

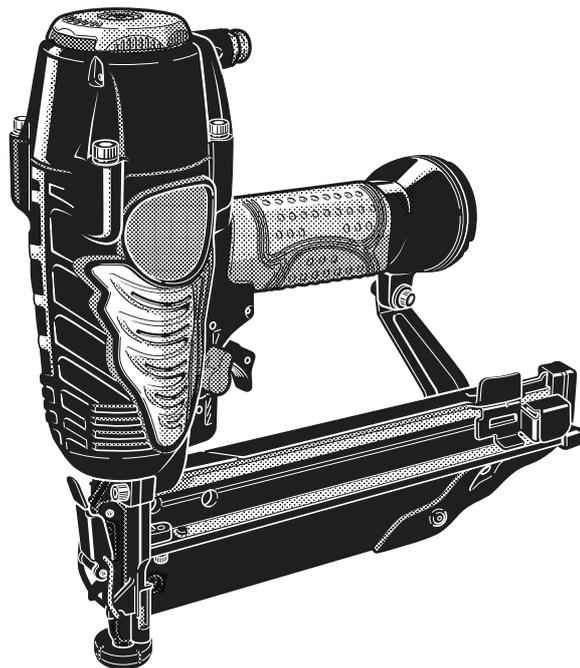
MODEL

NT 65M2

Hitachi Power Tools

**FINISH NAILER
NT 65M2**

**TECHNICAL DATA
AND
SERVICE MANUAL**



N

LIST No. E032

Dec. 2005

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
P	Porter Cable	FN250B
Q	Bostitch	SB-1664FN

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1. PRODUCT NAME

Hitachi Finish Nailer, Model NT 65M2

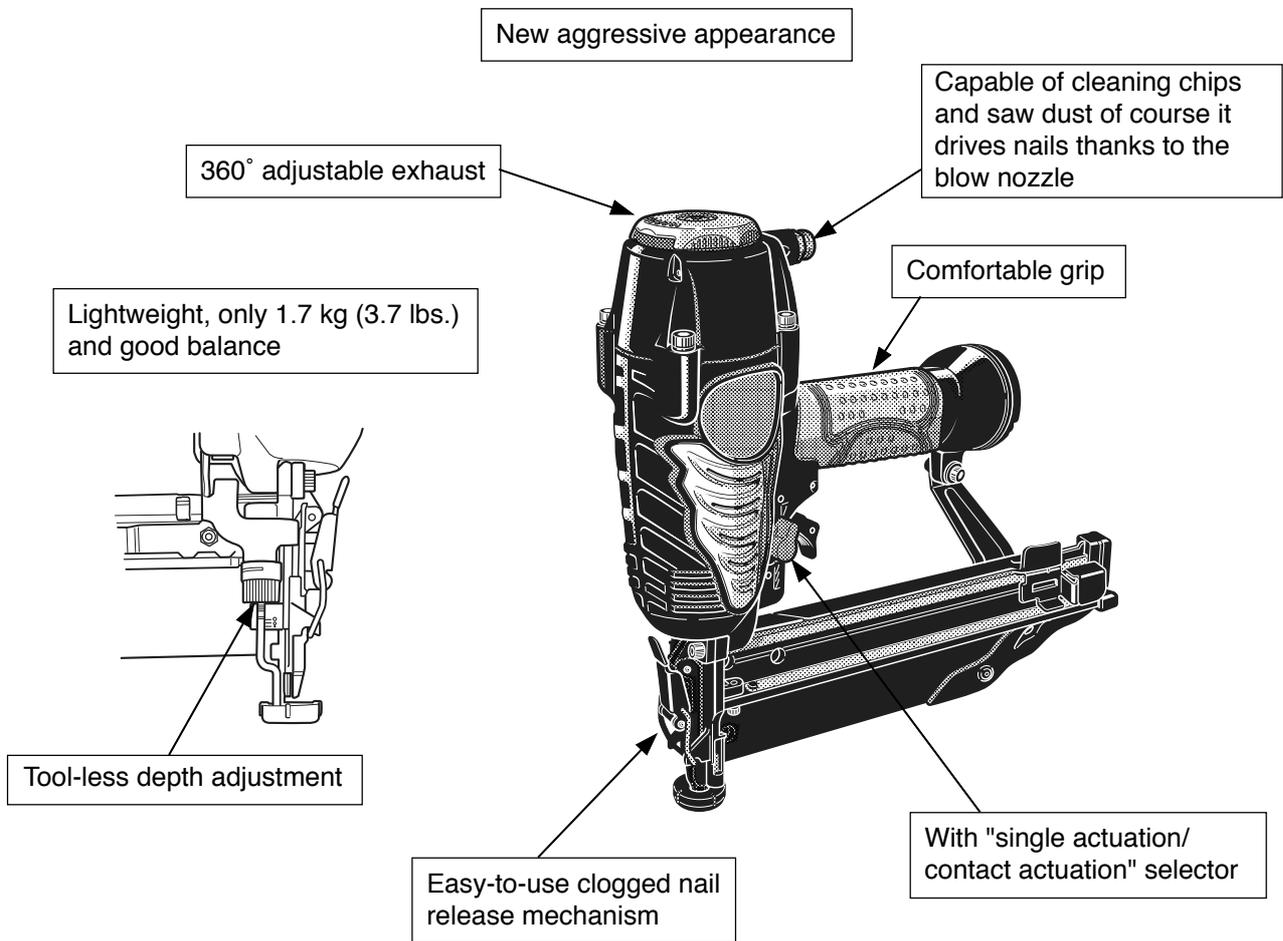
2. MARKETING OBJECTIVE

The new Model NT 65M2 finish nailer is a minor-changed version of the current Model NT 65M. To expand the market share, the Model NT 65M2 is shifted from OEM to manufacturing by ourselves. In addition, the appearance is changed to the one for a next-generation model (Model NR 90AD).

3. APPLICATIONS

- Finish-nailing of door casings and similar frame assemblies.
- Fastening of drawer bottoms and similar assembly work in the construction of various cabinets and cases.

4. SELLING POINTS



5. SPECIFICATIONS

5-1. Specifications

Model	NT 65M2	
Driving system	Reciprocating piston type	
Operating pressure	5 – 8.5 kgf/cm ² (gauge pressure) (70 to 120 psi)	
Product weight	1.7 kg (3.7 lbs.)	
Dimensions (L x H x W)	295 mm x 285 mm x 71 mm (11-5/8" x 11-7/32" x 2-51/64")	
Nail feed system	Ribbon spring	
Loadable number of nails	100 nails	
Packing	Corrugated cardboard box	
Packing dimensions (L x H x W)	385 mm x 355 mm x 120 mm (15-5/32" x 14-125/128" x 4-23/32")	
Standard accessories	<ul style="list-style-type: none"> • Safety glasses (Code No. 885549) 1 • Case (Code No. 885676) 1 • Nose cap (mounted on tool) (Code No. 881751) 1 	
Optional accessories	Pneumatic tool lubricant (1 oz oil feeder) (Code No. 877153) Pneumatic tool lubricant (4 oz oil feeder) (Code No. 872042) Pneumatic tool lubricant (1 oz oil feeder) (Code No. 876212) Grease (ATTOLUB No. 2) (500 g (1.1 lbs.)) (Code No. 317918)	

5-2. Nail Selection

The Model NT 65M2 utilizes small-head, T-shaped nails (finish nails) collated by adhesive. Applicable nails are shown below.

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

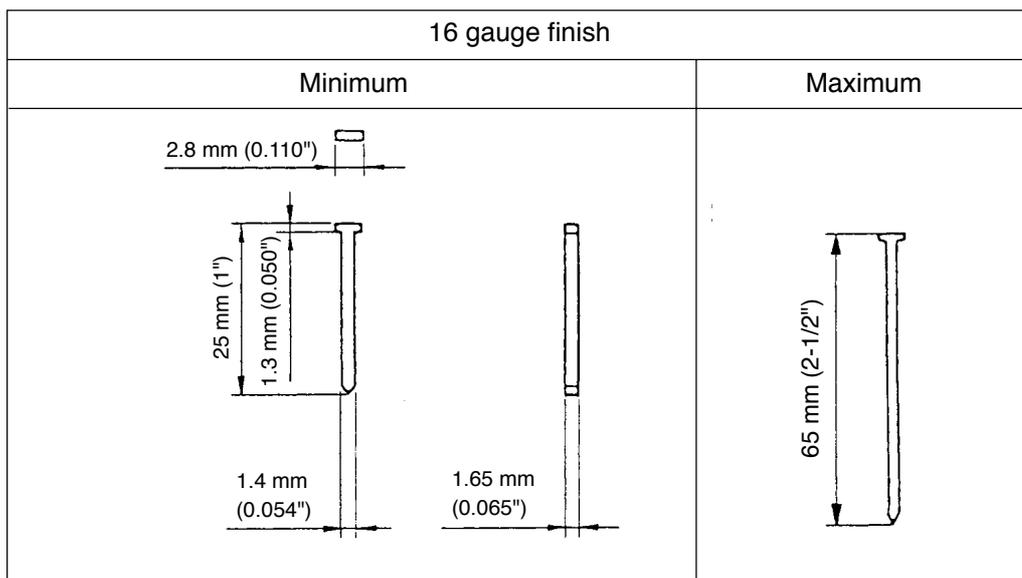


Fig. 1 Dimensions of nails

5-3. Explanation of the Nailing Action

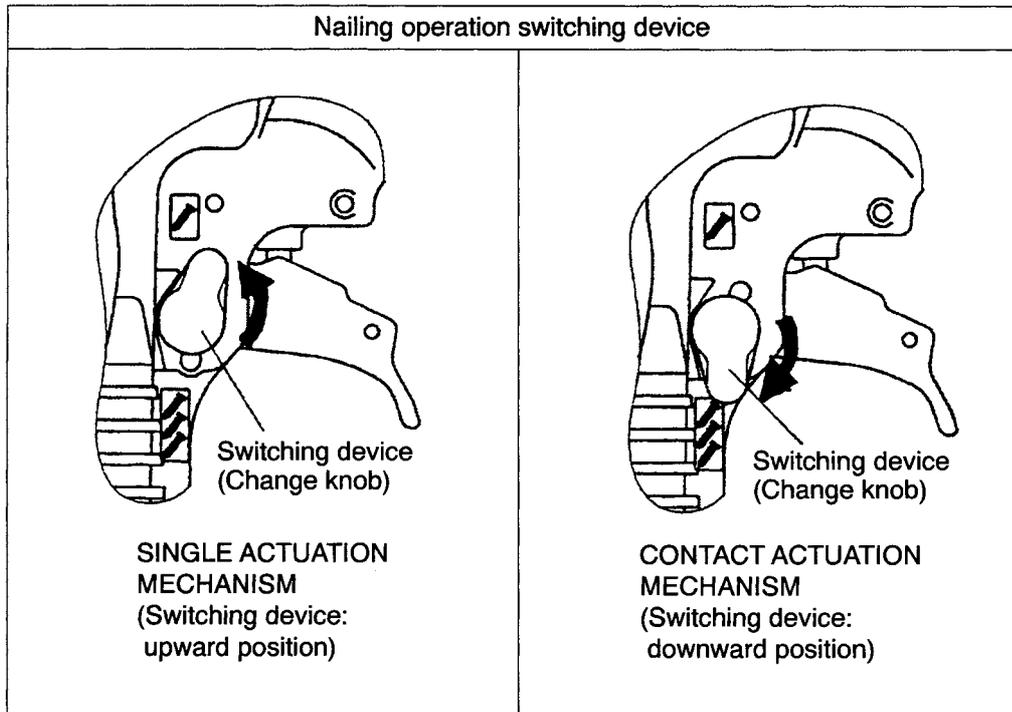
To meet the requirements of "ANSI SNT-101-2002", the Model NT 65M2 is equipped with a nailing operation switching device at the valve portion as shown in the figures below. Use SINGLE ACTUATION MECHANISM (SINGLE SEQUENTIAL ACTUATION MECHANISM) or CONTACT ACTUATION MECHANISM in accordance with the work to be performed. Each nailing operation is as follows.

