

## 4.1 Automatic Locking Differential (ASD)

Models 124.128, 129.061, 201


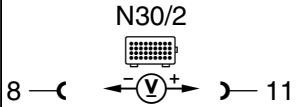

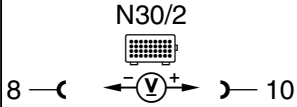

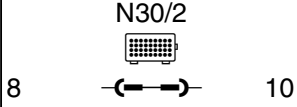
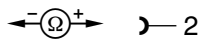
### Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0	<b>ASD control module (N30/2)</b> Voltage supply Circuit 87 E		Ignition: <b>ON</b>	11 – 14 V	⇒ 1.1
⇒ 1.1	Voltage supply from overvoltage protection relay module (K1/2)		Ignition: <b>ON</b>	11 – 14 V	Fuse in K1/2, Wiring, K1/2, ⇒ 1.2
⇒ 1.2	Ground wire		Ignition: <b>OFF</b>	< 1 Ω	Wiring, <b>Model 124, 201</b> Ground (W10), <b>Model 129</b> Ground (W16).


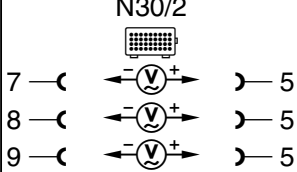
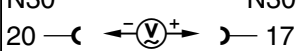
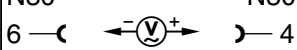
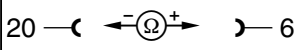
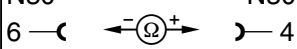
## Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 2.0	<b>Circuit 61 voltage</b>	<p>N30/2 8 —(V)— 13</p>	Ignition: <b>ON</b>  Engine: <b>at Idle</b>	< 2 V  11 – 14 V	Wiring, Generator (G2).
⇒ 3.0	<b>Diagnosis output</b>	<p>X11/4 N30/2 5 —(Ω)— 2</p>	Engine: <b>OFF</b>	< 1 Ω	Wiring, Data link connector (X11/4).
⇒ 4.0	<b>ASD warning lamp (A1e25)</b>	<p>N30/2 8 —(L)— 4</p>	Ignition: <b>ON</b>	A1e25: <b>ON</b>	Wiring, Fuse, A1e25, Bulb.
⇒ 5.0	<b>ASD MIL (A1e24)</b>	<p>N30/2 8 —(L)— 2</p>	Ignition: <b>ON</b>  Bridge sockets 8 and 2. Engine: <b>at Idle</b>	A1e24: <b>ON</b>  A1e24: <b>OFF</b>	Wiring, Fuse, A1e24.  Wiring.


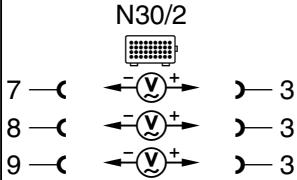
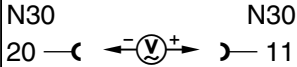
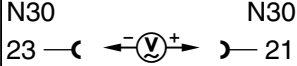
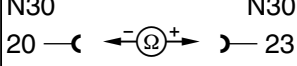
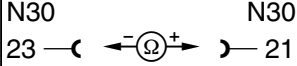
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 6.0	 <b>Stop lamp switch (S9/1)</b> N.O. contact	N30/2 	Ignition: <b>OFF</b> Brake pedal not depressed.  Depress brake pedal.	< 1 V  11 – 14 V	Fuse in F1, Wiring, S9/1.
⇒ 7.0	 <b>Stop lamp switch (S9/1)</b> N.C. contact	N30/2 	Ignition: <b>ON</b> Brake pedal not depressed.  Depress brake pedal.	11 – 14 V  < 1 V	Wiring, S9/1, ⇒ 8.0
⇒ 8.0	 <b>ASD valve (Y38)</b> Function	N30/2 	Ignition: <b>ON</b>  Depress brake pedal.	ASD valve switches on.  ASD valve switches off.	⇒ 8.1, Wiring.
⇒ 8.1	Coil resistance	Y38x1                      Y38x1 1 —( —  —) 2	Ignition: <b>OFF</b> Brake pedal not depressed.	5 – 7 Ω	Wiring, Y38.

## Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 9.0	 Left front VSS	N30/2 	Raise front of vehicle. Ignition: <b>ON</b> Rotate left front wheel (approx. 1 rev./sec.).	> 3 V~	Wiring, ⇒ 9.1.
⇒ 9.1	ABS control module (N30) left front VSS output	N30 20  N30 17	Raise front of vehicle. Ignition: <b>ON</b> Rotate left front wheel (approx. 1 rev./sec.).	> 3 V~	⇒ 9.2.
⇒ 9.2	Left front VSS sensor (L6/1)	N30 6  N30 4	Raise front of vehicle. Ignition: <b>ON</b> Rotate left front wheel (approx. 1 rev./sec.).	> 0.1 V~	Wiring, ⇒ 9.3.
⇒ 9.3	Internal resistance	N30 20  N30 6	Ignition: <b>OFF</b> Disconnect ABS control module (N30).	> 20 kΩ	Wiring, ⇒ 9.4.
⇒ 9.4	Internal resistance	N30 6  N30 4	Ignition: <b>OFF</b> Disconnect ABS control module (N30).	0.8 – 2.3 kΩ	Wiring, L6/1.

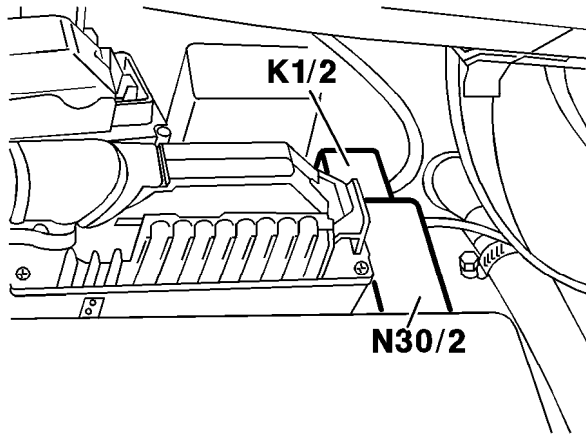
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 10.0	 Right front VSS	<p>N30/2</p> 	<p>Raise front of vehicle. Ignition: <b>ON</b> Rotate right front wheel (approx. 1 rev./sec.).</p>	> 3 V~	Wiring, ⇒ 10.1.
⇒ 10.1	ABS control module (N30) right front VSS output	<p>N30</p> 	<p>Raise front of vehicle. Ignition: <b>ON</b> Rotate right front wheel (approx. 1 rev./sec.).</p>	> 3 V~	⇒ 10.2.
⇒ 10.2	Right front VSS sensor (L6/2)	<p>N30</p> 	<p>Raise front of vehicle. Ignition: <b>ON</b> Rotate right front wheel (approx. 1 rev./sec.).</p>	> 0.1 V~	⇒ 10.3.
⇒ 10.3	Internal resistance	<p>N30</p> 	<p>Ignition: <b>OFF</b> Disconnect ABS control module (N30).</p>	> 20 kΩ	Wiring, ⇒ 10.4.
⇒ 10.4	Internal resistance	<p>N30</p> 	<p>Ignition: <b>OFF</b> Disconnect ABS control module (N30).</p>	0.8 – 2.3 kΩ	Wiring, L6/2.

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 11.0	Rear axle VSS		Raise front of vehicle. Ignition: <b>ON</b> Rotate either rear wheel (approx. 1 rev./sec.).	> 3 V~	Wiring, ⇒ 11.1.
⇒ 11.1	ABS control module (N30) rear axle VSS output		Raise front of vehicle. Ignition: <b>ON</b> Rotate either rear wheel (approx. 1 rev./sec.).	> 3 V~	⇒ 11.2.
⇒ 11.2	Rear axle VSS sensor (L6)		Raise front of vehicle. Ignition: <b>ON</b> Rotate either rear wheel (approx. 1 rev./sec.).	> 0.1 V~	⇒ 11.3.
⇒ 11.3	Internal resistance		Ignition: <b>OFF</b> Disconnect ABS control module (N30).	> 20 kΩ	Wiring, ⇒ 11.4.
⇒ 11.4	Internal resistance		Ignition: <b>OFF</b> Disconnect ABS control module (N30).	0.6 – 1.6 kΩ	Wiring, L6.

