSEMBLY.
 - (b) If the voltage is not present, advance to the next step.

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

CONNECTOR	PIN	3-PIN CONNECTOR	Resistance
P7	3	black wire	$\approx 0 \pm 1$ ohm
P7	1	red wire	$\approx 0 \pm 1$ ohm
P7	2	yellow wire	$\approx 0 \pm 1$ ohm

- [7] If continuity is present, advance to the next step. If continuity is not present, install a new EMITTER/FAN BRACKET HARNESS.
- [8] Connect CONNECTOR P7 and the 3-PIN CONNECTOR on the FAN BRACKET ASSEMBLY.
- [9] Check the voltage at P7 on the CONTROLLER PRINTED CIRCUIT BOARD.
- [10] Set the DIGITAL VOLT METER to DC voltage.
- [11] Connect the red PROBE to P7 and PIN 1, then PIN 2 on the CONTROLLER BOARD.
- [12] Connect the black PROBE to any GROUND. The DIGITAL VOLT METER should read 12 V DC, TP10-PIN 6.
- [13] If 12 V DC is not present at P7 PIN 1, install a new CONTROLLER BOARD.

DONOR PATCH SENSING DETECTORS



Important

Do the adjustments for the DONOR before doing this test.

- [1] Check that DONOR is installed and that the BARCODE LABEL is present and not damaged on the DONOR SUPPLY BRACKET. The 8650 COLOR PRINTER also uses 2 additional DONORS.



Important

The PRINTER uses 5 different DONORS.

- [2] Check that the EMITTER BOARD, FAN BRACKET BOARD, is installed correctly and that the BLUE/GREEN EMITTERS are illuminated.
- [3] Set the DIGITAL VOLT METER to DC voltage.
- [4] Connect:
- red PROBE to TP8, PIN 5, GREEN LED, on the CONTROLLER BOARD
 - black PROBE to TP4, PIN 6, GROUND
- [5] Enter the diagnostic test [DIAG: DONOR TEST].
- [6] Close the DOOR.
- [7] Advance the DONOR. The LCD DISPLAY should read as follows as the DONOR advances:
- DNR: COLOR = YEL
 - DNR: COLOR = MAG/BLK
 - DNR: COLOR = CYN
 - DNR: COLOR = LAM
- [8] As the DONOR advances in the diagnostics, the DIGITAL VOLT METER should read as in the table below for TP8, PIN 5.
- [9] Connect the red (+) PROBE to TP8, PIN 6, BLUE LED.
- [10] Advance the DONOR; the DVM should read as in the table below for TP8, PIN 6.

COLOR	TP	PIN	Voltage
YEL	8	5 GREEN	< 0.5
MAG/BLK	8	5 GREEN	> 3.5
CYN	8	5 GREEN	> 3.5
YEL	8	6 BLUE	> 3.5
MAG/BLK	8	6 BLUE	> 3.5
CYN	8	6 BLUE	< 0.5
LAM - CLEAR	8	5 GREEN	< 0.5
LAM - CLEAR	8	6 BLUE	< 0.5

- [11] If the voltages are close to the threshold, the alignment is most likely not correct. Install a new FAN BRACKET ASSEMBLY. If the voltages do not change, the DONOR DETECTOR may have a malfunction. Install a new ROLLER ASSEMBLY.
- [12] If all the voltages are correct, the CONTROLLER BOARD could have a malfunction. Install a new CONTROLLER BOARD.

DONOR TYPE BAR CODE SENSING



Important

Do the adjustment for the BAR CODE SENSOR before doing these tests. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.

Type Code Not Detected

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

Type Code Not Detected - Procedure

- [1] Check that the correct DONOR is installed. If not, install the correct DONOR and test the PRINTER.
- [2] Check that the BAR CODE LABEL is installed on the DONOR SUPPLY SPOOL. If the BAR CODE LABEL is installed, advance to the next step. If the BAR CODE LABEL is not installed, install new DONOR.
- [3] Check that the BAR CODE LABEL is parallel with the end of the DONOR SUPPLY SPOOL. If not, install new DONOR. If the BAR CODE LABEL is in the correct location, advance to the next step.
- [4] Check that the BAR CODE SENSOR is not loose and is correctly aligned with the BAR CODE LABEL on the DONOR SUPPLY SPOOL. If the BAR CODE SENSOR is not correctly aligned, install a new DONOR SUPPLY BRACKET and test again. If it is correct, advance to the next step.
- [5] Check that the BAR CODE SENSOR CABLE is connected to the CONTROLLER BOARD. If it is not connected, seat the CABLE CONNECTOR and test the PRINTER. If it is connected, advance to the next step.
- [6] Set the DVM to DC voltage.
- [7] Connect the red PROBE to TP4, PIN 4 and the black PROBE to TP4, PIN 6 on the CONTROLLER BOARD.



Important

Do the adjustment for the BAR CODE SENSOR before doing these tests. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.

- [8] With the DONOR installed, rotate the DONOR SUPPLY SPOOL.
- [9] The voltage should read ≥ 4.7 V DC on the wide black patch and ≤ 0.25 V DC on the white patch. If the voltage is within specification, install a new CONTROLLER BOARD. If the voltage is not within specification, install a new DONOR SUPPLY BRACKET ASSEMBLY.

Type Code Not Supported

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

- [10] Check in DNR: READ TYPE that a DNR: TYPE_OK->## is displayed. If a DNR: TYPE_BAD># is displayed, it means that ## is not usable. The DONOR TYPE number is:
 - YMC = 01
 - YMCX = 02
 - BX = 03
 - YMC LONG = 04
 - YMC-7 = 05
 - YMCX LONG = 06
 - YMCK = 07

BAR CODE - Read Incomplete

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

BAR CODE - Read Incomplete

1. Check that DONOR SUPPLY SPOOL rotates correctly and at normal speed in the [DNR: ADVANCE] and [DNR: REWIND] modes.
2. Check that the BAR CODE SENSOR is not loose and is correctly aligned with the BAR CODE LABEL on the DONOR SUPPLY SPOOL. If the BAR CODE SENSOR is not correctly aligned, install a new DONOR SUPPLY BRACKET. If it is correct, advance to the next step.
3. Check that the BAR CODE SENSOR CABLE is connected to P2 on the CONTROLLER BOARD. If it is not connected, seat the CABLE CONNECTOR and test the PRINTER. If it is connected, advance to the next step.
4. Do the adjustment for the BAR CODE SENSOR. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.
5. If the adjustments for the BAR CODE SENSOR cannot be set to specification, install a new DONOR SUPPLY BRACKET.
6. If all of the adjustments for the BAR CODE SENSOR are to specification, and the PRINTER still does not operate, install a new CONTROLLER BOARD.

BAR CODE Not 2-of-8 Code

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

BAR CODE Not 2-of-8 Code

1. Check that the BAR CODE LABEL is installed on the DONOR SUPPLY SPOOL. If the BAR CODE LABEL is installed, advance to the next step. If the BAR CODE LABEL is not installed, install new DONOR.
2. Check that the BAR CODE LABEL is parallel with the end of the DONOR SUPPLY SPOOL. If not, install new DONOR. If the BAR CODE LABEL is in the correct location, advance to the next step.
3. Check the BAR CODE LABEL for damage. If the BAR CODE LABEL has damage, install a new DONOR ROLL. If the BAR CODE LABEL has no damage, advance to the next step.
4. Check that the BAR CODE SENSOR is not loose and is correctly aligned with the BAR CODE LABEL on the DONOR SUPPLY SPOOL. If the BAR CODE SENSOR is not correctly aligned, install a new DONOR SUPPLY BRACKET. If it is correct, advance to the next step.
5. Check that the [DNR: ADVANCE] and [DNR: REWIND] modes operate correctly.
6. If an error occurs, such as SR 510, check that the DONOR does not cause a bind due to a malfunction of the THERMAL HEAD GAP in the LOAD POSITION. Check for damage of the MOTOR BRACKET. If there is no bind in the DONOR, advance to the next step.
7. Install the DONOR SUPPLY BRACKET ASSEMBLY and test the PRINTER.
8. If the PRINTER still does not operate correctly, install a new CONTROLLER BOARD and/or CABLE from the DONOR SUPPLY BRACKET ASSEMBLY to the CONTROLLER BOARD.

PICKING

Safety

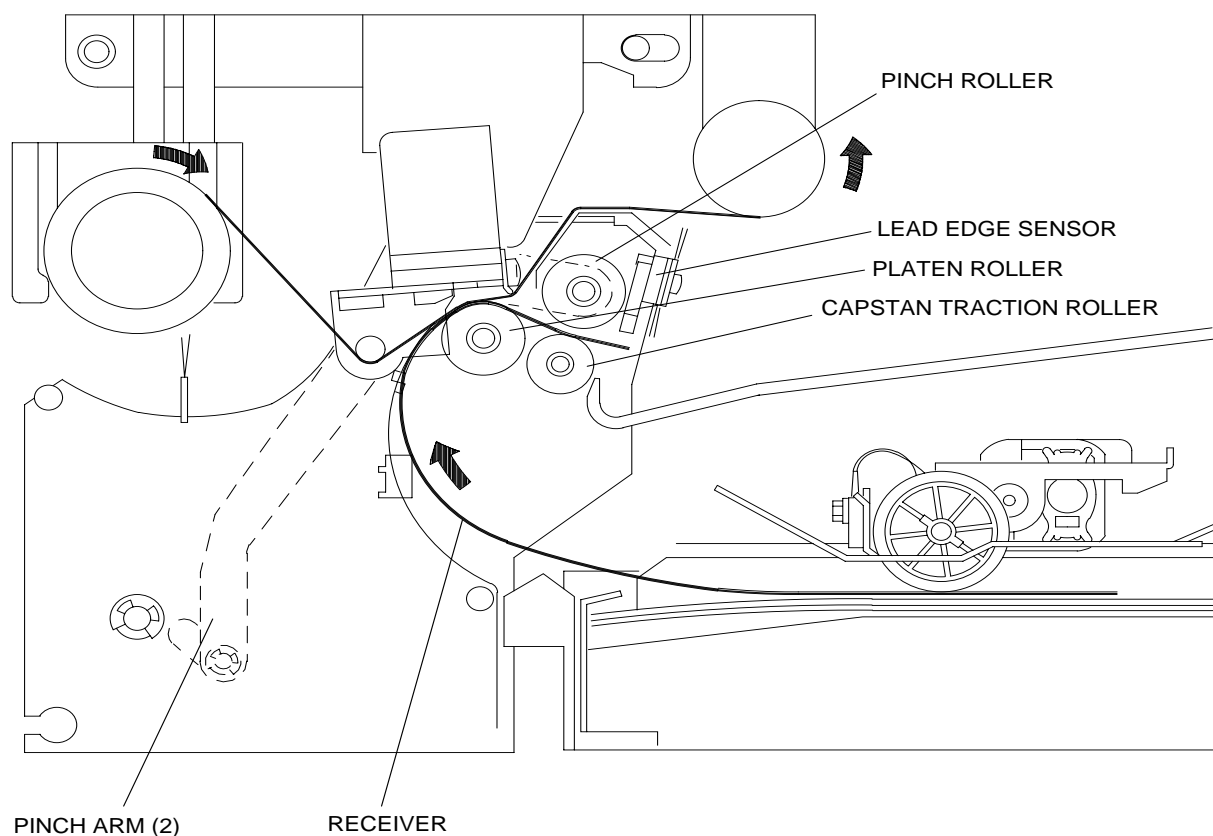
This is a low voltage area.

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, 5 x 7 for XLS 8657, the media selection must match the media installed, and the CONTROLLER BOARD must detect both states.

After the conditions above occur, the PRINTER begins the PRINT CYCLE. Then the PICKING MECHANISM will energize 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.

ROLLER ASSEMBLY

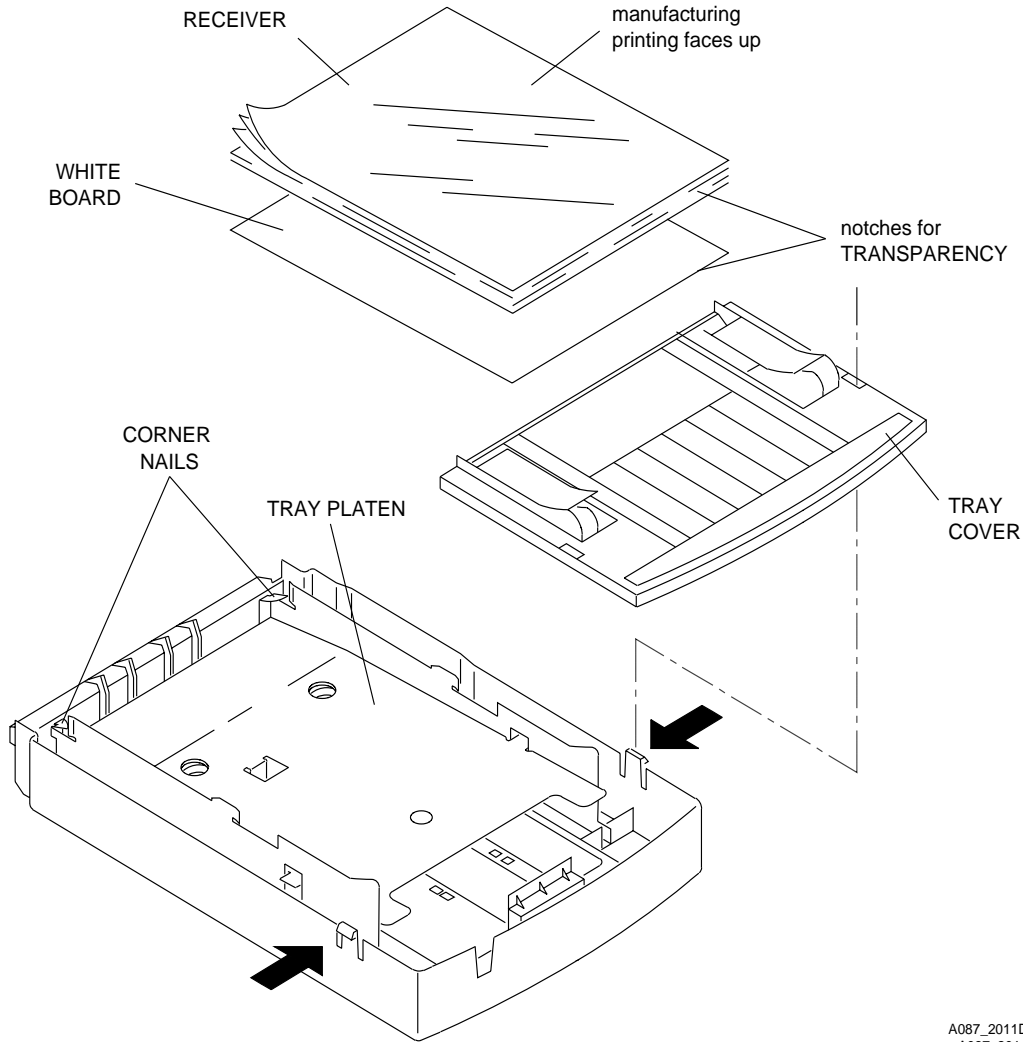


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A087_0065DC

As the RECEIVER is being picked, the CAPSTAN MOTOR, PLATEN BRAKE, and the DONOR TAKE-UP and SUPPLY MOTORS are energized. The DONOR advances allowing the RECEIVER to enter the NIP and reach the LEAD EDGE SENSOR.

