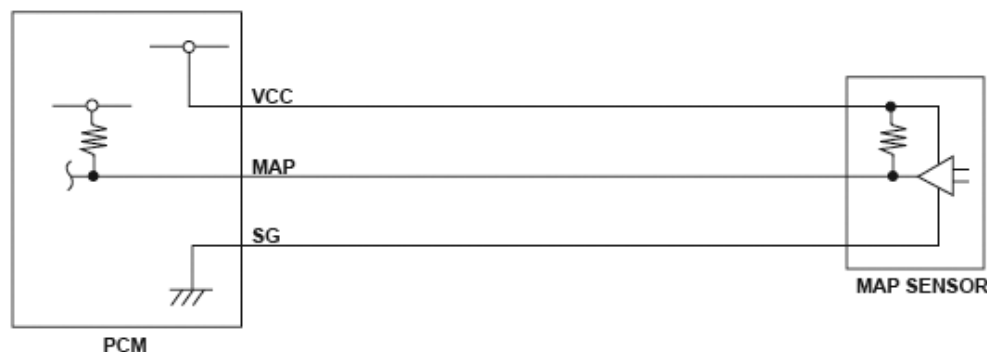
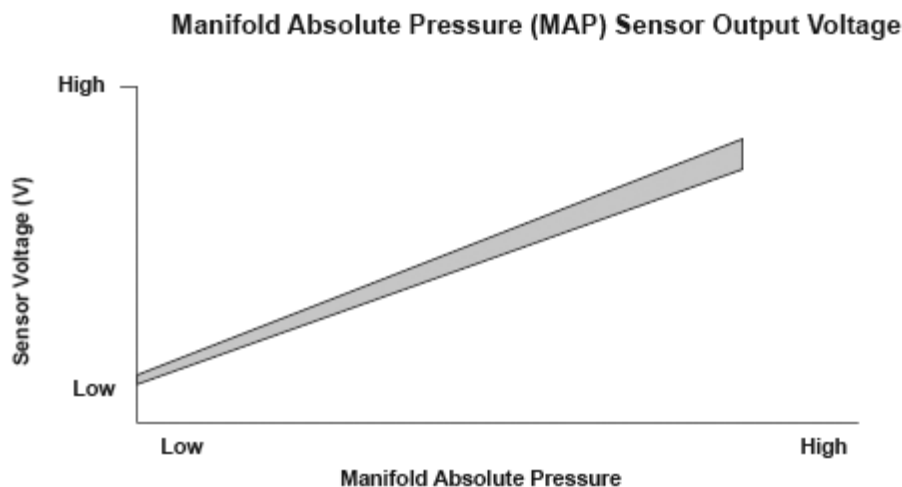


## 2007 ENGINE PERFORMANCE

## Advanced Diagnostics - RL

**DTC P0107 (3): ADVANCED DIAGNOSTICS****DTC P0107: MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR CIRCUIT LOW VOLTAGE**

P0106-9603

**Fig. 1: Manifold Absolute Pressure (MAP) Sensor (Low Voltage) - Circuit Diagram**

P0107-9671

**Fig. 2: Manifold Absolute Pressure (MAP) Sensor Output Voltage Graph****General Description**

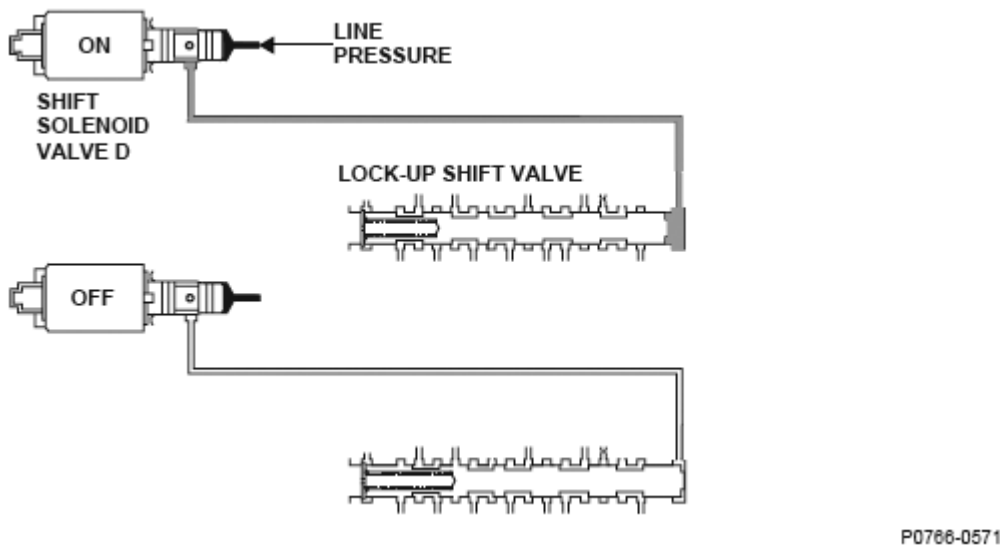
The manifold absolute pressure (MAP) sensor senses manifold absolute pressure (vacuum) and converts it into electrical signals. The MAP sensor outputs low signal voltage at high-vacuum (throttle valve closed) and high signal voltage at low-vacuum (throttle valve wide open).

