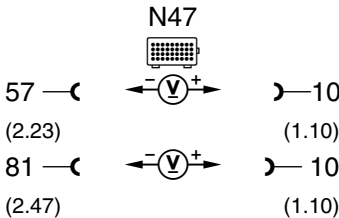
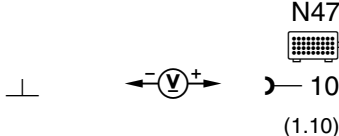


## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒   |  | Test scope                                                                                                                                                                                                                                                                                                                  | Test connection                                                                    | Test condition      | Nominal value | Possible cause/Remedy                                                                                                                                                                                                                                                                                                                                          |
|-----|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.0 |  | <b>Traction Systems Control module (N47)</b><br>Circuit 87<br>Voltage supply                                                                                                                                                                                                                                                |  | Ignition: <b>ON</b> | 11 – 14 V     | ⇒ 1.1,<br>⇒ 1.2                                                                                                                                                                                                                                                                                                                                                |
| 1.1 |                                                                                   | Voltage supply from:<br><b>Model 202 without control module box</b><br>Overvoltage protection relay module (K1)<br><b>Model 170, 210</b><br>Relay module (K40, K40/4)<br><b>Model 202, 208 with control module box</b><br>Passenger-side fuse and relay module box (K40/4)<br><b>Models 129, 140</b><br>Base module (N16/1) |  | Ignition: <b>ON</b> | 11 – 14 V     | Fuse on K1, (model 202 without control module box),<br>Fuse (F1) on K40 (170, 210),<br>Fuse (F1) on K40/4 (model 202 with control module box),<br>Fuse (F3) on N16/1 (models 129, 140),<br>Wiring,<br>K1 (model 202 without control module box),<br>K40, K40/4 (model 170, 210),<br>K40/4 (model 202, 208 with control module box),<br>N16/1 (models 129, 140) |

## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒   |  | Test scope                                                                                                                                                                                                                                                                                                                                        | Test connection                                                                                                                   | Test condition                                                           | Nominal value                                   | Possible cause/Remedy                                                                                                                                                                                                                                                                                                                                        |
|-----|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.2 |  | Ground wire<br><b>Model 202 without control module box</b><br><b>Model 202, 208 with control module box</b><br><b>Model 140, 210</b><br><b>Model 129</b><br><b>Model 170</b><br><br><b>Model 202 without control module box</b><br><b>Model 202, 208 with control module box</b><br><b>Model 140, 210</b><br><b>Model 129</b><br><b>Model 170</b> | <div> </div> <div> </div> <div> </div> <div> </div> <div> </div> <div> </div> <div> </div> <div> </div> <div> </div> <div> </div> | Ignition: <b>OFF</b><br><b>Disconnect</b> Traction control module (N47). | < 1 Ω                                           | Wiring,<br>Model 202 without control module box<br>Ground, (right components compartment [W16/4]),<br>Model 202, 208: with control module box, Ground, (right “A” pillar) (W29/2),<br>Model 140, 210: Ground, (right footwell) (W15/1),<br>Model 129: Ground (control module box/control module) (W27),<br>Model 170: Ground, (component compartment) (W16). |
| 2.0 |  | <b>Traction systems control module (N47)</b><br>Circuit 30<br>Voltage supply                                                                                                                                                                                                                                                                      | <div> </div> <div> </div> <div> </div>                                                                                            | Ignition: <b>OFF</b>                                                     | 11 – 14 V                                       | Wiring,<br><b>Model 210 only:</b><br>Fuse (F1) on K40<br><b>Model 170.447 only:</b><br>Crash separation relay module (K56).                                                                                                                                                                                                                                  |
| 3.0 |  | <b>Data bus instrument cluster</b> (vehicles without CAN connection to instrument cluster only)                                                                                                                                                                                                                                                   | <div> </div> <div> </div> <div> </div>                                                                                            | Ignition: <b>ON</b>                                                      | 3 - 4 V<br>A1e6/7/17/21/22 /22/35/36: <b>ON</b> | Wiring,<br>(N47)                                                                                                                                                                                                                                                                                                                                             |

