

T ECHNICAL INFORMATION



PRODUCT

P 1 / 10

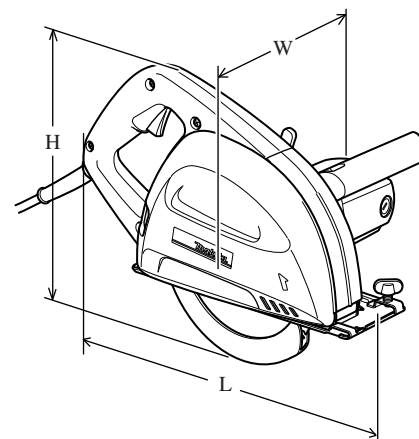
Models No. ▶ 4131

Description ▶ Metal Cutter 185mm (7-1/4")

CONCEPT AND MAIN APPLICATIONS

Model 4131 has been developed as a sister tool to Model 4130 for conformation to the standards of North America and Europe. The advantages of this new model are;

- *High heat-resistant motor for heavy duty applications
- *Blade service life longer than competitions thanks to "Cermet Tipped Saw Blade" and the rotation speed optimum for metal cutting
- *Trouble-free with one-touch removal of dust bag, safety cover open lever convenient for plunge cutting



Dimensions: mm (")	
Length (L)	280 (11)
Width (W)	273 (10-3/4)
Height (H)	358 (14-1/8)

► Specification

Power input: W			1,100
Rated amperage for North America: A			13
No load speed: rpm = min.-1			3,500
Size of blade	Diameter: mm (")		185 (7-1/4)
	Hole diameter: mm (")	Europe	30 (1-3/16)
		North America	16 (5/8)
Capacities: mm (")		Max. cutting depth	63 (2-1/2)
		Thickness of material	up to 6 (1/4)
Protection against electric shock			double insulation
Net weight: Kg (lbs.)			4.8 (10.6)
Power supply cord: m (ft)			2.5 (8.2)

For detailed specifications, see the comparison table on next page.

► Standard equipment

- *Cermet tip saw 185mm (7-1/4") 1 pc.
- *Hex wrench 1 pc.
- *Wrench holder
- *Safety goggle 1 pc.

Note: The standard equipment for the tool shown may differ from country to country.

► Optional accessories

- *Assorted TCT Saw blade
- *Guide rule

► Features and benefits

Long Blade Service Life

Longer than competitions
(See the graph on next page.)

Dust Check Window

Located for operator convenience

Dust Box with Plastic Cover

Plastic cover protects operator's hands from aluminum dust box hot with collected hot metal dust.

Trouble-Free One Touch Removal of Dust Box

Cermet (Ceramic-Metal) Tipped Saw Blade

Having blade life longer than TCT saw blade; because the surface of the tip of Cermet tipped saw blade is finely broken to reproduce sharp edges while that of TCT saw blade is only worn dull.

High Dust Collection Efficiency

(See the table on next page.)

High Heat-Resistant Motor for Heavy Duty Applications

Superior to competitions in heat-resistance
(See the graph on next page.)

Safety Cover Open Lever

Safety cover can be manually adjusted to half-open for plunge cutting.

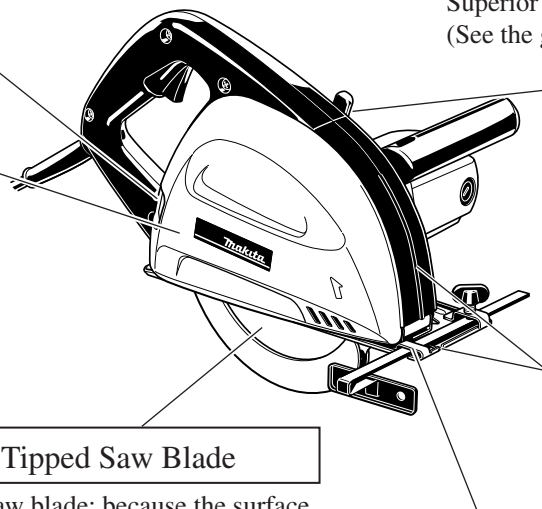
Shaft Lock

For easy blade changes

Blade Line Indicators

Allow operator to have an exact notion of where the blade is cutting for an accurate cut.

Durable Stainless Steel Base Plate



► Comparison of products

Specifications				Model No.		Makita		A	B
						4131	4130	A	B
Saw blade	Type			Cermet tipped <36T>	Cermet tipped <36T>	TCT <38T>	TCT <42T>		
	Size	Diameter: mm (")		185 (7-1/4)	185 (7-1/4)	185 (7-1/4)	203 (8)		
		Hole diameter: mm (")	Europe	30 (1-3/16)	20 (13/16)	20 (13/16)	16 (5/8)		
		North America	16 (5/8)						
Rated amperage for North America: A				13	—	13	13		
Power input: W				1,100	1,330	N/A	N/A		
No load speed: rpm.= min.-1				3,500	4,300	4,200	3,700		
Capacities: mm (")		Max. cutting depth		63 (2-1/2)	63 (2-1/2)	63 (2-1/2)	65 (2-9/16)		
		Thickness of material		up to 6 (1/4)	up to 6 (1/4)	up to 6 (1/4)	up to 6 (1/4)		
Electric brake				No	Yes	Yes	No		
Soft grip				No	No	Yes	Yes		
Safety cover open lever				Yes (semi-open)	No	No	Yes (full-open)		
Material of base				Stainless steel	Stainless steel	Coated steel plate	Stainless steel		
Lock OFF switch				Yes	No	Yes	Yes		
AC/DC switch				No	No	No	Yes		
Side grip				Yes	Yes	Yes	Yes		
Double insulation				Yes	Yes	Yes	Yes		
Power supply cord: m (ft)				2.5 (8.2)	5(16.4)	2.0 (6.6)	4.0 (13.1)		
Dimensions	Length: mm (")			358 (14-1/8)	340 (13-3/8)	355 (14)	415 (16-3/8)		
	Width: mm (")			273 (10-3/4)	288 (11-3/8)	255 (10)	278 (11)		
	Height: mm (")			280 (11)	269 (10-5/8)	275 (10-7/8)	280 (11)		
Net weight (on catalog): kg (lbs)				4.8 (10.6)	4.4 (9.7)	N/A	6.0 (13.3)		
Standard equipment				*Cermet tipped saw blade *Hex wrench *Safety goggle	*Cermet tipped saw blade *Socket wrench *Guide rule *Safety goggle	*TCT saw blade *Wrench *Guide rule *Hex wrench	*TCT saw blade *Hex wrench		

