



# MODEL C 10RA

## 1. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

Please follow the precautions below for disassembly and reassembly procedures. The circled numbers in the following figures and the **[Bold]** numbers in the descriptions below correspond to the item numbers in the Parts List and exploded assembly diagrams.

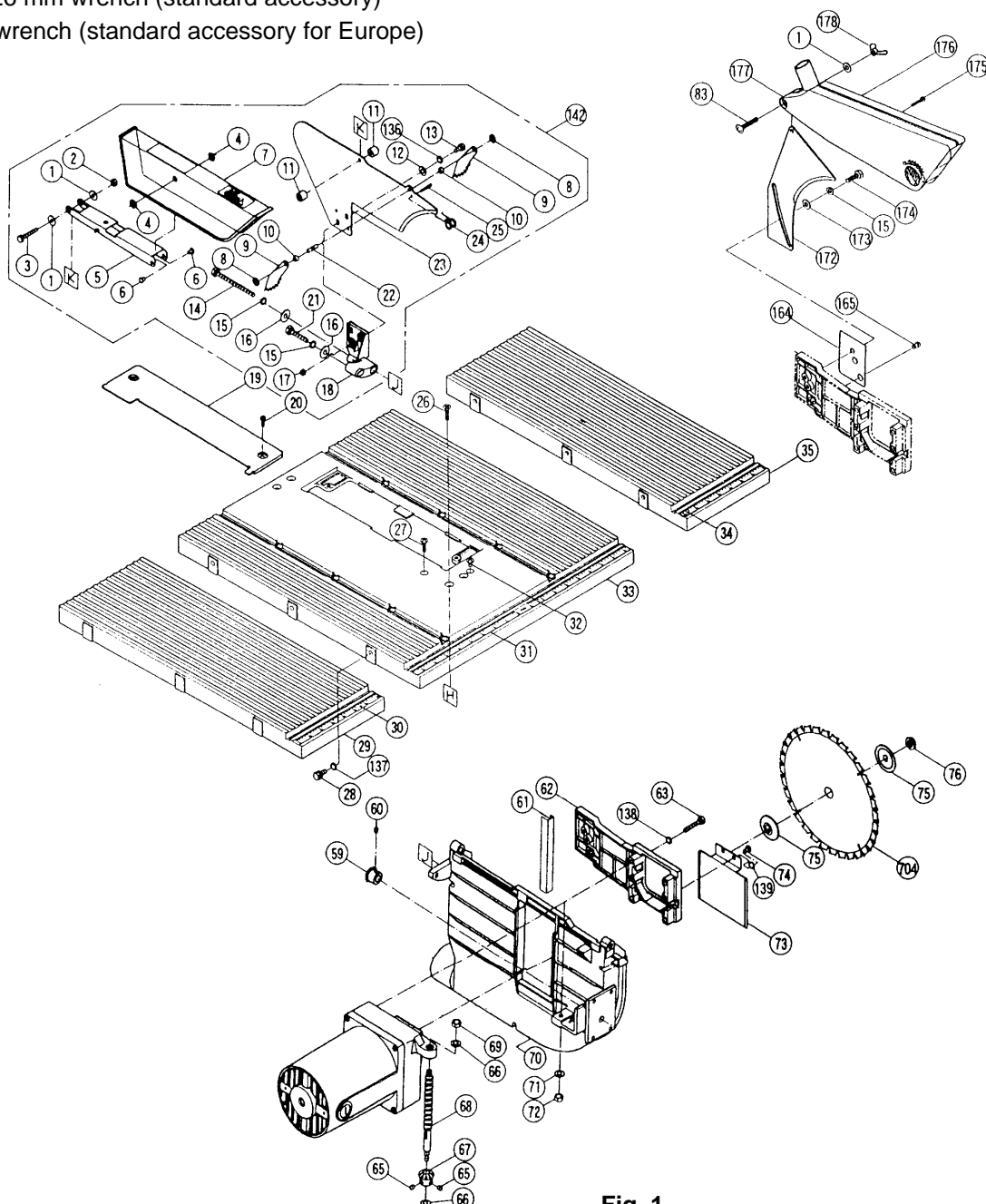
**⚠CAUTION:** Prior to attempting disassembly or replacement of the saw blade, ensure that the power cord plug is disconnected from the power source.

### 1-1. Disassembly

#### A. Disassembly of the saw blade section

Tools required:

- Phillips head screwdriver
- 10 mm wrench
- 22 mm wrench (standard accessory)
- 23 x 26 mm wrench (standard accessory)
- Hex. wrench (standard accessory for Europe)



- (1) Remove the M6 x 60 Bolt **[14]** and M6 x 35 Bolt **[21]** using a 10 mm wrench, and remove the Saw Blade Guard and Spreader Assembly (Blade Guard **[7]** and Spreader **[23]**). (For the U.S.A., Australia and New Zealand)

Remove the M6 x 16 Bolt **[174]** with the hex. wrench, then remove the Saw Blade Guard and Splitter Assembly (the Blade Guard **[176]** and **[177]** and the Splitter **[172]**). (For Europe)

- (2) Remove the two M5 x 8 Machine Screws **[20]** and remove the Table Insert **[19]**. (For the U.S.A., Australia and New Zealand)

Remove the two M5 x 16 Flat Hd. Screws **[20]** and remove the Insert **[19]**. (For Europe)

- (3) Put the 22 mm Wrench (standard accessory) on the Spindle Ass'y **[201]** to hold it. Then, put the 23 mm end of the 23 x 26 mm Wrench (standard accessory) on the Set Nut **[76]**. Turn it counterclockwise to remove the nut, and remove Washer (A) **[75]**, the TCT Saw Blade **[704]** and Washer (A) **[75]** in this order.

Refer to Fig. 6 for the part numbers of the two-hundred level.

## B. Disassembly of the switch section

### Tools required:

- Phillips head screwdriver

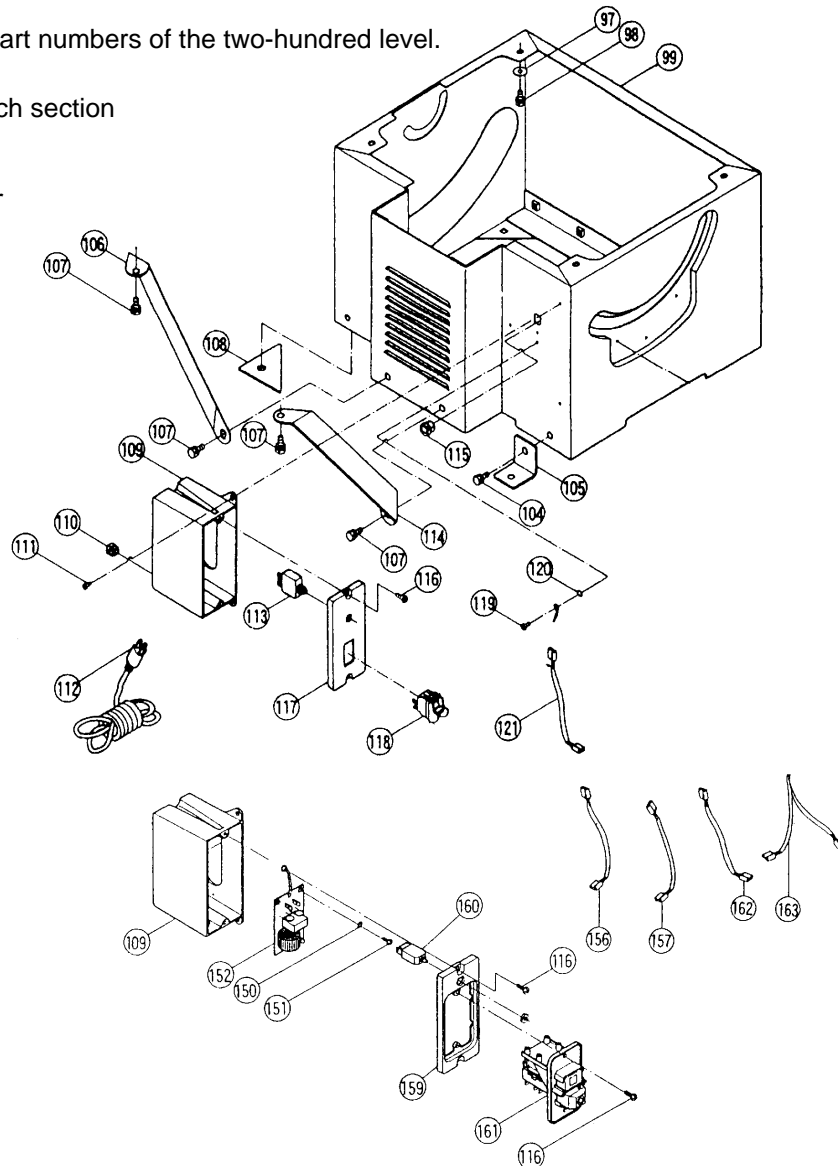


Fig. 2

- (1) Remove the two D5 x 16 Tapping Screws **[116]** and remove the Switch Mtg. Plate **[117]**. Then, detach each lead wire connected to the Circuit Breaker Switch **[113]** and Rocker Switch **[118]**. (For the U.S.A., Australia and New Zealand)

