



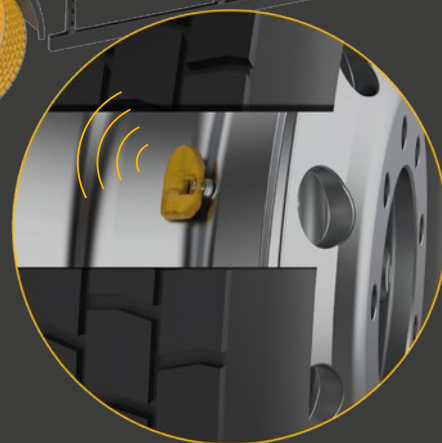
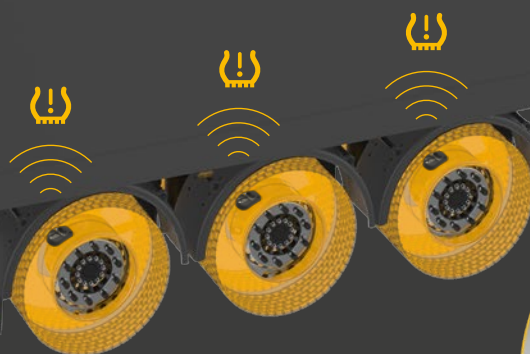
aspoeck.com

ASPÖCK TPMS

OPERATING MANUAL



ASPÖCK
SYSTEMS





SERVICE NOTES

- Please read these assembly instructions completely before starting assembly.
- These installation instructions are intended for workshops and attachment manufacturers. Appropriate background knowledge is therefore assumed in these assembly instructions. It should be noted that some work may only be carried out by appropriately qualified personnel in order to avoid the risk of injury and to achieve the quality required for construction work.
- When making product improvements, we reserve the right to make technical and optical changes.
- If you have any questions or installation problems, call Aspöck customer service, the dealer or contact your authorized workshop.

LIABILITY PROVISIONS



General information:

- National mounting, installation and operating regulations must be observed.
- The product may only be used in accordance with the enclosed instructions and safety notes. Instructions can be found online at **www.aspoeck.com**.
- No modifications may be made to the product unless only the original spare parts intended for this purpose or spare parts approved by Aspöck are used and installed by professionally qualified personnel.

Exclusion of warranty:

- Warranty for any product damage is excluded in the event of non-compliance with the instructions, with the product data sheet or in the event of use outside of the intended purpose or operating conditions.
- The warranty also does not cover products that have been damaged or are in poor operating condition due to hazards (including environmental hazards, road traffic hazards, hazards caused by third parties or circumstances beyond the control of Aspöck).
- Repair or replacement of a defective product does not result in the start of a new warranty period.
- Other warranty provisions can be found in item 10 of the Terms of Sales and Delivery (TSD) **www.aspoeck.com**.

Exclusion of liability:

- Aspöck Systems accepts no liability for indirect damage, consequential damage and financial losses.
- Other (limiting) liability provisions can be found in item 11 of the Terms of Sales and Delivery (TSD) **www.aspoeck.com**.
- Limiting product liability provisions are laid down in item 12 of the Terms of Sales and Delivery (TSD) **www.aspoeck.com**.



TABLE OF CONTENTS

SERVICE NOTES.....	2
LIABILITY PROVISIONS	2
1. LIST OF SHORTCUTS	5
2. GENERAL INFORMATION.....	6
2.1 TARGET GROUP	6
2.2 INTENDED USE	6
2.3 USED PICTOGRAM.....	6
3. SYSTEM DESCRIPTION.....	7
4. NEW REGULATION UN ECE R141	8
5. COMPONENTS.....	9
5.1 SENSORS	9
5.2 RECEIVER.....	10
5.3 TPMS CABLE HARNESSES.....	11
5.4 ELECTRONIC UNITS AND ACCESSORIES.....	11
5.5 CAN-TERMINATION	12
5.6 SOFTWARE OVERVIEW	13
5.6.1 SOFTWAREÜBERSICHT EOLT.....	13
5.7 ASPÖCK TPMS DIAGNOSTIC TOOL T350	14
5.7.1 DOWNLOAD THE SOFTWARE.....	14
5.7.2 FIRST INSTALLATION AND SOFTWARE UPDATE.....	15
5.8 INSTALL CONFIGURATION SOFTWARE	16
6. INSTALLATION.....	17
6.1 SAFETY INSTRUCTIONS	17
6.2 MOUNTING THE SENSORS	17
6.2.1 MOUNTING THE SENSORS ON THE VALVE.....	18
6.2.2 HORIZONTAL ASSEMBLY MACHINE.....	19
6.2.3 VERTICAL MOUNTING MACHINE.....	20
6.2.4 MOUNTING THE SENSORS ON THE VALVE WITH STRAP	21
6.3 MOUNTING THE MAXRX & ERX RECEIVER UNITS	24
6.3.1 MOUNTING THE MAXRX RECEIVER UNITS.....	25
6.3.2 MOUNTING THE ERX RECEIVER UNITS.....	28
6.3.3 RECOMMENDED INSTALLATION SITUATIONS	31
6.3.3.1 WITH AUTOLOCATE	31
6.3.3.2 WITHOUT AUTOLOCATE	33
6.4 CABLING	35
6.5 INTERFACE WITH HALDEX GEN 4	36
7. START-UP	37
7.1 CONFIGURATION FILE.....	37
7.2 CREATION AND EXPORT OF ONE CONFIGURATION FILE	37
7.3 UPLOAD TO THE ASPÖCK TPMS DIAGNOSTIC TOOL T350.....	40
7.4 FIRST START-UP	41
7.4.1 INITIAL START-UP WITH 3&4 ADDITIONAL RECEIVER (ERX)	43
7.4.1.1 VEHICLE CONFIGURATION FILE.....	43
7.4.1.2 OVERVIEW OF ALL COMPONENTS	43
7.4.1.3 MAXRX CONFIGURATION WITH 3/4 ERX.....	44
7.4.1.4 INSTALL ALL COMPONENTS INCLUDING CABLING IN THE VEHICLE.	46
7.4.1.5 PROGRAM THE WHEEL SENSORS INTO THE MAXRX	46
7.5 SETTINGS IN THE EBS	48
7.6 ERROR MESSAGES FROM THE ASPÖCK TPMS DIAGNOSTIC TOOL T350	48
7.7 END OF LINE TESTER (EOLT).....	49



7.7.1 SOFTWARE.....	49
7.7.1.1 DOWNLOADING AND INSTALLING THE ASPÖCK TPMS EOLT SOFTWARE	49
7.7.1.2 PEAK PCAN SOFTWARE INSTALLATION	49
7.7.2 HARDWARE	50
TEST KIT FOR EOLT TESTING ON AN ISO 7638 EBS SOCKET.....	50
TEST SET FOR EOLT TESTING ON SUBSYSTEM CAN ISO 11898.....	51
7.7.2.1 TPMS EOLT ADAPTER.....	51
7.7.2.2 ASPÖCK ISO 11992 GATEWAY	52
7.7.2.3 PCAN USB INTERFACE	55
7.7.3 OPERATING ASPÖCK TPMS EOLT SOFTWARE	56
7.7.3.1 EOLT MODE ON ISO 7638 EBS SOCKET	56
7.7.3.2 EOLT-MODUS ON SUBSYSTEM – CAN ISO 11898	59
7.7.4 ASPÖCK TPMS EOLT INITIAL OPERATION	63
8. WORKSHOP INSTRUCTIONS	67
8.1 MAINTENANCE	67
8.2 SELFDIAGNOSIS	67
8.3 DIAGNOSIS ASPÖCK SERVICE WORKSHOP	68
8.4 REPAIR.....	69
8.4.1 CHECKING SENSORS	69
8.4.1.1 SENSOR REPLACEMENT	70
8.4.1.2 SENSOR REPLACEMENT WITH AUTOLOCATE.....	70
8.4.1.3 SENSOR REPLACEMENT WITHOUT AUTOLOCATE.....	71
8.4.2 CHECKING THE FUNCTIONALITY OF THE MAXRX	73
8.4.3 TRAILER TYRE ISO POSITIONS.....	74
8.4.2.1 MAXRX REPLACEMENT	76
8.4.3 ERX REPLACEMENT	76
9. CIRCUIT DIAGRAMS AND PIN ASSIGNMENTS	77
10. RECYCLING.....	83
11. ASPÖCK TPMS REPAIR MANUAL	84



1. LIST OF SHORTCUTS

SHORTCUT	EXPLANATION
ADR	„Accord européen relatif au transport international des marchandises dangereuses par route“ „European Agreement concerning the International Carriage of Dangerous Goods by Road“
CAN	Controller area network
EBS	Electronic braking system
ECU	Electronic control unit
EMC	Electro-magnetic compatibility
EOLT	End-of-Line-Test
ESD	Electrostatic discharge
HDSCS	Heavy-duty sealing connection system
ID	Identification number
OEM	Original equipment manufacturer
PCB(A)	Circuit board (assembled)
TPMS	Tyre pressure monitoring system



2. GENERAL INFORMATION

2.1 TARGET GROUP

This document is intended for vehicle manufacturers and workshops.

2.2 INTENDED USE

The Aspöck TPMS is intended exclusively for measuring the air pressure and temperature of trailer tyres and transmitting the values to the trailer EBS, which acts as a gateway to transmit the values to the display in the towing vehicle.

Any use beyond this is considered improper use. The manufacturer is not liable for any resulting damage. The user alone bears the risk for this.

Intended use also includes compliance with the operating, maintenance and servicing regulations prescribed by the manufacturer.

The relevant accident prevention regulations and other generally recognised safety and occupational health regulations must be observed.

Unauthorised modifications to the system exclude the manufacturer's liability for any resulting damage.

2.3 USED PICTOGRAM

These instructions contain information that must be observed for personal safety and to prevent personal injury and damage to property. These are highlighted by warning triangles and shown below depending on the degree of danger.

DANGER

The signal word indicates a hazard with a **high** level of risk which, if not avoided, could result in death or serious injury.

WARNING

The signal word indicates a hazard with a **medium** level of risk which, if not avoided, could result in death or serious injury.

CAUTION

The signal word indicates a hazard with a **low** level of risk which, if not avoided, could result in a minor or moderate injury.

NOTE

A note in the context of these instructions is important information, a technical note, about the product or the relevant part of the instructions to which particular attention is to be paid.



3. SYSTEM DESCRIPTION

TPMS (Tyre Pressure Monitoring System) for trucks is a monitoring system that was developed in accordance with the requirements of ECE Directive R141. It is used to continuously monitor the tyre pressure and temperature of commercial vehicles in real time.

Main features:

- **Real-time monitoring:**
TPMS monitors tyre pressure and temperature in real time to detect deviations from recommendations and safety standards.
- **Direct sensors:**
Sensors in each tyre measure pressure and send information to the vehicle to alert the driver of pressure loss or temperature issues.
- **Tyre life:**
By monitoring tyre pressure, tyre life is extended, resulting in cost savings.
- **Compliance with regulations:**
TPMS on lorries helps to meet legal requirements in accordance with ECE Directive R141 and ensures road safety.





4. NEW REGULATION UN ECE R141

ECE Regulation R141 defines the requirements for tyre pressure monitoring systems (TPMS) for trucks. The following is a summary of the most important points:

- **Tyre pressure monitoring:**
The TPMS monitors tyre pressure in real time and warns the driver if the pressure in one or more tyres falls below a certain threshold value.
- **Warnings:**
The TPMS alerts the driver with a visual warning if insufficient tyre pressure is detected.
- **Self-monitoring:**
The system must monitor its own functionality and inform the driver in the event of a fault.
- **Mandatory date:**
From 7 July 2024, all newly registered vehicles entering the EU for service in the categories listed above must be equipped with a TPMS in compliance with this regulation. Existing vehicles registered before this date are exempt from this obligation.

ECE R141 aims to improve road safety by ensuring that drivers are informed of deviating tyre pressure in good time. This helps reduce accidents caused by tyre problems and improve efficiency on the road.



5. COMPONENTS

This chapter describes the basic characteristics of key components.

5.1 SENSORS

The tyre pressure sensor is located inside the tyre and measures the pressure and temperature.



HOUSING MATERIAL		PA GF 35 and Stainless steel
WEIGHT		25g
DIMENSIONS [MM]		60x39x16
BATTERY	TYPE	Lithium button cell (not replaceable)
	DURABILITY	5 — 7 years
PRESSURE MEASURING RANGE		0 to 13.915 bar $\pm$ 0.220 bar
TEMPERATURE DETECTION RANGE		-40°C — +120°C $\pm$ 3°
TEMPERATURE RANGE		-40°C — +120°C
EMC APPROVAL		 10R-06 3558
ADR-TEST		ADR Zone 2
LEAK TEST (IP)		IPX6K

Each sensor is provided with a unique identifier which ensures that it is exclusively connected to the corresponding wheels and correctly identifies itself to the electronic control unit (ECU). This prevents pressure signals from other vehicles from being incorrectly assigned to our own system. This identifier is defined during the manufacturing of the sensor and cannot be changed. The identifier is printed on the sensor to make commissioning easier. Alternatively, the identifier can be read out wirelessly using the Aspöck TPMS Diagnostic Tool T350.



5.2 RECEIVER

The MaxRx is the main receiver, which communicates with the sensors in the tyres and forwards the signal to the EBS. The MaxRx is the ECU of the system. The vehicle's configuration file is stored on the MaxRx, so if the receiver is replaced, it must be reinstalled and the sensors reprogrammed.



HOUSING MATERIAL	Nylon
WEIGHT	120g
DIMENSIONS [MM]	105x125x38
NOMINAL VOLTAGE V (VOLT)	12V/24V
VOLTAGE RANGE V (VOLT)	8 - 32V
TEMPERATURE RANGE	-40°C — +85°C
EMC APPROVAL	 10R-06 3521
ADR-TEST	ADR Zone 2
LEAK TEST (IP)	IP6K9K

The eRX is an additional receiver for range extension. It communicates with the sensors in the tyres and sends the signal to the MaxRx.

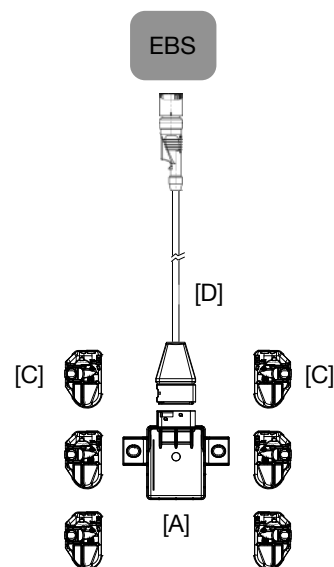


HOUSING MATERIAL	Nylon
WEIGHT	48g
DIMENSIONS [MM]	118x39x29
TEMPERATURE RANGE	-40°C — +85°C
EMC APPROVAL	 10R-06 3125
ADR-TEST	ADR Zone 2
LEAK TEST (IP)	IP6K9K



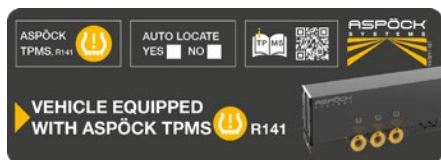
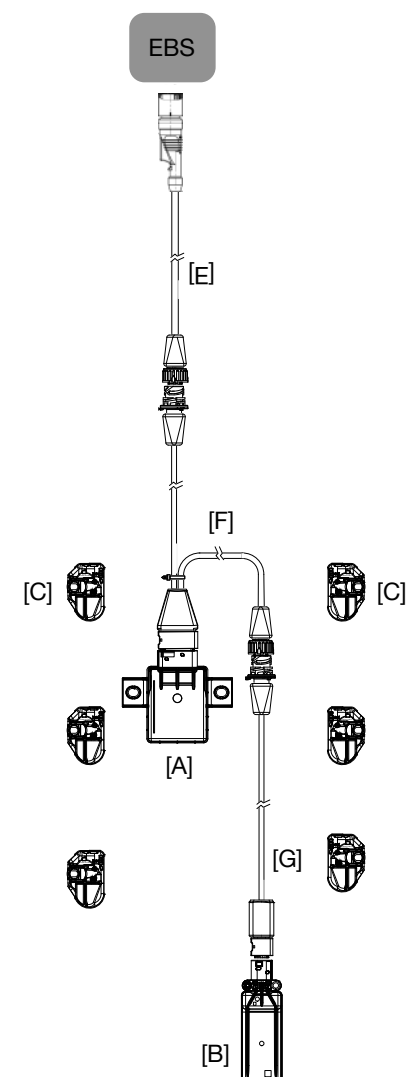
5.3 TPMS CABLE HARNESSES

	ORDER NB. OEM	ORDER NB. AM	VERSION	ADDITION	
CABLE	78-7022-007	78-7022-004	[D]	TPMS Knorr EBS3-Rx18	1 m
	78-7022-017	78-7022-014	[D]	TPMS Knorr EBS3-Rx18	6 m
	78-7022-057	78-7022-054	[E]	TPMS Knorr EBS3-K1.2	1 m
	78-7022-307	78-7022-304	[D]	TPMS Wabco EBS3 - Rx18	2 m
	78-7022-317	78-7022-314	[D]	TPMS Wabco EBS3 - Rx18	6 m
	78-7022-357	78-7022-354	[E]	TPMS Wabco EBS3 - K1.2	2 m
	78-7021-607	78-7021-604	[F]	TPMS K1.2 - Rx18 + K1.2	1 m
	78-7021-407	78-7021-404	[G]	TPMS K1.2 - eRx	1 m



5.4 ELECTRONIC UNITS AND ACCESSORIES

	ORDER NB. OEM	ORDER NB. AM	VERSION	ADDITION
SYSTEM COMPONENTS	75-0210-007	75-0210-001	[A]	Aspöck TPMS Receiver MaxRx18
	75-0210-107	75-0210-101	[B]	Aspöck TPMS Sub Receiver eRx
	75-0210-207		[C]	Aspöck TPMS Valve-Sensor
		75-0210-204		TPMS Valve-Sensor + Screw M6 + Sticker rim + Assembly instructions
	14-1620-057			TPMS Valve-Sensor Screw M6
	14-4314-007	14-4314-004		TPMS Cradle
	14-4315-007	14-4315-004		TPMS Strap
	10-0211-327			Sticker trailer: 140 x 50 mm
	10-0211-337			Sticker rim: 60 x 20 mm



Sticker trailer: 140 x 50 mm



Sticker rim: 60 x 20 mm

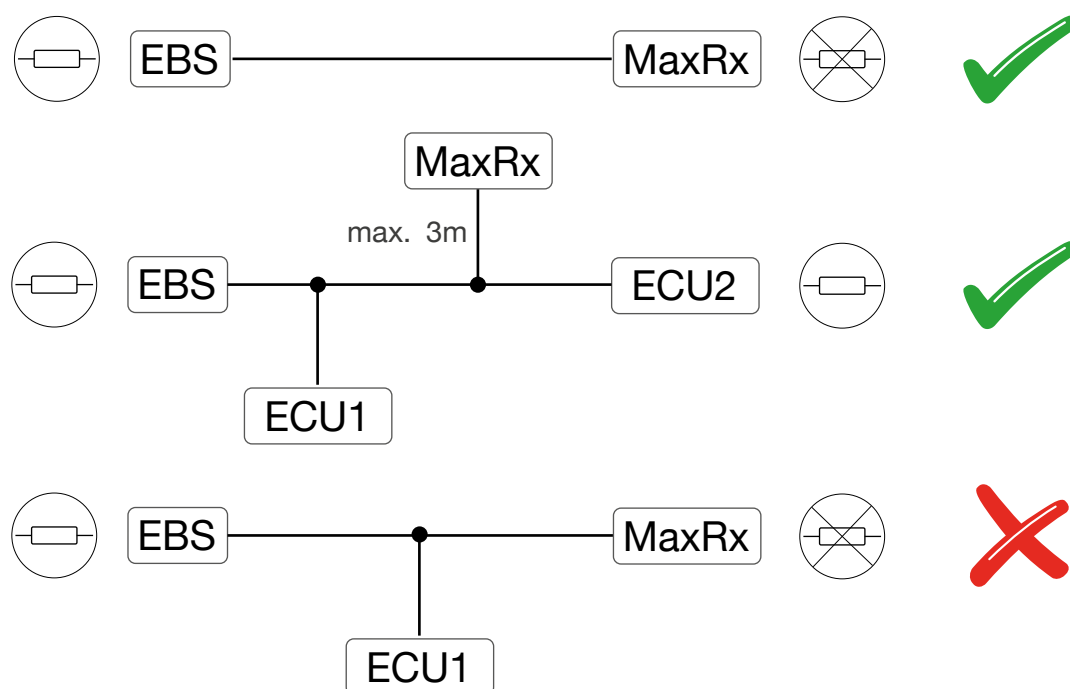


5.5 CAN-TERMINATION

A CAN connection should always consist of a line with a maximum of two defined ends. Each end must be terminated by a terminating resistor. As a rule, the terminating resistor is located in the connected CAN device.

A CAN network with more than two terminating resistors does not enable reliable communication. For this reason, it is necessary that additional devices are only operated with the resistor switched off. Resistance-free devices must be connected at the short end of a path (max. 3m).

The MaxRx main receiver has no CAN termination installed.



NOTE

The MaxRx has two additional CAN bus outputs. These outputs are specifically for the connector of the additional receiver (eRx) and must not be used for splitting or other purposes. This is an internal CAN connection between the MaxRx and the eRx.



5.6 SOFTWARE OVERVIEW

Aspoeck TPMS Config Generator (.exe)

The *Aspoeck TPMS Config Generator* creates configuration files for different vehicle configurations. These generated vehicle configurations can be exported from the application and imported into the *Aspoeck TPMS Config Uploader*.

Aspoeck Software Dongle (.exe) (Aspoeck Software Dongle Driver)

To use the *Aspoeck TPMS Config Generator*, a special USB stick called „Aspoeck Software Dongle“ is required. Before use, the „Aspoeck Software Dongle Driver“, which is the driver for the USB stick, must be installed. Without this installation and the connected USB stick, the *Aspoeck TPMS Config Generator* cannot be used.

Aspoeck TPMS Config Uploader (.exe)

The *Aspoeck TPMS Config Uploader* recognises a connected *Aspöck TPMS Diagnostic Tool T350* and can write the configuration file to it.

Aspoeck-TPMS-Diagnostic-Tool-Software (.tprp)

Is the software for the *Aspöck TPMS Diagnostic Tool T350*.

5.6.1 SOFTWAREÜBERSICHT EOLT

Aspoeck TPMS EOLT Software (.exe)

The *Aspoeck TPMS EOLT Software* allows the diagnosis of the TPMS system and offers the option to export a report.



5.7 ASPÖCK TPMS DIAGNOSTIC TOOL T350

⚠ WARNING

Danger due to electromagnetic radiation!
Pacemaker owners must not use this product.

With the Aspöck TPMS Diagnostic Tool T350, Aspöck tyre pressure sensors can be stimulated and analysed. Data such as temperature, pressures, service life of the internal batteries, IDs, etc. can be analysed. The Aspöck TPMS Diagnostic Tool T350 can be configured in various languages via its menu.

WEIGHT (INCL. BATTERY)	490g
DIMENSIONS [MM]	187x107x47
NOMINAL VOLTAGE V (VOLT)	12V
BATTERY TYPE	Lithium-polymer battery can be replaced by the user
WORKING TEMPERATURE RANGE	0°C — +45°C
STORAGE TEMPERATURE RANGE	-10°C — +50°C
KEYBOARD	7 buttons, dust, water and grease resistant



5.7.1 DOWNLOAD THE SOFTWARE

Step 1: Register

- Register on Aspöck Connect (<https://connect.aspoeck.com>).

Step 2: Activate account

- An e-mail with a confirmation link will be sent to the e-mail address provided.

Step 3: Two-factor authentication

- An e-mail with a 4-digit code is sent to the e-mail address provided. The code must be entered on Aspöck Connect.

Step 4: Downloading the software

- The software can be downloaded.



NOTE

Install and use the configuration software according to the instructions to complete the configuration of the tyre pressure monitoring system. If you have any further questions or problems, please contact Aspöck technical support directly: **TPMS.support@aspoeck.com**



5.7.2 FIRST INSTALLATION AND SOFTWARE UPDATE

Step 1: Connect

- Connect the Aspöck TPMS Diagnostic Tool T350 to a free USB-C port on the computer using a USB-C cable. The device is recognised on the PC as a removable storage device.

Step 2: File transfer

- Open the file explorer and navigate to the location where the *Aspöck TPMS Diagnostic Tool Software* was downloaded.
- Open the Aspöck TPMS Diagnostic Tool T350 drive and copy the update file (.tprp file) to the *Updates* folder.

Step 3: Installing the software

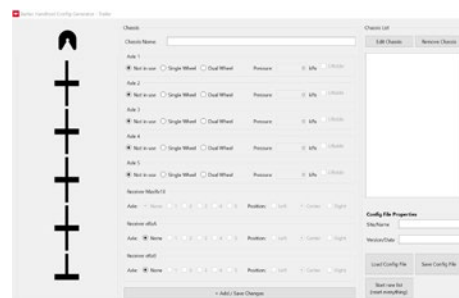
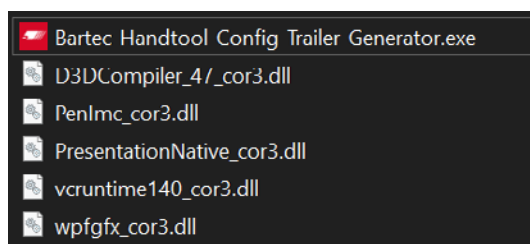
- The Aspöck TPMS Diagnostic Tool T350 is restarted automatically. The device checks the update file and updates itself.
- Once the installation is complete, the *Aspöck TPMS Diagnostic Tool Software* can be used on the Aspöck TPMS Diagnostic Tool T350.



