Test table

Overview of test steps

Component to be checked	Test step
Voltage supply for automatic gearbox control unit -J217-	– Perform test steps No. 1 → Anchor and No. 8 → Anchor
Selector lever lock solenoid -N110-	– Perform test step No. 2 → Anchor
Brake light switch -F- - only vehicles up to model year 2000	– Perform test step No. 3 → Anchor
Voltage supply for cruise control system - only vehicles with throttle cable	– Perform test step No. 4 → Anchor
Kick-down switch -F8-	– Perform test step No. 5 → Anchor
Multi-function switch -F125-	– Perform test steps No. 6 → Anchor and No. 7 → Anchor
Solenoid valve 1 -N88-	– Perform test steps No. 9 → Anchor and No. 10 → Anchor
Solenoid valve 2 -N89-	– Perform test steps No. 9 → Anchor and No. 11 → Anchor
Solenoid valve 3 -N90-	– Perform test steps No. 9 → Anchor and No. 12 → Anchor
Solenoid valve 4 -N91-/automatic gearbox pressure regulating valve 1 -N215-	– Perform test steps No. 9 → Anchor and No. 13 → Anchor
Solenoid valve 5 -N92-/automatic gearbox pressure regulating valve 2 -N216-	– Perform test steps No. 9 → Anchor and No. 14 → Anchor
Solenoid valve 6 -N93-/automatic gearbox pressure regulating valve 3 -N217-	– Perform test steps No. 9 → Anchor and No. 15 → Anchor
Solenoid valve 7 -N94-/automatic gearbox pressure regulating valve 4 -N218-	– Perform test steps No. 9 → Anchor and No. 16 → Anchor
Gearbox speed sender -G38-/gearbox output speed sender -G195-	– Perform test step No. 17 → Anchor
Gearbox input speed sender -G182- - only vehicles with hydraulic control “Type E17”[1)]	– Perform test step No. 18 → Anchor
Gearbox oil temperature sender -G93- (ATF)	– Perform test step No. 19 → Anchor
Wiring connections to engine control unit	– Perform test steps No. 20 → Anchor, No. 21 → Anchor, No. 22 → Anchor, No. 23 → Anchor and No. 24 → Anchor
tiptronic switch -F189-	– Perform test steps No. 25 → Anchor and No. 26 → Anchor
• [1)] Allocation of hydraulic control system to gearbox →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.00.	

Test step No. 1

-V.A.G 1598/20- sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
26 + 6 26 + 28 [1)] 26 + 34	Voltage supply (terminal 30) for automatic gearbox control unit -J217-	• Ignition switched off – Switch to voltage measuring range	Approx. battery voltage	– Check wiring according to current flow diagram: ♦ From contact 26 to terminal 30 ♦ From contacts 6, 28 and 34 to earth
55 + 6 55 + 28 [1)] 55 + 34	Voltage supply (terminal 15) for automatic gearbox control unit -J217-	– Switch on ignition	Approx. battery voltage	– Check wiring according to current flow diagram: ♦ From contacts 55 or 54 to terminal 15 ♦ From contacts 6, 28 and 34 to earth
55 + 54			0 V	
• [1)] Terminal 28 is used on vehicles up to model year 2000 only.				

Test step No. 2

-V.A.G 1598/20- sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
2 + 6	Selector lever lock solenoid -N110-	• Ignition switched on – Switch to voltage measuring range	Approx. battery voltage	– Check wiring according to current flow diagram – Check multi-function switch -F125- for short circuit → Chapter „Checking multi-function switch -F125- with 8-pin connector“ and → Chapter „Checking multi-function switch -F125- with 10-pin connector“ – Check selector lever lock solenoid -N110- for short circuit
2 + 54		• Ignition switched off • Selector lever at position “P” – Switch to resistance measuring range	14 … 28 Ω	– Check wiring according to current flow diagram – Renew selector lever lock solenoid →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.37

Test step No. 3 - only applies to vehicles up to model year 2000

-V.A.G 1598/20- sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification

10 + 6	Brake light switch -F-	• Ignition switched on • Switched to voltage measuring range – Brake pedal not depressed	Less than 1 V	– Check wiring according to current flow diagram
		– Brake pedal depressed	Approx. battery voltage	– If the wiring is OK, renew brake light switch →Brake system; Rep. Gr.46

Test step No. 4 - only vehicles with throttle cable

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
6 + 9	Voltage supply for cruise control system via cruise control switch -E45-	• Ignition switched on • Switched to voltage measuring range – Selector lever in “D”, “S” or “4”, “3”	Approx. battery voltage	– Check wiring according to current flow diagram – Perform test step No. 6 → Anchor
		– Selector lever in “P”, “R”, “N”, “2”	Less than 1 V	

