

■ **TASC™ – Trailer Air Suspension Control**

Function and Assembly

■ **1st Edition**

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1 Safety information

This document describes the functionality, operation and installation of the TASC™.

Read this publication thoroughly. Adhere to all instructions, information and safety information to prevent injury to persons and damage to property.

WABCO will only guarantee the security, reliability and performance of their products and systems if all information in this publication is adhered to.

- Only trained and qualified technicians are to perform any work on the vehicle.
- Make sure to follow the specifications and instructions of the vehicle manufacturer.
- Maintain all accident regulations of the business as well as regional and national regulations.
- Wear suitable protective clothing when necessary.
- Your workspace must be dry as well as sufficiently illuminated and ventilated.

Risk of injury!

Pedal actuations can lead to severe injuries if persons are in the vicinity of the vehicle.

Make sure that pedals cannot be actuated as follows:

- Switch the transmission to "neutral" and actuate the hand brake.
- Secure the vehicle against rolling with chocks.
- Fasten a visible note to the steering wheel indicating the work is being performed on the vehicle and that the pedals are not to be actuated.
- Do not wear a tie, loose clothing, open hair, arm bands, etc. when working on the vehicle, especially with the engine running. Keep your hands and hair away from the moving parts.

Fire hazard!

- Use only ground lights.
- Keep flammable material (cloths, paper, etc.) away from the exhaust system.
- Do not smoke in the workplace.
- Check electrical lines for proper insulation and fastening.

1.1 Avoiding electro-static charge and uncontrolled discharging (ESD)

Note during construction and building the vehicle:

- Prevent potential differences between components (e.g. axles) and the vehicle frame (Chassis).
Make sure that the resistance between metallic parts of the components to the vehicle frame is lower than 10 Ohm (< 10 Ohm).
Connect moving or insulated vehicle parts such as axles electrically conductive with the frame.
- Prevent potential differences between the towing vehicle and the trailer.
Make sure that an electrically conductive connection is made via the coupling (king pin, fifth wheel, claws with pins), even with no cable connection.
- Use electrically conductive bolted connections when fastening the ECUs to the vehicle frame.
- Use only cable conforming to WABCO specifications or WABCO original cable.
- Run the cable in metallic casing if at all possible (e.g. inside the U-beam) or behind metallic and grounded protective plating, to minimise the influence of electro-magnetic fields.
- Avoid the use of plastic materials if they can cause electrostatic charging.

Note during repair and welding work on the vehicle:

- Disconnect the battery – if installed in the vehicle.
- Disconnect cable connections to devices and components and protect the plug-ins and connections from contamination and humidity.
- Always connect the grounding electrode directly with the metal next to the welding position when welding, to prevent magnetic fields and current flow via the cable or components.
Make sure that current is well conducted by removing paint or rust.
- Prevent heat influences on devices and cabling when welding.

2 Description and function

2.1 Introduction



TASC™ (Trailer Air Suspension Control) combines the lifting-lowering function with the Return-to-Ride (RtR): after starting to drive, the vehicle construction is automatically brought to a secure driving level.

TASC™ is a part of WABCO's Zero Accident Program and is designed to increase the safety of the vehicle and the load while travelling and during the loading and unloading processes.

The new TASC™ by WABCO makes operating trailer vehicles easier and safer. As one of the leading suppliers for utility vehicle manufacturers, WABCO offers a complete product portfolio in the air suspension sector.

TASC™ is an RtR valve that can be actuated simply by turning the actuation lever.

2.2 Benefit

- Locking in lowering position: The lever can be locked in the lowering position. This enables completely lowering to buffer level without permanent actuation. This function is also important for train- and ship-loading. The loading personnel quickly recognises that the vehicle has been lowered properly onto the buffer by the lever setting.
- Simple connection to air suspension valves with height limitation: TASC™ is a Return-to-Ride valve that can be connected to an air suspension valve with height limitation without any additional components.
- Deadman switch: Variants with deadman switches do not lock in the lifting or lowering position. After releasing, the lever returns to the stop position. This function is specified for vehicles with a stroke of greater than 300 mm by the Employers' Liability Insurance Association.
- The RtR function automatically moves the vehicle to driving height, which prevents damage to the components of the air suspension and protects the vehicle and the transported goods.
- Simple connection to all brake systems: TASC™ has a DIN bayonet connector for connecting to all brake systems with a pulse signal.
- Simple retrofitting: TASC™ can be installed in the same installation space as e.g. a rotary slide valve. If the installation space is limited underneath, the device can be pivoted for the installation by adjusting the control lever.

2.3 Function

While rotary slide valves can only raise and lower the structure, TASC™ in combination with the ABS/EBS speed switch, enables the Return-to-Ride. If the vehicle leaves the loading zone, the chassis is automatically brought to ride level.

RtR provides security for the vehicle and comfort for the driver.

- Ride level too high - causes risk of accident at the next bridge.
- Ride level too low - the chassis and load goods can be damaged. If the vehicle is on the buffers, it causes an incorrect braking pressure (underbraking) with the risk of accidents.

Using TASC™ is easy, since all operations can be handled with a simple turn of the lever; pressing the lever before turning it is not necessary. Raise-lower processes can be performed quicker because of the high nominal range of TASC™.

"Locking in lower" (locking the lever in the lowering position after turning clockwise) permits the driver to release the lever after starting the lowering process. This function is only permitted on vehicles that have a chassis stroke of less than 300 mm.