○ SINGLE ACTUATION MECHANISM (SINGLE SEQUENTIAL ACTUATION MECHANISM):

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



5-4. Nail Driving Force

Figure 2 shows the nailer output energy provided by the supply pressure and the required nailing energy for driving the nail flush with surface of a workpiece with variables of types of wood and nails. 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 65 mm (2-1/2") nail into a hard wood workpiece with the Model NT 65M2, a pressure of about 5.5 kgf/cm² (78 psi, 5.4 bar) allows the nailer to drive the nail flush with the surface. A pressure beyond this value causes the nail head to be driven below the wood surface. Figure 2 should be used as a reference only because those values vary depending on the type of wood, moisture content and grain of wood.

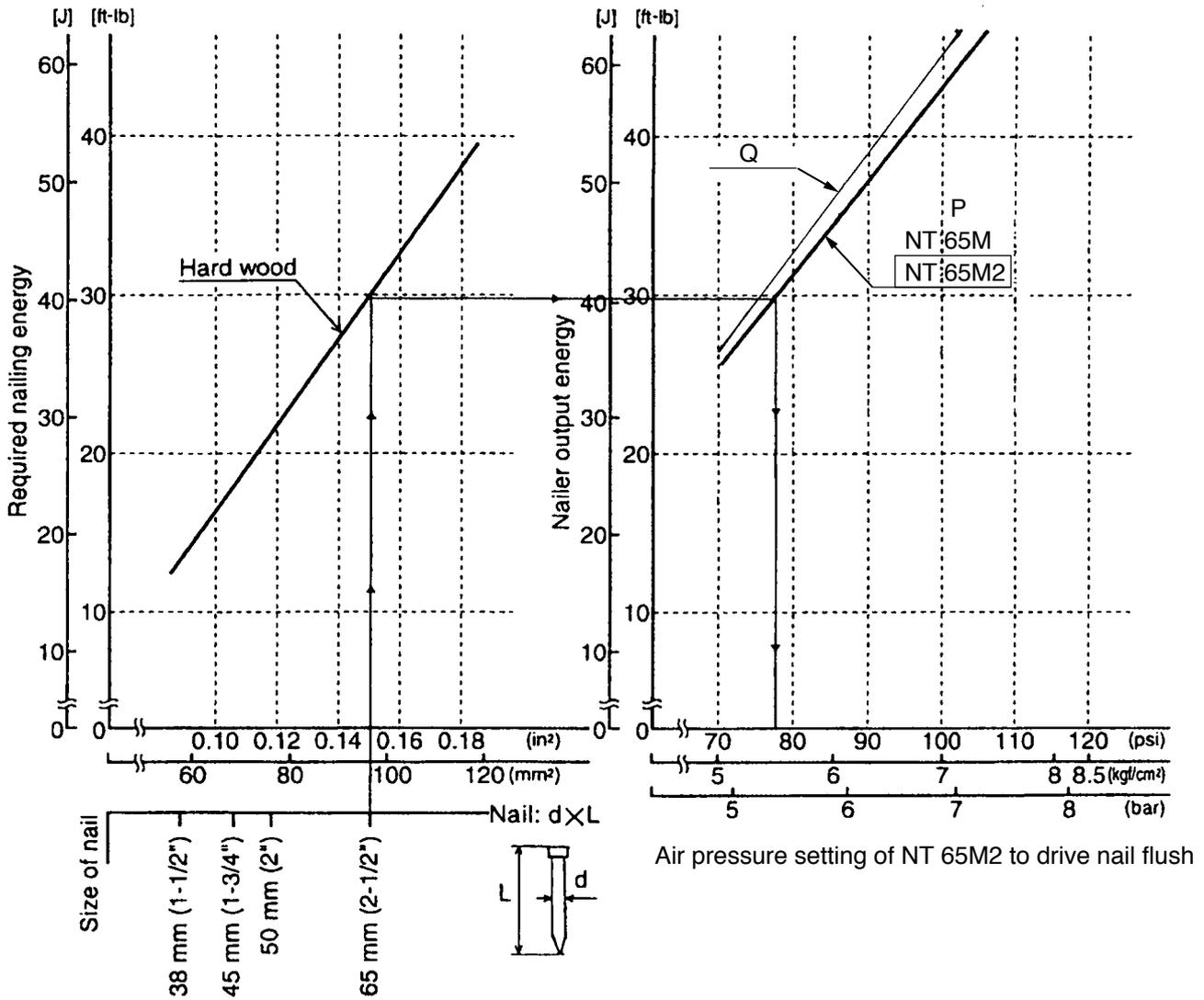


Fig. 2 Required nailing energy and nailer output energy

6. COMPARISONS WITH SIMILAR PRODUCTS

Maker	HITACHI		P	Q
	NT 65M2	NT 65M		
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 – 120 psi)	5 – 8.5 kgf/cm ² (70 – 120 psi)
Weight	1.7 kg (3.7 lbs.)	1.7 kg (3.7 lbs.)	1.8 kg (4.0 lbs.)	1.7 kg (3.7 lbs.)
Dimensions (L x H x W)	11.6 x 11.2 x 2.8 in. (295 x 285 x 71 mm)	11.6 x 10.9 x 2.8 in. (295 x 276 x 72 mm)	11.8 x 10.7 x 2.9 in. (299 x 272 x 74 mm)	11.9 x 11.1 x 3 in. (301 x 283 x 76 mm)
Air consumption at 7 kgf/cm ² (100 psi)	0.042 ft ³ /cycle (1.2 ltr/cycle)	0.042 ft ³ /cycle (1.2 ltr/cycle)	0.039 ft ³ /cycle (1.1 ltr/cycle)	0.056 ft ³ /cycle (1.6 ltr/cycle)
Nail capacity (2-1/2" x 16 Gauge)	100 nails	100 nails	100 nails	100 nails
Magazine type	Top loading	Top loading	Top loading	Top loading
Blow nozzle	Provided	Provided	None	None
Single actuation/contact actuation selector	Provided	Provided	None	None
Direction change of exhaust air	Provided	Provided	Provided	Provided
Jam-release	Provided	Provided	Provided	Provided
Driving depth adjustment mechanism	Tool less	Tool less	Tool less	Tool less
Handing grip	Rubber	Rubber	Rubber	Rubber
Applicable nails (16 Ga. finish)	Dia.	0.054 – 0.065 in. (1.4 – 1.65 mm)	0.054 – 0.065 in. (1.4 – 1.65 mm)	0.054 – 0.065 in. (1.4 – 1.65 mm)
	Length	1 – 2-1/2 in. (25 – 65 mm)	3/4 – 2-1/2 in. (19 – 65 mm)	1 – 2-1/2 in. (25 – 65 mm)

7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model NT 65M2 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.

7-1. Handling Instructions

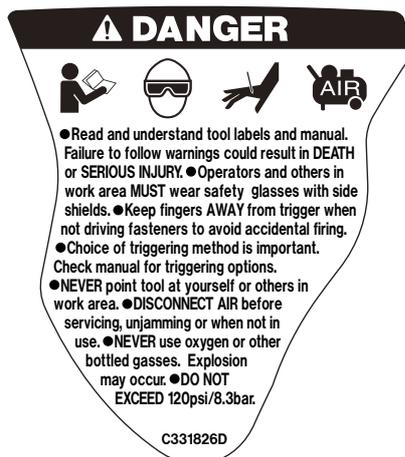
Although every effort is made in each step of design, manufacture, and inspection to provide protection against safety hazards, the dangers inherent in the use of any pneumatic tool cannot be completely eliminated.

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 Handling Instructions to enhance the safe, efficient use of the tool by the customer.

Salespersons must be thoroughly familiar with the contents of the Handling Instructions to be able to offer appropriate guidance to the customers during sales promotion.

7-2. Warning Label

Each Model NT 65M2 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 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 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 NT 65M2 can be generally divided into four sections: output section, control valve section, driving section and magazine section.

- (1) Output section (1) The body and the exhaust cover are made of aluminum and their thickness is reduced for weight saving.
 - (2) The internal structure of the exhaust cover is common to the Model NT 65MA2.
 - (3) The air duster section is common to the Model NT 65MA2.
- (2) Control section Common to the Model NR 90AD.
- (3) Driving section Most of parts have been newly designed.
 - (1) The adjuster is common to the model NT 65MA2.
 - (2) Pushing lever (A) is the same as the Model NT 65MA2.
- (4) Magazine section Most of parts have been newly designed.
 - (1) The top-loading magazine is the same as the Model NT 65M.
 - (2) The nail feeding structure is similar to the Model NT 65M.

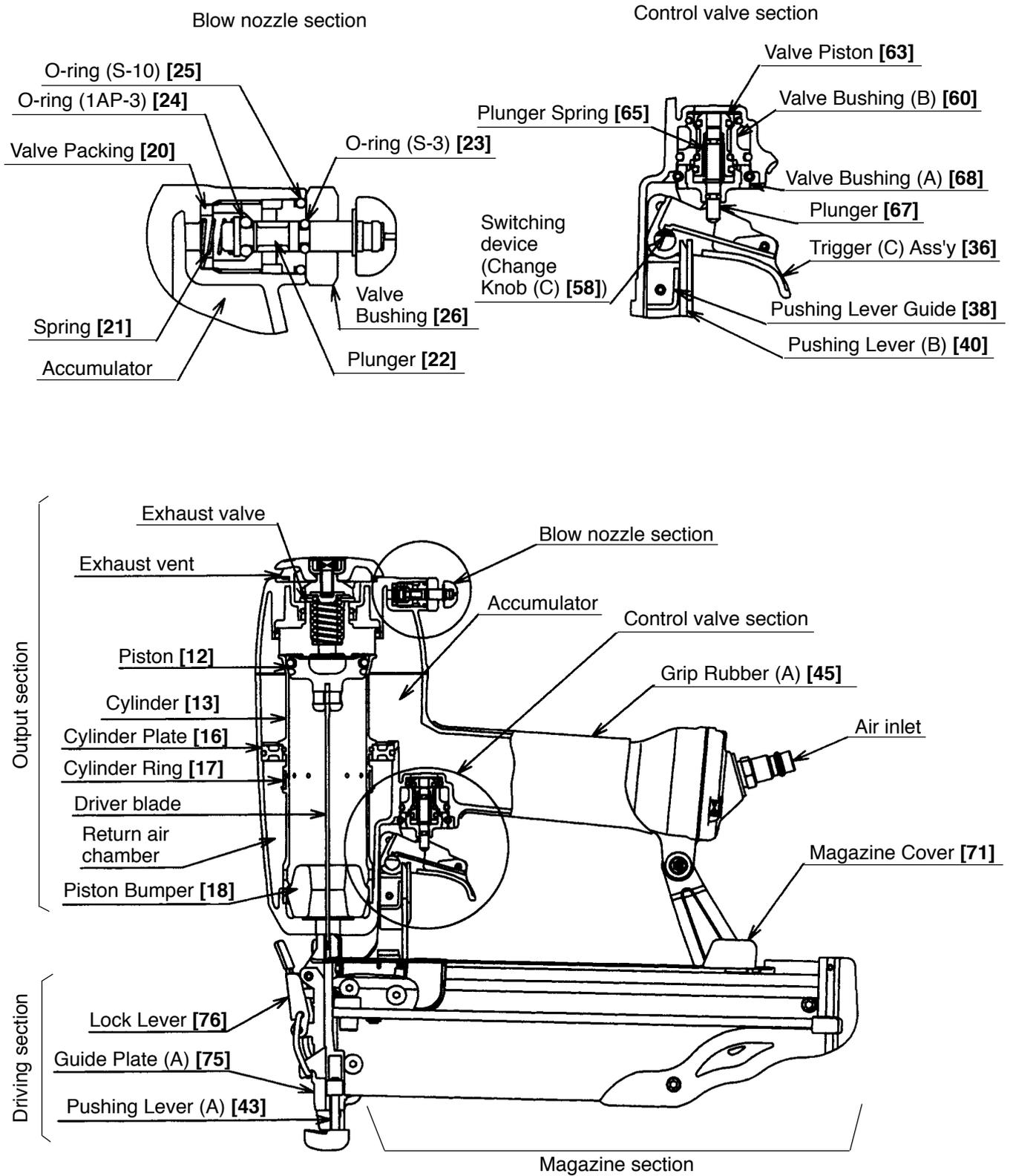


Fig. 3 Construction

8-2. Operation Principle

(1) Before nailing (See Fig. 4 and Fig. 5.)