Test step No. 5

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
18 + 54	Kick-down switch -F8-	• Ignition switched on • Switched to voltage measuring range – Accelerator pedal not operated	Less than 5 V	– Check wiring and connectors according to current flow diagram – Vehicles with throttle cable: Adjust throttle cable; renew if necessary →Rep. Gr.20 – Renew kick-down switch →Rep. Gr.20
		– Accelerator pedal pressed down past kick-down point	Approx. battery voltage	
		• Ignition switched off • Switched to resistance measuring range – Accelerator pedal not operated	∞ Ω	
		– Accelerator pedal pressed down past kick-down point	Less than 1.5 Ω	

Test step No. 6

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
36 + 6	Multi-function switch -F125-	• Ignition switched on • Switched to voltage measuring range – Selector lever in “P”, “N”, “D”	Approx. battery voltage	– Check multi-function switch connector for contact corrosion – Check multi-function switch → Chapter „Checking multi-function switch -F125- with 8-pin connector“ or → Chapter „Checking multi-function switch -F125- with 10-pin connector“ – Perform test step No. 7 → Anchor
		– Selector lever in “R”, “S” or “4”, “3”, “2”	Less than 1 V	
8 + 6		– Selector lever in “R”, “N”, “S” or “4”	Approx. battery voltage	
		– Selector lever in “P”, “D”, “3”, “2”	Less than 1 V	
37 + 6		– Selector lever in “N”, “D”, “S” or “4”, “2”	Approx. battery voltage	
		– Selector lever in “P”,“R”, “3”	Less than 1 V	
9 + 6		– Selector lever in “D”, “S” or “4”, “3”	Approx. battery voltage	
		– Selector lever in “P”, “R”, “N”, “2”	Less than 1 V	

Test step No. 7

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
36 + 55	Multi-function switch -F125-	• Ignition switched off • Switched to resistance measuring range – Selector lever in “P”, “N”, “D”	Less than 1 Ω	– Check multi-function switch connector for contact corrosion – Check multi-function switch → Chapter „Checking multi-function switch -F125- with 8-pin connector“ or → Chapter „Checking multi-function switch -F125- with 10-pin connector“
		– Selector lever in “P”, “R”, “D”, “S” or “4”, “3”, “2”	∞ Ω	
8 + 55		– Selector lever in “R”, “N”, “S” or “4”	Less than 1 Ω	
		– Selector lever in “P”, “D”, “3”, “2”	∞ Ω	

37 + 55		– Selector lever in “N”, “D”, “S” or “4”, “2”	Less than 1 Ω	– Perform test step No. 6 → Anchor
		– Selector lever in “P”,“R”, “3”	∞ Ω	
9 + 55		– Selector lever in “D”, “S” or “4”, “3”	Less than 1 Ω	
		– Selector lever in “P”, “R”, “N”, “2”	∞ Ω	

Test step No. 8

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
6 + earth at battery	Earth connections for automatic gearbox control unit -J217-	• Ignition switched off – Switch to resistance measuring range	Less than 1 Ω	– Check wiring according to current flow diagram
28 [1] + earth at battery			Less than 1 Ω	
34 + earth at battery			Less than 1 Ω	
• [1] Terminal 28 is used on vehicles up to model year 2000 only.				

Test step No. 9

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
52 + 53	Voltage supply wires to solenoid valves	• Ignition switched off – Switch to resistance measuring range	Less than 1.5 Ω	– Check wiring according to current flow diagram – Check wiring from automatic gearbox control unit -J217- to 16-pin connector → Chapter – Perform test step No. 1 → Anchor – Check wiring harness in gearbox according to current flow diagram; renew if necessary

Test step No. 10

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
30 + 52	Solenoid valve 1 -N88-	• Ignition switched off – Switch to resistance measuring range	25 … 35 Ω	– Check 16-pin connector to gearbox for contact corrosion – Perform test step No. 9 → Anchor – Check wiring from automatic gearbox control unit -J217- to 16-pin connector → Chapter – Check wiring harness in gearbox according to current flow diagram; renew if necessary – Renew solenoid valve →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.38
30 + 34			∞ Ω	

Test step No. 11

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
33 + 52	Solenoid valve 2 -N89-	• Ignition switched off – Switch to resistance measuring range	25 … 35 Ω	– Check 16-pin connector to gearbox for contact corrosion – Perform test step No. 9 → Anchor – Check wiring from automatic gearbox control unit -J217- to 16-pin connector → Chapter – Check wiring harness in gearbox according to current flow diagram; renew if necessary – Renew solenoid valve →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.38
33 + 34			∞ Ω	

