

6.0L - Engine - Motronic Multiport Fuel Injection (MFI)/ 331 kW, code BRP,

from May 2005

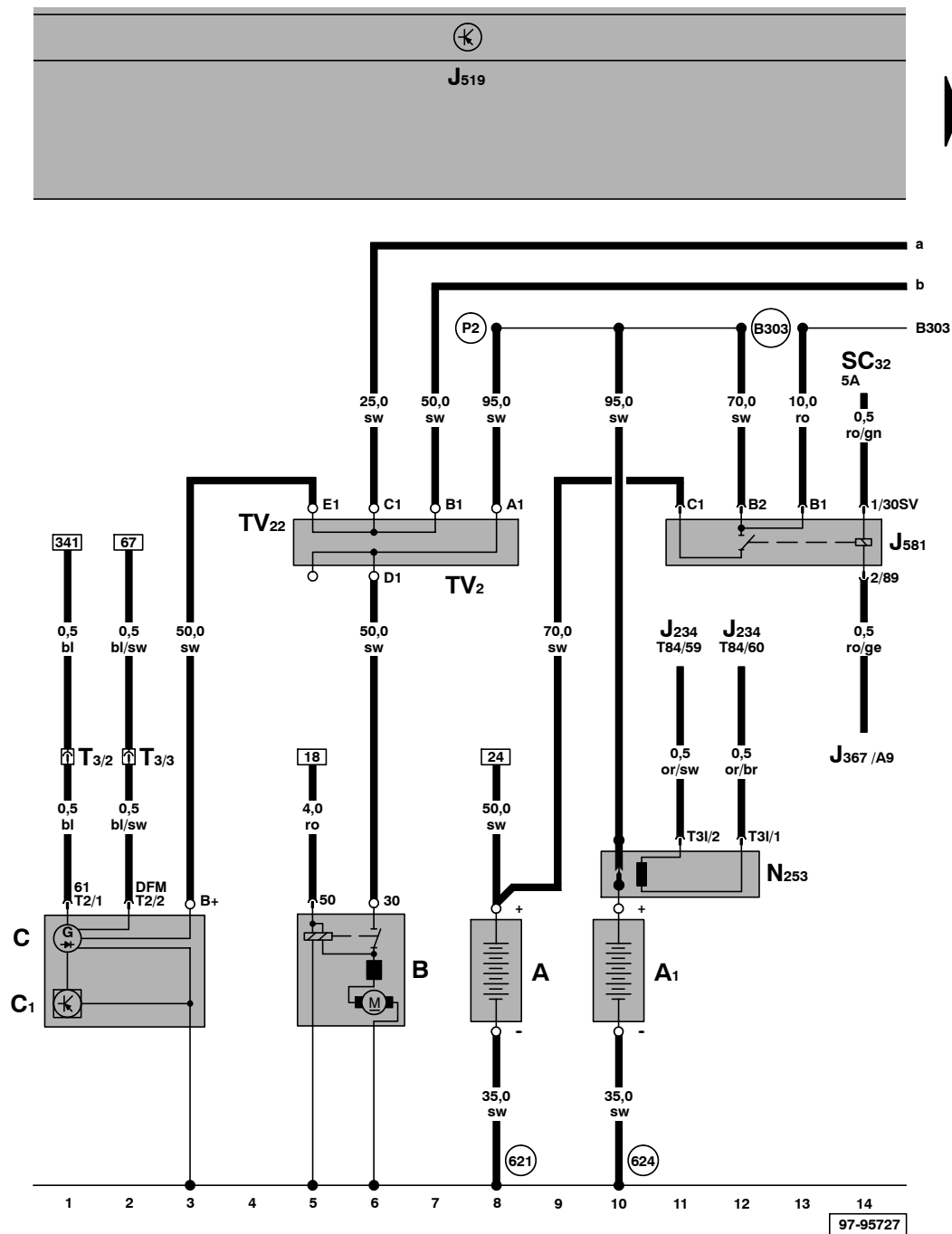
Note:

Information for

- ◆ *Relay and fuse arrangements*
- ◆ *Connector arrangements*
- ◆ *Control Modules and Relays*
- ◆ *Ground connections*
- ⇒ *Component Locations!*

Information for

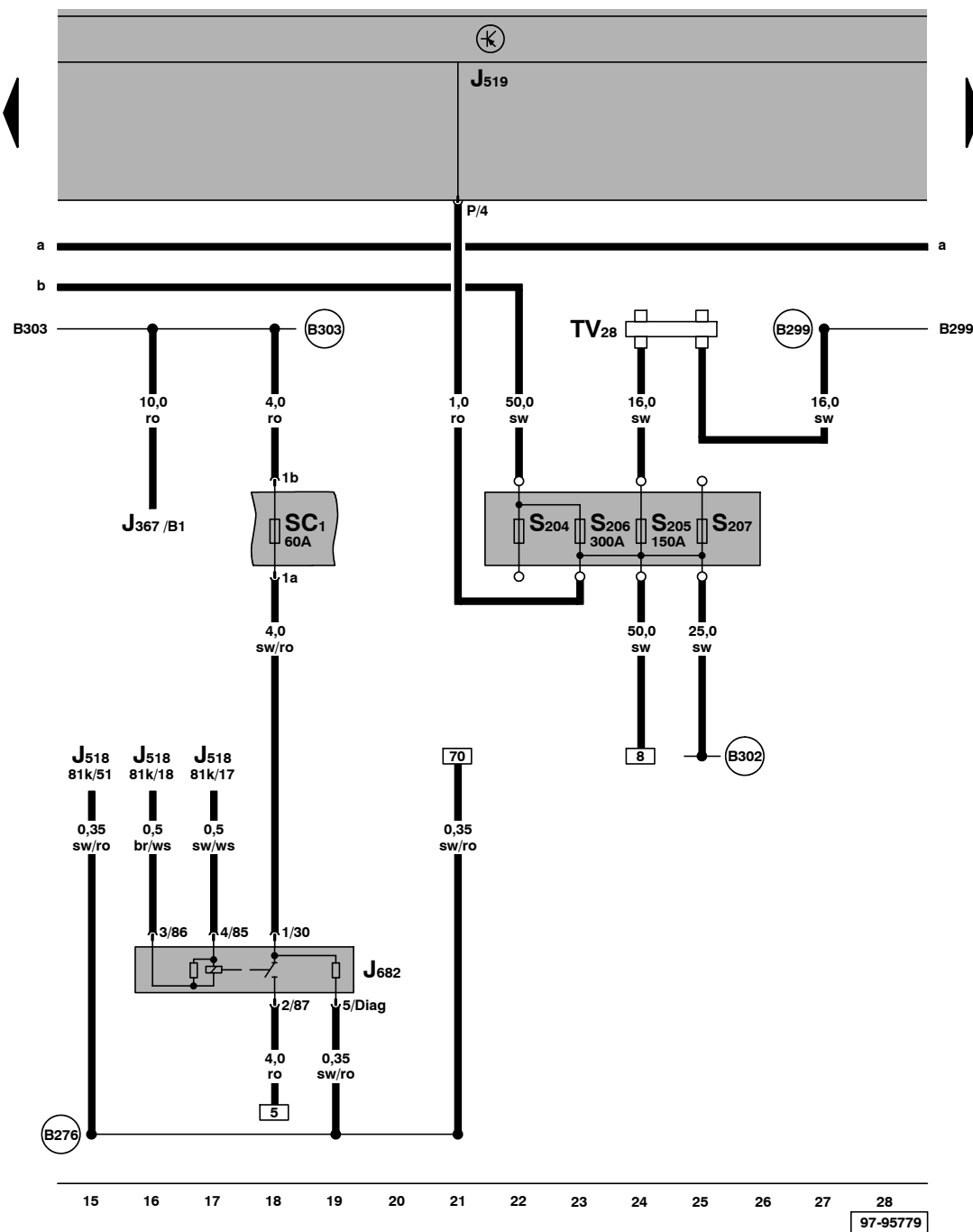
- ◆ *Troubleshooting Procedures*
- ⇒ *Guided Fault Finding using VAS 5051/5052*



Battery, Auxiliary Battery, Starter, Generator (GEN), Parallel Battery Connection Relay, Battery Interrupt Igniter

- A - Battery
 - A1 - Auxiliary Battery
 - B - Starter
 - C - Generator (GEN)
 - C1 - Voltage Regulator (VR)
 - J234 - Airbag Control Module
 - J367 - Battery Monitoring Control Module
 - J519 - Vehicle Electrical System Control Module
 - J581 - Parallel Battery Connection Relay
 - N253 - Battery Interrupt Igniter
 - SC32 - Fuse 32 (on fuse panel C)
 - T2 - Double Connector
 - T3 - 3-Pin Connector
 - T3I - 3-Pin Connector
 - T84 - 84-Pin Connector
 - TV2 - Terminal 30 Wire Junction
 - TV22 - Terminal 30 Wire Junction 2
- (621) - Ground Connection (near electrical system battery)
 - (624) - Ground Connection (near starter battery)
 - (B303) - Plus Connection 7 (30) (in main wiring harness)
 - (P2) - Plus Connection (30) (in battery wiring harness)

ws = white
 sw = black
 ro = red
 br = brown
 gn = green
 bl = blue
 gr = grey
 li = lilac
 ge = yellow
 or = orange

Power Supply Relay (terminal 50), fuse S204, S205, S206, S207, SC1


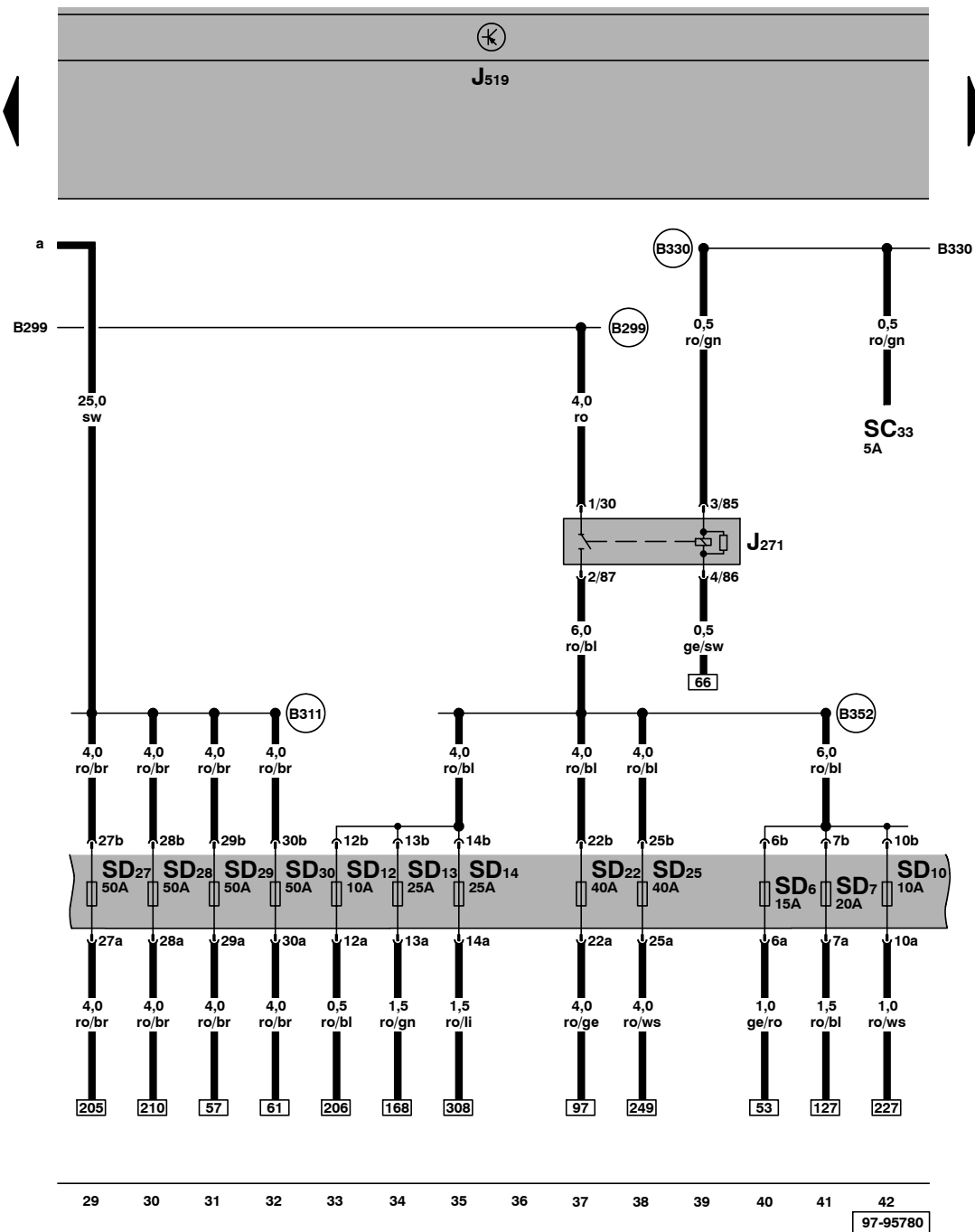
- J367 - Battery Monitoring Control Module
- J518 - Access/Start Control Module
- J519 - Vehicle Electrical System Control Module
- J682 - Power Supply Relay (terminal 50)
- S204 - Fuse 1 - terminal 30
- S205 - Fuse 2 - terminal 30
- S206 - Fuse 3 - terminal 30
- S207 - Fuse 4 - terminal 30
- SC1 - Fuse 1 (on fuse panel C)
- T81k - 81-Pin Connector
- TV28 - Terminal 30 Wire Junction 3

