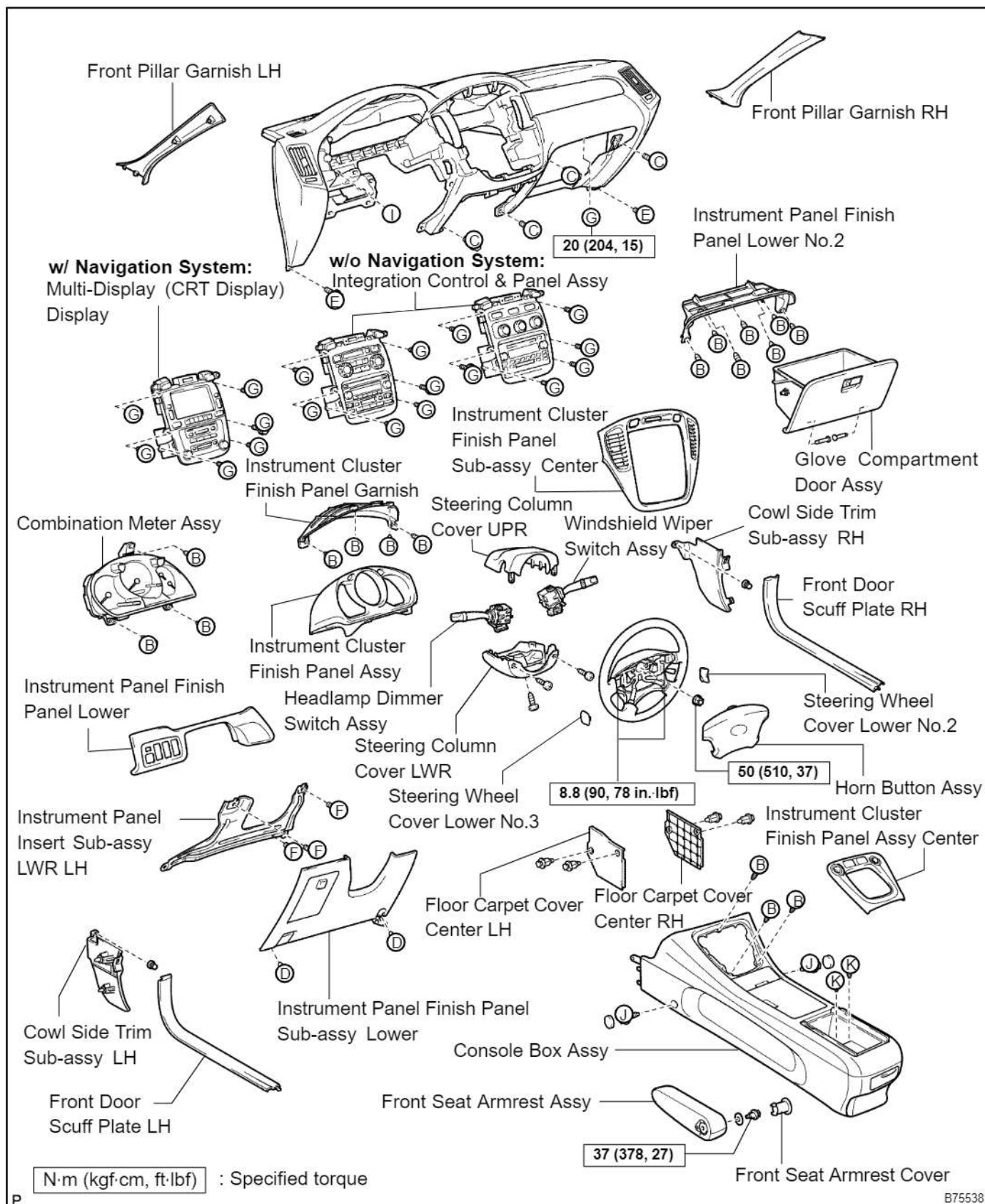
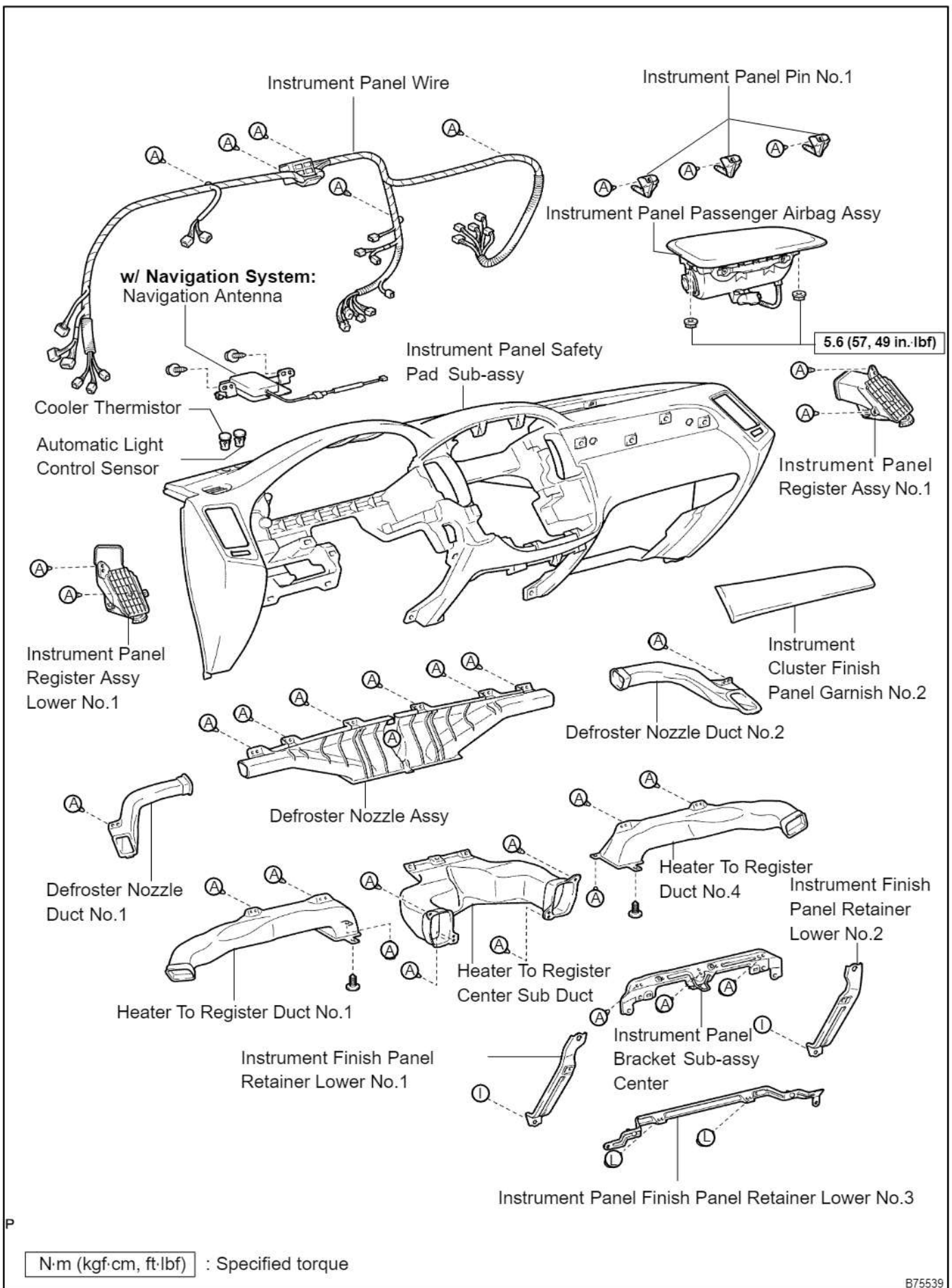


