Automatic blind riveting system GAV-electronic Model 8000

Model 8000 eco

fully automatic blind riveting system

Year of manufacture . . . .

Device no. . . . .

Operating Manual

including spare parts list and extras

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not included in GAV-8000 **eco**

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Spare parts list

Dimension sheet, specifications and working area

Standard tubing
length: 3,5 meter
(12,3ft)

Feed unit
Weight: 100 kg
Volume remaining mandrel collecting basin: approx. 1800 – 5500 pieces (3.5 l) depending on size

Electrics
- Rated voltage: 230 Volt ~ 50 Hz
- Rated current: < 2,5 A
- System of protection: IP 54

Pneumatic equipment
- Network pressure < 10 bar
- Working pressure: 6 -7 bar
- Air consumption / blind riveting process: 15 NL
- Air consumption / vacuum extractor for remaining mandrels (VE): 340 NL/min.
- Connecting line: ½ " (12.5 mm) max. length 5m
- Outlet hose remaining mandrel: 3.75 m length / exterior-$\varnothing$8 mm / interior-$\varnothing$5 mm
- Pressure transmitter: pneumatic / hydraulic

Hydraulic
- Hydraulic oil ISO-VG 46 (e.g. Shell Hydrol HV 46 or comparable HVLP-D products): 1.2 l
- Viscosity, kinematic at 40°C (DIN 51562) without silicone parts: 47 mm² / s

Ambient temperature: 10 -40°C

Blind riveting gun
- Weight: approx. 2.5 kg
- Setting motion: 16 -20 mm
- Setting force: 11770 N
- Hose assembly length (standard): 3.75 m
- Working cycle (theoretical setting performance) intended use: 1.25 sec.

Working environment
- Blind rivet up to Ø 5,0 mm stainless steel
- Blind rivet up to Ø 6,0 mm steel
- Blind rivet up to Ø 6,4 mm aluminium
- Maximal setting head diameter: 11.4 mm
- Maximal blind rivet shaft length: 25.0 mm
  (additional size on request)

According to the supply agreement the device is designed for a specific blind rivet model suitable
for automatic systems.

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Dimension sheet, specifications and working area

Adapter -
fastening -
thread M10

Standard tubing
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(12,3ft)

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Electrics
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Dimension sheet, specifications and working area

Feed unit

Weight:	100 kg
Volume remaining mandrel collecting basin:	approx. 1800 – 5500 pieces (3.5 l) depending on size

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Ambient temperature:	10 -40°C

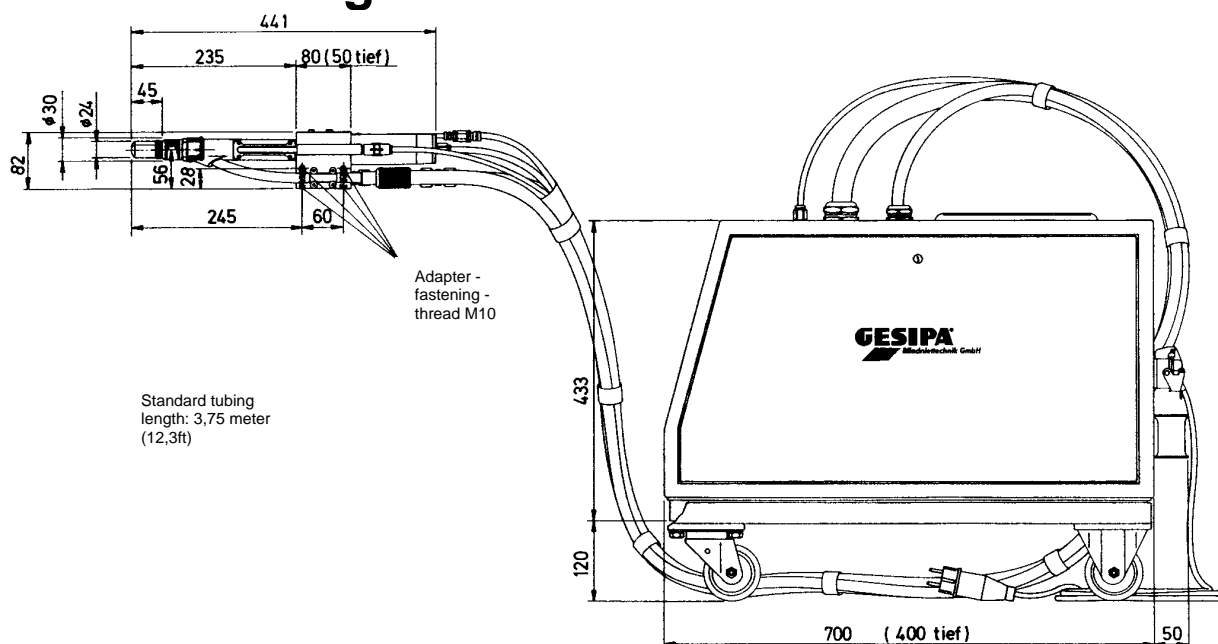**Blind riveting gun**

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- Setting motion:	16 -20 mm
- Setting force:	11770 N
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- Maximal blind rivet shaft length:	25.0 mm

(additional size on request)

According to the supply agreement the device is designed for a specific blind rivet model suitable for automatic systems.

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Dimension sheet, specifications and working area

Standard tubing length:
3,75 meter (12,3ft)

Rollenuntersatz = Sonderzubehör

Feed unit
Weight: 100 kg
Volume remaining mandrel collecting basin: approx. 1800 – 5500 pieces (3.5 l) depending on size

Electrics
- Rated voltage: 230 Volt ~ 50 Hz
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- System of protection: IP 54

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- Network pressure   < 10 bar
- Working pressure: 6 -7 bar
- Air consumption / blind riveting process: 15 NL
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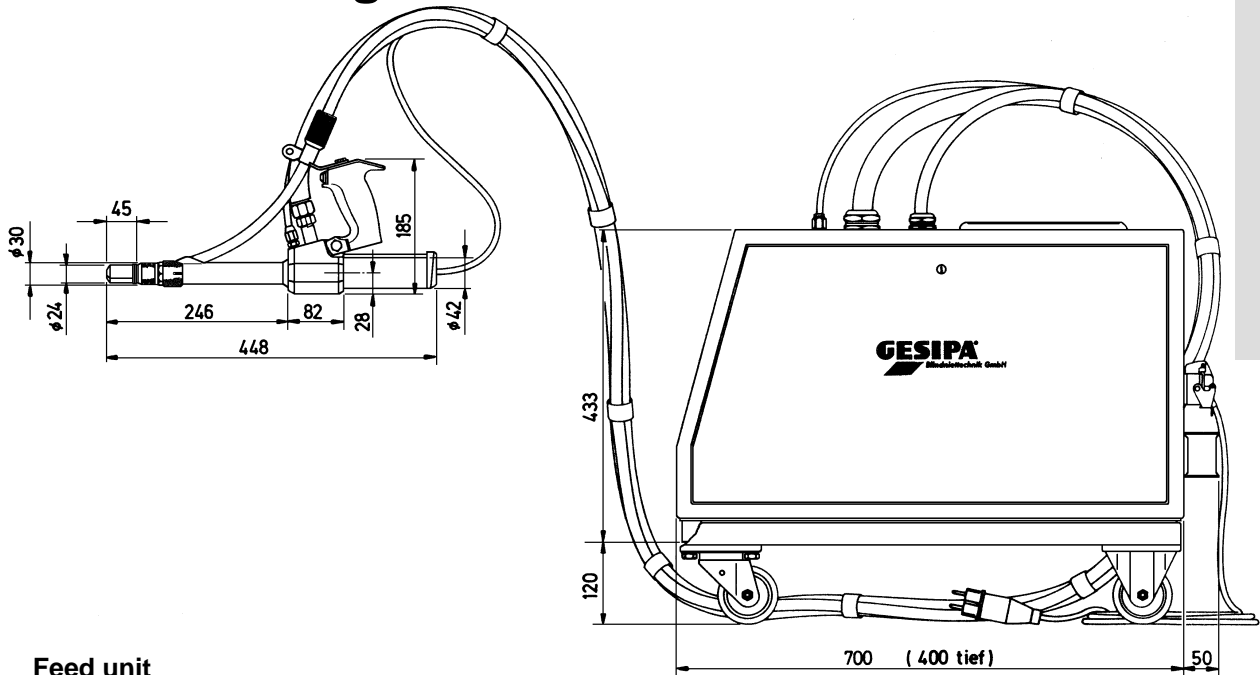- Setting force: 11770 N
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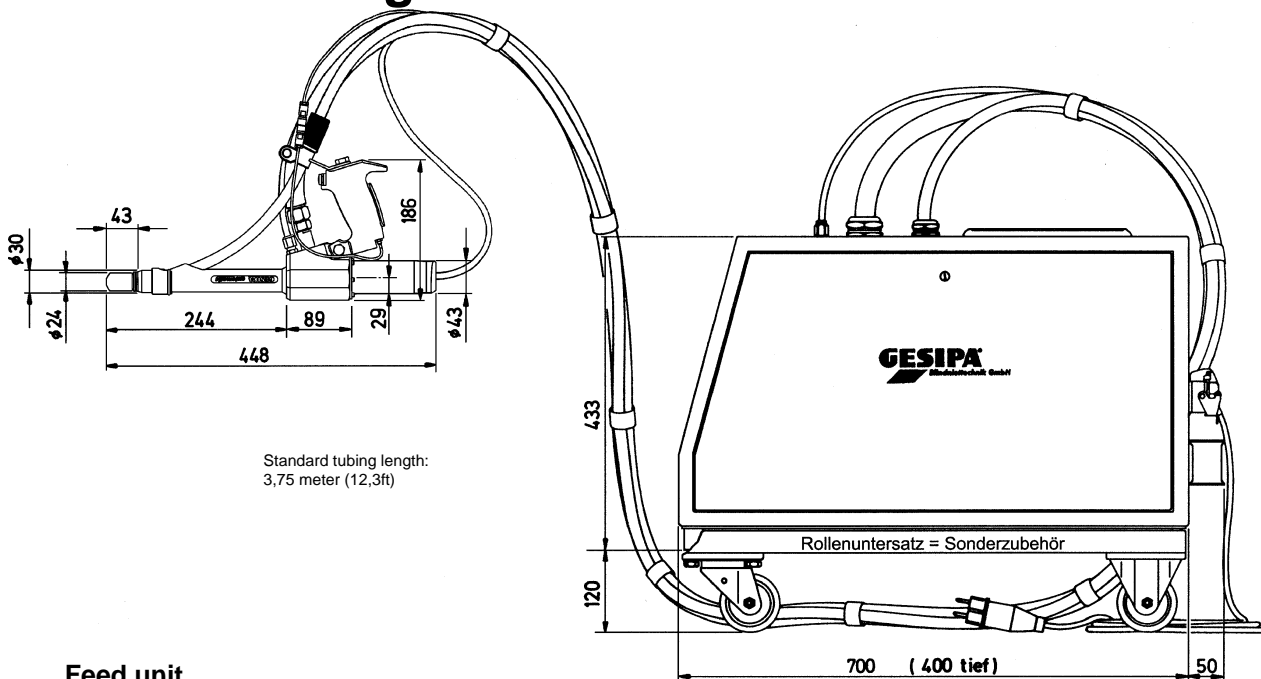- Maximal blind rivet shaft length: 25.0 mm
  (additional size on request)

According to the supply agreement the device is designed for a specific blind rivet model suitable
for automatic systems.

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Intended use
and safety instructions

Intended use

• The blind riveting tool is intended exclusively for the processing of blind rivets suitable for use in automatic systems. Any other use or use beyond those limits will not be considered as intended.

• Operators must receive instruction and follow safety instructions.

Safety instructions

• The machine is designed in accordance with the latest state-of-the-art technology and accepted safety regulations.

• When put to the use intended, a safe work environment will be ensured.

• The device is intended exclusively for the processing of blind rivets.

• Read the operating instructions before commissioning.

• Any work on the electrical equipment of the device must be carried out by an electrical specialist in accordance with the rules of electro technology.

• Any work on the mechanical, hydraulic or pneumatic system must be carried out by instructed persons with a special knowledge of the device.

Attention!

• To protect against electrocution, injury and danger of fire during all setting, maintenance and repair work, or the elimination of device disturbances there is a duty to ensure that

- protective goggles are worn

- the electric mains plug has been pulled

- the pneumatic air supply was separated from the device

- no blind rivet is present on the chute or singulator

- the gun is at no time aimed at persons or other creatures.

• The blind rivet is conveyed at high speed from the feed unit through the conveying hose to the blind riveting gun!

• It is absolutely essential that the measures described above are followed when the feed hose or the expanding mouth piece have to be removed during repair or maintenance work ; in addition to this attach a warning sign to the device.

• Non-compliance with intended use or inexpert handling may result in injury.

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Intended use
and safety instructions

Prevention of accidents

Working with the GAV-8000 is only permitted for persons who

- have read and understood the operating and safety instructions (training!)
- have checked the device and the working area for hazards to life and limb before starting to work
- comply with accident prevention regulations
- do not wear their hair loose or loose fitting clothes or jewellery including rings (hazard of injury!)
- wear personal safety gear, such as: protective clothing, protective goggles, ear protection, protective shoes and gloves.

Work place

- This blind riveting tool is only intended as a place of work for an instructed operator possessing the special knowledge required for this tool.
- Keep your work place tidy.
- Do not expose the blind riveting tool to rain, wetness or dampness.
- Do not use the blind riveting tool near flammable gasses or liquids. Risk of explosion!
- Ensure sufficient lighting at the work place.
- Ensure the provision of a safe floor for operators and the riveting tool as uneven floors pose a danger of injury.
- Comply with the regulations for hazardous materials when handling hydraulic oil.

Blind riveting tool

The expanding mouth piece and the rivet mandrel conveying appliance with outlet hose or a mandrel collecting basin must be mounted before the blind riveting tool is commissioned.

Attention!

- Do not rivet without joint material! The blind rivet may shoot off the device! Do not point the device towards yourself or other persons!
- Do not overload the blind riveting tool.
- Always check blind rivet system for perfect working order before use.
- If a conveying frame is mounted, lock the guide rolls first.
- Maintenance and repair is to be carried out by a suitable expert. If in doubt, send the device to the manufacturer.
- Spare parts and fittings must meet the requirements determined by the manufacturer. This is guaranteed when genuine parts are used.
- When putting the blind riveting gun onto a surface secure it against falling.
- Proper care of blind riveting tool (Keep handle dry and free of oil and grease)
- Check plugs and cables on a regular basis. When damaged, have them repaired by an electrical specialist.
- Check compressed air and hydraulic connections and hoses regularly. When damaged, have them replaced by an instructed person.

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Notes on environment, recycling, Conformity declaration

Notes on environment

- Noise of blind riveting plant
  Applied guidelines:
  89/392/EWG Abl. EU Nr. L 183/9
  3. GSGV machine noise information-VO DIN 45635 part 21
  Permanent noise level: L_{PA} **78/84 dB** with/without conveyor unit

- Vibration of the GAV gun.
  Rules of check:
  Check according to ENV 28662-1; 9. GSGV; 91/368/EWG ISO 2631; 9. GSGV; 91/368/EWG as well as the guidelines pointed out there

  <2,55 m/s^2

  uncertainty K= 1 m/s²

Recycling

- Hydraulic used oil and remaining drifts must be recycled accordingly.

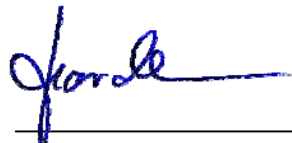- Observe regulations about dangerous substances.

Conformity declaration

We hereby declare under our sole responsibility that these products meet following standards and directives:

- 2006/42/EG

- 2006/95/EG

- 2004/108/EG

_____
Signature
of the manufacturer

_____
Signature
Safety specialist

Transport and installation

Transport

- The blind riveting tool will be delivered and erected as agreed, or dispatched in a special wooden crate.

- Unpacked, the blind riveting tool can be moved on an even floor with the help of the trolley available under extras. The blind riveting tool must be transported upright by using the two transport eyes at the top of the feed unit and suitable lifting gear, or secured on a pallet, by using a lift-truck or high-lift truck.

> ⚠ **Attention!** The blind riveting tool is supplied ready for connection and the sealed hydraulic system contains approx. 1.2 litre of hydraulic oil. To ensure stability, transport the feed unit in an upright position at all times

Installation

- Working pressure: min. 6 bar

  - The compressed air supply has to be arranged in such a way that 750 NL/min. of dry dressed, oil-free compressed air is available which must not be allowed to drop below 6 bar whilst the GAV is in operation (do not use mist lubricator!)

  - Pipework diameter 3/4"

> ⚠ **Attention!** The compressed air hose must have an inner diameter of at least 12.5 mm (1/2") During blind riveting the pressure must not drop below 6 bar; control via pressure gauge showing operating pressure.

- Hydraulic oil: For viscositiy see specifications.

- Electrical connection: 230 V ~ 50 Hz, alternatively 115 V ~ 60 Hz.
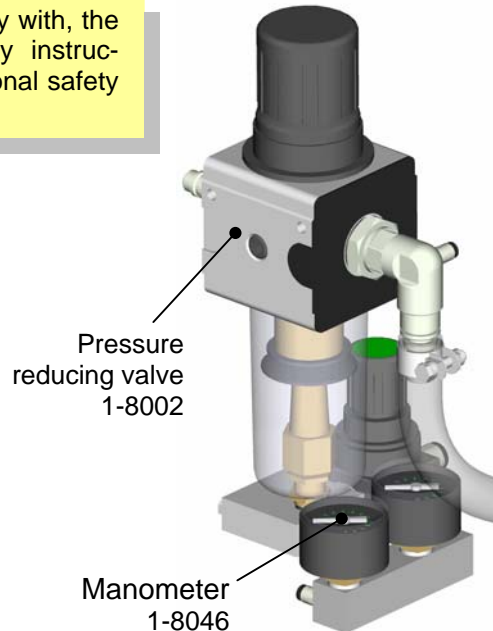
Commissioning and handling

Note!

👉 Prior to commissioning read, and comply with, the GAV operating instructions and safety instructions. In addition, comply with occupational safety regulations.
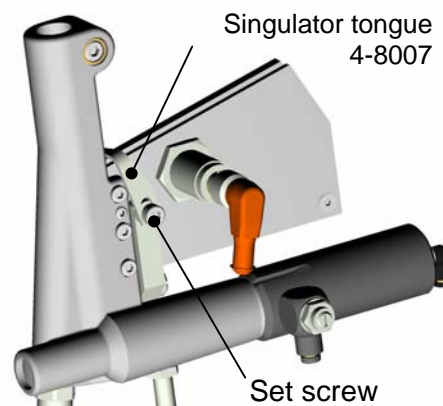
Commissioning

- Connecting the device to the compressed air supply network

- Use the pressure reducing valve 1-8002, to set the operating pressure to 6 bar; control via pressure gauge 1-8046

- Establishing electrical connection

- Use main switch to turn on device

- Fill about half of the oscillating conveying bowl and turn on oscillating conveyor (F4 key, see chapter 8 "Operation")

- Set the singulator tongue 4-8007 with the help of the setting screw in such a way that only one blind rivet at a time is separated

- Actuate the "ON" key

- Trigger the blind riveting gun twice (Menu "MAN" function "cycle"). The first blind rivet is made ready in the expanding mouth piece.

According to the supply details the device is designed for a specific blind rivet size. Despite this, check that
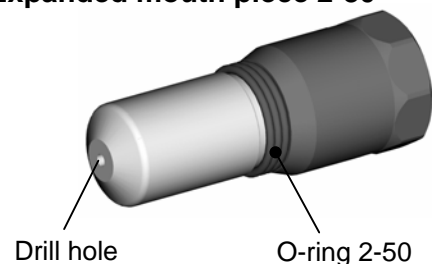
- the inner diameter of the rivet feed hose 7-8020 is 2-3 mm greater than the setting head diameter of the blind rivet (setting head diameter max. 11.4 mm)

- the drill hole of the expanding mouth piece 2-80 is approx. 0.3 mm greater than the blind rivet mandrel diameter. Cylindrically elongated expanding mouth pieces providing up to 15 mm extension are available for awkquard blind riveting points (pay attention to blind riveting mandrel length)

- If required, the clamping force of the expanding mouth piece 2-80 can be increased by mounting additional O-rings 2-50.

Pressure reducing valve 1-8002

Manometer 1-8046

Singulator 4-8000

Singulator tongue 4-8007

Set screw

Expanded mouth piece 2-80

Drill hole   O-ring 2-50

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Commissioning and handling

- The appropriate chuck jaws for each blind riveting mandrel diameter are used. Chuck jaw scaling is as follows:

Blind rivet mandrel diameter
1.5 to 2.1 mm
2.1 to 2.7 mm
2.7 to 3.3 mm
3.3 to 3.65 mm

Chuck iaws
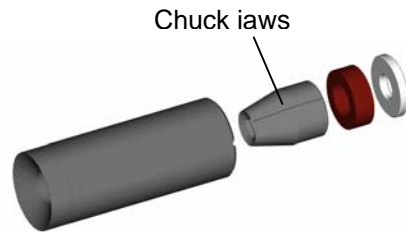
- The adjustable deflection sheet leading to the outlet drain of the oscillating conveyer bowl 608002 is set in such a way that only one blind rivet is able to pass this baffle.

- Depending on each blind riveting mandrel diameter the distance between the chute sheets 4-8138 is set at an approximate mandrel diameter of +0.5 mm.

Oscillating conveyor bowl 6-8002

Deflection sheet   Outlet drain

Distance

Chute sheets
4-8138

Maximum fill level
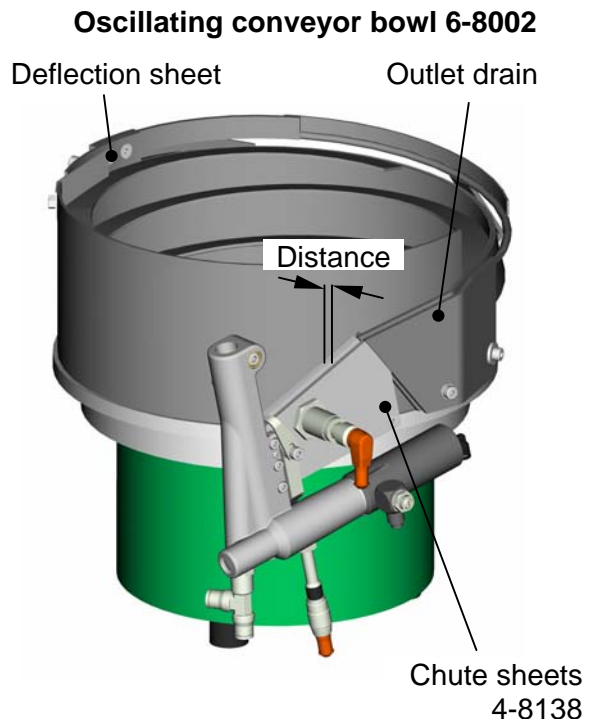
Handling

- Insert the blind rivet that is provided in working position inside the blind riveting gun up to its setting head into the blind riveting hole.

- The blind riveting process is triggered by pressing the trigger button, the torn off blind rivet mandrel is carried off and the next blind rivet is brought automatically into working position.

To allow the next blind rivet to be conveyed from the expanding mouth piece without hindrance, the blind riveting gun has to be pulled away from the blind riveting point immediately after the blind rivet mandrel is torn off.

- The remaining mandrels are conveyed automatically to the collecting basin. Afterwards the vacuum extractor (VE) is turned off automatically.

Note!

☞ The collecting basin holds approx. 1800 to 5500 remaining mandrels (depending on size). Ensure that the collecting basin is emptied in good time.

- The blind riveting gun can be hung up ready for use at the work place with the help of a balancer.

- The feed unit must be placed and used on even ground only. The operator has to ensure always its stability.

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Sequence of operations

The fully automatic blind riveting tool GAV-electronic comprises a feed unit and a handy blind riveting gun which are connected by a flexi-hose assembly.

The feed unit comprises an electronic control with dialogue box, two hydraulic pressure transmitters, an electrical blind riveting conveyor unit and a remaining mandrel extractor with mandrel collecting basin.

When the blind riveting gun is triggered, the blind rivet waiting inside the nose piece is processed, the torn off blind riveting mandrel is conveyed to the collecting basin and the reloading process is triggered automatically.

The oscillating conveyor unit with cut-off automatic ensures continuous provision of blind rivets.
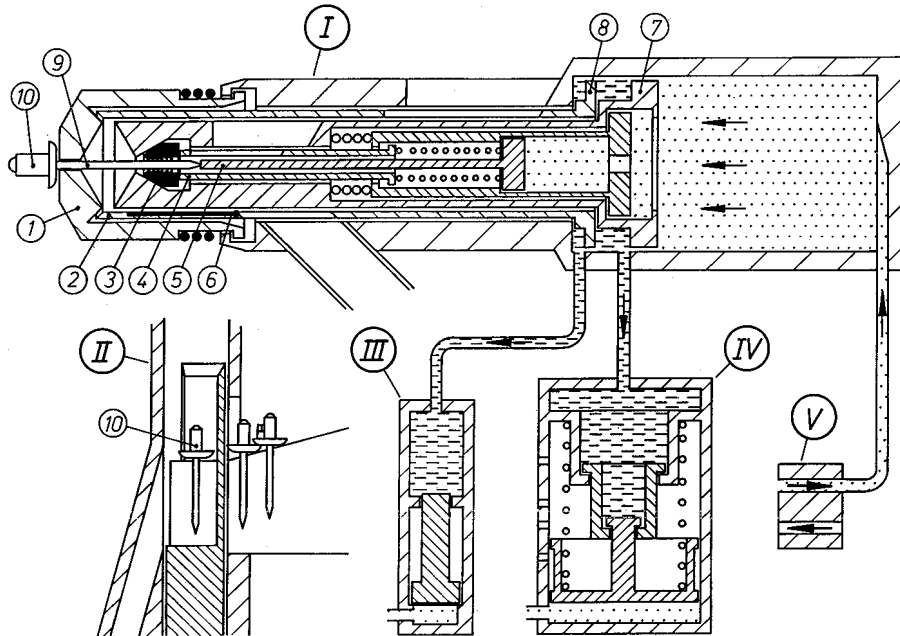
GAV blind riveting gun

■ Compressed air

■ Oil unlocking lift

■ Oil setting lift
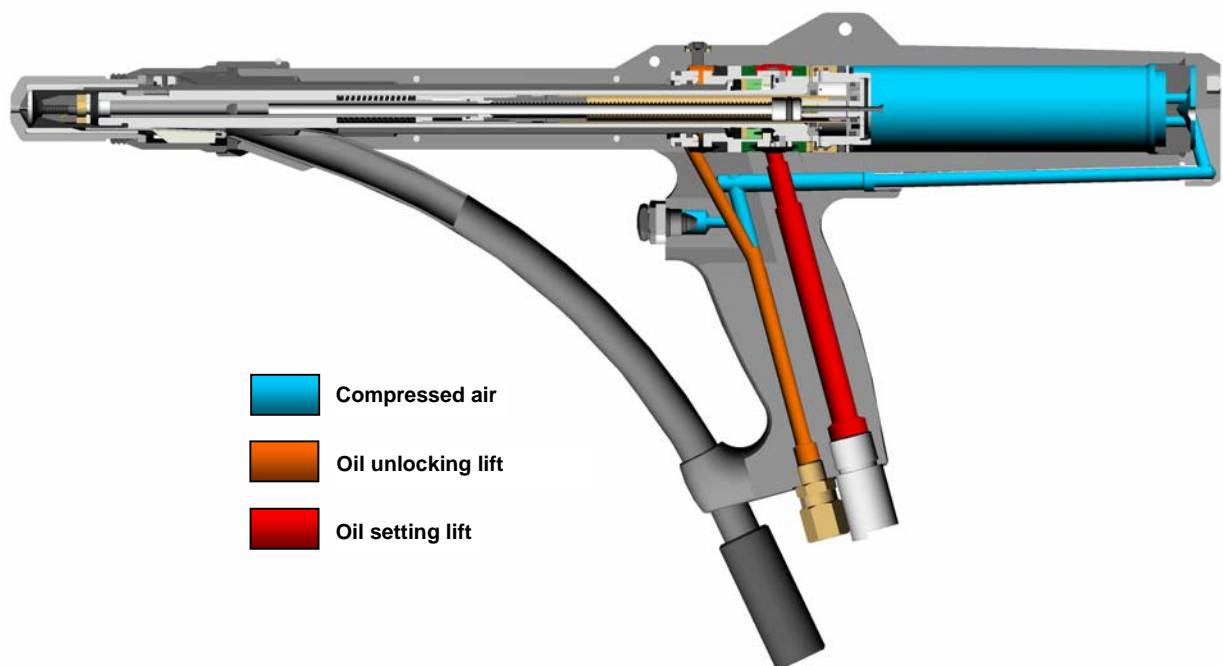
Description of functions

7 Functional components of blind riveting gun

The schematic diagrams and descriptions below show a simplified version of the extensive control and functional sequences.

Expanding mouth piece - three-pieces - (1)
Loading the blind rivet positioned in the gun head to processing position.

Snap collet (2)
carries out the unlocking and locking function of the expanding mouth piece (1).

Chuck jaws (3)
for gripping of blind rivet mandrel (9) and setting of blind rivet (10).

Chuck jaw tube (4)
transmits the snapping pressure to the chuck jaws (3) to ensure safe gripping of blind rivet mandrel (9) and setting of blind rivet (10).

Stop piston (5)
Final stop for blind rivet mandrel (9) during loading process of blind rivet

Locking spring (6)
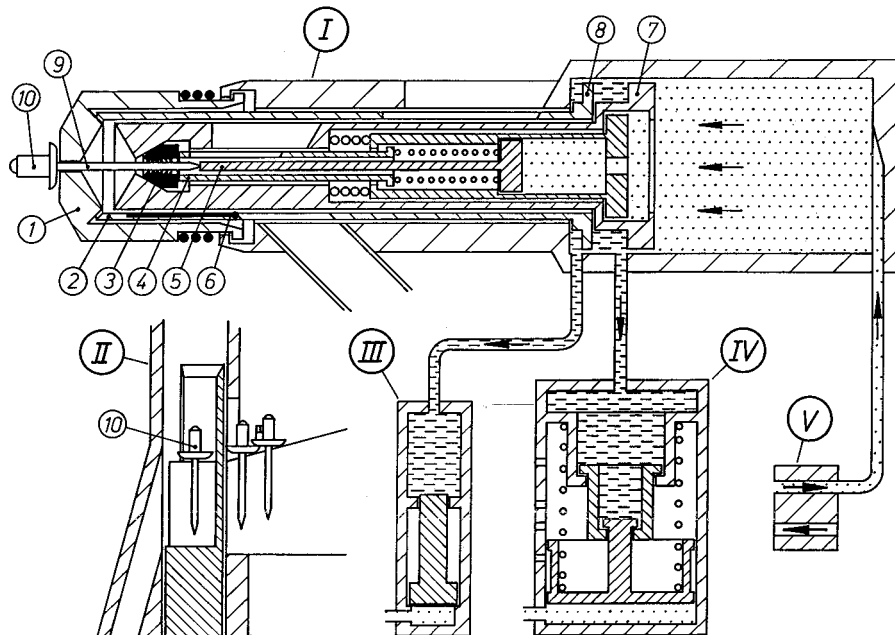positions the blind rivet (10) supplied to the gun head.

Pulling piston (7)
supports the complete gripping mechanism used to set the blind rivet (10).

Pressure piston (8)
supports the snap collet (2) operating the locking and unlocking process of the expanding mouth piece (1).

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Description of functions

7 Functional units of feed unit

Blind rivet singulator (II)
Part of blind riveting feed appliance. Here, the blind rivet (10) is separated and conveyed by compressed air through the conveying hose to the blind riveting gun.

Pneumatic-hydraulic pressure transmitter (III)
actuates the pressure piston (8); thereby triggering the unlocking stroke for the expanding mouth piece.

Pneumatic-hydraulic pressure transmitter (IV)
actuates the pulling piston (7) to carry out the blind rivet setting lift and the rear side of the pressure piston (8) to lock the expanding mouth piece (1) during the setting process.

Whilst the piston system is moving forward and back inside the pressure transmitter (IV)   impulses are accepted via the cylinder switch for function operations.
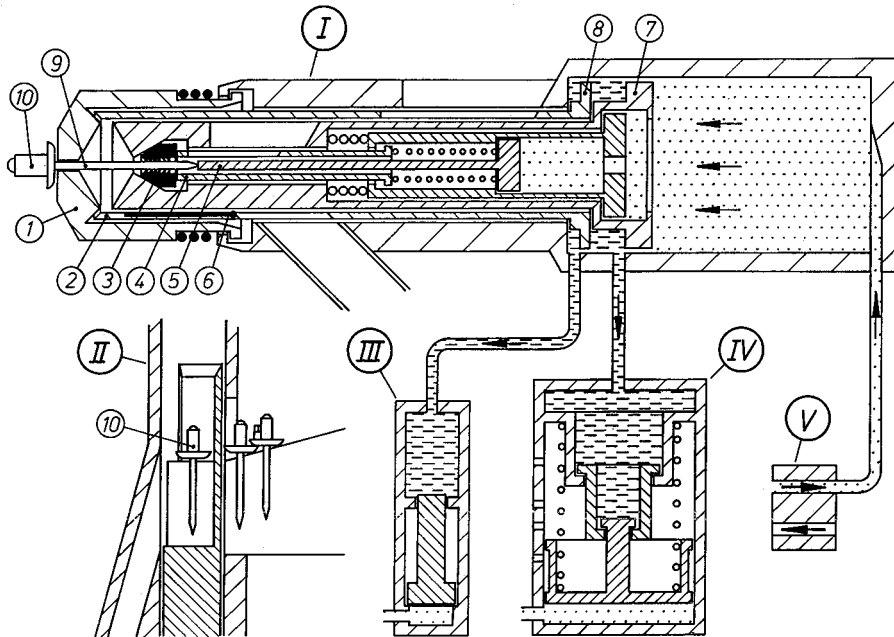
Valve (V)
turns on the readjusting air, thus returning the complete piston unit (7/8) to initial position. The stop piston (5), chuck jaw hose (4) and snap collet (2) are kept by the relevant pistons in locking or final position until the completion of the blind riveting process by the pending readjusting air.
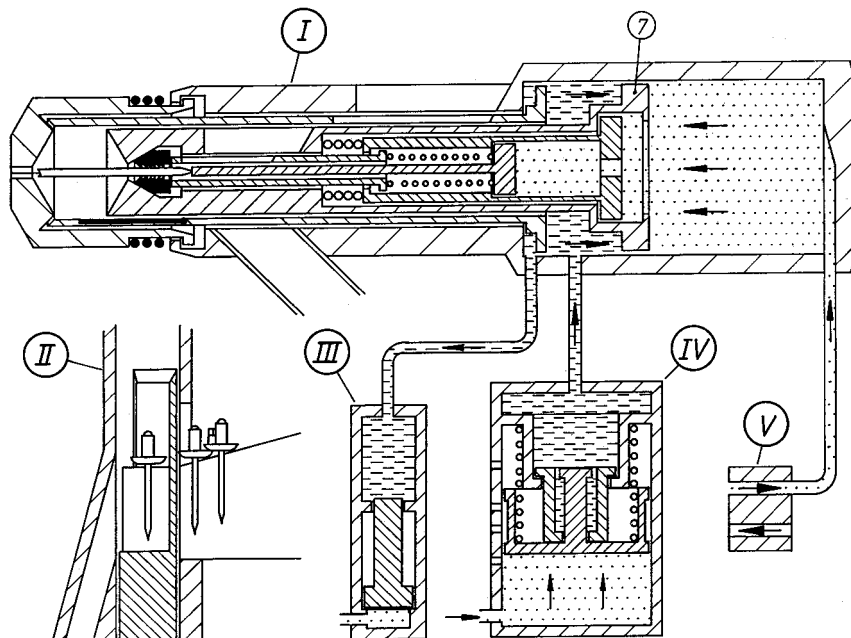
Description of functions

7 Functional components of blind riveting gun

Function image 1

The readjusting air interconnected by the valve (V) is waiting and keeps the complete piston unit (7/8) in back stop position. The snap collet (2) locks the segments of the expanding mouth piece (1) at their undercut. The chuck jaws (3) are kept locked by the chuck jaw hose (4) on the blind riveting mandrel (9).
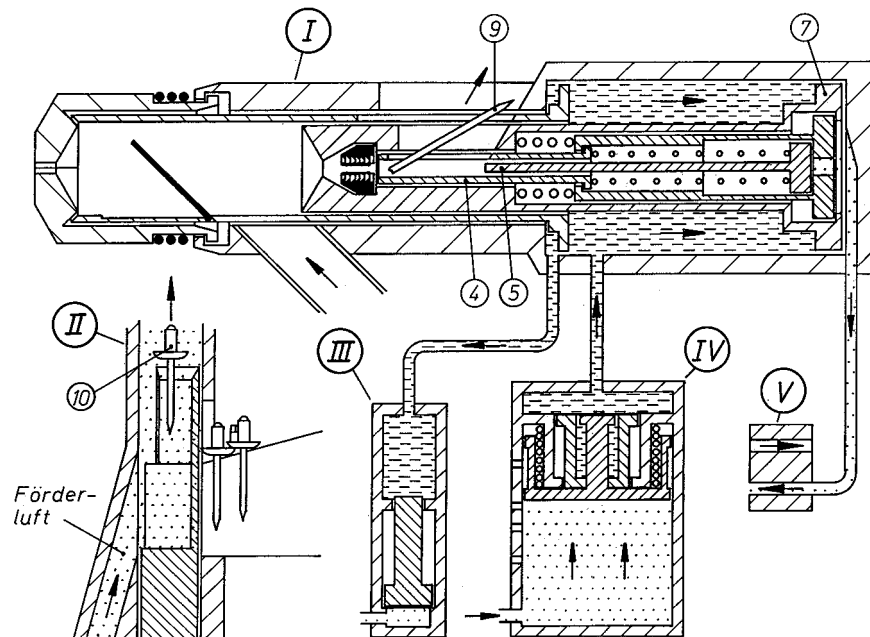
Function image 2

When the GAV is actuated the pulling piston (7) will be actuated by the pressure transmitter (IV) and the blind rivet setting process will be carried out. The blind rivet is set. The readjusting air is still pending.

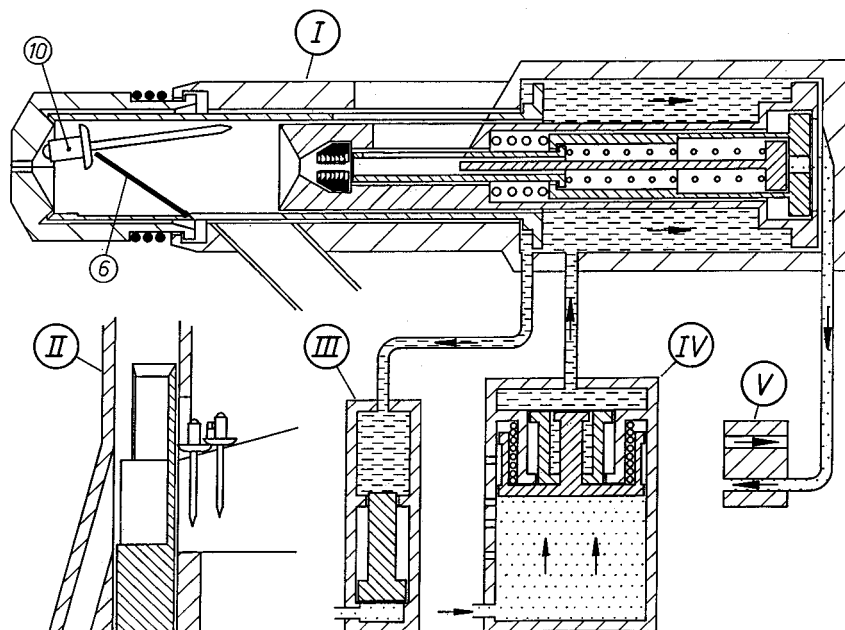**GESIPA®**

Description of functions

7 Function images and description

Function image 3

The pulling piston (7) is being actuated by the pressure transmitter (IV) and moves to back stop position. When the valve is switched (V) the readjusting air escapes. This relieves the stop pistons (5) as well as the chuck jaw hose (4) and the chuck jaws (3) release the blind riveting mandrel (9). The blind riveting conveying air is turned on by a switch impulse on the pressure transmitter (IV), the blind rivet (10) supplied by the singulator (II) is loaded and the torn off blind riveting mandrel (9) is ejected.
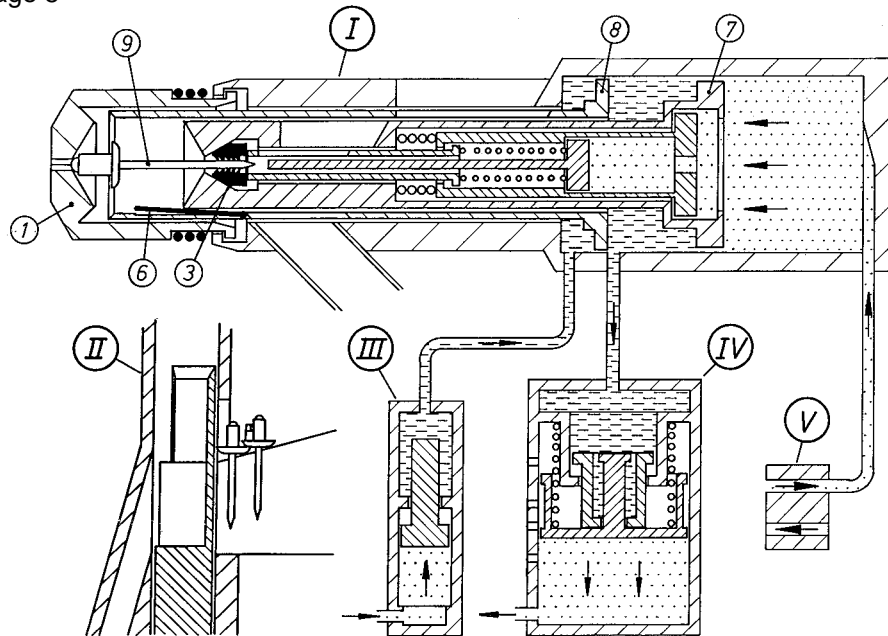
Function image 4

The supplied blind rivet (10) is positioned in the gun head (6) by the locking spring.

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Description of functions

7 Function images and description

Function image 5

The readjusting air is interconnected by the valve (V) and the pulling piston (7), as well as the piston of the pressure transmitter (IV), is reset at initial position. Simulteneously, the pressure piston (8) is actuated by the pressure transmitter (III) and carries out the unlocking stroke for the expanding mouth piece (1). The blind rivet mandrel (9) is taken over by the gripping mechanism and centred inside the chuck jaws (3).

Function image 6
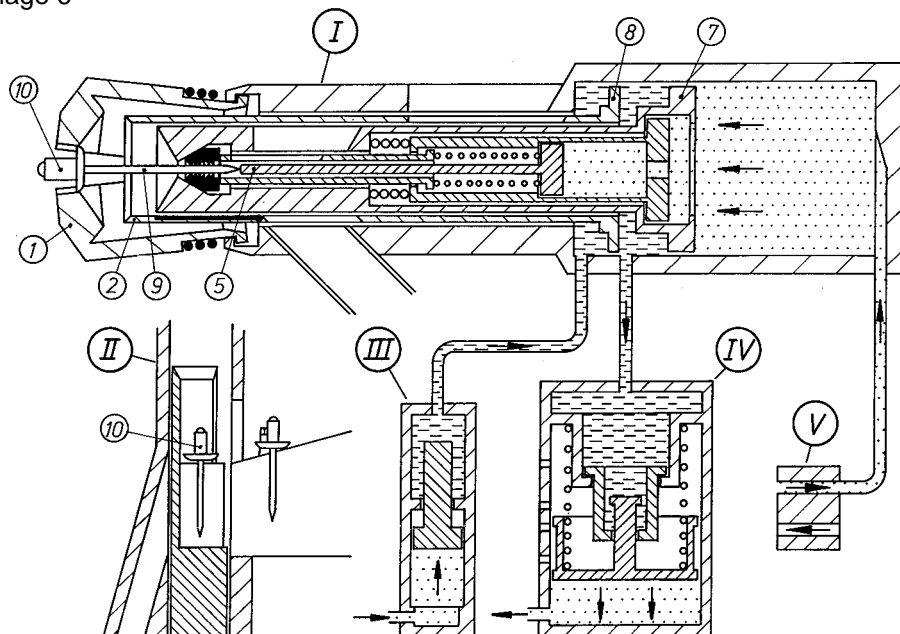
Whilst the pulling piston (7) continues to reverse, the blind riveting mandrel (9) hits the stop piston (5), so that the expanding mouth piece (1) is opened by the blind rivet (10) bringing it into processing position. The pressure transmitter (III) relieves the pressure piston (8) which carries out the locking stroke for the expanding mouth piece (1). Triggered by a switch impulse on the pressure transmitter (IV), the singulator was furnished with a further blind rivet (10).

