

FRONTLOAD BILL VALIDATOR

Operation and Service Manual

PART 2

TESTING AND REPAIR

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FRONTLOAD TESTING

CashCode has developed a "Service Stand" to diagnose and extensively test the FrontLoad as a whole, or any subassembly, to ensure it meets with CashCode's specifications. It is highly recommended that all tests are carried out using the CashCode Service Stand.

CASHCODE SERVICE STAND

For a more detailed description of the CashCode Service Stand, you may refer to the manual supplied with the Service Stand.

The CashCode Service Stand operates with a Personal Computer (PC), using Windows 98 or XP, but with an additional PC card. The CashCode Service Stand consists of the base module and a set of individual testing modules. Each testing module is designed to test one or more devices (ie: the FrontLoad bill validator), and subassemblies or modules (ie: the validating head, Sense-a-Click™ sensor paks, etc.).

Base module P1432.0



Individual Testing modules.



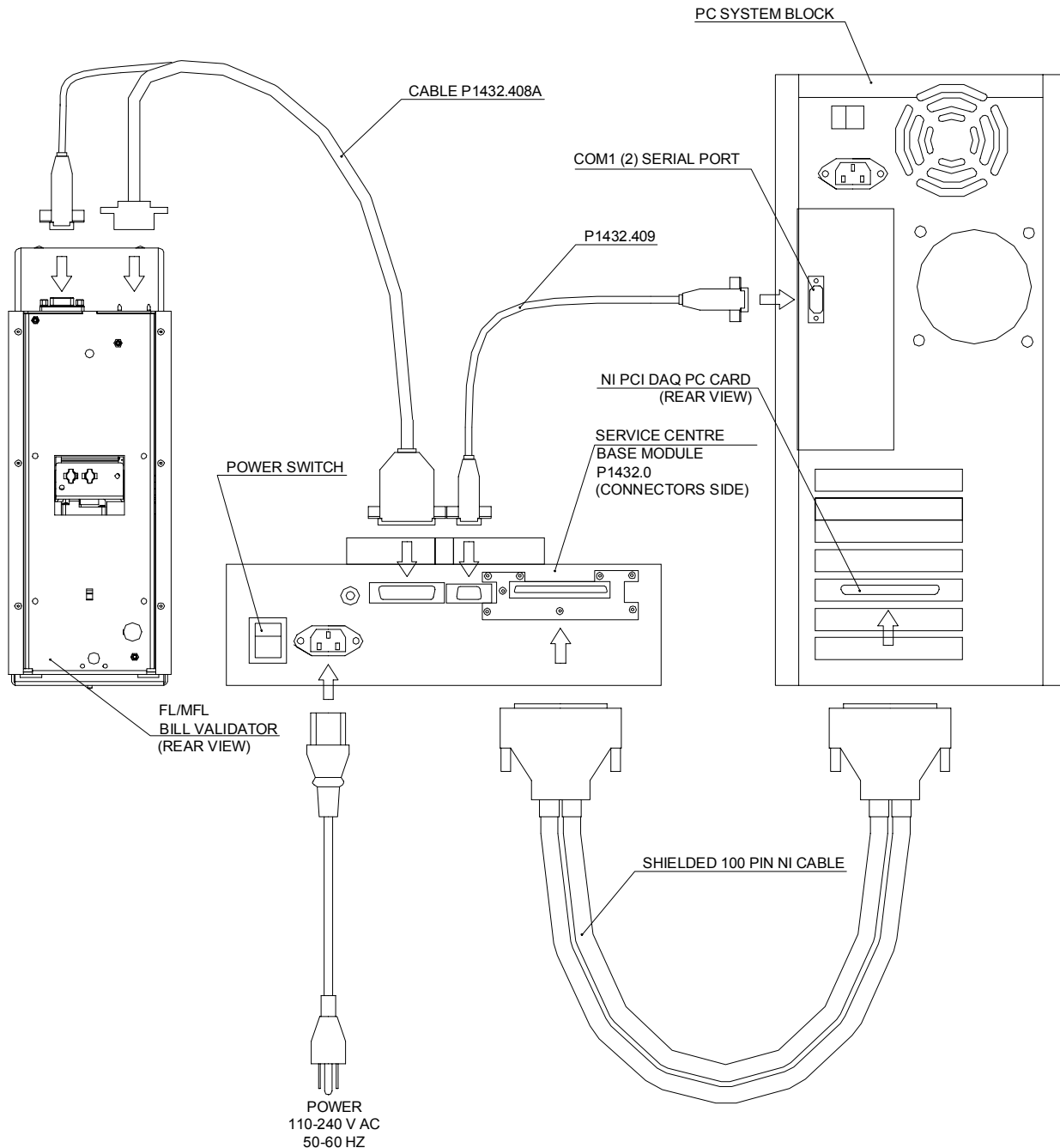
National Instruments Multi Input/Output Data Acquisition Card (PCI).



FRONTLOADL/MULTI-WIDTH FRONTLOAD BILL VALIDATOR DIAGNOSTICS USING THE CASHCODE SERVICE STAND

Step 1

Connect the FrontLoad bill validator to the Service Stand base module as shown below. Switch 2.4 must be set to “service” mode (refer to bill validator users guide). For FrontLoad bill validators having one interface connector, one cable should be left unconnected.



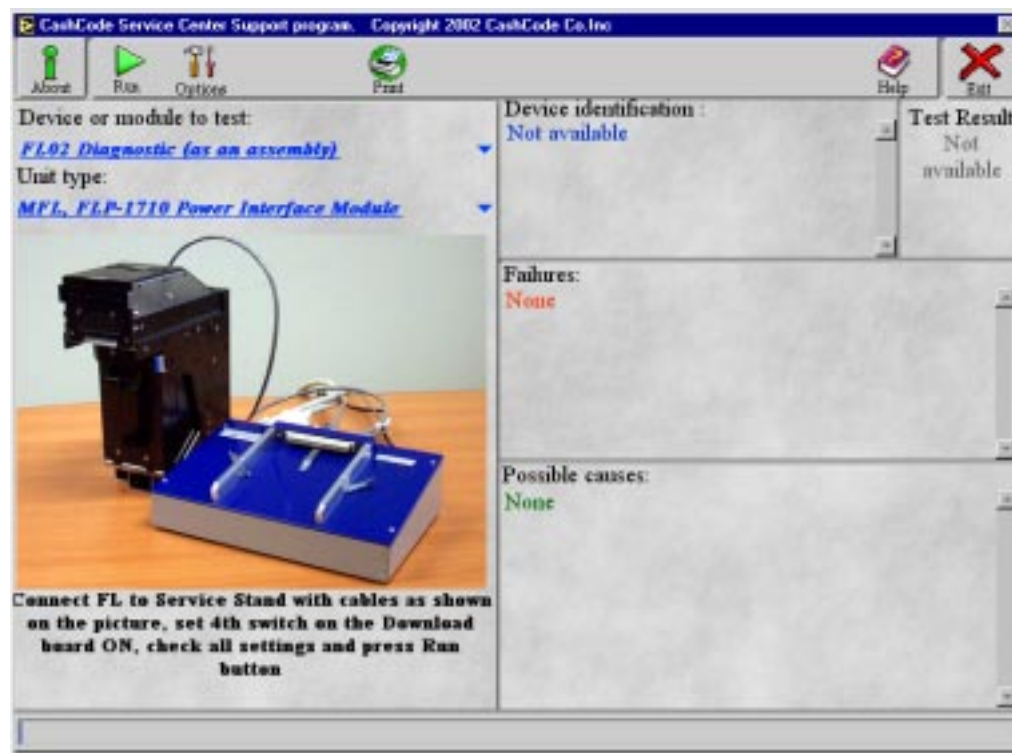
Step 2

On PC, start by clicking on the icon “CashCode Service Centre Support Software”.

- Under “Device or module to test:”, select “FL02 Diagnostics (as an assembly)”.
- Under “Unit type:”, select FrontLoad (FL) or Multi-width FrontLoad (MFL), and an appropriate power interface module.

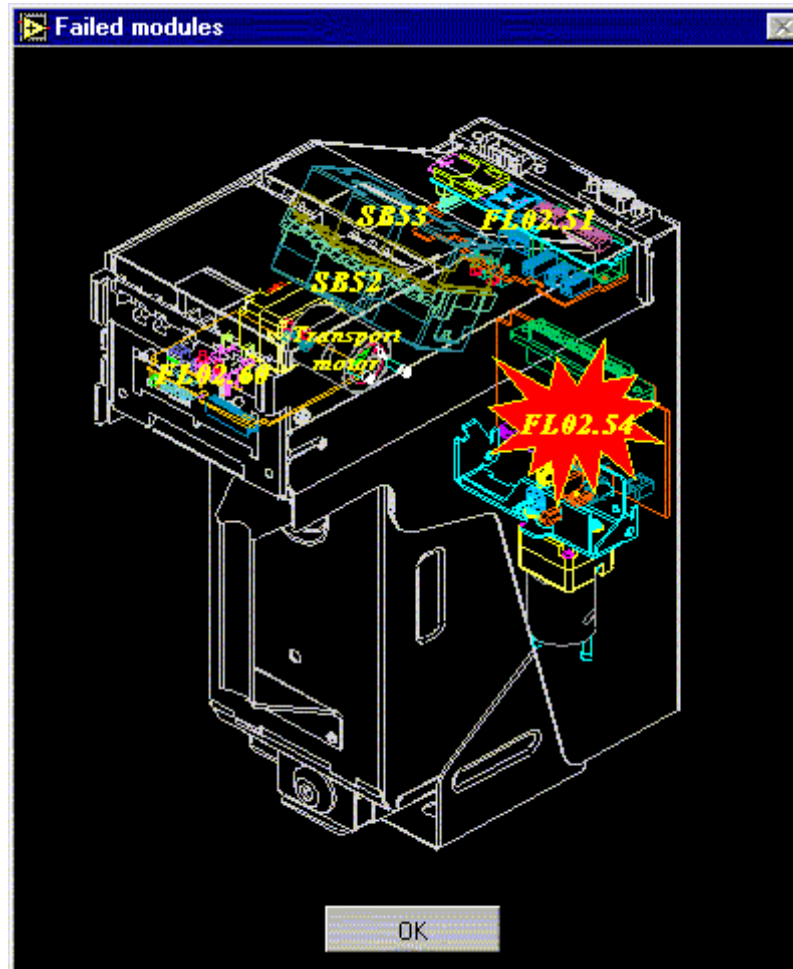
Step 3

- Click the “Run” button on the toolbar.
- Wait for test to be completed.
- Review the test results.



Actual screen shot from computer using CashCode Service Stand.

The “Failures” and “Possible causes” parts of the screen should help identify any defective module and show possible reasons for failure. Click on the “Show Picture” button for an x-ray view of the FrontLoad device, which highlights defective modules. (See picture on the next page)



X-ray view of FrontLoad device

Next, extract the defective module and proceed to module/board testing. Please refer to detailed testing procedures at the end of each section of this manual.

FINAL TESTS OF FRONTLOAD BILL VALIDATOR

A final test should be performed after completing any repairs to the bill validator. It is strongly recommended to perform all the testing procedures described below. The final test consists of the following procedures:

- Functional Test (FrontLoadL/Multi-width FrontLoad diagnostics, page. 4)
- High Temperature Test
- Currency Validation/Acceptance (Money) Test

Any FrontLoad bill validator that passes these tests is understood to have met CashCode's specifications. It is strictly recommended that units serviced under CashCode's warranty period have pass these tests.

High Temperature Test

The high temperature test is performed after the functional test. Here the functional test is repeated at specific intervals with the test FrontLoad/Multi-width FrontLoad placed in a high temperature chamber. For this test it is necessary to have an oven with temperature controls ranging from +50C to -2C. The test is continued for a period of 8 hours.

Step 1

Connect the Service Stand base module and PC, as explained in “FrontLoad/Multi-width FrontLoad bill Validator diagnostics with Service Stand”.

Step 2

Place the FrontLoad bill validator in the oven, route the interface cables and connect to the bill validator. The temperature in the oven should not exceed +30C in order to avoid thermal shock. Close the oven and turn the heat mode to +50C.

Step 3

Power on the Service Stand. Click on the icon “CashCode Service Centre Support Software”.

- Under “Device or module to test:” select “Validator thermal test”.
- Under “Unit type:” select FrontLoad or Multi-width FrontLoad, and an appropriate power interface module.

Step 4

- Click the “Run” button on the toolbar.
- Testing must continue for 8 hours uninterrupted. Check on status every 20 or 30 minutes.
- Review test results or failure description.

Currency Validation/Acceptance (Money) Test

Money test checks verify validation/acceptance capabilities of the bill validator.

Required for testing:

- A set of 6 “street grade” bills of each denomination or style according to the configuration of the FrontLoad bill validator being tested. Please note: there may be more than one type of bill for any given denomination.

Step 1

Connect the FrontLoad bill validator to the Service Stand base module, as explained in the “FrontLoad/Multi-width FrontLoad bill validator diagnostics with Service Stand” section. Switch 2.1 must be set to “4-way”, and switch 2.4 must be set to “validation” mode. (Please refer to the bill

Step 2

Start by clicking on the icon “CashCode Service Centre Support Software”.

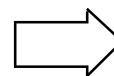
- Under “Device or module to test:”, select “Money test”.
- Under “Unit type:”, select an appropriate interface module.
- Click on the “Run” button on the toolbar.
- Turn on the required communication protocol, in order to launch the test application.
- Enable the bill validator by “polling”. Please refer to the “help” option for further details.

Step 3

Insert the bills one by one in the first orientation, as suggested by the picture below.



Insertion Direction



This side UP

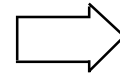
If any bill is rejected, it must be inserted a second time before inserting the next bill. If it is rejected for the second time, it indicates failure.

Step 4

Collect the bills from the cassette. Insert them in the second orientation, as suggested by the picture below.



Insertion Direction



This side UP

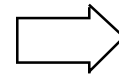
If any bill is rejected, it must be inserted a second time before inserting the next bill. If it is rejected for the second time, it indicates failure.

Step 5

Repeat step 4 in the third orientation, as suggested by the picture below.



Insertion Direction



This side UP

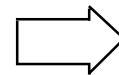
If any bill is rejected, it must be inserted a second time before inserting the next bill. If it is rejected for the second time, it indicates failure.

Step 6

Repeat step 4 in the fourth orientation, as suggested by the picture below.



Insertion Direction



This side UP

If any bill is rejected, it must be inserted a second time before inserting the next bill. If it is rejected for the second time, it indicates failure.

Notes:

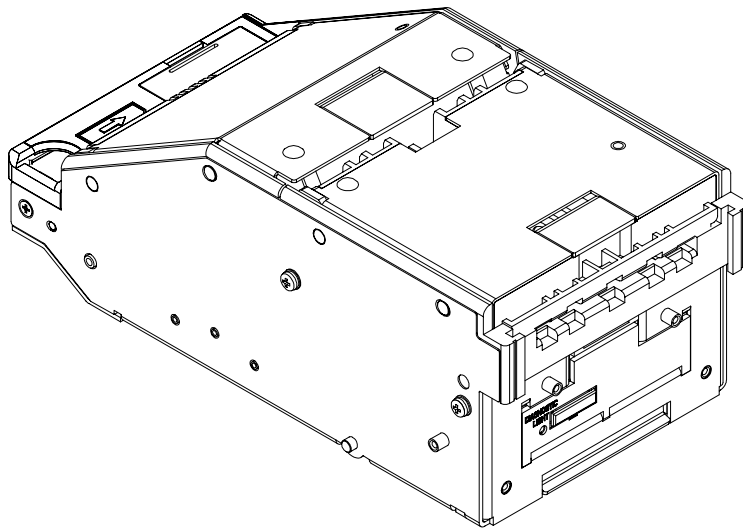
A Canadian five dollar bill is shown in the preceding pages in order to illustrate the money test.

“Street grade” bills are those which have been in use for some time but without significant wear and tear. There must not be any perforations or cut corners.

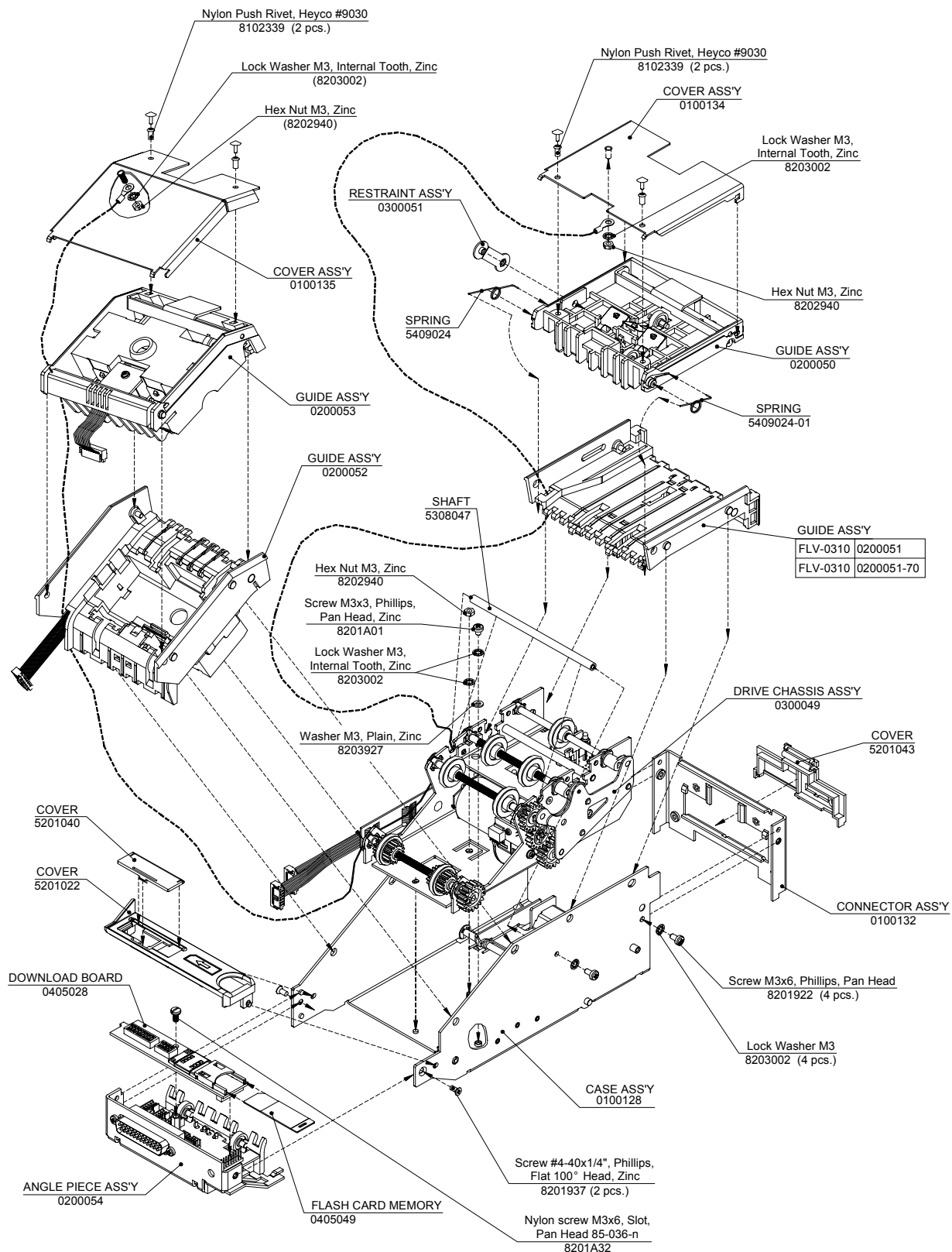
It is likely to have more than one style (old and new) for a denomination. The bill validator may have been set to accept or to not accept a certain bill style. Please refer to specific users guide/software description.

VALIDATING HEAD

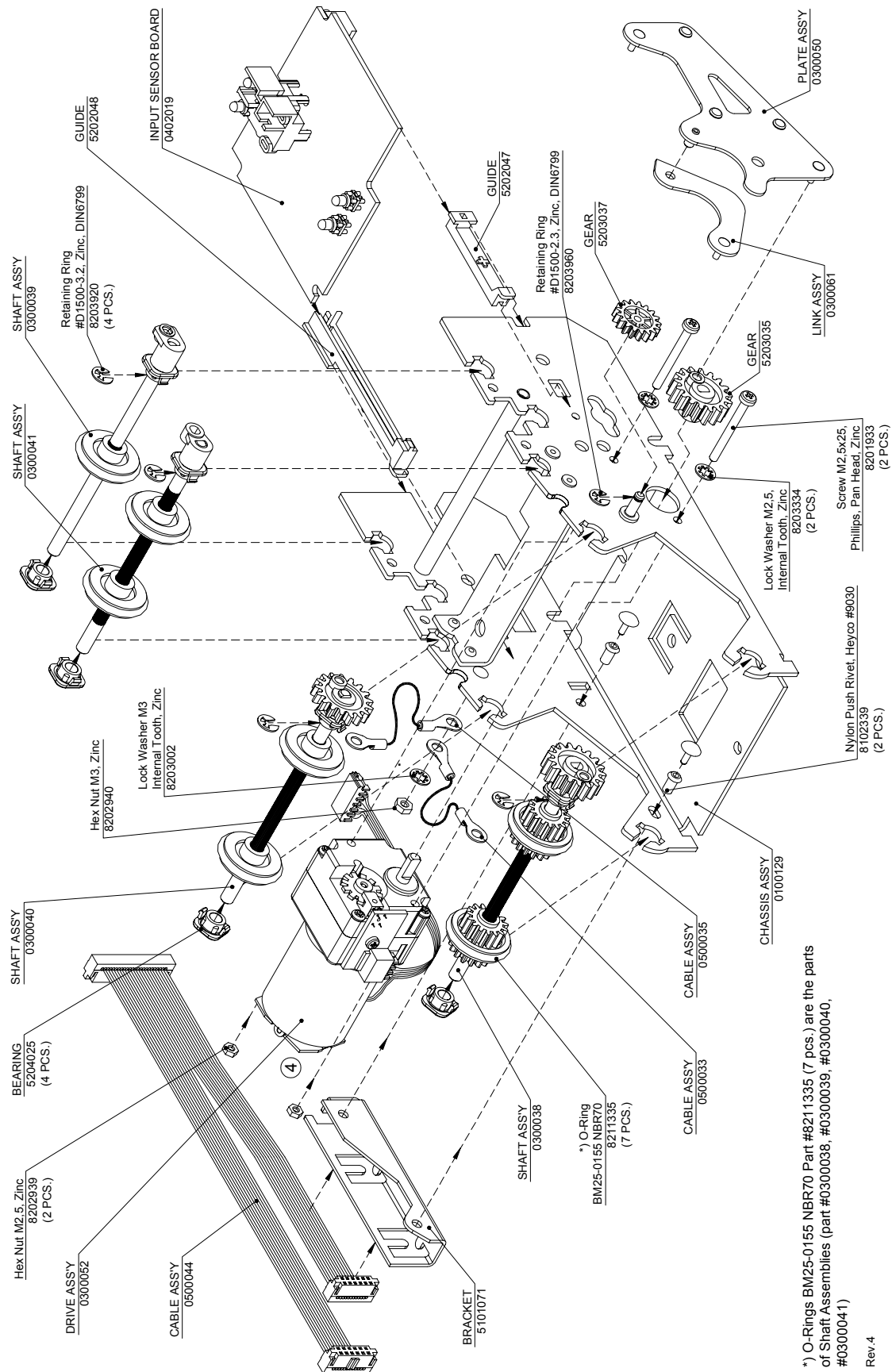
SINGLE-WIDTH VALIDATING HEAD (FLV-0310 and FLV-0510) AND MULTI-WIDTH VALIDATING HEAD WITH CENTERING MECHANISM (MFLV-2110)



Exploded view of Validating Head (FLV-0310 and FLV-0510)



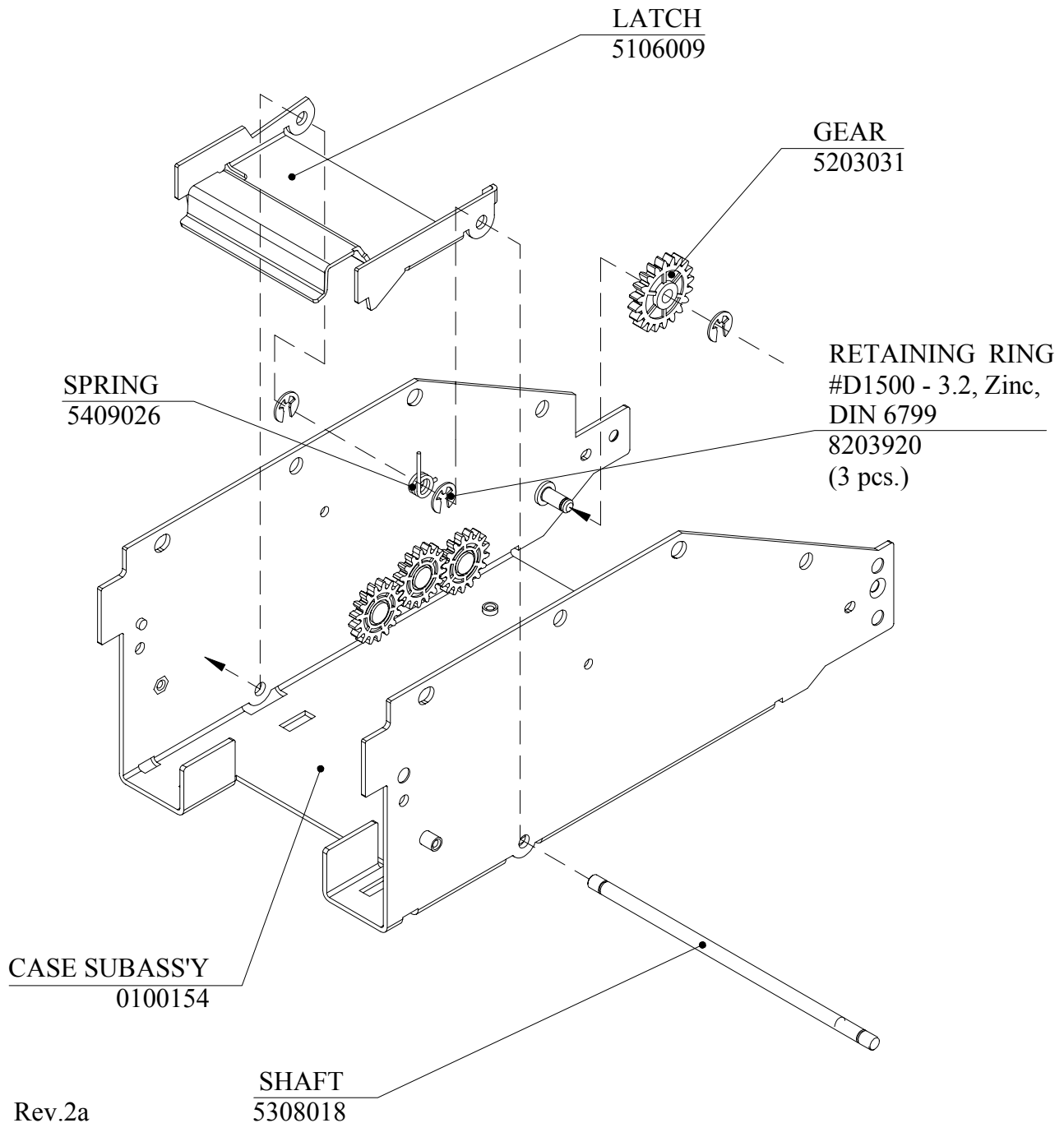
Exploded view of Drive Chassis Assembly (0300049)



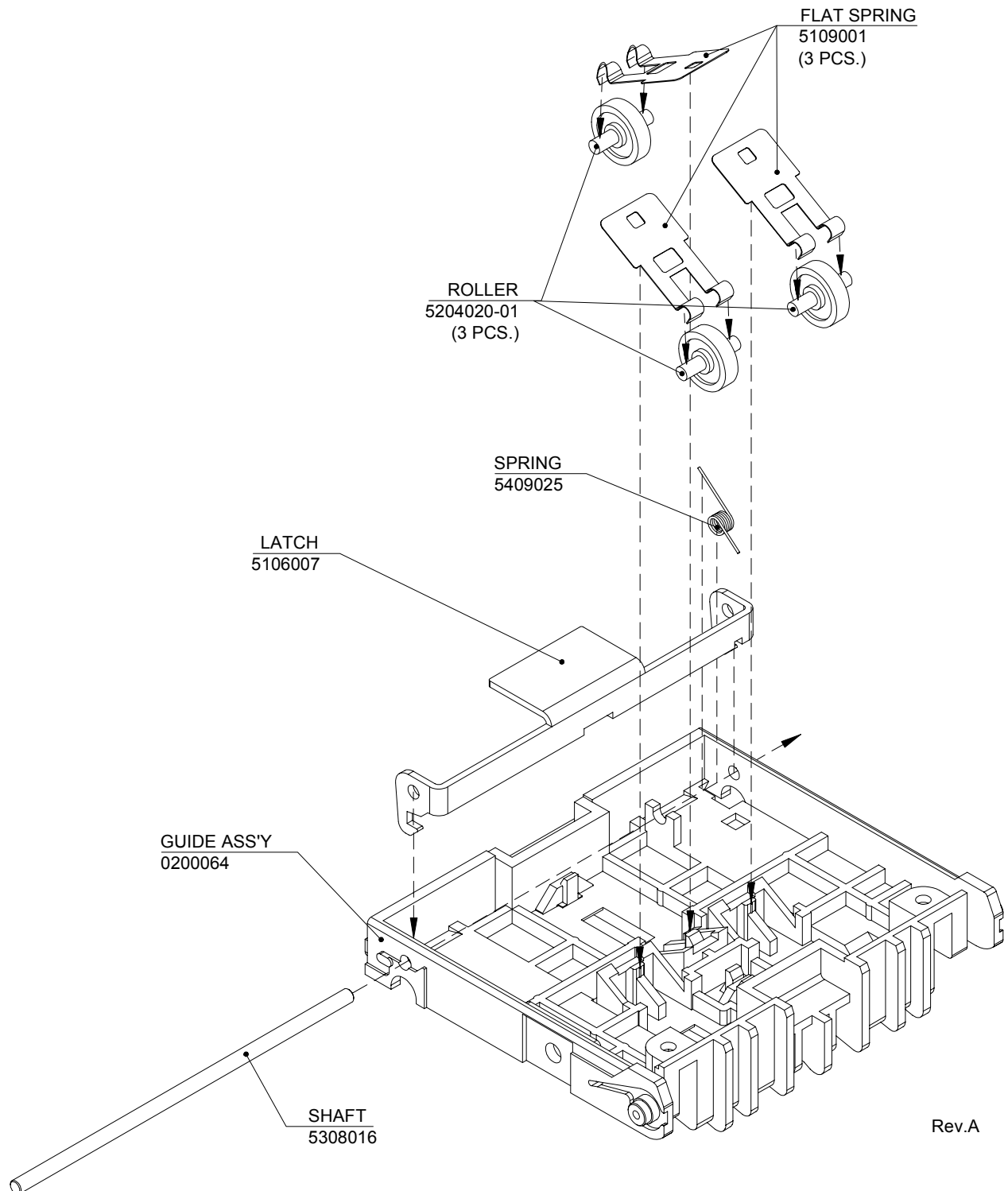
*) O-Rings BM25-0155 NBR70 Part #8211335 (7 pcs.) are the parts of Shaft Assemblies (part #0300038, #0300039, #0300040, #0300041)

Rev. 4

Exploded view of Case Assembly (0100128)

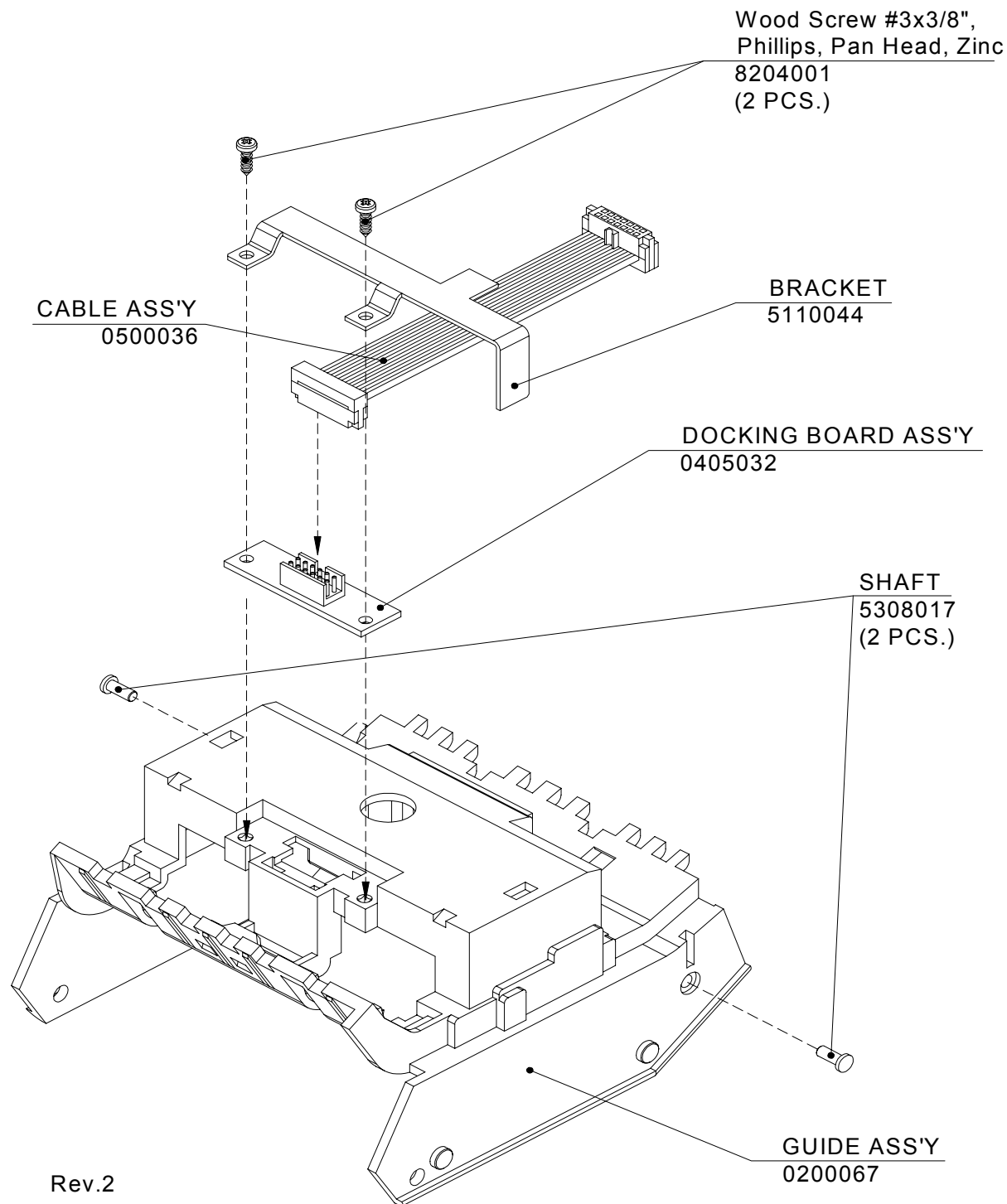


Exploded view of Guide Assembly (0200050)

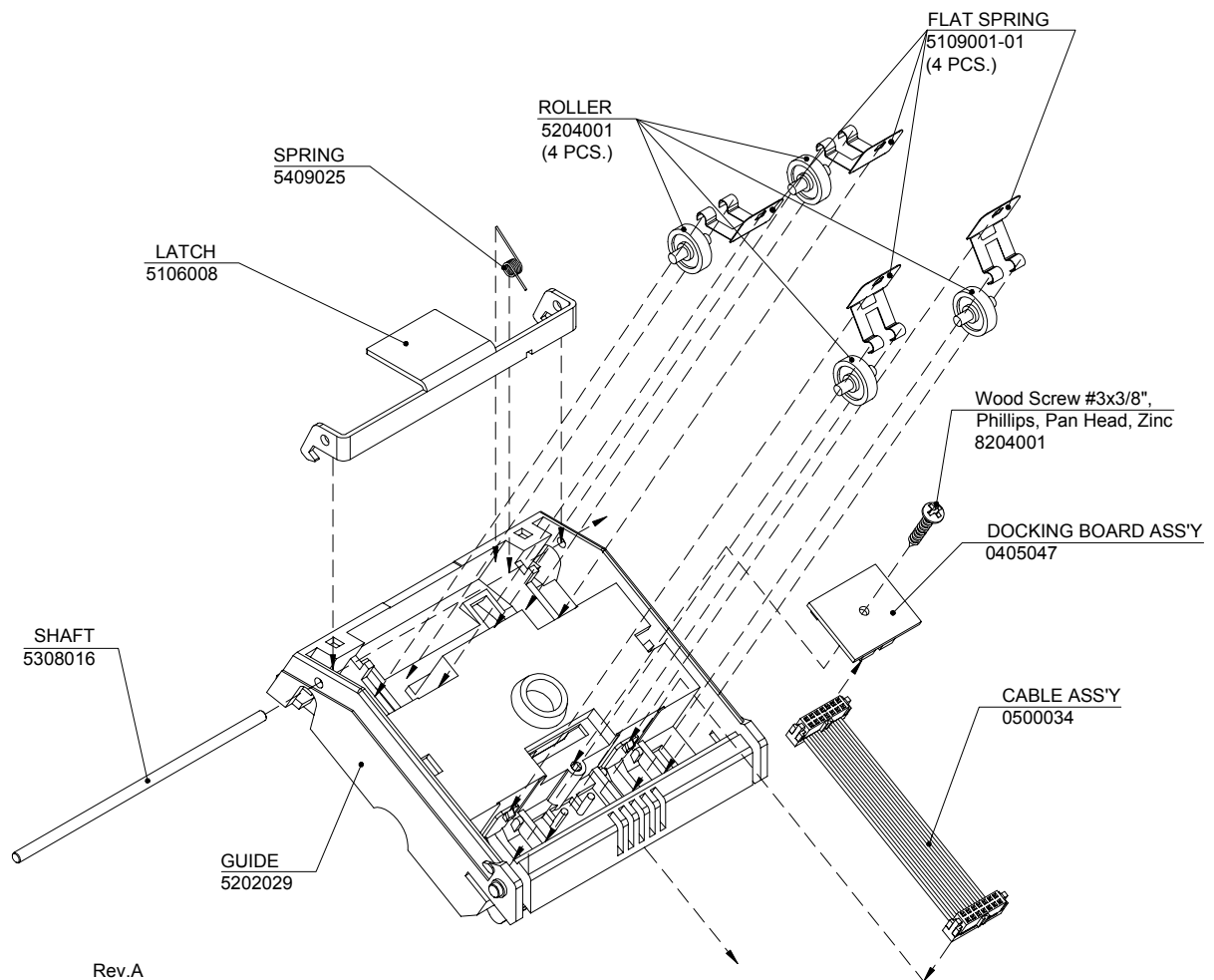


Rev.A

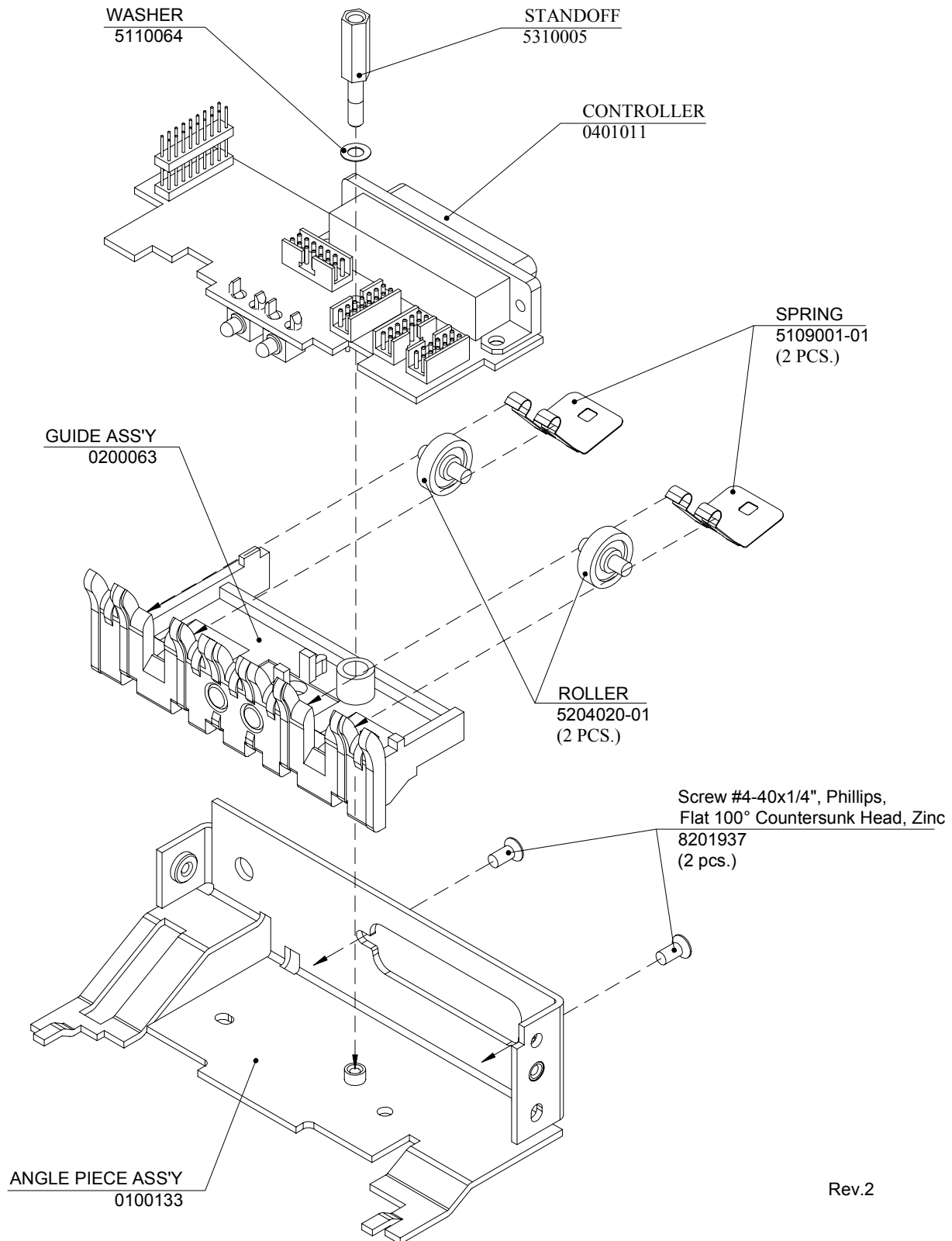
Exploded view of Guide Assembly (0200052)



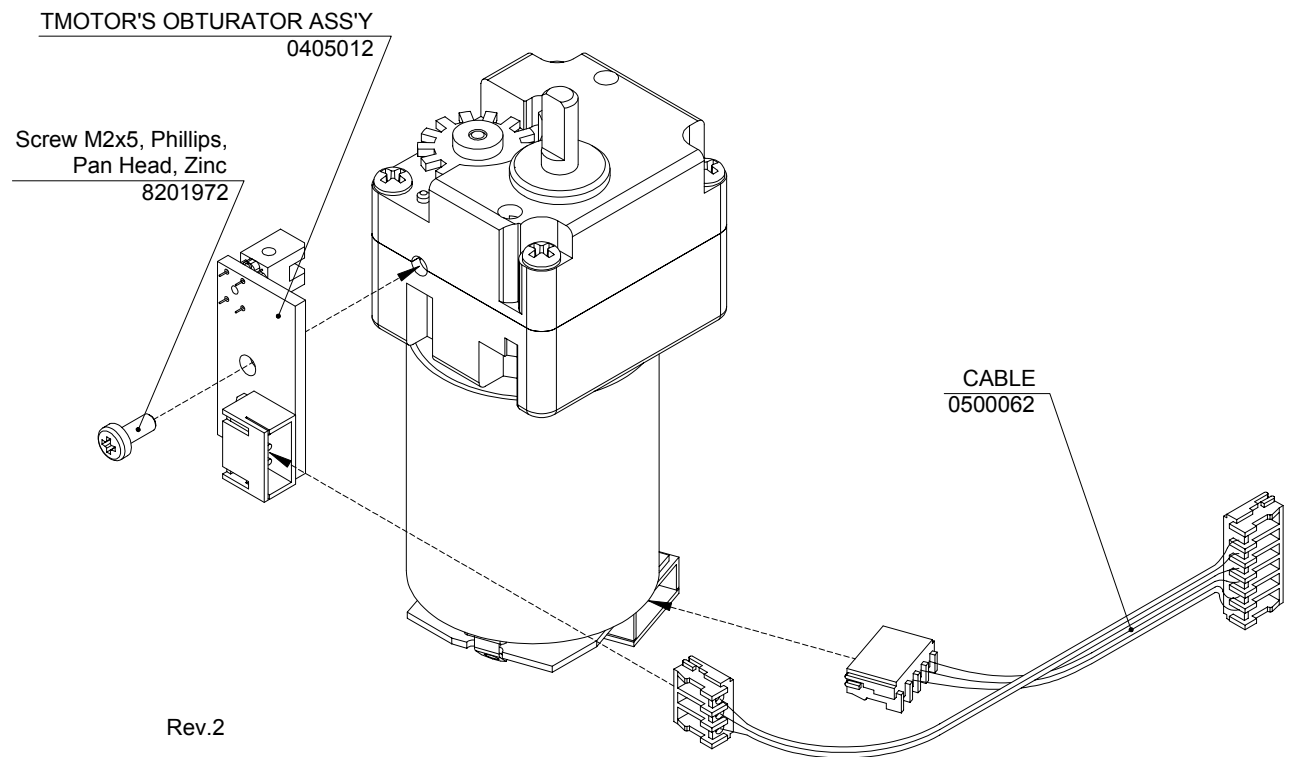
Exploded view of Guide Assembly (0200053)



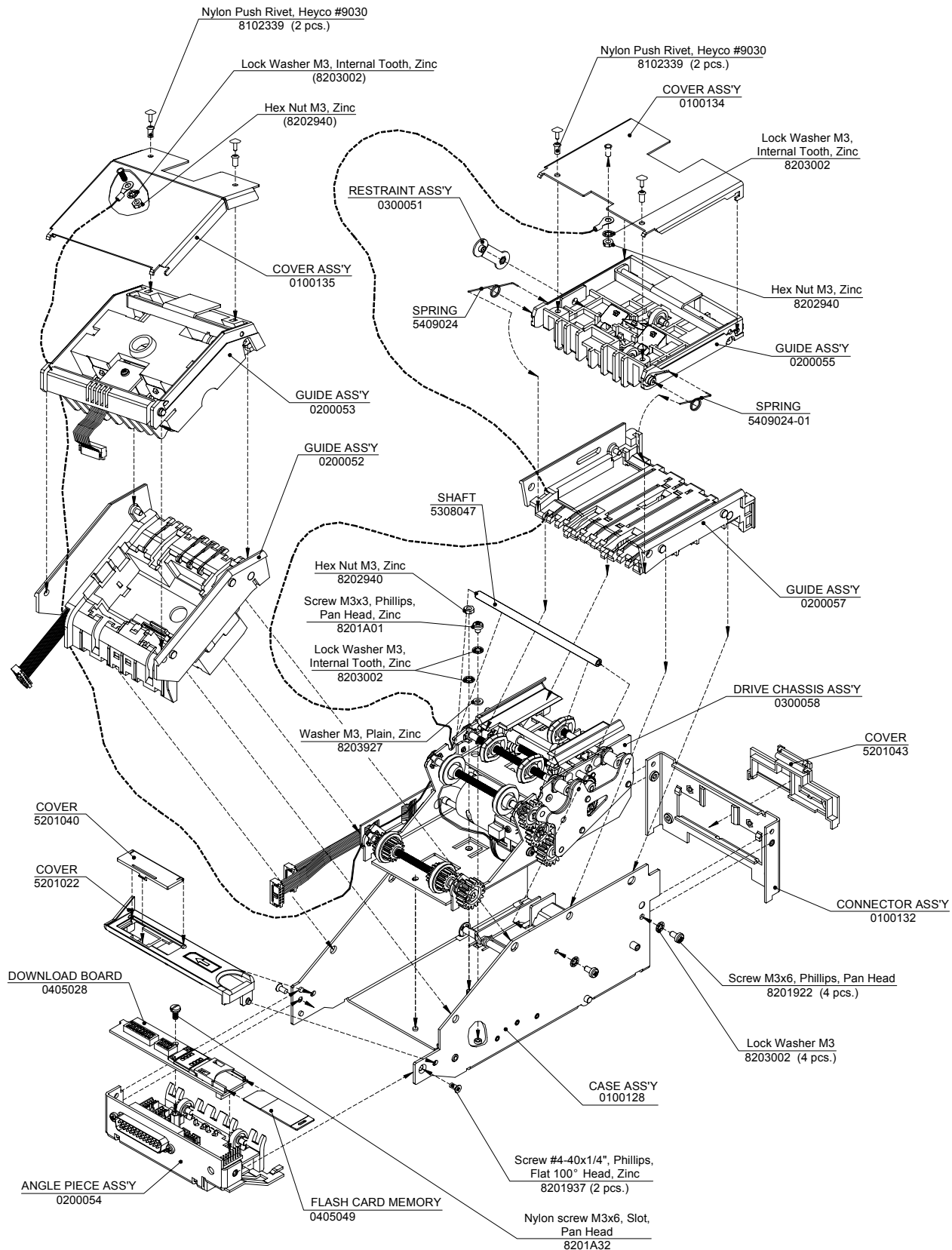
Exploded view of Angle Piece Assembly (0200054)



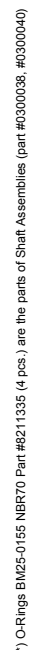
Exploded view of Drive Assembly (0300052)



Exploded view of Validating Head (MFLV-2110)

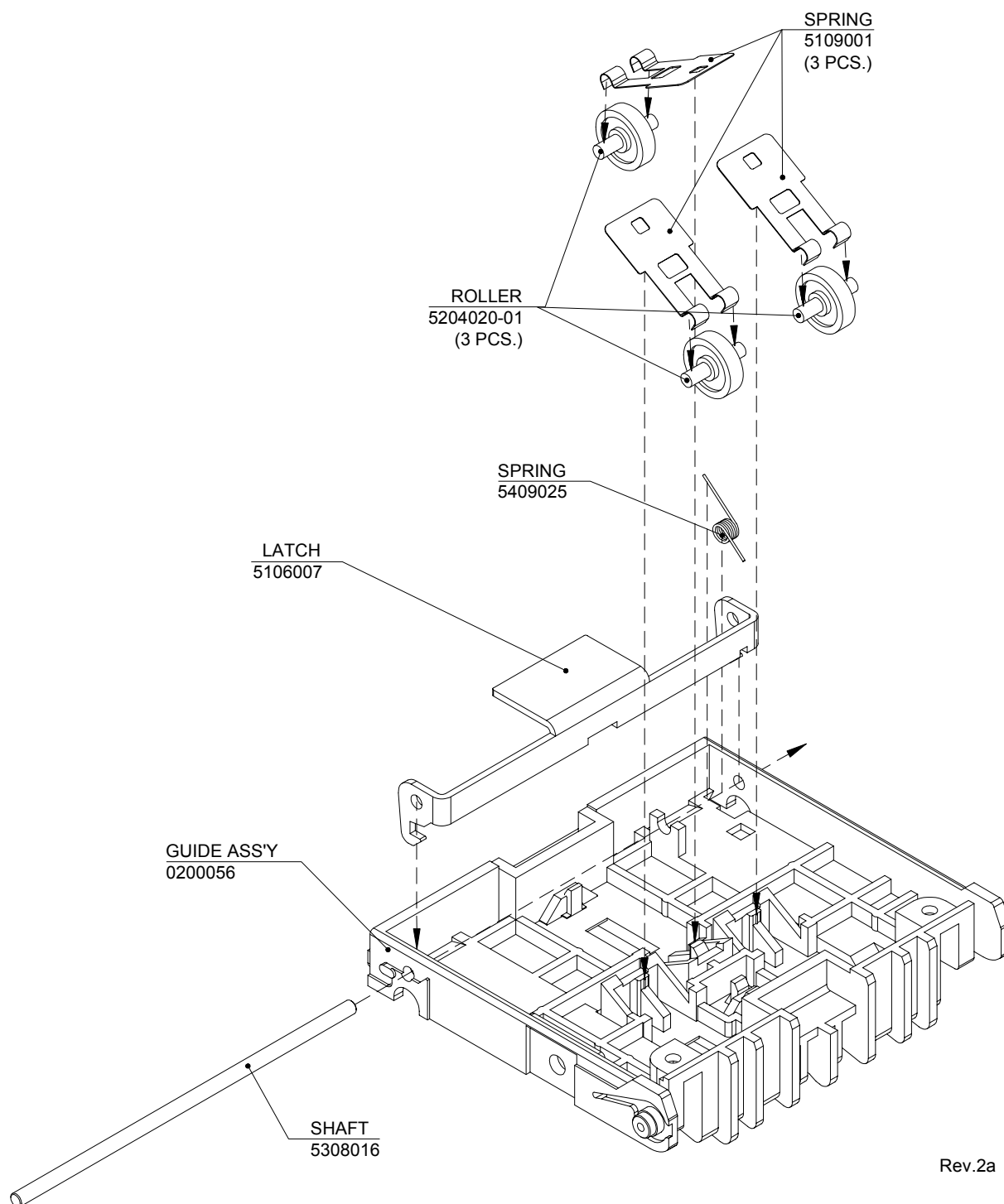


VALIDATING HEAD



(**) O-Rings BM25-0135 NBR70 Part #8211989 (3 pcs.) are the parts of Shaft Assemblies (part #03000046, #03000040)
 O-Rings BM25-0155 NBR70 Part #8211335 (4 pcs.) are the parts of Shaft Assemblies (part #03000038, #03000040)

Exploded view of Guide Assembly (0200055)



Rev.2a

LIST OF SPARE PARTS FOR VALIDATING HEAD

Item	Part Number	Description	Total quantity		
			FLV-0310	FLV-0510	MFLV-2110
1	0100128	Case Assembly	1	1	1
2	0100129	Chassis Assembly	1	1	
3	0100132	Connector Assembly	1	1	1
4	0100133	Angle Piece Assembly	1	1	1
5	0100134	Cover Assembly	1	1	1
6	0100135	Cover Assembly	1	1	1
7	0100143	Chassis Assembly			1
8	0100154	Case Subassembly	1	1	1
9	0200050	Guide Assembly	1	1	
10	0200051	Guide Assembly	1		
11	0200051-70	Guide Assembly		1	
12	0200052	Guide Assembly	1	1	1
13	0200053	Guide Assembly	1	1	1
14	0200054	Angle Piece Assembly	1	1	1
15	0200055	Guide Assembly			1
16	0200056	Guide Assembly			1
17	0200057	Guide Assembly			1
18	0200058	Lip Assembly			1
19	0200059	Lip Assembly			1
20	0200063	Guide Assembly	1	1	1
21	0200064	Guide Assembly	1	1	
22	0200067	Guide Assembly	1	1	1
23	0300030	Drive Assembly			1
24	0300038	Shaft Assembly	1	1	1
25	0300039	Shaft Assembly	1	1	
26	0300040	Shaft Assembly	1	1	1
27	0300041	Shaft Assembly	1	1	
28	0300044	Shaft Assembly			1
29	0300045	Shaft Assembly			1
30	0300046	Shaft Assembly			1
31	0300049	Drive Chassis Assembly	1	1	
32	0300050	Plate Assembly	1	1	1
33	0300051	Restraint Assembly	1	1	1
34	0300052	Drive Assembly	1	1	1
35	0300058	Drive Chassis Assembly			1
36	0300061	Link Assembly	1	1	1
37	0401011	Controller	1	1	1
38	0402018	Input Sensor Board			1
39	0402019	Input Sensor Board	1	1	
40	0405012	Motor Obturator Assembly	1	1	1
41	0405028	Download Board	1	1	1

LIST OF SPARE PARTS FOR VALIDATING HEAD (continue)

Item	Part Number	Description	Total quantity		
			FLV-0310	FLV-0510	MFLV-2110
42	0405032	Docking Board Assembly	1	1	1
43	0405047	Docking Board Assembly	1	1	1
44	0405049	Flash Card Memory	1	1	1
45	0500033	Cable Assembly	1	1	1
46	0500034	Cable Assembly	1	1	1
47	0500035	Cable Assembly	1	1	1
48	0500036	Cable Assembly	1	1	1
49	0500044	Cable Assembly	1	1	1
50	0500062	Cable Assembly	1	1	1
51	5101071	Bracket	1	1	1
52	5106007	Latch	1	1	1
53	5106008	Latch	1	1	1
54	5106009	Latch	1	1	1
55	5109001	Flat Spring	3	3	3
56	5109001-01	Flat Spring	6	6	6
57	5110044	Bracket	1	1	1
58	5110064	Washer	1	1	1
59	5201022	Cover	1	1	1
60	5201040	Cover	1	1	1
61	5201043	Cover	1	1	1
62	5202029	Guide	1	1	1
63	5202047	Guide	1	1	1
64	5202048	Guide	1	1	1
65	5203022	Gear			1
66	5203031	Gear	1	1	1
67	5203035	Gear	1	1	1
68	5203037	Gear	1	1	1
69	5204001	Roller	4	4	4
70	5204020-01	Roller	5	5	5
71	5204023	Bearing			2
72	5204025	Bearing	4	4	4
73	5210011	Dispenser			1
74	5308016	Shaft	2	2	2
75	5308017	Shaft	4	4	4
76	5308018	Shaft	1	1	1
77	5308047	Shaft	1	1	1
78	5310005	Standoff	1	1	1
79	5409024	Spring	1	1	1
80	5409024-01	Spring	1	1	1
81	5409025	Spring	2	2	2
82	5409026	Spring	1	1	1

LIST OF SPARE PARTS FOR VALIDATING HEAD (continue)

Item	Part Number	Description	Total quantity		
			FLV-0310	FLV-0510	MFLV-2110
83	8102339	Nylon Push Rivet, HEYCO #9030	6	6	10
84	8201922	Screw M3x6, Philips, Pan head, Zinc	4	4	4
85	8201933	Screw M2.5x25, Philips, Pan Head, Zinc	2	2	2
86	8201937	Screw #4-40x1/4", Philips, Flat 100 Head, Zinc	4	4	4
87	8201972	Screw M2x5, Philips, Pan Head, Zinc	1	1	1
88	8201A01	Screw M3x3, Philips, Pan Head, Zinc	1	1	1
89	8201A32	Nylon screw M3x6, Slot, Pan Head 85-036-n	1	1	1
90	8202939	Hex Nut M2.5, Zinc	2	2	2
91	8202940	Hex Nut M3, Zinc	4	4	4
92	8203002	Lock Washer M3, internal teeth, Zinc	10	10	10
93	8203020	Lock Washer M2, Internal teeth, Zinc			2
94	8203334	Lock Washer M2.5, Internal teeth, Zinc	2	2	2
95	8203920	Retaining Ring D1500-3.2, Zinc, DIN6799	4	4	
96	8203927	Washer M3, Plain, Zinc	1	1	1
97	8203960	Retaining Ring D1500-2.3, Zinc, DIN6799	1	1	
98	8203976	HEYCO Standard Nylon Washer p/n X050			2
99	8204001	Wood Screw #3x3/8", Philips, Pan Head, Zinc	3	3	3
100	8211335	O-Ring BM 25-155 NBR70	7	7	4
101	8211969	O-Ring BM 25-135 NBR70			3
102	OPT-HW -FT01	Extractor	*	*	*

DISASSEMBLY OF VALIDATING HEAD AND SUBASSEMBLIES.

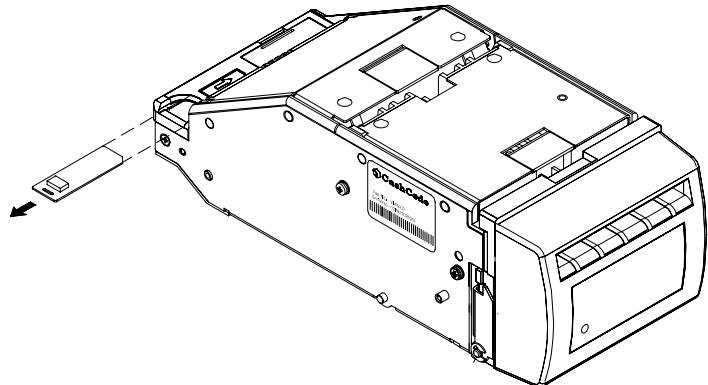
DISASSEMBLY OF SINGLE-WIDTH VALIDATING HEAD (FLV-0310 AND FLV-0510)

Tools required:

- Flat screwdriver
- Philips screwdriver #1
- Extractor 5110050
- Hex nut wrench (5.5 mm)
- Tweezers

Step 1

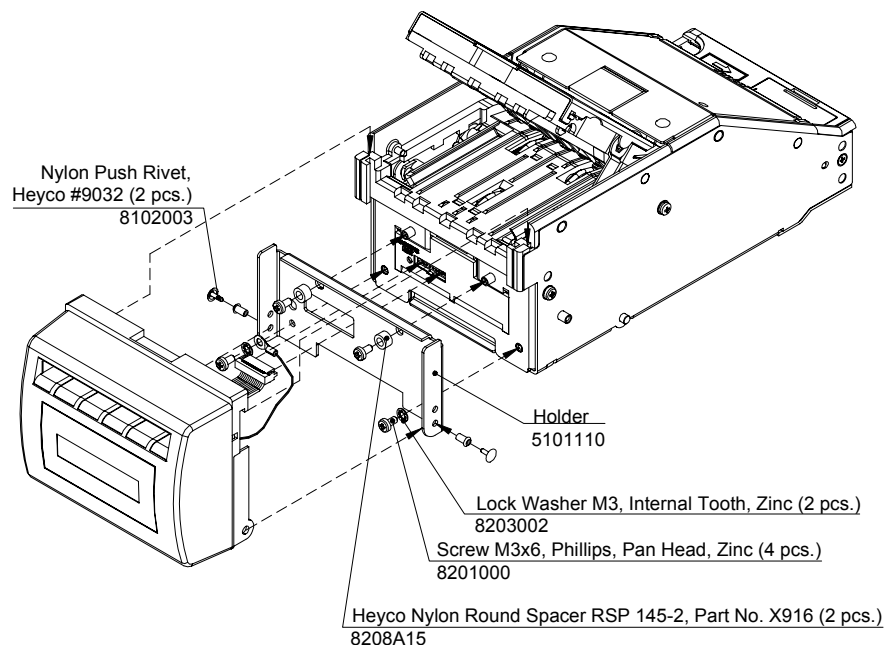
Remove memory card or dummy card.



Step 2

Remove bezel, by following instructions below:

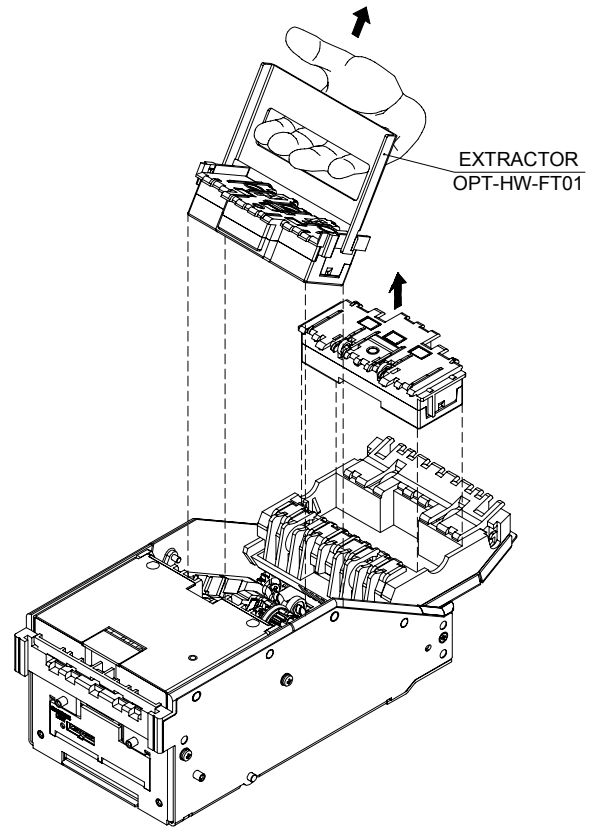
- Pull out two nylon push rivets
- Open the Guide in the validating head
- Lift up the bezel and remove it from the validating head
- Disconnect the cable from the bezel
- Remove four M3x6 screws
- Remove holder from the validating head



Disassembly of single-width validating head (FLV-0310 and FLV-0510)

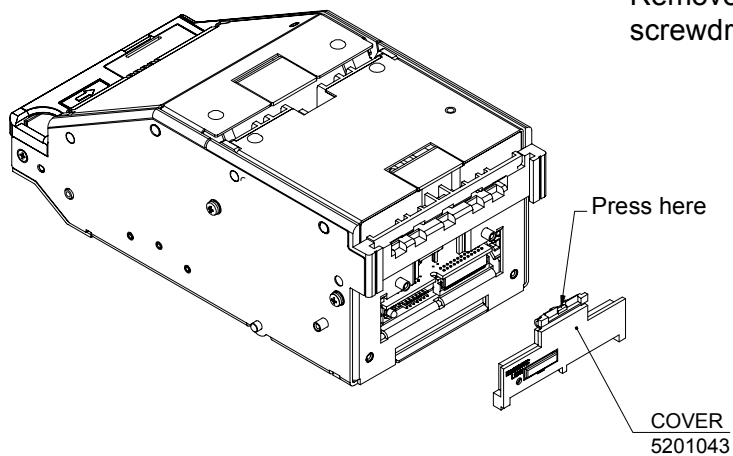
Step 3

Remove Sense-a-Click sensor modules.



