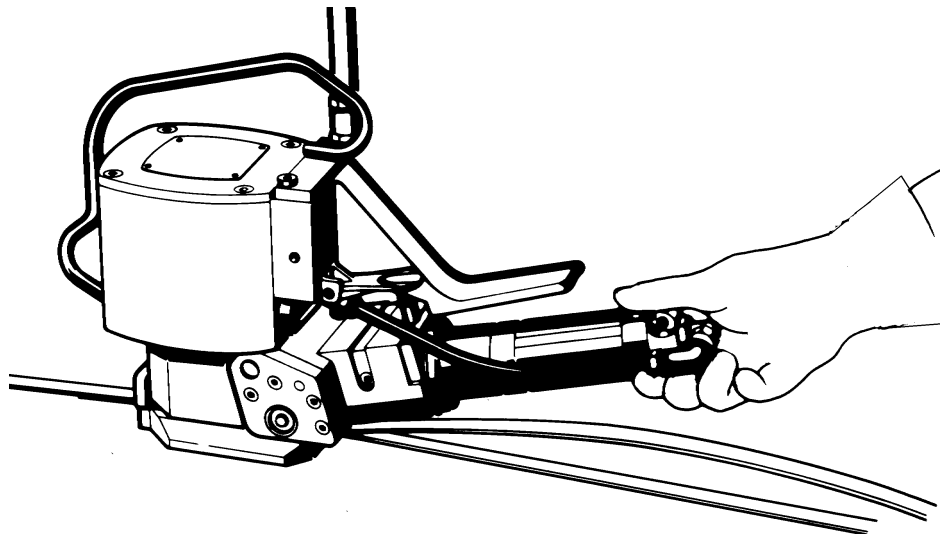


FROMM

OPERATION MANUAL / SPARE PARTS LIST

**PNEUMATIC
STEEL STRAPPING TOOL
MODEL A3H.0003**

13.6090.02



CE Declaration of conformity

We declare that the machine A3H
is in conformity with the following standard or
standardised documents:
98/37/EEC

FROMM Holding AG
Hinterbergstrasse 26
CH - 6330 Cham
28.02 2005

A stylized signature of R. Fromm in black ink.

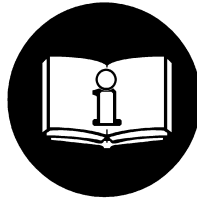
R.Fromm
Director



| | INDEX | PAGE |
|-----------|---|-------------|
| 1 | SAFETY INSTRUCTIONS | 3 |
| 2 | WARRANTY CONDITIONS AND LIABILITY | 4 |
| 3 | APPROPRIATE USE | 4 |
| 4 | TECHNICAL DATA | 4 |
| 4.1 | Dimensions | 4 |
| 4.2 | Compressed air | 5 |
| 4.3 | Steel strapping | 5 |
| 4.4 | Sound information | 5 |
| 4.5 | Vibration information | 5 |
| 5 | INSTALLATION | 5 |
| 5.1 | Compressed air connection | 5 |
| 5.2 | Suspension of tool | 5 |
| 6 | CHART OF TYPES | 6 |
| 6.1 | A3H.0003 | 6 |
| 6.2 | A3H.0003/D (with a throttle valve) | 6 |
| 7 | OPERATION | 7 |
| 7.1 | Feeding the strap around the package | 7 |
| 7.2 | Loading the strap | 7 |
| 7.3 | Tensioning the strap | 7 |
| 7.4 | Sealing the strap | 8 |
| 7.5 | Removing the tool from the tensioned and sealed strap | 8 |
| 8 | SEAL CONTROL | 9 |
| 8.1 | Correct seal | 9 |
| 8.2 | Incorrect seal (the sealing mechanism is adjusted too high) | 9 |
| 8.3 | Incorrect seal (the sealing mechanism is adjusted too low) | 9 |
| 9 | SPARE PARTS LIST 13.6090.02 | 12 |
| 10 | SEAL ADJUSTMENT | 16 |
| 11 | MAINTENANCE | 16 |
| 11.1 | Air-unit | 16 |
| 11.2 | Cleaning | 16 |
| 11.3 | Lubrication | 16 |
| 11.4 | Control of oil level | 17 |
| 12 | EXCHANGE OF WEARING PARTS | 17 |
| 12.1 | Shear blade | 17 |
| 12.2 | Tensioning wheel | 18 |
| 12.3 | Square gripper | 18 |
| 12.4 | Punch and die | 19 |

1 SAFETY INSTRUCTIONS

Read these instructions carefully. Failure to follow these instructions can result in severe personal injury.



Eye injury hazard

Failure to wear safety glasses with side shields can result in severe eye injury or blindness. Always wear safety glasses with side shields which conform to ANSI Standard Z87.1.



Operation

Tool must not be used by persons not properly trained in their use. Before tensioning strap, read and understand the tool operating instructions. Failure to follow the operating instructions or improper load positioning could result in strap breakage. Become familiar with your tool and keep fingers away from areas that can pinch or cut.

Joints

You are fully responsible to review the joints made by your tool. Become familiar with the seal control and seal adjustment described in this operation manual. Misformed joints may not secure the load and could cause serious injury. Never handle or ship any load with improperly formed joints.

Dispensing strap

Only dispense strap from a dispenser specifically designed for strap. Tuck strap end back into dispenser when not in use.

Protective gloves

When handling strap, always wear protective gloves.



Strap warnings

Never use strap as a means of pulling or lifting loads. Failure to follow these warnings can result in severe personal injury.

Strap breakage hazard

Improper operation of the tool, excessive tensioning, using strap not recommended for this tool or sharp corners on the load can result in a sudden loss of strap tension or in strap breakage during tensioning, which could result in the following:

- A sudden loss of balance causing you to fall.
- Both tool and strap flying violently towards your face.

Note as follows:

- If the load corners are sharp, use edge protectors.
- Place the strap correctly around a properly positioned load.
- Positioning yourself in-line with the strap, during tensioning and sealing, can result in severe personal injury from flying strap or tool. When tensioning or sealing, position yourself to one side of the strap and keep all bystanders away.
- Use the correct strap quality, strap width, strap gauge and strap tensile strength recommended in this manual for your tool. Using strap not recommended for this tool can result in strap breakage during tensioning.

Cutting tensioned strap

When cutting strapping, use the proper strapping cutter and keep other personnel and yourself at a safe distance from the strap. Always stand to side of the strap, away from the direction the loosened strap end will fly. Use only cutters designed for strap and never hammers, pliers, hacksaws, axes, etc.

Fall hazard

Keep your working area tidy. Untidiness of your working area may cause a risk of injury. Maintaining improper footing and/or balance when operating the tool can cause you to fall. Before tensioning and especially in elevated areas, always establish good balance. Both feet should be securely placed on a flat, solid surface, especially when working in elevated areas. Do not use the tool when you are in an awkward position. Pay attention to the rules and regulations for preventions of accident which are valid for the work place.

Tool hazards

A well maintained tool is a safe tool! Check tool regularly for broken or worn parts. Do not operate a tool with broken or worn parts. Never modify any tool. Modification can result in severe bodily injury.

2 WARRANTY CONDITIONS AND LIABILITY

FROMM Holding AG warrants all its strapping tools and machine heads during a period of 90 days from the date of sale. The warranty includes all deficiencies clearly resulting from poor manufacturing or faulty materials. Damage claims as a result of production shutdowns and claims for damage to persons and to property resulting from warranty deficiencies cannot be asserted by the customer.