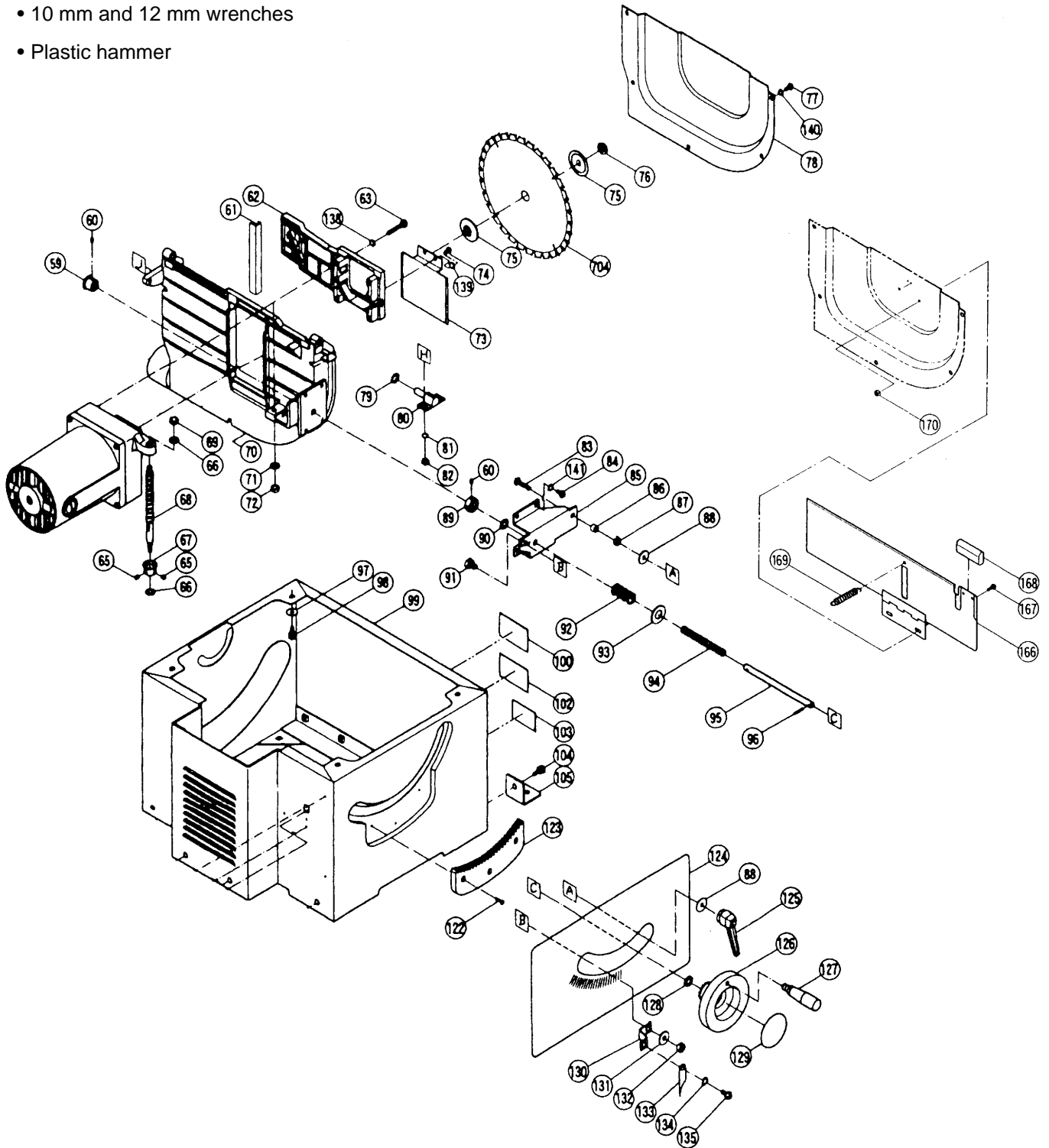
Remove the two D5 x 16 Tapping Screws **[116]** and remove the Switch Cover **[159]**. Then, detach each lead wire connected to the Circuit Breaker Switch **[160]**, Electro Magnetic Disturbance **[152]** and NVR-Switch **[161]**. Remove the two D5 x 16 Tapping Screws **[116]** and remove the NVR-Switch. (For Europe)

(2) Remove the three D4 x 10 Tapping Screws **[111]** and remove the Switch Box **[109]**. Then, remove the two D4 x 10 Tapping Screws (Special) **[119]** and detach the ground wire (green/yellow).

### C. Disassembly of the motor and wheel sections

#### Tools required:

- Phillips head screwdriver
- Flatblade screwdriver
- 3 mm hexagon bar wrench
- 10 mm and 12 mm wrenches
- Plastic hammer



**Fig. 3**

- (1) Turn the Wheel **[126]** counterclockwise and move the motor to the lower limit position. Turn the Tension Handle **[125]** counterclockwise to loosen and tilt the motor at an angle of 45 degrees. Turn the Tension handle **[125]** clockwise to tighten. Then, turn the body (Table **[33]** surface upside down.)
- (2) Remove the two Brush Caps **[220]** and remove the two Carbon Brushes **[221]**.
- (3) Remove the four M5 x 30 Machine Screws **[225]**, and remove the Housing Ass'y **[222]** (including the Stator **[218]**), Baffle **[215]**, and Armature Ass'y **[212]** in this order.
- (4) Hold the Strain Relief **[227]** with the pliers and pull it out from the Housing Ass'y **[222]**.
- (5) Remove the two D5 x 60 Tapping Screws **[216]**. Then, detach the lead wire of the Stator **[218]** from the Brush Holder **[223]**, and the ground wire connector on the Stator **[218]**. And, while lightly striking the mounting surface of the Bracket **[211]** of the Housing Ass'y **[222]** with the plastic hammer, draw out the Stator **[218]**.
- (6) Loosen the two M6 x 6 Hex. Socket Set Screws **[60]** securing the Anchor Block **[89]** and the two M6 x 6 Hex. Socket Set Screws **[60]** securing Bevel Gear (A) **[59]**. Remove the Wheel **[126]**, the M 9.5 Flat Washer **[128]**, the Regulating Bolt **[95]**, the 57L Compression Spring **[94]**, the M16 Flat Washer **[93]**, the 20L Compression Spring **[92]**, the M9.5 Flat Washer **[90]**, the Anchor Block **[89]** and Bevel Gear (A) **[59]**.
- (7) Remove the M8 x 16 Bolt **[91]** using a 12 mm wrench, and remove the Pointer Bracket **[130]** (including the Needle Pointer **[133]**).
- (8) Turn the Tension Handle **[125]** counterclockwise to loosen, and remove it.
- (9) Loosen the M6 Nut **[87]** using a 10 mm wrench, and remove the M6 x 25 Flat Washer **[88]**, the Spacer **[86]**, and the M6 x 35 Special Bolt **[83]**.

Refer to Fig. 6 for the part numbers of the 200 level.

