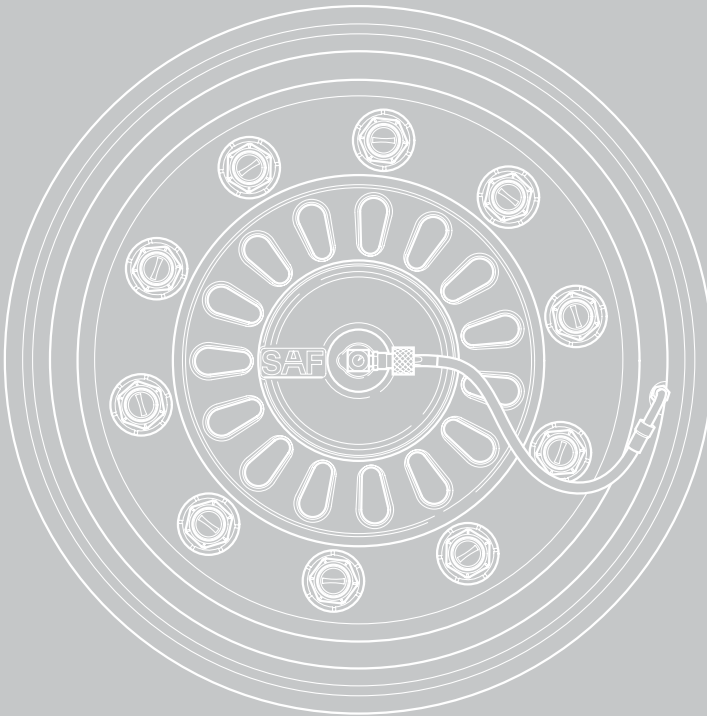


**Betriebsanleitung
Owner's Manual
Instructions de service
Istruzioni per l'uso
Instrucciones de uso
Руководство по эксплуатации**

SAF TIRE PILOT



XL-TP11697UM-ms-DE Rev B • 03.2016

Please note

These operating instructions will help to familiarise you with the product from SAF-HOLLAND and help you to use it as intended.

These operating instructions contain important information on how the product can be operated safely, properly and economically. Compliance with these operating instructions will help to prevent dangers, faults and downtime and increase the reliability and service life of the product.

Read these operating instructions thoroughly and follow the instructions carefully.

It must be ensured that all persons responsible for carrying out work on the vehicle have permanent access to these operating instructions.

The operating instructions must be kept with the vehicle at all times.

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SAF-HOLLAND GmbH

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1 SAF TIRE PILOT overall assembly

Assembly overview

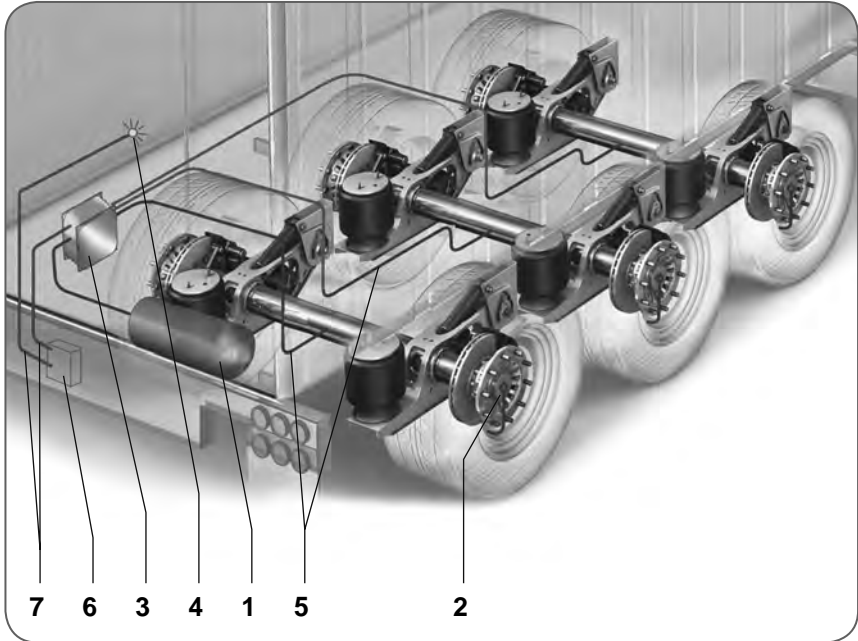


Fig. 1 - SAF TIRE PILOT overall assembly

see ► Fig. 1, Item	Description	Item	Description
1	Air reservoir, air suspension ¹⁾	2	Axle kit
3	Control unit	4	Indicator lamp
5	Air line ¹⁾	6	Junction box ^{1) 2)}
7	Cable ¹⁾		

1) Not part of SAF TIRE PILOT scope of supply

2) May not be required

2 Component overview

2.1 Control unit assembly overview



Caution!

