MODEL

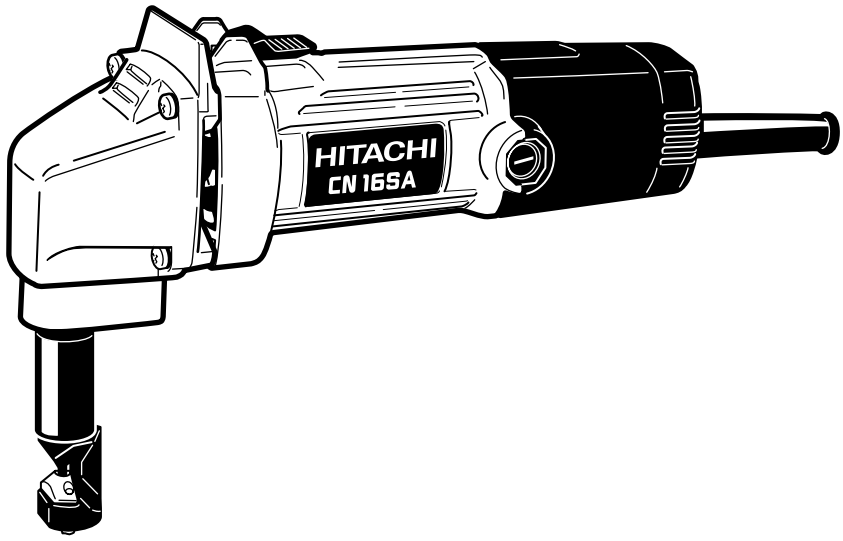
CN 16SA

# Hitachi
# Power Tools

C

## NIBBLER
## CN 16SA

TECHNICAL DATA
AND
SERVICE MANUAL




LIST No. 0796

Dec. 2003

REMARK:

Throughout this TECHNICAL DATA AND SERVICE MANUAL, a symbol(s) is(are) used in the place of company name(s) and model name(s) of our competitor(s). The symbol(s) utilized here is(are) as follows:

| Symbols Utilized | Competitors | |
|---|---|---|
| | Company Name | Model Name |
| C | MAKITA | JN1601 |
| B | BOSCH | GNA2.0 |
| | | |

# CONTENTS

## 1. PRODUCT NAME

Hitachi Nibbler, Model CN 16SA

## 2. MARKETING OBJECTIVE

The Model CN 16 nibbler has been on the market for 16 years. To meet a demand for a remodelded, we now offer renewed design with a slim body, for increased competitiveness and expanded sale. The Model CN 16SA has been developed to upgrade and replace the current Model CN 16. The key features of the Model CN 16SA are as follows:

(1) Smallest grip in this class: Good operativity
(Grip circumference: 184 mm)

(2) Rapid cutting speed: 1.8 m/min

(3) Compact and lightweight
(Shortest length in this class: 250 mm Weight: 1.6 kg)

(4) 3 positive stop die holder permits straight, right and left cutting.
(Same as the Model CN 16)

(5) Downward cutting permits cutting of trapezoidal metal plate.
(Same as the Model CN 16)

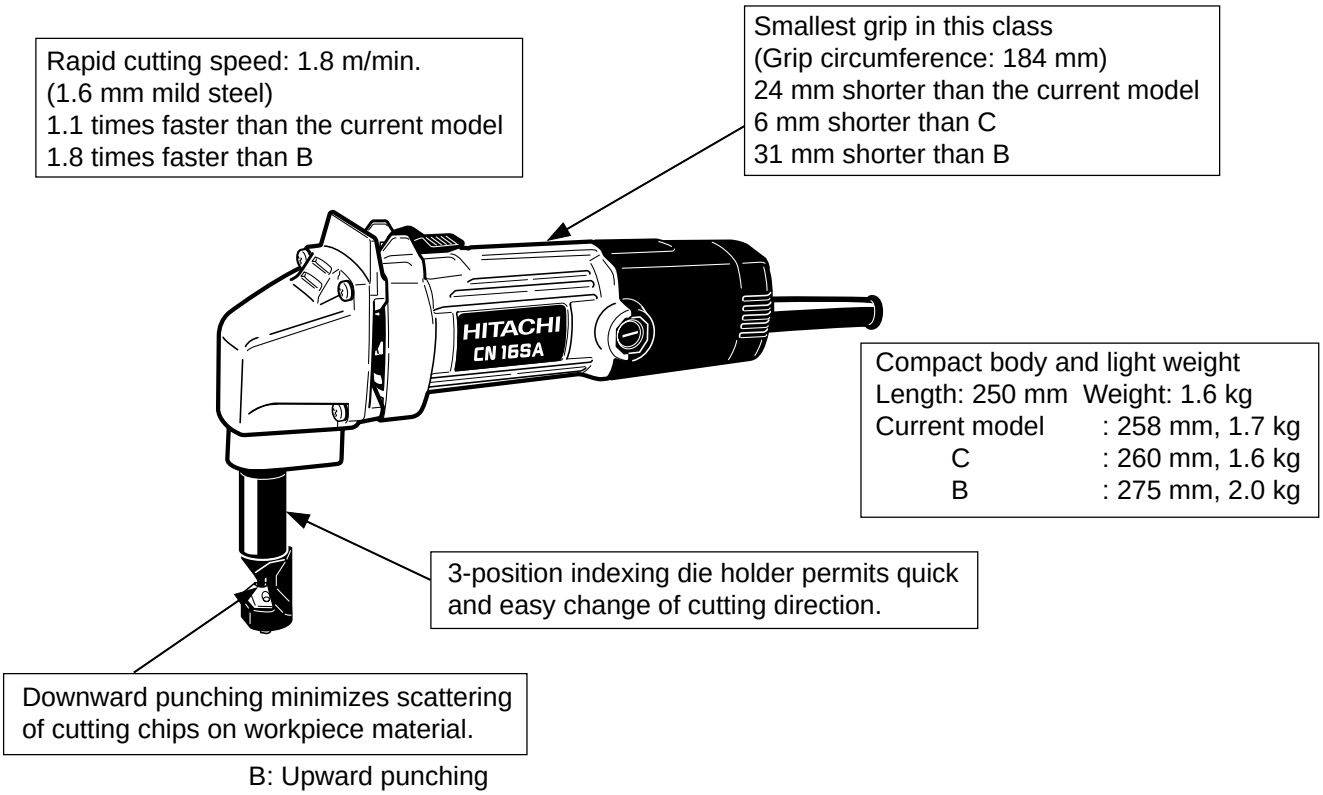
## 3. APPLICATIONS

- Cutting and pocket cutting steel plate, aluminum plate, copper plate and corrugated and trapezoidal plate.

