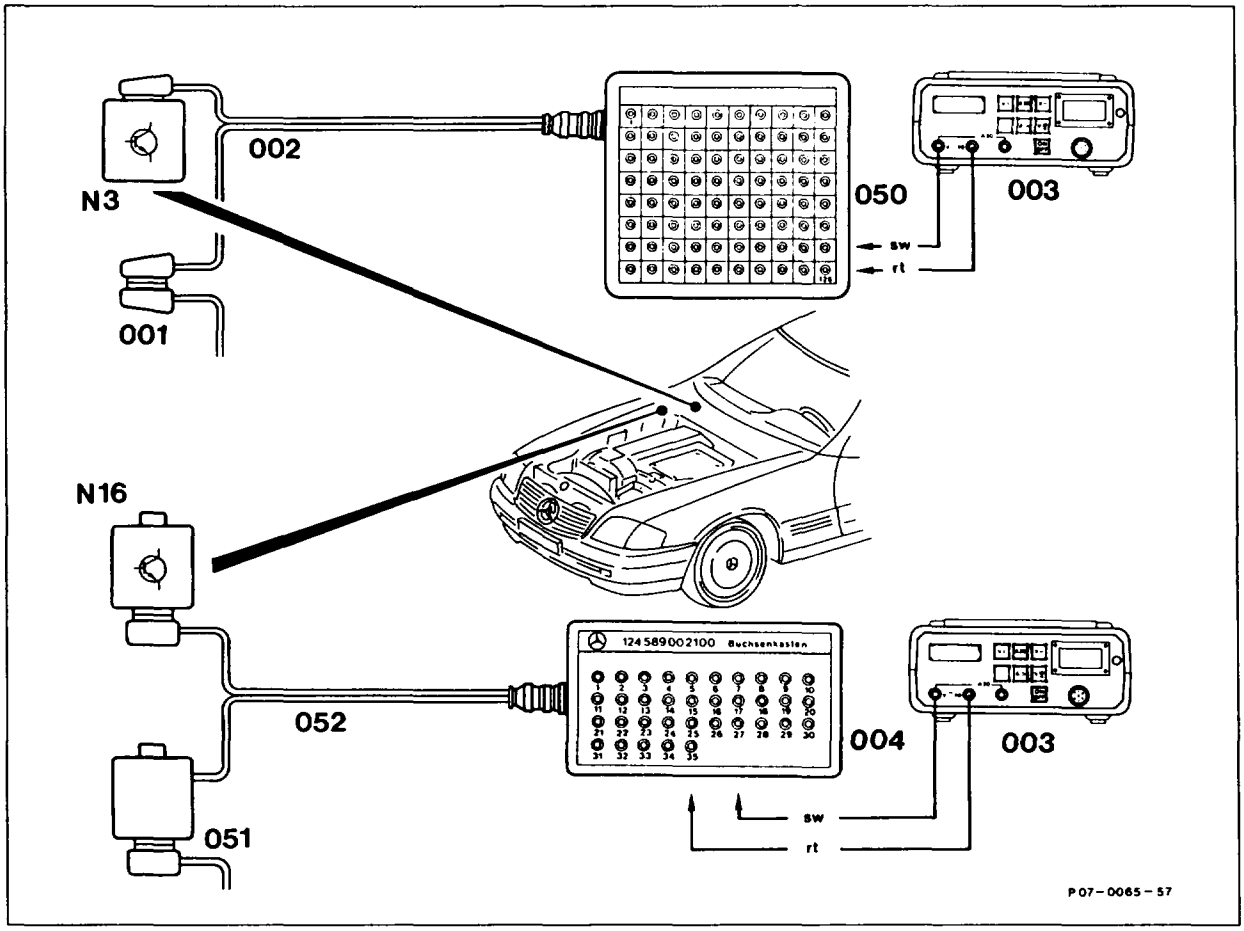
Operation no. of operation texts and work units or standard texts and flat rates:
14–7165.

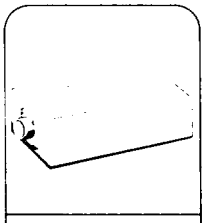


001	KE control unit coupling	051	Coupling, engine systems control unit
002	Test cable	052	Test cable
003	Multimeter	N3	KE control unit
004	35-pin contact box	N16	Engine systems control unit MAS
050	126-pin contact box		

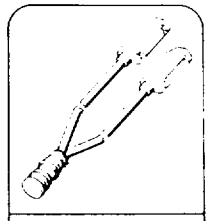
Note

Engine systems control unit MAS only on model 129 and models 124, 126, 201 national version (USA) (J).