Note the system pressure pre-settings.

Assembly overview

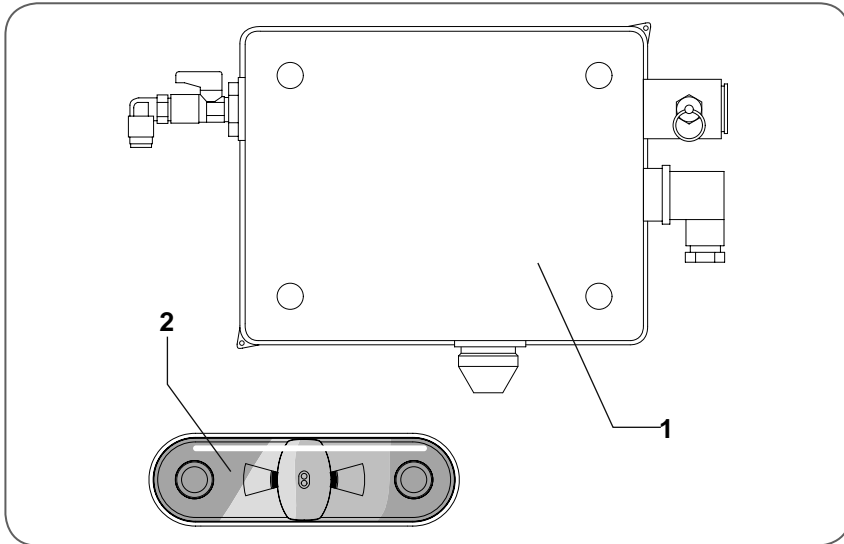


Fig. 2 - Control unit and indicator lamp assembly overview

see ► Fig. 2, item	Description	Item	Description
1	Control unit	2	Indicator lamp

Component use

- For spare parts orders, provide the precise order no. of the product.
- Assemble the control unit ► *page 52* and indicator lamp ► *page 55*.

Components and order numbers

Control unit and indicator lamp	Component use	Order no.	Remark
Single tyres ET 80 and ET 120 (B/BI), see ► Fig. 2	Axle kit ► page 39	03 001 0184 01	System pressure pre-set to 9.1 bar
Single tyres ET 0 (S/SI), 4 see ► Fig. 2	Axle kit ► page 39	03 001 0184 01	System pressure pre-set to 9.1 bar
Dual tyres ET 0 (Z/ZI), see ► Fig. 2	Axle kit ► page 39	03 001 0184 01	Set system pressure to tyre pressure

Location of the information sign 04 396 1008 00

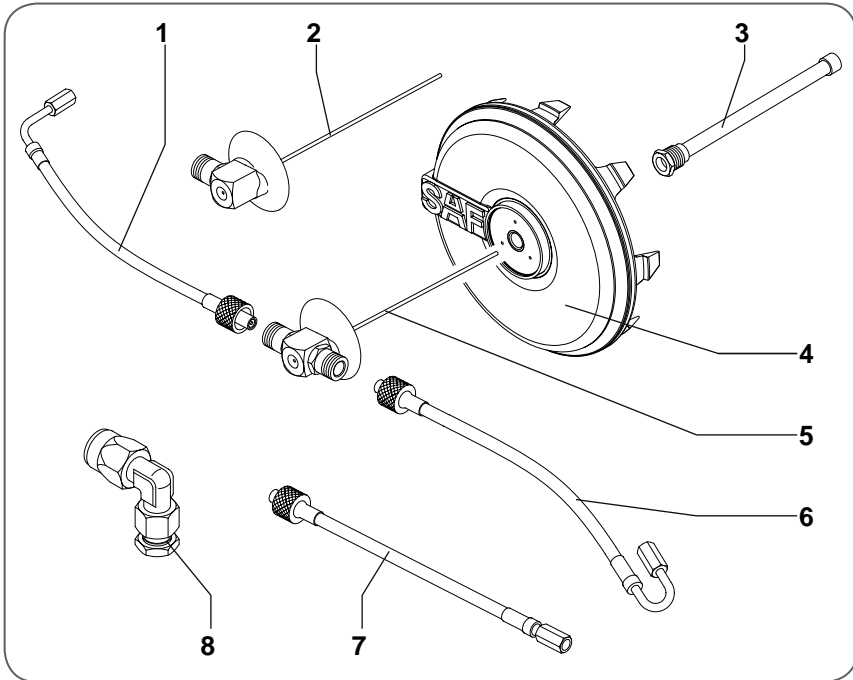
The information sign for system pressure is located on the control unit.

