

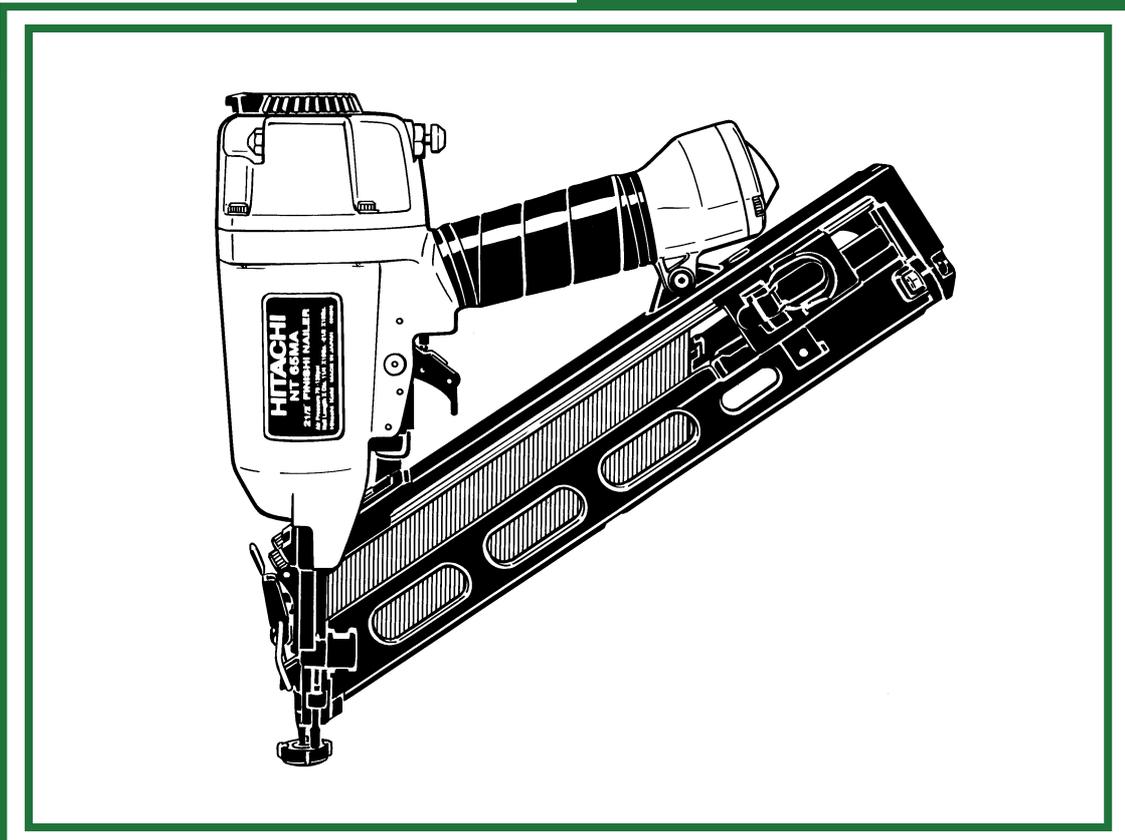
MODEL

**NT 65MA**

**HITACHI**  
**POWER TOOLS**

**FINISH NAILER**  
**NT 65MA**

**TECHNICAL DATA**  
**AND**  
**SERVICE MANUAL**



**N**

LIST No. 1093

Dec. 1999

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

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
T	SENCO	SFN40
P	BOSTITCH	N60FN

**Notice for use**

Specifications and parts are subject to change for improvement.  
Refer to Hitachi Power Tool Technical News for further information.

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# 1. PRODUCT NAME

Hitachi Finish Nailer, Model NT 65MA

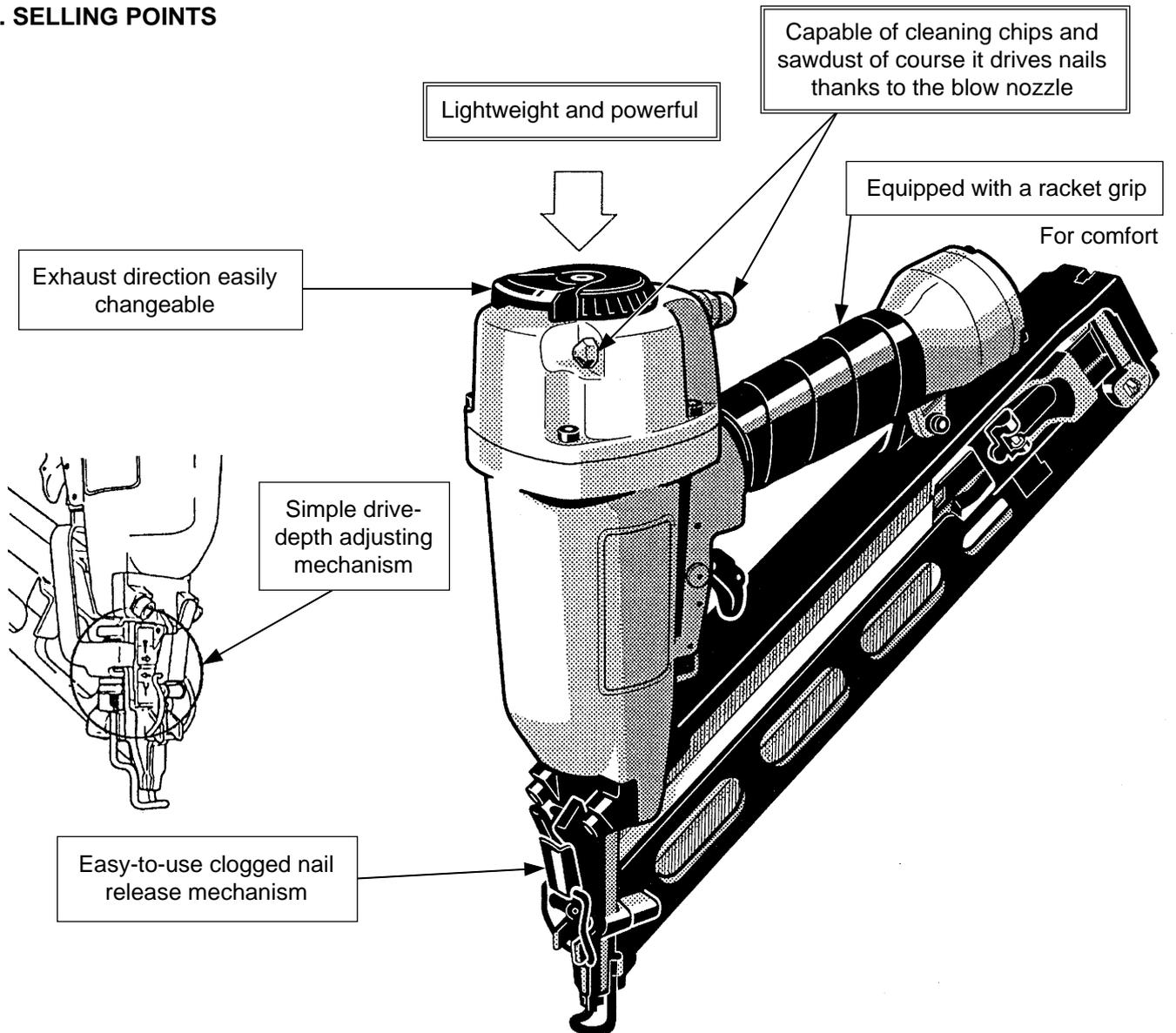
# 2. MARKETING OBJECTIVE

The Model NT 65MA finish nailer (angle type 15 Ga. x 65 mm (2-1/2")) is an upgraded version of the current Model NT 65AA, equipped with a blow nozzle for cleaning chips while nail driving. The Model NT 65MA is the lightest (2.0 kg (4.4 lbs.)) and most powerful finish nailer in this class. We are confident that your sales will increase with the new Model NT 65MA.

# 3. APPLICATIONS

- For manufactured housing, on-site and mobile home construction:
  - Mounting of light and heavy trim
  - Installation of molding, paneling and stairways
  - Assembling of window and door casings
- For cabinet-making, furniture-making and woodworking

# 4. SELLING POINTS



## 5. SPECIFICATIONS

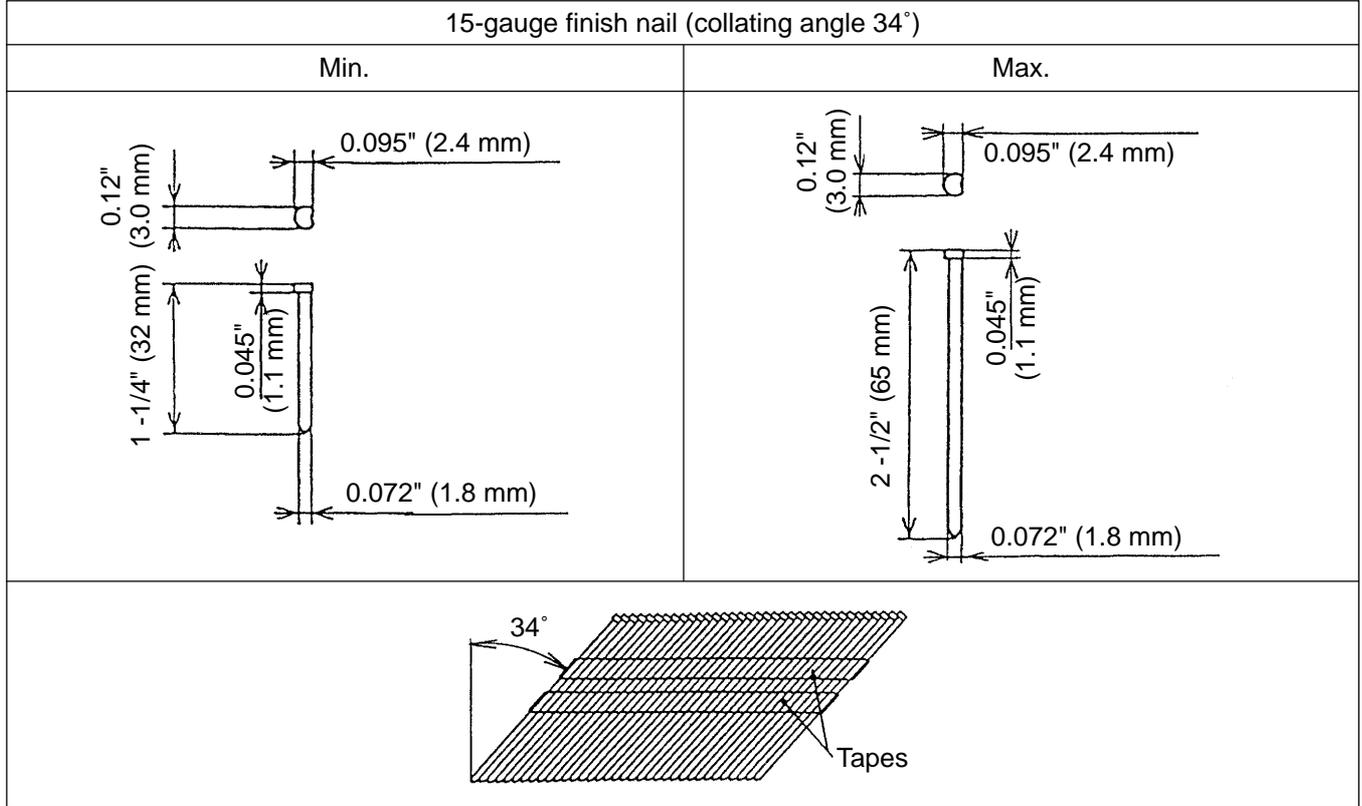
### 5-1. Specifications

Model	NT 65MA
Driving system	Reciprocating piston type
Operating pressure	5 – 8.5 kgf/cm <sup>2</sup> (70 – 120 psi, 4.9 – 8.3 bar) (Gauge pressure)
Driving speed	3 pcs./sec
Weight	2.0 kg (4.4 lbs.)
Dimensions (Length x Height x Width)	344 mm x 305 mm x 82 mm (13-17/32" x 12" x 3-7/32")
Nail feed system	Ribbon spring
Nail capacity	100 nails
Air consumption	1.20 ltr/cycle at 7 kgf/cm <sup>2</sup> (0.042 ft <sup>3</sup> /cycle at 100 psi) (1.20 ltr/cycle at 6.9 bar)
Air inlet	3/8 NPT thread
Packaging	Corrugated cardboard box (Sleeve type)
Package dimensions (Length x Height x Width)	430 mm x 380 mm x 113 mm (16-15/16" x 14-15/32" x 4-7/16")
Standard accessories	Eye protector (Code No. 875769) ..... 1 Hex. bar wrench for M5 screw (Code No. 944458) ..... 1 Hex. bar wrench for M6 screw (Code No. 944459) ..... 1 Case (Code No. 881775) ..... 1 Nose cap (A) (Code No. 881751) ..... 1
Optional accessories	Sequential trip mechanism kit (Single shot) (Code No. 880414) Pneumatic tool lubricant (1 oz oil feeder) (Code No. 877153) Pneumatic tool lubricant (4 oz oil feeder) (Code No. 872042) Pneumatic tool lubricant (1 quart can) (Code No. 876212)

**5-2. Nail Selection**

The Model NT 65MA utilizes small-head, T-shaped nails (finish nails) collated by tapes. Applicable nails are shown below.

**CAUTION:** Ensure that nails are as specified in Fig. 1. Other nails will cause clogging of nails and subsequent damage to the nailer.

