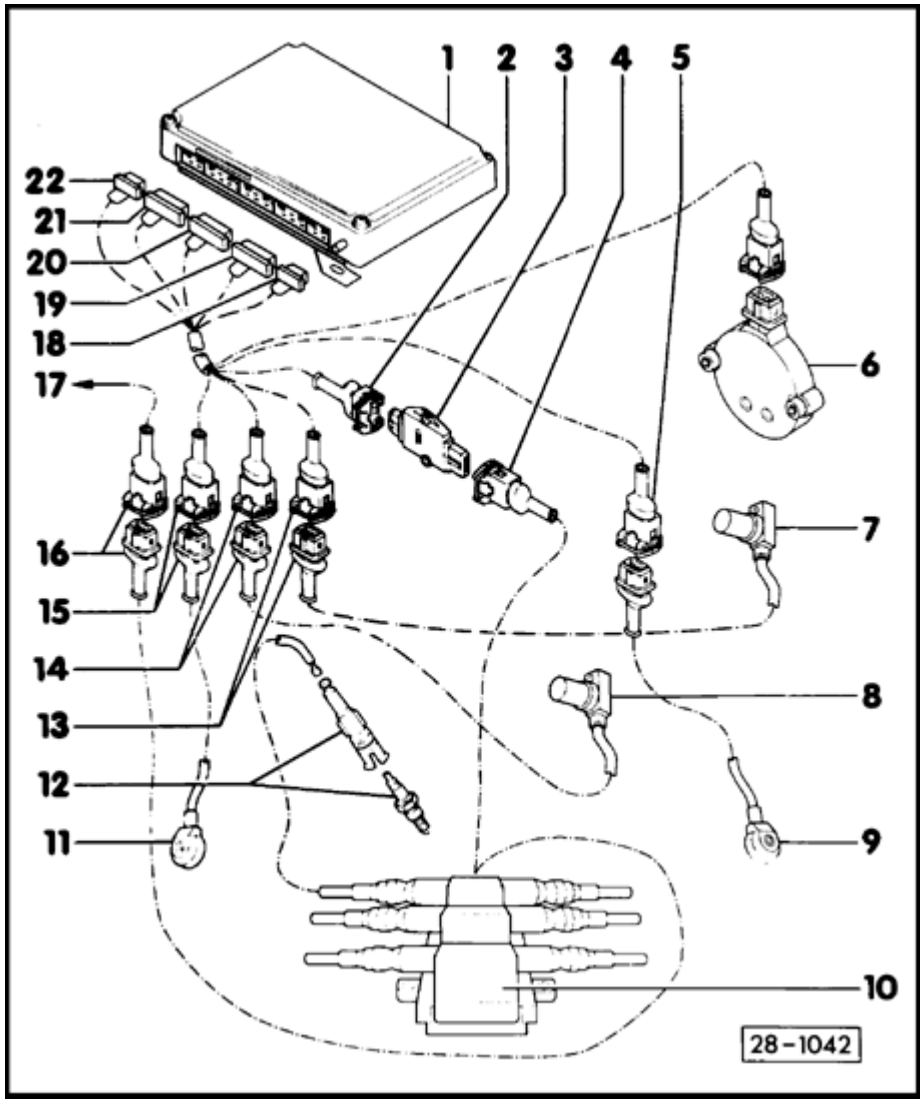
28-7



Ignition system, servicing

1 - Engine Control Module (ECM) -J192-

2 - ECM signal wires

- 4-pin, light-brown

3 - Power output stage -N122-

- For ignition coils

4 - Ignition coil primary connections

- 3-pin, dark brown

5 - Harness connector

- 3-pin
- For Knock Sensor (KS) 2 -G66-

6 - Camshaft Position (CMP) sensor -G40-

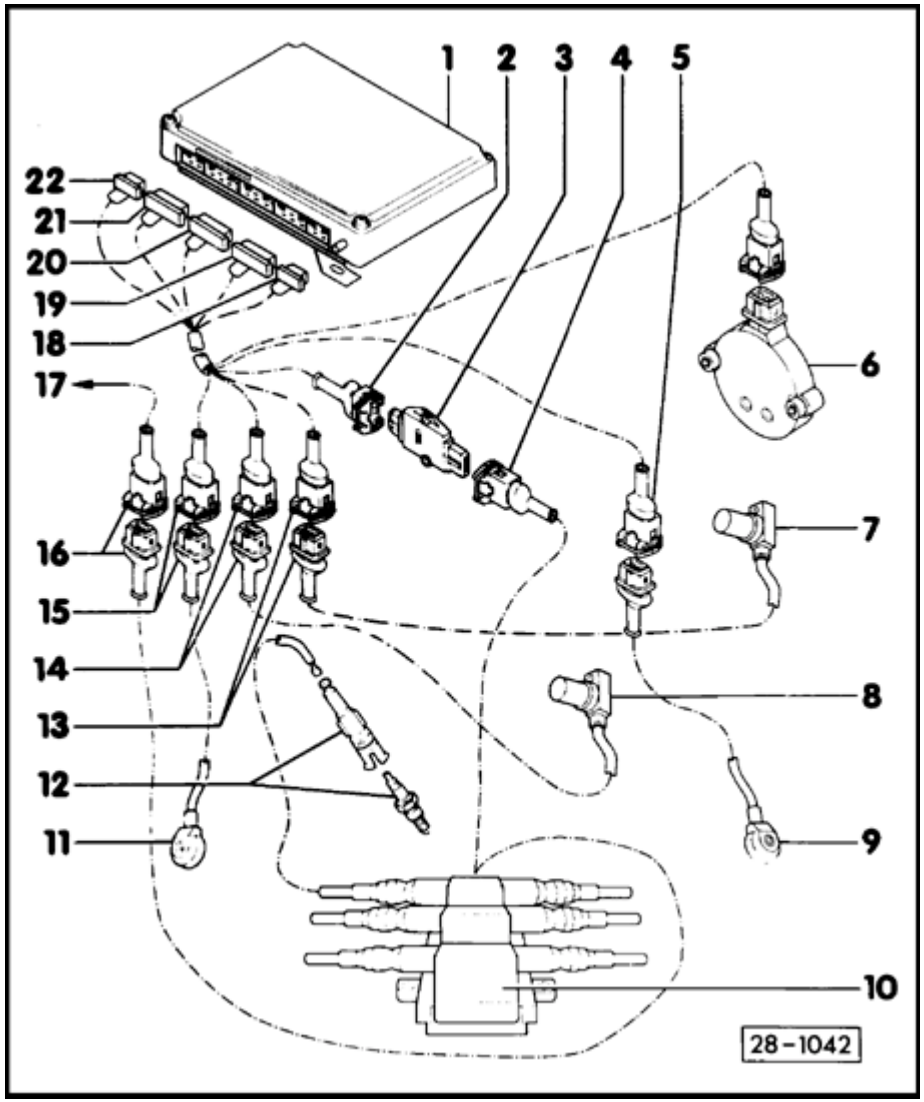
7 - Engine speed (RPM) sensor -G28-

8 - Crankshaft Position (CKP) sensor -G4-

9 - Knock Sensor (KS) 2 -G66-

10 - Ignition coils 1, 2 and 3; -N-, -N128- and -N158-

28-8



11 - Knock Sensor (KS) 1 -G61-

12 - Spark plug connector

13 - Harness connector

- 3-pin, gray
- For engine speed (RPM) sensor -G28-

14 - Harness connector

- 3-pin, black
- For Crankshaft Position (CKP) sensor -G4-

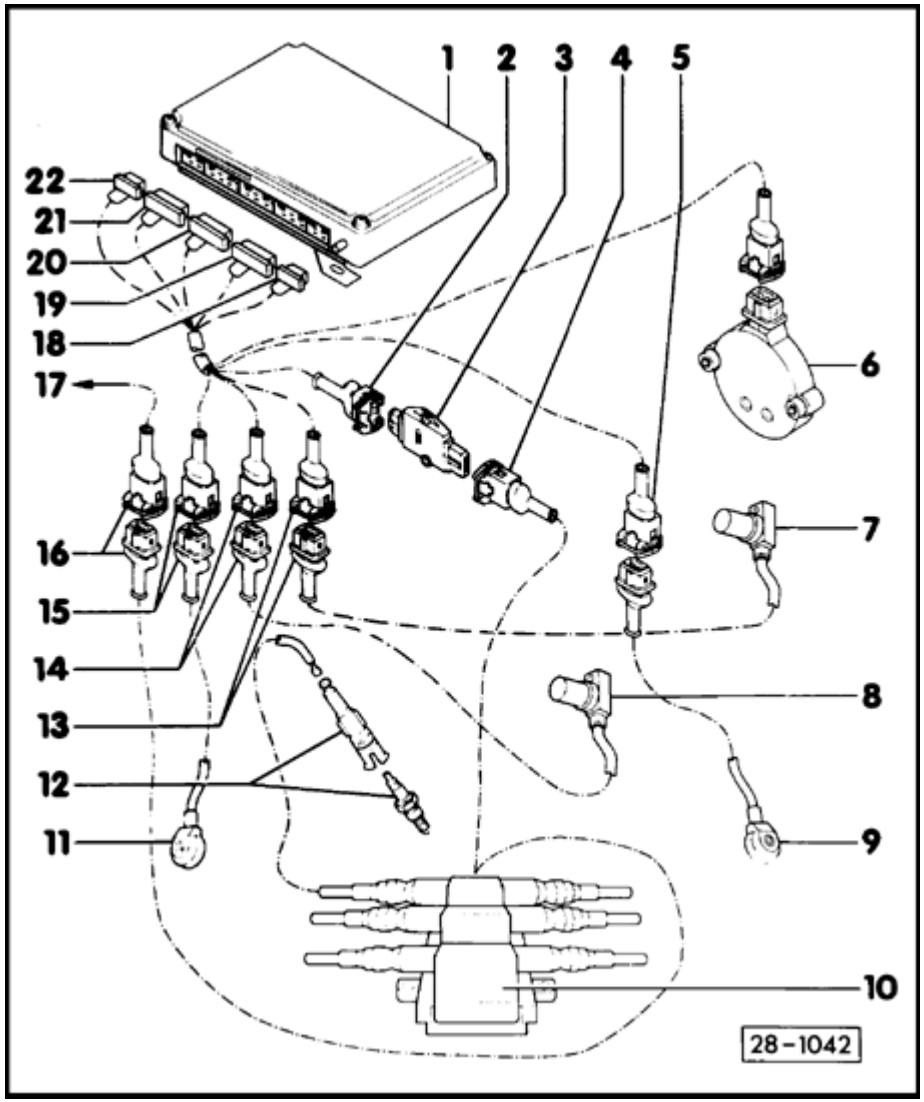
15 - Harness connector

- 3-pin
- For Knock Sensor (KS) 1 -G61-

16 - Harness connector

- 3-pin, white, voltage supply
- For ignition coils 1, 2 and 3, -N-, -N128- and -N158-

28-9



17 - To fuse for ignition coils

18 - ECM connector E

- 12-pin, black

19 - ECM connector A

- 24-pin, black

20 - ECM connector B

- 24-pin, red

21 - ECM connector C

- 24-pin, brown

22 - ECM connector D

