

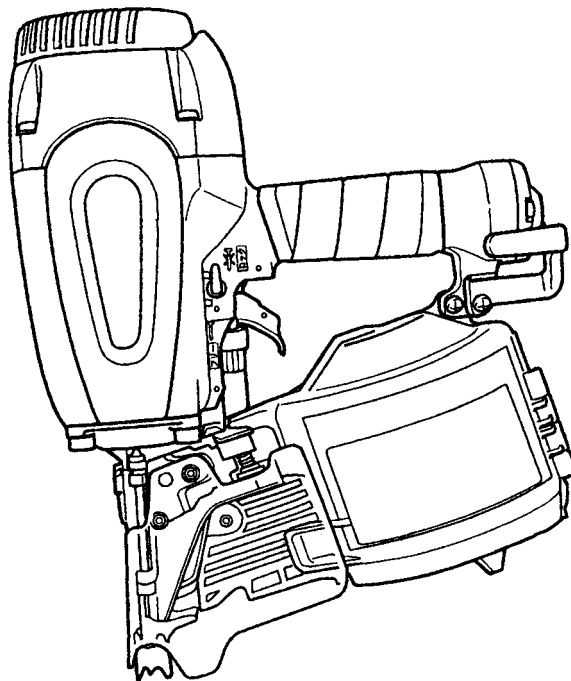
MODEL

NV 90AB2

Hitachi Power Tools

**COIL NAILER
NV 90AB2**

**TECHNICAL DATA
AND
SERVICE MANUAL**



LIST No. E015

Jan. 2005



CONTENTS

	Page
1. PRODUCT NAME	1
2. MARKETING OBJECTIVE	1
3. APPLICATIONS	1
4. SELLING POINTS	1
5. SPECIFICATIONS	2
5-1. Specifications	2
5-2. Adjusting the Nailing Depth	3
5-3. Dual Action Trigger	3
5-4. Nail Selection	4
5-5. Nail Driving Force	6
5-6. Optional Accessory	7
6. PRECAUTIONS IN SALES PROMOTION	8
6-1. Safety Instructions	8
6-2. Related Laws and Regulations	9
6-3. Precautions in Operation	9
7. MECHANISM AND OPERATION PRINCIPLE	10
7-1. Mechanism	10
7-2. Operation Principle	13
8. TROUBLESHOOTING GUIDE	15
8-1. Troubleshooting and Correction	15
8-2. Possible Causes and Countermeasures against Air Leakage	20
9. DISASSEMBLY AND REASSEMBLY	23
9-1. General Precautions in Disassembly and Reassembly	23
9-2. Disassembly and Reassembly of the Output Section	24
9-3. Disassembly and Reassembly of the Cap	27
9-4. Disassembly and Reassembly of the Control Valve Section	27
9-5. Disassembly and Reassembly of the Magazine Section	30
9-6. Disassembly and reassembly of the Driving Section	33
10. INSPECTION AND CONFIRMATION AFTER REASSEMBLY	37
11. STANDARD REPAIR TIME (UNIT) SCHEDULES	38
Assembly Diagram for NV 90AB2	

1. PRODUCT NAME

Hitachi 3-1/2" Coil Nailer, Model NV 90AB2

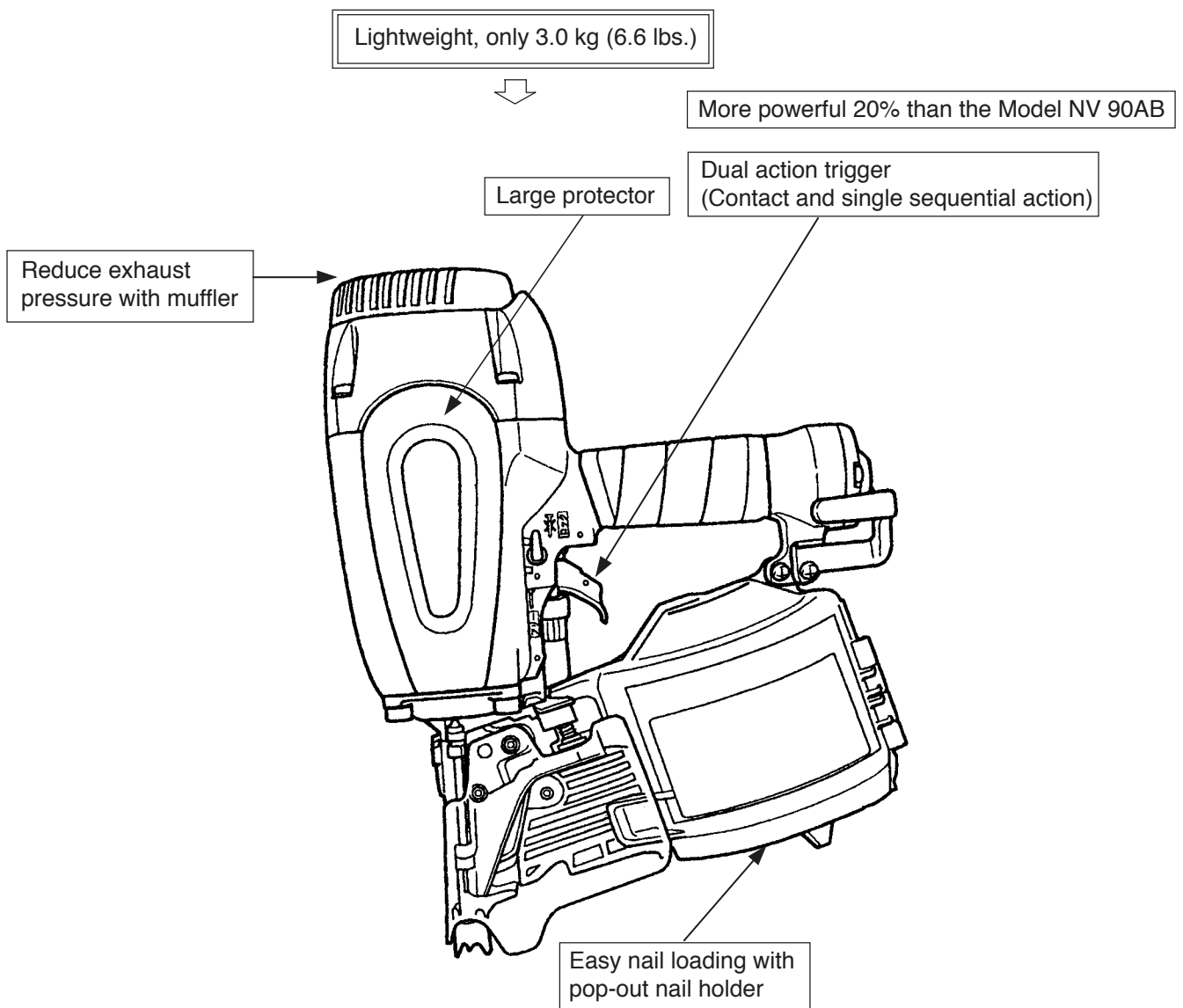
2. MARKETING OBJECTIVE

Hitachi coil nailer Model NV 90AB2 has already been introduced on Japan market. The Model NV 90AB2 is the most lightweight and powerful coil nailer in this class and equipped with a muffler to minimize the exhaust sound and blowing dust. In addition, the pop-out magazine allows easy nail loading from the top of the magazine thanks to the tiltable nail holder. Please expand the sales of the new Model NV 90AB2 on Europe market.

3. APPLICATIONS

Floor and wall framing
Truss and window built-up
Subflooring and roof decking

4. SELLING POINTS



5. SPECIFICATIONS

5-1. Specifications

Model	NV 90AB2
Driving system	Reciprocating piston type
Operating pressure	4.9 – 8.3 bar (5 – 8.5 kgf/cm ² , 70 – 120 psi) (Gauge pressure)
Driving speed	3 pcs./sec.
Weight	3.0 kg (6.6 lbs.)
Dimensions (Length x Height x Width)	317 mm x 348 mm x 132 mm (12-31/64" x 13-3/4" x 5-3/16")
Nail feed system	Reciprocating piston type
Nail capacity	150 – 300 nails (1 coil)
Air consumption	2.7 ltr/cycle at 6.9 bar (2.7 ltr/cycle at 7 kgf/cm ² , 0.095 ft ³ /cycle at 100 psi)
Air inlet	3/8 NPT thread
Packaging	Corrugated cardboard box (sleeve type)
Packaging dimensions (Length x Height x Width)	460 mm x 150 mm x 335 mm (18-1/8" x 5-7/8" x 13-3/16")
Standard accessories	Safety glasses (Code No. 875769) 1 Hex. bar wrench for M8 screw (Code No. 872422) 1 Hex. bar wrench for M6 screw (Code No. 944459) 1 Hex. bar wrench for M5 screw (Code No. 944458) 1 Hex. bar wrench for M4 screw (Code No. 943277) 1 Oiler (30 cc) (Code No. 877153) 1 Case (Code No. 883323) 1 Nose cap (A) (Code No. 883106) 1
Optional accessories	Pneumatic tool lubricant [30 cc (1 oz) oil feeder] (Code No. 877153) Pneumatic tool lubricant [120 cc (4 oz) oil feeder] (Code No. 872042) Pneumatic tool lubricant [1 ltr (1 quart) can] (Code No. 876212) Sequential fire parts set (Code No. 883330) Grease (ATTOLUB No. 2) [500 g (1.1 lbs)] (Code No. 317918)

5-2. Adjusting the Nailing Depth

The nailing depth is adjustable by turning the adjuster.

* Adjusting the adjuster (Fig. 1)

- Carry out test driving. If the nails are too deep, turn the adjuster to the shallow side (SHALLOW mark). If the nail depth is too shallow, turn the adjuster to the deep side (DEEP mark) (see Figs. 1 and 2). Depth is changed 1 mm with each rotation of the adjuster.
- Do not push up the pushing lever when turning the adjuster.
- Place the lock lever in "FREE" position when driving nails.

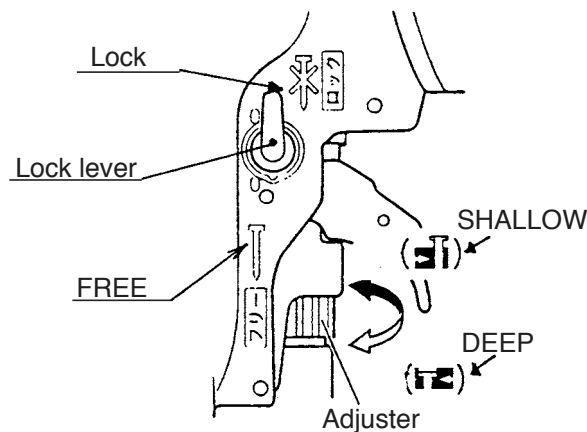


Fig. 1

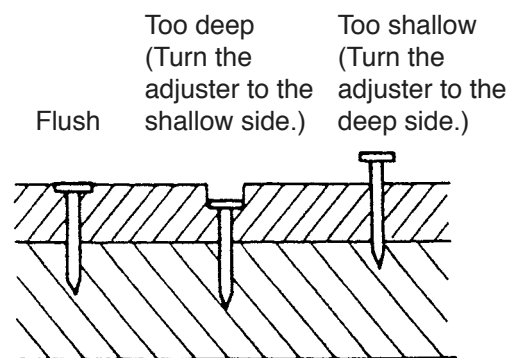


Fig. 2

5-3. Dual Action Trigger

The Model NV 90AB2 is equipped with a mechanism that allows switching the mode automatically between "single sequential actuation" and "contact action" (see section 7 for the mechanism).

(a) Method of driving operation (automatic switching between single sequential actuation mode and contact action mode)

	①	②	Nail driving	③	Nail driving
Single sequential actuation mode	Depress the pushing lever. 	Pull the trigger. 	 Driven	Depress the pushing lever. 	 Not driven
Contact action mode	Pull the trigger. 	Depress the pushing lever. 	 Driven	Depress the pushing lever. 	 Driven

(b) Precautions for using dual action trigger

- Nails are not driven even if the pushing lever is pushed against the workpiece again with the trigger pulled in the single sequential actuation mode. To drive nails continuously, remove finger from the trigger and operate according to the procedure of the contact action.
- When the Model NV 90AB2 is raised from the floor (pushing lever was pushed against the floor) with the trigger pulled, the Model NV 90AB2 turns into the single sequential actuation mode. Therefore, nails are not driven even if the pushing lever is pushed against the workpiece. Release the trigger and operate according to the procedure of the desired mode.

5-4. Nail Selection

The Model NV 90AB2 utilizes common round-head nails collated by wire or sheet into coils from 150 to 300 pieces. Applicable nail dimensions are shown below. However, it is recommended to use genuine HITACHI nails to ensure satisfactory driving quality.

CAUTION: Ensure that nails are as specified in Figs. 3, 4 and 5. Other nails will cause clogging of nails and subsequent damage to the nailer.

Wire-collated nails		Sheet-collated nails	
Min.	Max.	Min.	Max.

Fig. 3 Dimensions of nails

L	d	d ₁	L ₁	L ₂	D ₁	D ₂	H
45 – 90 (1-3/4 – 3-1/2)	2.5 – 3.8 (0.099 – 0.148)	0.7 (0.028)	19 (0.748)	37.5 (1.476)	22 – 30 (0.866 – 1.181)	118 MAX (4.645 MAX)	100 (3.937)

Unit: mm (inch)

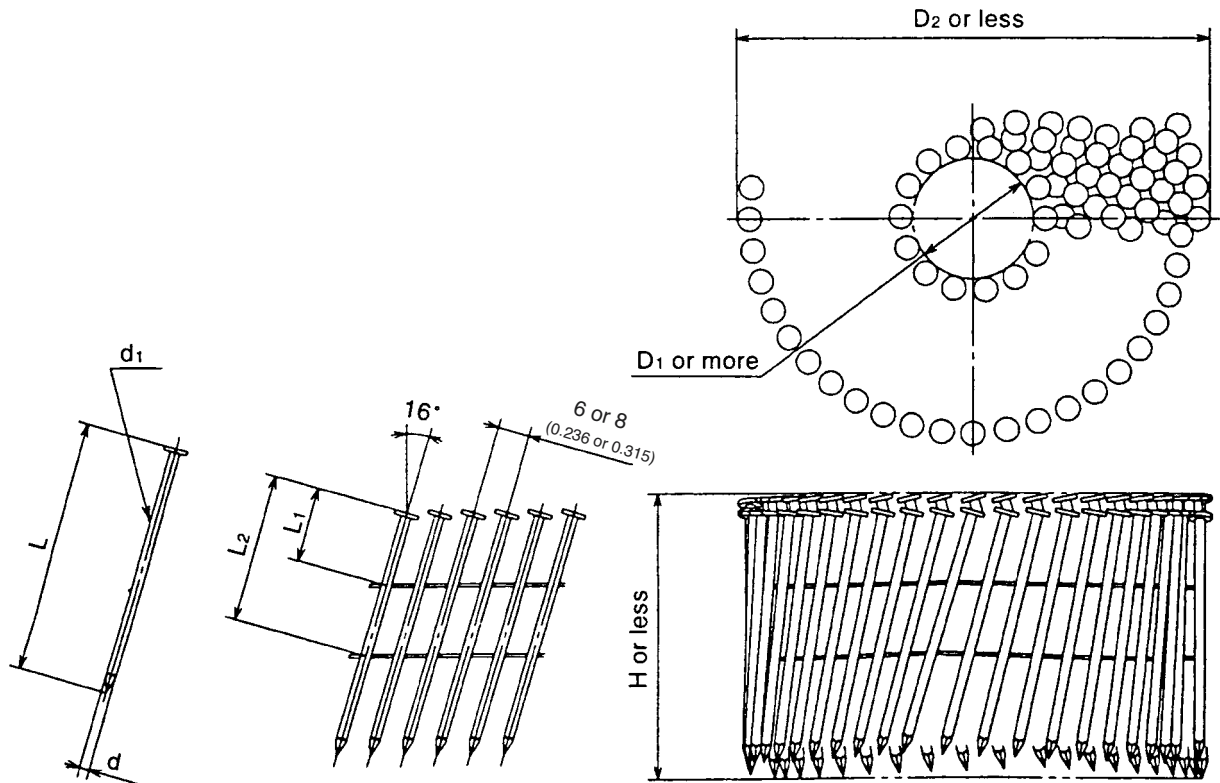


Fig. 4 Dimensions of wire-collated nails

L	d	D ₁	D ₂	H
45 – 50 (1-3/4 – 2)	2.5 (0.099)	20 (0.787)	118 (4.645)	52 (2.047)

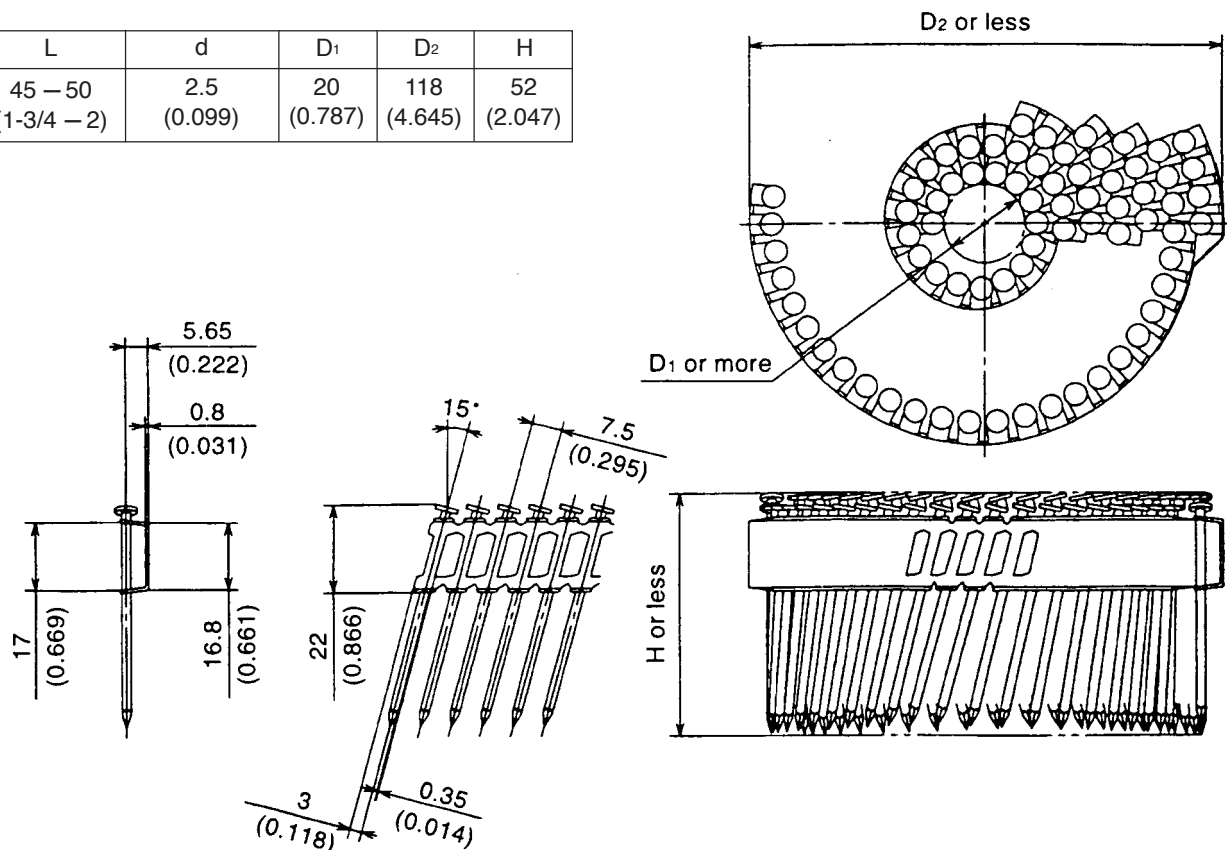


Fig. 5 Dimensions of sheet-collated nails

5-5. Nail Driving Force

Figure 6 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 for driving the nail allows the nail to be fully driven.