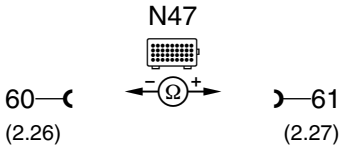
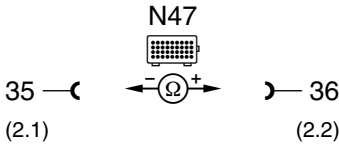
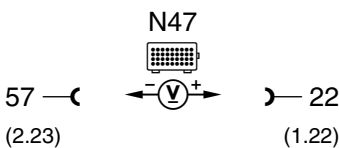
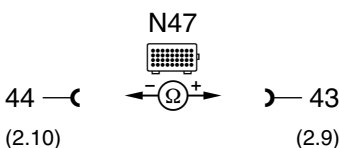
## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒   |                                                                                       | Test scope                                                                                                                                                                                                                                     | Test connection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Test condition                                                                                                       | Nominal value                                                                                                           | Possible cause/Remedy                                                  |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| 4.0 |                                                                                                                                                                        | <b>Diagnostic output</b>                                                                                                                                                                                                                       | <br>57 —   — 9<br>(2.23) (1.9)                                                                                                                                                                                                                                                                                                                                                                                                                                       | Ignition: <b>ON</b>                                                                                                  | 10 – 14 V                                                                                                               | Wiring,<br>(N47),<br>K40/4 (model 202, 208 with<br>control module box) |
| 5.0 | <br> | <b>ASR/ETS/ESP hydraulic unit (A7/3)</b><br>Voltage supply for solenoid valves                                                                                                                                                                 | <br><b>Bosch</b><br>57 —   — 80<br>(2.23) (2.46)<br><b>Teves</b><br>57 —   — 55<br>(2.23) (2.21)<br>57 —   — 71<br>(2.23) (2.37) | Ignition: <b>On</b><br><br><b>Bosch</b><br><br><b>Teves</b>                                                          | 11 – 14 V<br><br>5 - 10 V<br>(voltage pulsed)<br>or<br>11 – 14 V                                                        | Wiring,<br>Traction control module (N47)                               |
| 6.0 |                                                                                     | <b>High pressure/return pump relay (K20/1)</b><br>Voltage supply<br>Model 129,140, 202<br>(Bosch ABS, ETS, ASR;<br>Teves ABS): (K20/1 or<br>K40/2k4)<br>Model 210: (N65/k4 or<br>K40/2k4)<br>Model 170, 202, 208 (Teves<br>ETS, ASR): (A7/3n1) | <br>57 —   — 61<br>(2.23) (2.27)<br><br>57 —   — 82<br>(2.23) (2.48)                                                                                                                                                                                                                     | Ignition: <b>ON</b><br><b>Bosch ABS, ETS ASR</b><br><b>Teves ABS</b><br><br><b>Teves ETS</b><br><br><b>Teves ASR</b> | 11 – 14 V<br><br>5 – 10 V<br>(voltage pulsed)<br>or<br>11 – 14 V<br><br>5 – 10 V<br>(voltage pulsed)<br>or<br>11 – 14 V | Wiring.<br>⇒6.1                                                        |

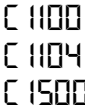
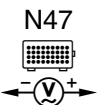
## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒   |    | Test scope                                                                                                                  | Test connection                                                                      | Test condition                                                           | Nominal value | Possible cause/Remedy                                                                                 |
|-----|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------|
| 6.1 |                                                                                     | <b>Bosch: ABS, ETS, ASR</b><br><b>Teves: ABS</b><br>Coil resistance                                                         |    | Ignition: <b>OFF</b><br><b>Disconnect</b> traction control module (N47). | 40 – 80 Ω     | Wiring,<br>Models 129, 140, 202 (ABS):<br>K20/1,<br>Models 170: N65k4,<br>Model 210: N65k4 or K40/2k4 |
| 7.0 |    | <b>Model 140, 210 with SPS:</b><br><b>SPS P-valve (Y10)</b><br>Coil resistance                                              |    | Ignition: <b>OFF</b><br><b>Disconnect</b> traction control module (N47). | 3 – 8 Ω       | Wiring,<br>SPS P-valve (Y10).                                                                         |
| 8.0 |    | <b>Models 129.076,</b><br><b>140.04/05/07</b><br><b>ABS lateral acceleration sensor (B24/2)</b><br>Voltage supply           |   | Ignition: <b>ON</b>                                                      | 4.75 – 5.25 V | N47                                                                                                   |
| 9.0 |  | <b>Models 129.076,</b><br><b>140.04/05/07</b><br><b>Master brake cylinder switchover valve (Y61)</b><br>Internal resistance |  | Ignition: <b>OFF</b><br>Disconnect traction control module (N47).        | 7 – 8 Ω       | Wiring,<br>Y61                                                                                        |

