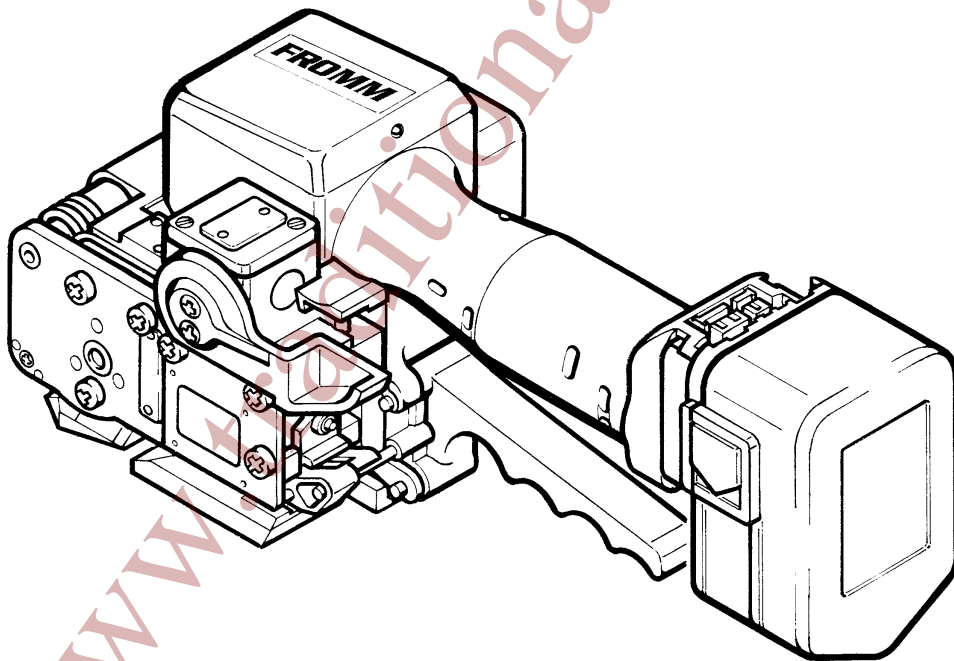


FROMM

OPERATION MANUAL / SPARE PARTS LIST

BATTERY - POWERED PLASTIC STRAPPING TOOL MODEL P321

43.0364.02



CE Declaration of conformity

We declare that the machine P321
is in conformity with the following standard or
standardised documents:
98/37/EEC

FROMM Holding AG
Hinterbergstrasse 26
CH - 6330 Cham
27.03 2001

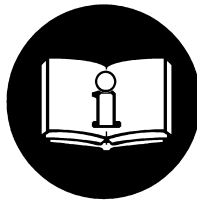
R.Fromm
Director



	INDEX	PAGE
1	SAFETY INSTRUCTIONS	3
2	TECHNICAL DATA	4
3	ACCESSORIES	5
3.1	Battery	5
3.2	Battery - chargers	5
3.3	Wearing plate	5
3.4	Suspension	5
3.5	Turning button kit.	5
4	OPERATING ELEMENTS	6
5	OPERATION	6
5.1	Installation	6
5.2	Adjustments.	7
5.2.1	Preselecting of strap tension and tensioning speed	7
5.2.2	Adjusting the welding time.	7
5.2.3	Adjusting the welding pressure	7
5.3	Feeding the strap around the package	8
5.4	Inserting the strap	8
5.5	Tensioning the strap	8
5.6	Sealing the straps	9
5.7	Removing the tool	9
5.8	Seal - Control.	9
6	SPARE PARTS LIST 43.0364.02	12
7	CHART OF TYPES	16
8	WARRANTY CONDITIONS AND LIABILITY	16
9	APPROPRIATE USE	16
10	EXCHANGE OF WEARING PARTS	17
10.1	Exchange of tensioning wheel and grippers	17
10.2	Exchange of cutter, welding stop gripper and welding gripper	18
10.3	Adjustment of the coupler P32.1701	19
11	ELECTRIC SCHEMATIC	20
12	SERVICE	20
13	CLEANING	20

1 SAFETY INSTRUCTIONS

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



Operation with battery

Environment protection:

- Do not dispose of used batteries in the household refuse, water or by burning them. FROMM distributors offer an environment friendly battery disposal service.

Danger of shortcircuit:

- Do not store batteries together with metal objects.
- Do not open batteries and store them only in dry and frost-proof rooms. The maximum ambient temperature is 50°C. Keep dry at all times.
- Never charge a damaged battery. Replace by a new one immediately.

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.

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 TECHNICAL DATA

Description of the tool

The tool model P321 has been designed to strap packages with plastic strapping. The plastic strapping is fed around the package manually or in combination with a strap feeder. The straps are inserted in the tool, automatically tensioned, sealed by friction welding and separated.

Tool size with battery

Length: 335 mm / 13.2"

Width: 171 mm / 6.7"

Height: 126 mm / 5.0"

Weight: 4.3 kg / 9.5 lbs

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).

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).

Strap material

Strap qualities: PET (Polyester) and PP (Polypropylen) plain or embossed.

Use only plastic straps recommended by your sales shop (name and address on the rear of the operation manual).

Strap dimensions: 12.7 - 19.0 mm x 0.4 - 1.05 mm (see chart of types).

Use only plastic straps with the correct strap dimensions for your tool.

Strap tension

Tensioning force: Adjustable from 600 - max. 3000 N / 135 - max. 675 lbs.
The maximum value depends on the strap quality.

Tensioning speed: approx. 185 - 250 mm/s / 7.3 - 10 inch/sec.

Joint strength: approx. 75% of the tensile strength of the plastic strap
(depending on the strap quality).

Battery

Voltage / capacity: 14.4 VDC / 2.4 Ah

Working temperature: The ambient temperature should be between 5° and 45° C (41° and 113°F).
The best performance is achieved between 15° and 20°C (59° and 68°F).

3 ACCESSORIES

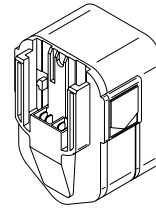


Use only parts and accessories mentioned in the operating instruction. Using other parts or accessories can cause injuries to you and other persons.

3.1 Battery

One battery is included in the P321 delivery.

Battery for replacement or exchange can be ordered under item number N5.4309.



N5.4309

3.2 Battery - chargers

The battery charger must be separately ordered according to the table mentioned below.

Item-No.	Voltage / frequency	Admitted for country
N5.4409	220 - 240V / 50 - 60Hz	A, B, BG, BIH, BOL, BR, CH, CL, CZ, D, DK, DZ, E, EAS, EST, ET, EY, F, FIN, GE, GR, H, HK, HR, I, IL, IND, IR, IRQ, IS, JOR, KSA, KWT, L, LAR, LT, LV, MA, MC, MK, MOC, N, NL, P, PK, PE, PL, PRC, PY, RA, RCH, RI, RL, RO, ROK, ROU, RP, RUS, S, SK, SLO, SYR, THA, TN, TR, UA, UAE, YU, YV, (Z), (ZA), (ZW)
N5.4410	240V / 50 - 60Hz	BRN, BRU, CY, EAK, EAT, GB, IRL, M, MAL, OM, SGP, Y
N5.4411	110V / 50Hz	GB
N5.4408	230 - 240V / 50 - 60Hz	AUS, NZ
N5.4405	110 - 127V / 50 - 60Hz	BR, C, CO, CR, DOM, EC, GCA, J, JA, KSA, LB, NIC, PA, Puerto Rico, RC, RP, YV

3.3 Wearing plate

As an option, tool can be equipped with a wearing plate to protect base from excessive wear on abrasive package surfaces (like bricks, concrete blocks etc.). The complete wearing plate can be ordered together with the fastening screws under item number P32.0127.

3.4 Suspension

When working stationary the P321 can be suspended at a spring loaded balancer by using a suspension bracket.

