CLIP SYSTEMS
A BECK brand

SEMI-AUTOMATIC CLIPPER BDC-200 SM

TECHNICAL AND MOTOR DOCUMENTATION

CE

KOMORNIKI APRIL 2018

Table of Contents

1. Available Versions

1. PA-91-J standard version, on a trolley
2. PA-91-J +B version for clipping delicate, protein casings
3. PA-91-J +S version with knife for nets
4. PA-91-J +PP version with automatic loop feeder
5. PA-91-J +PS version with automatic string dispenser

Available also with different combination versions. For example, PA-91-J +B+S+PP+PS on picture below.

Fig. 2

There is also a possibility mounting clipping machine on four torsion wheal trolley with wide column.

2. Technical Data

1. Diameters of clipped casings 30-95 mm (it depends on the stuffing funnel size)
2. Operating air pressure 6 bar
3. Air consumption per operation 5 l / cycle
4. Clips container capacity 2 x 350 clips
5. Clip type (with various stiffness) E210, 220, 230, 240
6. Dimension 1000 x 500 x 970 mm (width x depth x height)
7. Weight (depends of additional eq.) 50-60 kg
8. Capacity approx. 30 cycles/min. (it depends both on the stuffing speed and personnel efficiency)

3. Safety Precautions

The device is designed and constructed in accordance with up-to-date technical knowledge and with all safety precautions known and used in technology.
Apart from safety precautions and solutions applied to ensure the maximum operation safety the clipper operator is to maintain the operation safety and beware of any possible hazards.
The hereby service manual presents the sources of any possible hazards with the ways of avoiding them. For that purpose, there are special symbols applied to draw the user's special attention.

- Device can be used only for purposes specified in section 4 – *"Clipper Assignment"*.
- Only device in the best condition can be used. All defects and damages that can increase any possible hazard cause that the clipper becomes useless. All defects and damages have to be immediately removed.
- Only original spare parts can be applied because only the original ones fulfil all requirements established by the manufacturer.
- It is not allowed to make any changes within the device without the written manufacturer's consent.

3.1. Elementary Rules of Safe Operation

During the transport, when starting or operating the device and during any maintenance carried out, always follow the hereby safety instructions:

- Clipper should be carried and transported in an upright position because only that position is its normal operating position. Requires only one person for moving it.
- Connecting the compression air installation to the clipper can be carried out only through the reduction and filtering set when clipper is correctly set and connected to the stuffing machine.
- After finished operation immediately disconnect from the device the conduit that supplies the compression air using the quick nipple.
- To ensure correct clipper operation and to maintain the effectiveness of protections applied control device condition at least once a month. Especially check pneumatic valves, conduits and pneumatic and screw connections.
- Before starting the maintenance or any repairs remove the compression air out of the pneumatic conduits.
- Clothes of the clipper operator have to be conformed to the valid law of safety and occupational hygiene.
- When cleaning device with chemical agents use the personal protection resources.

3.2. Symbols With Their Meanings

In this service manual there are applied special symbols with the purpose of drawing the user's special attention at the important information.

- WARNING! THE PROPER EXPLOITATION – to ensure the proper device operation.

- WARNING! MACHINE DAMAGE DANGER – to prevent damages arising.

WARNING! HEALTH DANGER – to prevent possible injuries arising.

3.3. Elementary Rules of Hygiene

- Each time before use and after finished operation clipper should be cleaned with the clean running water.
- It is allowed to use both the strong stream of cold or warm water coming from water installations and high-pressure cleaning machines.
- It is advisable to use cleaning agents and disinfectants, which are generally applied in the food processing works, however on condition of rinsing the resources very carefully with the strong stream of water.

4. Clipper Assignment

The clipper serves the purpose of portioning food products (e.g. stuffing, meat, cheese), which are packed into the soft natural or artificial horn-shaped casings, closed with clips.
The types of clippers like PA-90-S and PA-90-J can cooperate with the stuffing machine as the stuffing machine controllers after mechanical and electrical connecting the devices together.
There is also the possibility of clipping horns with a string loop that enables to hang the particular horn.

Clipping other products and substances than mentioned above can lead to device damage and in particular cases also to the situation of health menace.

5. Construction of the Clipper and Its Functional Description

5.1. Clipper Main Elements

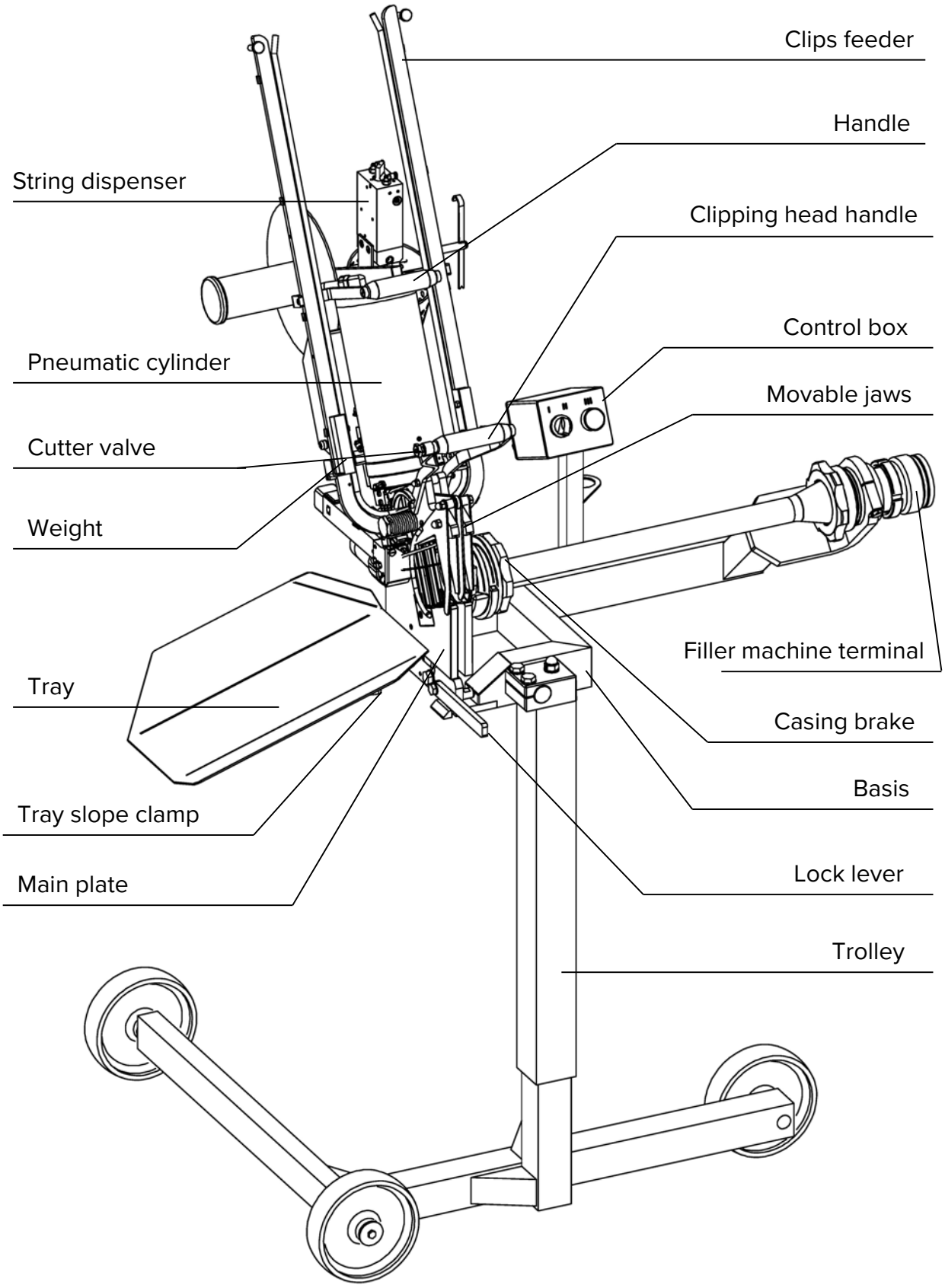


Fig. 3

5.2 Clipper Functional Description

The clipper is a pneumatic device with manual control. Machine body consists of two main plates screwed tight to the basis. The movable jaws are closed with the use of the clipping head handle. In the final phase the main valve providing the air to the cylinder is opened. The rise of pressure in the cylinder causes the piston with slides inside the cylinder strokes downwards drawing clips from feeders. Clips embrace the casing and after reaching the matrixes they are wrapped around the casing. After clips clamp on the casing operator can automatically cut the casing between two clips by clamping the cutter valve button. Small pneumatic cutter servo-motor is activated. Opening of the movable jaws causes the decrease of the pressure in the cylinder and automatic signal giving for starting the cooperating stuffing machine. When the stuffing is fed the casing brake starts. Its job is to tighten the casing at the stuffing funnel obtaining the proper horn stuffing.

6. Preparing Device for Operation

All elements of the clipper that required any settings were already set by the manufacturer and they do not require any corrections during device exploitation.

6.1. Setting the Clipper and Connecting It to the Stuffing Machine

PW-91-J clipper is made for operating on the carriage. After placing the clipper next to the terminal of the stuffing machine ease both clamping screws with the flat box wrench *(spare part no 17)*. Using the acorn nut and the flat box wrench set the proper height of the clipper terminal towards the stuffing machine terminal. After this regulation the nut that connects the clipper with the stuffing machine *(spare part no 1403)* should be inserted into the stuffing machine valve and then screwed tight easily.

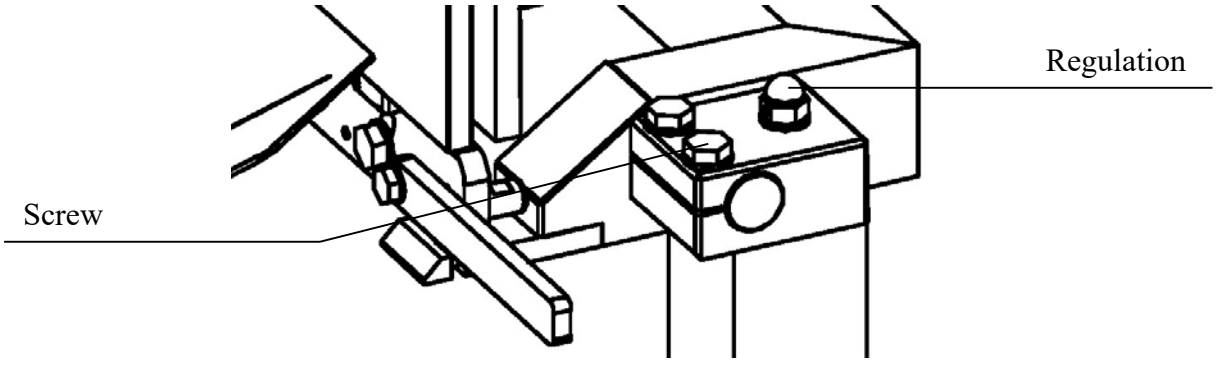
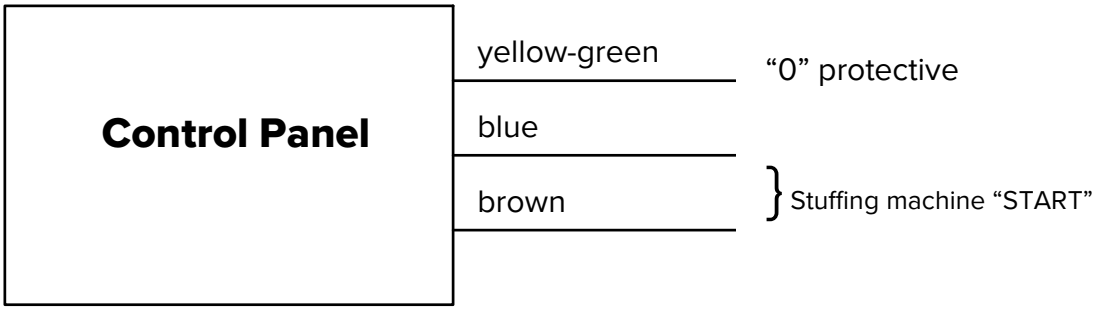


Fig.4

6.2. Control Connection

Enables automatic feeding of following stuffing portions directly from the stuffing machine.

Only a competent person should make the conduits connection according to the following scheme:



scheme I

Because of the big variety of connecting terminals applied with the stuffing machines clipper is not originally equipped with any kind of connecting terminal. The proper terminals are supplied with the stuffing machine standard equipment. There is also the possibility of purchasing the appropriate terminals in the service.

6.3. Pneumatic Connection

Pneumatic connection succeeds after placing the head of pneumatic quick nipple at the ferrule end.

Clipper cannot be supplied with the compression air with the pressure value over 6 bar.

To ensure the proper functioning and clipper long life the air provided to the device has to be dry and oiled. Therefore it is necessary to use the air preparing station and to take care of its proper functioning during all the time of operating the clipper. Fill the oiler tank with the special oil for pneumatic systems (e.g. no 46). Regulate the oil consumption. Optimal oil consumption for the clipper is approx. 100 g. per 300 operating hours.

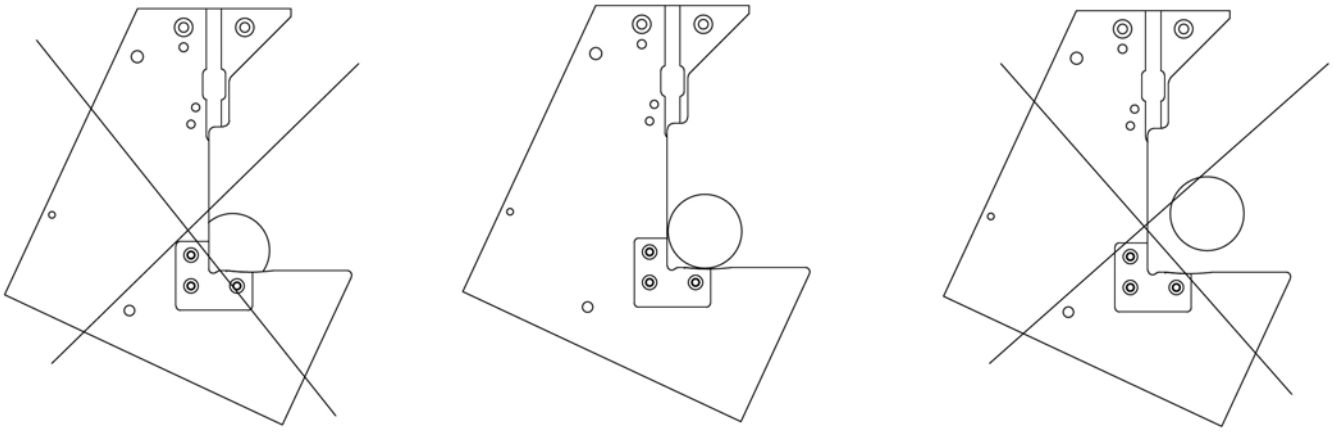
It is not allowed to use edible oils to lubricate the pneumatic system.

6.4. Stuffing Funnel Selection

Stuffing funnel with the diameter Ø34 belongs to the standard clipper equipment. When casings with smaller diameters or strongly creased ones are applied, the stuffing funnels with diameters Ø20, Ø25, Ø28 are appropriate. For horn casings with bigger diameters it is recommended to use adequately the stuffing funnels with diameters Ø38 and Ø45.

Properly selected diameter of the stuffing funnel among other things guarantees efficient clipper operation and stuffing without air bubbles.

6.5. Clipper Throat Location Towards the Stuffing Funnel



bad **good** **bad**

Fig. 5

6.5.1. Clipper Throat Location Control

Clipper throat regulation towards the stuffing funnel has to be carried out as follows *(see fig. no 5)*:

- place the special wrench *(WU0030000)* between the main plate and bottom plate,
- using the flat wrench 17 *(WU0031000)* ease the screws *(SN9331025)*,
- set the proper location of the clipper throat,
- screw the screws tight *(SN9331025)*.

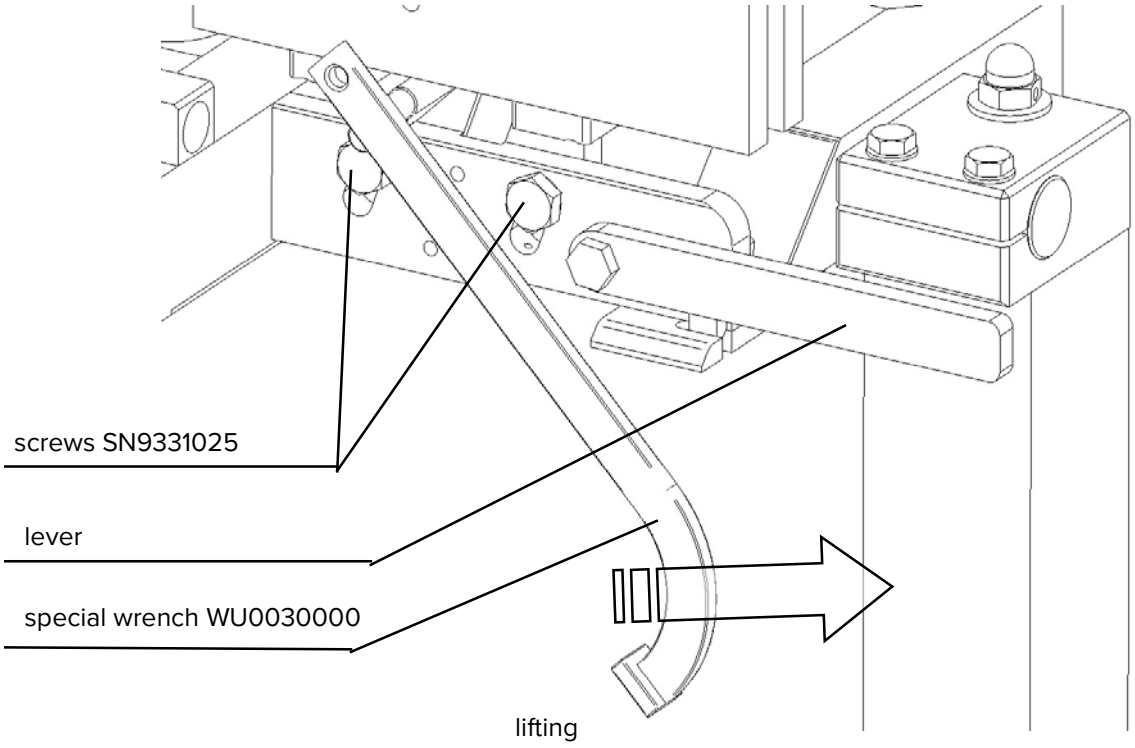


Fig.6

6.6. Casing Brake

The casing brake serves the purpose of maintaining an even horn stuffing and precluding air bubbles appearance inside the stuffed horn. Horn hardness control is carried out in accordance with the *figure no 7.*

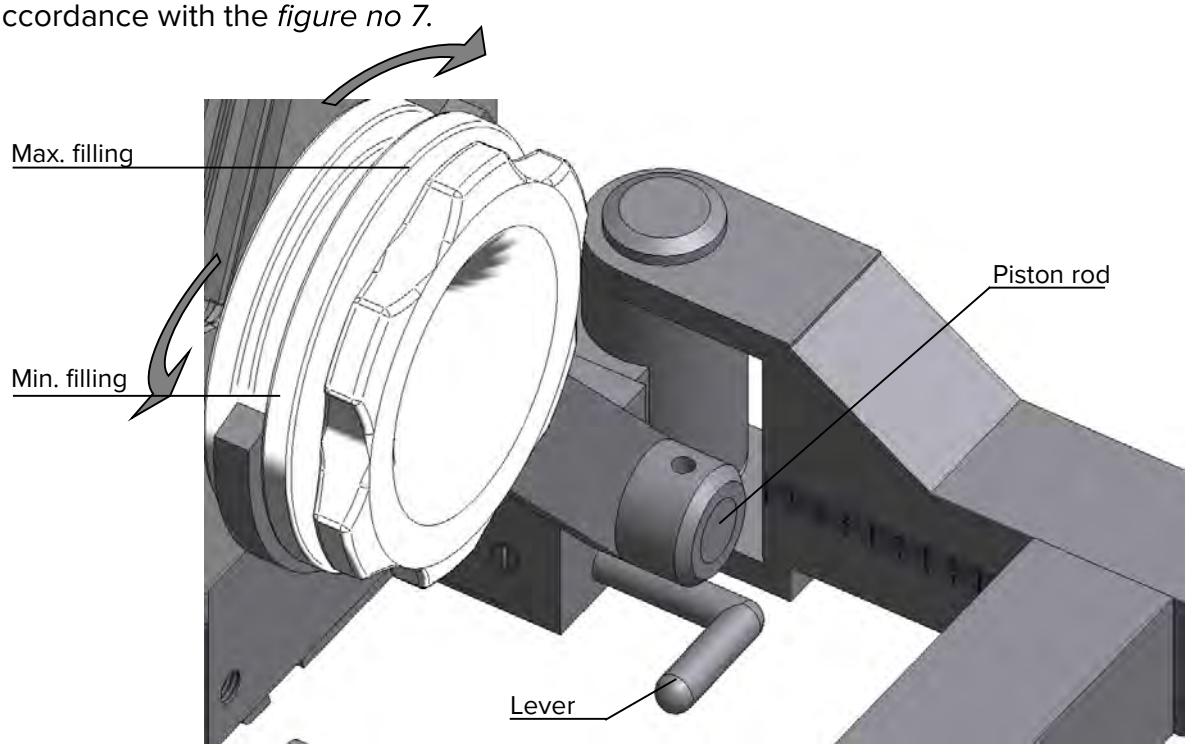


Fig. 7

6.6.1. Brake Construction

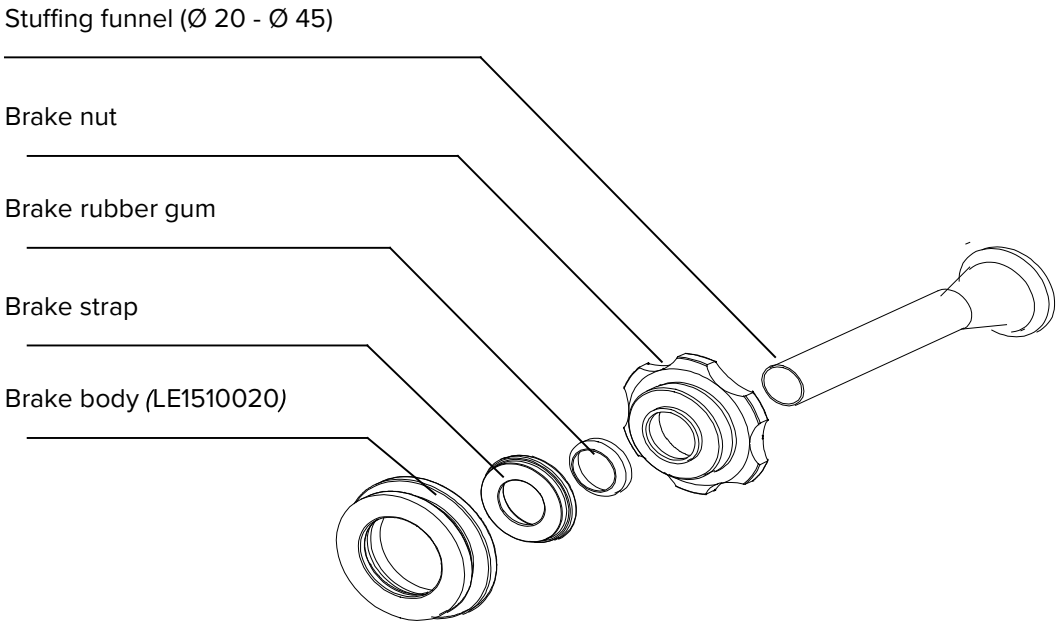


Fig. 8

6.6.2. Brake Assembly

Stuffing Funnel Diameter	Brake Rubber Gum	Brake Strap	Brake Nut
Ø 20	*LE1542020*	*LE1522020*	*LE1511020*
Ø 25	*LE1542520*	*LE1522520*	*LE1511020*
Ø 28	*LE1542820*	*LE1522820*	*LE1511020*
Ø 34	*LE1543420*	*LE1523420*	*LE1511020*
Ø 38	*LE1543820*	*LE1523820*	*LE1511020*
Ø 45	*LE1544520*	*LE1524520*	*LE1511020*

6.6.3. Brake Pitch Control

The brake pitch *(see fig. no 7)* is regulated by pulling the lever up, *(HA1400020)* moving into the proper position, and lower the lever down. The brake will move from the brake body to the lever. Please remember:
For soft stuffing the brake pitch should be shorter.
For hard stuffing the brake pitch should be longer.

The brake pitch can be regulated only after disconnecting the clipper from the compression air installation.

6.6.4. Brake Pitch Speed

The brake operating speed is regulated with glands */spare part no 757/*. The brake stroke speed can be regulated as well as the speed of the brake return back to the initial position.
Brake speed depends on:
- casing quality (its cracking resistance),
- stuffing type,
- speed of feeding the stuffing by the stuffing machine.

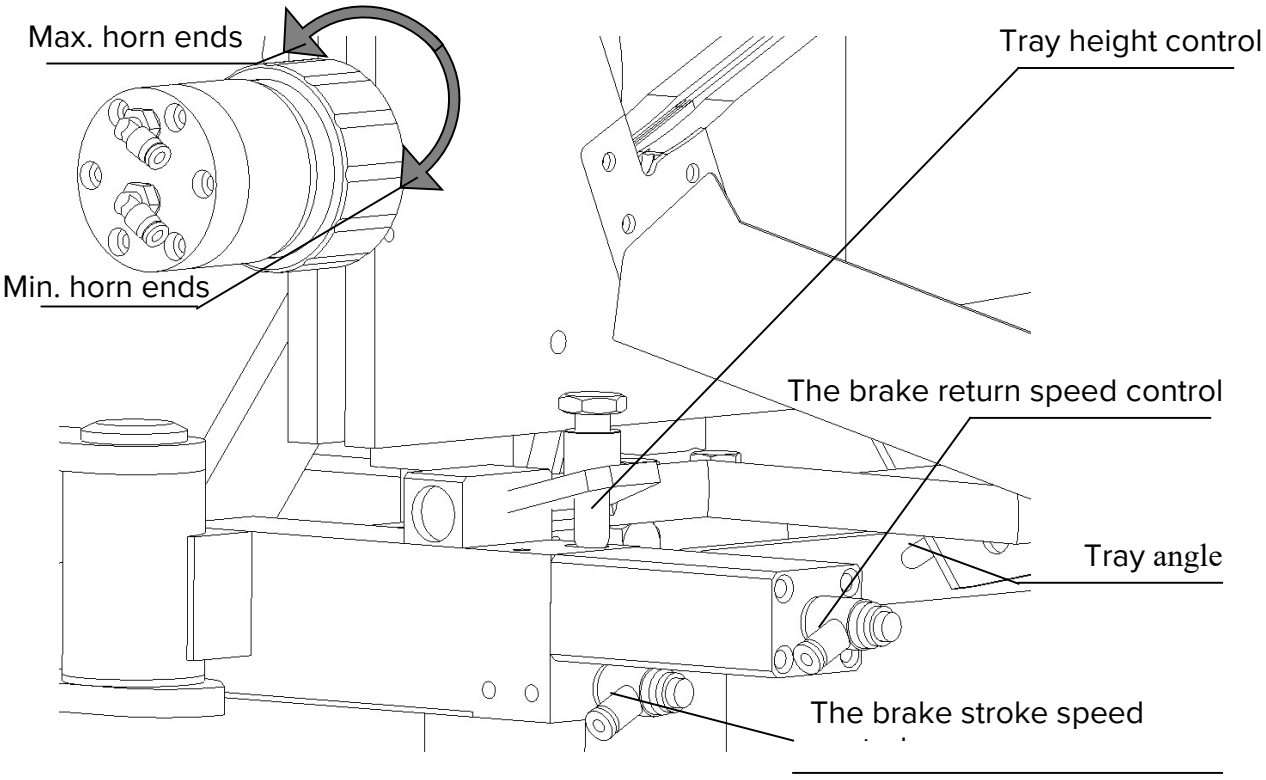


Fig. 9

6.7. Clips Selection

Proper clips selection should be made according to the following factors:

A) casing diameter,
B) type of the casing,
C) expected stuffing horn hardness,
D) horn weight,
E) further course of the horn technological process.