- (B276) - Plus Connection (50) (in main wiring harness)
- (B299) - Plus Connection 3 (30) (in main wiring harness)
- (B302) - Plus Connection 6 (30) (in main wiring harness)
- (B303) - Plus Connection 7 (30) (in main wiring harness)

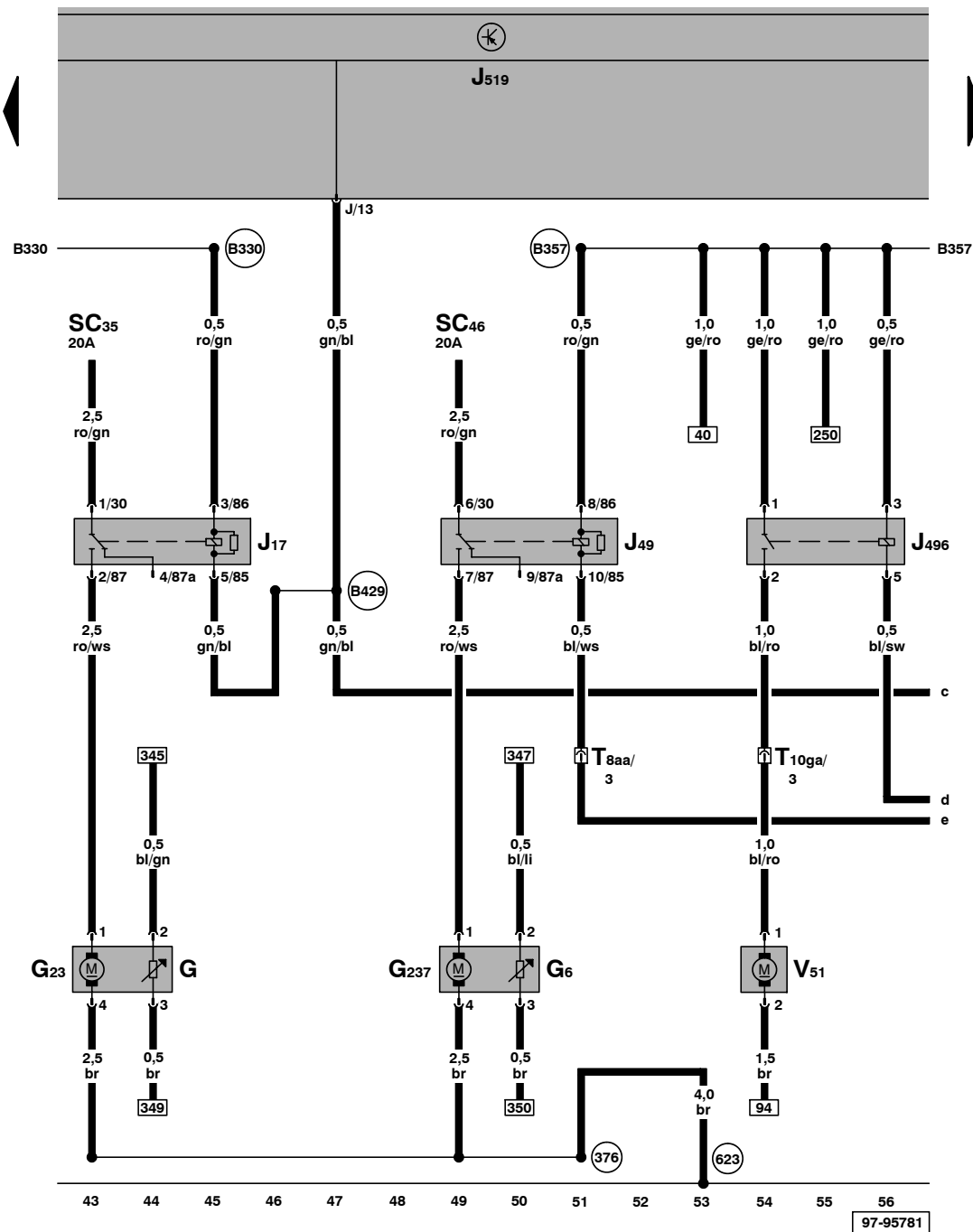
Motronic Engine Control Module (ECM) Power Supply Relay, fuses

- J271 - Motronic Engine Control Module (ECM) Power Supply Relay
 J519 - Vehicle Electrical System Control Module
 SC33- Fuse 33 (on fuse panel C)
 SD6 - Fuse 6 (on fuse panel D)
 SD7 - Fuse 7 (on fuse panel D)
 SD10- Fuse 10 (on fuse panel D)
 SD12- Fuse 12 (on fuse panel D)
 SD13- Fuse 13 (on fuse panel D)
 SD14- Fuse 14 (on fuse panel D)
 SD22- Fuse 22 (on fuse panel D)
 SD25- Fuse 25 (on fuse panel D)
 SD27- Fuse 27 (on fuse panel D)
 SD28- Fuse 28 (on fuse panel D)
 SD29- Fuse 29 (on fuse panel D)
 SD30- Fuse 30 (on fuse panel D)

- (B299) - Plus Connection 3 (30) (in main wiring harness)
 (B311) - Plus Connection 15 (30) (in main wiring harness)
 (B330) - Plus Connection 16 (30a) (in main wiring harness)
 (B352) - Plus Connection 3 (87a) (in main wiring harness)

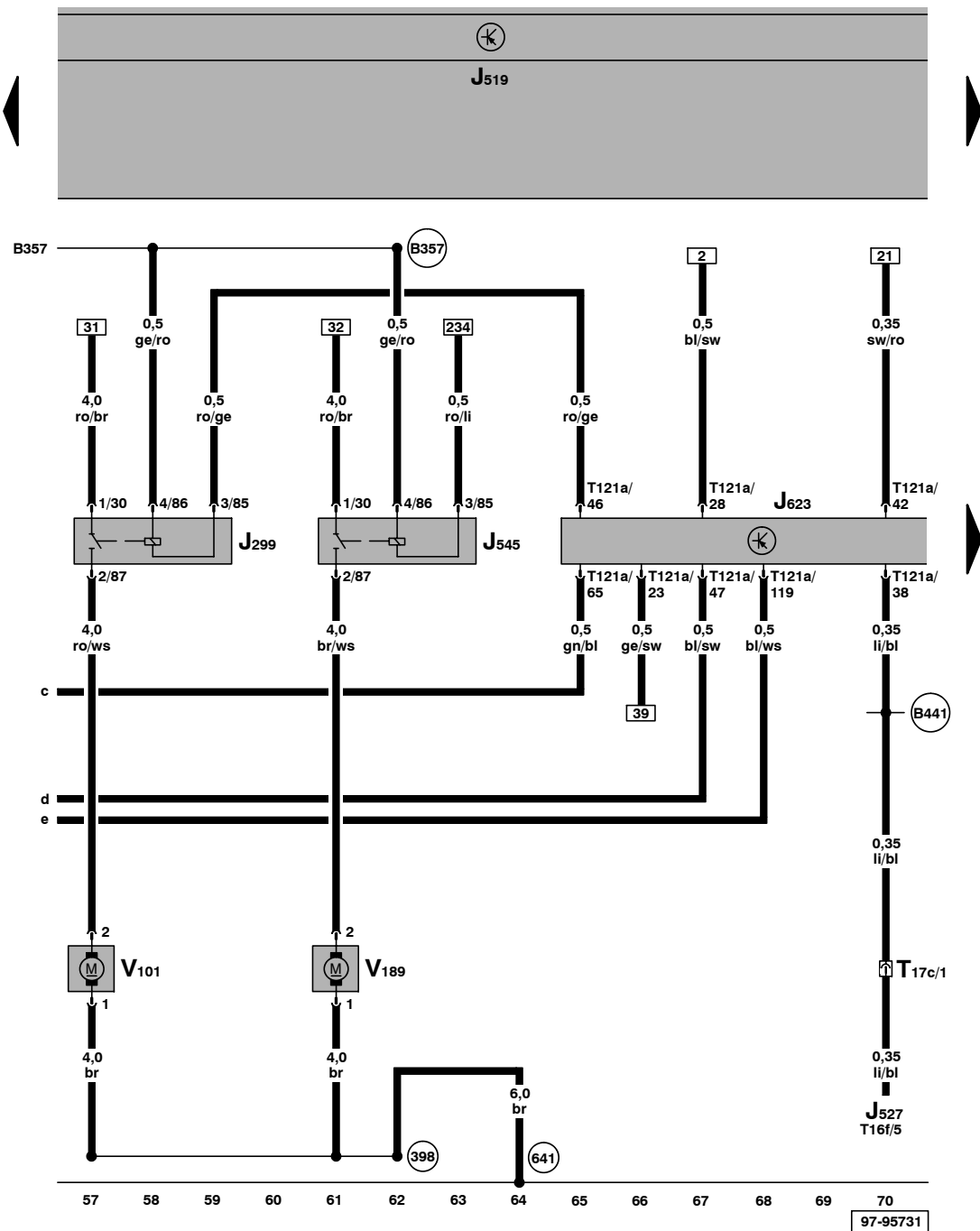


ws = white
 sw = black
 ro = red
 br = brown
 gn = green
 bl = blue
 gr = grey
 li = lilac
 ge = yellow
 or = orange

Fuel Pump (FP) Relay, Fuel Pump (FP) 2 Relay, Auxiliary Engine Coolant (EC) Pump Relay, Fuel Level Sensor, Fuel Level Sensor 3, Transfer Fuel Pump (FP), Fuel Pump (FP)


ws = white
 sw = black
 ro = red
 br = brown
 gn = green
 bl = blue
 gr = grey
 li = lilac
 ge = yellow
 or = orange

- G - Fuel Level Sensor, right Unit
- G6 - Transfer Fuel Pump (FP), left Unit
- G23 - Fuel Pump (FP), right Unit
- G237 - Fuel Level Sensor 3, left Unit
- J17 - Fuel Pump (FP) Relay
- J49 - Fuel Pump (FP) 2 Relay
- J496 - Auxiliary Engine Coolant (EC) Pump Relay
- J519 - Vehicle Electrical System Control Module
- SC35 - Fuse 35 (on fuse panel C)
- SC46 - Fuse 46 (on fuse panel C)
- T8aa - 8-Pin Connector, connector station 3/ in basic engine harness
- T10ga - 10-Pin Connector, connector station 1/ transmission
- V51 - After-Run Coolant Pump
- 376 - Ground Connection 11 (in main wiring harness)
- 623 - Ground Plate Ground Connection 2
- B330 - Plus Connection 16 (30a) (in main wiring harness)
- B357 - Plus Connection 8 (87a) (in main wiring harness)
- B429 - Fuel Pump (FP) Relay Connection (in main wiring harness)

Engine Control Module (ECM), Secondary Air Injection (AIR) Pump Relay, Secondary Air Injection (AIR) Pump Relay 2, Secondary Air Injection (AIR) Pump Motor