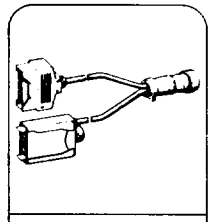
Special tools



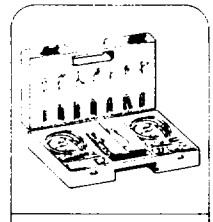
124 589 00 21 00
54



124 589 33 63 00
07 28 54



129 589 05 63 00
15



201 589 00 99 00
15 54

Commercially available tools and testers (see Workshop Equipment Manual)

Designation	e.g. Make, order no.
Multimeter	Sun, DMM-5

Symbols for testers

- Contact box
- Pin
- Contact
- Bridge

Symbols for test mode with multimeter

- Multimeter DC voltage mode
- Multimeter Resistance mode

Preconditions for test

- Battery voltage 11 – 14 V.
- Engine oil temperature approx. 80 °C.

See appropriate wiring diagram volume for wiring diagrams.

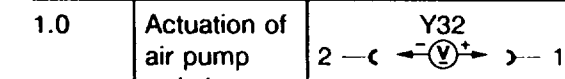
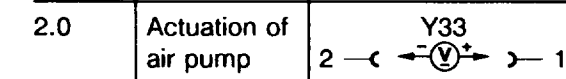
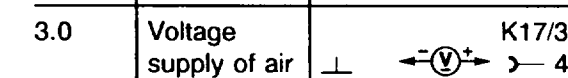
Note

If the specification of a main test step, e.g. test step 5.0, is in order, continue with the next main test step, e.g. test step 6.0.

If the specification of a main test step, e.g. test step 5.0, is not achieved, continue test with sub-test step, e.g. test step 5.1.

The tests 1.0 – 6.1, air injection/transmission shift point retard relay (K17/3), apply only to models 124, 201 (CH) (DK) (N) (S) (SF) as of model year 1991.

The tests 7.0 – 10.1, air injection via MAS, apply only to models 124, 126, 201 (J) (USA) as of model year 1990.

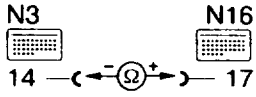
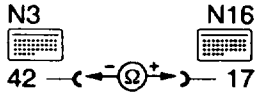
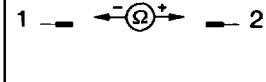
Test step	Test scope	Test connection	Operation/ Requirement	Specification	Possible cause/Remedy
1.0	Actuation of air pump switchover valve (Y32)		4-pin coolant temperature sensor (B11/2) disconnected, simulate +20°C with 2.5 kΩ. [1]) Engine: **idling**	11–14 V approx. 80 sec.	Voltage and ground supply for air injection/transmission shift point retard relay (K17/3), Air injection/transmission shift point retard relay (K17/3) faulty, No coolant temperature signal, Open circuit in wiring
2.0	Actuation of air pump electro-magnetic clutch (Y33)		4-pin coolant temperature sensor (B11/2) disconnected, simulate +20°C with 2.5 kΩ. [1]) Engine: **idling**	< 1 Ω	Voltage and ground supply for air injection/transmission shift point retard relay (K17/3), Air injection/transmission shift point retard relay (K17/3) faulty, No coolant temperature signal, Open circuit in wiring
3.0	Voltage supply of air injection/ transmission shift point retard relay (K17/3)		Air injection/ transmission shift point retard relay (K17/3) removed. Ignition: **ON**	11–14 V	7-pin overvoltage protection relay (K1/1), Air injection/transmission shift point retard relay (K17/3), Open circuit in wiring

[1]) Two resistance decades: contact 1 – contact 3, contact 2 – contact 4.

