

# Jeep Reference J007

**Subject:** Crankshaft position (CKP) sensor and harness replacement on 1987–90 Jeep vehicles with the 4.0L engine

**Symptom:** No start, cranks okay

**Source:** Chrysler service bulletin 18-51-88

The symptoms described above could be caused by a weak signal from the CKP sensor. A new CKP sensor and harness is available to correct this problem. The new CKP sensor is available in a kit, part number 83100066. The kit includes the new CKP sensor, and a sensor patch harness for connecting the new sensor directly to the engine control module (ECM).

To replace the CKP sensor with the updated sensor and patch harness, proceed as follows:

1. Make sure the ignition switch is OFF.
2. Remove the negative battery terminal and the positive battery terminal.
3. Locate the crank position (CKP) sensor connector (Figure 1). Remove the connector from the EEC harness by cutting the two CKP sensor wires close to the connector. These wires should be white with black tracer, and violet with white tracer.

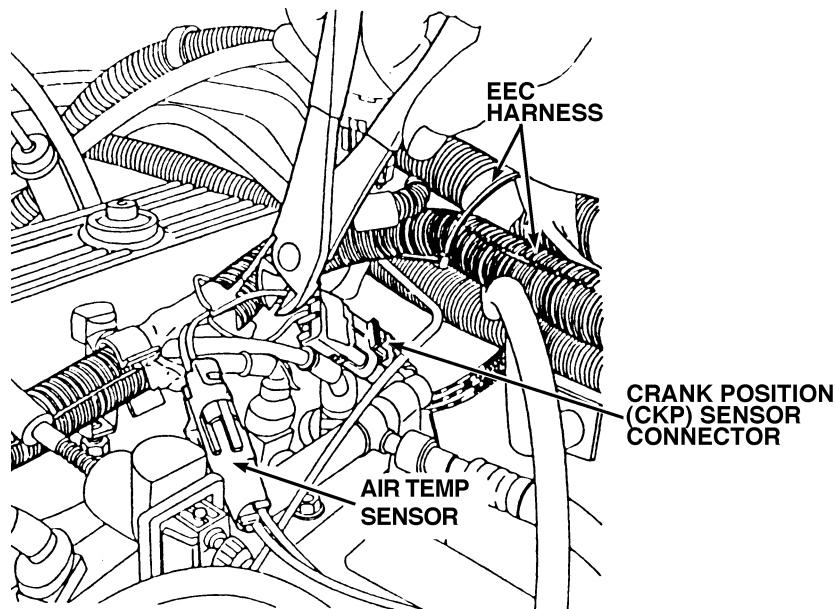


Figure 1.

4. Tape the two cut wires onto the injector harness to keep them out of the way.
5. Remove the CKP sensor lead from the retaining clip mounted at the left rear corner of the cylinder head (Figure 2).
6. Raise the vehicle.
7. Locate the old CKP sensor on the bellhousing. Remove the CKP sensor lead from the retaining clip. Remove the CKP sensor retaining bolts, and discard the CKP sensor.
8. Install the new CKP sensor, and tighten the sensor retaining bolts to 16 ft-lb of torque.
9. Secure the new CKP sensor lead to the retaining clip on the bellhousing.