- 1) When compressed air is fed to the main body, it fills the accumulator ( portion).
- 2) At the same time, the compressed air flows into the valve piston lower chamber of the control valve section and forces the Valve Piston [63] upward. Compressed air is then fed through the air supply vent and air passage to the head valve chamber. As a result, the Head Valve Spring [8] is pushed down to seal Head Valve (A) [10] and the Cylinder [13].

(2) When nailing (See Fig. 4 and Fig. 5.)

- 1) When Pushing Lever (A) [43] and Trigger (C) Ass'y [36] are operated together and the Plunger [67] is pushed upward, the compressed air in the valve piston lower chamber is discharged from the bottom of the Plunger [67]. As a result, the compressed air in the accumulator ( portion) pushes down the Valve Piston [63], blocking the air supply vent and opening the exhaust valve.
- 2) When the exhaust valve opens, the compressed air in the head valve chamber is discharged into the atmosphere through the air passage.
- 3) When the air pressure on the bottom surface of Head Valve (A) [10] overcomes the strength of the Head Valve Spring [8], Head Valve (A) [10] is pushed upward. At this time, Head Valve (A) [10] seals with the Exhaust Cover [5], blocking the passage to the exhaust vent.
- 4) When Head Valve (A) [10] goes up, the compressed air in the accumulator flows rapidly into the Cylinder [13], forcing the Piston [12] downward to strike the nail. When the Piston [12] passes the cylinder hole, the compressed air flows into the return air chamber and is accumulated there.

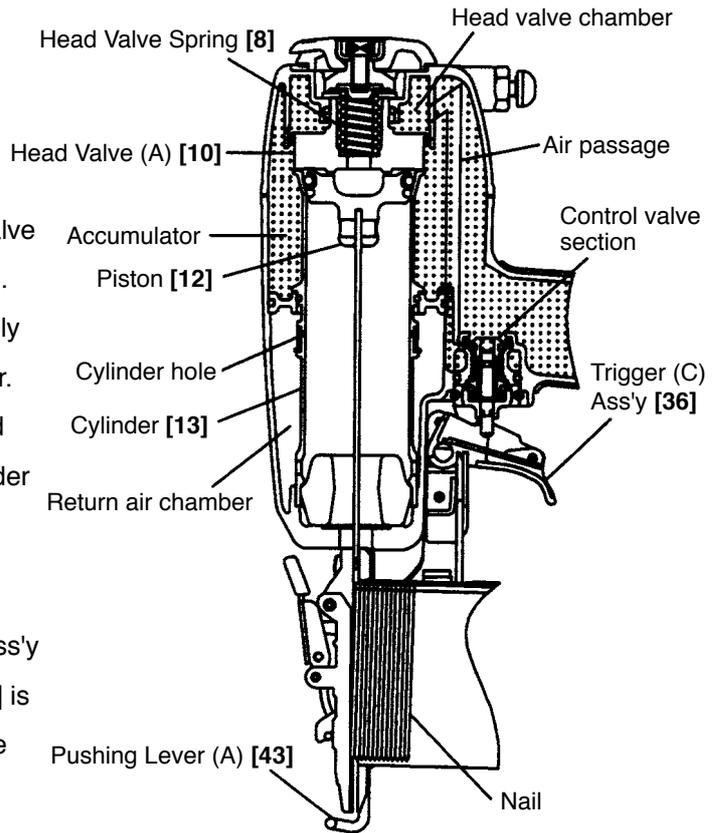


Fig. 4

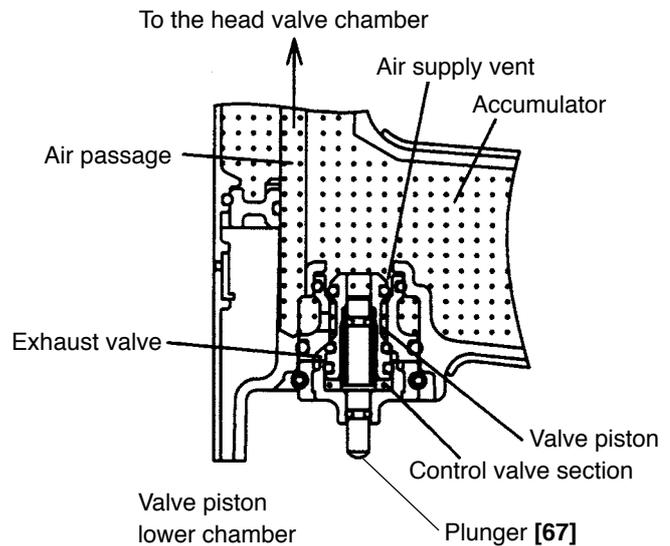


Fig. 5 Control valve section

(3) During return (See Fig. 6 and Fig. 7.)

- 1) When either Pushing Lever (A) [43] or Trigger (C) Ass'y [36] is released, the Plunger [67] goes down and the compressed air in the accumulator flows into the valve piston lower chamber.
- 2) As the air pressure in the valve piston lower chamber increases to overcome the air pressure applied on the upper portion of the Valve Piston [63], the Valve Piston [63] is forced upward. When this occurs, the exhaust valve is closed and the air supply vent is opened.
- 3) When the air supply vent opens, the compressed air in the accumulator (stippled portion) passes through the air passage and flows into the head valve chamber to push down Head Valve (A) [10]. As a result, Head Valve (A) [10] and the Cylinder [13] are sealed and, at the same time, Head Valve (A) [10] and the Exhaust Cover [5] separate to open the exhaust vent.
- 4) The compressed air above the Piston [12] is discharged into the atmosphere through the exhaust vent. In this way, the air pressure above the Piston [12] is reduced, and the greater pressure of the air accumulated in the return air chamber pushes the Piston [12] upward.
- 5) If the air pressure below the Piston [12] is higher than that of the atmosphere after the Piston [12] has fully returned, the excess air pressure is discharged into the atmosphere through the clearance between the Piston Bumper [18] and the driver blade.

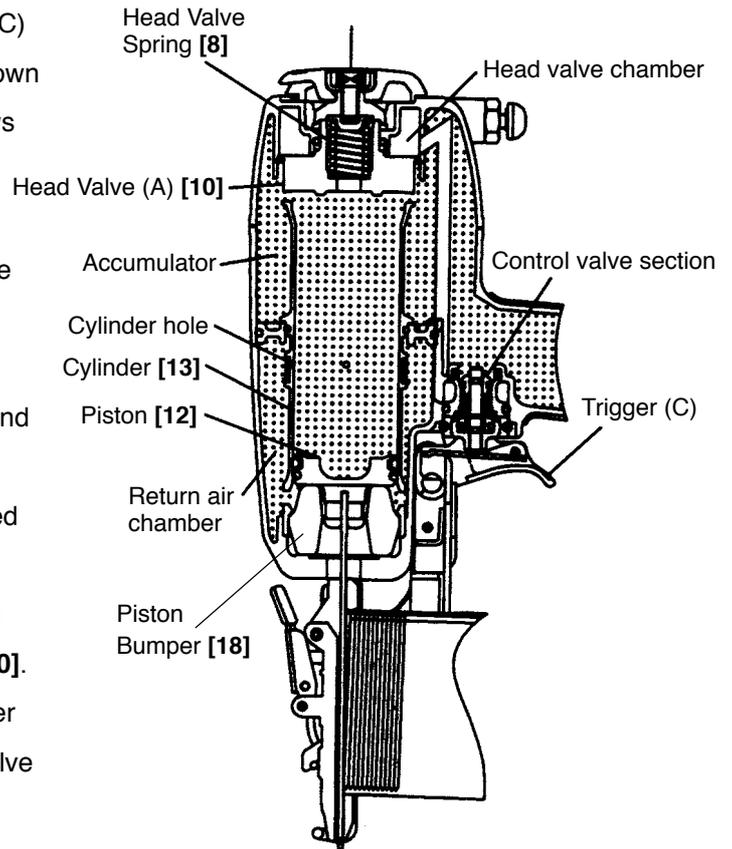


Fig. 6

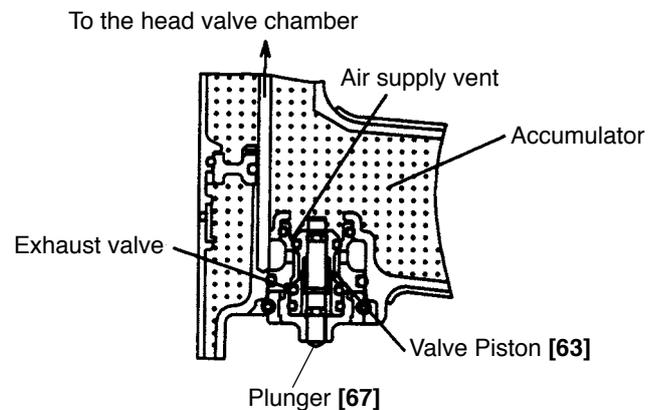


Fig. 7 Control valve section

(4) Single actuation mechanism/contact actuation mechanism: (Fig. 8 and Fig. 9)

Single/contact actuation mechanism changeover is accomplished by turning the switching device (Change Knob (C) [58]).

◦ Single actuation mechanism (Switching device: upward position):

- 1) Immediately after driving the first nail, the control valve should be as shown in Fig. 7.
- 2) When only Pushing Lever (B) [40] is released and Trigger (C) Ass'y [36] is held as shown in Fig. 8, the plate of Trigger (C) Ass'y [36] contacts Change Knob (C) [58] and the Plunger [67] returns (lowers) only halfway.

Because of this, compressed air does not flow into the valve piston lower chamber, and Valve Piston [63] remains in the lowered position.

Accordingly, the Piston [12] remains in the lowered position as shown in Fig. 6.

- 3) When Trigger (C) Ass'y [36] is released, the Plunger [67] returns (lowers) completely as shown in Fig. 5. Compressed air then flows into the valve piston lower chamber, and the Valve Piston [63] is forced upward. The Piston [12] then returns fully upward. Therefore, unless Trigger (C) Ass'y [36] is released after each nailing operation, the structural mechanism prevents the next nailing operation.

◦ Contact actuation mechanism (Switching device: downward position):

- 1) Immediately after the first nail is driven, the control valve should be as shown in Fig. 7.
- 2) Even when only Pushing Lever (B) [40] is released and Trigger (C) Ass'y [36] is held, the Plunger [67] returns (lowers) completely as shown in Fig. 9. Thus the Piston [12] returns (raises) fully. Accordingly, continuous nailing can be accomplished by pushing only Pushing Lever (B) [40] up and down while holding Trigger (C) Ass'y [36] depressed.

