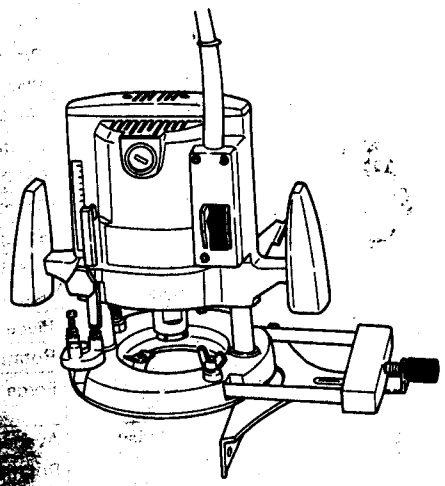
HITACHI

ROUTER
OBERFRÄSE
DÉFONCEUSE
FRESATRICE VERTICALE
BOVENFREESMACHINE
RANURADORA

TR-12



Read through carefully and understand these instructions before use.
Diese Anleitung vor Benutzung des Werkzeugs sorgfältig durchlesen und verstehen.
Lire soigneusement et bien assimiler ces instructions avant usage.
Prima dell'uso leggere attentamente e comprendere queste istruzioni.
Deze gebruiksaanwijzing s.v.p. voor gebruik zorgvuldig doorlezen.
Leer cuidadosamente y comprender estas instrucciones antes del uso.

Handling instructions
Bedienungsanleitung
Mode d'emploi
Istruzioni per l'uso
Gebruiksaanwijzing
Instrucciones de manejo

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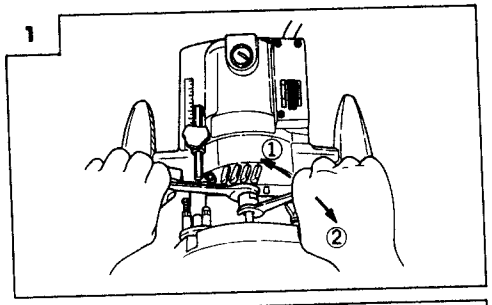