5.8 INSTALL CONFIGURATION SOFTWARE

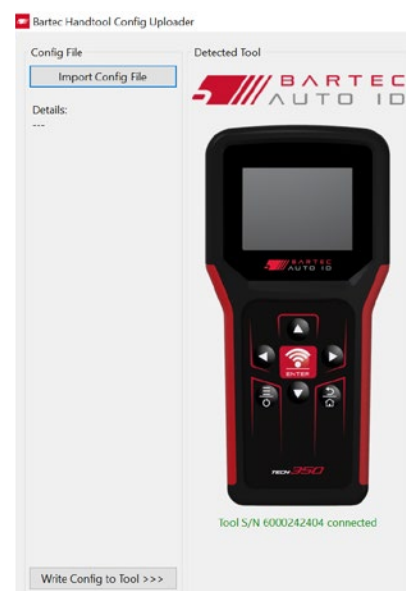
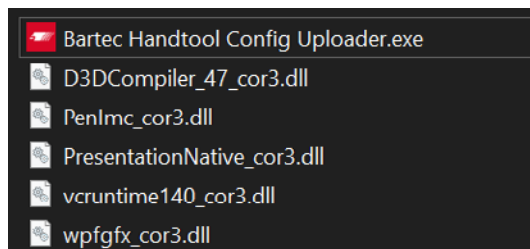
Install *Aspoeck TPMS Config Generator*:

- Unzip the download package and save it on the „C:“ drive.
- Open the folder with the *Aspoeck TPMS Config Generator*.
- Start the *Aspoeck TPMS Config Generator.exe*.



Install *Aspoeck TPMS Config Uploader*:

- Unzip the download package and save it on the „C:“ drive.
- Open the folder with the *Aspoeck TPMS Config Uploader*.
- Start the *Aspoeck TPMS Config Generator.exe*.



NOTE

The specific system requirements must be met for each software and administrator authorisations may be required. It is recommended that you download the latest versions of all programmes from the official website to ensure that the latest functions and bug fixes are included.



6. INSTALLATION

This chapter describes the installation on the vehicle.

6.1 SAFETY INSTRUCTIONS

National health and safety regulations, workshop regulations and the vehicle manufacturer's instructions must be observed!

⚠ CAUTION

Danger from dust

Do not clean the rims with compressed air, as this can produce dust that is harmful to health.

⚠ WARNING

Danger due to loose wheel nut!

Loose wheel nuts can lead to accidents on the road.

- Always tighten the wheel nuts to the tightening torque specified by the vehicle manufacturer.
- After travelling about 500 km, the wheel nuts should be checked again to ensure they are tight.

⚠ WARNING

Danger from unsecured vehicle!

Before carrying out any work on the vehicle, it must be secured against rolling away. This prevents possible accidents and injuries.

6.2 MOUNTING THE SENSORS

NOTE

Danger due to improper handling!

Modifications or manipulations to the sensor can destroy the device and lead to tyre damage. Do not attempt to open the sensor. Do not use balancing powder or tyre sealant to avoid possible damage. Never attach a damaged tyre pressure sensor to a rim. Do not mount the tyre on the rim until the tyre pressure sensor has been correctly mounted. Never mount a tyre pressure sensor on non-approved rims.

Tyre pressure sensors should be stored in a dry environment, avoiding moisture and extreme temperatures. Typical storage temperatures are -10°C to 55°C

Use the right valve for the rim!

⚠ CAUTION

Reasons for replacing sensors.

The sensors must be replaced if the following is detected:

- The housing is visibly damaged.
- Foreign objects can be seen in the pressure opening.
- The battery life of the internal sensor is exhausted.



6.2.1 MOUNTING THE SENSORS ON THE VALVE

- ① Required parts:



- ② Fit the correct tyre valve according to the rim manufacturer's instructions, ensuring that the valve is correctly aligned. The valve must be fitted with a suitable mating surface on the valve head and a hole with an M6x1mm thread.



- ③ Place the sensor on the inside of the rim on the valve head and fix it with the screw so that the sensor can still be moved easily.



- ④ Press the sensor against the rim and hold it so that it rests on the rim base. The valve head must protrude beyond any countersink so that there is a gap between the front of the sensor and the rim.



- ⑤ Press and hold the sensor against the rim as shown in the previous image. Tighten the T30 screw with a calibrated torque screwdriver to $6.0 \text{ Nm} \pm 0.5 \text{ Nm}$.



NOTE

Danger to the sensor due to tensile or compressive forces!

When mounting the tyre, make sure that the tyre bead does not come into contact with the sensor to protect it from damage.

NOTE

Danger to the sensor from liquids!

The sensor must not come into contact with liquids (mounting fluid).
Do not fill the tyre with water.



6.2.2 HORIZONTAL ASSEMBLY MACHINE

- ① Coat both tyre beads with mounting fluid.



- ② Mount the wheel on the tyre changer so that the mounting head is on the opposite side of the valve, i.e. offset by 180°



- ③ Pull the tyre bead over the rim and place the tyre bead on the rim flange in the sensor area so that the sensor is touched as little as possible during installation.



- ④ Rotate the entire unit 180° with the tyre changer so that the sensor is at the 12 o'clock position on the mounting head of the machine. Press the bead down with an auxiliary arm of the machine or attach a bead hold-down device at the 1 o'clock position.



- ⑤ Now fit the tyre in accordance with the tyre changer manufacturer's instructions so that the upper bead is fitted over the rim flange.



- ⑥ Fill the tyre according to the manufacturer's instructions and ensure that the beads are in the correct position.





6.2.3 VERTICAL MOUNTING MACHINE

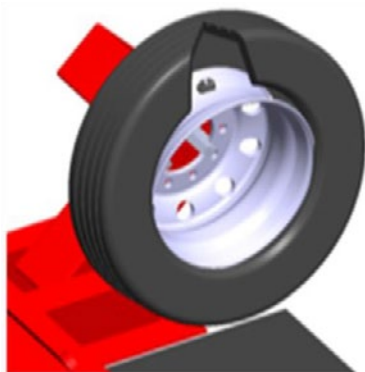
- ① Coat both tyre beads with mounting fluid.



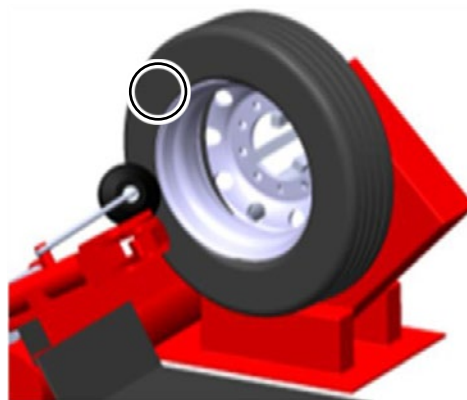
- ② Lift the first tyre bead into the rim well and slide the tyre onto the rim without touching the tyre pressure sensor.



- ③ Lift the tyre over the sensor and place the bead on the rim flange so that the sensor can no longer be touched when inflating the tyre.



- ④ Using the machine, position the sensor at an angle of 180° to the machine roller and secure it over the roller with a bead hold-down device.



- ⑤ Turn the rim clockwise and ensure that the sensor has not been pinched during the installation process.



- ⑥ Fill the tyre according to the manufacturer's instructions and ensure that the beads are in the correct position.





6.2.4 MOUNTING THE SENSORS ON THE VALVE WITH STRAP

- ① Sensor (75-0210-207 / 75-0210-204) to be assembled into Cradle (14-4314-007) and fitted with Strap (14-4315-007).



- ② Insert the Sensor into the cradle by aligning the plastic guide with the metal insert and snapping the sensor into position.



- ③ Taking the white end of the fabric strap, route through the cradle, under the sensor and feed it through the first bar feature on the opposite side until all of the white section is visible.



- ④ Fold the white strap section back and press firmly against the black strap section.



- ⑤ Route the free end of the strap through the other end of the cradle to form a loop, ensuring the strap is not twisted.

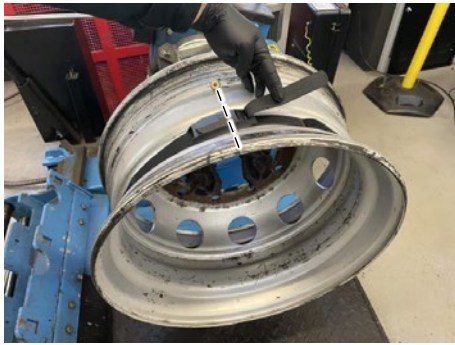


- ⑥ Fit the strap over the edge of the wheel rim and locate the strap in the dropwell (lowest point) of the rim.





- ⑦ With the cradle aligned with the tyre valve, pull the strap fully through the cradle until it is tight on the wheel rim. (arrow in valve direction)



- ⑧ Holding the cradle in position, fasten the strap so that all of the hook and loop sections are fully in contact and press the sections together firmly. Tighten the belt with 180N.



- ⑨ Ensure the cradle is aligned with the tyre valve when the strap is fully tightened to aid the tyre removal process.



- ⑩ Rotate the wheel rim to position the valve at the 6 o'clock position.



- ⑪ Fit the top section of the first tyre bead at the 12 o'clock position.



- ⑫ Fit the lower section of the first tyre bead at the 6 o'clock position (in line with sensor), ensuring no contact occurs with the cradle.





- ⑬ Using the machine, position the sensor at an angle of 180° to the machine roller and secure it over the roller with a bead hold-down device.



- ⑭ Turn the rim clockwise and ensure that the sensor has not been pinched during the installation process.



- ⑮ Once the second bead is fully fitted, the clip can be removed, bead breaker disk retracted and the tyre can be removed from the spindle.



- ⑯ Fill the tyre according to the manufacturer's instructions and ensure that the beads are in the correct position.



CAUTION

Danger due to damaging the sensor!

Procedure may vary depending on Tyre Machine type. It is imperative to ensure the tyre bead does not contact the cradle during fitment as this may result in movement or damage of the cradle and/or sensor!

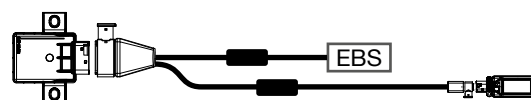
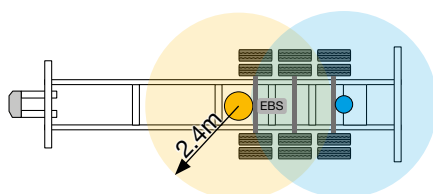


6.3 MOUNTING THE MAXRX & ERX RECEIVER UNITS

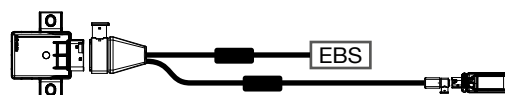
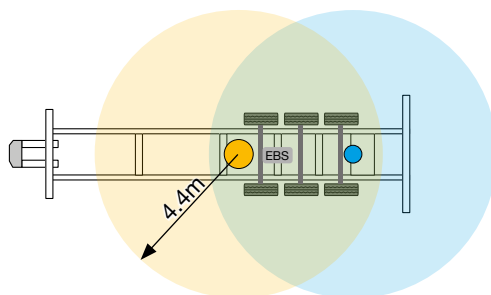
For a good radio connection, the receiving units should not be shielded by metal structures in the immediate vicinity. It should not be installed directly inside longitudinal frame or cross frames. If possible, there should be a line of sight to the wheels sensors. For this purpose, the receiving units should, if possible, be mounted below the vehicle frames. As much distance as possible should be maintained from other electronic control devices that could disrupt the reception of the wheel sensors by emitting interference frequencies.

When installing the receiver units, observe the following distances from the wheel sensors:

Maximum distance twin tyres: 2.4m



Maximum distance single tyres: 4.4m



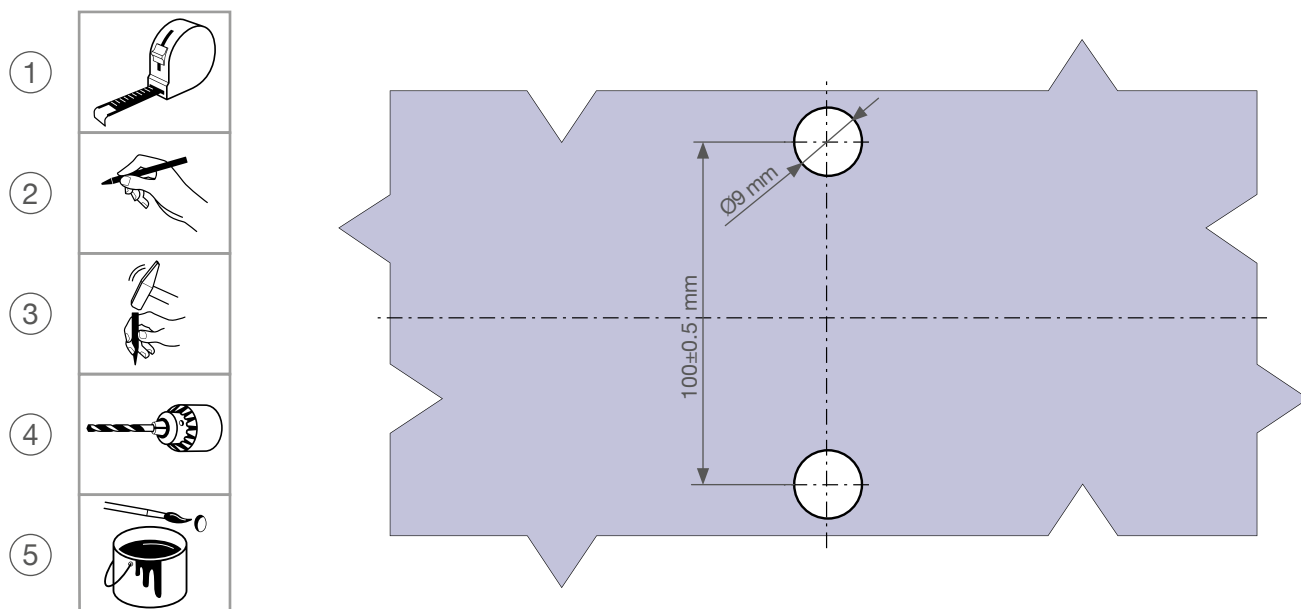
NOTE

Danger due to loss of signal!

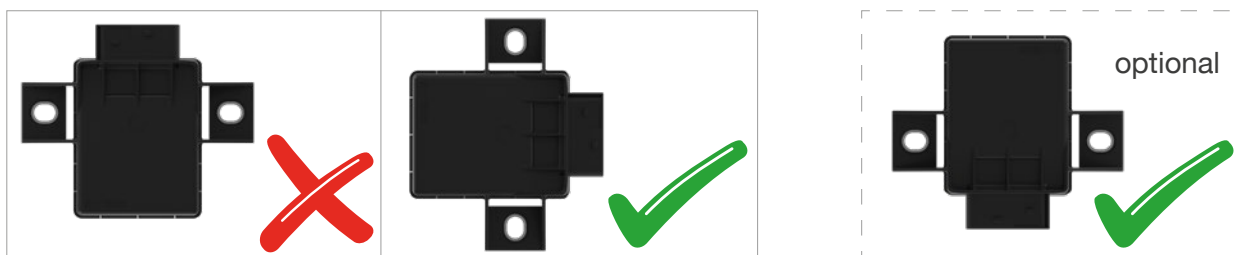
Exceeding the specified distances or mounting in unfavorable installation situations is possible if sufficient signal availability can be proven by a signal availability measurement.



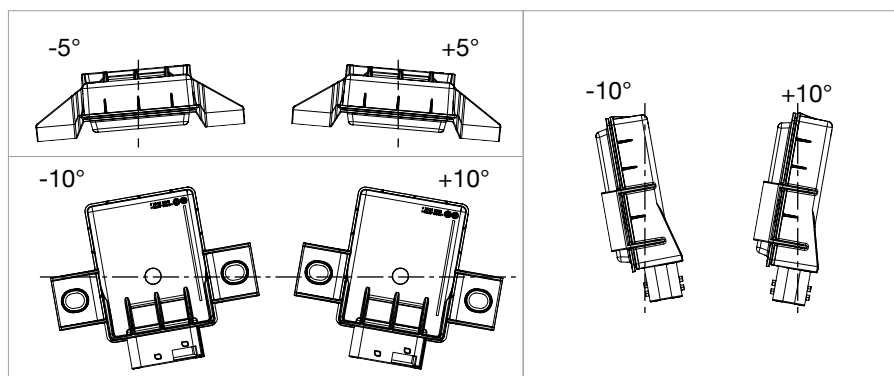
6.3.1 MOUNTING THE MAXRX RECEIVER UNITS



The MaxRx should be mounted vertically or horizontally so that the plug points downwards or to the side.

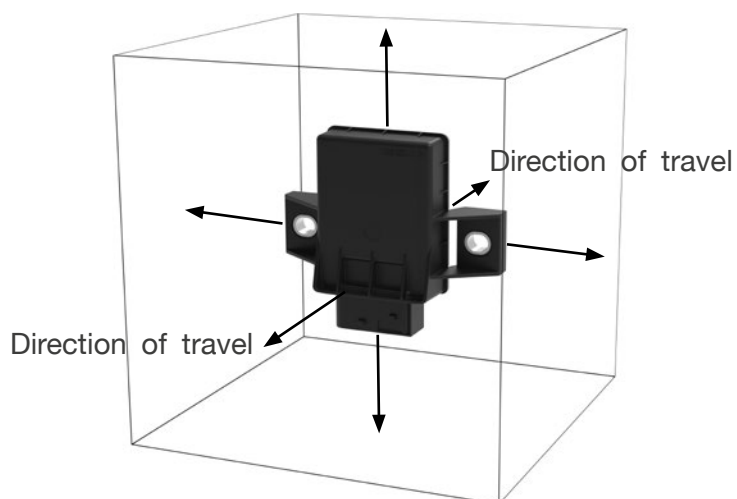


Mounting tolerances:





The MaxRx must be installed at a distance of more than 500 mm from all electrical compressed air and control valves on the vehicle.



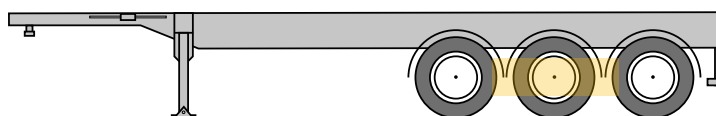
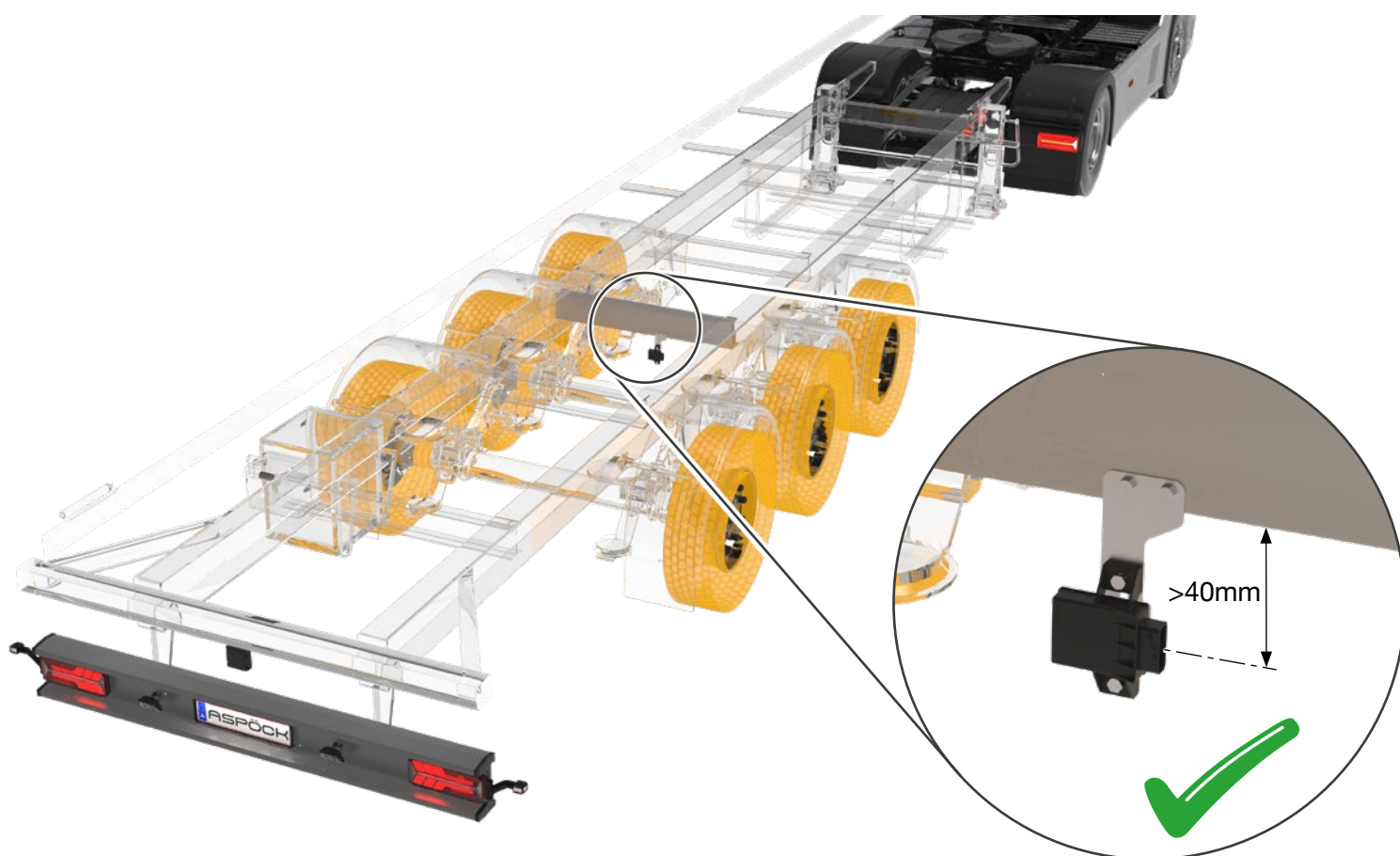
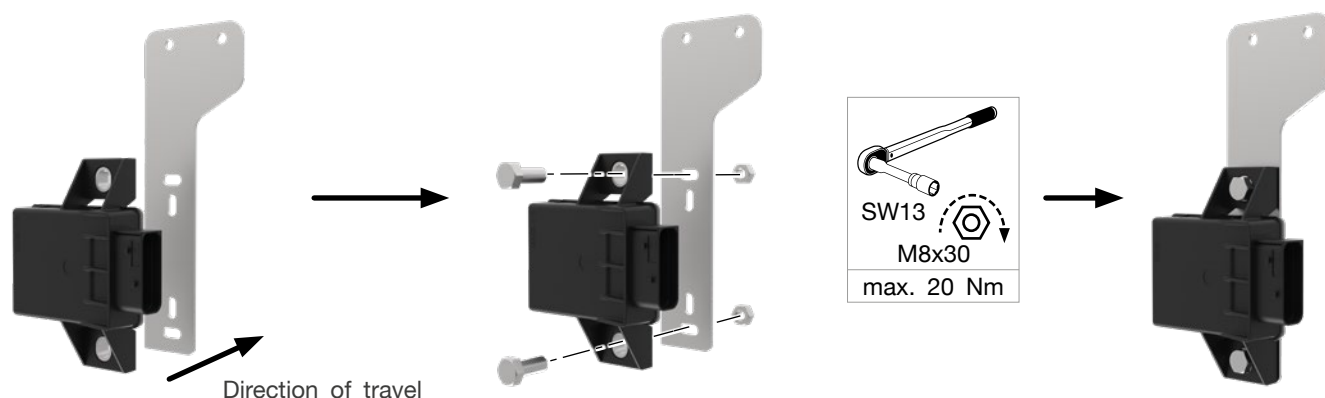
NOTE

Danger to signal reception!

The MaxRx must not be covered by solid metal. A minimum distance of 40 mm must be maintained in all directions, with the exception of the fixing points.



The MaxRx should be mounted on a bracket that is directly connected to the chassis. The cover side (white plastic cover) of the MaxRx must face the bracket.



The ideal mounting position of the main receiver (MaxRx) is underneath the frame up to the axle of the tyre.

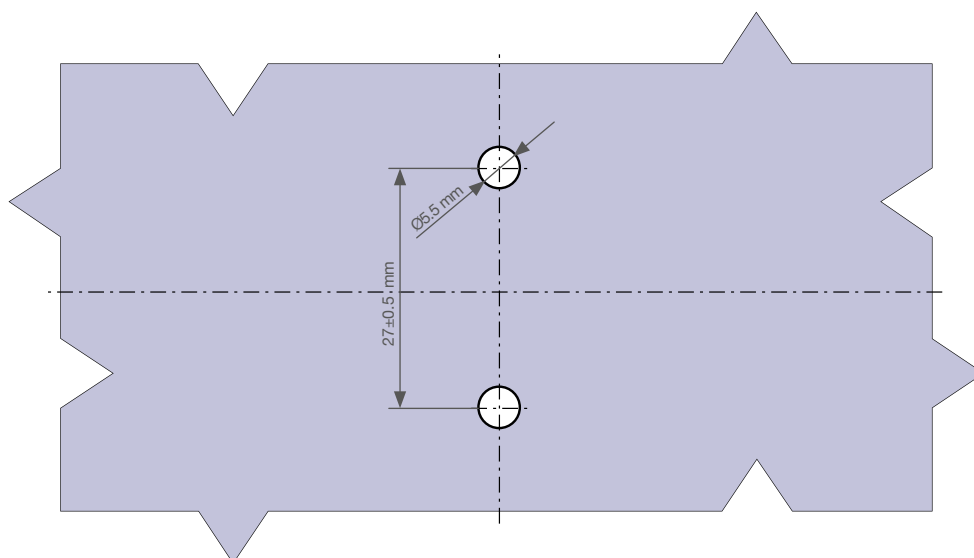
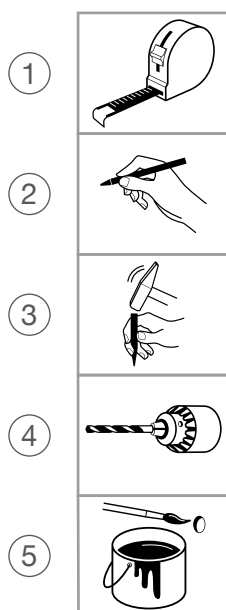


6.3.2 MOUNTING THE ERX RECEIVER UNITS

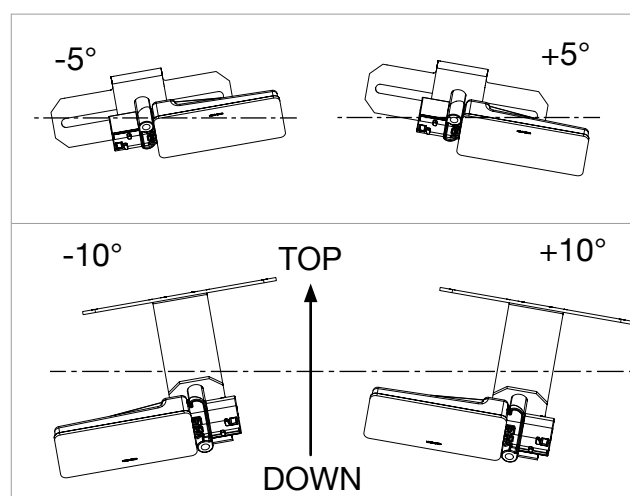
NOTE

Danger to signal reception!