TASC™ can be operated in combination with or without levelling valve with height limitation. TASC™ can be connected directly if levelling valves with height limitation are used. This avoids the bellows being permanently connected to the air reservoir at the upper stop position. An additional supply line with choke is not required.

2.4 Variants and technical data

Functions / Technical data	Product number				
	463 090 020 0 Dual circuit	463 090 021 0 Dual circuit	463 090 023 0 Dual circuit	463 090 123 0* Dual circuit	463 090 012 0 Single circuit
RtR function	x	x	x	x	x
Locking in lowering	x	x	x	–	x
Pressure test connection	x	–	–	–	x
Pneumatic connection	8x1	8x1	M16x1.5	M16x1.5	M16x1.5
Pipe Couplings	3x 893 800 007 2 (12x1,5) 2x 893 800 002 2 (8x1)		–	–	–
Working pressure	3.5 ... 10 bar				
Voltage	18 ... 32 V				
Thermal range of application	–40 ... 65 °C				
Electrical connection	DIN 72585-B1-3.1-Sn/K2 - bayonet				

* Deadman control for vehicles with a stroke exceeding 300 mm

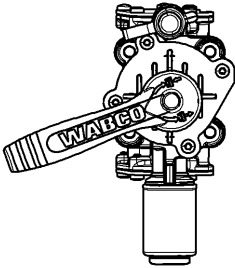
! All variants of the TASC™ can be equipped with a test connection at a later time.

2.5 Operation

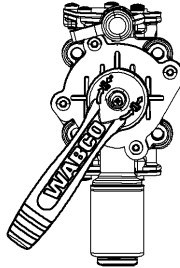
The raising/lowering process is started by simply turning the handle right or left. To halt this process the handle is moved back into the stop position. The system keeps the chassis at the set level.

Handle positions

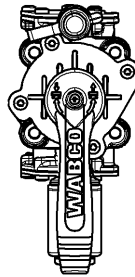
Lowering



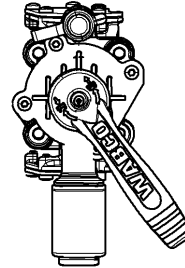
Stop



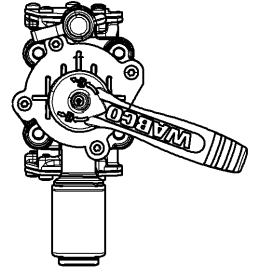
Drive



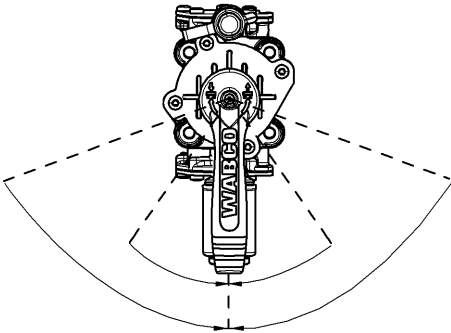
Stop



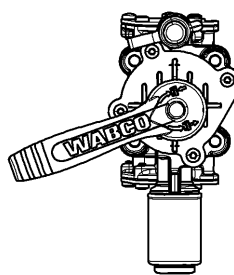
Lifting



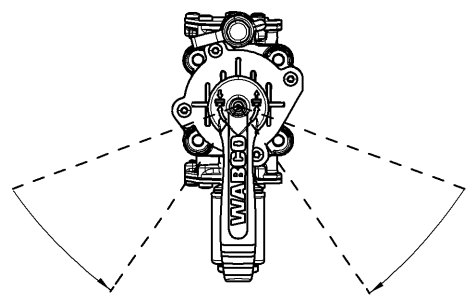
Return to normal driving level (RtR)