The warranty excludes:

- wearing parts,
- deficiencies resulting from improper installing, incorrect handling and maintaining the tool,
- deficiencies resulting from using the tool without or with defective security- and safety devices,
- disregard of directions in the operation manual,
- arbitrary modifications of the tool,
- deficient control of wearing parts,
- deficient repair works of the tool.
- Use of consumable products not recommended by FROMM Holding AG

We reserve the right to modify the product at any time in order to improve its quality.

3 APPROPRIATE USE

The tool model A3H has been designed to strap packages with steel strapping exclusively.

The warranty / liability excludes:

- non appropriate use of the tool,
- disregard of directions in the operation manual,
- disregard of control- and maintenance instructions.

4 TECHNICAL DATA

4.1 Dimensions

| | Tool | Package |
|---------|-------------------|--------------------|
| Length: | 454 mm / 17.87" | 500 mm / 19.69" |
| Width: | 120 mm / 4.72" | 300 mm / 11.81" |
| Height: | 255 mm / 10.03" | 250 mm / 9.84" |
| Weight: | Net | Gross |
| | 8.5 kg / 18.7 lbs | 9.65 kg / 21.3 lbs |

4.2 Compressed air

| | | |
|--------------------|--|-----------------------------|
| Joining thread: | G 1/4" | |
| Air-tube: | Min. inside diam. = 8 mm / 5/16" | |
| Max. air pressure: | 5 bar / 70 psi | |
| Air consumption: | Tensioning | Sealing |
| | 450 NI / 15.8 cu.ft per minute with the air motor running. | 5 NI / 0.17 cu.ft per cycle |

4.3 Steel strap

| | |
|------------|--|
| Width: | 9.5-20 mm / 3/8"-3/4" (see chart of types) |
| Thickness: | 0.38-0.60 mm / 0.015-0.024" |
| Quality: | Fundamentally the A3H allows the use of all current steel straps with tensile strengths ranging from 700 to 850 N/mm ² (100 000 - 123 000 psi). Straps with a low breaking elongation are unsuitable for the A3H tool. |

Joint strength

Approx. 80% of the strap's tensile strengths

4.4 Sound information

The A-weighted equivalent continuous sound level at the work place of the machine operator is typical 82 dB (A).

This value was determined according to DIN 45 635 T3 (11.85).

4.5 Vibration information

The weighted effective value of the acceleration typically amounts to less than 2,5m/s².

This value was determined according to DIN EN 28 662 T1 (01.93).

5 INSTALLATION

5.1 Compressed air connection

The compressed air is connected to the hose angle N6.5108 using a coupling. An air-unit consisting of a separator for water and dirt, a pressure regulator with a manometer and a lubricator should be installed within a range of 15 ft / 5 meters. The compressed air must be free from dirt, rust and moisture.

For special attention:

The allowed maximum pressure adjusted at the manometer of the air unit is 5 bar/ 70 psi.

5.2 Suspension of tool

The tool should always be suspended on a balancer. The suspension bracket A3H.1803 which is supplied with the tool as a standard item allows the use of the tool in the normal and vertical position. Using the tool in the horizontal position the suspension bracket A3H.1811 should be ordered as an optional item. The suspension bracket A3H.1812 is offered for using the tool in both positions.

6 CHART OF TYPES

6.1 A3H.0003

| Item No. | Model | Strap width | Strap thickness | Max.Tension | Tension. speed |
|----------|------------------------|----------------|---------------------------|-------------------|----------------|
| 13.6052 | A3H/9.5/0.38-0.60/2.5 | 9.5 mm / 3/8" | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6062 | A3H/10/0.38-0.60/2.5 | 10 mm | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6070 | A3H/12.7/0.38-0.60/4.5 | 12.7 mm / 1/2" | 0.38-0.60 mm / .015-.024" | 4500 N / 1010 lbs | 100 mm / s |
| 13.6072 | A3H/12.7/0.38-0.60/2.5 | 12.7 mm / 1/2" | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6080 | A3H/13/0.38-0.60/4.5 | 13 mm | 0.38-0.60 mm / .015-.024" | 4500 N / 1010 lbs | 100 mm / s |
| 13.6082 | A3H/13/0.38-0.60/2.5 | 13 mm | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6090 | A3H/16/0.38-0.60/4.5 | 16 mm / 5/8" | 0.38-0.60 mm / .015-.024" | 4500 N / 1010 lbs | 100 mm / s |
| 13.6092 | A3H/16/0.38-0.60/2.5 | 16 mm / 5/8" | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6093 | A3H/16/0.38-0.60/1.2 | 16 mm / 5/8" | 0.38-0.60 mm / .015-.024" | 1200N / 270 lbs | 350 mm / s |
| 13.6110 | A3H/19/0.38-0.60/4.5 | 19 mm / 3/4" | 0.38-0.60 mm / .015-.024" | 4500 N / 1010 lbs | 100 mm / s |
| 13.6112 | A3H/19/0.38-0.60/2.5 | 19 mm / 3/4" | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6130 | A3H/20/0.38-0.60/4.5 | 20 mm | 0.38-0.60 mm / .015-.024" | 4500 N / 1010 lbs | 100 mm / s |

6.2 A3H.0003/D (throttle valve)

| Item No. | Model | Strap width | Strap thickness | Max.Tension | Tension. speed |
|----------|--------------------------|----------------|---------------------------|-------------------|----------------|
| 13.6056 | A3H/9.5/0.38-0.60/2.5/D | 9.5 mm / 3/8" | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6066 | A3H/10/0.38-0.60/2.5/D | 10 mm | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6074 | A3H/12.7/0.38-0.60/4.5/D | 12.7 mm / 1/2" | 0.38-0.60 mm / .015-.024" | 4500 N / 1010 lbs | 100 mm / s |
| 13.6076 | A3H/12.7/0.38-0.60/2.5/D | 12.7 mm / 1/2" | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6084 | A3H/13/0.38-0.60/4.5/D | 13 mm | 0.38-0.60 mm / .015-.024" | 4500 N / 1010 lbs | 100 mm / s |
| 13.6086 | A3H/13/0.38-0.60/2.5/D | 13 mm | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6094 | A3H/16/0.38-0.60/4.5/D | 16 mm / 5/8" | 0.38-0.60 mm / .015-.024" | 4500 N / 1010 lbs | 100 mm / s |
| 13.6096 | A3H/16/0.38-0.60/2.5/D | 16 mm / 5/8" | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6114 | A3H/19/0.38-0.60/4.5/D | 19 mm / 3/4" | 0.38-0.60 mm / .015-.024" | 4500 N / 1010 lbs | 100 mm / s |
| 13.6116 | A3H/19/0.38-0.60/2.5/D | 19 mm / 3/4" | 0.38-0.60 mm / .015-.024" | 2500 N / 560 lbs | 170 mm / s |
| 13.6134 | A3H/20/0.38-0.60/4.5/D | 20 mm | 0.38-0.60 mm / .015-.024" | 4500 N / 1010 lbs | 100 mm / s |

7 OPERATION

7.1 Feeding the strap around the package

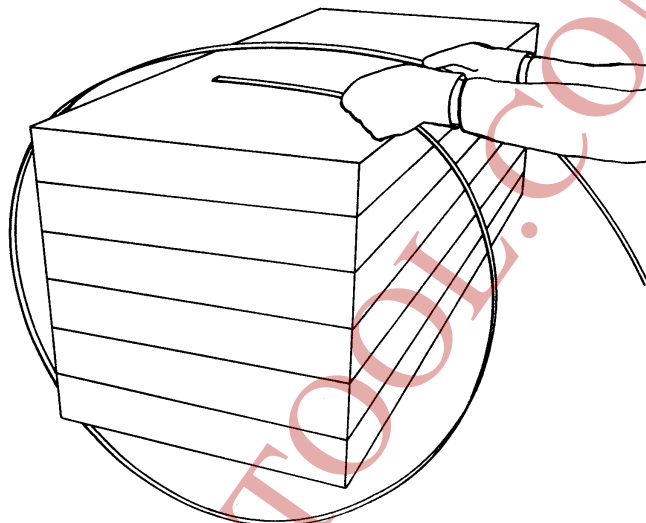
The strap is fed around the package in the direction as shown in the illustration. The end of the strap is held tightly with the left hand and pulled firmly towards the operator with the right hand.



