

ASAHI SEIKO USA, Inc.

Card Dispenser

Technical Manual



CD-200
CD-1000
CD-1100
CD-1300



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1.0 Document Control

Date	Issue No.	Reason for Revision	Page No.
7/14/04	Draft	----	-----
9/24/04	1.0	Release	

2.0 General Description

The card dispensers developed by Asahi Seiko ensure accurate card-dispensing by utilizing a patented clutch and reverse-rotating roller system for smooth card feeding that prevents double dispensing or wrong dispensing.

Our card dispensers can respond to cards ranging from 0.010” to 0.034” in thickness (JIS-II or ISO standards, no embossed surfaces). This series is for prepaid cards, credit cards, debit cards, magnetic stripe cards, smart cards, paper cards, sports cards, break open tickets and so forth.

The electrical interface with your machine can be easily accomplished with our exclusive control board (PCB). This PCB is attached to the underside of the unit, thus eliminating the need for further design of circuit boards.

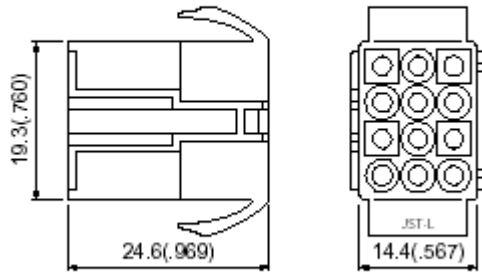
Our control PCB is designed to automatically reverse if a card is not completely dispensed within 4 seconds. It will automatically repeat this motion, until a single card is dispensed or the pre-set number of re-tries has been reached. The number of times in which this action is repeated can be pre-set with the DIP switches located on the PCB.

3.0 Electrical Interface

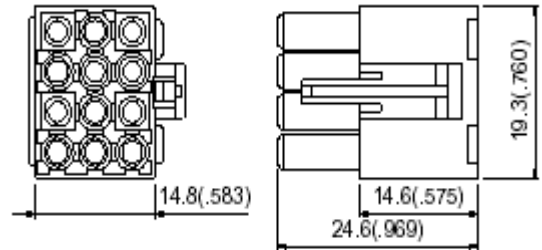
3.1 Interface Connector

This series of card dispenser is equipped with the JST ELP-12V series connector. The mating connector, ELR-12V, and contacts are available as an option and can be ordered through Asahi Seiko or by contacting JST or a JST stocking distributor.

ELR-12V



ELP-12V



The Asahi Seiko part numbers for the ELR-12V connector and contacts are:

ELR-12V Connector

CMA-8007

Contacts for ELR-12V

CDS204P010071

ELR-12V Connector with 12" wire

ECM-8010

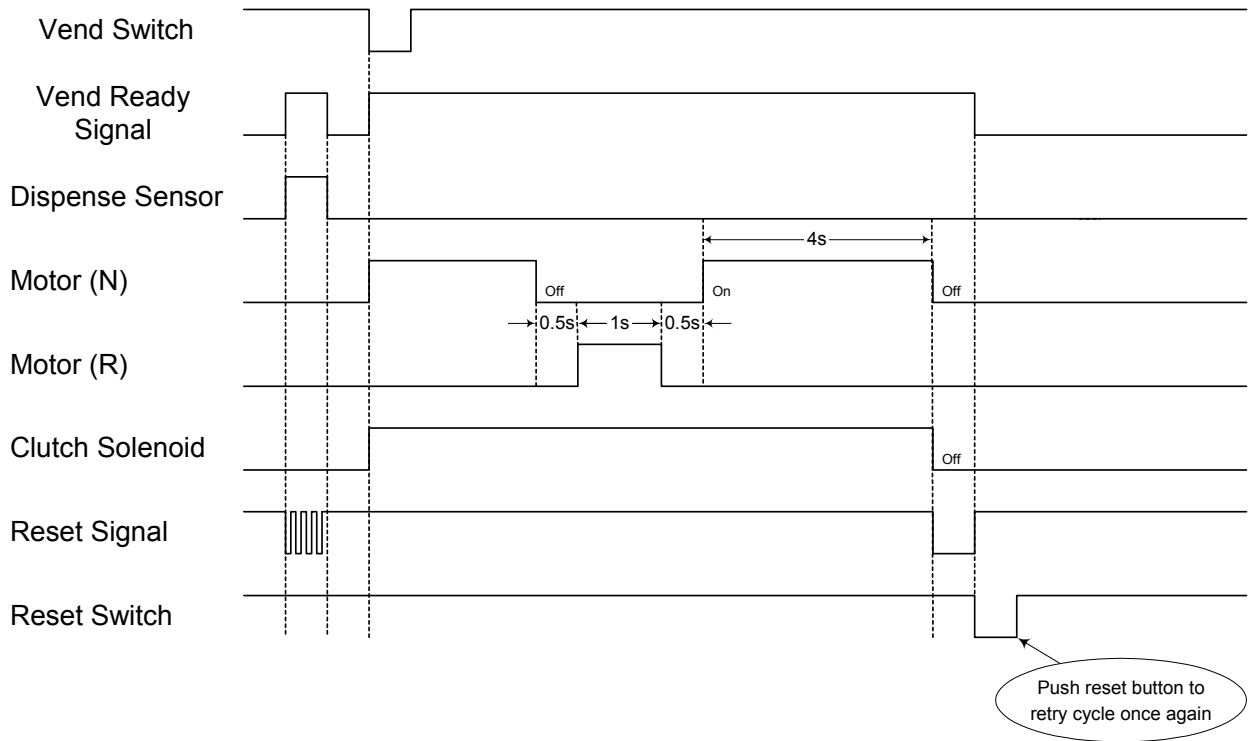
3.2 Wiring Guide

Pin Location	Wire Color	12VDC Connections	24VDC Connections	Operations Guide
1	BLACK	0V	0V	Source Voltage
2	RED	12VDC	24VDC	
VEND SWITCH				
3	BLACK	COMMON	COMMON	30ms or longer switch closure to vend card
4	BROWN	NORMALLY OPEN	NORMALLY OPEN	
READY-TO-VEND SIGNAL				
5	ORANGE	LIT BUTTON / LAMP	LIT BUTTON / LAMP	Enables a lamp to be lit when unit is ready to dispense cards
6	YELLOW	5VDC	5VDC	
RESET SWITCH				
7	GREEN	NORMALLY OPEN	NORMALLY OPEN	
8	BLACK	COMMON	COMMON	
RESET & JAM SIGNAL				
9	BLUE	LIT BUTTON / LAMP	LIT BUTTON / LAMP	Enables a lamp to be lit when card has not been dispensed. If a card jams, or fraud is experienced, a flashing output will occur.
10	YELLOW	5VDC	5VDC	
DISPENSER EMPTY SIGNAL				
11	GRAY	LIT BUTTON / LAMP	LIT BUTTON / LAMP	Enables a lamp to be lit when unit is empty
12	YELLOW	5VDC	5VDC	

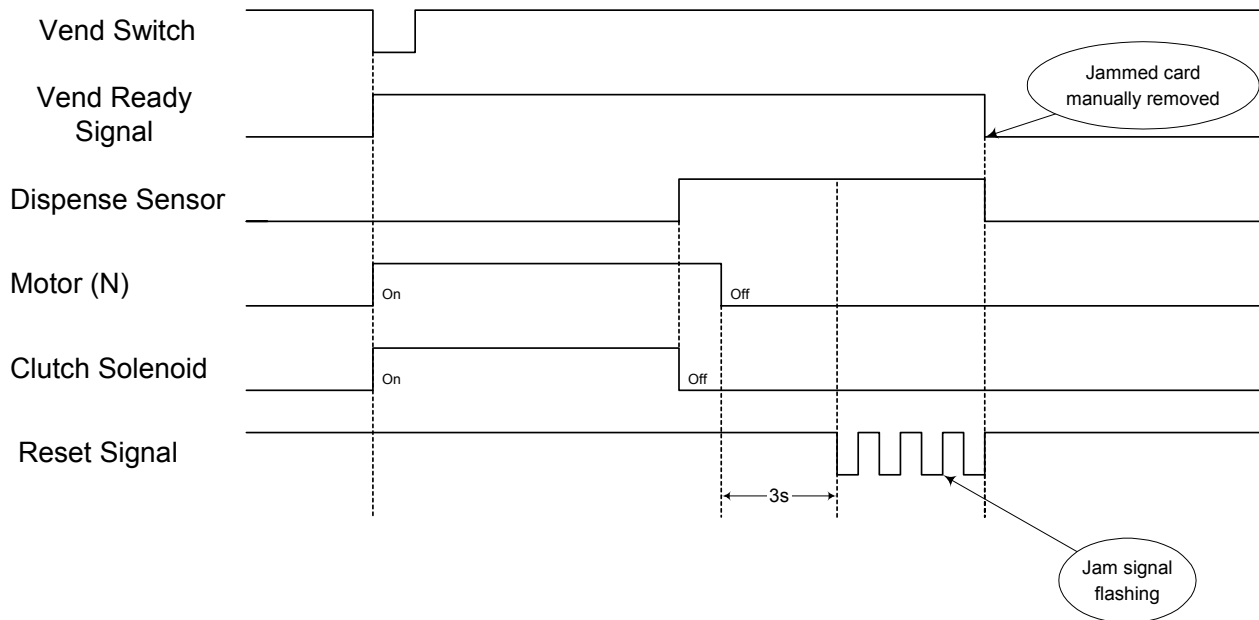
NOTE: For proper operation and to prevent damage to the CD-9603 PCB, it is necessary to connect each individual signal as indicated in this wiring guide. Pin #1 should not be interpreted as a common board level ground.

3.3 Timing Charts

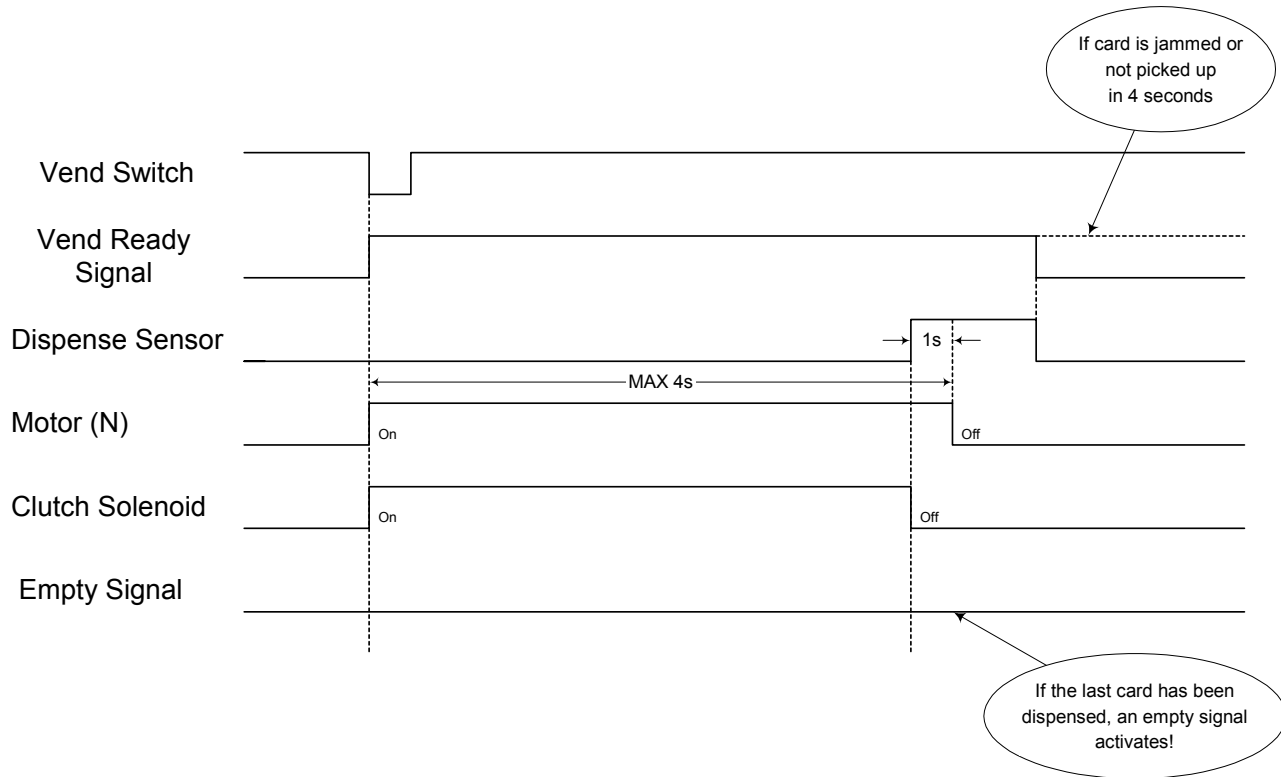
3.3.1 Non-dispensing within 4 seconds (Note: This is when a card cannot be pushed out from the cassette)



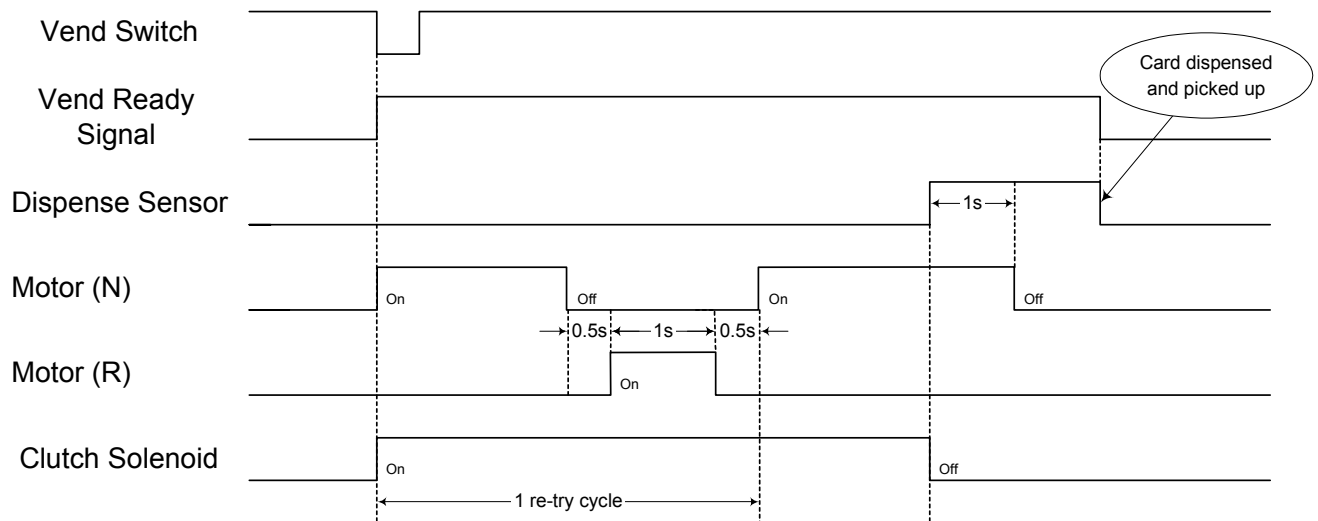
3.3.2 Card jams or card is not picked up (Note: This is when a card gets stuck partway through the dispense cycle)