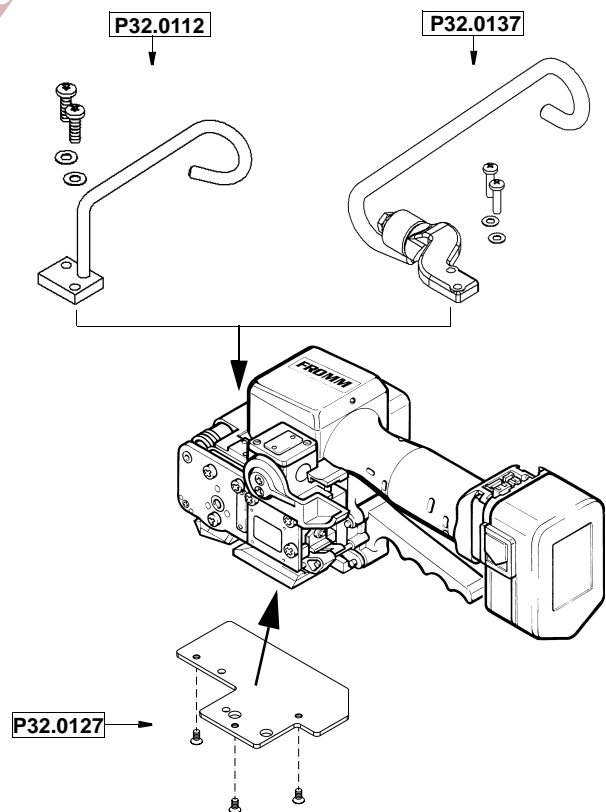
For working in normal position a stiff suspension bracket with screws and washers can be ordered under item number Nr. P32.0112.

For working in alternating positions a turn able suspension bracket with screws and washers can be ordered under item number P32.0137.

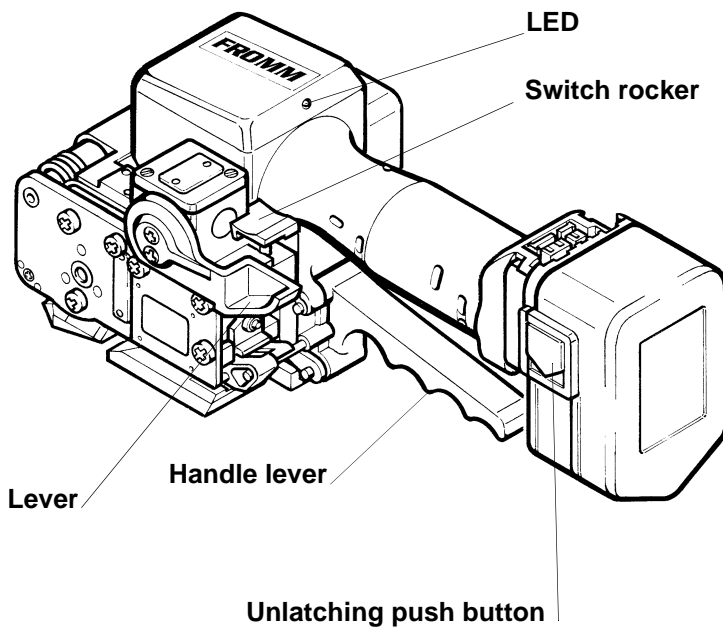
3.5 Turning button kit

For a remaining adjustment of tension force and welding time.

After exchanging of the turning buttons the adjustment can only be changed with the allen key (2mm) that comes with the kit. The kit can be ordered under the item number P32.1129.



4 OPERATING ELEMENTS



LED	
Green	During tensioning the LED lights green.
Green	During welding the LED lights green.
Yellow	Cooling time is running, the lever must be held in welding position.
Green	Cooling time elapsed, turn the lever in start position.
Red	Charge the battery.
Red blinking	The control board is overheated, the tool has to cool down, the switches are locked.

5 OPERATION

5.1 Installation

Do not expose the tool to rain!

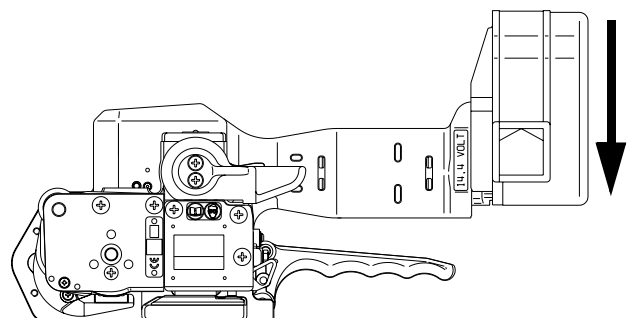
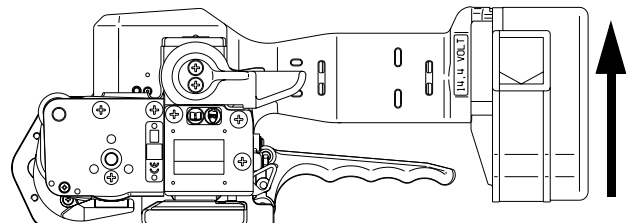
For safety reasons the battery is delivered uncharged. Charge the battery before working. See separate operating instruction of the battery charger.

Inserting the battery

Insert the battery from bottom to top into the tool **both unlatching push buttons latch.**

Depending on the application, the battery can also be inserted from top to bottom in order to achieve a better handling.

When inserting the battery the LED lights shortly green.



Removing the empty battery

If the red LED starts lighting while a tensioning or welding procedure, the capacity of the battery is exhausted. All electric functions of the tool are blocked.

The seal efficiency is insufficient.

Warning! Straps with insufficient seal strength must be removed from the package!

The battery must be recharged.

Push the unlatching push buttons at both sides of the battery.

Push the battery out of the tool in the opposite direction of insertion.

When removing the battery the LED lights shortly red.

5.2 Adjustments

5.2.1 Preselecting of strap tension and tensioning speed



Do not adjust the tensioning force too high.
If the tensioning force is higher than the tensioning strength of the strap,
the strap will tear while the tensioning.

Tensioning force and tensioning speed can be preselected with the right adjusting knob.

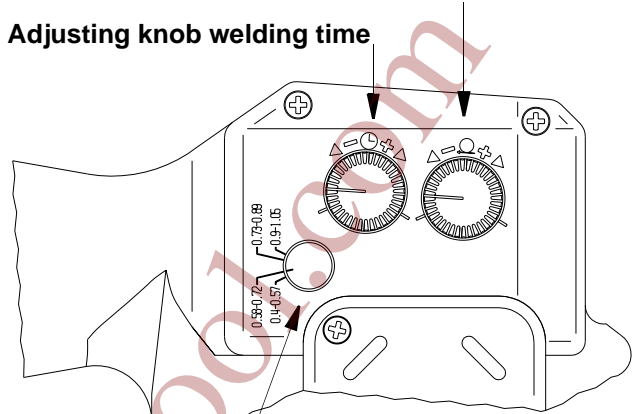
Turning clockwise increases;
 turning counterclockwise decreases the tensioning force and the tensioning speed resp..

The tensioning force on the minimum setting is 600 N (135 lbs) and it is increased on the maximum setting to 3000 N (675 lbs).

The tensioning speed on the minimum setting is 185 mm/s (7.3 inch/sec), it is increased on the middle setting to 250 mm/s (10 inch/sec) and remains on this value till the maximum setting.

Adjusting knob tensioning force / tensioning speed

Adjusting knob welding time



Adjusting pin welding pressure

5.2.2 Adjusting the welding time

Depending on the size and quality of the strap, different welding times are required.

The welding time can be adjusted at the left adjusting knob.

Turning clockwise increases,
 turning counterclockwise decreases the welding time.