Corrugated plate

Trapezoidal plate

## 4. SELLING POINTS




B: Upward punching

**4-1. Selling Point Descriptions:**

(1) Rapid cutting speed (1.8 m/min):

As shown in the table below (based on comparative cutting of 1.6 mm [1/16"] mild steel plate), the cutting speed of the Model CN 16SA is the fastest of the 1.6 mm (1/16") class nibblers. This is because of the high stroke speed of the punch during actual cutting operation; the more powerful motor minimizes stroke speed loss when the load is increased. The much higher cutting speed of the Model CN 16SA in comparison with B and C, however, is not only because of the greater number of punch stroke, but also because of the greater cutting length of each stroke and the subsequent higher efficiency.

For further details concerning the relationship between the cutting speed and the number and the length of the punch strokes, refer to the explanation of cutting speed below. The service life of the die utilized on the Model CN 16SA is approximately 300 meters (1,000 feet) when cutting mild steel plate.

(NOTE) Actual cutting speeds may vary depending on the hardness of the workpiece material, the skill of the operator, and other variables.

**Table 1 Comparison of cutting speed for 1.6 mm mild steel**

L: Cutting length per stroke

| Maker | Model | 1 2 m/min. | L (mm) | Stroke ($min^{-1}$)* |
|---|---|---|---|---|
| HITACHI | CN 16SA | 1.8 | 1.2 | 1500 |
| | CN 16 | 1.6 | 1.2 | 1340 |
| B | | 1.0 | — | — |
| C | | 1.8 | 1.2 | 1500 |

* Stroke ($min^{-1}$) indicates the number of strokes during actual cutting operation.

Explanation of cutting speed

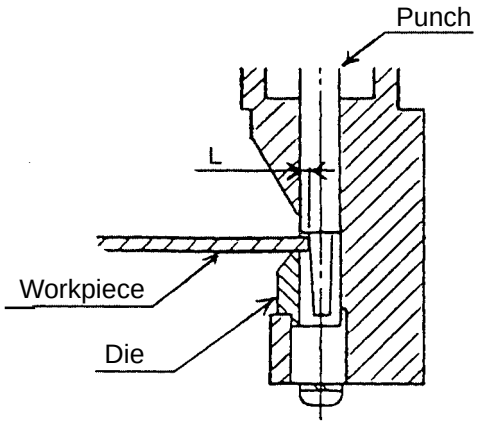



**Fig. 1**

S: Cutting speed (m/min)

N: Number of actual strokes ($min^{-1}$)

L: Cutting length per stroke (m)

$S = N \times L$

If the facors "N" and "L" become larger, the cutting speed also becomes faster. However, there are limited boundaries of figures "N" and "L" in general design technology.

(2) Smallest grip in this class:

Table 2 Comparison of grip circumference

| Maker | Model | Grip circumference |
|---|---|---|
| HITACHI | CN 16SA | 184 mm (7-1/4") |
| | CN 16 | 208 mm (8-3/16") |
| B | | 215 mm (8-15/32") |
| C | | 190 mm (7-7/16") |

The housing is easy to grip and use because the grip circumference is 24 mm shorter than the conventional model, 31 mm shorter than B, and 6 mm shorter than C.

(3) Compact body and light weight:

Table 3 Comparison of dimensions and weight

| Item \ Maker / Model | | HITACHI | | B | C |
|---|---|---|---|---|---|
| | | CN 16SA | CN 16 | | |
| Dimensions | Length | 250 mm (9-7/8") | 258 mm (10-5/34") | 275 mm (10-13/16") | 260 mm (10-7/32") |
| | Height | 176 mm (6-15/16") | 176 mm (6-15/16") | 127 mm (5") | 176 mm (6-15/16") |
| Weight | | 1.6 kg (3.5 lbs.) | 1.7 kg (3.7 lbs.) | 2.0 kg (4.4 lbs.) | 1.6 kg (3.5 lbs.) |

(4) Downward punching minimizes scattering of cutting chips on workpiece material:

As illustrated in Fig. 2, the Model CN 16SA employs a downward cutting system which expels cutting chips downward, leaving the upper surface clean so that the premarked cutting line can be clearly seen at all times. B employs an upward cutting system, as illustrated in Fig. 3, which expels cutting chips upward onto the surface of the material so that the operator's view of the cutting line is sometimes blocked. However, while the downward cutting system has the benefit described above, in order to support the cutting load applied at Section AA, as illustrated in Fig. 2, the cross-section dimension of the die holder at Section AA must be larger than the counterpart dimension on products employing an upward cutting system, as illustrated by Section BB in Fig. 3. As a consequence, the larger dimension means that the minimum cutting radius of a product employing a downward cutting system is generally slightly larger than the minimum cutting radius of upward cutting products.

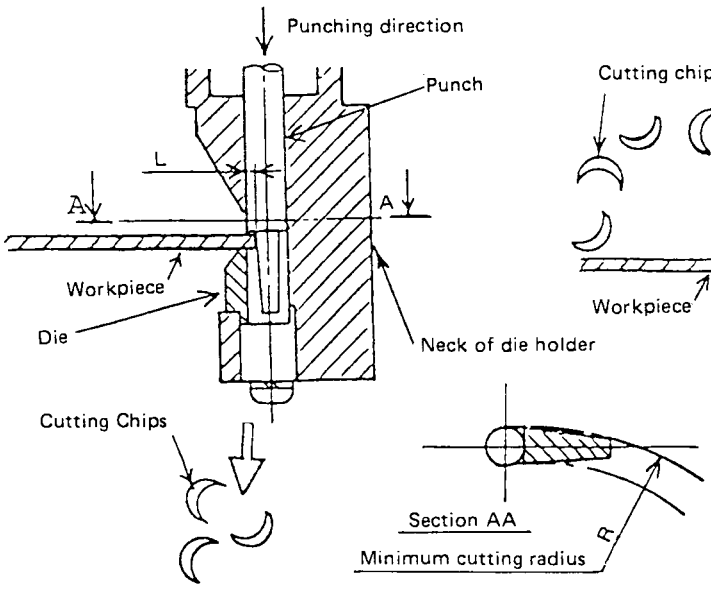



**Fig. 2 Downward cutting (Models CN 16SA, CN 16 and C)**

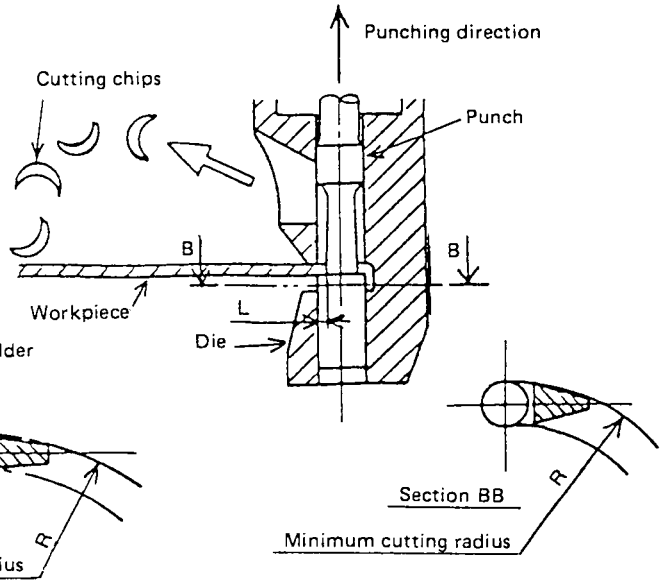



**Fig. 3 Upward cutting (B)**

(5) 3-position indexing die holder permits quick and easy change of cutting direction:

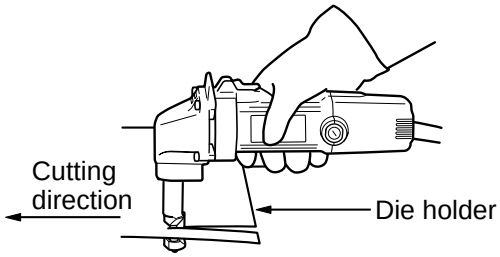



**Fig. 4 When cutting a flat workpiece**

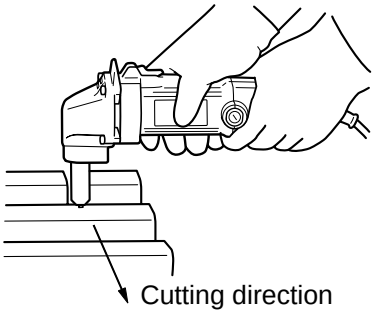



**Fig. 5 When cutting a trapezoidal workpiece**

The tool must be fed to the left, as illustrated in Fig. 5, even when cutting flat-surfaced materials. In addition to general inconvenience, this type of feeding is particularly difficult for left-handed persons.

To eliminate such difficulties, the Model CN 16SA is equipped with a die holder which can be fixed in any of three positions to permit feeding of the tool in straight forward, left-or right-hand directions. This allows easy forward cutting of flat materials, as illustrated in Fig. 4, or cutting to the left or right when cutting corrugated or trapezoidal materials, as illustrated in Fig. 5, for significantly better operability.

## 5. SPECIFICATIONS

<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Capacity<br>Mild steel (400 N/mm$^2$)</td><td>1.6 mm (1/16")</td></tr>
<tr><td>Stainless steel (600 N/mm$^2$)</td><td>1.2 mm (3/64")</td></tr>
<tr><td>Aluminum (200 N/mm$^2$)</td><td>2.3 mm (3/32")</td></tr>
<tr><td>Power source</td><td>AC single phase 50 or 60 Hz</td></tr>
<tr><td>Voltage, current and power input</td><td>
<table>
<tr><th>Voltage (V)</th><th>Current (A)</th><th>Power input (W)</th></tr>
<tr><td>110</td><td>3.8</td><td rowspan="6">400</td></tr>
<tr><td>115</td><td>3.7</td></tr>
<tr><td>120</td><td>3.5</td></tr>
<tr><td>220</td><td>1.9</td></tr>
<tr><td>230</td><td>1.8</td></tr>
<tr><td>240</td><td>1.8</td></tr>
</table>
</td></tr>
<tr><td>Type of motor</td><td>AC single phase commutator motor</td></tr>
<tr><td>Enclosure</td><td>• Housing ..... Glassfiber reinforced polyamide resin (Green)<br>• Tail cover ..... Glassfiber reinforced polyamide resin (Black)<br>• Gear cover, inner cover .... Aluminum alloy die casting (Silver)</td></tr>
<tr><td>Type of switch</td><td>Slide switch</td></tr>
<tr><td>Power output</td><td>230 (W)</td></tr>
<tr><td>No-load stroke</td><td>2300 min$^{-1}$</td></tr>
<tr><td>Full-load stroke</td><td>1490 min$^{-1}$</td></tr>
<tr><td>Weight</td><td>• Net : 1.6 kg (3.5 lbs.)<br>• Gross : 2.3 kg (5.1 lbs.)</td></tr>
<tr><td>Packaging</td><td>Corrugated cardboard box</td></tr>
<tr><td>Standard accessories</td><td>• Hex. bar wrench ..... 2</td></tr>
</table>

## 6. COMPARISONS WITH SIMILAR PRODUCTS

The specifications of the Model CN 16SA are compared with various other models in the table below. The primary advantages of the Model CN 16SA in comparison with the other models are:

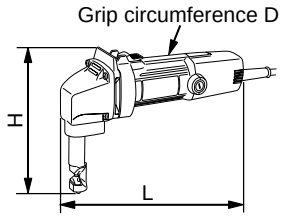
(1) Smallest grip design

(2) Compact and lightweight design

(3) Rapid cutting speed

(4) Cutting direction can be quickly and easily changed

(5) Downward cutting permits clear view of cutting line

| Item \ Maker • Model | | | Unit | HITACHI | | B | C |
|---|---|---|---|---|---|---|---|
| | | | | CN 16SA | CN 16 | | |
| Nameplate and catalog specifications | Capacity | Mild steel | mm | 1.6 (1/16") | 1.6 (1/16") | 2.0 (5/64") | 1.6 (1/16") |
| | | Stainless steel | mm | 1.2 (3/64") | 1.2 (3/64") | 1.0 (5/128") | 1.2 (3/64") |
| | | Alminum plate | mm | 2.3 (3/32") | 2.3 (3/32") | 2.5 (13/128") | 2.5 (13/128") |
| | Min. cutting radius | | mm | 40 (1-37/64") | 40 (1-37/64") | 30 (1-3/16") | 45 (1-49/64") |
| | Power input | | W | 400 | 400 | 500 | 550 |
| | No-load stroke | | $min^{-1}$ | 2,300 | 2,000 | 2,400 | 2,200 |
| | Weight | | kg | 1.6 (3.5 lbs.) | 1.7 (3.7 lbs.) | 2.0 (4.4 lbs.) | 1.6 (3.5 lbs.) |
| Characteristics | Power output | | W | 230 | 220 | — | — |
| | Full-load stroke | | $min^{-1}$ | 1490 | 1450 | — | — |
| | Cutting length per stroke | | mm | 1.2 (3/64") | 1.2 (3/64") | — | 1.2 (3/64") |
| | Punching direction | | | Down | Down | Up | Down |
| | Cutting direction | | | 3 positions | 3 positions | All positions | All positions |
| | No-load noise level 1 m | | dB | 77 | 79 | 77 | 83 |
| | No-load vibration | | dB | 109 | 109 | 106 | 109 |
| External dimensions   | | | mm | D | 184 | 208 | 215 | 190 |
| | | | | L | 250 | 258 | 275 | 260 |
| | | | | H | 176 | 176 | 127 | 176 |
| | | | inch | D | 7-1/4" | 8-3/16" | 8-15/32" | 7-7/16" |
| | | | | L | 9-7/8" | 10-5/34" | 10-13/16" | 10-7/32" |
| | | | | H | 6-15/16" | 6-15/16" | 5" | 6-15/16" |
| Standard accessories | | | | | | | | |
| | Wrench | | | | | | | 1 |
| | Hex. bar wrench | | | | 2 | 2 | 1 | 1 |

## 7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model CN 16SA Nibbler by all of our customers, it is very important that at the time of sale the salesperson carefully ensures that the buyer seriously recognizes the importance of the contents of the Handling Instructions, and fully understands the meaning of the precautions listed on the Name Plate attached to each tool.