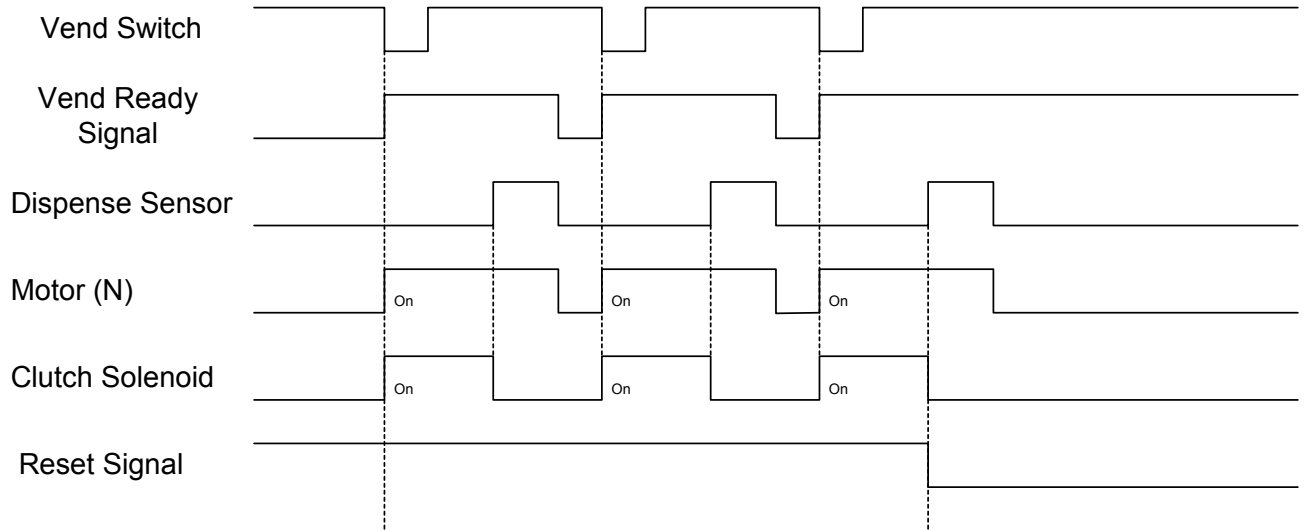
3.3.3 Normal dispensing



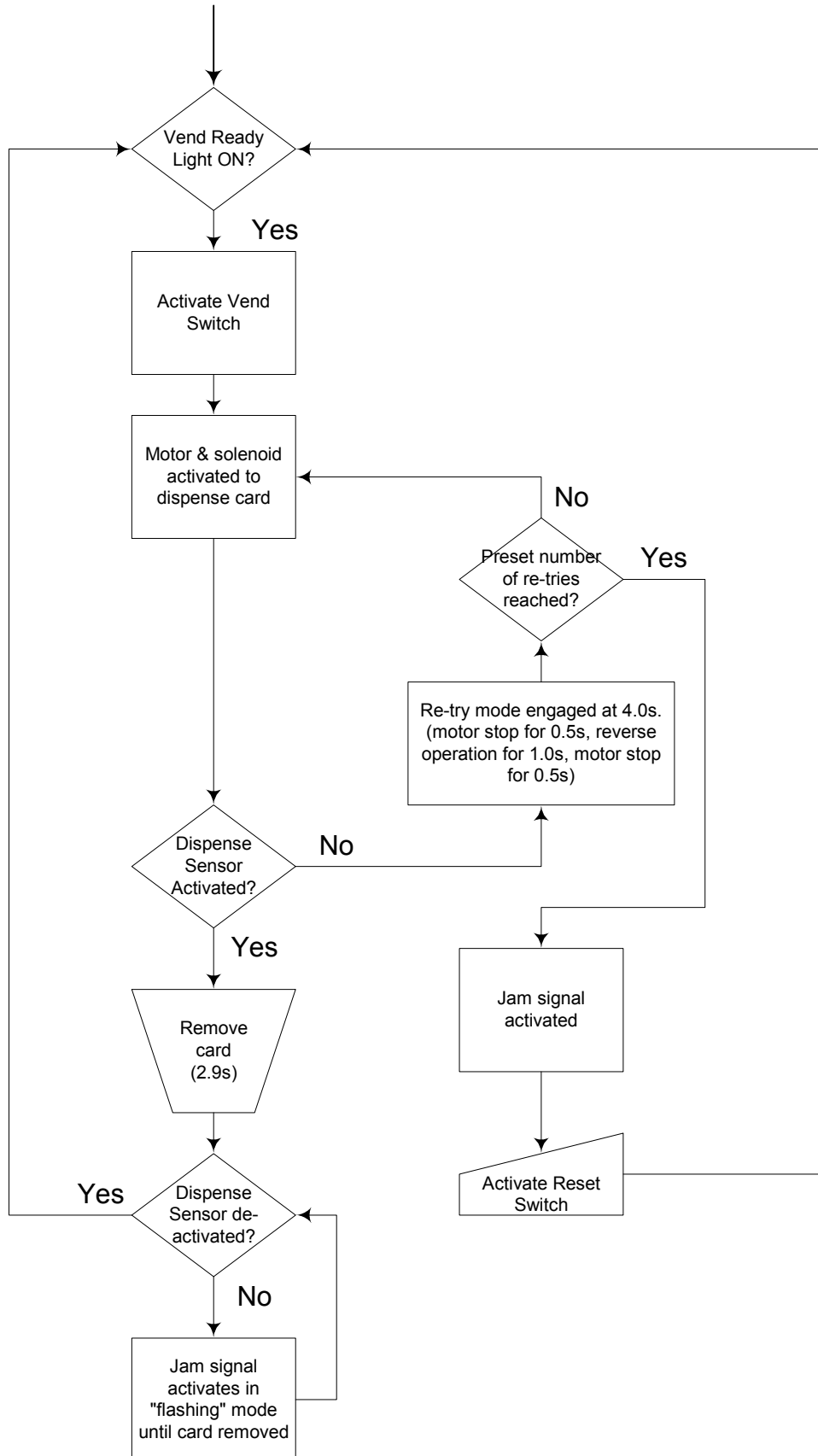
3.3.4 One re-try cycle



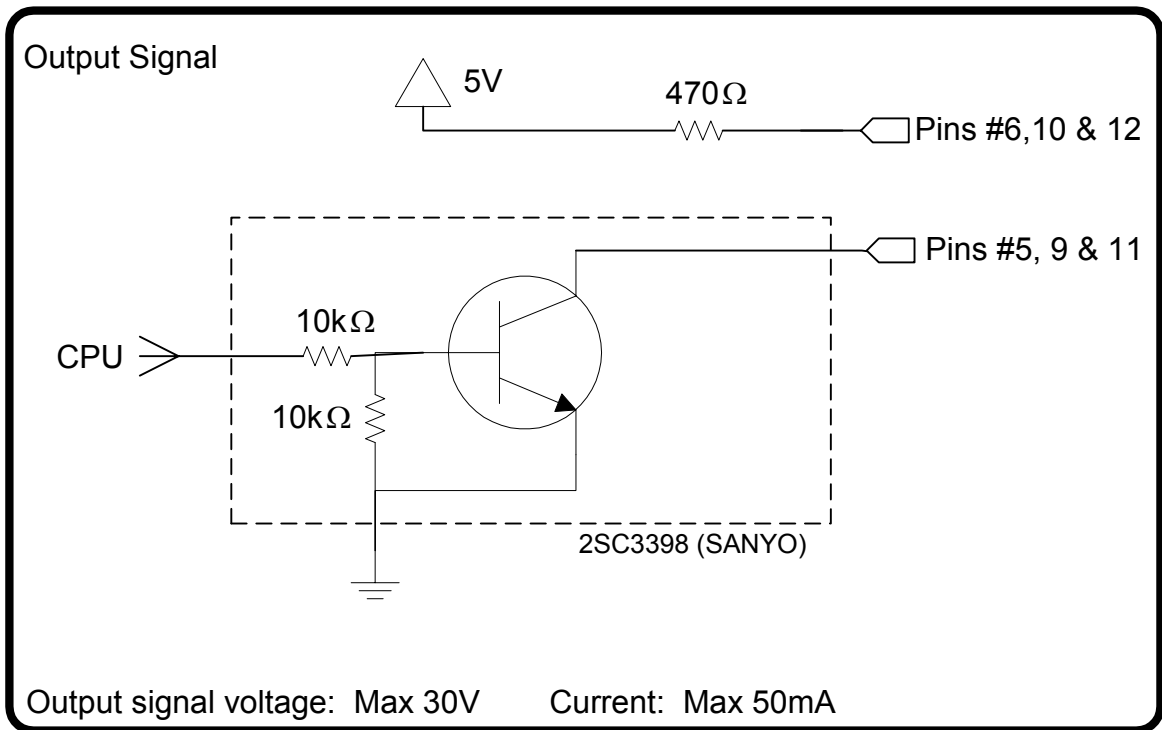
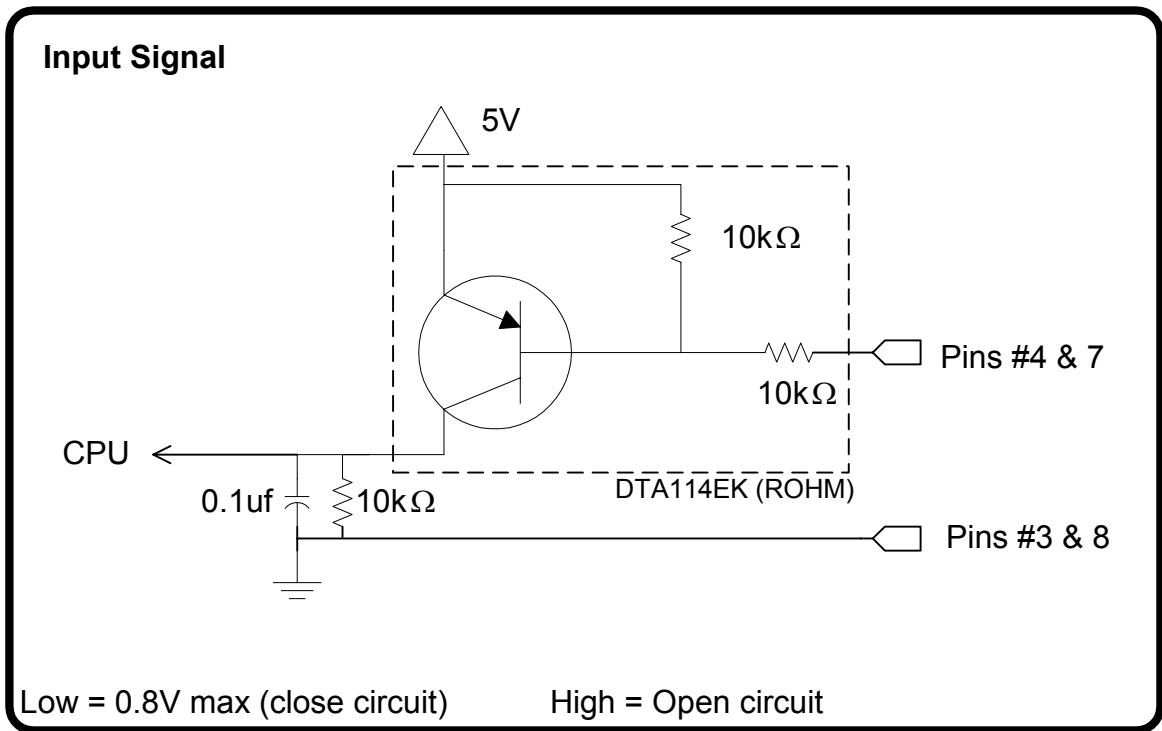
3.3.5 Continuous dispensing



3.4 Operation Flow Chart



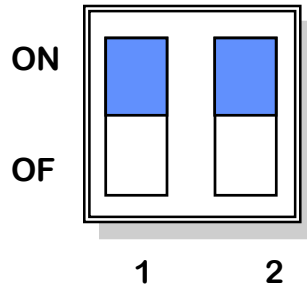
3.5 Signal Characteristics



NOTE: Pin numbers refer to the ELP-12V connector

4.0 DIP Switch Setting

The CD-9603 PCB is equipped with a DIP switch which the user can use to control the number of times the card dispenser will re-try to dispense a card.



Number of Re-tries	Switch Numbers	
	1	2
1	OFF	OFF
★ 2	ON	OFF
4	OFF	ON
8	ON	ON

★ Factory setting on units

5.0 Card Thickness Adjustment Procedure

During usage, the occasion may arise when it becomes necessary to alter the card thickness adjustment on the card dispenser. These occasions could be, but are not limited to; switching to dispensing a card of a different thickness or replacing worn and/or damaged components.