Always wear safety glasses with side shields which conform to ANSI Standard Z87.1.

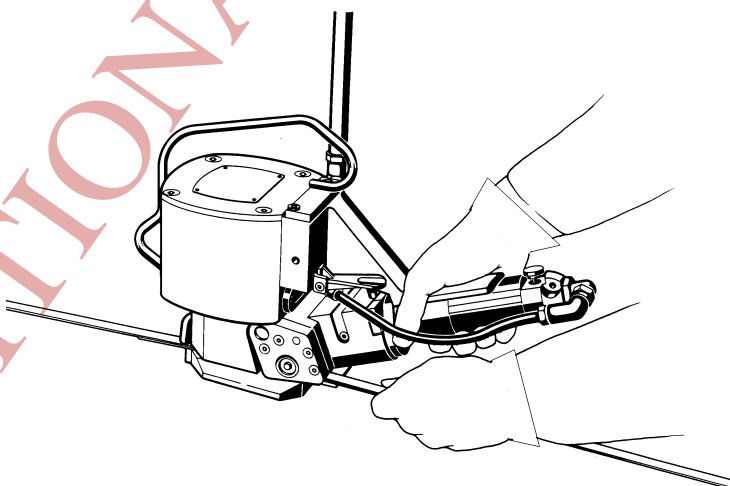


When handling strap, always wear protective gloves.



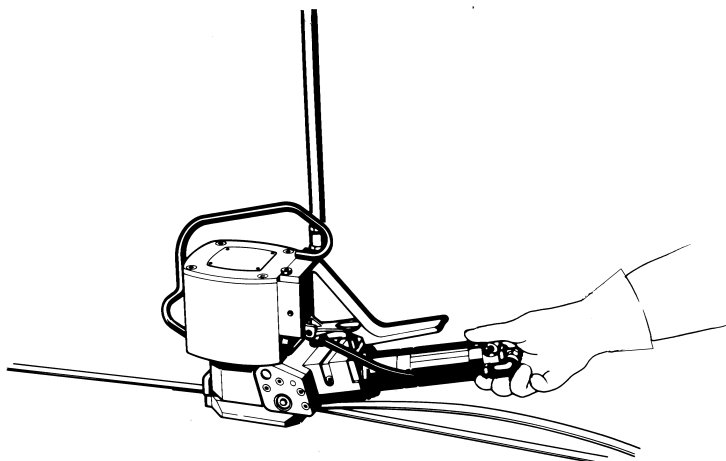
7.2 Loading the strap

The air motor is raised with the right hand. Insert both straps into the tool with the left hand till they border on the strap stop. Lower the air motor; be certain that the strap is held by the strap guide.



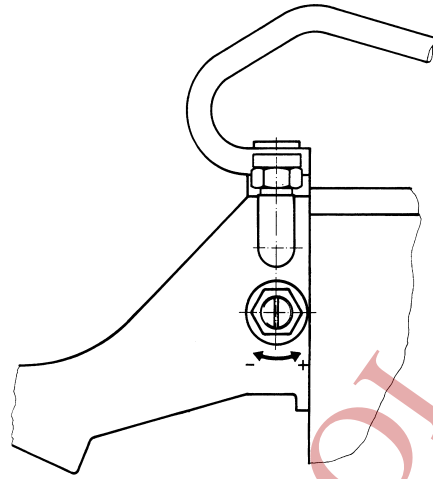
7.3 Tensioning the strap

The strap is tensioned by pressing the button on the air motor. The strap can be tensioned until the air motor stalls.



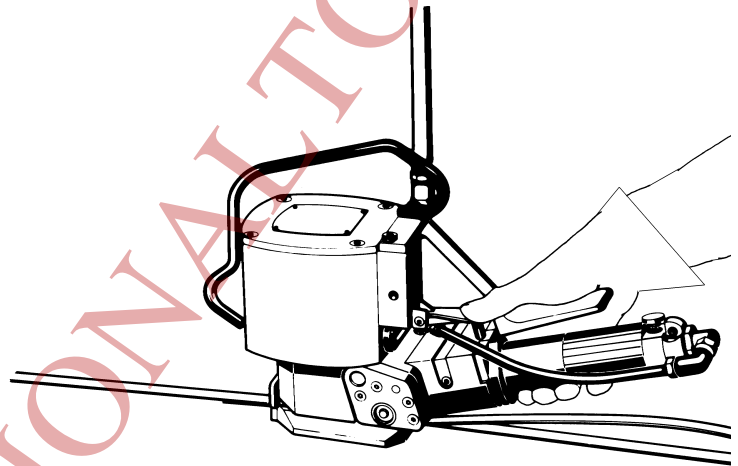
Throttle valve

On all tools provided with the throttle valve the air supply can be adjusted on the throttle screw A3H.1810.



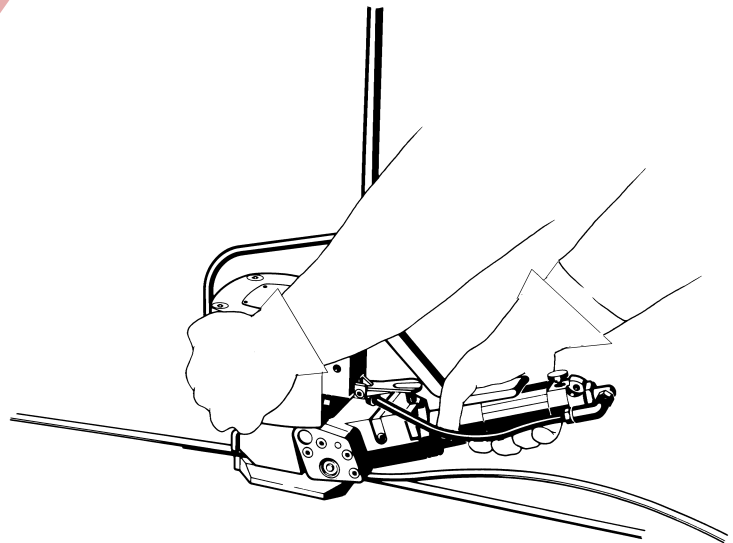
7.4 Sealing the strap

Press the valve lever with the thumb of the right hand until the seal is done.



7.5 Removing the tool from the tensioned and sealed strap.

After the seal is done the operator lifts the air motor with the right hand and slides the tool to the right to remove. At the same time the operator holds the sheared strap with the left hand.