2.2 Axle kit assembly overview



Caution!

The axle kit must always be assembled with the control unit and indicator lamp.

Assembly overview

Fig. 3 - Axle kit assembly overview

see ► Fig. 3, item	Description	Item	Description
1	Connecting line, single tyres ET 80/120	2	Rotor, single tyres ET 0/80/120
3	Stator with filter	4	Wheel cap with O-ring for SAF TIRE PILOT
5	Rotor, dual tyres	6	Connecting line, dual tyres
7	Connecting line, single tyres ET 0/dual tyres	8	Connecting bracket, axle tube

Component use

- For spare parts orders, provide the precise order no. of the product.
- Assemble the axle kit ► *page 39*.

Components and order numbers

Axle kit	Component use	Order no.
Single tyres ET 80 and ET 120 (B/BI), see ► <i>Fig. 3</i>	2x stator, 2x rotor, 2x connecting line (PSI), 2x SAF wheel cap, 1x connecting bracket	03 001 0186 00
Single tyres ET 0 (S/SI), see ► <i>Fig. 3</i>	2x stator, 2x rotor, 2x connecting line (PSI), 2x SAF wheel cap, 1x connecting bracket	03 001 0187 00
Dual tyres (Z/ZI), see ► <i>Fig. 3</i>	2x stator, 2x rotor, 4x connecting line (PSI), 2x SAF wheel cap, 1x connecting bracket	03 001 0189 00

Location of the type plate

The type plate is located on the control unit.

3 Ordering spare parts

When ordering genuine spare parts from SAF-HOLLAND, note the assemblies of the corresponding product.

Imitation parts can impair the functionality of the product, have shorter service lives and pose risks and dangers that cannot be evaluated by SAF-HOLLAND. They also increase inspection overheads.

A comprehensive service network of SAF-HOLLAND partner companies is available for technical support for SAF-HOLLAND products and the provision of spare parts (see back page or visit **www.safholland.com**).

Further information on spare parts identification can be found at our website www.safholland.com under Aftermarket.

Where appropriate, updates will be announced at **www.safholland.com**.

4 General information

4.1 Liability

The General Terms and Conditions of Supply and Business of SAF-HOLLAND apply.

SAF-HOLLAND shall not be liable for personal injury or damage to property that can be attributed to one or more of the following:

- Use of the product other than as intended ► *page 44*,
- Failure to comply with the operating instructions and the safety instructions that they contain,
- Unauthorised structural modifications to the product,
- Inadequate maintenance of parts that are subject to wear ► *page 61*,
- Improper installation work ► *page 47*,
- Use of non-genuine SAF-HOLLAND spare parts ► *page 42*,
- Use of damaged parts,
- Emergencies caused by external influences or force majeure.

4.2 Warranties and General Terms and Conditions of Business

Information on the current warranties and General Terms and Conditions of Supply and Business (GT&Cs) can be found at www.safholland.com under Sales.

4.3 Environmental protection

All components, auxiliary and operating materials accrued during maintenance and servicing must be disposed of in an environmentally-compatible manner.

Recyclable components must be relieved of oil and lubricants before being recycled. The disposal information for the corresponding auxiliary and operating materials and all applicable national and/or regional provisions must be observed.

5 Safety

5.1 Intended audience

The chapters **Operation** and **Inspection** in these operating instructions are limited exclusively to use by the operator and personnel whom he has authorised and instructed.

The operator must ensure that personnel whom he has authorised are instructed at regular intervals in the content of these operating instructions, in particular in the safety instructions that they contain.

The chapters **Installation** and **Commissioning** are limited exclusively to use by the original equipment manufacturer (OEM) and personnel whom he has authorised and instructed.

5.2 Intended use

The product has been constructed in accordance with the state of the art and the generally recognised safety regulations. However, dangers to the operator or third parties and/or damage to the device and other property may still occur during use.

The SAF TIRE PILOT may only be used for monitoring the tyre pressure on semi-trailers and trailers.

The SAF TIRE PILOT monitors the tyre pressure of the wheels on semi-trailers and trailers and maintains the pre-set pressure or compensates low to medium loss of tyre pressure. In the event of severe loss of tyre pressure, the SAF TIRE PILOT warns the driver by means of continuous lighting of an indicator lamp.

The product may only be used with factory prepared axles from SAF-HOLLAND. If this is not the case, please contact SAF-HOLLAND Service.

Intended use also includes:

- Observance of the operating instructions and implementation of the steps specified in the operating instructions,
- Compliance with all installation data ► *page 47*,
- Compliance with all inspection data ► *page 61*,
- Compliance with regulations on environmentally-compatible disposal ► *page 43*.

