

OPERATION, PARTS AND SAFETY MANUAL



SIGNODE®

BHC
COMBINATION STRAPPING TOOL

IMPORTANT!
DO NOT DESTROY

**It is the customer's responsibility to
have all operators and servicemen
read and understand this manual.**

Contact your local Signode representative
for additional copies of this manual.

READ ALL INSTRUCTIONS BEFORE OPERATING THIS SIGNODE PRODUCT

SIGNODE • 3620 WEST LAKE AVENUE • GLENVIEW, ILLINOIS 60025 U.S.A.

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1

TECHNICAL DATA

Weight	4.3 kg (8.9 lbs.)
Dimensions	Length 400 mm (1 5.75") Width 130 mm (5") Height 200 mm (7.90")
Strap tension	up to 1200 N Preset at factory 800 N up to 13mm (1/2") Strap width 1200 N from 15mm (5/8") strap width
Sealing	Friction welded
Voltage	Battery charger 230V (115V) Battery 12V

PLASTIC STRAP

Strap quality	Polypropylene (PP) Polyester (PET)
Strap width	9-10, 12-13, 15-16 or 19mm (3/8", 1/2", 5/8" or 3/4")
Strap thickness	Polypropylene 0.5-0.9mm (.019-.035") Polyester 0.4-0.9mm (.016-.035")



BHC Automatic Strapping Tool
Part No. 423750

These operating instructions are intended to simplify familiarization with the strapping tool and the possibilities of application for the intended purpose. The operating instructions contain important information concerning the safe, proper and efficient use of the strapping tool. Observation of the information will help to avoid danger, reduce repairs and stoppages and increase the reliability and service life of the strapping tool.

The operating instructions must always be available at the place of operation of the strapping tool. They must be read and observed by all persons concerned with work on the strapping tool. This work specificity includes operation, refilling of operating material, fault elimination and maintenance

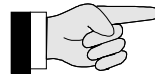
In addition to the operating instructions and the regulations for accident prevention effective in the country of use and place of application, the recognized technical regulations for safety and proper working must also be observed.

**CAUTION!**

Used where there is danger to life and health.

**WARNING!**

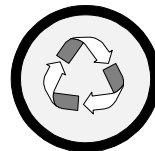
Used for danger which can cause material damage.

**NOTE!**

Used for general information and information which if not followed can cause faults in the operating sequence.

2.1 INFORMATION ON ENVIRONMENTAL PROTECTION

This tool is manufactured without any physical or chemical substances which could be dangerous to health. For disposal of all the parts, the governmental instructions must be observed.



Dealers offer an environmentally friendly battery disposal service

Do not open the battery.

Do not throw the used battery into household waste, fire or water.

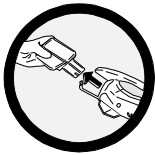
Defective or used batteries undergo a complete recycling process.



Inform yourself!
Read the operating instructions carefully



Protect yourself!
When operating the tool, wear eye, face and hand protection (cut-proof gloves).



Power resource!
Before starting preventive or corrective maintenance, remove battery from the tool.



Warning:
Strap will snap forward!
When cutting the strap, hold the upper portion and stand safely away from the strap.
Caution:
The lower strap will snap forward.



Warning:
Strap could break!
Do not stand in line with the strap while it is tensioned. The strap could break!



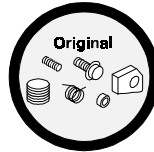
Do not use water!
Do not use water or steam to clean the tool.



Caution:
Danger of squeezing!
Do not put your fingers into the tension wheel area.



Caution:
Only strap packed goods!
Do not put hands or other parts of the body between the strap and the package during the strapping process.



Original spare parts must be used exclusively!
Not using original spare parts will dissolve the warranty and the liability.

Use for the intended purpose

The tool is intended for strapping packages, pallet loads etc.

This tool was designed and manufactured for safe handling during the strapping operation.

The tool processes plastic straps (polypropylene and polyester).

Possible misuse

The use of steel straps is not possible.

3.1 SAFETY INSTRUCTIONS FOR BATTERY CHARGER & BATTERY

Always inspect the electrical plug and cable before use. If damaged, they must be replaced by a qualified professional.

- Do not charge other types of batteries and use original accessories only.
- Keep the battery charger slot free of foreign objects and protect against dirt.
- Protect battery charger against humidity and operate in dry areas only.
- Do not open the battery. Protect the battery against impact, heat and fire. Danger of explosion!
- When the battery is outside the battery charger, cover battery terminals to avoid short circuits from metal objects. Danger of fire and explosion!
- Keep battery dry and away from frost. Do not store in temperatures over 50°C.
- Damaged batteries should not be used anymore.