Step 4

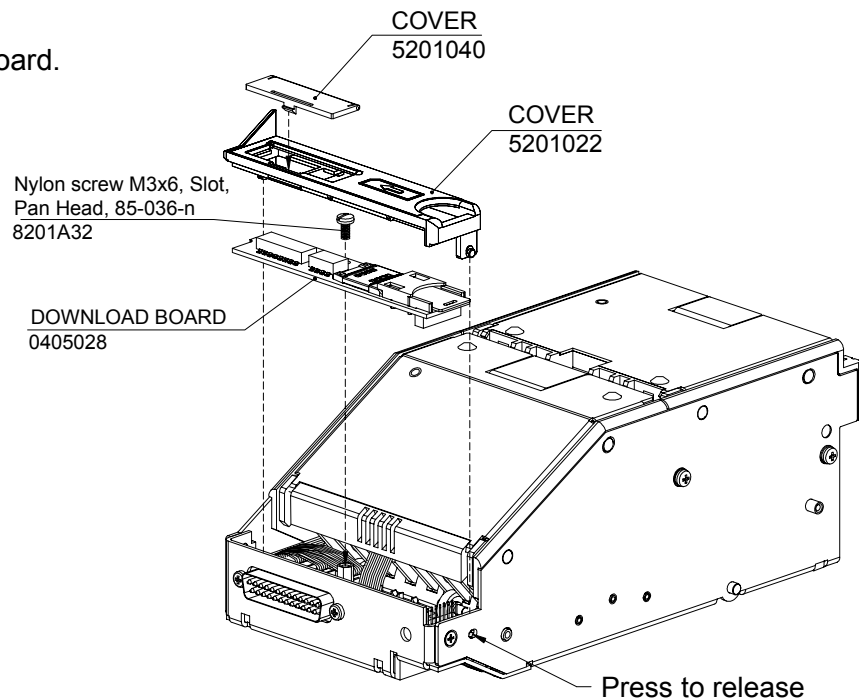
Remove plastic cover by opening latch with screwdriver.



Disassembly of single-width validating head (FLV-0310 and FLV-0510)

Step 5

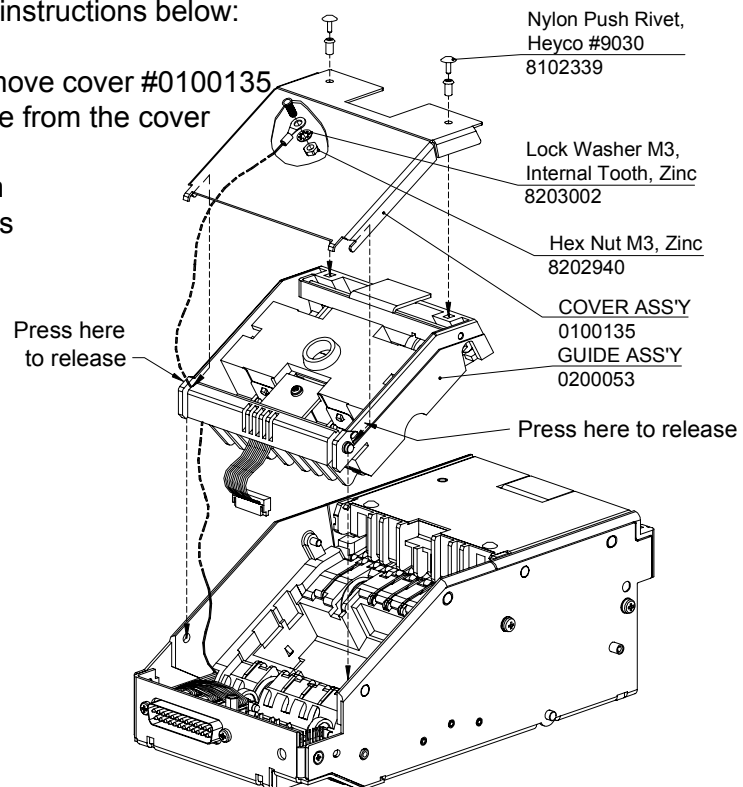
Remove covers and download board.



Step 6

Remove cover and guide, by following instructions below:

- Pull out two nylon push rivets and remove cover #0100135
- Remove hex nut and disconnect cable from the cover
- Disconnect ribbon cable
- Open the Guide by releasing the latch
- Press on the guide near the guide axis
- Remove the Guide



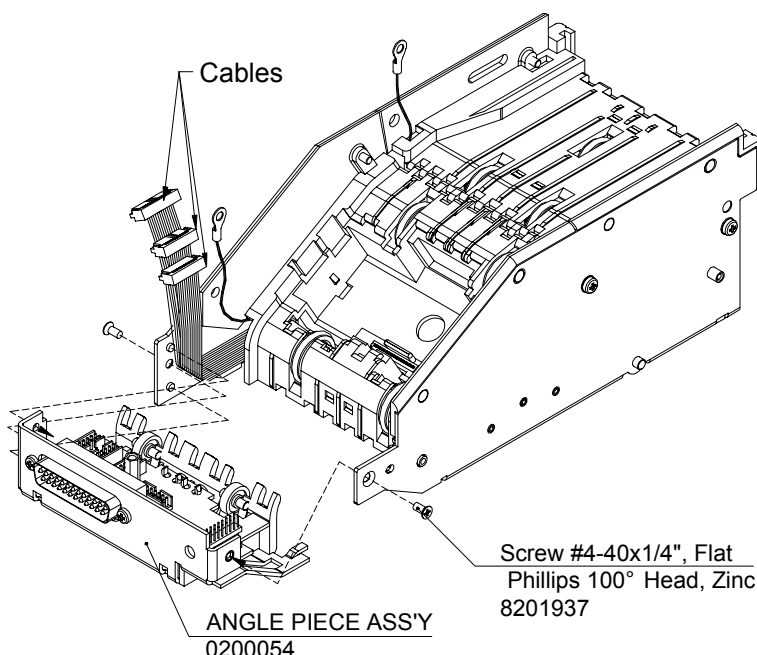
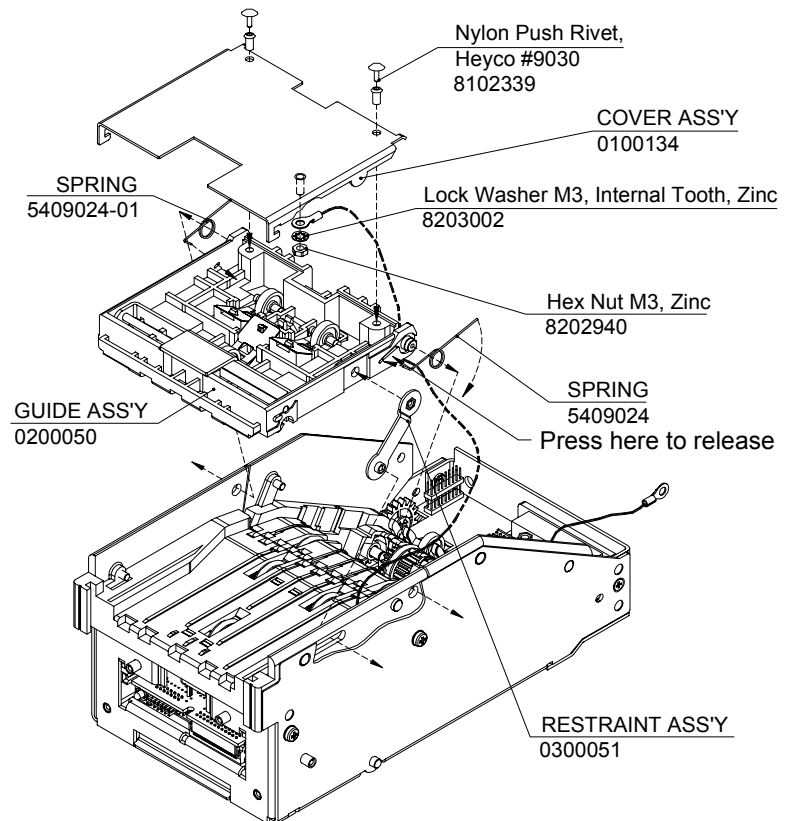
Disassembly of single-width validating head (FLV-0310 and FLV-0510)

Step 7

Remove cover and guide, by following instructions below:

- Pull out two nylon push rivets and remove cover #0100134
- Remove hex nut and disconnect cable from the cover
- Open the guide by releasing the latch, and press on the guide near guide axis
- Remove the guide

Pay attention! Restraint Assembly and springs are not secured to the guide.



Step 8

Remove angle piece assembly, by following instructions below:

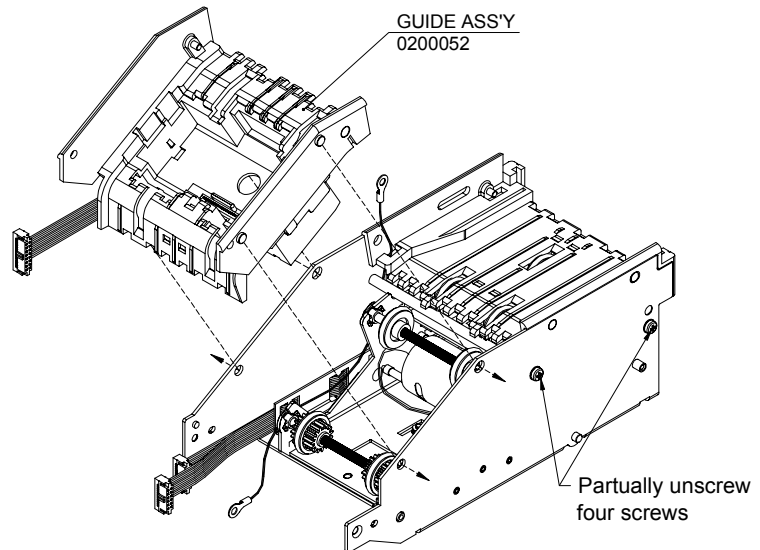
- Disconnect three cables from controller board
- Remove two screws
- Remove Angle Piece Assembly

Disassembly of single-width validating head (FLV-0310 and FLV-0510)

Step 9

Remove Guide #0200052, by following instructions below:

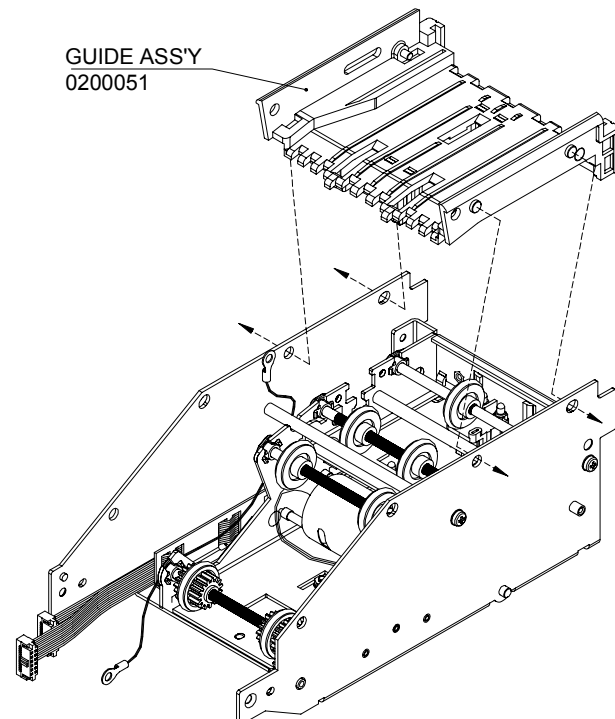
- Partially remove four M3 screws
- Squeeze walls of the guide from both sides, and remove the guide from the case



Step 10

Remove guide #0200051, by following instructions below:

- Squeeze walls of the guide from both sides, and remove the guide from the Case.

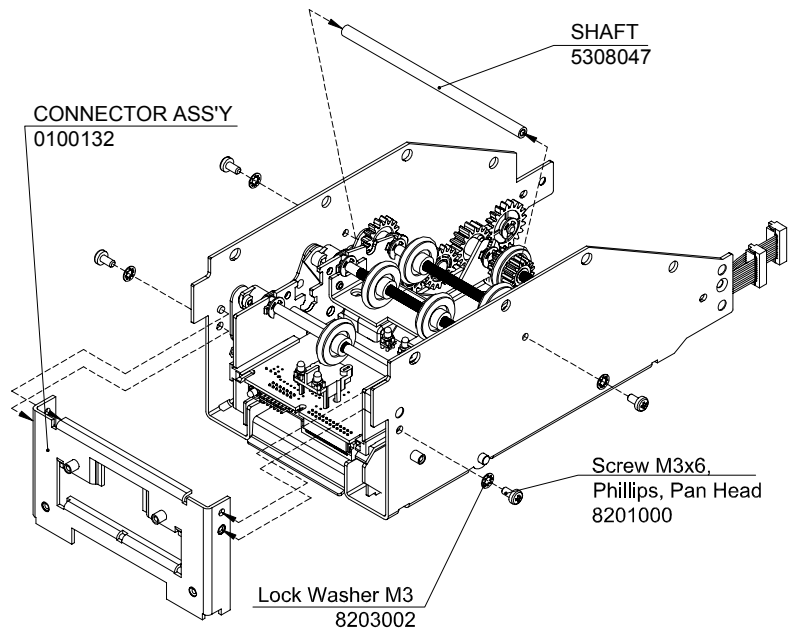


Disassembly of single-width validating head (FLV-0310 and FLV-0510)

Step 11

Remove connector #0100132, by following instructions below:

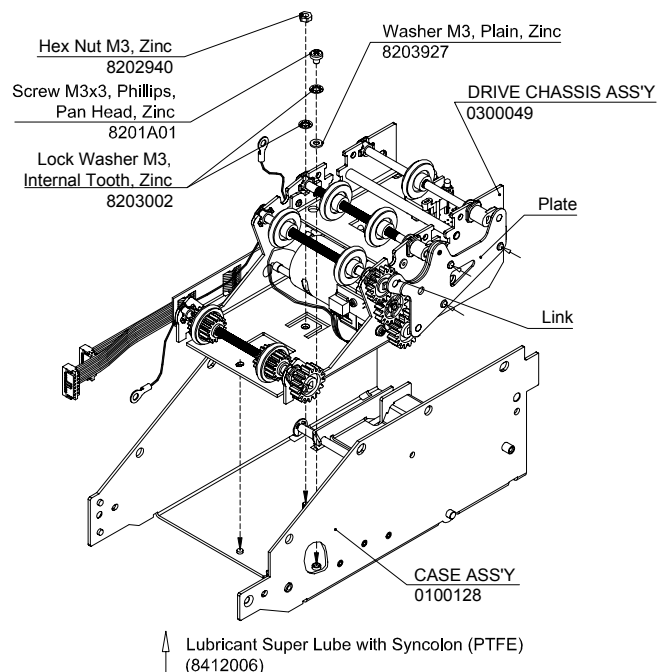
- Remove 4 M3x6 screws
- Remove connector
- Remove shaft



Step 12

Remove Drive Chassis Assembly, by following instructions below:

- Remove M3x3 screw
- Remove M3 hex nut
- Remove drive chassis assembly



Pay attention! Plate and link are not secured to the drive chassis.

↑ Lubricant Super Lube with Syncolon (PTFE) (8412006)

DISASSEMBLY OF MULTI-WIDTH VALIDATING HEAD (MFLV-2110)

Tools required:

- Flat screwdriver
- Philips screwdriver #1
- Extractor #5110050
- Hex nut wrench (5.5 mm)
- Tweezers

Step 1 to Step 6 -

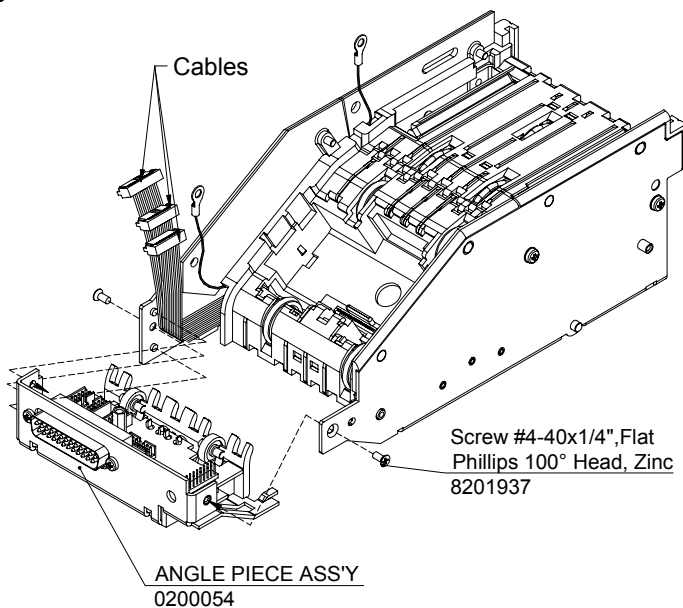
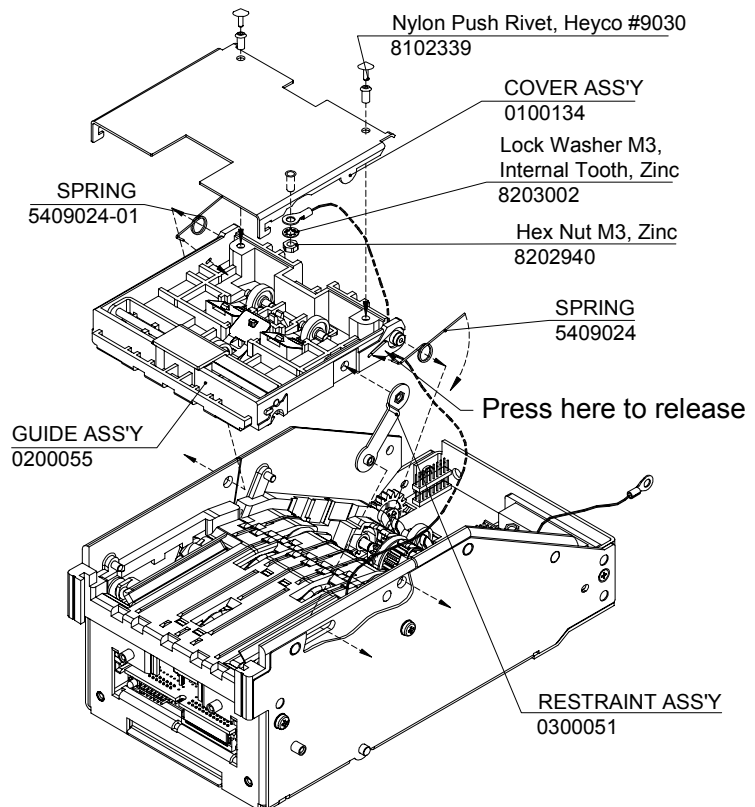
Refer to disassembly instructions for single-width validating head.

Step 7

Remove cover and guide, by following instructions below:

- Pull out two nylon push rivets and remove cover #0100134
- Remove hex nut and disconnect cable from the cover
- Open the guide by releasing the latch, and press on the guide near the axis of the guide
- Remove the guide

Pay attention! Restraint assembly and springs are not secured to the guide.



Step 8

Remove angle piece assembly, by following instructions below:

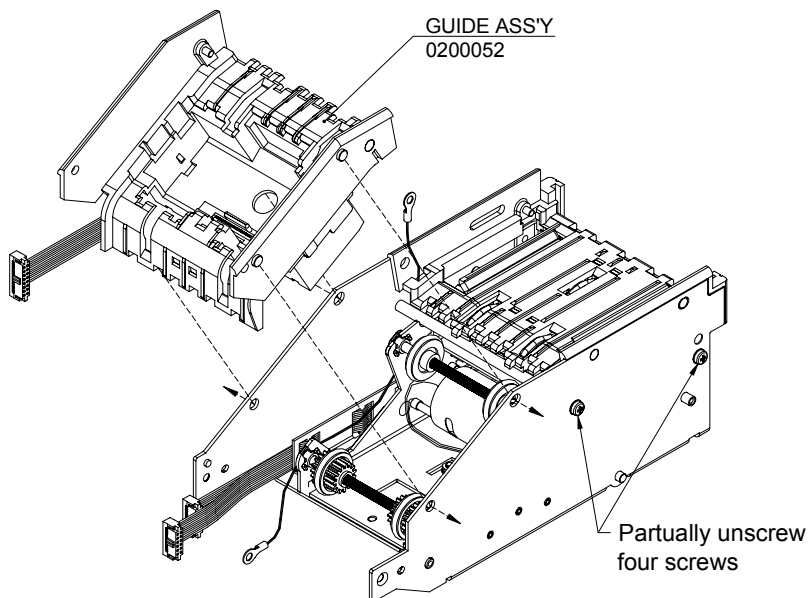
- Disconnect three cables from controller board
- Remove two screws
- Remove angle piece assembly

Disassembly of multi-width validating head (MFLV-2110)

Step 9

Remove guide #0200052, by following instructions below:

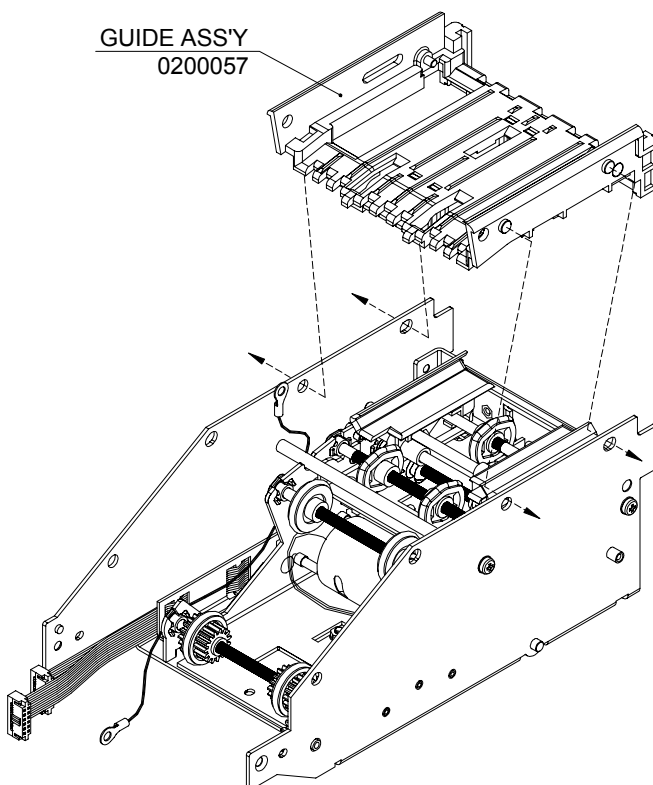
- Loosen four M3 screws
- Squeeze walls of the guide from both sides, and remove the guide from the case



Step 10

Remove guide #0200057, by following instructions below:

- Squeeze walls of the guide from both sides, and remove the guide from the case.

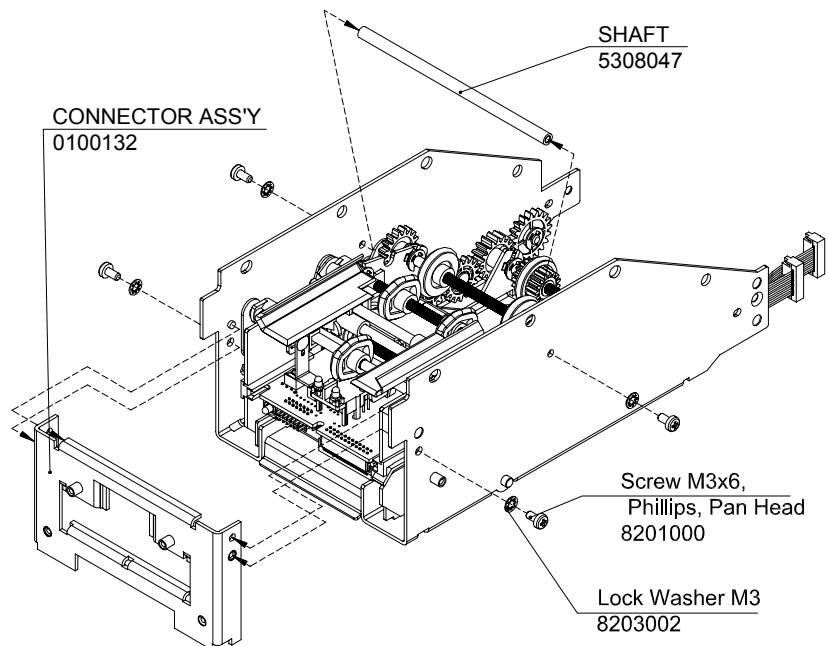


Disassembly of multi-width validating head (MFLV-2110)

Step 11

Remove connector #0100132, by following instructions below:

- Remove 4 M3x6 screws
- Remove connector
- Remove shaft

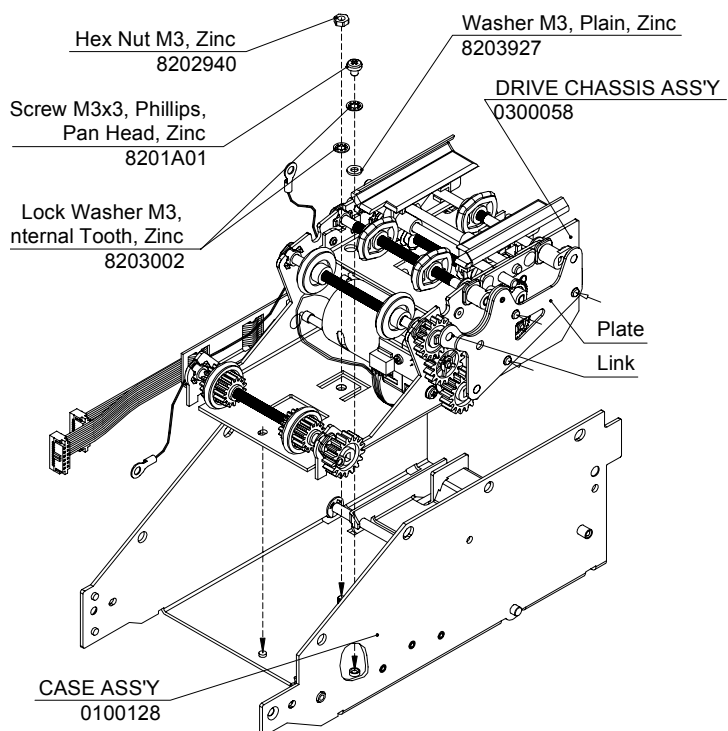


Step 12

Remove drive chassis assembly, by following instructions below:

- Remove M3x3 screw
- Remove M3 hex nut
- Remove drive chassis assembly

Pay attention! Plate and link are not secured to the drive chassis.



DISASSEMBLY OF DRIVE CHASSIS #0300049

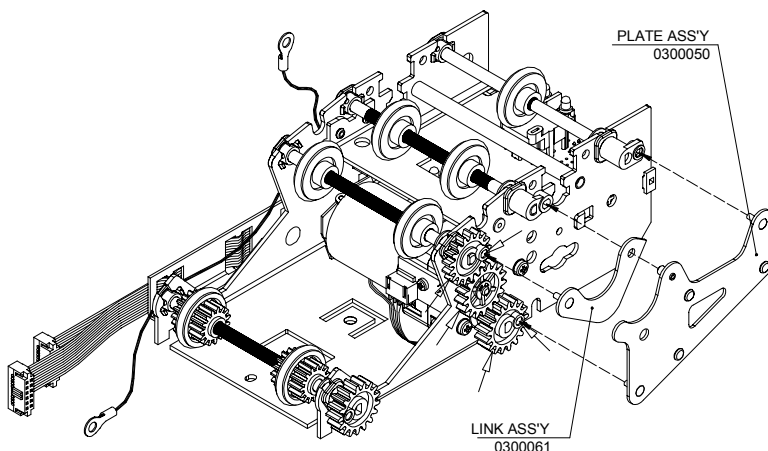
Tools required:

- Flat screwdriver
- Philips screwdriver #1
- Tweezers

Step 1

Remove plate and link.

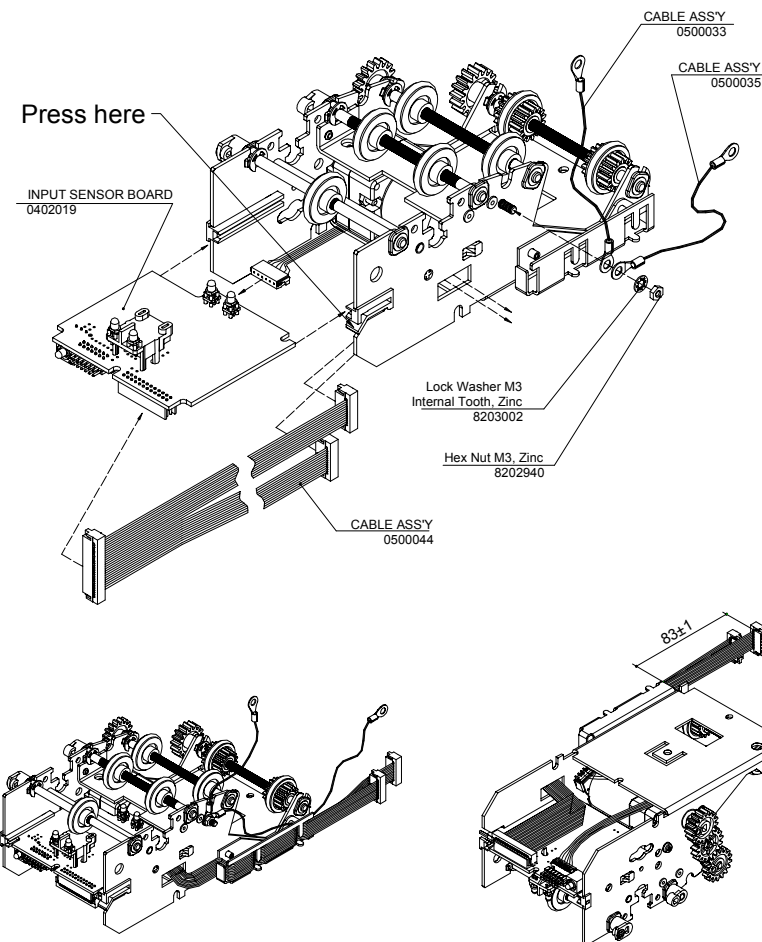
When assembling, pay close attention that all 4 pins are properly seated in their holes.



Step 2

Remove input sensor board and cables.

When removing input sensor board, press on the latch. When assembling, place cable #0500044 as shown.

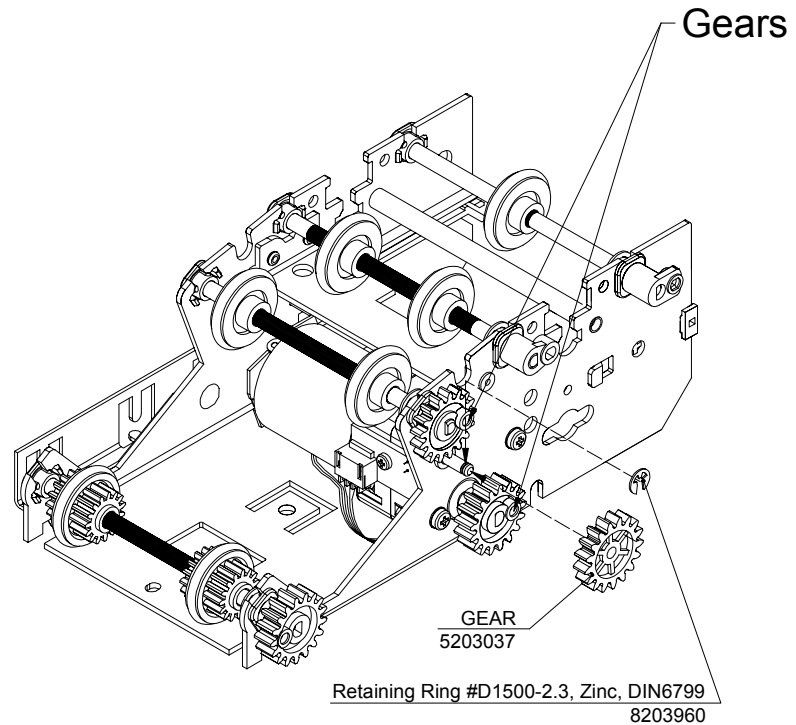


Disassembly of Drive Chassis #0300049

Step 3

Remove retaining ring and gear.

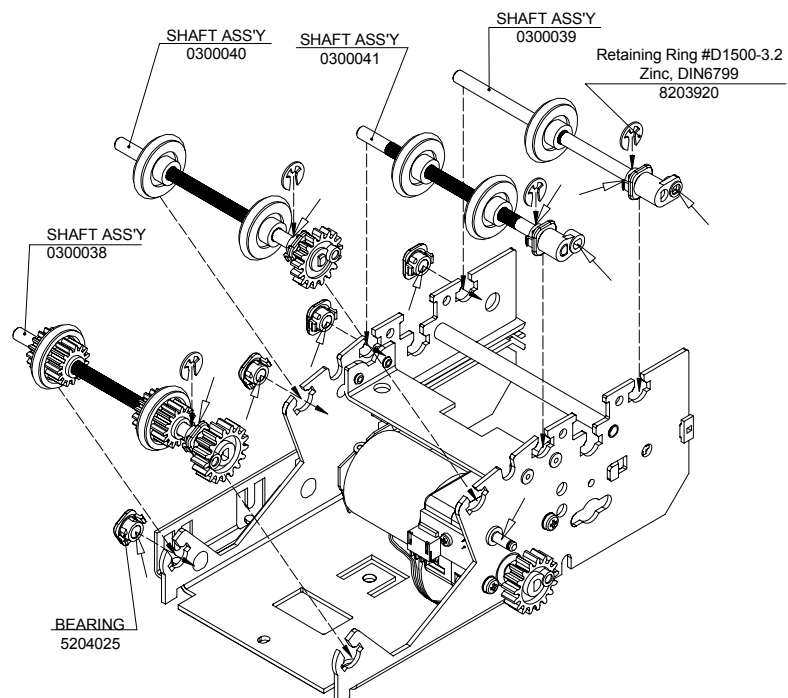
When assembling, both mating gears must be oriented in the same direction.



Step 4

- Remove retaining rings by pressing on the latches of the bearings
- Remove them with the shafts from the chassis

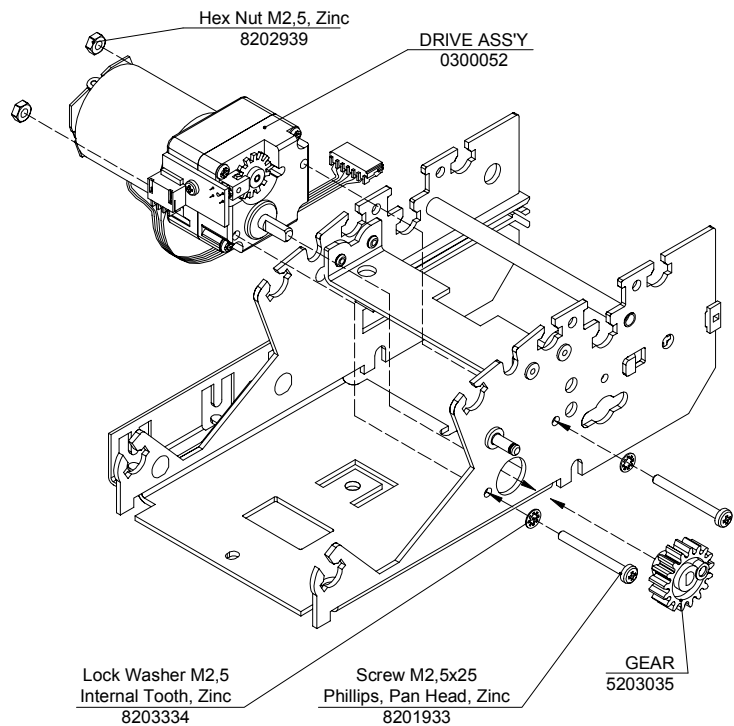
When assembling, add Super Lube with Syncolon (PTFE) lubricant to all bearings and gears—except O-Rings.



Disassembly of Drive Chassis #0300049

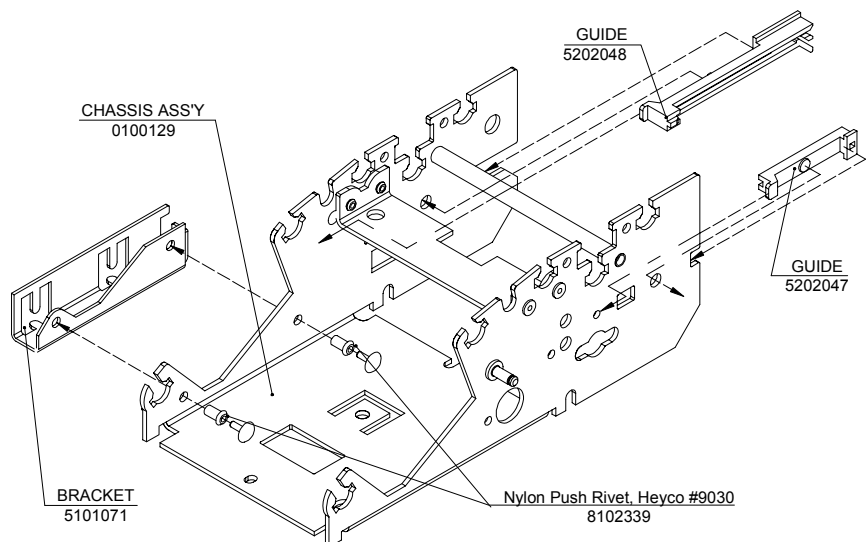
Step 5

- Remove the gear from the shaft
- Remove two screws
- Remove the drive



Step 6

- Remove the guides by pressing on the bosses in the middle
- Pull out two nylon push rivets and remove the bracket



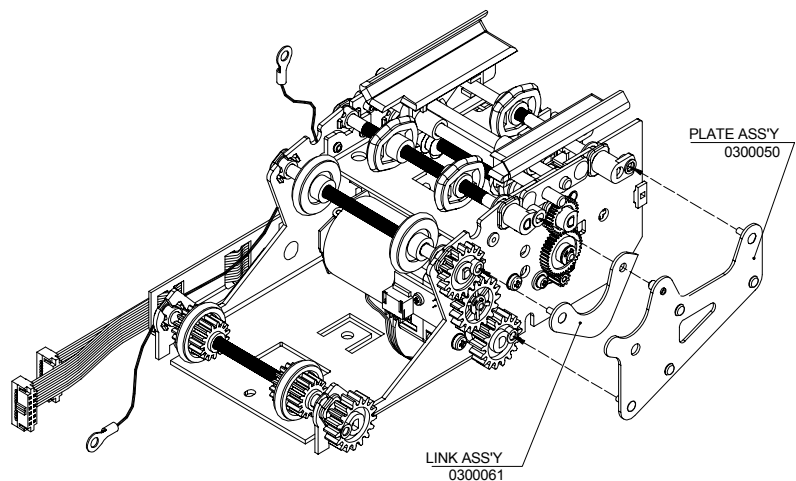
DISASSEMBLY OF DRIVE CHASSIS #0300058

Tools required:

- Flat screwdriver
- Philips screwdriver #1
- Tweezers

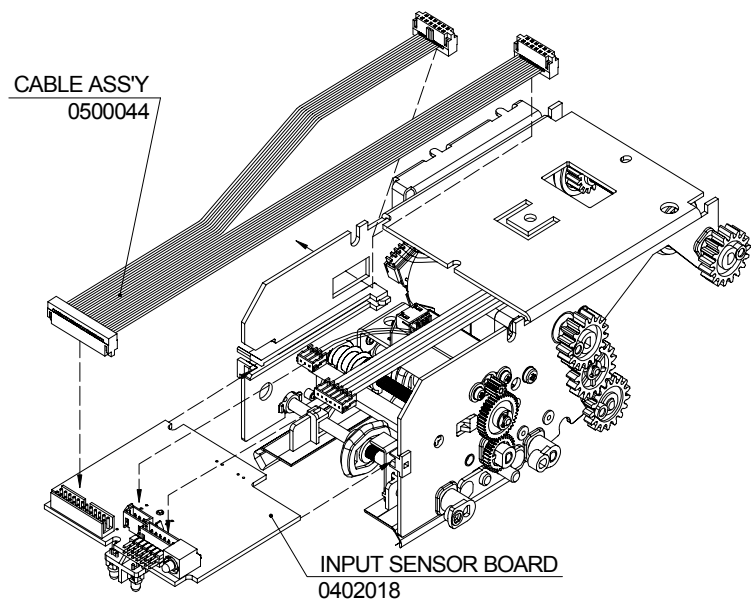
Step 1

Remove plate and link.
When assembling, pay attention that all 4 pins are properly seated in their holes.



Step 2

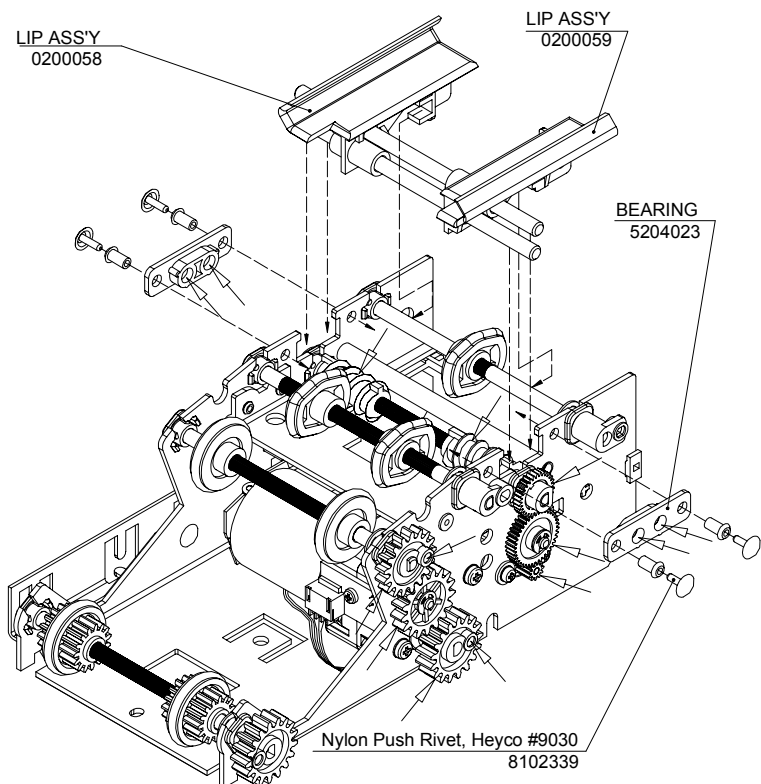
- Remove input sensor board and cables
- Remove the input sensor board by pressing on the latch
- When assembling, place cable #0500044 as shown for drive chassis #0300049.



Disassembly of Drive Chassis #0300058

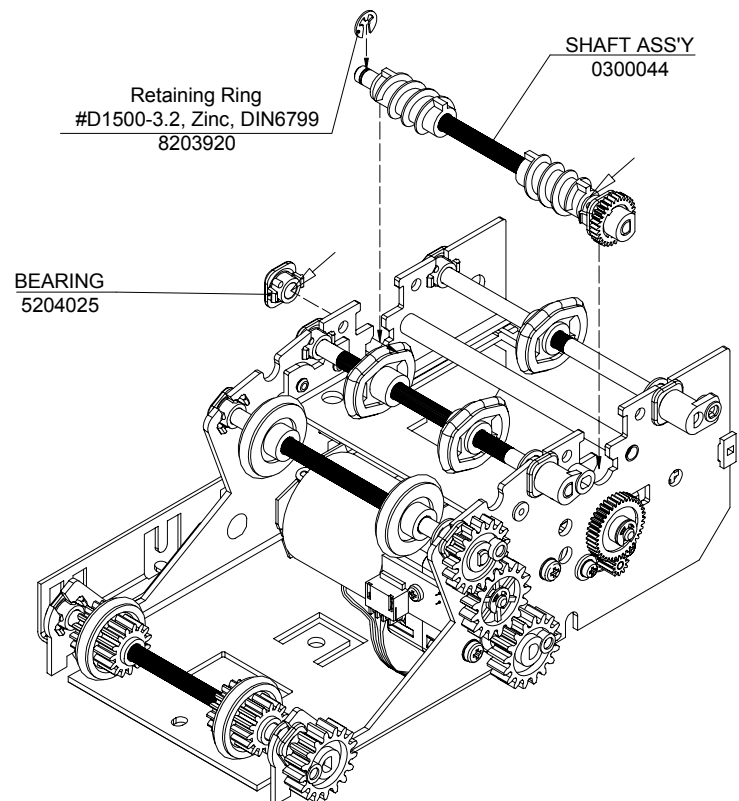
Step 3

- Pull out four nylon push rivets, by removing the bearings and lips
- When assembling, ensure the lips are properly positioned on the roller shaft



Step 4

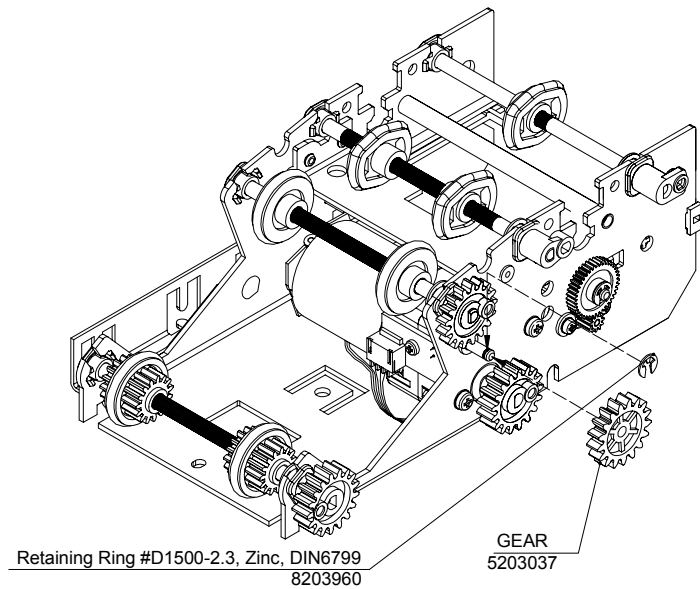
- Remove retaining ring by pressing the latches on the bearings
- Remove them with the shafts from the chassis
- When assembling, add Super Lube with Syncon (PTFE) lubricant to all bearings and gears—except O-Rings



Disassembly of Drive Chassis #0300058

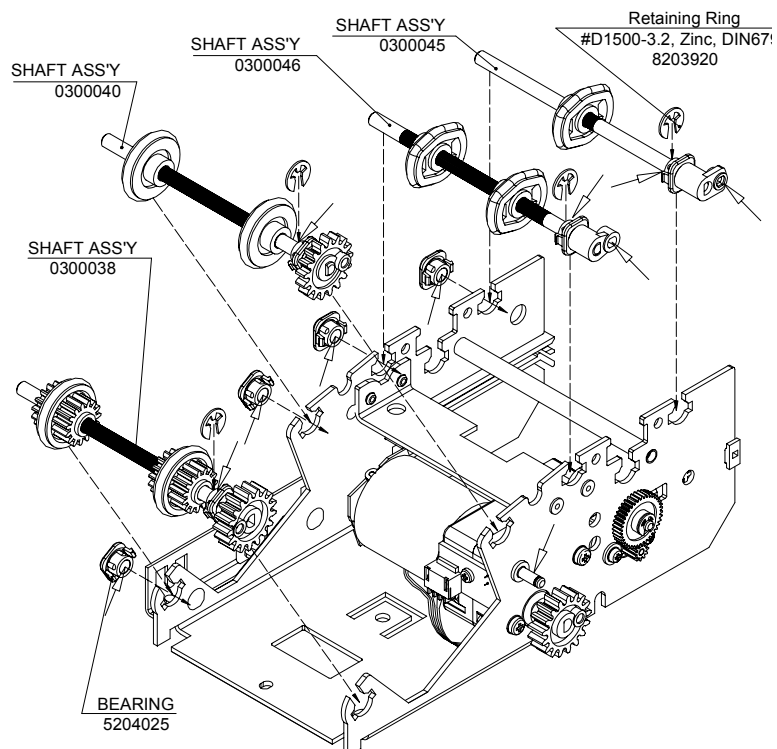
Step 5

- Remove the retaining ring and gear
- When assembling, both mating gears must be oriented in the same direction



Step 6

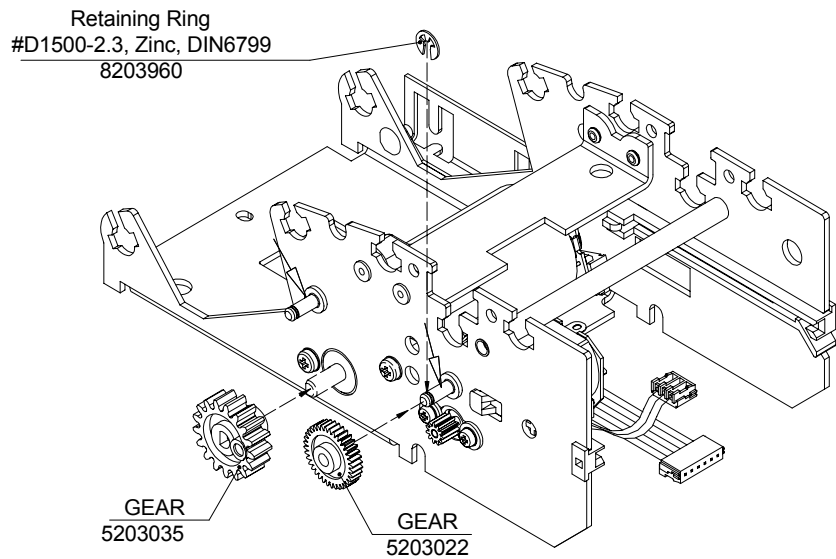
- Remove retaining ring by pressing on the latches on the bearings
- Remove them with the shafts from the chassis
- When assembling, add Super Lube with Syncolon (PTFE) lubricant to all bearings and gears—except O-Rings



Disassembly of Drive Chassis #0300058

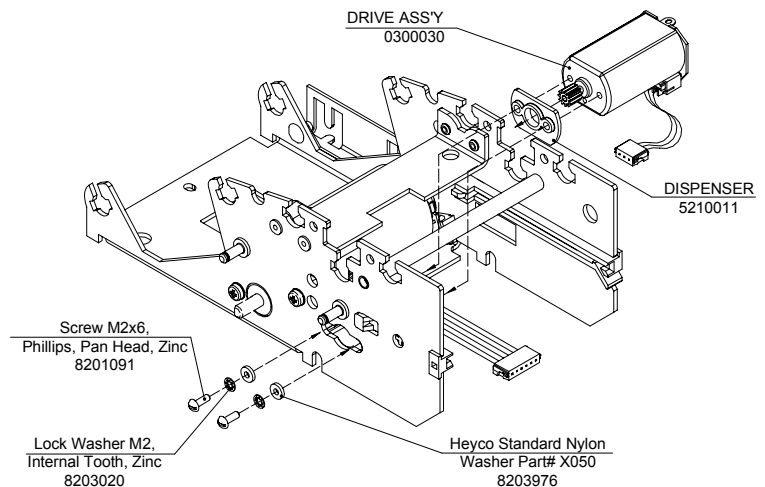
Step 7

- Remove the gear from the shaft of the drive
- Remove retaining ring
- Remove the other gear



Step 8

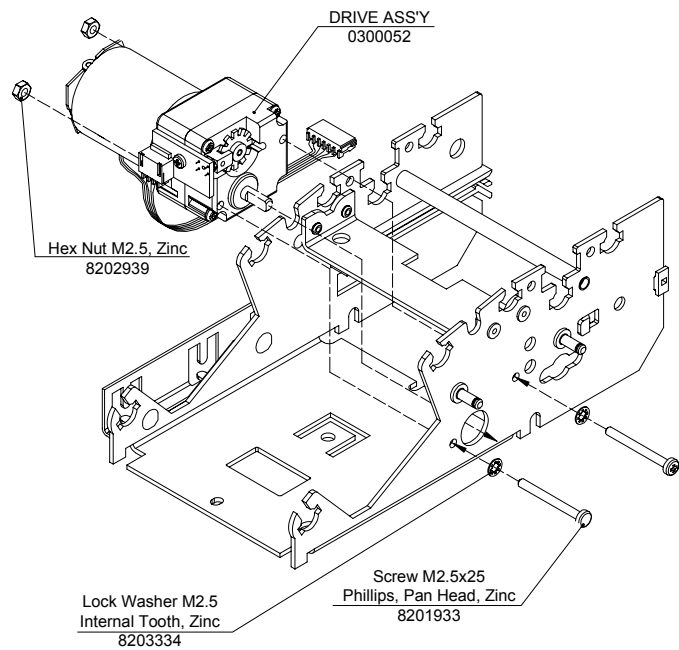
- Remove two screws
- Remove the drive and the dispenser



Disassembly of Drive Chassis #0300058

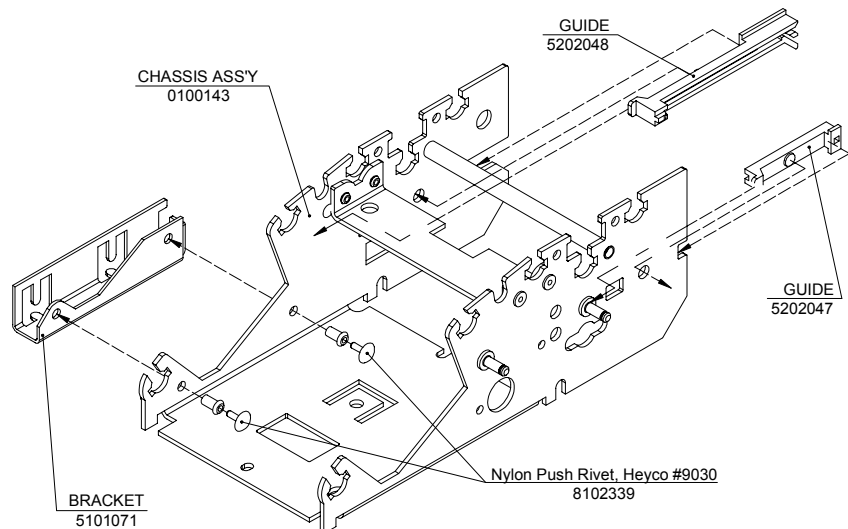
Step 9

- Remove two screws
- Remove the drive



Step 10

- Remove guides by pressing on the bosses in the middle
- Pull out two nylon push rivets and remove bracket



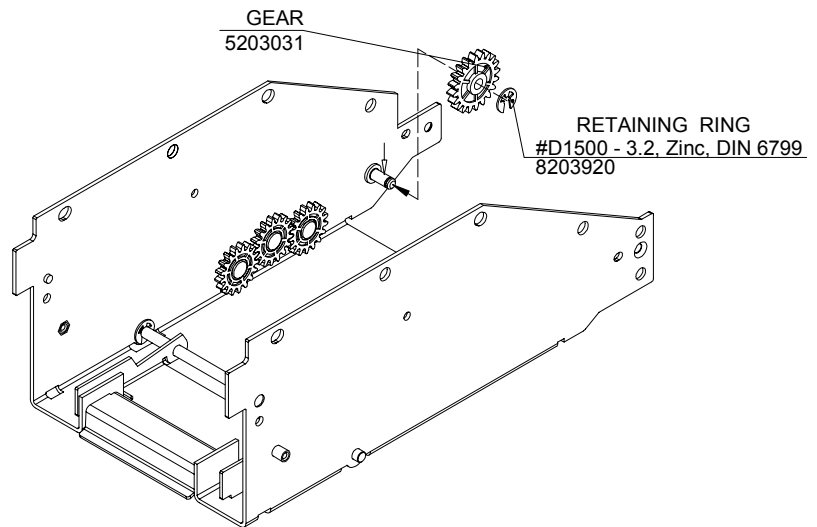
DISASSEMBLY OF CASE #0100128

Tools required:

- Flat screwdriver
- Tweezers

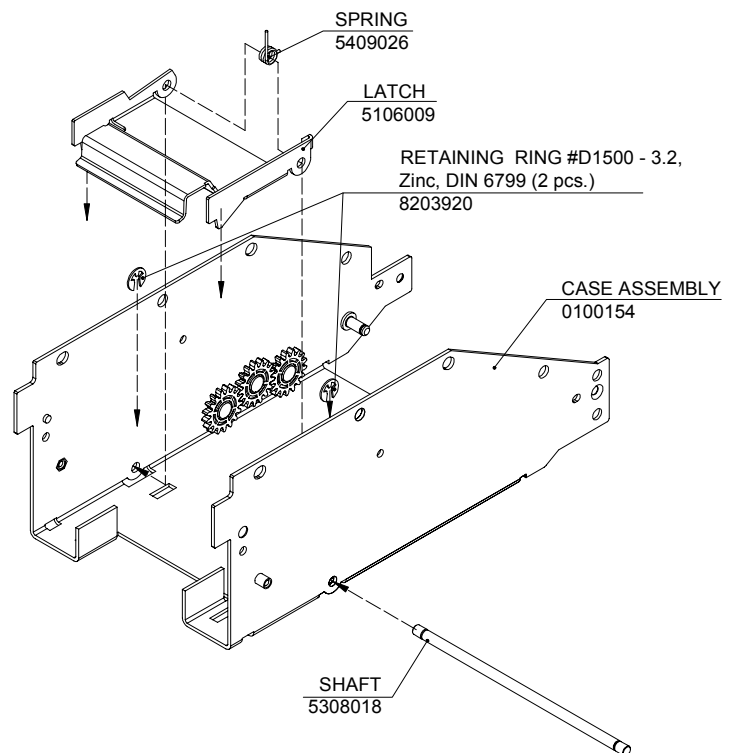
Step 1

Remove the retaining ring and the gear.



Step 2

Remove the retaining rings, the latch, the spring, and the shaft.



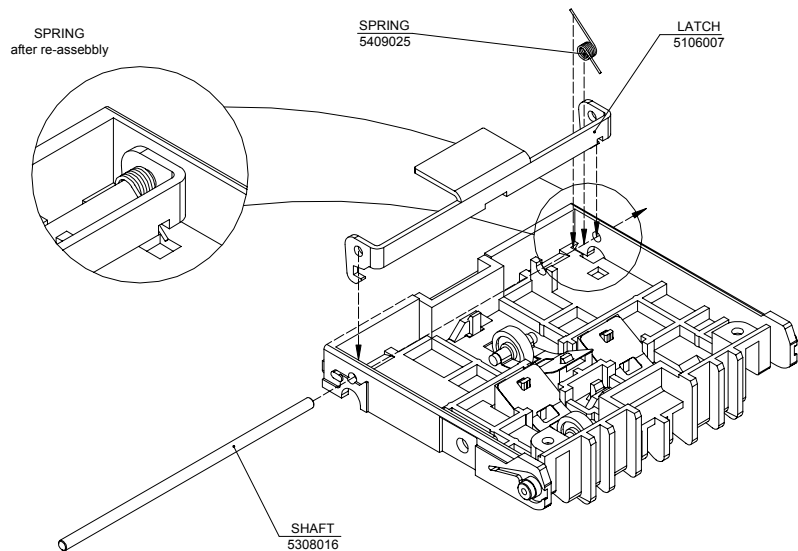
DISASSEMBLY OF GUIDE #0200050

Tools required:

- Flat screwdriver
- Tweezers

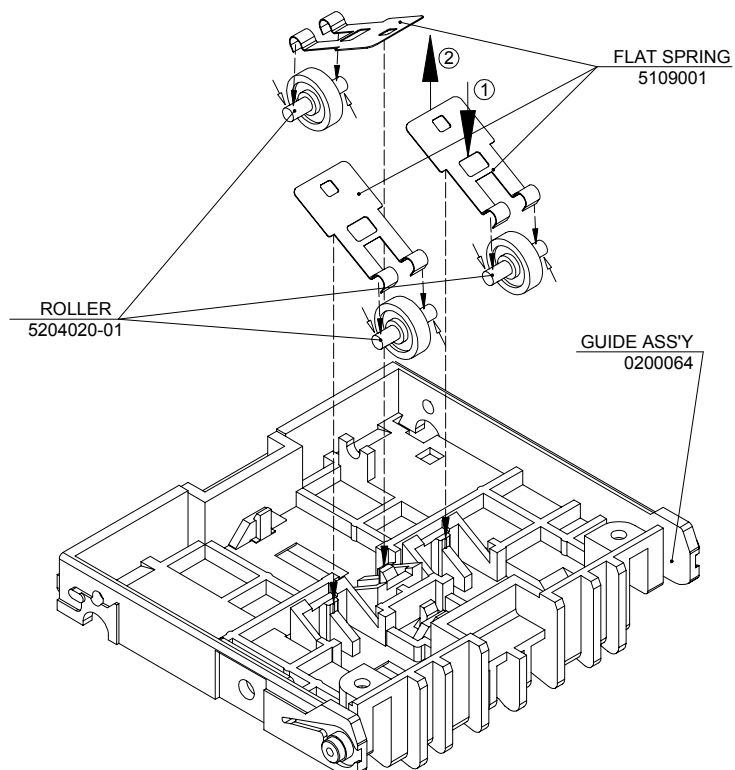
Step 1

Remove the shaft, latch and the spring.