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Operation

8.0 Overview
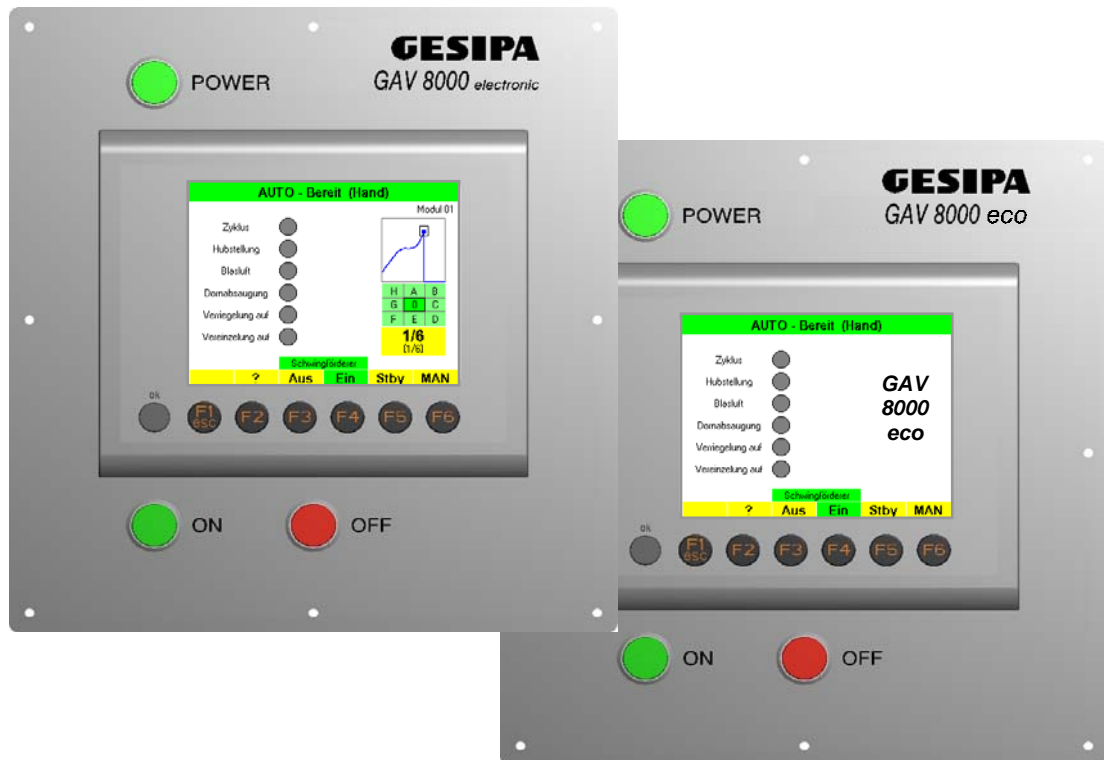
8.1   **Operating elements**

8.2   **Graphic display**

8.3   **Menu structure**

8.4   **Main menu**

8.5   **Error message**

8.6   **Access management**

8.7   **Manual Operation**
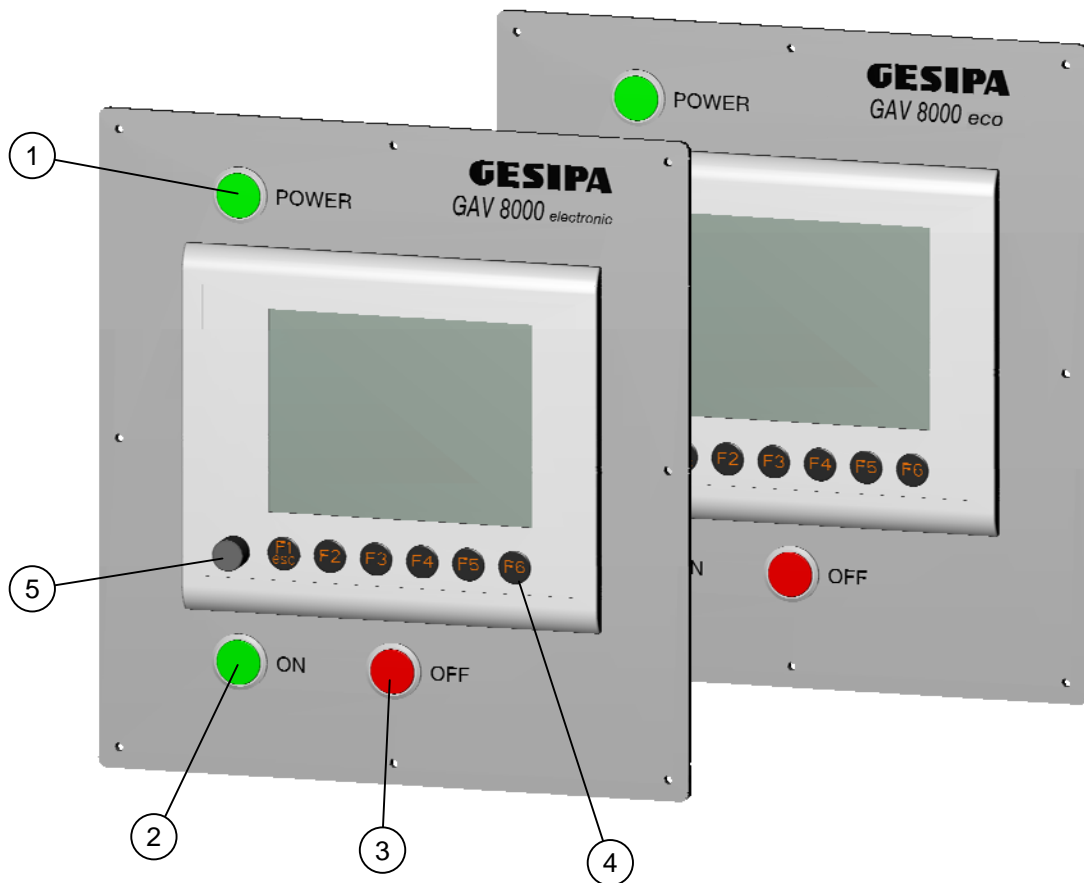
8.8   **Setting parameters**

8.9   **Selecting data**

8.10   **Text input**

Operation

8.1 Operational controls

1. **POWER** switch (main switch)
   - Switches the supply voltage (230V/50Hz or 110V 60Hz).
   - glowing green.

2. **ON** button
   - activates various control functions (dependent on display menu).
   - moves GAV into initial position.
   - glowing green.

3. **OFF** button
   - deactivates various control functions (dependent on display menu).
   - cuts off power to valves.
   - glowing red.

4. Function keys **F1..F6**
   - carry out various functions (dependent on display menu).
   - keys glowing orange.

5. Control knob / **OK** button
   - carries out various functions (dependent on display menu).

Operation

8.2 Graphic display

Dialogue unit   Graphic display
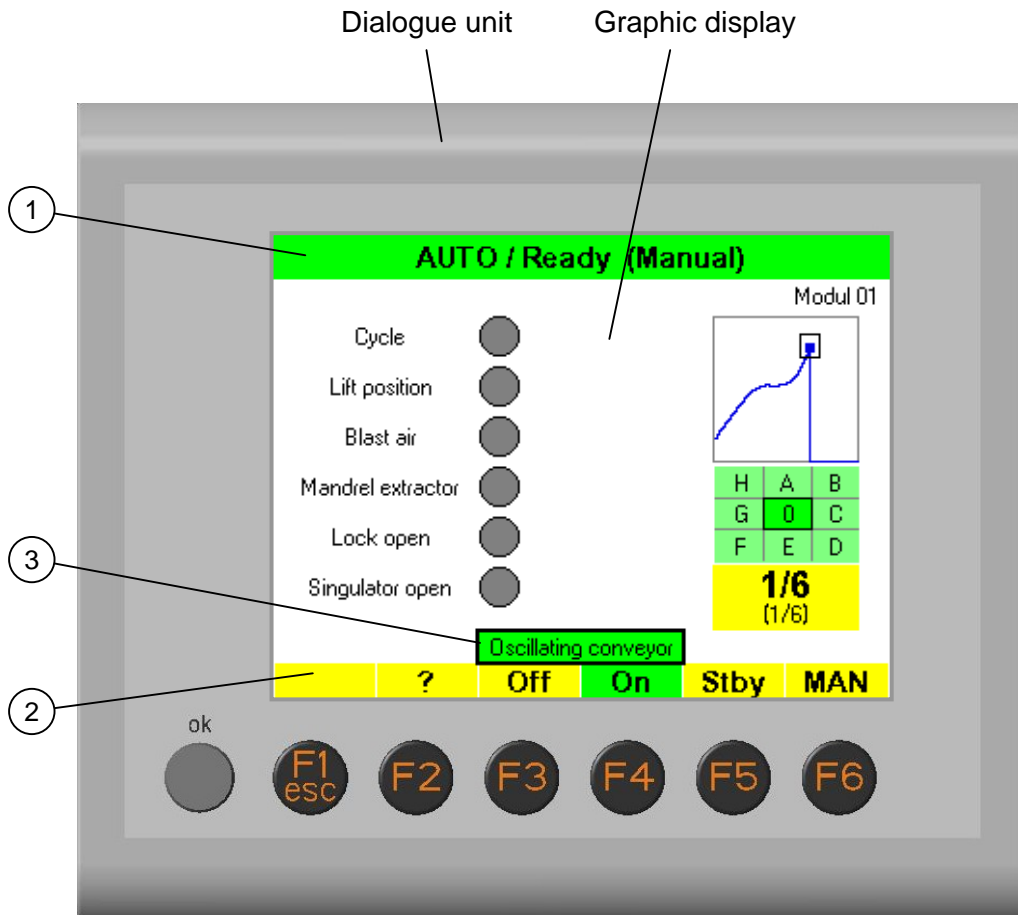
The graphic display is part of the dialogue unit and allows interactive control of the GAV. The graphic display shows the status and parameters, issues messages and visualises internal processes. Uniform display components and a well-structured menu ensure user-friendly handling.

1. The **title bar** of the graphic displays provides information about the current menu.

2. The graphic display's **function bar** is sub-divided into 6 fields and shows the assigned functions of the function keys F1 to F6 for the current menu.

3. Within the menus, functions may be selected by using the control knob of the dialogue unit or by pushing the control knob. Each selection is indicated by highlighting the relevant part with an added frame.

Operation

8.3 Menu structure

The following list shows how to access the various menus. Selections are made by using the function keys or the control knob. It is possible to return from each menu to the previous menu by selecting **Back** .

Legend:
- Title bar (menu information)
- Navigation field (functional key)
- Selection field (turn knob)

Menu tree:

- AUTO
- MAN → MAN
  - Menu → Menu
    - Settings GAV → Menu settings GAV
      - Oscillating conveyor → Setting oscillating conveyor
      - Pressure sensors → Setting pressure sensor DS1/DS2
        - Cal → Calibration pressure sensor DS1/DS2
        - DS3 → Calibration pressure sensor DS3
      - Large pressure transmitter → Setting large pressure transmitter WS1
        - Cal → Calibration WS1 large pressure transmitter
        - WS2 → Setting large pressure transmitter WS2
          - Cal → Calibration WS2 large pressure transmitter
      - Small pressure transmitter → Setting small pressure transmitter WS3
        - Cal → Calibration WS3 small pressure transmitter
      - Singulator → Setting singulator
      - Blast air → Setting blast air
      - Mandrel extractor → Setting mandrel extractor
      - Cycle → Setting cycle
      - Additional functions → Setting additional functions
      - Drive PLC → Setting drive PLC
      - Permanent test → Permanent test
      - I/O test → I/O test
      - PLC Interface test → PLC Interface test
    - Maintenance → Maintenance
    - Process monitoring → Settings process monitoring
      - Cal → Calibration process monitoring
        - Force → Menu Calibration process monitoring
        - Path → Calibration force
        - Cal → Calibration path
        - Filter → Filter process monitoring
        - Status → Status process monitoring
      - Profil → Setting profile
        - List → Setting profile list
          - PLC → Setting profile list PLC
            - Test → PLC Interface test
    - Process data → Process data 20 days
      - Day → Process data day
    - Process counter → Process counter
    - Operation data recording → Operation data recording
    - Access codes → Access codes
    - Time and language → Time and language
    - System info → System info
    - GRivCheck → PC mode
    - GESIPA → GESIPA

not included in GAV-8000 **eco**

GESIPA

Operation

8.4 Main menu

After start-up and during normal operation the GAV will be in the main menu AUTO.

AUTO main menu
Status "Ready"
Start option "manual" (manual release)

Navigation:
AUTO

Title bar	Status
AUTO-OFF (press ON)	GAV switched on (main switch "POWER") - Power to valves cut off.
Generating AUTO initial position...	ON key actuated: - Initial position is generated.
AUTO initial position	Initial setting: - Initial position was generated. - Start-up conditions not met: MALFUNCTION or oscillating conveyor OFF

AUTO ready (manual)	GAV ready (start-up conditions met):
	 - GAV in initial position
	 - Start-up conditions met
	   no malfunction and oscillating conveyor ON
	 - Start-up options: Manual = Manual trigger
	                     Foot = foot-actuated triggering
	                     PLC = Drive PLC ...

Oscillating conveyor OFF / ON	controls the oscillating conveyor unit. By selecting "oscillating conveyor" you can go directly to the "set oscillating conveyor" menu and set, for instance, the conveying performance.
Stby	puts the GAV into standby mode. For this, the display goes dark and the GAV is switched to "OFF". This function is undone by pressing any key.
MAN	changes to MAN menu, i.e. manual mode.

The display in the main menu may differ from the image shown if additional functions such as "process counters" are active.

Operation

8.4 Main menu

When the start-up conditions of the AUTO mode have been met, one of the active start-up options (shown in title bar) can be used to trigger a cycle. The current tool status is shown on the title bar of the main menu. In addition, the most important tool functions are shown by 6 red lights.

Step in cycle	Tool status
GAV ready - Start-up conditions met - The displayed start-up option can be used to trigger a cycle.	**AUTO ready (manual)** Cycle ● Lift position ○ Blast air ○ Mandrel extractor ○ Lock open ○ Singulator open ○
Cycle up to lift position: - Processing blind rivet. - Ejecting and extracting remaining mandrel.	**AUTO cycle up to lift position** Cycle ● Lift position ○ Blast air ● Mandrel extractor ● Lock open ○ Singulator open ○
Cycle lift position reached: - GAV gun has reached back stop position. - Extracting remaining mandrel.	**AUTO cycle lift position reached** Cycle ● Lift position ● Blast air ● Mandrel extractor ● Lock open ○ Singulator open ○
Cycle lift position ready: - GAV gun has reached back stop position. - Remaining mandrel extracted. - When triggered by PLC the GAV stops in this position until the gun has moved away from the work piece and the signal "reverse cycle" was sent from the PLC to the interface.	**AUTO cycle lift position ready** Cycle ● Lift position ● Blast air ○ Mandrel extractor ○ Lock open ○ Singulator open ○
Reverse cycle: - Loading new blind rivet.	**AUTO reverse cycle** Cycle ● Lift position ○ Blast air ○ Mandrel extractor ○ Lock open ● Singulator open ●
Cycle complete - Initial position reached after cycle.	**AUTO cycle complete** Cycle ○ Lift position ○ Blast air ○ Mandrel extractor ○ Lock open ○ Singulator open ○

GESIPA®

Operation

8.5 Error message

Tool malfunctions are shown in the AUTO main menu by displaying a white text in a red box, whilst warning lights are blinking. Details of the causes of malfunctions can be found in the relevant menu of "settings GAV".

AUTO main menu
Status "initial position"
3 Error message

Navigation:
AUTO

Error message	Submenu	
	Remedy	Navigation
Oscillating conveyor	**Setting the oscillating conveyor**	

Insufficient blind rivet sent.	Insert blind rivet or check oscillating conveyor setting.	► MAN
		► Menu
		  ► Settings GAV
		    ► Oscillating conveyor

Network pressure	**Setting the pressure sensor DS1/DS2**	

Air supply not in permitted pressure range.	Ensure sufficient compressed air supply.	► MAN
		► Menu
		  ► Settings GAV
		    ► Pressure sensors

Oil level	**Setting the large pressure transmitter WS2**	

Oil level of great pressure transmitter has dropped below minimum mark or exceeded maximum mark.	Correct oil level of great pressure transmitter, mind oil level mark.	► MAN
		► Menu
		  ► Settings GAV
		    ► Large pressure transmitter
		      ► WS2

Oil level of small pressure transmitter has dropped below minimum mark.	**Setting the small pressure transmitter WS3**	

	Use oil squirting can to position piston rod in upper stop position.	► MAN
		► Menu
		  ► Settings GAV
		    ► Small pressure transmitter

Rivetting gun	**Setting the large pressure transmitter WS2**	

GAV gun did not reach front stop position.	See Chapter 20 "Malfunction blind riveting gun"	► MAN
		► Menu
		  ► Settings GAV
		    ► Large pressure transmitter
		      ► WS2

GESIPA®

Operation

8.5 Error message

Error message	Submenu	
	Remedy	Navigation
Mouth piece	Setting the small pressure transmitter WS3	
Expanding mouth piece of GAV gun did not close.	- Press `OFF` button. - Remove blind rivet. Press `ON` button.	► MAN ► Menu ► Settings GAV ► Small pressure transmitter
Singulator	Setting the singulator	
Singulator did not close, blind rivet jammed.	Open singulator in `MAN` mode and remove blind rivet.	► MAN ► Menu ► Settings GAV ► Singulator
Mandrel extractor	Setting the mandrel extractor	
Remaining mandrel was not ejected.	See Chapter 20 "Malfunction blind riveting gun"	► MAN ► Menu ► Settings GAV ► Mandrel extractor
Mandrel basin full	Setting the mandrel extractor	
Remaining mandrel basin full.	Empty remaining mandrel basin.	► MAN ► Menu ► Settings GAV ► Mandrel extractor
Rivet query mouth piece	Setting the drive of PLC	
Blind rivet not loaded.	See Chapter 20 "Malfunction blind riveting gun"	► MAN ► Menu ► Settings GAV ► Drive PLC
Rivet query conveyor	Setting additional functions	
Blind rivet not conveyed.	See Chapter 20 "Malfunction blind riveting gun"	► MAN ► Menu ► Settings GAV ► Additional functions
Cycle	Setting the cycle	
Malfunction in cycle, blind rivet was not processed.	See Chapter 20 "Malfunction blind riveting gun"	► MAN ► Menu ► Settings GAV ► Cycle

Operation

8.5 Error message

Direct menu selection:

In order to simplify the search for the relevant menu containing information about the cause of the malfunction, and to use a shortcut, you can change the option in the main menu to the displayed error message by using **?** . After selecting an error message and pressing the control knob you will go directly to the relevant menu. To return from there to the main menu, use **back** .
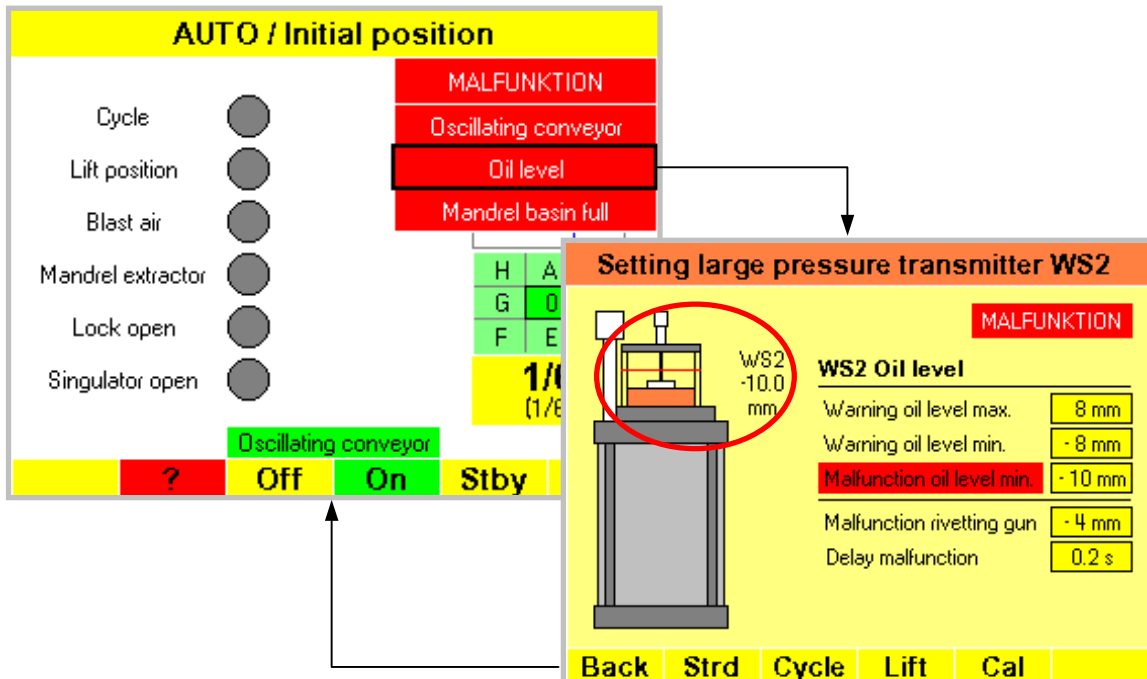
Example:

In the example **?** and "malfunction oil level" were selected in order to go directly to the "Setting the great pressure transmitter WS2" menu. Here, the setting parameter "malfunction oil level min." is highlighted red in order to indicate the cause for the malfunction, the current oil level in the oil tank of the pressure transmitter is indicated numerically and displayed graphically.

For the example shown, the malfunction may be removed by topping up hydraulic oil in the great pressure transmitter. The numeric and graphic display for the oil level on the display allows the observation of the topping up process.

Operation

8.6 Access management

Access management ensures that service and setting work for the GAV can be carried out by authorised persons only. Access authorisation is granted after entering a four digit access code. There are two levels of access authorisation:

- Service code	For service and general setting work.
- GESIPA code ⊶0 GESIPA-Code	For the input of calibration data. In the operating instructions the relevant menus are marked accordingly.

For most menus, access authorisation is only demanded when parameters or settings are to be changed. Once access authorisation is granted, this will be valid for the entire manual area. A return to the AUTO main menu will delete all access authorisations.

Entering an access code:

To enter an access code, an additional window appears in the relevant menu and the navigation bar is changed accordingly. The title bar of the window shows which access code must be entered, that is, the service or the GESIPA code.

The access code is entered by using numbers **1** to **4** . Numbers are entered by starting in the left field and, for hidden input (standard) are indicated by one star * per number.
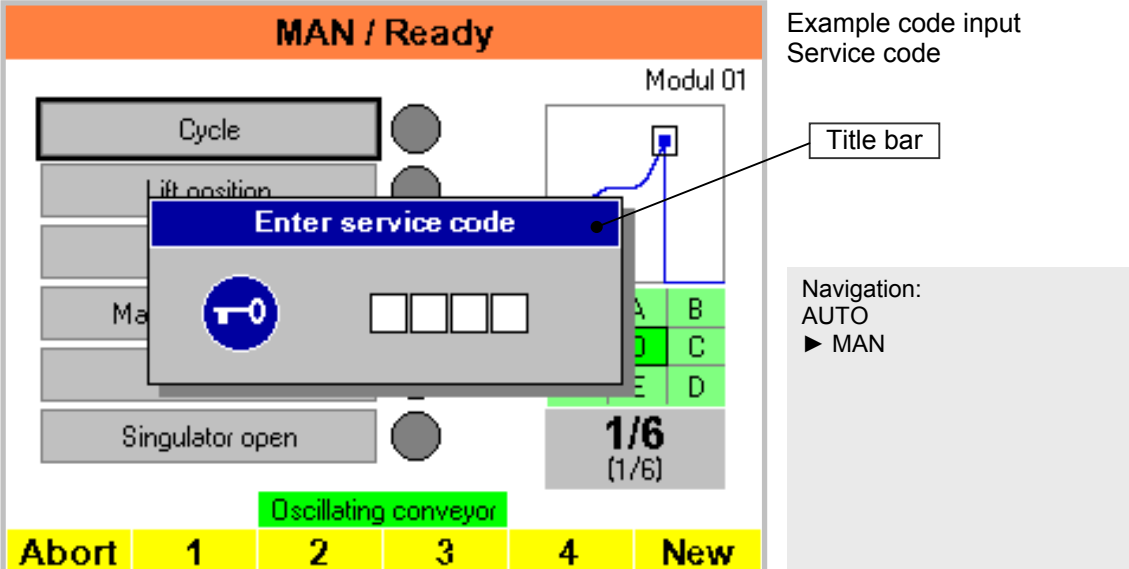
The default setting for the service code is 1111.

Cancel interrupts the code input.

New enables renewed input of a code.

Access will be granted after the correct code was entered.

Access authorisations are deleted in the main menu.

Example code input
Service code

Title bar

Navigation:
AUTO
► MAN

Example:

In the example, "cycle" function was selected in the "MAN" menu. This function requires the access authorisation "service code" before it can be carried out.

Operation

8.7 Manual mode

The MAN menu allows GAV functions to be carried out manually. Malfunctions of the tool are shown in the same way as in the AUTO main menu but there are no start-up conditions. **For reasons of safety all the active start options of the AUTO main menu are disabled for the entire manual area.**

Manual operation MAN

Navigation:
AUTO
► MAN

Function	Description
Cycle	- Conditions: GAV in initial position
	- Running complete processing cycle.
Lift position	- Conditions: GAV in initial position
	- Gun moves to back stop position with "gun air off", "blast air on" and "drift extractor on" functions not being carried out.
	- Actuating the **ON** button once more will return the GAV to initial position, For this the "blast air off", "lock open" and "singulator open" functions are not carried out.
Blast air	- Conditions: "Lift position active" function
	- "blast air on" function is activated.
	- "drift extractor on" function is activated.
	- "gun air off" function is activated.
Drift extractor	- Conditions: none
	- "drift extractor on" function is activated.
	- To reset this function, again operate the **ON** button.
Lock open	- Conditions: GAV in initial position
	- "lock open" function is activated.
	- To reset this function, again operate the **ON** button.
Singulator open	- Conditions: GAV in initial position
	- "singulator open" function is activated.
	- To reset this function, again operate the **ON** button.

Oscillating conveyor **OFF** / **ON**	same function as AUTO main menu.
Stby	same function as AUTO main menu.
MAN	changes to MAN menu, i.e. manual mode.
Menu	goes to selection menu.
AUTO	back to AUTO main menu.

Operation

8.8 Setting parameters

Variable parameters are displayed and set the same way for all menus.

Setting range and step sizes may be limited according to parameter and data type.

High precision parameters have multi-step settings. For this, the whole number and decimal digits can be set in two steps, great values first in hundreds and then in unit digits.

Example:

Setting the conveying performance oscillating conveyor in "Set oscillating conveyor" menu.

Step	Input	Result
1. Select parameter		
2. Activate setting	ok →	
3. Set parameter		
4. Import parameter	ok →	

For multi-level settings step 3 will be repeated accordingly.

The F1 and F6 function keys are ignored during step 3 "set parameter".
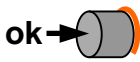
Operation
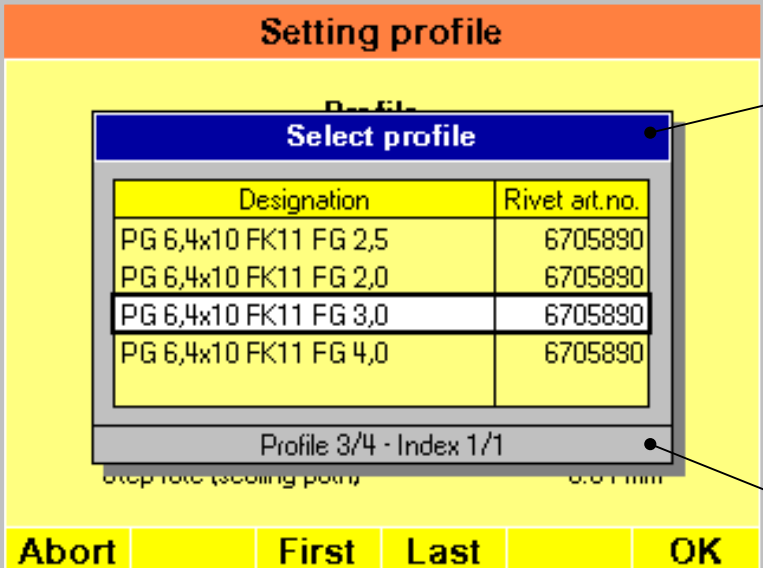
8.9 Selecting data

Some menus require the selection of data. An additional window appears for data selection and the navigation bar is changed accordingly.

The │ title bar │ of the window shows which data are selected.

Details to the currently selected data record are shown on the │ status bar │.

Input		Function
Knob	(⟲)	Select data record in field that is highlighted in white.
First		Select the first data record in the table.
Last		Select the last data record in the table.
OK	ok ➔	Import selected data record.
Cancel		Cancel without selection.

Example data selection

Setting profile

Select profile ⟶ │ Title bar │

Designation	Rivet art.no.
PG 6,4x10 FK11 FG 2,5	6705890
PG 6,4x10 FK11 FG 2,0	6705890
PG 6,4x10 FK11 FG 3,0	6705890
PG 6,4x10 FK11 FG 4,0	6705890

Profile 3/4 - Index 1/1

Abort   **First** **Last**   **OK**

Navigation:
AUTO
► MAN
  ► Menu
    ► Process monitoring
      ► Profil
      ► Loading

│ Status bar │

Example:

In the example shown the "setting profile" menu is used to load a profile from the profile database. The profile to be loaded can be selected in the window shown. The number of the selected profile and its alteration index is displayed on the status bar.

This example shows features belonging to the process control function and is not included in the GAV-8000 **eco**.
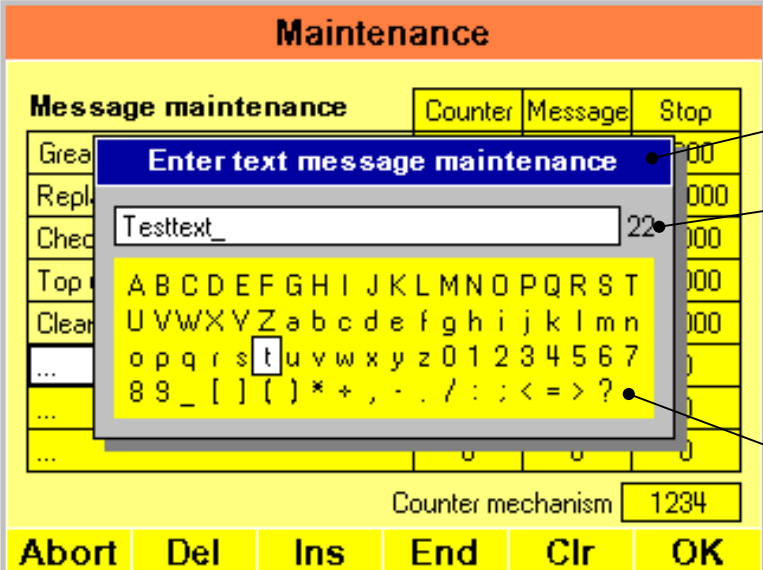
Operation

8. 10 Entering text

Some menus require the input of text. An additional window appears for entering text and the navigation bar is changed accordingly.

Which text input is expected is shown on the | title bar | of the window.

The entered text and the number of characters still available are shown in the | input line | of the window. The flashing cursor "_" shows the input position.

The characters available for text input are displayed in the | selection field | of the window.

Input	Function		
(rotary knob)	Select characters in options display.		
ok→ (knob)	Import selected character into input line.		
Del	Delete character before cursor. Holding for 2 seconds will delete the whole line of text.		
Ins	Activate insert mode:	(rotary knob)	Select insert position.
		ok→ (knob)	Enter text.
end	End insert mode, set cursor at the end of the line of text.		
Clr	Space character.		
OK	Import input.		
Cancel	Cancel input without change.		

Example text imput

Title bar

Input line

Navigation:
AUTO
► MAN
► Menu
► Maintenance

Selection field

Example:

The example shows the text input for one of the freely definable maintenance texts.

Settings GAV

9.0 Overview

GESIPA®

Settings GAV

9.1 Oscillating conveyor

Menu settings oscillating conveyor

Proximity switch NS1

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► Oscillating conveyor

Setting the oscillating conveyor (6-8000)	
(How to set the proximity switch NS1 4-8045 is described in chapter 9.5 "Settings GAV" – "singulator")	
Conveying performance	controls the conveying performance of the oscillating conveyor.
Shut-off Delay	The slowing down time starts when the proximity switch NS1 reaches singulator chute "ON" (singulator chute filled with blind rivets). This function provides the storage of blind rivets on the singulator chute.
Rivet counter	The rivet counter is set at the piece number of blind rivets that are still present on the singulator chute after passing proximity switch NS1 "OFF". This function prevents that the singulator is running empty. Malfunction oscillating conveyor when reaching set value.
Running period	Not adjustable. Short running period for standard operation, long running period if oscillating conveyor bowl is empty. This function prevents the wedging together of blind rivets in a blind rivet pile-up. Malfunction oscillating conveyor when reaching set value.

Strd	restores standard settings.
OFF / ON	switches the oscillating conveyor unit on or off.

Settings GAV

9.2 Pressure sensors

Setting pressure sensor DS1/DS2

DS1 6.2 bar

DS1 Network pressure

| Network pressure max. | 7.0 bar |
| Network pressure min. | 6.0 bar |

DS2 6.2 bar

DS2 Rivetting gun air

Manual trigger	5.6 bar
Ventilation cycle	0.8 bar
Backfeed delay	1.5 s
Backfeed period	100 ms

Back Strd Cycle Lift Cal DS3

Menu settings
Pressure sensor DS1/DS2

Navigation:
AUTO
► MAN
 ► Menu
  ► Settings GAV
   ► Pressure sensors

DS1 Network pressure (1-8040.1)	
monitors the compressed air supply of the GAV. (For settings see chapter 5 "Commissioning and handling").	
Network max.	Malfunction network when exceeding the set value.
Network pressure min.	Malfunction network when dropping below the set value.
DS2 Rivetting gun air (1-8040.2)	
monitors the compressed air supply of the GAV gun.	
Manual trigger	Cycle start, if below set value.
Ventilation cycle	Continue cycle from lift position if pressure dropped below set value.
Backfeed delay	Time-delayed backfeed of gun air locked in initial position after pressure dropped below DS1 network pressure minimum.
Backfeed period	Period of gun air backfeed.
The setting range of single parameters may vary when dependent on other variable parameters.	

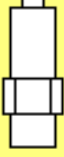| **Strd**	restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Lift	Moves gun to lift position (See chapter 8.7 "manual mode" "lift position" function).
Cal	"Calibration pressure sensors DS1/DS2" menu
DS3	"Calibration pressure sensor DS3" menu
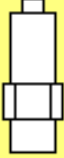
Settings GAV

9.2 Pressure sensors

Calibration and basic setting pressure sensor DS1/DS2 (1-8040.1/.2)

The calibrating data for "signal type" and "measuring range" in the "calibration pressure sensor DS1/DS2" menu are set during installation and must not be changed.

Basic setting for pressure sensors is not required.

DS1

DS2

Menu
Calibration
Pressure sensor
DS1/DS2

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► Pressure sensors
► Cal

🔑 0   GESIPA-Code
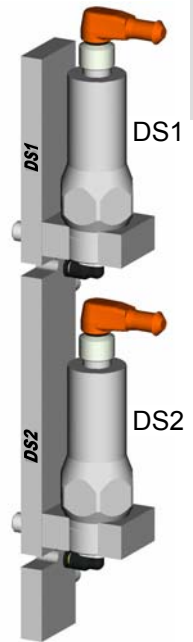
Calibration DS1 (1-8040.1)	
Signal type	Signal type of pressure sensor
Measuring range	Measuring range of pressure sensor
Calibration DS2 (1-8040.2)	
Signal type	Signal type of pressure sensor
Measuring range	Measuring range of pressure sensor

Strd	Restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Lift	Moves gun to lift position (See chapter 8.7 "manual mode" "lift position" function).

GESIPA®

Settings GAV

9.2 Pressure sensors Not included in GAV-8000 *eco*

Calibration and basic setting pressure sensor DS3 (3-8192)

The pressure sensor DS3 is adapted at the connection for the hydraulic line of the large pressure transmitter.

The calibrating data for "signal type", and "measuring range" in the "calibration pressure sensor DS3" menu are set during installation and must not be changed.

Basic setting for the pressure sensor is not required.

After an exchange of pressure sensor it is necessary to bleed the hyrdraulic system (See chapter 24 "filling hydraulic systems").

DS3
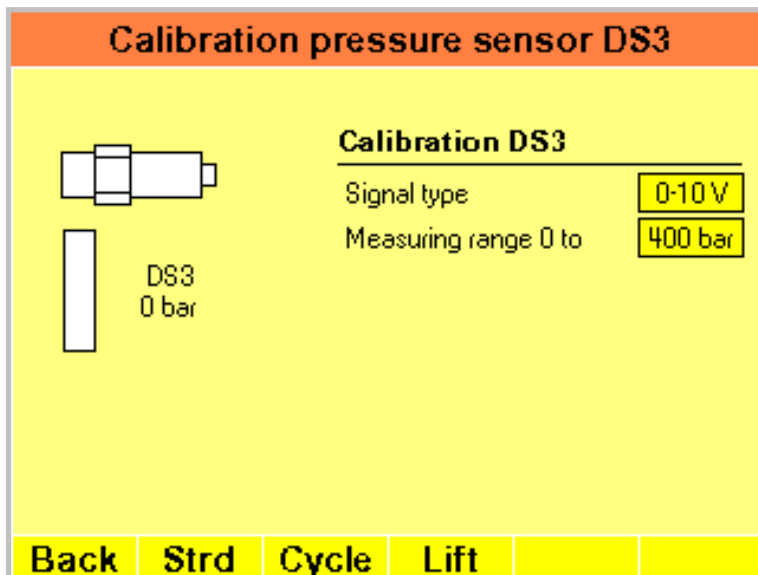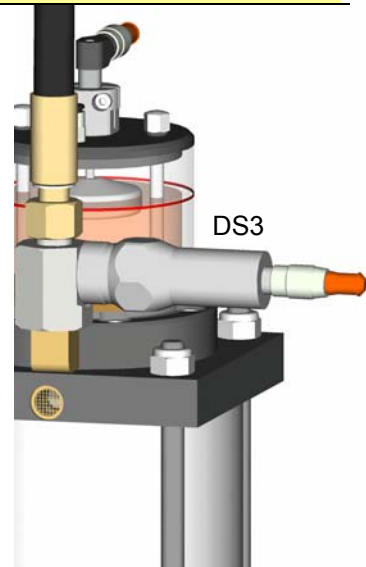
Menu calibration
Pressure sensor DS3

Navigation:
AUTO
► MAN
  ► Menu
    ► Settings GAV
      ► Pressure sensors
        ► DS3

GESIPA-Code

Calibration DS1 (3-8192)	
Signal type (Standard 0-10V)	Signal type of pressure sensor
Measuring range (Standard 0-400 bar)	Measuring range of pressure sensor
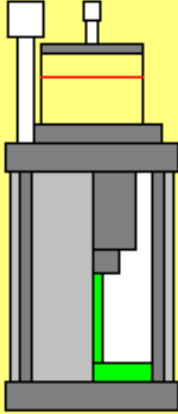
Strd	Restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Lift	Moves gun to lift position (See chapter 8.7 "manual mode" "lift position" function).

Settings GAV

9.3 Large pressure transmitter

Menu settings
Large pressure transmitter
Distance sensor WS1

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► Large pressure
transmitter

GESIPA-Code

WS1 shift points cycle (3-8197)
The shift points control the sequences within the processing cycle. The setting range for this is the entire measuring range starting at the sensor's zero point.

Pulling sequence	Gun air off	Turns off the gun air at the end of the power-driven lift, the chuck jaws open and the remaining mandrel is released.
	Blast air on	Turns on the blast air after the end of the power-driven lift, the remaining mandrel is ejected and the blind rivet is conveyed.
	Mandrel extractor on	Turns on the mandrel extractor, the remaining mandrel is conveyed to the remaining mandrel basin.
	Lift position	Lift position reached.
Return	Blast air off	Turns off blast air.
	Lock open	Opens the lock to enable loading of blind rivet.
	Singulator open	Opens the singulator for a new blind rivet.
	Initial setting	Initial position reached, lock activated and singulator closed.

Strd	Restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Lift	Moves gun to lift position (See chapter 8.7 "manual mode" "lift position" function).
Cal	"Calibration WS1 large pressure transmitter" menu
WS2	"Setting large pressure transmitter WS2" menu

# Settings GAV

9.3 Large pressure transmitter

Calibration and basic setting distance sensor DS3 (3-8197)

To exchange the distance sensor, the pressure transmitter has to be disassembled first (See chapter 22 "disassembly and assembly pressure transmitter").

The distance between the lower edge of the distance sensor's head and the upper edge of the assembling trestle is set to 80 mm which serves as assembly measurement.

The calibrating data for "signal type", and "measuring range" in the "calibration WS1 large pressure transmitter" menu is set during installation and must not be changed.

The initial position for the pressure transmitter is adjusted by the "zero point" parameter. "Zero point" in initial position is set in such a way that the "current position" is 0.0 mm. From this should follow a "zero point" parameter between 2 and 4 mm. Minor correction may be carried out by shifting the distance sensor inside the pressure transmitter.

DS3

Assembly measure

80 mm
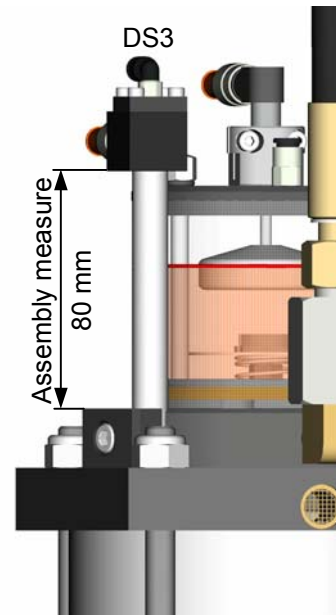
Calibration WS1 large pressure transmitter

Calibration WS1

Signal type	0-10 V
Measuring range 0 to	100 mm
Zero point at	3.0 mm

Current position

0.0 mm

Zero

| Back | Strd | Cycle | Lift | | |

Menu calibration
Distance sensor WS1
Large pressure transmitter

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► Large pressure
transmitter
► Cal

⊢O   GESIPA-Code

Calibration WS1 (3-8197)	
Signal type	Signal type of distance sensor
Measuring range	Measuring range of distance sensor
Zero point	Zero point of distance sensor

Strd	Restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Lift	Moves gun to lift position (See chapter 8.7 "manual mode" "lift position" function).

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Settings GAV

9.3 Large pressure transmitter

Menu settings
Large pressure transmitter
Distance sensor WS2

Navigation:
AUTO
► MAN
  ► Menu
    ► Settings GAV
      ► Large pressure
        transmitter
        ► WS2

WS2 oil level (3-8198)	
monitors the oil level in the tank of the large pressure transmitter.	
Warning oil level max.	Malfunction oil level when reaching set value.
Warning oil level min.	Malfunction oil level when reaching set value.
Malfunction oil level min.	Malfunction oil level when reaching set value.
Malfunction gun	Malfunction gun when reaching set value. A gun with blocked return motion results in a fast drop of oil level; the malfunction is evaluated in initial position.
Delay malfunction	The evaluation for "malfunction gun" is delayed.
The setting range of single parameters may vary when dependent on other variable parameters.	