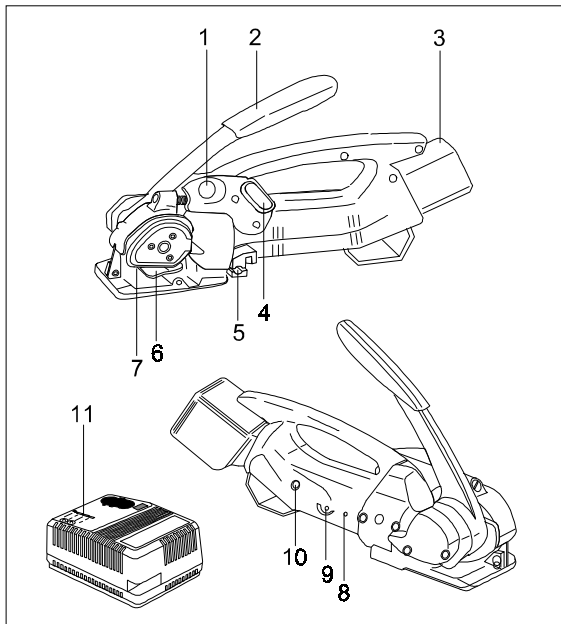


Fig 1

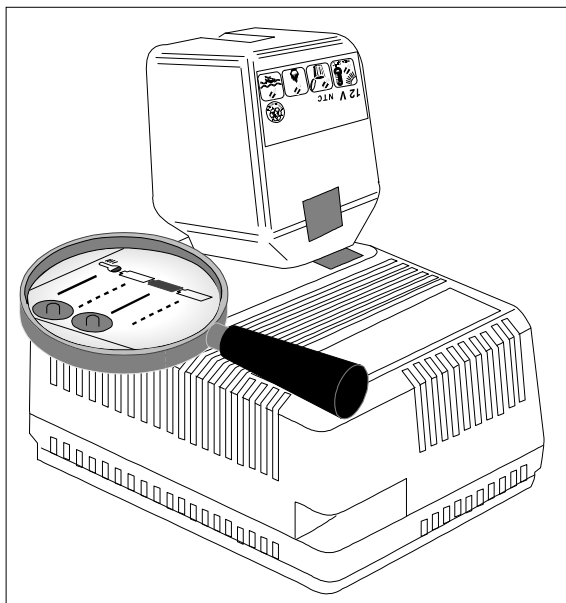



Fig 2


4.1 DESIGN

1. Rotary knob "Strap tension"
2. Sealing lever
3. Battery
4. Push button 'Strap tensioning"
5. Cutting device
6. Tension shoe
7. Tension wheel
8. Potentiometer 'Initial setting, strap tension"
9. Potentiometer "Welding time"
10. Indicator "Battery"
11. Battery charger


4.2 BATTERY CHARGER INDICATORS

- 


Continuous green light

Battery not inserted, main voltage is on.
- 


Flashing green light

Rapid charging operates until the battery is fully recharged. The battery charger then automatically switches to trickle charging.
- 

Continuous green light

Battery inserted, the battery charger is only delivering a trickle charge because the battery is already fully charged.
- 

Continuous red light

Warning: The battery is too hot (or too cold). Trickle charging is possible only, The battery charger automatically switches to rapid charging when a suitable temperature is reached.
- 

Flashing red light

Warning: The battery is defective or the charging contacts are dirty. Charging is no longer possible.

5.1 BATTERY CHARGER

The main voltage must comply with the specifications on the rating plate, 230 V (115 V) battery chargers can be operated at 220 V or 240 V (110 V).

The battery charger is suitable only for charging NTC batteries from the Bosch range of tools.

The battery charger can be wall mounted.

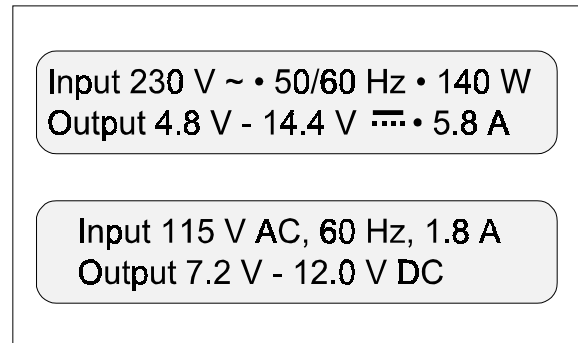


Fig 3

5.2 CHARGING THE BATTERY

The charging process begins as soon as the main plug is inserted into the power supply socket and the battery is placed into battery charger slot (4/2).



The surfaces (4/1) marked by color must coincide.

The charging process and error functions are indicated by a green light (4/4) and a red light (4/3) (see chapter 4.2).

