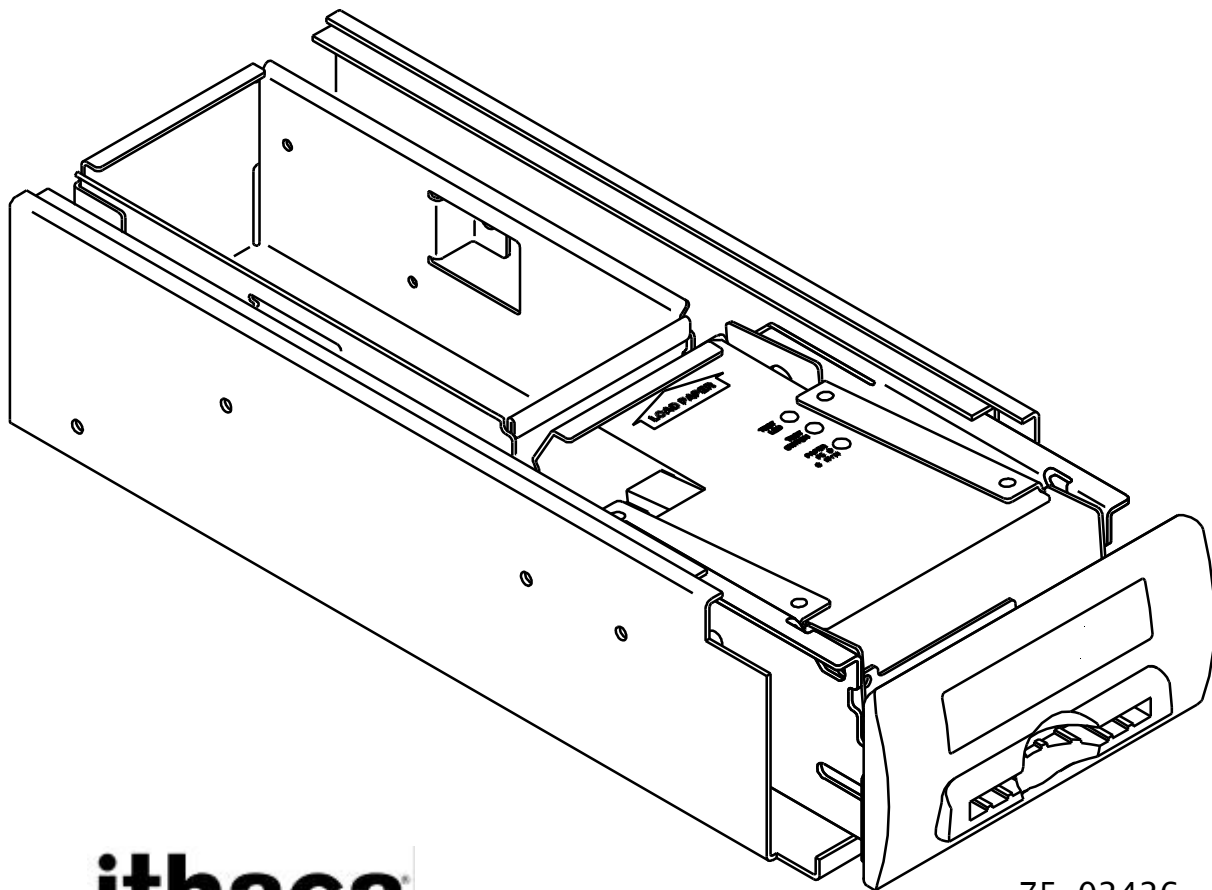

Series 700

Model 750

Maintenance Manu



ithaca
a product of TRANSACT

75-02426

REV H

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Revision H

Printed in USA.

Important:

All figure specifications are given in inches. Losses that can be attributed to improper installation and working procedures are not the responsibility of TransAct Technologies Inc. No part of this manual may be used to recreate any part of the Model 750. This manual is to be used for maintenance purposes only. If this manual contains any questionable information or mistakes please contact TransAct for assistance. Portions of this Maintenance Manual may be changed without prior notice. Specifications within this document are for both 62-mm and 65-mm wide tickets. Early demo units only support 62-mm tickets.

Change History

- Rev A Initial Release
- Rev B Added item numbers 6-10 on page 40. "Complete 750 Assembly"
Added 75-03138 to item number 9 on page 44. "Main Chassis Assembly and Ticket Supply Box.
- Rev C Changed Drawer Chassis Assembly drawing and part number information to current status (P42).
- Rev D Updated part numbers on p 40. Updated view to 02434.wmf. Removed part # 98-02389.
- Rev E Pg. 41 – item #7 p/n was 98-02216; Pg 44 – added item #15
- Rev F Pg. 41 – item #5 p/n was 75-03080; Pg 45 – item #4 p/n was 75-02153
- Rev. G Pg. 40 – item #1 part # was 100-03447
- Rev. H Updated disclaimer

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Chapter 1: General Information

What is covered in this book?

This documentation is intended for trained service technicians and covers maintenance procedures for servicing the Model 750. Topics include processes on how to clean and adjust the printer, troubleshoot problems, and disassemble the Model 750. Additional information also covers the Series 700 features, specifications and printing capabilities, operational theory, and includes a complete listing of part numbers for assistance when ordering replacement or component upgrades.

Service Information

TransAct Technologies Incorporated has a full service organization to meet your printer service and repair requirements. If you are experiencing problems that are beyond the scope of the documentation provided, you can directly contact the Ithaca facility's Technical Support Department at (607) 257-8901 or (877) 7ithaca for a return authorization. International customers should contact your distributor for services. TransAct offers the following service programs to meet your needs.

-
- Extended Warranty
-
- Depot Repair
-
- Maintenance Contract
-
- Internet Support
-

Ithaca Product Support Procedure

Monday through Friday, 8A.M. to 5 P.M. (excluding holidays).

To obtain technical support, call TransAct's Ithaca Facility at (607) 257-8901 and ask for Technical Support. When you call, please have the following information at hand:

-
- The Model Number and Serial Number of the printer
-
- A list of any other peripheral devices attached to the same port as the printer
-
- What application software, operating system, and network (if any) you are using
-
- What happened and what you were doing when the problem occurred
-
- How you tried to solve the problem
-

Return Materials Authorization and Return Policies

If the technical support person determines that the printer should be serviced at our facility, and you want to return the printer for repair, a Returned Materials Authorization (RMA) number must be issued before returning the printer. Repairs are warranted for 90 days from the date of repair or for the balance of the original warranty period, which ever is greater. Please prepare the printer being returned for repair as follows:

-
- Pack the printer to be returned in the original packing material
-
- Packing material may be purchased from TransAct's Ithaca Facility
-
- Do not return any accessories unless asked to do so by a support technician
-
- Write the RMA number clearly on the outside of the box
-

Internet Support

www.transact-tech.com

TransAct Technologies Incorporated maintains an Internet web-site with content devoted to supporting our products. At our Support Services section for our Ithaca brand products you can find documentation for the Series 700 printer including a current copy of this Maintenance Manual. Our on-line support also includes an option to obtain assistance from a technical support specialist by filling out a e-mail assistance request form. Your e-mail will be received by one of our support specialists and they will contact you by telephone. The Series 700 Printer support pages offer the latest information. They include the current version of this manual; Command Codes and Descriptions, Character Fonts, Printer Features, Communication Specifics, and Ticket Specifications.

Warranty Options

All Series 700 Printers come with a standard 12-month standard warranty covering both parts and labor that starts upon shipment from the factory. An optional extended warranty, covering both parts and labor for an additional 12 months, may be purchased separately. For more information concerning the warranty options, please contact the Sales Department at TransAct's Ithaca facility. You are responsible for insuring any product returned for service, and you assume the risk of loss during shipment to Ithaca C.O.D. packages are not accepted and warranty repairs are subject to the terms and conditions as stated on the Ithaca warranty policy (packed with each new printer).

Contacting TransAct's Ithaca Facility

Contact TransAct's Ithaca facility for general information about integrating 700 Series printers with your system. The Sales and Technical Support Departments will be able to help you with most of your questions. Call the Technical Support Department to receive technical support; order documentation; receive information about the 700 Series; or send in a printer for service. To order supplies; receive information about other Ithaca products; or obtain information about your warranty, contact the Sales Department. To receive information on International distribution, look on our web site at www.transact-tech.com

You may reach both the Sales and Technical Support Departments at the following address and telephone or fax numbers:

TransAct Technologies Incorporated
Ithaca Facility
20 Bomax Drive
Ithaca, NY 14850 USA

Telephone	(877) 7ithaca or (607) 257-8901
Main fax	(607) 257-8922
Sales fax	(607) 257-3868
Technical Support fax	(607) 257-3911
Web site	http://www.transact-tech.com

Chapter 2: Series 700 Configuration System

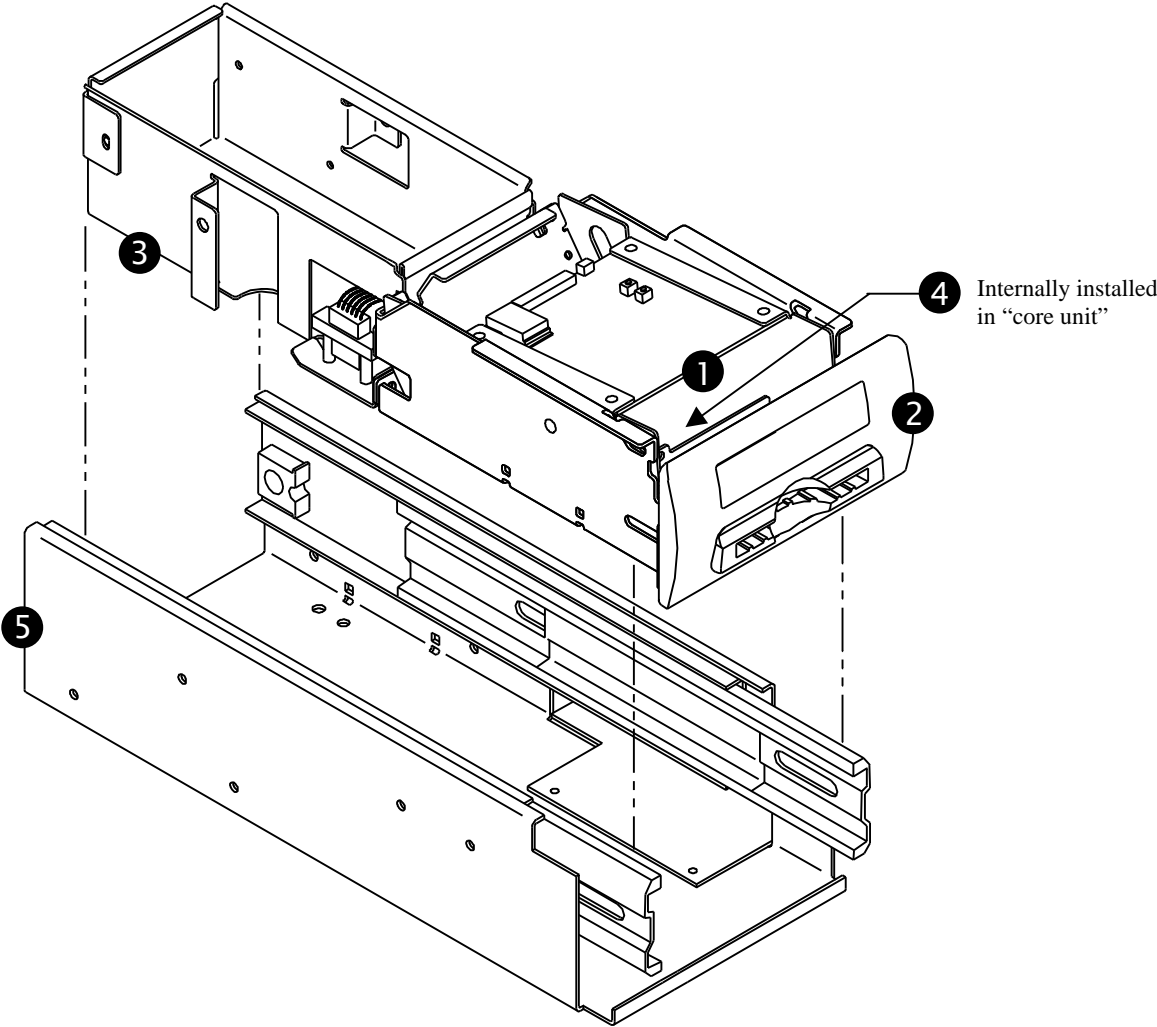


Figure 1 Series 700 Core unit and configurable options

- 1 700 Series Printer (“Core Unit” Main Chassis Assembly)
- 2 Bezel Assembly Option
- 3 Ticket Supply Box (specify size)
- 4 Ticket Present Sensor Option
- 5 Drawer Chassis Assembly

Model 750 “Core” Printer: Main Chassis Assembly

The Series 700 printer operates with a unique system that allows for printing and presentation of the ticket, without allowing for ticket removal during printing. The ticket remains out of the reach of the user until all printing is complete. The perforation is located at a tear bar. Only in that position is the ticket protruding from the bezel and the perforation easy to tear. Even if the user removes the ticket before the ticket is completely presented, there will be no disturbance of the graphics as all printing is complete. The following ticket will then proceed to the correct printing position, unaffected by the premature removal. This system requires a specific ticket length and a Black Dot/Top of Form indicator in a precise location for presentation to work as described. Both of these features keep the ticket in the proper locations for printing and separation. Any changes to these features require consideration of the presentation scheme. The benefit of the Model 750 is to allow for the entire printer and Ticket Supply Box to be removed through a 4.68 by 2.38 inch opening in front of the printer.