## Jeep Reference J007

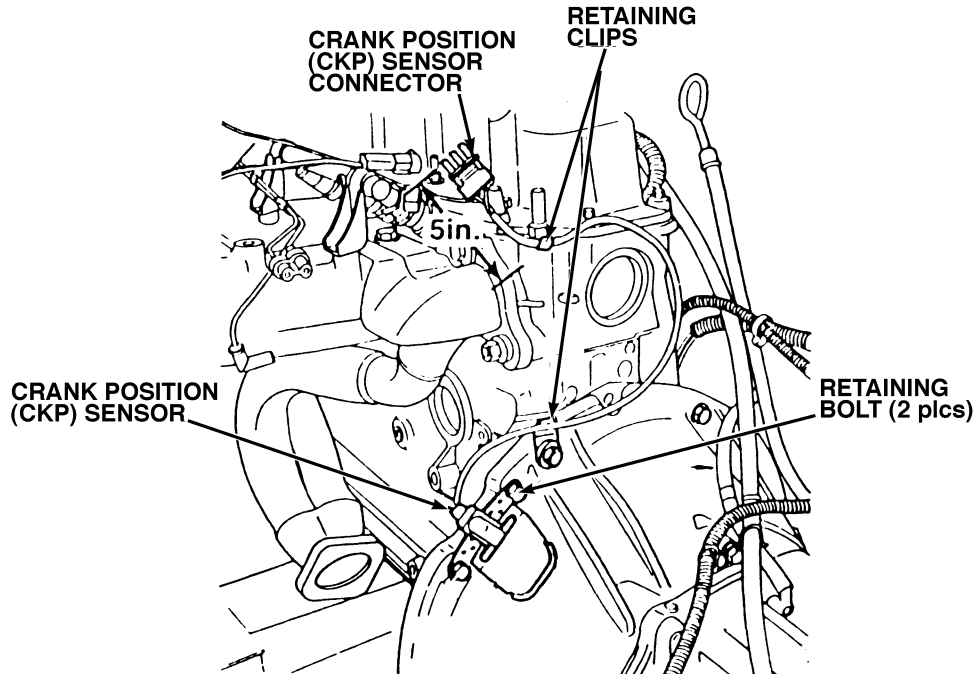


Figure 2.

10. Route the new CKP sensor lead up the back of the engine.
11. Lower the vehicle.
12. Secure the new CKP sensor lead in the retaining clip located at the left rear corner of the cylinder head. Allow 5-inches of the CKP sensor lead to extend beyond the clip.
13. From inside the vehicle, locate the ECM to the right of the steering column, under the instrument panel (Figure 3).
14. Remove the three ECM retaining screws (Figure 4) and move the ECM and harness out of the way. If necessary, remove the cruise control module to gain access to the ECM.

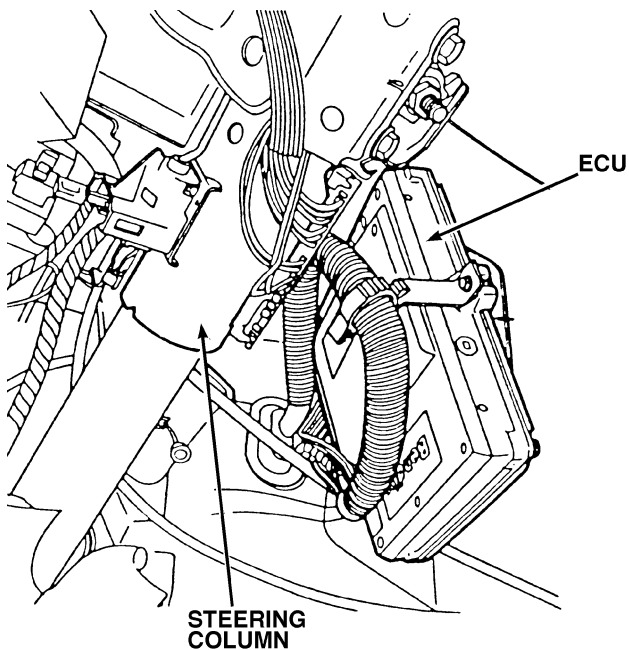


Figure 3.

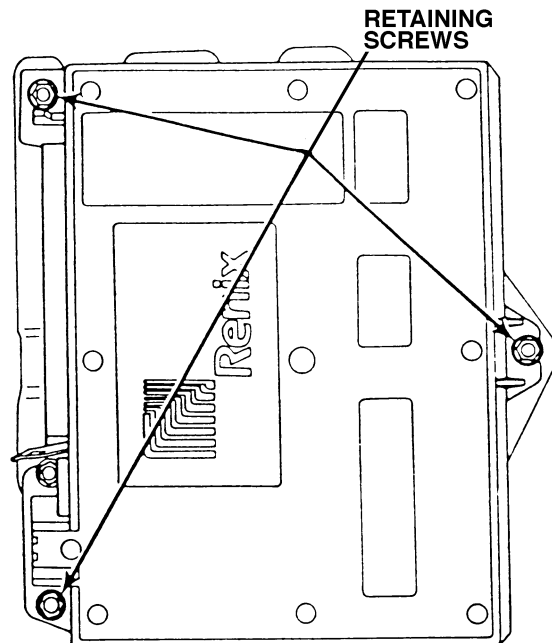


Figure 4.