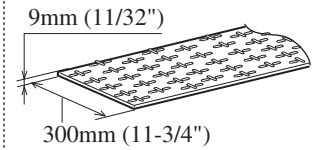
Comparison of products

HEAT-RESISTANCE

Test conditions

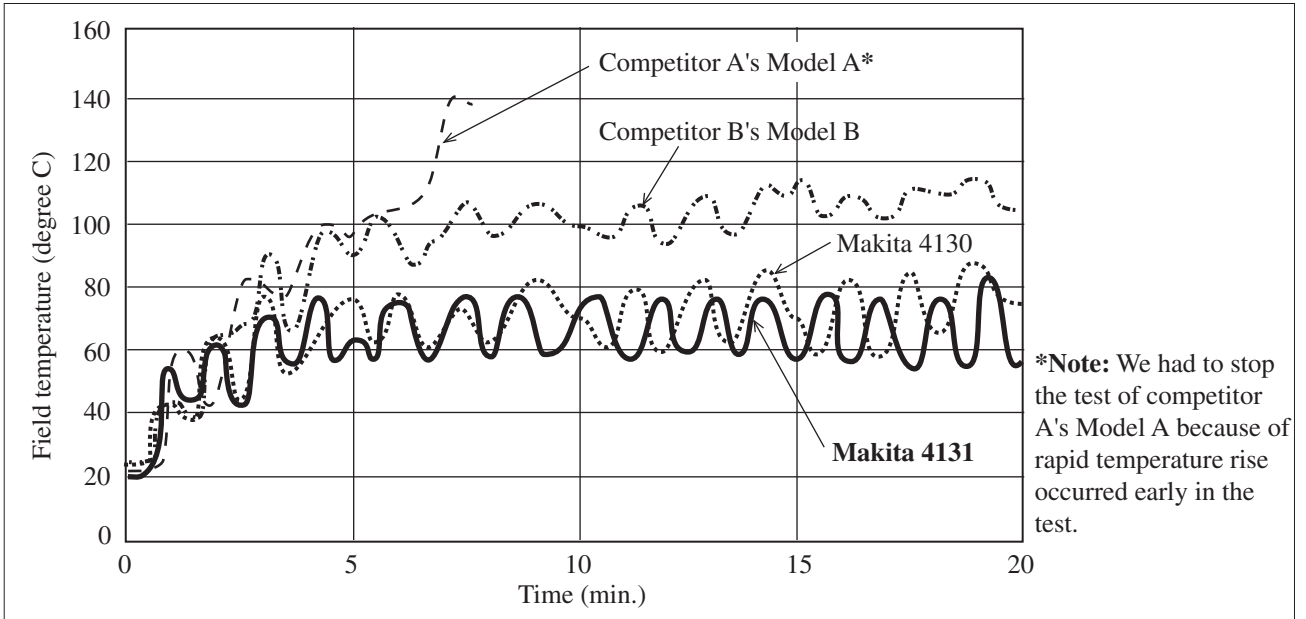
- 1) With the following saw blades;
 *Makita 4131, 4130 and Competitor A's model A used the same 185mm (7-1/4") TCT saw blade.
 *Competitor B's model B used 203mm (8") TCT saw blade (standard accessory of this tool).
- 2) Workpiece: Checkered steel plate illustration to left
- 3) Operation: Continuous operation

Checkered steel plate



Test result

The graph below proves the superiority of Makita 4130 and 4131 in heat-resistance.

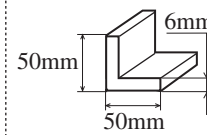


BLADE SERVICE LIFE

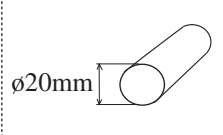
Test conditions

- Cut the materials illustrated to right with the following saw blade included in each product as a standard accessory;
- *Makita 4131: Cermet Tip Saw 185mm (7-1/4") 36T
 - *Competitor A's model A: TCT saw blade 185mm (7-1/4") 38T
 - *Competitor B's model B: TCT saw blade 203mm (8") 42T