5.2.3 Adjusting the welding pressure

In order to assure optimal welding, the pressure of the welding gripper to the straps to be welded must be within a certain range. Depending on the thickness of the strap, this pressure is adjusted by means of the adjusting pin.



When adjusting the welding pressure, the lever must be latched into its start position.

Disregarding this regulation will cause considerable trouble.

The range of thickness of the strap must be adjusted according to the strap thickness admitted for the tool (see chart of types) and the thickness of the strap to be processed.

Model	Welding pressure, Possible adjustments	
Strap thickness 0.40 - 0.64 mm (.016 - .025")	0.40 - 0.57 mm (.016 - .022") 0.58 - 0.72 mm (.023 - .028")	
Strap thickness 0.65 - 1.05 mm (.026 - .041")		0.58 - 0.72 mm (.023 - .028") 0.73 - 0.89 mm (.029 - .035") 0.90 - 1.05 mm (.035 - .041")

Adjustment:

The lever is latched and in start position!

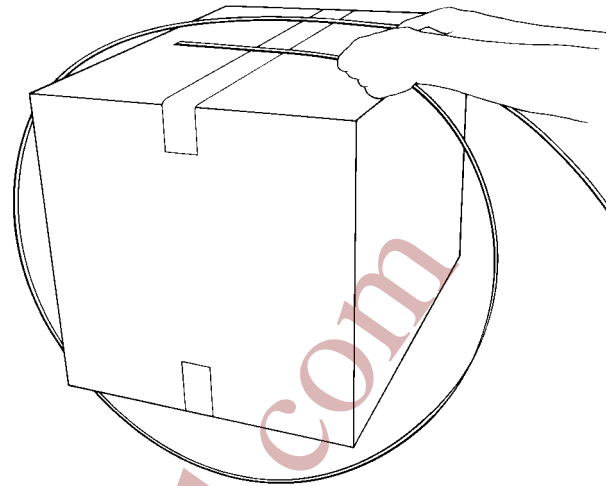
Pull out the adjusting pin of the tool,
 turn it into the desired position (observe the marking on the housing),
 release the adjusting pin (the adjusting pin must latch without assistance).

5.3 Feeding the strap around the package

The strapping is fed around the package as illustrated.

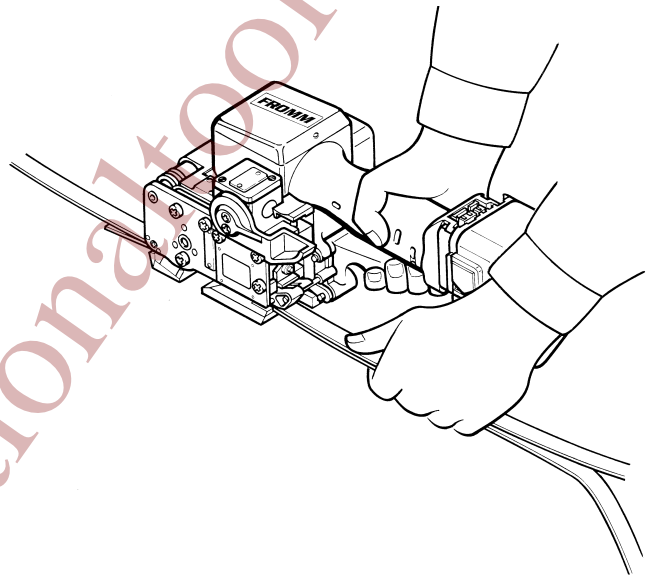


Warning! The plastic strap which will be welded must be free from oil, grease and other dirt. Dirty plastic straps can't be welded correct!



5.4 Inserting the strap

Pull up the handle lever firmly with your right hand. Insert the two straps well aligned on each other into the strap guide using your left hand. Release the handle lever.



5.5 Tensioning the strap

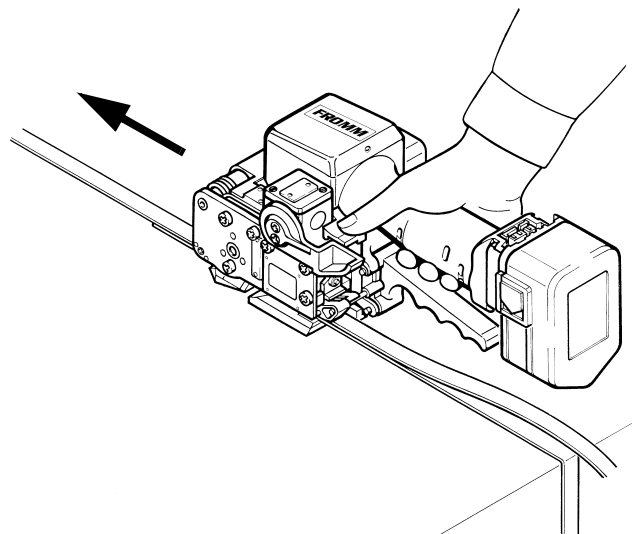
Press down the switch rocker and then release it again after the desired strap tension has been reached.

The tensioning operation can be interrupted and restarted at any time.

During tensioning the LED lights green.

Do not press the switch rocker after reaching the preselected tensioning.

Danger of strap breakage.



The tool must carry out a balance movement while tensioning.

Therefore:

- Don't hinder the tool's movement in the signed direction.

Disregard:

- The feed wheel slips on the strap without tensioning it.

5.6 Sealing the straps



While welding the plastic strap the lever must be pressed forward against the front stop until the cooling down time is elapsed. Disregarding of this regulation will cause insufficient seal efficiency, what can cause severest injuries.

Press the lever with the left hand forward against the stop and keep it pressed.

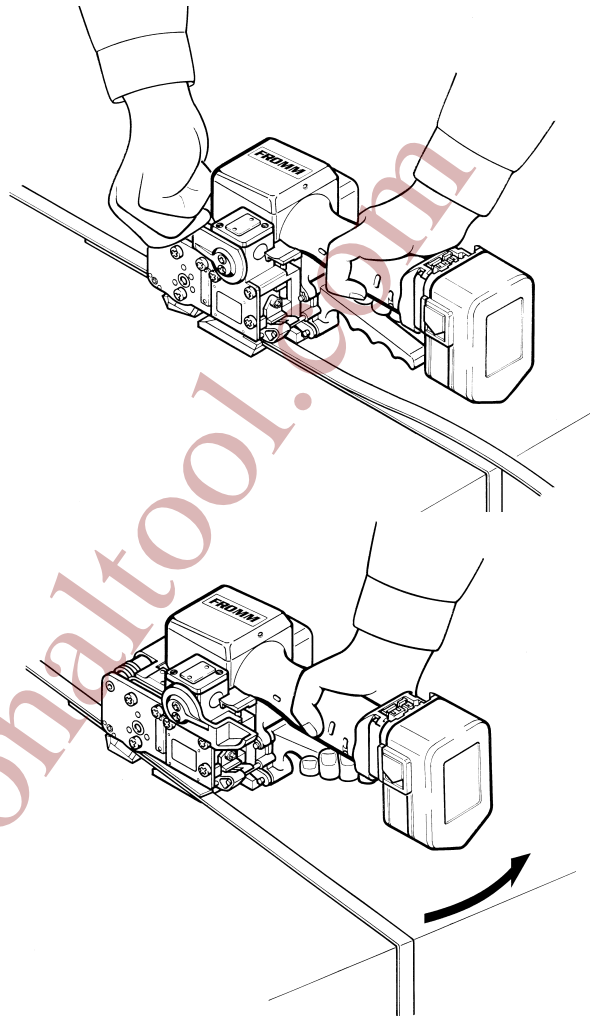
The plastic strap is welded and cut off from the strap coil at the same time.

During welding the LED lights green.

After expiration of the adjusted welding time (see 5.2.2) the cooling down time begins (LED lights yellow).

When the LED lights green again the sealing procedure is finished.