Strd	restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Lift	Moves gun to lift position (See chapter 8.7 "manual mode" "lift position" function).
Cal	"Calibration WS2 large pressure transmitter" menu

Settings GAV

9.3 Large pressure transmitter

Calibration and basic setting distance sensor WS2 (3-8198)

During assembly of the distance sensor the sensor body is set flush to the bottom side of the lid.
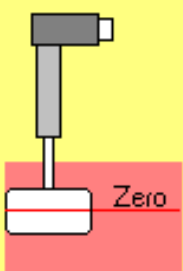
The calibrating data for "signal type", and "measuring range" in the "calibration WS2 large pressure transmitter" menu is set during installation and must not be changed.

The initial position for the float is adjusted by the "zero point" parameter. To do this, the oil level must be filled up to the mark on the inspection glass. The "Zero point" parameter is set in such a way that the "current position" is 0.0 mm. The "zero point" is then supposed to be around 14 mm. Minor correction may be carried out by shifting the distance sensor inside the pressure transmitter.

WS2

Lid
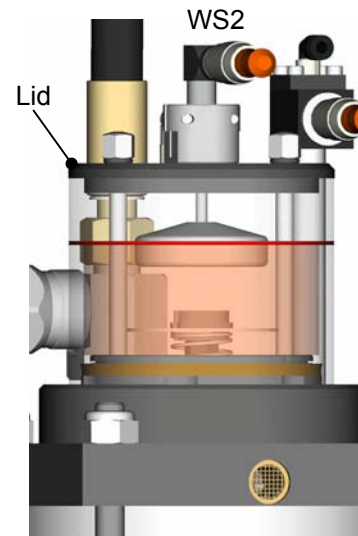
Menu calibration
Distance sensor WS2
Large pressure transmitter

Navigation:
AUTO
► MAN
  ► Menu
    ► Settings GAV
      ► Large pressure
        transmitter
        ► WS2
          ► Cal

☞ GESIPA-Code
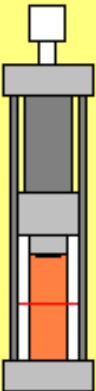
Calibration WS2 (3-8198)	
Signal type	Signal type of distance sensor
Measuring range	Measuring range of distance sensor
Zero point	Zero point of distance sensor

Strd	Restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Lift	Moves gun to lift position (See chapter 8.7 "manual mode" "lift position" function).

Settings GAV

9.4 Small pressure transmitter

Menu settings
Small pressure transmitter
Distance sensor WS3

Navigation:
AUTO
► MAN
  ► Menu
    ► Settings GAV
      ► Small pressure
        transmitter

WS3 oil level (3-8199)	
monitors the oil level inside the small pressure transmitter.	
Warning oil level min.	Malfunction oil level when reaching set value.
Malfunction oil level min.	Malfunction oil level when reaching set value.
Delay malfunction	The evaluation for "malfunction oil level" is delayed.
Locking lift	Not adjustable. indicates the locking lift. This parameter is used for setting the set value for "malfunction mouth piece".
Malfunction mouth piece	Malfunction mouth piece when reaching set value. Setting: - Detach expandable mouth piece on gun with a ¼ rotation. - Open and close lock by pressing the **OPEN** button. - Import value of "locking lift" parameter. - Tighten expandable mouth piece on gun.
The setting range of single parameters may vary when dependent on other variable parameters.	

Strd	restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Open	Opens the lock of the gun in initial position. (See chapter 8.7 "manual mode" "open lock" function).
Cal	"Calibration WS3 small pressure transmitter" menu

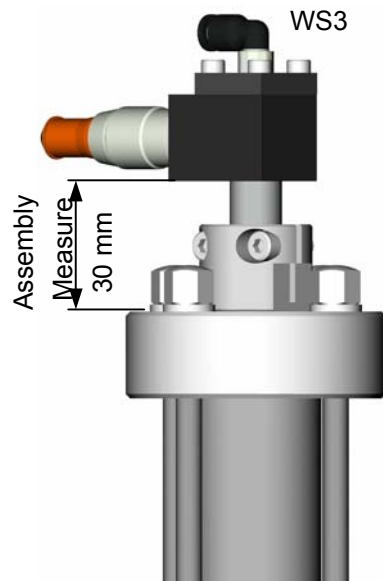# Settings GAV

9.4 Small pressure transmitter

Calibration and basic setting distance sensor WS3 (3-8199)

To exchange the distance sensor, the pressure transmitter has to be disassembled first (See chapter 22 "disassembly and assembly pressure transmitter").
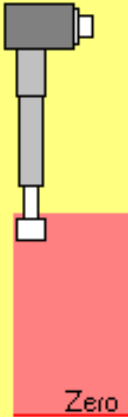
The distance between the lower edge of the distance sensor's sensor head and the upper edge of the connecting flange of the pressure transmitter is set to 30 mm to serve as assembly measurement.

The calibrating data for "signal type", and "measuring range" in the "calibration WS3 small pressure transmitter" menu is set during installation and must not be changed.

The initial position for the pressure transmitter is adjusted by the "zero point" parameter. "Zero point" in initial position is set in such a way that the "current position" is 0.0 mm. From this should follow a "zero point" parameter between 2 and 4 mm. Minor correction may be carried out by shifting the distance sensor inside the pressure transmitter.

WS3

Assembly Measure 30 mm

Menu calibration
Distance sensor WS3
Small pressure transmitter

Navigation:
AUTO
► MAN
► Menu
 ► Settings GAV
 ► Small pressure
 transmitter
 ►Cal

🔑0   GESIPA-Code

Calibration WS3 small pressure transmitter

Calibration WS3

Signal type	0-10 V
Measuring range 0 to	88 mm
Zero point at	3.0 mm

Current position

74.0 mm

Zero

| Back | Strd | Cycle | Open |

CalibrationWS3 (3-8199)	
Signal type	Signal type of distance sensor
Measuring range	Measuring range of distance sensor
Zero point	Zero point of distance sensor

Strd	Restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Open	Opens the lock of the gun in initial position. (See chapter 8.7 "manual mode" "open lock" function).

Settings GAV

9.5 Singulator

Basic setting proximity switch NS1 4-8045
(oscillating conveyor control)
- Remove plug and detach locknut.
- Set sensor flush with inner edge of chute sheet.
- Tighten locknut and connect plug.

**Basic setting proximity switch NS2 4-8044**
(Monitoring the singulator spoon)
- Singulator closed in initial position.
- Remove plug and detach locknuts.
- Turn sensor manually right up to stop.
- Detach sensor with a ¼ rotation.
- Tighten locknut and connect plug.

Basic setting control valve
(Stop buffer for singulator)
Open setting screw of the regulating valve from
locked position approx. 2 turns.

NS1

Chute sheet

Regulating
valve 4-8029

NS2
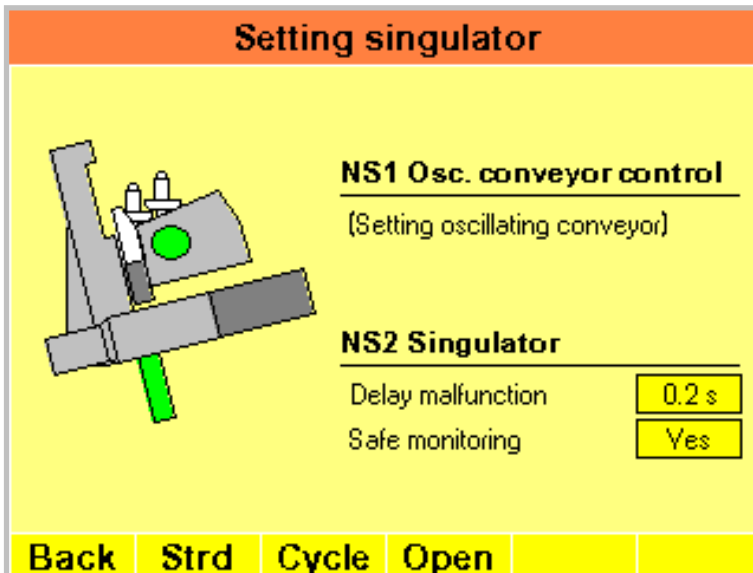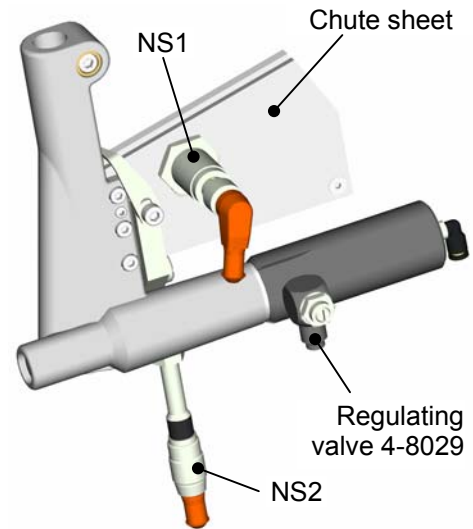
Menu settings
Singulator

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► Singulator

NS1 oscillating conveyor control (4-8045)	
see chapter 9.1 "settings of oscillating conveyor".	
NS2 singulator (4-8044)	
monitors the status of the singulator. Malfunction singulator when relevant triggered stop position is not reached.	
Delay malfunction	The evaluation for "malfunction singulator" is delayed.
Safe monitoring	Closing the singulator is precondition for starting the cycle.

| **Strd**	restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Open	Opens the singulator in initial position of GAV (See chapter 8.7 "manual mode" "open singulator" function).

Settings GAV

9.6 Blast air

Basic setting blast air

Open setting screw of the blast air regulating valve from locked position approx. 2 turns.

Other settings:

- Less blast air due to damages by conveyance on the blind rivet.

- More blast air at deficient blind rivet conveyance or faulty mandrel ejection.

Blast air regulating valve
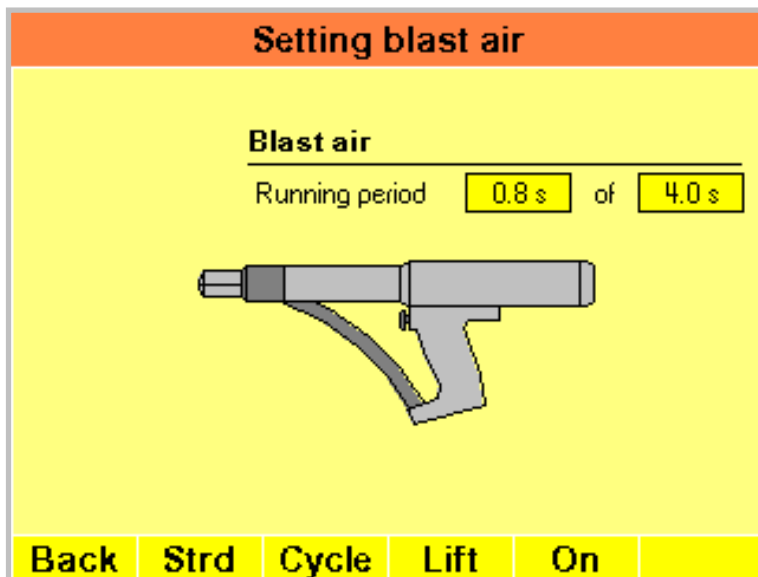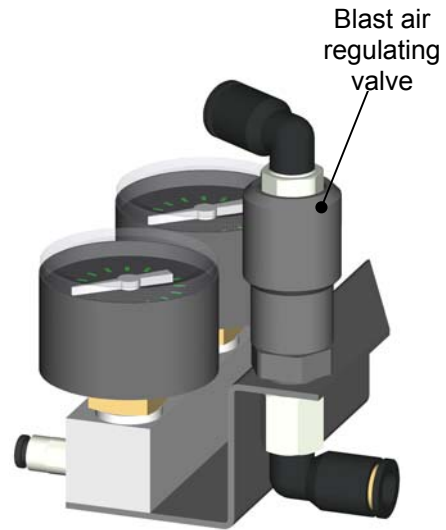
Menu settings
Blast air

Navigation:
AUTO
► MAN
  ► Menu
    ► Settings GAV
      ► Blast air

Blast air	
Monitors the running time of the blast air.	
Running period	turns off the blast air when set value is reached.

|	
Strd	restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Lift	Moves gun to lift position (See chapter 8.7 "manual mode" "lift position" function).
ON	Activates the blast air in lifting position of the GAV (See chapter 8.7 "manual mode" "blast air" function).

Settings GAV

9.6 Blast air

<u>Initial setting central lubrication</u> (1-8130)

- Setting screw upper stop position:

  Oil discharge per piston stroke near 0

- Setting screw lower stop position:

  maximum oil discharge per piston lift. At this setting, the filling is empty after approx. 22.000 cycles.

Basic setting: Open setting screw starting from stop position with approx. 1 rotation.
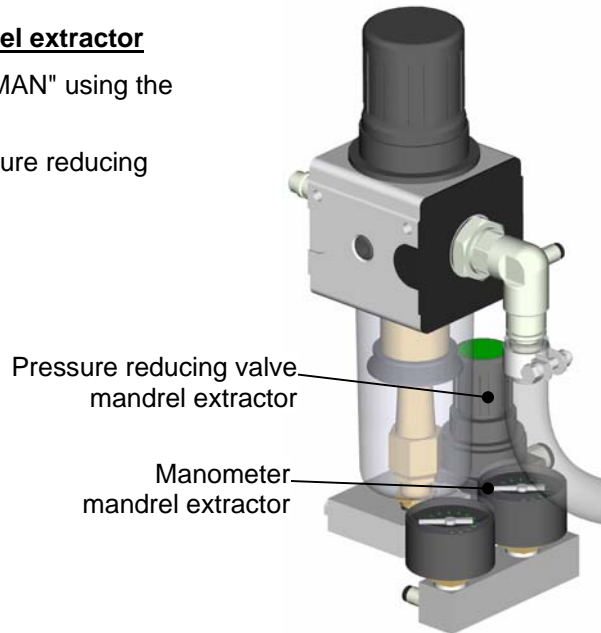
Setting screw
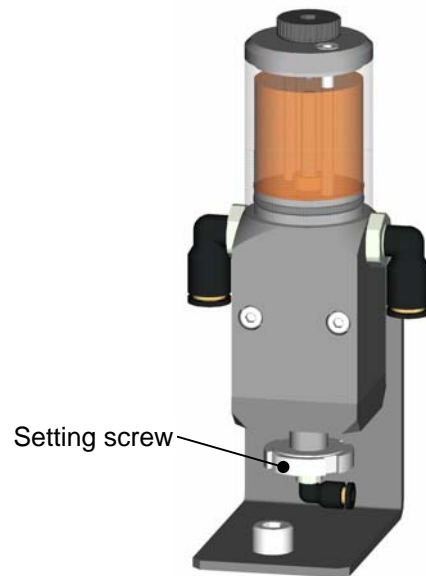
Settings GAV

9.7 Mandrel extractor

Basic setting Operating pressure mandrel extractor

- Activate mandrel extractor in the menu "MAN" using the function "mandrel extractor".

- At active mandrel extractor, set the pressure reducing valve mandrel extractor to 4 bar
 (flow pressure), check of manometer
  mandrel extractor.

Pressure reducing valve
mandrel extractor

Manometer
mandrel extractor

Initial setting RS1 mandrel extractor (1-8041)

- Turn setting screw of the ring sensor RS1 clockwise (more sensible), until the LED display lights up.

- Turn setting screw of the ring sensor RS1 anticlockwise (less sensible), until the LED display goes out.

The ring sensor's sensitivity RS1 must be varied according to material and dimension of the remaining mandrel.

The switch status of the ring sensor RS1 can also be verified in the menu "setting of mandrel extractor".
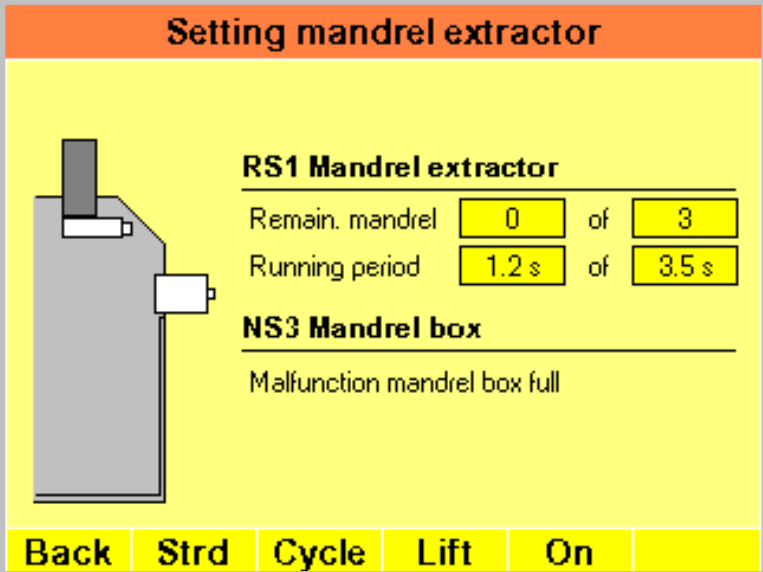
Adjusting screw

RS1   LED display
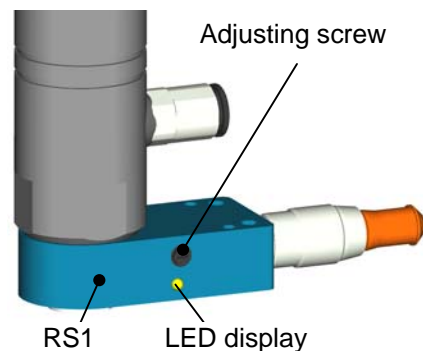
Initial setting NS3 Mandrel box (4-8043)

- Release locknuts of sensor NS3.

- Set sensor NS3 as far as possible towards the mandrel box.

- Tighten the locknuts of sensor NS3.

- Detach the fastening screws of the support.

- Move mandrel box right up to just before sensor NS3.

- Set sensor NS3 in the height a little bit over the edge of the mandrel recipient.

- Tighten fastening screws of support.

Support

NS3

GESIPA®
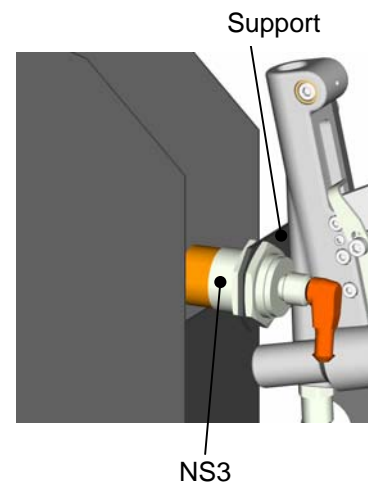
Settings GAV

9.7 Mandrel extractor

Menu settings
mandrel extractor

Navigation:
AUTO
► MAN
► Menü
► Settings GAV
► Mandrel extractor

RS1 mandrel extractor (1-8041)	
registers torn off remaining mandrels. Malfunction mandrel extractor when set value for "remaining mandrel" is exceeded and set value for "running time" is reached.	
Remaining mandrel	If the set value is exceeded, the processing cycle will be stopped in lift position until a remaining mandrel is detected. Settings greater than 0 enable faster working because there is no interruption for each processing cycle until the arrival of a remaining mandrel in the mandrel box.
Running period	turns off the mandrel extractor when set value is reached.
NS3 Mandrel box (4-8043) monitors the filling level of the mandrel box. Malfunction mandrel box full when mandrel box is full.	

Strd	Restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Lift	Moves gun to lift position (See chapter 8.7 "manual mode" "lift position" function).
ON	Activates the mandrel extractor (See chapter 8.7 "manual mode" "mandrel extractor" function).

Settings GAV

9.8 Cycle

Setting cycle	Menu settings cycle
Initial position ON	
Unlocking time 2.0 s of 2.0 s	
Times in cycle	Navigation:
Monitoring time lift position 0.6 s of 2.0 s	AUTO
Waiting time lift position 0 ms of 0 ms	► MAN
Monitoring time reverse 0.7 s of 2.0 s	► Menu
	► Settings GAV
Back Strd Cycle Lift	► Cycle

Initial position ON	
"ON" function button from operating status "OFF".	
Unlocking time	Initial position will be activated when the set value is reached
Times in cycle	
monitors and controls times in cycle.	
Monitoring time lift position	Malfunction cycle when reaching set value.
Waiting time lift position	Cycle is stopped in lift position until set value is reached. This function is activated under special conditions (e.g. excessive feed bundle).
Monitoring time reverse	Malfunction cycle when reaching set value.

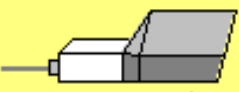| **Strd**	restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Lift	Moves gun to lift position (See chapter 8.7 "manual mode" "lift position" function).

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Settings GAV
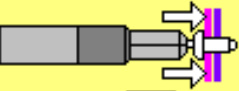
9.9 Additional functions

Menu settings Additional functions

Setting additional functions	
Lock manual trigger	Manual trigger is locked whilst function is active. Manual trigger may be deactivated when additional start-up options were activated (foot-actuated triggering or drive PLC).
Foot-actuated triggering	Condition: Foot-actuated triggering connected (extra). The cycle is started by foot-actuated triggering with the function active (start-up option "foot").
Pressure monitoring device	Condition: GAV gun with pressure monitoring device connected (extra). With the function activated, the blind riveting gun is pressed onto the jointing stock by a defined force to enable the start of a cycle.
Rivet query conveying hose	Condition: Additional sensor RS2 mounted on conveying hose (extra) With the function active, the conveying process of the blind rivet is being monitored, triggering the malfunction rivet query sensor conveyor triggered.

Strd	restores standard settings.	
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).	

GESIPA®

Settings GAV

9.10 Drive PLC

Menu settings Drive PLC

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► Drive PLC

Setting the drive of PLC		
Drive PLC	Condition:	PLC interface connected (extra). With the f function active, the cycle is started via the PLC interface by the PLC (start-up option "PLC"). The drive is described in detail in chapter 28 "PLC interface".
Lock manual trigger	Manual trigger is locked whilst function is active. Manual trigger may be deactivated when additional start-up options were activated (foot-actuated triggering or drive PLC).	
Rivet query mouth piece	Condition:	PLC interface connected (extra), additional sensor (e.g. light barrier) in mouth piece area of GAV gun mounted and connected to PLC interface. With the function active, the loading process of the blind rivet on the mouth piece of the GAV gun is monitored and the malfunction rivet query mouth piece is triggered. For installation of sensor see detailed description in chapter "PLC interface".

Strd	Restores standard settings.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).

Settings GAV

9.11 Permanent test

Permanent test can be used by the GAV to trigger processing cycles independently and at a set time or for a set piece number.

It is possible to change to different menus during permanent test in order to observe statuses, sequences, parameter or settings. It is possible to change parameters and settings during a permanent test.

You may cancel a permanent test at any time by pressing the "ON" or "OFF" button.

Menu Permanent test

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► Permanent test

Permanent test	
Start delay	Each cycle start is delayed by the set time.
Testing without rivet	With the function active, the oscillating conveyor is turned "OFF" and the malfunction "oscillating conveyor" pressed.
Test until piece number	The permanent test is stopped when reaching the set value.
Test until time	The permanent test is stopped when reaching the set value.

Strd	Restores standard settings.
OFF / ON	Turns the permanent test OFF/ON.
C	Resets the "piece number" and "time" parameter to 0.

Settings GAV

9.12 I/O test

The "I/O-test" menu shows all input and output statuses of the GAV. Output statuses may be changed independently from the current tool status.

The values of the analogue sensors for distance and pressure are shown as absolute values, with the settings for "zero point" not taken into account.

⚠ **Attention!**

Inexpert application of the functions may result in damage to the GAV.

I/O test	
V1ab Gun empty ●	WS1 Lift large pr. tr. = 3.0 mm
V2a Gun air ●	WS2 Oil level large pr. tr. = 14.0 mm
V2b Mand. extr. ●	WS3 Lift small pr. tr. = 77.0 mm
V3a Small pr. tr. ●	DS1 Network pressure = 6.2 bar
V3b Large pr. tr. ●	DS2 gun air = 6.2 bar
V4 Singulator ●	DS3 Oil pressure large pr. tr. = 0.1 bar
V5 Blast air ●	Reserve A1 (0.1 V)
Osz. conveyor ●	Reserve A2 (0.0 V)
0 %	

NS1 Chute	RS2 Rivet query
NS2 Singulator	Button ON
NS3 Mandr. box	Button OFF
RS1 Mandr. query	Reserve D1

Back Toggle Switch

Menu I/O test

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► I/O test

Toggle	The selected output changes the switching status whilst the control button is being pressed, the original status will be re-established after releasing.
Switch	The selected output changes the switching status whilst the control button is being pressed and this status will be retained after releasing.

Settings GAV

9.13 PLC interface test

The input and output assignation of the PLC interface is displayed, and the connection of the GAV to the interface is tested in the PLC interface test menu. In addition it is possible to test individual communications with a connected PLC or control and evaluation unit or input and messaging devices for each input and output.

PLC interface test

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► PLC interface test

Off	No test function active
Toggle	Output test active, output 1..16 can be selected or turned on/off with the control button.
Switch	Output test active, output 1..16 can be selected or turned on/off with the control button.
C	When output test is active, outputs 1..16 will be reset.

See also chapter 28 "PLC interface".

Settings GAV

9.14-UA Proximity switch with pressure monitoring device

Proximity switch 2-6001UA2
(pressure monitoring device)

Adjusting:

Proximity switch-2-6001UA2 at operated
pressure monitoring device to threaded pin easily close
and approx. 1/4 then solve turn.
Proximity switch with jam nut detent.
The adjusting of the thread pin only in the need
change (locked with Loctite 222).

Control:

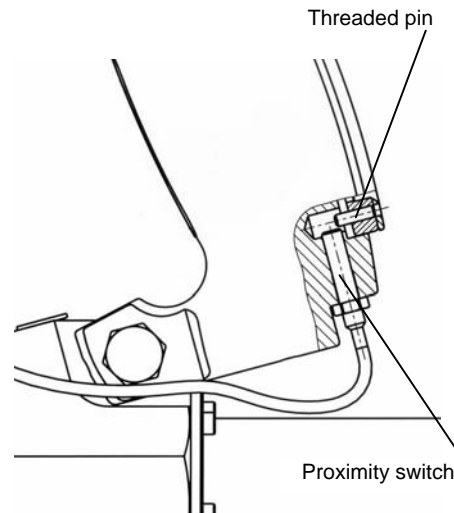- The push on distance shall be approx. 1 mm.

Possible disturbances:

- No release despite push on possible.

Cause/reason: Push on distance to big.

- Release without push on possible.

Remedy: Push on distance to small.

Threaded pin

Proximity switch

Maintenance

10

10.1   Service instructions

10.2   Maintenance messages

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Maintenance

## 10.1 Maintenance messages

Attention!

Follow safety instructions!
Wear protective goggles!

D a i l y:

- **Lubricate / replace chuck jaws.**
  - Turn off main switch "POWER".
  - Unscrew expanding mouth piece 2-80.
  - Pull off the snap collet 2-8022 and unscrew the chuck cage 2-8005 or 2-8205.
  - Remove chuck jaw set with washer and stop ring and opening springs.
  - Replace chuck jaws, as required.
  - Apply a small amount of grease to the gliding surface of the chuck cage (roller bearing grease).
  - Place chuck cage over chuck jaw set, insert stop ring and washer.
  - Assemble in reverse order.
  - Turn on main switch "POWER", press "ON" key.

Grease

Chuck case

Chuck jaw
Stop ring
Washer
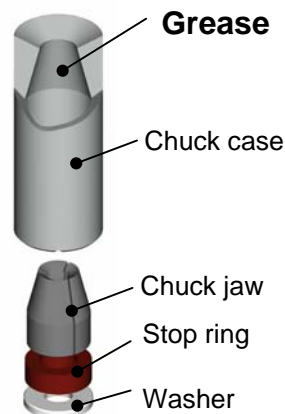
- **Check / replace leaf spring.**
  - Press "ON" button.
  - Select „MAN" mode.
  - Carry out "lift position" function.
  - Disassemble mandrel guide piece 2-8301.
  - Check leaf spring visible in mandrel ejecting slot for correct fit and pretension.
  - Replace leaf spring, as required. (See chapter 21 "repair instructions for blind rivet gun").

Leaf spring
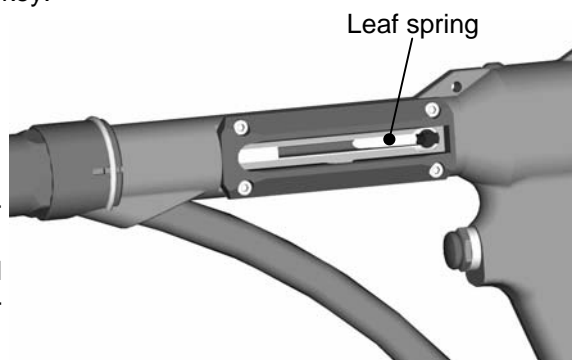
- **Top up central lubrication.**
  - Remove locking screw.
  - Fill oil level up to maximal 5 mm below upper edge of inspection glass.
  - Screw locking screw.

Locking screw

GESIPA®
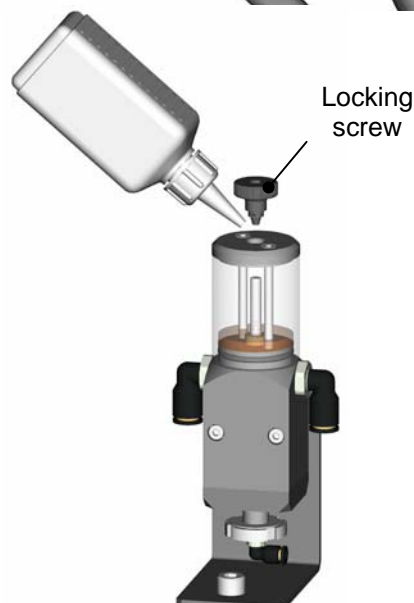
Maintenance

10.1 Maintenance messages

W e e k l y:

- **Clean chute sheets.**
  Clean gliding surfaces of chute sheets (do not use oil).

As required:

- **Oil rivet feed hose**
  (Required after exchange of conveying hose or prolonged dry running)
  - Press "OFF" button.
  - Remove stopper and fill in approx. 0.5 ccm of oil.
  - Put stopper back on.
  - Press "ON" button.
  - To distribute the oil inside the rivet feed hose, carry out several working cycles.

Chute sheets

Stopper
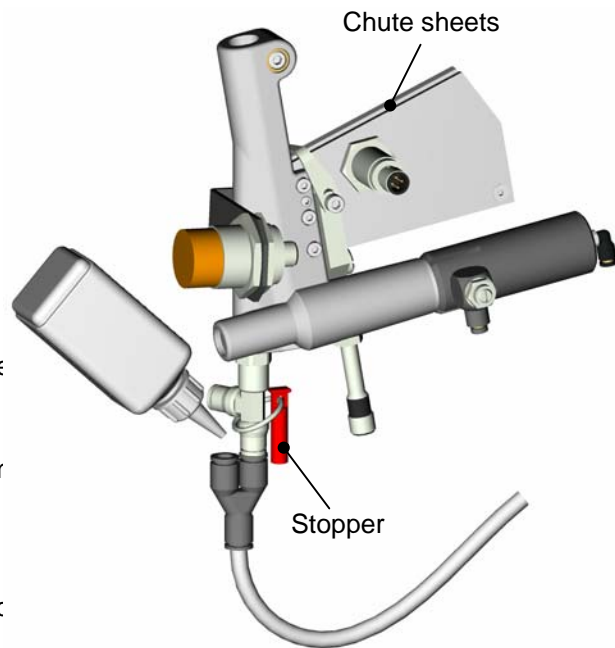
Maintenance

10.2 Maintenance messages

You can set maintenance intervals in the "maintenance" menu. All required maintenance work is then reported in the AUTO main menu.

8 different maintenance messages are available:
- 5 have fixed assignation (See chapter 10.1 "maintenance" – "notes on maintenance")
- 3 may be assigned as you wish.

Several maintenance messages are shown at the same time.

Menu maintenance

Navigation:
AUTO
► MAN
► Menu
► Maintenance

Column	Description
Counter	Not settable, but value can be reset to 0. Piece number of blind rivets processed since last maintenance.
Message	Setting range: 0 to 500,000 pieces Message maintenance appears when "counter" has reached or exceeded set value; GAV does not stop.
Stop	Setting range: 0 to 500,000 pieces Message maintenance appears when "counter" has reached or exceeded set value; GAV stops.

Strd	Restores standard settings.

Maintenance

10.2 Maintenance messages

Maintenance			
Message maintenance	Counter	Message	Stop
Grease chuck jaws	5000	5000	6000
Replace chuck jaws	5000	100000	101000
Check / replace leaf spring			
Top up central lubrication			
Clean chute sheets			
...			
...			
...			
Back Strd			

AUTO / Ready (Manual)

Modul 01

Cycle

MAINTENANCE

Grease chuck jaws

Service completed?

1/6
(1/6)

Singulator open

Oscillating conveyor

No   **Yes**

Example:

In the example shown the maintenance message "grease chuck jaws" is active, "counter" has reached the set value "message". The relevant message is issued in the "AUTO" main menu; the GAV does not stop. Work can continue until the maintenance has been carried out or confirmed or until the "counter" reaches the set value "stop".

Process monitoring

11.0 Overview   Not included in GAV-8000 *eco*

|	
11.1	**Functional characteristics**
11.2	**Adjustment**
11.3	**Create profile**
11.4	**Load profile**
11.5	**Store profile**
11.6	**Create profile list**
11.7	**Load profile list**
11.8	**Profile lists PLC**

Process monitoring

11.1 Functional characteristics   Not included in GAV-8000 **eco**

The setting process of the GAV is monitored by recording tensile distance and force during blind rivet processing, followed by an evaluation of the tear off point (tear off distance and tear off force). The position of the tear off point is mainly dependent on the blind rivet used, the jointing stock thickness and the diameter of the hole in the jointing stock.

To evaluate the tear off point, limits are determined for tear off distance and tear off force using window technology. These limits are visualised in an evaluation window.

Evaluations are shown by the graphic display immediately after each setting process and also by the interface of the PLC interface.
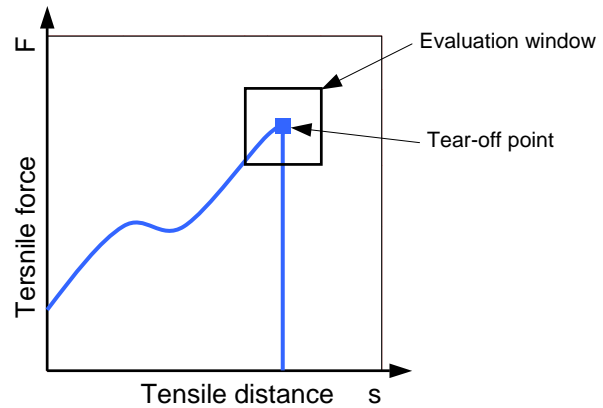
Profiles

The evaluation parameters determined for the individual blind rivet points are stored in profiles. It is possible to create 9999 different profiles. Profiles may be changed by creating a copy of the last profile with a new index; up to 9999 changes per profile are possible.

Collective evaluations relating to component parts require the use of profile lists.

Profile lists

Profile lists are necessary for applications with several blind rivet points that are to be evaluated differently. A profile list is able to evaluate each blind rivet point by applying the appropriate profile. Profiles in profile lists are automatically called one after the other or directly triggered by the PLC interface. It is possible to create a maximum of 9999 profile lists with 9999 profiles for each list.

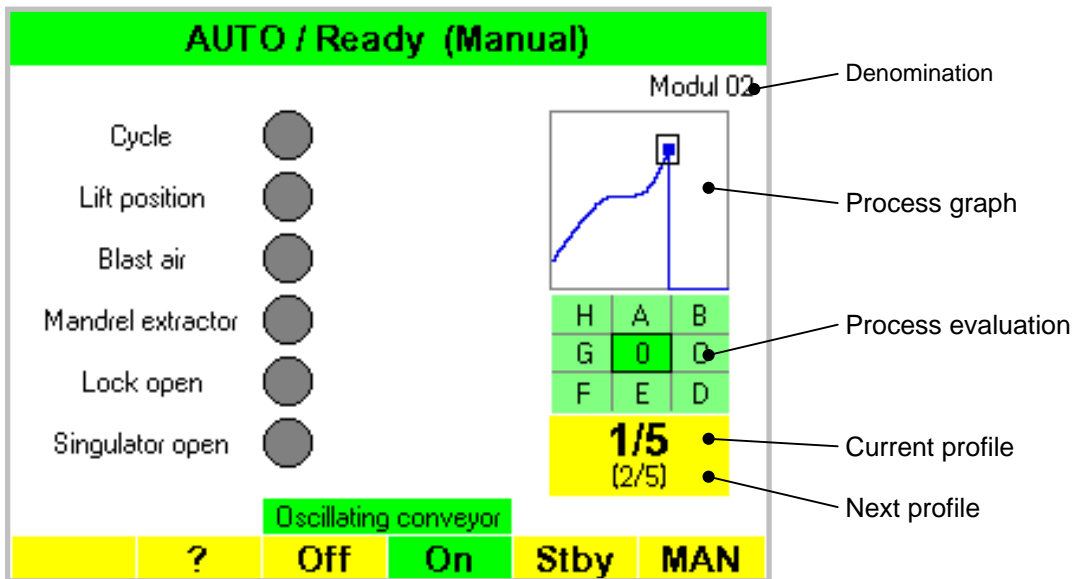| Example: Profile list "Test part"		
No.	Jointing stock thickness	Profile
1	3 mm	A
2	2 mm	B
3	4 mm	C
4	2 mm	B
5	3 mm	A
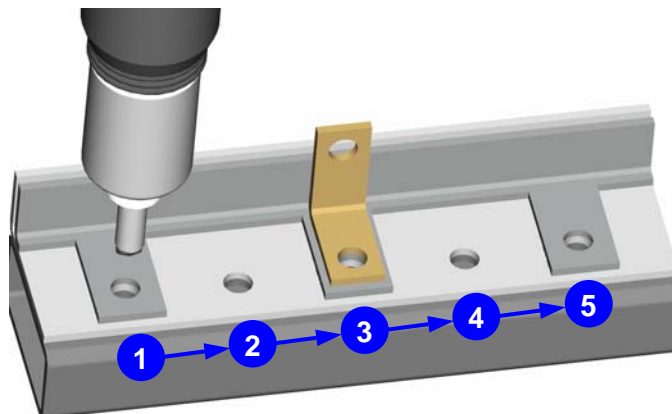
Process data

The position of the tear off point and the evaluation of setting processes are stored with time stamps in the process data file. The process data file records the last 1,000,000 processes. If more data exists, the older data will be overwritten. The evaluation of process data is described in the chapter 12 "process data".

Process monitoring

11.2 Setting

The following details for setting process monitoring are shown in the AUTO main menu:

Designation:

The denomination of the current profile list is displayed. If no profile list is active, the denomination of the current profile will be displayed.

> ⚠️ **Attention!**
>
> Collective evaluations relating to component parts require the use of profile lists.

Process graph:

Process graph, tear off point and evaluation window are displayed after each setting process.

Process evaluation

After each setting process the evaluation is issued as text.

Monitoring device ready   after GAV was switched on or the process graph deleted.

H	A	B
G	0	C
F	E	D

Shows position of tear off point:
Left: Process IO   tear off point in sector 0
Right: Process NIO   tear off point in sector F
        (Tearing path too short, tearing force too low)

H	A	B
G	0	C
F	E	D

No measuring values   e.g. after running an empty cycle.

Current profile:

The position of the current profile is shown in the profile list. In the example this is the first profile of 5 from profile list "TEST part 02".
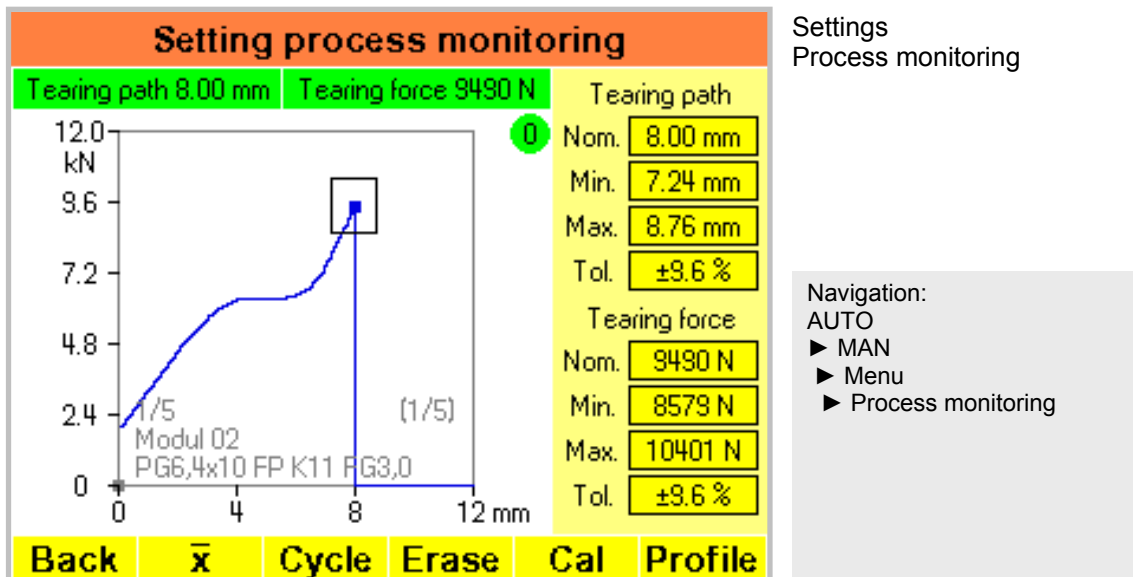
Next profile

shows the position of the profile in the profile list which is to be used to evaluate the next setting process. Manual selection or triggering by PLC allows the selection of any profile from a profile list. In the example this is the second profile of 5 from profile list "TEST part 02".

Process monitoring

11.2 Setting   Not included in GAV-8000 **eco**

Settings
Process monitoring

Setting process monitoring

Tearing path 8.00 mm	Tearing force 9490 N	Tearing path	
		Nom.	8.00 mm
		Min.	7.24 mm
		Max.	8.76 mm
		Tol.	±9.6 %
		Tearing force	
		Nom.	9490 N
		Min.	8579 N
		Max.	10401 N
		Tol.	±9.6 %

1/5   (1/5)
Modul 02
PG6,4x10 FP K11 RG3,0

Back   x̄   Cycle   Erase   Cal   Profile

Navigation:
AUTO
► MAN
► Menu
► Process monitoring

In the "setting process monitoring" menu

- the current process graph is displayed in detail, including the scaling of tensile distance and force. The tear of point is highlighted in blue. Tear off distance and tear off force are issued above the process graph against a green or red background according to evaluation. In addition to this, when individual profiles are used, the tear off point for the last 20 processes is displayed in the form of grey dots.

- The evaluation parameters together with the corresponding evaluation window of the last blind rivet processed are displayed. It is possible to change evaluation parameters and the scaling for the tensile distance. However, any changes made to evaluation parameters are only valid temporarily and should be stored in a profile. Details to the current profile are shown in grey in the lower area of the process graph.

