








## Test programme - electrical      Testing



Test step Fault code	Test scope	Test equipment/ test connection	Operation/ requirement	Nominal value	Possible cause/remedy
⇒ 1.0	<b>Power supply</b>	N15/1 1 —  21	Ignition: <b>ON</b>	11-14 V	<b>Model 124:</b> Cables, ground, battery (W10), overvoltage protection relay 87E, 7-pole (K1/1)  <b>Model 129:</b> Cables, ground, components compartment (W16), overvoltage protection relay 87E/87L/30a, 9-pole (series K1/1) (K1/2)
⇒ 2.0 1)	<b>Accelerator pedal signal</b>	N15/1 8 —  3	Ignition: <b>ON</b>  Accelerator pedal in idle pos.  Accelerator pedal in full throttle pos.	<1 V  <2 V	Cables Throttle valve switch (S29/4), Automatic transmission control unit, 5-speed (N15/1)
	Reference voltage	N15/1 8 —  12	Accelerator pedal in idle pos.  Accelerator pedal in full throttle pos.  Accelerator pedal in idle pos.	<1 V  <2 V  2-3 V	Cables, ⇒ 2.1

1) When operating the accelerator pedal the voltage should continually increase up to the full throttle position.




## Test programme - electrical      Testing

Test step Fault code	Test scope	Test equipment/ test connection	Operation/ requirement	Nominal value	Possible cause/remedy
⇒ 2.1	Accelerator pedal potentiometer (S29/4)	S29/4x2 3 —  1  S29/4x2 3 —  2	Ignition: <b>OFF</b> Disconnect plug (S29/4x2)	900-1600 Ω  2.0-3.8 kΩ	S29/4
⇒ 3.0	<b>Selector lever signal</b>	N15/1 1 —  17	Ignition: <b>ON</b>  Selector lever position: P to D  Selector lever position: 4 to 2	>10 V  <1 V	Cables ⇒ 3.1 (model 124), ⇒ 3.2 (model 129)  Control unit (N15/1), overvoltage protection relay 87E/87L/30a 9-pole (series K1/1) (K1/2)
⇒ 3.1 <b>Model 124 only</b>	Selector lever switch	N15/1 17 —  21	Ignition: <b>OFF</b> Disconnect control unit (N15/1)  Selector lever position: P to D  Selector lever position: 4 to 2	<5 Ω  >20 kΩ	Cables "D" position contact switch (S16/9)


## Test programme - electrical      Testing

Test step Fault code	Test scope	Test equipment/ test connection	Operation/ requirement	Nominal value	Possible cause/remedy
⇒ 3.2  <b>Model 129 only</b>	Selector lever switch	X22/5 5 —  — 4	Ignition: <b>OFF</b> Detach connector, automatic transmission (X22/5).  Selector lever position: P to D  Selector lever position: 4 to 2	< 5 Ω  >20 kΩ	Cables "D" position contact switch (S16/9)
⇒ 4.0	<b>Switch 2nd driving programme E/S (S16/5)</b>	N15/1 1 —  — 15	Ignition: <b>ON</b> Engine: <b>Idling</b>  Switch 2nd driving programme in position: <b>E</b>  Operate kick-down switch (reach behind accelerator pedal)  Do not operate kick-down switch Switch 2nd driving programme in position: <b>S</b>	>10 V  <1 V  <1 V	Cables Switch 2nd driving programme (S16/5), kick-down switch 2nd driving programme (S16/7)

## Test programme - electrical      Testing

Test step Fault code	Test scope	Test equipment/ test connection	Operation/ requirement	Nominal value	Possible cause/remedy
⇒ 5.0      5	<b>Speed signal TNA</b>	N15/1 1 —  — 14	Engine: <b>Idling</b>	≥ 6 V	Cables, ⇒ 5.1, automatic transmission control unit, 5-speed (N15/1)
⇒ 5.1	Connected control units	N15/1 1 —  — 14	Engine: <b>Idling</b> Control unit (N15/1) disconnected.	≥ 6 V	Electronic ignition control unit (EZL)/anti-knock control (N1/3), Engine units control unit MAS (N16), KE control unit (N3)
⇒ 6.0      6	<b>Speed signal</b>	N15/1 1 —  — 16	Vehicle drives at approx. 50 km/h on a test roller. ABS/ASR control unit (N30/1) disconnected.	≥ 5 V ~	Cables Instrument cluster (A1) (for testing refer to Body, volume 1-1.1, 1.2 □ 23 <b>Model 124</b> Hall sensor speed (B6) <b>Model 129</b> Combination relay (turn, hazard signal, heated rear window, wiper motor) (N10), Hall sensor speed (B6)

## Test programme - electrical      Testing

Test step Fault code	Test scope	Test equipment/ test connection	Operation/ requirement	Nominal value	Possible cause/remedy
⇒ 7.0      3	<b>Digital load signal</b>	N15/1 1 —  — 13	Engine: <b>Idling</b>  Vacuum hose placed on electronic ignition (EZL)/anti-knock control (AKR) ignition unit (idle)  Vacuum hose disconnected at electronic ignition (EZL)/anti-knock control (AKR) ignition unit (full throttle)	approx. 0.8 V ~  >2 V ~	Cables Automatic transmission control unit, 5-speed (N15/1), electronic ignition control unit (EZL)/anti-knock control (AKR) (N1/3)