The position of each receiver depends on the axle configuration.

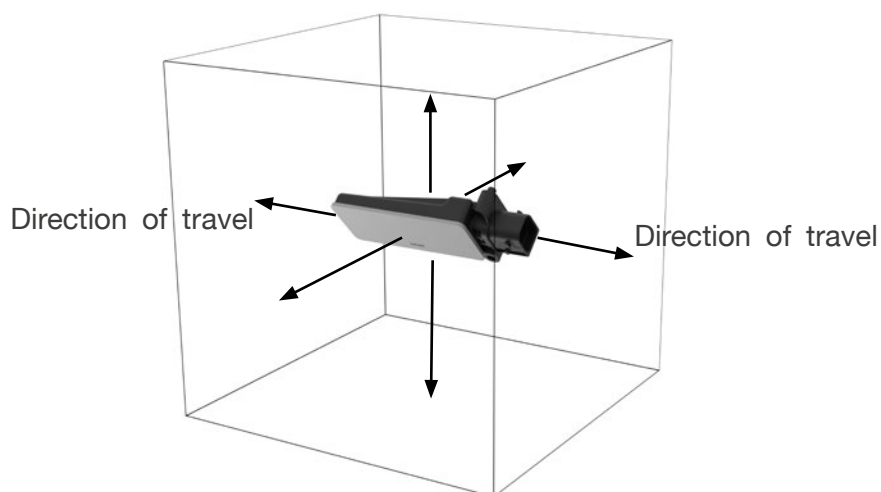


Mounting tolerances:





The eRx must be installed at a distance of more than 500 mm from all electrical compressed air and control valves on the vehicle.



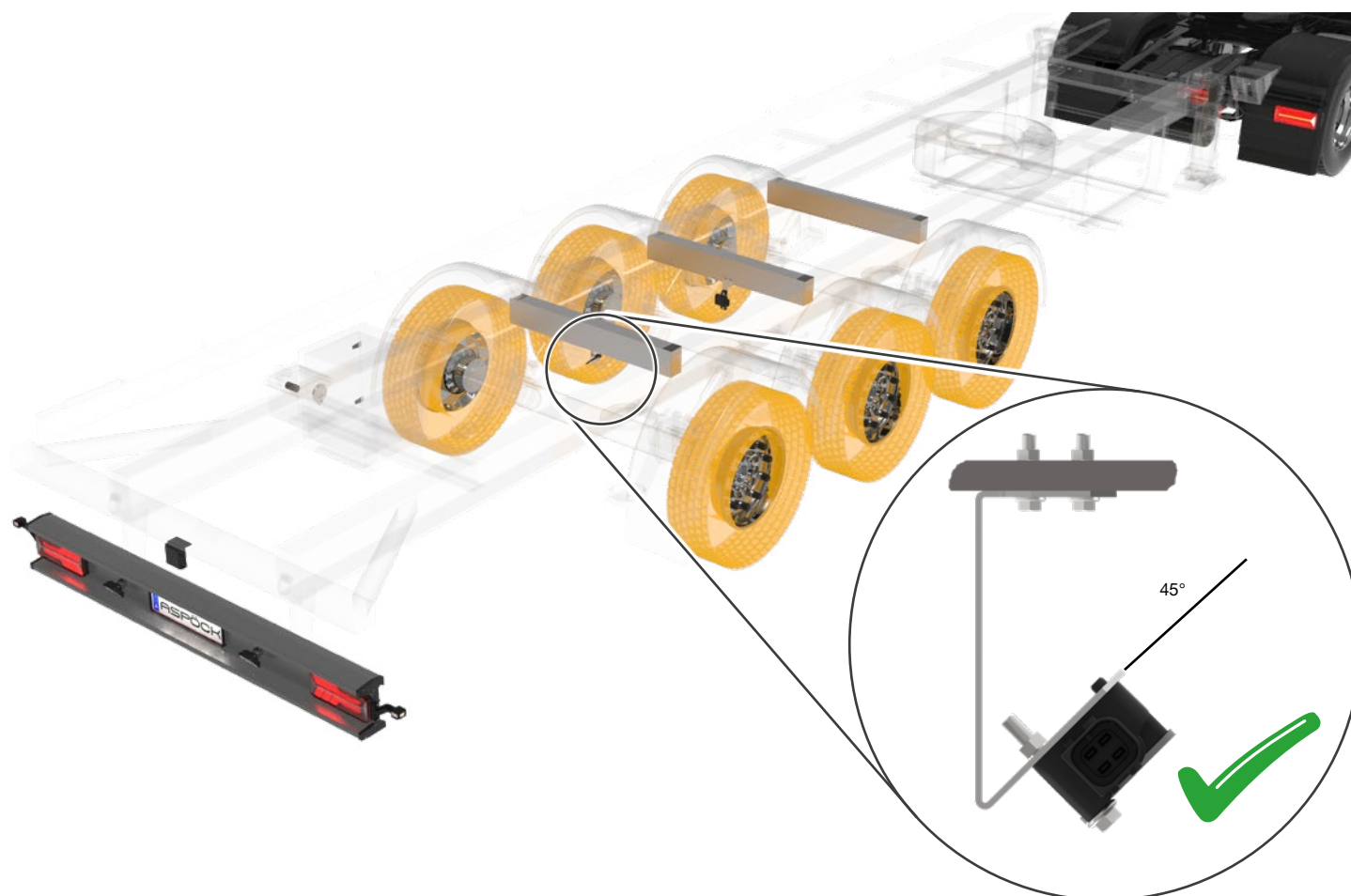
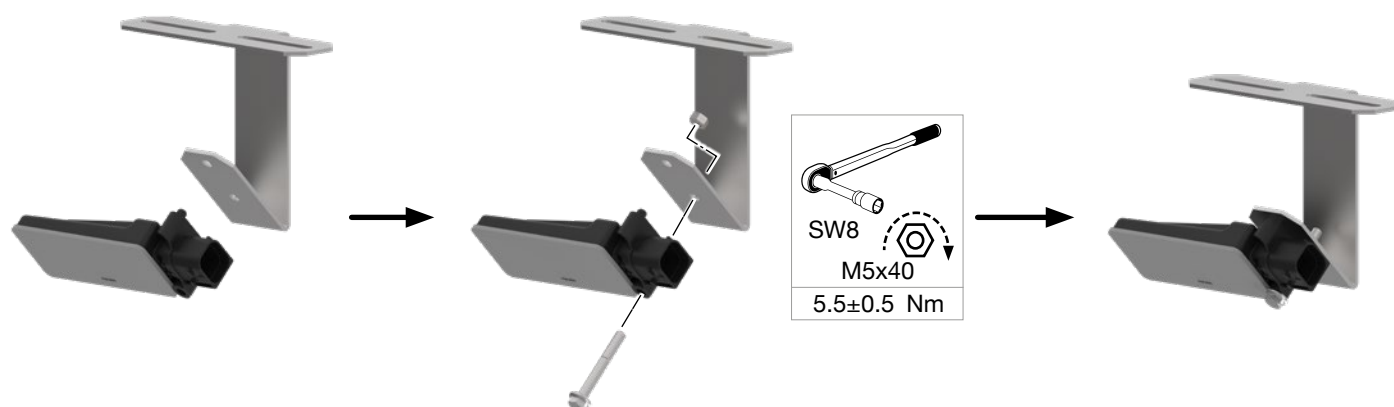
NOTE

Danger to signal reception!

The eRx must not be covered by solid metal, a minimum distance of 40 mm must be maintained in all directions, with the exception of the fixing points.



The eRx must be mounted with a bracket. The cover side (white plastic cover) of the additional receiver must be mounted facing downwards at an angle of approx. 45° to the floor surface (carriageway level).





6.3.3 RECOMMENDED INSTALLATION SITUATIONS



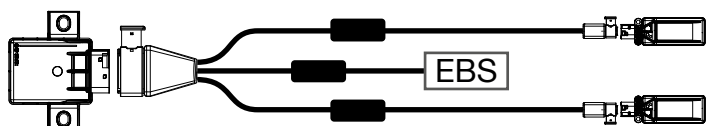
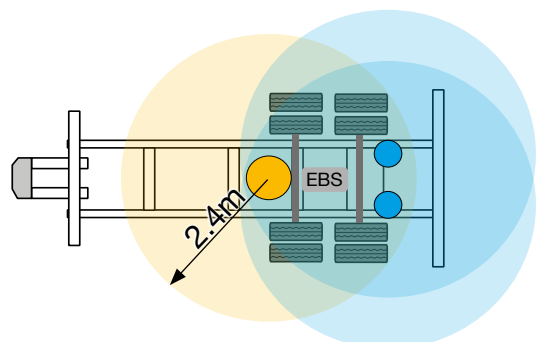
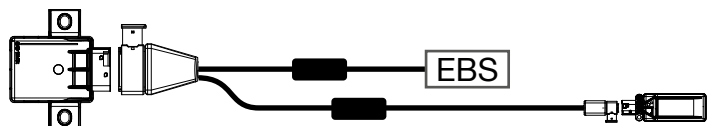
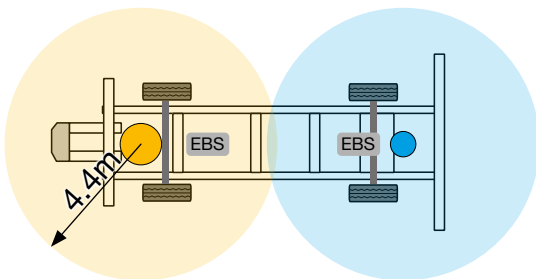
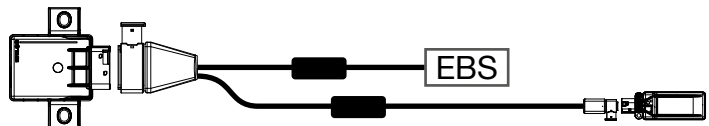
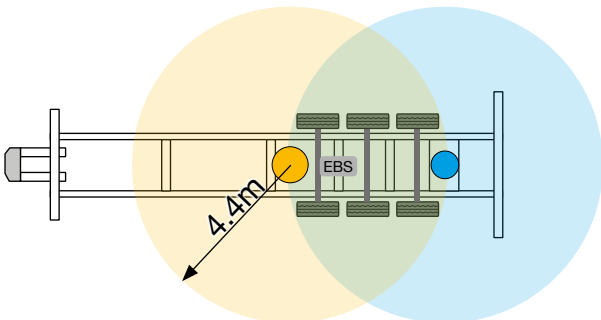
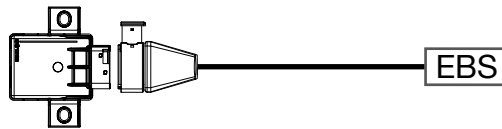
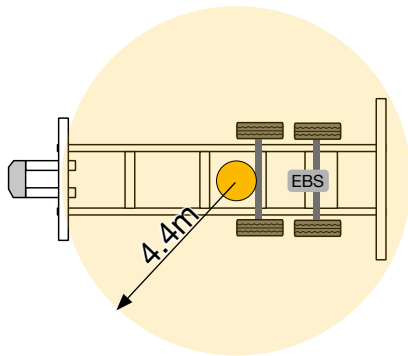
MaxRx18

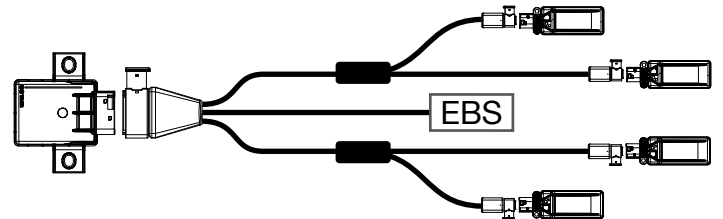
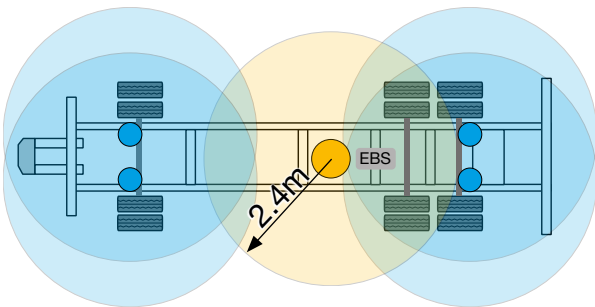
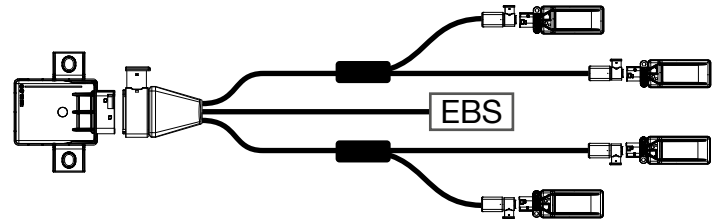
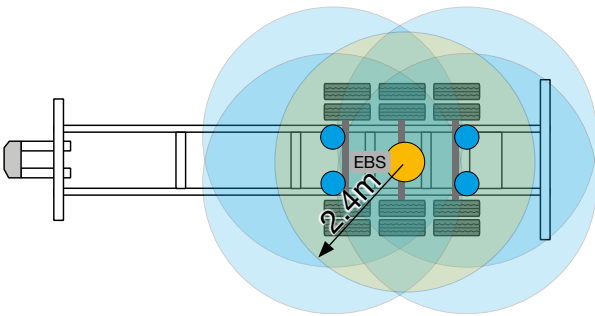
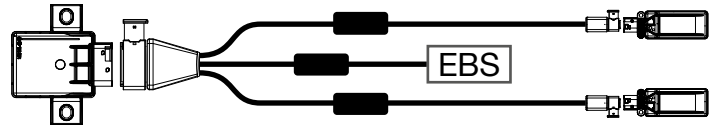
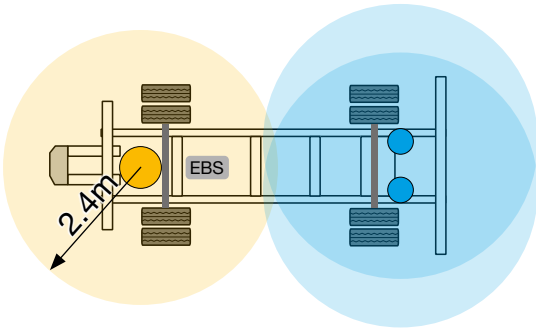


eRx



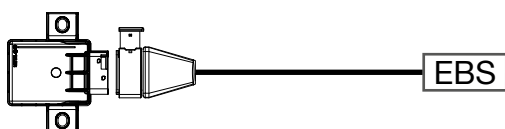
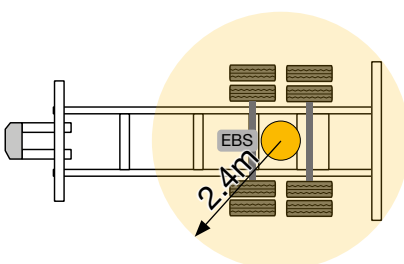
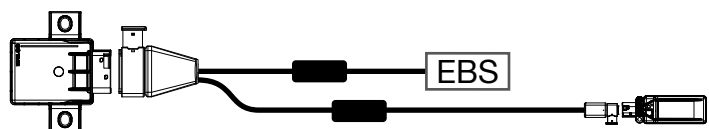
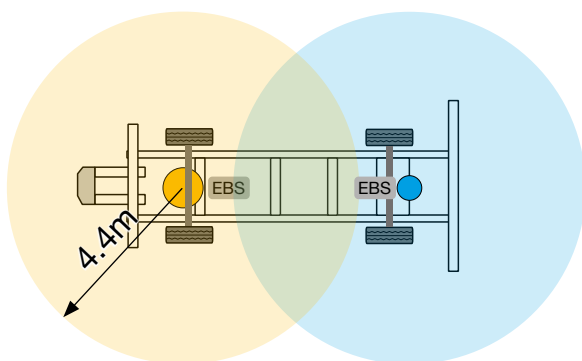
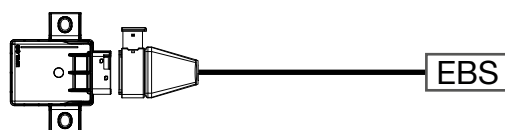
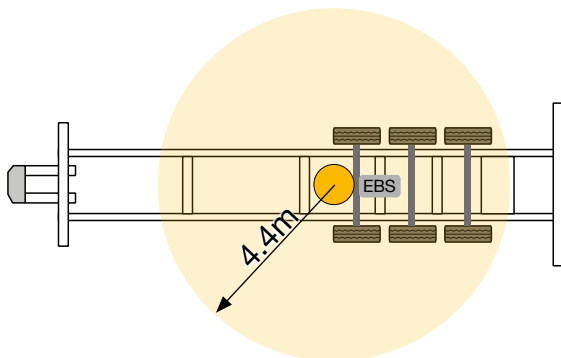
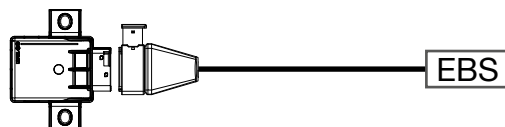
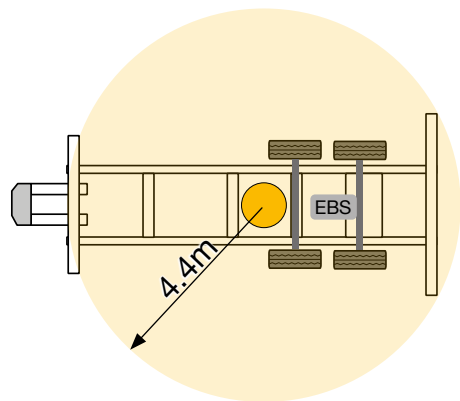
6.3.3.1 WITH AUTOLOCATE

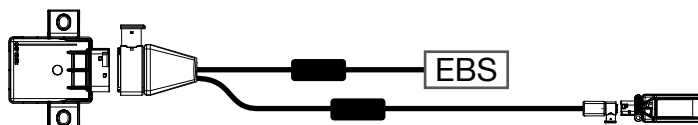
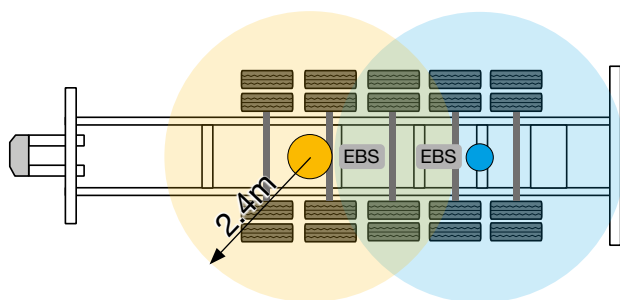
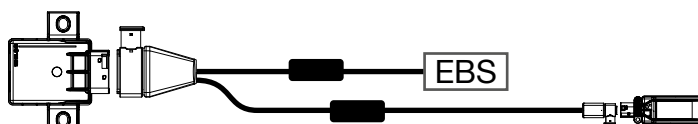
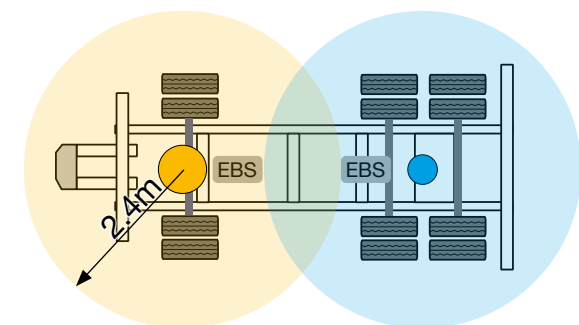
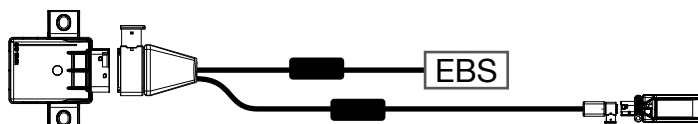
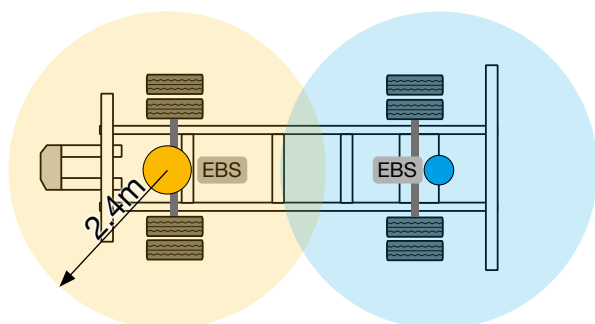
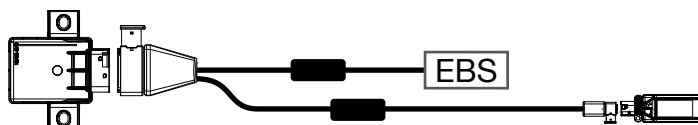
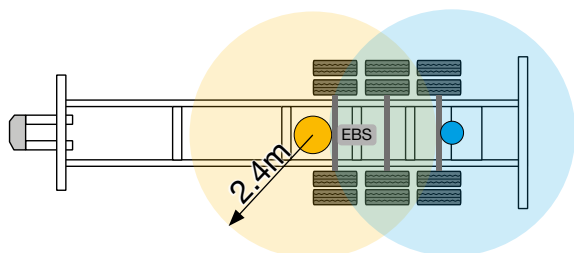






6.3.3.2 WITHOUT AUTOLOCATE





NOTE

Danger if not installed correctly!

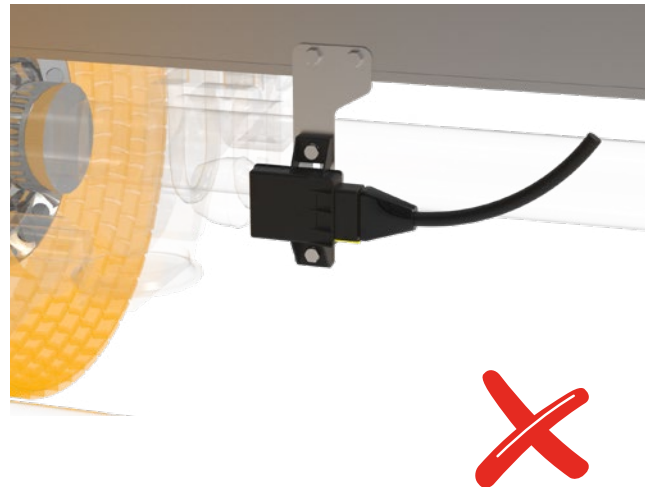
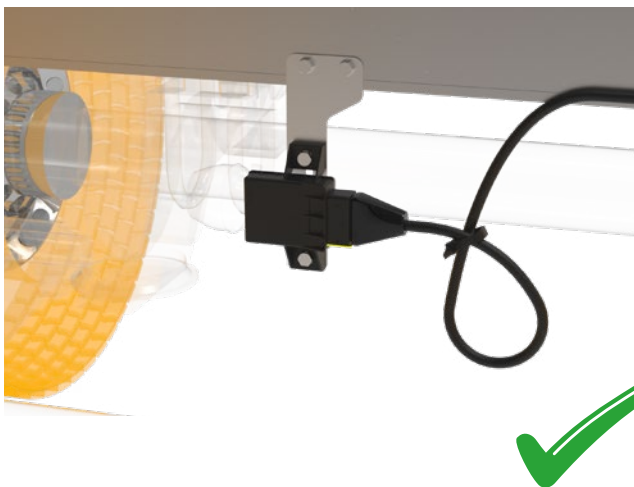
The positions of MaxRx and eRx are suggestions and can be swapped depending on the installation options. An individual check is always required.



6.4 CABLING

It is assumed that general rules for wiring on vehicles are known and understood.

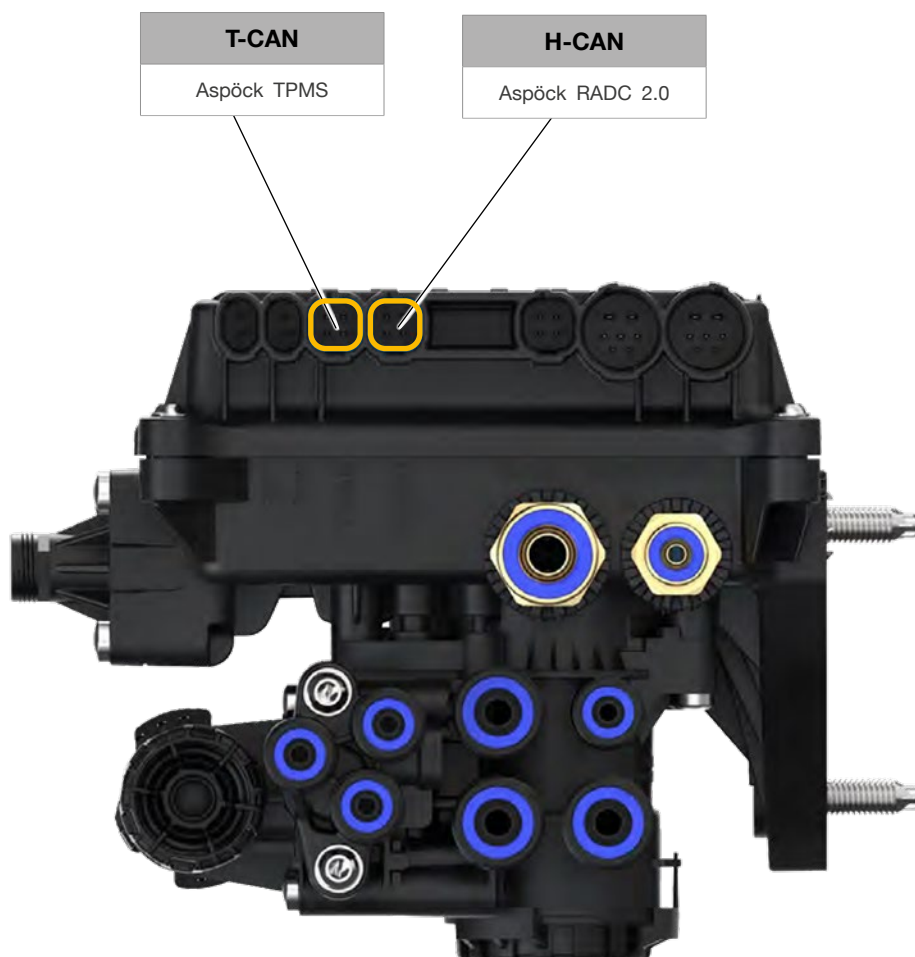
- Read chapter „6.3 Installing the MaxRx & eRx receiver units“.
- Prepare the appropriate wiring drawing for the vehicle.
- De-energise the trailer.
- Fasten the cables parallel to existing wiring harnesses using cable ties in accordance with the wiring diagram. Form large loops with excess lengths.
- The cables must be fastened and positioned in such a way that they are protected from mechanical and thermal stress.
- Connect all components according to the wiring diagram.