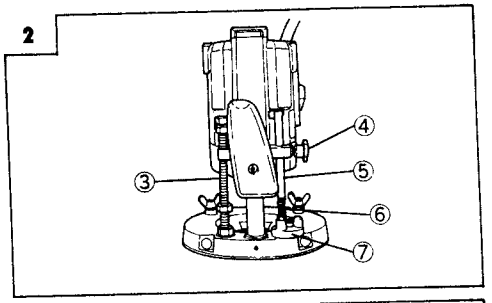

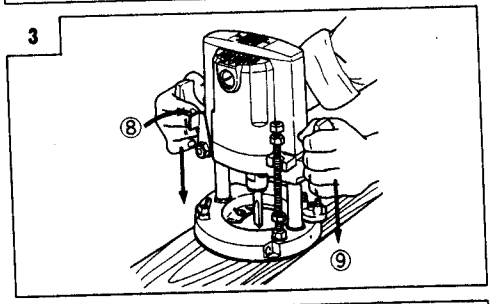

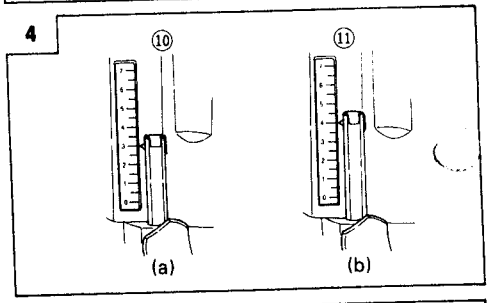

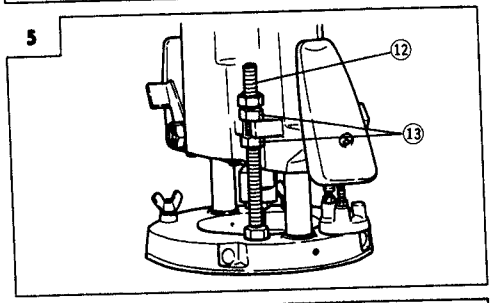

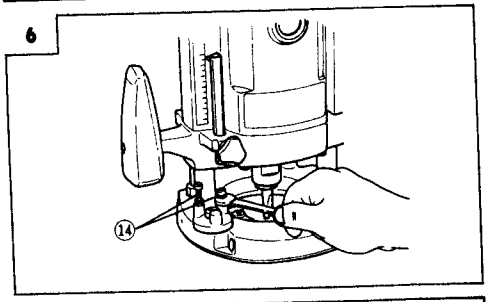

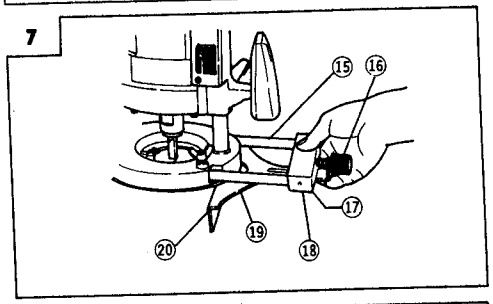

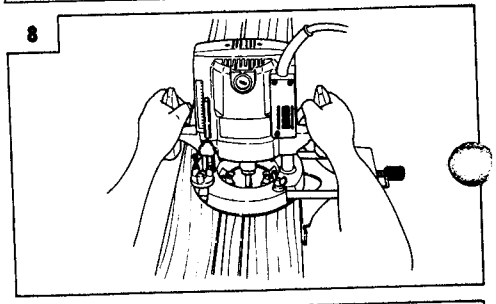

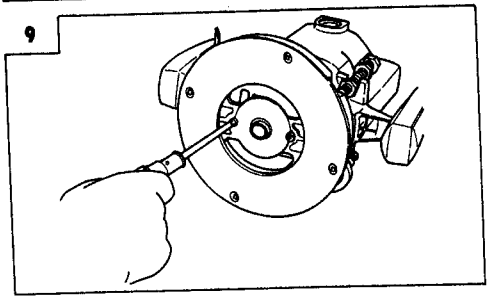

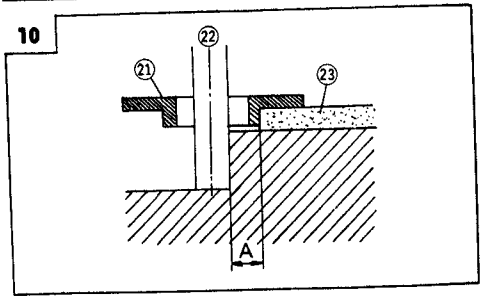

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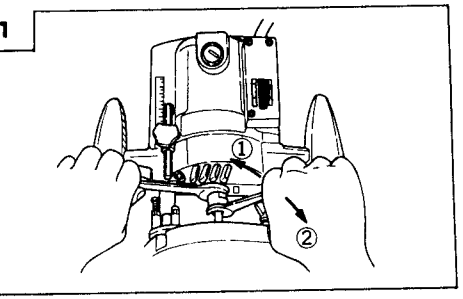

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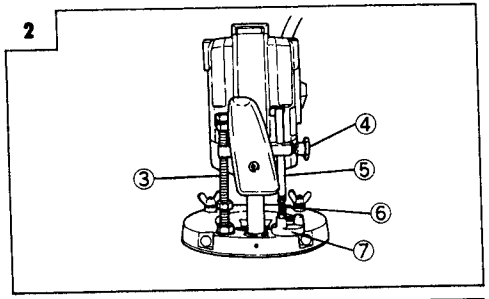

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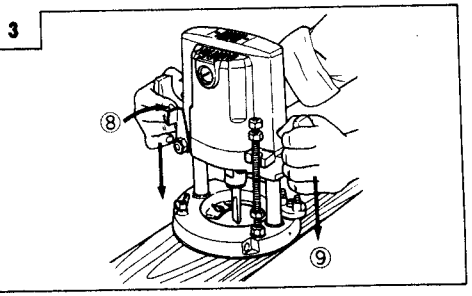

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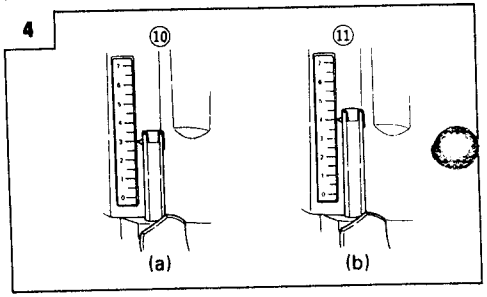

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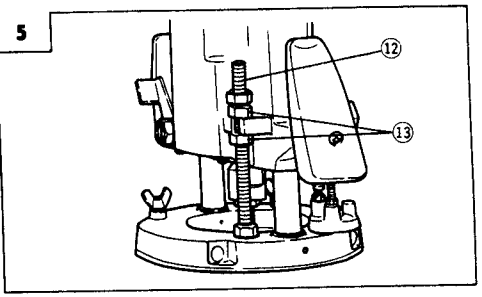

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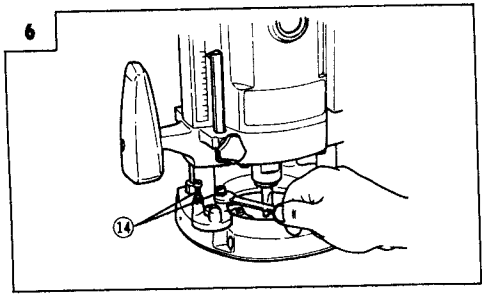

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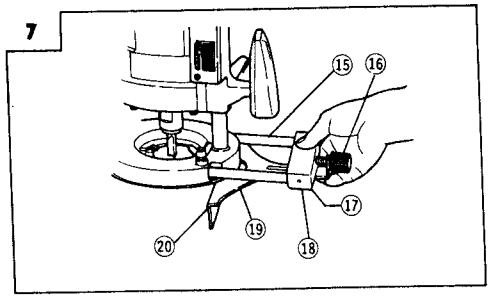

