

2.0L - Engine - Turbo Diesel PD Fuel Injection (DFI)/100 kW, code BHW

From November 2003

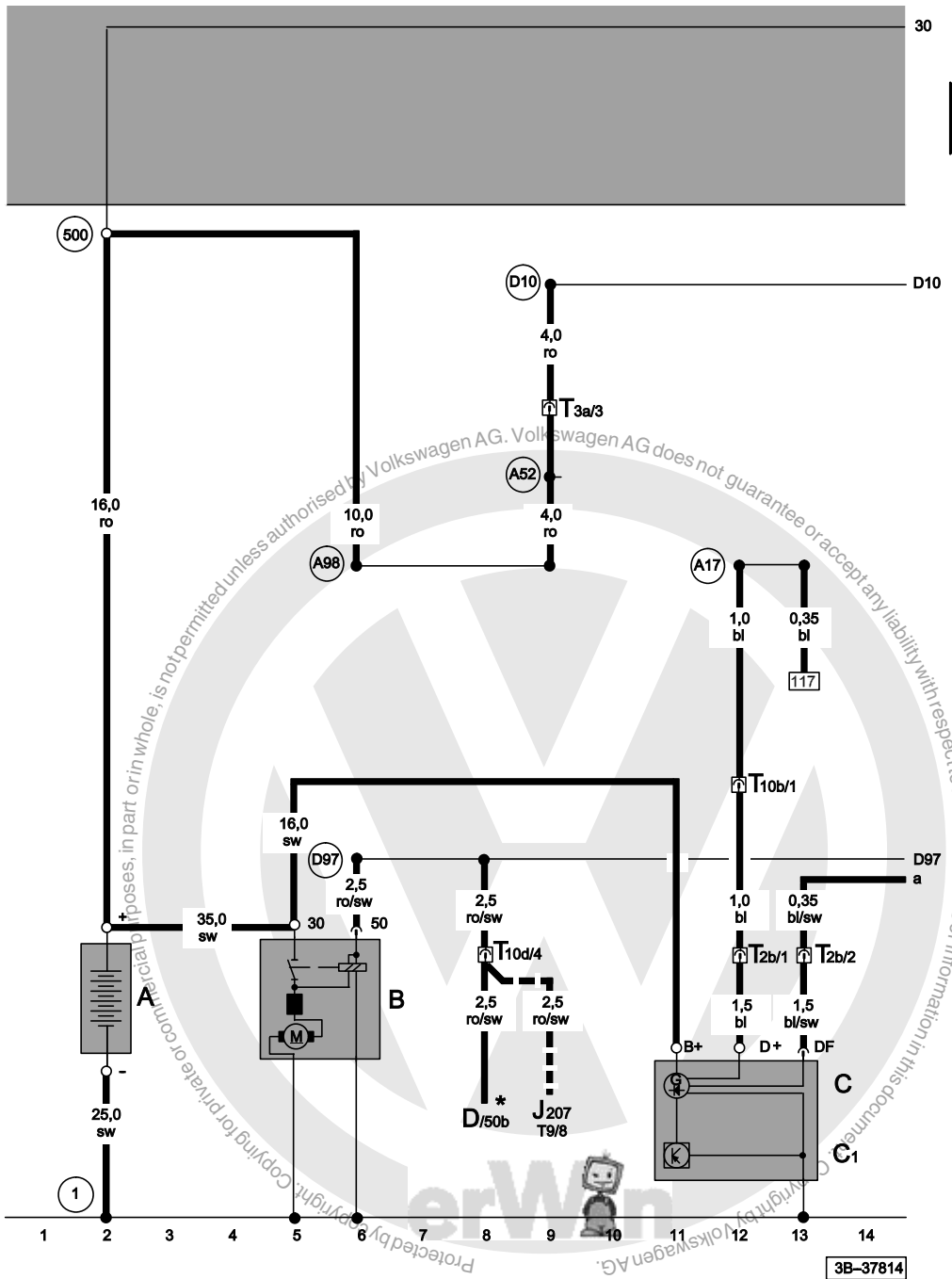


Notes:

- ◆ *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*

Edition 12.03





Battery, Starter, Generator, Voltage Regulator

Edition12

.03

- A Battery
- B Starter
- C Generator (GEN)
- C1 Voltage Regulator (VR)
- D Ignition/Starter Switch
- J207 Starting Interlock Relay
- T2b Double connector, black, on engine block right
- T3a 3-Pin connector, white, on protective housing for control module, in engine compartment, left
- T9 9-Pin connector, black,
- T10b 10-Pin connector, black, on protective housing for control module, in engine compartment, left
- T10d 10-Pin connector, brown, on protective housing for control module, in engine compartment, left

- 1 Ground strap, battery to body
- 500 Threaded connection -1- (30) on the relay plate
- A17 wire connection (61), in instrument panel wiring harness
- A52 Plus Connection 2 (30) (in instrument panel wiring harness)
- A98 Plus connector -4- (30), in instrument panel wiring harness
- D10 plus connection (30), in right front wiring harness
- D97 Wire connection (50), in engine compartment wiring harness, right
- * manual transmission only
- automatic transmission only

