CONFIDENTIAL

SERVICE MANUAL

REBAR TYING TOOL

Model: RB655

Specifications and parts may be changed for improvement.

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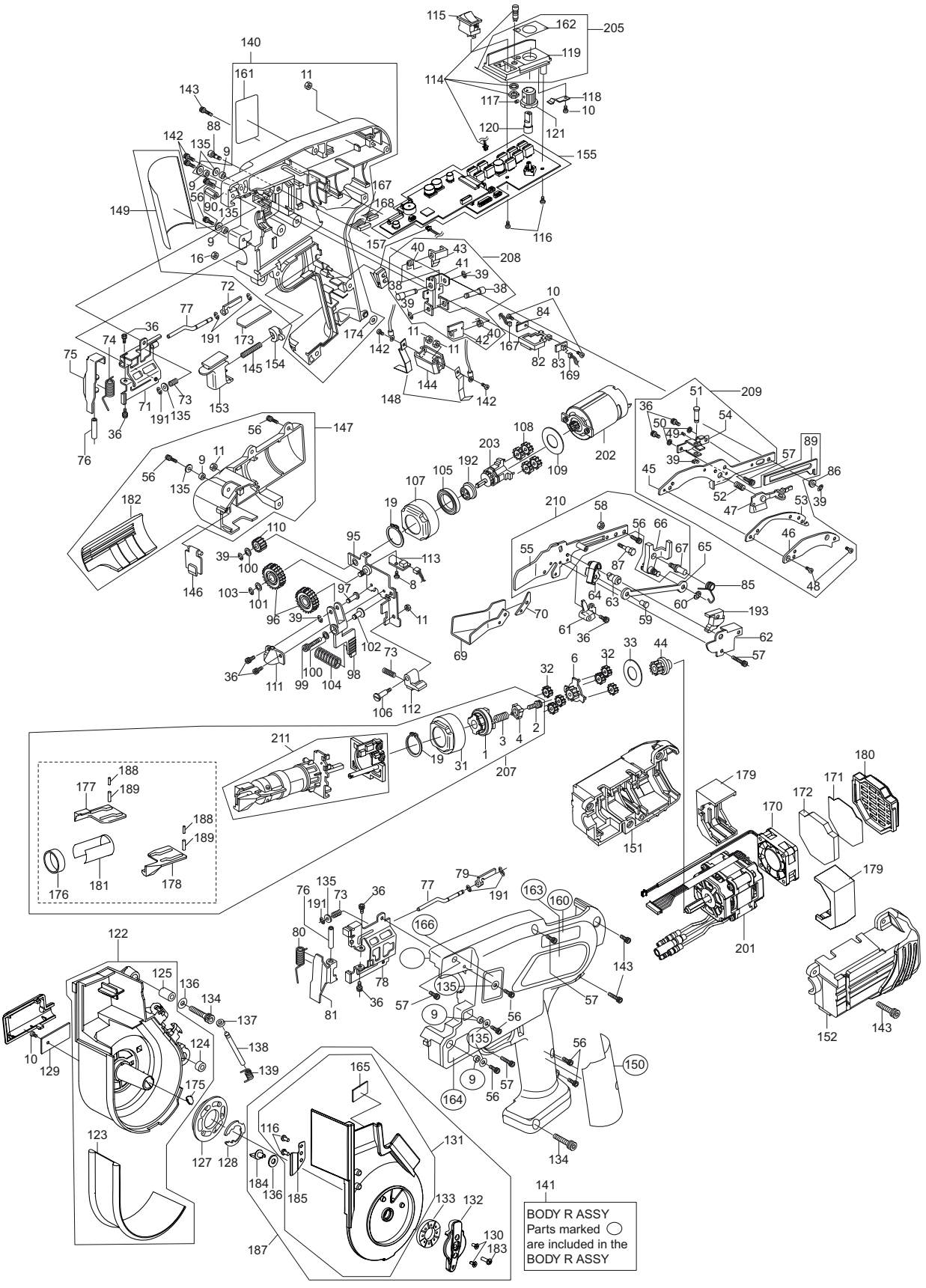
EXPLODED VIEW AND SPARE PARTS LIST



RB655 Parts list

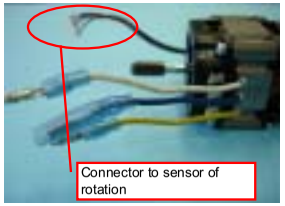
IND	Code	Description
1	RB70025	PLANET CAGE B UNIT
2	BB40427	T-BOLT 4 X 8
3	KK23847	COMP. SPRING 3847
4	RB10344	KEY PLATE
6	RB70027	SUN GEAR UNIT
7	RB70029	MAGAZINE HOLDER UNIT
8	AA21102	PAN-HEAD SCREW 3X4
9	FF51652	PIN 1652
10	AA31714	SCREW 2X4
11	CC41104	HEX.NUT 1-3 FOR HD-12/17
16	CC41101	HEX NUT 1-5
19	JJ21603	C-RING 20
31	RB10725	INTERNAL GEAR B
32	RB10726	PLANET GEAR B
33	RB10776	GEAR RETAINER
36	BB40481	BOLT 3X5
38	FF41822	STEP PIN 1822
39	JJ10113	E-RING 2.5
40	KK33249	TORSION SPRING 3249
41	RB10370	JAW BASE
42	RB10735	JAW B
43	RB10779	JAW A
44	RB70056	MOTOR GEAR B UNIT
45	RB70026	ARM A UNIT
46	RB70036	WIRE GUIDE A2 UNIT
47	RB70276	WIRE GUIDE UNIT
48	AA22415	SCREW 3X8
49	AA71408	SCREW 3 X 3
50	EE31801	WASHER 3.2X7
51	FF41729	SETP PIN 1729
52	KK23849	COMP. SPRING 3849
53	RB10737	WIRE GUIDE A1
54	RB10743	WIRE GUIDE BASE
55	RB70039	ARM B UNIT
56	BB40425	BOLT 3X10
57	BB40810	BOLT 3X16
58	CC41103	HEX. NUT 1-4
59	FF41730	STEP PIN 1730
60	JJ10509	E-RING 4CF
61	RB10746	WIRE GUIDE B
62	RB10747	ARM C
63	RB10748	FIXED CUTTER
64	RB10749	CUTTER
65	RB10750	CUTTER CONNERCTING ROD
66	RB70277	CUTTER LEVER UNIT
67	RB11767	CUTTER SHAFT
69	RB10754	CURL GUIDE A
70	RB10755	CURL GUIDE B
71	RB70041	COVER L UNIT
72	RB70042	MAGNET HOLDER L UNIT
73	KK23850	COMP. SPRING 3850
74	KK33328	TORSION SPRING 3328
75	RB70369	TWIST GUIDE COVER L
76	RB10759	TWIST GUIDE SHAFT
77	RB11667	SENSOR ROD
78	RB70044	COVER R UNIT
79	RB70045	MAGNET HOLDER R UNIT
80	KK33330	TORSION SPRING 3330
81	RB70370	TWIST GUIDE COVER R
82	RB10765	SENSOR BASE
83	RB70080	SENSOR BOARD D UNIT
84	RB70081	SENSOR BOAD E UNIT
85	KK33329	TORSION SPRING 3329
86	LL62013	PLAIN BEARING B-F3-1
87	RB11768	ARM B SET SCREW
88	RB10739	ARM A SET SCREW
89	RB10740	WIRE GUIDE LEVER
90	CC49118	HEX NUT 3X7.5
95	RB70278	FEEDING GEAR BASE ASSY
96	RB70299	FEEDING GEAR B UNIT
97	FF41728	STEP PIN 1728
98	RB10775	RELEASE LEVER
99	BB40420	BOLT 4 X 16
100	EE39121	PLAIN WASHER 5
101	EE39168	WASHER 4.2X1.3X1
102	FF51628	HOLLOW PIN 1628
103	JJ10514	E-RING 3 CF
104	KK23851	COMP. SPRING 3851
105	LL11181	WHEEL 6704
106	RB10043	STEP PIN
107	RB10338	INTERNAL GEAR
108	RB10341	PLANET GEAR
109	RB10484	GEAR PRESS WHEEL
110	RB10770	FEED GEAR A
111	RB10774	WIRE GUIDE C
112	RB10852	RELEASE STOPPER
113	RB70079	SENSOR BOARD C UNIT
114	RB70087	WARNING LED UNIT
115	RB70341	MAIN SWITCH UNIT
116	AA31721	SCREW 3X6
117	AA74410	SCREW 3X6
118	RB10400	LEAF SPRING
119	RB10536	MAIN SWITCH BASE
120	RB10537	JOINT, DIAL
121	RB10853	TORQUE DIAL
122	RB81102	MAGAZINE ASSY
123	RB10783	PROTECTOR
124	RB10785	BUSH A
125	RB10786	BUSH B
126	RB10787	SENSOR COVER
127	RB10791	SENSOR COVER PLATE
128	RB10792	RETAINING RING
129	RB70082	SENSOR BOARD F UNIT
130	AA32708	SCREW 2.6X6
131	RB81103	MAGAZINE COVER ASSY
132	RB11774	MAGAZINE COVER LOCK
133	RB10806	ADJUST RING
134	BB40405	BOLT 5X25
135	EE32104	WASHER 2-3
136	EE39172	WASHER 5.1X12X1.2
137	EE39602	WASHER 7
138	FF31289	PIN 1289
139	KK33327	TORSION SPRING 3327
140	RB81106	FRAME L ASSY (USA)
141	RB81107	FRAME R ASSY (USA)
142	BB40410	BOLT 3X8
143	BB40811	BOLT 3X25
144	RB10970	ELECTRODE BLOCK
145	KK23656	COMPRESSION SPRING 3656
146	RB10213	WINDOW
147	RB81034	MOTOR COVER ASSY
148	RB11769	ELECTRODE PLATE
149	RB10795	GRIP COVER L
150	RB10796	GRIP COVER R
153	RB10854	TRIGGER
154	RB10855	TRIGGER LOCK
155	RB70367	MAIN BOARD UNIT
157	RB70101	TRIGGER SWITCH
160	RB10423	LABEL, MAIN SWITCH
161	RB10421	LABEL, FCC (USA)
162	RB10799	TORQUE ADJUSTMENT LABEL
163	RB11921	NAME LABEL (USA)
164	RB10846	WIRE LOADING LABEL
165	RB10847	WIRE SETTING LABEL
166	RB10962	ARM CAUTION LABEL
167	RB70084	HARNESS 11P UNIT
168	RB70085	HARNESS 7P UNIT
169	RB70086	HARNESS 3P UNIT
170	RB70339	FAN UNIT
171	RB11884	FILTER A
172	RB11885	FILER B
173	RB11004	PROTECTOR C
174	EE39830	WASHER 5.1X 9
175	RB11777	STOPPER PLATE
176	RB10718	SLEEVE GUIDE
177	RB11762	HOOK L
178	RB11763	HOOK R
179	RB11886	FAN PROTECTOR
180	RB11883	FILTER COVER
181	RB10724	SLEEVE COVER
182	RB11003	PROTECTOR B
183	CK10198	SCREW 3X10
184	RB11775	BINDING HEAD SCREW
185	RB11776	MAGAZINE LEAF SPRING
187	RB81108	MAGAZINE COVER KIT
188	FF31559	PIN 1559
189	FF51656	PIN 1656
191	JJ10510	RETAINING RING 2.3
192	RB70217	MAGNET HOLDER UNIT
193	RB11666	ARM COVER
201	RB70349	TWISTING MOTOR TD5046 UNIT
202	RB70351	FEEDING MOTOR RS-55VC UNIT
203	RB70222	FEED GEAR SHAFT
205	RB70113	MAIN SWITCH BASE ASSY
207	RB70284	TWISTER ASSY
208	RB70033	FINGER BASE ASSY
209	RB70281	ARM A ASSY
210	RB70285	ARM B ASSY
211	RB70283	TWISTER A ASSY

* You can get most updated list at www.maxusacorp.com

Differences of the tool performance between the RB655 and RB650A

Difference			RB650A	RB655
1	Tying times per charge	Tying times per charge was increased by about 40%. This was achieved by following factors; 1) Improvement of the work efficiency of the Twisting motor and Feeding motor. 2) The PC board has new program which reduces required electric current. Thanks to the increase of tying times per charge, the total tying times per battery life is also increased by about 40%	430 to 530 ties *These numbers are when the tool is used with a brand new battery	600 to 700 ties **(30% more)**
2	Lifetime of the motors	Twisting motor of RB655 is brushless motor and its lifetime is more than 5 times longer than Twisting motor of RB650A. Feeding motor of RB655 is regular motor but work efficiency is improved. The lifetime of the Feeding motor of RB655 is about 25% longer than the Feeding motor of RB650A.	**Twisting Motor:** 70,000 to 100,000 ties **Feeding Motor:** 200,000 to 250,000 ties.	**Twisting Motor:** 500,000 ties or more. **Feeding Motor:** 250,000 to 300,000 ties.
3	Inside temperature of the tool	The heat created by tool operation is reduced by increase of the work efficiency of the motors.	Temperature of Twisting Motor after 2 hours use; (30 ties/Min.) 260 F	194F (30% less)
4	Performance in cold weather	The rotation of the Twisting motor on RB655 is controlled by PC board. Also the reduction of the required electric current enables stable operation in cold weather.	Warm-up is required if it is below 14F	- 4F

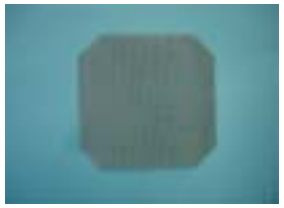
< Different parts between RB650A and RB655 (1/4)

	RB650A					RB655					
	ITEM	Part #	Picture		Wire color	ITEM No.	Part #	Picture		Wire color	Note
Twisting Motor	201	RB70031			Yellow Blue	201	RB70349			Yellow Blue White White color wire and connector are added.	Twisting motor of RB655 is DC Brushless motor. The Brushless motor does not have wearing parts and lasts more than 500,000 ties. Also, the Brushless motor requires less electricity and increases tying times per charge.
Feed Motor	202	RB70048			Green Brown	202	RB70351			Purple Brown	Feeding Motor on RB655 has better efficiency and requires less electricity. NOT interchangeable with Feeding Motor of RB650A.
Board Unit						155	RB70367			Red Black Purple Brown Yellow Blue White	Main board and Sub board is not supplied individualy. White color wire is added for running Brushless motor.
Main Board Sub Board Bunkered	155 156 158	RB70195 RB70196 RB10833			Red Black Green Brown Yellow Blue						
Main Switch	115	RB70091				115	RB70341				The length of wire harness is different. The longer wire is placed on the groove of Twisting Motor housing.

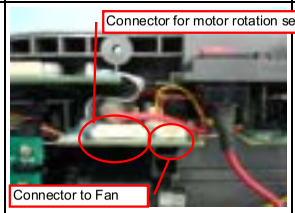
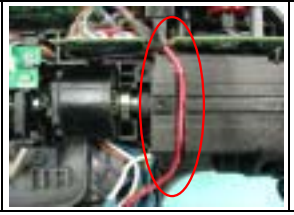
< Different parts between RB650A and RB655 (2/4)

	RB650A				RB655			
	ITEM	Part #	Picture		ITEM No.	Part #	Picture	Note
Frame L Assy	140	CE RB70119 USA RB70120			140	CE RB81104 USA RB81106		The amount of glass fiber in plastic material is increased and protect rubber is removed.
Frame R Assy	141	CE RB81069 USA RB81068			141	CE RB81105 USA RB81107		The amount of glass fiber in plastic material is increased and protect rubber is removed.
Motor Housing L	151	RB81032			151	RB70354		
Motor Housing R	152	RB81033			152	RB11882		

< Different parts between RB650A and RB655 (3/4)

	RB650A				RB655				
	ITEM	Part #	Picture		ITEM No.	Part #	Picture		Note
Fan Unit	170	RB81031			170	RB70339			Connector on Fan Unit is directly connected to the PC board. (Without connection cable)
Fan Protector					179	RB11886	 		Same as the sponge part of RB650A, these two parts protect Fan unit.
Filter Cover					180	RB11883			This part holds Filter A and Filter B in place.
Filter A (wire mesh)	171	RB11002			171	RB11884			
Filter B (Sponge)					172	RB11885			To prevent dust from getting inside this sponge was added.

< Different parts between RB650A and RB655 (4/4)

	RB650A				RB655				
	ITEM	Part #	Picture		ITEM No.	Part #	Picture		Note
Motor Housing Assy									
Twist Guide Cover L Twist Guide Cover R	75 81	RB70178 RB70179			75 81	RB70369 RB70370			To improve wire pulling action, the shape of the Twisg Guide Cover L and R were changed.
Connection of the motor rotation sensor and fan unit to PC board									
Placement of red wire harness of Main Switch									Wire harness on Main Switch is placed on the groove of Motor housing.

[RB655 Tying times indication mode]

With the beep sound and LED blinks, total tying times can be read without opening tool frame.
Readable tying times: Minimum 1,000 ties Maximum 999,000 ties

How to go to the "Tying times indication mode"

1) Turn the Main Switch off and remove battery.
2) Remove Tie wire from Magazine.
3) Set the Torque adjust dial to the position "1".

4) With using a screw driver, keep the Twist Guide Cover open as the picture below shows.
5) Set the battery to the tool.

6) Keep pulling the trigger and turn the Main Switch on.

Then, the tool start showing how many ties has been made with LED blinks and beep sound.

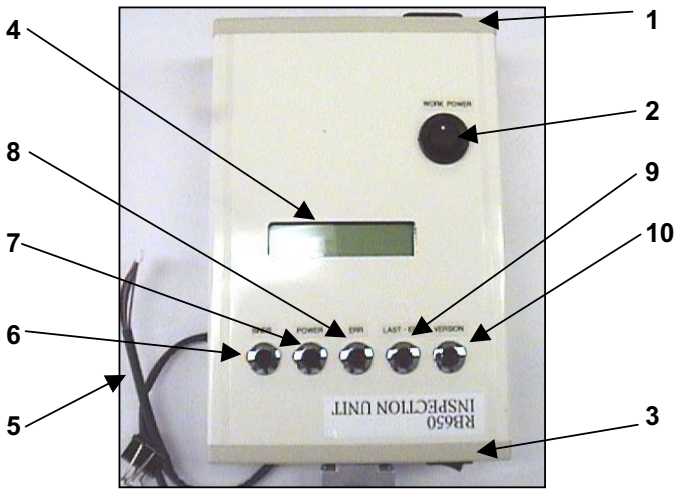
How to read the tying times

Tool shows each digit indication first (LED blinks only) followed by number indication (LED and beep).
Example) # of ties is 16,300 ties.

	Digit indication: LED blinks only (No beep)			Number indication: LED blinks and beep sound											Note
					1	2	3	4	5	6	7	8	9		
#1	Digit of 100,000	LED blinks : 3 times		LED											No indication because # of ties does not reach 100,000.
				Beep											
#2	Digit of 10,000	LED blinks : 2 times		LED	■										Number indication is one time which means 10,000 ties
				Beep	■										
#3	Digit of 1,000	LED blinks : one time		LED	■		■	■	■	■					Number indication is 6 times which means 6,000 ties
				Beep	■		■	■	■	■					
#4	End	LED blinks : 2 times													
		(Rapid)													

Sum #1, #2 and #3 = 16,000 ties. (300 ties can not be read with this program. It can be read by Checker box)
After the rapid 2-time blink (#4), tool repeats indication from #1.

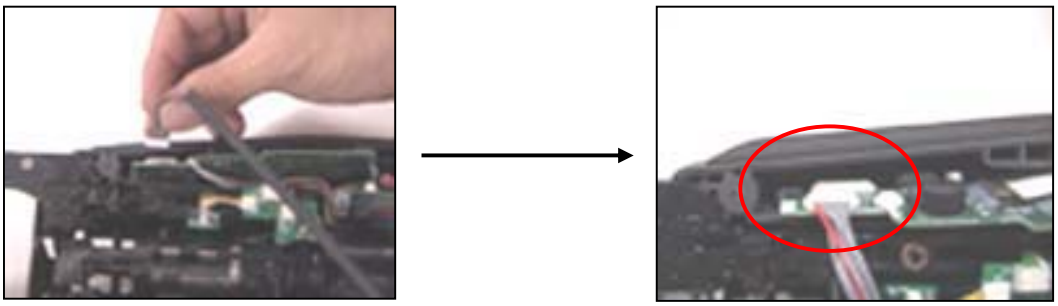
RB650/RB650A/RB655 tool checker



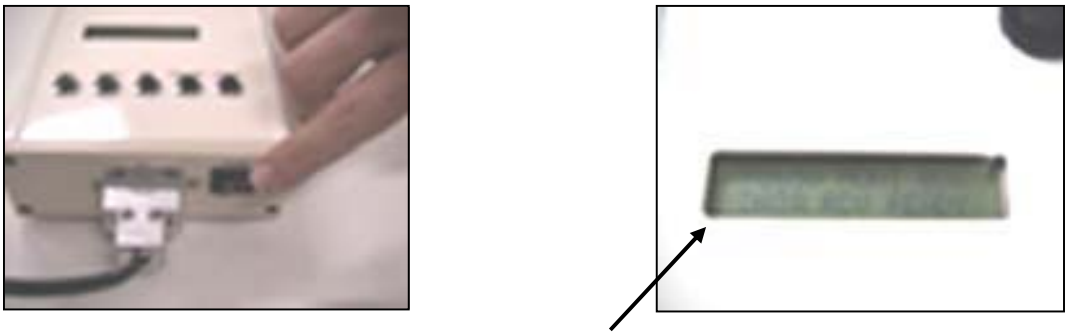
No.	Name	Function
1	AC CODE	
2		Not for use
3	POWER SWITCH	Power switch
4	DISPLAY	Display the information of the tool status
5	CONNECTOR	Connector to Main Board inside of the tool
6	“BINDS” BUTTON	Press to see total number of ties made by a tool
7	“POWER” BUTTON	Press to see how many times a tool is powered on
8	”ERR” BUTTON	Press to see total number of each error happened on a tool (With pressing the button, each error number will be shown in turn) 1.MOTOR LOCK ERROR 2.TWISTING ACTION ERROR 3.TWIST GUIDE COVER OPEN ERROR 4.FEEDING FUNCTION ERROR 5.REEL SENSOR ERROR 6.CPU OVERHEAT 7.FET OVERHEAT
9	“LAST-ERR” BUTTON	Press to see the last error
10	“VERSION” BUTTON	Press to see the version of the program in Main Board

Procedure

1. Connect the connector to the Main Board of RB650 / RB650A / RB655.



2. Power switch on.



Description on display	Status
DATA RCV READY	Ready to work
DAT RCV TIME OUT	Error
CMD RCV TIME OUT	
UNKNOW ANS RCV	

Press buttons to see the tool information

Tools and adhesive required for RB655 tool repair

TOOL				
	NAME	**SIZE**		
<1>	HEXAGONAL BAR WRENCH	1.5 mm		
		2.5 mm		
		3.0 mm		
		4.0 mm*		
<2>	HEXAGONAL NUT DRIVER	5.5 mm		
		6.0 mm		
<3>	SCREW DRIVER +, –			
<4>	HIGH PRECISION SCREW DRIBER +, –			
<5>	HEXAGONAL BAR WRENCH	1.5 mm	XB93116	**Repair Tool kit** Available From Max USA XB93101
		2.5 mm	XB93117	
		3.0 mm	XB93118	
		4.0 mm*	XB93119	
	HEXAGONAL NUT DRIVER	5.5 mm	XB93120	
		6.0 mm	XB93121	
		7.0 mm*	XB93122	
	SCREW DRIVER + (1)		XB93123	
	SCREW DRIVER + (2)		XB93124	
	SCREW DRIVER –		XB93125	
<6>	TORQUE DRIVER (LARGE)			
<7>	TORQUE DRIVER (SMALL)			
<8>	CONNECTOR TWEEZERS			
<9>	PINCHERS & PLIERS			
<10>	HAMMER & PIN-PUNCH	2.5 mm		
<11>	C-RING PLIERS			

The tools with * are not required for RB395 repair but required for RB650A/RB655 repair.

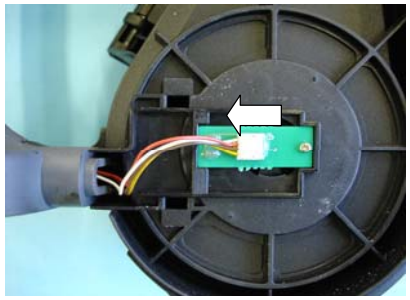
ADHESIVE	
<A>	3M “DP-810” or Araldite (EPOXY-ADHESIVE)
<B>	LOCTITE BLUE (242)
<C>	LOCTITE PURPLE (222MS)
GREASE	
	GREEN MOLYKOTE GREASE (PG-662) (SPECIAL GREASE AVAILABLE AT MAX USA) XB93112

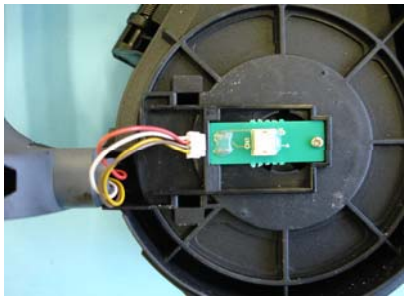
Must Do Maintenance before the tool reaches 500,000 ties

Part code	Part name	Phenomenon	The recommended maintenance and its frequency
RB10749	CUTTER	The edge of the Cutter is worn out, the cutting load becomes higher then the tool can not to cut the wire. (The overcurrent beep sound may be heard when cutting load is too high and the cutting action is prevented.)	At around 200,000 ties, replace the Cutter with a new one. It is recommeded to replace Feeding Motor at the same time.
RB10748	FIXED CUTTER	The edge of the Cutter is worn out, the cutting load becomes higher then the tool can not to cut the wire. (The overcurrent beep sound may be heard when cutting load is too high and the cutting action is prevented.)	When replacing the Cutter (RB10749) at around 200,000 ties, reverse the direction of the Fixed Cutter. Also clean up the Cutters and apply small amount of the Molykote grease. At around 500,000 ties the Fixed Cutter should be replaced with a new one.
-	Maintenance of the area around the HOOKS	The dust/metal powder around the Hooks makes movement of the Hooks not smooth, and the load on the Twisting Motor to open and close the Hooks becomes higher. It the load becomes too high, the wire cannot be cut. (The overcurrent beep sound may be heard when cutting load is too high and the cutting action is prevented.)	At around 200,000 ties, clean the Hooks with degreaser like Paslode Degreaser Cleaner then apply Molykote grease.
RB70351	FEEDING MOTOR	The tool can not feed the wire because the brush of the Feeding Motor is worn out. At initializing action, feeding error beep sound may be heard. (The Twisting Motor is brushless motor and does not have wearing part.)	At around 200,000 ties, replace the Feeding Motor with a new one. It is recommeded to replace Cutter at the same time.
-	The maintenance for FEEDING MOTOR	Due to the dust on Feeding Gears, the feed sensor may not sence all of the magnets around the gear then the tool may feed more wire than required.	When replacing the Feeding Motor with a new one. Open the Motor Cover of the Feeding Motor and clean up the magnets around the Feeding Gear with compressed air.
RB11762	HOOK L	When the Hooks are worn out, the space between Center Hook and Hook becomes wider when the Hooks catch the wire. Due to this, the strength of cramping wire decreases and the tip of the wire may be released from the Hooks during the twisting action.	At around 500,000 ties, the Hooks need to be replaced with new ones.
RB11763	HOOK R		
RB70275	CENTER HOOK		
RB81102	MAGAZINE ASSY	Inside of the Magazine and Magazine Cover is worn out and hte play between Magazine and Magazine Cover becomes larger. It leads to too much friction on wire at wire pulling action and may create weak tie.	At around 500,000 ties, the Magazine and magazine Cover need to be replaced with new ones.
RB81103	MAGAZINE COVER ASSY		

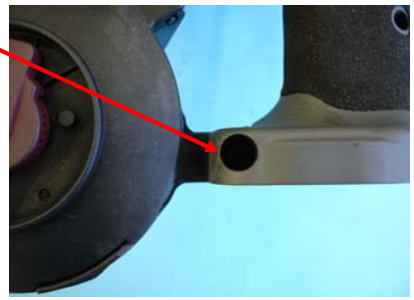
HOW TO CLEAN UP THE FEEDING GEAR AREA (1/4)

1. Remove the Sensor Cover from the Magazine by squeezing the two legs of the cover.

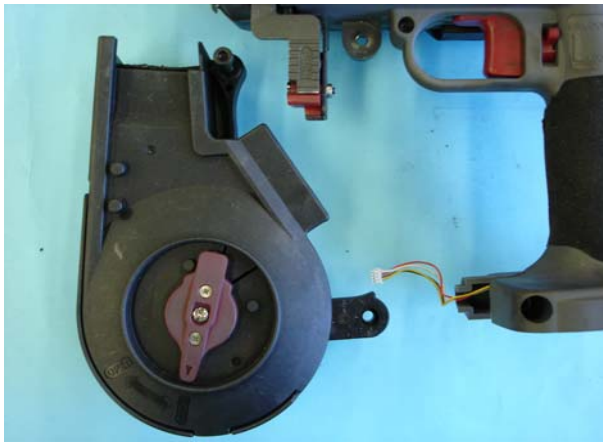




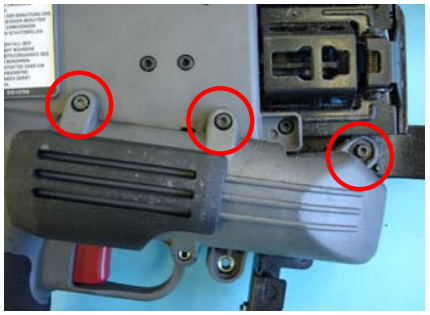
2. Pull out the connector of the reel sensor.



3. Remove the tow bolts and disassemble the magazine from the tool.



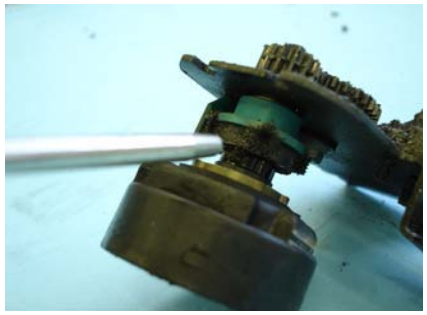
HOW TO CLEAN UP THE FEEDING GEAR AREA (2/4)



4. Remove the four bolts and remove the cover of Twisting Motor.

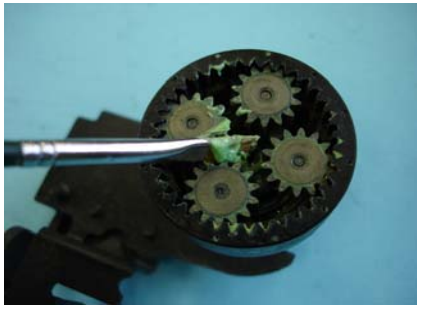
5. Pull out the connector at the feed sensor.

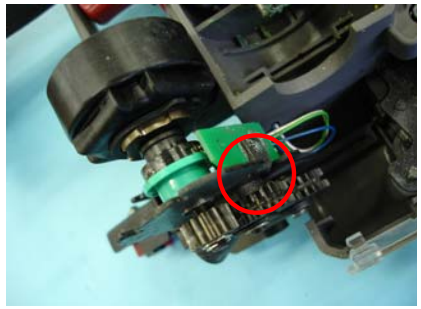
6. Blow away dust around the gears with compressed air.



7. Blow away iron powder on the magnets.

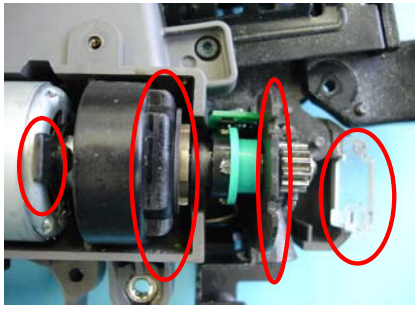
HOW TO CLEAN UP THE FEEDING GEAR AREA (3/4)

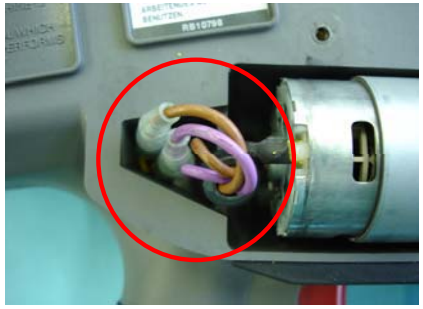


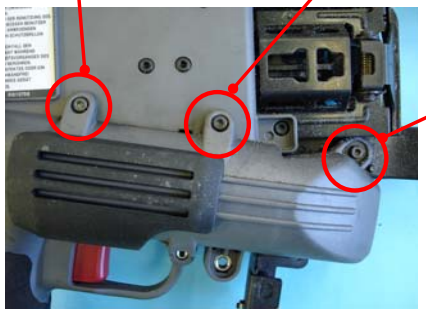


8. Clean up the internal gears and apply Molykote grease.

Then connect the feed sensor connector and reassemble the feed gears and feed motor.

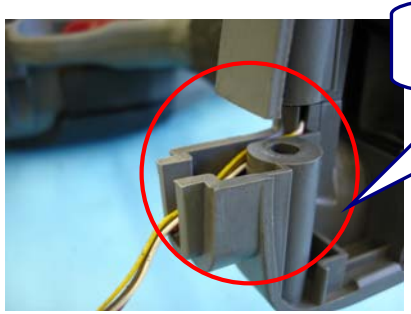






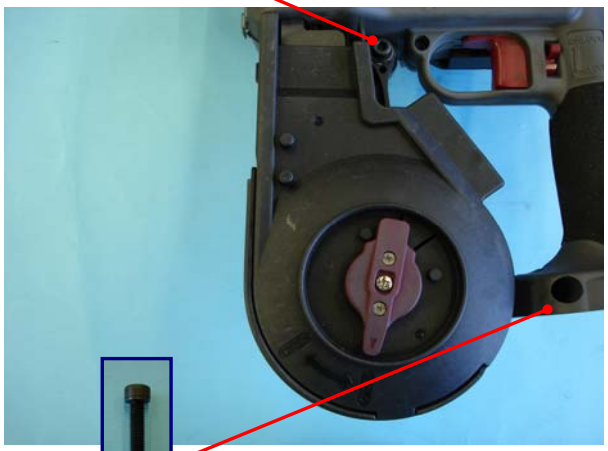
9. Tighgten the bolts with proper torque.