6.5 INTERFACE WITH HALDEX GEN 4

When operating the Aspöck TPMS in conjunction with a HALDEX EB+ Gen4, the T-CAN port must be used





7. START-UP

7.1 CONFIGURATION FILE

The configuration file from the vehicle manufacturer is required before you can start the start-up process.

NOTE

Danger for use!

The configuration files must only be created and managed by the vehicle manufacturer.

7.2 CREATION AND EXPORT OF ONE CONFIGURATION FILE

NOTE

To use the *Aspoeck TPMS Config Generator*, a special USB stick called „Aspoeck Software Dongle“ is required. Before use, the „Aspoeck Software Dongle Driver“, which is the driver for the USB stick, must be installed. Without this installation and the connected USB stick, the *Aspoeck TPMS Config Generator* cannot be used.

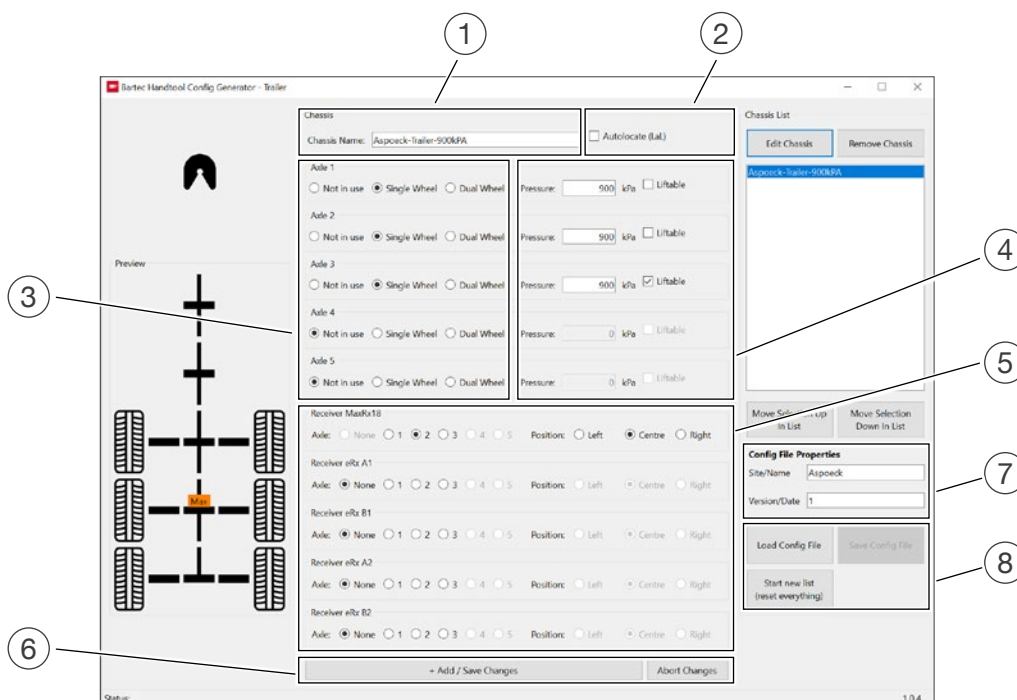
The *Aspoeck Software Dongle* security dongle must be plugged in to enable the creation/editing of configuration files.

A message is displayed in the bottom left-hand corner as a reminder.

Status: Please install DESkey driver and insert DESkey security dongle into local USB port to activate.

Status: Please insert DESkey security dongle into local USB port to activate.





① Enter the chassis name

Chassis Name:

② Select if you want to activate Autolocate.

☐ Autolocate (LaL)

③ Select the axle type for all 5 axles.

Axle 1
☒ Not in use ☐ Single Wheel ☐ Dual Wheel

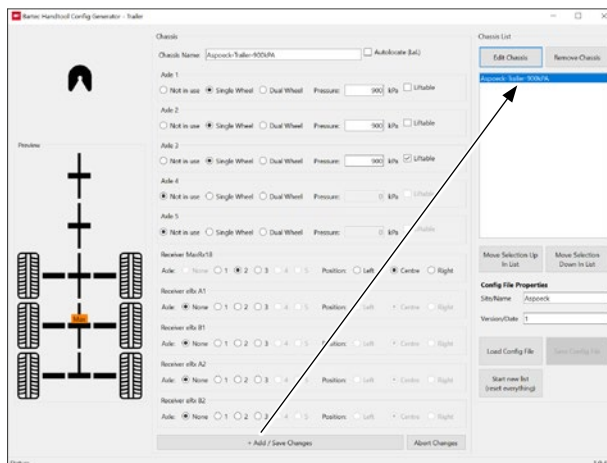
④ Set the pressure for all axel. The pressure must be between 100 and 1000 kPa and is rounded to the nearest 10 kPa in the final configuration file.

Pressure: kPa

⑤ Select the position of the main receiver (MaxRx). Optionally, one or more additional receivers eRxA1/eRxA2 and eRxB1/eRxB2 can be selected.

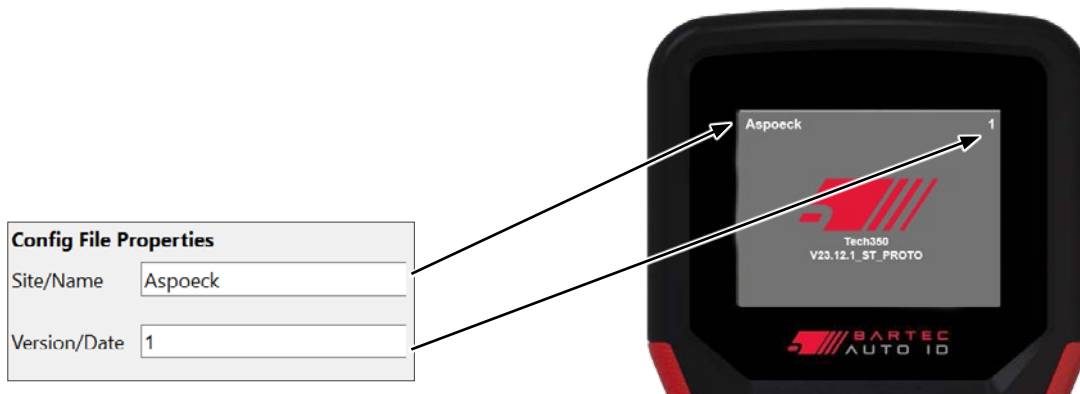
Receiver MaxRx18		
Axle:	☐ None ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5	Position: ☐ Left ☒ Centre ☐ Right
Receiver eRx A1		
Axle:	☒ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Position: ☐ Left ☒ Centre ☐ Right
Receiver eRx B1		
Axle:	☒ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Position: ☐ Left ☒ Centre ☐ Right
Receiver eRx A2		
Axle:	☒ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Position: ☐ Left ☒ Centre ☐ Right
Receiver eRx B2		
Axle:	☒ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Position: ☐ Left ☒ Centre ☐ Right

- ⑥ Click + Add / Save Changes to add the chassis to the list on the right-hand side.

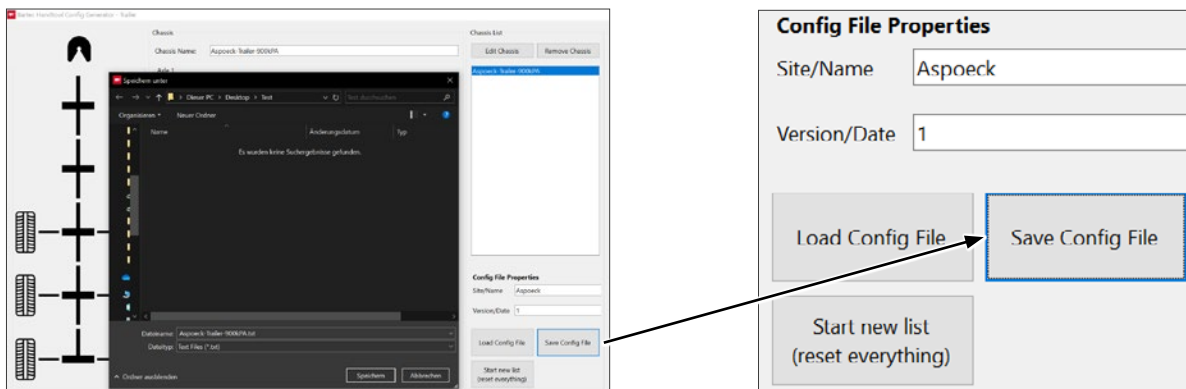


- ⑦ For further vehicle configurations, repeat steps 1 - 5 until all the required chassis are shown in the list on the right-hand side.

- ⑧ When starting the software on the Aspöck TPMS Diagnostic Tool T350, the name and version are displayed as shown in the image below. However, these have no influence on the functionality of the device. The input field is for checking purposes.



- ⑨ Click on Save Config File and select a storage location for the configuration file.

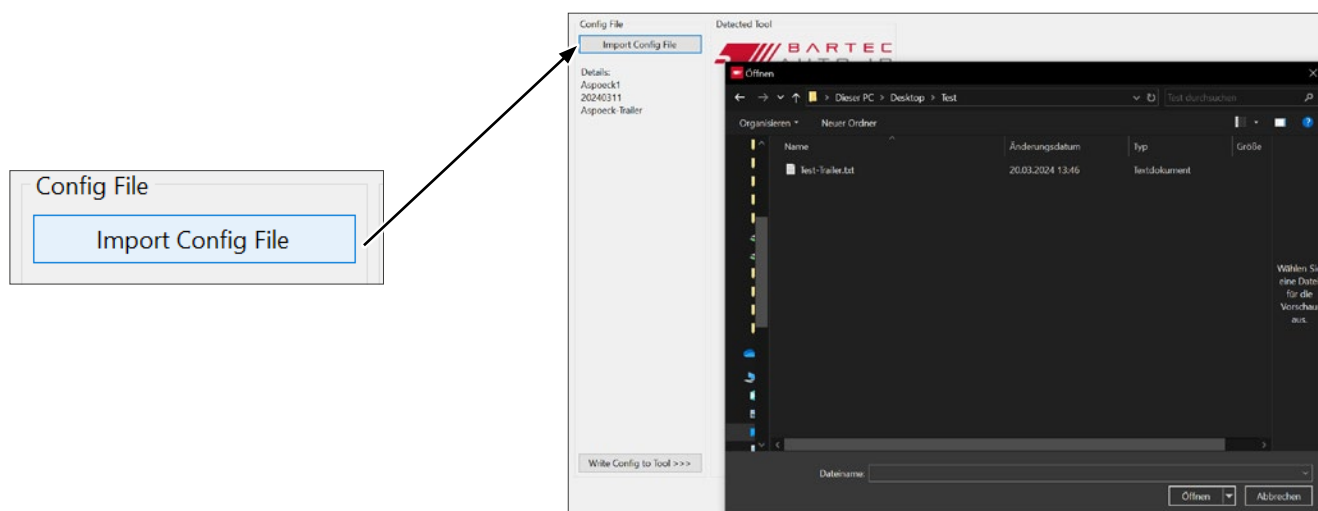




7.3 UPLOAD TO THE ASPÖCK TPMS DIAGNOSTIC TOOL T350

The *Aspoeck TPMS Config Uploader* recognises a connected *Aspöck TPMS Diagnostic Tool T350* and can write the configuration to it.

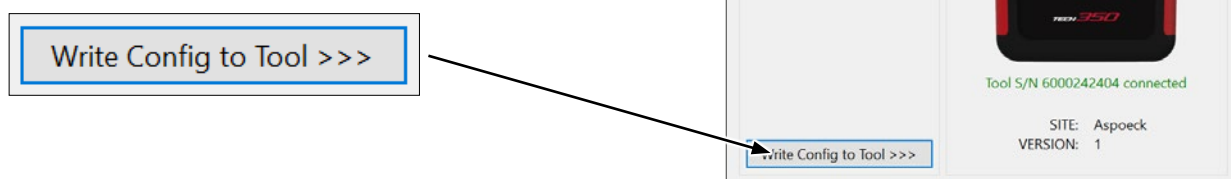
- 1 Click on *Import Config File* and search for the configuration file that was previously created.



- 2 The device must be connected to the computer via the USB-C cable.

- 3 When the device is switched off, it switches on. Windows recognises it as a flash drive. The uploader application displays the serial number of the device.

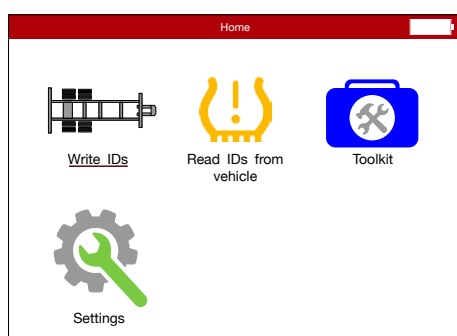
- 4 Click on *Write Config to Tool* to copy the configuration file to the device.



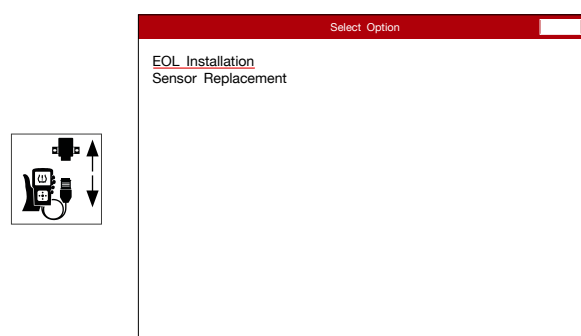


7.4 FIRST START-UP

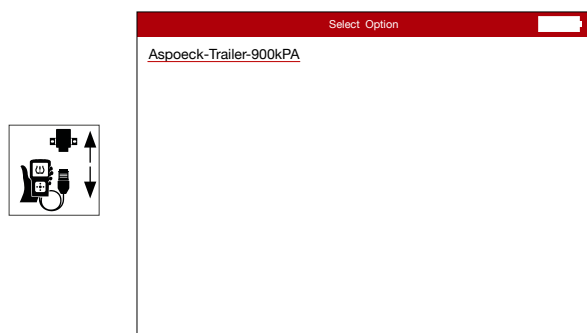
- 1 Click on *Write IDs* with *Enter* to access the programme menu.



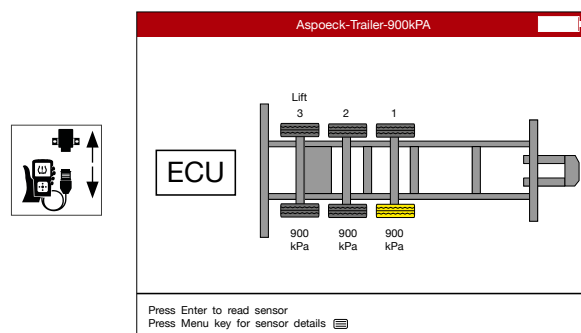
- 2 Click on *EOL Installation* with *Enter* to access the configuration data overview.



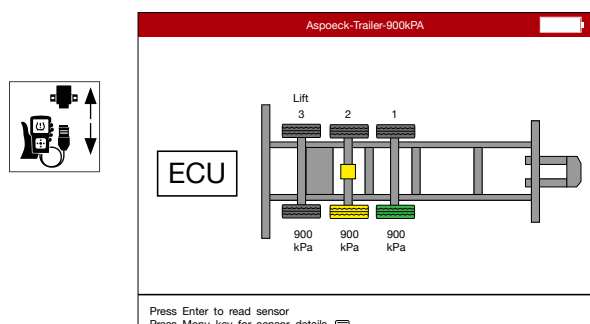
- 3 Click on the *configuration file* to load it.



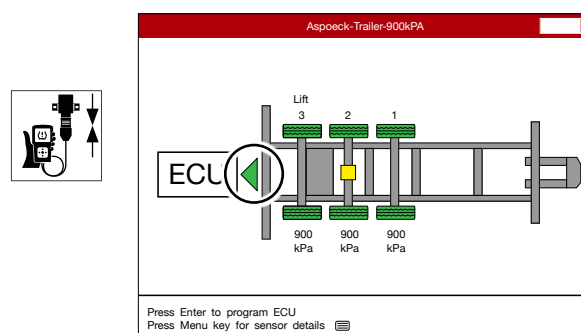
- 4 Use the Aspöck TPMS Diagnostic Tool T350 to programme each sensor with *Enter*.
Use the arrow keys to select the tyres.



- 5 The sensor to be programmed (tyre) flashes yellow. A programmed sensor lights up green.

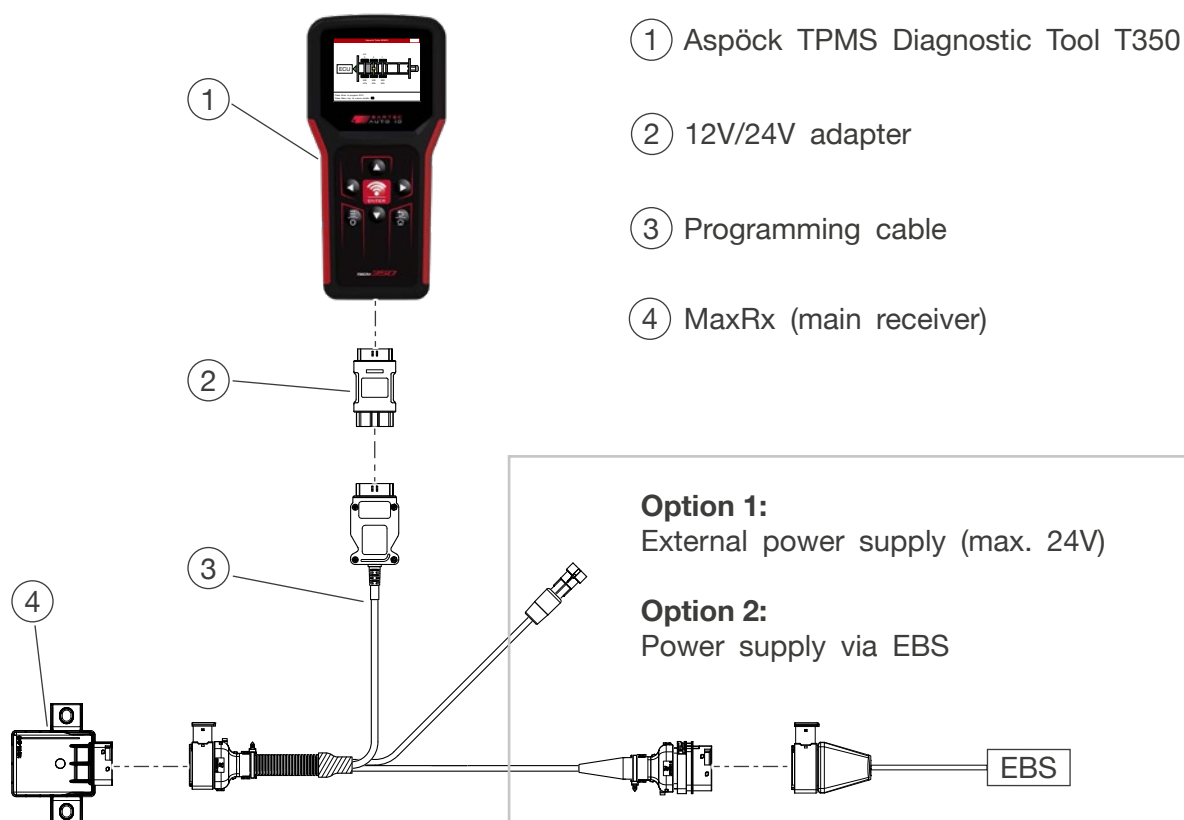
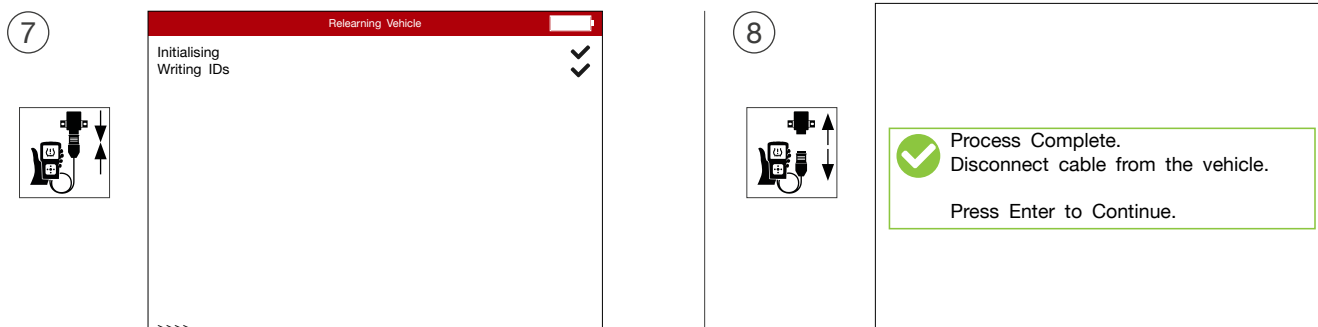


- 6 When all sensors in the tyres have been programmed, they appear in green. A green arrow appears. Press *Enter* to programme the ECU.





When the Aspöck TPMS Diagnostic Tool T350 is connected to the programming cable, click *Enter* to programme the MaxRx.



NOTE

Danger to functionality!

The OBD adapter and the programming cable must be disconnected when programming the sensors!



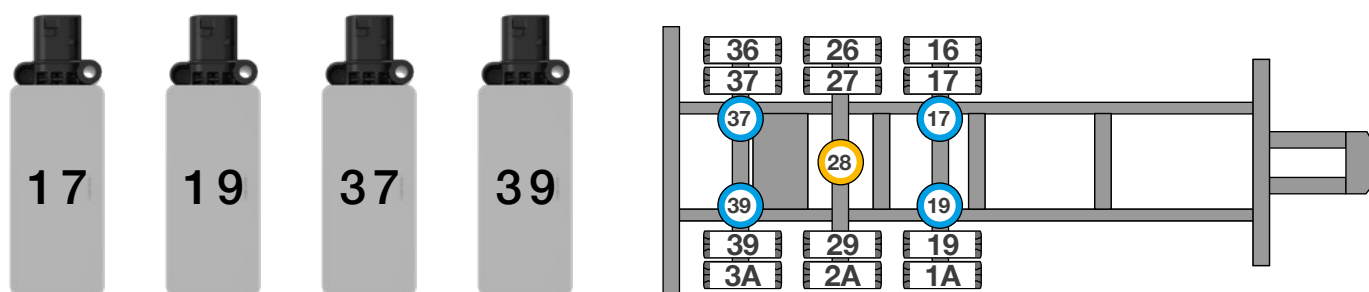
7.4.1 INITIAL START-UP WITH 3&4 ADDITIONAL RECEIVER (ERX)

7.4.1.1 VEHICLE CONFIGURATION FILE

First of all, a vehicle configuration (configuration file) with 3 or 4 additional receivers must be available on the Aspöck TPMS Diagnostic Tool T350. (7.2 Creating a configuration file)

7.4.1.2 OVERVIEW OF ALL COMPONENTS

The four additional receivers are labeled with a permanent marker or a label according to the position numbers in the ISO position on the trailer.

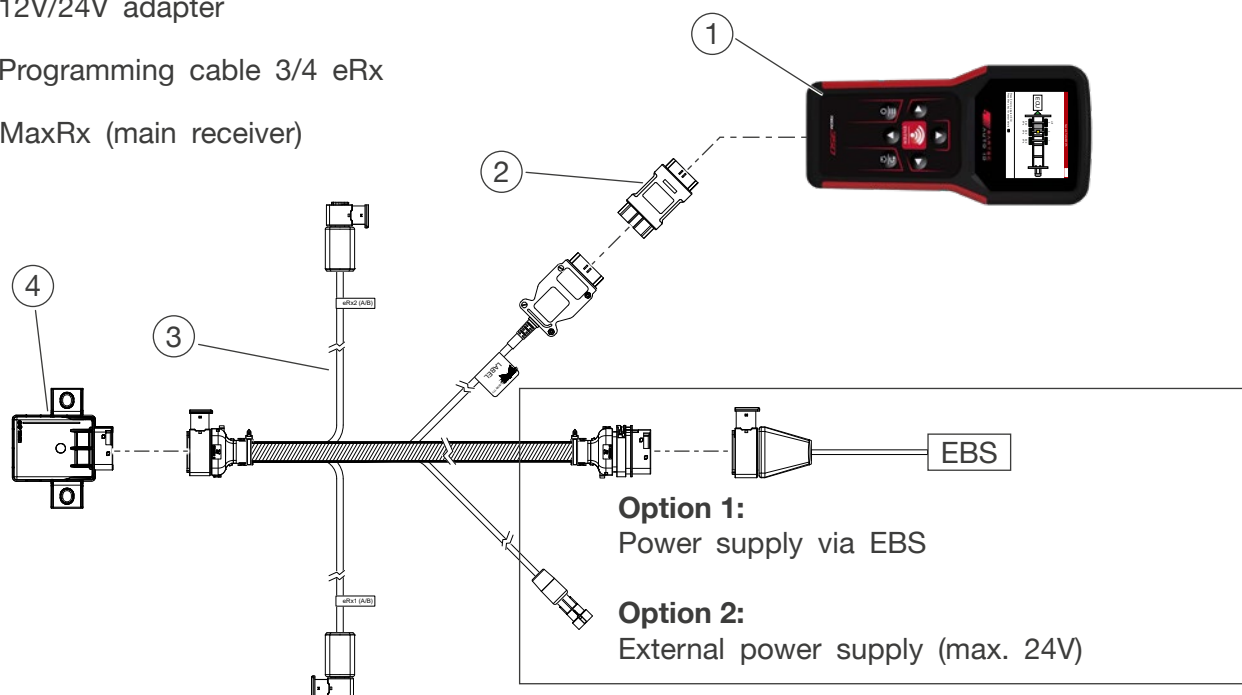


NOTE

Risk to functionality!