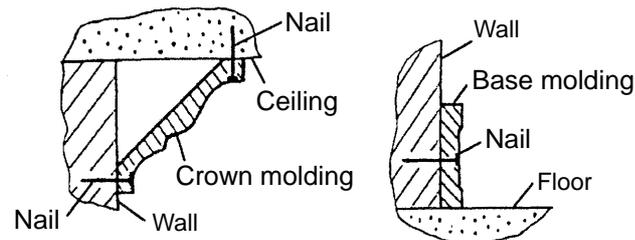


**Fig. 1 Dimensions of nails**

**5-3. Examples of Nail Use**

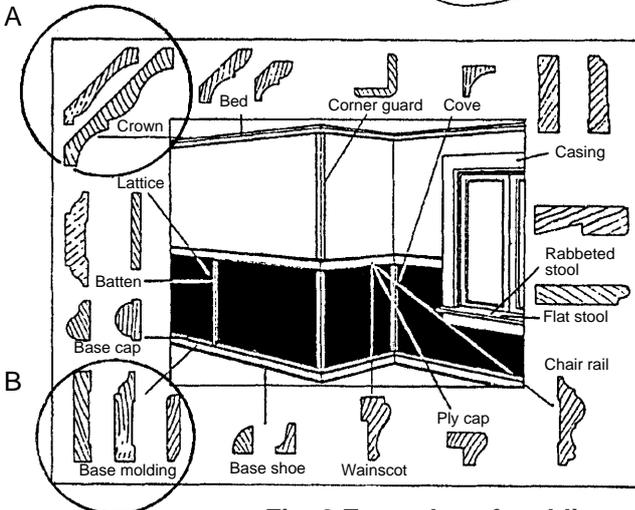
A: Crown molding

B: Base molding



Examples of uses for the nails shown in 5-2 for installing finish materials, or molding as shown in Fig. 2.

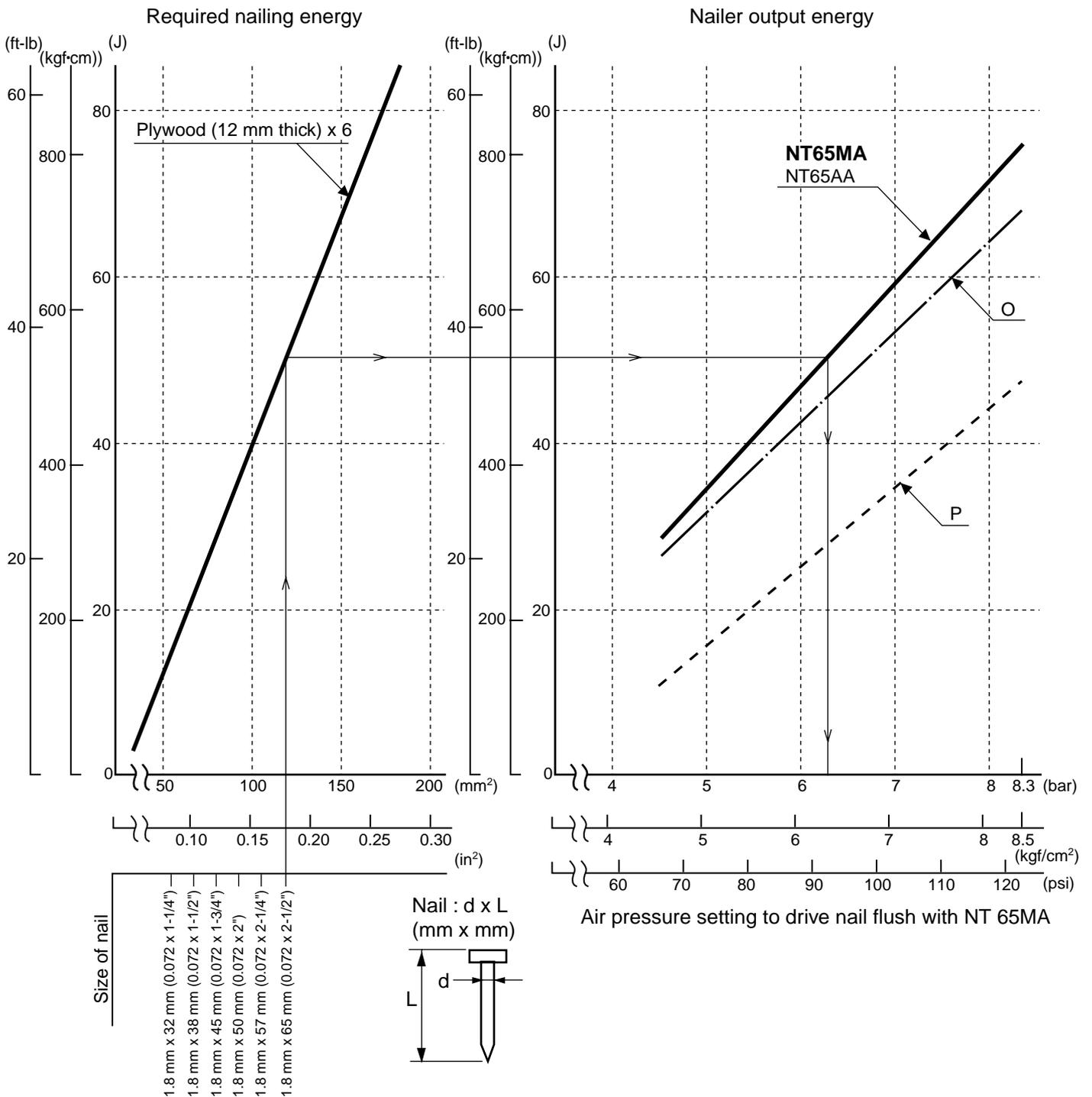
Typical mounting methods are shown in circles A and B.



**Fig. 2 Examples of molding**

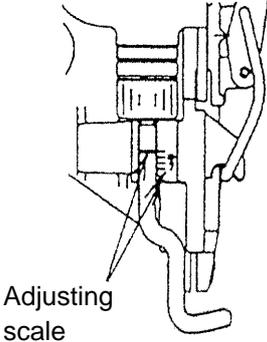
### 5-4. Nail Driving Force

Fig. 3 shows by type of wood and nail the nailer output energy provided by the supply pressure and the nailing energy required for driving the nail flush. Air pressure which exceeds the intersecting point between the nailer output energy and the required nailing energy required for driving the nail allows the nail to be fully driven. For example, when driving a 1.8 mm dia. by 65 mm (5/64" by 2-1/2") nail into six sheets of 12 mm plywood (72 mm thick) with the Model NT 65MA, a pressure of about 6.3 bar (6.4 kgf/cm<sup>2</sup>, 91 psi) allows the nailer to drive the nail flush with the surface. A pressure beyond this causes the nail head to be driven below the wood surface. Fig. 3 should be used as reference data because those values vary depending on the type of wood, moisture content, and grain of wood.



**Fig. 3 Required nailing energy and nailer output energy**

## 6. COMPARISONS WITH SIMILAR PRODUCTS

Maker		HITACHI		T	P
Model name		NT 65MA	NT 65AA		
Operating pressure		5 – 8.5 kgf/cm <sup>2</sup> (70 – 120 psi)		5 – 8.5 kgf/cm <sup>2</sup> (70 – 120 psi)	5 – 7 kgf/cm <sup>2</sup> (70 – 100 psi)
Weight		2.0 kg (4.4 lbs.)	1.9 kg (4.2 lbs.)	2.17 kg (4.7 lbs.)	1.95 kg (4.4 lbs.)
Dimensions (L x H x W)		344 mm x 305 mm x 82 mm (13-17/32" x 12" x 3-7/32")		330 mm x 286 mm x 89 mm (13" x 11-1/4" x 3-1/2")	359 mm x 276 mm x 76 mm (14-1/8" x 10-7/8" x 3")
Air consumption at 7 kgf/cm <sup>2</sup> (100 psi)		1.20 ltr/cycle (0.042 ft <sup>3</sup> /cycle)		1.25 ltr/cycle (0.044 ft <sup>3</sup> /cycle)	1.31 ltr/cycle (0.046 ft <sup>3</sup> /cycle)
Nail capacity		100 pcs.		100 pcs.	100 pcs.
Magazine type		Rear loading type Angle: 34°		Rear loading type Angle: 34°	Rear loading type Angle: 26°
Blow nozzle		Provided	None	None	None
Direction change of exhaust air		Easily changeable 360° by turning by hand		Only 4 directions by 90° each by replacing the piece	Changeable 360°, but requires a hex. bar wrench
Clogged nail release method		Single-touch operation by hand		Single-touch operation by hand	Prying out with a flat-blade screwdriver
Driving depth adjustment mechanism		With an easy-to-adjust scale   Adjusting scale		No scale	No scale
Handle grip		Racket grip (Easy to grip)		Hook and loop tape type (Slippery)	Rubber (Unpleasant touch)
Applicable nails	Collating angle	34°		34°	26°
	Dia.	2.4 mm – 3.0 mm (#15) (.095" – .12")		2.4 mm – 3.0 mm (#15) (.095" – .12")	2.4 mm – 3.0 mm (#15) (.095" – .12")
	Length	32 mm – 65 mm (1-1/4" – 2-1/2")		32 mm – 65 mm (1-1/4" – 2-1/2")	32 mm – 65 mm (1-1/4" – 2-1/2")

## 7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model NT 65 MA Nailer 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 Instruction Manual, and fully understands the meaning of the precautions listed on the Warning Label attached to each tool.

The standard Model NT65MA is intended for continuous nail driving. (Note that the Model NT65MA is single-shot type in some areas.) Salespersons must advise the customers that the sequential trip mechanism kit, which can change the Model NT 65MA into a single-shot type, is available as an option (and change the Model NT 65MA when there is a customer's need). Refer to the leaflet attached to the Instruction Manual.

### 7-1. Instruction Manual

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

### 7-2. Warning Label

Each Model NT 65MA unit is provided with a Warning Label (illustrated below) which lists basic safety precautions in its use. Carefully ensure that customers fully understand and follow these precautions before using the tool.



### 7-3. Related Laws and Regulations

As nailers and staplers are designed to instantaneously drive nails and staples, there is an ever-present danger of misfiring and subsequent possible serious injury. Accordingly, close attention in handling is absolutely necessary at all times. Carefully ensure that the customer is fully aware of the precautions listed in the Instruction Manual provided with each unit.

While there are no specific safety regulations, there are related items in various general safety regulations with which the salespersons should be familiar in order to properly advise the customer. Please check your national and/or local regulations for applicable items.

Some applicable items are outlined below.

The U.S.A.:

OSHA	1926.102 Eye and face protection
	1962.302 Power-operated hand tools
ANSI SNT-101-1993	Portable, Compressed-Air-Actuated, Fastener Driving Tools-Safety Requirements for

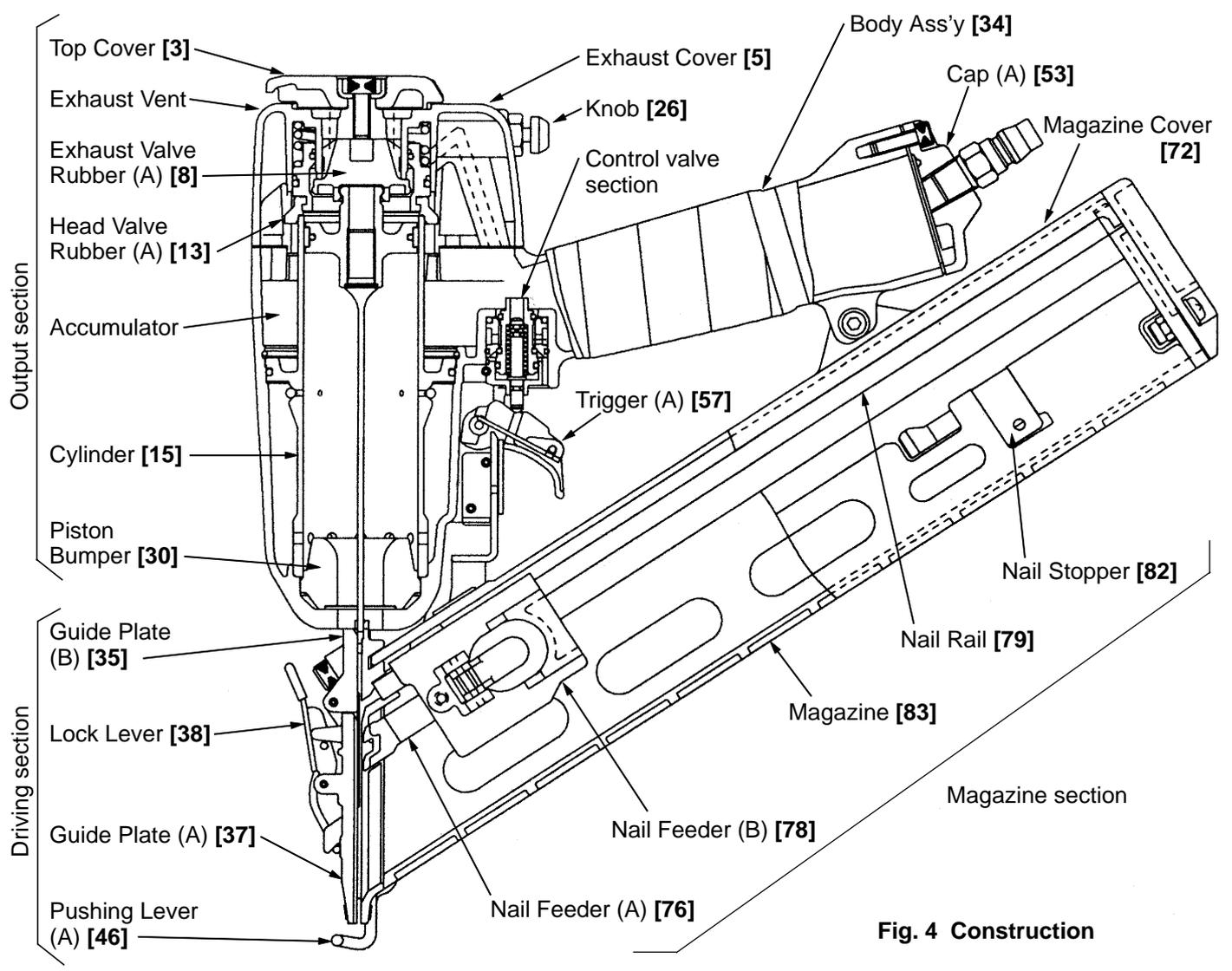
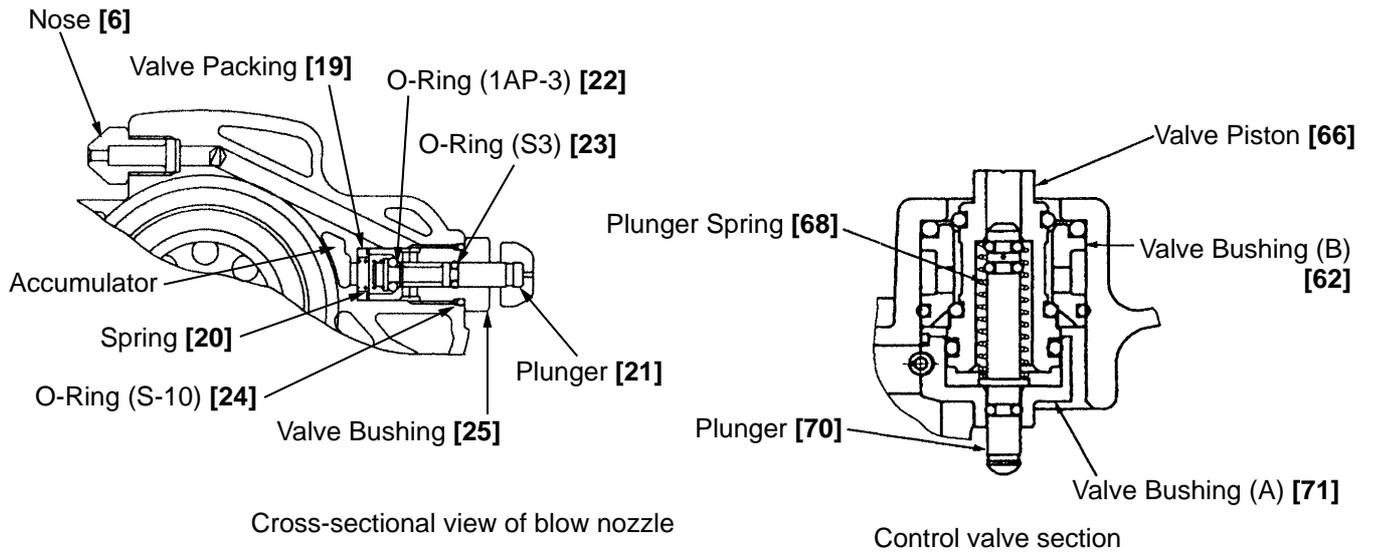
## **8. MECHANISM AND OPERATION PRINCIPLE**