6.7.1. Clips Size – It depends on the diameter of the clipped casing.

Clip Symbol	E 210	E 220	E 230	E 240
Casing Diameter	< 50	40 - 75	60 – 95	> 85

The right clip size after the casing clamp is shown below:

Fig. 10

6.7.2. Clips Stiffness

Clips are manufactured with different stiffness:

	Soft Clips	Stiff Clips	Very Stiff Clips
German Symbol	E 210 E 220 E 230 E 240	E 212 E 222 E 232 E 242	E 223 E 233 E 243
Spain Symbol	BT	T	DST`

Application of clips with different stiffness

Soft Clips	Stiff Clips	Very Stiff Clips
1) Small and medium diameters of casings 2) Light horns 3) Horns that are not thermally treated 4) All types of casings except the natural protein ones	1) Horns tightly stuffed 2) Heavy horns 3) Horns clipped with a loop 4) Horns thermally treated 5) All types of casings	1) Horns stuffed very tightly 2) Very heavy horns 3) Horns clipped with a loop 4) Horns thermally treated 5) All types of casings

6.7.3. Clip Closure Size Control

The clip closure size is controlled with a knob *(CG2060010)*. - *Fig 11*
The proper clip closure regulation guarantees that:
- clips hold tight at the casing,
- clips do not cut the casing.

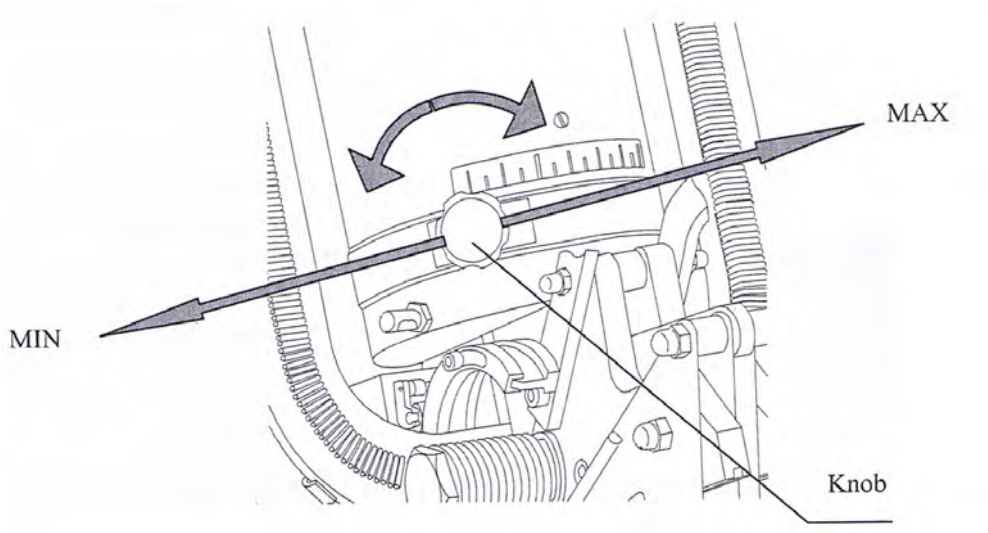
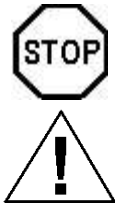


Fig. 11

6.7.4. Clips Loading

Loading clips on feeders has to begin with placing weights in upper position and then inclining them to the horizontal position. When clips will fill up the feeders it is necessary to place weights at them.



Operating the clipper with weights placed not properly can cause that clips are loaded from feeders not correctly and this could eventually damage the stamps and the main plates.

6.8. Horn Ends Control

The length of the horn ends is controlled with a regulating nut *(ZN4020010) (see fig. no 12)*.

When closing the natural protein casings it is necessary to lengthen the horn ends.

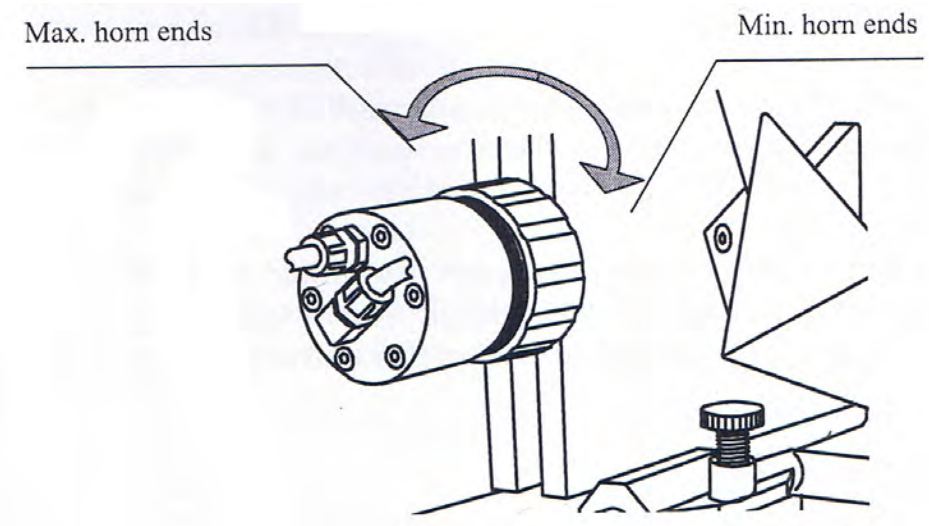


Fig. 12

7. Operating the Clipper

Successive operating functions:

1. Using a lock lever *(see fig. 6)* incline the clipper throat left.
2. Start the stuffing machine using either a toggle or a button *(see fig. 13)* with the purpose of filling the stuffing funnel with a substance.
3. Draw the casing over the stuffing funnel and put the casing end through both the brake and the clipper throat.
4. Turn the clipper right home.

The lock lever should be blocked in the lock part!

7.1. Clipping Portions Fed Separately

1. Set the switch in the “II” position *(see fig. 13)*.
2. Using the clipping head handle *(see fig. 3)* close the movable jaws to open them after the casing clip closure.
3. Press the button *(see fig. 13)* and the stuffing machine will feed the first stuffing portion.
4. To continue repeat point 2 and 3.

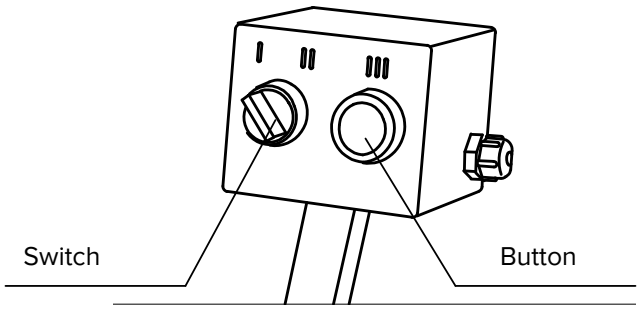


Fig. 13

7.2. Clipping Portions Fed Automatically

1. Set the switch in the “II” position *(see fig. 13)*.
2. Using the clipping head handle *(see fig. 3)* close the movable jaws to open them after the casing clip closure.
3. Press the button *(see fig. 13)* and the stuffing machine will feed the first stuffing portion.
4. Set the switch in the “I” position *(see fig. 13)*.
5. Do as it is said in the point 2. When the movable jaws are opening, the pneumatic signal changed to an electric one controls the stuffing machine. The next stuffing portion is fed and after the movable jaws closure the clipper can be restarted.

When the part of the casing still remains at the stuffing funnel set the switch in the “II” position *(see fig. 13)* just before clipping the last portion. Thus after opening the movable jaws the next stuffing portion will not be fed again.

7.3. Cutting Horns

Cutting horns is possible using the button at the left side of the clipping head handle. Pressing the button when the movable jaws are closed causes cutting the casing between two clips. Pressing and turning the button right causes blocking the function and activates the cutter every time when clips are clamped at the casing *(see fig. 14)*.

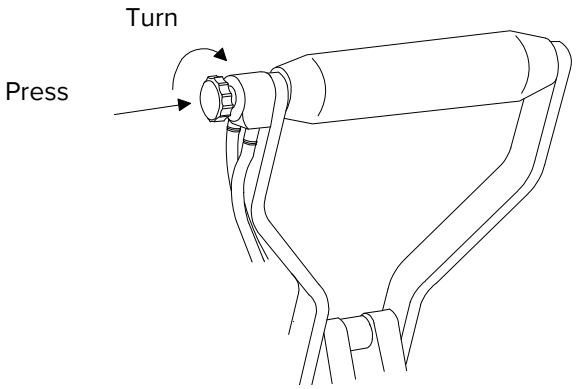


Fig. 14

7.4. Horn clipping with a loop - manual feeding

Hook the loop on to the left plates of the movable jaws and make the standard move with the clipping head handle *(see fig. 15)*.

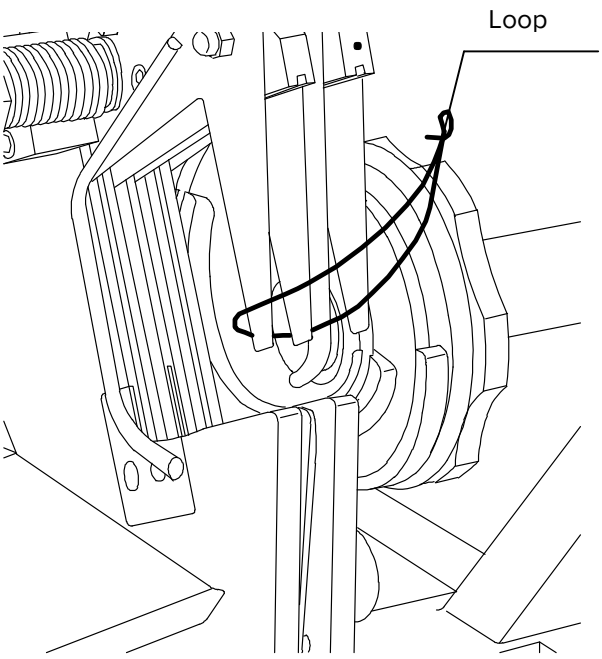
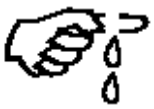


Fig. 15

7.5. Horn Hardness Control – Horn Stuffing

The hardness of a horn depends on the ability of moving the casing out from the elastic rubber gum lip of a brake *(see fig. 8)*.Turning the brake nut *(see fig. 8)* left causes the casing can be moved out easier *(see fig.7)*, so the horn becomes slackly filled. Turning the brake nut right makes the casing moving out from a brake hard and the horn becomes tightly stuffed and its hardness becomes bigger *(see fig.7)*.

8. Cleaning the device after finished operation



Before starting the cleaning process disconnect the device from the compression air installation and unclasp the stuffing machine control terminal.

Considering the necessity of hygiene maintenance the device should be cleaned each time after finished production cycle.

8.1 Cleaning Order:

1. Disconnect device from the compression air installation.
2. Unclasp the terminal that controls the stuffing machine.
3. Mechanically disconnect the device from the stuffing machine.
4. Unclasp the lock of the clipper and then slope the device at an angle of 45 degrees.
5. Remove the stuffing funnel and clean it.
6. Remove the casing brake, take it to pieces and then clean all parts.
7. Clean the clipper carefully using warm water and disinfectants admitted to use in the works of food processing.

WARNING! It is allowed to use high-pressure cleaning machines for careful cleaning of hard accessible places like spaces between the main plates.

During the cleaning process avoid the water comes into the hole of the compression air connection ferrule.

9. Daily Maintenance

9.1. The Maintenance of the Clipper That Is Operated Every Day:

- Dry the clipper using the compression air.
- Pay the special attention to the parts of matrixes that form clips. Matrixes have to be dried very carefully *(KO1180010)*.
- Delicately cover matrixes with white technical or edible oil.
- At least once a week oil all moving parts of a machine.

The device which shows any kind of defect or damage is unfit for further use. All defects and damages must be removed immediately.

10. Health Protection

The clipper is made of safe-to-use materials with guaranteed durability of sub-assemblies. Additionally in order to protection of operator's health the device was constructed to prevent the loss of health hazard caused by the casual and unintentional operations:

A) The manual method of closing the movable jaws and matrixes protection plates precludes the accidental hands or fingers crushing,
B) Opening of the pneumatic valve and starting the process of clips clamping is only possible after complete closure of the movable jaws (in this case the crushed casing gap will be 6 mm wide),
C) Strength of the casing brake return back into the main plates direction is safe and cannot cause any harm to operator,
D) When drawing the casing over the stuffing funnel the clipper throat should not be in the operating position and all the functions controlled by the compression air should be disabled.

11. Defects and Damages That Occur During the Operation

PROBLEM	CAUSE	REMEDY
I Clips are slipping of the casing	1. The force of clamped clips is too weak	1-Move the clamp force controller right *(see section 6.7.3.)*. 2-Check and adjust the pressure of supplied air (6 bar). 3-Check if the pneumatic conduits are tight 4-The section of the conduit supplying compression air is too small. 5-The clipping head handle is kept too shortly in a down position of closed movable jaws.
	2. Clips are too big for the casing, e.g.: casing – Ø50, clip – E230	1-Replace clips in feeders with the appropriate ones e.g.: casing – Ø50, clip – E210 *(see section 6.7.)*
	3. Clips are too soft and they bend	1-Replace clips in feeders with the stiffer ones e.g. 210 BT with 210 T or 210 DST *(see section 6.7.)*
	4. The ends of the casing hor are too short	1-Lenghten the distance between clips. *(see section 6.8.)*

II The shape of clamped clip is incorrect	1. The matrix is damaged	1-Replace matrixes with the new ones – the whole set.
	2. The stamp is damaged	1. Replace the stamp with the new one – the whole set. **Replacement should be made by service**
	3. The movable jaws *(spare part no 103 & 104)* are not parallel with the main plates *(spare part no 101 & 102)* after the movable jaws closure.	1-Adjust the movable jaws to the main plates. 2-Check if the valve enclosing system works properly and does not jam. **Repair should be made by service**

III The casing is cut	1. The force of clamped clips is too strong *(see section 6.7.3.)*	1-Move the clamp force controller left **2-Check and adjust the pressure of supplied air (5-6 bar).**
	2. The casing is too thin	1-Reduce the clip clamp force with the brake pitch control *(see section 6.7.3.)*. **2-Use the casing from another spool or from a different source of delivery.** 3-For natural protein casings extend the time of steeping in the water until 24 hours. **Warning – some sorts of natural protein casings are not suitable for clipping process because of their very low quality**.
	4. Sharp edges or scratches on the protection plates of the matrixes	1.-Replace protection plates of the matrixes with the new ones or polish them.
	5. The stamps are damaged	1.-Replace the stamps with the new ones **Replacement should be made by service**
	6. The horn is too much stuffed (too much stuffing inside the casing)	1-Release the brake *(see fig. no 5)* 2.-Extend the brake pitch – *(see section 6.6.3.)*
IV. The clip is pricking the casing	1. Manufacture sets of the air opening valve point are out of adjustment!	1.-**Regulation should be made by service**

V. The cutter does not cut the casing	1. The cutter is blunt	1.-Screw out the locking screw *(spare part no 908)*. Screw the small cylinder out of the nut *(spare parts no 401 & 402)*. Sharpen the cutter *(spare part no 406)* using a whetstone.
	2. The cutter is damaged	1.-Replace the cutter with the new one **Replacement should be made by service**
	3. Pneumatic system is damaged	**Repair should be made by service**
VI. There are air bubbles inside the stuffed horn	1. The clipper is not properly connected to the stuffing machine.	1.-Set the clipper properly and connect it to the stuffing machine once more. *(see section 6)*
	2. The brake components are fitted not correctly	1.-Fit the proper brake rubber gum size and other components of a brake to the stuffing funnel. *(see section 6.6.)*
	3. The brake pitch is too big	1.-Reduce the brake pitch. *(see section 6.6.3.)*
	4. The height of the clipper throat is fitted not correctly to the stuffing funnel height	1.-Adjust the height in accordance with *figure no 4*.
	5. The brake return is too fast	1.-Adjust in accordance with *figure no 7*.
VII. Stamps do not move downwards	1. There is no air pressure in the system or it is too weak	1.-Check the compression air installation.
	2. The main valve is damaged	1.-Replace the valve *(spare part no 300)* **Replacement should be made by service**
VIII. Stamps return upwards very slowly	1. Exhaust muffler is blocked *(spare part no 710)*	1.-Screw the muffler out and clean it with a warm water with detergents then screw it in again. 2. Replace the muffler with the new one.

B. Annexes

B.1. Equipment

B.1.1. Basic Equipment

1. The Stuffing funnel Ø 34
2. The brake assembly Ø 34
3. The flat box wrench 17 *(WU0031000)*
4. The special wrench *(WU0030000)*
5. Technical and motor documentation with the catalogue of spare parts

NOTE! There is a possibility of purchasing the device with user defined stuffing funnel and brake assembly.

B.1.2. Optional Equipment

1. Stuffing funnels: Ø 20, Ø 25, Ø 28, Ø 38, Ø 45
2. The brake assembly: Ø 20, Ø 25, Ø 28, Ø 38, Ø 45

B.1.3. Loop Feeder.

B.1.3.1. Destiny.

Loop feeder facilitate and accelerate operating clipping machine during supplying loops under the clip. It is powered by compressed air delivered by air wires through control valves.

B.1.3.2. Basic parameters of Loop Feeder:

air working pressure : min - 5 bar,
max - 6 bar

To ensure proper function and stability of the loop feeder, the air supplied to the device must be lubricated and free from moisture. Therefore, there is a need of using air preparing station and care to maintain it properly through the life of clipper. The tank should be filled with special grease oil for pneumatic systems (f.e. Nr 46).

It is unacceptable to use edible oils for the lubrication of pneumatic system.

- efficiency : about 30 cycles/min
- loop type: **LP-21 / LP-210/**

Using loops of a different designation lead to malfunction of the loop feeder, and in extreme cases cause damage.

B.1.3.3. Running and Service:

The loop feeder is ready to work immediately after connecting the clipping machine to compressed air. Activation of the feeder is made by pulling the lever on the left side of the clipper. (see fig. 16). Loops cylinder should be placed on the bracket as shown in figure below.

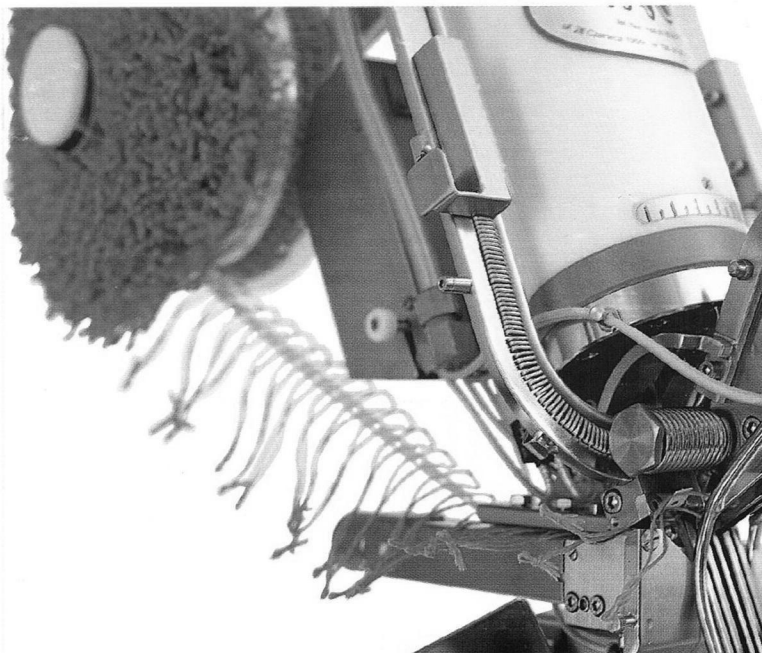


Fig.16

Grab, rotate left and pull the rear of the cylinder drive belt /part no. 5250/ in accordance with arrows in the figure below:

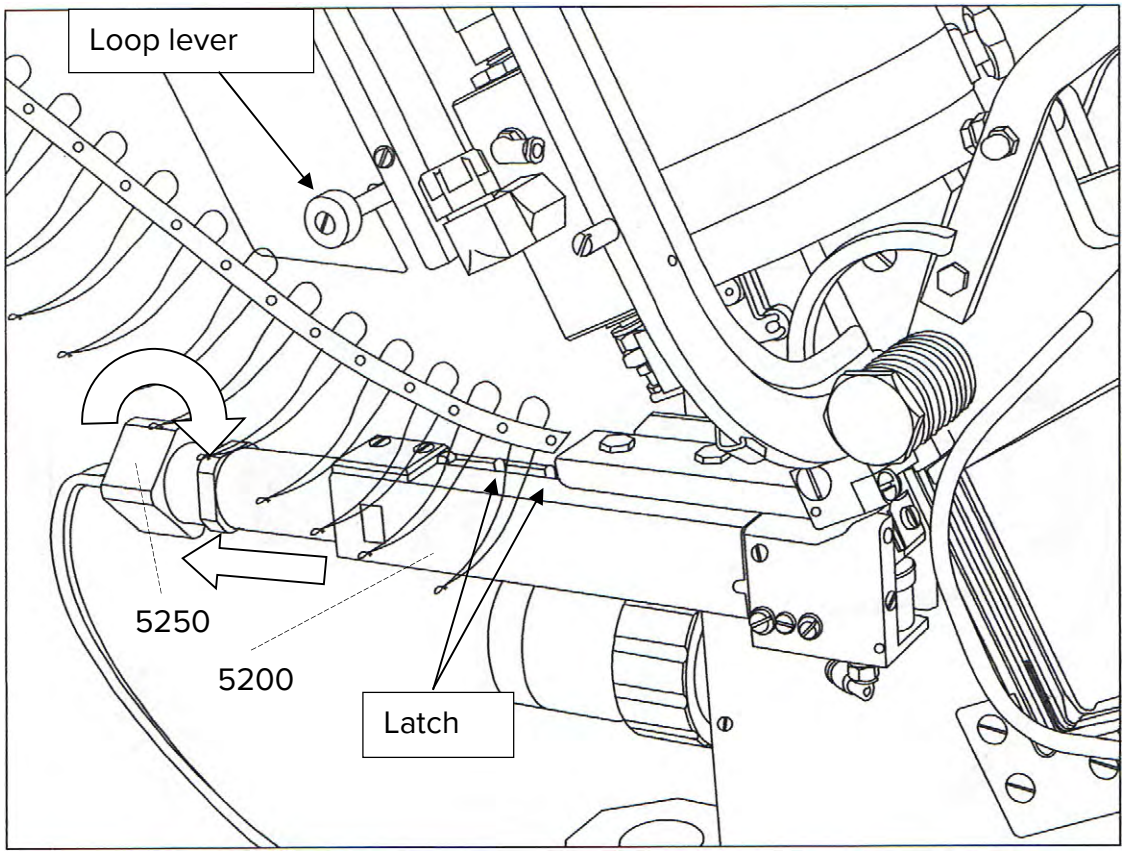


Fig.17

Put the end of the tape with loops to the protruding latch. Gently hold the tape with loops on the latch and slip the cylinder /5250/ in the case /5200/ to the resistance, then turn it clockwise to lock the tray in the operating position.

To set the loops in operating position push the handle button three times

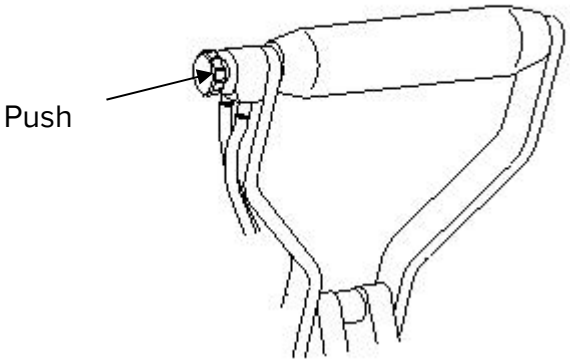


Fig. 18

Loop injection button works only in the upper position of the handle!
You cannot use the button in "push and turn" position!

Now you can make a move with handle in order to separate the portions and clip the horn. The loop will be automatically collected by the clip, and a knife /406/ will cut the casing between the clips.
Another loop application is possible after lifting the handle in the upper extreme position.

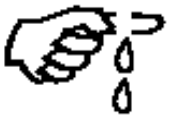
Loop application is always connected with cutting the casing between the clips.

To disable loop feeder push the loop lever on the left site of the clipping machine /fig.1/. Now the handle button will only control the cutting knife.

B.1.3.4. Basis principles of hygiene.

Disconnect the clipper from compressed air and wake out the tape with loops before you begin to clean the feeder!
Wet loop tape can work not properly!

- Each time, before and after work, loop feeder should be washed with clean running water.
- In order to achieve proper feeder washing unscrew the cover screw /5172/, fold the cover /5170/ and direct the stream of water to exposed place.
- It is allowed to use strong stream of cold or hot water obtained from water systems or high pressure cleaning equipment.
- We recommend the use of detergents and disinfectant additives used in food processing plants, in condition rinse them in powerful water stream.



Machine is suitable for use only in good technical shape. Any defects and deficiencies which may prejudice the security, disqualify the unit from further work and must be removed immediately!

B.1.4. String Dispenser

B.1.4.1. Destiny.

String dispenser makes easier and speeds up clipping process when clipping with a string. It is powered by compressed air delivered by air wires through control valves.

B.1.4.2. Basic parameters of String Dispenser:

air working pressure : min - 5 bar,
max - 6 bar

To ensure proper function and stability of the loop feeder, the air supplied to the device must be lubricated and free from moisture. Therefore, there is a need of using air preparing station and care to maintain it properly through the life of clipper. The tank should be filled with special grease oil for pneumatic systems (e.g. Nr 46).

It is unacceptable to use edible oils for the lubrication of pneumatic system.

B.1.4.3. Running and Service

String dispenser is ready to use just after connecting the clipper to air pressure.
To turn the dispenser on rotate a knob at the top of the dispenser (Fig. 19).
To adjust the string length rotate a knob at the bottom of the dispenser (Fig. 19).
The string has to be put through the dispenser and the metal loop placed at clips cylinder base. The operation can be done when the string dispenser is turned off. Put the string spool in the bucket or bracket. The spool should be able to unroll smoothly.
The string dispenser is connected with casing knife. The string is dispensed when the casing is cut between clips.

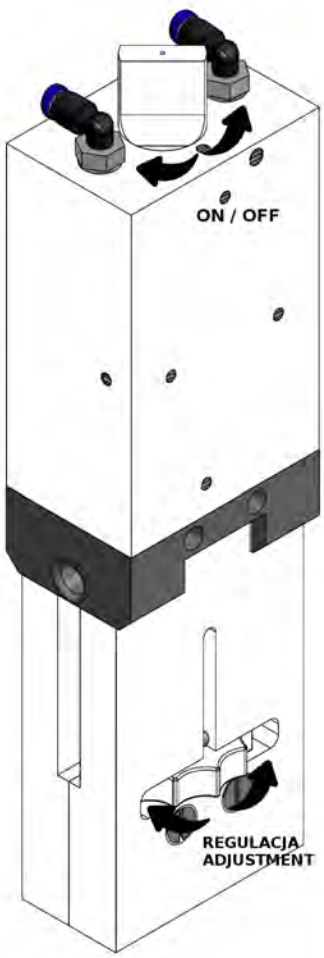


Fig. 19

B.1.4.4. Basis principles of hygiene.

Disconnect the clipper from compressed air and take out the string before you begin to clean the feeder!

- Each time, before and after work, loop feeder should be washed with clean running water.
- It is allowed to use strong stream of cold or hot water obtained from water systems or high pressure cleaning equipment.
- We recommend the use of detergents and disinfectant additives used in food processing plants, in condition rinse them in powerful water stream.

Machine is suitable for use only in good technical shape. Any defects and deficiencies which may prejudice the security, disqualify the unit from further work and must be removed immediately!

B.1.5. Net knife

B.1.5.1. Destiny

It is possible to clip products in nets. Unfortunately, nets are made from elastic materials which are hard to cut. We design a special net knife which can replace standard knife, and it is powered by compressed air. In addition it is required to replace middle plate /KO1500010/. Using net knife disables option of end horn regulation

B.1.5.2. Basic parameters of net knife

air working pressure : min - 5 bar,
max - 6 bar

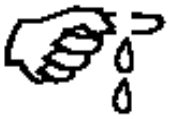
B.1.5.3. Running and Service

Net knife is operated the same way as standard knife. Knife is cutting when movable jaws are closed and knife valve button is pressed.

B.1.5.4. Basis principles of hygiene

Disconnect the clipper from compressed air and take out the string before you begin to clean the feeder!