#### D. Disassembly of the body and spindle sections

##### Tools required:

- Phillips head screwdriver
- 3 mm hexagon bar wrench
- 8 mm, 10 mm and 13 mm wrenches
- Plastic hammer

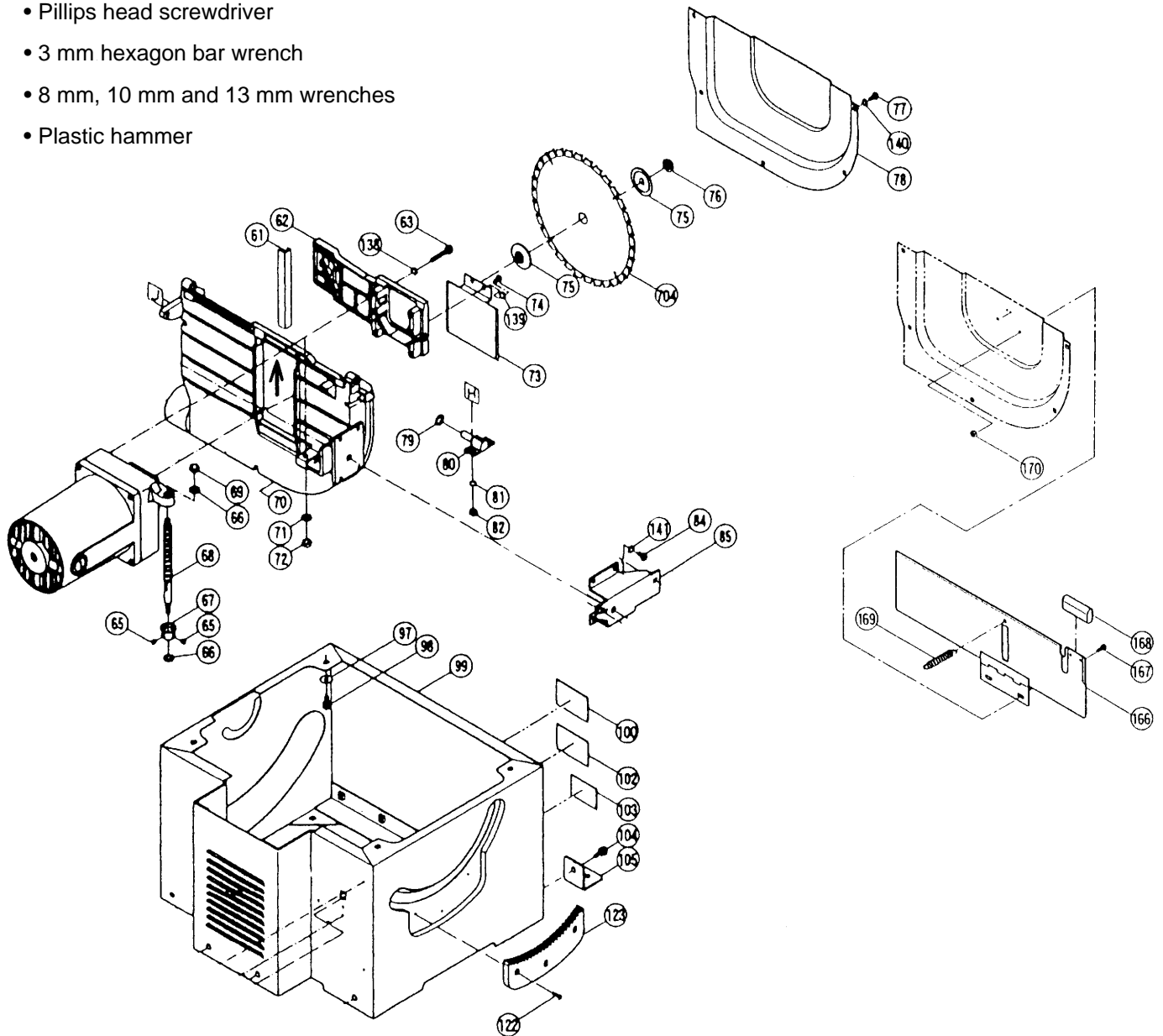


Fig. 4

- (1) Remove the four M6 Nuts **[82]** using a 10 mm wrench, and remove the Body **[70]** from the Table **[33]**.
- (2) Remove the four M6 x 12 Machine Screws **[84]**, and remove the Bracket **[85]**.
- (3) Remove the five M6 x 12 Machine Screws **[77]**, and remove the Blade Guard **[78]**.  
Remove the two M4 x 8 Machine Screws **[167]**, then remove the Blade Guard **[166]** (for Europe).
- (4) Remove the M6 x 12 Machine Screw **[74]**, and remove the Guard **[73]**.
- (5) Hold the Screw Bar **[68]** using an 8 mm wrench, and remove the M6 Special Nut Chuck **[72]** with a 10 mm wrench.
- (6) Slide the Bracket **[211]** upward (in the direction of the arrow in Fig. 4) and loosen the two M6 x 6 Hex. Socket Set Screws **[65]**. Remove the M8 x 14.3 Flat Washer **[66]** and Bevel Fear (B) **[67]** from the Screw Bar **[68]**.
- (7) Remove the four M6 x 35 Bolts **[63]** using a 10 mm wrench, and remove the Slide Bracket **[62]** and Bracket **[211]**.

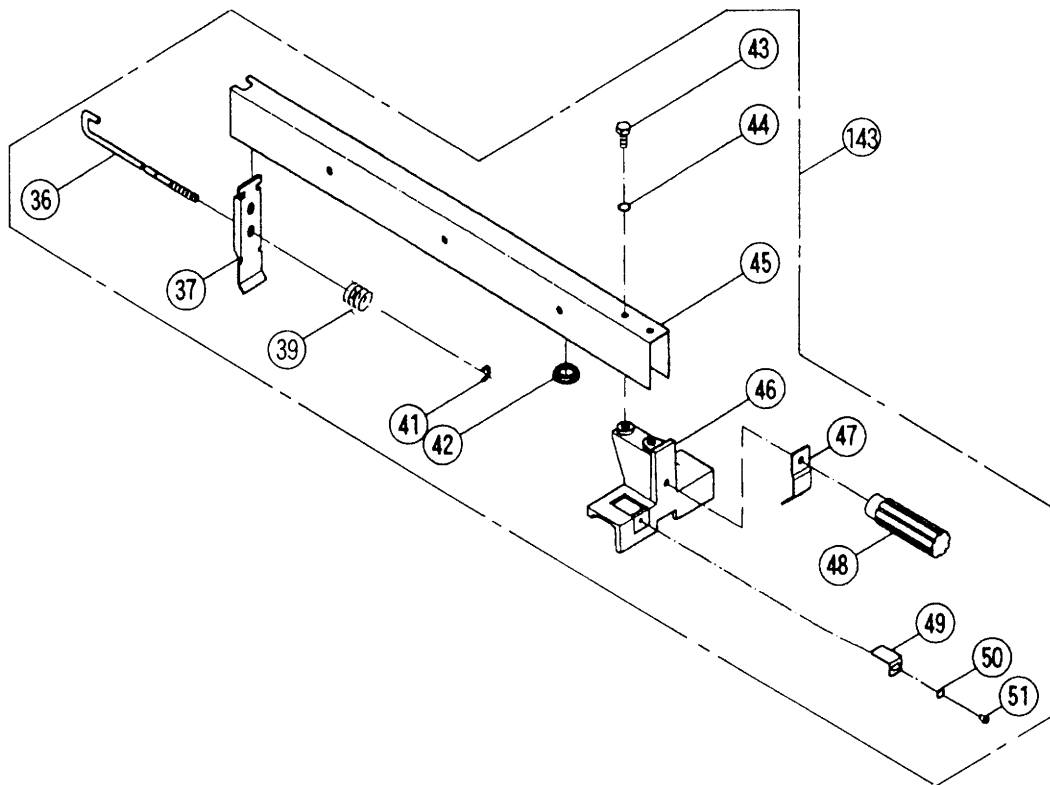
- (8) Remove the four M4 x 12 machine Screws **[203]**, and remove the Bearing Retainer **[205]**.
- (9) Remove the Spindle Ass'y **[201]** by striking the Bracket **[211]** with a plastic hammer.
- (10) Hold the Screw Bar **[68]** using an 8 mm wrench, and remove the M8 Nut Chuck **[69]** with a 13 mm wrench.  
Remove the Screw Bar **[68]** from the Bracket **[211]**.
- (11) Remove the four M6 x 12 Bolts (with washers) **[98]** using a 10 mm wrench, and remove the Body Shell **[99]** from the Table **[33]**.