Angle stud

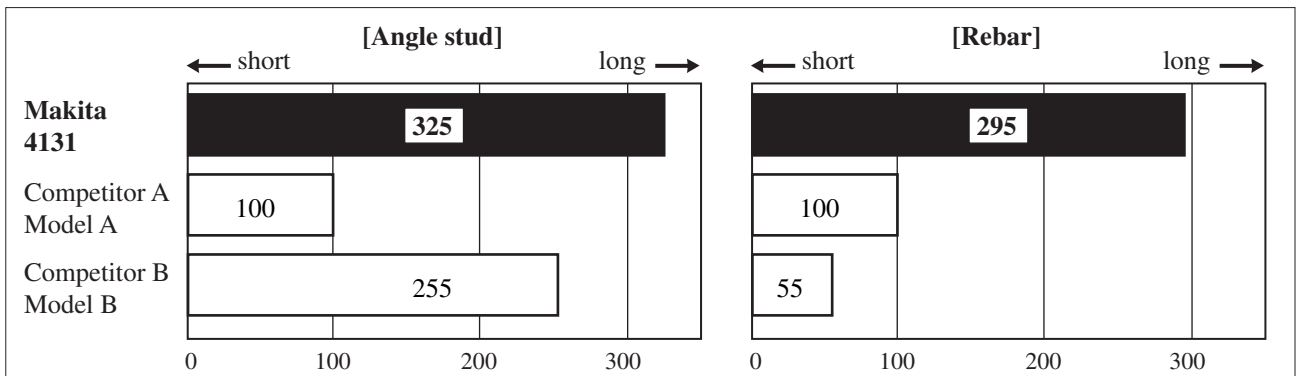


Rebar



Test result

The graphs below indicates that the blade service life of Makita's Model 4131 is longer than competitions, proving the Makita advantage of use of Cermet tipped blade and the rotation speed optimum for metal cutting.



Numbers in the graphs above are relative values when the service life of Competitor A's model A is indexed at 100.

Note: The test results depend to a great extent on the hardness of the material, etc.

DUST COLLECTION EFFICIENCY

Workpiece	Model	Makita 4131	Competitor A's Model A	Competitor B's Model B
Checkered steel plate (thickness=9mm)		80%	75%	70%
C-Channel (100x50mm, thickness=2.3mm)		50%	44%	35%

► **Recommendation table for Makita tipped saw blades**

<div> <div>Tipped saw blade</div> <div>Workpiece</div> </div>	Standard accessory	Optional accessory		
	Cermet Tipped <T36>	TCT <T38>	TCT <T48>	TCT <T70>
Angle 50x50mm, t=4mm	◎	○	△	×
Angle 50x50mm, t=6mm	◎	◎	○	×
Steel plate t=1.5mm	×	△	○	◎
Steel plate t=3.0mm	◎	○	○	△
C-Channel 50x100mm, t=1.6mm	×	△	○	×
C-Channel 45x90mm, t=3.2mm	◎	○	○	×
Rectangular pipe 50x100mm, t=3.2mm	◎	○	○	×
Gas pipe diameter=60mm, t=3.8mm	◎	○	△	×
Rebar diameter=1.6mm	◎	○	△	×
Conduit pipe diameter=25mm, t=1.2mm	△	◎	◎	×
Square pipe [Stainless steel] 50x50mm, t=1.5mm	×	×	×	×
Angle [Stainless steel] 50x50mm, t=3mm	×	×	×	×
Round pipe [Stainless steel] diameter=50mm, t=1.5mm	×	×	×	×
Metal stud t=less than 1.2mm	×	×	×	◎
Metal stud t=1 to 2mm	×	△	◎	×
Checkered steel plate t=less than 0.9mm	×	×	×	◎
Checkered steel plate t=1 to 2mm	×	×	△	△

◎ **Excellent**

○ **Good**

△ **Fair (able to cut workpiece, but not recommended because**

× **Not applicable**

► Repair

Always follow the instructions of the **SAFETY RULES** and **OPERATING INSTRUCTIONS** described in the instruction manual.

[1] NECESSARY REPAIRING TOOLS

Retaining ring pliers ST-2N (1R003)	For removal/installation of Safety cover
Bearing setting pipe 16-8.2 (1R026)	For removing Gear
Ring 22 (1R217)	For removing Gear
Bearing extractor (1R263)	For removing Bearing box
Bearing extractor (1R269)	For removing Ball bearing
Retaining ring S and R pliers (1R291)	For removal/installation of the Retaining ring on Spindle
Wrench for bearing retainer (1R316)	For removal/installation of Bearing retainer

[2] LUBRICATION

Put 8g of Makita grease N No.1 in the gear room of Gear housing complete.

[3] DISASSEMBLING AND ASSEMBLING

CAUTION: Be sure that the tool is switched off and unplugged before starting disassembling/assembling.

CAUTION: When using a blower for cleaning, always wear safety goggle to protect your eyes from metal dust.

[3] -1. Replacement of Base

DISASSEMBLING

- 1) Remove (+) Pan head screw M5 from the hinge portion of Base while holding Hex lock nut M5-8 with wrench 8 or the like so that it cannot turn together with the screw. (**Fig. 1**)
- 2) Release depth adjustment lock, and then remove Pan head screw M4x8. Now Lock plate can be removed from the depth guide of Base. Remove Hex nut M6, and now Lock lever section can be disassembled as illustrated in **Fig. 2**.

ASSEMBLING

Do not forget to put Flat washer 6 (Part No.253783-3) between Gear housing (blade case) and the depth guide of Base. (**Fig. 3**) Be careful not to place Flat washer 6 (Part No.253804-1) there. The two Flat washers can be easily distinguished by outer diameter as illustrated in **Fig. 4**.