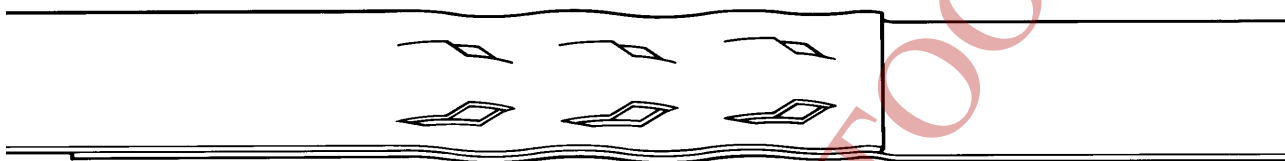


8 SEAL CONTROL

A regular control of the seal is necessary. The seal can be checked visually and the person controlling can easily judge the quality of the seal. When checking the seal the following illustrations must be compared.

8.1 Correct seal

A correct seal must be conform to the illustration. This means that the depth with which the upper strap hooks into the lower one must be 1 - 1.5 mm in min. and 2 mm in max.. The upper strap must be sheared clean and the cutter must not leave scratch marks on the lower strap.



8.2 Incorrect seal (the sealing mechanism is adjusted too high)

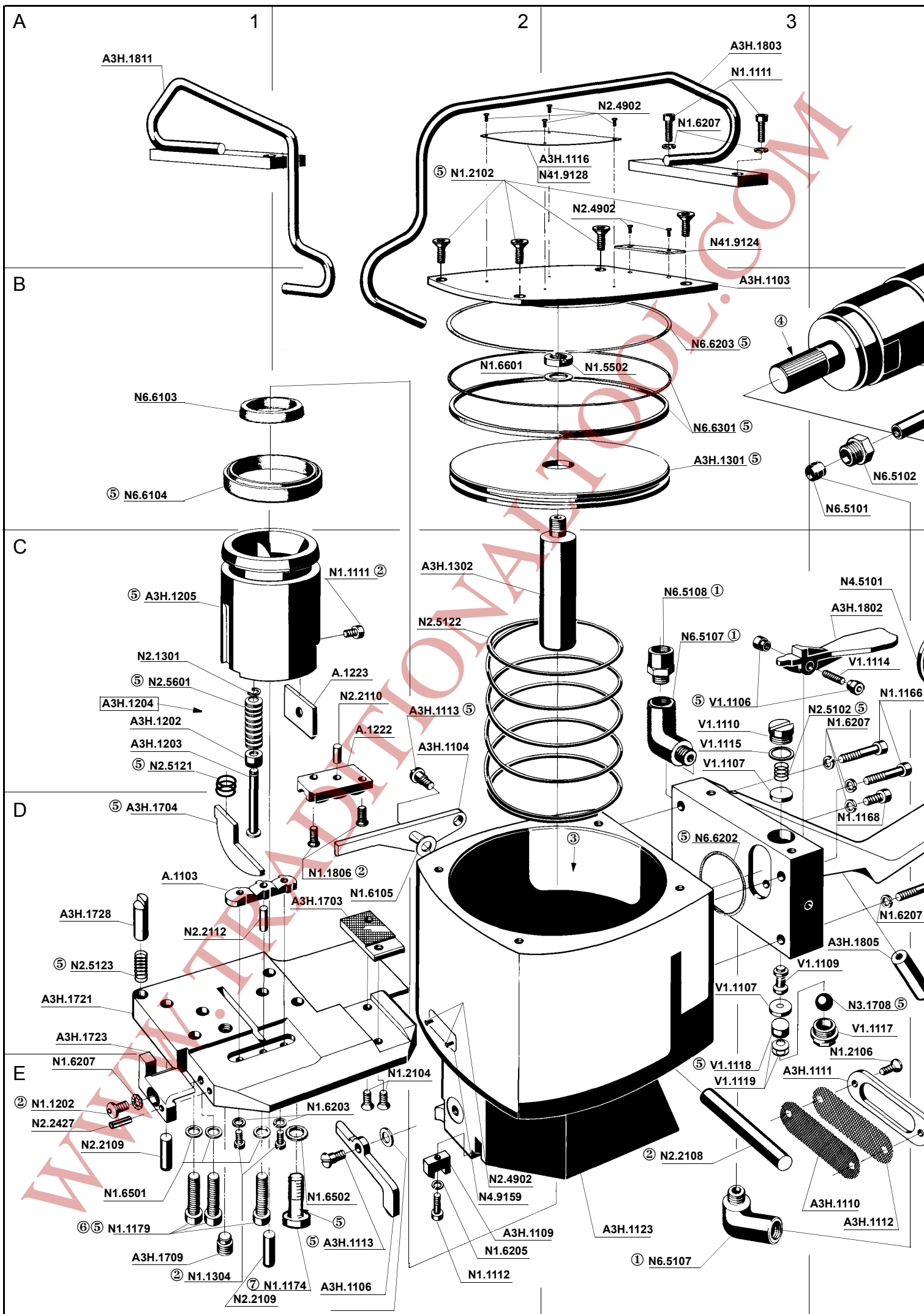
This stamped seal is not deep enough and the upper strap is not sheared. The tensile strength of this seal is not sufficient and the strapping must be taken away from the package. The tool must be readjusted immediately (see SEAL ADJUSTMENT).





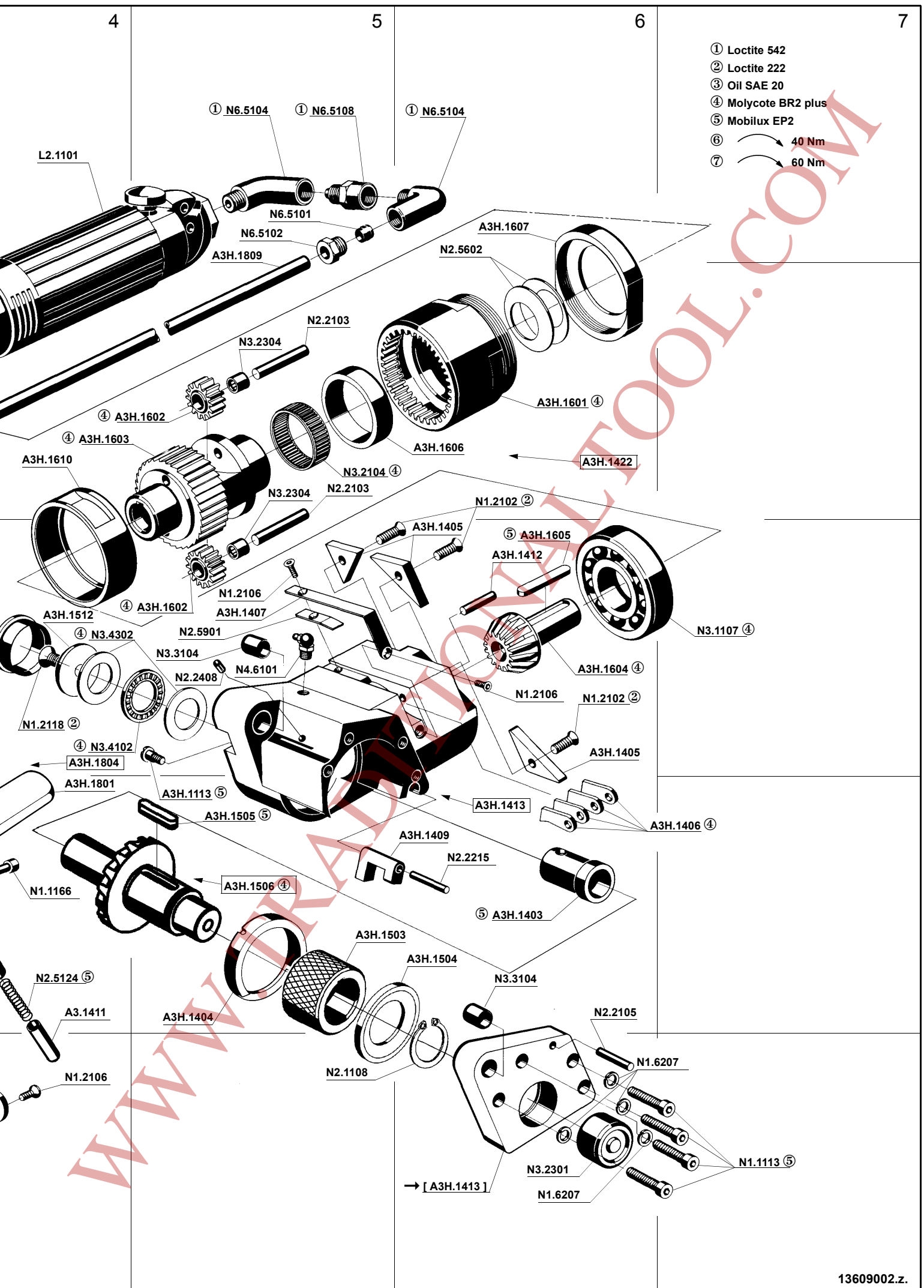
8.3 Incorrect seal (the sealing mechanism is adjusted too low)