5.1 Required Tools & Supplies

1.5mm Hex Wrench

2.0mm Hex Wrench

#2 Phillips Screwdriver

#1 Phillips Screwdriver

Needle Nose Pliers

Small Flat Blade Screwdriver (for removing E-Rings)

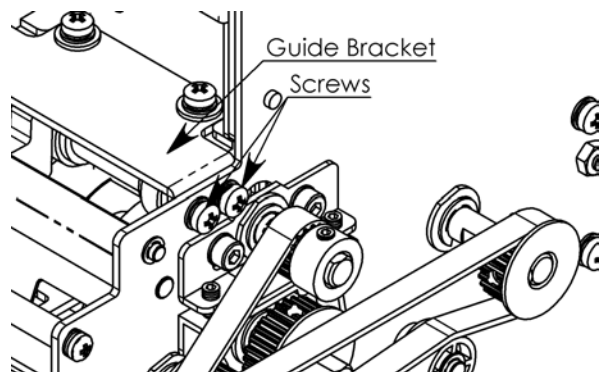
Thread Sealing Compound (ThreeBond 1401B or equivalent)

Clean, Uncluttered Work Area

5.2 Thickness Adjustment

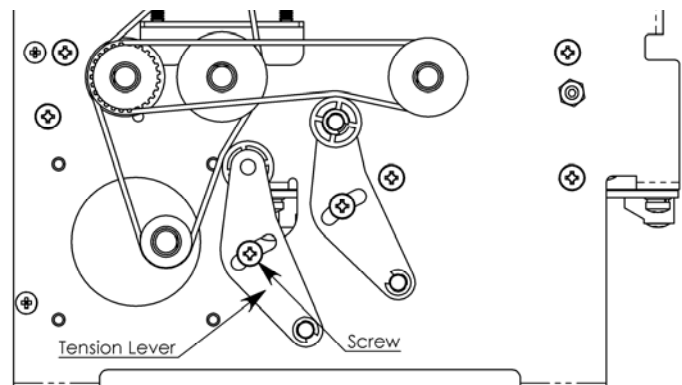
5.2.1 Guide Bracket

Loosen the four screws (two on either side) securing the Guide Bracket. This will permit the Guide Bracket to move freely.



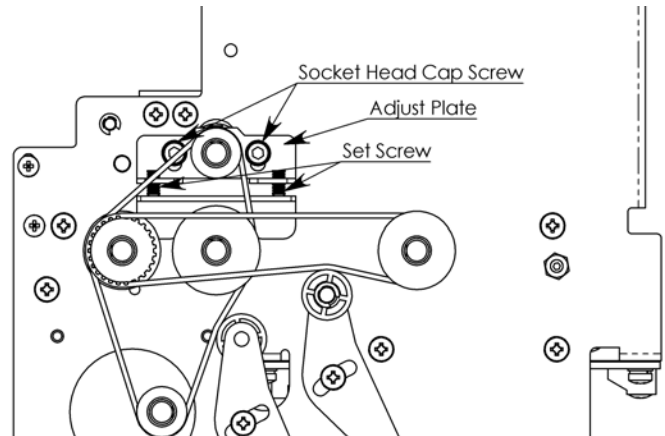
5.2.2 Tension Lever

Loosen the screw securing the Tension Lever. Rotate the Tension Lever clockwise (as shown) to release the belt tension.



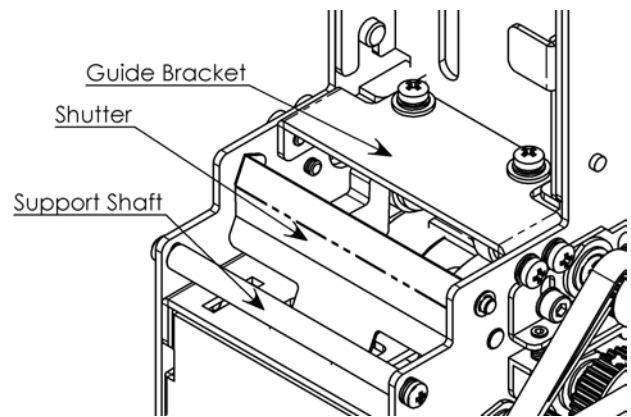
5.2.3 Adjust Plate

Loosen the four Socket Head Cap Screws (two on either side) securing the Adjust Plate. The Reverse Roller Shaft is supported at each end by an Adjust Plate; both Adjust Plates must be free to enable adjustment of the distance between the Reverse Roller and the Feed Roller.



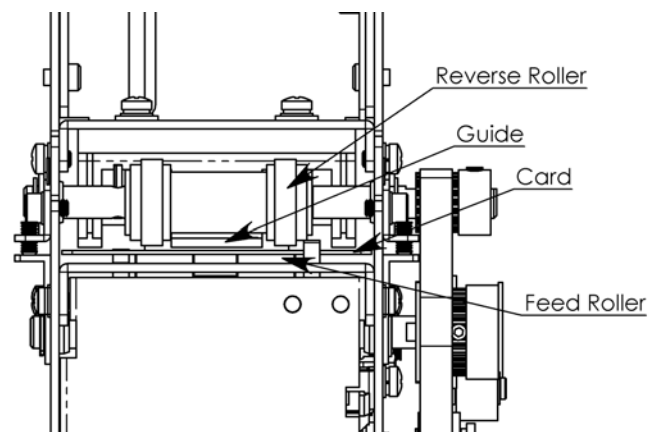
5.2.4 Opening the Shutter

For easy viewing of the adjustment area, remove the two screws securing the Support Shaft and remove the shaft. The Shutter can then be rotated upward to rest on top of the Guide Bracket.



5.2.5 Adjusting the Reverse Roller

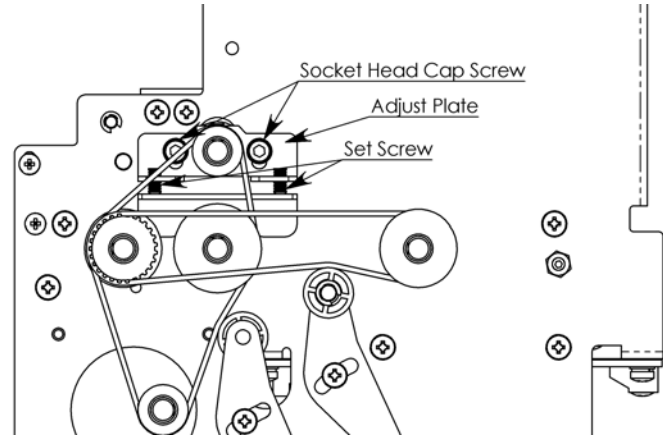
With the shutter rotated out of the way, insert a card of the thickness to be dispensed between the Reverse Roller and the Feed Roller (as shown). If the card thickness is greater than the distance between the Reverse Roller and the Feed Roller, raise the Reverse Roller and the Guide slightly. **The optimum distance between the Reverse Roller and the Feed Roller is 1.5x card thickness.**



The chart below shows the proper distance spacing, which is dependent on card thickness.

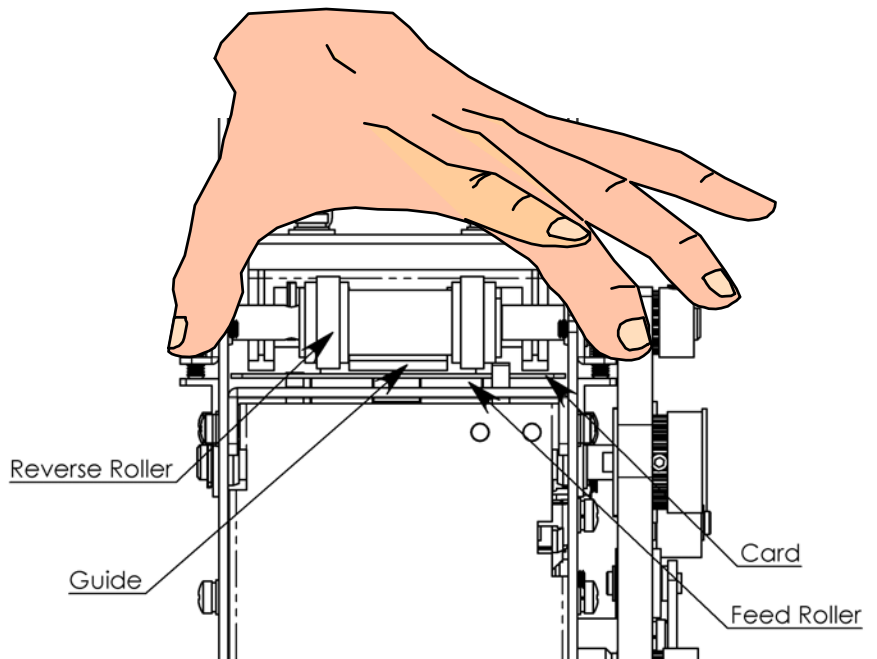
Card Thickness	Proper Distance Between Reverse Roller & Feed Roller	Optimum Distance Between Reverse Roller & Feed Roller
0.010" (0.25mm)	0.014" (0.36mm) - 0.016" (0.41mm)	0.015" (0.38mm)
0.020" (0.51mm)	0.025" (0.64mm) - 0.031" (0.79mm)	0.030" (0.76mm)
0.030" (0.76mm)	0.040" (1.02mm) - 0.050" (1.27mm)	0.045" (1.14mm)
0.034" (0.86mm)	0.045" (1.14mm) - 0.060" (1.52mm)	0.051" (1.30mm)

To achieve the proper distance between the Reverse Roller and the Feed Roller, use the 1.5mm Hex Wrench to advance or retrieve the 4 set screws (2 per side). It is important that each screw be advanced or retrieved an equal amount in order to ensure that the distance between the Reverse Roller and Feed Roller is uniform.



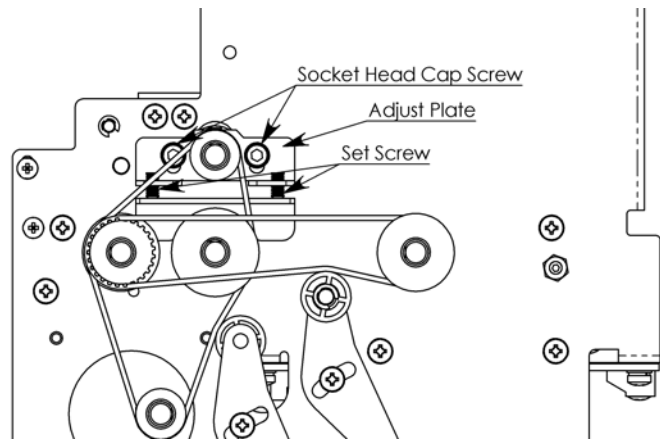
If the distance between the Reverse Roller and the Feed Roller is not uniform, dispensing problems may result.

As a QUICK Check, insert a card to be dispensed and slide it between the Reverse Roller and the Feed Roller. Apply downward pressure, as shown, gripping both ends of the Reverse Roller Shaft. Slide the card back and forth. It should encounter no resistance.



Now, stack two cards together and repeat this QUICK CHECK. The cards should not be able to pass between the Reverse Roller and the Feed Roller. During operation, the Reverse Roller will push the uppermost card back into the cassette and prevent double-dispensing.

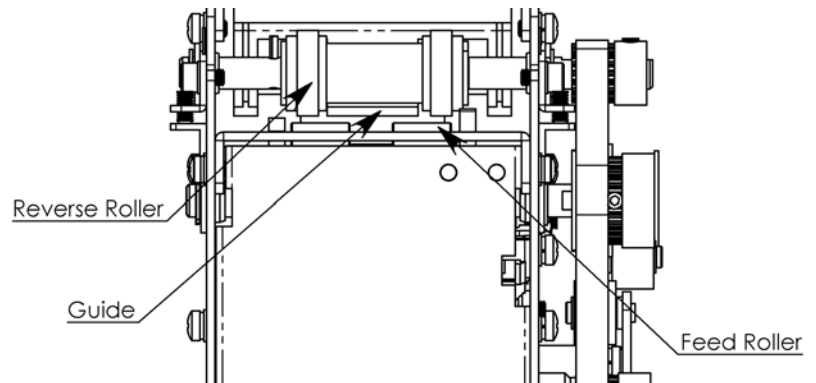
If this QUICK CHECK is satisfactory, tighten the Socket Head Cap Screws, while still applying downward pressure on the Reverse Roller Shaft, securing the Adjust Plates in position. Apply a drop of thread sealing compound to each of the Socket Head Cap Screws and Set Screws to ensure they do not loosen.



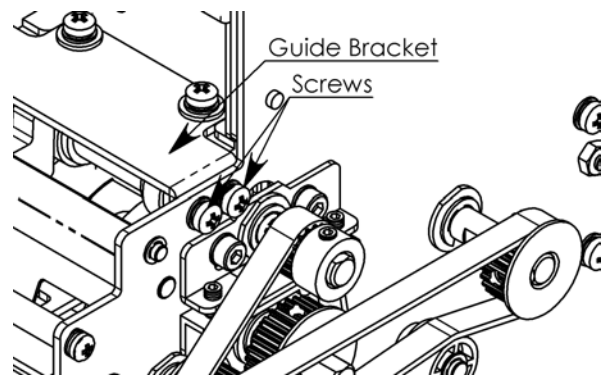
If the QUICK CHECK is unsatisfactory, advance or retrieve the 4 set screws (2 per side) accordingly. Again, remember that each screw be advanced or retrieved an equal amount in order to ensure that the distance between the Reverse Roller and Feed Roller is uniform. Then perform the QUICK CHECK again. Repeat until it is satisfactory.

5.2.6 Guide Bracket

Adjust the Guide, making sure the bottom of the Guide is aligned with the bottom of the Reverse Roller. The distance between the Feed Roller and the Guide should be identical to the distance between the Feed Roller and the Reverse Roller.

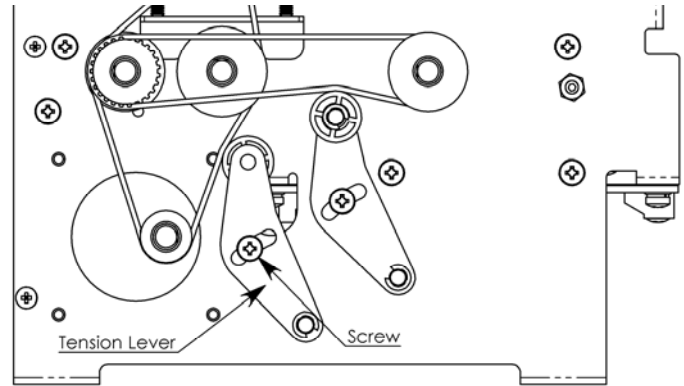


Tighten the screws securing the Guide Bracket in position. Apply a drop of thread sealing compound to each of the Screws (2 per side) to ensure they do not loosen. Double check the distance between to Guide and Feed Roller.