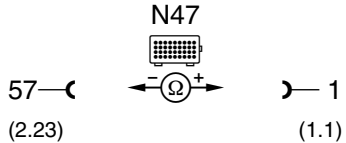
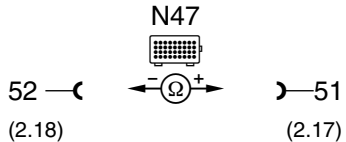
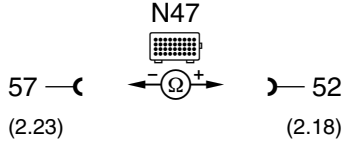
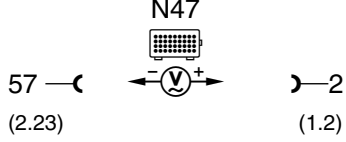
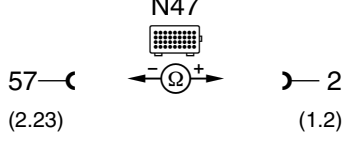
## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒    |  | Test scope                                                                                              | Test connection                                                                     | Test condition                                                                                   | Nominal value                                                        | Possible cause/Remedy    |
|------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------|
| 10.0 |                                                                                   | <b>ETS and cruise control only, vehicles without CAN connection to instrument cluster</b><br>ETS signal |    | Ignition: <b>ON</b><br><br>Engine: <b>at idle</b>                                                | < 1V ETS MIL (A1e35) <b>ON</b><br><br>11 – 14 V<br>A1e35: <b>OFF</b> | Wiring,<br>N47-2         |
| 11.0 |  | <b>Left front axle VSS sensor (L6/1)</b><br>Internal resistance                                         |    | Ignition: <b>OFF</b><br><b>Disconnect</b> Traction control module (N47).                         | 0.8 – 2.3 kΩ                                                         | Wiring,<br>L6/1          |
| 11.1 |                                                                                   | Insulation resistance                                                                                   |    | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                  | >20 kΩ                                                               | Wiring,<br>L6/1          |
| 12.0 |                                                                                   | <b>Left front axle VSS sensor (L6/1)</b><br>Output                                                      |  | Raise front of vehicle<br>Ignition: <b>ON</b><br>Rotate left front tire by hand (> 1 rev./sec.). | >3 V~                                                                | Wiring,<br>⇒12.1,<br>N47 |

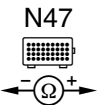
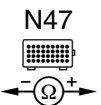
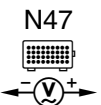
## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒    |  | Test scope                                                       | Test connection                                                                      | Test condition                                                                                    | Nominal value | Possible cause/Remedy                           |
|------|-----------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------|
| 12.1 |                                                                                   | Load with control modules connected                              |    | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                   | > 5 kΩ        | Wiring,<br>Connected control modules,<br>⇒ 11.0 |
| 13.0 |  | <b>Right front axle VSS sensor (L6/2)</b><br>Internal resistance |    | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                   | 0.8 – 2.3 kΩ  | Wiring,<br>L6/2                                 |
| 13.1 |                                                                                   | Insulation resistance                                            |    | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                   | > 20 kΩ       | Wiring,<br>L6/2                                 |
| 14.0 |                                                                                   | <b>Right front axle VSS sensor (L6/2)</b><br>Output              |  | Raise front of vehicle<br>Ignition: <b>ON</b><br>Rotate right front tire by hand (> 1 rev./sec.). | > 3 V ~       | Wiring,<br>⇒ 14.1,<br>N47                       |
| 14.1 |                                                                                   | Load with control modules connected                              |  | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                   | > 5 kΩ        | Wiring,<br>Connected control modules,<br>⇒ 13.0 |

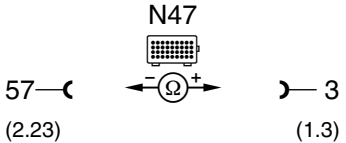
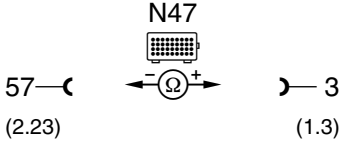
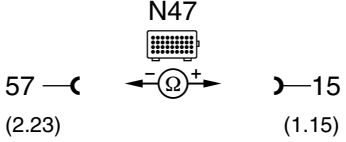
## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒    |  | Test scope                                                                       | Test connection                                                                     | Test condition                                                                                  | Nominal value | Possible cause/Remedy      |
|------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------|----------------------------|
| 15.0 | <div> <div>1102</div> <div>1106</div> <div>1500</div> </div>                      | <b>ABS:</b><br><b>VSS sensor (L6)</b><br>Internal resistance                     |    | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                 | 0.6 – 1.8 kΩ  | Wiring,<br>L6/3,<br>⇒ 15.1 |
| 15.1 |                                                                                   | Insulation resistance                                                            |    | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                 | > 20 kΩ       | Wiring.                    |
| 16.0 | <div> <div>1102</div> <div>1106</div> <div>1500</div> </div>                      | <b>ASR or ETS:</b><br><b>Left rear axle sensor (L6/3)</b><br>Internal resistance |    | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                 | 0.6 – 1.8 kΩ  | Wiring,<br>L6/3,<br>⇒ 16.1 |
| 16.1 |                                                                                   | Insulation resistance                                                            |  | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                 | > 20 kΩ       | Wiring.                    |
| 17.0 |                                                                                   | <b>Left rear axle VSS sensor (L6/3)</b>                                          |  | Raise rear of vehicle.<br>Ignition: <b>ON</b><br>Rotate left rear tire by hand (> 1 rev./sec.). | > 3 V ~       | Wiring,<br>⇒ 17.1<br>N47   |

## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

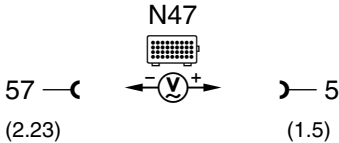
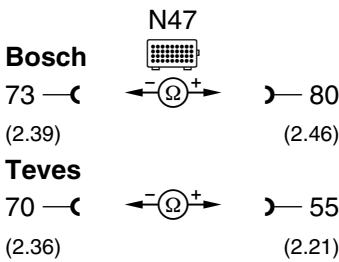
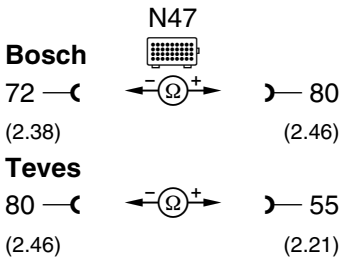
### Electrical Test Program – Test

| ⇒    |                                                                                      | Test scope                                                                           | Test connection                                                                      | Test condition                                                                                  | Nominal value | Possible cause/Remedy                                     |
|------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------|
| 17.1 |                                                                                      | Load with control modules connected                                                  |    | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                 | > 5 kΩ        | Wiring,<br>Connected control modules,<br>⇒ 15.0<br>⇒ 16.0 |
| 18.0 |                                                                                      | <b>Left rear axle VSS sensor (L6/3), ASR or ETS</b>                                  |    | Raise rear of vehicle.<br>Ignition: <b>ON</b><br>Rotate left rear tire by hand (> 1 rev./sec.). | > 3 V ~       | Wiring,<br>⇒ 18.1<br>N47                                  |
| 18.1 |                                                                                      | Load with control modules connected                                                  |    | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                 | > 5 kΩ        | Wiring,<br>Connected control modules,<br>⇒ 15.0<br>⇒ 16.0 |
| 19.0 |  | <b>ASR or ETS:</b><br><b>Right rear axle VSS sensor L6/4,</b><br>Internal resistance |  | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                 | 0.6 – 1.8 kΩ  | Wiring,<br>L6/4,<br>⇒ 19.1                                |
| 19.1 |                                                                                      | Insulation resistance                                                                |  | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47).                                 | > 20 kΩ       | Wiring.                                                   |



## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒    |  | Test scope                                                                      | Test connection                                                                     | Test condition                                                  | Nominal value | Possible cause/Remedy |
|------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------|-----------------------|
| 20.0 |                                                                                   | <b>VSS sensor status</b><br>Signal: Vehicle is stationary                       |   | Engine: <b>at idle</b>                                          | > 3 V ~       | Wiring,<br>N47        |
| 21.0 |  | <b>Left front axle solenoid valve (release) (A7/3y6)</b><br>Internal resistance |   | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 5.4 – 12.6 Ω  | Wiring,<br>A7/3       |
| 22.0 |  | <b>Left front axle solenoid valve (release) (A7/3y7)</b><br>Internal resistance |  | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 2.8 – 6.6 Ω   | Wiring,<br>A7/3       |