HOW TO CLEAN UP THE FEEDING GEAR AREA (4/4)

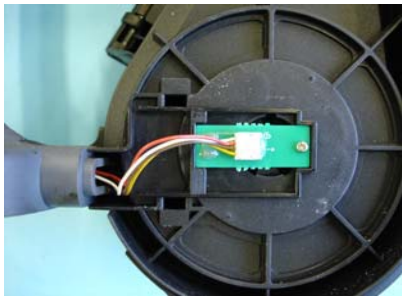


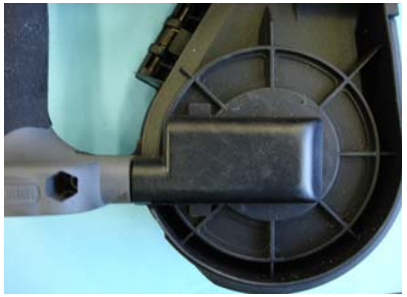
Pay attention not to pinch

BB40405
200-250cN.m



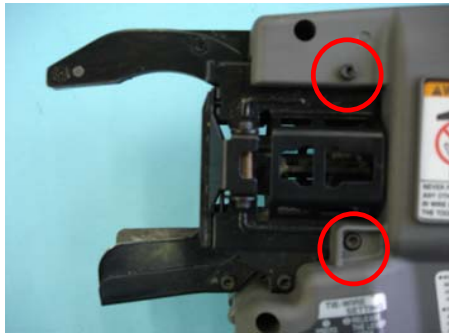
BB40405
200-250cN.m

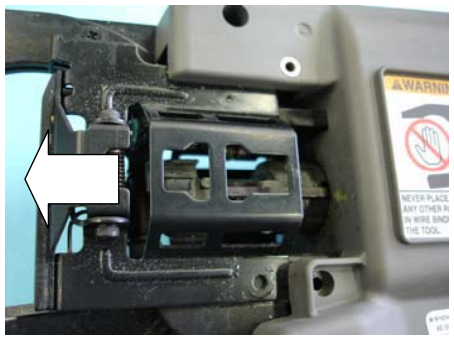




10. Assemble the magazine to the tool and connect the reel sensor connector then close the cover of the connector.

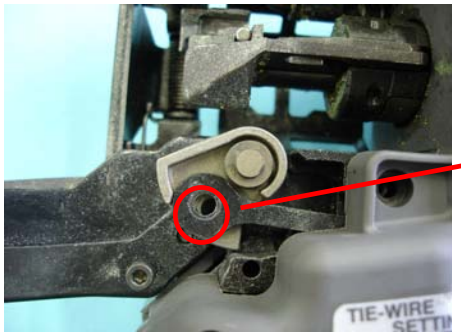
HOW TO CLEAN UP THE CUTTER AREA (1/3)

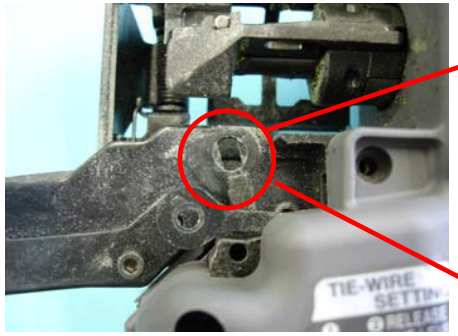




1. Remove the two bolts and slide out the Cover R.

2. Remove the bolt and take the Cover on the cutter area.





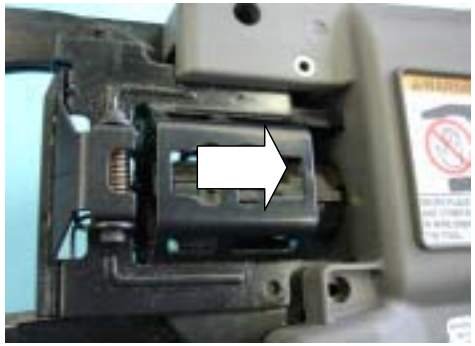
3. Remove the pin, Cutter and Fixed Cutter.

HOW TO CLEAN UP THE CUTTER AREA (2/3)

4. Degrease and clean up the Cutter parts. Apply Molykote grease on Fixed Cutter and reassemble them.

HOW TO CLEAN UP THE CUTTER AREA (3/3)

BB40810
150-200cN.m



BB40425

100-150cN.m

Self-warm-up program

When the RB650/RB655 tool is used under cold temperature (below 0ºC/30F), you may find the following phenomenon.

A. The part that catches the tie wire does not fully open after the tying action is completed, and it is hard to pull out the tool from the tied wire.
B. The tie wire is not cut.

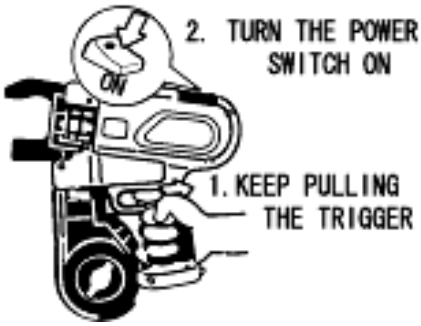
The self-warm-up program is installed to the RB650 and RB655. Running the self-warm-up program helps to solve the phenomenon above.

How to run the self-warm-up program

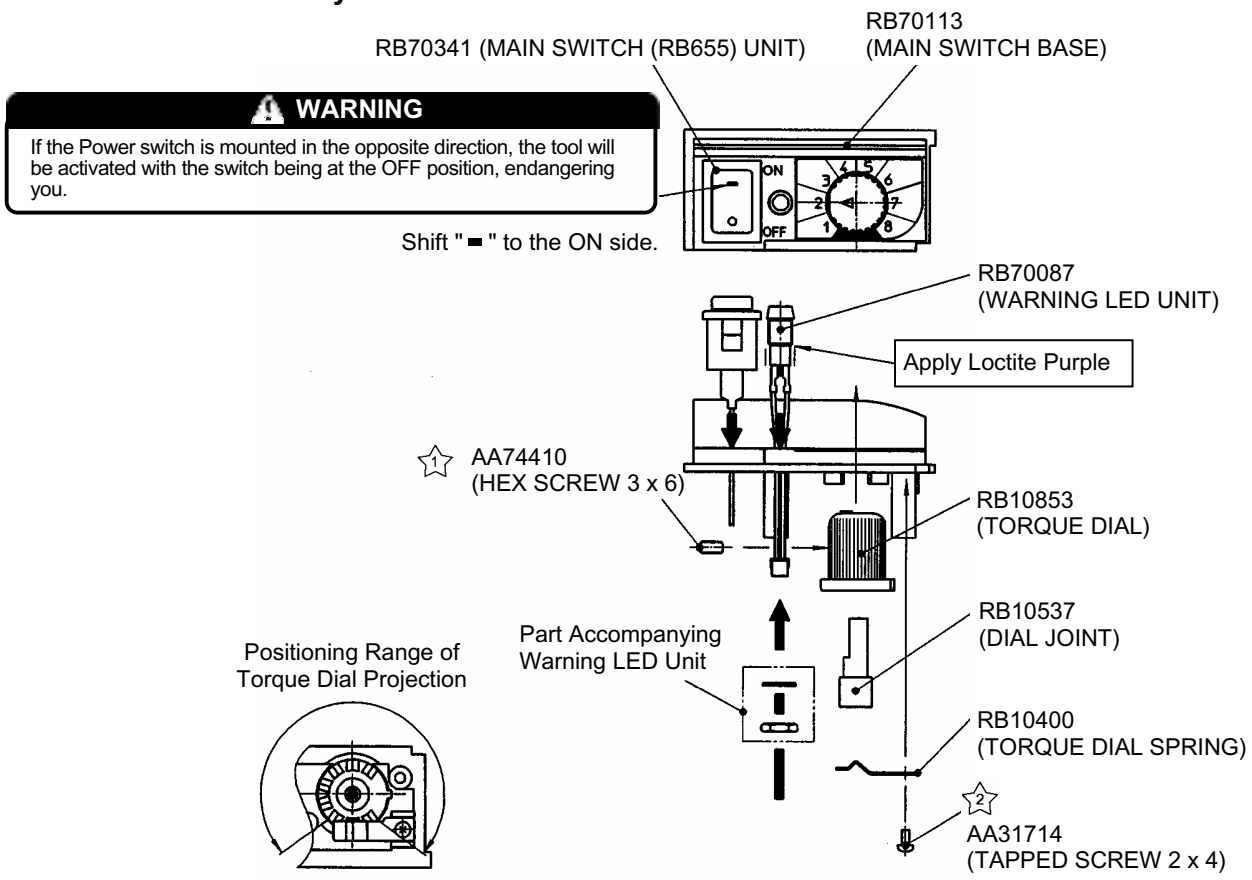
Step 1.
Turn the main switch off and remove the tie wire from the tool.

Step 2.
Set the Torque dial at position "8" (maximum position).

Step.3
Keep pulling the Trigger and turn the Power switch on. The twisting part of the RB650/RB655 automatically starts 50 times of twisting action then stops.



Main Switch Base Assy.



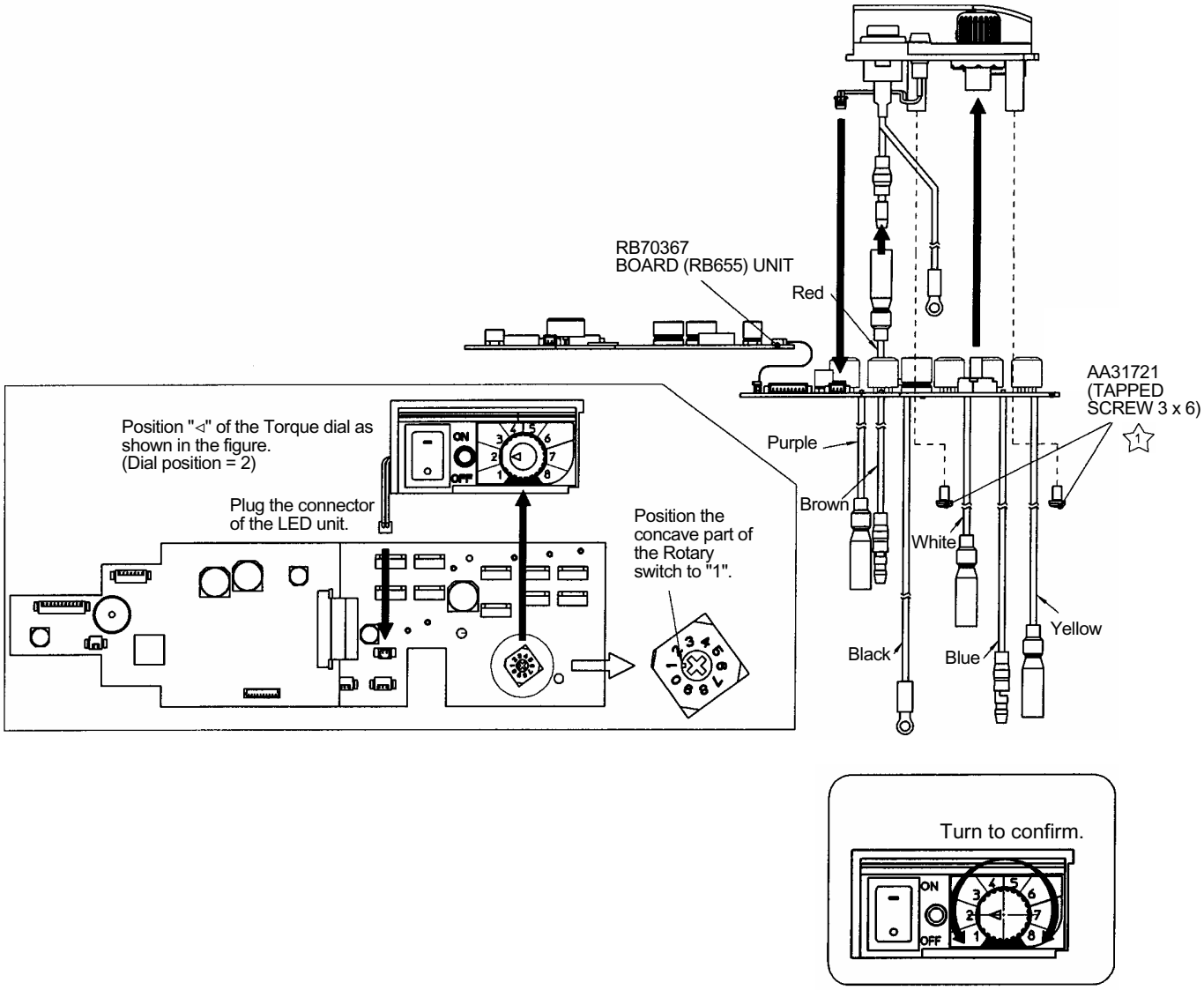
ASSEMBLY PROCEDURE

1. Put a Warning LED Unit through a Main Switch Base, apply Loctite Purple to a threaded part, and fix with an accompanying washer and hex. nut from below.
2. Fit a Main Switch Unit into the Main Switch Base.
   Note) Shift " ▬ " to the ON side.
3. Insert a Dial Joint into the D-cut part of a Torque Dial until as deeply as possible and fix with a Hex. screw 3 x 6.
   (Tightening torque: 10-20 cN.m)
4. Put the Torque Dial through the Main Switch Base from below and fix a Torque Dial Spring with a Tapped Screw 2 x 4.
   (Tightening torque: 20-30 cN.m)

Note) The projection of the Torque Dial should be positioned as shown in the figure below.

	TORQUE	ADHESIVE
①	20-30 cN.m	Not required
②	10-20 cN.m	
RB70087		Loctite Purple

Main Switch Base Assy. (Continued)



ASSEMBLY PROCEDURE

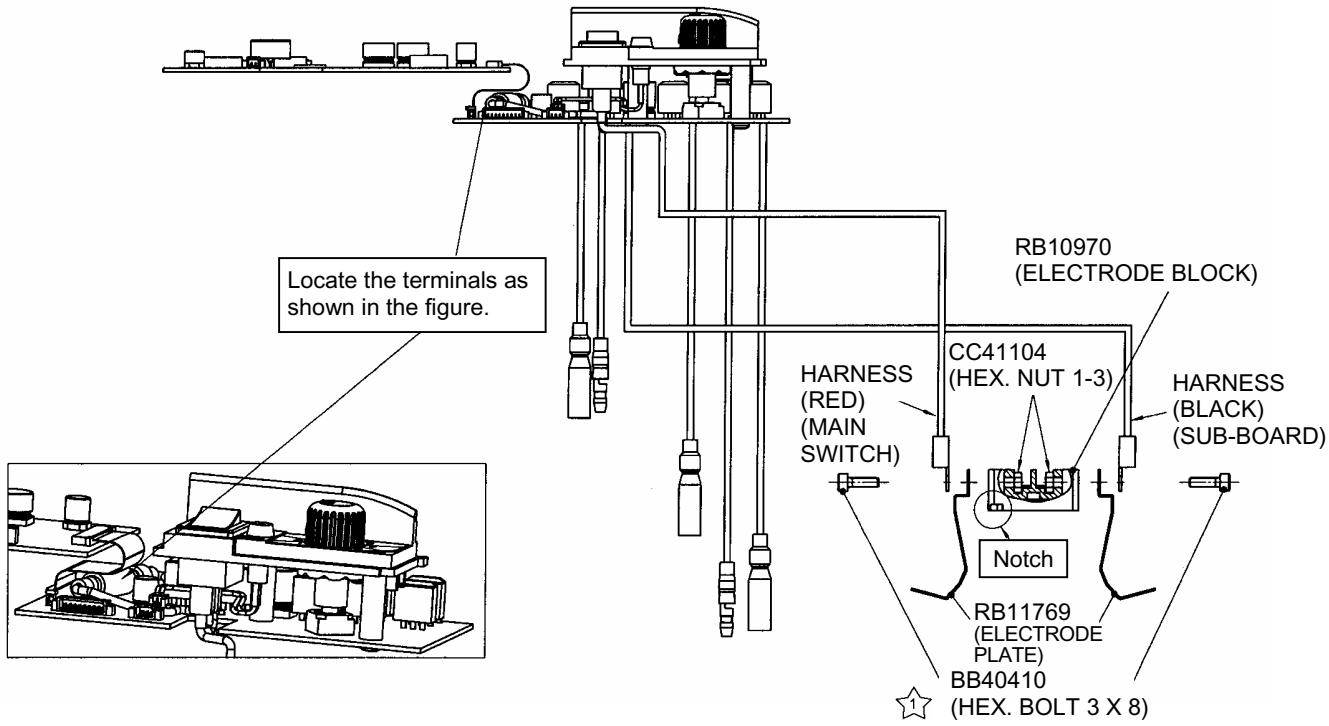
1. Position a Torque Dial to the position “2” as shown in the figure.
2. Position the concave part of a Rotary Switch shaft to "1".

Note) Improper positioning of the Torque Dial and Rotary Switch dislocate them from each other.

3. Insert a LED unit connector into a Sub-board Unit.
4. Connect the harness of a Main Switch Unit to the one (red) coming from the Sub-board Unit.
5. Insert the Rotary Switch into a Dial joint and fix the Main Switch Base and Sub-board Unit with a Tapped Screw 3 x 6.
   (Tightening torque: 40-50 cN.m)
6. After assembling, turn the Torque Dial to confirm that it is changed over in 8 steps.

	TORQUE	ADHESIVE
☆1	40-50 cN.m	Not required

Main Switch Base Assy. (Continued)

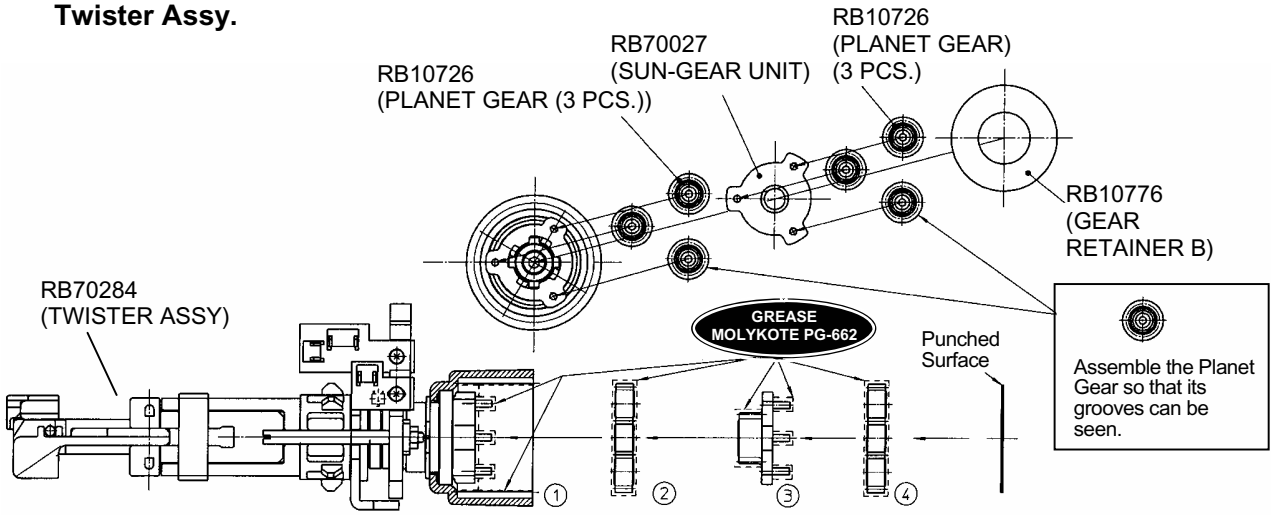


ASSEMBLY PROCEDURE

1. Put Hex. Nuts 1-3 in an Electrode Block, and fix a harness (red) coming from the Main Switch Unit and an Electrode Plate to the notched side with a Hex. Bolt 3 x 8.
   Likewise, fix a harness (black) coming from a Sub-board and an Electrode Plate to the non-notched side with a Hex. Bolt 3 x 8. (Tightening torque: 80-100 cN.m)
   Pay heed to the position of the notch in the Electrode Block and the relevant wire color. If the wire is connected to the other side, the Main Board Unit will be broken.
2. Locate the terminals connected as shown in the figure.

	TORQUE	ADHESIVE
1	80-100 cN.m	Not required

Twister Assy.

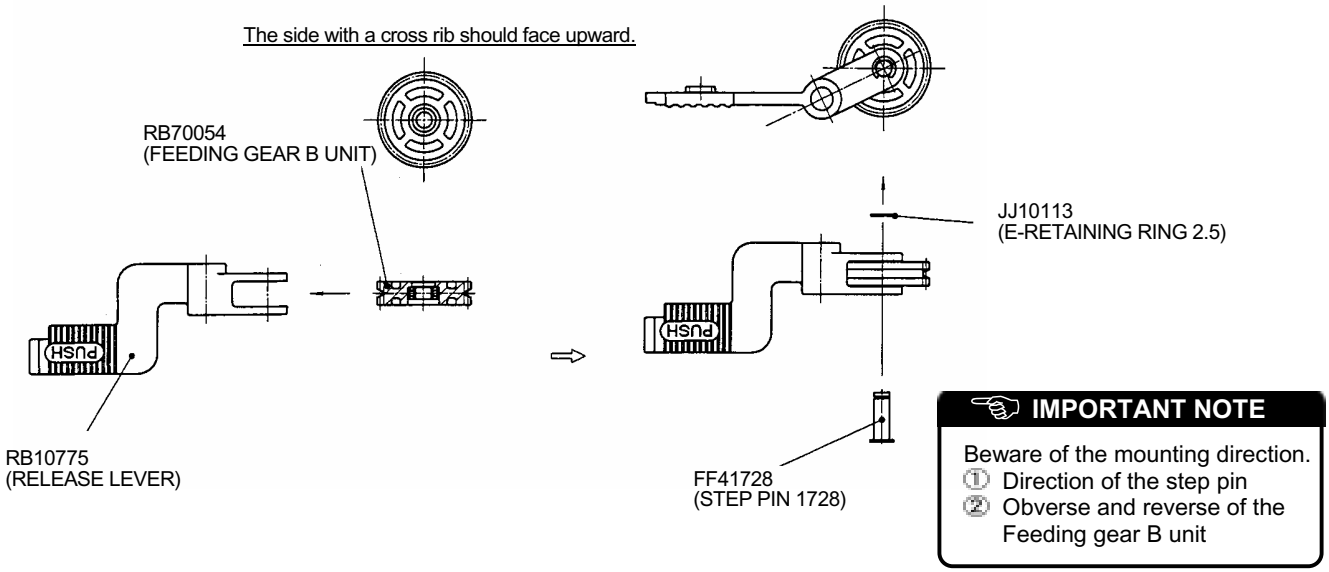


ASSEMBLY PROCEDURE

1. Apply Molykote PG-662 to the inner teeth of an internal Gear and the pins of a Planet Cage B unit.
2. Apply Molykote PG-662 to Planet Gears B (3 pcs.) and fit them onto the pins of the Planet Cage B unit. Assemble them so that you can see the grooves in the top surface of the Planet Gears.
3. Apply Molykote PG-662 to the gear and pins of a Sun-Gear Unit to assemble it.
4. Apply Molykote PG-662 to the Planet Gears B (3 pcs.) to assemble them in such a manner that you can see the grooves in their top surface.
5. Assemble a Gear Retainer B, directing its punched surface inside.

Note) Confirm that the internal gear is smoothly turned when it is turned with the Planet Cage held.

Feed Assy.



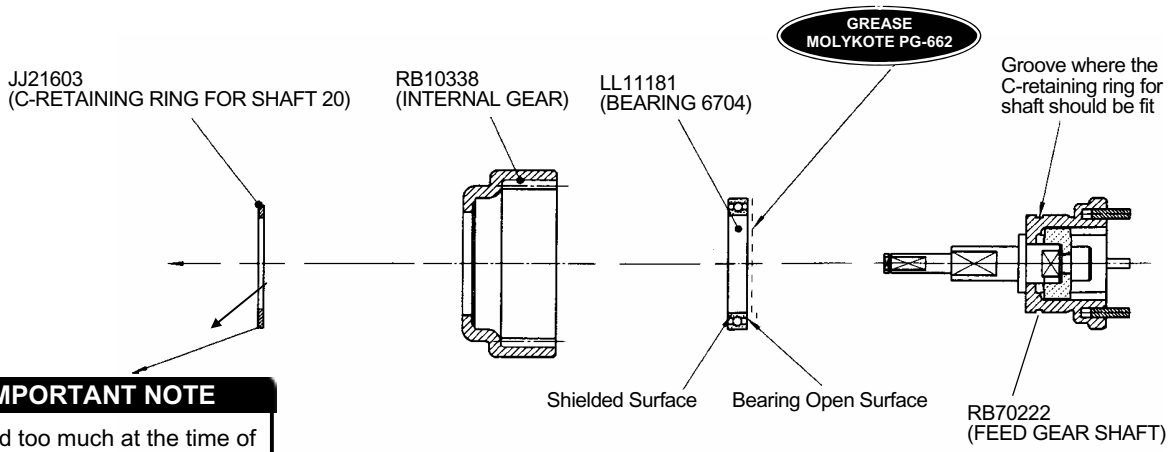
IMPORTANT NOTE

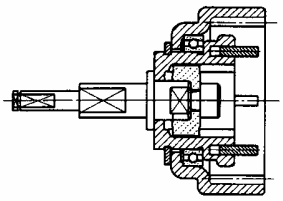
Beware of the mounting direction.
① Direction of the step pin
② Obverse and reverse of the Feeding gear B unit

ASSEMBLY PROCEDURE

1. Put a Step Pin 1728 into a Release Lever and Feeding Gear B unit, and secure with an E-Retaining Ring 2.5.
2. Make sure that the Feeding Gear B unit turns smoothly.

Feed Assy. (Continued)

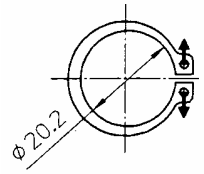




Beware of the bearing direction.

IMPORTANT NOTE

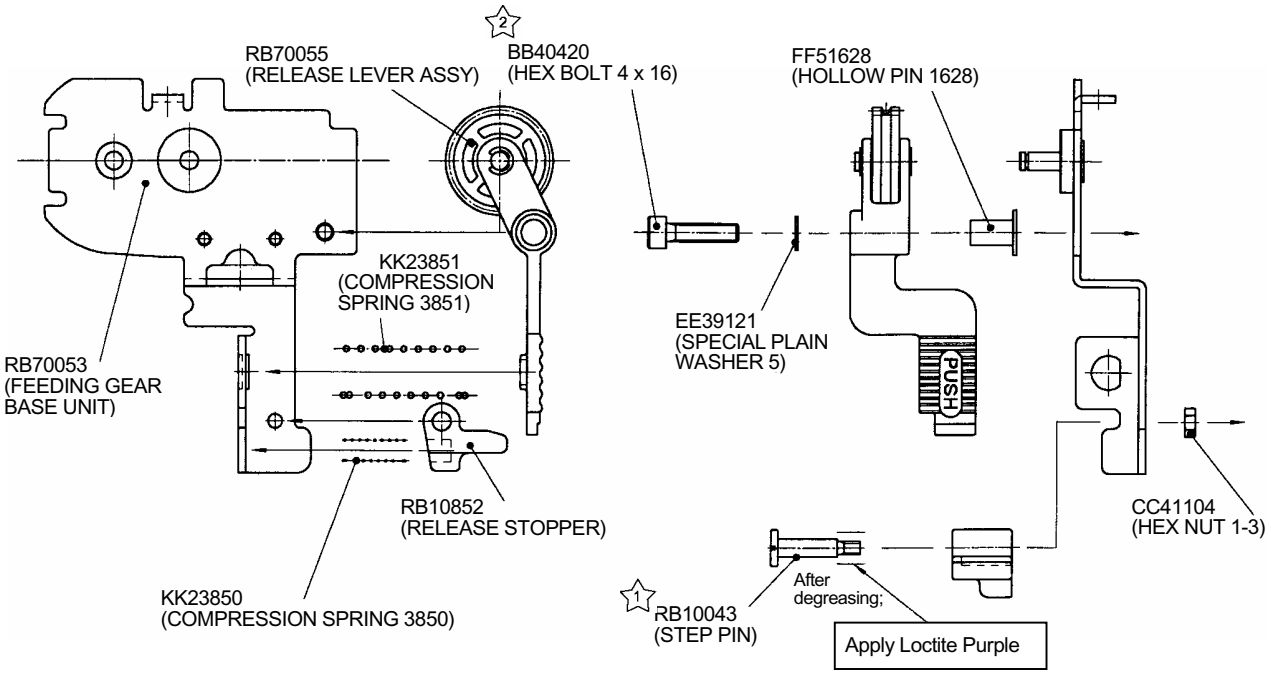
If opened too much at the time of assembling, the C-retaining ring will be deformed, causing faulty operation. Use snap ring pliers with stopper.
The opening limit dimension should be ϕ20.2.(Adjust at the stopper position)



ASSEMBLY PROCEDURE

1. Apply Molykote PG-662 Grease to the side of a Bearing 6704.
2. Set the Bearing with its shielded surface on the Internal Gear Side, put a Feeding Gear Shaft A Unit and secure with a C-Retaining Ring for Shaft 20.

Feed Assy. (Continued)



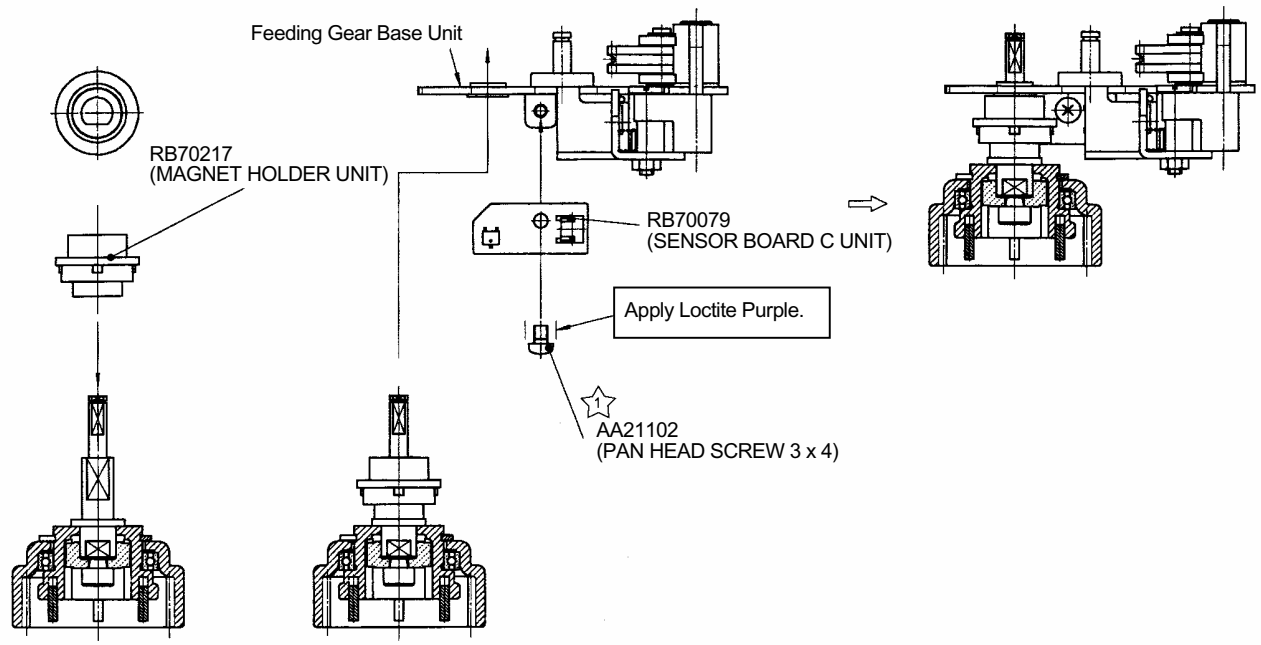
ASSEMBLY PROCEDURE

1. Put a Compression Spring 3850 in between a Feeding Gear Base and a Release Stopper, and put a degreased Step Pin into the holes in the Release Stopper and Feeding Gear Base.
2. Apply Loctite Purple to the threaded part (projecting from the Feeding Gear Base) of the Step Pin and tighten with a Hex nut 1-3. (Tightening torque 50-80 cN.m)
3. Put a Compression Spring 3851 in between a Release Lever and the dowel of the Feeding Gear Base.
4. Put a Hollow Pin 1628 into a Release Lever Assy. and tighten with a Special Plain Washer 5 and a Hex. bolt 4 x 16. (Tightening torque: 100-150 cN.m)

Note) Make sure that the Release stopper is free of adhesive agent.

	TORQUE	ADHESIVE
1	50-80 cN.m	Loctite Purple
2	100-150 cN.m	Not required

Feed Assy. (Continued)

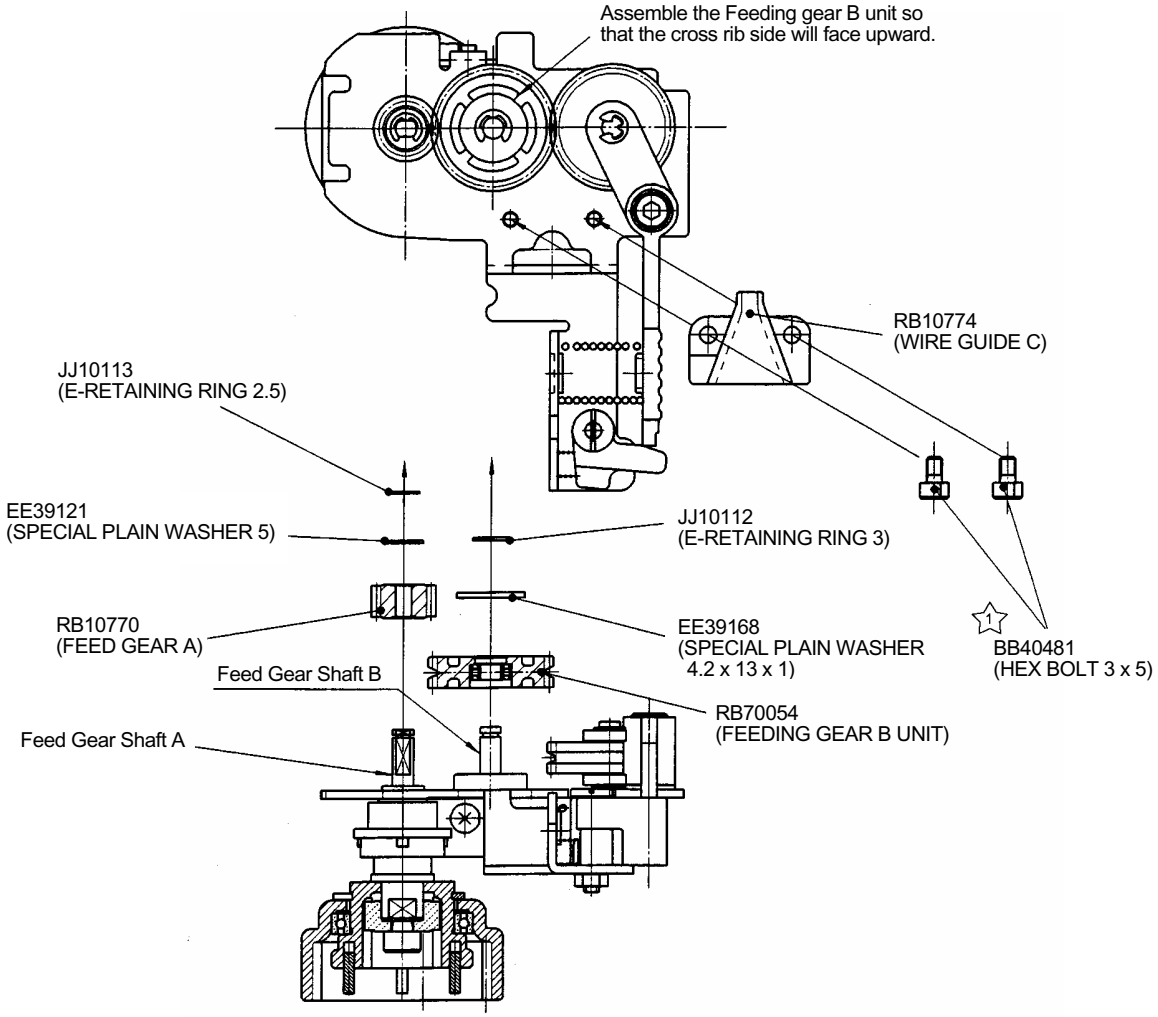


ASSEMBLY PROCEDURE

1. Fit the Magnet Holder unit into the D-cut section of the Feeding Gear Shaft.
2. Using a Pan Head Screw 3 x 4 with Loctite Purple applied to it, assemble a Sensor Board to a Feeding Gear Base Unit. (Tightening torque: 50-80 cN.m)
3. Put a Feeding Gear Shaft A into the bearing of the Feeding Gear Base Unit.

