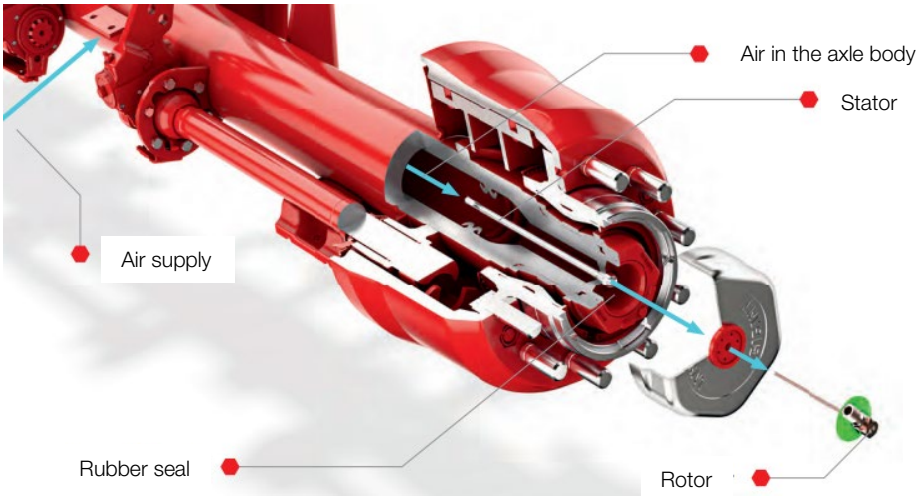
GIGANT STEADY PRESSURE (GSP)

Installation, maintenance and repair instructions

General aspects

GIGANT has expanded its product portfolio with the GSP (GIGANT Steady Pressure) tyre filling system. The system is pre-installed with the air connection on the axle body and stator at the factory. The rotors are supplied separately.



The customer then has to take care of the air supply, attaching the control box/unit, installing the rotors, the warning lamp (optional as of the 3rd quarter of 2024) in the driver's field of vision (e.g. rear-view mirror), connection cable (as of the 3rd quarter of 2024) from the control unit to the EBS system and connection of the tyre hoses from the rotor to the tyre valve.

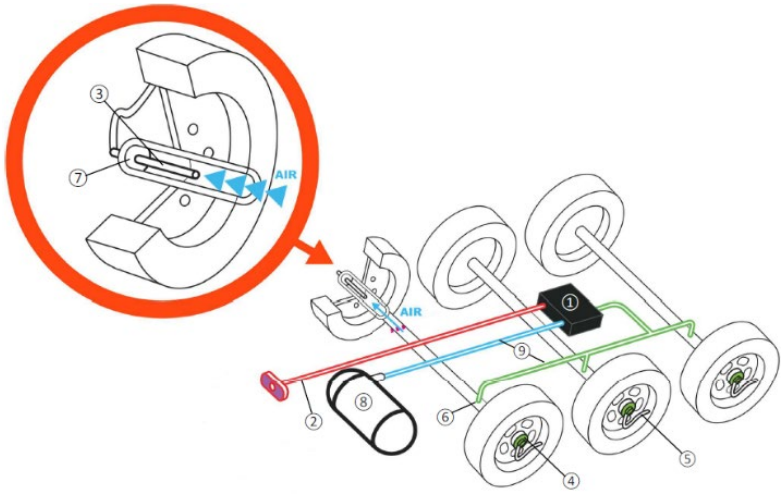
Version up to the 3rd quarter of 2024

Control box

Warning lamp

Tyre hoses

System layout:

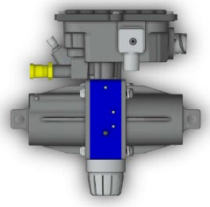


Components:

① Control box
② Warning light
③ Stator
④ Rotor
⑤ Tyre hose
⑥ Axle inlet[1]
⑦ Press plug[2]
⑧ Air supply*
⑨ Air line*

[1] The utilised components depend on the axle type
[2] Press plug for hollow axle body
* Components are not included in the scope of delivery