The receiver positions must be selected according to the suggested examples (6.3.3). This example is for a trailer with dual tires and 3 axles. With the additional function "Autolocate", 4 additional receivers (eRx) and 1 main receiver (MaxRx) are required.

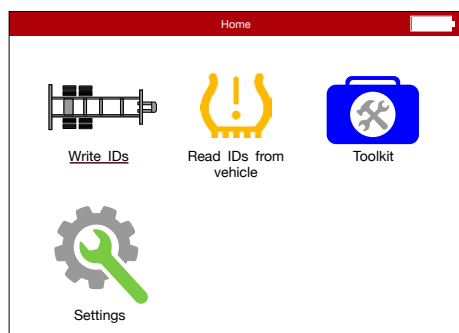
- ① Aspöck TPMS Diagnostic Tool T350
- ② 12V/24V adapter
- ③ Programming cable 3/4 eRx
- ④ MaxRx (main receiver)



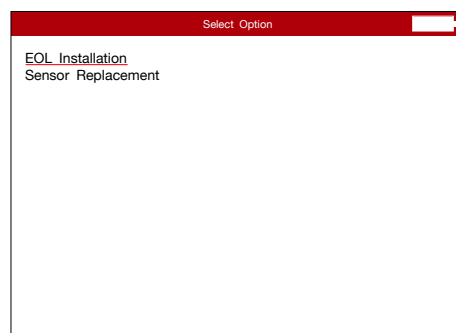


7.4.1.3 MAXRX CONFIGURATION WITH 3/4 ERX

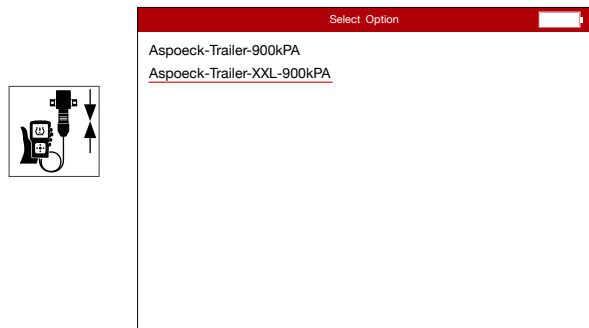
- ① Press *Enter* on *Write IDs* to enter the program menu.



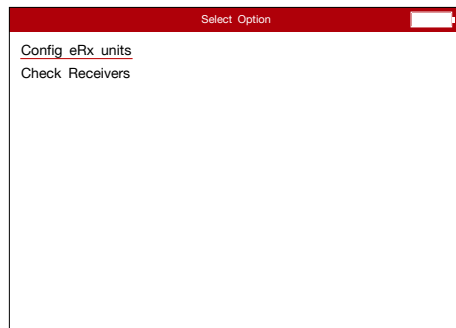
- ② Click *Enter* on *EOL Installation* to get to the overview of the configuration files.



- ③ Click on the *configuration file* to load it. (example name)



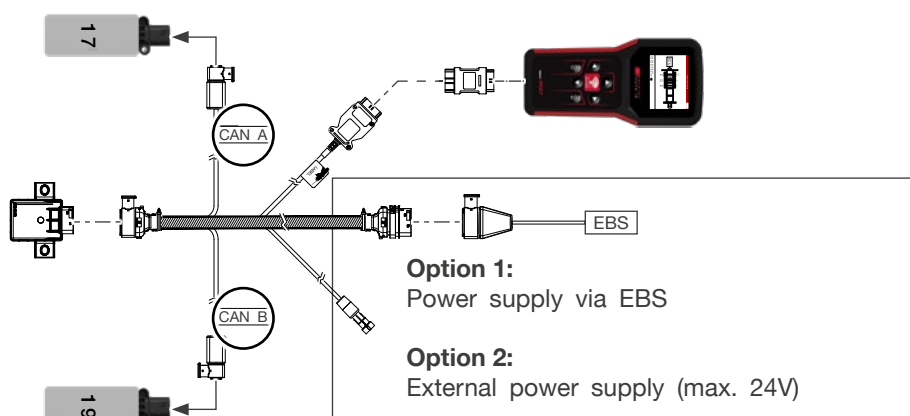
- ④ Click on the *Config eRx units* to program the additional receivers in the correct order.



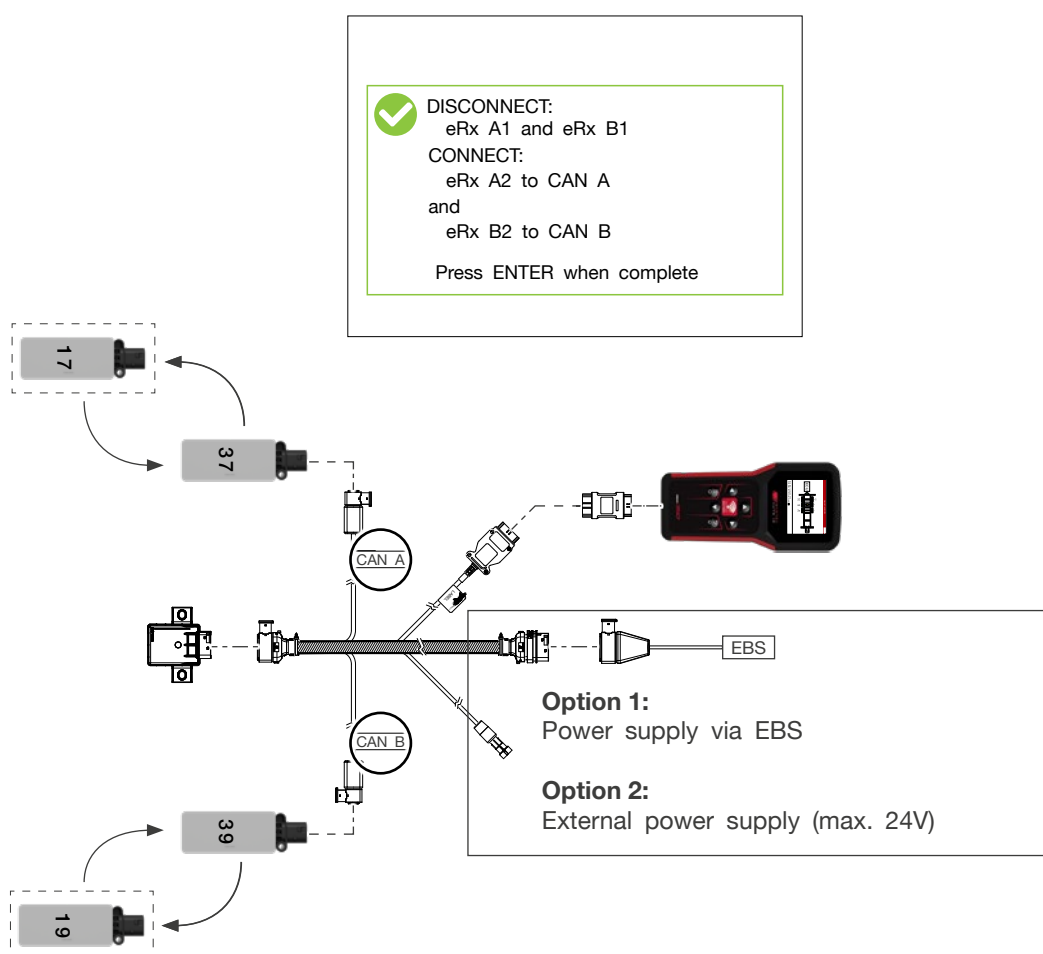
- ⑤ Connect the first additional receiver (17) to CAN A and the second (19) to CAN B and confirm with *Enter*.

i CONNECT:
eRx A1 to CAN A
and
eRx B1 to CAN B

Press ENTER when complete



- ⑥ Connect the additional receivers 17 and 19. Then connect the additional receiver 37 to CAN A and 39 to CAN B.



✓ DISCONNECT:
eRx A1 and eRx B1
CONNECT:
eRx A2 to CAN A
and
eRx B2 to CAN B
Press ENTER when complete

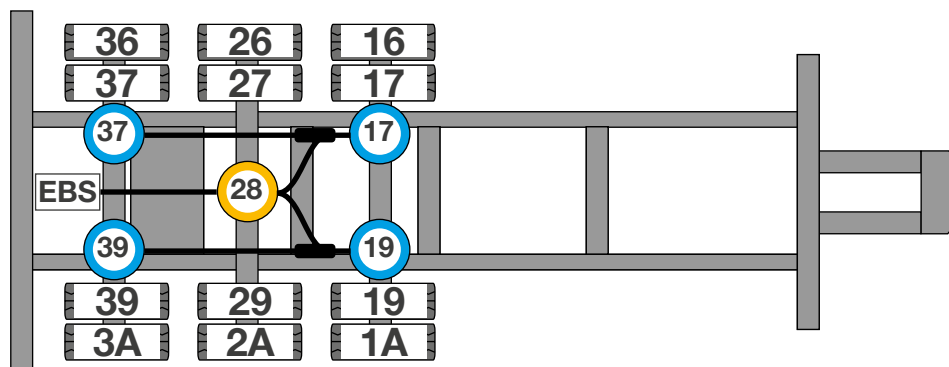
NOTE

Risk to functionality!

The additional receivers are now assigned to the positions in the MaxRx and must be installed on the vehicle according to their numbers (17, 19, 37, 39).

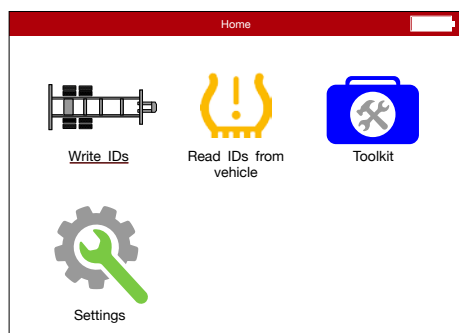


Example picture:

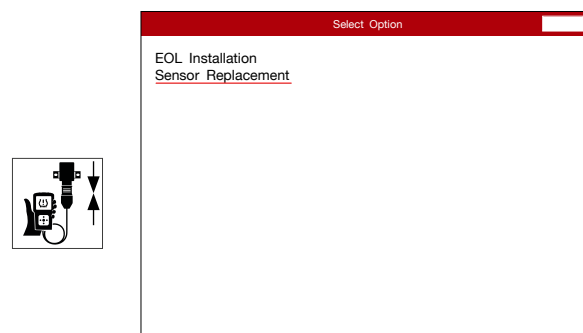


The sensors have not yet been programmed into the MaxRx up to this step. The sensors must therefore now be programmed using the *Sensor Replacement* function as follows.

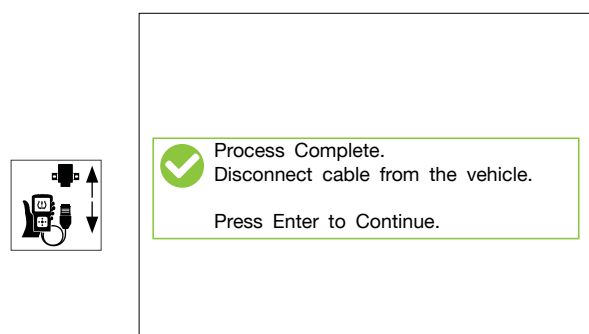
- 1 Press *Enter* to click on *Write IDs* to enter the program menu.



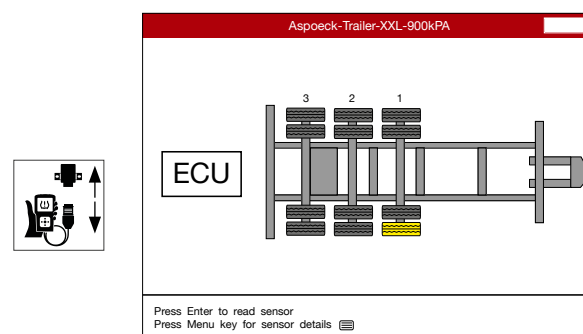
- Press *Enter* to click on *Sensor Replacement* to get to the overview of the configuration files.



- Click on the *configuration* file to load it.

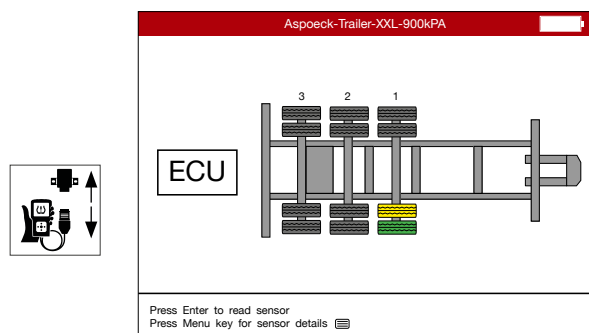


- 4 Use the Aspöck TPMS Diagnostic Tool T350 to program each sensor by pressing *Enter*. The tyres can be selected using the arrow keys.

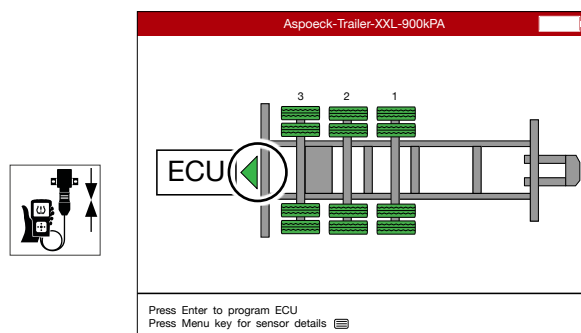




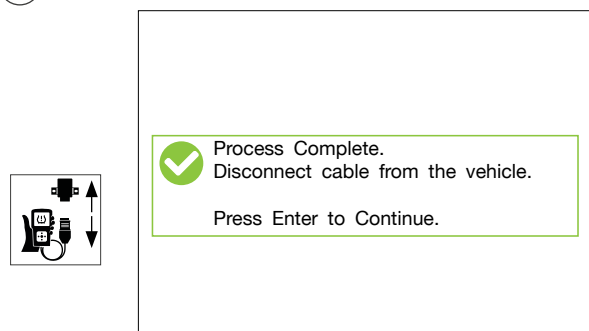
- ⑤ The programmed sensor (tyre) flashes yellow. A programmed sensor lights up green.



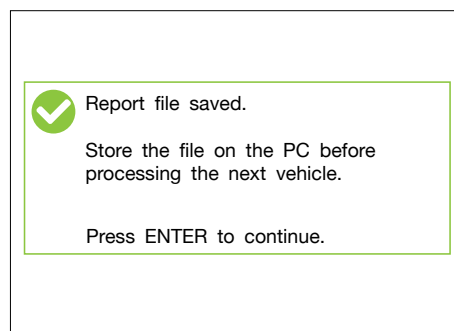
- ⑥ When all sensors in the tyres have been programmed, they will turn green. A green arrow will appear. Press *Enter* to program the ECU.



⑦

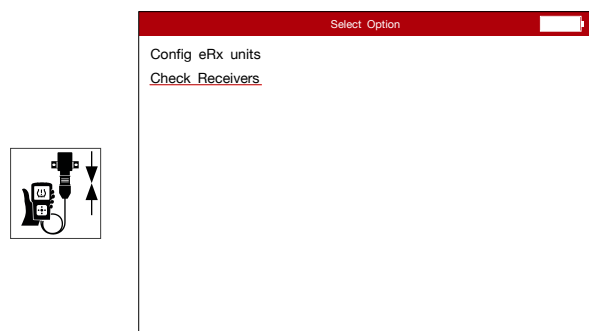


⑧

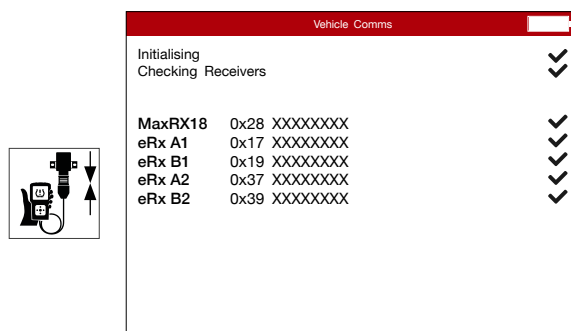


Finally, the system must be tested on the vehicle to ensure that all receivers detect at least one wheel sensor and are within reception range. This checks whether the receivers have been correctly assigned to the positions and that no incorrectly unassigned receivers have been installed.

- ⑨ Click on *Check Receivers* to check whether the receivers are correctly programmed.



- ⑩ Here you can check whether all receivers have been correctly programmed.





7.5 SETTINGS IN THE EBS

The EBS must be programmed to enable the power supply and processing of the CAN bus. TPMS R141“ must be activated in the diagnostic programme of the EBS manufacturer.

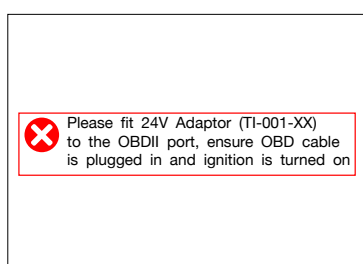
NOTE

Danger for incorrect tire pressure indications!

EBS manufacturers offer the option of transmitting the absolute or relative tire pressure to the towing vehicle. An incorrect setting can lead to a display of 1 BAR difference to the actual tire pressure.

Installation and operation of the cabling must be carried out in accordance with the manuals of the respective EBS manufacturer. These must be carefully observed to ensure correct functioning and safety.

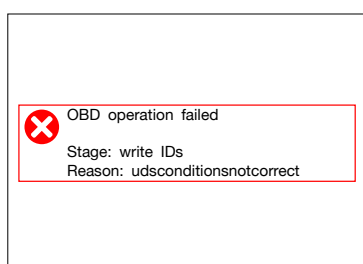
7.6 ERROR MESSAGES FROM THE ASPÖCK TPMS DIAGNOSTIC TOOL T350



This error message occurs if the ECU (MaxRX) is not supplied with power.

Troubleshooting:

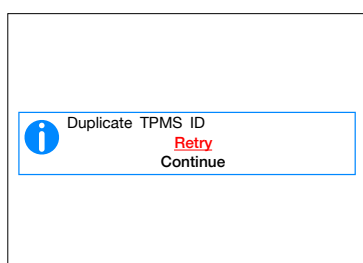
1. external power supply (max. 24V)
2. power supply via EBS



This error message occurs if the trailer is configured with the Sensor Replacement function and not EOL Installation.

Troubleshooting:

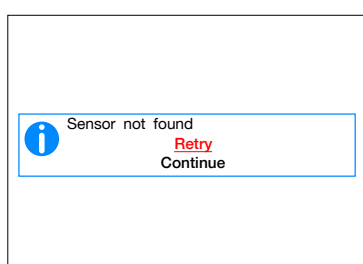
1. click on EOL Installation in the menu.



This error message occurs if the same sensor has been scanned twice.

Troubleshooting:

1. scan a new sensor.



This error message occurs if no sensor was found.

Troubleshooting:

1. unplug the device from the programming cable.
2. scan a new sensor.



7.7 END OF LINE TESTER (EOLT)

The Aspöck TPMS End of Line Tester (EOLT) is a specialized hardware and software solution with comprehensive functions for end-of-line testing and diagnostics of TPMS systems.

7.7.1 SOFTWARE

System requirements for the computer:

- Operating system: Windows 11 (x64/ARM64), Windows 10 (x64) or Linux
- A free USB port (USB 1.1, USB 2.0 or USB 3.0) or a free connector on an active, connected USB hub

7.7.1.1 DOWNLOADING AND INSTALLING THE ASPÖCK TPMS EOLT SOFTWARE

Step 1: Registration and software download

- Register on Aspöck Connect (<https://connect.aspoeck.com>) and download the *Aspöck TPMS EOLT software*.



Step 2: Prepare your file

- Save the downloaded file on the desktop for quick access.

Step 3: Start installation

- Start the installation by double-clicking on *Aspöck TPMS EOLT Software.exe* or, alternatively, by right-clicking and selecting "Open".

Step 4: Automatic installation

- The software is installed automatically and a new icon is created on the desktop.

7.7.1.2 PEAK PCAN SOFTWARE INSTALLATION

This chapter describes how to install the *PCAN USB drivers* for the *PCAN USB interface* on Windows and how to connect it to the computer.

Step 1: Download the device driver setup.

- Download the device driver setup from the PEAK website:
<https://www.peak-system.com/Treiber.523.0.html>

Step 2: Unzip the file

- Unzip the downloaded file *PEAK-System_Driver-Setup.zip*.

Step 3: Start installation

- Start the installation program by double-clicking on *PeakOemDrv.exe*.

Step 4: Complete the installation

- Follow the instructions of the program to complete the installation of the drivers.



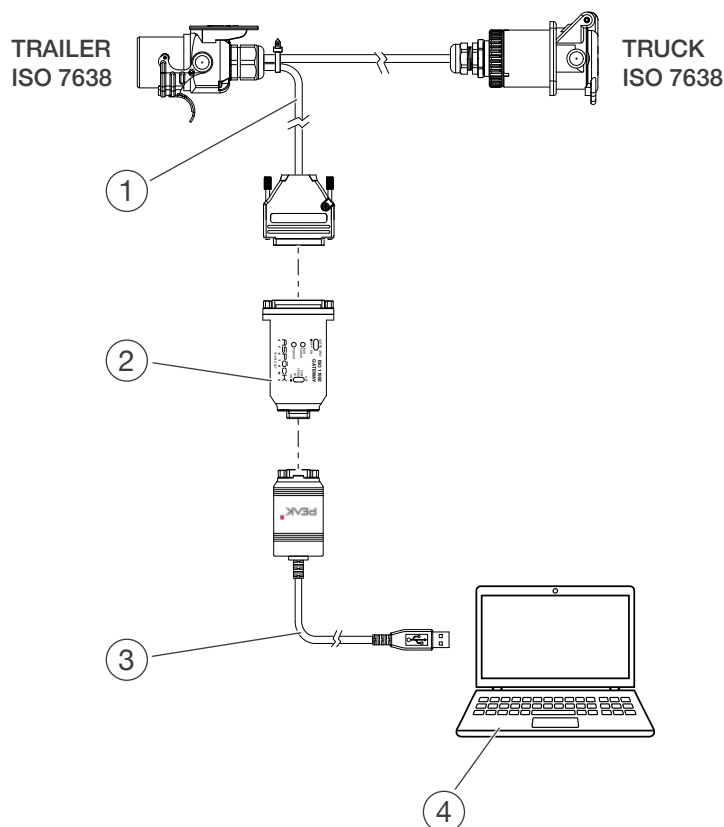
NOTE

Risk to functionality!

If you already have a *PCAN USB interface*, you need to check that the latest driver is installed to avoid possible compatibility issues with the *Aspöck TPMS EOLT software*.

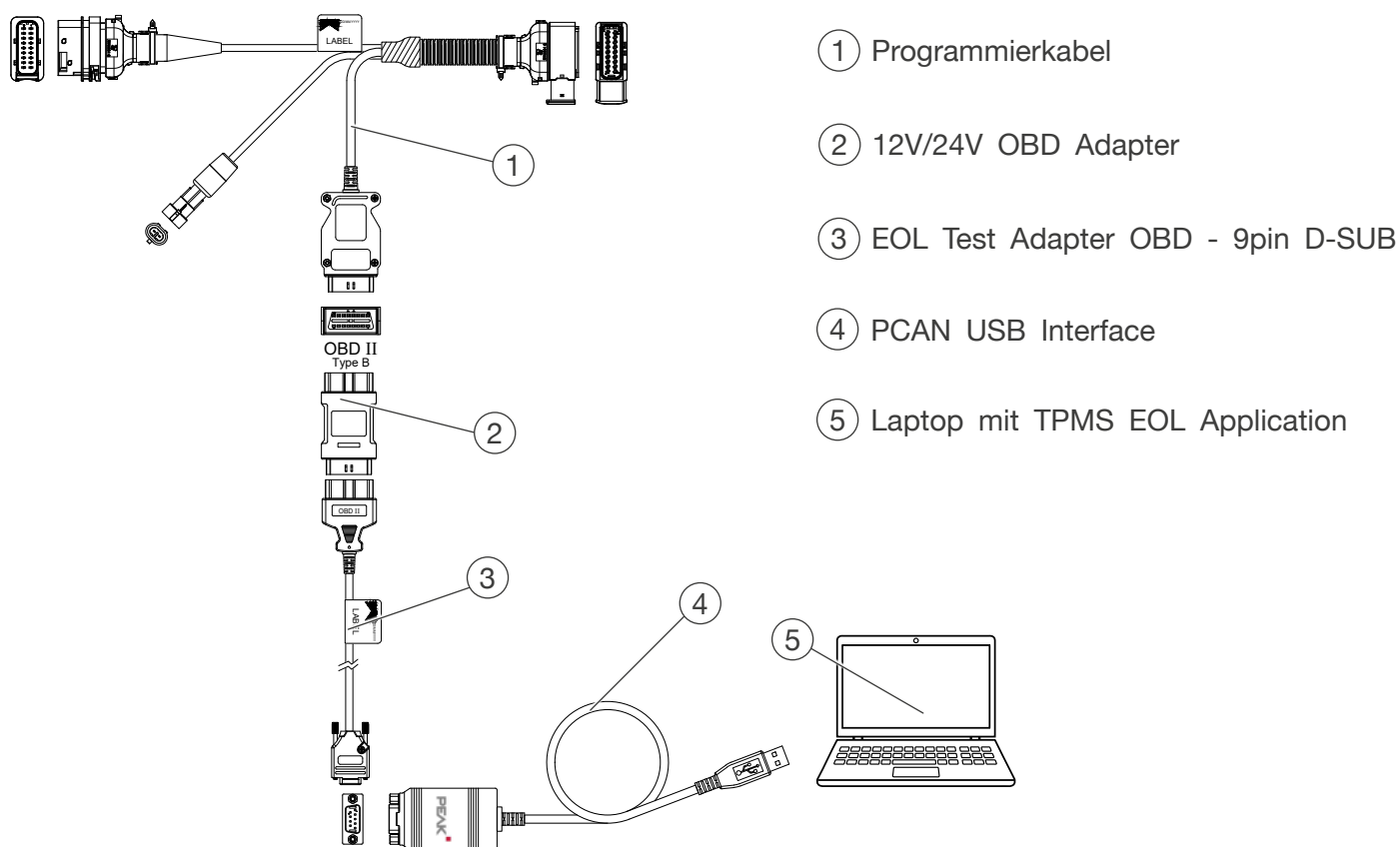
7.7.2 HARDWARE

TEST KIT FOR EOLT TESTING ON AN ISO 7638 EBS SOCKET



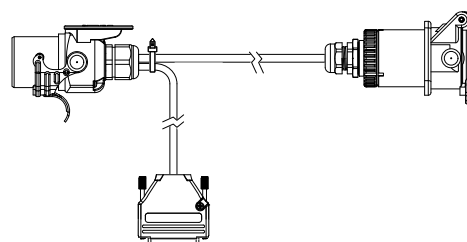


TEST SET FOR EOLT TESTING ON SUBSYSTEM CAN ISO 11898



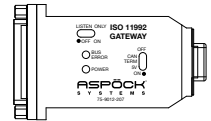
7.7.2.1 TPMS EOLT ADAPTER

The *TPMS EOL Test Adapter* is connected to the trailer EBS socket (ISO 7638).