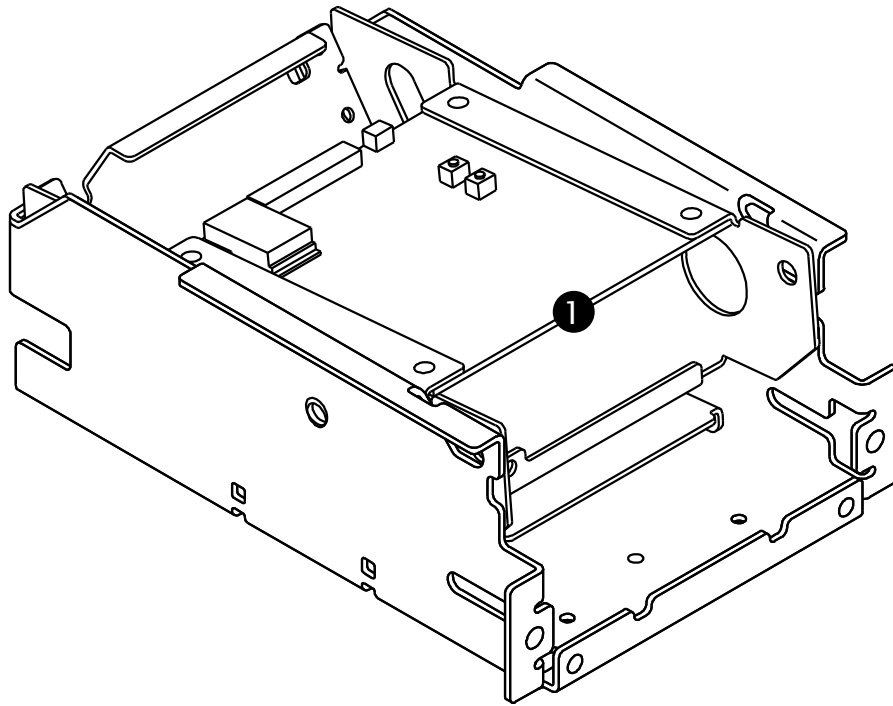


Figure 2 Model 750 “Core” Printer

750 “Core” Printer: Main Chassis Assembly Highlights

-
- Modular options configured to fit most space requirements
-
- Ticket confinement until completion of printing
-
- Self-Service use
-
- Easy Ticket Loading and Maintenance
-

Standard Features

- Easy Ticket Loading
- Self Diagnostics
- Ticket Out Sensing
- Black Dot Sensing
- High Quality Printing (Text, Barcodes, Graphics, Lines)
- Bitmap Graphics, Portrait, and Landscape Printing
- Ticket Containment
- Flexible Configuration Options
- Optional Ticket Supply Box (Holds up to 400 tickets) (w/ ticket low)

750 Printing Highlights

- Print Speed: 51 mm/sec (2 in. per second)
- 5 Selectable Fonts: 7.5 cpi, 10 cpi, 12 cpi, 16.5 cpi, 20 cpi
- Print Modes: Normal, Double-High, Double-Wide, Double-High/Double Wide
- Print Resolution: 8 dots per mm (203 dpi) Horizontal & Vertical
- Print Zone Width: 56 mm (2.205 in.)
- Printhead Life: 25 Km
- Data Buffer: 4K
- Memory: 64K EPROM & 32K RAM
- Bar Code: 3 Of 9, Interleaved 2 of 5, UPC-A & UPC-E, Codabar, EAN8 & EAN13, Code 128, Postnet, and MSI Plessey

Print Characteristics

The statistics for the five internal fonts the Series 700 Printer supports appear below. Height and width are expressed in terms of dots.

Height	Width	Horizontal cpi	Vertical cpi
16	10	20.3	12.7
24	12	16.9	8.4
32	16	12.7	6.4
32	20	10.2	6.4
56	28	7.3	3.6

Table 1 Font Statistics

Series 700 Printer Specifications

(Dimensions reflect "Core Unit" unless otherwise noted)

Dimensions

Height 3.36" **Width** 5.46" **Depth** 6.27"

120 mm Supply Box

Height 3.36 inches
Width 5.46 inches
Depth 11.3 inches

156 mm Supply Box

Height 3.36 inches
Width 5.46 inches
Depth 12.8 inches

Weight

Model 750

3.31 Kg (7.30lbs.)

General

Ticket Handling Straight. Entire path is accessible.
Power Input 24 VDC \pm 10%
Current 1.5 amps (maximum)

Interface

Type Bi-directional, serial RS-232 using transmit, receive, and ground

Protocol CTS or XON/XOFF, 9600 baud, 8 data bits, no parity, 1 start bit, 1 stop bit

Printer

Model	Fixed 2.25" linear thermal head
Average Life	Approximately 25 km of paper (replaceable)
Printing Method	Direct thermal
Speed	Approximately 2 inches per second
Ticket Width	Maximum width of 2.56 inches (65 mm)
Resolution	203 x 203 and 136 x 203 dots per inch

Checking Environmental Conditions of OEM Product

The Model 750 is designed to be placed within any OEM product that has been designed to support the weight of the printer (about 6 pounds or 2.7 kg). Be aware that the environmental conditions of the location where you place the printer have an affect on the it's performance and longevity.

Printer Environmental Conditions

The printer will run its best when stored and operated in an environment that meets the following temperature and humidity conditions.

• Operating:	0° to 40°C/32° to 113° F
• Storage:	-20° C to 70° C *
• Shipping:	-40° to 70°C *

Relative Humidity

• Operating:	5% to 90% (non-condensing)
• Storage:	10% to 90% (non-condensing)
• Shipping:	95% (non-condensing)

* Exposure to high or low temperatures for periods of greater than 48 hours will lead to significantly reduced print head life.

Ticket Environmental Conditions

Activation Temperature	
Initial	74 ± 5° C
Effective	83 ± 5° C
Optimum	90 ± 5° C
Image	Black
Development	1.35/1.60 (ATLANTEK 0.5 ms)
	1.10/1.40 (ATLANTEK 0.35 ms)
Ticket type	Kanzaki TO-381N or approved equivalent Ithaca Ticket Part Number 100-02108

Chapter 3: Configurable Options-Specifications

Ticket Supply Box Specifications

Power and Interface Communications

The Model 750 with a Ticket Supply Box option uses the J3: 5-Pin connector as the primary link for the Supply Box Ticket Low Sensor's power and communication. The J3 connector is located on the printer connector board.

Ticket Low Sensor

All Ticket Supply Box options are configured with a Ticket Low sensor. The Ticket Low sensor detects when the ticket stack is approximately 45 tickets. A replacement Ticket Low Sensor can be acquired from Optek. TransAct recommends using the following Optek Ticket Low Sensor.

Replacement Ticket Low Sensor:	Optek	0PB773T
--------------------------------	-------	---------

Signal Levels Needed

VOH 5 VDC NOM

VOL 0.6 - 1.2 VDC @ 5mA

Ticket Present Sensor Specifications

The Model 750 uses the J7: 4-Pin connector as the primary link for the Ticket Present Sensor's power and communication. The J7 connector is located on the left front on the Printer Controller Board. A replacement Ticket Present Sensor Assembly can be acquired from TransAct's Ithaca Facility. TransAct recommends using the following Ticket Present Sensor.

Ticket Present Sensor Assembly:	75-00251
---------------------------------	----------

Bezel Assembly Exit Lamp Board Specifications

A lamp board is included with the Ithaca Series 700 Bezel Assembly. The lamp is used to illuminate a user instruction panel and the ticket exit. The lamp board comes with 2 one-watt bulbs for use at 13 VDC. Other bulbs may be used for other voltage and wattage, provided the current does not exceed design parameters.

Power Requirements

Voltage	13 VDC \pm 10%
Current	150 mA NOM

Drawer Chassis Option

Power PCB and Interface Communications

The Model 750, with a Drawer Chassis option, uses Power PCB as the primary link for the printer's power and communication. The PCB Board is located at the right front of the Drawer Chassis and contains connectors that support Flex Cable use. In addition to this, the J3: 16-Pin connector is a Card Reader.

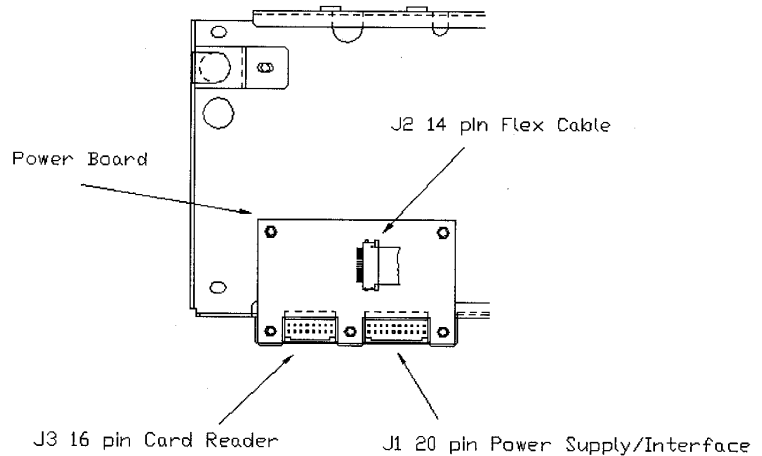


Figure 3 Power Interface Location

Power Board

14, 16, and 20-Pin Connectors

Power Requirements

J2: 14-Pin (Power Board to Connector Board)

Voltage 24 VDC ± 10%

Current 1.5 amps (maximum)

J3: 16-Pin (Card reader)

Voltage 24 VDC ± 10%

Current 1.5 amps (maximum)

J1: 20-Pin (Power Supply/Interface)

Voltage 24 VDC ± 10%

Current 1.5 amps (maximum)

Lamp 13V@/50ma

Chapter 4: Operational Controls

Removing the Model 750 from the OEM Product

The printer is accessed by a release knob on the underside of the chassis. The unit will move forward on its slides, allowing it to be grasped and pulled into the fully extended position. For adequate access to the release, clearance must be left around the ½-inch release knob. Access to the knob may be from a separate secure location of the product.

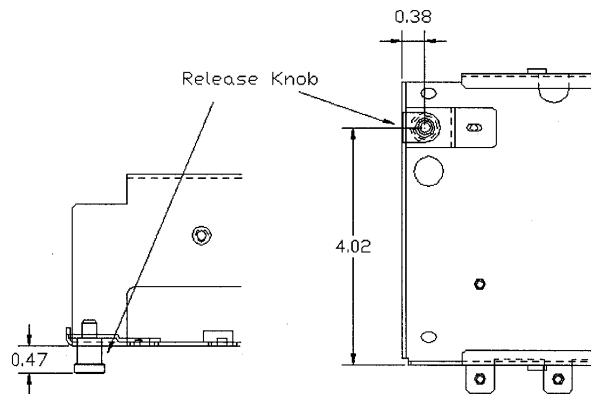


Figure 4 Release Knob Location

Using the Ticket Feed and Test Buttons for Diagnostics

The Ticket Feed and Test Buttons are located on top of the Printer Chassis Assembly. These two buttons can be used separately or in conjunction with one another to enter the Model 750's Diagnostic Hex Dump Mode.

Using Ticket Feed Button to enter Diagnostics

1. Hold down Ticket Feed button on power.
2. The 750 will begin to enter Diagnostic Hex Dump Mode.

Using Test and Ticket Feed Buttons to enter Diagnostics

1. Press and hold the Test Button. This will turn off the 750's processor. You can check the LED indicator light to confirm that the printer's processor has been shut down.
2. Continue to hold down the Test Button and at the same time press the Ticket Feed Button.
3. Release Test Button.
4. The 750 will begin to enter Diagnostic Hex Dump Mode.

Loading Tickets into Feeding Mechanism

Ticket Stack Orientation and Loading

To ensure the ticket is loaded correctly into the printer, the ticket stack must be properly loaded in the Ticket Supply Box. The stack must be oriented so that the Black Dot/top of form indicator of the first ticket is on the leading edge of the ticket, not near the perforation of the next ticket. The first ticket of the stack must be inserted into the printer by hand. With the Series 700 Printer Ticket Supply Box, there is a guide to direct the ticket into the printer mechanism. To load the printer, grasp the first ticket, and insert it into the guide until the ticket reaches the printer mechanism. Continue pushing gently until the printer mechanism detects the ticket and the motor pulls it through the printer. The printer will stop feeding automatically. Pressing the feed button on the printer controller board will run the motor to present blank tickets or to aid in loading.

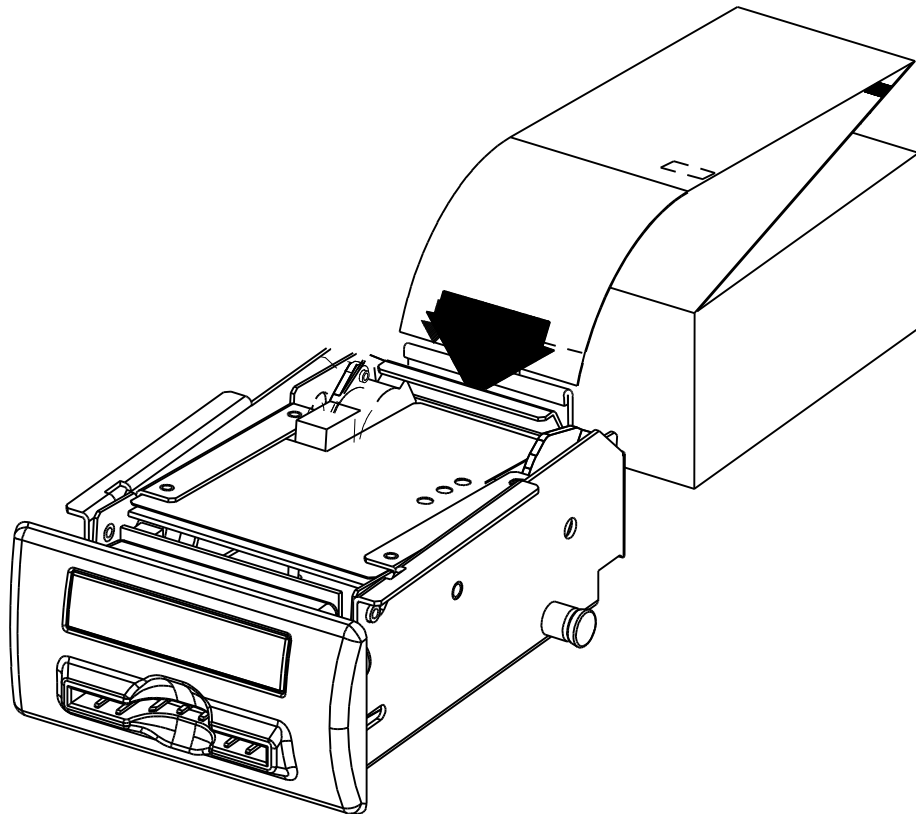


Figure 5 Ticket Loading and Feed Mechanism

1. Insert the first ticket, blank side up, into the ticket feed guides as shown by the load ticket arrow on the instruction card.
2. The printer will automatically feed the ticket when the ticket is sensed by the printer.
3. If tickets do not feed automatically, press the feed switch.
4. Remove the excess ticket from the front of the printer.