	TORQUE	ADHESIVE
1	50-80 cN.m	Loctite Purple

Feed Assy. (Continued)



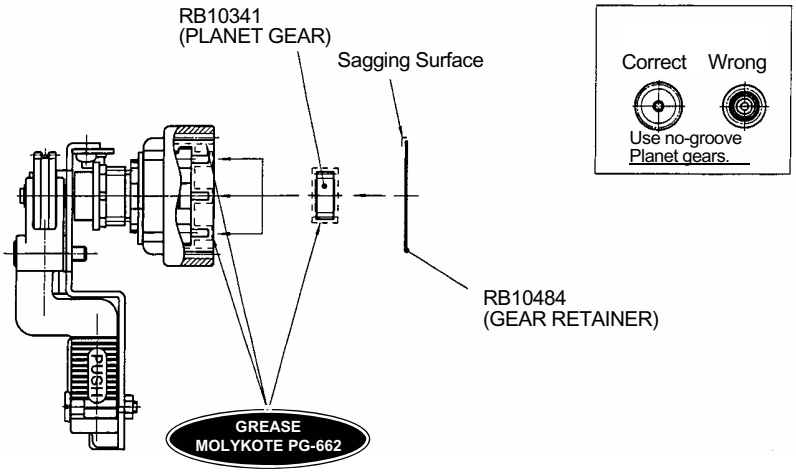
ASSEMBLY PROCEDURE

1. Put a Feed Gear A and a Special Plain Washer 5 onto a Feeding Gear Shaft A in that order, and secure with an E-Retaining Ring 2.5.
2. Put a Feeding Gear B Unit and a Special Plain Washer 4.2 x 13 x 1 onto the Feeding Gear Shaft B of the Feeding Gear Base unit, and secure with an E-Retaining Ring 3.
3. Secure a Wire Guide C onto a Wire Guide Base Unit with Hex. bolts 3 x 5. (Tightening torque: 100-150 cN.m)

Note) Assemble the Feeding Gear B Unit so that the cross rib side will face upward.

	TORQUE	ADHESIVE
☆1	100-150 cN.m	Not required

Feed Assy. (Continued)

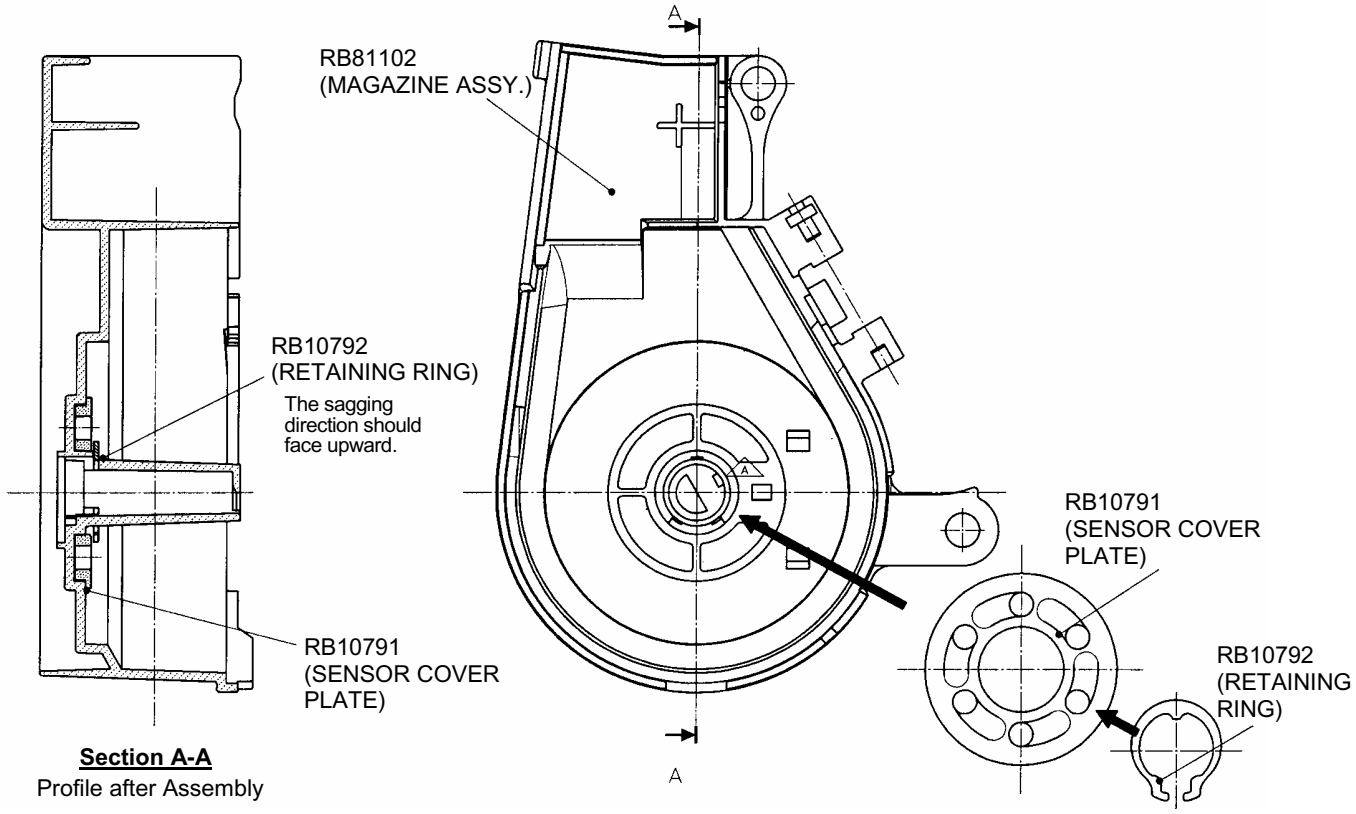


ASSEMBLY PROCEDURE

1. Apply Molykote PG-662 Grease to the gear portion of an Internal gear and the pins of a Planet Cage A Unit.
2. Apply Molykote PG-662 Grease to side and gear portion of Planet Gears (4 pcs.).
3. Fit the Planet Gears (4 pcs.) onto the pins of the Planet Cage A Unit.
4. Apply Molykote PG-662 Grease to the Planet Gears and the slideway of a Gear Retainer, and set the Gear Retainer with its sagging surface on the Internal Gear side.

Note) Make sure that the Planet Gears have no grooves in their sides. (To prevent wrong assembly with the Planet Gears B)
Bring the sagging surface of the Gear Retainer to the Planet Gear side.

Magazine Assy.

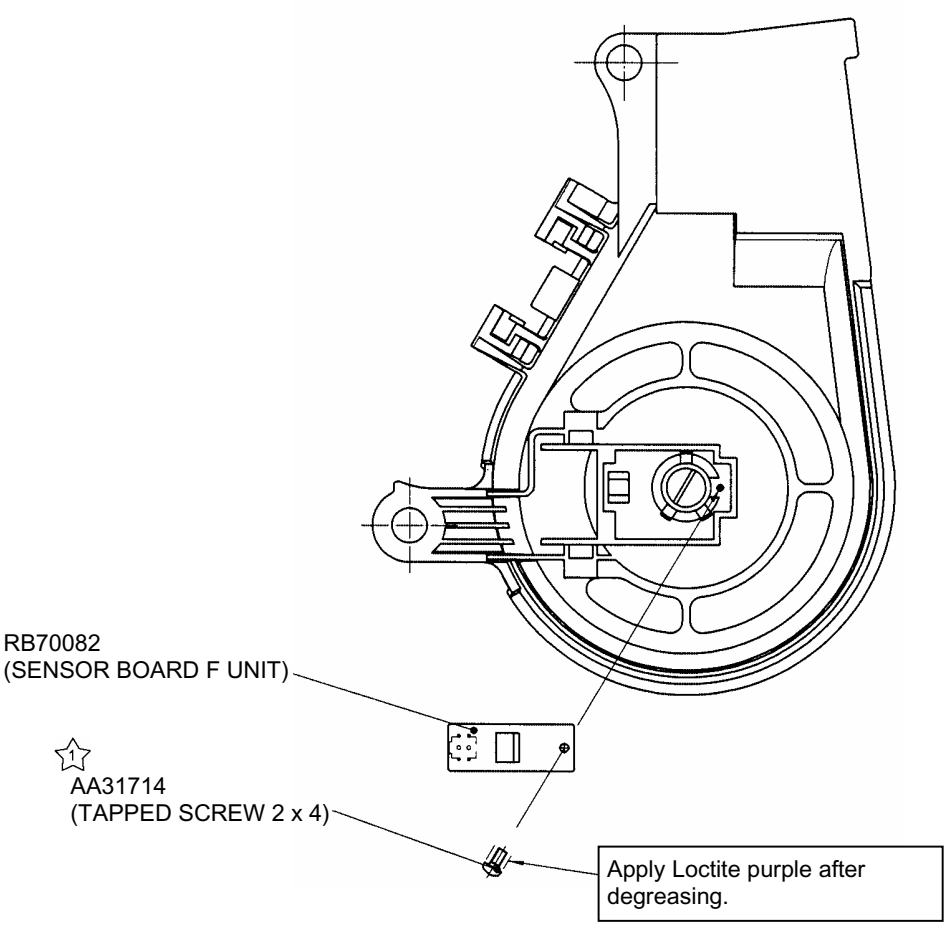


Section A-A
Profile after Assembly

ASSEMBLY PROCEDURE

1. Set a Sensor Cover into a Magazine, with its larger flange facing upward.
2. Set a Retaining Ring into a groove in the Magazine in the direction shown in the figure, with its sagging direction facing upward.
3. Make sure that the Retaining Ring is fit into the groove, and that the Sensor Cover turns.

Magazine Assy. (Continued)



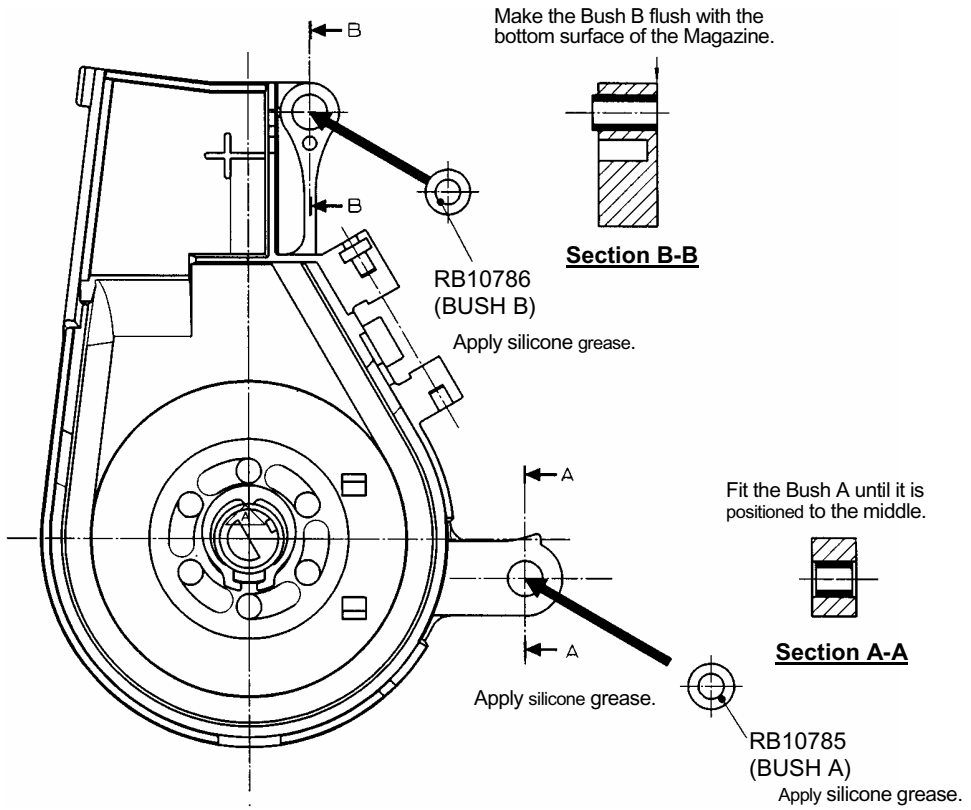
ASSEMBLY PROCEDURE

1. Set a Sensor Board F unit into the Magazine, with its connector side facing upward.
2. Apply Loctite Purple to a degreased Tapped Screw 2 x 4 to tighten it.
   (Tightening torque: 10-20 cN.m)

Note) For torque control, confirm that a Screw Head has seated on a board, and then, tighten with a Torque Screwdriver.

	TORQUE	ADHESIVE
1	10-20 cN.m	Loctite Purple

Magazine Assy. (Continued)

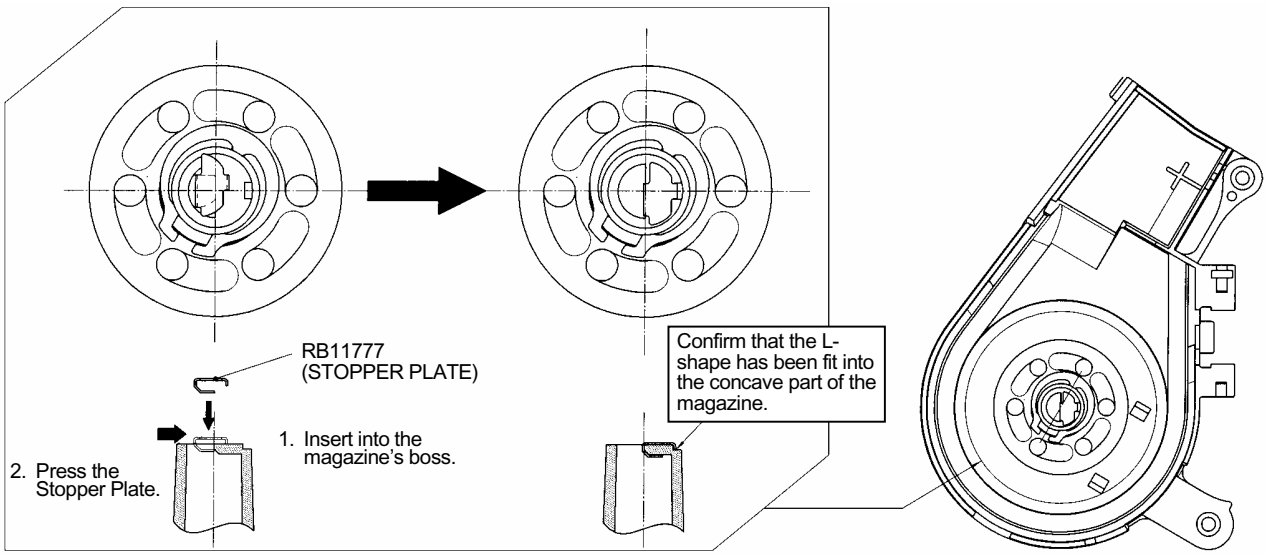


ASSEMBLY PROCEDURE

1. Place the Magazine's Sensor Cover side facing upward, apply silicone grease to a Bush B and fit it into an upper hole in the Magazine; fit it in until it becomes flush with the bottom surface of the Magazine.
2. Apply silicone grease to a Bush A and fit it into a lower hole; fit it in until it is positioned to the middle.

*RB10785 (BUSH A) and RB10786 (BUSH B) come with RB81102 (MAGAZINE ASSY).

Magazine Assy. (Continued)

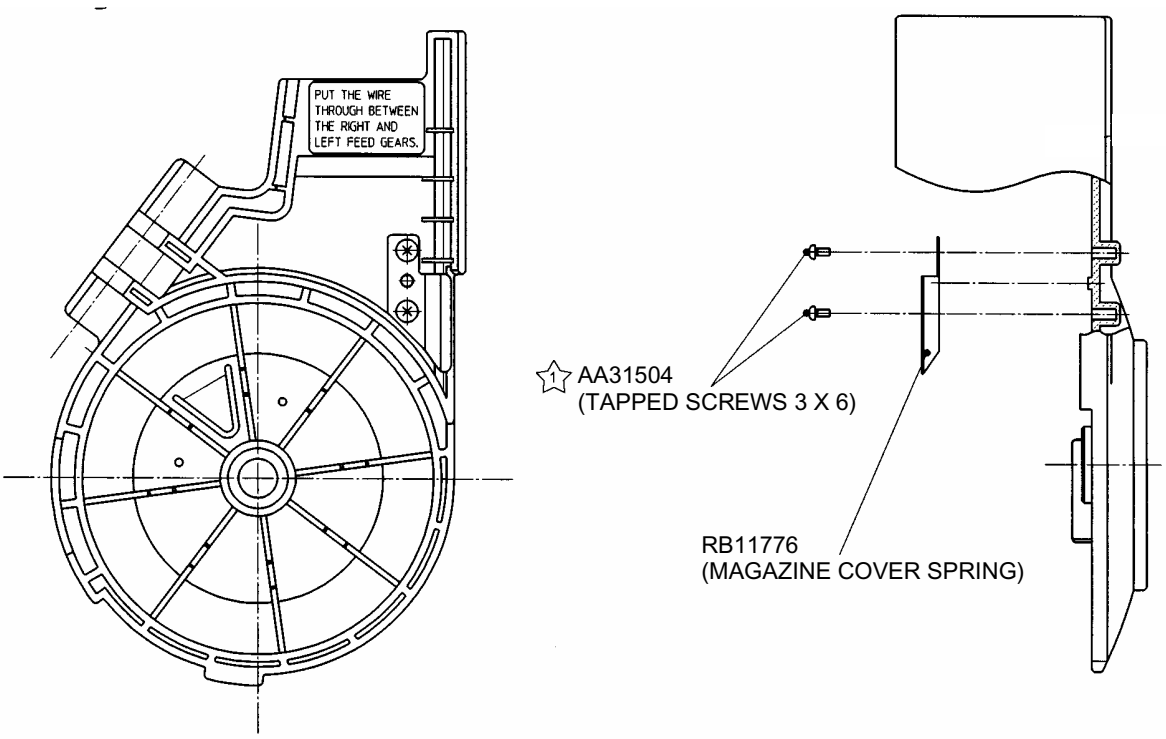


ASSEMBLY PROCEDURE

1. Insert the nose of a Stopper Plate into the boss of the Magazine.
2. Push the U-Shape of the Stopper Plate to fit its L-Shape into the concave part of the Magazine.

*RB11777 (STOPPER PLATE) comes with RB81102 (MAGAZINE ASSY).

Magazine Assy. (Continued)



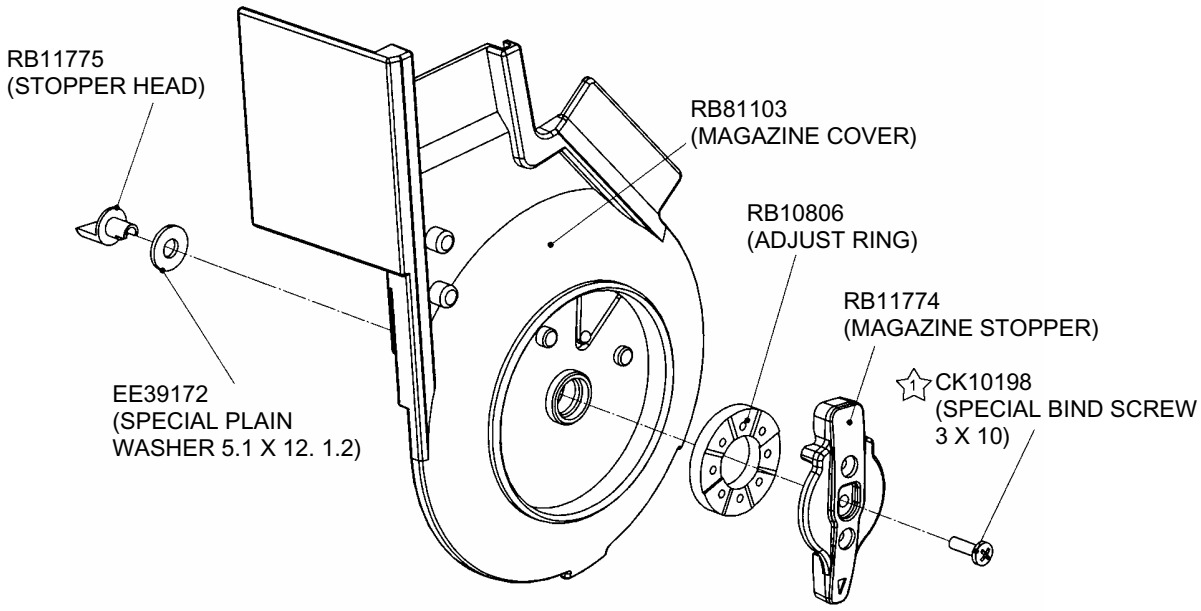
ASSEMBLY PROCEDURE

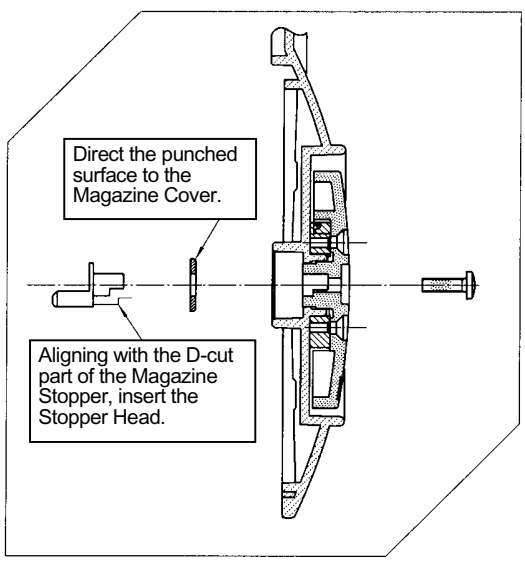
1. Align a center hole in a Magazine Cover Spring with the projection of a Magazine Cover.
2. Fix the Magazine Cover Spring to the Magazine Cover with Tapped Screws 3 x 6 (2 pcs.). Control torque after confirming that the Tapped Screws have been fully seated.
   (Tightening torque: 40-50 cN.m)

	TORQUE	ADHESIVE
1	40-50 cN.m	Loctite Purple

* RB11776 (MAGAZINE COVER SPRING) and AA 31504 (TAPPED SCREW 3 x 6) come with RB81103 (MAGAZINE COVER).

Magazine Assy. (Continued)



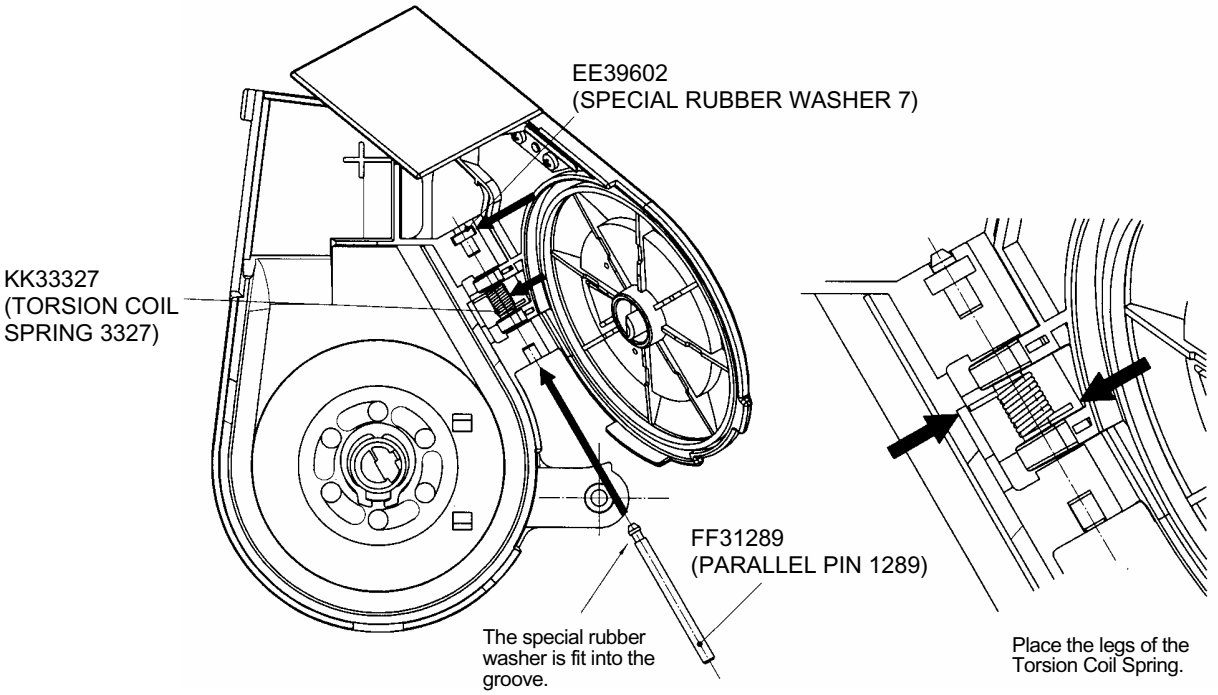


ASSEMBLY PROCEDURE

1. Put a Magazine Stopper through an Adjust Ring to fit it into a Magazine Cover.
   Assemble the Adjust Ring, directing its knurling to the Magazine Stopper side.
2. Put a Stopper Head through a Special Plain Washer 5.1 x 12 x 1.2 to fit it into the Magazine Stopper.
   Align the D-cut part of the Stopper Head with that of the Magazine Stopper.
   Assemble the Special Plain Washer 5.1 x 12 x 1.2, directing its punched surface to the Magazine Cover side as shown in the figure.
3. Assemble the Magazine Stopper and the Stopper Head with a Special Bind Screw 3 x 10.
   (Tightening torque: 80-100 cN.m)

	TORQUE	ADHESIVE
1	80-100 cN.m	Not required

Magazine Assy. (Continued)

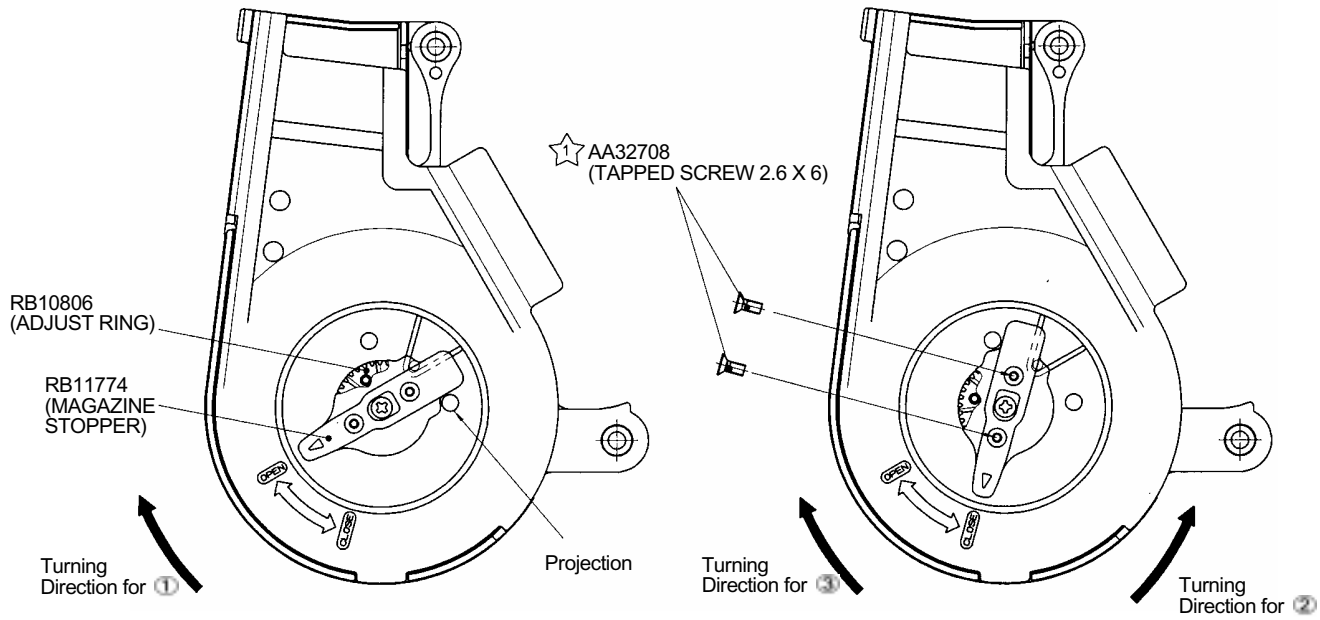


ASSEMBLY PROCEDURE

1. Set a Special Rubber Washer 7 in the position shown in the figure.
2. Align the hinge of the Magazine with that of the Magazine Cover.
3. Put a Torsion Coil Spring in between the hinges and place its legs on the Magazine and the Magazine Cover.
4. Put a Parallel Pin 1289 through the Magazine, Magazine Cover, and Torsion Coil Spring, and push it in until the Special Rubber Washer is fit into a groove.

Note) Confirm that the Magazine Cover is opened by a spring force

Magazine Assy. (Continued)



Adjust Ring Height Adjustment Process

Direction	1st Step (Loosest)	2nd Step	3rd Step	4th Step (Tightest)
Counterclockwise		→	○	
Clockwise		○ ←		

Only when hard to shift to the 3rd step

Adjust at the 3rd or 2nd step.
(Not at 1st or 4th step)

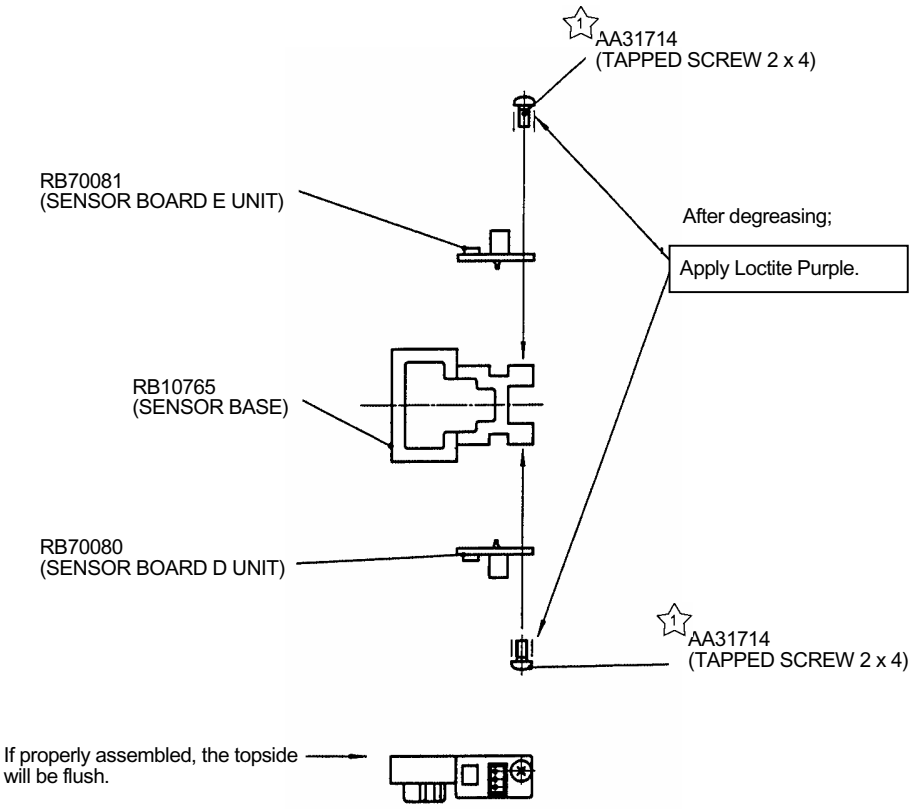
ASSEMBLY PROCEDURE

1. Turn the Magazine Stopper until it hits the projection of the Magazine Cover, followed by the Adjust Ring in the clockwise direction until it also comes to stop.①
2. Close the Magazine Cover Assy. Align the Magazine Stopper with “CLOSE” to prevent the Magazine Cover from being opened.
3. Holding the Magazine Stopper, turn the Adjust Ring in the clockwise direction until you feel a strike. (1st step, the slackest position)
4. Make the Magazine Stopper float by its backlash and turn it in the counterclockwise direction with a finger tip to stop it at the 3rd step.②
   (Shift from the 1st to the 2nd and 3rd step, while confirming.)
5. Only when it is not easy to turn the Adjust Ring in shifting to the 3rd stage, return it in the clockwise direction, holding the Magazine Stopper, and stop it where the 1st tapped screw is aligned (2nd step).③
6. Tighten tapped screws 2.6 x 6. (Tightening torque: 15-20 cN.m)

Note) Control torque after confirming that the screws have been fully seated.

	TORQUE	ADHESIVE
☆1	15-20 cN.m	Not required

Sensor Base Assy.