- Each time, before and after work, loop feeder should be washed with clean running water.
- It is allowed to use strong stream of cold or hot water obtained from water systems or high pressure cleaning equipment.
- We recommend the use of detergents and disinfectant additives used in food processing plants, in condition rinse them in powerful water stream.



Machine is suitable for use only in good technical shape. Any defects and deficiencies which may prejudice the security, disqualify the unit from further work and must be removed immediately!

B.2. Noise Emission

Noise emission during the operation of the machine is caused mainly by the pneumatic elements functioning. It is not possible to set the precise data concerning the emission level of acoustic pressure because these values depend on device exploitation conditions at the customer's place. To maintain the noise standard at the lowest possible level it is necessary to keep the machine in the proper technical condition.

B.3. Customer's Service

B.3.1. Service

In case of problems during clipper exploitation or when the necessity of any regulation or repair appears it is necessary to contact directly with our firm. Thus you will receive up-to-date information about the services system both in Poland and outside of the country.

BECK CLIP SYSTEMS Sp. z o. o.
Ul. Matowa 21/2
62-052 Komorniki
POLAND
Tel/ fax. +48 61 833 50 65

B.3.2. Exploitation Materials

The users of MAGA clipper can apply exploitation materials **(clips and loops) of any producer without the risk of losing the guarantee rights.**

CLIP SYSTEMS
A BECK brand

DECLARATION OF CONFORMITY WE

We, "BECK CLIP SYSTEMS" ul. Matowa 21, 62-052 Komorniki declare under our sole responsibility that the product:

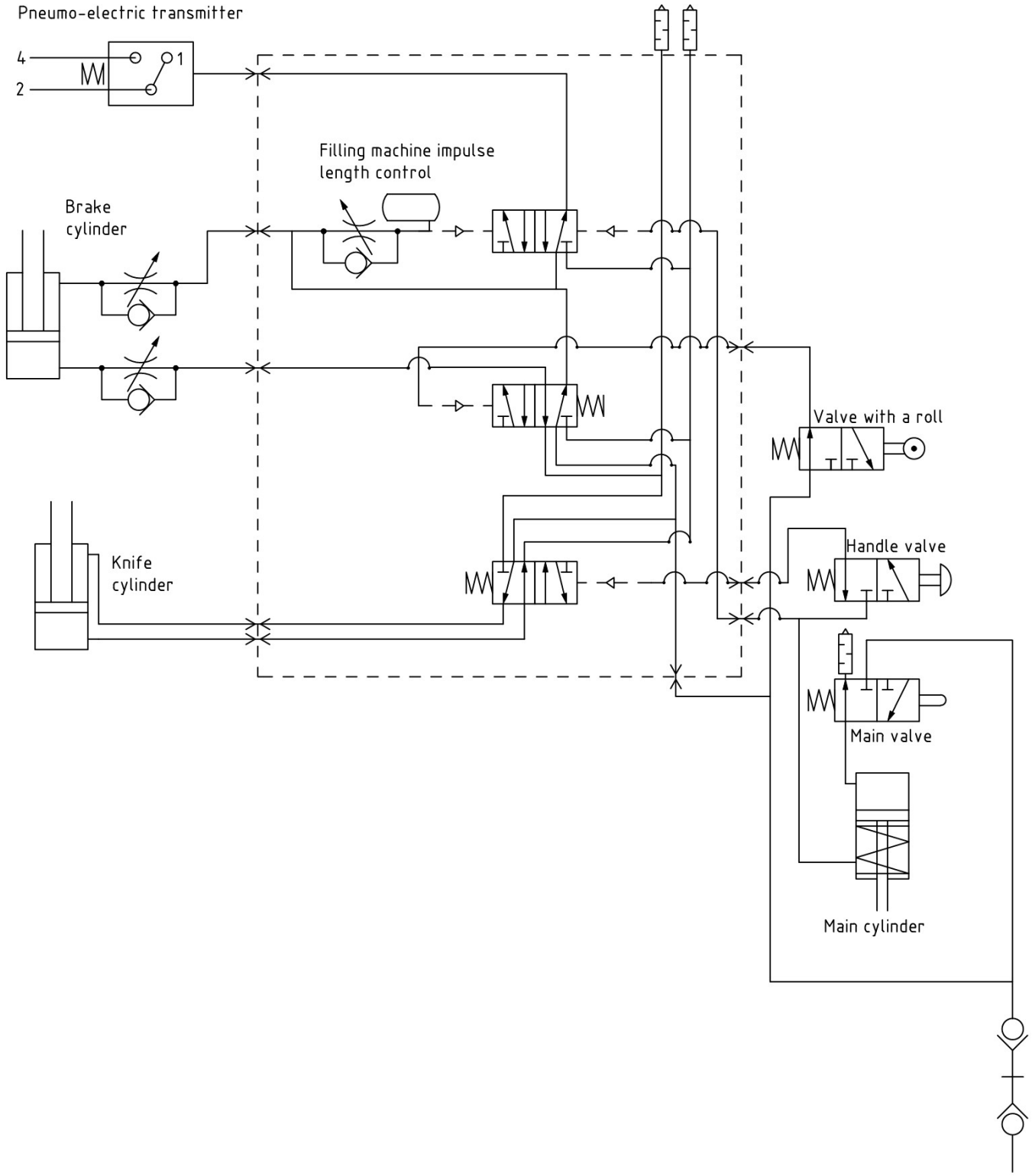
SEMI-AUTOMATIC CLIPPER PA- 91

to which this declaration relates is in conformity with the following directives:
Directive 98/37/WE of The European Parliament and Council from 22nd of June 1998 as well as with the following harmonized norms:

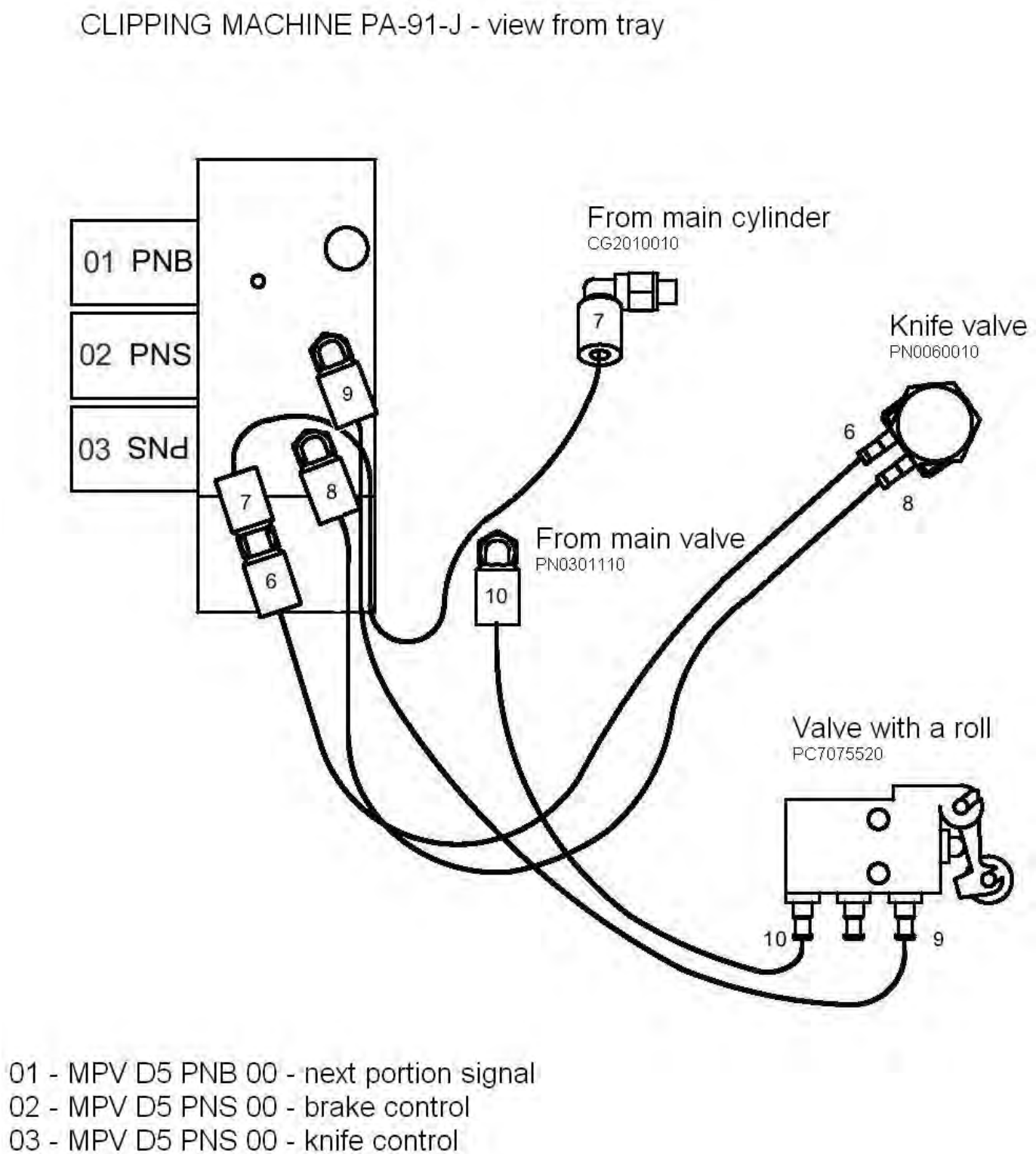
1. **PN-EN 292-1** Machines – Safety – Fundamental concepts, general principles of designing – Fundamental terminology, methodology.
2. **PN-EN 292-2** Machines – Safety – Fundamental concepts, general principles of designing – Technical principles and requirements.
3. **PN-EN 292-2:2000/Al.:2002** Machines – Safety – Fundamental concepts, general principles of designing – Technical principles and requirements.
4. **PN-EN 1672-2:1999** Machines for food industry. Fundamental concepts. Hygiene requirements.
5. **PN-EN 1050:1999** Machines – Safety – The principles of hazard assessment.
6. **PN-EN 953:1999** The labour protection. Mechanical protections of machines and appliances. General requirements.
7. **PN-EN 10/2011 and** Plastic materials and articles intended to come into contact with food
   EN 1935/2004

Poznań 01.02.2018 .....

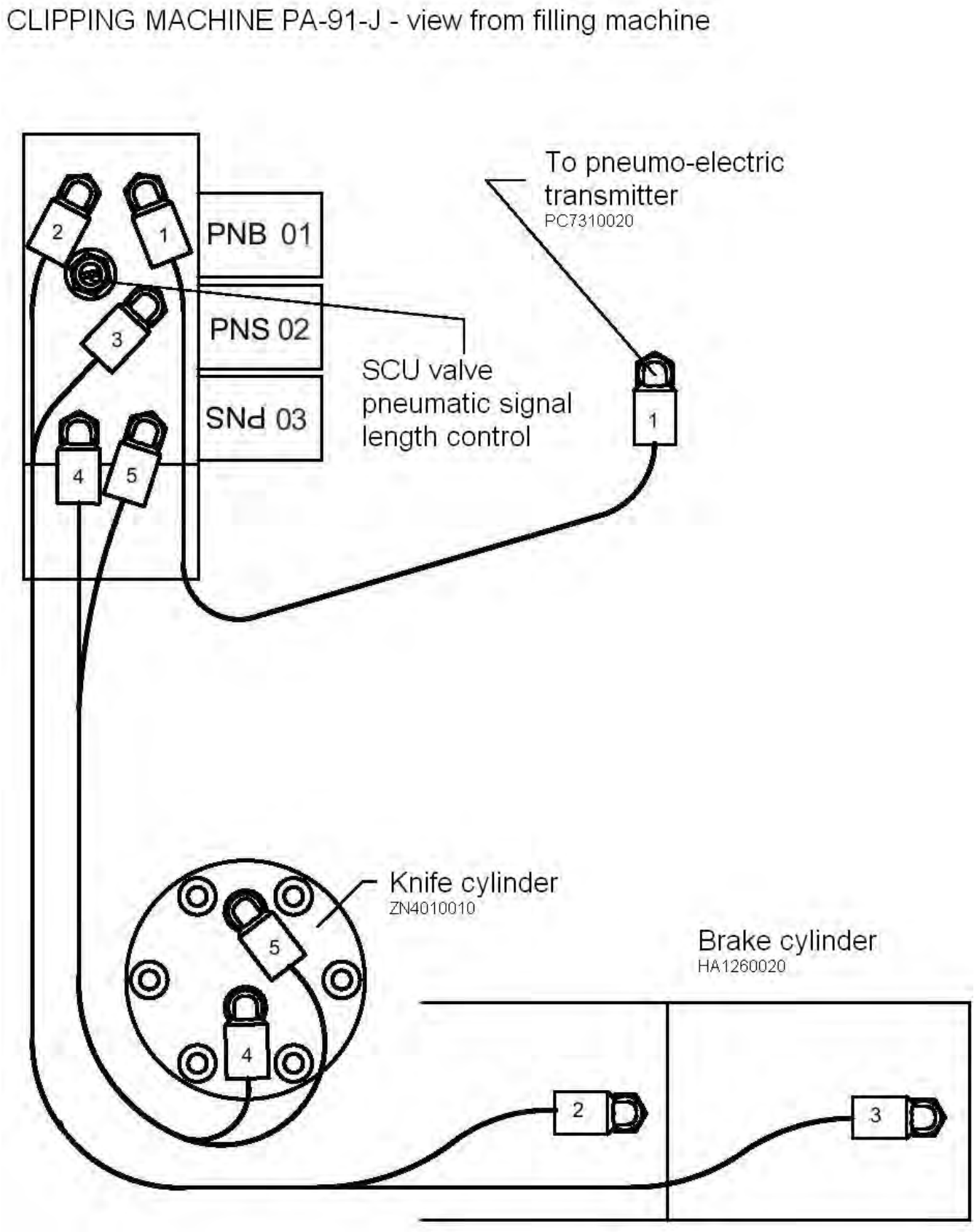
C. Pneumatic drawings



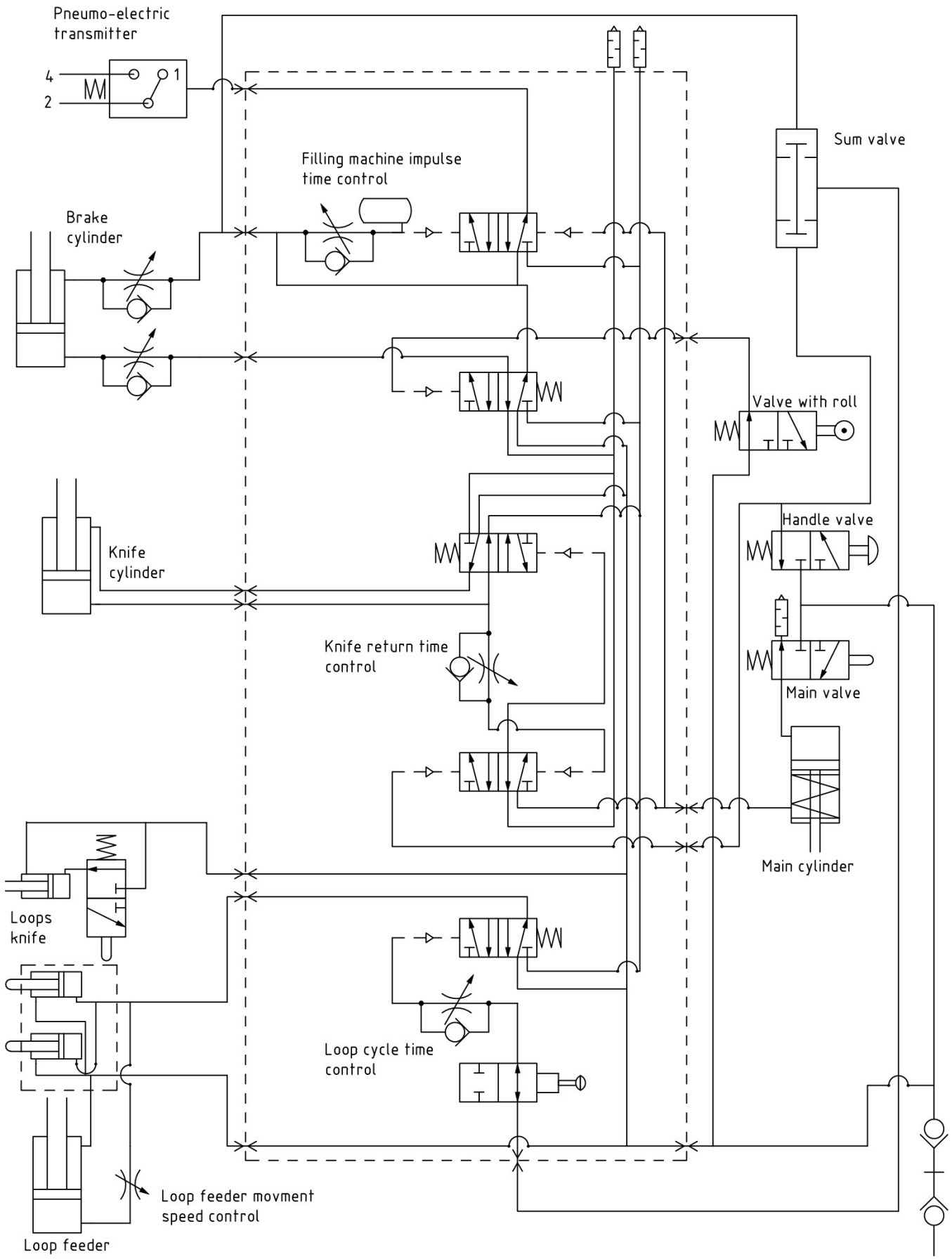
C.1.1. PA-91 Pneumatic diagram - standard version



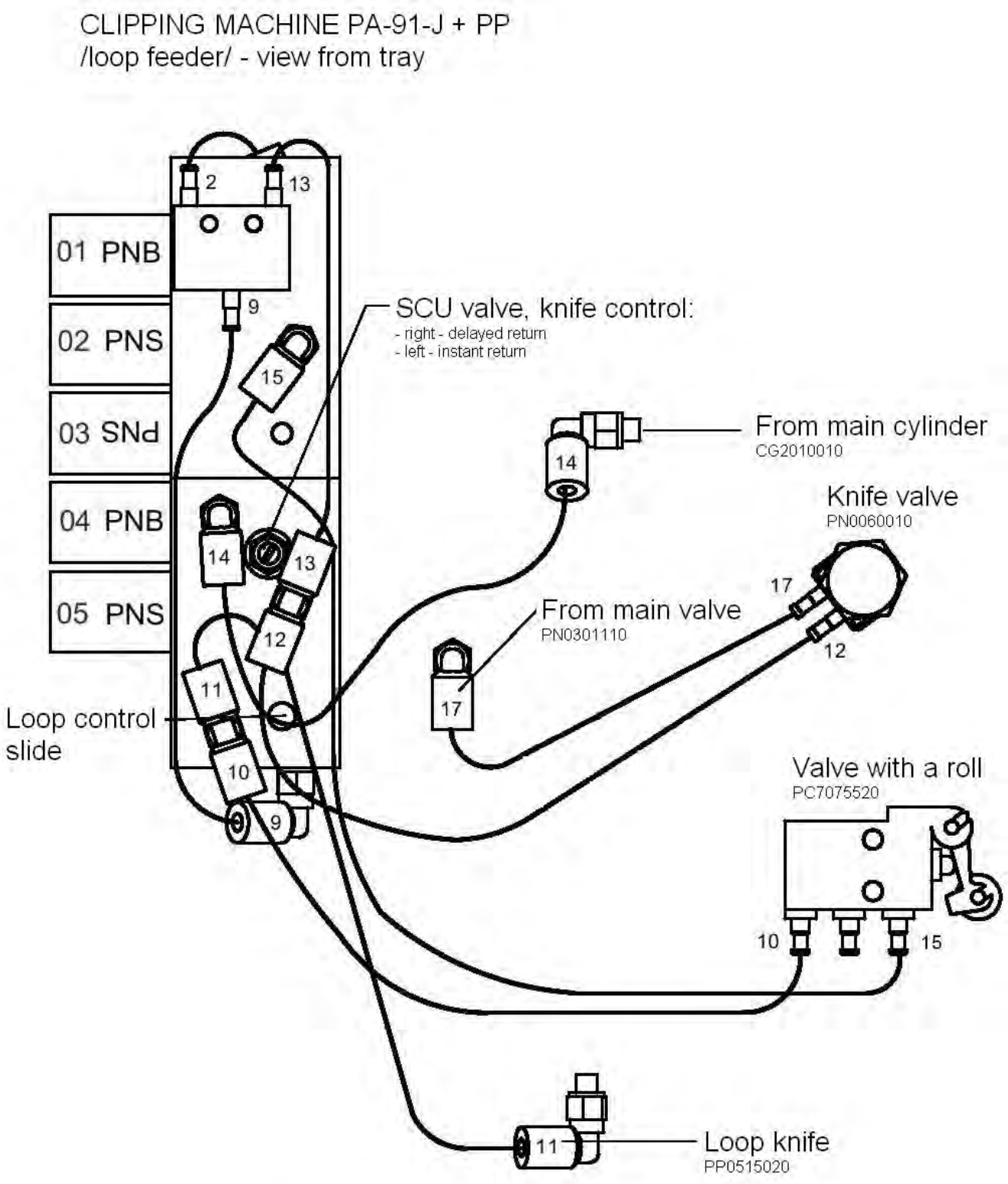
C.1.2. PA-91 view from the tray



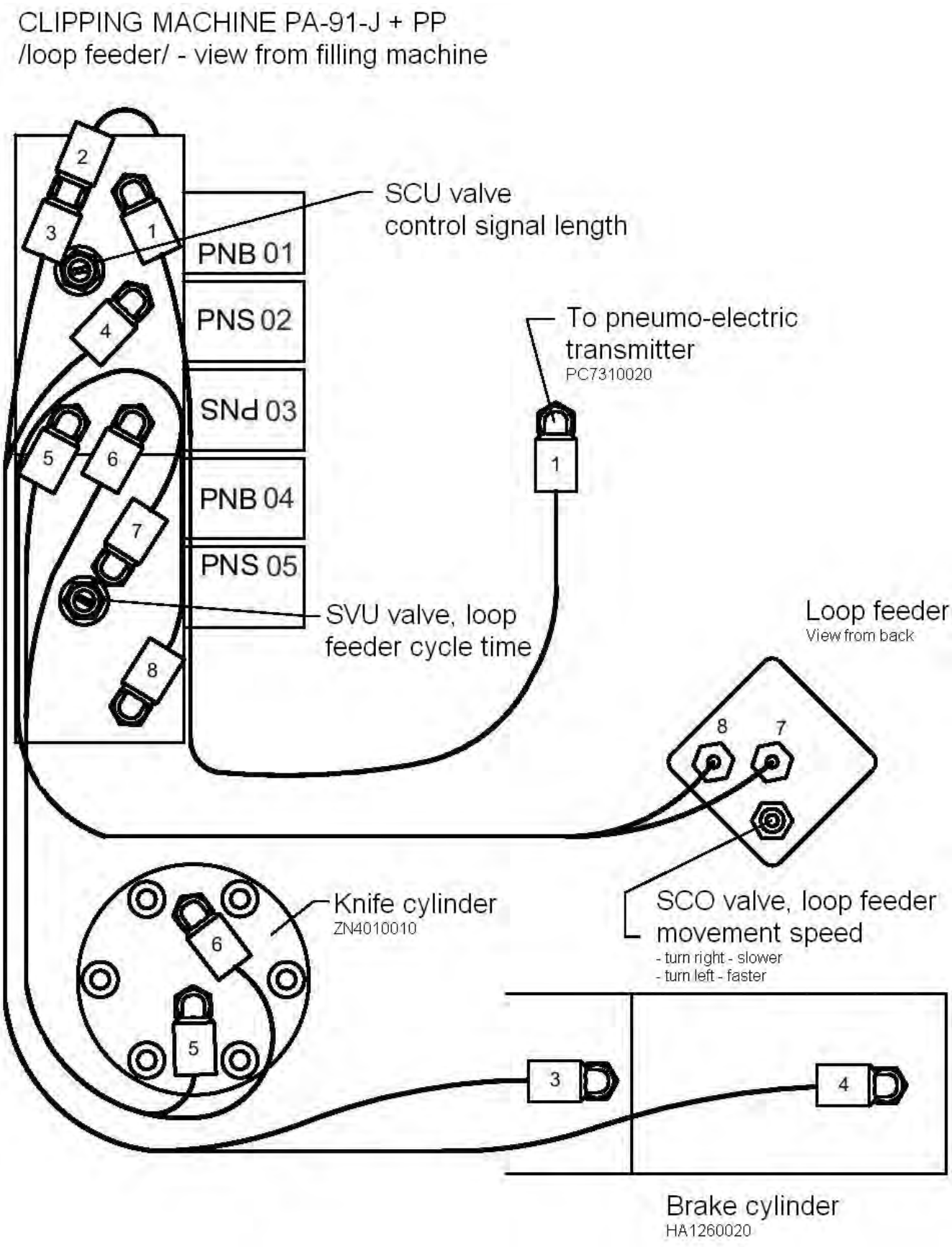
C.1.3. PA-91 view from the filler



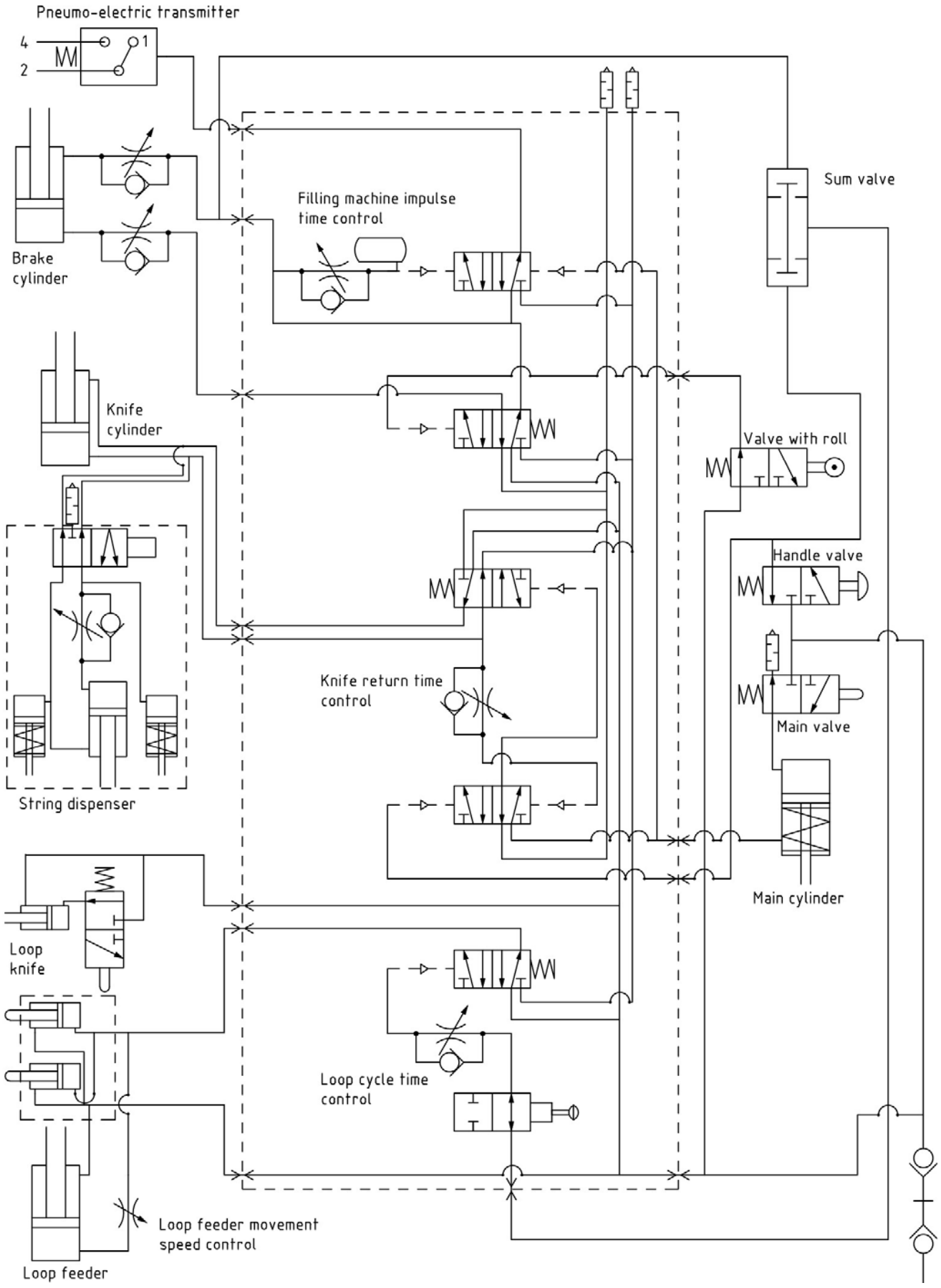
C.2.1. PA-91 +PP Pneumatic diagram - version with loop feeder