Chapter 5: Electrical Connections

M750 Electrical Control System

The M750 Printer is controlled by the Printer Control Board Assembly (75-02159).
The Printer Control Board Assembly consists of the following Components:

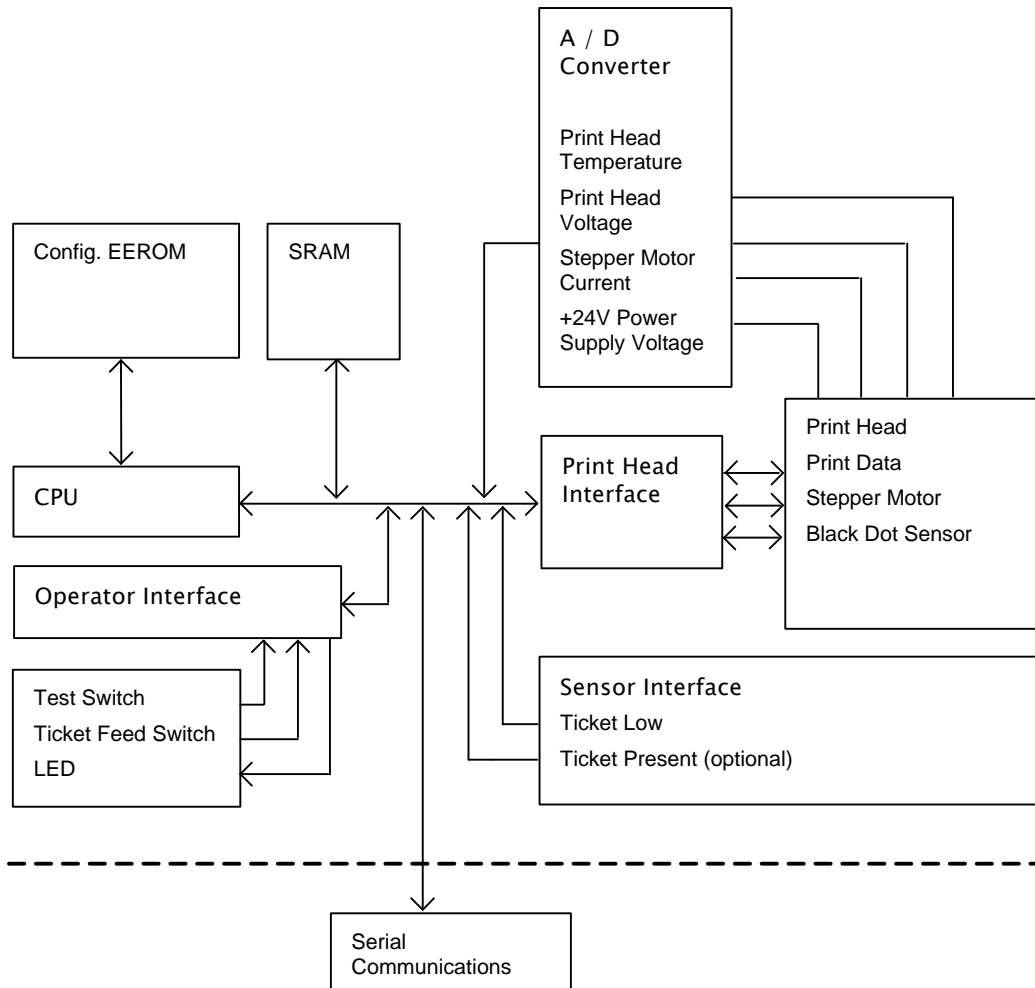


Figure 6 Electrical Control System Operational Principles

- Operator Interface
- CPU
- Sensor Interface
- Print Head Interface
- A/D Converter

Operator Interface:

Pressing the Test Switch will reset the Printer Control Board. The LED will go off when the Test Switch is pressed. The Test Switch, along with the Ticket Feed Switch, may be used to test the printer. The test mode is enabled by the following operations: Hold the Test Switch down and then simultaneously hold the Ticket Feed Switch down. Release the Test Switch and then release the Ticket Feed switch. The printer will print a test ticket. Reset the printer before returning to the normal print mode. The Ticket Feed switch, when pressed, will feed one ticket through the printer. The LED will blink when there is no ticket in the printer.

CPU:

The CPU controls all of the printer functions. The CPU reads the printer configuration from the EEROM. The CPU contains a UART and communicates with the host machine through a serial link. The CPU controls the printer stepper motor. The CPU uses the Black Dot Sensor information to feed the ticket properly. The CPU drives the print data into the print head and controls the print head timing. The CPU uses the A/D converter to ensure that the print head is driven properly; this function increases the print head life and reliability.

Sensor Interface:

The Ticket Low Sensor interfaces to the Printer Control Board via connector J8. The (optional) Ticket Present Sensor interfaces to the Printer Control Board via connector J7.

Print Head Interface:

The Print Head data and power are driven to the Print Head via connector J3. The stepper motor phases are driven via connector J5. The Black Dot Sensor interfaces to the Printer Control Board via connector J6.

A/D Converter:

The A/D converter measures the following:

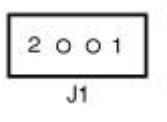
-
- Print Head Temperature
 - Print Head Voltage
 - +24 Volt Supply Voltage
 - Stepper Motor Current
-

The CPU uses the A/D Converter information to optimize the print head drive levels.

J1: 2-pin: Connector Board (Lamp Board)

Pin #	Signal	Description	Parameters
1	PRNTR LMP+	Lamp Voltage	13 VDC @ 150 mA NOM
2	PRNTR LMP-	Lamp Return	If used with SDG Lamp Board

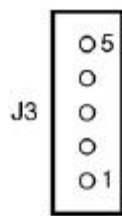
Table 2 Connector P1 - Molex 50-57-9402 J1



J3: 5-pin: Connector Board (Ticket Low Sensor)

Pin #	Signal	Description	Parameters
1	+5VDC	Sensor Voltage	4.75 - 5 VDC @ 10 mA maximum
2	TICKET LOW	Output Signal	Open Collector Output: Active Low Signal V _{OH} 5 VDC NOM V _{OL} 0.6 - 1.2 VDC @ 5mA
3	PGND	Ground	20 mA maximum
4	ANODE	LED Anode	+5 VDC NOM @12 mA
5	CATHODE	LED Cathode	12 mA NOM

Table 3 Ticket Low Sensor, J3



All connector views are shown from the PCB component side.

J1: 14-pin: Connector Board (Flex cable)

Pin #	Signal	Description	Parameters
1	+24VDC	Printer Voltage	0.5 A maximum (<i>each</i>)
2	+24VDC		
3	+24VDC		
4	PGND	Printer Ground	0.5 A maximum (<i>each</i>)
5	PGND		
6	PGND		
7	TXP	Printer Transmit	Per RS-232C
8	RXP	Printer Receive	
9	COMP	Printer Common	
10	MRESET\	Master Reset	Active Low Signal - Optically Isolated <i>V_{in(H)} 13 VDC</i> <i>V_{in(L)} 0.3-1.2 V @15 mA</i>
11	PRNTR LMP+	Lamp Voltage	0.5 A maximum (<i>each</i>)
12	PRNTR LMP-	Lamp Return	
13	+VRESET	Reset Voltage	13 VDC ± 10% @ 15 mA
14	N/C	No Connect	

Table 4 Connector Board Interface to Power Board Interface (flex cable), J1



J1

J2: 14-pin: Connector Board (Discrete Wire)

Pin #	Signal	Description	Parameters
1	+24VDC	Printer Voltage	1.5 A maximum (<i>total</i>)
2	+24VDC		
3	PGND	Printer Ground	1.5 A maximum (<i>total</i>)
4	TXP	Transmit	Per RS-232C
5	RXP	Receive	
6	COMP	Common	
7	MRESET\	Master Reset	Active Low Signal - Optically Isolated <i>V_{in(H)} 13 VDC</i> <i>V_{in(L)} 0.3-1.2V @ 15 mA</i>
8	PRNTR LMP+	Lamp Voltage	13 VDC @ 150 mA NOM (<i>if used with SDG lamp board</i>)
9	PRNTR LMP-	Lamp Return	
10	+VRESET	Reset Voltage	13 VDC ±10% @ 15 mA
11	PGND	Printer Ground	1.5 A maximum (<i>total</i>)
12	RTSP	Printer Request to Send	Per RS-232C
13	CTSP	Printer Clear to Send	
14	DTRP	Printer Data Terminal Ready	

Table 5 Power Board (discrete wire), J2, Molex 70555-0048



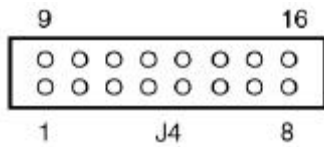
J2

All connector views are shown from the PCB component side.

J4: 16-pin Connector Board (Interconnect Cable)

Pin #	Signal	Description	Parameters
1	+24VDC	Printer voltage	1.5 A maximum (total)
2	PGND	Printer Ground	
3	DTRP	Printer Data Terminal Ready	1.5 A maximum (total)
4	+5VDC	Printer voltage	
5	PRNTR LMP+	Lamp Voltage	13 VDC @ 150 mA NOM (if used with SDG lamp board)
6	CATHODE	Reset Circuit Source Voltage	13 VDC F15
7	ANODE	Reset Signal Input	Active Low Signal - Optically Isolated Vin(H) 13 VDC Vin(L) 0.3-1.2V @ 15 mA
8	/TICKET LOW		
9	TXP	Transmit	Per RS-232C
10	RXP	Printer Receive	
11	COMP	Common	
12	CTSP	Printer Clear to Send	
13	PRNTR LMP-	Lamp Return	13 VDC @ 150 mA NOM (if used with SDG lamp board)
14	RTSP	Printer Request to Send	Per RS-232C
15	/MRESET	Master Reset	Active Low Signal - Optically Isolated Vin(H) 13 VDC Vin(L) 0.3-1.2V @ 15 mA
16	+VRESET	Reset Voltage	13 VDC ±10% @15 mA

Table 6 Connector Board (Interconnect cable), J4



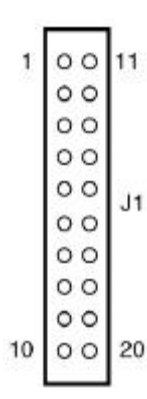
All connector views are shown from the PCB component side.

J1: 20-pin: Power Board (Input from OEM host machine)

The 20-pin connector is used to interface the printer to the host machine.

Pin #	Signal	Description	Parameters
1	+24VDC	Printer Voltage	1.5 A maximum (<i>total</i>)
2	PGND	Printer Ground	1.5 A maximum (<i>total</i>)
3	TXP	Printer Transmit	Per RS-232C
4	RXP	Printer Receive	
5	COMP	Printer Common	
6	MRESET\	Master Reset	Active Low Signal - Optically Isolated Vin(H) 13 VDC Vin(L) 0.3 - 1.2 V @15 mA
7	TXC	Card Transmit	Per RS-232C
8	RXC	Card Receive	
9	COMC	Card Common	
10	+ 24 VDC	Printer Voltage	1.5 A maximum (<i>total</i>)
11	PGND	Printer Ground	1.5 A maximum (<i>total</i>)
12	PRNTR LMP +	Printer Lamp Voltage	13 VDC 150 mA NOM (if used with SDG Lamp Board)
13	PRNTR LMP -	Printer Lamp Return	
14	+VRESET	Reset Voltage	13 VDC ± 10% @15 mA
15	TXB	Broadcast Transmit	Per RS-232C
16	COMB	Broadcast Common	
17	CARD LMP +	Card Lamp Voltage	13 VDC 150 mA NOM (if used with SDG Bezel Lamp Board)
18	CARD LMP -	Card Lamp Return	
19	+13 VDC	Card Reader Voltage	0.5 A maximum
20	CGND	Card Reader Ground	

Table 7 Power Board Interface to Host Interface, J1, Molex 15-41-7020

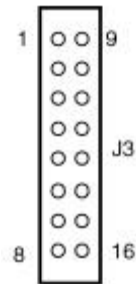


All connector views are shown from the PCB component side.

J3: 16-pin: Power Board (Card Reader)

Pin #	Signal	Description	Parameters
1	TXC	Card Transmit	Per RS 232-C
2	RTSC	Card Request to Send	
3	DTRC	Card Data Terminal Ready	
4	RXC	Card Receive	
5	CTSC	Card Clear to Send	
6	DSRC	Card Set Ready	
7	COMC	Card Common	
8	TXB	Broadcast Transmit	
9	+13VDC	Card Reader Voltage	0.5 A max
10	+5VDC	Card Reader Voltage	0.4 A max
11	CGND	Card Ground	0.5 A max
12	CHASSIS	Chassis Ground	0.5 A max
13	N/C	No Connect	
14	CARD LMP+	Lamp Voltage	13 VDC @ 150 mA NOM
15	CARD LMP-	Lamp Return	If used with SDG Bezel Lamp Board
16	COMB	Broadcast Common	Per RS 232-C

Table 8 Power Board Card Reader, J3

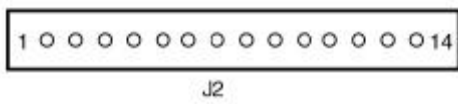


All connector views are shown from the PCB component side.

J2: 14-Pin: Power Board (Flex Cable)

Pin #	Signal	Description	Parameters
1	+24VDC	Printer Voltage	0.5 A maximum <i>(each)</i>
2	+24VDC		
3	+24VDC		
4	PGND	Printer Ground	0.5 A maximum <i>(each)</i>
5	PGND		
6	PGND		
7	TXP	Printer Transmit	Per RS-232C
8	RXP	Printer Receive	
9	COMP	Printer Common	
10	MRESET\	Master Reset	Active Low Signal - Optically Isolated <i>V_{in(H)} 13 VDC</i> <i>V_{in(L)} 0.3-1.2 V @15 mA</i>
11	PRNTR LMP+	Lamp Voltage	0.5 A maximum <i>(each)</i>
12	PRNTR LMP-	Lamp Return	
13	+VRESET	Reset Voltage	13 VDC ± 10% @15 mA
14	N/C	No Connect	

Table 9 Power Board to Connector Board (flex cable), J2

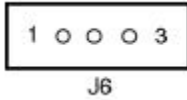


All connector views are shown from the PCB component side.

J6: 3-Pin: Printer Controller Board (Black dot Sensor)

Pin #	Signal	Description	Parameters
1	VCC	Logic Supply	+5 VOLTS
2	/TICKET	Ticket Out Signal	Active Low
3	GND	Printer Ground	

Table 10 Printer Controller Board (Black Dot Sensor), J6

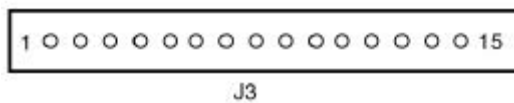


All connector views are shown from the PCB component side.