For example, when driving a nail of 3.8 mm dia. x 90 mm length (0.148" x 3-1/2") into a workpiece of hemlock with the Model NV 90AB2, a pressure of about 6.2 bar (6.3 kgf/cm², 90 psi) allows the nailer to drive the nail flush with the wood surface. A pressure beyond this value causes the nail head to be driven below the wood surface.

Figure 6 should be used as a reference only because those values vary depending on the type of wood, moisture content, and grain of wood.

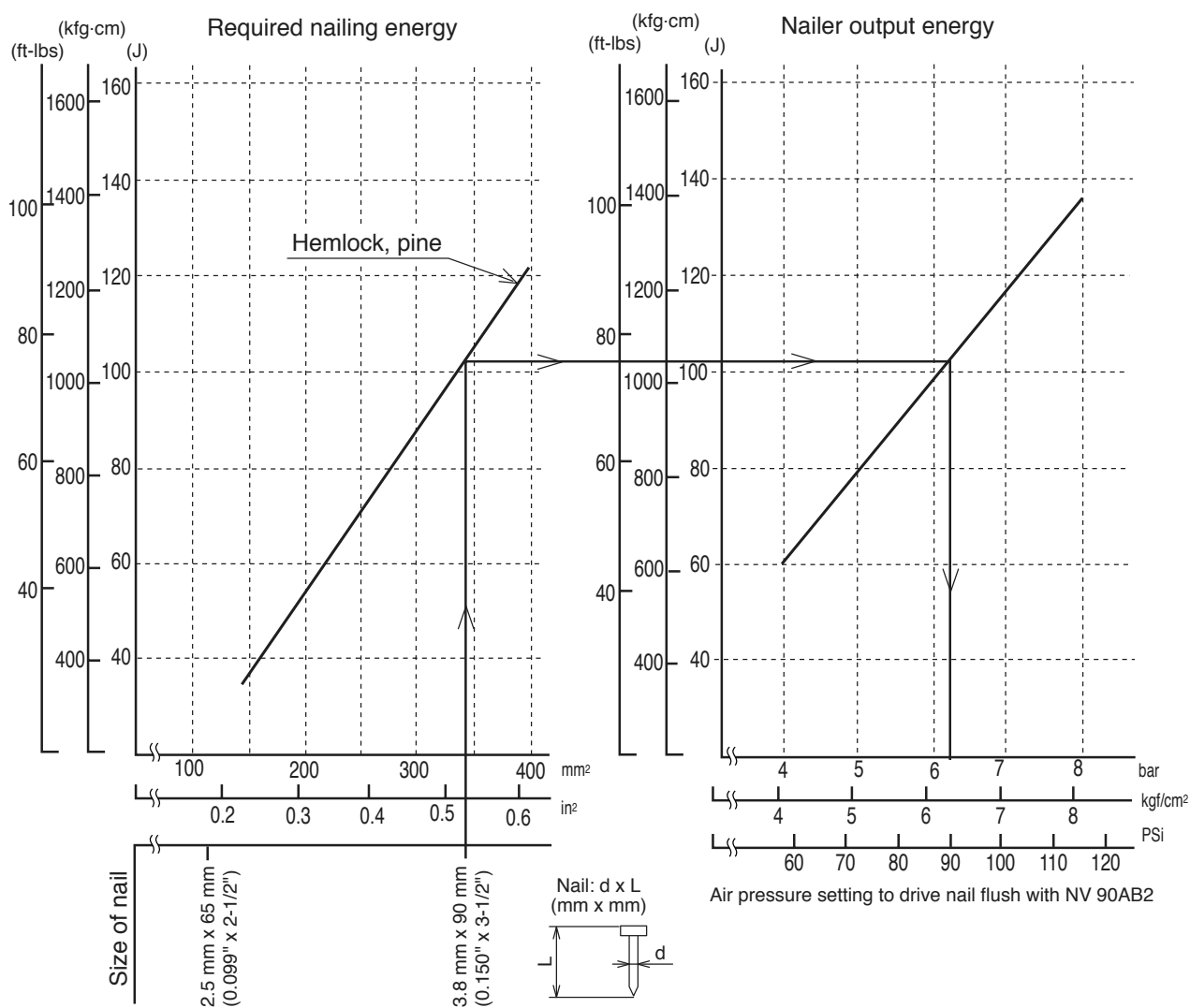


Fig. 6 Required nailing energy and nailer output energy

5-6. Optional Accessory

Sequential fire parts set:

The sequential fire parts set is provided as an optional accessory for the Model NV 90AB2. By using this optional accessory, a nail is driven by pressing the pushing lever first against a workpiece and then pulling the trigger, and no nail is driven when pulling the trigger first and then pressing the pushing lever against a workpiece (single-shot operation). Please recommend the sequential fire parts set to the customers who want to use it. Salespersons must instruct the customers to read the Handling Instructions attached to the sequential fire parts set and also the Handling Instructions of the Model NV 90AB2 thoroughly for correct use.

6. PRECAUTIONS IN SALES PROMOTION

6-1. Safety Instructions

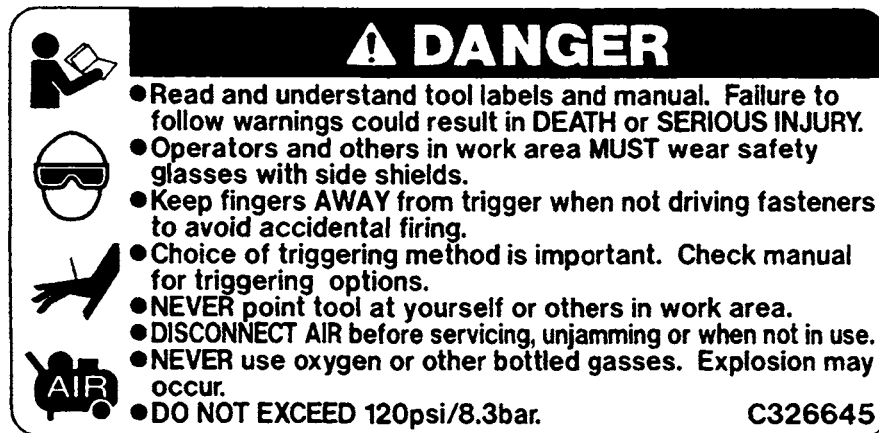
In the interest of promoting the safest and most efficient use of the Model NV 90AB2 Nailer by all of our customers, it is very important that at the time of sale the salesperson carefully ensures that the buyer seriously recognizes the importance of the contents of the Handling Instructions, and fully understands the meaning of the precautions listed on the Warning Label attached to each tool.

(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 pneumatic tool cannot be completely eliminated. Accordingly, specific precautions and suggestions for the use of the pneumatic nailer are listed in the Handling Instructions to enhance the safe and 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 customers during sales promotion.

(2) Warning Label

Each Model NV 90AB2 unit is provided with a Warning Label (illustrated below) which lists basic safety precautions in its use. Carefully ensure that the customers fully understand and follow these precautions before using the tool.



GEFAHR • Vor Gebrauch die **BETRIEBSANLEITUNG** LESEN. Ein Nichtbeachten der Betriebsanleitung **KANN ZU ERNSTHAFTEN VERLETZUNGEN FÜHREN**.
• Anwender und andere Personen, die sich im Arbeitsbereich aufhalten, **MÜSSEN DIE ERFORDERLICHEN SCHUTZBRILLEN TRAGEN**.
• **NIEMALS FLASCHENGASE BENUTZEN**. Ausschließlich regulierte Druckluft benutzen.
• **ÜBERSCHREITEN SIE NIEMALS 120 psi/8.3 bar**. • **TRAGEN SIE DIE MASCHINE NIEMALS MIT DEM FINGER AM SCHALTER**. • Vor Service- und Reparaturarbeiten, sowie wenn das Gerät nicht benutzt wird, **DRUCKSCHLAUCH ABKLEMMEN**.
DANGER • **LISEZ LE MANUEL D'UTILISATION** avant usage. **VOUS POUVEZ VOUS BLESSER GRAVEMENT** en ne suivant pas les instructions. • L'opérateur ainsi que toute personne à proximité **DOIT PORTER DES LUNETTES DE SECURITE AGREES**. • **NE JAMAIS UTILISER DU GAZ EMBOUTEILLE**. Utiliser uniquement de l'air réglé. • **NE PAS DEPASSER 12 psi/8.3 bar**. • **NE JAMAIS PORTER AVEC LE DOIGT SUR LA GACHETTE**. • **DEBRANCHEZ L'AIR** avant de commencer l'entretien, le réglage ou avant d'arrêter le travail.
C316007

6-2. 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 Handling Instructions 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 advise the customer properly. Please check your national and/or local regulations for applicable items. Some applicable items are outlined below.

(1) Europe

EUROPEAN STANDARD EN792-13 JUNE 2000
HAND-HELD NON-ELECTRIC POWER TOOLS-SAFETY REQUIREMENTS
Part 13: Fastener driving tools

(2) The U.S.A.

OSHA 1926.102 Eye and Face Protection
 1926.302 Power-Operated Hand Tools
ANSI SNT-101-2002 Portable, Compressed-Air-Actuated,
 Fastener Driving Tools-Safety Requirements for

6-3. Precautions in Operation

(1) Pay special attention to the pressure, capacity and piping of the air compressor in order to keep the air pressure supplied to the Model NV 90AB2 within the range from 5 kgf/cm² (70 psi, 4.9 bar) to 8.5 kgf/cm² (120 psi, 8.3 bar). Otherwise, ill effect may be given to the performance, service life and safety of the Model NV 90AB2. (Be sure to install a regulator when using a high-pressure air compressor whose set pressure is 10 kgf/cm² (140 psi, 9.8 bar) or more. In this case, adjust the air pressure at 8.5 kgf/cm² (120 psi, 8.3 bar) or less.)

(2) If dust in the compressed air settles on the sliding portion, the Model NV 90AB2 will not operate properly. Lubrication is effective to remove dust and also to prolong the service life of the Model NV 90AB2 keeping good performance. It is recommended to lubricate the Model NV 90AB2 daily. Supply 5-10 drops of lubricant into the air plug on the Model NV 90AB2.

When not in use for an extended period, supply lubricant and perform idle driving two or three items to lubricate the inside, then apply a thin coat of the lubricant to the steel parts to avoid rusting.

○ Usable lubricant is specified in the following table. Please recommend the customers to use Hitachi nailer/tacker oil.

Type of oil	Brand or product name
Hitachi pneumatic tool lubricant	Shell sliding oil, Tonna S32 (Old Tonna T32); Code No. 877153 (1 oz. oil feeder) Code No. 874042 (4 oz. oil feeder) Code No. 876212 (1L (1 quart) can)

(3) Be sure to drain the tank of the compressor securely to prevent deteriorated performance or malfunction of the Model NV 90AB2 due to rusting.

(4) Instruct the customers (especially the heavy users) to perform inspection and maintenance securely.

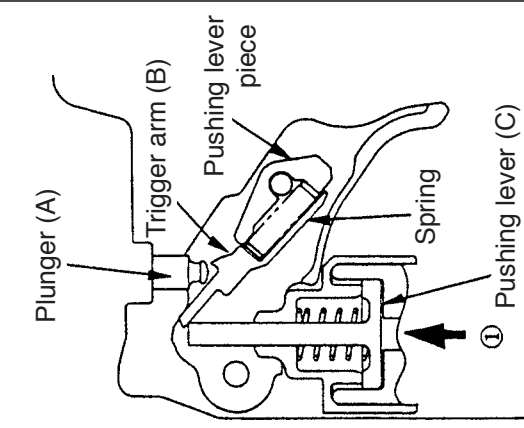
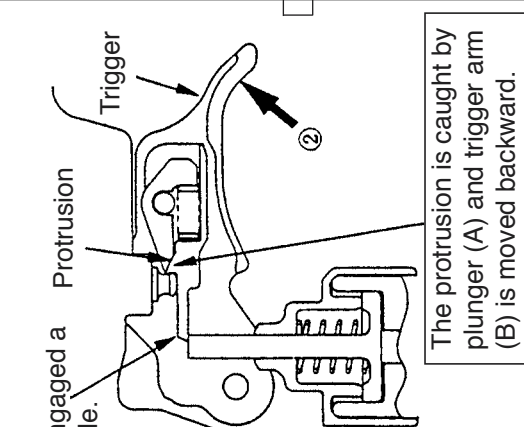
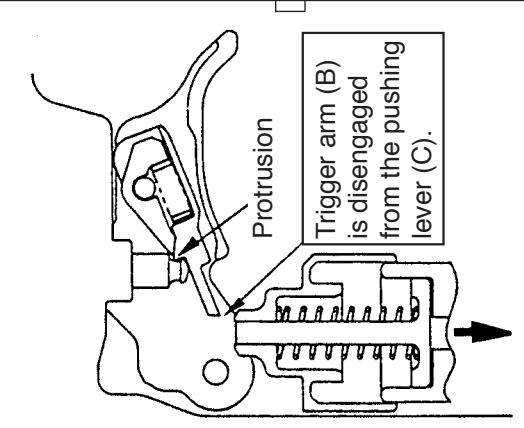
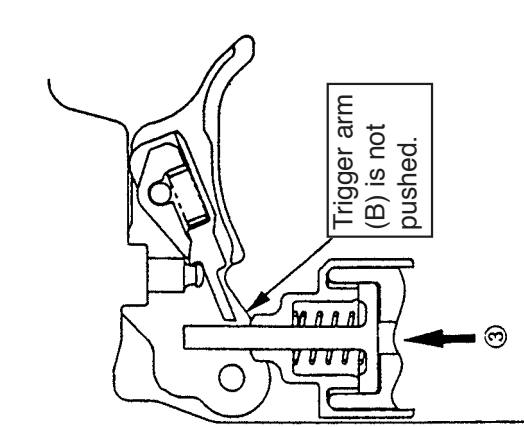
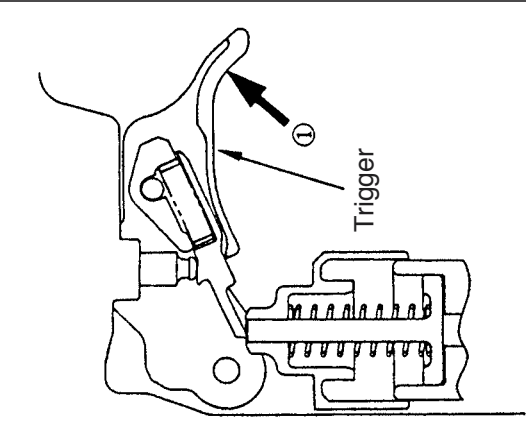
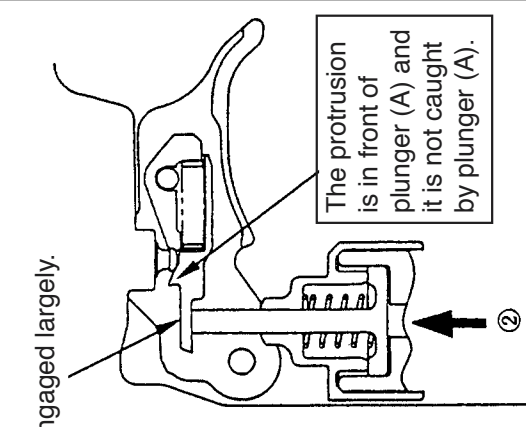
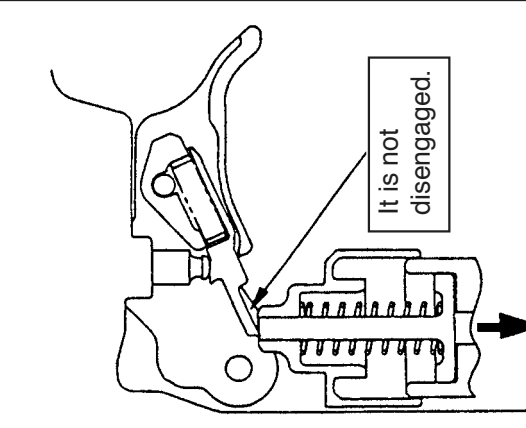
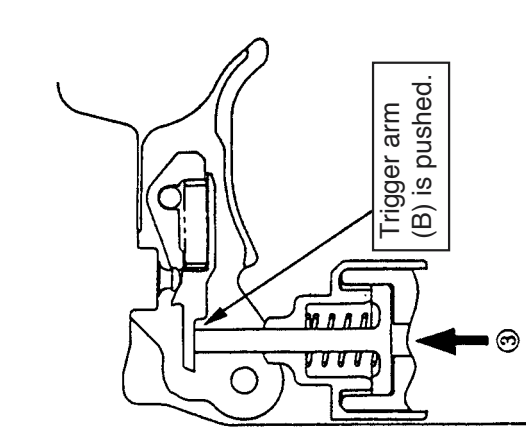
7. MECHANISM AND OPERATION PRINCIPLE

7-1. Mechanism

Most of the parts of the Model NV 90AB2 have been newly designed though the basic construction and the principle are the same as those of the Model NV 90AB. Features of the main parts are described below.