7.7.2.2 ASPÖCK ISO 11992 GATEWAY



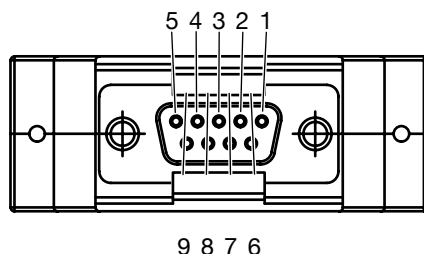
The Aspöck ISO 11992 Gateway establishes the connection between the Truck-Trailer CAN-Bus (ISO 11992) and the 5V CAN-Bus (ISO 11898). The use of the Gateway in combination with a PCAN USB interface from the Peak PCAN series (e.g. PCAN-USB) enables data exchange. With the appropriate application solutions (e.g. Aspöck TPMS EOLT software), data can be read out from the ISO 11992 via this connection. The Aspöck ISO 11992 Gateway requires a power supply in addition to the data line for operation. The power supply is provided directly from the towing vehicle or from an external power source via a cable adapter.

System requirement:

System requirements: Power supply (12/24 V DC) via adapter cable ISO 7638 (EBS connector) - or - power supply via adapter cable using a power supply unit.

5V-CAN SIDE connector (9-pin Sub-D):

The Aspöck ISO 11992 gateway is designed for direct connection to a CAN interface of the Peak PCAN series (e.g. PCAN-USB).



PIN NUMBER	INPUT / OUTPUT
1	Not connected/optional +5 V
2	CAN Low
3	Ground
4	-
5	-
6	Ground
7	CAN High
8	Not connected/optional +5 V
9	-

NOTE

When connecting the 5V CAN side to an existing CAN bus, only the CAN-High and CAN-Low signals are connected, not the ground connection. Due to different ground levels, this could cause damage to the connected device and to the *Aspöck ISO 11992 Gateway*. This risk does not exist when connecting the Peak-PCAN interface directly.

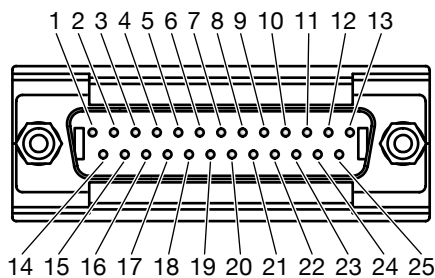
A switchable termination with a resistance of 120 ohms is located internally between the CAN-Low and CAN-High lines. This is to be activated as standard when operating with a *PCAN USB interface*.

If the *Aspöck ISO 11992 Gateway* is connected to an existing CAN bus strand and does not represent the end of a 5V CAN bus, the termination can be deactivated using the corresponding slide switch (see figure).



Truck-Trailer-CAN connector (25-pin Sub-D connector):

A 25-pin Sub-D connector is used for the Truck Trailer CAN bus.



PIN NUMBER	INPUT / OUTPUT
1	-
2	Ground for solenoid valve
3	-
4	CAN High (ISO 11992)
5 - 16	-
17	CAN Low (ISO 11992)
18 - 24	-
25	+24V for solenoid valve

Power supply:

The *Aspöck ISO 11992 Gateway* is supplied with power via the *TPMS EOLT adapter* of the ISO 7638 (EBS plug). In this case, the ISO 11992 Gateway can be operated in the 24V on-board voltage range; if an external power source (power supply unit) is used, 24V (stabilized) DC voltage is applied.

The presence of the supply voltage is indicated by the green LED on the *Aspöck ISO 11992 Gateway* housing.

CAN bit rate:

When operating the *Aspöck ISO 11992 Gateway*, it is important to ensure that the transmission rate of the 5V CAN bus is matched to that of the Truck Trailer CAN bus. There is no conversion or automatic adjustment of the transmission rate in the bus converter. The standardized transmission rate is 125 kbps, which must be configured on the PCAN-USB interface.

Operating as an active node:

In active operation (normal case), the *Aspöck ISO 11992 Gateway* can both send and receive data on the Truck Trailer CAN side.

In this operating mode, the gateway represents the remote station of the point-to-point connection to the EBS, as a CAN data receiver instead of the non-connected towing vehicle.



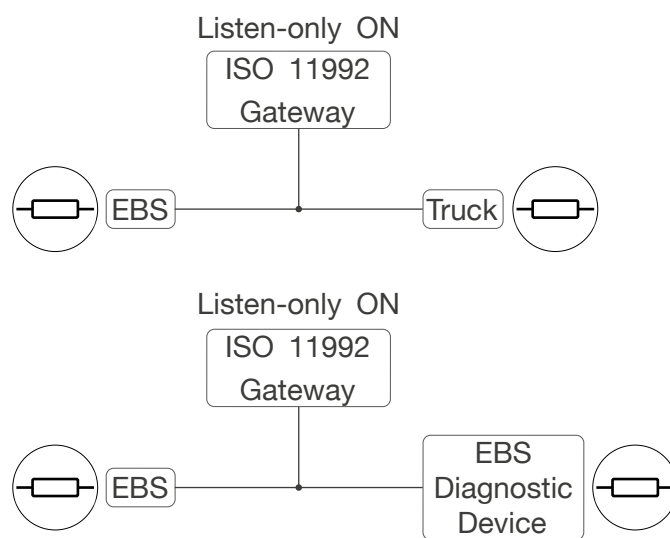
To ensure correct functioning, the slide switch must be set to Listen Only OFF.



Operating in “Listen Only” mode:

In order to monitor the data exchange on the CAN bus without influencing it, passive operation (listen-only mode) can be set.

In this case, the transmission unit of the Aspöck ISO 11992 Gateway is disconnected from the Truck-Trailer-CAN bus, but the CAN-typical acknowledgement signal (ACK bit) is also not transmitted – which means that another active participant must be connected to the bus.



To ensure that the existing point-to-point connection is not adversely affected, the slide switch must be set to Listen-only ON.

NOTE

In a pure point-to-point connection with two CAN nodes, both must be able to receive and transmit. Therefore, in this case, operation in listen-only mode does not work.

Red LED “Bus Error”:

The red LED visualizes the error state of the *Aspöck ISO 11992 gateway*. If an error diagnosis is carried out on the Truck-Trailer-CAN, the LED lights up at:

- Open circuit CAN-High
- Interruption of CAN-Low
- Short circuit between CAN-High and GND
- Short circuit between CAN-High and Supply
- Short circuit between CAN-Low and GND
- Short circuit between CAN-Low and Supply
- Short circuit between CAN-High and CAN-Low
- Short-term error due to surge impulse between CAN-Low and CAN-High (e.g. when switching inductive loads)

NOTE

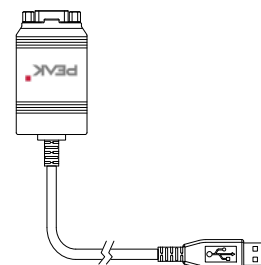
The *Aspöck ISO 11992 Gateway* requires a reset after a bus error has occurred. To do this, the power supply must be disconnected briefly until the green LED goes out. When the power supply is restored and no more errors are detected on the Truck Trailer CAN, the red LED is acknowledged.



7.7.2.3 PCAN USB INTERFACE

Step 1: Connect the PCAN-USB adapter.

- Connect the PCAN-USB adapter to a USB port on the computer or to a USB hub. Windows detects the new hardware and automatically completes the driver installation.



Step 2: Check the LED display

- Check the LED on the CAN interface: if the LED is lit, the driver has been successfully initialized.

CAUTION

Risk to functionality!

Do not use a USB extension cable to connect the PCAN USB interface to the computer, as extension cables do not comply with the USB specification.



7.7.3 OPERATING ASPÖCK TPMS EOLT SOFTWARE

7.7.3.1 EOLT MODE ON ISO 7638 EBS SOCKET

TPMS EOL Application



START
Select Trailer diagnose connection:

 ISO 7638
  OBD II

Start Scan Runtime: 00:38,0

DETAILS

- Trailer Overview
- Detailed Trailer Overview

IMPORT

Select Trailer Report File

FINISH

Generate PDF Please wait for 1:21,9

Device status:
CAN Adapter: Connected
CAN Connection: Connected

Trailer Overview

Set nominals and view input data

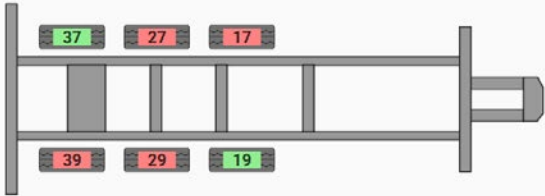
Vehicle Information

ID of vehicle: _____

Brand of vehicle: _____

Type of vehicle: _____

Date of production: 12.11.2024 TPMS System with AUTOLOCATE (YES/NO): ☒



Axle Information

Axle ID	Nominal tyre pressure per axle (Bar)	Lift axle
1	0.00	☐
2	0.00	☐
3	0.00	☐

Receiver Information

Receiver Type	Receiver position at vehicle (ISO position)	Serial number receiver
MAXRX	0x	
ERX_A1	0x	
ERX_A2	0x	
ERX_B1	0x	
ERX_B2	0x	

Tyre Sensor Information

ISO Position	Sensor ID (Hex)	Real pressure (Bar)	Temperature (°Celsius)	Tyre pressure status	Tyre pressure threshold detection status	Tyre Module Power Supply Status
17	0	6,9	33	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
19	0	9,2	27	SufficientTyrePressure	NoWarningPressure	Sufficient
27	0	7,8	34	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
29	0	7,5	28	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
37	0	9,6	34	SufficientTyrePressure	NoWarningPressure	Sufficient
39	0	6,8	28	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient

START
Select Trailer diagnose connection:

 ISO 7638
  OBD II

Start Scan Runtime: 00:38,0

DETAILS

- Trailer Overview
- Detailed Trailer Overview

IMPORT

Select Trailer Report File

FINISH

Generate PDF Please wait for 1:21,9

Device status:
CAN Adapter: Connected
CAN Connection: Connected

Select a diagnostic connection

Start of the Aspöck TPMS EOLT software.
(Reading out data on the CAN bus)

Switch between the simplified view and the detailed view.

In the detailed view, further CAN bus data is available.

Import function for 'Trailer-Report.txt', which was created following commissioning at EOLT using the Aspöck TPMS Diagnostic Tool T350.

Generation of the EOLT report in PDF format

Connection status display



Manual input fields:

It is recommended that the entries be correctly assigned to the respective vehicle.

Trailer Overview

Set nominals and view input data

Vehicle Information

ID of vehicle: _____

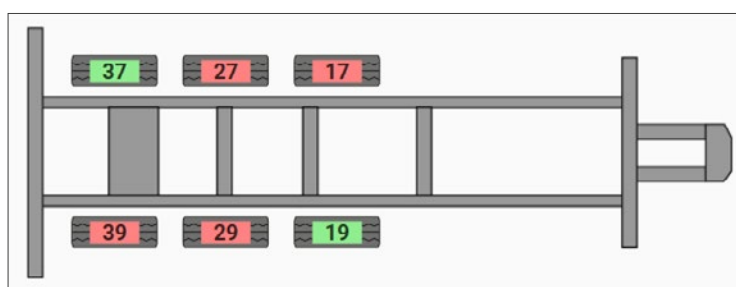
Brand of vehicle: _____

Type of vehicle: _____

Date of production: 12.11.2024 TPMS System with AUTOLOCATE (YES/NO): ☒

Graphic display of the trailer configuration:

The scanned configuration is read in and the graphic is automatically created according to the recorded trailer configuration.



Optional input fields:

These fields can either be entered manually or automatically generated by the correct *Trailer-Report.txt* file from the EOLT commissioning.

Receiver Information

Receiver Type	Receiver position at vehicle (ISO position)	Serial number receiver
MAXRX	0x	
ERX_A1	0x	
ERX_A2	0x	
ERX_B1	0x	
ERX_B2	0x	

Axle Information

Axle ID	Nominal tyre pressure per axle (Bar):	Lift axle
1	0.00	☐
2	0.00	☐
3	0.00	☐

Tyre Sensor Information

ISO Position	Sensor ID (Hex)
17	0
19	0
27	0
29	0
37	0
39	0



TPMS Data Field:

This field displays all relevant data. Additional information can be accessed via the detailed view.

Tyre Sensor Information						
ISO Position	Sensor ID (Hex)	Real pressure (Bar)	Temperature (°Celsius)	Tyre pressure status	Tyre pressure threshold detection status	Tyre Module Power Supply Status
17	0	6,9	33	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
19	0	9,2	27	SufficientTyrePressure	NoWarningPressure	Sufficient
27	0	7,8	34	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
29	0	7,5	28	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
37	0	9,6	34	SufficientTyrePressure	NoWarningPressure	Sufficient
39	0	6,8	28	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient

①

②

③

④

⑤

⑥

⑦

- ① ISO Position: Sensor position according to the ISO standard.
- ② Sensor ID (Hex): Unique identification number of the tire sensor in hexadecimal format. This field must either be filled in manually or the data must be taken from the *trailer-report.txt*.
- ③ Real Pressure (Bar): The measured tire pressure in bar.
- ④ Temperature (°C): The temperature measured in the tyre, given in degrees Celsius.
- ⑤ Tyre pressure status: Indicates the status of the tyre pressure.
- ⑥ Tyre pressure threshold detection: Indicates whether the measured pressure is within a specified threshold.
- ⑦ Power supply status: The power supply status of the tyre pressure sensor.

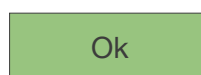
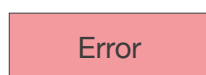
Status OK

Tyre Sensor Information						
ISO Position	Sensor ID (Hex)	Real pressure (Bar)	Temperature (°Celsius)	Tyre pressure status	Tyre pressure threshold detection status	Tyre Module Power Supply Status
19	0	9,2	27	SufficientTyrePressure	NoWarningPressure	Sufficient

Status NOK

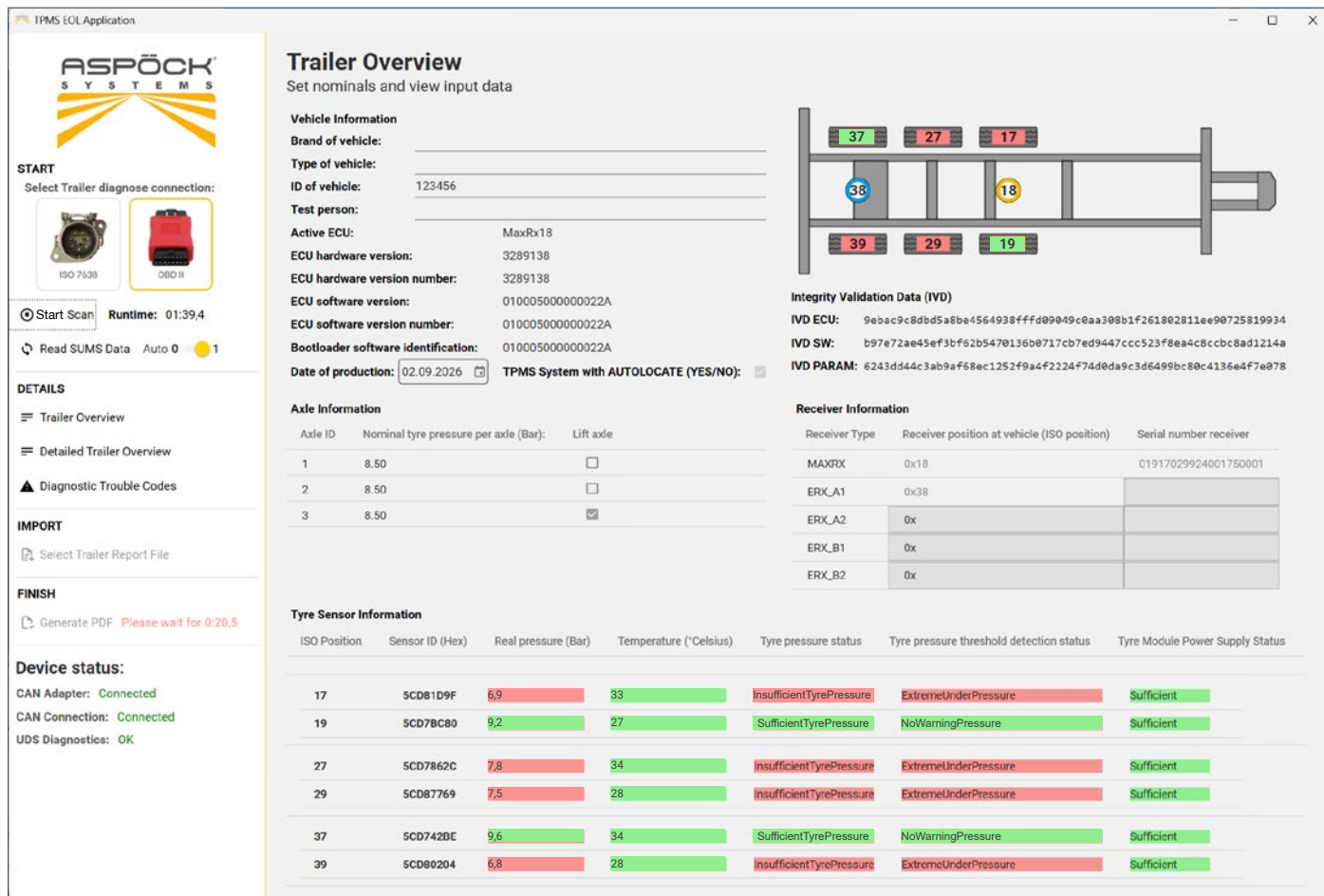
Tyre Sensor Information						
ISO Position	Sensor ID (Hex)	Real pressure (Bar)	Temperature (°Celsius)	Tyre pressure status	Tyre pressure threshold detection status	Tyre Module Power Supply Status
17	0	6,9	33	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient

Color coding





7.7.3.2 EOLT-MODUS ON SUBSYSTEM – CAN ISO 11898



Trailer Overview
Set nominals and view input data

Vehicle Information
 Brand of vehicle: _____
 Type of vehicle: _____
 ID of vehicle: 123456
 Test person: _____
 Active ECU: MaxRx18
 ECU hardware version: 3289138
 ECU hardware version number: 3289138
 ECU software version: 010005000000022A
 ECU software version number: 010005000000022A
 Bootloader software identification: 010005000000022A
 Date of production: 02.09.2026 TPMS System with AUTOLOCATE (YES/NO): ☒

Integrity Validation Data (IVD)
 IVD ECU: 9ebac9c8dbd5a8be4564938fffd09049c0aa308b1f261802811ee90725819934
 IVD SW: b97e72ae45ef3bf62b5470136b0717cb7ed9447ccc523f8ea4c8ccbc8ad1214a
 IVD PARAM: 6243dd44c3ab9af68ec1252f9a4f2224f74d8da9c3d6499bc80c4136e4f7e078

Axle Information

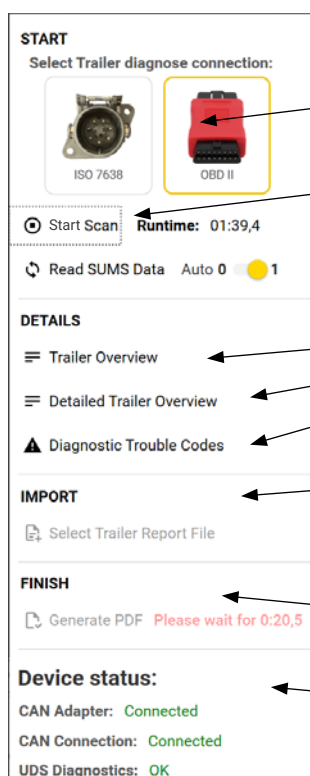
Axle ID	Nominal tyre pressure per axle (Bar):	Lift axle
1	8.50	☐
2	8.50	☐
3	8.50	☒

Receiver Information

Receiver Type	Receiver position at vehicle (ISO position)	Serial number receiver
MAXRX	0x18	C1917029924001750001
ERX_A1	0x38	
ERX_A2	0x	
ERX_B1	0x	
ERX_B2	0x	

Tyre Sensor Information

ISO Position	Sensor ID (Hex)	Real pressure (Bar)	Temperature (°Celsius)	Tyre pressure status	Tyre pressure threshold detection status	Tyre Module Power Supply Status
17	5CD81D9F	6,9	33	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
19	5CD7BC80	9,2	27	SufficientTyrePressure	NoWarningPressure	Sufficient
27	5CD7862C	7,8	34	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
29	5CD87769	7,5	28	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
37	5CD742BE	9,6	34	SufficientTyrePressure	NoWarningPressure	Sufficient
39	5CD00204	6,8	28	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient



START
Select Trailer diagnose connection:

ISO 7638
OBD II

Start Scan Runtime: 01:39,4

Read SUMS Data Auto 0 1

DETAILS
 Trailer Overview
 Detailed Trailer Overview
 Diagnostic Trouble Codes

IMPORT
Select Trailer Report File

FINISH
Generate PDF Please wait for 0:20,5

Device status:
 CAN Adapter: Connected
 CAN Connection: Connected
 UDS Diagnostics: OK

Select a diagnostic connection

Start of the Aspöck TPMS EOLT software.
(Reading data from the CAN bus)

Switch between simplified view, detailed view and diagnosed fault codes.
Further CAN bus data is available in the detailed view.

Import function for *Trailer-Report.txt*, which was generated following EOLT commissioning using the Aspöck TPMS Diagnostic Tool T350.
This function is disabled when 'Read Sums Data Auto 1' ☒ is selected.

Generation of the EOLT report in PDF format.

Connection status display



Manual input fields:

It is recommended that the entries be correctly assigned to the respective vehicle.

Trailer Overview

Set nominals and view input data

Vehicle Information

Brand of vehicle: _____

Type of vehicle: _____

ID of vehicle: _____

Test person: _____

INTEGRITY VALIDATION DATA (IVD)

The Aspöck Integrity Method uses a deterministic SHA-256 hash for Integrity Validation Data (IVD).

The basis for hash generation is:

- ECU software/firmware version
- ECU hardware version
- Parameters relevant to type-approval or conformity
- defined ECU configuration data

The hash represents the system's defined IVD value and serves as proof of integrity for the respective ECU or component configuration status within the framework of the OEM SUMS process in accordance with UN/ECE R156.

IVD Structure

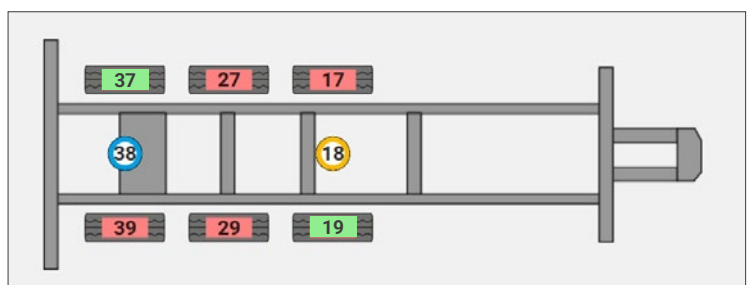
The system uses:

- IVD ECU (Overall integrity)
- IVD SW (Softwareversion)
- IVD PARAM (Set of parameters)

Integrity Validation Data (IVD)	
IVD ECU:	9ebac9c8dbd5a8be4564938fffd09049c0aa308b1f261802811ee90725819934
IVD SW:	b97e72ae45ef3bf62b5470136b0717cb7ed9447ccc523f8ea4c8ccbc8ad1214a
IVD PARAM:	6243dd44c3ab9af68ec1252f9a4f2224f74d0da9c3d6499bc80c4136e4f7e078

Graphical display of the trailer configuration:

The scanned configuration is imported, and the diagram is automatically generated to match the trailer configuration that has been recorded.





Optional input fields:

These fields are either read automatically or can be entered manually (only when Read SUMS DATA AUTO 0  is selected).