Turn back the lever until it latches in start position.



5.7 Removing the tool

Pull up the handle lever, pull the tool right / backwards and off the strapping.

5.8 Seal - Control

A regular control of the seal is necessary. The seal can be examined visually.

Make a seal, peel it apart and examine it as follows:

Correct seal



The seal must be completely welded over the whole width of the strap on a length of ca. 19 mm. Minor quantities of fused plastic may overflow on sides.

Welding time too short



The plastic strap is not welded over the whole width of the strap. The seal efficiency is insufficient.

Warning! Straps with insufficient seal strength must be removed from the package!

Adjust the welding time (see 5.2.2).

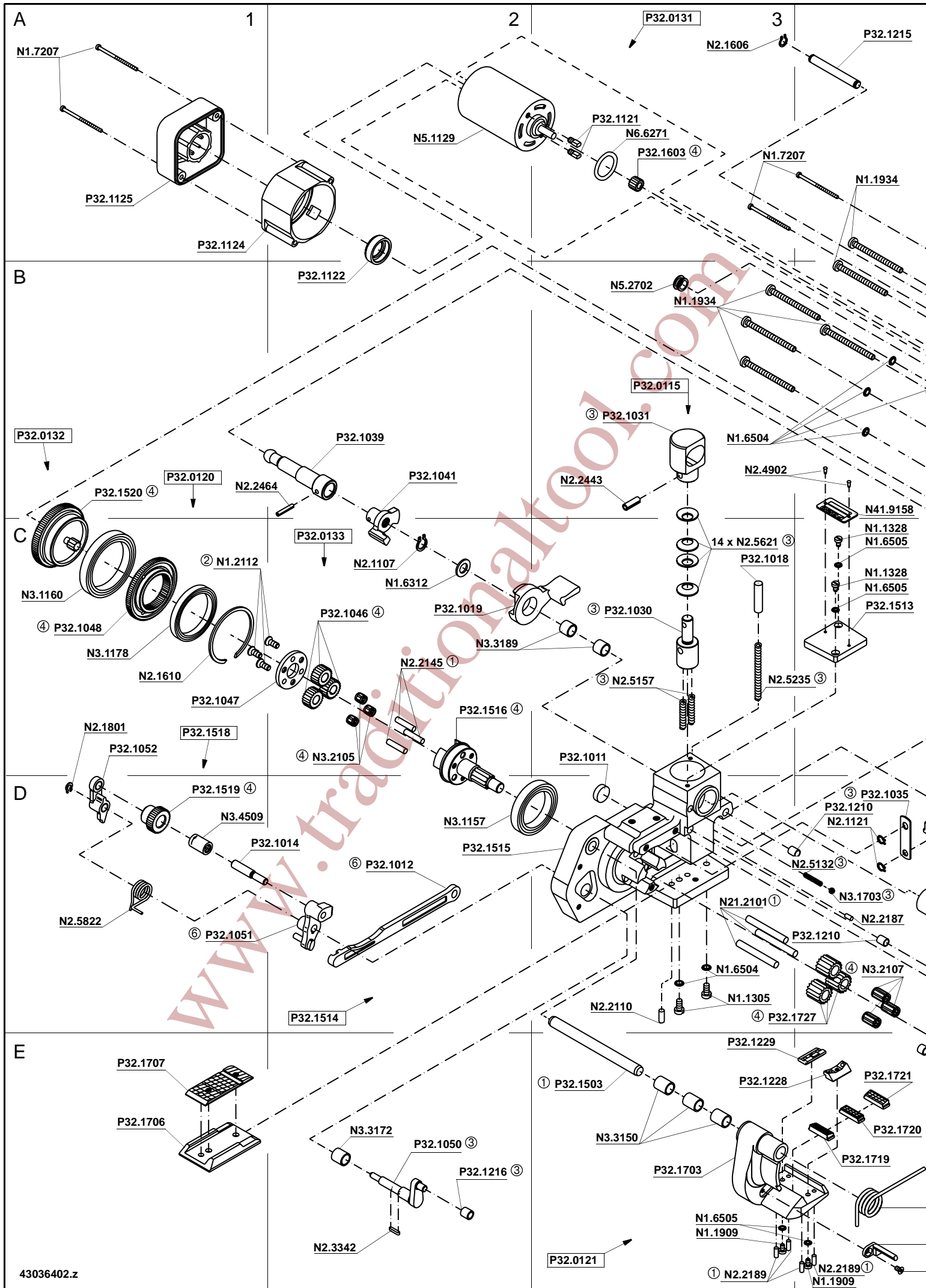
Welding time too long



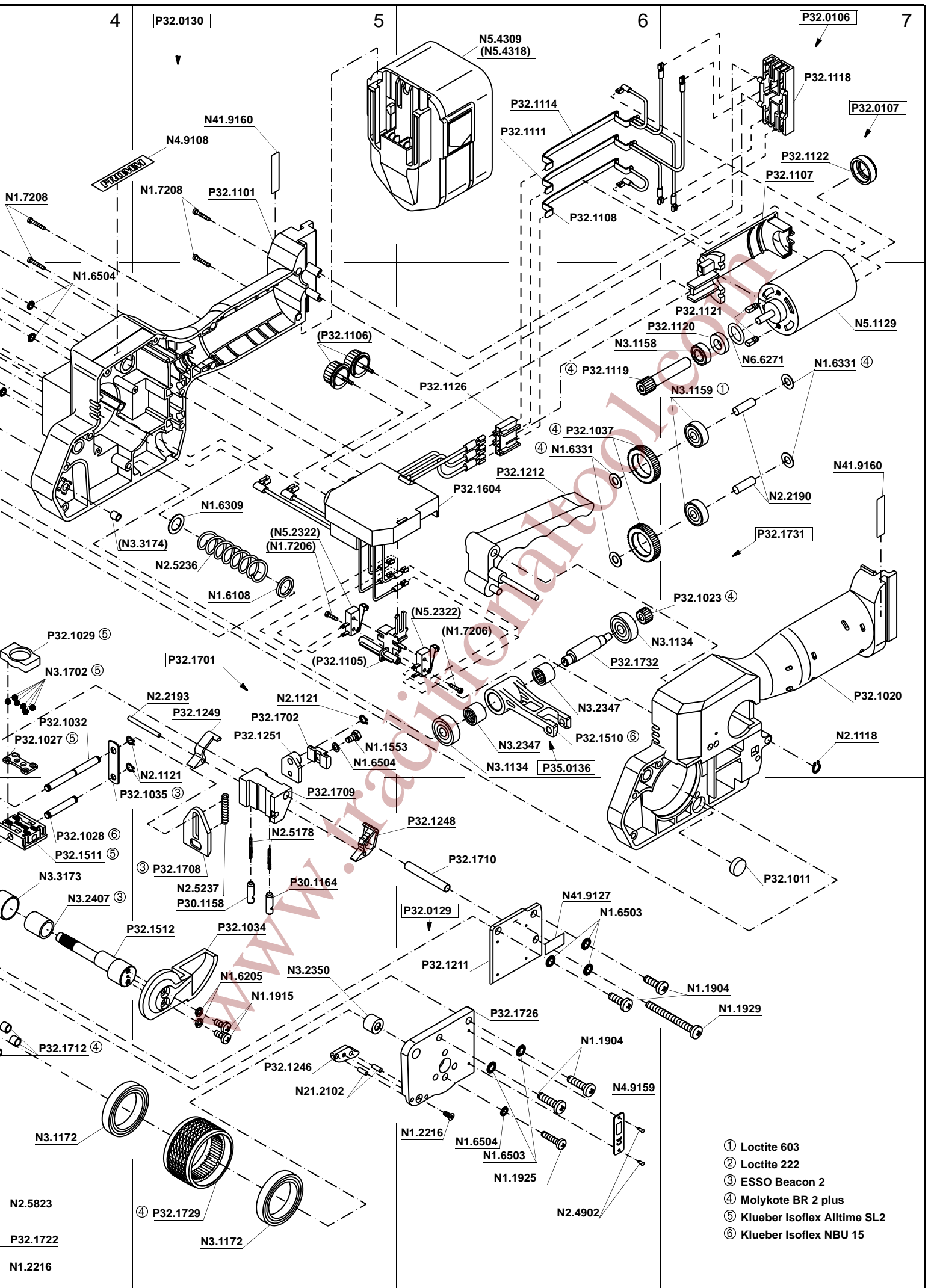
If the welding time is too long the straps are overheated. The fused plastic overflows on both sides of the straps. The seal efficiency is affected.

