Section C7

System test and fault diagnosis

Fans inoperative in all situations

Fig. C43

T.S.D. 4200 September 1978

Start

Switch ACU to DEF. Start car engine.

NO

Do fans start after approximately 13 seconds? YES → The fans are satisfactory.

NO

Switch ACU to AUTO. **Do fans start working?** YES → ACU switch faulty or wiring fault.

NO

Disconnect the blue/black cable at fan module switch-off relay. **Do fans operate?** NO → Refer to 'Fans inoperative in all situations'.

YES

The fans and fan module are satisfactory.

At fan delay relay, disconnect the yellow/pink cable from C2. **Do the fans operate?** YES → Fan delay relay or ACU switch faulty. Check for earth fault on orange cable from relay to switch.

NO

Disconnect the yellow/pink cable from the fan module switch-off relay. **Do the fans operate?** YES → Earth fault on cables from relay to oil pressure switch.

NO

Fan module switch-off relay or earth fault on blue/black cable from fan module to fan module switch-off relay

These are landmarks. They show which part of the system has been proved correct.

Switch ACU to AUTO. At the sensor chain socket, connect a link from the yellow/white cable to earth. (Servo is now in 'facia' mode). **Do not disconnect the socket. Do the fans operate?** NO → Verify that upper servo is functioning. 25% microswitch in upper servo not operating. Refer to Servo Fault Diagnosis. At the fan delay relay, check the yellow cable to W2. This should NOT be live. → If the yellow cable is live and the servo is operating correctly, there is a fault on the cables from servo to fan delay relay.

YES

Remove the temporary earth link from the yellow/white cable. Disconnect the fan delay thermostat. (Servo is now in 'screen' mode). **Do the fans operate?** YES → If the coolant temperature is above 44 °C, the fan delay thermostat is faulty. Reconnect sensor chain socket.

NO

Check the lower quantity flap. **Is it fully open?** NO → Lower quantity flap, actuator or wiring is faulty. Refer to chart for Lower Quantity Flap.

YES

Disconnect the right-hand 'A' post earth. **Do the fans operate?** NO → Earth fault on the yellow/green cable from fan delay relay to lower quantity microswitch.

YES

Lower quantity microswitch is faulty or needs adjusting. Replace 'A' post earth, remove the lower knee roll and manually operate the microswitch. **Do the fans operate?** YES → Adjust microswitch to operate fans when flap is fully open.

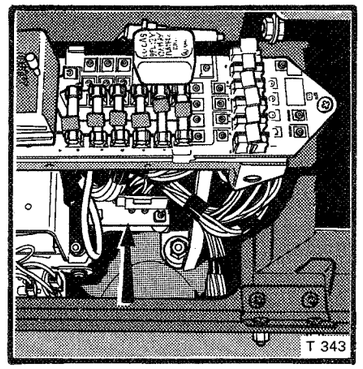
NO

Change microswitch & adjust it to operate the fans when the flap is fully open.

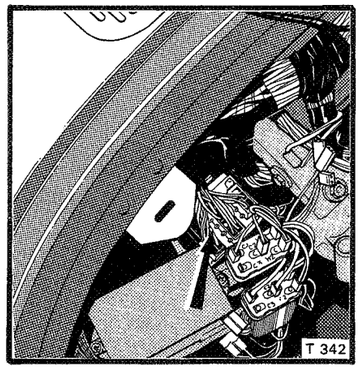
Verify that engine coolant is hot. Reconnect the fan delay thermostat. **Do the fans operate?** NO → Earth fault on the yellow/brown cable from diode to thermostat or from diode to lower quantity relay.

YES

Reconnect sensor chain socket.



Diode board right-hand drive cars



Diode board left-hand drive cars viewed with top roll removed

Section C7

System test and fault diagnosis

Fans inoperative in LOW AUTO and HIGH

Fig. C44

T.S.D. 4200 · September 1978

Start

ACU operates but fan speed does not vary.
Is the fan speed slow or fast?

SLOW

At the fan speed module, connect 12 volts to the blue/brown cable.
Does the fan speed increase?

YES

NO

FAST

At the fan speed module, disconnect the blue/brown cable.
Does the fan speed decrease?

NO

Change the fan speed module.

YES

Fan speed module is satisfactory

Set ACU switch to LOW. Disconnect the switch sockets & connect a resistance meter between the yellow/black cable and blue/brown cable to the switch.
Is the resistance between 25KΩ and 45KΩ ?

NO

Faulty ACU switch

YES

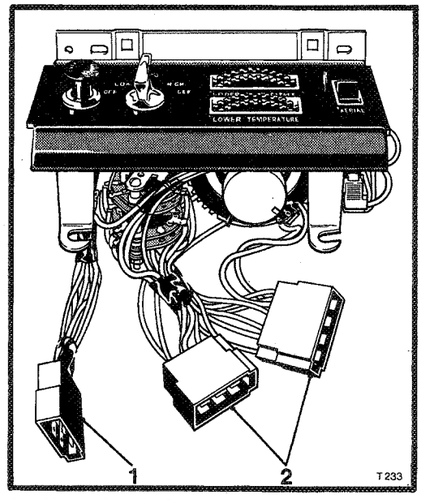
Set ACU switch to AUTO. Connect the meter between the orange/yellow and blue/brown cables.
Is the resistance between 5KΩ and 10KΩ?

YES

Fault in blue/brown, orange/yellow or yellow/black cable or fan speed potentiometers in servos.