Refer to Fig. 6 for the part numbers of the 200 level.

#### E. Disassembly of the rip fence section (fence ass'y)

##### Tools required:

- Phillips head screwdriver
- Pliers



**Fig. 5**

- (1) Remove Clamp Handle (A) **[48]** and the Front Clamp **[47]**.
- (2) Remove the Retaining Ring (E-Type) **[41]**. (At this time, hold the Locking Rod **[36]** to prevent it from coming out.) Then, remove the Locking Rod **[36]**, the 38L Compression Spring **[39]** and the Rear Clamp **[37]**.
- (3) Remove the two M6 x 12 Bolts **[43]**, and separate the Parallel Bracket **[45]** and Width Body **[46]**.
- (4) Remove the M5 x 6 Machine Screw **[51]**, and remove the Pointer **[49]**.

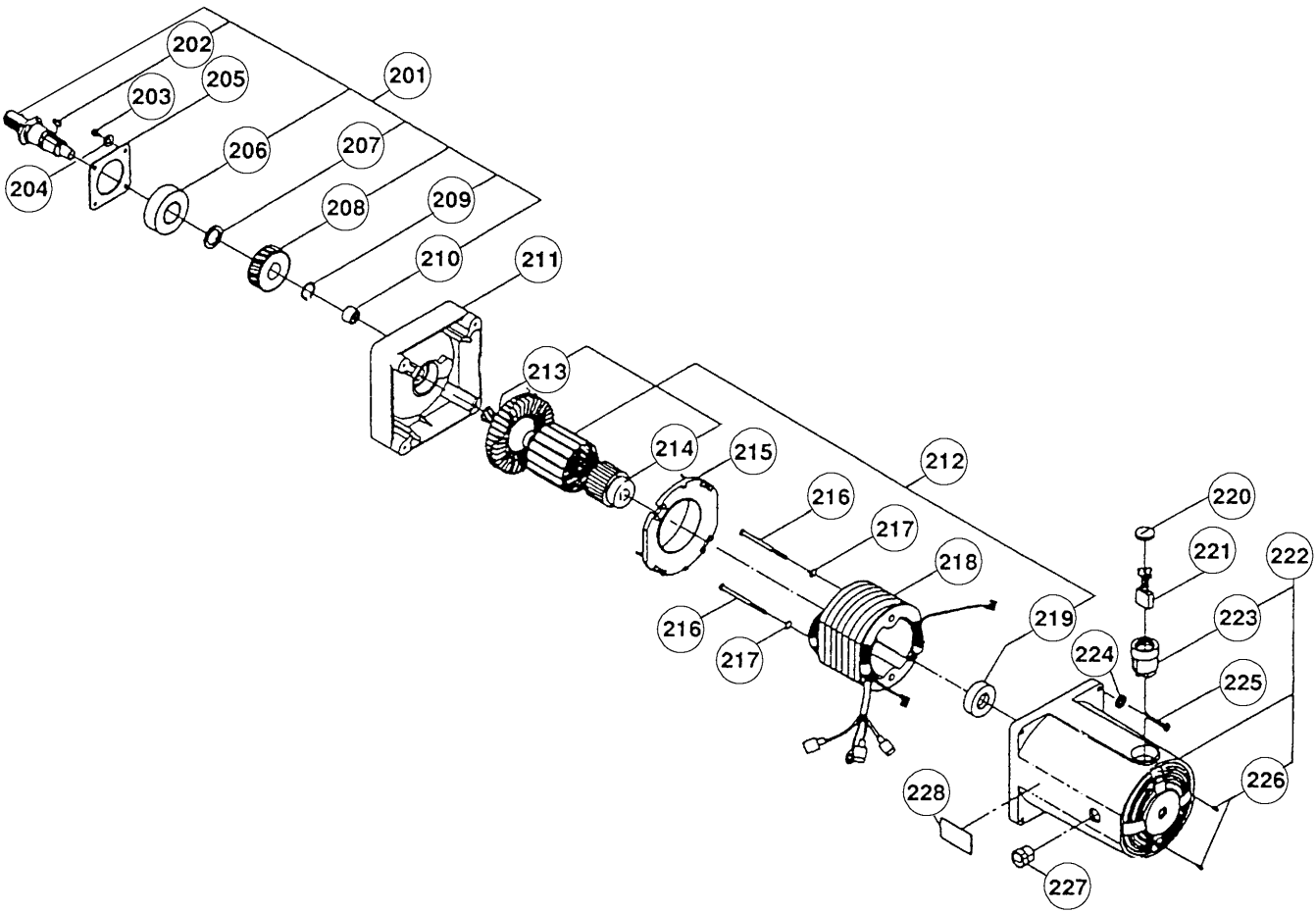


Fig. 6

## 1-2. Reassembly

Perform reassembly in reverse order of disassembly while observing the following precautions.

- (1) Prior to reassembly, measure the insulation resistance of the armature ass'y, stator ass'y, switch and other electrical components with a DC 500 V Megohm Tester, and confirm that the insulation resistance of each part is more than 5 MΩ.

- (2) Dielectric strength test

After testing the insulation resistance, apply 1,200 volts (for 100 – 127 V products) or 1,800 volts (for 220 – 240 V products) between the blade of the Power Cable **[112]** and the Body Shell **[99]** for one second with the Rocker Switch **[118]**, NVR-Switch **[161]** ON, to check that no dielectric breakdown will take place.

- (3) No-load current value

The figures indicated below are the no-load current values after the machine is operated without load for 30 minutes.

No-load Current (max.): 8.5 A at AC single phase 110 V, 50 Hz

No-load Current (max.): 6.2 A at AC single phase 115 V, 60 Hz

No-load Current (max.): 3.9 A at AC single phase 230 V, 50 Hz

No-load Current (max.): 3.6 A at AC single phase 240 V, 50 Hz

- (4) When assembling the Slide Plate **[61]**, see Fig. 7 for the direction in which it is mounted on the Body **[70]**.

Thoroughly wipe off the old grease on the sliding portion between the Slide Plate **[61]**, and the Slide Bracket **[62]** and Bracket **[211]**.

Then apply two grams of motor grease No. 29 (Code No. 930035) there. Thoroughly wipe off the old grease in the gear box of the Bracket **[211]**, and apply two grams of motor grease No. 29 (Code No. 930035) to the Needle Bearing **[210]**. Also thoroughly wipe off the old grease on teeth of the Helix Gear **[208]** in the Spindle Ass'y **[201]**, pinion of the Armature Ass'y **[212]**, thread portion of the Screw Bar **[68]**, and teeth of Bevel Gear (A) **[59]** and Bevel Gear (B) **[67]**. Then apply motor grease No. 29 (Code No. 930035).

Refer to Fig. 6 for the part numbers of the 200 level.