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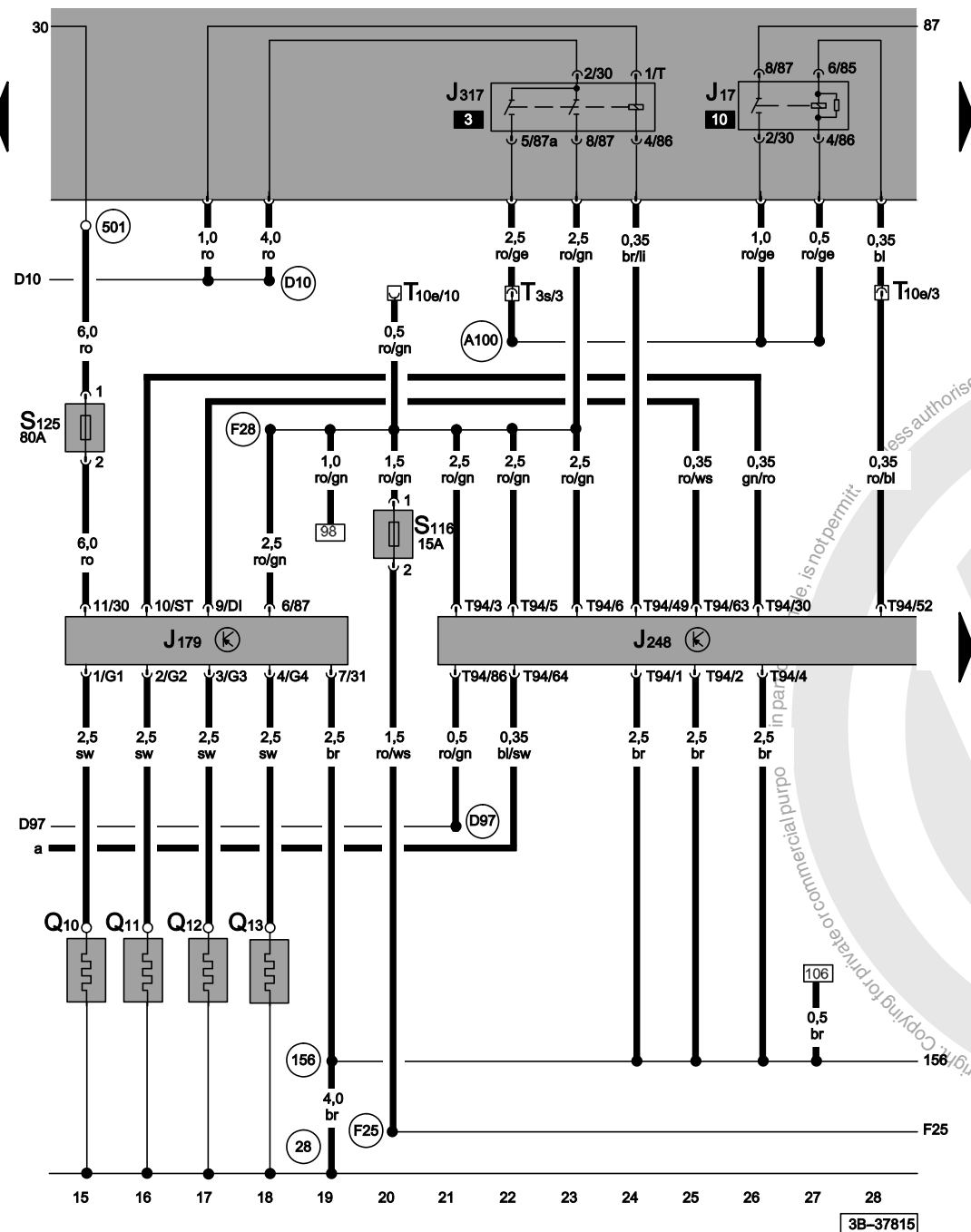
Automatic Glow Time Control Module, Diesel Direct Fuel Injection Engine Control Module, Fuel Pump Relay, Glow Plug

Edition 12

- .03
- J17 Fuel Pump (FP) Relay
- J179 Automatic Glow Time Control Module
- J248 Diesel Direct Fuel Injection (DFI) Engine Control Module (ECM)
- J317 Power Supply (Terminal 30, B+) Relay
- S116 Fuse for injectors
- S125 Fuse for glow plug
- T3s 3-Pin connector
- T10e 10-Pin connector, orange, on protective housing for control module, in engine compartment, left
- T94 94-Pin connector
- Q10 Glow Plug 1
- Q11 Glow Plug 2
- Q12 Glow Plug 3
- Q13 Glow Plug 4

- 28 Ground connection, on firewall
- 156 Ground connection, in Diesel Direct Fuel Injection (DFI) wiring harness
- 501 Threaded connection -2- (30) on the relay plate
- A100 Connector -2- (87), in instrument panel wiring harness
- D10 plus connection (30), in right front wiring harness
- D97 Wire connection (50), in engine compartment wiring harness, right
- F25 Wire connection -1-, in Diesel Direct Fuel Injection (DFI) system wiring harness
- F28 Wire connection -3-, in Diesel Direct Fuel Injection (DFI) system wiring harness