The intelligent charger with fuzzy control charges the battery with the optimum rapid charging current, depending on temperature and voltage. This results in a shorter charging time and a long battery service life.

The maximum charging current flows when the temperature of the battery is between 15-45 °C.

The charging time is approx. 12 min.

Trickle charging compensates for the natural self discharge of the battery. The battery always remains fully charged and will not suffer any damage if left in the connected battery charger.

A new battery or one which has not been used for an extended period achieves full performance only after five charging and discharging cycles.

If the tool is not being used for a longer period, the battery should be taken out and be charged in the battery charger.

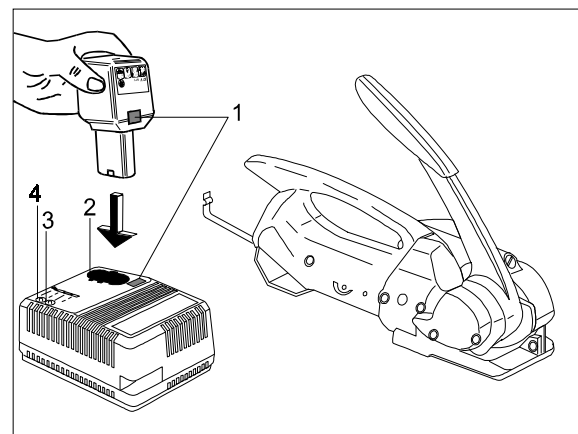
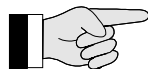


Fig 4

6

OPERATING INSTRUCTIONS

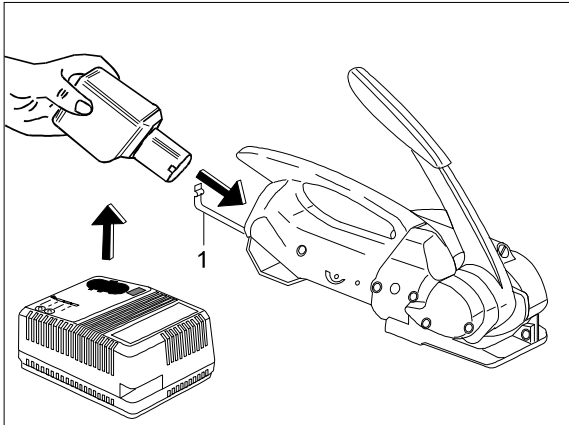


Fig 5

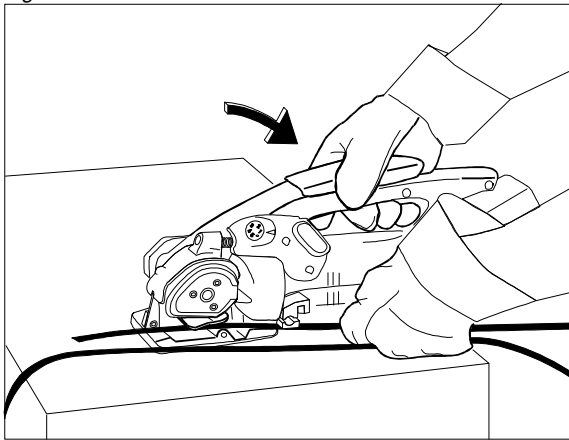
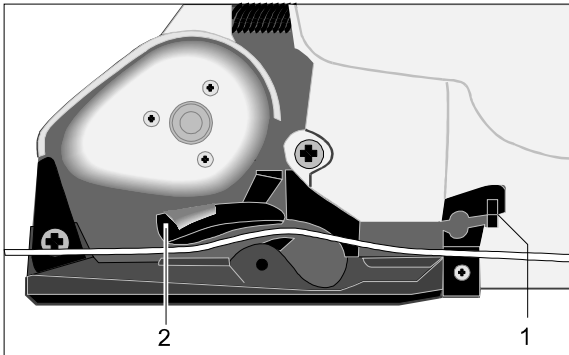


Fig 6




6.1 OPERATING THE TOOL

Insert charged battery and close the bow spring

Place the strap around the package and hold it with the left hand so that the lower strap lead is approx. 20 cm (8") away from the hand.

Take the tool with the right hand and press the lever towards the handle.

Slide the strap lead under the tension shoe (6/2) and under the cutting device (6/1) into the tool until the stop is reached.

 The lower strap is now approx. 5 cm (2") beyond the tool.

Release the lever.

Insert the strap from coil holder between the tension wheel (7/3) and the tension shoe (712). Then insert the strap into the slot of the cutting device (711) until stop is reached.