The "setting process monitoring" menu serves as a starting point for all settings for process monitoring and the creation and administration of profiles and profile lists.

| x̄	Mediates the evaluation window above the tear off points and, at the same time, adapts the evaluation parameters.
Cycle	Running processing cycle (See chapter 8.7 "manual mode" "cycle" function).
Erase	deletes the current process graph and all tear off points.
Cal	"Calibration process monitoring" menu
Profile	"Setting profile" menu

GESIPA®

Process monitoring

11.3 Creating a profile   Not included in GAV-8000 *eco*

Starting position AUTO main menu

After the start-up of the GAV the profile used last will be loaded automatically. If no profile was created so far, a profile called "start profile" will be generated.
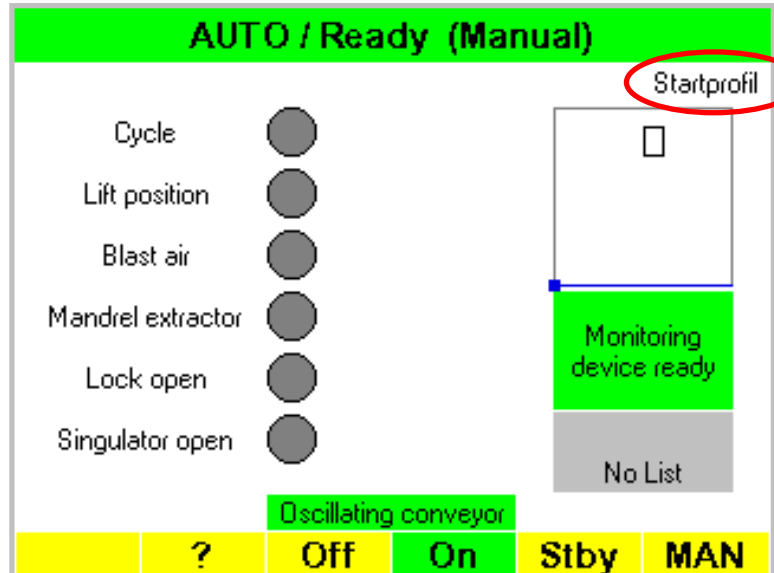
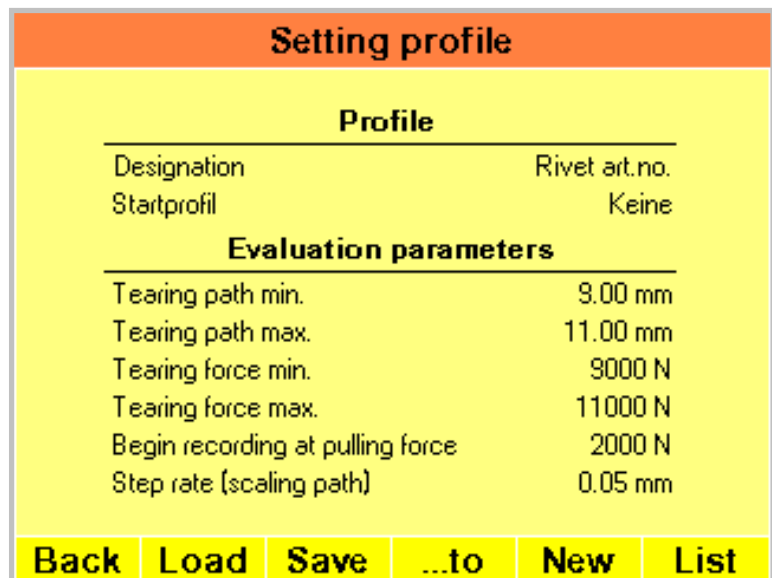### Step 1: "Setting profile" menu

From AUTO main menu by pressing

► **MAN**
► Menu
► Process monitoring
► Profile

go to the "setting profile" menu. The evaluation parameters of the current profile are displayed.

Use **New** to create a new profile.

Process monitoring

11.3 Creating a profile   Not included in GAV-8000 **eco**

Step 2: Enter denomination and item number

First enter the denomination of the profile and then the item number for the blind rivet.

The denomination of the profile should give an unambiguous identification of the blind rivet point; the example gives the denomination for the blind rivet and the thickness of the jointing stock (FG2.5).

Once applied, denominations cannot be transferred to new profiles.

Setting profile

Profile

Enter profile designation

PG6,4x10 FP K11 FG2,5_   4

A B C D E F G H I J K L M N O P Q R S T

Setting profile

Profile

Enter rivet art.no.

6706339_   3

A B C D E F G H I J K L M N O P Q R S T
U V W X Y Z a b c d e f g h i j k l m n
o p q r s t u v w x y z 0 1 2 3 4 5 6 7
8 9 _ [ ] ( ) * + , - . / : ; < = > ?

Step rate (scaling path)   0.04 mm

| Abort | Del | Ins | End | Clr | OK |

Step 3: Recording process graphs

The GAV is only ready for the recording of process graphs.

The evaluation parameters are imported from the profile used last.

Setting profile

Monitoring device ready

	Tearing path	
	Nom.	10.00 mm
	Min.	9.00 mm
	Max.	11.00 mm
	Tol.	±10.0 %
	Tearing force	
	Nom.	10000 N
	Min.	9000 N
	Max.	11000 N
	Tol.	±10.0 %

13.0 kN
10.4
7.8
5.2
2.6
0

0   5   10   15 mm

| Abort | x̄ | Cycle | Erase | Cal | OK |

Process monitoring

## 11.3 Creating a profile

When **cycle** is selected, at least 3 blind rivets will be processed in the jointing stock.

The tear off point of the current process graph turns blue and those of the last maximal 20 processes are displayed in grey.

Erase is used to delete all recorded data and to generate new process graphs.

Setting profile

Tearing path 8.17 mm	Tearing force 9815 N

Tearing path
Nom. 10.00 mm
Min. 9.00 mm
Max. 11.00 mm
Tol. ±10.0 %

Tearing force
Nom. 10000 N
Min. 9000 N
Max. 11000 N
Tol. ±10.0 %

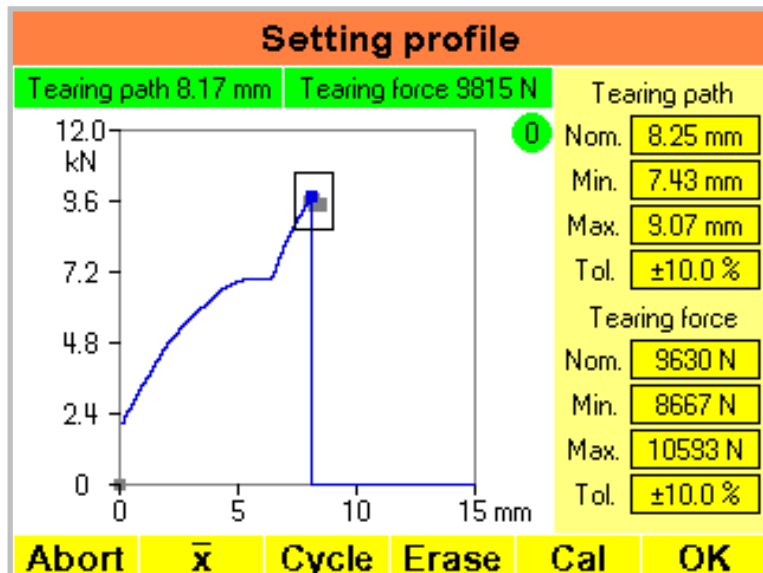| Abort	x̄	Cycle	Erase	Cal	OK
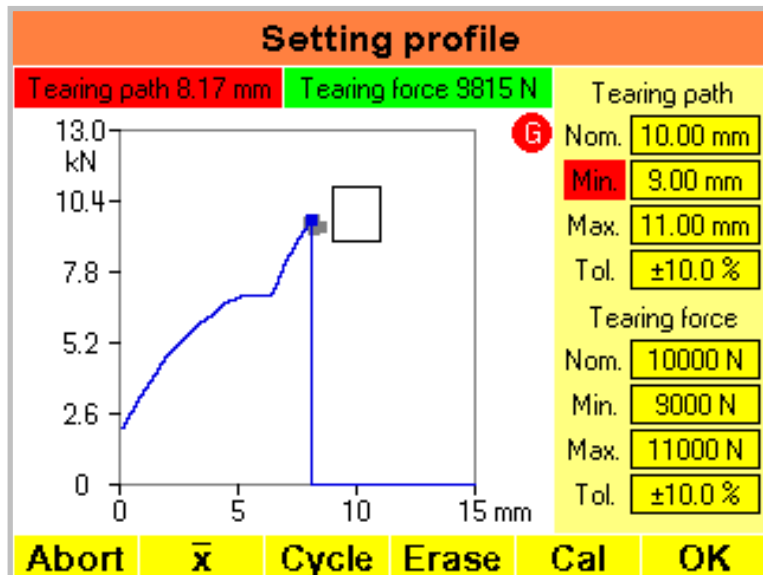
Step 4: Setting evaluation parameters

Now you can determine the evaluation parameters for the tear off distance and tear off force. These are determined by setting the absolute values min. or max. or the target value and the deviation in percentage.

The set limits are displayed in a window.

x̄ is used to mediate the window above the tear off points automatically. Afterwards, only the tolerated deviation in percent needs to be set.

Setting profile

Tearing path 8.17 mm	Tearing force 9815 N

Tearing path
Nom. 8.25 mm
Min. 7.43 mm
Max. 9.07 mm
Tol. ±10.0 %

Tearing force
Nom. 9630 N
Min. 8667 N
Max. 10593 N
Tol. ±10.0 %

Abort	x̄	Cycle	Erase	Cal	OK

GESIPA®

Process monitoring

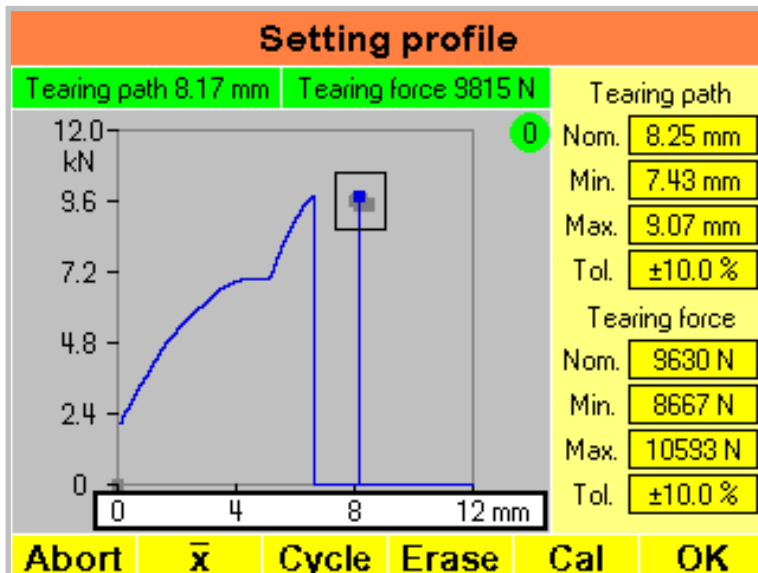## 11.3 Creating a profile   Not included in GAV-8000 **eco**
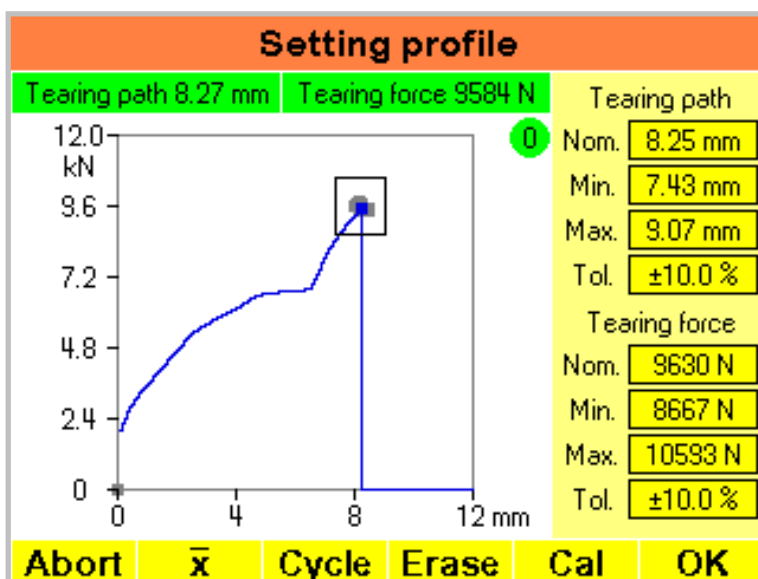
Step 5: Setting scaling for tensile distance

The scaling for the tensile distance is to be set in such a way that the target value for the tear off point lies at approx. 75% of the total scaling.

When the scaling for the tensile distance is changed, the tear off points are updated immediately, the graph however not before the next cycle.

The scaling for the tensile force is adapted automatically after each measurement.

Setting profile

Tearing path 8.17 mm | Tearing force 9815 N

Tearing path
Nom. 8.25 mm
Min. 7.43 mm
Max. 9.07 mm
Tol. ±10.0 %

Tearing force
Nom. 9630 N
Min. 8667 N
Max. 10593 N
Tol. ±10.0 %

Abort | x̄ | Cycle | Erase | Cal | OK

For verification purposes, several process graphs can be run after this.

Setting profile

Tearing path 8.27 mm | Tearing force 9584 N

Tearing path
Nom. 8.25 mm
Min. 7.43 mm
Max. 9.07 mm
Tol. ±10.0 %

Tearing force
Nom. 9630 N
Min. 8667 N
Max. 10593 N
Tol. ±10.0 %

Abort | x̄ | Cycle | Erase | Cal | OK

Step 6: Save profile

Use **OK** to store the new profile.

Use **cancel** to interrupt the process and the old profile will be reloaded.

Process monitoring

11.3 Creating a profile

Not included in GAV-8000 **eco**

After the profile was stored, the new parameters will be imported automatically…

Setting profile

New profile saved

Designation	Rivet art.no.
PG6,4x10 FP K11 FG2,5	6706339

Evaluation parameters

Tearing path min.	7.45 mm
Tearing path max.	9.05 mm
Tearing force min.	8687 N
Tearing force max.	10573 N
Begin recording at pulling force	2000 N
Step rate (scaling path)	0.04 mm

Back   Load   Save   …to   New   List

...and after returning to the main menu they will be activated as individual profile.

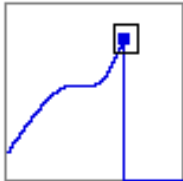**AUTO / Ready (Manual)**

PG6,4x10 FP K11 FG2,5

Cycle

Lift position

Blast air

Mandrel extractor

Lock open

Singulator open

H	A	B
G	0	C
F	E	D

No List

Oscillating conveyor

?   Off   On   Stby   MAN

Process monitoring

11

11.4 Loading a profile

Not included in GAV-8000 **eco**

From the AUTO main menu by pressing

► **MAN**
  ► Menu
    ► Process control
      ► Profile

go to the "setting profile" menu the evaluation parameters of the current profile are displayed.

Select load and the window for selecting profiles will open.

Setting profile

Profile

Designation	Rivet art.no.
PG6,4x10 FP K11 FG3,0	6706339

Evaluation parameters

Tearing path min.	7.02 mm
Tearing path max.	8.52 mm
Tearing force min.	8787 N
Tearing force max.	10673 N
Begin recording at pulling force	2000 N
Step rate (scaling path)	0.04 mm

Back   Load   Save   ...to   New   List

Select the desired profile and load it by selecting **OK** .

Setting profile

Select profile

Designation	Rivet art.no.
PG6,4x10 FP K11 FG2,5	6706339
PG6,4x10 FP K11 FG2,0	6706339
PG6,4x10 FP K11 FG3,0	6706339
PG6,4x10 FP K11 FG4,0	6706339

Profile 2/4 - Index 1/1

Abort   First   Last   OK

In the example a profile of the same blind rivet for a lesser jointing stock thickness was loaded.

After returning to the main menu the loaded profile will automatically be activated as a single profile.

Setting profile

Profile loaded

Designation	Rivet art.no.
PG6,4x10 FP K11 FG2,0	6706339

Evaluation parameters

Tearing path min.	7.65 mm
Tearing path max.	9.31 mm
Tearing force min.	8741 N
Tearing force max.	10639 N
Begin recording at pulling force	2000 N
Step rate (scaling path)	0.04 mm

Back   Load   Save   ...to   New   List

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Process monitoring

11.5 Storing a profile   Not included in GAV-8000 **eco**

From the AUTO main menu by pressing

► **MAN**
► Menu
  ► Process monitoring
    ► Profile

go to the "setting profile" menu. The evaluation parameters of the current profile are displayed.

Use **save** to store changes to the current profile.

Setting profile

Profile

Designation	Rivet art.no.
PG6,4x10 FP K11 FG3,0	6706339

Evaluation parameters

Tearing path min.	7.02 mm
Tearing path max.	8.52 mm
Tearing force min.	8787 N
Tearing force max.	10673 N
Begin recording at pulling force	2000 N
Step rate (scaling path)	0.04 mm

| Back | Load | Save | ...to | New | List |

The storage of the profile with changed parameters must be confirmed with **yes** .

Setting profile

Profile

Designation	Rivet art.no.
PG6,4x10 FP K11 FG3,0	6706339

Save profile

? Save profile with changed evaluation ?

Tearing force max.	10673 N
Begin recording at pulling force	2000 N
Step rate (scaling path)	0.04 mm

| No | | | | | Yes |

The example shows a profile stored with changed parameters.

Setting profile

Profile saved

Designation	Rivet art.no.
PG6,4x10 FP K11 FG3,0	6706339

Evaluation parameters

Tearing path min.	7.03 mm
Tearing path max.	8.51 mm
Tearing force min.	8787 N
Tearing force max.	10673 N
Begin recording at pulling force	2000 N
Step rate (scaling path)	0.04 mm

| Back | Load | Save | ...to | New | List |

GESIPA®

Process monitoring

11.5 Storing a profile　　　　　　　Not included in GAV-8000 **eco**

Use **..as** (save as) to store the current profile with a new denomination and item number.

To add a new denomination and item number you can either change the original data or , you can enter new data, after deleting the individual input line (hold **Del)** .

A new denomination is essential but the item number may be kept.

Setting profile

Profile

Enter profile designation

PG6,4x10 FP K11 FG3,1_　　　4

A B C D E F G H I J K L M N O P Q R S T
U V W X Y Z a b c d e f g h i j k l m n

Setting profile

Profile

Enter rivet art.no.

6706339_　　　3

A B C D E F G H I J K L M N O P Q R S T
U V W X Y Z a b c d e f g h i j k l m n
o p q r s t u v w x y z 0 1 2 3 4 5 6 7
8 9 _ [ ] ( ) * + , - . / : ; < = > ?

Step rate (scaling path)　　　0.04 mm

| Abort | Del | Ins | End | Clr | OK |

In the example a new profile was created by using the parameters of an existing profile.

Setting profile

New profile saved

| Designation | Rivet art.no. |
| PG6,4x10 FP K11 FG3,1 | 6706339 |

Evaluation parameters

Tearing path min.	7.02 mm
Tearing path max.	8.52 mm
Tearing force min.	8787 N
Tearing force max.	10673 N
Begin recording at pulling force	2000 N
Step rate (scaling path)	0.04 mm

| Back | Load | Save | ...to | New | List |

GESIPA®

Process monitoring

11.6 Creating a profile list　　　　Not included in GAV-8000 **eco**

Starting position AUTO main menu

After start-up the GAV loads first the profile or profile list used most recently as well as the profile used most recently in it.

If no profile was created so far, a profile called "start profile" will be generated. In this case at least one profile has to be created first (see chapter 11.3 "process monitoring" - "create profile").

Step 1: "Setting profile list" menu

From the AUTO main menu by pressing

► **MAN**
► Menu
　► Process control
　　► Profile
　　　► List

go to the "setting profile" menu. Profiles of the current profile list or the profile list used most recently are shown. The text fields will be empty if no profile list has been created.

Use 　**New**　 to create a new profile list.

Process monitoring

11.6 Creating a profile list

Step 2: Enter denomination and item number

First enter the denomination of the profile list and then the item number for the component part or sub-assembly.

The denomination of the profile list should give an unambiguous identification of the type of application.

Once applied, denominations cannot be transferred to new profile lists.

Step 3: Create profile list

When creating profile lists, it is important that profiles assigned to each blind rivet point are stored in the same order in which the blind rivet is later on processed in the component part (See chapter 11.1 "process monitoring" - "functional characteristics" - "profile lists").

Process monitoring

11.6 Creating a profile list <mark>Not included in GAV-8000 **eco**</mark>

Now the profiles can be selected in the required order and then stored to the profile list by using <mark>**OK**</mark> .

A new profile list is created by storing the first profile and will be extended with each following profile.
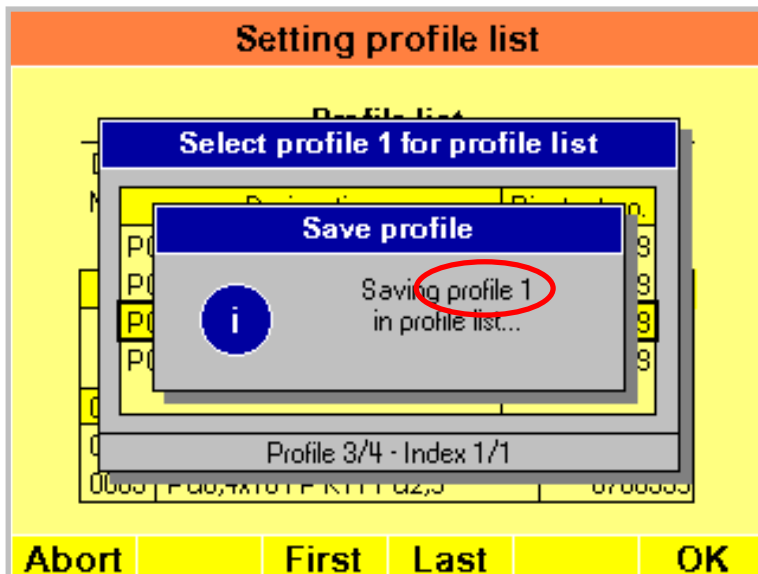
This sequence is repeated up to the number of profiles required for the profile list.

Use <mark>**Ready**</mark> to complete the profile list.

Process monitoring

11.6 Creating a profile list   Not included in GAV-8000 **eco**

After completion the new profile list and the first profile are automatically loaded from it.

Setting profile list

New profile list saved

Designation	Part art.no.
Modul 02	000123456789-02

Profile for next process (from 5)

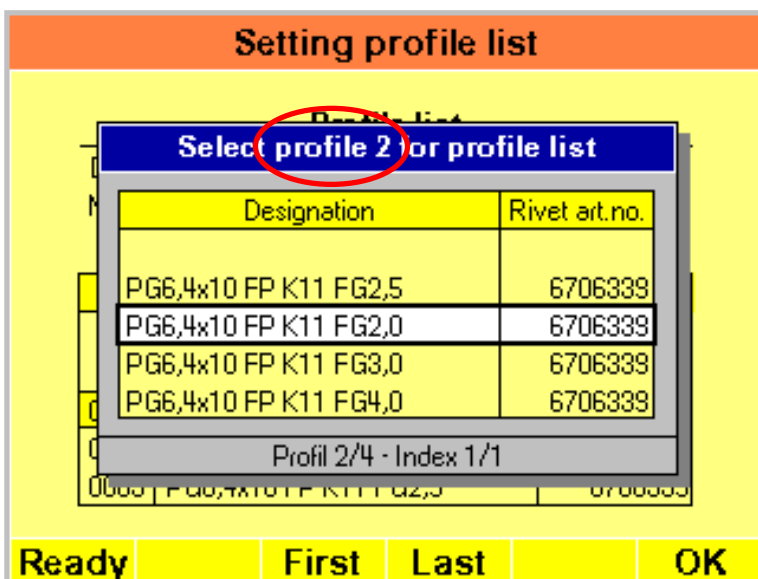| No.	Designation	Rivet art.no.
0001	PG6,4x10 FP K11 FG3,0	6706339
0002	PG6,4x10 FP K11 FG2,0	6706339
0003	PG6,4x10 FP K11 FG4,0	6706339

Back   Load   New   PLC

In the example shown, a profile list was created for component part "TEST component part 02" using item number "0123456789" .

Profile no. = rivet point	Profile Designation	Blind rivet Item No.	Jointing stock Thickness:
1	PG 6.4x10 FK11 FG 3.0	6705890	3 mm
2	PG 6.4x10 FK11 FG 2.0	6705890	2 mm
3	PG 6.4x10 FK11 FG 4.0	6705890	4 mm
4	PG 6.4x10 FK11 FG 2.0	6705890	2 mm
5	PG 6.4x10 FK11 FG 3.0	6705890	3 mm

After returning to the main menu the new profile list and the first profile will be activated from it automatically.

AUTO / Ready (Manual)

Modul 02

Cycle
Lift position
Blast air
Mandrel extractor
Lock open
Singulator open

Monitoring device ready

-
(1/5)

Oscillating conveyor

?   Off   On   Stby   MAN

GESIPA®

Process monitoring

11.7 Loading a profile list

From the AUTO main menu by pressing

► **MAN**
  ► Menu
    ► Process control
      ► Profile
        ► List

go to the "setting profile" menu. Profiles of the current profile list or the profile list used most recently are shown. The text fields will be empty if no profile list has been created.

Select **load** and the window for selecting a profile list will open.

Setting profile list

Profile list

Designation	Part art.no.
Modul 02	000123456789-02

Profile for next process (from 5)

No.	Designation	Rivet art.no.
0001	PG6,4x10 FP K11 FG3,0	6706339
0002	PG6,4x10 FP K11 FG2,0	6706339
0003	PG6,4x10 FP K11 FG4,0	6706339

Back	Load	New		PLC

Select the desired profile list and load it by selecting **OK**.

Setting profile list

Select profile list

Designation	Part art.no.
Modul 01	000123456789-01
Modul 02	000123456789-02
Modul 03	000123456789-03

Profile list 1/6 - 6 Profiles in profile list

Abort		First	Last	OK

The loaded profile list and the first profile from it will be activated automatically after returning to the main menu.

Setting profile list

Profile list loaded

Designation	Part art.no.
Modul 01	000123456789-01

Profile for next process (from 6)

No.	Designation	Rivet art.no.
0001	PG6,4x10 FP K11 FG2,5	6706339
0002	PG6,4x10 FP K11 FG2,5	6706339
0003	PG6,4x10 FP K11 FG2,5	6706339

Back	Load	New		PLC

GESIPA®

Process monitoring

11.8 Profile lists PLC

Not included in GAV-8000 **eco**

From the AUTO main menu by pressing

► **MAN**
► Menu
    ► Process control
        ► Profile
            ► List
                ► PLC

go to the "setting profile lists PLC" menu.

Here, 10 profile lists can be prepared for direct selection by the PLC interface.

Setting profile list PLC

Selection profile lists from PLC interface

No.	0123	Designation	Part art.no.
1	1000	Modul 01	000123456789-01
2	0100	Modul 02	000123456789-02
3	1100	Modul 03	000123456789-03
4	0010	Modul 04	000123456789-04
5	1010	Modul 05	000123456789-05
6	0110		
7	1110		
8	0001		
9	1001		
10	0101		

Back   **Test**

After selecting the position to be assigned, a window containing the available profile lists will open. Select the desired profile list and assign it by selecting **OK** .

Setting profile list PLC

Selection profile lists from PLC interface

Select profile list

Designation	Part art.no.
Modul 04	000123456789-04
Modul 05	000123456789-05
Modul 06	000123456789-06

Profile list 6/6 - 2 Profiles in profile list

Abort   **First**   **Last**   **OK**

Profile lists selected by the PLC are highlighted.

The drive of PLC is described in chapter 28 "PLC interface" paragraph "selecting profile list". Select **Test** to go directly to the "PLC interface test" menu.

Setting profile list PLC

Profile list for PLC selection dedicated

No.	0123	Designation	Part art.no.
1	1000	Modul 01	000123456789-01
2	0100	Modul 02	000123456789-02
3	1100	Modul 03	000123456789-03
4	0010	Modul 04	000123456789-04
5	1010	Modul 05	000123456789-05
6	0110	Modul 06	000123456789-06
7	1110		
8	0001		
9	1001		
10	0101		

Back   **Test**

GESIPA®

Process Control

11.9 Menu Calibration process monitoring   Not included in GAV-8000 *eco*

Menu Calibration process monitoring
Last calibration

Date	Time	Type	Factor	n	$\bar{x}$	s
2008/09/01	08:40:38	Path	99	25	91.1	1.0
2008/09/01	09:24:28	Force	5.0	26	9170	53.1
2008/09/02	10:49:44	Path	99	25	93.0	0.0
2008/09/02	10:51:26	Path	99	25	92.9	0.0

| Back | Force | Path | Cal | Filter | Status |

Menu Calibration process monitoring

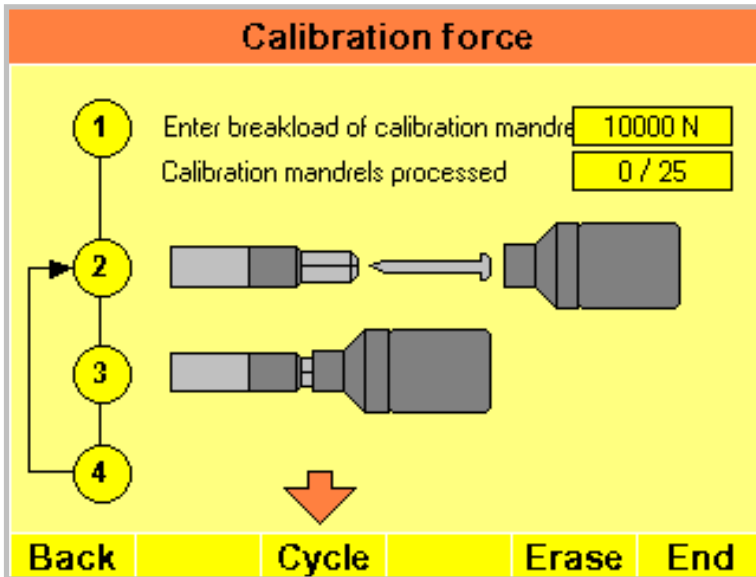Navigation:
AUTO
► MAN
  ► Menu
    ► Process control
      ► Cal

Overview of the latest calibration operations:	
Date, Time	Time record of the terminated calibration operations
Type	Calibration of either force or path
Factor	Equipment specific factor for calibrations of force and path
n	Number of calibration operations
$\bar{x}$	Average value for measured paths and forces
s	Standard deviations for measured paths and forces

Force	Menu " Calibration process monitoring"	
Path	Menu "Calibration force"	
Cal	Menu "Calibration path"	Amend System parameter
Filter	Menu "Filter process monitoring"	⌐0 GESIPA-Code
Status	Menu "Status process monitoring"	

Process Control

11.9.1 Calibration force <mark>Not included in GAV-8000 **eco**</mark>

Menu Calibration force

Navigation:
AUTO
► MAN
► Menü
► Process Control
► Cal
► Force

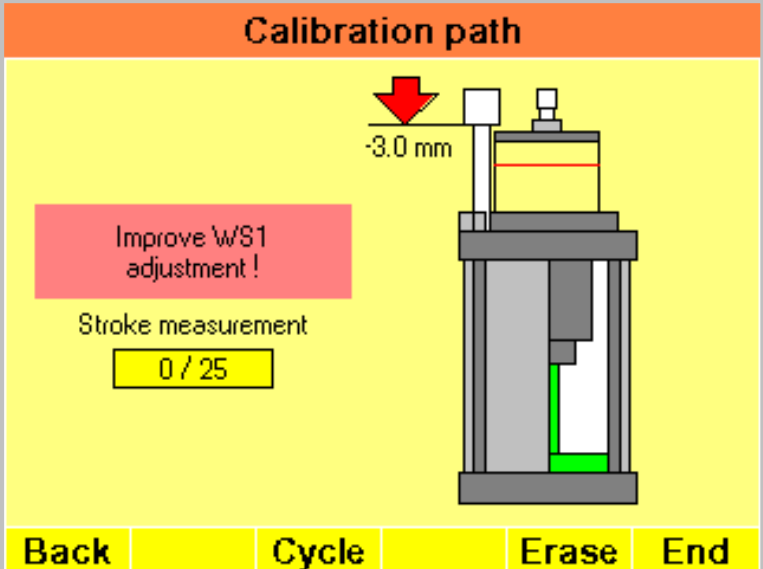|	
Perform the calibration process:	
1	Enter the breakload of the calibration mandrels (see. Label of calibration mandrels box)
2 **3**	Introduce the calibration mandrel into the spreading nosepiece until only the mandrel head is visible and cover the spreading nosepiece with the receptacle
4	Press the <mark>Cycle</mark> key
Repeat Steps 2 to 4 according to prescribed number of cycles	
Close the calibration process by pressing the <mark>End</mark> key after the running the prescribed number of cycles.	

<mark>Cycle</mark>	Triggers a working cycle
<mark>Erase</mark>	Deletes the data recorded during the latest working cycle
<mark>End</mark>	Closes the calibration process after the prescribed number of cycles has been performed

Process Control

11.9.2 Calibration path   Not included in GAV-8000 **eco**

Menu: Calibration path

Navigation:
AUTO
► MAN
► Menu
► Process Control
► Cal
► Path

Performing the calibration:	
-	When **Improve WS1 Adjustment !** is displayed, then adjust the initial position of the stroke sensor WS1 according to the proposed value and direction (see also chapter 9.3 Major pressure transducer)
-	Run the necessary number of empty cycles by pressing repeatedly the **Cycle** key
-	Close the calibration process after running the prescribed number of cycles by pressing the **End** key.

|	
Cycle	Triggers a working cycle
Erase	Deletes the data recorded during the latest working cycle
End	Closes the calibration process after the prescribed number of cycles has been performed

Process data

After each setting process the following parameters are stored in the process data file:

- Date and time (time stamp)

- Profile and profile list used for evaluation

- Tear off distance and tear off force (tear off point)

- Evaluation of process

The process data file records the last 1,000,000 processes. If more data exists, the older data will be overwritten.

To evaluate the recorded process data, go to the "process data" menu.

Selection
Process data 20 days

Selection

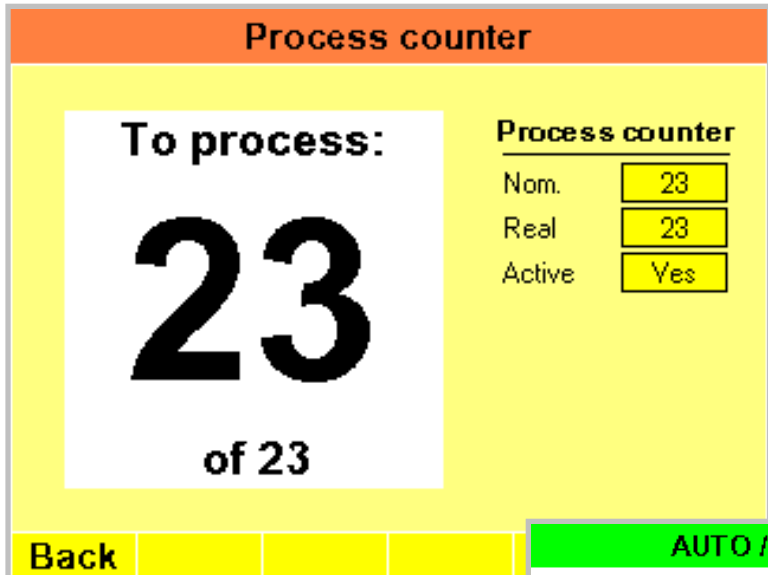Navigation:
AUTO
► MAN
► Menu
► Process data
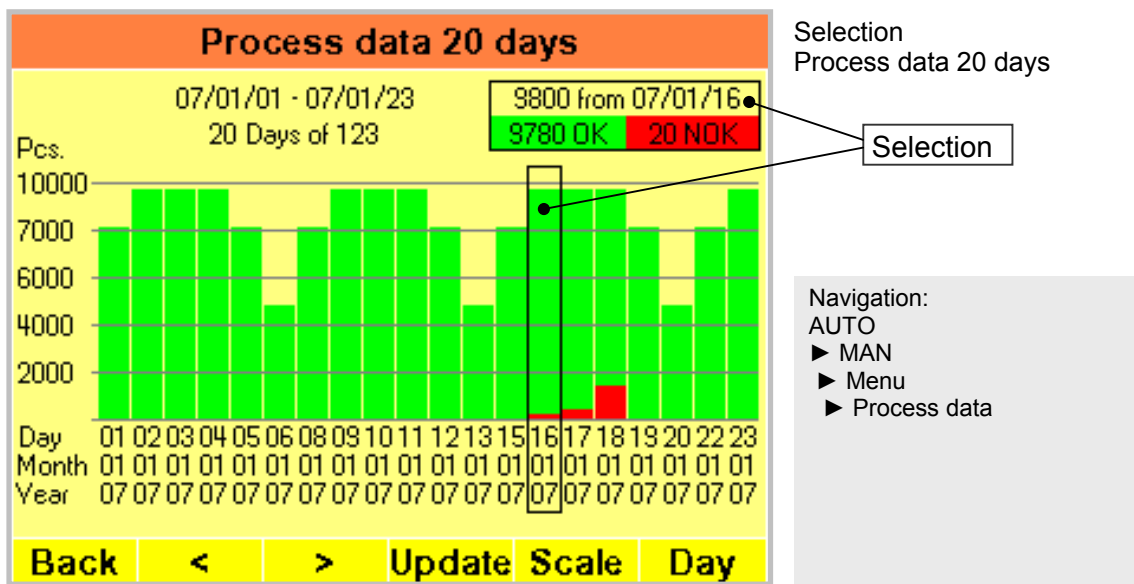
An overview over 20 days in the form of a bar chart is displayed under the menu option "process data 20 days". When selecting single days the option field displays date, total number of processes, process IO and processes NIO for each process. Select **day** to carry out a detailed evaluation.

The scaling of the piece number display relates automatically to the highest overall value. Sections bearing smaller piece numbers are thus always displayed in the same proportion. Sections bearing considerably lower piece number may be rescaled by selecting **Scale** .

<	This moves the display back by one day.
>	This moves the display forward by one day.
Update	Selects 20 days up to the current date.
Scale	Rescales the piece number.
Date	"Process data day" menu (detailed evaluation, one day)

Process counter

The process counter can be applied to determine per component part the number of blind rivets to be processed and to display and monitor in the AUTO main menu their processing by counting. This function cannot be used simultaneously with another profile list. The installation of the required component parts is described in chapter 28.4 "PLC interface – process counter".
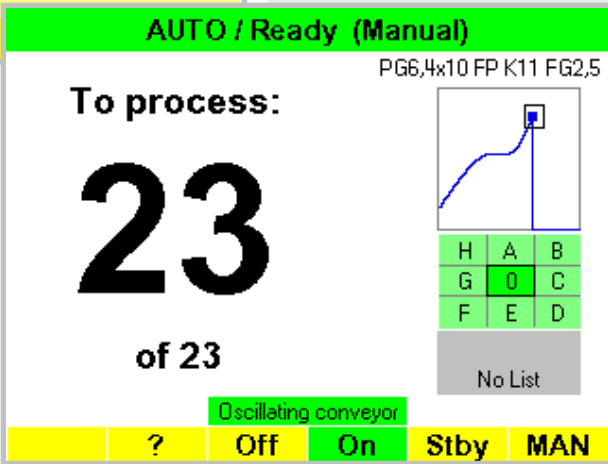

Setting process counter

Navigation:
AUTO
► MAN
 ► Menu
  ► Process counter

When a button is pressed (to be installed by the customer at the workplace) the counter display is set at the set value (target).
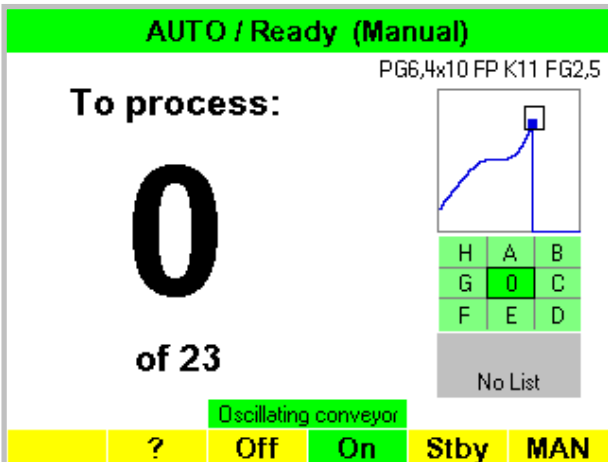
After the set number of blind rivets was processed (counter status 0), it is possible to activate a warning device (lamp, buzzer) and, additionally, to stop the GAV.

Access codes

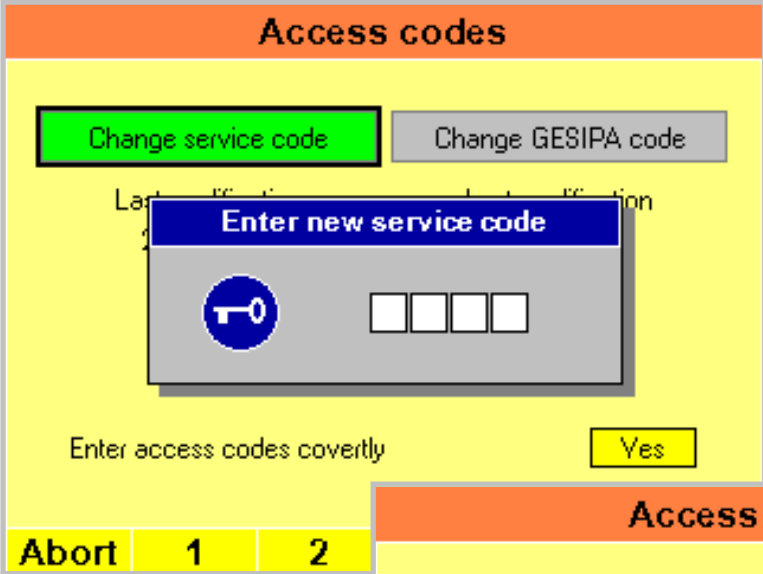Access management is described in chapter 8.6 "operation" paragraph "access management".

Changing access codes:

Service and GESIPA code may be changed in the "access codes" menu:

To change service or GESIPA code, the relevant access authorization has to be given. Afterwards the new code is entered twice. If both inputs are identical, the new code will be stored. Date and time of the last change of the access code are equally stored and displayed in the "access codes" menu.

It is standard that the input of access codes is hidden with $\boxed{*}$ shown in the input window instead of the entered numbers. In order to display the numbers, the "enter access codes hidden" function can be set to no in the "access codes" menu.
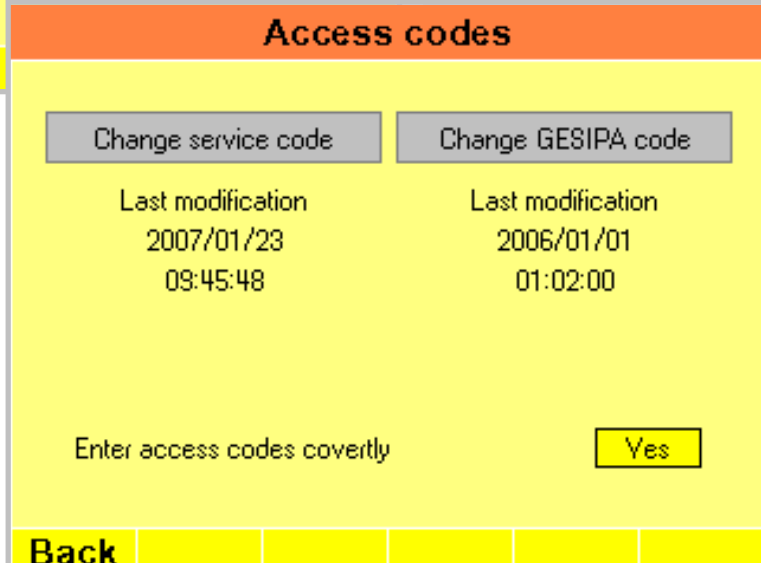
The default setting for the service code is 1111.

Example code input
Service code

Navigation:
AUTO
► MAN
► Menu
► Access codes

Example:

In the example shown, the service code was changed, access authorization granted and the new service code can now be entered. If the input was successful, date and time "last change" will be displayed.

Time and language

Time and language		
System time (GMT)		**Language**
Date	Year	English
2007/01/23	Month	German
	Day	
Time	Hour	
09:49:05	Minute	
	Second	
Sync. 60s 09:49:00 09:49:01		
Back		

Settings time and language

Navigation:
AUTO
► MAN
► Menu
► System time

🔓0   GESIPA-Code

System time is mainly required for the time stamp of the data record in the area of setting process monitoring and operating data collection.

To simplify file collating (e.g. process and operating data) from different time zones, it is advisable to set global time reference GMT (Greenwich Mean Time).