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3B-37815

**Diesel Direct Fuel Injection Engine Control Module,
Camshaft Position Sensor, Wastegate Bypass Regulator
Valve**

Edition12

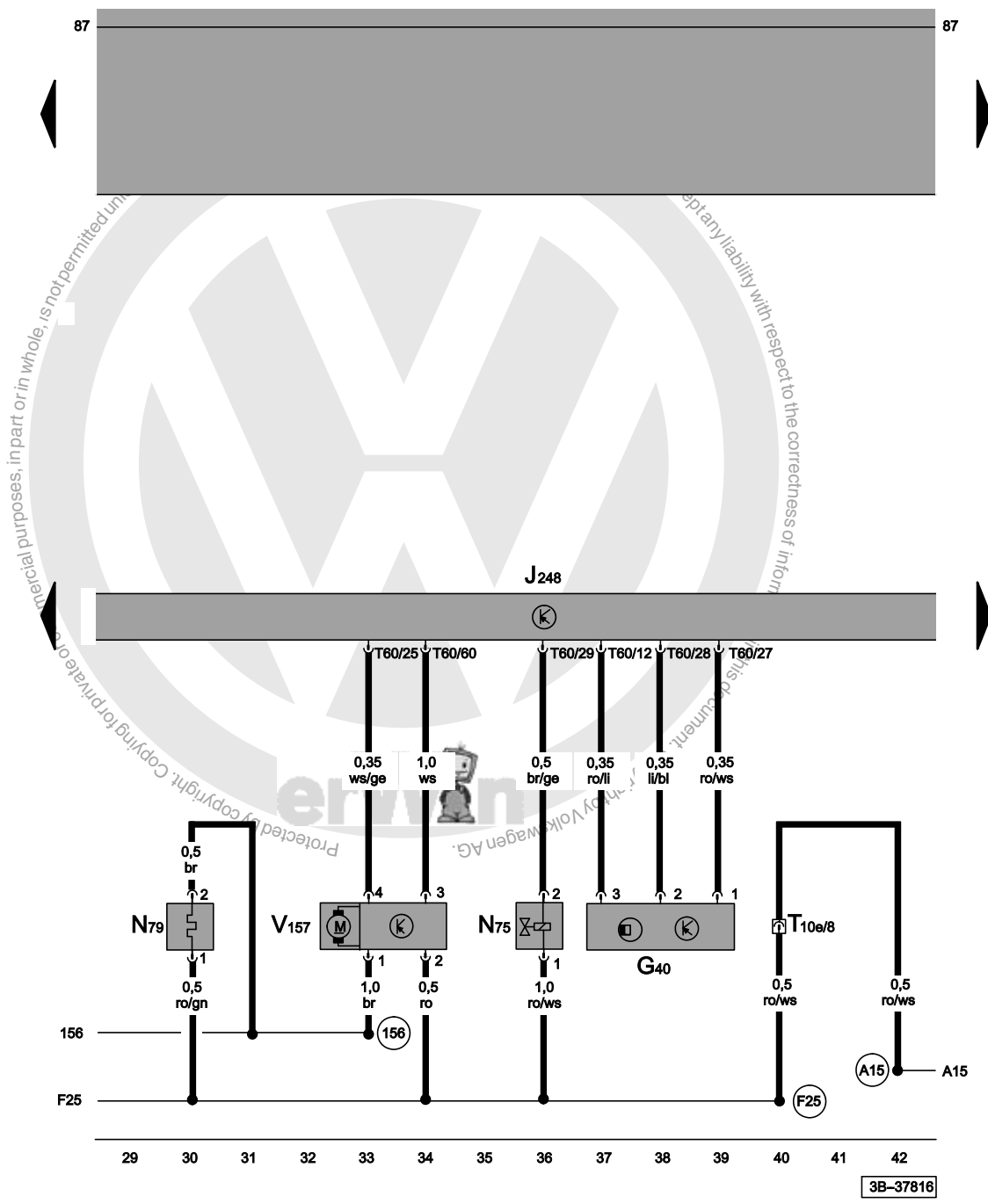
.03

- G40 Camshaft Position (CMP) Sensor
- J248 Diesel Direct Fuel Injection (DFI) Engine Control Module (ECM)
- N75 Wastegate Bypass Regulator Valve
- N79 Positive Crankcase Ventilation (PCV) Heating Element
- T10e 10-Pin connector, orange, on protective housing for control module, in engine compartment, left
- T60 60-Pin connector
- V157 Motor for intake flap

(156) Ground connection, in Diesel Direct Fuel Injection (DFI) wiring harness

(A15) plus connection (15) in instrument panel wiring harness

(F25) Wire connection -1-, in Diesel Direct Fuel Injection (DFI) system wiring harness



Diesel Direct Fuel Injection Engine Control Module, Cruise Control Switch, Brake Light Switch, Clutch Vacuum Vent Valve Switch