Fig. 1

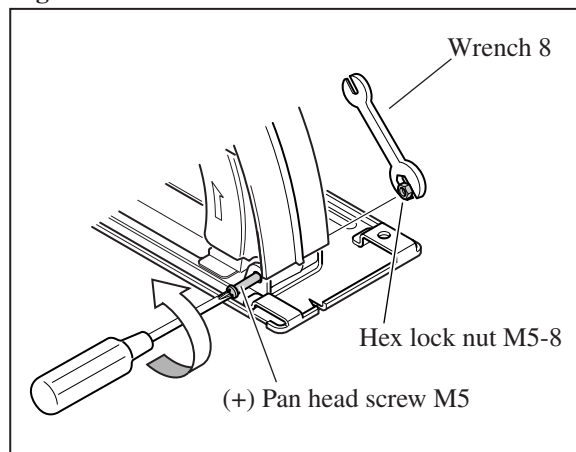


Fig. 2

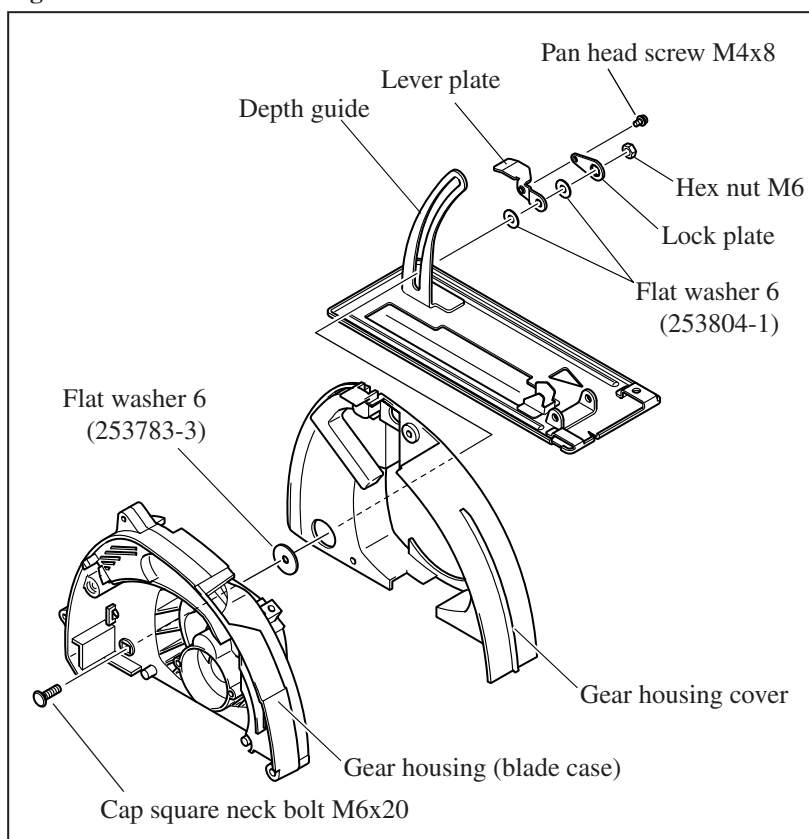


Fig. 3

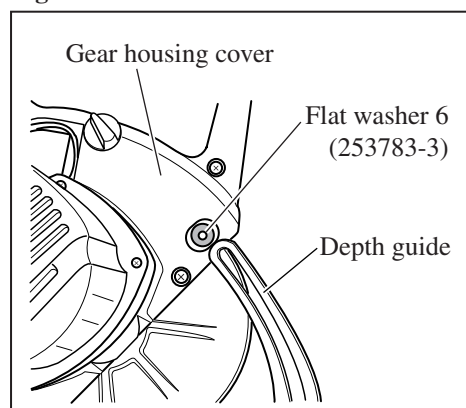
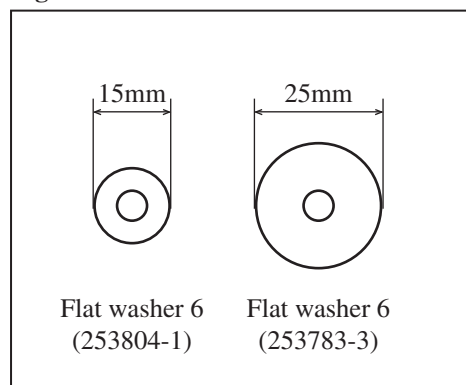


Fig. 4



► Repair

[3] -2. Disassembling Motor Section

- 1) Remove Lead cover from Gear housing cover (blade case cover) by removing Tapping screw CT4x12. (**Fig. 5**)
- 2) Remove Carbon brushes and four M5x40 Pan head screws.

Now Motor housing can be separated from Gear housing (blade case). (**Fig. 5**)

Note: Be careful not to lose the compression spring of shaft lock when taking Armature out of Motor housing.

- 3) When removing Field from Motor housing, be sure to disconnect lead wires from Trigger witch beforehand.

The switch can be reached by removing two 4x18 Tapping screws and two M5x12 Pan head screws on Housing (R) side to separate Handle (R) from Handle (L). (**Fig. 6**)

CAUTION: At this time, treat the lead wires from Field carefully because they are still connected with Handle.