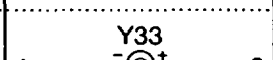
Test step	Test scope	Test connection	Operation/ Requirement	Specification	Possible cause/Remedy
3.1		K17/3 ⊥ —(V)— 3	Air injection/ transmission shift point retard relay (K17/3) removed Ignition: **ON**	11–14 V	**Model 124** Fuse no. 7 faulty, Open circuit in wiring, Air injection/transmission shift point retard relay (K17/3), Fuse and relay box **Model 201** Fuse no. 2 faulty, Open circuit in wiring, Air injection/transmission shift point retard relay (K17/3), Thermoswitch, washer system heater (S26/1)
4.0	Ground supply, air injection/ transmission shift point retard relay (K17/3)	K17/3 + 5 —(V)—	Air injection/ transmission shift point retard relay (K17/3) removed Ignition: **ON**	11–14 V	Open circuit in wiring, Air injection/transmission shift point retard relay (K17/3) → KE injection system control unit (N3), KE injection system control unit (N3) faulty
5.0	Air pump switchover valve (Y32)	Y32 1 —(Ω)— 2	Coupling at air pump switchover valve (Y32) disconnected Ignition: **OFF**	30 ± 5 Ω	Replace air pump switchover valve (Y32)

Test step	Test scope	Test connection	Operation/ Requirement	Specification	Possible cause/Remedy
5.1	Cable to air pump switchover valve (Y32)	K17/3 1 — 4 Y32 2 — 1	Air injection/ transmission shift point retard relay (K17/3) removed Ignition: **ON**	11–14 V	Open circuit in wiring, Air injection/transmission shift point retard relay (K17/3)
6.0	Air pump electro-magnetic clutch (Y33)	Y33 1 — 2	Coupling at air pump electro-magnetic clutch (Y33) disconnected Ignition: **OFF**	5 ± 1 Ω	Replace air pump electromagnetic clutch (Y33)
6.1	Cable to air pump electro-magnetic clutch (Y33)	K17/3 1 — 4 Y33 2 — 1	Air injection/ transmission shift point retard relay (K17/3) removed Ignition: **ON**	11–14 V	Open circuit in wiring, Air injection/transmission shift point retard relay (K17/3)
7.0	Air injection control signal	N16 17 — 21	Coupling of coolant temperature sensor (B11/2) disconnected and simulate with 2.5 kΩ [1]) Engine: **idling**	110 s 11–14 V	Open circuit in wiring, KE control unit (N3)

[1]) Two resistance decades: contact 1 – contact 3, contact 2 – contact 4.

Test step	Test scope	Test connection	Operation/ Requirement	Specification	Possible cause/Remedy
7.1	Cable	**Model 129** N3 N16  14 — 17 **Models 124, 126, 201** (J) (USA) N3 N16  42 — 17	Ignition: **OFF**	< 1Ω	Open circuit in wiring
8.0	Air pump actuation	N16  4 — 19	Coolant temperature sensor coupling (B11/2) disconnected and simulate with 2.5 kΩ. [1] Engine: **idling** Air hose to non-return valve disconnected	110 s 11–14 V Perceptible air flow at air hose	Engine systems control unit (N16) Air pump, Air hose, Switchover valve (Y32)
9.0	Air pump switchover valve (Y32)	Y32  2 — 1	Coolant temperature sensor coupling (B11/2) disconnected and simulate with 2.5 kΩ. [1] Engine: **idling**	110 s 11–14 V	Open circuit in wiring
9.1	Switchover valve (Y32)	Y32  1 — 2	Ignition: **OFF** Coupling at switchover valve disconnected	25 ± 5 Ω	Switchover valve (Y32)

[1] Two resistance decades: contact 1 – contact 3, contact 2 – contact 4.

Test step	Test scope	Test connection	Operation/ Requirement	Specification	Possible cause/Remedy
10.0	Actuation of air pump electro-magnetic clutch (Y33)	Y33 2 —  — 1	Coolant temperature sensor coupling (B11/2) disconnected and simulate with 2.5 kΩ. [1]) Engine: **idling**	110 s 11–14 V	Open circuit in wiring
10.1	Air pump electro-magnetic clutch (Y33)	Y33 1 —  — 2	Ignition: **OFF** Coupling at air pump electromag-netic clutch disconnected.	5 ± 1 Ω	Air pump electromagnetic clutch (Y33)