## Jeep Reference J007

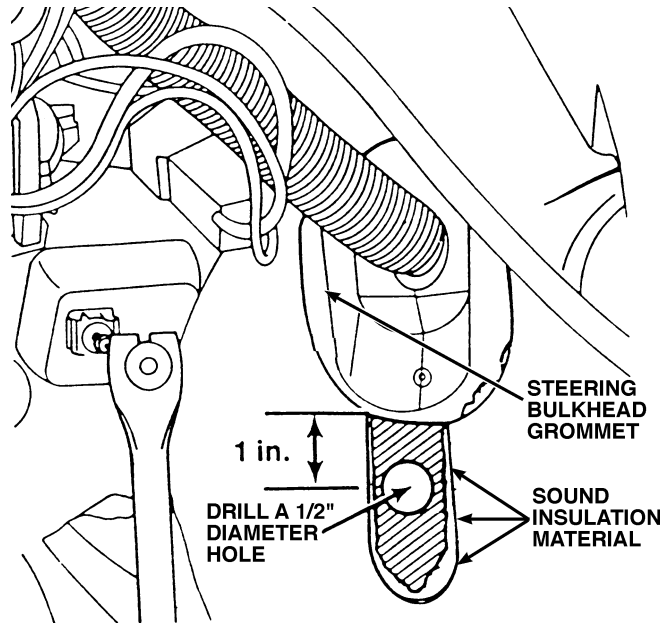


Figure 5.

15. Remove a small amount of sound insulation from the area directly below the steering bulkhead grommet (Figure 5).
16. Mark and center punch a point on the firewall 1-inch directly below the grommet. Then, drill a 1/2-inch hole through the firewall at this point.
17. From inside the engine compartment, insert the ECM end of the new CKP sensor patch harness through the drilled hole in the firewall (Figure 6). Install and fully seat the new harness grommet that came in the kit into the drilled hole.
18. Connect the CKP patch harness to the new CKP sensor. Secure the patch harness to the EEC harness with the tie straps already on the patch harness. Leave enough slack in the harness to allow engine movement. Do not let the patch harness touch the manifold.

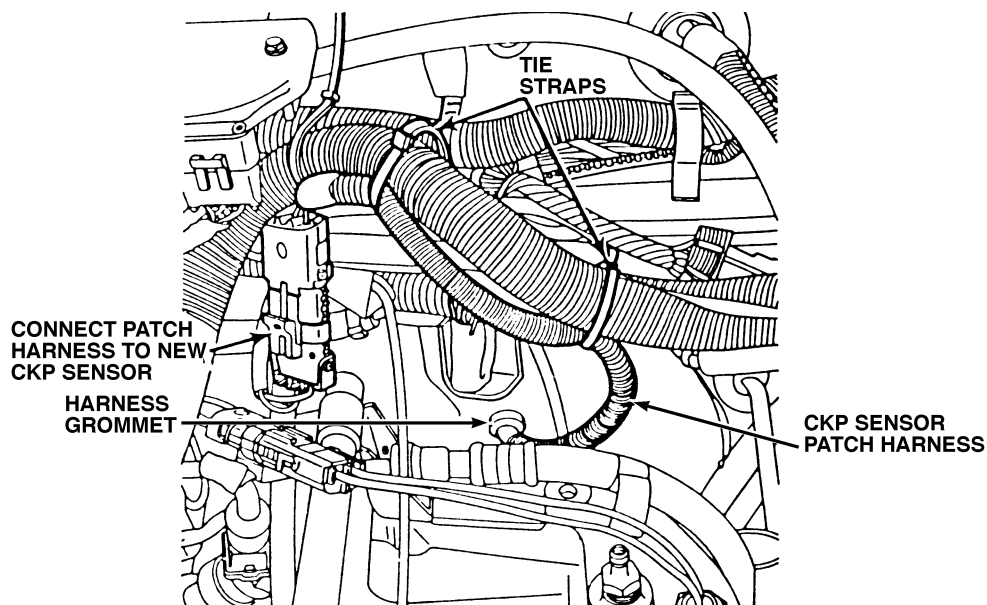


Figure 6.

