Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
		N30/1 32 - (- () +) - 68 (2.32) 25 - (- () +) - 68 (2.25) 40 - (- () +) - 68 (2.40) (1.27)	Ignition: ON	11– 14 V	⇒ 1.1
⇒ 1.1	Voltage supply from base module (BM) (N16/1)	W16 ₩16/1 ₩16/1 → 68 ₩27	Ignition: ON		Fuse (F1) in N16/1, 1.1 or 1.2 23, Wiring, ⇒ 1.2.

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.2	Ground wire	N30/1 Model 124 W27 $\overline{-0}^{+}$)- 32 (1.32) W16 $\overline{-0}^{+}$)- 25 (2.25) W16 $\overline{-0}^{+}$)- 40 (2.40)	Ignition: OFF	< 1 Ω	Wiring, Model 124 Ground (W16), Ground (W27).
		Model 129 W27 $\xrightarrow{-} \textcircled{0}^{+}$ $\xrightarrow{-} 32$ (1.32) W27 $\xrightarrow{-} \textcircled{0}^{+}$ $\xrightarrow{-} 25$ (2.25) W27 $\xrightarrow{-} \textcircled{0}^{+}$ $\xrightarrow{-} 40$ (2.40)			Model 129 Ground (W27).
		Model 140 W16/1 $\xrightarrow{-} @^{+}$)- 32 (1.32) W16/1 $\xrightarrow{-} @^{+}$)- 25 (2.25) W16/1 $\xrightarrow{-} @^{+}$)- 40 (2.40)			Model 140 Ground (W16/1).

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 2.0	ABS MIL (A1e17)	(2.40) (1.35)	Ignition: ON Engine: at Idle	A1e17: ON 10 – 14 V A1e17: OFF	A1e17, ⇒ 2.1 12, Wiring, N30/1.
	Diode in ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1)		Ignition: OFF Disconnect N30/1 from contact box. Ignition: ON Engine: at Idle	A1e17: ON A1e17: ON	Wiring, A7/3k1.

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 3.0	ASR MIL (A1e22)	N30/1 40 (- () +-) 76 (2.40) (1.29)	Ignition: ON Engine: at Idle	< 2 V A1e22: ON 10 – 14 V A1e22: OFF	A1e22, ⇒ 3.1 12, Wiring, N30/1.
⇒ 3.1	Diode in ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1)		Ignition: OFF Disconnect N30/1 from contact box. Ignition: ON Engine: at Idle	A1e22: ON A1e22: ON	Wiring, A7/3k1.
⇒ 4.0	ASR warning lamp (A1e21)	N30/1 78 - (- () +) - 68 (1.37) (1.27)	Ignition: ON Engine: at Idle	A1e21: ON 10 - 14 V A1e21: OFF < 2 V	Wiring, A1e21.

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.0	Diagnosis output	N30/1 40 (() +- 57 (2.40) (1.16)	Ignition: ON	10 – 14 V	Wiring, N30/1.
⇒ 6.0	Circuit 61e voltage	N30/1 40 - (- () +) - 66 (2.40) (1.25)	Ignition: ON Engine: at Idle	< 1 V 11 – 14 V	Wiring, Generator (G2).
	ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1) Control	N30/1 	Ignition: ON	10 – 14 V	12, ⇒ 7.1.
	Monitoring	N30/1 40 - (-) +) - 1 (2.40) (2.1) 40 - (-) +) - 21 (2.40) (2.21) 40 - (-) +) - 22 (2.40) (2.22)		11 – 14 V	

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 7.1	Voltage supply	N30/1 40 - (- () + → 7 (2.40) (2.7)	Ignition: ON	11 – 14 V	Wiring, \Rightarrow 1.0, N30/1, \Rightarrow 7.2.
⇒ 7.2			Ignition: OFF Disconnect N30/1 from contact box.	40 – 80 Ω	Wiring, A7/3k1, ⇒ 7.3
⇒ 7.3	Working contact		Ignition: OFF Disconnect N30/1 from contact box.	< 12 Ω	Wiring, A7/3k1.