Locking in lowering



Deadman Control



3 Assembly and connection

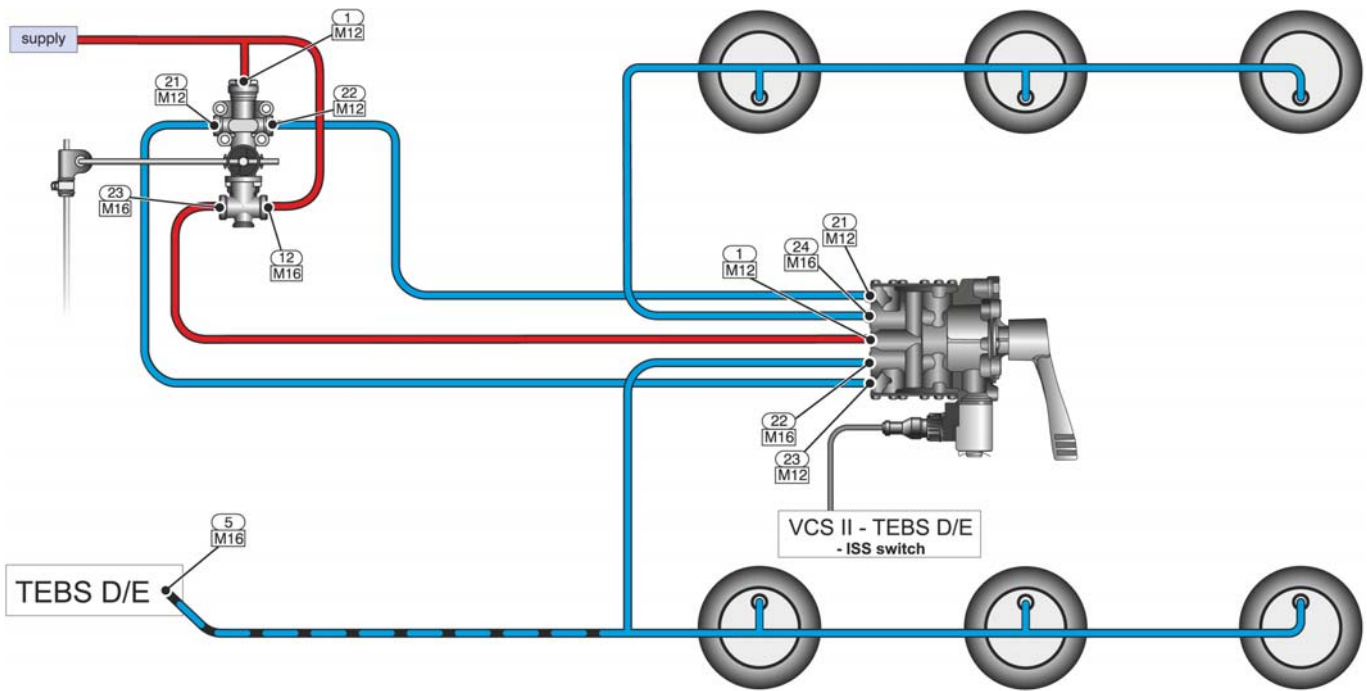
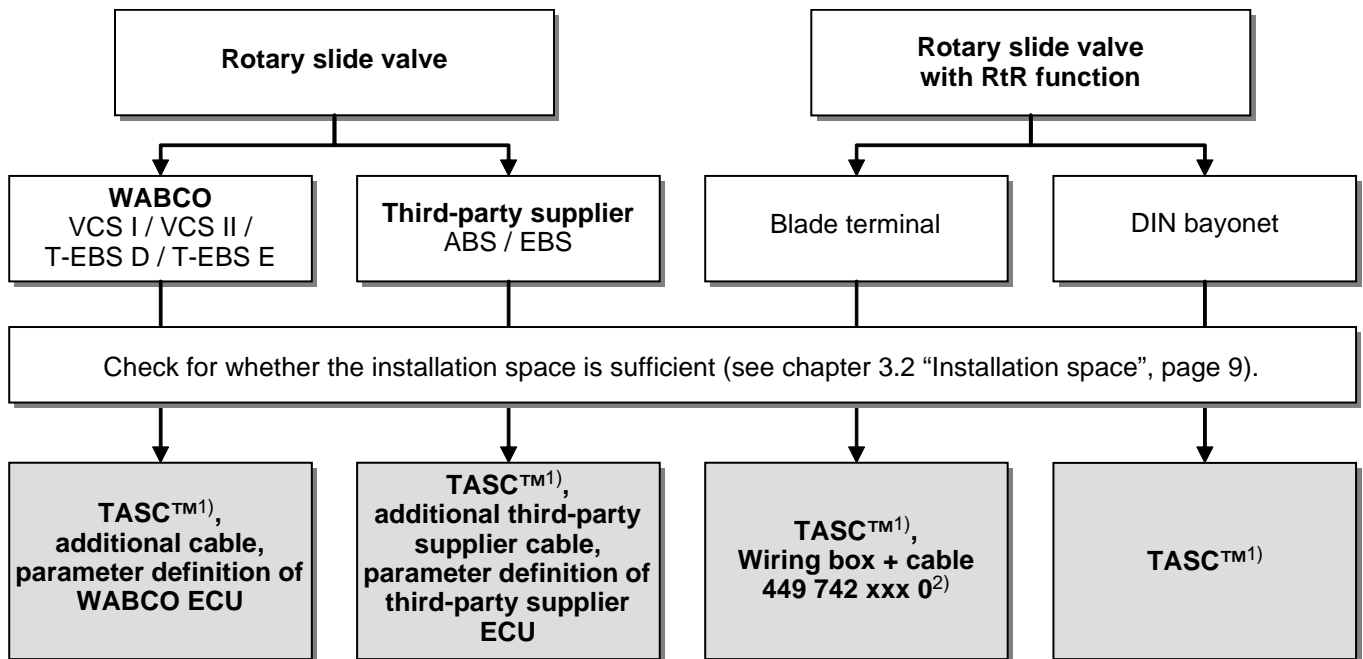


fig. Installation diagram for WABCO TASC™

3.1 Configuration

- Choose the configuration based on the components installed in your trailer vehicle.



1) With a vehicle chassis stroke of >300 mm, use the TASC™ 463 090 123 0 (see chapter 4.1 "Replacement table", page 18).

2) Connecting the TASC™ to a WABCO ECU requires an additional WABCO cable.

! Rotary slide valve incl. RtR function with third-party bayonet connection can be easily replaced with TASC™. Earlier variants with blade terminals require an additional cable (see chapter 3.3 “Electrical connection”, page 9).

3.2 Installation space

- Check the required space for the installation. The TASC™ fits in the same installation space as the rotary slide valve.

! The TASC™ is slightly larger than the rotary slide valve because of the magnets. Therefore, the installation space may be too small to install the protruding TASC™ magnets in some cases.