Version as of the 3rd quarter of 2024



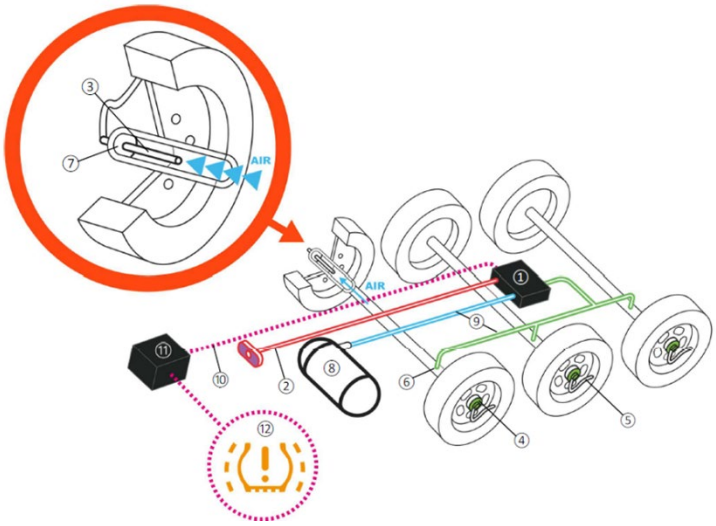
Control unit

Connection cable
(Example illustration)

Tyre hoses

Optional: Warning light

System layout:



Components:

① Control unit
② Warning lamp (optional)
③ Stator
④ Rotor
⑤ Tyre hose
⑥ Axle inlet / tension relief[3]
⑦ Press plug[1]
⑧ Air supply*
⑨ Air line*
⑩ Connection cable[2]
⑪ EBS unit*
⑫ Display on the dashboard*

[1] Press plug for hollow axle body

[2] Connection cable according to the manufacturer of the EBS system

[3] The utilised components depend on the axle type

* Components are not included in the scope of delivery

This technical bulletin is a supplement to the ALL IN ONE maintenance and repair manual (Issue 4 I 01.2021 I 703018009). The listed instructions regarding safety, preparatory tasks: etc. must be applied to this document.

The GSP must be installed by trained specialist personnel. Smooth function and optimum service life of the GSP can only be guaranteed when the installation, maintenance and repair instructions listed here are observed.

Observe the safety information and instructions to prevent material damage and personal injury!

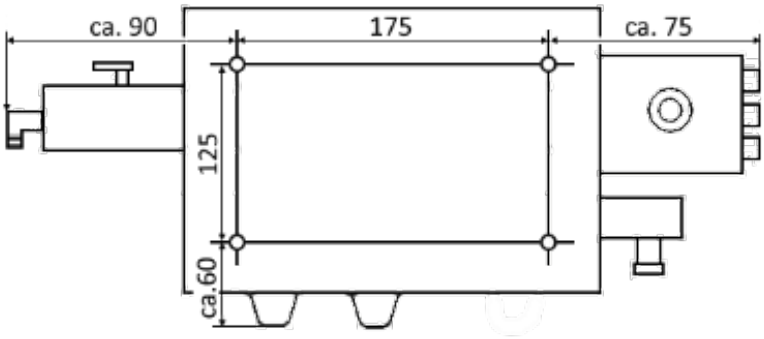
- **Control box**  **: Before working on the system, the stop valve must be closed and the air must be vented through the pressure control valve on the control box.**
- **Control unit**  **: Before working on the system, the power supply must be interrupted and the air must be vented through the test connection of the control unit.**
- **The ADR guidelines must be observed for ADR vehicles when laying the cables.**
- **When removing and installing the tyres, it is mandatory to observe the prescribed steps in the repair instructions.**
- **An initial pressure of min. 6 bar is required for proper functioning of the system.**
- **The working range is between the initial pressure (min. 6 bar) and 10 bar.**
- **During the pumping process, excess air is released from the control box or silencer (control unit) through the rubber outlets (must not be pressed in).**
- **At worst, incorrectly set pressure can cause tyre failure.**
- **Unless otherwise specified, the pressure of 9.2 bar is pre-set on the control box.**
- **Components of the GSP may not be painted!**
- **Before departure, the driver must check the system components for damage and make sure that, with a control box, the stop tap is set to the flow position (open).**

Installation instructions for pre-installed axle on the vehicle

1. The system must be depressurised and the power supply must be interrupted.
2. Installation of the control box/unit

2.1. Control box until the 3rd quarter of 2024

- Fasten the control box at a protected location on the chassis that is easily accessible.
- Drill fastening holes with a diameter of 9 mm, deburr and apply corrosion protection



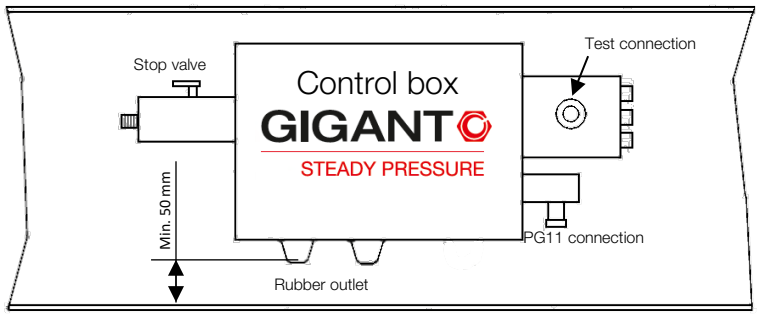
- The fastening material is included in the scope of delivery

