

FINAL TEST PROCEDURE

TROUBLE-SHOOTING

- 1.) Switch on ignition, and engage reverse gear. (Resp. in case of antenna installed in the front bumper: Power the device by the recommended luminous switch.)
- 2.) If EPS[®] can calibrate and adjust itself, the **OK-signal (deep + high double beep)** indicates that **EPS[®] is ready for operation.** - **Otherwise:-**
 1. **DEFECT-signal** (3 times alternating high and deep tone) indicates "EPS[®] can't work": Check and repair connection or installation of the EPS[®] antenna.
 2. If the loudspeaker does not emit any sound at all, check it itself, its wires and its connections (as well as the feeding connections to +12V and ground).
- 3.) **Car at rest, check** the ranges of the 3 warning steps. **Slowly** approach hands to antenna. **PRE-alarm** beeps start at 50 cm, then succeeding faster, proceeding at 25 cm in the higher **STOP-beeps**, and finally the high **CONTACT-alarm**.

! In case of fast approach or brief halt (while warnings have already started), **PRE-alarm-beeps** are not emitted any more (hence switch on EPS[®] anew.)

 - 3.a If **PRE-alarm-range** is smaller than 50 cm, check selection of dip-switches...
 - 3.b ... enlarge, if possible, the distance between antenna and car's metal...
 - 3.c ...fix, lay, and connect in parallel a 2nd antenna (at first provisionally any wire - see "installation", item 1). If the range remains still too small, vary the distance between the two antennas.
- 4.) If the operation of EPS[®] is correct in case of non-moving vehicle, **now verify by driving carefully and slowly** that EPS[®] also duly operates in moving vehicle.
 4. If there is no acoustic signal at all, fix ground connection directly to car's body.
 5. If slow driving generates 'senseless' beeps, check the dip-switch-selection, secure that the antenna-sensor (incl. antenna-wire, central-unit) is fastened tightly and far enough from road and wheels, and that nothing is moving within its reach. (**NOTE:** If need be, couple antenna to ground by a resistor of about 50 kOhm to reduce its range.)

TECHNICAL DATA

power supply: 9.5V up to 18 V max. current consumption
operation temperature: -20°C up to +85°C (at permanent sound) 70 mA

GENERAL SECURITY DIRECTIONS FOR THE INSTALLATION:

- Observe the security directions and injunctions prescribed by car's producer and handicraft.
- When working on the car's electrics, first - if possible - disconnect battery's minus-pole (negative) to prevent short circuit risks. NOTE: On account of disconnecting car's battery all transitory memories may lose their programmed data, and may require a re-programming or new input or adaptation (car- and engine-management, clocks, radios, heaters....).
- Verify electrical voltages and polarities only by diode-volt-tester or voltmeter. Other test-lamps may damage or unintentionally trigger electrical components of the car.
- When drilling, take care of existing wires, tubes... and sufficient space for drill's leaving.
- If not well versed in car electrics, it is commendable to let an expert workshop install EPS[®].

RECYCLING DIRECTIONS:

Ensure to deposit recyclable or environmental harmful components of electronics according to the regulations. In case of doubt, contact the supplier.

★ EPS[®] PLUS with antenna-tape (08/2012) ★ TOBÉ GmbH, D-52068 Aachen ★



e1 02 1728

European Type-Approval

E.P.S.[®] PLUS

parking-aid with antenna-sensor

invisible inside the plastic bumper:
protects the whole width of the car and its corners

aid for close-to-bumper manoeuvring

signalizes approach of or towards obstacles
with sequence of 3-grade acoustical warnings

USER AND INSTALLATION MANUAL

working principle:

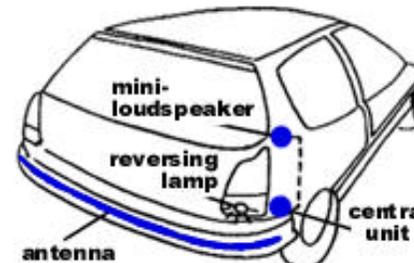
The unique EPS[®] parking-aid enables real close-to-bumper manoeuvring.

