

# Starting System



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### A/T GEAR POSITION SWITCH

(NEUTRAL POSITION SWITCH)

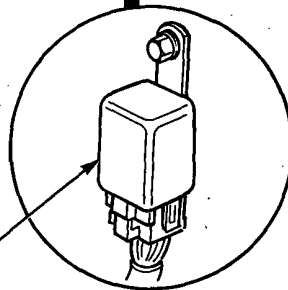
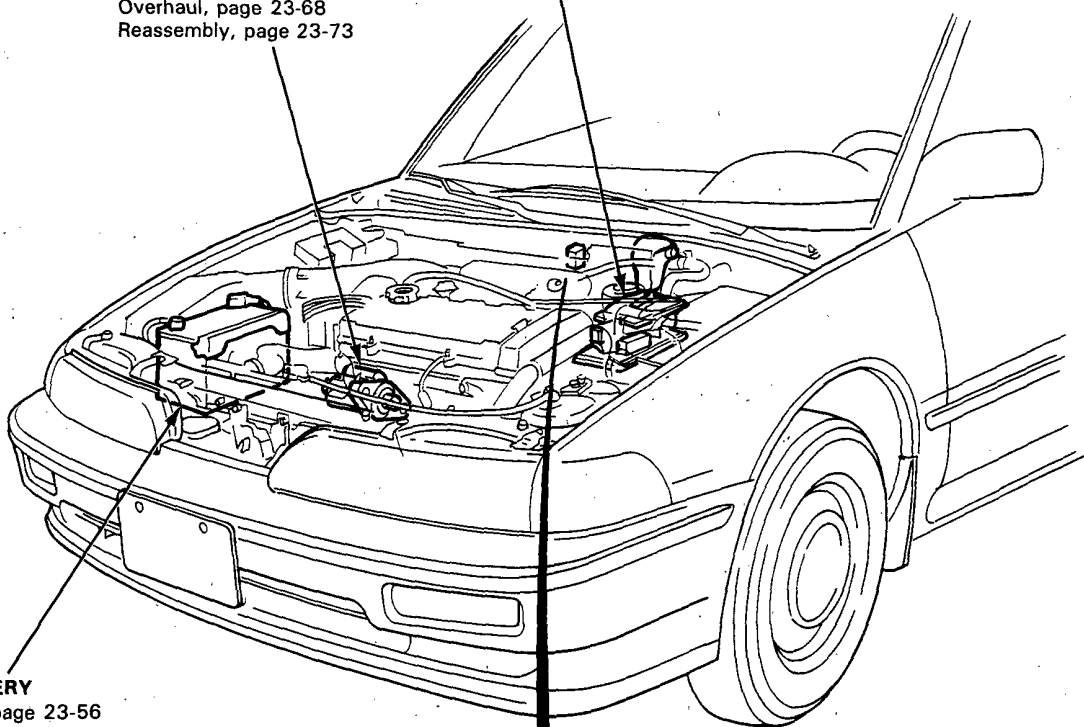
(A/T)

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### BATTERY

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### STARTER RELAY (M/T)

(Located at the right side of the heater unit)

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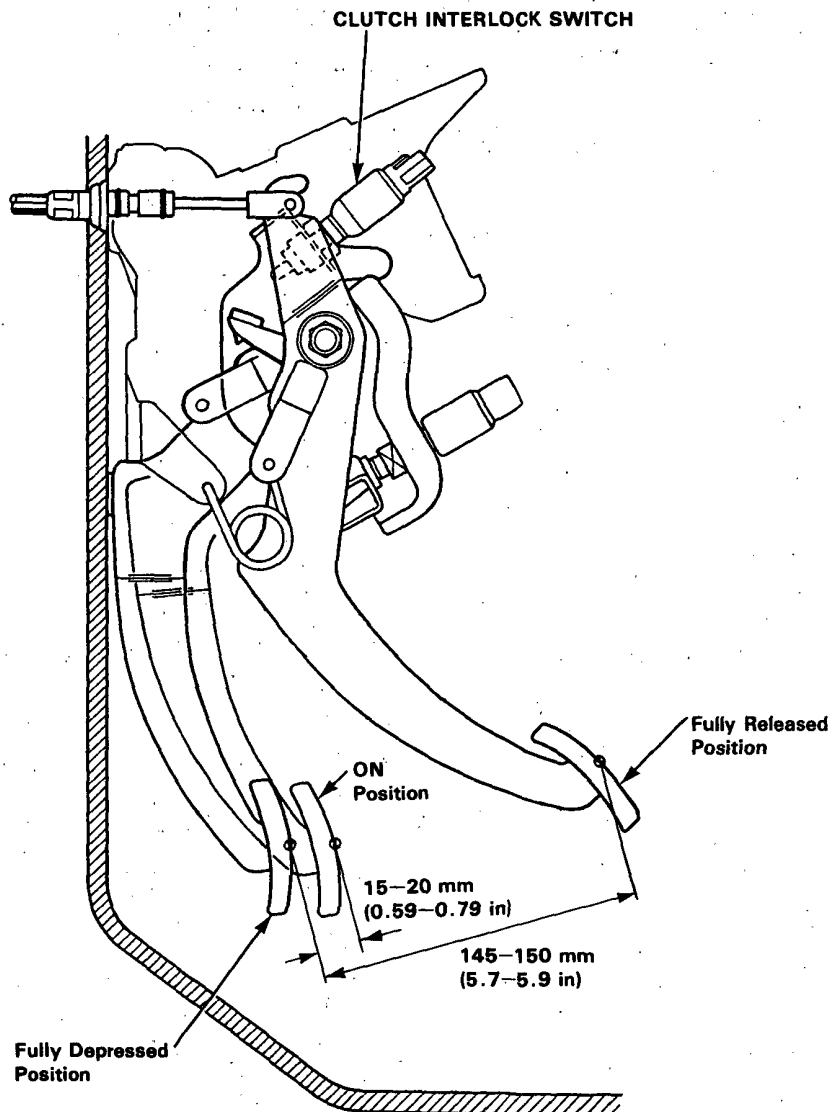
## Description