The PINCH MOTOR energizes, PINCHING the RECEIVER in between the PINCH ROLLER and CAPSTAN TRACTION ROLLER. At this time, the PICK MOTOR, CAPSTAN MOTOR, PLATEN BRAKE, and the DONOR TAKE-UP and SUPPLY MOTORS de-energize. The PICK MOTOR reverses to return the PICKER to its original position.

Installation: RECEIVER - Paper or TRANSPARENCY



A087_2011DCA
A087_2011DC



Caution

- Do not place more than 100 sheets of RECEIVER in the TRAY.
- The RECEIVER installed must match the size of the TRAY selected.

[1] Remove the TRAY COVER.



Caution

Do not remove the WHITE BOARD.

[2] Pick the RECEIVER up by the ends with the WHITE BOARD on the RECEIVER.

[3] If you are installing paper, check that the manufacturing printing faces up.

[4] If you are installing TRANSPARENCIES, check that the notches are in the right end corner.

[5] Check that the WHITE BOARD is installed under the RECEIVER in the bottom of the TRAY. If the WHITE BOARD is not installed, this might cause a malfunction.

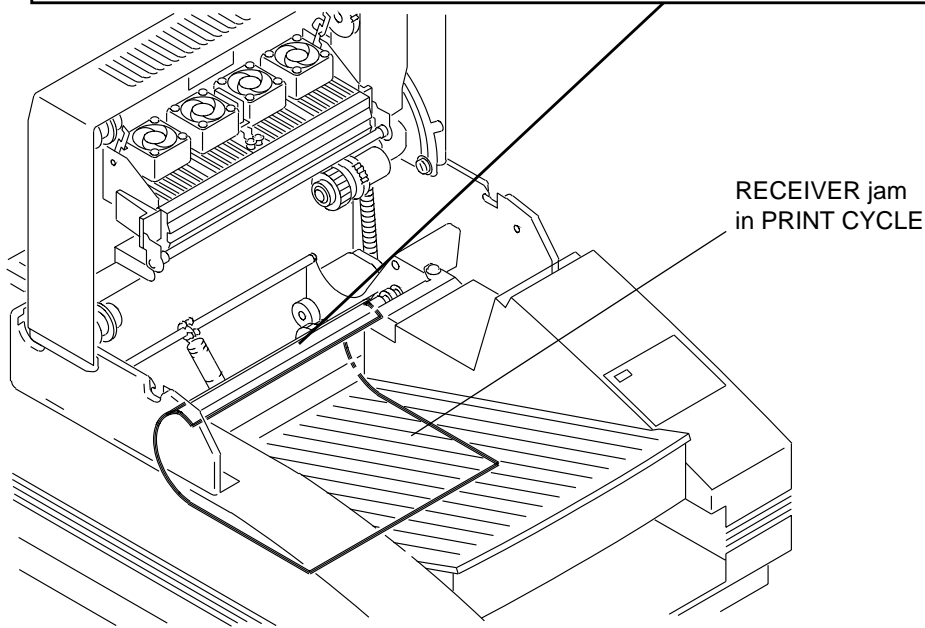
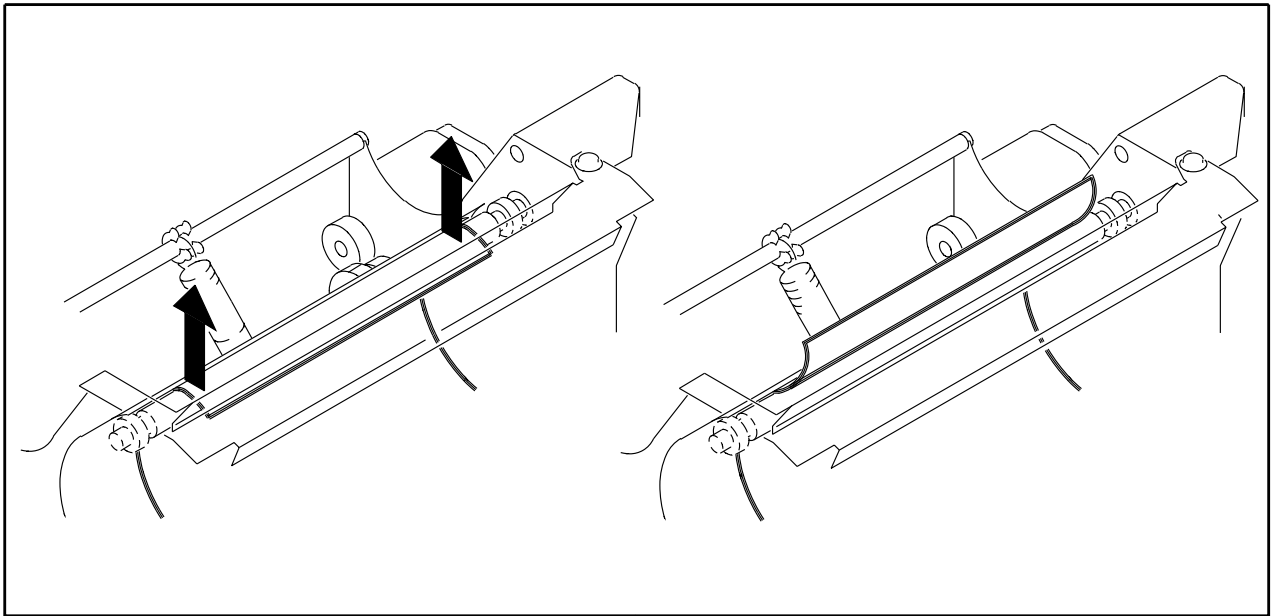
[6] Place the RECEIVERS on top of the TRAY PLATEN.

[7] Check that the stack is under both CORNER NAILS.

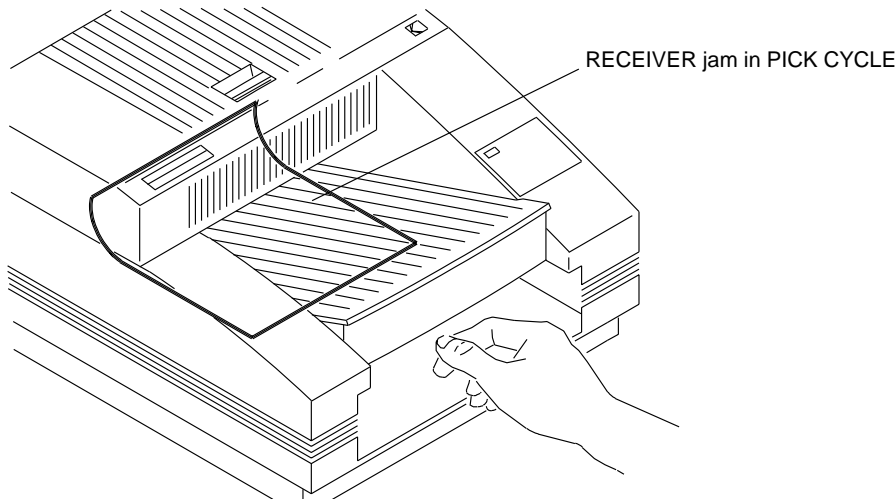
[8] Install the TRAY COVER.

Paper Jam

There are 2 types of paper jams, a PICKER or a PINCH.



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A087_4011DC



A087_4010BCA
A087_4010BC

- [1] Open the DOOR.
- [2] Check for paper in the ROLLER ASSEMBLY.

 **Caution**

When removing a RECEIVER that has caused a jam in the ROLLER ASSEMBLY, prevent damage to the KICKERS/RUBBER WHEELS.

- [3] If the paper is in the PINCH ROLLER, remove the jam from the top of the ROLLER ASSEMBLY.
- [4] If the paper is in the CHUTE or the TRAY, remove the TRAY and carefully place your hand inside the TRAY SLOT. Remove the jam.

Tools

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

Specifications

 **Important**

Use TP2, PIN 5 for GND. The XLS 8657 will only sense the 8 1/2 x 7 in. TRAY.

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

Voltage - TRAY Measured in V DC

TP10	A	A Long	8 1/2 x 14 in.	9 1/2 x 14 in.	A4	A4 Long	A4 x 14 in.	XLS 8657 8 1/2 x 7 in.	No TRAY
2	> 3.0	< 0.5	> 3.0	> 3.0	> 3.0	< 0.5	< 0.5	< 0.5	> 3.0
3	> 3.0	> 3.0	< 0.5	> 3.0	< 0.5	< 0.5	> 3.0	> 3.0	> 3.0
4	< 0.5	< 0.5	< 0.5	> 3.0	> 3.0	> 3.0	> 3.0	> 3.0	> 3.0



Important

Use TP11, PIN 5 for GND. The XLS 8657 will only sense the 8 1/2 x 7 in. TRAY.

STEPPER MOTOR

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.

Use TP9, PIN 6 for GROUND.

PLATEN BRAKE

CONN	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 operation of the MOTOR.

PINCH ROLLER - Use TP7, PIN 2 for GROUND/- PIN

CONN	PIN	PINCH Closing V	PINCH Opening V
TP7	1	≈ - 11.20 V DC in Diagnostics	≈ 11.1 V DC in Diagnostics

LEAD EDGE SENSOR - Use TP4, PIN 6 for GROUND

CONN	PIN	RECEIVER in PINCH	No RECEIVER
TP8	3	< 0.5 V DC	> 2.5 V DC

Adjustment	Voltage
RECEIVER THRESHOLD	1.0 ± 0.1 V DC, paper in TRAY
RECEIVER BIAS	Paper in TRAY = > 2.5 V DC TRANSPARENCY in TRAY = < 0.5 V DC
STEPPER MOTOR	0.52 ± 0.03 V DC
LEAD EDGE SENSOR - TRANSPARENCY installed in PINCH	0.18 ± 0.01 V DC

URGE SENSOR - Use TP11, PIN for GROUND

TP	Paper Under URGE V	No Paper Under URGE V
TP 6, PIN 2	< 0.15 V DC	≈ 5.00 V DC

URGE MOTOR - Use TP11, PIN 5 for GROUND

TP	MOTOR On V	MOTOR Off V
TP 6, PIN 4	≈ 0.75 V DC	≈ 12.00 V DC

RECEIVER**XLS 8600/PS, MCI 2000, XLS 8400 PS, and 8650/PS**

Size	Inches - W x L	Cm - W x L
A	8.5 x 11 ± 0.040	21.7 x 28.1 ± 0.1
	8.5 x 12 ± 0.040	21.7 x 30.7 ± 0.1
	8.5 x 14 ± 0.040	21.7 x 35.8 ± 0.1
A4	8.27 x 11.69 ± 0.040	21.0 x 29.7 ± 0.1
	8.27 x 12 ± 0.040	21.0 x 30.7 ± 0.1
	8.27 x 14 ± 0.040	21.0 x 35.8 ± 0.1
CID	9.5 x 14 ± 0.040	24.3 x 35.8 ± 0.1

XLS 8657

Size	Inches	Cm
8 1/2 x 7 in.	8.5 ± 0.040 W 7.00 ± 0.040 L	21.60 ± 0.1 W 17.80 ± 0.1 L

Image Quality

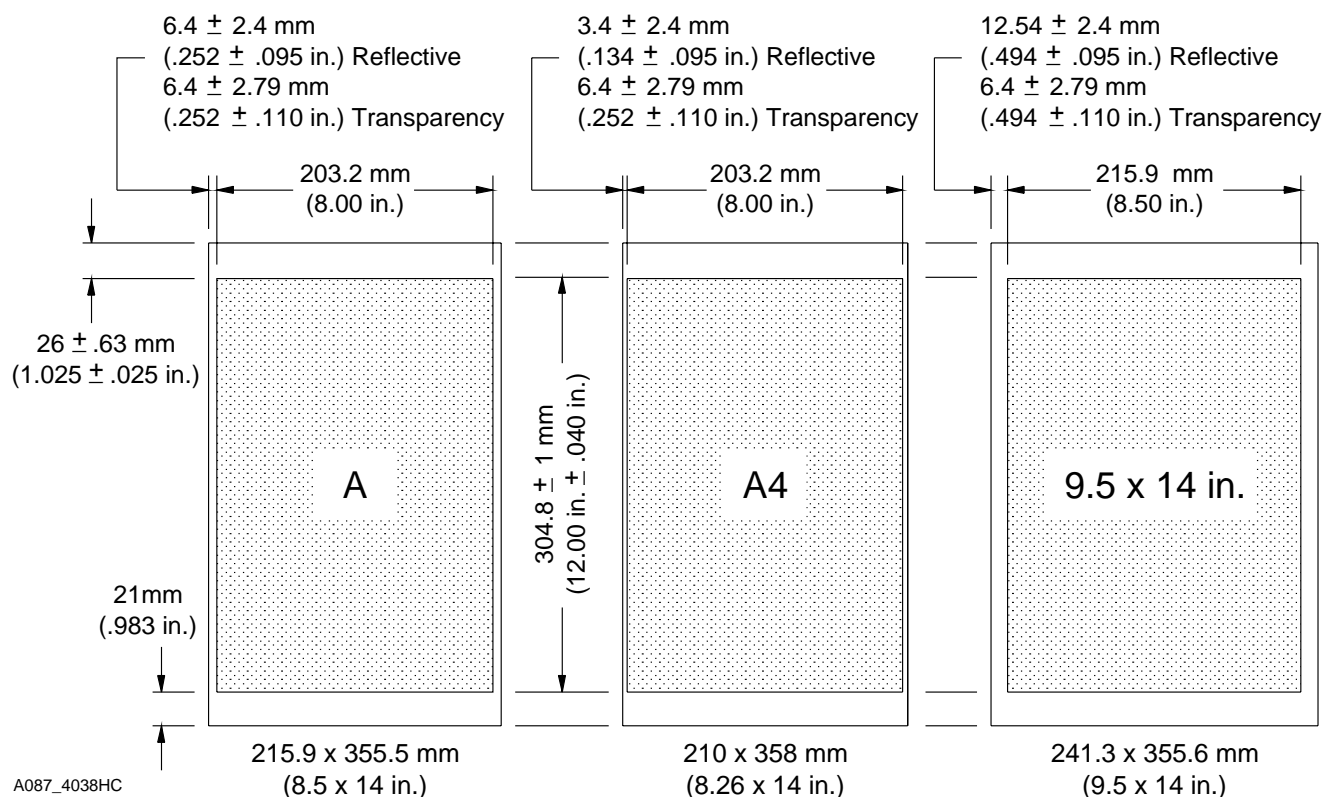
Size	Specification
A	20.32 x 22.69 ± 0.064 cm (8.00 x 8.933 ± 0.025 in.) 2400 pixels x 2680 lines
A	20.4 x 25.6 cm (8.00 x 10.00 in.) 2400 pixels x 3000 lines
A	20.4 x 30.7 cm (8.00 x 12.00 in.) 2400 pixels x 3626 lines
A4	20.32 x 24.47 ± 0.064 cm (8.00 x 9.633 ± 0.025 in.) 2400 pixels x 2890 lines
A4	20.4 x 24.6 cm (8.00 x 9.6 in.) 2400 pixels x 2890 lines
A4	20.4 x 25.6 cm (8.00 x 10.00 in.) 2400 pixels x 3000 lines
XLS 8600 and 8650: 9.5 x 14 in.	21.7 x 30.7 cm (8.5 x 12.00 in.) 2550 pixels x 3626 lines
XLS 8600 PS and 8650/PS: 9.5 x 14 in.	21.7 x 30.7 cm (8.5 x 12.00 in.) 2528 pixels x 3626 lines