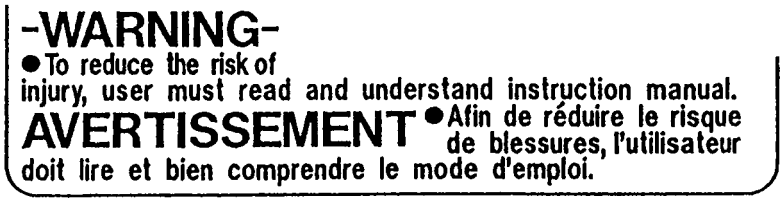
### 7-1. Handling Instructions

Although every effort is made in each step of design, manufacture and inspection to provide protection against safety hazards, the dangers inherent in the use of any electric tool cannot be completely eliminated. Accordingly, general precautions and suggestions for the use of nibbler are listed in the Handling Instructions to enhance the safe, efficient use of the tool by the customer. Salespersons must be thoroughly familiar with the contents of the Handling Instructions to be able to offer appropriate guidance to the customer during sales promotion.

### 7-2. Precautions on Nameplate

The Model CN 16SA is provided with a nameplate which lists basic safety precautions (illustrated below) in its use. Carefully ensure that the customer fully understands and follows these precautions before using the tool.

(1) For the U.S.A. and Canada




(2) For other countries

**7-3. Service Life of Punch, Die and Die Holder**

(1) Service life of the punch and the die:

The punch and the die are consumable parts. Their service lives are described in the Handling Instructions as illustrated below. Salespersons are requested to instruct the customer to inspect the punch and the die often, and replace them with new parts when they are approaching the end of their service lives.

1. Service life of the punch and the die

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

| Cutting materials | Service life cutting lengths of punch/die |
|---|---|
| 1.6 mm (1/16") mild steel plate | 300 m (1000 ft) |
| 1.6 mm (1/16") mild steel corrugated/trapezoidal plate | 50 m (160 ft) |
| 1.2 mm (3/64") stainless steel plate | 200 m (650 ft) |

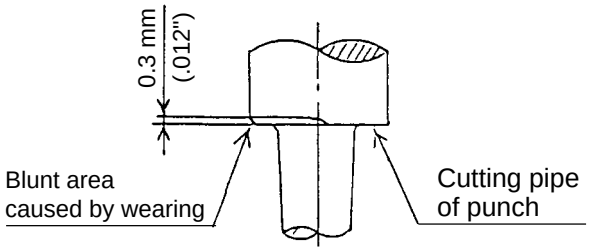



**Fig. 6 Enlarged illustration of worn punch cutting edge**

When the punch has been utilized to cut various materials as described in the table above, it will become worn as illustrated in Fig. 6. When such wear is noted, it is very important that the punch and the die be replaced at the same time.

[CAUTION]

Continued use of a punch and die which have reached the end of their effective service lives will place excessive stress on the die holder, resulting in accelerated wear and possible early damage to the die holder. Particular attention is necessary when performing continuous cutting of 1.6 mm (1/16") trapezoidal mild steel plate, where the service lives of the punch and the die are especially short. In such a case, the punch and the die should be replaced even earlier than the normal service life indicated in the table above.

(2) Service life of the die holder:

If the punch and the die are replaced properly in accordance with their normal service lives as described above, the nominal service life of the die holder will be as shown in the table below.

| Cutting materials | Nominal service life of die holder |
|---|---|
| 1.6 mm (1/16") mild steel plate | 400 m (1320 ft) |
| 1.6 mm (1/16") mild steel corrugated/trapezoidal plate | 200 m (660 ft) |

If the tool is operated continuously with a worn punch and die, the service life of the die holder may be half or less the normal service life shown in the table above. In the case of 1.6 mm trapezoidal mild steel plate, for example, the die holder could break after as little as 100 m (330 ft.) of the material has been cut. To avoid such situations, it is very important that the customer be instructed to replace the punch and the die in a timely manner.

## 8. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

The **[Bold]** numbers in the descriptions below correspond to the item numbers in the Parts List and exploded assembly diagram.

### 8-1. Disassembly

(1) Disassembly of the Armature **[12]**:

① Loosen the Brush Caps **[39]** and take out the Carbon Brushes **[40]**.

② Loosen the four Tapping Screws D5 x 30 **[1]**, remove the Gear Cover **[2]**, and take out the Armature **[12]** together with the Inner Cover **[9]** in a single body from the Housing Ass'y **[30]**.

③ As illustrated in Fig. 7, support the Inner Cover **[9]** with an appropriate tubular jig (inner diameter: 63 mm to 72 mm), and press down on the pinion portion of the armature shaft with a hand press to loosen and remove the Armature **[12]**.

(2) Disassembly of the Stator **[15]**:

① After the Armature **[12]** has been disassembled, loosen the Tapping Screw (W/Flange) D4 x 45 **[49]**, and remove the Tail Cover **[48]**.

② Remove the four internal wires from the Stator **[15]** connected with the Brush Holder **[41]**, the Pillar Terminal **[37]** and the Switch **[42]**.

③ Remove the Fan Guide **[13]** from the Housing Ass'y **[30]**.

④ After removing the two Hex. Hd. Tapping Screws D4 x 70 **[14]**, gently tap the end surface of the Housing Ass'y **[30]** (gear cover side) with a wooden hammer to loosen and remove the Stator **[15]** from the Housing Ass'y **[30]**.

