

2004 Honda Element DX

2003-06 ENGINE Starting System - Element

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Starting System - Element

COMPONENT LOCATION INDEX

Fig. 1: Identifying Starting System Component
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SYMPTOM TROUBLESHOOTING INDEX

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Symptom	Diagnostic procedure	Also check for
Engine does not start (does not crank)	<ol style="list-style-type: none"> 1. Check for loose battery terminals or connections. 2. Test the battery for a low charge (see BATTERY TEST). 3. Check the starter (see STARTER CIRCUIT TROUBLESHOOTING). 4. Check the starter cut relay (see POWER RELAY TEST). 5. Check the transmission range switch (A/T) (see TRANSMISSION RANGE SWITCH TEST). 6. Check the clutch interlock switch (M/T) (see CLUTCH INTERLOCK SWITCH TEST). 7. Check the ignition switch or wire (see TEST). 	Poor ground at G101 (A/T) or G502 (M/T)
Engine cranks, but does not start	<ol style="list-style-type: none"> 1. Check for PGM-FI DTCs. 2. Check the fuel pressure (see FUEL PRESSURE TEST). 3. Check for a plugged or damaged fuel line (see FUEL LINE INSPECTION). 4. Check for a plugged fuel filter (see FUEL FILTER REPLACEMENT). 5. Check the throttle body (see THROTTLE BODY TEST). 6. Check for low engine compression (see ENGINE COMPRESSION INSPECTION). 7. Check for a damaged or broken cam chain. 	
Engine is hard to start	<ol style="list-style-type: none"> 1. Check for PGM-FI DTCs. 2. Check the fuel pressure (see FUEL PRESSURE TEST). 3. Check for a plugged or damaged fuel line (see FUEL LINE INSPECTION). 4. Check for a plugged fuel filter (see FUEL FILTER REPLACEMENT). 	
Engine cranks slowly	<ol style="list-style-type: none"> 1. Check for loose battery terminals or connections. 	

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2. Test the battery for a low charge (see **BATTERY TEST**).
3. Check the starter for binding (see **STARTER CIRCUIT TROUBLESHOOTING**).
4. Check for excessive drag in the engine.

CIRCUIT DIAGRAM

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Fig. 2: Starting System Circuit Diagram
Courtesy of AMERICAN HONDA MOTOR CO., INC.

STARTER CIRCUIT TROUBLESHOOTING

NOTE:

- Air temperature must be between 59 and 100°F (15 and 38°

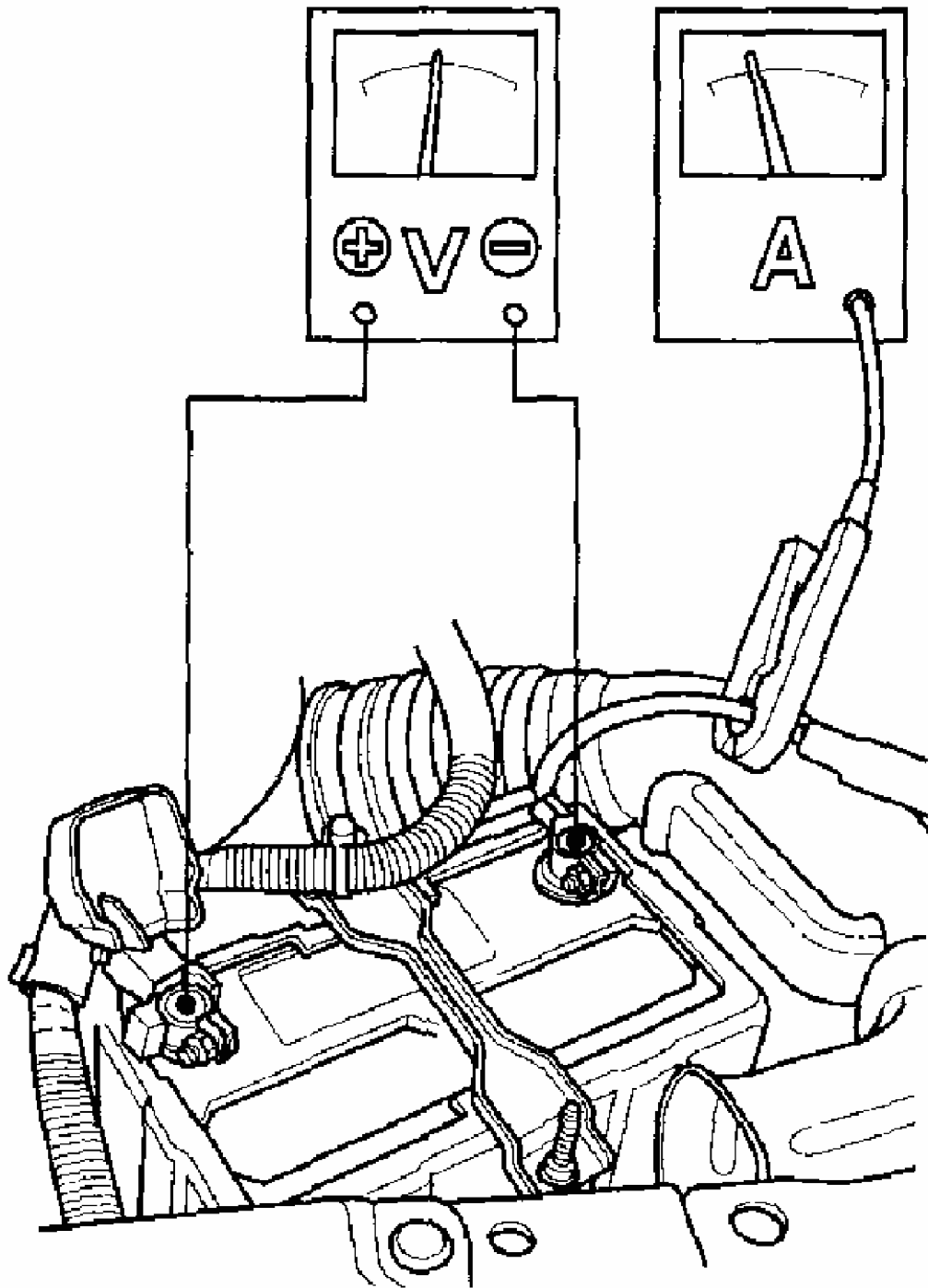
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- **After this inspection, you must reset the engine control module (ECM)/powertrain control module (PCM), otherwise the ECM/PCM will continue to stop the fuel injectors from working. Select ECM/PCM reset using the Honda Diagnostic System (HDS) (see HDS CLEAR COMMAND).**
- **The battery must be in good condition and fully charged.**