GESIPA®

System information

System info	
System time (GMT)	2007/01/23 09:52:41
Counter mechanism	1237
Version software control and display	V01.71.20070116
Version operating system display	TS4 V4.0.0
Cycle time display	20.0 ms
Cycle time control	8.1 ms
RAM memory 10647 kB	RAM 99 %
TMP memory 1024 kB	TMP 0 %
Flash memory 8192 kB	Flash 32 %
Card memory 124778 kB	Card 56 %
IP adress 192.168.82.247	
Back **Update**	

System information
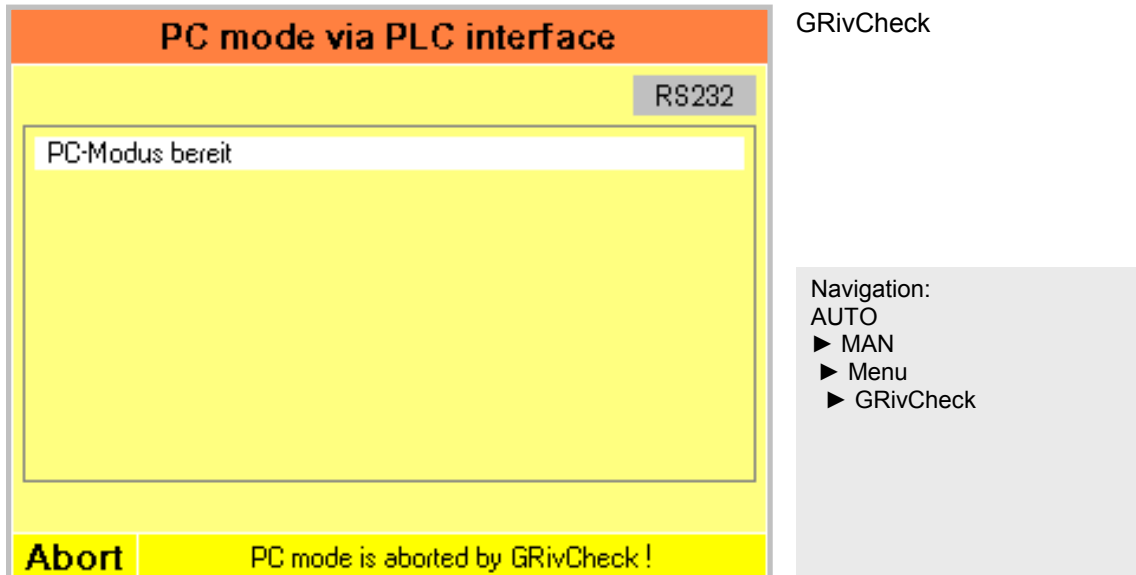
Navigation:
AUTO
► MAN
► Menu
► System information

Apart from the current system time and the counter status of the electronic counter important internal system parameters are displayed in the "system info" menu.

- Version number of the installed software control and display.
- Cycle times of control and display.
- Total capacity and utilization of different memory areas on the display.

GRivCheck

Not included in GAV-8000 **eco**

The connection between the dialogue units of the GAV and the PC with the user software GRivCheck is prepared via the interface RS232 in the "GRivCheck" menu and communication is displayed according to connection structure. Connection can take place directly between PC and GAV or via the PLC interface. For detailed information please refer to the description of the user software GrivCheck.

GRivCheck

PC mode via PLC interface

RS232

PC-Modus bereit

Navigation:
AUTO
► MAN
► Menu
► GRivCheck

Abort   PC mode is aborted by GRivCheck!

Example (see images):

The readiness of the GAV for establishing a connection is indicated by the "PC mode ready" message.

After connection was established, the GAV will react merely to commands from GRivCheck; the current status is displayed immediately.

In the example, process data is transferred from GAV to GrivCheck, the command, a brief description and the status are displayed.

PC mode via PLC interface

RS232

SIL read state... complete
SIL read state... complete
DDL read process data number of days... complete
DVL read process data days... 61%

Abort   PC mode is aborted by GRivCheck!
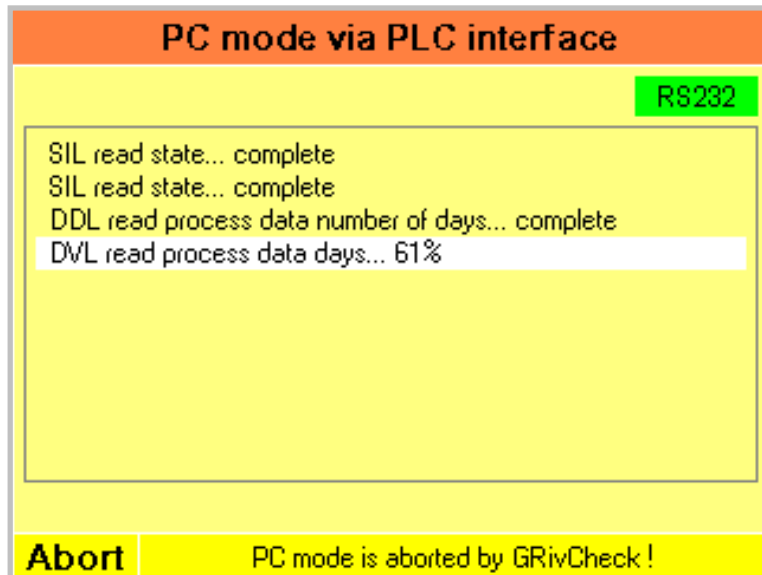
Malfunction supply unit

GAV not triggered ("AUTO", main menu, no error message)

Cause/reason	Remedy
Relevant trigger option not selected or disabled.	Select trigger option, see chapter 9.9 "settings GAV" – "additional functions".
Pressure sensor DS2 1-8040.2 set incorrectly.	Set pressure sensor DS2 1-8040.2, see chapter 9.2 "settings GAV" – "pressure sensors".
Large pressure transmitter 3-8060 not in initial position.	Move GAV to initial position by pressing the "ON" button, check basic setting of large pressure transmitter 3-8060, see chapter 9.3 "settings GAV" – "large pressure transmitter".

GAV working independently

Cause/reason	Remedy
Leakage on valve island 1-8030, at cover of blind riveting gun 2-8002 or on air supply of blind riveting gun.	Eliminate leakage.
Incorrect settings for pressure sensors DS1 1-8040.1 and DS2 1-8040.2	Set pressure sensor DS2 1-8040.1 and DS 1-8040.2, see chapter 9.2 "settings GAV" – "pressure sensors".

Blind rivet not set or rivet mandrel not torn off

Cause/reason	Remedy
Worn chuck jaws.	Replace chuck jaws, see chapter 10.1 "maintenance" – "notes on maintenance".
Air inside hydraulic system.	Bleed hydraulic system for blind riveting process, see chapter 24 "filling hydraulic systems".

Blind rivet is not separated.

Cause/reason	Remedy
Control valve stop buffer 4-8029 for singulator 4-8000 closed.	Basic setting singulator 4-8000, see chapter 9.5 "settings GAV" - "singulator".
Separating cylinder 4-8125 defective.	Replace separating cylinder 4-8125.
Separating spoon 4-8002 damaged.	Replace separating spoon 4-8002.
Sensor NS2 4-8044 screwed down too far.	Basic setting singulator 4-8000, see chapter 9.5 "settings GAV" - "singulator".

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Malfunction blind riveting gun

Follow safety and environmental instructions!
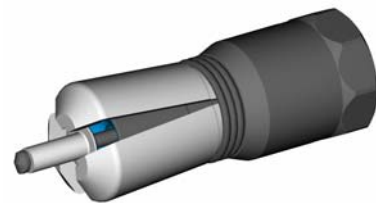
Wear protective goggles!

Attention! Always cut off compressed air supply from the tool and turn off main switch before unscrewing the expanding mouth piece or the expanded mouth piece.

Blind rivet not conveyed from expanding mouth piece or mouth piece not closing.
- Press OFF button.
- Unscrew expanding mouth piece 2-80.
- Remove blind rivet
- Screw down expanding mouth piece 2-80 and lock it
- Press ON button.
- Carry out "cycle" function in "MAN" menu.

Cause/reason	Remedy
Blind riveting gun was held too close to work-piece during loading process.	Take care to keep sufficient distance between the expanding mouth piece and the workpiece.
Insufficient projection of blind riveting mandrel.	Blind rivet must comply with specifications.
Air pressure too low or pressure drop too high during blind riveting process.	Ensure compressed air supply of 6 bar for of blind riveting tool.
Torn off blind rivet mandrel wedged in feed mechanism (chuck jaws wedged).	For maintenance of chuck jaws, see chapter 10.1 "notes on maintenance" - "lubricate chuck jaws"
Locking spring 2-8033 bent or broken.	Replace locking spring 2-8033, see chapter 21 "repair instructions blind riveting gun" - "replacing the locking spring".
Adhesive fit of snap collet 2-8022 on snap hose 2-8011 insufficient (expanding mouth piece not unlocked).	Replace snap collet 2-8022. (If adhesive fit is correct, you can lift the blind riveting gun together with the snap collet 2-8022).
Too great a locking pressure of O-rings 2-50 on expanding mouth piece 2-80.	Remove one of the O-rings 2-50 from the expanding mouth piece 2-80.
Snap ring 2-40 was deformed by blind riveting without snap collar 2-22 (unlocking lift for expanding mouth piece not completely carried out).	- Unscrew expanding mouth piece 2-80. - Detach snap collet 2-22. - Push back stop ring 2-6021. - Replace snap ring 2-40. - Assemble in reverse order.

GESIPA®

Malfunction blind riveting gun

Blind rivet conveyed too far out of the expanding mouth piece.
- Press   OFF   button.
- Remove blind rivet
- Press   ON   button.
- Carry out "cycle" function in "MAN" menu.
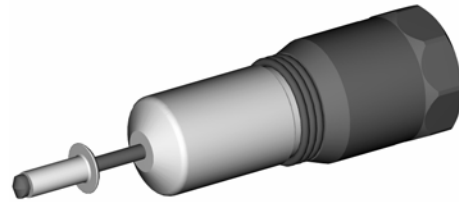
Cause/reason	Remedy
Chuck jaws wedged and / or torn off blind rivet mandrel not ejected.	Maintenance of chuck jaws required, see chapter 10.1 "notes on maintenance" – "lubricate chuck jaws".
	Check setting for blast air, for basic setting see chapter 9.6 "settings GAV" – "blast air".
Locking spring 2-8033 broken.	Replace locking spring 2-8033, see chapter 21 "repair instructions blind riveting gun" - "replacing the locking spring".
Chuck jaw hose 2-6032 sluggish.	Replace chuck jaw hose 2-6032, see chapter 21 "repair instructions blind riveting gun" - "replacing the chuck jaw hose".
Insufficient locking pressure of O-rings 2-50 on expanding mouth piece 2-80.	Mount additional O-ring 2-50 on expanding mouth piece 2-80 (use genuine part).
Chuck cage 2-8005 or 8205 escaped from inlet cone.	Replace chuck cage 2-8005 or 8205, for sequence of operations see chapter 21 "repair instructions blind riveting gun" - "replacing chuck jaws".

Blind rivet and torn off blind rivet mandrel in expanding mouth piece
- Press   OFF   button.
- Remove blind rivet and blind rivet mandrel
- Press   ON   button.
- Carry out "cycle" function in "MAN" menu.
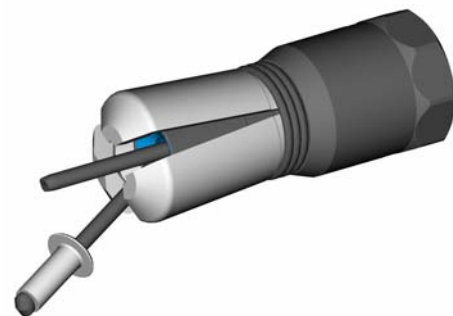
Cause/reason	Remedy
Torn off blind rivet mandrel wedged in chuck jaws.	Maintenance of chuck jaws required, see chapter 10.1 "notes on maintenance" – "lubricate chuck jaws".
Chuck jaw hose 2-6032 sluggish (bent).	Replace chuck jaw hose 2-6032, see chapter 21 "repair instructions blind riveting gun" - "replacing the chuck jaw hose".
Leaf spring 2-6093 bent or broken.	Replace leaf spring 2-6093, see chapter 21 "repair instructions blind riveting gun" - "replacing the leaf spring".

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Malfunction blind riveting gun

Blind rivet does not arrive in blind riveting gun

Carry out "cycle" function in "MAN" menu.
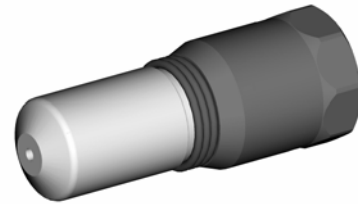
Cause/reason	Remedy
Blind rivet wedged in rivet feed hose.	Loosen and remove wedged blind rivet by kinking the rivet feed hose.
Blind rivet wedged in singulator 4-8000.	To open singulator 4-8000, select "open singulator" function in "MAN" menu, pull back singulator tongue 4-8007 manually and remove rivet.
- Incorrect setting singulator tongue 4-8007.	Set singulator tongue 4-8007 in such a way that only one blind rivet at a time is separated.
- Contol valve 4-8029 for stop buffer singulator closed.	For basic setting control valve 4-8029 see chapter 9.5 "setting GAV" - "singulator".
- Singulator spoon damaged.	Replace singulator spoon.
- Singulator cylinder defective.	Replace singulator cylinder.

Blind rivet wedged in transfer mechanism of blind riveting gun.

- Carry out "lift position" function in "MAN" menu.
- Turn off main switch, unscrew expanding mouth piece and pull off snap collar.
- Swing out locking spring, point blind riveting gun down and shake out blind rivet.
- Assemble blind riveting gun in reverse order, connect it and turn it on.
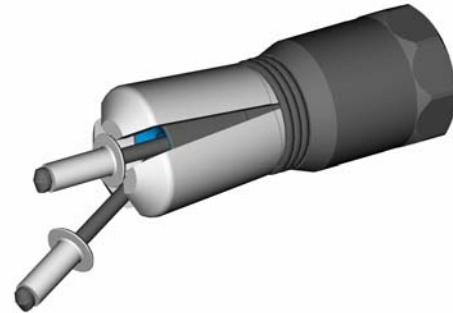- Carry out "cycle" function in "MAN" menu.

Cause/reason	Remedy
Conveyor hose dry	Top up central lubricating system, see chapter 10.1 "notes on maintenance" - "topping up the central lubricating system" and - "oil rivet feed hose".
	Correct setting for central lubricating system, see chapter 9.6 "settings GAV" – "blast air".
Traversing radius of rivet feed hose too small.	Increase traversing radius for rivet feed hose.
Locking spring 2-33 broken or spring rubber has come loose.	Replace locking spring 2-8033, see chapter 21 "repair instructions blind riveting gun" - "replacing the locking spring".
Incorrect setting blast air.	Set blast air, for basic setting see chapter 9.6 "settings GAV" – "blast air".
Selected rivet feed hose is too large.	Comply with tool specifications.

Malfunction blind riveting gun

Two blind rivets in expanding mouth piece.

- Press OFF button.
- Remove blind rivet
- Press ON button.
- Carry out "cycle" function in "MAN" menu.

Cause/reason	Remedy
Incorrect setting singulator tongue 4-8007.	Set singulator tongue 4-8007 in such a way that only one blind rivet at a time is separated.
A second blind rivet ended up in the singulator when it was opened manually.	Press OFF button. Remove second blind rivet. Press ON button.
During the previous work cycle the blind rivet was not conveyed right up to the mouth piece.	
Traversing radius of rivet feed hose too small.	Increase traversing radius for rivet feed hose.
Rivet feed hose extremely worn.	Replace rivet feed hose.
Rivet feed hose too dry.	Top up central lubricating system, see chapter 10.1 "notes on maintenance" - "topping up the central lubricating system" and - "oil rivet feed hose".
	Correct setting for central lubricating system, see chapter 9.6 "settings GAV" – "blast air".
Locking spring 2-33 broken or spring rubber has come loose.	Replace locking spring 2-8033, see chapter 21 "repair instructions blind riveting gun" - "replacing the locking spring".
Incorrect setting blast air.	Set blast air, for basic setting see chapter 9.6 "settings GAV" – "blast air".

Repair instructions blind riveting gun

Follow safety and environmental instructions!
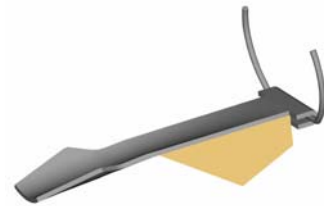
Wear protective goggles!

Attention!

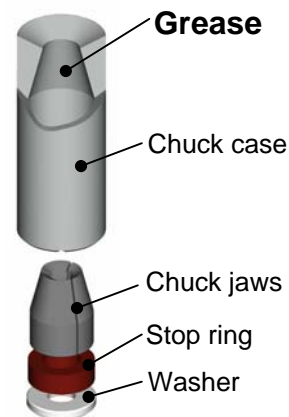Turn off main switch and compressed air supply to tool!

Replacing the locking spring 2-33

- Unscrew expanding mouth piece 2-80.
- Detach snap collet 2-22.
- Pull out locking spring 2-33 from the catch.
- Assemble in reverse order.

Replacing chuck jaws

- Unscrew expanding mouth piece 2-80.
- Detach snap collet 2-22.
- Unscrew the feed mechanism.
- Remove complete chuck jaw assembly including washer, stop ring and opening spring.
- Before assembling the complete chuck jaw assembly, lubricate the gliding surface of the chuck cage with grease.
- Place the chuck cage onto the chuck jaw assembly.
- Insert stop ring and washer.
- Assemble in reverse order.

Grease

Chuck case

Chuck jaws

Stop ring

Washer

Replacing the leaf spring 2-6093

Assembly aid: Assembly drift E9-20 (extra)
- Disconnect compressed air supply from tool.
- Switch off main switch
- Unscrew expanding mouth piece 2-80.
- Detach snap collet 2-22.
- Unscrew cover 2-2 and thread plug 2-6003.
- Apply assembly drift, to push back tensile piece 2-6009 (pin pointing down) to stop surface.
- Remove feather key 2-6023 with pliers.
- Remove or replace leaf spring. After reassembling feather key 2-6023 by pressing it with thumb, push the tensile piece 2-6009 to the front so that the feather key slips into the groove guide.
- Assemble cover 2-2 and thread plug 2-6003.

Attention!

Do not connect compressed air supply before assembling thread plug 2-6003 and cover 2-2.

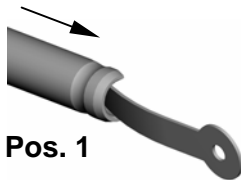**GESIPA**®

Repair instructions blind riveting gun

Replace chuck jaw hose 2-6032.

- Unscrew expanding mouth piece 2-80.
- Detach snap collet 2-22.
- Unscrew the feed mechanism.
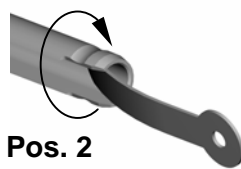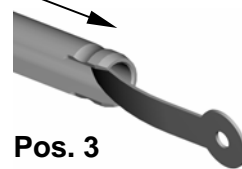- Pull out chuck jaw hose 2-6032 from catch.

⚠ **Attention!**

To prevent damage to the leaf spring, assemble the chuck jaw hose according to **pos. 1 – pos. 3**

Pos. 1   **Pos. 2**   **Pos. 3**

- **First insert the chuck jaw hose 2-6032 facing slotted side of leaf spring 2-6093 facing (pos. 1).**
- When touching the leaf spring 2-6093, turn the chuck jaw hose 2-6032 carefully by 180 º (**pos. 2**) and move it 1-2 mm forward and back , then arrest in stop position (**pos. 3**).

Replacing the stop pistons 2-6020

Assembly aid: Assembly mandrel E9-20 (extra)

- Turn off main switch and ensure that tool is disconnected from the compressed air supply!
- Unscrew expanding mouth piece 2-80.
- Detach snap collet 2-22.
- Apply the assembly mandrel E9-20 and push tensile piece 2-6009 back (pin pointing up) to bearing surface of pin.
- Unscrew cover 2-2 and thread plug 2-6003.
- Remove safety ring 2-6043. Take care that the inner component parts subject to spring pressure do not jump out.
- Remove reset piston 2-6013, stop piston 2-6020, pressure spring 2-35 and cylinder collar 2-6012.
- Insert new stop piston 2-6020 with O-ring 2-55.
  Before installing ensure that the O-ring 2-55
  - is greased on the stop piston 2-6020.
  - that the parts are assembled in the correct order.
  - that the cylinder collar 2-6012 with the control borings is assembled correctly.
  - that the thread plug 2-6003 is projecting approx. 2 mm beyong the case edge.

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Repair instructions blind riveting gun

Replacing the blind riveting gun

- Turn off main switch and compressed air supply to tool.

- Disconnect rivet feed hose, air guide hose as well as hydraulic control hose from blind riveting gun.

- Unscrew ventilating screw 2-28a, lift blind riveting gun above level of pressure transmitter tank.

- Push back the spring suspended stop pin on the on coupling half 2-27.

- Detach blind riveting gun by rotating it around the connecting axis. When doing this ensure that you hold the end of the hydraulic hose level with or above the level of the supply unit.
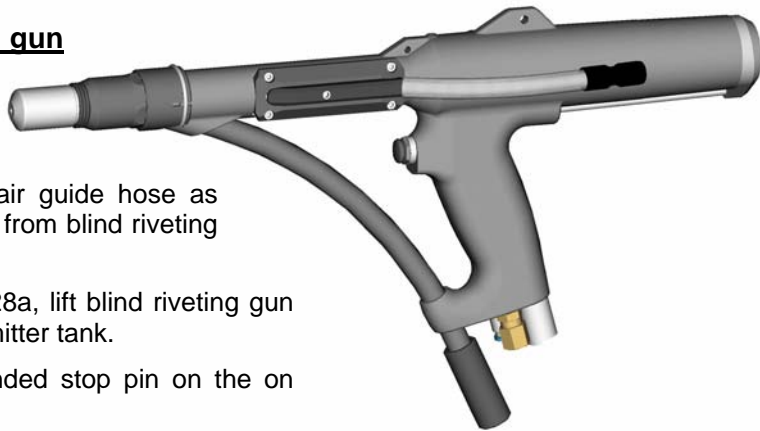
Umweltgefährdend **Attention!**

Make appropriate arrangements for catching the amount of hydraulic oil of approx. 0.02 l that escapes during unscrewing the gun and dispose of it in an environmentally friendly manner.

- Assembly new gun in reverse order.

Attention!
- Check the O-ring positioned in the coupling half of the gun for correct fit.

- Connect the air control hose to the blue screw joint.

## Filling the blind riveting gun with hydraulic oil

- **Hydraulic system for blind riveting process**

  - Unscrew the ventilating screw 2-28a.

  - Lower the blind riveting gun below the level of the pressure transmitter tank; after a short while oil will start escaping from the ventilating borehole.

  - Screw down ventilating screw 2-28a with conical nipple 2-57.

- **Hydraulic system for mouth piece release**

  - Unscrew ventilating screw 2-28b.

  - Use a squirt can, to top up hydraulic oil on the small pressure transmitter 3-8030 until oil starts escaping from ventilating borehole on the blind riveting gun.

  - Screw down ventilating screw 2-28b with conical nipple 2-57.

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Repair instructions blind riveting gun
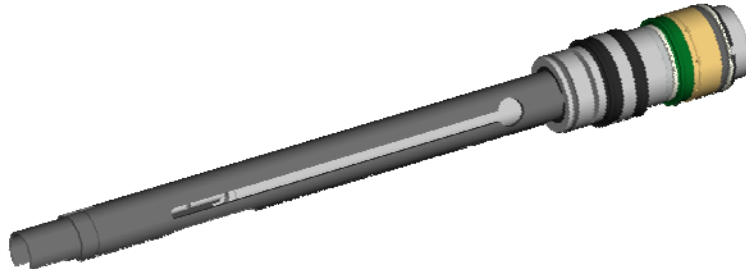
Replacing the piston unit 2-6190

Mounting aids:

Mounting cone E9-18   (extra)
Mounting bolt E9-21   (extra)
Punch E9-22   (extra)

Removal:

- Detach expanding mouth piece 2-80 and snap collet 2-22.

- Unscrew cover 2-2 and thread plug 2-6003.

- Turn back stop ring 2-6021 (pre-tensed) by approx. 2 mm and disassemble the appearing snap ring 2-40.

- Detach stop ring 2-6021.

- Detach coupling collet 2-6151 and shaft ring 2-6155, remove feater key 2-6153 with flat pliers.

- Remove piston unit 2-6190 from press fit by tapping it lightly with a synthetic hammer and by pushing it out with puncher E9-22; avoid damage to cylinder bearing surface.

Installation:

- Check cylinder bearing surface of gun case for damage.

- To prevent damage to the conical nipples, place mounting cone E9-18 on case end.

- Slightly grease lip seal 2-47, 2-6147 and O-ring 2-6082.

- Apply mounting bolt E9-21, to press piston unit 2-6190 in vertical position of gun case and tap it lightly with hammer until it has reached the stop (press fit approx. 4 mm length).

- Carry out the rest of the assembly in reverse order of disassembly described above.

- Check if the distance between the stopper ring and the thread collar of the gun casing is approx. 2.5 mm.

Disassembling and assembling
The pressure transmitter

Follow safety and environmental instructions!

**Wear protective goggles!**

Attention!

It is of utmost importance that you disconnect the tool from the power and compressed air supply!

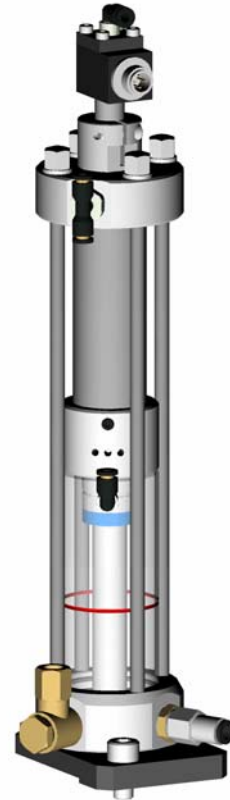### Large pressure transmitter 3-8060

- Remove right and left cover and the mandrel collector from the case.

- Remove screw plug (see right-hand side of image) from case and extract oil through opening.

- Remove the plug-connection of the two distance sensors and the pressure sensor; mind the marking or apply mark, as required.

- Release air supply line from the valve block to the pressure transmitter.

- Place GAV gun and hose assembly at a level that is lower than that of the supply unit.

- Place a cloth below the connection area before detaching the hydraulic hose from the pressure transmitter so that any oil still present in the hose is caught.

- Remove the fastening screws from the case unit.

- Lift the pressure transmitter and tilt it in a manner that it can be removed from the housing with the ground plate in forward position towards the right side.

- Assemble in reverse order. (basic setting see chapter 9.3 „Settings GAV" - "big pressure transmitter").

- Afterwards the hydraulic system must be bled for the blind riveting process. (see chapter 24, "filling hydraulic systems").
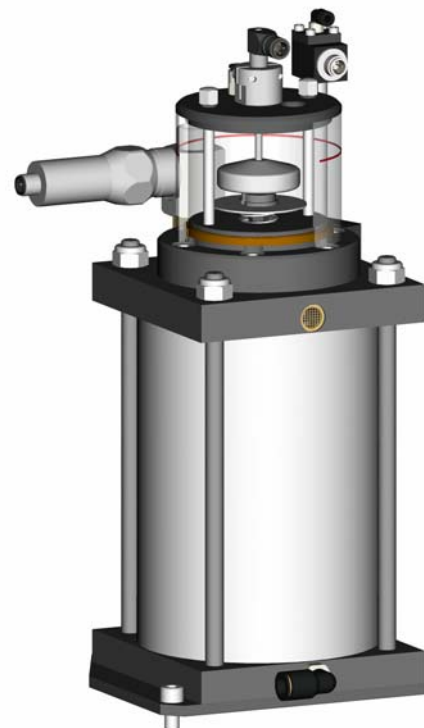
Screw plug

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Disassembling and assembling the pressure transmitter

Small pressure transmitter 3-8030

- Remove left-hand cover from housing.

- Place a cloth below the hydraulic control hose before disconnecting the plug-connection to the distance sensor and the hose connections so that any escaping oil is caught.

- Unscrew the fastening screws leading to the case unit from the base plate, lift the pressure transmitter and remove it from the case.

- Assemble in reverse order. Afterwards the hydraulic system must be bled for mouth piece release (see chapter 24 "filling hydraulic systems).

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Repair instructions pressure transmitter

Follow safety instructions!

Wear safety goggles!

Replacing the pressure spring 3-8098 in large pressure transmitter 3-8060

- Disassemble the pressure transmitter 3-8060 (see chapter 22 "disassembling and assembling the pressure transmitter")
- Via boring in the cover lid 3-8073 suck off hydraulic oil in the legally admitted oil tank and remove it according to the environmental laws.
- Put away cover lid 3-8073 and inspection glass 3-8075 after screwing out the vertical bolts 3-8102
- Unscrew lock nozzle 3-8068 from valve plate 3-8067 and remove pressure spring 3-8099 together with disk 3-8077.
- Remove cylinder seal 3-8081.
- Take off flange 3-8063 after detaching the hexagon screws.
- Pull out the throttle cylinder 3-8079.
- Bring plunger 3-8070 in upper stop position by means of apportioning compressed air at 2 bar via air connection 3-8141 in base plate 3-8061.
- Unscrew valve plate 3-8067 with integrated O-ring from valve stem 3-8076.
- Loosen and unscrew collar screw 3-8069 with a pin spanner.

Note!
The collar screw 3-8069 is secured by "Loctite".

- Pull out cylinder hose 3-8064, transmitter piston 3-8065 and valve stem 3-8076.
- Turn off pending compressed air.
- Loosen con-rod 3-8078 with hexagon nuts (do not unscrew)
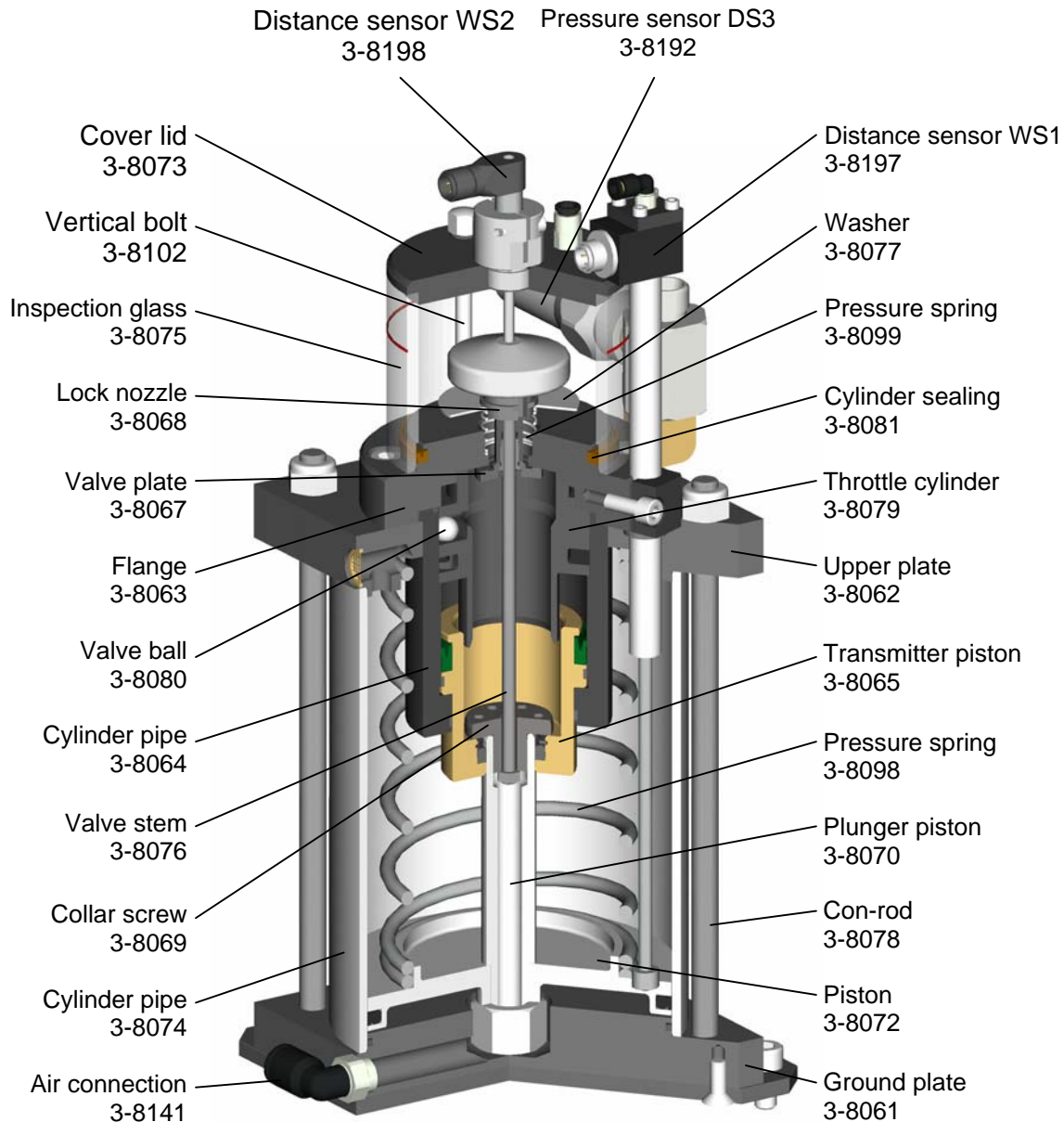
Attention!
The upper plate 3-8062 is under great pressure from the spring! Whilst unscrewing the con-rods 3-8078 compensate spring pressure by applying counter-pressure.

- Take off upper plate 3-8062.
- Replace pressure spring 3-8098.
- Assemble in reverse order.
- When assembling the lock nozzle, the valve stem 3-8076 with valve plate 3-8067 must be pulled through the opening boring of flange 3-8063 by means of a rod magnet. In this position set the valve plate 3-8067 in such a way that the lock nozzle 3-8068, driven by compressed air (2 bar) via air connection 3-8141 in the base plate 3-8061 up to the stop position carries out a lift of 1.5 to 1.9 mm.

Repair instructions pressure transmitter

Distance sensor WS2
3-8198

Pressure sensor DS3
3-8192

Distance sensor WS1
3-8197

Cover lid
3-8073

Washer
3-8077

Vertical bolt
3-8102

Pressure spring
3-8099

Inspection glass
3-8075

Cylinder sealing
3-8081

Lock nozzle
3-8068

Throttle cylinder
3-8079

Valve plate
3-8067

Upper plate
3-8062

Flange
3-8063

Valve ball
3-8080

Transmitter piston
3-8065

Cylinder pipe
3-8064

Pressure spring
3-8098

Valve stem
3-8076

Plunger piston
3-8070

Collar screw
3-8069

Con-rod
3-8078

Cylinder pipe
3-8074

Piston
3-8072

Air connection
3-8141

Ground plate
3-8061

GESIPA®

Filling hydraulic systems

Follow safety and environmental instructions!

Wear safety goggles!

Hydraulic system for blind riveting process large pressure transmitter 3-8060

Assembly aid: Ventilating check valve E9-7 (extra)

- Close both throttle sound absorbers 3-8082 on the valve block leaving one rotation undone.

- Turn on main switch and select "MAN" menu.

- Use pressure reducing valve 1-8002, to reduce working pressure to 4 bar, control via pressure gauge 1-8046.

- To position piston unit 2-6190 in initial position, insert one blind rivet in expanding mouth piece 2-80.

- Actuate the ON key.

- Remove rear ventilating screw 2-28a on blind riveting gun and screw in ventilating check valve E9-7. (To drain and collect excessive hydraulic oil, connect a ventilating hose of 8 mm diameter to the valve).

Note!

To achieve faultless ventilation, place the riveting gun in such a way that the hose assembly is ascending from the supply unit to the riveting gun.

Screw plug

- Remove locking screw (on right-hand side of image) from the case and top up hydraulic oil into oil tank of pressure transmitter 3-8060, as required. Alternate actuating of the "lift position" function fills the hydraulic system. Ensure that the oil level does not drop below the minimum mark. As a rule it is necessary to top up 6 to 8 times.

- The topping up procedure is complete when hydraulic oil without bubbles starts escaping from the ventilating hose.

- Lower the riveting gun to the level of the oil tank on the pressure transmitter. Unscrew the ventilating check valve from the riveting gun.

Note!

Prior to screwing in the ventilating screw with conical nipple ensure that the oil level is visible on the ventilation boring. The oil level can be increased by lowering the riveting gun further.

- Screw in the ventilating screw with conical nipple.

GESIPA®

Filling hydraulic systems

Hydraulic system for mouth piece release small pressure transmitter 3-8030

- Unscrew the front ventilating screw 2-28b on the gun.

Note!

👉 To achieve faultless ventilation, place the blind riveting gun in such a way that the hose assembly is ascending from the supply unit to the blind riveting gun.

- Use the squirting can, top up hydraulic oil via the top up connection on the small pressure transmitter until oil starts flowing without bubbles from the ventilation boring to the oil bottle.
- The hydraulic oil caught in the oil bottle may be reused in both hydraulic systems.
- Screw ventilating screw back in.

Hydraulic pipes and screw joints

- **Check all pipes, hoses and screw joints regularly for leaks and visually noticeable damage. Repair any damage immediately. Escaping oil may result in injury or fire!**

- **The user has to ensure that hose pipes are exchanged at appropriate intervals (max. 6 years incl. storage period of max. 2 years), even if no safety-related faults are visible.**

Replacing control components

Follow safety instructions!

Attention!

It is of utmost importance that you disconnect the tool from the power and compressed air supply!

- Detach 8 screws on front plate and carefully take off front plate.

- Detach 2 cable connections from frontplate to tool.

- **Control module**

  - The control module is plugged into two re-tainers on the base of the case's back wall and must be taken off carefully by lifting up-wards.

  - The 38-channel central plug of the control module is secured by a gripper and is re-leased when removed.

  - When assembling in reverse order ensure that the safety gripper of the central plug locks and the control module is plugged in centrally into both retainers.

- **Control power pack and electronic module**

  - Apply a screw driver, to carefully loosen both plug-connections.

  - The control power pack and the electronic module are plugged onto mounting rails (top hat rail) and can be loosened with a screw driver.

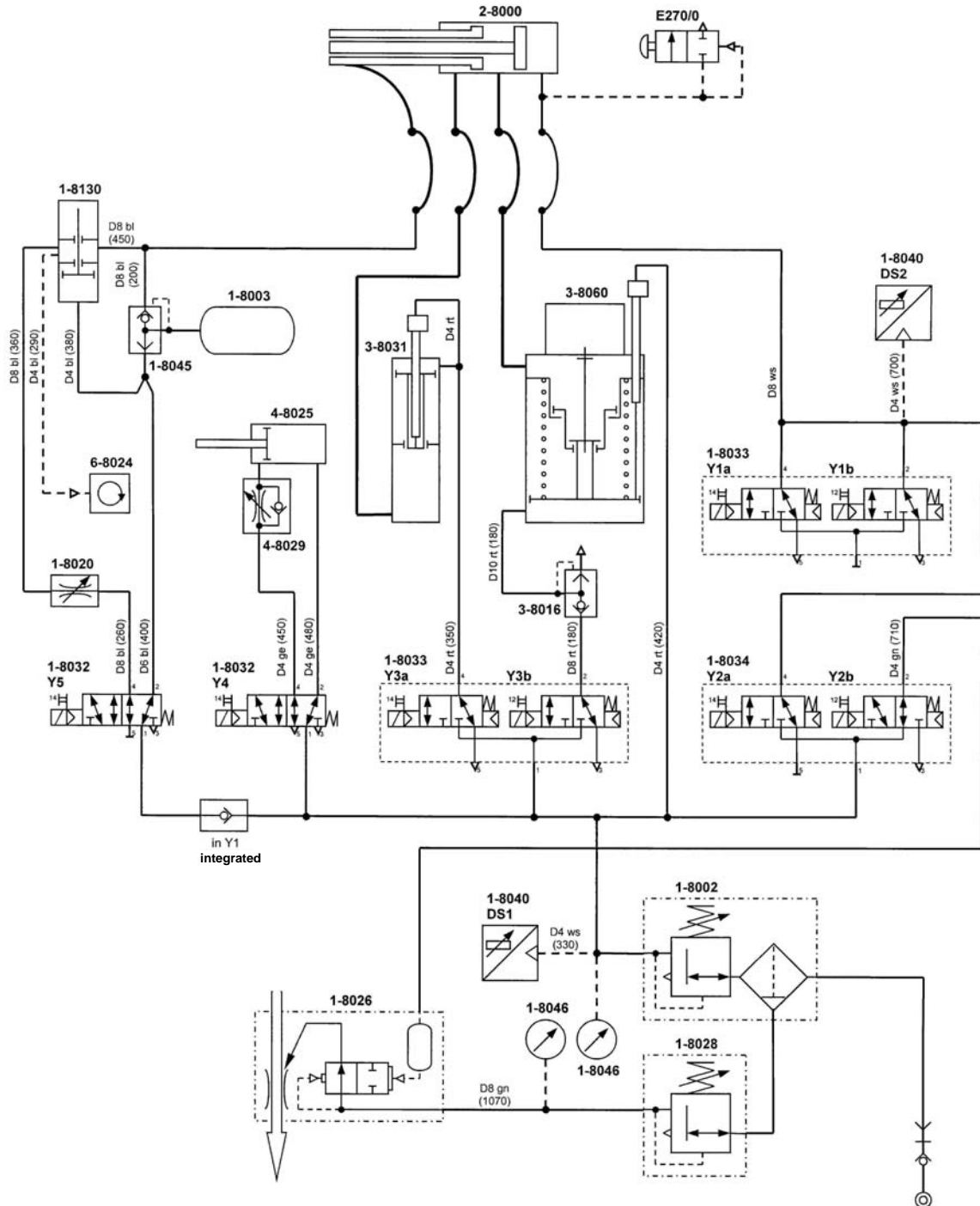 - Assembly is achieved by plugging in the modules and the plugs in reverse order.

Control module

Control power pack

Electronic module
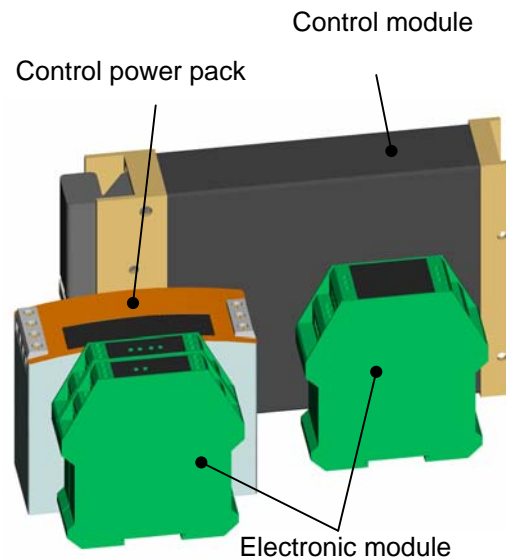
Note!

