FINAL TEST PROCEDURE

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*** (= 3 tones with different pitch each) indicates that **EPS® is ready for operation**. - **Otherwise:-**

1. *DEFECT-signal* (= alternating high and deep tone) signals "EPS® cannot work": connection or installation of the EPS® antenna must be checked and repaired.

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.) Then, while the car not moves, **verify** the 3 detection ranges. Approach your hands **slow** and continuously towards antenna. At 50 cm distance single *PRE-alarm* beeps (medium) should start, succeeding faster then, proceeding at ca. 20 cm in the high (extending) *STOP-alarm*, and finally in the deep *CONTACT-alarm.*

⚠ In case of fast approach, if a sequence of 5 high beeps reports *RISK-alarm*, *PRE-alarm*-beeps are not emitted any more (hence switch on EPS® anew.)

3.a If the range of *PRE-alarm* is much smaller than 50 cm, check and enlarge - if possible - the distance between antenna and car's metal, - and if need be...

3.b ...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 slow** 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, 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: 10.5V up to 18 V
operation temperature: -40°C up to +85°C

current consumption:-
- soundless surveillance: < 0.9 mA
- in case of single beeps < 35 mA
- at permanent sound < 45 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 loose 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 electr(on)ical 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.

★ SafePark EPS® with antenna-tape (**05/2007**) ★ TOBÉ GmbH, D-52068 Aachen ★

SAFE-PARK E.P.S.®

with antenna-sensor

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

close-to-bumper parking-aid

signalizes approach of or to obstacles
in distances from 50 cm to the bordering
with sequent 3-grade acoustical warnings
and with RISK-alarm in case of too high speed

CE
e1 02 1728
European Type-Approval
by German Kraftfahrt-Bundesamt

USER AND INSTALLATION MANUAL

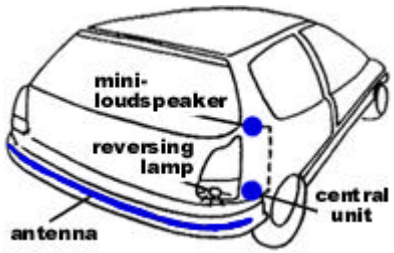
working principle:

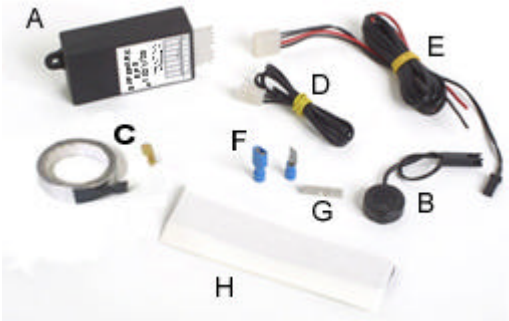
The unique EPS® parking aid enables real close-to-bumper manoeuvring.

Covering the whole bumper and 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 be enable the EPS®-parking-aid to exploit the very last centimetres, it is absolutely necessary **to manoeuver very slow !**





easy and fast fitting

Connect EPS® to a switchable power supply of the vehicle electrics. (Front bumper: by a luminous switch to ignition-plus. Rear bumper: to the reversing lamp.)

fitting components (supplied)

- **central unit** (A): fix it inside the car in a dry place close to the antenna connection.
- **loudspeaker** Ø 25mm (B): in the driver's cab
- **antenna** (C): tightly fix the self-adhesive tape inside the (cleaned) exterior sheath of the plastic bumper - covering the whole width of the car as well as its corners.
- wiring (E), antenna-flex (D), mastic (H), flat connectors (F), pinch connector (G)

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

BEFORE USE, READ AND OBSERVE ALL INSTRUCTIONS !

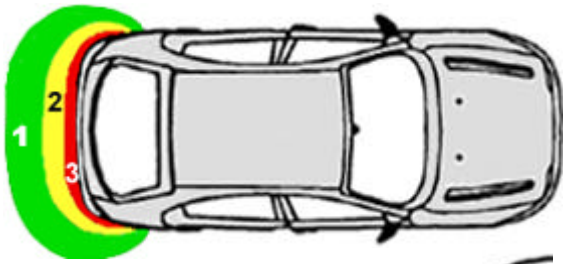
EPS®: WARNING-SIGNALS AND FUNCTIONS

Switched on by engaging the reverse gear, or by (luminous) switch in case of front bumper, EPS® tries to calibrate itself and reports its status by a special signal:-

➔ ***DEFECT-signal*** : Few alternating high and deep tones inform that EPS® cannot operate, and that its antenna connection or installation must be repaired.

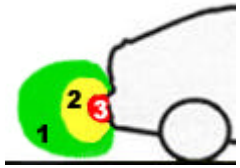
➔ ***OK-signal*** : **3 tones with different pitch** indicate: EPS® is ready for operation !