Test step No. 12

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
32 + 52	Solenoid valve 3 -N90-	• Ignition switched off		

		– Switch to resistance measuring range	25 … 35 Ω	– Check 16-pin connector to gearbox for contact corrosion – Perform test step No. 9 → Anchor
32 + 34			∞ Ω	– Check wiring from automatic gearbox control unit - J217- to 16-pin connector → Chapter – Check wiring harness in gearbox according to current flow diagram; renew if necessary – Renew solenoid valve →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.38

Test step No. 13

-V.A.G 1598/20- sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
5 + 52	Solenoid valve 4 -N91- /pressure regulating valve 1 -N215-	• Ignition switched off – Switch to resistance measuring range	6 … 8 Ω	– Check 16-pin connector to gearbox for contact corrosion – Perform test step No. 9 → Anchor
5 + 34			∞ Ω	– Check wiring from automatic gearbox control unit - J217- to 16-pin connector → Chapter – Check wiring harness in gearbox according to current flow diagram; renew if necessary – Renew solenoid valve →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.38

Test step No. 14

-V.A.G 1598/20- sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
1 + 53	Solenoid valve 5 -N92- /pressure regulating valve 2 -N216-	• Ignition switched off – Switch to resistance measuring range	6 … 8 Ω	– Check 16-pin connector to gearbox for contact corrosion – Perform test step No. 9 → Anchor
1 + 34			∞ Ω	– Check wiring from automatic gearbox control unit - J217- to 16-pin connector → Chapter – Check wiring harness in gearbox according to current flow diagram; renew if necessary – Renew solenoid valve →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.38

Test step No. 15

-V.A.G 1598/20- sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
29 + 53	Solenoid valve 6 -N93- /pressure regulating valve 3 -N217-	• Ignition switched off – Switch to resistance measuring range	6 … 8 Ω	– Check 16-pin connector to gearbox for contact corrosion – Perform test step No. 9 → Anchor
29 + 34			∞ Ω	– Check wiring from automatic gearbox control unit - J217- to 16-pin connector → Chapter – Check wiring harness in gearbox according to current flow diagram; renew if necessary – Renew solenoid valve →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.38

Test step No. 16

-V.A.G 1598/20- sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
4 + 52	Solenoid valve 7 -N94- /pressure regulating valve 4 -N218-	• Ignition switched off – Switch to resistance measuring range	6 … 8 Ω	– Check 16-pin connector to gearbox for contact corrosion – Perform test step No. 9 → Anchor
4 + 34			∞ Ω	– Check wiring from automatic gearbox control unit - J217- to 16-pin connector → Chapter – Check wiring harness in gearbox according to current flow diagram; renew if necessary – Renew solenoid valve →Automatic gearbox 01V,

				front-wheel drive and four-wheel drive; Rep. Gr.38

Test step No. 17

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
14 + 42	Gearbox speed sender -G38-/gearbox output speed sender -G195-	• Ignition switched off – Switch to resistance measuring range	Min. 0.80 kΩ Max. 1.20 kΩ	– Check wiring according to current flow diagram – Renew gearbox output speed sender →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.38
14 + 34 14 + 54 42 + 54 42 + 34			∞ Ω	
15 + 34 15 + 54	Screening for gearbox speed sender -G38-/gearbox output speed sender -G195-		∞ Ω	– Check wiring according to current flow diagram

Test step No. 18 - only vehicles with hydraulic control “Type E17”[2)]

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
16 + 44	Gearbox input speed sender -G182-	• Ignition switched off • 88-pin connector disconnected from control unit – Switch to resistance measuring range	Min. 230 Ω Max. 300 Ω	– Check wiring according to current flow diagram – Renew gearbox input speed sender →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.38
44 + 34 44 + 54 16 + 54 16 + 34			∞ Ω	
23 + 34 23 + 54	Screening for gearbox input speed sender -G182- [1)]		∞ Ω	– Check wiring according to current flow diagram

- [1)] Screening for gearbox input speed sender -G182- not fitted on all versions.
- [2)] Allocation of hydraulic control system to gearbox →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.00.