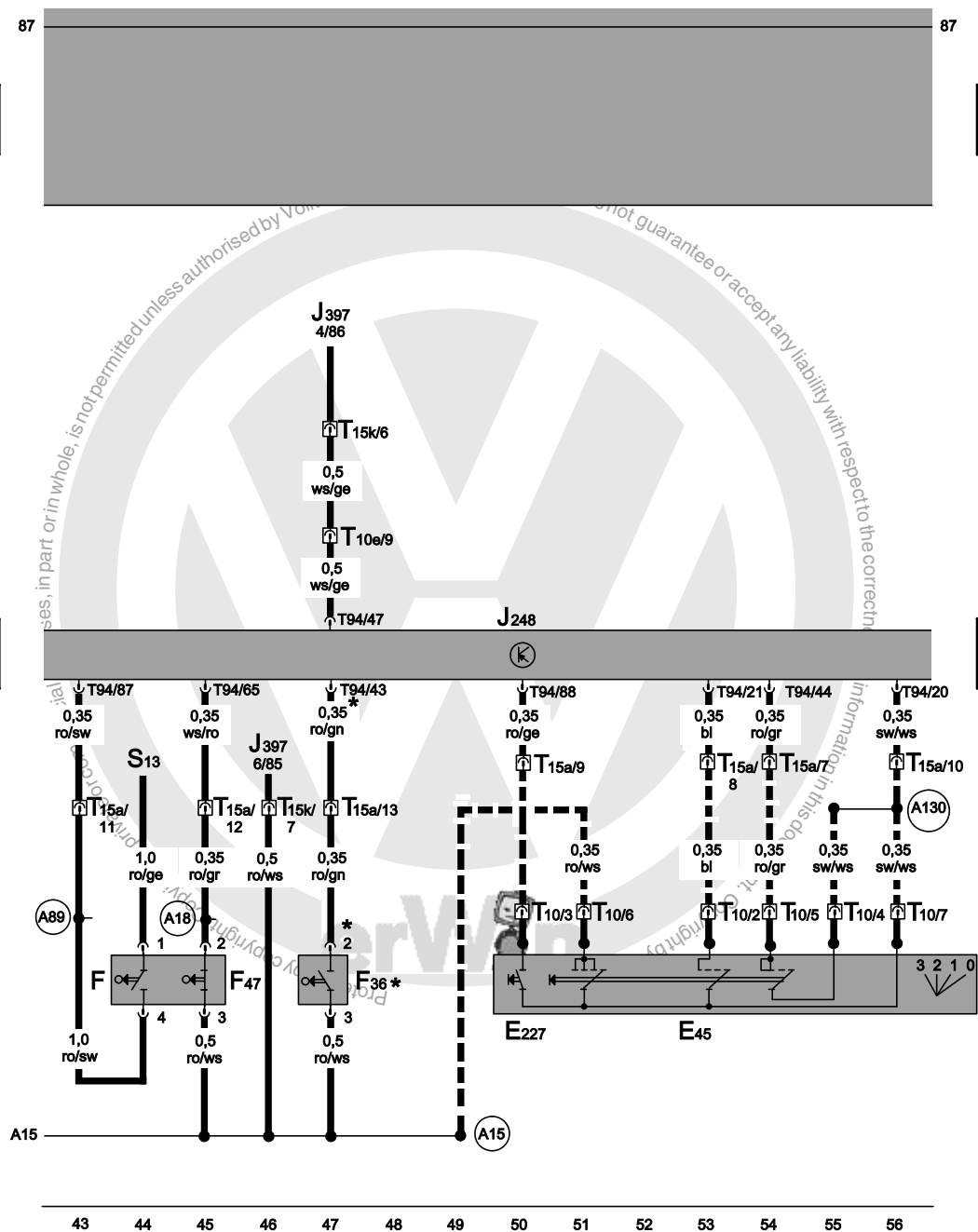
Edition12

- .03
- E45 Cruise Control Switch
- E227 Button for cruise control (set)
- F Brake Light Switch
- F36 Clutch Vacuum Vent Valve Switch
- F47 Brake Pedal Switch (cruise control/Diesel Direct Fuel Injection)
- J248 Diesel Direct Fuel Injection (DFI) Engine Control Module (ECM)
- J397 Relay for Radiator Fan Afterrun
- S13 Fuse
- T10 10-Pin connector, black
- T10e 10-Pin connector, orange, on protective housing for control module, in engine compartment, left
- T15a 15-Pin connector, white, on protective housing for control module, in engine compartment, left
- T15k 15-Pin connector, grey
- T94 94-Pin connector

- (A15) plus connection (15) in instrument panel wiring harness
- (A18) wire connection (54), in instrument panel wiring harness
- (A89) Connection 2 (54) (in instrument panel wiring harness)
- (A130) Connection for Cruise Control (instrument panel wiring harness)

