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TSP - 02 Printer

Operation and Maintenance Manual (Rev. B)

JCM Part No. 960-000051

Table of Contents

Introduction

The TSP - 02 Printer

The TSP – 02 printer is a multipurpose thermal printer that is suitable for any application requiring quality printing ability.

JCM provides the thermal paper specifications for optimum performance, while allowing the customer the freedom to create a unique 4-color design on the top surface. The thermal side is reserved for the barcode created by the thermal printer, which is read by bill acceptors and other barcode reading devices.

Model Classification

How to read the Model Classification Number

TSP – X X – X X – X XX – X X –XXX
(1) (2) (3) (4)(5)(6) (7) (8)

(1) TSP Thermal Security Printer

(2) CPU
02 Use fanfold paper, 4 MB EPROM

(3) Mounting & Cable Bracket configuration

00	No mounting brackets,	no cabling
01	No mounting brackets,	024 cable output
02	“A” type 314 mm,	024 cable output
03	“B” type 288mm,	024 cable output
04	No mounting brackets,	ribbon cable output
05	“C” type 288mm,	ribbon cable output

(4) Paper capacity

2	200 notes (Standard)
3	300 notes
6	600 notes (with extended hopper)

(5) Paper size
2 Fanfold paper, 65 mm x 156 mm (US $ size)

(6) Faceplate
0 No Faceplate

(7) Type of Software

03	ID-003 JCM Standard
24	ID-024 IGT Netplex

(8) Other Options
001 – Standard configuration

Examples:
TSP-02-05-310-03-001
Printer model 02 with no front bracket, small rear style mounting, 003 ribbon style cable; 200 note capacity; USA size paper; no faceplate; ID-003 software, no special options.

General Specifications

Outside Dimensions
Width : 113 mm (4.4 inches)
Height : 67.5 mm (2.65 inches)
Depth : 285.8 mm (11.2 inches)

Weight
2.5 Kg (5.5 lbs)

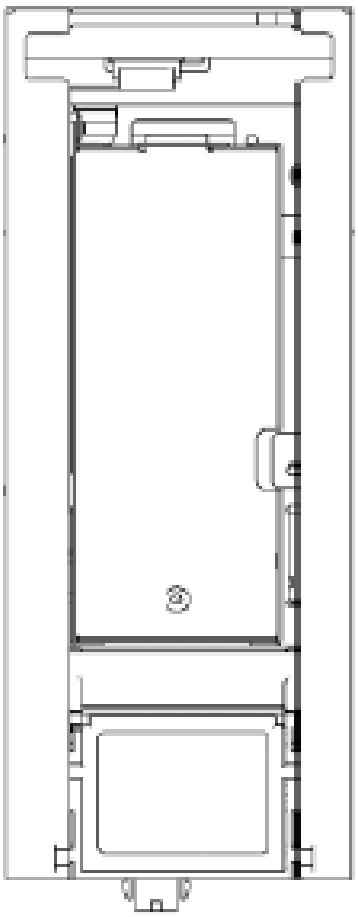
Power Requirements
DC 24V (+10%, -5%)
3A (50% print ratio)

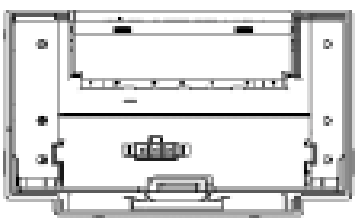
Paper Hopper Capacity
200 standard.
With optional hopper extension, 400 and 600 ticket capacity.

Recommended Thermal Paper
Brand - Kanzaki
Part No. TO-381N

NOTE: Using paper not recommended may affect quality and thermal printer head longevity. Contact your JCM account representative for a list of qualified suppliers.