Step 2

- Remove the springs and the rollers
- To remove springs, press in the direction of arrow 1, and lift up on the edge, as shown by arrow 2



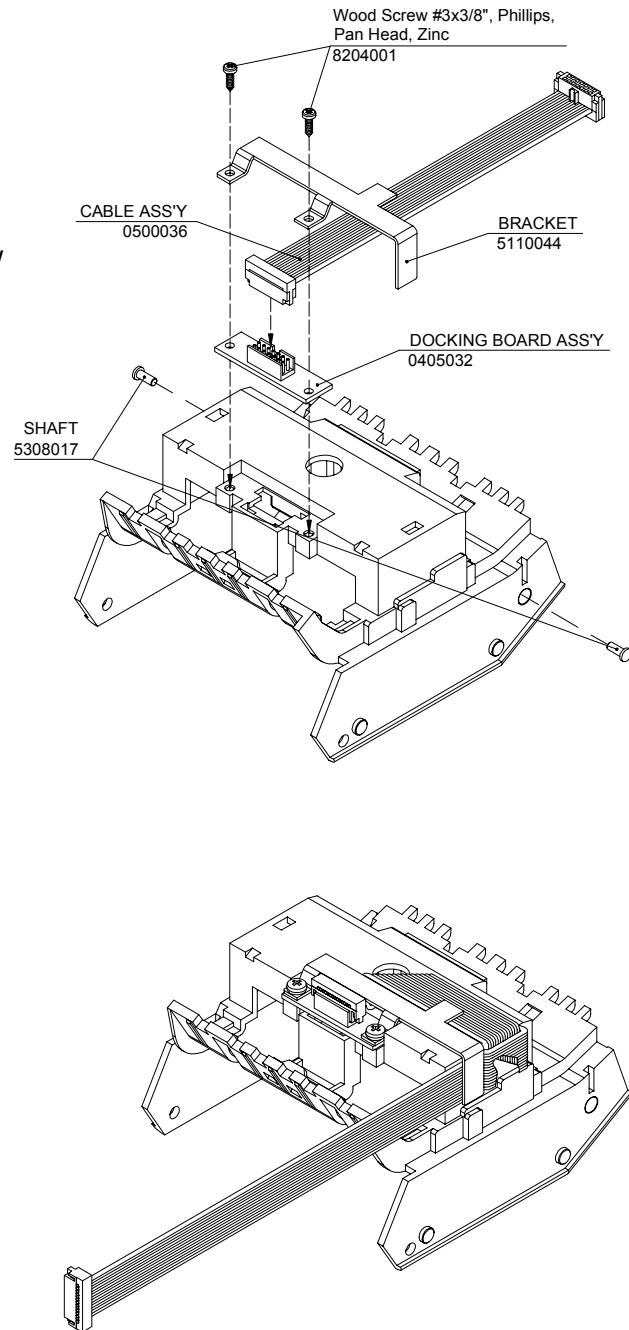
DISASSEMBLY OF GUIDE #0200052

Tools required:

- Philips screwdriver #1
- Tweezers

Step 1

- Remove two wood screws, the bracket and the cable
- Remove docking board
- Remove shafts
- When assembling, fold cable as shown below



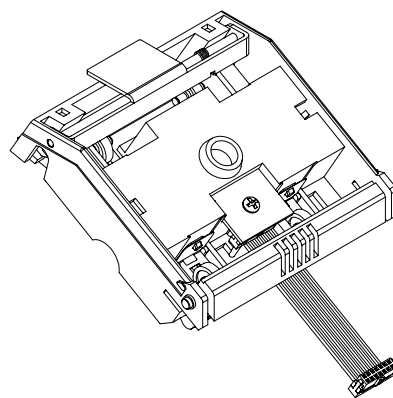
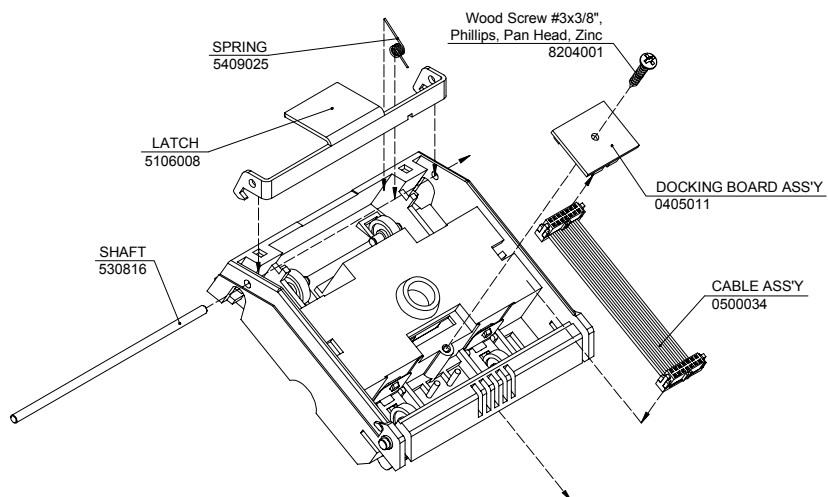
DISASSEMBLY OF GUIDE #0200053

Tools required:

- Flat screwdriver
- Philips screwdriver #1
- Tweezers

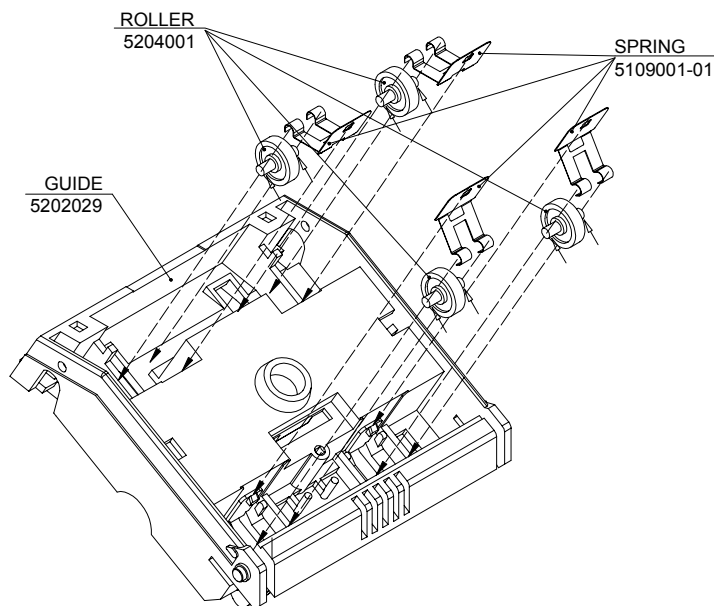
Step 1

- Remove the wood screw, the docking board, and the cable
- Remove the shaft, the latch and the spring
- When assembling, fold the cable as shown



Step 2

Remove the springs and the rollers.



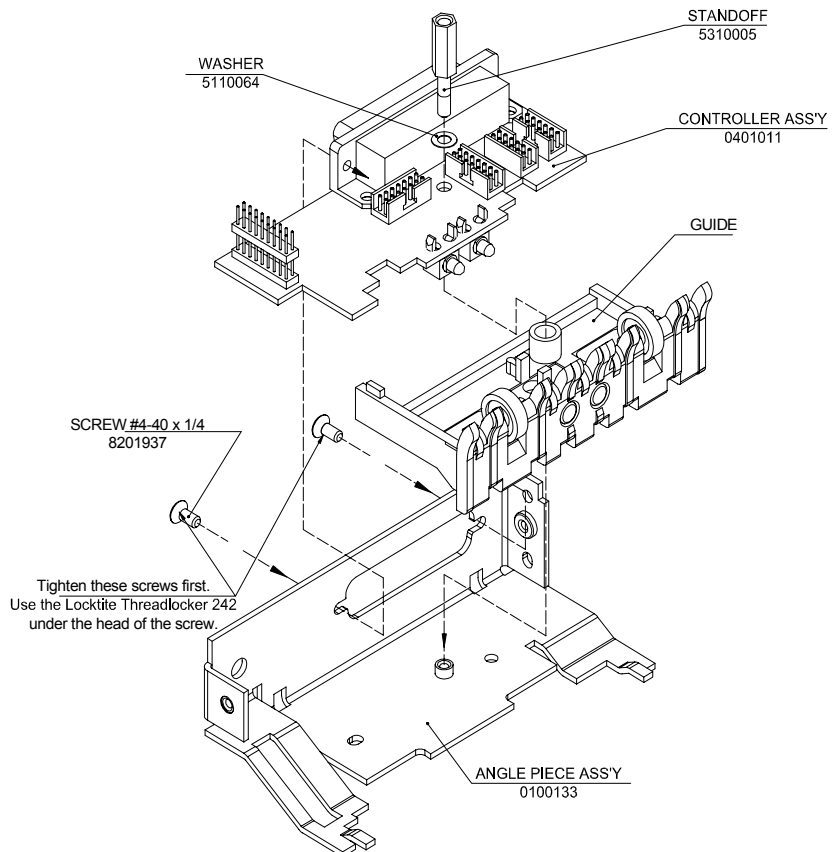
DISASSEMBLY OF ANGLE PIECE #0200054

Tools required:

- Flat screwdriver
- Philips screwdriver #1
- Hex nut wrench (5.5 mm)
- Tweezers

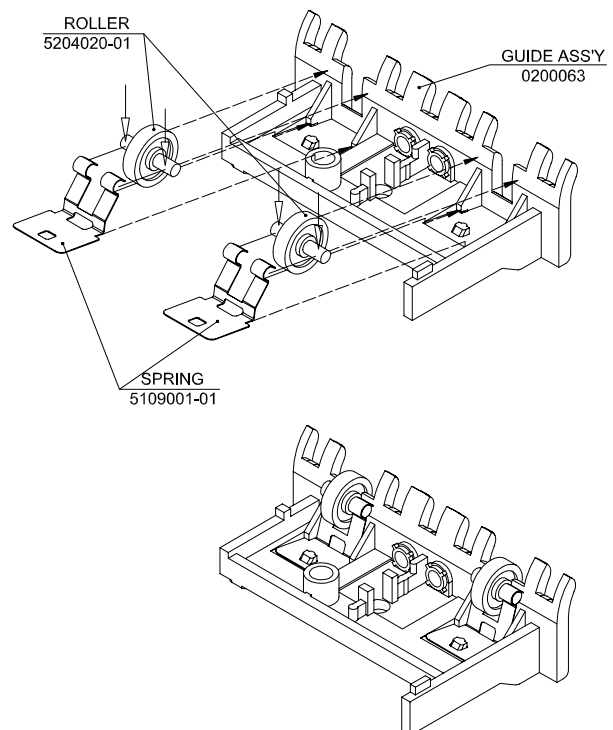
Step 1

- Remove the standoff and the washer
- Remove two screws
- Remove the controller and the guide



Step 2

- Remove the springs and the rollers
- When assembling, please refer to the drawing on this page
- Apply a small amount of Super Lube with Syncon (PTFE) lubricant, on the shafts of the rollers



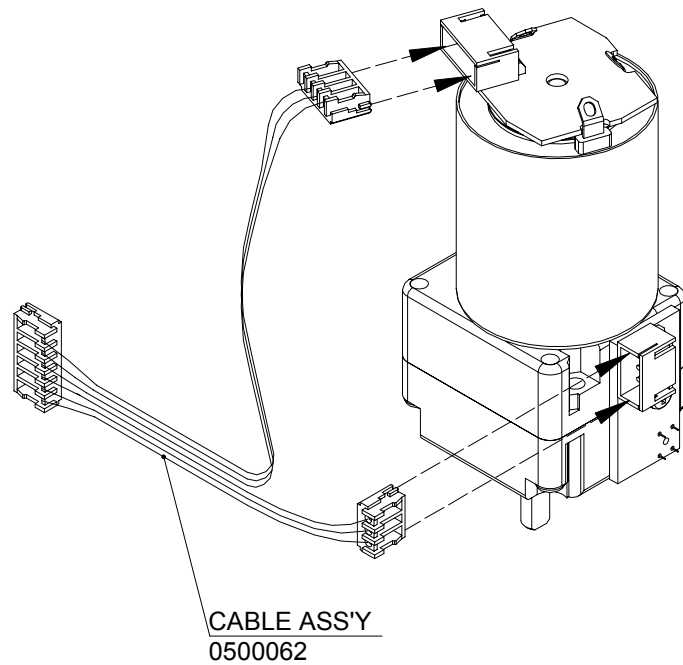
DISASSEMBLY OF DRIVE #0300052

Tools required:

Philips screwdriver #1.

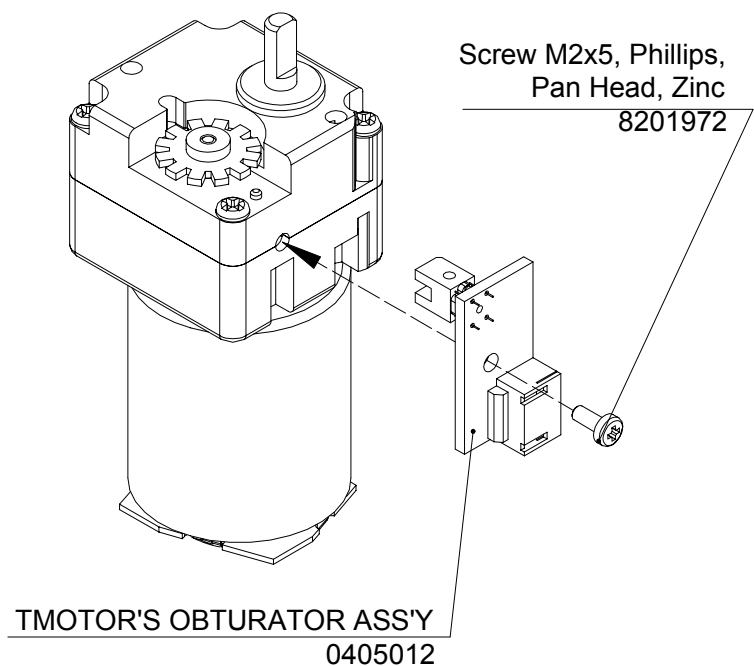
Step 1

Disconnect the cable.



Step 2

Remove the Tmotor obturator board.



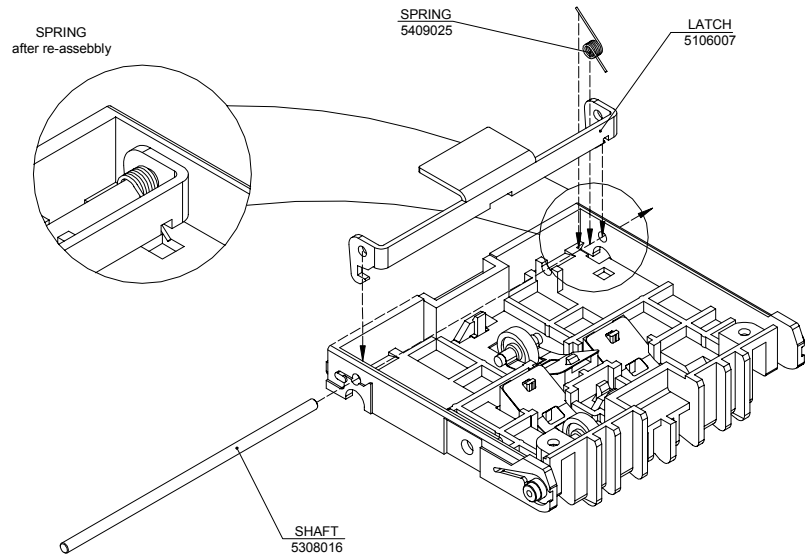
DISASSEMBLY OF GUIDE #0200055

Tools required:

- Flat screwdriver
- Tweezers

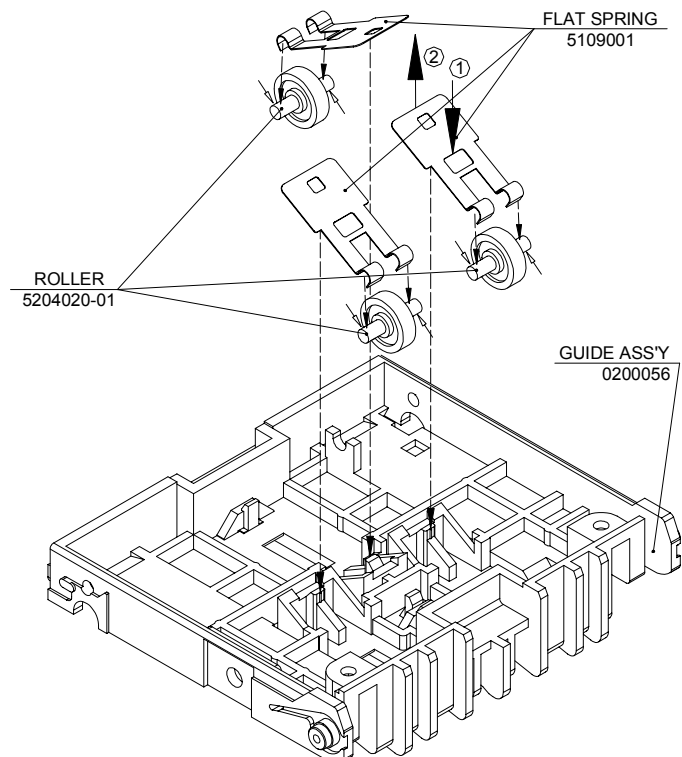
Step 1

Remove the shaft, the latch and the spring.



Step 2

- Remove the springs and the rollers
- To remove the springs, press in the direction of arrow 1, and lift up on the edge, as shown by arrow 2.



REASSEMBLY OF VALIDATING HEAD AND SUBASSEMBLIES.

To reassemble the validating head, please follow the disassembly instructions in the reverse order.

Take care to:

- Check all parts before reassembly for visible physical defects (cracks, deformities, loose or disconnected cable wires, missed elements, etc);
- Remove dirt from all parts with a soft cloth (when needed, some alcohol may be used as a solvent)
- Apply a small amount of Super Lube with Syncolon (PTFE) lubricant to all bearings and gears
- Check the free movement of all movable parts
- Check that no loose parts or tools are left behind in the assembly

TESTING PROCEDURES FOR VALIDATING HEAD AND SUBASSEMBLIES.

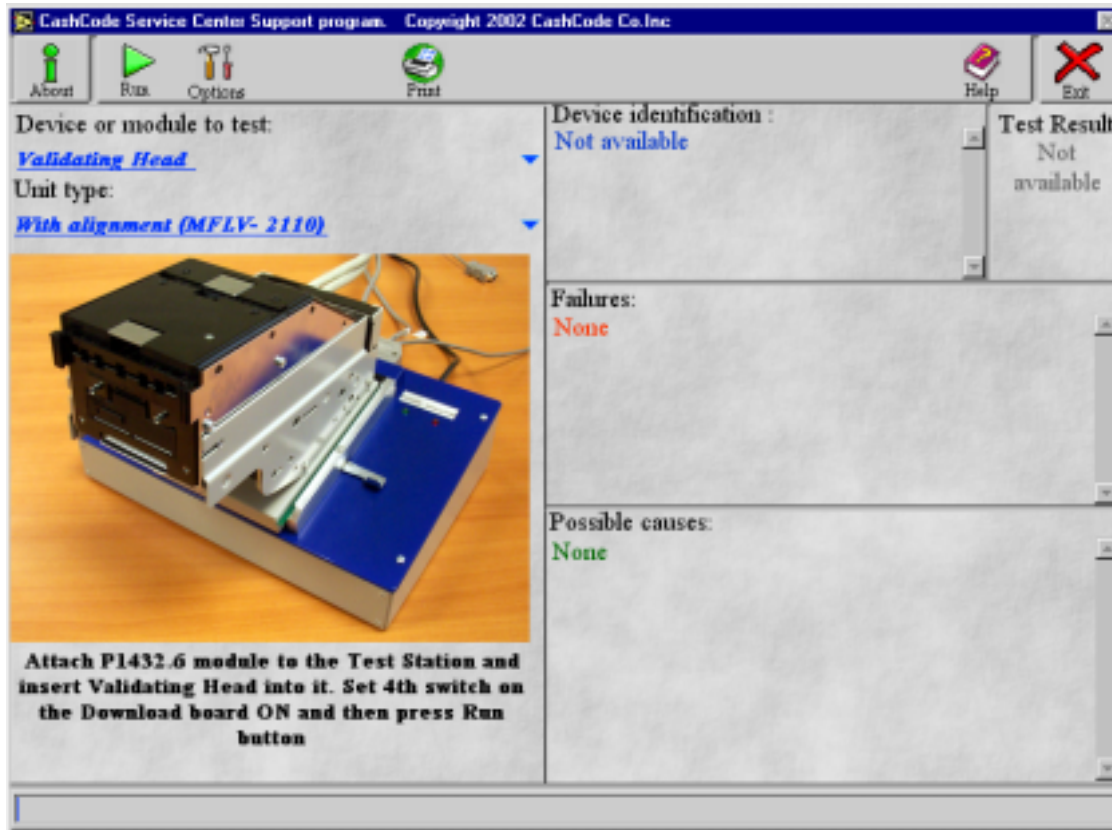
After the reassembly process is complete, the following subassemblies should be tested:

- Drive chassis assembly #0300049 and #0300058.
- Download board #0405028
- Controller #0401011
- Input sensor board #0402018 and #0402019
- Validating head #FLV-0310, #FLV-0510 and #MFLV-2110

Each subassembly must be tested before being installed to the parent assembly.

Testing Procedure for Validating Head #FLV-0310 and #FLV-0510 (Single Width).

- Attach module #P1432.4 to the Service Stand base
- Attach the validating head to module #P1432.4
- On the PC, start by clicking on the icon entitled “CashCode Service Centre Support Software”
- Under “Device or module to test:” select “Validating head”
- Under “Unit type:” select “Without alignment”
- Click on the “Run” button located on the toolbar
- Review test results and failure description

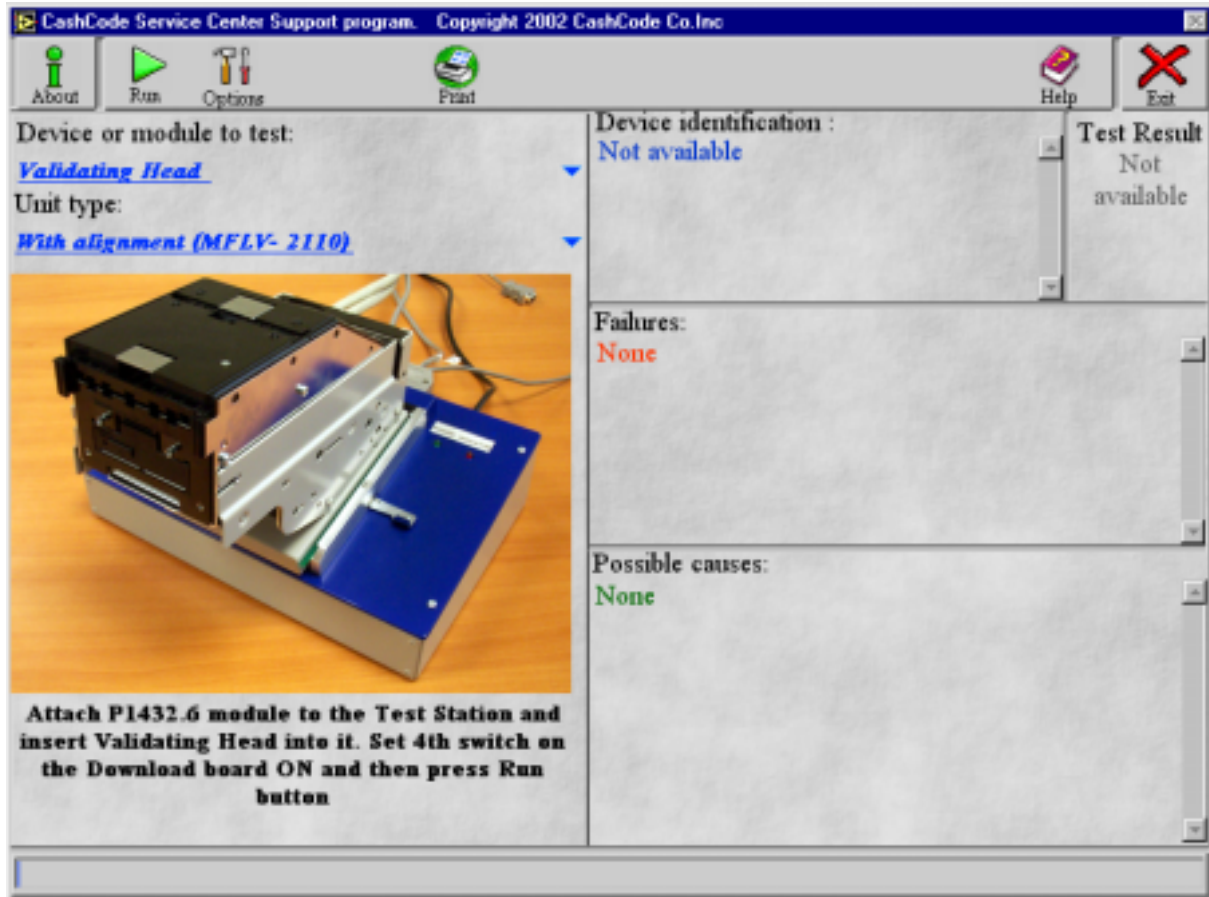


Actual screen shot from a computer using the CashCode Service Stand.

The listed “Failures” and “Possible causes” should help identify any defective components in the validating head. Click on the button entitled “Show Picture”, for an x-ray view with highlighted details.

Testing Procedure for Validating Head #MFLV-2110 (Multi-width with Centering Mechanism).

- Attach module #P1432.4 to the Service Stand base
- Attach the validating head to module #P1432.4
- On the PC, start by clicking on the icon entitled "CashCode Service Centre Support Software"
- Under "Device or module to test:" select "Validating head"
- Under "Unit type:" select "With alignment"
- Click on the "Run" button, located on the toolbar
- Review test results and failure description

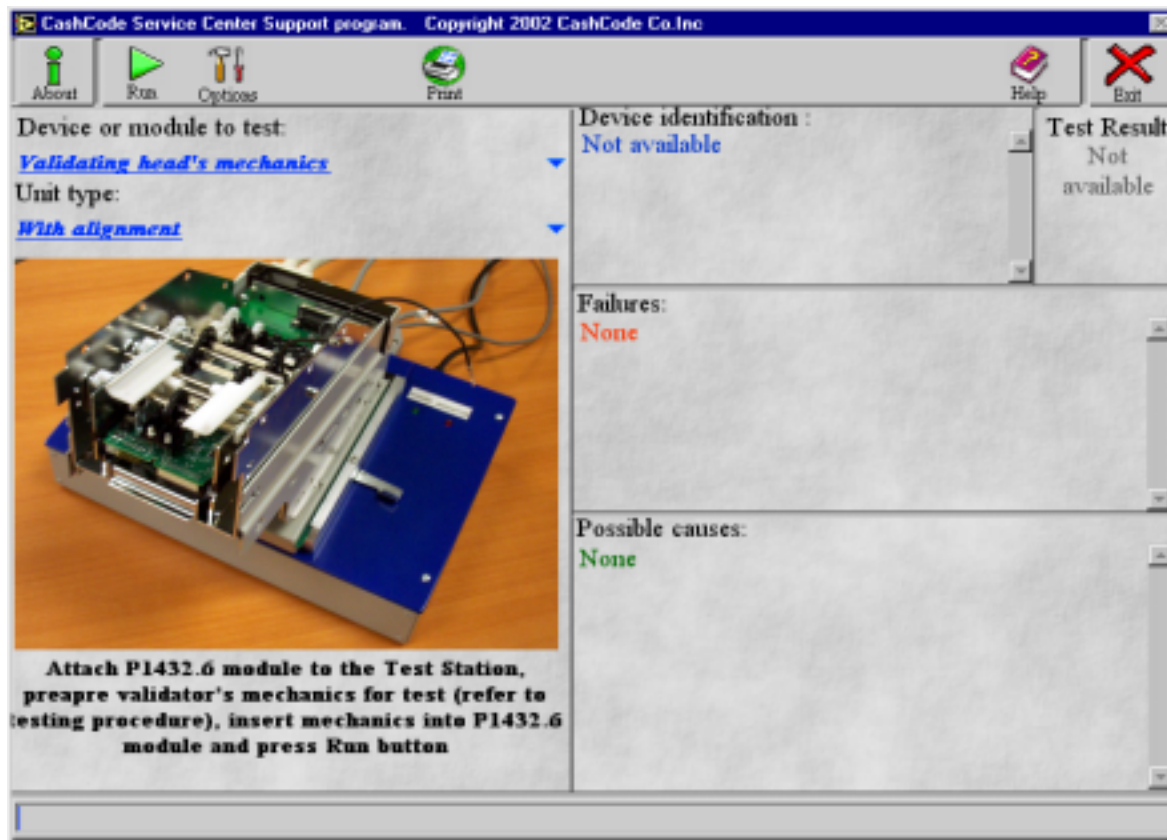


Actual screen shot from a computer using the CashCode Service Stand.

The listed "Failures" and "Possible causes" should help identify the defective components of the validating head. Click on the button entitled "Show Picture" for an x-ray view with highlighted details.

Testing Procedure for Drive Chassis Assembly #0300049 (with Centering Mechanism).

- Attach module #P1432.4 to the Service Stand base
- Attach sub-module #P1432.624 to #P1432.4, as a substitute angle piece
- Install the drive chassis assembly and the connectors to #P1432.624
- On the PC, start by clicking on the icon entitled "CashCode Service Centre Support Software"
- Under "Device or module to test:" select "Validating head's mechanics"
- Under "Unit type:", select "With alignment"
- Click on the "Run" button located on the toolbar
- Review test results and failure description

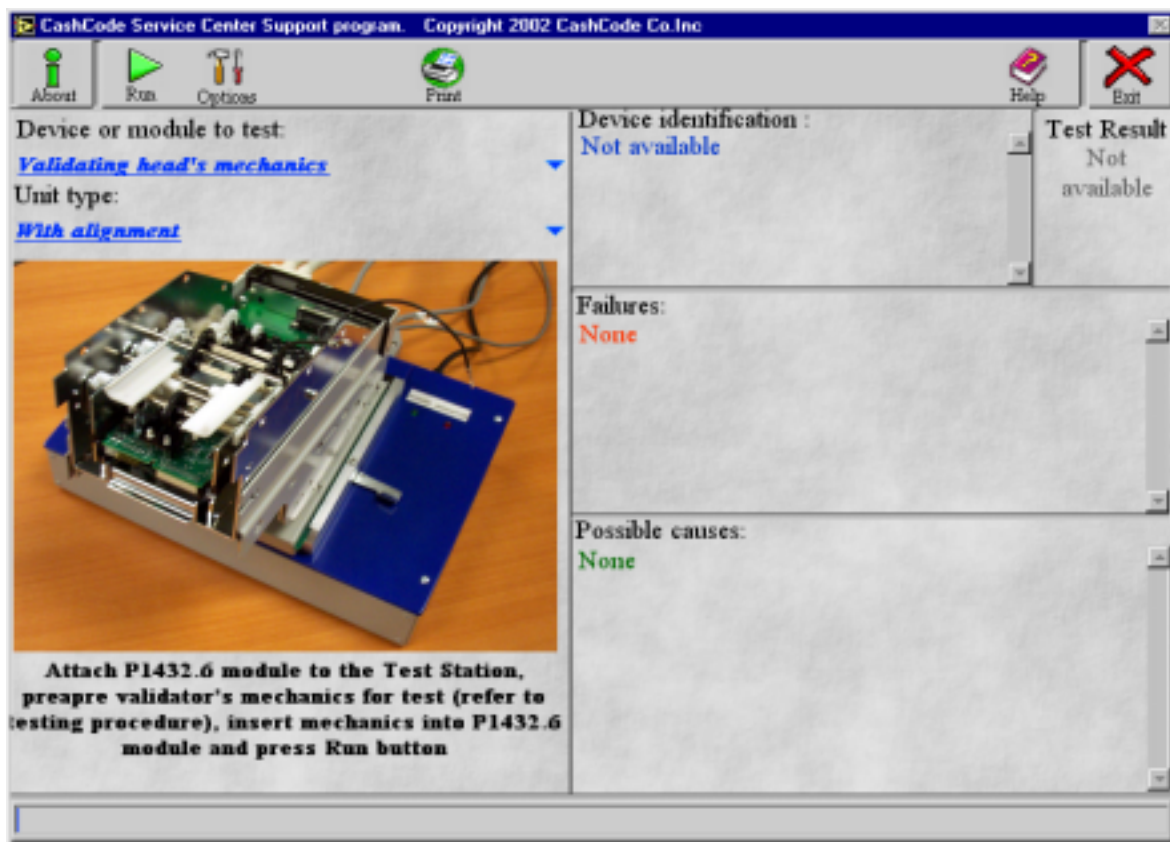


Actual screen shot from a computer using the CashCode Service Stand.

The listed "Failures" and "Possible causes" should help identify the defective components of the validating head. Click on the button entitled "Show Picture" for an x-ray view with highlighted details.

Testing Procedure for Drive Chassis Assembly #0300058 (Single Width).

- Attach module #P1432.4 to the Service Stand base
- Attach sub-module #P1432.624 to #P1432.4, as a substitute angle piece
- Install the drive chassis assembly and the connectors to #P1432.624
- On the PC, start by clicking on the icon entitled "CashCode Service Centre Support Software"
- Under "Device or module to test:", select "Validating head's mechanics"
- Under "Unit type:" select "Without alignment"
- Click on the "Run" button located on the toolbar
- Review test results and failure description

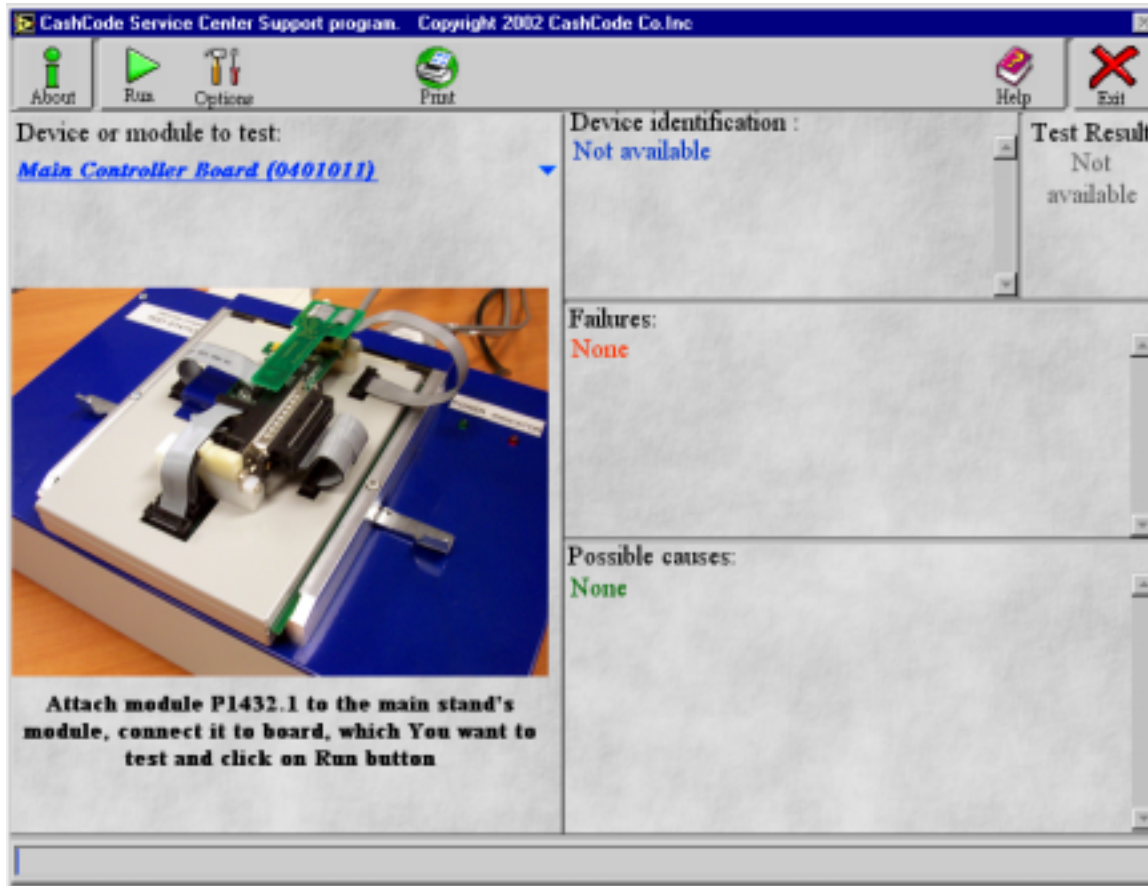


Actual screen shot from a computer using the CashCode Service Stand.

The listed "Failures" and "Possible causes" should help identify any defective components of the validating head. Click on button entitled "Show Picture" for an x-ray view with highlighted details.

Testing procedure for Controller #0401011.

- Attach module #P1432.1 to the Service Stand base
- Install the controller to module #P1432.1, and cConnect the flex cables as shown
- On the PC, start by clicking on the icon entitled "CashCode Service Centre Support Software"
- Under "Device or module to test:" select "Main Controller Board 0401011"
- Click on the "Run" button located on the toolbar
- Review test results and failure description

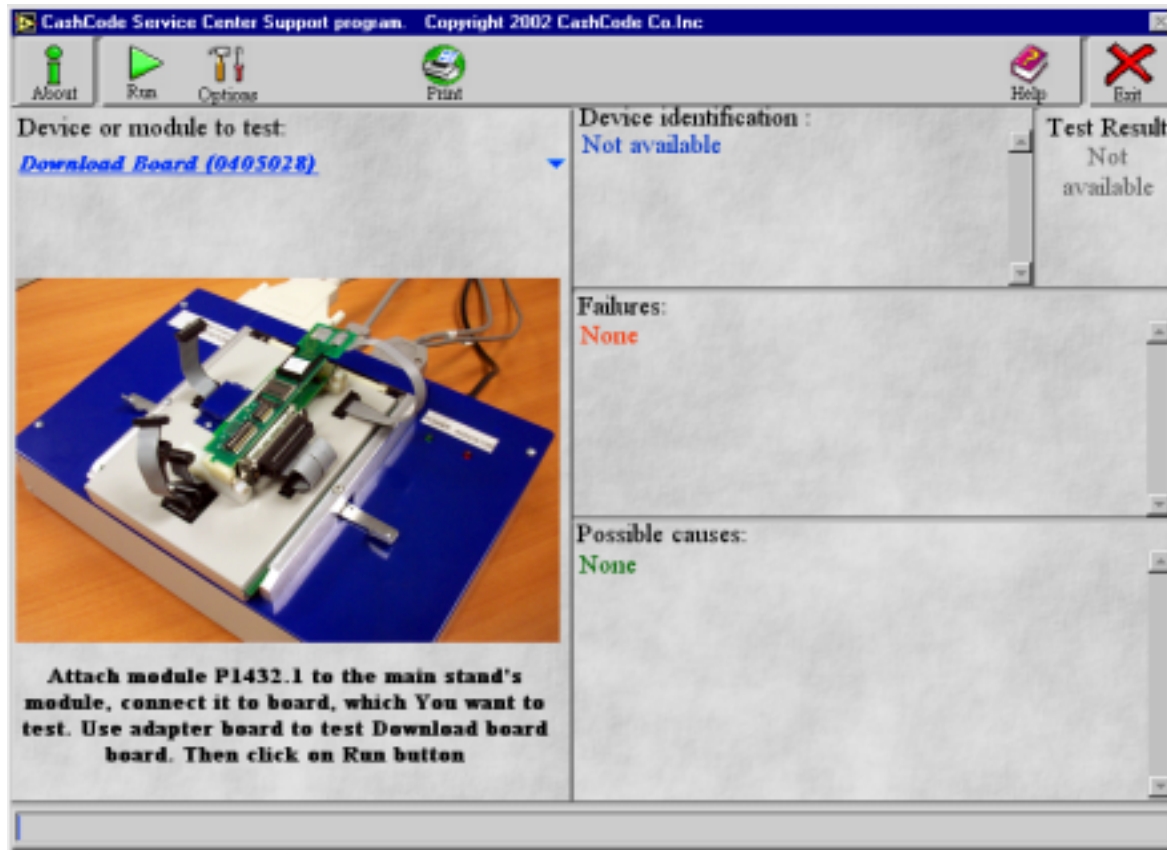


Actual Screen Shot from computer using CashCode Service Stand.

The listed "Failures" and "Possible causes" should help identify the defective components of the validating head. Click on button entitled "Show Picture", for an x-ray view with highlighted details.

Testing Procedure for Download Board #0405028.

- Attach module #P1432.1 to the Service Stand base
- Install sub-module #P1432.1.3 to #P1432.1
- Install the download board to module #P1432.1.3
- On the PC, start by clicking on the icon entitled "CashCode Service Centre Support Software"
- Under "Device or module to test:" select "Download board 0405028"
- Click on the "Run" button, located on the toolbar
- Review test results and failure description

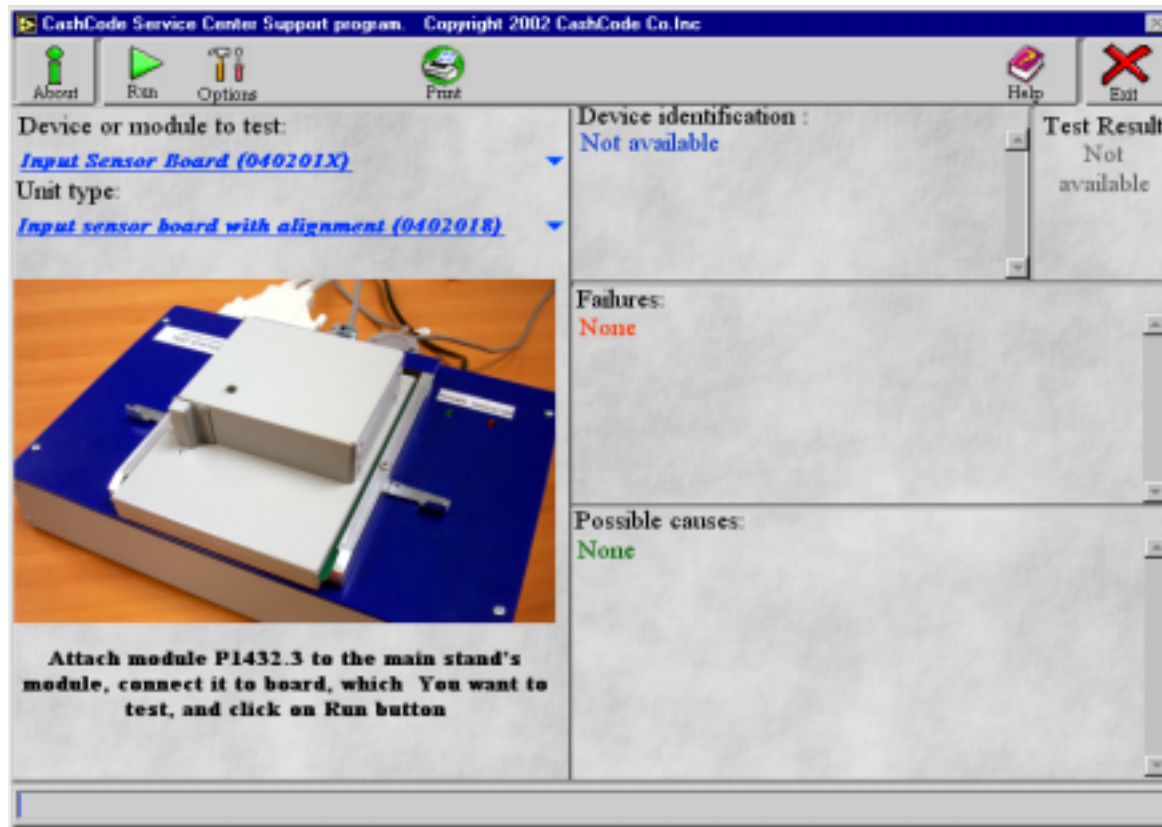


Actual Screen Shot from computer using the CashCode Service Stand.

The listed "Failures" and "Possible causes" should help identify any defective components in the validating head. Click on the button entitled "Show Picture", for an x-ray view with highlighted details.

Testing Procedure for Input Sensor Board #0402018 and #0402019.

- Attach module #P1432.3 to the Service Stand base
- Install the input sensor board to module #P1432.3
- On the PC, start by clicking on the icon entitled “CashCode Service Centre Support Software”
- Under “Device or module to test:” select “With” or “Without Alignment”
- Click on the “Run” button, located on the toolbar
- Review test results and failure description



Actual Screen Shot from computer using CashCode Service Stand.

The listed “Failures” and “Possible causes” should help identify any defective components in the validating head. Click on button entitled “Show Picture”, for an x-ray view with highlighted details.

SENSE-A-CLICK SENSOR SET:

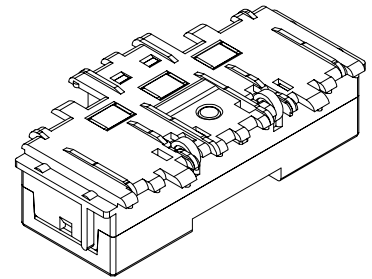
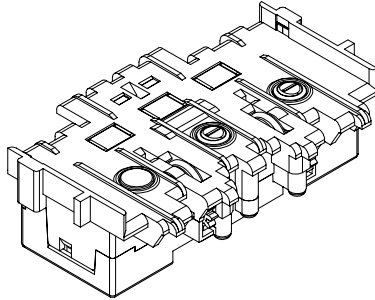
LOWER MODULES

UPPER MODULES

FLS-1704
FLS-1705

FLS-1704L
FLS-1705L

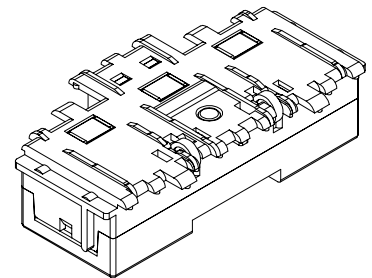
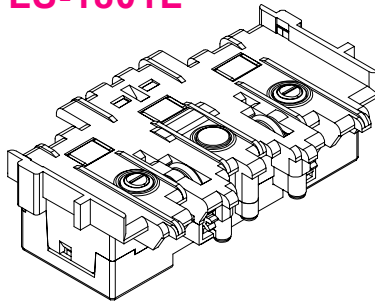
FLS-1704U
FLS-1705U



FLS-1801

FLS-1801L

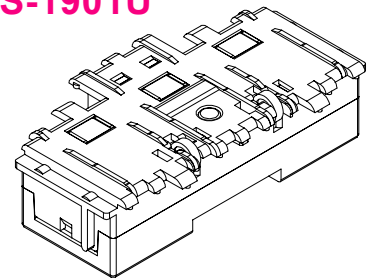
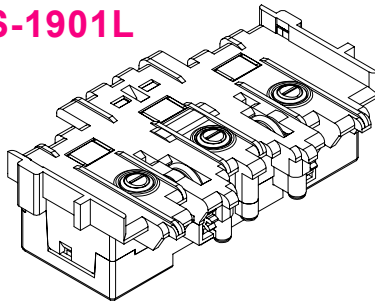
FLS-1801U



FLS-1901

FLS-1901L

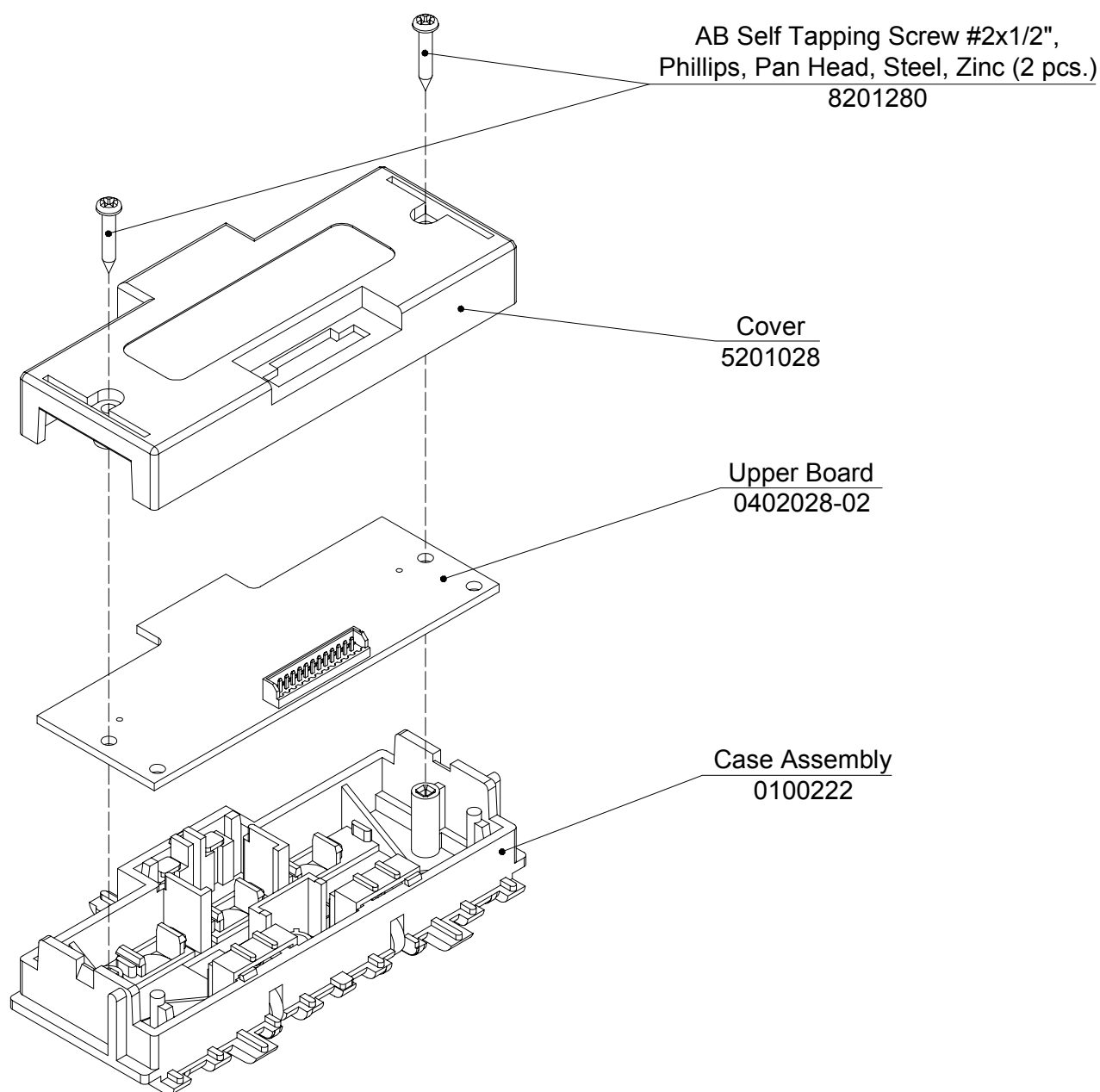
FLS-1901U



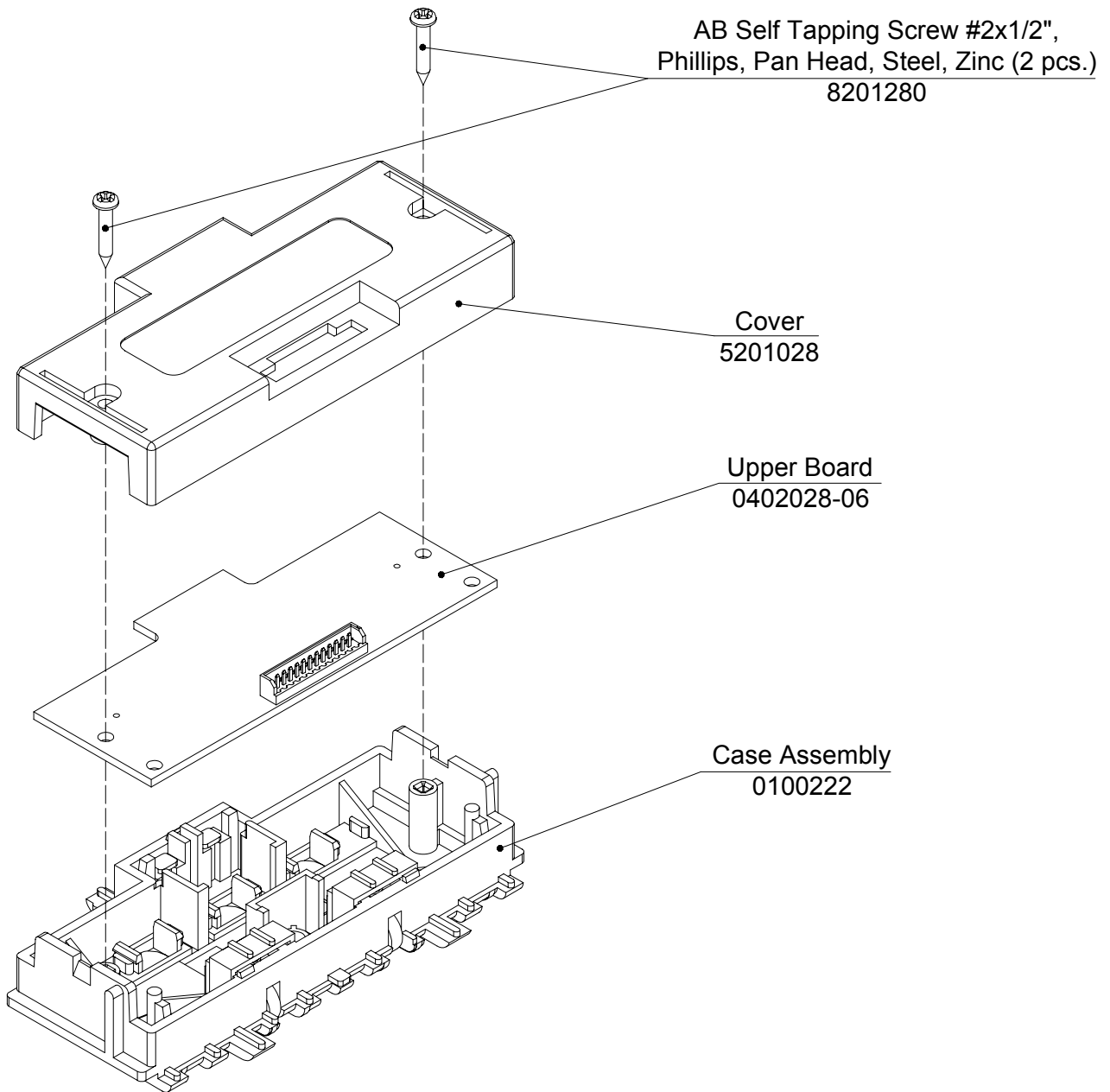
For Sense-a-Click modules, designations refer to pages 1-15 of the Operations Manual.

SENSE-A-
CLICK

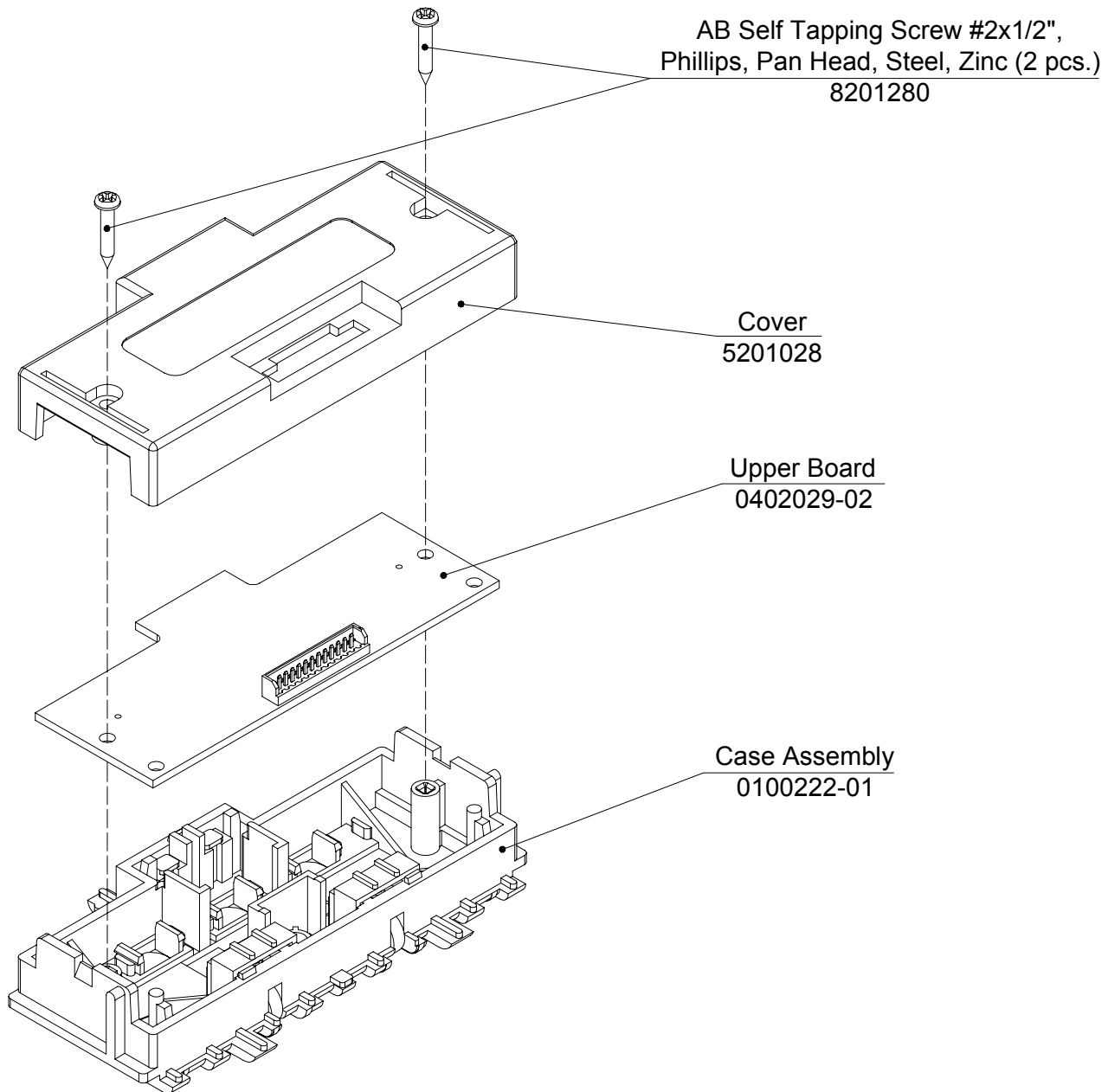
Exploded view of upper Sense-a-Click module #FLS-1704U:



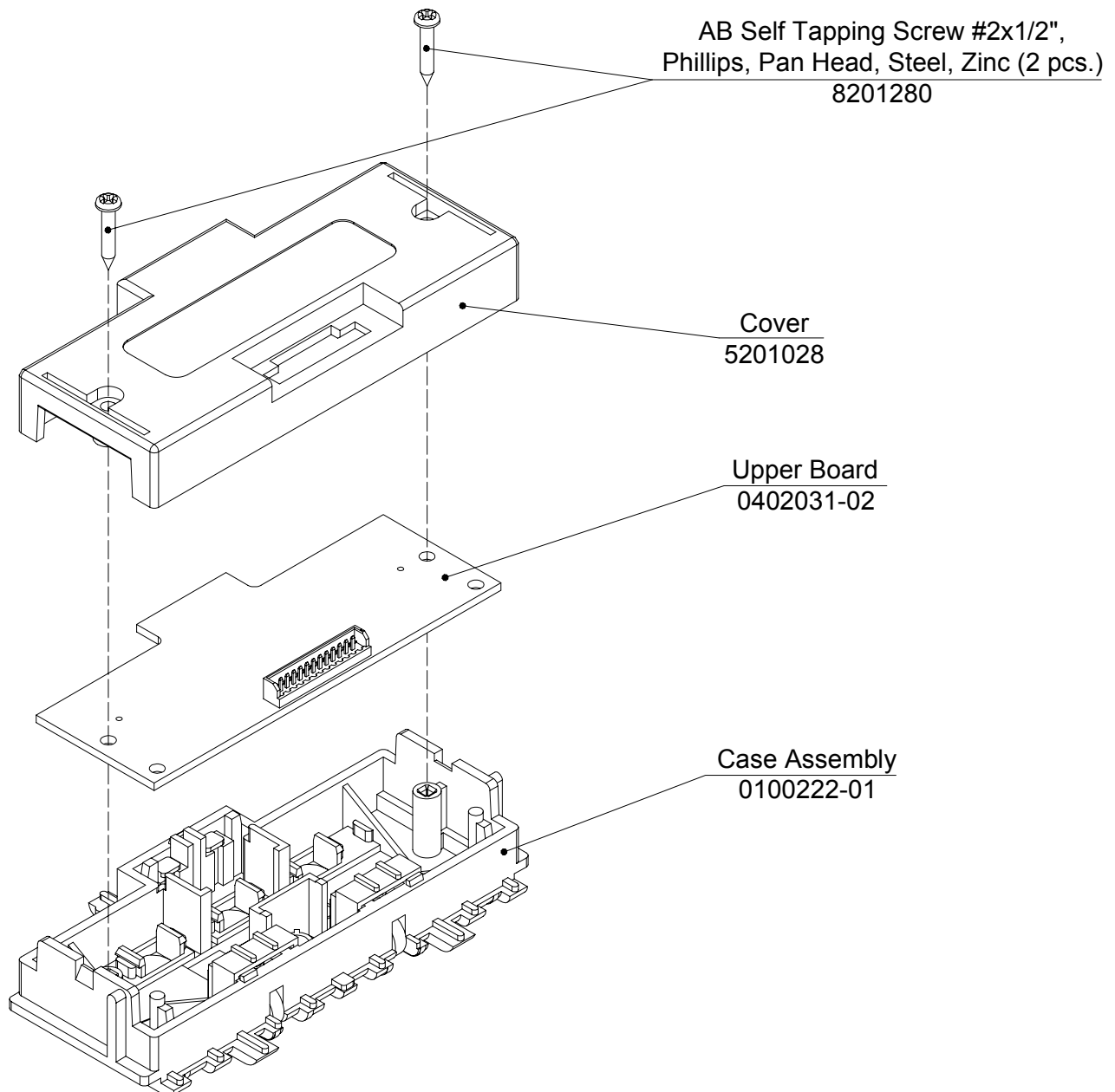
Exploded view of upper Sense-a-Click module #FLS-1705U:



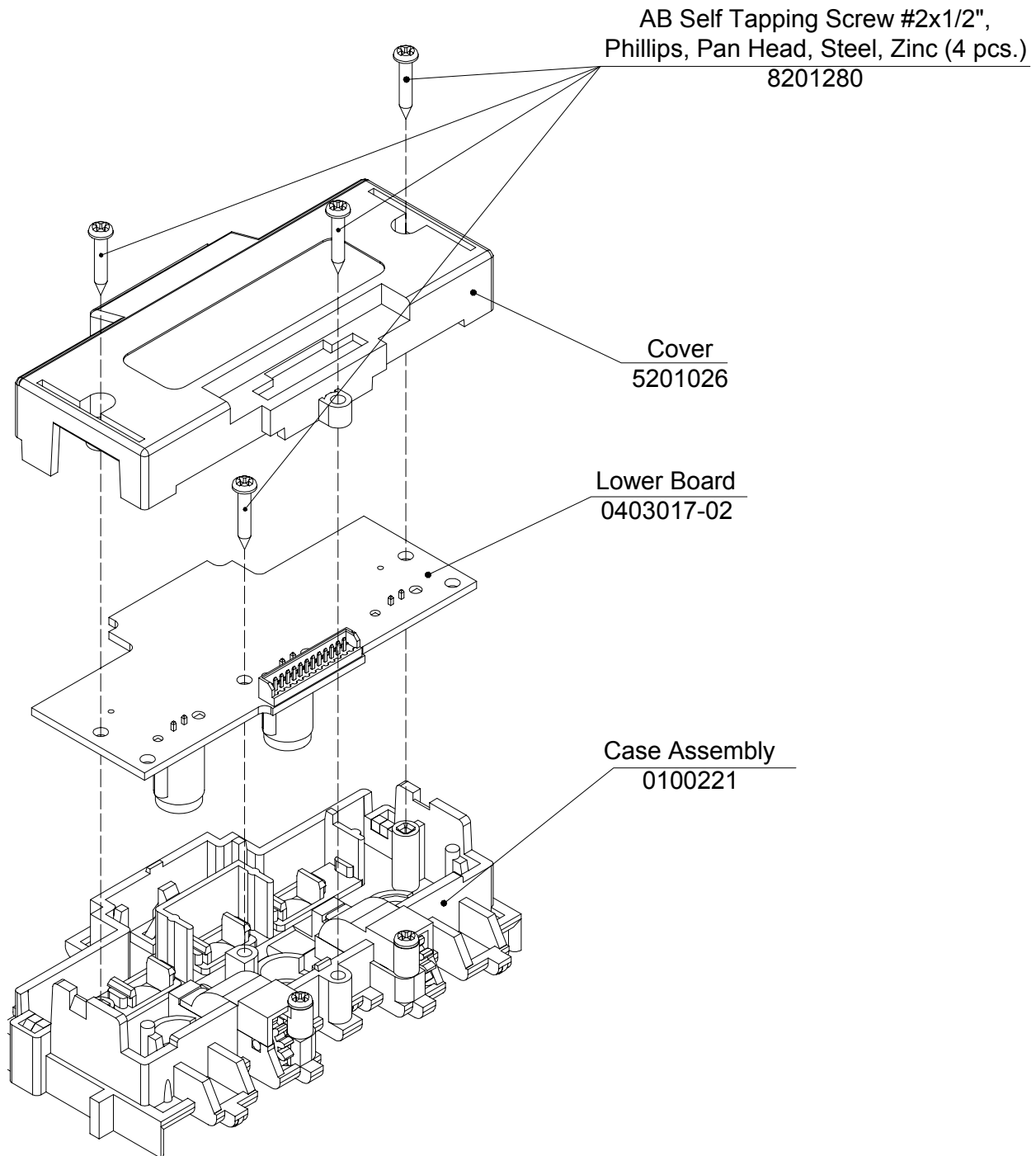
Exploded view of upper Sense-a-Click module #FLS-1801U:



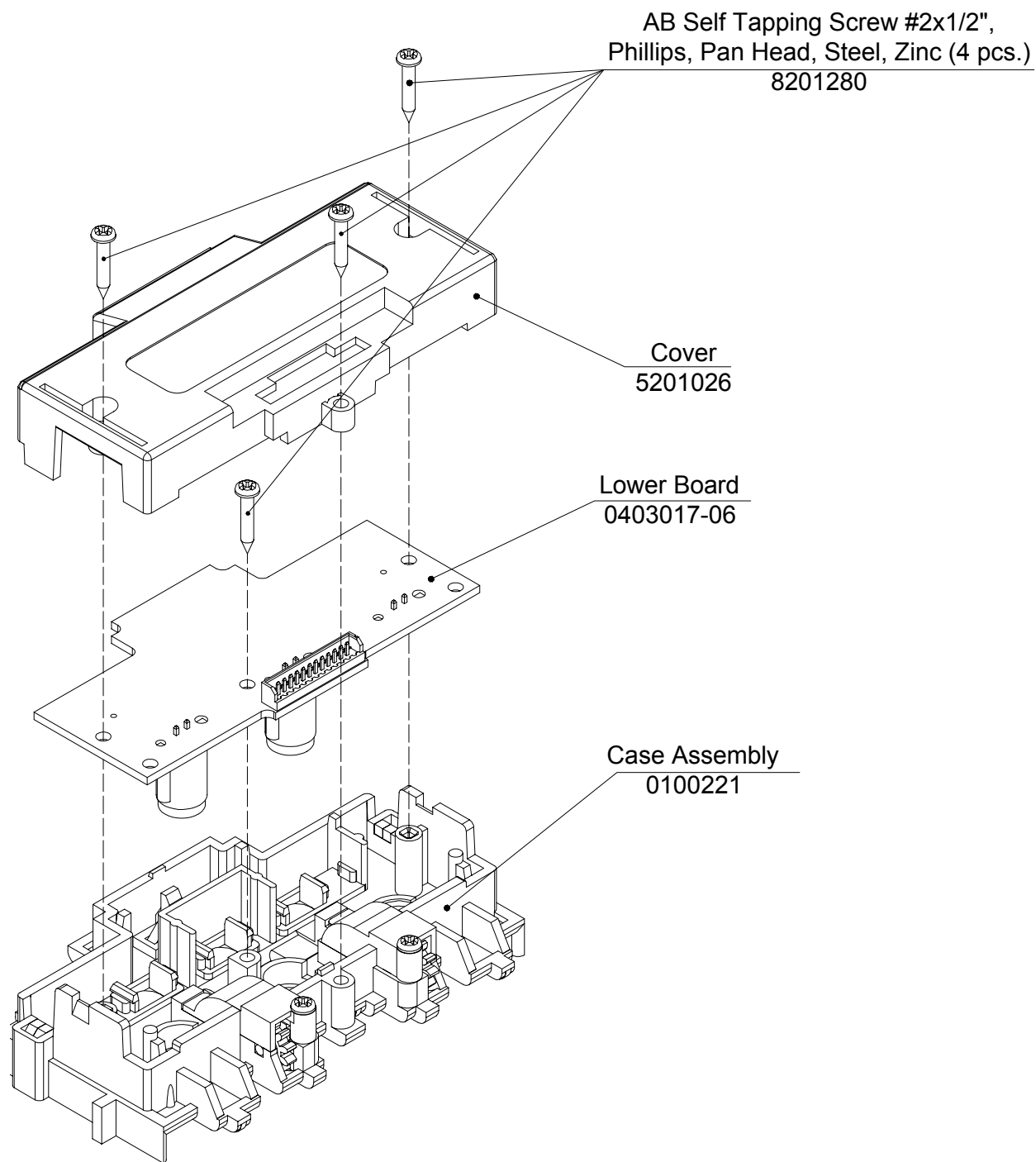
Exploded view of upper Sense-a-Click module #FLS-1901U:



Exploded view of lower Sense-a-Click module #FLS-1704L:

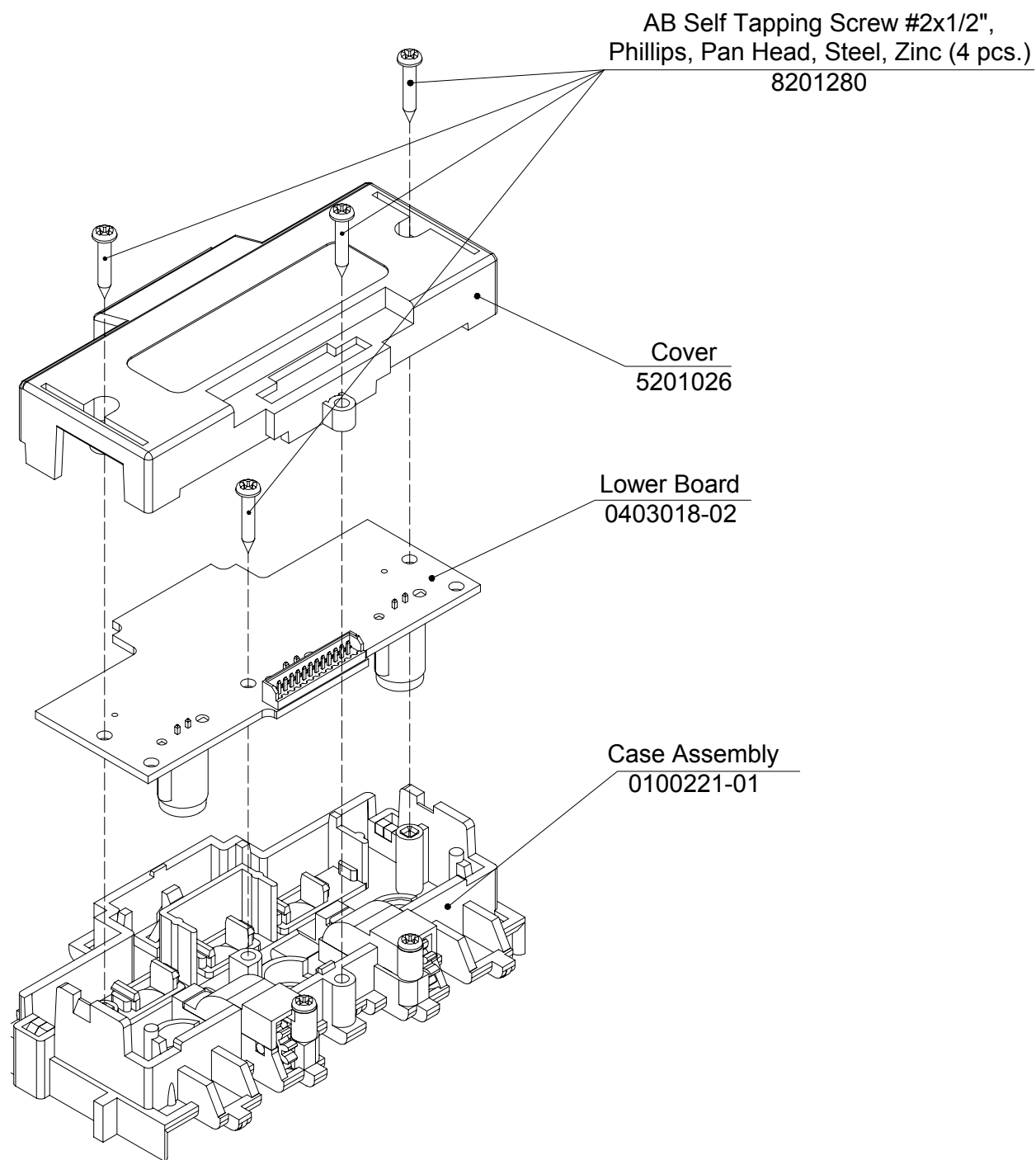


Exploded view of lower Sense-a-Click module #FLS-1705L:

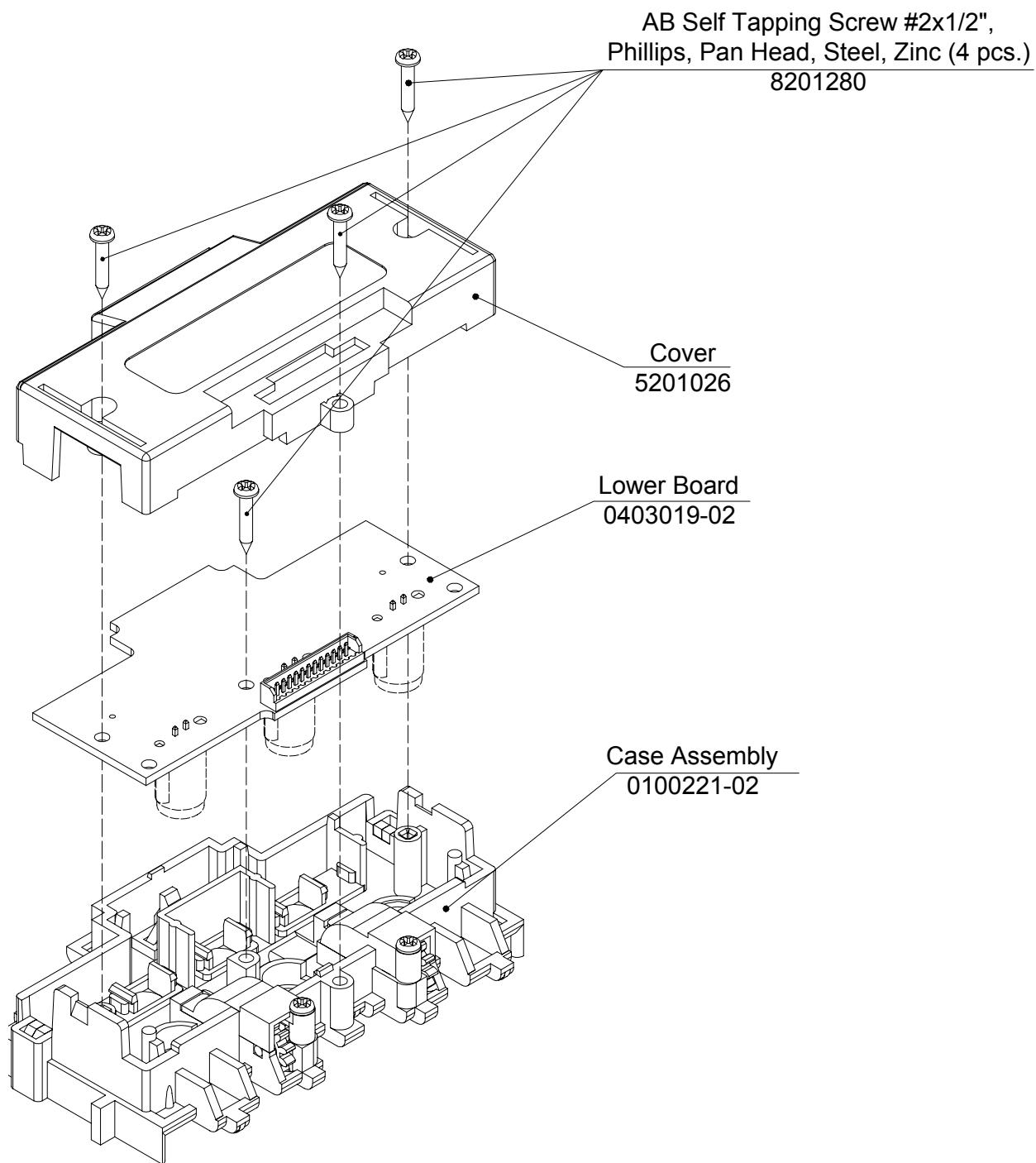


SENSE-A-
CLICK

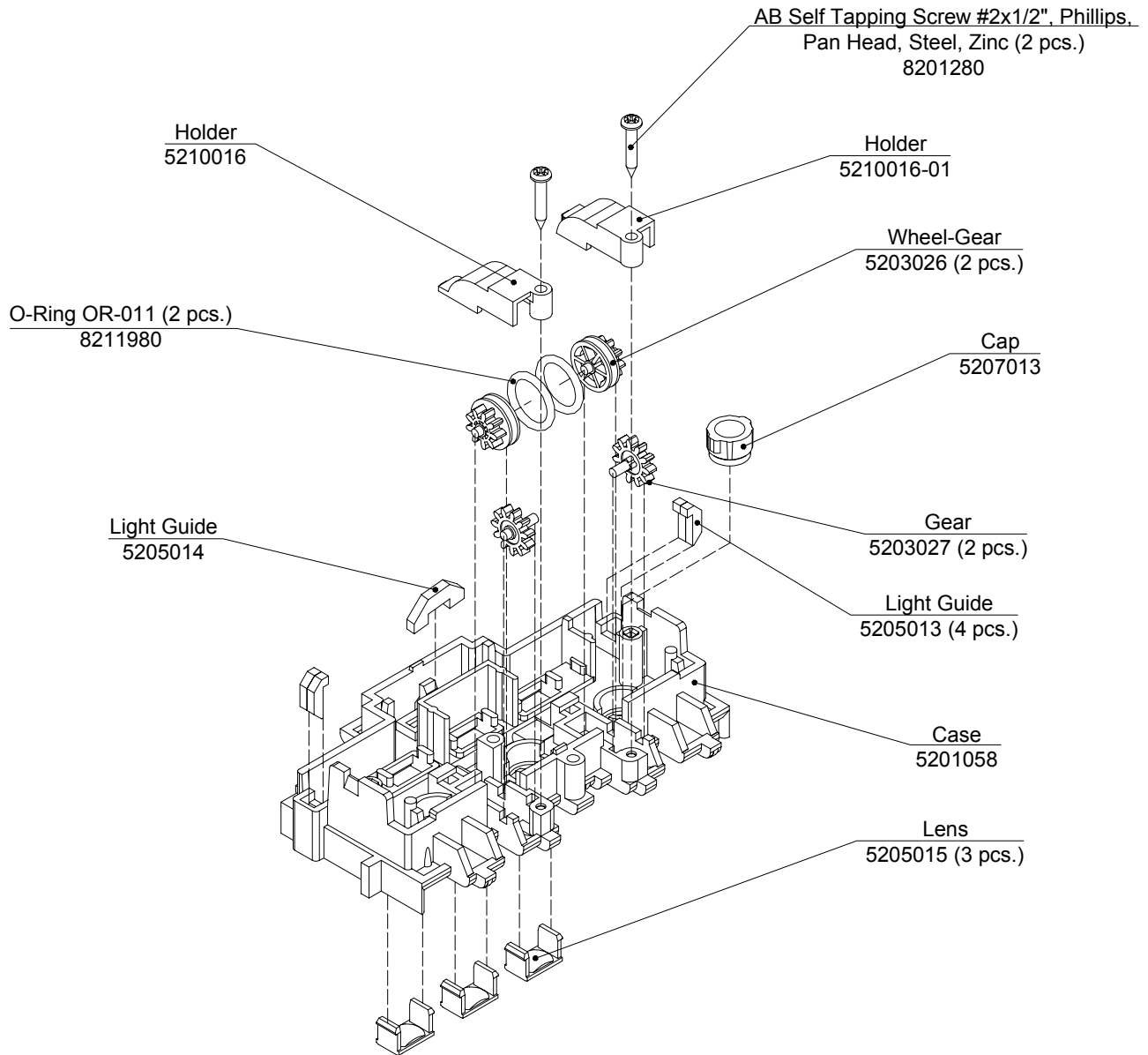
Exploded view of lower Sense-a-Click module #FLS-1801L:



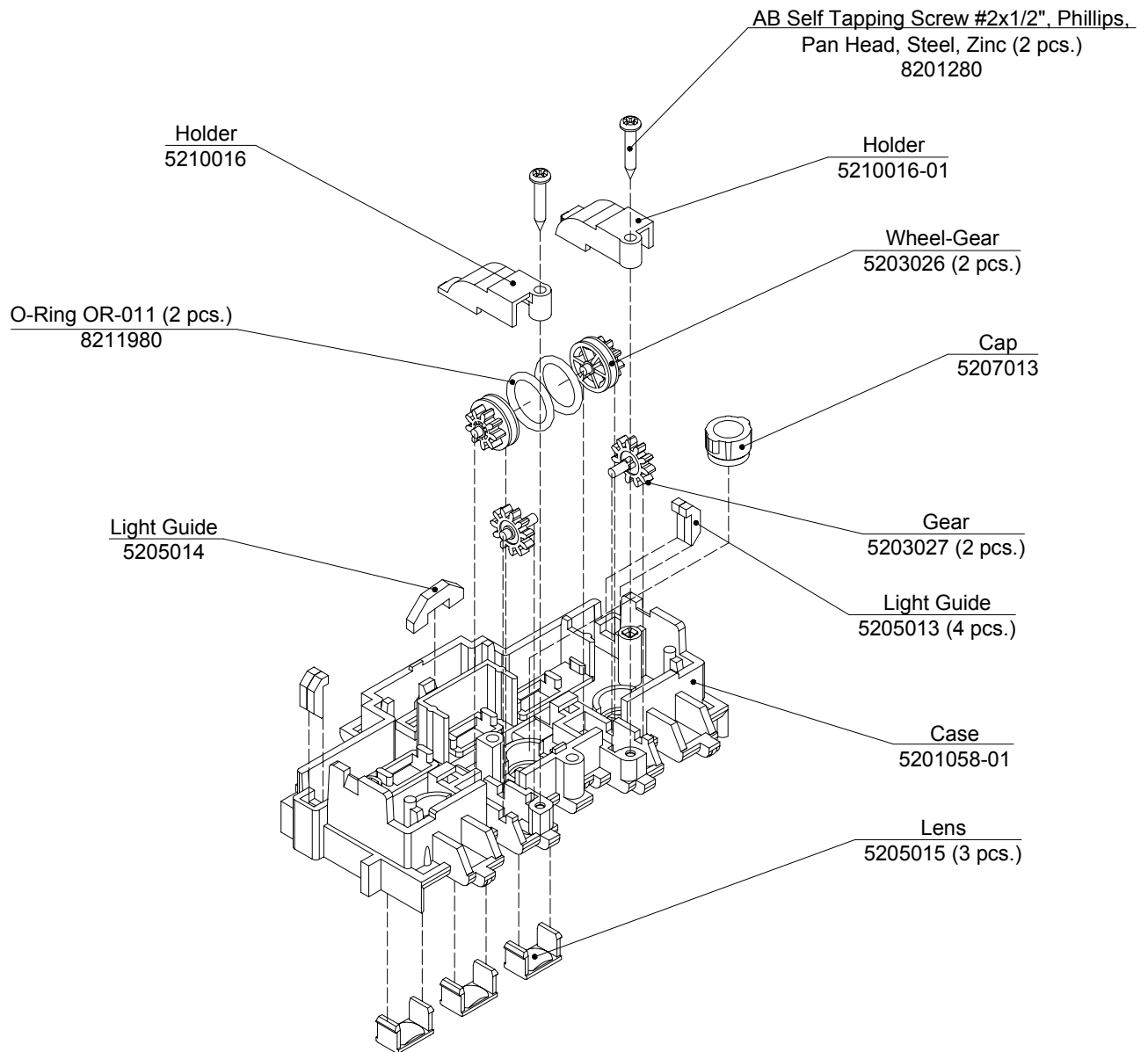
Exploded view of lower Sense-a-Click module #FLS-1901L:



Exploded view of case assembly #0100221:

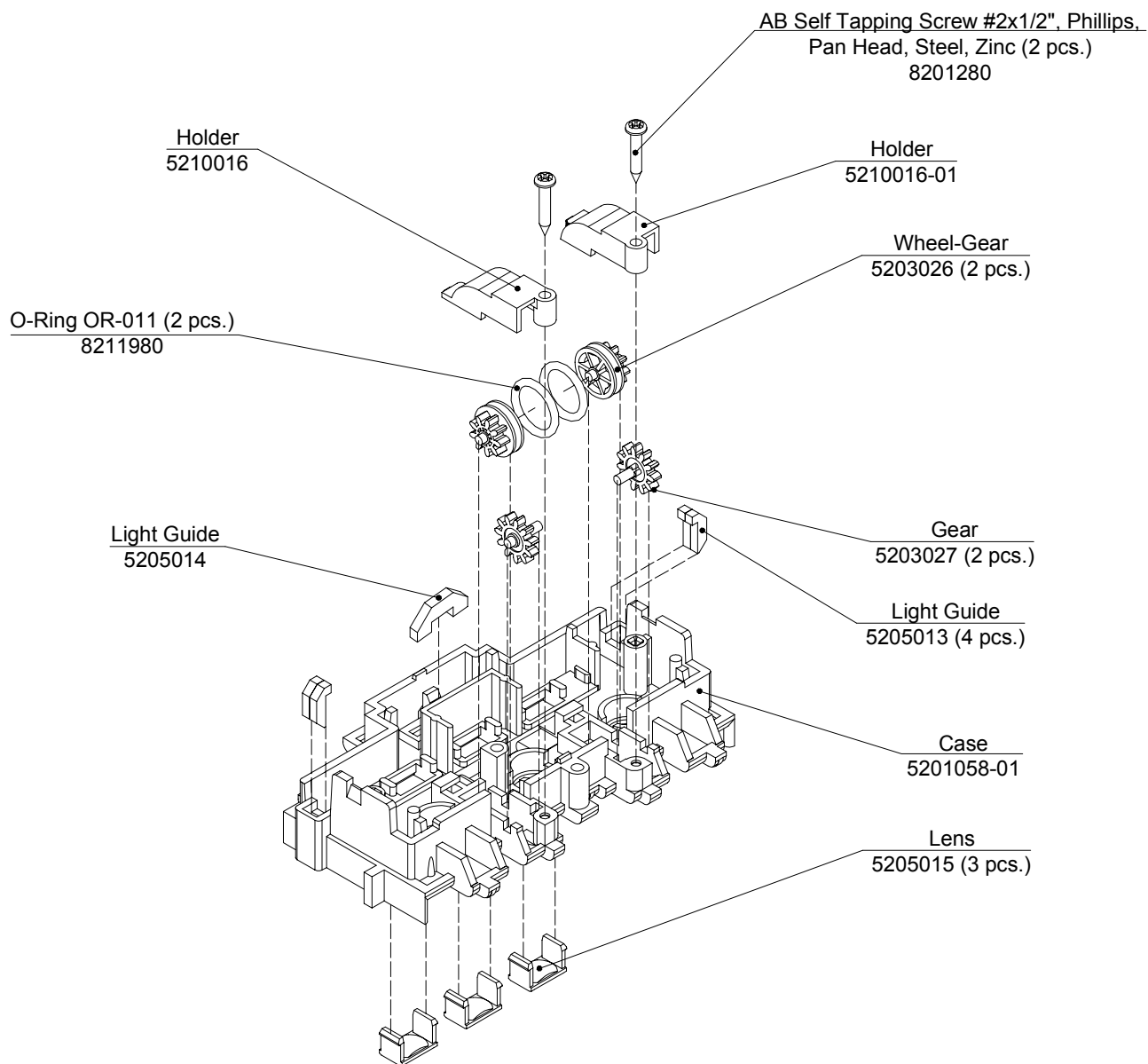


Exploded view of case assembly #0100221-01:

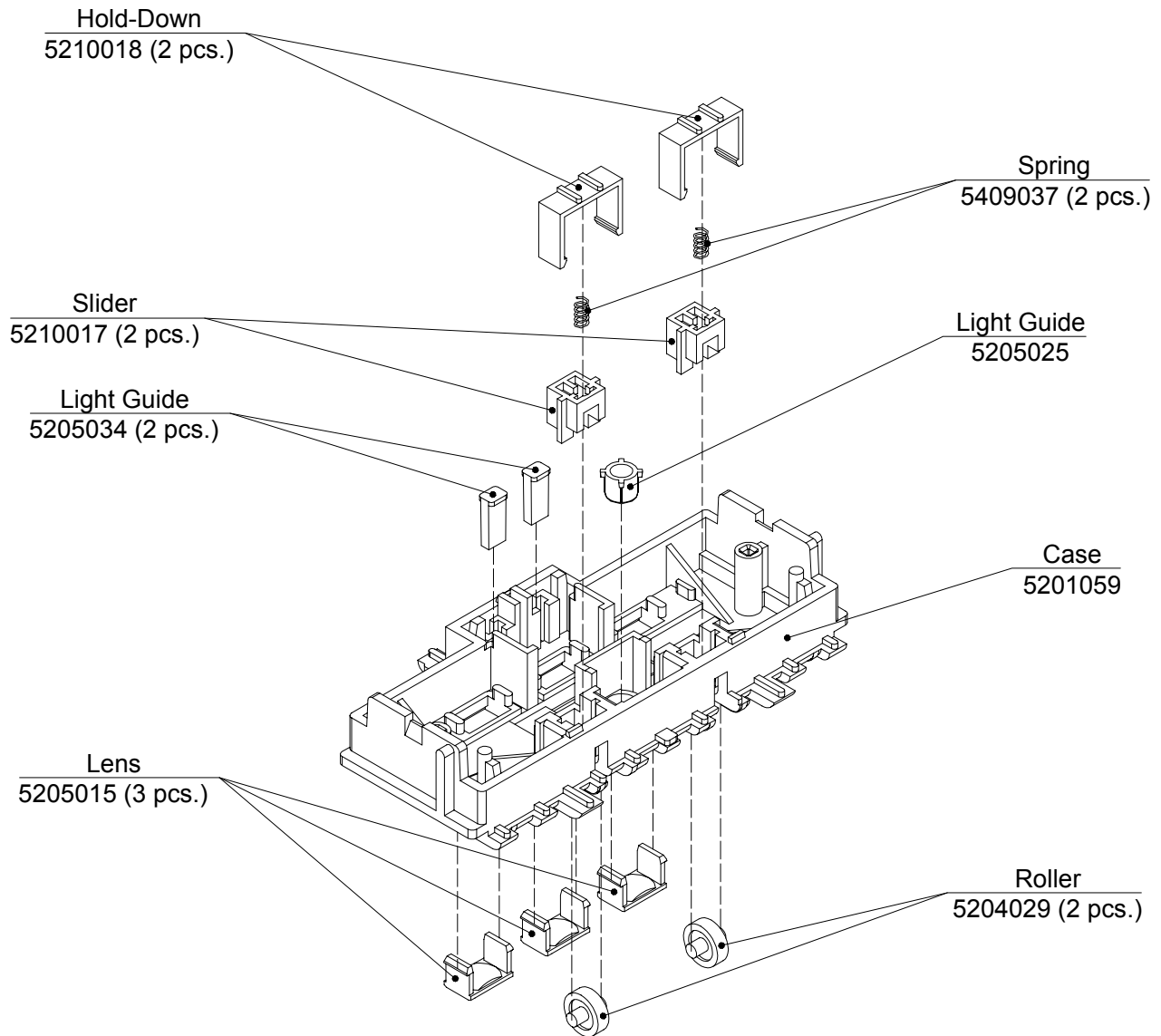


SENSE-A-CLICK

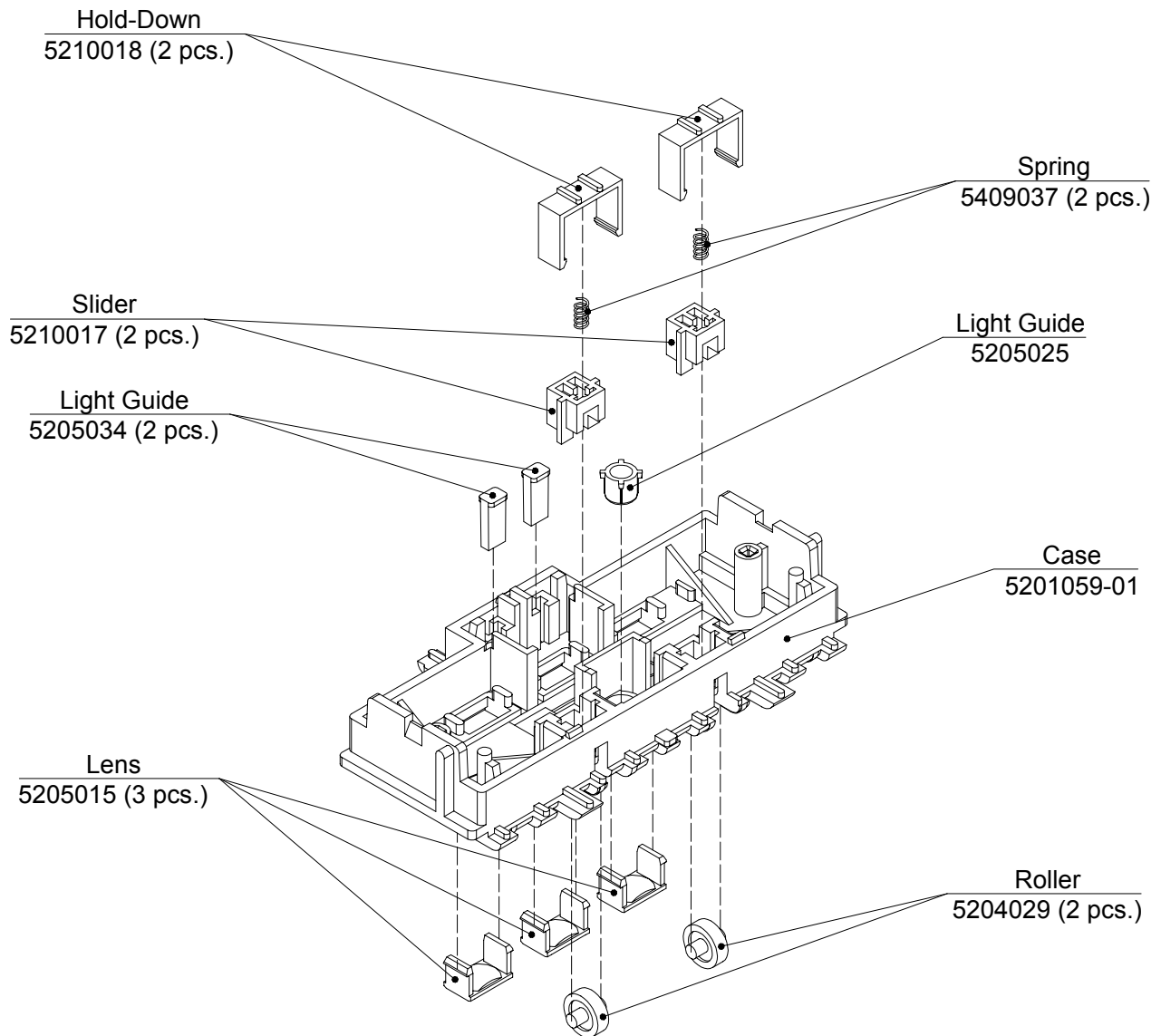
Exploded view of case assembly #0100221-02:



Exploded view of case assembly #0100222:



Exploded view of case assembly #0100222-01:



LIST OF SPARE PARTS FOR SENSE-A-CLICK

Item	Part Number	Description	Total quantity			
			FLS-1704	FLS-1705	FLS-1801	FLS-1901
1	0100221	Case Assembly	1	1		
2	0100221-01	Case Assembly			1	
3	0100221-02	Case Assembly				1
4	0100222	Case Assembly	1	1		
5	0100222-01	Case Assembly			1	1
6	0402028-02	Upper Board	1			
7	0402028-06	Upper Board		1		
8	0402029-02	Upper Board			1	
9	0402031-02	Upper Board				1
10	0403017-02	Lower Board	1			
11	0403017-06	Lower Board		1		
12	0403018-02	Lower Board			1	
13	0403019-02	Lower Board				1
14	5201026	Cover	1	1	1	1
15	5201028	Cover	1	1	1	1
16	5201058	Case	1	1		
17	5201058-01	Case			1	1
18	5201059	Case	1	1		
19	5201059-01	Case			1	1
20	5203026	Wheel-Gear	2	2	2	2
21	5203027	Gear	2	2	2	2
22	5204029	Roller	2	2	2	2
23	5205013	Light Guide	4	4	4	4
24	5205014	Light Guide	1	1	1	1
25	5205015	Lens	6	6	6	6
26	5205025	Light Guide	1	1	1	1
27	5205034	Light Guide	2	2	2	2
28	5207013	Cap	1	1	1	
29	5210016	Holder	1	1	1	1
30	5210016-01	Holder	1	1	1	1
31	5210017	Slider	2	2	2	2
32	5210018	Hold-Down	2	2	2	2
33	5409037	Spring	2	2	2	2
34	8201280	AB Self Tapping Screw #2x1/2". Pan Head, Phil, Zinc	8	8	8	8
35	8211980	O-Ring OR-011 (5/16- 7/16-1/16)	2	2	2	2

DISASSEMBLY OF SENSE-A-CLICK MODULES AND SUBASSEMBLIES.

DISASSEMBLY OF SENSE-A-CLICK MODULES:

- FLS-1704L
- FLS-1704U
- FLS-1705L
- FLS-1705U
- FLS-1801L
- FLS-1801U
- FLS-1901L
- FLS-1901U

Tools required:

Philips screwdriver#1.

Refer to corresponding exploded views from preceding pages. **Be careful not to overtighten the self-tapping screws.**

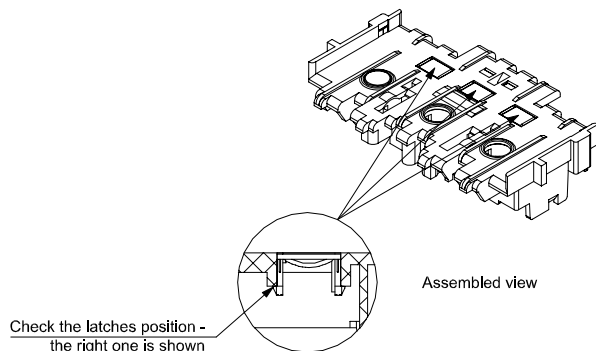
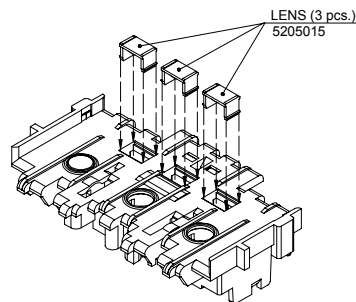
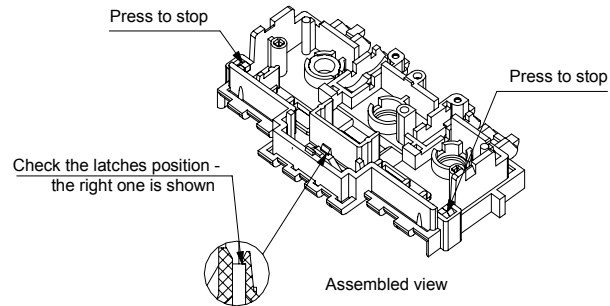
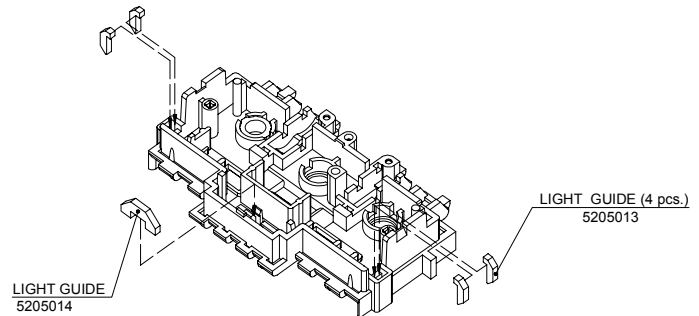
DISASSEMBLY OF CASE ASSEMBLY #0100221.

Tools required:

- Philips screwdriver #1
- Flat screwdriver

Step 1

- Remove light guides
- Gently release the latch in order to remove light guide #5205014
- Light guides #5205013 are secured only by cover #5201026 (see "Exploded View of Lower Sense-a-Click Module")



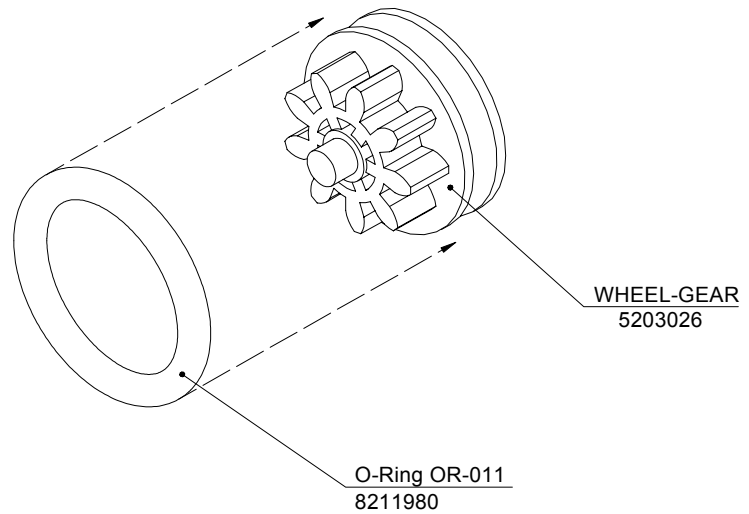
Step 2

Gently press on the latches to release and remove the lenses from the case.

Disassembly of Case Assembly 0100221

Step 3

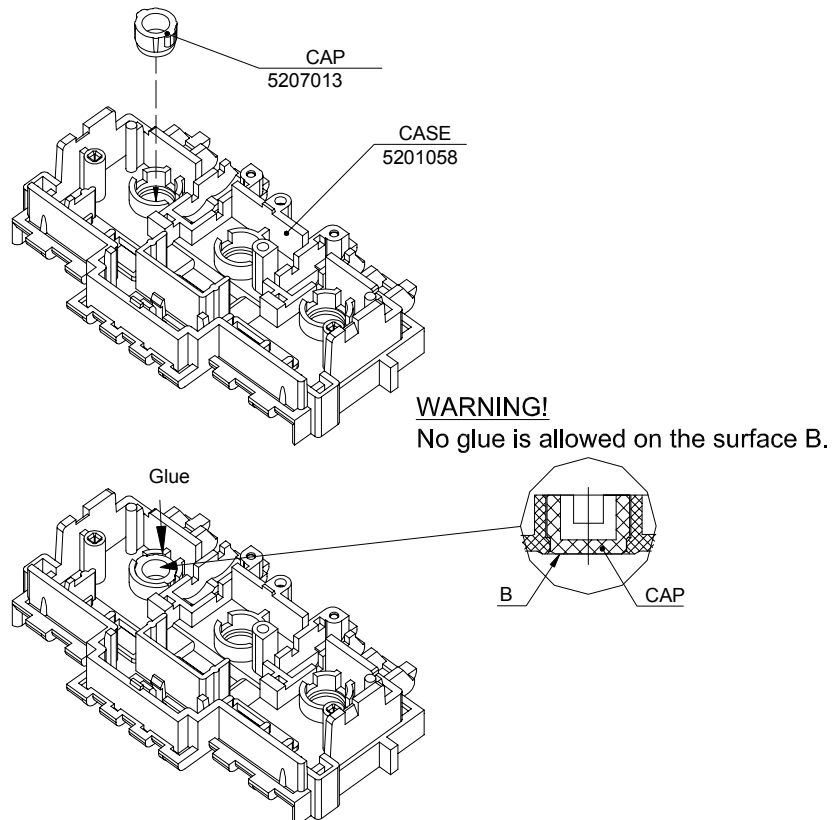
Remove the O-Ring from the wheel-gear.



Step 4

Note: the cap has been secured in the case with glue, and cannot be disassembled.

When assembling a new part, place a small amount of glue on the cap. Plastic cement or cyanoacrilate glue is recommended.



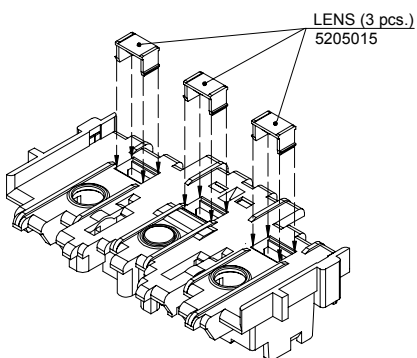
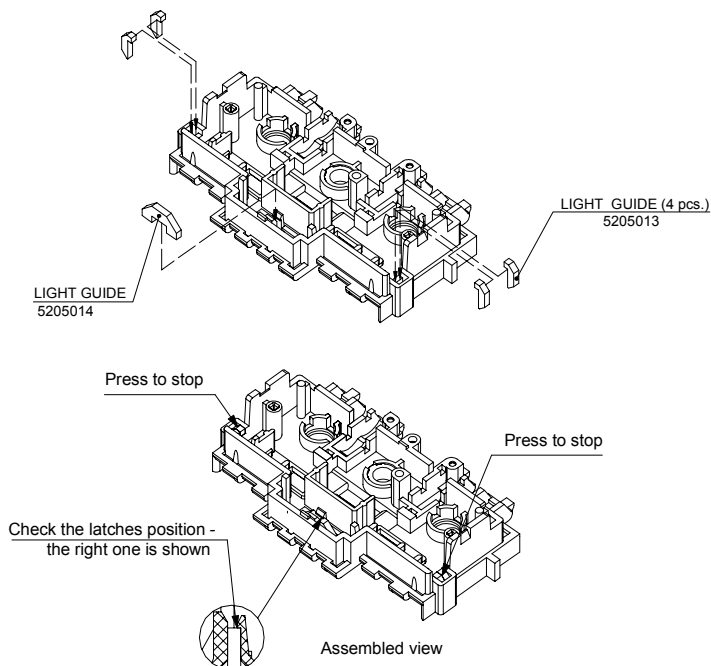
DISASSEMBLY OF CASE ASSEMBLY #0100221-01.

Tools required:

- Philips screwdriver #1
- Flat screwdriver

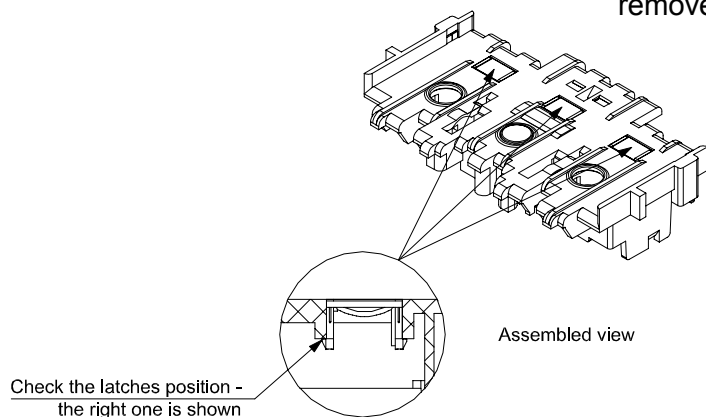
Step 1

- Remove light guides
- Gently release the latch in order to remove light guide #5205014
- Light guides #5205013 are secured only by cover #5201026 (see "Exploded View of Lower Sense-a-Click Module")



Step 2

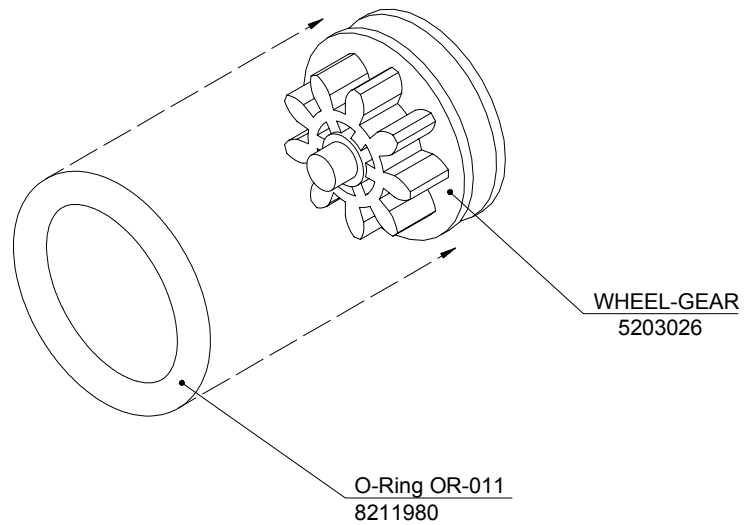
Gently press on the latches in order to release and remove the lenses from the case.



Disassembly of Case Assembly #0100221-01

Step 3

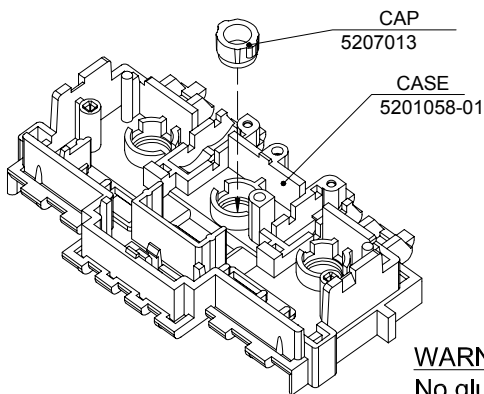
Remove O-Ring from the wheel-gear.



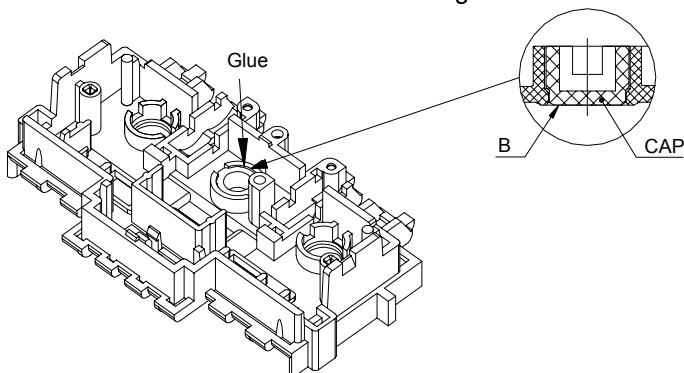
Step 4

Note: the cap has been secured in the case with glue, and cannot be disassembled.

When assembling a new part, place a small amount of glue on the cap. Plastic cement or cyanoacrilate glue is recommended.



WARNING!
No glue is allowed on the surface B.



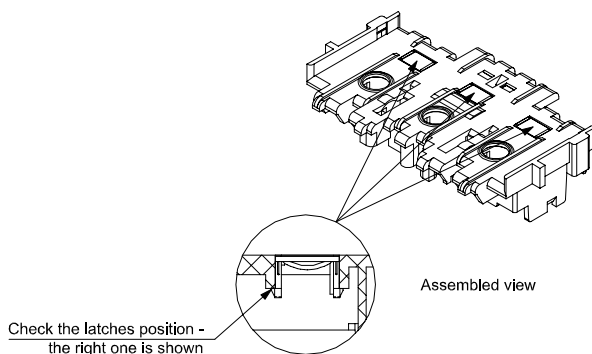
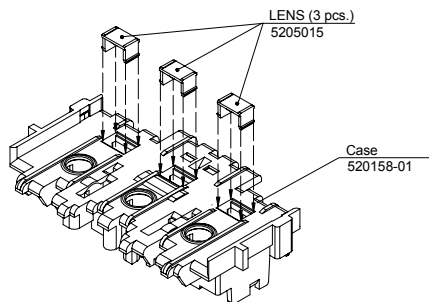
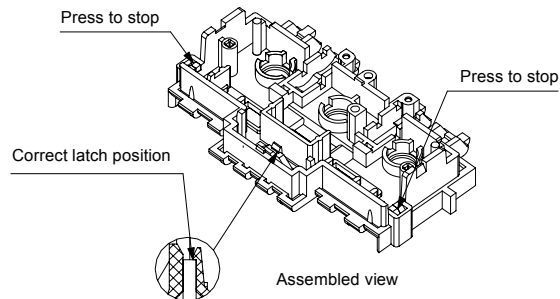
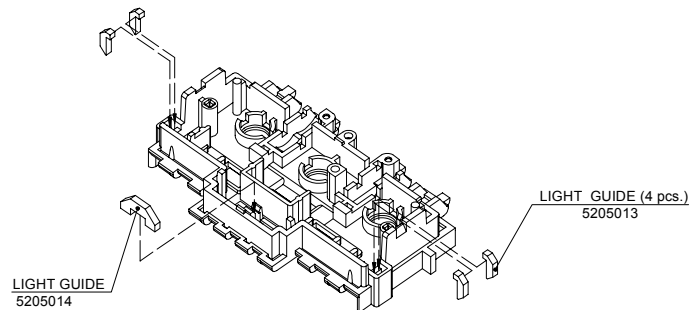
DISASSEMBLY OF CASE ASSEMBLY #0100221-02.

Tools required:

- Philips screwdriver #1
- Flat screwdriver

Step 1

- Remove light guides
- Gently release the latch in order to remove light guide #5205014
- Light guides #5205013 are secured only by cover #5201026 (see "Exploded View of Lower Sense-a-Click Module")

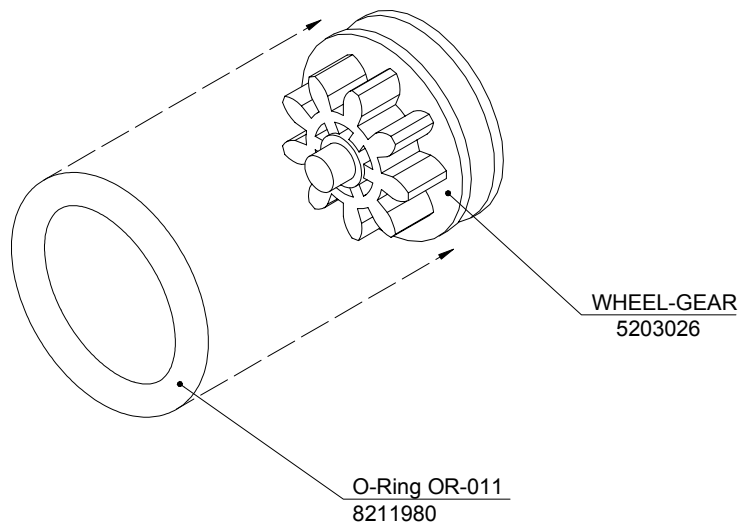


Step 2

Gently press on the latches in order to release and remove the lenses from the case.

Disassembly of Case Assembly #0100221-02
Step 3

Remove O-Ring from the wheel-gear.



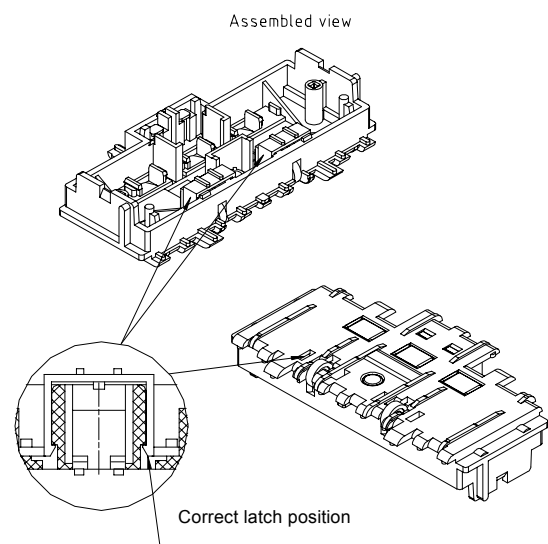
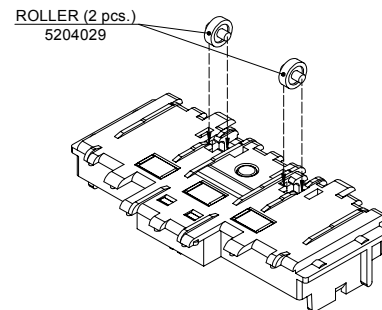
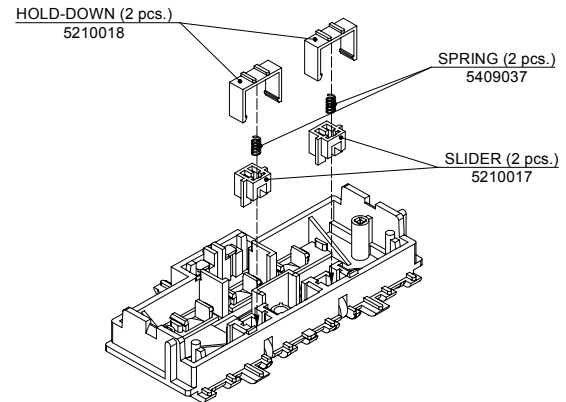
DISASSEMBLY OF CASE ASSEMBLY #0100222.

Tools required:

- Philips screwdriver #1
- Flat screwdriver

Step 1

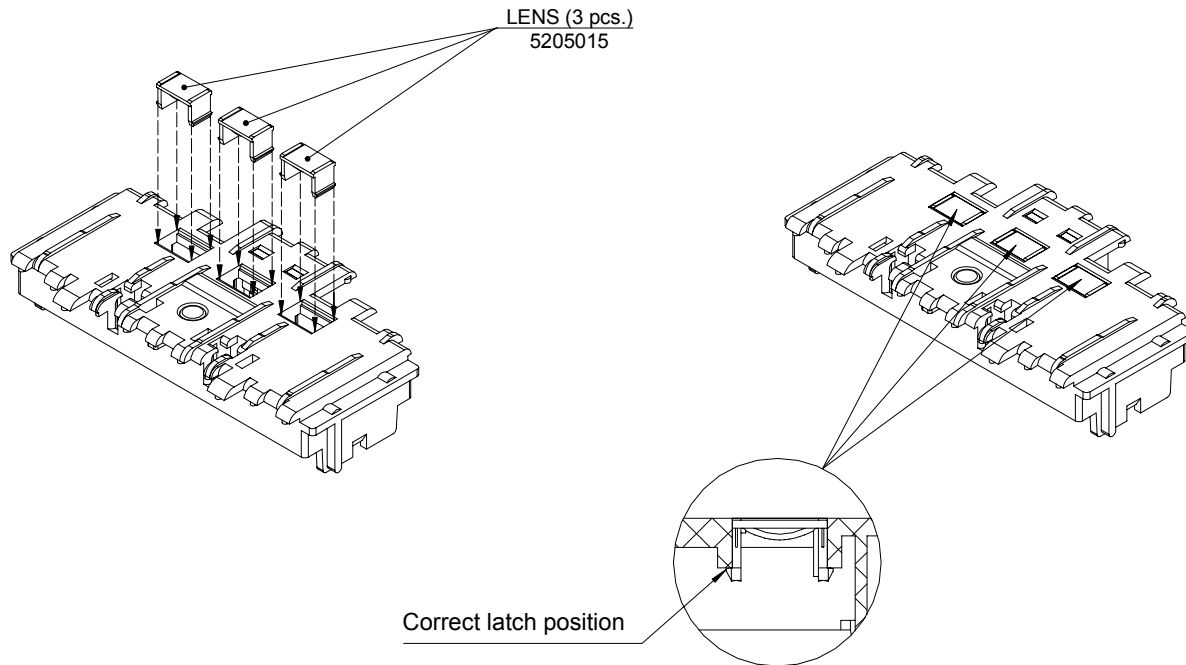
- Gently press and release the hold-down latches in order to remove the hold-downs (watch the springs)
- Remove the springs and the sliders
- Remove the rollers



Disassembly of Case Assembly #0100222

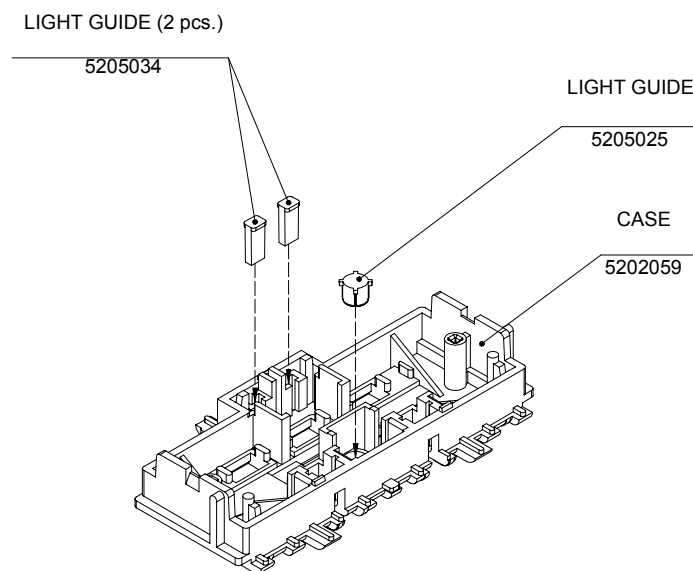
Step 2

Gently press on the latches in order to release and remove the lenses from the case.



Step 3

Remove the light guides from the case.



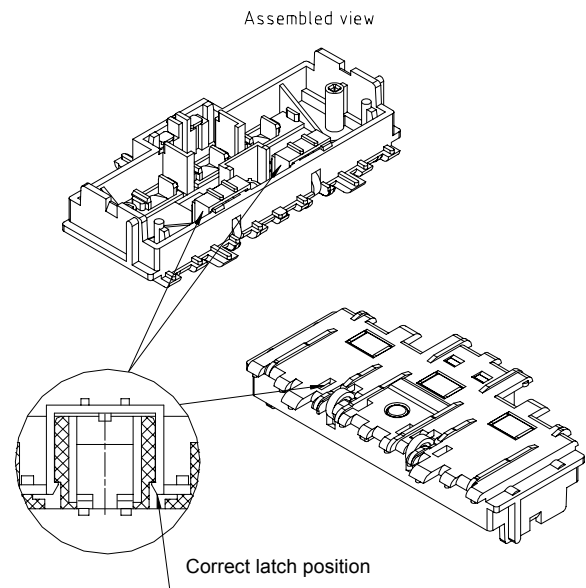
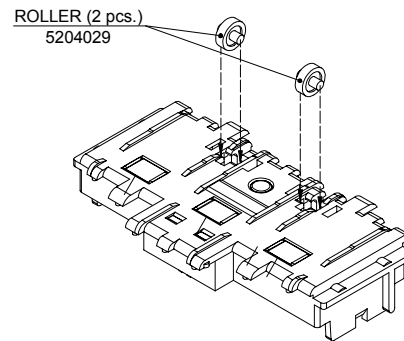
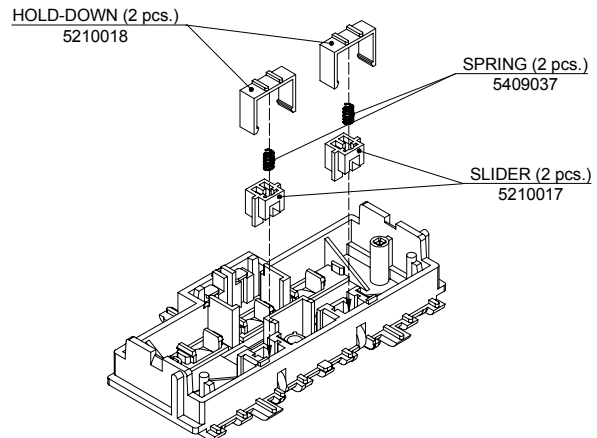
DISASSEMBLY OF CASE ASSEMBLY #0100222-01.

Tools required:

- Philips screwdriver #1
- Flat screwdriver

Step 1

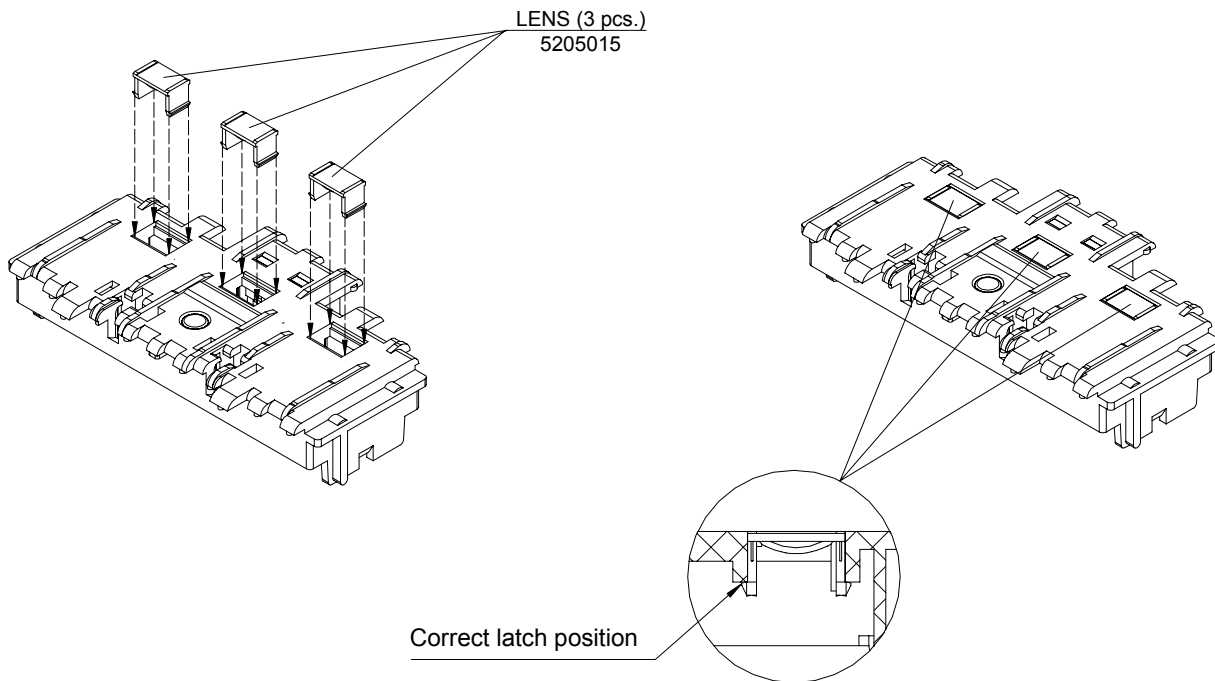
- Gently press and release the hold-down latches in order to remove the hold-downs (watch the springs)
- Remove the springs and the sliders
- Remove the rollers



Disassembly of Case Assembly #0100222-01

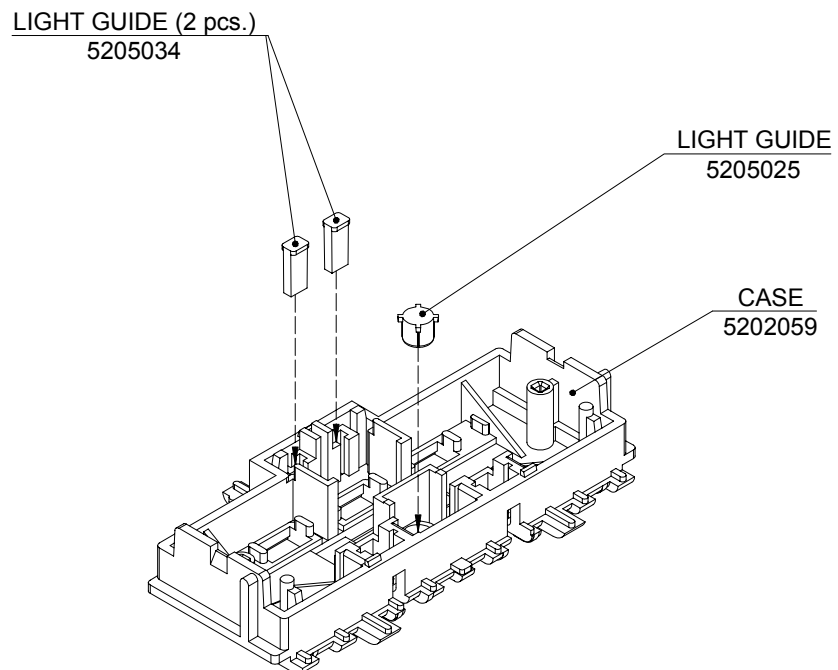
Step 2

Gently press on the latches in order to release and remove the lenses from the case.



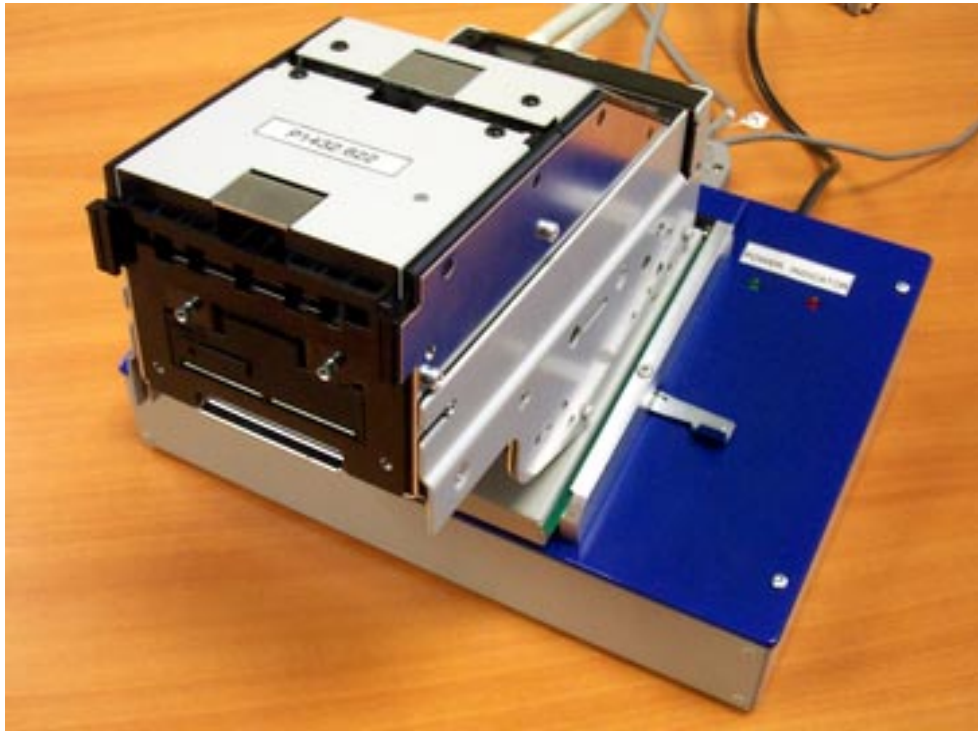
Step 3

Remove light guides from the case.