When assembling plug-connections it has to be ensured that the plug-connectors lock in well.
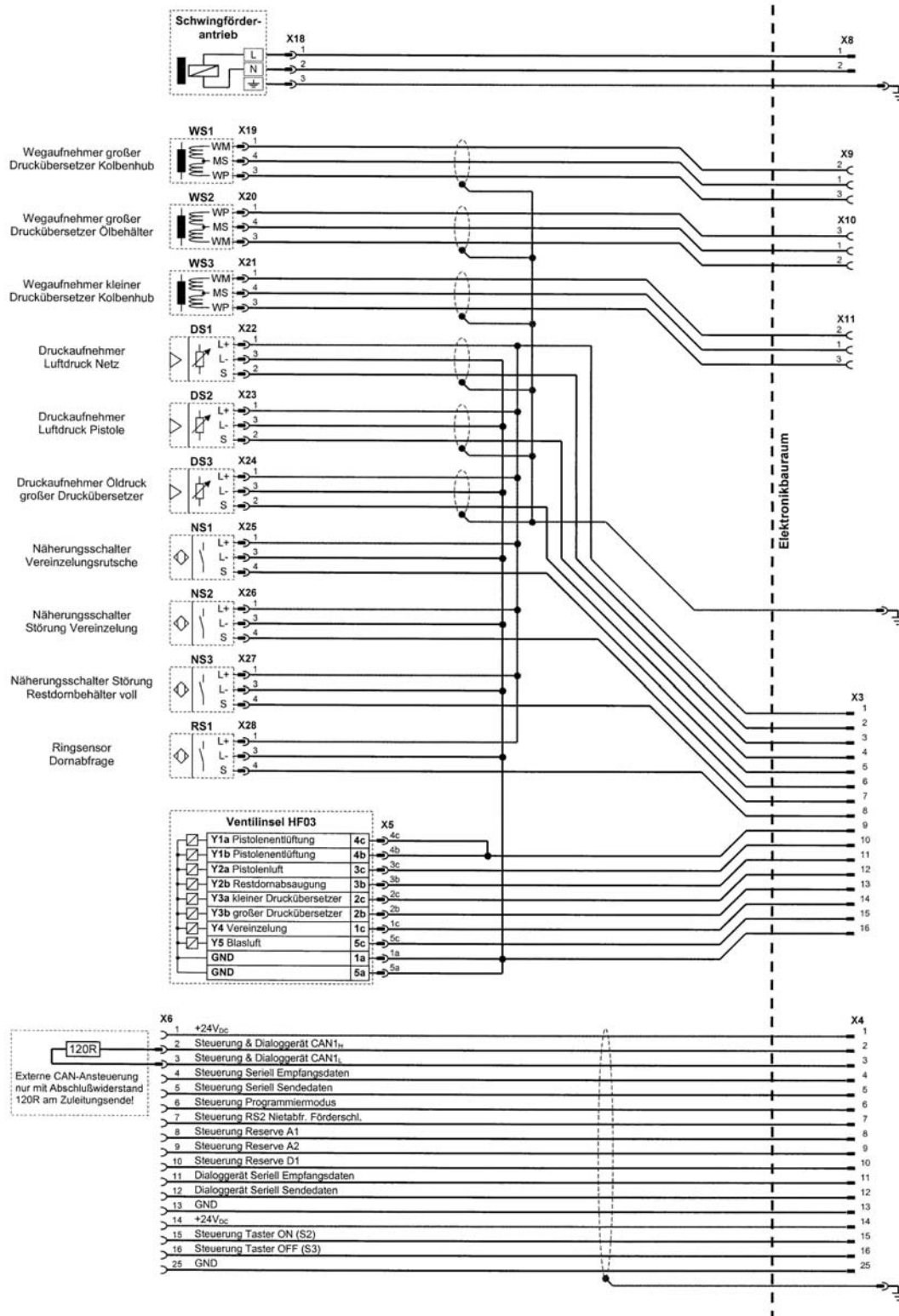
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Pneumatic connection diagram

Electric circuit diagram

Schwingförder-antrieb
L
N
X18
1
2
3
X8
1
2

WS1
WM
MS
WP
X19
1
4
2
3
X9
2
1
3

Wegaufnehmer großer
Druckübersetzer Kolbenhub

WS2
WP
MS
WM
X20
1
4
2
3
X10
3
1
2

Wegaufnehmer großer
Druckübersetzer Ölbehälter

WS3
WM
MS
WP
X21
1
4
2
3
X11
2
1
3

Wegaufnehmer kleiner
Druckübersetzer Kolbenhub

DS1
L+
L-
S
X22
1
3
2

Druckaufnehmer
Luftdruck Netz

DS2
L+
L-
S
X23
1
3
2

Druckaufnehmer
Luftdruck Pistole

DS3
L+
L-
S
X24
1
3
2

Druckaufnehmer Öldruck
großer Druckübersetzer

NS1
L+
L-
S
X25
1
3
2

Näherungsschalter
Vereinzelungsrutsche

NS2
L+
L-
S
X26
1
3
4

Näherungsschalter
Störung Vereinzelung

NS3
L+
L-
S
X27
1
3
4

Näherungsschalter Störung
Restdornbehälter voll

RS1
L+
L-
S
X28
1
3
4

Ringsensor
Dornabfrage

Elektronikbauraum

X3
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Ventilinsel HF03

	X5
Y1a Pistolenentlüftung	4c	4c
Y1b Pistolenentlüftung	4b	4b
Y2a Pistolenluft	3c	3c
Y2b Restdornabsaugung	3b	3b
Y3a kleiner Druckübersetzer	2c	2c
Y3b großer Druckübersetzer	2b	2b
Y4 Vereinzelung	1c	1c
Y5 Blasluft	5c	5c
GND	1a	1a
GND	5a	5a

X6
1 +24V$_{DC}$
2 Steuerung & Dialoggerät CAN1$_H$
3 Steuerung & Dialoggerät CAN1$_L$
4 Steuerung Seriell Empfangsdaten
5 Steuerung Seriell Sendedaten
6 Steuerung Programmiermodus
7 Steuerung RS2 Nietabfr. Förderschl.
8 Steuerung Reserve A1
9 Steuerung Reserve A2
10 Steuerung Reserve D1
11 Dialoggerät Seriell Empfangsdaten
12 Dialoggerät Seriell Sendedaten
13 GND
14 +24V$_{DC}$
15 Steuerung Taster ON (S2)
16 Steuerung Taster OFF (S3)
25 GND

120R

Externe CAN-Ansteuerung
nur mit Abschlußwiderstand
120R am Zuleitungsende!

X4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
25

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Electric circuit diagram

PLC interface
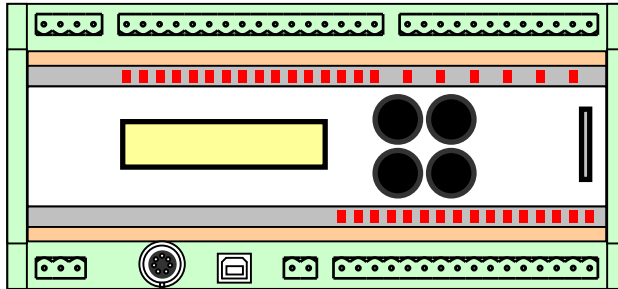
PLC interface

28.1 Specifications

The PLC interface serves as an interface to an external PLC, an external control and answer unit or to external input or message devices and enables the connection of a notebook / PC with suitable PC software. The PLC interface is designed for assembly in a control box with independent power supply 24 V DC.
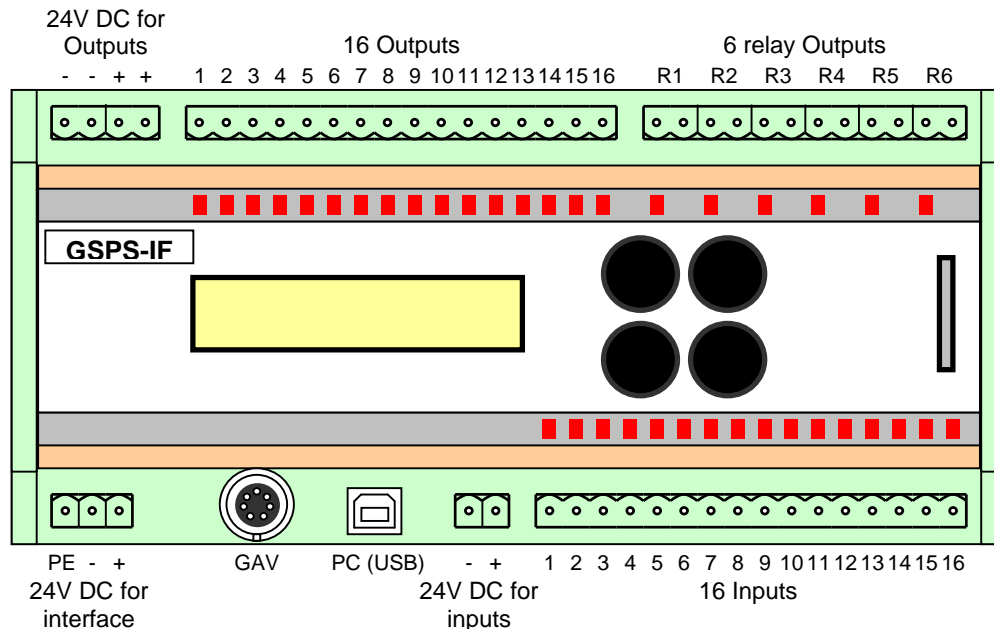
System controls
in control box
with power supply 24V DC

Power supply 24V DC

PLC

PLC interface

Message

Input

GAV8000

RS232   USB

Notebook / PC

GESIPA®
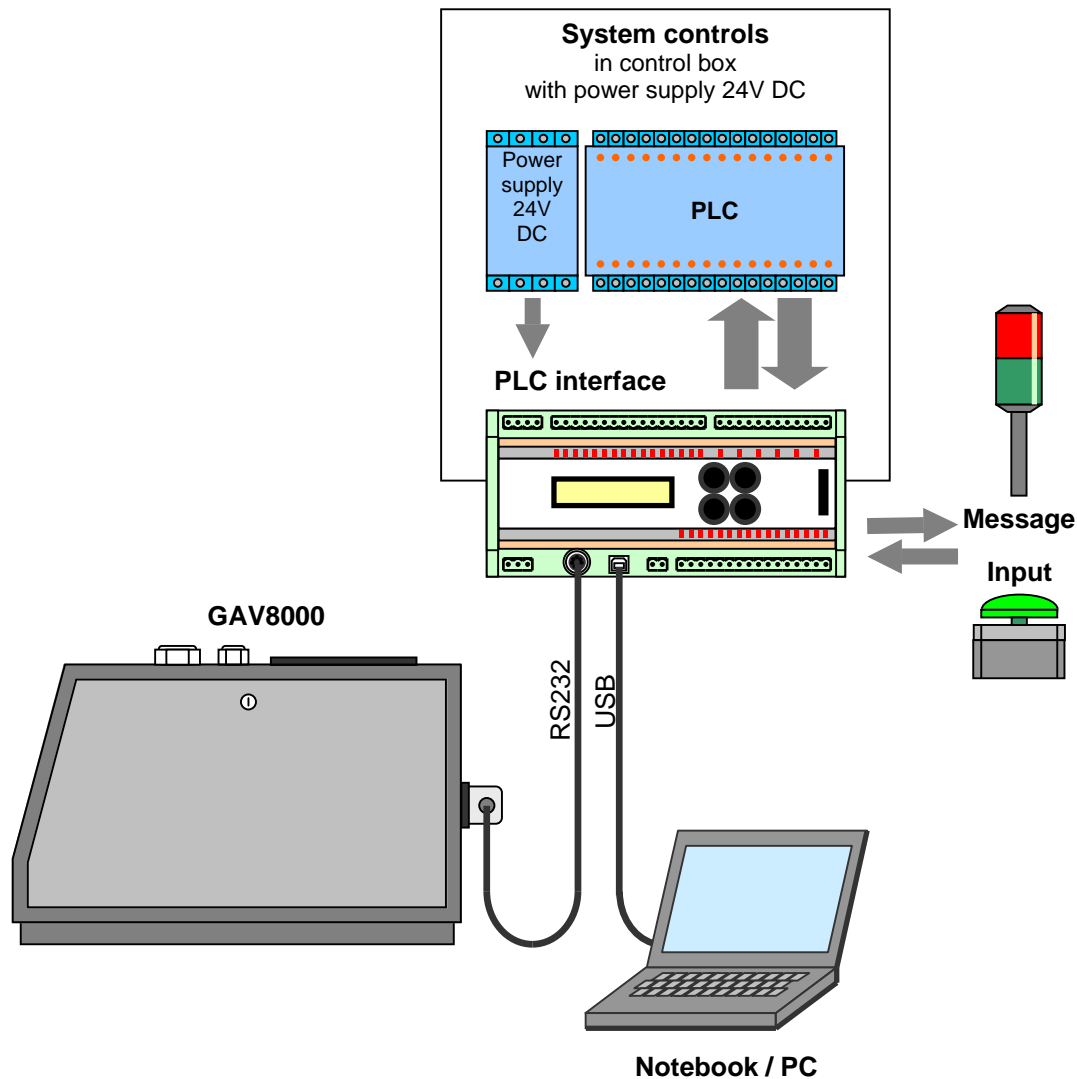
PLC interface

28.1 Specifications
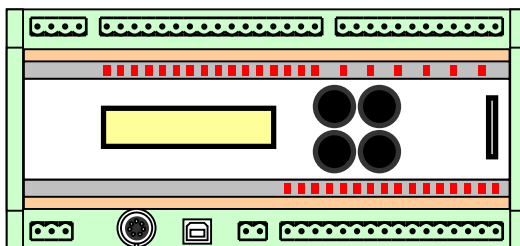
Technical data	
Dimensions	approx. 205 mm x 128 mm x 50 mm
Weight	approx. 460 g
Fitting	on mounting rail NS 35 x 7.5 (top hat rail)
Operative voltage	24V DC (permitted voltage range 20 - 30V DC)
Maximum current consumption	Interface: approx. 300mA Inputs approx. 40mA Outputs depends on loads to be switched
Temperature range	permitted ambient temperature -20°C to 70°C
Protection type	IP 20
16 PLC inputs	Control level 1: > 8V DC Control level 0: < 8V DC Fan-in current: typ. 2mA at 24V DC - Current limit - Overvoltage protection - Contact separation
16 PLC outputs	Permitted voltage range: 20 - 30V DC Maximum switching current: 1A at 24V DC - Current limit - Overheating protection - Overvoltage protection - Contact separation
6 relay outputs	DIN EN 61131-2 conform 1x make contact Maximum switching capacity: AC 750VA Maximum switching impulse current: 3A at 230V AC/DC
Interfaces	1x RS232 (GAV) 1x USB (PC) 1 x SD memory card
Plug-connector and connecting cable	- Plug-connector for power supply, inputs and outputs (Included in delivery) - Interface cable GAV (Art.-Nr. 719 1133)

GESIPA®

PLC interface

28.1 Specifications

Pin assignment PLC interface

24V DC for
Outputs   16 Outputs   6 relay Outputs

- - + +   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16   R1   R2   R3   R4   R5   R6

GSPS-IF

PE - +   GAV   PC (USB)   - +   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
24V DC for   24V DC for   16 Inputs
interface   inputs

Assignment of functions GAV8000:

IN		OUT	
Start cycle	1	1	Cycle ready
Reverse cycle	2	2	Cycle lift position
Rivet query mouth p.	3	3	Malfunction GAV	R1
Cycle close start	4	4	Malfunction cycle
Counter start	5	5	Counter/Part ready	R2
	6	6	MAN
Profile 1	7	7	
Next profile	8	8	Process/Part OK	R3
Select profile	9	9	Process/Part NOK	R4
Profile list/Profile Bit 0	10	10	Error code Bit 0
Profile list/Profile Bit 1	11	11	Error code Bit 1
Profile list/Profile Bit 2	12	12	Error code Bit 2
Profile list/Profile Bit 3	13	13	Error code Bit 3
Evaluation Part	14	14	
	15	15	Maintenance	R5
	16	16		R6

Input and output with double function:

- Output 5 "counter/part finished" reports when set value has been reached if "process counter" function is active, or the finished part, if profile list is active.

- Inputs 10 to 13 "profile list / profile bit 0" to "bit 3" can be used to select profile lists (see chapter 28.5 "selecting profile lists") or, when "selecting profile" (24V) input is active, to select profiles from the active profile list (see chapter 28.6 Selecting a profile directly").

- Outputs 8 to 13 "process/part IO" and "NIO" are able to issue an evaluation of the most recent process (see chapter 28.8 "evaluation process") and, when the "evaluation component part" input (24V) is active, an evaluation of a component part (see chapter 28.9 "evaluation component part").

PLC interface

28.2 PLC interface test

The input and output assignation of the PLC interface is displayed, and the connection of the GAV to the interface is tested in the PLC interface test menu. In addition it is possible to test individual communications with a connected PLC or control and evaluation unit or input and messaging devices for each input and output.

Input	Function
Off	No test function active
Toggle	Output test active, output 1 to 16 can be selected via the control button as well as turned on/off.
Switch	Output test active, output 1 to 16 can be selected or turned on/off with the control button.
C	When output test is active, outputs 1 to16 will be reset.

PLC interface test

Navigation:
AUTO
► MAN
  ► Menu
    ► Settings GAV
      ► PLC interface test

Example:

- Input 1 "start cycle" is set to 1 (24V) by a connected PLC.

- Output test **switch** is active, output 3 "malfunction GAV" was set to 1 (24) and the related relay R1 was switched.

PLC interface

28.3 Drive PLC

| PLC interface test | | Drive PLC |

Drive PLC

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► PLC interface test

System requirements:

- PLC interface connected to GAV.
- PLC connected to PLC interface.
- Drive PLC active. **AUTO► MAN► menu► settings GAV► drive PLC**.

Inputs:

Input 1 "start cycle" Cycle up to lift position (process blind rivet).
Input 2 "reverse cycle" Reverse cycle (load new blind rivet).
Input 3 "rivet query mouth piece" Sensor for monitoring loading process.

Input 3 "rivet query mouth piece" is designed for the use of a GAV in a fully automatic blind riveting tool. A suitable sensor (make contact 24V DC e.g. light barrier) has to be installed in the blind riveting tool in such a way that a blind rivet loaded in the expanding mouth piece is detected in the initial position of the blind riveting tool. The signal of the sensor is evaluated by the GAV control during the loading process and, if required, will possibly be issued to output 3 as "malfunction GAV". This function is optional and must be activated during commissioning in
 AUTO► MAN► menu► settings GAV► drive PLC.

Outputs:

Output 1 "cycle ready" GAV in initial position, no malfunction.
Output 2 "cycle lift position" Cycle reached lift position, remaining mandrel extracted.
Output 3 "malfunction GAV" " Malfunction GAV
Output 4 "malfunction cycle" Cycle interrupted due to malfunction.
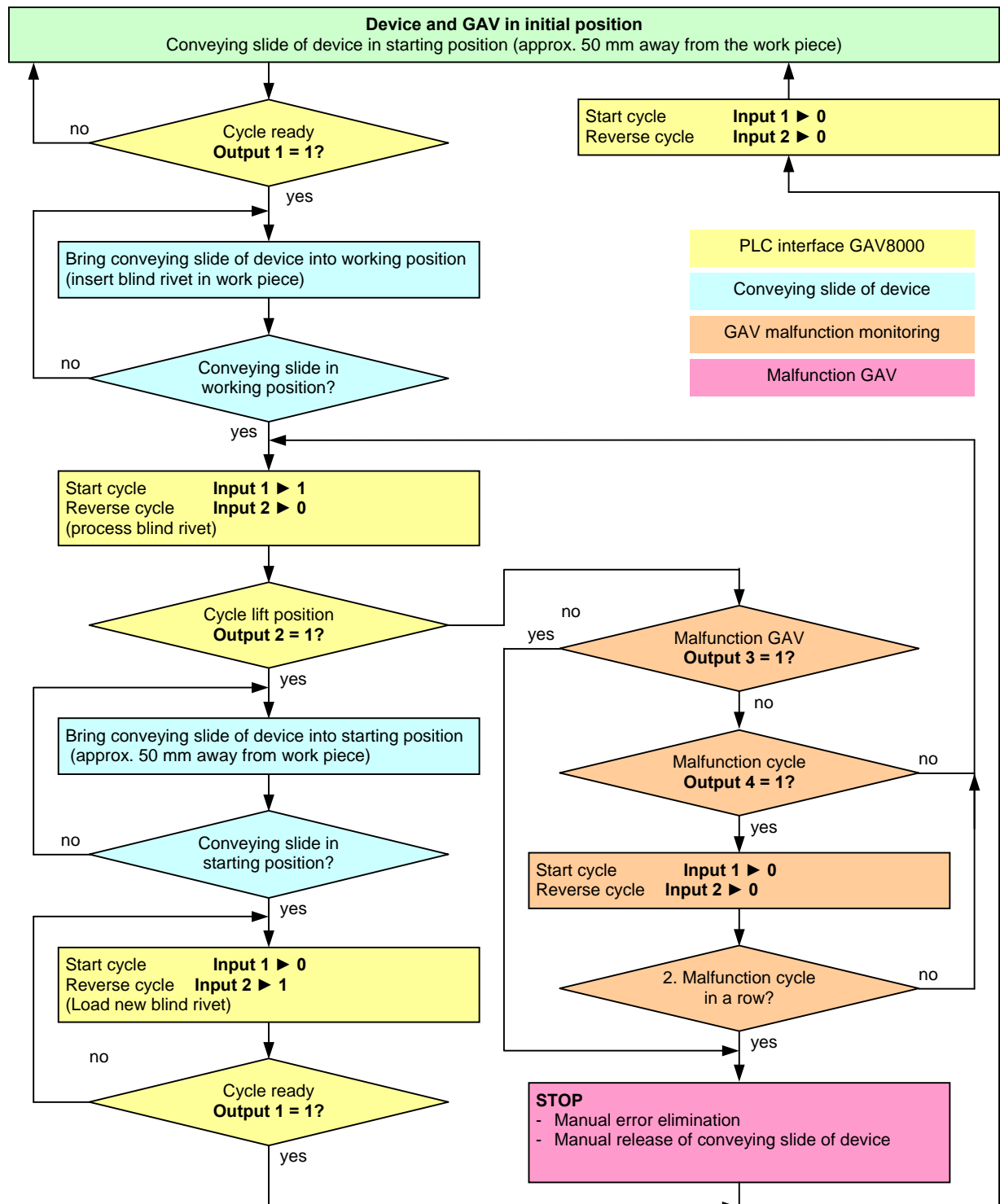
Relay:

Relay R 1 is switched if output 3 is "malfunction GAV" 1 (24V).

PLC interface

28.3 Drive PLC

The flow chart shows a typical communication of a GAV8000 via PLC interface with the PLC of a device. In this example the GAV gun is mounted axially mobile on the conveying slide of a device, that has two stop positions, approx. 50 mm away from the work piece and inserts blind rivets into the work piece. To provide easy access to the mouth piece area and the mandrel ejector for maintenance and repair purposes, the conveying slide should have a further free motion available.

PLC interface

28.4 Process counter

Prozess counter

System requirements:

- PLC interface connected to GAV.
- Process counter active (see chapter 13 "process counter").
- No process list active (see chapter 11 "process monitoring").

Inputs:

With rising edge on output 5 "counter start" at 1 (24V), the counter is set to target value (number of blind rivets to be processed).

Outputs:

Output 5 "counter/part finished" becomes 1 (24V), after the set number of blind rivets was processed (counter at 0).

The GAV may be stopped after reaching the set number of riveting processes (see paragraph "additional functions") with the help of a bridge from output 5 "counter/part finished" to input 4 "lock cycle start".

Relay:

Relay R2 switches when output 5 "counter/part finished" is at 1 (24V).

Example (see image):

Output 5 "counter/part finished" signals that the set number of blind rivets has been processed. The next step is to reset the process counter via input 5 "counter start".

PLC interface

28.5 Select profile list　　　　　　　　　　Not included in GAV-8000 **eco**

Select profile list

Navigation:
AUTO
► MAN
　► Menu
　　► Process monitoring
　　　► Profile
　　　　► List
　　　　　► PLC
　　　　　　► Test

System requirements:

- PLC interface connected to GAV.
- Process monitoring and profile list active (see chapter 11 "process monitoring").
- Process lists ready for selection (see chapter 11 "process monitoring").

Inputs:

Input 9 "Select profile" must be 0 (0V). Inputs 10 to 13 "profile list" allow a selection of maximal 10 available profile lists. When 0 (0000) is selected, the last profile list selected remains active.

For selection of available profile lists

Navigation:
AUTO
► MAN
　► Menu
　　► Prozess monitoring
　　　► Profile
　　　　► List
　　　　　► PLC

Example (see images):

Selection 5 (1010) at inputs 10 to 13 "profile list" activates profile list
"TEST list 05".

PLC interface

28.6 Selecting a profile directly　　　　Not included in GAV-8000 **eco**

PLC interface test		
Start cycle	1	1 Cycle ready
Reverse cycle	2	2 Cycle lift position
Rivet query mouth p.	3	3 Malfunction GAV R1
Cycle close start	4	4 Malfunction cycle
Counter start	5	5 Counter/Part ready R2
	6	6 MAN
Profile 1	7	7
Next profile	8	8 Process/Part OK R3
Select profile	9	9 Process/Part NOK R4
Profile list/Profile Bit 0	10	10 Error code Bit 0
Profile list/Profile Bit 1	11	11 Error code Bit 1
Profile list/Profile Bit 2	12	12 Error code Bit 2
Profile list/Profile Bit 3	13	13 Error code Bit 3
Evaluation part	14	14
	15	15 Maintenance R5
	16	16 R6
Back	Off Toggle Switch C	

Selecting profile directly

Navigation:
AUTO
► MAN
　► Menu
　　► Settings GAV
　　　► PLC interface test

System requirements:

- PLC interface connected to GAV.
- Process monitoring and profile list active (see chapter 11 "process monitoring").

Inputs:

Input 9 "Select profile" must be 1 (24V).

Use inputs 10 to 13 "profile", to activate profile 1 (1000) to profile 15 (1111) directly from the current profile list for the next process. When 0 (0000) is selected, the last selected profile of the current profile list will be active for the next process.

During this procedure the automatic indexing within a profile list is deactivated and only applied if the sequence of used profiles is to be controlled directly by an external PLC. Merely the different profiles of a profile list will are stored, with the number of profiles for this limited to 15.

Example (see image):

Profile 3 (1100) from the current profile list will be selected for the next process.

PLC interface

28.7 Selecting a profile step by step   Not included in GAV-8000 **eco**

Selecting profile step by step

Navigation:
AUTO
► MAN
  ► Menu
   ► Settings GAV
    ► PLC interface test

System requirements:

- PLC interface connected to GAV.
- Process monitoring and profile list active (see chapter 11 "process monitoring").

Inputs:

Input 9 "Select profile" must be 1 (24V).

With ascending edge on input 7 "profile 1" at 1 (24V) the first profile of the current profile list is activated for the next process. With ascending edge on input 8 "forward profile" at 1 (24V) each following profile of the current profile list is activated for the next process. When reaching the end of the profile list, restart with input 7 "profile 1".

During this procedure automatic indexing within a profile list is deactivated and only applied if the sequence of used profiles is to be controlled directly by an external PLC.

Example (see image):

With ascending edge on input 7 "profile 1" at 1 (24V) the first profile of the current profile list is activated for the next process.

PLC interface

28.8 Evaluation process | Not included in GAV-8000 **eco**

PLC interface test

Start cycle	1		1	Cycle ready	
Reverse cycle	2		2	Cycle lift position	
Rivet query mouth p.	3		3	Malfunction GAV	R1
Cycle close start	4		4	Malfunction cycle	
Counter start	5		5	Counter/Part ready	R2
	6		6	MAN	
Profile 1	7		7		
Next profile	8	I O	8	Process/Part OK	R3
Select profile	9	N U T	9	Process/Part NOK	R4
Profile list/Profile Bit 0	10		10	Error code Bit 0	
Profile list/Profile Bit 1	11		11	Error code Bit 1	
Profile list/Profile Bit 2	12		12	Error code Bit 2	
Profile list/Profile Bit 3	13		13	Error code Bit 3	
Evaluation part	14		14		
	15		15	Maintenance	R5
	16		16		R6

Back | Off | Toggle | Switch | C

Evaluation process

Navigation:
AUTO
► MAN
  ► Menu
    ► Settings GAV
      ► PLC interface test

System requirements:

- PLC interface connected to GAV.
- Process monitoring and profile list active (see chapter 11 "process monitoring").

Inputs:

Input 9 "select profile" and input 14 "evaluation component part" must be at 0 (0V) .

Outputs:

- At the start of each process output 8 evaluation "process IO", output 9 evaluation "process NIO" and outputs 10 to 13 "error code" are set at 0 (0V).

- At the end of each process 1 (24V) is issued for the evaluation "process IO" at output 8 or "process NIO" at output 9. An error code will be issued at the outputs 10 to 13 if evaluation is "process NIO".

Code	Tearing force	Tearing path	Bit 0	Bit 1	Bit 2	Bit 3
0	IO	IO	0	0	0	0
A	exceeded	IO	1	0	0	0
B	exceeded	exceeded	0	1	0	0
C	IO	exceeded	1	1	0	0
EN	not achieved	exceeded	0	0	1	0
E	not achieved	IO	1	0	1	0
F	not achieved	not achieved	0	1	1	0
G	IO	not achieved	1	1	1	0
H	exceeded	not achieved	0	0	0	1
9	No measuring values		1	0	0	1
10	Monitoring device ready		0	1	0	1

H	A	B
G	0	C
F	E	EN

Relay

Relay R3 switches when output 8 evaluation "part IO" is at 1 (24V).
Relay R4 switches when output 9 evaluation "part NIO" is at 1 (24V).

Example (see image):

Evaluation "Process NIO", error code 6 "tear off force and tear off distance not achieved".

GESIPA®

PLC interface

28.9 Evaluation component part   Not included in GAV-8000 **eco**
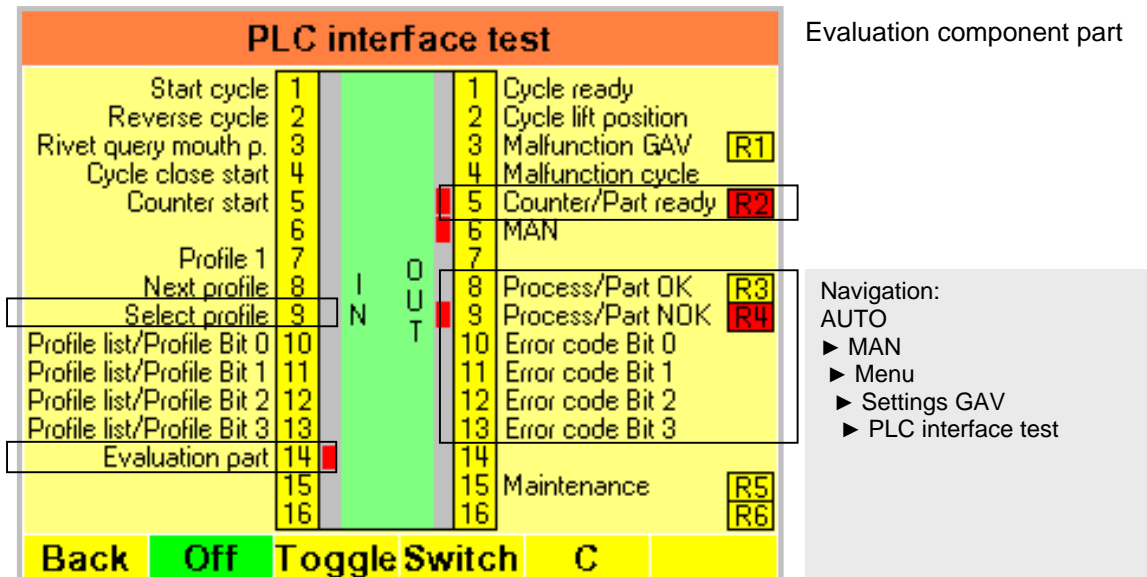
Evaluation component part

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► PLC interface test

System requirements:

- PLC interface connected to GAV.
- Process monitoring and profile list active (see chapter 11 "process monitoring").
- Profile list active (see chapter 11 "process monitoring").

Inputs:

Input 9 "select profile" must be at 0 (0V) and input 14 "evaluation component part" must be at 1 (24V).

Outputs:

- At the start of the first process (first profile in profile list) output 8 evaluation "part IO" is set at 1 (24V), output 9 evaluation "part NIO" at 0 (0V) and output 5 "part finished" at 0 (0V).
- When an error occurs during the processing of the blind rivet, output 8 evaluation "part IO" will be set to 0 (0V) and output 9 evaluation "part NIO" to 1 (24V).
- After the last process was finished (last profile in profile list) and after reaching initial position output 5 "part finished" will be set to 1 (24V).

The outputs error code 10 to 13 is set to 0 (OV). The error code always relates to the evaluation of a process and is not issued when a component part is being evaluated.

Relay:

Relay R2 switches when output 5 "counter/part finished" is at 1 (24V).
Relay R3 switches when output 8 evaluation "part IO" is at 1 (24V).
Relay R4 switches when output 9 evaluation "part NIO" is at 1 (24V).

Example (see image):

Message "part finished", evaluation "part NIO", no error code.

PLC interface

28.10 Other functions

Other functions

Navigation:
AUTO
► MAN
► Menu
► Settings GAV
► PLC interface test

Inputs:

Input 4 "lock cycle start".

Input 4 "lock cycle start" at 1 (24V) can be used in "AUTO" MODE, to lock all trigger options (manual, foot, PLC etc).

Outputs:

Output 6 "MAN".

Output 6 "MAN" at 1 (24V) shows that the GAV8000 is in "MAN" mode (manual control, setting, error elimination, maintenance etc.).

Output 15 "maintenance".

Output 15 "maintenance" at 1 (24V) shows that GAV8000 needs servicing (see chapter 10 "maintenance").

Relay:

Relay R5 switches when output 15 "maintenance" is at 1 (24V).

Automatic blind riveting system GAV-electronic Model 8000

Model 8000 eco

Spare parts and extras

Spare parts

Assembly overview
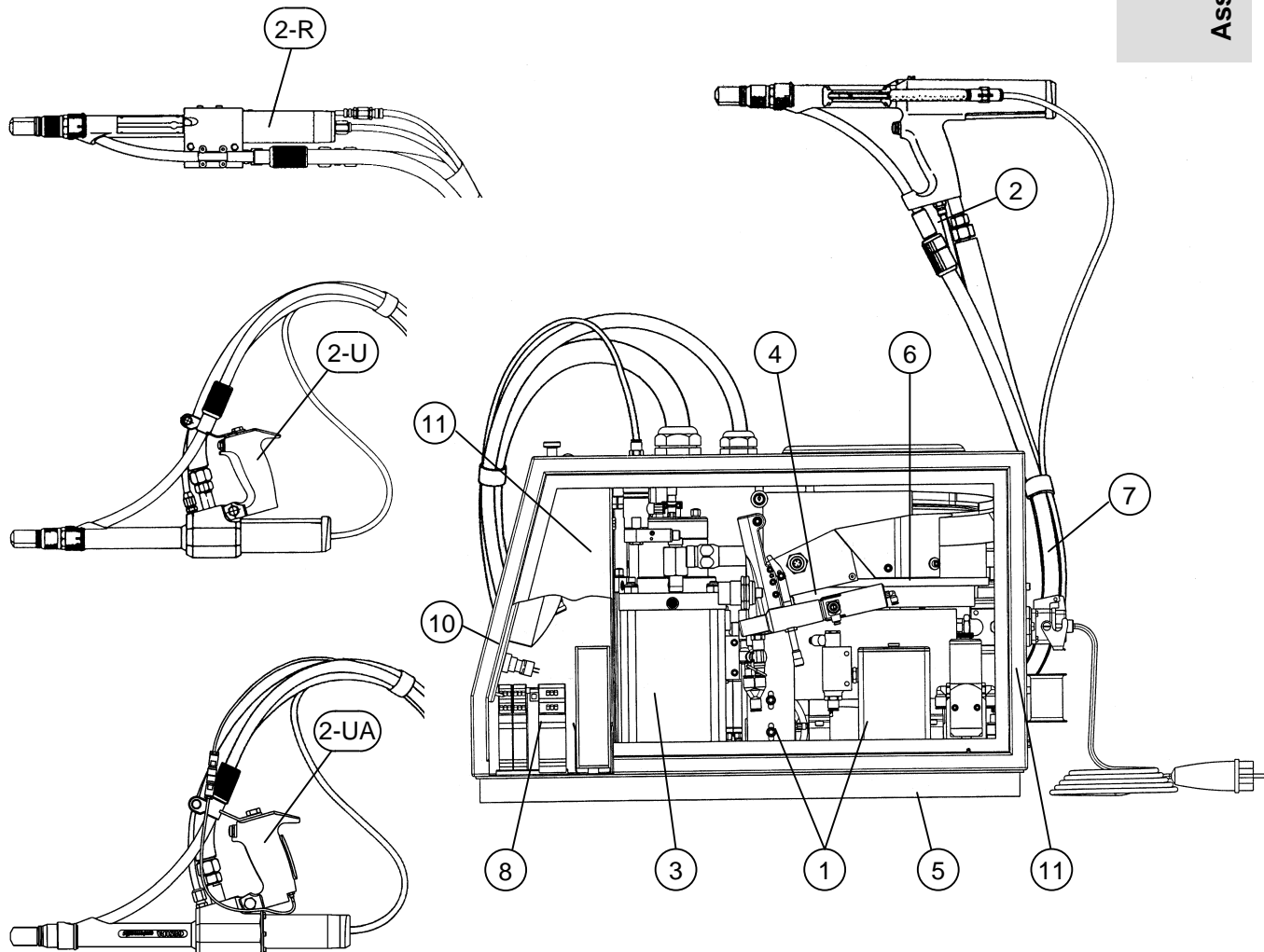
Assembly no.	Designation	Page
1	Pneumatics - control block	3 - 4
2	Blind riveting gun standard	5 - 11
2-R	robotic	5-R - 11-R
2-U	type U	5-U - 11-U
2-UA	type U with pressure monitoring device	5-UA - 11-UA
3	Hydraulics - amplifier unit	12 - 13
4	Singulator	14
5	Case unit	15
6	Oscillating conveyor unit	16
7	Feed bundle	17
8	Control electrical unit	18
9	Accessories	19 - 20
10	Front plate	21
11	Cable tree	22 - 23

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Spare parts

E 1 pneumatic assembly
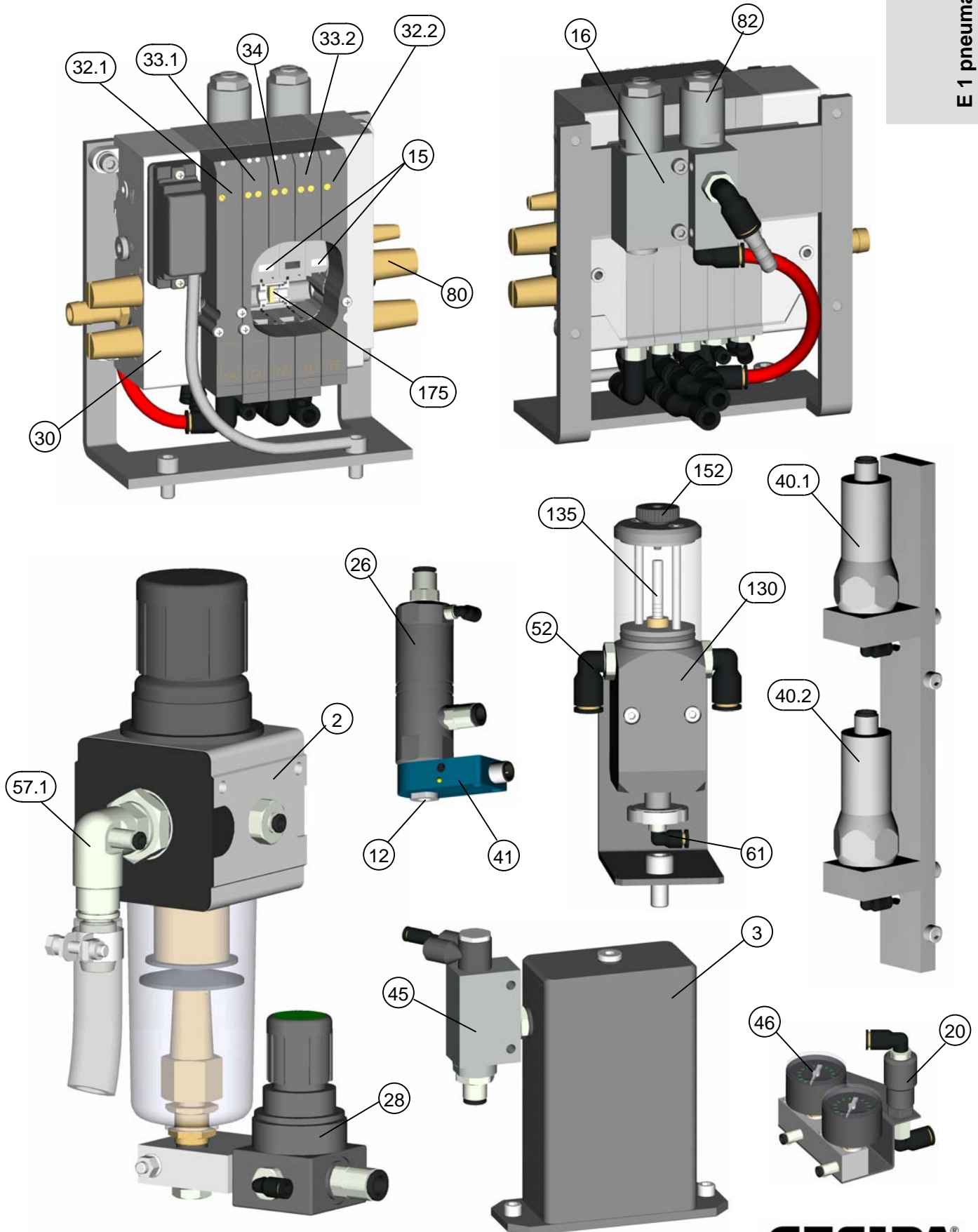
Spare parts

E 1 pneumatic assembly

Item	Part No.	Article No.	Designation
2	1-8002	719 1243	Maintenance unit (without 8028)
3	1-8003	719 1294	Pressure tank (without 8045 / 8048)
12	1-8012	719 1359	Banjo bolt
15	1-8015	719 1112	Sealing plate
16	1-8016	719 5559	Twin vent valve
16.0		719 1189	Sealing for 16 (2x)
20	1-8020	719 1367	Blast air throttle
26	1-8026	719 2886	Vacuum head (without 8012 / 8086)
26.0		719 0565	Vacuum head – working part set
28	1-8028	719 2916	Pressure control valve
30	1-8030	719 1113	Valve block assembly
32.1	1-8032	719 1114	5/2 Reversing valve AR Y4
32.2	1-8032	719 1114	5/2 Reversing valve AR Y5
33.1	1-8033	719 1115	3/2 Twin valve GR Y3
33.2	1-8033	719 1115	3/2 Twin valve GR Y1
34	1-8034	719 1116	3/2 Twin valve IR Y2
40.1	1-8040	719 2014	Pressure sensor DS1
40.2	1-8040	719 2014	Pressure sensor DS2
41	1-8041	719 2016	Ring sensor
45	1-8045	719 9244	Quick vent valve
46	1-8046	719 0700	Pressure gauge (2x)
52	1-8052	719 7667	Elbow-type screwed joint
57.1	1-8057	719 4064	Elbow-type screwed joint assembly
61	1-8061	719 5672	Elbow-type screwed joint
80	1-8080	719 1383	Sound absorber
82	1-8082	719 6962	Throttle sound absorber
130	1-8130	719 7772	Piston-style proportioner
135	1-8135	719 3874	Piston rod assembly
144	1-8144	719 0137	Locking screw assembly
175	1-8175	719 1119	Check valve assembly

Spare parts

E2 Blind riveting gun

Spare parts

E2-R Blind riveting gun robotic

Spare parts

E2-U Blind riveting gun type U

80/.F....kompl.

6190   28a   28b   6150   80/......kompl.

6086 25* 27/2 33 6021 6076 62.... 6152
54 27/4 6009 40 6092 6022 50
6001U 27/3
59 27/5

6001 U 7 57 6303 6155 6151 6032 6077 6005 80/....kompl.
28a 28b 6153 11 6032 61.... 6205 80/.F kompl.
6315 6314 6301 6302 22
6313 6321

2 6085 55
6083 6013* 6020*
6069*
37 6003 6012 6072* 6030* 529
52 6043 35 6084 6031 56 6090

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Spare parts

E2-U Blind riveting gun type U with pressure monitoring device

6190   28a   28b   6150   80/.....kompl.

80/.F....kompl.

54   6086   25*   27/2
6001 UA   27/4
6001 UA 1   27/3
6001 UA 2   27/5
59

33   6009   6021   6076   62....   6022   6152
6001 U 7   57   6092   50
28a   28b

6315   6314   6301   6303   6155   6151   6077   6005   80/....kompl.
6302   6153   11   6032   61....   6205   22   80/.F kompl.