- Output section Most of the parts have been newly designed.
 - (1) Added a muffler and a large top cover to reduce air exhaust noise and force.
 - (2) Added a magnesium die-cast body and a magnesium die-cast exhaust cover to reduce the weight.
 - (3) Realized 1.2 times greater driving force than the Model NV 90AB thanks to the increased capacity.
 - (4) Added a large protector to the side to protect the main body. The protector is mounted by fitting its lip portion in the concave portion of the body.
- Valve section Plunger (A), valve bushing (A) and valve bushing (B) have been newly designed.
- Driving section Most of the parts have been newly designed.
 - (1) Constructed so that both wire-collated nails and sheet-collated nails can be driven.
- Magazine section Added a pop-out magazine for easy nail loading.
- Trigger section
 - (1) Added a trigger locking device.
 - (2) Constructed so that the driving depth can be adjusted near the trigger.
 - (3) Added a dual action trigger that automatically switches between single sequential action mode and contact action mode.

Mechanism of dual action trigger

Single sequential actuation mode		Contact action mode	
<p>① Depress the pushing lever.</p>  <p>Plunger (A) Trigger arm (B) Pushing lever piece Spring ① Pushing lever (C)</p>	<p>② Pull the trigger.</p>  <p>Trigger Protrusion Engaged a little. ② The protrusion is caught by plunger (A) and trigger arm (B) is moved backward.</p>	<p>The pushing lever is lowered by lifting the main body.</p>  <p>Protrusion Trigger arm (B) is disengaged from the pushing lever (C). ③</p>	<p>③ Even if the pushing lever is depressed, Not driven.</p>  <p>Trigger arm (B) is not pushed. ③</p>
<p>① Pull the trigger.</p>  <p>Trigger ①</p>	<p>② Depress the pushing lever.</p>  <p>Engaged largely. ② The protrusion is in front of plunger (A) and it is not caught by plunger (A).</p>	<p>The pushing lever is lowered by lifting the main body.</p>  <p>It is not disengaged. ③</p>	<p>③ If the pushing lever is depressed, Driven.</p>  <p>Trigger arm (B) is pushed. ③</p>

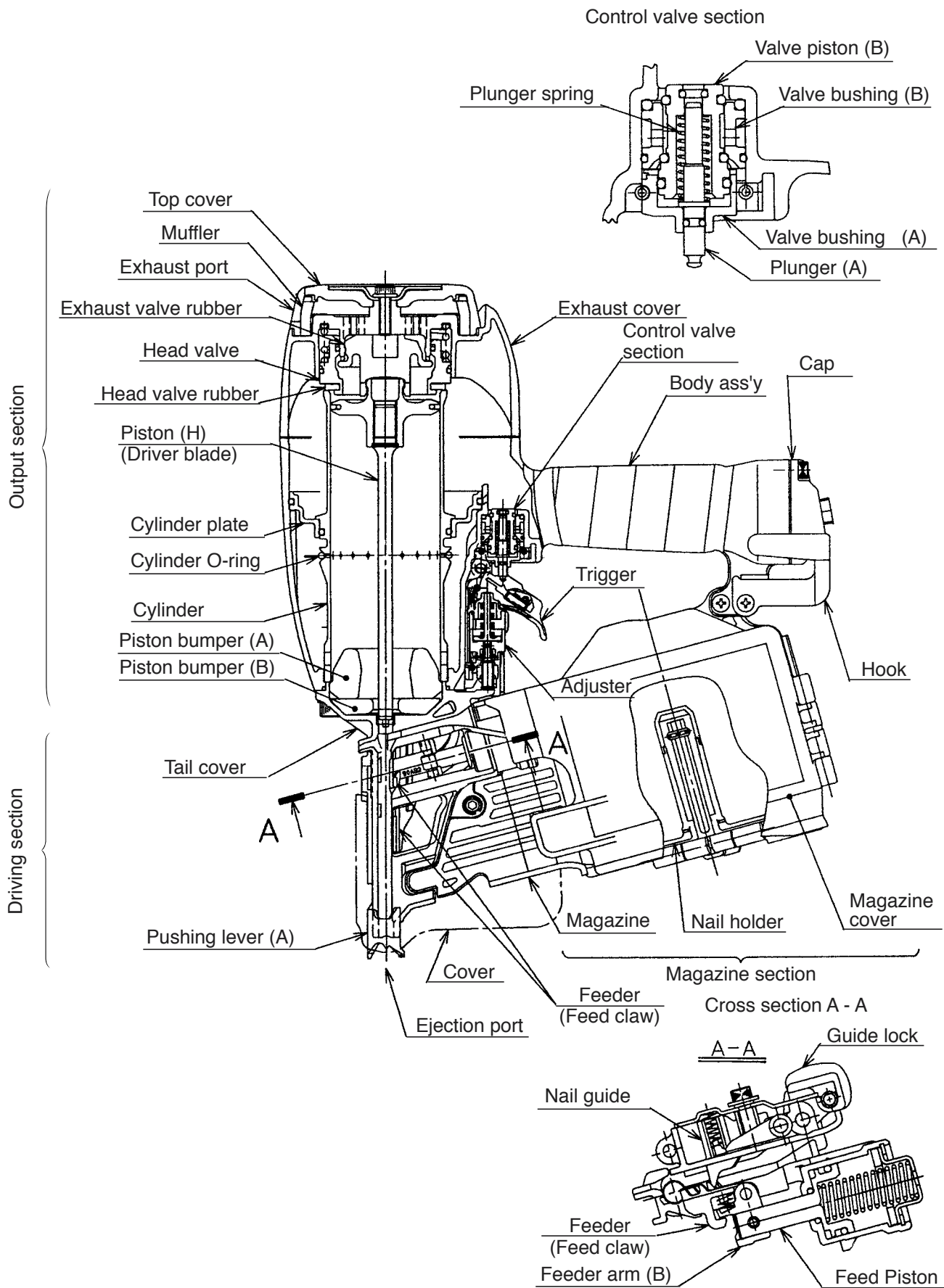


Fig. 7

7-2. Operation Principle

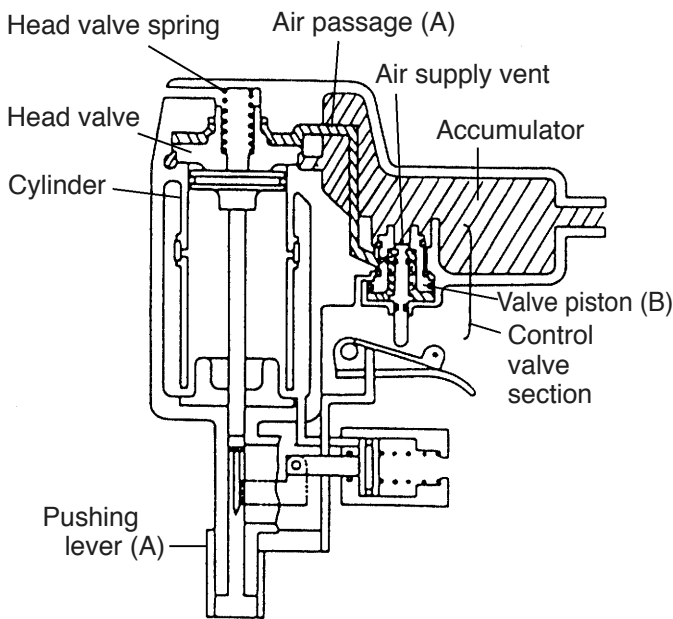


Fig. 8 Prior to nailing

(1) Prior to nailing (See Fig. 8.)

1. When compressed air is supplied to the main body, it fills the accumulator (see diagram).
2. At the same time, the compressed air flows into the valve piston lower chamber of the control valve section, and pushes up the valve piston. Also, the compressed air flows from the air supply vent, through air passage (A), and into the head valve upper chamber where it simultaneously pushes down the head valve and the head valve spring to seal the upper surface of the head valve and the cylinder.

(2) During nailing (I) (See Fig. 9.)

1. When plunger (A) is pushed up by operating both the pushing lever and trigger (A), the compressed air in the valve piston lower chamber is exhausted from the lower part of plunger (A). Then, the valve piston is pushed down by the compressed air from the accumulator so that it shuts off the air supply vent and releases the exhaust valve.
2. When the exhaust valve opens, the compressed air in the head valve upper chamber is exhausted into the atmosphere through air passage (A).
3. The air pressure applied against the lower surface of the head valve soon exceeds the force of the head valve spring, and pushes the head valve up. The head valve is pushed fully upward by the compressed air, and seals the upper surface of the exhaust cover and the head valve.
4. When the head valve is pushed up, the compressed air flows rapidly into the cylinder and pushes down the piston to drive a nail. At this time, the compressed air flows through the cylinder hole, into the return air chamber, through air passage (B), and into the chamber at the left side of the feed piston in the nail feeder section. When the air pressure exceeds the force of the feed spring, the feeder moves to the right.

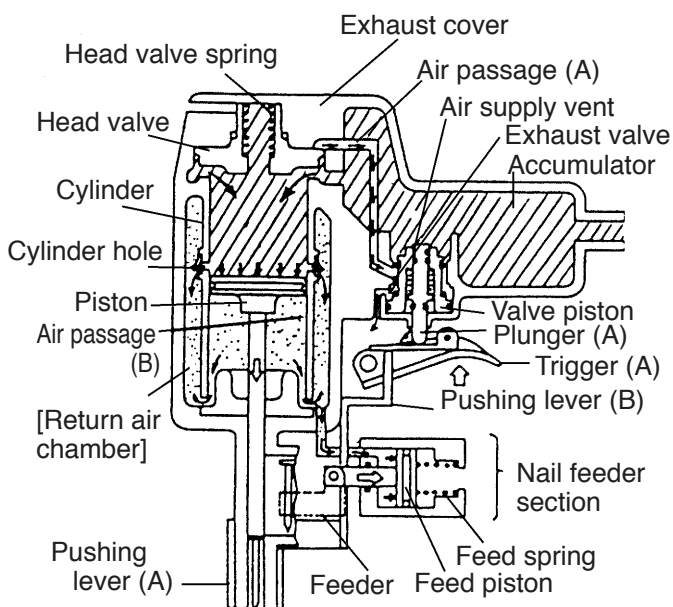


Fig. 9 During nailing (I)

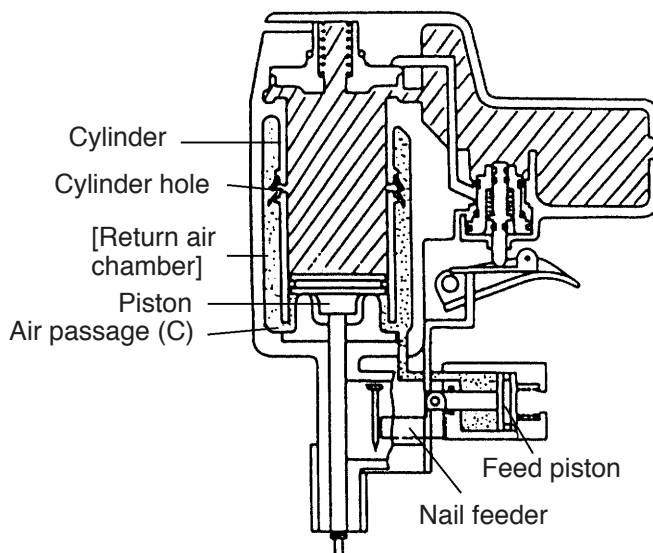


Fig. 10 During nailing (II)

(3) During nailing (II) (See Fig. 10.)

1. When the piston moves down inside the cylinder, the air below the piston flows through air passage (C) under the cylinder and is accumulated in the return air chamber together with the compressed air flowing through the cylinder hole.
2. When the compressed air in the left chamber of the feed piston moves the feed piston fully to the right, the nail feeder (feed pawl) engages the next nail.

(4) After nailing (See Fig. 11.)

1. When the trigger is released, the plunger goes down, the air supply vent opens, the valve piston goes up, and the compressed air in the accumulator passes through air passage (A) into the head valve upper chamber. The head valve is then pushed down by the head valve spring and the air pressure against the upper surface of the head valve. At the same time, the exhaust valve opens and the upper chamber of the cylinder is opened to the atmosphere.
2. When the head valve seals the upper surface of the cylinder, the compressed air accumulated in the return air chamber passes through air passage (C), presses on the lower surface of the piston, and forces the piston to return upward to its original position. Also, the compressed air above the piston is exhausted through the head valve hole.
3. The compressed air accumulated in the left chamber of the feed piston passes through air passage (B), goes into the return air chamber, and is then exhausted through the nose hole. The feed piston is then moved to the left by the force of the feed spring, and the feed pawl feeds the next nail into the ejection port. This completes one full nailing cycle.

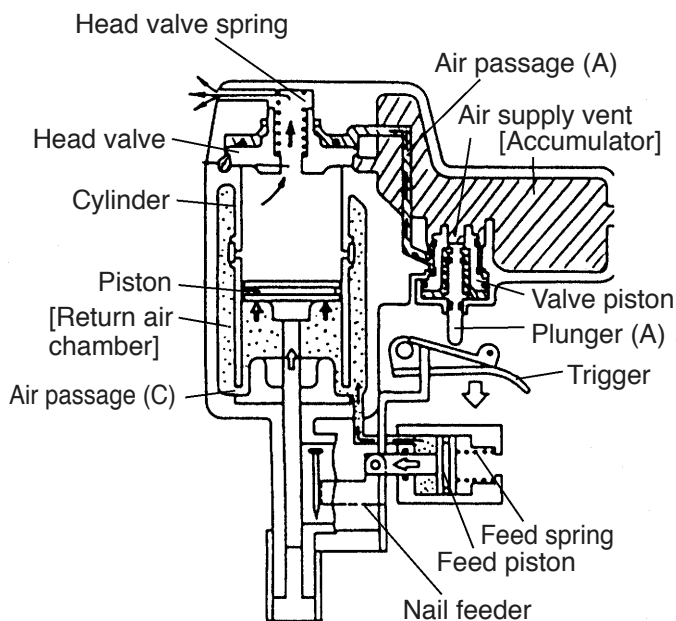


Fig. 11 During return

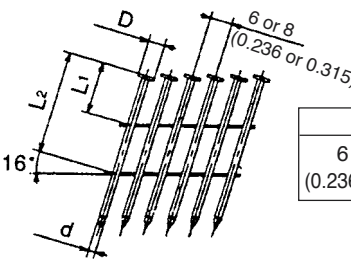
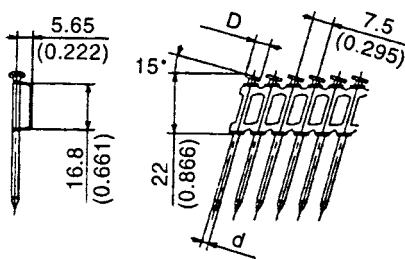
8. TROUBLESHOOTING GUIDE

8-1. Troubleshooting and Correction

Problem	Possible cause (* : Most-common cause)	Inspection method	Remedy
1) Nails cannot be driven.	<Nails> <ul style="list-style-type: none"> Magazine is not loaded with specified genuine nails. Magazine is loaded with abnormal nails (bent nails, too large or too small nail heads, abnormal collation, others). Nails or link pieces are jammed. Link pieces are deformed or broken. 	<ul style="list-style-type: none"> Check that the magazine is correctly loaded with specified nails. 	<ul style="list-style-type: none"> Use specified nails. Remove the abnormal nails and load the nailer with proper nails.
	<Driving section: Nose, feeder, feed piston, etc.> <ul style="list-style-type: none"> Sliding resistance of the feed piston is too high. 	<ul style="list-style-type: none"> Remove the feed piston and check the feed piston sliding surface of the nose. 	<ul style="list-style-type: none"> Apply grease to the sliding surface. Polish the scratched portion with sandpaper. Replace the parts.
	<ul style="list-style-type: none"> Nail guide face of the nose is abnormal (deformed, burrs or damaged). Feed spring or feeder spring is abnormal (damaged or fatigued). Feeder is abnormal (damaged or worn). 	<ul style="list-style-type: none"> Check that the driving section is not abnormal (burrs, deformed, damaged or worn). 	<ul style="list-style-type: none"> Deburr the nail guide face. Correct the deformed part. Replace the abnormal parts.
	<ul style="list-style-type: none"> Nails are not correctly loaded in the groove of the nose. 	<ul style="list-style-type: none"> Check that nails are correctly loaded in the groove of the nose. 	<ul style="list-style-type: none"> Load nails in the correct position in the nose.
	<ul style="list-style-type: none"> Dust sticks to the feeder sliding portion of the nose, or lubrication is needed. 	<ul style="list-style-type: none"> Open the nail guide and perform idle driving to check the feeder's operation. 	<ul style="list-style-type: none"> Remove dust and then lubricate the sliding surface.
	<ul style="list-style-type: none"> Air pressure is too low. 		<ul style="list-style-type: none"> Adjust the air pressure to 4.9 – 8.3 bar (5 – 8.5 kgf/cm², 70 – 120 psi).
	<ul style="list-style-type: none"> * Air passage is clogged with broken pieces of piston bumper, etc. * Feed piston chamber contains foreign matter such as broken pieces of piston bumper, etc. 		<ul style="list-style-type: none"> Remove foreign matter. Replace the piston bumper with new one. Body ... Remove foreign matter in the return air chamber. Nose ... Remove foreign matter in the air passage and the feed piston chamber.