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 8.0 I	ABS/ASR hydraulic unit, high- pressure/return pump relay (A7/3k2) Voltage supply	N30/1 ↓ 40 - (- () +) - 7 (2.40) (2.7)	Ignition: ON	11 – 14 V	Wiring, \Rightarrow 8.1.
⇒ 8.1	Coil resistance		Ignition: OFF Disconnect N30/1 from contact box.	40 – 80 Ω	Wiring, A7/3k2.
⇒ 9.0 12 Model 124.036 (02/93 →), 129.076, 140.04/05/07	Master brake cylinder switchover valve (Y61) Internal resistance		Ignition: OFF Disconnect N30/1 from contact box.	7 – 8 Ω	Wiring, Y61.

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 10.0 I∃	Stop lamp switch (S9/1) N.O. contact N.C. contact	(2.40) (1.8) N30/1 40 - 40 - 45 (2.40) (1.4)		< 1 V 11 – 14 V 11 – 14 V < 1 V	Wiring, S9/1.
⇒ 11.0	Parking brake switch (S12)	N30/1 47(()) +- → 68 (2.40) (1.6)	Engine: at Idle	A1e7: ON < 1 V A1e7: OFF 11 – 14 V	Wiring, Parking brake indicator lamp (A1e7).

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 12.0	ASR snow chain switch (S76)	-	Engine: at Idle Press and hold switch S76 in ON position. Press and hold switch S76 in OFF position.	< 1 V S76 indicator: ON 11 – 14 V S76 indicator: OFF	Wiring, S76, N30/1.
	ABS lateral acceleration sensor (B24/2) Voltage supply	N30/1 75 - (-) - 64 (1.34) N30/1 1.23) 1.23) 1.23) 1.23)	Ignition: ON	4.75 – 5.25 V 2.35 – 2.65 V	Wiring, B24/2, ⇒ 13.1.
	Sensor signal at rest Sensor signal dynamic	(1.34) (1.1) N30/1 75 - (-) - 42	Strongly shake vehicle in lateral direction.	> 0.01 V ~ Value changes with movement	

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 13.1	Voltage supply at sensor input	N30/1 1.34) N30/1 1.23) N30/1 0.4 N30/1 0.4 N30/1 0.4 (1.23)	Ignition: ON Remove connector from B24/2.	4.75 – 5.25 V	Wiring, N30/1.
1	Left front axle VSS sensor (L6/1)		Raise front of vehicle Ignition: ON Rotate left front wheel.	> 0.1 V ~	$\Rightarrow 14.1, \\\Rightarrow 14.2.$
⇒ 14.1	Insulation resistance	40 - (- ⊂ @ ⁺ → → 30	Ignition: OFF Disconnect N30/1 from contact box.	> 20 kΩ	Wiring
⇒ 14.2	Internal resistance	10 - (- ⊂ @ ⁺ → → 30	Ignition: OFF Disconnect N30/1 from contact box.	0.8 – 3.7 kΩ	Wiring, L6/1.

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
	Left front axle VSS sensor (L6/1) output		Raise front of vehicle. Ignition: ON Rotate left front wheel.	> 3 V ~	Wiring, \Rightarrow 14.0, \Rightarrow 15.1, N30/1.
⇒ 15.1	Load with control modules connected		Ignition: OFF Disconnect N30/1 from contact box.	> 5 kΩ	Wiring, Control modules (N4/1, N4/3, N10/2, N22 or A2, A2/3y) connected.
15	Right front axle VSS sensor (L6/2)	N30/1 13 - (- () - 34 (2.13) (2.34)	Raise front of vehicle Ignition: ON Rotate left front wheel.	> 0.1 V ~	⇒ 16.1, ⇒ 16.2.
⇒ 16.1	Insulation resistance	-	Ignition: OFF Disconnect N30/1 from contact box.	> 20 kΩ	Wiring