This stamped seal is too deep and the lower strap is scratched by the cutter. Although the tensile strength of this seal is sufficient the strapping must be taken away from the package because of the scratched lower strap. The tool must be readjusted immediately (see SEAL ADJUSTMENT).





- ① Loctite 542
- ② Loctite 222
- ③ Oil SAE 20
- ④ Molycote BR2 plus
- ⑤ Mobilux EP2
- ⑥  40 Nm
- ⑦  60 Nm



9 SPARE PARTS LIST 13.6090.02

| 13.6090.02 | A3H/16/0.38-0.60/4.5 | | A3H.0003.02 | | 22.02.06 | |
|------------|----------------------|----------|-------------|------------------------|------------|-------|
| Item-No. | | in group | Pcs. | Description | Dimension | Field |
| A3H.1103 | | | 1 | CYLINDER COVER | | B3 |
| A3H.1104 | | | 1 | STRAP GUIDE LEVER | | C2 |
| A3H.1106 | * | | 1 | STRAP LIMITER | | E2 |
| A3H.1109 | | | 1 | GUIDE KEY | | E2 |
| A3H.1110 | | | 1 | FILTER NETTING | | E4 |
| A3H.1111 | | | 1 | NETTING FRAME | | E4 |
| A3H.1112 | | | 1 | PROTECTION NETTING | | E4 |
| A3H.1113 | | | 3 | COLLAR SCREW | | C2+ |
| A3H.1116 | | | 1 | LABEL | MAX. 5 BAR | A3 |
| A3H.1123 | | | 1 | SEALING BODY | | E3 |
| A3H.1202 | | A3H.1204 | 1 | SUPPORTING SOCKET | | C1 |
| A3H.1203 | | A3H.1204 | 1 | SPRING BOLT | | C1 |
| [A3H.1204] | | | 1 | SPRING PACKAGE | | C1 |
| A3H.1205 | | | 1 | DIE AND CUTTER SUPPORT | | C1 |
| A3H.1301 | | | 1 | PISTON | | B3 |
| A3H.1302 | | | 1 | PLUNGER | | C2 |
| A3H.1403 | | A3H.1413 | 1 | SLIDE-BEARING | | D6 |
| A3H.1404 | | A3H.1422 | 1 | COVER RING | | D5 |
| A3H.1405 | | A3H.1422 | 3 | SECURITY ANGLE | | C6 |
| A3H.1406 | | A3H.1422 | 4 | CATCH PAWL | | D7 |
| A3H.1407 | | A3H.1422 | 1 | MASKING PLATE | | C5 |
| A3H.1409 | * | A3H.1422 | 1 | STRAP GUIDE | | D6 |
| A3H.1412 | | A3H.1422 | 1 | RATCHET BOLT | | C6 |
| [A3H.1413] | | A3H.1422 | 1 | GEAR BODY | | D6 |
| [A3H.1422] | | | 1 | GEAR | | B6 |
| A3H.1503 | * | A3H.1422 | 1 | TENSIONING WHEEL | | D5 |
| A3H.1504 | | A3H.1422 | 1 | SPACER RING | | D6 |
| A3H.1505 | | A3H.1506 | 1 | KEY | | D5 |
| [A3H.1506] | | A3H.1422 | 1 | BEVEL WHEEL | | D5 |
| A3H.1512 | | A3H.1506 | 1 | DISK | | C4 |
| A3H.1601 | | A3H.1422 | 1 | GEAR RIM | | B6 |
| A3H.1602 | | A3H.1422 | 2 | SATELLITE | | B5+ |
| A3H.1603 | | A3H.1422 | 1 | SATELLITE SUPPORT | | B4 |
| A3H.1604 | | A3H.1422 | 1 | PINION | | C6 |
| A3H.1605 | | A3H.1422 | 1 | KEY | | C6 |
| A3H.1606 | | A3H.1422 | 1 | BEARING RING | | B6 |
| A3H.1607 | | A3H.1422 | 1 | TAPPED RING | | A6 |
| A3H.1610 | | A3H.1422 | 1 | SPACER RING | | B4 |
| A3H.1703 | * | | 1 | GRIPPER | | D2 |
| A3H.1704 | | | 1 | EJECTOR | | D1 |
| [A3H.1709] | | | 1 | ADJUSTING SCREW | | E1 |
| A3H.1721 | | | 1 | BASE PLATE | | D1 |
| A3H.1723 | * | | 1 | STRAP STOP | | D1 |
| A3H.1728 | | | 1 | GUIDE BUSH | | D1 |
| A3H.1801 | | A3H.1804 | 1 | VALVE BODY | | D4 |
| A3H.1802 | | A3H.1804 | 1 | LEVER | | C4 |
| [A3H.1803] | | | 1 | SUSPENSION BRACKET | | A3 |
| [A3H.1804] | | | 1 | VALVE BODY | | C4 |
| A3H.1805 | | | 1 | BUSHING | | D4 |
| A3H.1809 | | | 1 | NYLON TUBE | | B5 |
| A3.1411 | | | 1 | CARTRIDGE | | D4 |