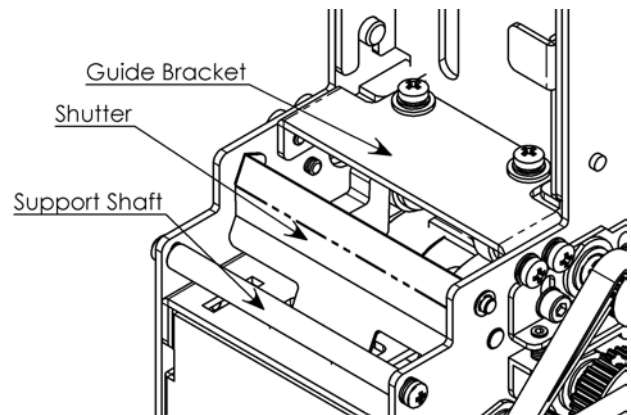
5.2.7 Tension Lever

Rotate the Tension Lever counter-clockwise (as shown) to apply belt tension. For optimum operation, the maximum belt deflection should be 1.5 – 2mm. Secure the Tension Lever in position by tightening the Screw. Apply a drop of thread sealing compound to the Screw to ensure it does not loosen.



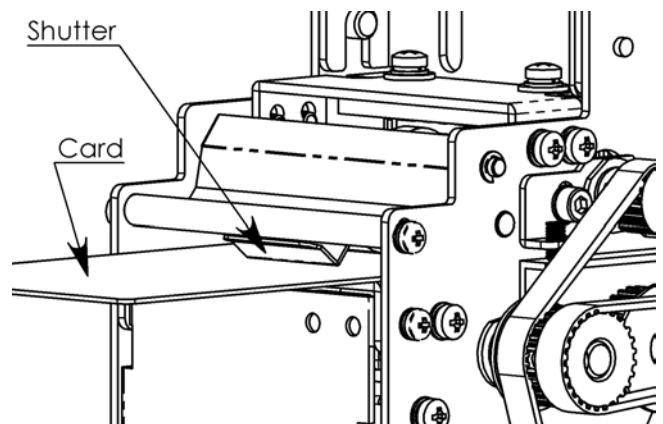
5.2.8 Replacing the Shutter

Rotate the Shutter back to operational position and re-install the Support Shaft (removed in step 5.2.4), using the 2 screws removed to secure it in position. To achieve proper Shutter adjustment, insert a card to be dispensed under the Support Shaft, while lifting the Shutter.



The card should be able to slide freely under the Shutter. For optimum operation, the bottom of the Shutter should be positioned no more than card thickness +0.2mm above the Base Plate.

When the Shutter and Support Shaft have been properly positioned, tighten the screws on each end of the Support Shaft to secure it in position. Apply a drop of thread sealing compound to each Screw to ensure they do not loosen.



As a final check, dispense about 50 cards to ensure that all adjustments have been properly performed.

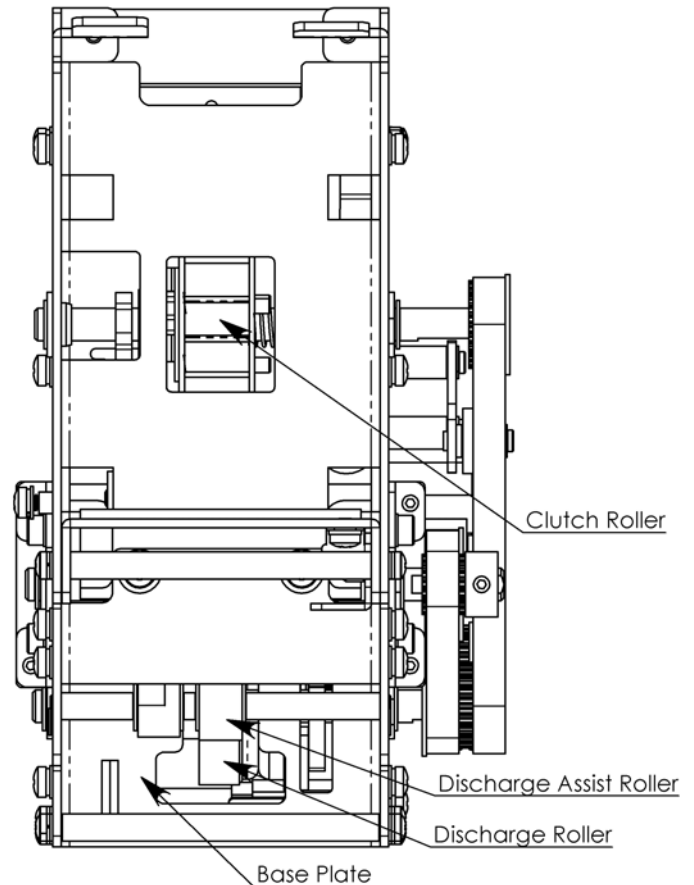
6.0 Maintenance

Under ideal circumstances, routine maintenance should be performed after every 10,000 cards dispensed.

Using a cotton swab and isopropyl alcohol (rubbing alcohol), thoroughly clean the Discharge and Discharge Assist Rollers and the Clutch Roller. The unit must be operating (without cards), with the rollers rotating to clean them completely. The Clutch Roller will rotate freely without the unit operating.

Using a small piece of cloth, dampened with isopropyl alcohol, wipe all metal surfaces on the interior of the unit.

Before re-stocking the unit with cards, make sure that the alcohol has completely dried.



Occasionally, the optic sensors may become dirty. Simply wipe them with a clean, dry cloth periodically to remove any dust buildup.

It is a good idea, during the maintenance session, that the unit be visually inspected for broken or damaged parts, frayed or worn belts, worn rollers, debris buildup, etc...

7.0 General Specifications

7.1 Card Dispensers

Applicable Cards: Material: Polyester Film Card

Size:

	Width (mm)		Length (mm)	
	Min.	Max.	Min.	Max.
CD-200	53	58	76	86
CD-1000	52	56	79	89
CD-1100	46	49	100	112
CD-1300	64	65	82	92

Thickness: 0.15mm (Min) ~ 0.76mm (Max)

External Dimensions: **CD-200** (W) 93.2mm x (H) 180mm x (D) 155mm
CD-1000 (W) 93.2mm x (H) 445.4mm x (D) 155mm
CD-1000/230 (W) 93.2mm x (H) 230mm x (D) 155mm
CD-1000/340 (W) 93.2mm x (H) 340mm x (D) 155mm
CD-1100 (W) 93.2mm x (H) 445.4mm x (D) 177mm
CD-1300 (W) 102.2mm x (H) 445.4mm x (D) 156.7mm
CD-1300/340 (W) 102.2mm x (H) 340mm x (D) 156.7mm

(See Section 9 for dimensional drawings)

Card Capacity: [Approximate number based on 0.25mm cards (.010")]

CD-200 200 cards
CD-1000 1,000 cards
CD-1000/230 580 cards
CD-1000/340 860 cards
CD-1100 1,000 cards
CD-1300 1,000 cards
CD-1300/340 860 cards

Electrical Power Requirements: Voltage: 12VDC ±10%
24VDC ±10%

Current Consumption: 0.1A (idle)

1.5A Max (operation)

Card Dispensing Time: Approx. within 2 seconds

Operating Conditions: Temperature: -10°C ~ +40°C
 Humidity: 30% ~ 90% (prevent condensation)
 Position: In Cabinet
 Upright or within 2° in any direction

Weight:	CD-200	Approx. 3.53 lbs
	CD-1000	Approx. 5.39 lbs
	CD-1000/230	Approx. 5.07 lbs
	CD-1000/340	Approx. 5.18 lbs
	CD-1100	Approx. 5.51 lbs
	CD-1300	Approx. 5.73 lbs
	CD-1300/340	Approx. 5.57 lbs

7.2 PCB Identification

The CD-9603 PCB exists in two variations that appear quite similar to each other. The Connector side of the PCB is identical in both versions. The only difference lies in a small component on the backside of the PCB. On the CD-200 version of the PCB, the component J2 is not included. Please see the pictures below for identification. The CD-9603 PCB has been designed to function for both the 12VDC and 224VDC card dispensers without variation.

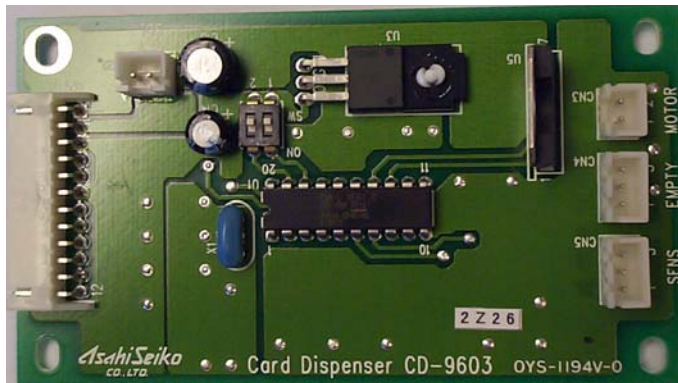
The Asahi Seiko part numbers for the two variations of the CD-9603 PCB are:

CD-200

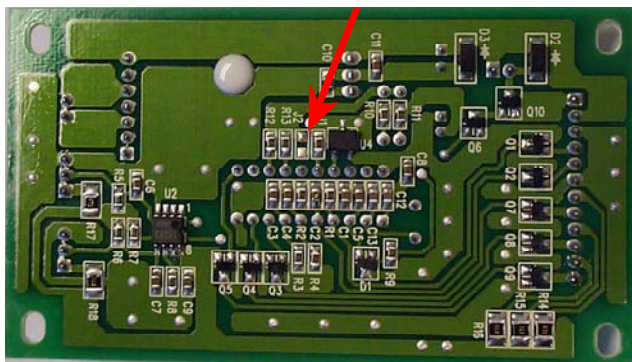
CMA-8011

CD-1000, CD-1100 & CD-1300

CMA-8014

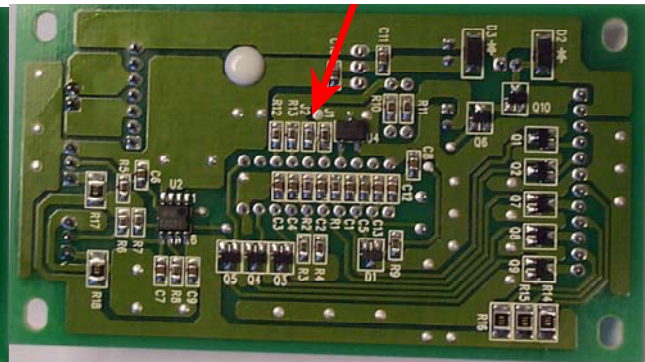


Connector Side of CD-9603 PCB (CMA-8011 & CMA-8014)



Reverse Side of CD-9603 (CMA-8011)

(J2 missing)



Reverse Side of CD-9603 (CMA-8014)

(J2 included)

7.3 Motor Specifications

7.3.1 12VDC Motor

Electrical Properties:

- Rated Voltage: 12VDC
- Rated Allowable Torque: 1.5kg-cm
- Rated Speed: 130±19rpm
- Rated Current: 450mA Max
- No Load Speed: 166±23rpm
- No Load Current: 120mA Max
- Insulation Resistance: More than 10MW when 500VDC is applied between uncharged metal division and charged terminals division
- Dielectric Strength: Shall withstand 500VAC applied between charging terminal and uncharged metal part for 1 minute
- Direction of revolution: CW, CCW (CCW seen from output shaft when applying positive power to anode)

Condition in Use:

- Operating Temperature: -10°C ~ +60°C
- Storage Temperature: -15°C ~ +65°C
- Operating Humidity: 20% ~ 85% RH
- Mounting Position: Output Shaft Horizontal

7.3.2 24VDC Motor

Electrical Properties:

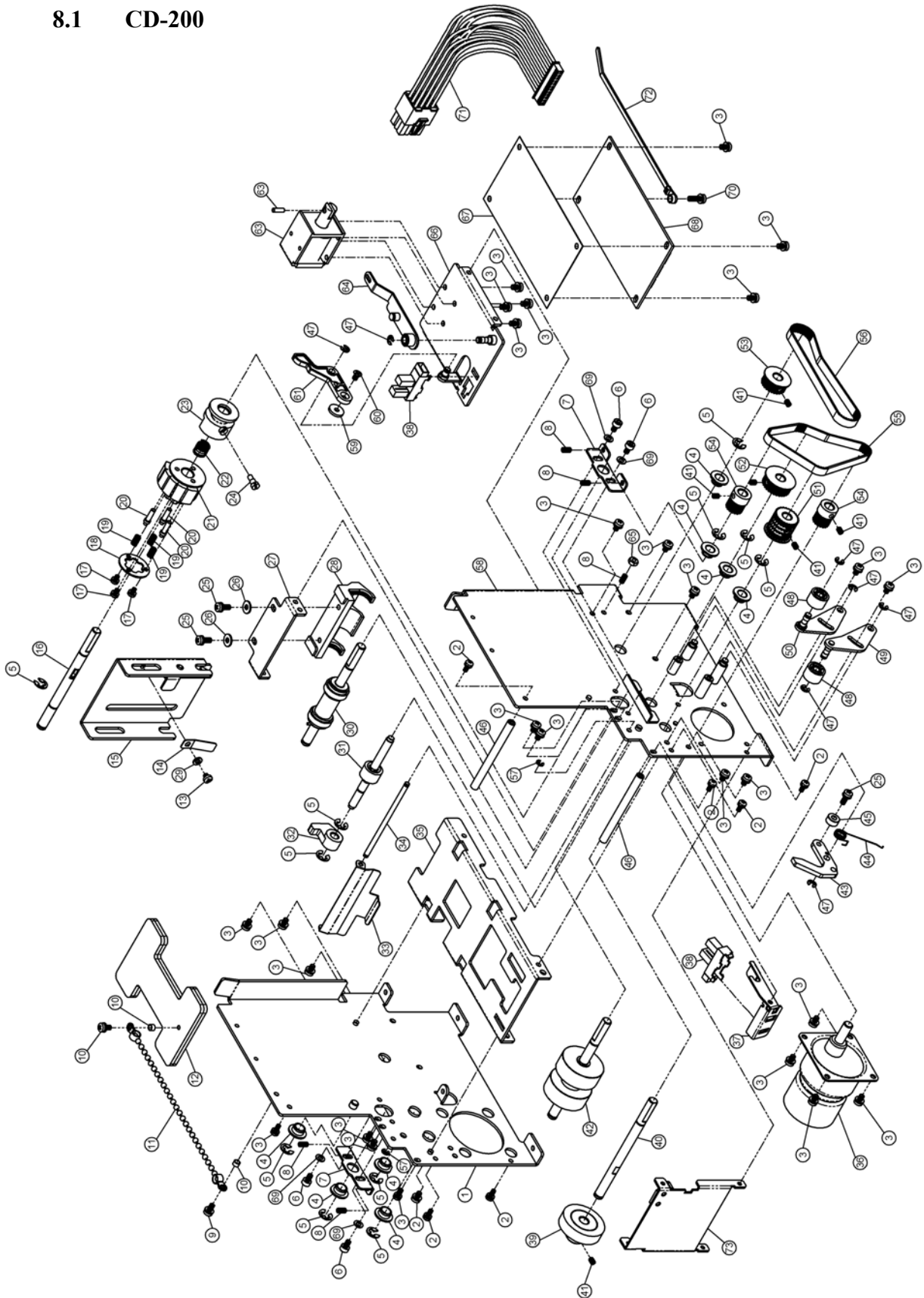
- Rated Voltage: 24VDC
- Rated Allowable Torque: 1.5kg-cm
- Rated Speed: 128±20rpm
- Rated Current: 190mA Max
- No Load Speed: 163±25rpm
- No Load Current: 60mA Max
- Insulation Resistance: More than 10MW when 500VDC is applied between uncharged metal division and charged terminals division
- Dielectric Strength: Shall withstand 600VAC applied between charging terminal and uncharged metal part for 1 minute
- Direction of revolution: CW, CCW (CCW seen from output shaft when applying positive power to anode)