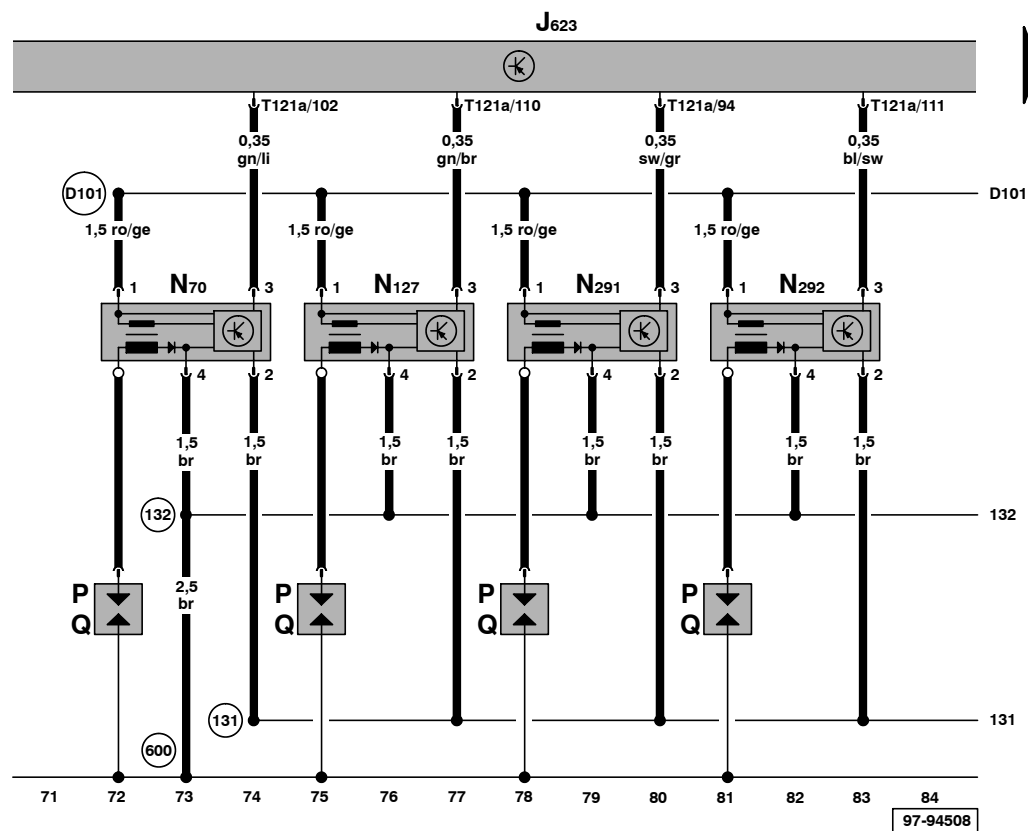
- J299 - Secondary Air Injection (AIR) Pump Relay
- J519 - Vehicle Electrical System Control Module
- J527 - Steering Column Electronic Systems Control Module
- J545 - Secondary Air Injection (AIR) Pump Relay 2
- J623 - Engine Control Module (ECM)
- T16f - 16-Pin Connector
- T17c - 17-Pin Connector, below instrument panel, left
- T121a- 121-Pin Connector
- V101 - Secondary Air Injection (AIR) Pump Motor
- V189 - Secondary Air Injection (AIR) Pump Motor 2

- 398 - Ground Connection 33 (in main wiring harness)
- 641 - Secondary Air Pump Ground Connection 2
- B357 - Plus Connection 8 (87a) (in main wiring harness)
- B441 - Cruise Control Connection (in main wiring harness)

Engine Control Module (ECM), Ignition Coil 1-4 with Power Output Stage

J519 - Vehicle Electrical System Control Module
 J623 - Engine Control Module (ECM)
 N70 - Ignition Coil 1 with Power Output Stage
 N127 - Ignition Coil 2 with Power Output Stage
 N291 - Ignition Coil 3 with Power Output Stage
 N292 - Ignition Coil 4 with Power Output Stage
 P - Spark Plug Connector
 Q - Spark Plug
 T121a- 121-Pin Connector

(131) - Ground Connection 2 (in engine compartment wiring harness)
 (132) - Ground Connection 3 (in engine compartment wiring harness)
 (600) - Ground Connection (on cylinder head, right)
 (D101) - Connection 1 (in engine compartment wiring harness)

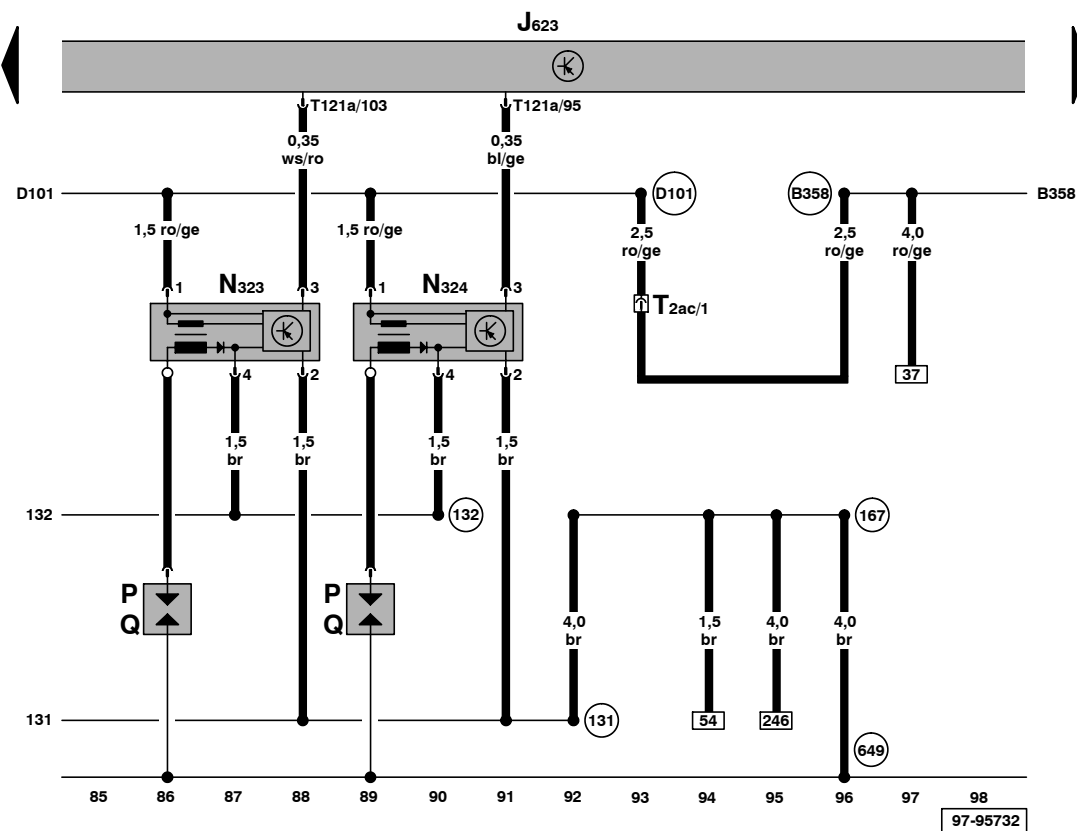


ws = white
 sw = black
 ro = red
 br = brown
 gn = green
 bl = blue
 gr = grey
 li = lilac
 ge = yellow
 or = orange

Engine Control Module (ECM), Ignition Coil 5 and 6 with Power Output Stage

J519 - Vehicle Electrical System Control Module
 J623 - Engine Control Module (ECM)
 N323- Ignition Coil 5 with Power Output Stage
 N324- Ignition Coil 6 with Power Output Stage
 P - Spark Plug Connector
 Q - Spark Plug
 T2ac - Double Connector, black, connector station 1/
 in basic engine harness
 T121a- 121-Pin Connector

- (131) - Ground Connection 2 (in engine compartment wiring harness)
- (132) - Ground Connection 3 (in engine compartment wiring harness)
- (167) - Ground Connection 4 (in engine compartment wiring harness)
- (649) - Ground Connection 5 (on firewall)
- (B358) - Plus Connection 9 (87a) (in main wiring harness)
- (D101) - Connection 1 (in engine compartment wiring harness)

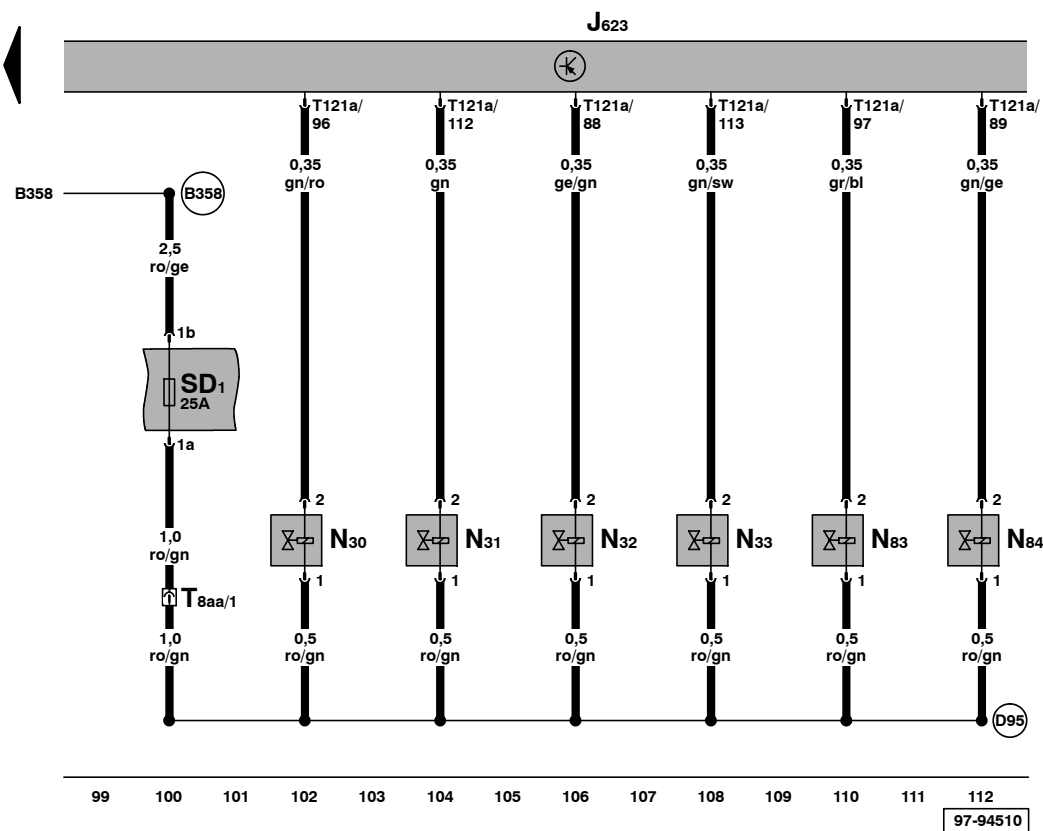


ws = white
 sw = black
 ro = red
 br = brown
 gn = green
 bl = blue
 gr = grey
 li = lilac
 ge = yellow
 or = orange

Engine Control Module (ECM), Cylinder 1-6 Fuel Injectors, fuse SD1

- J519 - Vehicle Electrical System Control Module
 J623 - Engine Control Module (ECM)
 N30 - Cylinder 1 Fuel Injector
 N31 - Cylinder 2 Fuel Injector
 N32 - Cylinder 3 Fuel Injector
 N33 - Cylinder 4 Fuel Injector
 N83 - Cylinder 5 Fuel Injector
 N84 - Cylinder 6 Fuel Injector
 SD1 - Fuse 1 (on fuse panel D)
 T8aa - 8-Pin Connector, connector station 3/ in basic engine harness
 T121a- 121-Pin Connector

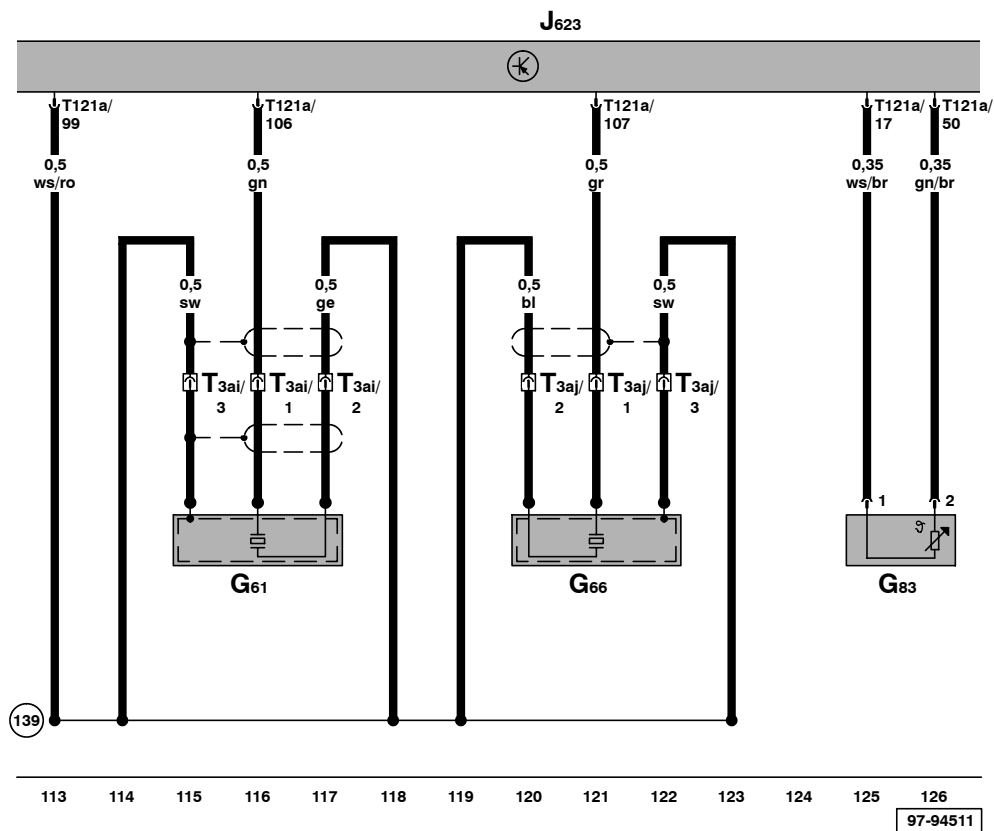
- (B358) - Plus Connection 9 (87a) (in main wiring harness)
 (D95) - Injectors Connection (in engine compartment wiring harness)