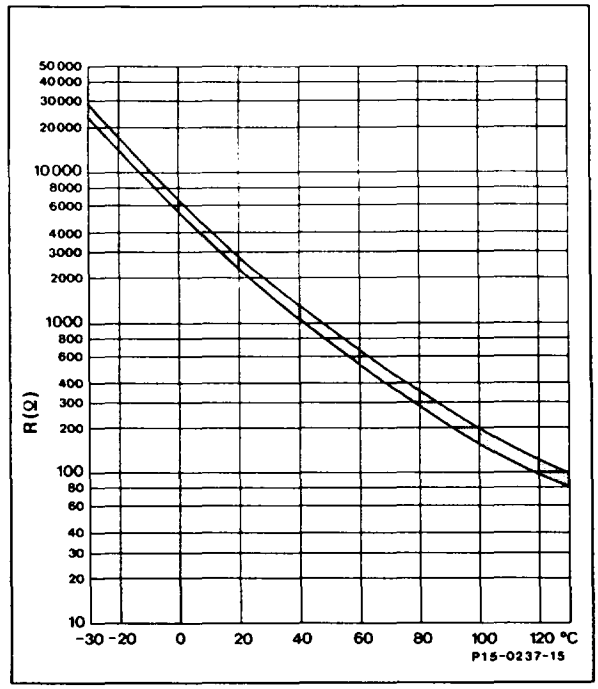
[1]) Two resistance decades: contact 1 – contact 3, contact 2 – contact 4.

Table of coolant temperature sensor (B11/2)

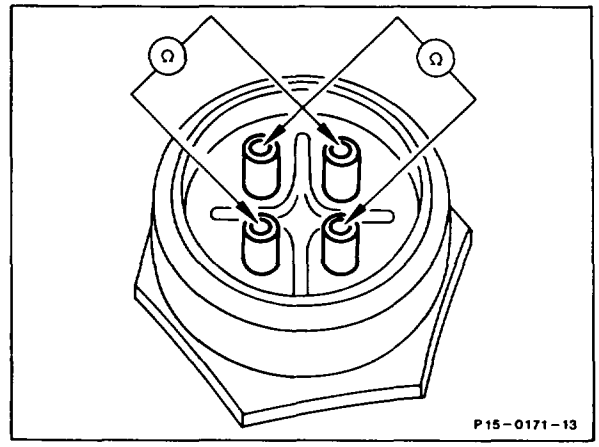
Temperature °C	Resistance kΩ	Voltage at contact 21 coolant (V)
–20	15.7	3.24–3.94
–10	9.2	2.84–3.47
0	5.9	2.39–2.93
10	3.7	1.94–2.37
20	2.5	1.51–1.84
30	1.7	1.16–1.42
40	1.18	0.88–1.08
50	0.84	0.66–0.80
60	0.60	0.50–0.61
70	0.44	0.38–0.46
80	0.33	0.29–0.35
90	0.25	0.22–0.26

Diagram of temperature sensors
Resistances of coolant temperature sensor (B11/2) and KE intake air temperature sensor (B17/2).

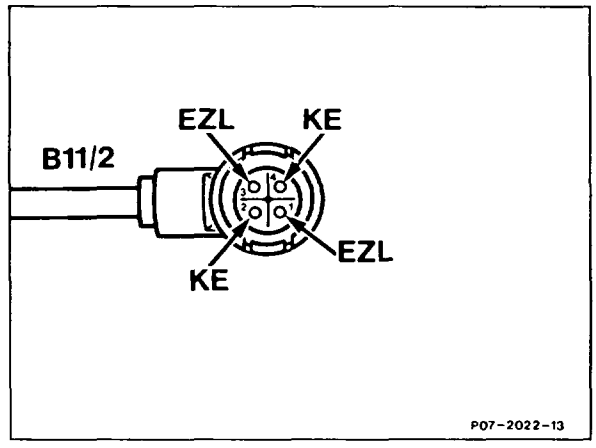
Note
As of 08/88 specification at 80 °C 0.29 – 0.35 kΩ.