WAF 13 25 Nm

! There must be a minimum distance of 50 mm between the rubber outlet at the bottom of the control box and the chassis.
! The rubber air outlet may not be pressed in.
! When positioning the control box on the chassis, ensure that there is enough space for routing the air lines without damaging them and for opening the lid.

Attention: Close the stop valve on the control box!

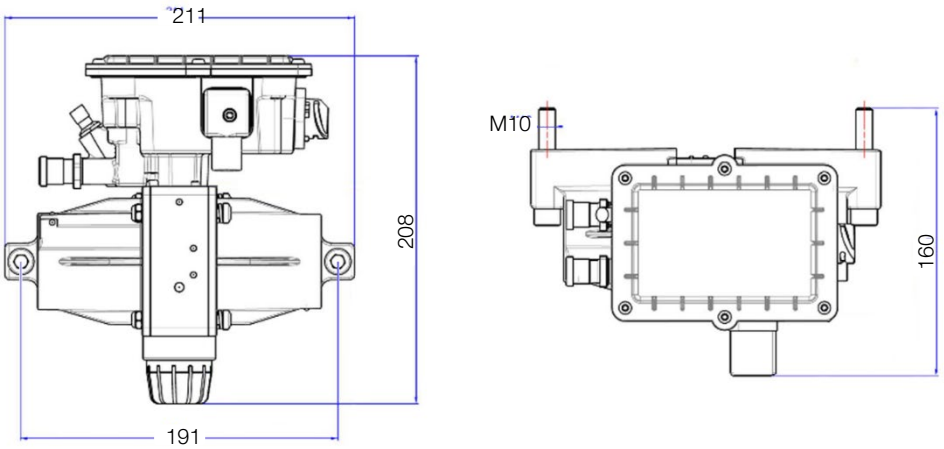
Example illustration: Control box on the crossbeam



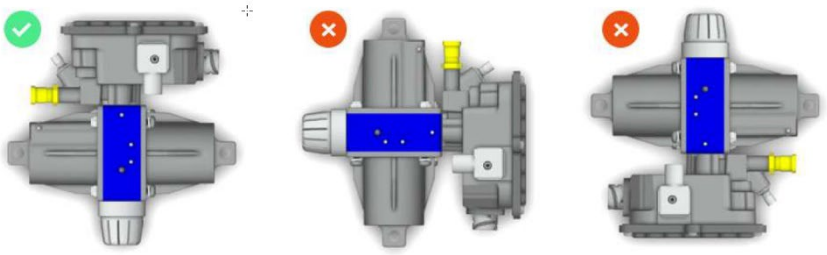
2.2. Control unit as of the 3rd quarter of 2024

Note: The connection cable from the control unit to the EBS unit is not included with the GSP and must be ordered separately from GIGANT according to the EBS module of the manufacturer by specifying the type. For the location of the control unit, observe the length of the connection cable and considering the protected location in the chassis.

- Fasten the control unit at a protected location on the chassis that is easily accessible.
- Drill fastening holes with a diameter of 11 mm as shown in the diagram, deburr and apply corrosion protection.



Note: Pay attention to the correct orientation of the control unit!



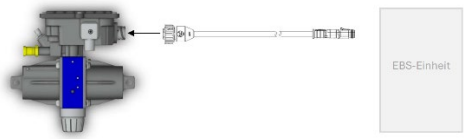
- Screw the control unit onto the chassis. The fastening material is included in the scope of delivery

  WAF 17 32 Nm

2.2.1 Installation of the connection cable (control unit with EBS unit)

- Installation of the connection cable on the control unit

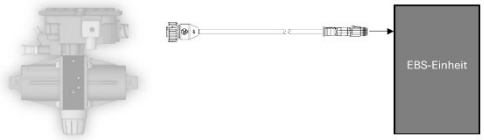
Example illustration:



- Connect the connection cable to the control unit by strongly pressing them together, while paying attention that the centring groove of the connector plug is aligned with the plug connector of the control unit.
- Secure the connection by turning the bayonet lock hand-tight and checking the connection.
- Route the connection cable protected in the chassis to the EBS unit.