Problem	Possible cause (* : Most-common cause)	Inspection method	Remedy
1) Nails cannot be driven. (continued)	<ul style="list-style-type: none"> • Air leaks from the gap between the body and the nose. 		<ul style="list-style-type: none"> • Tighten screws and check the O-rings.
	<ul style="list-style-type: none"> • O-rings are worn or deformed. 		<ul style="list-style-type: none"> • Replace the O-ring.
	<ul style="list-style-type: none"> • O-rings need lubrication. 		<ul style="list-style-type: none"> • Apply grease or lubricant.
	<Nail guide section> <ul style="list-style-type: none"> • Nail guide face is abnormal (deformed, burrs or damaged). 	<ul style="list-style-type: none"> • Check that the nail guide is not abnormal (worn, deformed, damaged, etc.). • Check the operation of nail stopper (A) and nail stopper (B). 	<ul style="list-style-type: none"> • Correct or replace the parts.
	<ul style="list-style-type: none"> • Dust sticks to the inside of the nail guide groove, or lubrication is needed. 		<ul style="list-style-type: none"> • Remove dust and then lubricate.
	<ul style="list-style-type: none"> *• Spring is abnormal (missing, damaged or fatigued). • The claw ridge section of the nail stopper is abnormal (damaged, worn or burrs). 		<ul style="list-style-type: none"> • Replace the abnormal parts.
	<Magazine section> <Pushing lever> <ul style="list-style-type: none"> • Magazine 	<ul style="list-style-type: none"> • Check that a nail does not catch on another nail in the magazine. • Check that a nail does not catch on some part of the magazine. • Check the height of the nail holder. 	<ul style="list-style-type: none"> • Collate the nails correctly and reload the nailer with them. • Remove burrs or deformed part. Replace the parts. • Adjust the height of the nail holder correctly.
	<ul style="list-style-type: none"> • Pushing lever 		<ul style="list-style-type: none"> • Correct or replace the parts.
	<Output section: piston, driver blade, etc.> <ul style="list-style-type: none"> • Air pressure is too low. 	<ul style="list-style-type: none"> • Open the nail guide and perform idle driving to check that the driver blade is returned. 	<ul style="list-style-type: none"> • Adjust the air pressure to 4.9 – 8.3 bar (5 – 8.5 kgf/cm², 70 – 120 psi).
	<ul style="list-style-type: none"> *• Piston ring is abnormal (worn or damaged). 		<ul style="list-style-type: none"> • Replace the piston ring.
	<ul style="list-style-type: none"> *• Piston bumper is abnormal. 		<ul style="list-style-type: none"> • Replace the piston bumper.
	<ul style="list-style-type: none"> • O-ring in the cylinder is abnormal (removed, deformed or damaged). 		<ul style="list-style-type: none"> • Reassemble or replace the parts.
	<ul style="list-style-type: none"> • Driver blade is abnormal (deformed, burrs or damaged). 		<ul style="list-style-type: none"> • Correct or replace the part.

Problem	Possible cause (* : Most-common cause)	Inspection method	Remedy
1) Nails cannot be driven. (continued)	<ul style="list-style-type: none"> • Cylinder inside surface is abnormal (packed with dust, or worn). 	<ul style="list-style-type: none"> • Check that nails can be driven at 4.9 bar (5 kgf/cm², 70 psi). 	<ul style="list-style-type: none"> • Remove dust and then lubricate. • Replace the part.
	<ul style="list-style-type: none"> • Head valve sliding surface is abnormal (seized or damaged, or lubrication is needed). 	<ul style="list-style-type: none"> • Perform idle driving to check the driving operation. 	<ul style="list-style-type: none"> • Replace the part. • Apply grease.
	<ul style="list-style-type: none"> • Head valve rubber (A) is abnormal (removed or damaged). 	<ul style="list-style-type: none"> • Perform idle driving to check that the driver blade is not held in the down position. 	<ul style="list-style-type: none"> • Replace the part.
	<ul style="list-style-type: none"> • Head valve spring is abnormal (fatigued or damaged). 		
	<Control valve section> <ul style="list-style-type: none"> • Plunger (A), valve piston (B), valve bushing (A) or valve bushing (B) is abnormal (seized or damaged). 		<ul style="list-style-type: none"> • Replace the abnormal part.
	<ul style="list-style-type: none"> • O-rings or sliding surfaces are worn or need lubrication. 	<ul style="list-style-type: none"> • Disassemble the control valve section and check the O-rings. 	<ul style="list-style-type: none"> • Replace the abnormal part. • Apply grease.
2) Nails are driven but bent.	<ul style="list-style-type: none"> *• Adjuster is raised too high for short nails. 	<ul style="list-style-type: none"> • Check that the adjuster is not raised too high. 	<ul style="list-style-type: none"> • Turn the adjuster lower (lower the pressure).
	<ul style="list-style-type: none"> • Nails are not completely fed into the injection port. *• Unspecified nails are used. 	<ul style="list-style-type: none"> • See item 1). 	<ul style="list-style-type: none"> • See item 1).
	<ul style="list-style-type: none"> *• Driver blade is worn. 	<ul style="list-style-type: none"> • Check that the driver blade tip is not abnormally worn. 	<ul style="list-style-type: none"> • Replace the part.
	<ul style="list-style-type: none"> • Workpiece is too hard. 	<ul style="list-style-type: none"> • Check if a nail is bent even when driven into soft wood. 	<ul style="list-style-type: none"> • Nailer cannot be used because the material is beyond its applicable range.
3) Nails cannot be driven into the workpiece completely: the heads cannot be made flush.	<ul style="list-style-type: none"> • Adjuster is incorrectly set. 	<ul style="list-style-type: none"> • Turn the adjuster to the lowest position and then drive nails. 	<ul style="list-style-type: none"> • Set the adjuster to the optimum position.
	<ul style="list-style-type: none"> • Air pressure is too low. 		<ul style="list-style-type: none"> • Adjust air pressure to 4.9 – 8.3 bar (5 – 8.5 kgf/cm², 70 – 120 psi).
	<ul style="list-style-type: none"> • Workpiece is too hard. 	<ul style="list-style-type: none"> • Check if a nail is bent even when driven into soft wood. 	<ul style="list-style-type: none"> • Nailer cannot be used because the material is beyond its applicable range.

Problem	Possible cause (* : Most-common cause)	Inspection method	Remedy																		
3) Nails cannot be driven into the workpiece completely: the heads cannot be made flush. (continued)	*• Driver blade is worn.	• Perform idle driving to check the driver blade is projected from the nose tip.	• Replace the part.																		
	*• Piston ring is abnormal (worn or damaged). • Cylinder inside surface is abnormal (worn or rough).	• Disassemble the output section and check the piston ring and the inside of the cylinder for abnormality.	• Replace the abnormal part.																		
	• Exhaust valve rubber (A) is abnormal (worn or damaged, or seal face is scratched).	• Disassemble the exhaust valve rubber (A) and check for abnormality.	• Replace the part.																		
	• Head valve sliding surface is abnormal (seized or damaged, or lubrication is needed).	• Check the sliding surface for abnormality and lubrication.	• Replace the abnormal part. • Apply grease.																		
4) Nails jam.	<p><Nails></p> <p>*• Unspecified nails are used.</p> <p>*• Abnormal nails are mixed.</p> <p>*• Nail heads are too large or too small.</p> <p>[Wire-collated nails]</p> <p>• Collating wires are abnormal (broken, welding failed, deformed or welding position failed).</p> <p>*• Collating wires are deformed (deformed in collation angle or collation pitch).</p> <p>[Sheet-collated nails]</p> <p>*• Collating sheets are abnormal (deformed or broken).</p> <p>• Nails are removed from the sheets.</p>	<p>• Check if the specified nails are used.</p> <p>• Check the nails as follows.</p> <div><p>[Wire-collated nails]</p><table><tr><th colspan="4">Unit: mm (inch)</th></tr><tr><th>D</th><th>d</th><th>L₁</th><th>L₂</th></tr><tr><td>6 – 7.6 (0.236 – 0.300)</td><td>2.5 – 3.8 (0.099 – 0.148)</td><td>19 (0.748)</td><td>37.5 (1.476)</td></tr></table></div> <div><p>[Sheet-collated nails]</p><table><tr><th colspan="2">Unit: mm (inch)</th></tr><tr><th>D</th><th>d</th></tr><tr><td>6 (0.236)</td><td>2.5 (0.099)</td></tr></table></div>	Unit: mm (inch)				D	d	L ₁	L ₂	6 – 7.6 (0.236 – 0.300)	2.5 – 3.8 (0.099 – 0.148)	19 (0.748)	37.5 (1.476)	Unit: mm (inch)		D	d	6 (0.236)	2.5 (0.099)	<p>• Use specified nails.</p> <p>• Remove the abnormal nails and load the nailer with proper nails.</p>
Unit: mm (inch)																					
D	d	L ₁	L ₂																		
6 – 7.6 (0.236 – 0.300)	2.5 – 3.8 (0.099 – 0.148)	19 (0.748)	37.5 (1.476)																		
Unit: mm (inch)																					
D	d																				
6 (0.236)	2.5 (0.099)																				

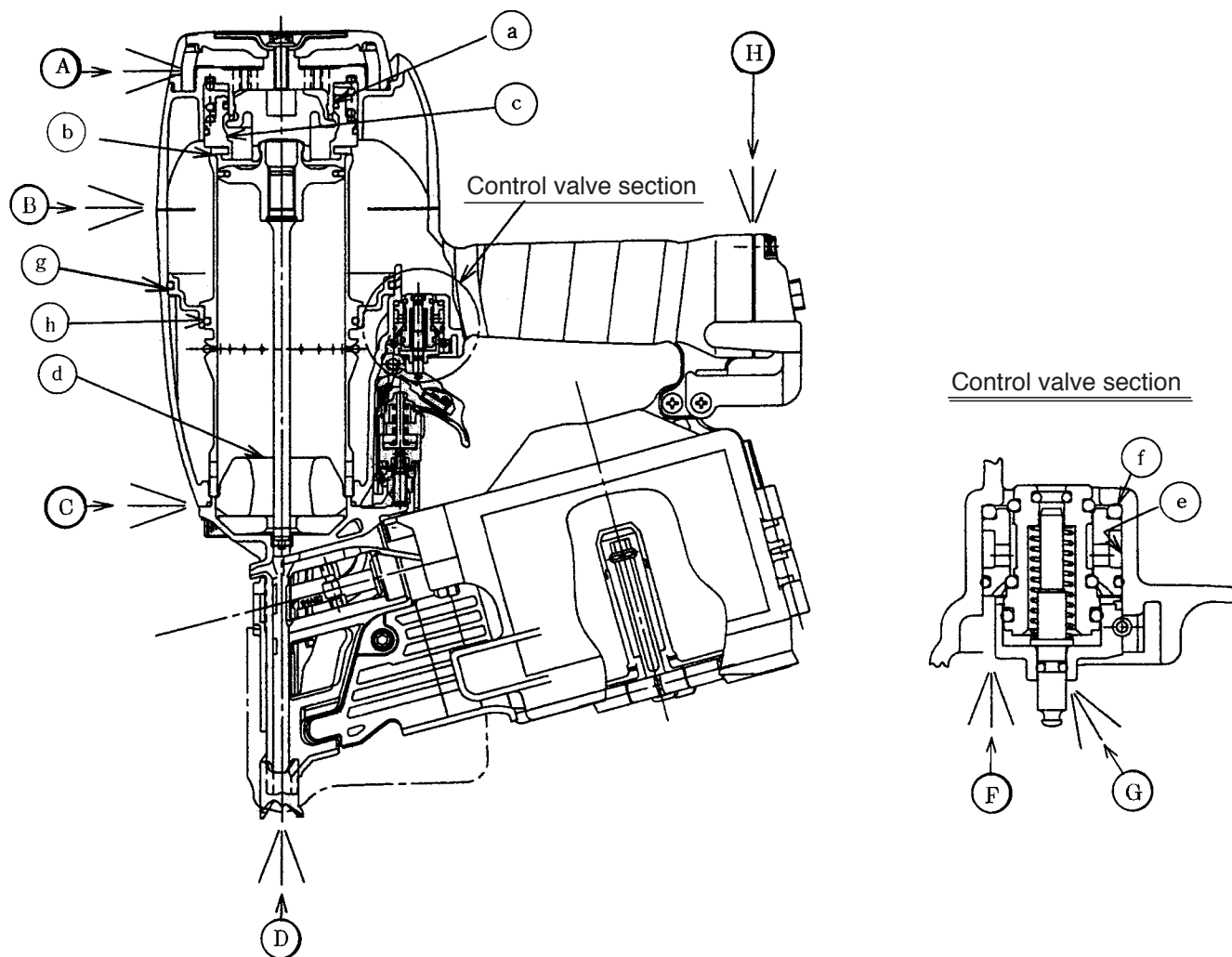
Problem	Possible cause (* : Most-common cause)	Inspection method	Remedy
4) Nails jam. (continued)	<Body: Nail feeding is incomplete.> <ul style="list-style-type: none"> • Feeder is worn and the sliding section is abnormal. • Nail guide face of the nose or the sliding section of the feeder is abnormal (deformed, burrs or damaged). • Feed spring or feeder spring is abnormal (damaged, fatigued or removed). 	<ul style="list-style-type: none"> • Open the nail guide and check the position of the feeder claw. 	<ul style="list-style-type: none"> • Replace the abnormal part.
	<Body: Nail guide section> <ul style="list-style-type: none"> • Nail guide section is abnormal. 	<ul style="list-style-type: none"> • See item "1) Nail guide section". 	<ul style="list-style-type: none"> • See item "1) Nail guide section".
	<Driver blade is not returned completely.> <ul style="list-style-type: none"> • See item "1) Output section: piston, driver blade, etc.". 	<ul style="list-style-type: none"> • Perform idle or actual driving to check if the driver blade is returned completely. 	<ul style="list-style-type: none"> • See item "1) Output section: piston, driver blade, etc.".
	<ul style="list-style-type: none"> • Air pressure is too high. 	<ul style="list-style-type: none"> • Nails may be jammed if driven at a high pressure and high speed. Check pressure and driving speed. 	<ul style="list-style-type: none"> • Adjust the air pressure to 4.9 – 8.3 bar (5 – 8.5 kgf/cm², 70 – 120 psi).

8-2. Possible Causes and Countermeasures against Air Leakage

○ Inspection priorities

- (1) First, check the items that are marked with an asterisk "*" for abnormality in the table below.
- (2) Next, check the items that are marked with a double circle "◎" (sealing parts) for wear, scratch or damage.
- (3) Finally, check the other items. (The numbers in **[Bold]** correspond to the item numbers in the Parts List and the exploded assembly diagrams.)

Air leakage repair areas



Air leak part	Cause	
	When the control valve is off	When the control valve is on
Ⓐ Exhaust vent	<ul style="list-style-type: none"> ⊙ Cylinder O-ring (B) [12] of the Head Valve [13] is abnormal, or sliding surface (Ⓐ) is worn, deformed or scratched. ⊙ The Head Valve Rubber [15] is abnormal, or the portion (Ⓑ) of sliding surface of the Cylinder [16] is worn or scratched. 	<ul style="list-style-type: none"> ⊙ The Exhaust Valve Rubber [9] is abnormal, or the portion (Ⓒ) of sliding surface of the Head Valve [13] is worn or scratched.
Ⓑ Exhaust cover	<ul style="list-style-type: none"> ○ The Nylock Bolt (W/Flange) M6 x 35 [5] is loose. ⊙ The Packing [8] is broken. ○ Sealed surface between the Body Ass'y [26] and the Exhaust Cover [7] is abnormal. 	
Ⓒ Nose 1 [Feed piston passage]		
		<ul style="list-style-type: none"> ○ The Nylock Hex. Socket Hd. Bolt M8 x 30 [40] is loose. ⊙ The O-ring (P-4) [37] is scratched or split. ⊙ The O-ring (1AS-60) [36] of the Body Ass'y [26] is abnormal (split or scratched).
Ⓓ Nose 2	<ul style="list-style-type: none"> ⊙ Plate O-ring (B) [17] and Plate O-ring (A) [19] are abnormal (split or scratched). ⊙ Sealed surface of the Cylinder Plate [20], Body Ass'y [26] and Cylinder [16] is abnormal (Ⓙ and Ⓚ portions). 	<ul style="list-style-type: none"> ⊙ Piston Bumper (A) [34] is abnormal (Ⓛ portion is deformed, cracked or damaged). ○ Piston (H) [22] is abnormal (driver blade is deformed or the sealed surface is abnormal).
Ⓔ Feed piston		<ul style="list-style-type: none"> ⊙ The O-ring (1AP-20) [78] of the Feed Piston [79] is abnormal (worn, split or scratched), or the Nose [39] of the sliding surface is worn, deformed or scratched. ⊙ The O-ring (P-9) [77] of the Nose [39] is abnormal (worn, split or scratched), or the Feed Piston [79] of the sliding surface is worn, deformed or scratched.
Ⓕ Control valve 1	<ul style="list-style-type: none"> ⊙ The O-ring (I.D 11) [106] of Valve Piston (B) [105] is abnormal (worn, split or scratched). ⊙ The O-ring (I.D 8.8) [103] (lower) of Valve Piston (B) [105] is abnormal (worn, split or scratched). ⊙ The O-ring (S-18) [102] of Valve Bushing (B) [101] is abnormal (split or scratched). * Inside of the valve chamber (Ⓜ portion) of the Body Ass'y [26] is abnormal. 	<ul style="list-style-type: none"> ⊙ The O-ring (I.D 8.8) [103] (upper) of Valve Piston (B) [105] is abnormal (worn, split or scratched). ⊙ The Head Valve O-ring (I.D 16.8) [100] of Valve Bushing (B) [101] is abnormal (split or scratched). * Upper surface of the valve chamber (Ⓨ portion) of the Body Ass'y [26] is abnormal.

Air leakage portion	Possible cause	
	When the control valve is off	When the control valve is on
Ⓒ Control valve 2	<ul style="list-style-type: none"> ⊙ The O-ring (I.D 1.8) [109] of Plunger (A) [108] is abnormal (worn, split or scratched). ○ Valve Bushing (A) [110] is abnormal. [The sliding surface of Plunger (A) [108] is deformed or scratched.] 	<ul style="list-style-type: none"> ⊙ The O-ring (S-4) [104] in Valve Piston (B) [105] is abnormal (worn, split or scratched). ○ Valve Piston (B) [105] is abnormal. [The sliding surface of Plunger (A) [108] is deformed or scratched.]
Ⓗ Cap	<ul style="list-style-type: none"> ⊙ Gasket (B) [52] is damaged. ○ The Hex. Socket Hd. Bolt M5 x 16 [54] is loose. ○ Sealed surface between the Body Ass'y [26] and the Cap [53] is abnormal (damaged, deformed or scratched). 	