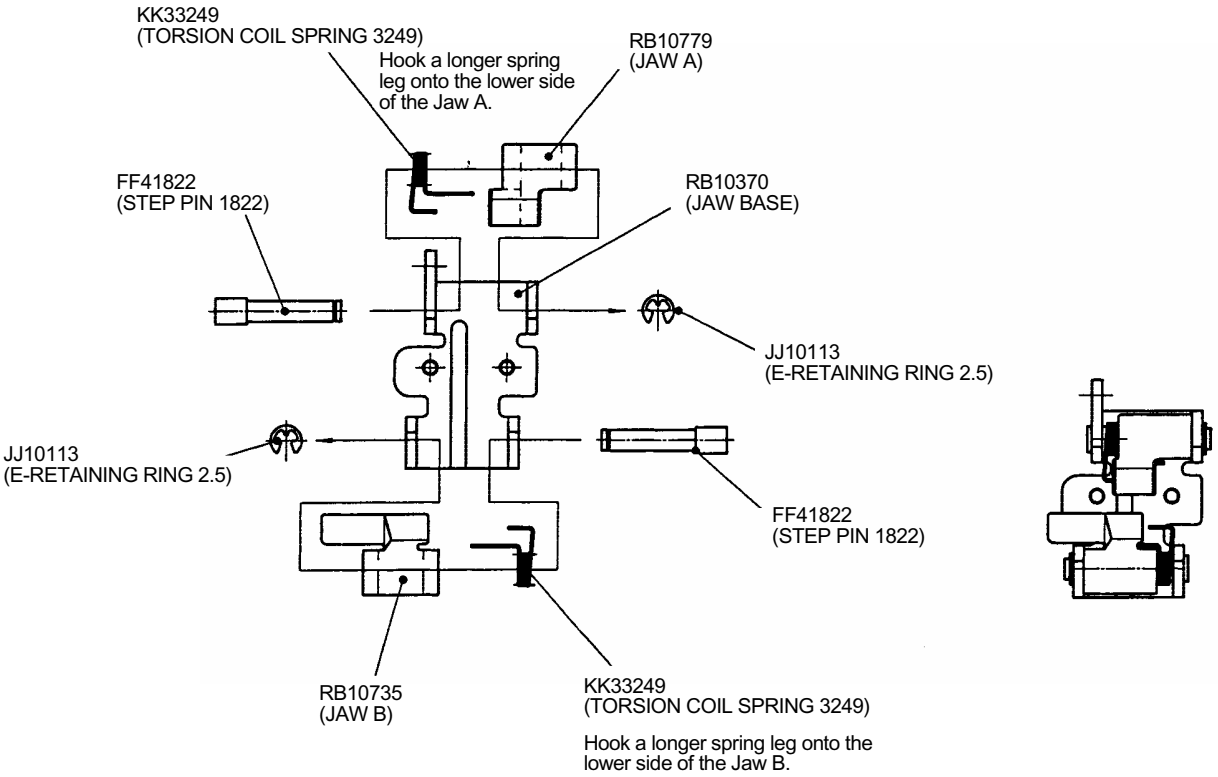
ASSEMBLY PROCEDURE

1. Apply Loctite Purple to a degreased Tapped Screw 2 x 4 to secure a Sensor Board D Unit to a Sensor Base.
2. Similarly, secure a Sensor Board E unit to the Sensor Base.
   (Tightening torque: 10-20 cN.m)

Note) Be careful not to assemble the Sensor Boards the other way around.
Torque should be controlled after confirming that a Screw Head has seated on the board.

	TORQUE	ADHESIVE
1	10-20 cN.m	Loctite Purple

Jaw Base Assy.

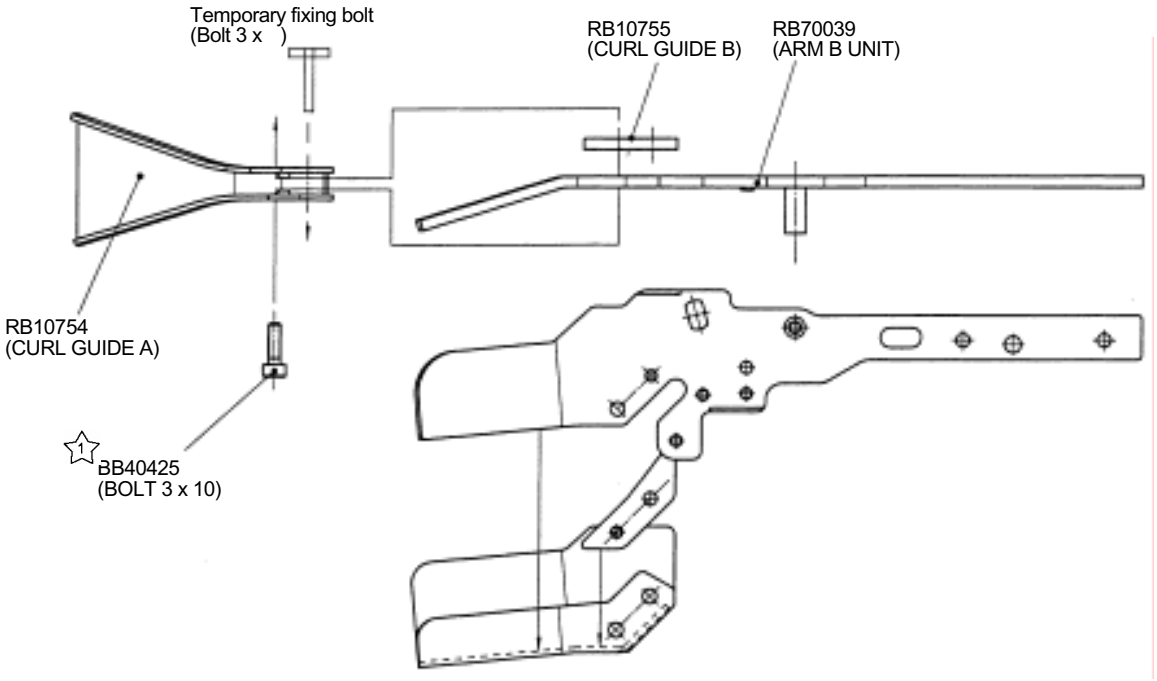


ASSEMBLY PROCEDURE

1. Place a Jaw A and a Torsion Coil Spring 3249 on a Jaw Base, put a Step Pin 1822 through it and fix with an E-Retaining Ring 2.5.
2. Assemble similarly on the Jaw B side.

Note) Pay attention to the Jaw A and B mounting positions.
Check the movements of the Jaws A and B.
Make sure that the E-Retaining Ring 2.5 has been firmly fit into a groove.

Arm B Assy.



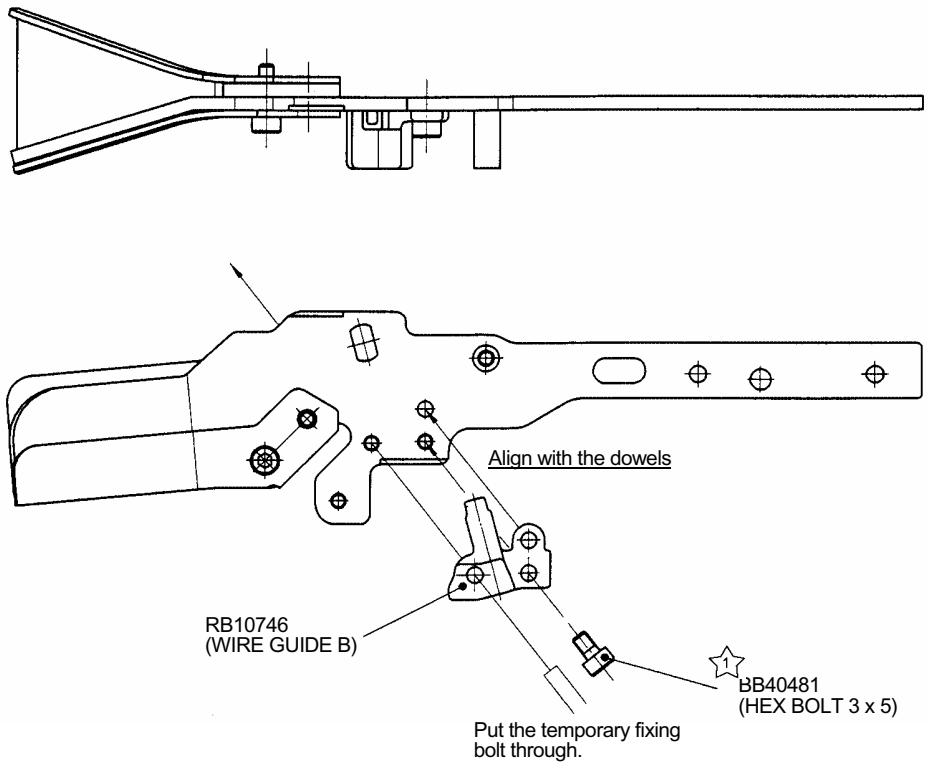
ASSEMBLY PROCEDURE

1. Place a Curl Guide B and an Arm B on a Curl Guide A to align their holes.
2. Fix a Temporary Fixing Bolt into a hole shown in the figure to position.
3. Tighten with a Bolt 3 x 10. (Tightening torque: 150-200 cN.m)
4. Remove the Temporary Fixing Bolt.

Note) Pay attention to the direction of the Curl Guide B.

	TORQUE	ADHESIVE
☆1	150-200 cN.m	Not required

Arm B Assy. (Continued)

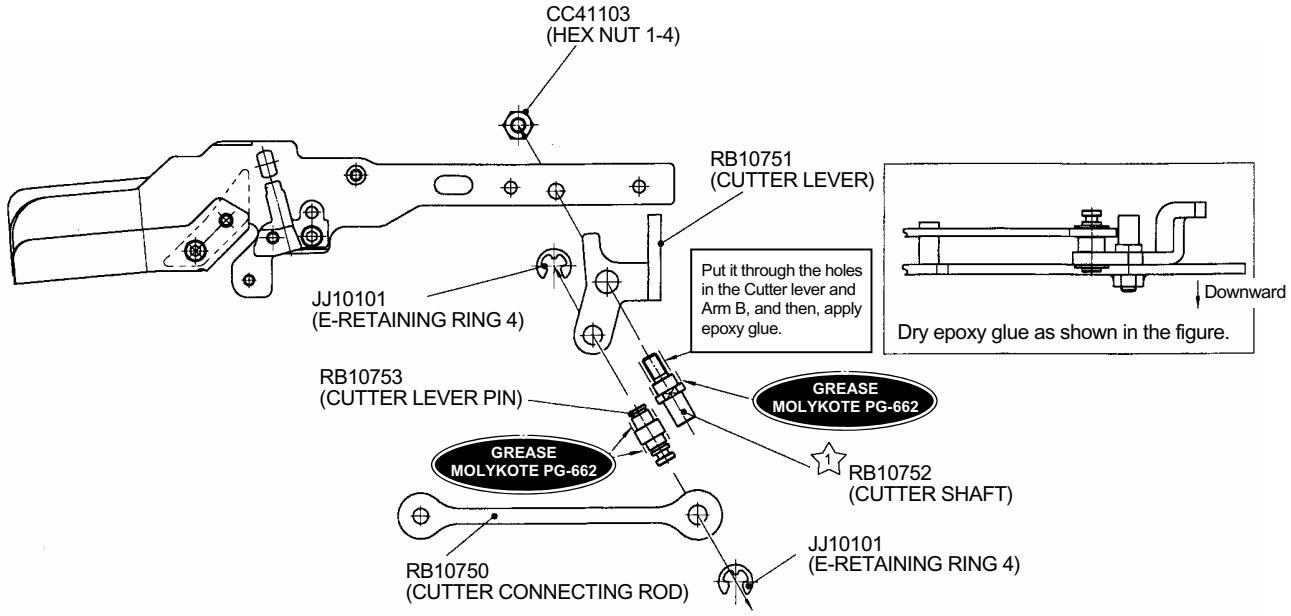


ASSEMBLY PROCEDURE

1. Align the dowels of an Arm B Unit with the holes in a Wire Guide B.
2. Put a Temporary Fixing Bolt through the Wire Guide B and tighten with a Hex. bolt 3 x 5.
   (Tightening torque: 200-220 cN.m)
3. Remove the Temporary Fixing Bolt.

	TORQUE	ADHESIVE
☆1	200-220 cN.m	Not required

Arm B Assy. (Continued)



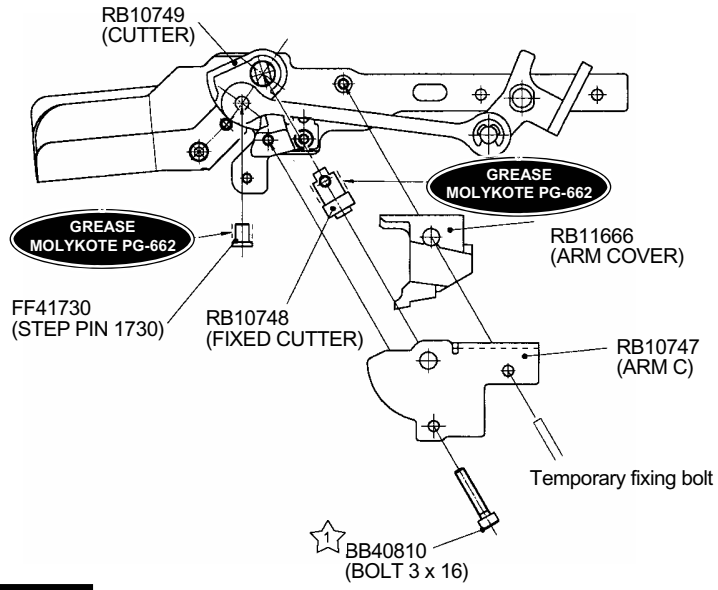
ASSEMBLY PROCEDURE

1. Apply Molykote PG-662 Grease to a Cutter Lever Pin.
2. Put the Cutter Lever Pin through a smaller hole in a Cutter Lever and secure with an E-Retaining Ring 4.
3. Put the other end of the Cutter Lever Pin through a Cutter Connecting Rod and secure with an E-Retaining Ring 4.
4. Degrease a Cutter Shaft and apply Molykote PG-662 Grease only to the slideway with a Cutter Lever.
5. Put the Cutter Shaft through the Cutter Lever and an Arm B Unit.
6. Apply epoxy glue only to the threaded part of the Cutter Shaft and tighten a Hex. nut 1-4. (Tightening torque: 200-250 cN.m)
7. Place the nut facing downward to dry Epoxy glue.

Note) Make sure that the E-Retaining Ring is firmly fit into a groove in the Cutter Lever Pin.
Ensure that the threaded part of the Cutter Shaft is free of Molykote PG-662 Grease.
Ensure that the Cutter lever is free of Epoxy glue when adhering and drying it.

	TORQUE	ADHESIVE
☆1	200-250 cN.m	Epoxy glue

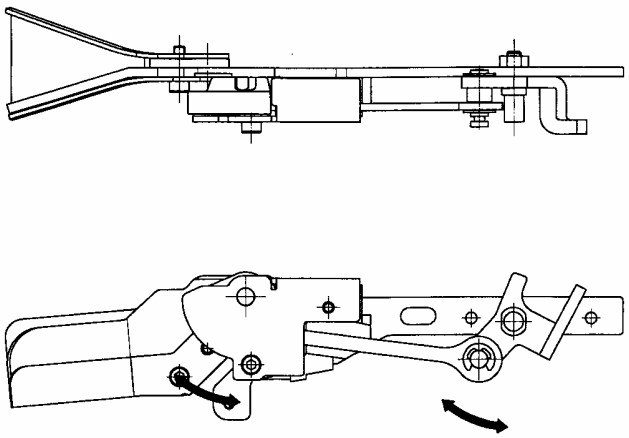
Arm B Assy. (Continued)



ASSEMBLY PROCEDURE

1. Apply Molykote PG-662 Grease to the perimeter of a Fixed Cutter.
2. Put the Fixed Cutter through a hole in a Cutter and align it with a hole in an Arm B to assemble.
3. Apply Molykote PG-662 Grease to a Step Pin 1730.
4. Align a hole in the Cutter with the one in a Cutter Connecting Rod to insert the Step Pin 1730.
5. Put an Arm C over the fixed Cutter, put a Temporary Fixing Bolt through it, and then, tighten with a Bolt 3 x 16. (Tightening torque: 180-220 cN.m)
6. Remove the Temporary Fixing Bolt.

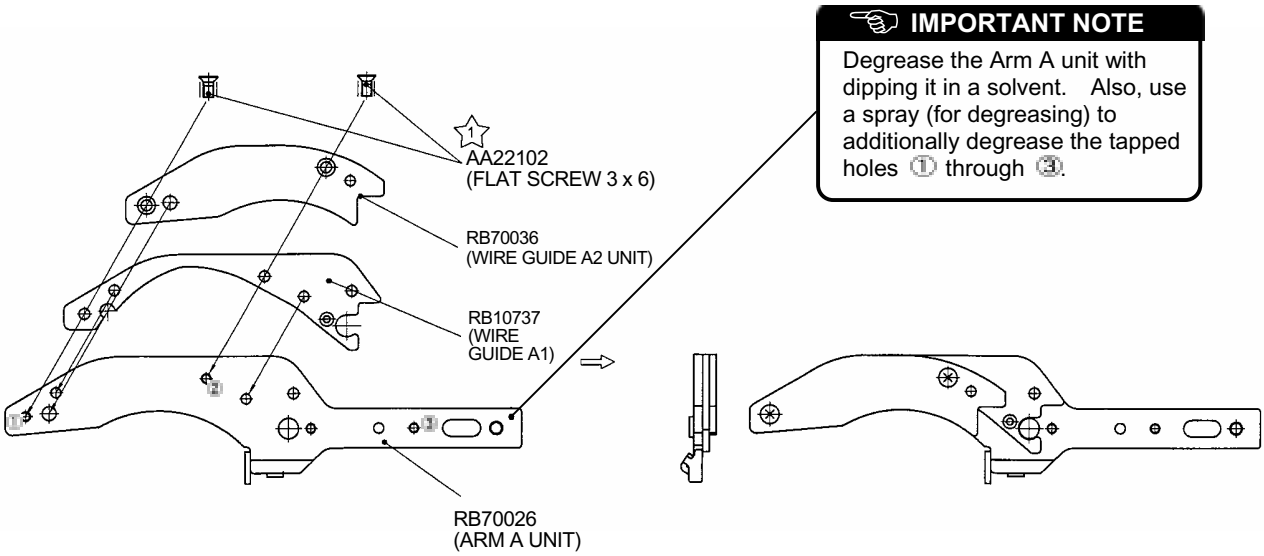
	TORQUE	ADHESIVE
☆1	180-220 cN.m	Not required



CHECK PROCEDURE

1. Make sure that the Cutter Lever is free of epoxy glue.
2. Move the Cutter Lever in the arrow direction to make sure that the Cutter Lever and Cutter are smoothly interlocked with each other.
3. Make sure that the E-Retaining Ring has been firmly fit into the groove in the Cutter Lever Pin.

Arm A Assy.



ASSEMBLY PROCEDURE

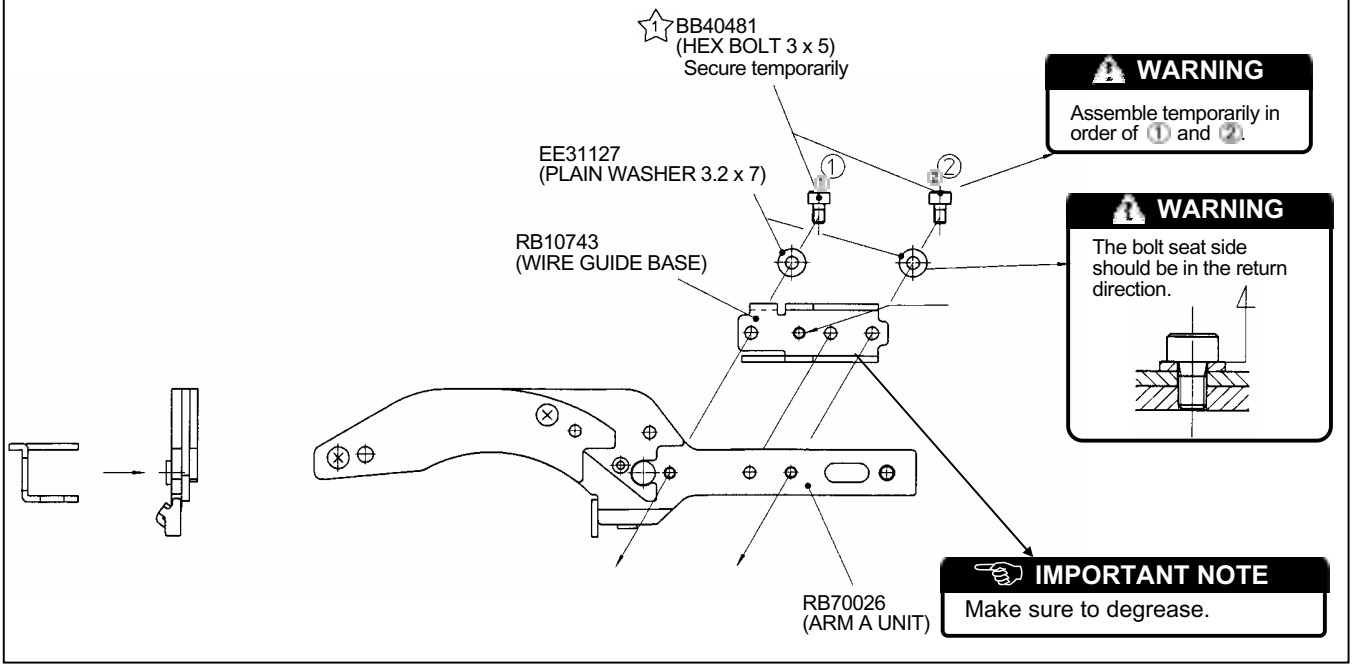
1. Degrease the Arm A Unit and the Flat Screws 3 x 6.
2. Align a Wire Guide A1 and a Wire Guide A2 unit with an Arm A unit, and tighten with the Loctite applied Flat Screws 3 x 6. (Tightening torque: 80-100 cN.m).

Note) Wipe off overflowing adhesive agent.

	TORQUE	ADHESIVE
☆1	80-100 cN.m	Loctite Blue

Magazine Assy. (Continued)

IMPORTANT

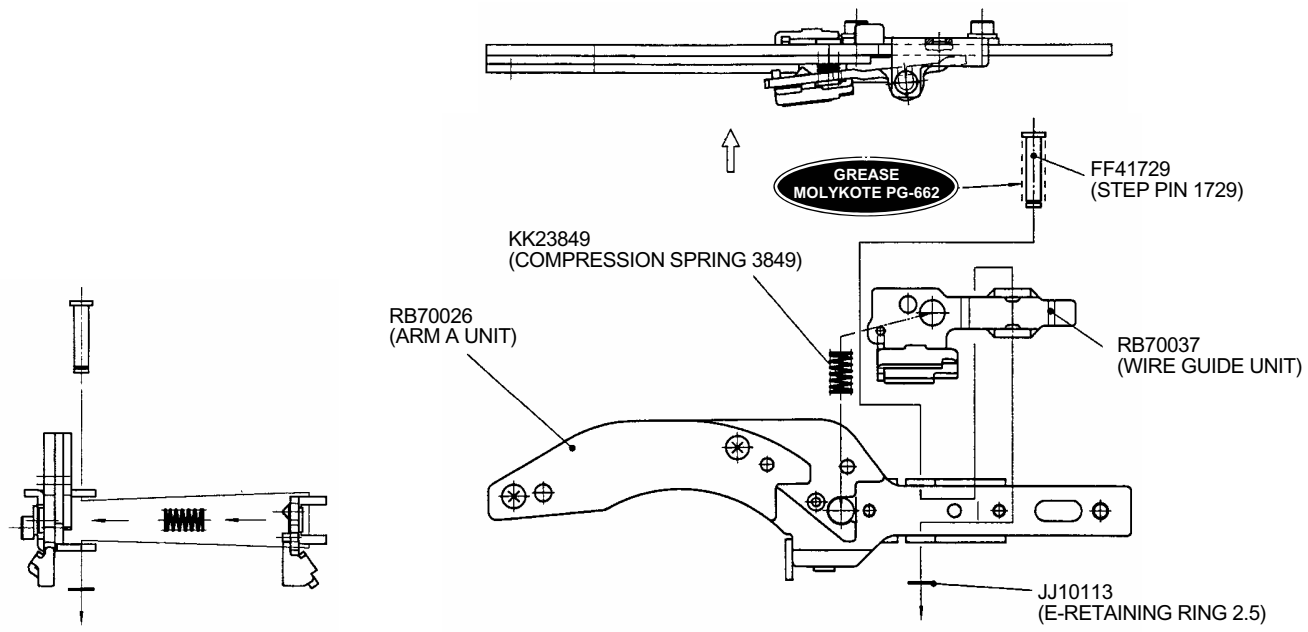


ASSEMBLY PROCEDURE

1. Align the dowels of a Wire Guide Base with the holes in an Arm A Unit to assemble temporarily.
2. Put a Hex. bolt 3 x 5 through a Plain Washer 3.2 x 7 and secure it to the Wire Guide Base temporarily. (Tightening torque: Approx. 10 cN.m)

	TORQUE	ADHESIVE
1	Approx. 10 cN.m (Temporal tightening)	Not required

Arm A Assy. (Continued)



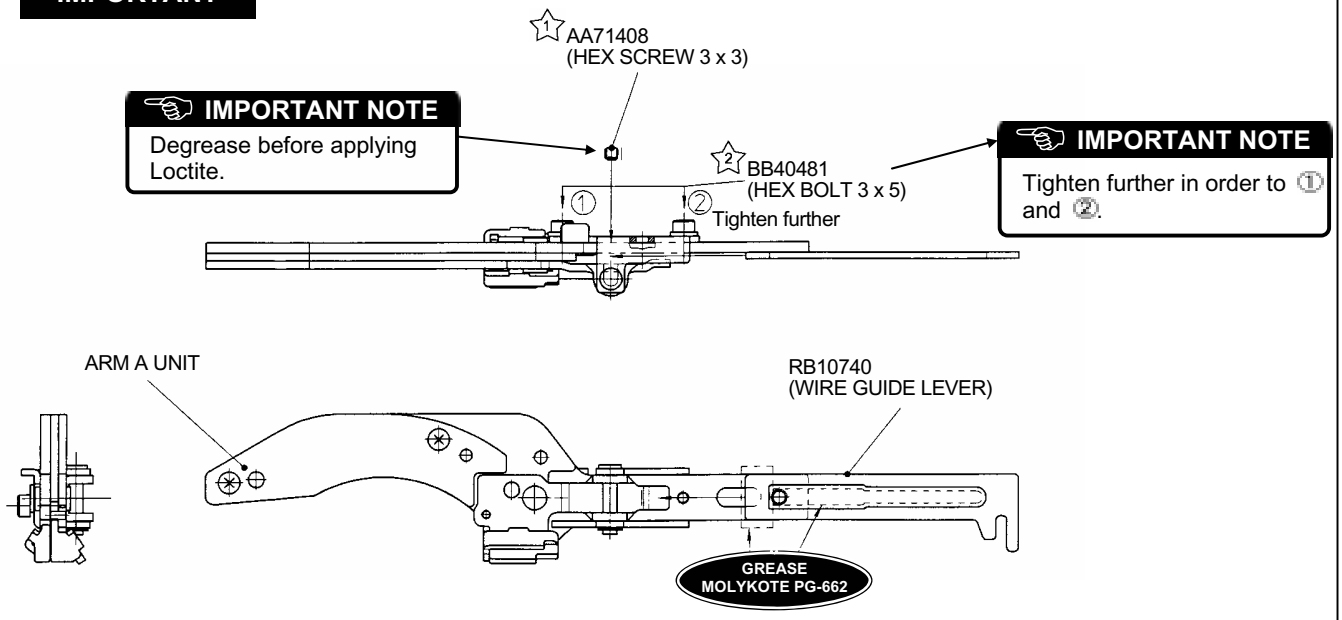
ASSEMBLY PROCEDURE

1. Place a Compression Spring 3849 on an Arm A unit and retain it with a Wire Guide Unit.
2. Align a hole in a Wire Guide Base with the one in the Wire Guide Unit.
3. Apply Molykote PG-662 Grease to a Step Pin 1729, put it through the holes in the Wire Guide Base and Wire Guide Unit, and secure it with an E-Retaining Ring 2.5.

Note) Make sure that both ends of the Compression Spring are in the dowel holes in the Arm A Unit and Wire Guide Unit, respectively.

Arm A Assy (Continued)

IMPORTANT



ASSEMBLY PROCEDURE

1. Apply Molykote PG-662 Grease to a Wire Guide Lever.
2. Put the Wire Guide Lever in between an Arm A Unit and a Wire Guide.
3. After degreasing a Hex. Screw 3 x 3, apply Loctite Blue to it to tighten to a Wire Guide Base.
   (Tightening torque: 20-30 cN.m)
4. Tighten further a Hex. bolt 3 x 5 temporarily secured to the Wire Guide Base.
   (Tightening torque: 150-200 cN.m)

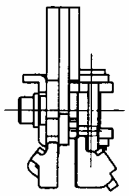
Note) Wipe off overflowing adhesive agent.

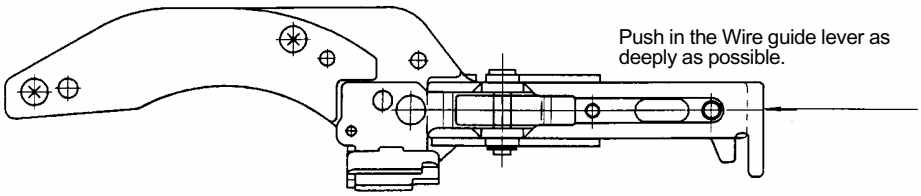
	TORQUE	ADHESIVE
☆1	20-30 cN.m	Loctite Blue
☆2	150-200 cN.m	Not required

Arm A Assy. (Continued)

IMPORTANT

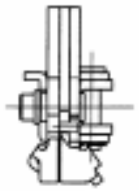
<Open position>

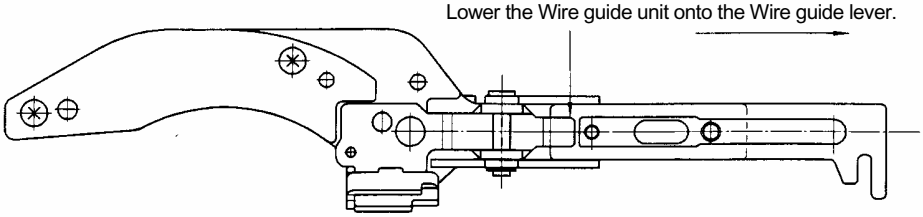




Make sure that the Wire guide is opened by about 0.14".

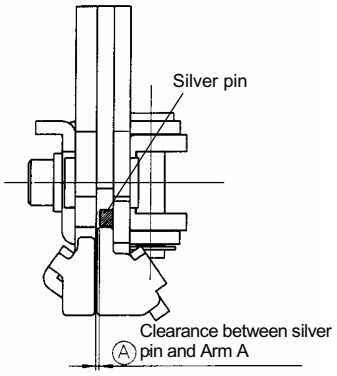
<Closed position>





IMPORTANT NOTE

At the closed position, the clearance between silver pin and Arm A must be less than 0.8mm. Use TW897 wire (ϕ0.8mm) and confirm that the wire does not pass through the clearance. (NOTE : TW1525 wire can not be used for this check)

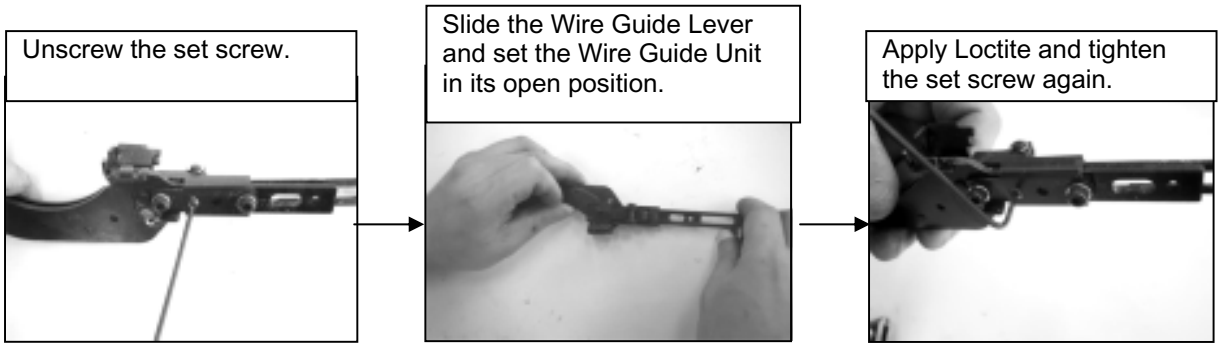


ASSEMBLY PROCEDURE

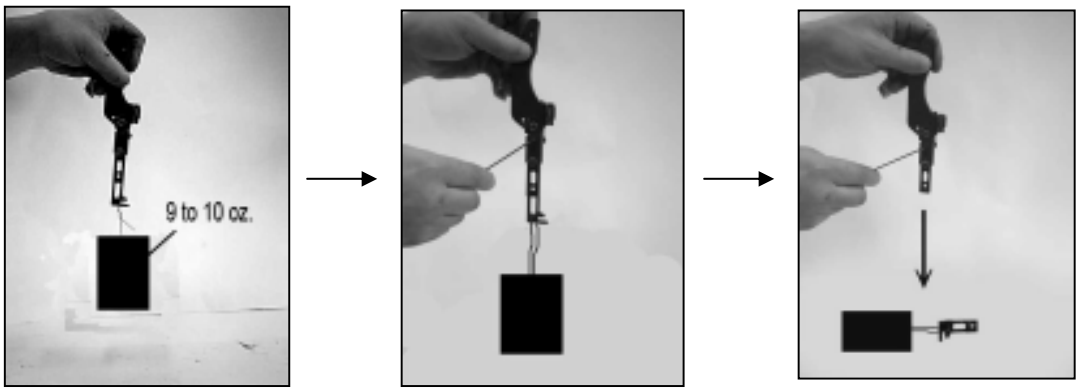
1. Make sure that a Wire Guide Lever can be manually slided smoothly.
2. Make sure that when the Wire Guide Lever is pushed in deeply, a Wire Guide is opened by about 0.14" at its nose.
3. Lower the Wire Guide lever to the rear end of the Wire Guide Unit to close the Wire Guide Unit.
4. Check the clearance between silver pin and Arm A. If it is more than 0.8mm which is diameter of TW897 wire, an adjustment is required (see next page).

ADJUSTMENT OF WIRE GUIDE UNIT

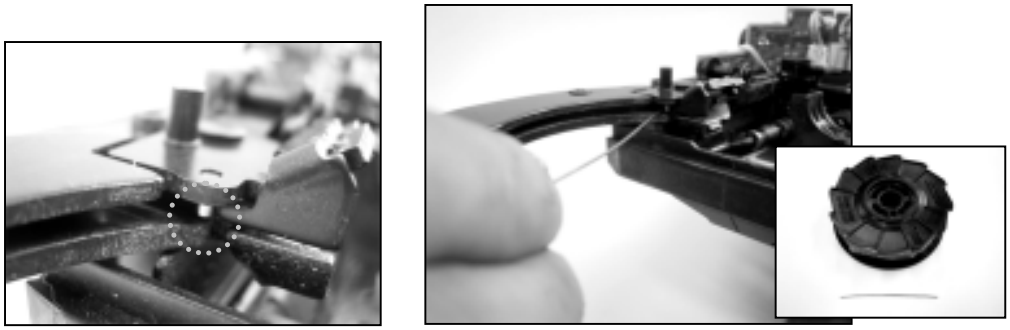
STEP 1 Unscrew the set screw 3x3 (AA71408), then slide the Wire Guide Lever and set the Wire Guide Unit in its open position. Put Loctite Blue on the set screw 3x3 and tighten it again.