J3: 15-Pin: Printer Controller Board (Print Head)

Pin #	Signal	Description	Parameters
1	+VP	Head Voltage	
2	+VP	Head Voltage	
3	GND	Printer Ground	
4	GND	Printer Ground	
5	VCC	Logic Supply	+5 volts
6	TH1	Head Temperature Sensor input	
7	PDO	Head Data Out	From Printhead
8	/OE	Head Output Enable	
9	PCLK	Head Data Clock	
10	/LOAD	Head Data Latch	
11	PDI	Head Data In	To Printhead
12	GND	Printer Ground	
13	GND	Printer Ground	
14	+VP	Head Voltage	
15	+VP	Head Voltage	

Table 11 Printer Controller Board (Print Head), J3

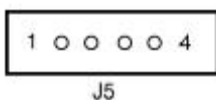


All connector views are shown from the PCB component side.

J5: 4-Pin: Printer Controller Board (Stepper Motor)

Pin #	Signal	Description	Parameters
1	OUT 1A	Motor Phase A	
2	OUT 1B	Motor Phase A	
3	OUT 2A	Motor Phase B	
4	OUT 2B	Motor Phase B	

Table 12 Printer Controller Board (Stepper Motor), J5

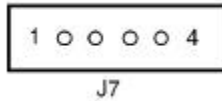


All connector views are shown from the PCB component side.

J7: 4-Pin: Printer Controller Board (Ticket Sensor)

Pin #	Signal	Description
1	SNSA	ANODE (red wire)
2	XMTCLK	CATHODE (black wire)
3	SNSC	OUTPUT COLLECTOR (blue wire)
4	Ground	OUTPUT EMITTER (orange wire)

Table 13 Printer Controller Board (Ticket Sensor), J7

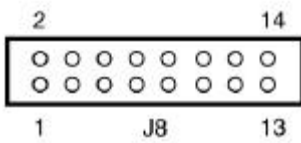


All connector views are shown from the PCB component side.

J8: 14-Pin: Printer Controller Board (Interconnect Cable)

Pin #	Signal		Description
1	+24VDC	Printer Voltage	Printer Voltage
2	TXP	Transmit	Host Transmit
3	GND	Printer Ground	Printer Ground
4	RXP	Printer Receive	Host Receive
5	DTR	Printer Data Terminal	Printer Handshake
6	GND	Printer Ground	Printer Ground
7	VCC	Printer Voltage	Logic Supply
8	CTS	Printer Clear to Send	Printer Clear to Send
9	GND	Printer Ground	Printer Ground
10	RTS	Request to Send	Host Request to Send
11	VCC	Printer Voltage	Logic Supply
12	/MRESET	Master Reset	Master Reset
13	/TICKET_LOW	Ticket Low Signal	Active Low
14	+VRESET	Reset Voltage	=13 VDC @ 15mA

Table 14 Printer Controller Board (Interconnect Cable), J8



All connector views are shown from the PCB component side.

Serial Interface Specifications

The XON/XOFF Protocol

The RS-232 serial interface communicates using hardware and XON/XOFF flow control. Flow control helps to ensure that the computer does not send information to the printer faster than it can print.

The XON/XOFF protocol is a popular data communications protocol. When the printer's buffer is approximately 50 percent full, it sends the ASCII code XOFF (13 Hex) to the computer to tell it to stop sending data. When there is again room (that is, space for approximately 30 percent more characters in the buffer), the printer sends the ASCII code XON (11 Hex) to the computer to tell it to resume sending data. (XON is also known as DC1; XOFF is synonymous with DC3.) If the computer does not stop sending data after it receives an XOFF, the data that overflows the buffer will be lost and the printer will halt.

The printer will send an XON code when it goes on-line to get things started. It will send an XOFF code to stop the computer from sending information if the input buffer is approximately 50 percent full.

Board Close-ups and Physical Connections

The following insert pages are as follows:

-
- Model 750 Wiring Schematic
-
- Power Board Connections Schematic
-
- Connector Board Connections Schematic
-
- Controller Board Connections Schematic
-

Figure 7 Model 750 Wiring Schematic

Figure 8 Power Board Connections Schematic

Figure 9 Connector Board Connections Schematic

Figure 10 Controller Board Connections Schematic

Chapter 6: Adjustments and Troubleshooting

Maintenance is quick and easy with the Series 700 printer. There is no set schedule for maintenance; simply perform the appropriate maintenance as needed.

The Model 750 is opened for service by pulling the pin located at the bottom right rear of the Main Chassis Assembly. This allows the controller board and printer mechanism to be tilted from the operating position. As it is lifted, the printer chassis assembly can either be rotated into an open position or lifted from the main chassis assembly. If it is removed from the main chassis, the 14-pin cable adjoining the printer connector board and the printer controller board must be disconnected. Once the unit is opened, the ticket path is accessible for cleaning or clearing ticket jams. Use a soft brush to clean the paper dust from inside the printer and chassis area. The paper dust should also be removed from the sensor optics.

Making Adjustments

Due to the Model 750's simple design, the need to adjust components is limited to only making sure that the Black Dot is functioning correctly. Generally, the time duration between adjustments is dependant on the operational conditions for each unit. TransAct recommends that all adjustments are made by a service technician who has completed training on the Series 700 Printers.

Necessary Tools

The following list provides the necessary tools needed to properly maintain the Model 750 Printer.

-
- Voltage Meter
 - 1 Ticket to be inserted into printer
 - Phillip's head screw driver
-

Black Dot Adjustment: Top of Form Preprinted Indicator

For the printer to sense when a ticket has been indexed to the printing position, a Black-Dot, Top of Form indicator is used. The 11.5 mm area in line with the top of form indicator and the ticket edge (keep-out zone) must remain clear, as the Ticket Out Sensor will read that area while the ticket is printed and presented.

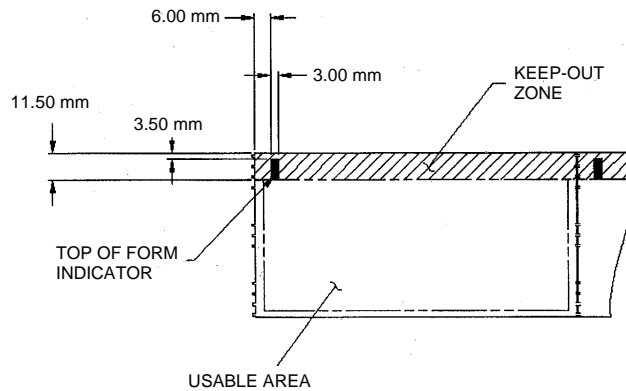


Figure 11 Location of Top of Form Indicator on Back of Ticket

Determining if Black Dot (top-of-form mark) needs adjustment

To determine if the black dot sensor is adjusted correctly, press the ticket feed switch. When this switch is pressed the printer will advance one ticket thru the print mechanism. The ticket will appear out the ticket exhaust area and will have a length of approximately 0.25 inches. If the ticket length is more or less than 0.25 inches the black dot sensor will require adjustment.

Adjusting the Black Dot Sensor

The black dot sensor is adjusted by using a voltage meter to measure the setting at which the sensor is designed to be operational. This voltage can be adjusted by turning the blue potentiometer screw on the circuit board. The circuit board is mounted to the Print Mechanism. For proper ticket advancement, the voltage of the potentiometer should read 1.6 V.

1. Disconnect the printer's power.
2. Remove the Printer Chassis Assembly from the Main Chassis Assembly.
DO NOT disconnect the harness from the assembly.

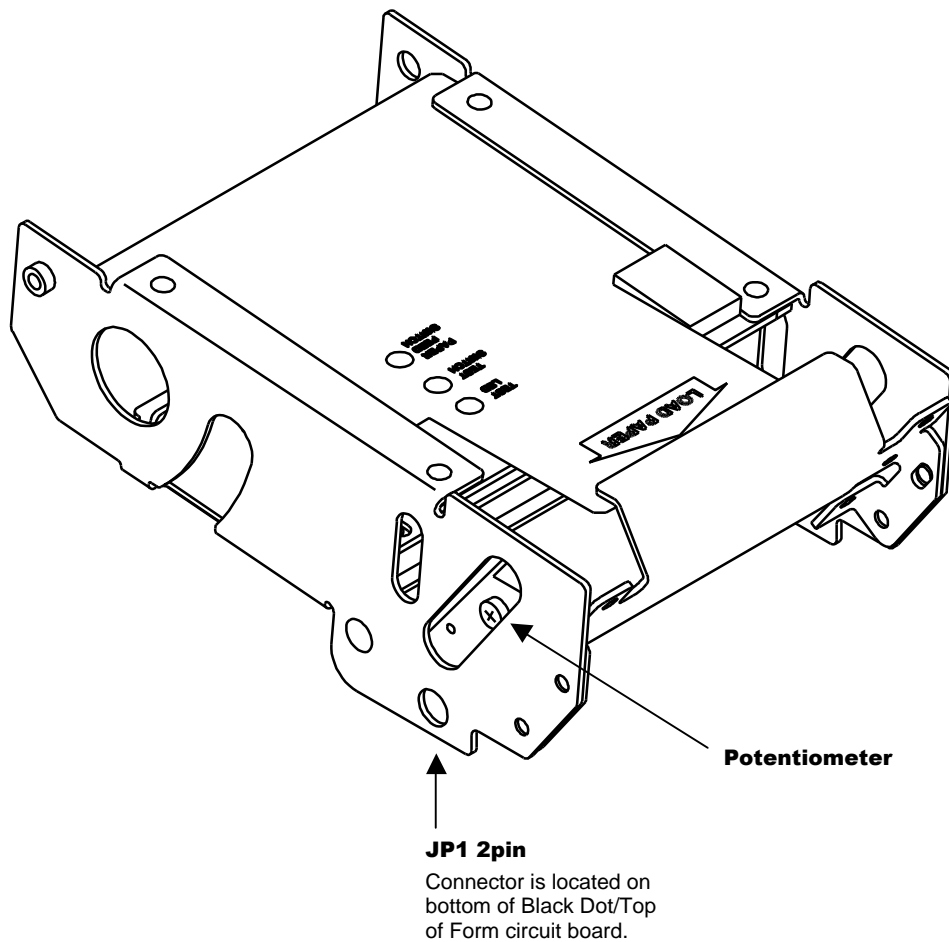


Figure 12 Black Dot Sensor Adjustment: Removing the Printer Chassis Assembly

- Place Printer Chassis Assembly on top of Drawer Chassis to match the orientation of the previous drawing. Locate the 2-pin JP1 found on the circuit board that is mounted on the print mechanism. Connect the voltage meter leads as shown below.

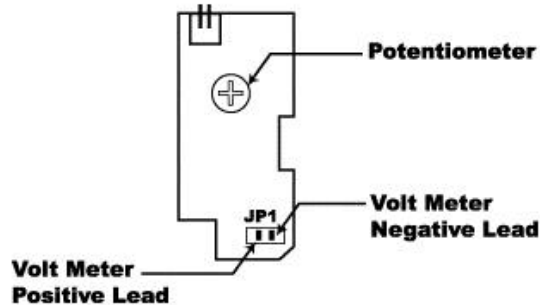


Figure 13 Black Dot Sensor Adjustment: Potentiometer Location

- After connecting both the voltage meter's leads, apply power to the printer.
- Insert a ticket into the printer exactly as it would feed when in normal operation. Check to ensure that the Black Dot (top-of-form mark) is aligned with the sensor and that it is fed beyond the sensor housing. The sensor housing is positioned next to the 2 pin leads.
- Check the meter for a voltage reading 1.6V
- When adjusting the potentiometer the printer may start feeding the ticket. If this happens press and hold the test switch button on the printer. This will stop the tickets from advancing.
- If Voltage is below 1.6V turn the potentiometer clockwise until meter reading is at 1.6V. If Voltage is above 1.6V turn the potentiometer counter-clockwise until meter reading is at 1.6V

Troubleshooting

If the Series 700 printer is experiencing printing problems, check to see if the unit is receiving power. The green test LED, located on the top of the Main Chassis Assembly, should be on when the printer is correctly receiving power. After confirming that the printer is receiving power, check to see that the ticket has been loaded correctly and is not jammed in the ticket path. Pressing the ticket feed switch-on the top of the Main Chassis Assembly will advance a single ticket thru the print mechanism, automatically positioning the tickets correctly. Check all connections to ensure a proper signal.

If the printer does not stop feeding when it automatically scrolls the ticket, check to see that the tickets are facing the right direction so the Black-Dot/Top-of-form/Ticket Out Sensor detects the top of the form indicator.

Troubleshooting Checklist

The following evaluations should be considered when determining operational problems:

-
- Check for foreign material in ticket path
-
- Check for proper ticket alignment and feeding
-
- Check black dot adjustment
-
- Check for defective ticket feed components
-
- Check for defective boards and /or motors
-

Refer to the Troubleshooting table on the following page for assistance with determining problems and for suggested solutions to common symptoms.

Model 750 Troubleshooting Table: Determining the Problem

Ticket does not advance, ticket feed motor does not turn	
Possible Cause	Remedy
Ticket or foreign material jammed in ticket path	Clear foreign material from ticket path, then advance ticket feed drive gears by pressing the feed button.
Defective Ticket Feed Step Motor	Replace Mechanism Thermal-Print
Defective Main Controller Board	Replace main controller board. Refer to section: Removing Printer Chassis Assembly Components on page 37.
Ticket does not advance, ticket feed motor turns	
Possible Cause	Remedy
Ticket or foreign material jammed in ticket path	Remove foreign material from ticket path.
Ticket feed gears damaged	Replace Mechanism Thermal-Print
Ticket advances, but no print appears on the ticket	
Possible Cause	Remedy
Ticket not inserted correctly	Reload the tickets with the proper orientation. The ticket must be inserted into the printer with pre-printed information face down.
Defective Mechanism Thermal-Print	Replace.
Defective Main Controller Board	Replace main controller board. Refer to section: Removing Printer Chassis Assembly Components on page 37.
Ticket does not advance to next form, goes too far or not far enough, when feed is pressed	
Possible Cause	Remedy
Ticket not inserted correctly	Reload the ticket with the black-bar on the right underside of the ticket.
Black Dot is out of adjustment	Re-adjust the black dot sensor. Refer to section: Black dot adjustment
Defective Black Dot Sensor	Replace Mechanism Thermal-Print

Table 15 Troubleshooting Reference Table

Chapter 7: Assembly/Disassembly

Precautions for Disassembly

Before disassembling any part of the printer, be sure the power is turned off. The Controller Board and the Power Board can easily be damaged by static electricity. Observe ESD precautions. Wear a grounded wrist strap, and use a static mat or other protected work surface.

Necessary Tools

Using the wrong tools may cause personal injury or damage to the printer. Be sure to use the proper tools when maintaining or servicing the printer. The following list provides the necessary tools to properly disassemble the *Model 750* Printer.