9. 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.

9-1. General Precautions in Disassembly and Reassembly

- Apply grease (Nippeco SEP-3A, Code No. 930035) to the O-rings and O-rings' sliding portions. When installing the O-rings, be careful not to damage the O-rings 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 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

Bolt, screw and cap	Tightening torque N·m (kgf·cm, ft-lbs)
Nylock Hex. Socket Hd. Bolt M8 x 30 [40]	30.4 ± 2.0 (310 ± 20, 22.3 ± 0.8)
Nylock Bolt (W/Flange) M6 [1] [5]	15.7 ± 0.8 (160 ± 8, 11.5 ± 0.6)
Hex. Socket Hd. Bolt M5 x 20 [85]	8.3 ± 0.5 (85 ± 5, 6.7 ± 0.4)
Hex. Socket Hd. Bolt M5 x 16 [54]	6.4 ± 0.5 (65 ± 5, 4.7 ± 0.4)
Nylock Hex. Socket Hd. Bolt M4 x 10 [99]	4.4 ± 0.3 (45 ± 3, 3.2 ± 0.2)
Machine Screw (W/Washers) M5 [56] [58]	2.9 ± 0.3 (30 ± 3, 2.1 ± 0.2)
Air plug	24.5 ± 5 (250 ± 50, 18 ± 3.6)

9-2. Disassembly and Reassembly of the Output Section

(1) Disassembly and reassembly of the Exhaust Cover [7], Head Valve [13], Exhaust Valve Rubber [9], etc.

(See Figs. 12, 13 and 14.)

[Tools required]

- Hex. bar wrench
- Hammer

(a) Disassembly

- Remove the four Nylock Bolts (W/Flange) M6 x 35 [5] with a hex. bar wrench (5 mm). Then the entire exhaust cover unit can be removed from the Body Ass'y [26].
- Remove the Nylock Bolt (W/Flange) M6 x 20 [1] with a hex. bar wrench (5 mm). Then the Plate [2] and the Top Cover [3] can be removed.
- Insert a 4 - 5 mm dia. rod into a hole for the M6 screw of the Exhaust Cover [7] as indicated in Fig. 13 and gently hammer out the Exhaust Valve Rubber [9] with a hammer. The component parts of the exhaust valve rubber can be removed.

NOTE:

Avoid using a sharp tipped rod or a rod smaller than 4 mm dia. to protect the Exhaust Valve Rubber [9] from scratches.

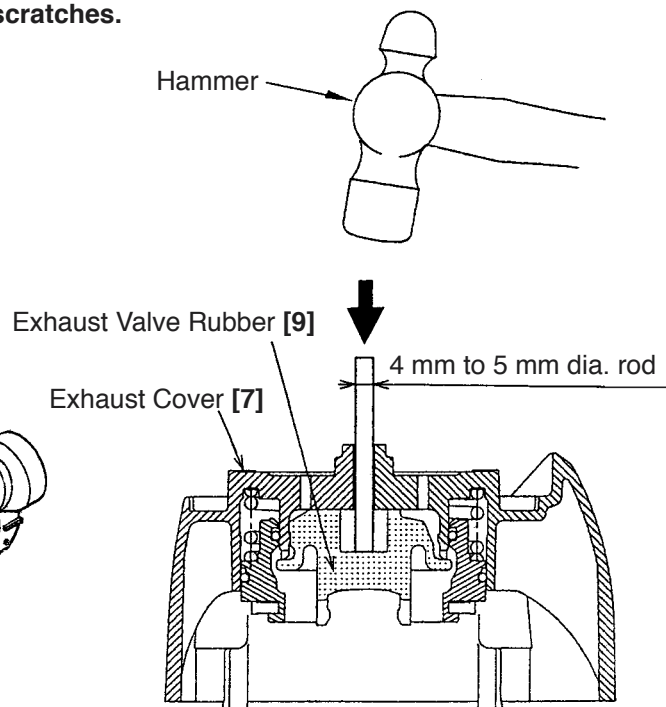
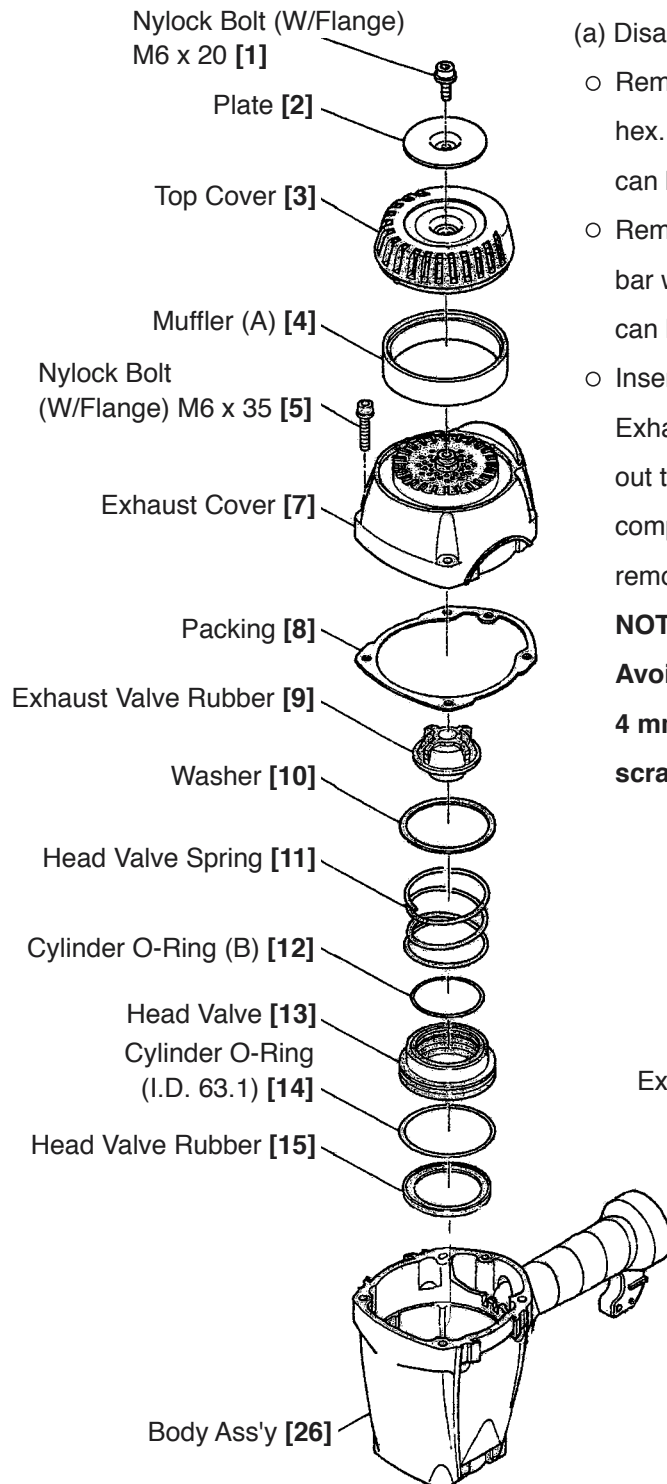


Fig. 12 Disassembly and reassembly of the exhaust cover, head valve, exhaust valve rubber, etc.

Fig. 13

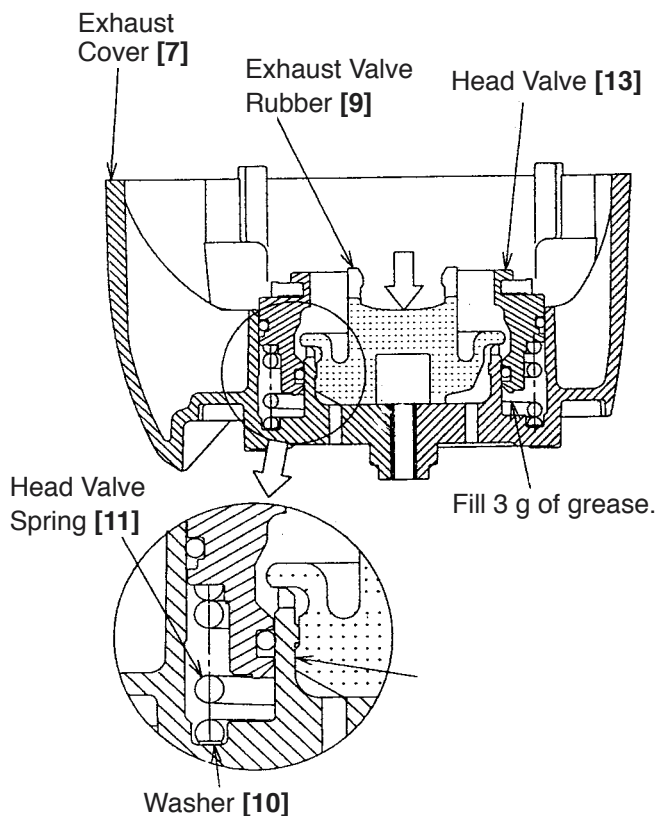


Fig. 14

(b) Reassembly

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

- Fill about 3 g of grease in the sliding area of the Head Valve [13] inside the Exhaust Cover [7], and coat the O-rings with enough grease.
- Mount the Washer [10] to the seat of the Head Valve Spring [11].
- Press the Exhaust Valve Rubber [9] hard so that it fits on the projection of the Exhaust Cover [7] as indicated in Fig. 14.

(2) Disassembly and reassembly of the Cylinder [16], Piston (H) [22], Piston Bumper (A) [34], Piston Bumper (B) [35], Protector [25], etc. (See Figs. 15, 16 and 17.)

NOTE:

If it is hard to remove the Cylinder [16] and the Cylinder Plate [20] from the Body Ass'y [26], assemble the main body and perform idle driving. Eject the driver blade from the nose by turning on the trigger and the pushing lever, and remove the air plug. Then the Cylinder [16] and the Cylinder Plate [20] move inside the Body Ass'y [26] and it becomes easy to remove them.

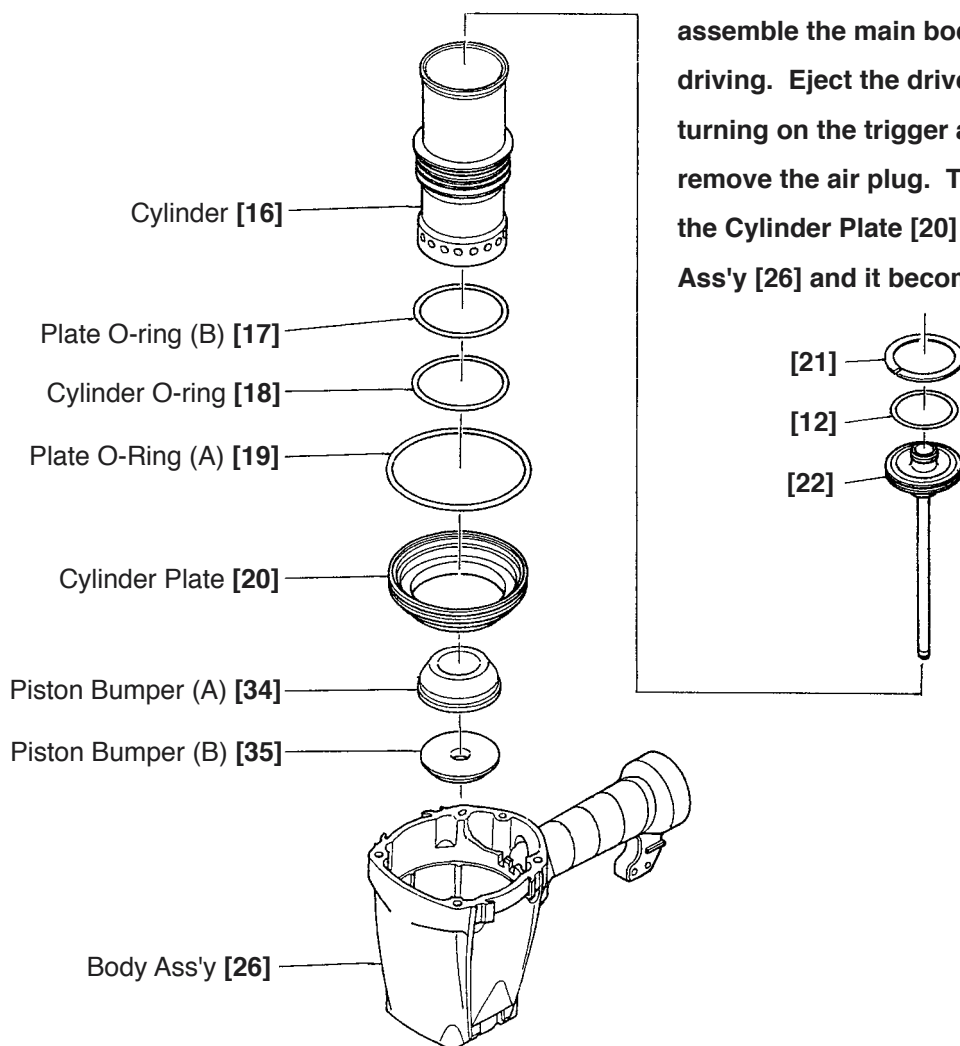


Fig. 15 Disassembly and reassembly of the cylinder, piston, etc.

(a) Disassembly

- After removal of the Exhaust Cover [7] in the above step (1), the Cylinder [16], Cylinder Plate [20], Piston (H) [22], Piston Bumper (A) [34], Piston Bumper (B) [35], etc. can be removed.
- To remove the Protector [25], release lip (A) of the Protector [25] with a flat-blade screwdriver first, then pull up lip (B) from the Body Ass'y [26] (Figs. 16 and 17).

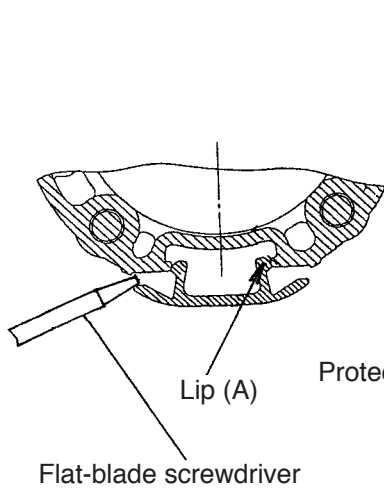


Fig. 16

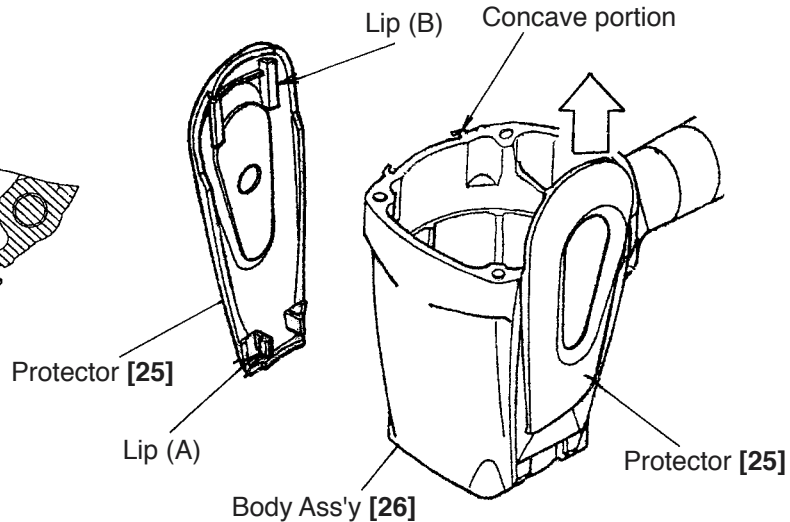


Fig. 17

(b) Reassembly

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

- Apply lubricant (Shell Tonna Oil S32, standard accessory) to the inside of the Piston Ring [21], Cylinder O-ring (B) [12] and the Cylinder [16].
- Apply grease to Plate O-ring (B) [17], Cylinder O-ring [18] and Plate O-ring (A) [19] then mount them.
- To install the Protector [25], fit lip (B) in the concave portion of the Body Ass'y [26] from the top then fit lip (A) in the Body Ass'y [26] securely adjusting its shape.
- Mount Muffler (A) [4] facing its protruded surface to the Top Cover [3] (Fig. 18).

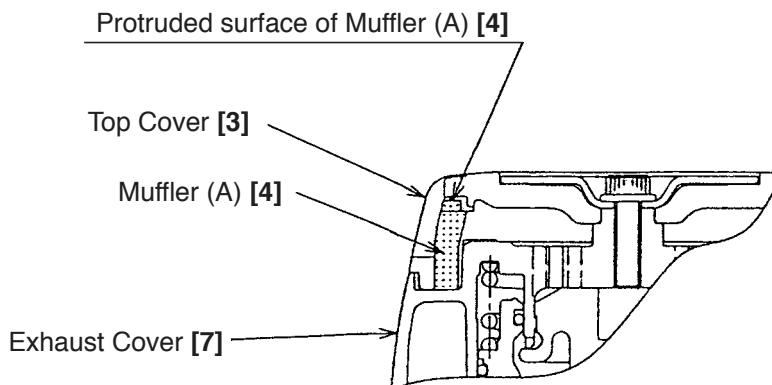


Fig. 18

9-3. Disassembly and Reassembly of the Cap

[Tool required]

- Hex. bar wrench (4 mm)

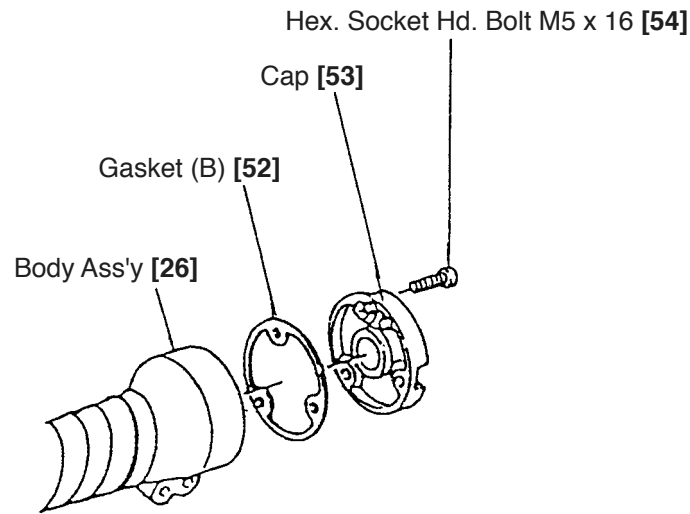


Fig. 19 Disassembly and reassembly of the cap

(a) Disassembly

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

(b) Reassembly

Disassembly procedures should be followed in the reverse order.