1. Hook up the following equipment:

- Ammeter, 0-400 A
- Voltmeter, 0-20 V (accurate within 0.1 V)



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Fig. 3: Hooking Up Ammeter And Voltmeter
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Connect the HDS to the data link connector (DLC) (see step 2 on **HOW TO USE THE HDS (HONDA DIAGNOSTIC SYSTEM)**).
3. Turn the ignition switch ON (II), select PGM-FI, INSPECTION, then ALL INJECTORS OFF on the HDS.
4. With the shift lever in N or P (A/T) or the clutch pedal pressed (M/T), turn the ignition switch to START (III).

Does the starter crank the engine normally?

YES - The starting system is OK. Go to step 10 .

NO - Go to step 5.

5. Check the battery condition. Check electrical connections at the battery, the negative battery cable to body, the engine ground cables, and the starter for looseness and corrosion. Then try cranking the engine again.

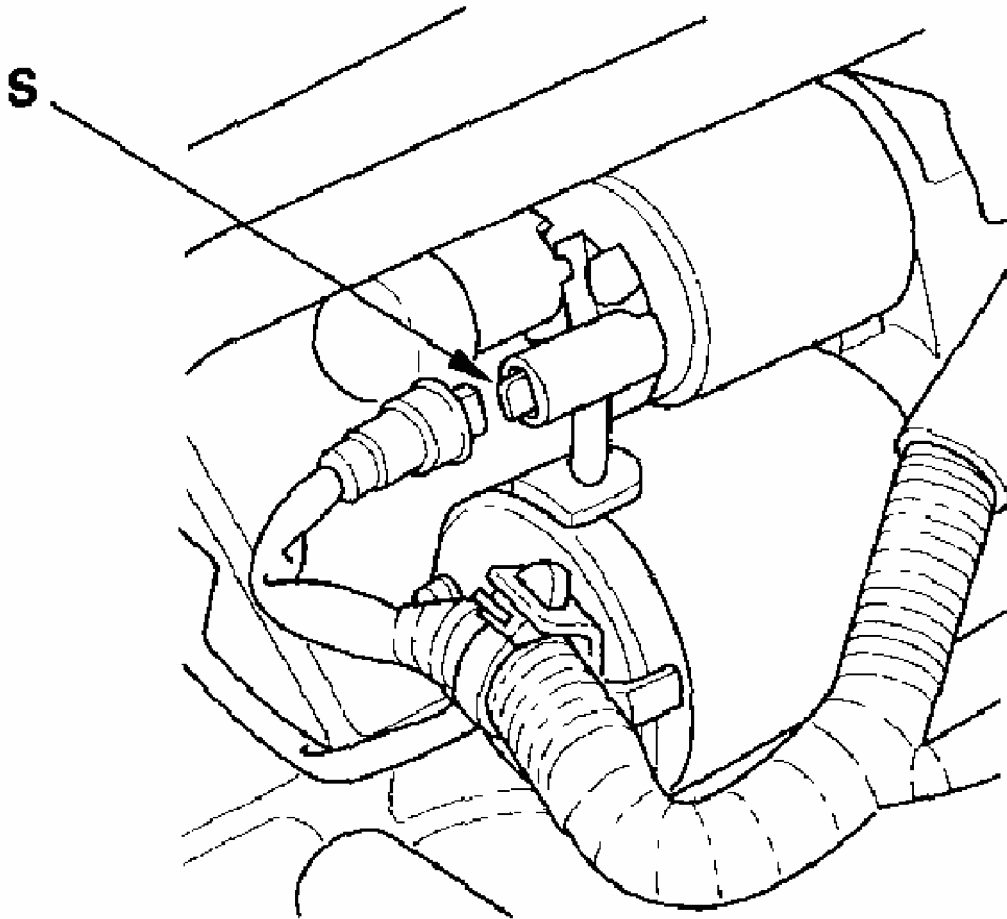
Does the starter crank the engine?

YES - Repairing the loose connection corrected the problem. The starting system is OK. Go to step 10 .