Receiver Information		
Receiver Type	Receiver position at vehicle (ISO position)	Serial number receiver
MAXRX	0x18	01917029924001750001
ERX_A1	0x38	
ERX_A2	0x	
ERX_B1	0x	
ERX_B2	0x	

Axle Information		
Axle ID	Nominal tyre pressure per axle (Bar):	Lift axle
1	8.50	☐
2	8.50	☐
3	8.50	☒

Tyre Sensor Information	
ISO Position	Sensor ID (Hex)
17	5CD81D9F
19	5CD7BC80
27	5CD7862C
29	5CD87769
37	5CD742BE
39	5CD80204

Diagnostic trouble Codes:

This menu option is used to read out the TPMS fault codes from the control unit. (Function available in OBD II mode only)

Diagnostic Trouble Codes (DTC)		
Active fault codes read from the ECU		
Code	Description	Axle
C3217-09	Vehicle speed timeout	
C3917-09	AMB (ambient temperature) timeout	

C code errors:

DCT	DESCRIPTION	NOTES
C3017	CAN Bus Off	The ECU has lost CAN communication
C3117	ECU Not Configured	ECU not configured
C3217	Vehicle Speed Timeout	No CAN signal received for vehicle speed
C3417	eRx Auto-Configuration Error	Automatic configuration of the eRx receiver has failed, or the receiver is not connected
C3917	AMB Timeout	No CAN signal received for ambient temperature. Not relevant for trailers
C3C17	Local Overvoltage	The ECU supply voltage is above the upper limit
C3D17	Local Undervoltage	The ECU supply voltage is below the lower limit



Datenfeld der TPMS-Daten:

In diesem Feld werden alle relevanten Daten angezeigt. Über die Detailansicht können zusätzliche Informationen abgerufen werden.

ISO Position	Sensor ID (Hex)	Real pressure (Bar)	Temperature (*Celsius)	Tyre pressure status	Tyre pressure threshold detection status	Tyre Module Power Supply Status
17	5CD81D9F	6,9	33	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
19	5CD7BC80	9,2	27	SufficientTyrePressure	NoWarningPressure	Sufficient
27	5CD7862C	7,8	34	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
29	5CD87769	7,5	28	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
37	5CD742BE	9,6	34	SufficientTyrePressure	NoWarningPressure	Sufficient
39	5CD80204	6,8	28	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient

①

②

③

④

⑤

⑥

⑦

- ① ISO Position: Sensor position according to the ISO standard.
- ② Sensor ID (Hex): Unique identification number of the tyre sensor in hexadecimal format. This field must either be filled in manually or the data must be imported from the *trailer-report.txt* file. In OBD II MODE, these are generated automatically.
- ③ Real Pressure (Bar): The measured tire pressure in bar.
- ④ Temperature (°C): The temperature measured in the tyre, given in degrees Celsius.
- ⑤ Tyre pressure status: Indicates the status of the tyre pressure.
- ⑥ Tyre pressure threshold detection: Indicates whether the measured pressure is within a specified threshold.
- ⑦ Power supply status: The power supply status of the tyre pressure sensor.

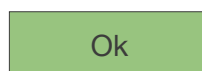
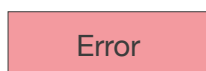
Status OK

Tyre Sensor Information						
ISO Position	Sensor ID (Hex)	Real pressure (Bar)	Temperature (*Celsius)	Tyre pressure status	Tyre pressure threshold detection status	Tyre Module Power Supply Status
19	0	9,2	27	SufficientTyrePressure	NoWarningPressure	Sufficient

Status NOK

Tyre Sensor Information						
ISO Position	Sensor ID (Hex)	Real pressure (Bar)	Temperature (*Celsius)	Tyre pressure status	Tyre pressure threshold detection status	Tyre Module Power Supply Status
17	0	6,9	33	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient

Color coding



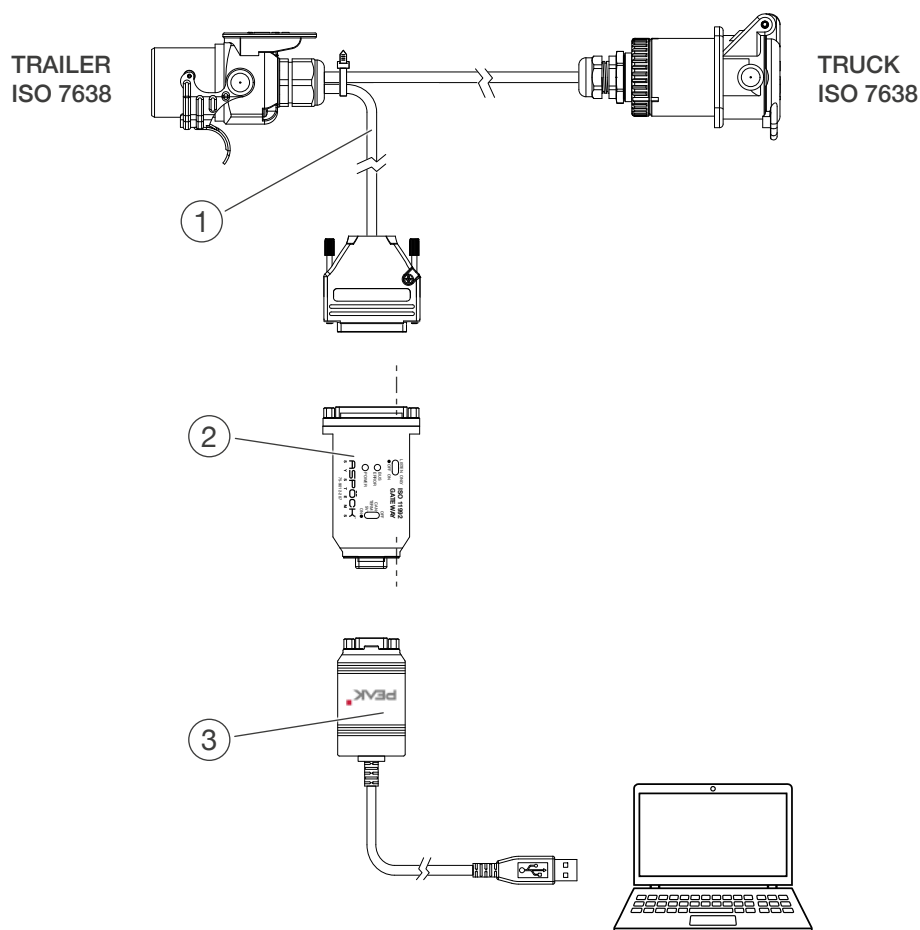


7.7.4 ASPÖCK TPMS EOLT INITIAL OPERATION

Step 1: TPMS EOLT software and connections

Variant 1: ISO 7638 EBS CAN

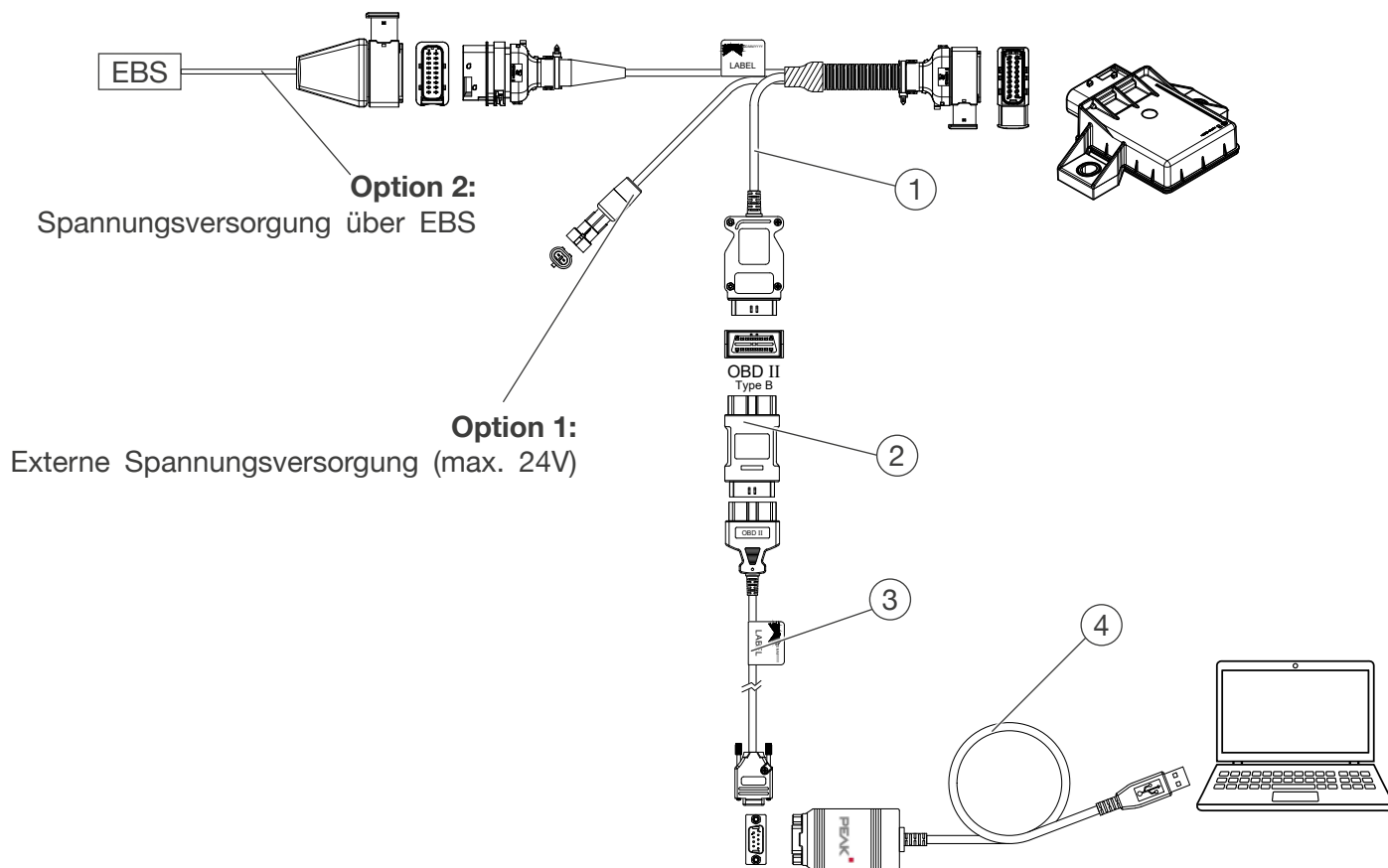
- Hardware connection:
 - Connect the *TPMS EOLT adapter* ① to the *Aspöck ISO 11992 Gateway* ②.
 - Then connect the *Aspöck ISO 11992 Gateway* ② to the PC via the *PCAN USB interface* ③ (see figure). This connection enables communication between the vehicle and the *Aspöck TPMS EOLT software*.





Variant 2: Subsystem-CAN ISO 11898

- **Connecting hardware to the CAN subsystem (ISO 11898):**
 - Connect the TPMS EOLT adapter ① to the OBD II adapter ②.
 - Connect the OBD II adapter ② to the EOL test adapter OBD ③.
 - Connect the EOL Test Adapter OBD ③ to the PC using the PCAN USB interface ④ (see illustration). This connection enables communication between the vehicle and the Aspöck TPMS EOLT software.





- Starting and preparing the software:
 - Open the *Aspöck TPMS EOLT software* on the PC.
 - Fill in all the required fields in the software. The software will automatically adopt and complete some of the data.

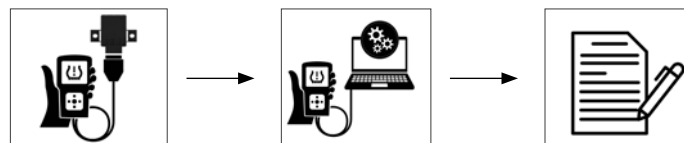


Step 2: Create the *Trailer-Report.txt* for vehicle parameters (OPTIONAL)

- System Installation and Configuration:
Install and configure the TPMS system according to the installation instructions. Then initialize and learn the MaxRx main receiver to the system to ensure connection with the sensors.



- Export *Trailer-Report.txt*:
After successful commissioning, export the vehicle parameters to a *Trailer-Report.txt* file. To do this, connect the *Aspöck TPMS Diagnostic Tool T350* to the PC using a USB-C cable and use the *Aspöck TPMS Config Uploader* to save the file.





- Import trailer report:
 - Import the saved *Trailer-Report.txt* file into the *Aspöck TPMS EOLT* software to load the vehicle's configuration data and complete the setup.



⚠ CAUTION

Danger due to unclear assignment!

The file *Trailer-Report.txt* must be named clearly to ensure it is clearly assigned to the respective vehicle.

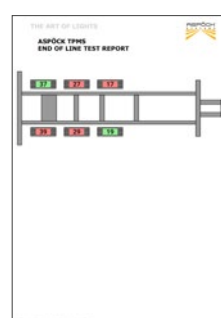
Step 3: Data review

In the TPMS data field, check all relevant data and use the detailed view for additional information.

Tyre Sensor Information						
ISO Position	Sensor ID (Hex)	Real pressure (Bar)	Temperature (°Celsius)	Tyre pressure status	Tyre pressure threshold detection status	Tyre Module Power Supply Status
17	0	6,9	33	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
19	0	9,2	27	SufficientTyrePressure	NoWarningPressure	Sufficient
27	0	7,8	34	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
29	0	7,5	28	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient
37	0	9,6	34	SufficientTyrePressure	NoWarningPressure	Sufficient
39	0	6,8	28	InsufficientTyrePressure	ExtremeUnderPressure	Sufficient

Step 4: Finalization and documentation

Export the final *EOLT* report and save the report for documentation purposes.



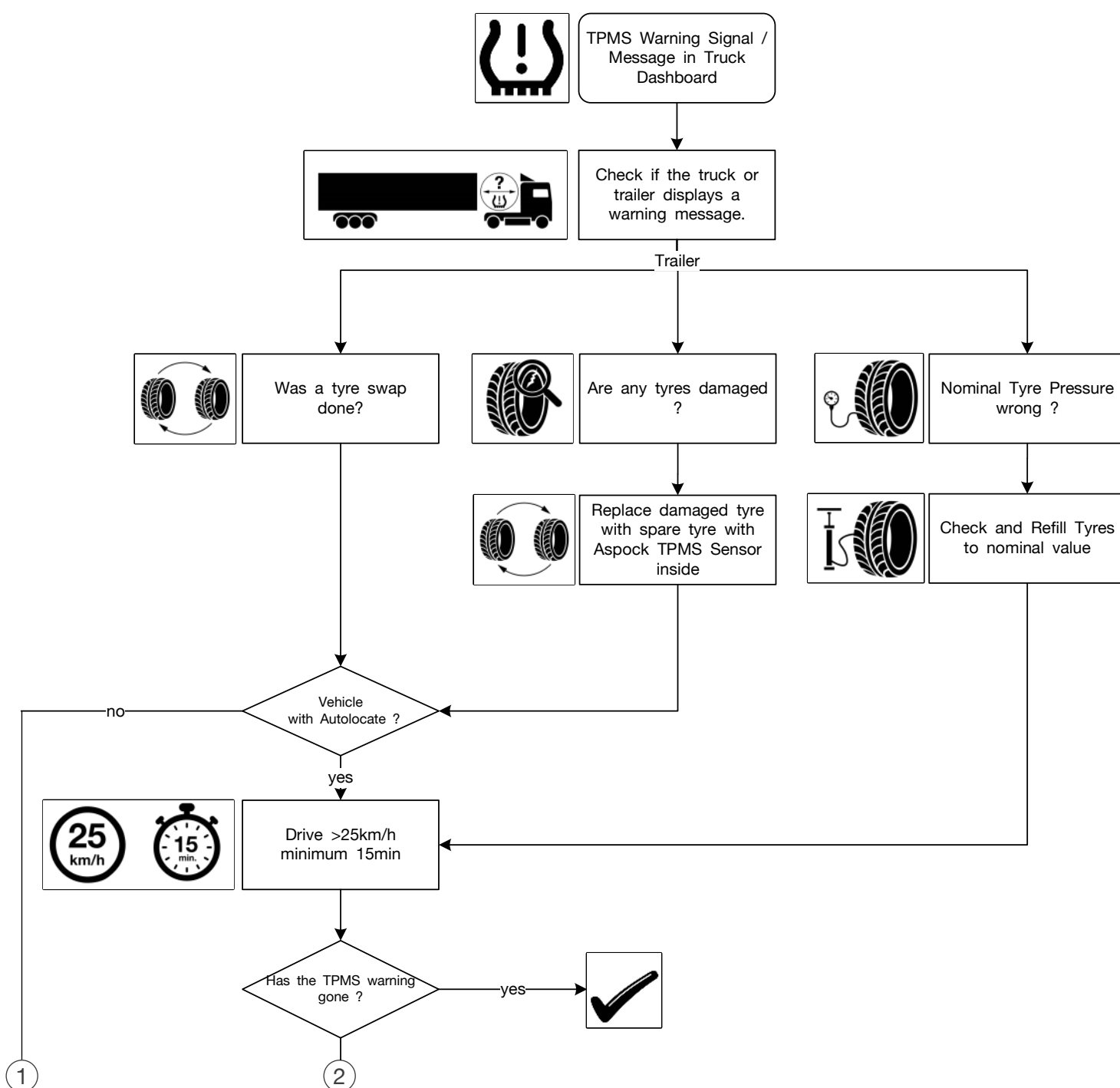


8. WORKSHOP INSTRUCTIONS

8.1 MAINTENANCE

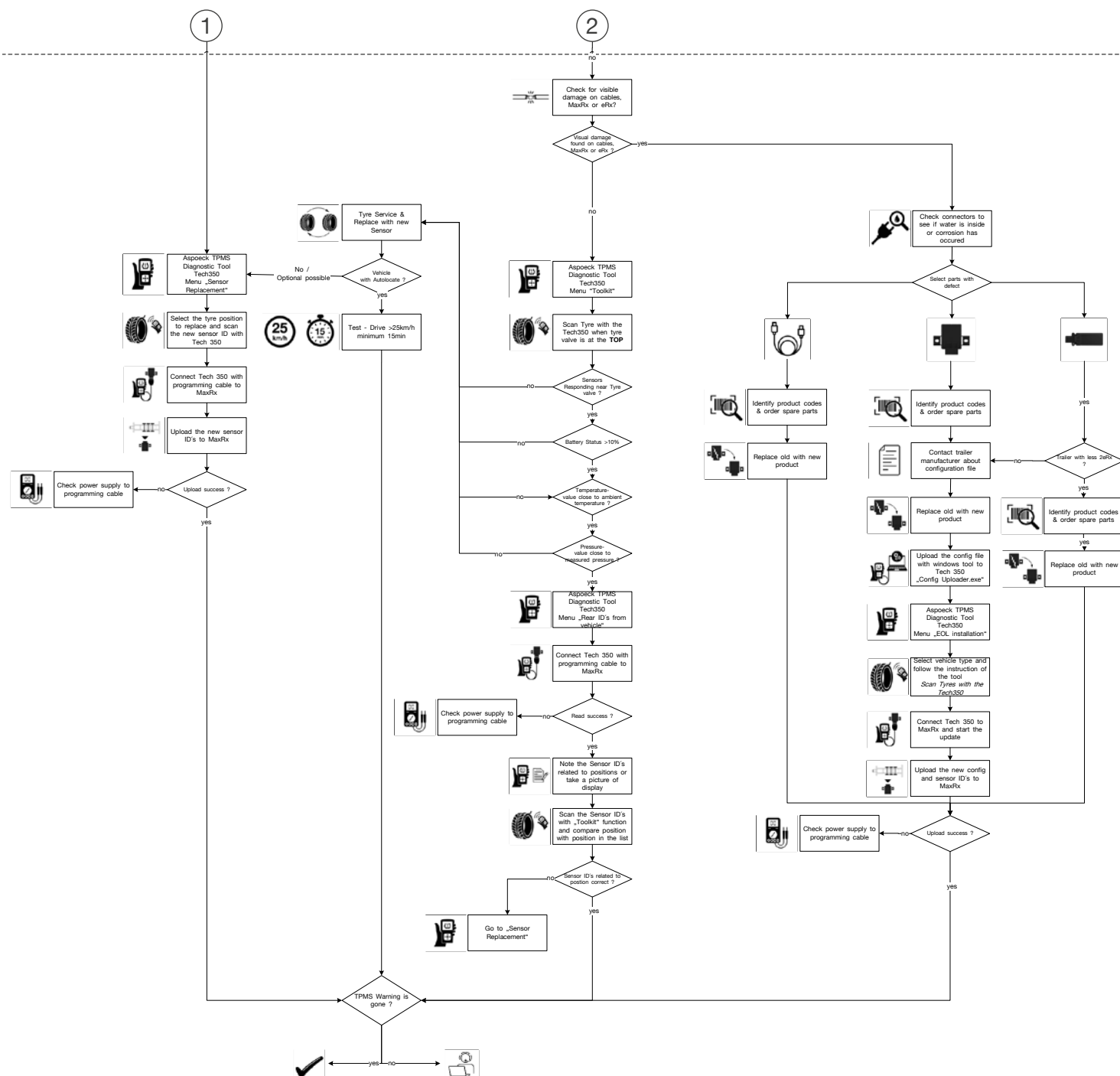
Aspöck TPMS is basically maintenance-free. If the display shows a malfunction, a diagnosis should be carried out to identify the fault.

8.2 SELFDIAGNOSIS





8.3 DIAGNOSIS ASPÖCK SERVICE WORKSHOP



NOTE

The complete Aspöck TPMS repair instructions can be found in DIN A3 format for printing under chapter „11. Aspöck TPMS repair instructions“.

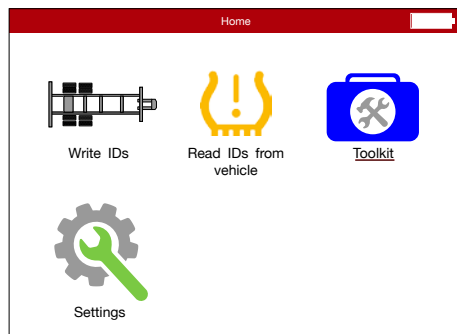


8.4 REPAIR

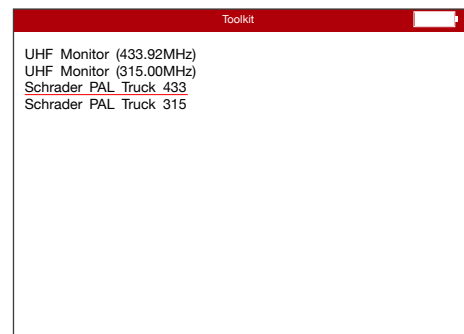
8.4.1 CHECKING SENSORS

With the read function of the Aspöck TPMS Diagnostic Tool T350, each individual sensor can be read out. The most important information is the pressure, the temperature, the sensor ID and the battery status of the tyre.

- ① Click on *Toolkit* with *Enter* to check the sensors.



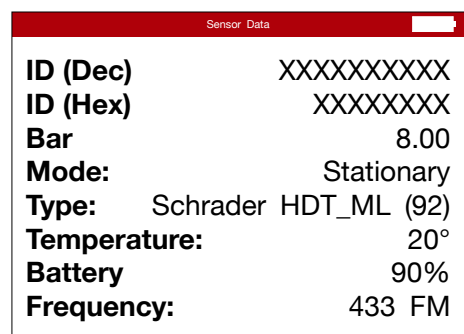
- ② Click *Enter* on *Schrader PAL Truck 355* to check the sensors.



- ③ Position the Aspöck TPMS Diagnostic Tool T350 close to the valve. Do not hold the device directly on the rim, but on the rubber.



- ④ Press *Enter* to confirm the position. The device automatically searches for the sensor.





NOTE

Risk of misinformation!

When checking the sensors, the tyre valve must be in the upper area of the tyre. If the sensor is no longer connected to the tyre valve, but the sensor is still functional and sends incorrect information to the Aspöck TPMS Diagnostic Tool T350.

NOTE

Risk of misinformation!

On trailers with dual tyres, the two tyres are often mounted offset by 180° so that the valves are opposite each other. If the sensor is loose, the sensor on the inner tyre may be detected. If a loose sensor is suspected, the outer tyre should be removed for closer inspection.

⚠ CAUTION

Danger due to empty battery!

Check the battery status: If it is below 10%, this can affect the transmission of information to the Aspöck TPMS Diagnostic Tool T350. In this case, the sensor must be replaced.

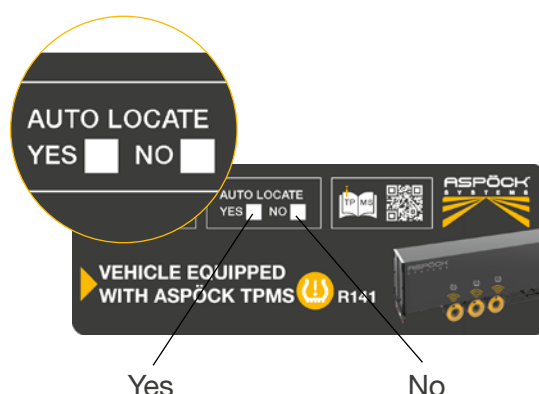
8.4.1.1 SENSOR REPLACEMENT

Read chapter „6.2 Mounting the sensors“.

NOTE

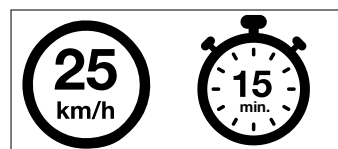
Check for Autolocate!

If an Aspöck TPMS system is used, a sticker is affixed to the trailer. This indicates whether the system supports the Autolocate function or not.



8.4.1.2 SENSOR REPLACEMENT WITH AUTOLOCATE

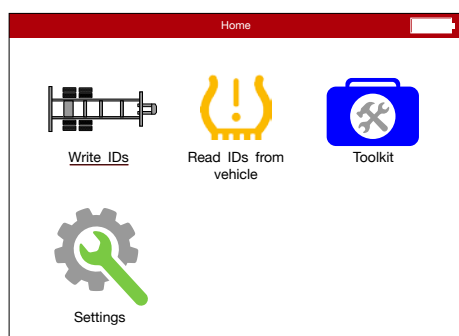
After replacing a sensor, the vehicle must be driven at a speed of over 25 km/h for at least 15 minutes. The sensor will self-learn during this time.