-
- Screwdrivers

#0 Phillips

#1 Phillips

#2 Phillips

- Small Flat Blade

- Large Flat Blade

- Nut Drivers

- Small Needle-Nose Pliers
-

Model 750 OEM Variations Notice

This Model 750 has most likely been incorporated into another Original Equipment Manufacturer's product. Due to this your unit's design may vary from the specifications and options shown here. All of the content of this manual, is reflective of the TransAct Model 750 Printer including all of its available options. TransAct does not assume support responsibility for parts other than what is shown in this manual.

Removing the Assembly Components (from the Complete Assembly)

The Main Chassis Assembly and Ticket Supply Box are connected to the Drawer Chassis by two 10" slides. The Printer Chassis Assembly combines with the Main Chassis Assembly to produce the "Core" Model 750 Printer.

1. Orient the printer so the Bezel Assembly is facing the front (towards you).
2. Use the release button to remove the Main Chassis Assembly from the Drawer Chassis.
3. Slide the Main Chassis Assembly until it is stopped by the plastic Slide Stops.
4. Locate the two Slide Stops and use your fingers and thumbs to unlatch them. The left Slide Stop should be pushed down and the right Slide Stop should be lifted up simultaneously. This will release the Main Chassis Assembly from the Drawer Chassis Assembly.
5. Unplug the Flex Cable from the Connector Interface board located on the Main Chassis Assembly and separate the two assemblies.

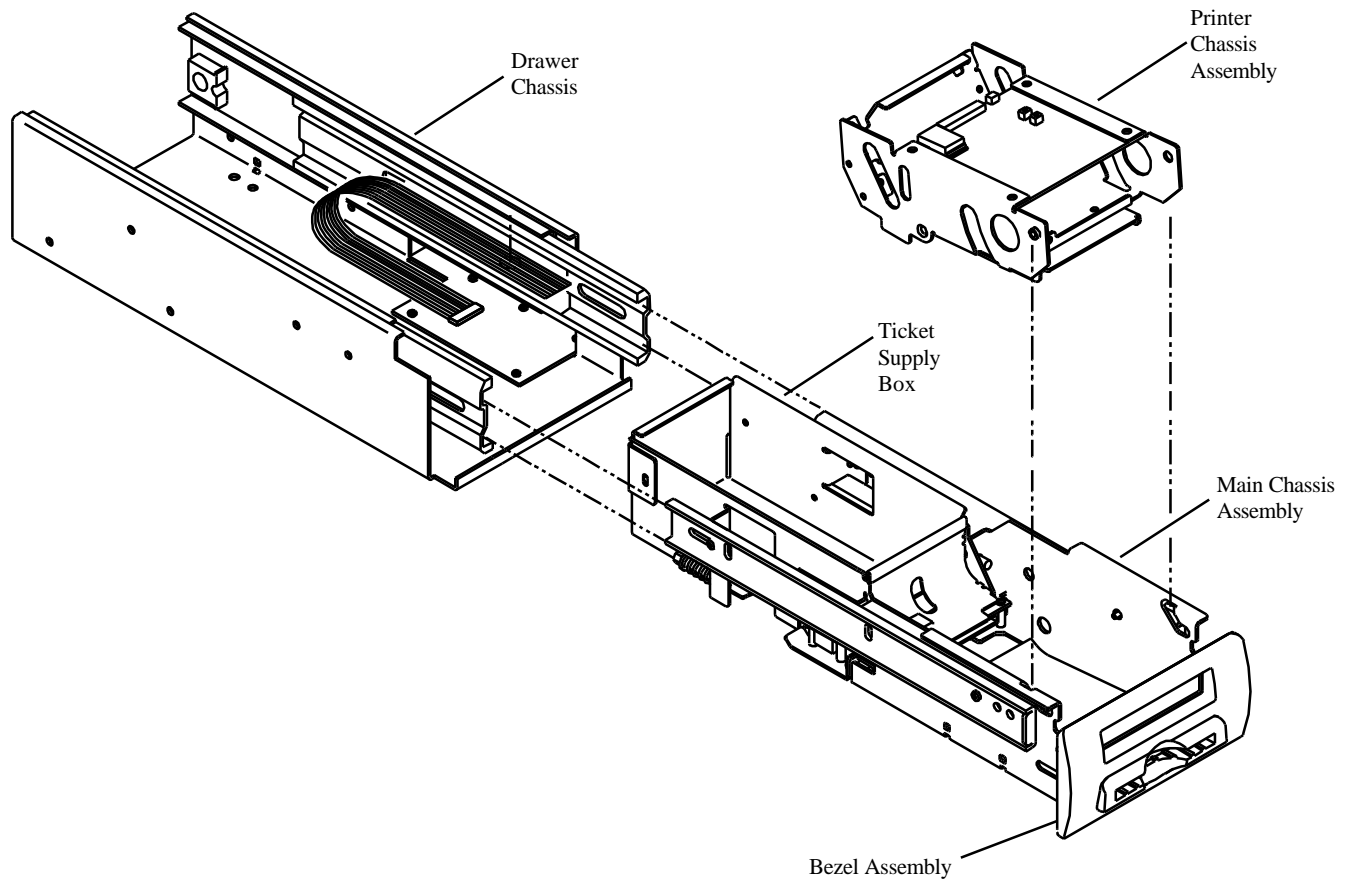


Figure 14 Removing the Assembly Components

Separating the Printer Chassis Assembly from the Main Chassis Assembly

The Printer Chassis Assembly and the Main Chassis Assembly are held together by a Quick Release Button located on the right side of the Assembly.

1. Orient the Printer Chassis Assembly for easy access to the Release Button.
2. Locate the release button and pull the Printer Chassis Assembly out of the Main Chassis Assembly.
3. Unplug the Main Harness from the Printer Controller Board (J8).

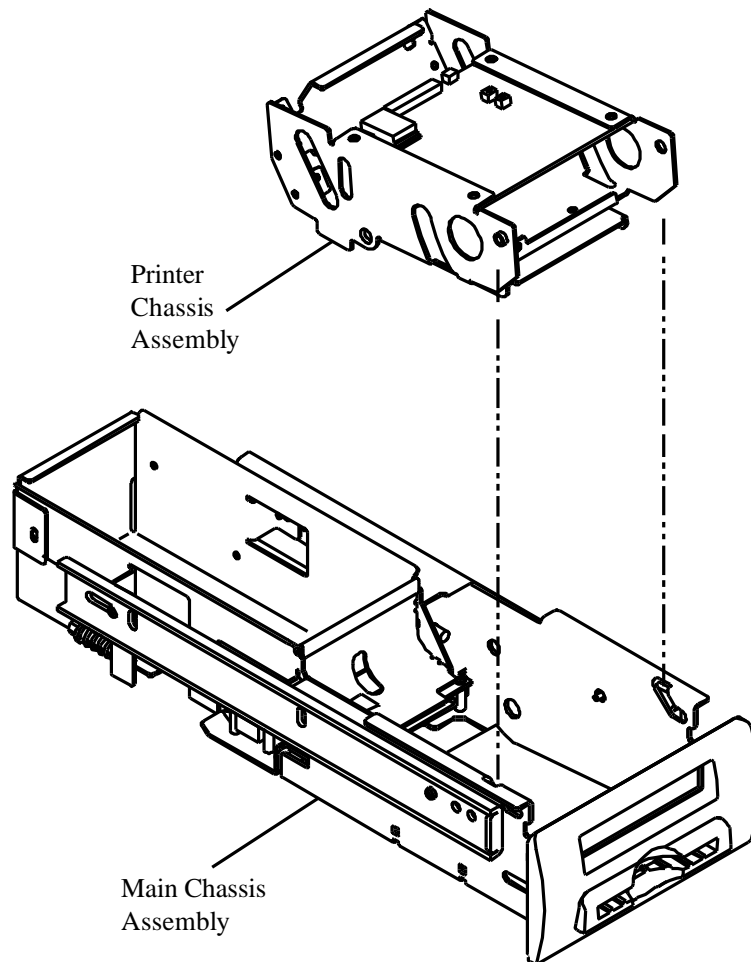


Figure 15 Separating the Printer Chassis Assembly from the Main Chassis Assembly

Removing the Drawer Chassis Assembly Components

The Drawer Chassis Assembly includes two 10" Slides, Flex Cable, Power Board, and the Drawer Chassis Assembly. They are held together by Phillip's Head screws.

1. Remove the inner mounted, Phillip's Head screws that hold the two 10" Sliders to the Drawer Chassis Assembly.
2. Remove the 5 phillip's head screws that hold the Power Board to the Drawer Frame.

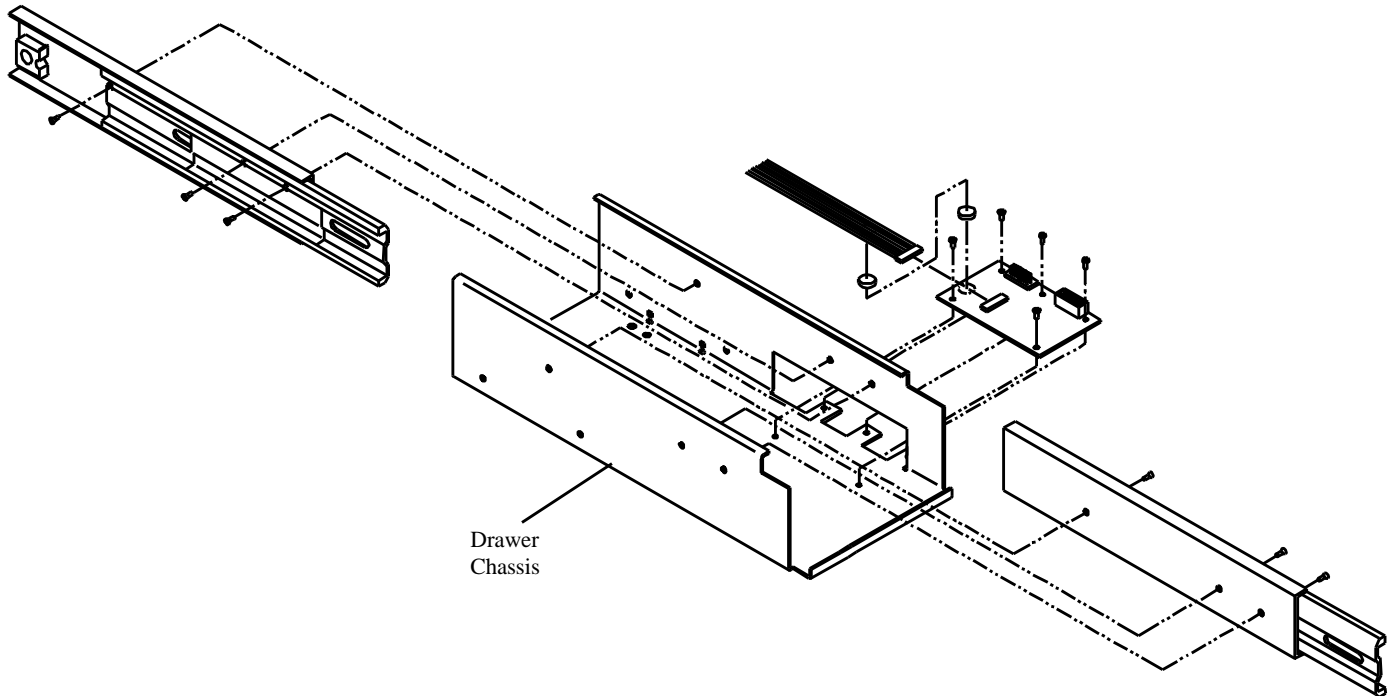


Figure 16 Removing the Drawer Chassis Assembly Components

Removing the Ticket Supply Box from the Main Chassis Assembly

The Ticket Supply Box is held to the Main Chassis Assembly by four M4x6mm screws.

1. Remove the Slides and disconnect the Ticket Supply Box from the Main Chassis Assembly.
2. Disconnect the Ticket Low Sensor from the Ticket Supply Box.
3. Remove the four Phillip's Head screws that connect the Ticket Supply Box to the Main Chassis Assembly.

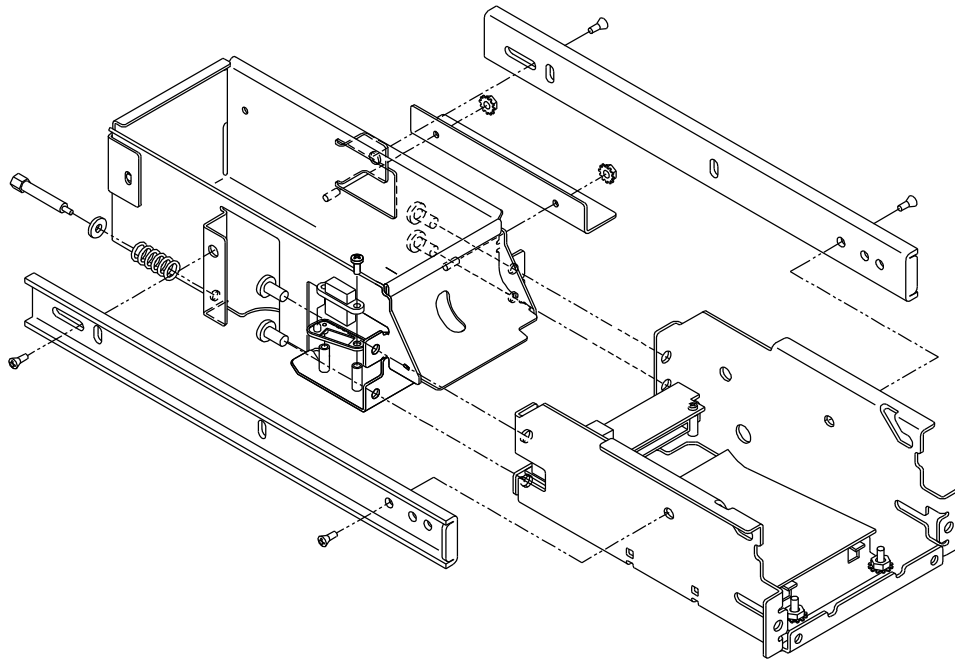


Figure 17 Removing the Ticket Supply Box from the Main Chassis Assembly

Removing the Ticket Supply Box Components

The Ticket Supply Box is comprised of the Ticket Low Sensor, and the Ticket Supply Box (frame).

1. Remove Ticket Low Sensor screws, separate from Ticket Supply Box Frame, and unplug the sensor from the Connector Interface Board.

Removing the Main Chassis Assembly Components

The Main Chassis Assembly includes a Connector Interface Board, Chassis Frame, Main Harness, and a Bottom Platen. The Connector Interface Board is held to the Chassis Frame by three M3x6mm screws. The Main Harness is held to the Chassis Frame by two Ty wraps. The Platen is held to the Chassis Frame by two M3 nuts.