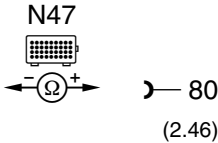
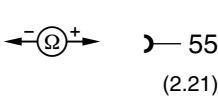
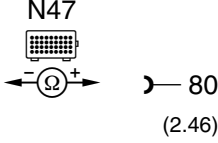
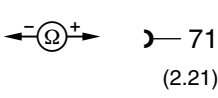
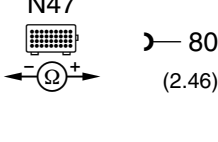
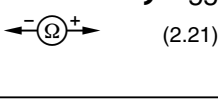
## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒    |    | Test scope                                                                       | Test connection                                                                                                                                                                                                                                                                       | Test condition                                                  | Nominal value | Possible cause/Remedy |
|------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------|-----------------------|
| 23.0 |    | <b>Right front axle solenoid valve (hold) (A7/3y8)</b><br>Internal resistance    | <p><b>Bosch</b></p> <p>74 —  — 80<br/>(2.40) (2.46)</p> <p><b>Teves</b></p> <p>69 —  — 55<br/>(2.35) (2.21)</p>     | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 5.4 – 12.6 Ω  | Wiring,<br>A7/3       |
| 24.0 |    | <b>Right front axle solenoid valve (release) (A7/3y9)</b><br>Internal resistance | <p><b>Bosch</b></p> <p>71 —  — 80<br/>(2.37) (2.46)</p> <p><b>Teves</b></p> <p>74 —  — 55<br/>(2.40) (2.21)</p>     | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 2.8 – 6.6 Ω   | Wiring,<br>A7/3       |
| 25.0 |  | <b>ABS: Rear axle solenoid valve (hold) (A7/3y20)</b><br>Internal resistance     | <p><b>Bosch</b></p> <p>69 —  — 80<br/>(2.35) (2.46)</p> <p><b>Teves</b></p> <p>72 —  — 55<br/>(2.38) (2.21)</p> | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 5.4 – 12.6 Ω  | Wiring,<br>A7/3       |

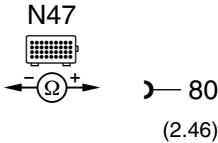
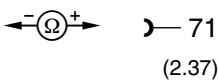
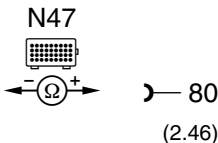
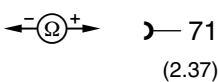
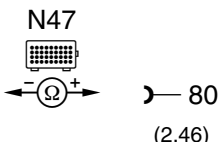
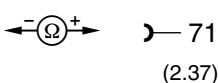
## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒    |    | Test scope                                                                                                                 | Test connection                                                                                                                                                                                              | Test condition                                                  | Nominal value | Possible cause/Remedy |
|------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------|-----------------------|
| 26.0 |    | <b>ASR or ETS:</b><br><b>Left rear axle solenoid valve (hold) (A7/3y10)</b><br>Internal resistance                         | <b>Bosch</b><br><br><b>Teves</b><br>     | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 5.4 – 12.6 Ω  | Wiring,<br>A7/3       |
| 27.0 |    | <b>ABS: Rear axle solenoid valve (release) (A7/3y20)</b><br>Internal resistance                                            | <b>Bosch</b><br><br><b>Teves</b><br>    | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 2.8 – 6.6 Ω   | Wiring,<br>A7/3       |
| 28.0 |  | <b>ASR or ETS:</b><br><b>Left rear axle solenoid valve (release) (A7/3y11)</b><br><b>ASR or ETS</b><br>Internal resistance | <b>Bosch</b><br><br><b>Teves</b><br> | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 2.8 – 6.6 Ω   | Wiring,<br>A7/3       |

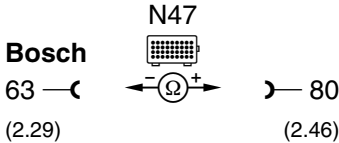
## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

| ⇒    |    | Test scope                                                                                                               | Test connection                                                                                                                                                                                                   | Test condition                                                  | Nominal value | Possible cause/Remedy |
|------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------|-----------------------|
| 29.0 |    | <b>ASR or ETS:</b><br><b>Right rear axle solenoid valve (hold) (A7/3y12)</b><br><b>ASR or ETS</b><br>Internal resistance | <p><b>Bosch</b></p>  <p><b>Teves</b></p>      | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 5.4 – 12.6 Ω  | Wiring,<br>A7/3       |
| 30.0 |    | <b>ASR or ETS:</b><br><b>Right rear axle solenoid valve (release) (A7/3y13)</b><br>Internal resistance                   | <p><b>Bosch</b></p>  <p><b>Teves</b></p>      | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 2.8 – 6.6 Ω   | Wiring,<br>A7/3       |
| 31.0 |  | <b>ASR or ETS:</b><br><b>Switchover/solenoid valve (A7/3y5)</b><br>Internal resistance                                   | <p><b>Bosch</b></p>  <p><b>Teves</b></p>  | Ignition: <b>OFF</b><br><b>Disconnect</b> control module (N47). | 5.4 – 12.6 Ω  | Wiring,<br>A7/3       |