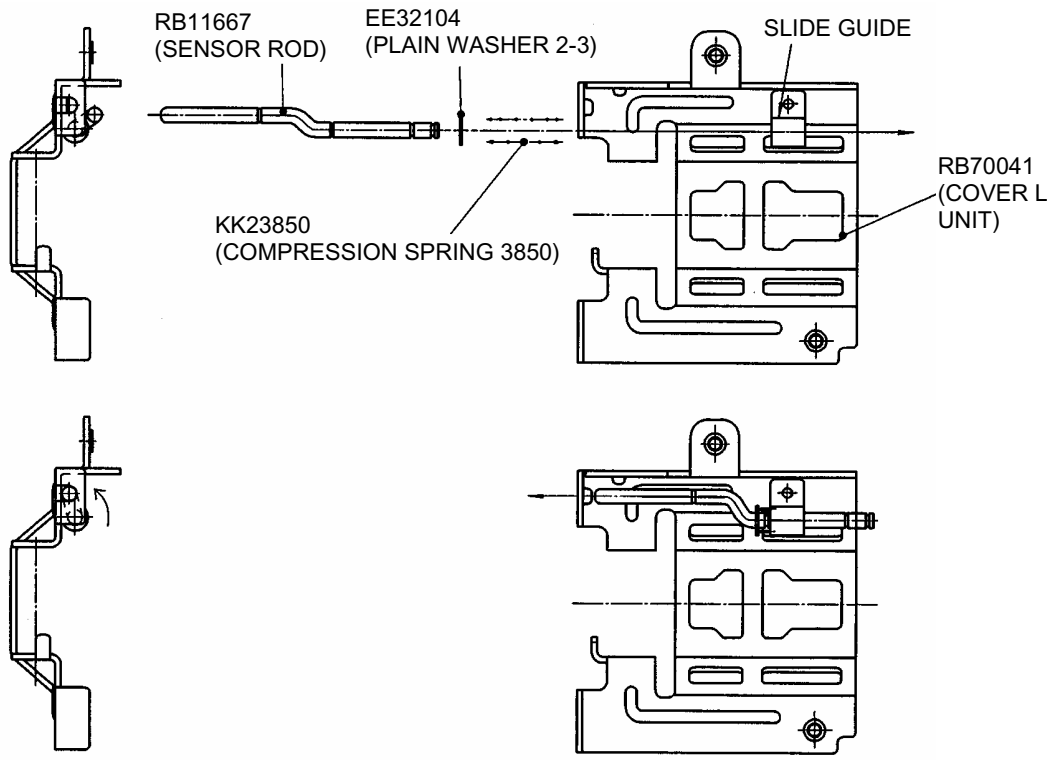
STEP 2 Connect an object which weighs **9 to 10 oz** (Ex. Twisting Motor) to Wire Guide Lever with tie wire and lift the Arm. Then unscrew the set screw 3x3 (AA71408) slowly until the Twister Assy falls. **Be sure to stop unscrewing when the Twister Assy falls.**



STEP 3 Assemble the Wire Guide Lever and confirm that the Lever moves smoothly.
Also make the Wire guide unit in its closed position and confirm that the gap between silver pin of Wire Guide Unit and Arm A is less than 0.8mm which is diameter of TW897 wire.
(If the TW897 wire does not pass through the clearance, it means the adjustment is correctly done.)



Cover L Assy.

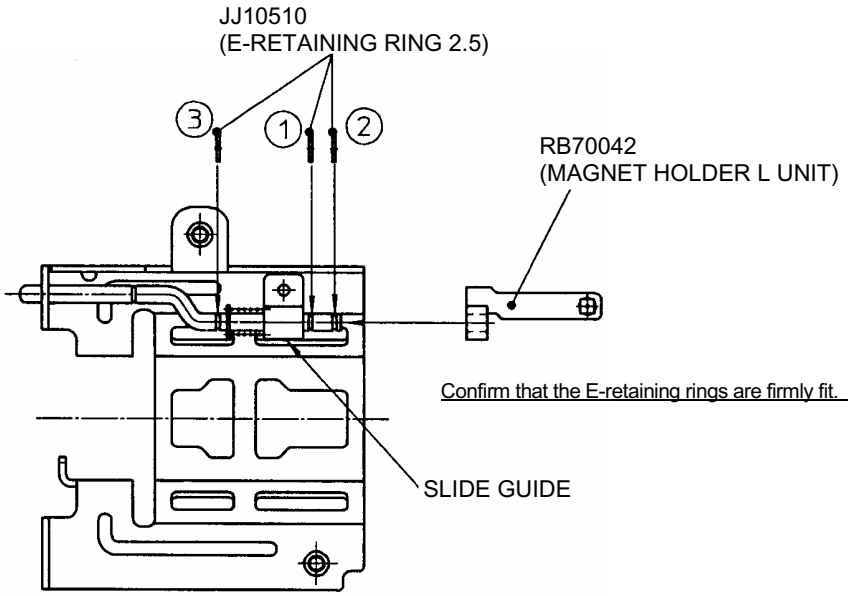


ASSEMBLY PROCEDURE

1. Put the slotted end of the Sensor Rod through the Plain Washer, Compression Spring and Slide Guide in that order.
2. Put the unslotted end of the Sensor Rod through the upper hole in the Cover L Unit.

Note) Watch out for the Sensor Rod direction.

Cover L Assy. (Continued)

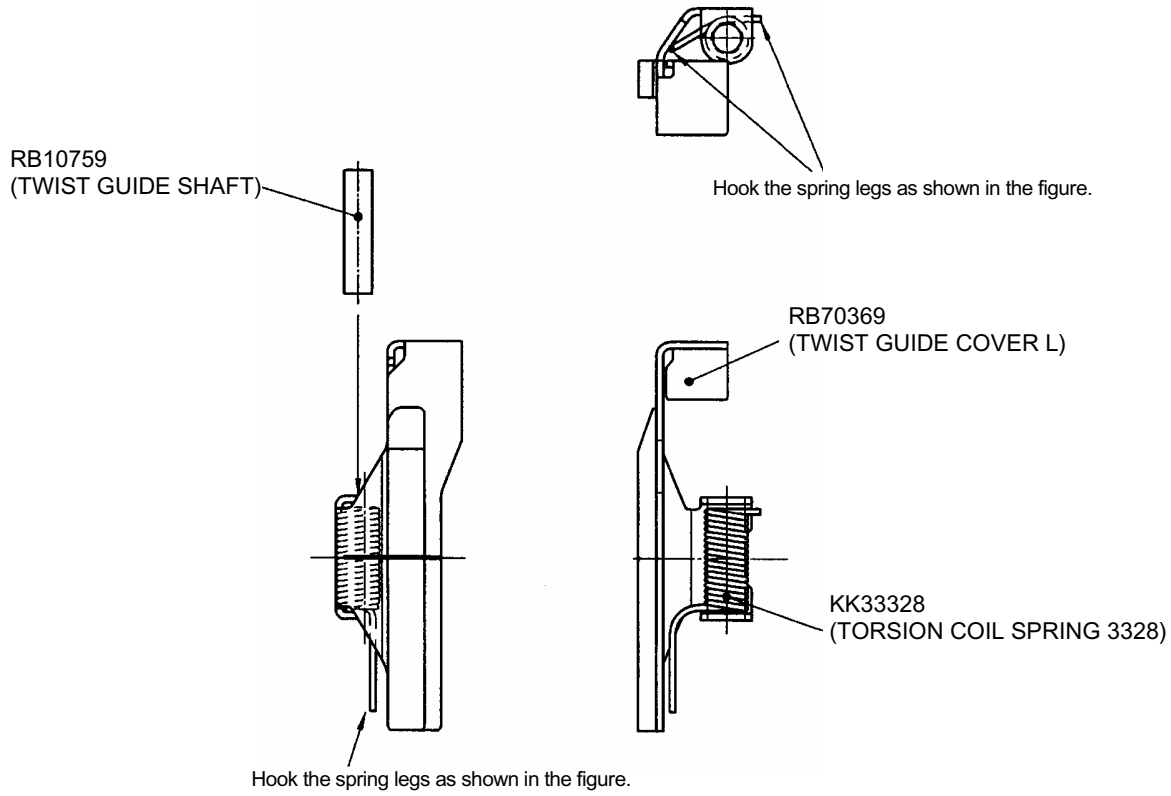


ASSEMBLY PROCEDURE

1. Position the Sensor Rod so that its two slots will be projected from the Slide Guide, and set the E-Retaining Ring ①.
2. Put the slotted end of the Sensor Rod into the Magnet Holder L Unit, in the direction shown in the figure.
3. Set the E-Retaining Ring ②.
4. Push the Compression Spring in between the Slide Guide and the remaining slots of the Sensor Rod via the Plain Washer and set the E-Retaining Ring ③.

Note) Confirm that the Magnet Holder L Unit is marked with "L".
Confirm that the E-Retaining Rings are firmly fit into the slots in the Sensor Rod.
Confirm that the Sensor Rod and the Magnet Holder L Unit are activated interlockingly by a spring force.

Cover L Assy. (Continued)

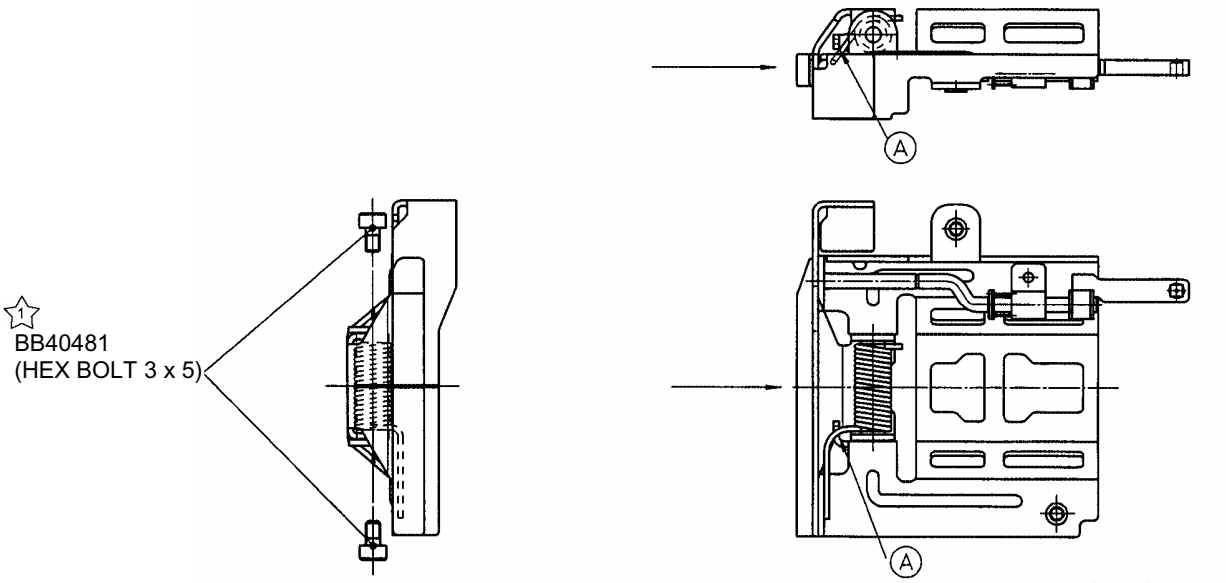


ASSEMBLY PROCEDURE

1. Assemble the Torsion Coil Spring 3328 to the Twist Guide Cover L as shown in the figure, and hook the Torsion Coil Spring legs onto the Twist Guide Cover L.
2. Put the Twist Guide Shaft into the Twist Guide Cover L and Torsion Coil Spring 3328.

Note) Do not confuse the Torsion Coil Springs 3328 and 3330 with each other.

Cover L Assy. (Continued)



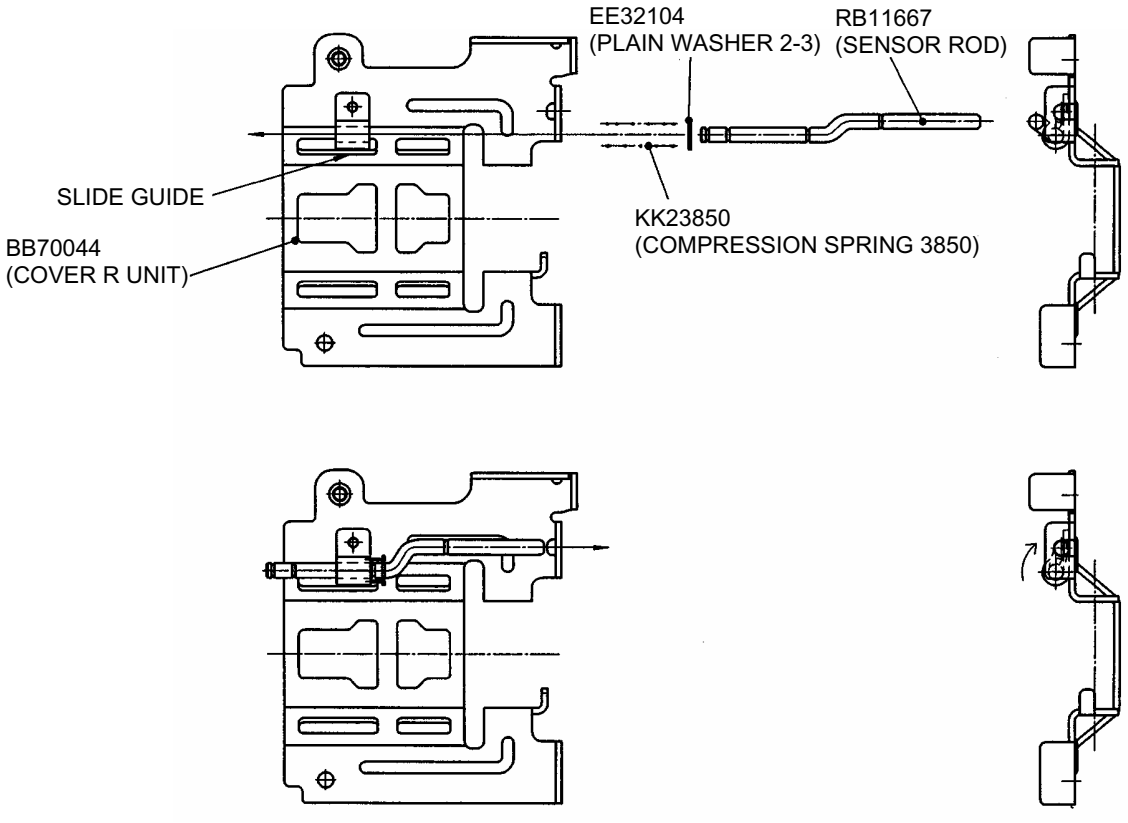
Hook the longer spring leg onto the Arm Cover as shown in the figure (position A).

ASSEMBLY PROCEDURE

1. Put the Twist Guide L Assy. into the front end of the Cover L Unit and hook the longer spring leg onto the Cover L. (Position Ⓐ)
2. Tighten the hex. bolts 3 x 5(2 pcs.).(Tightening torque: 150-200 cN.m)
3. Confirm that opening/closing the cover moves the Magnet Holder L Unit back and forth.

	TORQUE	ADHESIVE
☆1	150-200 cN.m	Not required

Cover R Assy.

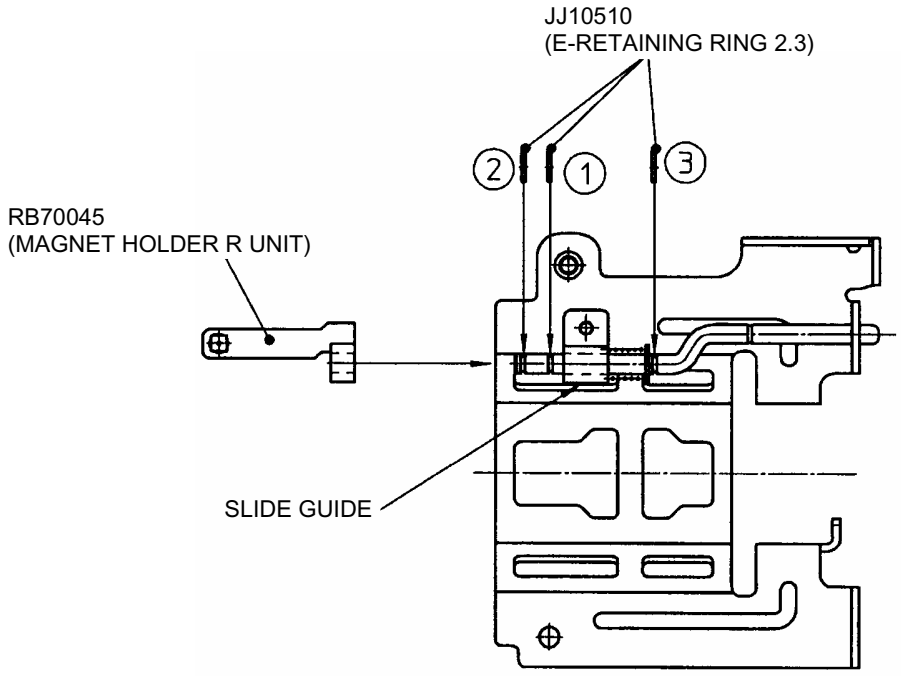


ASSEMBLY PROCEDURE

1. Put the slotted end of the Sensor Rod through the Compression Spring 3850 and Slide Guide in that order.
2. Put the unslotted end of the Sensor Rod through the upper hole in the Cover R Unit.

Note) Watch out for the Sensor Rod direction.

Cover R Assy. (Continued)

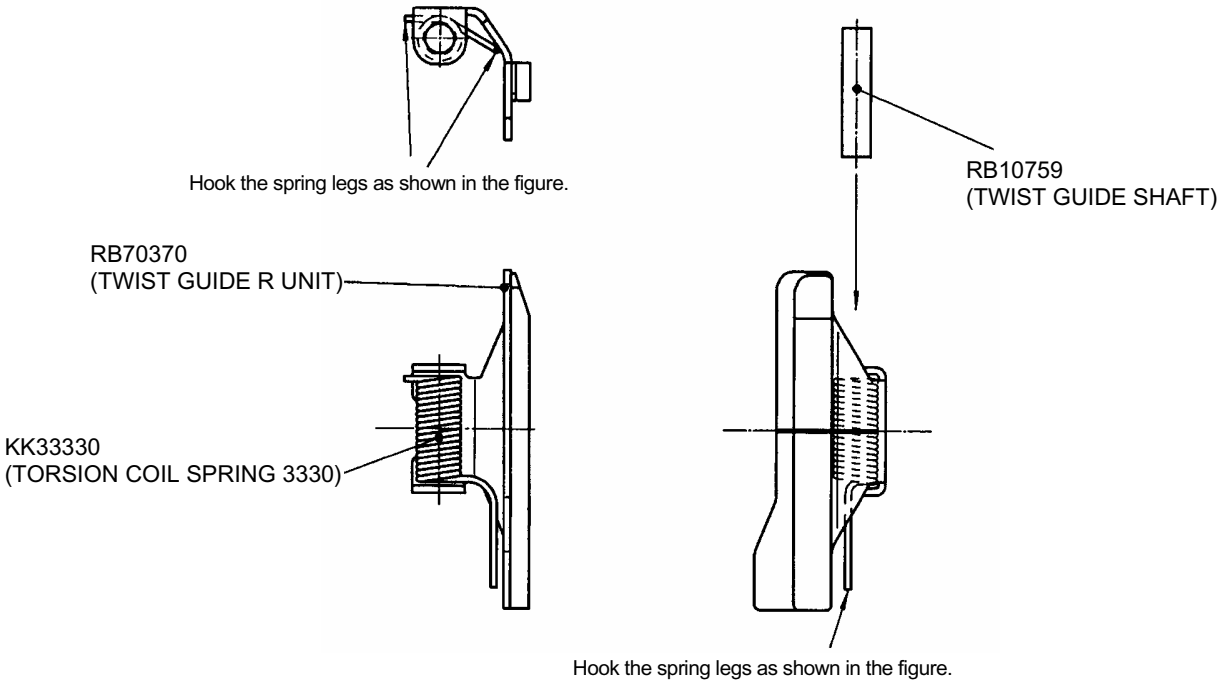


ASSEMBLY PROCEDURE

1. Position the Sensor Rod so that its two slots will be projected from the Slide Guide, and set the E-Retaining Ring ①.
2. Put the slotted end of the Sensor Rod into the Magnet Holder R unit, in the direction shown in the figure.
3. Set the E-Retaining Ring ②.
4. Push the Plain Washer and Compression Spring in between the Slide Guide and the remaining slots of the Sensor Rod and set the E-Retaining Ring ③.

Note) Confirm that the Magnet Holder R Unit is marked with "R".
Confirm that the E-Retaining Rings are firmly fit into the slots in the Sensor Rod.
Confirm that the Sensor Rod and the Magnet Holder R Unit are activated interlockingly by a spring force.

Cover R Assy. (Continued)

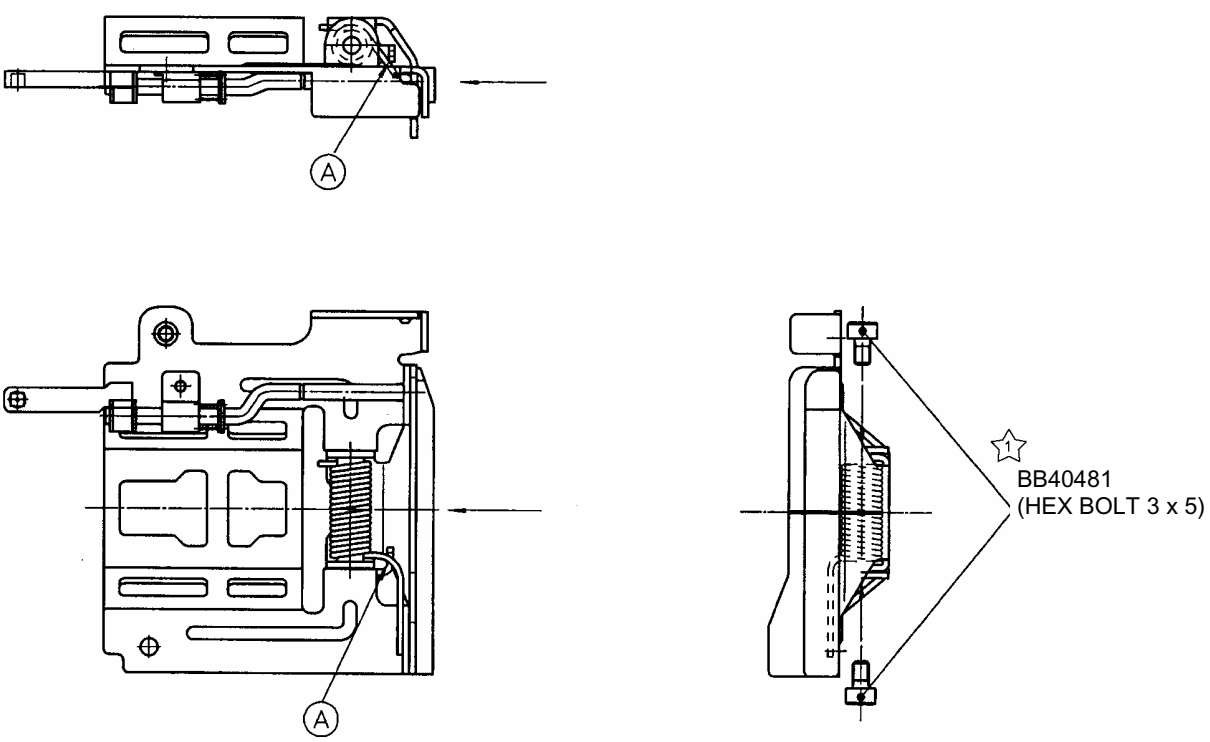


ASSEMBLY PROCEDURE

1. Assemble the Torsion Coil Spring 3330 to the Twist Guide R as shown in the figure and hook the Torsion Coil Spring legs onto the Twist Guide.
2. Put the Twist Guide Shaft through the Twist Guide and Torsion Coil Spring 3330.

Note) Do not confuse the Torsion Coil Springs 3330 and 3328 with each other.

Cover R Assy. (Continued)



Hook the longer spring leg onto the cover as shown in the figure.

ASSEMBLY PROCEDURE

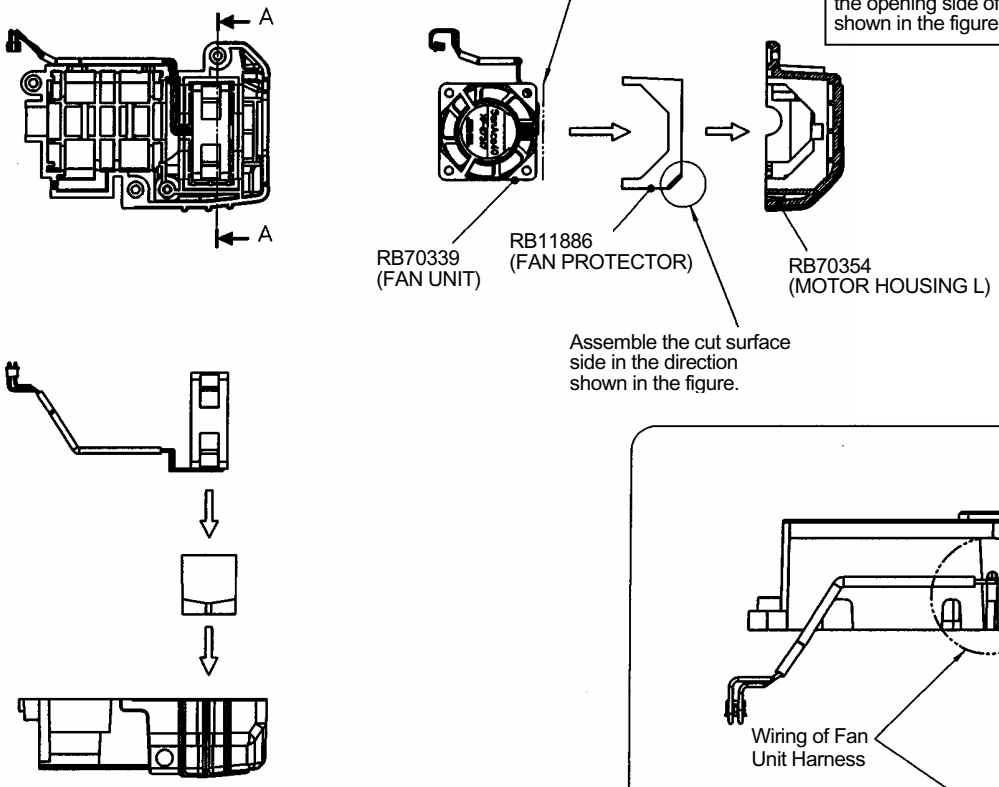
1. Put the Twist Guide R Assy. into the front end of the Cover R Unit and hook the longer spring leg onto the Cover R. (Position Ⓐ)
2. Tighten the hex. bolts 3 x 5(2 pcs.).(Tightening torque: 150-200 cN.m)
3. Confirm that opening/closing the Cover moves the Magnet Holder R Unit back and forth.

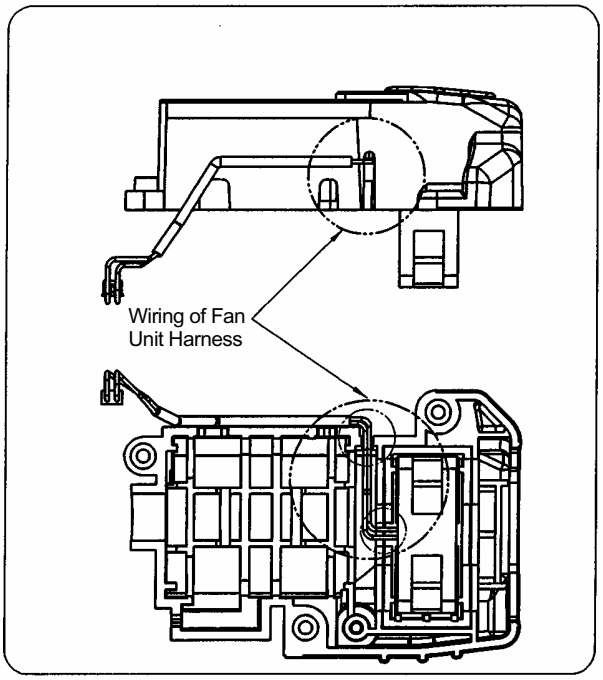
	TORQUE	ADHESIVE
☆1	150-200 cN.m	Not required

Twisting Motor Assy.

Assemble into a Motor Housing L from the arrow (indicating the air blow direction)marked side of a Fan Unit.

Ensure that the name label (air blow direction indicating arrow) of the Fan Unit is directed to the opening side of the Motor Housing as shown in the figure.



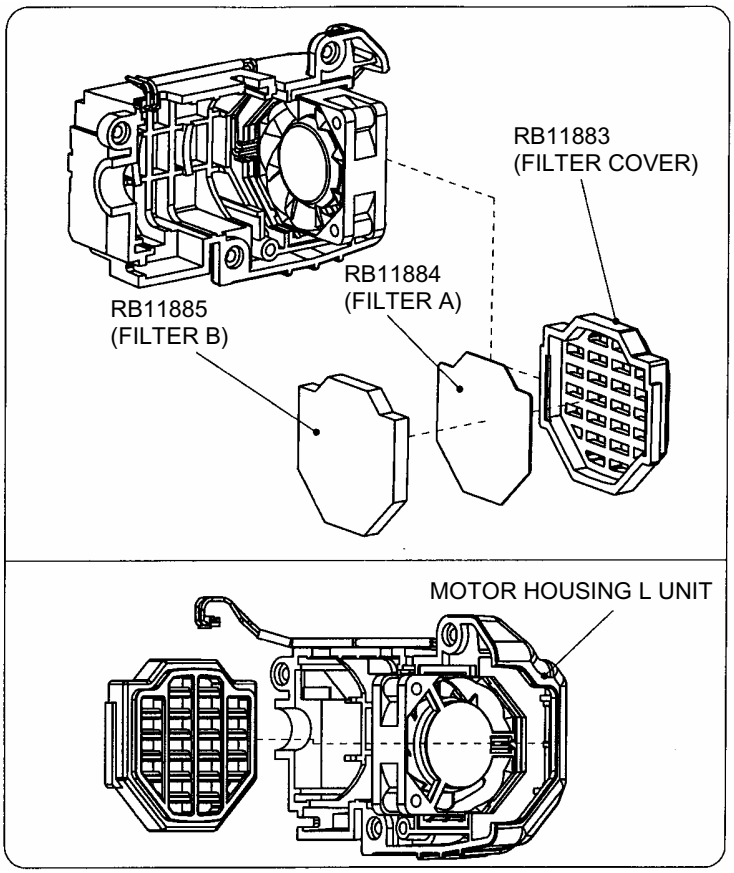


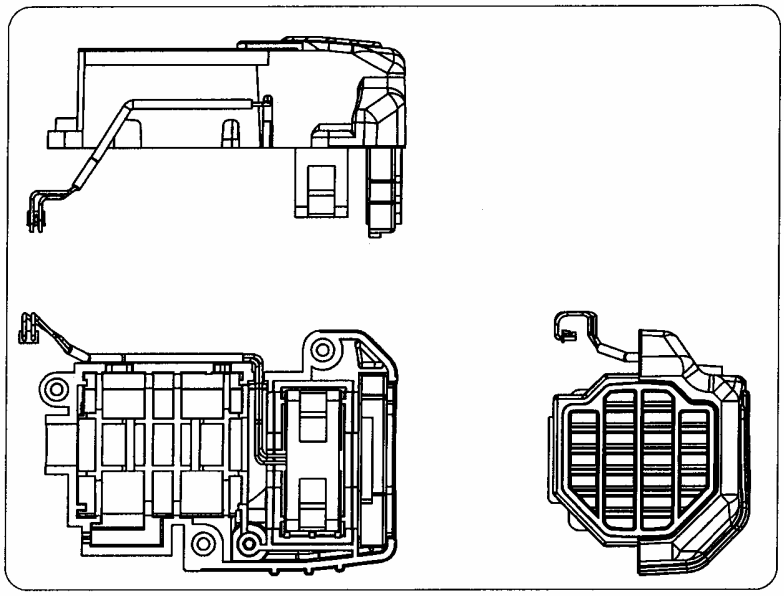
ASSEMBLY PROCEDURE

1. Assemble a Fan Protector into a Motor Housing in the direction shown in the figure.
   Note that it has directionality.
2. Assemble a Fan Unit into the Fan Protector from the arrow (indicating the air blow direction) marked side.

   Ensure that the name label (air blow direction indicating arrow) of the Fan Unit is directed to the opening side of the Motor Housing as shown in the figure.
3. Wire the Fan Unit harness.

Twisting Motor Assy. (Continued)

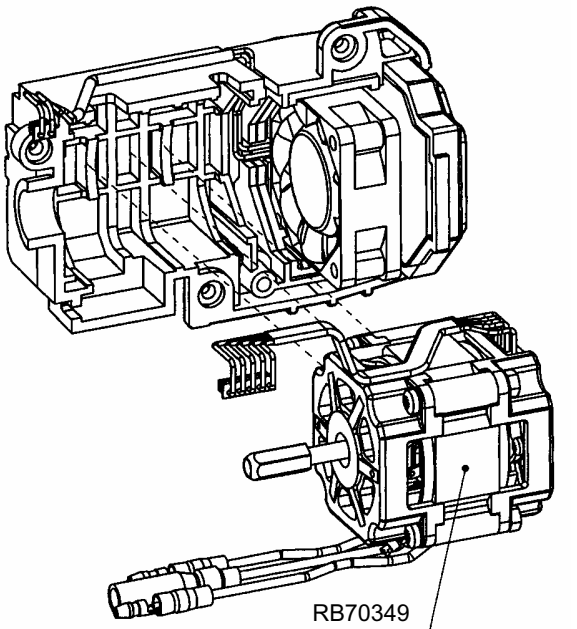


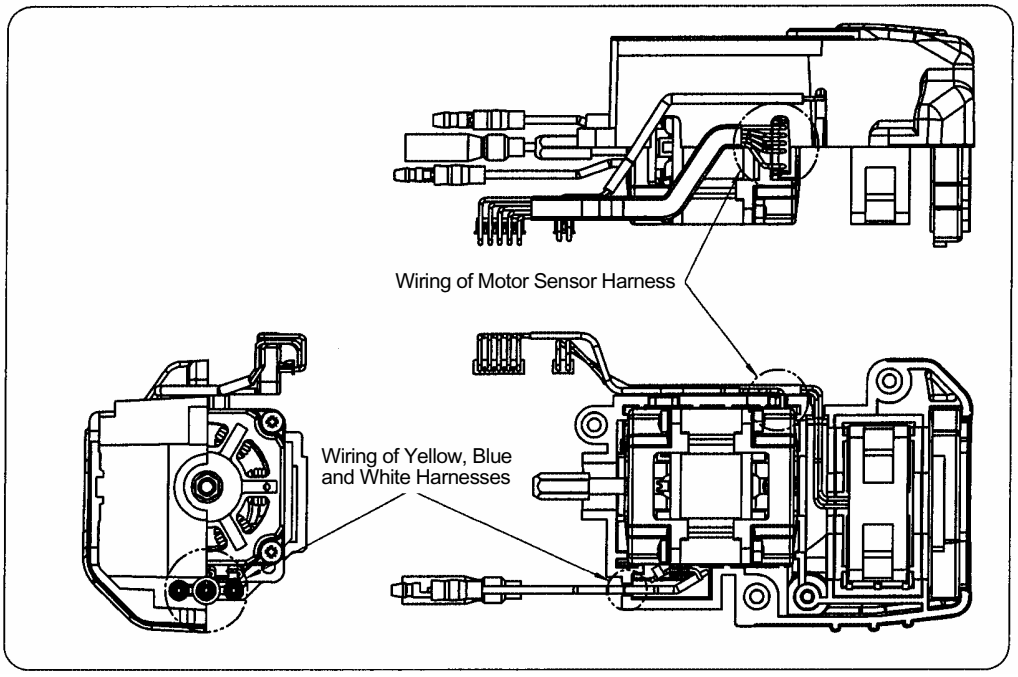


ASSEMBLY PROCEDURE

1. Fit a Filter A and a Filter B into a Filter Cover in that order.
2. Fit the assembly made in Step 1 into the Motor Housing L as shown in the figure.

