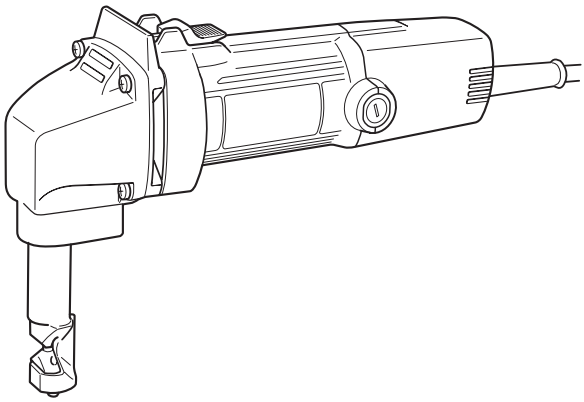
HiKOKI

Nibbler
Model CN 16SA

Handling instructions



Note:
Before using this Electric Power Tool, carefully read through these HANDLING INSTRUCTIONS to ensure efficient, safe operation. It is recommended that these INSTRUCTIONS be kept readily available as an important reference when using this power tool.

EXPLANATION OF SYMBOL

⧈: Class II tool

GENERAL POWER TOOL SAFETY WARNINGS

⚠ WARNING

Read all safety warnings and all instructions.
Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.
The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

1) Work area safety

a) Keep work area clean and well lit.
Cluttered or dark areas invite accidents.

b) Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.
Power tools create sparks which may ignite the dust or fumes.

c) Keep children and bystanders away while operating a power tool.
Distractions can cause you to lose control.

2) Electrical safety

a) Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.
Unmodified plugs and matching outlets will reduce risk of electric shock.

b) Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.
There is an increased risk of electric shock if your body is earthed or grounded.

c) Do not expose power tools to rain or wet conditions.
Water entering a power tool will increase the risk of electric shock.

d) Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.
Damaged or entangled cords increase the risk of electric shock.

e) When operating a power tool outdoors, use an extension cord suitable for outdoor use.
Use of a cord suitable for outdoor use reduces the risk of electric shock.

f) If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.
Use of an RCD reduces the risk of electric shock.

3) Personal safety

a) Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.
A moment of inattention while operating power tools may result in serious personal injury.

b) Use personal protective equipment. Always wear eye protection.
Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

c) Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.
Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.

d) Remove any adjusting key or wrench before turning the power tool on.
A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

e) Do not overreach. Keep proper footing and balance at all times.
This enables better control of the power tool in unexpected situations.

f) Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.
Loose clothes, jewellery or long hair can be caught in moving parts.

g) If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.
Use of dust collection can reduce dust related hazards.

4) Power tool use and care

a) Do not force the power tool. Use the correct power tool for your application.
The correct power tool will do the job better and safer at the rate for which it was designed.

b) Do not use the power tool if the switch does not turn it on and off.
Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

c) Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.
Such preventive safety measures reduce the risk of starting the power tool accidentally.

d) Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.
Power tools are dangerous in the hands of untrained users.

e) Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation.
If damaged, have the power tool repaired before use.
Many accidents are caused by poorly maintained power tools.

f) Keep cutting tools sharp and clean.
Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

g) Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.
Use of the power tool for operations different from those intended could result in a hazardous situation.

5) Service

a) Have your power tool serviced by a qualified repair person using only identical replacement parts. *This will ensure that the safety of the power tool is maintained.*

PRECAUTION

Keep children and infirm persons away.

When not in use, tools should be stored out of reach of children and infirm persons.

PRECAUTIONS ON USING NIBBLER

1. Beware of sharp panel edges.
   The edge of the plate just cut by the nibbler is very sharp.
   Take care in not getting hurt by the sharp edge.
2. If shavings get into the machine, it will produce problems or accidents. Do not place the machine on the shavings.
3. Shavings are hot immediately after they are cut. Never touch them with bare hands.
4. Preserve the power cord. Be sure that the power cord is not abraded or cut by the sharp edge of the cut panel.

SPECIFICATIONS

Voltage (by areas)*		(110 V, 120 V, 127 V, 220 V, 230 V, 240 V) ~
Power Input		400 W*
Cutting capacity	Mild Steel plate (400N/mm^2)	1.6 mm
	Stainless steel plate (600N/mm^2)	1.2 mm
	Aluminium plate (200N/mm^2)	2.3 mm
Number of strokes at no load		2300/min
Minimum cutting radius		40 mm
Width of nibbling groove		5 mm
Weight (without cord)		1.6 kg

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

STANDARD ACCESSORIES

(1) Hexagon bar wrench 2
Standard accessories are subject to change without notice.