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 16.2	Internal resistance	-	Ignition: OFF Disconnect N30/1 from contact box.	0.8 – 3.7 kΩ	Wiring, L6/2.
⇒ 17.0	Right front axle VSS sensor (L6/2) output	N30/1 40 (() ⁺ →)- 79 (2.40) (1.38)	Raise front of vehicle. Ignition: ON Rotate right front wheel.	> 3 V ~	Wiring, ⇒ 16.0, ⇒ 17.1, N30/1.
⇒ 17.1	Load with control modules connected		Ignition: OFF Disconnect N30/1 from contact box.	> 5 kΩ	Wiring, Control modules (N16/1, N51) connected.
	Left rear axle VSS sensor (L6/3)	N30/1 73 - (-) - 74 (1.32) (1.33)	Raise rear of vehicle. Ignition: ON Rotate left rear wheel.	> 0.1 V ~	⇒ 18.1, ⇒ 18.2.

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 18.1	Insulation resistance	-	Ignition: OFF Disconnect N30/1 from contact box.	> 20 kΩ	Wiring.
⇒ 18.2	Internal resistance	N30/1 $73 - (- 20)^{+} - 74$ (1.32) (1.33)	Ignition: OFF Disconnect N30/1 from contact box.	0.6 – 3.2 kΩ	Wiring, L6/3.
	Left rear axle VSS sensor (L6/3) output	N30/1 40 - (-) - 69 (2.40) (1.28)	Raise rear of vehicle. Ignition: ON Rotate left rear wheel.	> 3 V ~	Wiring, \Rightarrow 18.0, \Rightarrow 19.1, N30/1.
⇒ 19.1	Load with control modules connected	N30/1 ↓ 40 - (- ① +) - 69 (2.40) (1.28)	Ignition: OFF Disconnect N30/1 from contact box.	> 5 kΩ	Wiring, Control modules (N4/3, N49/1) connected.

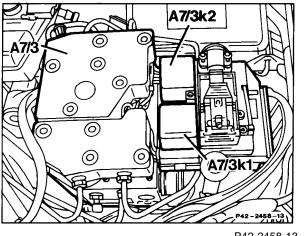
Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 20.0 5 16 28	Rear axle VSS sensor (L6/4)	<u> </u>	Raise rear of vehicle. Ignition: ON Rotate right rear wheel.	> 0.1 V ~	\Rightarrow 20.1, \Rightarrow 20.2.
⇒ 20.1	Insulation resistance	-	Ignition: OFF Disconnect N30/1 from contact box.	> 20 kΩ	Wiring.
⇒ 20.2	Internal resistance		Ignition: OFF Disconnect N30/1 from contact box.	0.6 – 3.2 kΩ	Wiring, L6/4.
⇒ 21.0	Rear axle VSS sensor (L6/4) output	$ \begin{array}{c} \text{N30/1} \\ \hline \text{M30/1} \\ \hline \text{M30/1} \\ \text{M30/1} \\ \hline \text{M30/1} \\ \hline \text{M30/1} \\ \text{M30/1} \\ \hline \text{M30/1} \\ M30$	Raise rear of vehicle. Ignition: ON Rotate right rear wheel.	> 3 V ~	Wiring, \Rightarrow 20.0, \Rightarrow 21.1, N30/1.

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 21.1	Load with control modules connected		Ignition: OFF Disconnect N30/1 from contact box.	> 5 kΩ	Wiring, Control modules (N4/3, N49/1) connected.
	ABS/ASR hydraulic unit, pressure switch (A7/3s1)	N30/1 37 (- () - 68 (2.37) (1.27)	Engine: at Idle Pressure reservoir full Vent reservoir at connection "SP" for a maximum of two seconds.	9 – 14 V < 3 V	\Rightarrow 22.1, 33 \Rightarrow 1.0, 2.0, Pressure reservoir is empty. Wiring, A7/3.
⇒ 22.1	Pressure switch	₩14 - @+ > 37	Ignition: ON Disconnect relay (A7/3k1) from hydraulic unit. Disconnect N30/1 from contact box. Pressure reservoir: Full Pressure reservoir: Empty	< 1.8 kΩ > 20 kΩ	Wiring, A7/3.

