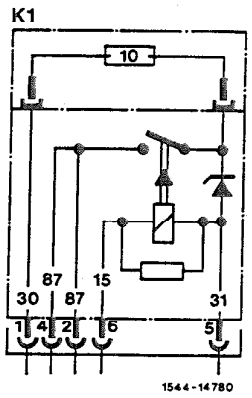
A. Function

A 5, 7 or 9-pin overvoltage protection relay is installed depending on the vehicle model and special equipment. This relay protects the control units (ABS, KE, etc.) against excessive voltage.

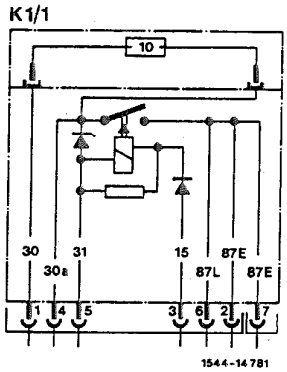
Battery voltage is present continuously at terminal 30 of the relay. On the 7 and 9-pin versions the battery voltage is also connected to terminal 30a via the 10 A flat plug-in type fuse. When the ignition/starter switch is turned to position 2 (drive position), voltage is present at terminal 15 and the relay pulls in. Terminals 87 (5-pin version) or 87 E and 87 L (7 and 9-pin versions) are supplied with power.

Voltages > 22 V in the vehicle electrical system are shorted directly to ground by the Z-diode (fuse defective).

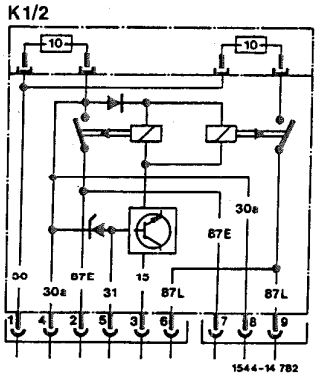
In the event of an overload occurring following activation of the overvoltage protection, the circuit is interrupted by the 10 A flat plug-in fuse. The 9-pin version is fused separately at terminals 87 E and 87 L, whereby 87 L is also switched off when the fuse at 87 E blows.



5-pin overvoltage protection circuit

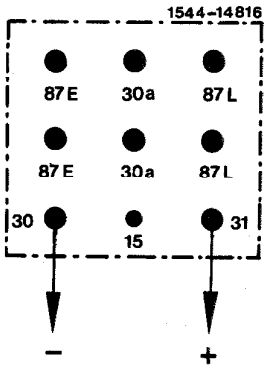


7-pin overvoltage protection circuit



9-pin overvoltage protection circuit

B. Testing



Z-diode in relay (5-pin)
Test with ABS tester and protective adapter according to test step 12.

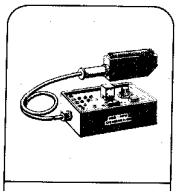
Z-diode in relay (7 and 9-pin)
Test with approved multimeter as follows:

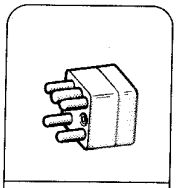
1. Switch multimeter to diode test mode.
2. Connect relay removed to multimeter, observe polarity; connect multimeter + to terminal 31 and – to terminal 30. Use electrical connection set 201 589 00 99 00.

Nominal value 0.4 to 1.5 V

3. If the nominal value is not reached check 10 A flat plug-in fuse or replace overvoltage protection relay.

Special tools


126 589 09 21 00
42


126 589 15 63 00
42


201 589 00 99 00
15 54

Commercially available tools and test equipment, MB test equipment (see Workshop Equipment Manual)

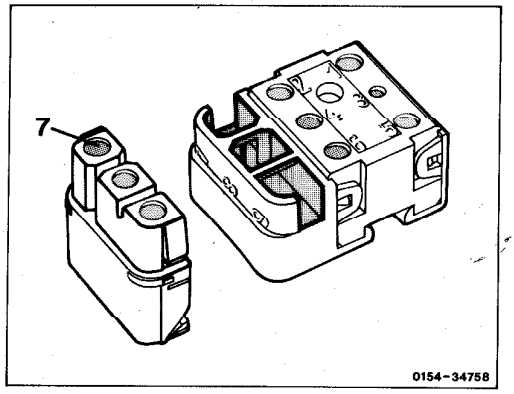
Multimeter	Fluke 23 DB, 83, 88 ITT Metrix MX 47, 50, 51, 52

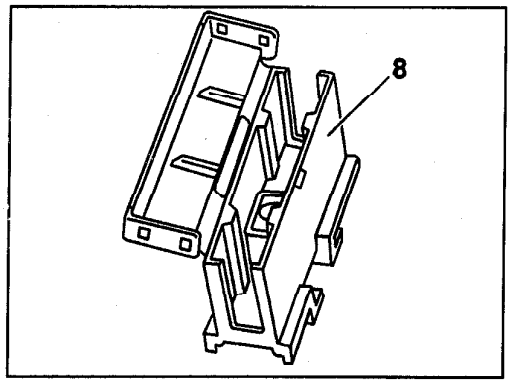
C. Repair note

Only engine main wiring harnesses with 7-pin connector are available as replacement parts for the overvoltage protection relay.

When installing an engine main wiring harness with 7-pin connector for overvoltage protection in a vehicle with 5-pin overvoltage protection circuit it is necessary to replace the overvoltage protection and the mount for the control units in addition.

On vehicles with ABS, plug the wire for the voltage protection for the ABS control unit on the separate 3-pin connector into socket 7 of the overvoltage protection connector. Replace the terminal block from the control unit mount removed with terminal block (8) and fasten with a cable strap.





Parts

Designation		Part no.
Overvoltage protection relay, 7-pin	alternately	201 540 32 45 201 540 38 45
Control unit mount		126 546 37 43
Terminal block		000 540 08 69
Cable strap		001 997 41 90