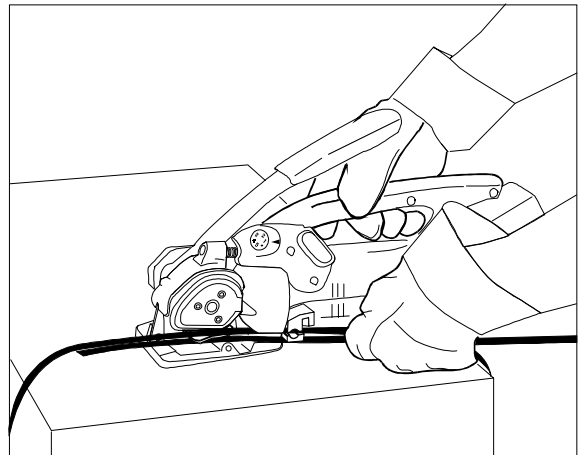
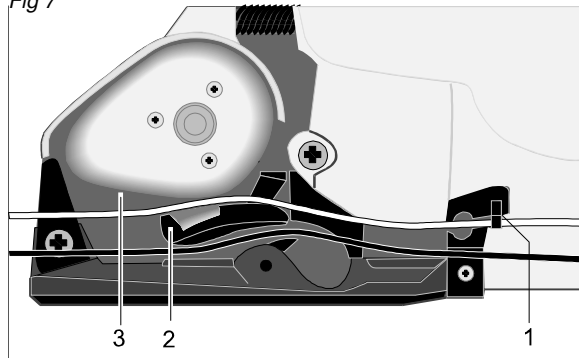
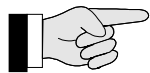


Fig 7



Press the yellow button with the right thumb, until the required strap tension is reached.



If the tool is used in a dusty environment, it is recommended to clean the tool regularly. The tension wheel in particular should be kept clean (see chapter 7.5).

With the rotary knob (8/1) the strap tension can be set to the following values:

- = approx. 140 N
- 5 = approx. 800 N up to 13mm (1/2") width
- 5 = approx. 1200 N from 15mm (5/8") width (dependent on initial setting, see chapter 7.3)

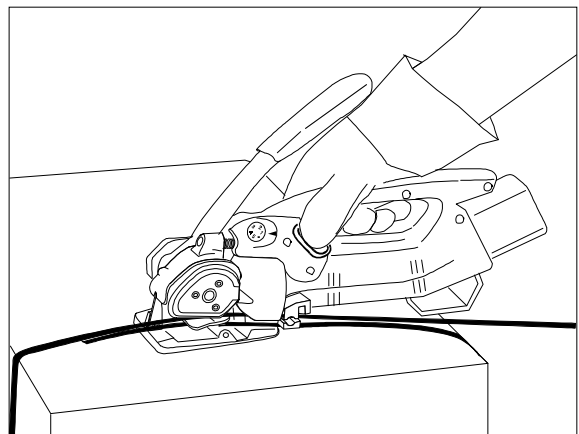
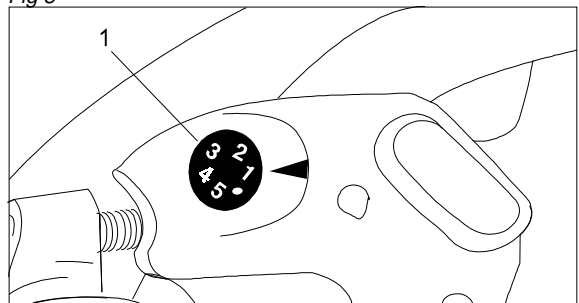


Fig 8



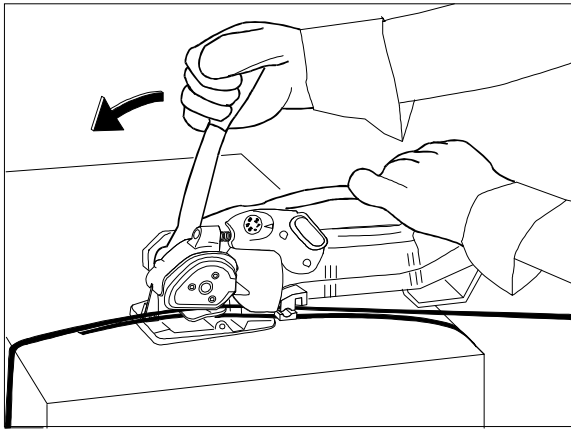


Fig 9

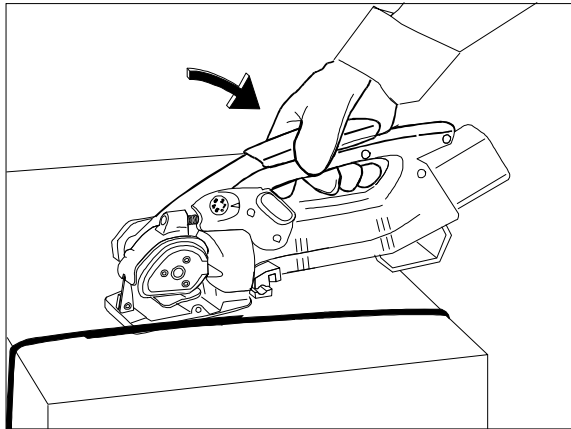






Fig 11


 This tool is provided with a safety logic device to prevent accidental starting of the welding process (e. g. when carrying the tool with the sealing lever). For this reason the strap must first be tensioned to a minimum tension to start the welding process (press yellow button).