Test step	DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 23.0		ABS/ASR hydraulic unit, left front axle solenoid valve (A7/3y1) Internal resistance	Ũ	Ignition: OFF Disconnect N30/1 from contact box.	0.7 – 2.2 Ω	Wiring, A7/3.
⇒ 24.0		ABS/ASR hydraulic unit, right front axle solenoid valve (A7/3y2) Internal resistance	Ũ	Ignition: OFF Disconnect N30/1 from contact box.	0.7 – 2.2 Ω	Wiring, A7/3.
⇒ 25.0		ABS/ASR hydraulic unit, left rear axle solenoid valve (A7/3y3) Internal resistance	Ũ	Ignition: OFF Disconnect N30/1 from contact box.	0.7 – 2.2 Ω	Wiring, A7/3.
⇒ 26.0		ABS/ASR hydraulic unit, right rear axle solenoid valve (A7/3y4) Internal resistance	Ũ	Ignition: OFF Disconnect N30/1 from contact box.	0.7 – 2.2 Ω	Wiring, A7/3.
⇒ 27.0		ABS/ASR hydraulic unit, switchover/solenoid valve (A7/3y5) Internal resistance	- U	Ignition: OFF Disconnect N30/1 from contact box.	1.8 – 3.0 Ω	Wiring, A7/3.

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 28.0 H 3 3 3 3	CAN data bus		Ignition: OFF Disconnect N30/1 or contact module 2. Connect ohmmeter directly to both wide terminals on N30/1 connector.	55 – 65 Ω	CAN data line, ⇒ 28.1.
⇒ 28.1	CAN element in LH-SFI or engine control module (N3/1, N3/4 respectively) Resistance	Engine 104, 119 N3/1 L —<	Disconnect N3/1 or N3/4. Test directly on control module.	115 – 125 Ω	N3/1 or N3/4, ⇒ 28.2.
⇒ 28.2	CAN element in DI control module (N1/3, N1/4, N1/5) Resistance	Engine 119 LH-SFI N1/3 3 - (Disconnect connector "B" from N1/3. Test directly on control module. Disconnect connector "B" from control modules N1/4 and N1/5. Test directly on control modules.	115 – 125 Ω	N1/3 N1/4, N1/5

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
	VSS sensor output status Signal: Vehicle stationary	N30/1 40 - (- () +) - 44 (2.40) (1.3)	Ignition: ON	> 3 V ~	⇒ 29.1
⇒ 29.1	Signal: Fault	N30/1 40 - (-) - 44 (2.40) (1.3)	Ignition: ON	< 10 V	⇒ 14.0, N30/1.



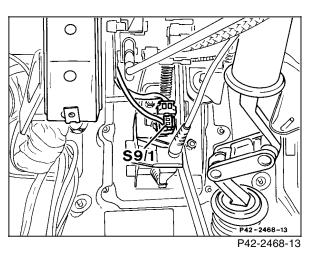
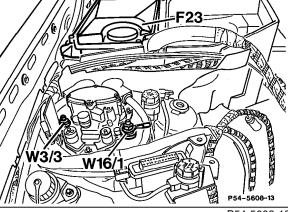


Figure 1

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Figure 2





ure 1

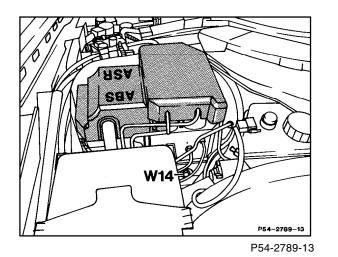
A7/3k1 Solenoid valve relay

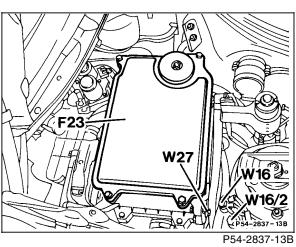
A7/3k2 High-pressure/return pump relay

S9/1 Stop lamp switch (4-pole)

Figure 3 Model 140 W3/3 Ground (right front wheelhousing - DI) W16/1 Ground (right front spring tower)

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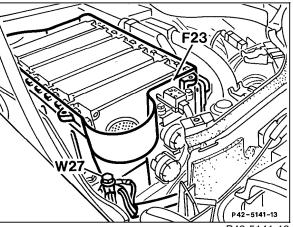