Paper Dimensions
65 mm width
156 mm Length





General Specifications: Con't

Installation
Indoors
Avoid direct sunlight
A lengthwise installation angle between 0^0 and 45^O Angle

Operating Environment
Temperature : $+5^0C$ ~ $+45^0C$ (41^0F ~ 113^0F)
Humidity : 10 ~ 90% RH (no condensation)

Storage Environment
Temperature : -25^0C ~ $+70^0C$ (77^0F ~ 158^0F)
Humidity : 10 ~ 90% RH (no condensation)

Types of Sensor Detectors
Mark Sensor
Exit Sensor
Paper Near End Sensor
Paper Upper Tray Open Sensor
Printer Removed Sensor

Printing Method	Dot Density	Effective Print Dot Area
Thermal line dot method	8 dots / mm	480 dots wide 1200 dots long

Effective Print Area	Maximum Print Speed	Thermal Print Head Rating
60 mm X 150 mm	75 mm / second	Pulse Life : 50 million pulses Abrasion Life : 50 km

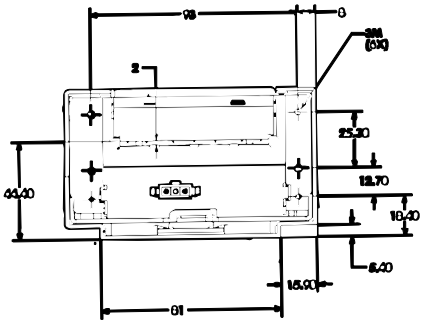
Handling Time

From receipt of data to full dispense :	~ 5 seconds
Paper pick up time (from box to head) :	~ 1 second
Print time :	~ 2 seconds
Dispense time (from print finish to full dispense) :	~ 2 seconds

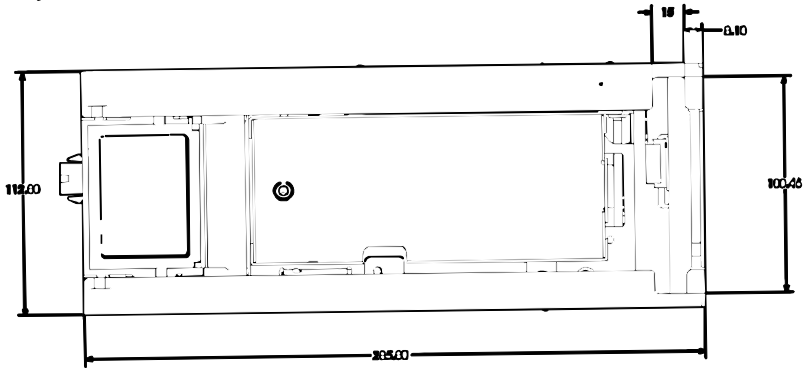
Installation

4. Outline Drawing (Dimensions in millimeters, shown with 200-note capacity hopper)

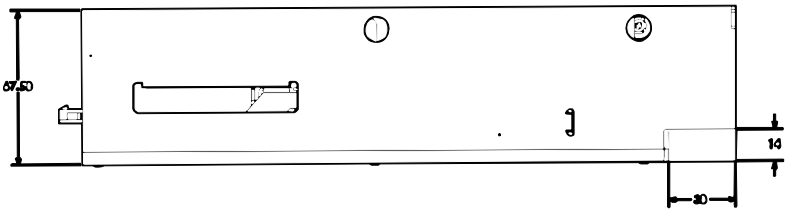
a. Front View



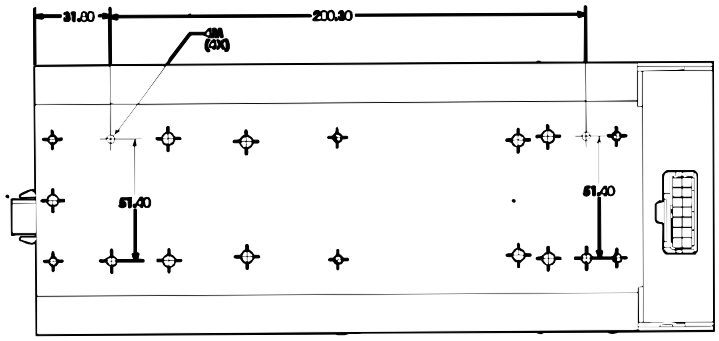
b. Top View



c. Side View



d. Bottom View



Loading Paper

Set the packet of fan-folded paper beside the printer, making sure the Index mark is positioned properly.

Remove the band from the packet and drop it in the printer hopper. Turn the printer ON. Place the top sheet of paper in the entry opening as shown in photo. The sheet of paper will automatically advance to the appropriate position.