Condition in Use:

- Operating Temperature: -10°C ~ +60°C
- Storage Temperature: -15°C ~ +65°C
- Operating Humidity: 20% ~ 85% RH
- Mounting Position: Output Shaft Horizontal

8.0 Exploded View Drawings & Parts Lists

8.1 CD-200

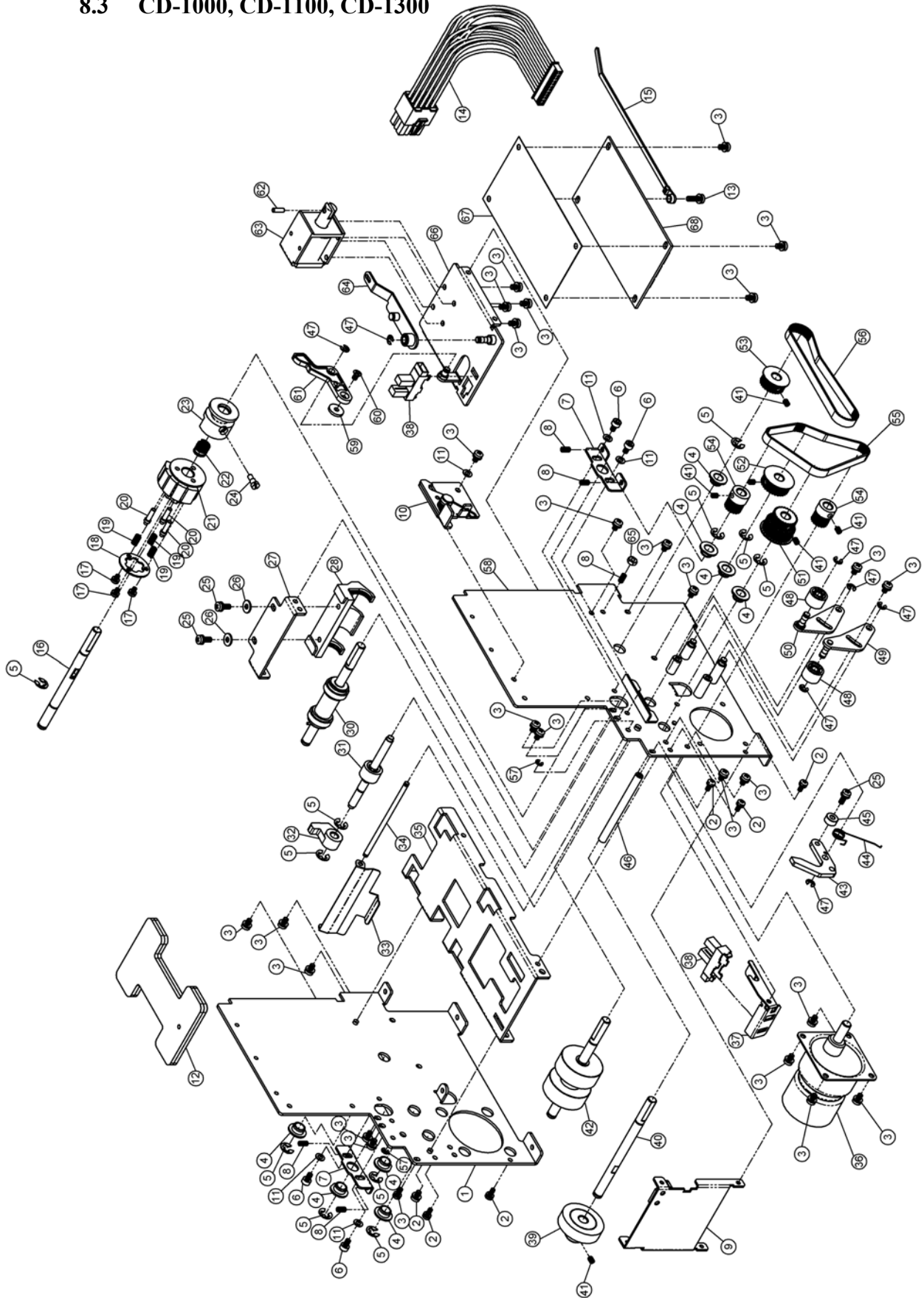


8.2 CD-200 Parts List

Item No.	Quantity	Part Number	Description
1	1	CMA-2002	SIDE PLATE (L) ASSY
2	8	80S-WS00-03	W SEMS (SMALL) 2.6x6
3	26	80S-WS00-04	W SEMS (SMALL) 3x5
4	8	CMA-3082	OILLESS #80 6x8x12x1x3.5
5	11	80R-ER00-07	E-RING 4.0
6	4	80B-CB00-01	CAP BOLT 3x5
7	2	CMA-3065	ADJUST (A)
8	5	80S-ST00-11	SET SCREW 3x6 DEPRESSION
9	2	80S-WS00-05	W SEMS (SMALL) 3x6
10	2	80C-CL00-04	COLLAR 3x4x2.5
11	1	CMA-6008	STAINLESS BALL CHAIN 3.2 L-130 CUP RING BOTH ENDS
12	1	CMA-2030	WEIGHT ASSY
13	1	80S-RH00-35	SCREW (+) 3x3
14	1	CMA-3006	LOCK PLATE SPRING
15	1	CMA-2003	STOPPER PLATE ASSY
16	1	CMA-3023	FEED ROLLER SHAFT
17	3	80S-RS00-01	SEMS 2.6x4
18	1	CMA-3026	SPRING PLATE
19	3	CMA-3036	CLUTCH SPRING
20	3	CMA-3025	CLUTCH PIN
21	1	CMA-3024-91	CLUTCH ROLLER
22	1	CMA-3037	RETURN SPRING
23	1	CMA-3028-90	DRIVE CAM
24	1	CMA-3029	DRIVE PIN
25	3	80S-WS00-06	W SEMS (SMALL) 3x8
26	2	80W-FW00-37	FLAT WASHER 3x8x0.8
27	1	CMA-3044	GUIDE BRACKET
28	1	CMA-3085	GUIDE (A)
29	1	80W-FW01-10	FLAT WASHER 3x6x0.8
30	1	CMA-2022	REVERSE ROLLER (A) ASSY
31	1	CMA-2025	NEW DISCHARGE ASSIST ROLLER SHAFT ASSY
32	1	CMA-3062	DISCHARGE ASSIST GUIDE
33	1	CMA-3005	SHUTTER
34	1	CMA-3063	SHUTTER GUIDE SHAFT
35	1	CMA-3003	BASE PLATE
36	1	ZAA-4051	MOTOR DME34S36G-236 DC24V
36	1	ZAA-4054	MOTOR DME34S36G-242 DC12V
37	1	CMA-3058	SENSOR BRACKET
38	2	CMA-6009	PHOTO INTERRUPTER <SHARP GP1S09C W/ HARNESS>
39	1	CMA-2015	NEW DISCHARGE ROLLER ASSY
40	1	CMA-3017	DISCHARGE ROLLER SHAFT
41	6	80S-ST00-09	SET SCREW 3x4 DEPRESSION
42	1	CMA-2021	FEED ROLLER ASSY SHAFT TYPE
43	1	CMA-3039	SHIELD LIGHT LEVER

Item No.	Quantity	Part Number	Description
44	1	CMA-3041	SENSOR SPRING
45	1	CMA-3049	SHIELD LEVER WEIGHT
46	2	CMA-3008	SIDE PLATE STATIONARY SHAFT
47	7	80R-ER00-04	E-RING 2.5
48	2	CMA-3076	TENSION ROLLER
49	1	CMA-2007	TENSION LEVER ASSY (A)
50	1	CMA-2008	TENSION LEVER ASSY (B)
51	1	CMA-3071	MXL PULLEY (E)
52	1	CMA-3073	MXL PULLEY (G)
53	1	CMA-3072	MXL PULLEY (F)
54	2	CMA-3051	MXL PULLEY (C)
55	1	CMA-6006	MXL BELT B87MXL6.4U
56	1	CMA-6007	MXL BELT B95MXL6.4U
57	2	80R-ER00-03	E-RING 2.0
58	1	CMA-2001	SIDE PLATE (R) ASSY
59	1	CMA-3069	SENSOR LEVER WEIGHT
60	1	80S-CS00-14	COUNTERSINK SCREW (+) 3x5
61	1	CMA-3068	EMPTY SENSOR LEVER
62	1	80P-SP00-07	SPRING PIN (STRAIGHT) 2.5x8
63	1	CMA-6002	SOLENOID DC24V
63	1	CMA-6002-10	SOLENOID DC12V
64	1	CMA-2005	CLUTCH LEVER ASSY
65	1	80N-HN00-09	NUT 3.0 (TYPE 1)
66	1	CMA-2006	SOLENOID BRACKET ASSY
67	1	CMA-3059	SHIELD PLATE
68	1	CMA-8011	PCB 9603 (CD-200)
69	3	80W-FW00-24	FLAT WASHER 3x6x0.5
70	1	80S-WS00-07	W SEMS (SMALL) 3x10
71	1	ECM-8003	HARNESS (2) FOR PCB
72	1	ZQA-8101	PAN-TY PLT1M-M (PANDUIT)
73	1	CMA-2029	SENSOR COVER ASSY

8.3 CD-1000, CD-1100, CD-1300



8.4 CD-1000 Parts List

Item No.	Quantity	Part Number	Description
1	1	CMC-2002	SIDE PLATE (L) ASSY
2	6	80S-WS00-03	W SEMS (SMALL) 2.6x6
3	27	80S-WS00-04	W SEMS (SMALL) 3x5
4	8	CMA-3082	OILLESS #80 6x8x12x1x3.5
5	11	80R-ER00-07	E-RING 4.0
6	4	80B-CB00-01	CAP BOLT 3x5
7	2	CMA-3065	ADJUST (A)
8	5	80S-ST00-11	SET SCREW 3x6 DEPRESSION
9	1	CMA-2029	SENSOR COVER ASSY
10	1	CMC-2005	CASSETTE LOCK BASE PLATE ASSY
11	5	80W-FW00-24	FLAT WASHER 3x6x0.5
12	1	CMA-2030	WEIGHT ASSY
13	1	80S-WS00-07	W SEMS (SMALL) 3x10
14	1	ECM-8003	HARNESS (2) FOR PCB
15	1	ZQA-8101	PAN-TY PLT1M-M (PANDUIT)
16	1	CMA-3023	FEED ROLLER SHAFT
17	3	80S-RS00-01	SEMS 2.6x4
18	1	CMA-3026	SPRING PLATE
19	3	CMA-3036	CLUTCH SPRING
20	3	CMA-3025	CLUTCH PIN
21	1	CMA-3024-91	CLUTCH ROLLER
22	1	CMA-3037	RETURN SPRING
23	1	CMA-3028-90	DRIVE CAM
24	1	CMA-3029	DRIVE PIN
25	3	80S-WS00-06	W SEMS (SMALL) 3x8
26	2	80W-FW00-37	FLAT WASHER 3x8x0.8
27	1	CMA-3044	GUIDE BRACKET
28	1	CMA-3085	GUIDE (A)
29	1	80W-FW01-10	FLAT WASHER 3x6x0.8
30	1	CMA-2022	REVERSE ROLLER (A) ASSY
31	1	CMA-2025	NEW DISCHARGE ASSIST ROLLER SHAFT ASSY
32	1	CMA-3062	DISCHARGE ASSIST GUIDE
33	1	CMA-3005	SHUTTER
34	1	CMA-3063	SHUTTER GUIDE SHAFT
35	1	CMC-3015	BASE PLATE
36	1	ZAA-4051	MOTOR DME34S36G-236 DC24V
36	1	ZAA-4054	MOTOR DME34S36G-242 DC12V
37	1	CMA-3058	SENSOR BRACKET
38	2	CMA-6009	PHOTO INTERRUPTER <SHARP GP1S09C W/ HARNESS>
39	1	CMA-2015	NEW DISCHARGE ROLLER ASSY
40	1	CMA-3017	DISCHARGE ROLLER SHAFT
41	6	80S-ST00-09	SET SCREW 3x4 DEPRESSION
42	1	CMA-2021	FEED ROLLER ASSY SHAFT TYPE
43	1	CMA-3039	SHIELD LIGHT LEVER
44	1	CMA-3061	SENSOR SPRING