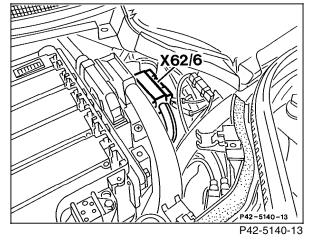
Figure 4

W14 Ground (ABS hydraulic unit bracket)

Figure 5 Model 124 W16 Ground

W16Ground (component compartment)W27Ground (module box bracket)

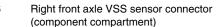
Figure 6 Model 129 W27 Ground (module box bracket)

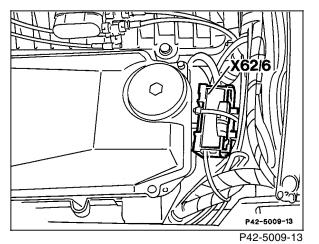




Model 129

X62/6







X62/6 Right front axle VSS sensor connector (component compartment)

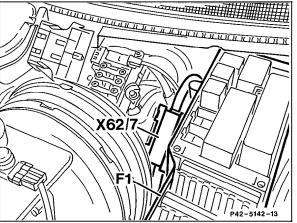




Figure 9 Model 129 X62/7 Left front axle VSS sensor connector (component compartment)

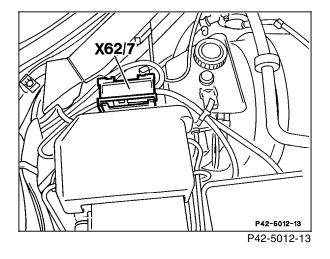
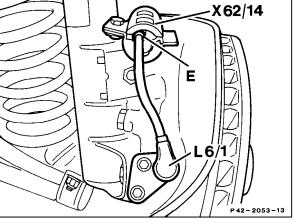


Figure 10	
Model 140	

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



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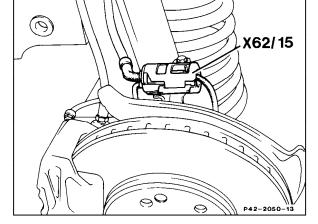


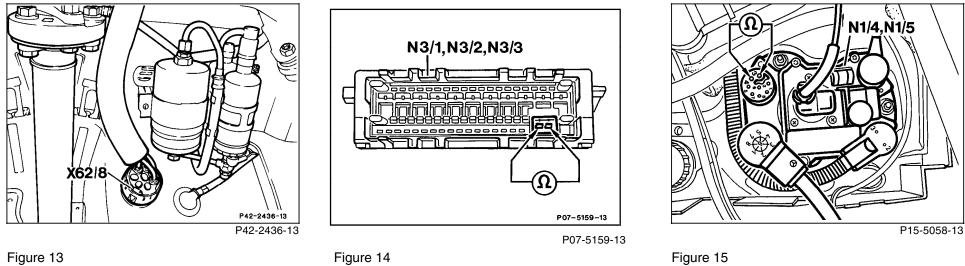
Figure 12 Model 129 Right front axle VSS sensor connector (axle X62/15 spindle)

Figure 11 Model 129

Left front axle VSS sensor

L6/1 X62/14 Left front axle VSS sensor connector (axle spindle)

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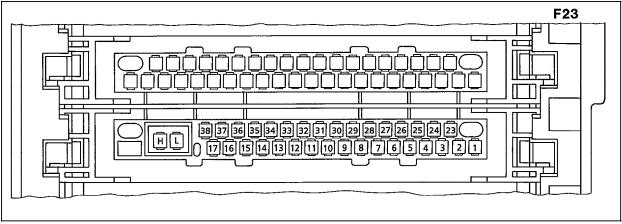
X62/8 Rear axle multiple circuit junction connector

LH-SFI control module N3/1 N3/2 Left LH-SFI control module N3/3 Right LH-SFI control module

N1/3	DI/KSS control module
N1/4	Left DI control module
N1/5	Right DI control module

ABS/ASR control module (N30/1) layout connector 1 (component compartment)