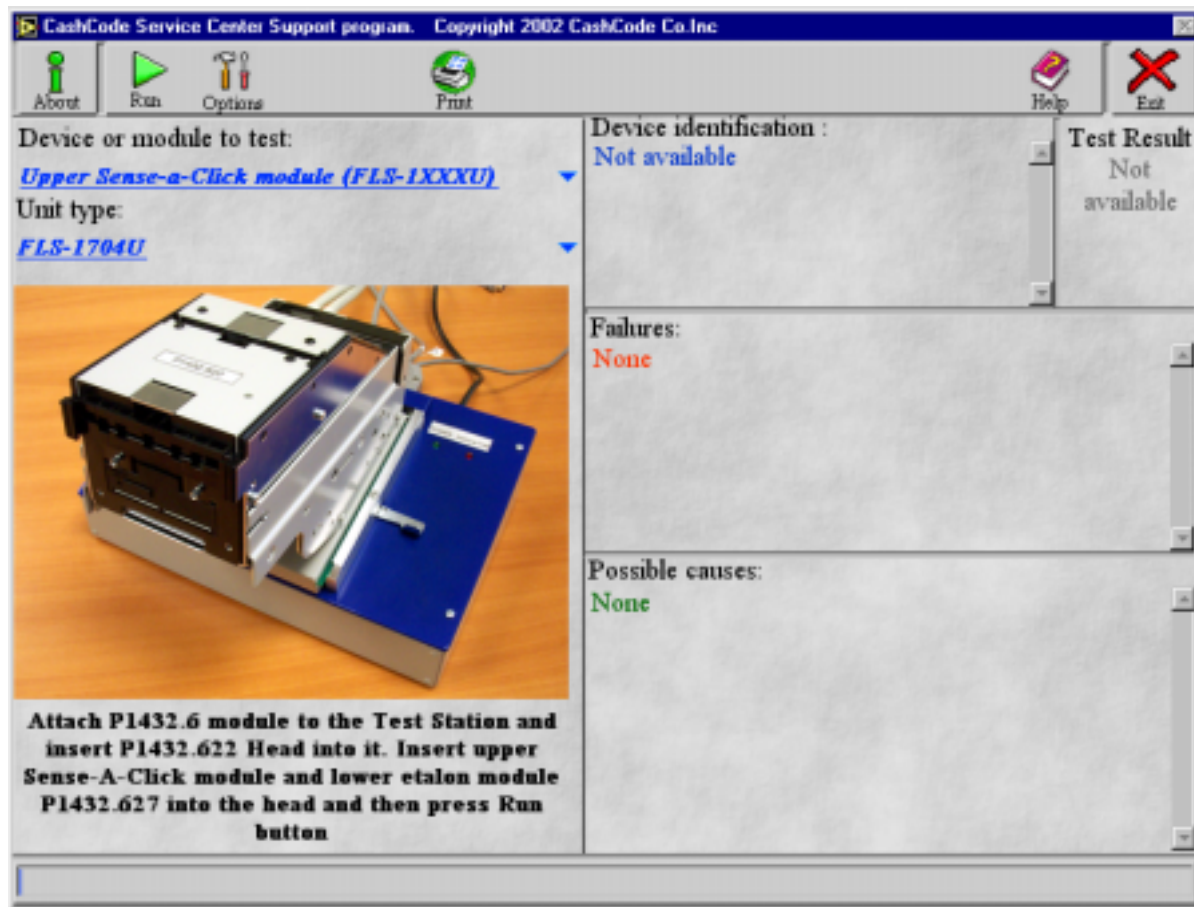


TESTING PROCEDURES FOR SENSE-A-CLICK MODULES.**Upper Sense-a-Click Module Test
(FLS-1704U, FLS-1705U, FLS-1801U, FLS-1901U)**

- Attach module #P1432.4 to the Service Stand base
- Install validating head #P1432.622 to module #P1432.4
- Remove upper Sense-A-Click module #P1432.628 from validating head #P1432.622
- Install the upper Sense-A-Click module being tested
- Ensure lower Sense-A-Click module #P1432.627 is in the validating head



- On the PC, start by clicking on the icon entitled “CashCode Service Centre Support Software”
- Under “Device or module to test:” select “Upper Sense-A-Click Module”
- Under “Unit type:” select appropriate model number
- Click on the “Run” button located on the toolbar
- Review test results and failure description

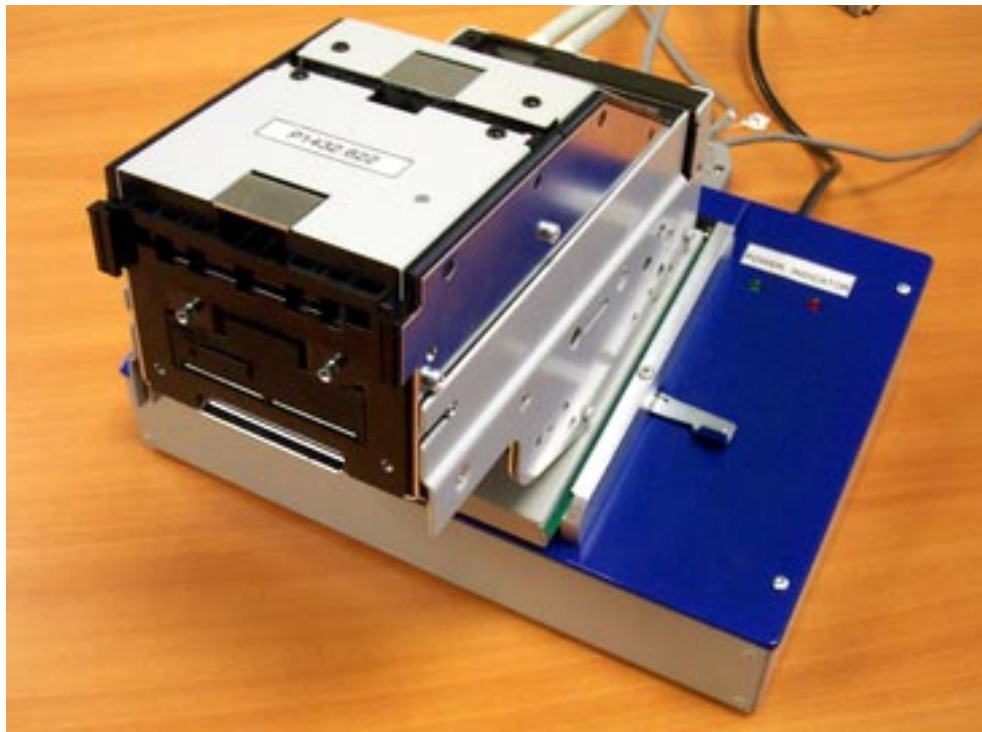


Actual screen shot from a computer using the CashCode Service Stand.

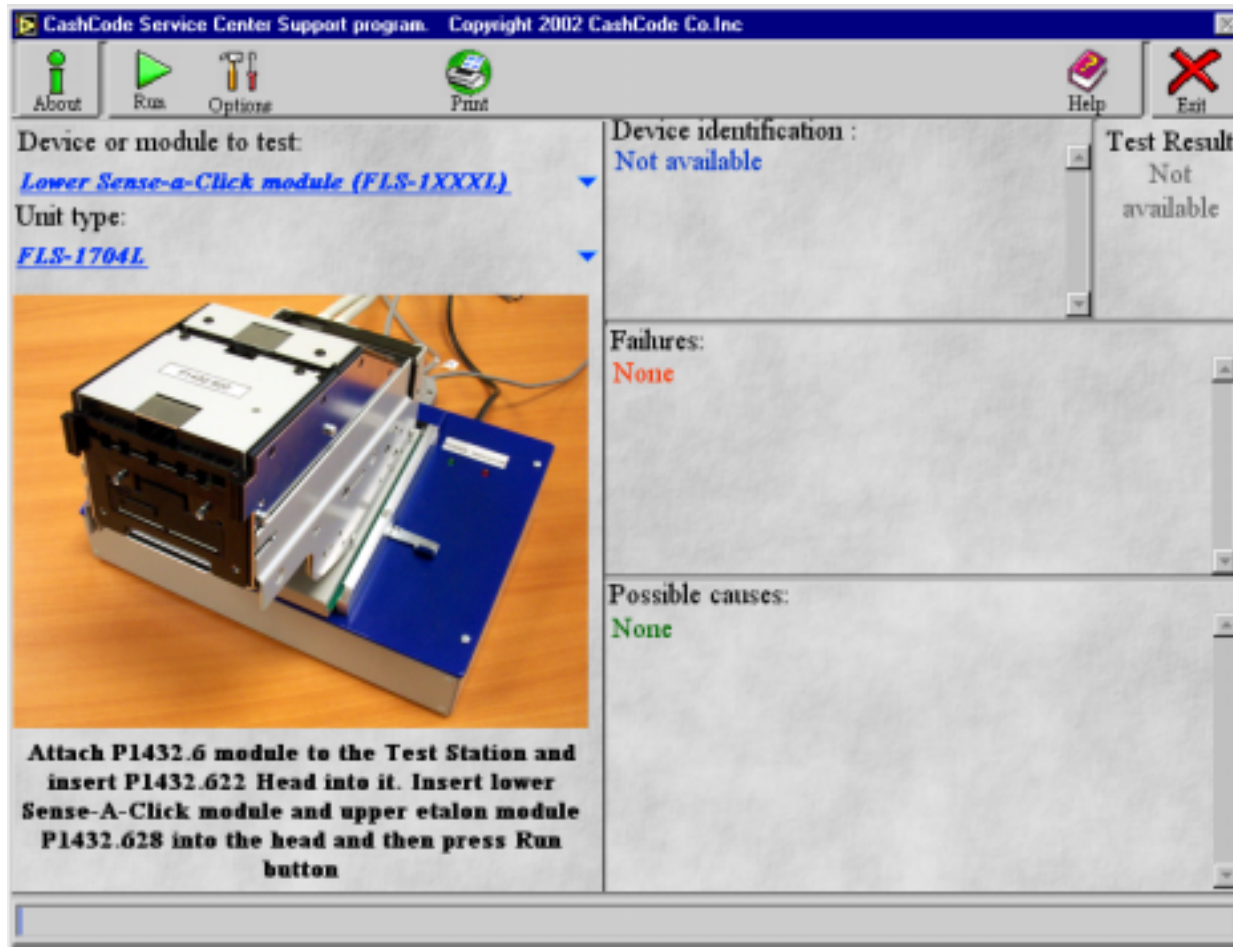
The listed “Failures” and “Possible causes” should help identify any defective components of the validating head. Click on the button entitled “Show Picture” for an x-ray view with highlighted details.

Lower Sense-a-Click Module Test (FLS-1704L, FLS-1705L, FLS-1801L, FLS-1901L)

- Attach module #P1432.4 to the Service Stand base
- Install validating head #P1432.622 to module #P1432.4
- Remove lower Sense-A-Click module #P1432.627 from validating head #P1432.622
- Install the lower Sense-A-Click module to be tested
- Ensure upper Sense-A-Click module #P1432.628 is in the validating head



- On the PC, start by clicking on the icon entitled “CashCode Service Centre Support Software”
- Under “Device or module to test:” select “Lower Sense-A-Click module”
- Under “Unit type:” select appropriate model number
- Click on the “Run” button located on the toolbar
- Review test results and failure description



Actual screen shot from a computer using the CashCode Service Stand.

The listed “Failures” and “Possible causes” should help identify any defective components in the validating head. Click on button entitled “Show Picture” for an x-ray view with highlighted details.

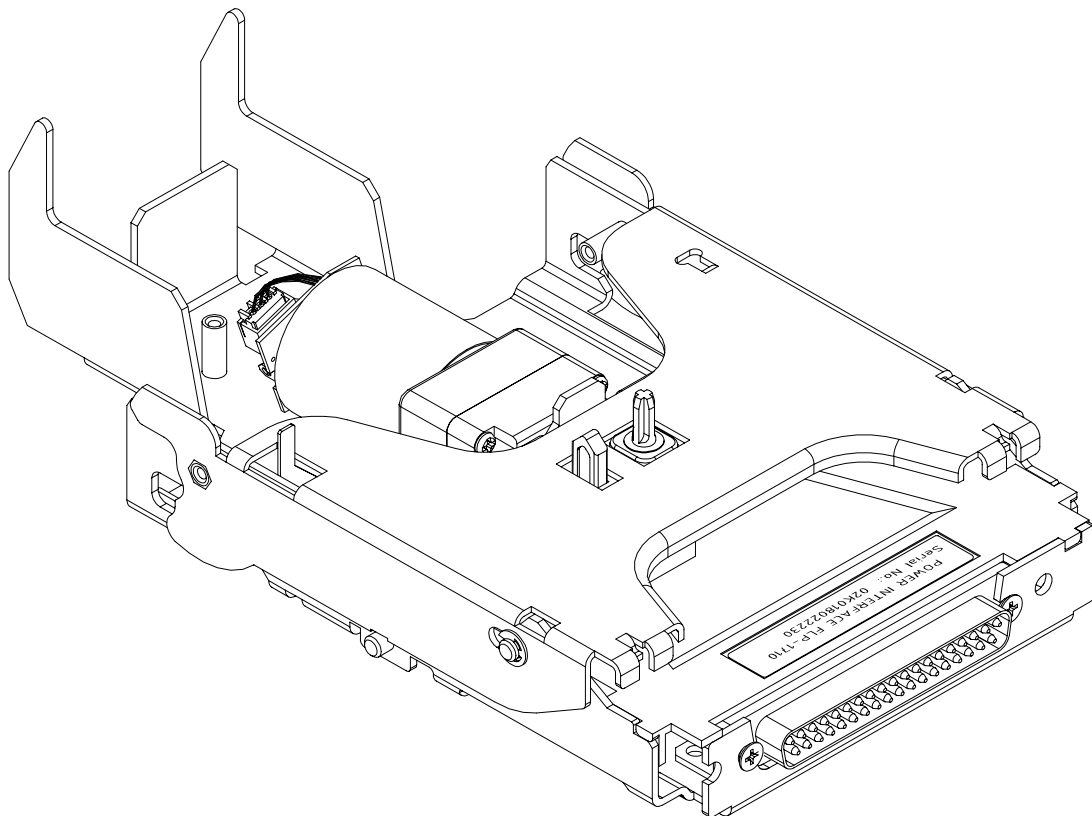
POWER INTERFACE MODULE

12V CC-FLBDP (Opto-Isolated) (FLP-1710)

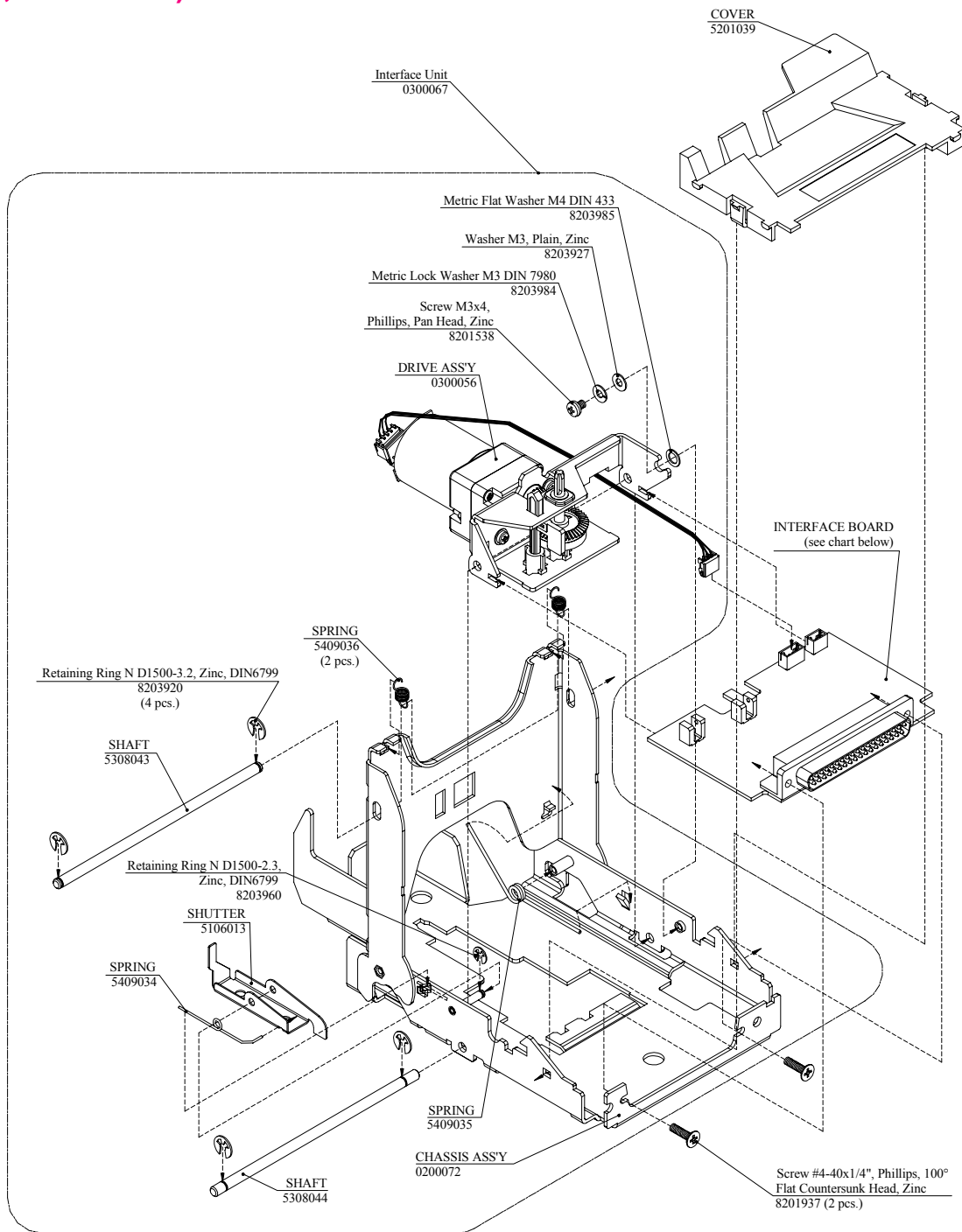
12V CC-BDPS, CCNET (Single Slave Mode) (FLP-2710)

12V CC-IPL (Isolated Pulse Low Current) (FLP-2810)

24V CC-GPS22, CCNET (Single Slave Mode) (FLP-5710)

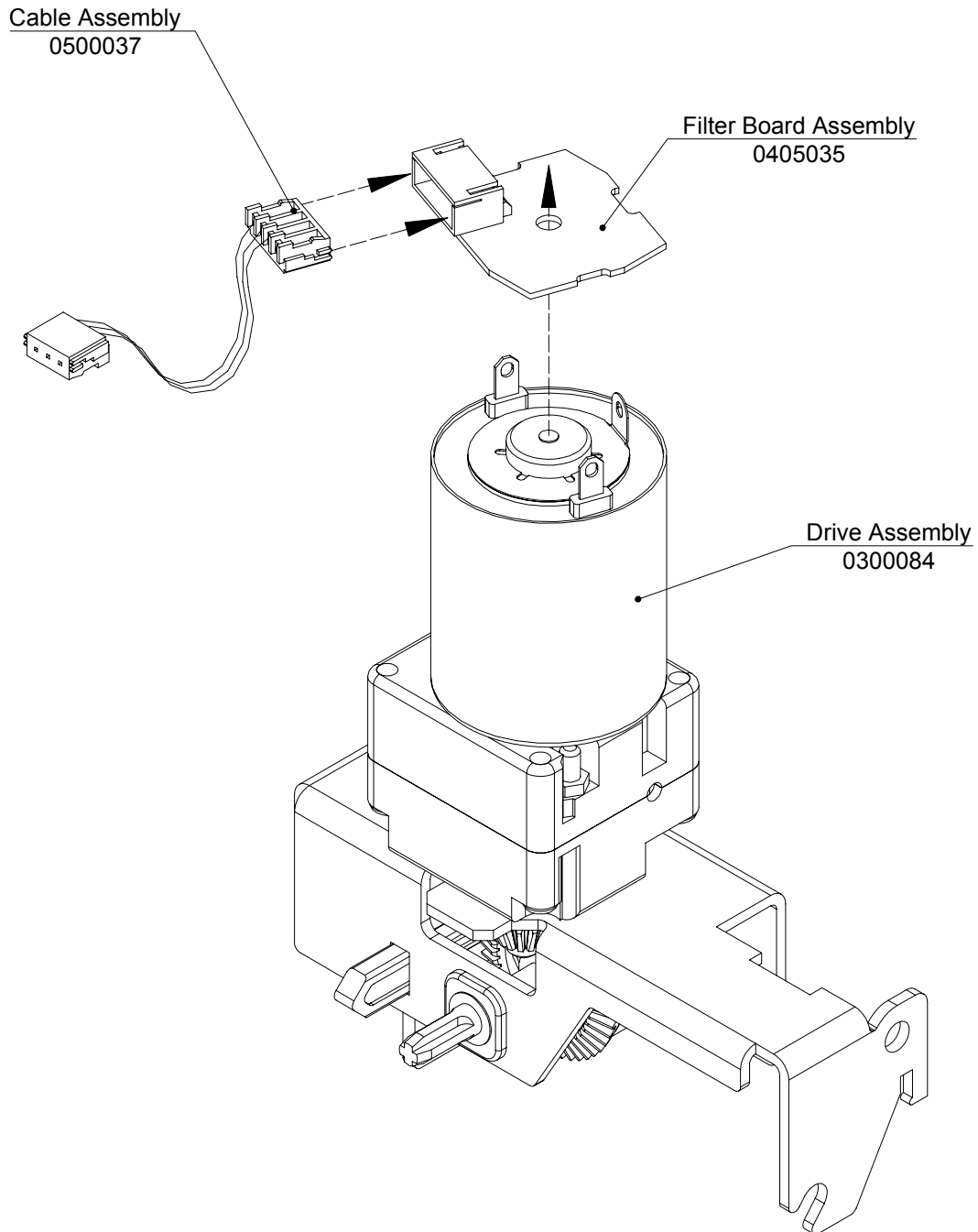


Exploded View of Power Interface Module (FLP-1710, FLP-2710, FLP-2810, FLP-5710)



Power Interface Module Part Number	Interface Board Part Number
FLP-1710	0405027
FLP-2710	0405041
FLP-2810	0405041-01
FLP-5710	0405045

Exploded View of Drive Assembly (#0300056)



LIST OF SPARE PARTS FOR POWER INTERFACE MODULE

Item	Part Number	Description	Total quantity			
			FLP-1710	FLP-2710	FLP-2810	FLP-5710
1	0200072	Chassis Assembly	1	1	1	1
2	0300056	Drive Assembly	1	1	1	1
3	0300067	Interface Unit	1	1	1	1
4	0300084	Drive Assembly	1	1	1	1
5	0405027	FLBDP Interface Board	1			
6	0405035	Filter Board Assembly	1	1	1	1
7	0405041	RS232 Interface Board		1		
8	0405041-01	RS232 Interface Board			1	
9	0405045	CC RS232 Interface Board				1
10	0500037	Cable Assembly	1	1	1	1
11	5106013	Shutter	1	1	1	1
12	5201039	Cover	1	1	1	1
13	5308043	Shaft	1	1	1	1
14	5308044	Shaft	1	1	1	1
15	5409034	Spring	1	1	1	1
16	5409035	Spring	1	1	1	1
17	5409036	Spring	2	2	2	2
18	8201538	Screw M3x4, Pan Head, Phil, Zinc	1	1	1	1
19	8201937	Screw #4-40x1/4", 100° Flat Countersunk, Phil, Zinc	2	2	2	2
20	8203002	Lock Washer M3, Internal Teeth, Zinc	1	1	1	1
21	8203920	Retaining Ring D1500-3.2, Zinc, DIN6799	4	4	4	4
22	8203927	Washer M3, Plain, Zinc	1	1	1	1
23	8203960	Retaining Ring D1500-2.3, Zinc, DIN6799	1	1	1	1
24	8203985	Metric Flat Washer M4 DIN433	1	1	1	1

DISASSEMBLY OF POWER INTERFACE MODULE AND SUBASSEMBLIES.

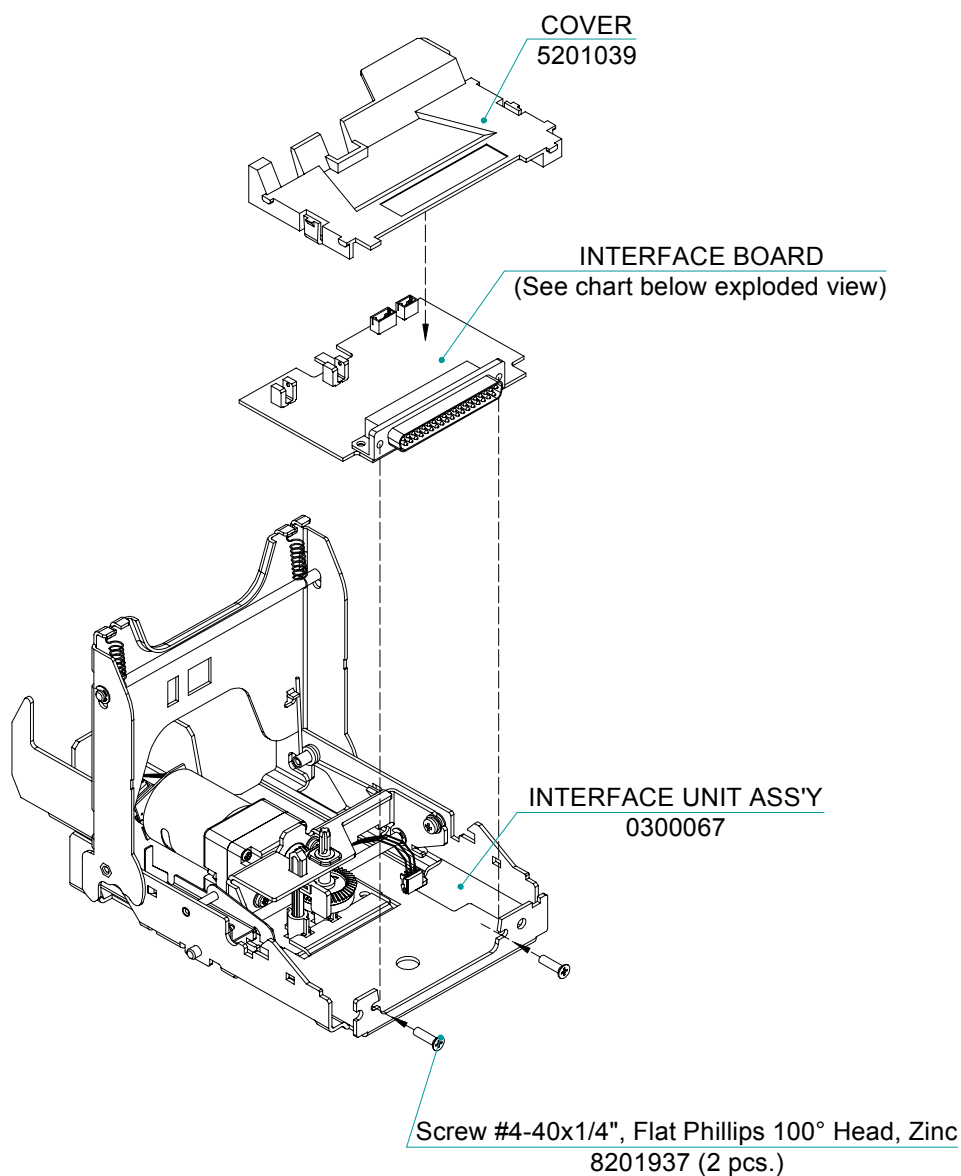
DISASSEMBLY OF POWER INTERFACE MODULE (FLP-1710, FLP-2710, FLP-2810, FLP-5710).

Tools required:

- Flat screwdriver
- Philips screwdriver #1
- Applicator tools for retaining rings (DIN 6799 #877-324 and #877-325)

Step 1

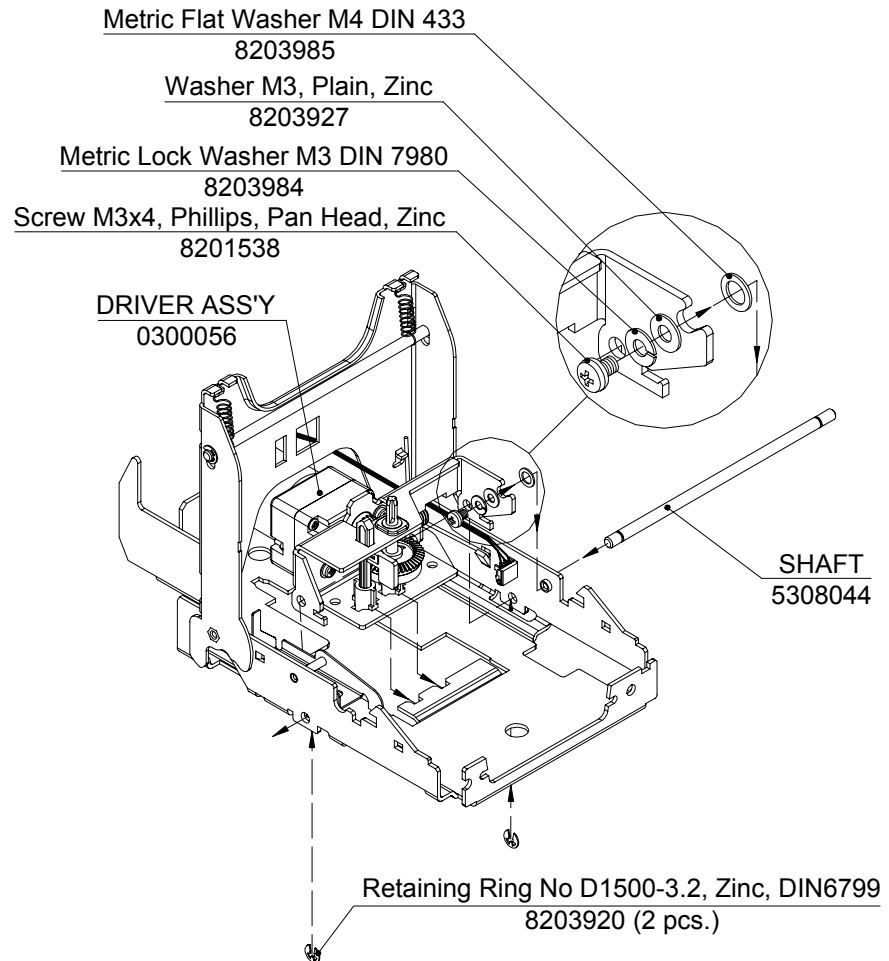
- Press on the latches of the cover from both sides and remove it
- Disconnect the cable from the board
- Remove two screws and remove interface board



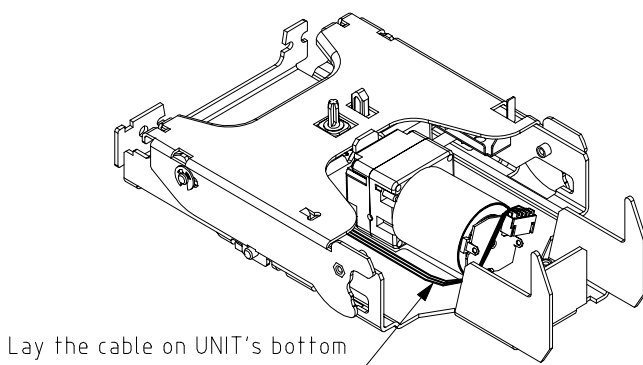
Disassembly of POWER INTERFACE Module

Step 2

- Remove one M3x4 screw -
- Remove retaining rings
- Pull out the shaft
- Detach the drive



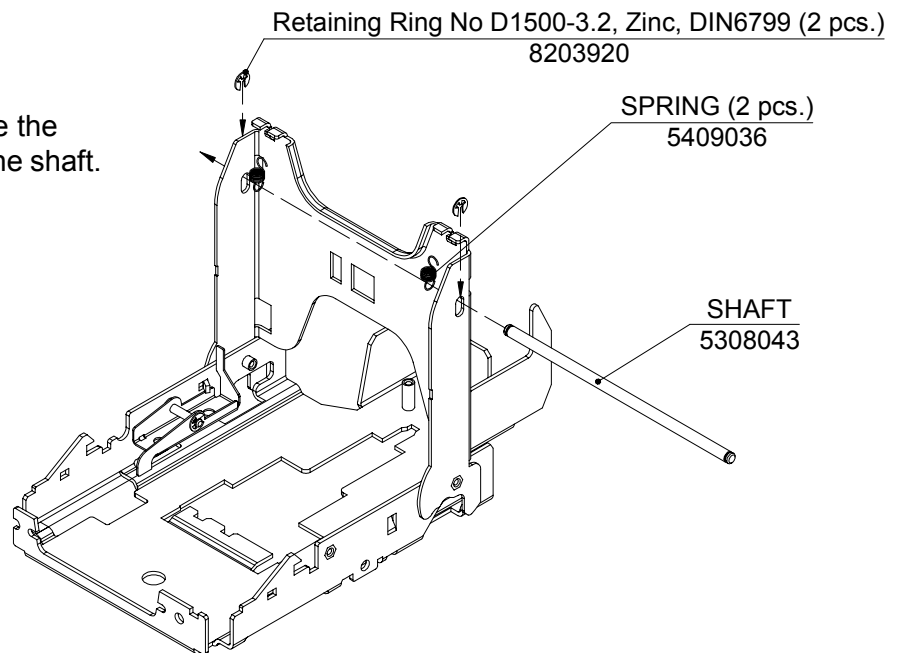
When assembling:



Disassembly of Power Interface Module

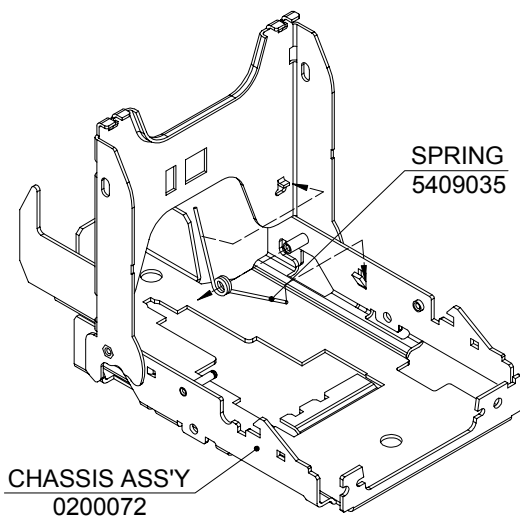
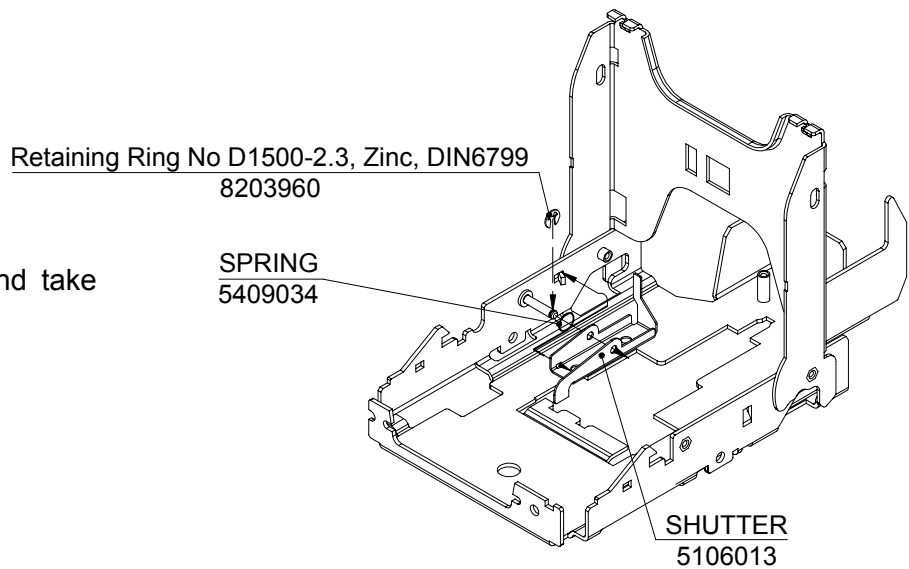
Step 3

Release the springs, remove the retaining rings and pull out the shaft.



Step 4

Remove the retaining ring and take off the shutter.



Step 5

Remove Spring.

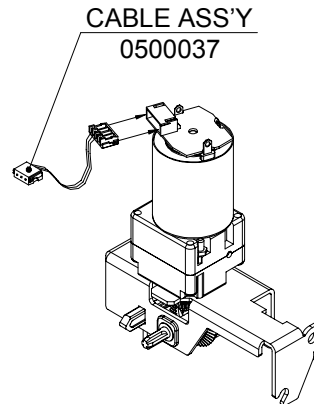
DISASSEMBLY OF DRIVE ASSEMBLY (#0300056)

Tools required:

- Philips screwdriver #1
- Soldering iron

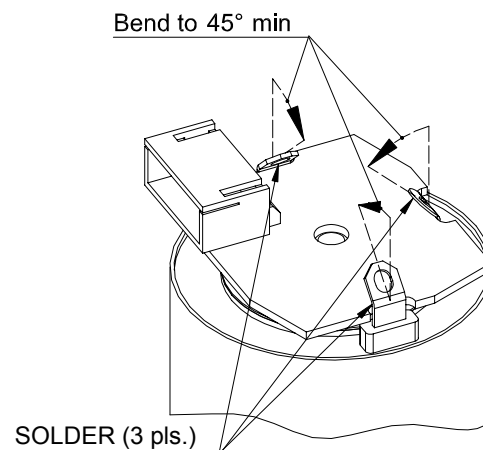
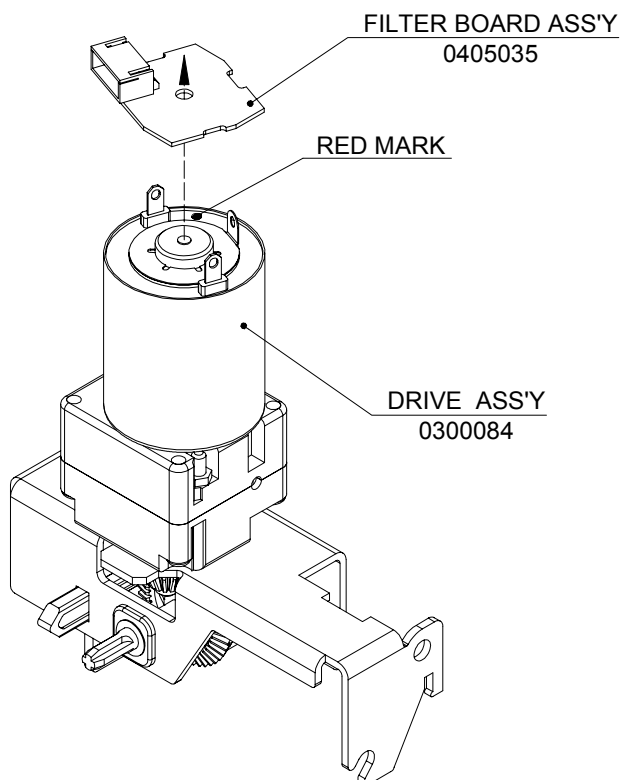
Step 1

Disconnect the cable.



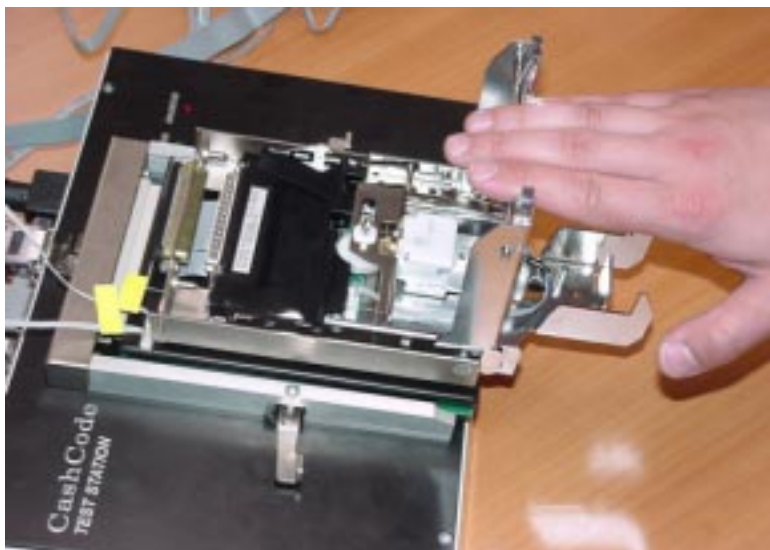
Step 2

- Solder out the filter board assembly
- Bend terminals when assembling



TESTING PROCEDURES FOR THE POWER INTERFACE MODULE.

- Attach module #P1432.2 to the Service Stand base
- Insert the power interface module into #P1432.2, as shown below



- Install power interface module in place, as shown below
- **Do not connect 2- and 3-wire cables**



- On the PC, start by clicking on the icon entitled “CashCode Service Centre Support Software”
- Under “Device or module to test:”, select “Power interface module”
- Under “Unit type:”, select the appropriate module based on voltage and interface
- Click on the “Run” button, located on the toolbar
- Review test results and failure description

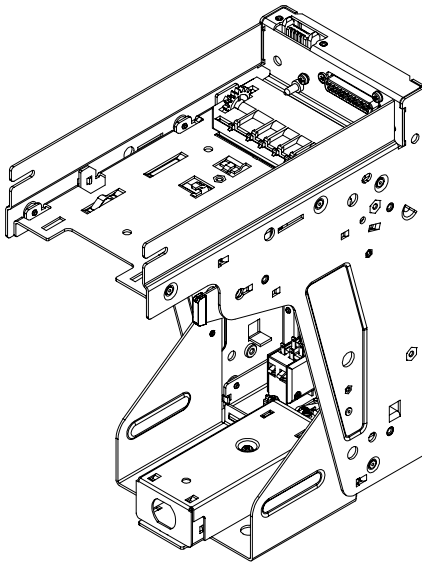


Actual screen shot from a computer using the CashCode Service Stand.

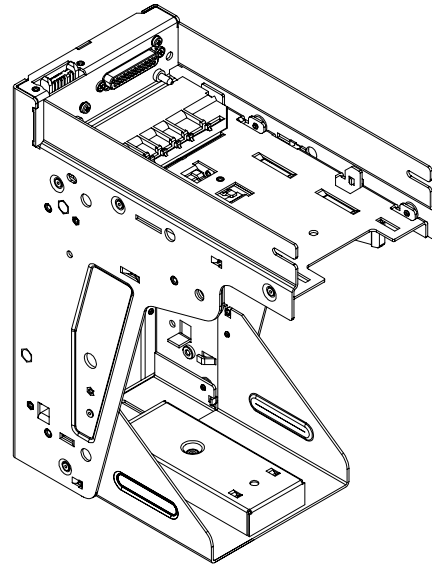
The listed “Failures” and “Possible causes” should help to identify any defective components of the validating head. Click on the button entitled “Show Picture”, for an x-ray view with highlighted details.

HOUSING

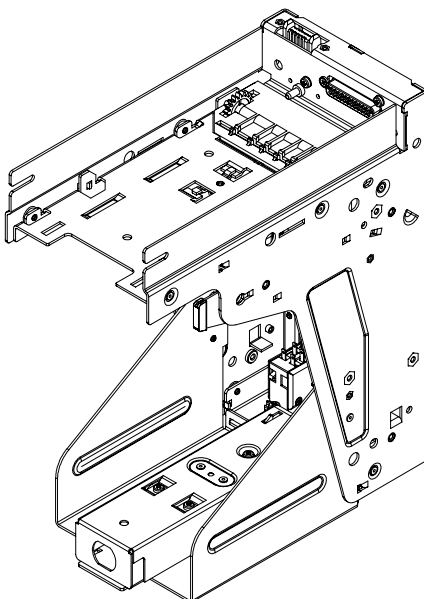
Lock Bracket, 600 cassette, standard connector (FLH-0810)



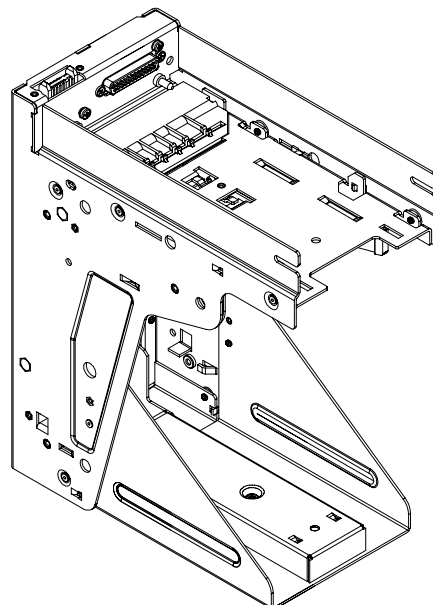
Plain Bracket, 600 cassette, standard connector (FLH-0110)



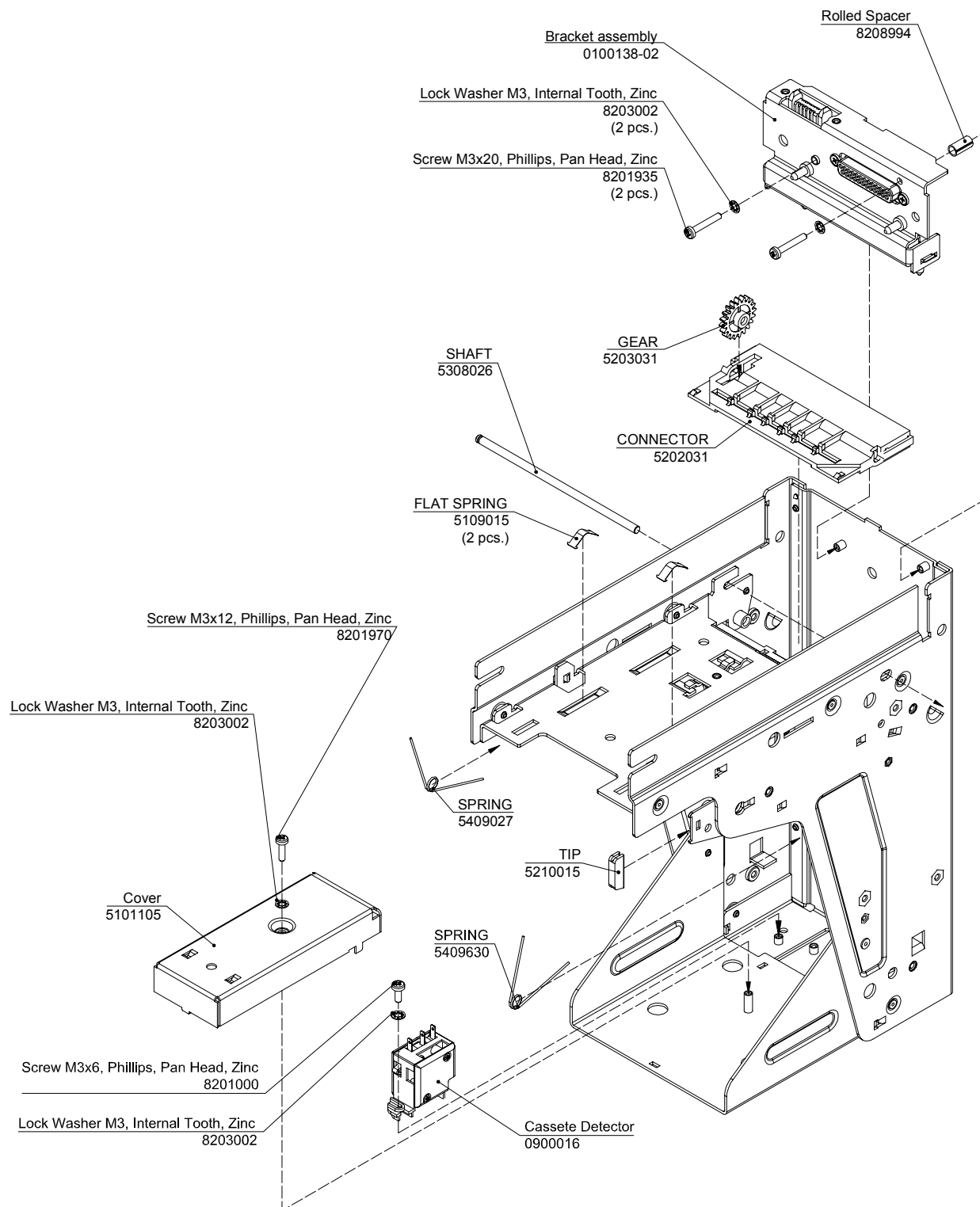
Lock Bracket, 1000 cassette, standard connector (FLH-3510)



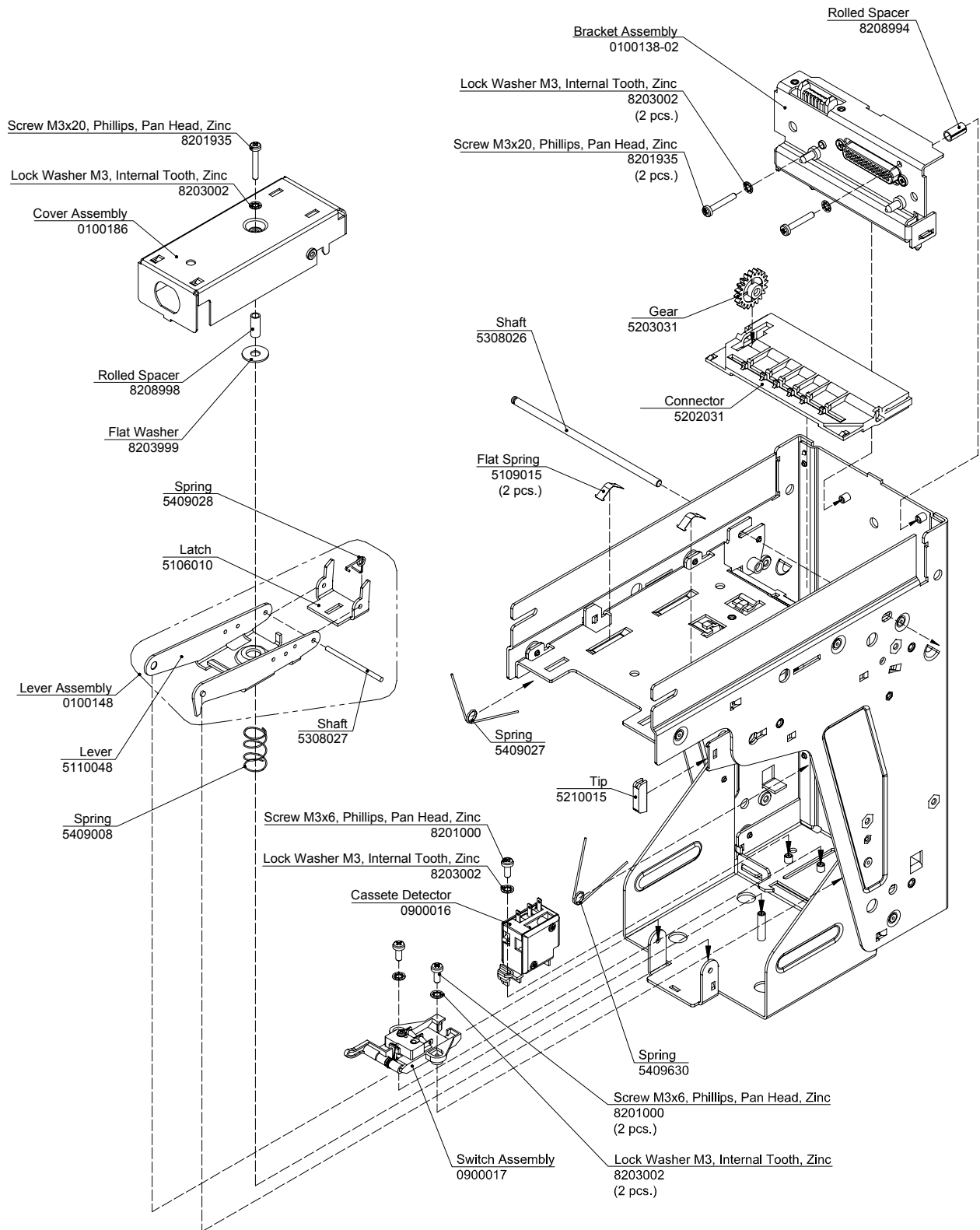
Plain Bracket, 1000 cassette, standard connector (FLH-3110)



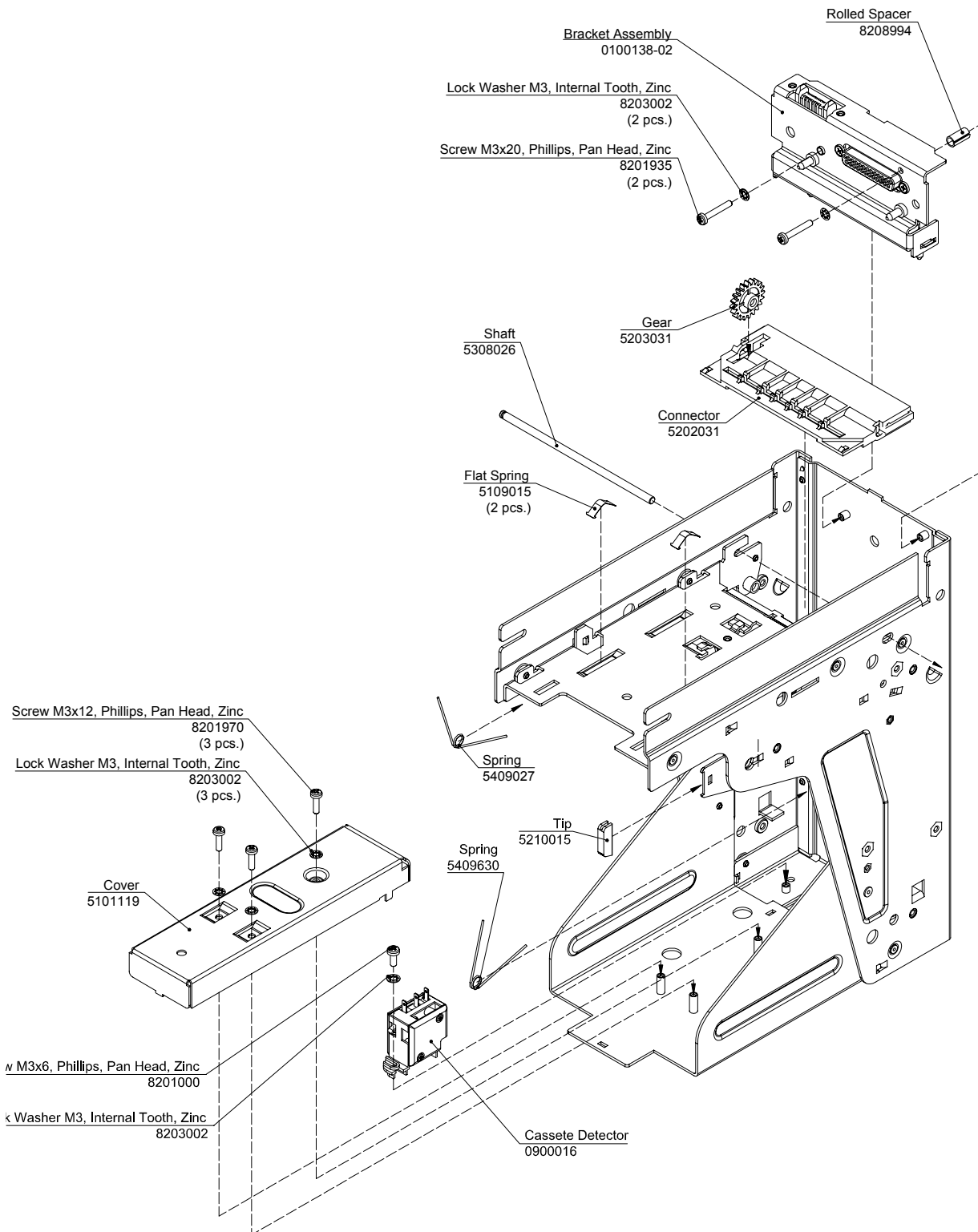
Exploded View of HOUSING (FLH-0110)0



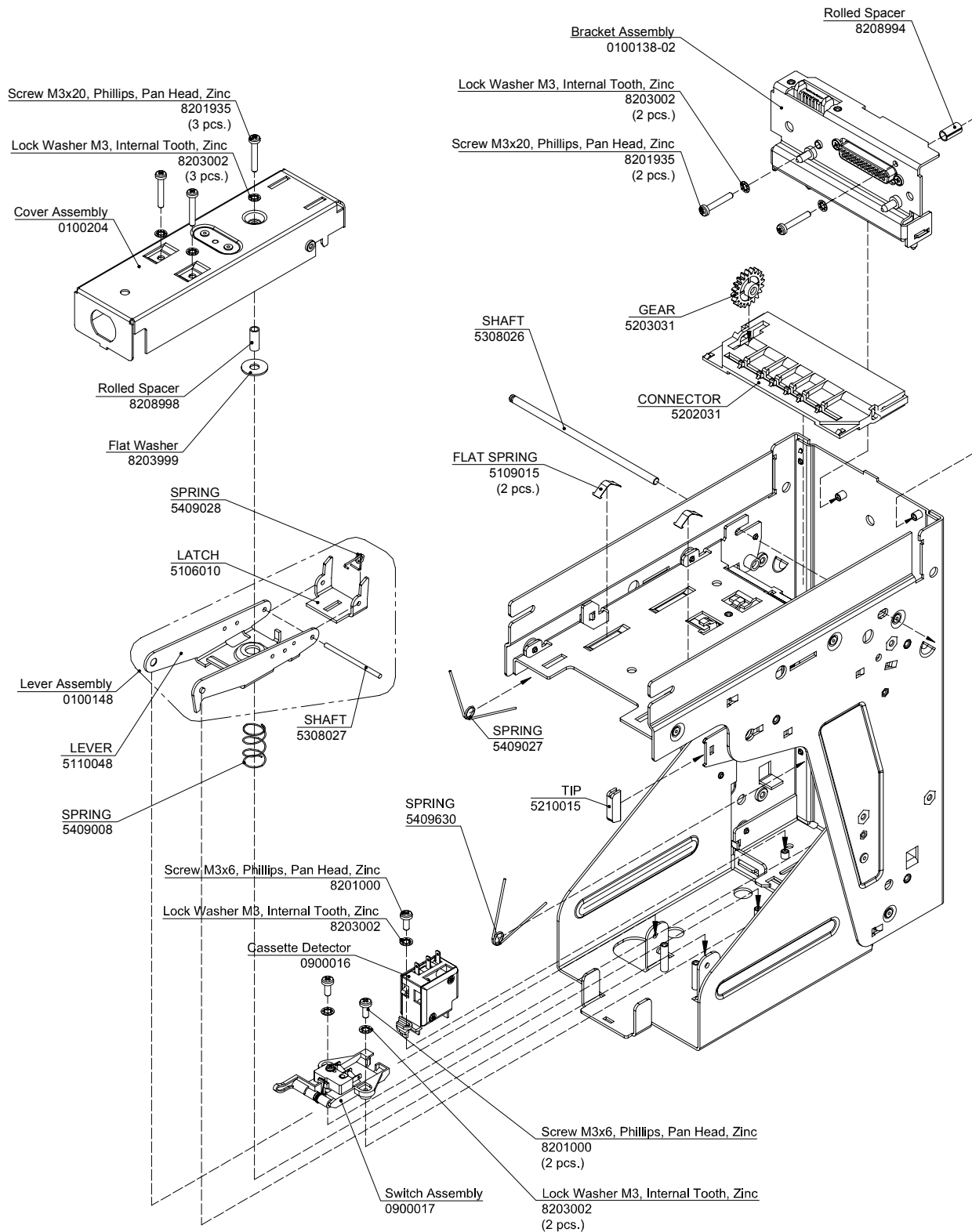
Exploded View of HOUSING (FLH-0810)



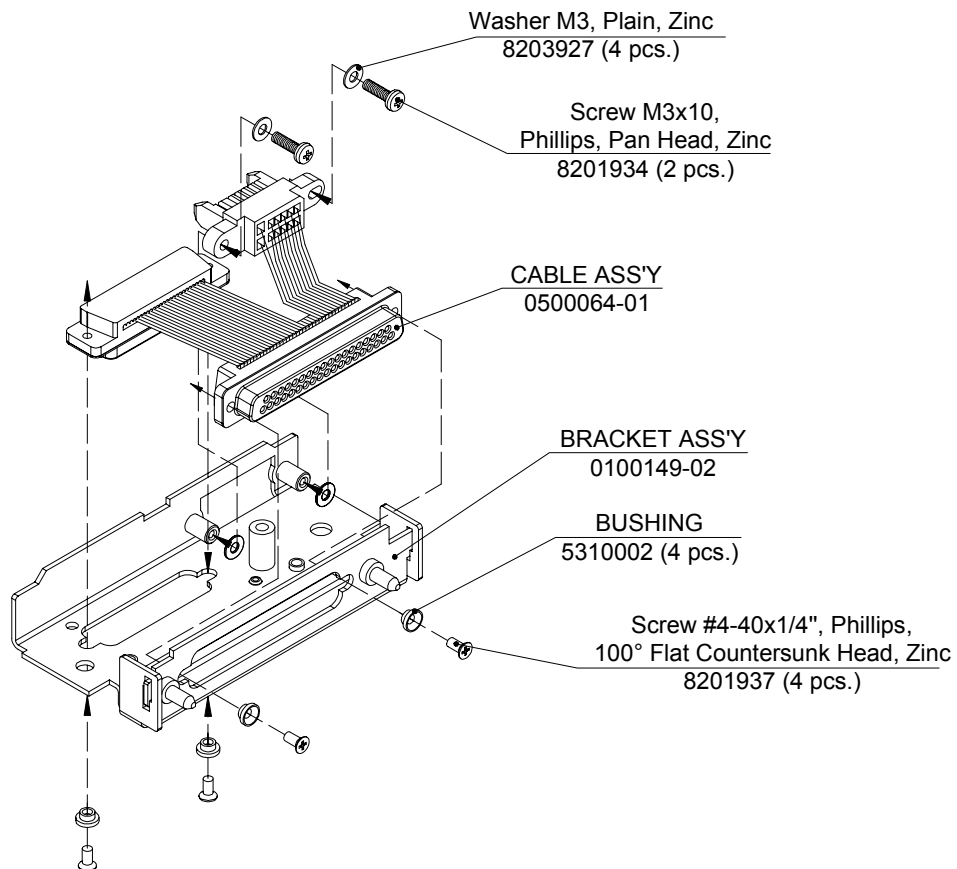
Exploded View of HOUSING (FLH-3110)



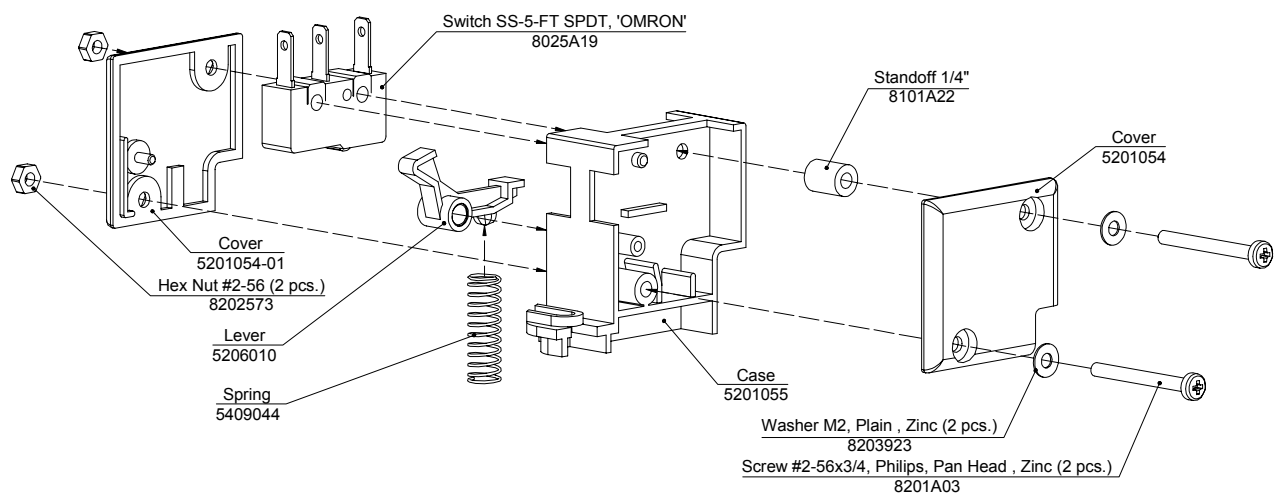
Exploded View of HOUSING (FLH-3510)



Exploded View of BRACKET Assembly (#0100138-02)

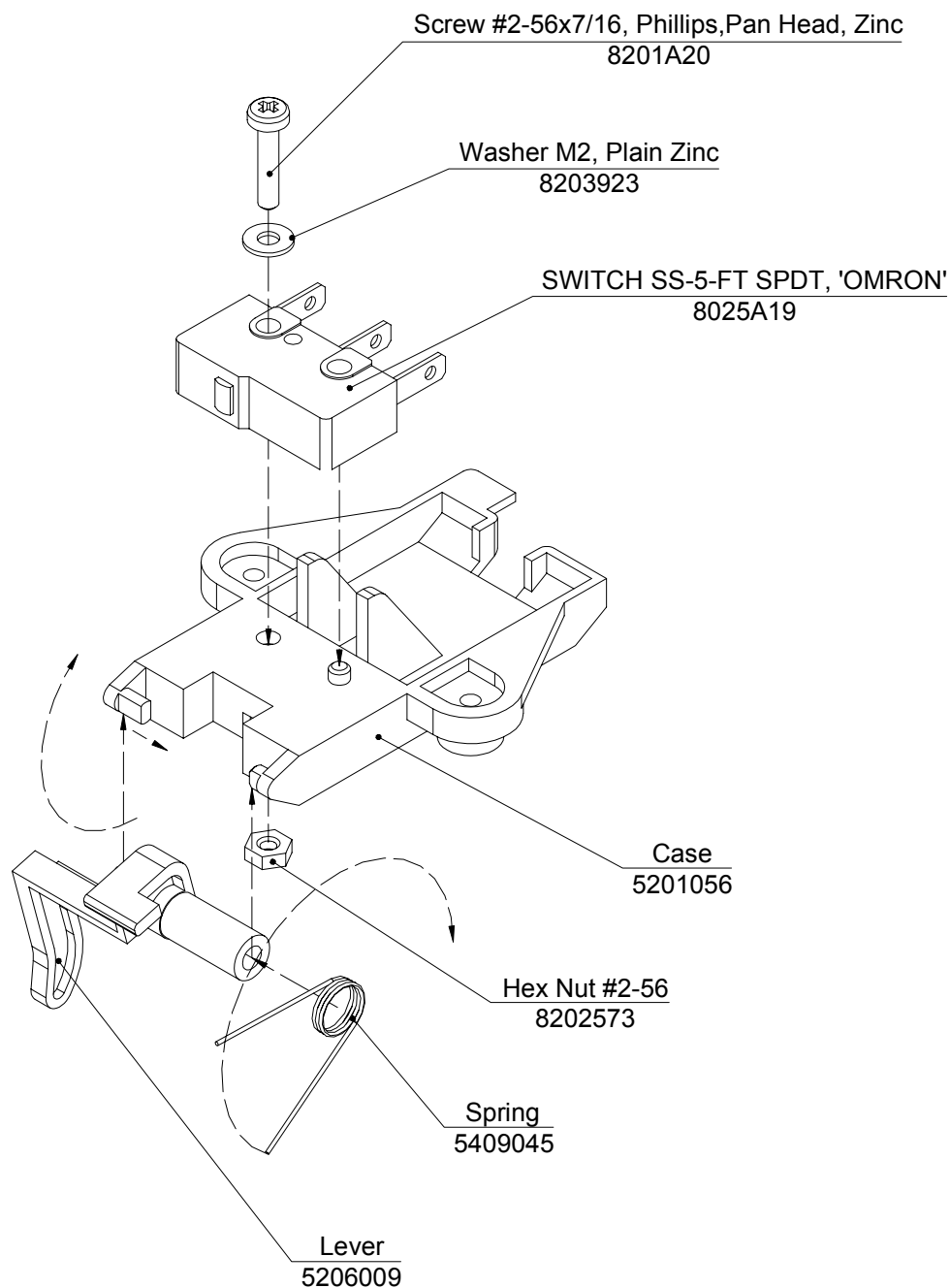


Exploded View of Cassette Detector (# 0900016)



HOUSING

Exploded View of Switch Assembly (# 0900017)



LIST OF SPARE PARTS FOR HOUSING

Item	Part Number	Description	Total quantity			
			FLH-0110	FLH-0810	FLH-3110	FLH-3510
1	0100138-02	Bracket Assembly	1	1	1	1
2	0100148	Lever Assembly		1		1
3	0100149-02	Bracket Assembly	1	1	1	1
4	0100186	Cover Assembly		1		
5	0100204	Cover Assembly				1
6	0500064-01	Cable Assembly	1	1	1	1
7	0900016	Cassette Detector	1	1	1	1
8	0900017	Switch Assembly		1		1
9	5101105	Cover	1			
10	5101119	Cover			1	
11	5106010	Latch		1		1
12	5109015	Flat Spring	2	2	2	2
13	5110035	Washer		1		1
14	5110048	Lever		1		1
15	5110049	Cam		1		
16	5110049-01	Cam				1
17	5201054	Cover	1	1	1	1
18	5201054-01	Cover	1	1	1	1
19	5201055	Case	1	1	1	1
20	5201056	Case		1		1
21	5202031	Connector	1	1	1	1
22	5203031	Gear	1	1	1	1
23	5206009	Lever		1		1
24	5206010	Lever	1	1	1	1
25	5210015	Tip	1	1	1	1
26	5308026	Shaft	1	1	1	1
27	5308027	Shaft		1		1
28	5310002	Bushing	4	4	4	4
29	5409008	Spring		1		1

LIST OF SPARE PARTS FOR HOUSING (CONTINUED)

Item	Part Number	Description	Total quantity			
			FLH-0110	FLH-0810	FLH-3110	FLH-3510
30	5409027	Spring	1	1	1	1
31	5409028	Spring		1		1
32	5409044	Spring	1	1	1	1
33	5409045	Spring		1		1
34	5409630	Spring	1	1	1	1
35	8025A19	Switch SS-5-FT OMRON	1	2	1	2
36	8101A22	Standoff 1/4"	1	1	1	1
37	8201000	Screw M3x6, Pan Head, Phil, Zinc	1	3	1	3
38	8201934	Screw M3x10, Pan Head, Phil, Zinc	2	2	2	2
39	8201935	Screw M3x20, Pan Head, Phil, Zinc	2	3	2	5
40	8201937	Screw #4-40x1/4", 100° Flat Countersunk, Phil, Zinc	4	4	4	4
41	8201970	Screw M3x12, Pan	1		3	
42	8201A03	Screw #2-56x3/4", Pan Head, Phil, Zinc	2	2	2	2
43	8201A20	Screw #2-56x7/16", Pan Head, Phil, Zinc		1		1
44	8202573	Hex Nut #2-56, Zinc	2	3	2	3
45	8203002	Lock Washer M3,	3	6	3	8
46	8203923	Washer M2, Plain,	2	3	2	3
47	8203927	Washer M3, Plain,	4	4	4	4
48	8208994	Rolled Spacer	1	1	1	1
49	8208998	Rolled Spacer		1		1
50	8208999	Flat Washer		1		1

DISASSEMBLY OF HOUSING AND SUBASSEMBLIES.