**Engine Control Module (ECM), Knock Sensor (KS) 1,
Knock Sensor (KS) 2, Engine Coolant Temperature
(ECT) Sensor (on Radiator)**

- G61 - Knock Sensor (KS) 1
 G66 - Knock Sensor (KS) 2
 G83 - Engine Coolant Temperature (ECT) Sensor (on Radiator)
 J519 - Vehicle Electrical System Control Module
 J623 - Engine Control Module (ECM)
 T3ai - 3-Pin Connector
 T3aj - 3-Pin Connector
 T121a- 121-Pin Connector

(139) - Sensor Ground Connection (in Motronic
Multiport Fuel Injection (MFI) wiring harness)



Engine Control Module (ECM), Map Controlled Engine Cooling Thermostat, Right Electro-Hydraulic Engine Mount Solenoid Valve, N145, N205

F265 - Map Controlled Engine Cooling Thermostat

J519 - Vehicle Electrical System Control Module

J623 - Engine Control Module (ECM)

N145 - Right Electro-Hydraulic Engine Mount Solenoid Valve

N205- Camshaft Adjustment Valve 1

N318- Camshaft Adjustment Valve 1 (exhaust)

T2t - Double Connector, on motor rear

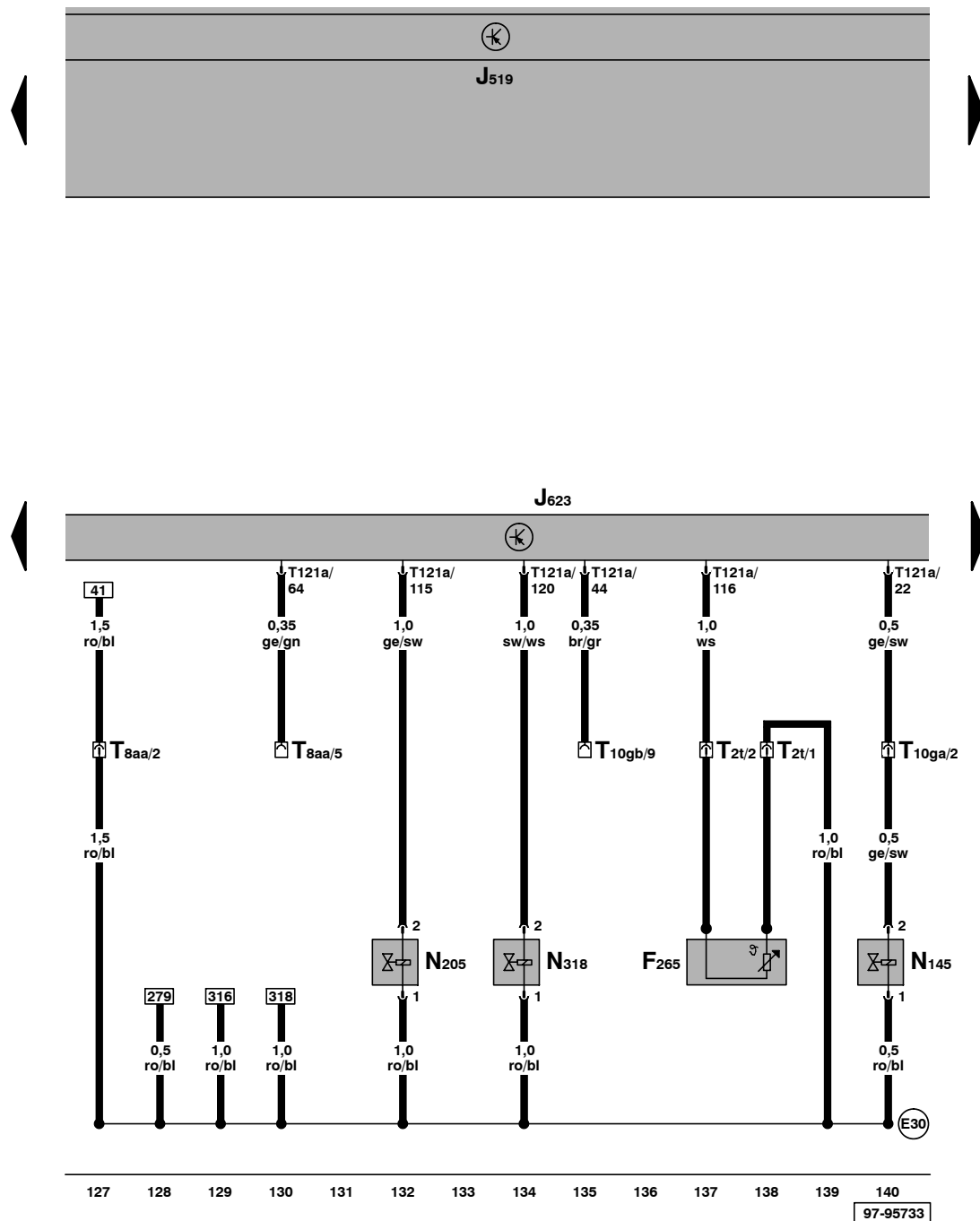
T8aa - 8-Pin Connector, connector station 3/ in basic engine harness

T10ga- 10-Pin Connector, connector station 1/
transmission

T10gb- 10-Pin Connector, connector station 2/
transmission

T121a- 121-Pin Connector

(E30) - Connection (87a) (in engine wiring harness)

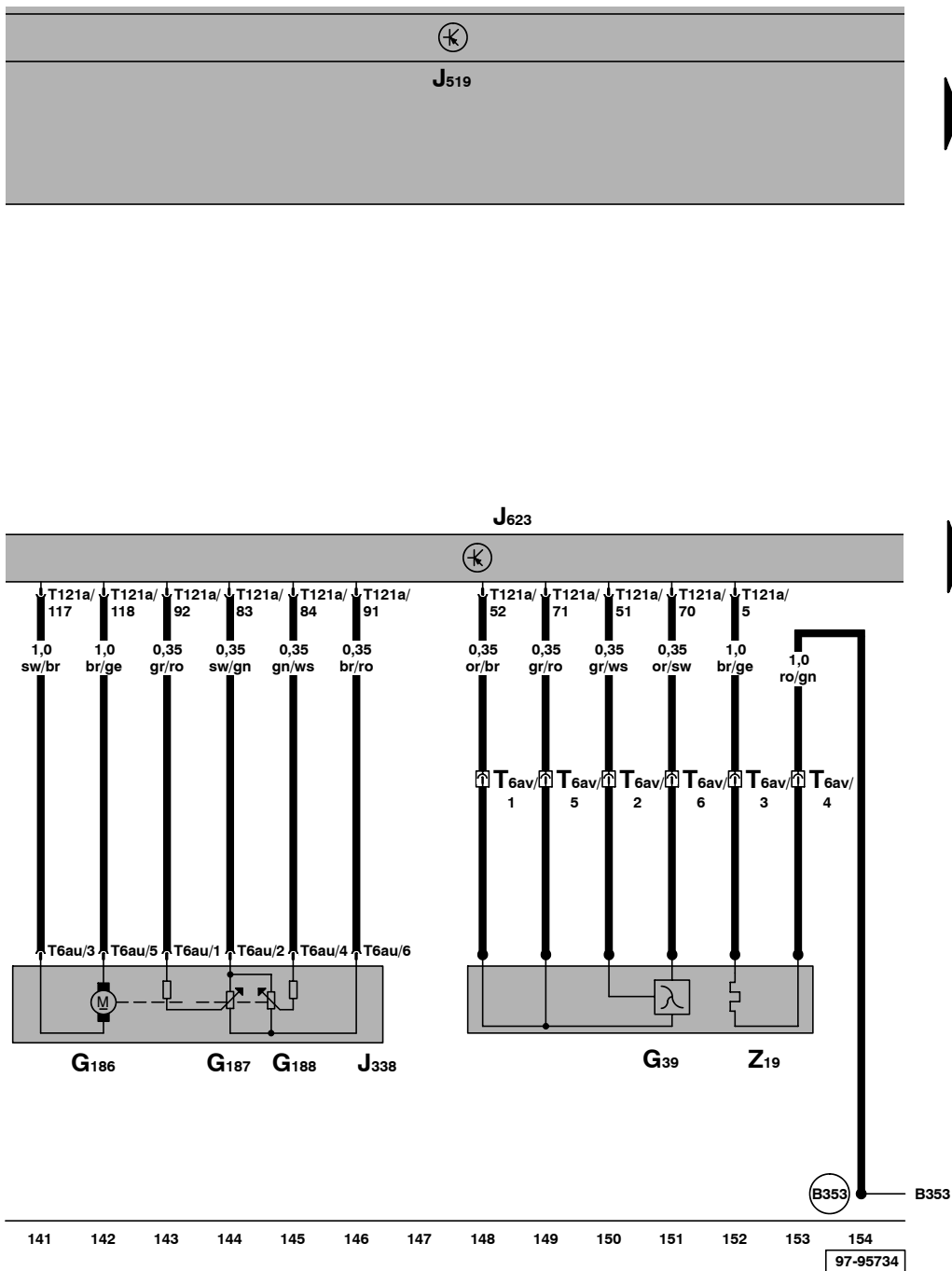


ws = white
sw = black
ro = red
br = brown
gn = green
bl = blue
gr = grey
li = lilac
ge = yellow
or = orange

Engine Control Module (ECM), Throttle Valve Control Module, Heated Oxygen Sensor (HO2S)

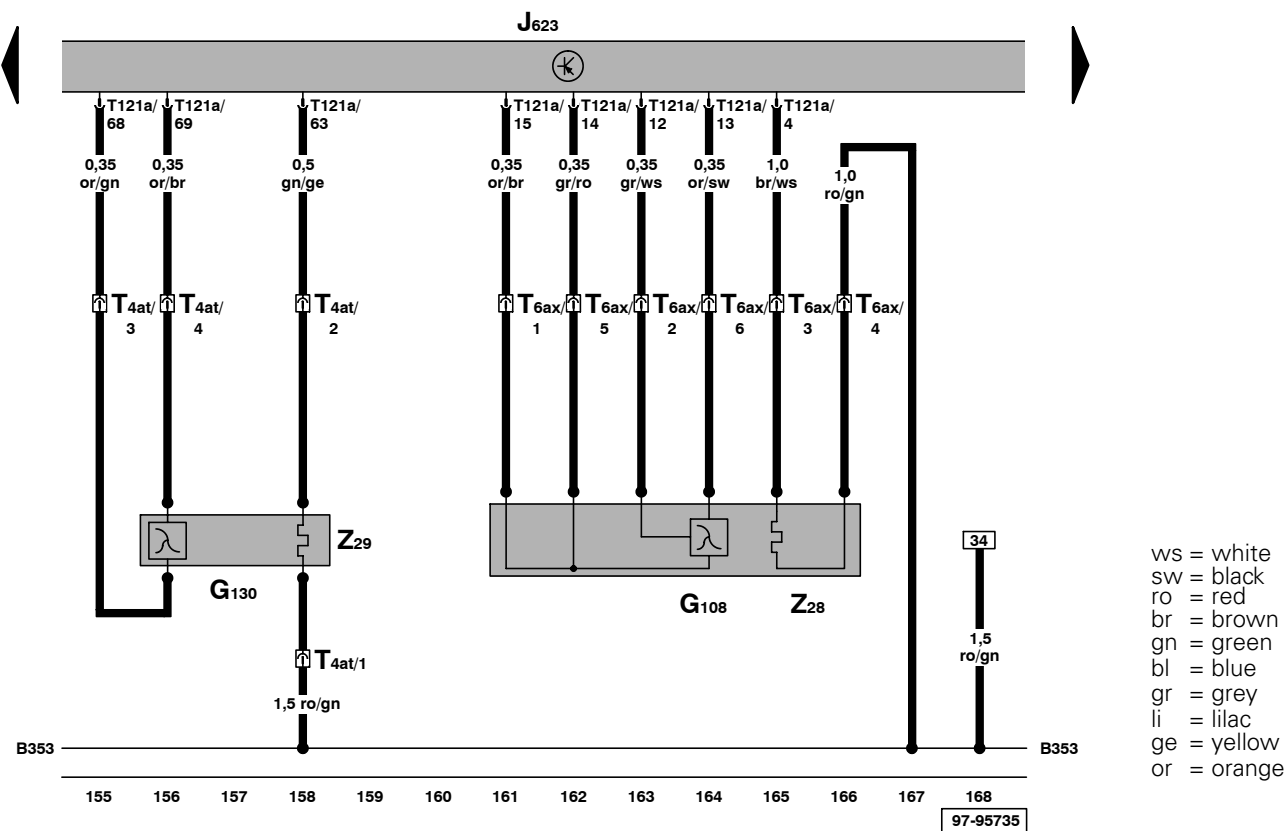
- G39 - Heated Oxygen Sensor (HO2S)
 G186 - Throttle Drive (for Electronic Power Control (EPC))
 G187 - Throttle Drive Angle Sensor 1 (for Electronic Power Control (EPC))
 G188 - Throttle Drive Angle Sensor 2 (for Electronic Power Control (EPC))
 J338 - Throttle Valve Control Module
 J519 - Vehicle Electrical System Control Module
 J623 - Engine Control Module (ECM)
 T6av - 6-Pin Connector, black, connector station 1/ on front of plenum chamber
 T6au - 6-Pin Connector
 T121a - 121-Pin Connector
 Z19 - Oxygen Sensor (O2S) Heater