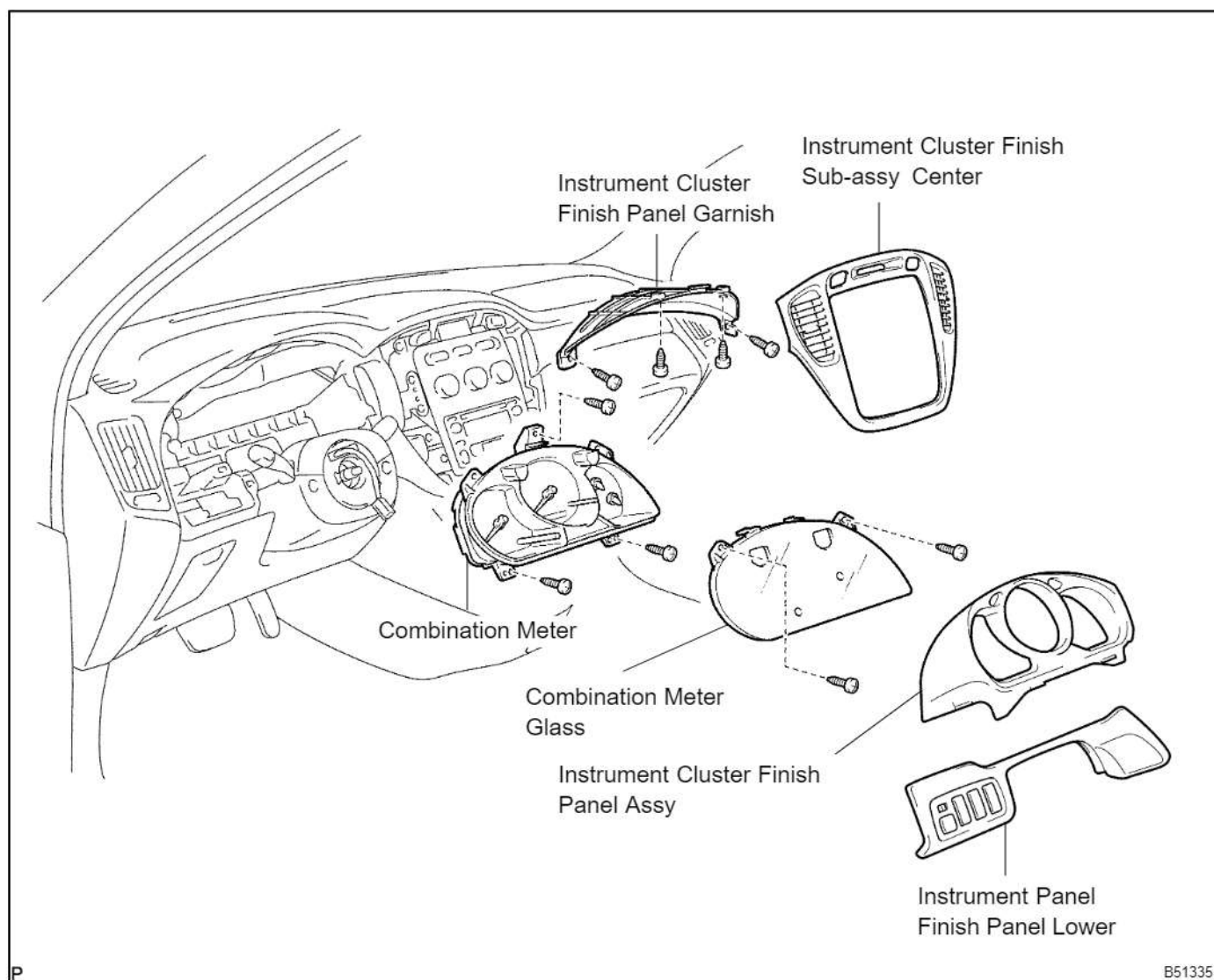
INSTRUMENT PANEL/METER COMPONENTS

7101H-02





B75539



ON-VEHICLE INSPECTION

1. INSPECT SPEEDOMETER

- (a) Check the operation.
- (1) Using a speedometer tester, inspect the speedometer for acceptable indication error and check the operation of the odometer.

Reference: km/h (Canada)

Standard indication	Acceptable range
20 km/h	18.0 to 23.0 km/h
40 km/h	40.0 to 44.0 km/h
60 km/h	60.0 to 64.5 km/h
80 km/h	80.0 to 85.0 km/h
100 km/h	100.0 to 105.0 km/h
120 km/h	120.0 to 125.5 km/h
140 km/h	140.0 to 146.0 km/h
160 km/h	160.0 to 167.0 km/h
180 km/h	180.0 to 188.0 km/h
200 km/h	200.0 to 209.0 km/h

Reference: mph (U.S.)

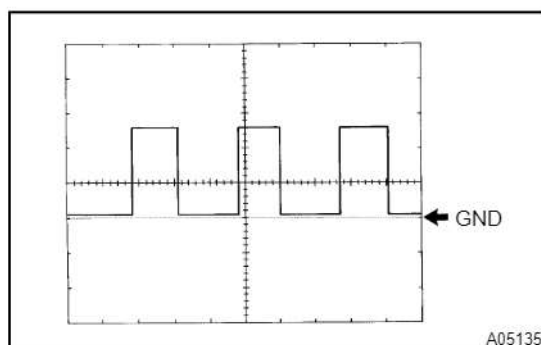
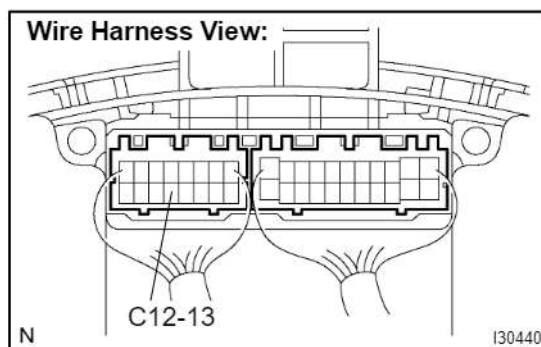
Standard indication	Acceptable range
20 MPH	20.0 to 23.0 MPH
40 MPH	40.0 to 43.5 MPH
60 MPH	60.0 to 64.0 MPH
80 MPH	80.0 to 84.5 MPH
100 MPH	100.0 to 105.0 MPH
120 MPH	120.0 to 125.5 MPH

NOTICE:

Tire wear and over or under tire pressure will affect the indication error.