### 9.3 Traction Systems (ABS, ASR, ETS) and SPS

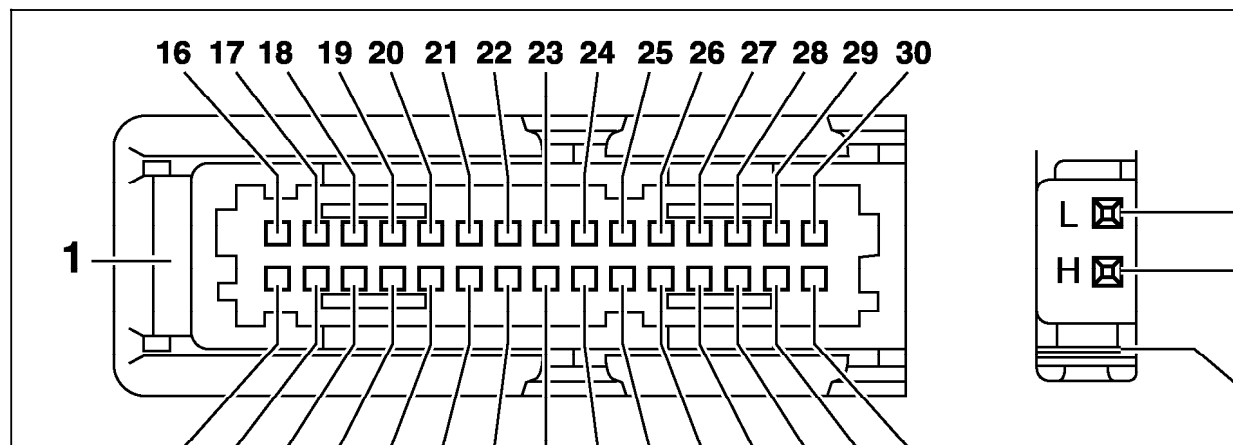
#### Electrical Test Program – Test

| ⇒    |  | Test scope                                                                                              | Test connection                                                                    | Test condition                                           | Nominal value | Possible cause/Remedy |
|------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------|---------------|-----------------------|
| 32.0 |  | <b>ASR or ETS:</b><br><b>Inlet solenoid valve (A7/3y15)</b><br><b>ASR or ETS</b><br>Internal resistance |  | Ignition: <b>OFF</b><br>Disconnect control module (N47). | 2.8 – 6.6 Ω   | Wiring,<br>A7/3       |

## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

Connector Layout - Connector 1 (interior harness) and connector 3 (CAN data bus)  
ABS, ETS, ASR,  
control module (N47-7, N47-2, N47-1)