(B353) - Plus Connection 4 (87a) (in main wiring harness)



Engine Control Module (ECM), Heated Oxygen Sensor (HO2S) 2, Oxygen Sensor (O2S) behind Three Way Catalytic Converter (TWC)

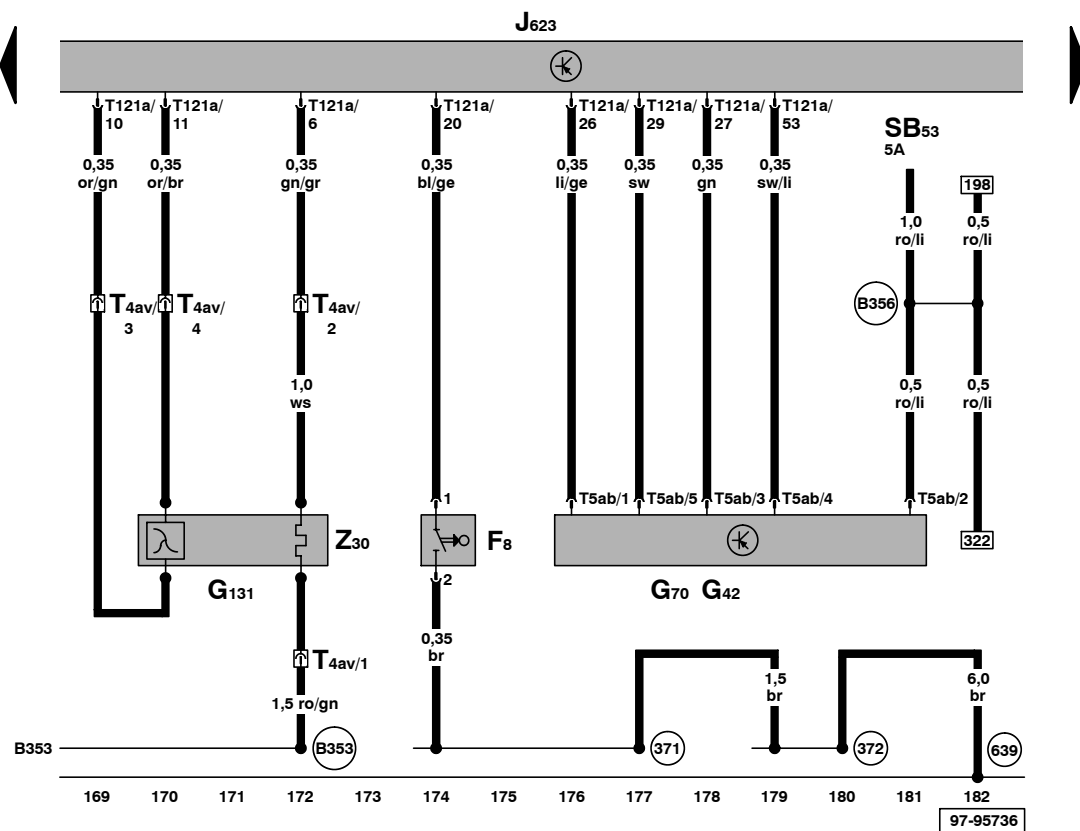
- G108 - Heated Oxygen Sensor (HO2S) 2
 G130 - Oxygen Sensor (O2S) behind Three Way Catalytic Converter (TWC)
 J519 - Vehicle Electrical System Control Module
 J623 - Engine Control Module (ECM)
 T4at - 4-Pin Connector, black, connector station 3/ on front of plenum chamber
 T6ax - 6-Pin Connector, green, connector station 2/ on front of plenum chamber
 T121a- 121-Pin Connector
 Z28 - Oxygen Sensor (O2S) Heater 2
 Z29 - Oxygen Sensor (O2S) Heater 1 (behind Three Way Catalytic Converter (TWC))



Engine Control Module (ECM), Kick Down Switch, Intake Air Temperature (IAT) Sensor, Mass Air Flow (MAF) Sensor, Oxygen Sensor (O2S) 2 behind Three Way Catalytic Converter (TWC)

- F8 - Kick Down Switch
- G42 - Intake Air Temperature (IAT) Sensor
- G70 - Mass Air Flow (MAF) Sensor
- G131 - Oxygen Sensor (O2S) 2 behind Three Way Catalytic Converter (TWC)
- J519 - Vehicle Electrical System Control Module
- J623 - Engine Control Module (ECM)
- SB53 - Fuse 53 (on fuse panel B)
- T4av - 4-Pin Connector, green, connector station 4/ on front of plenum chamber
- T5ab - 5-Pin Connector
- T121a - 121-Pin Connector
- Z30 - Oxygen Sensor (O2S) Heater 2 (behind Three Way Catalytic Converter (TWC))

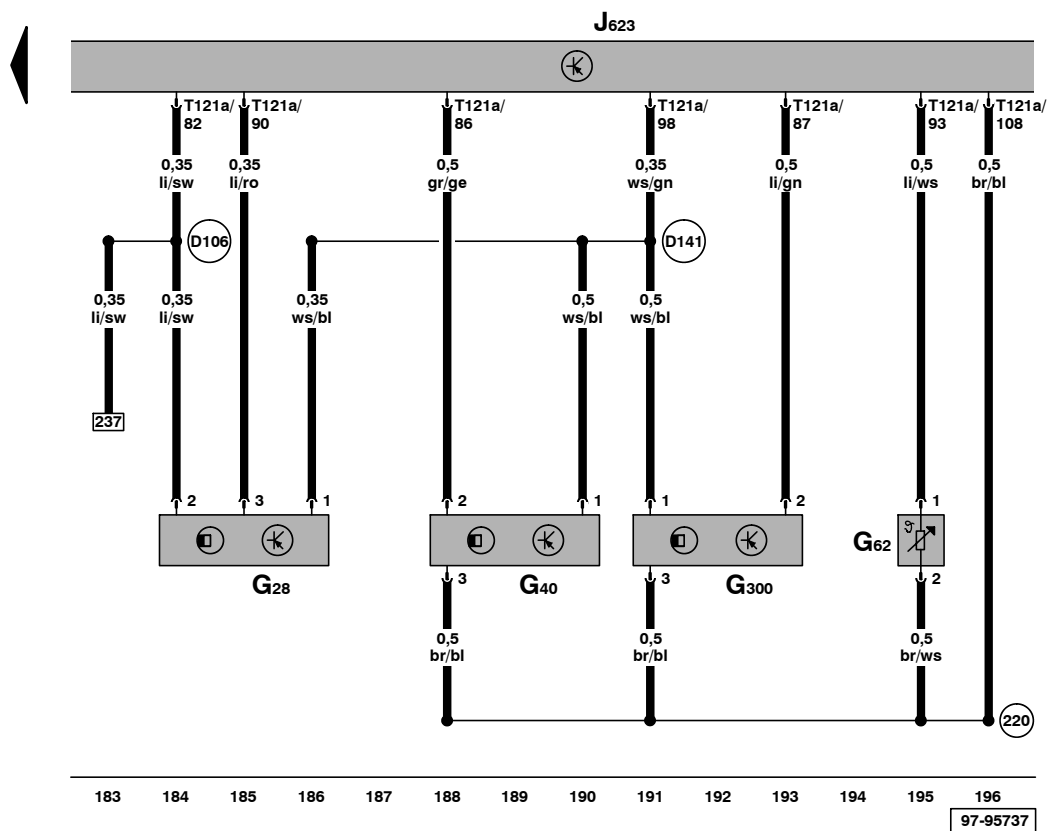
- (371) - Ground Connection 6 (in main wiring harness)
- (372) - Ground Connection 7 (in main wiring harness)
- (639) - Ground Connection (on left A-pillar)
- (B353) - Plus Connection 4 (87a) (in main wiring harness)
- (B356) - Plus Connection 7 (87a) (in main wiring harness)



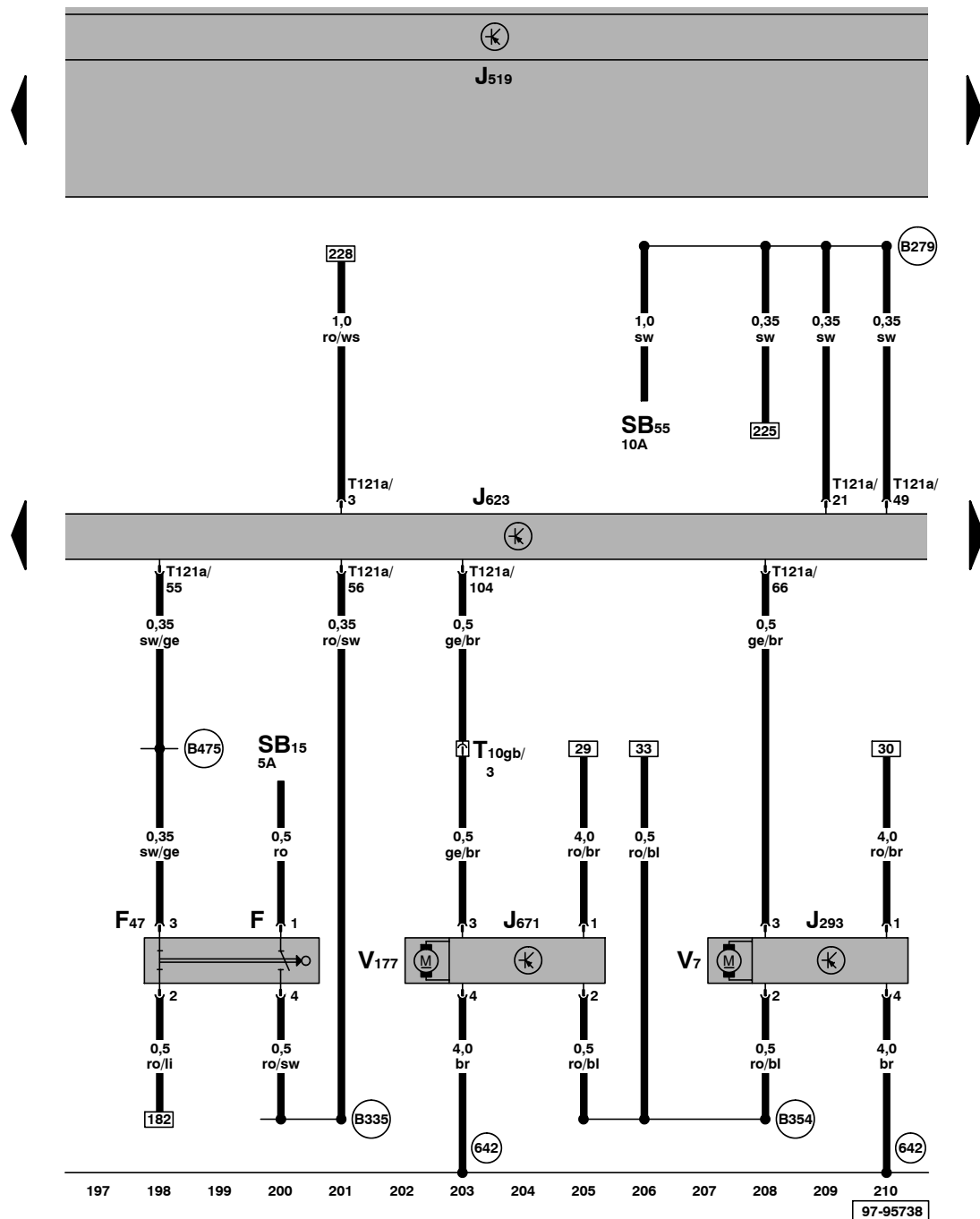
Engine Control Module (ECM), Camshaft Position (CMP) Sensor, Engine Coolant Temperature (ECT) Sensor, Camshaft Position (CMP) Sensor 3, Engine Speed (RPM) Sensor