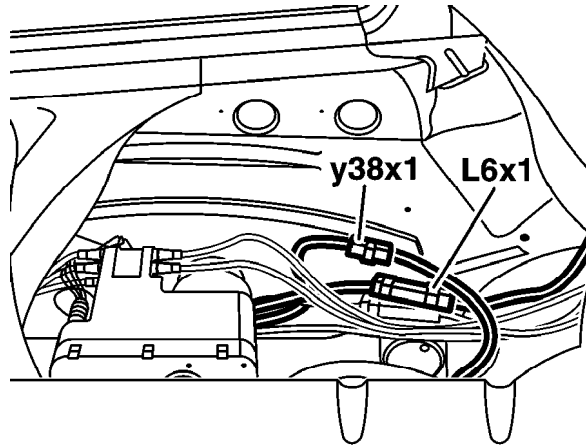
Electrical Test Program - Test



P35-2259-13

Figure 1  
Model 124 Right component compartment

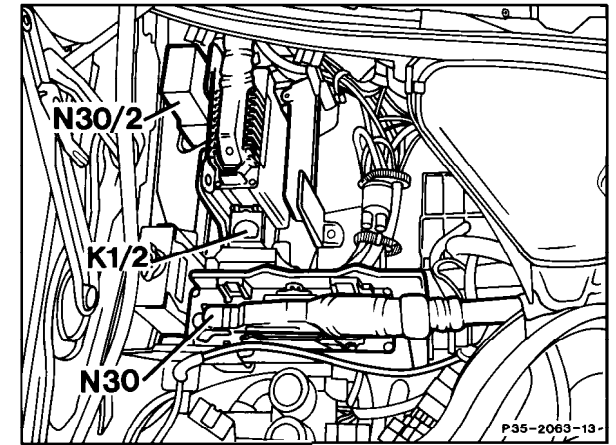
- K1/2 Overvoltage protection relay module (87E/87L/30a, 9-pole)
- N30/2 ASD control module



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Figure 2  
Model 124 Right rear passenger compartment

- L6x1 Rear axle VSS sensor connector
- Y38x1 ASD solenoid valve connector

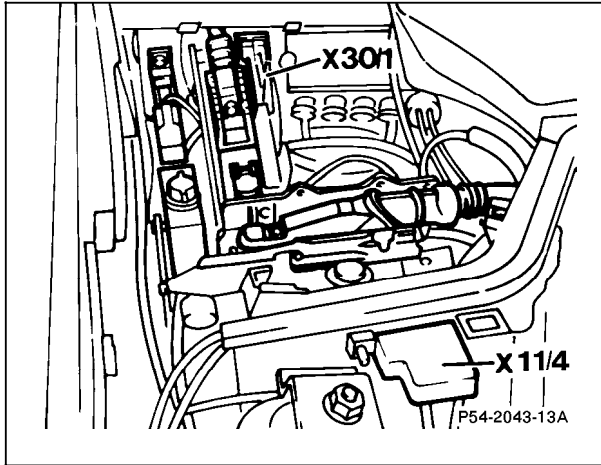


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Figure 3  
Model 129

- K1/2 Overvoltage protection relay module (87E/87L/30a, 9-pole)
- N30 ABS control module
- N30/2 ASD control module