Item No.	Quantity	Part Number	Description
45	1	CMA-3081	SHIELD LEVER WEIGHT
46	2	CMA-3008	SIDE PLATE STATIONARY SHAFT
47	7	80R-ER00-04	E-RING 2.5
48	2	CMA-3076	TENSION ROLLER
49	1	CMA-2007	TENSION LEVER ASSY (A)
50	1	CMA-2008	TENSION LEVER ASSY (B)
51	1	CMB-3007	MXL PULLEY (A)
52	1	CMA-3073	MXL PULLEY (G)
53	1	CMA-3072	MXL PULLEY (F)
54	2	CMA-3051	MXL PULLEY (C)
55	1	CMC-6001	MXL BELT B88MXL6.4U
56	1	CMA-6007	MXL BELT B95MXL6.4U
57	2	80R-ER00-03	E-RING 2.0
58	1	CMC-2001	SIDE PLATE (R) ASSY
59	1	CMA-3069	SENSOR LEVER WEIGHT
60	1	80S-CS00-14	COUNTERSINK SCREW (+) 3x5
61	1	CMA-3068	EMPTY SENSOR LEVER
62	1	80P-SP00-07	SPRING PIN (STRAIGHT) 2.5x8
63	1	CMA-6002	SOLENOID DC24V
63	1	CMA-6002-10	SOLENOID DC12V
64	1	CMA-2005	CLUTCH LEVER ASSY
65	1	80N-HN00-09	NUT 3.0 (TYPE 1)
66	1	CMA-2006	SOLENOID BRACKET ASSY
67	1	CMA-3059	SHIELD PLATE
68	1	CMA-8014	PCB 9603 (CD-1000)

8.5 CD-1100 Parts List

Item No.	Quantity	Part Number	Description
1	1	CMC-2002	SIDE PLATE (L) ASSY
2	6	80S-WS00-03	W SEMS (SMALL) 2.6x6
3	27	80S-WS00-04	W SEMS (SMALL) 3x5
4	8	CMA-3082	OILLESS #80 6x8x12x1x3.5
5	11	80R-ER00-07	E-RING 4.0
6	4	80B-CB00-01	CAP BOLT 3x5
7	2	CMA-3065	ADJUST (A)
8	5	80S-ST00-11	SET SCREW 3x6 DEPRESSION
9	1	CMA-2029	SENSOR COVER ASSY
10	1	CMC-2005	CASSETTE LOCK BASE PLATE ASSY
11	5	80W-FW00-24	FLAT WASHER 3x6x0.5
12	1	CMC-3014-90	WEIGHT ASSY
13	1	80S-WS00-07	W SEMS (SMALL) 3x10
14	1	ECM-8003	HARNESS (2) FOR PCB
15	1	ZQA-8101	PAN-TY PLT1M-M (PANDUIT)
16	1	CMA-3023	FEED ROLLER SHAFT
17	3	80S-RS00-01	SEMS 2.6x4
18	1	CMA-3026	SPRING PLATE
19	3	CMA-3036	CLUTCH SPRING
20	3	CMA-3025	CLUTCH PIN
21	1	CMA-3024-91	CLUTCH ROLLER
22	1	CMA-3037	RETURN SPRING
23	1	CMA-3028-90	DRIVE CAM
24	1	CMA-3029	DRIVE PIN
25	3	80S-WS00-06	W SEMS (SMALL) 3x8
26	2	80W-FW00-37	FLAT WASHER 3x8x0.8
27	1	CMA-3044	GUIDE BRACKET
28	1	CMA-3085	GUIDE (A)
29	1	80W-FW01-10	FLAT WASHER 3x6x0.8
30	1	CMA-2022	REVERSE ROLLER (A) ASSY
31	1	CMA-2025	NEW DISCHARGE ASSIST ROLLER SHAFT ASSY
32	1	CMA-3062	DISCHARGE ASSIST GUIDE
33	1	CMA-3005	SHUTTER
34	1	CMA-3063	SHUTTER GUIDE SHAFT
35	1	CMC-3003	BASE PLATE
36	1	ZAA-4051	MOTOR DME34S36G-236 DC24V
36	1	ZAA-4054	MOTOR DME34S36G-242 DC12V
37	1	CMA-3058	SENSOR BRACKET
38	2	CMA-6009	PHOTO INTERRUPTER <SHARP GP1S09C W/ HARNESS>
39	1	CMA-2015	NEW DISCHARGE ROLLER ASSY
40	1	CMA-3017	DISCHARGE ROLLER SHAFT
41	6	80S-ST00-09	SET SCREW 3x4 DEPRESSION
42	1	CMA-2021	FEED ROLLER ASSY SHAFT TYPE
43	1	CMA-3039	SHIELD LIGHT LEVER
44	1	CMA-3061	SENSOR SPRING

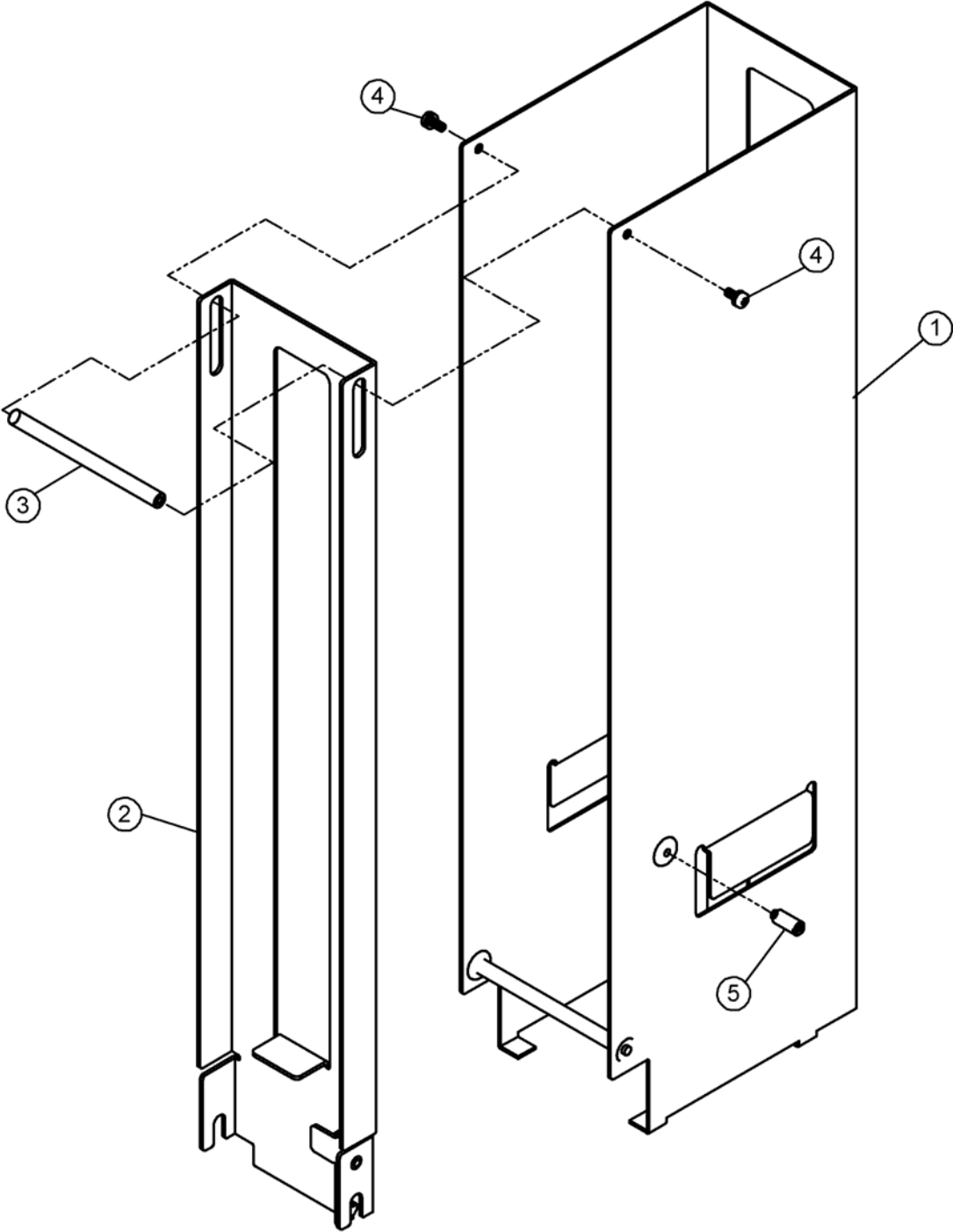
Item No.	Quantity	Part Number	Description
45	1	CMA-3081	SHIELD LEVER WEIGHT
46	2	CMA-3008	SIDE PLATE STATIONARY SHAFT
47	7	80R-ER00-04	E-RING 2.5
48	2	CMA-3076	TENSION ROLLER
49	1	CMA-2007	TENSION LEVER ASSY (A)
50	1	CMA-2008	TENSION LEVER ASSY (B)
51	1	CMB-3007	MXL PULLEY (A)
52	1	CMA-3073	MXL PULLEY (G)
53	1	CMA-3072	MXL PULLEY (F)
54	2	CMA-3051	MXL PULLEY (C)
55	1	CMC-6001	MXL BELT B88MXL6.4U
56	1	CMA-6007	MXL BELT B95MXL6.4U
57	2	80R-ER00-03	E-RING 2.0
58	1	CMC-2001	SIDE PLATE (R) ASSY
59	1	CMA-3069	SENSOR LEVER WEIGHT
60	1	80S-CS00-14	COUNTERSINK SCREW (+) 3x5
61	1	CMA-3068	EMPTY SENSOR LEVER
62	1	80P-SP00-07	SPRING PIN (STRAIGHT) 2.5x8
63	1	CMA-6002	SOLENOID DC24V
63	1	CMA-6002-10	SOLENOID DC12V
64	1	CMA-2005	CLUTCH LEVER ASSY
65	1	80N-HN00-09	NUT 3.0 (TYPE 1)
66	1	CMA-2006	SOLENOID BRACKET ASSY
67	1	CMA-3059	SHIELD PLATE
68	1	CMA-8014	PCB 9603 (CD-1000)

8.6 CD-1300 Parts List

Item No.	Quantity	Part Number	Description
1	1	CMG-2902	SIDE PLATE (L) ASSY
2	6	80S-WS00-03	W SEMS (SMALL) 2.6x6
3	27	80S-WS00-04	W SEMS (SMALL) 3x5
4	8	CMA-3082	OILLESS #80 6x8x12x1x3.5
5	11	80R-ER00-07	E-RING 4.0
6	4	80B-CB00-01	CAP BOLT 3x5
7	2	CMA-3065	ADJUST (A)
8	5	80S-ST00-11	SET SCREW 3x6 DEPRESSION
9	1	CMG-2001	SENSOR COVER ASSY
10	1	CMC-2005	CASSETTE LOCK BASE PLATE ASSY
11	5	80W-FW00-24	FLAT WASHER 3x6x0.5
12	1	CMG-3012-90	WEIGHT ASSY
13	1	80S-WS00-07	W SEMS (SMALL) 3x10
14	1	ECM-8003	HARNESS (2) FOR PCB
15	1	ZQA-8101	PAN-TY PLT1M-M (PANDUIT)
16	1	CMG-3010	FEED ROLLER SHAFT
17	3	80S-RS00-01	SEMS 2.6x4
18	1	CMA-3026	SPRING PLATE
19	3	CMA-3036	CLUTCH SPRING
20	3	CMA-3025	CLUTCH PIN
21	1	CMA-3024-91	CLUTCH ROLLER
22	1	CMA-3037	RETURN SPRING
23	1	CMA-3028	DRIVE CAM
24	1	CMA-3029	DRIVE PIN
25	3	80S-WS00-06	W SEMS (SMALL) 3x8
26	2	80W-FW00-37	FLAT WASHER 3x8x0.8
27	1	CMG-3011	GUIDE BRACKET
28	1	CMA-3085	GUIDE (A)
29	1	80W-FW01-10	FLAT WASHER 3x6x0.8
30	1	TBD	REVERSE ROLLER (A) ASSY
31	1	TBD	NEW DISCHARGE ASSIST ROLLER SHAFT ASSY
32	1	CMA-3062	DISCHARGE ASSIST GUIDE
33	1	CMG-3004	SHUTTER
34	1	CMG-3013	SHUTTER GUIDE SHAFT
35	1	CMG-3003	BASE PLATE
36	1	ZAA-4051	MOTOR DME34S36G-236 DC24V
36	1	ZAA-4054	MOTOR DME34S36G-242 DC12V
37	1	CMA-3058	SENSOR BRACKET
38	2	CMA-6009	PHOTO INTERRUPTER <SHARP GP1S09C W/ HARNESS>
39	1	CMA-2015	NEW DISCHARGE ROLLER ASSY
40	1	CMG-3008	DISCHARGE ROLLER SHAFT
41	6	80S-ST00-09	SET SCREW 3x4 DEPRESSION
42	1	CMG-2012	FEED ROLLER ASSY SHAFT TYPE
43	1	CMA-3039	SHIELD LIGHT LEVER
44	1	CMA-3061	SENSOR SPRING

Item No.	Quantity	Part Number	Description
45	1	CMA-3081	SHIELD LEVER WEIGHT
46	2	CMG-3005	SIDE PLATE STATIONARY SHAFT
47	7	80R-ER00-04	E-RING 2.5
48	2	CMA-3076	TENSION ROLLER
49	1	CMA-2007	TENSION LEVER ASSY (A)
50	1	CMA-2008	TENSION LEVER ASSY (B)
51	1	CMB-3007	MXL PULLEY (A)
52	1	CMA-3073	MXL PULLEY (G)
53	1	CMA-3072	MXL PULLEY (F)
54	2	CMA-3051	MXL PULLEY (C)
55	1	CMC-6001	MXL BELT B88MXL6.4U
56	1	CMA-6007	MXL BELT B95MXL6.4U
57	2	80R-ER00-03	E-RING 2.0
58	1	CMG-2901	SIDE PLATE (R) ASSY
59	1	CMA-3069	SENSOR LEVER WEIGHT
60	1	80S-CS00-14	COUNTERSINK SCREW (+) 3x5
61	1	CMA-3068	EMPTY SENSOR LEVER
62	1	80P-SP00-07	SPRING PIN (STRAIGHT) 2.5x8
63	1	CMA-6002	SOLENOID DC24V
63	1	CMA-6002-10	SOLENOID DC12V
64	1	CMA-2005	CLUTCH LEVER ASSY
65	1	80N-HN00-09	NUT 3.0 (TYPE 1)
66	1	CMG-2904	SOLENOID BRACKET ASSY
67	1	CMA-3059	SHIELD PLATE
68	1	CMA-8014	PCB 9603 (CD-1000)