G28 - Engine Speed (RPM) Sensor
 G40 - Camshaft Position (CMP) Sensor
 G62 - Engine Coolant Temperature (ECT) Sensor
 G300 - Camshaft Position (CMP) Sensor 3
 J519 - Vehicle Electrical System Control Module
 J623 - Engine Control Module (ECM)
 T121a - 121-Pin Connector

(220) - Sensor Ground Connection (in engine compartment wiring harness)
 (D106) - Connection 4 (in engine compartment wiring harness)
 (D141) - Connection (5V) (in engine pre-wiring wiring harness)



ws = white
 sw = black
 ro = red
 br = brown
 gn = green
 bl = blue
 gr = grey
 li = lilac
 ge = yellow
 or = orange



Engine Control Module (ECM), Brake Light Switch, Brake Pedal Switch, Coolant Fan Control (FC) Control Module, Coolant Fan Control (FC) Control Module 2, Coolant Fan

- F - Brake Light Switch
- F47 - Brake Pedal Switch
- J293 - Coolant Fan Control (FC) Control Module
- J519 - Vehicle Electrical System Control Module
- J623 - Engine Control Module (ECM)
- J671 - Coolant Fan Control (FC) Control Module 2
- SB15- Fuse 15 (on fuse panel B)
- SB55- Fuse 55 (on fuse panel B)
- T10gb- 10-Pin Connector, connector station 2/
transmission
- T121a- 121-Pin Connector
- V7 - Coolant Fan
- V177 - Coolant Fan 2

- ⓐ642 - Ground Connection (on electronic fan control)
- ⓐ279 - Plus Connection 3 (15a) (in main wiring harness)
- ⓐ335 - Connection 1 (54) (in main wiring harness)
- ⓐ354 - Plus Connection 5 (87a) (in main wiring harness)
- ⓐ475 - Connection 11 (in main wiring harness)

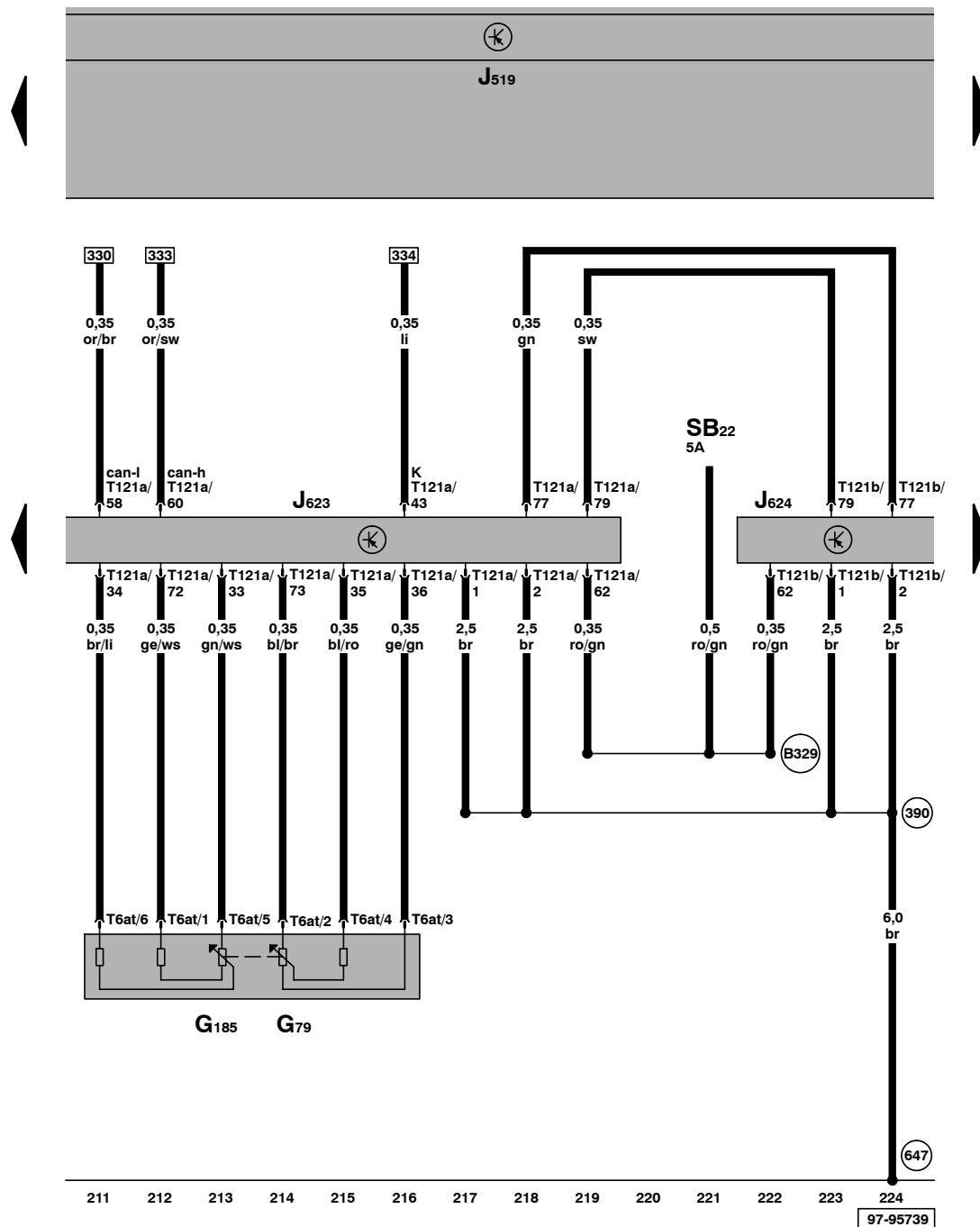
ws = white
sw = black
ro = red
br = brown
gn = green
bl = blue
gr = grey
li = lilac
ge = yellow
or = orange

Engine Control Module (ECM), Engine Control Module (ECM) 2, Throttle Position (TP) Sensor

G79 - Throttle Position (TP) Sensor
 G185 - Accelerator Pedal Position Sensor 2
 J519 - Vehicle Electrical System Control Module
 J623 - Engine Control Module (ECM)
 J624 - Engine Control Module (ECM) 2
 SB22 - Fuse 22 (on fuse panel B)
 T6at - 6-Pin Connector
 T121a - 121-Pin Connector
 T121b - 121-Pin Connector

(390) - Ground Connection 25 (in main wiring harness)
 (647) - Ground Connection 3 (on firewall)
 (B329) - Plus Connection 15 (30a) (in main wiring harness)

ws = white
 sw = black
 ro = red
 br = brown
 gn = green
 bl = blue
 gr = grey
 li = lilac
 ge = yellow
 or = orange



Engine Control Module (ECM) 2, Ignition Coil 7-10 with Power Output Stage

J519 - Vehicle Electrical System Control Module

J624 - Engine Control Module (ECM) 2

N325- Ignition Coil 7 with Power Output Stage

N326- Ignition Coil 8 with Power Output Stage

N327- Ignition Coil 9 with Power Output Stage

N328- Ignition Coil 10 with Power Output Stage

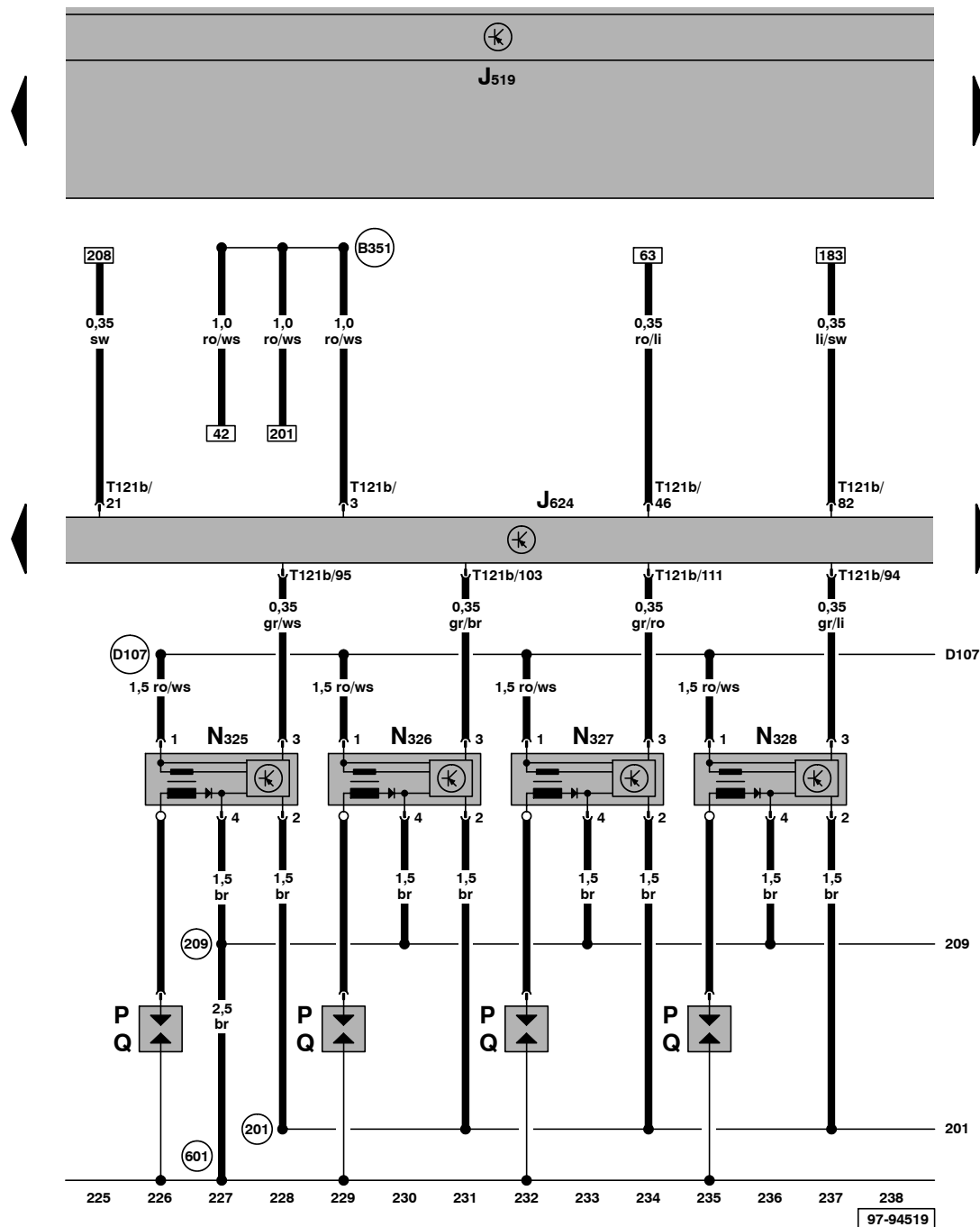
P - Spark Plug Connector

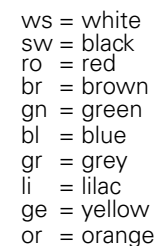
Q - Spark Plug

T121b- 121-Pin Connector

- 201 - Ground Connection 5 (in engine compartment wiring harness)
- 209 - Ground Connection 6 (in engine compartment wiring harness)
- 601 - Ground Connection (on cylinder head, left)
- B351 - Plus Connection 2 (87a) (in main wiring harness)
- D107 - Connection 5 (in engine compartment wiring harness)

ws = white
sw = black
ro = red
br = brown
gn = green
bl = blue
gr = grey
li = lilac
ge = yellow
or = orange