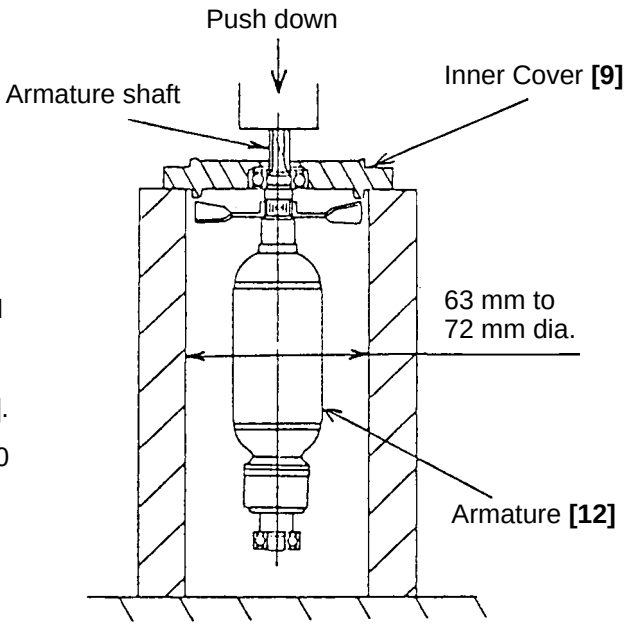



**Fig. 7**

(3) Disassembly of the gear cover section:

① Loosen the four Tapping Screws D5 x 30 **[1]** and remove the Gear Cover **[2]**.

② Remove the Second Pinion and Gear Set **[5]** and the Spindle and Gear Set **[8]**.

③ Loosen the Hex. Socket Set Screw M8 x 20 **[3]**, and remove the Die Holder **[23]**.

④ From the Gear Cover **[2]**, take out the Connecting Rod Ass'y **[6]**, the Piston **[20]**, and the Punch **[22]**.

⑤ Loosen the Hex. Socket Set Screw M5 x 6 **[21]** and remove the Punch **[22]**.

⑥ Fit an appropriate slender rod against either end of the Pin D6 **[19]**, press the slender rod through with a hand press to remove the Pin D6 **[19]**, and separate the Connecting Rod Ass'y **[6]** and the Piston **[20]**.

**8-2. Reassembly**

Reassembly can be accomplished by following the disassembly procedures in reverse. However, special attention should be given to the following items.

(1) Grease (Nippeko Grease (SEP-3A) is recommended) is used inside the Gear Cover **[2]**. Prior to reassembly , thoroughly remove the old grease and apply fresh grease liberally to the following parts: the pinion portion of the Armature **[12]**, the Second Pinion and Gear Set **[5]**, the Spindle and Gear Set **[8]**, the gear portion of the spindle, the Connecting Rod Ass'y **[6]**, the Needle Bearing (M152112) **[7]**, the needle bearing portion of the Inner Cover **[9]**, the Piston **[20]**, the Punch **[22]**, and the inner circumference of the Die Holder **[23]** where the piston slides.

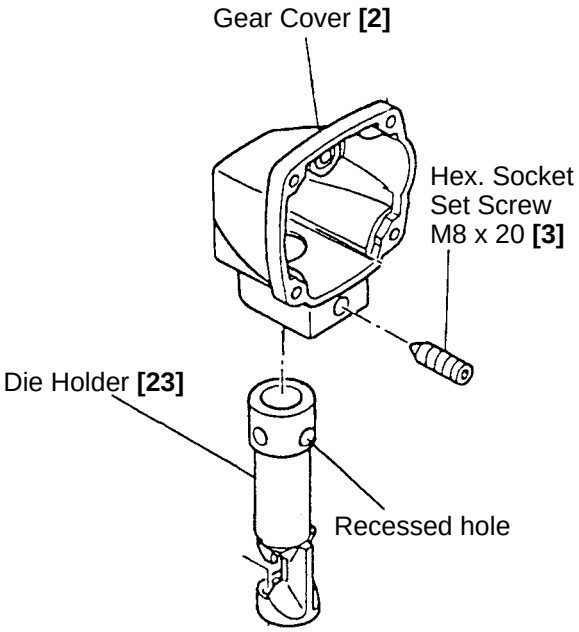



**Fig. 8**

(2) When press-fitting the Needle Bearing (M152112) **[7]** into the Connecting Rod Ass'y **[6]** with a hand press, fit an appropriate jig against engraved surface end of the needle bearing to push it properly into the connecting rod ass'y.

(3) When reassembling the Die Holder **[23]** into the Gear Cover **[2]** (see Fig. 8), carefully ensure that the Hex. Socket Set Screw M8 x 20 **[3]** is properly aligned with the recessed hole on the blade holder. Then, tighten the Hex. Socket Set Screw M8 x 20 **[3]** to rated torque.

(4) Fit the Rubber Bushing **[18]** into the housing ball bearing chamber before installing the Armature **[12]** (see Fig. 9).

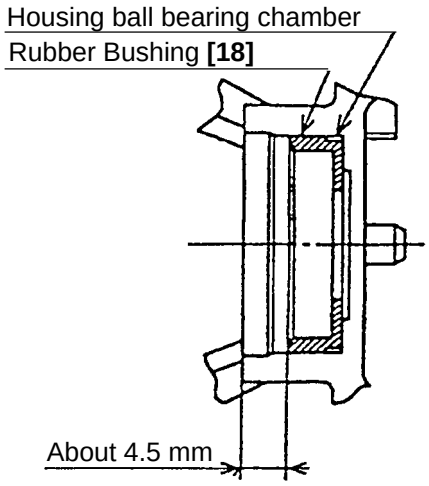



**Fig. 9**

(5) When installing the Stator **[15]** into the Housing Ass'y **[30]**, insert it while taking care of the placement of the internal wires of the stator **[15]** as indicated in Fig. 10. Connect the four internal wires of the Stator **[15]** with the parts indicated in Fig. 10.