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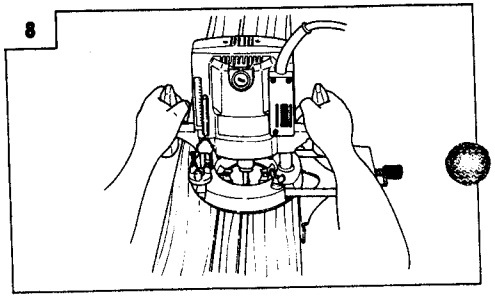

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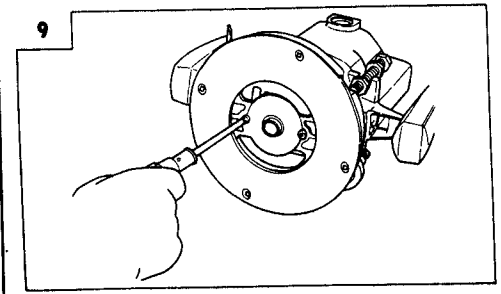

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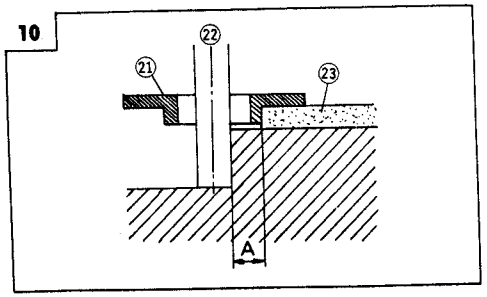

	Italiano	Nederlands	Español
①	Allentare	Losdraaien	Soltar
②	Serrare	Vastdraaien	Apretar
③	Colonna filettata	Schroefdraadstaaf	Columna de rosca
④	Allentare la manopola	De knop losdraaien	Soltar el botón
⑤	Albero di arresto	Aanslagstift	Polo del dispositivo de ajuste
⑥	Vite di regolazione della profondità di taglio	Instelschroef voor de freesdiepte	Tornillo de ajuste de la profundidad de corte
⑦	Blocco d'arresto	Aanslagblok	Bloque del dispositivo de ajuste
⑧	Allentare la leva di bloccaggio	Het losdraaien van de veiligheidshendel	Aflojar la palanca de cierre
⑨	Spingere verso il basso	Naar beneden drukken	Apretar abajo
⑩	Leggere la scala	Schaal aflezen	Anotar la escala
⑪	Mettere la profondità di taglio	Het instellen van de freesdiepte	Ajustar el corte de profundidad
⑫	Colonna filettata	Schroefdraadstaat	Columna de rosca
⑬	Dado di bloccaggio	Blokkermoer	Tuerca de inmovilizador
⑭	Vite di regolazione della profondità di taglio	Instelschroeven voor de freesdiepte	Tornillo de ajuste de profundidad de corte
⑮	Barre di guida	Leidstang	Barras de guía
⑯	Vite di avanzamento	Voorschuifschroef	Tornillo de alimentación
⑰	Bullone a galletto	Vleugelmoer	Pasador de palomilla
⑱	Sostegno della barra	Stanghouder	Sujetador de barra
⑲	Guida lineare	Vlakgeleider/Parallelgeleider	Guía derecha
⑳	Piano della guida	Leidvlak	Plano guía
㉑	Guida per sagoma	Schabloongeleider	Guía patrón
㉒	Punta	Frees	Broca
㉓	Sagoma	Schabloon	Patrón
㉔	Scostata	Afstand	Separado
㉕	Scostata	Afstand	Separado
㉖	Avanzamento della fresatrice verticale	Voorschuifinrichting van de bovenfrees	Alimentación de la ranuradora
㉗	Avanzamento della fresatrice verticale	Voorschuifinrichting van de bovenfrees	Alimentación de la ranuradora
㉘	Pezzo da lavorare	Werkstuk	Pieza de trabajo
㉙	Rotazione della punta	Draairichting van de frees	Rotación de la broca
	Senso in cui la fresatrice verticale viene spinta	Richting, waarin de bovenfrees gedreven wordt	Dirección en que la ranuradora está forzada
㉛	Avanzamento della fresatrice verticale	Voorschuifinrichting van de frees	Alimentación ranuradora
㉜	Rotazione della punta	Draairichting van de frees	Rotación de broca
㉝	Limite di usura	Slijtagegrens	Límite de uso
㉞	N. della spazzola di carbone	Nr. van de koolborstel	N° de carbón de contacto

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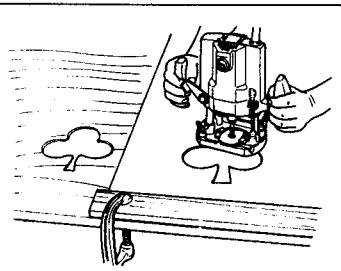