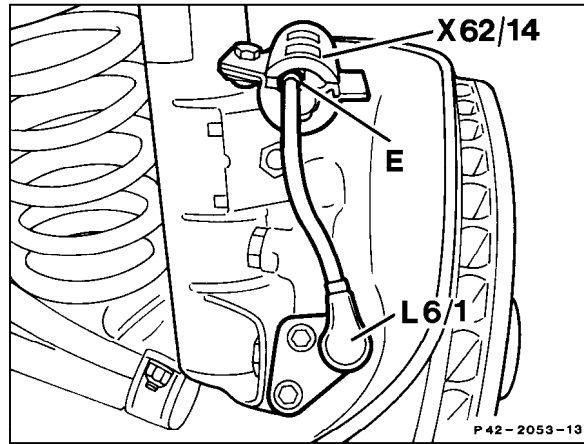
Electrical Test Program - Test



P54-2043-13A

Figure 4  
Model 129

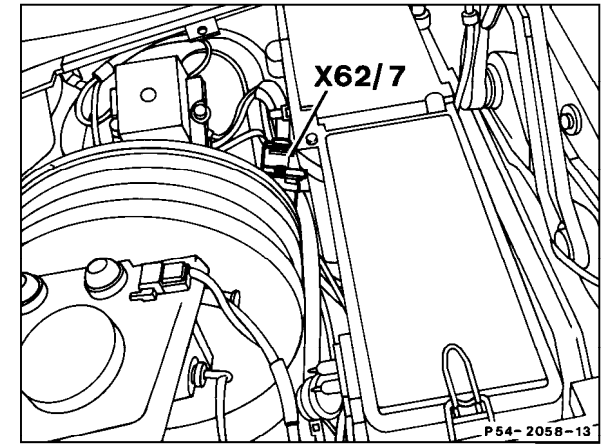
- X30/1 Multi-function connector block
- X11/4 Data link connector (DTC readout)



P42-2053-13

Figure 5  
Model 129

- L6/1 Left front axle VSS sensor
- L6/2 Right front axle VSS sensor
- X62/14 Left front axle VSS sensor connector (axle spindle)
- X62/15 Right front axle VSS sensor connector (axle spindle)



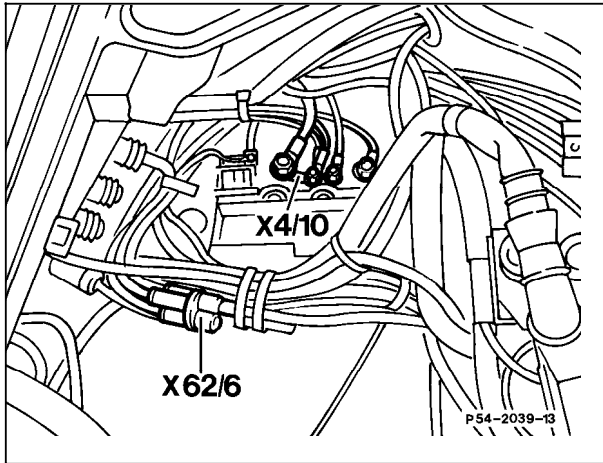
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Figure 6  
Model 129

- X62/7 Left front axle VSS sensor connector (component compartment)