### Starter Interlock System (M/T):

The starter interlock system prevents the engine from starting unless the clutch pedal is fully depressed.

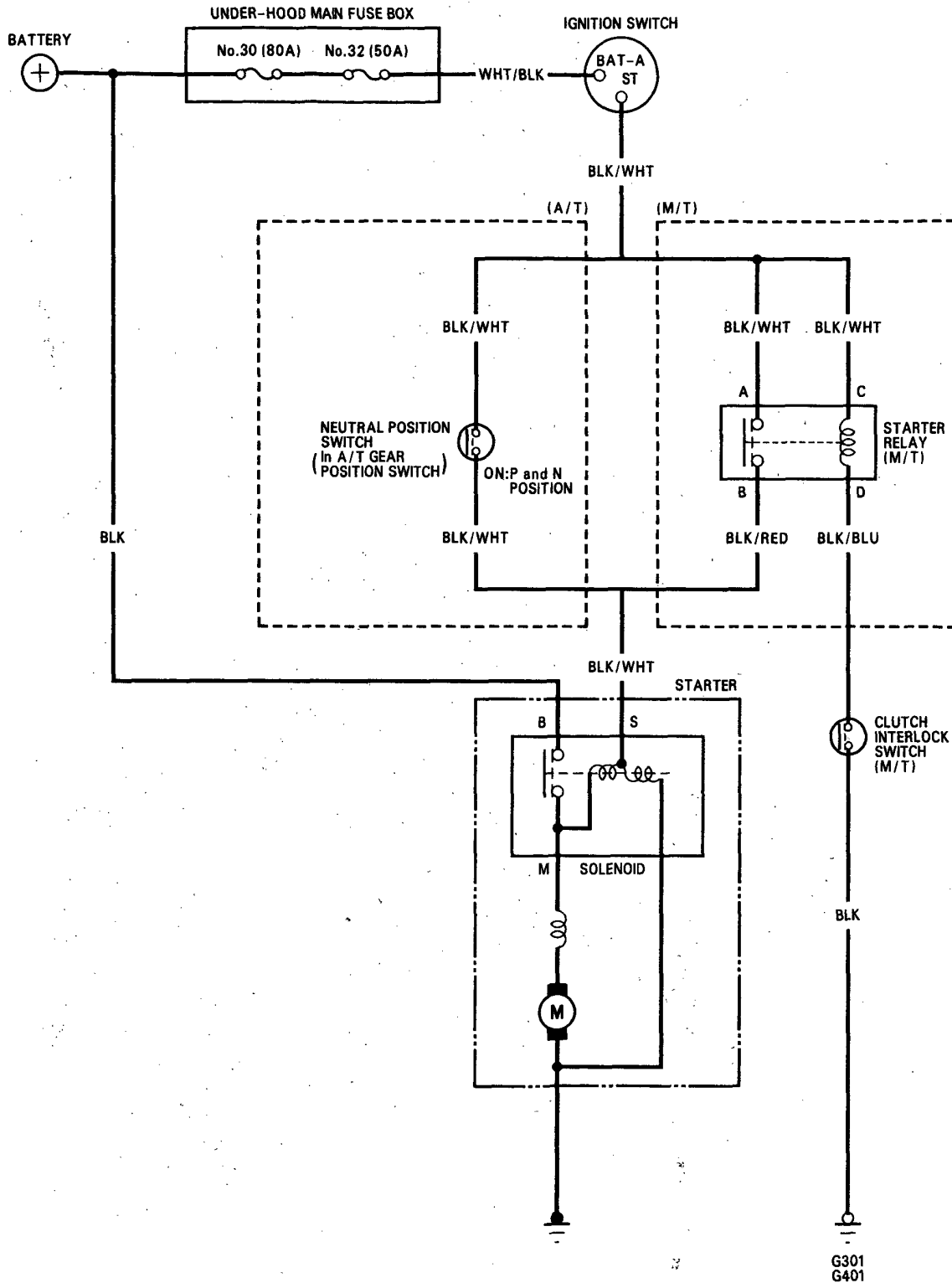
The clutch interlock switch turns on at the position where the clutch disengages: 15–20 mm (0.59–0.79 in) from the fully depressed position.