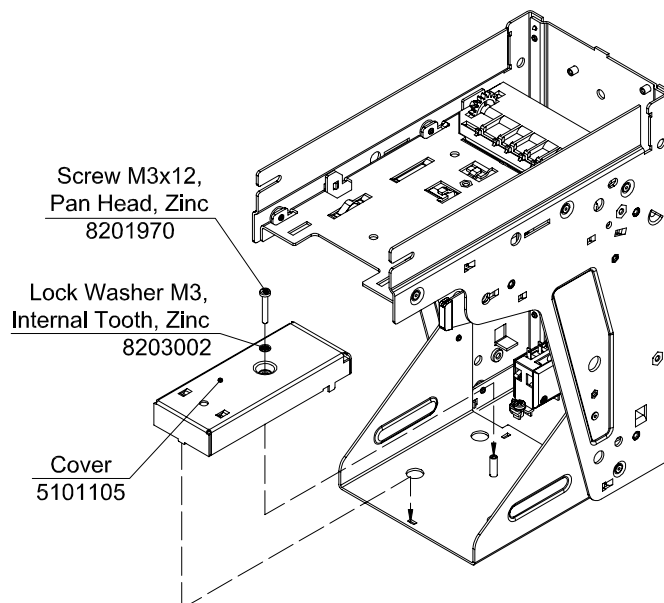
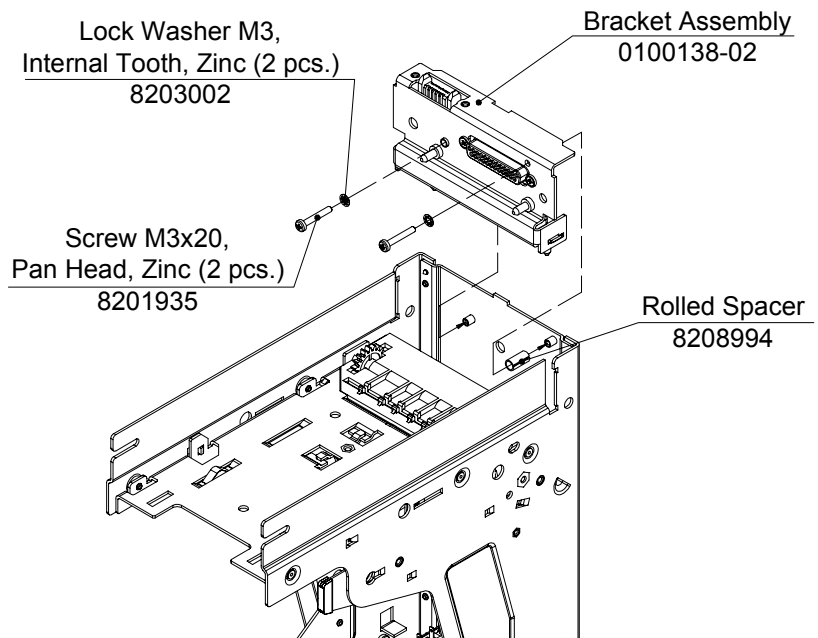
DISASSEMBLY OF HOUSING (FLH-0110).

Tools required:

- Flat screwdriver
- Philips screwdriver #1

Step 1

- Remove two screws
- Remove bracket assembly



Step 2

- Remove one screw
- Remove cover

Disassembly of Housing FLH-0110

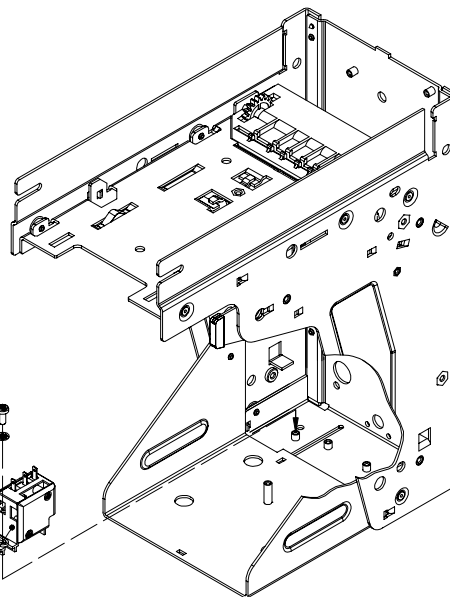
Step 3

- Remove one screw
- Remove cassette detector

Screw M3x6,
Pan Head, Zinc
8201000

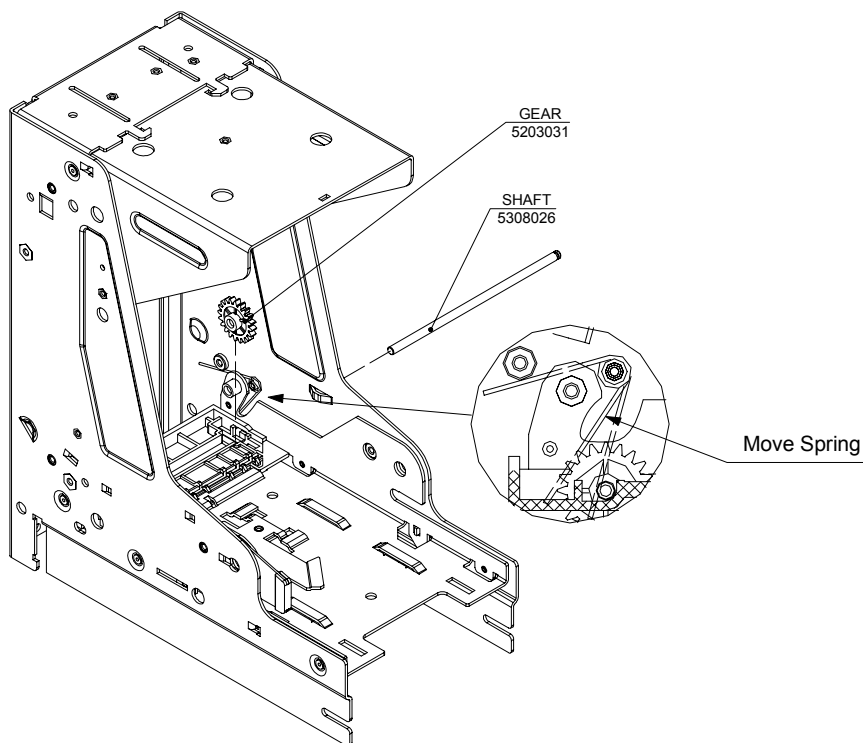
Lock Washer M3,
Internal Tooth, Zinc
8203002

Cassette Detector
0900016

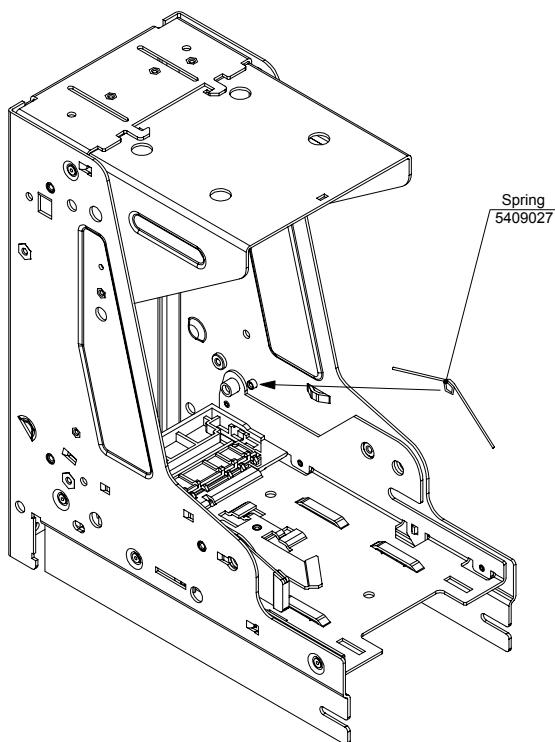


Step 4

- Move the spring, as shown, and release the shaft
- Remove the shaft and then the gear
- To reassemble, move the spring, then reinstall the shaft
- The spring must enter the groove on the shaft, as shown in this sectional view



Disassembly of Housing FLH-0110

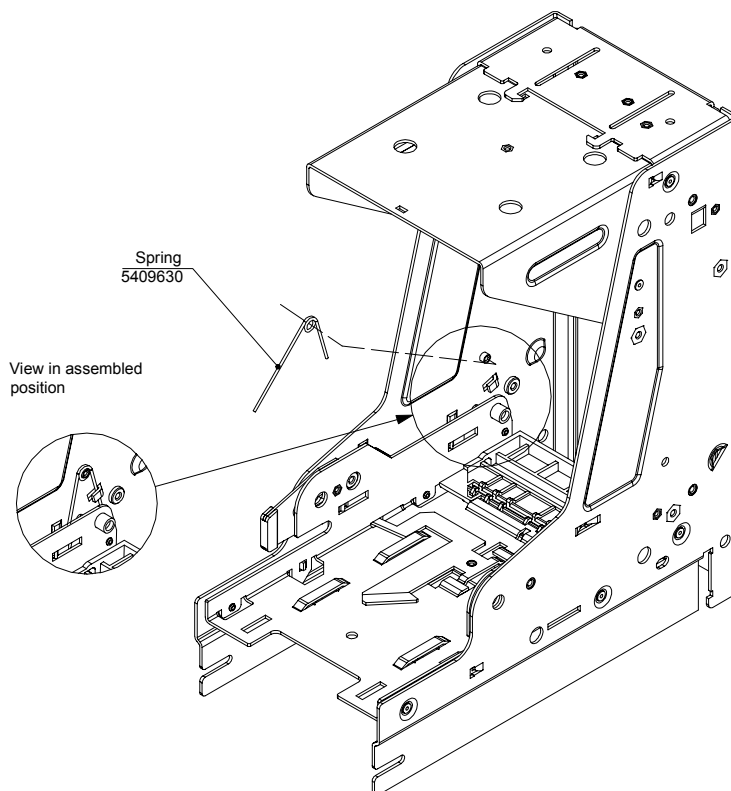


Step 5

Remove the spring from the housing.

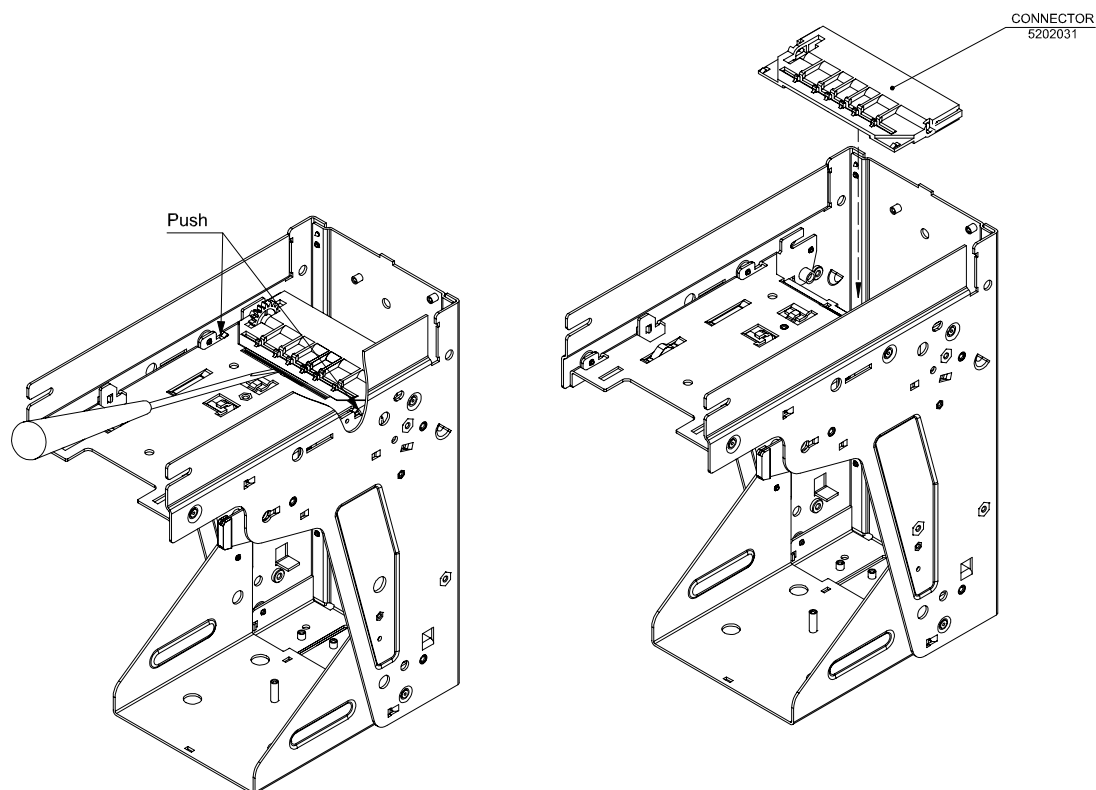
Step 6

Remove the spring from the housing.



Disassembly of Housing FLH-0110
Step 7

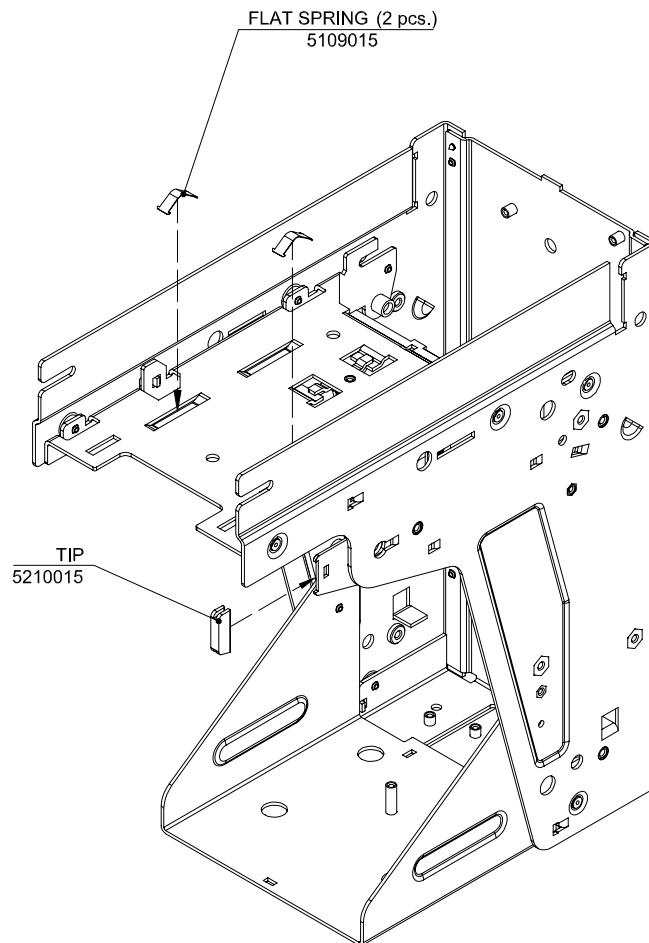
- Push on two latches, and pull up the center portion of the connector
- Slide the connector towards the back wall
- Remove the connector



Disassembly of Housing FLH-0110

Step 8

Remove the flat springs and the tip.



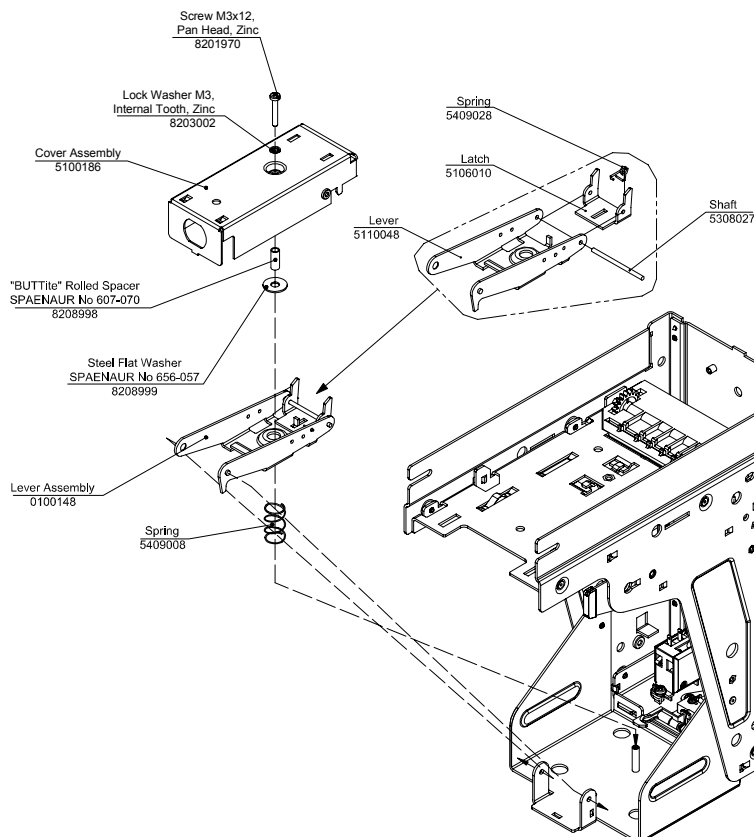
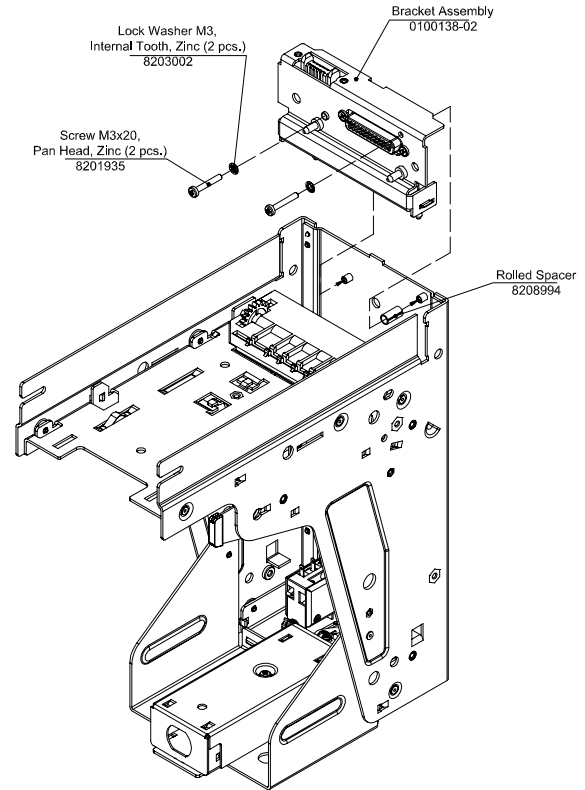
DISASSEMBLY OF HOUSING (FLH-0810).

Tools required:

- Flat screwdriver
- Philips screwdriver #1

Step 1

- Remove two screws
- Remove bracket assembly



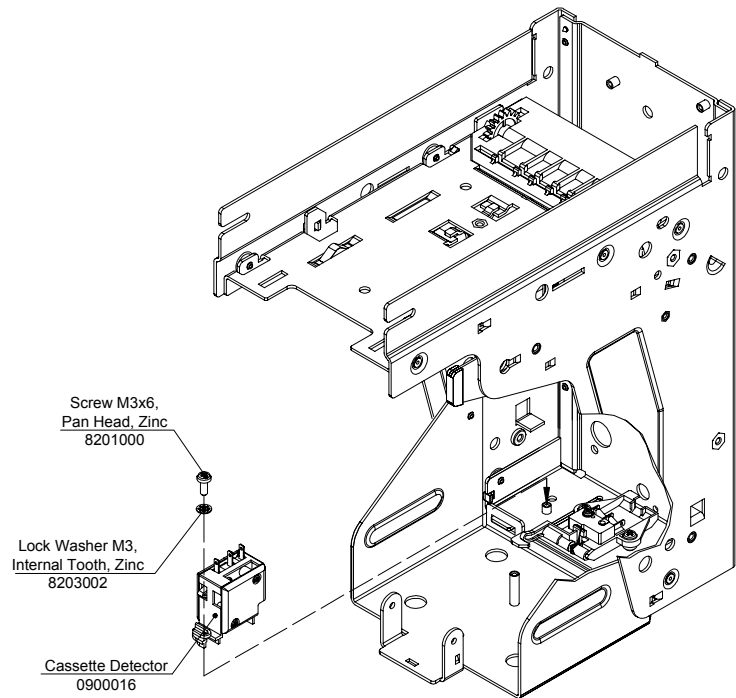
Step 2

- Remove one screw and remove the cover assembly
- Slightly squeeze the lever assembly from both sides, and remove it from the housing (watch the Spring)
- Pull out the shaft and disassemble the lever, latch and spring

Disassembly of Housing FLH-0810

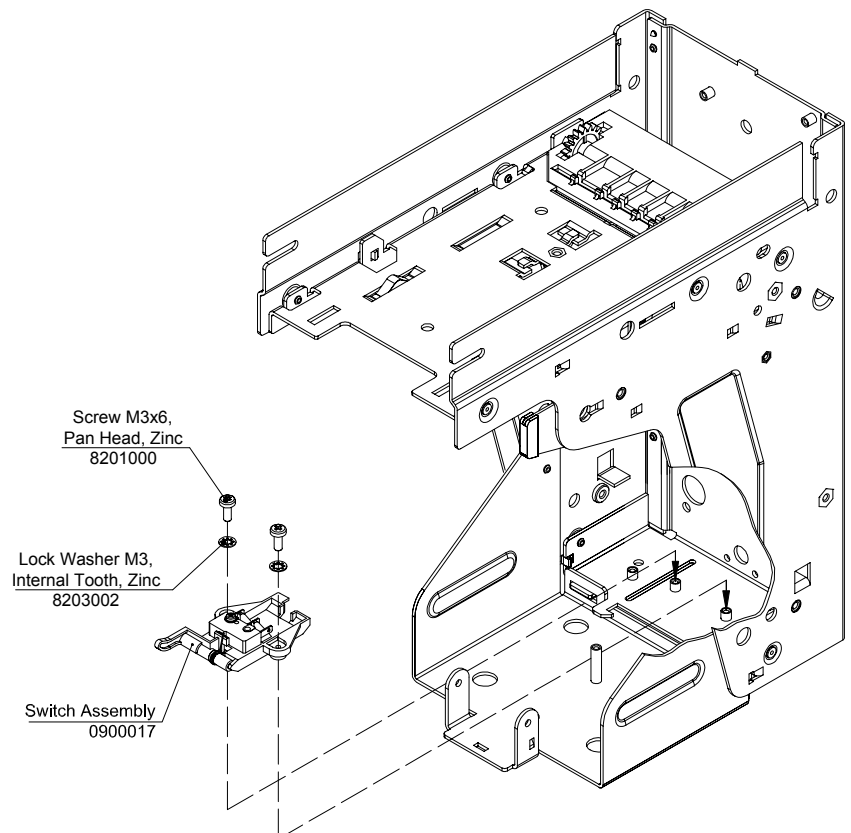
Step 3

- Remove one screw
- Remove cassette detector

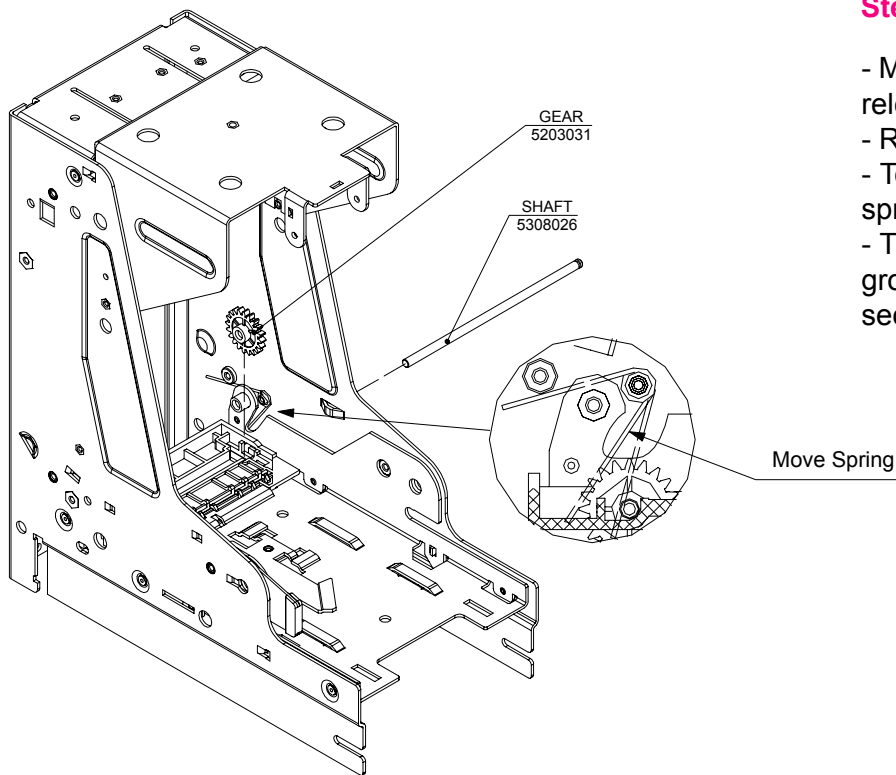


Step 4

- Remove two screws
- Remove the switch assembly



Disassembly of Housing FLH-0810



Step 5

- Move the spring, as shown, and release the shaft
- Remove the shaft and the gear
- To reassemble move the spring, then reinstall the shaft
- The spring must enter the groove on the shaft, as shown in sectional view

Steps 6, 7, 8, 9

Refer to **steps 5 to 8**, as described in “Disassembly of Housing FLH-0110”.

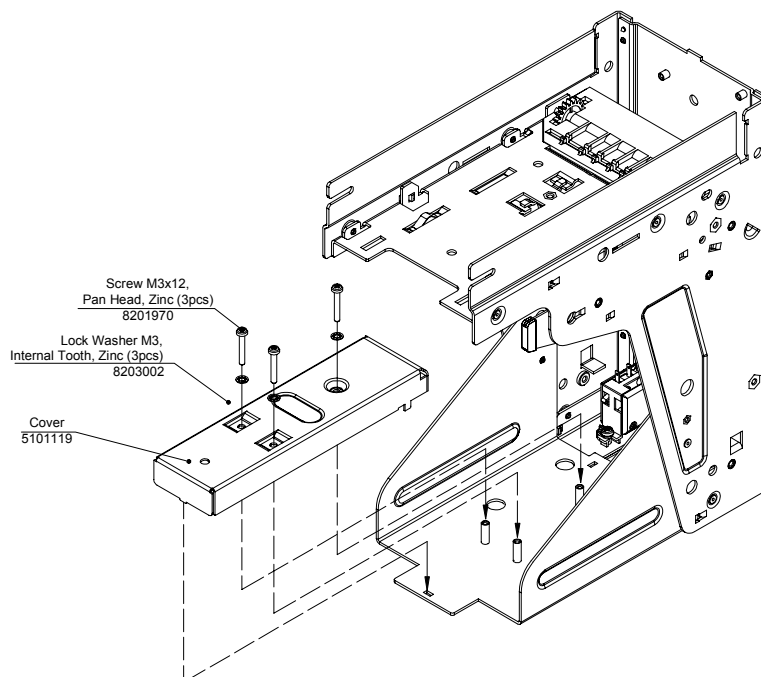
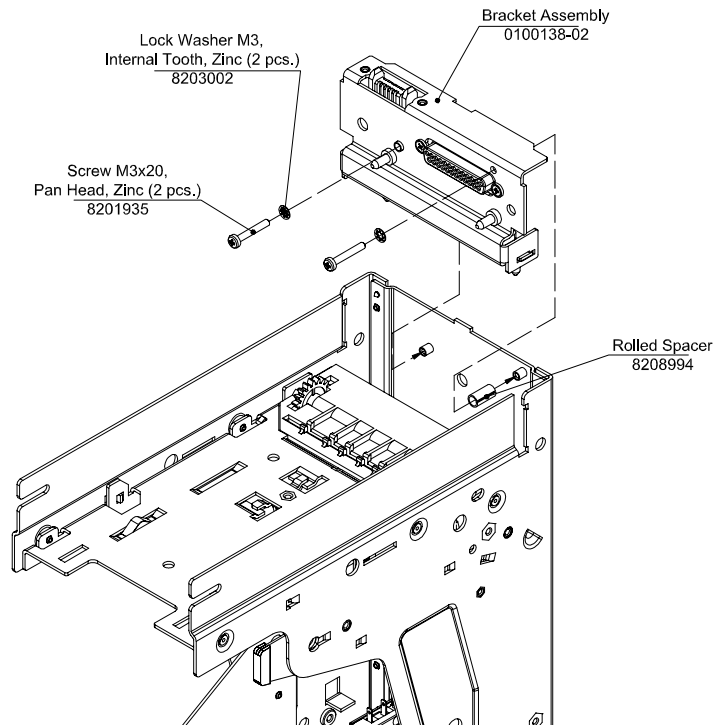
DISASSEMBLY OF HOUSING (FLH-3110).

Tools required:

- Flat screwdriver
- Philips screwdriver #1

Step 1

- Remove two screws
- Remove bracket assembly



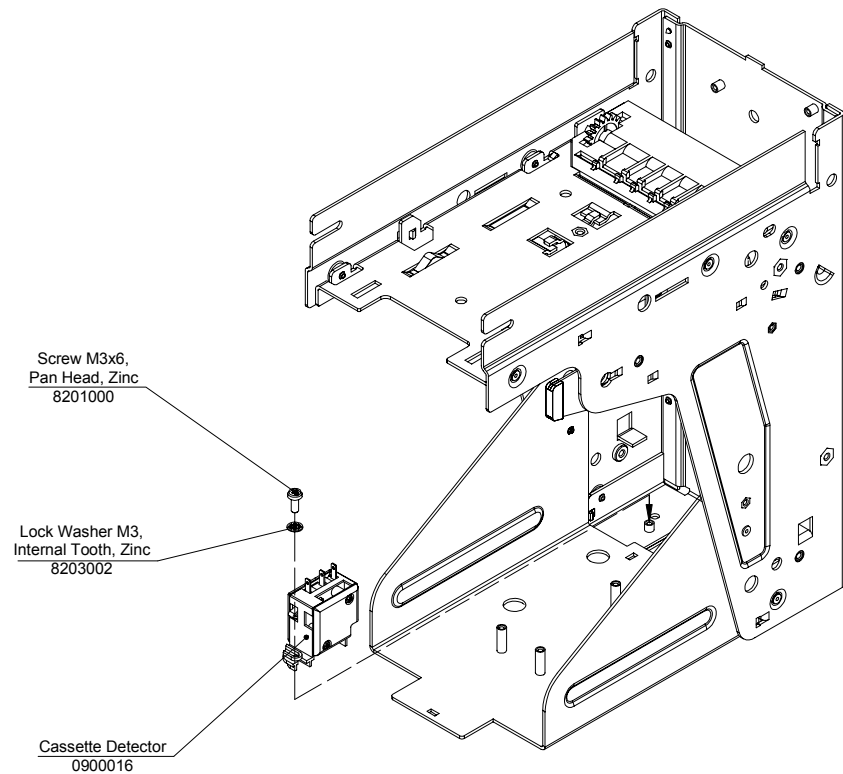
Step 2

- Remove three screws
- Remove the cover

Disassembly of Housing FLH-3110

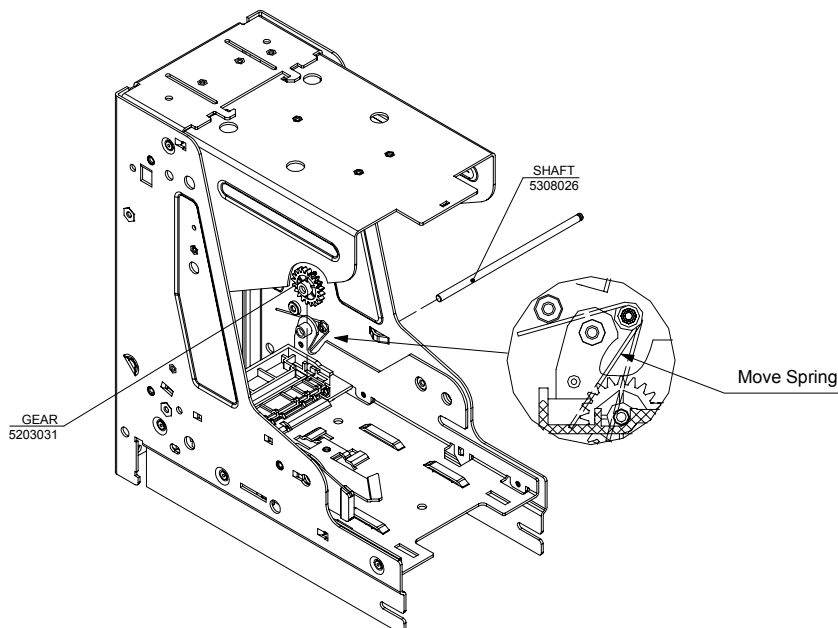
Step 3

- Remove one screw
- Remove cassette detector



Step 4

- Move the spring, as shown, and release the shaft
- Remove the shaft and the gear
- To reassemble, move the Spring, then reinstall the shaft
- The spring must enter the groove on the shaft, as shown in sectional view



Steps 5, 6, 7, 8

Refer to **steps 5 to 8**, as described in "Disassembly of Housing FLH-0110"

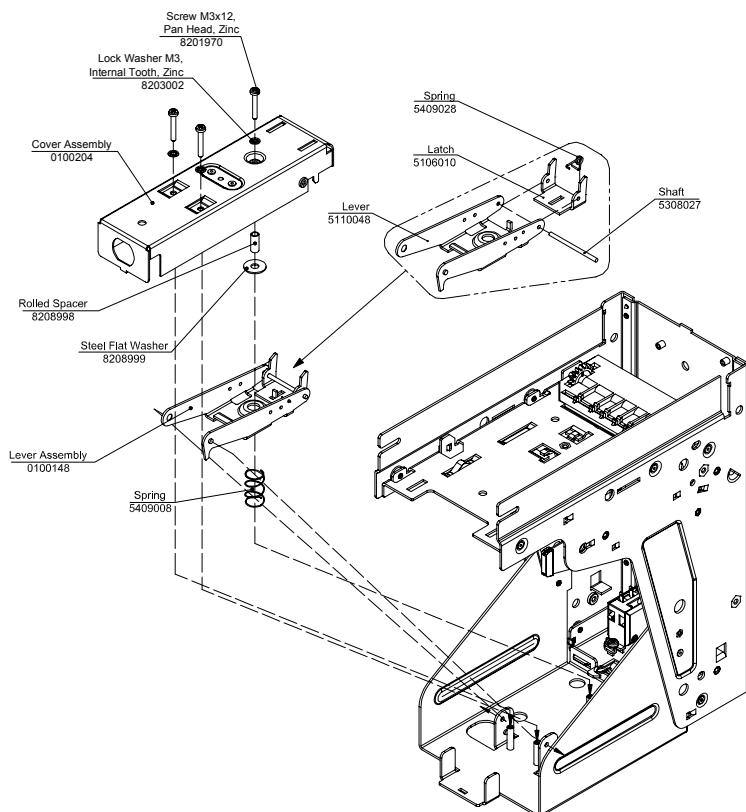
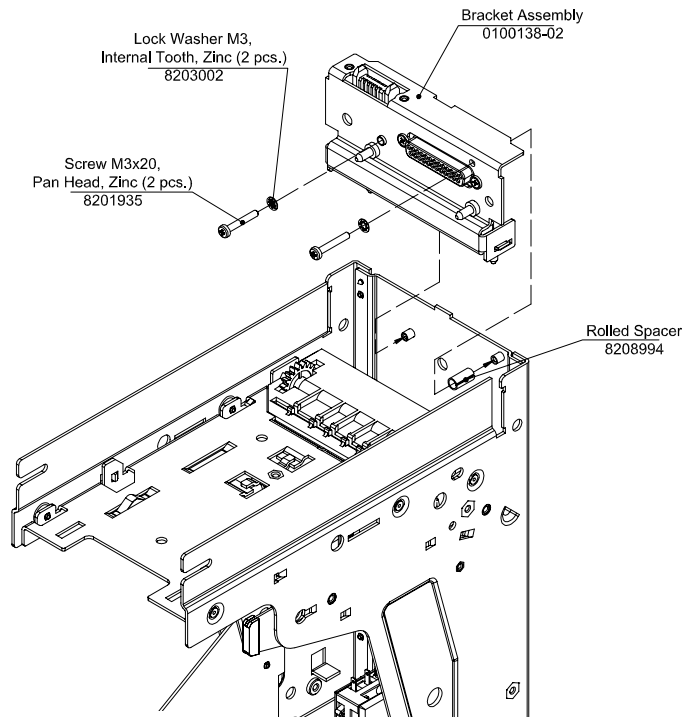
DISASSEMBLY OF HOUSING (FLH-3510).

Tools required:

- Flat screwdriver
- Philips screwdriver #1

Step 1

- Remove two screws
- Remove bracket assembly



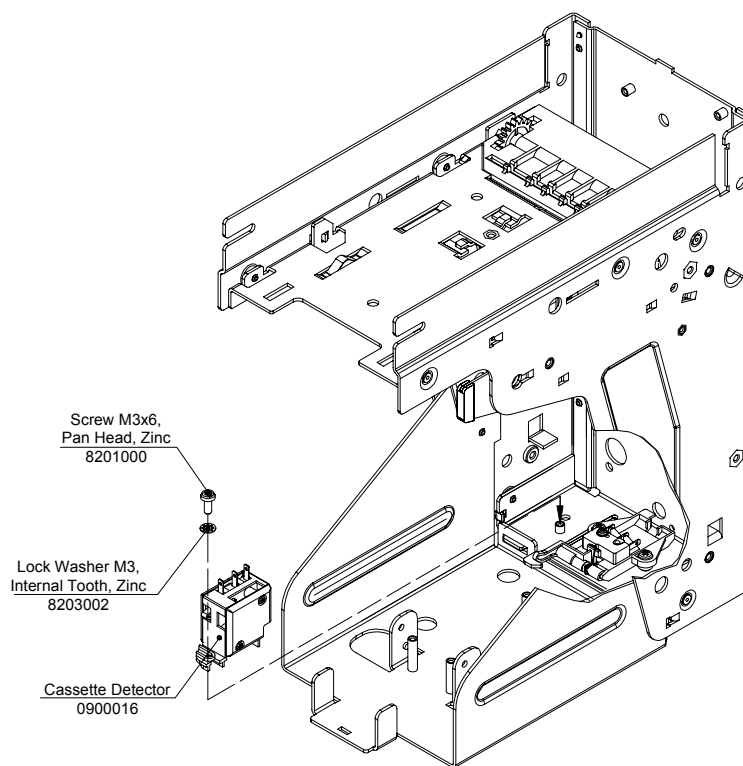
Step 2

- Remove one screw and remove the cover assembly
- Slightly squeeze the lever assembly from both sides, and remove it from the housing (watch the Spring)
- Pull out the shaft and disassemble the lever, the latch and the spring

Disassembly of Housing FLH-3510

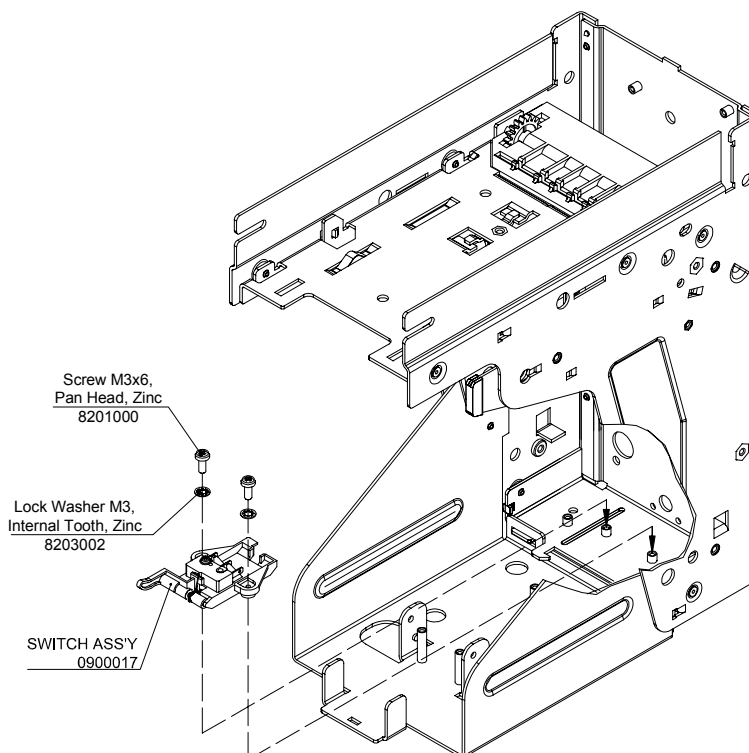
Step 3

- Remove one screw
- Remove cassette detector

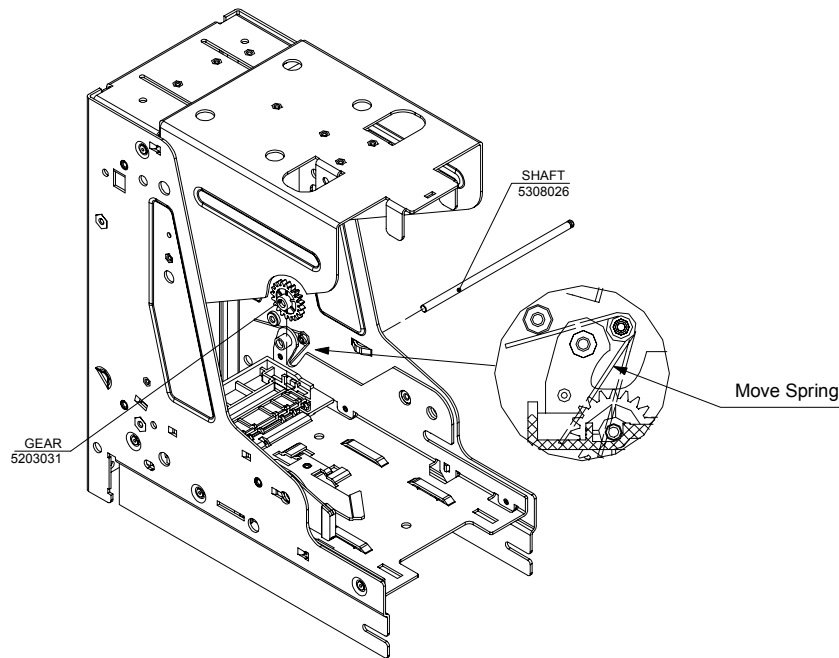


Step 4

- Remove two screws
- Remove the switch assembly



Disassembly of Housing FLH-3510

**Step 5**

- Move the spring, as shown, and release the shaft
- Remove the shaft and the gear
- To reassemble, move the spring, then reinstall the shaft
- The spring must enter the groove on the shaft, as shown in sectional view

Steps 6, 7, 8, 9

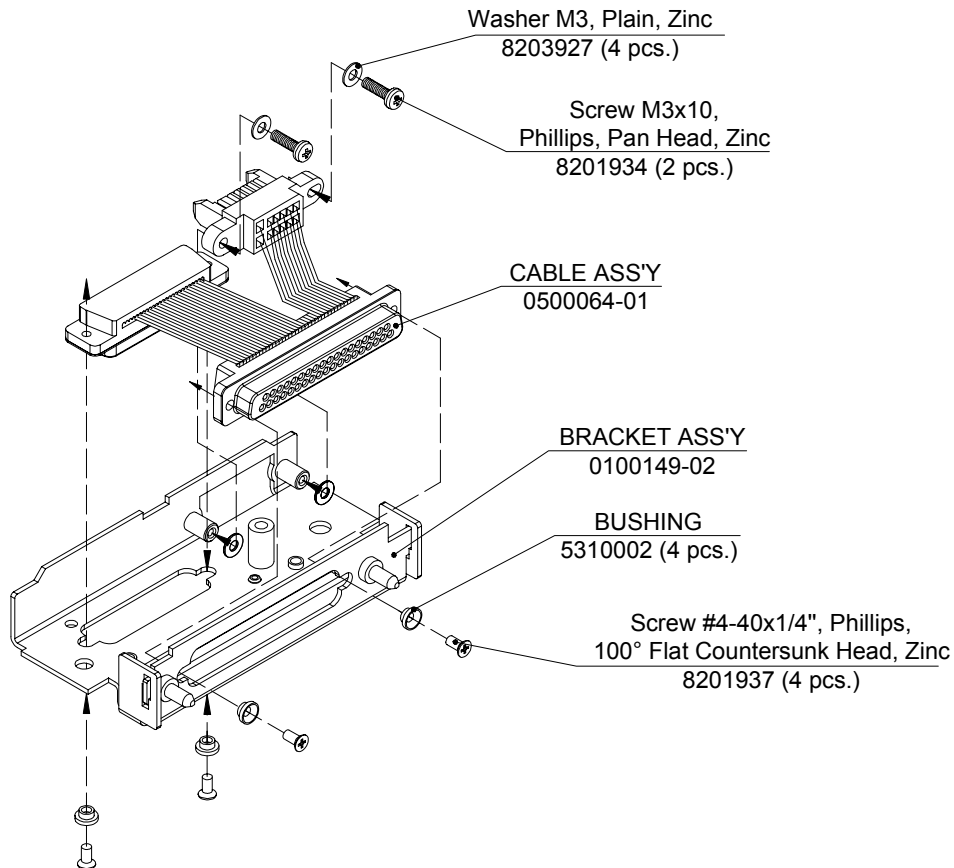
Refer to **steps 5 to 8**, as described in "Disassembly of Housing FLH-0110"

DISASSEMBLY OF BRACKET ASSEMBLY (#0100138-01).

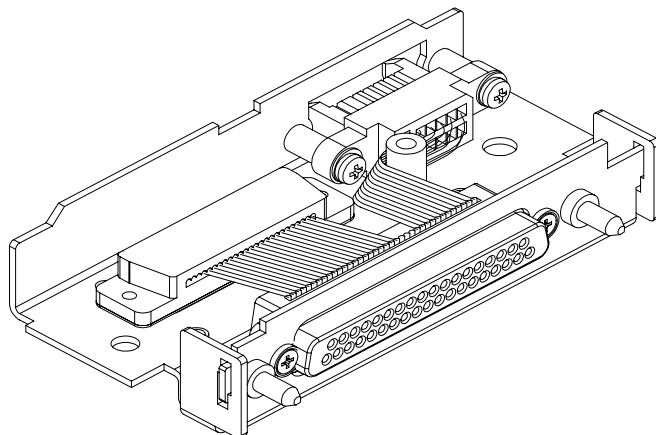
Tools required:

Philips screwdriver #1.

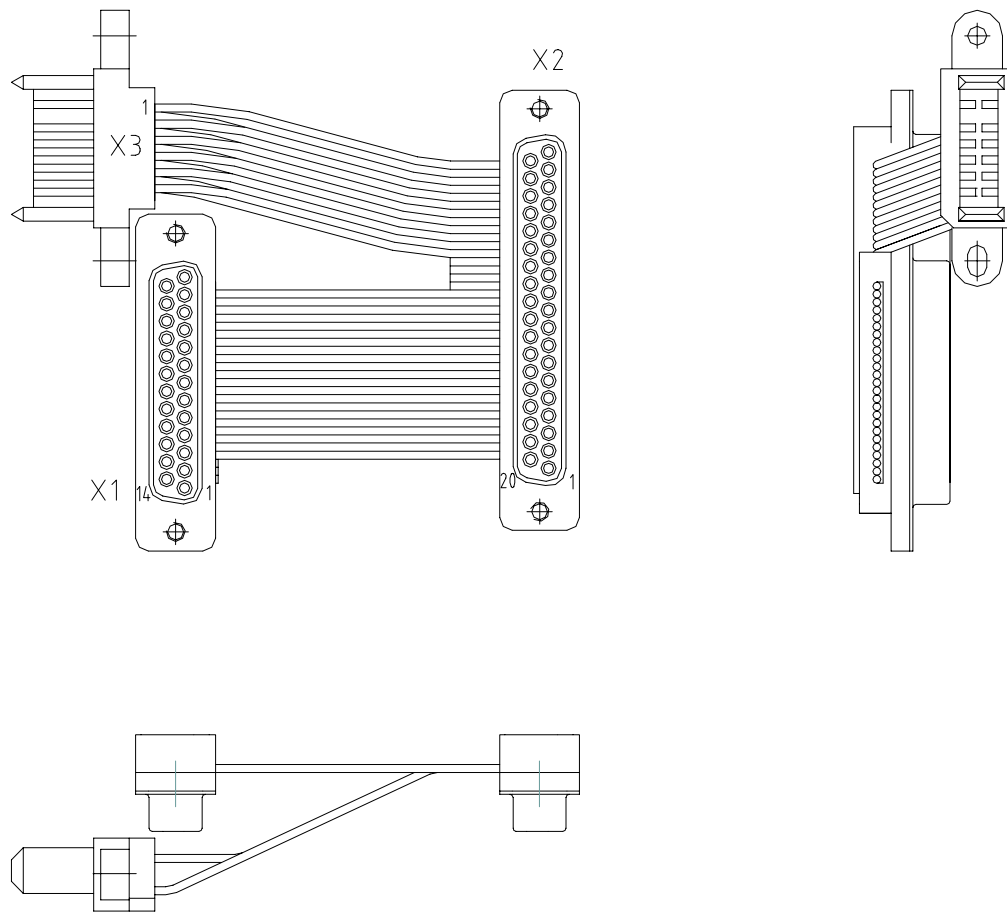
Please refer to the exploded view. When assembling, take care to ensure that the 25-pin and the 37-pin connectors move freely in their slots. For cable connections, please refer to the next page.



Fully assembled view



CABLE ASSEMBLY #0500064-01 (for reference only)



Table

From		To		From		To		From		To	
Con- nector	Ter- minal	Con- nector	Ter- minal	Con- nector	Ter- minal	Con- nector	Ter- minal	Con- nector	Ter- minal	Con- nector	Ter- minal
X1	1	--	--	X1	14	--	--	X3	1	X2	19
X1	2	--	--	X1	15	X2	1	X3	2	X2	18
X1	3	X2	20	X1	16	X2	2	X3	3	X2	17
X1	4	X2	21	X1	17	X2	3	X3	4	X2	16
X1	5	X2	22	X1	18	X2	4	X3	5	X2	15
X1	6	X2	23	X1	19	X2	5	X3	6	X2	14
X1	7	X2	24	X1	20	X2	6	X3	7	X2	37
X1	8	X2	25	X1	21	X2	7	X3	8	X2	36
X1	9	X2	26	X1	22	X2	8	X3	9	X2	35
X1	10	X2	27	X1	23	X2	9	X3	10	X2	34
X1	11	X2	28	X1	24	X2	10	X3	11	X2	33
X1	12	X2	29	X1	25	X2	11	X3	12	X2	32
X1	13	--	--								

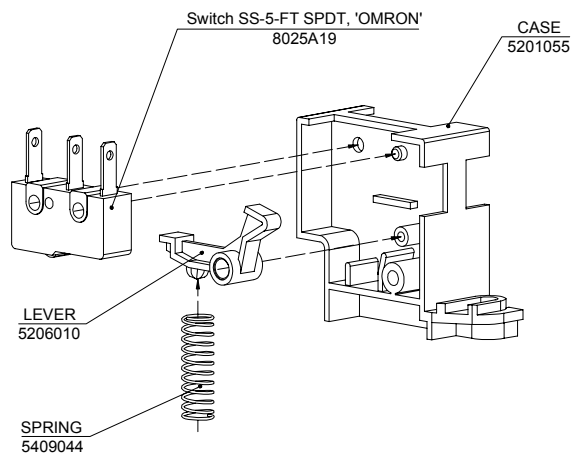
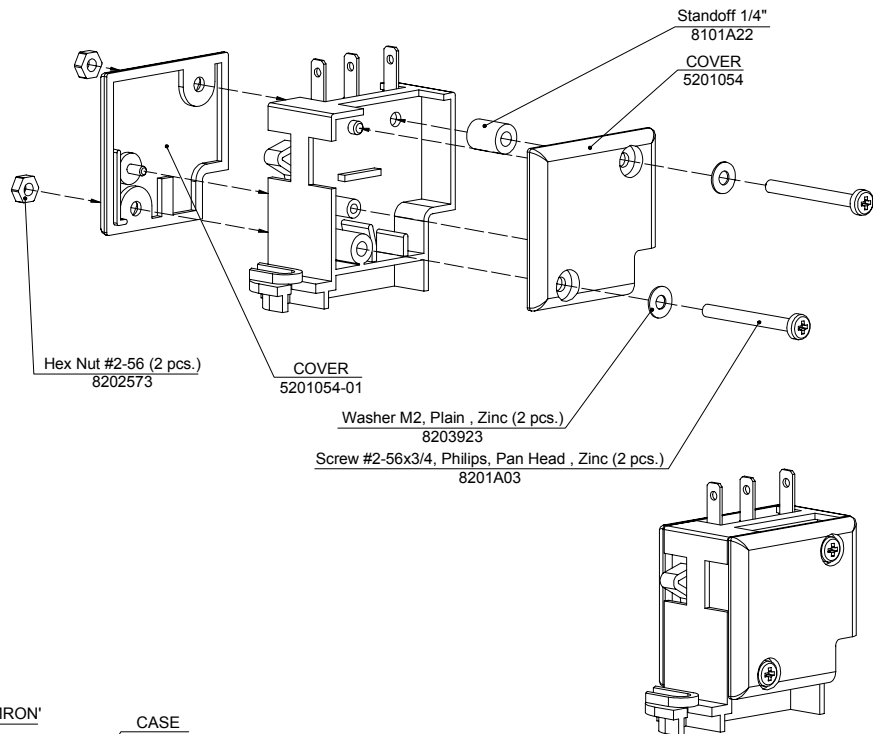
DISASSEMBLY OF CASSETTE DETECTOR (#0900016).

Tools required:

Philips screwdriver #.1

Step 1

- Remove two screws and remove covers
- When assembling, check for free and smooth movement of the lever



Step 2

Remove the switch, the lever and the spring.

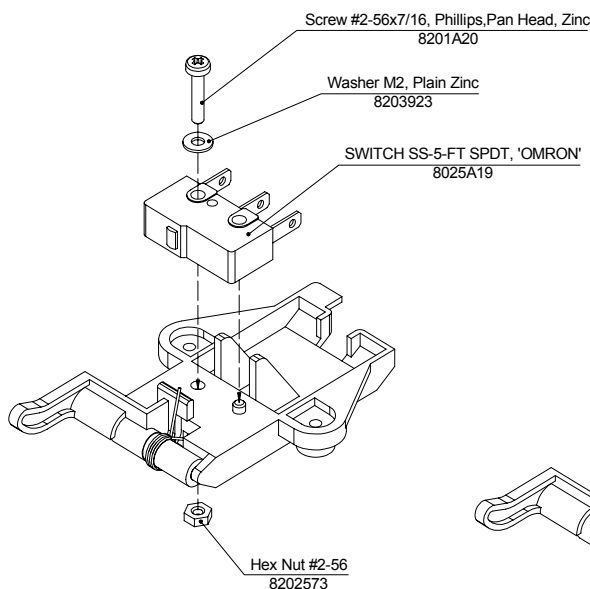
DISASSEMBLY OF CASSETTE DETECTOR (#0900016).

Tools required:

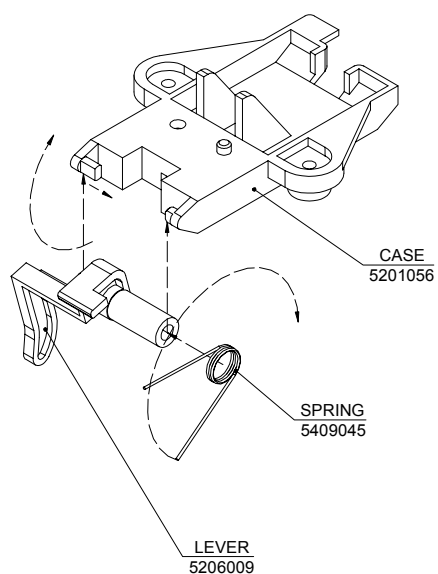
Philips screwdriver #1.

