

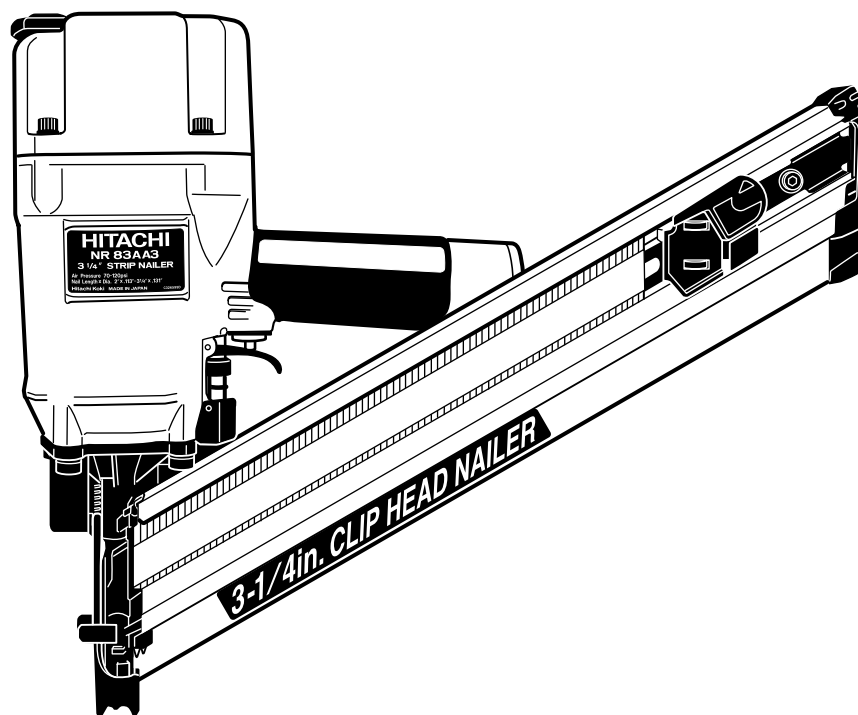
MODEL

NR 83AA3

Hitachi Power Tools

STRIP NAILER NR 83AA3

TECHNICAL DATA AND SERVICE MANUAL



LIST No. E009

Jul. 2003

REMARK:

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

Symbols Utilized	Competitors	
	Company Name	Model Name
R	SENCO	FP650
Y	PASLODE	F350S



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1. PRODUCT NAME

Hitachi Strip Nailer, Model NR 83AA3 [83 mm (3-1/4")]

2. MARKETING OBJECTIVE

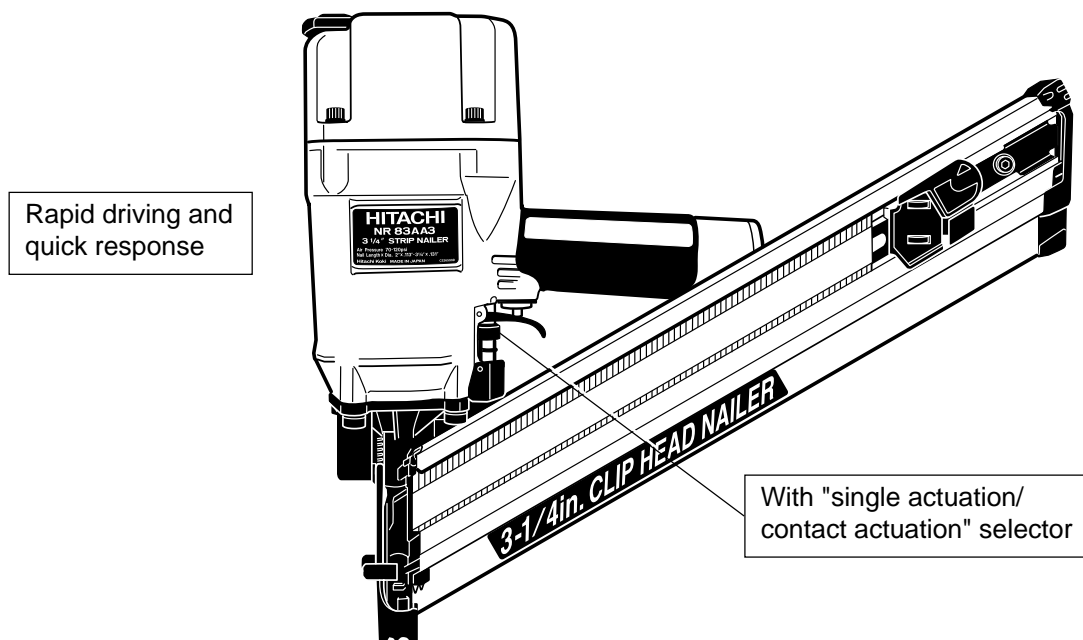
The new Model NR 83AA3 strip nailer is a minor-changed version of the current Model NR 83AA2. Owing to the modification of the ANSI standard, the current Model NR 83AA2 has gone out of production since the 1st of May 2003. To correspond to this, the valve construction was partially changed and the switching device (valve sleeve (A)) was added to select the nailer operation between "single actuation (single sequential actuation)" and "contact actuation" (the current Model NR 83AA2 is provided with the contact actuation mechanism only).

The features such as rapid driving and quick response, good balance and appearance that are well reputed in the current Model NR 83AA2 are common to the Model NR 83AA3.

3. APPLICATIONS

- Floor and wall framing
- Truss build-up, window build-up
- Subflooring and roof decking
- Wall sheathing
- Mobile home and modular housing construction

4. SELLING POINTS



5. SPECIFICATIONS

5-1. Specifications

Model	NR 83AA3
Driving system	Reciprocating piston type
Operating pressure	5 – 8.5 kgf/cm ² (70 – 120 psi, 4.9 – 8.3 bar) (Gauge pressure)
Driving speed	3 pcs./sec.
Weight	3.8 kg (8.4 lbs.)
Dimensions (Length x Height x Width)	460 mm x 360 mm x 108 mm (18-1/8" x 14-3/16" x 4-1/4")
Nail feed system	Spiral spring
Nail capacity	86 to 94 nails
Air consumption	2.5 ltr/cycle at 7 kgf/cm ² (0.088 ft ³ /cycle at 100 psi) (2.5 ltr/cycle at 6.9 bar)
Air inlet	3/8 NPT thread
Packaging	Corrugated cardboard box
Package dimensions (Length x Height x Width)	490 mm x 430 mm x 132 mm (19-5/16" x 16-15/16" x 5-3/16")
Standard accessories	<ul style="list-style-type: none"> • Hex. bar wrench for M5 screw (Code No. 944458) 1 • Hex. bar wrench for M6 screw (Code No. 944459) 1 • Hex. bar wrench for M8 screw (Code No. 872422) 1 • Safety glasses (Code No. 875769) 1
Optional accessories	Full sequential actuation mechanism kit (Code No. 884069) (Sequential trip mechanism kit) 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) Grease (ATTOLUB No. 2) (500 g (1.1 lbs.)) (Code No. 317918) Grease (MULTEMP PS No. 2) (30 g (0.07 lbs.)) (Code No. 939301)

5-2. Explanation of the Nailing Operation

To meet the requirements of "ANSI SNT-101-2002", the Model NR 83AA3 is equipped with a nailing operation switching device as shown in the figures below. Use SINGLE ACTUATION MECHANISM (SINGLE SEQUENTIAL ACTUATION MECHANISM) or CONTACT ACTUATION MECHANISM in accordance with the work to be performed. A FULL SEQUENTIAL ACTUATION MECHANISM KIT (SEQUENTIAL TRIP MECHANISM KIT) is also available as an option. Each nailing operation is as follows.

SINGLE ACTUATION MECHANISM (SINGLE SEQUENTIAL ACTUATION MECHANISM):

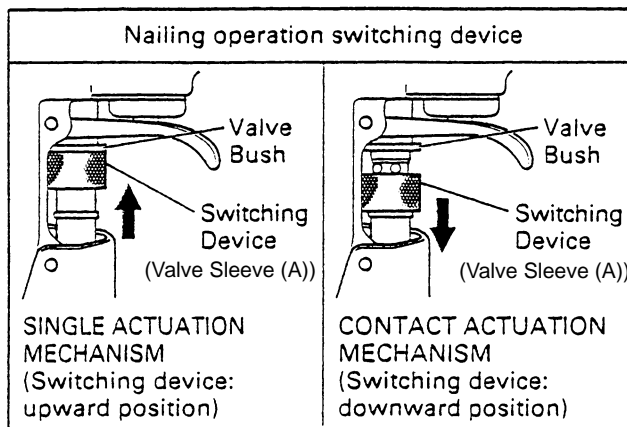
First, press the push lever against the wood; next, pull the trigger to drive the nail. First, pull the trigger; next, press the push lever against the wood to drive the nail. After nailing once, nailing will not be possible again until the trigger is released and pressed again.

CONTACT ACTUATION MECHANISM:

First, press the push lever against the wood; next, pull the trigger to drive the nail. First, pull the trigger; next, press the push lever against the wood to drive the nail. If the trigger is held back, a nail will be driven each time the push lever is pressed against the wood.

FULL SEQUENTIAL ACTUATION MECHANISM:

First, press the push lever against the wood; next, pull the trigger to drive the nail. Follow the same sequence to continue driving nails.



5-3. Nail Selection

The Model NR 83AA3 utilizes D-head (clipped head) nails collated with paper tape. Applicable nail dimensions are shown below. Please note that screw-type nails cannot be used with the Model NR 83AA2.

CAUTION: Ensure that nails are as specified in Fig. 1. The Model NR 83AA3 utilizes D-head (clipped head) nails collated at an angle of 34 degrees which are the same as the nails utilized by a competitor's model Paslode. However, some D-head nails made by other makers are collated at a different angle of 26 degrees. Use of such nails will cause clogging of nails and subsequent damage to the nailer. Also avoid use of misaligned nails or nails collated with a weak paper tape. It is recommended to use genuine HITACHI nails to ensure satisfactory driving quality.

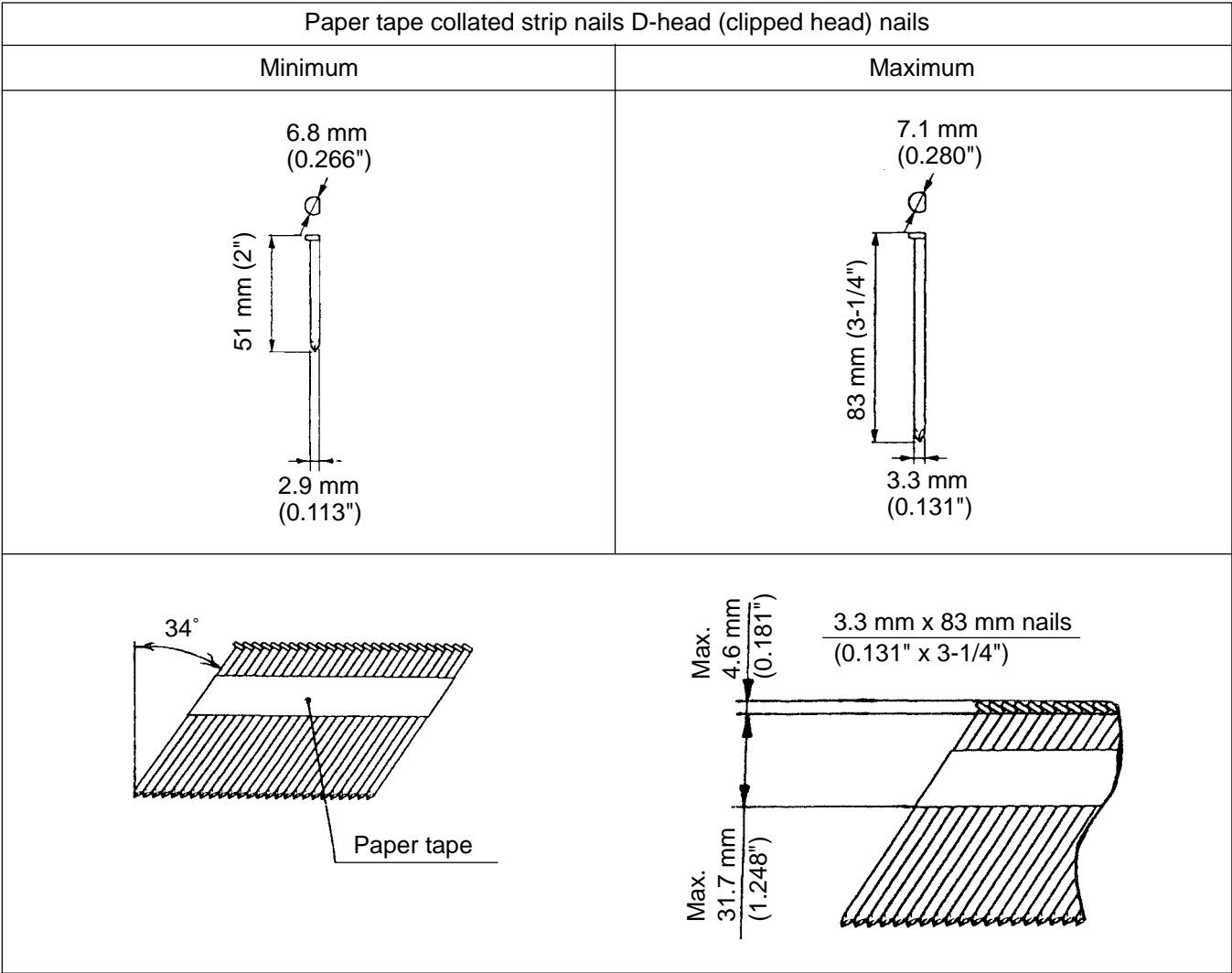


Fig. 1 Dimensions of nail

5-4. Nail Driving Force

Fig. 2 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 nailing energy required for driving the nail allows the nail to be fully driven.