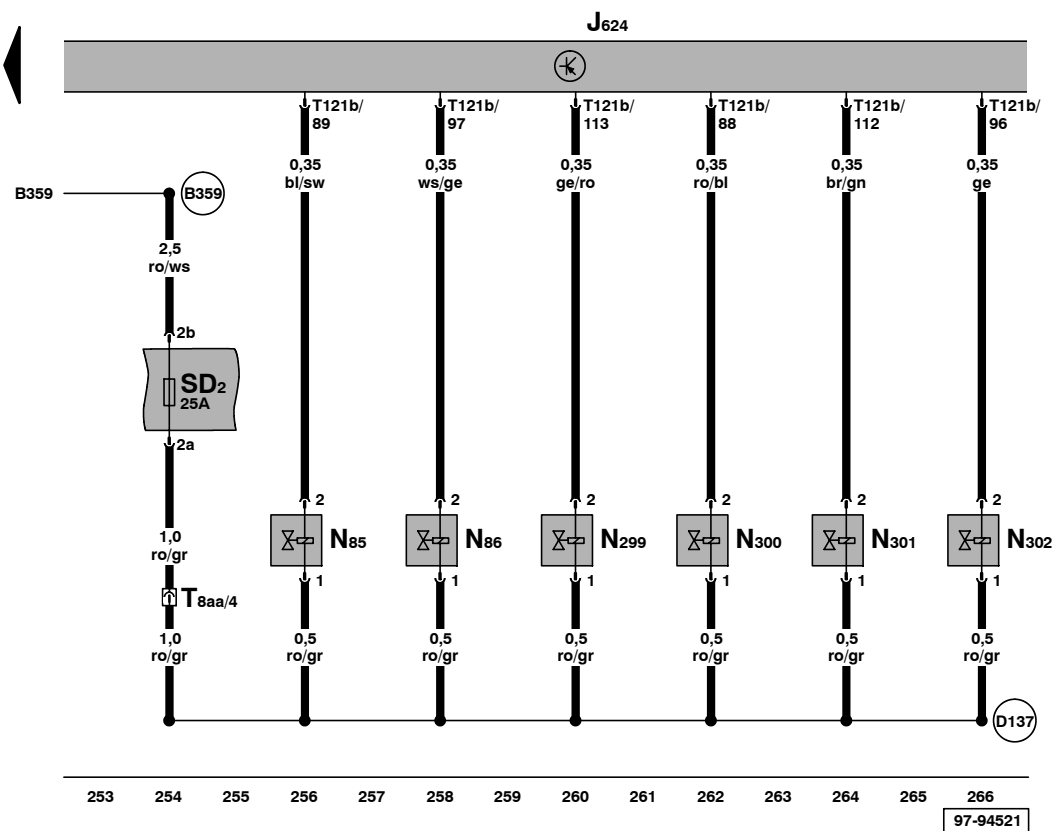


- 201 - Ground Connection 5 (in engine compartment wiring harness)
- 209 - Ground Connection 6 (in engine compartment wiring harness)
- B359 - Plus Connection 10 (87a) (in main wiring harness)
- D107 - Connection 5 (in engine compartment wiring harness)

Engine Control Module (ECM) 2, Cylinder 7-12 Fuel Injectors, fuse SD2

- J519 - Vehicle Electrical System Control Module
- J624 - Engine Control Module (ECM) 2
- N85 - Cylinder 7 Fuel Injector
- N86 - Cylinder 8 Fuel Injector
- N299 - Cylinder 9 Fuel Injector
- N300 - Cylinder 10 Fuel Injector
- N301 - Cylinder 11 Fuel Injector
- N302 - Cylinder 12 Fuel Injector
- SD2 - Fuse 2 (on fuse panel D)
- T8aa - 8-Pin Connector, connector station 3/ in basic engine harness
- T121b- 121-Pin Connector

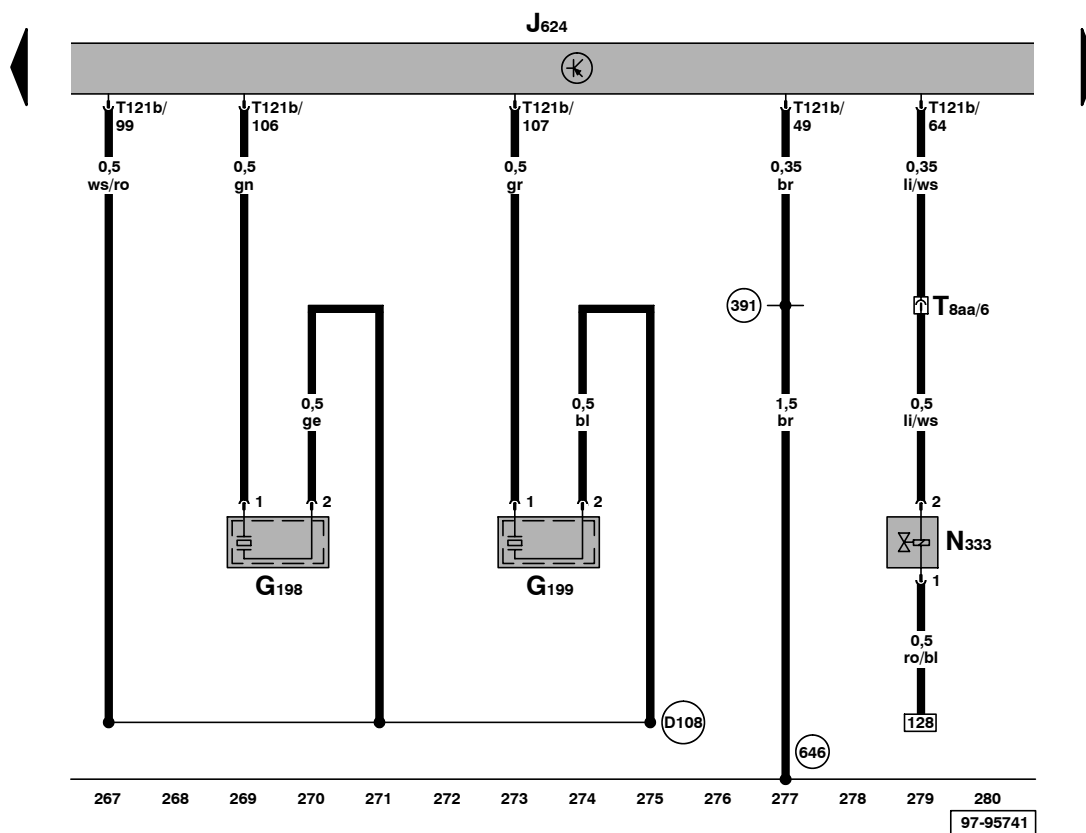
- (B359) - Plus Connection 10 (87a) (in main wiring harness)
- (D137) - Connection 2 (injectors), (in engine compartment wiring harness)



Engine Control Module (ECM) 2, Knock Sensor 3, Knock sensor 4, Evaporative Emission (EVAP) Canister Purge Regulator Valve 2

- G198 - Knock Sensor 3
 G199 - Knock sensor 4
 J519 - Vehicle Electrical System Control Module
 J624 - Engine Control Module (ECM) 2
 N333 - Evaporative Emission (EVAP) Canister Purge Regulator Valve 2
 T8aa - 8-Pin Connector, connector station 3/ in basic engine harness
 T121b- 121-Pin Connector

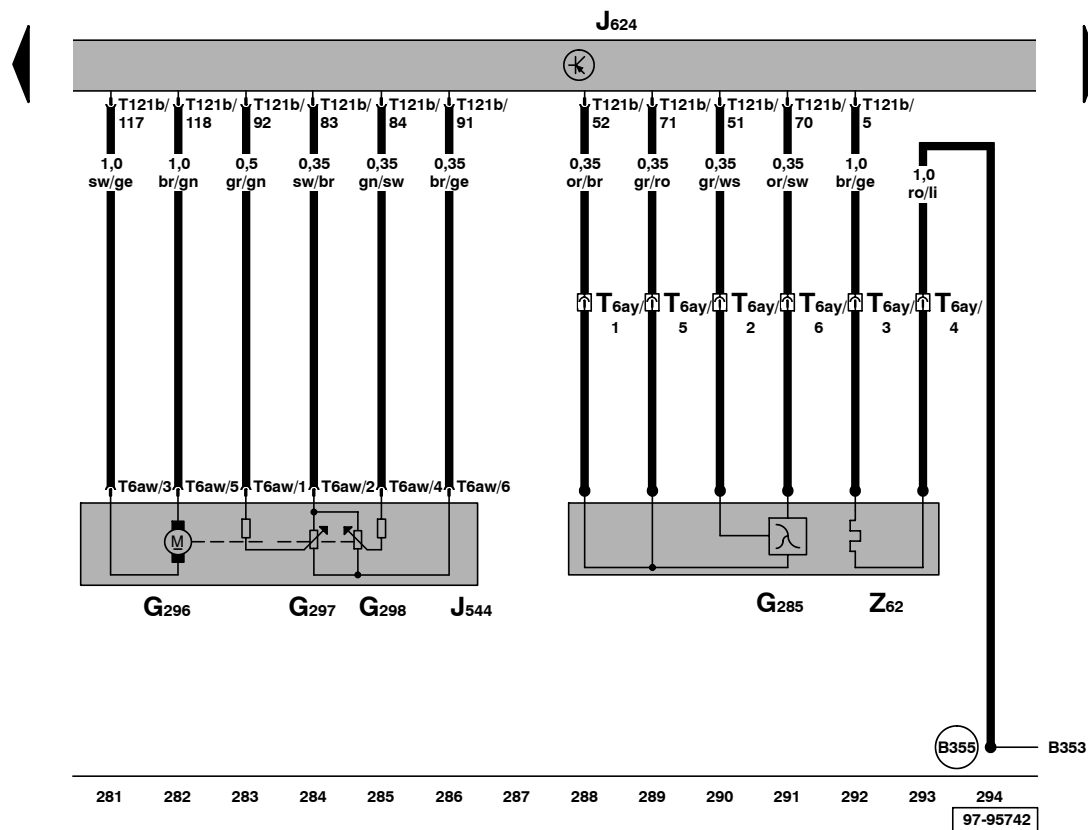
- (391) - Ground Connection 26 (in main wiring harness)
 (646) - Ground Connection 2 (on firewall)
 (D108) - Connection 6 (in engine compartment wiring harness)



Engine Control Module (ECM) 2, Throttle Valve Control Module 2, Heated Oxygen Sensor (HO2S) 3

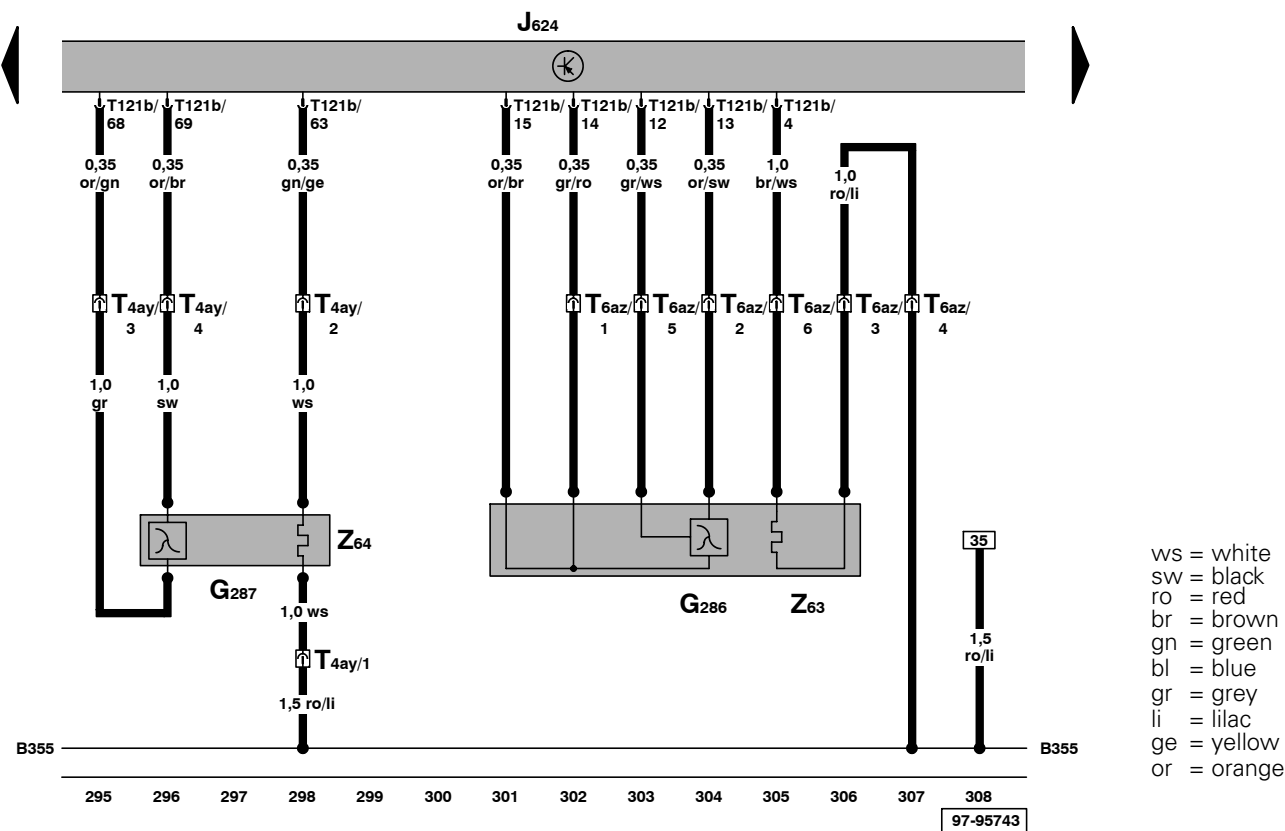
- G285 - Heated Oxygen Sensor (HO2S) 3
 G296 - Throttle Drive 2
 G297 - Throttle Drive Angle Sensor 1
 G298 - Throttle Drive Angle Sensor 2
 J519 - Vehicle Electrical System Control Module
 J544 - Throttle Valve Control Module 2
 J624 - Engine Control Module (ECM) 2
 T6aw - 6-Pin Connector
 T6ay - 6-Pin Connector, brown, connector station 8/ on front of plenum chamber
 T121b - 121-Pin Connector
 Z62 - Oxygen Sensor (O2S) Heater 3