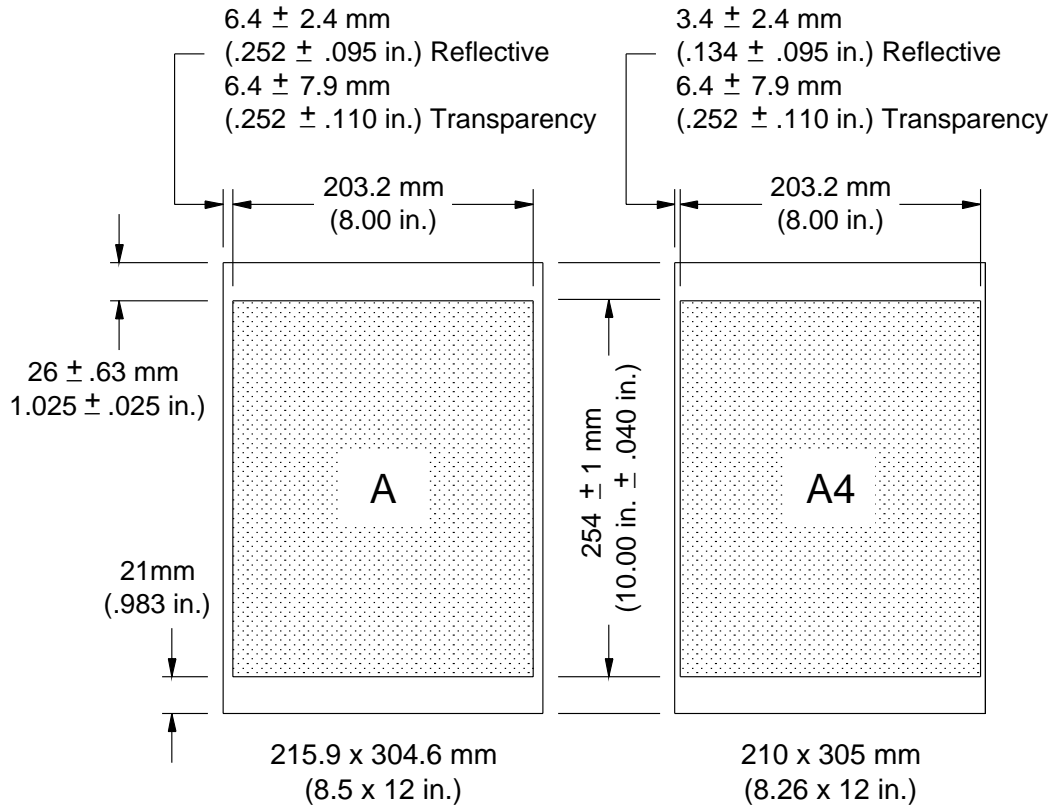
Image Placement

Type	Specification
Lead Edge	2.60 ± 0.064 cm (1.025 ± 0.025 in.)

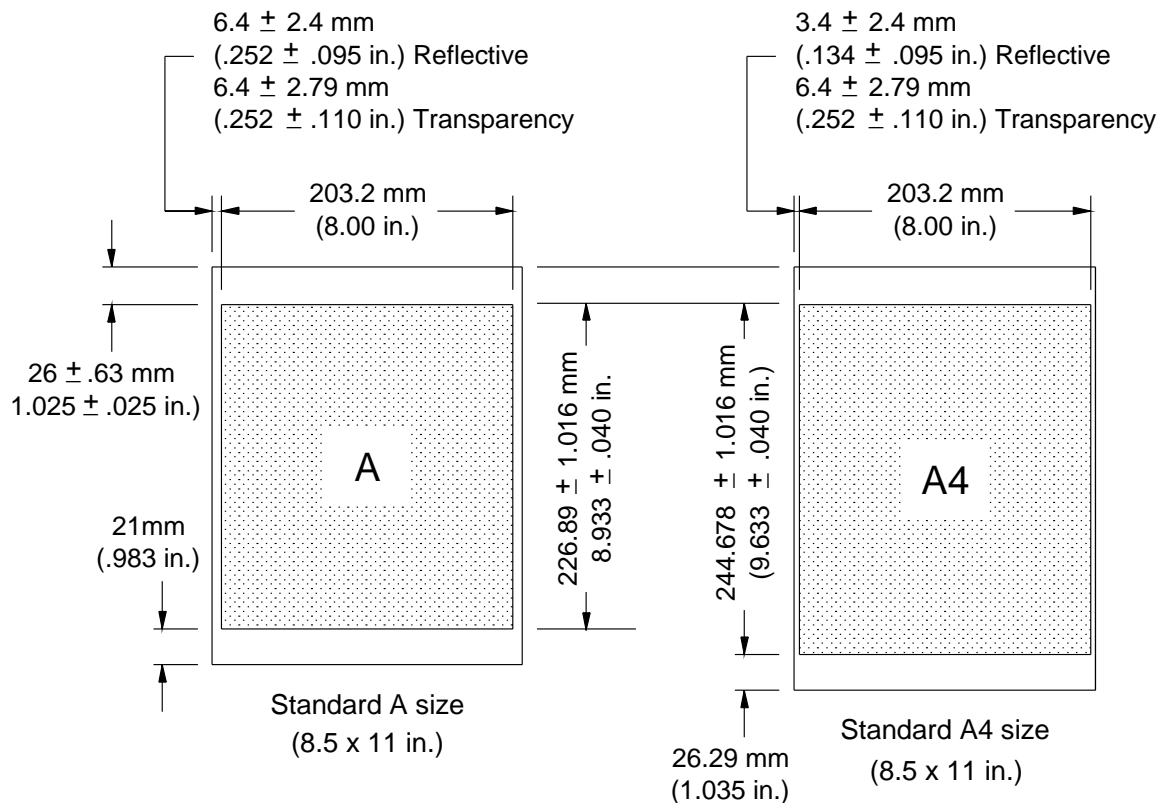
Image Placement - Left Border, Right Side of PRINTER

Size	Type	Specification
A	REFLECTIVE	0.63 ± 0.238 cm (0.252 ± 0.095 in.)
A	TRANSPARENCY	0.63 ± 0.275 cm (0.252 ± 0.110 in.)
A4	REFLECTIVE	0.335 ± 0.238 cm (0.134 ± 0.095 in.)
A4	TRANSPARENCY	0.335 ± 0.275 cm (0.134 ± 0.110 in.)
CID	REFLECTIVE	1.24 ± 0.238 cm (0.494 ± 0.095 in.)
CID	TRANSPARENCY	1.24 ± 0.275 cm (0.494 ± 0.110 in.)





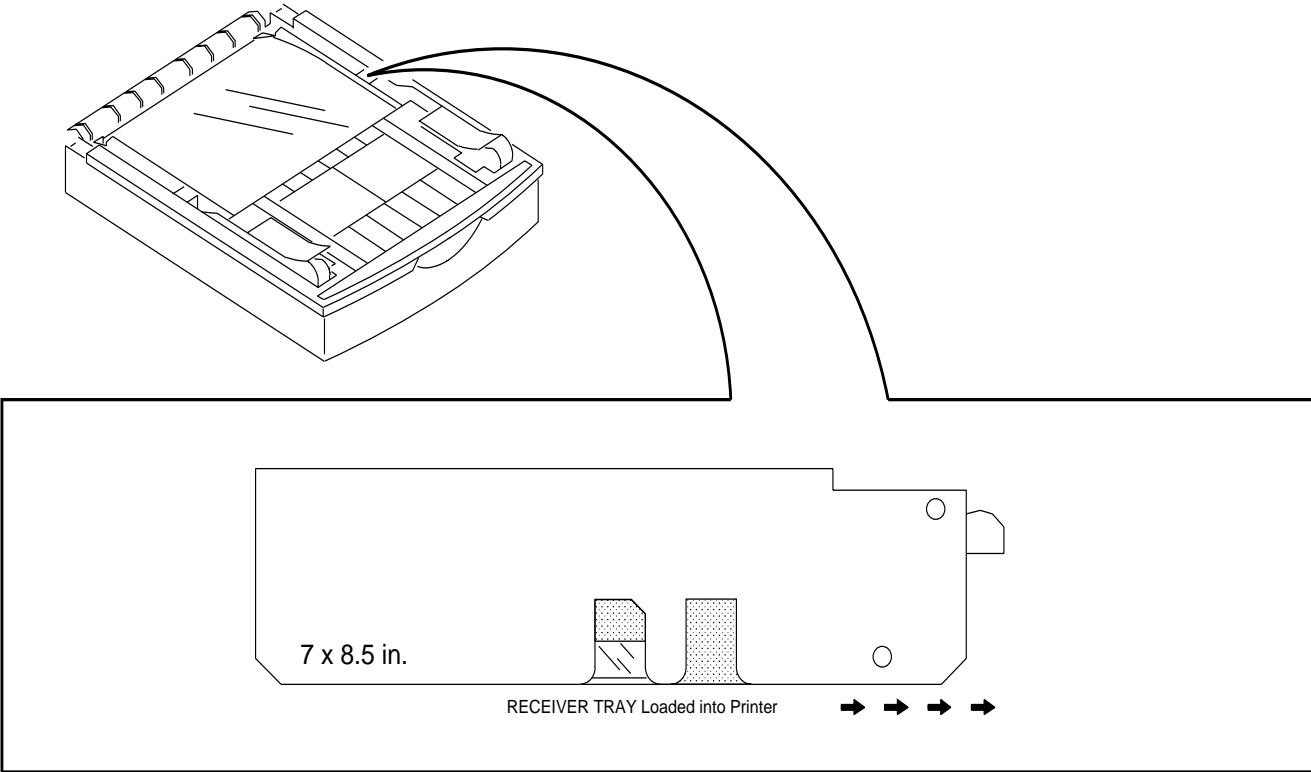
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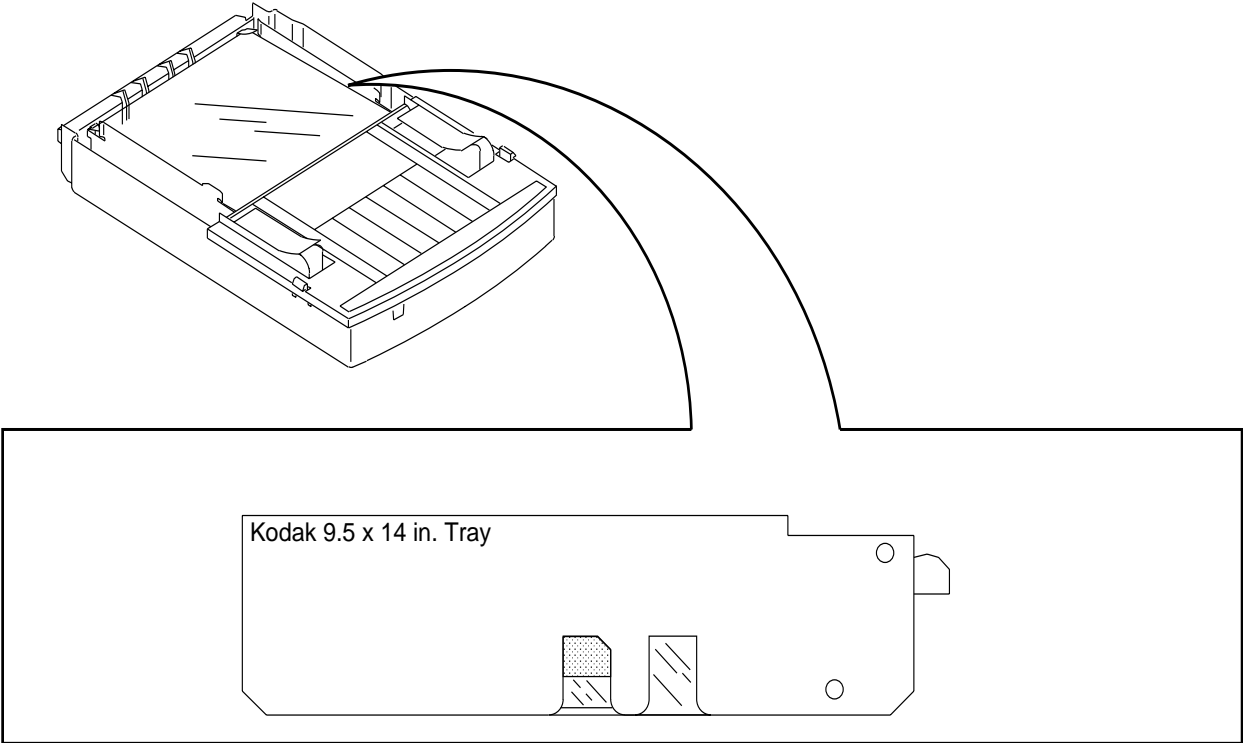
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TRAYS

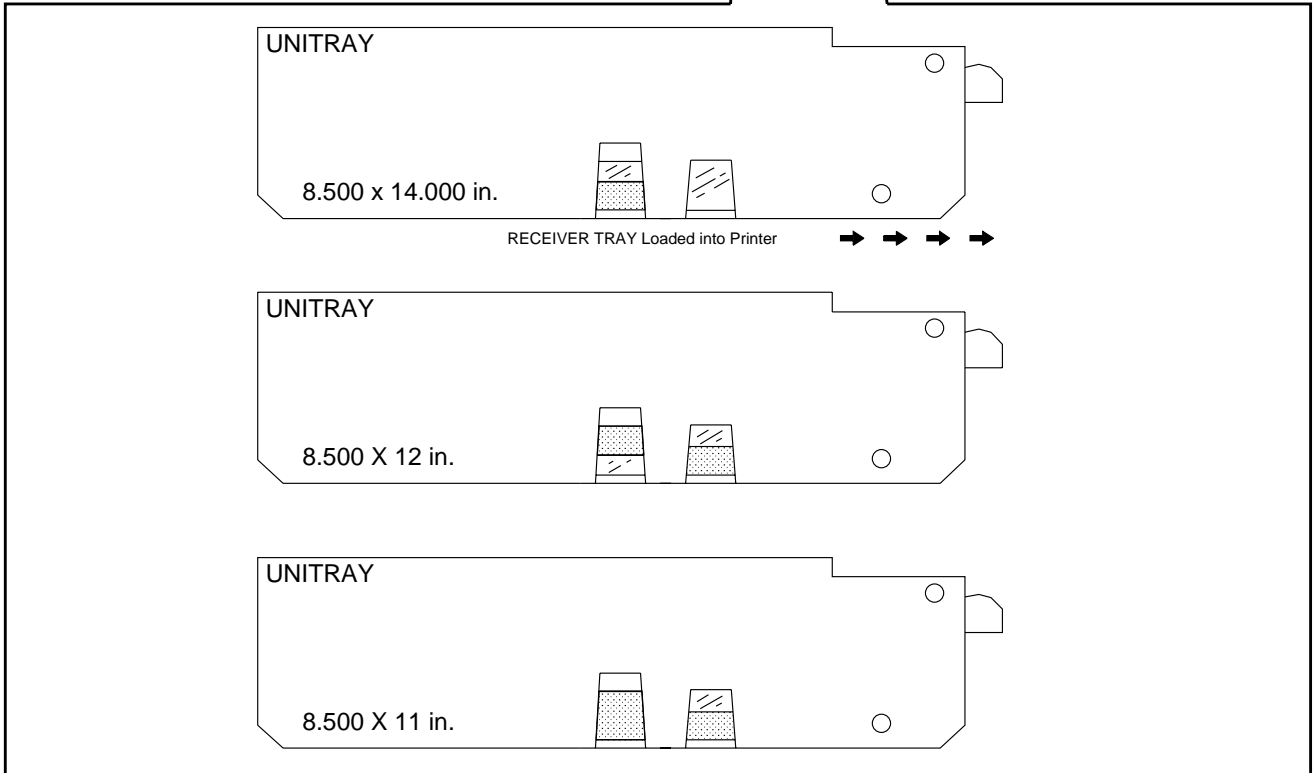
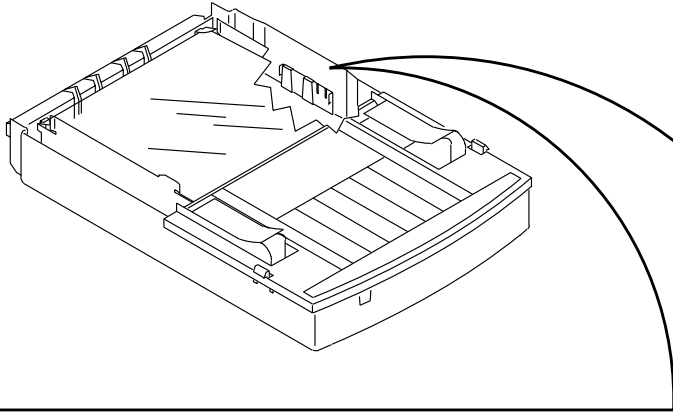
XLS 8657