### **8-1. Mechanism**

Most of the parts of the output section have been newly designed for the addition of the blow nozzle function, though its basic construction is the same as that of the Model NT 65AA.

Primary differences from the Model NT 65AA are described below.

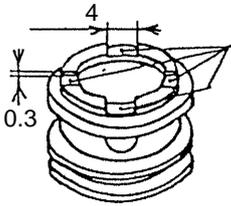
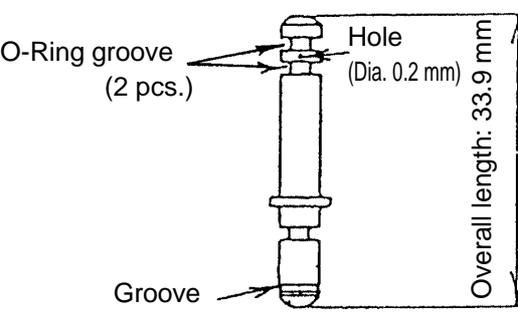
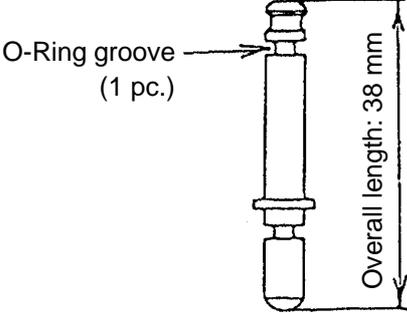
- Output section ..... The exhaust cover, nose, valve bushing, plunger, valve packing, knob and spring have been newly designed for the blow nozzle function. The top cover and plate are common to the Models NR 90AC and NV 65AH.



**Fig. 4 Construction**

### 8-2. Valve Bushing (B) and Plunger

Among the newly designed parts, the difference between the new design and the current one are shown below, for valve bushing (B) and the plunger because their shapes are so similar.

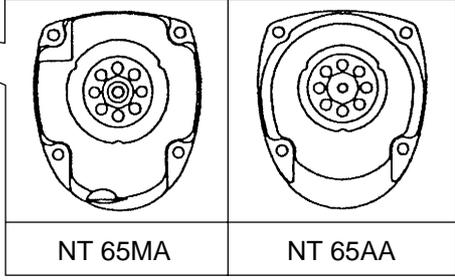
	Newly designed part	Current part (NV 50AE, NV 50AG)
Valve bushing (B)	 <p>Notches are added (4 pcs.). (Width: 4 mm, depth: 0.3 mm)</p> <p>Color : Black</p>	 <p>No notches.</p> <p>Color: Aluminum (Silver)</p>
Plunger	 <p>O-Ring groove (2 pcs.)</p> <p>Hole (Dia. 0.2 mm)</p> <p>Groove</p> <p>Overall length: 33.9 mm</p>	 <p>O-Ring groove (1 pc.)</p> <p>Overall length: 38 mm</p>

### 8-3. Interchangeability of Parts

The parts which are not interchangeable with those of the Model NT 65AA are given in the table below.

(The numbers in **[Bold]** indicate the item numbers in the Model NT 65MA Parts List.)

Parts	
<b>[1]</b> Hex. Socket Hd. Bolt M6 x 16 (for Top Cover <b>[3]</b> )	Common to the Models NR 90AC and NV 65AH
<b>[2]</b> Plate	Common to the Models NR 90AC and NV 65AH
<b>[3]</b> Top Cover	Common to the Models NR 90AC and NV 65AH
<b>[5]</b> Exhaust Cover	Newly designed
<b>[6]</b> Nose	Newly designed
<b>[18]</b> Caution Plate	Newly designed
<b>[19]</b> Valve Packing	Newly designed
<b>[20]</b> Spring	Newly designed
<b>[21]</b> Plunger	Newly designed
<b>[22]</b> O-Ring (1AP-3)	Common to the Model NT 50AD
<b>[23]</b> O-Ring (S3)	Newly designed
<b>[24]</b> O-Ring (S-10)	Newly designed
<b>[25]</b> Valve Bushing	Newly designed
<b>[26]</b> Knob	Newly designed



NT 65MA      NT 65AA

## 8-4. Operation Principle

(1) Before nailing: (Fig. 5, Fig. 6)

- 1) When compressed air is fed to the main body, it fills the Accumulator ( ).
- 2) At the same time, the compressed air flows into the valve piston lower chamber of the control valve section and forces the Valve Piston [66] upward. Also, the compressed air is fed through the air supply vent and air passage to the head valve chamber. As a result, the Head Valve Spring [9] is pushed down together to seal the Head Valve [11] and Cylinder [15].

(2) When nailing: (Fig. 5, Fig. 6)

- 1) When Pushing Lever (A) [46] and Trigger (A) [57] are operated together and the Plunger [70] is pushed upward, the compressed air in the valve piston lower chamber is discharged from the bottom of the Plunger [70]. As a result, the compressed air in the accumulator ( ) pushes down the Valve Piston [66], blocking the air supply vent and opening the exhaust valve.
- 2) When the exhaust valve opens, the compressed air in the feed valve chamber is discharged into the atmosphere through the air passage.
- 3) When the air pressure applied on the bottom surface of the Head Valve [11] overcomes the strength of the Head Valve Spring [9], the Head Valve [11] is pushed upward. At this time, the Head Valve [11] seals with Exhaust Valve Rubber (A) [8], blocking the passage to the exhaust vent.
- 4) When the Head Valve [11] goes up, the compressed air in the accumulator flows rapidly into the Cylinder [15], forcing the Piston [29] downward to strike the nail. When the Piston [29] passes the cylinder hole, the compressed air flows into the return air chamber and is accumulated there.

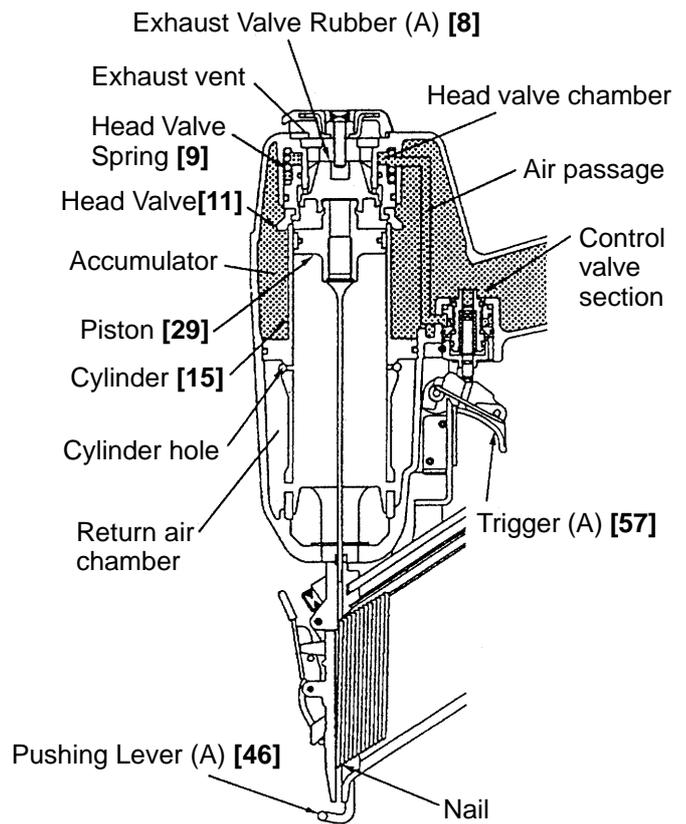


Fig. 5

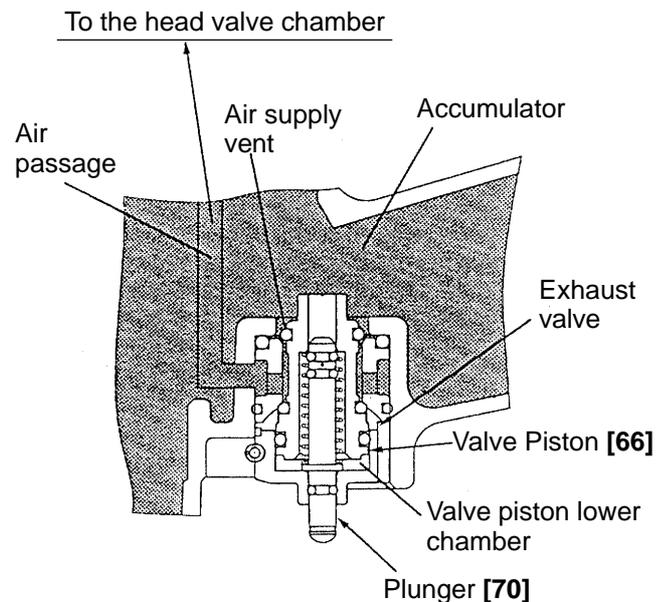


Fig. 6 Control valve section

(3) During return: (Fig. 7, Fig. 8)

- 1) When either Pushing Lever (A) [46] or Trigger (A) [57] is released, the Plunger [70] goes down and the compressed air in the accumulator flows into the valve piston lower chamber.
- 2) As the air pressure in the valve piston lower chamber increases to overcome the air pressure applied on the upper portion of the Valve Piston [66], the Valve Piston [66] is forced upward. When this occurs, the exhaust valve is closed and the air supply vent is opened.
- 3) When the air supply vent opens, the compressed air in the accumulator ( ) passes through the air passage and flows into the head valve chamber to push down the Head Valve [11]. As a result, the Head Valve [11] and Cylinder [15] are sealed and, at the same time, the Head Valve [11] and Exhaust Valve Rubber (A) [8] are released to open the exhaust vent.
- 4) The compressed air at the upper portion of the Piston [29] is discharged into the atmosphere through the exhaust vent. In this way, the air pressure at the upper portion of the Piston [29] is reduced, and the greater pressure of the air accumulated in the return air chamber pushes the Piston [29] upward.
- 5) If the air pressure at the lower portion of the Piston [29] is higher than that of the atmosphere after the Piston [29] has fully returned, the excess air pressure is discharged into the atmosphere through the clearance between the Piston Bumper [30] and the driver blade.