Pin Assignments

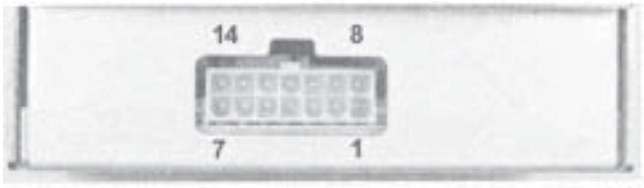
a. Pin Assignments (Main connector on underside of printer)

Position	Name	Description
1	MRESET	Hardware reset
2	RXD - I	Receive data (printer), Photo-coupler Isolation
3	VDD	Photo-coupler bias voltage. (DC+12 V or DC+13 V)
4	TXD – I	Transmit data (printer), Photo-coupler Isolation
5	IGND	Isolated Ground
6	DC+24 V	Printer Power Supply
7	GND	Ground
8	DC+24 V	Printer Power Supply
9	RCTR24	Modulated 24 V signal. For showing status via LED.
10	GND	Ground
11	RXD	Receive data (Printer), RS-232C
12	TXD	Transmit data (Printer), RS-232C
13	DTR	
14	RTS	

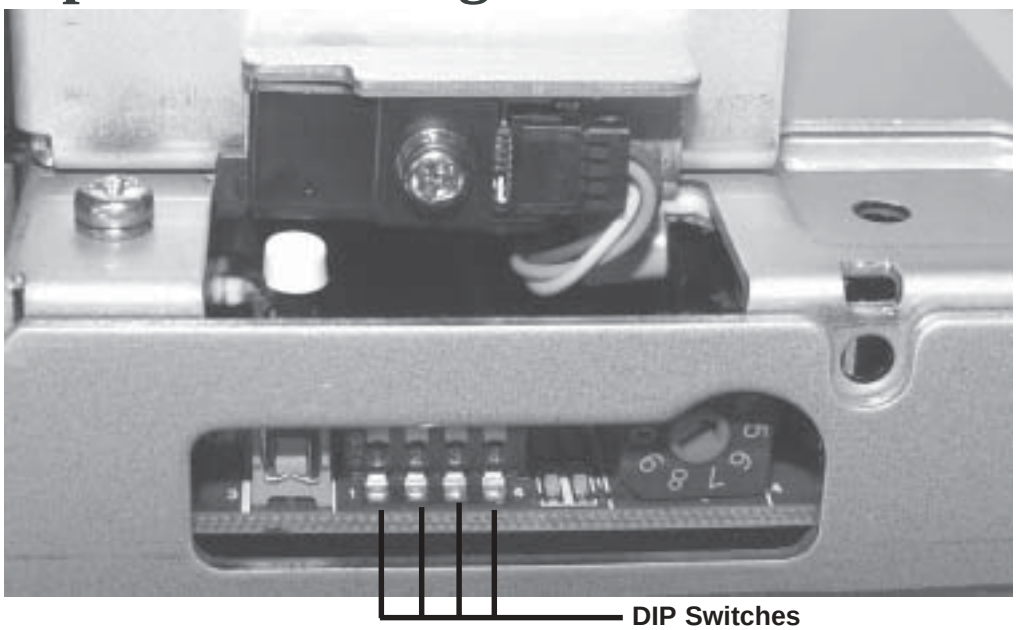
• Both photo-coupler isolation and RS-232C physical interfaces are available.

• Mating Connector: Molex, Mini-Fit Jr. ., Receptacle #39-01-2145

Interface Receptacle

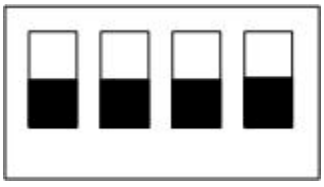


Dip Switch Settings

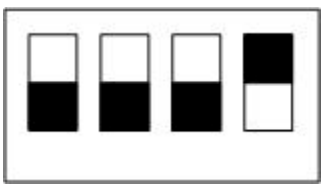


DIP Switch				Function
1	2	3	4	
0	0	0	0	Normal operation (interfaced with a host controller)
1	0	0	0	Reserved
0	0	0	1	Ticket print test
1	0	0	1	Continuous ticket print test
0	1	0	1	Reserved
1	1	0	1	Sensor adjustment data
0	0	1	1	Test pattern and version information
0	1	1	1	Motor function test
1	1	1	1	Sensor calibration