Covering the whole bumper, and by emitting electromagnetic waves of low intensity, the EPS[®] antenna sensor generates an unbroken (electrostatic) protection zone all around this bumper.

EPS[®] signalizes by 3-grade warnings those obstacles, whose distance to the antenna just decreases, and which absorb its field energy by entering into this unbroken zone.

- !** In order to enable the EPS[®]-parking-aid to exploit the very last centimetres, it is absolutely necessary **to manoeuvre very slow !**

Detection range of antenna-sensor can be adjusted by **2 dip-switches**.



Easy fitting without drilling, without lacquer: Electrically EPS[®] only must be connected to a switchable power supply in the car. Rear bumper: to the reversing lamp. Front bumper: by luminous switch to +15.

- **central unit** (A): to be properly fixed in a dry place close to the antenna connection.
- **buzzer** Ø 25mm (B): in the driver's cabin.
- **antenna** (C): tightly fix the self-adhesive tape inside the bumper's plastic sheath - covering the car's whole width and corners
- **antenna-flex** (D), **buzzer-flex** (E), **mastic** (H), **12V-flex** (F)

Optionally a **7-LED display** (K) is available.

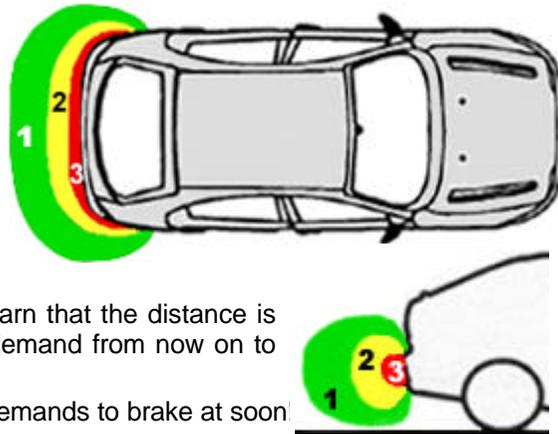
- !** The whole antenna-sensor (C+D+A) must be motionless in every place !

BEFORE USE, READ AND OBSERVE ALL INSTRUCTIONS

EPS®: WARNING-SIGNALS AND FUNCTIONS

Switched on by engaging the reverse gear, or in case of front bumper by (luminous) switch, EPS® initially calibrates itself at soon, and indicates by

→ **DEFECT-signal** (3-times **high + deep beeps**), if antenna is disconnected, or by
 → **OK-signal** (= **deep-high double-beep**) that EPS® is **ready to detect and signalize** obstacles of any shape and nearly any material (NOTE: except 'insulators' like empty plastic bucket, dry wood, glass...), as long as their close distance to the antenna goes on to be reduced. Material characteristics, speed of approach, initial calibration, and dip-switch-selection determine, how and at which distance the obstacle will be signalized.



⚠ **Only very slow approach** enables EPS® to signalize the obstacle by **3 warning-steps**:-

(1) **PRE-alarm: deep beeps** warn, if the distance is already below ca. **50 cm**. If distance goes on decreasing, these beeps sound more and more rapidly.

(2) **STOP-alarm: medium beeps** warn that the distance is already below ca. **25 cm**, and demand from now on to be ready to stop immediately.

(3) **CONTACT-alarm: high sound** demands to brake at soon!

⚠ **Different adjustments of the 2 dip-switches** will result in **other ranges** !

⚠ **In case of too fast approach**, or if water flows close to the antenna, or if the approach is interrupted while beeps are warning, EPS® re-adjusts itself:- **No more PRE-alarm beeps** can be emitted, until EPS® is switched off.

⚠ **(Rain-) water** at the bumper also can cause warning-signals. Therefore **PRE-alarm** will be suppressed. If **heavy rain** causes **STOP-** or **CONTACT-alarm** too, it is recommendable to stop, and to switch off and on anew EPS®.