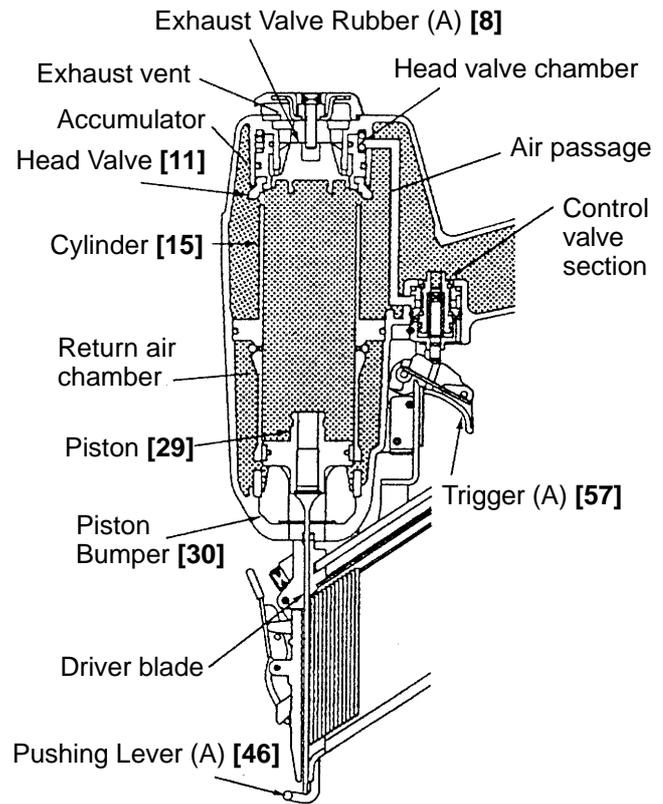


Fig. 7

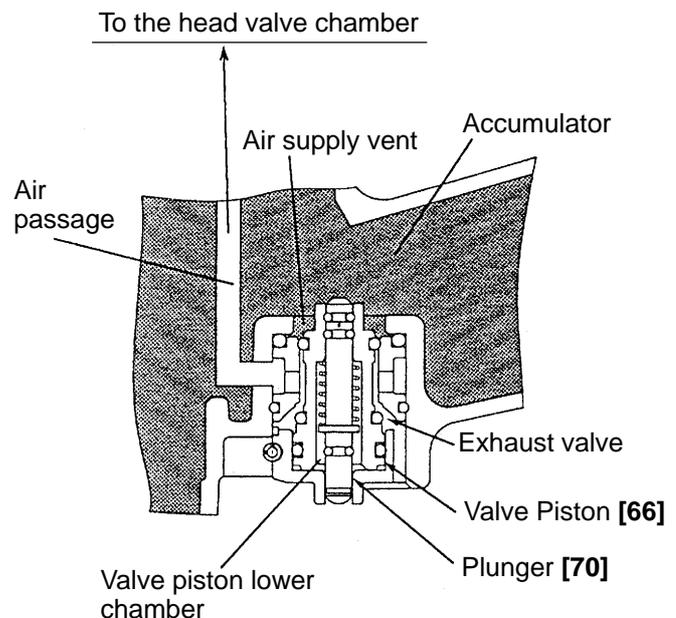
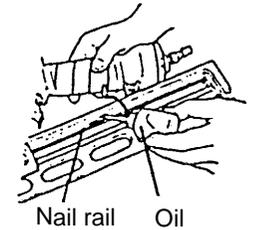


Fig. 8 Control valve section

## 9. TROUBLESHOOTING GUIDE

### 9-1. Troubleshooting and Correction

Problem	Possible cause (*: most-common cause)	Inspection methods	Remedy
1) Nails cannot be driven.	<b>&lt; Nails &gt;</b> <ul style="list-style-type: none"> <li>The magazine is not loaded with specified genuine nails.</li> </ul>	<ul style="list-style-type: none"> <li>Check if the magazine is normally loaded with specified genuine nails.</li> </ul>	<ul style="list-style-type: none"> <li>Use specified genuine nails.</li> </ul>
	<ul style="list-style-type: none"> <li>The magazine is loaded with abnormal nails (bent nails, abnormal collation, other).</li> </ul>		<ul style="list-style-type: none"> <li>Remove the abnormal nails and load the magazine with normal nails.</li> </ul>
	<b>&lt;Magazine&gt;</b> <ul style="list-style-type: none"> <li>Nail feeder abnormal (burrs, deformed, damaged).</li> </ul>	<ul style="list-style-type: none"> <li>Check the nail feeding section for abnormal conditions (burrs, fatigued, deformed, damaged).</li> </ul>	<ul style="list-style-type: none"> <li>Correct the burred or deformed portion.</li> <li>Replace the defective part.</li> </ul>
	<ul style="list-style-type: none"> <li>Ribbon spring abnormal (fatigued, damaged).</li> </ul>		<ul style="list-style-type: none"> <li>Replace the defective part.</li> </ul>
	<ul style="list-style-type: none"> <li>Magazine groove too wide or too narrow.</li> </ul>		<ul style="list-style-type: none"> <li>Replace the defective part.</li> </ul>
	<ul style="list-style-type: none"> <li>Nail rail groove width too wide or too narrow.</li> </ul>	<ul style="list-style-type: none"> <li>Check if they move smoothly after loading nails and check if the nail feeder operates smoothly.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the defective part.</li> </ul>
	<ul style="list-style-type: none"> <li>Nail groove in the blade guide abnormal (burrs).</li> </ul>		<ul style="list-style-type: none"> <li>Replace the defective part.</li> </ul>
	<ul style="list-style-type: none"> <li>Magazine cover abnormal (deformed, damaged).</li> </ul>		<ul style="list-style-type: none"> <li>Replace the defective part.</li> </ul>
	<ul style="list-style-type: none"> <li>* Adhesive fragments and wood chips are on the magazine, nail feeder or nail rail.</li> </ul>		<ul style="list-style-type: none"> <li>After removing the adhesive fragments and wood chips, apply oil to the nail rail.</li> </ul>
	<b>&lt;Output section: piston, driver blade, etc.&gt;</b> <ul style="list-style-type: none"> <li>Air pressure too low.</li> </ul>	<ul style="list-style-type: none"> <li>Keep the nail feeder in the back position after pulling it backward and release the lock lever for idle driving. Then, check if the driver blade and guide plate (A) have returned.</li> </ul>	<ul style="list-style-type: none"> <li>Adjust for 5 to 8.5 kgf/cm<sup>2</sup> (4.9 – 8.3 bar, 70 – 120 psi).</li> </ul>
<ul style="list-style-type: none"> <li>* Piston ring worn.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the piston ring.</li> </ul>		
<ul style="list-style-type: none"> <li>* Piston bumper abnormal.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the piston bumper.</li> </ul>		
<ul style="list-style-type: none"> <li>The O-ring of the cylinder is abnormal (dislocated, deformed, damaged).</li> </ul>	<ul style="list-style-type: none"> <li>Reassemble or replace.</li> </ul>		
<ul style="list-style-type: none"> <li>Driver blade abnormal (deformed, burrs, damaged).</li> </ul>	<ul style="list-style-type: none"> <li>Touch up or replace.</li> </ul>		
<ul style="list-style-type: none"> <li>Bumper sheet abnormal (square hole worn, damaged).</li> </ul>	<ul style="list-style-type: none"> <li>Replace the part.</li> </ul>		
<ul style="list-style-type: none"> <li>Cylinder's internal surface abnormal (deposits of dirt, worn).</li> </ul>	<ul style="list-style-type: none"> <li>Check if nails can be driven at 5 kgf/cm<sup>2</sup> (4.9 bar, 70 psi).</li> </ul>		<ul style="list-style-type: none"> <li>After removing the dirt, apply oil or replace.</li> </ul>



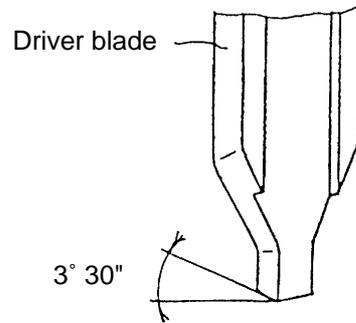
Problem	Possible cause (*: most-common cause)	Inspection methods	Remedy
1) Nails cannot be driven.	• Head valve sliding surface abnormal (uneven, damaged, oiling needed).	• While idle driving, check if the driving operation takes place.	• Replace the part. • Apply grease.
	• Head valve rubber abnormal (torn, damaged).	• While idle driving, check if the driver blade is held down.	• Replace the part.
	• Abnormal spring in head valve (fatigued, damaged).		• Replace the part.
	<b>&lt;Control valve section&gt;</b> • Abnormal plunger, valve piston, valve bushing (A) or valve bushing (B) (burrs, damaged).	• After making idle driving, check if the driver blade keeps the down position.	• Replace the part.
	• O-ring worn or oiling needed.	• Disassemble the control valve and check the O-ring.	• Apply grease.
2) Nails bent while being driven.	• For short nails, the adjuster is raised too high.	• Check if the adjuster is raised too high.	• Turn the adjuster for lower (lower the pressure).
	• Nails are not fully fed into the ejecting port.	• See item 1).	• See item 1).
	• Unspecified nails used.	• See item 1).	• See item 1).
	*• Driver blade worn.	• Check if the driver blade tip is abnormally worn.	• Replace the part. • Regrind (see 9-2, "Regrinding the Driver Blade").
	• The material being driven into is very hard.	• Check if a nail is bent even when driven into soft wood.	• Unusable because the tool is not designed for such usage.
3) The driven nail is driven into the material but the head is raised above the surface.	• The adjuster is improperly adjusted.	• Turn the adjuster to the lowest position, then drive.	• Adjust the adjuster for the proper position.
	• Air pressure too low.		• Adjust for 5 to 8.5 kgf/cm <sup>2</sup> (4.9 – 8.3 bar, 70 – 120 psi).
	• The material being driven into is very hard.	• Drive the nail into soft wood and check if the head is raised or not.	• Unusable because the tool is not designed for such usage.
	*• Driver blade worn.	• Check if the driver blade tip is worn.	• Replace the part. • Regrind (see 9-2, "Regrinding the Driver Blade").

Problem	Possible cause (*: most-common cause)	Inspection methods	Remedy
3) The driven nail is driven into the material but the head is raised above the surface.	* • Piston ring is abnormal (worn, damaged).	• Disassemble the output section and check the piston ring and the internal surface of the cylinder for abnormal condition.	• Replace the defective part.
	• Cylinder's internal surface abnormal (worn, rough).		• Replace the defective part.
	• Exhaust valve rubber abnormal (worn, damaged, flaws on seal surface).	• Disassemble and check the exhaust valve rubber part for abnormal condition.	• Replace the defective part.
	• Head valve sliding surface abnormal (uneven, damaged, oiling needed).	• Check the sliding surface for abnormal conditions and need of oiling.	• Replace the defective part. • Apply grease.
4) Nails clog the mechanism.	• Unspecified nails used.	• Check if the nails are specified ones.	• Use specified genuine nails.
	<b>&lt;Improper nail feed&gt;</b> • See <Magazine> in item 1).	• Check if they move smoothly after loading nails, and check if the nail feeder operates smoothly.	• See <Magazine> in item 1).
	• Driver blade worn.	• Check if the driver blade tip is worn.	• Replace the part. • Regrind (see 9-2, "Regrinding the Driver Blade").
	<b>&lt;The driver blade does not return completely.&gt;</b> • See <Output section: piston, driver blade, etc.> in item 1).	• Perform idle driving or actually drive with nails, and check if the driver blade returns completely.	• See <Output section: piston, driver blade, etc.> in item 1).

Problem	Possible cause (*: most-common cause)	Inspection methods	Remedy
5) Air keeps blowing from the nose of the blow nozzle.	<ul style="list-style-type: none"> <li>• Spring is abnormal (fatigued, damaged).</li> </ul>	<ul style="list-style-type: none"> <li>• Press the button of the blow nozzle to check if it operates smoothly.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace the spring.</li> </ul>
	<ul style="list-style-type: none"> <li>*• The O-ring of the plunger is abnormal (dislocated, deformed, damaged).</li> </ul>		<ul style="list-style-type: none"> <li>• Reassemble or replace.</li> </ul>
6) Air blow is stopped or weakened by pressing the button of the blow nozzle all the way in.	<ul style="list-style-type: none"> <li>• Insufficient press-fitting of the button.</li> </ul>	<ul style="list-style-type: none"> <li>• Press the button of the blow nozzle all the way in to check if the button contacts the valve bushing.</li> </ul>	<ul style="list-style-type: none"> <li>• Press-fit the button (knob) into the proper position.</li> </ul>

## 9-2. Regrinding the Driver Blade

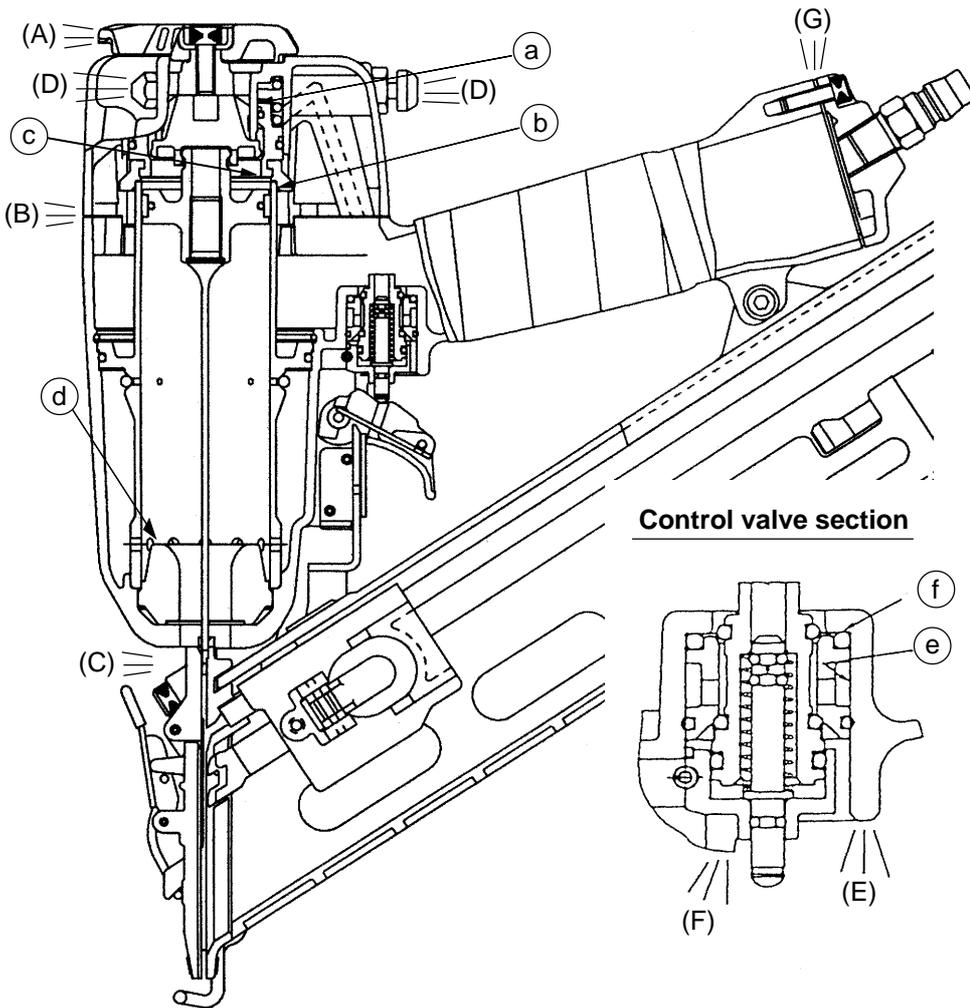
The tip of the driver blade should be ground as shown in Fig. 9. To grind with a grinder, gradually grind the tip while cooling the ground area with water to prevent it from being excessively heated. Excessive grinding will rapidly reduce the service life of the driver blade. In such a case, replace the driver blade.