This can be solved in most cases by turning the device in 90° steps and installing at the angle that provides sufficient space for the magnets. The lever is then installed accordingly to point down again (see chapter 3.4.2 “Assembly”, page 16).

3.3 Electrical connection

! The Return to Ride (RtR) function is controlled by a speed switch inside the ABS or EBS system. A TASC™ retrofit (when replacing a rotary slide valve) may require diagnostic tools and training for defining the parameters for the installed system.

When swapping a rotary slide valve or an RtR rotary slide valve with a flat terminal connection, an additional cable is required. If the RtR rotary slide valve has a DIN bayonet connection, the TASC™ can be connected with the same connection.



fig. Rotary slide valve with RtR function of a third-party supplier with blade terminal (left) and with DIN bayonet (right)

One of the following cables is required for connecting TASC™ to WABCO systems.

ECU	Cable	Length (comment)
VCS I (only 4S/3M)	449 402 120 0	12 m (3-wire, open end, ISS)
	449 454 295 0	8 m / 8 m (3-wire, open end, ISS + 3rd modulator)
VCS II	449 623 xxx 0	6 m / 6 m, 10 m / 10 m (with diagnostics socket)
T EBS D	449 435 xxx 0	0.1 ... 20 m (without diagnostics socket)
	449 664 xxx 0	0.25 ... 18 m (with diagnostics socket)
T EBS E	449 443 xxx 0	0.8 m, 1 m, 2 m, 4 m, 6 m, 10 m
through wiring box	449 742 xxx 0	1 m, 3 m, 5 m, 10 m, 15 m (2-wire, open end)

! For retrofitting TASC™ on brake systems from third-party suppliers, a cable with a DIN bayonet connection is required from the respective manufacturer.

Cabling Instructions

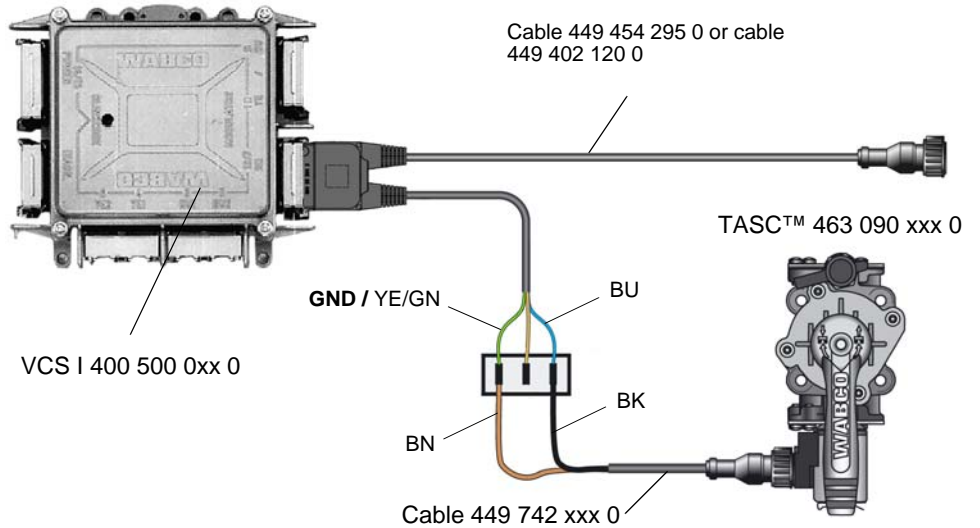
- Press the cable into the slot applying a little initial force. All connections must be assigned a cable or have a closing cap.
- Fasten the cable only on solid elements that are connected with the components, e.g. the vehicle frame. Fastening to flexible elements can cause cable breaks and the seal can be broken.
- Fasten the cable and plug so that no tension or lateral forces affect the plug-in connections.
- Always run cable with open ends into a wiring box and connect the cable ends in the wiring box.
- Be sure not to route cables over sharp edges or in the vicinity of aggressive media (e.g. acids).
- Fasten the cable a maximum of 30 cm after the device, e.g. with a cable tie. Fix the cable ties in such a way that the cables are not damaged (if you are using tools, please observe the instructions of the manufacturer of the cable tie).

3.3.1 Connection to VCS I (only 4S/3M)

! With VCS I, TASC™ can only be connected to modulators with ISS function for 4S/3M systems.

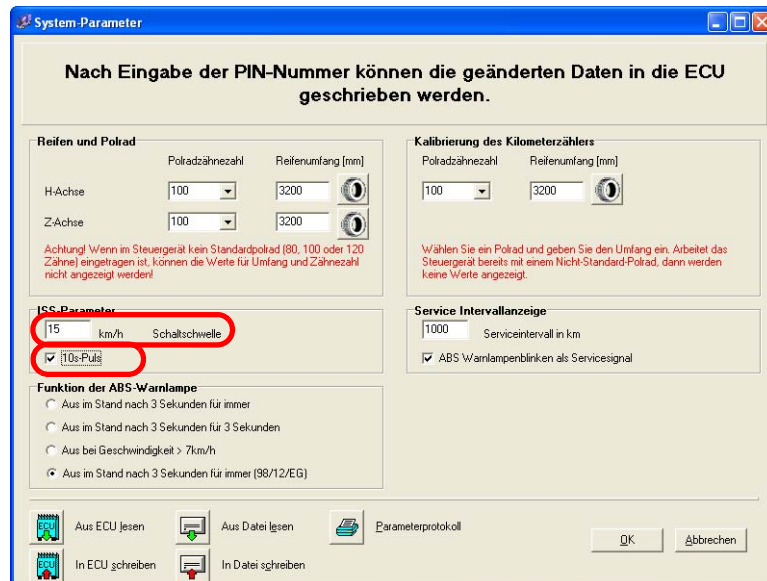
VCS I modulators with product numbers 400 500 03x 0, 400 500 063/064 0, 446 108 03x 0 and 446 108 050 0 are suitable for connecting TASC™.