8.7 CD-1000, CD-1300 Cassette



8.8 CD-1000 Cassette Parts List

CD-1000-445 Cassette Part Number (CMC-3016-90)

CD-1000-445			
Item No.	Quantity	Part Number	Description
1	1	CMB-2020	CASSETTE (C)
2	1	CMB-2021	CASSETTE (D)
3	1	CMC-3018	CASSETTE SUPPORT SHAFT (A)
4	2	80S-WS00-03	W SEMS (SMALL) 2.6x6
5	1	CMC-3013	LOCK SCREW

CD-1000-340 Cassette Part Number (CMC-3089-91)

CD-1000-340			
Item No.	Quantity	Part Number	Description
1	1	CMB-2022	CASSETTE (W)
2	1	CMB-2023	CASSETTE (X)
3	1	CMC-3018	CASSETTE SUPPORT SHAFT (A)
4	2	80S-WS00-03	W SEMS (SMALL) 2.6x6
5	1	CMC-3013	LOCK SCREW

CD-1000-230 Cassette Part Number (CMC-3020-90)

CD-1000-230			
Item No.	Quantity	Part Number	Description
1	1	TBD	CASSETTE (E)
2	1	TBD	CASSETTE (F)
3	1	CMC-3018	CASSETTE SUPPORT SHAFT (A)
4	2	80S-WS00-03	W SEMS (SMALL) 2.6x6
5	1	CMC-3013	LOCK SCREW

CD-1300 Cassette Parts List

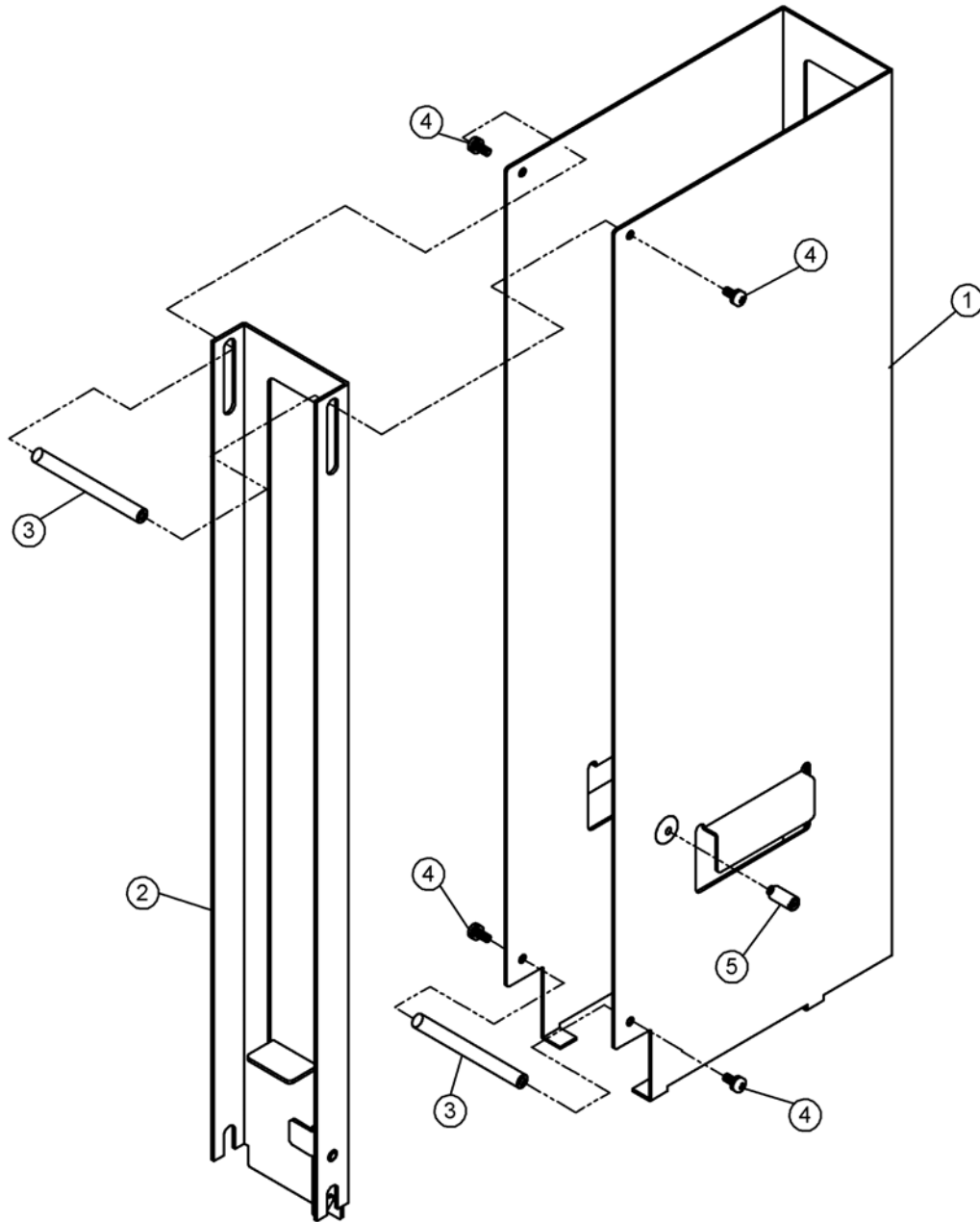
CD-1300-445 Cassette Part Number (CMG-2911)

CD-1300-445			
Item No.	Quantity	Part Number	Description
1	1	CMG-2023	CASSETTE (A)
2	1	CMG-2022	CASSETTE (B)
3	1	CMG-3017	CASSETTE SUPPORT SHAFT (A)
4	2	80S-WS00-03	W SEMS (SMALL) 2.6x6
5	1	CMC-3013	LOCK SCREW

CD-1300-340 Cassette Part Number (CMG-2002)

CD-1300-340			
Item No.	Quantity	Part Number	Description
1	1	CMG-2024	CASSETTE (C)
2	1	TBD	CASSETTE (D)
3	1	CMG-3017	CASSETTE SUPPORT SHAFT (A)
4	2	80S-WS00-03	W SEMS (SMALL) 2.6x6
5	1	CMC-3013	LOCK SCREW

8.9 CD-1100 Cassette & Parts List

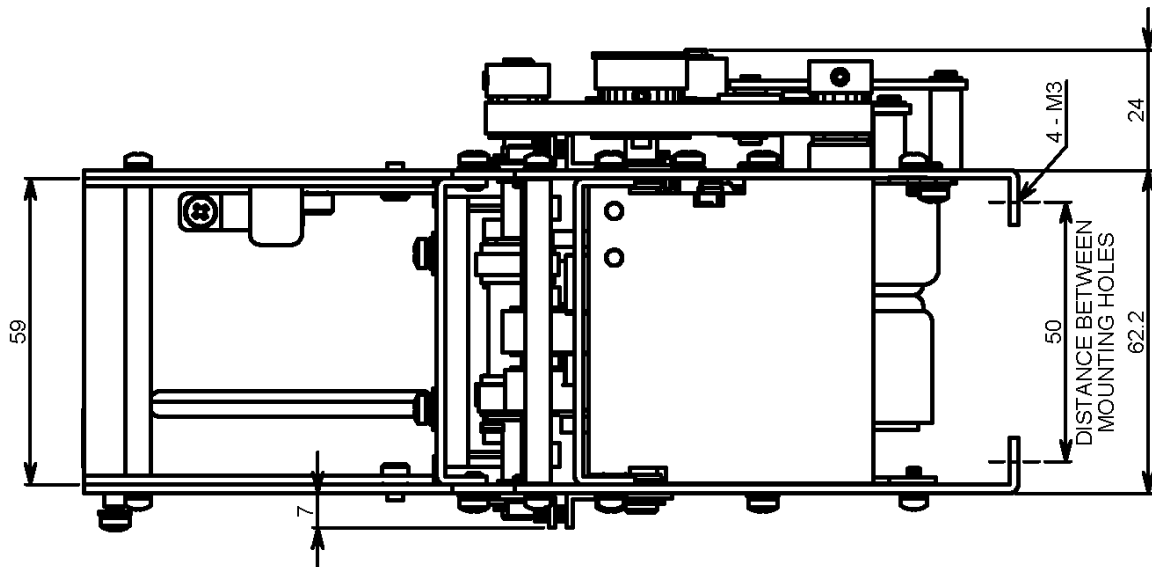
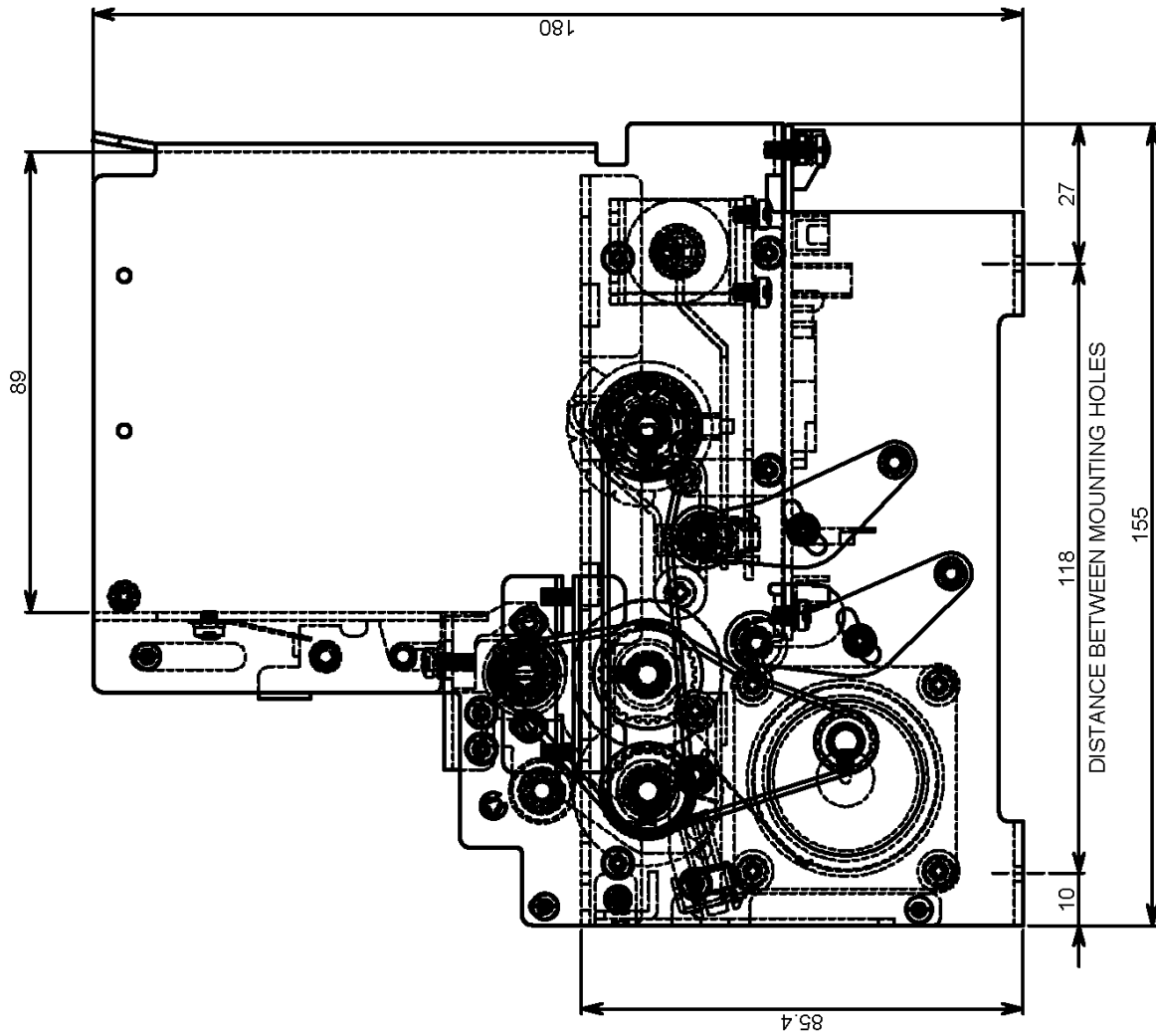


CD-1100-445 Cassette Part Number (CMC-3008-90)