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 --- cruise control only

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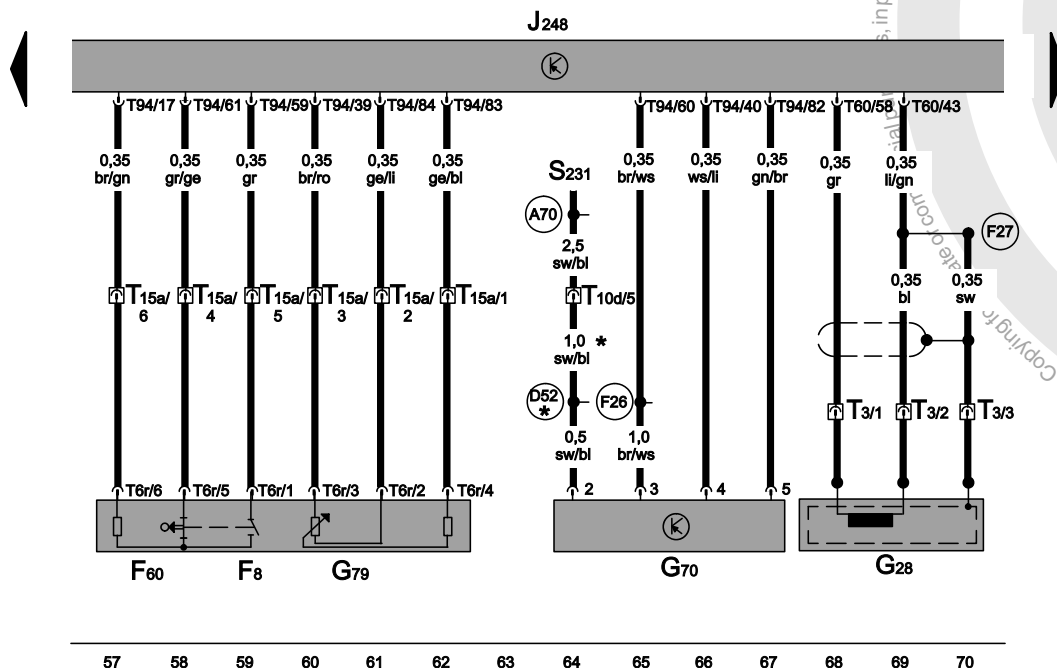
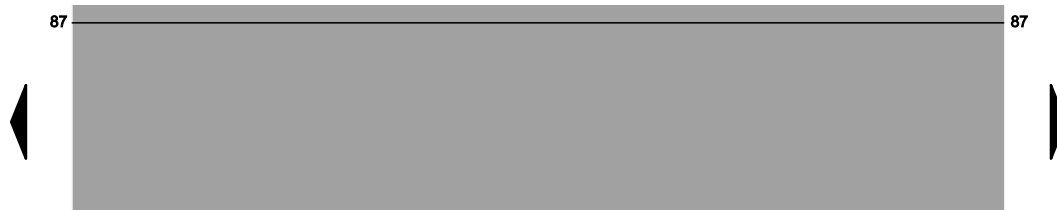


Diesel Direct Fuel Injection Engine Control Module, Kick Down Switch, Closed Throttle Position Switch, Mass Air Flow Sensor, Engine Speed Sensor

Edition12

- .03
- F8 Kick Down Switch
- F60 Closed Throttle Position (CTP) Switch
- G28 Engine Speed (RPM) Sensor
- G70 Mass Air Flow (MAF) Sensor
- G79 Throttle Position (TP) Sensor
- J248 Diesel Direct Fuel Injection (DFI) Engine Control Module (ECM)
- S231 Fuse in fuse holder
- T3 3-Pin connector
- T6r 6-Pin connector, black
- T10d 10-Pin connector, brown, on protective housing for control module, in engine compartment, left
- T15a 15-Pin connector, white, on protective housing for control module, in engine compartment, left
- T60 60-Pin connector
- T94 94-Pin connector

- (A70) Connector (15a, fuse 231), in instrument panel wiring harness
- (D52) plus connection (15a), in engine compartment wiring harness
- (F26) Wire connection -2-, in Diesel Direct Fuel Injection (DFI) system wiring harness
- (F27) Wire connection (screening), in Diesel Direct Fuel Injection (DFI) system wiring harness
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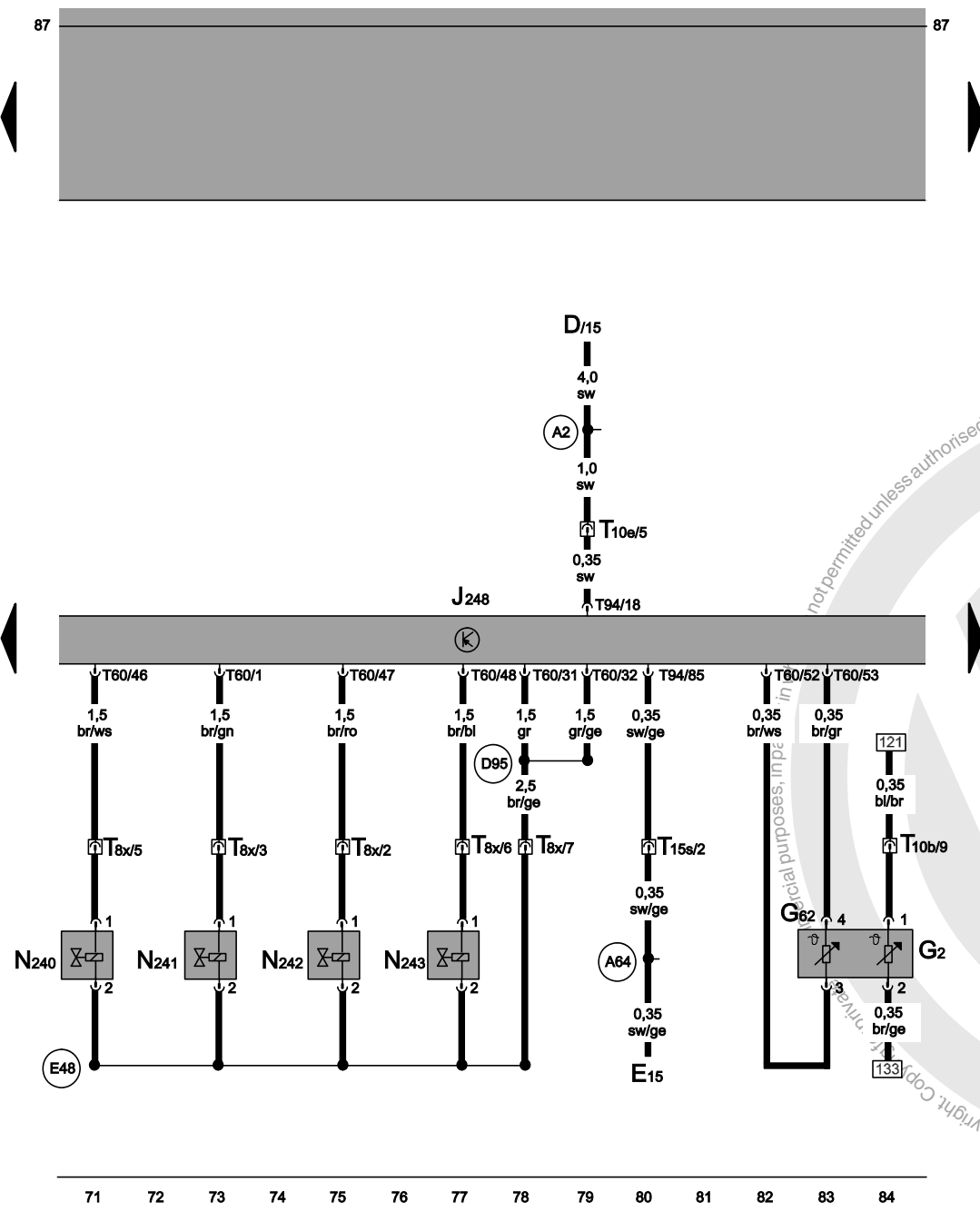
3B-37818