Operational reliability of the product can only be ensured by complying with all applicable instructions, settings and performance limits.

5.3 Misuse

- Filling reservoirs, components, systems with compressed air when they are not part of the tyre inflation system,
- As a tyre pressure control system,
- Use on axles not prepared by SAF-HOLLAND,
- Applications other than those recommended.

5.4 Safety instructions and symbols used

The following symbols are used to denote particularly important information and sections of the text. Ensure that they are always read and adhered to before working with the product.



Danger!

This safety instruction with the signal word warns of a possible safety risk or serious and fatal injury!



Caution!

This safety instruction with the signal word warns of possible damage to the product!



Note:

Identification of special user tips and other particularly useful and important information for efficient work and economical use.

5.5 Identification of passages of text

- Identification of guidelines and information in safety instructions
1., 2., 3., ... Identification of job steps

5.6 General safety instructions

Always observe the following safety instructions in order to maintain the operational reliability and roadworthiness of the SAF TIRE PILOT:

**Danger!**

Risk of serious traffic accidents which may lead to serious or fatal injuries!

Operation

- Check the functionality of the SAF TIRE PILOT before operation.
- Check the tyres for external damage and maintain sufficient profile depth

General safety instructions

- The safety and warning signs affixed to the SAF TIRE PILOT must not be removed and must remain legible at all times. Damaged or illegible signs must be replaced promptly.
- Unauthorised modifications to the SAF TIRE PILOT are not permitted. All planned modifications must be approved in writing by SAF-HOLLAND GmbH in advance.
- Never paint over components of the SAF TIRE PILOT system.
- For transport and storage, the original packaging must be used and take place in dry and dust-free conditions.

6 Installation

6.1 General notes on installation



Danger!

Risk of serious traffic accidents from loss of operational reliability or roadworthiness, which may lead to serious or fatal injury!

- Installation work must only be carried out by vehicle manufacturers and/or authorised workshops and by appropriately trained personnel.



Danger!

- All threads must be free of oil and grease.
- Damaged components may not be installed and must be replaced.



Note:

- The applicable national licensing regulations must be adhered to for installation of the SAF TIRE PILOT.
- The complete system must be checked following initial installation and replacement of components.

6.2 Axle kit assembly

6.2.1 Stator assembly



Caution!

- The filter on the stator must not become damaged or contaminated during installation.
- When re-assembling the stator, the thread must be coated with a dry or fluid seal (e. g. Teflon tape or Loctite 511).

**Note:**

On initial assembly, the thread of the stator is coated with dry sealant.

1. Remove the existing SAF wheel caps from the axles.
2. Check the thread in the axle stub and clean if necessary.
3. Tighten the stator in the axle stub to the corresponding tightening torque ► *page 63*.
4. When re-assembling the stator, seal with suitable dry or fluid seal (e. g. Loctite 511 or Teflon tape).

6.2.2 Rotor assembly**Caution!**

- Where possible, the SAF wheel cap should be aligned towards the tyre valve.
- When assembling the rotor, do not use tools - screw in hand tight.
- The vent holes in the SAF wheel cap must be unobstructed.
- Assemble the SAF wheel cap only with sealing ring.

**Note:**

The rotor should be assembled in accordance with see ► *Fig. 4* or see ► *Fig. 5* according to the tyres.