Fig. 5

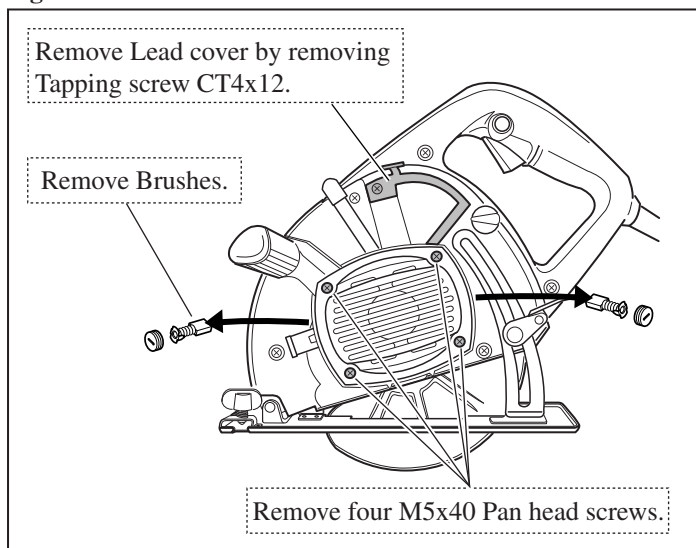
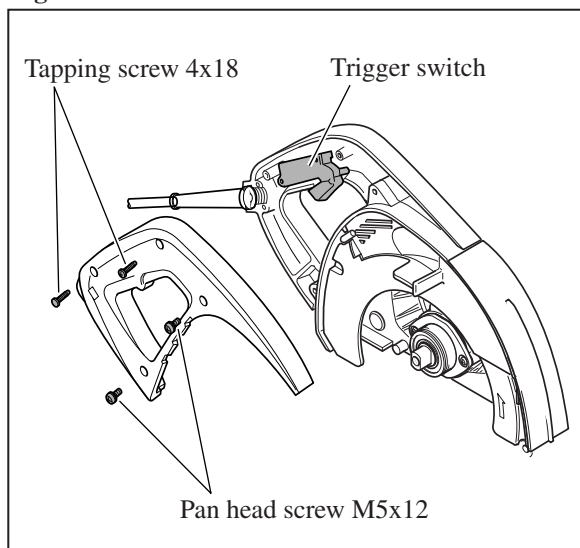


Fig. 6



[3] -3. Disassembling/Assembling of Safety Cover, Bearing Box and Gear Housing (Blade Case)

DISASSEMBLING

- 1) Remove Retaining ring on Safety cover using Retaining ring pliers ST-2N (1R003).
At this time, hold the ring with gloved hand so that it cannot fly off.
- 2) By removing Safety cover, three parts can be disassembled in the following order;
Washer 42/ Spacer/ Thickness ring (See **Fig. 7**.) Remember this order for reassembling.
- 3) If Safety cover does not move smooth, remove metal dust from each part and apply machine oil.
- 4) Bearing box can be removed by removing two M5x12 (+) Countersunk head screws. (**Fig. 8**)
If it is hard to remove, turn Bearing box a little, and then lift it up using two Bearing extractors (1R263).

Note: When reinstalling the countersunk head screws, apply an appropriate amount of THREE BOND 1321B/1342 or LOKTITE 242 to them before tightening.

ASSEMBLING

Note: Place Thickness ring inside Spacer.

Fig. 7

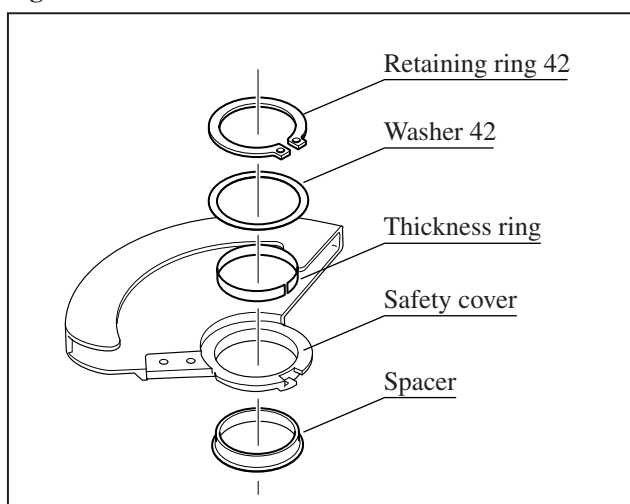
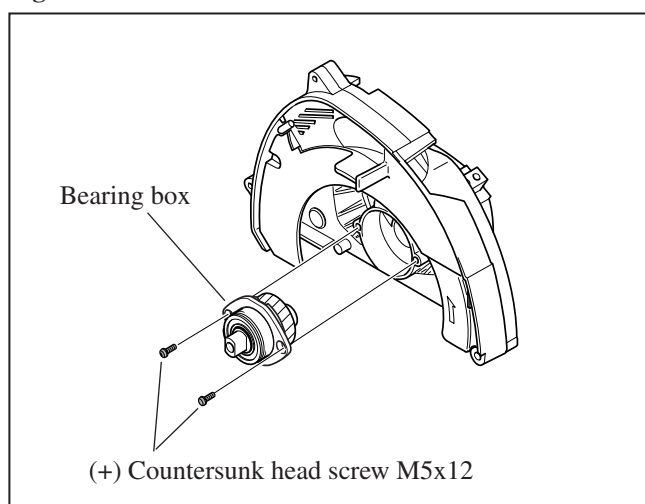