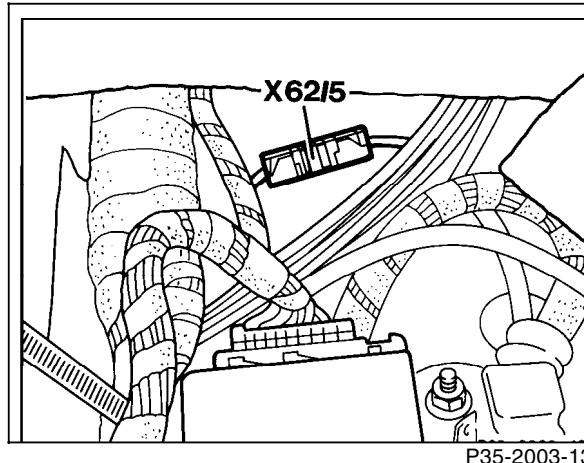
Electrical Test Program - Test



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Figure 7  
Model 129

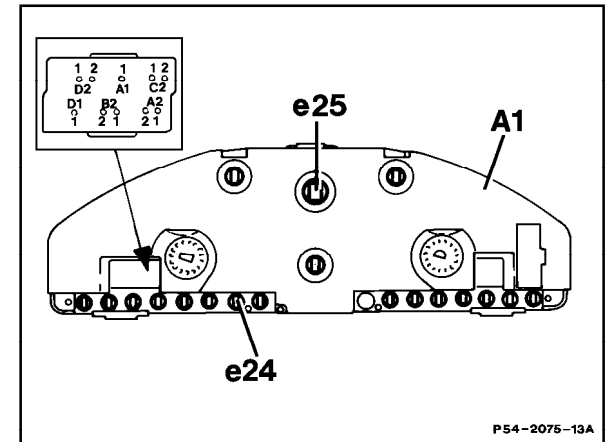
- X4/10 Terminal block (circuit 30/circuit 61 battery) (3-pole)
- X62/6 Right front axle VSS sensor connector (component compartment)



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Figure 8  
Model 129

- X62/5 Valve connector (ASD) (2-pole)

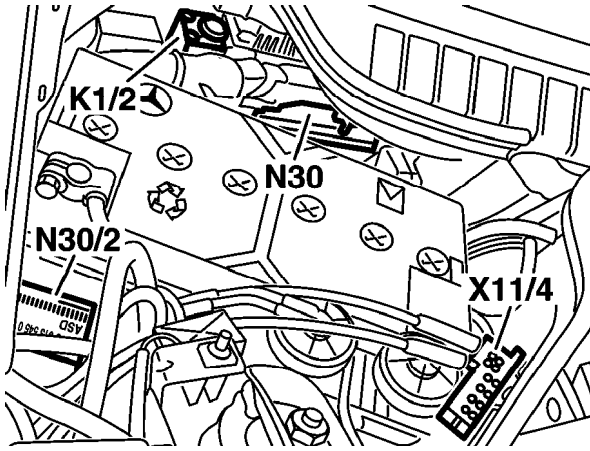


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Figure 9  
Model 129

- A1 Instrument cluster
- A1e24 ASD MIL
- A1e25 ASD warning lamp

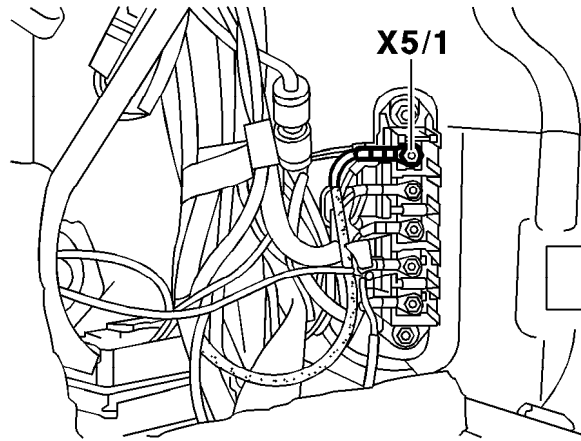
Electrical Test Program - Test



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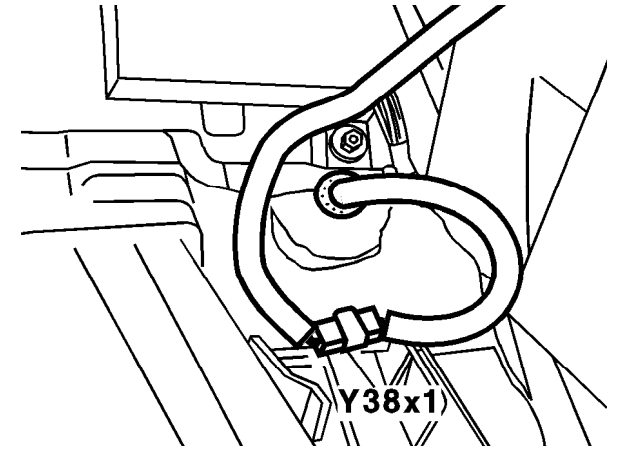
Figure 10  
Model 201 Right component compartment

- K1/2      Overvoltage protection relay module  
            (87E/87L/30a, 9-pole)
- N30        ABS control module
- N30/2     ASD control module
- X11/4     Data link connector (DTC readout)