If a signal voltage from the MAP sensor is a set value or less, the powertrain control module (PCM) detects a malfunction and a DTC is stored.

**Monitor Execution, Sequence, Duration, DTC Type, OBD Status**

## DTC P0767 (73): ADVANCED DIAGNOSTICS

### DTC P0767: SHIFT SOLENOID VALVE D STUCK ON



**Fig. 159: Shift Solenoid Valve D - Operation Diagram**

Shift solenoid valve Gear position	Shift solenoid valve A	Shift solenoid valve B	Shift solenoid valve C	Shift solenoid valve D
Park	OFF	ON	OFF	ON
Reverse	ON	ON	OFF	ON
Neutral	OFF	ON	OFF	OFF
1st	OFF	ON	ON	OFF
1st - 2nd	ON	ON	ON	OFF/ON
2nd	ON	ON	OFF	OFF/ON
2nd - 3rd	ON	ON	ON	OFF/ON
3rd	ON	OFF	ON	OFF/ON
3rd - 4th	ON	OFF	OFF	OFF/ON
4th	OFF	OFF	OFF	OFF/ON
4th - 5th	OFF	OFF	ON	OFF/ON
5th	OFF	ON	ON	OFF/ON

**Fig. 160: Shift Solenoid Valve Driving Signal Combination Table**

#### General Description

Shift solenoid valve D is installed in the transmission housing. It is controlled by the ON/OFF signal from the powertrain control module (PCM) to apply line pressure to the lock-up shift valve. The signal from the PCM is output to apply clutch pressure control pressure to the proper gear change clutch according to the gear change schedule. When the signal to shift solenoid valve D from the PCM is OFF, and line pressure is discharged, the lock-up shift valve is inactive. When the signal to shift solenoid valve D from the PCM is ON, and line pressure is applied to lock-up shift valve, it operates against the lock-up shift valve spring. The PCM monitors the input shaft (mainshaft) speed and the output shaft (countershaft) speed at the gear change

## 2007 Acura RL

### 2007 ENGINE PERFORMANCE Advanced Diagnostics - RL

#### TRANSMISSION RANGE SWITCH CONTACT POINT INPUT MATRIX

Shift lever position	Input per switch						
	P	R	N	D	D3	FWD	RVS
P	o	X	X	X	X	X	o
R	X	o	X	X	X	X	o
N	X	X	o	X	X	X	o
D	X	X	X	o	X	o	X
D3	X	X	X	X	o	o	X

o: Closed X: Open

#### General Description

The transmission range switch is attached to the control shaft. Operating the shift lever makes the control shaft rotate via the shift cable. The A/T gear position indicator indicates which position is selected according to the Low/High signal combinations which vary based on shift lever position. The control shaft changes the position of the transmission range switch, activates the manual valve, and switches hydraulic pressure to shift the transmission through forward/neutral/reverse. The transmission range switch signal is used to determine the shift schedule. The voltage is 12 V (High) at the powertrain control module (PCM) input terminal when each transmission range switch position is open, and it is 0 V (Low) when each switch is closed. If the R switch is OPEN with the shift lever in the R position, the PCM detects a switch OPEN failure and a DTC is stored.

#### Monitor Execution, Sequence, Duration, DTC Type, OBD Status

#### MONITOR DESCRIPTION CHART

Execution	Continuous
Sequence	None
Duration	Depending on the driving pattern
DTC Type	Two drive cycles, MIL ON, D indicator blinks
OBD Status	PASSED/FAILED/NOT COMPLETED (STILL TESTING)

#### Enable Conditions

#### ENABLE CONDITIONS

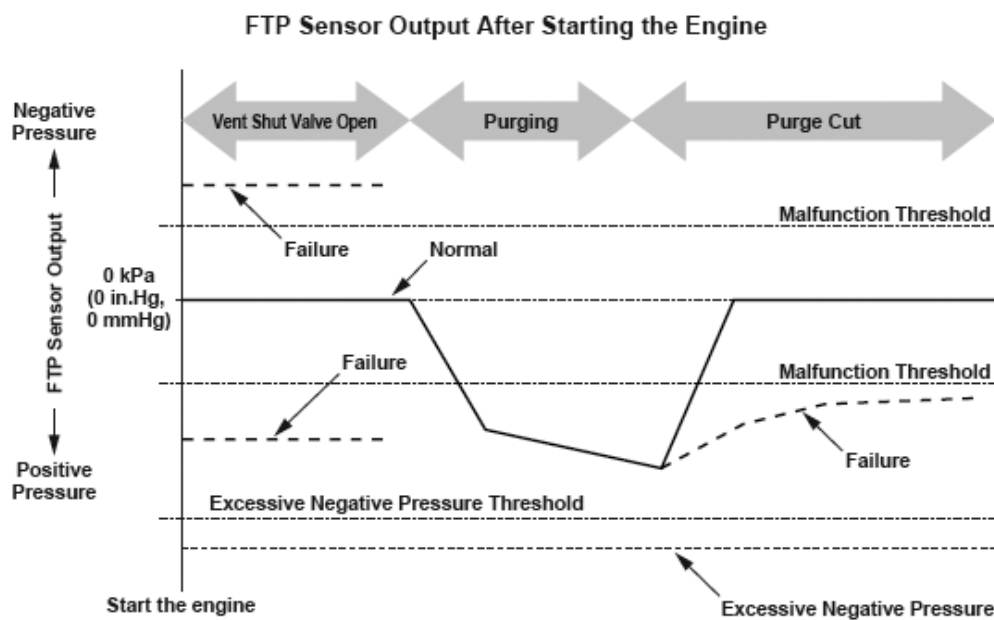
Condition	Minimum	Maximum
Battery voltage	11.0 V	-
Engine speed	1,000 rpm	-
Shift lever position	R	
No active DTCs	P0705, P0716, P0717, P0721, P0722, P1717	

