

Fig. 8. Crankshaft position/rpm sensor connector (arrow).

### Crankshaft position/rpm sensor specifications

- Air gap (sensor distance from toothed wheel) . . . . . . 1.0  $\pm$  0.3 mm (0.04  $\pm$  0.01 in.)
- If the resistance is not correct, the sensor is faulty and should be replaced.

### NOTE -

To replace a faulty sensor, remove the sensor mounting bolt using a 5 mm hex wrench. Cut wire ties as necessary to the remove wiring. When installing the new sensor, be sure the wiring is rerouted in the same orientation. Secure the sensor using new wire ties.

# **Tightening Torque**

• Crankshaft position/rpm sensor to mounting bracket . . . . . . . . . . . . . . . . . 7  $\pm$  1 Nm (62  $\pm$  9 in-lb)

# Ignition Firing Order

On M20 and M30 engines, spark plug wires must be installed so that the spark plugs fire in a specified order. The rotor turns in a clockwise direction when viewed from the front with the cap removed. Fig. 9 shows the correct routing of the spark plugs wires in the distributor cap.

# NOTE-

- On 6-cylinder engines, cylinder no. 1 is at the front of the engine.
- On 8-cylinder engines, cylinder no. 1 is at the front of the engine on the right-hand cylinder head.



Fig. 9. Spark plugs wires correctly installed in distributor cap (M20/M30 engines).

### Ignition Firing Order

M20, M30, M50 engines1-5-3-6-2-4	
M60 engines	

## **Knock Sensors**

Knock sensors are used on DME 3.3 and later engine management systems. M50 engines use two knock sensors and the M60 engines use four sensors. The knock sensors are bolted to the cylinder block and monitor the combustion chamber for engine-damaging knock. If knock is detected, the ignition point is retarded accordingly via the DME control module. On M50 engines, the knock sensors are accessible after removing the top engine covers. On M60 engines, access to the knock sensor requires removal of the intake manifold.

### CAUTION -

On DME 3.3 and 3.3.1 engines, do not interchange the knock sensor harness connectors. Serious engine damage may result if the sensors are monitoring the wrong cylinders. If the connectors need to be removed, be sure to label them before disconnecting.

# NOTE-

- Knock sensor function is monitored by the On-board diagnostic system. If a knock sensor is detected to be faulty, an appropriate diagnostic trouble code (DTC) may be stored in memory. See 100 Engine—General for information on retrieving DTCs.
- On M60 engines, intake manifold removal procedures are described as part of cylinder head removal in 113 Cylinder Head Removal and Installation.