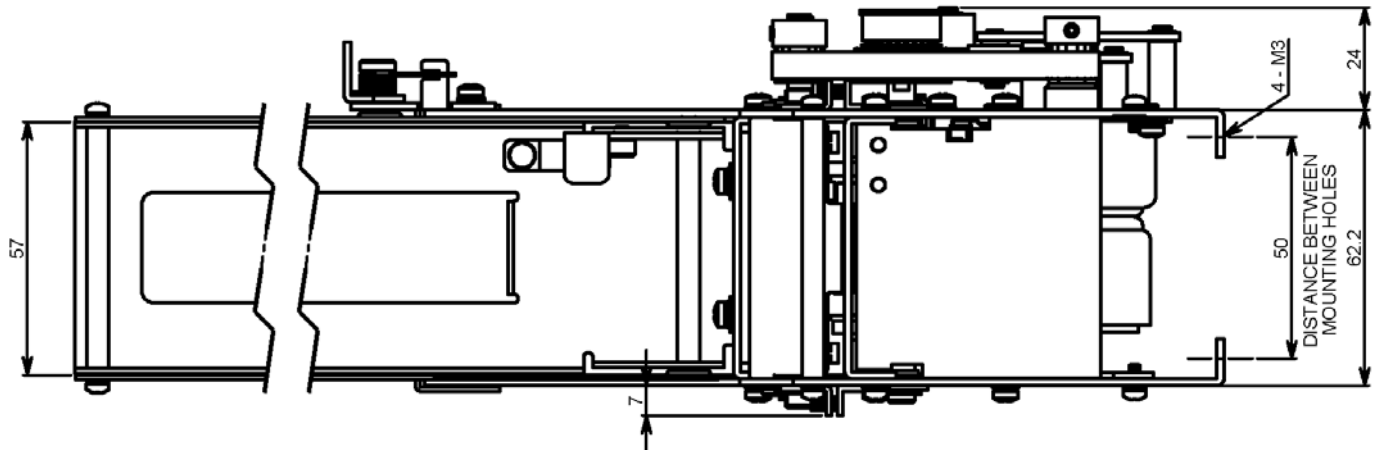
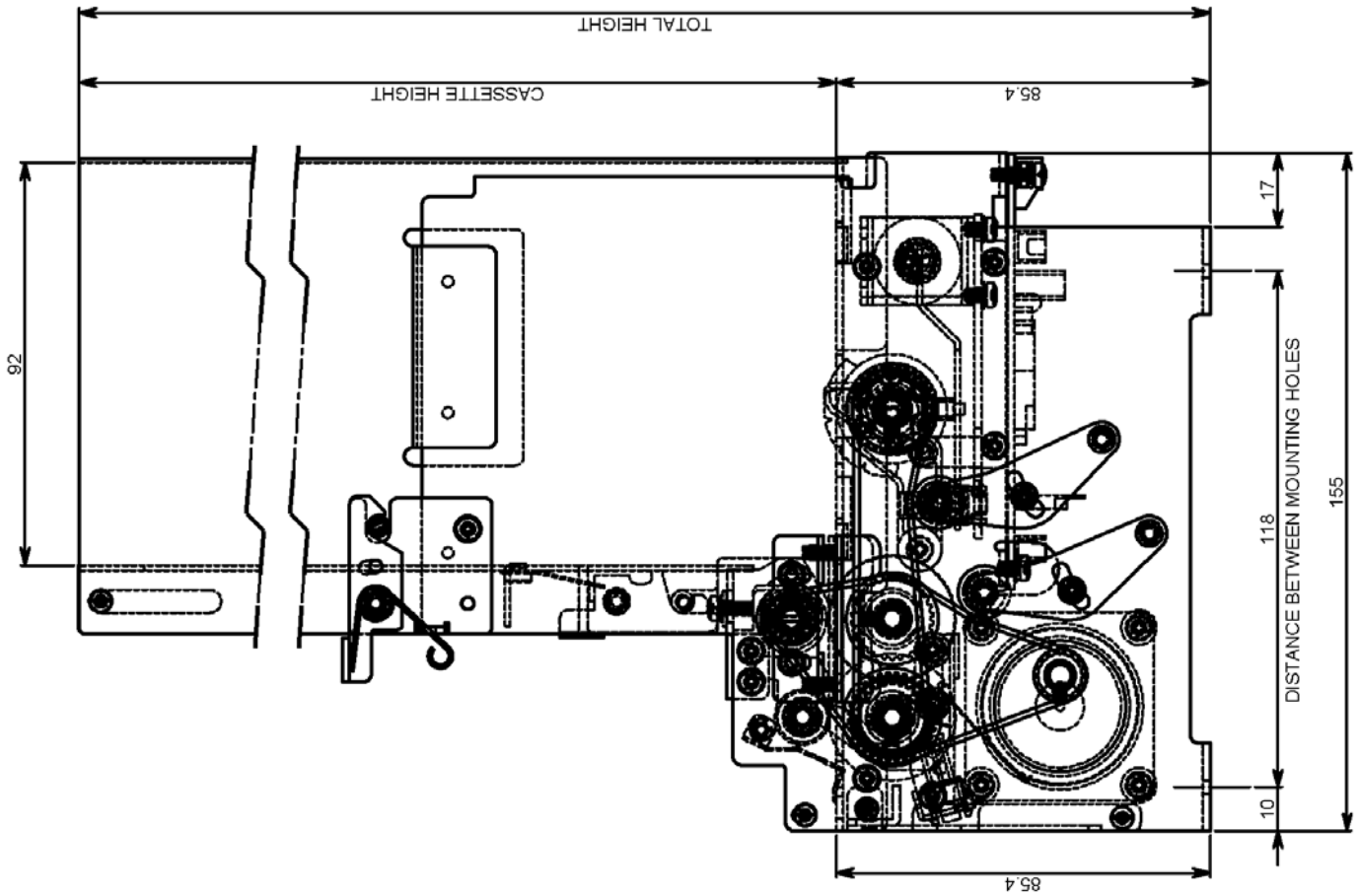
CD-1100-445			
Item No.	Quantity	Part Number	Description
1	1	CMC-3008	CASSETTE (A)
2	1	CMC-2022	CASSETTE (B)
3	2	CMC-3012	CASSETTE SUPPORT SHAFT
4	4	80S-WS00-03	W SEMS (SMALL) 2.6x6
5	1	CMC-3013	LOCK SCREW

9.0 External Dimensions

9.1 CD-200

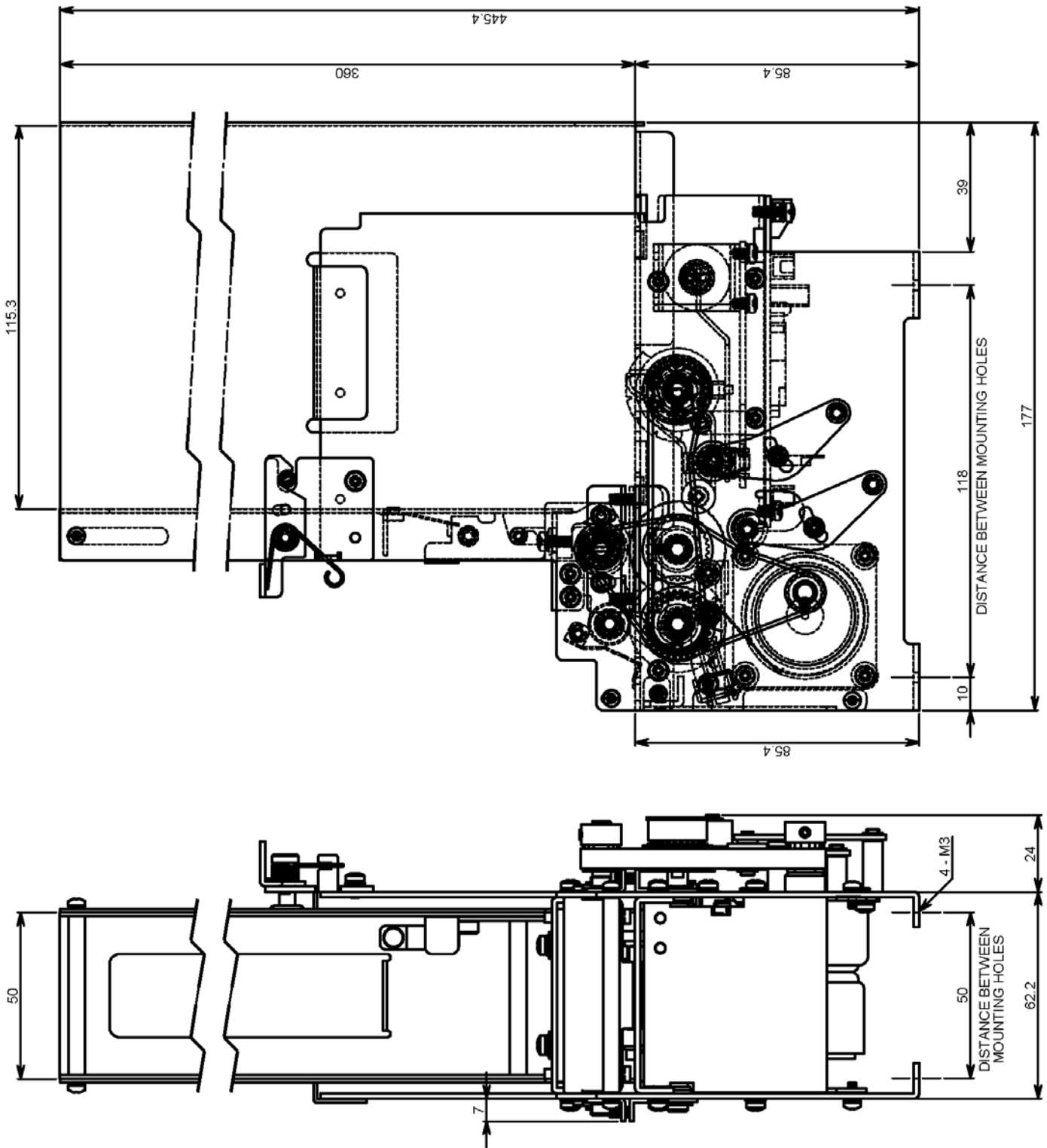


9.2 CD-1000

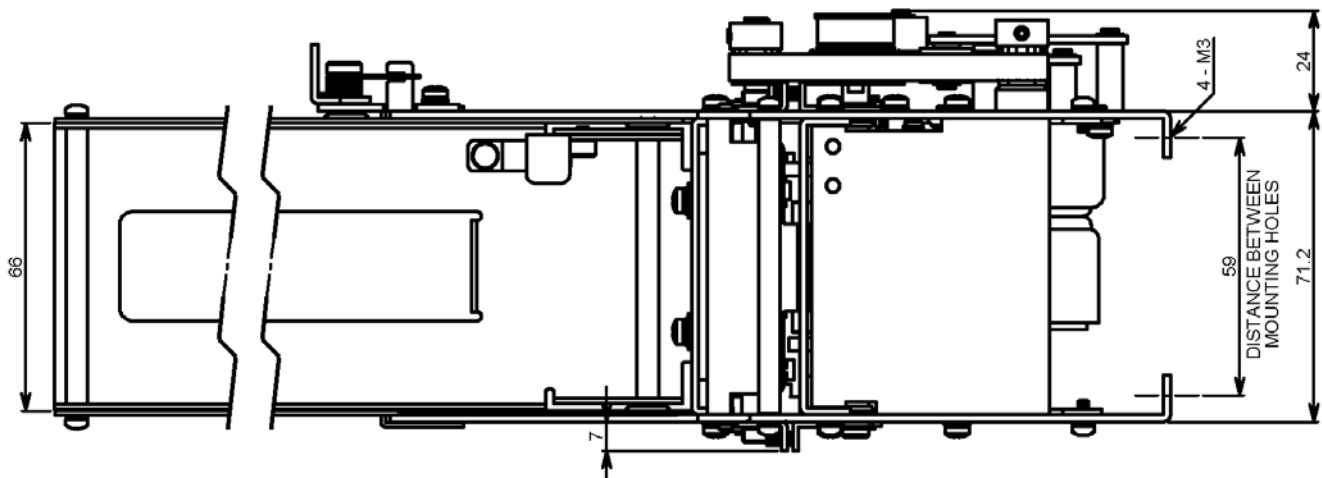
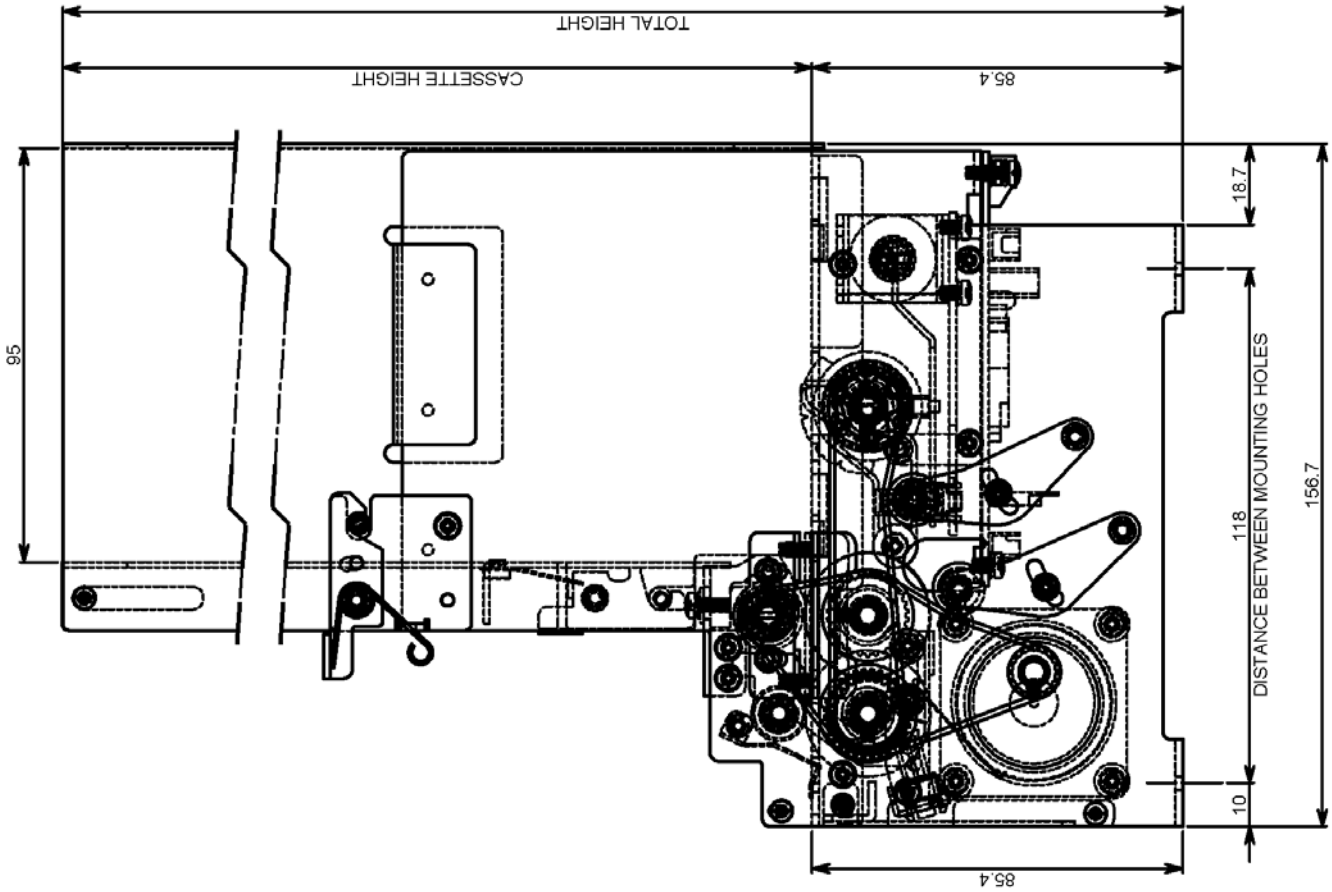


	TOTAL HEIGHT	CASSETTE HEIGHT
CD-1000-445	445.4	360
CD-1000-340	340	254.6
CD-1000-230	230	144.6

9.3 CD-1100



9.4 CD-1300



	TOTAL HEIGHT	CASSETTE HEIGHT
CD-1300-445	445.4	360
CD-1300-340	340	254.6