C.2.2. PA-91 +PP view from the tray

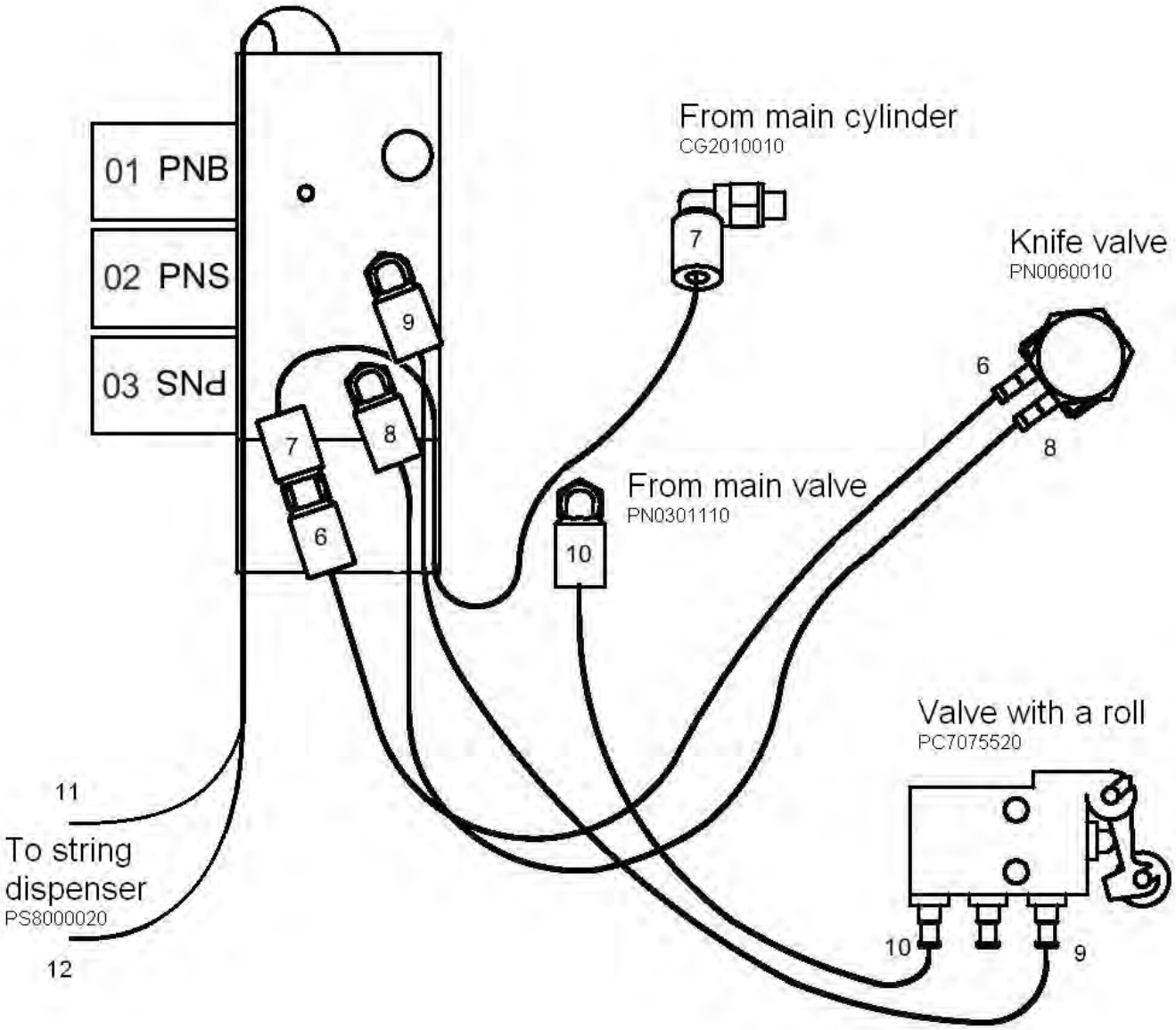


C.2.3. PA-91 +PP view from the filler



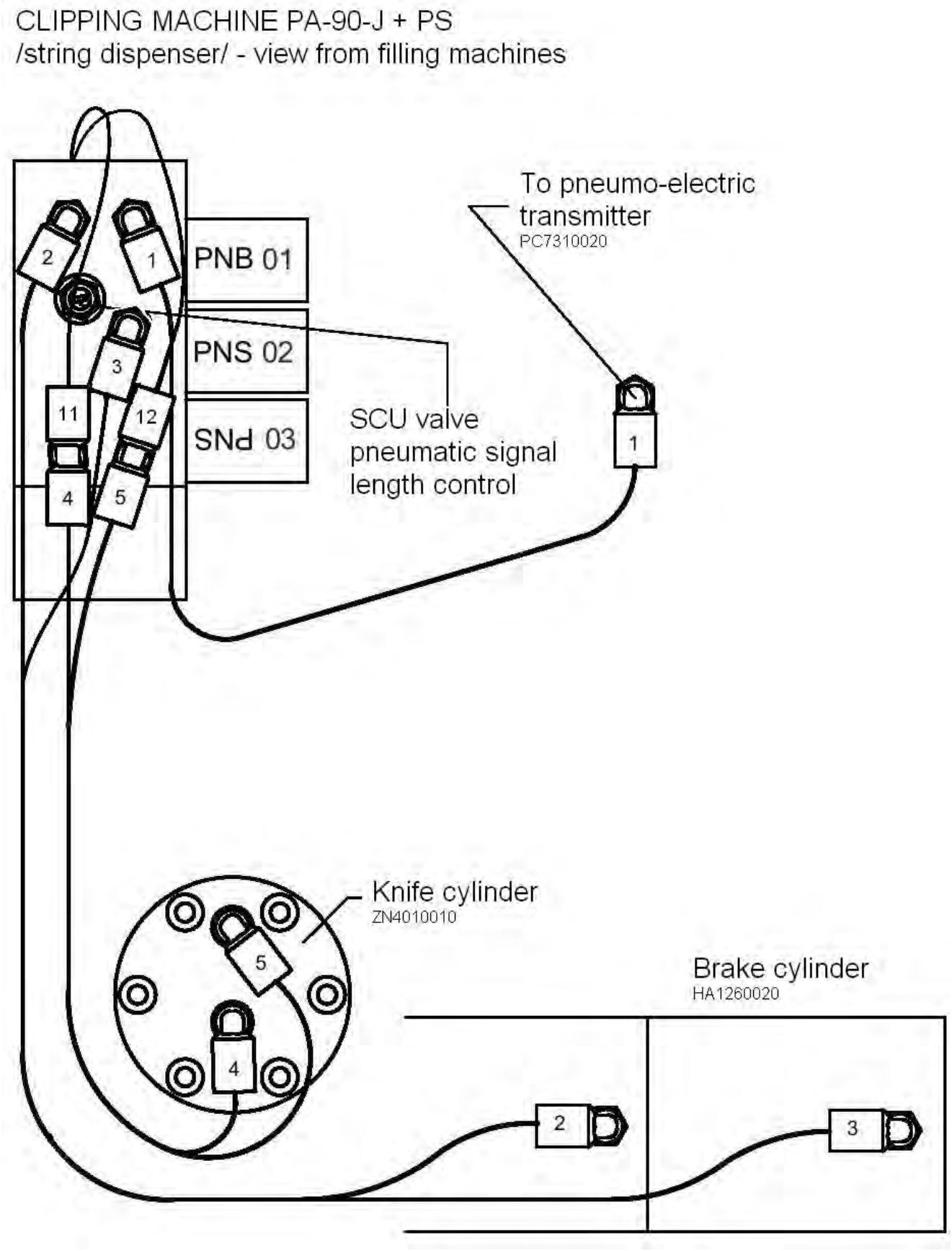
C.3.1. PA-91 +PS Pneumatic diagram - version with string dispenser

CLIPPING MACHINE PA-91-J + PS /string dispenser/ - view from tray

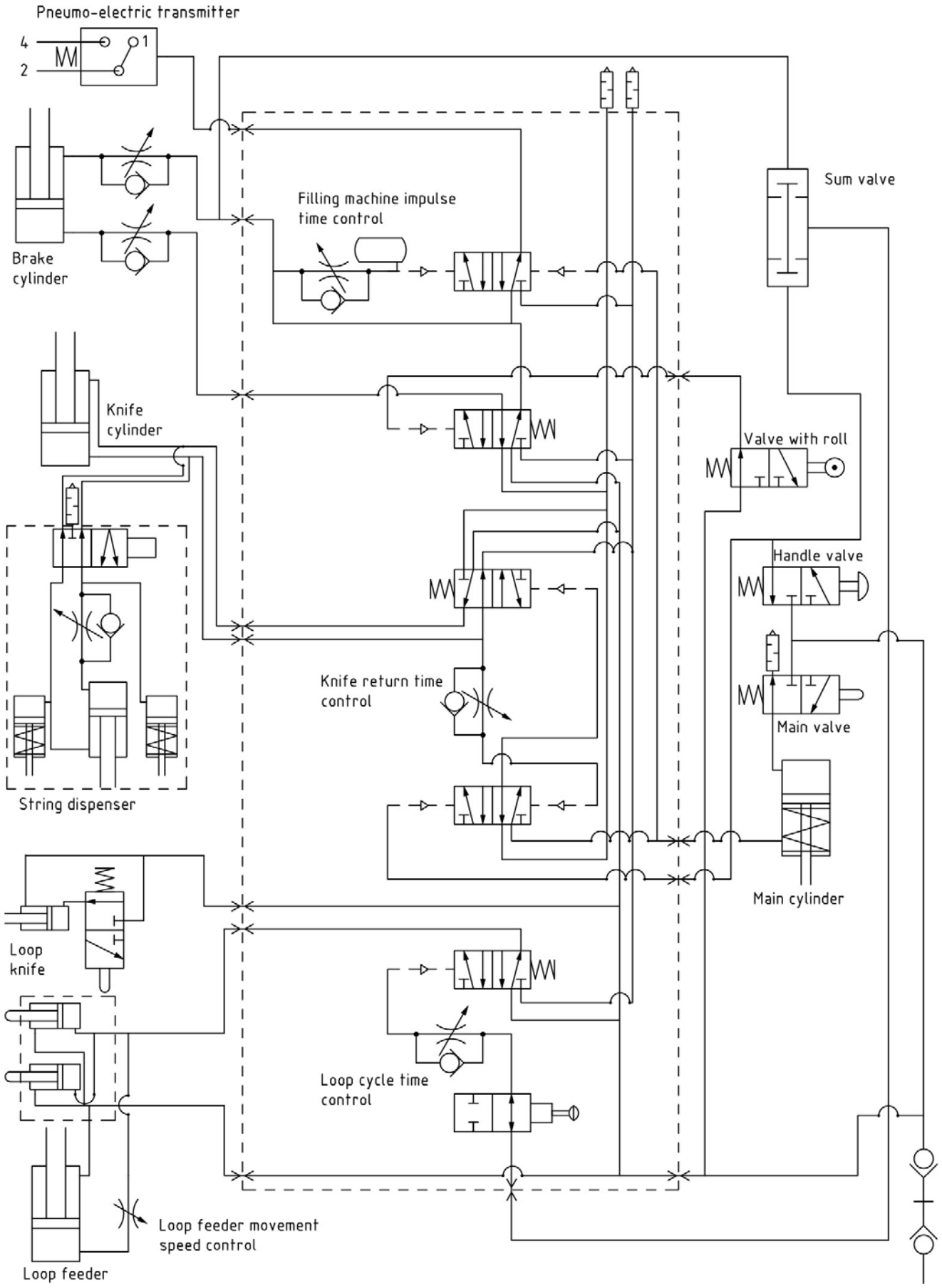


01 - MPV D5 PNB 00 - next portion signal
02 - MPV D5 PNS 00 - brake control
03 - MPV D5 PNS 00 - knife control

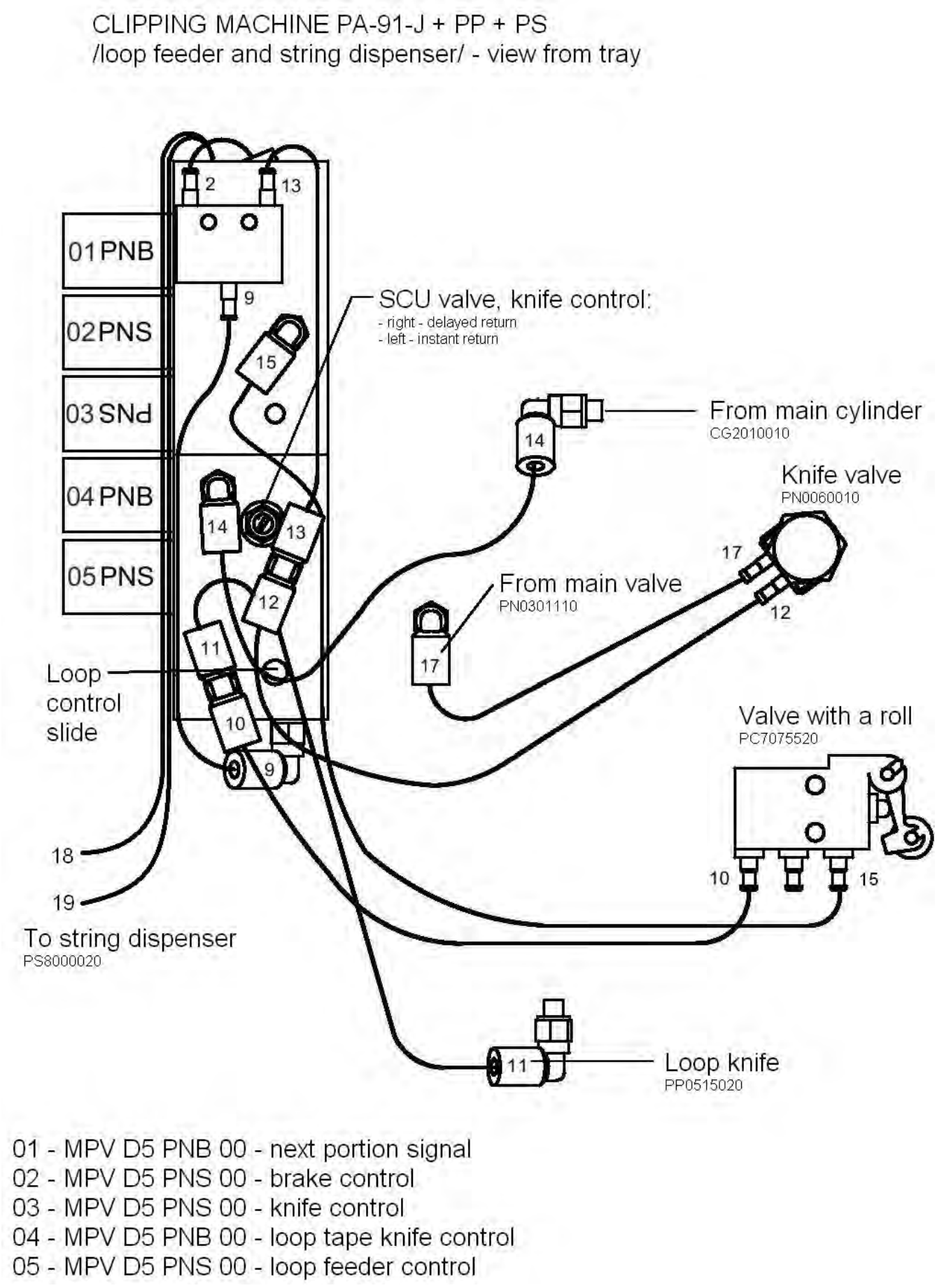
C.3.3. PA-91 +PS view from the tray



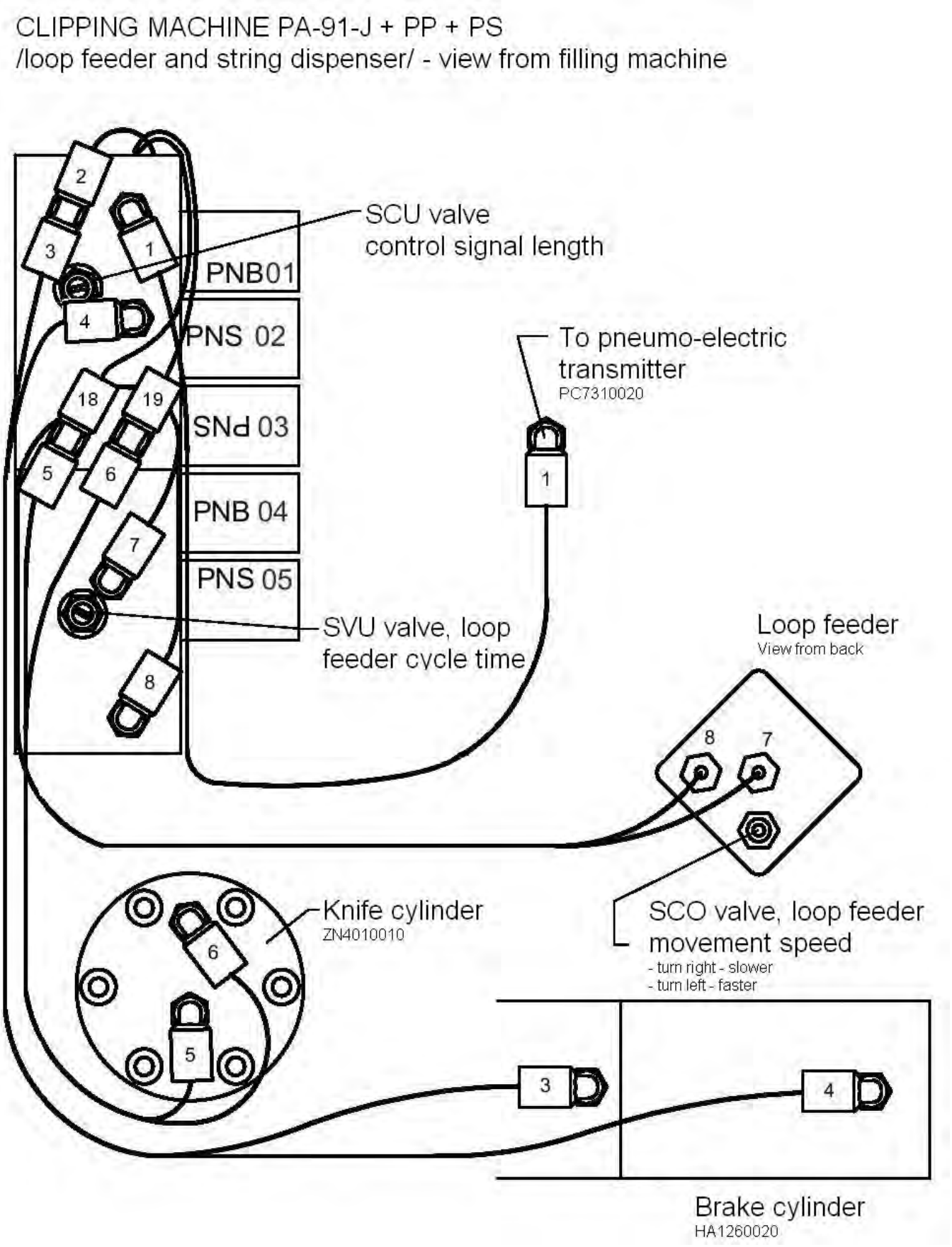
C.3.3. PA-91 +PS view from the filler



C.4.1. PA-91 +PP+PS Pneumatic diagram - v. with loop feeder and string disp.