- (2) Check the deflection width of the speedometer indicator.

Reference: Below 0.5 km/h (0.3 mph)



2. INSPECT OUTPUT SIGNAL OF VEHICLE SPEED

- (a) Check the output signal waveform.
- (1) Remove the combination meter assy.
- (2) Connect the oscilloscope to the terminals C12-13 and body ground.
- (3) Start the engine.
- (4) Check the signal waveform according to the condition (s) in the table below.

Item	Condition
Tool setting	5 V/DIV, 20 ms/DIV
Vehicle condition	Driving at approx. 20Km/h

HINT:

As the vehicle speed increases, the cycle of the signal waveform narrows.

3. INSPECT TACHOMETER

(a) Check operation

- (1) Connect the tune-up test tachometer and start the engine.

NOTICE:

- Reversing the connection of the tachometer will damage the transistors and the insides of the diodes.
- When removing or installing the tachometer, be careful not to drop or subject it to heavy shocks.

- (2) Compare the result of the test with the standard indication.

DC 13.5 V, 25°C (77°F)

Standard indication (r/min)	Acceptable range (r/min) Data in () are for reference
700	630 to 770
1,000	(900 to 1100)
2,000	(1850 to 2150)
3,000	2800 to 3200
4,000	(3800 to 4200)
5,000	4800 to 5200
6,000	(5750 to 6250)
7,000	6700 to 7300

Fuel Sender Gauge Connector
Front View:



1e-5-1-A

130899

4. INSPECT FUEL RECEIVER GAUGE

- (a) Disconnect the connector from the sender gauge.
 (b) Connect terminals 1 and 2 on the wire harness side connector of the fuel sender gauge.
 (c) Turn the ignition switch to the ON position, then check the position of the receiver gauge needle.

OK:

Needle position is on (EMPTY).

- (d) Connect terminals 2 and 3 on the wire harness side connector of the fuel sender gauge.
 (e) Turn the ignition switch to the ON position, then check the position of the receiver gauge needle.

OK:

Needle position is on (FULL).

5. INSPECT FUEL LEVEL WARNING

- (a) Disconnect the connector from the sender gauge.
 (b) Turn the ignition switch to the ON position, then check that the fuel level needle indicates EMPTY and the fuel level warning light comes on.

OK:

Fuel level warning light comes on.

6. INSPECT LOW OIL PRESSURE WARNING LIGHT

- (a) Disconnect the connector from the low oil pressure switch.
 (b) Turn the ignition switch to the ON position.
 (c) Ground the terminal of the wire harness side connector, then check the low oil pressure warning light.

OK:

Low oil pressure warning light comes on.

7. INSPECT BRAKE WARNING LIGHT

- (a) Inspect the parking brake warning light.
 - (1) Disconnect the connector from the parking brake switch.
 - (2) Turn the ignition switch to the ON position.
 - (3) Ground the terminal of the wire harness side connector, then check the parking brake warning light.

OK:**Brake warning light comes on.**

- (b) Inspect the brake fluid level warning light.
 - (1) Disconnect the connector from the brake fluid level warning switch.
 - (2) Turn the ignition switch to the ON position.
 - (3) Connect a terminal to the other terminal of the wire harness side connector, then check the brake fluid level warning switch.

OK:**Brake warning light comes on.****8. INSPECT BRAKE FLUID LEVEL WARNING SWITCH**

- (a) Remove the reservoir tank cap and strainer.
- (b) Disconnect the connector.
- (c) Measure the resistance between the terminals.

Standard:**Float up (switch off): 10 k Ω or higher**

- (d) Use a syphon, etc. to take fluid out of the reservoir tank.
- (e) Measure the resistance between the terminals.

Standard:**Float down (switch on): Below 1 Ω**

- (f) Pour the fluid back in the reservoir tank.

9. INSPECT WASHER LEVEL WARNING SWITCH

- (a) Disconnect the connector from the washer level warning switch.
- (b) Turn the ignition switch to the ON position.
- (c) Ground the terminal of the wire harness side connector, then check the washer level warning light.

OK:**Washer level warning light comes on.****10. MAINTENANCE LIQUID RESETTING PROCEDURE****Indicator Condition:**

State	Condition	Specified State
Blinking	The vehicle runs 4,500 miles after the previous setting	The indicator blinks for 15 seconds after the ignition switch on (including 3 seconds for a valve check).
Continuously Illuminated	The vehicle runs 5,000 miles after the previous setting	The indicator is continuously illuminated after the ignition switch on.

- (a) Set the display window to ODO.
- (b) Turn the ignition switch off.
- (c) Pressing the reset switch, turn the ignition switch to the ON position (keep pressing for at least 5 seconds).
- (d) Reset procedure is completed.

HINT:

- If the ignition switch is turned off during reset procedure, reset mode is canceled.
- If the reset switch is turned off during the reset procedure, reset mode is canceled and the display shows the condition prior to the reset procedure.

INSTRUMENT PANEL SAFETY PAD SUB-ASSY

71011-02

PRECAUTION

1. PRECAUTION FOR VEHICLE WITH SRS AIRBAG AND SEAT BELT PRETENSIONER

- (a) Some operations in this section may affect the SRS airbags. Prior to performing the corresponding operations, read the SRS airbag NOTICE (see page [60-1](#)).

COMBINATION METER

PROBLEM SYMPTOMS TABLE

7101E-06

Warning Lights:

Symptom	Suspect Area	See page
Check Engine warning light does not come on.	7. ECM 8. Wire Harness or Connector 9. Combination Meter Assy	05-5 05-366 - 71-18
Discharge warning light does not come on.	1. ECM 2. Wire Harness or Connector 3. Combination Meter Assy	05-5 05-366 - 71-18
Brake warning light does not come on.	1. Skid control ECU 2. Wire Harness or Connector 3. Combination Meter Assy	05-761 - 71-18
ABS warning light does not come on.	1. ABS ECU 2. Wire Harness or Connector 3. Combination Meter Assy	05-761 - 71-18
SRS warning light does not come on.	1. Airbag Sensor Assy Center 2. Wire Harness or Connector 3. Combination Meter Assy	05-1200 - 71-18
Open Door warning light does not come on.	1. Refer to troubleshooting 2. Wire Harness or Connector 3. Combination Meter Assy	05-1601 - 71-18
Fuel Level warning light does not come on.	1. Refer to troubleshooting 2. Wire Harness or Connector 3. Combination Meter Assy	05-1893 - 71-18
Low Oil Pressure warning light does not come on.	1. Low Oil Pressure Warning Switch 2. Wire Harness or Connector 3. Combination Meter Assy	71-3 - 71-18
Driver's seat belt warning light does not come on.	1. Refer to troubleshooting 2. Wire Harness or Connector 3. Combination Meter Assy	05-1898 - 71-18
"OIL LEVEL" warning light does not come on.	1. Low Oil Level Sensor 2. Wire Harness or Connector 3. ECM 4. Combination Meter Assy	05-5 05-366 - 05-5 05-366 71-18
"TIRE AIR PRESS" warning light does not come on.	1. Wire Harness or Connector 2. Skid Control ECU 3. Combination Meter Assy	- 05-761 71-18