For example, when driving a nail of 3.3 mm dia. by 83 mm length (0.131" x 3-1/4") into nine sheets of 12 mm plywood (108 mm thick) with the Model NR 83AA3, a pressure of about 7.0 bar (7.1 kgf/cm², 102 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. Fig. 2 should be used as reference data because those values vary depending on the type, moisture content, and grain of wood.

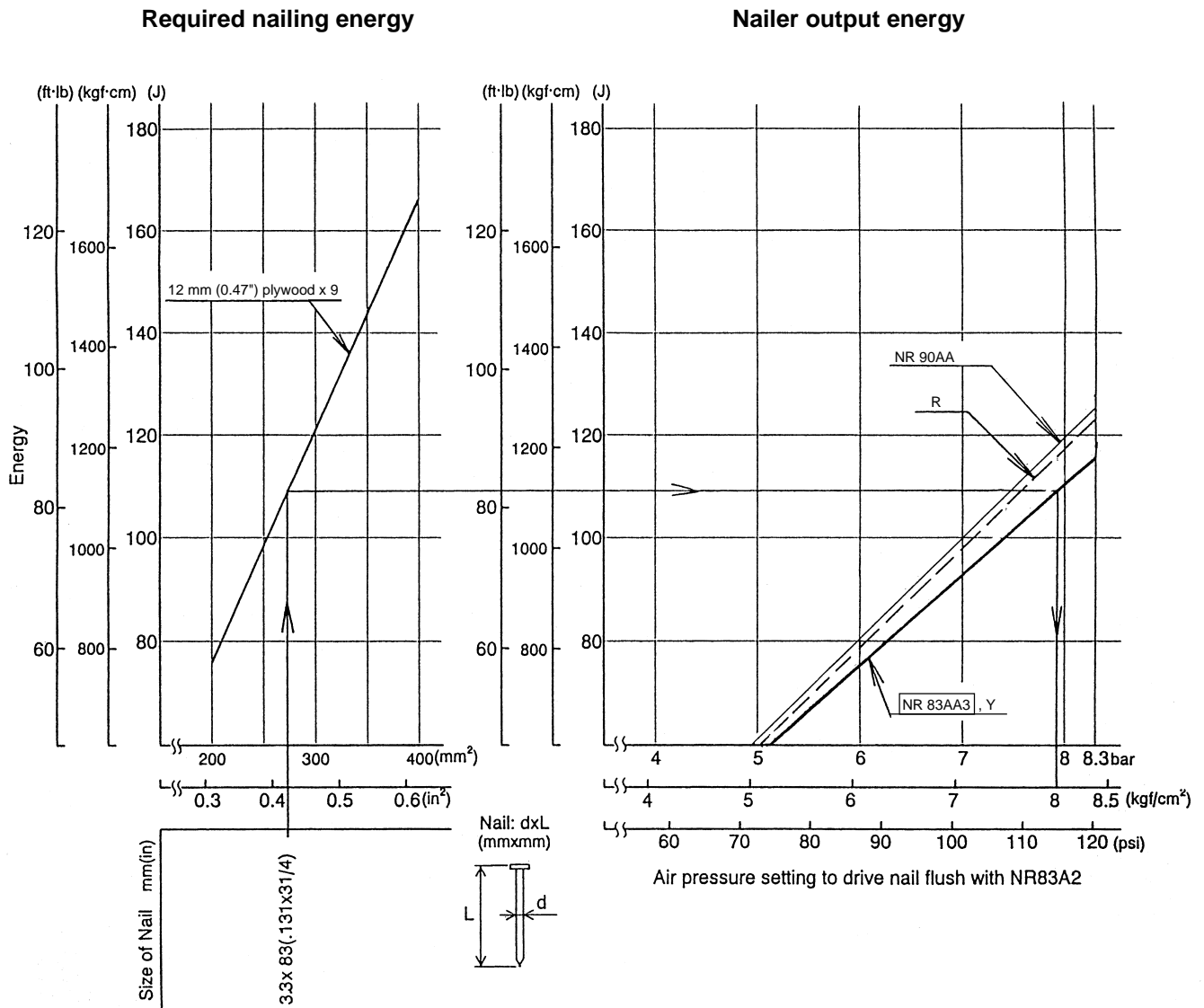


Fig. 2 Required nailing energy and nailer output energy

5-5. Optional Accessories

(1) Full sequential actuation mechanism kit (sequential trip mechanism) (Code No. 884069)

A full sequential actuation mechanism kit (sequential trip mechanism kit) is provided as an optional accessory for the Model NR 83AA3. By using this optional accessory, a nail is driven by pressing the push lever first against a workpiece and then pulling the trigger (single-shot operation), and no nail is driven when pulling the trigger first and then pressing the push lever against a workpiece. Please recommend the sequential trip mechanism kit to the customers who want to use it. Salespersons must instruct the customers to read the Handling Instructions attached to the sequential trip mechanism kit and also the Handling Instructions of the Model NR 83AA3 thoroughly for correct use.

6. COMPARISONS WITH SIMILAR PRODUCTS

Maker	HITACHI		R	Y
	NR 83AA3	NR 83AA2		
Model				
Operating pressure	5 – 8.5 kgf/cm ² (70 – 120 psi)	5 – 8.5 kgf/cm ² (70 – 120 psi)	5 – 8.5 kgf/cm ² (70 – 100 psi)	5.5 – 8.5 kgf/cm ² (80 – 120 psi)
Weight	3.8 kg (8.4 lbs.)	3.8 kg (8.4 lbs.)	3.7 kg (8.2 lbs.)	3.8 kg (8.4 lbs.)
Dimensions (L x H x W)	460 mm x 360 mm x 108 mm (18-1/8" x 14-3/16" x 4-1/4")	460 mm x 360 mm x 108 mm (18-1/8" x 14-3/16" x 4-1/4")	465 mm x 330 mm x 130 mm (20-13/16" x 12-3/4" x 5")	569 mm x 332 mm x 130 mm (22-3/8" x 13-1/8" x 5-1/8")
Air consumption at 7 kgf/cm ² (100 psi)	2.50 ltr/cycle (0.088 ft ³ /cycle)	2.50 ltr/cycle (0.088 ft ³ /cycle)	2.60 ltr/cycle (0.092 ft ³ /cycle)	2.70 ltr/cycle (0.095 ft ³ /cycle)
Nail capacity (3-1/4 x 0.131)	86 nails	86 nails	84 nails	67 nails
Magazine type	Rear loading	Rear loading	Top loading	Rear loading
Handle grip	Rubber	Rubber	Rubber	Rubber
Single actuation/contact actuation selector	Provided	None	None	None
Applicable nails	Dia.	2.9 mm – 3.3 mm (0.113" – 0.131")	2.9 mm – 3.3 mm (0.113" – 0.148")	2.9 mm – 3.8 mm (0.113" – 0.162")
	Length	50 mm – 83 mm (2" – 3-1/4")	50 mm – 90 mm (2" – 3-1/2")	50 mm – 90 mm (2" – 3-1/2")

7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model NR 83AA3 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 Model NR 83AA3 Nailer is designed for continuous nail driving (however, some of the Model NR 83AA3 are designed for single-shot operation only for some destinations). At time of sale, the salesperson must inform the customer that the sequential trip mechanism kit which can change the Model NR 83AA3 to a single-shot nailer is optionally available, and recommend it to the customers who want to use it. Refer to the leaflet attached together with the Instruction Manual for details.

7-1. Instruction Manual

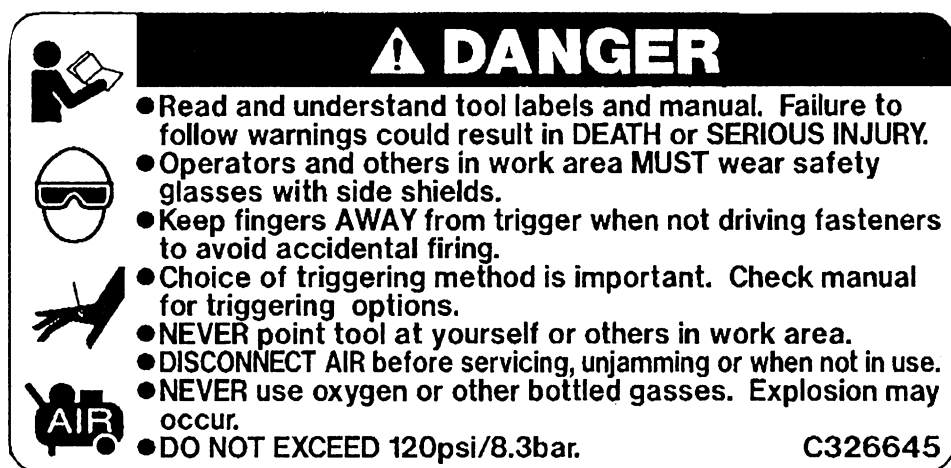
Although every effort is made in each step of design, manufacture, and inspection to provide protection against safety hazards, the dangers inherent in the use of any pneumatic tool cannot be completely eliminated.

Accordingly, 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 NR 83AA3 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
	1926.302 Power-operated hand tools
ANSI SNT-101-2002	Portable, Compressed-Air-Actuated, Fastener Driving Tools-Safety Requirements for

8. MECHANISM AND OPERATION PRINCIPLE

8-1. Mechanism

As illustrated in Fig. 3, the Model NR 83AA3 can be generally divided into four sections:

output section, control valve section, driving section and magazine section.

The basic construction of the Model NR 83AA3 is the same as that of the Model NR 83AA2. The magazine section is common to that of the Model NR 83AA2. However, most of the parts of the control valve section were newly designed to provide the single actuation (single sequential actuation)/contact actuation mechanisms in order to correspond to the modification of the ANSI standard. The pushing lever of the driving section has been newly designed. Besides, some parts of the output section were changed.

Primary differences from the Model NR 83AA2 are described below.

- Output section
 - Cylinder: The sealing surface where the head cap contacts was chamfered (common to the Model NR 83A2).
 - Exhaust valve: Provided with a hole (1 mm dia.) to prevent malfunction when selecting the single actuation (single sequential actuation) mechanism (common to the Model NR 83A2).
 - Body: An air escape groove was provided at the inmost position of the trigger valve bushing. The body is not interchangeable with that of the Model NR 83AA2. (Refer to 8-2 (1) ① for details.)
- Driving section
 - Pushing lever: Newly designed.
- Control valve section ...
 - Following parts were changed or added owing to the change of the construction (selectable either the single actuation mechanism or the contact actuation mechanism).
 - Plunger (A): Changed (common to the Model NR 83A2).
 - Plunger (B): Changed (common to the Model NR 83A2).
 - Plunger (B) spring: Added (common to the Model NR 83A2).
 - Valve bushing: Changed (common to the Model NR 83A2).
 - Valve sleeve (A) (switching device): Added (common to the Model NR 83A2).

The **<Bold>** numbers in the figure below correspond to the numbers in "8-3. Operation Principle".

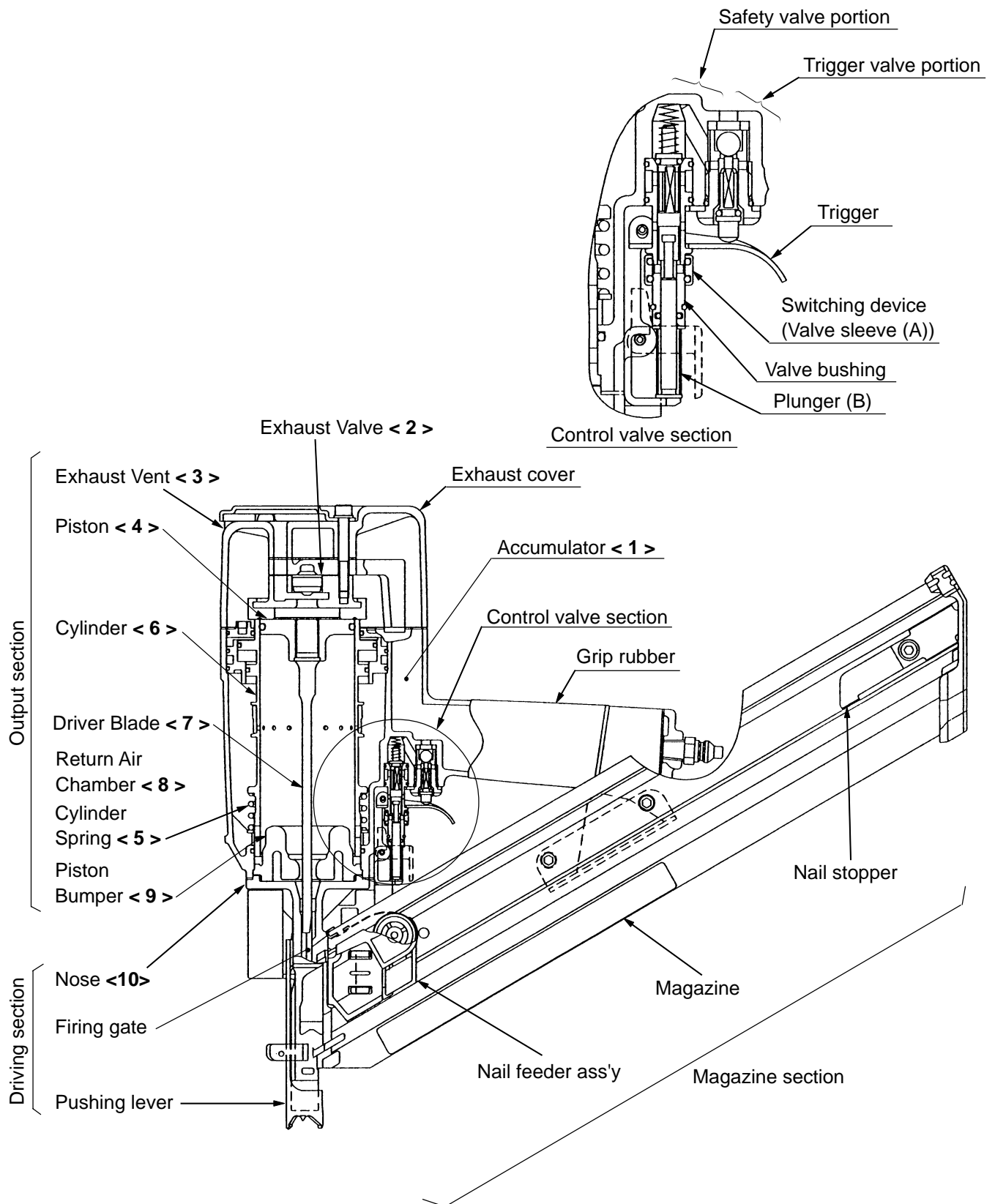


Fig. 3 Construction

8.2 Interchangeability

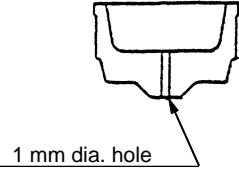
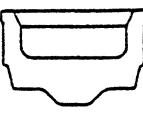
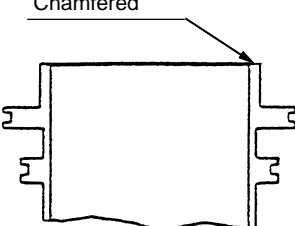
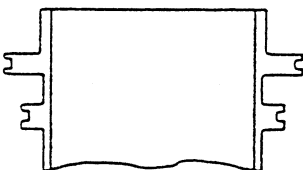
Interchangeability of the parts between the Model NR 83AA3 and the Model NR 83AA2 is described below.