Fig. 8

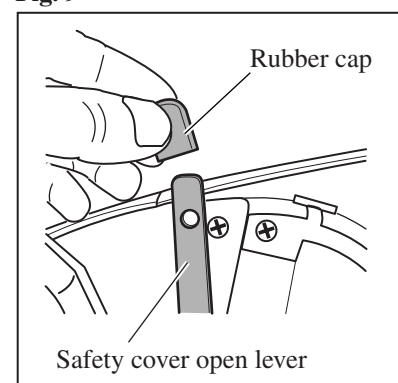


► Repair

[3] -4. Removing Safety Cover Open Lever

Remove Rubber cap from Open lever beforehand because it can catch on other parts to prevent removal of Open lever. (**Fig. 9**)

Fig. 9



[3] -5. Replacement of Helical Gear 48 and Ball Bearings 6202DDW/608LLB

- 1) Remove Bearing box as described in "3. Disassembling/Assembling of Safety Cover, Bearing Box and Gear Housing (Blade Case)".
- 2) Remove Ball bearing 608LLB with Bearing extractor (1R269).
- 3) Remove Retaining ring S-15 with Retaining ring S and R pliers (1R291) as illustrated in **Fig. 10**.
- 4) Remove Bearing retainer (left-handed) by turning clockwise using Wrench for bearing retainer (1R319). (**Fig. 11**)
- 5) Place Bearing box on Ring 22 (1R217), and put Bearing setting pipe 16-8.2 (1R026) on the gear installation end of Spindle. Press Spindle out using arbor press to remove Helical gear 48 and Ball bearing 6202DDW. (**Fig. 12**)

Fig. 10

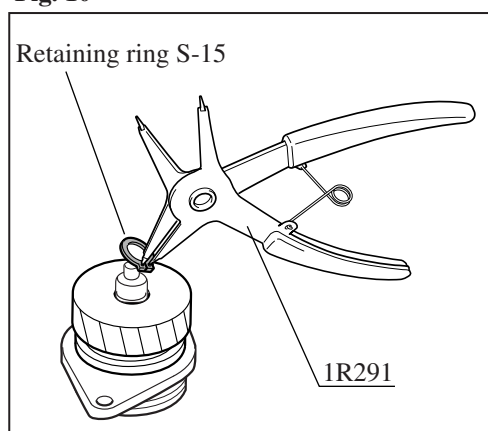


Fig. 11

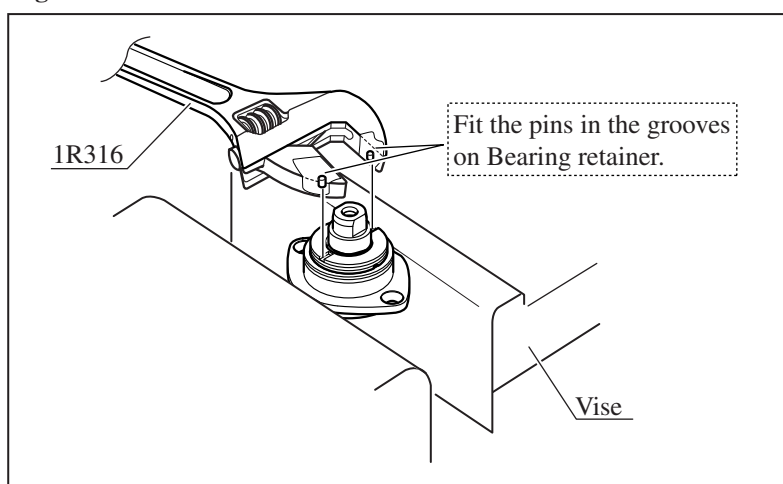
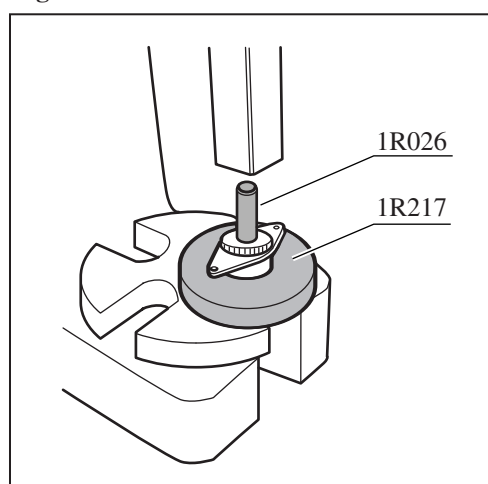


Fig. 12



[3] -6. Replacement of Switch and Power Supply Cord

Note: Switch and Power supply cord can be replaced without removing Motor section and Gear housing (blade case).