#### Malfunction Threshold

The RVS signal is detected but the R signal is not detected for at least 2 seconds.

#### Driving Pattern

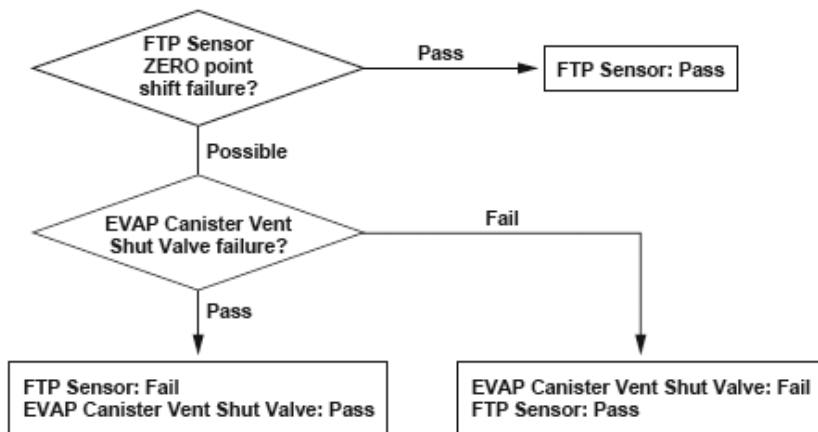
1. Start the engine, shift to the R position, and drive the vehicle at a speed of 3 mph (5 km/h) or less for at least 2 seconds.



P1454-0570

**Fig. 235: FTP Sensor Output After Starting Engine**

**Malfunction Judgment Flowchart of FTP Sensor and EVAP Canister Vent Shut Valve**



P1454-0371

**Fig. 236: Malfunction Judgment Flowchart Of FTP Sensor And EVAP Canister Vent Shut Valve**

**General Description**

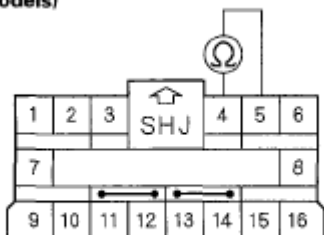
The fuel tank pressure is about 0 kPa (0 in.Hg, 0 mmHg) when starting a cold engine. When the fuel tank pressure (FTP) sensor output value is out of a specified range and the powertrain control module (PCM) judges that there's no other cause [no evaporative emission (EVAP) canister vent shut valve failure, etc.] of the FTP sensor zero point shift, the PCM detects an FTP sensor malfunction.

However, if the FTP sensor output when starting the engine is a prescribed negative value or less (excessive negative pressure is detected), the malfunction judgment should be done as follows because it is difficult to distinguish the FTP sensor zero point shift (P1454) from the EVAP canister vent shut valve failure (P2422).

1. If either Temporary DTC P1454 or P2422 is not stored, the PCM stores both DTCs.

**Fig. 112: Measuring Resistance Between No. 3 [No. 4] Terminals Of Right Side Wire Harness 16P Connector C604 - '05 Models**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

**RIGHT SIDE WIRE HARNESS 16P CONNECTOR C604**  
 ('06-08 models)



Wire side of female terminals

**Fig. 113: Measuring Resistance Between No. 4 [No. 5] Terminals Of Right Side Wire Harness 16P Connector C604 - '06-08 Models**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

*Is the resistance as specified?*

**YES** - Short in the left side wire harness; replace the left side wire harness.

**NO** - Short in the right side wire harness; replace the right side wire harness.

**DTC 21-8X ("X" CAN BE 0 THRU 9 OR A THRU F): SHORT TO POWER IN DRIVER'S SEAT BELT TENSIONER**

**Special Tools Required**

- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

**NOTE:** Before doing this troubleshooting procedure, review **SRS Precautions and Procedures** (see **PRECAUTIONS AND PROCEDURES** ) and **General Troubleshooting Information** (see **GENERAL TROUBLESHOOTING INFORMATION** ).

1. Clear the DTC memory (see **CLEAR THE DTC MEMORY WITH THE HDS** ).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

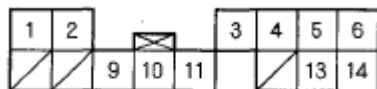
*Does the SRS indicator stay on, and is DTC 21-8x indicated?*

**YES** - Go to step 3.

**NO** - Intermittent failure, the system is OK at this time. Go to **TROUBLESHOOTING INTERMITTENT FAILURES** . If another DTC is indicated, troubleshoot the DTC.