6313   6321

2   6085   55
6083   6013*   6020*

37   6069*   6012   6072*   6030*   529
52   6003   6043   35   6084   6031   56   6090

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Spare parts

E2-V Blind rivetting gun type V

E2-V

E2-V Blind rivetting gun type V

* Nur als Baugruppe lieferbar

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Spare parts

E2 Blind riveting gun

Spare parts

E2-R Blind riveting gun robotic

E2-R
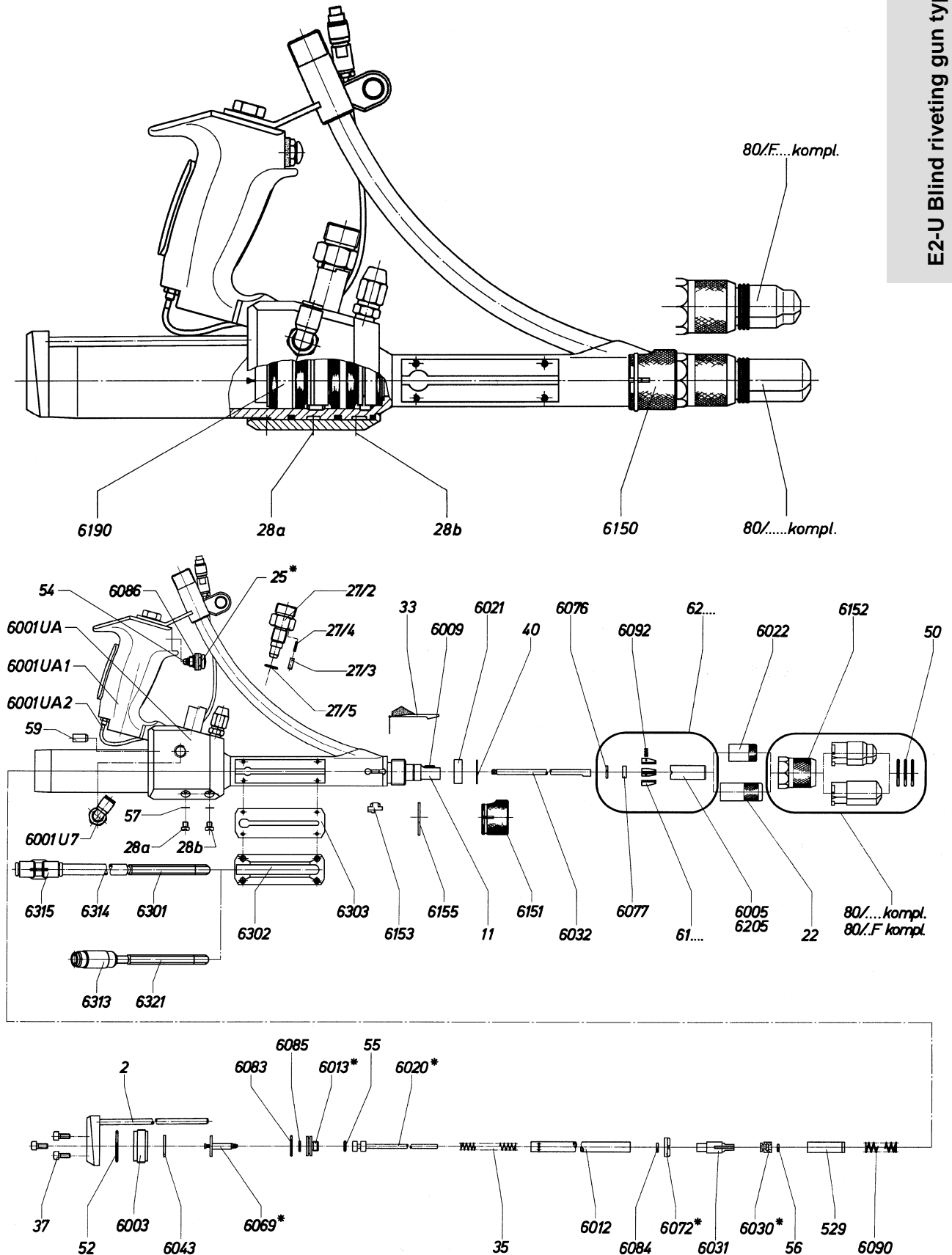
Spare parts

E2-U Blind rivetting gun type U

Spare parts

E2-U Blind riveting gun type U with pressure monitoring device

E2-UA

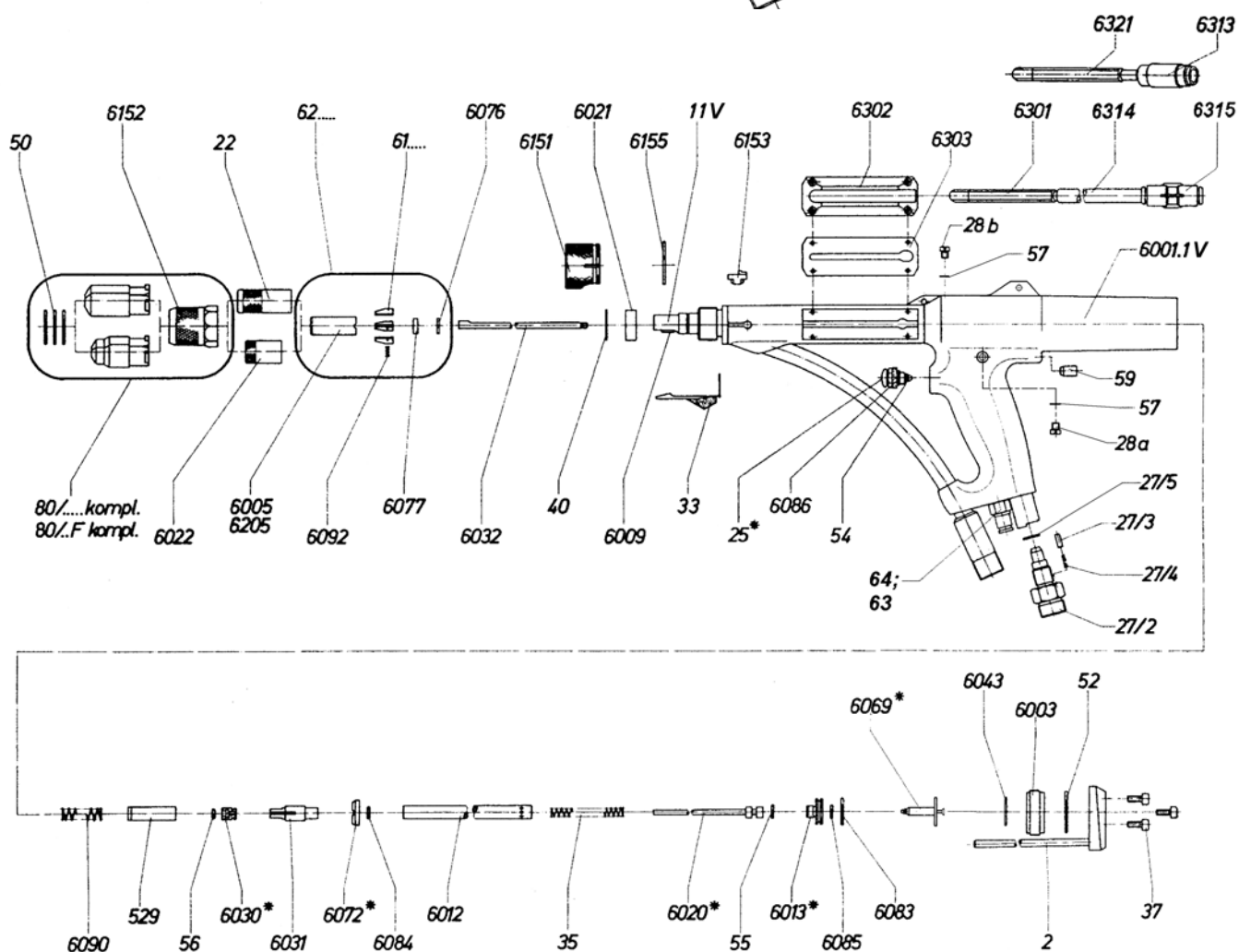E2-U Blind riveting gun type U with pressure monitoring device

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Spare parts

E2-V Blind rivetting gun type V

Spare parts

E2 Blind riveting gun

Item	Part No.	Article No.	Designation
0	2-6000	719 9465	Blind riveting gun assembly
1	2-6001	719 0921	Case assembly
2	2-0002	719 2029	Cover
3	2-6003	719 0913	Thread plug
205	2-6205	719 9201	Chuck cage 36° (denomination: 1 ring)
5	2-6005	719 1626	Chuck cage 28° (denomination: 2 rings)
9 •	2-6009	719 1413	Tensile piece assembly
10	2-6010	719 4803	Tensile piece fully assembled
11	2-0011	719 2118	Snap hose assembly
11.1		719 9252	Snap hose assembly fully assembled
12 •	2-6012	719 0905	Cylinder collar
13 • ∗	2-6013	719 0891	Reset piston assembly with part no. 6083 and 6085
16	2-0016	719 2169	Jacketed ring
17 °	2-0017	719 2177	Washer
18	2-0018	719 2185	Washer
19	2-0019	719 2193	Washer
20 • ∗	2-6020	719 1421	Stop piston assembly with part no. 2-55
20.1 ∗	2-6020.1	719 1944	Stop piston assembly with part no. 2-55 4mm elongation
21	2-6021	719 1235	Stop ring
22	2-0022	719 2223	Snap collet
6022	2-6022	719 1774	Snap collet for expanding mouth piece 2-80/F
23 •	2-6023	719 1405	Feather key
24 •	2-0024	719 2258	Slide Valve
25 ∗	2-0025	719 5907	Actuator assembly
27.2	2-0027.2	719 2274	Coupling piece
27.3	2-0027.3	719 1863	Bolt
27.4	2-0027.4	719 2363	Pressure spring
27.5 °	2-0027.5	719 5699	O-ring 8.5 x 2
28	2-0028	719 2282	Vent screw (2x)
529 •	2-0529	719 2290	Hub collar
30 ∗ •	2-6030	719 0638	Tappet bush assembly with part no. 2-56
31 •	2-6031	719 0875	Stop bush
31.1	2-6031.1	719 9457	Stop bush 2mm shorter
• Included for tensile piece assembly no. 10			
∗ Only available as sub-assembly			
° Included for sealing no. 191			

Spare parts

E2-R Blind riveting gun robotic

Articel-No.	Part No.	Discription
719 1642	GAV 2 - 6000R	blind riveting tool, complete
719 4765	GAV 2 - 6000R/1	sealing set
719 4641	GAV 2 - 6001R 1	holding fixture
719 4668	GAV 2 - 6001R 2	housing
719 4676	GAV 2 - 6001R 3	tube bow
719 4684	GAV 2 - 6001R 4	clamping ring
719 4692	GAV 2 - 6001R 5	tube clamp
719 4714	GAV 2 - 6001R 7	cap
719 7675	GAV 2 - 6001R 9	straight screwing
719 7721	GAV 2 - 6001R 11	reducing fitting
719 5974	GAV 2 - 6001R 13	plastic hose
719 4757	GAV 2 - 6001R 17 °	o-ring 40x2,5 (3x)
719 2371	GAV 2 - 6001R 19	screw M5x12
719 4773	GAV 2 - 6001R 20	srewM6x12
719 9201	GAV 2 - 6205	jaw housing 36° (identification: 1 ring)
719 1626	GAV 2 - 6005	jaw housing 28° (identification: 2 rings)
719 1413	GAV 2 - 6009 •	traction rod complete
719 4803	GAV 2 - 6010	traction rod complete assembled
719 2118	GAV 2 - 11	closing tube complete
719 9252	GAV 2 - 11.1	closing tube complete assembled
719 0905	GAV 2 - 6012 •	mandrel control rod guide tube
719 0891	GAV 2 - 6013 ∗ •	rest plunger with Part No. 6083 + 6085
719 2169	GAV 2 - 16	traction rod gasket
719 2177	GAV 2 - 17 °	plate
719 2185	GAV 2 - 18	plate
719 2193	GAV 2 - 19	plate
719 1421	GAV 2 - 6020 ∗ •	stopping rod complete with Part. No. 55
719 1944	GAV 2 - 6020.1∗	stopping rod complete SL4 with Part. No. 2-55 4mm lengthened
719 1235	GAV 2 - 6021	stopping ring
719 2223	GAV 2 - 22	spreader nosepiece locking tube 2-80
719 1774	GAV 2 - 6022	spreader nosepiece locking tube 2-80/F
719 1405	GAV 2 - 6023 •	feather key
719 2258	GAV 2 - 24 •	slider
719 2274	GAV 2 - 27/2	coupler
719 1863	GAV 2 - 27/3	pin
719 2363	GAV 2 - 27/4	compression spring
719 5699	GAV 2 - 27/5 °	o-ring 8,5 x 2
719 2282	GAV 2 - 28	air bleeding screw (2x)
719 2290	GAV 2 - 529 •	sleeve

∗ contained in part complete No. 2-6010 traction rod

• only availabe as a set of parts

° contained in part No. 2-6000R/1 sealing set

GESIPA®

Spare parts

E2-U

E2-U Blind rivetting gun type U

Article-No.	Part-No.		Discription
719 0182	GAV	2 – 6000U	blind riveting tool, complete
719 7535	GAV	2 – 6001U	housing complete
719 7667	GAV	2 – 6001U7	screw in connection
719 2029	GAV	2 - 2	cover
719 0913	GAV	2 - 6003	threaded plug
719 9201	GAV	2 - 6205	jaw housing 36° (identification 1 ring)
719 1626	GAV	2 - 6005	jaw housing 28° (identification 2 rings)
719 1413	GAV	2 - 6009 •	traction rod complete
719 4803	GAV	2 - 6010	traction rod complete assembled
719 2118	GAV	2 - 11	closing tube complete
719 9252	GAV	2 - 11.1	closing tube complete assembled
719 0905	GAV	2 - 6012 •	mandrel control rod guide tube
719 0891	GAV	2 - 6013 ∗ •	reset plunger with Part No. 6083 + 6085
719 2169	GAV	2 - 16	traction rod gasket
719 2177	GAV	2 - 17 °	plate
719 2185	GAV	2 - 18	plate
719 2193	GAV	2 - 19	plate
719 1421	GAV	2 - 6020 ∗ •	stopping rod complete with Part No. 2-55
719 1944	GAV	2 - 6020.1 ∗	stopping rod complete SL4 with Part No. 2-55 4mm lengthened
719 1235	GAV	2 - 6021	stopping ring
719 2223	GAV	2 - 22	locking tube
719 1774	GAV	2 - 6022	spreader nosepiece locking tube 2-80/F
719 1405	GAV	2 - 6023 •	feather key
719 2258	GAV	2 - 24 •	slider
719 5907	GAV	2 - 25 ∗	triggervalve assembly complete
719 2274	GAV	2 - 27/2	coupler
719 1863	GAV	2 - 27/3	pin
719 2363	GAV	2 - 27/4	compression spring
719 5699	GAV	2 - 27/5 °	o-ring 8,5 x 2
719 2282	GAV	2 - 28	air bleeding screw (2x)
719 2290	GAV	2 - 529 •	sleeve
719 0638	GAV	2 - 6030 ∗ •	jaw closing tube bushing complete withPart No. 2-56
719 0875	GAV	2 - 6031 •	stop sleeve
719 9457	GAV	2 - 6031.1	stop sleeve shortened by 2 mm

• contained in part complete No. 2-6010 traction rod

∗ only availabe as a set of parts

° contained in part No. 2-6191 sealing set

GESIPA®

Spare parts

E2-U Blind riveting gun type U with pressure monitoring device

Article-No.	Part-No.		Discription
719 1074	GAV	2 – 6000UA	blind riveting tool, complete
719 1012	GAV	2 – 6001UA	housing complete
719 1077	GAV	2 – 6001UA1	handle
719 1068	GAV	2 – 6001UA2	proximity switch
719 7667	GAV	2 – 6001U7	screw in connection
719 2029	GAV	2 - 2	cover
719 0913	GAV	2 - 6003	threaded plug
719 9201	GAV	2 - 6205	jaw housing 36° (identification 1 ring)
719 1626	GAV	2 - 6005	jaw housing 28° (identification 2 rings)
719 1413	GAV	2 - 6009 •	traction rod complete
719 4803	GAV	2 - 6010	traction rod complete assembled
719 2118	GAV	2 - 11	closing tube complete
719 9252	GAV	2 - 11.1	closing tube complete assembled
719 0905	GAV	2 - 6012 •	mandrel control rod guide tube
719 0891	GAV	2 - 6013 * •	reset plunger with Part No. 6083 + 6085
719 2169	GAV	2 - 16	traction rod gasket
719 2177	GAV	2 - 17 °	plate
719 2185	GAV	2 - 18	plate
719 2193	GAV	2 - 19	plate
719 1421	GAV	2 - 6020 * •	stopping rod complete with Part No. 2-55
719 1944	GAV	2 - 6020.1 *	stopping rod compl. SL4 with Part No. 2-55, 4mm lengt
719 1235	GAV	2 - 6021	stopping ring
719 2223	GAV	2 - 22	locking tube
719 1774	GAV	2 - 6022	spreader nosepiece locking tube 2-80/F
719 1405	GAV	2 - 6023 •	feather key
719 2258	GAV	2 - 24 •	slider
719 5907	GAV	2 - 25 *	triggervalve assembly complete
719 2274	GAV	2 - 27/2	coupler
719 1863	GAV	2 - 27/3	pin
719 2363	GAV	2 - 27/4	compression spring
719 5699	GAV	2 - 27/5 °	o-ring 8,5 x 2
719 2282	GAV	2 - 28	air bleeding screw (2x)
719 2290	GAV	2 - 529 •	sleeve
719 0638	GAV	2 - 6030 * •	jaw closing tube bushing complete withPart No. 2-56
719 0875	GAV	2 - 6031 •	stop sleeve
719 9457	GAV	2 - 6031.1	stop sleeve shortened by 2 mm

• contained in part complete No. 2-6010 traction rod
∗ only availabe as a set of parts
° contained in part No. 2-6191 sealing set

GESIPA®

Spare parts

E2-V

E2-V Blind rivetting gun type V

Article-No.	Part-No.		Discription
719 0174	GAV	2 – 6000V	blind riveting tool, complete
719 5923	GAV	2 – 6001.1V	housing complete
719 2029	GAV	2 - 2	cover
719 0913	GAV	2 - 6003	threaded plug
719 9201	GAV	2 - 6205	jaw housing 36° (identification 1 ring)
719 1626	GAV	2 - 6005	jaw housing 28° (identification 2 rings)
719 1413	GAV	2 - 6009 •	traction rod complete
719 4803	GAV	2 - 6010	traction rod complete assembled
719 6334	GAV	2 – 11V	closing tube complete
719 0905	GAV	2 - 6012 •	mandrel control rod guide tube
719 0891	GAV	2 - 6013 ∗ •	reset plunger with Part No. 6083 + 6085
719 2169	GAV	2 - 16	traction rod gasket
719 2177	GAV	2 - 17 °	plate
719 2185	GAV	2 - 18	plate
719 2193	GAV	2 - 19	plate
719 1421	GAV	2 - 6020 ∗ •	stopping rod complete with Part No. 2-55 overall length 186mm
719 1944	GAV	2 - 6020.1 ∗	stopping rod complete with Part No. 2-55 overall length 190mm
719 1235	GAV	2 - 6021	stopping ring
719 2223	GAV	2 - 22	locking tube
719 1774	GAV	2 - 6022	spreader nosepiece locking tube 2-80/F
719 1405	GAV	2 - 6023 •	feather key
719 2258	GAV	2 - 24 •	slider
719 5907	GAV	2 - 25 ∗	triggervalve assembly complete
719 2274	GAV	2 - 27/2	coupler
719 1863	GAV	2 - 27/3	pin
719 2363	GAV	2 - 27/4	compression spring
719 5699	GAV	2 - 27/5 °	o-ring 8,5 x 2
719 2282	GAV	2 - 28	air bleeding screw (2x)
719 2290	GAV	2 - 529 •	sleeve
719 0638	GAV	2 - 6030 ∗ •	jaw closing tube bushing complete withPart No. 2-56
719 0875	GAV	2 - 6031 •	stop sleeve overall length 38mm
719 9457	GAV	2 - 6031.1	stop sleeve overall length 36mm

• contained in part complete No. 2-6010 traction rod
∗ only availabe as a set of parts
° contained in part No. 2-6191 sealing set

GESIPA®

Spare parts

E2 Blind riveting gun

Item	Part No.	Article No.	Designation
32	2-6032	719 9449	Chuck jaw hose
33	2-33	719 2339	Locking spring
33 B	2-33 B	719 0506	Locking spring (9mm shorter)
33 C	2-33 C	719 0654	Locking spring (90° notch)
33 D	2-33 D	719 5567	Locking spring (without spoon)
35 •	2-35	719 2355	Pressure spring
36	2-36	719 2363	Pressure spring
37	2-37	719 2371	Cheese head screw M5 x 12
39 °	2-39	719 2398	Snap ring SW 18
40 °	2-40	719 2401	Snap ring SW 18 shortened
41 •	2-6041	719 0867	Snap ring SW 20
42	2-42	719 2428	Locking ring SB 24
43 • °	2-6043	719 1391	Locking ring (22 x 1.5)
44 • °	2-6044	719 0859	Snap ring SW 27
47	2-47	719 2479	Lip seal black
48 °	2-48	719 2487	Lip seal (blue), mounting tool E9-19 (extra)
49 °	2-49	719 2495	Scraper
50 °	2-50	719 2509	O-ring 18 x 2 (4x)
51 °	2-51	719 2517	O-ring 24 x 2
52 °	2-52	719 2525	O-ring 32 x 2
54 °	2-54	727 9884	O-ring 3.68 x 1.78 (for 2-25) 2x
55 °	2-55	719 2622	O-ring 4.3 x 2.4
56 °	2-56	719 2568	O-ring 6 x 1
57 °	2-57	719 2576	USIT-ring (2x)
59 °	2-59	719 2592	Nipple
63	2-63	719 7845	Screwed joint
64	2-64	719 7853	Screwed joint
• Included for tensile piece assembly no. 10
∗ Only available as sub-assembly
° Included for sealing no. 191

Spare parts

E2-R Blind rivetting gun robotic

Article-No.	Part No.	Discription
719 0638	GAV 2 - 6030 ∗ •	jaw closing tube bushing compl. with Part No.56
719 0875	GAV 2 - 6031 •	stop sleeve
719 9457	GAV 2 - 6031.1	stop sleeve shortened by 2 mm
719 9449	GAV 2 - 6032	jaw closing tube
719 2339	GAV 2 - 33	retaining spring
719 0506	GAV 2 - 33 B	retaining spring (9mm shortened)
719 0654	GAV 2 - 33 C	retaining spring (90° groove)
719 5567	GAV 2 - 33 D	retaining spring (90° groove)
719 2355	GAV 2 - 35 •	compression spring
719 2363	GAV 2 - 36	compression spring
719 2371	GAV 2 - 37	socket screw M5 x 12 (3x)
719 2398	GAV 2 - 39 °	snap ring SW l8
719 2401	GAV 2 - 40 °	snap ring SW 18 shortened
719 0867	GAV 2 - 6041 •	snap ring SW 20
719 2428	GAV 2 - 42	snap ring SB
719 1391	GAV 2 - 6043 ° •	snap ring (22 x 1,5)
719 0859	GAV 2 - 6044 ° •	snap ring SW 27
719 2479	GAV 2 - 47 °	slot ring black
719 2487	GAV 2 - 48 °	slot ring (blue) -> mounting tools 9-19 needed see optional accessories page 19 and 20
719 2495	GAV 2 - 49 °	
719 2509	GAV 2 - 50 °	o-ring 18 x 2 (4x)
719 2517	GAV 2 - 51 °	o-ring 24 x 2
719 2525	GAV 2 - 52 °	o-ring 32 x 2
719 2622	GAV 2 - 55 °	o-ring 4,3 x 2,4
719 2568	GAV 2 - 56 °	o-ring 6 x 1
719 2576	GAV 2 - 57 °	USIT-Ring (2x)
719 7845	GAV 2 - 63	plug screwing
719 7853	GAV 2 - 64	screw in connection

• contained in part complete No. 2-6010 traction rod
∗ only availabe as a set of parts
° contained in part No. 2-6000R/1 sealing set

Spare parts

E2-U Blind rivetting gun type U

Article-No.		Part-No.	Discription
719 9449	GAV	2 - 6032	jaw closing tube
719 2339	GAV	2 - 33	retaining spring
719 0506	GAV	2 - 33 B	retaining spring (9mm shortened)
719 0654	GAV	2 - 33 C	retaining spring (90° groove)
719 5567	GAV	2 - 33 D	retaining spring (without spoon)
719 2355	GAV	2 - 35 •	compression spring
719 2363	GAV	2 - 36	compression spring
719 2371	GAV	2 - 37	socket screw M5 x 12 (3x)
719 2398	GAV	2 - 39 °	snap ring SW l8
719 2401	GAV	2 - 40 °	snap ring SW 18 shortened
719 0867	GAV	2 - 6041 •	snap ring SW 20
719 2428	GAV	2 - 42	snap ring SB
719 1391	GAV	2 - 6043 ° •	snap ring (22 x 1,5)
719 0859	GAV	2 - 6044 ° •	snap ring SW 27
719 2479	GAV	2 - 47	slot ring black
719 2487	GAV	2 - 48 °	slot ring blue -> mounting tools 9-19 needed see optional accessories page 19 and 20
719 2495	GAV	2 - 49 °	wiper
719 2509	GAV	2 - 50 °	o-ring 18 x 2 (4x)
719 2517	GAV	2 - 51 °	o-ring 24 x 2
719 2525	GAV	2 - 52 °	o-ring 32 x 2
727 9884	GAV	2 - 54 °	o-ring 3,68 x 1,78 (für 2-25) 2x
719 2622	GAV	2 - 55 °	o-ring 4,3 x 2,4
719 2568	GAV	2 - 56 °	o-ring 6 x 1
719 2576	GAV	2 - 57 °	USIT-ring (2x)
719 2592	GAV	2 - 59 °	nipple
719 7845	GAV	2 - 63	plug screwing
719 7853	GAV	2 - 64	screw in connection

- • contained in part complete No. 2-6010 traction rod
- ∗ only availabe as a set of parts
- ° contained in part No. 2-6191 sealing set

Spare parts

E2-U Blind rivetting gun type U with pressure monitoring device

Article-No.		Part-No.	Discription
719 9449	GAV	2 - 6032	jaw closing tube
719 2339	GAV	2 - 33	retaining spring
719 0506	GAV	2 - 33 B	retaining spring (9mm shortened)
719 0654	GAV	2 - 33 C	retaining spring (90° groove)
719 5567	GAV	2 - 33 D	retaining spring (without spoon)
719 2355	GAV	2 - 35 •	compression spring
719 2363	GAV	2 - 36	compression spring
719 2371	GAV	2 - 37	socket screw M5 x 12 (3x)
719 2398	GAV	2 - 39 °	snap ring SW l8
719 2401	GAV	2 - 40 °	snap ring SW 18 shortened
719 0867	GAV	2 - 6041 •	snap ring SW 20
719 2428	GAV	2 - 42	snap ring SB
719 1391	GAV	2 - 6043 ° •	snap ring (22 x 1,5)
719 0859	GAV	2 - 6044 ° •	snap ring SW 27
719 2479	GAV	2 - 47	slot ring black
719 2487	GAV	2 - 48 °	slot ring blue -> mounting tools 9-19 needed
			see optional accessories page 19 and 20
719 2495	GAV	2 - 49 °	wiper
719 2509	GAV	2 - 50 °	o-ring 18 x 2 (4x)
719 2517	GAV	2 - 51 °	o-ring 24 x 2
719 2525	GAV	2 - 52 °	o-ring 32 x 2
727 9884	GAV	2 - 54 °	o-ring 3,68 x 1,78 (für 2-25) 2x
719 2622	GAV	2 - 55 °	o-ring 4,3 x 2,4
719 2568	GAV	2 - 56 °	o-ring 6 x 1
719 2576	GAV	2 - 57 °	USIT-ring (2x)
719 2592	GAV	2 - 59 °	nipple
719 7845	GAV	2 - 63	plug screwing
719 7853	GAV	2 - 64	screw in connection

- • contained in part complete No. 2-6010 traction rod
- ∗ only availabe as a set of parts
- ° contained in part No. 2-6191 sealing set

GESIPA®

Spare parts

E2-V Blind rivetting gun type V

Article-No.		Part-No.	Discription
719 9449	GAV	2 - 6032	jaw closing tube
719 2339	GAV	2 - 33	retaining spring
719 0506	GAV	2 - 33 B	retaining spring (9mm shortened)
719 0654	GAV	2 - 33 C	retaining spring (90° groove)
719 5567	GAV	2 - 33 D	retaining spring (without spoon)
719 2355	GAV	2 - 35 •	compression spring
719 2363	GAV	2 - 36	compression spring
719 2371	GAV	2 - 37	socket screw M5 x 12 (3x)
719 2398	GAV	2 - 39 °	snap ring SW l8
719 2401	GAV	2 - 40 °	snap ring SW 18 shortened
719 0867	GAV	2 - 6041 •	snap ring SW 20
719 2428	GAV	2 - 42	snap ring SB
719 1391	GAV	2 - 6043 ° •	snap ring (22 x 1,5)
719 0859	GAV	2 - 6044 ° •	snap ring SW 27
719 6342	GAV	2 - 6047	piston sealing set (2x)
719 2487	GAV	2 - 48 °	slot ring blue -> mounting tools 9-19 needed see optional accessories page 19 and 20
719 2495	GAV	2 - 49 °	wiper
719 2509	GAV	2 - 50 °	o-ring 18 x 2 (4x)
719 2517	GAV	2 - 51 °	o-ring 24 x 2
719 2525	GAV	2 - 52 °	o-ring 32 x 2
727 9884	GAV	2 - 54 °	o-ring 3,68 x 1,78 (für 2-25) 2x
719 9694	GAV	2 - 6086	o-ring 6,75 x 1,78 (für 2-25) 1x
719 2622	GAV	2 - 55 °	o-ring 4,3 x 2,4
719 2568	GAV	2 - 56 °	o-ring 6 x 1
719 2576	GAV	2 - 57 °	USIT-ring (2x)
719 2592	GAV	2 - 59 °	nipple
719 7845	GAV	2 - 63	plug screwing
719 7853	GAV	2 - 64	screw in connection

- • contained in part complete No. 2-6010 traction rod
- ∗ only availabe as a set of parts
- ° contained in part No. 2-6191 sealing set

E2-V Blind rivetting gun type V

GESIPA

Spare parts

E2 Blind riveting gun

Item	Part No.	Article No.	Designation
69 • ∗	2-6069	719 0840	Valve piston assembly with part no. 6079 and +6094
70 •	2-6070	719 0832	Jumper ring
71 •	2-6071	719 0824	Support ring
72 ∗ °	2-6072	719 0816	Jacketed ring assembly with part no. 6084
73 • °	2-6073	719 0441	Spacer ring
74 •	2-6074	719 0808	Stop ring
75 •	2-6075	719 0794	Spacer ring
76	2-6076	719 1553	Disk
77	2-6077	719 1588	Chuck jaw stop ring
81 • °	2-6081	719 0980	O-ring 28 x 1.5 (2x)
82 • °	2-6082	719 0972	O-ring 26 x 3
83 °	2-6083	719 0964	O-ring 16 x 2
84 • °	2-6084	719 0956	O-ring 10 x 2
85 °	2-6085	719 7768	O-ring 6 x 2
86 °	2-6086	719 9694	O-ring 6.75 x 1.78
90 •	2-6090	719 0778	Pressure spring
92	2-6092	719 1537	Chuck jaw springs (3x)
93 •	2-6093	719 1510	Leaf spring
147 • °	2-6147	719 1901	Lip seal green (2x)
150	2-6150	719 8272	Mouth piece lock assembly
151	2-6151	719 0468	Coupling collet
152	2-6152	719 0476	Union nut
153	2-6153	719 0484	Feather key
155	2-6155	719 0492	Shaft ring
190	2-6190	719 0948	Piston unit
191	2-6191	719 0999	Sealing set
300	2-6300	719 5761	Mandrel conveying device
301	2-6301	719 8159	Mandrel guide piece assembly
302	2-6302	719 6202	Base plate
303	2-6303	719 6210	Base
313	2-6313	719 5877	Compensating adaptor
314	2-6314	719 1033	Synthetic hose
315	2-6315	719 5109	Plug-in connection
321	2-6321	719 5117	Mandrel guide piece assembly

- • Included for tensile piece assembly no. 10
- ∗ Only available as sub-assembly
- ° Included for sealing no. 191

GESIPA®

Spare parts

E2-R Blind rivetting gun robotic

Article-No.	Part No.		Discription
719 0840	GAV	2 - 6069 • ∗	valve rod compl. with Part No. 6079 + 609
719 0832	GAV	2 - 6070 •	connectionsring
719 0824	GAV	2 - 6071 •	bearing ring
719 0816	GAV	2 - 6072 ° ∗	traction rod gasket compl. with Part No. 6084
719 0441	GAV	2 - 6073 ° •	spacer
719 0808	GAV	2 - 6074 •	stopping ring
719 0794	GAV	2 - 6075 •	spacer
719 1553	GAV	2 - 6076	plate
719 1588	GAV	2 - 6077	jaw stopping ring
719 0980	GAV	2 - 6081 ° •	o-ring 28 x 1,5 (2x)
719 0972	GAV	2 - 6082 ° •	o-ring 26 x 3
719 0964	GAV	2 - 6083 °	o-ring 16 x 2
719 0956	GAV	2 - 6084 ° •	o-ring 10 x 2
719 7768	GAV	2 - 6085 °	o-ring 6 x 2
719 0778	GAV	2 - 6090 •	compression spring
719 1537	GAV	2 - 6092	jaw opening spring (3x)
719 1510	GAV	2 - 6093 •	leaf spring
719 1901	GAV	2 - 6147 ° •	slot ring green (2x)
719 8272	GAV	2 - 6150	nosepiece locking complete
719 0468	GAV	2 - 6151	coupling sleeve
719 0476	GAV	2 - 6152	screwed cap
719 0484	GAV	2 - 6153	feather key
719 0492	GAV	2 - 6155	packing ring
719 0948	GAV	2 - 6190	plunger unit
719 0999	GAV	2 - 6191	sealing set
719 8256	GAV	2 - 6320	mandrel transport unit
719 8159	GAV	2 - 6301	mandrel transducer complete
719 6202	GAV	2 - 6302	floor plate
719 6210	GAV	2 - 6303	foundation
719 5877	GAV	2 - 6313	compensation adapter
719 1033	GAV	2 - 6314	plastic hose
719 5109	GAV	2 - 6315	plug-type connection
719 5117	GAV	2 - 6321	mandrel leader complete

- • contained in part complete No. 2-6010 traction rod
- ∗ only availabe as a set of parts
- ° contained in part No. 2-6000R/1 sealing set

GESIPA®

Spare parts

E2-U Blind rivetting gun type U

Article-No.	Part No.		Discription
719 0840	GAV	2 - 6069 • ∗	valve rod compl. with Part No. 6079 + 609
719 0832	GAV	2 - 6070 •	connectionsring
719 0824	GAV	2 - 6071 •	bearing ring
719 0816	GAV	2 - 6072 ° ∗	traction rod gasket compl. with Part No. 6084
719 0441	GAV	2 - 6073 ° •	spacer
719 0808	GAV	2 - 6074 •	stopping ring
719 0794	GAV	2 - 6075 •	spacer
719 1553	GAV	2 - 6076	plate
719 1588	GAV	2 - 6077	jaw stopping ring
719 0980	GAV	2 - 6081 ° •	o-ring 28 x 1,5 (2x)
719 0972	GAV	2 - 6082 ° •	o-ring 26 x 3
719 0964	GAV	2 - 6083 °	o-ring 16 x 2
719 0956	GAV	2 - 6084 ° •	o-ring 10 x 2
719 7768	GAV	2 - 6085 °	o-ring 6 x 2
719 9694	GAV	2 - 6086 °	o-ring 6,75 x 1,78
719 0778	GAV	2 - 6090 •	compression spring
719 1537	GAV	2 - 6092	jaw opening spring (3x)
719 1510	GAV	2 - 6093 •	leaf spring
719 1901	GAV	2 - 6147 ° •	slot ring green (2x)
719 8272	GAV	2 - 6150	nosepiece locking complete
719 0468	GAV	2 - 6151	coupling sleeve
719 0476	GAV	2 - 6152	screwed cap
719 0484	GAV	2 - 6153	feather key
719 0492	GAV	2 - 6155	packing ring
719 0948	GAV	2 - 6190	plunger unit
719 0999	GAV	2 - 6191	sealing set
719 5761	GAV	2 - 6300	mandrel transport unit
719 8159	GAV	2 - 6301	mandrel transducer complete
719 6202	GAV	2 - 6302	floor plate
719 6210	GAV	2 - 6303	foundation
719 5877	GAV	2 - 6313	compensation adapter
719 1033	GAV	2 - 6314	plastic hose
719 5109	GAV	2 - 6315	plug-type connection
719 5117	GAV	2 - 6321	mandrel leader complete

- • contained in part complete No. 2-6010 traction rod
- ∗ only availabe as a set of parts
- ° contained in part No. 2-6000R/1 sealing set

GESIPA®

E2-U

E2-U Blind rivetting gun type U

Spare parts

E2-U Blind rivetting gun type U with pressure monitoring device

Article-No.	Part No.		Discription
719 0840	GAV	2 - 6069 • *	valve rod compl. with Part No. 6079 + 609
719 0832	GAV	2 - 6070 •	connectionsring
719 0824	GAV	2 - 6071 •	bearing ring
719 0816	GAV	2 - 6072 ° *	traction rod gasket compl. with Part No. 6084
719 0441	GAV	2 - 6073 ° •	spacer
719 0808	GAV	2 - 6074 •	stopping ring
719 0794	GAV	2 - 6075 •	spacer
719 1553	GAV	2 - 6076	plate
719 1588	GAV	2 - 6077	jaw stopping ring
719 0980	GAV	2 - 6081 ° •	o-ring 28 x 1,5 (2x)
719 0972	GAV	2 - 6082 ° •	o-ring 26 x 3
719 0964	GAV	2 - 6083 °	o-ring 16 x 2
719 0956	GAV	2 - 6084 ° •	o-ring 10 x 2
719 7768	GAV	2 - 6085 °	o-ring 6 x 2
719 9694	GAV	2 - 6086 °	o-ring 6,75 x 1,78
719 0778	GAV	2 - 6090 •	compression spring
719 1537	GAV	2 - 6092	jaw opening spring (3x)
719 1510	GAV	2 - 6093 •	leaf spring
719 1901	GAV	2 - 6147 ° •	slot ring green (2x)
719 8272	GAV	2 - 6150	nosepiece locking complete
719 0468	GAV	2 - 6151	coupling sleeve
719 0476	GAV	2 - 6152	screwed cap
719 0484	GAV	2 - 6153	feather key
719 0492	GAV	2 - 6155	packing ring
719 0948	GAV	2 - 6190	plunger unit
719 0999	GAV	2 - 6191	sealing set
719 5761	GAV	2 - 6300	mandrel transport unit
719 8159	GAV	2 - 6301	mandrel transducer complete
719 6202	GAV	2 - 6302	floor plate
719 6210	GAV	2 - 6303	foundation
719 5877	GAV	2 - 6313	compensation adapter
719 1033	GAV	2 - 6314	plastic hose
719 5109	GAV	2 - 6315	plug-type connection
719 5117	GAV	2 - 6321	mandrel leader complete

- • contained in part complete No. 2-6010 traction rod
- * only availabe as a set of parts
- ° contained in part No. 2-6000R/1 sealing set

GESIPA®

Spare parts

E2-V

E2-V Blind rivetting gun type V

Article-No.	Part No.		Discription
719 0840	GAV	2 - 6069 ● *	valve rod compl. with Part No. 6079 + 609
719 0832	GAV	2 - 6070 ●	connectionsring
719 0824	GAV	2 - 6071 ●	bearing ring
719 0816	GAV	2 - 6072 ° *	traction rod gasket compl. with Part No. 6084
719 0441	GAV	2 - 6073 ° ●	spacer
719 0808	GAV	2 - 6074 ●	stopping ring
719 0794	GAV	2 - 6075 ●	spacer
719 1553	GAV	2 - 6076	plate
719 1588	GAV	2 - 6077	jaw stopping ring
719 0980	GAV	2 - 6081 ° ●	o-ring 28 x 1,5 (2x)
719 0972	GAV	2 - 6082 ° ●	o-ring 26 x 3
719 0964	GAV	2 - 6083 °	o-ring 16 x 2
719 0956	GAV	2 - 6084 ° ●	o-ring 10 x 2
719 7768	GAV	2 - 6085 °	o-ring 6 x 2
719 9694	GAV	2 - 6086 °	o-ring 6,75 x 1,78
719 0778	GAV	2 - 6090 ●	compression spring
719 1537	GAV	2 - 6092	jaw opening spring (3x)
719 1510	GAV	2 - 6093 ●	leaf spring
719 1901	GAV	2 - 6147 ° ●	slot ring green (2x)
719 8272	GAV	2 - 6150	nosepiece locking complete
719 0468	GAV	2 - 6151	coupling sleeve
719 0476	GAV	2 - 6152	screwed cap
719 0484	GAV	2 - 6153	feather key
719 0492	GAV	2 - 6155	packing ring
719 5850	GAV	2 – 6190 V	plunger unit
719 0061	GAV	2 – 6191 V	sealing set
719 5761	GAV	2 - 6300	mandrel transport unit
719 8159	GAV	2 - 6301	mandrel transducer complete
719 6202	GAV	2 - 6302	floor plate
719 6210	GAV	2 - 6303	foundation
719 5877	GAV	2 - 6313	compensation adapter
719 1033	GAV	2 - 6314	plastic hose
719 5109	GAV	2 - 6315	plug-type connection
719 5117	GAV	2 - 6321	mandrel leader complete

● contained in part complete No. 2-6010 traction rod
* only availabe as a set of parts
° contained in part No. 2-6000R/1 sealing set

GESIPA®

Spare parts

E2 Blind riveting gun

Item	Part No.	Article No.	Designation	Boring Ø mm
80/..	80/ 16	719 0395	Expanding mouth piece assembly	1,6
	80/ 18	719 2827		1,8
	80/ 20	719 2800		2,0
	80/ 23	719 2835		2,3
	80/ 27	719 2878		2,7
	80/ 29	719 2894		2,9
	80/ 32	719 2924		3,2
	80/ 34	719 0646		3,4
	80/ 36	719 2967		3,6
	80/ 38	719 1596		3,8
	80/... SL ...	719	Expanding mouth piece assembly, extended	

Item	Part No.	Article No.	Designation	Boring Ø mm
80/..F	80/ 16 F	719 2819	Expanding mouth piece assembly	1,6
	80/ 18 F	719 2843		1,8
	80/ 20 F	719 2797		2,0
	80/ 23 F	719 1677		2,3
	80/ 27 F	719 1723		2,7
	80/ 29 F	719 1685		2,9
	80/ 32 F	719 1715		3,2
	80/ 34 F	719 0670		3,4
	80/ 36 F	719 1650		3,6
	80/ 38 F	719 1006		3,8
	80/...F SL...	719	Expanding mouth piece assembly, extended	

Item	Part No.	Article No.	Designation
152	2-6152	719 0476	Union nut

Spare parts

E2 Blind riveting gun

Item	Part No.	Article No.	Designation	Partition mm	Rivet mandrel ⌀ mm
161	2-6161	719 0735		1.25	1.5 - 2.0
162	2-6162	719 1448	Chuck jaws	1.25	2.1 - 2.6
163	2-6163	719 1545	3-piece / 28º	1.25	2.7 - 3.2
164	2-6164	719 1618		1.25	3.3 - 3.65
165	2-6165	719 9740		1.25	1.5 - 2.0
166	2-6166	719 9759	Chuck jaws	1.25	2.1 - 2.6
167	2-6167	719 9767	3-piece / 36º	1.25	2.7 - 3.2
168	2-6168	719 1529		1.25	3.3 - 3.65
171	2-6171	719 1839		0.8	1.5 - 2.0
172	2-6172	719 1847		0.8	2.1 - 2.6
173	2-6173	719 1855	Chuck jaws	0.8	2.7 - 3.2
174	2-6174	719 1898	F / 3-piece / 36º	0.9	3.3 - 3.65
175	2-6175	719 4293		0.8	3.5 - 3.65