Connection of a TASC™ to VCS I using a wiring box



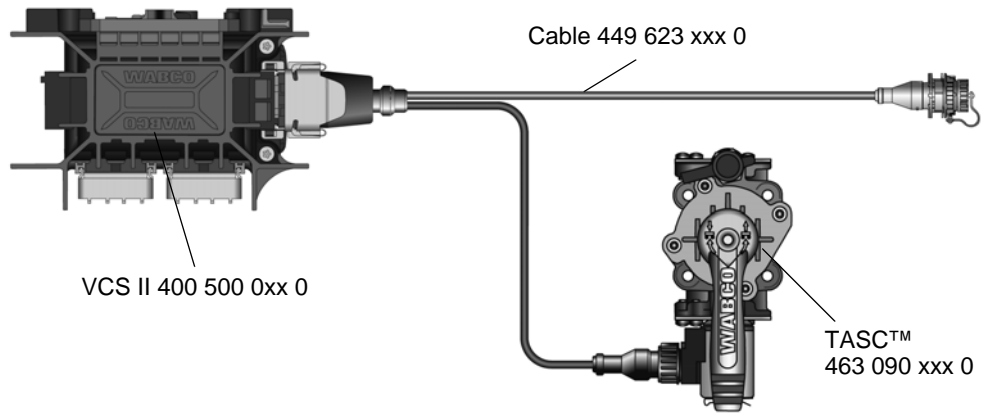
Parameter definition of VCS I

- Define parameters for the VCS I modulator:
 - Enter the value of the switching threshold to 15 km/h in "System parameters" in the "ISS Parameter" box.
 - Activate the pulse function "10sec pulse".

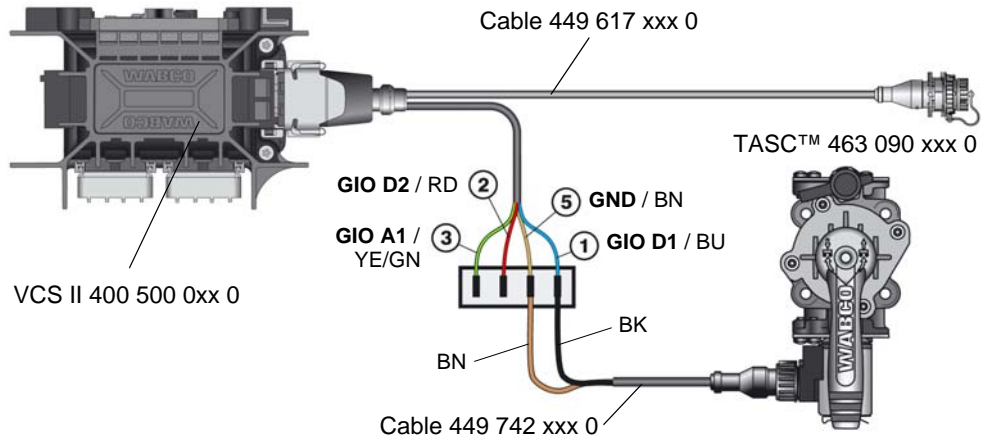


3.3.2 Connection to VCS II

Connection of TASC™ to VCS II (with diagnostics socket)

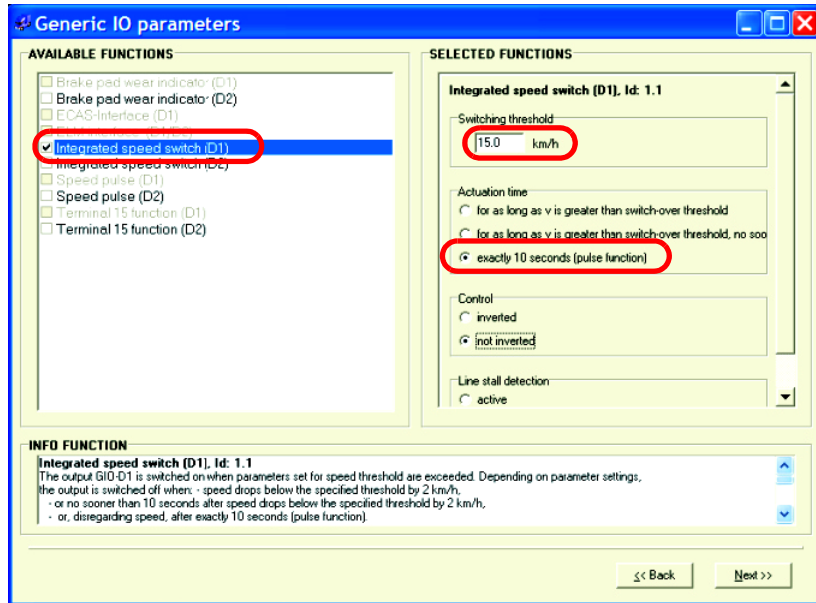


Connection of TASC™ to VCS II with a wiring box (with diagnostics socket)