XLS 8600/PS, XLS 8400 PS, MCI 2000, and 8650/PS

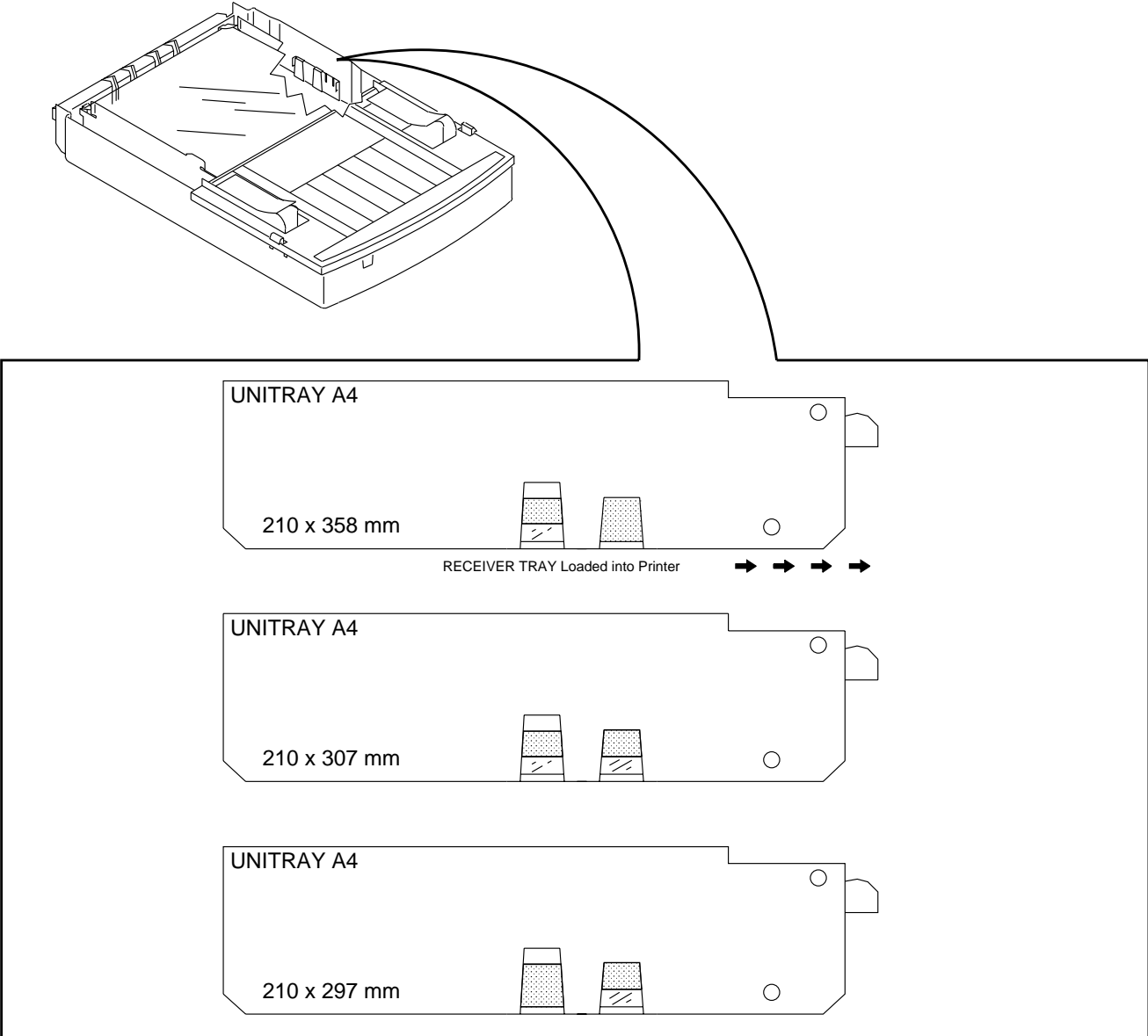


A SIZE UNI ADJUSTABLE TRAY RECEIVER



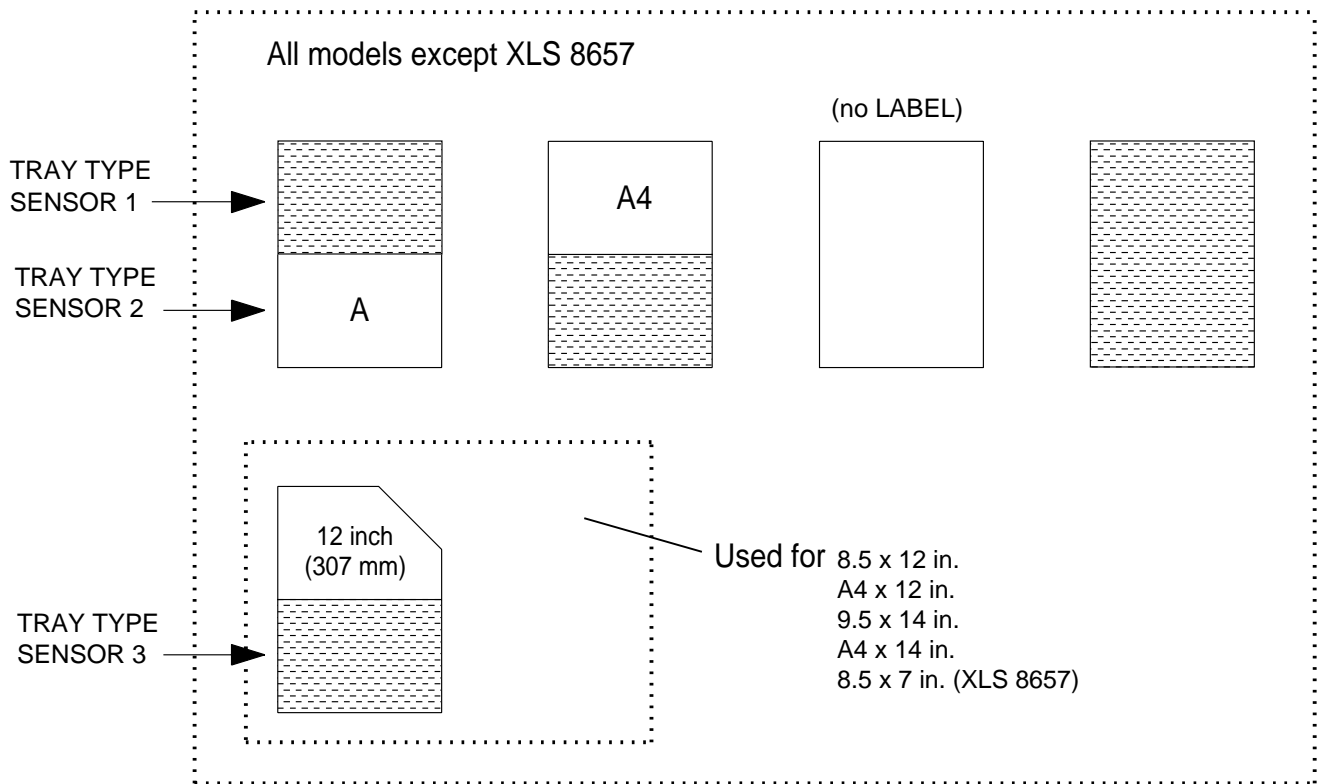
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A4 SIZE UNI ADJUSTABLE TRAY RECEIVER



A087_4089DC

RECEIVER TRAY LABEL (ID)



	TRAY TYPE SENSOR 1	TRAY TYPE SENSOR 2	TRAY TYPE SENSOR 3	Image Size		Receiver Size	
A	Reflective	Opaque	Opaque	8.000 x 8.933	203 x 227	8.504 x 10.984	216 x 279
A4	Opaque	Reflective	Opaque	8.000 x 9.633	203 x 245	8.268 x 11.693	210 x 297
(A x 12) inch	Reflective	Opaque	Reflective	8.000 x 10.000	203 x 254	8.504 x 12.087	216 x 307
(A4 x 12) inch	Opaque	Reflective	Reflective	8.000 x 10.000	203 x 254	8.268 x 12.087	210 x 307
(9.5 x 14) inch	Reflective	Reflective	Reflective	8.500 x 12.000	216 x 305	9.488 x 14.094	241 x 358
(A x 14) inch	Reflective	Reflective	Opaque	8.000 x 12.000	203 x 305	8.504 x 14.094	216 x 358
(A4 x 14) inch	Opaque	Opaque	Reflective	8.000 x 12.000	203 x 305	8.268 x 14.094	210 x 358

XLS 8657

(8.5 x 7.0) inch	Opaque	Opaque	Reflective	5.0 x 80	127 x 203	7.067 x 8.504	180 x 216
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Note: 1) TRAY TYPE SENSORS 1 and 2 are located together at one position.
TRAY TYPE SENSOR 3 is located at a different position from 1 and 2.
2) RECEIVER TRAYS for XLS 8600 and DS 8650/PS are not interchangeable.

A087_9028EC

Preliminary Check

[1] Check:

- TRAY is installed and seated correctly
- you have selected the correct size of TRAY, 8.5 x 11 in. or 8.5 x 12 in., and the size matches the RECEIVER
- RECEIVER is installed and it matches the type selected, PAPER/TRANSPARENCY
- media for damage that might cause a paper jam
- curl in the RECEIVER

Note

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.

[2] Check that the BASE ENCLOSURE WALLS are in the correct position. This might occur during transport or if the PRINTER has been damaged. This can cause the following malfunctions:

- Media jams
- DONOR advance malfunctions
- DONOR unwinds into the EXIT TRAY
- Print artifacts
- PRINTER does not operate

[3] If the WALLS are not in the correct position, do the following adjustments. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.

- BASE ENCLOSURE WALLS
- THERMAL HEAD LOAD GAP - **do this adjustment only if the BASE ENCLOSURE WALLS are not in the correct position.**

[4] Do the adjustment for the PICKER PENETRATION. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.

[5] Check that the adjustment for the THERMAL HEAD LOAD GAP is correct. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.

TRAY: Malfunctions - Error Codes 502 and 503

[1] Do the following removal procedures. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.

- 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.



Important

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

[3] Enter the diagnostics and advance to [DIAG: RECEIVER]. Using the diagnostics, check that the LCD DISPLAY changes from [NO PAPER] to one 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 size displays PAPER or TRANSPARENCY 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 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.

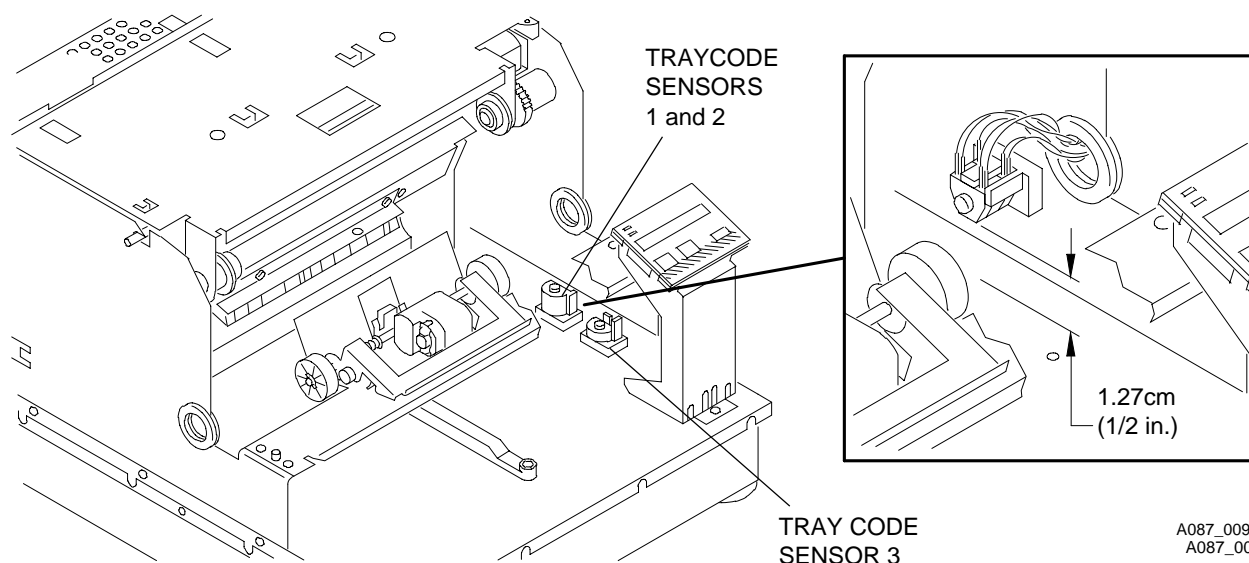
(a) Set the DIGITAL VOLT METER to DC voltage.

(b) Connect the black PROBE (-) to TP11, PIN 5 for GROUND.

(c) Use the following table to measure the voltages for the A TRAY, A4 TRAY, CID TRAY, and NO TRAY.

Voltage - TRAY Measured in V DC

TP10	A	A Long	8 1/2 x 14 in.	9 1/2 x 14 in.	A4	A4 Long	A4 x 14 in.	XLS 8657 8 1/2 x 7 in.	No TRAY
2	> 3.0	< 0.5	> 3.0	> 3.0	> 3.0	< 0.5	< 0.5	< 0.5	> 3.0
3	> 3.0	> 3.0	< 0.5	> 3.0	< 0.5	< 0.5	> 3.0	> 3.0	> 3.0
4	< 0.5	< 0.5	< 0.5	> 3.0	> 3.0	> 3.0	> 3.0	> 3.0	> 3.0



Important

Use TP11, PIN 5 for GND. The XLS 8657 will only sense the 8 1/2 x 7 in. TRAY.

- [8] Remove the TRAY CODE SENSORS and align them facing toward the ALUMINUM BASE. Both TEST POINTS (TP) from the voltage chart above should be below 0.5 V DC.
 - (a) If the TRAY CODE SENSORS change state under the voltage specification, align the TRAY CODE LABELS to the TRAY CODE SENSORS.
 - (b) If the voltages are not correct or do not change state, advance to the next step.
- [9] Check the TRAY CODE CABLE from the TRAY CODE SENSORS to CONNECTOR P11 on the CONTROLLER BOARD. Check that CONNECTOR P11 is correctly seated.
 - (a) If the TRAY CODE SENSORS still do not change at the TEST POINTS listed in the chart above, install a new TRAY CODE SENSOR ASSEMBLY.
 - (b) If the TRAY CODE SENSORS change within the specifications, but the size of the TRAY or removal is **not** indicated during the diagnostic test, install a new CONTROLLER BOARD.

