



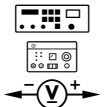



## 5.1 Acceleration Slip Regulation (ASR)

Model 129

### Electrical Test Program – Test



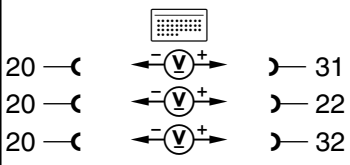
⇒	 1)	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		<b>Overvoltage protection relay module 87E, 7-pole (K1/1)</b>	–	Ignition: <b>OFF</b>	LED All: <b>OFF</b>	Wiring, Overvoltage protection relay module (K1/1) (Figure 1).
2.0		<b>Solenoid valve relay (A7/3k1)</b>	–	Ignition: <b>OFF</b>	LED All: <b>OFF</b>	Wiring, Solenoid valve relay (A7/3k1), (Figure 2).
3.0		<b>Overvoltage protection relay module (87E, 7-pole)</b>	Connect to 	Ignition: <b>ON</b>  <b>Note:</b> Select DC Volts range	11 – 14 V LED ⊕ : <b>ON</b> ⊖ : <b>ON</b>  Malfunction indicator lamp ABS: <b>ON</b> ASR: <b>ON</b>	Wiring, Battery charge, Fuse for overvoltage protection relay module (K1/1).  Wiring, Overvoltage protection relay module (K1/1), Solenoid valve relay (A7/3k1), ABS malfunction indicator lamp (A1e17), ASR malfunction indicator lamp (A1e22),
4.0		ASR function indicator lamp (A1e21)	–	Ignition: <b>ON</b>	ASR function indicator lamp: <b>ON</b>	Wiring, ASR function indicator lamp (A1e21).

1) ABS Tester Adaptor Position

## 5.1 Acceleration Slip Regulation (ASR)

Model 129


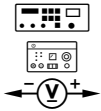
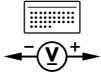
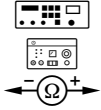
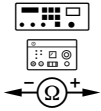

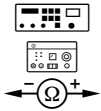
### Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.0	1	<b>Circuit 61</b>	–	Start engine	LED Ⓢ : <b>OFF</b>	Wiring, Generator (G2).
6.0	1	<b>Stop lamp switch (S9/1)</b>	–	Ignition: <b>ON</b> Depress brake pedal	LED Ⓢ: <b>ON</b>	Wiring, Solenoid valve relay (A7/3k1), (Figure 2), Stop lamp switch (S9/1).
7.0	2	<b>Solenoid valve relay (A7/3k1)</b>	Connect to 	Ignition: <b>ON</b>	11 – 14 V LED Ⓢ : <b>ON</b> Ⓢ : <b>ON</b> Ⓢ : <b>ON</b> Malfunction indicator lamp ABS: <b>OFF</b> ASR: <b>OFF</b>	Wiring, Battery charge, Fuse for overvoltage protection relay module (K1/1).  Wiring, Overvoltage protection relay module (K1/1), Solenoid valve relay (A7/3k1), ABS malfunction indicator lamp (A1e17), ASR malfunction indicator lamp (A1e22).
8.0	2	<b>ASR charging pump (M15)</b> Voltage supply		Ignition: <b>ON</b>	11 – 14 V	Wiring.

## 5.1 Acceleration Slip Regulation (ASR)

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### Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
9.0	3	<b>Solenoid valve relay (A7/3k1),</b> Diode L1	Connect  to	Ignition: <b>ON</b>	0.4 – 1.5 V LED ⊕ : <b>ON</b> ⊖ : <b>ON</b>	Wiring, Solenoid valve relay (A7/3k1).
10.0	3	<b>Solenoid valve relay (A7/3k1),</b> Diode L2	20 —  — 17	Ignition: <b>ON</b>	0.4 – 1.5 V	Wiring, Solenoid valve relay (A7/3k1).
11.0	4	<b>Left front axle vehicle speed sensor (L6/1)</b> Internal resistance	Connect  to	Ignition: <b>ON</b>	1.1 – 2.3 k Ω	Wiring, Left front axle vehicle speed sensor (L6/1).
12.0	4	<b>Left front vehicle speed sensor (L6/1)</b> Insulation resistance	Connect  to	Ignition: <b>ON</b> Press button: 	> 20 k Ω	Left front axle vehicle speed sensor (L6/1).
13.0	5	<b>Right front axle vehicle speed sensor (L6/2)</b> Internal resistance	Connect  to	Ignition: <b>ON</b>	1.1 – 2.3 k Ω	Wiring, Right front axle vehicle speed sensor (L6/2).