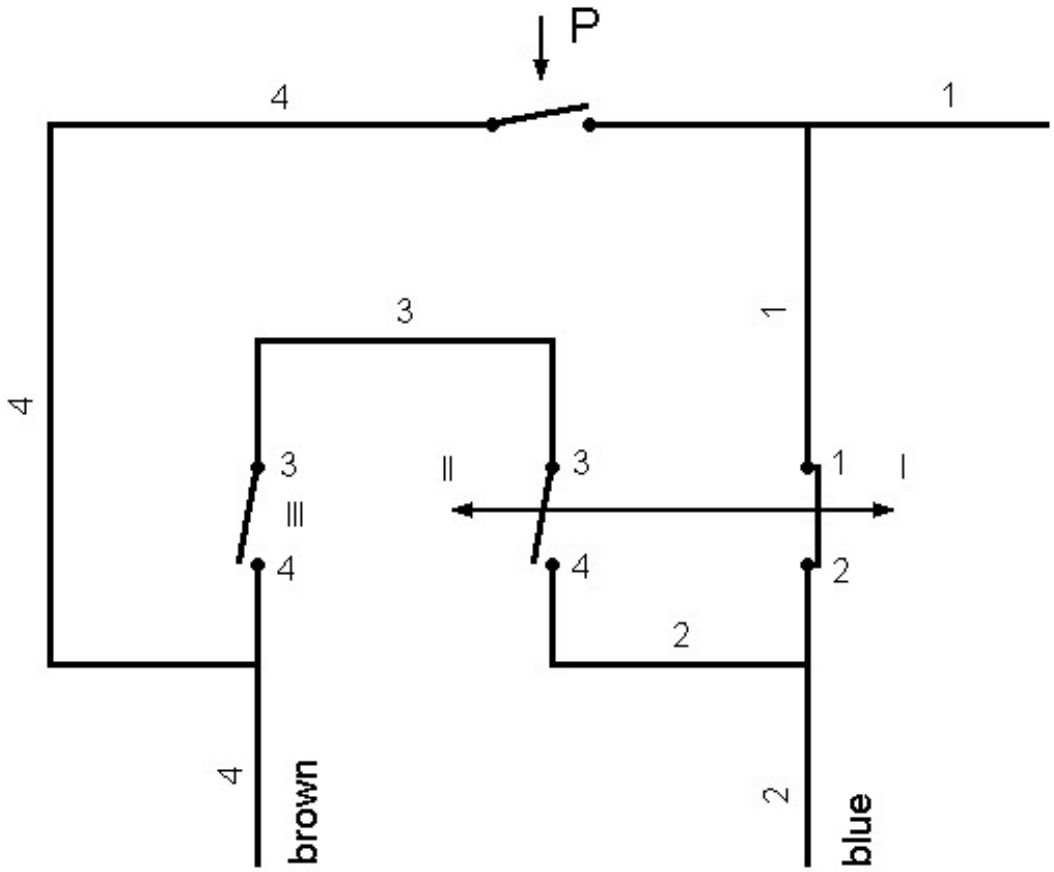


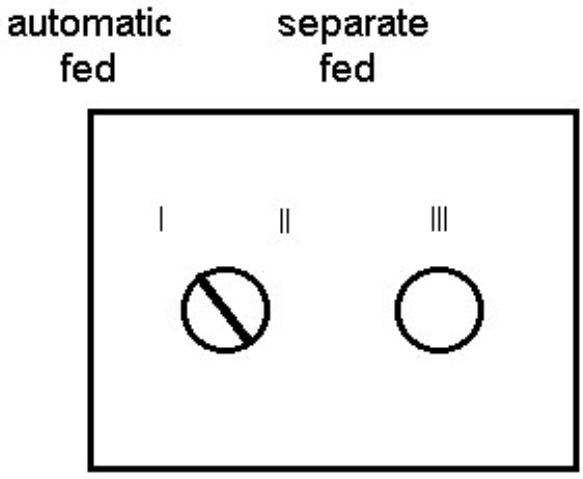
C.4.2. PA-91 +PP+PS view from the tray



C.4.3. PA-91 +PP+PS view from the filler

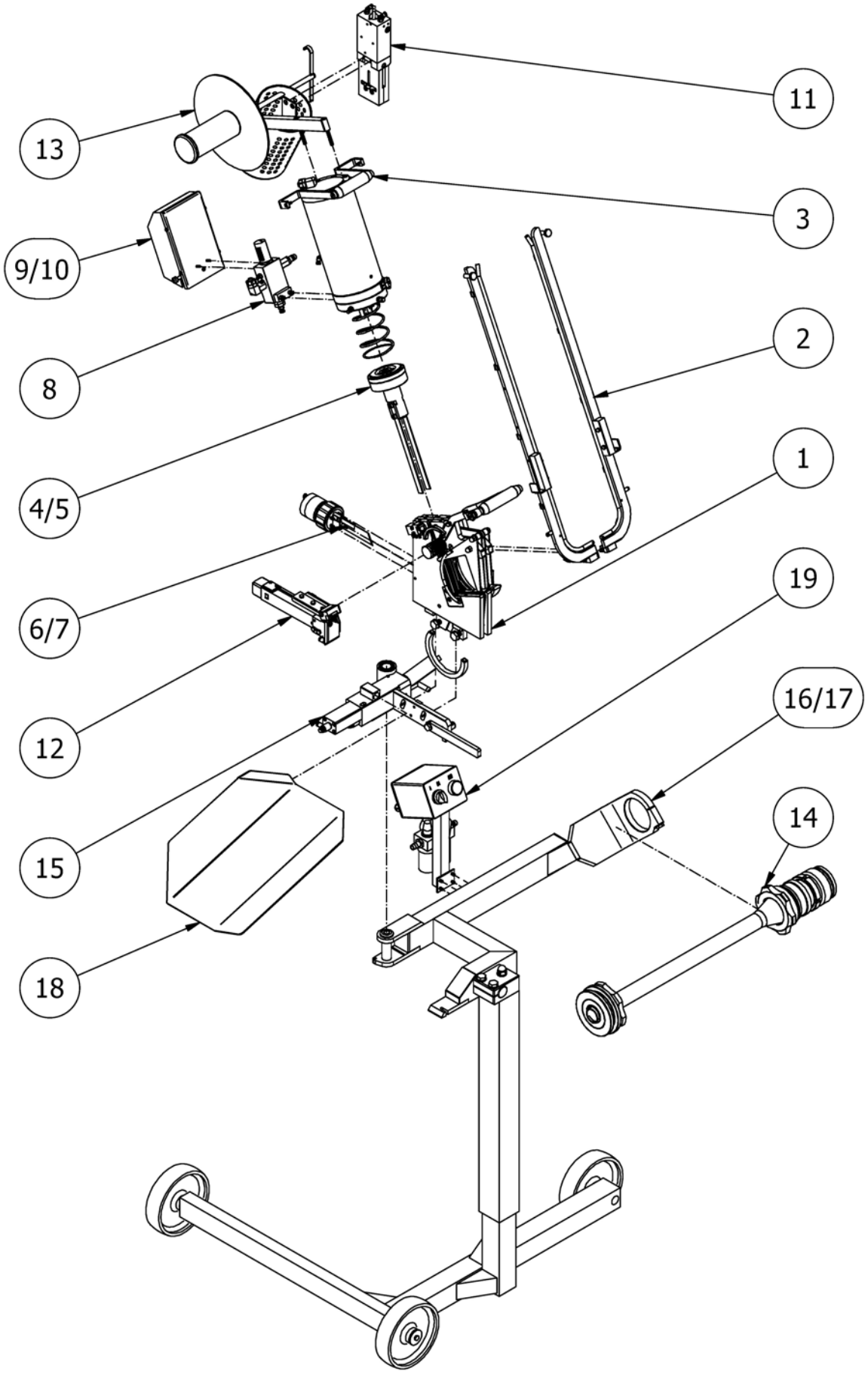
D. Electric diagram





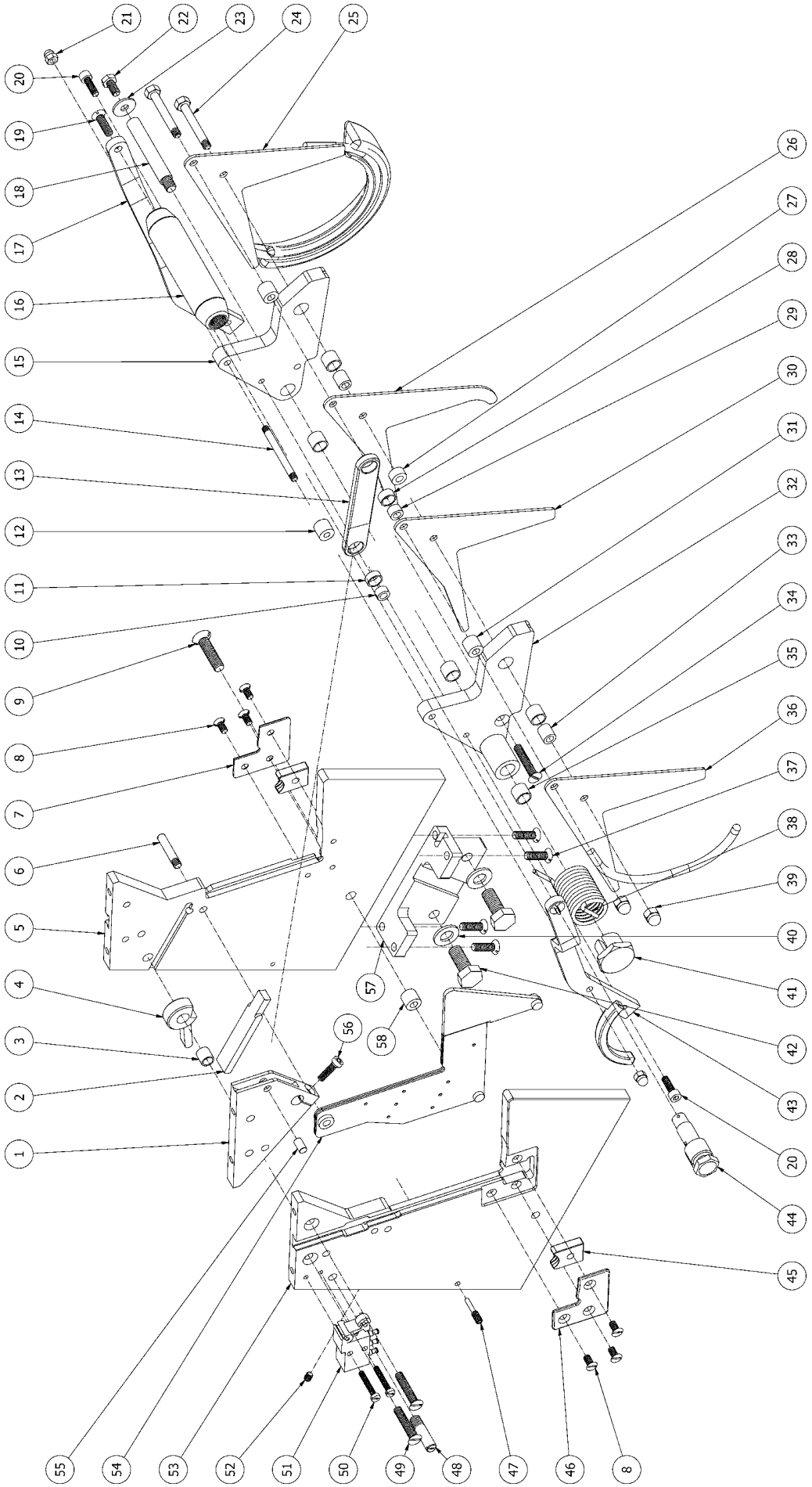
D.1.1. Electric diagram PA-91

E. Assembly drawings



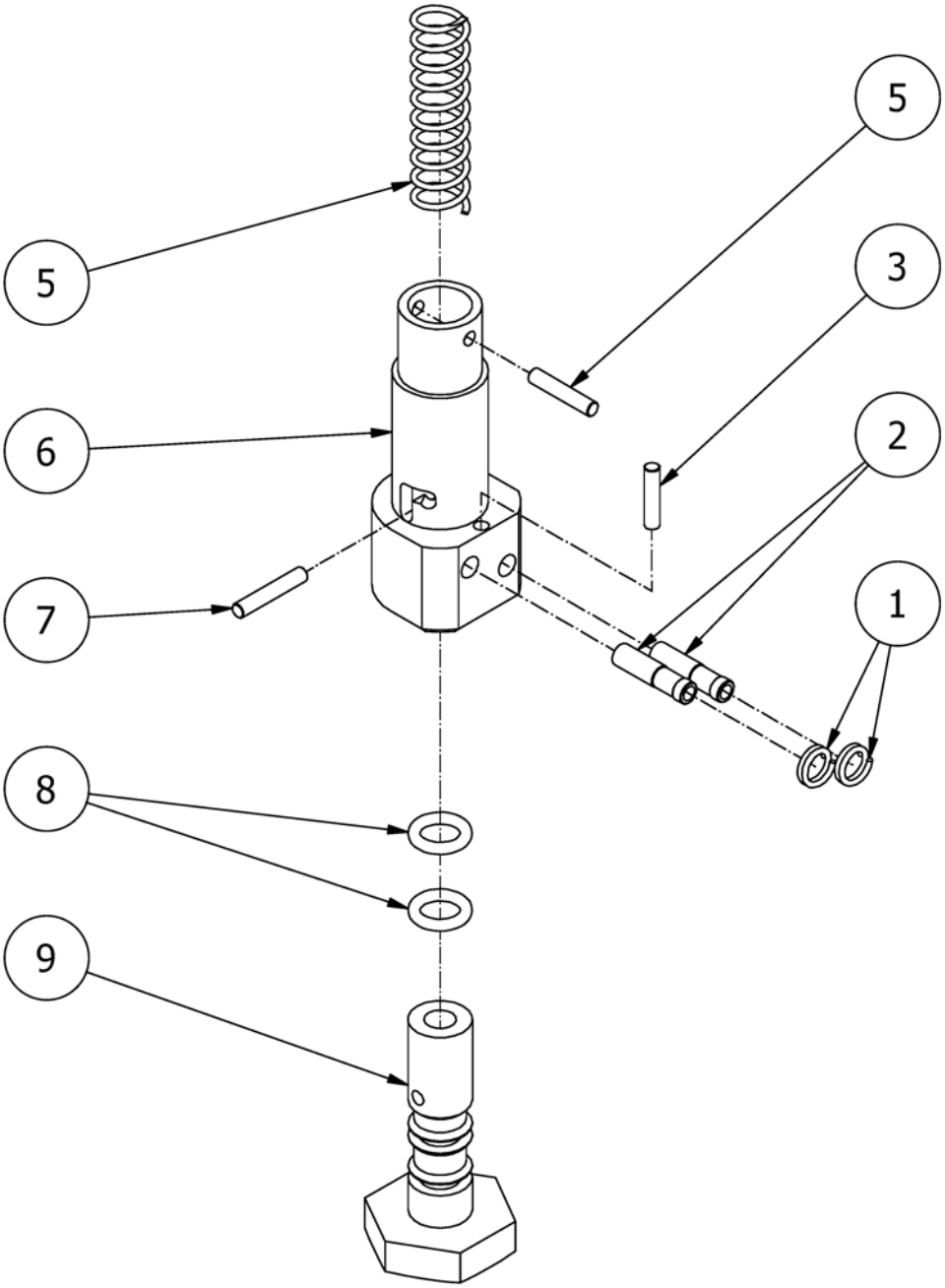
E.00. Assembly drawing - assemblies

ASSEMBLY LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	KO1 - PA	MAIN BODY PA
2	1	PK1	CLIPS FEEDERS
3	1	CG1	MAIN CYLINDER
4	1	TG0020010	MAIN PISTON PW/PA
5	1	TG0020020	MAIN PISTON PROTEIN VERSION
6	1	ZN1	KNIFE SET
7	1	ZN2	NET KNIFE STE
8	1	PN0002001	MAIN VALVE PA BASE
9	1	PN0002102	MAIN VALVE PA
10	1	PN0002103	MAIN VALVE PA+PP
11	1	PS8000020	AUTOMATIC STRING FEEDER
12	1	PP0520020	LOOP FEEDER
13	1	CG2	WSPORNIK
14	1	LE0003420	FUNNEL SET 34
15	1	HA1	BRAKE SET
16	1	WU1000000	TROLLEY PA - STANDARD
17	1	WU1200000	TROLLEY PA/AK - WIDE
18	1	TA1700020	LEFT TRAY PA
19	1	EK3500020	CONTROLL BOX PA SET



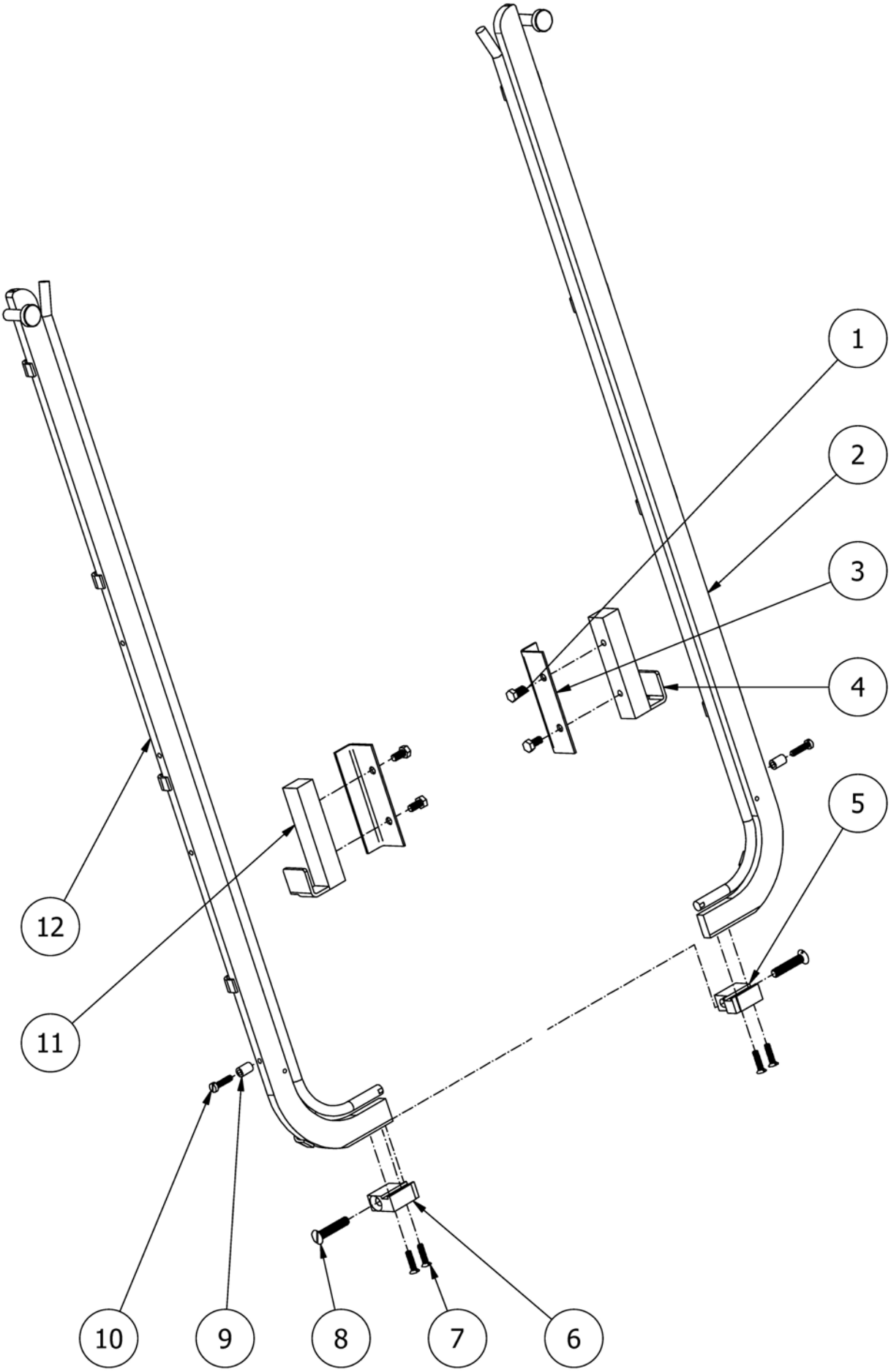
E.01. KO1 - PA 91 - Main body

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	KO1350010	CLIPPER BODY MIDDLE PLATE
2	1	KO1130010	MAIN VALVE PUSHER
3	1	LO0081010	BEARING BUSH PAP 8 x 10 x 10
4	1	KO1340010	MAIN VALVE LEVER
5	1	KO1020020	RIGHT MAIN PLATE PA
6	1	KO1370010	CLIP DISTANCE CONTROLLER AXLE
7	1	KO1200010	MATRIX COVER RIGHT PW/PA
8	6	SN9630510	SCREW M5x10 DIN 963
9	1	SN9630832	SCREW M8x32.5 DIN 963
10	1	KO1220010	AXLE 4 SLEEVE
11	1	L00101205	BEARING BUSH PAP 10 x 12 x 5
12	1	KO1250010	HANDLE DISTANCE SLEEVE
13	1	KO1150010	MIDDLE PLATES TIE PW/PA
14	1	KO1330010	HANDLE BOLT
15	1	KO1040010	RIGHT JAW
16	1	KO1120010	HANDLE PW/PA
17	1	KO1110010	HANDLE BRACKET RIGHT
18	1	KO1280010	AXLE 1 PW/PA
19	1	KO1450010	VANTILATION SCREW
20	2	SN9120516	BOLT M5x16 DIN 912
21	2	NN1587050	M5 DOMED NUT DIN 1587
22	1	SN9330612	BOLT M6x12 DIN 933
23	1	NN9021060	M6 ENLARGED WASHER DIN 9021
24	2	KO1160010	AXLE 2 AND 3 PW/PA weld
25	1	KO1070020	PLATE RIGHT PA SET
26	1	KO1090010	RIGHT MIDDLE PLATE PW/PA
27	1	KO1270010	AXLE 2 DISTANCE SLEEVE
28	1	LO0101206	BEARING BUSH PAP 10 x 12 x 6
29	1	KO1240010	AXLE 3 SLEEVE
30	1	KO1080010	RIGHT MIDDLE PLATE PW/PA
31	2	KO1260010	AXLE 3 DISTANCE SLEEVE
32	1	KO1030010	JAW LEFT SET
33	2	KO1230010	AXLE 2 SLEEVE
35	5	LO0101210	BEARING BUSH PAP 10 x 12 x 10
36	1	KO1060020	PLATE LEFT PA
37	4	SN9630620	SCREW M6x20 DIN 963
38	1	SP2230139	JAWS RETURN SPRING
39	2	NN1587060	M6 DOMED NUT DIN 1587
40	2	NN0125100	M10 WASHER DIN 125
41	1	KO1300010	SPRING NUT
42	2	SN9331025	BOLT M10x125 DIN 933
43	1	KO1100020	HANDLE BRACKET LEFT PA
44	1	PN0060010	KNIFE VALVE SET
45	2	KO1180010	MATRIX PW/PA
46	1	KO1190010	MATRIX COVER LEFT PW/PA
47	1	ZN9080010	KNIFE LOCK
48	1	KO1360010	VALVE LEVER AXLE PW/PA
49	3	SN9630632	SCREW M6x32.5 DIN 963
50	2	SN0840425	SCREW M4x25 DIN 084
51	1	PC7075520	MECHANICAL VALVE R O-3-PK-3
52	1	ZA0051010	PLUG M5 x 10
53	1	KO1010020	LEFT MAIN PLATE PA
54	1	KO1500010	CLIP DISTANCE CONTROLLER
55	1	KO9351110	PIN FI6 x 10,5
56	1	KO1350516	BLOCKING SCREW M5x16
57	1	KO1210020	CLIPPER BASE PA
58	1	KO1390010	PLATES DISTANCE SLEEVE



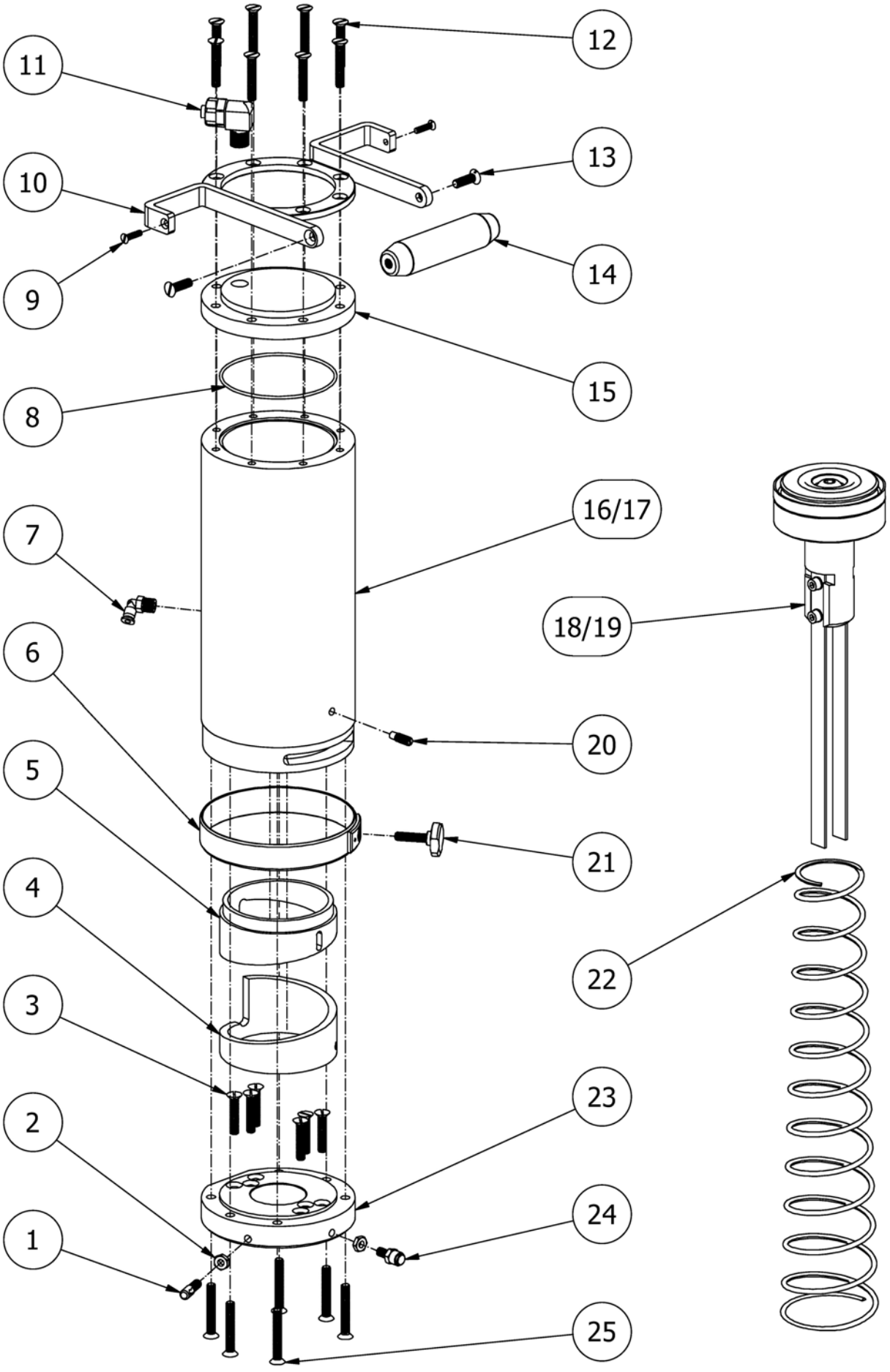
E.01.1. PN0060010 - Knife valve

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	2	SP0407302	PNEUMATIC WIRE 4 SPRING
2	2	PN0060310	CONNECTOR
3	1	PN0060610	POSITIONING PIN
4	1	PN0060510	SPRING LOCK PIN
5	1	SP0608230	KNIFE VALVE SPRING
6	1	PN0060110	KNIFE VALVE BODY
7	1	PN0060410	BUTTON LOCK PIN
8	2	OR0051500	O-RING 5 x 1,5
9	1	PN0060210	KNIFE VALVE BUTTON



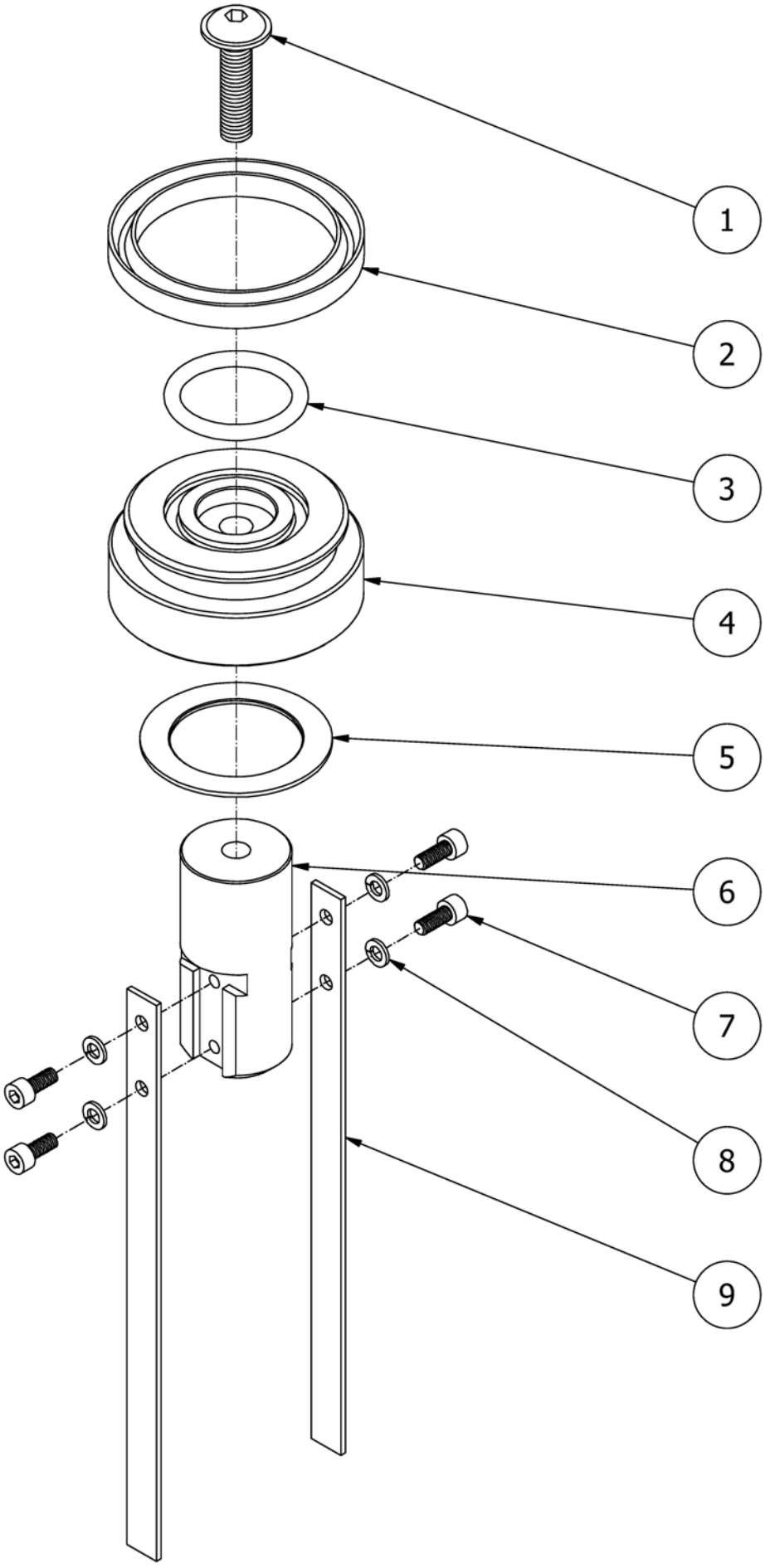
E.02. PK1 - Clips feeder

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	4	SN9330510	BOLT M5x10 DIN 933
2	1	PK5020020	RIGHT CLIP FEEDER
3	2	PK5100020	WEIGHT GUIDE
4	1	PK5092020	RIGHT WEIGHT
5	1	PK5040020	RIGHT CLIP FEEDER BASE
6	1	PK5030020	LEFT CLIP FEEDER BASE
7	4	SN9630416	SCREW M4x16 DIN 963
8	2	SN9630630	SCREW M6x30 DIN 963
9	2	PK5120020	SUPPORT SLEEVE
10	2	SN0840416	SCREW M4x16 DIN 084
11	1	PK0013110	LEFT WEIGHT
12	1	PK5010020	LEFT CLIP FEEDER



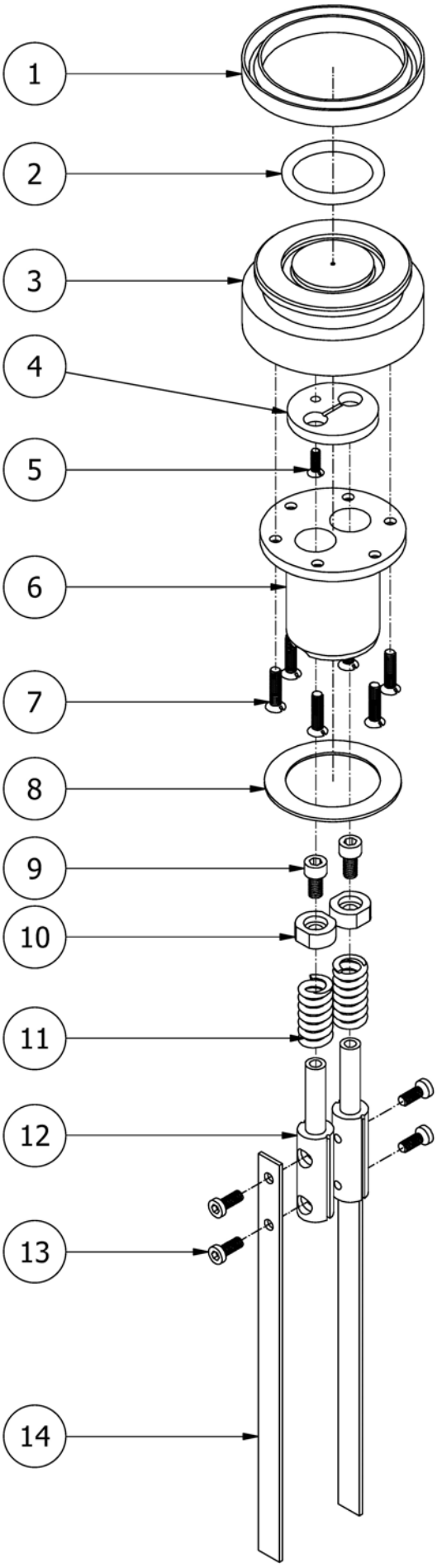
E.03. CG1 - Main cylinder

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	CG1170010	DOUBLE PNEUMATIC CONDUIT BRAKET
2	2	NN0439060	M6 NUT DIN 439
3	6	SN9630630	SCREW M6x30 DIN 963
4	1	CG2030010	CLIP CLOSURE SIZE CONTROL BOTTOM PART
5	1	CG2040010	CLIP CLOSURE SIZE CONTROL UPPER PART
6	1	CG2170010	CLIP CLOSURE SIZE CONTROL COVER PW/PA
7	1	PC1108040	PUSH-IN FITTING G1/8" FI4
8	1	OR0802000	O-RING 80 x 2
9	2	SN9630416	SCREW M4x16 DIN 963
10	1	CG1450010	CLIP FEEDER BRACKET
11	1	PC0070510	PREMA CONNECTOR G1/4
12	8	SN9630635	SCREW M6x35 DIN 963
13	2	SN9630620	SCREW M6x20 DIN 963
14	1	CG1140010	CLIPPING MACHINE HANDLE PW/PA
15	1	CG2140010	CYLINDER LID
17	1	CG2010110	MAIN CYLINDER PW/PA INOX
16	1	CG2010010	MAIN CYLINDER PW/PA
18	1	TG0020010	MAIN PISTON PW/PA
19	1	TG0020020	MAIN PISTON PW/PA VERSION B
20	1	CG4100010	CLIP CLOSURE SIZE CONTROL LIMIT SCREW PW/PA
21	1	CG2060010	CLIP CLOSURE SIZE CONTROL HANDLE
22	1	SP4140934	PISTON SPRING
23	1	CG2020010	CYLINDER BASIS PW/PA
24	1	CG2180010	MOVABLE JAW BUMPER
25	6	SN9910640	BOLT M6x40 DIN 991