As described in 8-2, the magazine section is identical with that of the Model NR 83AA2, and all the parts of the magazine section are interchangeable with those of the Model NR 83AA2.

The parts that are newly designed, changed or added for the Model NR 83AA3 and not interchangeable with those of the Model NR 83AA2 are described in detail.

(1) Output section



- Be careful not to make mistakes in mounting the following parts that were changed for the Model NR 83AA3 because these parts are similar to those of the Model NR 83AA2 but not interchangeable.

Part	NR 83AA3	NR 83AA2	Caution
Exhaust Valve [9]	 <p>1 mm dia. hole</p> <p>Color: Orange</p>	 <p>Color: Milky white</p>	<ul style="list-style-type: none"> ⊙ Never mount the exhaust valve for the Model NR 83AA2 to the Model NR 83AA3 by mistake. Otherwise, it may cause a malfunction when selecting the single actuation (single sequential actuation) mechanism. ○ Note that the driving force may be decreased a little though no malfunction may occur if the exhaust valve for the Model NR 83AA3 (1 mm dia. hole is provided) is mounted to the Model NR 83AA2.
Cylinder [17]	 <p>Chamfered</p>	 <p>Not chamfered</p>	<ul style="list-style-type: none"> ○ Do not mount the cylinder for the Model NR 83AA2 to the Model NR 83AA3. Otherwise, the driving force may be decreased a little. • There is no problem in mounting the cylinder for the Model NR 83AA3 to the Model NR 83AA2.

The parts of the output section except the above are common to those of the Model NR 83AA2.

(2) Driving section

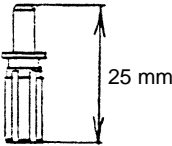
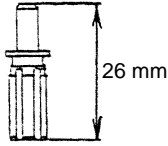
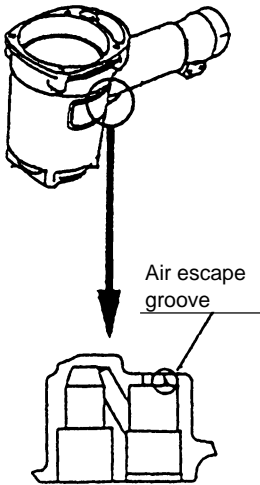
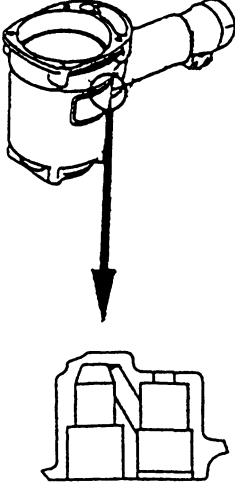
- Parts that were changed for the Model NR 83AA3 and not interchangeable with those of the Model NR 83AA2 though they are similar to those of the Model NR 83AA2

Part	NR 83AA3	NR 83AA2	Caution
Pushing Lever [45]	 <p>Without safety bolt</p>	 <p>Safety bolt</p>	<ul style="list-style-type: none"> ○ The pushing lever for the Model NR 83AA3 is not interchangeable with that of the Model NR 83AA2 because the adjustment method is different (safety bolt is not provided).





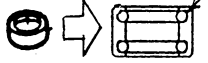


The parts of the driving section except the above are common to those of the Model NR 83AA2.

(3) Control valve section

- ① Be careful not to make mistakes in mounting the following parts that were changed for the Model NR 83AA3 because these parts are similar to those of the Model NR 83AA2 but not interchangeable.

Part	NR 83AA3	NR 83AA2	Caution
O-ring (I.D10.7) [50] (O-ring mounted to the outside of the Valve Bushing [49])	Inside diameter 10.7 mm	Inside diameter 11.5 mm	<ul style="list-style-type: none"> ⊙ Never mount the O-ring (S-12) for the Model NR 83AA2 to the valve bushing of the Model NR 83AA3 by mistake. Otherwise, the O-ring may be damaged when mounting the valve bushing to the body ass'y, and the damaged O-ring may cause a malfunction when selecting the single actuation (single sequential actuation) mechanism. ○ Do not mount the O-ring (I.D 10.7) for the Model NR 83AA3 to the valve bushing of the Model NR 83AA2. Otherwise, air leakage may occur.
Plunger (A) [48]			<ul style="list-style-type: none"> ○ Do not mount plunger (A) for the Model NR 83AA2 to the Model NR 83AA3. Otherwise, plunger (A) may contact the body ass'y and it may be damaged when raising the pushing lever ass'y to the uppermost position. • There is no problem in mounting plunger (A) for the Model NR 83AA3 to the Model NR 83AA2.
Body Ass'y [25]			<ul style="list-style-type: none"> ○ Do not mount the body ass'y for the Model NR 83AA2 to the Model NR 83AA3. Otherwise, compressed air may be remained in the valve in the event the air hose is disconnected with the trigger pulled when selecting the single actuation (single sequential actuation) mechanism. (The warning "Do not disconnect air hose from nailer with finger on trigger" is also specified in the Instruction Manual of the Model NR 83AA3.) There is no problem in mounting body ass'y for the Model NR 83AA3 to the Model NR 83AA2.

- ② Parts that were changed for the Model NR 83AA3 and not interchangeable with the Model NR 83AA2 (except the parts described in ①)

Part	NR 83AA3	NR 83AA2	Caution
Valve Bushing [49]			○ These parts were newly designed to provide the single actuation (single sequential actuation)/contact actuation selector. They are not interchangeable.
Plunger (B) [59]			
Valve Sleeve (A) [54] (switching device) O-ring (P-9) [53]	<p>O-ring (P-9) (Wire dia. 1.9 mm Inside dia. 8.8 mm)</p>  <p>Cross-sectional view</p>	_____	○ These parts are exclusive to the Model NR 83AA3.
Plunger O-ring [56] (O-ring mounted to the inside of the Valve Bushing [49])	Wire dia. 1.5 mm Inside dia. 4.5 mm	_____	
Plunger (B) Spring [58]	<p>Outside dia. 7.4 mm</p>  <p>Overall length 28 mm</p>	_____	○ These parts are exclusive to the Model NR 83AA3.
O-ring (S-7) [55] (To prevent Valve Sleeve (A) [54] (switching device) from coming off)	Wire dia. 1.5 mm, Inside dia. 6.5 mm	_____	
Washer M5 [57] (Receiver of Plunger (B) Spring [58] at the Valve Bushing [49] side)	 <p>10 mm dia. Thickness: 1 mm 5.3 mm dia.</p>	_____	

The parts of the control valve section except the above are common to those of the Model NR 83AA2.

8-3. Operation Principle

The operation of the Model NR 83AA3 is illustrated and described in Fig. 4 through 7. The circled numbers in the descriptions correspond to the item numbers shown in the mechanism illustrated in Fig. 3. In Fig. 5 and Fig. 7, read the descriptions in alphabetical order.