## 5.1 Acceleration Slip Regulation (ASR)

## Model 129



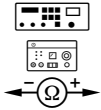


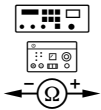


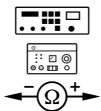


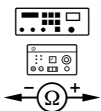

### Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
14.0	5	<b>Right front axle vehicle speed sensor (L6/2)</b> Insulation resistance	Connect to	Ignition: <b>ON</b> Press button:	> 20 k Ω	Right front vehicle speed sensor (L6/2).
15.0	6	<b>Left rear axle vehicle speed sensor (L6/3)</b> Internal resistance	Connect to	Ignition: <b>ON</b>	0.6 – 1.6 k Ω	Wiring, Left rear axle vehicle speed sensor (L6/3).
16.0	6	<b>Left rear axle vehicle speed sensor (L6/3)</b> Insulation resistance	Connect to	Ignition: <b>ON</b> Press button:	> 20 k Ω	Left rear axle vehicle speed sensor (L6/3).
17.0	7	<b>Right rear axle vehicle speed sensor (L6/4)</b> Internal resistance	Connect to	Ignition: <b>ON</b>	0.6 – 1.6 k Ω	Wiring, Right rear axle vehicle speed sensor (L6/4).
18.0	7	<b>Right rear axle vehicle speed sensor (L6/4)</b> Insulation resistance	Connect to	Ignition: <b>ON</b> Press button:	> 20 k Ω	Right rear axle vehicle speed sensor (L6/4).

## 5.1 Acceleration Slip Regulation (ASR)

Model 129

### Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
19.0		<b>Left front axle solenoid valve (A7/3y1)</b> Internal resistance	Connect to 	Ignition: <b>OFF</b> Press button: 	4 – 6 Ω	Wiring, ABS/ASR hydraulic unit (A7/3), (Figure 3).
20.0		<b>Right front axle solenoid valve(A7/3y2)</b> Internal resistance	Connect to 	Ignition: <b>OFF</b> Press button: 	4 – 6 Ω	Wiring, ABS/ASR hydraulic unit (A7/3), (Figure 3).
21.0		<b>Left rear axle solenoid valve (A7/3y3)</b> Internal resistance	Connect to 	Ignition: <b>OFF</b> Press button: 	4 – 6 Ω	Wiring, ABS/ASR hydraulic unit (A7/3), (Figure 3).
22.0		<b>Right rear axle solenoid valve (A7/3y4)</b> Internal resistance	Connect to 	Ignition: <b>OFF</b> Press button: 	4 – 6 Ω	Wiring, ABS/ASR hydraulic unit (A7/3), (Figure 3).

## 5.1 Acceleration Slip Regulation (ASR)

Model 129














### Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
23.0	4	<b>Left front axle vehicle speed sensor (L6/1)</b> Voltage	Connect to	Raise vehicle Ignition: <b>ON</b> Turn wheel at approximately one revolution/second.	0.1V~	Excessive wheel bearing play, open circuit or wires connected incorrectly, Left front axle vehicle speed sensor (L6/1).
24.0	8	<b>Left front axle solenoid valve (A7/3y1)</b> Pressure retention	 remains connected	Vehicle raised Ignition: <b>ON</b> Turn wheel at approximately one revolution/second. Press switch: “ <b>P=</b> ” Apply brake pedal.	LED : <b>ON</b> : <b>ON</b> : <b>ON</b> : <b>ON</b> Wheel must be able to rotate.	Brake lines on hydraulic unit reversed (Figure 3), Wires reversed, ABS/ASR hydraulic unit (A7/3).
25.0	8	<b>Left front axle solenoid valve (A7/3y1)</b> Pressure reduction	 remains connected	Vehicle raised Ignition: <b>ON</b> Apply brake pedal. Press switch: “ <b>P ↓</b> ” Turn wheel at approximately one revolution/second.	LED : <b>ON</b> : <b>ON</b> : <b>ON</b> : <b>ON</b> Wheel must be able to rotate.	Return pressure pump relay (A7/3k2), ABS/ASR hydraulic unit (A7/3)