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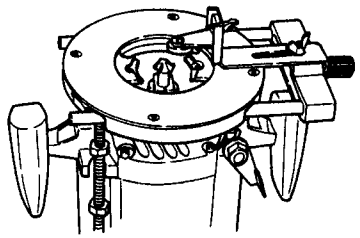

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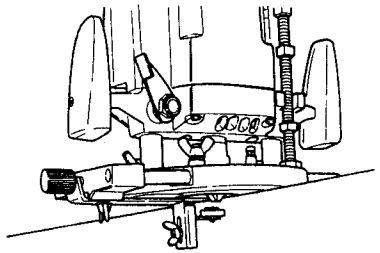

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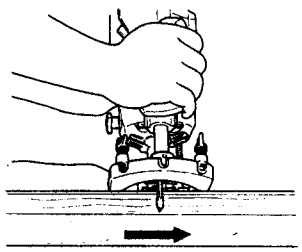

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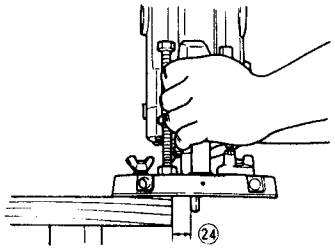

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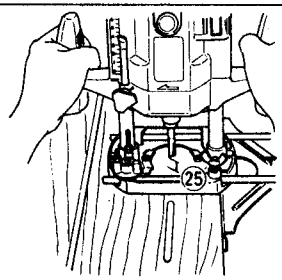

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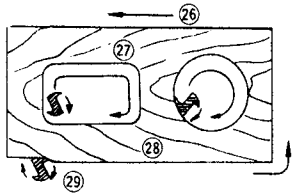

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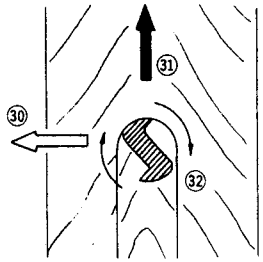

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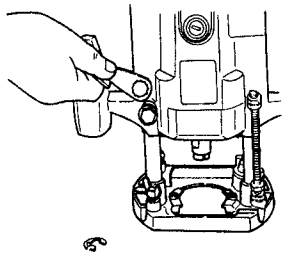

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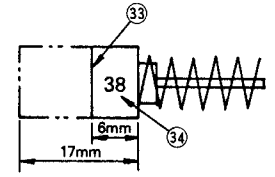


	English	Deutsch	Francais
①	Loosen	Lockern	Desserrer
②	Tighten	Anziehen	Serrer
③	Threaded column	Gewindestab	Colonne filetée
④	Loosen the knob	Den Knopf losdrehen	Desserrer le bouton
⑤	Stopper pole	Anschlagstift	Colonne d'arrêt
⑥	Cut depth setting screw	Einstellschraube für die Frästiefe	Vis de réglage de la profondeur de coupe
⑦	Stopper block	Anschlagblock	Bloc d'arrêt
⑧	Loosen the lock lever	Lösen des Sicherungshebels	Desserrer le levier de blocage
⑨	Push down	Nach unten drücken	Appuyer vers le bas
⑩	Read the scale	Anzeige ablesen	Lecture de l'échelle
⑪	Set the cutting depth	Einstellen der Frästiefe	Réglage de la profondeur de coupe
⑫	Threaded column	Gewindestab	Colonne filetée
⑬	Lock Nut	Sperrmutter	Ecrou de blocage
⑭	Cut-depth setting screws	Einstellschrauben für die Frästiefe	Vis de réglage de la profondeur de coupe
⑮	Guide bars	Führungsstangen	Barre de guidage
⑯	Feed screw	Vortriebschraube	Vis mère
⑰	Wing bolts	Flügelschraube	Boulon à oreilles
⑱	Bar holder	Stangenhalter	Support de barres
⑲	Straight guide	Gerade Führung/Parallelanschlag	Pièce de guidage droite
⑳	Guide plane	Führungsebene	Plan de guidage
㉑	Template guide	Schablonenführung	Guide-gabarit
㉒	Bit	Fräse	Couteau
㉓	Template	Schablone	Gabarit
㉔	Separate	Abstand	Séparation
㉕	Separate	Abstand	Séparation
㉖	Router feed	Vorschub der Oberfräse	Avance de la défonceuse
㉗	Router feed	Vorschub der Oberfräse	Avance de la défonceuse
㉘	Workpiece	Werkstück	Pièce travaillée
㉙	Rotation of bit	Drehrichtung der Fräse	Rotation du couteau
㉚	Direction in which the router is forced	Richtung, in die die Oberfräse getrieben wird	Force agissant sur la défonceuse
㉛	Router feed	Vorschubrichtung der Fräse	Avance de la défonceuse
㉜	Rotation of bit	Drehrichtung der Fräse	Rotation du couteau
㉝	Wear limit	Verschleißgrenze	Limite d'usure
㉞	No. of carbon brush	Nr. der Kohlebürste	N° du balai en carbone