3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

**XM RECEIVER CONNECTOR A (14P)**



Wire side of female terminals

**NAVIGATION UNIT CONNECTOR A (20P)**



Wire side of female terminals

**Fig. 66: Identifying XM Receiver Connector A (14P) And Navigation Unit Connector A (20P) Wire Side Of Female Terminals**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

*Is there continuity?*

**YES** - Go to step 13.

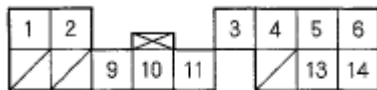
**NO** - Repair open in the appropriate wire between navigation unit and the XM receiver.

- Check for continuity between XM receiver connector A (14P) and the display panel control unit (20P) connector according to the table.

**XM RECEIVER CONNECTOR SPECIFICATIONS**

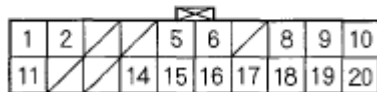
XM receiver connector	Display panel control unit connector	Wire color
A9	5	GRN
A10	15	RED

**XM RECEIVER CONNECTOR A (14P)**



Wire side of female terminals

**DISPLAY UNIT 20P CONNECTOR**



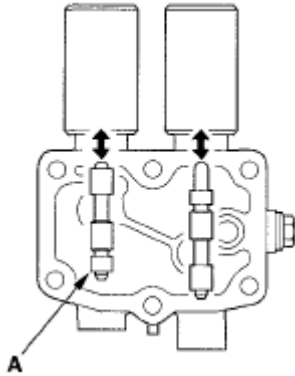
Wire side of female terminals

**Fig. 67: Identifying XM Receiver Connector A (14P) And Display Panel Control Unit (20P) Connector (Wire Side Of Female Terminals)**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

*Is there continuity?*

**YES** - Substitute a known-good XM receiver, then reconnect all of the connectors and recheck. If the symptom/indicated goes away, replace the original XM receiver. If the symptom/indicated is still present replace the audio unit.



**Fig. 211: Checking A/T Clutch Pressure Control Solenoid Valve (A)**  
**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

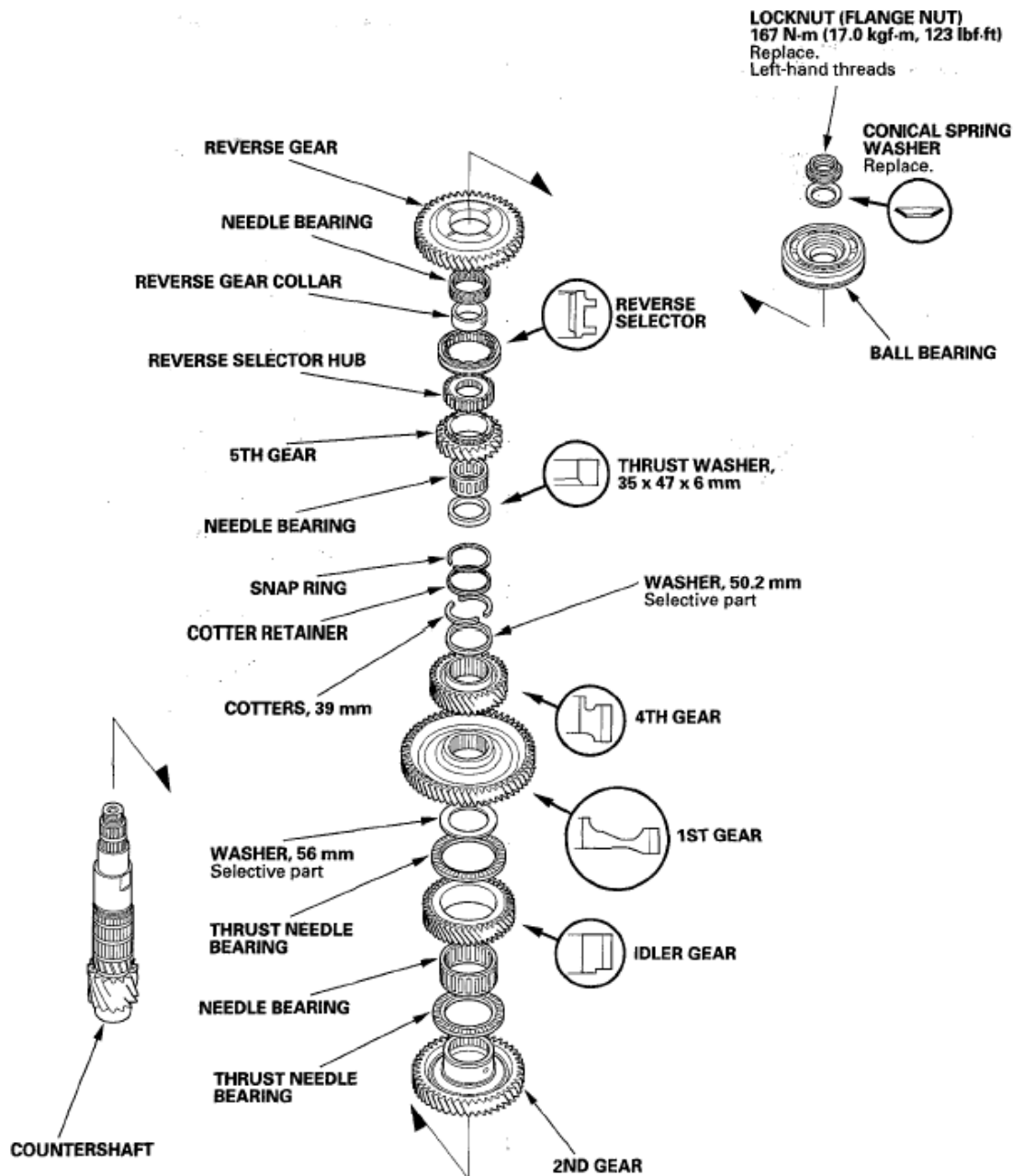
20. Disconnect one of the battery terminals, and check the valve movement at the fluid passage in the valve body mounting surface. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace A/T clutch pressure control solenoid valves A and B.
21. Clean the mounting surfaces and the fluid passages of the solenoid valve body and the solenoid valve cover.
22. Install the new solenoid valve body gasket on the solenoid valve cover, and install the ATF pipes with the filter end in the transmission housing. Install new O-rings over the ATF pipes.
23. Install A/T clutch pressure control solenoid valves A and B.
24. Secure the harness cover with the bolt.
25. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connectors securely.
26. Apply molybdenum grease to the hole in the bushing in the shift cable end. Attach the shift cable end to the control lever, then insert the control pin into the control lever hole through the shift cable end, and secure the control pin with the spring clip/washer.
27. Secure the shift cable bracket with the nuts.
28. Install the battery base.
29. Install the air cleaner (see **AIR CLEANER REMOVAL/INSTALLATION** ).
30. Install the battery tray, battery, and battery hold-down bracket, then connect the battery terminals.
31. Install the left upper fender cover and battery trim.
32. Enter the anti-theft codes for the audio system and the navigation system.
33. Do the steering column memorization (see **STEERING COLUMN POSITION MEMORIZATION** ).