Warning! Straps with insufficient seal strength must be removed from the package!

Adjust the welding time (see 5.2.2).



43036402.z



6 SPARE PARTS LIST 43.0364.02

43.0364.02	P321/16/0.65-1.05		P321.0001.02			09.03.04
Item-No.		in group	Pcs.	Description	Dimension	Field
N1.1305			2	SCREW	M4 X 7.8	D3
N1.1328		P32.0130	2	SCREW	M3 X 10	C4
N1.1553		P32.1701	1	HEXAGON SCREW	M4 X 8	C5
N1.1904			4	SCREW	M5 X 20	D7+
N1.1909			2	FLAT HEAD SCREW	M3 X 5	E3+
N1.1915		P32.0130	2	SCREW	M4 X 8	D5
N1.1925			1	SCREW	M4 X 20	E6
N1.1929			1	SCREW	M5 X 50	D7
N1.1934		P32.0130	6	FLAT HEAD SCREW	M4 X 50	A4+
N1.2112		P32.0133	3	COUNTERSUNK SCREW	M4 X 10	C1
N1.2216			2	COUNTERSUNK SCREW	M3 X 8	E4+
N1.6108		P32.0130	1	WASHER	12 X 16 X 2	C5
N1.6205		P32.0130	2	SPRING LOCK WASHER	M4	D5
N1.6309		P32.0130	1	SPACER WASHER	10 X 16 X 0.5	B5
N1.6312		P32.0130	1	SUPPORTING DISK	8 X 14 X 1.2	C2
N1.6331		P32.0130	4	SPACER WASHER	6 X 12 X 0.5	B6+
N1.6503			5	SAFETY WASHER	M5	D6+
N1.6504			3	SAFETY WASHER	M4	D3+
N1.6504		P32.0130	6	SAFETY WASHER	M4	B3+
N1.6504		P32.1701	1	SAFETY WASHER	M4	C5
N1.6505			2	SAFETY WASHER	M3	E3
N1.6505		P32.0130	2	SAFETY WASHER	M3	C4
N1.7206		P32.1604	2	PT-SCREW	2.2 X 10	C5+
N1.7207		P32.0130	4	PT-SCREW	3 X 40	A1+
N1.7208		P32.0130	4	PT-SCREW	3 X 14	A4+
N21.2101		P32.1514	3	PARALLEL PIN	5 h6 X 40	D3
N21.2102		P32.0129	2	PARALLEL PIN	3 m6 X 8	E5
N2.1107		P32.0130	1	SECURITY RING	E8	C2
N2.1118			1	SECURITY RING	E6	C7
N2.1121			1	SECURITY RING	E5	C5
N2.1121		P32.0130	4	SECURITY RING	E5	C5+
N2.1606			1	SPRING RING	SW6	A3
N2.1610		P32.0130	1	SPRING RING	SB44	C1
N2.1801		P32.0130	1	TENSIONING RING	4	C1
N2.2110		P32.1514	1	PARALLEL PIN	4 m6 X 10	D3
N2.2145		P32.0133	3	PARALLEL PIN	4 h6 X 18	C2
N2.2187		P32.1514	1	PARALLEL PIN	3 m6 X 6	D4
N2.2189		P32.0121	4	PARALLEL PIN	3 m6 X 5	E3+
N2.2190		P32.0130	2	PARALLEL PIN	6 h6 X 18	B7
N2.2193			1	PARALLEL PIN	3 m6 X 32	C5
N2.2443		P32.0115	1	DOWEL PIN	4 X 15	B3
N2.2464		P32.0130	1	DOWEL PIN	2.5 X 16	B1
N2.3342		P32.0130	1	FEATHER KEY	2 X 2 X 10	E2
N2.4902			4	HAMMER HEAD BOLT	1.85 X 4.76	B3+
N2.5132		P32.0130	1	PRESSURE SPRING	0.5 X 4 X 16/9.5	D4
N2.5157		P32.0130	2	PRESSURE SPRING	0.6 X 4.8 X 20/15.5	C3
N2.5178			2	PRESSURE SPRING	0.32 X 2.82 X 20.5/ 20.5	D5
N2.5235		P32.0130	1	PRESSURE SPRING	0.5 X 4.50 X 42.4/28.5	C3
N2.5236		P32.0130	1	PRESSURE SPRING	0.9 X 15 X 59.7/7.5	C5
N2.5237			1	PRESSURE SPRING	0.8 X 4.8 X 25/18.5	D5

[] = Group

* = Wearing parts

43.0364.02	P321/16/0.65-1.05		P321.0001.02		09.03.04
Item-No.	in group	Pcs.	Description	Dimension	Field
N2.5621	P32.0115	14	CUP SPRING	15 X 8.2 X 0.7	C3
N2.5822	P32.0130	1	TORSION SPRING	1.25 X 11/3.75	D1
N2.5823		1	TORSION SPRING	2.8 X 17/4	E4
N3.1134	P32.0130	1	BALL BEARING	7 X 22 X 7	C6
N3.1134	P32.1731	1	BALL BEARING	7 X 22 X 7	C7
N3.1157	P32.0133	1	BALL BEARING	30 X 42 X 7	D2
N3.1158	P32.0107	1	BALL BEARING	8 X 16 X 5	B6
N3.1159	P32.0130	2	BALL BEARING	6 X 19 X 6	B7
N3.1160	P32.0132	1	BALL BEARING	40 X 52 X 7	C1
N3.1172		2	BALL BEARING	30 X 42 X 7	E4+
N3.1178	P32.0120	1	BALL BEARING	35 X 44 X 5	C1
N3.1702	P32.0130	6	BALL	4 MM	C4
N3.1703	P32.0130	1	BALL	5 MM	D4
N3.2105	P32.0133	3	NEEDLE CAGE	K 4 X 7 X 7 TN	C2
N3.2107		3	NEEDLE CAGE	K 5 X 9 X 13 TN	D4
N3.2347	P32.0130	2	NEEDLE BUSH	10 X 14 X 12	C6
N3.2350	P32.0129	1	NEEDLE CASE	6 X 10 X 9	D5
N3.2407	P32.0130	1	INNER RACEWAY	12 X 15 X 16	D4
N3.3150	P32.0121	3	SLIDE-BEARING	8 X 10 X 12	E3
N3.3172	P32.1514	1	SLIDE-BEARING	8 X 10 X 10	E2
N3.3173	P32.1514	1	SLIDE-BEARING	17 X 19 X 12	D4
N3.3174	P32.1101	1	SLIDE-BEARING	4 X 5.5 X 6	C5
N3.3189	P32.1514	2	SLIDE-BEARING	8 X 10 X 8	C2
N3.4509	P32.1518	1	NEEDLE FREE WHEELING	6 X 10 X 15	D1
N41.9127		1	ADHESIVE LABEL	20 X 10 X 0.1	D6
N41.9158		1	TYPE PLATE	<<P321>>	B4
N41.9160	P32.0130	2	ADHESIVE LABEL	14.4 VOLT	A5+
N4.9108		1	ADHESIVE LABEL	54 X 12 X 0.1	A5
N4.9159		1	LABEL	<<CE>>	E6
N5.1129	P32.0107	1	ELECTRIC MOTOR		B7
N5.1129	P32.0131	1	ELECTRIC MOTOR		A2
N5.2322	P32.1604	2	MICRO SWITCH		C5+
N5.2702		1	COVER		B3
[N5.4309]		1	BATTERY		A6
N5.4318	N5.4309	1	HOUSING		A6
N6.6271	P32.0107	1	O-RING	17 X 3.0	B7
N6.6271	P32.0131	1	O-RING	17 X 3.0	A3
P30.1158		1	GUIDE PIN		D5
P30.1164		1	GUIDE PIN		D5
[P32.0106]	P32.0130	1	ENERGY TRANSMISSION		A7
[P32.0107]	P32.0130	1	WELDING MOTOR		A7
[P32.0115]	P32.0130	1	SPRING PACKAGE		B3
[P32.0120]	P32.0130	1	WHEEL		B1
[P32.0121]		1	TENSIONING BODY		E3
[P32.0129]		1	END COVER		D6
[P32.0130]		1	BASE MODEL		A5
[P32.0131]	P32.0130	1	TENSIONING MOTOR		A3
[P32.0132]	P32.0130	1	SPUR WHEEL		B1
[P32.0133]	P32.0130	1	IDLER STEP		C2
P32.1011	P32.0130	2	FELT		C3+
P32.1012	P32.0130	1	COUPLER		D2
P32.1014	P32.0130	1	SHAFT		D2
P32.1018	P32.0130	1	CARTRIDGE		C3