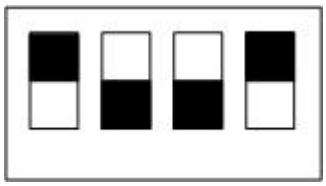
1 = ON (Up)
0 = OFF (Down)



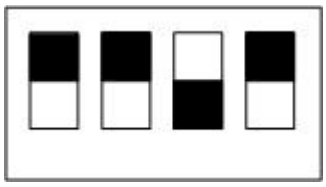
Normal Operating Setting - Printer is interfaced with a host controller. Host commands the printer through the interface (Print Command, etc.)



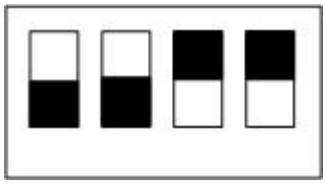
Ticket Print Test - With power applied, the printer will print and dispense a ticket. Once the ticket is removed, another ticket will be printed.



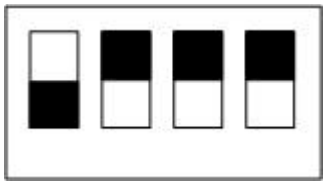
Continuous Ticket Printer Test - Printer will print one ticket after another (Previously printed ticket does not have to be removed.).



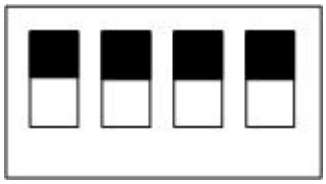
Sensor Adjustment Data - Mark sensor and Exit sensor adjustment data is printed on ticket.



Test Pattern and Version Information - A checker pattern, model name and version information is printed on ticket. This function can be used to test print quality. This same test can be performed by pushing the white button next to the DIP switches.

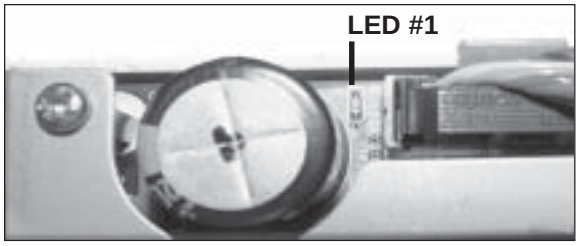


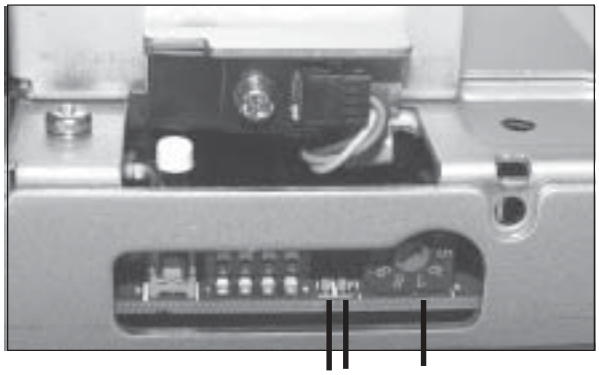
Motor Function Test - Test forward and reverse operation of the motor.



Sensor Calibration - Calibrate the Mark and Exit sensors.

The green LED #1 is located on the left side of the printer, and indicates when the printer is powered up.





LED #2 (Red) and #3 (Green) light when the macine is turned on. After initiation, LED #2 goes out. It will light up if the print head is open while the printer is turned on.

The rotary switch is used to increase or decrease the darkness of the image on the ticket. Lower numbers indicate a darker image.