- Installation of the connection cable on the EBS unit

Example illustration:



- Connect and check the connection of the connection cable according to the manufacturer specifications of the EBS unit.

3. Route the air lines (8 x 1/2/3 mm PA12 hose) from the supply tank to the control box/unit and from the control box/unit to the axles.

   - Before installation, the transport lock for the air connection must be removed from the axle body.

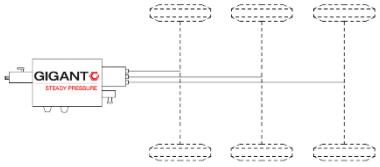
   ! **The air lines (diameter of 8 x 1/2/3 PA12 – hose is not included in the scope of delivery) must be routed such that there is no risk of bending, chafing points or other damage.**

   ! **At the interface between the chassis and the axle, the driving height range (max. deflection) must be observed when routing the lines.**

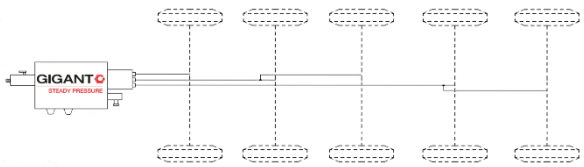
   Note:
   - There are three air connections going out of the control box (control unit 2 air connections) for the axles. If there are more than two axles for the control unit or 3 axles on the vehicle, the other axles must each be removed individually from one of the two/three connections.
   - Air connections that are not used must be closed with blind plugs.

Rigid axle connection diagram:

1 – 3 axles (3-axle vehicle in the example illustration)

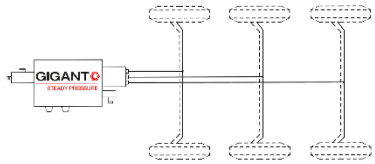


4 axles and more (5-axle vehicle in the example illustration)

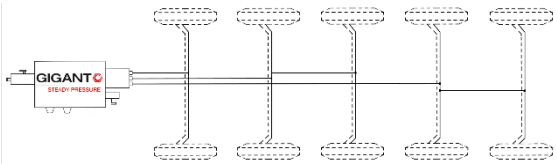


Self-steering axle connection diagram

1 – 3 axles (3-axle vehicle in the example illustration)

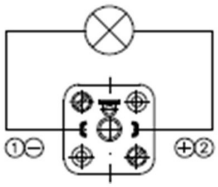


4 axles and more (5-axle vehicle in the example illustration)



4. Install the warning light (option with control unit) on the front area of the chassis in the driver's field of vision (e.g., rear-view mirror).

   - Fastening material (tapping screw 2.9 x16) for the warning light is included in the scope of delivery.
   - The connection cable with a diameter of 6 mm and the fastening material from the control box/unit to the warning light are not included in the scope of delivery. The warning light has a 2-wire connection cable that is approx. 500 mm long.
   - If necessary, drill fastening holes and a through hole with a diameter of 11 mm for the power line according to the carrier material for the warning light.
   - Connect the warning light to the PG11 connection on the control box according to the circuit diagram.

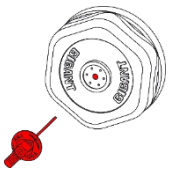


Note: A generator driven with compressed air in the control box supplies current to the warning light. For the control unit, in contrast, the power supply is taken from the vehicle.

5. Remove the sticker from the red adapter flange on the hub cap, clean the surface.

6. Install the rotor.

6.1. Carefully insert the connector tube with the rotor into the hub cap adapter and tighten by hand.
Attention: With pre-installed hub caps, it is essential to ensure that the connector tube is inserted in the opening of the stator! In doing so, it is important to feel a slight resistance when the connector tube hits the O-ring in the stator.



6.2. Align the tyre hose connection of the rotor towards the valve.

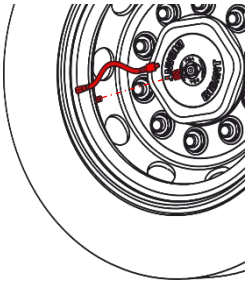
Recommended torque: 5 Nm

Attention: • Do not turn back the rotor
• Make sure that there is no gap between the sealing lip of the rotor and the hub cap adapter

7. Install the tyre hoses from the rotor to the tyre valve.

- Remove the protective cap from the air connection on the rotor
- Align the rotor air connection and valve flush with each other

Attention: When installing the tyre, ensure that, the valve is aligned towards the air connection. Slightly readjust the rotor if necessary! Do not turn back the rotor (↺ = ⊗)!