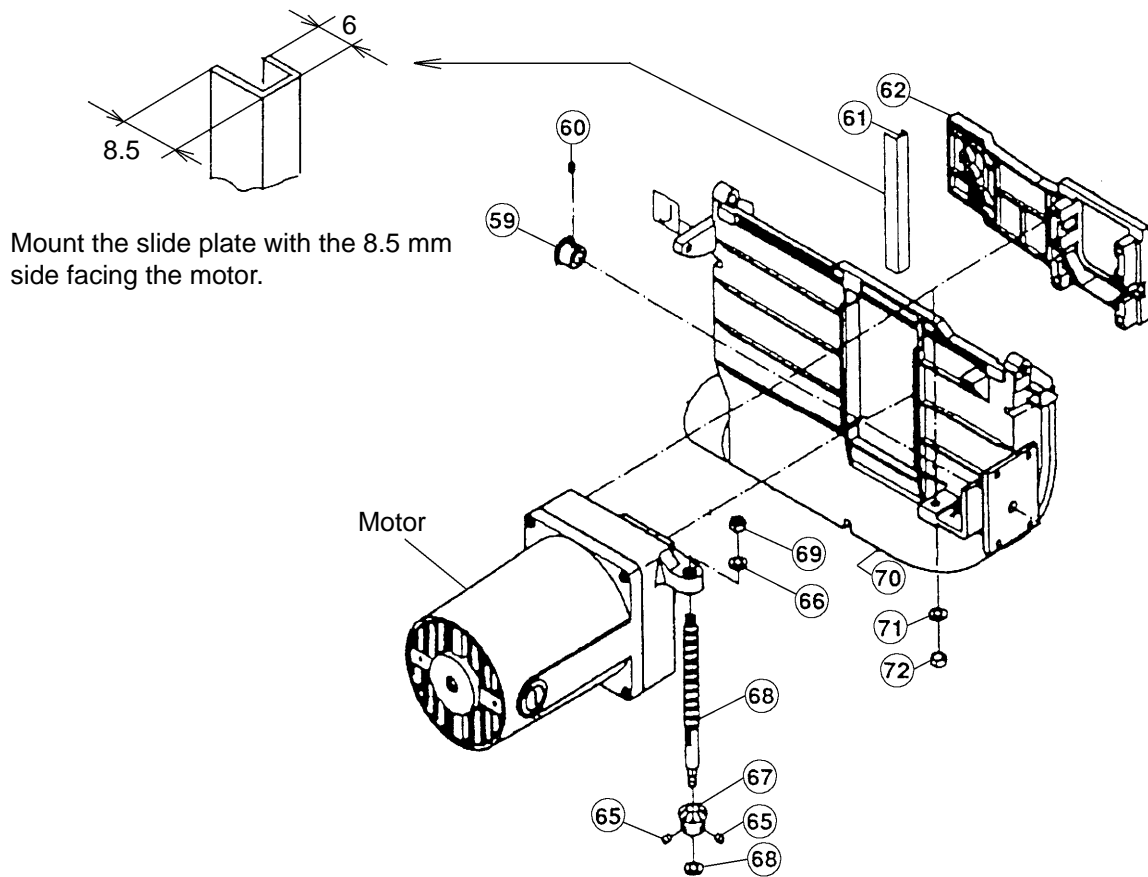


Fig. 7

### 1-3. Wiring

Wiring should be performed as shown in Fig. 8., Fig. 9, Fig. 10, Fig. 11. Please note that incorrect wiring will result in a failure in rotation.