## 5.1 Acceleration Slip Regulation (ASR)

Model 129

















### Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
26.0	5	<b>Right front axle vehicle speed sensor (L6/2)</b>	 remains connected	Vehicle raised Ignition: <b>ON</b> Turn wheel at approximately one revolution/second.	0.1V~	Excessive wheel bearing play, open circuit or wires connected incorrectly, Right front axle vehicle speed sensor (L6/2).
27.0	9	<b>Right front axle solenoid valve (A7/3y2)</b>	 remains connected	Vehicle raised Ignition: <b>ON</b> Turn wheel at approximately one revolution/second. Press switch: “ <b>P=</b> ” apply brake pedal.	LED  : <b>ON</b>  : <b>ON</b>  : <b>ON</b>  : <b>ON</b> Wheel must be able to rotate.	Brake lines on hydraulic unit reversed (Figure 3), Wires reversed, ABS/ASR hydraulic unit (A7/3).
28.0	9	<b>Right front axle solenoid valve (A7/3y2)</b>	 remains connected	Vehicle raised Ignition: <b>ON</b> Apply brake pedal. Press switch: “ <b>P ↓</b> ” Turn wheel at approximately one revolution/second.	LED  : <b>ON</b>  : <b>ON</b>  : <b>ON</b>  : <b>ON</b>  : <b>ON</b> Wheel must be able to rotate.	Return/pressure pump relay (A7/3k2) (Figure 2), ABS/ASR hydraulic unit (A7/3).

## 5.1 Acceleration Slip Regulation (ASR)

Model 129














### Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
29.0		<b>Left rear axle vehicle speed sensor (L6/3)</b> Voltage	 remains connected	Vehicle raised Ignition: <b>ON</b> Turn wheel at approximately one revolution/second.	0.1V~	Open circuit or wires connected incorrectly, left rear axle vehicle speed sensor (L6/3).
30.0		<b>Left rear axle solenoid valve (A7/3y3)</b>	 remains connected	Vehicle raised Ignition: <b>ON</b> Turn wheel at approximately one revolution/second. Press switch: “ <b>P=</b> ” apply brake pedal.	LED  : <b>ON</b>  : <b>ON</b>  : <b>ON</b>  : <b>ON</b> Wheel must be able to rotate.	Brake lines on hydraulic unit reversed (Figure 3), Wires reversed, ABS/ASR hydraulic unit (A7/3).
31.0		<b>Left rear axle solenoid valve (A7/3y3)</b>	 remains connected	Vehicle raised Ignition: <b>ON</b> Apply brake pedal. Press switch: “ <b>P ↓</b> ” Turn wheel at approximately one revolution/second.	LED  : <b>ON</b>  : <b>ON</b>  : <b>ON</b>  : <b>ON</b>  : <b>ON</b> Wheel must be able to rotate.	Return/pressure pump relay (A7/3k2) (Figure 2), ABS/ASR hydraulic unit (A7/3).