1. Remove the Connector Interface board and bottom platen by removing their fasteners.
2. Remove Main Harness by cutting the two Ty Wraps.

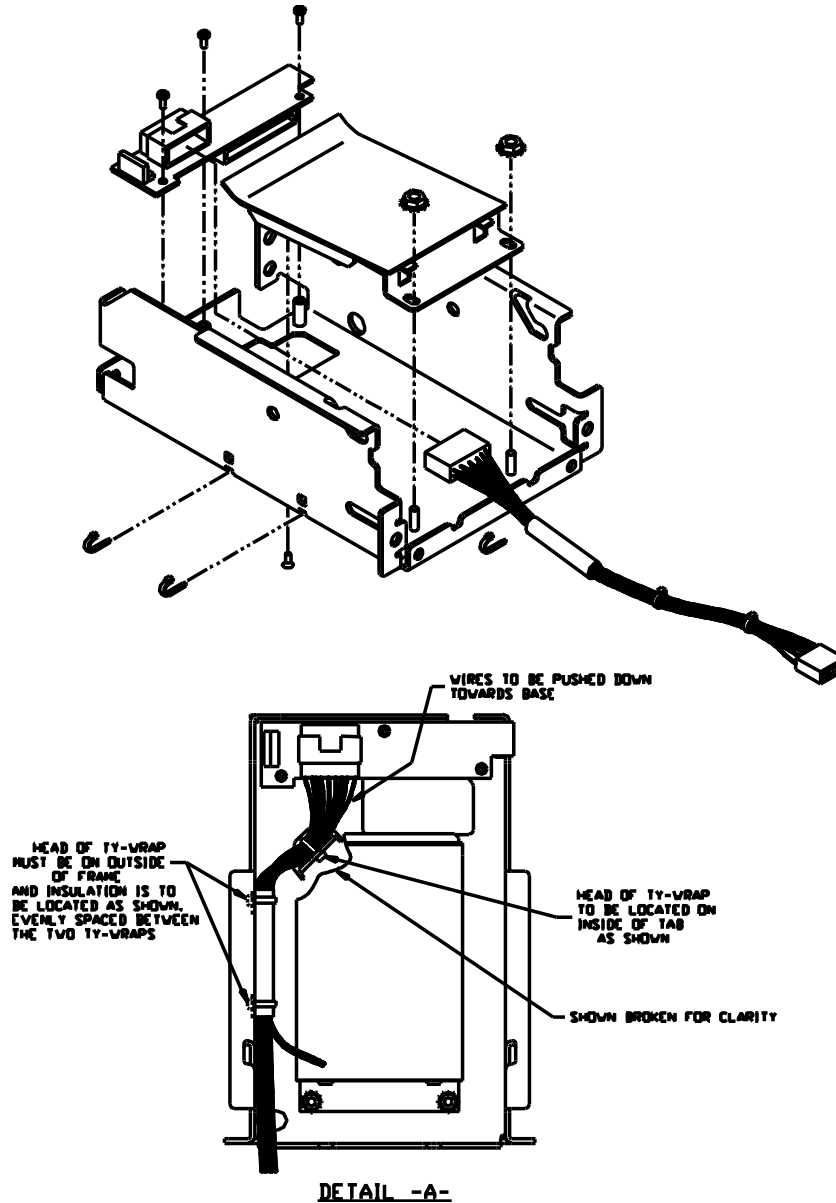


Figure 18 Removing the Main Chassis Assembly Components

Removing the Printer Chassis Assembly Components

The Printer Chassis Assembly includes a Controller Board, a Thermal Print Mechanism, Upper Platen and a Ticket Tearbar.

1. Remove the Ticket Tearbar.
2. Unplug the Stepper Motor, Black Dot/Top of Form Circuit Board, and Thermal Print Mechanism from the Main Controller Board.
3. Remove Thermal Print Mechanism and Controller Board.
4. Remove Upper Platen.

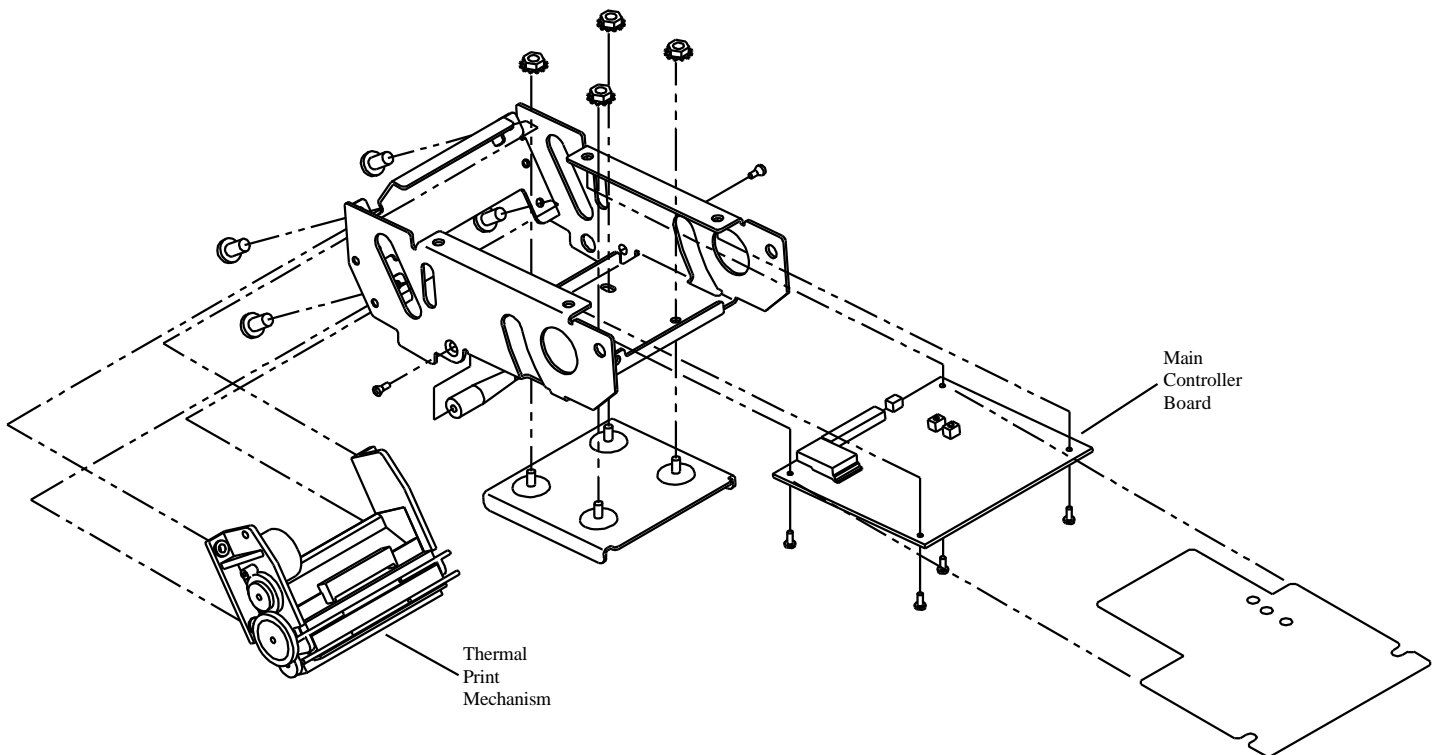


Figure 19 Removing the Printer Chassis Assembly Components

Removing the Bezel Assembly from the Main Chassis Assembly

The optional Bezel Assembly is connected to the Main Chassis Assembly by two M4x6mm screws.

1. Remove Bezel screws and separate Bezel from Main Chassis Assembly. Drawing and Instructions are detailed according to TransAct Bezel option specifications. Your Bezel mounting hardware and methods may vary.

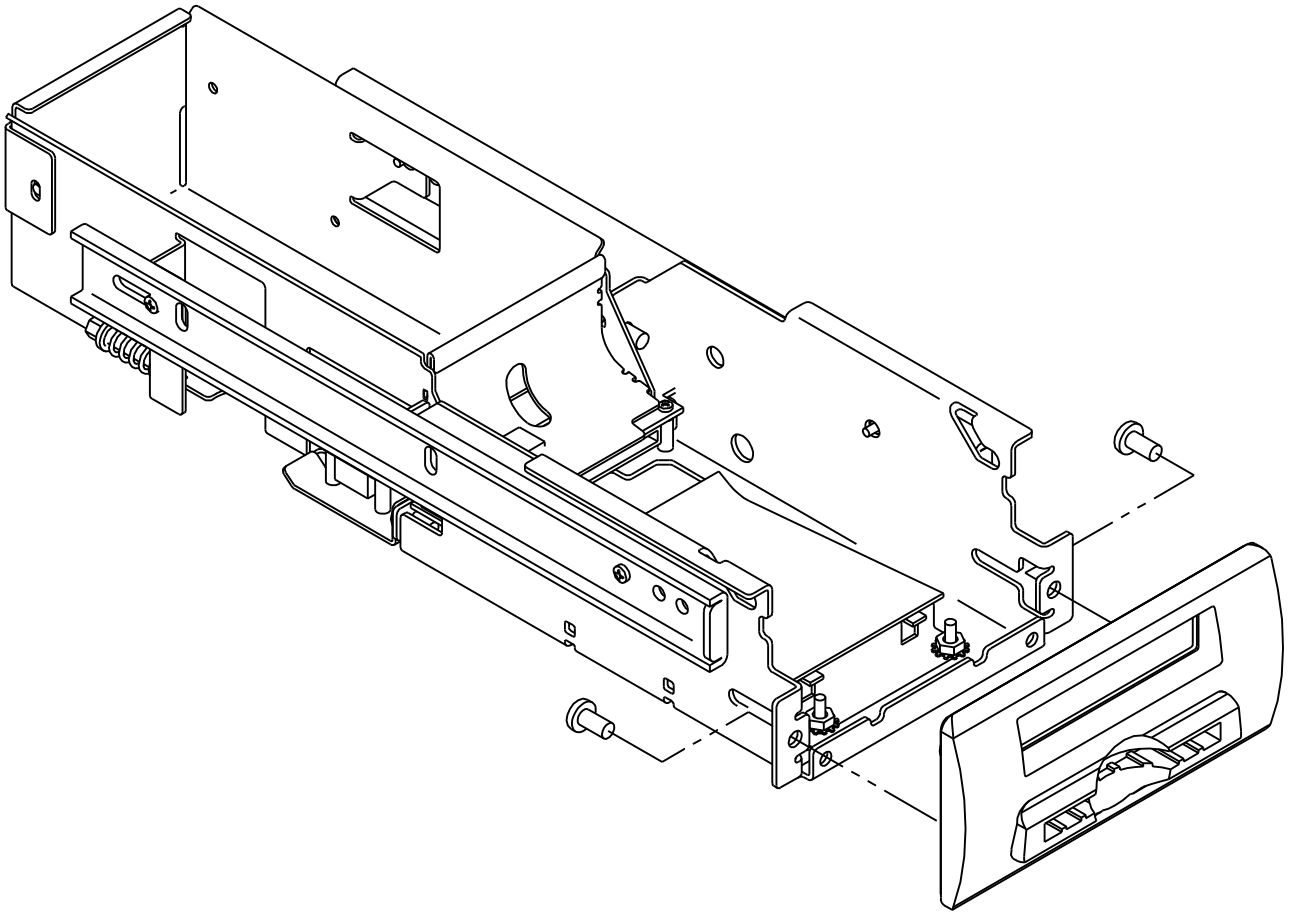


Figure 20 Removing the Bezel Assembly from the Main Chassis Assembly

Removing the Bezel Assembly Components

The Bezel components are held together by two #6 screws and a single #4 screw.

1. Take Bezel unit off the Main Printer Assembly Frame.
2. Remove screws; the unit can be totally disassembled by taking the three screws out.
3. Drawing and Instructions are detailed according to TransAct Bezel option specifications. Your Bezel mounting hardware and methods may vary.