#### (1) Wiring diagram

① 110 V

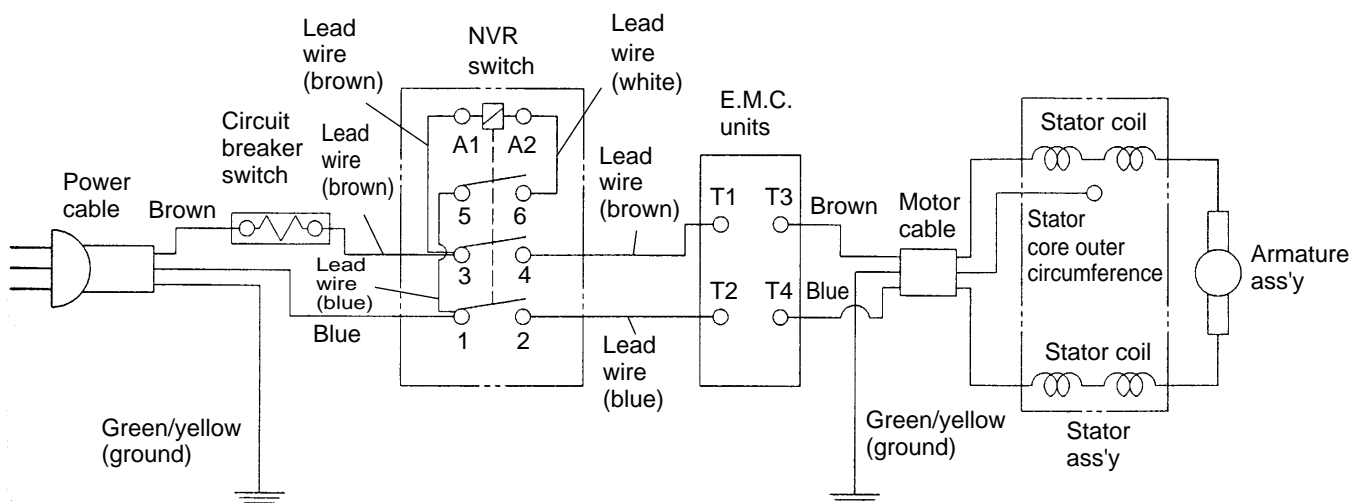


Fig. 8

② 115 V

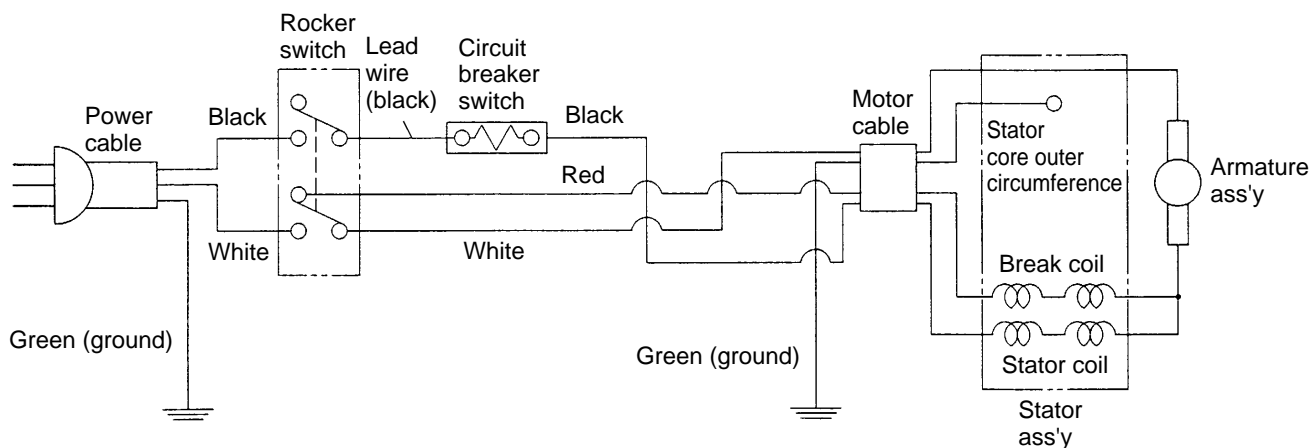


Fig. 9

③ 230 V

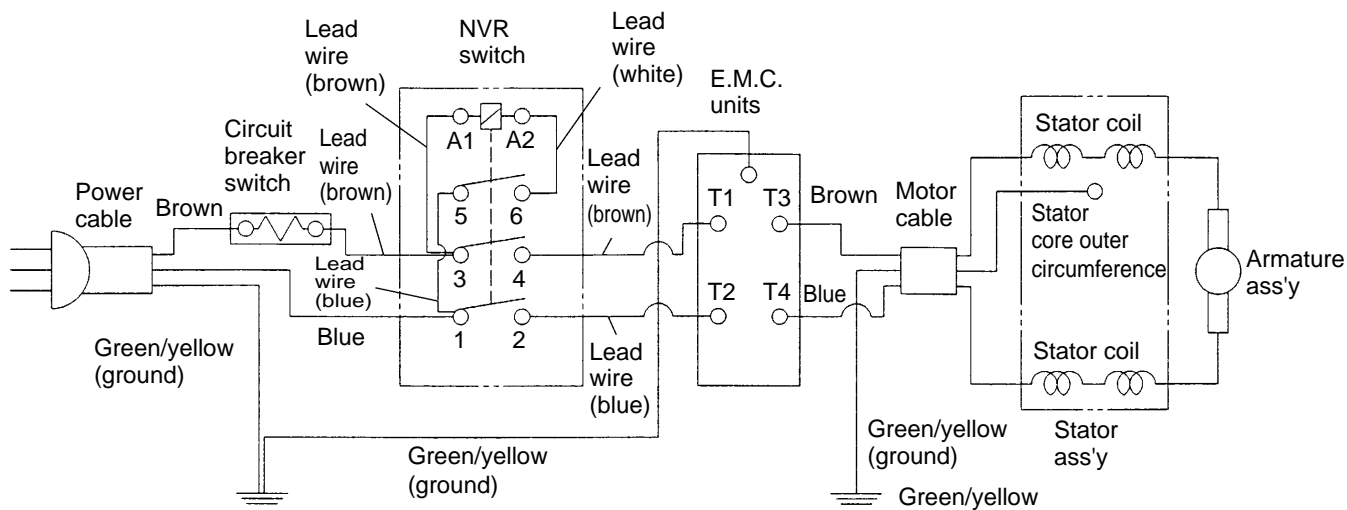


Fig. 10

④ 240 V

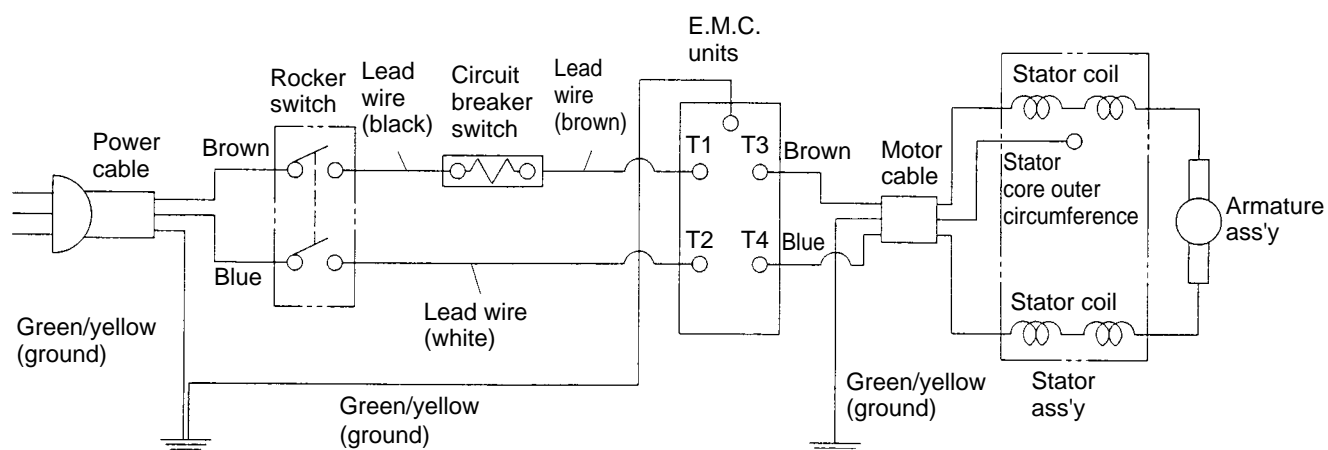


Fig. 11

(2) Lead wire arrangements

① 110 V

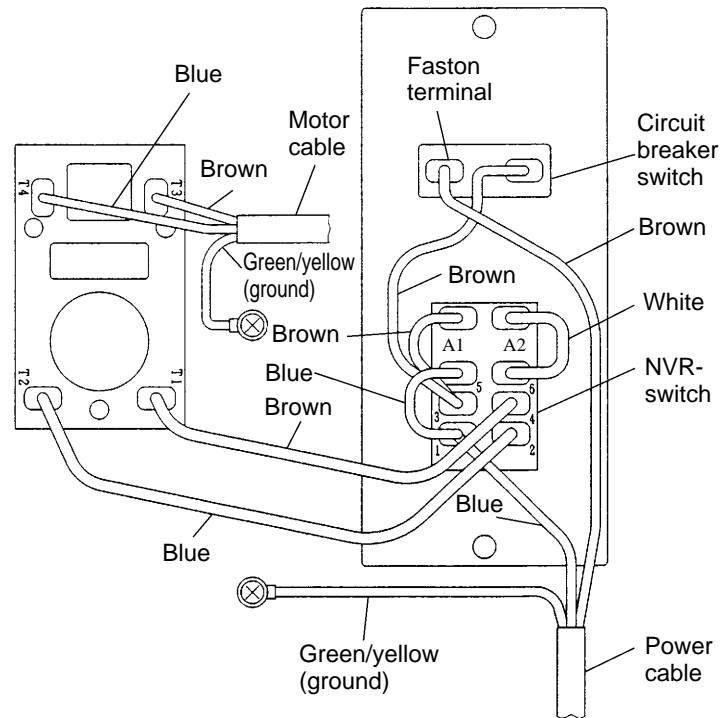


Fig. 12

② 115 V

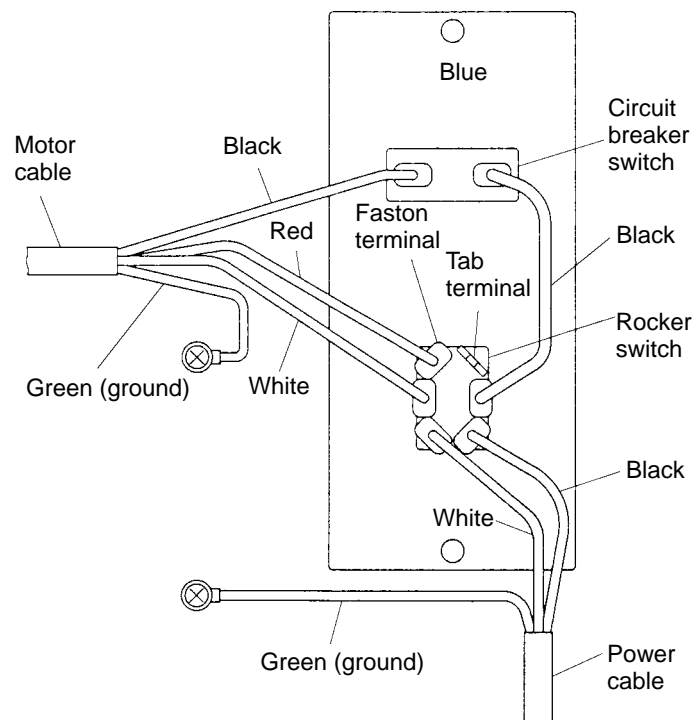
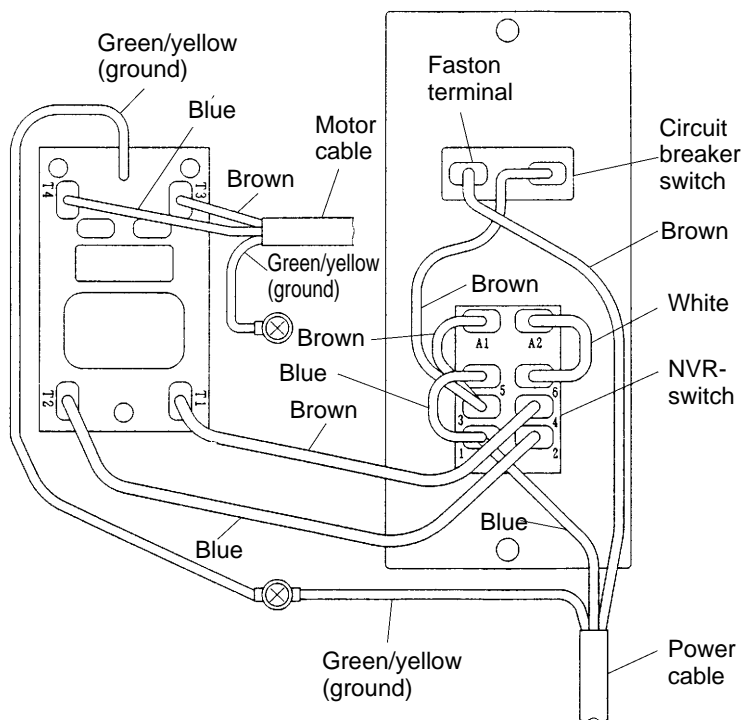