GENERAL OPERATIONAL PRECAUTIONS

1. Keep work area clean. Cluttered areas and benches invite injuries.
2. Consider work area environment. Don't expose power tools to rain. Don't use power tools in damp or wet locations. Keep work area well lit. Don't use tool in presence of flammable liquids or gases.
   Power tools produce sparks during operation. They also spark when switching ON/OFF. Never use power tools in dangerous sites containing lacquer, paint, benzine, thinner, gasoline, gases, adhesive agents, and other materials which are combustible or explosive.
3. Guard against electric shock. Prevent body contact with grounded surfaces. For example; pipes, radiators, ranges, refrigerator enclosures.
4. Keep children away. Do not let visitors contact tool or extension cord. All visitors should be kept away from work area.
5. Store idle tools. When not in use, tools should be stored in dry and high or locked-up place-out of reach of children.
6. Don't force tool. It will do the job better and safer at the rate for which it was intended.
7. Use right tool. Don't force small tool or attachment to do the job of a heavy-duty tool. Don't use tool for purpose not intended—for example —don't use circular saw for cutting tree limbs or logs.
8. Dress properly. Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
9. Use eye protection. Also use face or dust mask if cutting operation is dusty.
10. Don't abuse cord. Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil and sharp edges.
11. Secure work. Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
12. Don't overreach. Keep proper footing and balance at all times.
13. Maintain tools with care. Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and if damaged, have repaired by authorized service center.Inspect extention cords periodically and replace if damaged. Keep handles dry, clean, and free from oil and grease.
14. Disconnect tools. When not in use, before servicing, and when changing accessories, such as blades, bits, cutters.
15. Remove adjusting keys and wrenches. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. Avoid unintentional starting. Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugging in.
17. Outdoor use extension cords. When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
18. Stay alert. Watch what you are doing. Use common sense. Do not operate tool when you are tired.
19. Check damaged parts. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this handling instructions. Have defective switches replaced by authorized service center. Do not use tool if switch does not turn it on and off.
20. Use the power tools only for applications specified in the Handling Instructions.
21. To avoid personal injury, use only the accessories or attachment recommended in these handling instructions or in the HITACHI catalog.
22. Let only the authorized service center do the repairing.
    The manufacturer will not be responsible for any damages or injuries caused by repair by unauthorized persons or by mishandling of the tool.
23. To ensure the designed operational integrity of power tools, do not remove installed covers or screws.
24. Do not touch movable parts or accessories unless the power source has been disconnected.
25. Use your tool at lower input than specified on the nameplate; otherwise, the finish may be spoiled and working efficiency reduced by motor overload.
26. Do not wipe plastic parts with solvent. Solvents such as gasoline, thinner, benzine, carbon tetrachloride, alcohol, ammonia and oil containing chloric annex may damage and crack plastic parts. Do not wipe them with such solvent. Wipe plastic parts with a soft cloth lightly dampened with soapy water.
27. Use only genuine HITACHI replacement parts.
28. Disassemble this tool only for replacement of carbon brushes.
29. Use the exploded assembly drawing on this handling instructions only for authorized servicing.

PRECAUTIONS ON USING ROUTER

1. Single-hand operation is unstable and dangerous. Ensure that both handles are gripped firmly during operation.
2. The bit is very hot immediately after operation. Avoid bare hand contact with the bit for any reason.

SPECIFICATIONS

Voltage (by areas) *	(110V, 115V, 120V, 127V, 220V, 230V, 240V) ~
Input	1300W*
No-Load Speed	22000/min
Collet Chuck Capacity	12mm or 1/2"
Main Body Stroke	60mm
Weight	5 kg (without cord and standard accessories)

* Be sure to check the nameplate on product as it is subject to change by areas.

STANDARD ACCESSORIES

(1) Straight Guide 1
(2) Bar holder 1
Feed Screw 1
Wing Bolt 1
(3) Trimmer Guide Ass'y 1
(4) Template Guide 1
(5) Wrench 1
(6) Wrench 1
(7) Straight Bit (Tungsten Carbide) 1

8 × 8···1	12 mm Collet Chuck
1/2" × 1/2"···1	1/2" Collet Chuck

(8) Chuck Sleeve 2

6 mm···1, 8 mm···1	12 mm Collet Chuck
1/4"···1, 3/8"···1	1/2" Collet Chuck

(9) Wing Bolt M6 × 15 (for mounting the guide bars) 2
(10) Lock Spring (for mounting the guide bars) 2

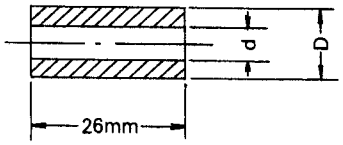
NOTE

Based on the kind of collect chuck, 12mm type or 1/2" type, either straight bit and chuck sleeves are attached.

Standard accessories are subject to change without notice.