Twisting Motor Assy. (Continued)

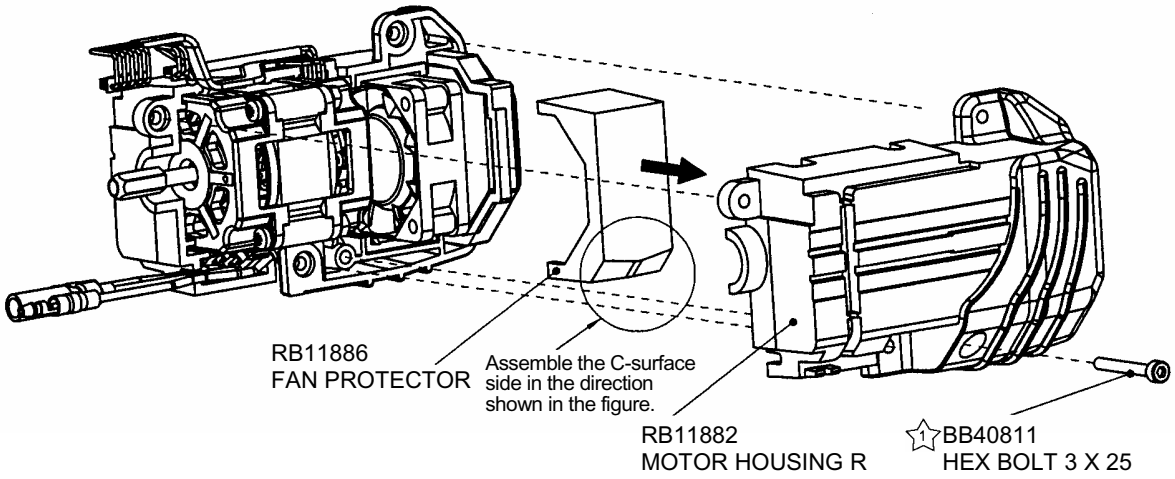


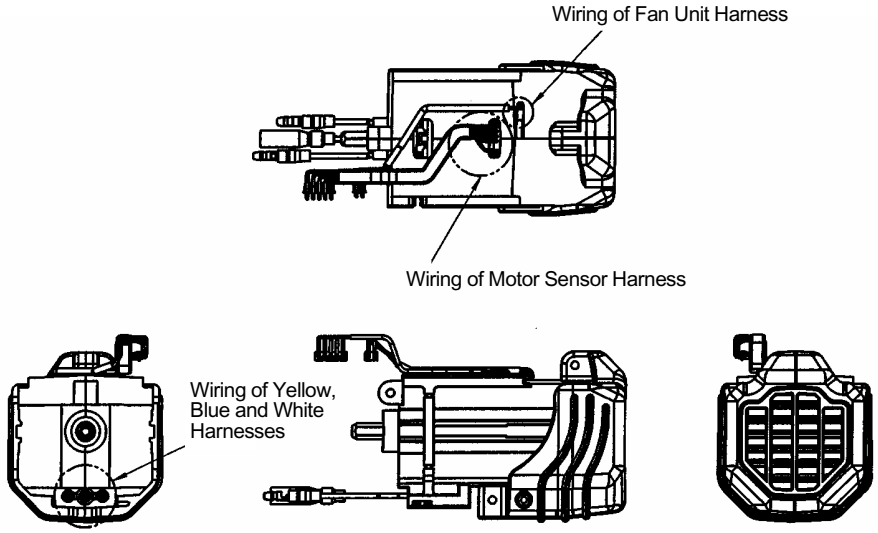


ASSEMBLY PROCEDURE

1. Assemble a Twisting Motor TD5046 Unit to the motor housing L as shown in the figure.
2. Wire a Motor Sensor Harness coming from the Twisting Motor, and three yellow, blue, and white harnesses as shown in the figure.
3. After assembling, confirm that the Twisting Motor is properly fit into the Motor Housing.

Twisting Motor Assy. (Continued)





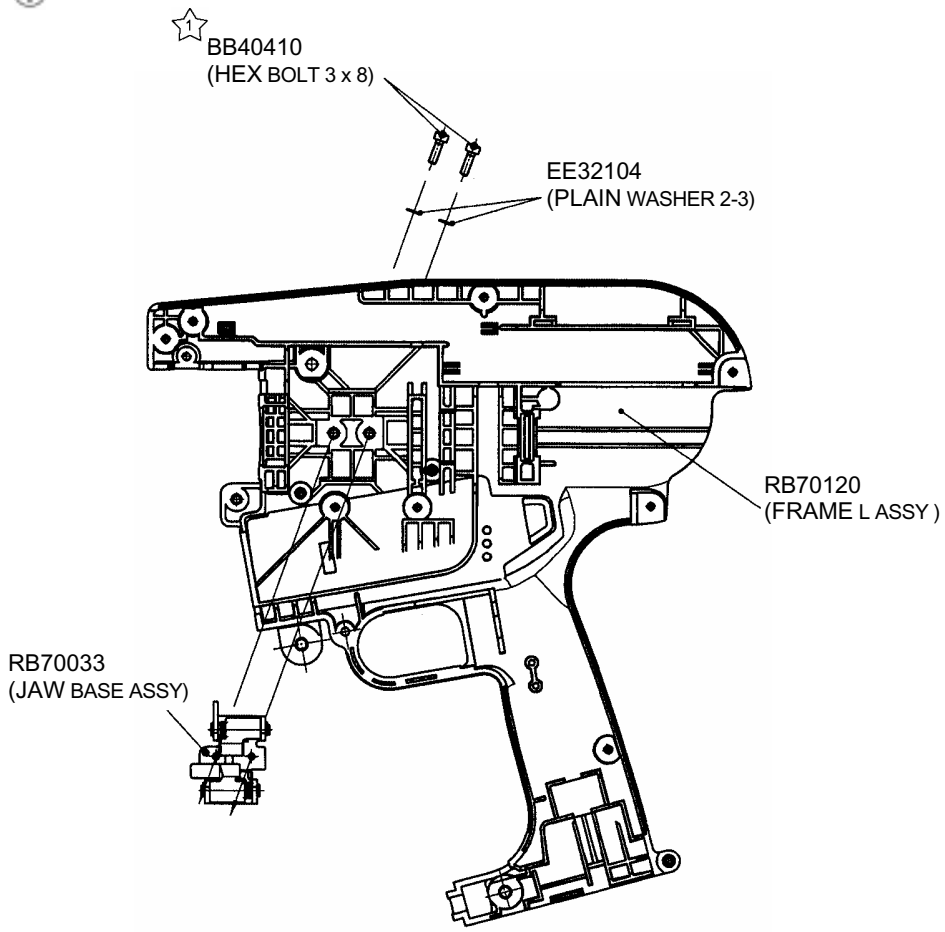
ASSEMBLY PROCEDURE

1. Assemble a Fan Protector into a Motor Housing R in the direction shown in the figure. Note that it has directionality.
2. Attach the Motor Housing R with the assembled Fan Protector to the Motor Housing L. There should be no gap allowed between the Motor Housing L and the Motor Housing R. Confirm that no harness is caught between them.
3. Fix with a Hex Bolt 3 x 25.
   (Tightening torque: 50-100 cN.m)

	TORQUE	ADHESIVE
1	50-100 cN.m	Not required

[HOW TO ATTACH THE EACH ASSEMBLY TO THE FRAME]

Step ①

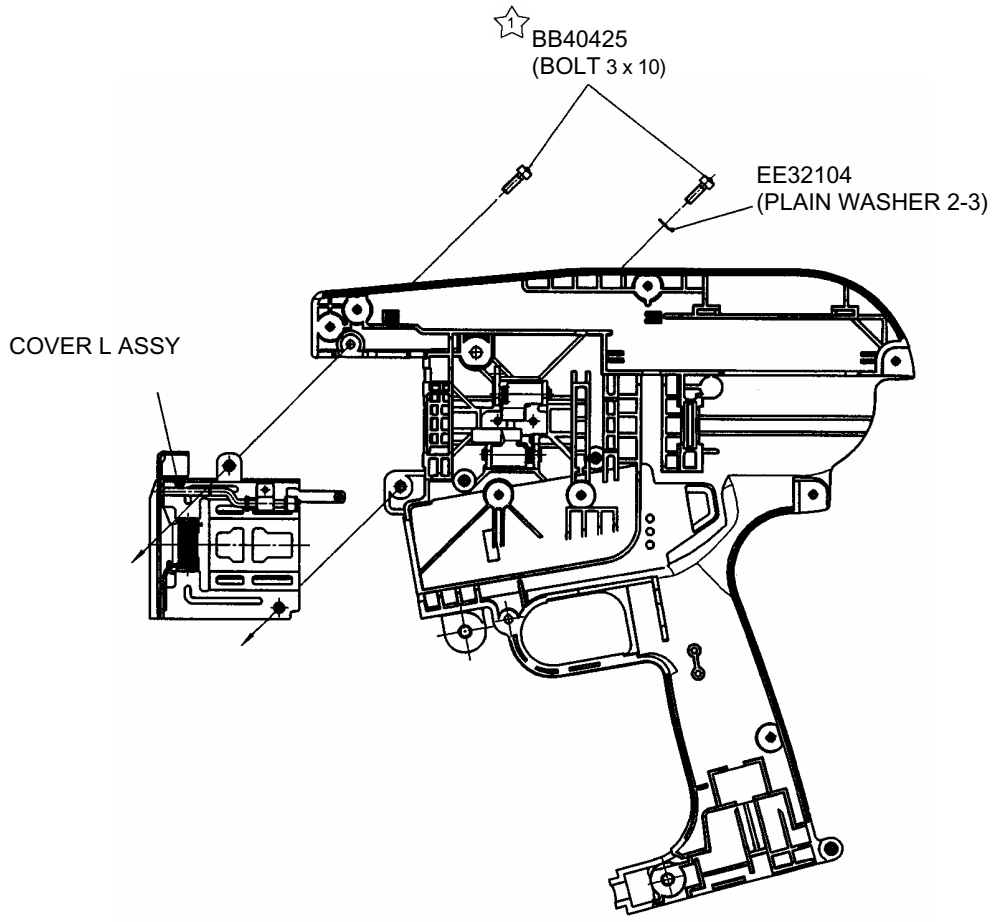


ASSEMBLY PROCEDURE

1. Assemble a JAW Base Assy. to the Frame L with Hex. Bolts 3 x 8.
   (Tightening torque: 100-150 cN.m)

	TORQUE	ADHESIVE
1	100-150 cN.m	Not required

Step ②

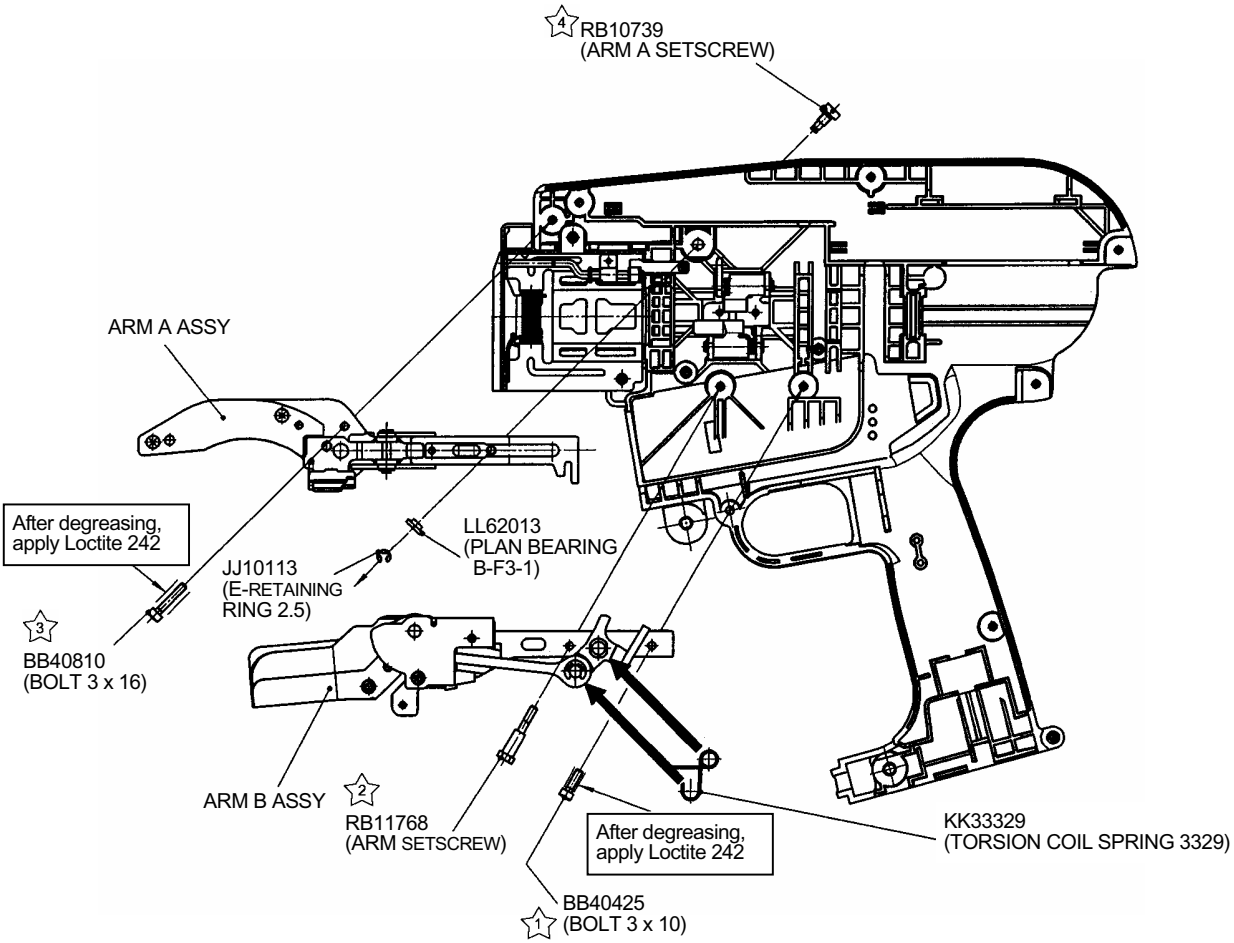


ASSEMBLY PROCEDURE

1. Assemble a Cover L Assy. to a Frame L (upper tapped hole) with a Bolt 3 x 10.
2. For the side where a Hollow pin has been press-fit into the Frame L, set a Plain Washer 2-3 and fix with a Bolt 3 x 10. (Tightening torque: 100-150 cN.m)

	TORQUE	ADHESIVE
1	100-150 cN.m	Not required

Step ③

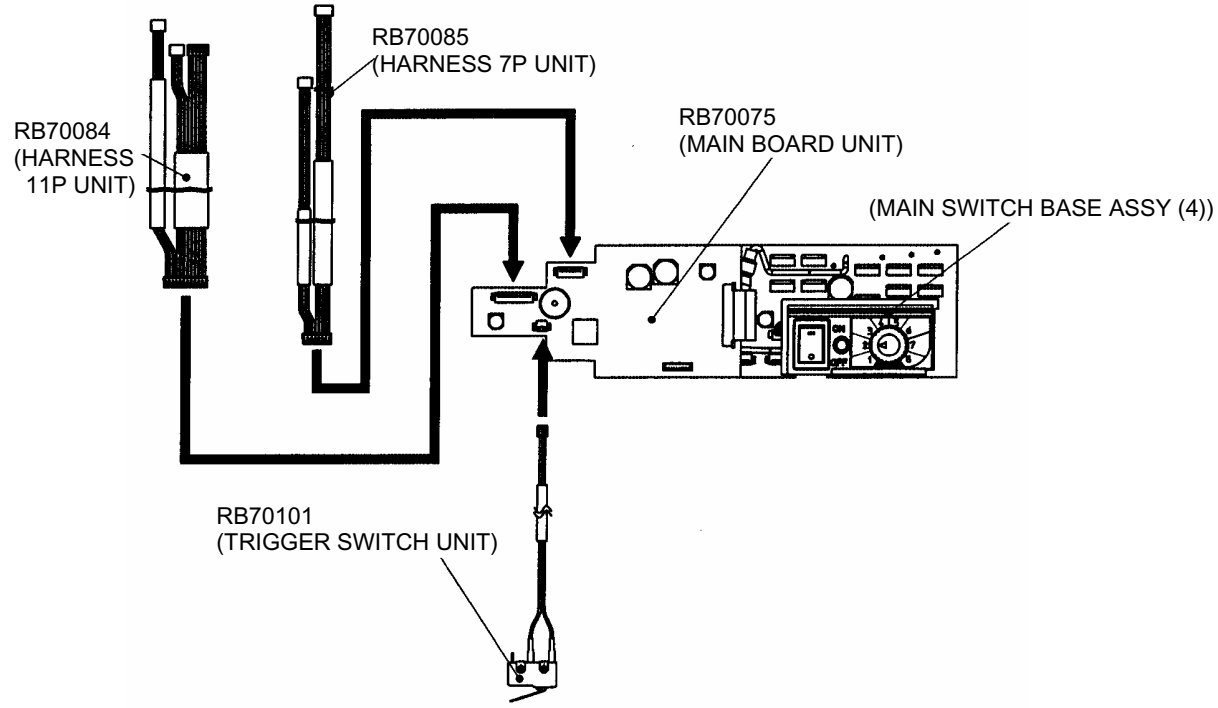


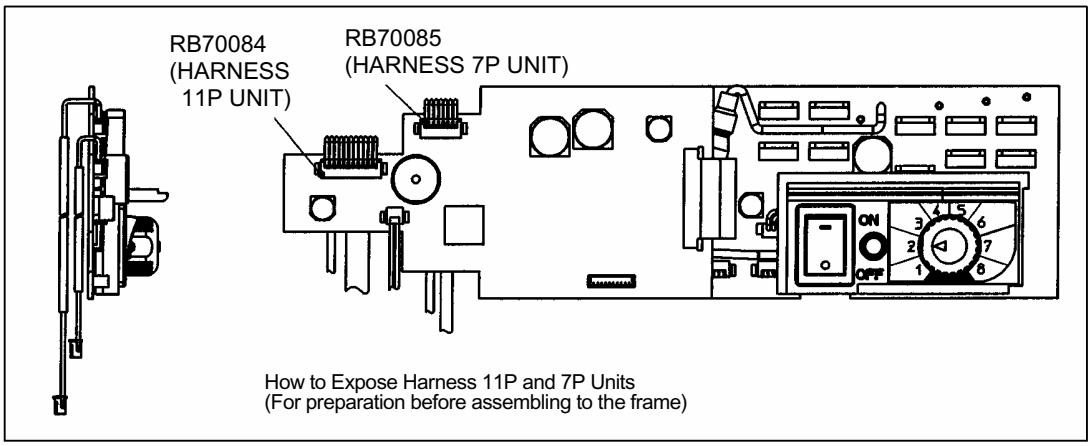
ASSEMBLY PROCEDURE

1. Assemble Arm A Assy. to Frame L with Bolt 3 x 16 and Arm A Setscrew.
   (Tightening torque: 100-150 cN.m)
   Apply Loctite 242 to a Bolt 3 x 16 after degreasing it.
2. Set a Plain Bearing B-F3-1 onto a cylindrical part at the nose of the Arm A Setscrew from above a Wire Guide Lever and secure with an E-Retaining Ring 2.5.
3. Put an Arm B Assy. on the Frame L and assemble it with an Arm Setscrew and a Bolt 3 x 10.
   Degrease the Bolt 3 x 10 and apply an adhesive agent Loctite Blue.
   (Tightening torque: 100-150 cN.m)
4. Set the coiled part of a Torsion Coil Spring 3329 onto the cylindrical part of a Cutter Shaft, and hook the straight part of a spring leg onto the Arm Setscrew and its arc part into a groove in a Cutter Lever pin.
5. After assembling, check movements.
   Turn a Cutter Lever and confirm that it is returned to its previous position by a spring load.

	TORQUE	ADHESIVE
☆1	100-150 cN.m	Loctile 242
☆2	100-150 cN.m	Not required
☆3	100-150 cN.m	Loctite 242
☆4	100-150 cN.m	Not required

Step ④

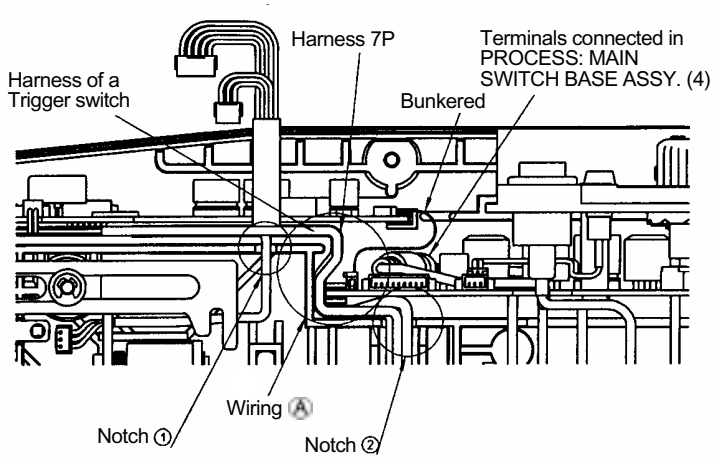


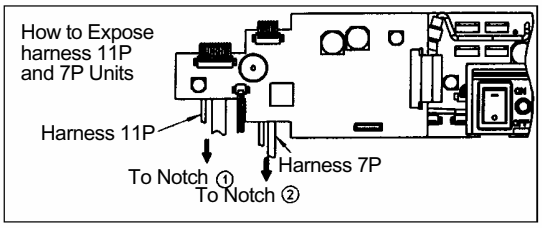


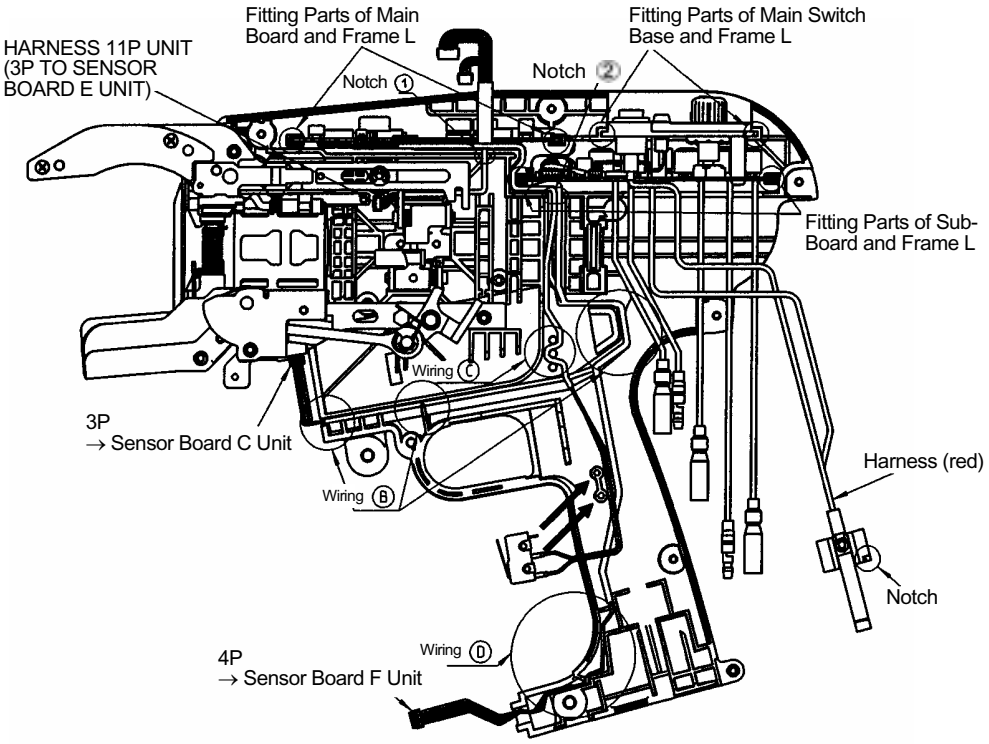
ASSEMBLY PROCEDURE

1. Plug a Harness 11P Unit, Harness 7P Unit, and Trigger Switch Unit into the relevant connectors of the Main Board Unit (RB655) as shown in the figure.
2. Expose the Harness 11P Unit and the Harness 7P Unit from the back of the Main Board Unit as shown in the figure.

Step ⑤





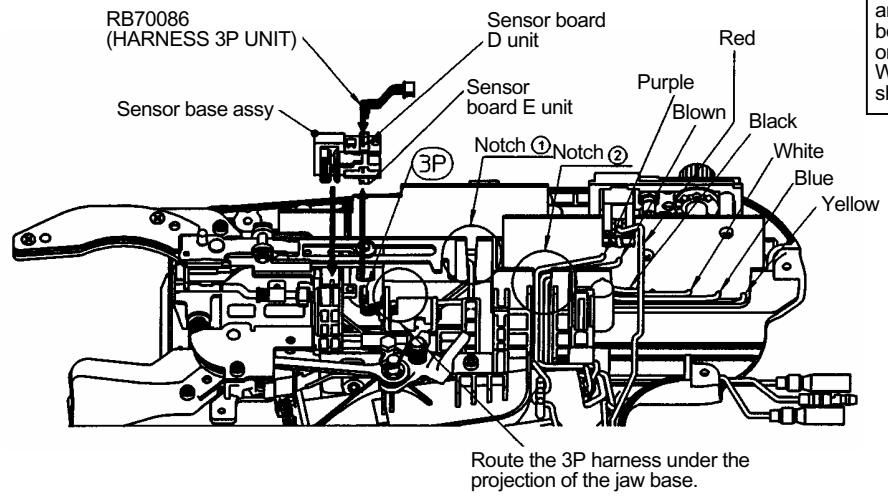


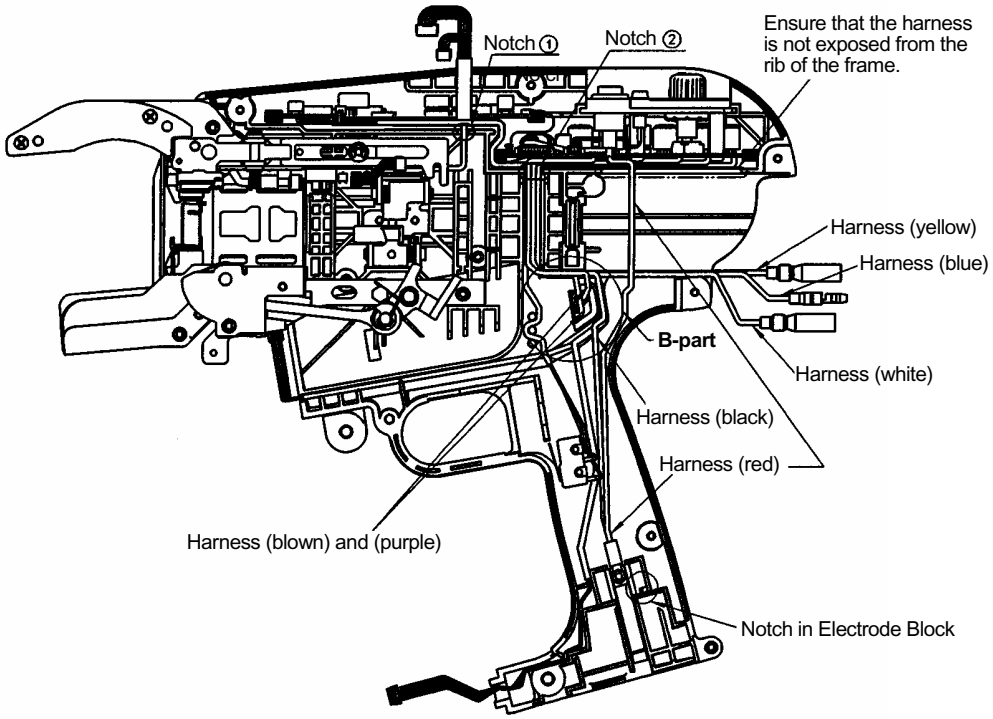
ASSEMBLY PROCEDURE

1. Expose the harness 11P and 7P units from the back of the main board unit.
2. Fit the Main Board Unit and the Main Switch Base Assy. into the grooves in the Frame L. (Assemble the bunkered as shown in the figure.)
3. As shown in the figure, route the harness 7P unit between the rib of the Frame L and the Main Board Unit, and between the bunkered and the Frame L (Ⓐ) to put it through a notch ②.
4. Then, divide it into 3P (Ⓑ) and 4P (Ⓑ),(Ⓓ) to wire them as shown in the figure.
   Route the harness of the Trigger Switch as with the harness 7P unit (Ⓐ,Ⓒ) and fit the Trigger Switch into the boss of the Frame L.
5. Put the harness 11P unit coming from the Main Board unit through a notch ①.

Step ⑥

Wire the yellow, blue, white, black, brown, and purple harnesses coming from the sub-board unit to the frame, one by one in that order.
Wire a red harness from the main switch as shown in the figure.

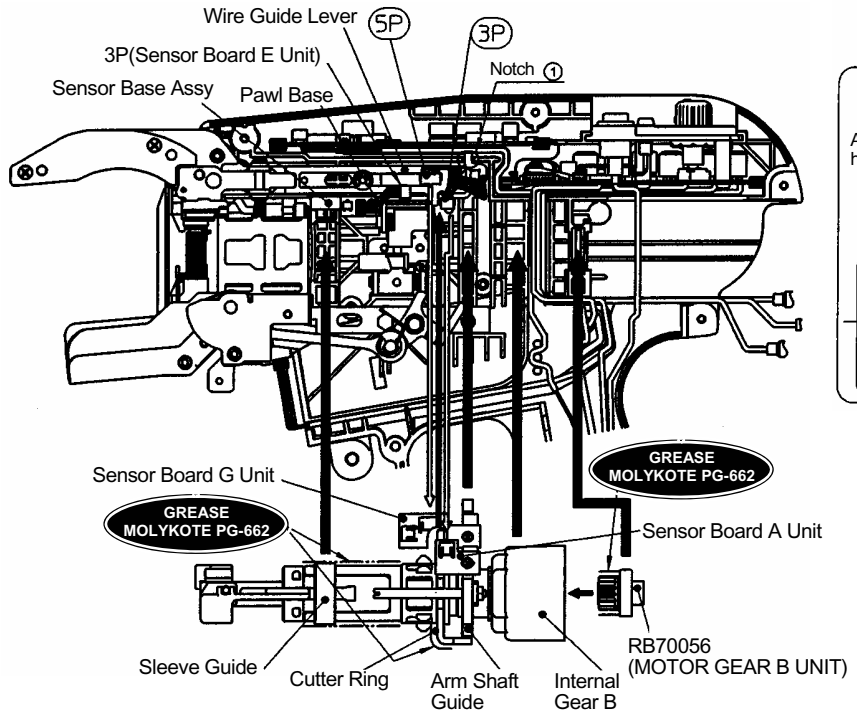


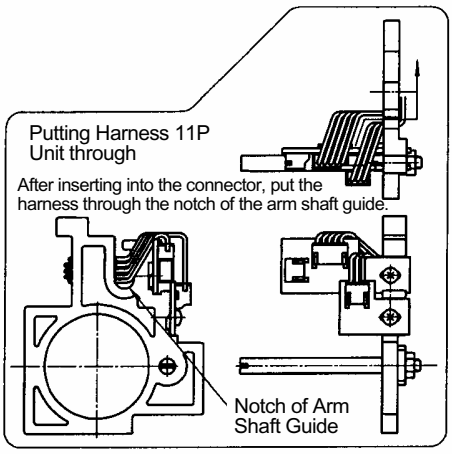


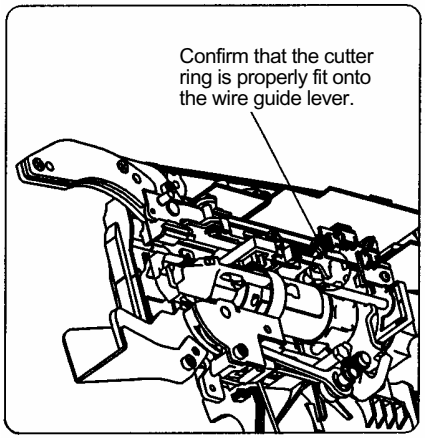
ASSEMBLY PROCEDURE

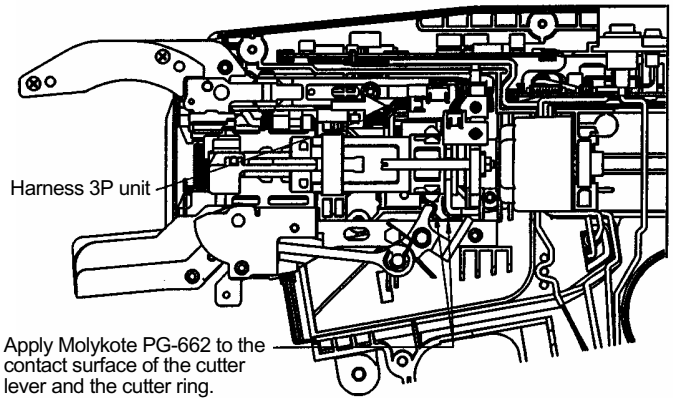
1. Connect the 3P of a Harness 11P unit to a Sensor Board E Unit.
2. Connect a Harness 3P Unit to a Sensor Board D Unit.
3. Assemble a Sensor Base Assy. to a Frame L. When this is done, pass the 3P Harness under a Finger Base through a notch ①.
4. Route the yellow, blue, and white harnesses coming from the sub-board, one by one in that order, between the frame L and the Sub-board, through a notch ②, followed by Area B to wire them as shown in the figure.
5. Route the brown and purple harnesses coming from the sub-board, one by one in that order, between the frame L and the sub-board, and through the notch ② to expose them from the back of the Frame L as shown in the figure.
6. Route a black harness coming from the Sub-board between the frame L and the sub-board, through the notch ②, followed by Area B to wire it as shown in the figure.
7. Wire a red harness coming from the Main Switch Unit as shown in the figure.
8. **Assemble the electrode block with its notch facing upward. Confirm that the red harness is on the upper side.**

Step ⑦


Wire Guide Lever
5P
3P
3P(Sensor Board E Unit)
Notch ①
Sensor Base Assy
Pawl Base
Sensor Board G Unit
GREASE
MOLYKOTE PG-662
GREASE
MOLYKOTE PG-662
Sensor Board A Unit
RB70056
(MOTOR GEAR B UNIT)
Sleeve Guide
Cutter Ring
Arm Shaft
Guide
Internal
Gear B


Putting Harness 11P
Unit through
After inserting into the connector, put the
harness through the notch of the arm shaft guide.
Notch of Arm
Shaft Guide

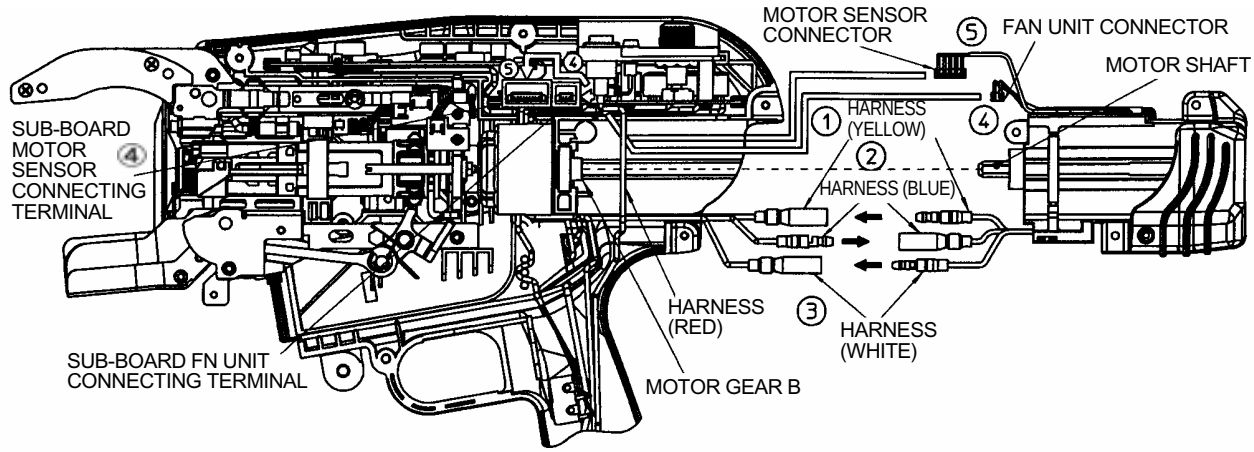

Confirm that the cutter
ring is properly fit onto
the wire guide lever.