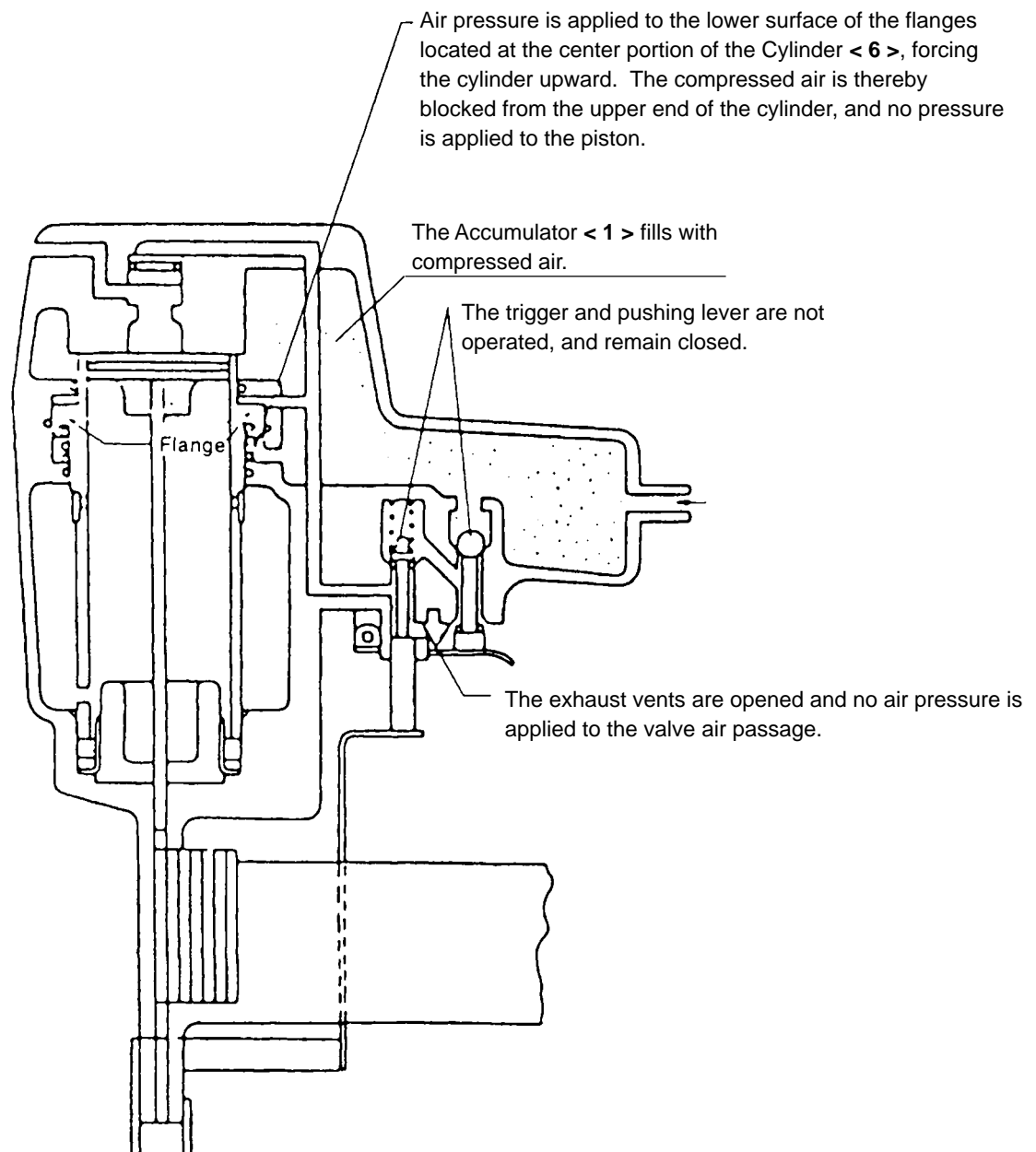


Fig. 4 When the compressed air source (air hose) is connected to the nailer

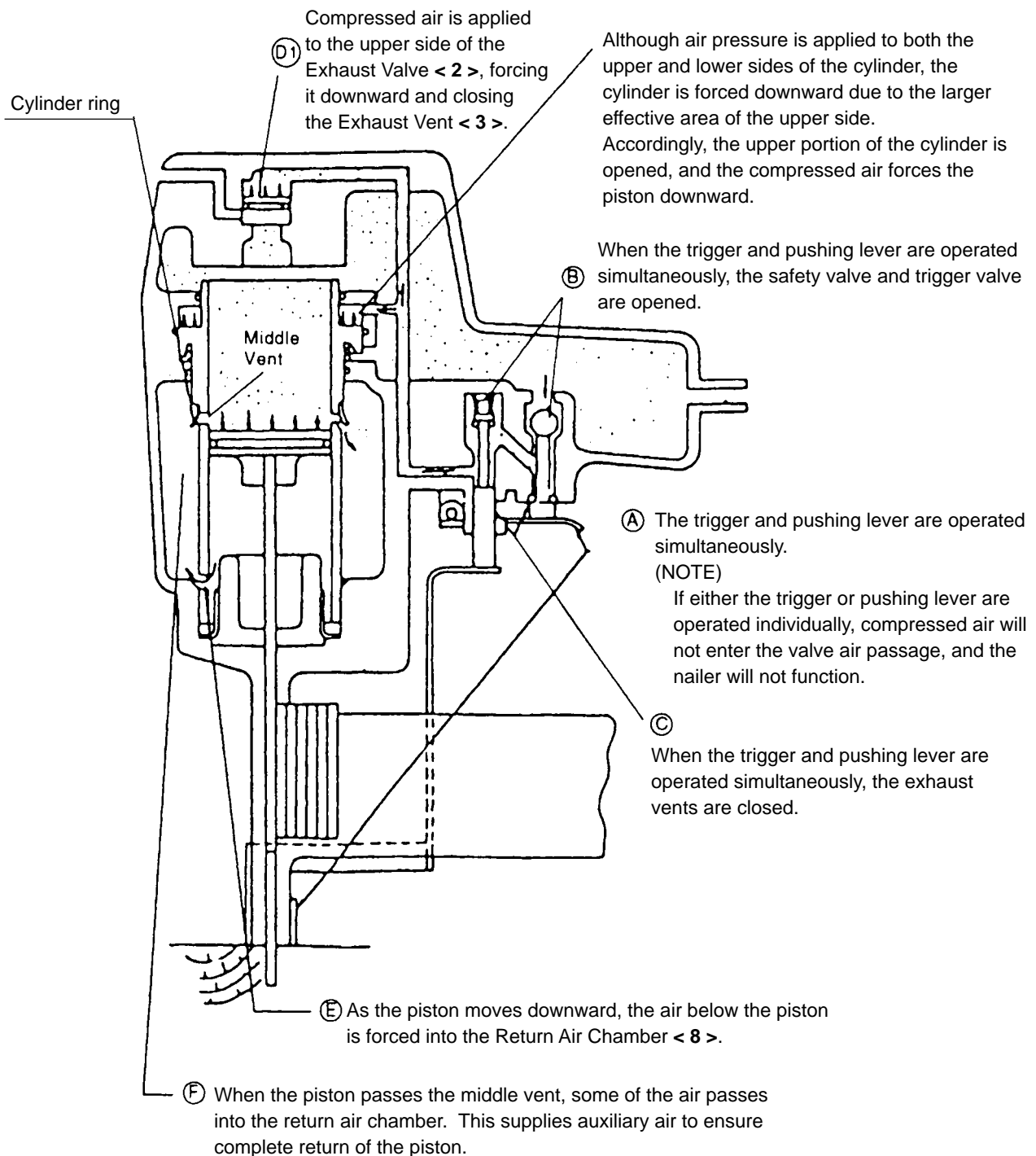


Fig. 5 When the trigger and pushing lever are operated

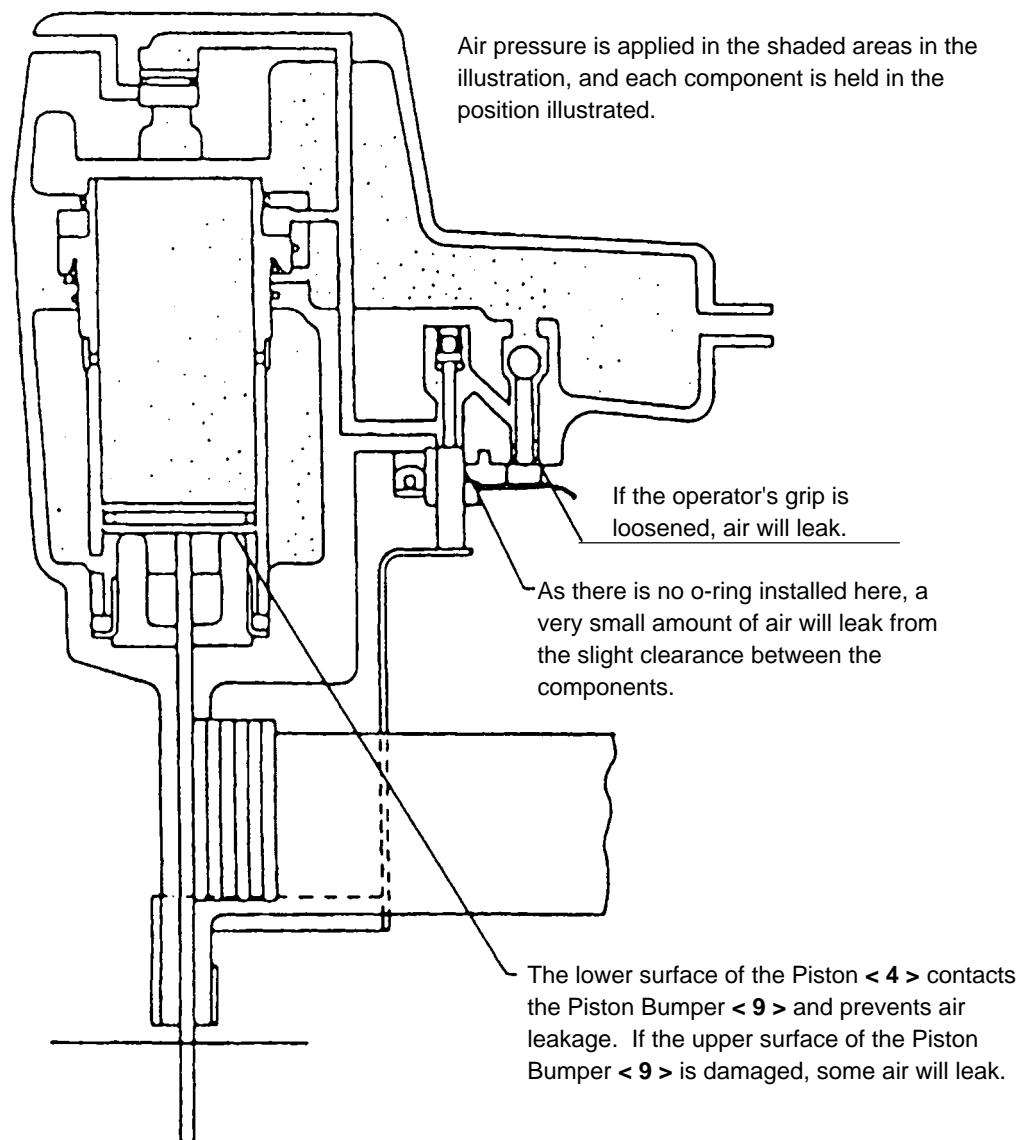


Fig. 6 If the trigger and pushing lever are kept pressed

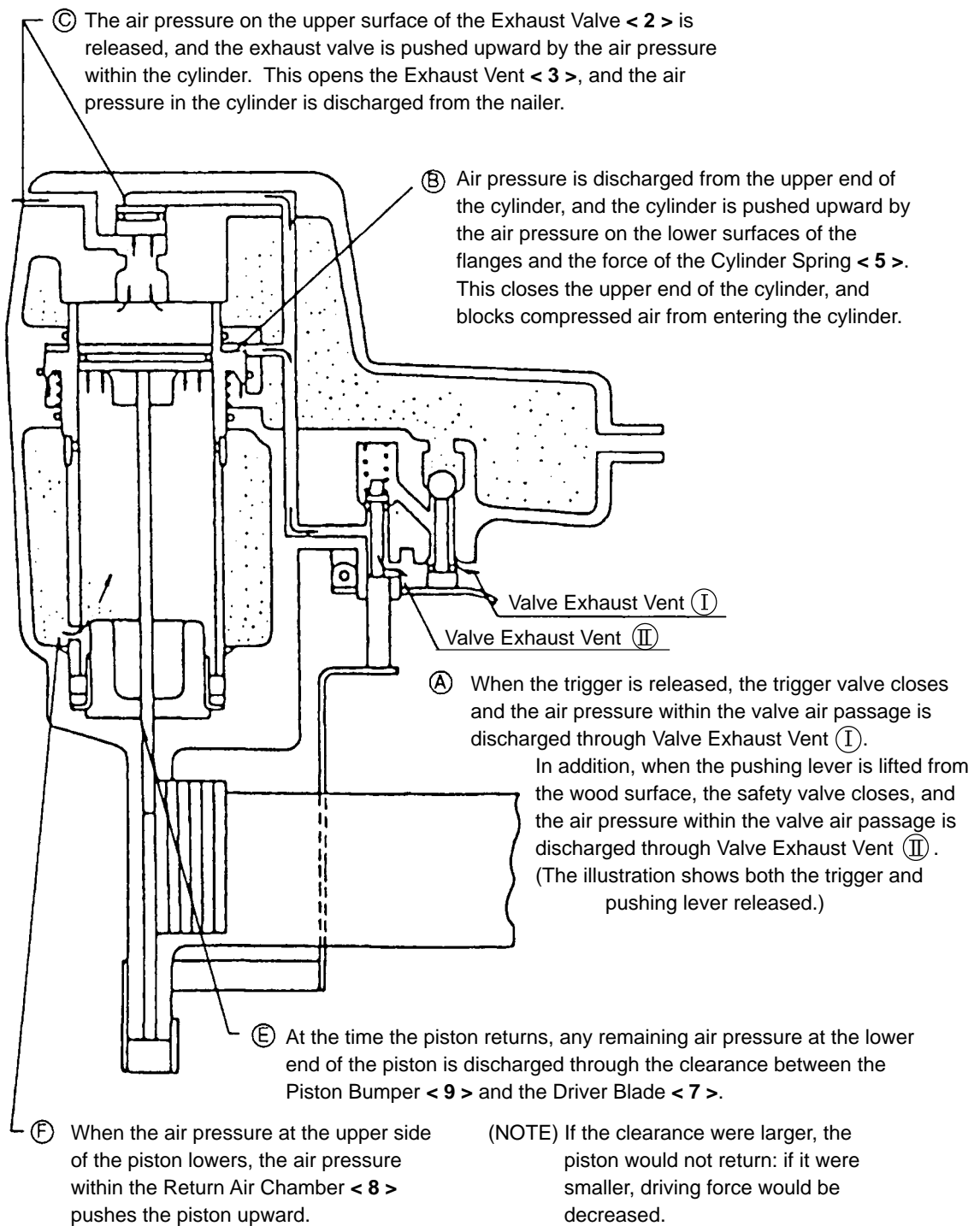


Fig. 7 When the trigger and/or pushing lever are released

9. TROUBLESHOOTING GUIDE

9-1. Troubleshooting and Correction

Problem	Possible 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, large or small round-head nails, abnormal collation, etc.). Nail or collating band clogs. Collating band is deformed or torn. 	<ul style="list-style-type: none"> Check if the magazine is normally loaded with specified nails. 	<ul style="list-style-type: none"> Use specified nails. Remove the abnormal nails and load the magazine with normal nails.
	<Magazine> <ul style="list-style-type: none"> Magazine is abnormal (deformed or damaged). Nail feeder is abnormal (deformed or damaged). Ribbon spring is abnormal (deformed, damaged or fatigued). Nail rail is abnormal (deformed, burrs, damaged or fatigued). Adhesive fragments are on the nail rail or they need oil. Foreign matter is found on the guide face of the nail feeder. 	<ul style="list-style-type: none"> Check if the nail feeder operates smoothly in the magazine. Check if the nails (one strip) move smoothly in the magazine. 	<ul style="list-style-type: none"> Repair or replace the defective part. Remove the adhesive fragments and apply oil to the nail feeder, ribbon spring and the nail rail.
	< Nose > <ul style="list-style-type: none"> Nail inlet groove of the nose is abnormal (deformed, burrs or damaged). Adhesive fragments are in the nail inlet groove. 	<ul style="list-style-type: none"> Check if nails (one strip) are fed smoothly into the nail injection port of the nose. 	<ul style="list-style-type: none"> Repair or replace the defective part. Remove the adhesive fragments.

Problem	Possible cause	Inspection method	Remedy
	<p><Output section></p> <ul style="list-style-type: none"> • Air pressure is too low. • Piston O-ring is worn or damaged. • Piston bumper is abnormal (dislocated, deformed or damaged). • Cylinder ring is abnormal (dislocated, deformed or damaged). • Driver blade is abnormal (deformed, burrs, damaged or fatigued). • Cylinder's internal surface is abnormal (deposits of dirt or worn). 	<ul style="list-style-type: none"> • Set the single actuation/ contact actuation selector to the contact actuation. Pull the nail feeder backward to perform idle driving. Check if the driver blade has returned. • Check if the nails can be driven at 5 kgf/cm². 	<ul style="list-style-type: none"> • Adjust for 5 to 8.5 kgf/cm². • Replace the piston ring. • Replace the piston bumper. • Reassemble or replace. • Repair or replace. • Remove the dirt and apply oil, or replace. • Replace the defective part. • Apply grease. • Replace the head valve spring.
	<p>< Control valve section ></p> <ul style="list-style-type: none"> • Plunger (A), Plunger (B) or valve bushing is abnormal (galled or damaged). • O-ring is worn or oiling is needed. 	<ul style="list-style-type: none"> • After making idle driving, check if the driver blade is kept in the down position. • Disassemble the control valve and check the O-ring. 	<ul style="list-style-type: none"> • Replace the defective part. • Apply grease or replace.
2) Nails are bent when being driven.	<ul style="list-style-type: none"> • Nails are not fully fed into the injection port. • Unspecified nails are used. • Driver blade is worn. • Workpiece is very hard. 	<ul style="list-style-type: none"> • See item 1). • Check if the driver blade tip is abnormally worn. • Drive a nail into soft wood workpiece and check if the nail is bent. 	<ul style="list-style-type: none"> • See item 1). • Replace the driver blade. • Do not use unspecified workpieces.