NO - Check the following:

- If the starter will not crank the engine at all, go to step 6.
 - If it cranks the engine erratically or too slowly, go to step 7 .
 - If it won't disengage from the flywheel or torque converter ring gear when you release the key, check for the following until you find the cause.
 - Solenoid plunger and switch malfunction
 - Dirty drive gear or damaged overrunning clutch
6. Make sure the transmission is in Neutral, then disconnect the BLK/WHT wire from the starter solenoid S terminal. Connect a jumper wire from the battery positive terminal to the solenoid terminal.

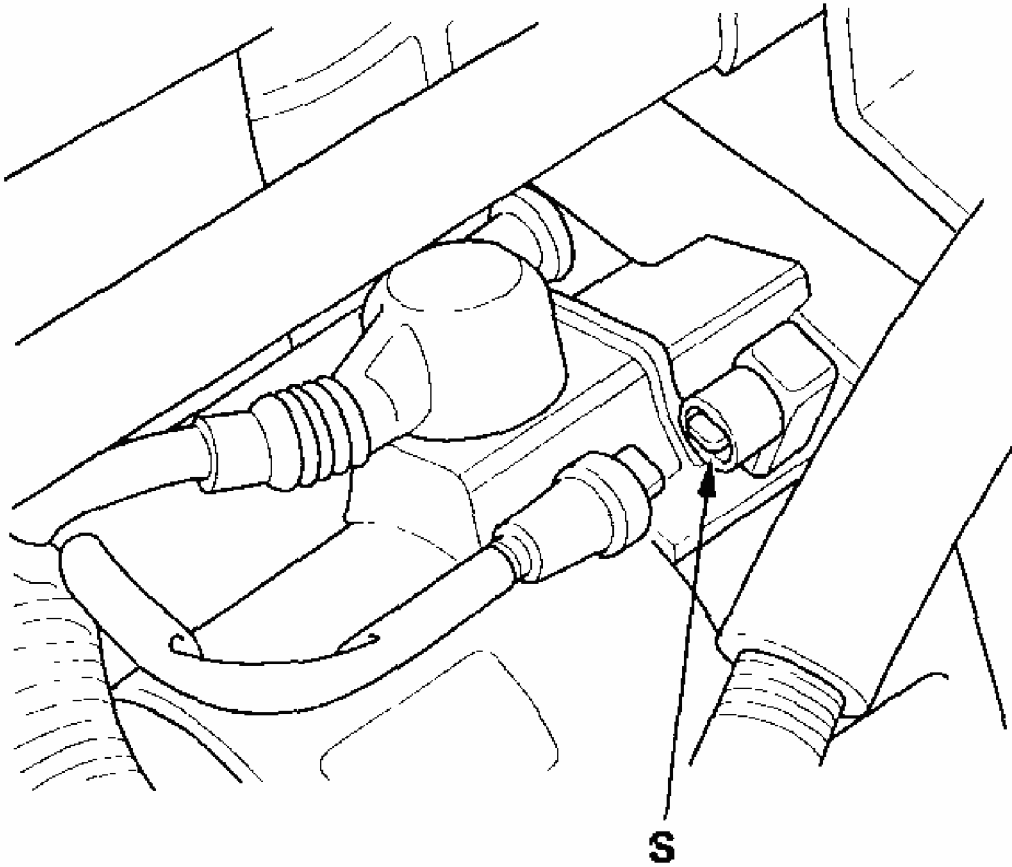
M/T



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Fig. 4: Disconnecting BLK/WHT Wire From Starter Solenoid S Terminal (M/T)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

A/T



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Fig. 5: Disconnecting BLK/WHT Wire From Starter Solenoid S Terminal (A/T)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Does the starter crank the engine?

YES - Check the following items in the order listed until you find the open circuit:

- Check the BLK/WHT wire and connectors between the under-dash fuse/relay box and the ignition switch, and between the under-dash fuse/relay box and the starter.
- Check the ignition switch (see **TEST**).
- Check the transmission range switch and connector (A/T) or the clutch interlock switch and connector (M/T).
- Check the starter cut relay (see **POWER RELAY TEST**).

NO - Remove the starter, and repair or replace as necessary.

7. Check the cranking voltage and current draw.

Is the cranking voltage greater than or equal to 7.7 V (M/T)/8.5 V (A/T) and is the current draw less than or equal to 400 A (M/T)/380 A (A/T)?

YES - Go to step 8.

NO - Replace the starter, or remove and disassemble it, and check for the following until you find the cause:

- Drag in the starter armature
- Shorted armature winding
- Excessive drag in the engine

8. Check the engine speed while cranking the engine.

Is the engine speed above 100 RPM?

YES - Go to step 9.

NO - Replace the starter, or remove and disassemble it, and check for the following until you find the cause:

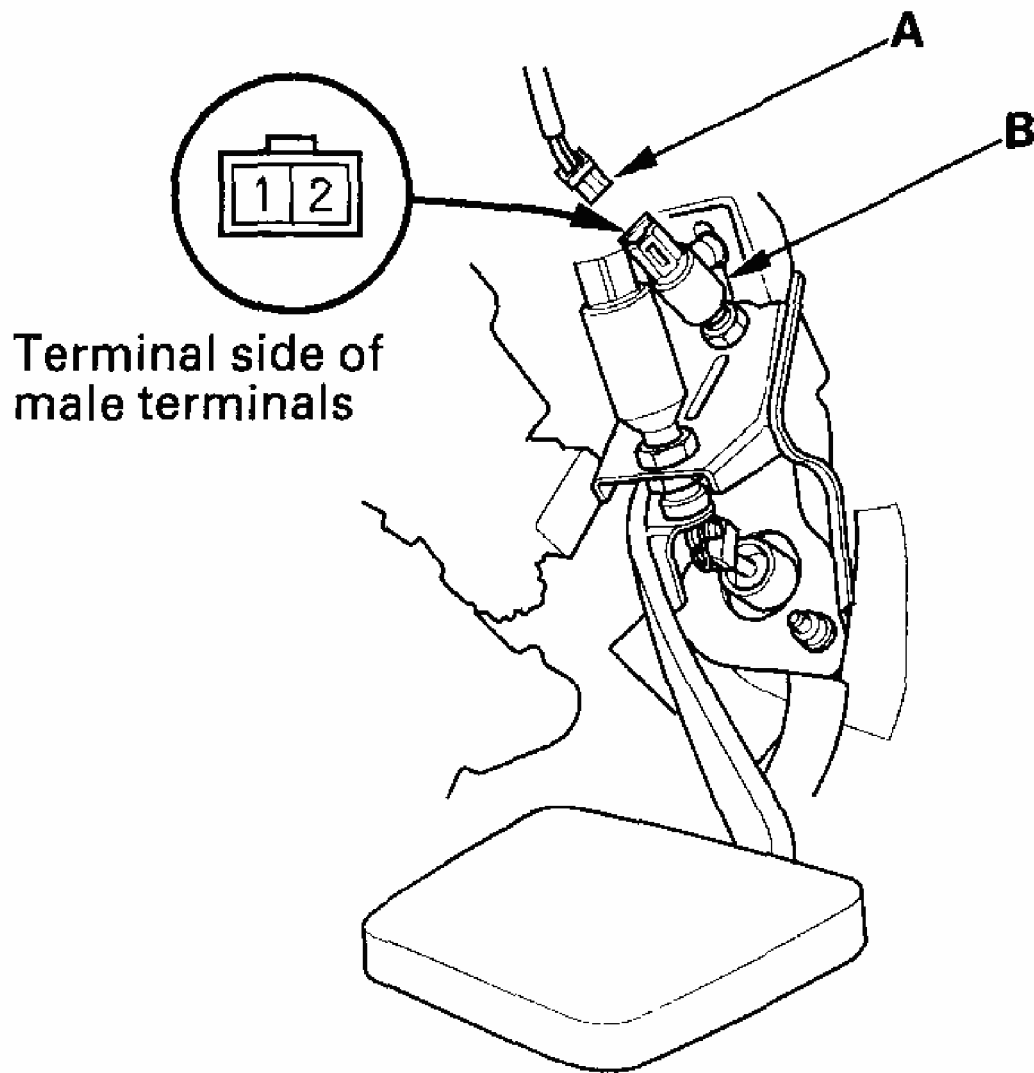
- Open circuit in starter armature commutator segments
- Excessively worn starter brushes
- Open circuit in commutator brushes
- Dirty or damaged helical splines or drive gear
- Faulty drive gear clutch

9. Remove the starter, and inspect its drive gear and the flywheel or torque converter ring gear for damage. Replace any damaged parts.

10. Select ECM/PCM reset (see **ECM/PCM RESET**) to cancel ALL INJECTORS OFF on the HDS.

CLUTCH INTERLOCK SWITCH TEST


1. Disconnect the clutch interlock switch 2P connector (A).



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Fig. 6: Disconnecting Clutch Interlock Switch 2P Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove the clutch interlock switch (B).
3. Check for continuity between the terminals according to the table.
 - If the continuity is not as specified, replace the clutch interlock switch.
 - If OK, install the clutch interlock switch, and adjust the pedal height (see CLUTCH PEDAL, CLUTCH PEDAL POSITION SWITCH, AND CLUTCH INTERLOCK SWITCH ADJUSTMENT).