[] = Group

* = Wearing parts

| 13.6090.02 | A3H/16/0.38-0.60/4.5 | | A3H.0003.02 | | 22.02.06 | |
|------------|----------------------|----------|-------------|--------------------|---------------------|-------|
| Item-No. | | in group | Pcs. | Description | Dimension | Field |
| A.1103 | * | | 1 | PUNCH | | D1 |
| A.1222 | * | | 1 | DIE | | C2 |
| A.1223 | * | | 1 | SHEAR BLADE | | C2 |
| [L2.1101] | | | 1 | AIR MOTOR | | A4 |
| [L2.1103] | | L2.1101 | 1 | PLANET SHAFT | | -- |
| L2.1201 | | L2.1101 | 1 | EXHAUST RING | | -- |
| L2.1203 | | L2.1212 | 1 | PLASTIC JACKET | | -- |
| L2.1206 | | L2.1101 | 1 | ADAPTOR | | -- |
| L2.1208 | | L2.1101 | 1 | SEALING SCREW | | -- |
| [L2.1212] | | L2.1101 | 1 | HOUSING | | -- |
| L2.1213 | | L2.1101 | 1 | BUTTON | | -- |
| L2.1214 | | L2.1101 | 1 | VALVE PISTON | | -- |
| L2.1215 | | L2.1101 | 1 | VALVE HEAD | | -- |
| L2.1301 | | L2.1321 | 1 | END PLATE | | -- |
| L2.1302 | | L2.1321 | 1 | PARALLEL PIN | | -- |
| L2.1304 | * | L2.1321 | 5 | VANE | | -- |
| L2.1305 | | L2.1321 | 1 | ROTOR | | -- |
| L2.1308 | | L2.1101 | 1 | DAMPER | | -- |
| L2.1309 | | L2.1103 | 1 | PLANET SHAFT | | -- |
| L2.1310 | | L2.1103 | 2 | NEEDLE CAGE | | -- |
| L2.1311 | | L2.1103 | 2 | GEAR WHEEL | | -- |
| L2.1312 | | L2.1103 | 2 | SHAFT | | -- |
| L2.1313 | | L2.1101 | 1 | BEARING RING | | -- |
| L2.1314 | | L2.1321 | 1 | END PLATE | | -- |
| [L2.1321] | | L2.1101 | 1 | MOTOR CELL | | -- |
| L2.1322 | | L2.1321 | 1 | CYLINDER | | -- |
| L2.1401 | | L2.1101 | 1 | PLANET SHAFT | | -- |
| L2.1402 | | L2.1101 | 32 | BEARING NEEDLE | | -- |
| L2.1403 | | L2.1101 | 2 | GEAR WHEEL | | -- |
| L2.1404 | | L2.1101 | 2 | SHAFT | | -- |
| L2.1405 | | L2.1101 | 1 | BEARING RING | | -- |
| L2.1505 | | L2.1321 | 1 | KEY | | -- |
| L2.2221 | | L2.1101 | 1 | JOINT | | -- |
| N1.1111 | | | 3 | SCREW | M5 X 12 | A3+ |
| N1.1112 | | | 1 | SCREW | M4 X 20 | E2 |
| N1.1113 | | A3H.1413 | 4 | SCREW | M5 X 20 | E7 |
| N1.1166 | | | 3 | SCREW | M5 X 30 | D4+ |
| N1.1168 | | | 1 | SCREW | M5 X 16 | D4 |
| N1.1174 | | | 1 | SCREW | M10 X 1 X 40 | E2 |
| N1.1179 | | | 3 | SCREW | M8 X 1 X 40 | E1 |
| N1.1202 | | | 1 | SCREW | M5 X 10 | E1 |
| N1.1304 | | | 2 | SCREW | M3 X 8 | E1 |
| N1.1806 | | | 2 | SCREW | M4 X 10 | D2 |
| N1.2102 | | | 4 | COUNTERSUNK SCREW | M6 X 20 | A2 |
| N1.2102 | | A3H.1422 | 3 | COUNTERSUNK SCREW | M6 X 20 | B6+ |
| N1.2104 | | | 2 | COUNTERSUNK SCREW | M4 X 12 | E2 |
| N1.2106 | | | 2 | COUNTERSUNK SCREW | M4 X 8 | D4+ |
| N1.2106 | | A3H.1422 | 2 | COUNTERSUNK SCREW | M4 X 8 | C5+ |
| N1.2118 | | A3H.1506 | 1 | COUNTERSUNK SCREW | M6 X 0.75 X 12 - LH | C4 |
| N1.5502 | | | 1 | SLOTTED NUT | M8 | B3 |
| N1.6105 | | | 2 | WASHER | 6.1 X 18 X 0.8 | D2+ |
| N1.6203 | | | 2 | SPRING LOCK WASHER | M3 | E2 |
| N1.6205 | | | 1 | SPRING LOCK WASHER | M4 | E2 |

[] = Group

* = Wearing parts

| 13.6090.02 | A3H/16/0.38-0.60/4.5 | | A3H.0003.02 | | | 22.02.06 |
|------------|----------------------|----------|-------------|---------------------|---------------------|----------|
| Item-No. | | in group | Pcs. | Description | Dimension | Field |
| N1.6207 | | | 7 | SPRING LOCK WASHER | M5 | A3+ |
| N1.6207 | | A3H.1413 | 4 | SPRING LOCK WASHER | M5 | E6 |
| N1.6501 | | | 3 | SAFETY WASHER | M8 | E1 |
| N1.6502 | | | 1 | SAFETY WASHER | M10 | E2 |
| N1.6601 | | | 1 | SCREW LOCKING | M8 | B2 |
| N1.6701 | | L2.1101 | 2 | TOOTH LOCK WASHER | | -- |
| N2.1108 | | A3H.1422 | 1 | SECURITY RING | 20 | E5 |
| N2.1301 | | A3H.1204 | 1 | CIRCLIP | 6 | C1 |
| N2.2103 | | A3H.1422 | 2 | PARALLEL PIN | 6 m6 X 28 | B5+ |
| N2.2105 | | A3H.1413 | 1 | PARALLEL PIN | 6 m6 X 30 | D6 |
| N2.2108 | | | 1 | PARALLEL PIN | 12 m6 X 90 | E3 |
| N2.2109 | | | 2 | PARALLEL PIN | 8 m6 X 30 | E1 |
| N2.2110 | | | 1 | PARALLEL PIN | 4 m6 X 10 | C2 |
| N2.2112 | | | 1 | PARALLEL PIN | 3 m6 X 12 | D1 |
| N2.2215 | | A3H.1413 | 1 | PARALLEL PIN | 4 h8 X 32 | D6 |
| N2.2408 | | A3H.1422 | 1 | DOWEL PIN | 3 X 6 | C5 |
| N2.2414 | | L2.1101 | 1 | DOWEL PIN | 2 X 12 | -- |
| N2.2427 | | | 1 | DOWEL PIN | 3.5 X 14 | E1 |
| N2.4902 | | | 8 | HAMMER HEAD BOLT | 1.85 X 4.76 | A3+ |
| N2.5102 | | A3H.1804 | 1 | PRESSURE SPRING | 0.6 X 8 X 14/6 | C4 |
| N2.5102 | | L2.1101 | 1 | PRESSURE SPRING | 0.6 X 8 X 14/6 | -- |
| N2.5121 | | | 1 | PRESSURE SPRING | 2.5 X 13.5 X 17/4.5 | C1 |
| N2.5122 | | | 1 | PRESSURE SPRING | 4 X 72 X 135/6 | C2 |
| N2.5123 | | | 1 | PRESSURE SPRING | 1 X 8 X 40/12.5 | D1 |
| N2.5124 | | | 1 | PRESSURE SPRING | 1 X 8 X 75/25 | D4 |
| N2.5601 | | A3H.1204 | 40 | CUP SPRING | 12.5 X 6.2 X 0.7 | C1 |
| N2.5602 | | A3H.1422 | 2 | CUP SPRING | 31.5 X 16.3 X 0.8 | A6 |
| N2.5901 | | A3H.1422 | 1 | PLATE SPRING | 42 X 12 X 0.5 | C5 |
| N3.1102 | | L2.1101 | 4 | BALL BEARING | 15 X 32 X 9 | -- |
| N3.1107 | | A3H.1422 | 1 | BALL BEARING | 20 X 47 X 14 | C7 |
| N3.1108 | | L2.1321 | 1 | BALL BEARING | 6 X 19 X 6 | -- |
| N3.1109 | | L2.1321 | 1 | BALL BEARING | 8 X 22 X 7 | -- |
| N3.1708 | | A3H.1804 | 1 | BALL | 10 MM | D4 |
| N3.2104 | | A3H.1422 | 1 | NEEDLE CAGE | K 25 X 29 X 10 | B5 |
| N3.2301 | | A3H.1413 | 1 | NEEDLE CASE | 15 X 21 X 14 | E6 |
| N3.2304 | | A3H.1422 | 2 | NEEDLE CASE | 6 X 10 X 8 | B5+ |
| N3.3104 | | A3H.1413 | 2 | SLIDE-BEARING | 12 X 14 X 15 | C5+ |
| N3.4102 | | A3H.1422 | 1 | THRUST BEARING CAGE | 15 X 28 X 2 | C4 |
| N3.4302 | | A3H.1422 | 2 | SLIDING DISK | 15 X 28 X 2.75 | C4 |
| N41.9124 | | | 1 | LABEL | <<A3H>> | A3 |
| N41.9128 | | | 1 | ADHESIVE LABEL | 30 X 10 X 0.1 | A3 |
| N4.5101 | | A3H.1422 | 1 | CAP COVER | 34 X 31.7 X 9.5 | C4 |
| N4.6101 | | A3H.1413 | 1 | LUBRICATOR NIPPLE | M 6 | C5 |
| N4.9159 | | | 1 | LABEL | <<CE>> | E2 |
| N6.5101 | | | 2 | CLAMPING RING | | A5+ |
| N6.5102 | | | 2 | SLEEVE NUT | | A5+ |
| N6.5104 | | | 2 | FITTING | | A5+ |
| N6.5107 | | | 1 | FITTING | | E3 |
| N6.5107 | | A3H.1804 | 1 | FITTING | | C3 |
| N6.5108 | | | 1 | REDUCING SOCKET | | A5 |
| N6.5108 | | A3H.1804 | 1 | REDUCING SOCKET | | C3 |
| N6.6103 | | | 1 | SEAL | 18 X 25 X 5 | B1 |
| N6.6104 | | | 1 | SEAL | 50 X 42 X 8 | B1 |