- First, the tyre hose is installed on the rotor and tightened by hand.
- Connect the tyre hose to the valve and tighten by hand, then use a tool to tighten it further by max. half a turn.

Note: Install the tyre hose such that it does not bend, chafe and cover the wheel nuts!

8. Installation of the GSP is complete, and before putting it into operation, a leak test must be performed and the set pressure must be checked and adjusted if necessary. The functioning of the warning light, if installed, must also be checked!

GSP leak test

1. All air connections as well as other connections and the rotor must be checked for leaks using a soapy water test.
2. After performing the leak test, the set pressure must be checked and adjusted.

Check the set pressure and set and check the customer-specific tyre pressure

Control box until the 3rd quarter of 2024

1. To check the pre-set air pressure of 9.2 bar (corresponds to 9 bar tyre pressure and approx. 0.2 bar system air loss) and to set the desired tyre pressure, close the stop valve on the control box.
2. Unscrew the lid from the test connection (keep in a safe place).
3. Venting the system via the test connection.
4. Disconnect the outgoing air lines from the control box.
5. Close or bypass the connections on the distributor.
6. Connect the measurement device to the test connection.
   Thread: 8V1

Note: Only use calibrated measurement devices!

7. Open the stop valve.
8. After the pumping process, read the pressure from the measurement device.
   - Pressure OK, continue with step 13.
   - Adjust the pressure: Open the lid of the control box.

     Note: The set pressure must be 0.2 bar higher than the tyre pressure to be set to compensate for the opening pressure of the pressure valve.
   - Reducing the pressure: Pull out the adjustment button of the pressure safety valve and turn to the left in small increments.
   - Increasing the pressure: Pull out the adjustment button of the pressure safety valve and turn to the right in small increments.
9. Release air through the test connection (remove the measurement device beforehand, then install it).
10. Repeat the procedure 2 x.
11. Lock the pressure safety valve by pressing in the adjustment button.
12. Carefully close the lid and secure with the locking latches.
13. Check the air pressure once more. Air pressure OK, then continue with step 15, otherwise repeat the steps starting at step 8.
14. Repeat the procedure 2 x.
15. Remove the measurement device and screw the lid onto the test valve.
16. Install the air lines on the control box and perform a leak test.
17. Checking and adjusting of the set pressure is completed, and now the function of the warning light must be checked!

Control unit as of the 3rd quarter of 2024

Checking the set pressure

1. Check the pre-set air pressure of 9.2 bar (corresponds to 9 bar tyre pressure and approx. 0.2 bar system air loss)
2. Unscrew the lid from the test connection (keep in a safe place).
3. Connect the measurement device to the test connection and read the value

   Thread: 8V1

   Note: Only use calibrated measurement devices!
4. Remove the measurement device
5. Vent air through the test connection
6. After the pumping process, connect the measurement device and read the value
7. Repeat the test procedure two more times
8. Remove the measurement device and screw the lid onto the test valve
9. Checking of the set pressure is complete

Adjusting the set pressure to the customer-specific tyre pressure

Note: The tyre pressure can only be adjusted if the CAN-Reader-Kit is available. We provide this CAN-Reader-Kit in a case (703031352) including the required software.

You can find the instructions and support in case of questions on handling the CAN-Reader-Kit and the software under the following link: https://www.gigant.com/service/download/

1. Adjustment of the pre-set air pressure of 9.2 bar (corresponds to 9 bar tyre pressure and approx. 0.2 bar system air loss, e.g. rotor) to the customer-specific tyre pressure (+0.2 bar on the control unit)
2. Remove the EBS connection cable from the control unit
3. Connect the CAN-Reader to the control unit (DIN 7-pin bayonet connection)
4. Connect the CAN-Reader to the laptop with the USB cable
5. Connect the CAN-Reader to the power supply
6. Open the CDRS software and enter the tyre pressure in the software and send it to the control box

   Note: Brief description for handling the software under the above-mentioned link
7. Close the software and disconnect the connection between the laptop and the control box

8. Reconnect the EBS connection cable to the control unit
9. Connect the power supply
10. Unscrew the lid from the test connection (keep in a safe place).
11. Vent air through the test connection
12. Connect the measurement device to the test connection and read the value
    Thread: 8V1
    Note: Only use calibrated measurement devices!
13. Remove the measurement device
14. Vent air through the test connection
15. After the pumping process, connect the measurement device and read the value
16. Repeat the test procedure two more times
17. Remove the measurement device and screw the lid onto the test valve
18. Adjustment and checking of the customer-specific tyre pressure is complete

Functional check of the warning light

1. Apply air pressure to the GPS.
2. Remove a tyre hose from the valve.
3. Release the air at the removed end of the tyre hose!
4. If the warning light flashes when the pump starts building up air pressure, the warning light is ready for operation.