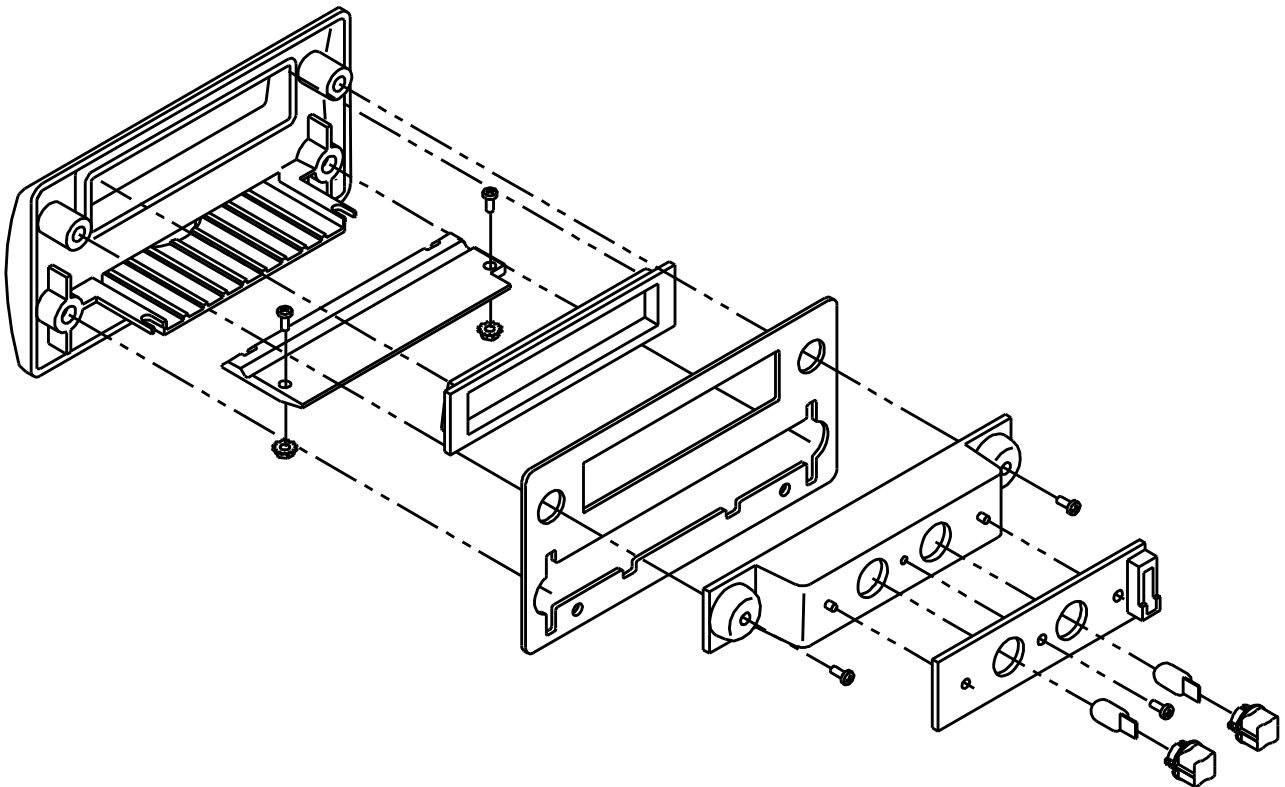


Figure 21 Removing the Bezel Assembly Components

Chapter 8: Parts Lists

Complete 750 Assembly

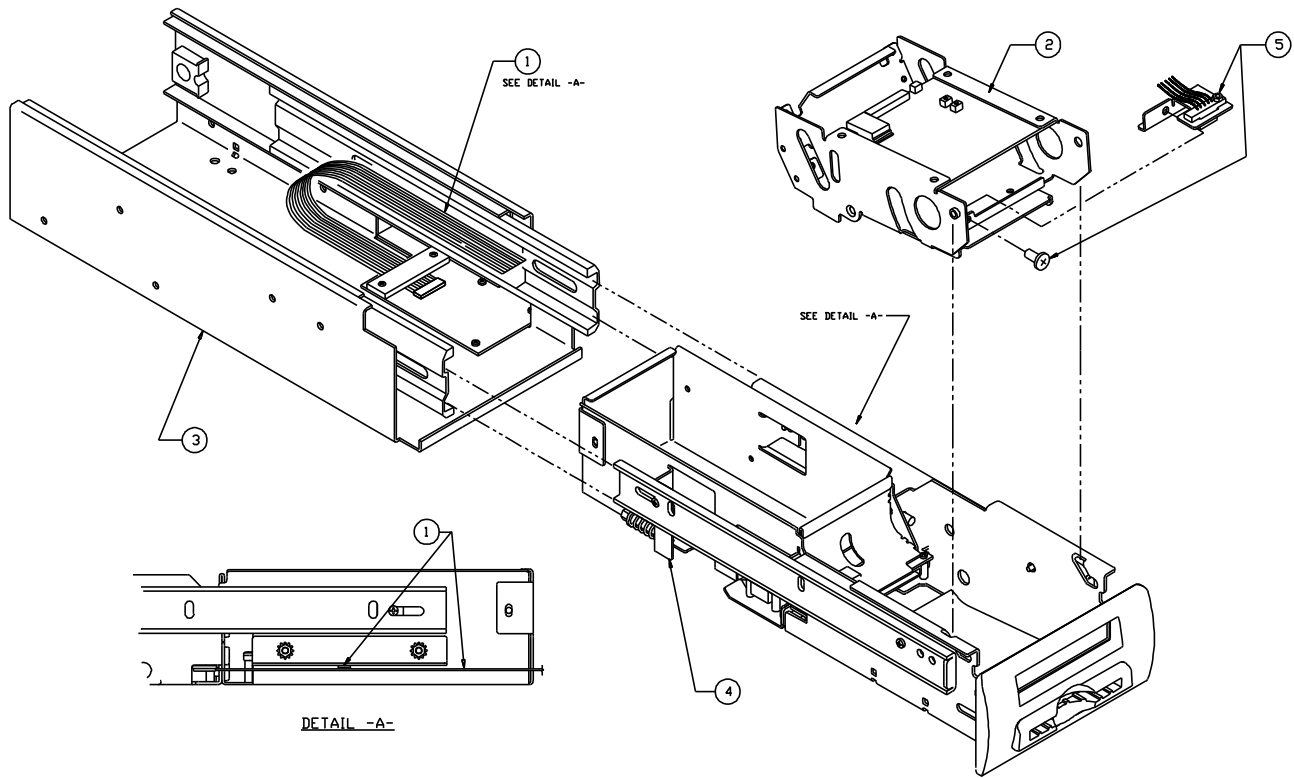


Figure 22 Complete 750 Assembly

No.	Description (Standard parts)	Part No. (History)
1	Kit-Cable Retention	75-04001 (100-03447)
2	Assy-Printer Chassis	75-02244
3	Assy-Drawer Chassis	75-00256
4	Assy-Chassis / Bezel	75-02433
5	Kit-Ticket Present Sensor	75-00251

Table 16 Complete 750 Assembly Parts List

• Not available as a spare part

Printer Chassis Assembly

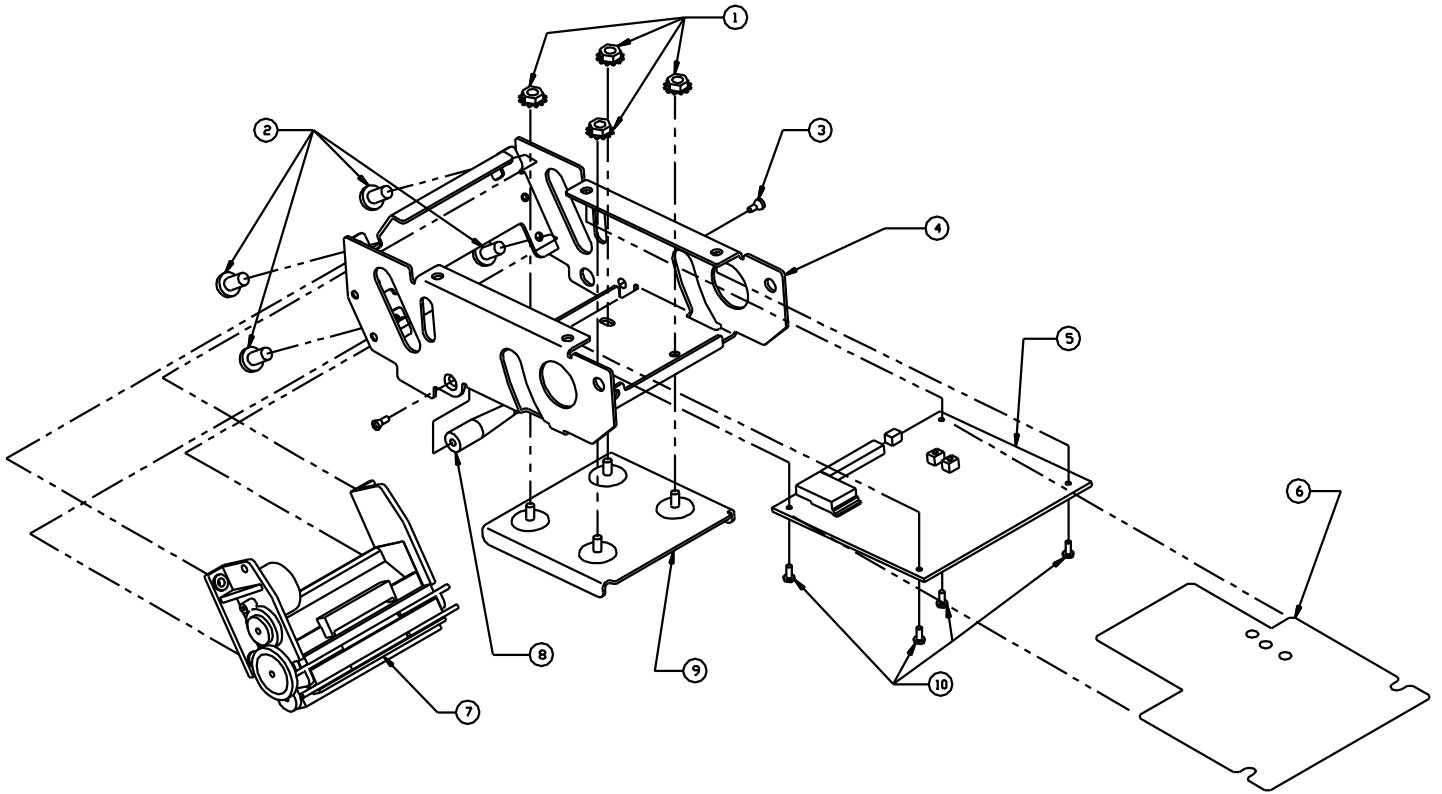


Figure 23 Printer Chassis Assembly

No.	Description (standard parts)	Part No. (History)
1	Nut-M3 Hex w/Lockwasher	98-0621
2	Screw-M3x6mm SEMS PHD	98-02215 (98-02217)
3	Screw-M3x6mm PHPS FLAT HD	98-02219
4	Frame-Printer/BD Mount	75-02115
5	Assy-Main Controller BD	75-03592 (75-03080, 75-02159)
6	Label-Ticket Load	75-02325
7	Printer-Thermal	98-03586 (98-02216)
8	Bar-Tear	75-02218
9	Platen-Upper	75-02122
10	Screw-M3x6mm SEMS PHD	98-02215

Table 17 Printer Chassis Assembly

Drawer Chassis Assembly

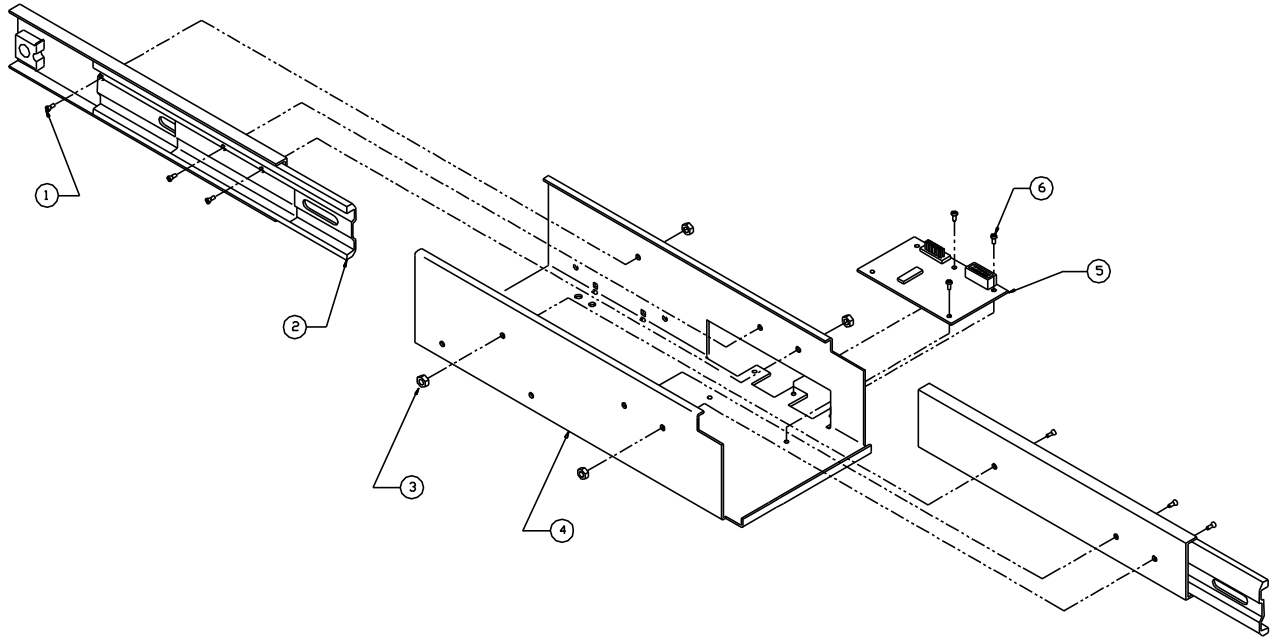


Figure 24 Drawer Chassis Assembly

No.	Description (standard parts)	Part No. (history)
1	Screw-M4x6mm PHPS FLAT PHD	98-02239
2	Slide-10" PAIR	98-02240
3	Nut M4-HEX	98-0718
4	Chassis-Drawer	75-02234
5	Assy-Netplex PCBD	75-02157 (75-00259)
6	Screw-M3x6mm SEMS PHD	98-02215

Table 18 Drawer Chassis Assembly

Bezel Assembly

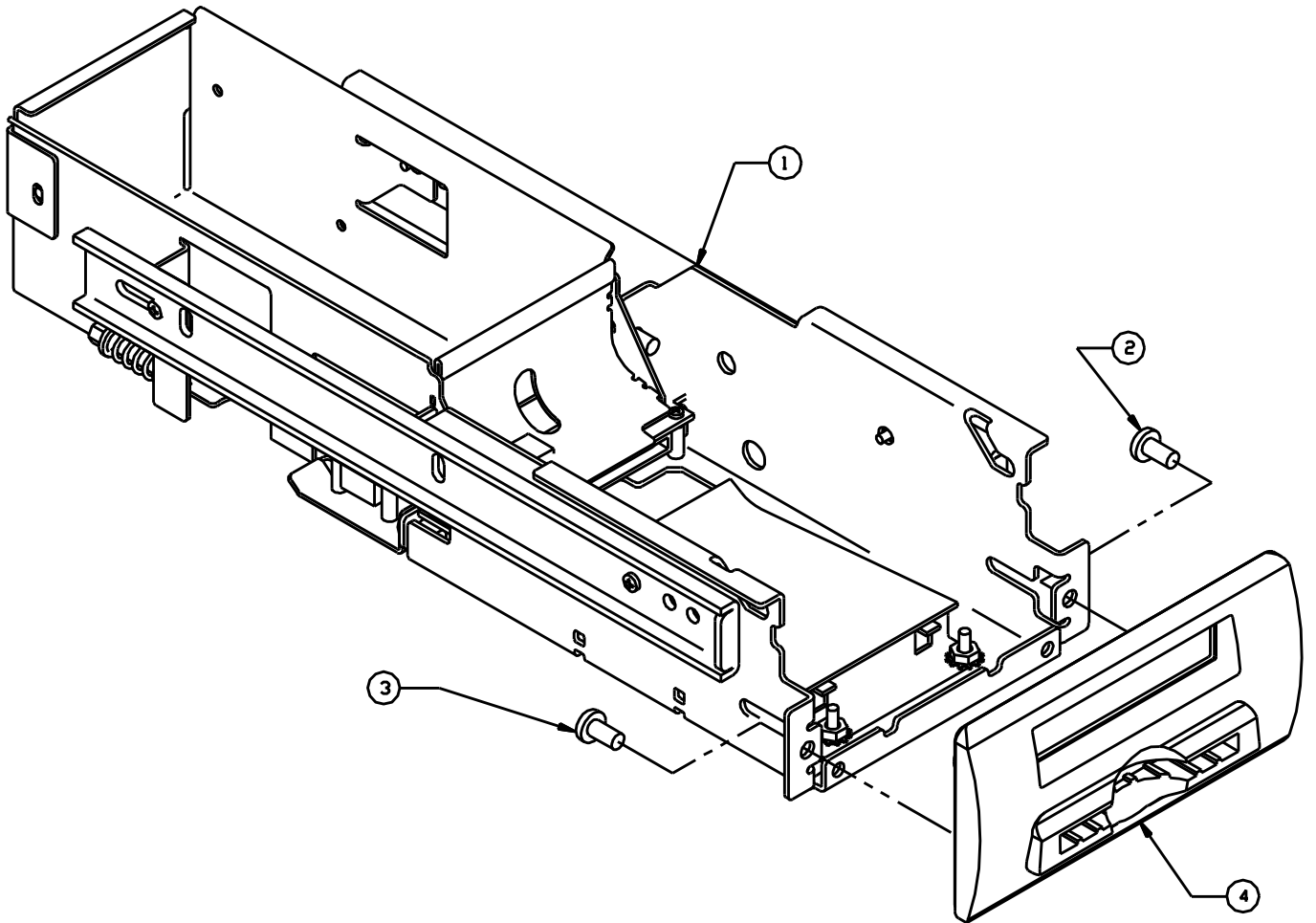


Figure 25 Bezel/Chassis Assembly

No.	Description (standard parts)	Part No. (history)
1	Assy-Chassis/Bucket	75-02432
2	Screw-#8-32x.312 PHPS PHD SEMS	98-1798
3	Screw-#8-32x.312 PHPS PHD SEMS	98-1798
4	Assy-Bezel	75-00252