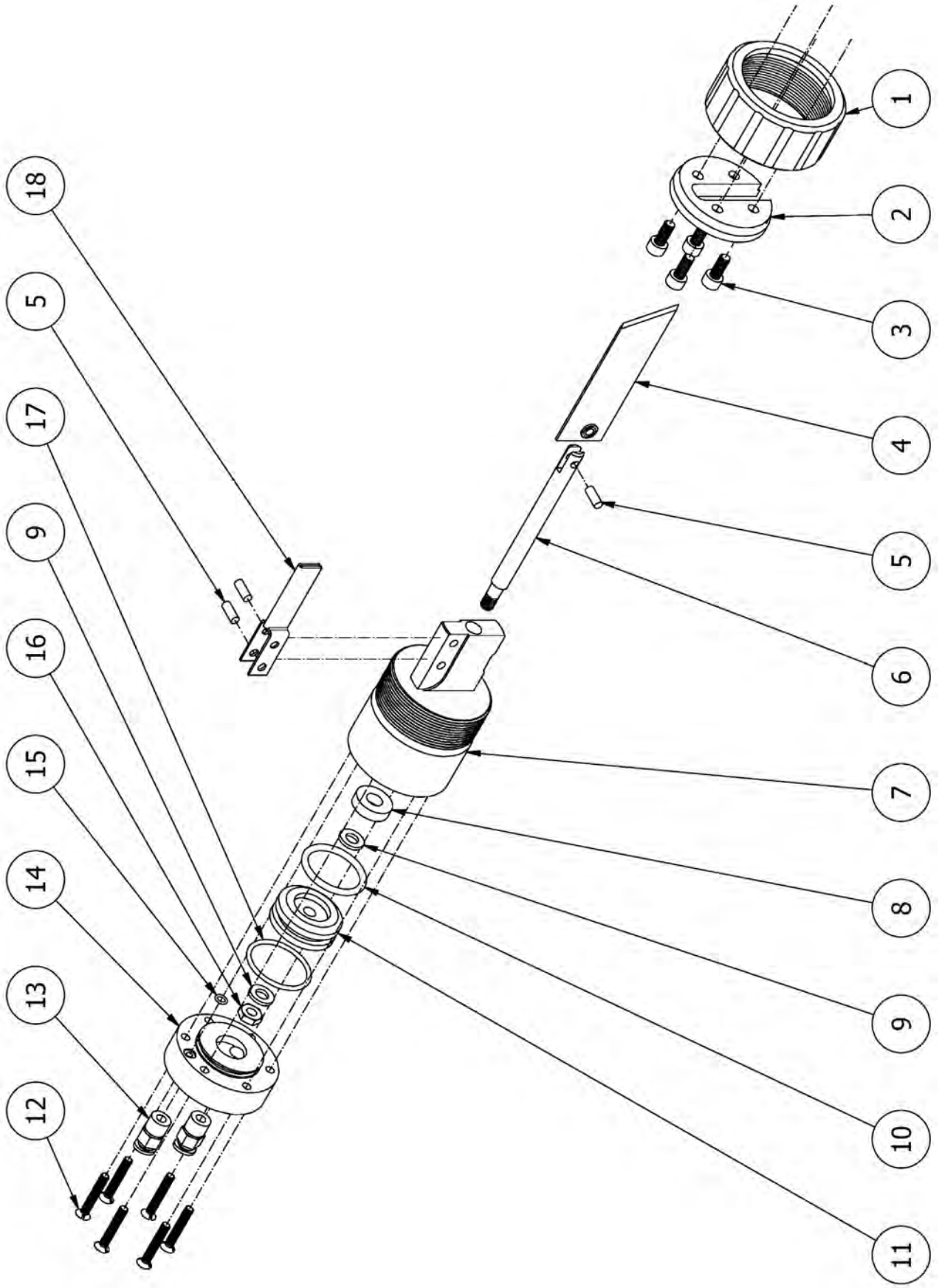
E.04. TG0020010 - Main piston PW and PA

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	SN7381040	BOLT M10x40 DIN 738
2	1	UR0638585	U-RING 63 x 8,5 x 8,5
3	1	OR0355000	O-RING 35 x 5
4	1	TG2080110	PISTON PW/PA
5	1	LO1426015	BEARING 42 x 60 x 1,5
6	1	TG2070010	PISTON STEM
7	4	SN9120512	BOLT M5x12 DIN 912
8	4	NN0127050	M5 SPRING WASHER DIN 127 B
9	1 set	TG3100010	STAMP PW/PA



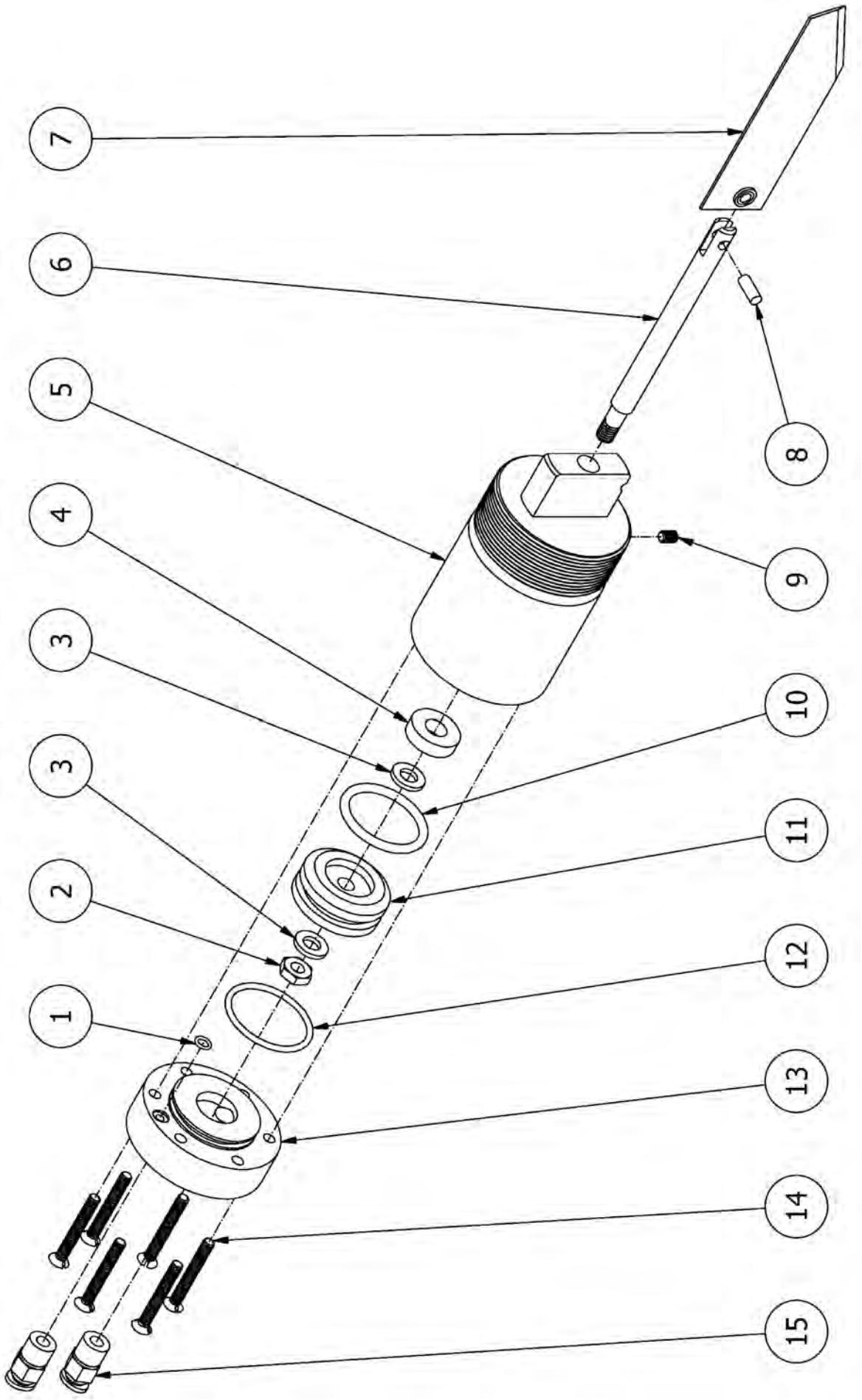
E.05. TG0020020 - Main piston "protein" version PW and PA

PART LIST			
ELEMENT	QTY	NR CZĘŚCI	PART NAME
1	1	UR0638585	U-RING 63 x 8,5 x 8,5
2	1	OR0355000	O-RING 35 x 5
3	1	TG2080020	PROTEIN PISTON
4	1	TG2520020	PAD
5	1	SN9630412	SCREW M4x12 DIN 963
6	1	TG2540020	PROTEIN PISTON STEM
7	6	SN9630520	SCREW M5 X 20 DIN 963
8	1	LO1426015	BEARING 42 x 60 x 1,5
9	2	SN9120612	BOLT M6x12 DIN 912
10	2	TG2530020	SLEEVE
11	2	SP0930229	STAMP SPRING
12	2	TG2570020	STAMPS PIN
13	4	TG9120510	STAMPS BOLT
14	1 set	TG3100010	STAMP PW/PA



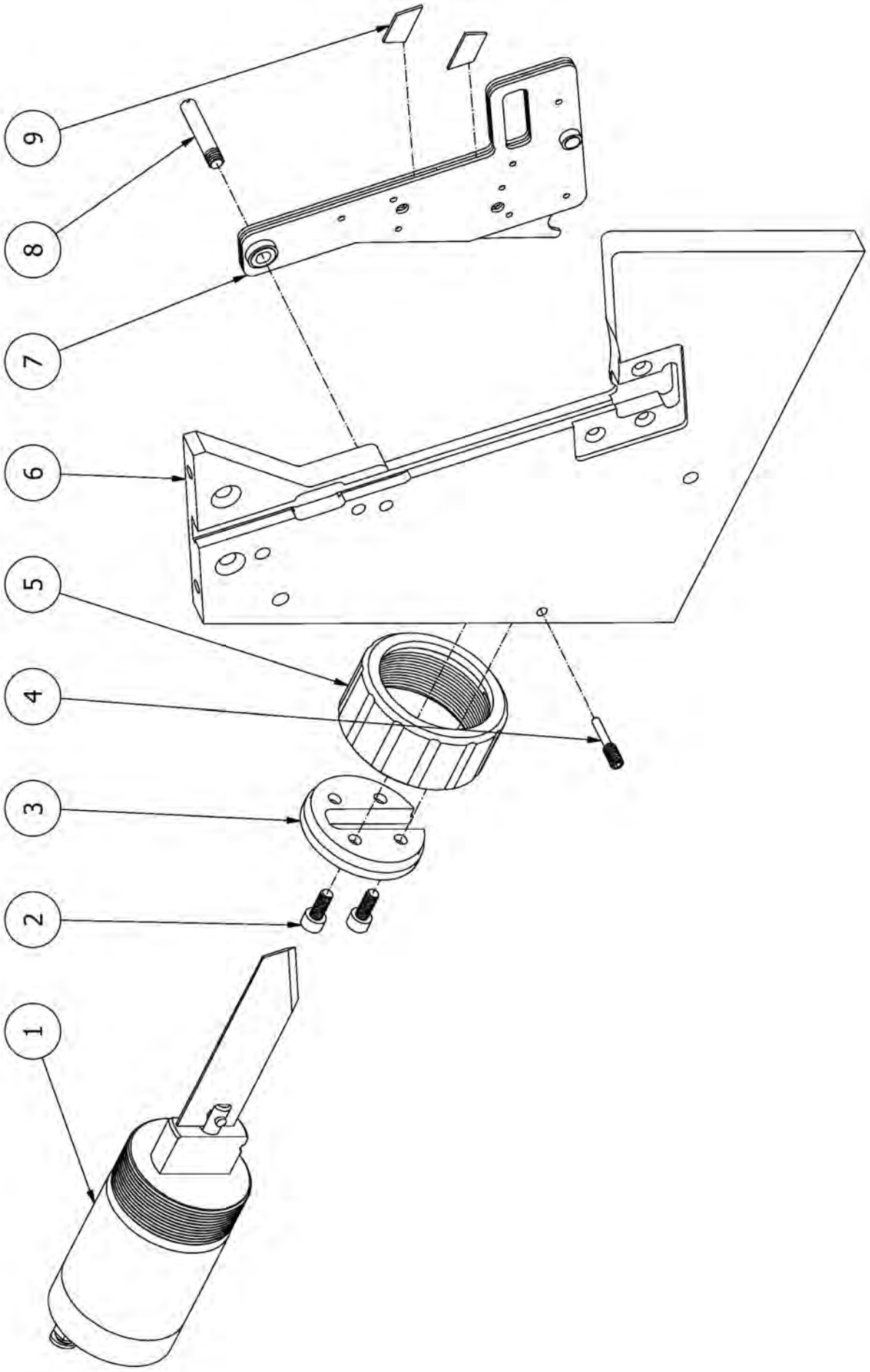
E.06. ZN1 - Knife assembly

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	ZN4020010	KNIFE CYLINDER NUT
2	1	ZN4030010	KNIFE CYLINDER BRACKET
3	4	SN9120512	BOLT M5x12 DIN 912
4	1	ZN4060010	KNIFE
6	1	ZN4070010	KNIFE PISTON ROD
5	3	ZN9311010	KNIFE DOWEL FI 4 x 10,3
7	1	ZN4010010	KNIFE CYLINDER BODY
8	1	UR0085050	U-RING 8 x 5 x 5
9	2	NN0125060	M6 WASHER DIN 125
10	1	OR0263000	O-RING 26,2 x 3
11	1	ZN4051010	KNIFE PISTON
12	6	SN9630425	SCREW M4x25 DIN 963
13	2	PC0108040	PUSH-IN FITTING STRAIGHT G1/8 FI4
14	1	ZN4040010	KNIFE CYLINDER BOTTOM
15	1	OR0041000	O-RING 4 x 1
16	1	NN0439060	M6 NUT DIN 439
17	1	OR0282000	O-RING 28 x 2
18	1	ZN4080010	KNIFEPUSHER



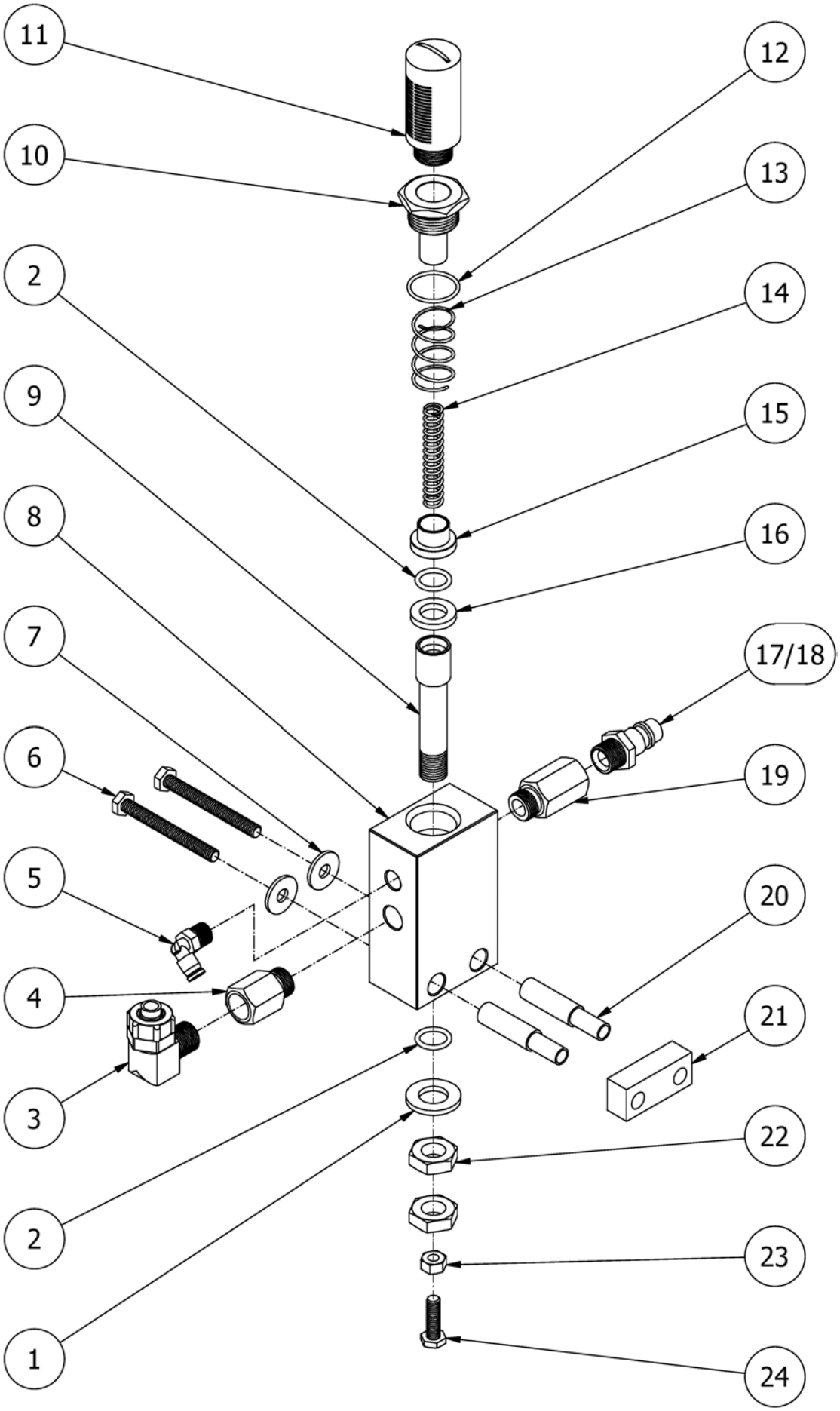
E.07. ZN2 - Net knife assembly

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	OR0041000	O-RING 4 x 1
2	1	NN0439060	M6 NUT DIN 439
3	2	NN0125060	M6 WASHER DIN 125
4	1	UR0085050	U-RING 8 x 5 x 5
5	1	ZN4010210	NET KNIFE CYLINDER
6	1	ZN4070010	KNIFE PISTON ROD
7	1	ZN4062010	NET KNIFE
8	1	ZN9311010	KNIFE DOWEL FI 4 x 10,3
9	1	ZA0040606	PLUG M4 x 6
10	1	OR0263000	O-RING 26,2 x 3
11	1	ZN4051010	KNIFE PISTON
12	1	OR0282000	O-RING 28 x 2
13	1	ZN4040010	KNIFE CYLINDER BOTTOM
14	6	SN9630430	SCREW M4x30 DIN 963
15	2	PC0108040	PUSH-IN FITTING STRAIGHT G1/8 FI4



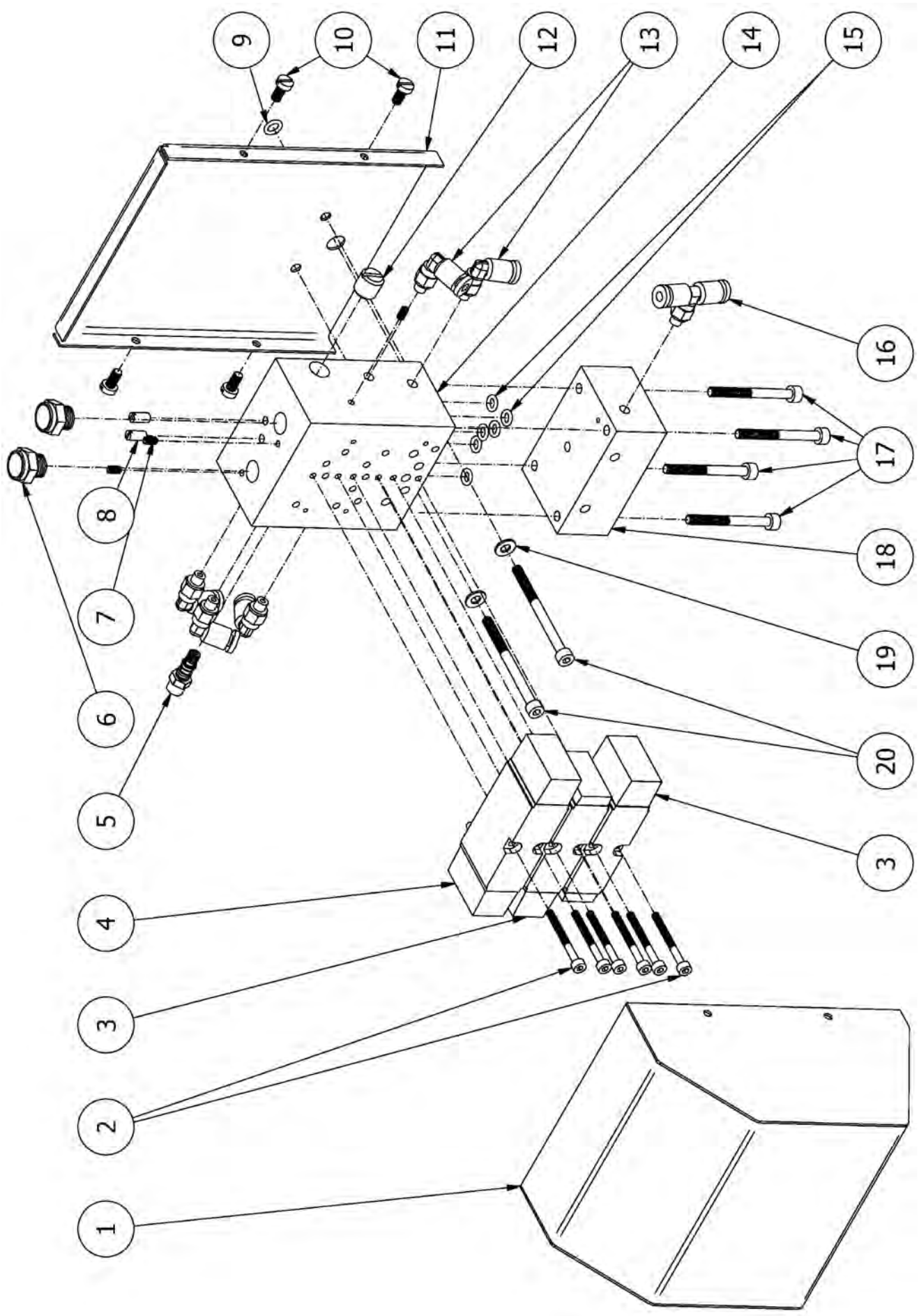
E.07.1. ZN3 Net knife mounting

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	ZN0040011	NET KNIFE SET
2	2	SN9120512	BOLT M5x12 DIN 912
3	1	ZN4030010	KNIFE CYLINDER BRACKET
4	1	ZN9080010	KNIFE LOCK
5	1	ZN4020010	KNIFE CYLINDER NUT
6	1	KO1010010	LEFT MAIN PLATE PW
7	1	KO1530010	NET CLIPS DISTANCE CONTROLLER
8	1	KO1370010	CLIP DISTANCE CONTROLLER AXLE
9	2	KO1530019	SLIDING BADGE



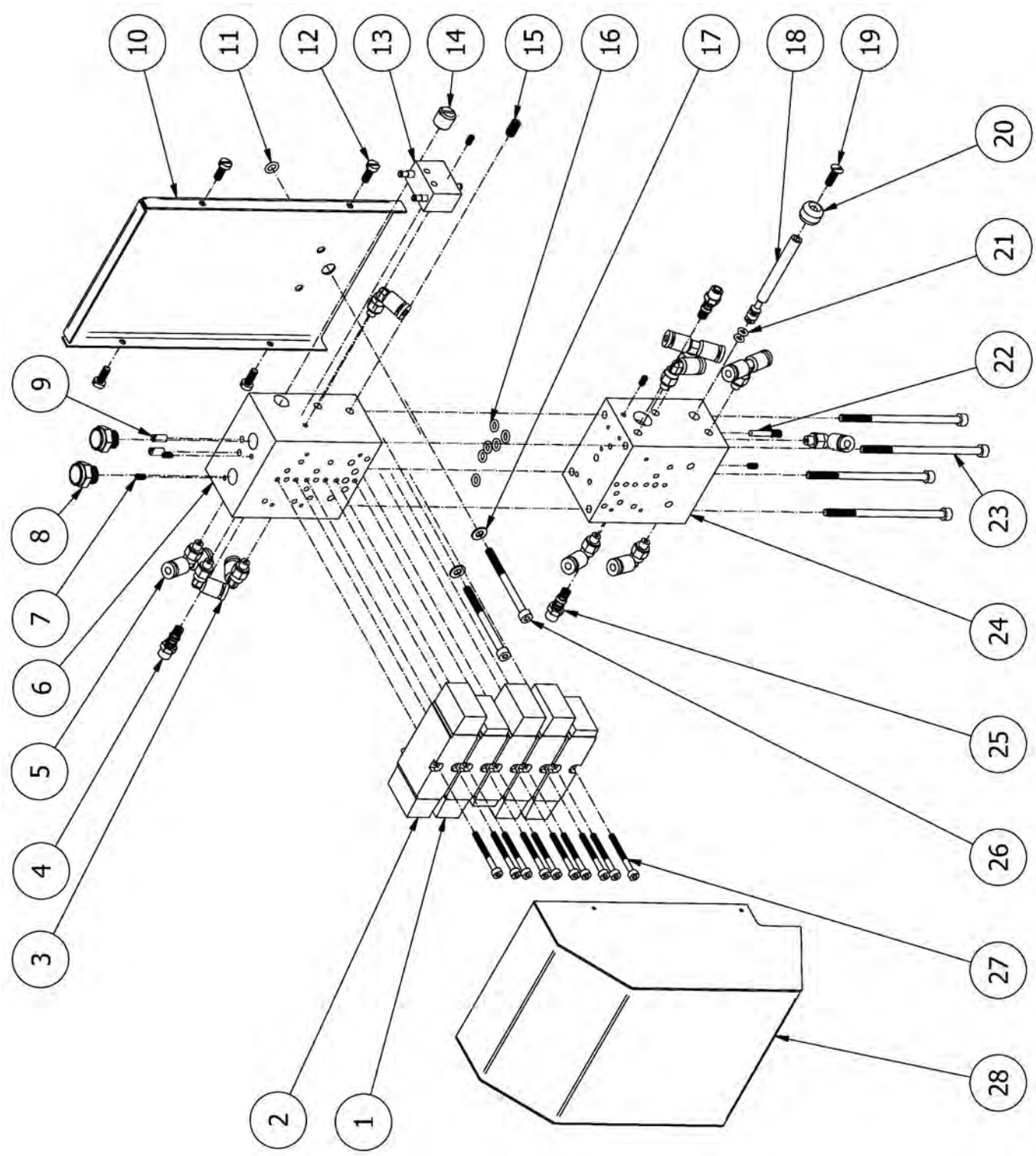
E.08. PN0002001 - Main valve - base

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	NA0125120	M12 WASHER DIN 125
2	2	OR0122000	O-RING 12 x 2
3	1	PC1104120	PREMA CONNECTOR G1_4 FI12
4	1	PC2104104	EXTENSION G1/4" 28
5	1	PC1108040	PUSH-IN FITTING G1/8" FI4
6	2	SN9330655	BOLT M6x55 DIN 933
7	2	NN9021060	M6 ENLARGED WASHER DIN 9021
8	1	PN0301210	MAIN VALVE BODY PA
9	1	PN0302010	MAIN VALVE PISTON ROD
10	1	PN0305010	VALVE BOTTOM
11	1	PC9308100	MUFFLER LONG G3/8"
12	1	OR0201500	O-RING 20 x 1,5
13	1	SP1712233	VALVE SPRING THICK
14	1	SP0612250	VALVE SPRING THIN
15	1	PN0307010	GASKET HOLDFAST
16	1	PN0308010	MAIN VALVE GASKET - EL. 3
17	1	PC8104080	QUICK COUPLING G1/4" FI8
18	1	PC8104081	COUPLING G1/4" FI8
19	1	PC2104124	EXTENSION G1/4" 35
20	2	PN0311010	MOUNTING SLEEVE
21	1	PN0309010	MOUNTING BLOCK
22	2	NN0439120	M12 NUT DIN 439
23	1	NN0934060	M6 NUT DIN 934
24	1	PN0312010	REGULATION BOLT