OPTIONAL ACCESSORIES — sold separately

1. Specially Shaped Bits
   When dimensions, shapes, and other details are specifically ordered, they will be manufactured as "special-order" products.
2. Chuck Sleeve



D	d	Shape of chuck sleeve
12 mm	6mm	No groove
	8mm	
	1/4"	1 Groove
	3/8"	
1/2"	1/4"	2 Groove
	3/8"	
	10 mm	No Groove

Optional accessories are subject to change without notice.

APPLICATIONS

○Woodworking jobs centered on grooving and chamfering.

PRIOR TO OPERATION

1. **Power source**
   Ensure that the power source to be utilized conforms to the power requirements specified on the product nameplate.
2. **Power switch**
   Ensure that the power switch is in the OFF position. If the plug is connected to a power receptacle while the power switch is in the ON position, the power tool will start operating immediately, which could cause a serious accident.
3. **Extension cord**
   When the work area is removed from the power source, use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.

MOUNTING AND DISMOUNTING BITS

1. Mounting Bits:

(1) After fully inserting the bit into the collet chuck hole, firmly tighten the collet chuck with the accessory wrenches as shown in **Fig. 1.**

CAUTION

Ensure that the collet chuck is firmly tightened after inserting a bit. Failure to do so will result in damage to the collet chuck.

(2) When employing bits with a shaft diameter of 6mm, 8mm, 10mm, 1/4" or 3/8", use the chuck sleeve. After fully inserting the sleeve into the collet chuck hole, insert the bit into the chuck sleeve and firmly tighten the collet chuck with the accessory wrenches.

2. Dismounting Bits:
To dismount the bit, follow the mounting procedures in reverse, starting with loosening the collet chuck with the accessory wrenches.

HOW TO USE THE ELECTRIC ROUTER

1. Adjusting the cutting depth:
(1) Adjusting the cutting depth with the stopper pole and scale:
(a) Loosen the knob, and place the stopper pole against the stopper block or desired cut depth setting screw as shown in **Fig. 2.**
(b) As shown in **Fig. 3**, loosen the lock lever, push downward on the handles until the bit lightly contacts the surface of the workpiece and reclamp the lock lever. This preliminary setting is called "cut 0 (zero)".
(c) Note the scale reading at "cut 0" as indicated by the position of the stopper pole arrow position. Raise the stopper pole arrow position along the scale graduation by an amount equal to the desired cutting depth, and clamp the knob. For example, if a cutting depth of 10mm is desired and the "cut 0" reading is as shown in **Fig. 4 (a)**, raise the stopper pole arrow to the position shown in **Fig. 4 (b)**.
(2) With the stopper pole set as described above, loosen the lock lever and push downward on the handles until the stopper pole contacts the stopper block or desired cut-depth setting screw. The router is now adjusted to the desired cutting depth.
(3) When cutting jobs are to be conducted consecutively at the same cutting depth, lock the router at the desired cutting depth by setting the nuts on the threaded column as shown in **Fig. 5**.
(4) The cut-depth setting screws:
Three different cutting depths can be concurrently set by adjusting the two cut-depth setting screws located on the stopper block. Ensure that the nuts are fully tightened with the accessory wrench, as shown in **Fig. 6**, to prevent loosening of the cut-depth setting screws.
(5) When adjusting the cutting depth without using the scale, force the stopper pole upward to prevent it from getting in the way.

2. Guiding the Router:
There are several ways of guiding the router.
Select the method most convenient for your work requirements.
(1) Straight Guide:
Use the straight guide for line-marked beveling or grooving jobs.
First put the lock spring (standard accessory) onto the wing bolt M 6 x 15 (standard accessory) and then insert the bolt in the screw hole on the base top of the unit.
As shown in **Fig.7**, secure the guide bar to the router with the wing bolt located on the router body base. After fine-adjusting the desired distance from the bit to the guide plane by turning the feed screw, secure the straight guide with the wing bolt located on the bar holder.
Setting the base of the router firmly against the surface of the workpiece, align the straight guide with the edge of the workpiece as shown in **Fig. 8.**
(2) Template guide:
Use the template guide when employing a template for producing a large quantity of identically shaped products.
As shown in **Fig.9**, secure the template guide to the base of the router with two accessory screws. At this time, ensure that the projection side of the template guide is facing the bottom surface of the base of the router.
A template is a profiling mold made of plywood or thin lumber. When making a template, pay particular attention to the difference in dimensions described below and illustrated in **Fig. 10**.
When using the router along the interior plane of the template, the dimensions of the finished product will be less that the dimensions of the template by an amount equal to dimension "A", the distance between the edge of the template and the edge of the bit. The reverse is true when using the router along the exterior of the template.
Secure the template to the workpiece. Feed the router in a manner so the template guide [illegible]es along the template as shown in **Fig. 11**.
(3) Trimmer Guide:
Use the trimmer guide for beveling.
As shown in **Fig. 12**, use the wing bolt to mount and secure the trimmer guide on the bar holder. Use the two bolts to align the trimmer guide in the desired position and use as shown in **Fig. 13**.
(4) Bits with Pilot:
A bit with a pilot is a bit with a rounded shaft with no cutting edges on its lower portion. Feed the router by sliding the pilot along the side of the workpiece as shown in **Fig. 14**.