Media Sensing Malfunctions

- [1] Do the following removal procedures. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.
 - DOOR COVER
 - ENCASEMENT
 - CONTROLLER ENCLOSURE AND DRAWER AY
- [2] Set the DIGITAL VOLT METER to DC voltage.
- [3] Do the adjustment for the RECEIVER THRESHOLD. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.
- [4] If the voltages are not within specification, check that the RECEIVER TYPE SENSOR is not loose on the PICKER MECHANISM.
- [5] Check that the RECEIVER TYPE SENSOR is correctly seated on the CONTROLLER BOARD, CONNECTOR P8. See Page 77.
- [6] If the RECEIVER TYPE SENSOR voltage is not within specification, install a new PICKER ASSEMBLY. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.
- [7] If the voltages at TP2, PIN 6 (+) and TP4, PIN 6 (-) from the adjustment of the RECEIVER THRESHOLD are within specification but change is not sensed, advance to the next step.

- [8] Enter the diagnostics. Advance to [DIAG: RECEIVER].
- (a) 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 size of the TRAY and RECEIVER selected.
 - (b) 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 BOARD.

PICKING: Malfunctions - Error Codes 501 and 502

- [1] Do the following removal procedures. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.
- DOOR COVER
 - ENCASEMENT
 - CONTROLLER ENCLOSURE AND DRAWER AY
- [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 the RECEIVER and DONOR.
- [4] Insert only 25 RECEIVERS into the TRAY.

**Important**

SR 408 can be a nonfatal error that occurs when there is a PICKING malfunction. This might be caused by not having the RECEIVER or DONOR installed, paper curl, damage on the BASE ENCLOSURE WALLS, or the distance for the THERMAL HEAD LOAD GAP is not correct. See the “Preliminary Check” on Page 71.

- [5] Enter 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 setup.
- [6] Select “Loop Enable” and exit the diagnostics.
- [7] Press the PRINT BUTTON in “ENGINE Ready” to start the “PICK and EJECT CYCLE”.
- (a) If the PRINTER picks, the PICKING malfunction could be caused by low humidity (< 15% relative humidity). If the PRINTER does not PICK, advance to the next step.
- [8] If the PRINTER will 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.
- [9] Check:
- PICKER MOTOR operates correctly
 - CONNECTOR P8 is correctly seated on the CONTROLLER BD
- [10] Check the voltage on the PICKER MOTOR:
- (a) Set the DIGITAL VOLT METER to DC voltage.
 - (b) Connect:
 - red PROBE to TP2, PIN 4
 - black PROBE to TP2, PIN 5
 - (c) Enter the diagnostics. Advance to OPTIONS, [OPT: CYCLE TYPE] and start the PICK CYCLE. The DIGITAL VOLT METER should read ≈ -10.5 V DC when the PICKER MOTOR is PICKING and ≈ 10.5 V DC when the MOTOR is returning to position.
- [11] If the voltage is present and the PICKER MOTOR does not operate, install a new PICKER ASSEMBLY.
- [12] If the voltage is not present, install a new CONTROLLER BD.

- [13] If the voltages are present and the PICKER MOTOR operates, there might be a jam in the RECEIVER in the ROLLER ASSEMBLY. Advance to the next step.
- [14] Enter the diagnostics. Advance to [DIAG: MOTORS]. Select [MTRS: FWD].
- [15] Do the adjustment for the STEPPER MOTOR. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.
- [16] Check:
- CONNECTOR P10 is correctly seated on the CONTROLLER BOARD - see Page 8
 - AC voltage on the STEPPER PHASES
- [17] Connect the DIGITAL VOLT METER PROBES to the STEPPER PHASES.
- [18] Connect:

PROBE	CONNECTOR	PIN	PHASE
Red	TP7	4	A1
Red	TP9	2	B1
Red	TP7	6	C1
Red	TP9	4	D1
Black	TP7	3	A2
Black	TP9	1	B2
Black	TP7	5	C2
Black	TP9	3	C2

- [19] The DIGITAL VOLT METER should read ≈ 10.8 V AC across each phase in diagnostics.
- (a) If the voltages are present and the STEPPER MOTOR does not operate, install a new ROLLER ASSEMBLY.
 - (b) If the voltages are not present, install a new CONTROLLER BOARD.
 - (c) If the STEPPER MOTOR operates and all the voltages are present, advance to the next step.
- [20] Check that the PLATEN ROLLER rotates.
- [21] Check the DC voltage across the PLATEN BRAKE:
- (a) Set the DIGITAL VOLT METER to DC voltage.
 - (b) Connect:
 - black PROBE to TP9 PIN 6
 - CONNECTOR P10 is inserted into PINS 1 and 3
 - (c) Make a test print.
- [22] The DIGITAL VOLT METER should read ≈ 10.9 V DC.
- (a) If the voltages do not change, install a new CONTROLLER BOARD.
 - (b) If the voltages are present and change, but the PLATEN ROLLER has a bind, install a new ROLLER ASSEMBLY.
 - (c) If the voltages are present and change and there is no bind in the PLATEN ROLLER, advance to the next step.
- [23] Check that the PINCH ROLLER operates and that voltage is present:
- (a) Check that CONNECTOR P10 is correctly seated.
 - (b) Enter the diagnostics. Advance to [DIAG: PINCH TEST].
 - (c) Install a sheet of paper between the PINCH ROLLER and the CAPSTAN TRACTION ROLLER.
 - (d) Select [PINCH: CLOSE] in the diagnostics.
 - (e) The paper should be held in place by the PINCH.

[24] Check the voltage:

- (a) Set the DIGITAL VOLT METER to DC voltage.
- (b) Connect:
 - red PROBE to TP7, PIN 1
 - black PROBE to TP7, PIN 2
- (c) The DIGITAL VOLT METER should read ≈ 11.0 V DC when closing. The DIGITAL VOLT METER should read ≈ -11.0 V DC when opening.
- (d) If the voltages are present and the PINCH does not open or close, check that the PINCH MOTOR is not loose and install a new ROLLER ASSEMBLY if necessary.
- (e) If the voltages are not present, check the PINCH MOTOR wires and install a new CONTROLLER BD if necessary.
- (f) If the voltages are present and the PINCH operates, advance to the next step.

[25] Check that the LEAD EDGE SENSOR operates:

- (a) Do the adjustment for the LEAD EDGE SENSOR. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.
- (b) Enter the diagnostics. Advance to [DIAG: PINCH TEST]. Advance to [PINCH: OPEN].
- (c) Insert a sheet of paper under the LEAD EDGE SENSOR.

[26] Set the DIGITAL VOLT METER to DC voltage:

- (a) Connect:
 - red PROBE to TP8, PIN 3
 - black PROBE to any GROUND
- (b) The DIGITAL VOLT METER should read < 0.5 V DC with a RECEIVER in the PINCH.
- (c) The DIGITAL VOLT METER should read > 2.5 V DC with no RECEIVER in the PINCH.
- (d) If one of the voltages is present but does not change, install a new ROLLER ASSEMBLY.
- (e) If the voltage is not present, install a new CONTROLLER BOARD.
- (f) If the voltages are present and change with and without a RECEIVER, advance to the next step.

[27] If there is still a malfunction in PICKING, determine the position of the RECEIVER when the malfunction occurs. Environmental conditions or the DONOR does not move can cause a jam or malfunction.

[28] Check that the adjustment for the THERMAL HEAD LOAD GAP is correct. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.

CONTROLLER BOARD

Safety

The CONTROLLER BOARD operates on 5 and 12 V DC.

Functional Description

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

The CONTROLLER BOARD includes:

- Firmware PROMS - 2 PROMS that control the complete electro-mechanical print process of the ENGINE
- EEPROMS - includes the ENGINE calibration, enable widths, parasitic compensation, counters, failure history, initialization messages, matrix coefficients, and interpolation points
- INTERFACE CONTROL PAL - includes the programmable logic necessary to control the communication interface to the KIM BOARD
- MEMORY CONTROL PAL - programmable logic necessary to allow the CPU to communicate with the PROMS, STATIC RAM, and PULSE HEAD MODULATOR
- I/O CONTROL PAL - includes the programmable logic necessary to allow the CPU to communicate with the DISPLAY, A/D CONVERTER, temperature of the THERMAL HEAD, EEPROM, and I/O CONTROLLER
- PHM (PULSE HEAD MODULATOR) - a component that controls the pulses to the THERMAL HEAD during the print cycle
- CPU - CENTRAL PROCESSING UNIT for the ENGINE
- CONNECTOR for the DONOR BRACKET BARCODE AY - the BARCODE SENSOR detects the DONOR type
- DSP PROM (DIGITAL SIGNAL PROCESSING) - processes the image data and lookup tables

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:

- all CONNECTORS are correctly seated
- POWER LEDs are illuminated

[2] Open the CONTROLLER ENCLOSURE AND DRAWER ASSEMBLY.

Error Codes 600, 601, 602, and 603**Important**

Most of the error codes occur when the PRINTER initializes.

- [1] Enter 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] Enter 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] Enter the diagnostics and select [DIAG: CTRLR TEST]. Scroll through the tests and select [CTRLR: C EEPROM] or [CTRLR: TEST ALL].
- [5] Check that after 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, install new PROMS U19 and U20 and energize the PRINTER.
- [8] If the error codes are still present, install a new CONTROLLER BOARD.

Error Codes 608, 609, 60A, 60C, and 719**Important**

Most of these error codes occur when the PRINTER initializes or during the PRINT CYCLE.

- [1] Enter 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].
- [2] Enter the diagnostics and select [DIAG: PRN USAGE]. Scroll through and check that the usage information in [USE: PLN] does not display [BAD MEM] or [NONE].
- [3] Enter the diagnostics and select [DIAG: CTRLR TEST]. Scroll through the test and select [CTRLR: TEST ALL] or [CTRLR: H EEPROM].
- [4] Check that after selecting and doing these CONTROLLER tests that [CTRLR: SR# 608], [SR# 609], [SR# 60a], [SER # 60b], or [SR# 719] are not displayed.
- [5] 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.

- [6] If the error codes are still present, install a new THERMAL HEAD DATA CABLE or THERMAL HEAD ASSEMBLY and energize the PRINTER.
- [7] If the error codes are still present, install a new CONTROLLER BOARD.

Error Code 610 - 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 BOARD.

Error Code 618 and 60B



Important

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

- [1] Enter 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] Enter 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] Enter 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 that after selecting and doing all of the tests that [CTRLR: SR# 618] is not displayed.

- [5] If [NONE] is displayed in any of the versions below in print usage and [SR# 618] 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# 618] is displayed in [DIAG: CTRLR TEST] [CTRLR: H EEPROM], install a new THERMAL HEAD.
-

Error Codes 718 and 719

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

Error Codes 720 and 721

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

Error Codes 738 and 739

- [1] Enter the diagnostics and select [DIAG: CTRLR TEST]. Scroll through and select [CTRLR: RAM 0], [CTRLR: RAM 1] or [CTRLR: TEST ALL].
- [2] Check that 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 BOARD.
-

Error Code 740

- [1] Enter the diagnostics and select [DIAG: CTRLR TEST]. Scroll through the tests and select [CTRLR: MATCH VERS] or [CTRLR: TEST ALL].
- [2] Check that 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 BOARD.

Error Codes 741 and 742

- [1] Enter the diagnostics and select [DIAG: CTRLR TEST]. Scroll through and select [CTRLR: PROM 0], [PROM 1], or [CTRLR: TEST ALL].
- [2] Check that 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.

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

- [1] Enter the diagnostics and select [DIAG: CTRLR TEST]. Scroll through the tests and select [CTRLR: PHM] or [CTRLR: TEST ALL].
- [2] Check that 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 BOARD.

Error Code 757

- [1] Enter the diagnostics and select [DIAG: CTRLR TEST]. Scroll through the tests and select [CTRLR: DSP] or [CTRLR: DSP PROM].
- [2] Check if [CTRLR: SR# 757] is displayed.
- [3] If error code 757 is displayed, install a new DSP PROM.
- [4] If error code 757 is still displayed, install a new CONTROLLER BOARD.

Error Codes 760-773, 76E, 76F, 76A, 76B, 76C, 76D

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

Error Codes 800 - 857

- [1] Enter the diagnostics and select [DIAG: CTRLR TEST]. Scroll through and select [CTRLR: TEST ALL].
- [2] Check that after selecting and doing [CTRLR: TEST ALL] that no errors [CTRLR: SR# 800 - 857] are displayed.
- [3] If the error codes are displayed, install a new CONTROLLER BOARD.

Error Codes 900-930, 90B, 91B, 92B, 93B, 94B, 750-756

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

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] Enter the diagnostics and select [DIAG: CTRLR TEST]. Scroll through and select [CTRLR: TEST ALL].
- [2] Check that 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 BOARD.

Error Code BAD MEM or NONE

- [1] If BAD MEM or NONE displays in the EXTERNAL MODE, there is a PROM or CONTROLLER BOARD malfunction.
- [2] Install the PROMS on the CONTROLLER BOARD, U42, U9, U19, and U20. If this does not remove the malfunction, install a CONTROLLER BOARD.

THERMAL HEAD

Safety

This is a low voltage area.

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 its dye into the material of the RECEIVER. This process occurs 4 times for the 4 colors of the DONOR, yellow, magenta, cyan, and laminant, 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 THERMAL HEAD LIFT SENSORS that monitor the position of the THERMAL HEAD. There is a DUAL FLAG on the THERMAL HEAD LIFT CAM to detect the position of the THERMAL HEAD. The THERMAL HEAD LIFT MOTOR is part of the MOTOR BRACKET AY. The THERMAL HEAD LIFT SPRINGS are fastened to the DOOR AY and the HEAT SINK. The LIFT SPRINGS apply pressure on the HEAT SINK aligning the THERMAL HEAD to the PLATEN ROLLER.

The THERMAL HEAD moves into 4 positions during the print and idle states:

- RETRACT
 - This is the position of the THERMAL HEAD during the READY and any idle state.
- LOAD 1
 - This is the position of the THERMAL HEAD when the RECEIVER is PICKED and REWOUND.
- LOAD 2
 - This is the position to adjust the THERMAL HEAD LOAD GAP.
- ENGAGE
 - This is the position of the THERMAL HEAD when it is in contact with the PLATEN ROLLER of the ROLLER ASSEMBLY. The PRINT CYCLE occurs in the ENGAGE POSITION.

The THERMAL HEAD includes:

- THERMAL HEAD - Style 1 and 2
- THERMAL FUSE - Style 1
- HEATER - Style 1
- BOARD - 2 EEPROMS containing data - Style 1 and 2
- THERMISTOR - Style 1 and 2

There are 2 styles of THERMAL HEADS installed into the PRINTERS depending on the model and serial number. Both styles include the resistive elements, or pixels, that transfers heat to the RIBBON, the HEAT SINK to maintain temperature, and a THERMISTOR to monitor the temperature of the THERMAL HEAD. There is a BOARD with EEPROMS that stores Uniformity Correction Tables, Plane Count Data, and RAM to store 2 lines of data for printing.

The Style 1 THERMAL HEAD has a HEATER to heat the THERMAL HEAD to the correct operating temperature, and a THERMAL FUSE to prevent overheating. The Style 2 THERMAL HEAD uses pulses from the CONTROLLER BOARD to heat the THERMAL HEAD to operating temperature. The THERMAL FUSE is not needed on the Style 2 THERMAL HEAD.