## 5.1 Acceleration Slip Regulation (ASR)

Model 129


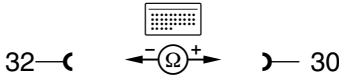
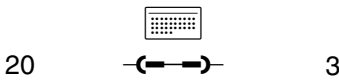
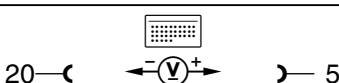
### Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
32.0	1	<b>Right rear axle vehicle speed sensor (L6/4)</b>	 remains connected	Vehicle raised Ignition: <b>ON</b> Turn wheel at approximately one revolution/second.	0.1V~	Open circuit or wires connected incorrectly, left rear axle vehicle speed sensor (L6/4).
33.0	1 1	<b>Right rear axle solenoid valve (A7/3y4)</b>	 remains connected	Vehicle raised Ignition: <b>ON</b> Turn wheel at approximately one revolution/second. Press switch: “ <b>P=</b> ” apply brake pedal.	LED  : <b>ON</b>  : <b>ON</b>  : <b>ON</b>  : <b>ON</b> Wheel must be able to rotate.	Brake lines on hydraulic unit reversed (Figure 3), Wires reversed, ABS/ASR hydraulic unit (A7/3).
34.0	1 1	<b>Right rear axle vehicle speed sensor (A7/3y4)</b>	 remains connected	Vehicle raised Ignition: <b>ON</b> Apply brake pedal. Press switch: “ <b>P ↓</b> ” Turn wheel at approximately one revolution/second.	LED  : <b>ON</b>  : <b>ON</b>  : <b>ON</b>  : <b>ON</b>  : <b>ON</b> Wheel must be able to rotate.	Return/pressure pump relay (A7/3k2) (Figure 2), ABS/ASR hydraulic unit (A7/3).

## 5.1 Acceleration Slip Regulation (ASR)

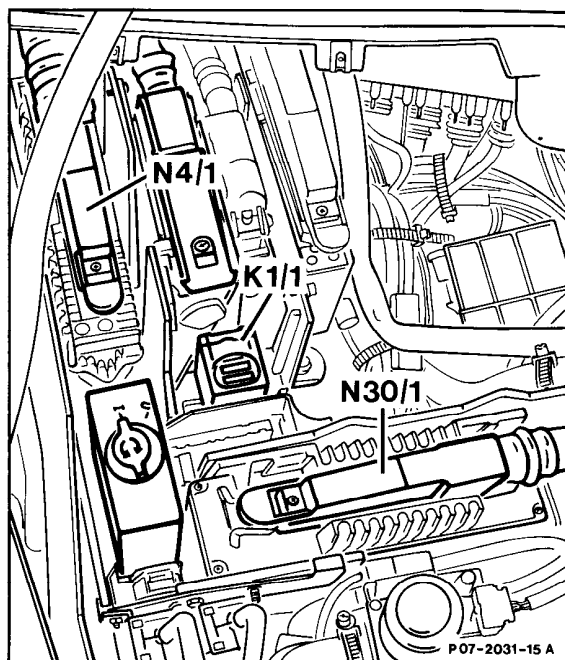
Model 129

### Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
35.0		<b>Switchover/solenoid valve (A7/3y5)</b>		Ignition: <b>OFF</b>	2 – 4 Ω	Wiring, ABS/ASR hydraulic unit (A7/3).
36.0		<b>Snow chain switch (ASR) with indicator (S76)</b>		Ignition: <b>ON</b>	Function indicator in S76 comes on.	Wiring, Snow chain switch (ASR) with indicator (S76).
37.0		<b>Snow chain switch (ASR) with indicator (S76)</b>		Ignition: <b>ON</b> Operate switch (S76) on and off	<b>ON:</b> < 1 V <b>OFF:</b> 11 – 14 V	Wiring, Snow chain switch (ASR) with indicator (S76).