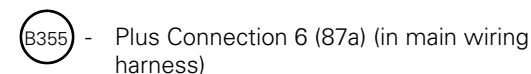
(B355) - Plus Connection 6 (87a) (in main wiring harness)

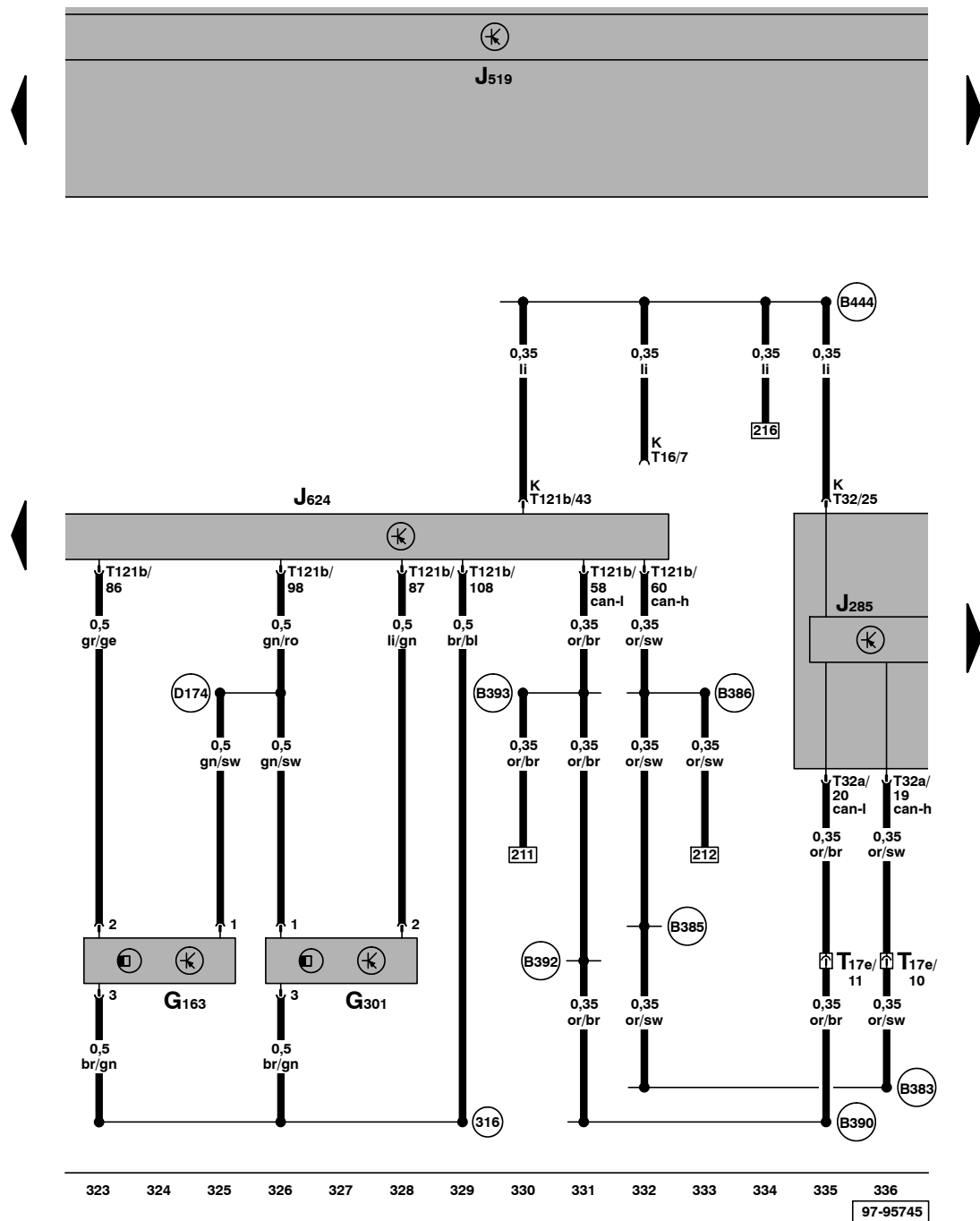


Engine Control Module (ECM) 2, Oxygen Sensor (O2S) 3 behind Three Way Catalytic Converter (TWC), Heated Oxygen Sensor (HO2S) 4

- G286 - Heated Oxygen Sensor (HO2S) 4
 G287 - Oxygen Sensor (O2S) 3 behind Three Way Catalytic Converter (TWC)
 J519 - Vehicle Electrical System Control Module
 624 - Engine Control Module (ECM) 2
 T4ay - 4-Pin Connector, brown, connector station 6/ on front of plenum chamber
 T6az - 6-Pin Connector, grey, connector station 7/ on front of plenum chamber
 T121b- 121-Pin Connector
 Z63 - Oxygen Sensor (O2S) Heater 4
 Z64 - Oxygen Sensor (O2S) Heater 3 (behind Three Way Catalytic Converter (TWC))







Engine Control Module (ECM) 2, Instrument Cluster Control Module, Data Link Connector (DLC), Camshaft Position (CMP) Sensor 2, Camshaft Position (CMP) Sensor 4

- G163 - Camshaft Position (CMP) Sensor 2
- G301 - Camshaft Position (CMP) Sensor 4
- J285 - Instrument Cluster Control Module
- J519 - Vehicle Electrical System Control Module
- J624 - Engine Control Module (ECM) 2
- T16 - 16-Pin Connector, Data Link Connector (DLC), below instrument panel, left
- T17e - 17-Pin Connector, below instrument panel, left
- T32 - 32-Pin Connector, blue
- T32a - 32-Pin Connector, green
- T121b - 121-Pin Connector

- ③16 - Sensor Ground Connection 2 (in engine wiring harness)
- ③383 - Powertrain CAN-Bus High Connection 1 (in main wiring harness)
- ③385 - Powertrain CAN-Bus High Connection 3 (in main wiring harness)
- ③386 - Powertrain CAN-Bus High Connection 4 (in main wiring harness)
- ③390 - Powertrain CAN-Bus Low Connection 1 (in main wiring harness)
- ③392 - Powertrain CAN-Bus Low Connection 3 (in main wiring harness)
- ③393 - Powertrain CAN-Bus Low Connection 4 (in main wiring harness)
- ③444 - OBD Connection 1 (in main wiring harness)
- ③174 - 5V Connection 2 (in engine wiring harness)

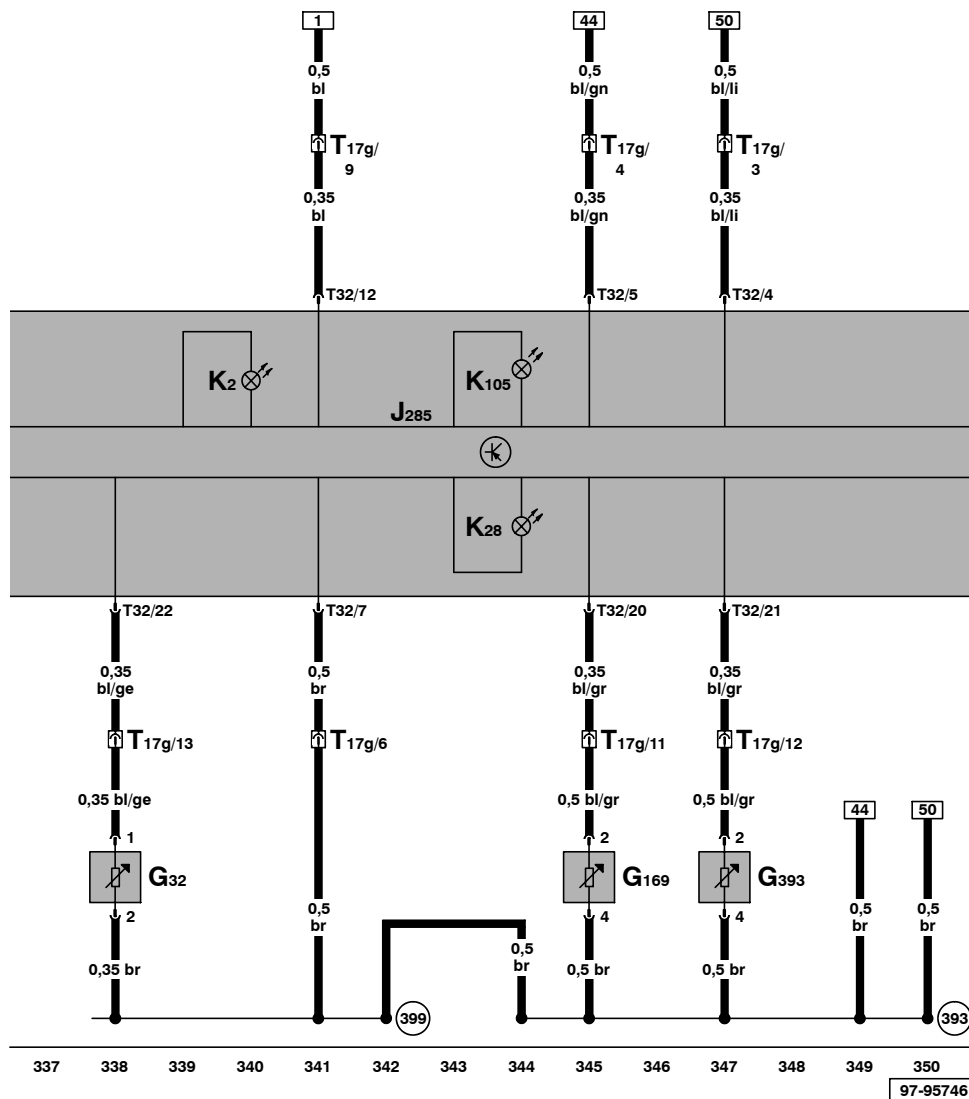
ws = white
sw = black
ro = red
br = brown
gn = green
bl = blue
gr = grey
li = lilac
ge = yellow
or = orange

Instrument Cluster Control Module, Engine Coolant Level (ECL) Sensor, Fuel Level Sensor 2 and 4, Generator (GEN) Warning Lamp, Low Fuel Level Warning Lamp

- G32 - Engine Coolant Level (ECL) Sensor
 G169 - Fuel Level Sensor 2
 G393 - Fuel Level Sensor 4
 J285 - Instrument Cluster Control Module
 J519 - Vehicle Electrical System Control Module
 K2 - Generator (GEN) Warning Lamp
 K28 - Engine Coolant Level/Temperature (ECL/ECT) Warning Lamp
 K105 - Low Fuel Level Warning Lamp
 T17g - 17-Pin Connector, below instrument panel, left
 T32 - 32-Pin Connector, blue

393 - Ground Connection 28 (in main wiring harness)

399 - Ground Connection 34 (in main wiring harness)



Instrument Cluster Control Module, Oil Pressure Switch, Oil Level Thermal Sensor, Oil Pressure Warning Lamp, Oil Level Indicator Lamp

- F1 - Oil Pressure Switch
 G266 - Oil Level Thermal Sensor
 J285 - Instrument Cluster Control Module
 J519 - Vehicle Electrical System Control Module
 K3 - Oil Pressure Warning Lamp
 K38 - Oil Level Indicator Lamp
 SB56 - Fuse 56 (on fuse panel B)
 T14b - 14-Pin Connector, below instrument panel, left
 T17e - 17-Pin Connector, below instrument panel, left
 T17g - 17-Pin Connector, below instrument panel, left
 T32 - 32-Pin Connector, blue
 T32a - 32-Pin Connector, green

- (151) - Ground Connection 1 (in front wiring harness)
 (650) - Ground Connection 6 (on firewall)