⚠ After a brief stop (after initial calibration too) the **"memory-effect"** causes the warning sequence to re-start with the last warning-step previously triggered.

⚠ The bigger the **range** (sensitivity-adjustment by means of the 2 dip-switches), the more probable are false-alarm-warnings, for example in case of rain....

■ **At the arrest of approach** any warning sound stops.

■ **Dumping of shock absorber** (when road's unevenness, braking, high speed or... lets the street coat approach to the antenna) or water can cause warning signals.

■ Only very slow manoeuvring (the last centimetres in **"snail's pace"**) enables EPS® to signalize an approach up to the final centimetres of the bumper's brim..

■ Without causing warning signals, you can manoeuvre with (trailer) **hook haul** or in parallel to a side wall, since their distances to the antenna do not decrease.

⚠ Even if assisted by EPS® while manoeuvring, drivers are still obliged to **inspect carefully the surroundings** in order to prevent to cause any damage.

INSTALLATION

⚠ Metal close to the antenna can (strongly) reduce the EPS® detection range !

■ EPS® only suits for plastic bumpers (whether back or front bumper).

1. **Ascertain an optimum position for the antenna-sensor by testing it :**

At first fix by adhesive tape any wire (appr. 2m) **outside on the bumper**, and connect it as provisional antenna (besides buzzer and 12V). Approach hands to **test** EPS®. If range is 50 cm, antenna can be installed on the corresponding inside-surface. Otherwise fix and test the provisional antenna in another position.



■ antenna must **cover the whole width as well as the corners of the car**.

■ antenna must be minimum 40 cm, better **60 cm above road level**.

■ antenna must be min. 20 cm, better **30 cm away from the wheels**.

■ antenna must be **minimum 3 cm far from car's metal parts**.

■ antenna must be on the **outermost exterior line of the car**.

■ everywhere **antenna-tape (c): und -flex (d)** must stay perfectly fixed.

2. Disassemble the exterior sheath of the plastic bumper. Uncover its inside surface

3. **Clean and degrease thoroughly the surface (to tightly fix the antenna)**

in the position ascertained (1.), **by using non-aggressive solvent like alcohol**.

NOTE: Avoid aggressive solvent, never use brake cleaner !

4. **Fix and glue tightly the antenna-sensor (c)**

onto the cleaned inside-surface of the bumper. **Observe the ■ conditions**. Start sticking at the connector of the tape. Cut off tape's needless rest.

Connect the **antenna-flex (d)**, and pass it through an opening to the central unit.

Fix tightly the central unit inside the car, in a dry place close to the antenna-tape(c)-connector, and connect the tape by antenna-flex (d) to the central unit.

■ Ensure water-proofing, protect the antenna-connection carefully against water.

■ Reinforce fastening by mastic or melt adhesive, especially at the connecting point, as well as at the tape's ends and bendings.

■ The whole antenna-sensor as well as the central unit must be fixed perfectly.

5. The **buzzer(B)**, which can be replaced by the optional LED-display(K), must be placed **in the driver cabin**. Connect it to the central unit by the **buzzer-flex (E)**.

6. **Car electrics:** EPS® must be switchable ON/OFF either by +12V or by earth.

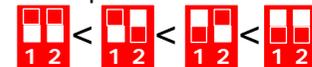
RED wire to +12V of the reversing lamp, or in case of front bumper via a luminous switch to ignition plus (+15).

BLACK wire to a **valid ground** (reversing lamp).

7. Plug the **3 connectors** into the central unit.

8. Put together and remount the bumper. Then check detection range and perform the final test procedure.

9. **Select 1 of 4 detection ranges:**



Both white **dip switches** directing towards the numbers (1 2) will provide lowest sensibility, and biggest range is provided, if both dip-switches direct to the unit.

NOTE: High sensibility (big range) can cause "false-alarm" !

