



Beru Tire Safety System (TSS) The Tire Pressure Control

Important when changing tires: The installation of the correct wheel electronic unit/valves

Too low air pressure causes higher flexure work and greater tire wear, increased gasoline consumption and higher danger of aquaplaning. At high speed, the tires no longer withstand the load - and burst. The Beru Tire Safety System (TSS) warns of sudden as well as slow pressure loss and therefore of underpressure. Breakdowns can be avoided effectively. The TSS was awarded the distinguished Innovation Prize. It is the only tire pressure control system approved by German automobile manufacturers as original equipment for the permanent monitoring of slow pressure loss as well. More and more drivers are deciding for this increase in safety and comfort.

For the workshop, this means: Winter tires also have to be equipped with the correct wheel electronics and valves.

This is how you can recognize whether or not a vehicle is equipped with the Tire Safety System:
Didn't the customer provide information when accepting the order? Then you can recognize the TSS with these details.



Aluminum colored valve caps, collar nuts and valves.

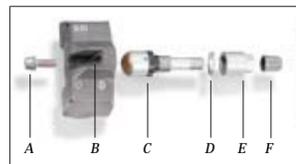


TSS symbol on the instrument panel (lights up when ignition is switched on).



Set or calibration button, most often in the area of the center console or in the dashboard at the right beside the steering wheel.

Special feature: For Mercedes-Benz vehicles built from 9/2000, the TSS can be operated using the multi-function steering wheel (then there is no set/calibration button installed in this case).



The valve and tire electronic unit installation set:

- A Self-locking (Torx) mounting screw
- B Wheel electronic unit
- C Valve with shoulder seal
- D Spacer ring
- E Collar nut
- F Valve cap
- G Mounting pin

Note: Instructions apply to standard tires. Special instructions from the tire/vehicle manufacturer as well as the manufacturer of the installation machines are to be followed, especially in case of tires with emergency run characteristics (run flat tires).

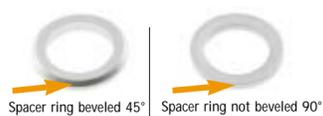
INSTALLATION

Quick Check:



Does the transmission frequency match ...
The transmission frequency of the new wheel electronic unit must match the frequency of the system. As a rule, a frequency of 433 MHz is generally used (dark gray electronic housing color); 315 MHz is typically used in the USA, Canada and the Far East (light gray color of the electronic unit). MHz information is engraved by laser at the bottom right on the sensor.
NOTE: For quick control in case of later queries, we recommend noting the Ident. Code of the new wheel electronic unit and entering it on the invoice or the operating instructions.

... and do you have the correct spacer ring?
Two kinds of spacer rings are enclosed with the system: Spacer ring beveled (45°) for beveled valve holes (e.g. MB and Audi original equipment). Spacer ring not beveled (90°) for valve holes which are not beveled (e.g. BMW original equipment). In case of doubt, rim technical documents or rim manufacturers will provide further help.



- 1 Push valve (C, see explanation, above right) with wheel electronic unit (B) screwed on through valve hole of the rim. Put spacer ring (D) in place and screw collar nut (E) until contact.
- 2 Put the installation pin into the radial boring of the valve and tighten collar nut with 4 Nm (± 0.5) torque. ATTENTION: Remove installation pin again immediately. Otherwise, the tire will be damaged during further installation.
- 3 After removal of the installation pin, press the wheel electronic unit tightly into the deep well of the rim. Now tighten self-locking (Torx) mounting screw with 4 Nm (± 0.5) torque.
- 4 The wheel electronic unit must now lie flat in the drop centre.
- 5 Now clamp the wheel onto the installation machine (in such a way that the installation head is located on the side opposite the valve, meaning offset by 180°). Rub soapy water onto tire bead and rim lip. Now, slide the lower bead of the tire partly over the rim lip. Adjust the installation head on the rim lip and pull the lower tire bead onto the rim. ATTENTION: During installation, attention must be paid to ensure that the tire bead does not press against the wheel electronic unit!
- 6 After the lower tire bead, pull the upper tire bead onto the rim as well. The valve must also be located on the opposite side of the installation head (offset by 180°). Then remove the complete wheel from the tire mounting unit. Increase tire pressure without valve insert step-by-step up to maximum 43,5 psi (spring pressure - until tire bead slides uniformly over the safety shoulders). Now, screw new valve insert into place and fill tire to prescribed air pressure. Put valve cap in place and balance wheel.
- 7 Mount complete wheels onto the vehicle.
- 8 New initialization/calibration (see Operating Instructions from the vehicle manufacturer) of the Beru Tire Safety System is necessary when
 - The tire pressure has been changed
 - The spare wheel has been mounted as a running wheel
 - A new wheel electronic unit has been installed
 - The control unit has been replaced