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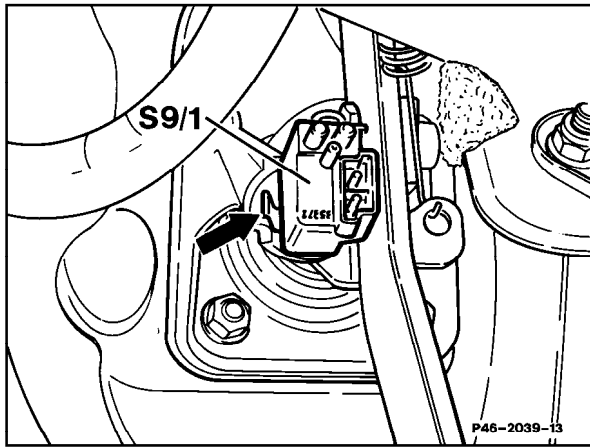
Figure 11  
Model 201 Left footwell  
X5/1      Terminal block (interior)



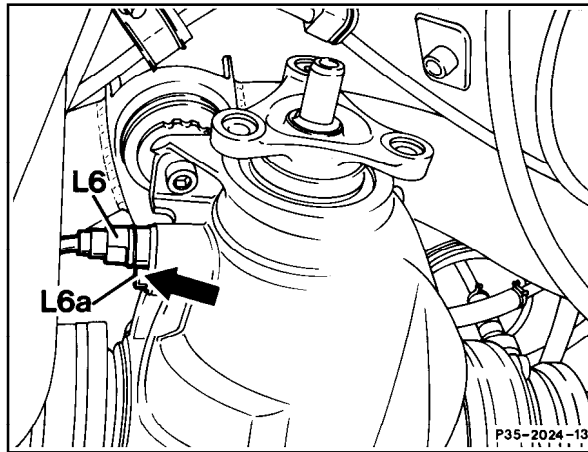
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Figure 12  
Model 201 Right footwell  
Y38x1    ASD solenoid valve connector

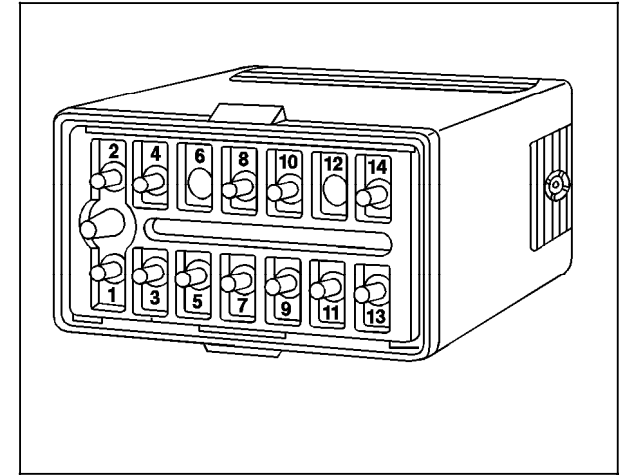
Electrical Test Program - Test



P46-2039-13



P35-2024-13



P35-5879-13

Figure 13  
Pedal assembly, all models  
S9/1 Stop lamp switch (4-pole)

Figure 14  
Rear axle center piece, all models  
L6 Rear axle VSS sensor  
L6a Rear axle VSS sensor mounting screw

Figure 15  
ASD control module (N30/2) pin layout

1	Rear axle VSS sensor (L6) from N30
2	ASD warning lamp (A1e24) and Data link connector (X11/4)
3	Right front axle VSS sensor (L6/2) from N30
4	ASD MIL (A1e25)
5	Left front axle VSS sensor (L6/1) from N30
6	Not used
7 - 9	Ground
	<b>Model 124:</b> W10
	<b>Model 129:</b> W16
	<b>Model 201:</b> W10
10	ASD valve (Y38) (-) and Stop lamp switch (S9/1) N.C. contact
11	Stop lamp switch (S9/1) N.O. contact
12	Not used
13	Circuit 61 voltage
14	Circuit 87 voltage