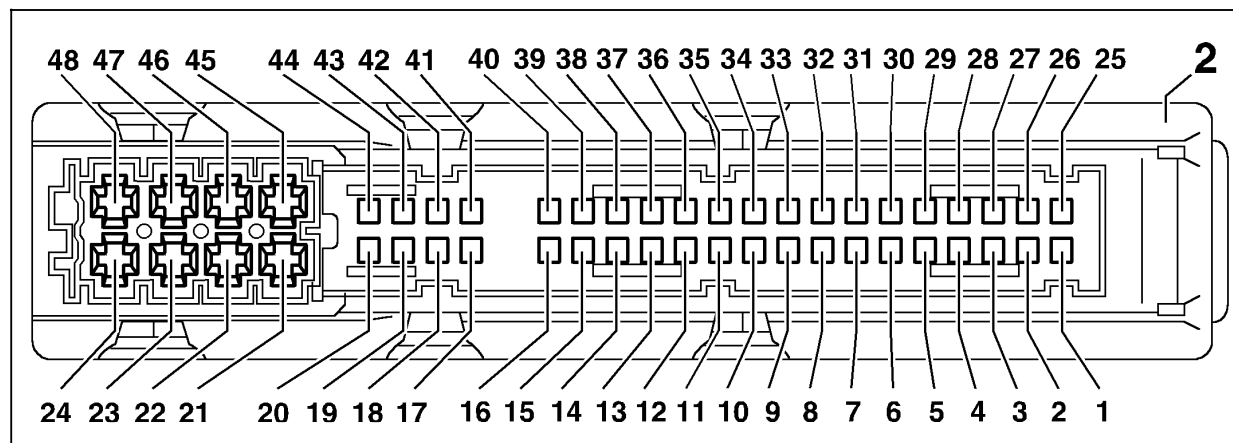
P42.45-0227-04

|    |                                                                         |       |                                                                      |   |                              |
|----|-------------------------------------------------------------------------|-------|----------------------------------------------------------------------|---|------------------------------|
| 1  | Left front axle VSS sensor (L6/1) output                                | 12    | Rear axle VSS sensor or left rear axle VSS sensor (L6) or (L6/3) (+) | H | <b>ASR:</b> CAN data bus (+) |
| 2  | Right front axle VSS sensor (L6/2) output                               |       |                                                                      | L | <b>ASR:</b> CAN data bus (-) |
| 3  | Left rear axle VSS sensor (L6/3) output                                 | 13    | Rear axle VSS sensor or left rear axle VSS sensor (L6) or (L6/3) (-) |   |                              |
| 4  | Stop lamp switch (4 pole) (S9/1) N.O. contact                           | 14    | <b>ETS, ASR:</b> Right rear axle VSS sensor (L6/4) (+)               |   |                              |
| 5  | VSS sensor output status                                                | 15    | <b>ETS, ASR:</b> Right rear axle VSS sensor (L6/4) (-)               |   |                              |
| 6  | Parking brake switch (S12)                                              | 16-25 | not used                                                             |   |                              |
| 7  | Data bus instrument cluster (instrument cluster without CAN connection) | 26    | <b>ETS:</b> ETS signal (instrument cluster without CAN connection)   |   |                              |
| 8  | Not used                                                                | 27    | <b>ASR:</b> ASR OFF switch (S76/5)                                   |   |                              |
| 9  | Diagnostic output                                                       | 28    | Terminal 61                                                          |   |                              |
| 10 | Terminal 87 (voltage supply)                                            | 29-30 | Right rear brake pad wear sensor (S10/4)                             |   |                              |
| 11 | Stop lamp switch (S9/1) N.C. contact                                    |       |                                                                      |   |                              |

## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

**Connector Layout - Connector 2**  
**(engine harness)**  
**ABS, ETS, ASR,**  
**control modules (N47-7, N47-2, N47-1)**  
**Part 1**