9-4. Disassembly and Reassembly of the Control Valve Section

[Tools required]

- Roll pin pullers (3 mm dia. and 2.5 mm dia.)

(a) Disassembly (Fig. 20)

- Remove the Retaining Ring (E-type) for D4 Shaft [23] to remove the lock knob.
- Pull out the two Roll Pins D3 x 30 [60] with the roll pin puller (3 mm dia.). Then the trigger unit can be removed from the Pushing Lever Guide [32]. The trigger unit can be disassembled by removing the Roll Pin D2.5 x 16 [65].
- Pull out the Roll Pins D3 x 28 [59] and the Roll Pins D3 x 30 [60] with the roll pin puller (3 mm dia.). Remove the control valve section in accordance with the following procedure.
 - ① Remove the Exhaust Cover [7] in accordance with the procedure of 9-2 (1) on the previous page.
 - ② Insert a thin rod into the Body Ass'y [26] through the top hole and push the top surface of Valve Piston (B) [105] as shown in Fig. 21. Then the parts forming the control valve section except Valve Bushing (B) [101], O-ring (S-18) [102] and Head Valve O-ring (I.D 16.8) [100] can be taken out.

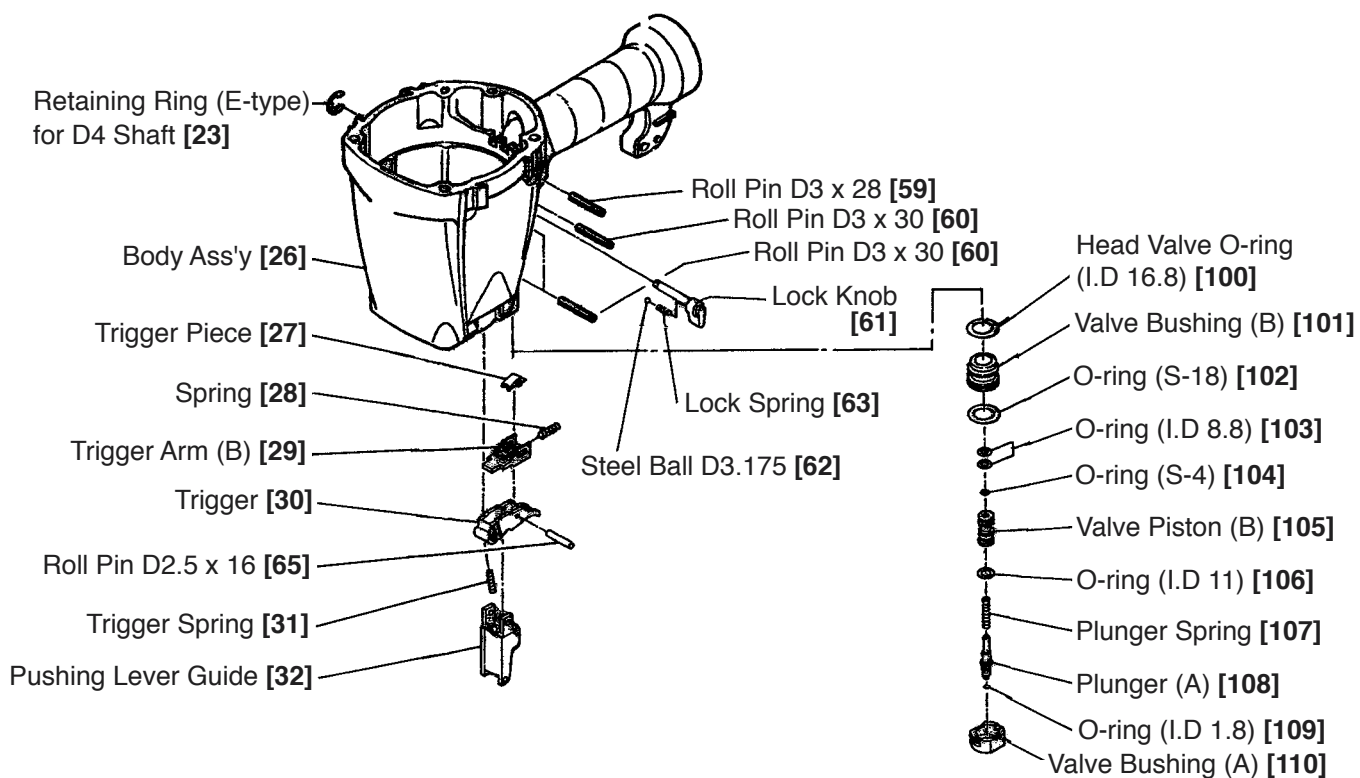


Fig. 20 Disassembly and reassembly of the control valve section

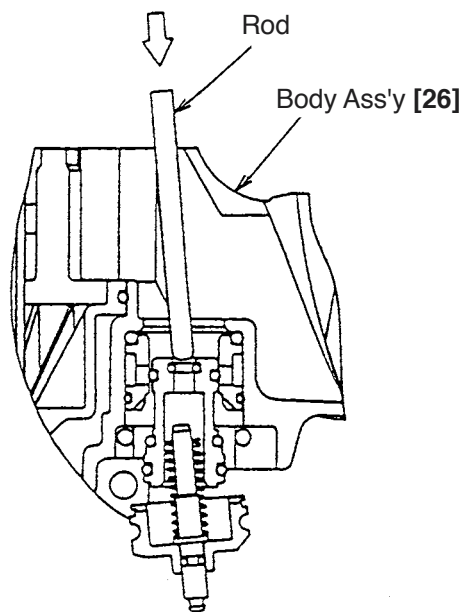


Fig. 21

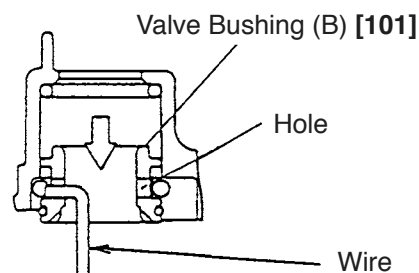


Fig. 22

- ③ Insert a hooked wire into the hole of Valve Bushing (B) [101] as shown in Fig. 22 and take out Valve Bushing (B) [101] being careful not to scratch the inside of Valve Bushing (B) [101].
- Be careful not to scratch Valve Piston (B) [105] and Valve Bushing (B) [101].
- Do not pull out the tip of Plunger (A) [108] with pliers or other tools.

(b) Reassembly

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

- Reassembly of the control valve section

- Pay special attention not to get foreign matter in the control valve section.
- Apply grease sufficiently to the O-ring (I.D 1.8) [109] of Plunger (A) [108], O-ring (S-4) [104] and O-ring (I.D 8.8) [103] of Valve Piston (B) [105].
- Mount Valve Bushing (A) [110] so that the roll pin groove of Valve Bushing (A) [110] aligns with the roll pin hole of the Body Ass'y [26]. Insert a roll pin puller (3 mm dia.) to check that it is put through the roll pin hole, then drive the Roll Pin D3 x 28 [59] and the Roll Pin D3 x 30 [60].

If the roll pins are driven forcibly in spite of the roll pin groove of Valve Bushing (A) [110] does not align with the roll pin hole of the Body Ass'y [26], the outside of Valve Bushing (A) [110] will be damaged, and disassembly and reassembly will be impossible.

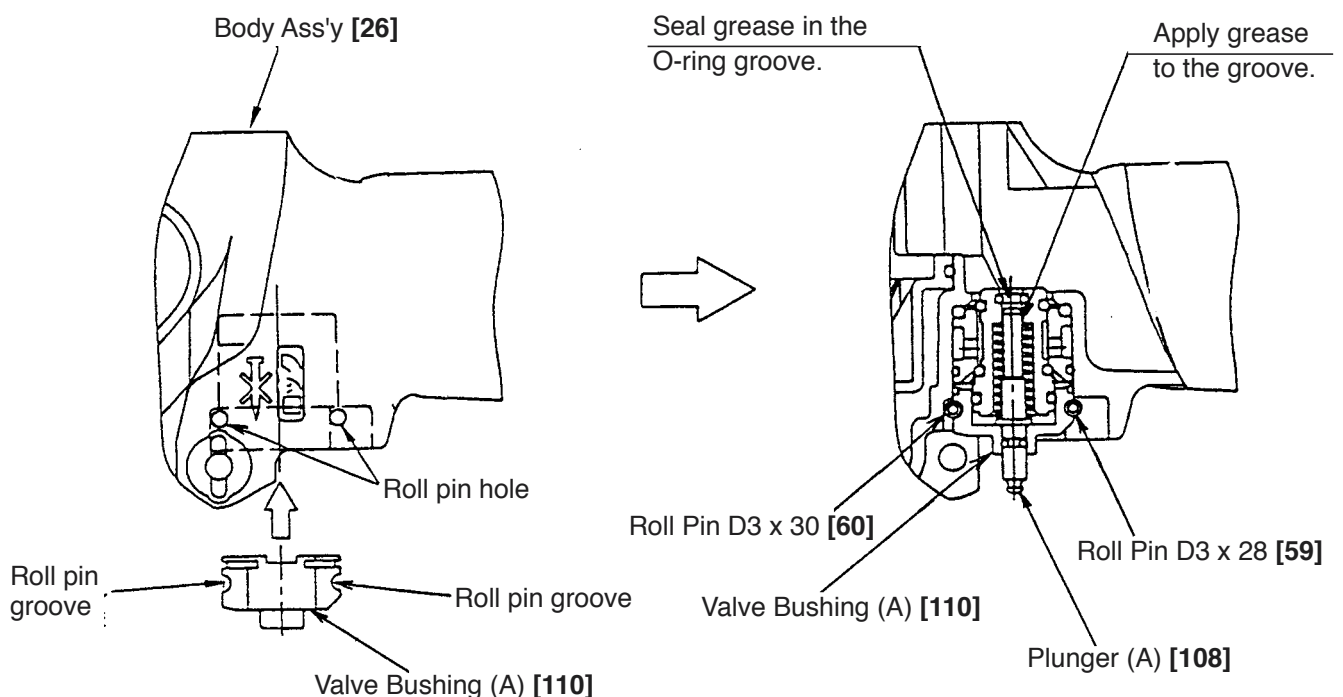


Fig. 23

- After reassembly, check that Plunger (A) [108] moves smoothly.

- Reassembly of the trigger unit

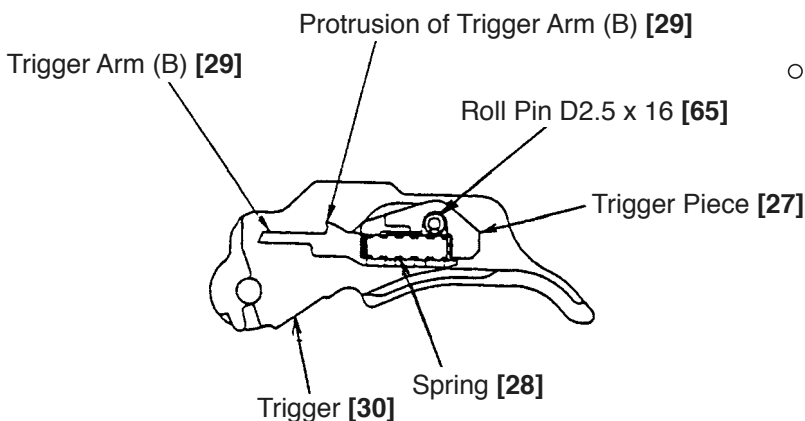


Fig. 24

- Mount Trigger Arm (B) [29] facing its protrusion upward (Fig. 24).
- Mount the Roll Pin D2.5 x 16 [65] facing its split downward.

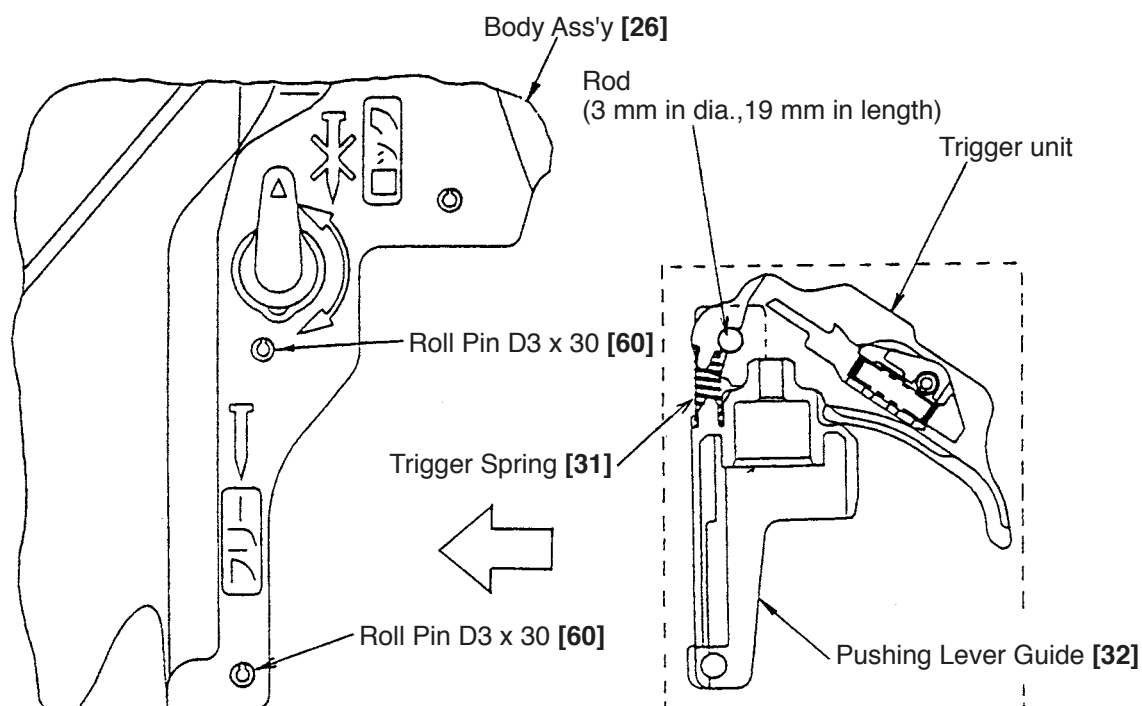


Fig. 25

- Mount the Trigger Spring [31] and the trigger unit to the Pushing Lever Guide [32] using a rod 3 mm diameter and 19 mm long before mounting the trigger unit to the Body Ass'y [26] for easier mounting.
- Mount the Roll Pin D3 x 30 [60] facing its split upward.

9-5. Disassembly and Reassembly of the Magazine Section

[Tools required] • Phillips screwdriver

- Roll pin pullers (4 mm and 2.5 mm dia.)
- 4 mm hex. bar wrench
- M5 wrench

(1) Disassembly and reassembly of the magazine section

(a) Disassembly (Fig. 26)

- Loosen the Hex. Socket Hd. Bolt M5 x 20 [85] and the Nylon Nut M5 [49] and remove the Sleeve [111] and Pushing Lever Cover (A) [112].
- Loosen the Machine Screw (W/Washers) M5 x 30 (Black) [56] of the Body Ass'y [26]. Then the magazine section and the Hook [57] can be removed.

(b) Reassembly

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

- Engage the convex portion of the Magazine [116] with the Nose [39].
- Bend the tip of the Cover [89] and fit the convex portion of the Magazine [116] in the hole of the Cover [89].
Hold it with Pushing Lever Cover (A) [112] positioning the Cover [89] outside Pushing Lever Cover (A) [112].
- The name plate is adhered to the magazine cover. When replacing the magazine cover, also prepare the name plate and adhere it to the new magazine cover.

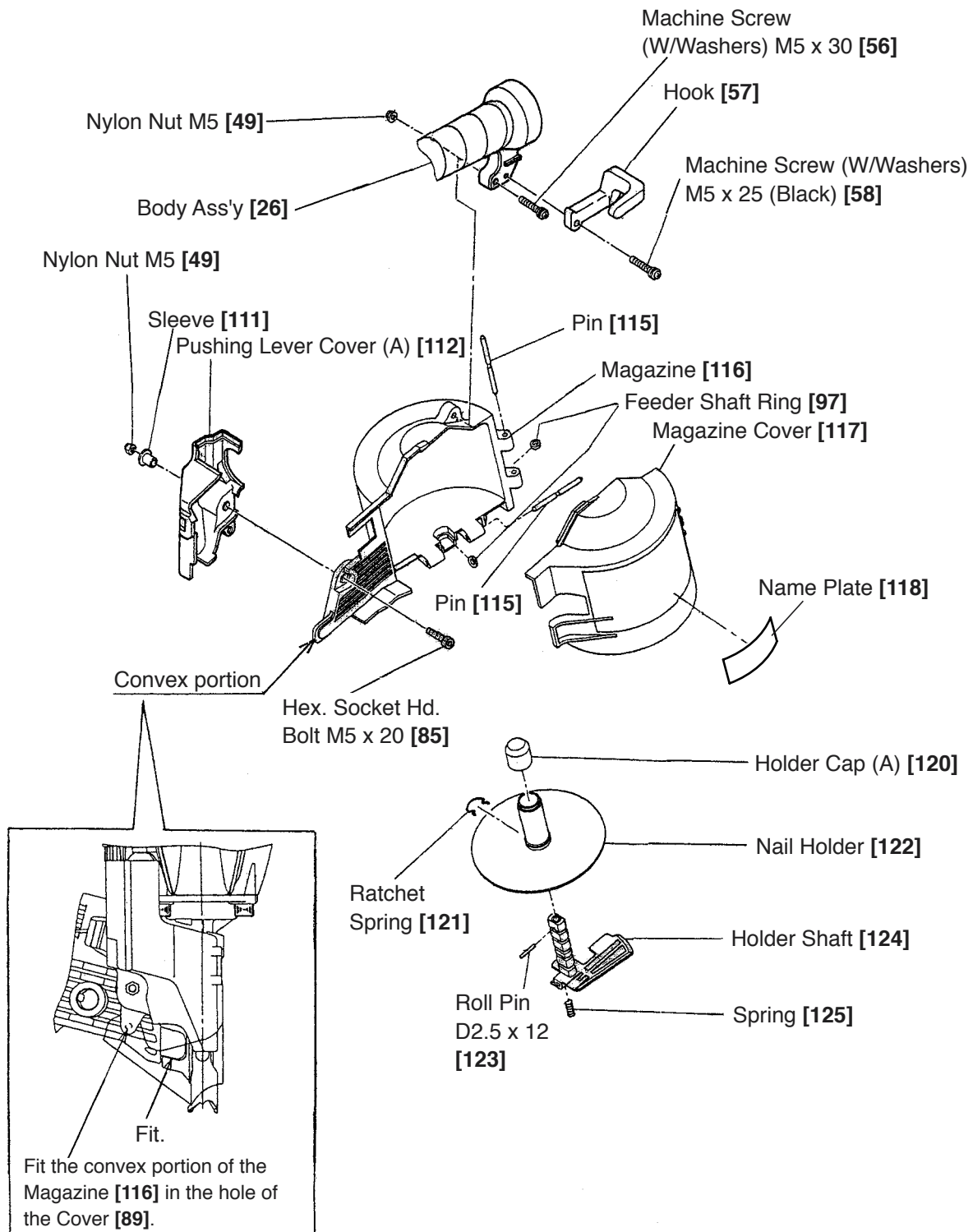


Fig. 26 Disassembly and reassembly of magazine section

(2) Disassembly and reassembly of Nail Holder [122], Holder Shaft [124] and others

(a) Disassembly

Pull out the two Pins [115] using a roll pin puller (4 mm dia.). Then the Magazine [116] and the Magazine Cover [117] can be removed. Remove Holder Cap (A) [120] and pull out the Roll Pin D2.5 x 12 [123] using a roll pin puller (2.5 mm dia.). Then the Nail Holder [122], Holder Shaft [124] and Spring [125] can be removed.