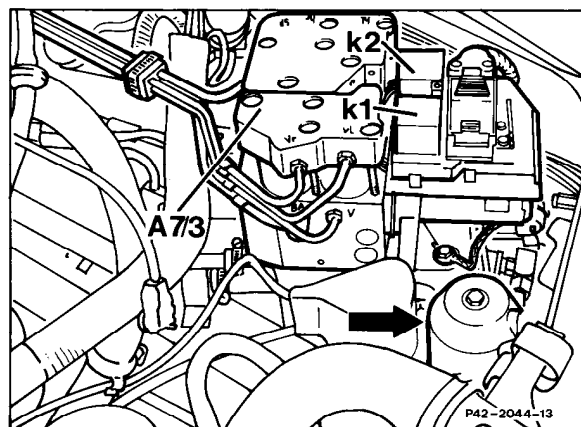
### Electrical Test Program – Test



P07-2031-15A

Figure 1

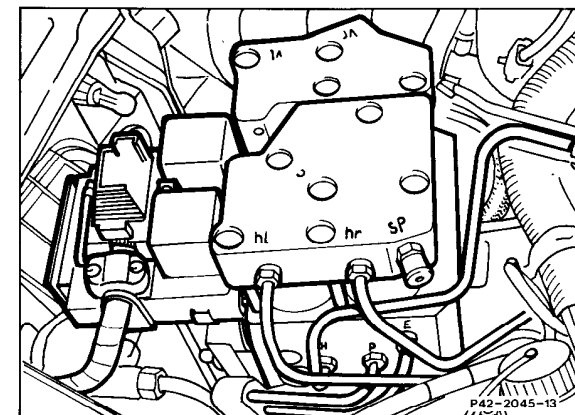
- K1/1      Overvoltage protection relay module (87E, 7-pole)
- N4/1      Electronic accelerator/cruise control module
- N30/1      ABS/ASR control module



P42-2044-13

Figure 2

- A7/3      ABS/ASR hydraulic unit
- A7/3k1   Solenoid valve relay
- A7/3k2   High-pressure/return pump relay