NO

Faulty ACU switch



1. **Hazard switch socket**
2. **A.C.U. sockets**

These are landmarks. They show which part of the system has been proved correct.

Section C7

System test and fault diagnosis

Fan speed does not vary

Fig. C45

Start

Disconnect the oil pressure switch and the fan delay thermostat. Switch the ACU to AUTO and connect a 12 volt test lamp between the pink cable 'flying lead' to the upper servo and a good earth.
Does the lamp light?

NO → Using the test lamp test for 12 volts on the pink cable at toeboard socket D, (saloon and engine side) and C3 of servo isolation relay. If 12 volts is not present, check the Interlock circuit.

YES ↓

Remove the test lamp and connect it between orange/purple cable of the upper servo plug and earth. Disconnect the sensor chain socket. (Servo moves to 'Screen' mode).
Is the lamp lit?

YES → Reconnect the sensor chain socket and connect a temporary earth link from the yellow/white cable of the socket to earth. (Servo moves to 'Facia' position).
Is the lamp extinguished?

NO → Upper servo or sensor chain faulty. Refer to appropriate flow chart or test procedure.

NO ↓

Test for 12 volts at the orange/red and orange/purple cables at the diode block. Test for 12 volts at the orange/purple cable at the upper servo. If the 12 volts is not present there is a fault in the servo or upper sensor chain, refer to test procedure or Flow charts.

YES ↓

Remove the test lamp and connect it to the orange/blue cable of the socket and earth.
Is the lamp lit?

YES → The servo is satisfactory. At the actuator, connect the test lamp between the orange/blue cable and earth.
Does the lamp light?

NO → Open circuit in orange/blue cable or connectors.

YES ↓

Remove the temporary earth from the sensor chain socket and disconnect the socket. Connect the test lamp between the orange/red cable of the actuator and earth.
Does the lamp light?

YES → **Has the actuator moved?**

NO → Check the tightness of the pinch-bolt connecting the flap to the actuator and set-up the linkage. Verify that the flap is not mechanically stalling the actuator.

YES ↓

At the actuator, connect the black cable to a good earth.
Does the actuator operate?

YES → Faulty actuator.

NO → Faulty earth. Check the black cable and left-hand 'A' post earth.

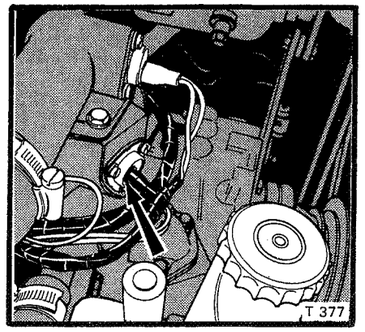
NO ↓

Open circuit in orange/red cable from actuator to diode, or open circuit in orange/purple cable from diode to servo, or diode faulty. Test for 12 volts at diode.

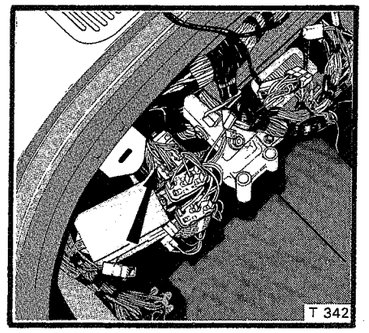
NO ↓

Servo faulty.

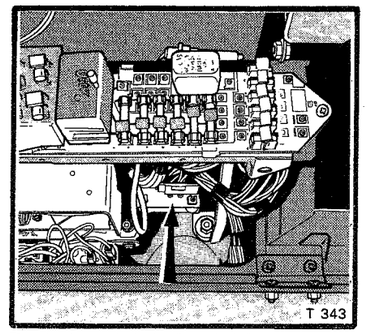
These are landmarks. They show which part of the system has been proved correct.



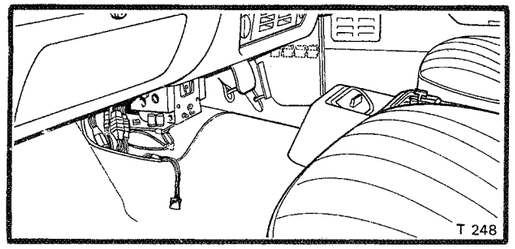
Fan delay thermostat



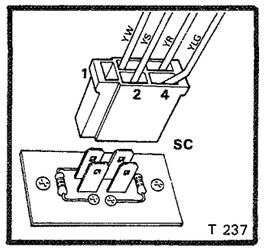
Diode board left-hand drive cars
Viewed with top roll removed



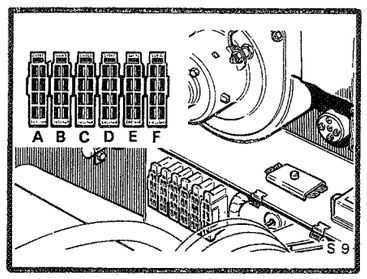
Diode board right-hand drive cars



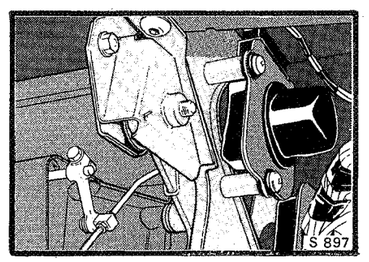
Location of sensor chain socket



Sensor chain socket



Toeboard sockets



Mode flap actuator