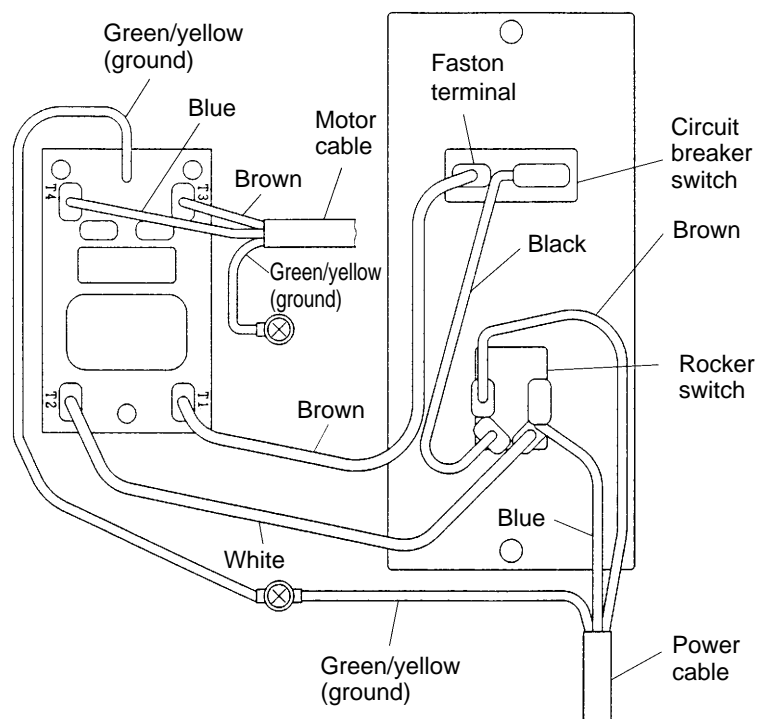
Fig. 13

③ 230 V



**Fig. 14**

④ 240 V



**Fig. 15**

When connecting each lead wire to the circuit breaker, and rocker switch or NVR-switch the faston terminals must be completely inserted into the corresponding tab terminals.

#### 1-4. Adjustments

After disassembly and reassembly, the following parts require adjustment.

After being disassembled and reassembled, the affected items should be adjusted. For adjustment, see the adjusting method described in 8-3. Adjustment on page 15.

- (1) Parallel alignment of the saw blade and the miter-gauge groove
- (2) Saw blade squareness and tilting 45° stopper position
- (3) Parallel alignment of the rip fence and the miter-gauge groove
- (4) Pointer position of the rip fence
- (5) Squareness between the miter gauge and the saw blade
- (6) Position of the spreader with respect to the saw blade (see \*)

##### \* Adjusting the spreader

- ① Use a straightedge to align the spreader with the saw blade (see Fig. a).

Tighten the two 6 x 16 mm bolts (see Fig. b) with a wrench to lock the spreader.

- ② Check clearance between saw blade tip and the spreader. It should be less than 1/2" (12.7 mm) at all positions. If not, loosen the two 6 x 16 mm bolts securing the spreader to the guard bracket with a wrench and move the spreader up and down. After adjustment of the spreader is complete, firmly retighten the two 6 x 16 mm bolts with a wrench (see Fig. b).

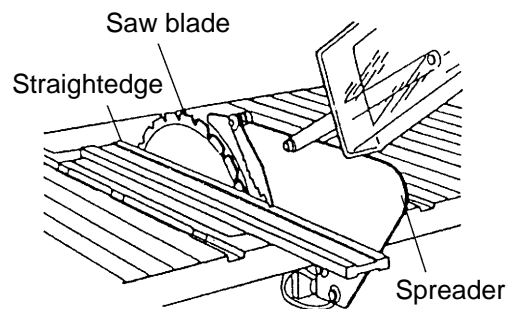


Fig. a

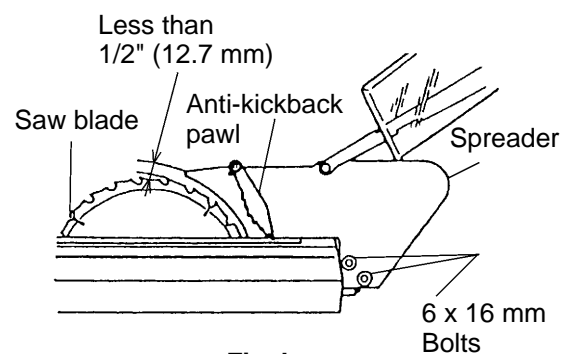


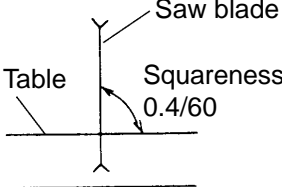
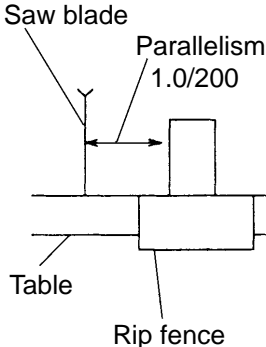
Fig. b

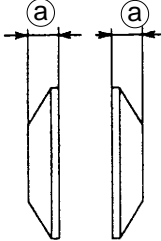
#### 1-5. Product precision

After the reassembly is completed, check the precision of the product.

Item	
Run out of dummy disc	0.38/230
Squareness between dummy disc and stable upper surface	0.4/60
Parallelism between dummy disc and miter-gauge groove	0.4/200
Parallelism between dummy disc and rip fence	1.0/200

## 2. REPAIR GUIDE

No.	Problem	Possible cause	Factory rated value	Remedy
1	<p>Low cutting accuracy – poor squareness of cut surface</p>  <p>(Note) Unit: mm/mm <b>Fig. 16</b></p>           <p>(Note) Unit: mm/mm <b>Fig. 17</b></p>	a) Because of poor squareness between the table and saw blade, the saw blade enters the material at a slant.	0.4/60 (Dummy disc) (Fig. 16)	<ul style="list-style-type: none"> <li>• Readjust the squareness of the saw blade using the M6 x 20 Seal Lock Screw [27].</li> </ul>
		b) Large run out of saw blade. (Large vibration)	0.38/230 (Dummy disc)	<ul style="list-style-type: none"> <li>• Replace the Saw Blade [704].</li> <li>• Check Washer (A) [75] for dents, etc. If any, remove with a file.</li> <li>• Replace Washer (A) [75].</li> </ul>
		c) Poor parallelism of table upper surface.	1.0 /200 or under	<ul style="list-style-type: none"> <li>• Replace Table [33].</li> </ul>
		d) Poor parallelism between the table and the extension wing.	1.5/200 or under	<ul style="list-style-type: none"> <li>• Loosen the M8 x 20 Bolt (W/ Washers) [107], and readjust the parallelism between the Table [33], and Extension Wing (R) [35] and Extension Wing (L) [29].</li> <li>• Replace Extension Wing (R) [35] or Extension Wing (L) [29].</li> </ul>
		e) Poor parallelism between the miter-gauge groove and saw blade.	0.4/200 (Dummy disc)	<ul style="list-style-type: none"> <li>• Loosen the M6 x 25 Flat Hd. Screw [26], and readjust the parallelism between the miter-gauge groove and the saw blade.</li> </ul>
		f) Poor parallelism between the rip fence and saw blade.	1.0/200 (Dummy disc) (Fig. 17)	<ul style="list-style-type: none"> <li>• Loosen the M6 x 12 Bolt [43], and readjust the parallelism between the rip fence and the saw blade.</li> </ul>
		g) A too fast cutting speed causes the saw blade to deflect and results in low accuracy.	—	<ul style="list-style-type: none"> <li>• Slow down the cutting speed. (Proper speed is 7 seconds for 50 mm rectangular lumber.)</li> </ul>
		h) Excessive force is applied because of a dull saw blade.	—	<ul style="list-style-type: none"> <li>• Sharpen the Saw Blade [704].</li> <li>• Replace the Saw Blade [704].</li> </ul>
		i) Deformation of the material such as a curvature or bend causes the material to move during cutting.	—	<ul style="list-style-type: none"> <li>• Correct the curvature or bend by planing the material, and cut again.</li> </ul>