Terminal	1	2
Clutch Interlock Switch		
PRESSED		
RELEASED		

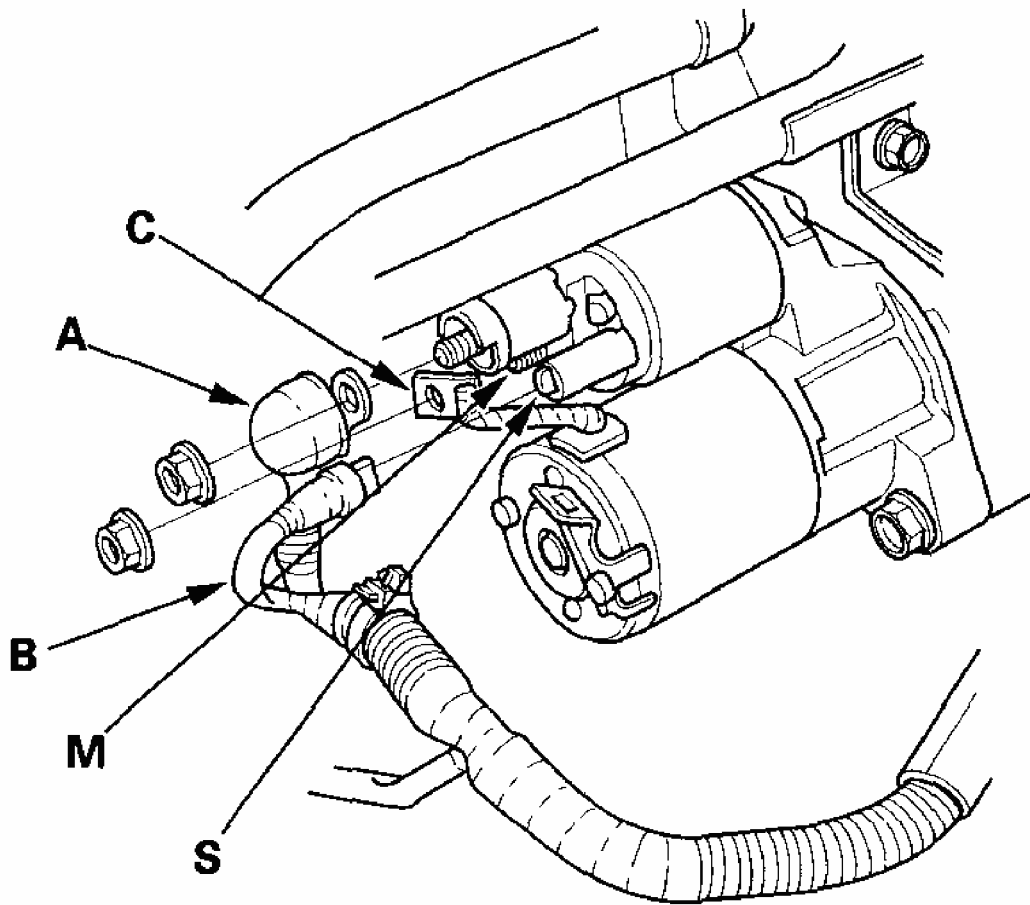
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Fig. 7: Checking Continuity Between Clutch Interlock Switch Terminals
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

STARTER SOLENOID TEST

M/T

1. Make sure you have the anti-theft code for the radio, then write down the customer's audio presets.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the starter cable (A), BLK/WHT wire (B), and motor cable (C).



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Fig. 8: Removing Starter Cable

Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Check the hold-in coil for continuity between the S terminal and the armature housing (ground). There should be continuity.
 - If there is continuity, go to step 5.
 - If there is no continuity, replace the solenoid.
5. Check the pull-in coil for continuity between the S terminal and M terminal. There should be continuity.
 - If there is continuity, the solenoid is OK.
 - If there is no continuity, replace the solenoid.
6. Install the reverse order of removal.
7. Connect the positive cable to the battery first, then connect the negative cable.
8. Enter the anti-theft code for the radio, then enter the customer's audio presets.

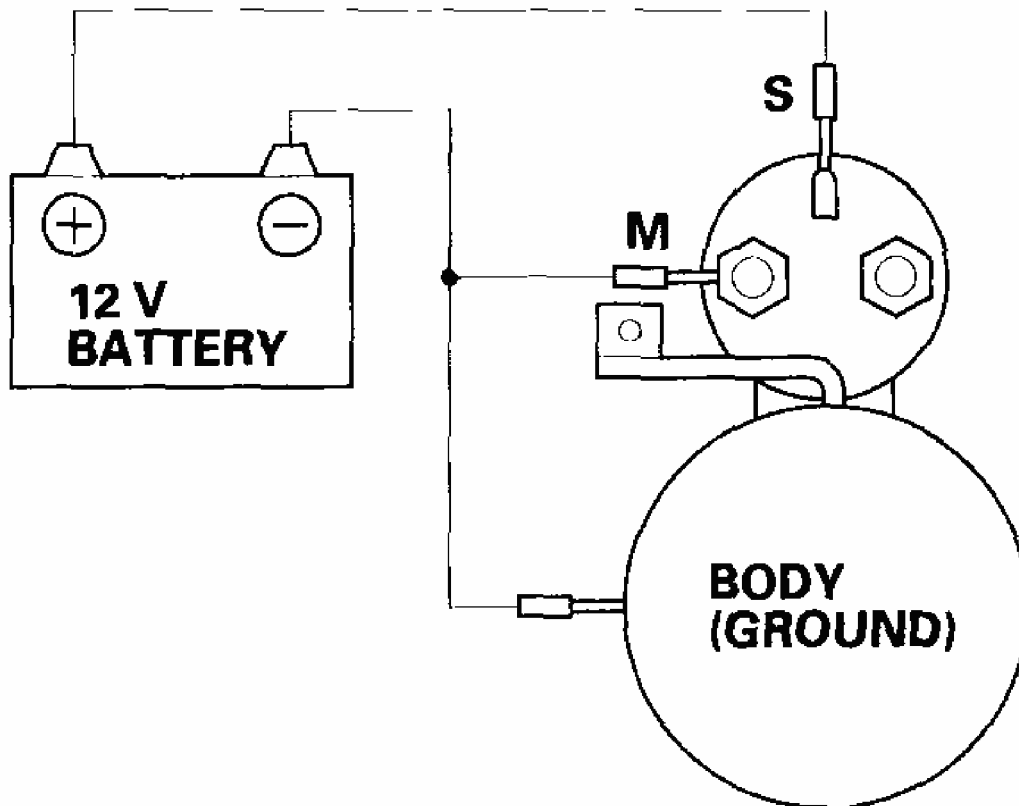
9. Do the power window control unit reset procedure (see **RESETTING THE POWER WINDOW CONTROL UNIT**).
10. Set the clock.

STARTER PERFORMANCE TEST

M/T

1. Disconnect the wire from the M terminal.
2. Make a connection as shown using as heavy a wire as possible (preferably equivalent to the wire used for the vehicle).