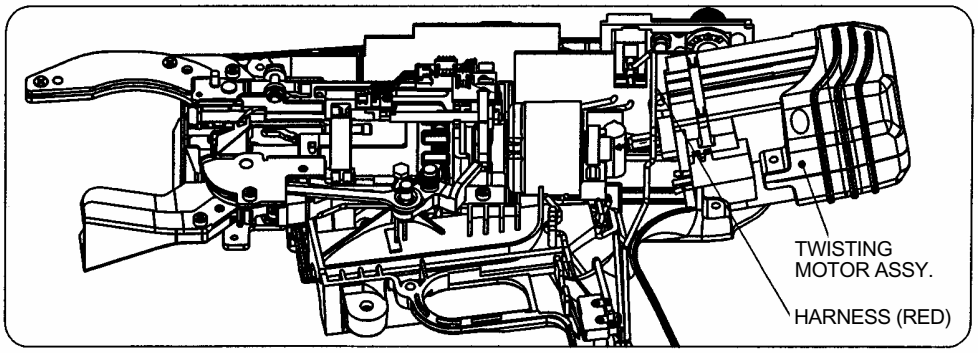

Harness 3P unit
Apply Molykote PG-662 to the
contact surface of the cutter
lever and the cutter ring.

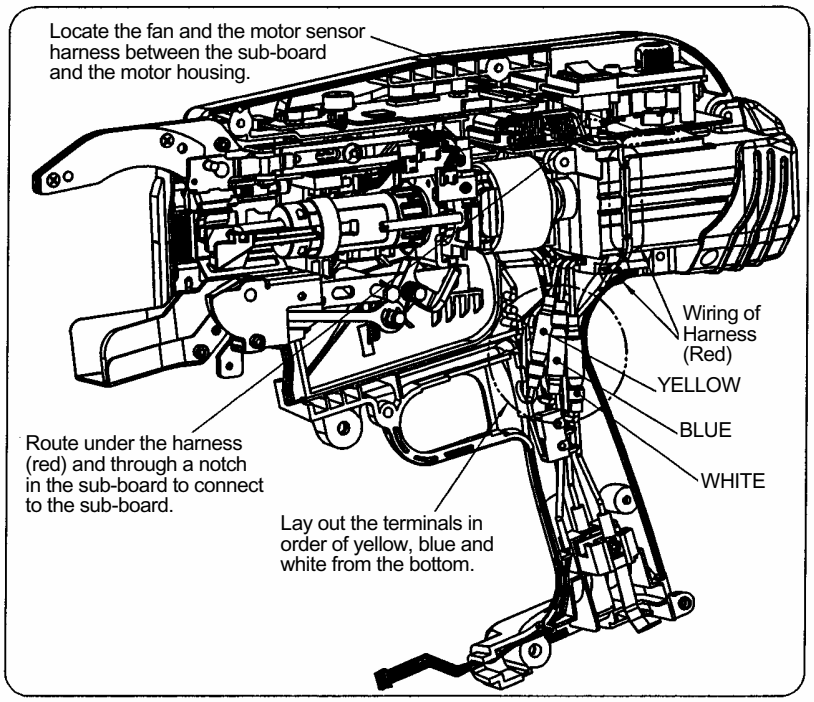
ASSEMBLY PROCEDURE

1. Apply Molykote PG-662 to the Sleeve B and Cutter Ring of the Arm Shaft Assy., and the Cutter Lever of the Arm B Assy. as shown in the figure.
2. Apply Molykote PG-662 to the gear section of the Motor Gear B unit and put it in between the Planetary Gears B.
3. Connect the 3P of the Harness 11P unit to the Sensor Board A unit, and the 5P to the Sensor Board B unit.
4. As shown in the figure, put the 3P and 5P of the harnesses through the Arm Shaft Guide and the notch ① of the Frame L.
   When assembling the Arm Shaft Guide to the Frame L, block the notch ① with the Arm Shaft Guide so that the harnesses will not float.
5. Assemble the Arm Shaft Assy. to the Frame L.
   Fit the Sleeve Guide, Arm Shaft Guide, Internal Gear B and Motor Gear B unit into the ribs of the Frame L.
   Fit the straight section of the Cutter Ring into the groove in the Wire Guide Lever. Put the L-bent section in between the two levers of the Cutter Lever.
   After assembling, make sure that the harnesses are not caught between the cylindrical section of the Internal Gear B and the ribs of the Frame L, and that the front angular form of the Internal Gear B is firmly fit into the ribs of the Frame L.
6. Connect the Harness 3P unit to the Sensor Board B Unit.
7. Make sure that the Sleeve Guide of the Arm Shaft Assy., Arm Shaft Guide, Internal Gear B and Motor Gear B Unit are fit into the ribs of the Frame, and that the Cutter Ring is fit into the Wire Guide Lever.

Step ⑧


MOTOR SENSOR CONNECTOR
⑤ FAN UNIT CONNECTOR
MOTOR SHAFT
SUB-BOARD MOTOR SENSOR CONNECTING TERMINAL ④
① HARNESS (YELLOW)
④
②
HARNESS (BLUE)
HARNESS (RED)
③
HARNESS (WHITE)
SUB-BOARD FN UNIT CONNECTING TERMINAL
MOTOR GEAR B

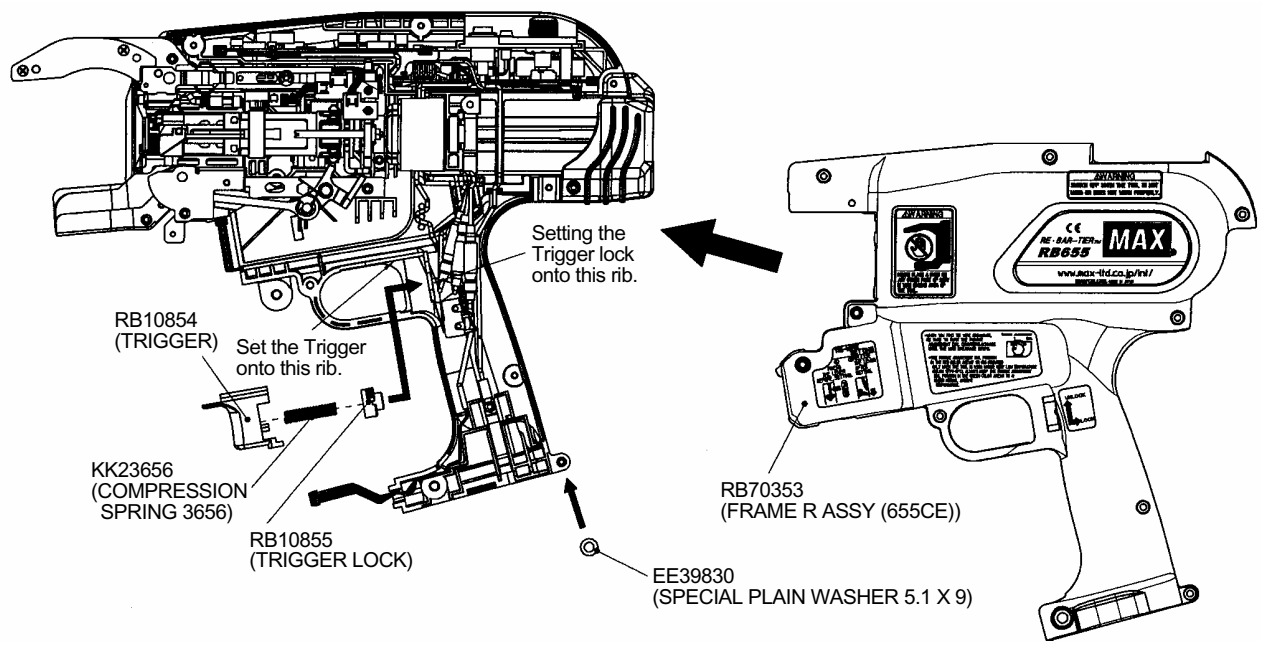

TWISTING MOTOR ASSY.
HARNESS (RED)


Locate the fan and the motor sensor harness between the sub-board and the motor housing.
Wiring of Harness (Red)
YELLOW
BLUE
WHITE
Route under the harness (red) and through a notch in the sub-board to connect to the sub-board.
Lay out the terminals in order of yellow, blue and white from the bottom.

ASSEMBLY PROCEDURE

1. Connect the three harnesses of the twisting motor TD5046 unit to the terminals of the Sub-board in order of yellow, blue and white.
2. Insert the Motor Shaft into a hexagonal hole in the Motor Gear B. (With the Motor Assy. tilted as shown in the figure)
   When this is done, pass the Motor Housing Sssy. under the harness (red) of the main switch.
   After inserting the Motor Shaft, confirm that the Motor Assy. is properly fit into the Frame L.
3. Pass the Fan Unit connector under the harness (red) of the Main Switch to connect it to the Fan connecting terminal of the Sub-board.
4. Pass the Motor Sensor Connector under the harness (red) of the Main Switch to connect it to the Motor Sensor Connecting Terminal of the Sub-Board
5. Lay out the motor terminals in the grip as shown in the figure.
6. Lay out the harness (red) of the Main Switch in the wiring grooves in the Motor Housing R as shown in the figure.

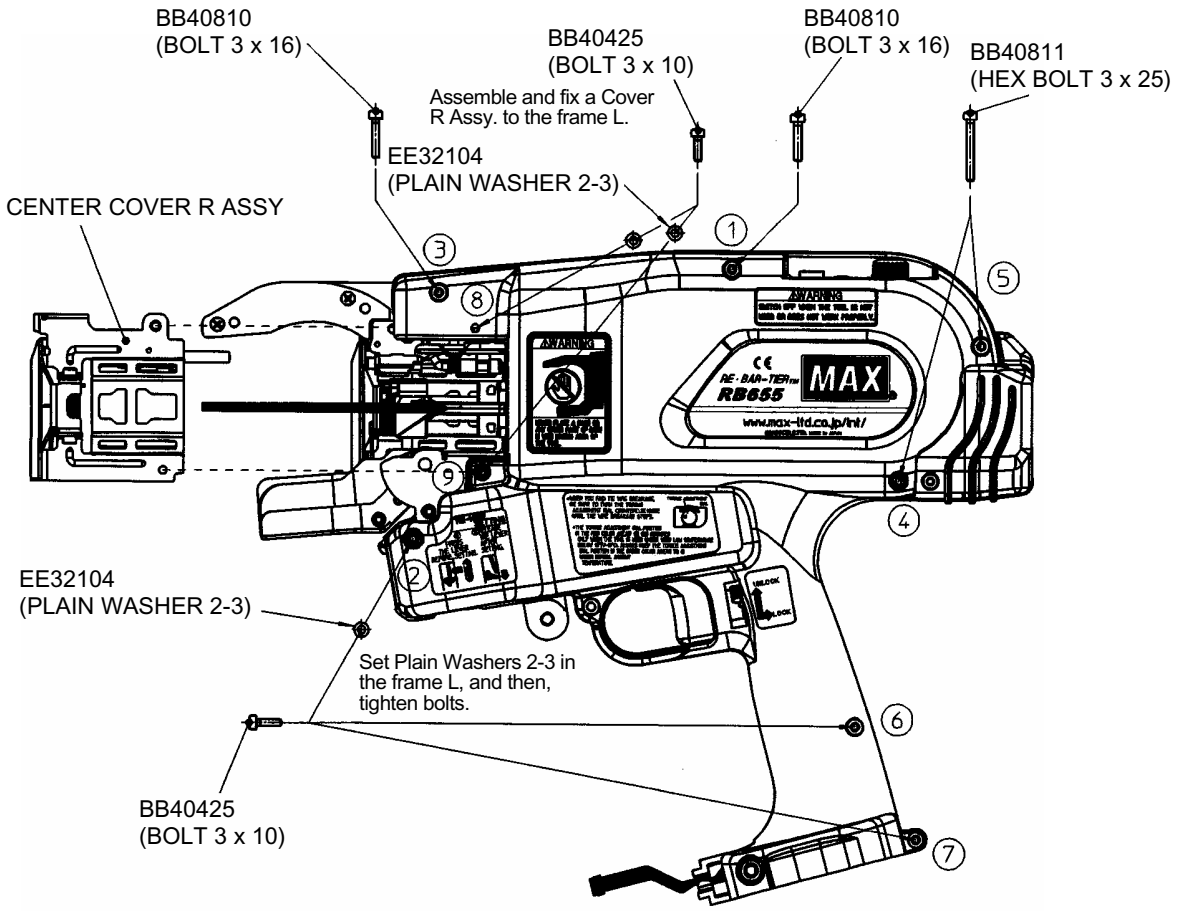
Step ⑨



ASSEMBLY PROCEDURE

1. Assemble a Trigger, Trigger Lock and Compression Spring 3656, and assemble them onto the rib of a Frame L.
2. Set a Special Plain Washer 5.1 x 9 onto the boss of the Frame L as shown in the figure. (1 place).
3. Assemble a Frame R assy. to the Frame L.

Step ⑩



ASSEMBLY PROCEDURE

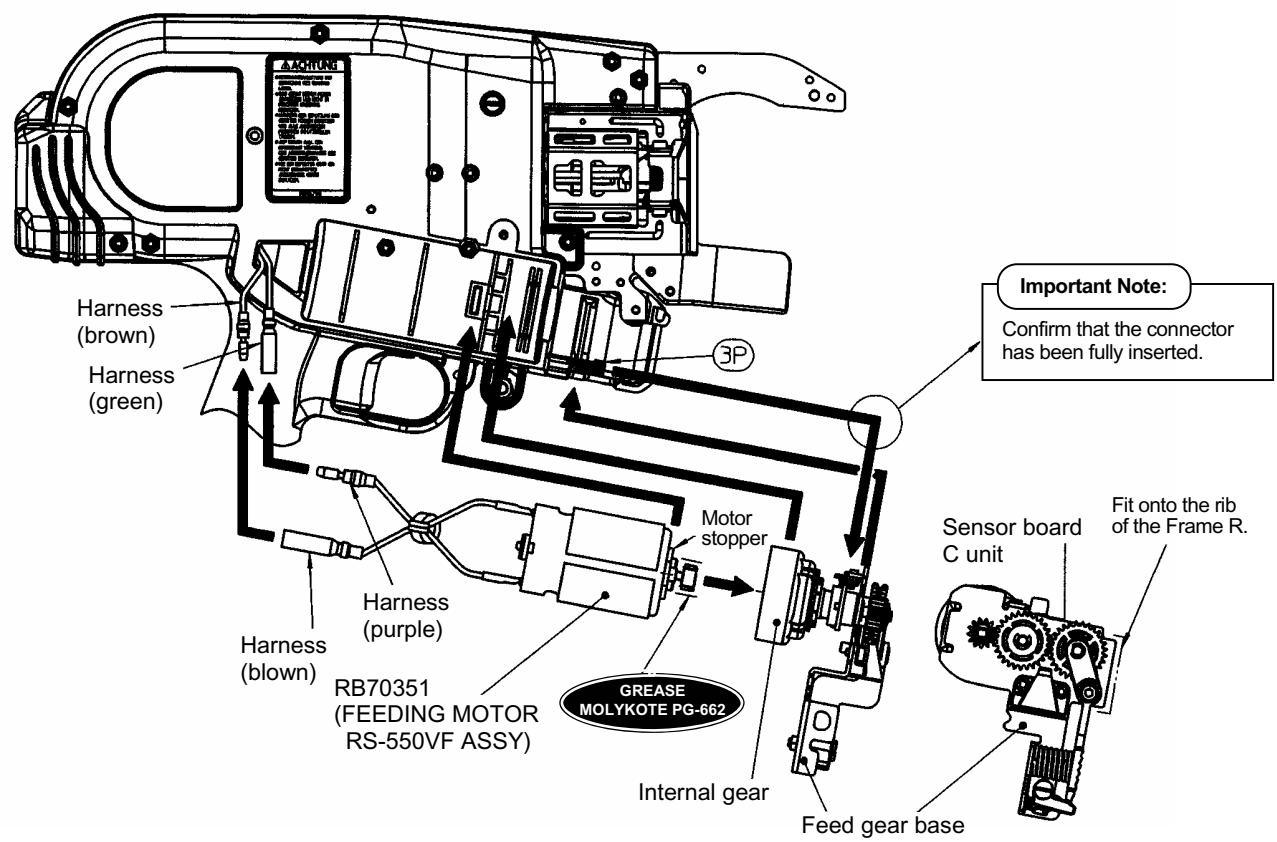
1. Fix the Frames R and L with two 3 x 16(①, ③), three 3 x 10(②, ⑥, ⑦) and three 3 x 25(④, ⑤) bolts.
   * The bolt ② should be put through the Plain Washer 2-3.
2. Assemble the Arm Cover R Assy. to the Frame L and fix them with two 3 x 10 bolts(⑧, ⑨).
   * The bolts ⑧ and ⑨ should be put through the Plain Washer 2-3.

   Tightening torque: ②, ⑧, ⑨ 100-150 cN.m
   ⑦ 40-60 cN.m
   Others 50-100 cN.m

Note) Tighten the bolts in order of ① to ⑨.

	TORQUE	ADHESIVE
②, ⑧, ⑨	100-150 cN.m	Not required
⑦	40-60 cN.m	Not required
Others	50-100 cN.m	Not required

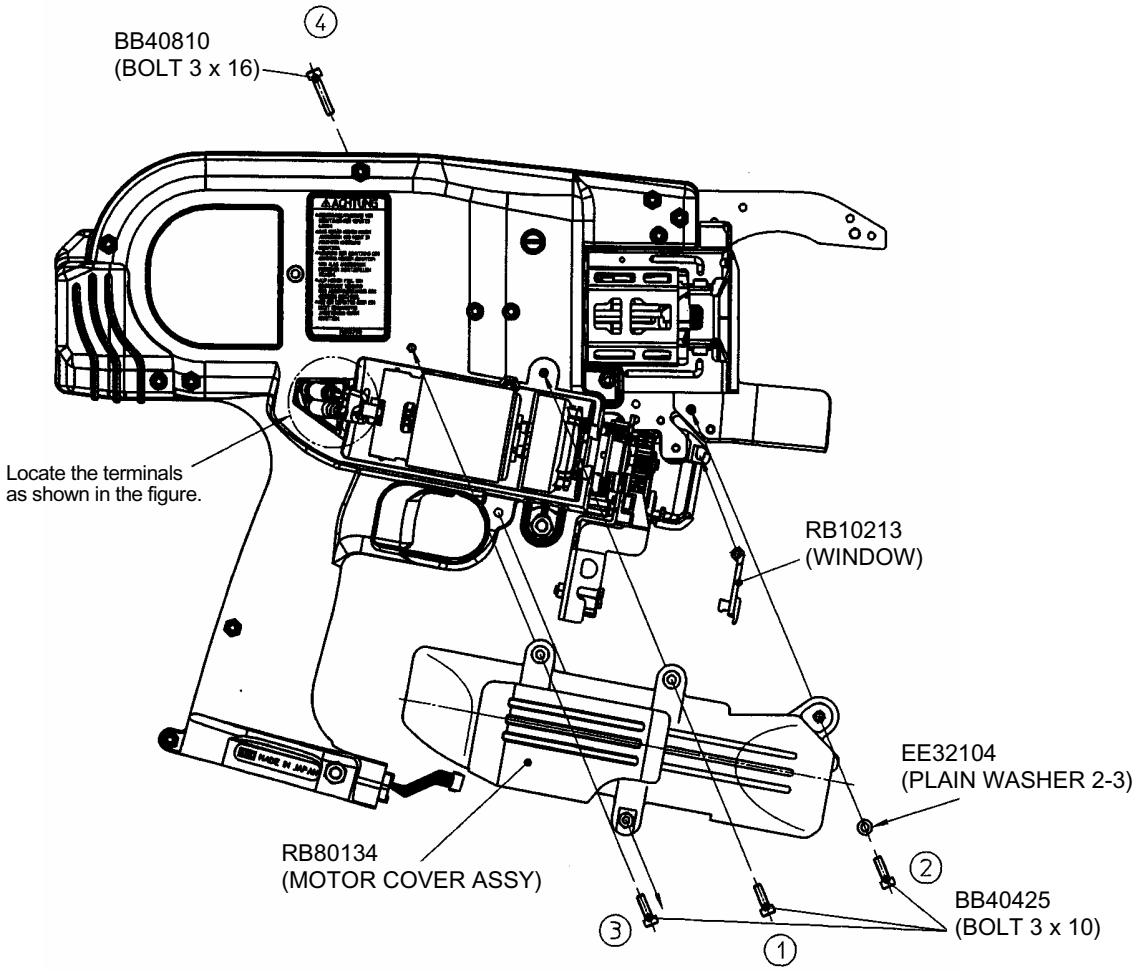
Step ⑪



ASSEMBLY PROCEDURE

1. Connect the harnesses (green) and (brown) of a Feeding motor RS-550VF unit to those (green) and (brown) coming out of a Frame L, respectively.
2. Connect the harness 3P (red) coming out of the Frame L to a Sensor Board C Unit.
3. Apply Molykote PG-662 Grease to the gear of the Feeding RS-550VF unit and assemble it to an Internal Gear, and then, to the Frame.
   (Assemble a Motor stopper and the Internal Gear to the rib of the Frame L, and a Feed Gear Base to the rib of a Frame R.)

Step ⑫



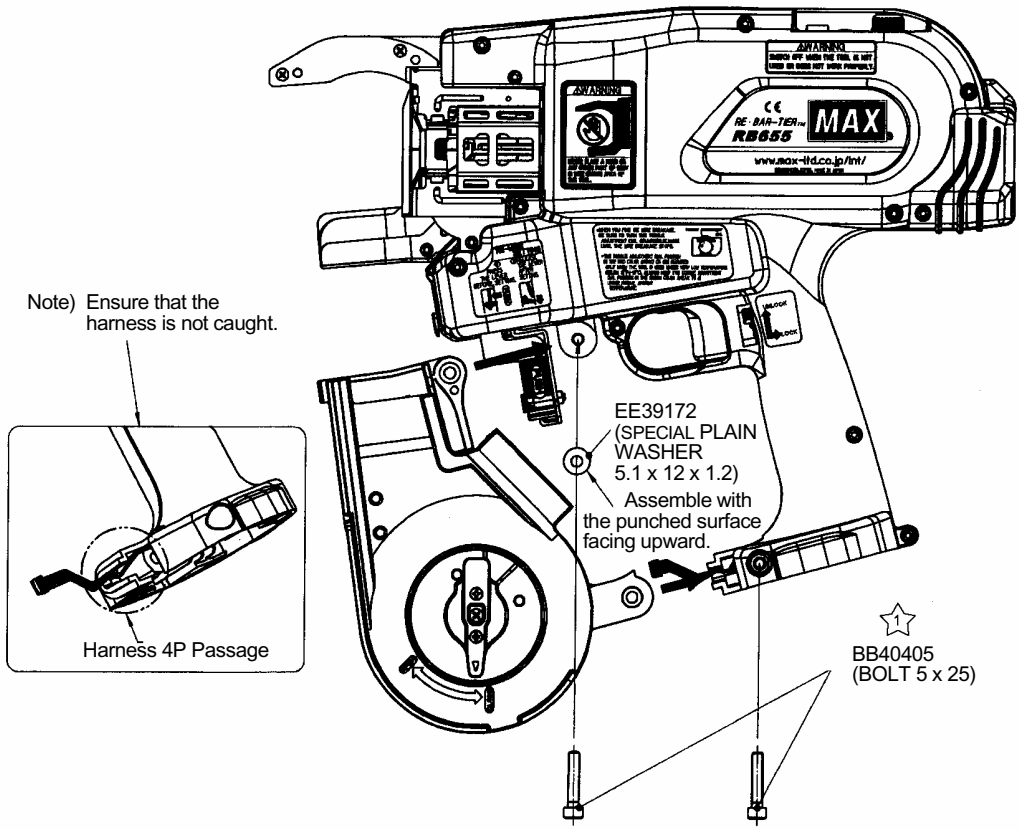
ASSEMBLY PROCEDURE

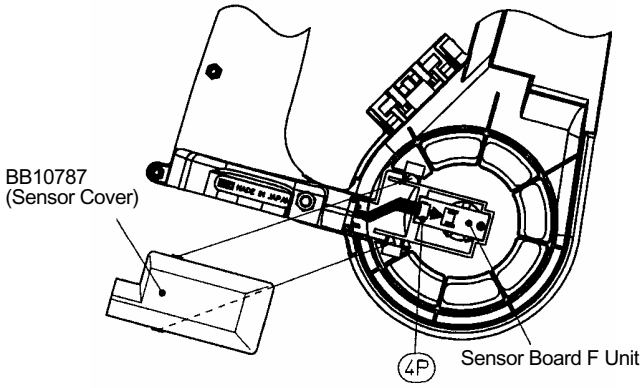
1. Insert a window into a hole in a Frame R.
2. Bundle the connected harness (green) and (brown) as shown in the figure and put a Motor Cover over them.
3. Fix the Motor Cover with 3 Bolts 3 x 10 (① to ③) on the Frame L side and 1 Bolt 3 x 16 ④ on the Frame R side.
   * Put the Bolt ② through a Plain Washer 2-3.
   Tightening torque: ② 100–150 cN.m
   Others 50–100 cN.m

Note) Tighten the Bolts in order of ① to ④.

	TORQUE	ADHESIVE
②	100-150 cN.m	Not required
Others	50-100 cN.m	Not required

Step ⑬





ASSEMBLY PROCEDURE

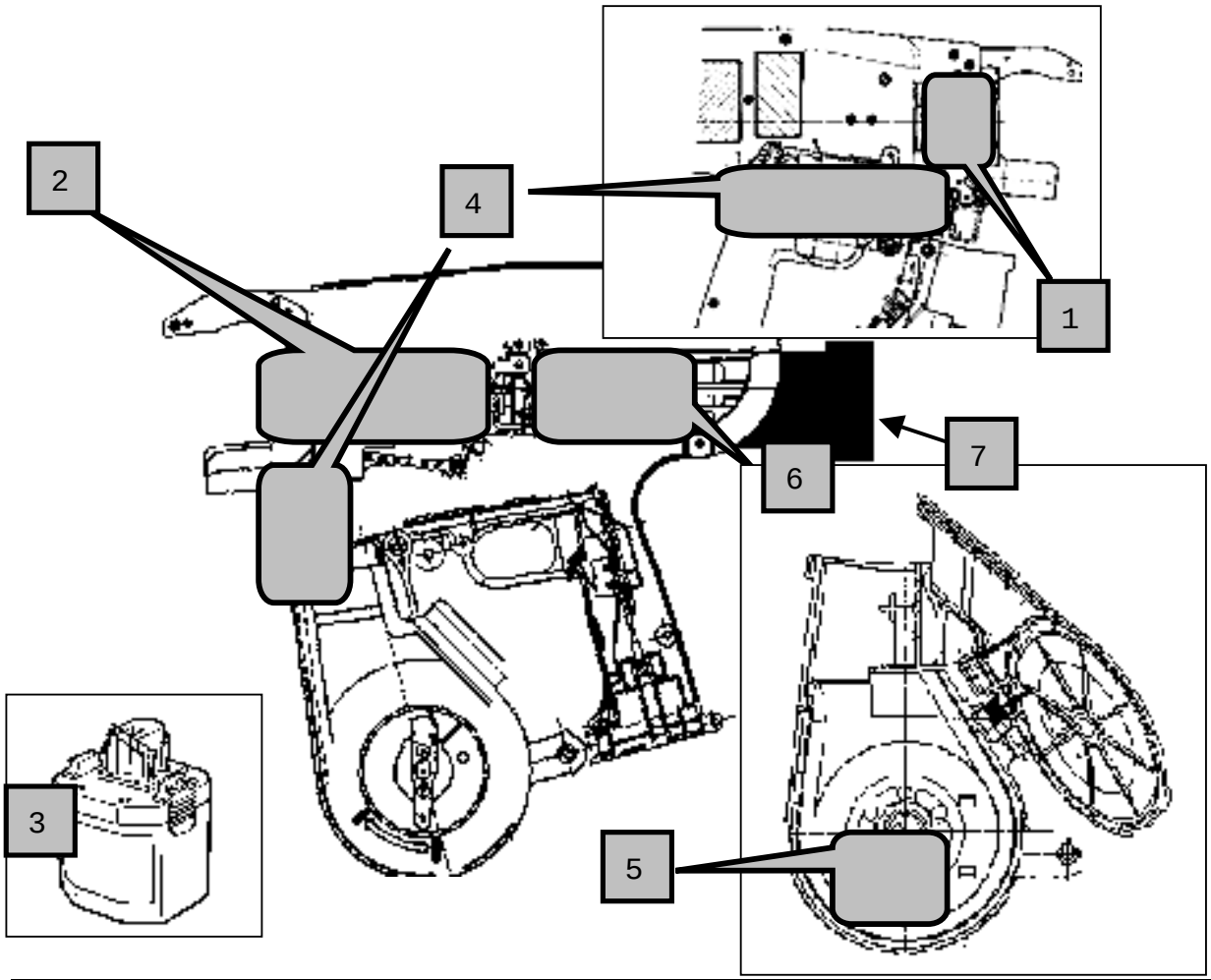
1. Assemble a Magazine Assy. to a Frame.
2. Fix it with a Bolt 5 x 25. Set a Special plain Washer 5.1 x 12 x 1.2 with its sagging surface held in the direction shown in the figure. (Tightening torque: 200-250 cN.m)

Note) Assemble the Magazine, making sure that a Harness 4P has been set in a groove in the Frame L as shown in the figure.

3. Connect the connector of the Harness 4P coming from the frame to the sensor Board F Unit.
4. Fit the pawl of the Sensor Cover into the square hole in the Magazine.