3. Cutting:
(1) Turn the switch to the ON position while the bit is separated from the workpiece as shown in **Figs. 15** and **16**. Do not start cutting operation until the bit reached full rotating speed.
(2) The bit rotates clockwise (the arrow direction is indicated on the end bracket). To obtain maximum cutting effectiveness, feed the router in conformance with the feed directions shown in **Fig. 17**.
(3) As illustrated in **Fig. 18**, when the router is feed in the direction indicated by the black arrow, a certain force acts on the router that causes it to move in the direction indicated by the white arrow. During operation, be sure to guide the router so that it does deviate from the desired cutting line.

MAINTENANCE AND INSPECTION

1. Adjusting the lock lever position:
The lock lever part is provided with a brass lock piece to protect the column. When the lock piece becomes excessively worn, the lock position of the lock lever tends to drop. Should the router operation and handling become difficult as a result, remove the E-type retaining ring and adjust the setting position of the dodecagonal hole on the lock lever and the hexagonal axis of the lock screw as shown in **Fig. 19**.

2. Oiling:
To ensure smooth vertical movement of the router, occasionally apply a few drops of machine oil to the sliding portions of the columns and end bracket.

3. Inspecting the mounting screws:
Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loose, retighten them immediately. Failure to do so could result in serious hazard.

4. Inspecting the carbon brushes (Fig. 20)
The motor employs carbon brushes which are consumable parts. Since an excessively worn carbon brush can result in motor trouble, replace the carbon brush with a new one having the same carbon brush numbers shown in the figure when it becomes worn to or near the "wear limit". In addition, always keep carbon brushes clean and ensure that they slide freely within the brush holders.

5. Replacing a carbon brush:
Disassemble the brush cap with a minus-head screwdriver. The carbon brush can then be easily removed.

6. Maintenance of the motor
[illegible]e motor unit winding is the very "heart" of the [illegible]wer tool.
Exercise due care to ensure the winding does not become damaged and/or wet with oil or water.

NOTE
Due to HITACHI's continuing program of research and development, the specifications herein are subject to change without prior notice.

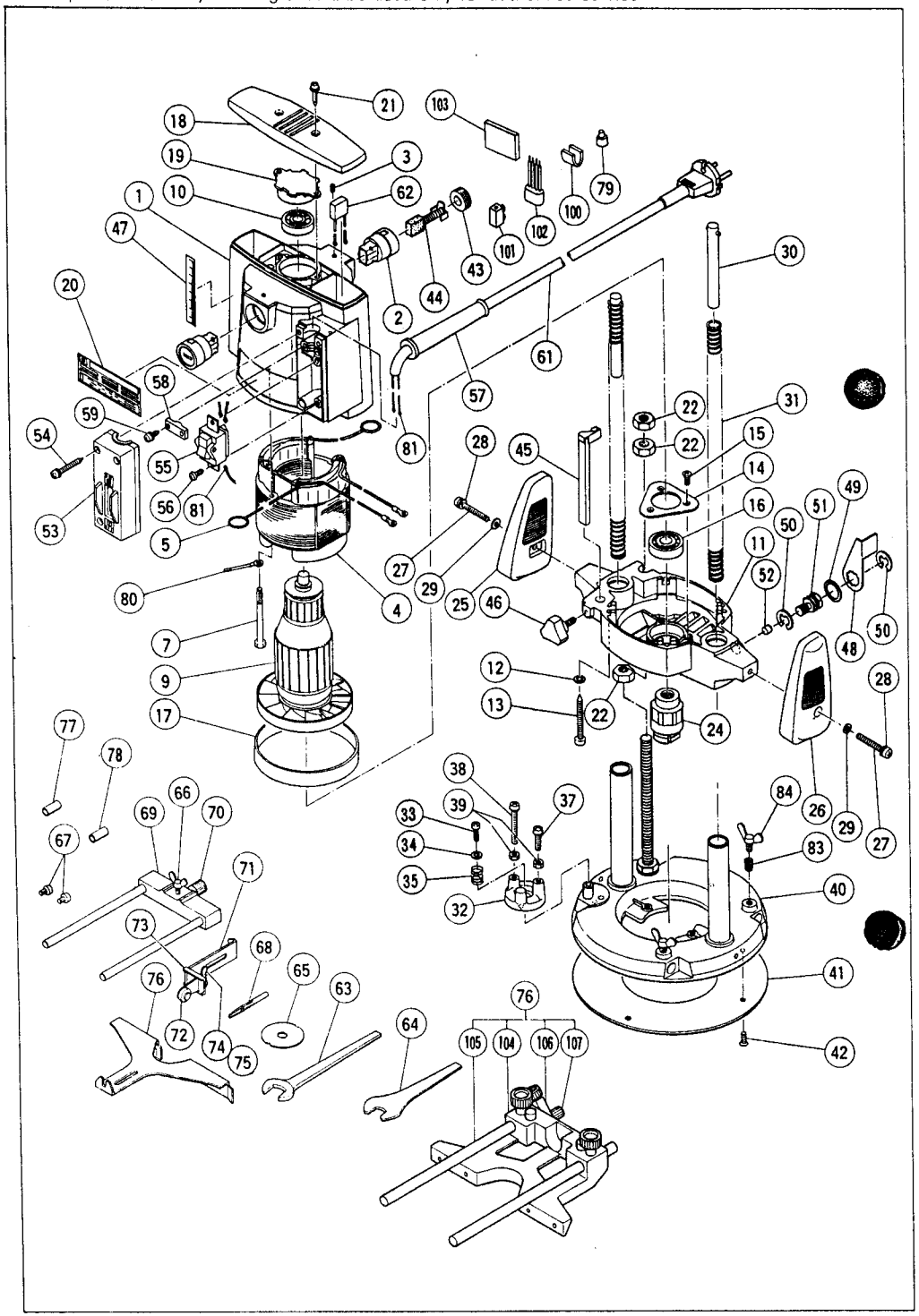
This appliance is produced to conform to the requirements of B.S. 800: 1977*.
*This requirement is applicable to appliances for the United Kingdom.