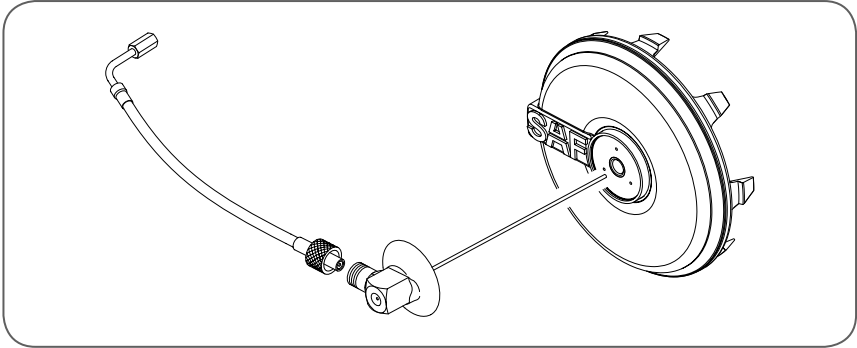


Fig. 4 - Rotor for single tyres

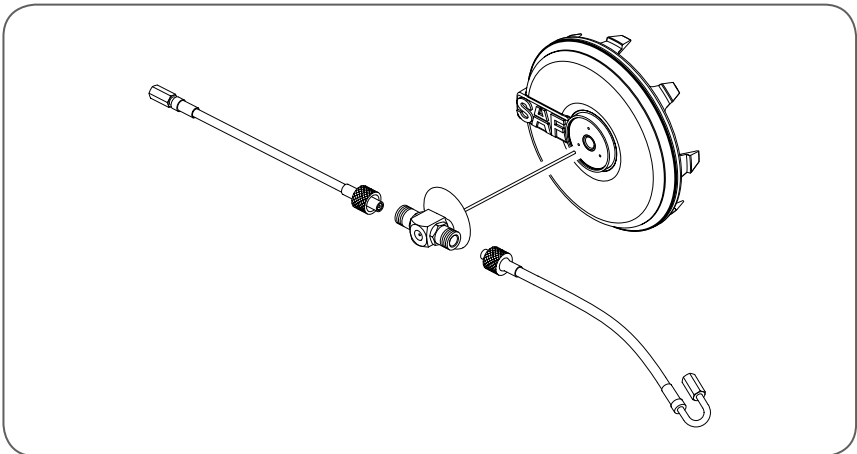


Fig. 5 - Rotor for dual tyres

1. Screw the rotor into the SAF wheel cap hand tight ► *page 63*.
2. Insert the rotor carefully into the stator against the slight resistance of the seal. This resistance must also be noticeable when re-assembling.
3. Align the SAF wheel cap with rotor towards the tyre valves.
4. Press the SAF wheel cap into the cap seat until the teeth engage.

6.2.3 Assembling the rotor connecting line to the tyre valve



Caution!

- No tools should be used when assembling the connecting line to the rotor.
- The connecting line must not protrude beyond the rims, may not cover wheel nuts and must not be kinked.

1. Secure the connecting line see ► *Fig. 6* to the tyre valve using a valve –extension if required, or modify the valve.
2. Check the airflow by pressing the valve in the connecting line.
3. Screw the connecting line (item 1) to the rotor hand tight ► *page 63*.

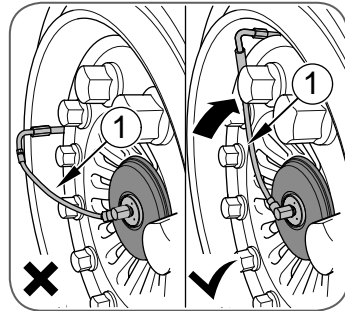


Fig. 6 - Assembling the connecting line

6.2.4 Assembling the connecting bracket to the pre-drilled axle tube



Caution!

- When assembling and re-assembling the connecting bracket, the thread must be coated with a dry or fluid seal (e. g. Teflon tape or Loctite 511).
- To prevent damage to the thread in the axle tube, the connecting bracket must be fixed with a suitable wrench over the lower nut when countering.

1. Carefully remove the lock screw from the axle tube see ► *Fig. 7*, (item 2).
2. Apply a suitable fluid seal (e. g. Loctite 511 or Teflon tape) to the thread of the connecting bracket.
3. Screw the connecting bracket (item 1) into the thread and tighten to the prescribed tightening torque, ► *page 63* align and tighten with counter nut.

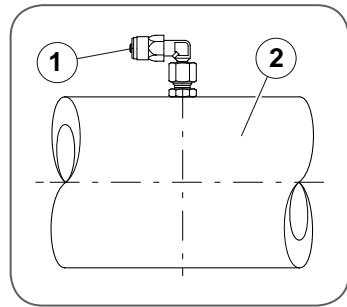


Fig. 7 - Connecting bracket on the axle tube

6.2.5 Drilling a non-pre-drilled axle tube



Caution!

- Note the direction of travel before drilling!
- Threaded hole 1/4" NPT within the neutral fibre and permissible angular deviation max. $\pm 15^\circ$.
- To prevent damage to the thread in the axle tube, the connecting bracket must be fixed with a suitable wrench over the lower nut when countering.

1. Prepare the hole for the connecting bracket in the centre between the rims, in the direction of travel behind the axle tube, in accordance with see ► *Fig. 8* .
2. Assemble the connecting bracket in accordance with ► *page 50* .

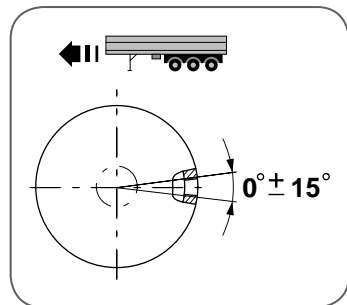


Fig. 8 - Preparing the axle tube with hole for the connecting bracket

6.3 Assembling the control unit



Danger!

- When drilling the vent holes, pay attention to power/pneumatic lines and load-bearing parts.
- To connect to the vehicle wiring, a round cable with diameter of 6 - 10 mm must be used in order to ensure the tightness of the PG11 screwed connection.



Caution!