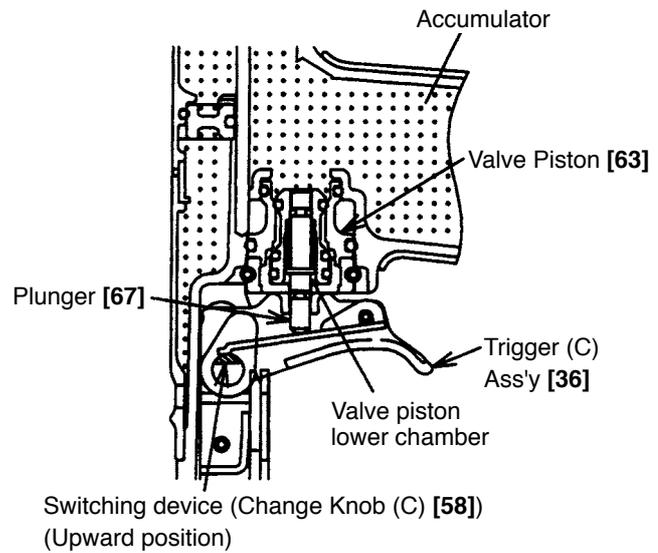


Fig. 8 Single actuation mechanism

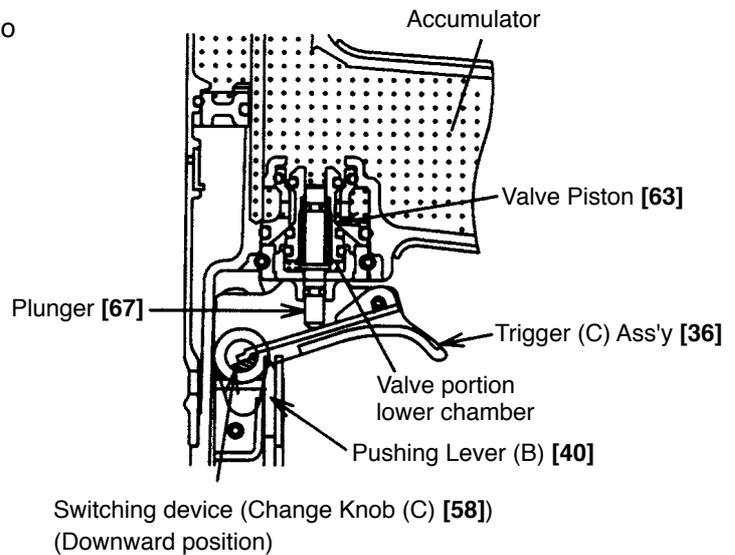


Fig. 9 Contact actuation mechanism

9. TROUBLESHOOTING GUIDE

9-1. Troubleshooting and Correction

Problem	Possible cause	Inspection method	Remedy
1) Nails cannot be driven.	<p><Nails></p> <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 head nails, abnormal collation, etc.). Collating band is abnormally adhesive. 	<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.
	<p><Magazine></p> <ul style="list-style-type: none"> Nail groove of the magazine is abnormal (too wide, too narrow, deformed or damaged). Magazines (A) and (B) are abnormal (deformed or damaged). Nail feeder is abnormal (deformed or damaged). Ribbon spring is abnormal (deformed or damaged). Magazine cover is abnormal (deformed, damaged or fatigued). 	<ul style="list-style-type: none"> Check the nail feeding section for abnormal conditions (burrs, fatigued, deformed or damaged). Check if the nail feeder operates smoothly in the magazine. Check if 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.
	<p><Blade guide></p> <ul style="list-style-type: none"> Nail inlet groove of the blade guide 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 blade guide. 	<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). • Head valve sliding surface is abnormal (galled, damaged or needs oil). • Head valve spring is abnormal (fatigued or damaged). 	<ul style="list-style-type: none"> • Pull the nail feeder backward and perform idle driving. Check if the driver blade has returned. • Check if nails can be driven at 5 kgf/cm². • While operating the nailer without nails, check if the driving operation is performed. • After operating the nailer without nails, check if the driver blade is kept in the down position. 	<ul style="list-style-type: none"> • Adjust for 5 to 8.5 kgf/cm² (70 – 120 psi). • Replace the piston O-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.
	<p><Control valve section></p> <ul style="list-style-type: none"> • Plunger, valve piston, valve bushing (A) or valve bushing (B) 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.
<p>2) Nails are bent when being driven.</p>	<ul style="list-style-type: none"> • For short nails, the adjuster is raised too high. • 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"> • Check if the adjuster is raised too high. • 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"> • Turn the adjuster to the lower position to decrease the pressure. • See item 1). • Replace the driver blade. • Do not use unspecified workpiece.

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"> • Adjuster is improperly adjusted. • 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"> • Turn the adjuster to the lowest position and drive a nail. • Drive a nail into soft wood workpiece and check if the head protrudes from the nose tip. • Operate the nailer without nails and check if the driver blade is projected from the nose cap. • Disassemble the output section and check the piston O-ring and the inner/ outer surfaces of the cylinder for abnormal condition. 	<ul style="list-style-type: none"> • Check if the nails are lowest position and drive a nail. • Adjust for 5 to 8.5 kgf/cm² (70 – 120 psi). • 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). • 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 mechanism is not possible.	<ul style="list-style-type: none"> * O-ring in plunger is worn. * O-ring in valve piston is worn. • Abnormal plunger sliding surface of valve piston (seized or deformed). • Abnormal plunger, trigger arm (C), push lever (B) and/ or body (worn or damaged). • The position of a switching device is mistaken. 	<ul style="list-style-type: none"> • Disassemble the control valve section, and check the O-ring of the plunger and the valve piston. • Check each part for abnormalities (worn, deformed or damaged). • The position of a switching device is checked. 	<ul style="list-style-type: none"> • Replace the part. • Replace the part. • Replace the part. • Replace the abnormal parts. • A switching device is set to the correct position.

9-2. Regrinding the Driver Blade

The tip of the driver blade should be ground as shown in Fig. 10. 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.

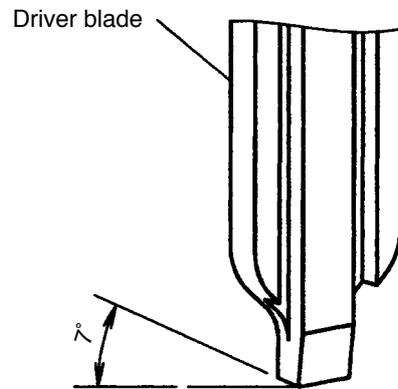


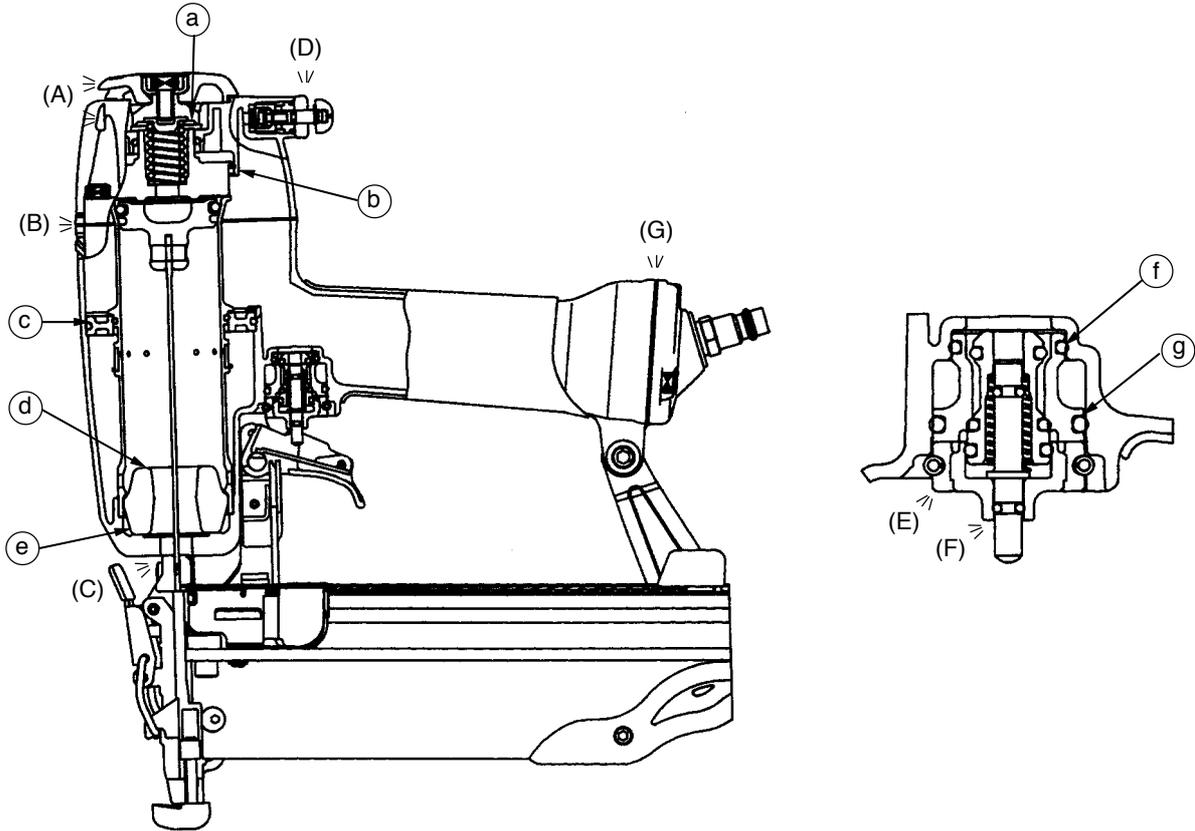
Fig. 10

9-3. Possible Causes and Correction of Air Leakage

Air leakage repair locatoin

- Repair procedure

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



Air leakage point	Possible cause	
	When control valve OFF	When control valve ON
(A) Exhaust port	<ul style="list-style-type: none"> ◎ Head Valve (A) [10] and Cylinder [13] are abnormal (sealing surface (b) is worn or deformed). ◎ The O-ring (I.D 20.8) [9] is abnormal (worn, deformed or damaged). ● Head Valve (A) [10] is abnormal (worn, deformed or damaged). 	<ul style="list-style-type: none"> ◎ Head Valve (A) [10] is abnormal ((a) portion is worn, deformed or broken). * The Exhaust Cover [5] is abnormal ((a) portion is deformed or clogged with dust).
(B) Exhaust cover	<ul style="list-style-type: none"> ● The Hex. Socket Hd. Bolt (W/Sp. Washer) M5 x 25 [4] is loose. ◎ Gasket [6] is damaged. ● The seal surface of the Body Ass'y [31] or the Exhaust Cover [5] is abnormal. 	

Air leakage point	Possible cause	
	When control valve OFF	When control valve ON
(C) Blade guide	<ul style="list-style-type: none"> ⊙ The Cylinder O-ring (I.D 59.6) [15] is abnormal (broken or damaged). ● The seal surface of the Body Ass'y [31] is abnormal (ⓐ portion). 	<ul style="list-style-type: none"> ⊙ The Piston Bumper [18] is abnormal (ⓐ or ⓑ portion is damaged, deformed or cracked). ● The Piston [12] is abnormal (driver blade or sealed face is deformed). ● The ⓑ surface of the Body Ass'y [31] is deformed.
(D) Air outlet, valve bushing	<ul style="list-style-type: none"> ● The Valve Packing [20] is damaged. ⊙ The O-ring (1AP-3) [24] of the Plunger [22] is abnormal (worn, broken or damaged). ⊙ The O-ring (S3) [23] of the Plunger [22] is abnormal (worn, broken or damaged). ● The screw of the Valve Bushing [26] is loose. 	/
(E) Control valve (1)	<ul style="list-style-type: none"> ⊙ The O-ring (1AP-10) [64] of the Valve Piston [63] is abnormal (worn, broken or flawed). ⊙ The lower O-ring (P-7) [62] of the Valve Piston [63] is abnormal (worn, broken or flawed). ⊙ The O-ring (P-18) [61] of Valve Bushing (B) [60] is abnormal (broken or flawed). * The internal surface ⓓ of the valve cavity of the Body Ass'y [31] is abnormal. 	<ul style="list-style-type: none"> ⊙ The upper O-ring (P-7) [62] of the Valve Piston [63] is abnormal (worn, broken or flawed). ⊙ The Feed Piston O-ring (I.D. 14) [59] of Valve Bushing (B) [60] is abnormal (broken or flawed). * The internal surface ⓔ of the valve cavity of the Body Ass'y [31] is abnormal.
(F) Control valve (2)	<ul style="list-style-type: none"> ⊙ The O-ring (I.D 1.8) [66] of the Plunger [67] is abnormal (worn, broken or flawed). ● Valve Bushing (A) [68] is abnormal (sliding surface of the Plunger [67] is deformed or flawed). 	<ul style="list-style-type: none"> ⊙ The upper O-ring (I.D 1.8) [66] of the Plunger [67] is abnormal (worn, broken or flawed). ● The Valve Piston [63] is abnormal (sliding surface of the Plunger [67] is deformed or flawed).
(G) Gap (A)	<ul style="list-style-type: none"> ⊙ Gasket (B) [46] is damaged. ● The Hex. Socket Hd. Bolt M5 x 16 [49] is loose. ● The seal surface of the Body Ass'y [31] is abnormal (broken, deformed or scratched). 	