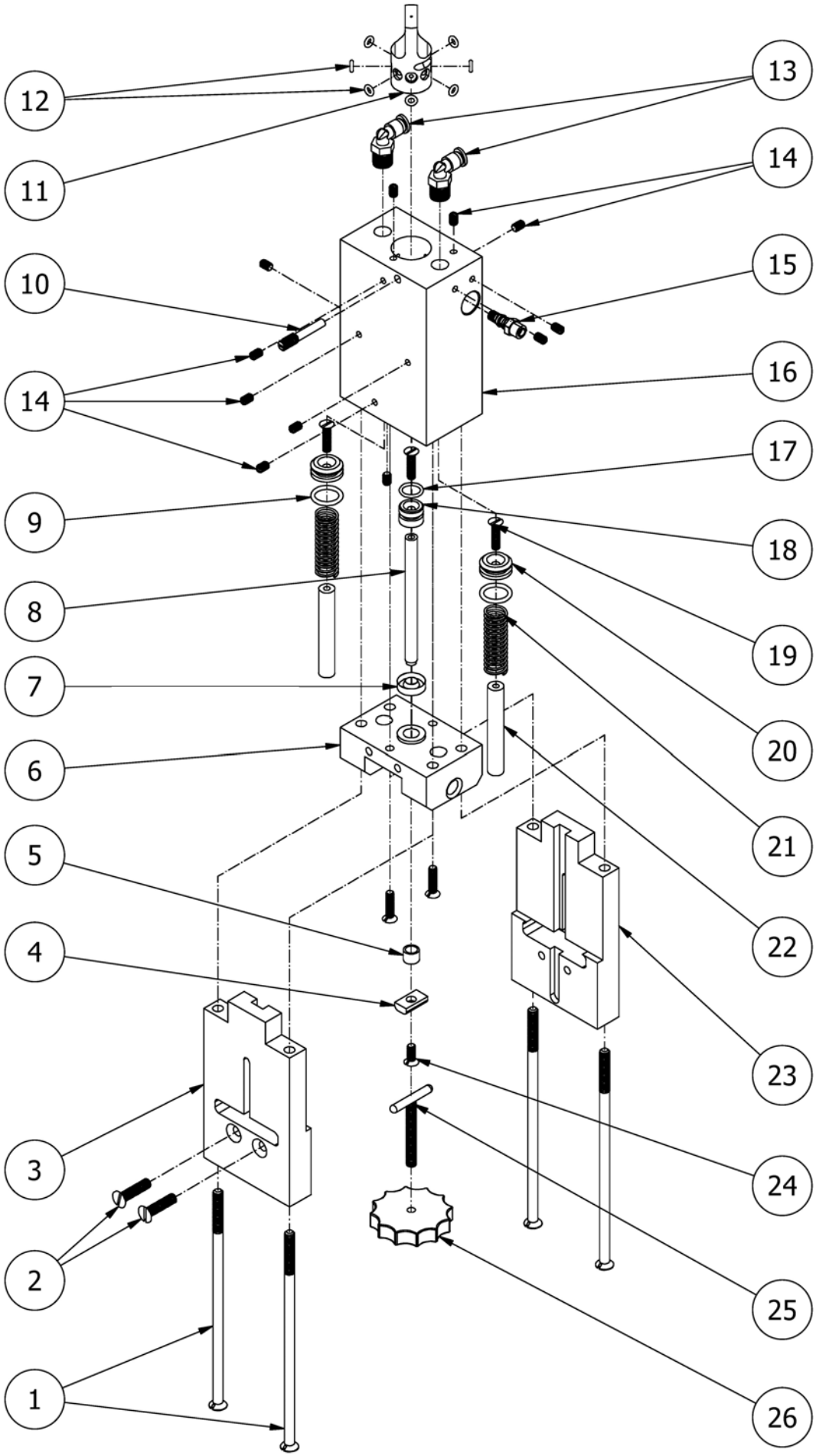
E.09. PN0002102 - Main valve PA

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	OS1908020	SMALL CASING COVER
2	6	SN9120330	BOLT M3x30 DIN 912
3	2	PC7310220	PNS VALVE
4	1	PC7310120	PNB VALVE
5	1	PC7050002	SCU VALVE
6	2	PC9108000	NET MUFFLER G1/8"
7	3	ZA0030606	PLUG M3 x 6
8	2	ZA0040808	PLUG M4 x 8
9	1	OR0051500	O-RING 5 x 1,5
10	4	SN0840410	SCREW M4x10 DIN 084
11	1	OS1909020	SMALL CASING BASE
12	1	ZA0101010	PLUG M10 x 10
13	5	PC1050040	PUSH-IN FITTING M5 FI4
14	1	PN0180120	PNEUMATIC BLOCK PA
15	6	OR0041500	O-RING 4 x 1,5
16	1	PC8050040	CENTRAL TEE M5 FI4
17	4	SN9120440	BOLT M4x40 DIN 912
18	1	PN0180220	PA PNEUMATIC BLOCK BASE
19	2	NN0125040	M4 WASHER DIN 125
20	2	SN9120450	BOLT M4x50 DIN 912



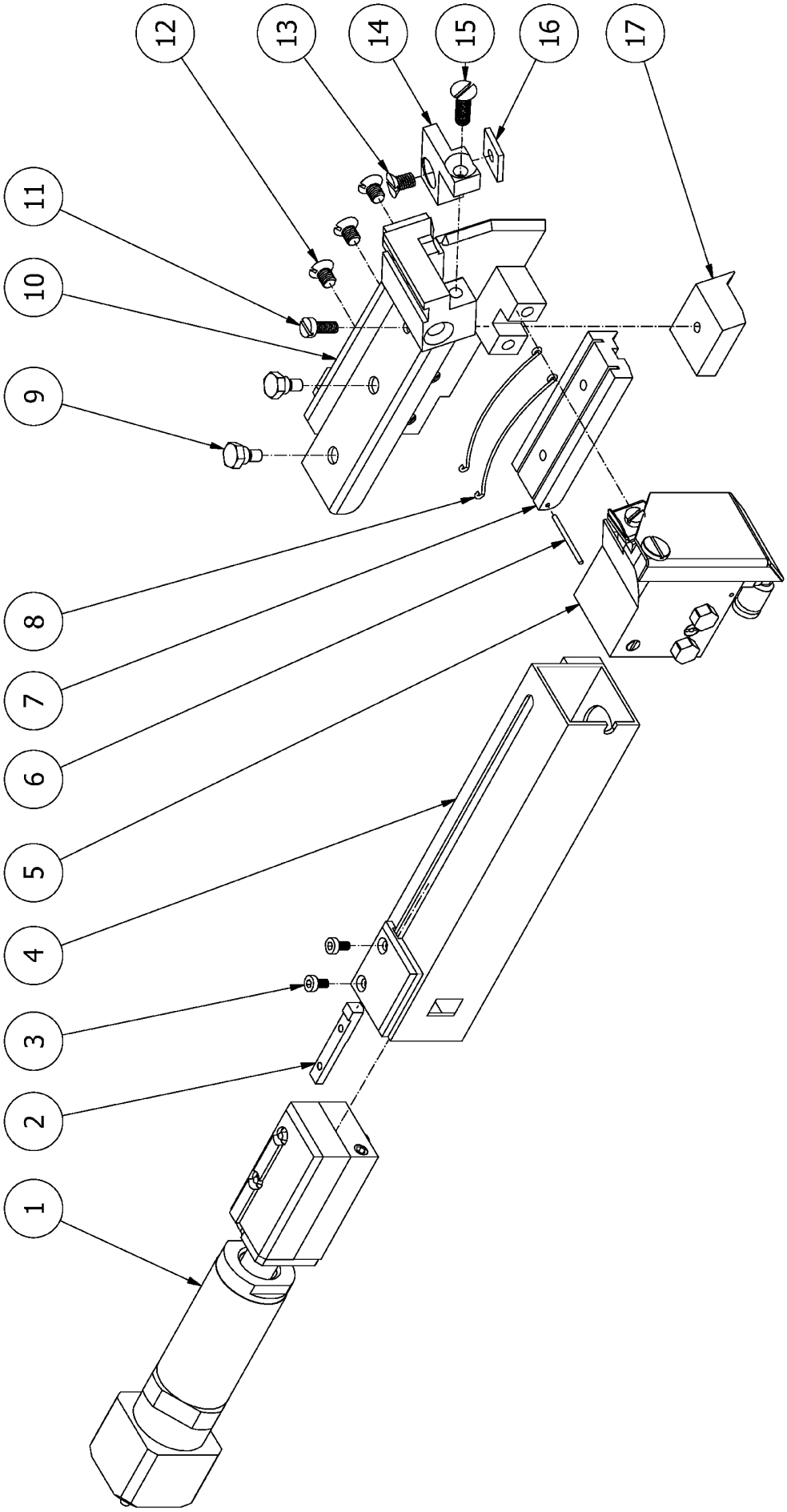
E.10. PN0002103 - Main valve PA+PP

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	3	PC7310220	PNS VALVE
2	2	PC7310120	PNB VALVE
3	7	PC1050040	PUSH-IN FITTING M5 FI4
4	2	PC7050002	SCU VALVE
5	3	PC8050040	CENTRAL TEE M5 FI4
6	1	PN0180120	PNEUMATIC BLOCK PA
7	5	ZA0030606	PLUG M3 x 6
8	2	PC9108000	NET MUFFLER G1/8"
9	2	ZA0040808	PLUG M4 x 8
10	1	OS1906020	LARGE CASING BASE
11	1	OR0051500	O-RING 5 x 1,5
12	4	SN0840410	SREW M4x10 DIN 084
13	1	PC7075720	ZK-PK-3 VALVE
14	1	ZA0101010	PLUG M10 x 10
15	1	ZA0051010	PLUG M5 x 10
16	6	OR0041500	O-RING 4 x 1,5
17	2	NN0125040	M4 WASHER DIN 125
18	1	PN0317020	ON/OFF PISTON ROD PA+PP
19	1	SN9630412	SCREW M4x12 DIN 963
20	1	PN0318020	ON/OFF PISTON ROD KNOB PP
21	2	OR0031500	O-RING 3 x 1,5
22	1	ZA0040620	VALVE PISTON BLOCKAGE
23	4	SN9120480	BOLT M4x80 DIN 912
24	1	PN0180320	PNEUMATIC BLOCK PP
25	1	PC7050001	SVU VALVE
26	2	SN9120450	BOLT M4x50 DIN 912
27	10	SN9120330	BOLT M3x30 DIN 912
28	1	OS1907020	LARGE CASING COVER



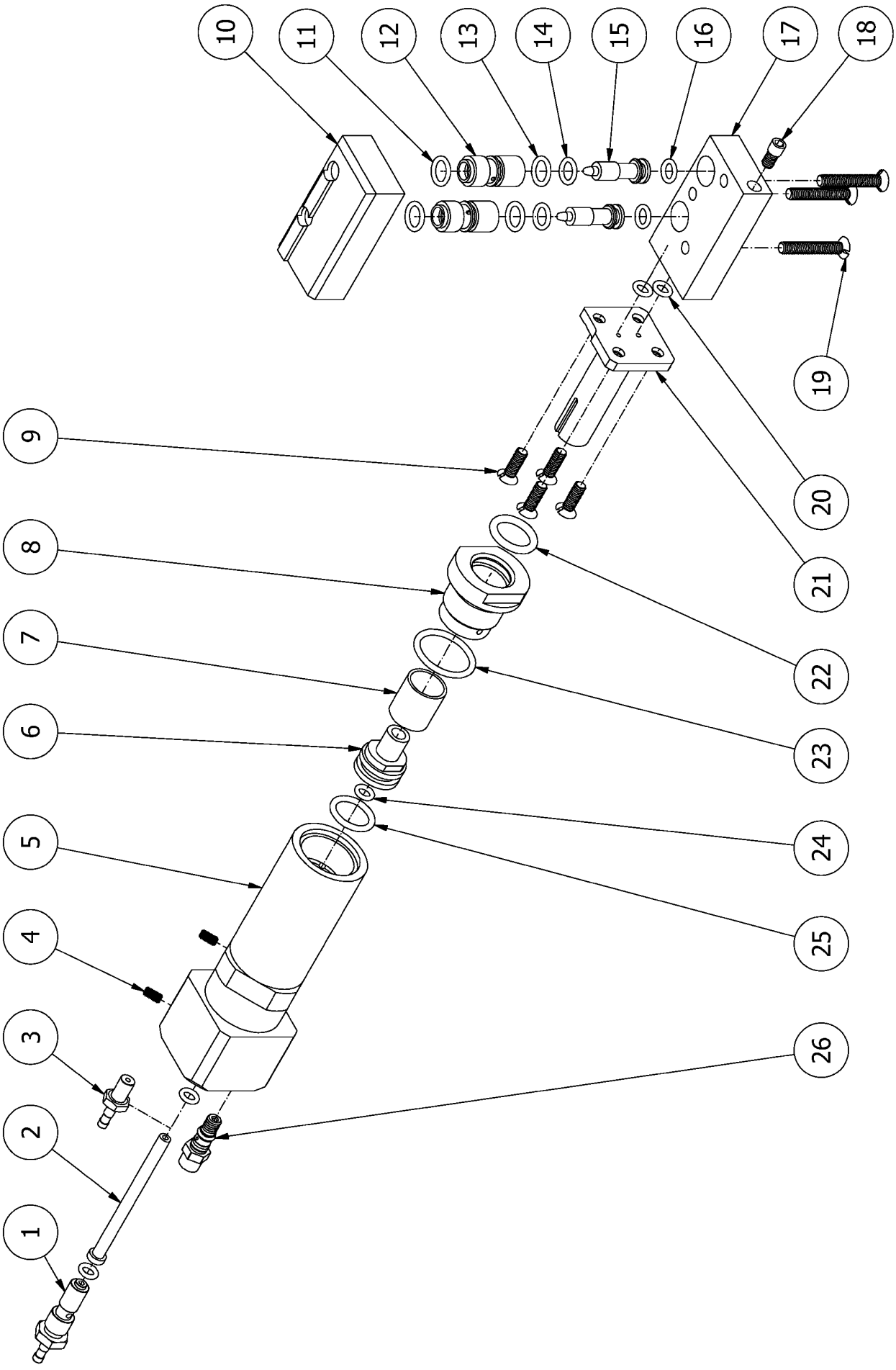
E.11. PS8000020 - String dispenser

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	4	PS8120020	BOLT M5 X 130
2	2	SN9630520	SCREW M5 X 20 DIN 963
3	1	PS8042020	LEADING BODY 2
4	1	PS8091020	STRING CARRIER
5	1	LO0060806	BEARING BUSH PAP 6 x 8 x 6
6	1	PS8010020	STRING FEEDER UNDERBODY
7	1	UR0064040	U-RING 6 x 4 x 4
8	1	PS8050020	PULLER PISTON ROD
9	2	OR0122000	O-RING 12 x 2
10	1	PS8170020	ROLL VALVE LOCK
11	1	PS8160020	ROLL VALVE
12	8	OR0031500	O-RING 3 x 1,5
13	2	PC1108040	PUSH-IN FITTING G1/8" FI4
14	11	ZA0040606	PLUG M4 x 6
15	1	PC7050001	SVU VALVE
16	1	PS8026020	STRING FEEDER BODY
17	1	OR0091500	O-RING 9 x 1,5
18	1	PS8060020	PULLER PISTON
19	5	SN9630416	SCREW M4x16 DIN 963
20	2	PS8080020	BLOCADE PISTON
21	2	PS0801201	STRING DISPENSER SPRING
22	2	PS8070020	BLOCADE PISTON ROD
23	1	PS8041020	LEADING BODY 1
24	1	SN9630410	SCREW M4x10 DIN 963
25	1	PS8110020	LENGTH CONTROL BOLT
26	1	PS8030020	LENGTH CONTROL KNOB



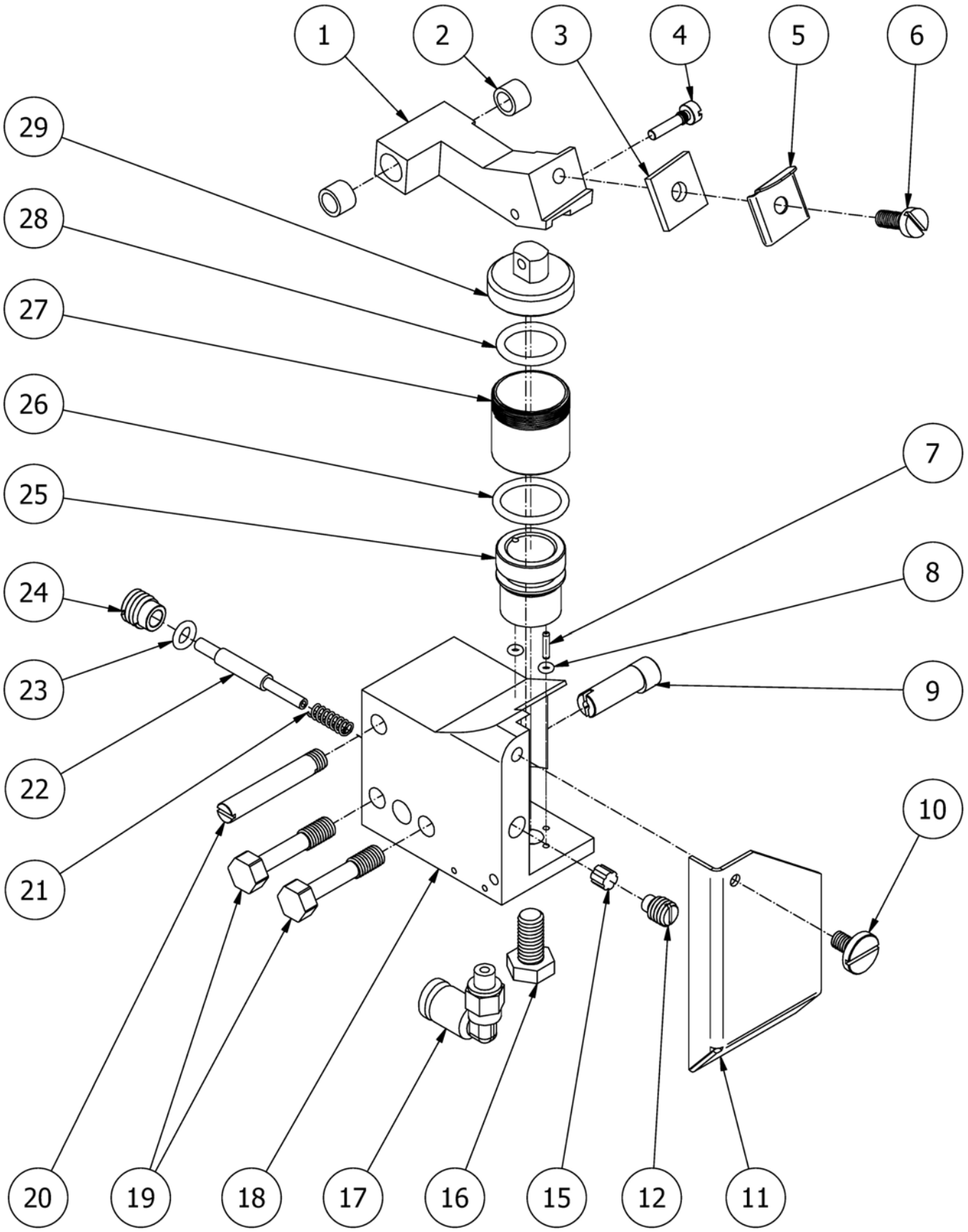
E.12. PP0520020 - Automatic loop feeder

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	PP0520021	PUSHER
2	1	PP0520120	PUSHER WEDGE
3	2	PP0511320	WEDGE BOLT
4	1	PP0520220	TAPE PUSHER CASING
5	1	PP0520022	BODY
6	1	PP0511220	HOLDFAST SPRING PIN
7	1	PP0510720	TAPE HOLDFAST
8	2	PP0511120	TAPE HOLDFAST SPRING
9	2	PP0510920	HOLDFAST BOLT
10	1	PP0510020	SUPPORT PLATE WELD.
11	1	SN0840410	SREW M4x10 DIN 084
12	3	SN9630507	SCREW M5x7 DIN 963
13	1	SN9630508	SCREW M5x08 DIN 963
14	1	PP0510420	UPPER LOOP KNIFE HOLDER
15	1	SN9630516	SCREW M5x16 DIN 963
16	1	PP0511020	LOOP KNIFE
17	1	PP0510820	TALE GUIDE
18	1	SN9120512	BOLT M5x12 DIN 912



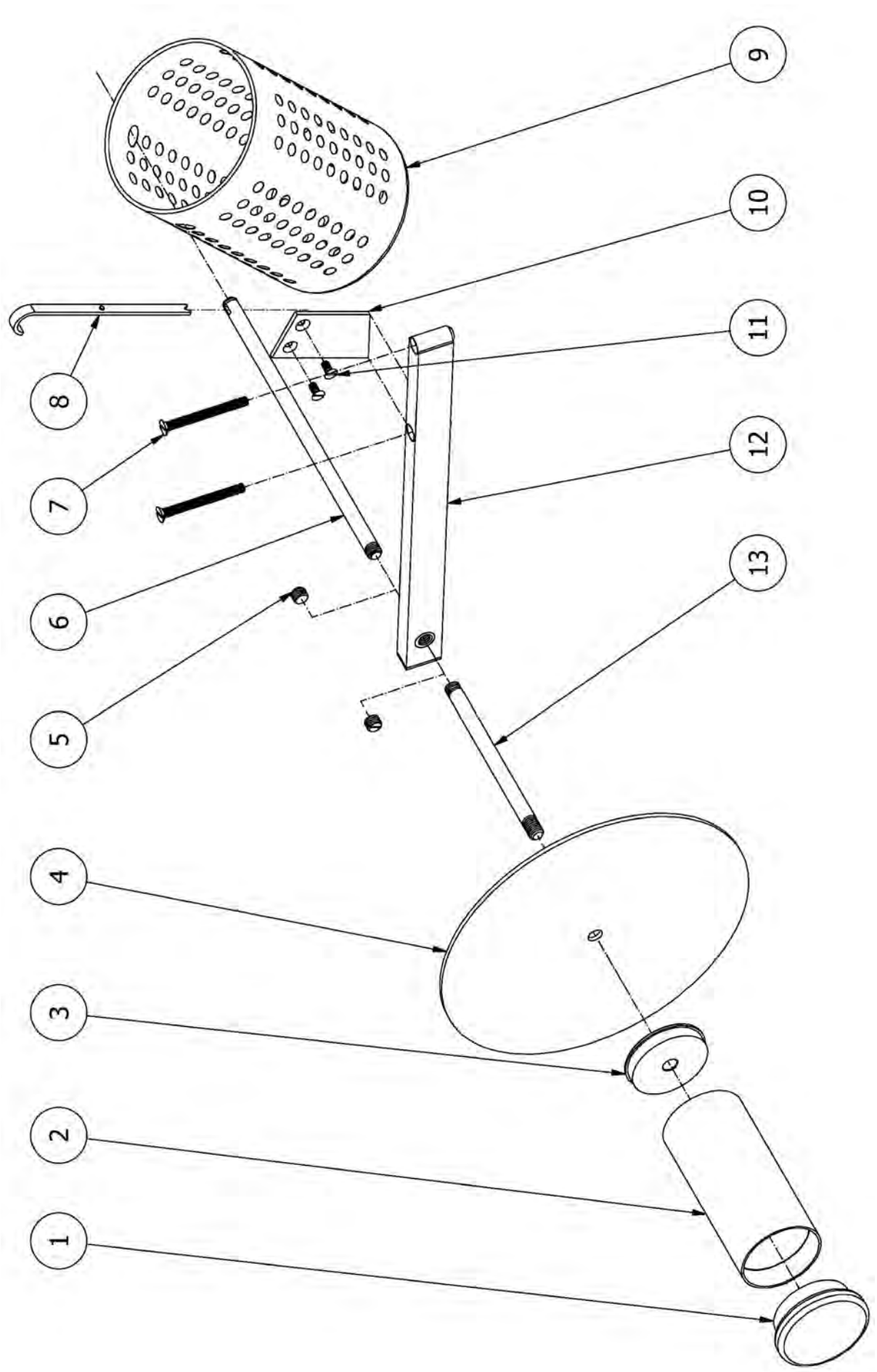
E.12.1. PP0520021 - Pusher

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	PP0525320	SPIGOT 2
2	1	PP0525420	PUSHER
3	1	PP0525220	SPIGOT 1
4	2	ZA0030606	PLUG M3 x 6
5	1	PP0525120	PUSHER CYLINDER
6	1	PP0525520	PUSHER PISTON
7	1	LO0121415	BEARING BUSH PAP 12 x 14 x 15
8	1	PP0525720	PUSHER HEAD
9	4	SN9630412	SCREW M4x12 DIN 963
10	1	PP0521120	TOP PUSHER CUBE
12	2	PP0521420	TAPE HOLDER COVER
13	4	OR0071500	O-RING 7 x 1,5
14	2	OR0061500	O-RING 6 x 1,5
15	2	PP0521320	TAPE HOLDER
16	2	OR0051500	O-RING 5 x 1,5
17	1	PP0521220	BOTTOM PUSHER CUBE
18	1	PP9120406	KNIFE START SCREW
19	3	SN9630425	SCREW M4x25 DIN 963
21	1	PP0525820	PUSHER PISTON ROD
22	1	OR0122500	O-RING 12 x 2,5
23	1	OR0182000	O-RING 18 x 2
24	5	OR0041500	O-RING 4 x 1,5
25	1	OR0122000	O-RING 12 x 2
26	1	PC7050003	THROTTLE VALVE SCO



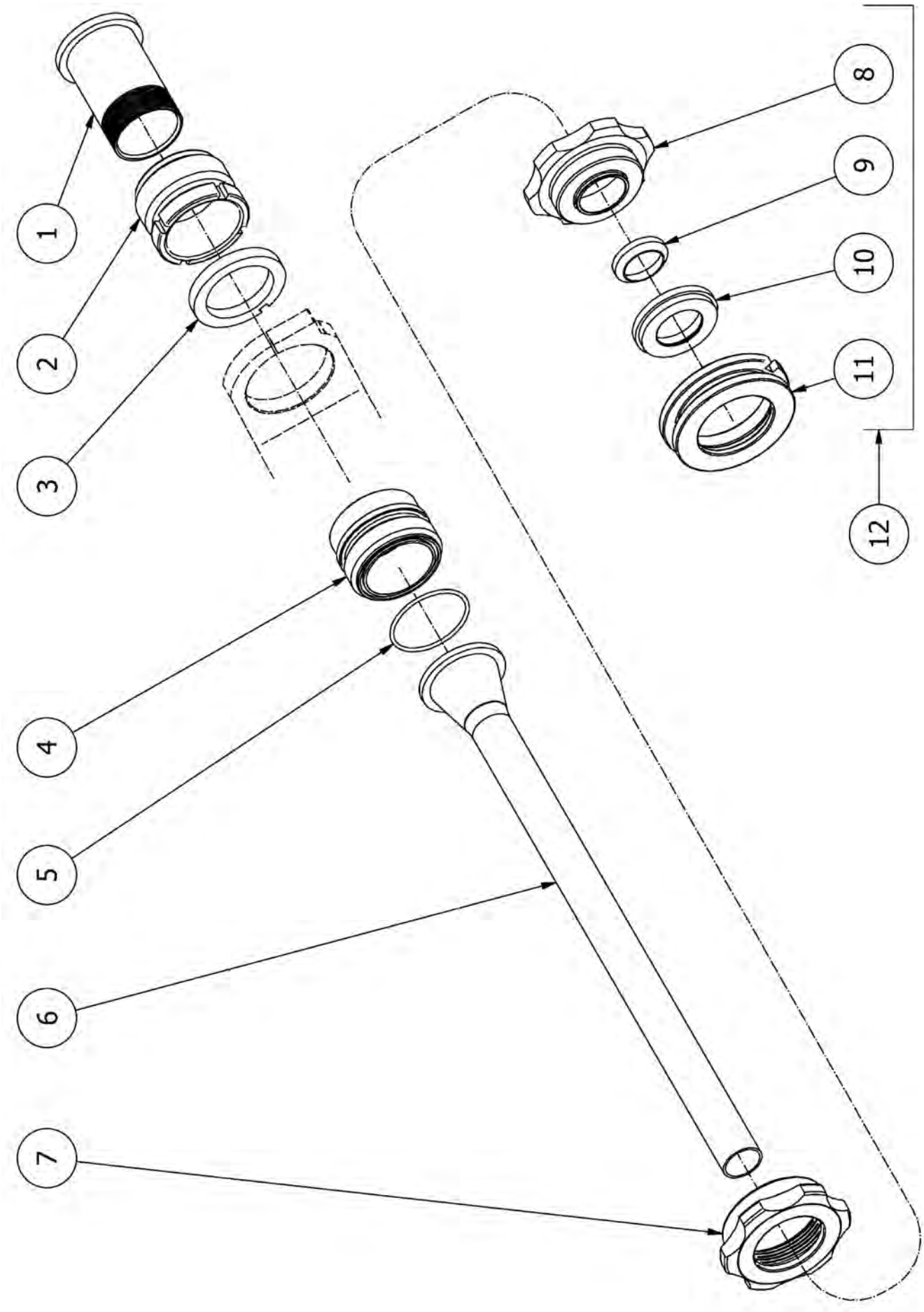
E.12.2. PP0520022 - Body

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	PP0515220	KNIFE LEVER
2	2	LO0050705	BEARING BUSH PAP 5 x 7 x 5
3	1	PP0511020	LOOP KNIFE
4	1	PP0515520	ADJUSTMENT SCREW
5	1	PP0515320	TAPE CLAMP
6	1	SN0840410	SREW M4x10 DIN 084
7	1	PP0515920	PIN FI1.5x7
8	2	OR0011500	O-RING 1,5 x 1,1
9	1	PP0516123	ECCENTRICITY
10	1	PP0517120	FRONT COVER AXLE
11	1	PP0517020	FRONT COVER
12	1	PN0516540	SEAL PLUG
15	1	US0516540	VALVE SEAL
16	1	SN9330612	BOLT M6x12 DIN 933
17	1	PC1050040	PUSH-IN FITTING M5 FI4
18	1	PP0515020	BODY
19	2	PP0516020	FITTING SCREW
20	1	PP0515120	LEVER AXLE
21	1	SP0205212	SMALL VALVE SPRING
22	1	PN0516340	VALVE PUSHER
23	1	OR0041500	O-RING 4 x 1,5
24	1	PN0516440	PUSHER PLUG
25	1	PP0515820	LEVER PISTON
26	1	OR0141800	O-RING 14 x 1,8
27	1	PP0515720	LEVER CYLINDER
28	1	OR0122000	O-RING 12 x 2
29	1	PP0515620	LEVER CYLINDER HEAD