Note accessibility to the system. It must be possible to remove the cover on the control box for adjustment work. The cover must not be locked or obstructed.



Note:

The control box must be assembled in a protected and accessible area of the vehicle chassis in the standard pneumatic equipment area.

Assembly instructions

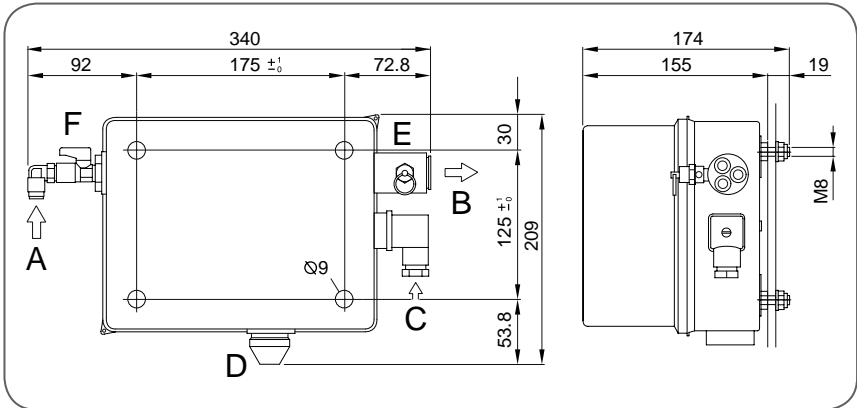


Fig. 9 - Assembling the control unit

see ► Fig. 9, item	Description	Item	Description
A	Compressed-air inlet (1 x Ø 8 mm)	B	Compressed-air outlet (3 x Ø 8 mm)
C	PG11 - cable external diameter (Ø 6 mm - Ø 10 mm)	D	Control unit ventilation
E	Overpressure safety valve	F	Shut-off valve

Drill the fixing holes in accordance with the drawing at the assembly location of the control box see ► Fig. 9.

en

Connecting the control unit 03 001 0184 00

Connect the electrical cable to the control box see ► Fig. 10.

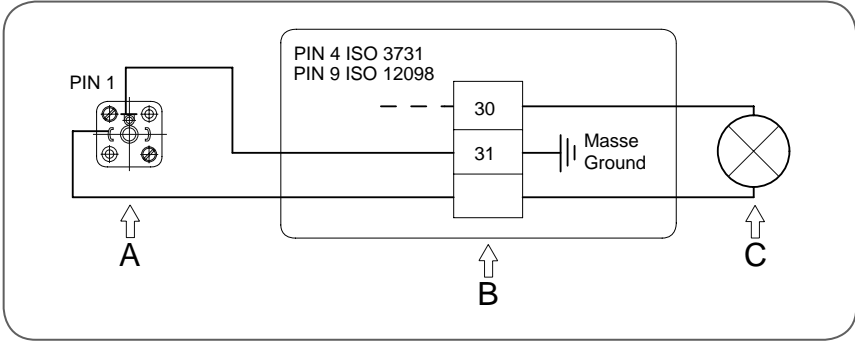


Fig. 10 - Connection - control unit to pressure switch

see ► Fig. 10, item	Description	Item	Description
A	Power connection of SAF TIRE PILOT control unit	B	Junction box, vehicle
C	Indicator lamp		

Control unit 03 001 0184 01 connection

Connect the electrical cable to the control box see ► Fig. 11.

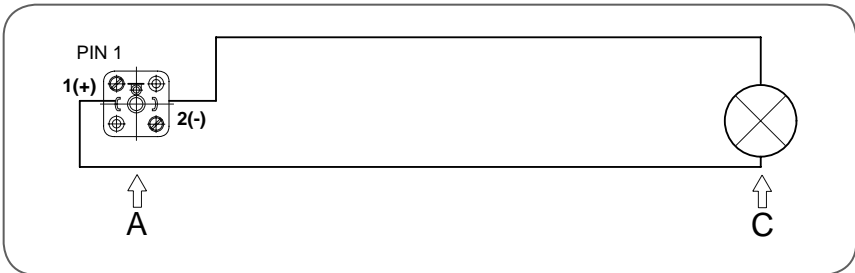


Fig. 11 - Connection - control unit to generator

ue

see ► Fig. 11, item	Description	Item	Description
A	Power connection of SAF TIRE PILOT control unit	C	Indicator lamp

6.4 Assembling the indicator lamp and affixing the label



Caution!

- The indicator lamp must be visible to the driver via the rear-view mirror!
- The connecting lines to the control box must be routed such that they cannot become damaged or chafe.