Test step No. 19

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
21 + 22	Gearbox oil temperature sender -G93- (ATF)	• Ignition switched off • Switched to resistance measuring range – Measure ATF temperature		
		Approx. 20 °C	Approx. 0.83 kΩ[1)]	– Check wiring from automatic gearbox control unit -J217- to 16-pin connector → Chapter – Check wiring harness in gearbox according to current flow diagram; renew if necessary (the gearbox oil (ATF) temperature sender is integrated in wiring harness) →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.38
		Approx. 60 °C	Approx. 1.28 kΩ[1)]	
		Approx. 120 °C	Approx. 1.88 kΩ[1)]	
21 + 34 22 + 34			∞ Ω	
21 + 54 22 + 54			∞ Ω	

- [1)] Permissible tolerance: ± 0.1 kΩ.

Test step No. 20 - only vehicles without CAN bus

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
41 + 34 41 + 55 41 + 26	Wiring to engine control unit (throttle valve signal)	• Ignition switched off • Multi-pin connector disconnected from engine control unit – Switch to resistance measuring range	∞ Ω	– Check wiring according to current flow diagram
41 + xx [1)]			Less than 1.5 Ω	

- [1)] For contact assignment on multi-pin connector of engine control unit → Current flow diagrams, Electrical fault finding and Fitting locations.

Test step No. 21 - only vehicles without CAN bus

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
35 + 34 35 + 55 35 + 26	Wiring to engine control unit (fuel consumption signal/load signal)	• Ignition switched off • Multi-pin connector disconnected from engine control unit – Switch to resistance measuring range	Higher than 40 kΩ	– Check wiring according to current flow diagram – Unplug connectors to components also receiving the same signal and repeat measurement – If necessary, check these components for short circuit (e.g. on-board computer) →Electrical system, self-diagnosis; Rep. Gr.01
35 + xx [1)]			Less than 1.5 Ω	
35 + 34		• Ignition switched on • Multi-pin connector disconnected from engine control unit – Switch to voltage measuring range	Approx. 5 V	

• [1)] For contact assignment on multi-pin connector of engine control unit → Current flow diagrams, Electrical fault finding and Fitting locations.

Test step No. 22 - only vehicles without CAN bus

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
40 + 34	Wiring to engine control unit (engine speed signal)	• Ignition switched off • Multi-pin connector disconnected from engine control unit – Switch to resistance measuring range	15 … 80 kΩ	– Check wiring according to current flow diagram – Check on-board computer →Electrical system, self diagnosis; Rep. Gr.01
40 + xx [1)]			Less than 1.5 Ω	

• [1)] For contact assignment on multi-pin connector of engine control unit → Current flow diagrams, Electrical fault finding and Fitting locations.

Test step No. 23 - only vehicles without CAN bus

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
20 + 34 20 + 55 20 + 26	Wiring to engine control unit (torque reduction/ignition timing retardation)	• Ignition switched off • Multi-pin connector disconnected from engine control unit – Switch to resistance measuring range	∞ Ω	– Check wiring according to current flow diagram
20 + xx [1)]			Less than 1.5 Ω	

• [1)] For contact assignment on multi-pin connector of engine control unit → Current flow diagrams, Electrical fault finding and Fitting locations.

Test step No. 24 - only vehicles without CAN bus

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
51 + 34 51 + 55 51 + 26	Wiring to engine control unit (upshift/downshift signal)	• Ignition switched off • Multi-pin connector disconnected from engine control unit – Switch to resistance measuring range	∞ Ω	– Check wiring according to current flow diagram
51 + xx [1)]			Less than 1.5 Ω	

• [1)] For contact assignment on multi-pin connector of engine control unit → Current flow diagrams, Electrical fault finding and Fitting locations.

Test step No. 25

-V.A.G 1598/20-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
13 + 54	tiptronic switch -F189- (recognition)	• Ignition switched on • Switched to voltage measuring range – Selector lever not in tiptronic gate	Less than 1 V	– Check wiring according to current flow diagram
		– Selector lever in tiptronic gate	Approx. battery voltage	– Renew tiptronic switch →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.37

Test step No. 26

-V.A.G 1598 A-sockets	Items tested	Test conditions and additional steps	Specification	Fault rectification if readout does not match specification
46 + 54 47 + 54	tiptronic switch -F189- (shift up/shift down)	• Ignition switched on • Switched to voltage measuring range – Shift up button (+) or shift down	Less than 1 V	– Check wiring according to current flow diagram

		button (–) not operated		– Renew tiptronic switch →Automatic gearbox 01V, front-wheel drive and four-wheel drive; Rep. Gr.37
46 + 54		– Operate shift up function (+) and keep selector lever pressed forwards or press and hold + button on multi-function steering wheel	Approx. battery voltage	
47 + 54		– Operate shift down (–) function and keep selector lever pressed towards the rear or press and hold – button on multi-function steering wheel	Approx. battery voltage	