NOTE: Full stroke of the clutch pedal is 145–150 mm (5.7–5.9 in) from the fully released position.





# Circuit Diagram



# Starting System

## Starter Test

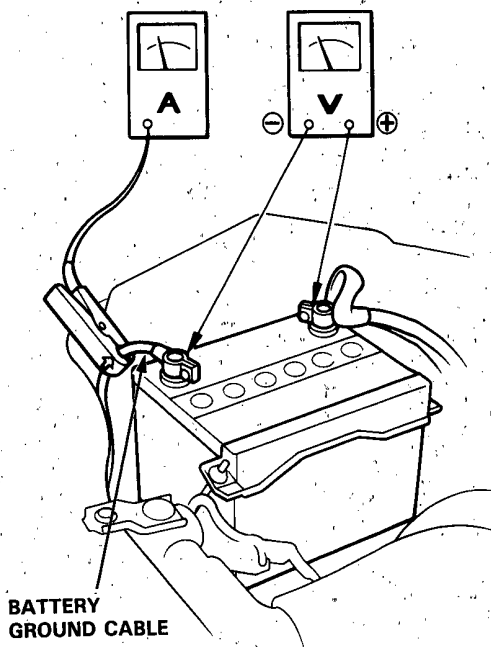
NOTE: The air temperature must be between 59 and 100°F (15 and 38°C) before testing.

### Recommended Procedure:

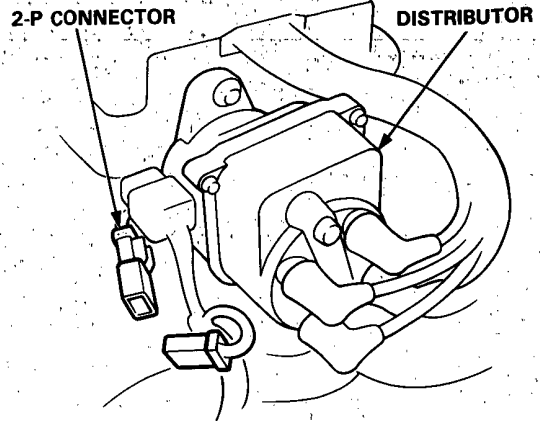
- Use a starter system tester.
- Connect and operate the equipment in accordance with manufacturer's instructions.
- Test and troubleshoot as described.

### Alternate Procedure:

- Use the following equipment:
  - Ammeter, 0–400 A
  - Voltmeter, 0–20 V (accurate within 0.1 volt)
  - Tachometer, 0–1200 rpm
- Hook up voltmeter and ammeter as shown.



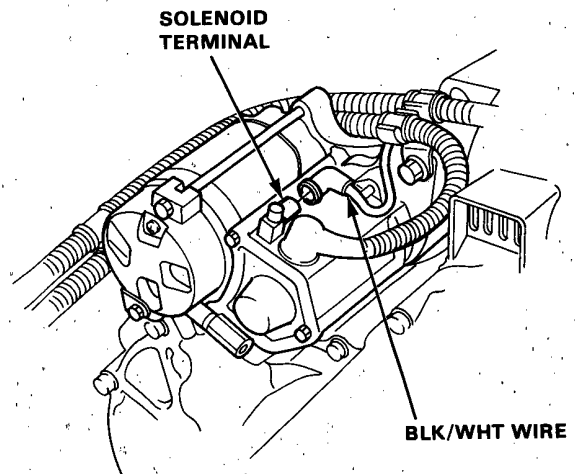
1. Disconnect the 2-P connector (ignition coil primary lead) from the distributor.