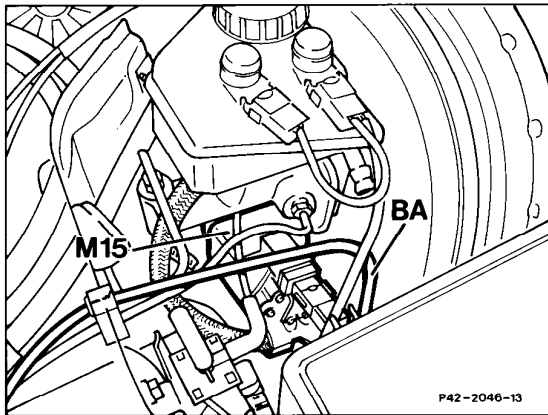


P42-2045-13

Figure 3

- A7/3      ABS/ASR hydraulic unit

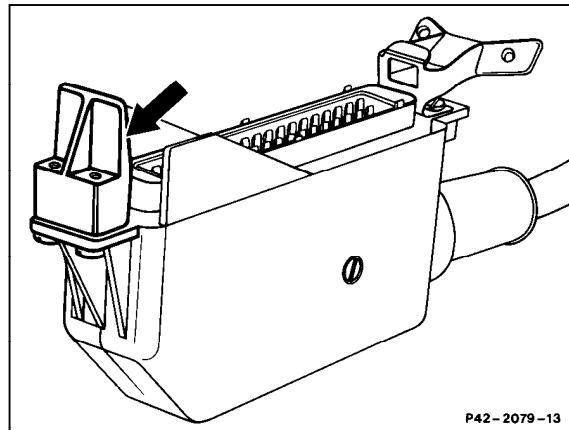
### Electrical Test Program – Test



P42-2046-13

Figure 4

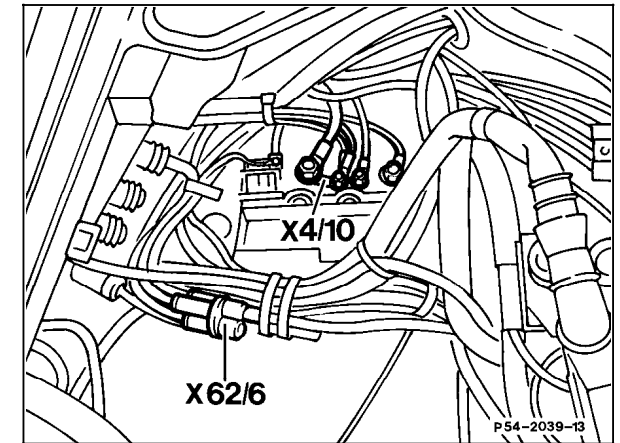
M15 ASR charging pump



P42-2079-13

Figure 5

ABS-adapter plug

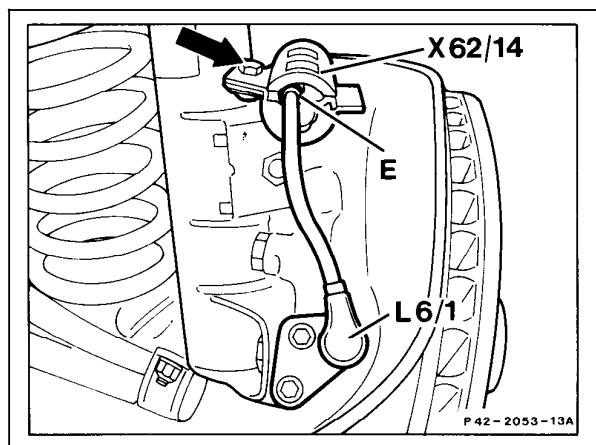


P54-2039-13

Figure 6

X4/10 Terminal block (terminal 30/30Ue/61e/87L)  
X62/6 Right front axle vehicle speed sensor connector  
(component compartment)

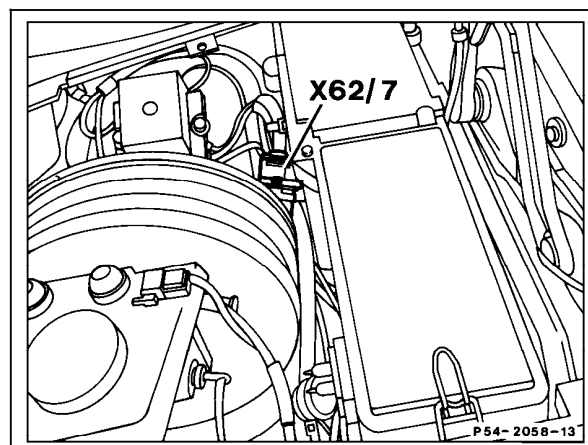
### Electrical Test Program – Test



P42-2053-13A

Figure 7

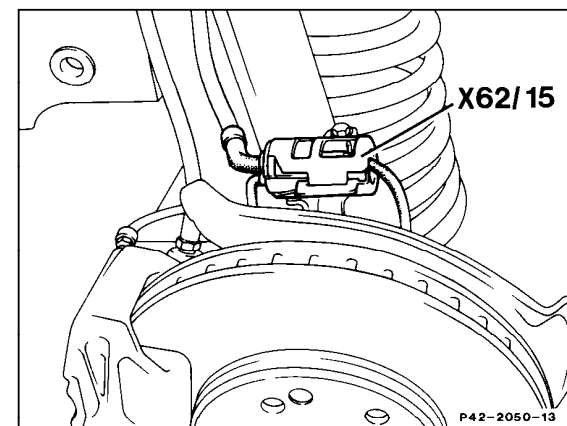
- L6/1 Left front axle vehicle wheel sensor
- X62/14 Left front axle vehicle speed sensor connector (axle spindle)



P54-2058-13

Figure 8

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

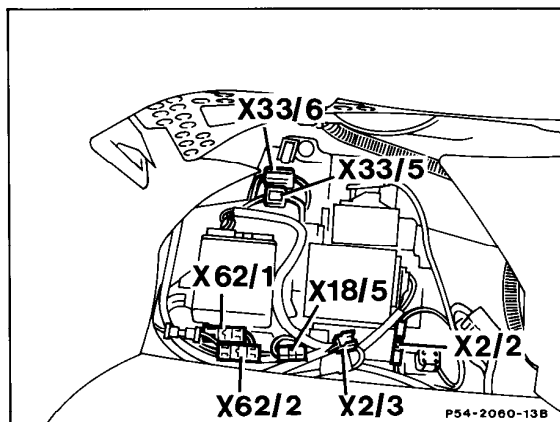


P42-2050-13

Figure 9

- X62/15 Right front axle vehicle speed sensor connector (axle spindle)