Maintenance

Sensor Adjustment Procedure

• Make sure printer power is turned off

• Turn ON all four DIP switches

• Open the printer and insert the reference paper (Part No. 501-000059)

• Turn on printer power

• Wait for the LED to flash (On - 100ms, Off - 1 sec.). You may need to wait 10 seconds

• Open the printer, remove the reference paper, and close the printer

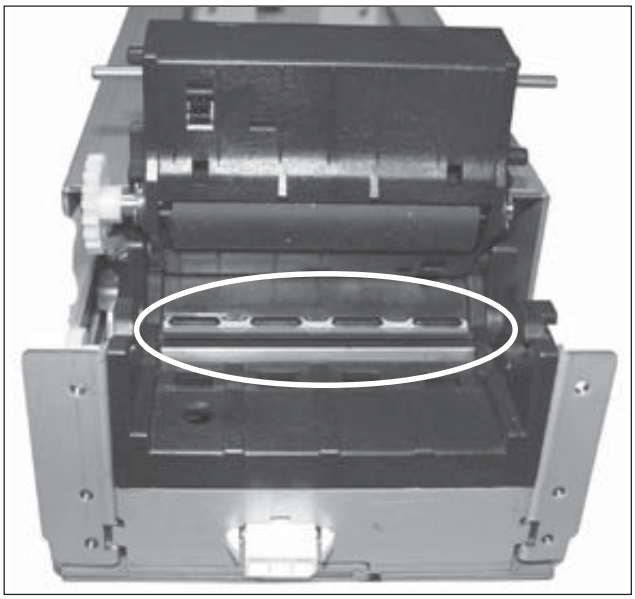
• Turn off DIP switch #1

General Operation and Troubleshooting

Upon receiving a message from the host, the printer moves the paper into position and prints the appropriate data which may include bar code information.

A sensor in the hopper section indicates to the host when the paper supply is low. There is also a sensor in the head that informs the host when the hopper is empty.

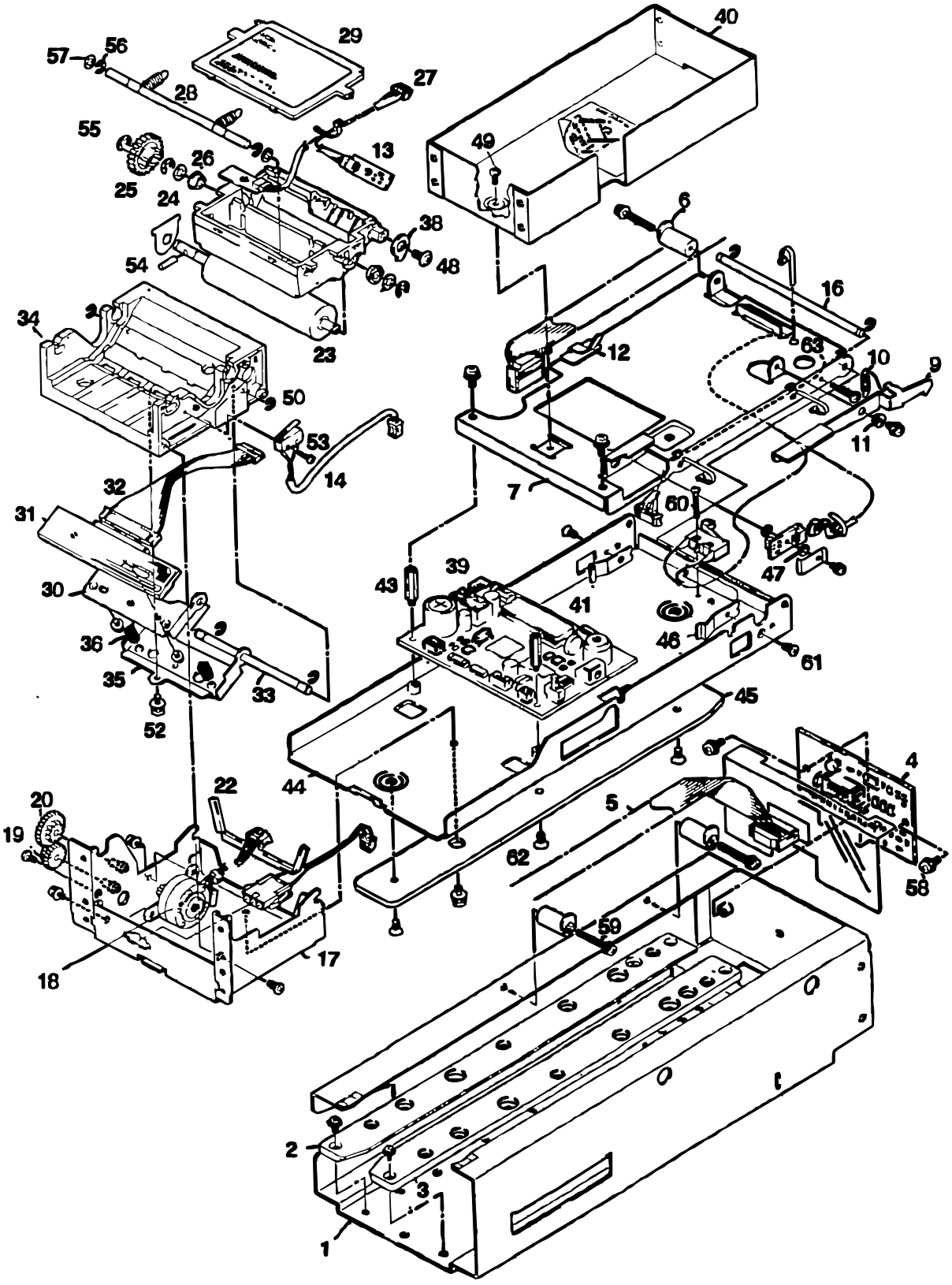
If there is a paper jam, the printer sends a message to the host and the host signals a paper jam. The only time a service technician becomes involved with the printer is when it needs paper (see “Loading Paper” on page 6), when there is a paper jam, or when there is a software update.