Wheel electronic unit types

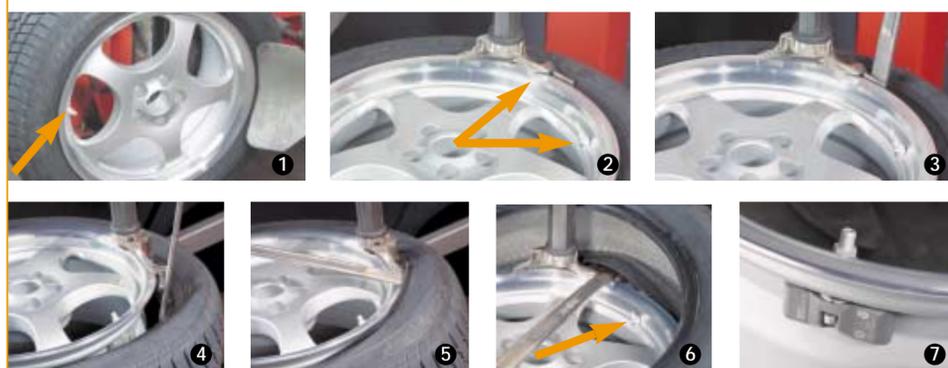
Beru Identification	Transmission frequency	Beru Order No.	Use*
RDE 001	433 MHz	0 532 207 001	Audi, Ferrari, Mercedes-Benz
RDE 002	433 MHz	0 532 207 002	BMW
RDE 003	433 MHz	0 532 207 003	BMW X5**, Land Rover**
RDE 004	315 MHz	0 532 107 001	Audi, Mercedes Benz

* Application is only valid for vehicles which are originally equipped with Beru TSS
** with stronger transmission power

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REMOVAL

- 1 Screw valve insert out of valve and let air discharge completely. Remove balancing weights. Press tire off the safety shoulder inside and outside. Attention: Always be sure to apply pressure shoe 180° offset from the valve as the tire electronic unit can otherwise be damaged.
- 2 Clamp the wheel onto the installation machine. Rub soapy water onto tire bead and rim lip. ATTENTION: Position installation head approx. 15 cm behind the valve to prevent damage to the tire electronic unit.
- 3 Place lever on the tire bead.
- 4 Lift tire bead with mounting iron/tire shoe ...
- 5 ... over the installation head and pull tire away.



- 6 Then pull the lower tire bead away. ATTENTION: Position installation head approx. 15 cm behind the valve - and pay attention to ensure that the tire bead does not press onto the tire electronic unit during the removal operation.
- 7 Perform visual inspection: Check rim, wheel electronic unit, valve body with shoulder seal in assembled condition for damage.

If the contact points of the wheel electronic unit still rest in the deep well of the rim, it is enough to replace the valve insert. (Replace with nickel-plated design Type 20/30, DIN 7757; Alligator Order No. 315 006). If the contact points of the wheel electronic unit no longer rest in the deep well of the rim, the complete valve must be replaced.

ATTENTION: Do not treat wheel electronic unit with compressed air, installation paste, solvents or other cleaning materials. The rim may not be cleaned with high pressure if the tire has been removed and the wheel electronic unit is installed. Do not scrape the filter surface of the wheel electronic unit to clean it. Remove dirt only with clean, lint-free cloth.

IMPORTANT INFORMATION

Do not retighten self-locking mounting screws and collar nuts.

Replace valve in principle if:
- Wheel electronic unit is removed
- Self-locking mounting screw is loose
- Collar nut is loose

Replace wheel electronic unit in principle if:
- Housing is visibly damaged
- Filter area is so dirty that it cannot be wiped clean

Valve Types

Beru Identification	Beru Order No.	Alligator Order No.	Valve Length	Color Identification
RDV 001	0 535 007 001	590338	L = 43 mm	none
RDV 002	0 535 007 002	590308	L = 48 mm	green
RDV 003	0 535 007 003	590388	L = 49 mm	black
RDV 004	0 535 007 004	590358	L = 51 mm	orange

Valve hole diameter L1 = 11.3 mm (+ 0.4 mm)

ATTENTION: When converting to other wheels or wheel sizes, the necessary valve type/spacer ring is to be taken from the tire's technical data/ABE or to be obtained from the wheel manufacturer.