Push lever to stop (sealing position). The left hand remains on the handle of the tool to bear the counterforce.

 The straps are welded together and the upper strap is cut off. The signal lamp (10/1) indicates the following functions


 **Flashing green light** After finishing the friction welding, the green light flashes for approx. 2 sec. The sealing lever must stay in the sealing position, during this time.

 **Continuous green light** When the green light is on continuously, the sealing cycle is finished.

 **Continuous red light** When the red light is on continuously, the battery must be charged (see chapter 5.2).

 When the red signal lamp lights up, the unit is blocked, since the remaining charge in the battery is insufficient to ensure proper welding of the straps.

Press lever against the handle. Then swing the tool away from the strapping to the right at the rear.

 If the straps are poorly welded, check the setting of the welding time (see chapter 7.2).

7

PREVENTATIVE & CORRECTIVE MAINTENANCE

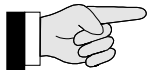
7.1 CHANGING THE BATTERY



Continuous red light

If the red signal lamp (12/1) is lit continuously, the battery must be charged (see chapter 5.2).

Open bow spring and remove discharged battery. Insert charged battery and lock with bow spring.



When changing the battery, the new battery must only be inserted after approx. five seconds to ensure that the electronic system can reset to the initial position. If the battery change is too rapid, the red signal lamp lights up and the unit remains blocked.

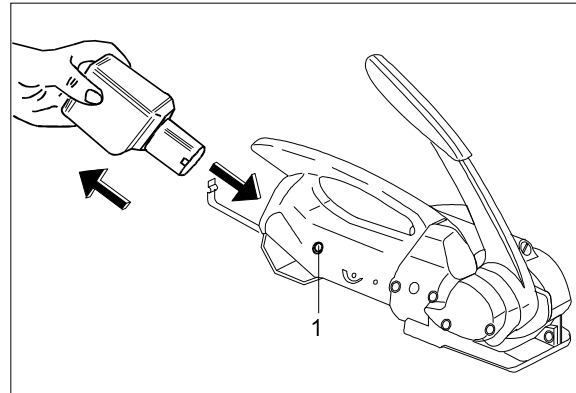


Fig 12

7.2 ADJUSTING WELDING TIME

The welding time can be infinitely adjusted with a screwdriver (no 1), depending on strap quality and dimension.

By turning the screw carefully clockwise, the welding time will be longer, by turning counterclockwise it will be shorter.

If straps are poorly welded, there is the risk that the seal will tear. We advise you to regularly check the strap seals.



1. Poorly welded seal (not welded over the complete surface), welding time too short.

2. **Good seal** (the complete surface is cleanly welded without excess material being forced out sideways)

3. Poorly welded seal (excess material is forced out sideways), welding time too long.



The welding time for PET straps is longer than for PP straps.