10. DISASSEMBLY AND REASSEMBLY

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

CAUTION:

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

10-1. General Precautions in Disassembly and Reassembly

- Apply grease (ATTOLUB No. 2 Code No. 317918) 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
 - 30 cc (1 oz) oil feeder (Code No. 877153)
 - 120 cc (4 oz) oil feeder (Code No. 874042)
 - 1 ltr (1 quart) can (Code No. 876212)
- If the Gasket **[6]** 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 Grip Rubber (A) **[45]** because Grip Rubber (A) **[45]** cannot be mounted without the specifically designed jig.
- Tightening torque for each part

Bolt and screw	Tightening torque N·m (kgf·cm, ft·lb)
Hex. Socket Hd. Bolt M6 x 12 [1]	9.8 ± 0.8 (100 ± 8, 7.2 ± 0.6)
Hex. Socket Hd. Bolt M5 [4], [49], [51], [72], [82]	8.3 ± 0.5 (85 ± 5, 6.1 ± 0.4)
Hex. Socket Hd. Bolt M4 [86], [100], [101]	4.4 ± 0.3 (45 ± 3, 32 ± 0.2)
Hex. Socket Flat Hd. Bolt M4 [95], [96]	1.9 ± 0.3 (20 ± 3, 1.5 ± 0.2)

10-2. Disassembly and Reassembly of the Output Section

(1) Disassembly and reassembly of the Exhaust Cover [5], Head Valve (A) [10], Cylinder [13], Piston [12], Piston Bumper [18], etc. (See Fig. 11.)

[Tool required]

- Hex. bar wrenches (5 mm and 4 mm)

(a) Disassembly

- Remove the four Hex. Socket Hd. Bolts (W/Sp. Washer) M5 x 25 [4] with a hex. bar wrench (4 mm) and remove the Exhaust Cover [5]. Then the components of the output section such as the Cylinder [13], Piston [12], Piston Bumper [18] (with the Bumper Sheet [19] assembled), etc. can be removed.
- Remove the Hex. Socket Hd. Bolt M6 x 12 [1] with a hex. bar wrench (5 mm). The Plate [2] and the Top Cover [3] can now be removed.

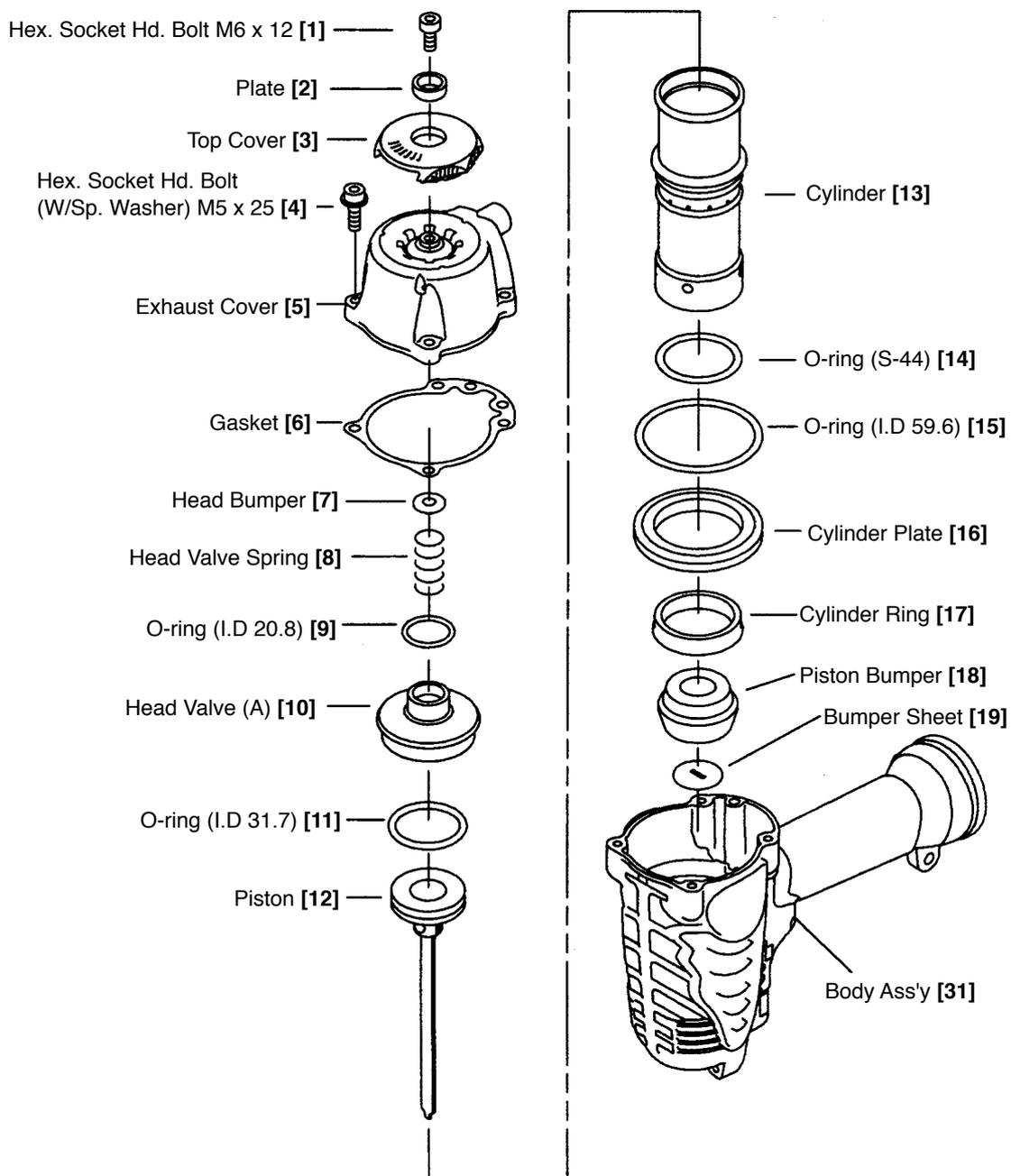


Fig. 11 Disassembly and reassembly of the exhaust cover, head valve (A), cylinder piston, piston bumper, etc.

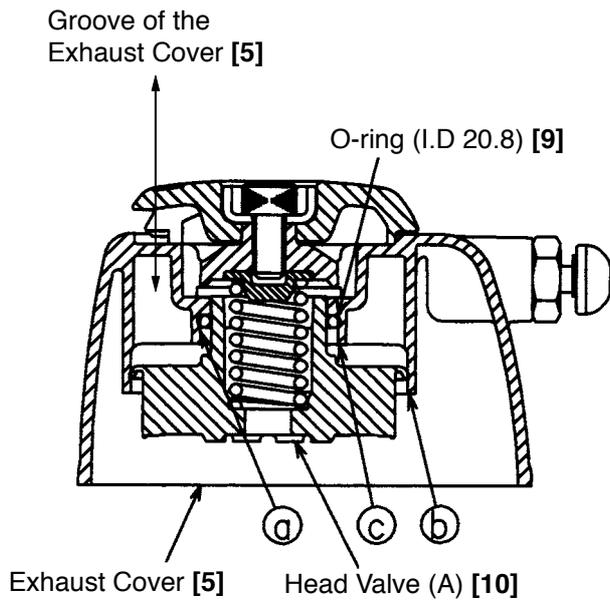


Fig. 12

(b) Reassembly

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

- Apply grease to the inside of the Cylinder [13], O-ring (I.D 31.7) [11] and the Cylinder O-ring (I.D 59.6) [15] before reassembly.
- Apply grease to the sliding surface (a) of the Exhaust Cover [5] and Head Valve (A) [10] and charge about 0.5 g (.018 oz) of grease in the groove of the Exhaust Cover [5] (Fig. 12).
- Apply grease to the lip portions (b) and (c) of Head Valve (A) [10] (Fig. 12).
- Apply grease to the O-ring (I.D 20.8) [9].
Mount the O-ring (I.D 20.8) [9] to Head Valve (A) [10], then mount it to the Exhaust Cover [5].

(2) Disassembly and reassembly of the Valve Bushing [26], Plunger [22], etc. (See Fig. 13.)

[Tools required]

- Socket wrench (14 mm)
- Flat-blade screwdriver

(a) Disassembly

- Remove the Valve Bushing [26] with a socket wrench (14 mm). The Valve Packing [20] and the Spring [21] can now be removed.
- Remove the Knob [28] and the Retaining Ring (E-type) for D4 Shaft [27] then the Plunger [22] can be removed from the Valve Bushing [26].

(b) Reassembly

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

- Apply grease to the O-ring (1AP-3) [24], O-ring (S3) [23] and the O-ring (S-10) [25].
- Mount the Retaining Ring (E-type) for D4 Shaft [27] to the Plunger [22] then press the Knob [28] against the Retaining Ring (E-type) for D4 Shaft [27] to mount it.

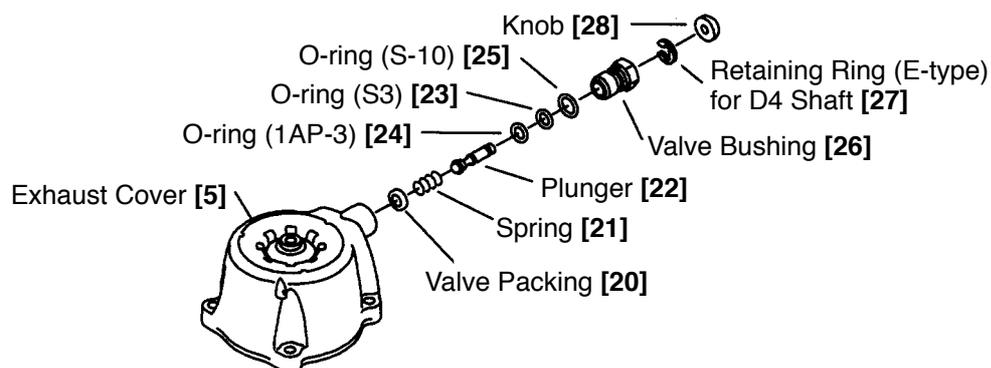


Fig. 13 Disassembly and reassembly of the valve bushing, plunger, etc.

10-3. Disassembly and Reassembly of the Control Valve Section (See Fig. 14.)

[Tools required]

- Flat-blade screwdriver
- Roll pin puller (3 mm (0.118") dia.)

(a) Disassembly

- Remove the Retaining Ring (E-type) for D6 Shaft [30] with the blade of a screwdriver and pull out Change Knob (C) [58] being careful not to lose the Steel Ball D3.97 [56] and Spring (C) [57]. Then, pull out the Roll Pin D3 x 32 [54] with the roll pin puller (3 mm dia.), remove the Pushing Lever Guide [38], and Trigger (C) Ass'y [36] can be removed.