Indicator Lights:

Symptom	Suspect Area	See page
Turn indicator light does not come on.	1. Turn Signal and Hazard Warning System 2. Wire Harness or Connector 3. Combination Meter Assy	05-1533 - 71-18
High Beam indicator light does not come on.	1. Headlight Dimmer Switch 2. Wire Harness or Connector 3. Combination Meter Assy	05-1533 - 71-18
Washer level indicator light does not come on.	1. Washer Level Warning Switch 2. Wire Harness or Connector 3. Combination Meter Assy	- - 71-18

MAINT REQD indicator is blinking or continuously illuminated.	1. Resetting procedure 2. Combination Meter Assy	71-3 71-18
All buzzer (key reminder, tail cancel, Seat belt) does not operate.	1. Refer to troubleshooting 2. Combination Meter Assy	05-1879 71-18
O/D OFF indicator light does not come on.	1. O/D off Select Switch 2. Wire Harness or Connector 3. Combination Meter Assy	- - 71-18
SLIP indicator light does not come on.	1. Wire Harness or Connector 2. Skid Control ECU 3. Combination Meter Assy	- 05-761 71-18
VSC indicator light does not come on.	1. Wire Harness or Connector 2. Skid Control ECU 3. Combination Meter Assy	- 05-761 71-18
TRC/TRAC OFF indicator light does not come on.	1. Wire Harness or Connector 2. Skid Control ECU 3. Combination Meter Assy	- 05-761 71-18
A/T OIL TEMP indicator light does not come on.	1. Wire Harness or Connector 2. Automatic transmission 3. Combination Meter Assy	- 05-883 05-993 71-18
ECT SNOW indicator light does not come on.	1. Wire Harness or Connector 2. ECM 3. Combination Meter Assy	- 05-5 05-366 71-18
A/T shift indicator light does not come on.	1. Park Neutral Position Switch 2. Wire Harness or Connector 3. ECM 4. Combination Meter Assy	05-883 05-993 - 05-5 05-366 71-18
"CRUISE" indicator light does not come on.	1. Wire Harness or Connector 2. ECM 3. Combination Meter Assy	- 05-5 05-366 71-18

Meter Gauges:

Symptom	Suspect Area	See page
Speedometer does not operate.	1. Refer to troubleshooting	05-1885
Tachometer does not operate.	1. Refer to troubleshooting	05-1889
Fuel Gauge does not operate or operates abnormally.	1. Refer to troubleshooting	05-1893
Water temperature does not operate.	1. Refer to troubleshooting	05-1896

Clock:

Symptom	Suspect Area	See page
Clock will not operate Clock loses or gains time	1. Power source or ground 2. Integration control & panel assy	05-1170 05-1173 05-1175 71-6

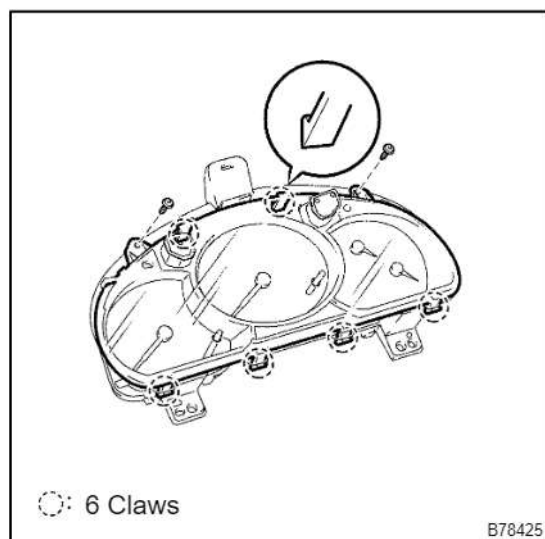
COMBINATION METER ASSY OVERHAUL

7101K-05

HINT:

The installation is in the reverse order of the removal. However, when there is a special point concerning the installation, it is indicated.

1. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSY CENTER (SEE PAGE 71-10)
2. REMOVE INSTRUMENT PANEL FINISH PANEL LOWER (SEE PAGE 71-10)
3. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSY (SEE PAGE 71-10)
4. REMOVE INSTRUMENT CLUSTER FINISH PANEL GARNISH (SEE PAGE 71-10)
5. REMOVE COMBINATION METER ASSY (SEE PAGE 71-10)



6. REMOVE COMBINATION METER GLASS

- (a) Remove the 2 screws.
- (b) Disengage the 6 claws and remove the combination meter glass.

REPLACEMENT

HINT:

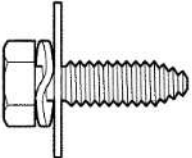
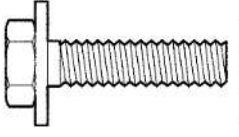
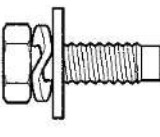
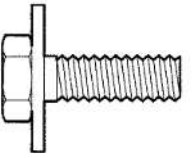
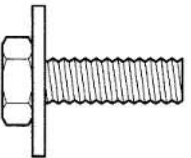
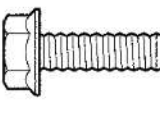
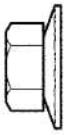
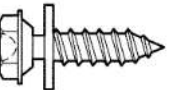
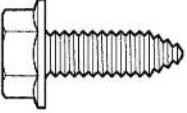
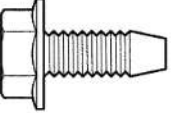
COMPONENTS: SEE PAGE 71-6

1. TABLE OF BOLT, SCREW AND NUT

HINT:

The bolts, screws and nuts necessary for installation and removal of the instrument panel, are illustrated below and alphabetically coded.

mm (in.) (L = Length)

Code	Shape	Code	Shape	Code	Shape
<A>	 $\varphi = 5$ (0.20) L = 16 (0.63) 93567 - 15016		 $\varphi = 5.22$ (0.21) L = 16 (0.63) 93567 - 55016	<C>	 $\varphi = 6$ (0.24) L = 16 (0.63) 90119-06144
<D>	 $\varphi = 6$ (0.24) L = 25 (0.98) 91635-60625	<E>	 $\varphi = 6$ (0.24) L = 20 (0.79) 90119 - 06251	<F>	 $\varphi = 6$ (0.24) L = 20 (0.79) 91635-60620
<G>	 $\varphi = 8$ (0.32) L = 20 (0.79) 91635 - 60820	<H>	 $\varphi = 6$ (0.24) L = 20 (0.79) 91513 - 60625	<I>	 $\varphi = 6$ (0.24) 90179 - 06097
<J>	 $\varphi = 5$ (0.20) L = 18.5 (0.73) 90159-5087	<K>	 $\varphi = 6$ (0.24) L = 18 (0.71) 91515-60618	<L>	 $\varphi = 6$ (0.24) L = 16 (0.63) 92615-00616