Table 19 Bezel/Chassis Assembly Parts List

Main Chassis Assembly and Ticket Supply Box

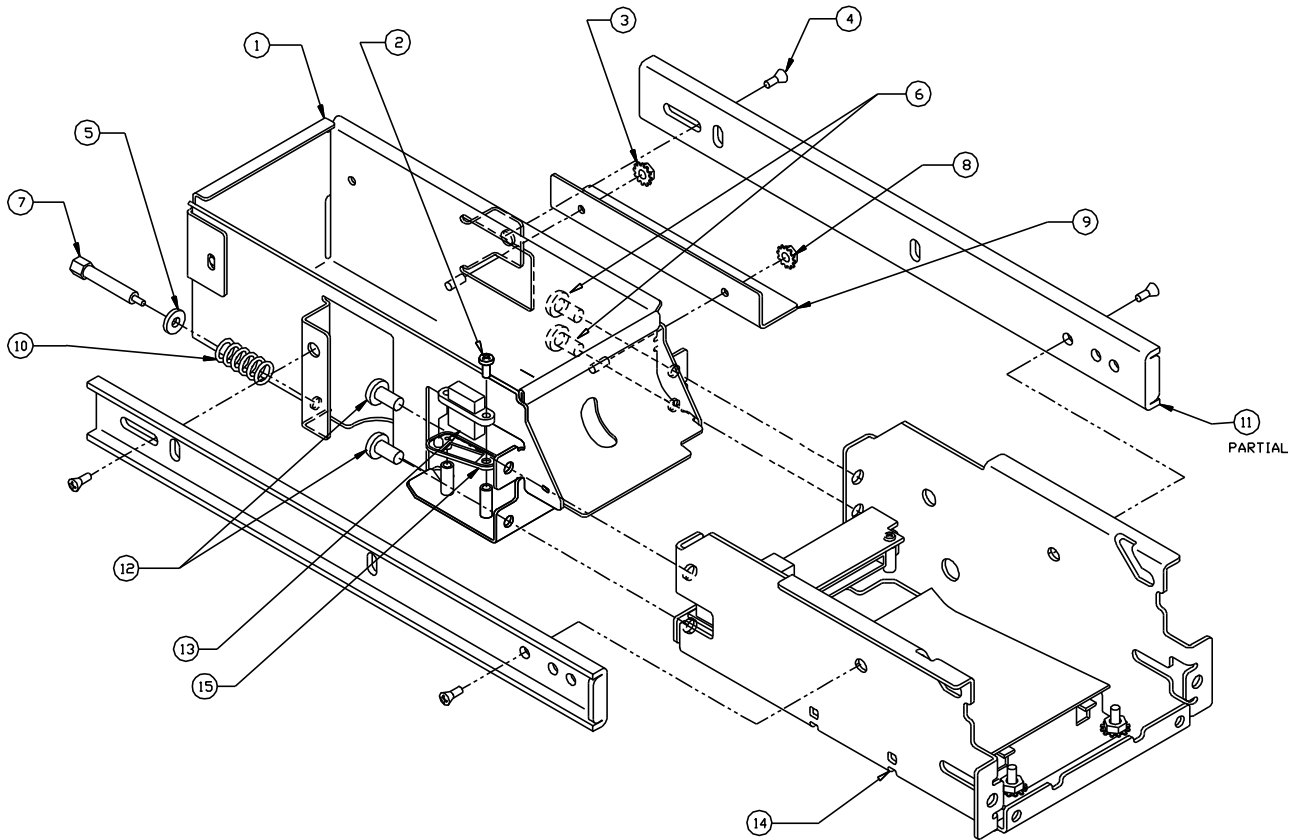


Figure 26 Chassis/Bucket Assembly

No.	Description (standard parts)	Part No. (history)
1	Box-Ticket Supply (65x156) Box-Ticket Supply (65x120) Box-Ticket Supply (62x120)	75-02101 75-02114 75-02295
2	Screw-M3x10mm PHPS PHD	98-2016
3	Nut-M3 Hex w/Lockwasher	98-0621
4	Screw-M4x6mm PHPS FLAT HD	98-02239
5	Washer-Flat	98-9324
6	Screw-M4x6mm SENS PHD	98-02233
7	Pin-Ejection	75-02236
8	Nut-M3 Hex w/Lockwasher	98-0621
9	Bracket-Flex Cable Guide Bracket-Guard 156mm	75-02238 75-03138
10	Spring-Compression	98-01836
11	Slide-10" PAIR	98-02240
12	Screw-M4x6mm SENS PHD	98-02233
13	Harness-Optical Sensor	75-02483
14	Assy-Main Chassis	75-02245
15	Plate-Sensor Locating	75-03384

Table 20 Chassis/Bucket Assembly Parts List

Main Chassis Assembly

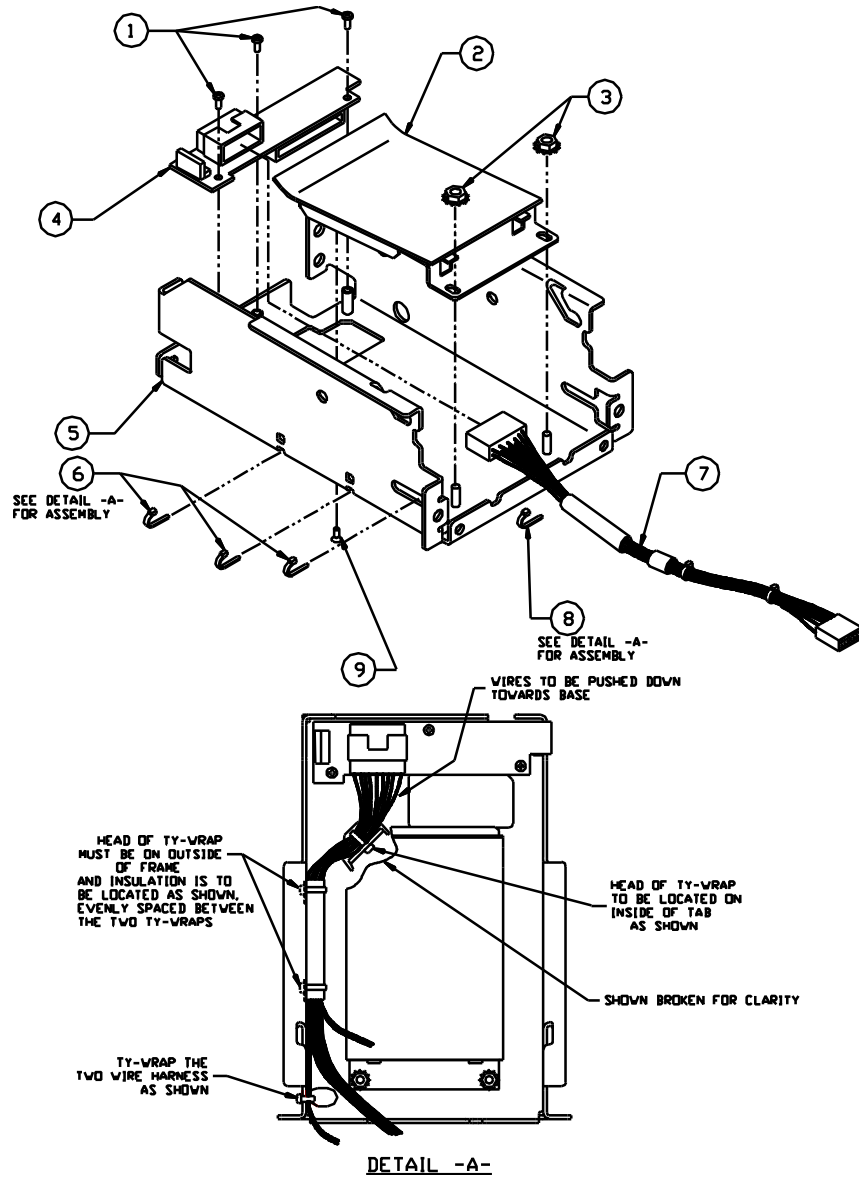


Figure 27 Main Chassis Assembly

No.	Description (standard parts)	Part No. (history)
1	Screw-M3x6mm SEMS PHD	98-02215
2	Platen-Bottom	75-02288
3	Nut-M3 Hex w/Lockwasher	98-0621
4	Assy-Connector Interface BD	75-03589 (75-02153)
5	Chassis-Main Printer	75-02119
6	Tywrap-3 3/8	98-0941
7	Harness-Main	70-02220
8	Tywrap-3 3/8	98-0941
9	Screw-M3x6mm PHPS FLAT HD	98-02219

Table 21 Main Chassis Assembly Parts List

Bezel Assembly

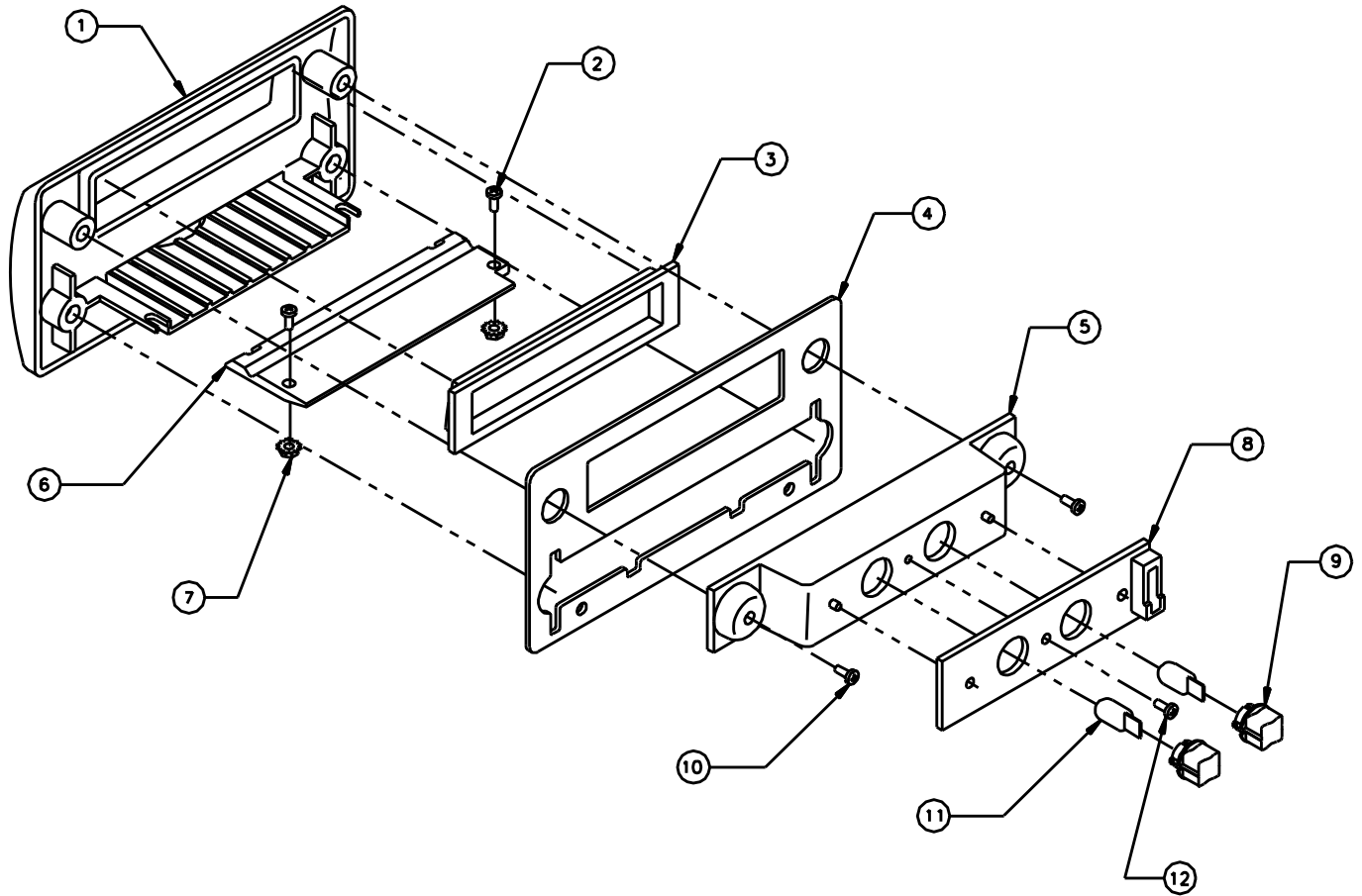


Figure 28 Bezel Assembly Parts

No.	Description (standard parts)	Part No. (history)
1	Bezel-Ticket Printer	75-02223
2	Screw-M3x8mm PHPS PHD	98-0897
3	Insert-Bezel w/Graphics	75-02384
4	Plate-Mount	75-02117
5	Barrier-Light	75-02227
6	Pipe-Light	75-02222
7	Nut-M3 Hex w/Lockwasher	98-0621
8	Assy-Light Board	75-02155
9	Socket-Lamp-T-1 3/4 Wedge	98-02231
10	Screw-#6 32x.375 SEMS PHPS PHD	98-02224
11	Lamp-T-1 3/4 4V Wedge #73	98-02230
12	Screw-#4 Plastic Thread Forming	98-7608

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