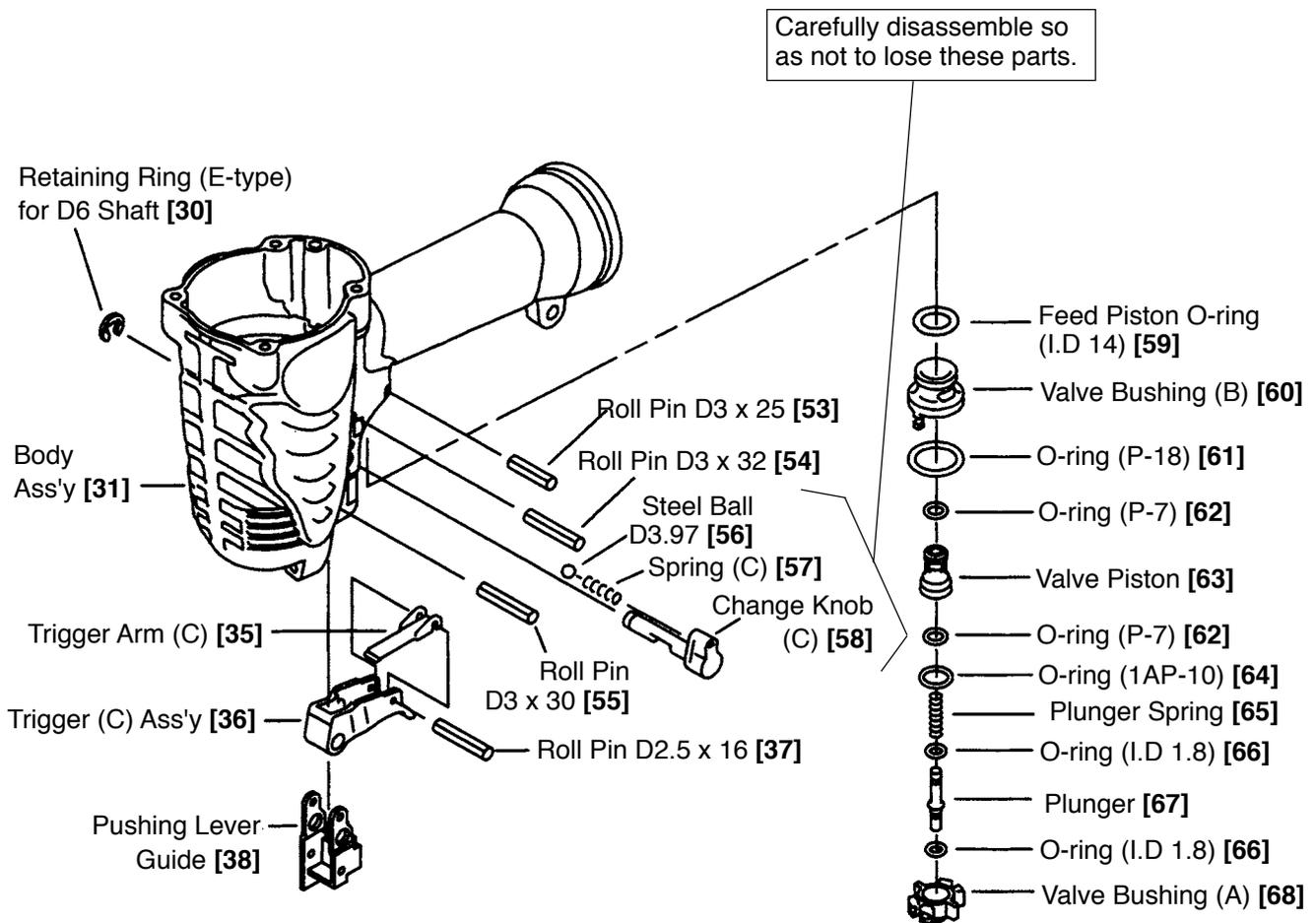


Fig. 14 Disassembly and reassembly of the control valve section

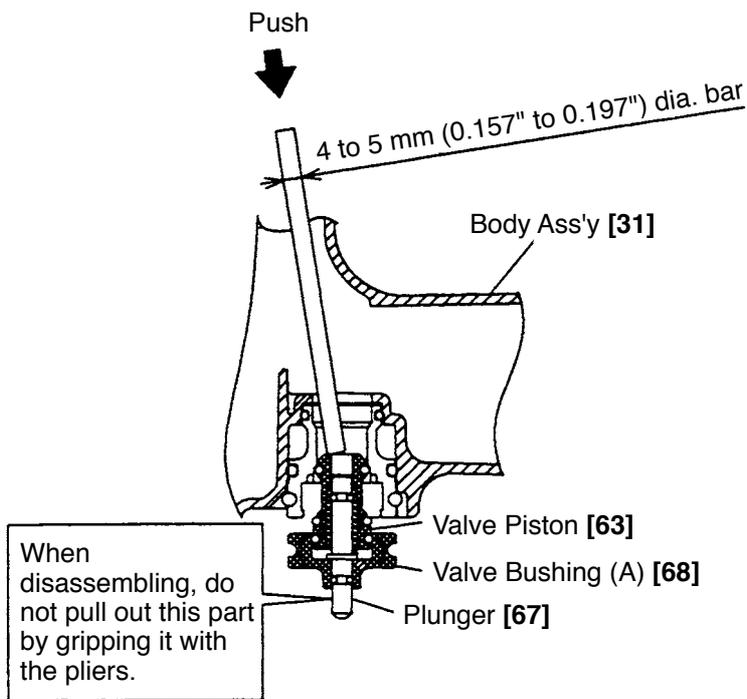
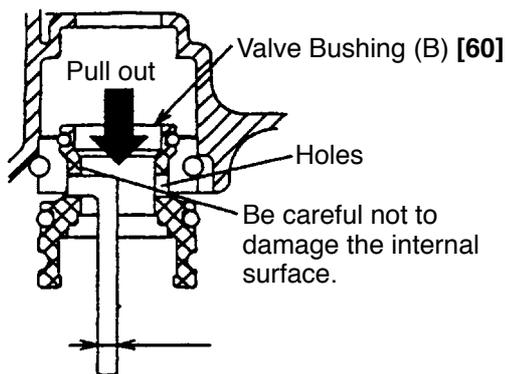


Fig. 15



Wire with 1.5 mm to 3 mm (0.059" to 0.118") dia.

Fig. 16

- Pull out the Roll Pins D3 x 25 [53] and D3 x 32 [54] with the roll pin puller (3 mm dia.), and take out the control valve in the following manner.

- 1) Remove the Exhaust Cover [5] by following the procedure in (1), item 10-2.
- 2) As shown in Fig. 16, put in the 4 to 5 mm (0.157" to 0.197") dia. bar from the upper side of the Body Ass'y [31] and push the top of the Valve Piston [63]. Now, the parts forming the control valve can be taken out except Valve Bushing (B) [60].

CAUTION:

- Be careful not to damage the Valve Piston [63], Valve Bushing (A) [68], Valve Bushing (B) [60], etc.
- Do not pull out the end of the Plunger [67] with the pliers.

- 3) To take out Valve Bushing (B) [60], put a 1.5 to 3 mm (0.059" to 0.118") dia. wire with its end hooked into the hole in the bushing and pull it out while being careful not to damage the internal surface of Valve Bushing (B) [60], as shown in Fig. 16.

(b) Reassembly

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

- Be extremely careful to prevent the entry of foreign particles into the control valve section.
Thoroughly apply grease to the O-Rings (I.D 1.8) [66] of the Plunger [67], the O-Rings (P-7) [62] and (1AP-10) [64] of the Valve Piston [63].
- First, align the roll pin groove of Valve Bushing (A) [68] with that of Valve Bushing (B) [60] and reassemble the entire control valve unit as shown in Fig. 17. Then install the control valve unit so that the roll pin grooves in the control valve unit will be aligned with the roll pin holes in the Body Ass'y [31]. First, insert the roll pin puller (3 mm dia.) into the roll pin holes. Then, upon confirming that the puller passes through the hole, drive in the Roll Pins D3 x 25 [53] and D3 x 32 [54].

If an attempt is made to drive the roll pin with force when the roll pin grooves in Valve Bushings (A) [68] and (B) [60] are not aligned with the roll pin holes in the Body Ass'y [31], it will damage the periphery of Valve Bushings (A) [68] and (B) [60], and prevent disassembly or reassembly.

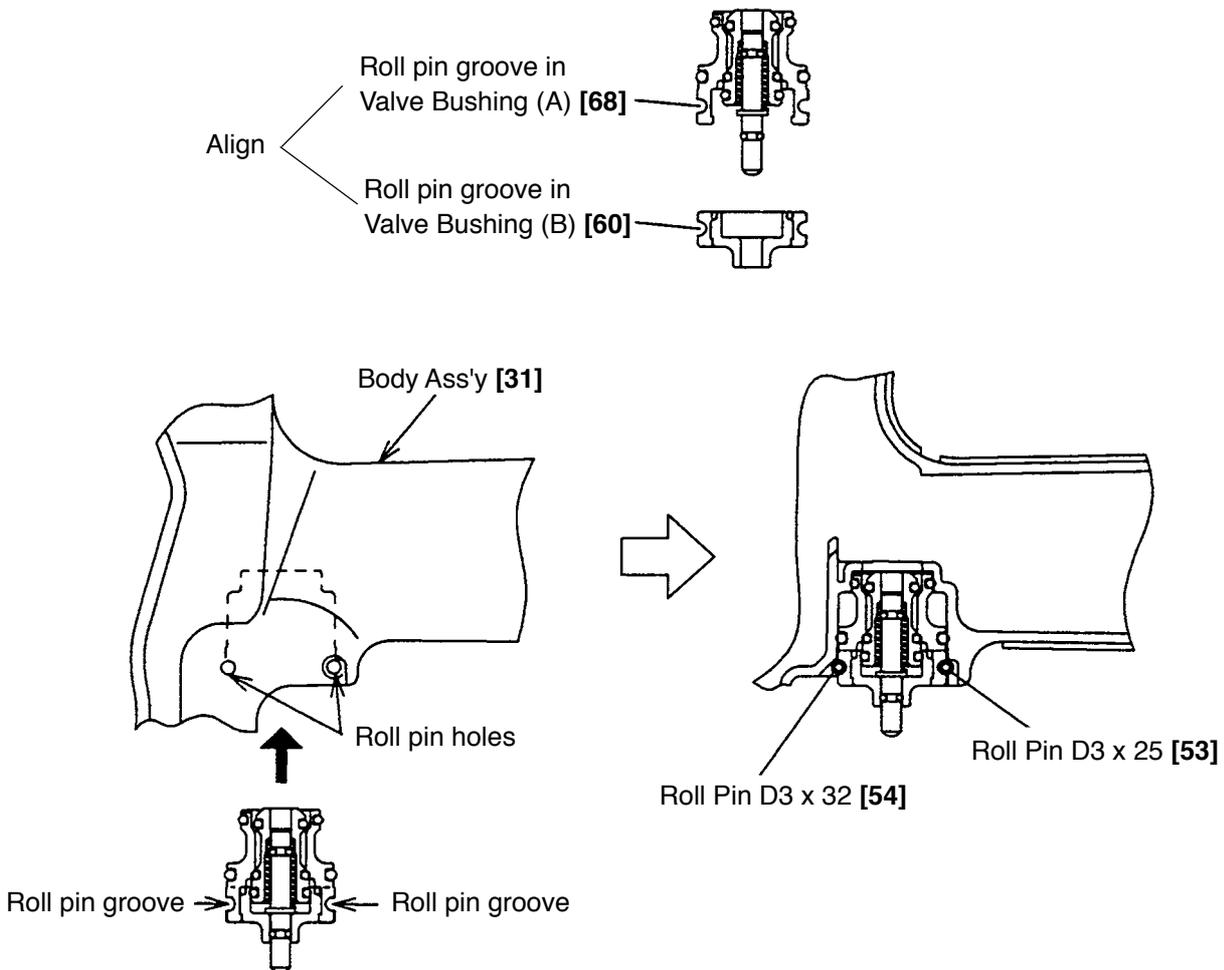


Fig. 17

After assembly, make sure that the Plunger [67] moves smoothly.

10-4. Disassembly and Reassembly of the Driving Section (See Fig. 18.)