#### **A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B TEST**

1. Connect the HDS to the DLC (A).

# 2007 Acura RL

2005-08 TRANSMISSION Automatic Transmission - RL



**Fig. 495: Exploded View Of Countershaft With Torque Specifications**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

**NOTE:** Refer to the Exploded View as needed during the following procedure.

1. Cut the lock tab (A) off the countershaft locknut (B) using a chisel (C).

**NOTE:** Keep all of the chiseled particles out of the countershaft.

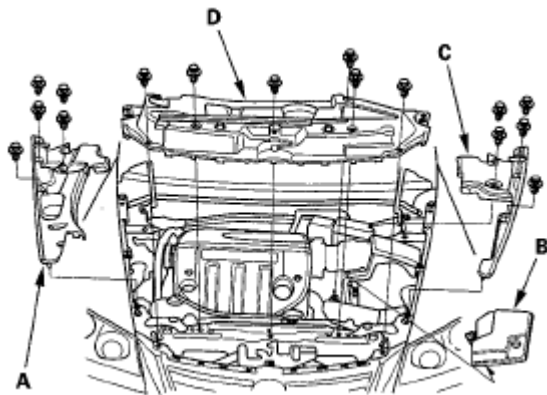


3. Install the tensioner pulley in the reverse order of removal.

## ALTERNATOR REMOVAL AND INSTALLATION

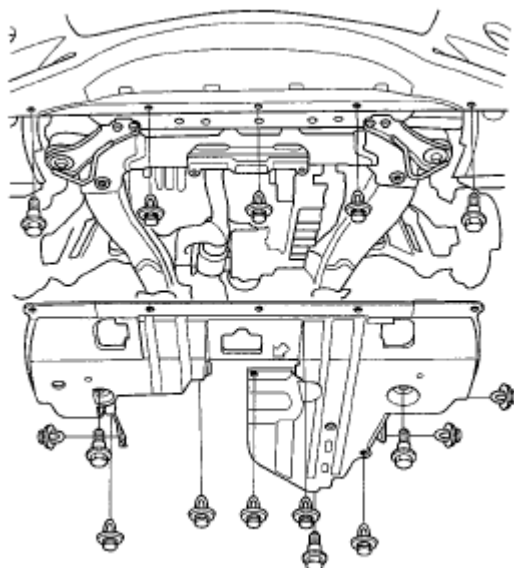
### REMOVAL

1. Make sure you have the anti-theft codes for the audio system and navigation system. Make sure the ignition switch is OFF.
2. Remove the right upper fender trim (A), battery trim (B), left upper fender trim (C), then remove the upper grille cover (D).



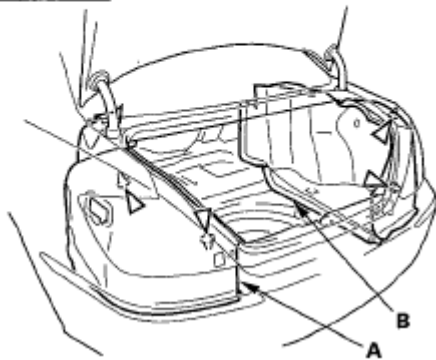
**Fig. 20: Identifying Right/Left Upper Fender Trim, Battery Trim And Upper Grille Cover**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Disconnect the negative cable from the battery.
4. Raise the vehicle on the lift to full height.
5. Remove the splash shield.