P

B78418

2. DISCONNECT BATTERY NEGATIVE TERMINAL (SEE PAGE 60-1)
3. PLACE FRONT WHEELS FACING STRAIGHT AHEAD
4. REMOVE STEERING WHEEL COVER LOWER NO.2
5. REMOVE STEERING WHEEL COVER LOWER NO.3
6. REMOVE HORN BUTTON ASSY (SEE PAGE 60-17)

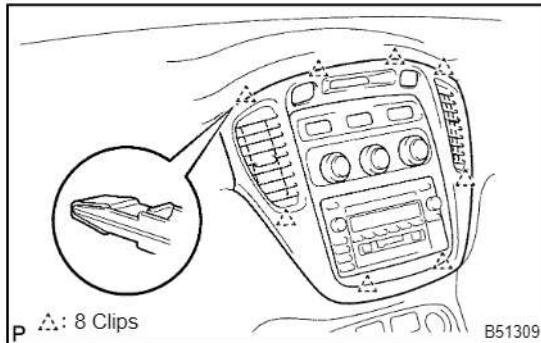
2005 HIGHLANDER REPAIR MANUAL (RM1144U)

Author :

Date :

3601

7. **REMOVE STEERING WHEEL ASSY (SEE PAGE 50-8)**
SST 09950-50013 (09951-05010, 09952-05010, 09953-05020, 09954-05021)
8. **REMOVE STEERING COLUMN COVER LWR (SEE PAGE 50-8)**
9. **REMOVE STEERING COLUMN COVER UPR (SEE PAGE 50-8)**
10. **REMOVE HEADLAMP DIMMER SWITCH ASSY (SEE PAGE 65-25)**
11. **REMOVE WINDSHIELD WIPER SWITCH ASSY (SEE PAGE 66-16)**



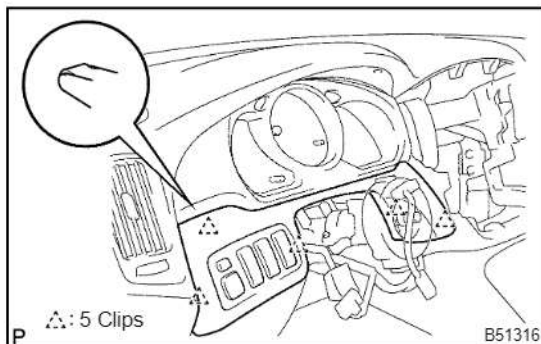
12. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSY CENTER

- (a) Using a moulding remover, disengage the 8 clips.
- (b) Disconnect the connectors, then remove the instrument cluster finish panel sub-assy center.

HINT:

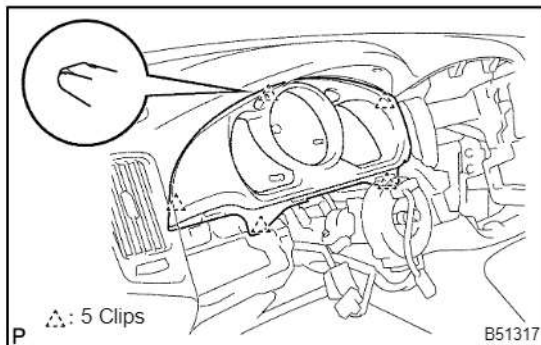
Set the shift lever in the N position.

13. **REMOVE INTEGRATION CONTROL & PANEL ASSY (W/O NAVIGATION SYSTEM) (SEE PAGE 55-26)**
14. **REMOVE MULTI-DISPLAY (CRT DISPLAY) DISPLAY (W/ NAVIGATION SYSTEM) (SEE PAGE 67-8)**



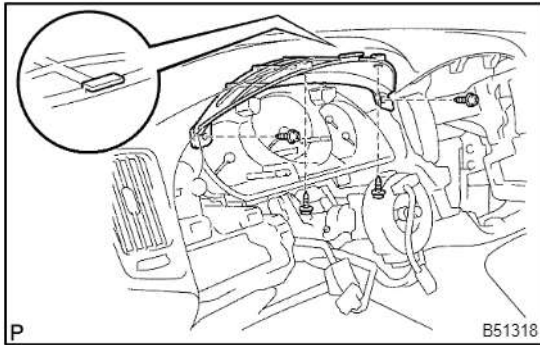
15. REMOVE INSTRUMENT PANEL FINISH PANEL LOWER

- (a) Using a moulding remover, disengage the 5 clips.
- (b) Disconnect the connectors, then remove the instrument panel finish panel lower.



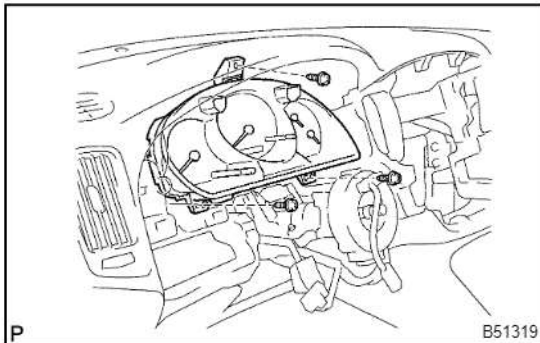
16. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSY

- (a) Using a moulding remover, disengage the 5 clips, then remove the instrument cluster finish panel assy.



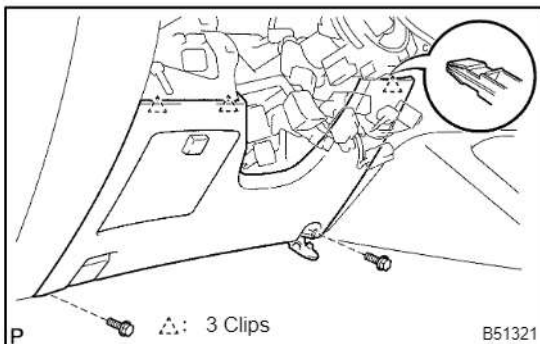
17. REMOVE INSTRUMENT CLUSTER FINISH PANEL GARNISH

- Remove the 4 screws .
- Disengage the claw, then remove the instrument cluster finish panel garnish.



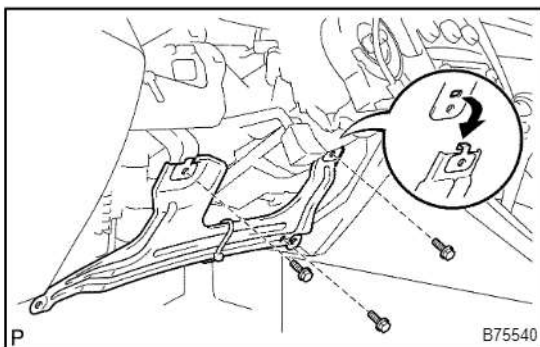
18. REMOVE COMBINATION METER ASSY

- Remove the 3 screws , then pull the combination meter assy.
- Disconnect the connectors, then remove the combination meter assy.