[] = Group

* = Wearing parts

43.0364.02	P321/16/0.65-1.05		P321.0001.02		09.03.04
Item-No.	in group	Pcs.	Description	Dimension	Field
P32.1019	P32.0130	1	SWITCH ROCKER		C2
P32.1020	P32.0130	1	MOTOR HOUSING		C7
P32.1023	P32.1731	1	PINION		C7
P32.1027	P32.0130	1	BALL CAGE		C4
P32.1028	P32.0130	1	BOLT		D4
P32.1029	P32.0130	1	THRUST PIECE		C4
P32.1030	P32.0115	1	SPRING BOLT		C3
P32.1031	P32.0115	1	SPRING SLIDE		B3
P32.1032	P32.0130	1	DRIVING PIN		C4
P32.1034	P32.0130	1	LEVER		D5
P32.1035	P32.0130	2	DRIVER		D4+
P32.1037	P32.0130	2	SPUR WHEEL		B6
P32.1039	P32.0130	1	SHAFT		B2
P32.1041	P32.0130	1	CAM		B2
P32.1046	P32.0133	3	IDLER GEAR		C2
P32.1047	P32.0133	1	COVER		C1
P32.1048	P32.0120	1	WHEEL		C1
P32.1050	P32.0130	1	FRONT TOGGLE LINK		E2
P32.1051	P32.0130	1	LEVER		D1
P32.1052	P32.0130	1	STANCHION		C1
[P32.1101]	P32.0130	1	MOTOR HOUSING		A5
P32.1105	P32.1604	1	RETAINER		C5
P32.1106	P32.1604	2	TURNING BUTTON		B5
P32.1107	P32.0106	1	MOTOR SUPPORT		A7
[P32.1108]	P32.0106	1	BUSBAR		A6
[P32.1111]	P32.0106	1	BUSBAR		A6
[P32.1114]	P32.0106	1	BUSBAR		A6
P32.1118	P32.0106	1	CONNECTING PLATE		A7
P32.1119	P32.0107	1	PINION		B6
P32.1120	P32.0107	1	FELT WASHER		B7
P32.1121	P32.0107	2	TORSIONAL STOP		B7
P32.1121	P32.0131	2	TORSIONAL STOP		A3
P32.1122	P32.0107	1	RUBBER BUSHING		A7
P32.1122	P32.0131	1	RUBBER BUSHING		B2
P32.1124	P32.0130	1	INSERT		A1
P32.1125	P32.0130	1	MOTOR COVER		A1
P32.1126	P32.0106	1	PLUG SOCKET		B6
P32.1210		2	CENTERING SLEEVE		D4
P32.1211		1	COVER		D6
[P32.1212]		1	HANDLE LEVER		B6
P32.1215		1	HANDLE SHAFT		A4
P32.1216		1	PRESSURE ROLLER		E2
P32.1228		1	HOLDER		E3
P32.1229		1	HOLDER		E3
P32.1246		1	STRAP GUIDE		E5
P32.1248		1	SEESAW LEVER		D6
P32.1249		1	SEESAW LEVER		C5
P32.1251	P32.1701	1	COUPLER		C5
P32.1503	P32.1514	1	SWIVEL SHAFT		E3
P32.1510	P32.0130	1	ROCKER		C6
P32.1511	*	P32.0130	1	WELDING GRIPPER	D4
P32.1512		P32.0130	1	ECCENTRIC SHAFT	D5
P32.1513		P32.0130	1	COVER	C4

[] = Group

* = Wearing parts

43.0364.02	P321/16/0.65-1.05		P321.0001.02			09.03.04
Item-No.		in group	Pcs.	Description	Dimension	Field
[P32.1514]		P32.0130	1	BODY		D2
P32.1515		P32.1514	1	BODY		D2
P32.1516		P32.0133	1	PLANET SHAFT		C2
[P32.1518]		P32.0130	1	RATCHET WHEEL		C1
P32.1519		P32.1518	1	SPUR WHEEL		D1
P32.1520		P32.0132	1	SPUR WHEEL		B1
P32.1603		P32.0131	1	PINION		A3
[P32.1604]		P32.0130	1	CIRCUIT BOARD		B6
[P32.1701]			1	COUPLER		C5
P32.1702		P32.1701	1	THRUST PIECE		C5
P32.1703		P32.0121	1	TENSIONING BODY		E3
P32.1706			1	STEEL INSERT		E1
P32.1707	*		1	WELDING STOP GRIPPER		E1
P32.1708	*		1	CUTTER		D5
P32.1709			1	GUIDE CASE		D5
P32.1710			1	CENTERING SLEEVE		D6
P32.1712			3	DOWEL		E4
P32.1719	*		1	GRIPPER		E4
P32.1720	*		1	GRIPPER		E4
P32.1721	*		1	GRIPPER		E4
P32.1722			1	STRAP STOP		E4
P32.1726		P32.0129	1	END COVER		D6
P32.1727			3	IDLER GEAR		D3
P32.1729	*		1	TENSIONING WHEEL		E5
[P32.1731]		P32.0130	1	WELDING EXCENTRIC		C7
P32.1732		P32.1731	1	WELDING EXCENTRIC		C6

[] = Group

* = Wearing parts

7 CHART OF TYPES

Item No.	Model	Strap width	Strap thickness
43.0360	P321/12.7/0.65-1.05	12.7 mm / 1/2"	0.65 - 1.05 mm / .026 - .041"
43.0363	P321/13/0.65-1.05	13.0 mm	0.65 - 1.05 mm / .026 - .041"
43.0364	P321/16/0.65-1.05	16.0 mm / 5/8"	0.65 - 1.05 mm / .026 - .041"
43.0373	P321/19/0.40-0.64	19.0 mm / 3/4"	0.40 - 0.64 mm / .016 - .025"
43.0374	P321/19/0.65-1.05	19.0 mm / 3/4"	0.65 - 1.05 mm / .026 - .041"

8 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.

9 APPROPRIATE USE

The tool model P321 has been designed to strap packages with plastic 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.