**Fig. 9**

### 9-3. Possible Cause and Correction of Air Leakage

Air leakage repair location



• Repair procedure

- (1) Check the points of the following parts marked by an asterisk for abnormal condition.
- (2) Next, check the seal parts marked with a double circle for wear, flaws and damage.
- (3) And then, check other places.

Air leakage points	Possible cause	
	With control valve OFF	With control valve ON
A) Exhaust port	<ul style="list-style-type: none"> <li>○ The O-Ring [10] of the Head Valve [11] is abnormal or its sliding surface, or part (a) is worn, deformed or flawed.</li> <li>○ Head Valve Rubber (A) [13] is abnormal or its sliding surface, or part (b) of the Cylinder [15] is worn or flawed.</li> </ul>	<ul style="list-style-type: none"> <li>○ Exhaust Valve Rubber (A) [8] is abnormal or its sliding surface, or part (C) of the Head Valve [11] is worn or flawed.</li> </ul>
B) Exhaust cover	<ul style="list-style-type: none"> <li>• Hex. Socket Hd. Bolt M6 x 16 [1] is loose.</li> <li>○ The Gasket [7] is damaged.</li> <li>• The seal surface of the Body Ass'y [34] or Exhaust Cover [5] is abnormal.</li> </ul>	

Air leakage points	Possible cause	
	With control valve OFF	With control valve ON
C) Blade guide	<ul style="list-style-type: none"> <li>○ The Cylinder O-Ring <b>[16]</b> is abnormal (broken, flawed).</li> </ul>	<ul style="list-style-type: none"> <li>○ The Piston Bumper <b>[30]</b> is abnormal (part ④ damaged, deformed or cracked).</li> <li>● The Piston <b>[29]</b> is abnormal (driver blade deformed, seal surface deformed).</li> </ul>
D) Nose, valve bushing	<ul style="list-style-type: none"> <li>○ The Valve Packing <b>[19]</b> is damaged.</li> <li>○ The O-Ring (1AP-3) <b>[22]</b> of the Plunger <b>[21]</b> is abnormal (worn, broken, flawed).</li> <li>○ The O-Ring (S3) <b>[23]</b> of the Plunger <b>[21]</b> is abnormal (worn, broken, flawed).</li> <li>● The screw of the Valve Bushing <b>[25]</b> is loose.</li> </ul>	
E) Control valve (I)	<ul style="list-style-type: none"> <li>○ The O-Ring <b>[67]</b> of the Valve Piston <b>[66]</b> is abnormal (worn, broken, flawed).</li> <li>○ The O-Ring <b>[64]</b> of the Valve Piston <b>[66]</b> is abnormal (worn, broken, flawed).</li> <li>○ The O-Ring (S-18) <b>[63]</b> is abnormal (broken, flawed).</li> <li>* The internal surface (part ⑤) of the valve cavity of the Body Ass'y <b>[34]</b> is abnormal.</li> </ul>	<ul style="list-style-type: none"> <li>○ The O-Ring <b>[64]</b> (upper side) of the Valve Piston <b>[66]</b> is abnormal (worn, broken, flawed).</li> <li>○ The Head Valve O-Ring <b>[61]</b> of Valve Bushing (B) <b>[62]</b> is abnormal (broken, flawed).</li> <li>* The valve room upper surface ⑥ of the Body Ass'y <b>[34]</b> is abnormal.</li> </ul>
F) Control valve (II)	<ul style="list-style-type: none"> <li>○ The O-Ring <b>[69]</b> (lower side) of the Plunger <b>[70]</b> is abnormal (worn, broken, flawed).</li> <li>● The Valve Bushing (A) <b>[71]</b> is abnormal (Plunger <b>[70]</b> sliding surface ⑦ deformed or flawed).</li> </ul>	<ul style="list-style-type: none"> <li>○ The O-Ring <b>[69]</b> (upper side) of the Plunger <b>[70]</b> is abnormal (worn, broken, flawed).</li> <li>● The Valve Piston <b>[66]</b> is abnormal (plunger sliding surface deformed or flawed).</li> </ul>
G) Cap (A) <b>[53]</b>	<ul style="list-style-type: none"> <li>○ Gasket (B) <b>[52]</b> is damaged.</li> <li>● The Hex. Socket Hd. Bolt M5 x 16 <b>[54]</b> is loose.</li> <li>● The seal surface of the Body Ass'y <b>[34]</b> or Cap (A) <b>[53]</b> is abnormal (damaged, deformed, flawed).</li> </ul>	

## 10. DISASSEMBLY AND REASSEMBLY

The items particularly necessary for disassembly and reassembly are described below. The **[Bold]** numbers in the descriptions below correspond to the item numbers in the Parts List and exploded assembly diagram.

### [CAUTION]

- Before disassembly or reassembly, be sure to disconnect the air hose from the nailer (with your finger released from the trigger) to exhaust all the compressed air and remove all nails.

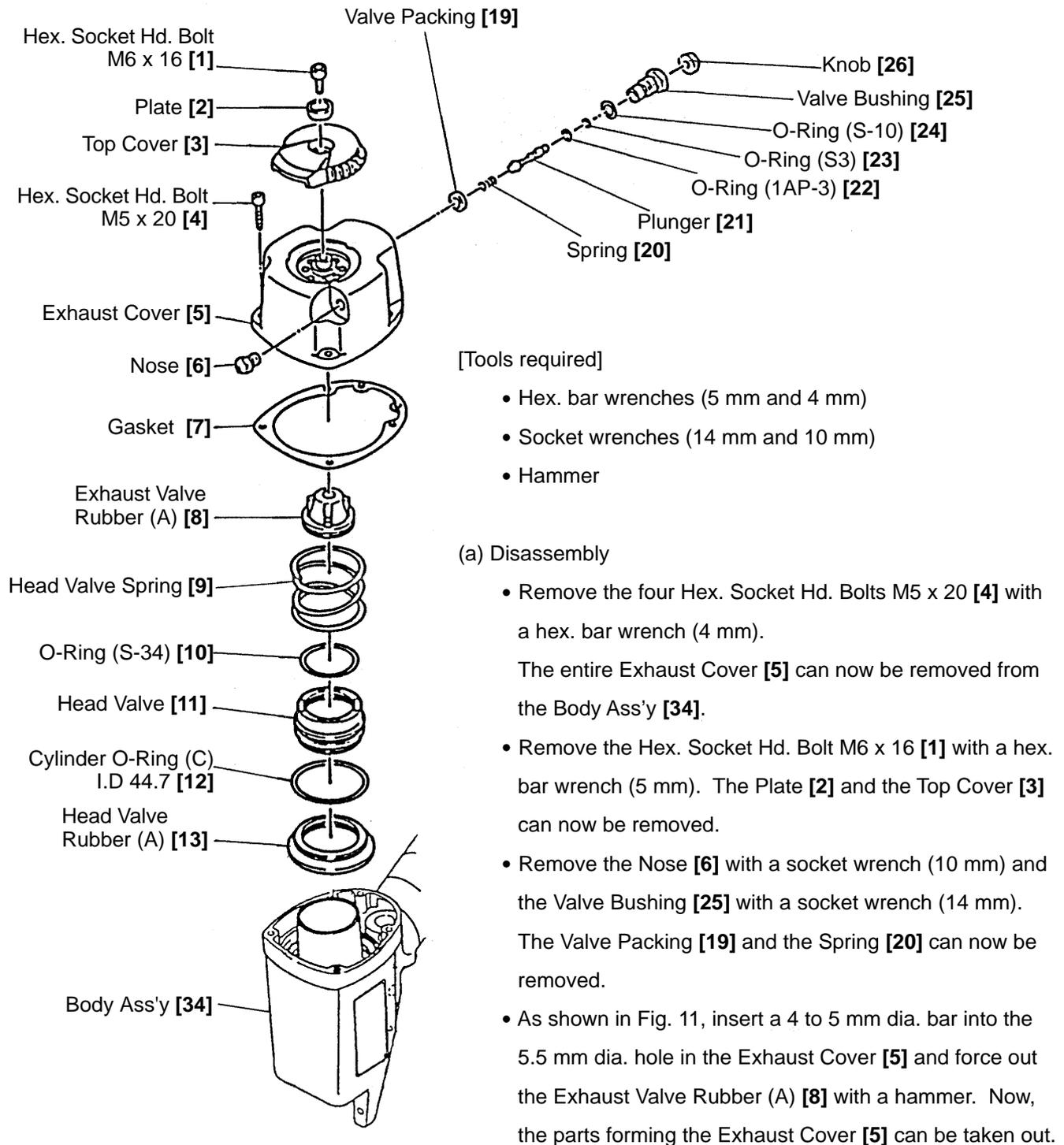
### 10-1. General Precautions in Disassembly and Reassembly

- Apply grease (Nippeco SEP-3A) (Code No. 930035) to the O-ring and O-ring sliding portion. When installing the O-ring, be careful not to damage the O-ring and prevent dirt entry.
- Oil required: Hitachi pneumatic tool lubricant
  - 1 oz (30 cc) Oil feeder (Code No. 877153)
  - 4 oz (120 cc) Oil feeder (Code No. 874042)
  - 1 quart (1 ltr) Can (Code No. 876212)
- If the Gasket **[7]** is damaged, replace it and check that no air is leaking.
- Be especially careful to prevent the entry of foreign particles into the control valve section.
- Tightening torque for each part

Screw	Tightening torque N•m (kgf•cm, ft-lb)
Hex. Socket Hd. Bolt M6 ..... <b>[1], [36]</b>	12.7 ± 0.8 (130 ± 8, 9.4 ± 0.6)
Hex. Socket Hd. Bolt M5 ..... <b>[4], [54]</b>	8.3 ± 0.5 ( 85 ± 5, 6.1 ± 0.4)
Hex. Socket Hd. Bolt (W/Flange) M5 ..... <b>[80]</b>	8.3 ± 0.5 ( 85 ± 5, 6.1 ± 0.4)
Machine Screw (W/Washer) M5 ..... <b>[81]</b>	2.0 ± 0.5 ( 20 ± 5, 1.5 ± 0.4)

## 10-2. Disassembly and Reassembly of the Output Section

(1) Disassembly and reassembly of the Exhaust Cover [5], Head Valve [11], Exhaust Valve Rubber (A) [8], Valve Bushing [25], etc. (See Figs. 10, 11, 12 and 13.)



**Fig. 10** Disassembly and reassembly of the exhaust cover, head valve, exhaust valve rubber (A), valve bushing, etc..

**[CAUTION]** To prevent damage to the Exhaust Valve Rubber (A) [8], do not use a pointed bar or a bar with a diameter of less than 4 mm.

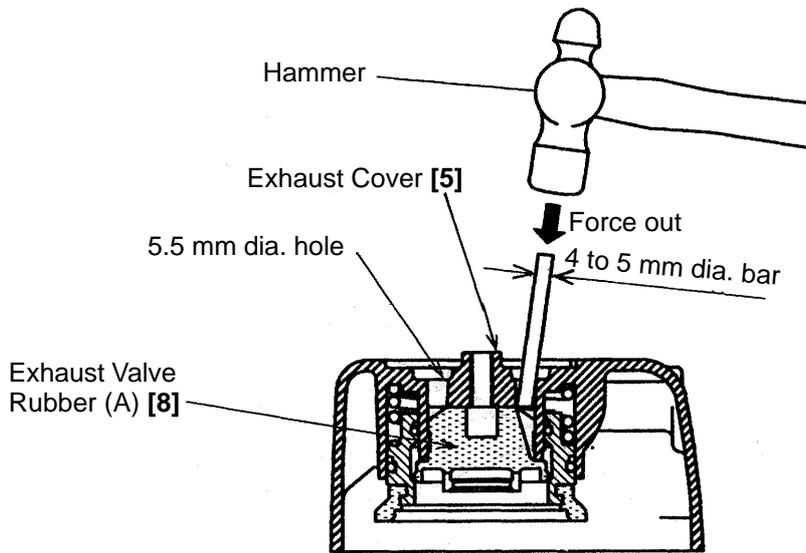


Fig.11

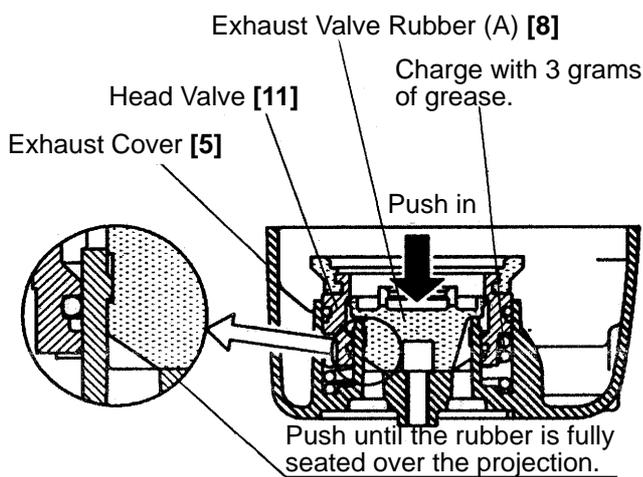


Fig. 12

(b) Reassembly

Disassembly procedures should be followed in the reverse order. Note the following points.