Diesel Direct Fuel Injection Engine Control Module, Engine Coolant Temperature Sensor, Valve for pump/injector

Edition 12

- .03
- D Ignition/Starter Switch
- E15 Rear window defogger switch
- G2 Engine Coolant Temperature (ECT) Sensor
- G62 Engine Coolant Temperature (ECT) Sensor
- J248 Diesel Direct Fuel Injection (DFI) Engine Control Module (ECM)
- N240 Valve for pump/injector, cylinder 1
- N241 Valve for pump/injector, cylinder 2
- N242 Valve for pump/injector, cylinder 3
- N243 Valve for pump/injector, cylinder 4
- T8x 8-Pin connector
- T10b 10-Pin connector, black, on protective housing for control module, in engine compartment, left
- T10e 10-Pin connector, orange, on protective housing for control module, in engine compartment, left
- T15s 15-Pin connector, red, on protective housing for control module, in engine compartment, left
- T60 60-Pin connector
- T94 94-Pin connector

- A2 plus connection (15), in instrument panel wiring harness
- A64 Connector (30, idle boost), in instrument panel wiring harness
- D95 wire connection (injectors), in engine compartment wiring harness
- E48 Fuel Injector Connection (in fuel injection system wiring harness)



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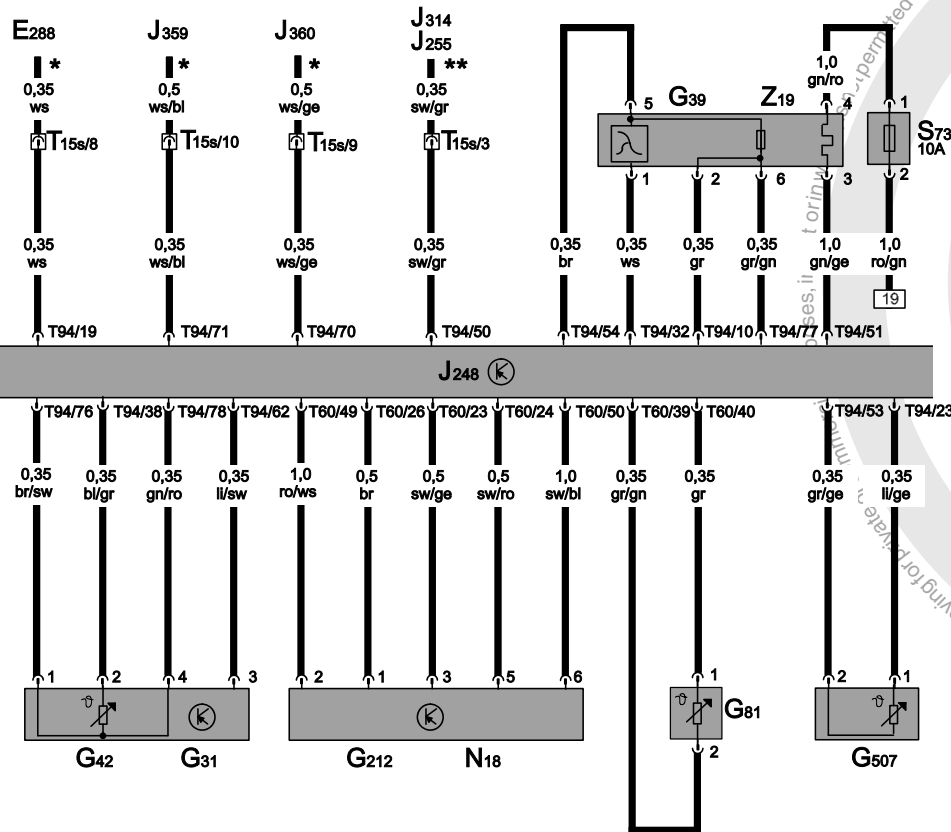
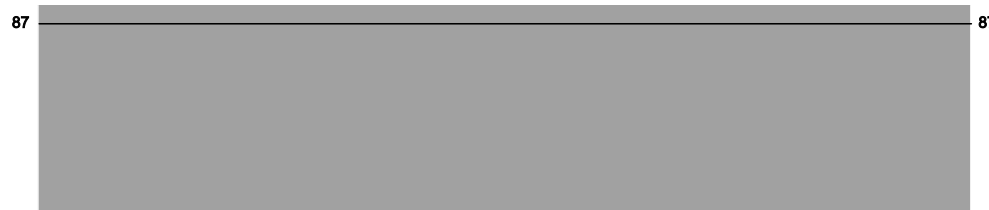
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Diesel Direct Fuel Injection Engine Control Module, Fuel Temperature Sensor, Charge Air Pressure Sensor, Potentiometer for EGR, Heated Oxygen Sensor