APPLICATIONS

○ Cutting and pocket cutting mild steel, stainless steel, copper and aluminium plates corrugated plates and trapezoidal plates.

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 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.
4. **Die Inspection**
   Inspect for looseness of the M8 hexagon socket set screw used for mounting the die holder, the M3 machine screws used for mounting the die (see **Fig. 1**) and the M5 hexagon socket set screws used for mounting the punch (see **Fig. 2**). Caution should be exercised because, if any of these screws are loose, not only does cutting performance deteriorate but the machine can also be damaged.

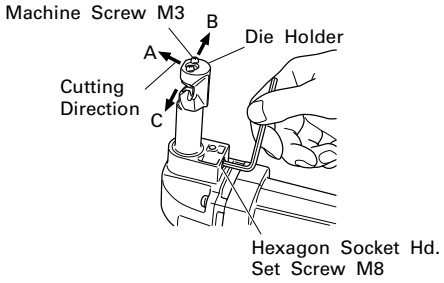


Fig. 1

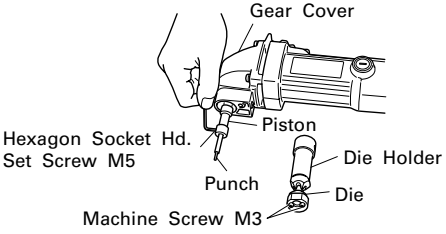


Fig. 2

5. **Lubrication**
   Before use, carefully lubricate the sliding surfaces around the die and punch (see **Fig. 3**) with a suitable amount of machine oil or spindle oil.

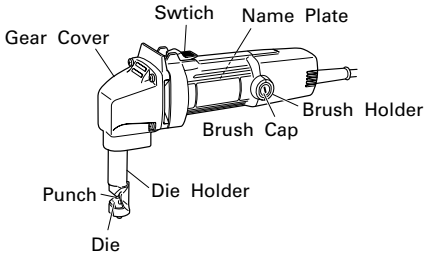


Fig. 3

6. RCD

The use of a residual current device with a rated residual current of 30mA or less at all times is recommended.

CUTTING

CAUTION

- ○ Never try to cut materials that are too large for the capacity of the machine since this may cause damage.
- ○ Applying cutting oil (spindle oil, machine oil, and so on) along the shearing line may decrease wear of the punch and die.
  Use care to prevent cutting oil adhering to the housing since the surface may be damaged.
- ○ The cutting directions of Punch shape (I) (see **Fig. 4**) are in the 3 directions of A, B and C (see **Fig. 1**) and these directions can be changed, but punch shape (II) can be cut in direction B only.

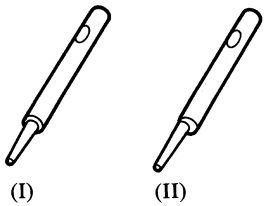


Fig. 4

1. Cutting plates

As shown in **Fig. 5**, hold the plates being cut parallel with the machine and apply a light force while cutting. When pocket cutting, make a hole 23 mm in diameter or larger, as shown in **Fig. 6**, and start cutting with the tip of the die holder.

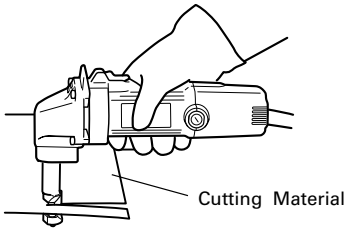


Fig. 5

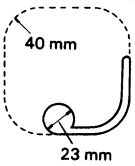


Fig. 6

2. Cutting corrugated and trapezoidal plates

(1) The cutting direction of this machine can be rotated in 90° increments in 3 directions (A, B and C) (see **Fig. 1**) by loosening the M8 hexagon socket set screw mounting the die holder. Set the cutting direction in the B or C direction to cut trapezoidal plates. After that, securely tighten the M8 hexagon socket set screw.

(2) Grip the machine firmly with both hands as shown in **Fig. 7**, align with the shape of the trapezoidal plate, push the machine forward until the die holder is at right angles as shown in **Fig. 8** and make the cut.