**Fig. 21: Identifying Splash Shield**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

## Fastener Locations

▷ : Clip, 4  
(Orange)

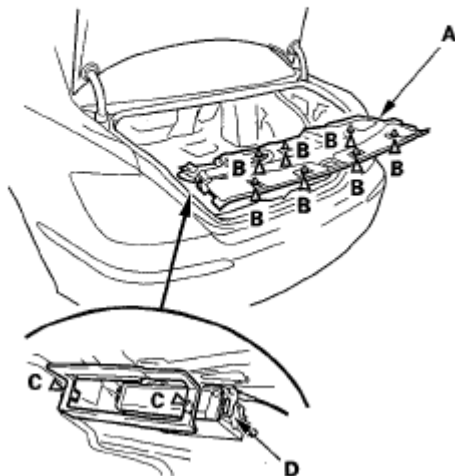
**Fig. 42: Identifying Left Trunk Side Trim Panel And Right Trunk Side Trim Panel**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Remove the trunk light (see **TRUNK LIGHT TEST/REPLACEMENT** ).
7. Lower the trunk upper trim panel (A) to detach the clips (B), and detach the clips (C) from the navigation unit bracket (D), then remove the panel from the trunk compartment.

## Fastener Locations

B ▷ : Clip, 7  
(White)

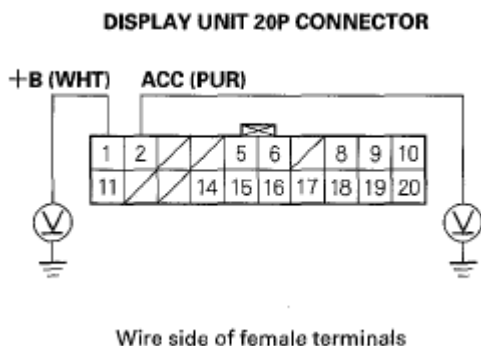
C ▷ : Clip, 2



**Fig. 43: Identifying Trunk Upper Trim Panel**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Install the trim in the reverse of removal, and note these items:
  - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
  - Push the clips into place securely.

13. Measure the voltage between body ground and display unit 20P connector No. 1 and No. 2 terminals individually.



**Fig. 30: Measuring Voltage Between Body Ground And Display Unit 20P Connector No. 1, 2 Terminals**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

*Is there battery voltage?*

**YES** - Replace the display unit.

**NO** - If the +B wire does not have voltage, repair an open in the wire between the driver's under-dash fuse relay box and the display unit 2P connector. If the ACC wire does not have voltage, repair an open in the wire between the under-dash fuse/relay box and the display unit 20P connector.

### **VEHICLE POSITION ICON CONSTANTLY LEAVES ROAD, MOVES ERRATICALLY, OR IS VERY FAR FROM ACTUAL POSITION**

#### **NOTE:**

- **This is not same condition as when driving off-road (or on a fire or logging road). This condition is caused by a loss of map matching from a bad sensor input. Check for after market or other objects that can block the GPS signal. Always perform Map matching (see MAP MATCHING ) before proceeding with the troubleshooting.**
- **Always make sure that the correct DVD color and version are installed.**
- **Check on-line for service bulletins or other service information for the navigation system.**
- **Inspect the DVD for dirt or damage.**

1. Check the GPS icon on the navigation picture.

*Is the GPS icon white?*

**YES** - Do the troubleshooting for GPS icon is white or not shown (see GPS ICON IS WHITE OR NOT SHOWN ).

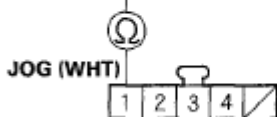
**NO** - Go to step 2.

2. Go into the Diagnostic Menu, and use the "Yaw Rate" test (see YAW RATE TUNING ) to check the

## NAVIGATION UNIT CONNECTOR A (20P)



JOG (WHT)



INTERFACE DIAL 5P CONNECTOR  
Wire side of female terminals

**Fig. 37: Checking Continuity Between Navigation Unit Connector A (20P) No. 17 Terminal And Interface Dial 5P Connector No. 1 Terminal**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

*Is there continuity?*

**YES** - Check for an open in the wire between the navigation unit connector A (20P) No. 19 terminal and the interface dial 5P connector No. 2 terminal. If the wire is OK, go to step 10. If the wire is open, repair the wire.

**NO** - There is an open in the circuit between the interface dial and the navigation unit. Check for poor connections or loose terminals at the interface dial and navigation unit. If a poor connection or loose terminals is found, replace the affected shielded harness.

10. Substitute a known-good interface dial (see NAVIGATION DISPLAY UNIT REMOVAL/INSTALLATION ), and recheck.

*Is the system OK?*

**YES** - Replace the original interface dial (see NAVIGATION DISPLAY UNIT REMOVAL/INSTALLATION ).

**NO** - Replace the navigation unit (see NAVIGATION UNIT REMOVAL/INSTALLATION ).

**GPS ICON IS WHITE OR NOT SHOWN**

**Diagnostic Test: Navi System Link**

**NOTE:**

- Check the vehicle battery condition first.
- Make sure the vehicle is parked outside and away from buildings.
- Refer to GPS INFORMATION for realtime satellite reception display.
- With good reception, the icon is normally green.