(b) Reassembly

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

- When mounting the Holder Shaft [124] to the Magazine [116], check that the Spring [125] is securely inserted between the concave portion of the Magazine [116] and the convex portion of the Holder Shaft [124], then insert the Pin [115] (Fig. 27).
- Check that the two Feeder Shaft Rings [97] are securely inserted into the grooves of the Pins [115] (2 pcs.). Be careful not to lose the Feeder Shaft Rings [97].
- Check the following after reassembly:
 - The Nail Holder [122] tilts when opening the Magazine Cover [117].
 - The Nail Holder [122] is housed in the Magazine [116] smoothly when closing the Magazine Cover [117].

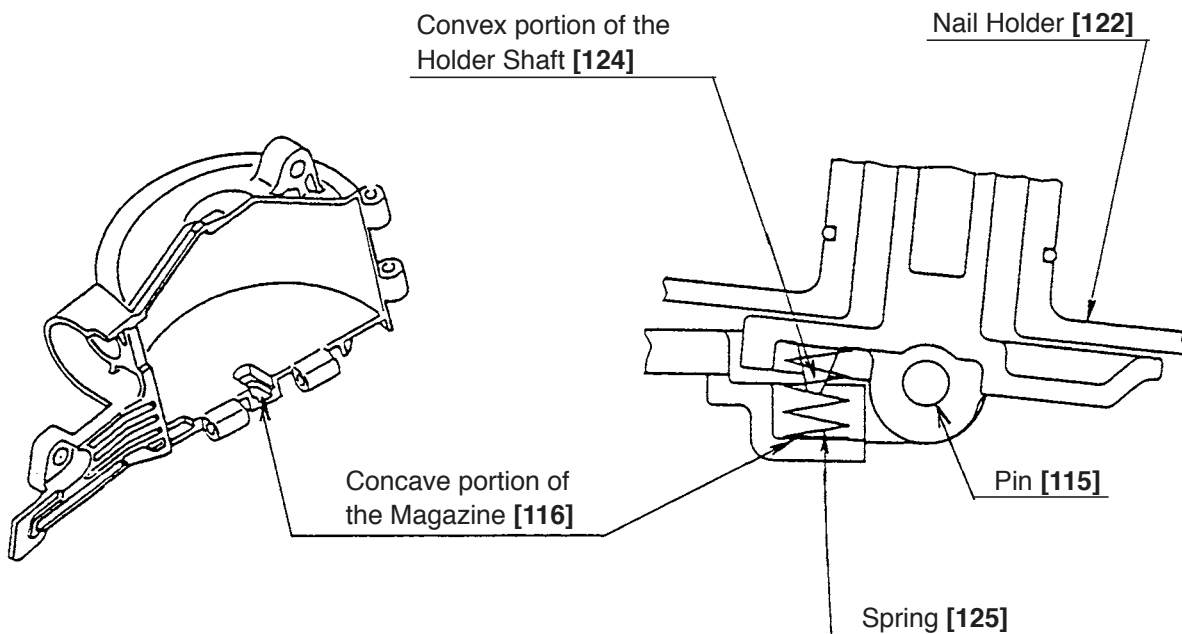


Fig. 27

9-6. Disassembly and reassembly of the Driving Section

[Tools required] ○ Hex. bar wrench (5 mm)

○ Roll pin puller (4 mm and 2 mm dia.)

○ Retaining ring (C-type) puller

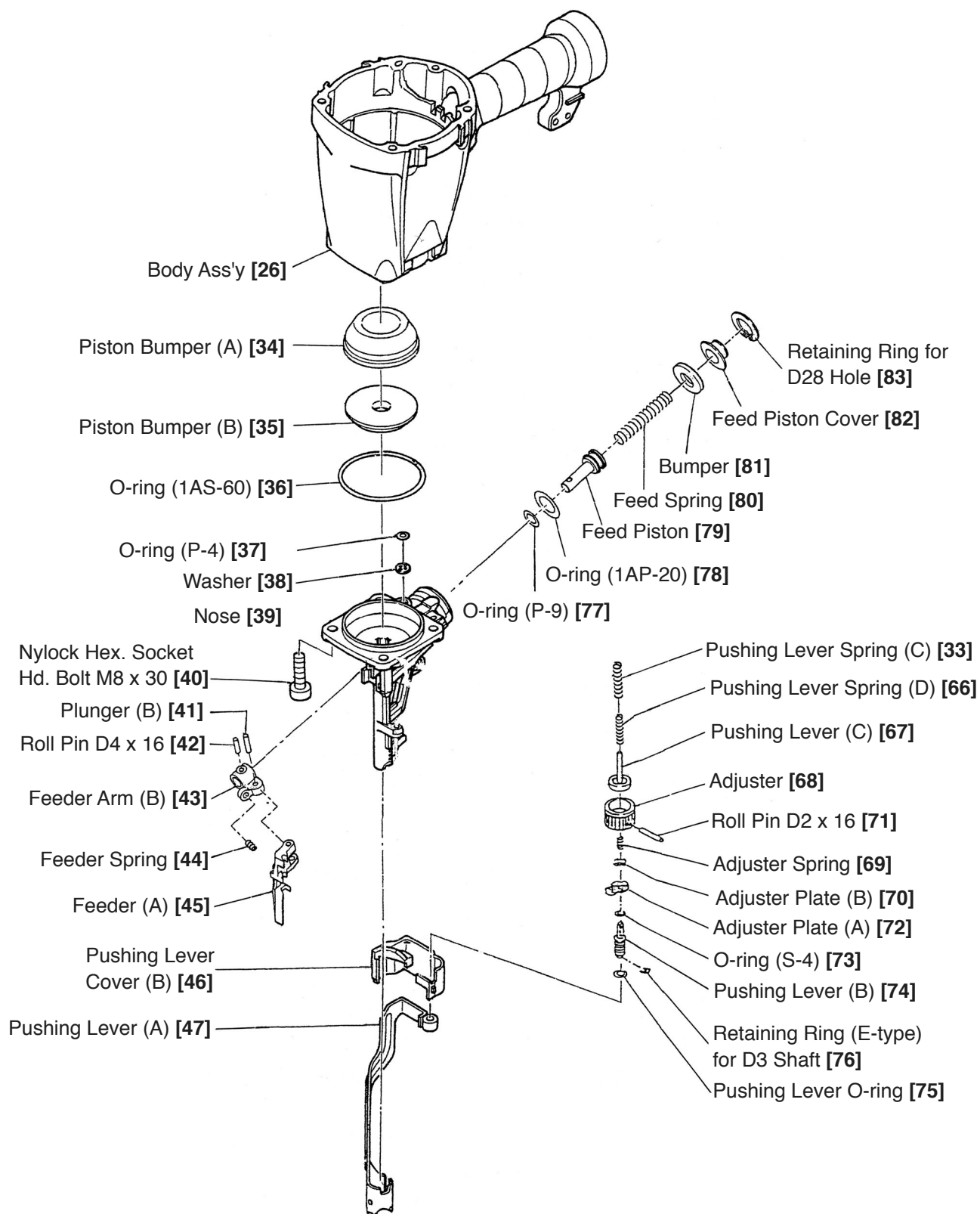


Fig. 28 Disassembly and reassembly of the driving section

(1) Disassembly and reassembly of Nose [39], Pushing Lever (A) [47] and others

(a) Disassembly (Figs. 28 and 29)

Remove the four Nylock Hex. Socket Hd. Bolts M8 x 30 [40]. Then the Nose [39], Pushing Lever (A) [47] and other parts can be removed.

(b) Reassembly

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

- Apply grease to the O-ring (1AS-60) [36] and mount it in the groove of the Nose [39].
- Align the bent portion of Adjuster Plate (A) [72] with the concave portion of the Pushing Lever Guide [32].
- After reassembly, check that the components of the pushing lever and the Adjuster [68] move smoothly.

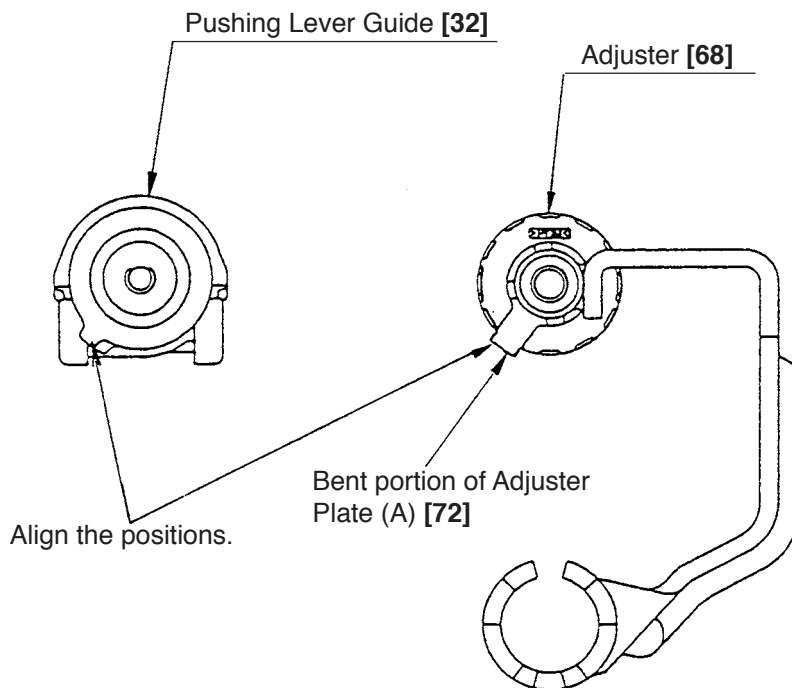


Fig. 29

(2) Disassembly and reassembly of the adjuster unit

(a) Disassembly (Fig. 30)

- Remove the Retaining Ring (E-type) for D3 Shaft [76]. Then Pushing Lever (A) [47], Pushing Lever Cover (B) [46] and the adjuster unit can be removed.
- Pull out the Roll Pin D2 x 16 [71]. Then the adjuster unit can be disassembled.

(b) Reassembly

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

- Mount Adjuster Plate (A) [72] facing its bent portion toward the Adjuster [68].
- Mount Adjuster Plate (B) [70] facing its convex portion toward Adjuster Plate (A) [72].

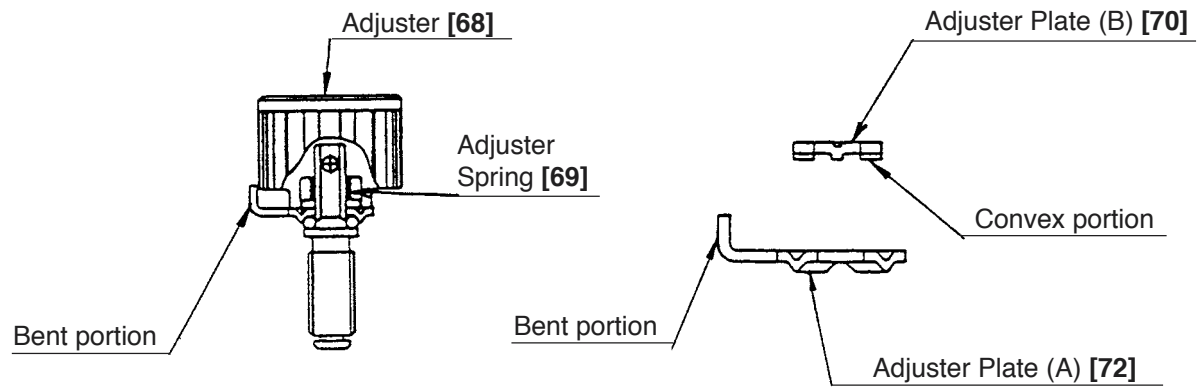


Fig. 30

(3) Disassembly and reassembly of Piston Bumper (A) [34], Feeder (A) [45], Feed Piston [79] and other parts (Fig. 31)

(a) Disassembly

- Remove the Nose [39] and the parts forming the pushing lever from the output section in accordance with the procedure in 9-5 (1). Then Piston Bumper (A) [34] can be removed.
- Holding the Feed Piston Cover [82] with fingers, remove the Retaining Ring for D28 Hole [83] with a retaining ring puller. Then the Feed Piston Cover [82], Bumper [81] and Feed Spring [80] can be removed.
- Pull out the Roll Pin D4 x 16 [42] with a roll pin puller (4 mm dia.). Then the Feed Piston [79] and Feeder Arm (B) [43] can be removed.
- Push out Plunger (B) [41] with a roll pin puller (4 mm dia.). Then Feeder Arm (B) [43], Feeder (A) [45] and Feeder Spring [44] can be removed.

(b) Reassembly

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

- Before replacing Piston Bumper (A) [34], clean the passages of the Body Ass'y [26] and the Nose [39] (Fig. 31) and the inside of the feed piston chamber (Fig. 32). If clogged with fragments of Piston Bumper (A) [34], the Feed Piston [79] will not work properly.

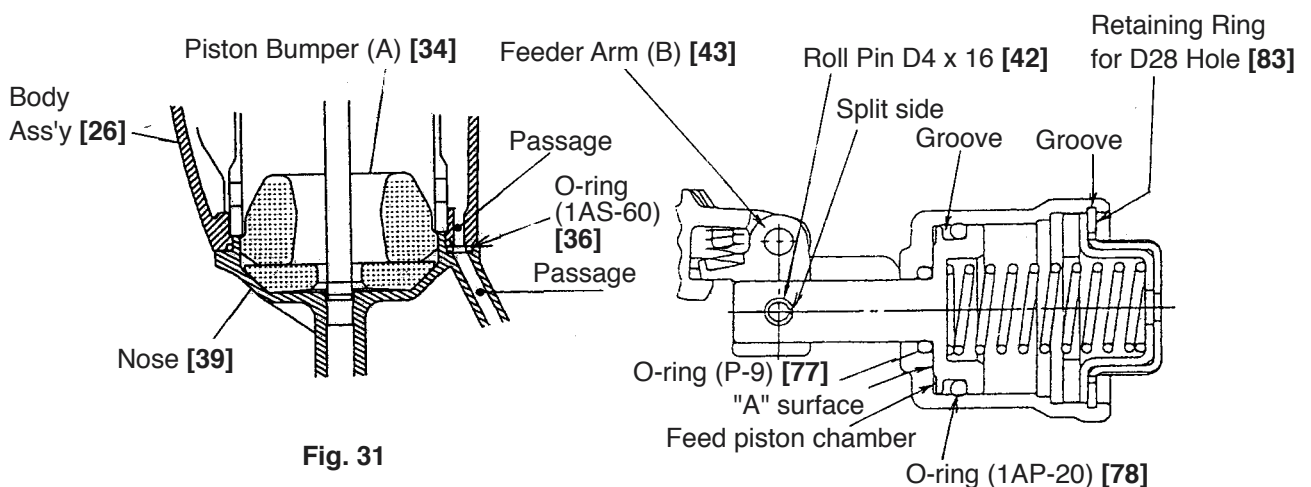


Fig. 31

Fig. 32

- Apply grease to O-ring (P-9) [77] and O-ring (1AP-20) [78].
- Seal grease in the groove of the Feed Piston [79] (Fig. 32).

- Apply grease to the sliding surfaces of the Feed Piston [79] and the Nose [39]. However, be careful not to apply too much grease to the "A" surface shown in Fig. 32. Otherwise, the Feed Piston [79] operates improperly at the low pressure.
- Mount the Roll Pin D4 x 16 [42] facing its split toward the magazine. The amount of protrusion at both ends must be equal after reassembly.
- Check that the Retaining Ring for D28 Hole [83] is securely inserted into the groove of the Nose [39].

(4) Disassembly and reassembly of Nail Guide [86], Nail Stopper (A) [93], Nail Stopper (B) [95] and other parts (Fig. 33)

- [Tools required]
- Flat-blade screwdriver
 - 3 mm hex. bar wrench

(a) Disassembly

- Remove the Shaft Ring [84] from the Nail Guide Shaft [88] with a flat-blade screwdriver and remove the Nail Guide Shaft [88]. Then the Nail Guide [86] and other parts can be removed in an assembly.
- Remove the Nylock Hex. Socket Hd. Bolt M4 x 10 (2 pcs.) [99] with a hex. bar wrench (3 mm). Then the Nail Guide Cover [87], Stopper Spring (A) [94], Stopper Spring (B) [96] and Cover [89] can be removed.
- Remove the Shaft Ring [84] from the Guide Lock [91] with a flat-blade screwdriver. Remove the Guide Lock [91] and the Feeder Shaft Ring [97] from the Shaft [90]. Then Nail Stopper (A) [93] and Nail Stopper (B) [95] can be removed.