No.	Problem	Possible cause	Factory rated value	Remedy															
2	Poor cut surface Parallelism (a) = 0.02/63  Washer (A) <b>Fig. 18</b>	a) Large run out of saw blade. (Large run out results in poor cut grain.)	(Dummy disc)	• Same as item No. 1, (b).															
		b) Poor parallelism of washer (A) due to dents or flaws.	Washer (A) (Fig. 18)	• Remove dents or flaws on Washer (A) [75], or replace.															
		c) Cutting speed too fast.	—	• Slow down the cutting speed.															
		d) During cutting, the material becomes rough because of its curvature, bend, etc.	—	• Eliminate the curvature, bend, etc. in the material by planing.															
3	The saw blade locks up.	a) Cutting speed too fast.	—	• Slow down the cutting speed.															
		b) Thin extension cord.	—	The usable extension cords are as follows: <table border="1" data-bbox="1094 904 1487 1171"><tr><td>Ampere rating</td><td>5.1 to 7.0</td><td>12.1 to 16.0</td></tr><tr><td>Ext. cord length</td><td colspan="2">Wire gauge size</td></tr><tr><td>25 ft. (7.5 m)</td><td>18 A.W.G. (1.0 mm<sup>2</sup>)</td><td>14 A.W.G. (2.0 mm<sup>2</sup>)</td></tr><tr><td>50 ft. (15 m)</td><td>16 A.W.G. (1.5 mm<sup>2</sup>)</td><td>12 A.W.G. (3.5 mm<sup>2</sup>)</td></tr><tr><td>75 ft. (22.5 m)</td><td>14 A.W.G. (2.0 mm<sup>2</sup>)</td><td>10 A.W.G. (5.5 mm<sup>2</sup>)</td></tr></table>	Ampere rating	5.1 to 7.0	12.1 to 16.0	Ext. cord length	Wire gauge size		25 ft. (7.5 m)	18 A.W.G. (1.0 mm <sup>2</sup> )	14 A.W.G. (2.0 mm <sup>2</sup> )	50 ft. (15 m)	16 A.W.G. (1.5 mm <sup>2</sup> )	12 A.W.G. (3.5 mm <sup>2</sup> )	75 ft. (22.5 m)	14 A.W.G. (2.0 mm <sup>2</sup> )	10 A.W.G. (5.5 mm <sup>2</sup> )
		Ampere rating	5.1 to 7.0	12.1 to 16.0															
		Ext. cord length	Wire gauge size																
		25 ft. (7.5 m)	18 A.W.G. (1.0 mm <sup>2</sup> )	14 A.W.G. (2.0 mm <sup>2</sup> )															
50 ft. (15 m)	16 A.W.G. (1.5 mm <sup>2</sup> )	12 A.W.G. (3.5 mm <sup>2</sup> )																	
75 ft. (22.5 m)	14 A.W.G. (2.0 mm <sup>2</sup> )	10 A.W.G. (5.5 mm <sup>2</sup> )																	
c) Excessive force is applied because of a dull saw blade.	—	• Shapen the Saw Blade [704]. • Replace the Saw Blade [704].																	
d) Wrong selection of saw blade.	—	• Use a genuine Hitachi saw blade. • The higher the number of teeth of a saw blade, the more cutting resistance increases. Where a saw blade with many teeth is used, cut slowly.																	
e) During cutting, the material binds the saw blade because of a deformation such as curvature and bend.	—	• Eliminate the curvature, bend, etc. in the material by planing.																	

No.	Problem	Possible cause	Factory rated value	Remedy															
4	The saw blade won't turn even if the switch is turned on.	a) Power cord is not connected to the power outlet.	—	<ul style="list-style-type: none"><li>• Check the power voltage.</li><li>• Plug the power cord into the outlet.</li></ul>															
		b) Wear of the carbon brushes has exceeded the wear limit (5 mm).	—	<ul style="list-style-type: none"><li>• Check the Carbon Brushes <b>[221]</b>.</li><li>• Replace the Carbon Brushes <b>[221]</b>.</li></ul>															
		c) Switch failure.	—	<ul style="list-style-type: none"><li>• Check the Rocker Switch <b>[118]</b>, the NVR-Switch <b>[161]</b> and the Circuit Breaker Switch <b>[113]</b> for continuity.</li><li>• Replace the Check Rocker Switch <b>[118]</b>, the NVR-Switch <b>[161]</b> or the Circuit Breaker Switch <b>[113]</b>.</li></ul>															
		d) The circuit breaker switch activated.	—	<ul style="list-style-type: none"><li>• Press the reset button after 2 to 3 minutes.</li></ul>															
5	Slow saw blade rotation. The saw blade speed is less than 5,000 /min.	a) Power voltage lower than rated voltage.	4,500 – 5,500 /min	<ul style="list-style-type: none"><li>• Check the power voltage.</li><li>• Check if the extension cord used is nonstandard. The usable extension cords are as follows:</li></ul> <table><tr><td>Ampere rating</td><td>5.1 to 7.0</td><td>12.1 to 16.0</td></tr><tr><td>Ext. cord length</td><td colspan="2">Wire gauge size</td></tr><tr><td>25 ft. (7.5 m)</td><td>18 A.W.G. (1.0 mm<sup>2</sup>)</td><td>14 A.W.G. (2.0 mm<sup>2</sup>)</td></tr><tr><td>50 ft. (15 m)</td><td>16 A.W.G. (1.5 mm<sup>2</sup>)</td><td>12 A.W.G. (3.5 mm<sup>2</sup>)</td></tr><tr><td>75 ft. (22.5 m)</td><td>14 A.W.G. (2.0 mm<sup>2</sup>)</td><td>10 A.W.G. (5.5 mm<sup>2</sup>)</td></tr></table>	Ampere rating	5.1 to 7.0	12.1 to 16.0	Ext. cord length	Wire gauge size		25 ft. (7.5 m)	18 A.W.G. (1.0 mm <sup>2</sup> )	14 A.W.G. (2.0 mm <sup>2</sup> )	50 ft. (15 m)	16 A.W.G. (1.5 mm <sup>2</sup> )	12 A.W.G. (3.5 mm <sup>2</sup> )	75 ft. (22.5 m)	14 A.W.G. (2.0 mm <sup>2</sup> )	10 A.W.G. (5.5 mm <sup>2</sup> )
Ampere rating	5.1 to 7.0	12.1 to 16.0																	
Ext. cord length	Wire gauge size																		
25 ft. (7.5 m)	18 A.W.G. (1.0 mm <sup>2</sup> )	14 A.W.G. (2.0 mm <sup>2</sup> )																	
50 ft. (15 m)	16 A.W.G. (1.5 mm <sup>2</sup> )	12 A.W.G. (3.5 mm <sup>2</sup> )																	
75 ft. (22.5 m)	14 A.W.G. (2.0 mm <sup>2</sup> )	10 A.W.G. (5.5 mm <sup>2</sup> )																	
6	Fast saw blade speed. The saw blade speed is more than 5,000 /min.	a) Power voltage higher than rated voltage.	4,500 – 5,500 /min	<ul style="list-style-type: none"><li>• Check the power voltage.</li></ul>															



### 3. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable Fixed	10	20	30	40	50	60	70 min.
C 10RA	<div>General Assembly</div> <div>           Blade Guard            Spreader (Splitter)            Switch MTG. plate            Other: 10 min.         </div>	Work Flow						
		Extension Wing (L) Extension Wing (R)						
		Circuit Breaker Switch Switch MTG. Plate Rocker Switch NVR-Switch Power Cable	Switch Box					
		Spreader (Splitter) TCT Saw Blade Washer (A) Blade Guard	Pivot Support Anchor Block Regulating Bolt Wheel Slide Bracket Compression Spring	Segment Gear Hitachi Label Screw Bar Bevel Gear (B)	Bracket	Body		Body Shell Table
		Carbon Brush					Armature Ass'y Bracket Spindle Ass'y Ball Bearing Helix Gear	Housing Ass'y Stator