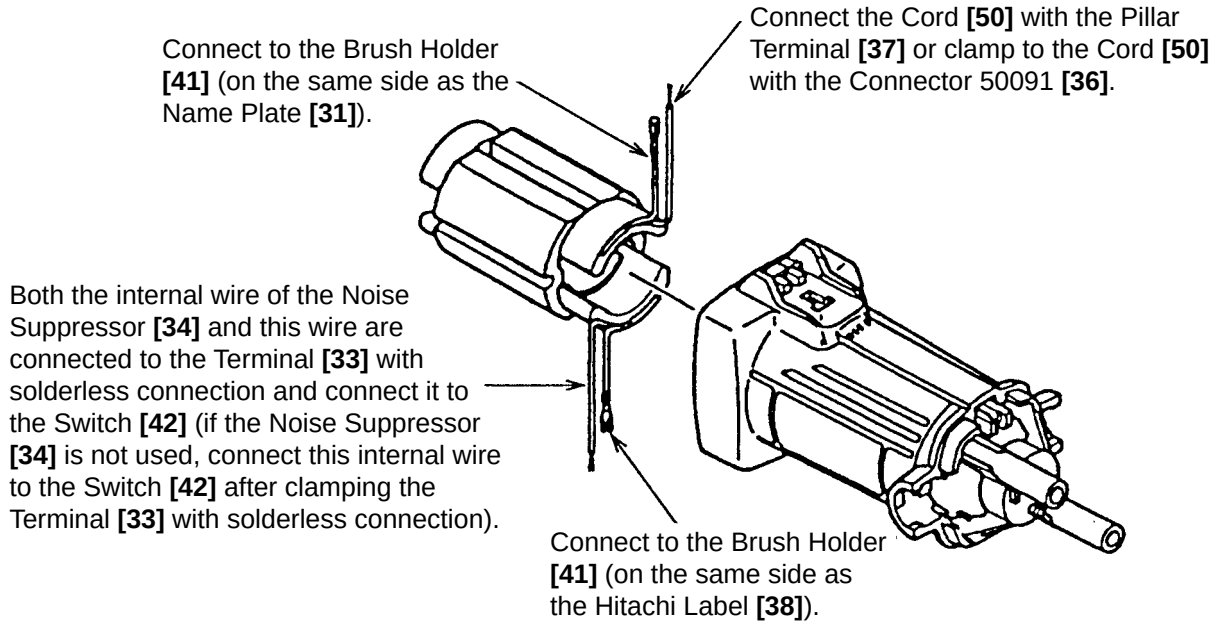



**Fig. 10**

(6) When connecting the Earth Terminal **[32]** to the internal wire (the middle wire among three) of the Noise Suppressor **[34]**, strip the insulation sheath on the internal wire by about 6 mm and press-connect it together with the Earth Terminal **[32]** with a clamping tool on the market.

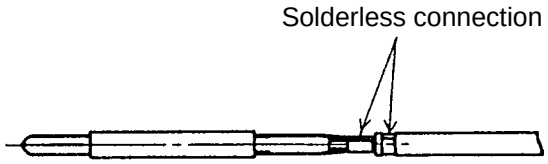



**Fig. 11**

**8-3. Lubrication Points and Types of Lubricant**

Anytime the Gear Cover **[2]** is disassembled, thoroughly clean out the old grease and insert 15 grams (.53 oz) of new grease (Nippeko grease (SEP-3A)) prior to reassembly.

**8-4. Tightening Torque**

(1) Tapping Screws (W/Flange) D4 **[46] [49]** ..... 2.0 ± 0.5 N•m (20 ± 5 kgf•cm, 1.5 ± 0.4 ft-lbs.)

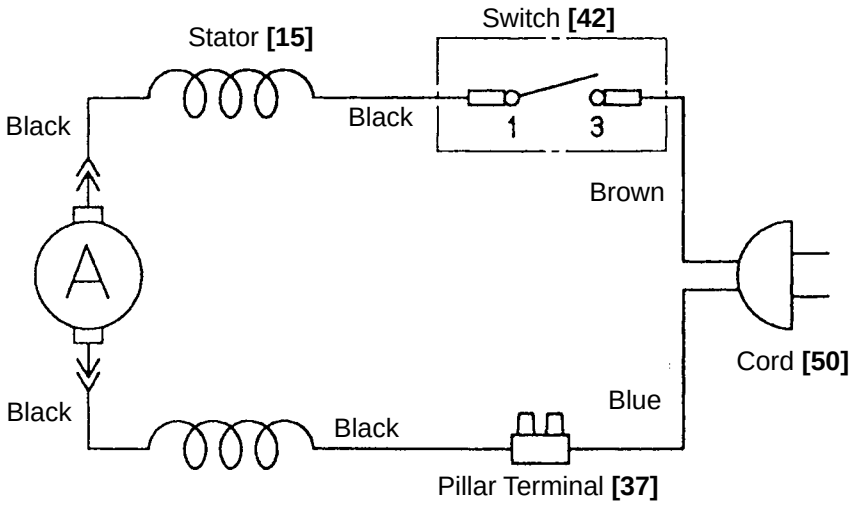
(2) Tapping Screw D5 x 30 **[1]** ..... 2.9 ± 0.5 N•m (30 ± 5 kgf•cm, 2.2 ± 0.4 ft-lbs.)

(3) Hex. Socket Set Screw M8 x 20 **[3]** ..... 8.8 ± 1.0 N•m (90 ± 10 kgf•cm, 6.3 ± 0.7 ft-lbs.)

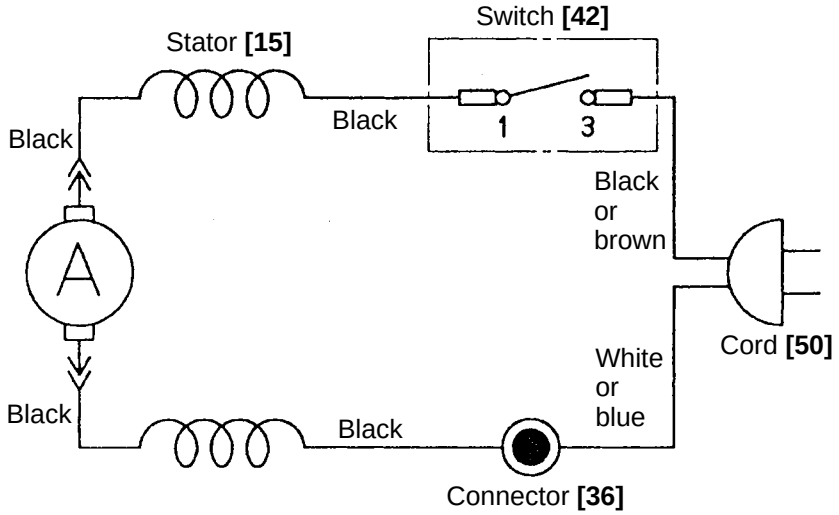
(4) Brush Cap **[39]** ..... 0.6 ± 0.2 N•m (6 ± 2 kgf•cm, 0.4 ± 0.1 ft-lbs.)

**8-5. Wiring Diagrams**

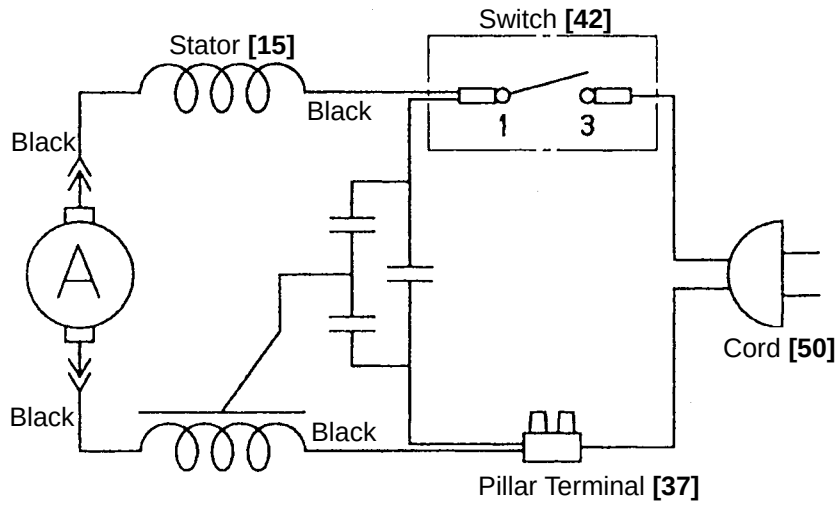
For the U.S.A. and Canada




For Hong Kong and Indonesia




For other countries



### 8-6. Insulation Tests

On completion of disassembly and repair, measure the insulation resistance and conduct dielectric strength test.