2. Check the starter engagement: Press the clutch pedal all the way in (M/T), and turn the ignition switch to "START". The starter should crank the engine.

NOTE: On cars equipped with manual transmission, the engine will not crank unless the clutch pedal is fully depressed.

- If the starter does not crank the engine, check the battery, battery positive cable, ground, and the wire connections for looseness and corrosion.
- Test again. If the starter still does not crank the engine, bypass the ignition switch circuit as follows (make sure the transmission is in neutral): Unplug the connector (BLK/WHT wire) from the starter. Connect a jumper wire from the battery positive (+) terminal to the solenoid terminal. The starter should crank the engine.





— If the starter still does not crank the engine, remove it and diagnose its internal problems.

— If the starter cranks the engine, check for an open in the BLK/WHT wire circuit between the starter and ignition switch, and connectors. Check the ignition switch.

On cars with automatic transmission, check the A/T gear position switch (neutral position switch) and connector.

On cars with manual transmission, check the starter relay, clutch interlock switch, and connectors.

NOTE: Check the No. 32 (50 A) fuse (in the underhood main fuse box) and the starter cut relay.

3. Check for wear or damage:  
The starter should crank the engine smoothly and steadily.

If the starter engages, but cranks the engine erratically, remove the starter motor. Inspect the starter, drive gear, and flywheel ring gear for damage. Check the drive gear overrunning clutch for binding or slipping when the armature is rotated with the drive gear held. Replace the gears if damaged.

4. Check cranking voltage and current draw,  
Voltage should be no less than 8.0 volts.  
Current should be no more than 350 amperes.

If voltage is too low, or current draw too high, check for:

- Low battery.
- Open circuit in starter armature commutator segments.
- Starter armature dragging.
- Shorted armature winding.
- Excessive drag in engine.

5. Check cranking rpm:  
Engine speed, during cranking should be above 100 rpm. If it is not, check for:

- Loose battery or starter terminals.
- Excessively worn starter brushes.
- Open circuit in commutator segments.
- Dirty or damaged helical spline or drive gear.
- Defective drive gear overrunning clutch.

6. Check the starter disengagement:  
Press the clutch pedal all the way in (M/T), turn the ignition switch to "III" position and release to "II" position. The starter drive gear should disengage from the flywheel ring gear.

If the drive gear hangs up on the flywheel ring gear, check for:

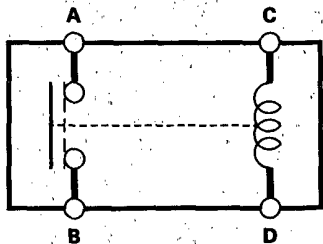
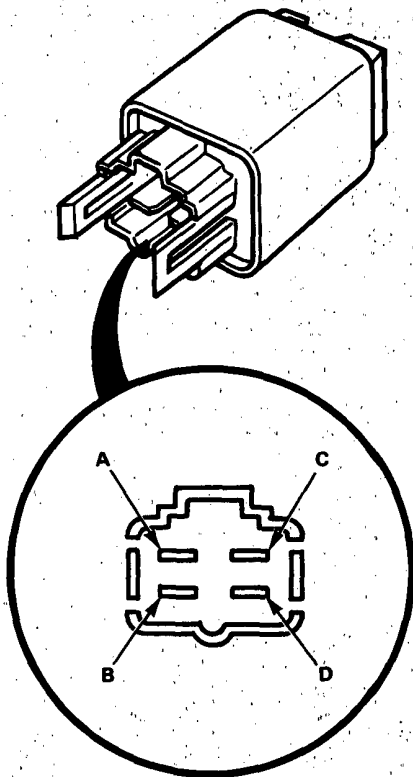
- Solenoid plunger and switch malfunction.
- Dirty drive gear assembly or damaged overrunning clutch.

# Starting System

## Starter Relay Test (M/T)

"Normally open" Type:

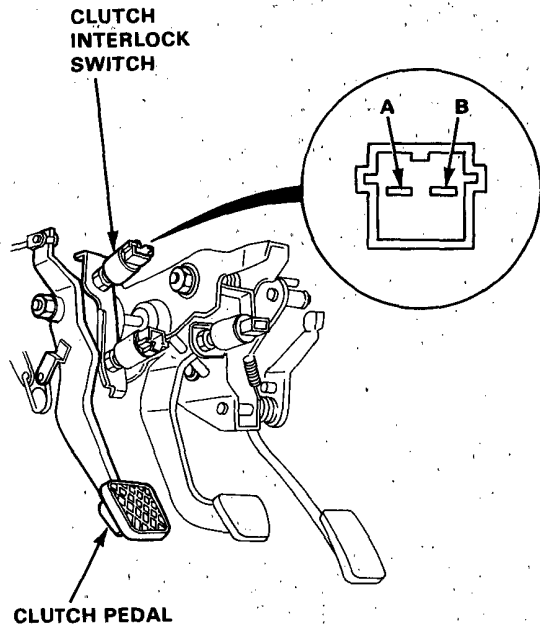
1. Remove the starter relay and disconnect it from the harness.
2. There should be continuity between the C and D terminals.
3. There should be continuity between the A and B terminals when battery power and ground are connected to the C and D terminals. There should be no continuity when power is disconnected:



## Clutch Interlock Switch Test (M/T)

1. Remove the dashboard lower cover and knee bolster, then disconnect the 2-P connector from the switch.
2. Check for continuity between the terminals according to the table:

Terminal	A	B
Clutch Pedal		
RELEASED		
PUSHED	○	○

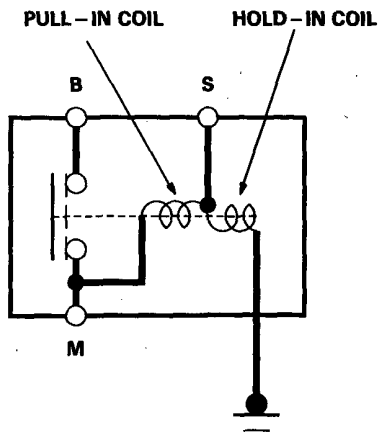
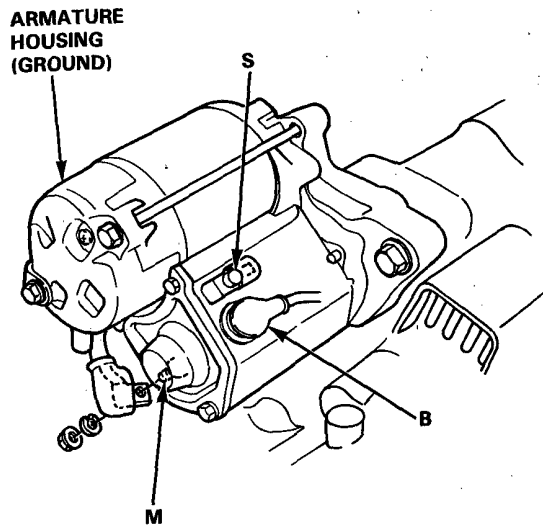


3. If necessary, replace the switch or adjust its position (see section 12).



## Starter Solenoid Test

1. Check the hold-in coil for continuity between the S terminal and the armature housing (ground). If there is continuity, the coil is OK.
2. Check the pull-in coil for continuity between the S and M terminals. If there is continuity, the coil is OK.



## Starter Replacement

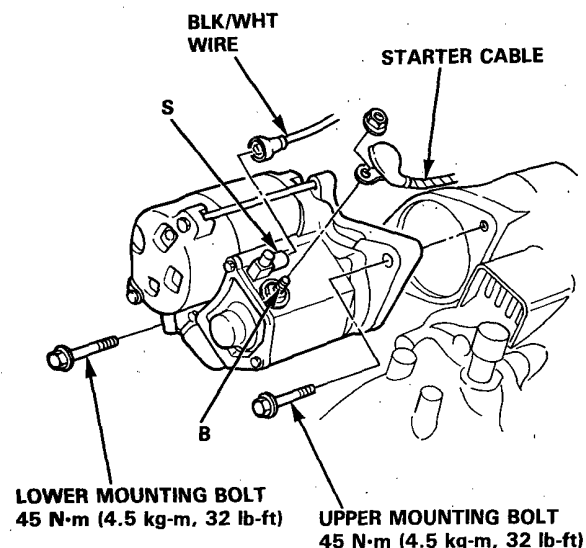
### NOTE:

The radio may have a coded theft protection circuit. Be sure to get the customer's code number before

- Disconnecting the battery.
- Removing the No. 14 (15 A) fuse. (in the under-dash fuse/relay box)
- Removing the radio.

After service, reconnect power to the radio and turn it on. When the word "CODE" is displayed, enter the customer's 5-digit code restore radio operation.

1. Disconnect the negative cable from the battery.
2. Disconnect the starter cable from the B terminal on the solenoid, then the BLK/WHT wire from the S terminal.
3. Remove the two bolts holding the starter, and remove the starter.



4. Install in the reverse order of removal.

NOTE: When installing the starter cable, make sure that the crimped side of the ring terminal is facing out.