## Jeep Reference J007

19. From inside the vehicle, disconnect the 32-pin connector from the ECM, and remove the two wire locks from the connector (Figure 7).
20. Using a pin pusher (or a large paper clip), remove the white wire with the black tracer from cavity D1 in the 32-pin connector (Figure 8).

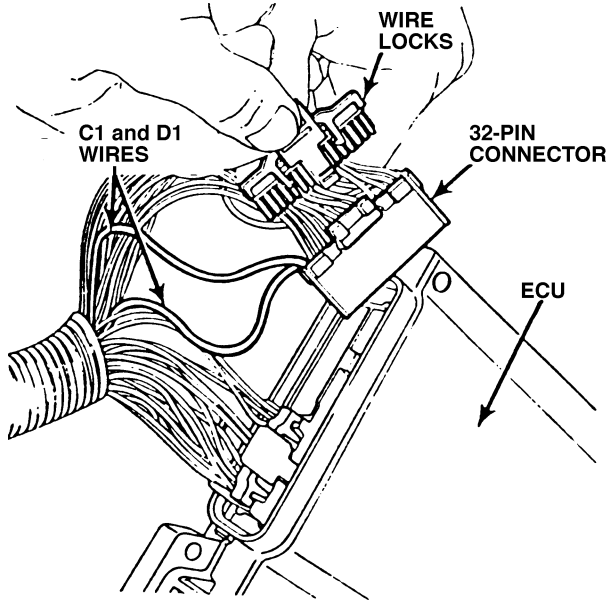


Figure 7.

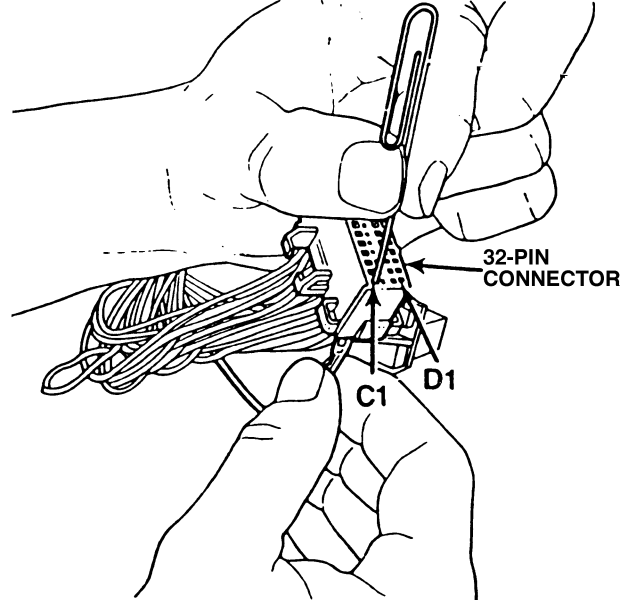


Figure 8.

21. Insert the white wire labeled D1 from the new CKP patch harness into the D1 cavity.
22. Remove the violet wire with the white tracer from cavity C1 in the 32-pin connector. Insert the violet wire labeled C1 from the new CKP patch harness into the C1 cavity.
23. Cut the terminal ends off the old C1 and D1 wires to prevent future use, and tape the two cut wires back to the EEC harness (Figure 9). If the end of the bare-braided knock sensor drain wire is loose, tape it to the EEC harness.

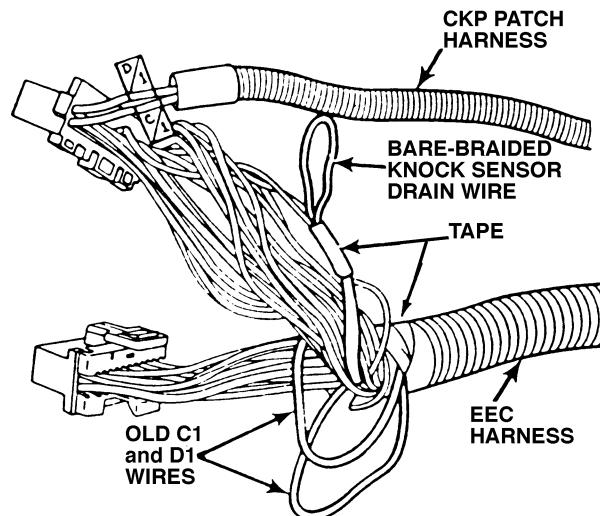


Figure 9.