1. Check for metallic window tint on the windshield and electronic aftermarket accessories (possibly hidden) mounted near the GPS antenna or the navigation unit.

*Is there metallic window tint or electronic accessories?*

21. Start the engine, and let it idle 2 minutes.
22. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
  - ENGINE SPEED
  - VSS
  - TP SENSOR A
  - CLV (calculated load value)
  - ECT SENSOR 1
23. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

*Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?*

**YES** - Go to step 24.

**NO** - Intermittent misfire due to bad contact in the injector connector (no misfire at this time). Check for poor connections or loose terminals at the injector

24. Determine which cylinder had the misfire.

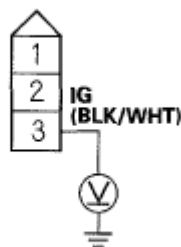
*Does the misfire occur in the cylinder where the injector was exchanged?*

**YES** - Replace the faulty injector (see **INJECTOR REPLACEMENT**), then go to step 55.

**NO** - Go to step 25.

25. Turn the ignition switch OFF.
26. Disconnect the ignition coil 3P connector from the problem cylinder.
27. Turn the ignition switch ON (II).
28. Measure voltage between ignition coil 3P connector terminal No. 3 and body ground.

#### IGNITION COIL 3P CONNECTOR

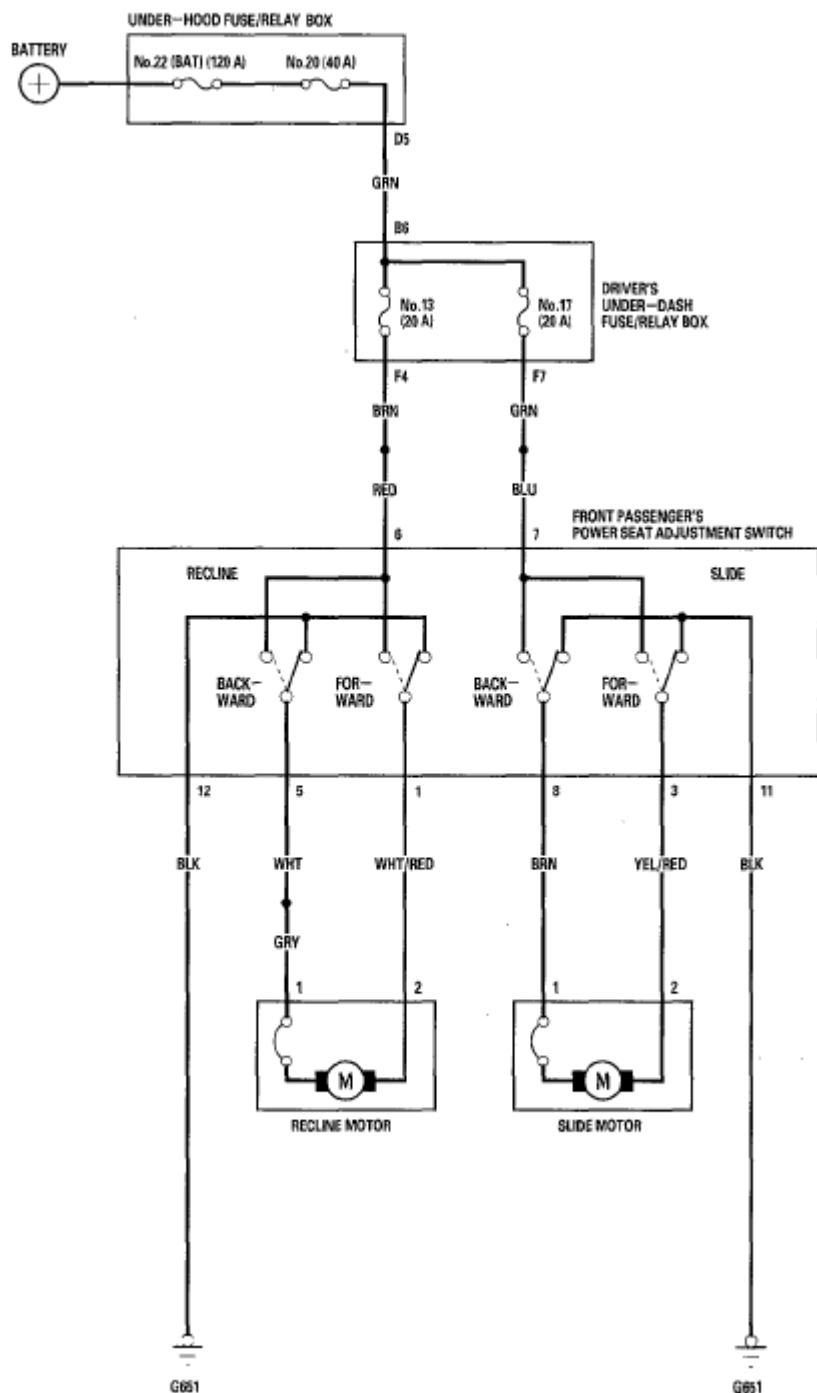


Wire side of female terminals

**Fig. 47: Measuring Voltage Between Ignition Coil 3P Connector Terminal No. 3 And Body Ground**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