Only after *OK-signal* EPS® can signalize obstacles. All kind of shapes and nearly all materials (*NOTE*: except 'nsulators' like plastic, dry wood, glass...) are signalized, as long as their small distance to the antenna is actually reducing. Material characteristics and approach speed determine, how and at which distance the obstacle will be signalized.



Only very slow approach enables **3-grade warnings** of EPS® to signalize obstacles:-

(1) ***PRE-alarm*****: single beeps of medium pitch** (ca. 2000 Hz) warn, if the distance is already below 50 cm. - If distance goes on decreasing, these beeps sound a little bit more rapidly.



(2) ***STOP-alarm*****: a high sound** (ca. 2500 Hz, which extends in case of further approach) warns that the distance is already below circa 10 - 20 cm, and demands: STOP.

(3) ***CONTACT-alarm*****:** the **deep sound** (ca. 500 Hz), demands implicitly to BRAKE INSTANTLY, STOP AT SOON.

RISK-alarm (=**5 rapid high beeps**, 2500 Hz) calls in case of **fast approach to brake at soon** - or, if water flows close to the antenna, to increase caution.

- The *RISK-alarm* **can be emitted only once after switching on EPS®**.
- EPS® re-adjusts itself. **No more *PRE-alarm* beeps** can be emitted, but till EPS® is switched off the ranges of *STOP-* and *CONTACT-alarm* are enlarged a bit now.
- Only rare, briefly after *RISK-alarm* slow manoeuvring can go on with utmost care

(Rain-) water at the bumper can also cause *RISK-alarm* (to minimize emission of further signals caused by water). If **heavy rain** causes *STOP-* or *CONTACT-alarm too*, it is recommendable to stop and switch off and on anew EPS®.

IMPORTANT ADVICES:

- **At the arrest of approach** any warning sound stops.
- **Shock absorbers' dumping** (when road's unevenness, braking, high speed or... let 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 :**
   - Antenna must **cover the whole width as well as the corners of the car**.
   - Antenna must be minimum 40 cm, better **50 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**.

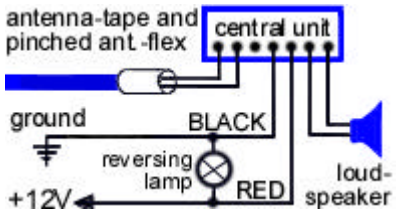
1. **At first** fix any wire (appr. 2m) by adhesive tape **outside on the bumper**, and connect it as provisional antenna (besides loudspeaker and 12V). **Test** EPS® by approaching the hands. If you verify proper detection ranges (about 50 cm), the antenna can be installed in the corresponding position on the inside-surface. (Otherwise test in another position.) Mark the proper course of the antenna.

2. Disassemble the exterior sheath of the plastic bumper, and uncover its inside surface. Temporarily, core multi-layer or remove shock-relief materials.
   Find an opening to thread through the **antenna-flex** (with plug inside the car). Close by, mark on the inside surface a connecting point, where to connect later by means of the flex **central unit and antenna on the shortest way possible**. If possible, shorten flex. Skin both ends of its leads, and **twist them together** !

3. **Clean thoroughly the surface to enable a tight fixing of the antenna:**
   Before fitting the antenna in the position ascertained (1.), **clean and degrease thoroughly the bumper's inside surface by using non-aggressive solvent (like alcohol)**. ***NOTE***: Avoid aggressive solvent, never use brake cleaner !

4. **Fix tightly the antenna-sensor:**
   Observing the ■ conditions, tightly glue the antenna-tape onto the cleaned inside of the exterior bumper sheath, in the position ascertained (1.). Start sticking at a tape's end. At the connecting point (see 2), if necessary, twist tape's end or a 'loop', and connect it (later) to the antenna-flex by flat or pinch connector. Cut off tape's needless rest. Reinforce fastening by mastic or melt adhesive, especially at the connecting point, and at tape's ends and bendings.
   - **Ensure water-proofing of the connection point** (to avoid water instrusion).
   - The whole antenna sensor (tape, flex, central unit) **must be perfectly fixed**.

5. Fasten **central unit** inside the car in a dry place, **as close as possible to the antenna connection**. Keep its plugs accessible.
   Fix **loudspeaker in driver cabin**, and plug it.
   Plug antenna-flex into central unit. Pinch its twisted leads to antenna-tape (by pinch or flat connector), and arrest it on its way.



Car electrics: EPS® must be switchable ON/OFF either by +12V or by earth:: **RED** wire to +12V (e.g. reversing lamp, resp. +15). **BLACK** to a valid ground.

6. Put together and remount the bumper. Then perform the final test procedure.