⇒ 8.0	<b>Kick-down switch 2nd driving programme (S16/7)</b> Activation		Engine: <b>Idling</b>  Operate kick-down switch (reach behind accelerator pedal)	<1 V  >10 V	Cables ⇒ 8.1, automatic transmission control unit, 5-speed (N15/1), kick-down switch 2nd driving programme (S16/7)
⇒ 8.1	Kick-down solenoid valve (Y3/1y1) Internal resistance		Ignition: <b>OFF</b> Control unit (N15/1) disconnected	10-30 Ω	Cables Valve unit, 5-speed automatic transmission (Y3/1)

Test programme - electrical      Testing

Test step	Test scope	Test equipment/ test connection	Operation/ requirement	Nominal value	Possible cause/remedy
⇒ 9.0	<b>Control valve (Y3/1y2)</b> Activation 4th gear  Activation 5th gear		Engine: <b>Idling</b>  Engine speed: > 1000/rpm  Vehicle drives at approx. 80 km/h on a test roller. Selector lever in position: <b>D</b> Switch 2nd driving programme in position: <b>E</b>	> 5 V ~  < 1 V ~	Cables, ⇒ 9.1, automatic transmission control unit, 5-speed (N15/1)  ⇒ 2.0, ⇒ 5.0-7.0
⇒ 9.1	Coil resistance		Ignition: <b>OFF</b> Control unit (N15/1) disconnected	2-10 Ω (Table, figure 13)	Control valve (Y3/1y2)

Test programme - electrical      Testing

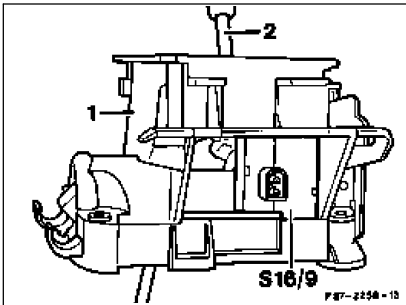


Figure 1  
S16/9 "D" position contact

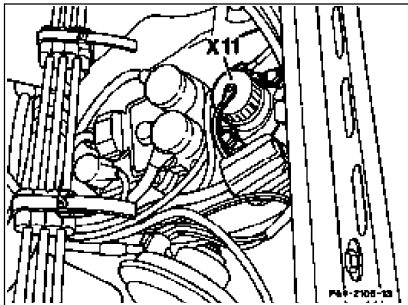


Figure 2  
Model 124  
X11 Diagnostic socket/terminal block terminal TD

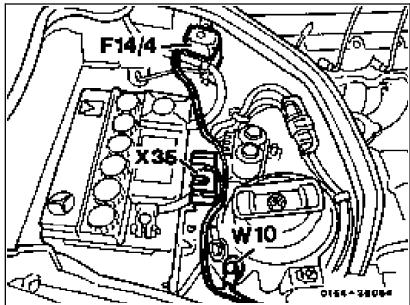


Figure 3  
Model 124  
W10 Ground, battery

Test programme - electrical      Testing

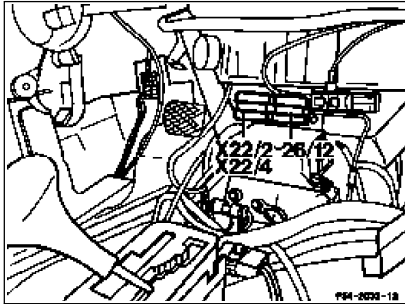


Figure 4  
Model 129  
X22/2 Plug connection, automatic transmission/engine (8-pin)

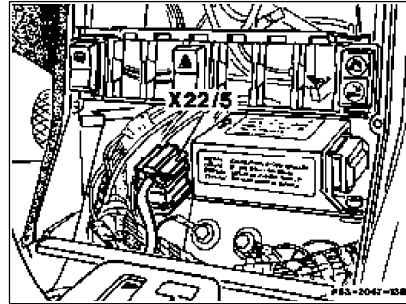


Figure 5  
Model 129  
X22/5 Plug connection, automatic 5-speed transmission/engine (6-pin) (vehicles without auxiliary heating)

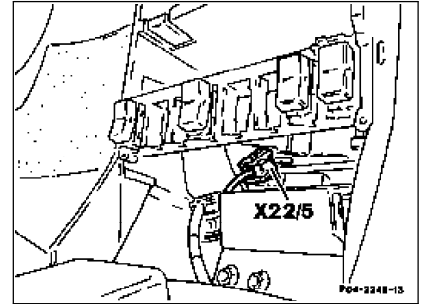


Figure 6  
Model 129  
22/5 Plug connection, automatic 5-speed transmission/engine (6-pin) (vehicles with auxiliary heating)