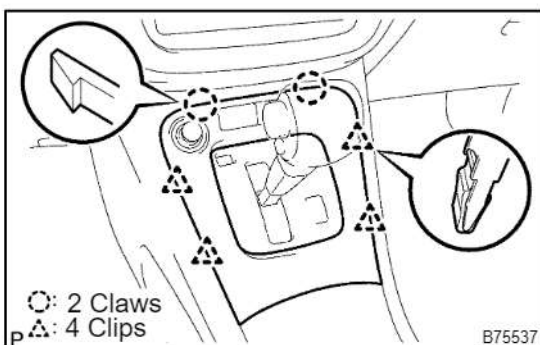
19. REMOVE INSTRUMENT PANEL FINISH PANEL SUB-ASSY LOWER

- Remove the 2 bolts <D>.
- Disengage the 3 clips.
- Disconnect the connectors.
- Disconnect the hood lock control cable, then remove the instrument panel finish panel sub-assy lower.



20. REMOVE INSTRUMENT PNL INSERT SUB-ASSY LWR LH

- Remove the 3 bolts <F> and the instrument panel insert sub-assy LWR LH.

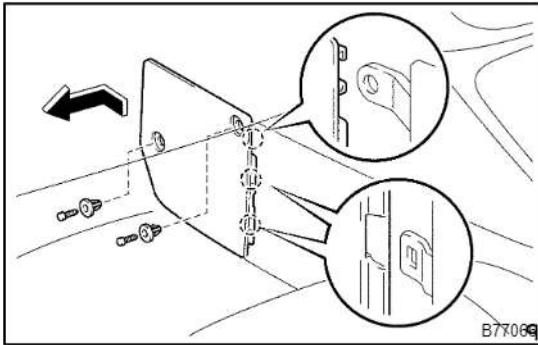


21. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSY CENTER

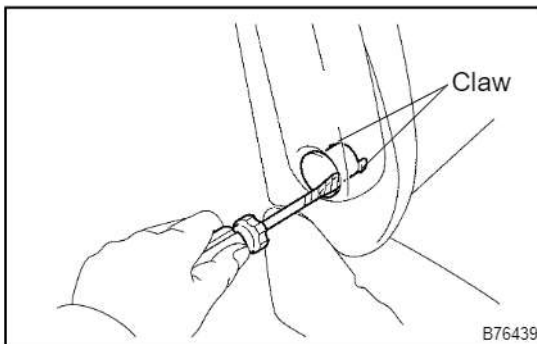
- Using a moulding remover, disengage the 4 clips and the 2 claws.
- Disconnect the connectors, then remove the instrument cluster finish panel assy center.

HINT:

Set the shift lever in the N position.

**22. REMOVE FLOOR CARPET COVER CENTER LH**

- (a) Remove the 2 clips and the floor carpet cover center LH.

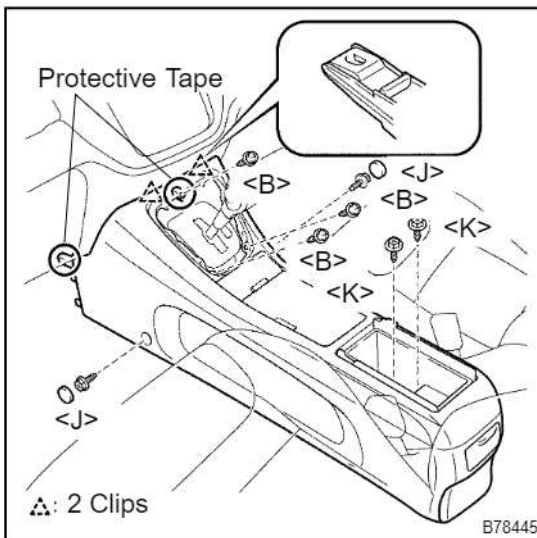
23. REMOVE FLOOR CARPET COVER CENTER RH**24. REMOVE FRONT SEAT ARMREST ASSY CENTER**

- (a) Using a screwdriver, disengage the 2 claws and remove the seat armrest cover LH.

HINT:

Tape the screwdriver tip, before use.

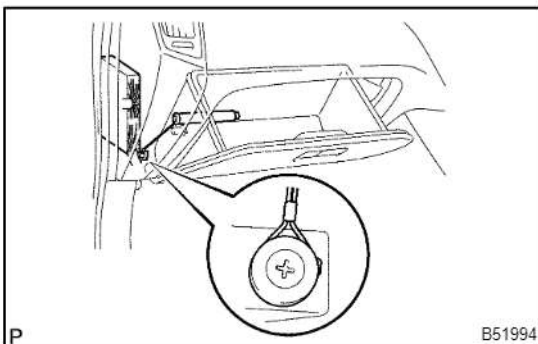
- (b) Remove the bolt and front seat armrest assy center.

**25. REMOVE CONSOLE BOX ASSY**

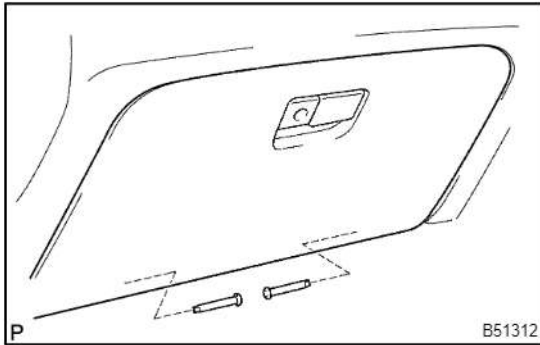
- (a) Cover the parts indicated in the illustration with protective tape to prevent them from being damaged.
- (b) Remove the 3 screws .
- (c) Remove the 2 console caps and the 2 screws <J>.
- (d) Remove the 2 bolts <K>.
- (e) Pull the console box assy towards the rear of the vehicle and disengage the 2 clips, and then remove the console box assy.

NOTICE:

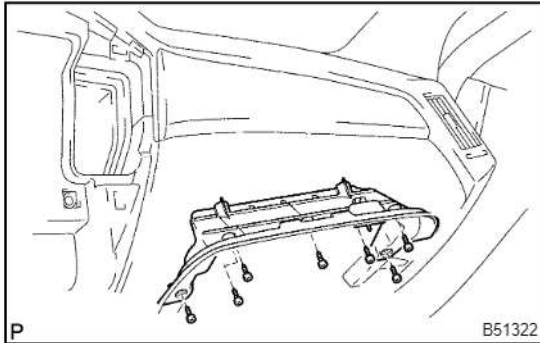
Be careful not to damage the bottom of the instrument panel safety pad when removing the console box assy.

**26. REMOVE GLOVE COMPARTMENT DOOR ASSY**

- (a) Remove the glove compartment door damper clip.



- (b) Remove the 2 clips and the glove compartment door assy.