## Jeep Reference J007

24. Install the wire locks into their original positions in the 32-pin connector, and reconnect the 32-pin connector to the ECU, figure 7. Make sure both ECM connectors are fully engaged.
25. Using tie straps, secure the patch harness to the EEC harness inside the passenger compartment (Figure 10).

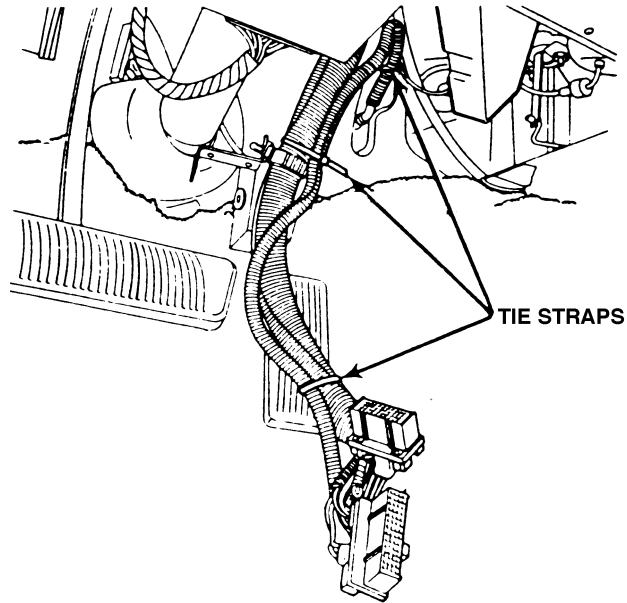


Figure 10.

26. Loop the EEC harness and secure the ECM to the ECM mounting bracket using the three retaining screws.
27. Inspect the system ground wire connections at the engine oil dipstick tube mounting stud (Figure 11). Make sure the wires and stud are clean and tight.

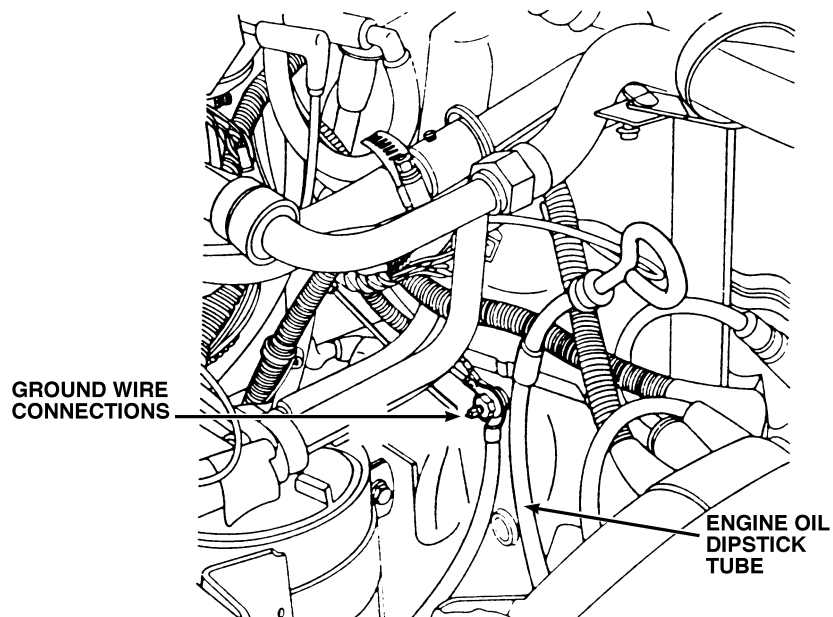


Figure 11.