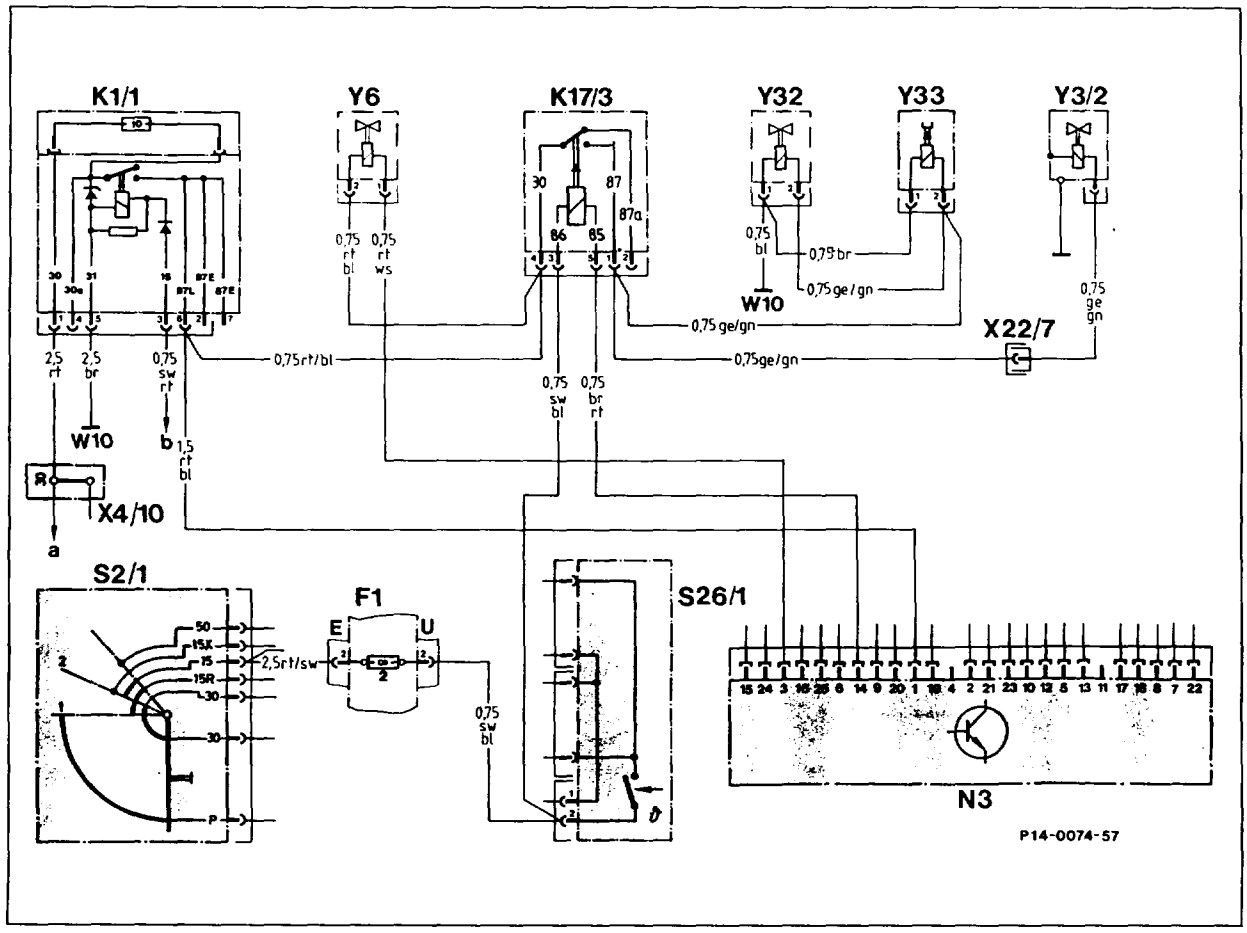


4-pin EZL/KE, LH coolant temperature sensor (B11/2)