1. Assemble the indicator lamp see ► Fig. 12 in the driver's rearward field of vision.
2. Affix the label in accordance with see ► Fig. 14 in the immediate vicinity of the indicator lamp.
3. Route the connecting lines to the control box.
4. On ADR vehicles, the wiring must be implemented in accordance with the applicable ADR Directive.

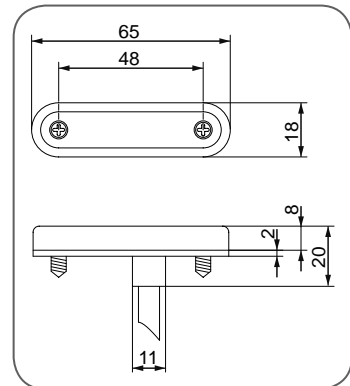


Fig. 12 - Indicator lamp

6.5 Assembling the pressure lines



Caution!

- The pressure lines to the control box must be routed such that they cannot become damaged or chafe.
 - The position/length of the line must be selected such that when compressing and extending the axle, the lines cannot become damaged.
1. On axles with air-suspension systems, connect the supply lines (8 x 1 mm PA line) directly to the pneumatic circuit of the suspension. In the case of mechanical or hydraulic suspension, the connection to the brake circuit requires an additional overflow valve 6.0 bar¹⁾

7 Commissioning

7.1 Checking the output pressure of the control unit



Danger!

Risk of serious traffic accidents from loss of operational reliability or roadworthiness, which may lead to serious or fatal injury!

- The SAF TIRE PILOT is pressurised.
- Always wear safety goggles when carrying out work on the system.
- Always rotate the shut-off valve *see ► Fig. 9* (item F) before commencing work on the system or wheel ends and release the air at the overpressure valve *see ► Fig. 9* (item E).
- The output pressure must be 0.1 - 0.2 bar above the tyre pressure recommended by the manufacturer in order to compensate the opening pressure of downstream components.

¹⁾ Order no. 4.425.0007.00



Note:

The output pressure is pre-set (see information sign 04 396 1008 00) and must be checked prior to commissioning.

The information sign must be affixed to the cover on the control unit.

1. Fit an outlet with manometer to the 3-way compressed-air outlet see ► *Fig. 9, (B)*.
2. Seal or bypass the other two connections.
3. Open the shut-off valve see ► *Fig. 9 (item F)*.
4. Read off the manometer when the pump operation is complete.
5. Release the pressure at the overpressure safety valve and repeat the procedure twice.



Caution!

An incorrectly set output pressure can lead to tyre failure, increased tyre wear and increased fuel consumption.

7.2 Adjusting the output pressure



Danger!

Risk of serious traffic accidents from loss of operational reliability or roadworthiness, which may lead to serious or fatal injury!

- The SAF TIRE PILOT is pressurised.
- Always wear safety goggles when carrying out work on the system.
- Always rotate the shut-off valve see ► *Fig. 9 (item F)* before commencing work on the system or wheel ends and release the air at the overpressure valve see ► *Fig. 9 (item E)*.