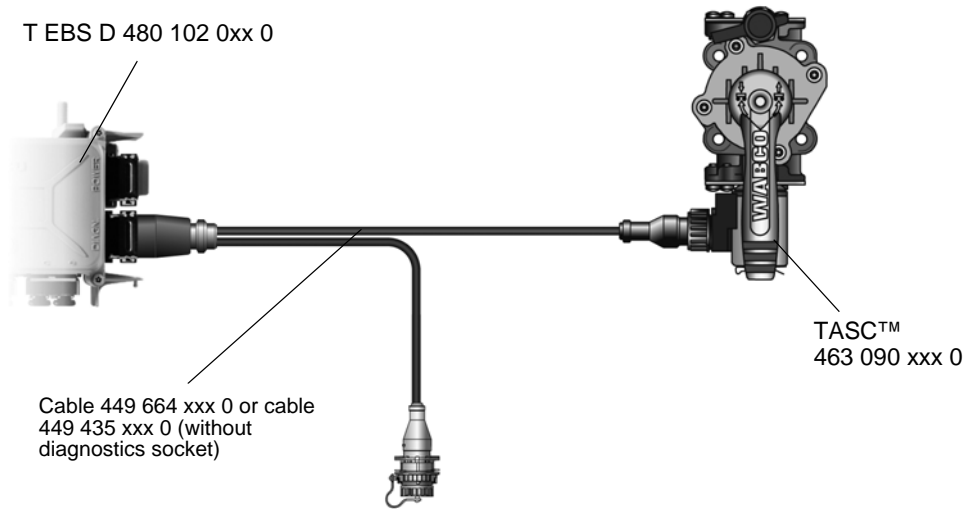
Parameter definition of VCS II

- Define parameters for the VCS II modulator:
 - Activate the integrated speed switch ISS (D1) in "Generic I/O Parameter".
 - Set the value to 15 km/h in the "Switching threshold" field.
 - Activate the pulse function "Exactly 10 seconds" in the "Actuation duration".

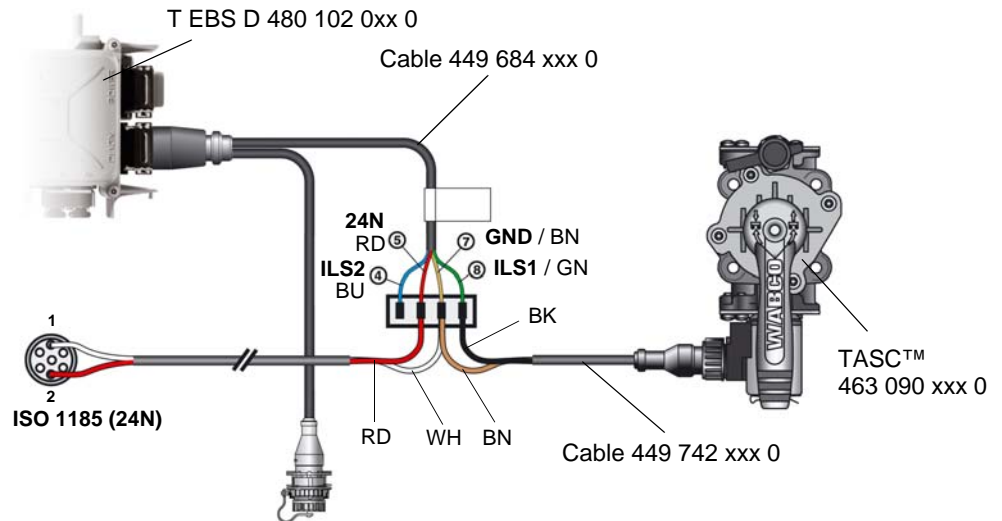


3.3.3 Connection to Trailer EBS D

Connection from TASC™ to Trailer EBS D (with diagnostics socket)

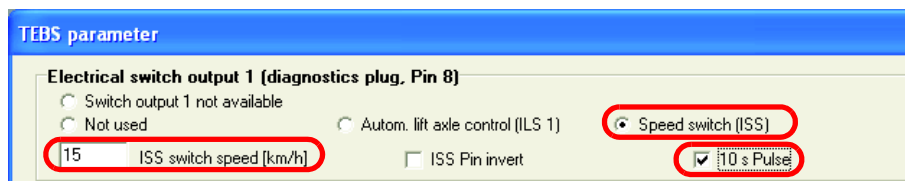


Connection from TASC™ + ISO 1185 (24N) to Trailer EBS D via a wiring box (with diagnostics socket)