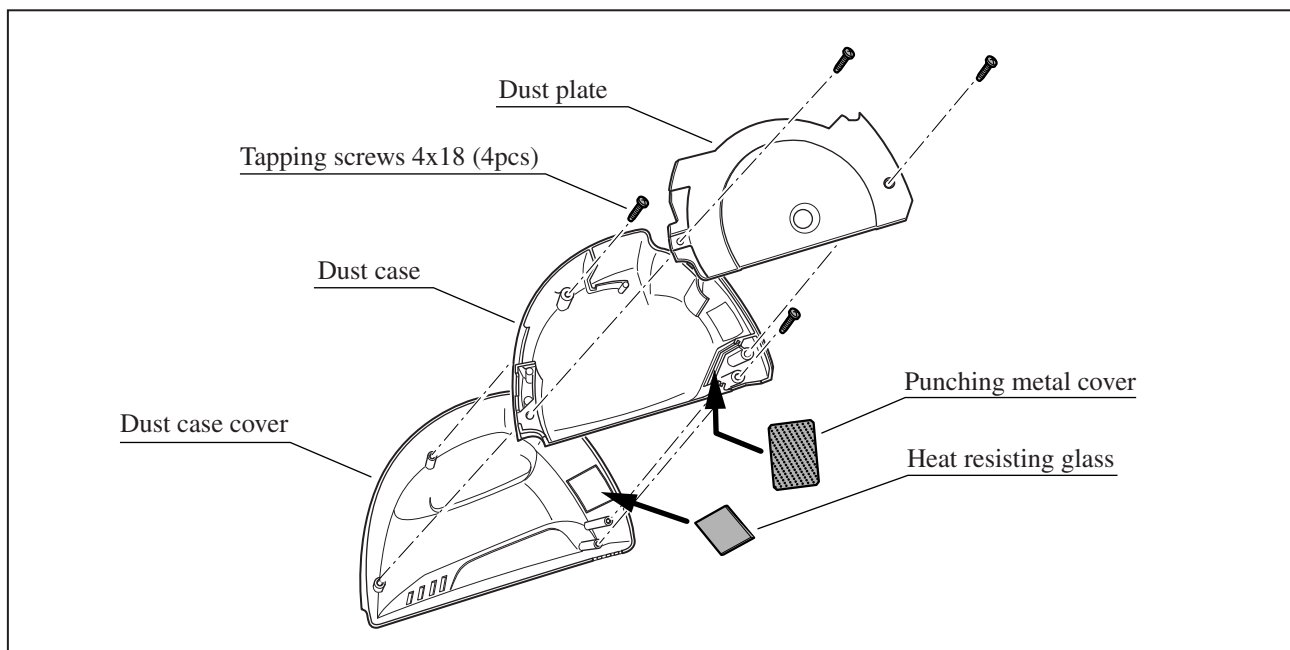
- 1) Remove two 4x18 Tapping screws.
- 2) Remove Handle (R) by removing two M5x12 Pan head screws on Housing (R) side. (See **Fig. 6** on page 6.)
- 3) Now Switch and Power supply cord can be replaced.

► Repair

[3] -7. Disassembling Dust Case

See **Fig. 13** when replacing Heat resisting glass and Punching metal cover. (**Fig. 9**)

Fig. 13



[4] ADJUSTMENT

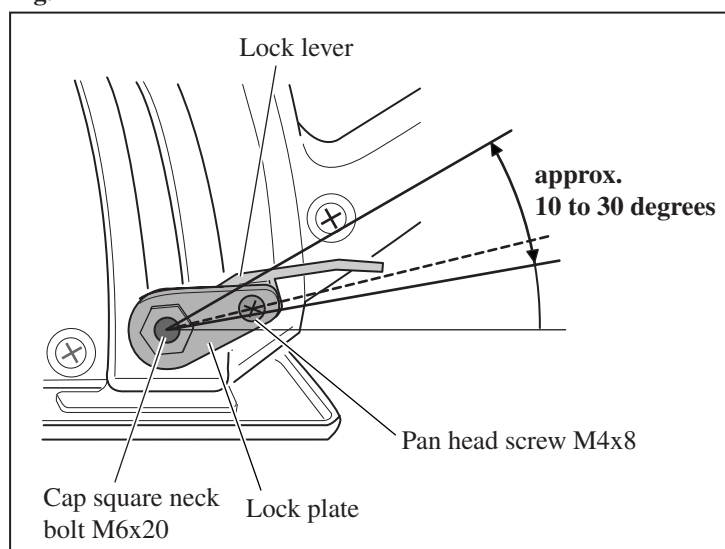
[4] -1. Hinge Portion of Gear Housing (Blade Case)

Fasten Gear housing (blade case) to Base so that cutting depth can be adjusted smoothly without wobbling. (Refer to "1. Replacement of Base" and **Fig. 1** on page 5)


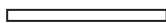
[4] -2. Lever Plate of Cutting Depth Lock Lever

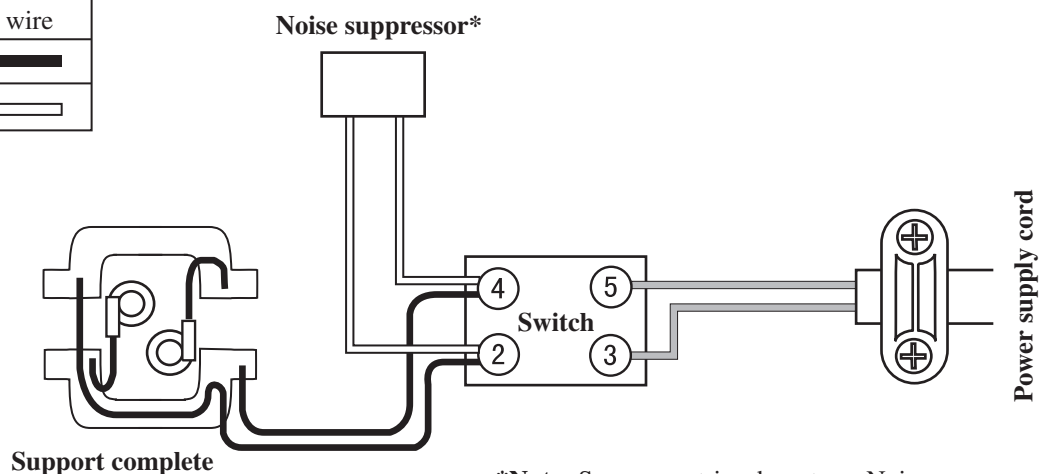
Fix Lock plate to Lock lever so that the line through Cap square neck bolt M6x20 and Pan head screw M4x8 forms an angle of approximately 10 to 30 degrees to the horizontal axis when the lever is locked. (**Fig. 14**)

Fig. 14



► Circuit diagram

Color index of lead wire	
Black	
White	



*Note: Some countries do not use Noise suppressor.