Edition06

.04

- E288 Additional Heater Button (ECON)
- G31 Charge Air Pressure Sensor
- G39 Heated Oxygen Sensor (HO2S)
- G42 Intake Air Temperature (IAT) Sensor
- G81 Fuel Temperature Sensor
- G212 Potentiometer for EGR
- G507 Turbocharger (TC) Intake Temperature Sensor
- J248 Diesel Direct Fuel Injection (DFI) Engine Control Module (ECM)
- J255 Climatronic Control Module
- J314 A/C Cut-Off Control Module
- J359 Relay for Preheating Coolant, Low Heat Output
- J360 Relay for Preheating Coolant, High Heat Output
- N18 EGR Vacuum Regulator Solenoid Valve
- S73 Heated Oxygen Sensor (HO2S) Circuit Breaker
- T15s 15-Pin connector, red, on protective housing for control module, in engine compartment, left
- T60 60-Pin connector
- T94 94-Pin connector
- Z19 Oxygen Sensor (O2S) Heater
- * Not applicable to USA/CDN
- ** air conditioning only



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3B-91486

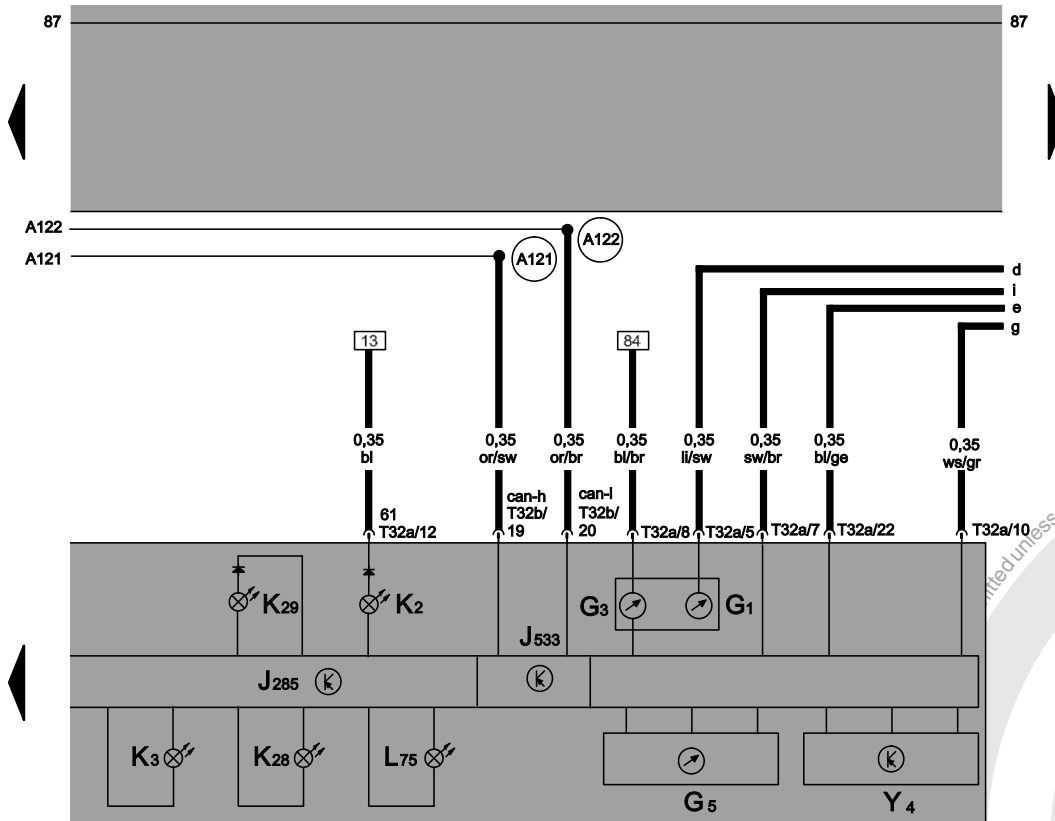
Control module with indicator unit in instrument panel insert, Fuel Gauge, Tachometer, Odometer Display