The THERMISTOR senses the change in temperature of the THERMAL HEAD and feeds back the change to the ANALOG-TO-DIGITAL (A/D) CIRCUIT of the CONTROLLER BOARD. The A/D CIRCUIT energizes the HEATER for the Style 1 THERMAL HEADS, or pulses the Style 2 THERMAL HEADS to heat the THERMAL HEAD to the correct operating temperature. If the temperature of the THERMAL HEAD needs to decrease, the A/D CIRCUIT energizes the 4 HEAD FANS to cool the THERMAL HEAD.

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 HEATER	≈ 12 V DC
THERMAL HEAD LIFT MOTOR	≈ 10.5 V DC
THERMAL HEAD FUSE	1 ohm or less
THERMAL HEAD FAN	≈ 12 V DC
THERMISTOR	10 ± 0.5 K ohms

Preliminary Check

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

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

- [1] Enter 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] Check that the THERMAL HEAD moves.
- [5] If the THERMAL HEAD moves in all 3 positions, advance to the error code for the THERMAL HEAD LIFT SENSOR on Page 85.
- [6] If the THERMAL HEAD does not move, advance to the next step.
- [7] Set the DIGITAL VOLT METER to DC voltage.
- [8] Connect:
 - red PROBE to TP3, PIN 2
 - black PROBE to TP4, PIN 6 - GROUND
- [9] Select [DIAG: LOAD], [DIAG: ENGAGE], or [DIAG: RETRACT].
- [10] The DVM should read ≈ 10.5 V DC.
 - (a) If the DVM does not read ≈ 10.5 V DC, install a new CONTROLLER BOARD.
 - (b) If the DVM does read ≈ 10.5 V DC, advance to the next step.
- [11] Connect the DVM to PINS 1 and 2 on CONNECTOR P1.
- [12] The DVM should read ≈ 10.5 V DC.
 - (a) If the DVM does not read ≈ 10.5 V DC, install a new CONTROLLER BOARD.
 - (b) If the DVM does read ≈ 10.5 V DC, install a new MOTOR BRACKET ASSEMBLY.

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

- [1] Set the DVM to DC voltage.
- [2] Connect:
 - red PROBE to TP4, PIN 2
 - black PROBE to TP4, PIN 6 - GROUND
- [3] Enter the diagnostics.

- [4] Select [DIAG: RETRACT].
- [5] The DVM should read as follows:
 - 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] If the voltage changes from 5 V DC to 0 V DC, install a new CONTROLLER BOARD.
- [8] If the voltage does not change, install a new THERMAL HEAD LIFT CABLE and/or THERMAL HEAD LIFT SENSOR.

Error Code 730 - Cooling Malfunction

- [1] Enter 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 will energize the 4 THERMAL HEAD FANS. The TEMP output should decrease as the FANS continue to operate.
- [4] If the FANS are operating, advance to Step 16.
- [5] If the FANS are not operating, advance to the next step.
- [6] Set the DVM to DC voltage.
- [7] Connect:
 - red PROBE to TP5, PIN 4
 - black PROBE to TP4, PIN 6
- [8] The DVM should read ≈ 12 V DC when the FANS are not operating and ≈ 0.9 V DC when the FANS are operating.
- [9] If the voltage is not present, install a new CONTROLLER BOARD.
- [10] If the voltage is present and the FANS do not operate, advance to the next step.
- [11] Connect the red PROBE to P7, PIN 2.
- [12] Use the diagnostics to operate the FANS.
- [13] The DVM should read ≈ 9 V DC.
- [14] If the voltage is not present, install a new CONTROLLER BOARD.
- [15] If the voltage is present and the FANS do not operate, install a new FAN BRACKET HARNESS ASSEMBLY and/or FAN BRACKET ASSEMBLY.
- [16] De-energize the PRINTER.
- [17] Disconnect CONNECTOR P5, THERMAL HEAD DATA CABLE.
- [18] Set the DVM to ohm.
- [19] Measure the resistance across CONNECTOR P5, PINS 3 and 4.
- [20] The DVM should read 10 ± 0.5 K ohms.
- [21] If the resistance is not 10 ± 0.5 K ohms, it might be necessary to install a new THERMAL HEAD.

Error Code 733

- [1] Enter 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].
- (a) If the HEATER LED is illuminated and the temperature output increases on the DISPLAY, the circuit is operating.
 - (b) If the HEATER LED is not illuminated and the temperature output does not increase, advance to the next step.
- [5] De-energize the PRINTER.
- [6] Set the DVM to ohm.
- [7] Measure the resistance on TP6, PINS 3 and 4 to TP6, PIN 6 if the PRINTER has a FUSE. If the PRINTER does not have a FUSE, check that the JUMPER is installed correctly. Measure the resistance across the PINS 1 to 4 and 3 to 6.
- (a) If the resistance is open (> 2 ohms), install a new FUSE.
 - (b) If the resistance is 1 or less, advance to the next step.
- [8] Energize the PRINTER.
- [9] Set the DVM to DC voltage.
- [10] Connect:
- red PROBE to TP6, PIN 6
 - black PROBE to TP4, PIN 6
- [11] The DVM should read ≈ 12 V DC when the diagnostics have energized the HEATER.
- (a) If voltage is not present, install a new CONTROLLER BOARD.
 - (b) If voltage is present, install a new THERMAL HEAD.

Error Code 719

- [1] De-energize the PRINTER.
- [2] Seat the THERMAL HEAD DATA CABLE at CONNECTOR P5 on the CONTROLLER BD and at the THERMAL HEAD CONNECTOR.
- [3] Energize the PRINTER.
- [4] If error code 719 is not present, check the operation by making a test print.
- [5] If error code 719 is present, advance to the next step.
- [6] De-energize the PRINTER.
- [7] Disconnect CONNECTOR P5.
- [8] Install a new THERMAL HEAD DATA CABLE.
- [9] Energize the PRINTER.
- [10] If error code 719 is not present, check the operation by making a test print.
- [11] If error code 719 is present, install a new THERMAL HEAD.

PLATFORM

Safety



Warning

Dangerous Voltage

The FEE BDs operate on +5 and ± 12 V DC.

Functional Description

The PLATFORM will have 2 types of errors associated with it. The first error will be displayed as an [INIT ERROR] on the FRONT PANEL. Communication errors will also occur which in most cases will not indicate on the display. The PLATFORM includes the FEE/PRO K B BOARD and the optional NETWORK INTERFACE CARD.

Tools

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

Specifications

Supply Voltages:

- +5 V DC
- -12 V DC
- +12 V DC
- 6 MB EPROM/EEPROM
- 8 MB MASK ROM
- 32 MB DRAM - EXPANDABLE to 64 MB in 16 MB increments
- 16 Bit Bi-directional Parallel
- 2 High Density 50 PIN CONNECTOR, SCSI PORTS

Hardware Diagnostics

An LED on the FEE BOARD next to the LocalTalk CONNECTOR indicates if a Field Replaceable Unit (FRU) malfunctioned during initialization. The LED strategy 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 may 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 product 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 BOARD has power.

The DRAM is checked for correct operation and position. If DRAM SIMM slots 1, 3, and 4 are full, the DRAM SIMM #2 indicates a malfunction. If an optional FRU is not installed, an error will not occur. For example, in some configurations, only 1 or 2 ROM SIMMS are used, the empty ROM SIMM slots are not tested.

The NETWORK INTERFACE CARD is tested after the product begins its full boot sequence. If the NETWORK INTERFACE CARD is detected but energized during a malfunction state, the PRINTER will not complete its boot and will display the LED sequence indicating a malfunction of the NETWORK INTERFACE CARD, 8 flashes.

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

There is software on the FEE BOARD to allow the FEE BOARD to operate stand-alone in the EXTERNAL DRAWER TEST FIXTURE used during manufacture testing and BOARD repair. This software is actuated by installing a shunt over the DE-BUG JUMPER on the FEE BOARD. This JUMPER is also used to boot the software into a DE-BUG MODE during software development.

FRU to LED Pulse Count Mapping

FRU	Number of LED Pulses
DRAM SIMM 1	1
DRAM SIMM 2	2
DRAM SIMM 3	3
DRAM SIMM 4	4
ROM SIMM 1	5
ROM SIMM 2	6
ROM SIMM 3	7
NETWORK INTERFACE CARD	8
MARKING ENGINE INTERFACE	9
FEE BOARD 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] Check the voltages on the CONNECTOR J14 on the FEE BOARD.
- [3] Energize the PRINTER.
- [4] If [INIT ERROR] occurs, advance to the procedure for the “HOST CABLES - OFF” on Page 89.
- [5] If the [INIT ERROR] does not occur after trying multiple times, advance to the procedure for the “TEST PRINTER” on Page 95.

HOST CABLES - OFF

- [1] De-energize the PRINTER.
- [2] Removal all HOST connections.
- [3] Energize the PRINTER.
- [4] If [INIT ERROR] occurs, advance to the procedure for the “OPEN DRAWER - No HOST Connections” on Page 90.
- [5] If [INIT ERROR] does not occur, advance to the procedure for the “HOST Connections - ON” on Page 89.

HOST Connections - ON



Important

Do this procedure if the preliminary test shows that the HOST connection caused [INIT ERROR].

- [1] De-energize the PRINTER.
- [2] Remove and install 1 HOST connection at a time.
- [3] Energize the PRINTER.
- [4] If [INIT ERROR] occurs, check the end user/HOST CABLE for possible defects. Check that the CABLE is correctly seated. If the CABLE is defective, recommend that the end user install a new CABLE and re-boot the computer.
- [5] If [INIT ERROR] still occurs, observe which interface caused [INIT ERROR]. Advance to the “OPEN DRAWER - SUSPECT HOST” Connections” on Page 90.
- [6] Do Steps 1 - 4 again for all HOST connections. If [INIT ERROR] does not occur with all HOST connections connected, advance to the procedure for the “TEST PRINTER” on Page 95.

OPEN DRAWER - No HOST Connections

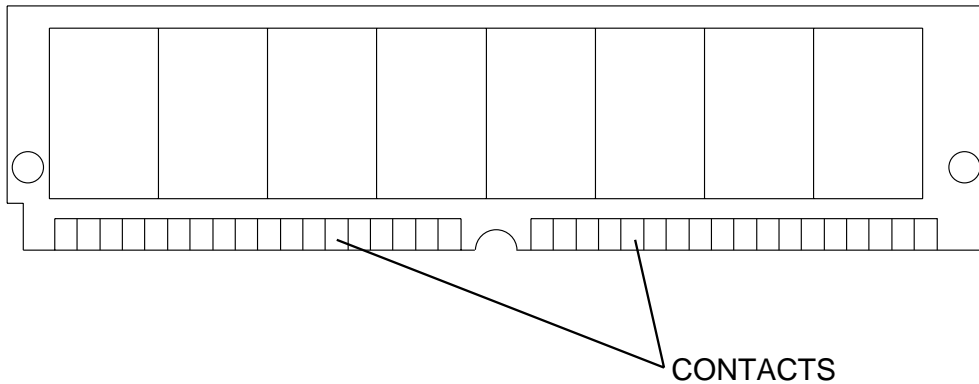


Important

Do this procedure if the preliminary test shows that the HOST connection caused [INIT ERROR].

- [1] De-energize the PRINTER.
- [2] Open the CONTROLLER ENCLOSURE AND ENCLOSURE DRAWER ASSEMBLY.
- [3] Check and seat all CONNECTORS and BOARDS.

DRAM SIMM STRIP



A087_5010BCA
A087_5010BC

- [4] Remove the 2 DRAM SIMM STRIPS 1 at a time.
- [5] Use ALCOHOL and a cloth to clean the DRAM SIMM STRIP CONTACTS.
- [6] Energize the PRINTER.
- [7] If [INIT ERROR] does not occur, advance to the procedure for the “TEST PRINTER” on Page 95.
- [8] If [INIT ERROR] occurs, advance to the procedure for the “WATCH CYCLE” on Page 92.

OPEN DRAWER - SUSPECT HOST Connections

- [1] De-energize the PRINTER.
- [2] Open the CONTROLLER ENCLOSURE AND DRAWER ASSEMBLY.
- [3] Check and seat all CONNECTORS and BOARDS.
- [4] Install the suspect HOST connections CABLE.
- [5] Energize the PRINTER.
- [6] If [INIT ERROR] does not occur, advance to the procedure for the “TEST PRINTER” on Page 95.
- [7] If [INIT ERROR] occurs, advance to the next step.
- [8] De-energize the PRINTER.
- [9] Remove the SUSPECT HOST CABLE connections.
- [10] If [INIT ERROR] does not occur, advance to the procedure for the “Replacement of the SUSPECT MODULE” on Page 91.
- [11] If [INIT ERROR] occurs, advance to the procedure for the “WATCH CYCLE” on Page 92.

Replacement of the SUSPECT MODULE



Important

Steps 1 and 6 apply for a *Centronics/Parallel* connection only.

- [1] De-energize the PRINTER.
- [2] Install a new CONTROLLER to FEE INTERFACE CABLE.
- [3] Install the parallel HOST connection.
- [4] Energize the PRINTER.
- [5] Have the end user re-boot the HOST Computer.
- [6] If [INIT ERROR] does not occur, advance to the procedure for the “TEST PRINTER” on Page 95.
- [7] If [INIT ERROR] occurs, advance to Step 9.

For *Ethernet* Connections:

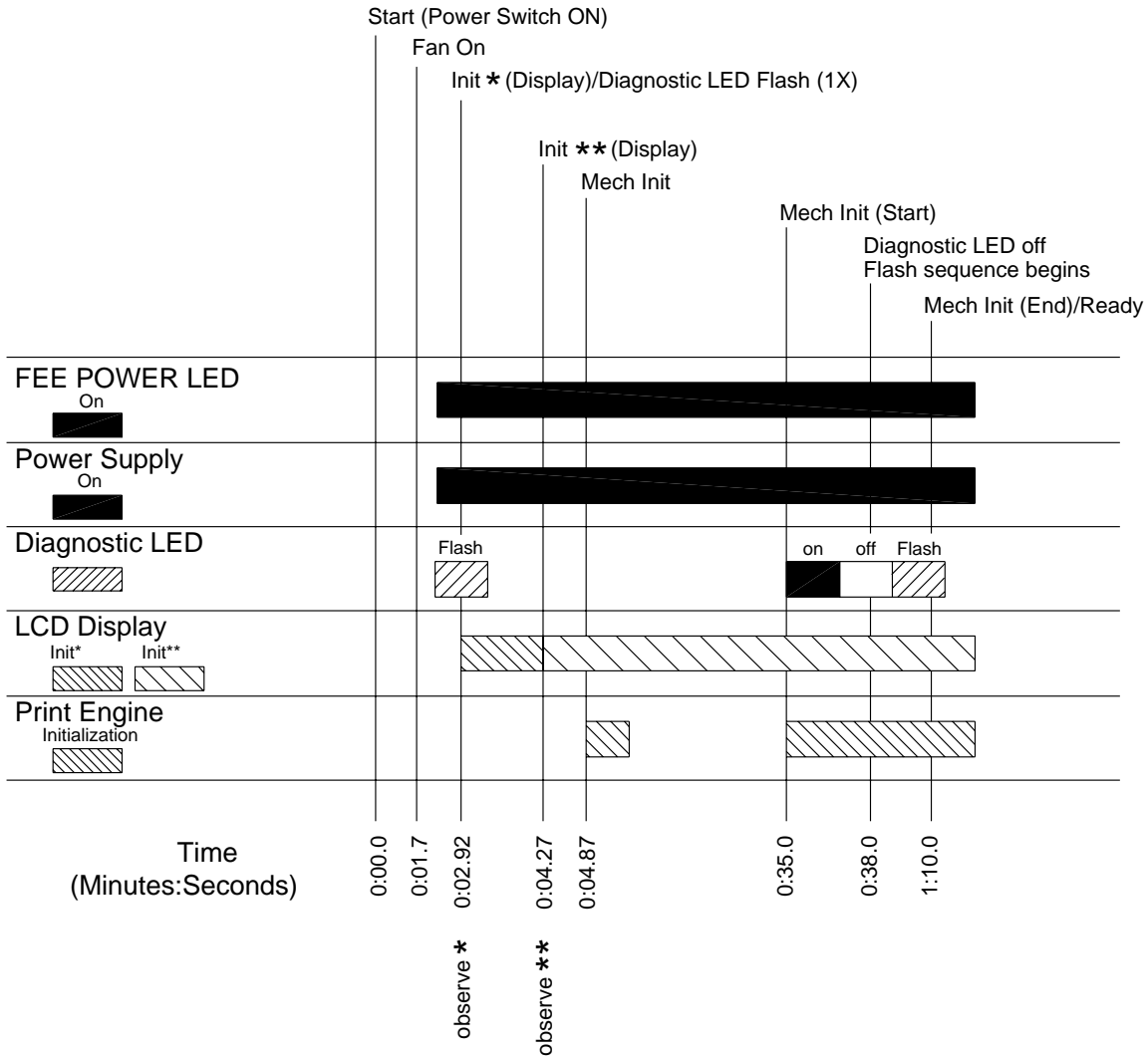
- [8] Install HOST connections separately and do Steps 4 - 6.
- [9] De-energize the PRINTER.
- [10] Remove the failed HOST connection.
- [11] Install a new NETWORK INTERFACE CARD if necessary.
- [12] Install the HOST connection.
- [13] Energize the PRINTER.
- [14] Have the end user re-boot the computer if possible.
- [15] If [INIT ERROR] does not occur, advance to the procedure for the “TEST PRINTER” on Page 95.
- [16] If [INIT ERROR] occurs with 1 of the INTERFACES and a new HOST INTERFACE CABLE has been installed, advance to the procedure for the “WATCH CYCLE” on Page 92.