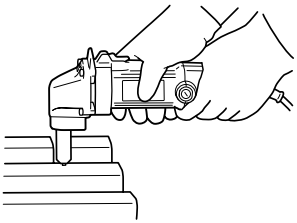


Fig. 7

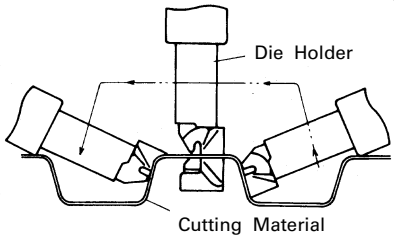


Fig. 8

REPLACING PUNCH AND DIE

CAUTION

In this case, be sure to previously disconnect the plug from the power supply.

1. Service Life of the Punch and Die

Wear and damage to the cutting edges of the punch and die can greatly influence the cutting operation. Under normal usage, the service life of the punch and die is as shown in the table below. Replace the punch and die promptly when the end of the service life approaches. The punch and die should be replaced at the same time.

Cutting materials	Service life cutting lengths of punch and die
1.6 mm Mild steel plates	300 m
1.6 mm Mild steel corrugated and trapezoidal plates	50 m
1.2 mm stainless steel plates	200 m

When the machine is used according to the service life indicated in the above table, the punch will have abrasions as shown in the enlarged diagram of the worn punch tip in **Fig. 9**. This is when the punch and die should be replaced.

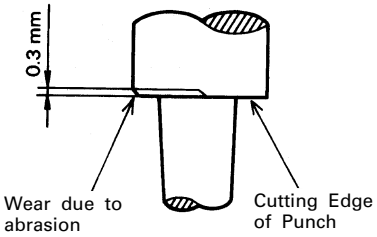


Fig. 9

CAUTION

If the punch and die are used longer than the specified service life, the die holder will be subject to excessive stress and may break off.

When a 1.6 mm mild steel trapezoidal plate is cut, wear will be especially quick. Replace the punch and die as soon as possible after reaching the service life.

2. Punch and die replacement (see Fig. 2)

CAUTION

During the following operations, use care to prevent dirt adhering inside the gear cover, inside the die holder and around the piston.

(1) Punch replacement

(a) Loosen the M8 hexagon socket set screw mounting the die holder (see **Fig. 1**) and remove the die holder.

(b) Loosen the M5 hexagon socket set screw fastening the punch to the piston and pull out the punch.

(c) Insert the new punch while aligning the taper hole of the punch and the direction of the M5 hexagon socket set screw, then securely tighten the hexagon socket set screw (see **Fig. 10**).

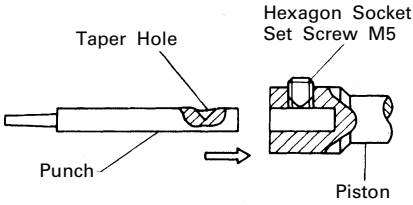


Fig. 10

(2) Die replacement

Loosen the 2 machine screws and replace the die.

(3) Lubricaton

When the above replacement operations are completed, apply a suitable amount of machine oil to the sliding surfaces around the punch and die and operate the machine without a load.

MAINTENANCE AND INSPECTION

1. Checking punch and die

A worn or defective punch and die will greatly decrease work efficiency.

Check and replace them periodically. Refer to "Replacing punch and die".

2. 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.

3. Maintenance of the motor

The motor unit winding is the very "heart" of the power tool. Exercise due care to ensure the winding does not become damaged and/or wet with oil or water.

4. Inspecting the carbon brushes (Fig. 11)

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 No. 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.

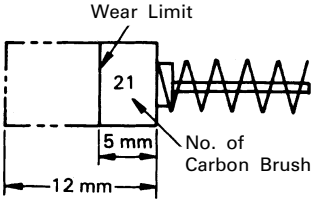


Fig. 11

5. Replacing carbon brushes

Disassemble the brush cap with a screwdriver. The carbon brush can then be easily removed.

6. Service parts list

A: Item No.
B: Code No.
C: No. Used
D: Remarks

CAUTION

Repair, modification and inspection of HiKOKI Power Tools must be carried out by an HiKOKI Authorized Service Center.

This Parts List will be helpful if presented with the tool to the HiKOKI Authorized Service Center when requesting repair or other maintenance.

In the operation and maintenance of power tools, the safety regulations and standards prescribed in each country must be observed.