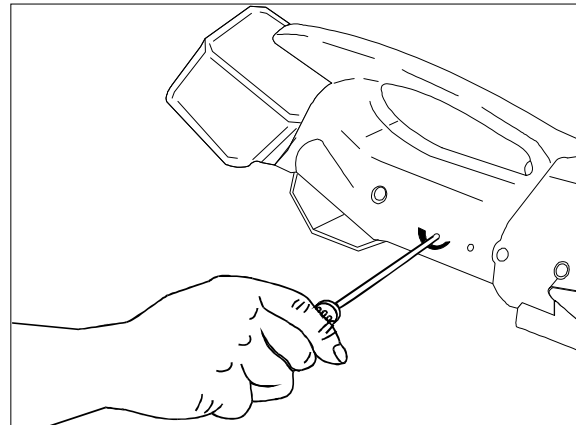


Fig 13

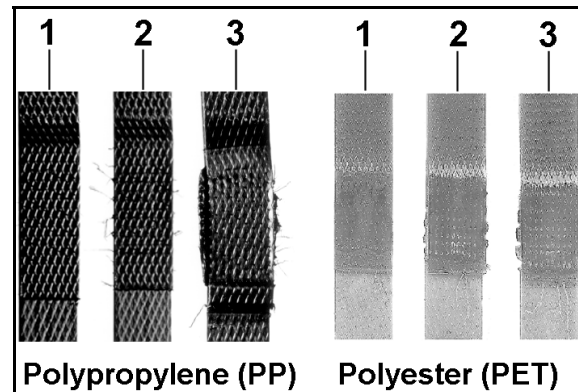


Fig 14

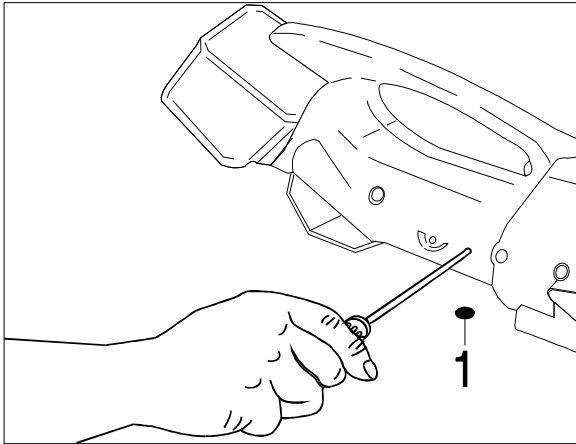


Fig 15

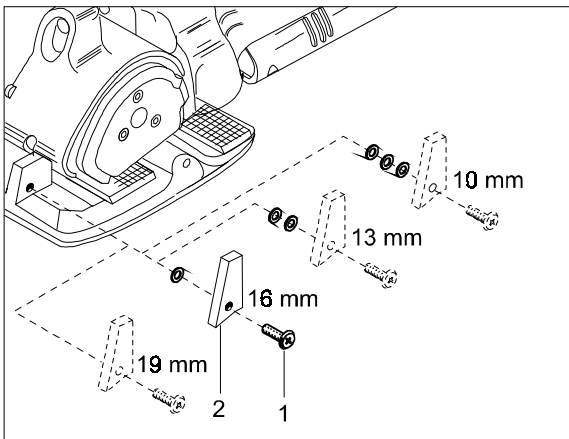


Fig 16

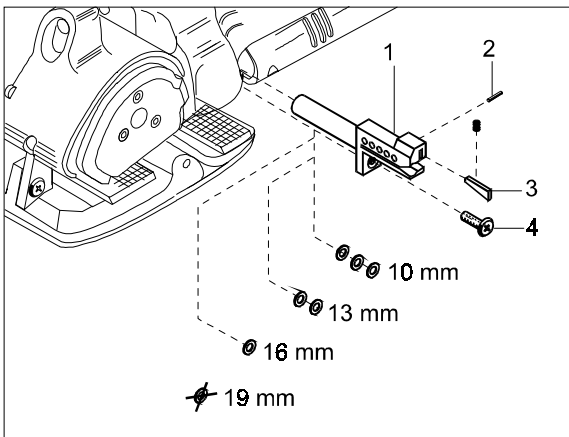


Fig 17

7.3 INITIAL SETTING OF STRAP TENSION

Remove plastic cover (15/1).

The initial setting of the strap tension can be set fully variably with a screwdriver (no 1) depending on the quality and size of the strap.

The strap tension is increased by gradually turning the screw clockwise (200 N) or decreased by turning counter-clockwise (800 N).

When the initial setting of strap tension has been made, fine setting can then be performed with the rotary knob (see Fig. 8/1).

7.4 ADJUSTING STRAP WIDTH

To change the strap width, the strap stop (16/2) must be removed with the screw (16/1) from the tool and refitted with washers (1.5 mm thick) according to the width of the strap.

Strap width 19mm (3/4") without washer

Strap width 15-16mm (5/8") one washer

Strap width 12-13mm (1/2") two washers

Strap width 9-10mm (3/8") three washers

Loosen screw (17/4) and remove knife bushing (17/1).

Withdraw roll pin (17/2) and move the pawl (17/3) to desired position according to strap width. Replace roll pin (17/2).

Insert washers between base plate and knife bushing according to strap width.

Tighten screw (17/4).

Strap width 19mm (3/4") without washer

Strap width 15-16mm (5/8") one washer

Strap width 12-13mm (1/2") two washers

Strap width 9-10mm (3/8") three washers

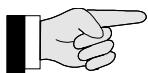
7.5 CHANGING & CLEANING THE TENSION WHEEL

Removal

- Open bow spring (18/1) and remove battery (18/6).
- Release three countersunk screws (18/2) and remove protective lid (18/3).
- Press lever (18/5) against the handle and carefully withdraw tension wheel (18/4).
- Clean the tension wheel with compressed air or replace it.
- If the tension wheel tooting is covered with heavy dirt, it must be carefully cleaned with a screwdriver or a marking tool.

Installation

- Install the parts in reverse order.