[Tools required]

- Hex. bar wrenches (4 mm and 5 mm)
- Roll pin pullers (3 mm (.118") dia. and 4 mm (.157") dia.)
- Flat-blade screwdriver with small tip

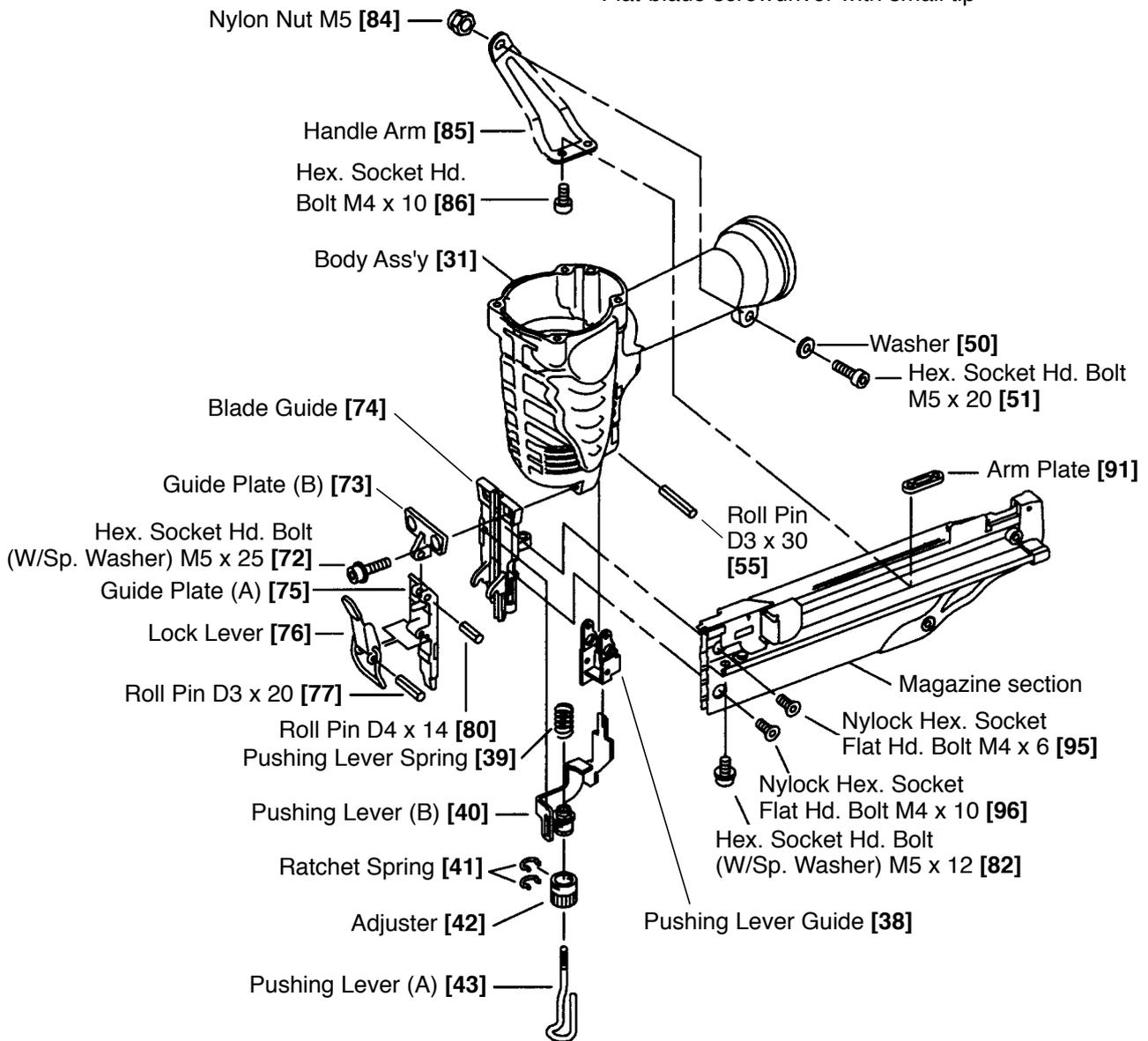


Fig. 18 Disassembly and reassembly of the driving section

(a) Disassembly

- Continuously turn the Adjuster [42] in the direction in which the nail is raised when adjusting the driving depth (refer to ADJUSTING THE NAILING DEPTH on page 21 in the Instruction Manual) so that Pushing Lever (A) [43] can be removed.
- Remove the Hex. Socket Hd. Bolt M5 x 20 [51] with the hex. bar wrench (4 mm) and remove the two Hex. Socket Hd. Bolt (W/Sp. Washer) M5 x 25 [72] with the hex. bar wrench (5 mm). Now, the Blade Guide [74], Guide Plate (A) [75], Guide Plate (B) [73], Pushing Lever (B) [40], etc. can be removed.
- Remove the two Ratchet Springs [41] from the Adjuster [42] with the small flat-blade screwdriver being very careful not to lose them. Now, the Adjuster [42] can be removed from Pushing Lever (B) [40].

- Pull out the Roll Pin D4 x 14 [80] with the roll pin puller (4 mm (.157" dia.) so that Guide Plate (A) [75] and Guide Plate (B) [73] can be disassembled.
- Pull out the Roll Pin D3 x 20 [77] with the roll pin puller (3 mm (.118" dia.) so that the Lock Lever [76] and the Pushing Lever Guide [38] can be removed.

(b) Reassembly

- Disassembly procedures should be followed in their reverse order and tighten the two Hex. Socket Hd. Bolts (W/Sp. Washer) M5 x 25 [72] after making the Blade Guide [74], Guide Plate (A) [75] and Guide Plate (B) [73] flush with the Body Ass'y [31]. After assembly, check that Pushing Lever (A) [43], Pushing Lever (B) [40] and the Adjuster [42] move smoothly.

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

(1) Disassembly and reassembly of the cap (See Fig. 19.)

[Tool required]

Hex. bar wrench (4 mm)

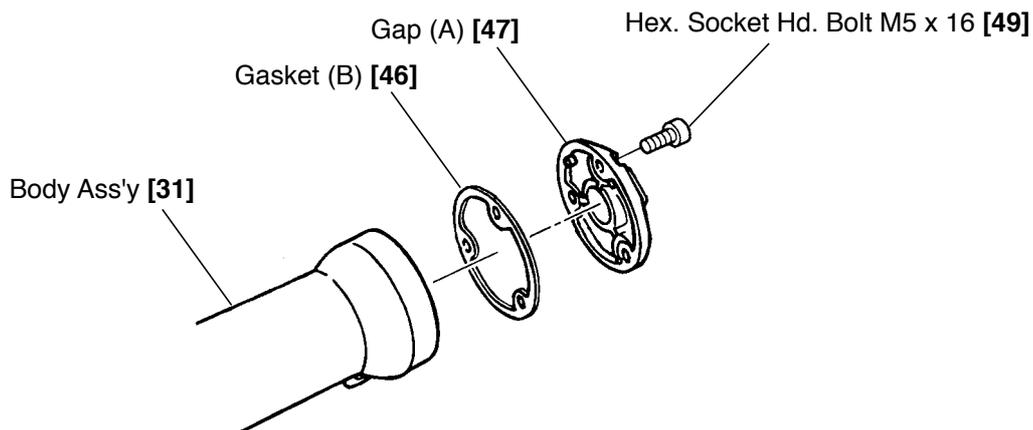


Fig. 19 Disassembly and reassembly of the cap

(a) Disassembly

- Remove the three Hex. Socket Hd. Bolts M5 x 16 [49] with the hex. bar wrench (4 mm) so that Cap (A) [47] and Gasket (B) [46] can be removed.

(b) Reassembly

- Disassembly procedures should be followed in the reverse order.

(2) Disassembly and reassembly of the magazine section (See Fig. 20.)

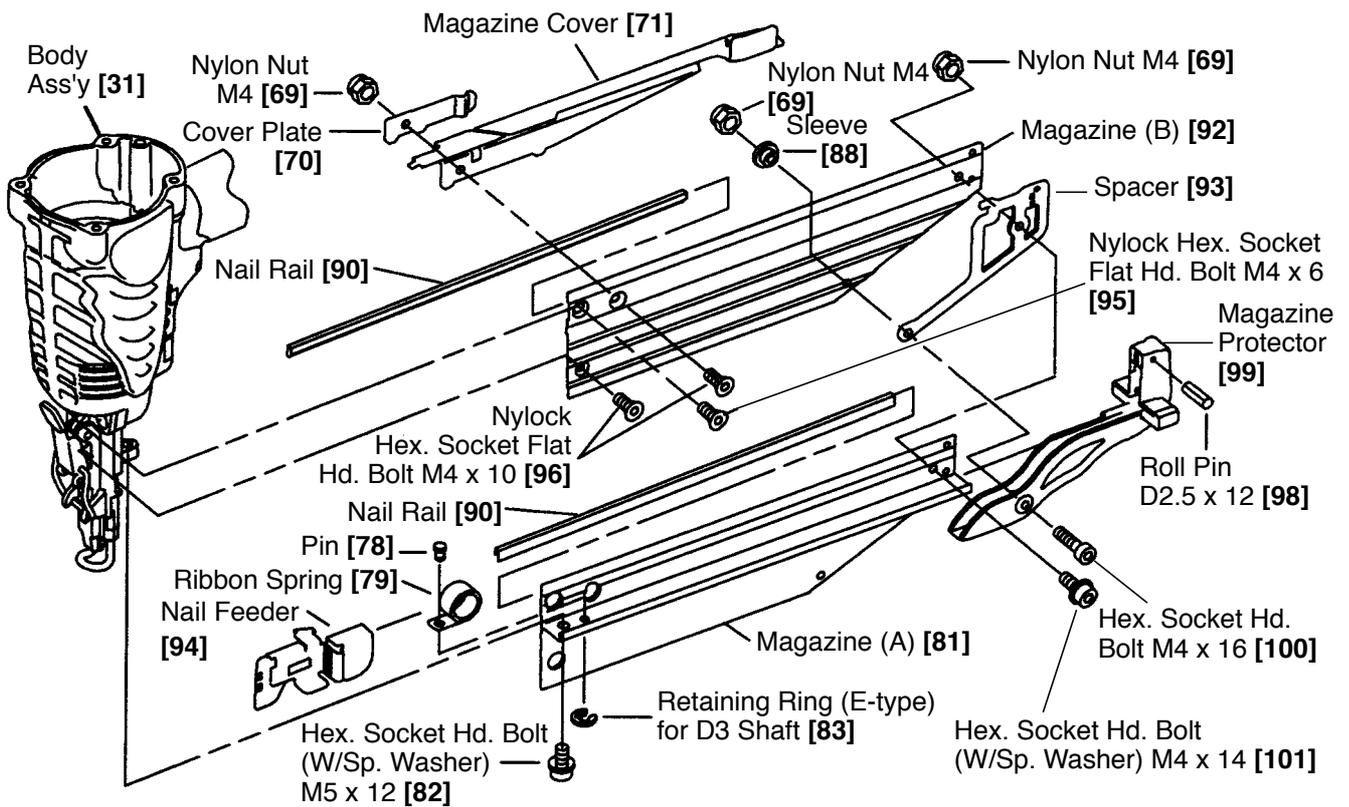


Fig. 20 Disassembly and reassembly of the magazine section

(a) Disassembly

- Remove the Hex. Socket Hd. Bolt (W/Sp. Washer) M5 x 12 [82] with the hex. bar wrench M5. Remove the Nylock Hex. Socket Flat Hd. Bolt M4 x 6 [95] and the two Nylock Hex. Socket Flat Hd. Bolts M4 x 10 [96] with the hex. bar wrench M3. Then the Nail Feeder [94], Magazine Cover [71] and Cover Plate [70] can be removed. Ensure that the nail feeder is not pulled during the above operation.
- Remove the retaining ring for D3 shaft with the blade of a screwdriver. Then the ribbon spring can be removed.
- Pull out the Roll pin D2.5 x 12 [98] with the roll pin puller (3 mm (.118" dia.) and remove the Hex. Socket Hd. Bolt M4 x 16 [100] with the hex. bar wrench M4. Then the Magazine Protector [99], Sleeve [88] and nail rail can be removed.
- Remove the Hex. Socket Hd. Bolt (W/Sp. Washer) M4 x 14 [101] with the hex. bar wrench. Then Magazine (A) [81], Magazine (B) [92] and Spacer [93] can be removed.