- Charge the sliding portion of the Head Valve [11] of the Exhaust Cover [5] with about 3 grams of grease and apply grease to each surface of the O-rings.
- As shown in Fig. 12, firmly push the Exhaust Valve Rubber (A) [8] until it is fully seated over the projection of the Exhaust Cover [5].
- As shown in Fig. 13, push down the Knob [26] on a flat workbench until the clearance between the Knob [26] and the Plunger [21] becomes 2 to 2.5 mm.

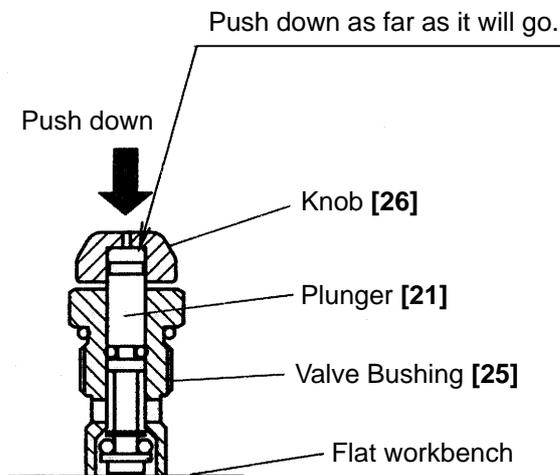
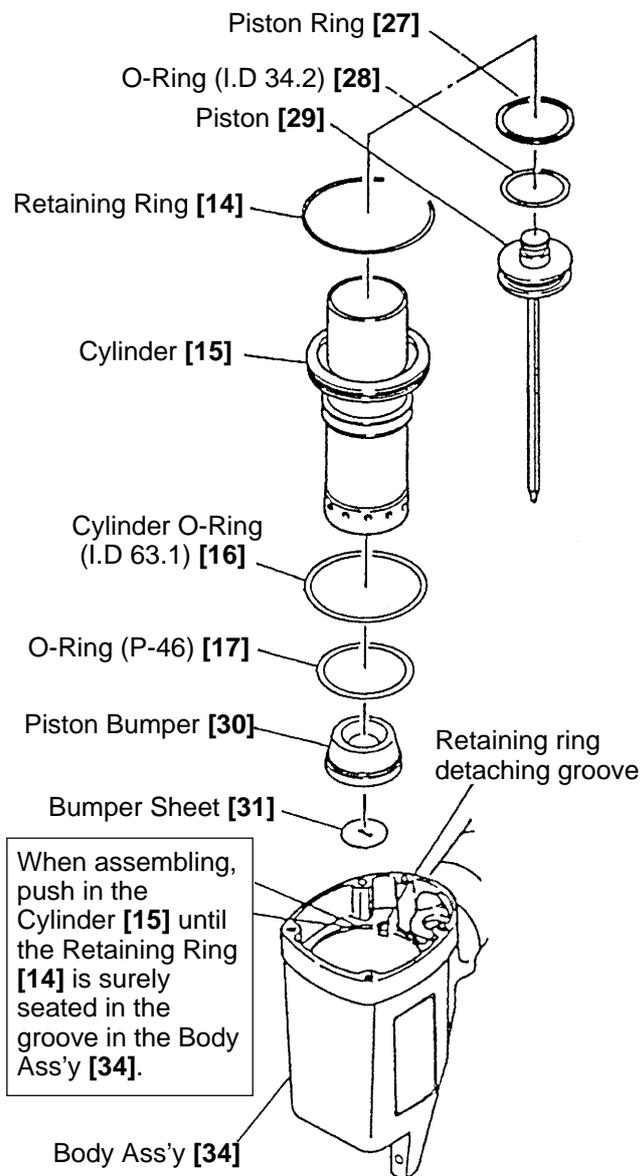


Fig. 13

(2) Disassembly and reassembly of the Cylinder [15], Piston [29], Piston Bumper [30], etc. (See Fig. 14.)



**Fig. 14 Disassembly and reassembly of the cylinder, piston, piston bumper, etc.**

[Tools required]

- Hex. bar wrench (4 mm)
- Flat-blade screwdriver

(a) Disassembly

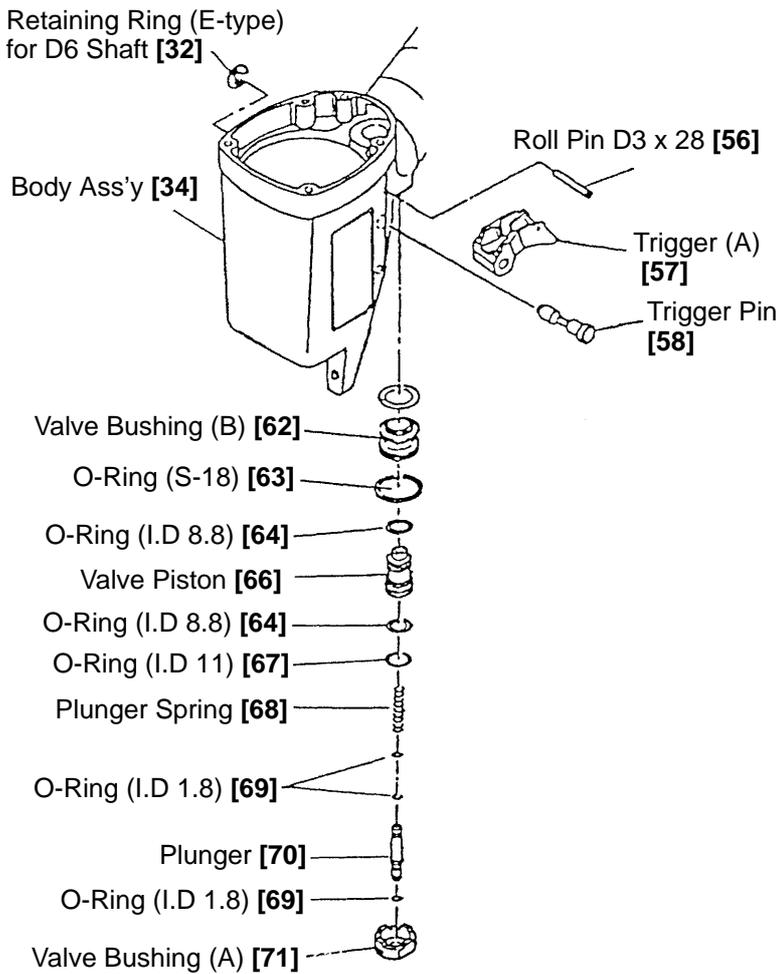
- Remove the Exhaust Cover [5] as described in section (1), remove the Retaining Ring [14] of the Body Ass'y [34], insert the blade of the screwdriver into the retaining ring detaching groove in the Body Ass'y [34], and remove the Retaining Ring [14]. Now, the Cylinder [15], Piston [29], Piston Bumper [30] (with the Bumper Sheet [31] assembled), etc. can be taken out.

(b) Reassembly

Disassembly procedures should be followed in the reverse order. Note the following points:

- Apply the supplied oil (Hitachi pneumatic tool lubricant) to the Piston Ring [27], O-Ring (I.D 34.2) [28], and the internal side of the Cylinder [15].
- Apply grease to the Cylinder O-Ring (I.D 63.1) [16] and then install.
- Push in the Cylinder [15] until the Retaining Ring [14] is correctly seated in the groove in the Body Ass'y [34].
- Remember that when putting the Retaining Ring [14] into the groove in the Body Ass'y [34], the opening of the Retaining Ring [14] must not overlap with the retaining ring detaching groove.

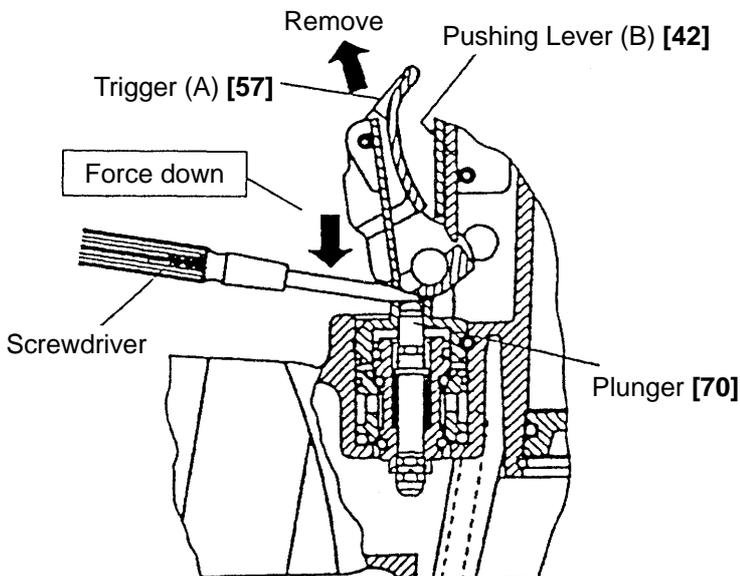
### 10-3. Disassembly and Reassembly of the Control Valve Section (See Fig. 15.)



[Tools required]

- Flat-blade screwdriver
- Roll pin puller (3 mm dia.)
- Hex. bar wrench (4 mm)
- Remove the Retaining Ring (E-type) for D6 Shaft [32] with the blade of a screwdriver and remove the Trigger Pin [58], and Trigger (A) [57] can be removed.
- To remove Trigger (A) [57] together with the driving section (Pushing Lever (B) [42], Blade Guide [43], etc.), remove Trigger (A) [57] while forcing down the Plunger [70] with the blade of the screwdriver, as shown in Fig. 16.

**Fig. 15** Disassembly and reassembly of the control valve section



**Fig. 16**

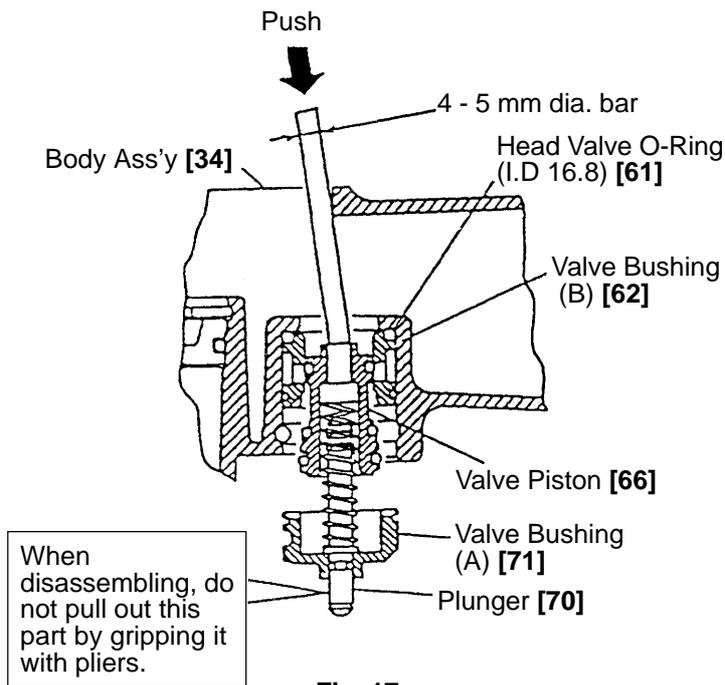


Fig. 17

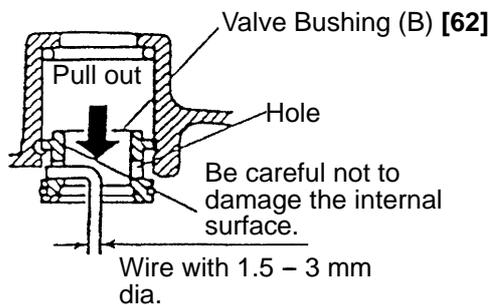


Fig. 18

- Pull out the Roll Pin D3 x 28 [56] with the roll pin puller (3 mm dia.), and take out the control valve in the following manner.
  - 1) Remove the Exhaust Cover [5] by following the procedure in (1), section 10-2.
  - 2) As shown in Fig. 17, put in the 4 – 5 mm dia. bar from the upper side of the Body Ass'y [34] and push the top of the Valve Piston [66]. Now, the parts forming the control valve can be taken out except the Valve Bushing (A) [71] and Head Valve O-Ring (I.D 16.8) [61].

**[CAUTIONS]**

- Be careful not to damage Valve Piston [66], Valve Bushings (A) and (B) [71] and [62], etc.
- Do not pull out the end of Plunger [70] with pliers.

- 3) To take out Valve Bushing (B) [62], put a 1.5 – 3 mm dia. wire with its end hooked into the hole in the bushing and pull it out while being careful not to damage the internal surface of Valve Bushing (B) [62], as shown in Fig. 18.

(b) Reassembly

Disassembly procedures should be followed in the reverse order. Note the following points:

- Be extremely careful to prevent the entry of foreign particles into the control valve section.
- Thoroughly apply grease to the O-Ring (I.D 1.8) [69] of the Plunger [70], O-Rings [64] and [67] (S-4), (I.D 8.8) and (I.D 11) of the Valve Piston [66], and the shaft of the Plunger [70] shown in Fig. 19.
- As shown in Fig. 19, install Valve Bushing (A) [71] so that the roll pin groove in Valve Bushing (A) [71] will be aligned with the roll pin hole in the Body Ass'y [34]. First, insert the roll pin puller (3 mm dia.) into the roll pin hole. Then, upon confirming that the puller passes through the hole, drive in the Roll Pin D3 x 28 [56].

If an attempt is made to drive the roll pin with force when the roll pin groove in Valve Bushing (A) [71] is not aligned with the roll pin hole in the Body Ass'y [34], it will damage the periphery of Valve Bushing (A) [71] and prevent disassembly or reassembly.