*Is there battery voltage?*



**Fig. 2: Front Passenger's Power Seat - Circuit Diagram**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

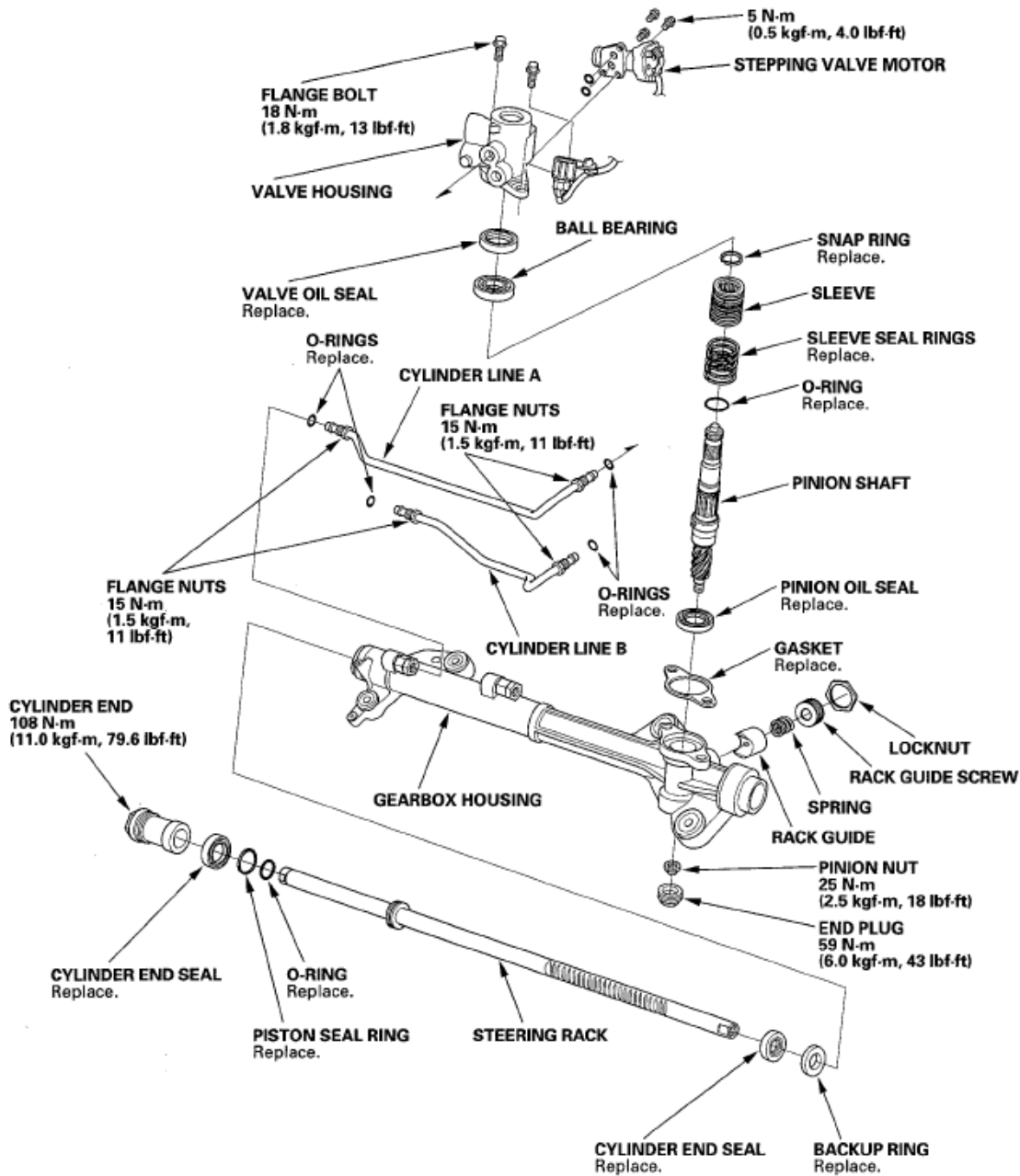
## POWER SEAT ADJUSTMENT SWITCH TEST/REPLACEMENT

**NOTE:** For the driver's power seat, refer to the Driving Position Memory System (DPMS) (see POWER SEAT ADJUSTMENT SWITCH TEST/REPLACEMENT ).

### FRONT PASSENGER'S SEAT

# 2007 Acura RL

2005-08 STEERING Steering - RL



**Fig. 80: Exploded View Of Steering Gearbox With Torque Specifications**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

## Special Tools Required

- Cylinder end seal remover attachment 07NAD-SR3020A
- Valve seal ring sizing tool 07NAG-SR3090A
- Ball joint boot clip guide 07974-SA50800
- Sleeve seal ring sizing tool 07974-SA5020A or 07974-SA50200
- Attachment, 32 x 35 mm 07746-0010100
- Attachment, 24 x 26 mm 07746-0010700
- Driver 07749-0010000