Problem	Possible cause	Inspection method	Remedy
3) Head of a nail driven into a workpiece protrudes from the wood surface.	<ul style="list-style-type: none"> • Air pressure is too low. • Workpiece is very hard. • Driver blade is worn. • Piston O-ring is abnormal (worn or damaged). • Cylinder's internal surface is abnormal (worn or rough). 	<ul style="list-style-type: none"> • Drive a nail into soft wood workpiece and check if the head protrudes from the wood surface. • Operate the nailer without nails and check if the driver blade is projected from the nose tip. • Disassemble the output section and check the piston ring, O-ring and the inner/ outer surfaces of the cylinder for abnormal condition. 	<ul style="list-style-type: none"> • Adjust for 5 to 8.5 kgf/cm². • Do not use unspecified workpieces. • Replace the driver blade. • Replace the defective part.
4) Nails clog the mechanism.	<ul style="list-style-type: none"> • Unspecified nails used. <p><Improper nail feed></p> <ul style="list-style-type: none"> • See <Magazine> in item 1). <ul style="list-style-type: none"> • Driver blade worn. <p><The driver blade has not returned completely.></p> <ul style="list-style-type: none"> • See <Output section> in item 1). 	<ul style="list-style-type: none"> • Check if the nails are specified ones. • Check if they move smoothly after putting nails, and check if the nail feeder operates smoothly. • Check if the driver blade tip is worn. • Perform idle driving or actually drive with nails, and check if the driver blade has returned completely. 	<ul style="list-style-type: none"> • Use specified nails. • See <Magazine> in item 1). • Replace the part. • See <Output section> in item 1.)
5) Single actuation impossible.	<ul style="list-style-type: none"> • Plunger O-ring (inside the valve bushing) is abnormal (worn or broken). • O-ring (P-9, inside valve sleeve (A)) is abnormal (worn or broken). 	<ul style="list-style-type: none"> • Set the single actuation/ contact actuation selector to the single actuation. Perform idle driving once and keep the nail feeder pulled backward. Check that no air leaks from the inside of plunger (B) and valve sleeve (A). 	<ul style="list-style-type: none"> • Replace the defective part.
6) Piston actuates just by pulling the trigger (when single actuation is selected).	<ul style="list-style-type: none"> • O-ring (inside dia. 10.7) at the outside of the valve bushing is abnormal (worn, damaged or broken). • Gasket (G) is abnormal (improperly mounted, worn or damaged). 	<ul style="list-style-type: none"> • Disassemble the control valve and check the O-ring. • Disassemble the exhaust cover and check that gasket (G) is normal and mounted properly. 	<ul style="list-style-type: none"> • Replace the defective part. • Mount it properly or replace the defective parts.

9-2. Regrinding the Driver Blade

The tip of the driver blade should be ground as shown in Fig. 8. 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.

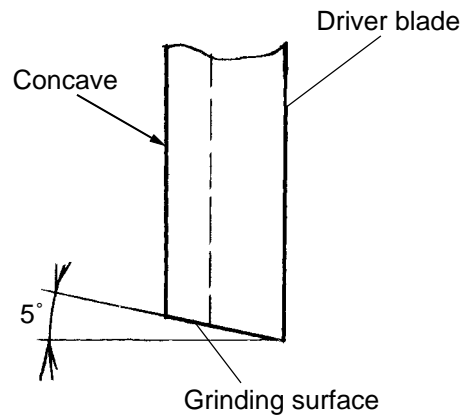
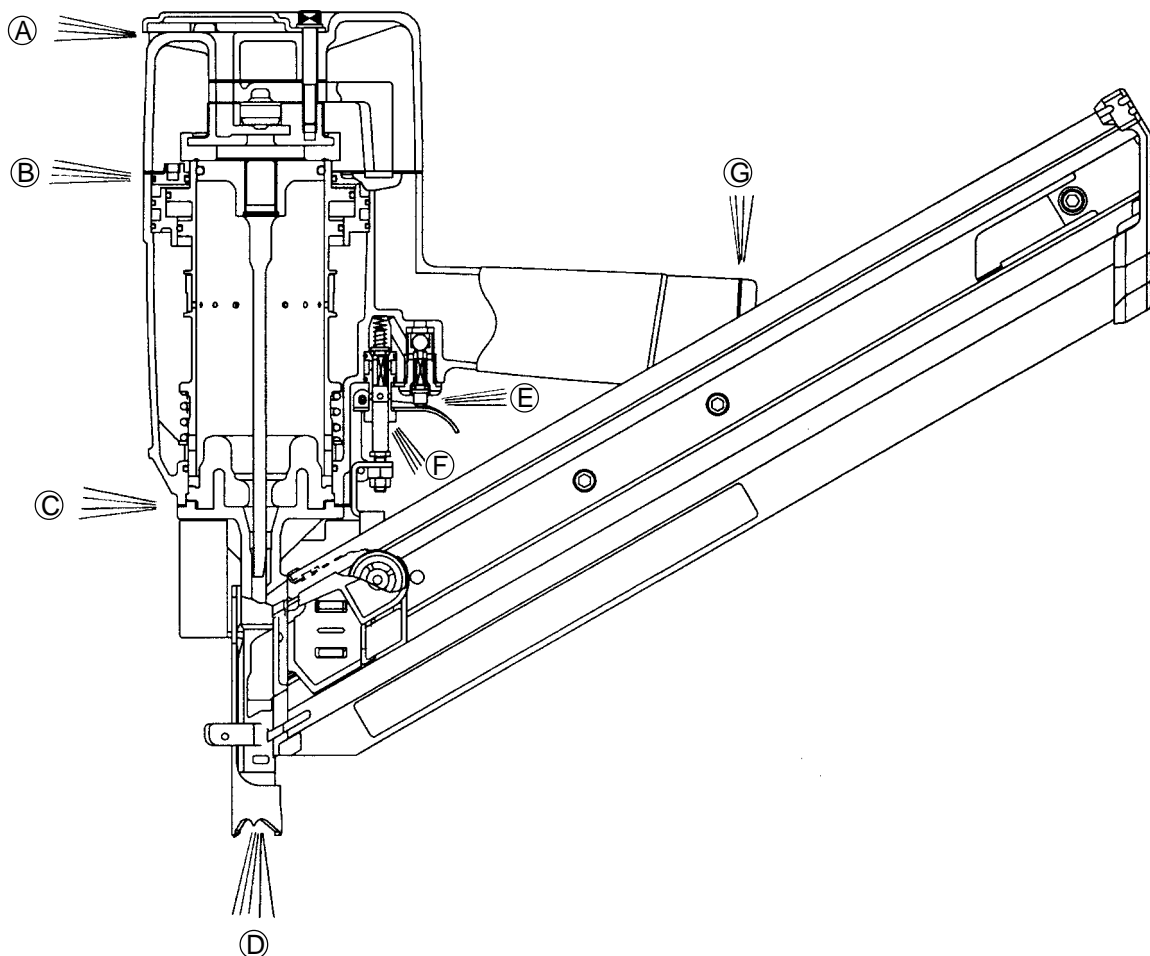


Fig. 8

9-3. Possible Causes and Corrections of Air Leakage

Air leakage repair location



Inspection priorities:

In the table below, possible causes of air leakage and their repair procedures are marked in accordance with the likelihood of possible failure.

(1) First priority items are marked with an asterisk (*).

(2) Second priority items (seal portions) are marked with a double circle (⊙).

(3) Remaining items are marked with a single circle (○). (See Parts List and exploded assembly diagram for part name and location.)

Air leak part	Cause		
	When trigger valve/safety valve are OFF	When trigger valve/safety valve are ON	When trigger valve ON/safety valve OFF
(A) Exhaust vent	<ul style="list-style-type: none"> * Cylinder [17] does not return. ○ Swollen Cylinder O-ring [16] (Use of unsuitable oil causes swelling. Advise the customer to use Shell Tonna Oil T32.) ○ Deformed Cylinder [17] or Cylinder Guide [22]. ○ Yielded or broken Cylinder Spring [20]. ⊙ Defective Head Cap and Gasket Set [10] (worn rubber portion or broken) ⊙ Broken Gaskets (C) (F) [8] [6] ○ Loose Hex. Socket Hd. Bolt (W/Flange) M6 x 45 [1] ○ Broken Exhaust Cover [4] 	Defective Exhaust Valve [9] (worn, deformed, or broken)	<ul style="list-style-type: none"> ○ Improperly mounted or damaged Gasket (G) [23] ○ Scratched or damaged O-ring [50] outside the Valve Bushing [49] at the safety valve portion (When single actuation is selected)
(B) Exhaust cover	<ul style="list-style-type: none"> ○ Loose Hex. Socket Hd. Bolt (W/SP. Washer) M6 x 25 [3] ⊙ Broken Gasket (B) [5] ○ Damaged seal surfaces of Body Ass'y [25] and Exhaust Cover [4] 		
(C) Nose		<ul style="list-style-type: none"> ○ Deformed Nose [32] ○ Loose Nylock Hex. Socket Hd. Bolt M8 x 22 [31] ○ Damaged Gasket (A) [28] 	
(D) Nose	<ul style="list-style-type: none"> ○ Damaged Cylinder O-ring [26] or O-ring of Cylinder Guide [22] (worn, deformed or broken) ○ Defective Body Ass'y [25] (worn, corroded or deformed) 	<ul style="list-style-type: none"> * Broken or cracked Piston Bumper (B) [27] ○ Deformed Piston [12] ○ Deformed Nose [32] 	
(E) Trigger valve	<ul style="list-style-type: none"> ○ Defective Urethane Ball (C) D7.14 [61] (damaged or deformed) ○ Defective ball sheet surface of Trigger Valve Bushing [64] (damaged, deformed or worn) ○ Defective Valve Packing [60] (damaged, deformed or broken) ○ Soiled or damaged valve packing sheet surface of Body Ass'y [25] ⊙ Incursion of foreign materials 		<ul style="list-style-type: none"> ○ Defective Plunger O-ring [66] (worn, deformed or broken) ○ Defective outside O-ring [62] of Trigger Valve Bushing [64] (When contact actuation is selected)
(F) Safety valve	<ul style="list-style-type: none"> * Defective Gaskets (C) (F) [8] [6] (damaged or yielded) * Deformed or broken Gasket (G) [23] ○ Defective O-ring [13] or Cylinder O-ring [14] of the Cylinder Plate [15] (worn, deformed or broken) ○ Defective Cylinder O-ring [16] (worn, deformed or broken) 	○ Air will leak slightly from the lower portion due to construction.	<ul style="list-style-type: none"> ○ Scratched or damaged O-ring [50] outside the Valve Bushing [49] and the Plunger O-ring [56] inside the Valve Bushing [49] ○ Valve Bushing [49] ○ Defective plunger O-ring [47] (worn, deformed or broken) ○ Defective Plunger Spring [46] (deformed or broken) ○ Defective Valve Bushing [49] (deflected, deformed or broken)

Air leak part	Cause		
	When trigger valve/safety valve are OFF	When trigger valve/safety valve are ON	When trigger valve ON/safety valve OFF
Ⓕ Safety valve (continued)			○ Scratched or damaged O-ring [53] inside Valve Sleeve (A) [54] (When single actuation is selected)
Ⓖ Cap	<ul style="list-style-type: none"> ○ Loose Hex. Socket Hd. Bolt M5 x 18 [39] ⊙ Broken Gasket (D) [37] ○ Defective seal surface of the Body Ass'y [25] or Cap [38] 		

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 remove all nails and disconnect the air hose from the nailer (with your finger released from the trigger) to exhaust all the compressed air.

10-1. General Precautions in Disassembly and Reassembly

- Apply grease (ATTOLUB No. 2 Code No. 317918) to the O-rings and the sliding portions. Note that another grease (MULTEMP PS No. 2 Code No. 939301) must be applied to the O-rings and the sliding portions of the control valve section. Do not scratch the O-rings nor adhere dust to them when mounting.
- 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 Gasket (B) **[5]** 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.
- Use the conventional grip tape for repair of the Grip Rubber **[36]** because the Grip Rubber **[36]** cannot be mounted without the specifically designed jig.
- Tightening torque for each part

Bolt	Tightening torque N·m (kgf·cm, ft-lb)
Nylock Hex. Socket Hd. Bolt M8 x 22 [31]	30.4 ± 2 (310 ± 20, 22.4 ± 1.4)
Nylock Bolt (W/Flange) M8 x 16..... [33]	25.5 ± 1 (260 ± 10, 18.8 ± 0.7)
Hex. Socket Hd. Bolt (W/Flange) M6 x 45 [1]	12.7 ± 0.8 (130 ± 8, 9.4 ± 0.6)
Nylock Bolt (W/Flange) M6 x 12..... [29]	12.7 ± 0.8 (130 ± 8, 9.4 ± 0.6)
Hex. Socket Hd. Bolt (W/Sp. Washer) M6 x 25..... [3]	9.8 ± 0.8 (100 ± 8, 7.2 ± 0.6)
Hex. Socket Hd. Bolt (W/Flange) M6 x 12 [80]	9.8 ± 0.8 (100 ± 8, 7.2 ± 0.6)
Hex. Socket Hd. Bolt M5 x 18 [39]	8.3 ± 0.5 (85 ± 5, 6.1 ± 0.4)

10-2. Disassembly and Reassembly of the Output Section

(1) Piston [12], Cylinder [17] and related parts

Tool required:

- Hexagonal bar wrench (5 mm)

(a) Disassembly (See Figs. 9, 10 and 11.)

- Remove the four Hex. Socket Hd. Bolts (W/Sp. Washer) M6 x 25 [3], and take off the Exhaust Cover [4].

The Piston [12] can then be taken out.

- Perform the following operation first if the Piston [12] cannot be removed because the top surface of the Piston [12] is flush with the top surface of the Cylinder [17].

- Next, as illustrated in Fig. 10, screw two of the previously removed Hex. Socket Hd. Bolts (W/Sp. Washer) M6 x 25 [3] into the provided holes on the Cylinder Plate [15].

- Gripping these two bolts, simultaneously turn and pull upward to remove the Cylinder Plate [15]. When this has been accomplished, the Cylinder [17] and other parts which make up the output section can be removed as illustrated in Fig. 11.

- If it is difficult to remove the Cylinder [17], remove the Nose [32] by referring para. 10-2-(3) procedures, and push out the Cylinder [17] from the lower part of the main body.

(b) Reassembly

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

- Confirm that Gasket (G) [23] is reassembled.
- Check that the Base Washer [21] is securely and properly mounted to its position in the Body Ass'y [25].

Then mount the other parts.