Grease gear teeth of tension wheel lightly with grease (Microlube).

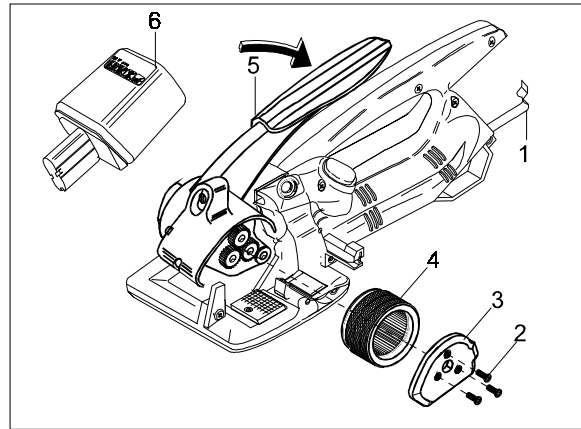


Fig 18

7.6 CHANGING THE TENSION SHOE

Removal

- Open bow spring (19/1) and remove battery (19/2).
- Remove the brace (19/3) with small screwdriver from tension shoe support (19/5).
- Slide the tension shoe (19/4) with a small screwdriver out of the tension shoe support (19/5) and replace it.

Installation

- Install the parts in reverse order.

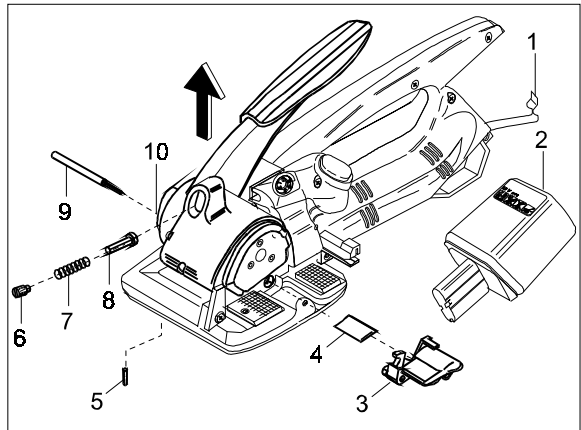


Fig 19

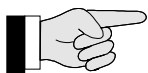
7.7 CHANGING THE TOOTH PLATE

Removal

- Open bow spring (20/1) and remove battery (20/2).
- Remove set screw (20/9) with compression spring (20/10) and bolt (20/11).
- Release set screw (20/8).
- Push out shaft (20/12) with a small screwdriver.
- Raise rocker drive unit (20/13) slightly (1cm, 3/8") and remove tension shoe support (20/7).
- Remove brace (20/4) with a small screwdriver from tension shoe support and slide the tension shoe (20/5) with a small screwdriver out of the tension shoe support (20/7).
- Remove counter sunk screw (20/3), remove tooth plate (20/6) and replace it.

Installation

- Install the parts in reverse order.



Screw in set screw (20/9) until it projects out 2mm from the case.

