Testing and Inspection

Fault-tracing And Testing The Voltage Supply System

- Check the **battery**, **starter motor** and generator terminals and cables for loose, corroded or damaged cable terminals and wiring.
- Check the generator (GEN) charge current and charge voltage.

Ensure that the freewheeling generator pulley functions correctly (where applicable):

- Rev the engine to **3,000 rpm**. No extra electrical consumers should be switched on.
- Switch off the engine. Check that the generator rotates for longer than the engine.
- In cold weather, the **battery** warning lamp in the combined instrument panel may light up for a **few seconds** after start. This is because the freewheel may require a few revolutions to heat up the bearing grease. A battery warning lamp which is continuously lit may indicate a freewheel which does not lock against the generator (GEN) **rotor** shaft.
- Check the auxiliary belt tension. Inspect the belt for wear.
- Measure the vehicle's stand by voltage consumption (below).

**Measuring the stand by current**
- Measure the stand by voltage consumption with the hood open.
- Connect them multi-meter between the negative lead in the wiring and the battery negative terminal.
- Begin with measurement area 10 A. Continue downwards until a suitable measurement area is found.
- If the stand-by current is 10 mA more than the maximum permissible standby voltage, recommend that the customer purchases a battery with higher capacity.
- If the customer already has a battery with the highest capacity, locate the major stand-by voltage consuming components. This is carried out by measuring the stand-by voltage at the same time as the fuses are removed, one after another.
- Then measure the stand-by voltage with the car locked and alarmed.
- Sufficient wiring is required so that the measurement can be carried out while the hood and car are alarmed and locked.
- The wiring must be connected between the negative lead and the battery negative terminal. Connect the multimeter. Break the circuit after approximately one minute so that the current passes through the multimeter.
- Calculating the maximum permissible standby voltage

Identify the capacity of the battery in the car in order to calculate the maximum permitted stand-by voltage.

**Formula**

(1) \( \text{Ah}/504 \text{ h}/4 = I \text{ mA} \)
(1) = the battery capacity, I = the stand-by current

E.g.: capacity/3 weeks * 25% = stand by voltage $65 \text{ Ah}/504 \text{ h} * 0.25 = 32.2 \text{ mA}$