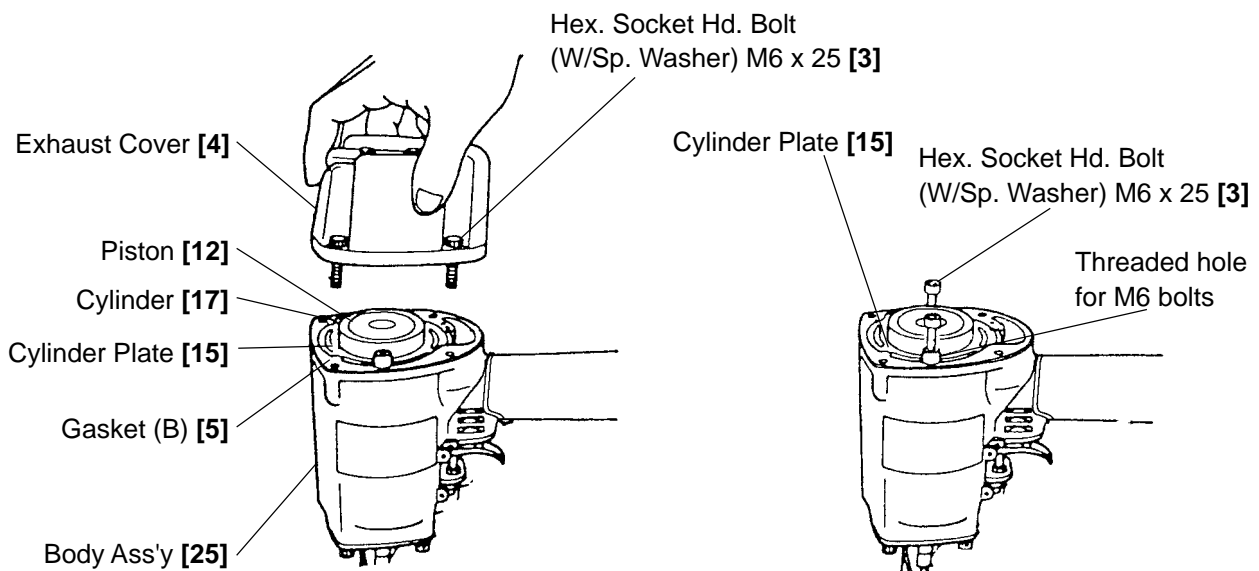


Fig. 9

Fig. 10

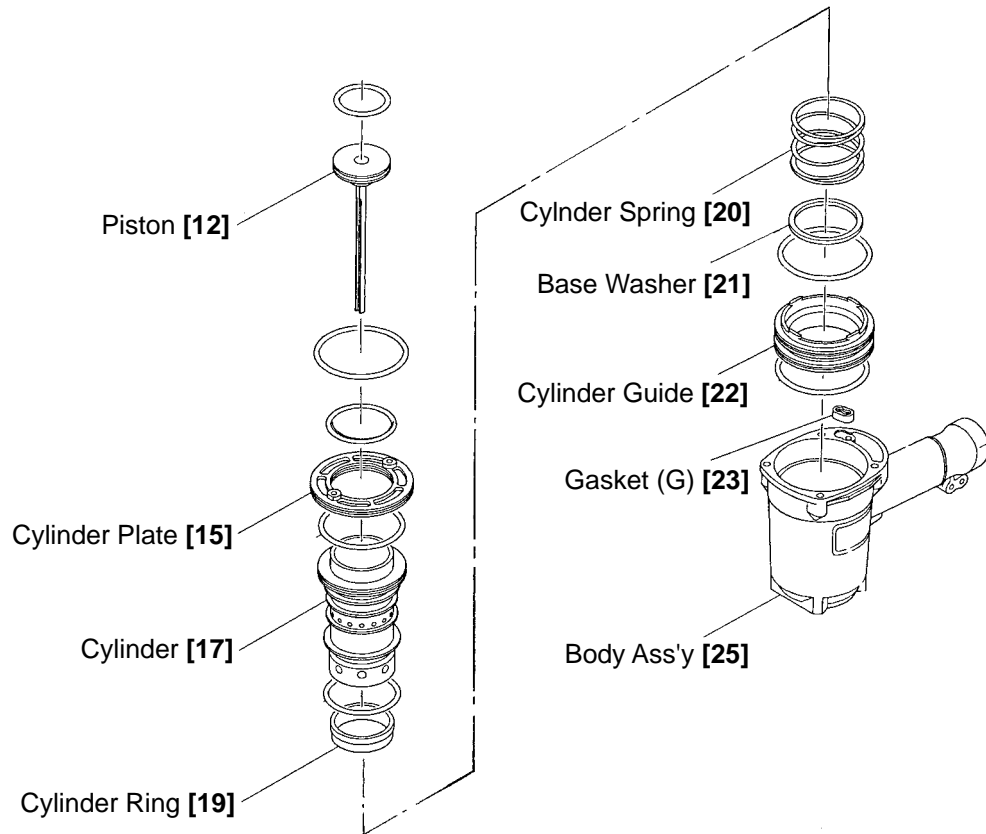


Fig. 11

(2) Head Cap and Gasket Set [10], Exhaust Piece [7] and related parts (See Fig. 12.)

Tool required:

- Hexagonal bar wrench (5 mm)

(a) Disassembly

- Remove the Exhaust Cover [4] as described in section 10-2-(1).
- Loosen the three Hex. Socket Hd. Bolts (W/Flange) M6 x 45 [1] and as illustrated in Fig. 13, remove the Head Cap and Gasket Set [10], Exhaust Valve [9], Exhaust Piece [7], Gasket (C) [8] and Gasket (F) [6].

(b) Reassembly

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

- Be sure to check that the Exhaust Valve [9] is orange and provided with a 1 mm dia. hole (Fig. 13) before reassembly. Note that mounting a wrong exhaust valve may cause a malfunction.
- Gasket (C) [8] and Gasket (F) [6] should be replaced with new genuine Hitachi parts.
- Apply the designated grease to the outer circumference of the Exhaust Valve [9] prior to reassembly.

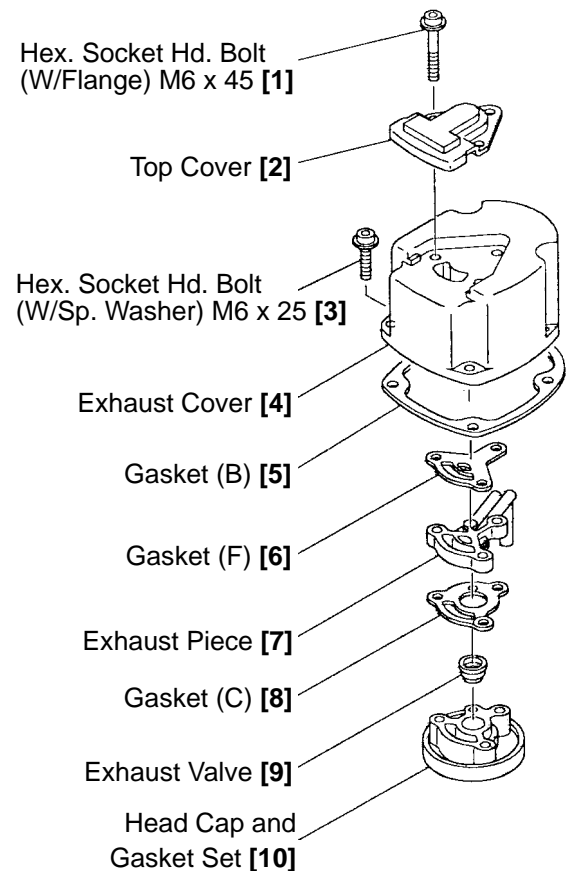


Fig. 12 Disassembly of main body, upper part

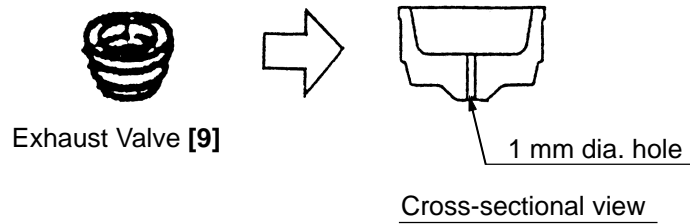


Fig. 13

(3) Piston Bumper (B) [27], Gasket (A) [28] and related parts (See Figs. 14 and 15.)

Tools required

- Hexagonal bar wrench (5 mm, 6 mm)
- Roll pin puller (3 mm (0.118") dia.)
- Screwdriver

(a) Disassembly

- Pull out the Roll Pin D3 x 45 [43] to remove Guard (B) [42].
- Remove the Nylock Bolt (W/Flange) M6 x 12 [29] to remove the Guard [30].
- Pull the Nail Feeder Ass'y [75] backward and insert a screwdriver or a rod into the stopper hole for the Nail Feeder Ass'y [75] as shown in Fig. 15. (This is to prevent the Nail Feeder Ass'y [75] from moving forward when removing the Magazine [78].)
- Remove the Nylock Bolt (W/Flange) M8 x 16 [33] and pull out the entire magazine section backward.
- Remove the four Nylock Hex. Socket Hd. Bolts M8 x 22 [31]. Then Piston Bumper (B) [27] and Gasket (A) [28] can be removed together with the Nose [32] and Pushing Lever [45] (Fig. 14).

(b) Reassembly

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

- Plunger (B) Spring [58], Plunger (B) [59] and Washer M5 [57] are apt to be removed during disassembly. Be sure to check that Plunger (B) Spring [58], Plunger (B) [59] and Washer M5 [57] are mounted without fail during reassembly.
- Pressing the Magazine [78] against the Nose [32], secure them with the Nylock Bolt (W/Flange) M8 x 16 [33] with a minimum clearance between the Magazine [78] and the Nose [32].
- Mount the Roll Pin D3 x 45 [43] without fail.

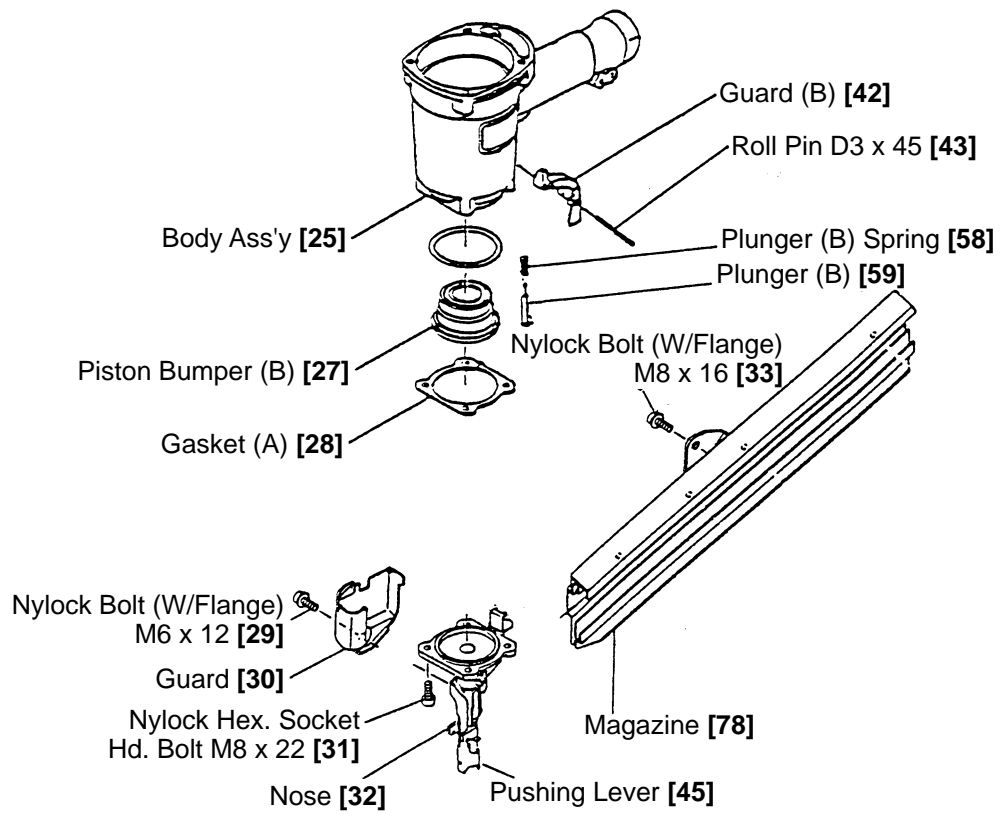
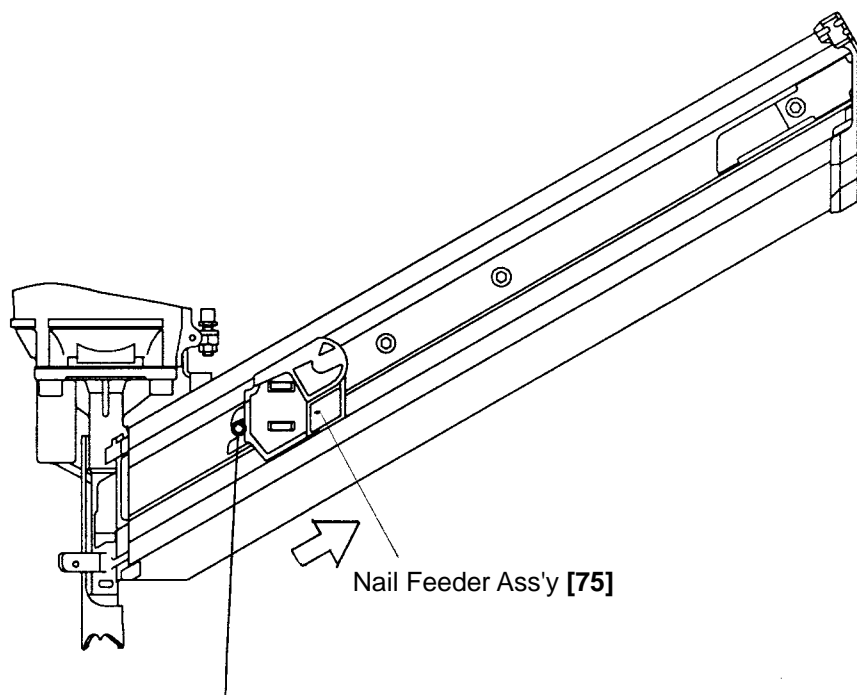


Fig. 14



Insert a bar such as a screwdriver into this hole.