Insulation resistance: 7 MΩ or more with DC 500 V megohm tester

Dielectric strength: AC 4,000 V/1 minute, with no abnormalities ..... 220 V –– 240 V
(and 110 V for U.K. products)

AC 2,500 V/1 minute, with no abnormalities ..... 110 V – 120 V
(except U.K. products)

### 8-7. No-load Current Value

After no-load operation for 30 minutes, the current value should be as follows.

| Voltage | 110 V | 115 V | 120 V | 220 V | 230 V | 240 V |
|---|---|---|---|---|---|---|
| Current (Max.) | 1.4 A | 1.4 A | 1.3 A | 0.7 A | 0.7 A | 0.7 A |

## 9. STANDARD REPAIR TIME (UNIT) SCHEDULES

| MODEL | Variable / Fixed | 10 | 20 | 30 | 40 | 50 | 60 min. |
|---|---|---|---|---|---|---|---|
| CN 16SA | | Work Flow | | | | | |
| | | Tail Cover<br>Cord Armor | Switch Holder<br>Snap Switch<br>Cord | | | | |
| | | | Slide Bar<br>Spring<br>Slide Knob | Housing Ass'y<br>Stator | | | |
| | General Assembly | | Armature<br>Inner Cover<br>Ball Bearing (608VV)<br>Ball Bearing (626VV) | | | | |
| | | | Connecting Rod Ass'y<br>Ball Bearing (608VV)<br>Second Pinion and Gear Set<br>Needle Bearing<br>Spindle and Gear Set | Gear Cover<br>Piston | | | |
| | | Die Holder | | | | | |