General information on using the GSP

1. The GSP system is active as soon as enough air pressure (min. 6 bar to max. 9.8 bar) builds up in the system.
2. During the pumping process, excess air is released from the control box/unit.

3. Warning lamp (optional with the control unit)
   - Flashing warning light: The GSP is active and air losses are compensated.
     Warning:
     If the warning light is flashing at high frequency over a longer period of time (10min), the system may not be in operation and must be checked!

   - Illuminated warning light: If the warning light is continuously illuminated, stop the vehicle immediately! The cause for air loss must be fixed before continuing the journey!
4. Tyre change
   - Remove and install the tyre as described in the Repairs chapter.

Maintenance instructions

1. The maintenance intervals can be found in the following table or in the supplemental documentation from the vehicle manufacturer.

   Note:
   The number of maintenance intervals must be increased if there are extreme operating conditions in terms of the weather and terrain.

2. The safety information must be observed!

	Visual/functional check	Maintenance interval
Rotor	Visual check	Before departure
Tyre hose	Visual check	Before departure

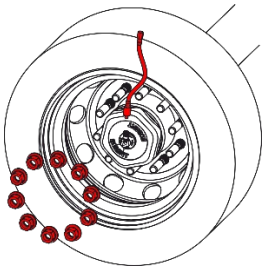
	Visual/functional check	Maintenance interval
Opening the stop valve (control box only)	Visual check	Before departure
Check the set pressure	Functional check	6 months after installation, then annually
Checking the warning lamp (optional with control unit)	Functional check	Annually
Check the air connections, wheel hub cover (green) etc. fro leaks (soapy water test)	Functional check	Annually
Check the electrical lines and air lines for damage	Visual check	Annually

3. Functional checks are described in the Installation chapter.

Repair instructions

- Safety information must be observed!
- Interrupt the air supply to the GSP system on the stop valve of the control box!

Removing/installing the tyres



Removing the tyre

1. Disconnect the tyre hose from the rotor and valve and keep in a safe place.
2. Remove the tyre.

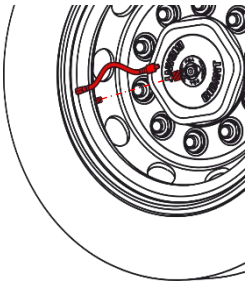
Installing the tyre

1. Install the tyre.
2. Install the tyre hose -> See Tyre hose installation.

Removing/installing the tyre hose

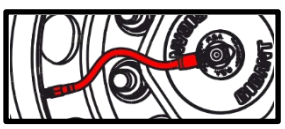
Removing the tyre hose

1. Remove the tyre hose from the rotor and tyre valve.



Installing the tyre hose

1. Check that the air connection from the rotor to the tyre valve is aligned flush, correct if necessary.
   Note: Do not turn back the rotor (↺ = ⊗)!
2. Clean the threaded connections on the rotor, tyre valve and tyre hose.
3. Install the tyre hose on the valve.
   Functional check of the tyre hose: Press the rotor-side integrated valve for the tyre hose down, air should then escape at this point.
4. Install and tighten the tyre hose on the rotor by hand only.
   Note: Route the tyre hose along beside the wheel nut, avoid chafing and do not let it protrude beyond the tyre!



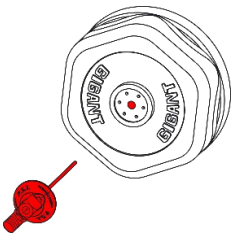
5. After the tyre hose is correctly positioned, first tighten it by hand and then use a tool to tighten it further by half a turn.

   WAF 11

6. Check the tyre hose for leaks!

Removing/installing the rotor

Removing the rotor



1. Unscrew the tyre hose from the rotor.
2. Unscrew the rotor from the hub cap adapter and carefully pull it out.

   WAF 16

Installing the rotor

1. Clean the hub cap adapter.
2. Carefully insert the connector tube with the rotor into the hub cap adapter and tighten by hand.
   Attention: With pre-installed hub caps, it is essential to ensure that the connector tube is inserted in the opening of the stator! In doing so, it is important to feel a slight resistance when the connector tube hits the O-ring in the stator.
3. Align the tyre hose connection of the rotor towards the valve.