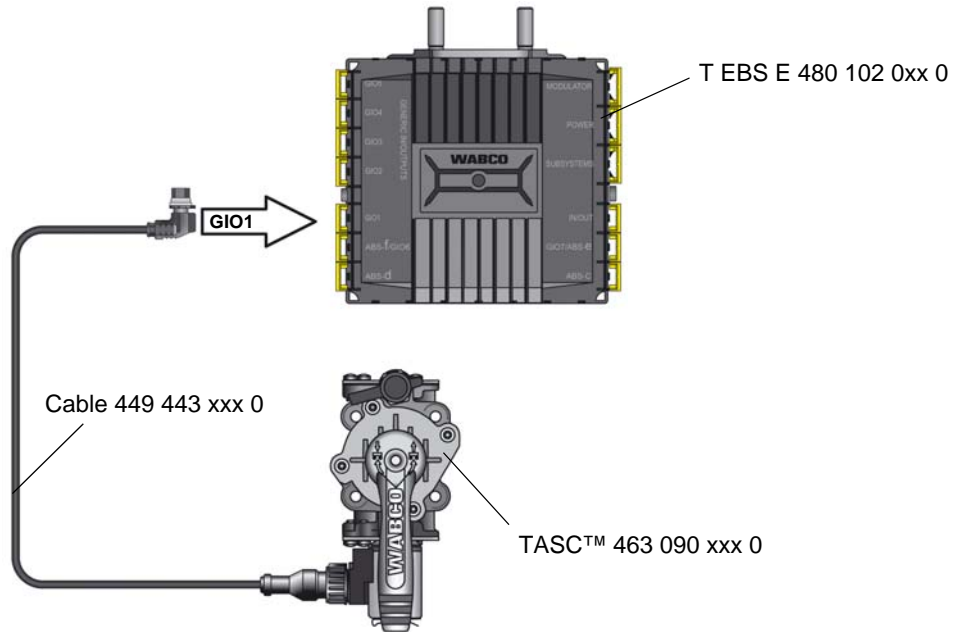
Parameter definition for Trailer EBS D

- Define parameters for the Trailer EBS D Modulator:
 - Set the value to 15 km/h in the "ISS Switching threshold" field in the "Electrical switch output 1" box.
 - Activate the integrated speed switch ISS and the function "10 s pulses".



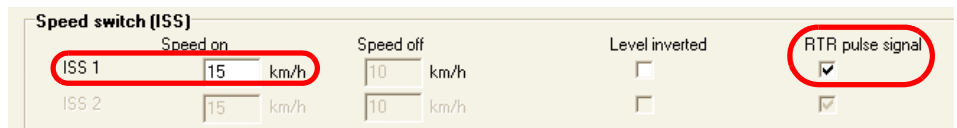
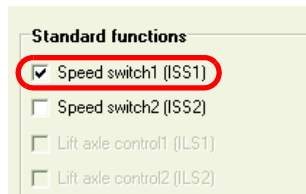
3.3.4 Connection to Trailer EBS E

Connection from TASC™ to Trailer EBS E



Parameter definition for Trailer EBS E

- Define parameters for the Trailer EBS E Modulator:
 - Activate the "Speed Switch 1 (ISS1)" in the "Standard functions" box.
 - Set the value for ISS 1 to 15 km/h in the "ISS switching threshold" field.
 - Activate the "RtR pulse signal".



3.4 Pneumatic ports

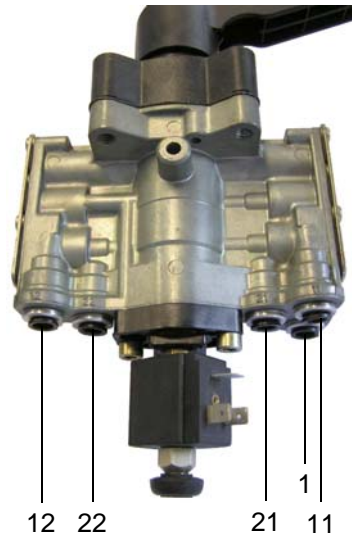
Replacement of rotary slide valves from third-party suppliers

rotary slide valves from third-party suppliers often have five 8x1 threaded quick connectors.

In such cases, with TASC™ (463 090 020 / 021 0) on connections 22 and 24, remove the two 12x1.5 bolts and replace them with two 8x1 bolts (893 800 007 2).

3.4.1 Disassembly

- Label the air lines according to the connection drawings of the existing rotary slide valve.



Connection designation	Description
1	Air supply
11	Levelling valve left
12	Levelling valve right
21	Air-suspension bellows left
22	Air-suspension bellows right

fig. Drawing of pneumatic connections on the rotary slide valve with RtR function of a third-party supplier.

- Disconnect the air lines from the connections.
- Loosen the bolts and remove the rotary slide valve.
- Disconnect the plug-in connector for the cable connection to the magnets on a rotary slide valve with RtR function.

3.4.2 Assembly

- Mount the air lines according to the marked connection labels on the WABCO TASC™.

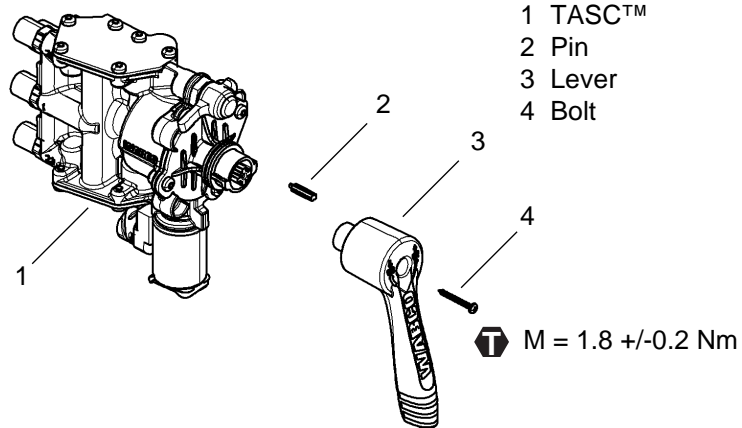


Connection label WABCO TASC™	Description
1	Air supply
23	Levelling valve left
21	Levelling valve right
22	Air-suspension bellows left
24	Air-suspension bellows right

fig. Pneumatic connection of the WABCO TASC™

- Install the TASC™ so that all components are protected behind the mounting plate.
- Connect the cable with the DIN bayonet connector of the TASC™.