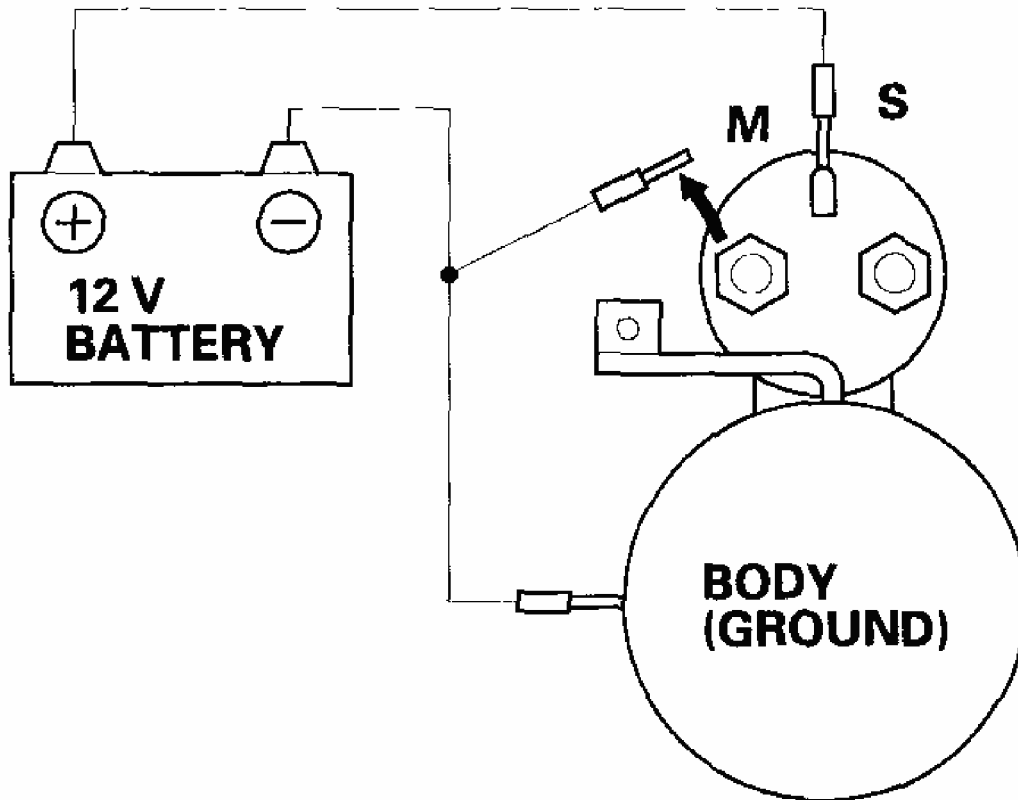
NOTE: To avoid damaging the starter, never leave the battery connected for more than 10 seconds.



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Fig. 9: Disconnecting Wire From M Terminal
Courtesy of AMERICAN HONDA MOTOR CO., INC.

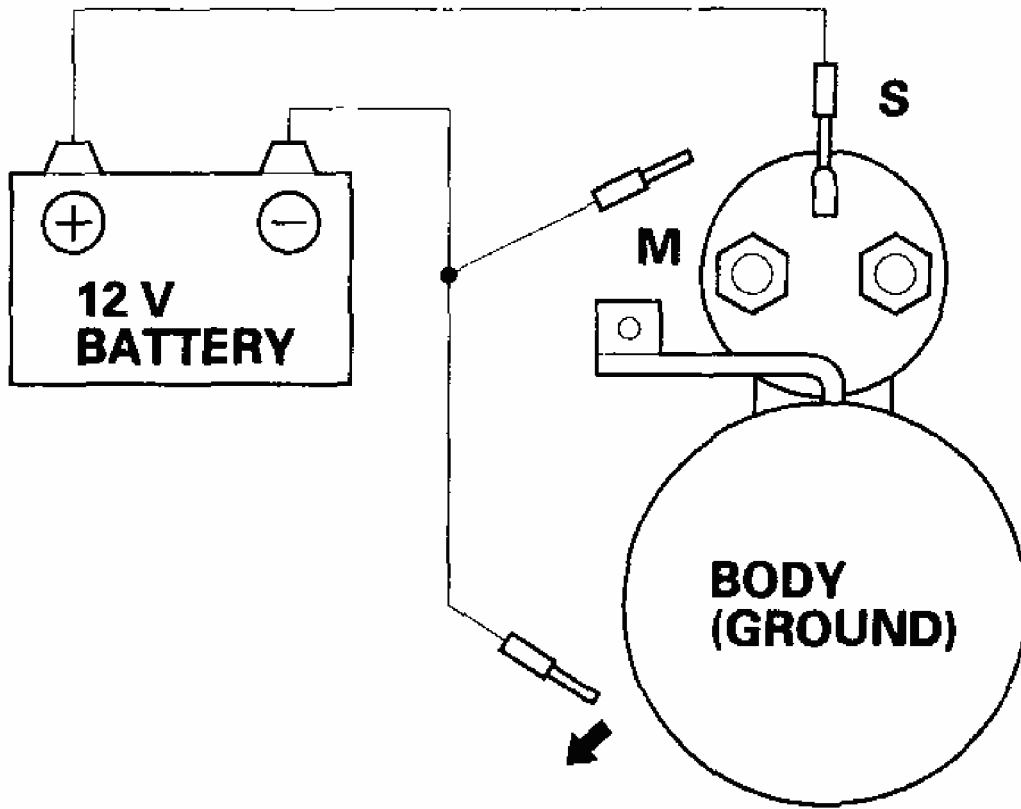
3. Connect the battery as shown. Make sure you disconnect the starter motor wire from the solenoid. If the starter pinion moves out, it is working properly.
4. Disconnect the negative battery terminal from the M terminal as shown. If the pinion does not retract, the hold-in coil of the solenoid is working properly.