[] = Group

* = Wearing parts

| 13.6090.02 | A3H/16/0.38-0.60/4.5 | | A3H.0003.02 | | 22.02.06 | |
|------------|----------------------|----------|-------------|---------------------|------------|-------|
| Item-No. | | in group | Pcs. | Description | Dimension | Field |
| N6.6201 | | L2.1101 | 1 | O-RING | 4.3 X 1.4 | -- |
| N6.6202 | | | 1 | O-RING | 25 X 2.5 | D3 |
| N6.6203 | | | 1 | O-RING | 109 X 2 | B3 |
| N6.6205 | | L2.1101 | 1 | O-RING | 9.2 X 1.78 | -- |
| N6.6206 | | L2.1101 | 1 | O-RING | 4.3 X 2.4 | -- |
| N6.6301 | | | 1 | SEAL | " 110 | B3 |
| V1.1106 | | A3H.1804 | 2 | TOUCH CONTACT NUT | | C3 |
| V1.1107 | | A3H.1804 | 2 | VALVE DISK | | C3+ |
| V1.1109 | | A3H.1804 | 1 | SLIDING VALVE STEM | | D4 |
| V1.1110 | | A3H.1804 | 1 | VALVE CAP | | C3 |
| V1.1114 | | A3H.1804 | 1 | TOUCH CONTACT SCREW | | C4 |
| V1.1115 | | A3H.1804 | 1 | VALVE PACKING | | C3 |
| V1.1117 | | A3H.1804 | 1 | BALL HOLDER | | D4 |
| V1.1118 | | A3H.1804 | 1 | CAM | | E3 |
| V1.1119 | | A3H.1804 | 2 | CUP SPRING | | E3 |

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[] = Group

* = Wearing parts

10 SEAL ADJUSTMENT

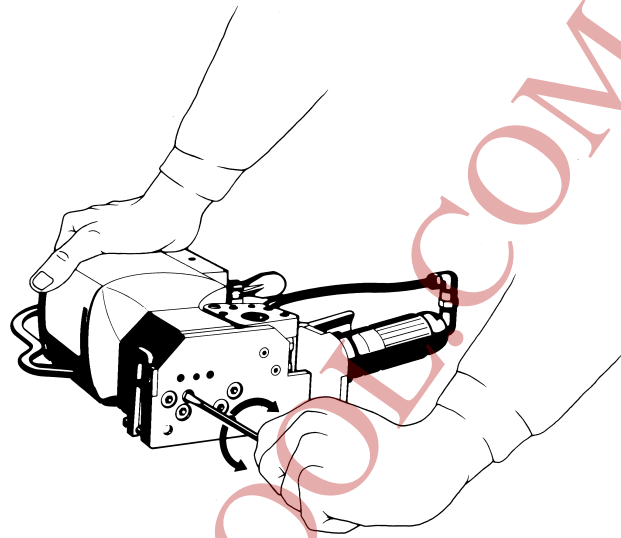
The sealing- and cutting depth of the sealing mechanism and the cutter can be adjusted with a screw driver by turning the adjusting screw A3H.1709.

Sealing depth is excessive

Turning the adjusting screw A3H.1709 clockwise reduces the sealing depth. A turn of 90° equals adjustment of 0.25 mm / .010".

Sealing depth is not sufficient

Turning the adjusting screw counter-clockwise increases the sealing depth. A turn of 90° equals adjustment of 0.25 mm / .010".



11 MAINTENANCE

Depending on the working conditions and the use of the tool the following maintenance has to be made periodically:

11.1 Air-unit

- Checking the air pressure daily
- Checking the oil-level daily
- The water separator must be emptied before it is full (unless automatic)
- The filter has to be cleaned following the instructions of the manufacturer of the air- unit.

Oil for the air-unit

HL or CL ISO-VG 10

11.2 Cleaning

If impact of dirt and dust is considerable and if painted straps are used the punch, the die, the square gripper and the feed wheel must be cleaned regularly. Normally it is sufficient to blow out these parts by the use of an air gun.

11.3 Lubrication

The worm gear is filled with grease when it's assembled.

The slide bearing A3H.1403 has to be greased periodically (after 10 000 cycles at the latest) at the nipple N4.6101 by using a grease gun.

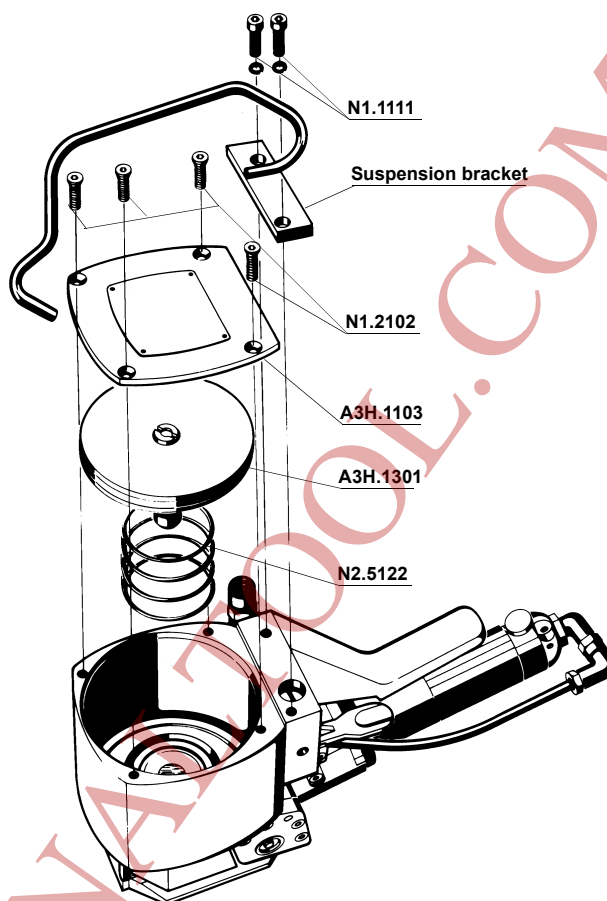
11.4 Control of oil level

According to the use of the tool the oil-level must be checked periodically and the inside of the cylinder must be cleaned at the same time. This oil control is necessary because it prevents that due to oil losses over a certain period of time the sealing mechanism does not reach the necessary stroke.