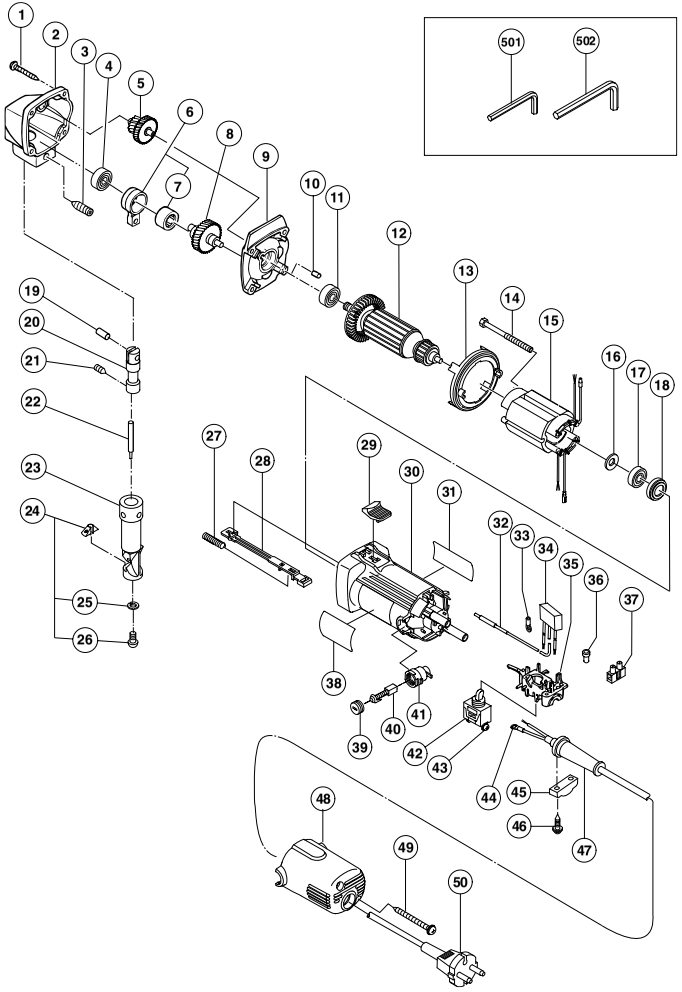
MODIFICATIONS

HiKOKI Power Tools are constantly being improved and modified to incorporate the latest technological advancements.

Accordingly, some parts (i.e. code numbers and/or design) may be changed without prior notice.

NOTE

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



A	B	C	D
1	957-580	4	D5×30
2	998-033	1	
3	998-008	1	M8×20
4	608-VVM	1	608VVC2PS2L
5	998-036	1	
6	998-004	1	“7”
7	993-163	1	M152112
8	998-035	1	
9	998-032	1	
10	931-701	1	
11	608-VVM	1	608VVC2PS2L
12 1	360-622C	1	110V
12 2	360-622U	1	“120V-127V ”11, 16, 17”
12 3	360-622E	1	220V-230V
12 4	360-522F	1	240V
13	306-840	1	
14	982-021	2	D4×70
15 1	340-567C	1	110V
15 2	340-567D	1	120V-127V
15 3	340-567E	1	220V-230V
15 4	340-567F	1	240V
16	942-204	1	
17	626-VVM	1	626VVC2PS2L
18	309-929	1	
19	993-546	1	D6
20	998-034	1	
21	998-037	1	M5Å~6
22 1	998-030	1	
22 2	998-041	1	“TPE”
23	998-038	1	
24	998-039	1	“25, 26”
25	949-451	2	M3
26	949-206	2	M3×14
27	314-429	1	
28	314-427	1	
29	314-428	1	
30	314-438	1	“18”
31	————	1	
32	314-854	1	
33	311-741	1	
34	994-273	1	
35	314-432	1	
36	959-140	1	
37	938-307	1	
38	————	1	
39	936-551	2	

A	B	C	D
40	999-021	2	
41	313-777	2	
42	314-603	1	
43	305-499	2	M3.5×6
44	980-063	1	
45	937-631	1	
46	984-750	2	D4×16
47 1	953-327	1	D8.8
47 2	938-051	1	D10.1
48	314-433	1	
49	301-815	2	D4×45
50	————	1	
501	990-666	1	2.5MM
502	944-458	1	4MM

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