   Recommended torque: 6 Nm

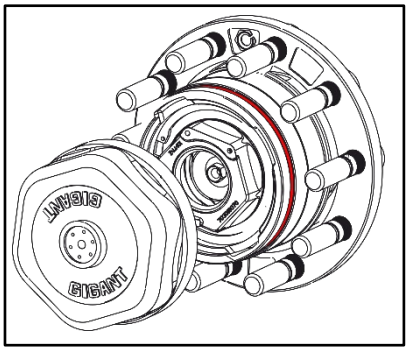
   Attention: Do not turn back the rotor!
4. Check for correct installation!

Removing/installing the hub cap

Removing the hub cap

1. Unscrew the tyre hose from the rotor.
2. Remove the rotor.
   Attention: Pull the rotor off carefully by hand with a straight motion, without bending the connector tube of the rotor!
3. Remove the hub cap.

   WAF 120 / 160 / 170
4. Take the O-ring off of the hub unit and discard it.



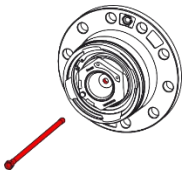
Installing the hub cap

1. Slightly grease the new O-ring and place it on the hub unit.
2. Slide the hub cap forwards until it can be unscrewed by hand
   Note: To be able to put the hub cap on easily, first turn the hub cap slightly counterclockwise until the thread catches, and then tighten by hand.
3. Tighten the hub cap according to the tightening torques prescribed in the ALL IN ONE Maintenance and Repair manual.

   Attention: O-ring must not be squeezed out after tightening!

Removing/installing the stator

Removing the stator



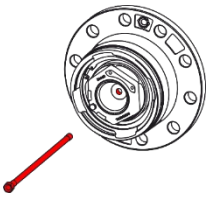
1. Remove the tyre hose and hub cap with the rotor.
2. Remove the stator.

   WAF 16

Installing the stator

1. Clean the screw-in opening in the axle stub.
2. Check the stator for soiling and damage to the filter.
3. Screw in the stator by hand until the micro-encapsulation catches the thread.
   Note: When the stator was removed, seal the thread of the stator with PTFE sealing tape before installation.
4. Tighten the stator with the prescribed tightening torque.

   WAF 16 40 Nm ± 5 Nm

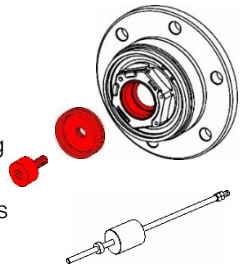


Removing/installing the press plug

Removing the press plug

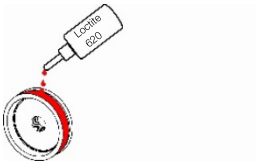
Note: To remove the press plug, you need the press plug remover adapter ① and slide hammer ②, which we offer in a case (703031354).

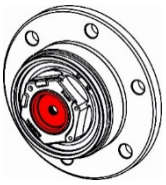
1. Remove the tyre hose and hub cap with the rotor.
2. Remove the stator.
3. Screw the press plug remover adapter ① into the press plug
4. Screw the slide hammer ② onto the press plug remover adapter and drive the press plug out and dispose of it
5. Clean the seat of the press plug in the axle stub, remove any burrs and adhesive residues and then clean without grease.



Installing the press plug

1. Clean the new press plug without grease on the peripheral area of the O-ring
2. Apply Loctite 620 threadlocker
   Note: Make sure that the press plug is completely installed 10 minutes after applying the threadlocker, to ensure that the connection hardens properly.
3. Insert the press plug by hand straight into the axle stub
4. Drive the press plug with a punch (min diameter 40 to max. outer diameter 44 mm) and a plastic mallet (max. 2 kg) until the press plug fits.
   Note: The sound or feel changes clearly when the press plug is solidly seated.
5. Clean adhesive residues from the axle stub and the punch.
6. Install the stator
7. Install the hub cap with the rotor and tyre hose



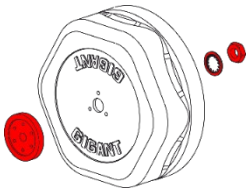


Removing/installing the hub cap adaptor

Removing the hub cap adapter

1. Remove the tyre hose and hub cap with the rotor.
2. Remove the rotor.
3. Loosen the nut inside the hub cap.

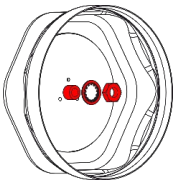
   WAF 22
4. Remove the nut and lock washers and take out the hub cap adapter.



Installing the hub cap adaptor

1. Clean the contact surface of the hub cap adapter.
2. Insert the hub cap adapter and install the locking washer and nut inside the hub cap.
3. Tighten the nut with the prescribed tightening torque.