- If necessary, install the lever of the TASC™ so that it points down. Make sure that the pin (2) is positioned correctly according to the display.



	at bottom	right	at top	left
Position Magnet				
Position Pin	 2	 2	 2	 2

3.5 Test

- Use leak detector spray to check the bolted joints on the air lines.
- Check the raise-/lower-function.
- Lock the lever in the lowering position and perform a trial run.

If the vehicle achieves the defined speed of 15 km/h, the lever must go back to driving position and the vehicle must rise to driving level.

4 Appendix

4.1 Replacement table

Haldex COLAS®				Replace with WABCO TASC™	
Haldex number	pneum. Connection	Electrical connection	Technical data	WABCO number	Instruction for installation
338 051 001	8 mm	Blade terminal	Dual circuit, deadman switch	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2, additional cable
338 051 002	8 mm	Blade terminal	Dual circuit, deadman switch, lever 90°	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2, additional cable
338 051 011	8 mm	Blade terminal	Dual circuit, RtR pneum., deadman switch	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2, additional cable
338 051 012	8 mm	Blade terminal	Dual circuit, RtR pneum., deadman switch, lever 90°	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2, additional cable
338 051 101	8 mm	Blade terminal	Dual circuit, deadman switch	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2, additional cable
338 051 102	8 mm	Blade terminal	Dual circuit, lever 90°, deadman switch	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2, additional cable
338 051 111	8 mm	Blade terminal	Dual circuit, RtR pneum., deadman switch	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2, additional cable
338 051 112	8 mm	Blade terminal	Dual circuit, RtR pneum., lever 90°	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2, additional cable
338 051 121	8 mm	DIN bayonet	Dual circuit, deadman switch, with filter	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2
338 051 122	8 mm	DIN bayonet	Dual circuit, deadman switch, with filter, lever 90°	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2
338 051 131	8 mm	DIN bayonet	Dual circuit, RtR pneum., deadman switch	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2
338 051 132	8 mm	DIN bayonet	Dual circuit, RtR pneum., deadman switch, lever 90°	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2
338 051 141	8 mm	Blade terminal	Dual circuit, deadman switch, with filter	463 090 021 0*	Replace bolts on 22/24 with 893 800 007 2, additional cable
338 054 001	10 mm	Blade terminal	Dual circuit, deadman switch	463 090 023 0*	Additional bolted joints: 5x 10 mm, additional cable
338 054 002	10 mm	Blade terminal	Dual circuit, deadman switch, lever 90°	463 090 023 0*	Additional bolted joints: 5x 10 mm, additional cable
338 054 011	10 mm	DIN bayonet	Dual circuit, deadman switch	463 090 023 0*	Additional bolted joints: 5x 10 mm
338 057 001	2x 8 mm / 1x 12 mm	Blade terminal	Single circuit, deadman switch	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm; additional cable
338 057 002	2x 8 mm / 1x 12 mm	Blade terminal	Single circuit, deadman switch, lever 90°	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm; additional cable
338 057 011	2x 8 mm / 1x 12 mm	DIN bayonet	Single circuit, deadman switch	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm
338 057 012	2x 8 mm / 1x 12 mm	DIN bayonet	Single circuit, deadman switch, lever 90°	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm
338 057 101	2x 8 mm / 1x 12 mm	Blade terminal	Single circuit, deadman switch	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm; additional cable
338 058 001	2x 8 mm / 1x 12 mm	DIN bayonet	Single circuit, deadman switch	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm
338 058 101	2x 8 mm / 1x 12 mm	DIN bayonet	Single circuit, deadman switch	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm
338 058 121	2x 8 mm / 1x 12 mm	DIN bayonet	Single circuit, deadman switch	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm
338 061 001	2x 8 mm / 1x 12 mm	DIN bayonet	Single circuit, deadman switch, test connection, lock in lowering	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm
338 061 101	2x 8 mm / 1x 12 mm	DIN bayonet	Single circuit, lock in lowering	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm
338 062 001	2x 8 mm / 1x 12 mm	DIN bayonet	Single circuit, deadman switch, test connection, lock in lowering and raising	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm
338 062 101	2x 8 mm / 1x 12 mm	DIN bayonet	Single circuit, lock in lowering and raising	463 090 012 0	Additional bolted joints: 2x 8 mm / 1x 12 mm

Haldex COLAS®				Replace with WABCO TASC™	
Haldex number	pneum. Connection	Electrical connection	Technical data	WABCO number	Instruction for installation
338 071 001		DIN bayonet	Dual circuit, test connection, lock in lowering and raising	463 090 020 0*	Additional bolted joints
338 071 011		Blade terminal	Dual circuit, lock in lowering and raising	463 090 021 0*	Additional bolted joints, additional cable

COLAS® is a registered trademark of Haldex Brake Products GmbH, Deutschland; Haldex is a registered trademark of AB, Sweden

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- ! * With a chassis stroke of more than 300 mm, the TASC™ is to be used with deadman switch 463 090 123 0 (additional bolted joints necessary).
-