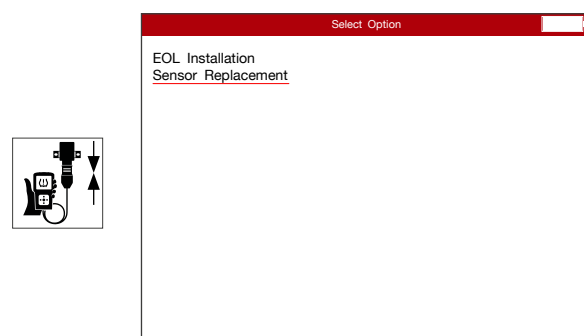


8.4.1.3 SENSOR REPLACEMENT WITHOUT AUTOLOCATE

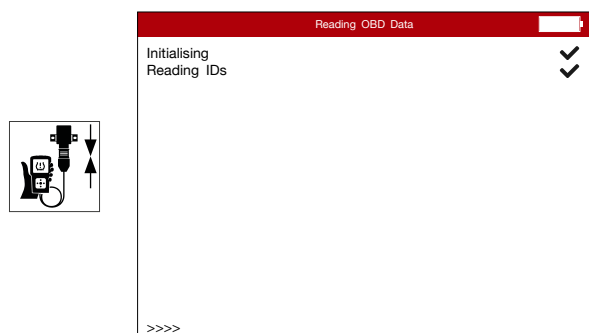
- ① Click on *Write IDs* with *Enter* to teach in the sensors.



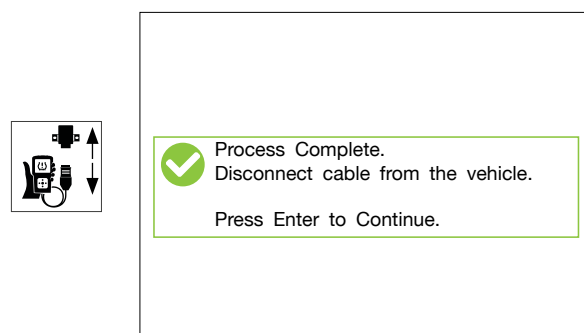
- ② Click on *Sensor Replacement* with *Enter* to teach in the replaced sensors.



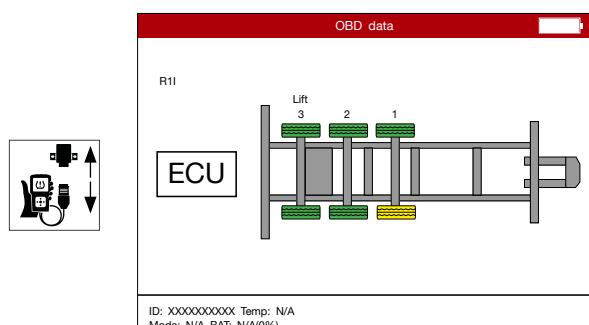
- ③ Sensor IDs are loaded.



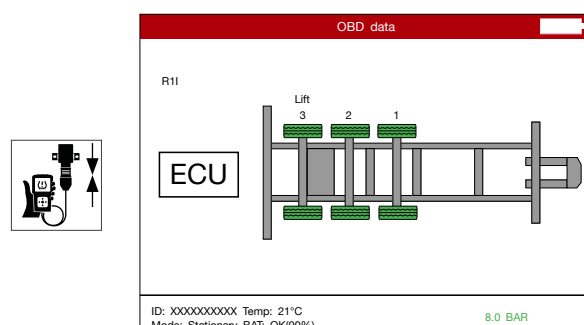
- ④ The programming cable can now be disconnected.



- ⑤ Press *Enter* to click on the tyre position that is to be replaced and scan the new sensor ID.



- ⑥ Click *Enter* at the tyre position that is to be replaced to scan the new sensor ID.



NOTE

Danger to functionality!

The OBD adapter and the programming cable must be disconnected when programming the sensors!



7



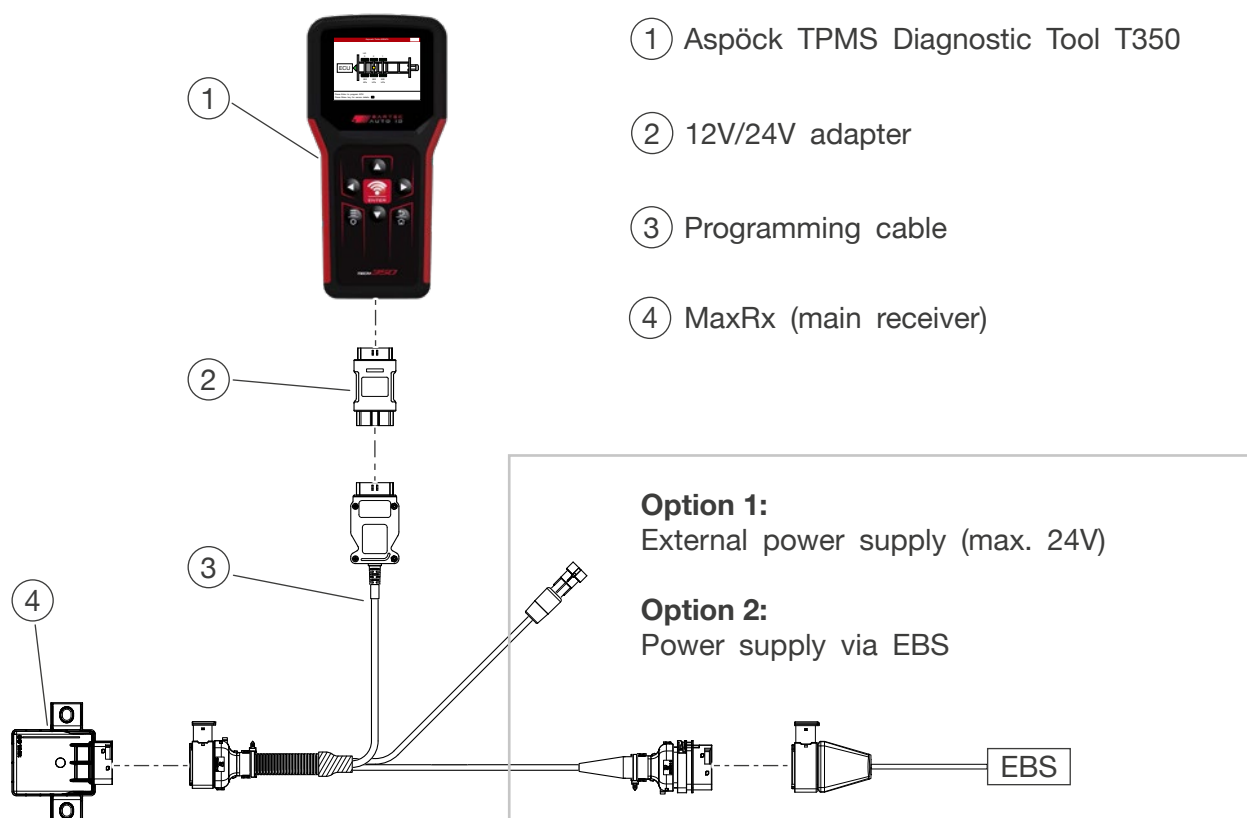
Process Complete.
Disconnect cable from the vehicle.

Press Enter to Continue.



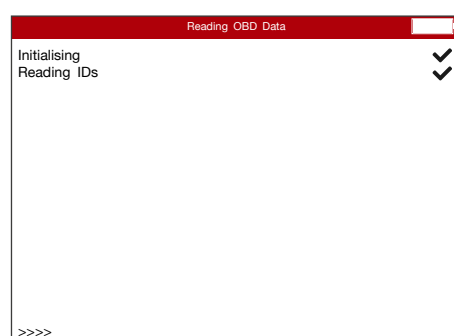
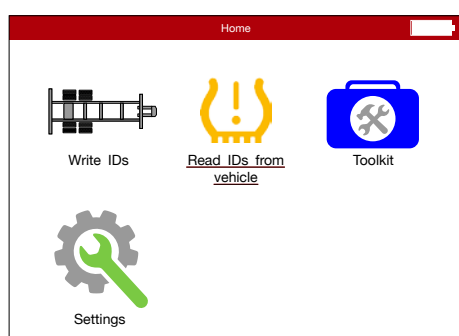
8.4.2 CHECKING THE FUNCTIONALITY OF THE MAXRX

Connect the Aspöck TPMS Diagnostic Tool T350 to the programming cable to check the MaxRx.



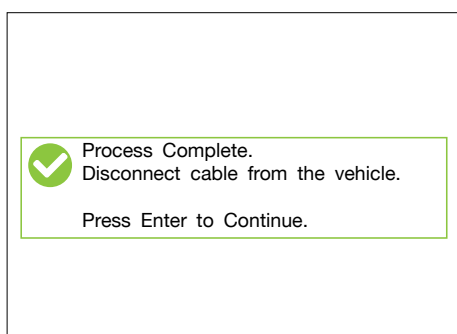
① Click on *Read IDs from vehicle* with *Enter* to read TPMS data.

② The Aspöck TPMS Diagnostic Tool T350 establishes a connection with the MaxRx main receiver.





- ③ Click *Enter* to continue.



- ④ The Aspöck TPMS Diagnostic Tool T350 displays a list of all sensors that are programmed on the MaxRx main receiver.

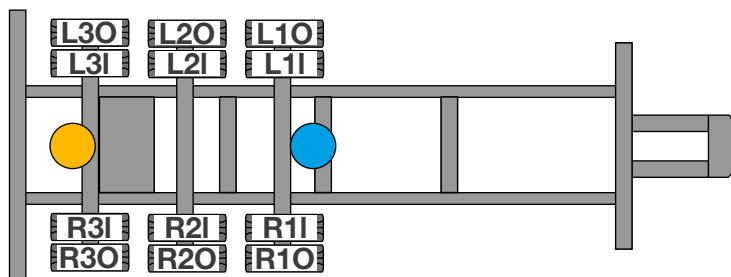
ID (Hex)	
L1I	5C6D3E4A
R1I	5C6D42D6
L2I	5C6D4E1A
R2I	5C6D4DDA
L3I	5C6D41CD
R3I	5C6D422F

ESC = Exit

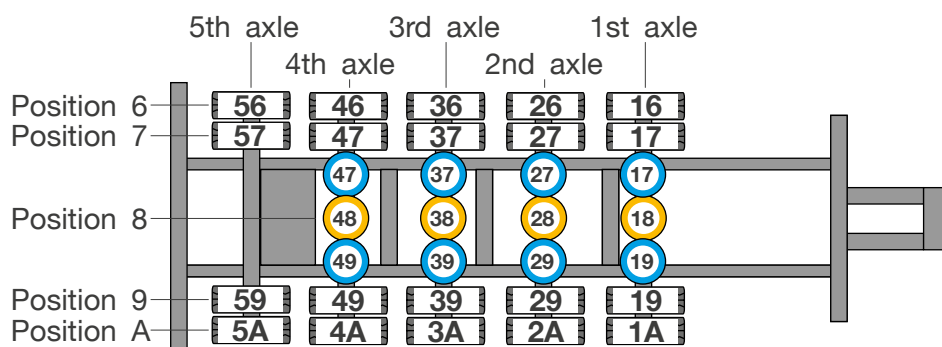
Legend:

R = Right side of vehicle
 L = Left side of vehicle
 1 = First vehicle axle
 2 = Second vehicle axle
 I = Inner tyre
 O = Outer tyre

Example:



8.4.3 TRAILER TYRE ISO POSITIONS





NOTE

Danger of mixing up tyres!

Note the sensor IDs for the corresponding positions or take a photo.

WARNING

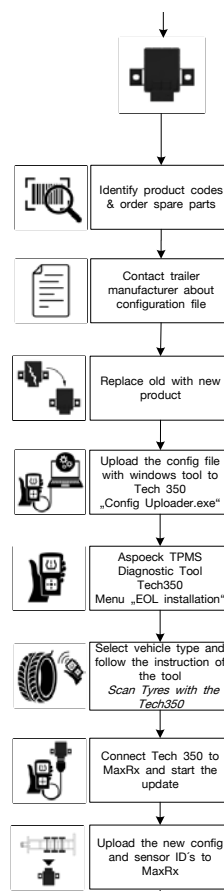
Danger of misinformation!

Tyres are often changed without reconfiguring the positions or relearning the sensor IDs with the Aspöck TPMS Diagnostic Tool T350. As a result, the TPMS can erroneously issue an error or display the tyre pressure at an incorrect position.



8.4.2.1 MAXRX REPLACEMENT

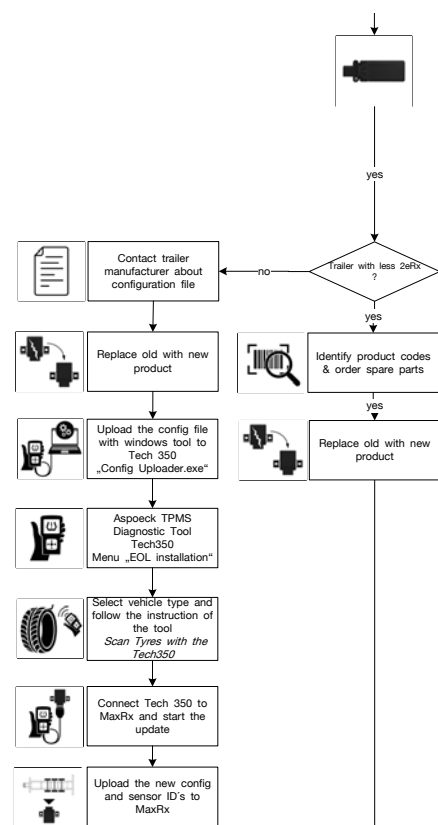
- ① If the MaxRx is replaced, it must also be reprogrammed with the configuration file.
To do this, contact the trailer manufacturer and request the appropriate configuration file for the trailer.
- ② Unplug the defective MaxRx main receiver and replace it with a new one.
- ③ The new MaxRx must now be programmed with the configuration file by following the instructions in chapter „7.3 Upload to the Aspöck TPMS Diagnostic Tool T350“.
- ④ As the new MaxRx does not have any information about the installed sensor IDs, these must be rescanned and transferred to the MaxRx. To do this, read chapter „7.4 Initial commissioning“.



8.4.3 ERX REPLACEMENT

- ① Does the trailer have less than 2 eRx installed?

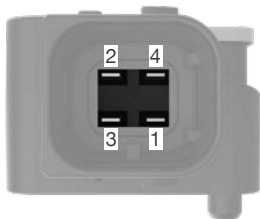
② Yes	No
③ Replace the defective eRx additional receiver with a new one.	Please contact the vehicle manufacturer or specialist workshop.
④ No further programming necessary.	





9. CIRCUIT DIAGRAMS AND PIN ASSIGNMENTS

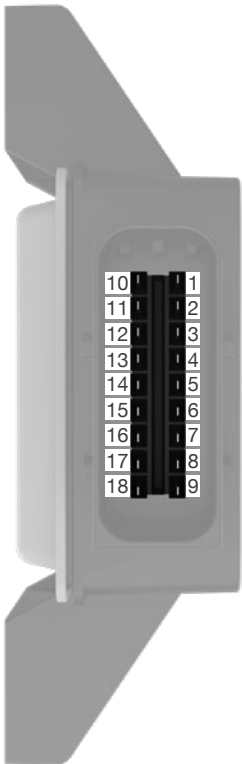
4 pol. HDSCS



PIN NUMBER	INPUT / OUTPUT
1	Ground
2	CAN Low
3	+12V
4	CAN High

18 pol. HDSCS

PIN NUMBER	INPUT / OUTPUT
10	eRx1 VDD
11	Ground
12	Ground (KL31)
13	Ground
14	Chassis CAN Low
15	Chassis CAN High
16	N/A
17	Ground
18	eRx2 VDD



PIN NUMBER	INPUT / OUTPUT
1	eRx1 CAN Low
2	eRx1 CAN High
3	KL15
4	+24V
5	Chassis CAN Low
6	Chassis CAN High
7	N/A
8	eRx2 CAN Low
9	eRx2 CAN High



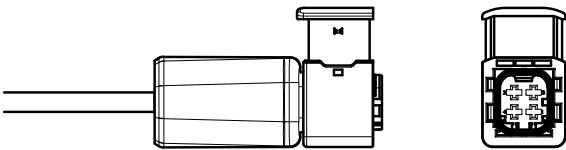
Knorr EBS G2

PIN NUMBER	INPUT / OUTPUT	PIN COLOUR
1	-	-
2	-	-
3	+VDC Bat	
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	CAN Low	
10	CAN High	
11	Ground	
12	-	-



Knorr EBS G3

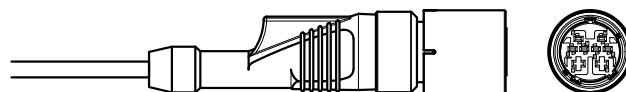
PIN NUMBER	INPUT / OUTPUT	PIN COLOUR
1	+VDC Bat	
2	CAN High	
3	CAN Low	
4	Ground	





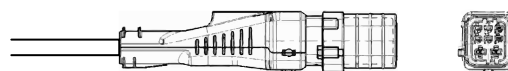
Wabco TEBS-E

PIN NUMBER	INPUT / OUTPUT	PIN COLOUR
1	+VDC Bat	
2	CAN High	
3	CAN Low	
4	Ground	
5	-	
6	-	
7	-	
8	Wheel speed sensor	



Wabco TEBS-F

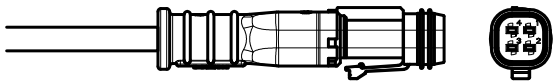
PIN NUMBER	INPUT / OUTPUT	PIN COLOUR
1	+VDC Bat	
2	-	-
3	-	-
4	Ground	
5	CAN High	
6	-	-
7	-	-
8	CAN Low	





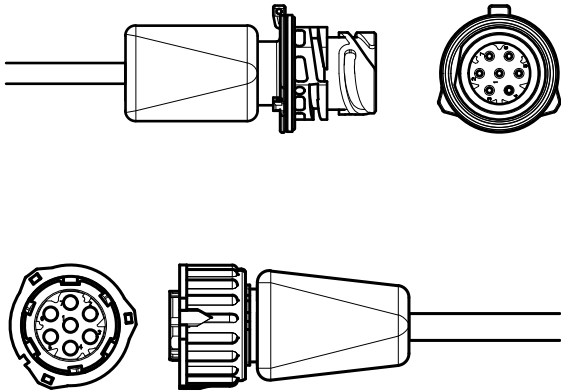
Haldex Gen 4

PIN NUMBER	INPUT / OUTPUT	PIN COLOUR
1	+VDC Bat	Red
2	CAN High	Green
3	CAN Low	Yellow
4	Ground	Blue



DIN AMP 7 pol.

PIN NUMBER	INPUT / OUTPUT	PIN COLOUR
1	-	-
2	+VDC Bat	Red
3	-	-
4	-	-
5	Ground	Blue
6	CAN Low	Green
7	CAN High	Yellow

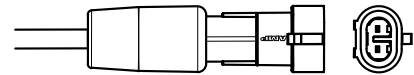




Programming cable:

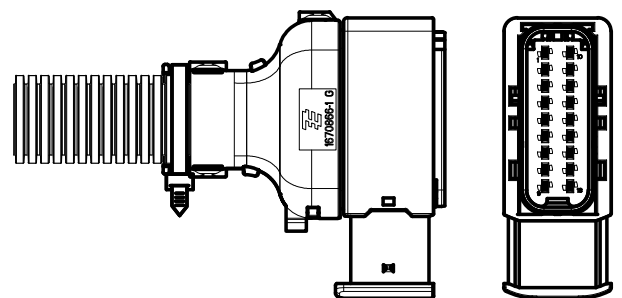
AMP Superseal 2 pol.

PIN NUMBER	INPUT / OUTPUT	PIN COLOUR
1	Ground	○
2	+DC24V	●



HDSCS 18 pol. direction to EBS

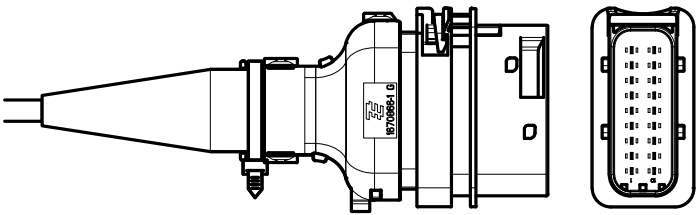
PIN NUMBER	INPUT / OUTPUT	PIN COLOUR
1	eRx1 CAN Low	-
2	eRx1 CAN High	-
3	KL15	●
4	+24V	-
5	Chassis CAN Low	-
6	Chassis CAN High	-
7	N/A	-
8	eRx2 CAN Low	-
9	eRx2 CAN High	-
10	eRx1 VDD	-
11	eRx1 Ground	-
12	N/A	-
13	Ground	○
14	Chassis CAN Low	-
15	Chassis CAN High	-
16	N/A	-
17	eRx2 Ground	-
18	eRx2 VDD	-





HDSCS 18 pol. direction MaxRx

PIN NUMBER	INPUT / OUTPUT	PIN COLOUR	ÜBERBRÜCKT
1	eRx1 CAN Low	-	-
2	eRx1 CAN High	-	-
3	KL15	-	
4	+24V	-	
5	Chassis CAN Low		-
6	Chassis CAN High		-
7	N/A	-	-
8	eRx2 CAN Low	-	-
9	eRx2 CAN High	-	-
10	eRx1 VDD	-	-
11	eRx1 Ground	-	-
12	N/A	-	-
13	Ground	-	
14	Chassis CAN Low	-	-
15	Chassis CAN High	-	-
16	N/A	-	-
17	eRx2 Ground	-	-
18	eRx2 VDD	-	-





10. RECYCLING

- **Decommissioning and disposal:**

Please observe the applicable legal regulations for the decommissioning and disposal of this product. In particular, observe the regulations on the disposal of batteries, equipment and electrical systems.

- **Electrical appliances:**

Collect electrical appliances separately from household or commercial waste. These can be recycled or disposed of properly. If possible, pass on the old appliance for in-house disposal or contact the manufacturer for specific instructions.

- **Environmental protection:**

Electrical and electronic equipment must be collected separately from unsorted municipal waste and disposed of or recycled properly. Improper disposal can damage health and the environment. Contact specialised waste disposal companies or the responsible authorities for detailed information.

- **Packaging:**

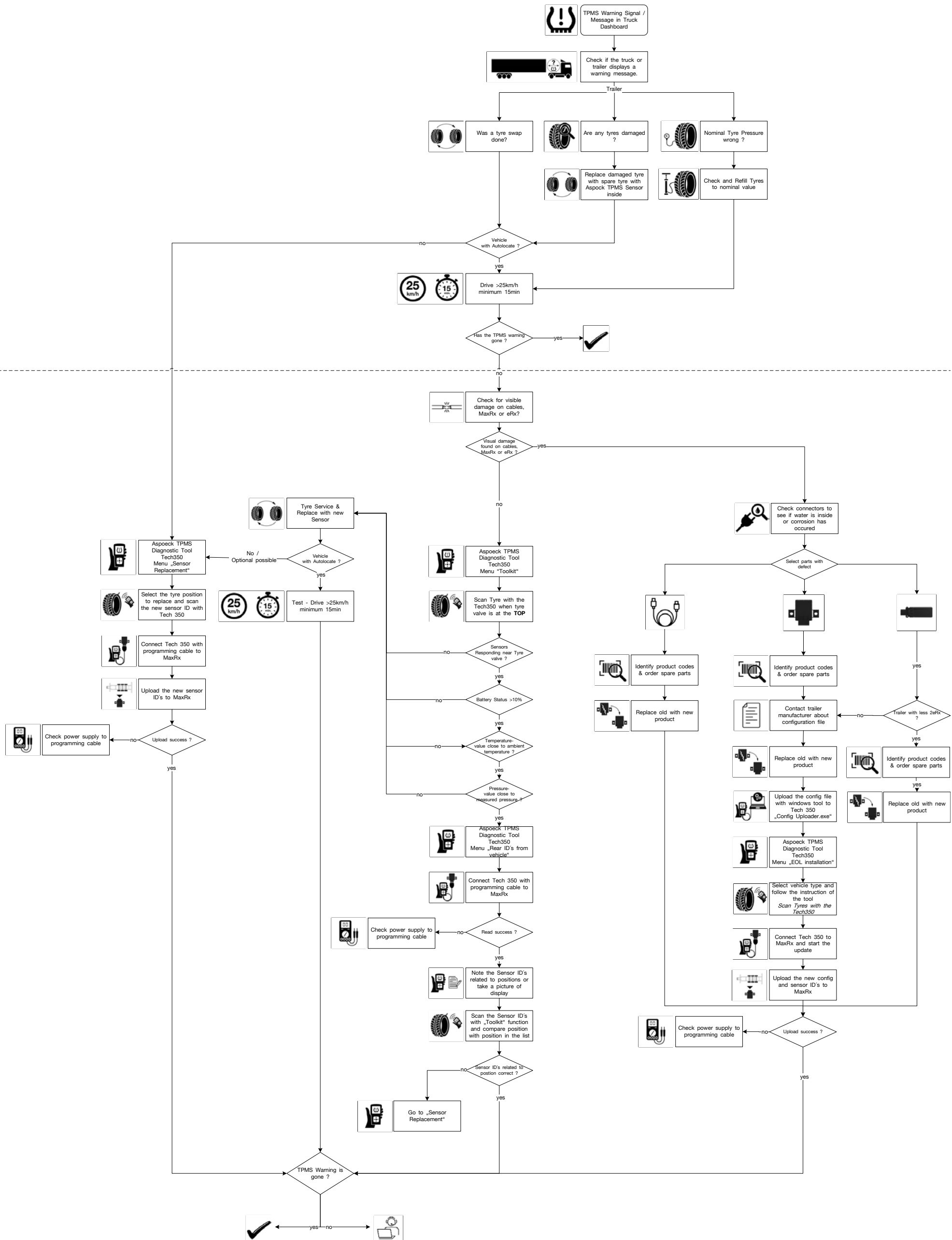
Packaging must be disposed of separately. Paper, cardboard and plastics can be recycled.



11. ASPÖCK TPMS REPAIR MANUAL

Truck Driver & Fleet

TPMS Service Workshop



THE ART OF LIGHTS

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