10 EXCHANGE OF WEARING PARTS

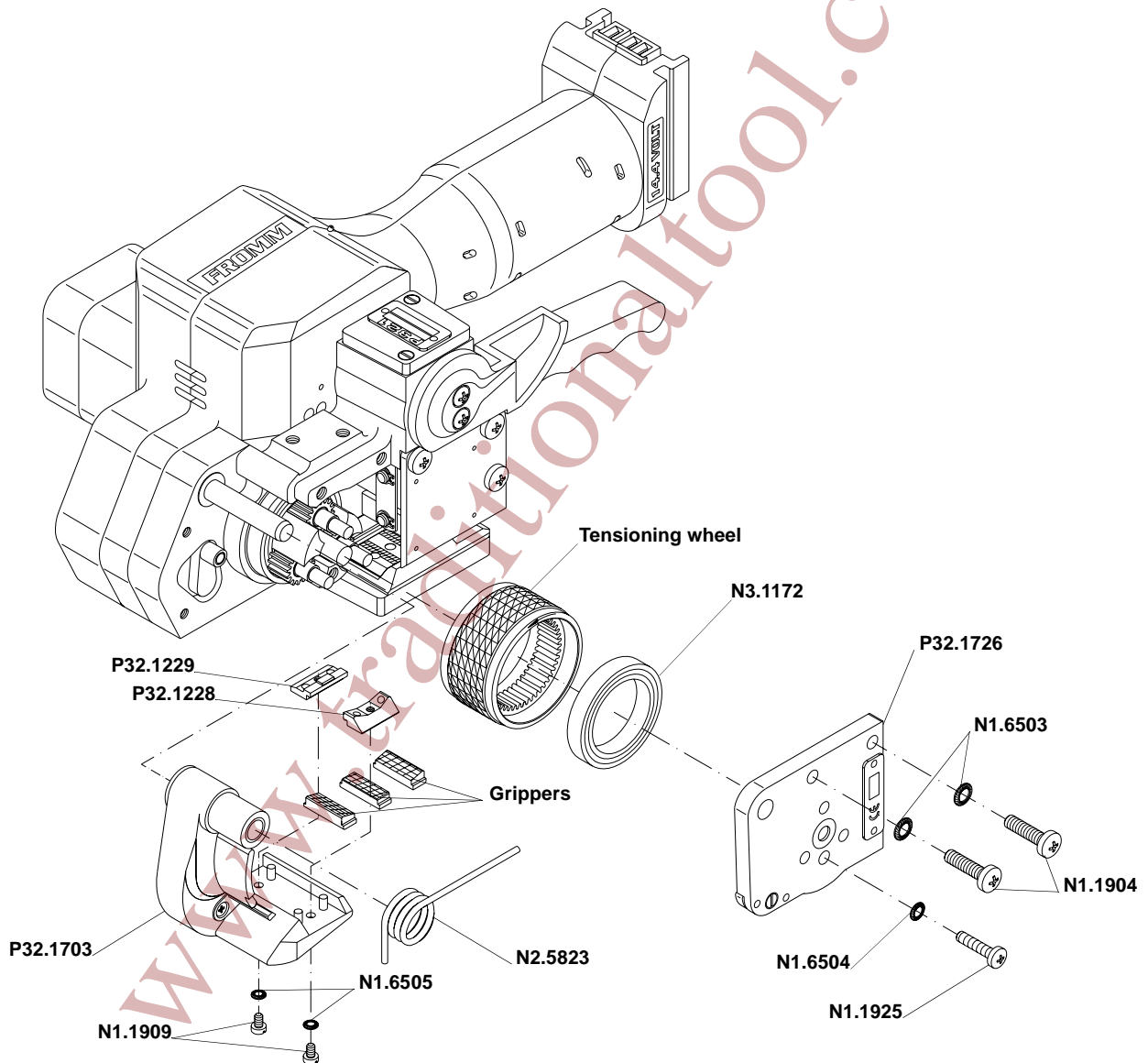


Remove always the battery from the tool before starting maintenance works.

10.1 Exchange of tensioning wheel and grippers

Disassembling

- Unscrew end cover P32.1726 and remove it;
- Remove the torsion spring N2.5823;
- Remove the tensioning body P32.1703;
- Remove the tensioning wheel together with the bearing N3.1172 from the tool;
- Unscrew the holders P32.1228 and P32.1229 and remove them from the tensioning body;
- Remove the grippers from the tensioning body .



Assembling

Assembling in opposite order. Observe the following:

- Lubricate the internal tothing of the tensioning wheel with Molykote BR 2 plus.

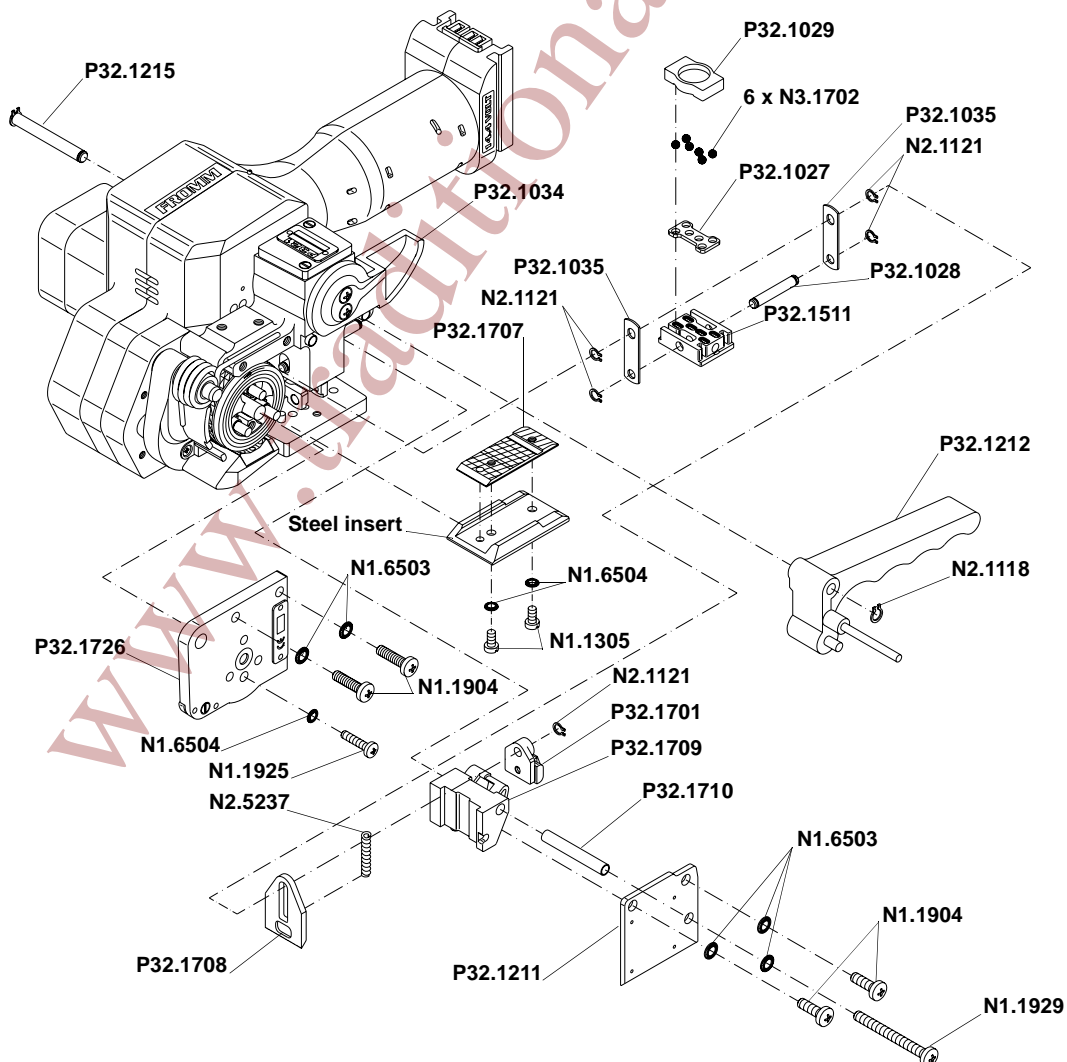


Observe the position of the tensioning wheel. The direction of rotation of the tensioning wheel is marked at the front of the tensioning wheel (see drawing).
Observe the position of the grippers (see drawing).