(b) Reassembly

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

11. INSPECTION AND CONFIRMATION AFTER REASSEMBLY

- Check that the Nail Feeder [94] slides smoothly.
- Check that Plunger [67] moves smoothly.
- Check that Adjuster [42] turns smoothly.
- Check that there is no air leakage from each part.
- Set Change Knob (C) [58] to "contact actuation" (see 5-2). While driving nails with an air pressure of 5 kgf/cm² (71 psi), check that there is no misfiring and bending of nails.

NOTE: Before conducting the driving test, turn the Adjuster [42] to the deepest position.

- Set Change Knob (C) [58] to "single actuation (single sequential actuation)" (see 5-2).
Check that the Model NT 65M2 operates by pressing Pushing Lever (A) [43] against a test piece first then pulling Trigger (C) Ass'y [36].
Check that the Piston [12] is still showing from the Blade Guide [74] tip (outlet of nails) after Pushing Lever (A) [43] is released from the test piece with Trigger (C) Ass'y [36] pulled.
- Recheck the tightening torque of each screw.
- Check that Pushing Lever (A) [43] slides smoothly.
- Check that the machine will not operate only by pulling Trigger (C) Ass'y [36]. Also check that the machine will not operate only by depressing Pushing Lever (A) [43].

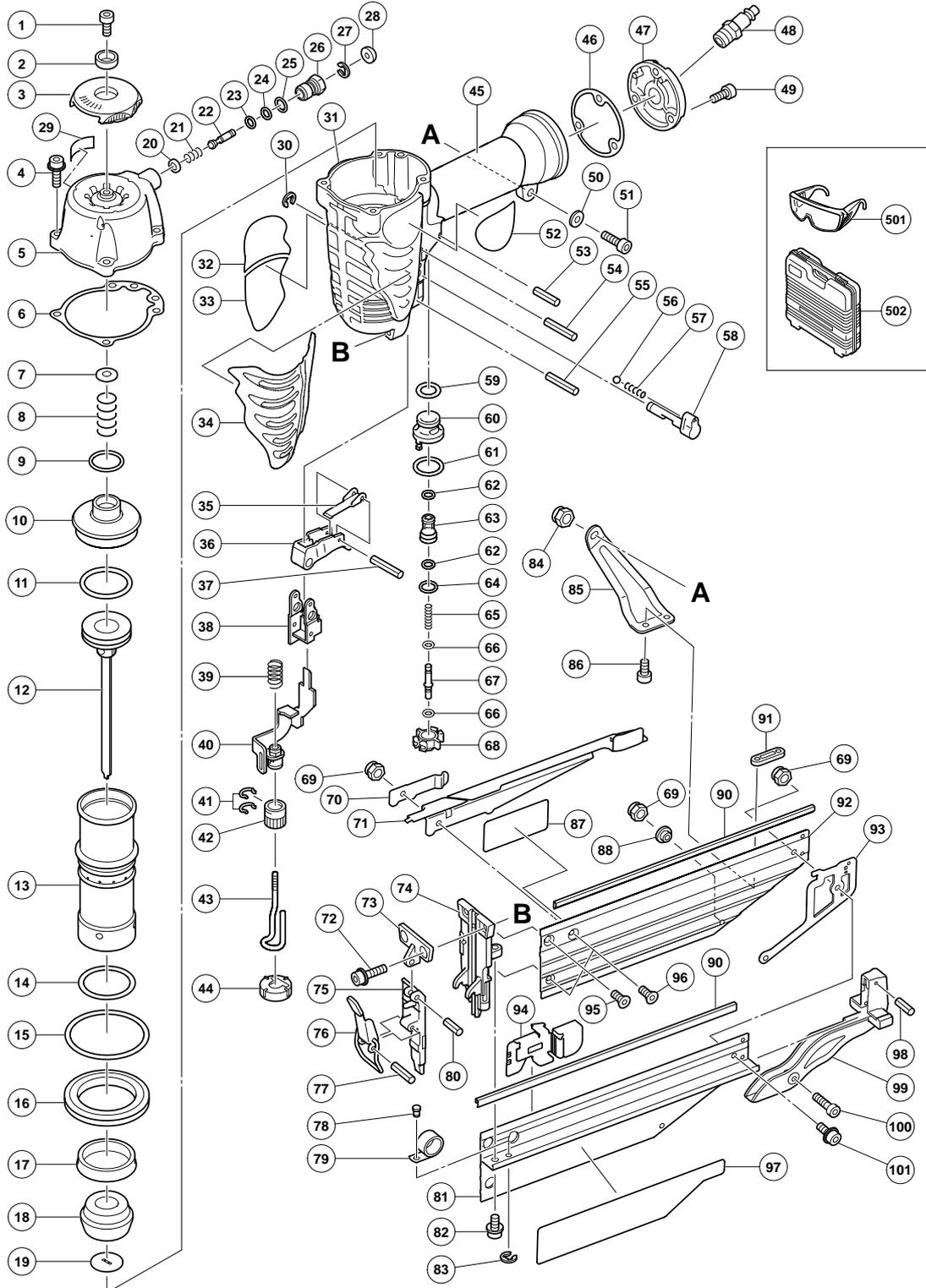
12. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
NT 65M2		Work Flow						
			Knob Plunger O-ring x 3 Valve Bushing	Top Cover Exhaust Cover Gasket Head Valve Spring O-ring Head Valve (A)	Guide Plate (B) Guide Plate (A) Blade Guide Magazine (A) Magazine (B) Magazine Cover Nail Feeder Nail Rail			
	General Assembly			Pushing Lever (B) Pushing Lever Spring Adjuster Pushing Lever (A)	Cylinder Cylinder Plate O-ring x 2 Piston Bumper Bumper Sheet Cylinder Ring			Body Ass'y
				Piston O-ring				
				Trigger (C) Ass'y Pushing Lever Guide Valve Bushing (B) Valve Piston Plunger Spring Plunger (A) Valve Bushing (A) Feed Piston O-ring O-ring x 6				
				Adjustment (Cylinder, Body, Valve)				

PNEUMATIC TOOL PARTS LIST

FINISH NAILER
Model NT 65M2

2005 • 11 • 15
(E1)



PARTS

NT 65M2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	949-657	HEX. SOCKET HD. BOLT M6X12 (10 PCS.)	1	
2	880-515	PLATE	1	
3	885-673	TOP COVER	1	
4	885-637	HEX. SOCKET HD. BOLT (W/SP. WASHER) M5X25	4	
5	885-671	EXHAUST COVER	1	
6	885-672	GASKET	1	
7	882-914	HEAD BUMPER	1	
8	882-913	HEAD VALVE SPRING	1	
9	883-992	O-RING (I.D 20.8)	1	
10	882-927	HEAD VALVE (A)	1	
11	885-668	O-RING (I.D 31.7)	1	
12	885-667	PISTON	1	
13	885-663	CYLINDER	1	
14	885-690	O-RING (S-44)	1	
15	885-665	O-RING (I.D 59.6)	1	
16	885-664	CYLINDER PLATE	1	
17	885-666	CYLINDER RING	1	
18	885-669	PISTON BUMPER	1	
19	885-670	BUMPER SHEET	1	
20	884-338	VALVE PACKING	1	
21	881-900	SPRING	1	
22	884-333	PLUNGER	1	
23	881-715	O-RING (S3)	1	
24	873-093	O-RING (1AP-3)	1	
25	987-105	O-RING (S-10)	1	
26	882-701	VALVE BUSHING	1	
27	968-643	RETAINING RING (E-TYPE) FOR D4 SHAFT	1	
28	884-334	KNOB	1	
29		CAUTION PLATE	1	
30	955-479	RETAINING RING (E-TYPE) FOR D6 SHAFT	1	
31	885-662	BODY ASS'Y	1	INCLUD. 45
32		NAME PLATE	1	
33		NAME PLATE (B)	1	
34	885-675	PROTECTOR	1	
35	885-689	TRIGGER ARM (C)	1	
36	885-657	TRIGGER (C) ASS'Y	1	INCLUD. 35, 37
37	881-951	ROLL PIN D2.5X16	1	
38	885-640	PUSHING LEVER GUIDE	1	
39	885-638	PUSHING LEVER SPRING	1	
40	885-639	PUSHING LEVER (B)	1	
41	881-765	RATCHET SPRING	2	
42	884-325	ADJUSTER	1	
43	885-688	PUSHING LEVER (A)	1	
44	881-751	NOSE CAP (A)	1	
45		GRIP RUBBER (A)	1	SUPPLIED WITH ITEM NO. 601, 602
46	884-342	GASKET (B)	1	
47	885-674	CAP (A)	1	
48		AIR PLUG NPT 1/4	1	
49	949-821	HEX. SOCKET HD. BOLT M5X16 (10 PCS.)	3	
50	885-661	WASHER	1	
51	949-757	HEX. SOCKET HD. BOLT M5X20 (10 PCS.)	1	

PARTS

NT 65M2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
52		HITACHI LABEL	1	
53	949-539	ROLL PIN D3X25 (10 PCS.)	1	
54	884-975	ROLL PIN D3X32	1	
55	949-866	ROLL PIN D3X30 (10 PCS.)	1	
56	959-155	STEEL BALL D3.97 (10 PCS.)	1	
57	982-454	SPRING (C)	1	
58	885-658	CHANGE KNOB (C)	1	
59	877-763	FEED PISTON O-RING (I.D.14)	1	
60	884-963	VALVE BUSHING (B)	1	
61	873-570	O-RING (P-18)	1	
62	676-531	O-RING (P-7)	2	
63	884-964	VALVE PISTON	1	
64	872-654	O-RING (1AP-10)	1	
65	884-966	PLUNGER SPRING	1	
66	878-888	O-RING (I.D 1.8)	2	
67	884-965	PLUNGER	1	
68	884-962	VALVE BUSHING (A)	1	
69	876-465	NYLON NUT M4	3	
70	885-646	COVER PLATE	1	
71	885-648	MAGAZINE COVER	1	
72	885-637	HEX. SOCKET HD. BOLT (W/SP. WASHER) M5X25	2	
73	885-635	GUIDE PLATE (B)	1	
74	885-636	BLADE GUIDE	1	
75	885-634	GUIDE PLATE (A)	1	
76	884-323	LOCK LEVER	1	
77	949-685	ROLL PIN D3X20 (10 PCS.)	1	
78	885-656	PIN	1	
79	885-655	RIBBON SPRING	1	
80	949-770	ROLL PIN D4X14 (10 PCS.)	1	
81	885-641	MAGAZINE (A)	1	
82	885-652	HEX. SOCKET HD. BOLT (W/SP. WASHER) M5X12	1	
83	872-971	RETAINING RING (E-TYPE) FOR D3 SHAFT	1	
84	877-371	NYLON NUT M5	1	
85	885-659	HANDLE ARM	1	
86	949-812	HEX. SOCKET HD. BOLT M4X10 (10 PCS.)	2	
87		LABEL	1	
88	885-649	SLEEVE	1	
90	885-643	NAIL RAIL	2	
91	885-660	ARM PLATE	1	
92	885-642	MAGAZINE (B)	1	
93	885-644	SPACER	1	
94	885-654	NAIL FEEDER	1	
95	885-651	NYLOCK HEX. SOCKET FLAT HD. BOLT M4X6	1	
96	885-650	NYLOCK HEX. SOCKET FLAT HD. BOLT M4X10	2	
97		LABEL (A)	1	
98	878-791	ROLL PIN D2.5X12	1	
99	885-645	MAGAZINE PROTECTOR	1	
100	949-754	HEX. SOCKET HD. BOLT M4X16 (10 PCS.)	1	
101	885-653	HEX. SOCKET HD. BOLT (W/SP. WASHER) M4X14	1	