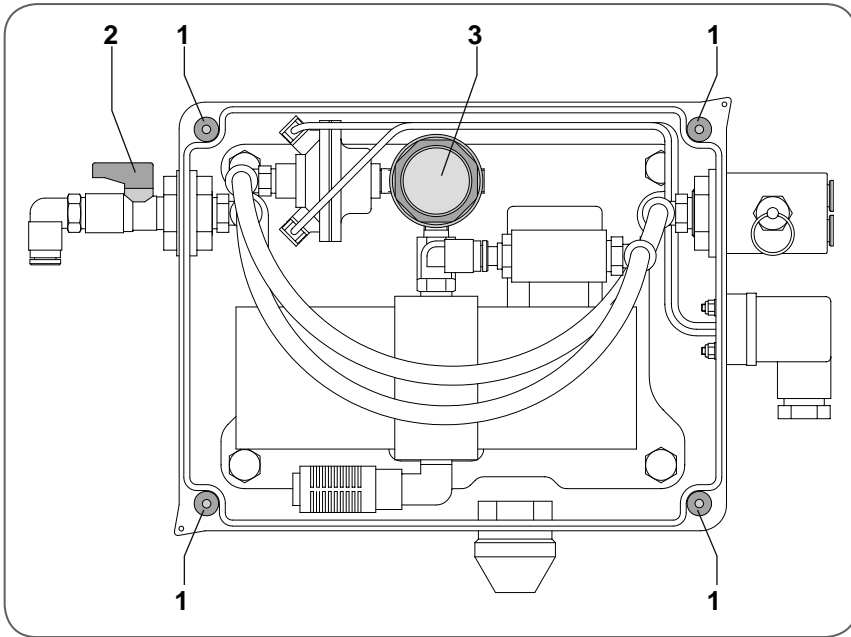


Fig. 13 - Control unit open 03 001 0184 00

1. Open the control unit by loosening the screws (4x) see ► *Fig. 13*, (item 1) on the cover.
2. Connect the manometer as described on ► *page 56* .
3. To increase the output pressure, unlock the setting knob (item 3) by pulling it out and turn it in a clockwise direction gradually.
4. Read off the manometer when the pump operation is complete and release the pressure at the overpressure safety valve (item 2).
5. To reduce the output pressure, unlock the setting knob (item 3) by pulling it out and turn it in an anti-clockwise direction gradually.
6. Release the pressure at the overpressure safety valve (item 2) and repeat the procedure twice.
7. Lock the setting knob (item 3) by pressing it in.
8. Secure the cover to the control unit with screws (4x) (item 1) and hand tighten.

9. Connect the compressed-air lines to the axles.
10. The modified pressure must be permanently recorded on the information sign 04 396 1008 00.

8 Operation

8.1 Function of the indicator lamp



Caution!

- The indicator lamp must be visible to the driver via the rear-view mirror!
- The connecting lines to the control box must be routed such that they cannot become damaged or chafe.



Note:

For the indicator lamp to function correctly, the control unit and indicator lamp must be properly assembled.

The indicator lamp begins to flash as described in ► *page 59* or lights up permanently in the event of a loss of pressure.

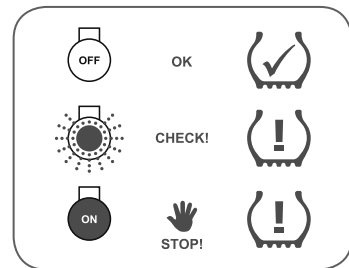


Fig. 14 - Indicator lamp functions

Flashing of the indicator lamp**Caution!**

- If the indicator lamp flashes, the SAF TIRE PILOT is operational and is compensating the loss of pressure.
- If the indicator lamp flashes for more than 10 minutes with the same high frequency, have the tyres, connections and compressed-air lines checked by an authorised specialist workshop.

Driving can continue while the lamp is flashing.

Permanent lighting of the indicator lamp**Danger!**

If the indicator lamp lights up permanently, driving must be stopped immediately. The SAF TIRE PILOT is no longer able to compensate the loss of pressure.

Have the loss of pressure rectified by an authorised specialist workshop.

9 Inspection

9.1 General notes on inspection



Danger!

Risk of serious traffic accidents which may lead to serious or fatal injuries!

- Repair work must only be carried out by authorised workshops and by appropriately trained personnel.
- All components which are not in a serviceable condition must be replaced.
- The general safety inspection must be performed in accordance with the legal regulations ► *page 45*.
- It is the duty of the driver to perform a daily inspection of the vehicle for traffic safety before starting the journey ► *page 61*.

9.2 Prior to each journey



Danger!

- Risk of serious traffic accidents which may lead to serious or fatal injuries!

1. Perform a general visual inspection of the TIRE PILOT system for damage.
2. Check the shut-off valve on the control unit (open position).

9.3 Inspection schedule



Danger!

Risk of serious accidents, which may lead to serious or fatal injuries!

- Missing or damaged components must be replaced immediately by an authorised workshop and by appropriately trained personnel.
- In the case of vehicles with extreme operating conditions, the inspection intervals must be reduced.

Inspection intervals

	Prior to journey	Every 3 years or 500,000 km
General safety inspection in accordance with the legal regulations.		
Visual inspection		
Connecting lines and rotors.	X	
Electrical cables.	–	X
Function test		
Check output pressure at control unit ► <i>page 56</i> . First time on commissioning.	–	X
Check indicator lamp ► <i>page 59</i> . First time on commissioning.	–	X
Check stator with filter for contamination.	–	X
Replace rotor.	–	X

10 Wheel change

10.1 Removal

1. Release the connecting line from the rotor.
2. Release the connecting line from the tyre valve.
3. Change the wheel.

10.2 Assembly

1. Align the wheel valve towards the rotor ► *page 50*.
2. Connect the connecting line to the tyre valve ► *page 50*.
3. Connect the connecting line to the rotor ► *page 50*.

11 Tightening torques



Danger!

Danger of accident from loose screwed connections!

- Threads must not be oiled or greased.
- Tighten screws to the pre-set tightening torque.

Component tightening torques

Item	Screwed connection	Tightening torque [Nm]	Width across flats [AF]
1	Stator assembly	50 ± 5	16
2	Rotor assembly	5 (hand tight)	-
3	Connecting line (rotor)	5 (hand tight)	-
4	Connecting bracket assembly	25 ± 5	17
5	Tyre valve connecting line	10 ± 2	11



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