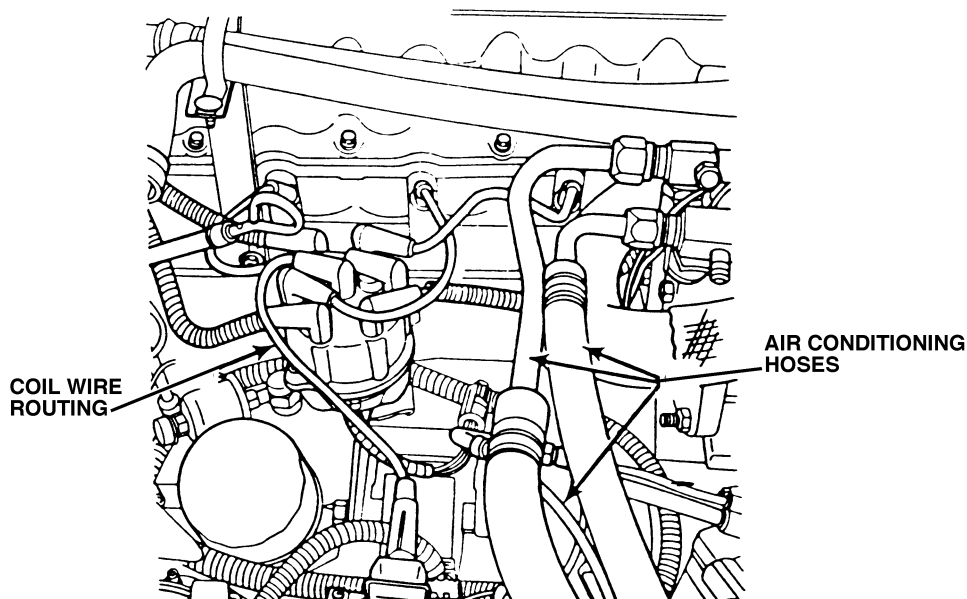


Figure 12.

28. Make sure the coil secondary wire is routed away from the air conditioning lines, and any other object. Position the coil wire as shown (Figure 12).
29. Tighten the EEC harness 34-pin connector located above the brake booster to 70 in-lb (8 Nm) of torque (Figure 13).
30. Reconnect the battery terminals, making sure the cables do not contact the hood or air conditioning lines (Figure 14).

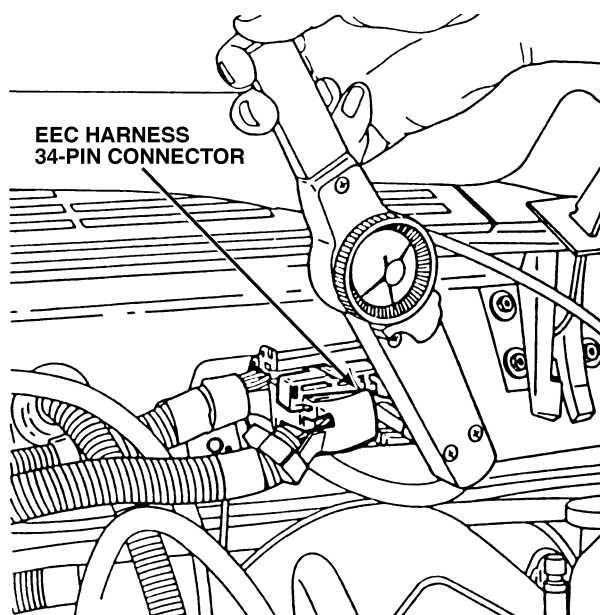


Figure 13.

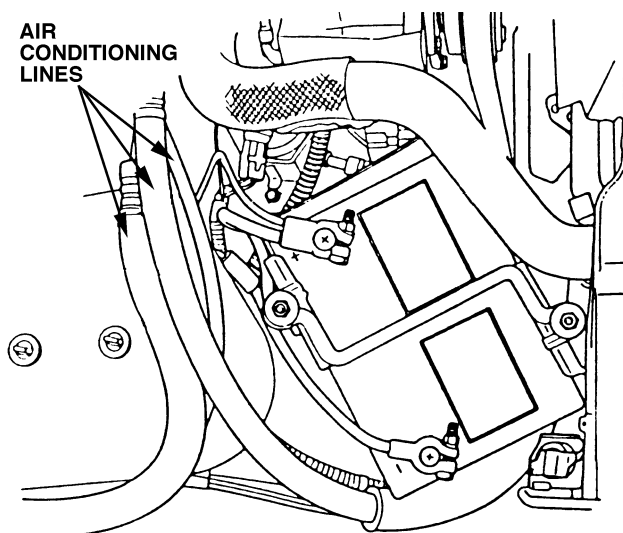


Figure 14.