	TORQUE	ADHESIVE
☆1	200-250 cN.m	Not required

BEEP SOUND REFERENCE



Type of beep	Beep meaning	Check
Bee…. (Single continuous sound)	Twist guide cover (safety) is opened during tying action. Or problem happens on sensor at the Twist guide cover.	1
Bip, bip, bip, bip, bip….. (Single repetitive sound **-SLOW-**)	Problem happens on twisting action	2
Bip-bip, bip-bip, bip-bip, …. (Double repetitive soun)	The battery almost runs out	3
Bip-bip-bip, bip-bip-bip, bip-bip,… (Triple repetitive sound)	Problem happens on wire feeding action Or problem happens on sensor at the Feeding gear.	4
Bip-bip-bip-bip, bip-bip-bip-bip,…. (Quadruple repetitive sound)	Sensor in the Magazine can not sense the notches on the wire reel. Or the sensor itself has problem.	5
Bip-bip-bip-bip-bip (Quintuple sound)	The Twisting motor is too hot.	6
Bip-bee, bip-bee, bip-bee,….. (Short and long beep combination) *New beep from RB655	sProblem happens on the Twisting Motor rotation	
Bip, bip, bip, bip, bip….. (Single repetitive sound **-FAST-**)	Electrical overload happens	
Bip-bip-bip-bip-bip-bip, bip-bip-bip-bip-bip-bip, (Sextet repetitive sound)	Problem happens on Cooling Fan	7

< TROUBLE SHOOTING OF RB655 (1/3) >

	User Operation	Normal tool operation		Problem	Beep sound	What to check		Cause of the problem	How to fix the problem
1	Turn the Main Switch on <Initializing action>	When the Twister is in its home position (Hooks are in horizontal position)	1) Feed Gear feeds wire 2) Cutting wire 3) Open the Hooks	Wire is not fed.	Bip, bip, bip, bip… (Fast single beep) < Overcurrent error beep >	Is Feeding Gear on the Feeding Motor is rotating?	No	Feeding Motor end its life (Brush is worn out). Foreign substance entered into the Feeding Motor and lock up the motor.	Replace Feeding Motor with a new one.
								Foreign substance prevents rotation of the Feeding Gear.	Remove the foreign substance.
								Movement of the cutter parts is not smooth and the Cutter blocks the hole of the Fixed Cutter.	Clean up the Cutter and Fixed Cutter and apply Molykote grease.
							Yes		
					Beee…… (Continuous beep) < Twist Guide Cover open beep >	Do Twist Guide Covers close perfectly?	No	Twist Guide Cover is deformed. Torsion spring on the Twist Guide Cover is deformed.	Replace Twist Guide Covers and torsion springs.
							Yes	1) Connector of the sensor at Twist Guide Cover is not connected firmly or the connector is broken. 2) Sensor board D unit or Sensor board E unit is broken. 3) Magnet holder L unit or Magnet holder R unit is broken.	1) Connect the connectors firmly. 2) 3) Replace the broken part with a new one.
					No beep	Do the Feeding Gears hold the tie wire firmly?	Yes	V shape groove of the Feeding Gear is worn out. The bearing of the Feeding Gear is broken.	Replace the Feeding Gear with a new one.
							No	1) Cut end of the wire or foreign obstacle blocks the Wire Guide B. 2) Spring at the Feeding Gear is wom out.	1) Remove the cut end of the wire or foreign obstacle from the Wire Guide B. 2) Replace the spring with a new one.
				Tip of the tie wire does not come out from the Arm A.	No beep	Is the Wire Guide Unit closed when the Twister is in its home position?	No	The Cutter Ring (steel plate) on the Twister is not assembled between the legs of the Wire Guide Lever.	Assemble the Wire Guide Lever correctly.
							Yes	Wire Guide Unit is deformed and the gap between the silver pin on the Wire Guide Unit and Arm A is too large.	Replace the Wire Guide Unit with a new one.
				The tie wire fed is too long.	No beep	Does the Magnet Holder Unit have 4 pcs. of the magnet?	No	Due to the missing magnet, the feeding length of the wire becomes longer than regulated.	Replace the Magnet Holder Unit with a new one.
							Yes	The dust or iron powder on the magnet prevents the sensor from detecting magnetic power.	With compressed air, remove the iron powder or dust from magnet.
				After feeding the tie wire, the Twister does not move.	Bip-bip-bip, bip-bip-bip,... (Triple repetitive beep) < Feeding action error >	Is the connector on Sensor Board C connected firmly?	No	The sensor at Feeding Gear does not work.	Connect the connectors firmly.
							Yes	Sensor Board C unit is broken. Harness 7P Unit is cut.	Replace Sensor Board C or Harness 7P unit with a new one.
					Bip-beee, Bip-beee, ... <Twisting Motor error beep> (New beep sound from RB655)	Does the connector on Twisting Motor is connected to Sub board firmly? Do the three wire harnesses (Yellow, Bule, White) connected same color wire of the Main Board firmly?	No	The PC boards can not detect the rotation of the Twisting Motor.	Connect the connector and wire harnesses firmly.
							Yes	1) Twisting Motor is locked. Or Twister is locked. 2) Connector on the Twisting Motor is cut.	1) Remove foreigh substances which lock the motor or Twister. 2) Replace Twisting Motor with a new one.
				After feeding tie wire, Twister moves but can not cut the tie wire.	Bip, bip, bip, bip… (Fast single beep) < Overcurrent error beep >			The load to cut the tiw wire is too high. 1) Cutter is worn out. 2) Hook parts are too dirty.	1) Replace the Cutter with a new one. 2) Clean up the Hooks with Paslode Degreaser Cleaner and then apply Molykote grease.
					No beep	Is the tool repeating initializing action?	No	Cutter Lever is worn out. Cutter Shaft is broken.	Replace Cutter Lever or Cutter Shaft.
							Yes	Battery is discharged or ends its life.	Charge the battery or replace it with a brand new one.
		When the Twister is not in its home position. (Hooks are not in horizontal position)	1) Twister goes back to its home position. 2) Feed Gear feeds wire 3) Cutting wire 4) Open the Hooks	Twister does not go back to home position.	Bip, bip, bip ….(Slow) <Tsister movement error beep>	Does the connector on Twisting Motor is connected to Sub board firmly? Do the three wire harnesses (Yellow, Bule, White) connected same color wire of the Main Board firmly?	No	The PC boards can not detect the rotation of the Twisting Motor.	Connect the connector and wire harnesses firmly.
							Yes	Twisting Motor is locked. Or Twister is locked.	Remove foreigh substances which lock the motor or Twister.
				Twister goes back to home position then stops.	Bip, bip, bip ….(Slow) <Tsister movement error beep>	Does the Connector of Harness 11P unit (3P) connected firmly to the Sensor board A unit?	No	Main PC board can not detect the home position.	Connect the connectors firmly.
							Yes	1) Hamess 11P unit is cut or Sensor board A unit is broken. 2) Twister is locked.	1) Replace Harness 11P unit with a new one. 2) Remove foreign substances which lock Twister.
				Twister goes back to home position and feeds wire but the tip of the tie wire does not come out from the Arm.	No beep	Are the Hooks are in horizontal position?	No	Tie wire got entangled around the Hooks.	Remove the tie wire from the Hooks.
							Yes	1)The Cutter Ring (steel plate) on the Twister is not assembled between the legs of the Wire Guide Lever. 2) Wire Guide Unit is deformed and the gap between the silver pin on the Wire Guide Unit and Arm A is too large.	1) Assemble the Wire Guide Lever correctly. 2) Replace the Wire Guide Unit with a new one.
				Other problems are same as the case of Twister is in its home position.					

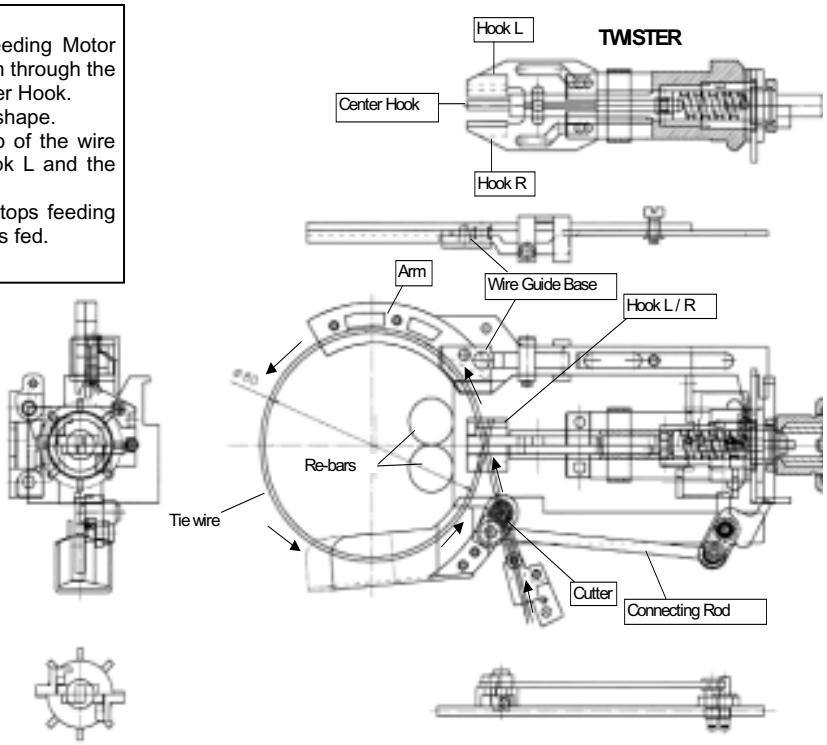
	User Operation	Normal tool operation		Problem	Beep sound	What to check		Cause of the problem	How to fix the problem
2	Pull the Trigger	When the Twister is in its home position (Hooks are in horizontal position)	Feed gears feed tie wire	Wire is not fed	Bip, bip, bip, bip… (Fast single beep) < Overcurrent error beep >	Is Feeding Gear on the Feeding Motor is rotating?	No	Feeding Motor end its life (Brush is worn out). Foreign substance entered into the Feeding Motor and lock up the motor.	Replace Feeding Motor with a new one.
								Foreign substance prevents rotation of the Feeding Gear.	Remove the foreign substance.
								Movement of the cutter parts is not smooth and the Cutter blocks the hole of the Fixed Cutter.	Clean up the Cutter and Fixed Cutter and apply Molykote grease.
							Yes		
					Beee…… (Continuous beep) < Twist Guide Cover open beep >	Do Twist Guide Covers close perfectly?	No	Twisti Guide Cover is deformed. Torsion spring on the Twist Guide Cover is deformed.	Replace Twist Guide Covers and torsion springs.
							Yes	1) Connector of the sensor at Twist Guide Cover is not connected firmly or the connector is broken. 2) Sensor board D unit or Sensor board E unit is broken. 3) Magnet holder L unit or Magnet holder R unit is broken.	1) Connect the connectors firmly. 2) 3) Replace the broken part with a new one.
					Bip-bip-bip-bip-bip (Five beep)	Is the tool body very hot?	No	PC board has problem.	Replace PC board with a new one.
							Yes	Tooi is overheated.	Turn the main switch off and keep the tool in cool place for a while.
					No beep	Do the Feeding Gears hold the tie wire firmly?	No	V shape groove of the Feeding Gear is worn out. The bearing of the Feeding Gear is broken.	Replace the Feeding Gear with a new one.
							Yes	1) Cut end of the wire or foreign obstacle blocks the Wire Guide B. 2) Spring at the Feeding Gear is worn out.	1) Remove the cut end of the wire or foreign obstacle from the Wire Guide B. 2) Replace the spring with a new one.
				Tip of the tie wire does not come out from the Arm A.	No beep	Is the Wire Guide Unit closed when the Twister is in its home position?	Yes	The Cutter Ring (steel plate) on the Twister is not assembled between the legs of the Wire Guide Lever.	Assemble the Wire Guide Lever correctly.
							No	Wire Guide Unit is deformed and the gap between the silver pin on the Wire Guide Unit and Arm A is too large.	Replace the Wire Guide Unit with a new one.
				The length of tie wire fed is too short and the Hooks can not catch the tip of the tie wire.	No beep	Is the tie wire deformed inside of the Magazine?	No	1) V shape groove of the Feeding Gear is worn out. 2) The spring at Feeding Gear is worn out.	1) Replace the Feeding Gear. 2) Replace the spring.
							Yes	The play between the Magazine and Magazine Cover is too big.	Turn the Adjust Ring to tighter position and reduce the play.
				The tie wire fed is too long.	No beep	Does the Magnet Holder Unit have 4 pcs. of the magnet?	No	Due to the missing magnet, the feeding length of the wire becomes longer than regulated.	Replace the Magnet Holder Unit with a new one.
							Yes	The dust or iron powder on the magnet prevents the sensor from detecting magnetic power.	With compressed air, remove the iron powder or dust from magnet.
					Bip-bip-bip, bip-bip-bip,... (Triple repetitive beep) < Feeding action error >	Is the connector on Sensor Board C connected firmly?	No	The sensor at Feeding Gear does not work.	Connect the connectors firmly.
							Yes	Sensor Board C unit is broken. Harness 7P Unit is cut.	Replace Sensor Board C or Harness 7P unit with a new one.
		When the Twister is not in its home position. (Hooks are not in horizontal position)	1) Twister goes back to its home position. 2) Feed Gear feeds wire	Twister does not go back to home position.	Bip, bip, bip ….(Slow) <Tsister movement error beep>	Does the connector on Twisting Motor is connected to Sub board firmly? Do the three wire harnesses (Yellow, Bule, White) connected same color wire of the Main Board firmly?	No	The PC boards can not detect the rotation of the Twisting Motor.	Connect the connector and wire harnesses firmly.
							Yes	Twisting Motor is locked. Or Twister is locked.	Remove foreigh substances which lock the motor or Twister.
				Twister goes back to home position then stops.	Bip, bip, bip ….(Slow) <Tsister movement error beep>	Does the Connector of Harness 11P unit (3P) connected firmly to the Sensor board A unit?	No	The PC boards can not detect the position of the Twister.	Connect the connectors firmly.
							Yes	1) Harness 11P unit is cut or Sensor board A unit is broken. 2) Twister is locked.	1) Replace Harness 11P unit with a new one. 2) Remove foreign substances which lock Twister.
				Twister goes back to home position and feeds wire but the tip of the tie wire does not come out from the Arm.	No beep	Are the Hooks are in horizontal position?	No	Tie wire got entangled around the Hooks.	Remove the tie wire from the Hooks.
							Yes	1)The Cutter Ring (steel plate) on the Twister is not assembled between the legs of the Wire Guide Lever. 2) Wire Guide Unit is deformed and the gap between the silver pin on the Wire Guide Unit and Arm A is too large.	1) Assemble the Wire Guide Lever correctly. 2) Replace the Wire Guide Unit with a new one.
				Other problems are same as the case of Twister is in its home position.					
3	-	Hooks catch the tip of tie wire		1) The Hooks do not catch the tip of tie wire. (Twister does not move) 2) After catching the wire, Twister stops.	Bip-beee, Bip-beee, ... <Twisting Motor error beep> (New beep sound from RB655)	Does the connector on Twisting Motor is connected to Sub board firmly? Do the three wire harnesses (Yellow, Bule, White) connected same color wire of the Main Board firmly?	No	The PC boards can not detect the rotation of the Twisting Motor.	Connect the connector and wire harnesses firmly.
							Yes	1) Twisting Motor is locked. Or Twister is locked. 2) Connector on the Twisting Motor is cut.	1) Remove foreigh substances which lock the motor or Twister. 2) Replace Twisting Motor with a new one.

< TROUBLE SHOOTING OF RB655 (3/3) >

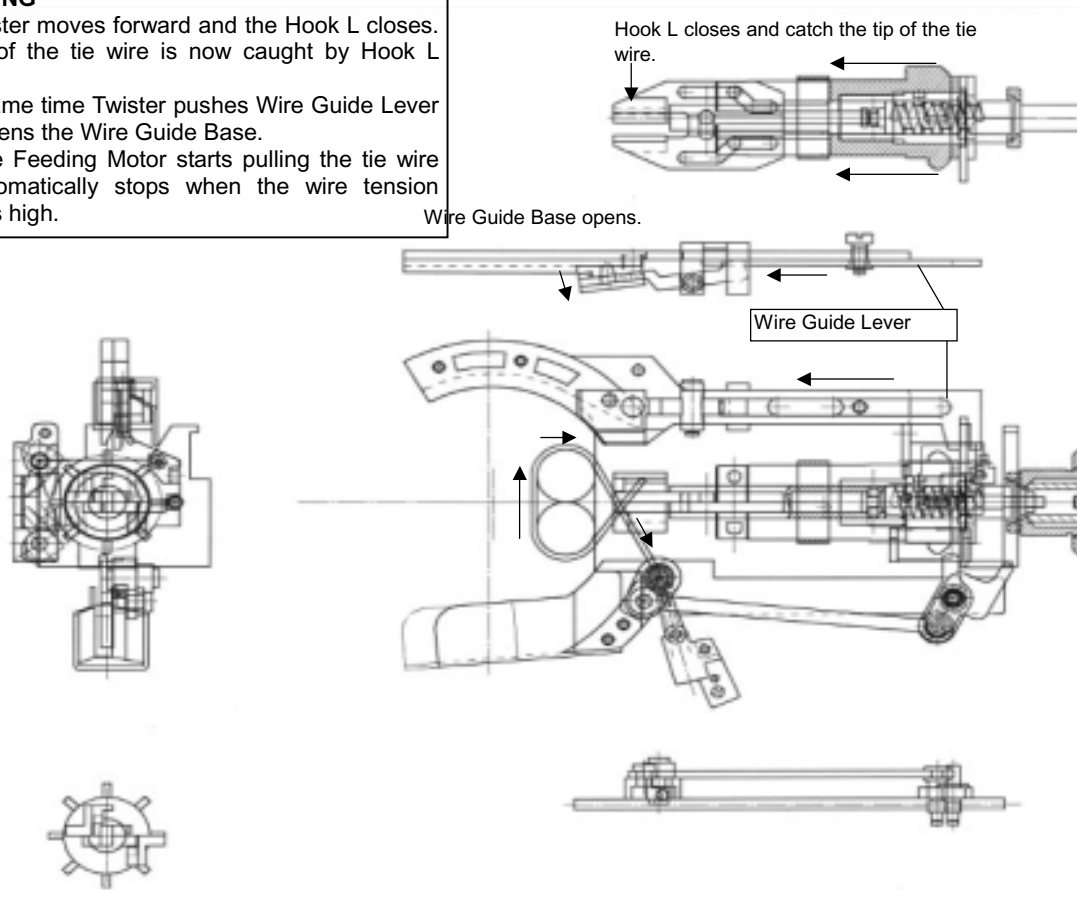
	User Operation	Normal tool operation	Problem	Beep sound	What to check	Cause of the problem		How to fix the problem
4	-	The Feeding Motor spins backwards and pull the tie wire	Not Pulling wire	Bip, bip, bip, bip… (Fast single beep) < Overcurrent error beep >	Is the Feeding gear rotating?	No	Feeding Motor end its life (Brush is worn out). Foreign substance entered into the Feeding Motor and lock up the motor.	Replace Feeding Motor with a new one.
							Foreign substance prevents rotation of the Feeding Gear.	Remove the foreign substance.
						Yes		
			During the pulling action the tip of the tie wire is off from the Hooks and the wire goes back to Magazine.	No beep	Does the Hook L grabs the tie wire firmly?	No	Hook L is broken.	Replace Hook L with a new one.
						Yes	Hook L or Center Hook is worn out.	Replace Hook L or Center Hook with a new one.
			Tool pulls wire but then stops and emits beep sound.	Bip-bip-bip, bip-bip-bip,... (Triple repetitive beep) < Feeding action error >	Is the connector on Sensor Board C connected firmly?	No	The sensor at Feeding Gear does not work.	Connect the connectors firmly.
						Yes	1) Harness 7P unit is cut. Sensor board C unit is broken. 2) Since the capacity of the battery is not enough, the Feeding gear can not rotate by regulated times.	1) Replace Harness 7P unit or Sensor board C unit. 2) Charge the battery or replace the battery with a new one.
			Not pull enough wire (Tool makes big tail tie - loose tie)	No beep	Is the tie wire deformed inside of the Magazine?	No	1) V shape groove of the Feeding Gear is worn out. 2) The spring at Feeding Gear is worn out.	1) Replace the Feeding Gear. 2) Replace the spring.
						Yes	The play between the Magazine and Magazine Cover is too big.	Turn the Adjust Ring to tighter position and reduce the play.
5	-	Cutting tie wire	Wire can not be cut.	Bip, bip, bip, bip… (Fast single beep) < Overcurrent error beep >			The load to cut the tiw wire is too high. 1) Cutter is worn out. 2) Hook parts are too dirty.	1) Replace the Cutter with a new one. 2) Clean up the Hooks with Paslode Degreaser Cleaner and then apply Molykote grease.
				No beep	Does the tool repeat the initializing action?	No	Cutter Lever is worn out. Cutter Shaft is broken.	Replace Cutter Lever or Cutter Shaft.
						Yes	Battery is discharged or ends its life.	Charge the battery or replace it with a brand new one.
6	-	Twisting wire	Not twisting wire	No beep	Does the Hook L grabs the tie wire firmly?	No	Hook L is broken.	Replace Hook L with a new one.
						Yes	Hook L or Center Hook is worn out.	Replace Hook L or Center Hook with a new one.
				Bip-beee, Bip-beee, ... <Twisting Motor error beep> (New beep sound from RB655)	Does the connector on Twisting Motor is connected to Sub board firmly? Do the three wire harnesses (Yellow, Bule, White) connected same color wire of the Main Board firmly?	No	The PC boards can not detect the rotation of the Twisting Motor.	Connect the connector and wire harnesses firmly.
						Yes	1) Twisting Motor is locked. Or Twister is locked. 2) Connector on the Twisting Motor is cut.	1) Remove foreigh substances which lock the motor or Twister. 2) Replace Twisting Motor with a new one.
			Twister twists wire but the length of the one side of straight part of the tie is short. Or the Twister does not twist onece in several ties.	No beep	Does the Hook L grabs the tie wire firmly?	No	Hook L is broken.	Replace Hook L with a new one.
						Yes	Hook L or Center Hook is worn out.	Replace Hook L or Center Hook with a new one.
7	-	Releasing the wire	The Hooks do not release the tie wire.	No beep	Does the Hook R releases the tie wire?	No	Hook R is broken.	Replace Hook R with a new one.
						Yes	Hook R or Center Hook is worn out.	Replace Hook R or Center Hook with a new one.
				Bip-beee, Bip-beee, ... <Twisting Motor error beep> (New beep sound from RB655)	Does the connector on Twisting Motor is connected to Sub board firmly? Do the three wire harnesses (Yellow, Bule, White) connected same color wire of the Main Board firmly?	No	The PC boards can not detect the rotation of the Twisting Motor.	Connect the connector and wire harnesses firmly.
						Yes	1) Twisting Motor is locked. Or Twister is locked. 2) Connector on the Twisting Motor is cut.	1) Remove foreigh substances which lock the motor or Twister. 2) Replace Twisting Motor with a new one.
			The Hooks release the tie wire and then stops with beep sound.	After three ties are made, Bip-bip-bip-bip, bip-bip-bip-bip,... (4 repetitive beep) <Reel sensor error beep>	Is the wire used TW1525 series tie wire?	No	Tie wire used is not correct.	Use TW1525
						Yes	1) The Connector of Harness 7P unit is not connected to the Sensor Board F unit (Reel sensor) firmly. 2) The photo sensor of Sensor Board F unit (Reel sensor) is dirty and can not sense the projections of the wire reel. 3) Harness 7P unit is cut or Sensor board F unit is broken.	1) Connect the connectors firmly. 2) Clean up the photo sensor inside of the reel magazine with cotton swab. 3) Replace the Harness 7P unit or Sensor Board F unit with a new one.
				After one tie is made, Bip-bip-bip-bip-bip-bip, bip-bip-bip-bip-bip-bip,... (6 repetitive beep) <Cooling fan error beep>	Is the connector of Cooling Fan connected to the Sub board firmly?	No	Cooling Fan can not work.	Connect the connectors firmly.
						Yes	Wire harnesses at Cooling Fan are cut. Cooling Fan is broken.	Replace the Cooling Fan with a new one.
				Bip-beee, Bip-beee, ... <Twisting Motor error beep> (New beep sound from RB655)	Does the connector on Twisting Motor is connected to Sub board firmly? Do the three wire harnesses (Yellow, Bule, White) connected same color wire of the Main Board firmly?	No	The PC boards can not detect the rotation of the Twisting Motor.	Connect the connector and wire harnesses firmly.
						Yes	1) Twisting Motor is locked. Or Twister is locked. 2) Connector on the Twisting Motor is cut.	1) Remove foreigh substances which lock the motor or Twister. 2) Replace Twisting Motor with a new one.

Process of Tying Action

1.FEEDING
When the Trigger is pulled, the Feeding Motor starts feeding tie wire toward the Arm through the room between the Hook R and Center Hook.
The Arm makes the tie wire into arc shape.
The wire is kept feeding and the tip of the wire reaches the room between the Hook L and the Center Hook.
The Sensor at the Feeding Motor stops feeding action when approx. 12”-13” of wire is fed.

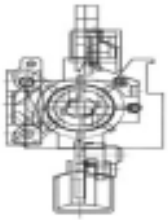


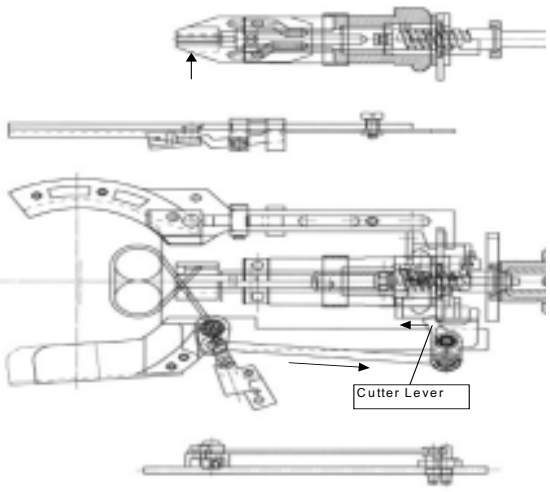
2. PULLING
The Twister moves forward and the Hook L closes. The tip of the tie wire is now caught by Hook L firmly.
At the same time Twister pushes Wire Guide Lever and it opens the Wire Guide Base.
Then the Feeding Motor starts pulling the tie wire and automatically stops when the wire tension becomes high.



3. CUTTING

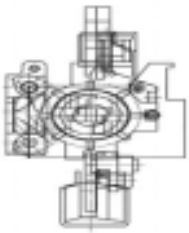
The Twister keeps moving forward and the Hook R also closes to catch the tie wire.
The Twister pushes the Cutter Lever and the Connecting Rod makes the Cutter rotates to cut the tie wire.

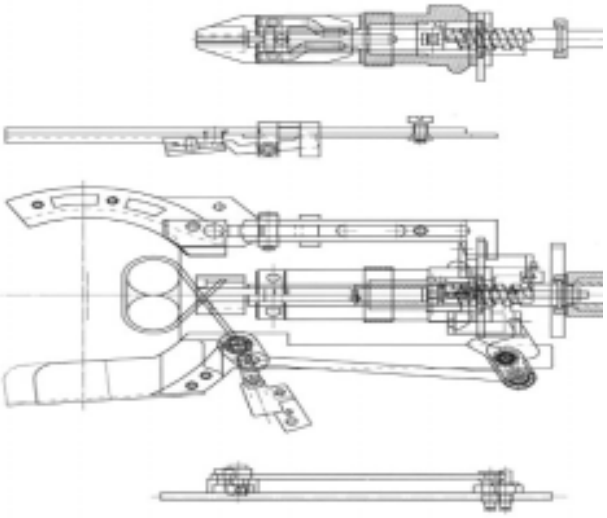




4. TWISTING

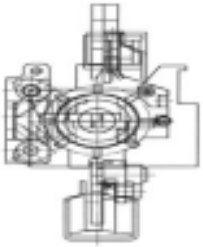
Just after the Cutter cuts the wire, the Hook L/R starts rotating action and the wire is kept twisted.

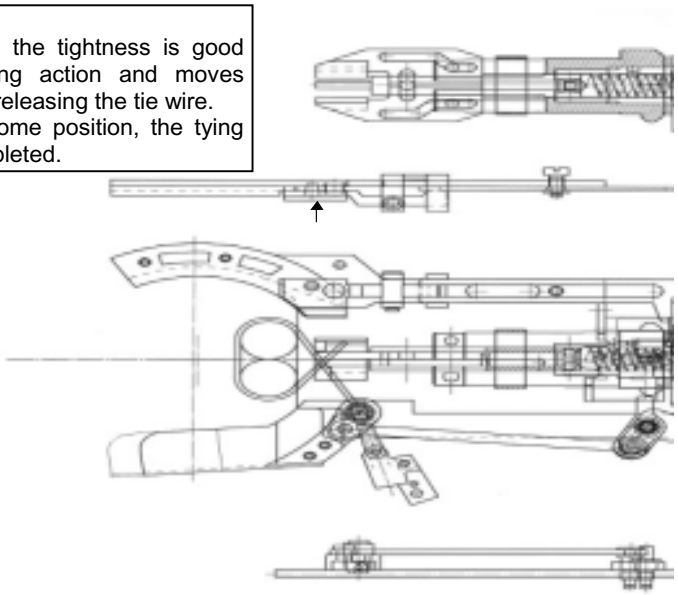




5. RELEASING

When the Main PC board senses the tightness is good enough, the Twister stops twisting action and moves backward, opening Hook L / R and releasing the tie wire.
When the Twister goes back to home position, the tying action is finished and the tie is completed.





RB655 Recommended initial stock parts list (For 20 tools)

IND	Code	Description	Q'ty	IND	Code	Description	Q'ty
1	RB70025	PLANET CAGE B UNIT		84	RB70081	SENSOR BOAD E UNIT	
2	BB40427	T-BOLT 4 X 8		85	KK33329	TORSION SPRING 3329	
3	KK23847	COMP. SPRING 3847		86	LL62013	PLAIN BEARING B-F3-1	
4	RB10344	KEY PLATE		87	RB11768	ARM B SET SCREW	
6	RB70027	SUN GEAR UNIT		88	RB10739	ARM A SET SCREW	
7	RB70029	MAGAZINE HOLDER UNIT		89	RB10740	WIRE GUIDE LEVER	
8	AA21102	PAN-HEAD SCREW 3X4		90	CC49118	HEX NUT 3X7.5	5
9	FF51652	PIN 1652	10	95	RB70278	FEEDING GEAR BASE ASSY	
10	AA31714	SCREW 2X4		96	RB70299	FEEDING GEAR B UNIT	
11	CC41104	HEX.NUT 1-3 FOR HD-12/17	10	97	FF41728	STEP PIN 1728	
16	CC41101	HEX NUT 1-5	10	98	RB10775	RELEASE LEVER	
19	JJ21603	C-RING 20		99	BB40420	BOLT 4 X 16	5
31	RB10725	INTERNAL GEAR B		100	EE39121	PLAIN WASHER 5	5
32	RB10726	PLANET GEAR B	5	101	EE39168	WASHER 4.2X1.3X1	5
33	RB10776	GEAR RETAINER		102	FF51628	HOLLOW PIN 1628	
36	BB40481	BOLT 3X5	10	103	JJ10514	E-RING 3 CF	10
38	FF41822	STEP PIN 1822		104	KK23851	COMP. SPRING 3851	5
39	JJ10113	E-RING 2.5	10	105	LL11181	WHEEL 6704	
40	KK33249	TORSION SPRING 3249		106	RB10043	STEP PIN	
41	RB10370	JAW BASE		107	RB10338	INTERNAL GEAR	
42	RB10735	JAW B		108	RB10341	PLANET GEAR	
43	RB10779	JAW A		109	RB10484	GEAR PRESS WHEEL	
44	RB70056	MOTOR GEAR B UNIT	5	110	RB10770	FEED GEAR A	
45	RB70026	ARM A UNIT		111	RB10774	WIRE GUIDE C	
46	RB70036	WIRE GUIDE A2 UNIT		112	RB10852	RELEASE STOPPER	
47	RB70276	WIRE GUIDE UNIT	10	113	RB70079	SENSOR BOARD C UNIT	
48	AA22415	SCREW 3X8	20	114	RB70087	WARNING LED UNIT	
49	AA71408	SCREW 3 X 3	10	115	RB70341	MAIN SWITCH UNIT	
50	EE31801	WASHER 3.2X7	10	116	AA31721	SCREW 3X6	
51	FF41729	SETP PIN 1729		117	AA74410	SCREW 3X6	
52	KK23849	COMP. SPRING 3849	20	118	RB10400	LEAF SPRING	
53	RB10737	WIRE GUIDE A1		119	RB10536	MAIN SWITCH BASE	
54	RB10743	WIRE GUIDE BASE		120	RB10537	JOINT, DIAL	
55	RB70039	ARM B UNIT		121	RB10853	TORQUE DIAL	
56	BB40425	BOLT 3X10	10	122	RB81102	MAGAZINE ASSY	
57	BB40810	BOLT 3X16	10	123	RB10783	PROTECTOR	
58	CC41103	HEX. NUT 1-4	20	124	RB10785	BUSH A	
59	FF41730	STEP PIN 1730		125	RB10786	BUSH B	
60	JJ10509	E-RING 4CF	10	126	RB10787	SENSOR COVER	
61	RB10746	WIRE GUIDE B		127	RB10791	SENSOR COVER PLATE	
62	RB10747	ARM C		128	RB10792	RETAINING RING	
63	RB10748	FIXED CUTTER	5	129	RB70082	SENSOR BOARD F UNIT	
64	RB10749	CUTTER	5	130	AA32708	SCREW 2.6X6	5
65	RB10750	CUTTER CONNERCTING ROD		131	RB81103	MAGAZINE COVER ASSY	
66	RB70277	CUTTER LEVER UNIT	10	132	RB11774	MAGAZINE COVER LOCK	5
67	RB11767	CUTTER SHAFT		133	RB10806	ADJUST RING	
69	RB10754	CURL GUIDE A		134	BB40405	BOLT 5X25	5
70	RB10755	CURL GUIDE B		135	EE32104	WASHER 2-3	20
71	RB70041	COVER L UNIT	5	136	EE39172	WASHER 5.1X12X1.2	
72	RB70042	MAGNET HOLDER L UNIT		137	EE39602	WASHER 7	
73	KK23850	COMP. SPRING 3850	5	138	FF31289	PIN 1289	
74	KK33328	TORSION SPRING 3328	10	139	KK33327	TORSION SPRING 3327	
75	RB70369	TWIST GUIDE COVER L	5	140	RB81106	FRAME L ASSY (USA)	
76	RB10759	TWIST GUIDE SHAFT		141	RB81107	FRAME R ASSY (USA)	
77	RB11667	SENSOR ROD		142	BB40410	BOLT 3X8	5
78	RB70044	COVER R UNIT	5	143	BB40811	BOLT 3X25	10
79	RB70045	MAGNET HOLDER R UNIT		144	RB10970	ELECTRODE BLOCK	
80	KK33330	TORSION SPRING 3330	10	145	KK23656	COMPRESSION SPRING 3656	
81	RB70370	TWIST GUIDE COVER R	5	146	RB10213	WINDOW	5
82	RB10765	SENSOR BASE		147	RB81034	MOTOR COVER ASSY	
83	RB70080	SENSOR BOARD D UNIT		148	RB11769	ELECTRODE PLATE	10

RB655 Recommended initial stock parts list (For 20 tools)

IND	Code	Description	Q'ty
149	RB10795	GRIP COVER L	
150	RB10796	GRIP COVER R	
153	RB10854	TRIGGER	
154	RB10855	TRIGGER LOCK	
155	RB70367	MAIN BOARD UNIT	5
157	RB70101	TRIGGER SWITCH	5
160	RB10423	LABEL, MAIN SWITCH	
161	RB10421	LABEL, FCC (USA)	
162	RB10799	TORQUE ADJUSTMENT LABEL	
163	RB11921	NAME LABEL (USA)	
164	RB10846	WIRE LOADING LABEL	
165	RB10847	WIRE SETTING LABEL	
166	RB10962	ARM CAUTION LABEL	
167	RB70084	HARNESS 11P UNIT	5
168	RB70085	HARNESS 7P UNIT	5
169	RB70086	HARNESS 3P UNIT	5
170	RB70339	FAN UNIT	
171	RB11884	FILTER A	
172	RB11885	FILER B	
173	RB11004	PROTECTOR C	
174	EE39830	WASHER 5.1X 9	
175	RB11777	STOPPER PLATE	
176	RB10718	SLEEVE GUIDE	
177	RB11762	HOOK L	
178	RB11763	HOOK R	
179	RB11886	FAN PROTECTOR	
180	RB11883	FILTER COVER	
181	RB10724	SLEEVE COVER	
182	RB11003	PROTECTOR B	
183	CK10198	SCREW 3X10	
184	RB11775	BINDING HEAD SCREW	
185	RB11776	MAGAZINE LEAF SPRING	
187	RB81108	MAGAZINE COVER KIT	
188	FF31559	PIN 1559	
189	FF51656	PIN 1656	
191	JJ10510	RETAINING RING 2.3	10
192	RB70217	MAGNET HOLDER UNIT	
193	RB11666	ARM COVER	
201	RB70349	TWISTING MOTOR TD5046 UNIT	
202	RB70351	FEEDING MOTOR RS-55VC UNIT	5
203	RB70222	FEED GEAR SHAFT	
205	RB70113	MAIN SWITCH BASE ASSY	
207	RB70284	TWISTER ASSY	
208	RB70033	FINGER BASE ASSY	
209	RB70281	ARM A ASSY	
210	RB70285	ARM B ASSY	
211	RB70283	TWISTER A ASSY	2

TIGHTENING TORQUE CHART