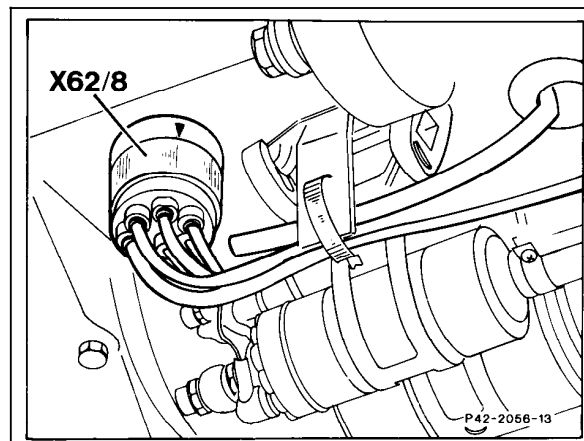
### Electrical Test Program – Test



P54-2060-13B

Figure 10

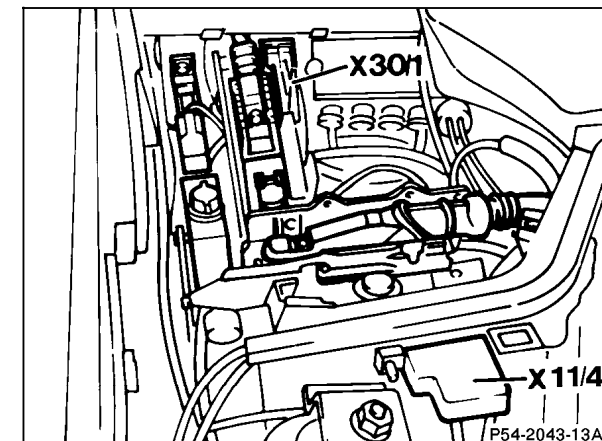
- X62/1 Left rear axle vehicle wheel sensor connector
- X62/2 Right rear axle vehicle speed sensor connector (2-pole)



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Figure 11

- X62/8 Rear axle multiple circuit junction connector

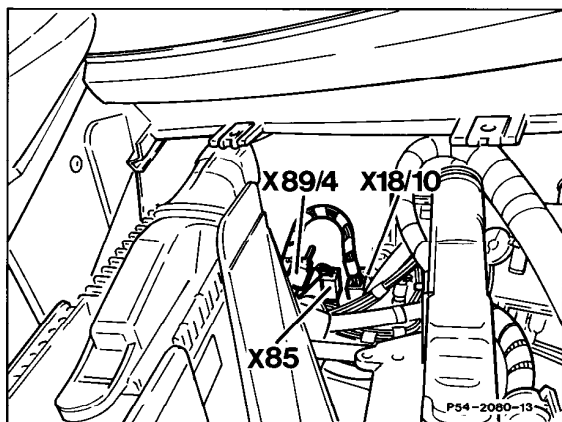


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Figure 12

- X30/1 Multi-function block connector

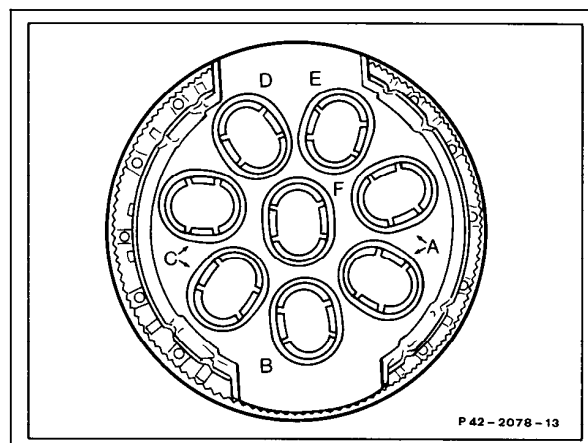
### Electrical Test Program – Test



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Figure 13

X18/10 Interior/ASR connector (8-pole)



P42-2078-13

Figure 14

Layout of connector X62/8