- 12-pin, brown

28-10

Technical data

Engine code	AFC	
Idle RPM1) • NOT adjustable; regulated by Idle Speed Control (ISC)	650 to 750 RPM	
Engine speed limiting (upper limit) • By switching off fuel injectors	6200 RPM	
Firing order	1 - 4 - 3 - 6 - 2 - 5	
Spark plugs	Tightening torque	30 Nm (22 ft lb)
	Part No.	101 000 033 AA
	Manufacturer code	BKUR 6 ET - 10
	Electrode gap	0.9 to 1.1 mm (0.035 to 0.041 in.)
	Replacement interval	Every 37,000 miles or every 3 years (whichever occurs first)

1) Idle speed ⇒ page 24-16 .

28-11

Safety measures

WARNING!

Be alert when working on or near the engine. High ignition secondary voltage can cause serious personal injury and damage vehicle components.

- ***DO NOT touch or disconnect ignition system wires when the engine is running or being cranked at starting RPM.***
- ***DO NOT operate the starter if the fuel injectors have been removed.***

Be sure the ignition is switched OFF, when:

- ***Disconnecting ignition wires***
- ***Disconnecting fuel injection system wiring***
- ***Connecting or disconnecting test equipment leads***
- ***Disconnecting the battery***
- ***Washing the engine or engine compartment.***

BEFORE cranking the engine at starting RPM (such as for compression testing) disable the ignition and fuel injection systems:

- ***Disconnect the ignition coil power output stage.***
- ***Disconnect harness connectors from all six fuel injectors.***
- ***After the work is completed, erase Diagnostic Trouble Code (DTC) memory.***

28-12

CAUTION!

BEFORE disconnecting the battery:

- ***Stop the engine.***
- ***Be sure the ignition is switched OFF (also applies when connecting the battery). Failure to do so may damage the Engine Control Module (ECM).***
- ***Be sure of the proper radio code (for vehicles equipped with coded anti-theft radio).***

Be sure the battery negative (-) cable is disconnected, when:

- ***Working on the electrical system***
- ***Resistance (spot) welding or electric arc welding anywhere on the vehicle.***

When connecting and disconnecting electrical test equipment (LED voltage tester, multimeter, etc.):

- ***Be sure the ignition is switched OFF.***
- ***Use correct adapters from the VW 1594***

connector test kit.

For any work affecting the Engine Control Module (ECM):

- ***BEFORE disconnecting the ECM harness connector, switch the ignition OFF and WAIT at least 20 seconds. Failure to do so may damage the ECM.***

- ***DO NOT connect any outside voltage source to stimulate an output signal at the ECM.***