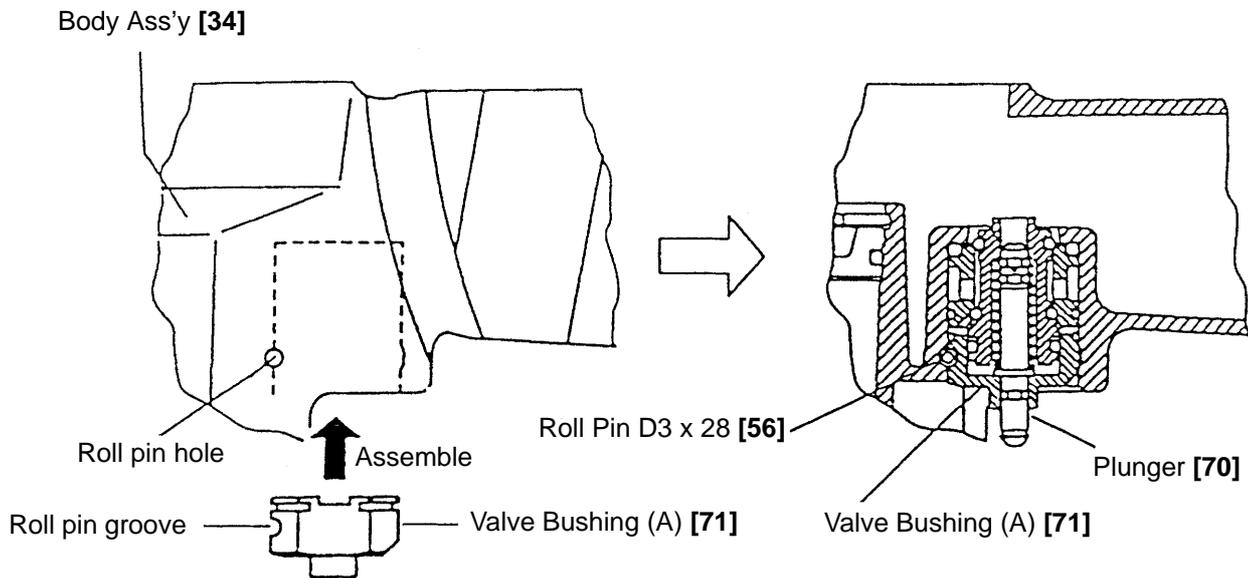


Fig. 19

- After assembling, check that the Plunger [70] moves smoothly.

10-4. Disassembly and Reassembly of the Driving Section (See Fig. 20.)

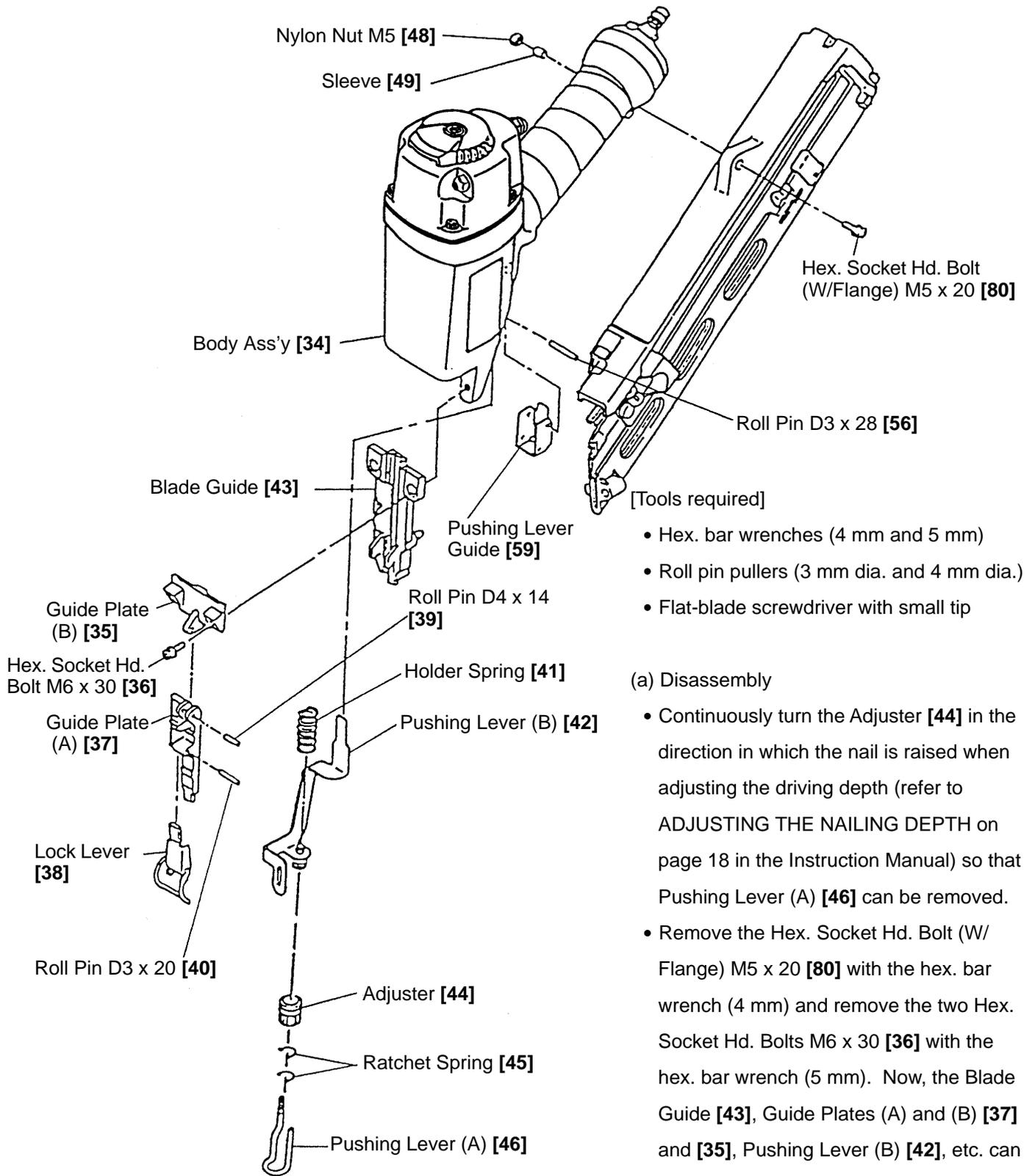


Fig. 20 Disassembly and reassembly of the driving section

- Pull out the Roll Pin D4 x 14 [39] with the roll pin puller (4 mm dia.) so that Guide Plate (A) [37] and Guide Plate (B) [35] can be disassembled.
- Pull out the Roll Pin D3 x 20 [40] and the two Roll Pins D3 x 28 [56] with the roll pin puller (3 mm dia.) so that the Lock Lever [38] and Pushing Lever Guide [59] can be removed.

(b) Reassembly

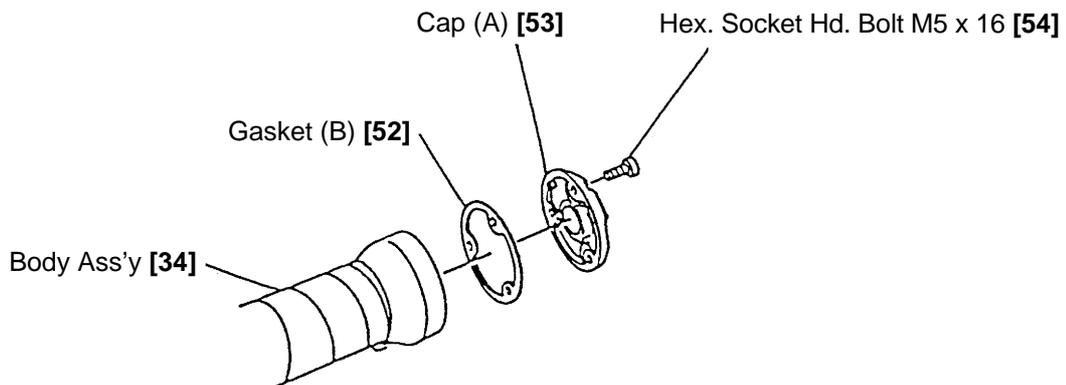
- Disassembly procedures should be followed in the reverse order and tighten the two Hex. Socket Hd. Bolts M6 x 30 [36] after making the Blade Guide [43], Guide Plate (A) and (B) [37] and [35] flush with the Body Ass'y [34]. After assembly, check that Pushing Levers (A) and (B) [46] and [42] and the Adjuster [44] move smoothly.

### 10-5. Disassembly and Reassembly of the Cap and the Magazine Section

(1) Disassembly and reassembly of the cap (See Fig. 21.)

[Tool required]

- Hex. bar wrench (4 mm)



**Fig. 21 Disassembly and reassembly of the cap**

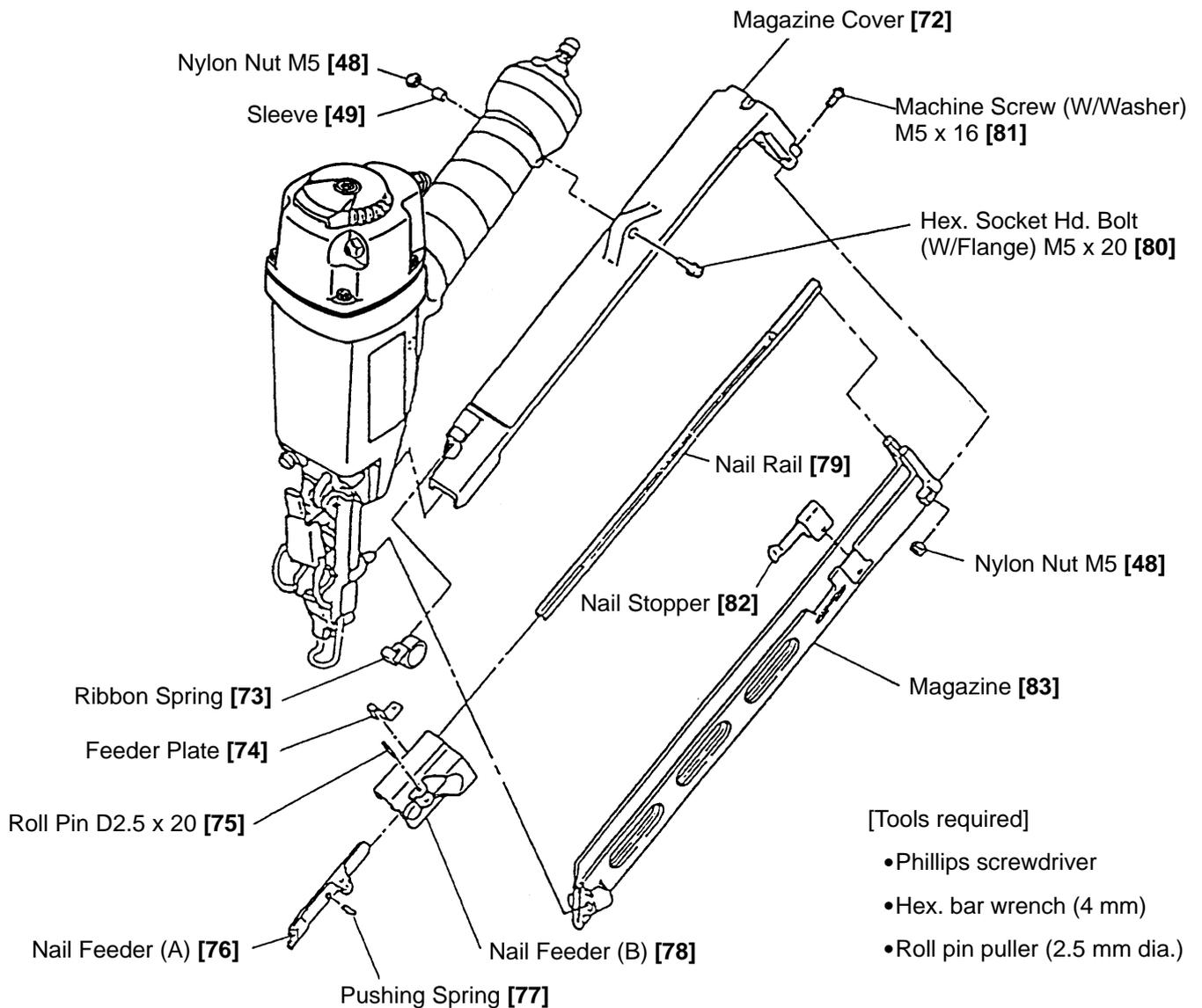
(a) Disassembly

- Remove the three Hex. Socket Hd. Bolts M5 x 16 [54] with the hex. bar wrench (4 mm) so that Cap (A) [53] and Gasket (B) [52] can be removed.

(b) Reassembly

- Disassembly procedures should be followed in the reverse order.

(2) Disassembly and Reassembly of the Magazine Section (See Fig. 22.)



**Fig. 22 Disassembly and reassembly of the magazine section**

(a) Disassembly

- Remove the Hex. Socket Hd. Bolt (W/Flange) M5 x 20 [80] with the hex. bar wrench (4 mm) and so that the entire magazine section can be removed and the Ribbon Spring [73], Nail Feeders (A) and (B) [76] and [78], and Nail Rail [79] can be taken out.
- Remove the two Machine Screws (W/Washer) M5 x 16 (black) [81] with the Phillips screwdriver so that the Magazine [83] and Magazine Cover [72] can be removed.
- Pull out the Roll Pin D2.5 x 20 [75] with the roll pin puller (2.5 mm dia.) so that Nail Feeder (A) [76], Nail Feeder (B) [78] and the Pushing Spring [77] can be removed.

(b) Reassembly

Disassembly procedures should be followed in the reverse order. Note the following points:

- The Hex. Socket Hd. Bolt (W/Flange) M5 x 20 [80] should be tightened while pressing the Magazine [83] and Magazine Cover [72] so that there will be no space between the Magazine [83] and Blade Guide [43].
- Lubricate the Nail Rail [79] and Ribbon Spring [73] with Hitachi pneumatic tool lubricant to smooth the movement of Nail Feeders (A) and (B) [76] and [78].