Fig. 15

10-3. Disassembly and Reassembly of the Control Valve Section

Tools required:

- Roll pin puller (3 mm (0.118") dia.)
- Flat-blade screwdriver
- Setting pin (with a rounded tip)

(a) Disassembly (See Fig. 16.)

- Remove the Magazine [78] as described in section 10-2-(3).
- Remove the Pushing Lever [45] as described in section 10-2-(3).
- With the roll pin puller (3 mm (0.118") dia.), take out the Roll Pin D3 x 30 [52], and remove the Trigger [51], Trigger Plunger [65], Plunger (B) Spring [58], Washer M5 [57] and Plunger (B) [59].
- Insert the flat-blade screwdriver into the groove of the Trigger Valve Bushing [49], and loosen it by turning it to the left, being careful not to damage the groove.
- After removing the Trigger Valve Bushing [64], pull down strongly on the Valve Bushing [49] to remove the Valve Bushing [49], Valve Sleeve (A) [54], Plunger (A) [48] and the Plunger Spring [46].
- Remove the Plunger O-ring [56] inside the Valve Bushing [49] and the two O-rings (P-9) [53] inside Valve Sleeve (A) [54] by means of a setting pin with a rounded tip (Fig. 17).

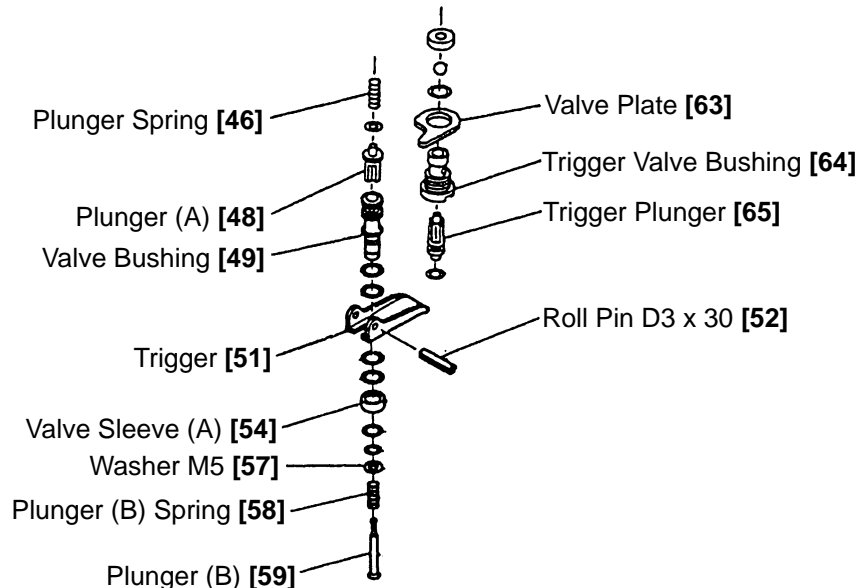


Fig. 16

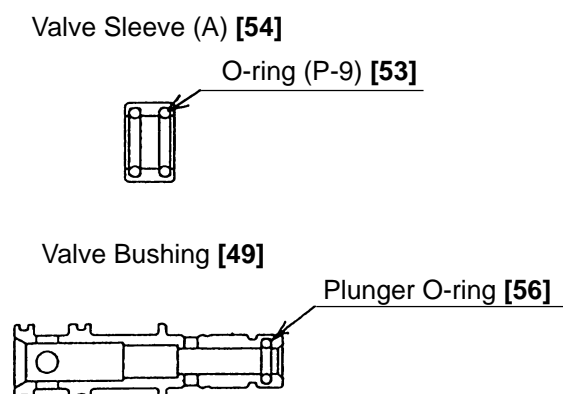


Fig. 17

(b) Reassembly

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

- Plunger Spring [46] and Plunger (B) Spring [58] are small and apt to be twisted and lost. Be careful when handling them.
- To prevent the two O-rings on the outside of the Valve Bushing [49] from being damaged when inserted into the body, carefully apply grease to the body hole and the outer circumference of the O-rings prior to assembly.
 - * If damaged O-rings are mounted, a malfunction may occur. Be careful when handling them.
- The O-ring inside the Valve Bushing [49] is small and hard to mount a little. Be careful not to lose the O-ring when handling.
- Mount the Valve Bushing [49] again facing the four 2.5 mm dia. holes at its center to the Body Ass'y [25] side (Fig. 18).

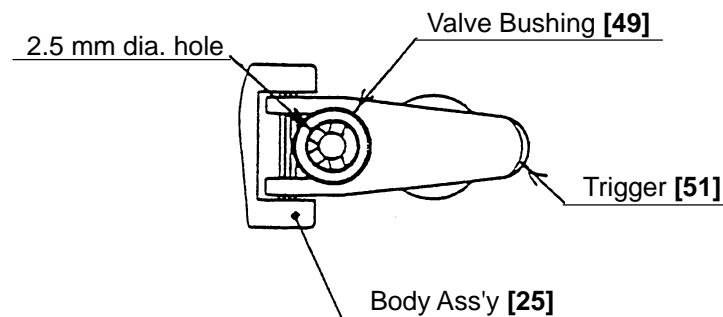


Fig. 18

10-4. Disassembly and Reassembly of the Driving Section, the Cap and the Magazine Section

(1) Nose [32], Pushing Lever [45] and the related parts (See Fig. 19.)

Tool required

- Hexagonal bar wrench (5 mm)

(a) Disassembly

- Perform disassembly according to 10-2-(3) to remove the Nose [32], Pushing Lever [45] and the other parts.
- Remove the Nose Rubber [67] from the Nose [32] by stretching the Nose Rubber [67] with a thin rod.

(b) Reassembly

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

- Be careful of the mounting direction of the Nose Rubber [67]. Mount the Nose Rubber [67] aligning with the shape of the Nose [32].
- Hook the Spring [44] in the 3 mm dia. hole of the Nose [32] aligning with the shape of the Pushing Lever [45]. (The Nose [32] has two 3 mm dia. holes, one is for hooking the Spring [44] and the other is for the depth adjustment pushing lever kit (optional accessory).)
- Do not insert a roll pin into the other 3 mm dia. hole.

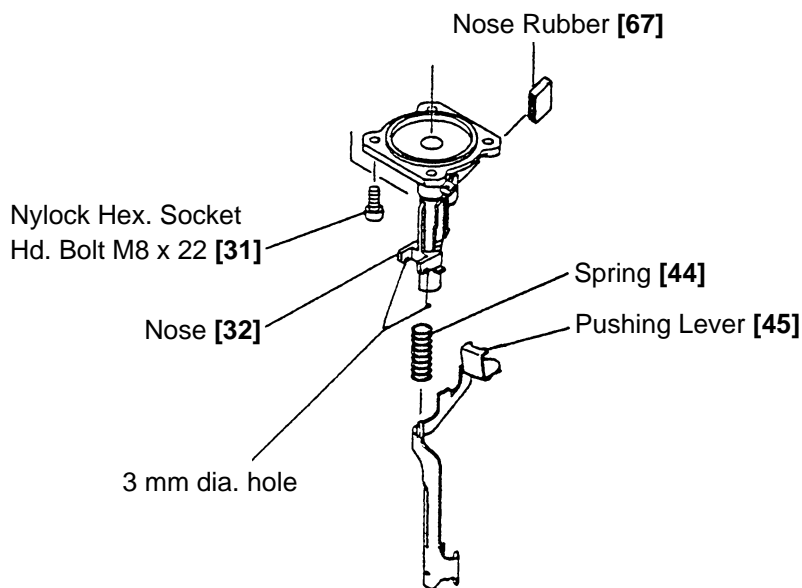


Fig. 19

(2) Magazine [78], Nail Feeder Ass'y [75] and the related parts (See Fig. 20.)

Tool required

- Hexagonal bar wrench (5 mm)

(a) Disassembly

- Perform disassembly according to 10-2-(3) to remove the entire magazine section.
- Remove a screwdriver or a rod from the stopper hole for the Nail Feeder Ass'y [75]. Then the Nail Feeder Ass'y [75], Ribbon Spring [76] and Needle Roller D4 x 20 [77] can be removed from the front of the Magazine [78].
- Remove the three Hex. Socket Hd. Bolts (W/Flange) M6 x 12 [80]. Then Handle Arm [35], Nail Stopper [81] and Magazine Cover [70] can be removed together with the other parts.
- The Nail Rail [68] that is press-fitted into the Magazine [78] has a protrusion at the rear end to prevent coming off. Tap at the front of the Magazine [78] using a hammer and a bar being careful not to scratch the parts.

(b) Reassembly

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

- Insert the Nail Rail [68] from the rear of the Magazine [78] and press-fit the Nail Rail [68] into the Magazine [78] by tapping with a wooden hammer so that the protrusion of the Nail Rail [68] becomes flush with the rear end of the Magazine [78].
- Hook the hook of the Ribbon Spring [76] on the Magazine [78] then mount the Nail Feeder Ass'y [75] to the Magazine [78]. Slide the Nail Feeder Ass'y [75] backward and insert a screwdriver or a rod into the stopper hole for the Nail Feeder Ass'y [75] as shown in Fig. 15.
- Press the mounting surface of the Nail Stopper [81] against the Magazine [78] and slide it backward until the "A" portion fits into the concave portion of the Magazine Cover [70] then secure them with the bolt. At this time, mount the Sleeve [69] without fail.

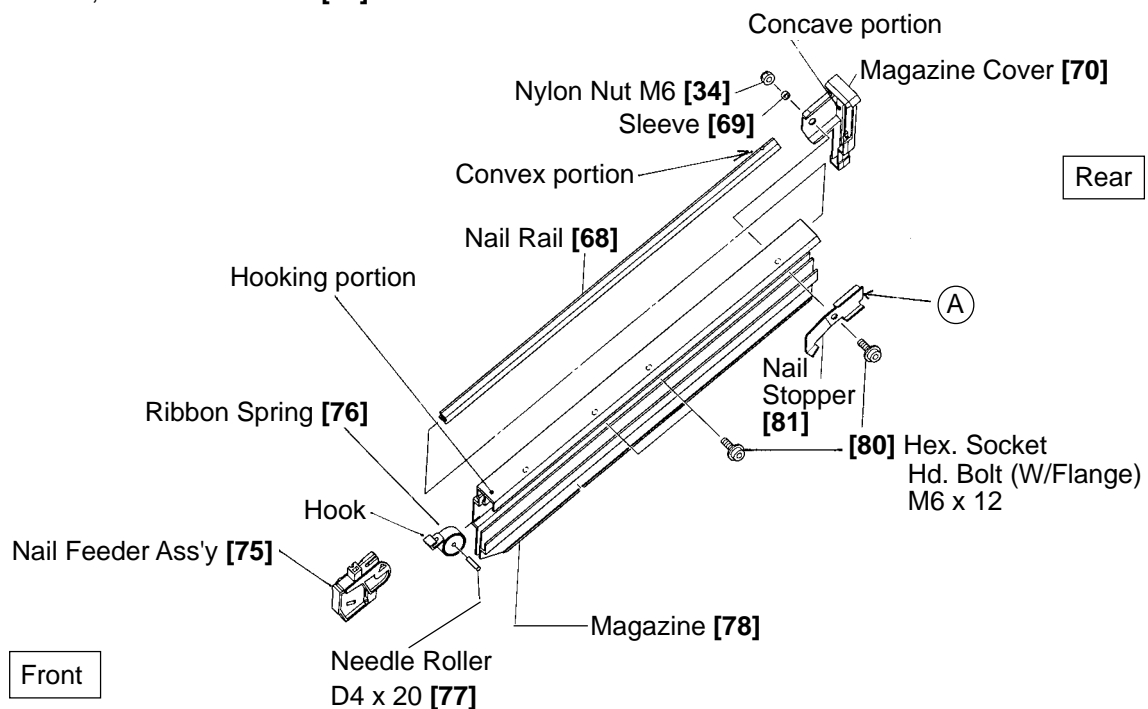


Fig. 20

(3) Nail Feeders (A) [71], (B) [73] and the related parts (See Fig. 21.)

Tool required

- Roll pin puller (4 mm (0.157") dia.)

(a) Disassembly

- Fix the Nail Feeder Ass'y [75] using a V-block and pull out the Roll Pin D4 x 40 [72] from the top using a roll pin puller (4 mm (0.157") dia.). Then Nail Feeder (A) [71], Nail Feeder (B) [73] and Feeder Spring [74] can be removed.

(b) Reassembly

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

- Insert the Roll Pin D4 x 40 [72] into Nail Feeder (B) [73]. Insert the Feeder Spring [74] into the hole of the Nail Feeder (B) [73] and compress the Feeder Spring [74] until it is engaged with the protrusion of Nail Feeder (A) [71].