Step 1

- Remove one screw and remove the switch
- When assembling, check for free and smooth movement of the lever



Assembled view



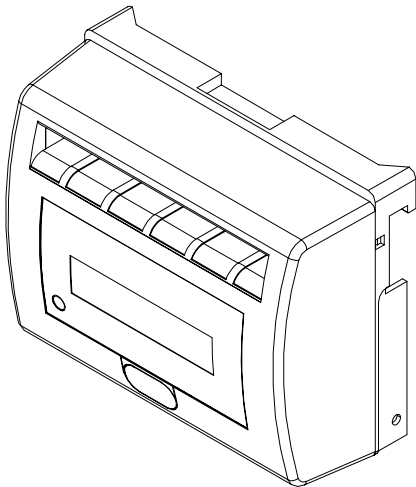
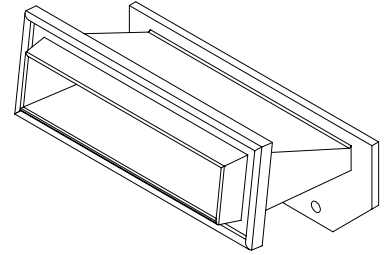
Assembled view

Step 2

- Rotate the lever, and remove it from the case
- Remove the spring

BEZEL

CashCode Bezel for “Double Diamond” Gaming Machine (FLB-1011, FLB-1021)



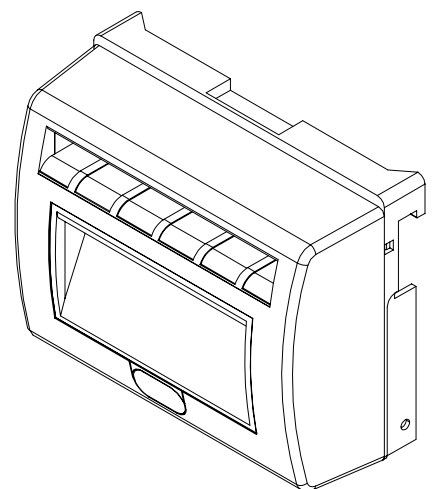
Standard Cashcode Bezel (FLB-2311, FLB-2331, MFLB-2401)

CashCode Bezel with Running Lights (FLB-2111, FLB-2131, MFLB-2201)

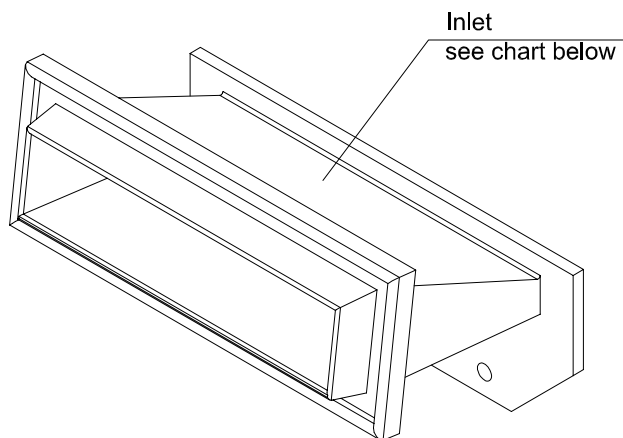
CashCode Bezel with Running Lights and IR Communication Port (FLB-2511, FLB-2531, MFLB-2601)

CashCode Bezel with Running Lights and Digital Display (FLB-3111, FLB-3131, MFLB-3201)

CashCode Bezel with Running Lights, Digital Display and IR Communication Port (FLB-3311, FLB-3331, MFLB-3401)

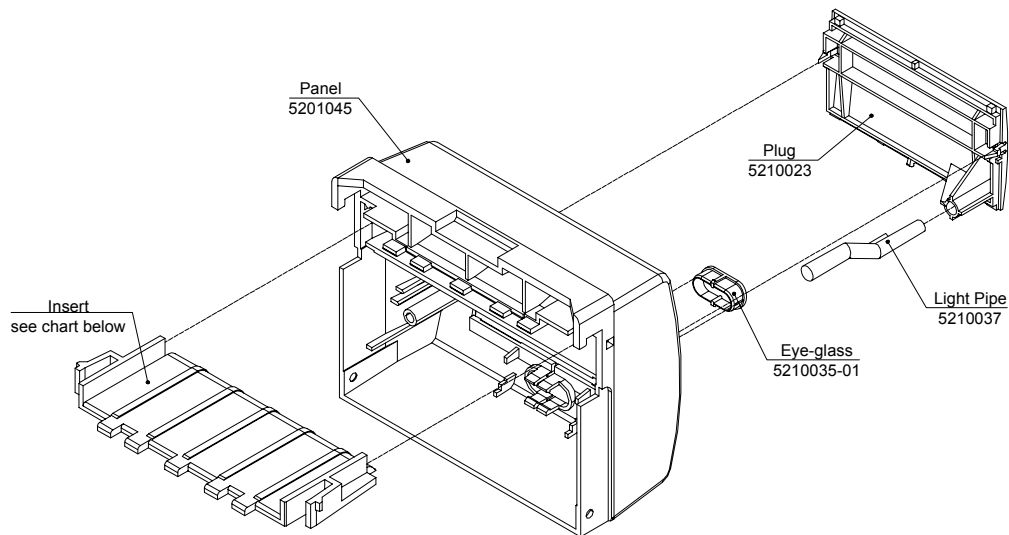


Perspective View of CashCode Bezel for “Double Diamond” Gaming machine (FLB-1011, FLB-1021)



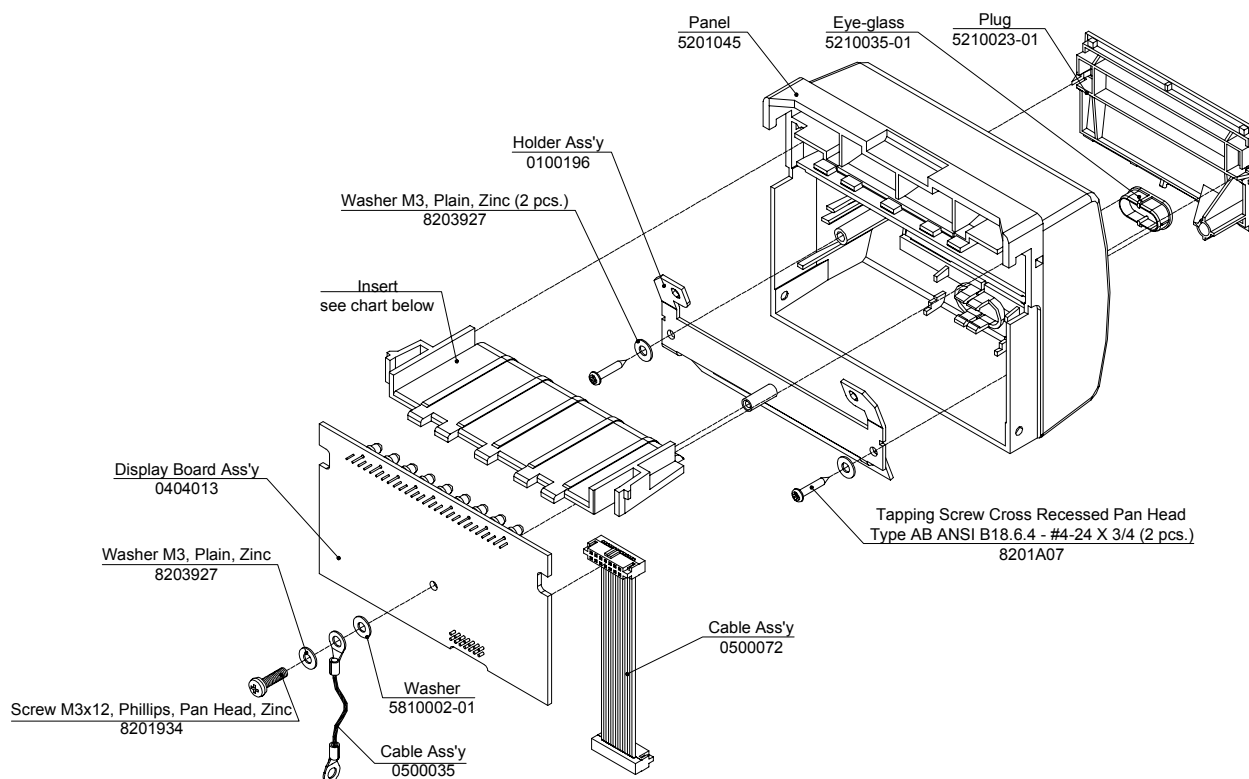
Bezel part number	Inlet (part number)
FLB-1011	5202032-68
FLB-1021	5202032-72

Exploded View of Standard CashCode Bezel (FLB-2311, FLB-2331, MFLB-2401)



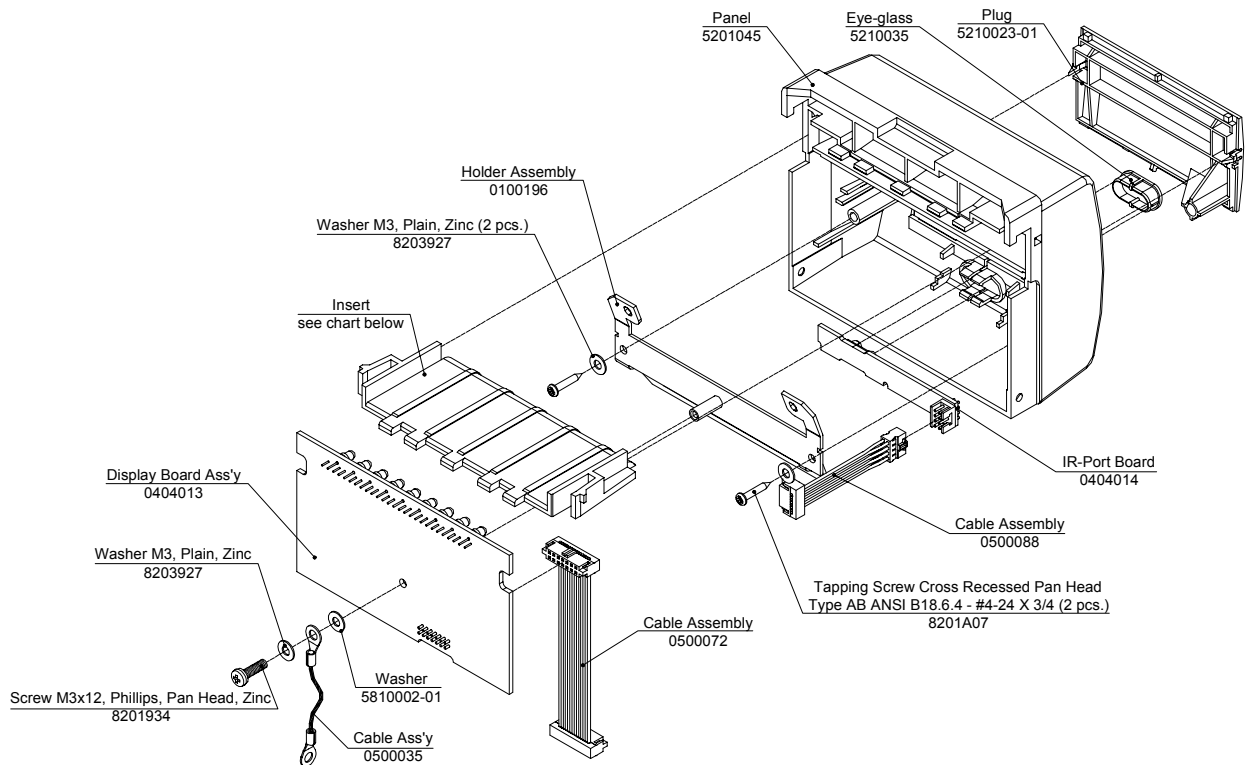
Bezel Part Number	Insert (Part Number)
FLB-2311	5210022-68-01
FLB-2331	5210022-72-01
MFLB-2401	5210022-01

Exploded View of CashCode Bezel with Running Lights (FLB-2111, FLB-2131, MFLB-2201)



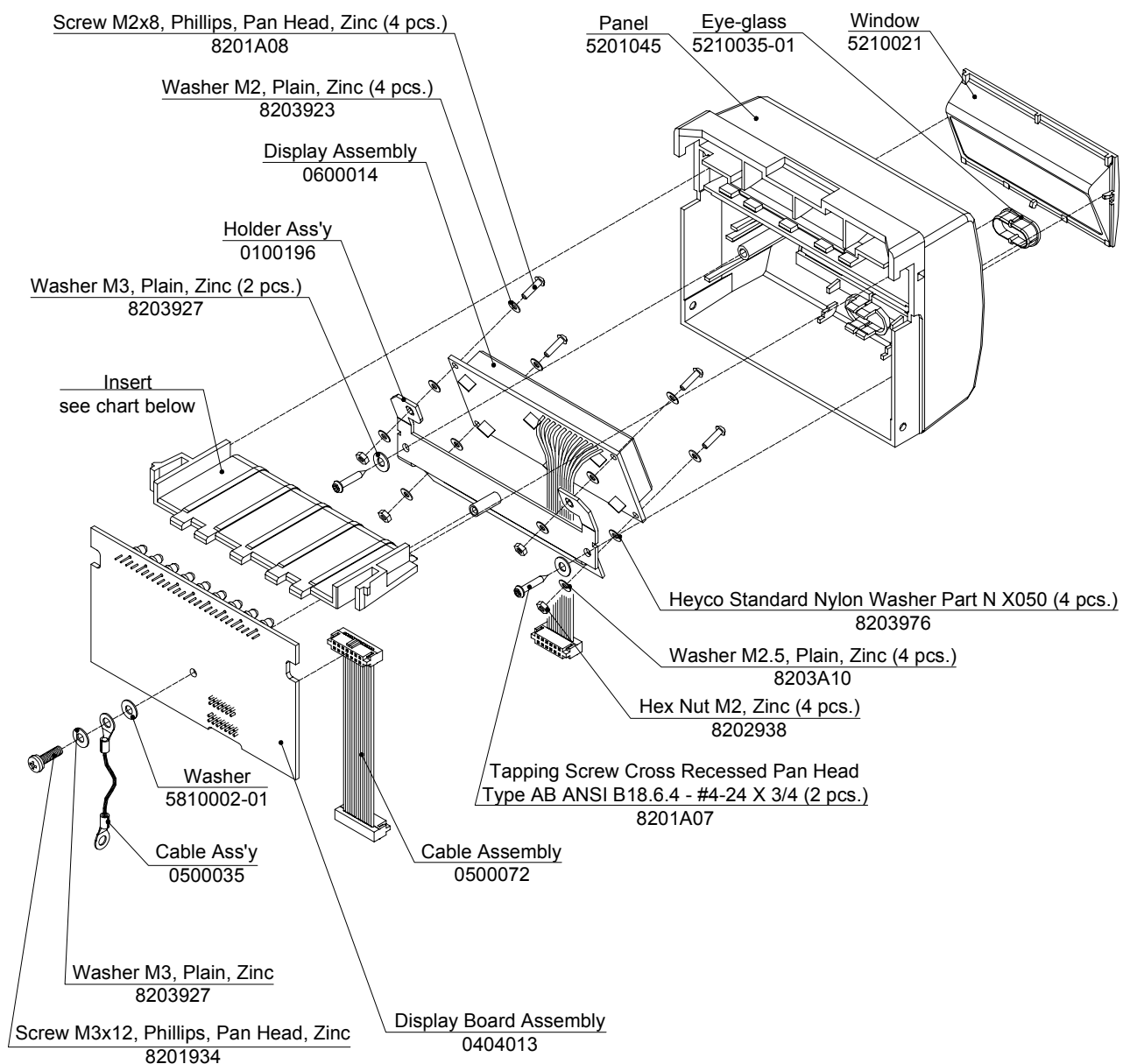
Bezel Part Number	Insert (Part Number)
FLB-2111	5210022-68
FLB-2131	5210022-72
MFLB-2201	5210022

Exploded View of CashCode Bezel with Running Lights and IR Communication Port (FLB-2511, FLB-2531, MFLB-2601)



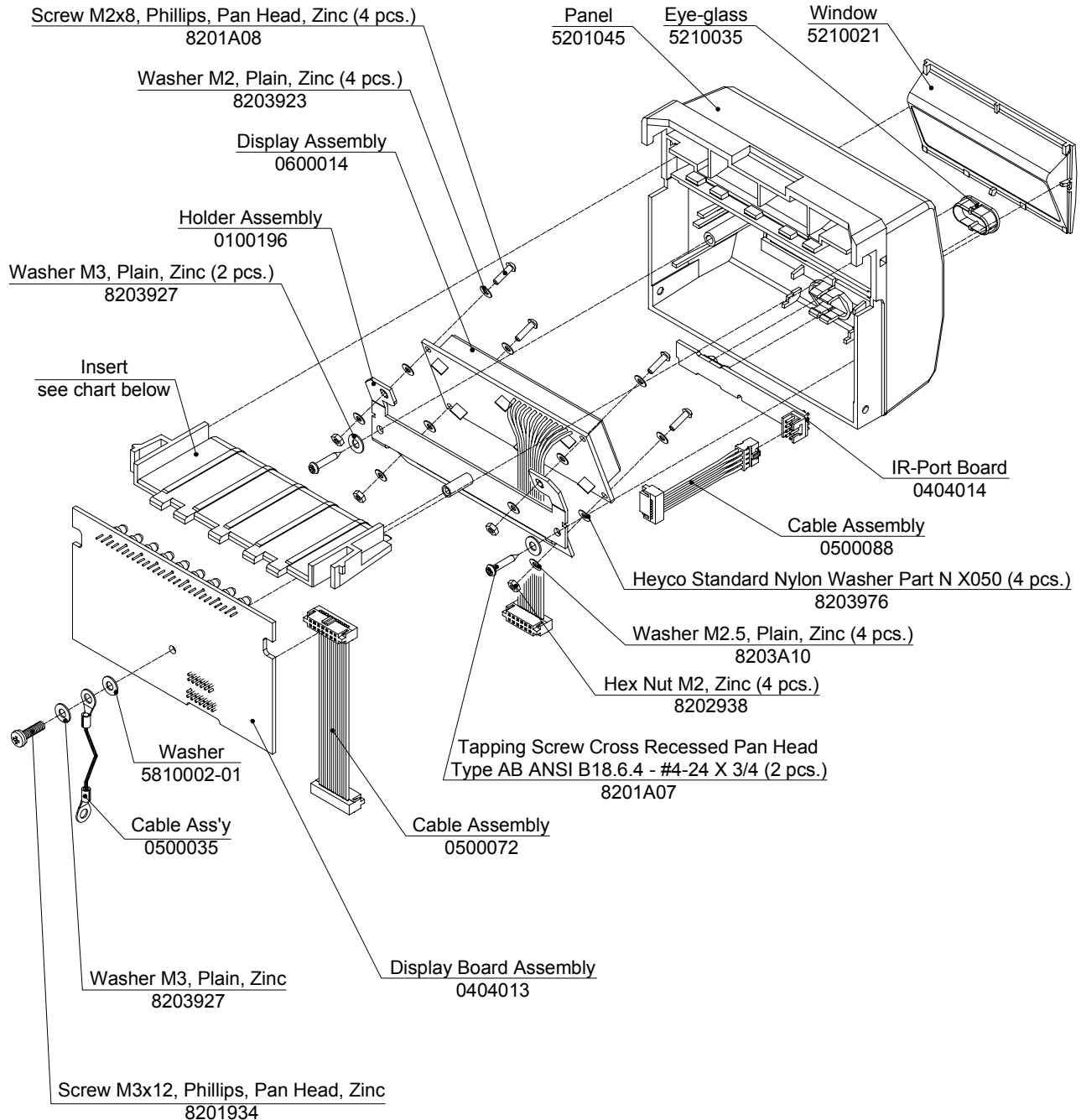
Bezel Part Number	Insert (Part Number)
FLB-2511	5210022-68
FLB-2531	5210022-72
MFLB-2601	5210022

Exploded View of CashCode Bezel with Running Lights and Digital Display (FLB-3111, FLB-3131, MFLB-3201)



Bezel Part Number	Insert (Part Number)
FLB-3111	5210022-68
FLB-3131	5210022-72
MFLB-3201	5210022

Exploded View of CashCode Bezel with Running Lights, Digital Display and IR Communication Port (FLB-3311, FLB-3331, MFLB-3401)



Bezel Part Number	Insert (Part Number)
FLB-3311	5210022-68
FLB-3331	5210022-72
MFLB-3401	5210022

LIST OF SPARE PARTS FOR BEZEL

Item	Part Number	Description	Total quantity																
			FLB-1011	FLB-1021	FLB-2111	FLB-2131	FLB-2311	FLB-2331	FLB-2511	FLB-2531	FLB-3111	FLB-3131	FLB-3311	FLB-3331	MFLB-2201	MFLB-2401	MFLB-2601	MFLB-3201	MFLB-3401
1	0100196	Holder Assembly			1	1			1	1	1	1	1	1	1	1	1	1	1
2	0404013	Display Board Assembly			1	1			1	1	1	1	1	1	1		1	1	1
3	0404014	IR-port Board							1	1	1	1	1			1			1
4	0500035	Cable Assembly			1	1			1	1	1	1	1	1	1		1	1	1
5	0500072	Cable Assembly			1	1			1	1	1	1	1	1	1		1	1	1
6	0500088	Cable Assembly							1	1	1	1	1			1			1
7	0600014	Display Assembly																	1
8	5101110	Holder			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	5201045	Panel			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	5202032-68	Inlet	1																
11	5202032-72	Inlet		1															
12	5210021	Window										1	1	1					
13	5210022	Insert														1	1	1	1
14	5210022-01	Insert																	
15	5210022-68	Insert		1					1				1						
16	5210022-68-01	Insert					1												
17	5210022-72	Insert				1					1								
18	5210022-72-01	Insert						1											
19	5210023	Plug					1	1								1			
20	5210023-01	Plug			1	1			1	1					1		1		
21	5210035	Eye-Glass							1	1			1				1		1
22	5210035-01	Eye-Glass			1	1	1	1	1			1		1		1		1	
23	5210037	Light Pipe					1	1											
24	5810002-01	Washer			1	1			1	1	1	1	1	1	1	1	1	1	1
25	8102003	Nylon Push Rivet, HEYCO #9032			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
26	8201000	Screw M3x6, Pan Head, Phil, Zinc	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

LIST OF SPARE PARTS FOR BEZEL (continued)

Item	Part Number	Description	Total quantity																
			FLB-1011	FLB-1021	FLB-2111	FLB-2131	FLB-2311	FLB-2331	FLB-2511	FLB-2531	FLB-3111	FLB-3131	FLB-3311	FLB-3331	MFLB-2201	MFLB-2401	MFLB-2601	MFLB-3201	MFLB-3401
27	8201934	Screw M3x10, Pan Head, Phil, Zinc			1	1			1	1	1	1	1	1	1	1	1	1	1
28	8201A07	Tapping Screw type AB, #4-24x3/4", Pan Head, Phil, Zinc			2	2			2	2	2	2	2	2	2	2	2	2	2
29	8201A08	Screw M2x8, Pan Head, Phil, Zinc									4	4	4	4				4	4
30	8202938	Hex Nut M2, Zinc									4	4	4	4				4	4
31	8203002	Lock Washer M3, Internal teeth, Zinc	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
32	8203923	Washer M2, Plain, Zinc									4	4	4	4				4	4
33	8203927	Washer M3, Plain, Zinc			3	3			3	3	3	3	3	3	3	3	3	3	3
34	8203976	HEYCO Standard Nylon Washer p/n X050									4	4	4	4				4	4
35	8203A10	Washer M2.5, Plain, Zinc									4	4	4	4				4	4
36	8208A15	Microplastic Round Spacer #13RS024014			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

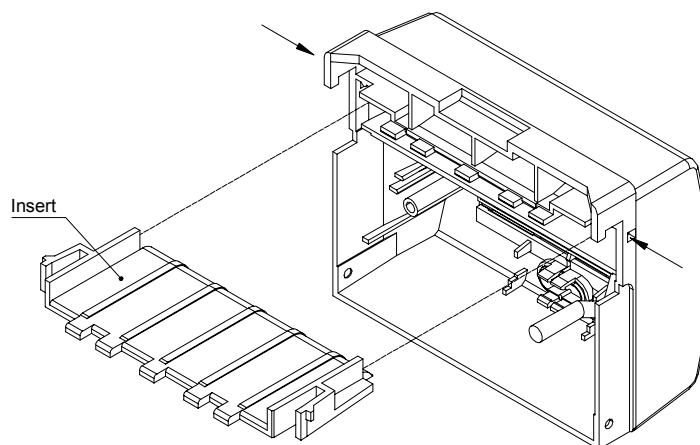
DISASSEMBLY OF BEZEL (FLB-2311, FLB-2331, MFLB-2401).

Tools required:

Two flat screwdrivers.

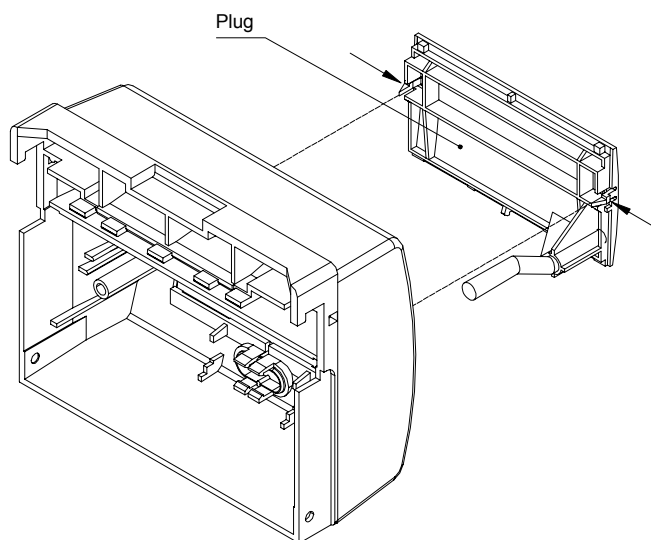
Step 1

- Press on latches of the insert, as shown by arrows
- Release latches and remove the insert



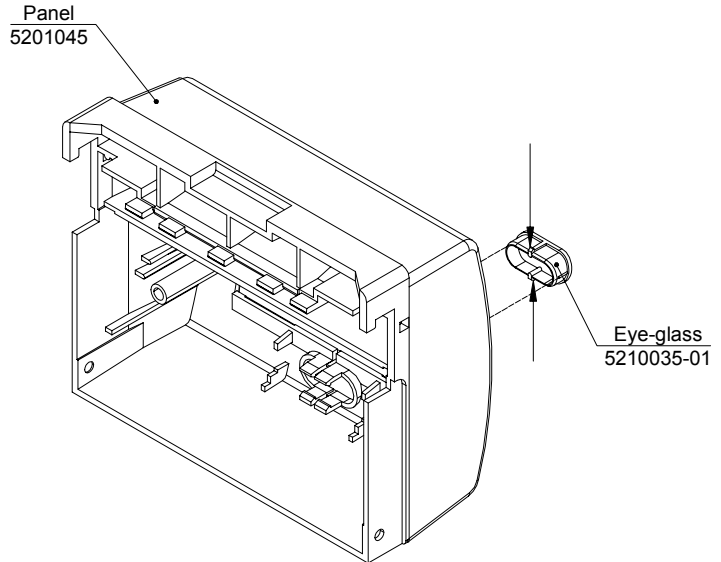
Step 2

- Press on latches of the plug, as shown by arrows
- Release latches and remove the plug

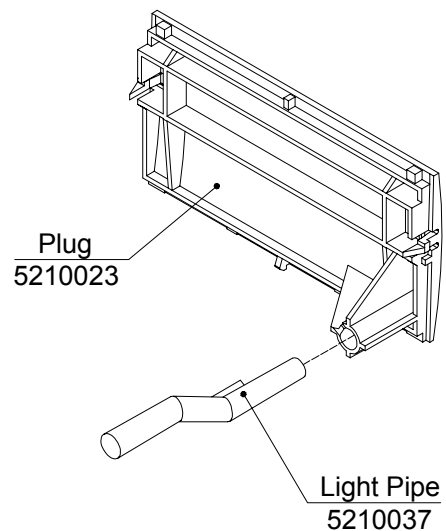


Disassembly of Bezel (FLB-2311, FLB-2331, MFLB-2401)
Step 3

- Press on the latches of the eye-glass, as shown by arrows
- Release the latches, and remove the eye-glass


Step 4

- Note: the light pipe has been secured in the plug with glue and it cannot be disassembled
- When assembling a new light pipe, place a small amount of glue on its tab
- Plastic cement or cyano-acrilate glue is recommended



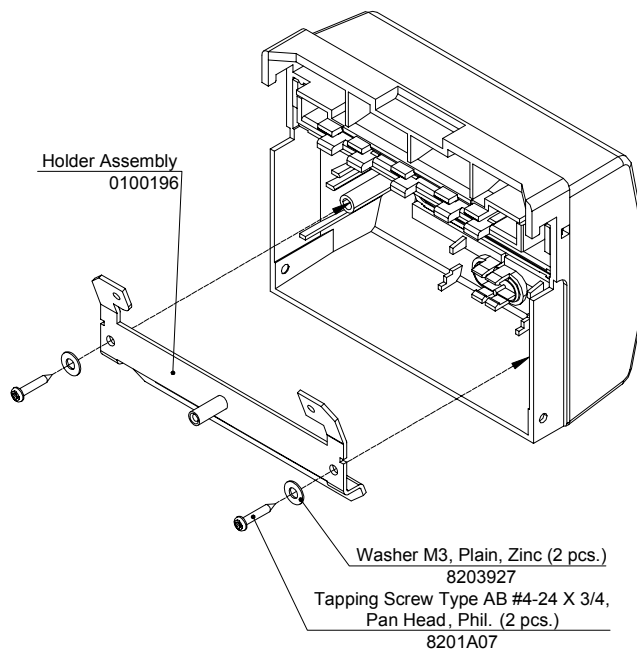
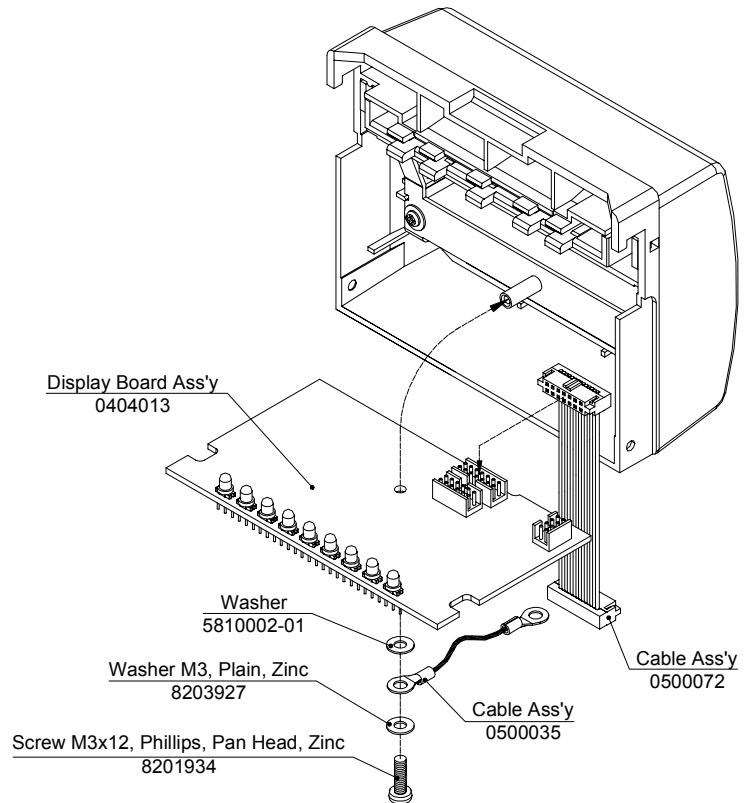
DISASSEMBLY OF BEZEL (FLB-2111, FLB-2131, MFLB-2201)

Tools required:

- Two flat screwdrivers
- Phillips screwdriver #1

Step 1

- Remove one screw
- Remove display board and cable
- Disconnect the cable from the display board



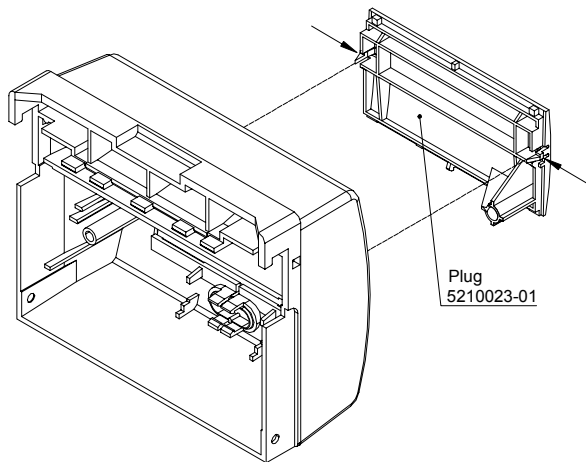
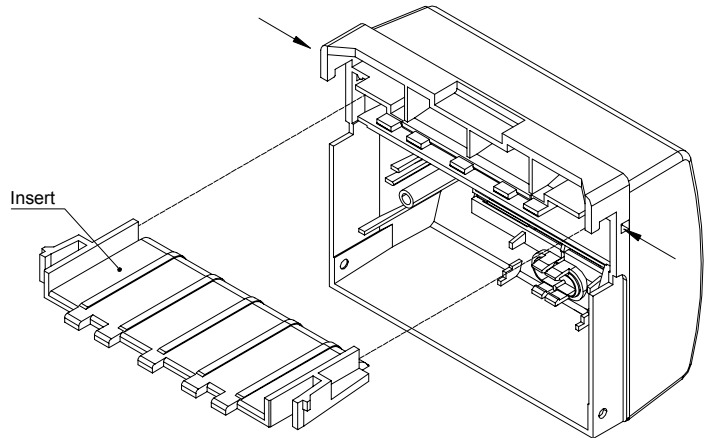
Step 2

- Remove two screws
- Remove holder assembly

Disassembly of Bezel (FLB-2111, FLB-2131, MFLB-2201)

Step 3

- Press on latches of the insert, as shown by arrows
- Release latches and remove the insert

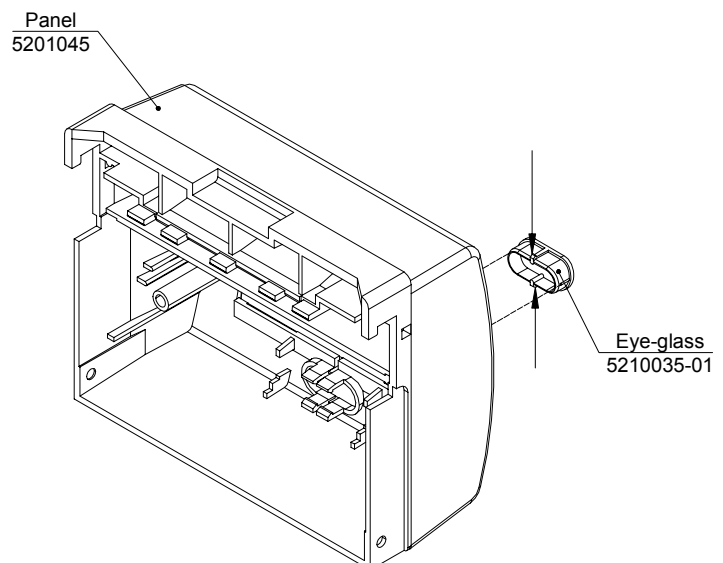


Step 4

- Press on latches of the plug, as shown by arrows
- Release the latches and remove the plug

Step 5

- Press on the latches of the eye-glass, as shown by arrows
- Release the latches and remove the eye-glass



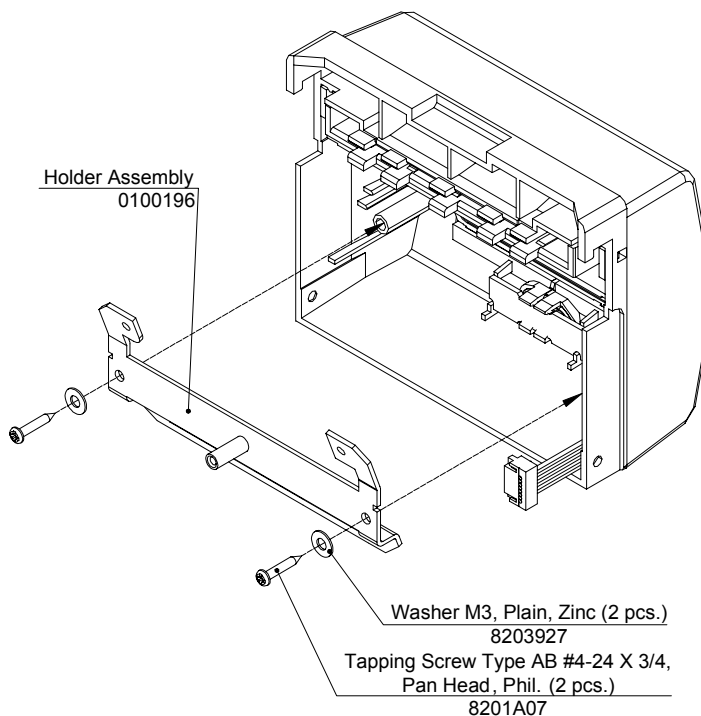
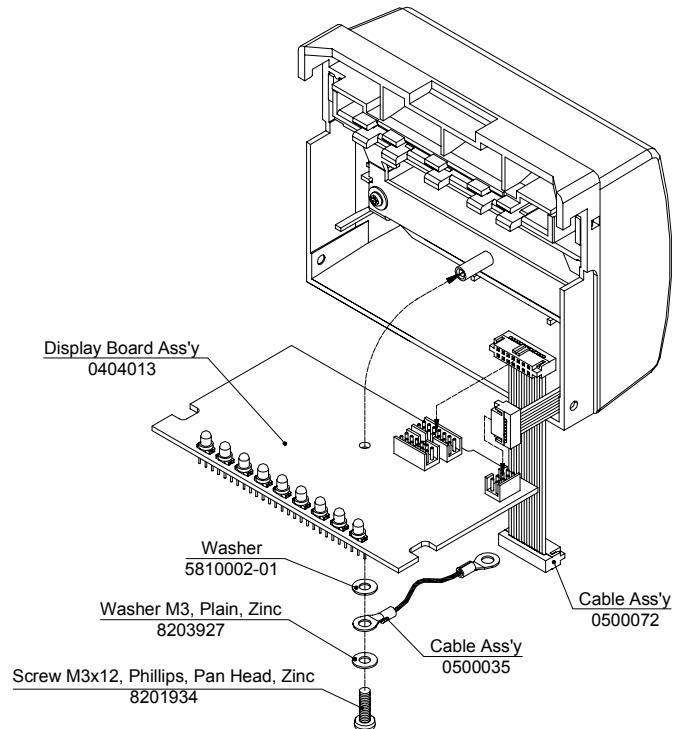
DISASSEMBLY OF BEZEL (FLB-2511, FLB-2531, MFLB-2601)

Tools required:

- Two flat screwdrivers
- Phillips screwdriver #1

Step 1

- Remove one screw
- Remove display board and cable
- Disconnect the cable from the display board



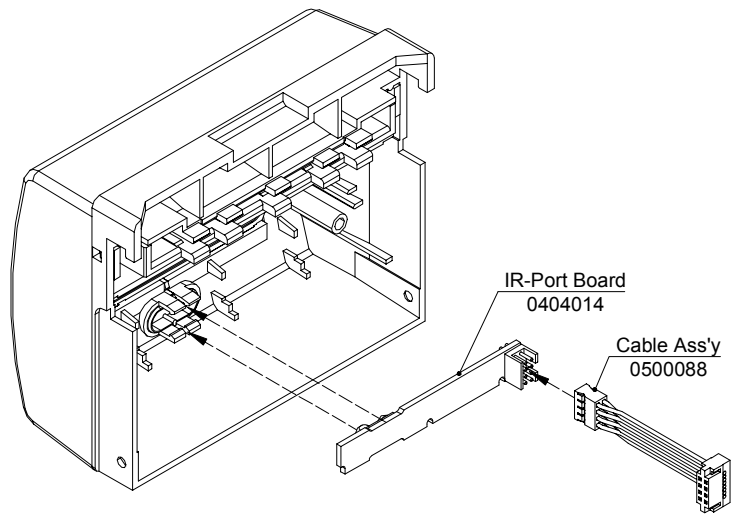
Step 2

- Remove two screws
- Remove holder assembly

Disassembly of Bezel (FLB-2511, FLB-2531, MFLB-2601)

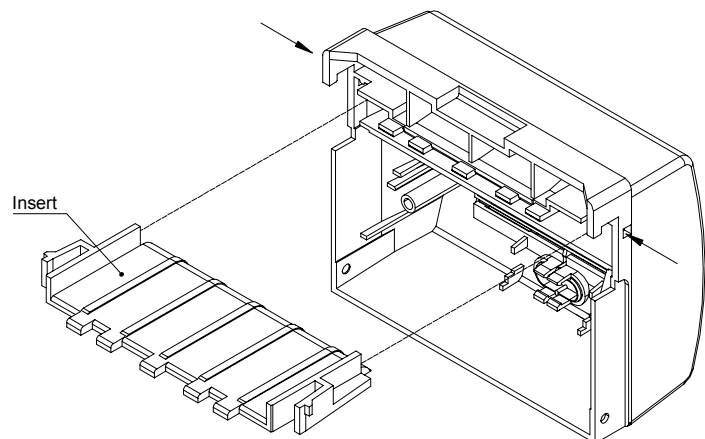
Step 3

- Press on two latches inside the bezel
- Remove IR-port board
- Disconnect the cable from the board

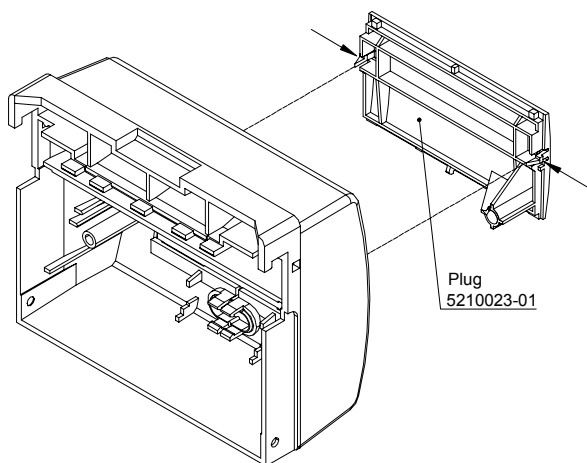


Step 4

- Press on the latches of the insert, as shown by arrows
- Release latches and remove the insert



Disassembly of Bezel (FLB-2511, FLB-2531, MFLB-2601)

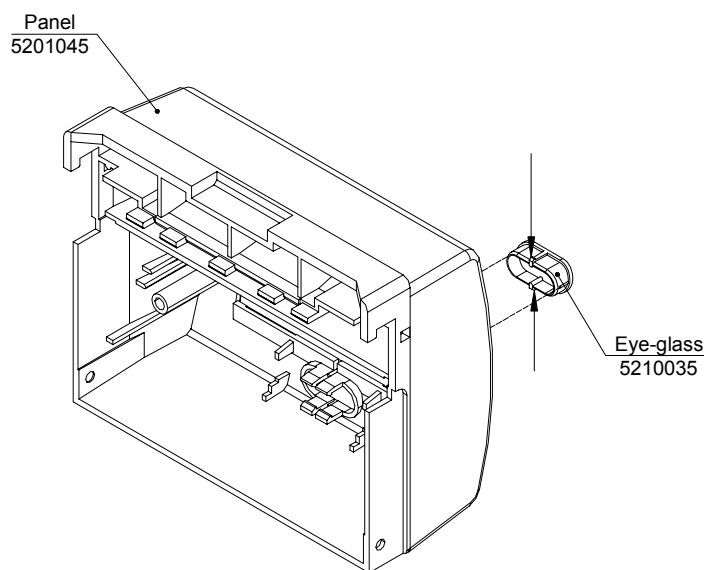


Step 5

- Press on the latches of the plug, as shown by arrows
- Release latches and remove the plug

Step 6

- Press on the latches of the eye-glass, as shown by arrows
- Release latches and remove the eye-glass



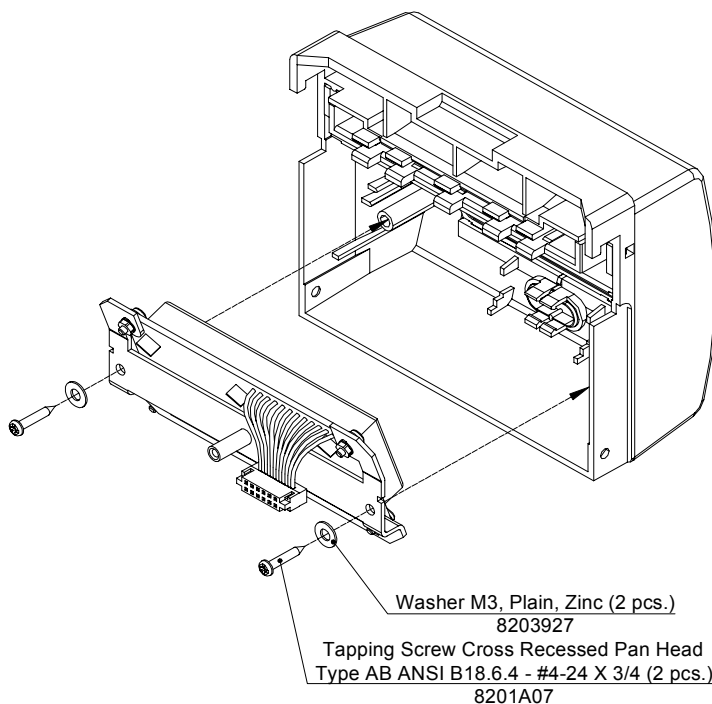
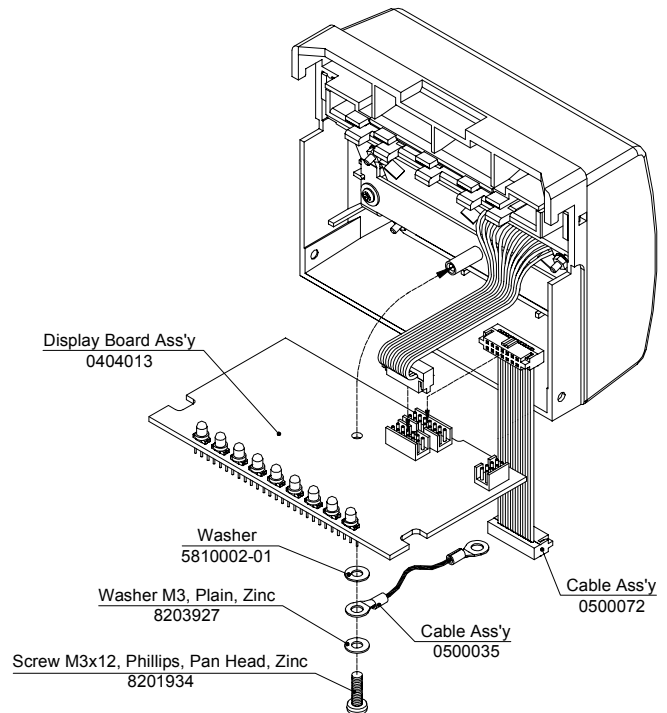
DISASSEMBLY OF BEZEL (FLB-3111, FLB-3131, MFLB-3201)

Tools required:

- Two flat screwdrivers
- Phillips screwdriver #1

Step 1

- Remove one screw
- Remove display board and cable
- Disconnect the cable from the display board
- Disconnect the display cable from the display board



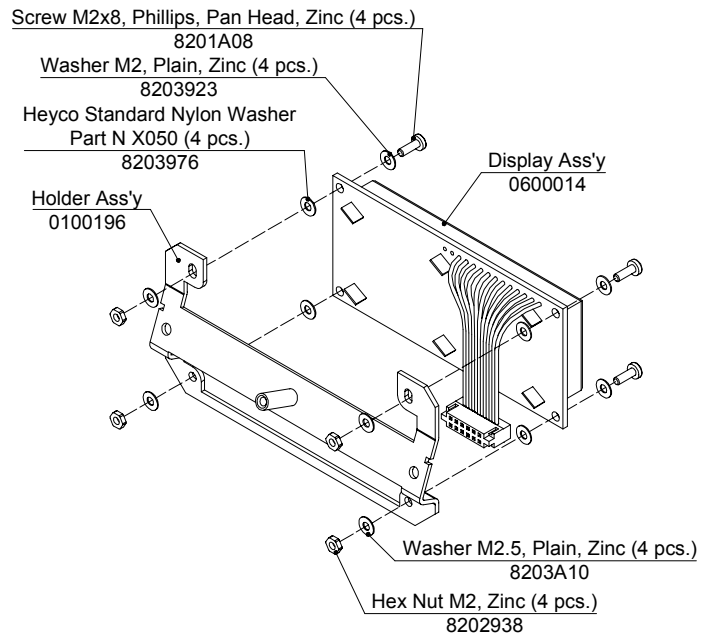
Step 2

- Remove two screws
- Remove holder assembly with display

Disassembly of Bezel (FLB-3111, FLB-3131, MFLB-3201)

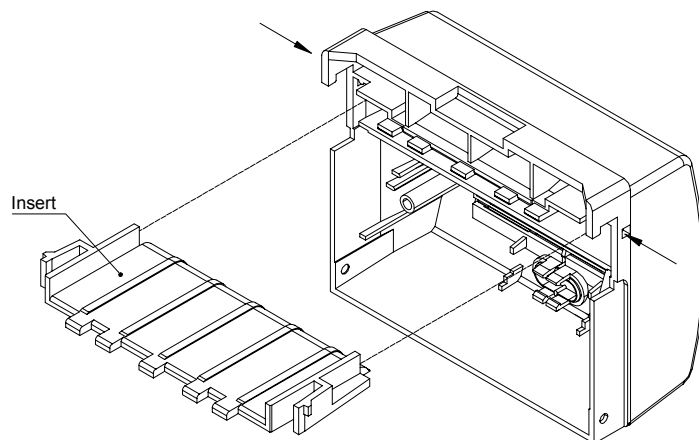
Step 3

- Remove four screws
- Disassemble holder assembly and display



Step 4

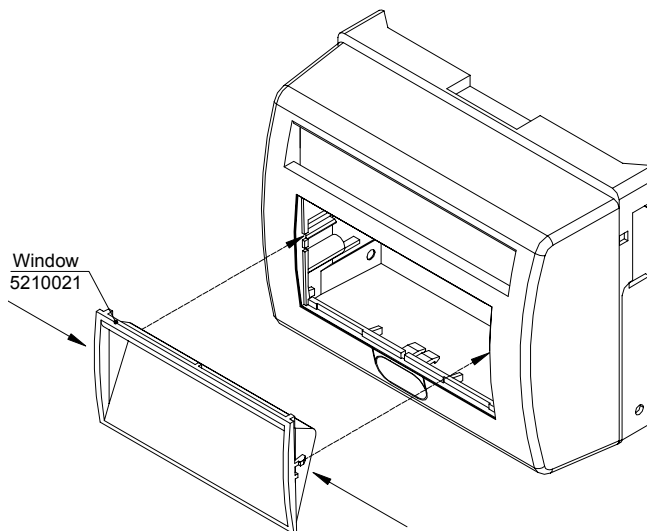
- Press on the latches of the insert, as shown by arrows
- Release the latches and remove the insert



Disassembly of Bezel (FLB-3111, FLB-3131, MFLB-3201)

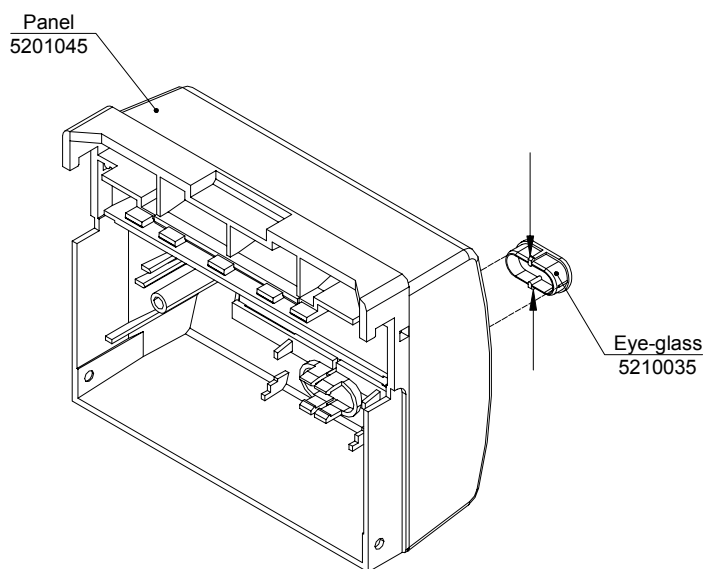
Step 5

- Press on latches of the window as, shown by arrows
- Release the latches and remove the window



Step 6

- Press on the latches of the eye-glass, as shown by arrows
- Release the latches and remove the eye-glass



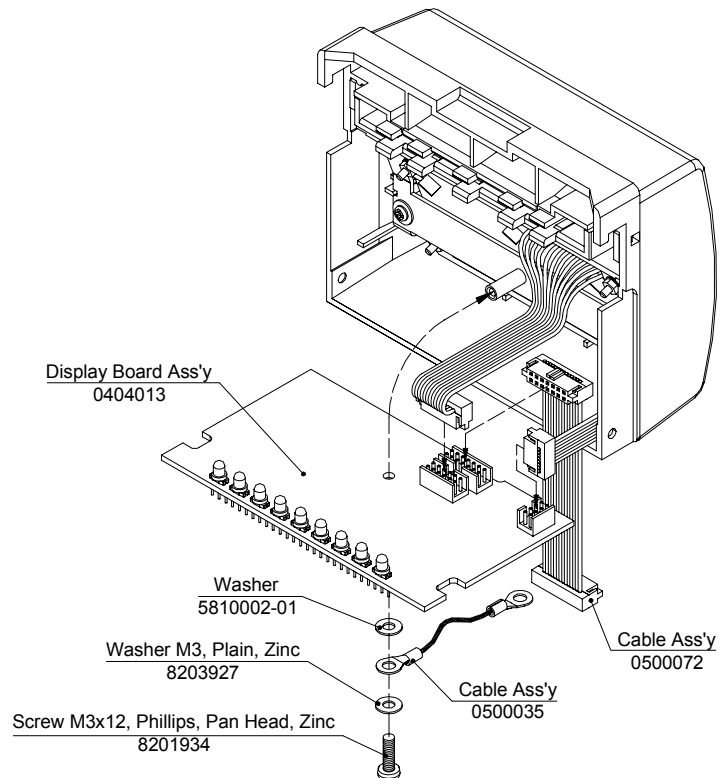
DISASSEMBLY OF BEZEL (FLB-3311, FLB-3331, MFLB-3401)

Tools required:

- Flat screwdriver
- Philips screwdriver #1

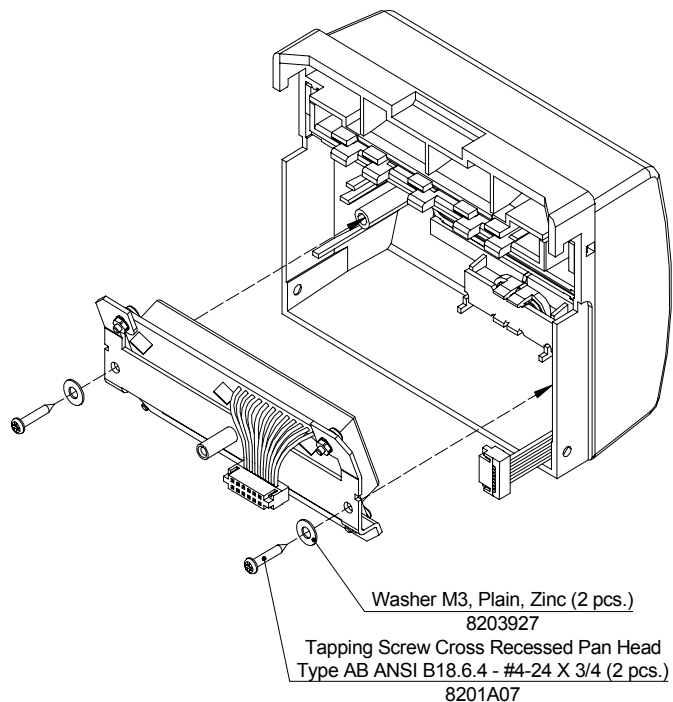
Step 1

- Remove one screw
- Remove display board and cable
- Disconnect all cables from the display board



Step 2

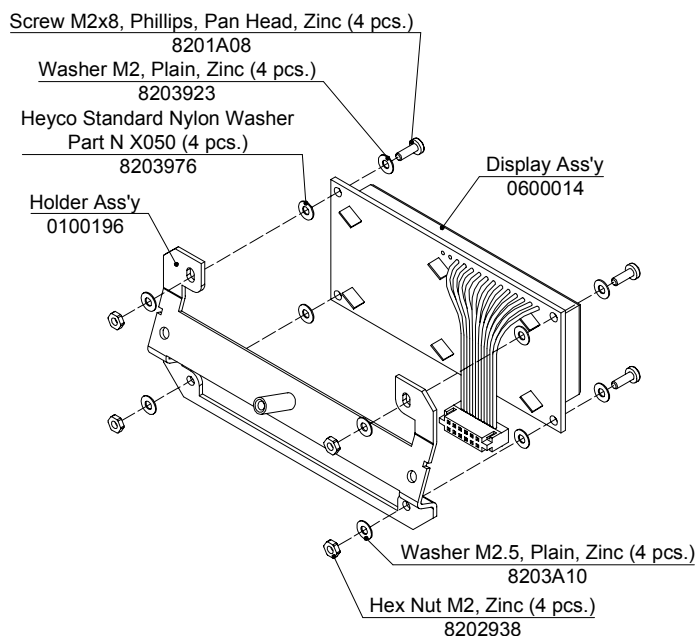
- Remove two screws
- Remove holder assembly with display



Disassembly of Bezel (FLB-3311, FLB-3331, MFLB-3401)

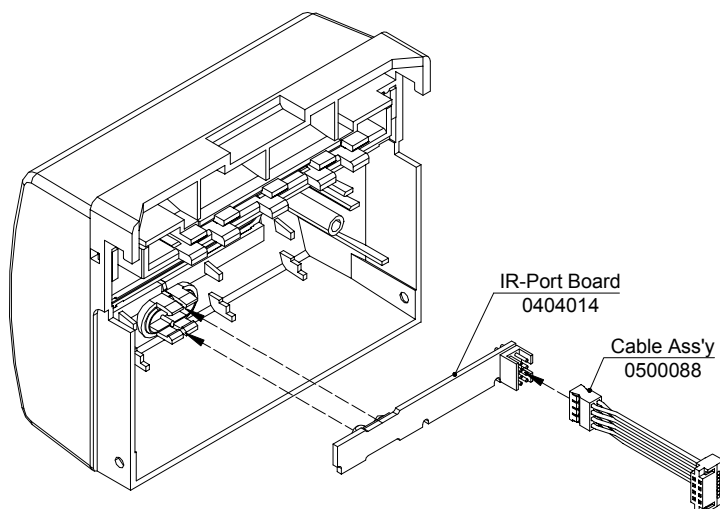
Step 3

- Remove four screws
- Disassemble holder assembly and display



Step 4

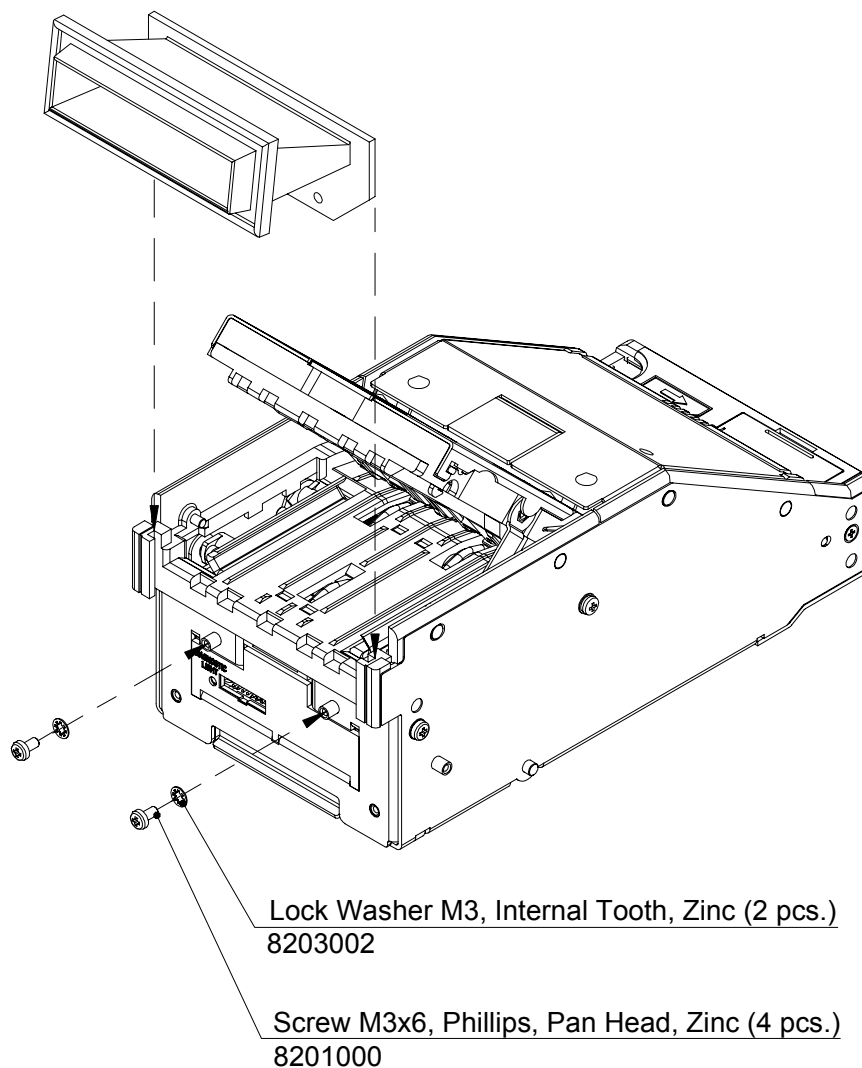
- Press on two latches inside the bezel
- Remove the IR-port board
- Disconnect the cable from the board



Steps 5, 6, 7

Refer to **steps 4 to 6**, as described in "Disassembly of Bezel (FLB-3111, FLB-3131, FLB-3201)"

BEZEL INSTALLATION (FLB-1011, FLB-1021)



Step 1

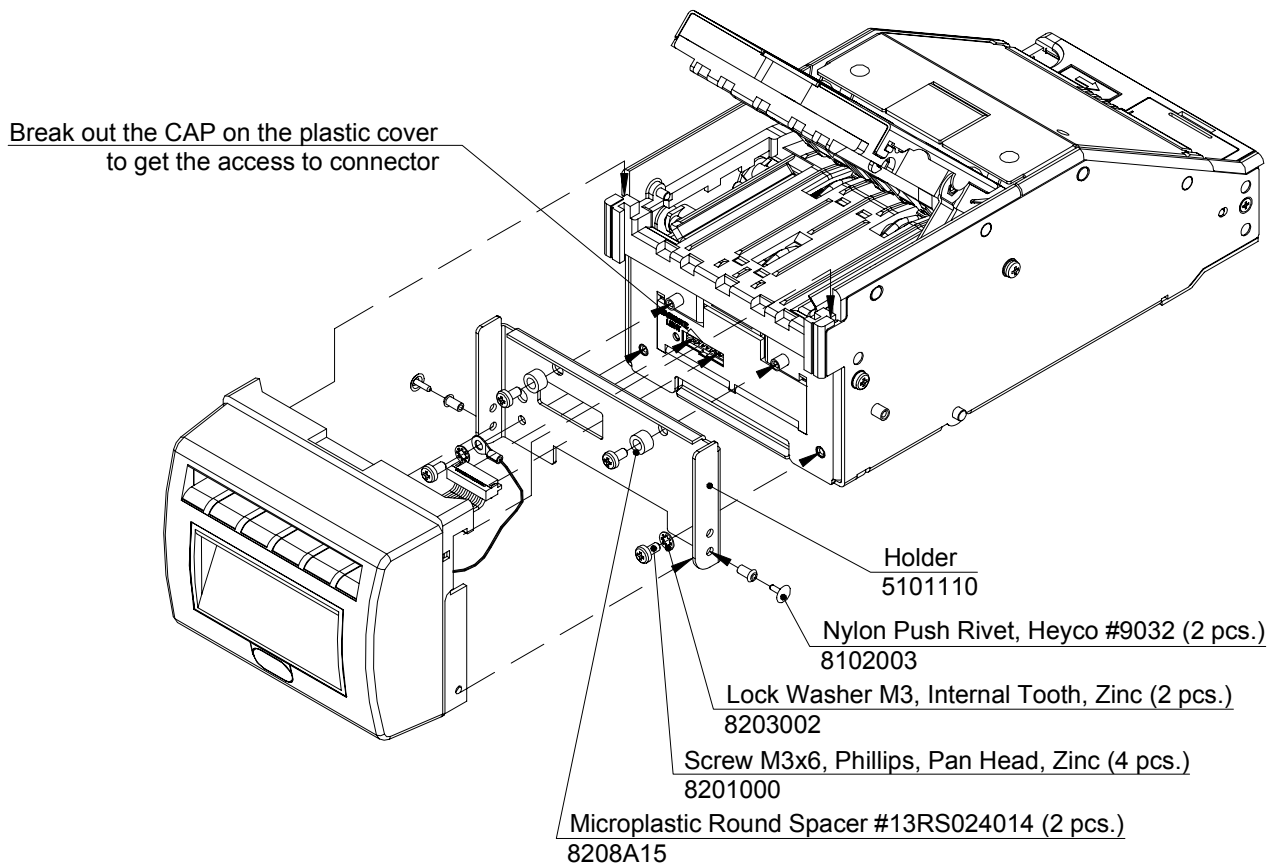
- Open the plastic guide on the validating head
- Slide in the bezel

Step 2

Secure the bezel on the validating head, with two screws and two washers.

BEZEL INSTALLATION

(FLB-2111, FLB-2131, FLB-2311, FLB-2333, FLB-2511, FLB-2531, FLB-3111, FLB-3131, FLB-3311, FLB-3331, MFLB-2201, MFLB-2401, MFLB-2601, MFLB-3201, MFLB-3401)



Step 1

Break out the cap on the plastic cover (**only for installation of bezels with electronics**).