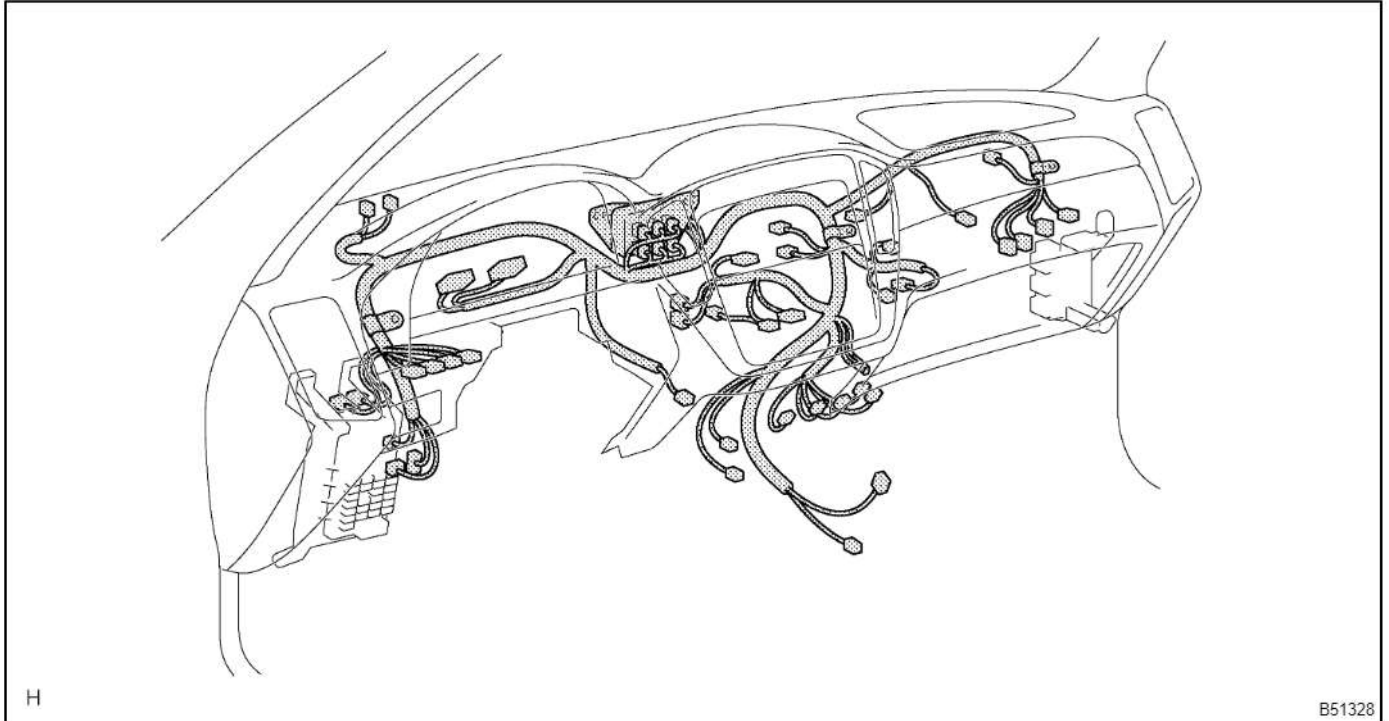
27. REMOVE INSTRUMENT PANEL FINISH PANEL LOWER NO.2

- (a) Remove the 7 screws and the instrument panel finish panel lower No. 2.

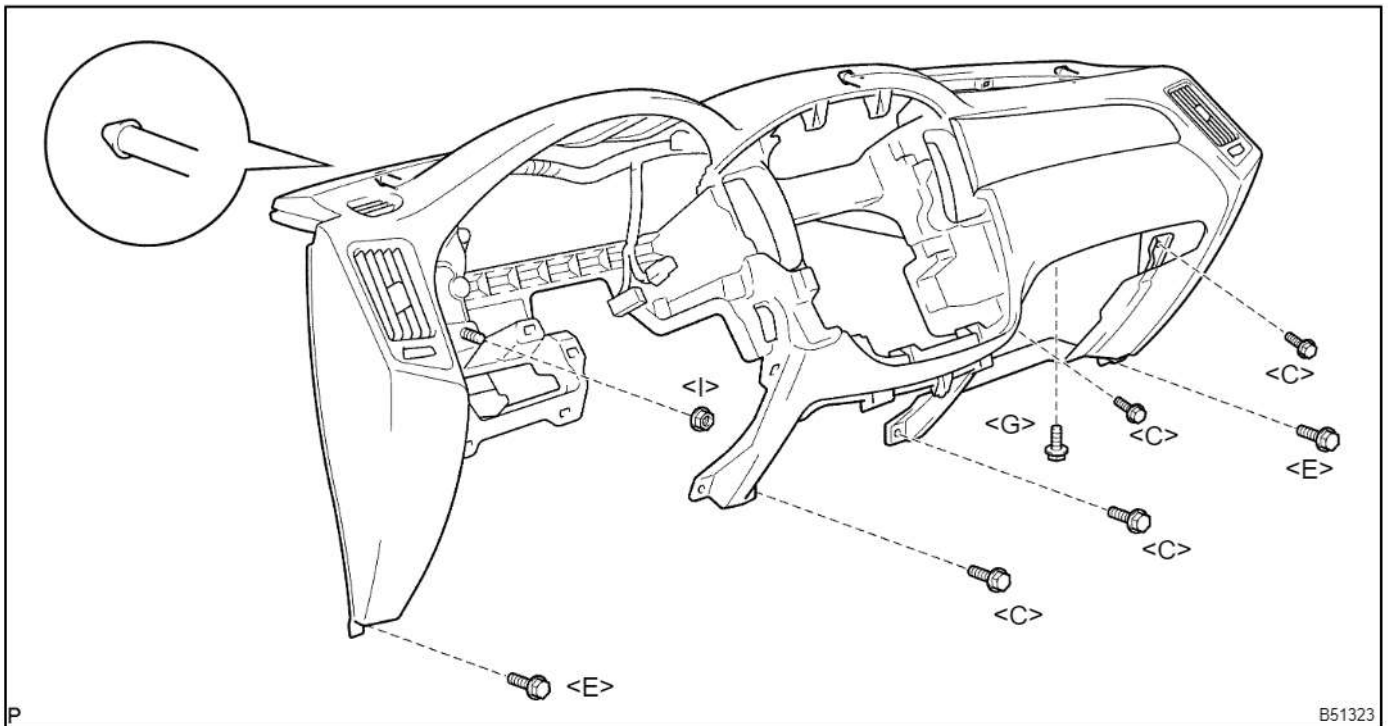
28. DISCONNECT PASSENGER AIRBAG CONNECTOR (SEE PAGE 60-29)
29. REMOVE FRONT PILLAR GARNISH LH (SEE PAGE 76-21)
30. REMOVE FRONT PILLAR GARNISH RH (SEE PAGE 76-21)
31. REMOVE FRONT DOOR SCUFF PLATE LH (SEE PAGE 76-21)
32. REMOVE FRONT DOOR SCUFF PLATE RH (SEE PAGE 76-21)
33. REMOVE COWL SIDE TRIM SUB-ASSY LH (SEE PAGE 76-21)
34. REMOVE COWL SIDE TRIM SUB-ASSY RH (SEE PAGE 76-21)

35. REMOVE INSTRUMENT PANEL SAFETY PAD SUB-ASSY W/PASSENGER AIR BAG ASSY

- (a) Disconnect the connectors.