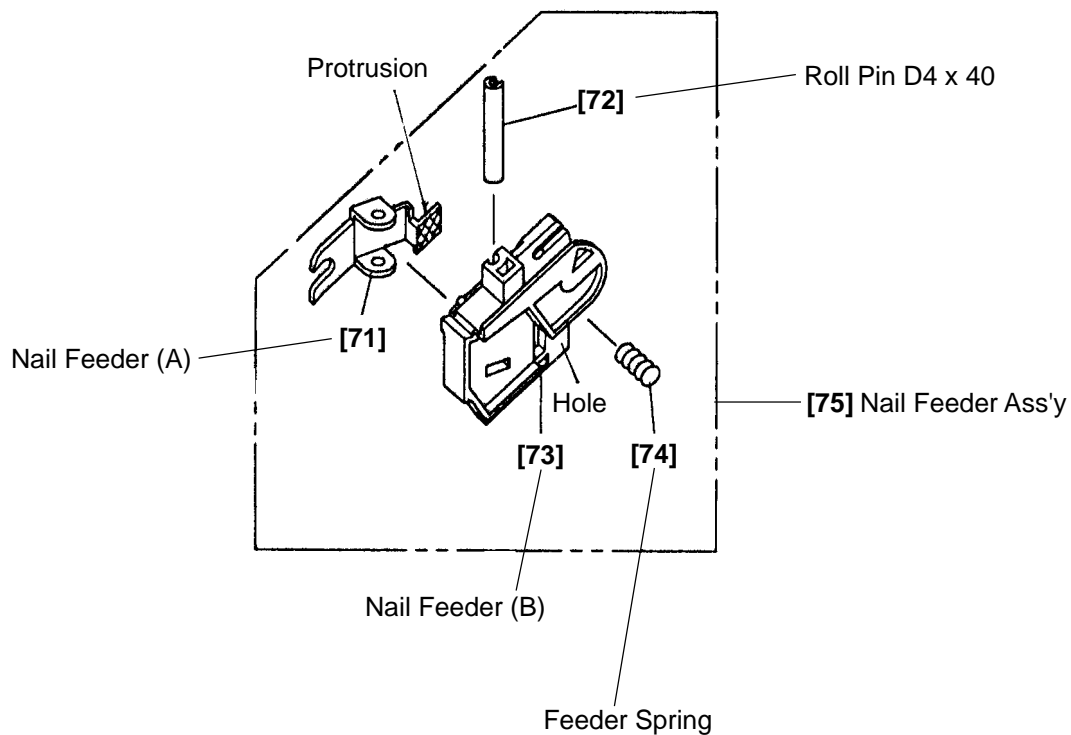


Fig. 21

(4) Disassembly and reassembly of the cap (See Fig. 22.)

Tool required

- Hexagonal bar wrench (4 mm)

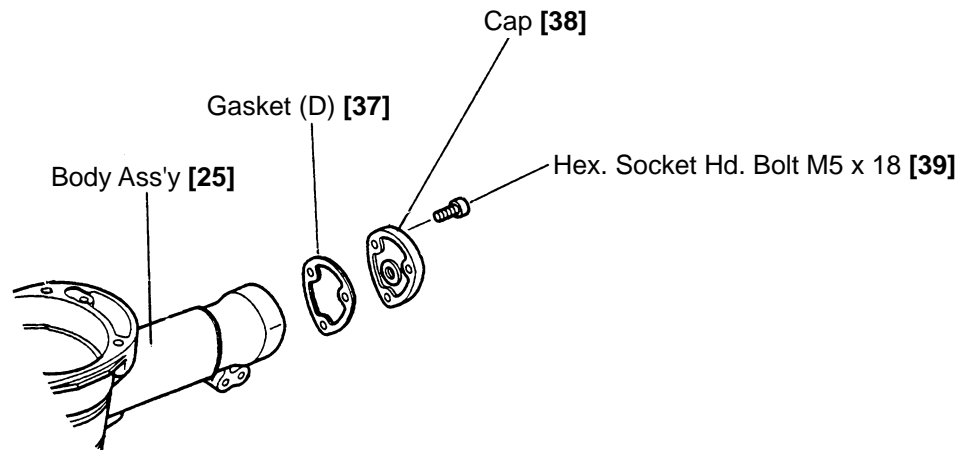


Fig. 22

(a) Disassembly

- Remove the three Hex. Socket Hd. Bolts M5 x 18 [39], the Cap [38] and Gasket (D) [37] can be removed.

(b) Reassembly

- Reassembly can be accomplished by following the disassembly procedures in reverse.

11. INSPECTION AND CONFIRMATION AFTER REASSEMBLY

- Be sure to check the following items after reassembly. Pay special attention to the items (2) and (4) about the single actuation (single sequential actuation) mechanism that is not provided to the Model NR 83AA2 but the Model NR 83AA3. Before checking the following items except (5), check that no nail is loaded in the Magazine [78] and the Nose [32].
- (1) Check that the Pushing Lever [45], Trigger [51], Trigger Plunger [65], Plunger (A) [48], Plunger (B) [59] and Valve Sleeve (A) [54] operate smoothly without connecting to an air compressor. Then check that the Nail Feeder Ass'y [75] moves smoothly in the Magazine [78].
- (2) Connect the Model NR 83AA3 to an air compressor and set Valve Sleeve (A) [54] to "single actuation (single sequential actuation)" (see 5-2). Check the following when the pressure is 4.5 kgf/cm (63 psi) and 8.5 kgf/cm (120 psi).
 - Check that there is no air leakage and the Model NR 83AA3 does not operate (i.e., check that the Piston [12] does not come out of the Nose [32] tip (outlet of nails) when it is left for five seconds or more).
- (3) Set Valve Sleeve (A) [54] to "contact actuation" (see 5-2). Check the following when the pressure is 8.5 kgf/cm (120 psi).
 - ① Check that the Model NR 83AA3 does not operate just by pulling the Trigger [51].
 - ② Check that the Model NR 83AA3 does not operate just by pressing the Pushing Lever [45] against a test piece (wood etc.).
 - ③ Check that the Model NR 83AA3 operates by pulling the Trigger [51] first then pressing the Pushing Lever [45] against a test piece (at this time, pull the Nail Feeder Ass'y [75] backward (see Fig. 15)).
- (4) Set Valve Sleeve (A) [54] to "single actuation (single sequential actuation)". Check the following when the pressure is 8.5 kgf/cm (120 psi).
 - ① Check that the Model NR 83AA3 does not operate just by pulling the Trigger [51] (i.e., check that the Piston [12] does not come out of the Nose [32] tip (outlet of nails) when keeping the Trigger [51] pulled for five seconds or more).
 - ② Check that the Model NR 83AA3 does not operate just by pressing the Pushing Lever [45] against a test piece.
 - ③ Check that the Model NR 83AA3 operates by pressing the Pushing Lever [45] against a test piece first then pulling the Trigger [51]. Check that the Piston [12] is still showing from the Nose [32] tip (outlet of nails) after the Pushing Lever [45] is released from the test piece with the Trigger [51] pulled.
- (5) Set Valve Sleeve (A) [54] to "contact actuation". Set the pressure to 4.5 kgf/cm (63 psi) and load nails in the Magazine [78]. Perform nailing operation and check that nails are properly driven (no idling and bent nails).
- (6) Recheck the tightening torque of each screw without connecting to an air compressor.

12. STANDARD REPAIR TIME (UNIT) SCHEDULES

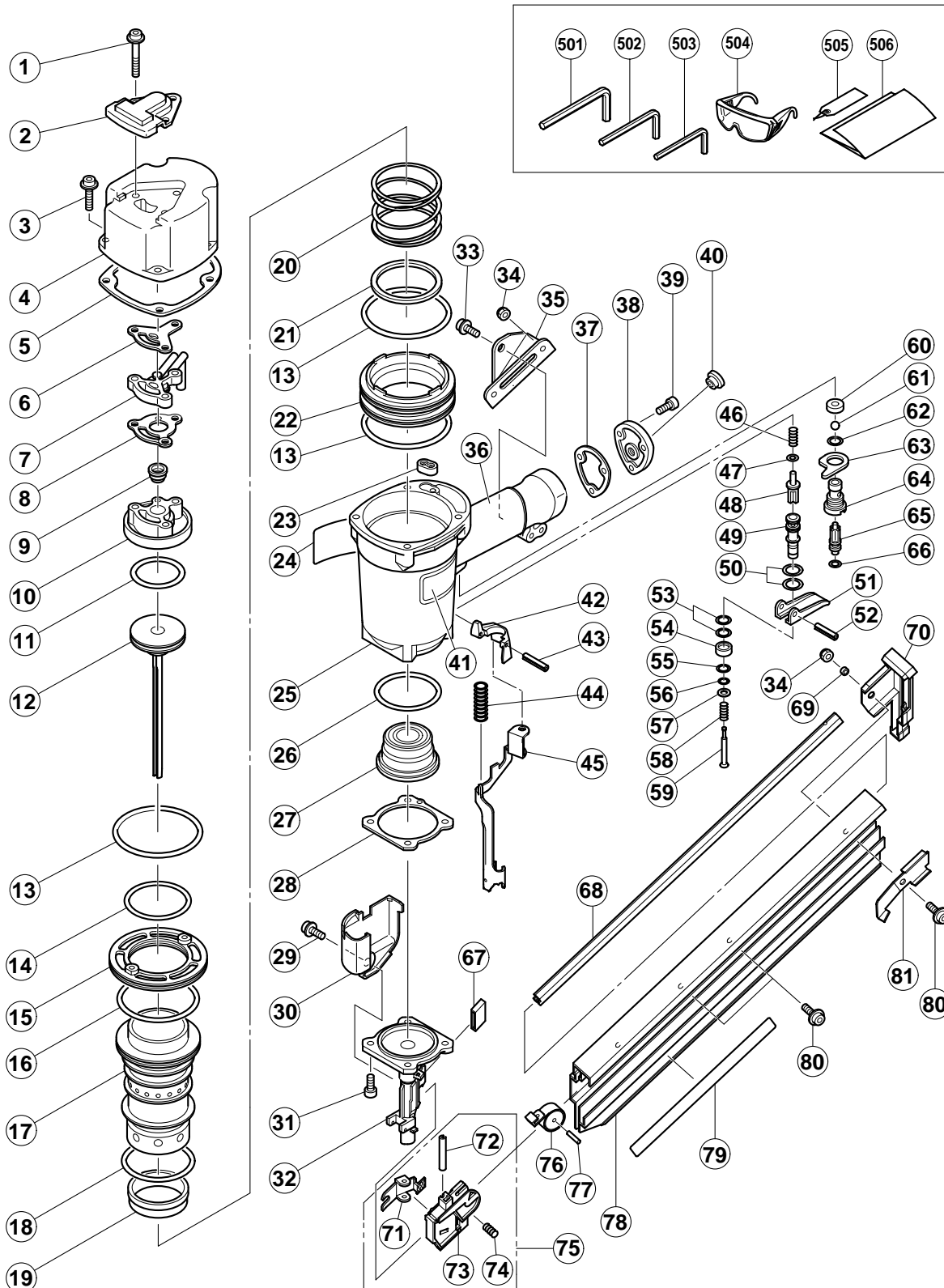
MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
NR 83AA3	General Assembly	Work Flow						
			Exhaust Cover Exhaust Piece Exhaust Valve Head Cap and Gasket Set Gasket x 4	Nose Magazine Nail Rail Nail Feeder Ass'y Ribbon Spring				

PNEUMATIC TOOL PARTS LIST

STRIP NAILER
Model NR 83AA3

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(E1)



PARTS

NR 83AA3

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	883-509	HEX. SOCKET HD. BOLT (W/FLANGE) M6X45	3		
2	877-330	TOP COVER	1		
3	883-507	HEX. SOCKET HD. BOLT (W/SP.WASHER) M6X25	4		
4	877-324	EXHAUST COVER	1		
5	877-325	GASKET (B)	1		
6	877-329	GASKET (F)	1		
7	877-328	EXHAUST PIECE	1		
8	877-854	GASKET (C)	1		
9	884-110	EXHAUST VALVE (ORANGE)	1		
10	877-307	HEAD CAP AND GASKET SET	1	INCLUD. 8	
11	877-368	O-RING (1AP-48)	1		
12	883-510	PISTON	1		
13	877-316	O-RING (S-90)	3		
14	877-312	CYLINDER O-RING (I.D 63.1)	1		
15	877-318	CYLINDER PLATE	1		
16	877-313	CYLINDER O-RING (I.D 79.3)	1		
17	884-068	CYLINDER	1		
18	877-314	CYLINDER O-RING (I.D 69.3)	1		
19	877-317	CYLINDER RING	1		
20	877-321	CYLINDER SPRING	1		
21	877-322	BASE WASHER	1		
22	877-310	CYLINDER GUIDE	1		
23	877-327	GASKET (G)	1		
24	884-070	WARNING LABEL	1		
25	883-506	BODY ASS'Y	1	INCLUD. 36	
26	877-315	CYLINDER O-RING (I.D 63.9)	1		
27	883-511	PISTON BUMPER (B)	1		
28	877-334	GASKET (A)	1		
29	882-974	NYLOCK BOLT (W/FLANGE) M6X12	1		
30	883-493	GUARD	1		
31	883-492	NYLOCK HEX. SOCKET HD. BOLT M8X22	4		
32	883-490	NOSE	1		
33	883-505	NYLOCK BOLT (W/FLANGE) M8X16	1		
34	963-837	NYLON NUT M6	3		
35	883-504	HANDLE ARM	1		
36		GRIP RUBBER	1	(SUPPLIED WITH ITEM NO. 605, 606)	
37	877-331	GASKET (D)	1		
38	878-311	CAP	1		
39	949-658	HEX. SOCKET HD. BOLT M5X18 (10 PCS.)	3		
40	872-035	DUST CAP	1		
41		NAME PLATE	1		
42	884-119	GUARD (B)	1		
43	884-025	ROLL PIN D3X45	1		
44	884-117	SPRING	1		
45	884-118	PUSHING LEVER	1		
46	875-643	PLUNGER SPRING	1		
47	874-436	O-RING (P-4)	1		
48	884-113	PLUNGER (A)	1		
49	884-111	VALVE BUSHING	1		
50	884-112	O-RING (I.D 10.7)	2		
51	876-203	TRIGGER	1		

PARTS

NR 83AA3

[illegible]

STANDARD ACCESSORIES

NR 83AA3

[illegible]

OPTIONAL ACCESSORIES

[illegible]