IMPORTANT
Correct connection of the plug
The wires of the mains lead are coloured in accordance with the following code:
Blue: -Neutral
Brown: -Live
As the colours of the wires in the mains lead of this tool may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
[illegible] wire coloured blue must be connected to the [illegible]nal marked with the letter N or coloured black.
The wire coloured brown must be connected to the terminal marked with the letter L or coloured red.
Neither core must be connected to the earth terminal.

NOTE
This requirement is provided according to BRITISH STANDARD 2769: 1984.
Therefore, the letter code and colour code may not be applicable to other markets except The United Kingdom.

The noise emitted by this power tool is measured in accordance with IEC 59 (CO) 11, IEC 704, DIN 45 635 Part 21, NFS 31-031 (84/537/EEC for concrete breakers). The sound pressure level at the workplace can exceed 85 dB (A) ; in this case noise protection for the operator is required.

The exploded assembly drawing should be used only for authorized service center.



Item No.	Part Name	
1	Housing Ass'y	
2	Brush Holder	
3	Hexagon Socket Hd. Set Screw	M5×8
4	Stator Ass'y	
5	Brush Terminal	
7	Hexagon Hd. Tapping Screw	D5×65
9	Armature Ass'y	
10	Ball Bearing (6200 VVCM)	
11	End Bracket	
12	Spring Lock Washer	
13	Tapping Screw	D5×55
14	Bearing Cover	
[illegible]	Flat Hd. Screw	M4×10
16	Ball Bearing (6201 VVCM)	
17	Insulator	
18	End Cover	
19	Bearing Bushing	
20	Name Plate	
21	Tapping Screw	D4×16
22	Lock Nut	M10
24	Collet Chuck	
25	Handle (L)	
26	Handle (R)	
27	Machine Screw	M5×35
28	Spring Lock Washer	
29	Bolt Washer	
30	Spring Guide	
31	Spring	
32	Stopper Block	
33	Machine Screw	M4×12
34	Washer(B)	
35	Spring(A)	
[illegible]	Machine Screw	M5×20
38	Machine Screw	M5×40
39	Nut	M5
40	Base Ass'y	
41	Sub Base	
42	Flat Hd. Screw	M5×10
43	Brush Cap	
44	Carbon Brush	
45	Stopper Pole	
46	Knob	
47	Scale	

Item No.	Part Name	
48	Lock Lever	
49	Wave Washer	
50	E-Type Retaining Ring	
51	Lock Screw	
52	Lock Piece	
53	Switch Cover	
54	Tapping Screw	D4×25
55	Switch	
56	Tapping Screw	D4×10
57	Cord Armor	
58	Cord Clip	
59	Tapping screw W/Flange	D4×16
61	Cord	
62	Noise Suppressor	
63	Wrench	23mm
64	Wrench	21mm
65	Template Guide	
66	Wing Bolt	M6×10
67	Machine Screw	M5×6
68	Straight Bit	
69	Bar Holder	
70	Feed Screw	
71	Trimmer Guide Ass'y	
72	Roller	
73	Set Plate	
74	Bolt Washer	
75	Wing Bolt	M6×10
76	Straight Guide	
77	Chuck Sleeve	
78	Chuck Sleeve	
79	Connector	
80	Internal Wire	
81	Terminal	
83	Lock Spring	
84	Wing Bolt	M6×15
100	Support(B)	
101	Pillar Terminal	
102	Choke Coil	
103	Support	
104	Straight Guide(A) Ass'y	
105	Guide Bar	
106	Screw Holder	
107	Feed Screw (A)	

Parts are subject to possible modification without notice due to improvements.