# Hitachi Power Tools

LIST NO. 0796

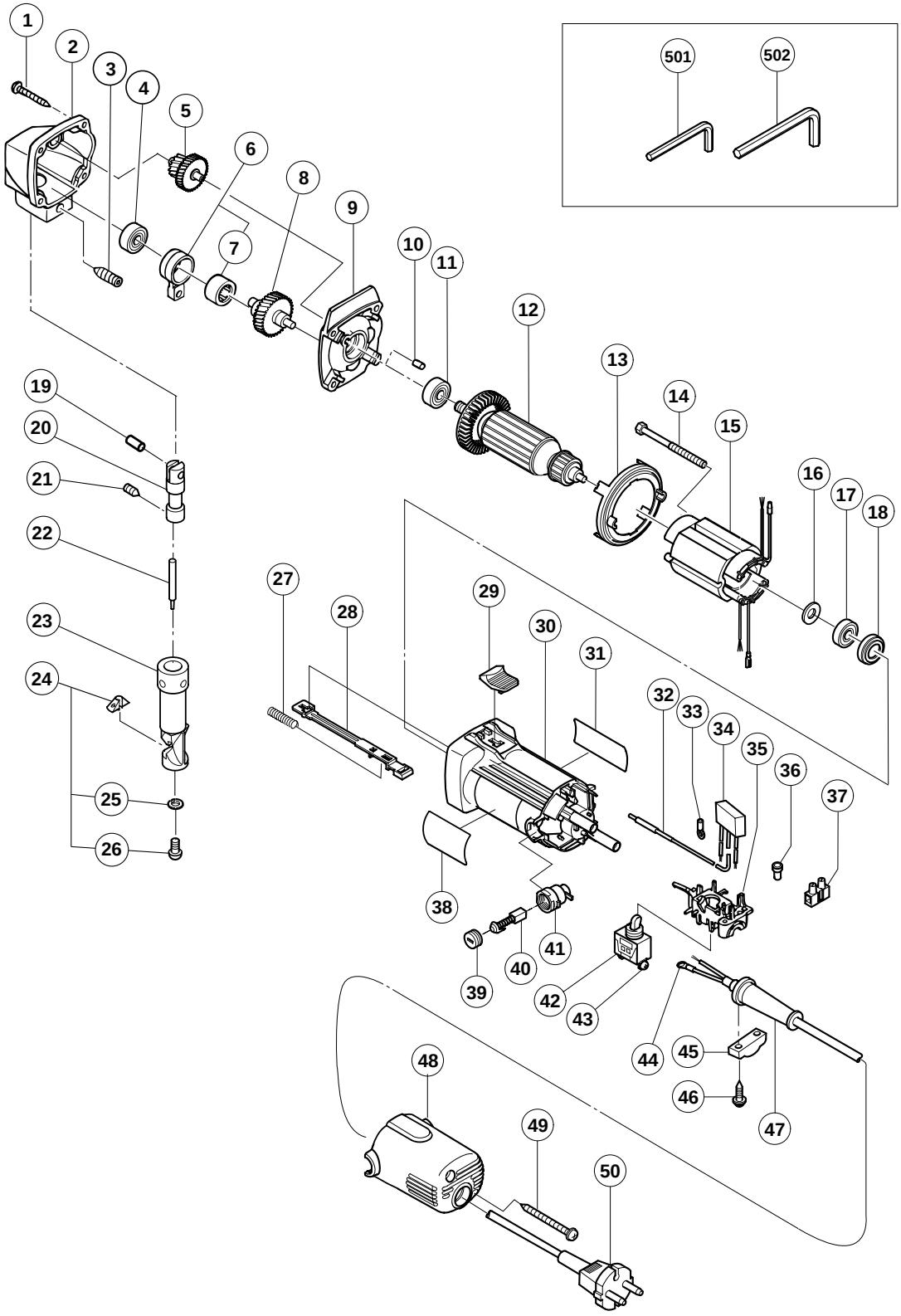
# ELECTRIC TOOL PARTS LIST

## ■ NIBBLER

**2003・9・25**

## Model CN 16SA

**(E1)**



| | ITEM NO. | CODE NO. | DESCRIPTION | NO. USED | REMARKS | |
|---|---|---|---|---|---|---|
| | 1 | 957-580 | TAPPING SCREW D5X30 | 4 | | |
| | 2 | 998-033 | GEAR COVER | 1 | | |
| | 3 | 998-008 | HEX. SOCKET SET SCREW M8X20 | 1 | | |
| | 4 | 608-VVM | BALL BEARING 608VVC2PS2L | 1 | | |
| | 5 | 998-036 | SECOND PINION AND GEAR SET | 1 | | |
| | 6 | 998-004 | CONNECTING ROD ASS'Y | 1 | INCLUD. 7 | |
| | 7 | 993-163 | NEEDLE BEARING (M152112) | 1 | | |
| | 8 | 998-035 | SPINDLE AND GEAR SET | 1 | | |
| | 9 | 998-032 | INNER COVER | 1 | | |
| | 10 | 931-701 | BEARING LOCK | 1 | | |
| | 11 | 608-VVM | BALL BEARING 608VVC2PS2L | 1 | | |
| * | 12 | 360-622C | ARMATURE 110V | 1 | | |
| * | 12 | 360-622U | ARMATURE ASS'Y 120V-127V | 1 | INCLUD. 11, 16, 17 | |
| * | 12 | 360-622E | ARMATURE 220V-230V | 1 | | |
| * | 12 | 360-622F | ARMATURE 240V | 1 | | |
| | 13 | 306-840 | FAN GUIDE | 1 | | |
| | 14 | 982-021 | HEX. HD. TAPPING SCREW D4X70 | 2 | | |
| * | 15 | 340-567C | STATOR 110V | 1 | | |
| * | 15 | 340-567D | STATOR 120V-127V | 1 | | |
| * | 15 | 340-567E | STATOR 220V-230V | 1 | | |
| * | 15 | 340-567F | STATOR 240V | 1 | | |
| | 16 | 942-204 | WASHER | 1 | | |
| | 17 | 626-VVM | BALL BEARING 626VVC2PS2L | 1 | | |
| | 18 | 309-929 | RUBBER BUSHING | 1 | | |
| | 19 | 993-546 | PIN D6 | 1 | | |
| | 20 | 998-034 | PISTON | 1 | | |
| | 21 | 998-037 | HEX. SOCKET SET SCREW M5X6 | 1 | | |
| * | 22 | 998-030 | PUNCH | 1 | | |
| * | 22 | 998-041 | PUNCH (A) | 1 | FOR TPE | |
| | 23 | 998-038 | DIE HOLDER | 1 | | |
| | 24 | 998-039 | DIE ASS'Y | 1 | INCLUD. 25, 26 | |
| | 25 | 949-451 | SPRING WASHER M3 (10 PCS.) | 2 | | |
| | 26 | 949-206 | MACHINE SCREW M3X14 (10 PCS.) | 2 | | |
| | 27 | 314-429 | SPRING | 1 | | |
| | 28 | 314-427 | SLIDE BAR | 1 | | |
| | 29 | 314-428 | SLIDE KNOB | 1 | | |
| | 30 | 314-438 | HOUSING ASS'Y | 1 | INCLUD.18 | |
| * | 31 | | NAME PLATE | 1 | | |
| * | 32 | 314-854 | EARTH TERMINAL | 1 | FOR NOISE SUPPRESSOR | |
| | 33 | 311-741 | TERMINAL | 1 | | |
| * | 34 | 994-273 | NOISE SUPPRESSOR | 1 | FOR TPE, HKG, NGU, NZL, AUS, GBR, SAF, | |
| | | | | | EUROPE, NOR, SWE, DEN, FIN, SUI, KOR | |
| | 35 | 314-432 | SWITCH HOLDER | 1 | | |
| * | 36 | 959-140 | CONNECTOR 50091 (10 PCS.) | 1 | EXCEPT FOR TPE, HKG, NGU, NZL, AUS, GBR, | |
| | | | | | SAF, EUROPE, NOR, SWE, DEN, FIN, SUI, KOR | |
| * | 37 | 938-307 | PILLAR TERMINAL | 1 | FOR TPE, HKG, NGU, NZL, AUS, GBR, SAF, | |
| | | | | | EUROPE, NOR, SWE, DEN, FIN, SUI, KOR | |
| | 38 | | HITACHI LABEL | 1 | | |
| | 39 | 936-551 | BRUSH CAP | 2 | | |
| | 40 | 999-021 | CARBON BRUSH (1 PAIR) | 2 | | |
| | 41 | 313-777 | BRUSH HOLDER | 2 | | |

| | ITEM NO. | CODE NO. | DESCRIPTION | NO. USED | REMARKS | |
|---|---|---|---|---|---|---|
| | 42 | 314-603 | SWITCH (1P SOLDER TYPE) | 1 | | |
| | 43 | 305-499 | MACHINE SCREW (W/WASHER) M3.5X6 | 2 | | |
| * | 44 | 980-063 | TERMINAL | 1 | FOR CORD | |
| | 45 | 937-631 | CORD CLIP | 1 | | |
| | 46 | 984-750 | TAPPING SCREW (W/FLANGE) D4X16 | 2 | | |
| * | 47 | 953-327 | CORD ARMOR D8.8 | 1 | | |
| * | 47 | 938-051 | CORD ARMOR D10.1 | 1 | | |
| | 48 | 314-433 | TAIL COVER | 1 | | |
| | 49 | 301-815 | TAPPING SCREW (W/FLANGE) D4X45 | 2 | | |
| * | 50 | 500-201Z | CORD | 1 | (CORD ARMOR D10.1) | |
| * | 50 | 500-234Z | CORD | 1 | (CORD ARMOR D8.8) FOR SUR, INA, SAF, | |
| | | | | | EUROPE, NOR, SWE, DEN, FIN, IND, KOR | |
| * | 50 | 500-435Z | CORD | 1 | (CORD ARMOR D8.8) FOR GBR (230V), HKG | |
| * | 50 | 500-245Z | CORD | 1 | (CORD ARMOR D10.1) FOR SYR | |
| * | 50 | 500-423Z | CORD | 1 | (CORD ARMOR D8.8) FOR SIN, KUW | |
| * | 50 | 500-470Z | CORD | 1 | (CORD ARMOR D8.8) FOR TPE | |
| * | 50 | 500-439Z | CORD | 1 | (CORD ARMOR D8.8) FOR AUS, NZL, NGU | |
| * | 50 | 500-432Z | CORD | 1 | (CORD ARMOR D8.8) FOR USA, CAN | |
| * | 50 | 500-447Z | CORD | 1 | (CORD ARMOR D8.8) FOR SUI | |
| * | 50 | 500-237Z | CORD | 1 | (CORD ARMOR D8.8) FOR GBR (110V) | |

## STANDARD ACCESSORIES



| ITEM NO. | CODE NO. | DESCRIPTION | NO. USED | REMARKS | |
|---|---|---|---|---|---|
| 501 | 990-666 | HEX. BAR WRENCH 2.5MM | 1 | | |
| 502 | 944-458 | HEX. BAR WRENCH 4MM | 1 | | |

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