Step 2

- Place the holder on the validating head and secure it with screws, washers and spacers, as shown
- Secure the cable terminal to one of the screws (where applicable)

Step 3

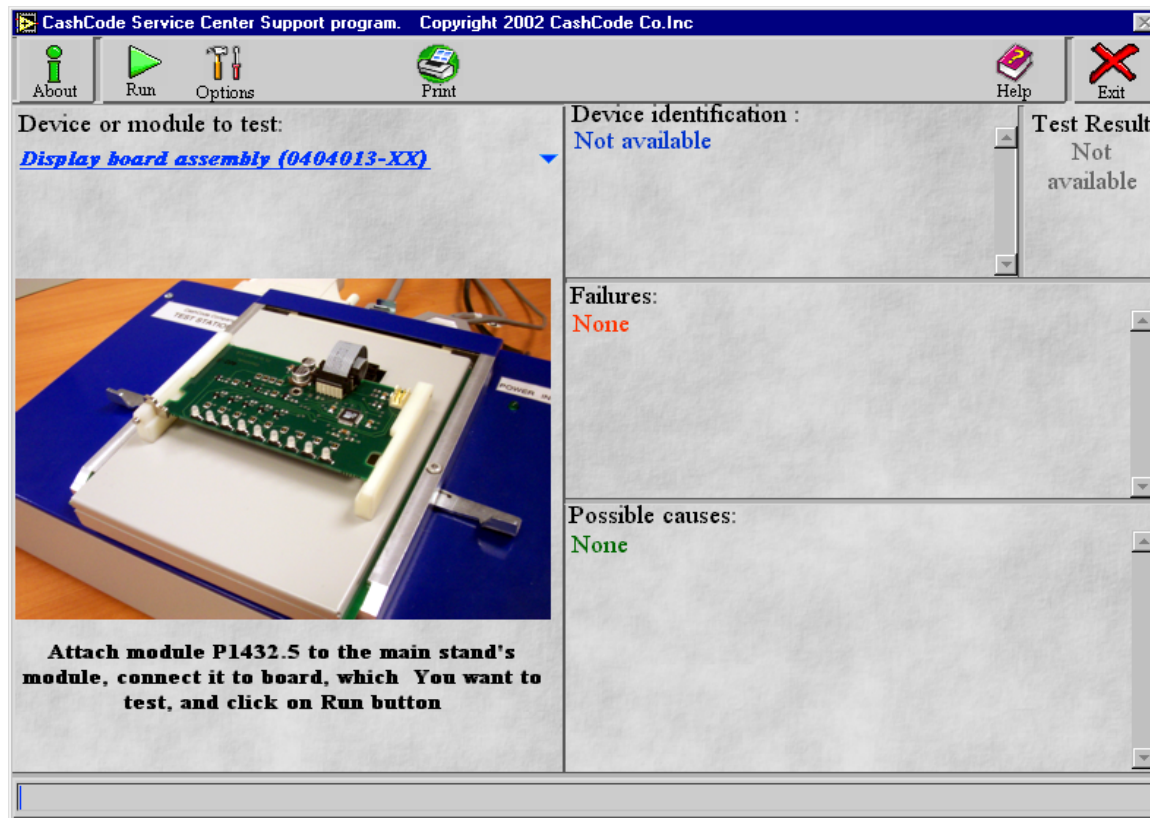
- Connect the cable from the bezel to the validating head (where applicable)

Step 4

- Slide in the two tabs from the bezel, into the corresponding two slots in the validating head
- Secure the bezel with two nylon push rivets

TESTING PROCEDURE FOR THE DISPLAY BOARD ASSEMBLY #0404013 (-01, -02, -03)

- Attach module #P1432.5 to the Service Stand base
- Install the display board onto #P1432.5
- On the PC, start by clicking on the icon entitled "CashCode Service Centre Support Software"
- Under "Device or module to test:" select "Display board assembly"
- Click on the "Run" button, located on the toolbar
- Review test results and failure description



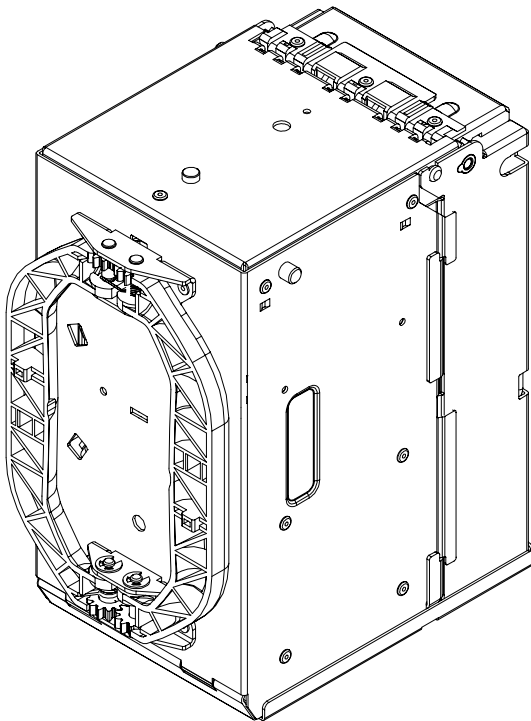
Actual screen shot from a computer using the CashCode Service Stand.

The listed "Failures" and "Possible causes" should help to identify the defective components of the validating head. Click on button entitled "Show Picture", for an x-ray view with highlighted details.

FRONTLOAD CASSETTE

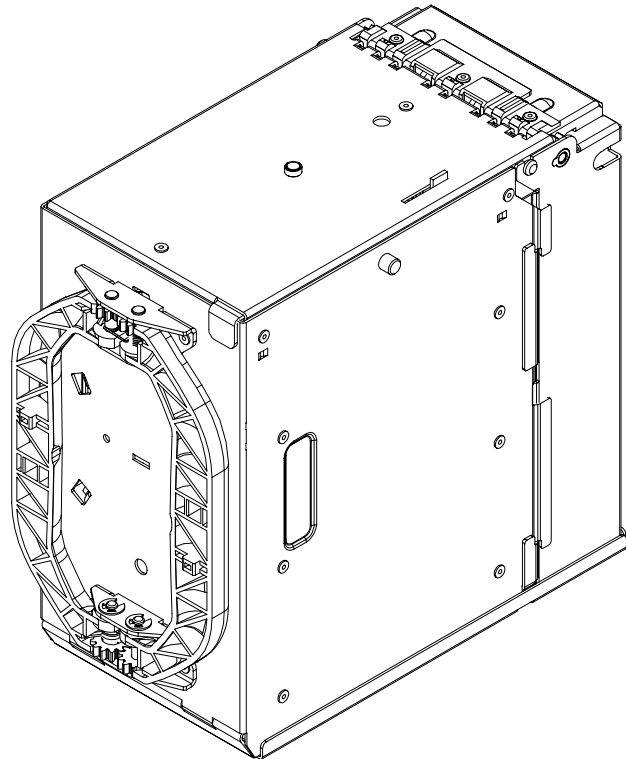
FLC-003 (600 bills, bill length
125-150 mm)

FLC-103 (600 bills, bill length
140-172 mm)

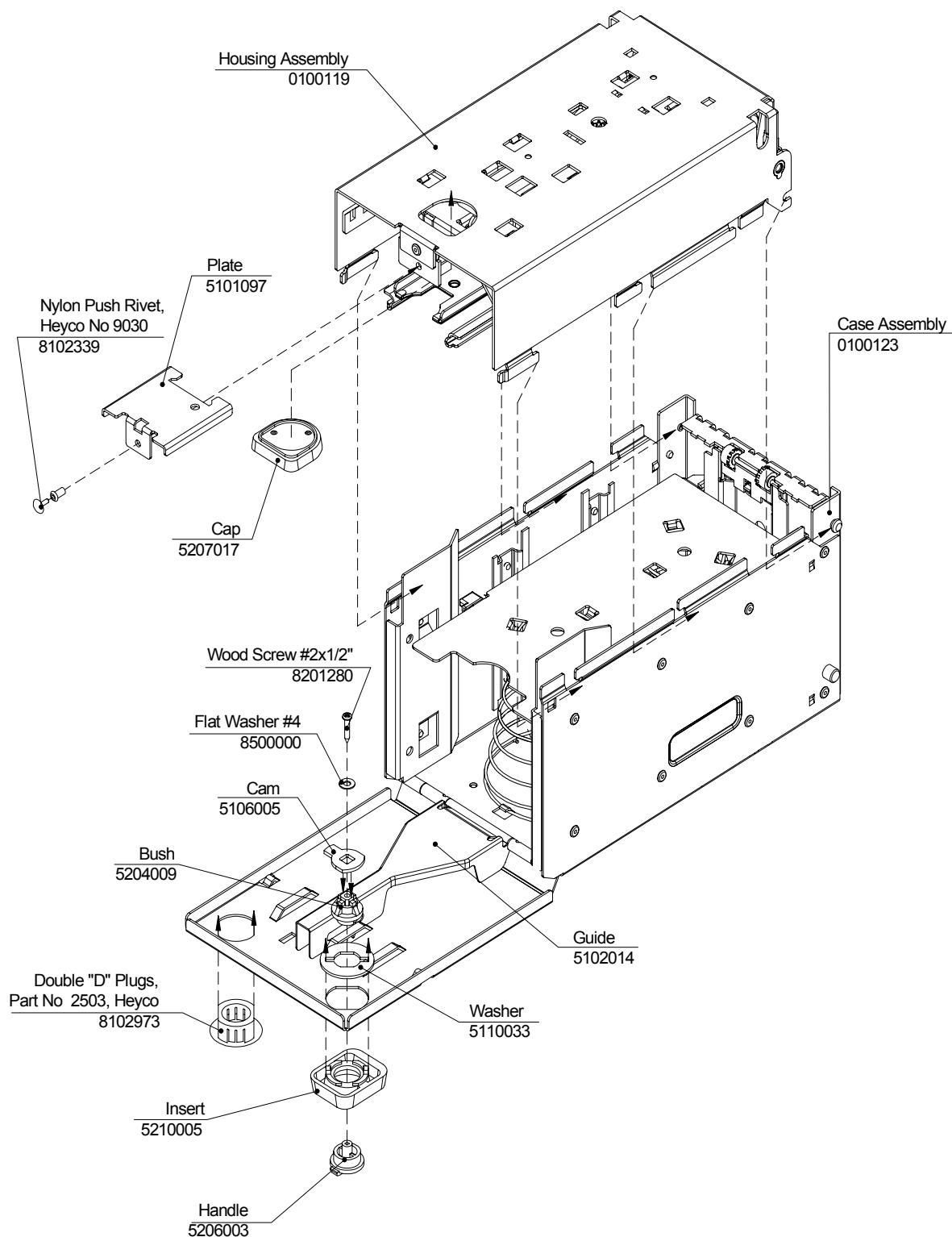


FLC-503 (1000 bills, bill
length 125-150 mm)

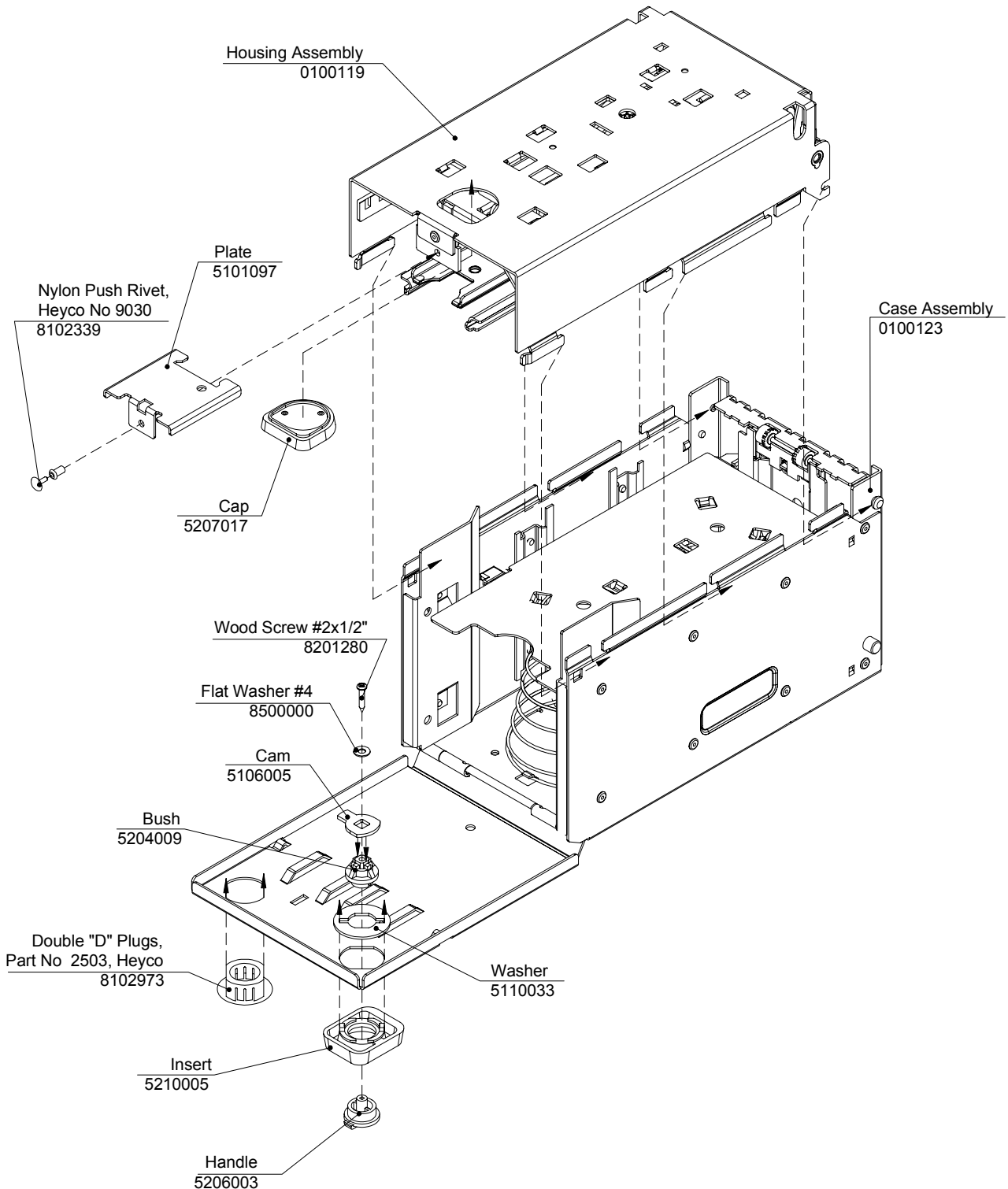
FLC-603 (1000 bills, bill
length 140-172 mm)



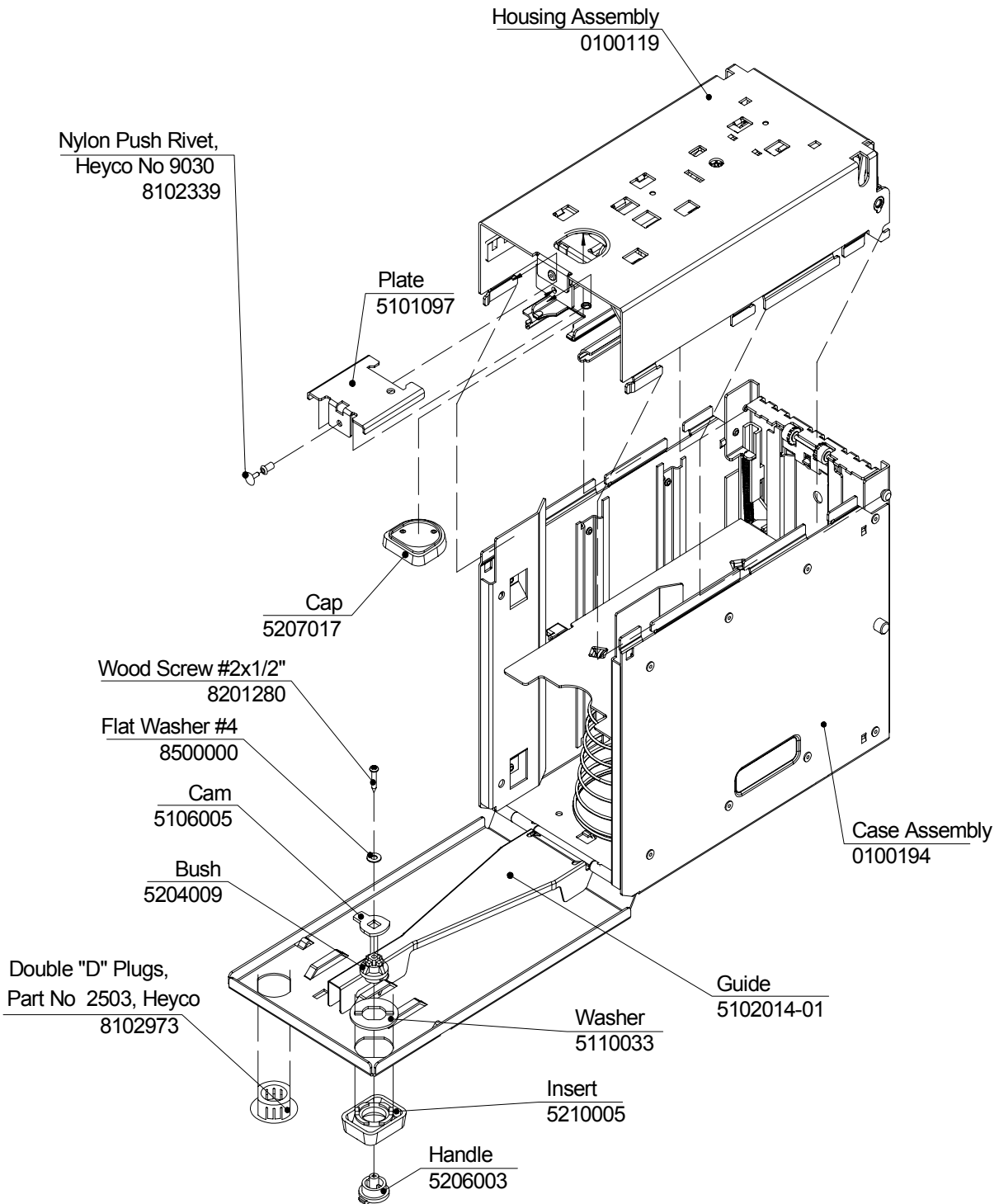
Exploded View of Cassette (FLC-003)



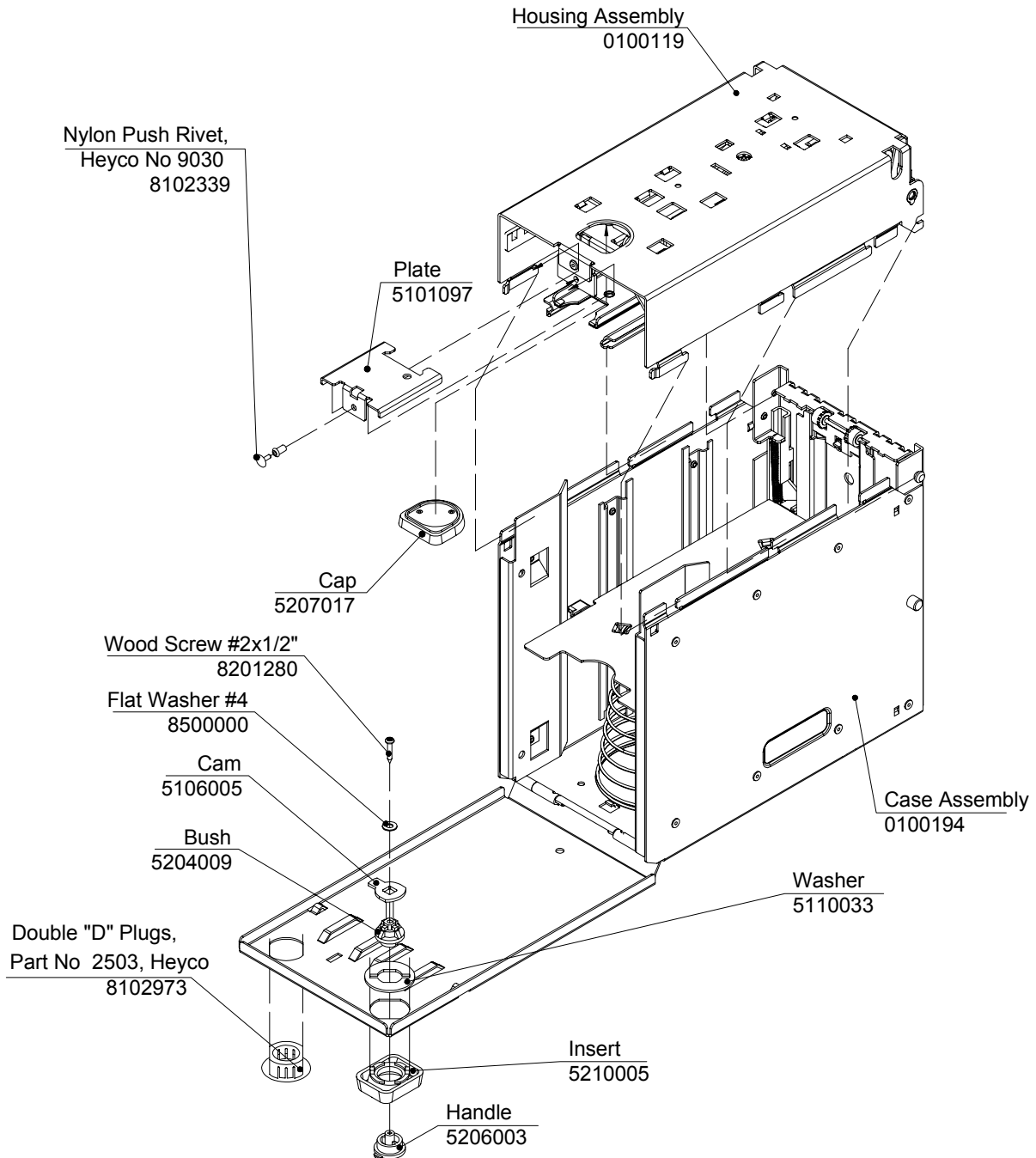
Exploded View of Cassette (FLC-103)



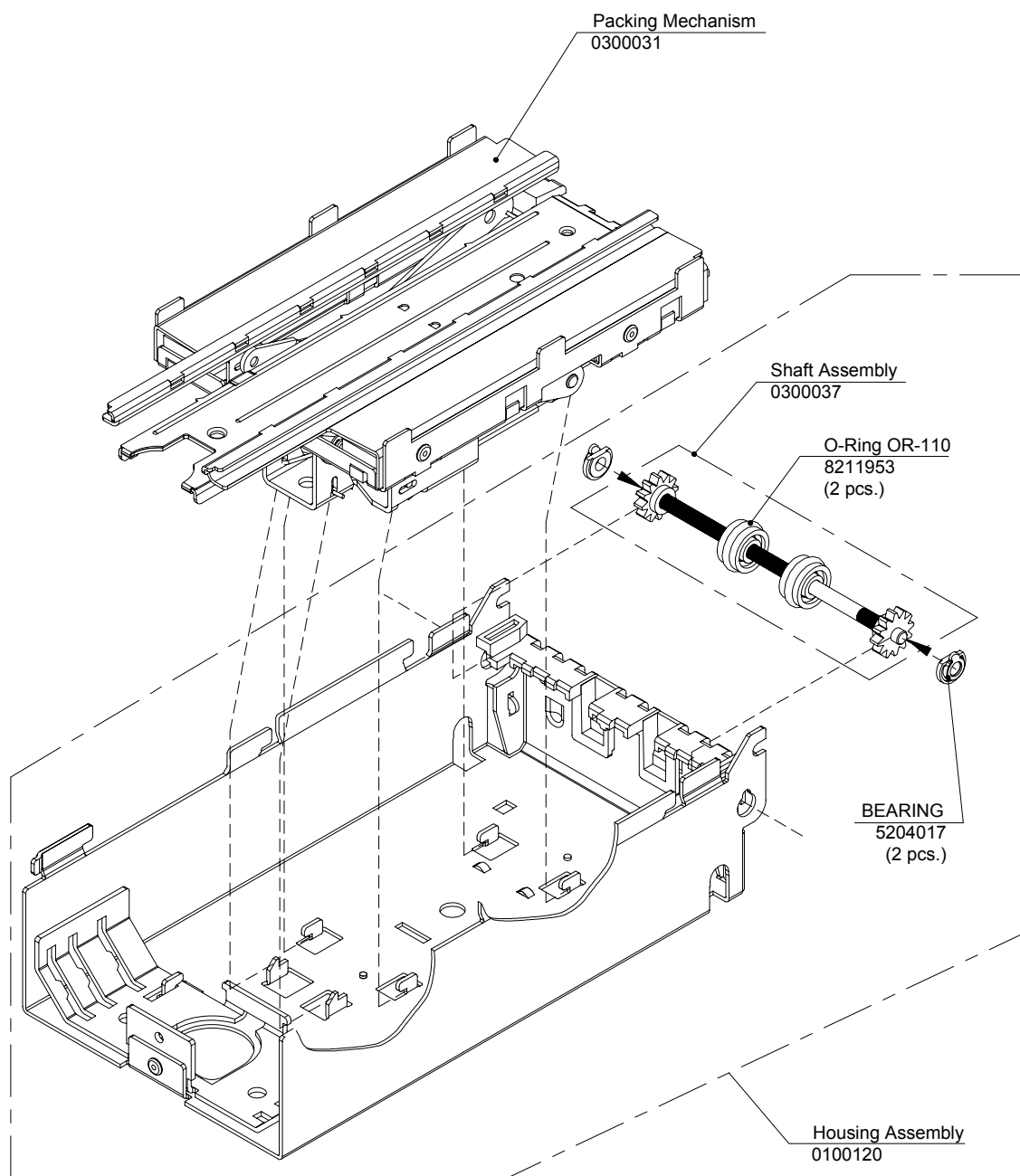
Exploded View of Cassette (FLC-503)



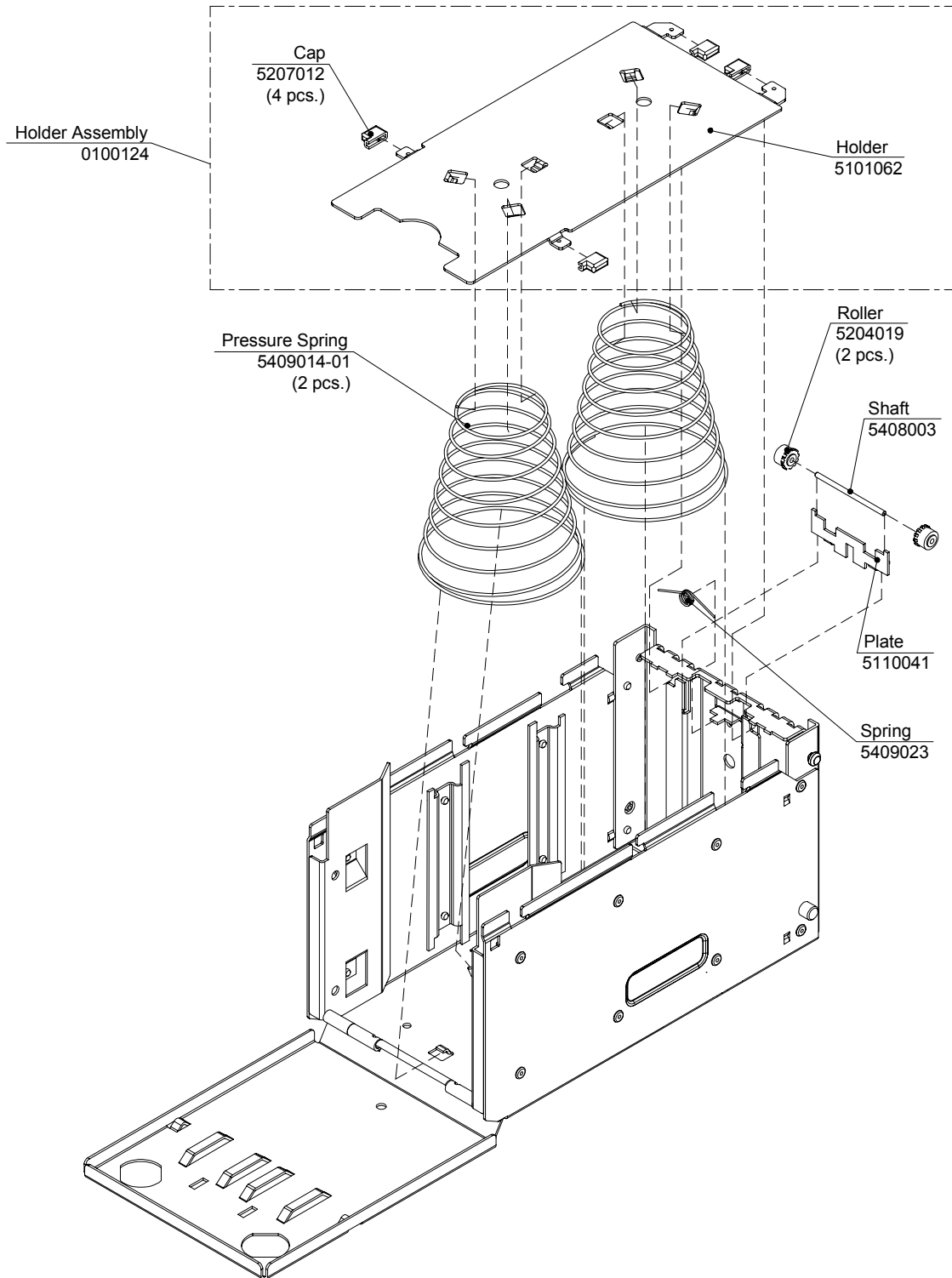
Exploded View of Cassette (FLC-603)



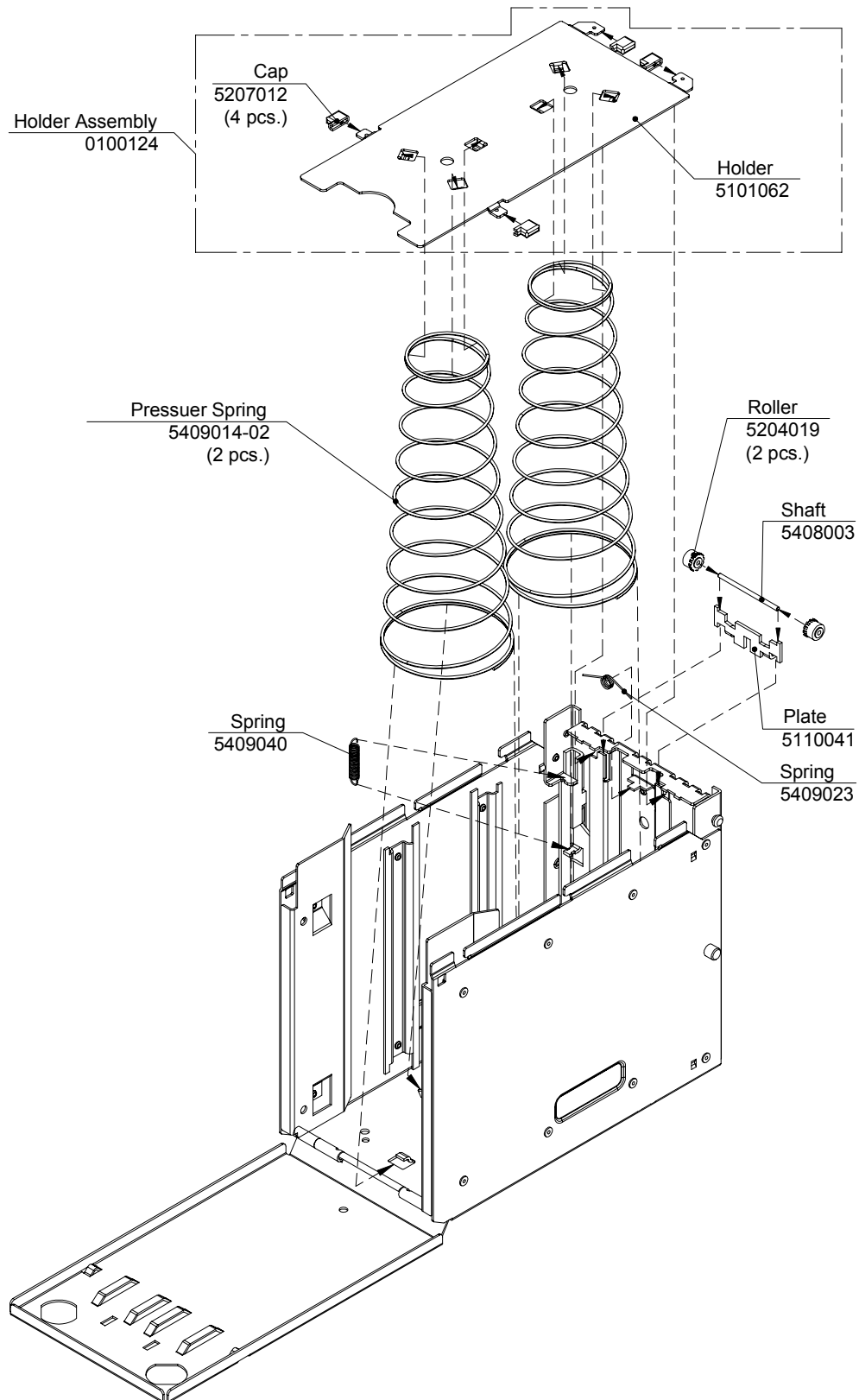
Exploded View of Housing Assembly (#0100119)



Exploded View of Case Assembly (#0100123)



Exploded View of Case Assembly (#0100194)



LIST OF SPARE PARTS FOR FRONTLOAD CASSETTE

Item	Part Number	Description	Total quantity			
			FLC-003	FLC-103	FLC-503	FLC-603
1	0100119	Housing Assembly	1	1	1	1
2	0100120	Housing Assembly	1	1	1	1
3	0100123	Case Assembly	1	1		
4	0100124	Holder Assembly	1	1	1	1
5	0100194	Case Assembly			1	1
6	0300031	Packing Mechanism	1	1	1	1
7	0300037	Shaft Assembly	1	1	1	1
8	5101062	Holder	1	1	1	1
9	5101097	Plate	1	1	1	1
10	5106005	Cam	1	1	1	1
11	5110032	Cam	2	2	2	2
12	5110033	Washer	1	1	1	1
13	5110034	Washer	2	2	2	2
14	5110034-01	Washer	4	4	4	4
15	5110035	Washer	4	4	4	4
16	5110041	Plate	1	1	1	1
17	5204009	Bush	1	1	1	1
18	5204017	Bearing	2	2	2	2
19	5204019	Roller	2	2	2	2
20	5206003	Handle	1	1	1	1
21	5207012	Cap	4	4	4	4
22	5207017	Cap	1	1	1	1
23	5210005	Insert	1	1	1	1
24	5408003	Shaft	1	1	1	1
25	5409014-01	Pressure Spring	2	2		
26	5409014-02	Pressure Spring			2	2
27	5409023	Spring	1	1	1	1
28	5409040	Spring	1	1	1	1
29	8102339	Nylon Push Rivet, HEYCO #9030	1	1	1	1
30	8102973	Double "D" Plug, Heyco p/n 2503	1	1	1	1
31	8201280	Wood Screw #2x1/2", Zinc	1	1	1	1
32	8211953	O-Ring OR110 (3/8- 9/16-3/32)	2	2	2	2
33	8500000	Flat Washer #4	1	1	1	1

DISASSEMBLY OF FRONTLOAD CASSETTE AND ITS SUBASSEMBLIES.

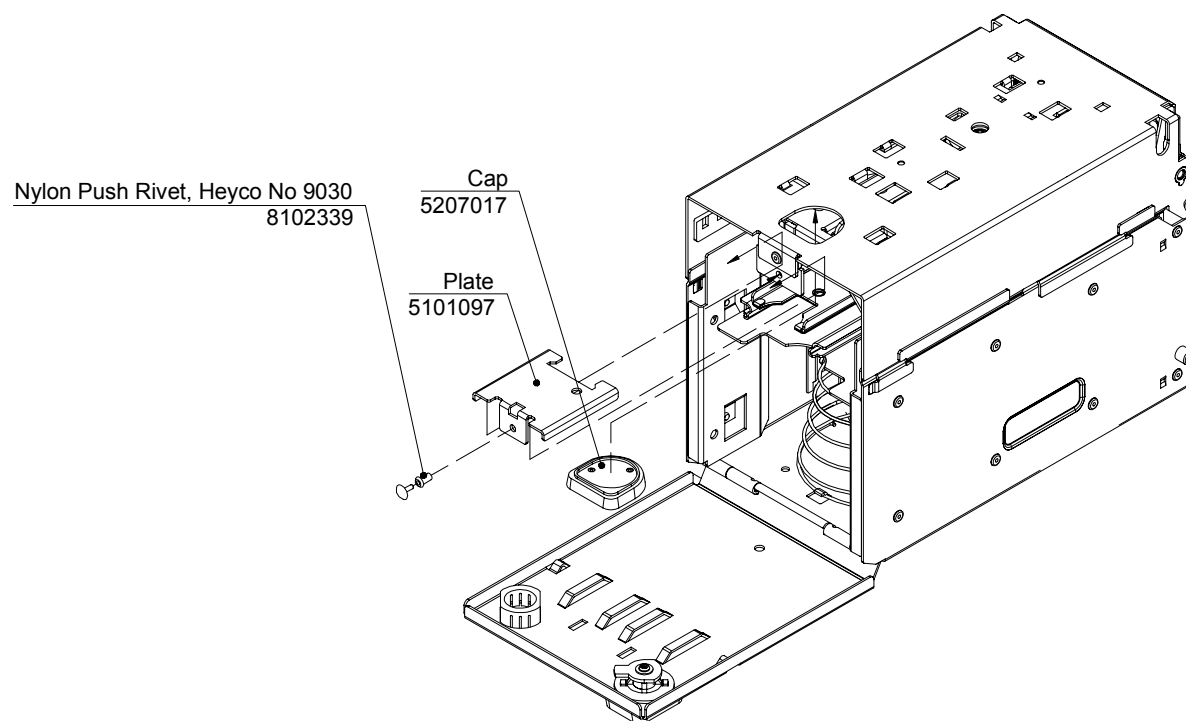
DISASSEMBLY OF CASSETTE (FLC-003, FLC-103)

Tools required:

- Flat screwdriver
- Philips screwdriver #1

Step 1

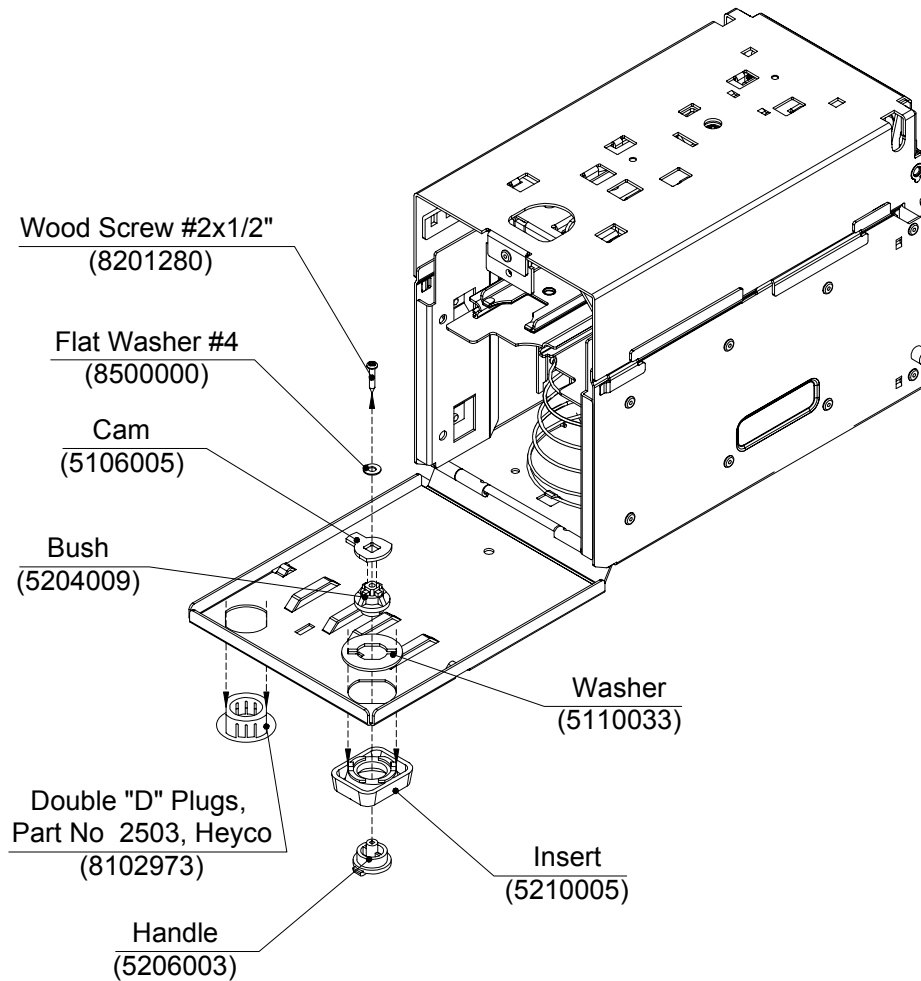
- Open the cover and pull out the rivet
- Remove the plate and the cap



Disassembly of FrontLoad Cassette (FLC-103)

Step 2

- Remove the wood screw
- Remove parts

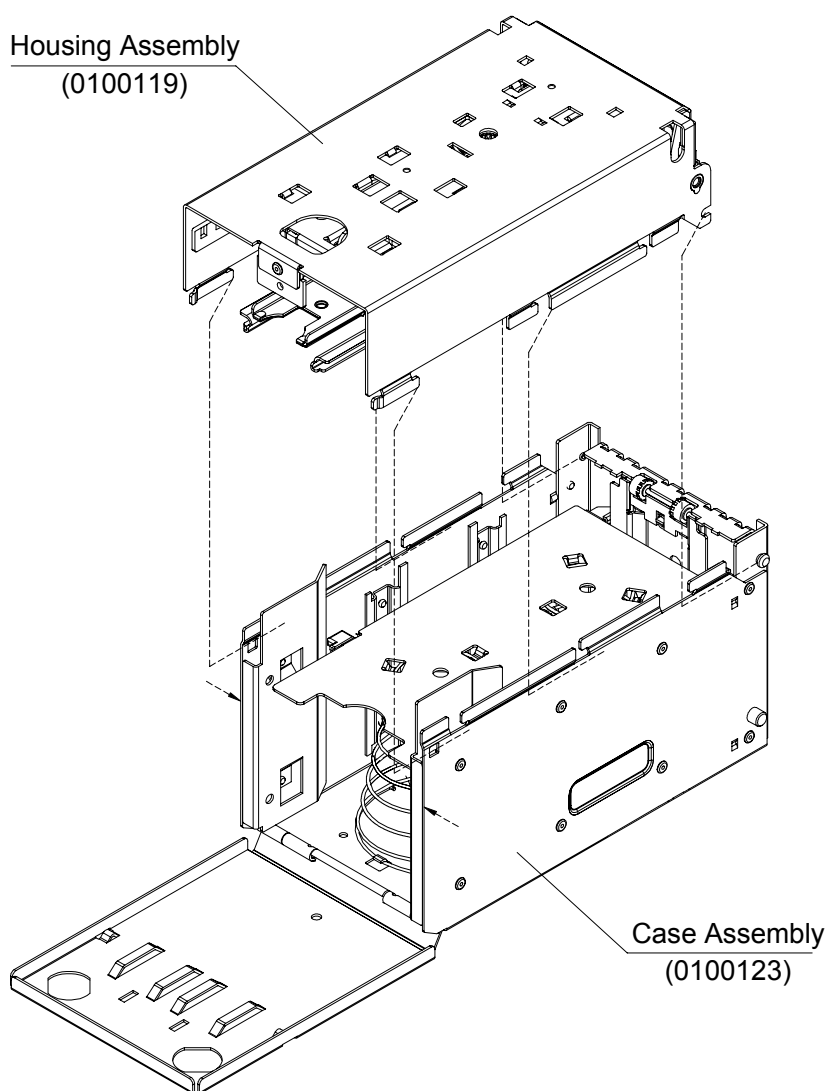


Note: Typically, one or two 3/4" tubular locks are installed on a cassette. Instructions regarding disassembly and installation of these locks can be found in "Part. 1 Operation Manual".

Disassembly of FrontLoad Cassette (FLC-103)

Step 3

- Press on the walls of the case, as shown by arrows
- Shift housing toward the open cover and remove it



DISASSEMBLY OF CASSETTE (FLC-503, FLC-603)**Tools required:**

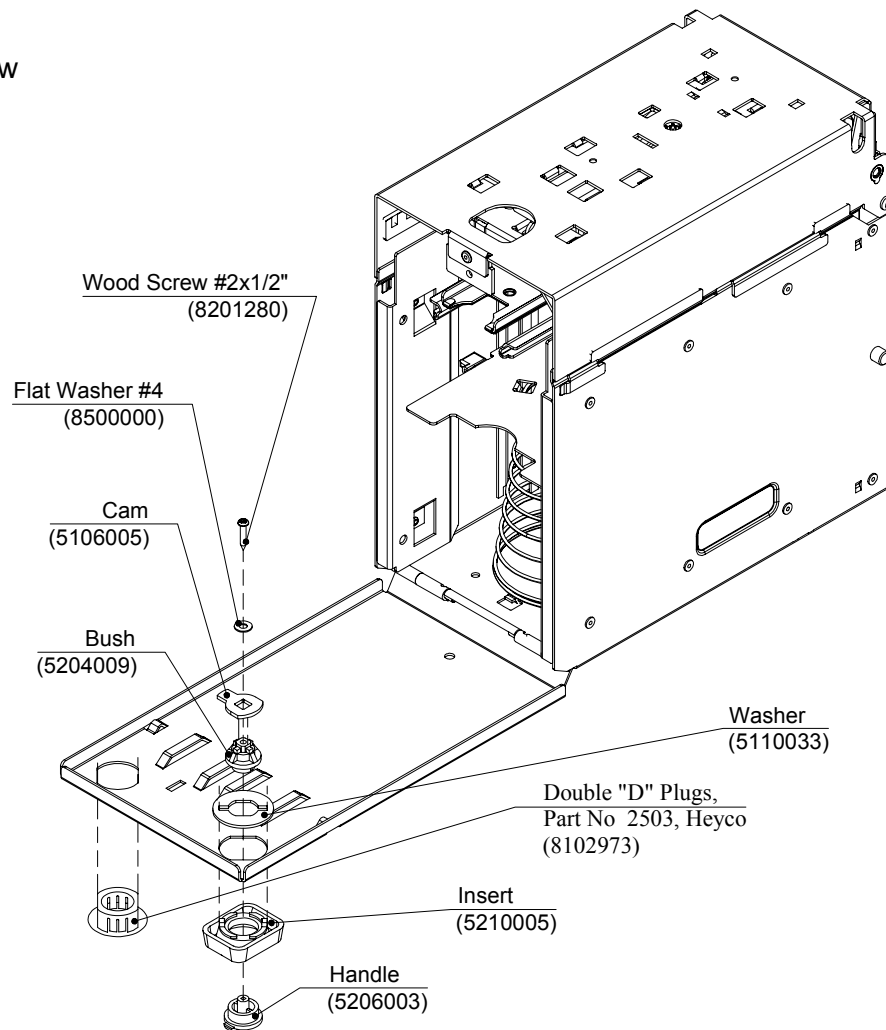
- Flat screwdriver
- Philips screwdriver #1

Step 1

- Follow **Step 1** as in "Disassembly Of Cassette FLC-103"

Step 2

- Remove the wood screw
- Remove parts

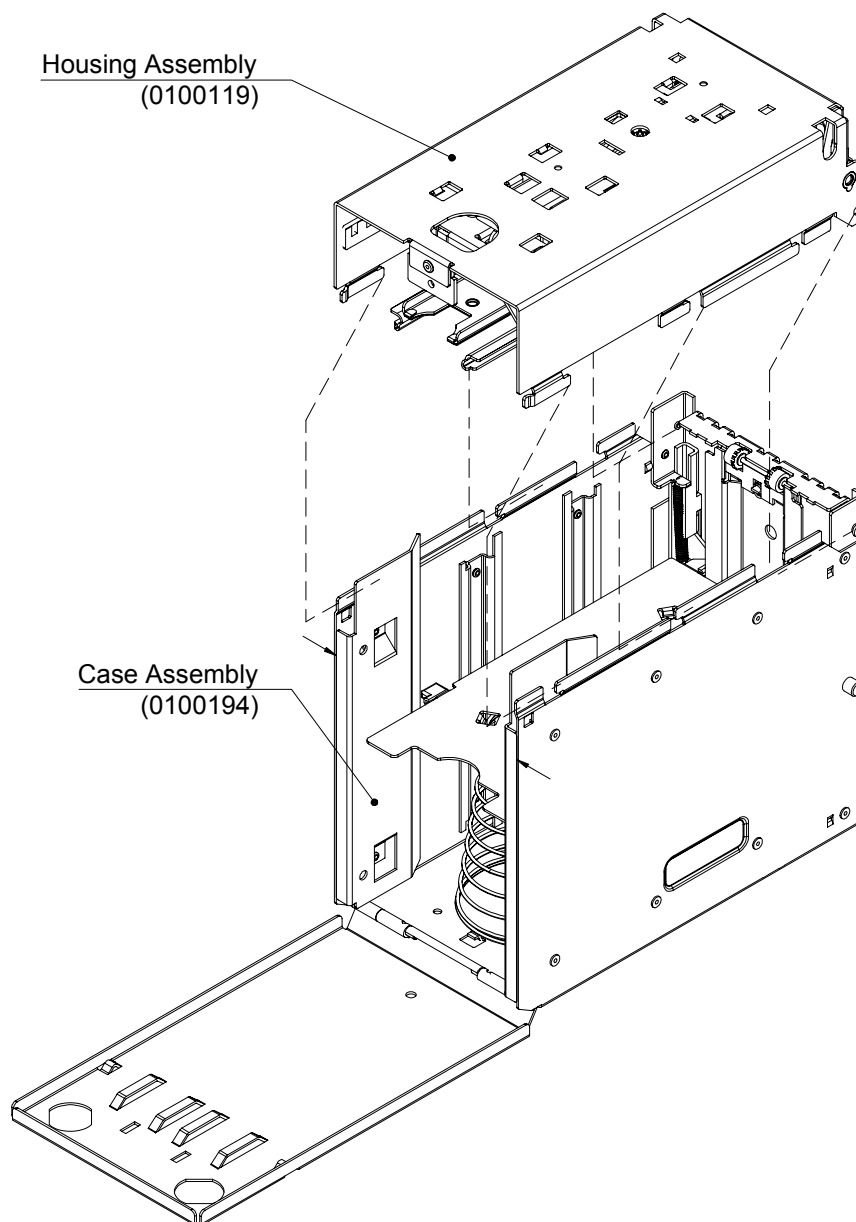


Note: Typically, one or two 3/4" tubular locks are installed on a cassette. Instructions regarding disassembly and installation of these locks can be found in "Part. 1 Operation Manual"

Disassembly of FrontLoad Cassette (FLC-603)

Step 3

- Press on the walls of the case, as shown by arrows
- Shift housing towards the open cover and remove it



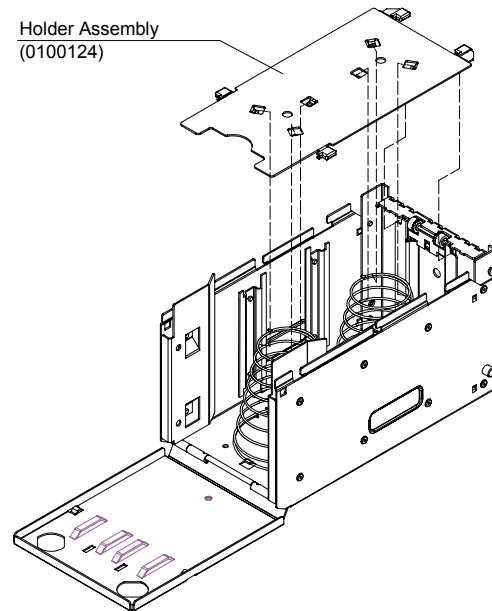
DISASSEMBLY OF CASE ASSEMBLY (#0100123)

Tools required:

Tweezers.

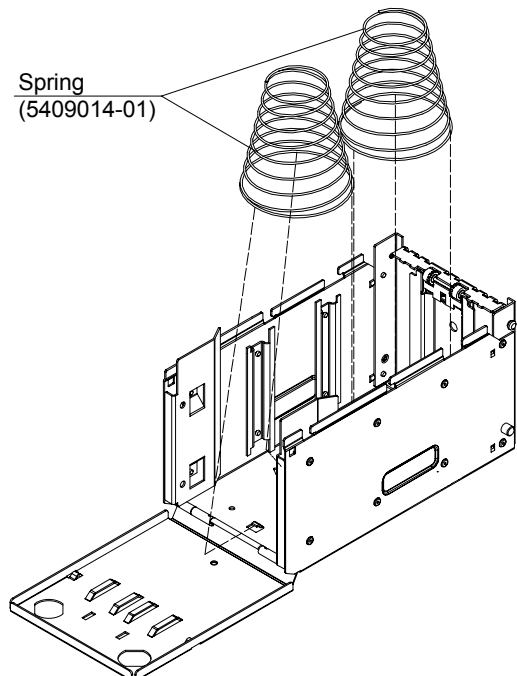
Step 1

Remove holder assembly.



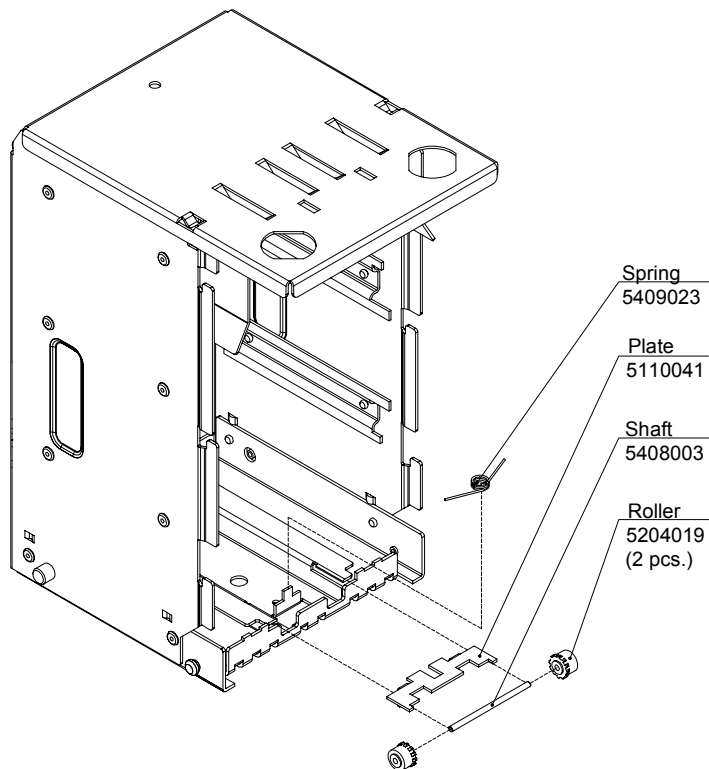
Step 2

Remove springs.



Disassembly of Case Assembly (#0100123)
Step 3

- Remove the spring
- Shift the plate inside the case
- Slide the shaft along its axis, and remove both the shaft and the rollers from the case



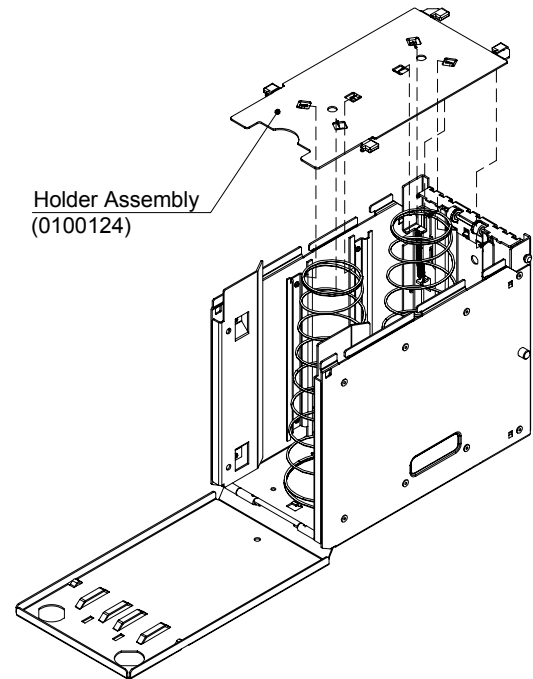
DISASSEMBLY OF CASE ASSEMBLY (#0100194)

Tools required:

Tweezers.

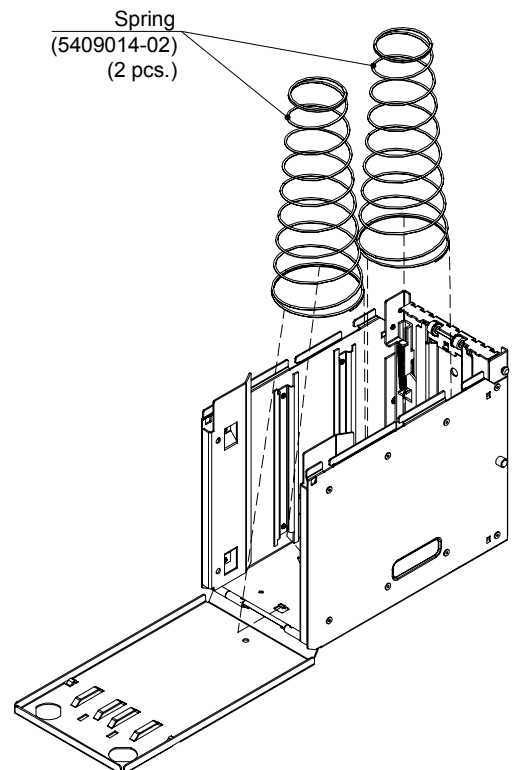
Step 1

Remove holder assembly.



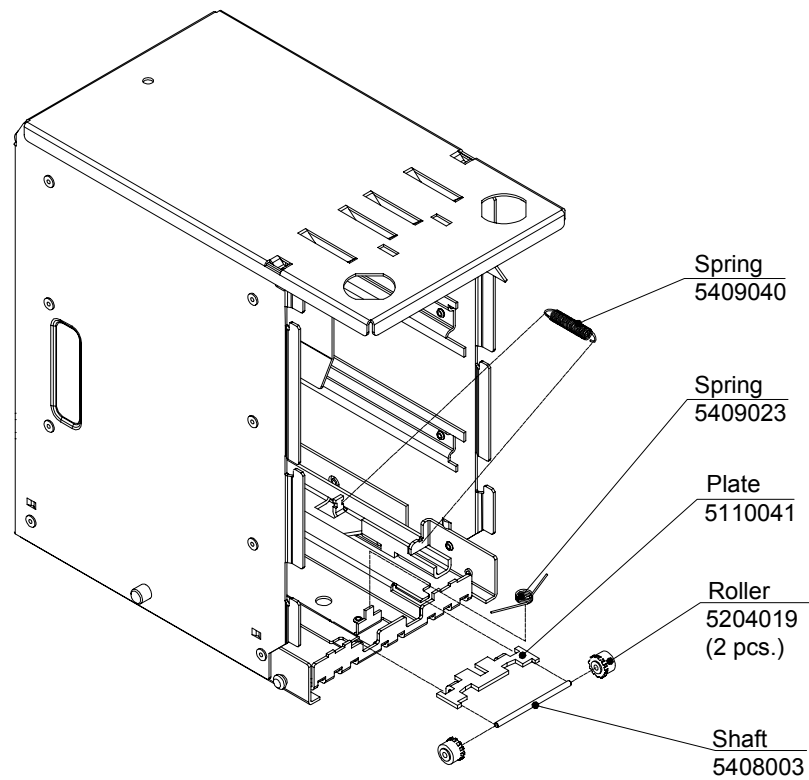
Step 2

Remove springs.



Disassembly of Case Assembly (#0100194)
Step 4

- Remove the spring
- Shift the plate inside the case and slide the shaft along its axis
- Remove the shaft and the rollers from the case

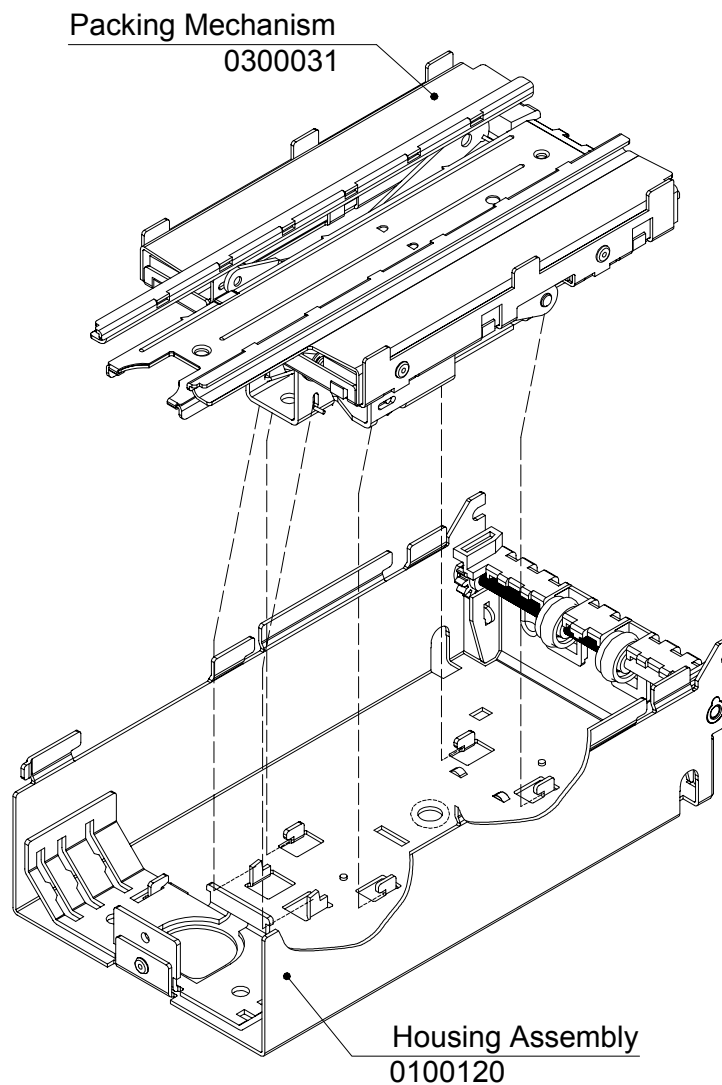


DISASSEMBLY OF HOUSING ASSEMBLY (#0100119).**Tools required:**

- Tweezers
- Flat screwdriver

Step 1

- Release locking spring in the packing mechanism
- Slide the packing mechanism along the housing and remove it



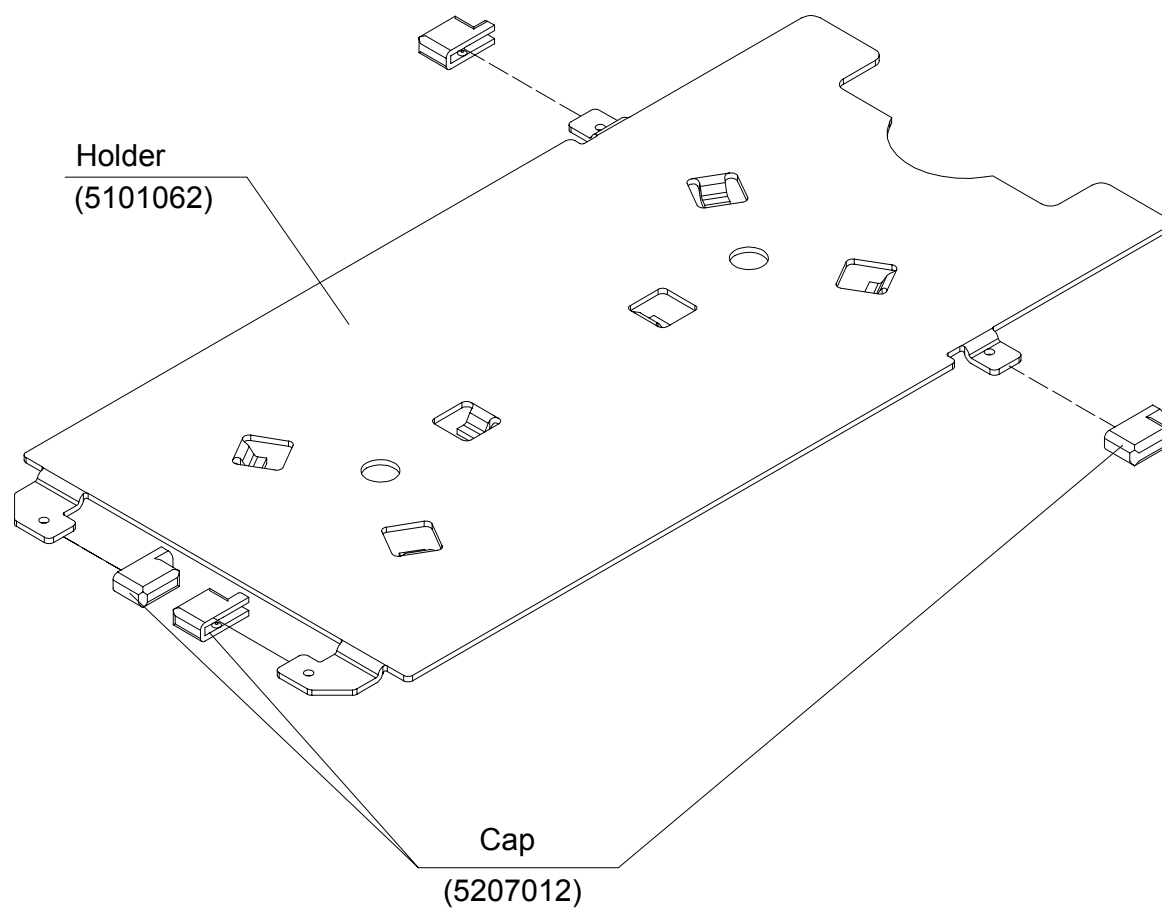
DISASSEMBLY OF HOLDER ASSEMBLY (#0100124)

Tools required:

No Tools required!

Step 1

Remove Cups.



DISASSEMBLY OF HOUSING ASSEMBLY (#0100120).**Tools required:**

No tools required!

Step 1

- Slightly press on the walls of the housing
- Remove the shaft with the bearing