## Test programme - electrical Testing

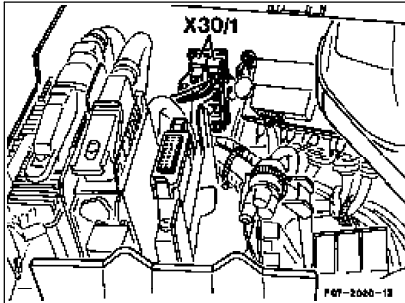


Figure 7  
Model 129  
X30/1 Plug connection, multi-function block

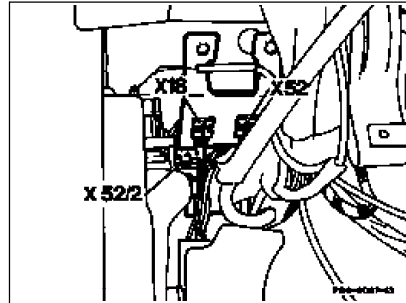


Figure 8  
X18 Connector interior/tail lamp harness, 8-pole

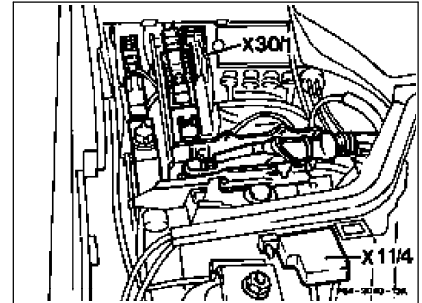


Figure 9  
X11/4 Test connector for diagnosis, 16-pole (pulse signal)  
X30/1 Connector, multiple function block

## Test programme - electrical Testing

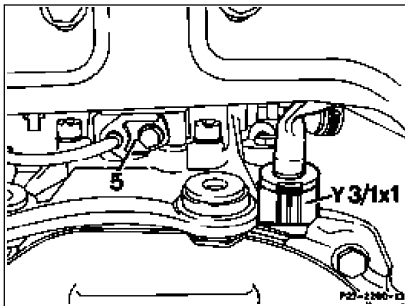


Figure 10  
Y3/1x1 Connector, valve unit automatic 5-speed transmission

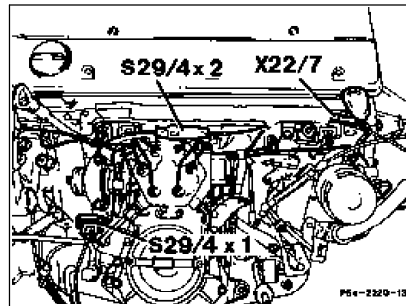


Figure 11  
S29/4x2 Connector, accelerator pedal potentiometer

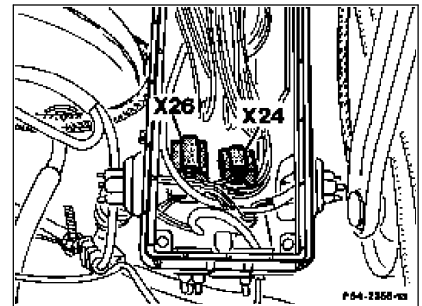


Figure 12  
Model 124  
X26 Plug connection, interior/engine (12-pin)

## Test programme - electrical Testing

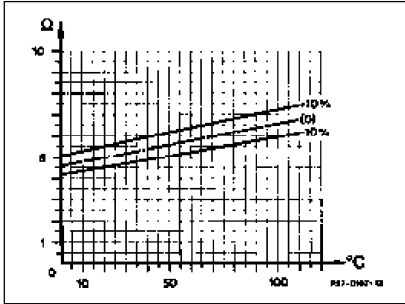


Figure 13  
Table  
Resistance of control valve (Y3/1y2) as a function of temperatures

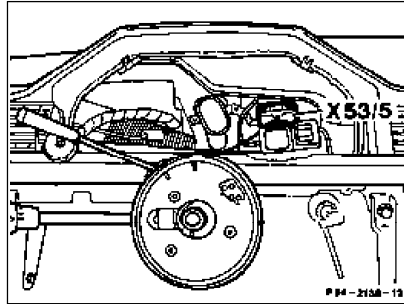


Figure 14  
**Model 124**  
X53/5 Multi-point plug connection, Hall-effect sensor road speed signal

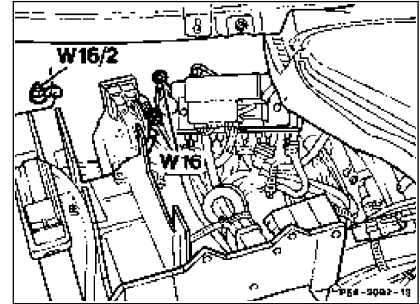


Figure 15  
**Model 129**  
W16 Ground, component compartment

## Test programme - electrical      Testing

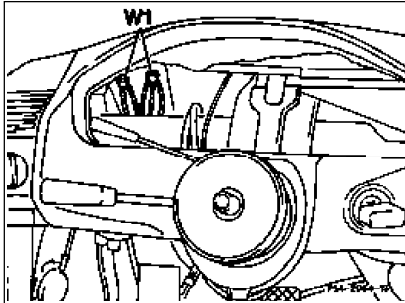


Figure 16  
W1 Main ground (behind instrument cluster)