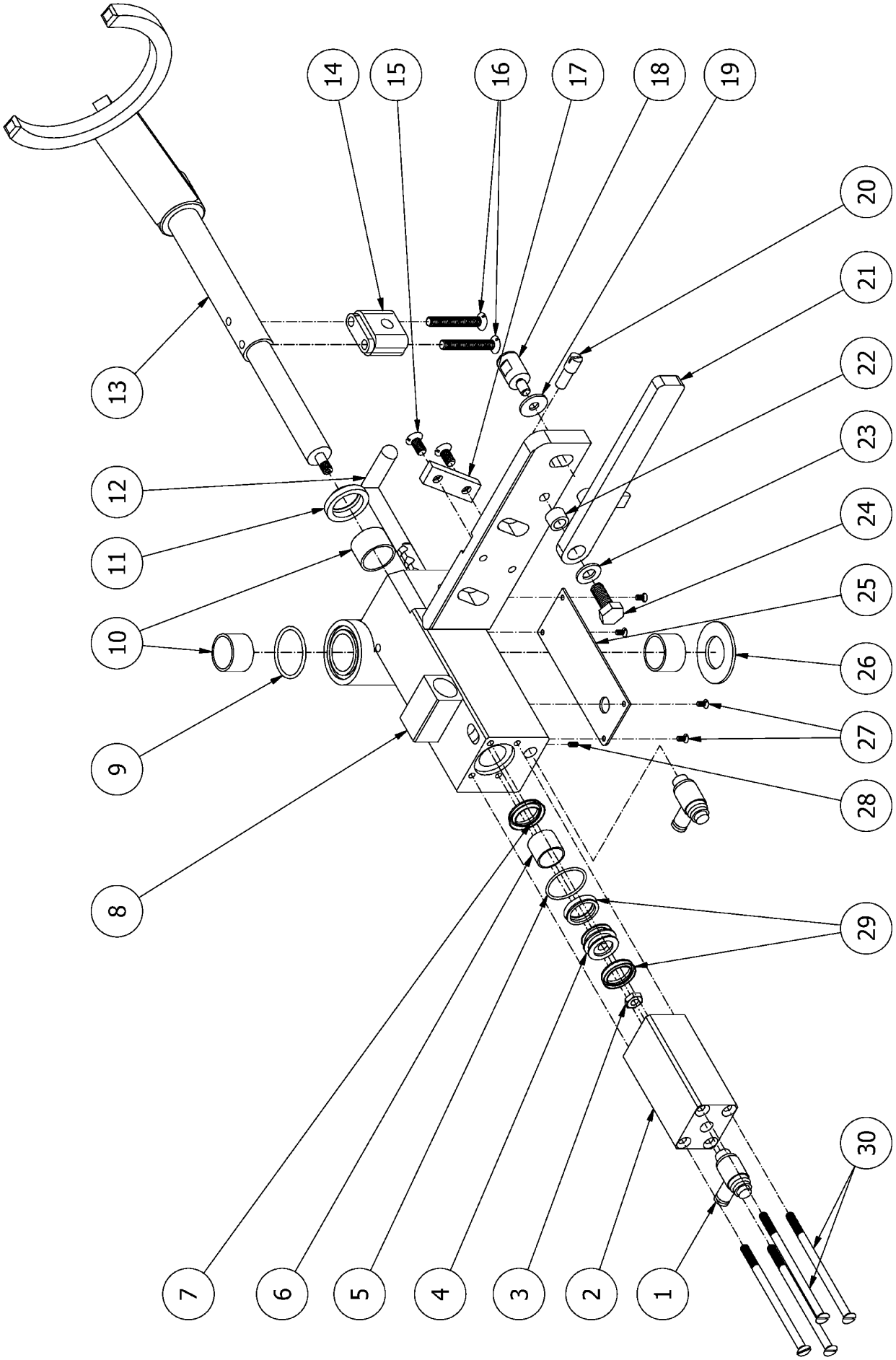
E.13. CG2 - Bracket

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	PP0530520	HOOD
2	1	PP0530420	LOOPS PIPE
3	1	PP0530320	LOOP PIPE PLUG
4	1	PP0530220	PP DISK
5	2	CG5301014	HOLDER PLUG
6	1	CG5301020	PS HOLDER AXLE
7	2	SN9630660	SCREW M6x60 DIN 963
8	1	PS8302010	STRING BASKET PIN
9	1	PS8301010	STRING BASKET
10	1	CG5301018	PS BRACKET
11	2	SN9630510	SCREW M5x10 DIN 963
12	1	CG5301110	HOLDER
13	1	CG5301015	PP HOLDER AXLE



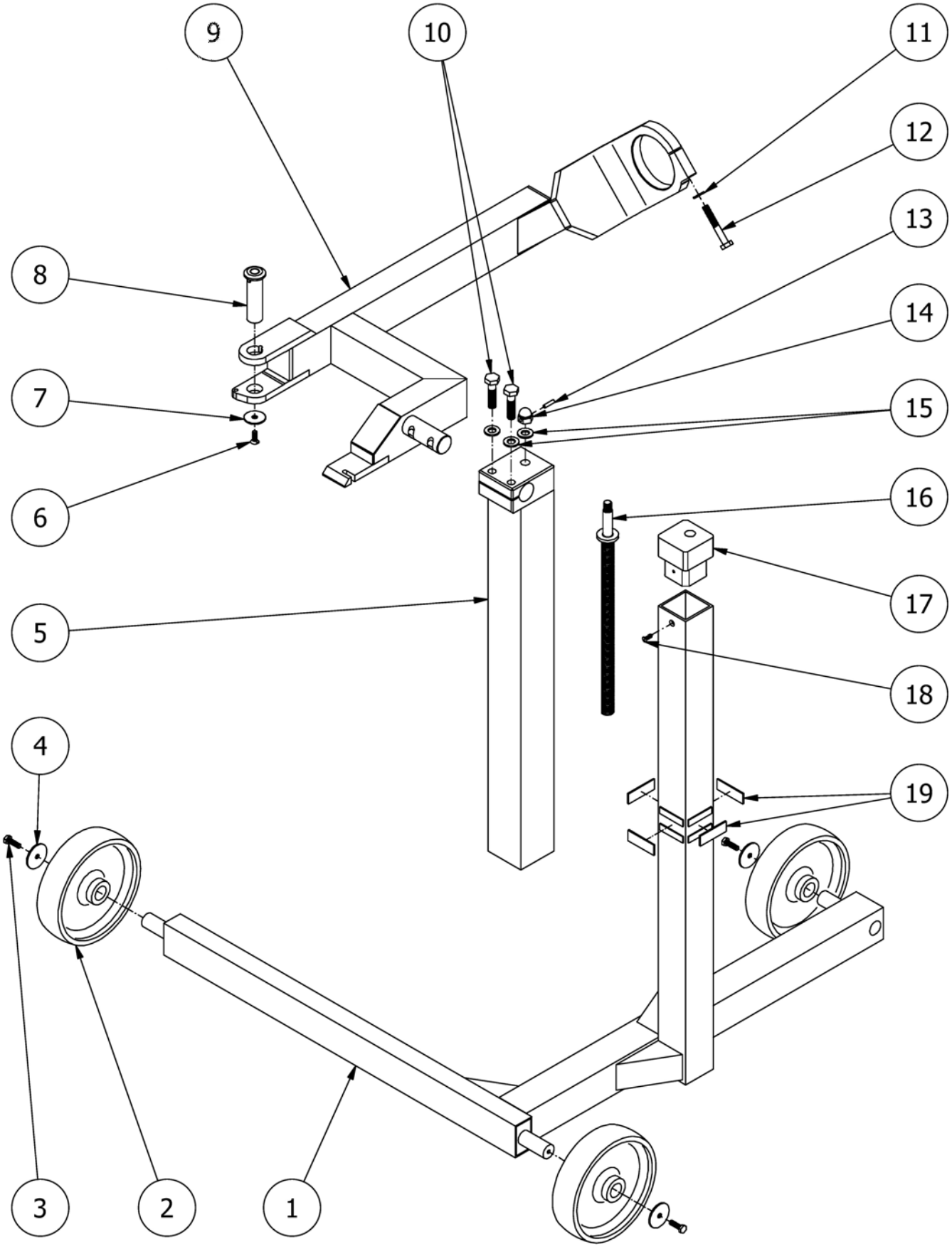
E.14. LE0003420 - Filler set 34

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	LE1402020	FIXING SLEEVE
2	1	LE1404120	FILLER NUT RD80 x 1/4 MALE
2	1	LE1404220	FILLER NUT RD80 x 1/4 FEMALE
3	1	LE1403020	COUNTER NUT
4	1	LE1400020	FUNNEL HEAD
5	1	OR0623000	O-RING 62 x 3
6	1	LE1562020	FILLER FI20
6	1	LE1562520	FILLER FI25
6	1	LE1562820	FILLER FI28
6	1	LE1563420	FILLER FI34
6	1	LE1563820	FILLER FI38
6	1	LE1564520	FILLER FI45
7	1	LE1401020	FUNNEL NUT
8	1	LE1513020	BRAKE NUT FI20-25
8	1	LE1512020	BRAKE NUT FI28-34
8	1	LE1511020	BRAKE NUT FI38-45
9	1	LE1542020	BRAKE RUBBER FI20
9	1	LE1542520	BRAKE RUBBER FI25
9	1	LE1542820	BRAKE RUBBER FI28
9	1	LE1543420	BRAKE RUBBER FI34
9	1	LE1543820	BRAKE RUBBER FI38
9	1	LE1544520	BRAKE RUBBER FI45
10	1	LE1522020	BRAKE INSERT FI20
10	1	LE1522520	BRAKE INSERT FI25
10	1	LE1522820	BRAKE INSERT FI28
10	1	LE1523420	BRAKE INSERT FI34
10	1	LE1523820	BRAKE INSERT FI38
10	1	LE1524520	BRAKE INSERT FI45
11	1	LE1510020	BRAKE BODY
12	1	LE1612020	BRAKE 20 SET
12	1	LE1614520	BRAKE 25 SET
12	1	LE1613820	BRAKE 28 SET
12	1	LE1613420	BRAKE 34 SET
12	1	LE1612820	BRAKE 38 SET
12	1	LE1612520	BRAKE 45 SET



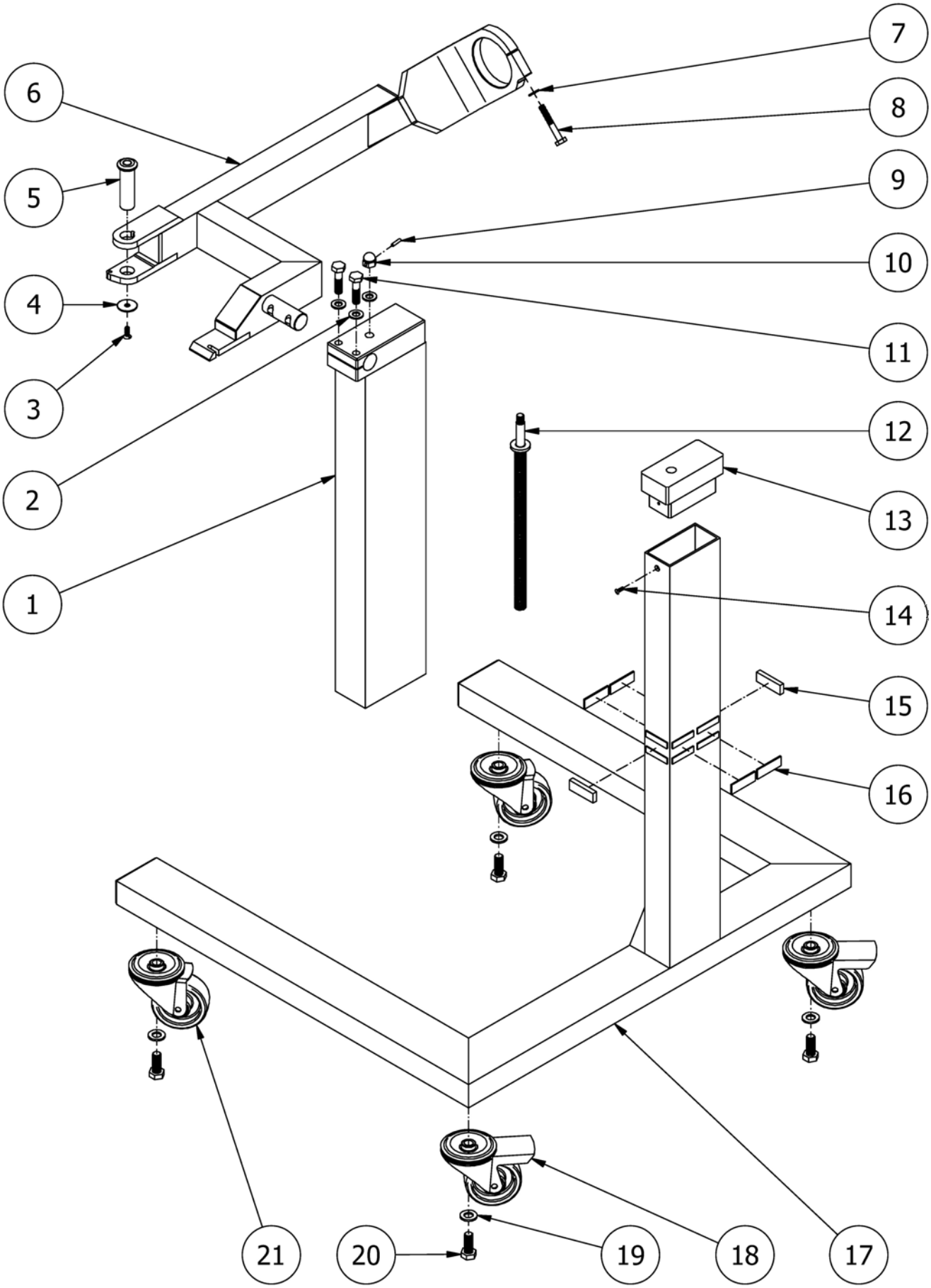
E.15. HA1 - Brake set

PART LIST			
ELEMENT	QTY	PART NO.	PART NAME
1	2	PC3108041	ANGULAR CHOKE G1/8 FI4
2	1	HA1260020	BRAKE CYLINDER
3	1	NN0439060	M6 NUT DIN 439
4	1	HA1320020	BRAKE PISTON
5	1	OR0241500	O-RING 24 x 1,5
6	1	LO0161815	BEARING BUSH PAP 16 x 18 x 15
7	1	UR0164040	U-RING 16 x 4 x 4
8	1	HA1200020	BRAKE BODY
9	1	OR0282000	O-RING 28 x 2
10	3	LO0202315	BEARING BUSH PAP 20 x 23 x 15
11	1	US0204040	SEALING FI20
12	1	HA1400020	BRAKE MOVEMENT RANGE CONTROLLER
13	1	HA1340020	BRAKE RING SET
14	1	HA1330020	BRAKE AXLE POSITIONING COMPONENT
15	2	SN9630612	SCREW M6x12 DIN 963
16	2	SN9630640	SCREW M6x40 DIN 963
17	1	HA1270020	LIFTING KEY
18	1	HA1300020	LEVER BOLT 2
19	1	NN9021060	M6 ENLARGED WASHER DIN 9021
20	1	HA1410020	BRAKE CONTROLER LOCK
21	1	HA1280020	OPENING LEVER
22	1	HA1290020	OPENING LEVER BOLT
23	1	NN0125080	M8 WASHER DIN 125
24	1	SN9330820	BOLT M8x20 DIN 933
25	1	LO1203810	BEARING 20 x 38 x 1-2
26	1	HA1220020	BOTTOM BRAKE BODY COVER
27	4	SN9630308	SCREW M3x8 DIN 963
28	1	ZA0030606	PLUG M3 x 6
29	2	UR0163040	U-RING 16 x 3 x 4
30	4	SN9630590	SCREW M5x90 DIN 963



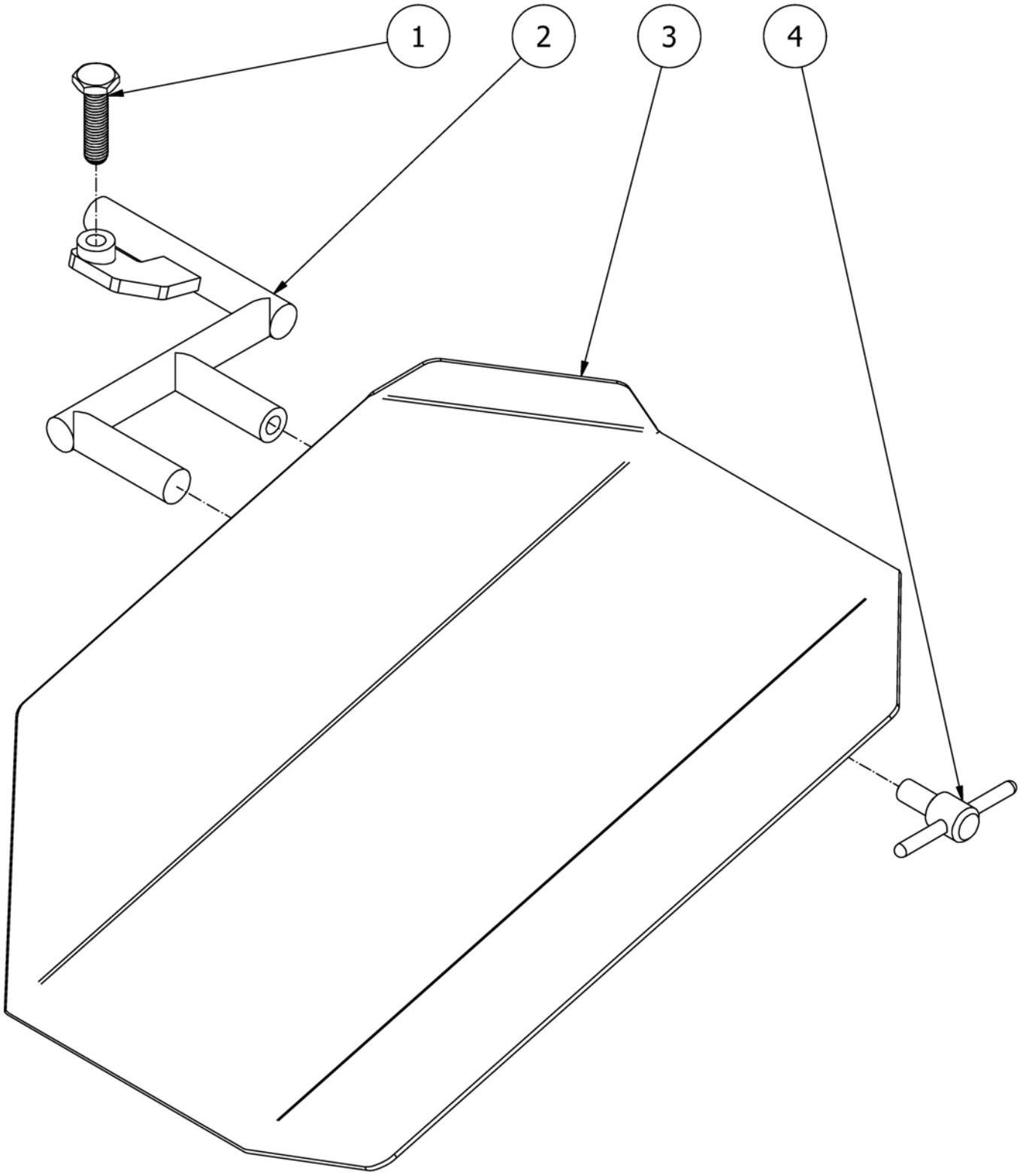
E.16. WU1000000 - Trolley - standard

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	WU0001200	CHASSIS PA
2	3	WU0010000	WHEAL
3	3	SN9330620	BOLT M6x20 DIN 933
4	3	WU0011000	WHEAL PAD
5	1	WU0003000	BODY
6	1	SN9630616	SCREW M6x16 DIN 963
7	1	WU0006100	OPENING AXLE BOTTOM PLUG
8	1	WU0006000	OPENING AXLE
9	1	WU0004200	FRAME PA
10	2	SN9311025	BOLT M10x40 DIN 931
11	1	NN0125080	M8 WASHER DIN 125
12	1	SN9330855	BOLT M8x55 DIN 933
13	1	WU0012000	HOOD NUT PIN
14	1	NN1587101	M10 DOMED NUT DIN 1587 WITH HOLE
15	3	NN0125100	M10 WASHER DIN 125
16	1	WU0002000	LIFTING BOLT
17	1	WU0009000	LIFTING CUBE
18	1	SN9630412	SCREW M4x12 DIN 963
19	4	WU0008000	INSERT



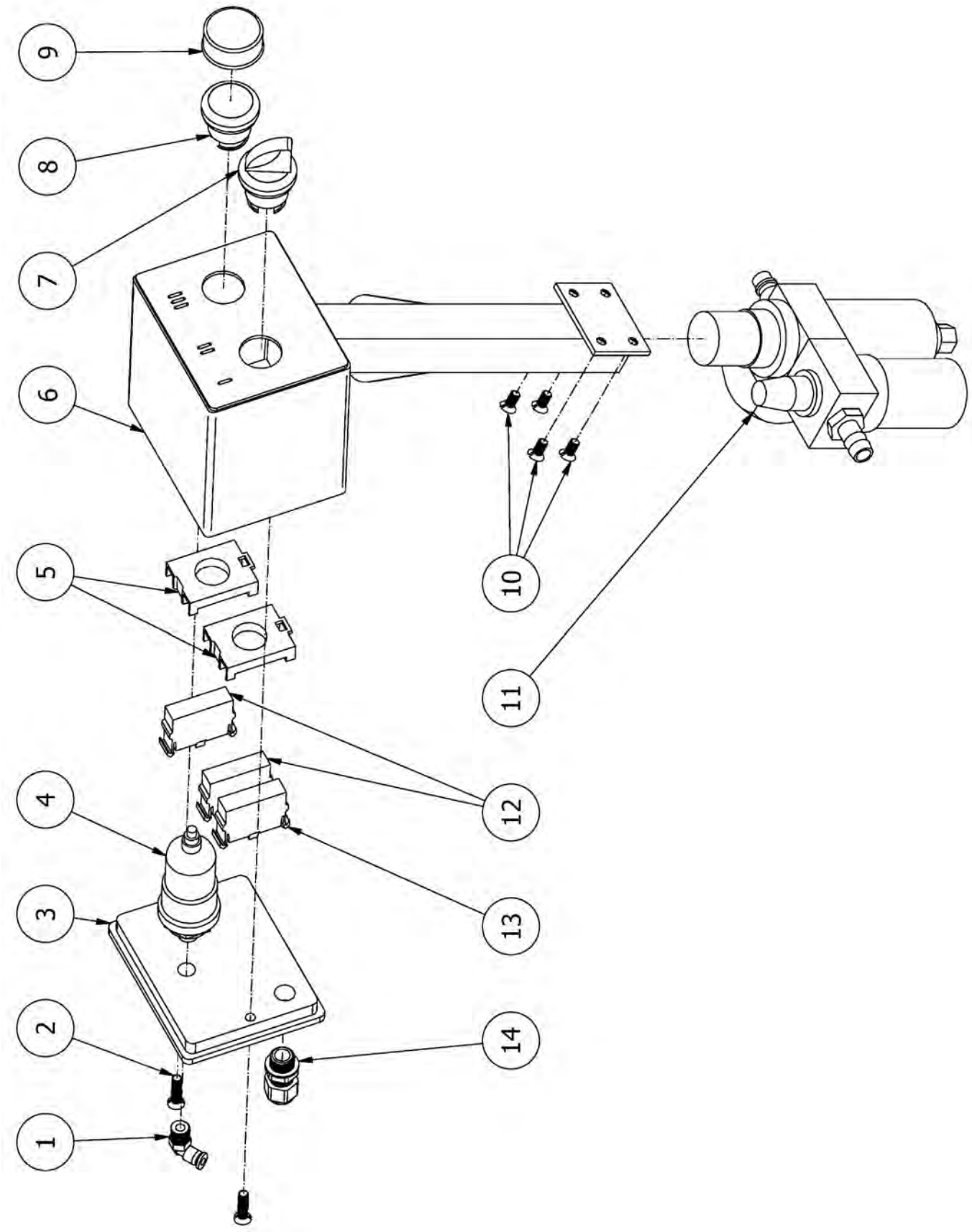
E.17. Trolley - wide version

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	WU0003200	WIDE BODY
2	3	NN0125100	M10 WASHER DIN 125
3	1	SN9630616	SCREW M6x16 DIN 963
4	1	WU0006100	OPENING AXLE BOTTOM PLUG
5	1	WU0006000	OPENING AXLE
6	1	WU0004200	FRAME PA
7	1	NN0125080	M8 WASHER DIN 125
8	1	SN9330855	BOLT M8x55 DIN 933
9	1	WU0012000	HOOD NUT PIN
10	1	NN1587101	M10 DOMED NUT DIN 1587 WITH HOLE
11	2	SN9311025	BOLT M10x40 DIN 931
12	1	WU0002000	LIFTING BOLT
13	1	WU0009100	WIDE LIFTING CUBE
14	1	SN9630412	SCREW M4x12 DIN 963
15	2	WU0008100	THICK INSERT
16	4	WU0008000	INSERT
17	1	WU0001900	LANDING GEAR PA WIDE
18	2	WU0001370	TORSION WHEEL
19	4	NA0125120	M12 WASHER DIN 125
20	4	SN9330520	BOLT M5x20 DIN 933
21	2	WU0001360	TORSION WHEEL



E.18. TA1700020 - Tray left PA

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	TA1730020	LIFTING BOLT PA
2	1	TA1750020	TRAY ARM PA
3	1	TA1710020	LEFT TRAY PA
4	1	TA1720020	LEAN BOLT PA



E.19. EK3500020 - Control box PA

PART LIST			
ELEMENT	QTY	PART NO	PART NAME
1	1	PC1108040	PUSH-IN FITTING G1/8" FI4
2	2	SN9630520	SCREW M5 X 20 DIN 963
3	1	OS3502020	CONTROL BOX COVER
4	1	PC7310020	PNEUMO-ELECTRIC VALVE PM11-NA
5	2	EK0301100	CONTACT MOUNTING BRACKET PA
6	1	OS3501020	CONTROL BOX
7	1	EK3502020	SWITCH
8	1	EK3501020	BUTTON
9	1	EK3501120	BUTTON MEMBRANE
10	4	SN9630510	SCREW M5x10 DIN 963
11	1	PC8011000	AIR PREPARATION STATION PA
12	2	EK0301200	NO CONTACT
13	1	EK0301300	NC CONTACT
14	1	EK0000071	ELECTRIC WIRE CABLE GLAND PG7