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Fig. 10: Disconnecting Negative Battery Terminal From M Terminal
Courtesy of AMERICAN HONDA MOTOR CO., INC.

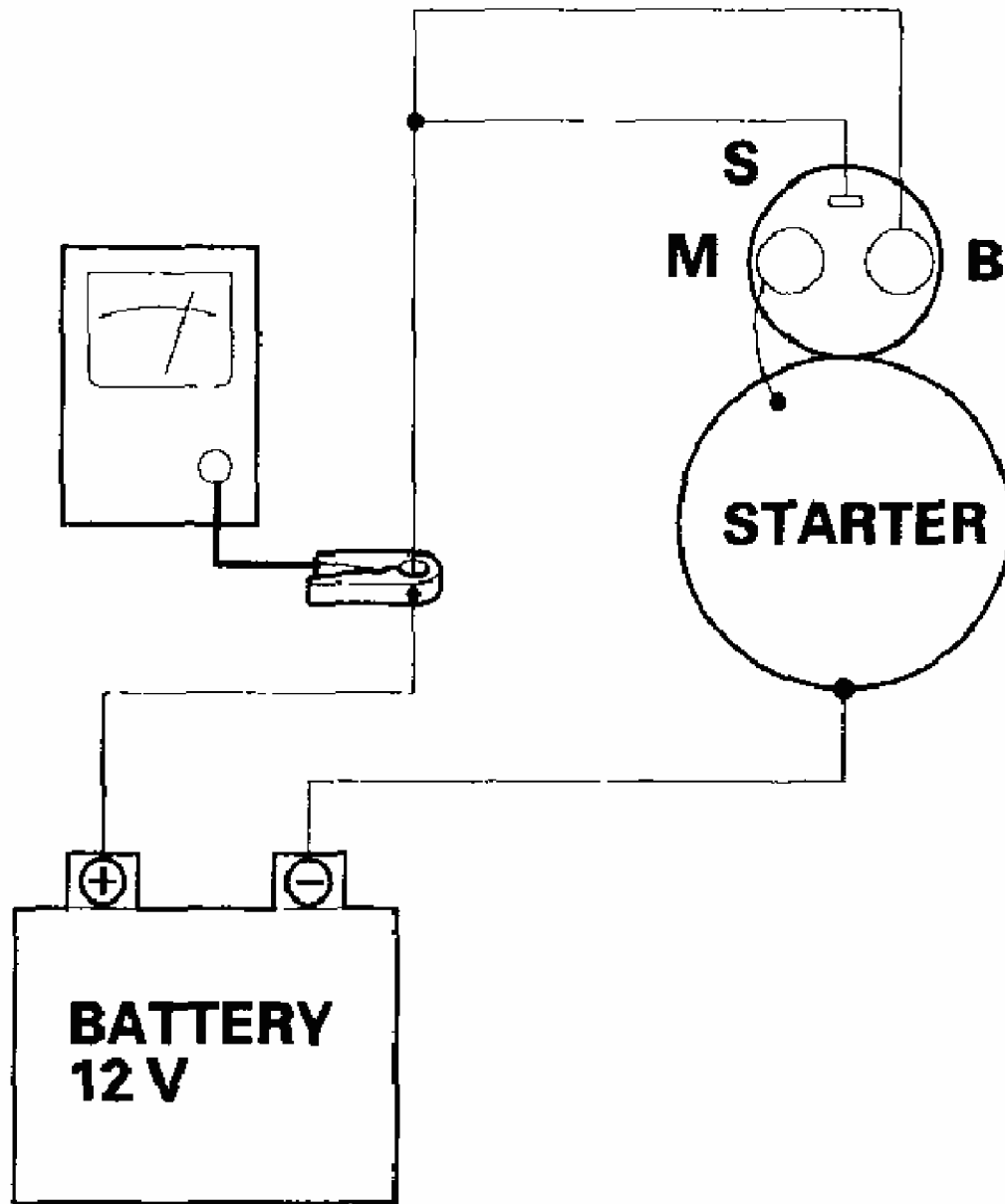
5. Disconnect the negative battery terminal from the starter body as shown. If the pinion retracts immediately, it is working properly.



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Fig. 11: Disconnecting Negative Battery Terminal From Starter Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Firmly clamp the starter in a vise.
7. Reconnect the wire to the M terminal.
8. Connect the starter to the battery as shown in the diagram, and check that the motor starts and keeps rotating.



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Fig. 12: Connecting Starter To Battery

Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. If the electric current and motor speed meet the specifications when the battery voltage is at 11 V, the starter is working properly.