Procedure:

- Unscrew the screws N1.1111 and disassemble the suspension bracket.
- Unscrew the screws N1.2102 and disassemble the cylinder cover A3H.1103.
- Disassemble the piston A3H.1301 together with the plunger A3H.1302 and the pressure spring N2.5122
- Check oil-level (oil must be even with the upper rim of the boring in the sealing body). If necessary oil must be refilled. Use oil SAE 20 only.
- Assembling in opposite order.

Attention! Make sure the O-ring N6.6203 is not jammed and damaged when being reassembled.

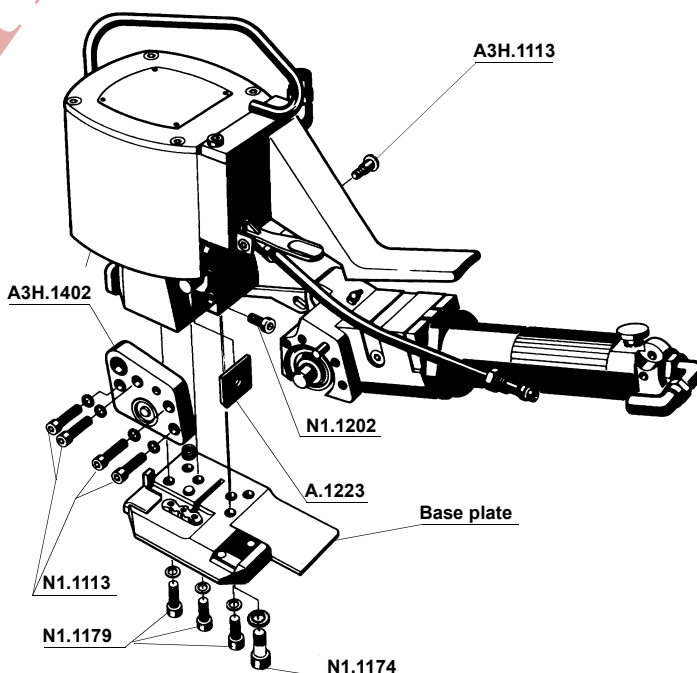


12 EXCHANGE OF WEARING PARTS

12.1 Shear blade

- Unscrew the screws N1.1174 and N1.1179 and remove the base plate.
- Unscrew the screws N1.1113 and disassemble together with the end cover A3H.1402.
- Unscrew the screws A3H.1113 and take away the whole gear box including the air motor.
- Unscrew the screws N1.1202 and exchange the shear blade A.1223.
- Assembling in opposite order.

Attention! The screws N1.1179 have to be tightened with 40 Nm and N1.1174 with 60 Nm by using a torque wrench.

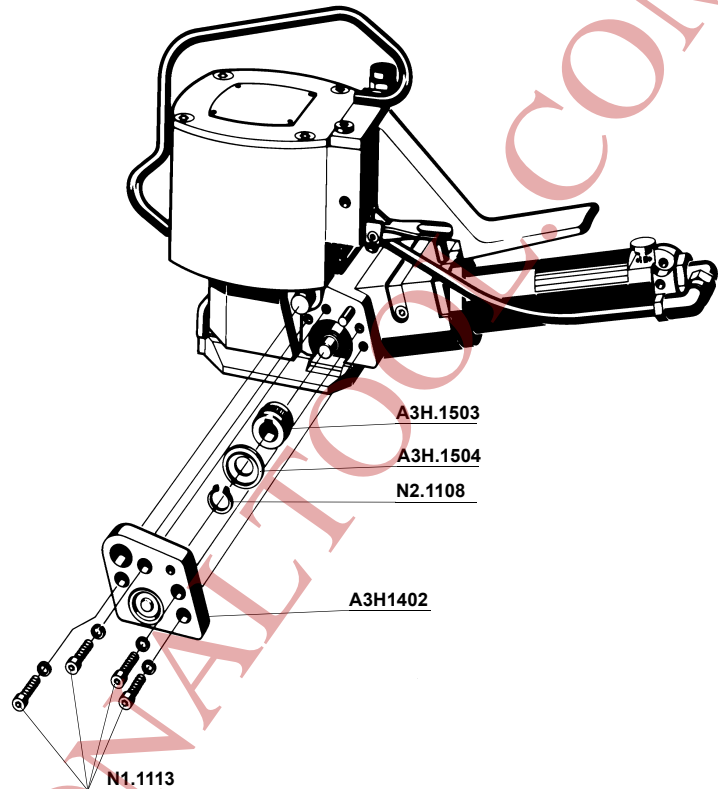


12.2 Tensioning wheel

The tensioning wheel should be exchanged if its teeth are dull and the wheel revolves without transporting the strap.

Procedure:

- Unscrew the screws N1.1113 and disassemble the end cover.
- Disassemble the security ring N2.1108.
- Disassemble the spacer ring A3H.1504 and the tensioning wheel A3H.1503.
- Assembling in opposite order.

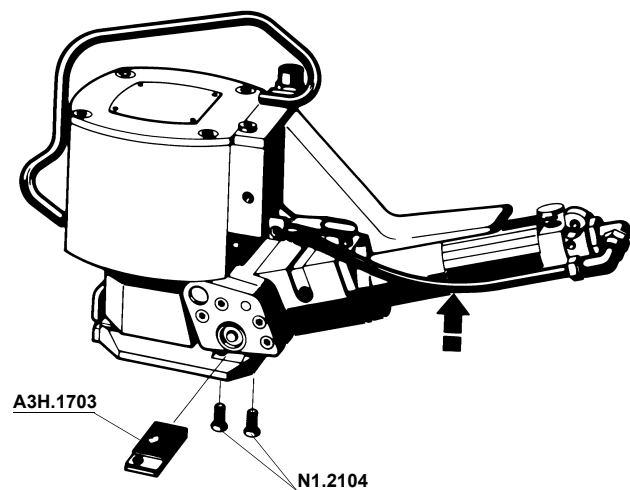


12.3 Square gripper

The square gripper has to be changed if its teeth are dull and the lower strap can not be held during the strap is tensioned.

Procedure:

- Unscrew the screws N1.2104.
- Lift the air motor and exchange the square gripper A3H.1703.



12.4 Punch and die

If it's impossible to make a correct seal although the adjustment of the adjusting screw is correct (see SEAL CONTROL) the base plate has to be disassembled and the wearing of the stamp tools has to be checked. If the cutting edges are damaged or blunted (Attention! The cutting edges are also slightly rounded off when they are new) the used parts have to be exchanged.

Procedure:

- Unscrew the screws N1.1174 and N1.1179 and remove the base plate.
- Unscrew the punch screws and disassemble the damaged punch.
- Clean the punch groove and set in a new punch.
- Unscrew the screws N1.1806 and disassemble the damaged die.
- Clean the groove in the die and cutter support and set in a new die.
- Assembling in opposite order.

Attention! The screws N1.1179 have to be tightened with 40 Nm and N1.1174 with 60 Nm by using a torque wrench.