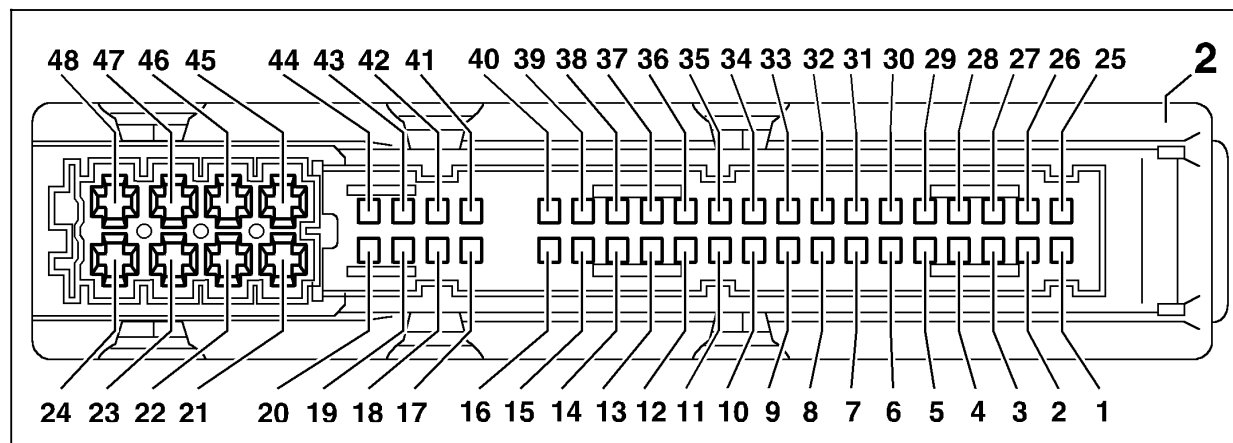
P42.45-0226-04

|       |                                                                                                  |    |                                                                                              |
|-------|--------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------|
| 1     | SPS P-valve (Y10) (–)                                                                            | 26 | High pressure/ return pump relay (K20/1) (+)                                                 |
| 2     | SPS P-valve (Y10) (+)                                                                            | 27 | High pressure return pump relay or high pressure/ return pump relay (A7/3k2 or K20/1) (–)    |
| 3-8   | not used                                                                                         | 28 | <b>ETS/ASR Bosch:</b> Switchover/solenoid valve (A7/3y5) (–)                                 |
| 9     | Master brake cylinder switchover valve (Y61) (+)                                                 | 28 | <b>ETS/ASR Bosch:</b> Right rear axle solenoid valve (hold) (A7/3y12) (–)                    |
| 10    | Master brake cylinder switchover valve (Y61) (–)                                                 | 29 | <b>ETS/ASR Bosch:</b> Inlet solenoid valve (A7/3y15) (–)                                     |
| 11-16 | not used                                                                                         | 29 | <b>ETS Teves:</b> High pressure/return pump relay (A7/3k2) (+)                               |
| 17    | Right front axle VSS sensor (L6/2) (+)                                                           | 30 | <b>ETS/ASR Bosch:</b> Right rear axle solenoid valve (hold) (A7/3y12) (–)                    |
| 18    | Right front axle VSS sensor (L6/2) (–)                                                           | 30 | <b>ETS Teves:</b> Right rear axle solenoid valve (release) (A7/3y13) (–)                     |
| 19-20 | Right front brake pad wear sensor (S10/2)                                                        | 31 | <b>ETS/ASR Bosch:</b> Hydraulic unit, right rear axle solenoid valve (release) (A7/3y13) (–) |
| 21    | <b>Teves:</b> Solenoid valves, voltage supply                                                    |    |                                                                                              |
| 22    | not used                                                                                         |    |                                                                                              |
| 23    | Ground (W15/1, W16, W16/4, W27, W29/2)                                                           |    |                                                                                              |
| 24    | not used                                                                                         |    |                                                                                              |
| 25    | High pressure return pump relay or high pressure/ return pump relay (A7/3k2 or K20/1) monitoring |    |                                                                                              |

## 9.3 Traction Systems (ABS, ASR, ETS) and SPS

### Electrical Test Program – Test

**Connector Layout - Connector 2**  
(engine harness)  
control modules (N47-7, N47-2, N47-1)  
Part 2



P42.45-0226-04

|       |                                                                                  |    |                                                                                               |       |                                                                              |
|-------|----------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------|
| 31    | <b>ETS, Teves:</b> Switchover/solenoid valve (A7/3y5) (-)                        | 38 | <b>ETS Teves:</b> Left rear axle solenoid valve (hold) (A73/y10) (-)                          | 40-41 | Left front brake pad wear sensor (S10/1)                                     |
| 32-34 | —                                                                                | 38 | <b>ABS Teves:</b> Rear axle solenoid valve (hold) (A73/y20) (-)                               | 43    | Left front axle VSS sensor (L6/1) (-)                                        |
| 35    | <b>ETS/ASR, Bosch:</b> Left rear axle solenoid valve (hold) (A7/3y10) (-)        | 39 | <b>ABS/ETS/ASR Bosch:</b> Left front axle solenoid valve (hold) (A7/3y6) (-)                  | 44    | Left front axle VSS sensor (L6/1) (+)                                        |
| 35    | <b>ABS/ETS, Teves:</b> Right front axle solenoid valve (hold) (A7/3y8) (-)       | 39 | <b>ETS Teves:</b> Left rear axle solenoid valve (hold) (A7/3y11) (-)                          | 45    | not used                                                                     |
| 35    | <b>ABS Bosch:</b> Rear axle solenoid valve (hold) (A7/3y20) (-)                  | 39 | <b>ABS Teves:</b> Rear axle solenoid valve (release) (A7/3y21) (-)                            | 46    | <b>Bosch:</b> Solenoid valve voltage supply                                  |
| 36    | <b>ASR/ETS Bosch:</b> Left rear axle solenoid valve (release) (A7/3y11) (-)      | 40 | <b>ASR/ETS/ESP Bosch:</b> Hydraulic unit, right front axle solenoid valve (hold) (A7/3y8) (-) | 46    | <b>ABS/ETS Teves:</b> Right front axle solenoid valve (release) (A7/3y7) (-) |
| 36    | <b>ABS Bosch:</b> Rear axle solenoid valve (release) (A7/3y21) (-)               | 40 | <b>ABS/ETS Teves:</b> Hydraulic unit, right front axle solenoid valve (release) (A7/3y9) (-)  | 47    | Ground (W15/1, W16, W16/4, W27, W29/2)                                       |
| 36    | <b>ABS/ETS Teves:</b> Left front axle solenoid valve (hold) (A7/3y6) (-)         |    |                                                                                               | 48    | Circuit 30 voltage                                                           |
| 37    | <b>ABS/ASR/ETS Bosch:</b> Right front axle solenoid valve (release) (A73/y9) (-) |    |                                                                                               |       |                                                                              |
| 37    | <b>ASR Bosch:</b> Right front axle solenoid valve (release) (A73/y7) (-)         |    |                                                                                               |       |                                                                              |