10.2 Exchange of cutter, welding stop gripper and welding gripper

Disassembling

- Unscrew cover P32.1211 and remove it;
- Unscrew end cover P32.1726 and remove it;
- Disassemble security ring N2.1118, pull the grip axle P32.1215 from the tool;
- Tilt down the handle lever P32.1212 and remove it from the tool;
- Don't loosen screw N1.1553 at the coupler P32.1701.
- Disassemble the security ring N2.1121 from the coupler P32.1701, remove the coupler;
- Pull out the centering sleeve P32.1710 from the guide case P32.1709 to left, disassemble the guide case;
- Pull out the pressure spring N2.5237 with a screw driver from the cutter P32.1708;
- Remove the cutter from the driving pin P32.1032;
- Disassemble the screws N1.1305, lift slightly the welding stop gripper P32.1707 and the steel insert and remove them from the tool;
- Adjust the welding pressure with the adjusting pin to the thickness of the strap 0.40 - 0.57 mm;
- Push the steel insert without welding stop gripper under the welding gripper P32.1511 until it touches the parallel pin N2.2110;
- Turn the lever P32.1034 in welding position;
- Disassemble the safety ring N2.1121 from the bolt P32.1028, remove the bolt from the welding gripper;
- Turn the lever P32.1034 in start position;
- Pull out the steel insert with care to right under the welding gripper;
- Disassemble the security rings N2.1121 from the driving pin P32.1032, remove the driver P32.1035 from the driving pin;
- Lift the rocker P32.1510 behind the welding gripper with a screw driver, remove the welding gripper together with the ball cage P32.1027 and the balls N3.1702 from the tool;
- Lower the rocker, remove the thrust piece P32.1029 from the tool.



Assembling

Assembling in opposite order. Observe the following:

- Pay attention to the proper seat of the thrust piece on the spring bolt P32.1030 when lifting the rocker.
- Pay attention to the fitting position of the cutter (see drawing).

Lubrication

- Lubricate the rocker and the bolt P32.1028 in the area of the welding jaw with Klüber Isoflex NBU 15.
- Lubricate the balls, ball cage and the running surface of the balls on the welding gripper with Klüber Isoflex Alltime SL2.
- Lubricate the cutter and the driver with Esso Beacon 2.

After assembling

Adjust the welding pressure according to the thickness of the strap! (see 5.2.3)

10.3 Adjustment of the coupler P32.1701

The coupler is adjusted in our works.

In case of replacing the seesaw lever, the coupler or the lever body, the coupler has to be readjusted.

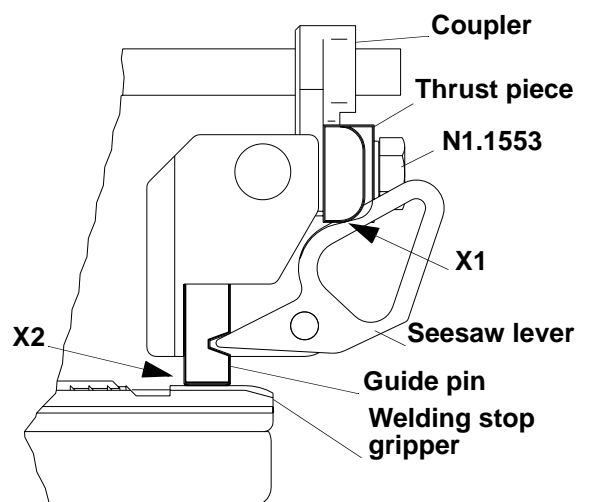
Procedure as follows:

Lever P32.1034 in start position.
The battery is removed from the tool.
The coupler is fitted into the tool.

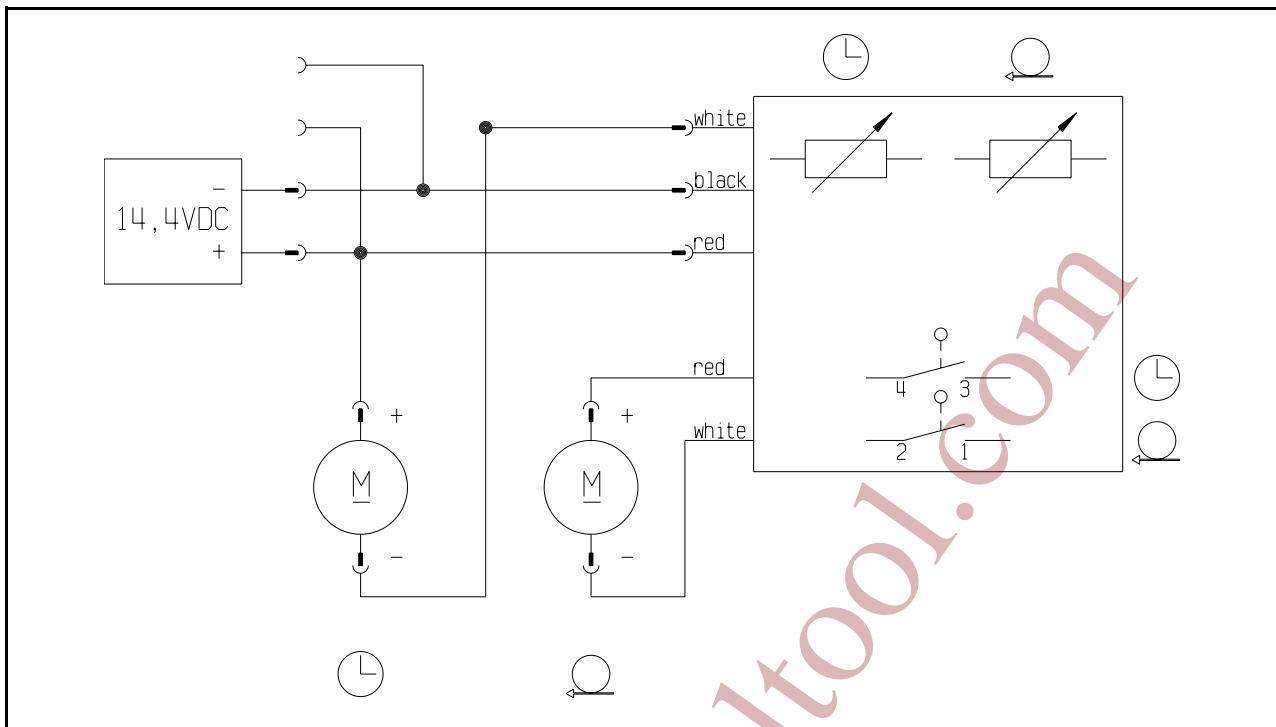
- Loosen screw N1.1553.
- Displace thrust piece P32.1702, so that it touches the two seesaw levers without moving them.
- Retighten screw N1.1553.

Control:

The thrust piece must touch the seesaw levers (X1).
Both guide pins must sit on the welding stop gripper (X2).



11 ELECTRIC SCHEMATIC



12 SERVICE

Servicing and repair work must only be carried out by authorized service centres. If the tool breaks down or does no longer operate do not disassemble it. Send it fully assembled to the local service centre (see name and address on the rear page of this manual). Use original packing.

The battery powered plastic strapping tool P321 is a high performance tool. We strongly recommend you to have it serviced by an authorized service shop after 12 months at the latest if used one shift per day. If used two or more shifts per day the tool has to be serviced after a shorter period of time.

13 CLEANING

Clean strap gripping parts from strap abrasion regularly using compressed air (do not use any mechanical tool for cleaning).

When cleaning the surface of the tool do not use water or aggressive solvents!