Cleaning

Use compressed air to clean any debris from the hopper area, then use a lint-free cloth and 25% alcohol to clean the head area indicated in the photograph.

Exploded View



No.	Part No.	Description	Qty.
1	079520	Slide Frame	1
2	079526	Slide Guide (L)	1
3	079527	Slide Guide (R)	1
4	079575	I/F Assy.	1
5	079574	Slide Harness	1
6	079530	Harness Clamp	3
7	079517	Unit Base	1
8	079533	(B)	1
9	079519	Unit Lock	1
10	079538	Unit Lock Spring	3
11	079537	Unit Lock Bush	1
12	005663	Clamp	1
13	079576	Sensor Assy.	3
14	079573	Near End Switch Harness	1
15	001244	T-18R	4
16	079536	Unit Base Shaft	1
17	079513	Printer Frame Assy.	1
18	079541	Stepping Motor	1
19	071903	Idle Gear (A)	1
20	071905	Idle Gear (B)	1
21	079578	LED Harness	1
22	079532	Harness Protection Seat (A)	1
23	079525	Platen	1
24	079529	Upper Guide	1
25	079514	Platen Gear	1
26	034397	Metal Bearing	2
27	079572	Sensor Harness	1
28	079535	Lock Shaft	1
29	079531	Upper Guide Cover	1
30	079515	Head Plate	1
31	071758	Thermal Head	1
32	079571	Head Harness	1
33	079534	Head Plate Shaft	1
34	079528	Lower Guide	1
35	079516	Head Bracket	1
36	079539	Head Spring	2
37	079558	Head Up Harness	1
38	079524	Upper Guide Plate	1
39	079556	CPU Assy.	1
40	079521	Hopper (200)	1
	200-100165	Hopper (400) Opt.	1
	200-100169	Hopper (600) Opt.	1
41	065633	EPROM	1

No.	Part No.	Description	Qty.
42	072284	Switch Insulation Seat	1
43	079540	Hex. Spacer	2
44	079518	Unit Frame	1
45	079522	Slide Rail	1
46	079523	Slide Ring	2
47	079542	Nylon Washer	2
48		M3 x 6 Pan WH P-tight (Black)	2
49		M3 x 6 Bind P-tight (Black)	5
50		3 E-type Clip	8
51		M2.6 x 4 W-SEMS (Small)	3
52		M3 x 5 Pan Screw (Small)	9
53		M2 x 8 Pan Screw P-tight	2
54		2 x 8 Spring Pin	1
55		4 E-type Clip	2
56		2 E-type Clip	2
57		3 x 6 x 0.5 Flat Washer	2
58		M3 x 6 Pan W-SEMS (Small)	3
59		M3 x 20 Pan W-SEMS (Small)	2
60		M2.3 x 8 Pan Screw	2
61		M2.6 x 5 Pan Flat Head Screw	2
62		M3 x 6 Pan Flat Head Screw	3
63		M3 14 Pan Screw	1

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