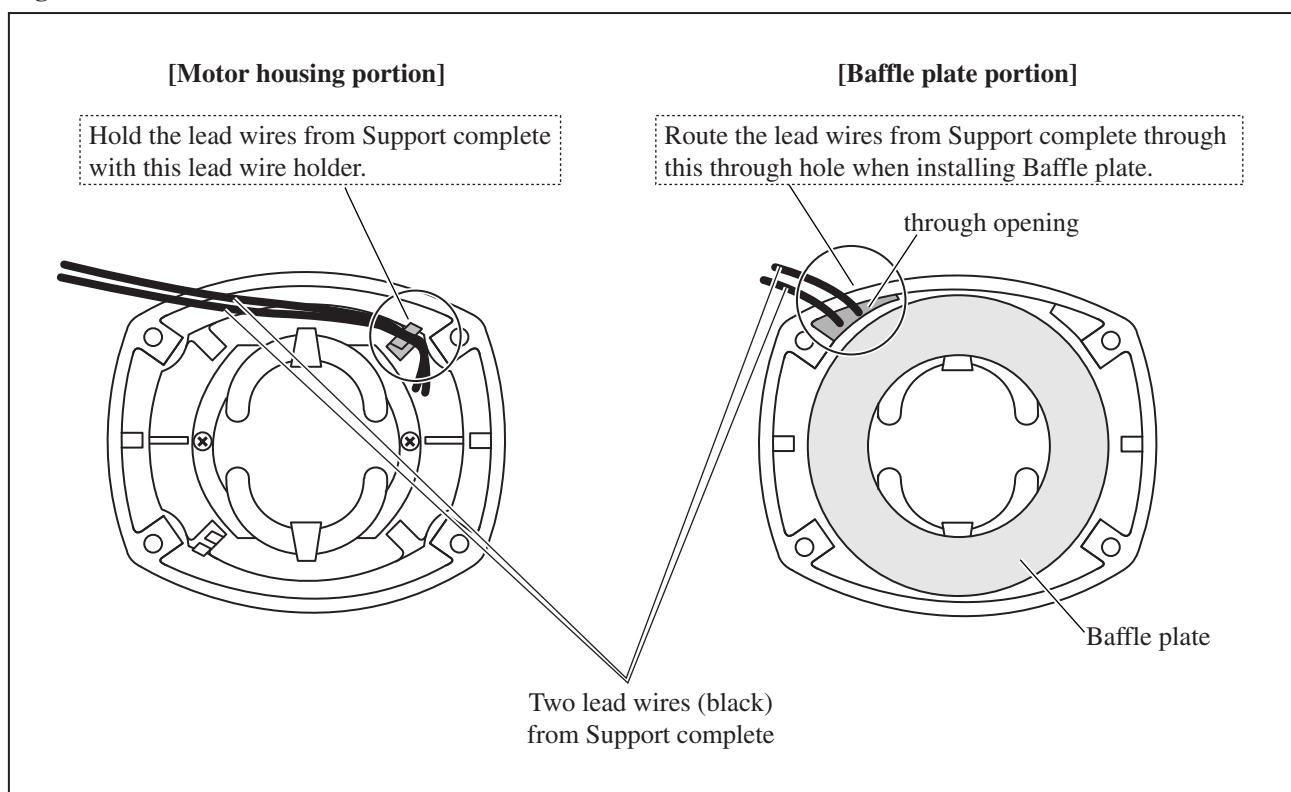
► Wiring diagram

[Wiring of Lead Wires from Support Complete]

1) At Motor Housing and Baffle Plate Portions

Route as illustrated in Fig. 15.

Fig. 15



► Wiring diagram

[Wiring of Lead Wires from Support Complete]

2) In Gear Housing Cover

Route as illustrated in Fig. 16.

3) In Handle

Route as illustrated in Fig. 17.

Fig. 16

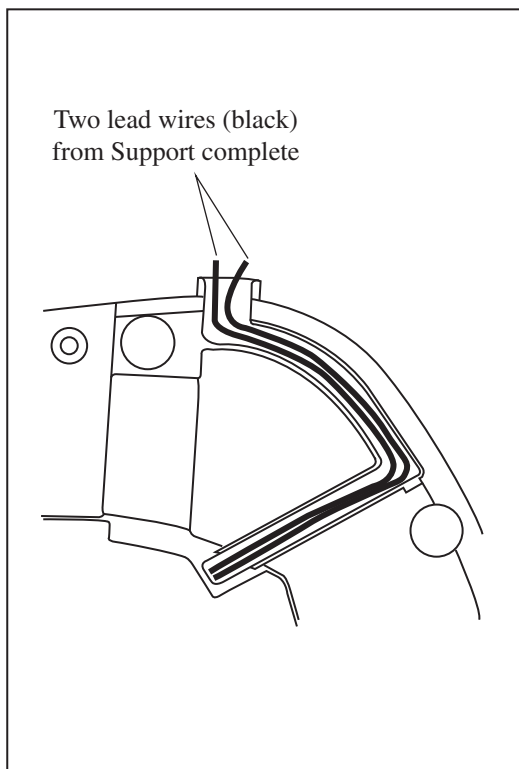


Fig. 17