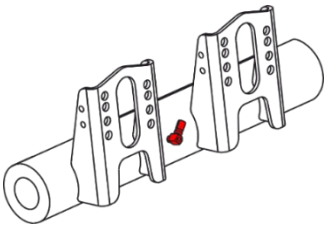
   WAF 22 30 Nm ± 2 Nm



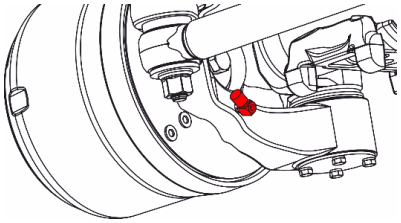
Removing/installing the axle body air connection

Position of the air connection:

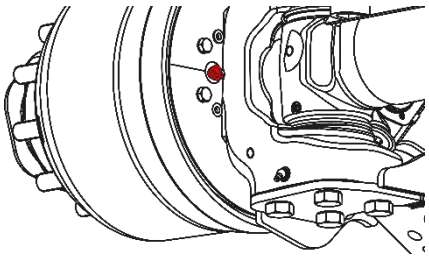
- Rigid axle: Axle body (centre)



- Self-steering axle: Steering arm (lower steering arm)



- Power-steering axle: Steering arm (in the middle near the cover plate)



Removing/installing the air connection

1. Remove the air connection.

   WAF 12/14

2. Clean the area of the air connection.
3. Insert the air connection by hand and, if necessary, wrap the thread of the air connection with sealing material (e.g. PTFE sealing tape)!
4. Align the air connection and tighten it.

   WAF 12/14 5 Nm

Tools

Item number	Description	Illustration
703031352	CAN-Reader-Kit (in a case) - Power supply unit - Y-cable - USB cable - CAN-READER - USB flash drive with software	
703031353	Slide hammer kit for press plug - GSP	
703031331	Loctite 620 – 50 ml	–

Error diagnosis

Note: The safety instructions must be observed for all work to prevent personal injury and material damage!

State	Possible causes	Measures
Warning lamp is illuminated.	1. The system is delivering air for initial operation. 2. The system is delivering air to a leaky tyre. 3. The system is delivering air to a leaky system component 4. The system cabling is faulty	1. The system is working faultlessly. 2. Repair the tyre. 3. Replace the system components. 4. Correct the system cabling.
The warning lamp is illuminated and air is escaping from the rotor.	1. The system is delivering air to a leaky system component. 2. The rotor is leaky. 3. The O-ring of the stator is leaky. 4. The thread of the stator is leaky. 5. The press plug is leaky	1. Replace the system components. 2. Replace the rotor. 3. Replace the stator. 4. Seal the thread of the stator. 5. Replace the press plug
Air is escaping from the rotor.	1. The rotor is leaky. 2. The O-ring of the stator is leaky. 3. The thread of the stator is leaky. 4. The press plug is leaky	1. Replace the rotor. 2. Replace the stator. 3. Seal the thread of the stator. 4. Replace the press plug
The warning lamp is off during system operation, although air is flowing through the control box/unit.	1. The warning lamp is out of service. 2. The generator in the control box is out of service. 3. The system cabling is damaged/faulty.	1. Check the warning lamp and replace, if necessary. 2. Check the generator in the control box and replace if necessary. 3. Repair/correct the system cabling.
The tyre pressure is too low.	1. The stop valve on the control box is closed. 2. The pressure setting on the system is too low.	1. Open the stop valve. 2. Increase the system pressure on the of the control box/unit.
The tyre pressure is too high.	1. The tyre was manually filled with too much pressure. 2. The pressure setting on the system is too high.	1. Reduce the tyre pressure. The system will adjust the tyre pressure to the set system pressure. Reduce the system pressure on the of the control box/unit.
The trailer is loosing air at a standstill.	1. The tyre hose is leaky. 2. The threaded fittings of the tyre hose are leaky. 3. The tyre or tyre valve is leaky.	1. Replace the tyre hose. 2. Correctly tighten the connection. Replace the seals if necessary. 3. Clean or replace the tyre valve or repair the tyre.
The tyre is only filled slowly or no air is flowing to the tyre.	1. The hose connection to the tyre might be tightened too strongly, which can block the air flow.	1. Tighten the connection correctly or replace the hose or the seal if it is damaged.

The GIGANT team is happy to answer any questions you may have and wishes you a safe journey.

Created/reviewed:		Approved:	
2024.08.20	HU	2024.08.20	AK
Date	Signature	Date	Signature