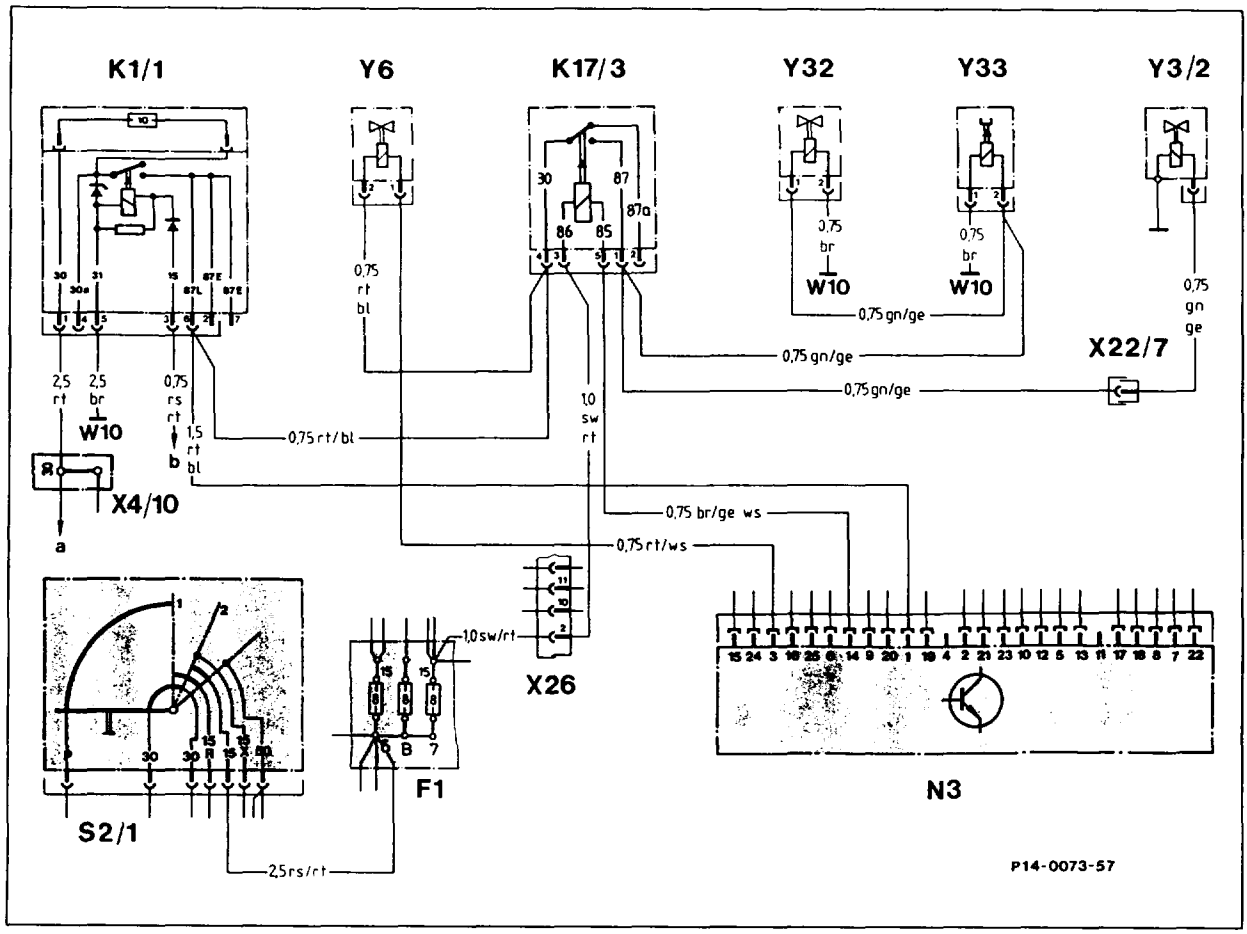
4-pin connector of EZL/KE, LH coolant temperature sensor (B11/2)





Wiring diagram transmission shiftpoint retard/air injection
Engine 103 model 124 (CH) (N) (S) (DK) (SF) as of 1991

F1	Fuse and relay box	X22/7	Plug connection, shiftpoint retard valve (1-pin)
K1/1	Overvoltage protection relay 87E, 7-pin	Y3/2	Shiftpoint retard solenoid valve
K17/3	Air injection/transmission shiftpoint retard relay	Y6	Idle speed air valve
N3	KE injection system control unit	Y32	Air pump switchover valve
S2/1	Ignition starter switch	Y33	Air pump electromagnetic coupling
S26/1	Heating-washer system thermostatic switch		
W10	Battery ground	a	To battery (G1)
X4/10	Terminal block terminal 30/terminal 61 (battery)	b	To fuel pump relay terminal 15



Wiring diagram transmission shiftpoint retard/air injection
Engine 103 model 201 (CH) (N) (S) (DK) (SF) as of 1991

F1	Fuse and relay box
K1/1	Overvoltage protection relay 87E, 7-pin
K17/3	Air injection/transmission shiftpoint retard relay
N3	KE injection system control unit
S2/1	Ignition starter switch
W10	Battery ground
X4/10	Terminal block terminal 30/terminal 61 (battery)
X22/7	Plug connection, shiftpoint retard valve (1-pin)
X26	Plug connection, interior/engine
Y3/2	Shiftpoint retard solenoid valve
Y6	Idle speed air valve
Y32	Air pump switchover valve
Y33	Air pump electromagnetic coupling
a	To battery (G1)
b	To fuel pump relay terminal 15