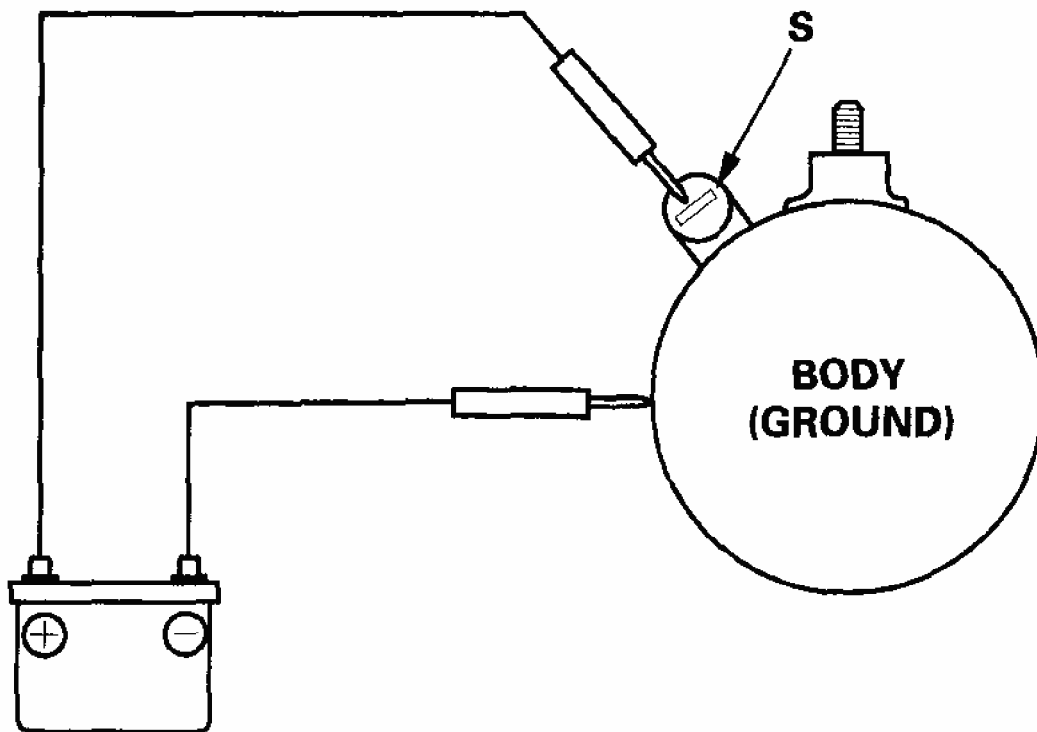
Specifications

Electric Current: 90 A or less

Motor Speed: 2,000 RPM or more

A/T

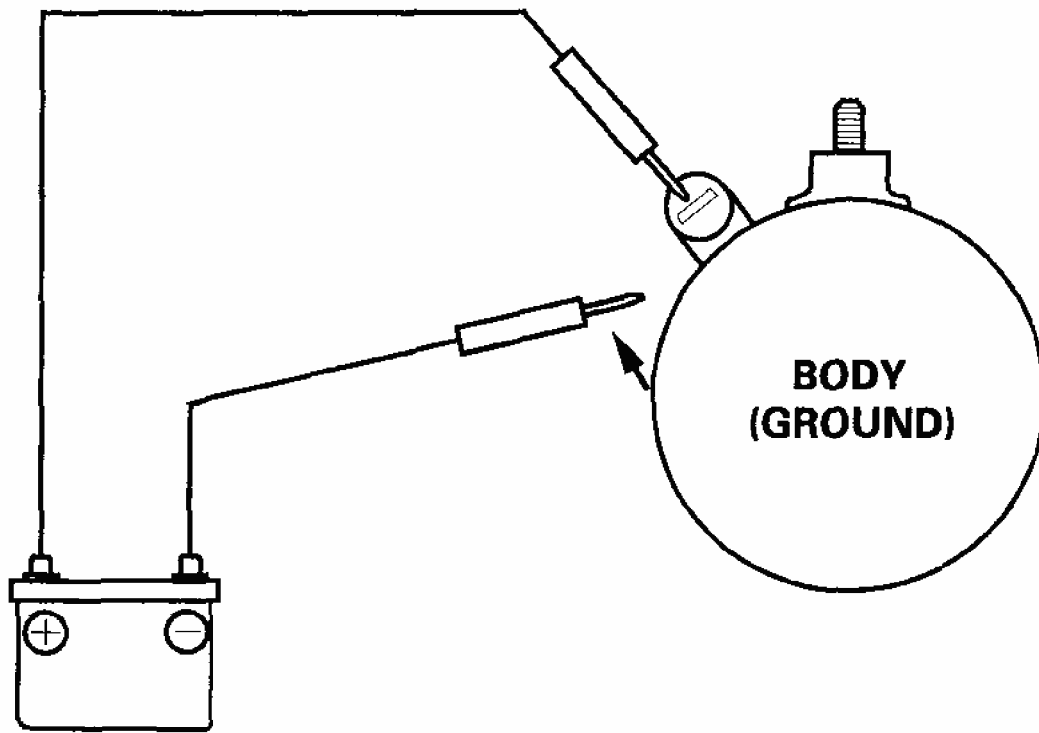
1. Connect the battery to the starter as shown using as heavy a wire as possible (preferably equivalent to the wire used for the vehicle). To avoid damaging the starter, never leave the battery connected for more than 10 seconds.



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Fig. 13: Connecting Battery To Starter
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. If the starter pinion moves out, it is working properly.
3. Disconnect the negative battery terminal from the starter as shown. If the pinion retracts immediately, it is working properly.



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Fig. 14: Disconnecting Negative Battery Terminal From Starter
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Firmly clamp the starter in a vise.
5. Connect the starter to the battery as shown, and check that the motor starts and keeps rotating.