WATCH CYCLE

Additional information for the initialization errors follows the Front End Initialization Cycle Chart.

Front End Initialization Cycle - XLS 8600, 8600 PS, 8657

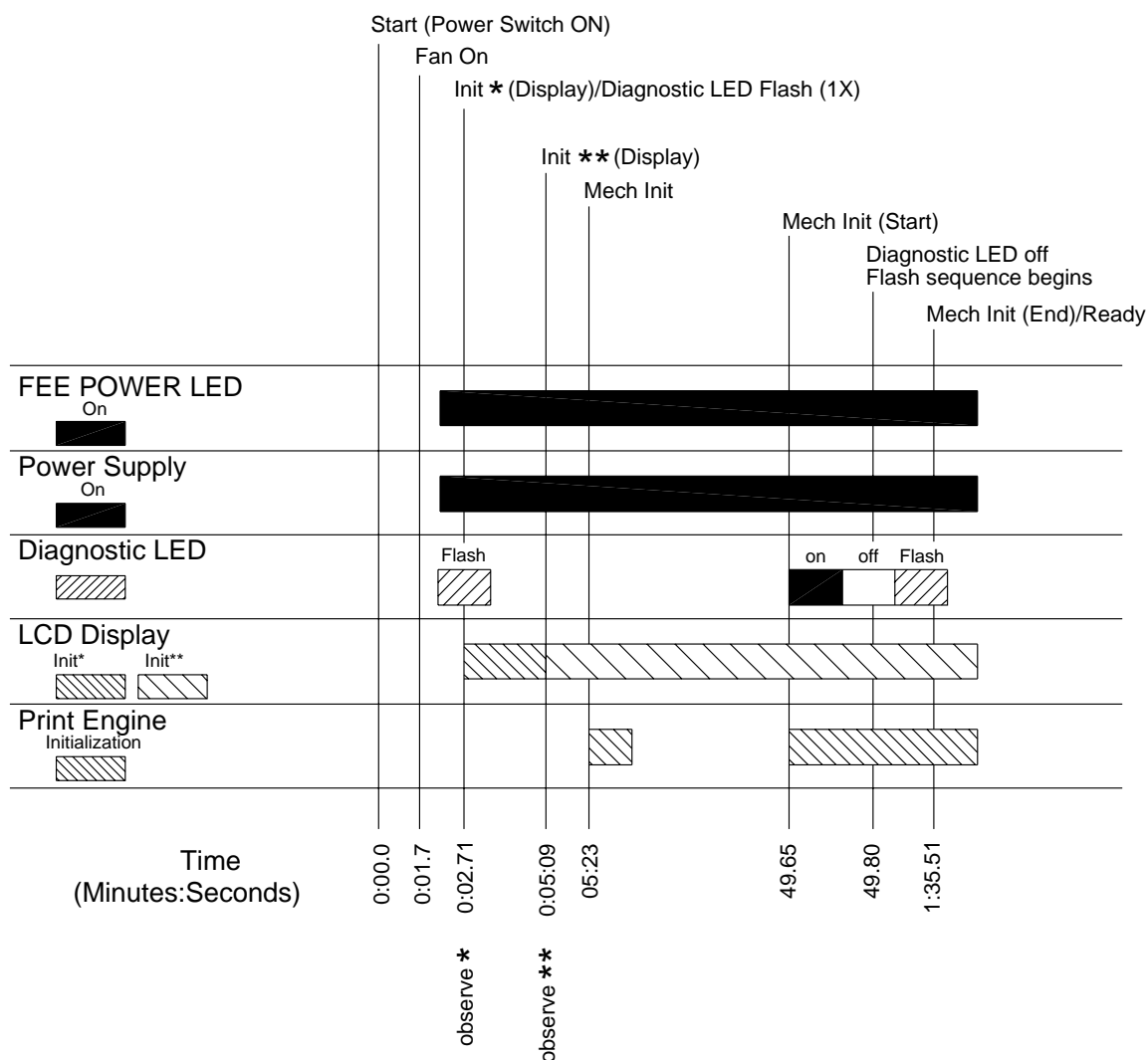
FRONT END INITIALIZATION CYCLE



A087_9029DC

Front End Initialization Cycle - 8650/PS COLOR PRINTERS

FRONT END INITIALIZATION CYCLE



A087_9056DC

Preliminary Check



Important

At this point, you have determined that the failure is internal to the PRINTER. You will be using the Front End Initialization Cycle time-line in many of the steps.

- [1] Follow the sequence of the WATCH CYCLE.
- [2] Energize the PRINTER.

FAN - Operation

- [1] Check the DRAWER COOLING FAN for correct operation.
- [2] If the FAN rotates correctly, continue with the procedure for the “WATCH CYCLE”.
- [3] If the FAN does not rotate correctly, advance to the procedure for the “Checking the FAN” on Page 95.

FEE LED

- [1] Use the time-line to check for the correct sequencing, the LED will energize. Observe the FEE LED and compare to the time-line.
- [2] If the FEE LED does not illuminate in the correct time, do the procedure for the “No Power to the FEE BOARD - Error 722” on Page 47.
- [3] If the FEE LED illuminates correctly, continue with the procedure for the “WATCH CYCLE”.

NETWORK INTERFACE CARD



Important

Do this procedure if the PRINTER has an optional NETWORK INTERFACE CARD.

- [1] Use the time-line to check for correct sequencing ERROR LED will intermittently illuminate, flash “ON” and “OFF”. Observe the ERROR LED and compare to the time-line.
- [2] If the ERROR LED illuminates correctly, continue with the procedure for the “WATCH CYCLE”.
- [3] If the ERROR LED does not illuminate as indicated in the time-line, advance to the procedure for the “Replacement of the NETWORK INTERFACE CARD” on Page 95.

LCD Messages

- [1] Use the time-line to check for the correct LCD messages. Observe the LCD and compare to the time-line.
- [2] If the correct LCD message is not displayed during the correct time, check the LCD.
- [3] If the correct LCD messages are displayed, continue with the procedure for the “WATCH CYCLE”.

PRINT ENGINE - Initialization

- [1] Use the time-line to check that the PRINT ENGINE initializes as described in the time-line.
- [2] If the PRINT ENGINE does not initialize correctly, do the procedure “ENGINE” starting on Page 19.

Part Replacement



Important

After you have completed the procedure for the “WATCH CYCLE”, if all systems operate correctly and an [INIT ERROR] still occurs, do the following procedure:

- [1] De-energize the PRINTER.
- [2] Remove the NETWORK INTERFACE CARD.
- [3] Energize the PRINTER.
- [4] If [INIT ERROR] does not occur, install a new NETWORK INTERFACE CARD. Advance to the procedure for the “TEST PRINTER” on Page 95.
- [5] If [INIT ERROR] still occurs, advance to the next step.
- [6] De-energize the PRINTER.
- [7] Install a new INTERFACE CABLE.
- [8] Energize the PRINTER.
- [9] If [INIT ERROR] still occurs, advance to the next step.
- [10] De-energize the PRINTER.
- [11] Remove the SIMM STRIPS.
- [12] Energize the PRINTER.

- [13] If [INIT ERROR] does not occur, install new ROM SIMM STRIPS and a new NETWORK INTERFACE CARD. Advance to the procedure for the “TEST PRINTER” on Page 95.
- [14] If [INIT ERROR] still occurs, advance to the next step.
- [15] Install a new FEE BOARD.
- [16] Install the SIMM STRIPS on the FEE BOARD and all POWER and DATA CABLES.
- [17] Energize the PRINTER.
- [18] The [INIT ERROR] should not occur.

Checking the FAN

- [1] Check that the FAN BLADES are not obstructed or do not have a jam. Install a new FAN if necessary.
- [2] Measure the voltage for the FAN at the POWER SUPPLY and/or FAN CONNECTOR.
- [3] If voltage is present at the FAN CONNECTOR/POWER SUPPLY and the FAN does not operate, install a new FAN.

Replacement of the NETWORK INTERFACE CARD

- [1] De-energize the PRINTER.
- [2] Install a new NETWORK INTERFACE CARD.
- [3] Energize the PRINTER.
- [4] If [INIT ERROR] does not occur, do the procedure for the “TEST PRINTER” on Page 95.
- [5] If [INIT ERROR] occurs, do the procedure for the “WATCH CYCLE” on Page 92.

TEST PRINTER



Important

To do this procedure, the [INIT ERROR] has been removed.

- [1] Energize the PRINTER.
- [2] Make a front end test print.
- [3] Have the end user down-load and print an image from his HOST Computer.
- [4] If the test print cannot be started or if the end user cannot down-load an image and print, it is necessary to troubleshoot the malfunctions.
- [5] If the test print and end user interaction is satisfactory, check that all HOST Connections are installed and the PRINTER is fully assembled and clean.

Communication Errors

Centronics/Parallel PORT



Important

The end user should have contacted Digital and Applied Imaging Marketing Support (DAIMS) to check that the error is not an application malfunction.

- [1] Check that the PARALLEL CABLE is correctly connected to the PRINTER and HOST Computer.
- [2] Have the end user energize the PRINTER first, then the computer.
- [3] Have the end user try to send an image to the PRINTER.
 - (a) If the end user can send an image, stop doing this procedure and send another image.
 - (b) If the end user cannot send an image, advance to the next step.

- [4] Use the SETUP GUIDE in the USER MANUAL to energize the error page and check for correct setup of the PRINTER.
- [5] Have the end user send a different image. If the image prints, this could be an application malfunction.
- [6] Check for PS (PostScript) error messages; the mode = binary/normal, located on the error page. This could be an application problem.
- [7] If possible, have the end user send an image to a different PRINTER to check the operation of the system.
- [8] Have the end user look at any existing images on the HOST, for example, *Windows*.
- [9] Have the end user check that the LPT1 PORT is setup.
- [10] If the communication error has been corrected, advise the end user to contact Digital and Applied Imaging Marketing Support (DAIMS) for further assistance.
- [11] If the end user still cannot send an image, advance to the next step.
- [12] De-energize the PRINTER.
- [13] Open the CONTROLLER ENCLOSURE AND DRAWER ASSEMBLY.
- [14] Seat all CABLES and BOARDS on the PLATFORM.
- [15] Energize the PRINTER.
- [16] Have the end user send an image.
- [17] If the communication error has been corrected, have the end user send another image to check the operation of the PRINTER.
- [18] If the end user still cannot send an image, advance to the next step.
- [19] De-energize the PRINTER.
- [20] Install a new INTERFACE CABLE.
- [21] Energize the PRINTER.
- [22] Have the end user send an image.
- [23] If the communication error has been corrected, have the end user send another image to check for correct operation.
- [24] If the end user still cannot send an image, advance to the next step.
- [25] De-energize the PRINTER.
- [26] Install a new FEE BOARD.
- [27] Energize the PRINTER.
- [28] The communication error should be removed. If not, contact Digital and Applied Imaging Marketing Support (DAIMS) for assistance.
- [29] De-energize the PRINTER.
- [30] Assemble all parts.
- [31] Have the end user send an image to check for correct operation.

Ethernet - Thinnet, Thicknet

- [1] Check the *Ethernet* CABLE for correct connections to the PRINTER and the HOST Computer.
- [2] Check that the versions are correctly set. Use the SETUP GUIDE.
- [3] Have the end user send an image.
- [4] Have the end user send an image to another PRINTER if possible.
- [5] If none of the above steps corrects the malfunction, advance to the next step.
- [6] De-energize the PRINTER.
- [7] Open the CONTROLLER ENCLOSURE AND DRAWER ASSEMBLY.
- [8] Seat all CABLES and BOARDS on the PLATFORM.

- [9] Check that the connection for the JUMPER on the *Ethernet* BOARD is correct.
- [10] Check termination, *Thinnet* loops only with terminator.
- [11] Energize the PRINTER.
- [12] Have the end user send an image.
- [13] If none of the above steps correct the malfunction, advance to the next step.
- [14] De-energize the PRINTER.

SCSI PORTS



Important

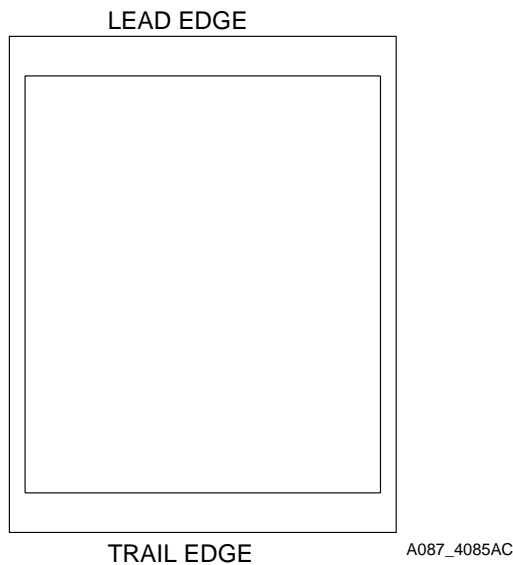
These parts are used for an EXTERNAL HARD DRIVE to support the fonts only.