## 11. INSPECTION AND CONFIRMATION AFTER REASSEMBLY

- Check that the Plunger **[70]** moves smoothly.
- Check that there is no air leakage from each part.
- While driving nails with an air pressure of 4.5 kgf/cm<sup>2</sup> (63 psi), check that there is no idle driving and bending of nails.

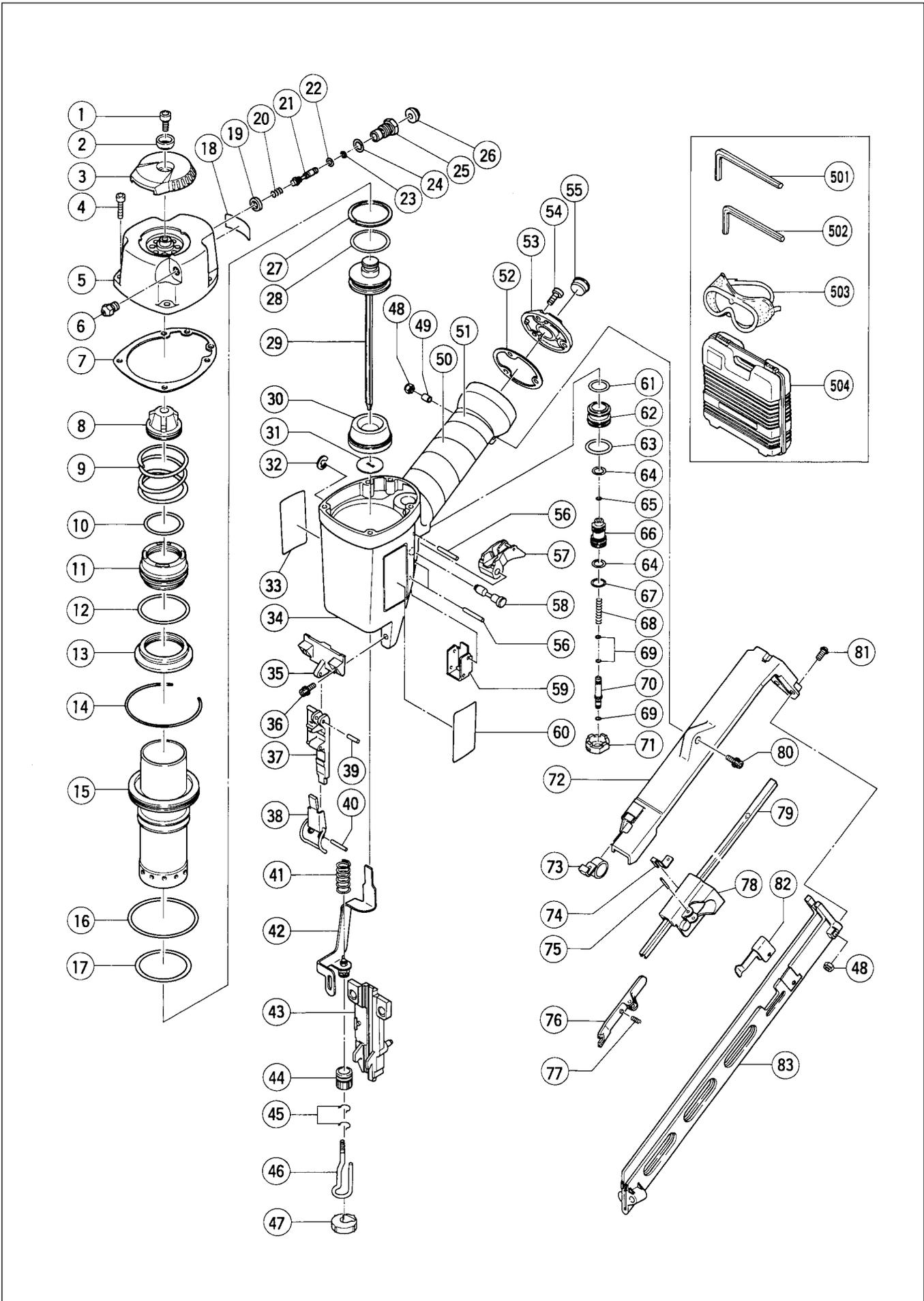
Note: Before conducting the driving test, turn the Adjuster **[44]** to the deepest position.

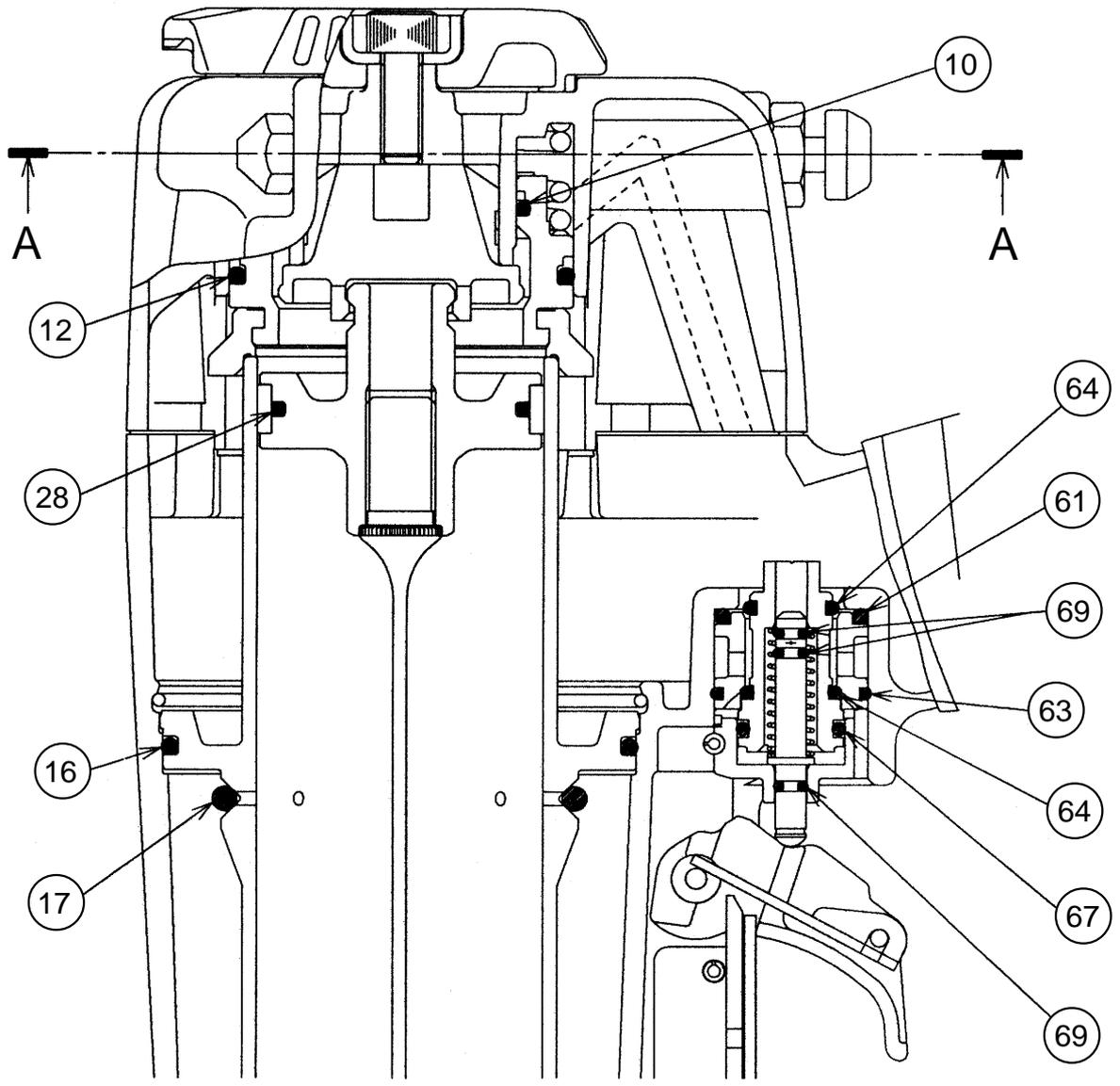
- Recheck the tightening torque of each screw.
- Check that Pushing Lever (A) **[46]** slides smoothly.
- Check that the machine will not operate only by actuating Trigger (A) **[57]**. Also check that the machine will not operate only by pressing Pushing Lever (A) **[46]**.

**12. STANDARD REPAIR TIME (UNIT) SCHEDULES**

MODEL	Variable		10	20	30	40	50	60	
	Fixed								
NT 65MA		Work Flow		Top Cover Exhaust Cover Gasket Exhaust Valve Rubber Head Valve Spring O-Ring Head Valve Cylinder O-Ring (C) Head Valve Rubber (A)	Guide Plate (A) Guide Plate (B) Blade Guide Magazine Magazine Cover Nail Feeder (A) Nail Feeder (B) Nail Rail				
		General Assembly		Pushing Lever (B) Holder Spring Adjuster Pushing Lever (A)	Cylinder Cylinder O-Ring O-Ring Piston Bumper Bumper Sheet			Body Ass'y	
				Piston Piston Ring O-Ring					
				Pushing Lever Guide Trigger (A) Trigger Pin Valve Bushing (A) Valve Bushing (B) O-Ring x 7 Plunger Plunger Spring Valve Piston					
				Adjustment (Cylinder, Body and Valve)					

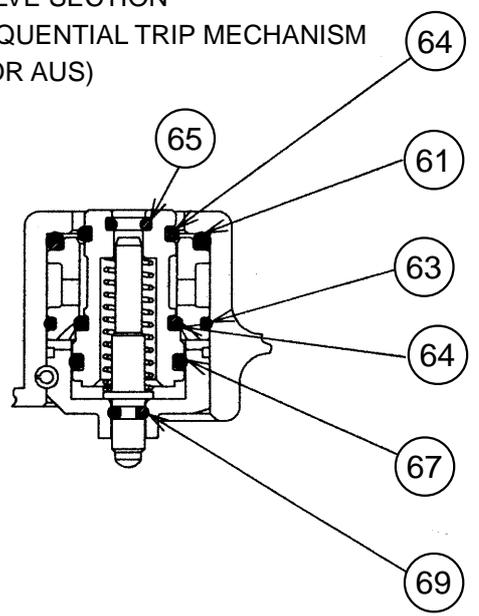
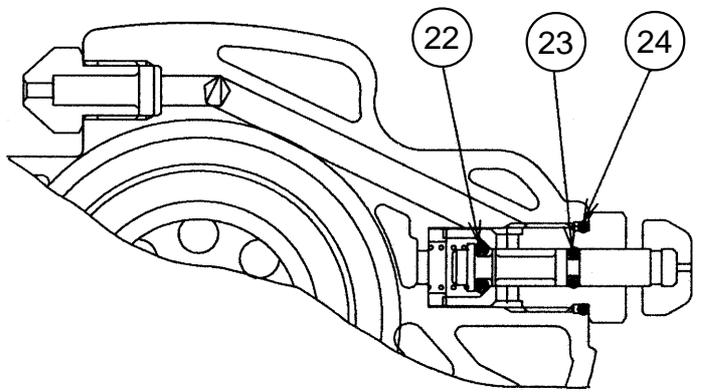
Assembly Diagram for NT 65MA





A - A

VALVE SECTION  
SEQUENTIAL TRIP MECHANISM  
(FOR AUS)



## PARTS

NT 65MA

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	949-755	HEX. SOCKET HD. BOLT M6X16 (10 PCS.)	1	
2	880-515	PLATE	1	
3	880-514	TOP COVER	1	
4	949-757	HEX. SOCKET HD. BOLT M5X20 (10 PCS.)	4	
5	882-940	EXHAUST COVER	1	
6	881-714	NOSE	1	
7	880-358	GASKET	1	
8	881-761	EXHAUST VALVE RUBBER (A)	1	
9	880-356	HEAD VALVE SPRING	1	
10	980-879	O-RING (S-34)	1	
11	880-354	HEAD VALVE	1	
12	878-714	CYLINDER O-RING (C) I.D 44.7	1	
13	881-760	HEAD VALVE RUBBER (A)	1	
14	880-669	RETAINING RING	1	
15	881-759	CYLINDER	1	
16	877-312	CYLINDER O-RING (I.D 63.1)	1	
17	878-716	O-RING (P-46)	1	
18		CAUTION PLATE	1	
19	881-711	VALVE PACKING	1	
20	881-900	SPRING	1	
21	881-712	PLUNGER	1	
22	873-093	O-RING (1AP-3)	1	
23	881-715	O-RING (S3)	1	
24	987-105	O-RING (S-10)	1	
25	881-710	VALVE BUSHING	1	
26	881-713	KNOB	1	
27	881-740	PISTON RING	1	
28	880-311	O-RING (I.D 34.2)	1	
29	881-763	PISTON	1	
30	881-741	PISTON BUMPER	1	
31	881-756	BUMPER SHEET	1	
32	955-479	RETAINING RING (E-TYPE) FOR D6 SHAFT	1	
33	878-184	WARNING LABEL	1	
34	881-757	BODY ASS'Y	1	INCLUD.50,51
35	881-764	GUIDE PLATE (B)	1	
36	949-661	HEX. SOCKET HD. BOLT M6X30 (10 PCS.)	2	
37	881-743	GUIDE PLATE (A)	1	
38	881-747	LOCK LEVER	1	
39	949-770	ROLL PIN D4X14 (10 PCS.)	1	
40	949-685	ROLL PIN D3X20 (10 PCS.)	1	
41	877-894	HOLDER SPRING	1	
42	881-749	PUSHING LEVER (B)	1	
43	881-742	BLADE GUIDE	1	
44	881-748	ADJUSTER	1	
45	881-765	RATCHET SPRING	2	
46	881-750	PUSHING LEVER (A)	1	
47	881-751	NOSE CAP (A)	1	
48	877-371	NYLON NUT M5	3	
49	881-774	SLEEVE	1	
50	881-768	GRIP TAPE (A)	1	
51	880-407	TAPE	2	