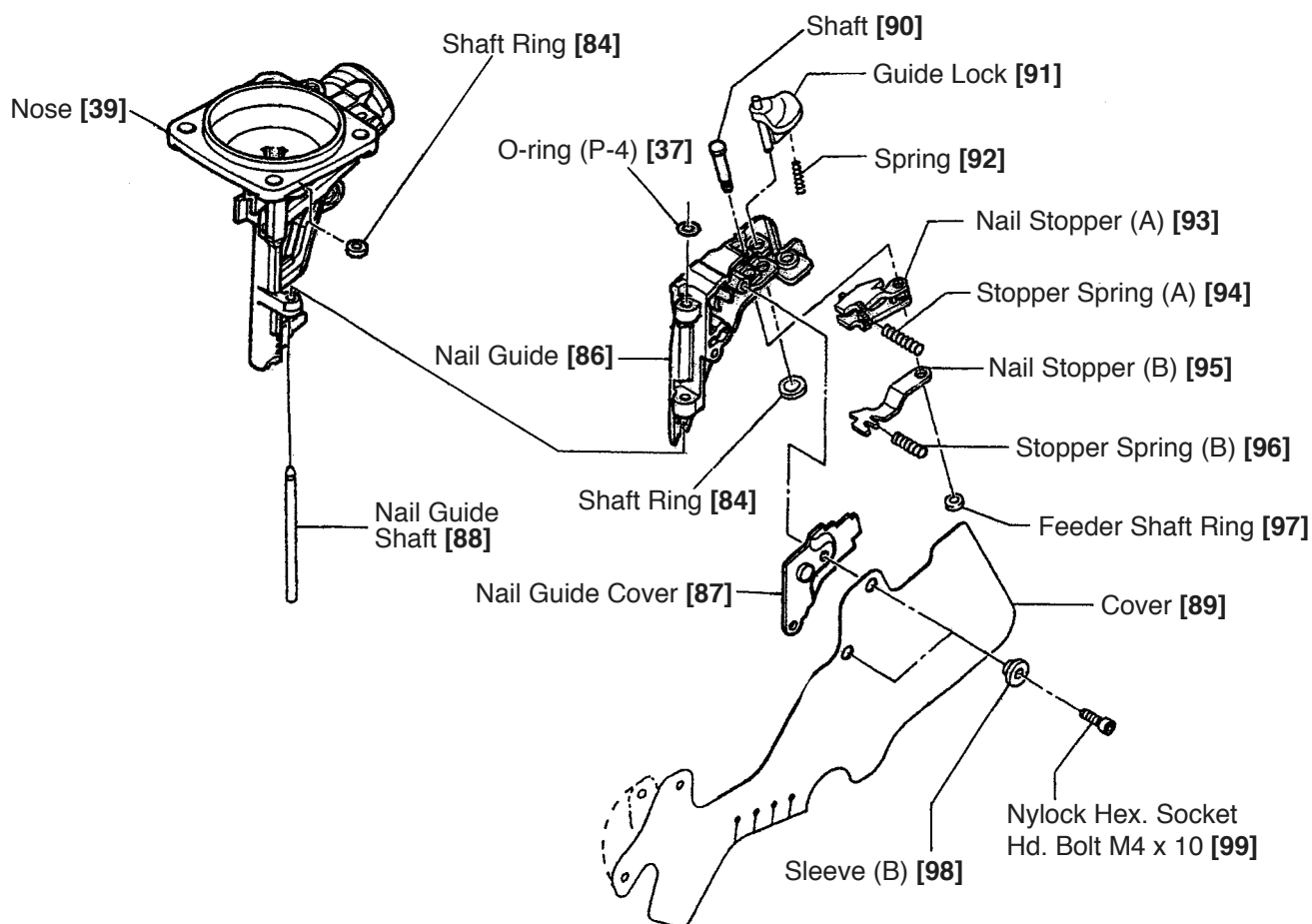


Fig. 33 Disassembly and reassembly of the nail guide, nail stopper (A) and nail stopper (B)

(b) Reassembly

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

- Before reassembly, remove dust from the groove of the Nail Guide [86].
- Fit the convex portions of Nail Stopper (A) [93] and Nail Stopper (B) [95] in Stopper Spring (A) [94] and Stopper Spring (B) [96] securely.
- After reassembly, push Nail Stopper (A) [93] and Nail Stopper (B) [95] with fingers to check that they return smoothly.
- Mount the Nail Guide Shaft [88] facing its chamfered side upward.
- Bend the tip of the Cover [89] and engage it with the convex portion of the Magazine [116] (Fig. 26).

10. INSPECTION AND CONFIRMATION AFTER REASSEMBLY

- Check that Plunger (A) [108] moves smoothly.
- Check that Pushing Lever (A) [47] slides smoothly.
- Push Nail Stopper (A) [93] and Nail Stopper (B) [95] with fingers to check that they return securely.
- Check that there is no air leakage from each part.
- Check that the Model NV 90AB2 will not operate only by pulling the Trigger [30]. Also check that the Model NV 90AB2 will not operate only by depressing Pushing Lever (A) [47].
- Check that the Feed Piston [79] operates properly with an air pressure of 4.9 bar (5 kgf/cm², 70 psi).
(Open the nail guide and perform idle driving.)
- Check that there is no idle driving or bending nails when driving nails with an air pressure of 4.9 bar (5 kgf/cm², 70 psi).

NOTE: Before conducting the driving test, turn the Adjuster [68] to the deepest position.

- Check the tightening torque of each screw again.

11. STANDARD REPAIR TIME (UNIT) SCHEDULES

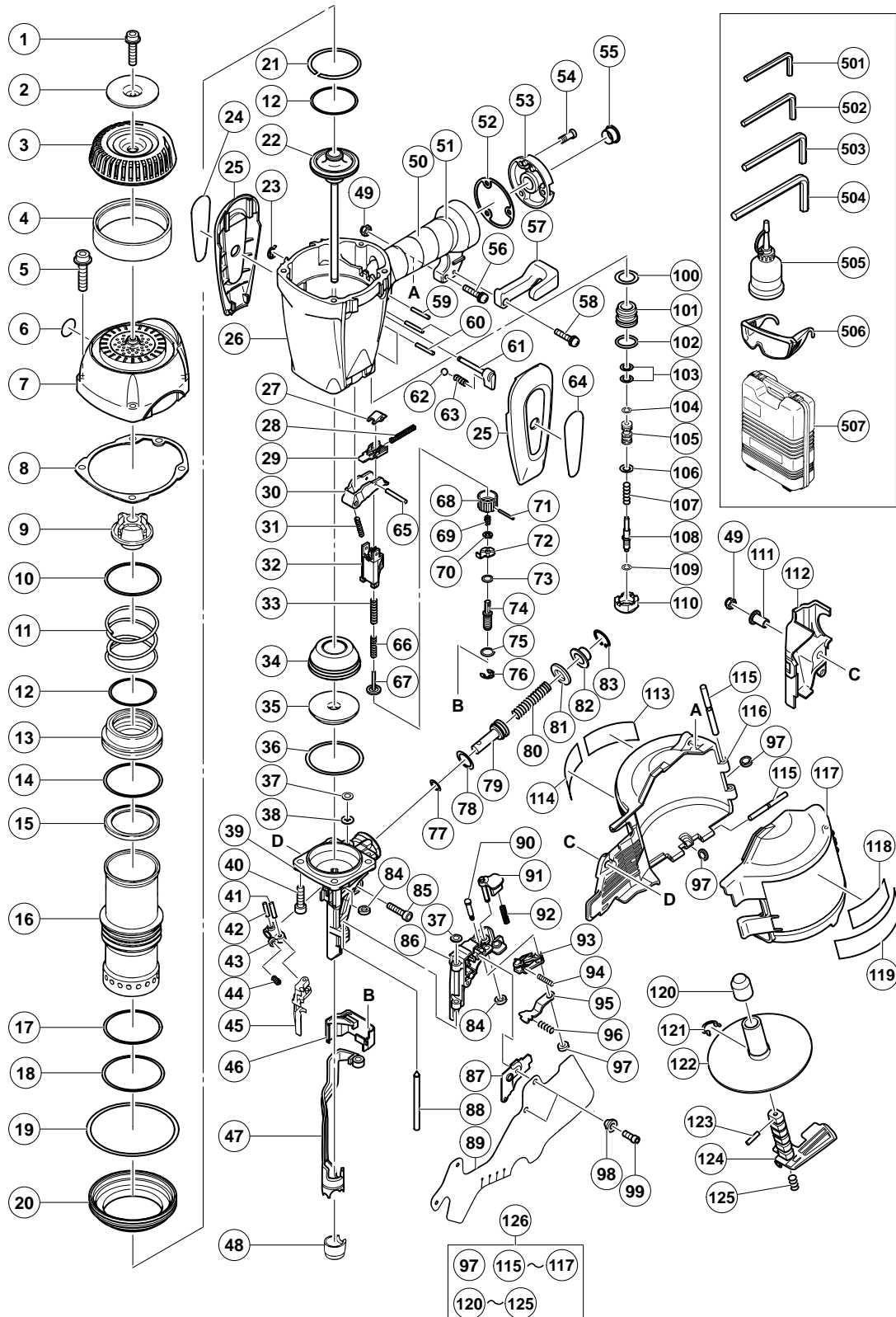
MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
NV 90AB2		Work Flow						
			Exhaust Cover Packing Exhaust Valve Rubber Head Valve Spring Cylinder O-ring (B) Head Valve Piston (H) Cylinder O-ring (B) Piston Ring Piston Bumper (A) Piston Bumper (B) O-ring	Cylinder Cylinder O-ring Head Valve Rubber Plate O-ring (B) Cylinder O-ring Plate O-ring (A) Cylinder Plate				
		General Assembly	Pushing Lever (A) Pushing Lever Guide Pushing Lever Spring (C) Pushing Lever Cover (B) Pushing Lever Spring (D) Pushing Lever (C) Adjuster O-ring Pushing Lever (B) Pushing Lever O-ring Feed Piston O-ring x 2 Feed Spring Bumper Feed Piston Cover	Valve Bushing (B) Head Valve O-ring O-ring x 6 Valve Piston (B) Plunger Spring Plunger (A) Valve Bushing (A) Lock Knob Lock Spring Feeder Arm (B) Plunger (B) Feeder Spring Feeder (A) Adjustment (Cylinder, Body, Valve)				Body Ass'y
					Nose Magazine Ass'y Nail Guide Nail Guide Cover Guide Lock Nail Stopper (A) Nail Stopper (B) Magazine Cover Nail Holder			

PNEUMATIC TOOL PARTS LIST

COIL NAILER Model NV 90AB2

2005 • 1 • 20

(E1)



PARTS

NV 90AB2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	881-969	NYLOCK BOLT (W/FLANGE) M6X20	1		
2	883-321	PLATE	1		
3	883-319	TOP COVER	1		
4	883-320	MUFFLER (A)	1		
5	318-451	NYLOCK BOLT (W/FLANGE) M6X35	4		
6	883-513	WARNING LABEL (A)	1		
7	884-397	EXHAUST COVER	1		
8	883-317	PACKING	1		
9	881-945	EXHAUST VALVE RUBBER	1		
10	883-328	WASHER	1		
11	881-944	HEAD VALVE SPRING	1		
12	877-124	CYLINDER O-RING (B)	2		
13	881-942	HEAD VALVE	1		
14	877-312	CYLINDER O-RING (I.D 63.1)	1		
15	881-943	HEAD VALVE RUBBER	1		
16	883-310	CYLINDER	1		
17	883-312	PLATE O-RING (B)	1		
18	883-311	CYLINDER O-RING	1		
19	883-314	PLATE O-RING (A)	1		
20	883-327	CYLINDER PLATE	1		
21	881-930	PISTON RING	1		
22	883-290	PISTON (H)	1		
23	968-643	RETAINING RING (E-TYPE) FOR D4 SHAFT	1		
24		HITACHI LABEL (R)	1		
25	884-394	PROTECTOR	2		
26	884-396	BODY ASS'Y	1	INCLUD. 50, 51	
27	882-896	TRIGGER PIECE	1		
28	882-897	SPRING	1		
29	882-895	TRIGGER ARM (B)	1		
30	882-894	TRIGGER	1		
31	883-759	TRIGGER SPRING	1		
32	882-885	PUSHING LEVER GUIDE	1		
33	884-398	PUSHING LEVER SPRING (C)	1		
34	883-291	PISTON BUMPER (A)	1		
35	881-967	PISTON BUMPER (B)	1		
36	956-996	O-RING (1AS-60)	1		
37	874-436	O-RING (P-4)	2		
38	878-964	WASHER	1		
39	883-293	NOSE	1		
40	306-437	NYLOCK HEX. SOCKET HD. BOLT M8X30	4		
41	883-093	PLUNGER (B)	1		
42	949-497	ROLL PIN D4X16 (10 PCS.)	1		
43	883-144	FEEDER ARM (B)	1		
44	883-143	FEEDER SPRING	1		
45	883-299	FEEDER (A)	1		
46	883-307	PUSHING LEVER COVER (B)	1		
47	883-303	PUSHING LEVER (A)	1		
48	883-106	NOSE CAP (A)	1		
49	877-371	NYLON NUT M5	2		
50	881-768	GRIP TAPE (A)	1		
51	880-407	TAPE	2		

PARTS

NV 90AB2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
52	883-309	GASKET (B)	1		
53	881-949	CAP	1		
54	949-821	HEX. SOCKET HD. BOLT M5X16 (10 PCS.)	3		
55	872-035	DUST CAP	1		
56	880-881	MACHINE SCREW (W/WASHERS) M5X30 (BLACK)	1		
57	881-827	HOOK	1		
58	880-734	MACHINE SCREW (W/WASHERS) M5X25 (BLACK)	1		
59	949-865	ROLL PIN D3X28 (10 PCS.)	1		
60	949-866	ROLL PIN D3X30 (10 PCS.)	3		
61	884-400	LOCK KNOB	1		
62	959-148	STEEL BALL D3.175 (10 PCS.)	1		
63	882-923	LOCK SPRING	1		
64		HITACHI LABEL (L)	1		
65	881-951	ROLL PIN D2.5X16	1		
66	884-399	PUSHING LEVER SPRING (D)	1		
67	882-891	PUSHING LEVER (C)	1		
68	882-889	ADJUSTER	1		
69	882-890	ADJUSTER SPRING	1		
70	882-887	ADJUSTER PLATE (B)	1		
71	880-093	ROLL PIN D2X16	1		
72	882-886	ADJUSTER PLATE (A)	1		
73	981-317	O-RING (S-4)	1		
74	882-888	PUSHING LEVER (B)	1		
75	883-304	PUSHING LEVER O-RING	1		
76	872-971	RETAINING RING (E-TYPE) FOR D3 SHAFT	1		
77	872-645	O-RING (P-9)	1		
78	944-486	O-RING (1AP-20)	1		
79	883-300	FEED PISTON	1		
80	883-301	FEED SPRING	1		
81	877-711	BUMPER	1		
82	880-331	FEED PISTON COVER	1		
83	939-555	RETAINING RING FOR D28 HOLE (10 PCS.)	1		
84	880-319	SHAFT RING	2		
85	949-757	HEX. SOCKET HD. BOLT M5X20 (10 PCS.)	1		
86	883-294	NAIL GUIDE	1		
87	883-295	NAIL GUIDE COVER	1		
88	883-298	NAIL GUIDE SHAFT	1		
89	883-296	COVER	1		
90	883-297	SHAFT	1		
91	880-318	GUIDE LOCK	1		
92	880-446	SPRING	1		
93	883-329	NAIL STOPPER (A)	1		
94	883-088	STOPPER SPRING (A)	1		
95	883-086	NAIL STOPPER (B)	1		
96	883-087	STOPPER SPRING (B)	1		
97	877-826	FEEDER SHAFT RING	3		
98	878-337	SLEEVE (B)	2		
99	880-413	NYLOCK HEX. SOCKET HD. BOLT M4X10	2		
100	877-699	HEAD VALVE O-RING (I.D 16.8)	1		
101	878-881	VALVE BUSHING (B)	1		
102	878-885	O-RING (S-18)	1		

PARTS

NV 90AB2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
103	878-925	O-RING (I.D 8.8)	2		
104	981-317	O-RING (S-4)	1		
105	880-672	VALVE PISTON (B)	1		
106	878-887	O-RING (I.D 11)	1		
107	878-884	PLUNGER SPRING	1		
108	882-921	PLUNGER (A)	1		
109	878-888	O-RING (I.D 1.8)	1		
110	882-920	VALVE BUSHING (A)	1		
111	882-907	SLEEVE	1		
112	883-306	PUSHING LEVER COVER (A)	1		
113	878-183	WARNING LABEL	1		
114	884-070	WARNING LABEL	1		
115	883-111	PIN	2		
116	883-108	MAGAZINE	1		
117	883-109	MAGAZINE COVER	1		
118		NAME PLATE	1		
119		CAUTION PLATE (B)	1		
120	881-003	HOLDER CAP (A)	1		
121	880-398	RATCHET SPRING	1		
122	880-503	NAIL HOLDER	1		
123	878-791	ROLL PIN D2.5X12	1		
124	883-324	HOLDER SHAFT	1		
125	881-826	SPRING	1		
126	883-325	MAGAZINE ASS'Y	1	INCLUD. 97, 115-117, 120-125	

STANDARD ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
501	943-277	HEX. BAR WRENCH 3MM	1		
502	944-458	HEX. BAR WRENCH 4MM	1		
503	944-459	HEX. BAR WRENCH 5MM	1		
504	872-422	HEX. BAR WRENCH 6MM	1		
505	877-153	PNEUMATIC TOOL LUBRICANT (30CC)	1		
506	875-769	SAFETY GLASSES	1		
507	883-323	CASE	1		

OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
601	883-330	FULL SEQUENTIAL ACTUATION MECHANISM KIT	1		