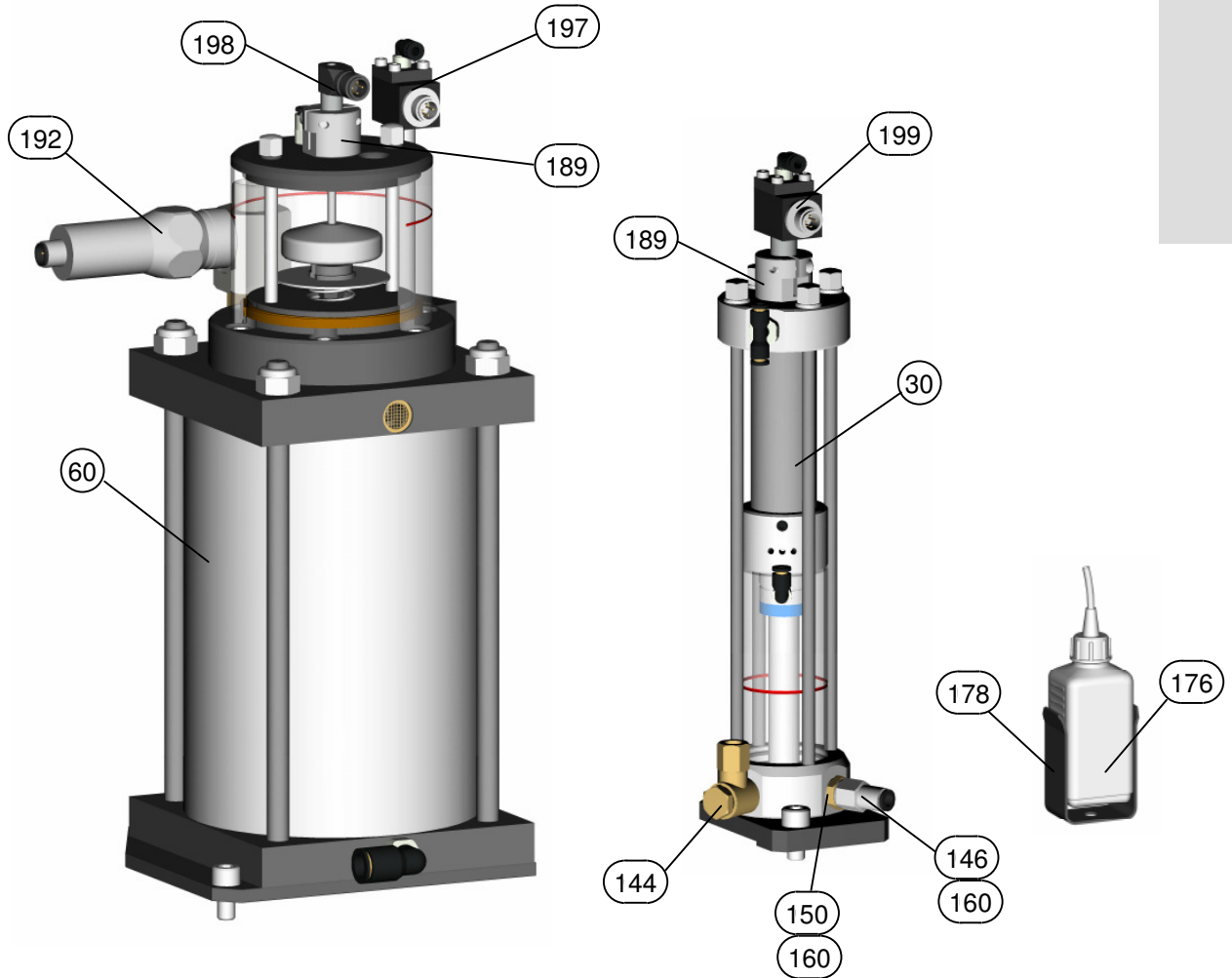| Item	Part No.	Article No.	Designation	Partition mm	Rivet mandrel ⌀ mm
261	2-6261	719 0204		1.25	1.5 - 2.0
262	2-6262	719 0212	Chuck mechanism assembly	1.25	2.1 - 2.6
263	2-6263	719 0220	3-piece / 28º	1.25	2.7 - 3.2
264	2-6264	719 0239		1.25	3.3 - 3.65
265	2-6265	719 0247		1.25	1.5 - 2.0
266	2-6266	719 0255	Chuck mechanism assembly	1.25	2.1 - 2.6
267	2-6267	719 0263	3-piece / 36º	1.25	2.7 - 3.2
268	2-6268	719 0271		1.25	3.3 - 3.65
271	2-6271	719 0298		0.8	1.5 - 2.0
272	2-6272	719 0301		0.8	2.1 - 2.6
273	2-6273	719 0328	Chuck mechanism assembly	0.8	2.7 - 3.2
274	2-6274	719 0336	F / 3-piece / 36º	0.9	3.3 - 3.65
275	2-6275	719 4277		0.8	3.5 - 3.65

Note: Chuck case denomination

      36° chuck case GAV 2-6205 = 1 ring

      28° chuck case GAV 2-6005 = 2 rings

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Spare parts

E3 Hydraulics - amplifier unit
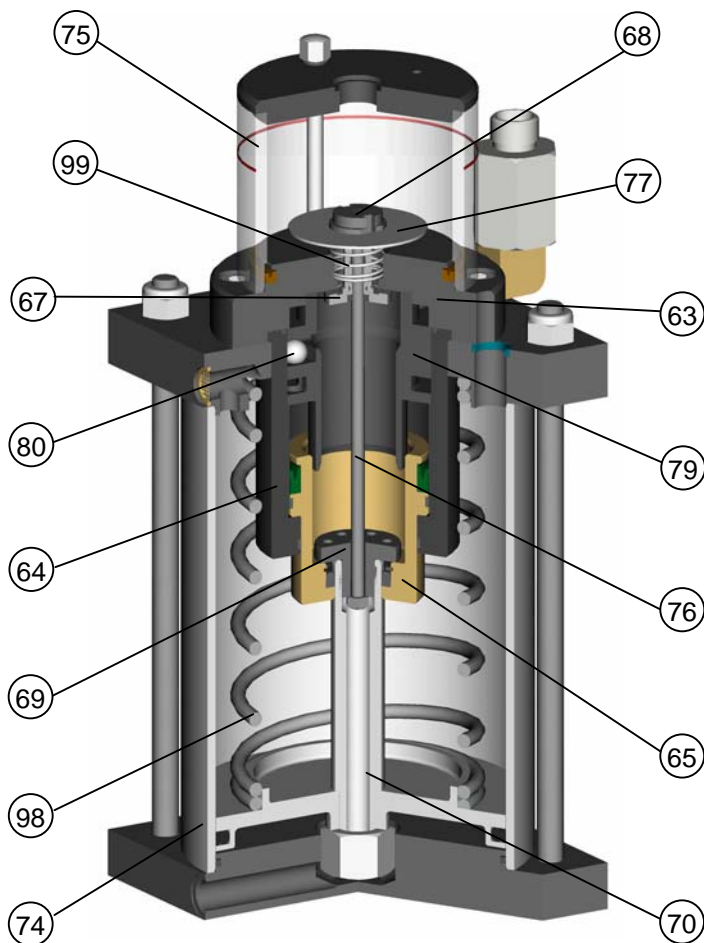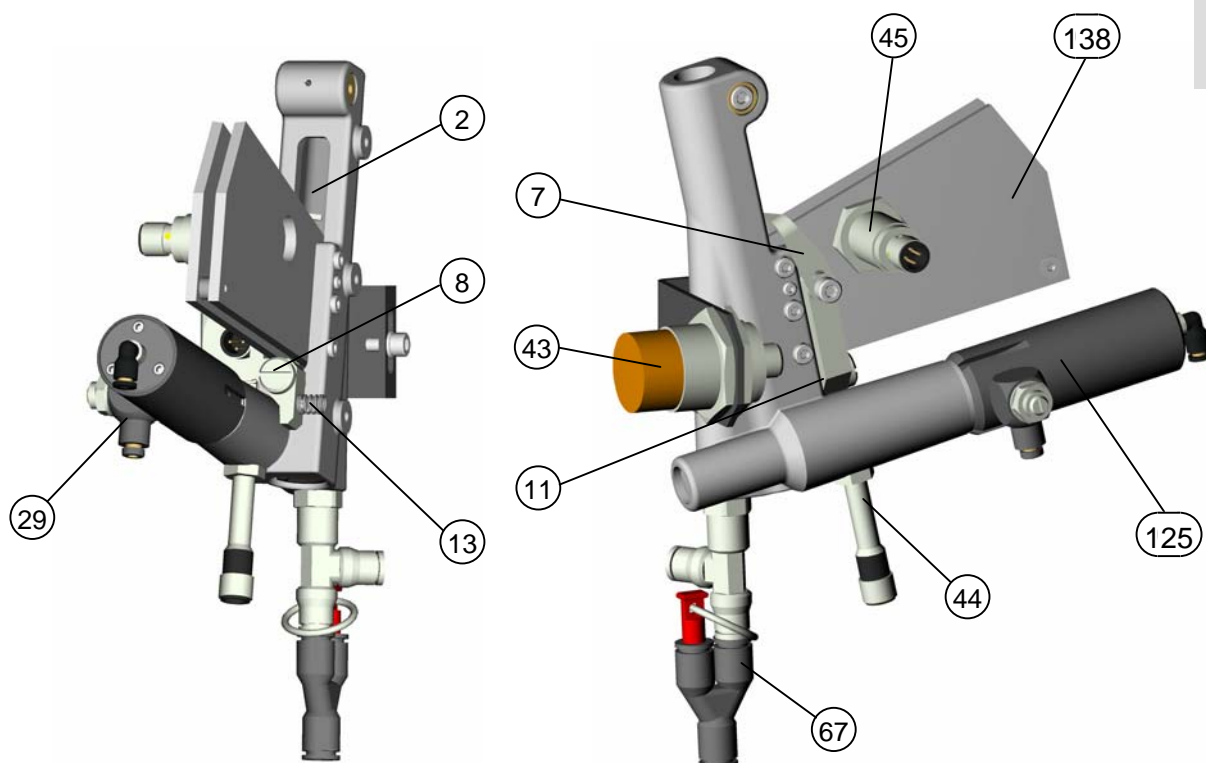

Item	Part No.	Article No.	Designation
30	3-8030	719 1124	Pressure transmitter assembly
30.0		719 3467	Pressure transmitter - sealing
60	3-8060	719 1125	Pressure transmitter assembly
144	3-8144	719 1947	Ring connection screwed joint
146	3-8146	719 3459	Screw joint
150	3-8150	719 3092	Top up nipple
160	3-8160	719 8299	Conical nipple
176	3-8176	719 3696	Oil bottle assembly
178	3-8178	719 3661	Support
186	3-8186	719 1126	Sensor support 2 fully equipped ⌀10
189	3-8189	719 1127	Sensor support 3 fully equipped ⌀12
192	3-8192	719 2014	Pressure sensor
197	3-8197	719 1128	Distance sensor 1 fully equipped
198	3-8198	719 2019	Distance sensor 2 fully equipped
199	3-8199	719 1129	Distance sensor 3 fully equipped
		717 1757	Hydraulic oil 250 cm³

not included in GAV-8000 **eco**

GESIPA®

Spare parts

E3 Hydraulics - amplifier unit

Item	Part No.	Article No.	Designation
60.1		719	Pressure transmitter (without accessories)
60.0		719	Pressure transmitter - sealing
63	3-8063	719 2058	Flange
64	3-8064	719 4536	Cylinder hose
65	3-8065	719 4609	Transmitter piston
67	3-8067	719 4579	Valve plate assembly
68	3-8068	719 3750	Lock nozzle
69	3-8069	719 4617	Collar screw
70	3-8070	719 3726	Plunger assembly with air piston
74	3-8074	719 3815	Cylinder pipe
75	3-8075	719 6504	Inspection glass
76	3-8076	719 4560	Valve stem
77	3-8077	719 5591	Disk
79	3-8079	719 4625	Throttle cylinder
80	3-8080	719 4633	Valve ball (2x)
98	3-8098	719 4447	Pressure spring
99	3-8099	717 4595	Pressure spring

Spare parts

E4 singulator
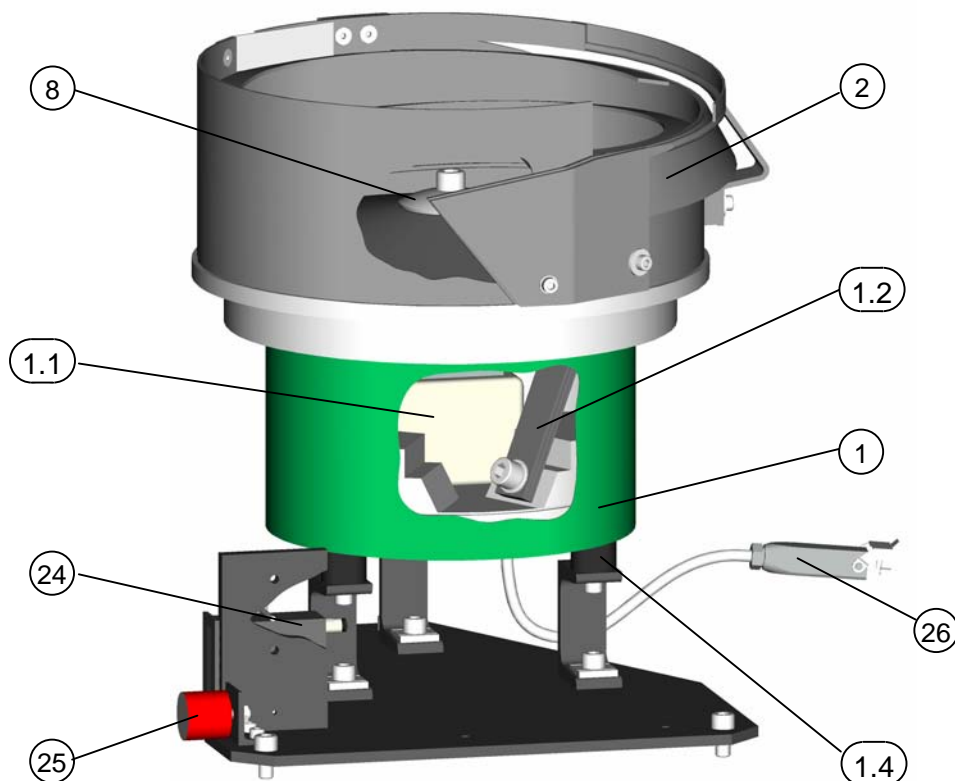
Item	Part No.	Article No.	Designation
0	4-8000	719 6512	Singulator assembly
2	4-8002	719 4021	Spoon assembly
7	4-8007	719 4072	Singulator tongue
8	4-8008	719 4080	Collar screw
11	4-8011	719 4110	Spacer ring
13	4-8013	719 4137	Pressure spring
125	4-8125	719 4250	Pneumatic cylinder assembly
29	4-8029	719 3122	Throttle check valve assembly
138	4-8138	719 6520	Chute assembly
43	4-8043	719 3823	Proximity switch NS5
44	4-8044	719 3858	Proximity switch NS4
45	4-8045	719 8604	Proximity switch NS1
67	4-8067	719 6970	Y-connection assembly

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Spare parts

E5 Case unit
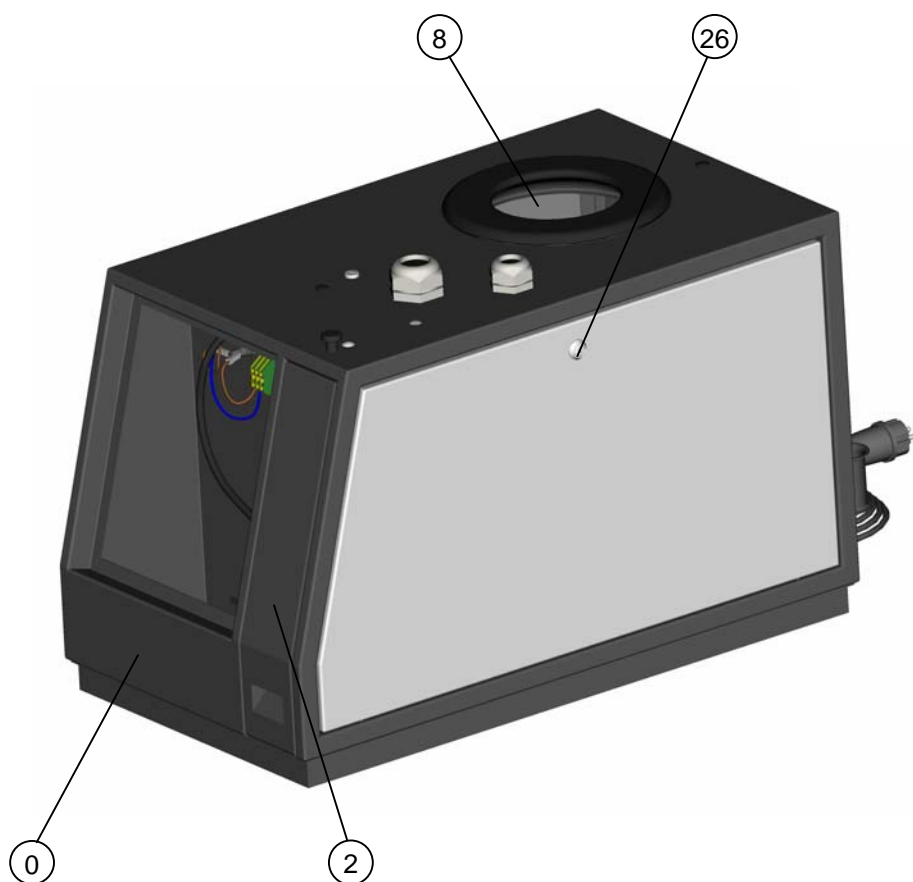
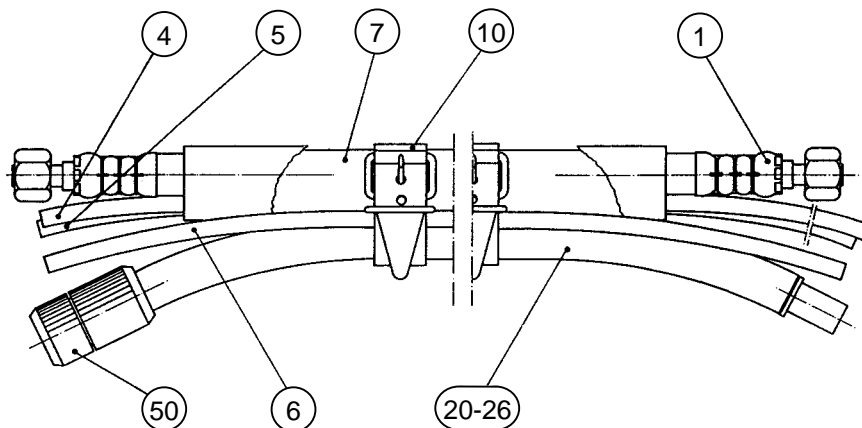| Item	Part No.	Article No.	Designation
0	5-8000	719 0100	Case unit assembly
2	5-8002	719 6539	Container
8	5-8008	719 3904	Cover assembly
26	5-8026	719 5370	Lock

Spare parts

E6 osciallating conveyer unit

Item	Part No.	Article No.	Designation	
0	6-8000	719 6555	Oscillating conveyor unit assembly	230V / 50Hz
		719 6563		115V / 60Hz
1	6-8001	719 6571	Oscillating conveyor drive	230V / 50Hz
		719 6598		115V / 60Hz
1.1	6-8002	719 6601	Oscillating conveyor magnet	230V / 50Hz
		719 6628		115V / 60Hz
1.2	6-8001.2	719 6636	Vibration spring - set	
2	6-8002	719 6644	Oscillating conveyor bowl	
8	6-8008	719 6652	Bowl fixing assembly	
24	6-8024	719 6679	Counter assembly	
25	6-8025	719 6660	Basin magnet	
1.3	6-8001.3	719 6989	Rubber bearing	
26	6-8026	719 8051	Plug	

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Spare parts

E7 feed bundle

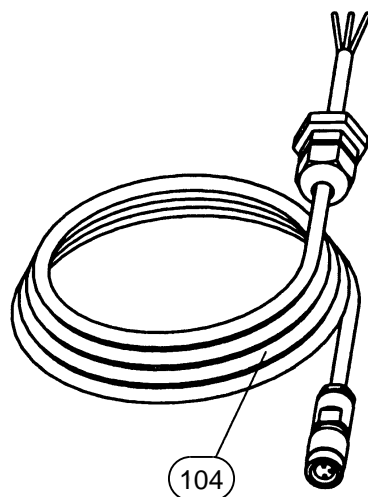| Item	Part No.	Article No.	Designation
0.1	7-8001.1	719 1162	Feed bundle without rivet feed hose
0.2	7-8002.2	719 1170	Feed bundle without rivet feed hose SL. . . m
20	7-8020	719 6830	Rivet feed hose assembly ∅6 / 3.8 m
21	7-8021	719 6849	Rivet feed hose assembly ∅8 / 3.8 m
22	7-8022	719 6881	Rivet feed hose assembly ∅9 / 3.8 m
23	7-8023	719 6857	Rivet feed hose assembly ∅10 / 3.8 m
24	7-8024	719 6865	Rivet feed hose assembly ∅11 / 3.8 m
25	7-8025	719 6873	Rivet feed hose assembly ∅12 / 3.8 m
26	7-8026	719 5524	Rivet feed hose assembly ∅13 / 3.8 m
27	7-8027	719 6903	Rivet feed hose assembly ∅14 / 3.8 m
28	7-8028	719 7071	Rivet feed hose assembly SL. . . m
1	7-8001	719 6725	Hydraulic hose assembly / 3.75 m
4	7-8004	719 1034	Air control hose / 4.6 m
5	7-8005	719 1010	Hydraulic hose / 5 m
6	7-8006	719 1010	Rivet disposal hose / 5 m
7	7-8007	719 1035	Neoprene safety hose / 3.7 m
10	7-8010	719 7403	Retaining strap
50	7-8050	719 7543	Adapter ring

E7

E7 oscillating conveyor unit

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Spare parts
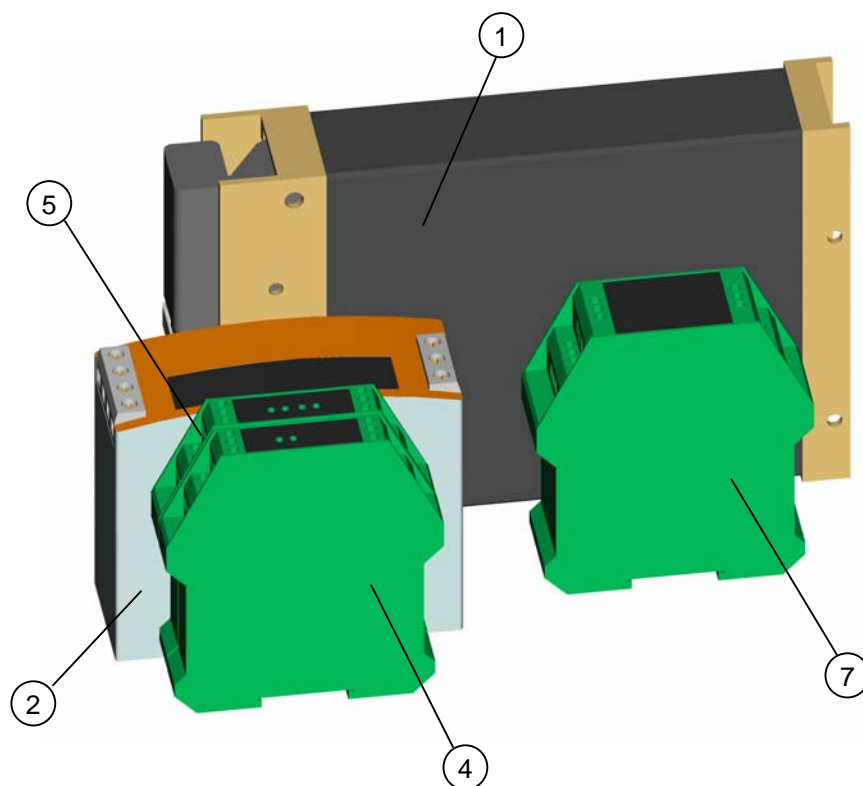
E8 control

Item	Part No.	Article No.	Designation
1	8-8001	719 2008	Control module with 24 E/A
2	8-8002	719 2012	Control power pack 24VDC 2.5 A
4	8-8004	719 2017	Electronic module 1x
5	8-8005	719 2018	Electronic module 2x
7	8-8007	719 2007	Electronic module oscillating conveyor control

Spare parts

E8.1-UA Proximity switch

Pos.	Part No.	Article-No.	Discription
104	8-8104	719 1069	Sensorcable, komplete

Spare parts

E9 accessories

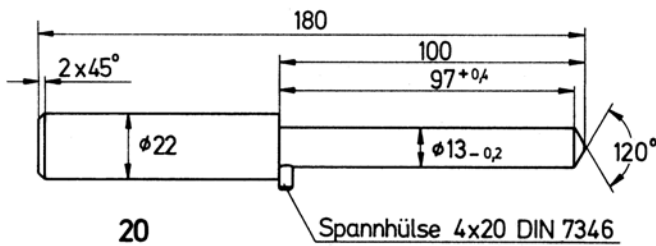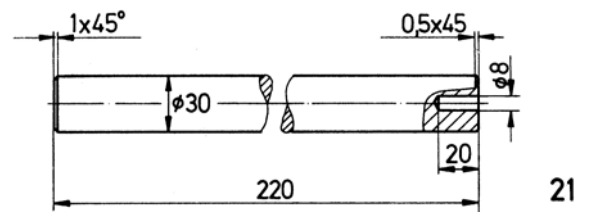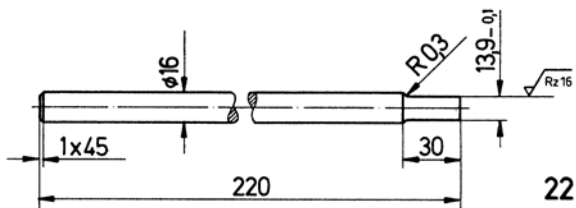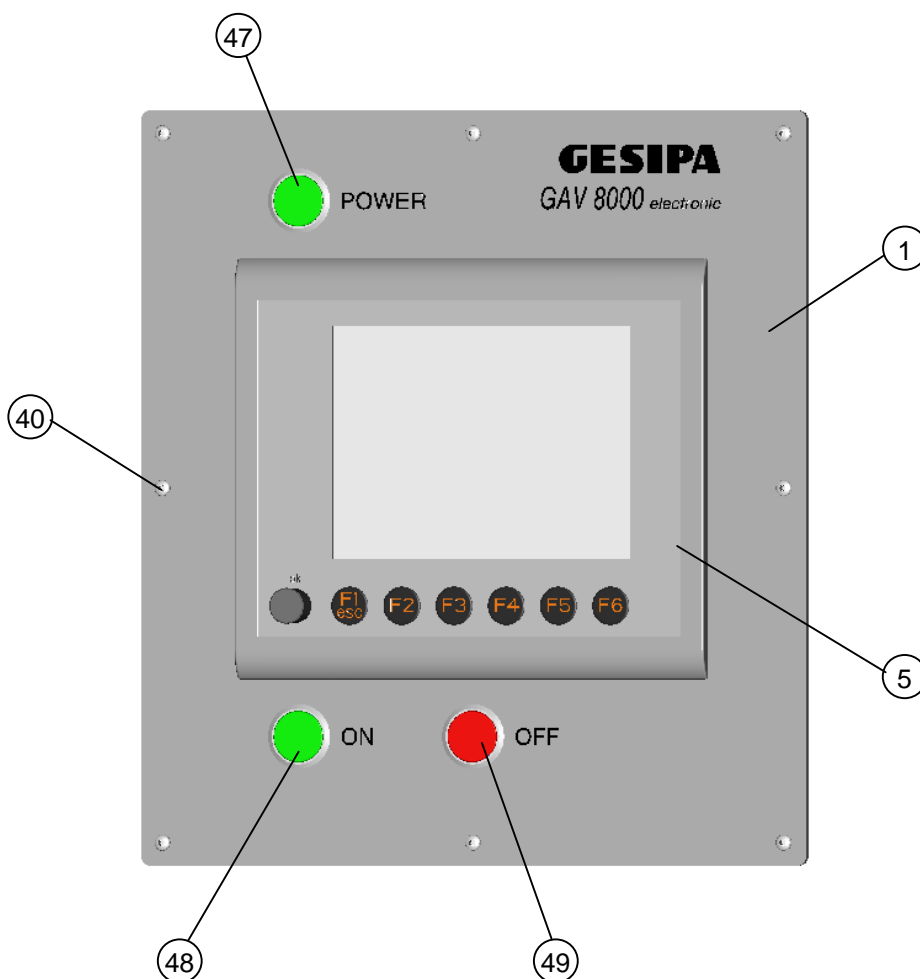| Item	Article No.	Designation
1	719 9015	Balancer for riveting gun
3	719 9031	GAV carriage with extension arm
7	719 9074	Ventilation check valve
8	719 9082	Rivet guns - support unit
18	719 9198	Mounting cone for piston unit
19	719 5583	Assembly tool for lip seal
20	719 6687	Assembly mandrel - tensile piece
21	719 6695	Assembly bolt - piston unit
22	719 6709	Punch
27	719 9406	Bale grip for standard gun
30	719 9430	Control grip for robotic gun
32	719 9554	Bale grip for robotic gun
46	719 9538	Gun suspension - vertical
49	719 7896	Gun suspension horizontal
50	719 7985	Gun suspension for horizontal and vertical riveting
52	719 3912	Roller support
53	719 7640	Disassembly tool hose no. ∅8
54	719 7772	Central lubricating device (to increase working part life)
55	719 7780	Collecting basin (to carry out rivet reloading processes)
56	719 7799	Hose assembly suspension
57	719 7918	Cable pull protection for balancer
59	719 7756	Maintenance unit lockable
60	719 2022	PLC interface
61	719 1133	Interface cable GAV
62	719 1123	Foot Pedal

Spare parts

E9 assembly tools

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Spannhülse 4x20 DIN 7346

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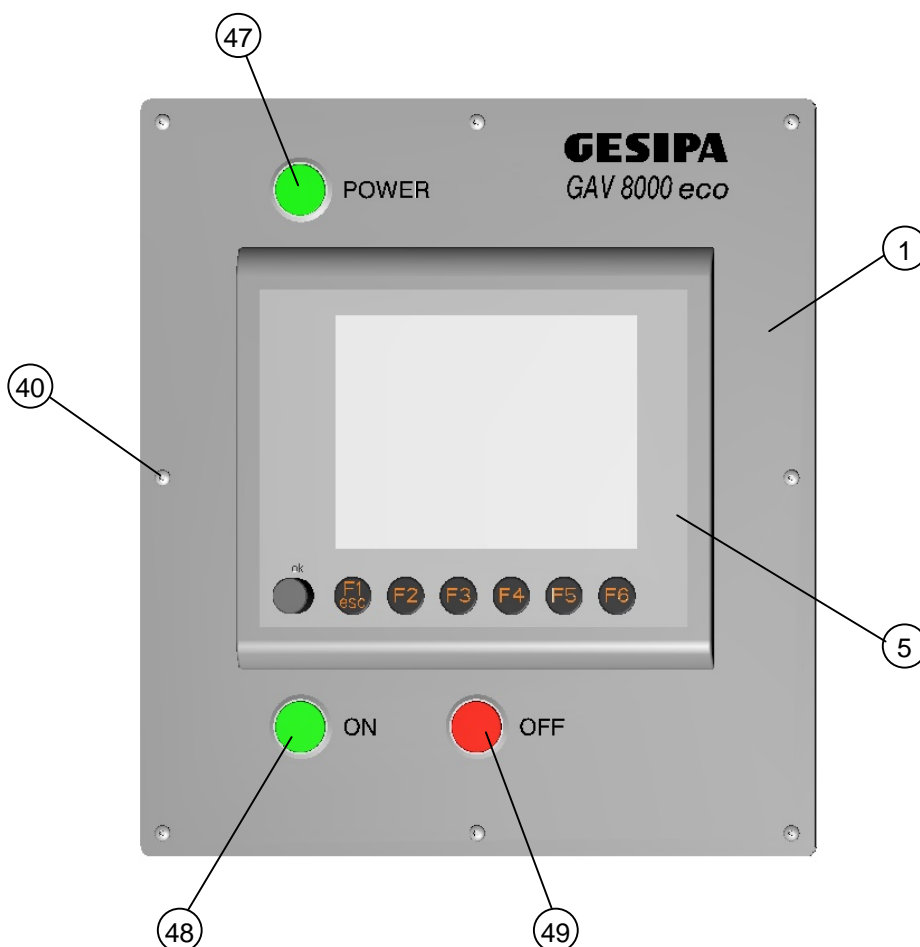
22

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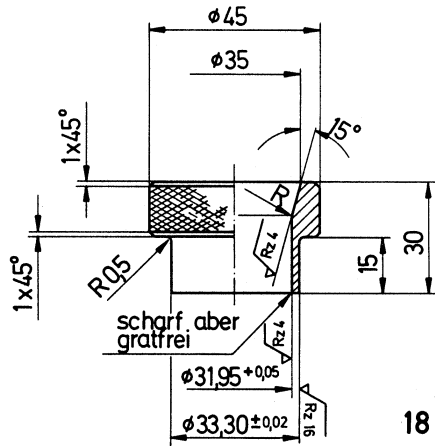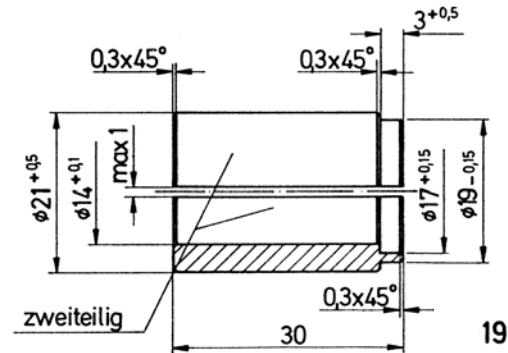
Spare parts front plate

E10 front plate

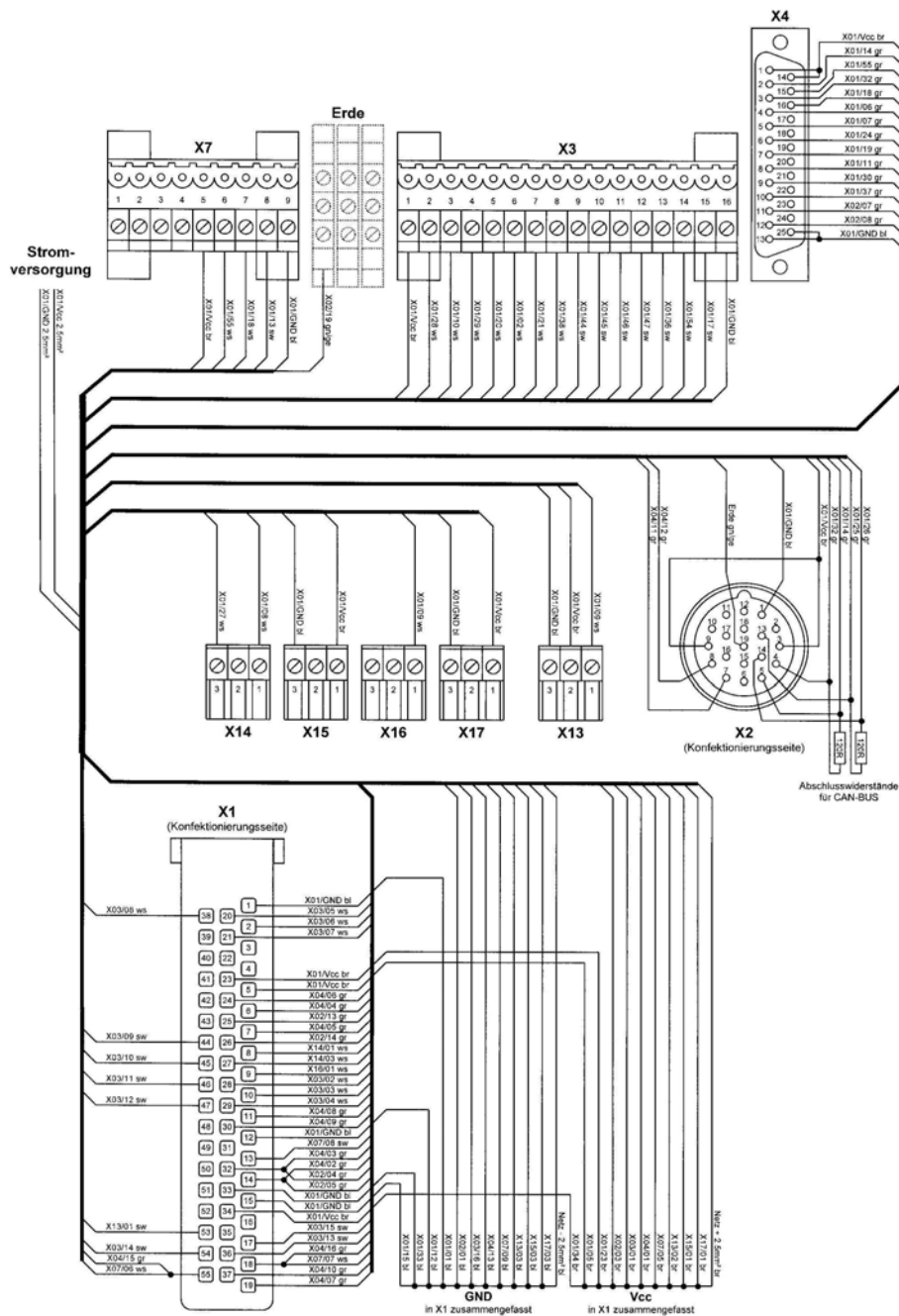| Item	Part No.	Article No.	Designation
0	10-8000	719 0065	Front plate assembly
5	10-8005	719 2009	Process and dialogue display assembly with fixing set
40	10-8040	719 0630	Set of screws
47	10-8047	719 1120	Push button assembly POWER green
48	10-8048	719 1121	Push button assembly ON green
49	10-8049	719 1122	Push button assembly OFF red
			Cable tree front plate assembly

Spare parts front plate

E10 front plate eco

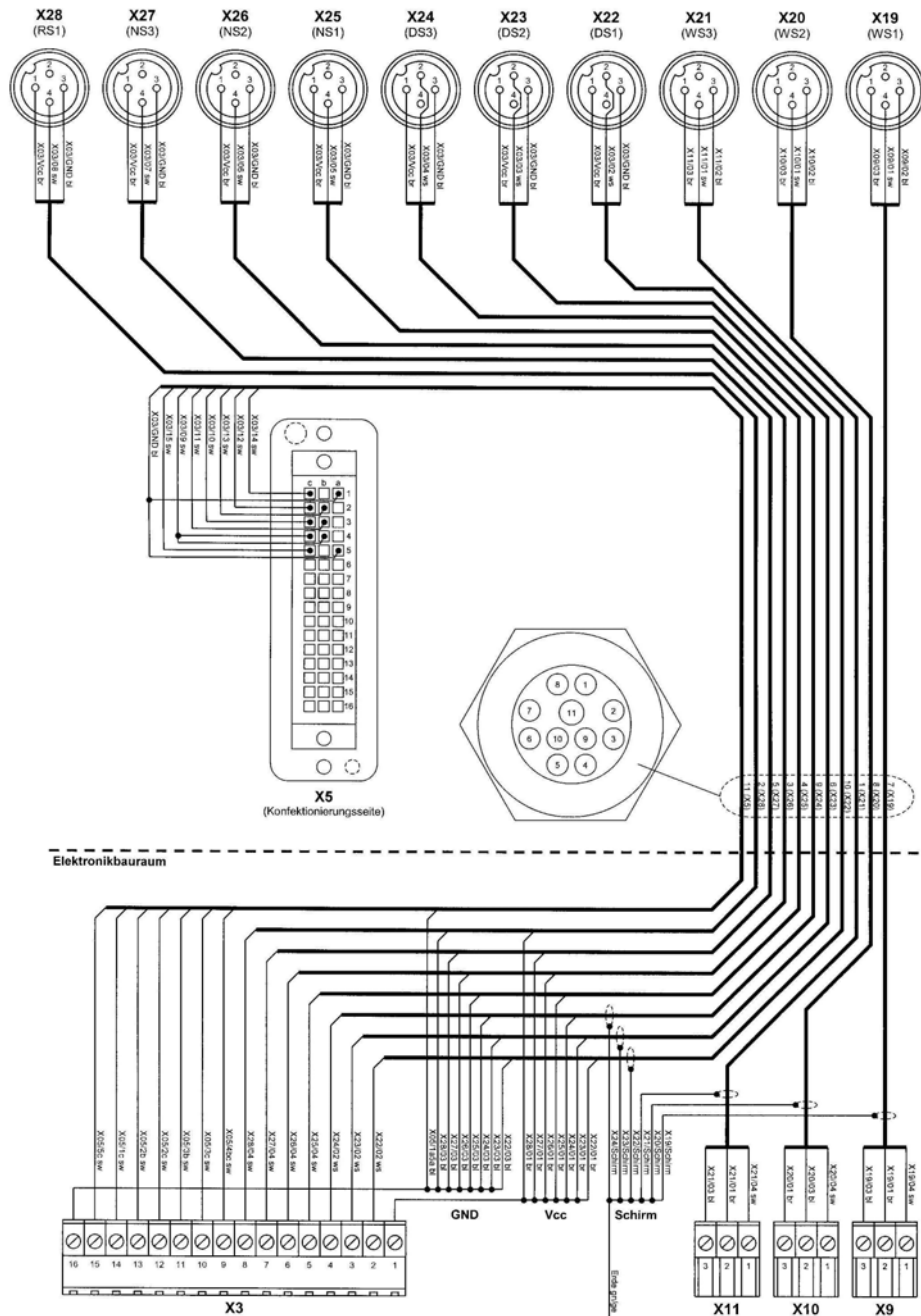| Item	Part No.	Article No.	Designation
1	10-8100	719 0105	Front plate assembly
5	10-8105	719 1996	Process and dialogue display assembly with fixing set
40	10-8040	719 0630	Set of screws
47	10-8047	719 1120	Push button assembly POWER green
48	10-8048	719 1121	Push button assembly ON green
49	10-8049	719 1122	Push button assembly OFF red
			Cable tree front plate assembly

Spare parts cable tree

E11 cable tree

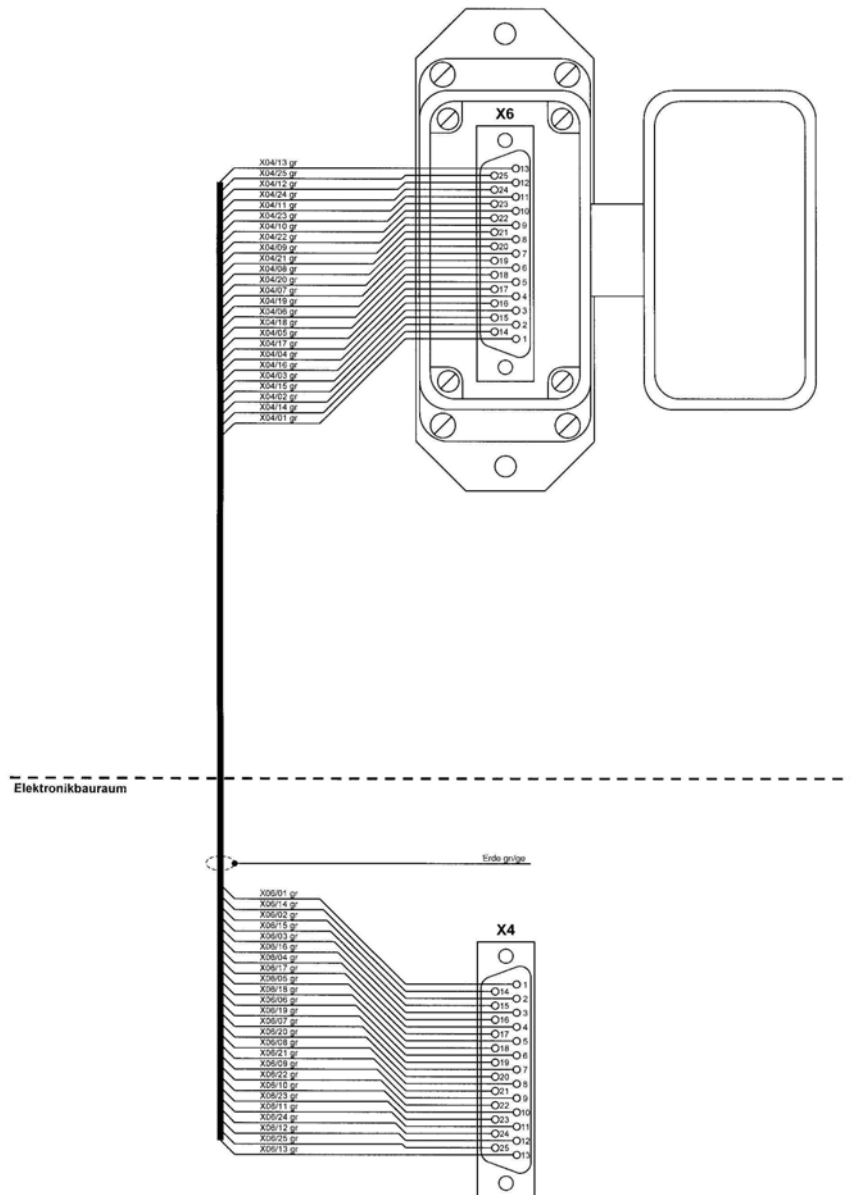| Item	Part No.	Article No.	Designation
1			Cable tree assembly

Spare parts cable tree

E11 cable tree

Item	Part No.	Article No.	Designation
1			Cable tree assembly

Spare parts cable tree

E11 interface cable

Item	Part No.	Article No.	Designation
1			Interface cable assembly