Figure	
F23	Module box
1	Model 124.036 (02/93 →), 129.076, 140.04/05/07 ABS lateral acceleration sensor (B24/2)
2	Not used
3	Model 140.032 (06/93 →)
	VSS sensor output status
4	Stop lamp switch (S9/1), N.C. contact
5	Not used
6	Parking brake switch (S12)
7	Not used
8	Stop lamp switch (S9/1), N.O. contact
9-13	Not used
14	ASR snow chain switch (S76)
15	Not used
16	Diagnosis output
17-22	Not used
23	Model 124.036 (02/93 →), 129.076,
	140.04/05/07 ABS lateral acceleration sensor (B24/2), voltage supply
24	ASR snow chain switch (S76), indicator lamp
25	Circuit 61e voltage
26	Right rear VSS sensor (L6/4) output
27	Voltage supply from BM (N16/1), circuit 87
28	Left rear VSS sensor (L6/3) output
29	ASR MIL (A1e22)



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30	Right rear axle VSS sensor (L6/4) (-)
31	Right rear axle VSS sensor (L6/4) (+)
32	Left rear axle VSS sensor (L6/3) (-)
33	Left rear axle VSS sensor (L6/3) (+)
34	Model 129.076, 140.04/05/07
	ABS lateral acceleration sensor (B24/2), ground
35	ABS MIL (A1e17)

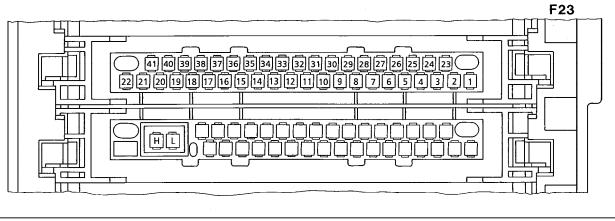
- Left front VSS sensor (L6/1) output 36
- 37 ASR warning lamp (A1e21)
- Right front VSS sensor (L6/2) output 38

Layout of connector 3 (CAN)

L	CAN data line (-)
Н	CAN data line (+)

ABS/ASR control module (N30/1) layout connector 2 (engine compartment)

Figure 1	7
F23	Module box
1	ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1), monitor
2	ABS/ASR hydraulic unit, left rear axle solenoid valve (A73y3) (–)
3-4	Not used
5	ABS/ASR hydraulic unit, switchover/solenoid valve (A7/3y5) (-)
6	Not used
7	ABS/ASR hydraulic unit, high-pressure/return pump relay (A7/3k2) and ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1), voltage supply
8-9	Not used
10	Left front axle VSS sensor (L6/1) (-)
11-12	Not used
13	Right front axle VSS sensor (L6/2) (-)
14-18	Not used
19	Model 124.036 (02/93), 129.076. 140.04/05/07
	Master brake cylinder switchover valve (Y61), control
20	ABS/ASR hydraulic unit, left front axle solenoid valve (A73v1) (–)
21	ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1), monitor
22	ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1), monitor
23	Not used
24	ABS/ASR hydraulic unit, right rear axle solenoid valve (A7/3y4) (-)



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25	Model 129
	Ground, module box bracker (W27)
	Model 124, 140
	Ground (W16 or W16/1)
26	Not used
27	ABS/ASR hydraulic unit, solenoid valve relay
	(A7/3k1), ground
28	ABS/ASR hydraulic unit, high-pressure/return
	pump relay (A7/3k2), ground
29	Not used
30	Left front axle VSS sensor (L6/1) (+)
31	Not used
32	Model 124, 129
	Ground, module box bracker (W27)
	Model 140
	Ground, right front spring tower (W16/1)
33	Not used
34	Right front axle VSS sensor (L6/2) (+)
35	Not used

36	ABS/ASR hydraulic unit, high-pressure/return pump relay (A7/3k2), monitor
37	ABS/ASR hydraulic unit, pressure switch (A7/3s1)
38	Not used
39	ABS/ASR hydraulic unit, right front axle solenoid valve (A73y2) (–)
40	Model 129 Ground, module box bracker (W27) Model 124, 140 Ground (W16 or W16/1)
41	ASR charging pump (M15)

Layout of connector 3 (CAN)

CAN data line (–) CAN data line (+)

L H