- (b) Remove the 7 bolts <C> <E> <G> and the nut <I>.
 (c) Disengage the 3 pins, then remove the instrument panel safety pad sub-assy.



36. REMOVE INSTRUMENT CLUSTER FINISH PANEL GARNISH NO.2

- (a) Disengage the 4 clips, then remove the instrument cluster finish panel garnish No. 2.

37. REMOVE AUTOMATIC LIGHT CONTROL SENSOR

- (a) Disconnect the connector.
(b) Remove the automatic light control sensor.

38. REMOVE COOLER (SOLAR SENSOR) THERMISTOR

- (a) Disconnect the connector.
(b) Remove the cooler (solar sensor) thermistor.

NOTICE:

Do not pry the cooler (solar sensor) thermistor off from the upper position.

39. REMOVE INSTRUMENT PANEL PIN NO.1

- (a) Remove the 3 screws and the 3 instrument panel pin No.1.

40. REMOVE DEFROSTER NOZZLE ASSY

- (a) Remove the 7 screws <A> and the defroster nozzle assy.

41. REMOVE SIDE DEFROSTER NOZZLE DUCT NO.1

- (a) Remove the screw <A> and the defroster nozzle duct No. 1.

42. REMOVE SIDE DEFROSTER NOZZLE DUCT NO.2

- (a) Remove the screw <A> and the side defroster nozzle duct No. 2.

43. REMOVE HEATER TO REGISTER DUCT NO.1

- (a) Remove the clip.
(b) Remove the 3 screws <A> and the heater to register duct No. 1.

44. REMOVE HEATER TO REGISTER DUCT NO.4

- (a) Remove the clip.
(b) Remove the 3 screws <A> and the heater to register duct No. 4.

45. REMOVE HEATER TO REGISTER CENTER SUB DUCT

- (a) Remove the 4 screws <A> and the heater to register center sub duct.

46. REMOVE INSTRUMENT PANEL REGISTER ASSY LOWER NO.1

- (a) Remove the 2 screws <A> and the instrument panel register assy lower No. 1.

47. REMOVE INSTRUMENT PANEL REGISTER ASSY NO.1

- (a) Remove the 2 screws <A> and the instrument panel register assy No. 1.

48. REMOVE INSTRUMENT PANEL BRACKET SUB-ASSY CENTER

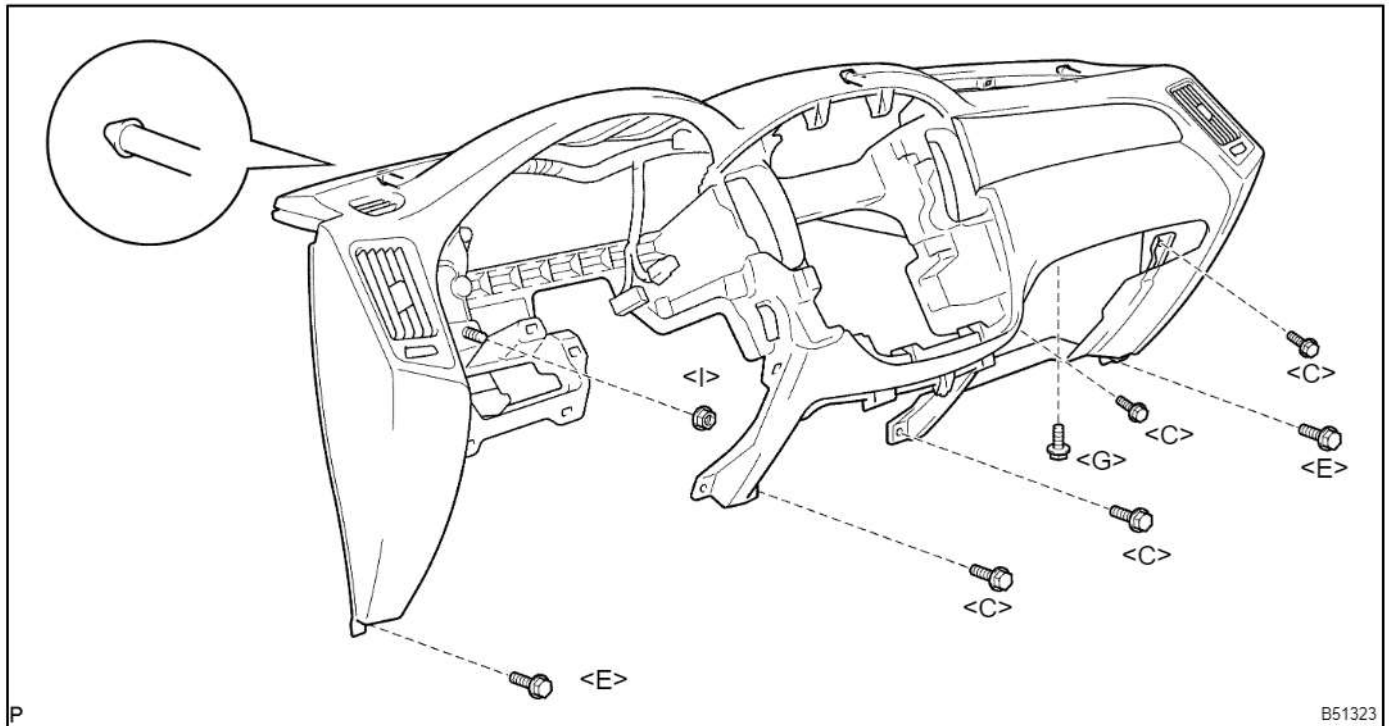
- (a) Remove the 3 screws <A> and the instrument panel bracket sub-assy center.

49. REMOVE NAVIGATION ANTENNA ASSY (W/ NAVIGATION SYSTEM) (SEE PAGE 67-19)**50. REMOVE INSTRUMENT PANEL WIRE****51. REMOVE INSTRUMENT PANEL PASSENGER AIR BAG ASSY (SEE PAGE 60-29)****52. REMOVE INSTRUMENT PANEL SAFETY PAD SUB-ASSY**

53. INSTALL INSTRUMENT PANEL PASSENGER AIR BAG ASSY (SEE PAGE 60-29)
54. INSTALL INSTRUMENT PANEL SAFETY PAD SUB-ASSY W/PASSENGER AIR BAG ASSY
- (a) Install the 7 bolts <C> <E> <G>, nut <I> with the instrument panel safety pad sub-assy.

Torque:

Bolt <G>: 20 N·m (204 kgf·cm, 15 ft·lbf)



55. INSTALL FRONT SEAT ARMREST ASSY CENTER
56. CENTER SPIRAL CABLE (SEE PAGE 60-26)
57. INSTALL STEERING WHEEL ASSY (SEE PAGE 50-8)
58. INSPECT STEERING WHEEL CENTER POINT
59. INSTALL HORN BUTTON ASSY (SEE PAGE 60-17)
60. CONNECT BATTERY NEGATIVE TERMINAL
61. INSPECT HORN BUTTON ASSY (SEE PAGE 60-1 1)
62. INSPECT SRS WARNING LIGHT (SEE PAGE 05-1207)