- [1] Check that the CABLE and PINS are correctly installed to the PRINTER and the HARD DRIVE.
- [2] Terminate 1 SCSI PORT.
- [3] Check that SCSI ID4 is setup.
- [4] Check that the EXTERNAL HARD DRIVE CABLE length is a maximum of 6 meters (18 feet).
- [5] Have the end user use the font down-load utilities to check the fonts.
- [6] The LED on the EXTERNAL HARD DRIVE should intermittently illuminate or flash during HARD DRIVE boot-up.
- [7] Check the sound at spin-up and sequencing of the EXTERNAL HARD DRIVE is correct.
- [8] Have the end user connect the EXTERNAL HARD DRIVE to the other SCSI PORT.
- [9] If the steps above do not correct the malfunction, the malfunction could be in the EXTERNAL HARD DRIVE, or it might be necessary to install a new FEE BOARD. Contact Digital and Applied Imaging Marketing Support (DAIMS) for further assistance.

Section 6: Image Quality

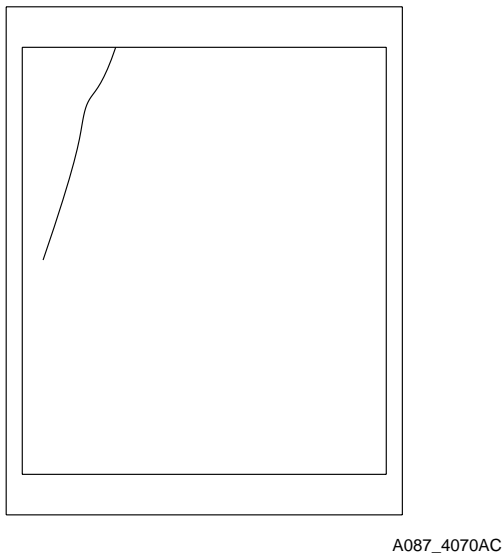
Artifact Descriptions

Lead Edge/Trail Edge



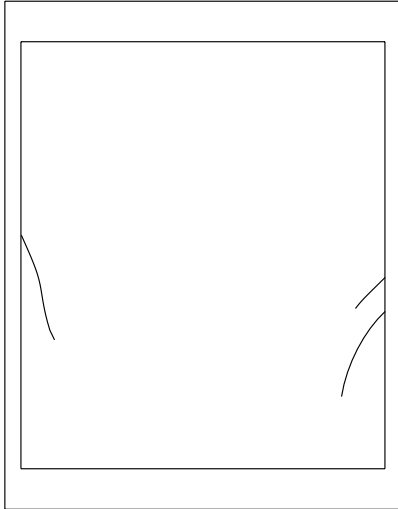
Lead Edge/Trail Edge - Lead edge is the edge of the image that is printed first and exits the PRINTER first. Trail edge is the end of the image that exits the PRINTER last.

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.

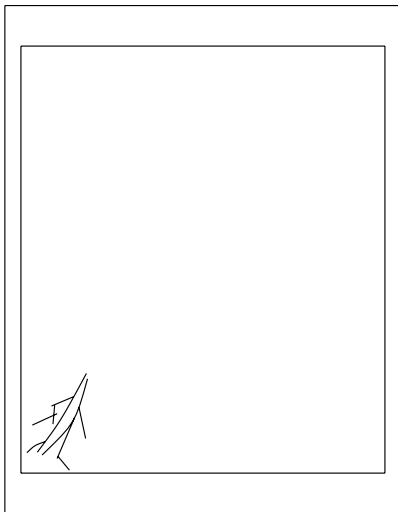
Side Edge Fold



A087_4071AC

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 unprinted borders of the DONOR.

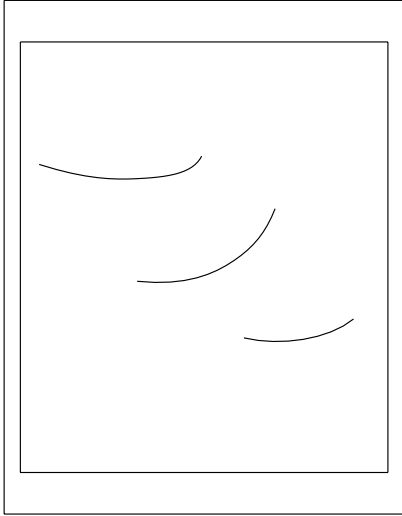
Stretch



A087_4072AC

Stretch - Stretch only occurs on REFLECTIVE material. Folds that look like lightning bolts. They start within the image and normally extends to the bottom and toward the corners of the image branching out. 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 reduced by adding a little density to the image background. In extreme cases, even flat field minimum densities exhibit this problem.

Smiles

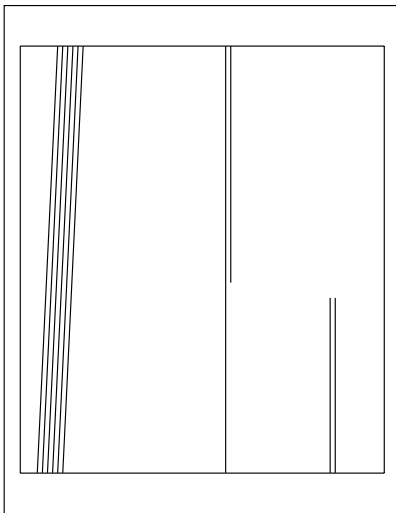


A087_4067AC

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

Comb Lines, Wit Code= 1238 - DONOR and THERMAL HEAD

DONOR

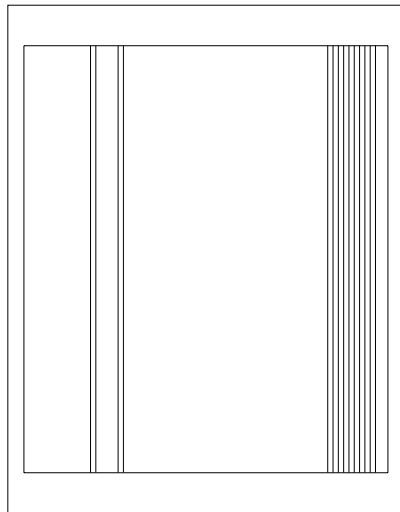


A087_4068AC

Comb lines are several evenly spaced lines, 1 or 2 mm (1/64 to 1/8 inch) 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.

Comb lines on the DONOR 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 one 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.

THERMAL HEAD



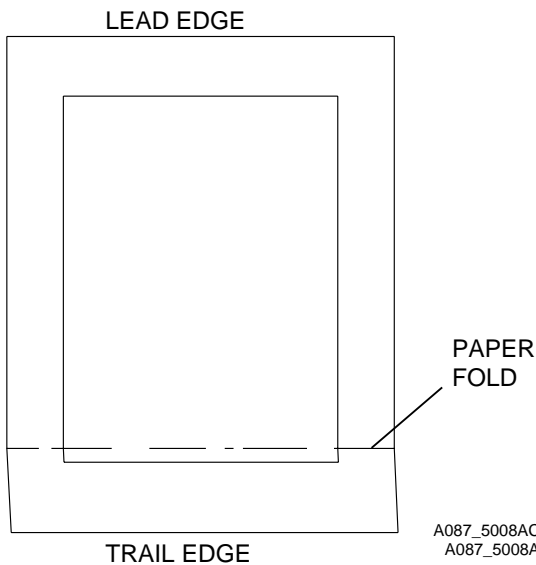
A087_4069AC

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 graphics 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



A087_5008ACA
A087_5008AC

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

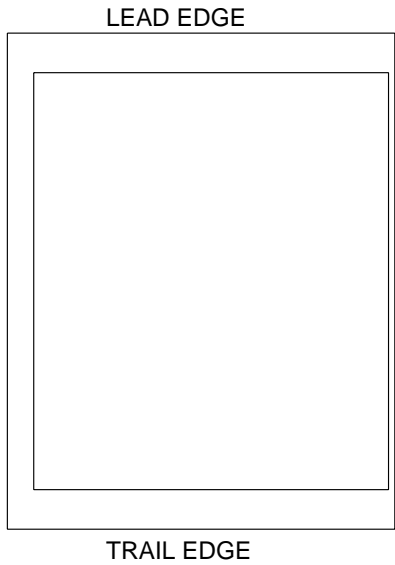
Cause: With the new UNI-TRAY, the RECEIVER and TRAY are not compatible; this might be caused if the TRAY setting selected is not correct for the RECEIVER in use.

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 ASSEMBLY CHUTE during REWIND. The DONOR might be stripped.

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

Border Size Not Correct



A087_5009AC

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.

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

Solution: Install a new UNI-TRAY.

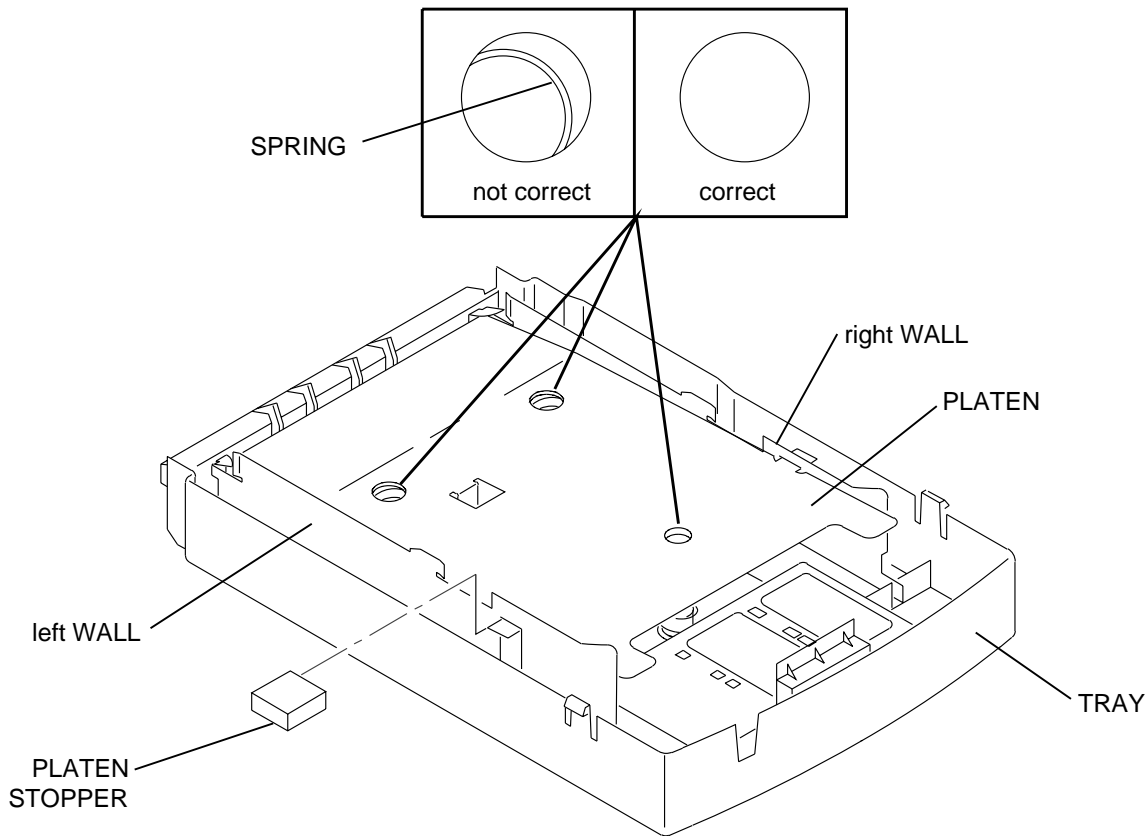
Cause: The RECEIVER is damaged.

Solution: Install a new RECEIVER.

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

Solution: Check that the WASHER is installed.

UNI-TRAY



A087_5005HCA
A087_5005HC

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

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

Symptom:

Lead Edge Fold, Side Edge Fold, or Stretch on a PRINTER after normal to high usage.

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 ASSEMBLY and DONOR SUPPLY BRACKET.
- [4] Check the adjustment for the THERMAL HEAD LOAD GAP. See the ADJUSTMENTS AND REPLACEMENTS, Publication No. AR2935-5.
- [5] Do the maintenance procedure for the THERMAL HEAD. See the PERIODIC MAINTENANCE, Publication No. PM2935-1.

Lead Edge Fold, Side Edge Fold, Stretch - New PRINTER

Symptom: Lead Edge Fold, Side Edge Fold, or Stretch on a new PRINTER removed from the 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 usable 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 ASSEMBLY
 - BASE ENCLOSURE WALLS
 - MOTOR BRACKET ASSEMBLY
 - Do all the GEARS mesh and have the correct backlash?
 - DOOR/DONOR TAKE-UP ASSEMBLY
 - 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 THERMAL HEAD LOAD Gap Adjustment on page 29.
- [4] Do the Stretch adjustment for the ROLLER ASSEMBLY and DONOR SUPPLY BRACKET on page 10.
- [5] Do the maintenance procedure for the THERMAL HEAD. See the PERIODIC MAINTENANCE, Publication No. PM2935-1.
- [6] If the PRINTER has serious damage and this is a new PRINTER, it is recommended to exchange the PRINTER.

Stretch, Lead Edge Fold, Side Edge Fold - New THERMAL HEAD

Symptom: Stretch, Lead Edge Fold, or Side Edge Fold 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 for this PRINTER was installed. Use the correct THERMAL HEAD for that model.
- There is a THERMAL HEAD malfunction.

Solution:

- [1] Install new DONOR and/or RECEIVER.
- [2] Clean the THERMAL HEAD.
- [3] Move any wires or HARNESSSES in the correct position.
- [4] Do the maintenance procedure for the THERMAL HEAD. See the PERIODIC MAINTENANCE, Publication No. PM2935-1.
- [5] Do the Stretch Adjustment for the ROLLER ASSEMBLY and DONOR SUPPLY BRACKET.
- [6] The new THERMAL HEAD might have a less than nominal profile. Use another THERMAL HEAD.

Note

The ROLLER ASSEMBLY, DONOR SUPPLY BRACKET, and DOOR ASSEMBLY can cause or increase the Stretch artifact.

Image Quality Troubleshooting Chart

Malfunction	Possible Cause	Procedure
Print very light	Setup, 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 ASSEMBLY	Clean the CHUTE and ROLLER ASSEMBLY.
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.

Malfunction	Possible Cause	Procedure
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 one 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	Install a DONOR SUPPLY BRACKET.
	THERMAL HEAD LOAD GAP	Adjust the THERMAL HEAD LOAD GAP.
	THERMAL HEAD	Install a new THERMAL HEAD.
	DOOR ASSEMBLY	Install a new DOOR ASSEMBLY.
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 ASSEMBLY	Install a new DOOR ASSEMBLY.
	THERMAL HEAD out of tolerance	Check, if necessary, install a new THERMAL HEAD.
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 SUPPLY BRACKET	Install a new DONOR SUPPLY BRACKET.
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	THERMAL HEAD	Install a new THERMAL HEAD.

Malfunction	Possible Cause	Procedure
Smiles, TRANSPARENCY only, 1 or more curving folds across the image in high density areas	THERMAL HEAD needs voltage adjustment	Check the voltage of the THERMAL HEAD 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 —displays 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.

Image Quality Troubleshooting Chart - DONOR/RECEIVER

Malfunction	Possible Cause	Procedure
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	Inspect and correct DONOR winding or obvious obstruction in DONOR path. 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 DONOR winding, alignment of the DONOR, or obvious obstruction in path of 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	Alignment of the DONOR SPOOL	Correct the DONOR installation and make another print.

Malfunction	Possible Cause	Procedure
Comb lines - evenly spaced lines running down the print —random patches, varying width, density — might be at a slant — normally more in one color than another	DONOR	Install a new DONOR ROLL and make another print.

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Kodak Service & Support

Malfunction	Possible Cause	Procedure
Comb lines - evenly spaced lines running down the print —through the full image —consistent width and density —displays 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.

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