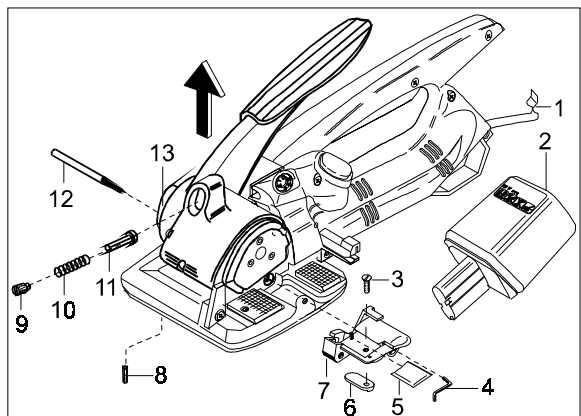


Fig 20

8

BHC PARTS LIST

<u>KEY</u>	<u>QTY</u>	<u>PART#</u>	<u>DESCRIPTION</u>	<u>KEY</u>	<u>QTY</u>	<u>PART#</u>	<u>DESCRIPTION</u>
1	1	423714	Base plate	76	1	423645	Motor
5	1	423602	Needle bushing	77	1	423646	Connecting rod
7	1	423603	Set screw, M 4 x 8	78	1	423647	Link
8	1	423715	Housing part right	79	1	423648	Bolt
9	1	423605	Cover, ø 10	80	4	423649	Retaining ring
10	1	423716	Cover, ø 7,2	82	1	423650	Pressure lever
11	1	423606	Cover	85	1	423651	Stroke plate
12	1	423607	Bow spring	86	1	423652	Pressure roll
14	1	423717	Housing part left	87	1	423653	Bolt
15	6	423609	PT-Screw, KA 35 x 16	88	1	423654	Set screw
16	2	423610	PT-Screw, KA 35 x 30	89	1	423655	Tension spring
17	4	423611	Head screw, M 4 x 12	90	10	423656	Saucer spring, ø 8,2/18 x 1
18	1	423612	Bolt	91	1	423657	Bolt
19	1	423718	Bushing	92	6	423658	Retaining ring
20	1	423719	Housing	98	1	423744	Cover
21	1	423720	Push button	99	1	423745	Planetary gear
22	1	423721	Set screw screw	100	1	423746	Motor complete
23	1	423722	Compression spring	108	1	423747	Motor flange
24	1	423723	Potentiometer	109	1	423748	Stop bolt
27	1	423724	Nut	111	3	423749	Cylinder screw, M 3 x 25
28	1	423725	Washer	112	3	423751	Planetary wheel
32	1	423726	Micro switch	113	6	423752	Washer
38	1	423727	PT-Screw, KA 35 x 35	114	1	423753	Planetary support
40	1	423728	Rocker left	117	1	423754	Internal ring
45	1	423729	Compression spring	118	1	423755	Flange complete
48	1	423731	Rocker shaft	120	3	423756	Planetary wheel
49	1	423732	Tension shoe support	121	3	423757	Bearing
50	1	423733	Tooth plate	122	1	423758	Tension wheel
51	1	423734	Counter sunk screw, M 2,5 x 4	123	1	423759	Bushing
53	1	423735	Tension shoe	124	1	423760	Needle bushing
54	1	423736	Brace	125	1	423761	Protection lid
55	1	423737	Pawl	126	6	423762	Counter sunk screw, M 3 x 12
51	1	423738	Torsion spring	127	3	423763	Counter sunk screw, M 2,5 x 8
57	1	423739	Bolt	128	3	423764	Counter sunk screw, M 3 x 12
58	1	423631	Welding shoe	130	1	423765	Lever
59	1	423632	Bolt	131	1	423766	Ejector
60	1	423740	Cotter pin	132	1	423767	Rollpin, ø 4 x 16
61	4	423741	Tooth plate	133	1	423768	Special screw
62	1	423742	Counter sunk screw, M 5 x 10	134	1	423769	Pressure roll
65	1	423743	Needle bushing	135	2	423770	Ball, ø 5,5
66	1	423637	Eccentric shaft	136	1	423771	Compression spring
67	4	423638	Washer	138	1	423772	Rocker right
68	4	423639	Flange	142	1	423615	Cylinder screw, M 6 x 20
69	3	423640	Cylinder screw, M 4 x 12	143	1	423616	Lock washer, M 6
70	2	423641	Cylinder screw, M 4 x 8	146	1	423773	Tooth plate
71	1	423642	Precision shaft coupling	147	1	423685	Strap guide
72	4	423643	Set screw, M 3 x 6	148	1	423686	Washer
75	1	423644	Needle bushing	151	2	423687	Counter sunk screw, M 4 x 12
				153	1	423688	Knife sleeve
				154	1	423689	Pawl
				155	1	423690	Rollpin, ø 2,5 x 12
				156	1	423691	Compression spring

8**BHC PARTS LIST, CONTINUED**

<u>KEY</u>	<u>QTY</u>	<u>PART#</u>	<u>DESCRIPTION</u>
157	1	423692	Knife complete
159	1	423693	Torsion spring
162	1	423774	Stroke lever
163	1	423694	Bushing
164	1	423695	Bolt
165	1	423696	Bolt
171	1	423775	Printed circuit board
182	4	423699	PT-Screw, KA 35 x 12
184	1	423706	Battery, 12 V
186	1	423707	Charger, 230 VEU
188	1	423708	Charger, 115 VUSA
204	1	423712	Suspension bow
205	1	423713	Cylinder screw, M 4 x 35

9**RECOMMENDED SPARE PARTS****RECOMMENDED SPARE PARTS**

1	1	423714	Base plate
50	1	423733	Tooth plate
53	1	423735	Tension shoe
58	1	423631	Welding shoe
59	1	423632	Bolt
122	1	423758	Tension wheel
146	1	423773	Tooth plate
148	1	423686	Washer
151	2	423687	Counter sunk screw, M 4 x 12
154	1	423689	Pawl
155	1	423690	Rollpin, \varnothing 2,5 x 12
156	1	423691	Compression spring
157	1	423692	Knife complete
159	1	423693	Torsion spring
162	1	423774	Stroke lever
171	1	423775	Printed circuit board
184	1	423706	Battery, 12 V
186	1	423707	Charger, 230 VEU
188	1	423708	Charger, 115 VUSA
204	1	423712	Suspension bow
205	1	423713	Cylinder screw, M 4 x 35