Edition12

- .03
- G1 Fuel Gauge
- G3 Engine Coolant Temperature (ECT) Gauge
- G5 Tachometer
- J285 Control module with indicator unit in instrument panel insert
- J533 Data Bus On Board Diagnostic Interface
- K2 Generator (GEN) Warning Light
- K3 Oil Pressure Warning Light
- K28 Engine Coolant Level/Temperature (ECL/ECT) Warning Light
- K29 Glow Plug Indicator Light
- L75 Digital Display Light
- T32a 32-Pin connector, blue, on instrument cluster
- T32b 32-Pin connector, green, on instrument cluster
- Y4 Odometer Display

A121 Connection (high bus) in instrument panel wiring harness

A122 Connection (low bus) in instrument panel wiring harness



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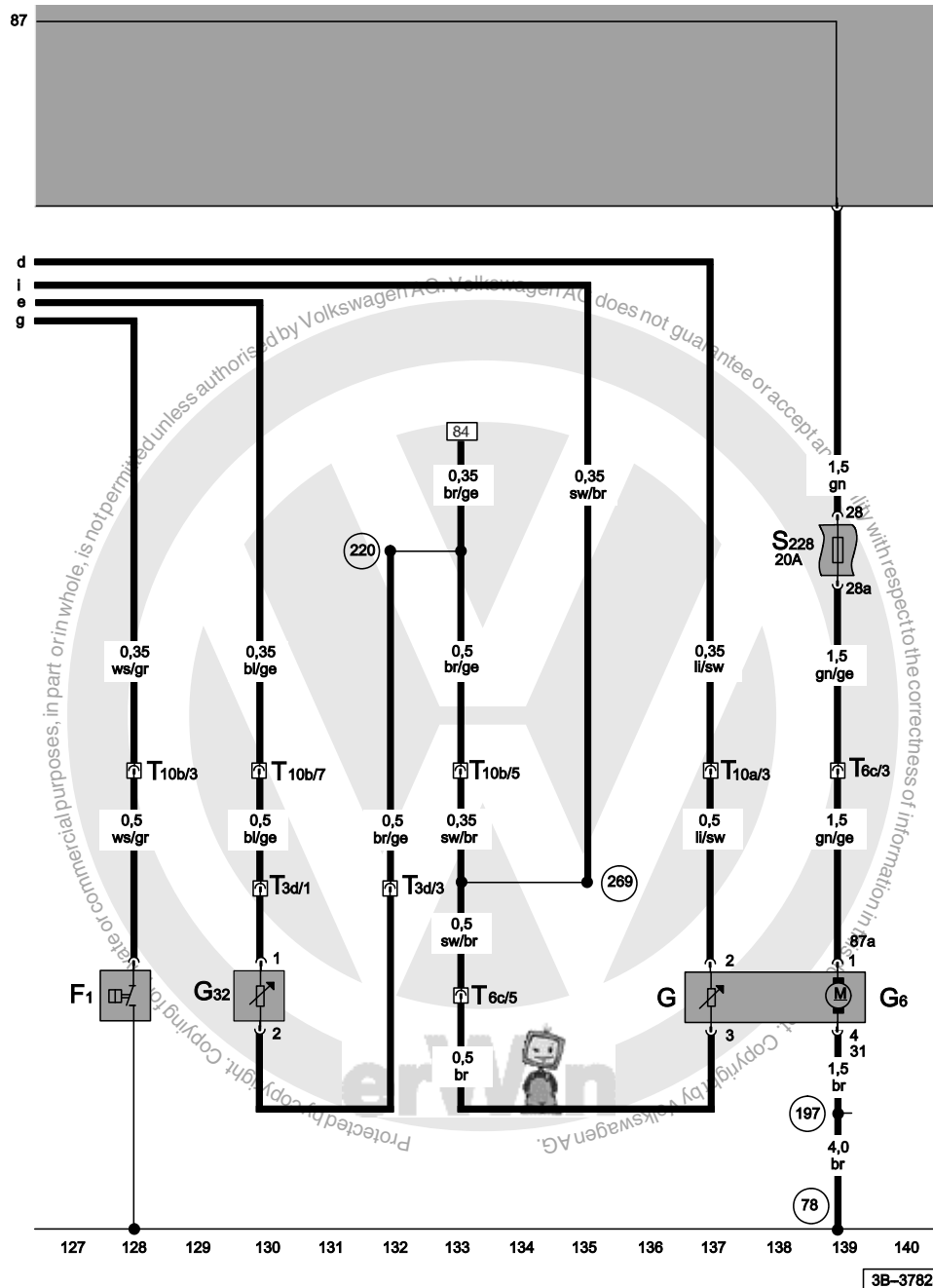
3B-37822

Sender for fuel gauge, Fuel Pump, Engine Coolant Level Sensor, Oil Pressure Switch

Edition12

- .03
- F1 Oil Pressure Switch
- G Sender for fuel gauge
- G6 Fuel Pump (FP)
- G32 Engine Coolant Level (ECL) Sensor
- S228 Fuse in fuse holder
- T3d 3-Pin connector
- T6c 6-Pin Connector, blue, connector station A-pillar, left
- T10a 10-Pin Connector, brown, connector station A-pillar, left
- T10b 10-Pin connector, black, on protective housing for control module, in engine compartment

- 78 Ground Connection (lower right B-pillar)
- 197 Ground connection -4-, in wiring harness rear
- 220 Ground connection (sensor ground), in engine compartment wiring harness
- 269 Ground connector (sensor ground) -1-, in instrument panel wiring harness



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