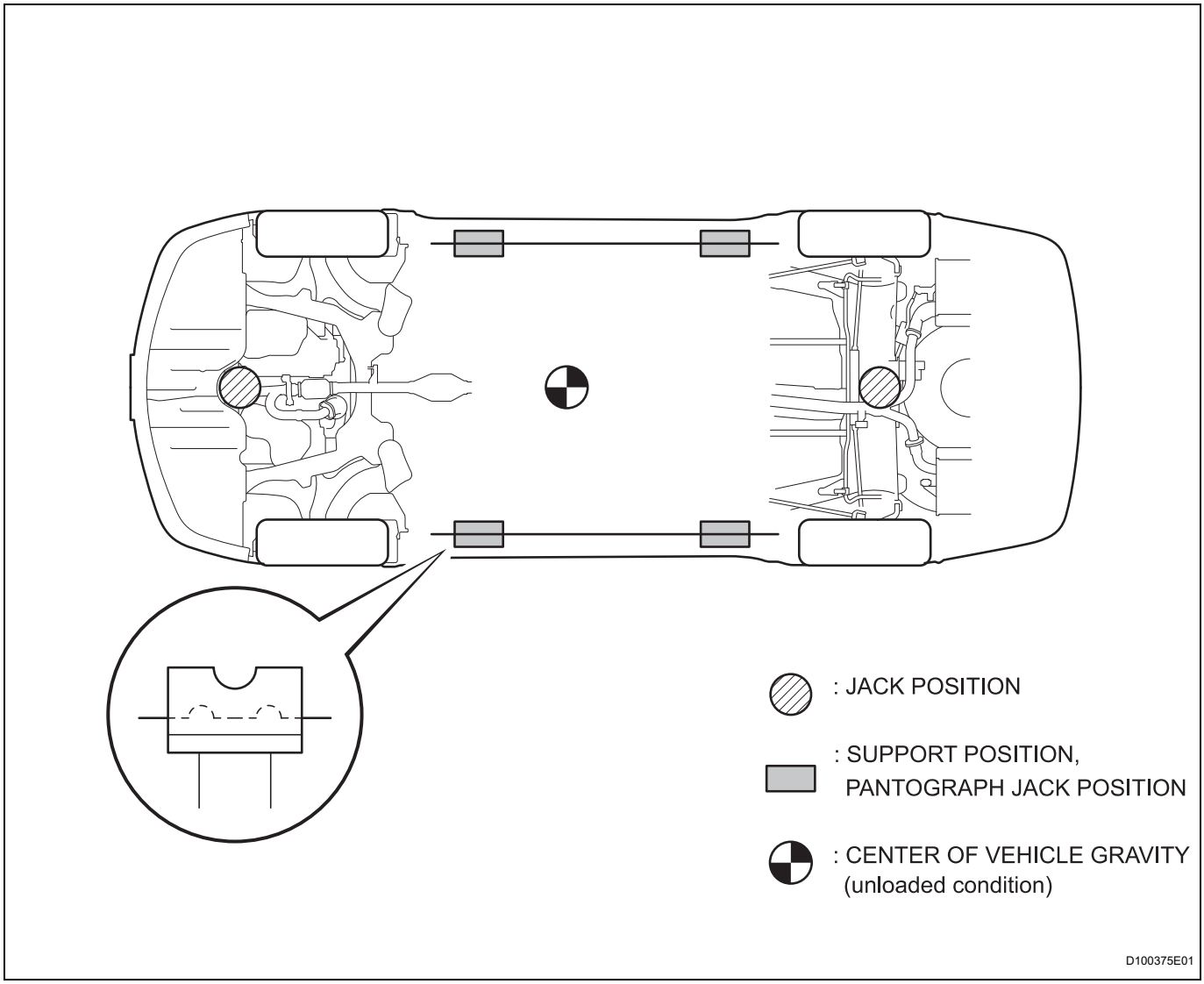
(g) When jacking down the vehicle with its front wheels jacked up, release the parking brake and place wheel stoppers only in front of the rear wheels. When jacking down the vehicle with its rear wheels jacked up, place wheel stoppers only behind the front wheels.

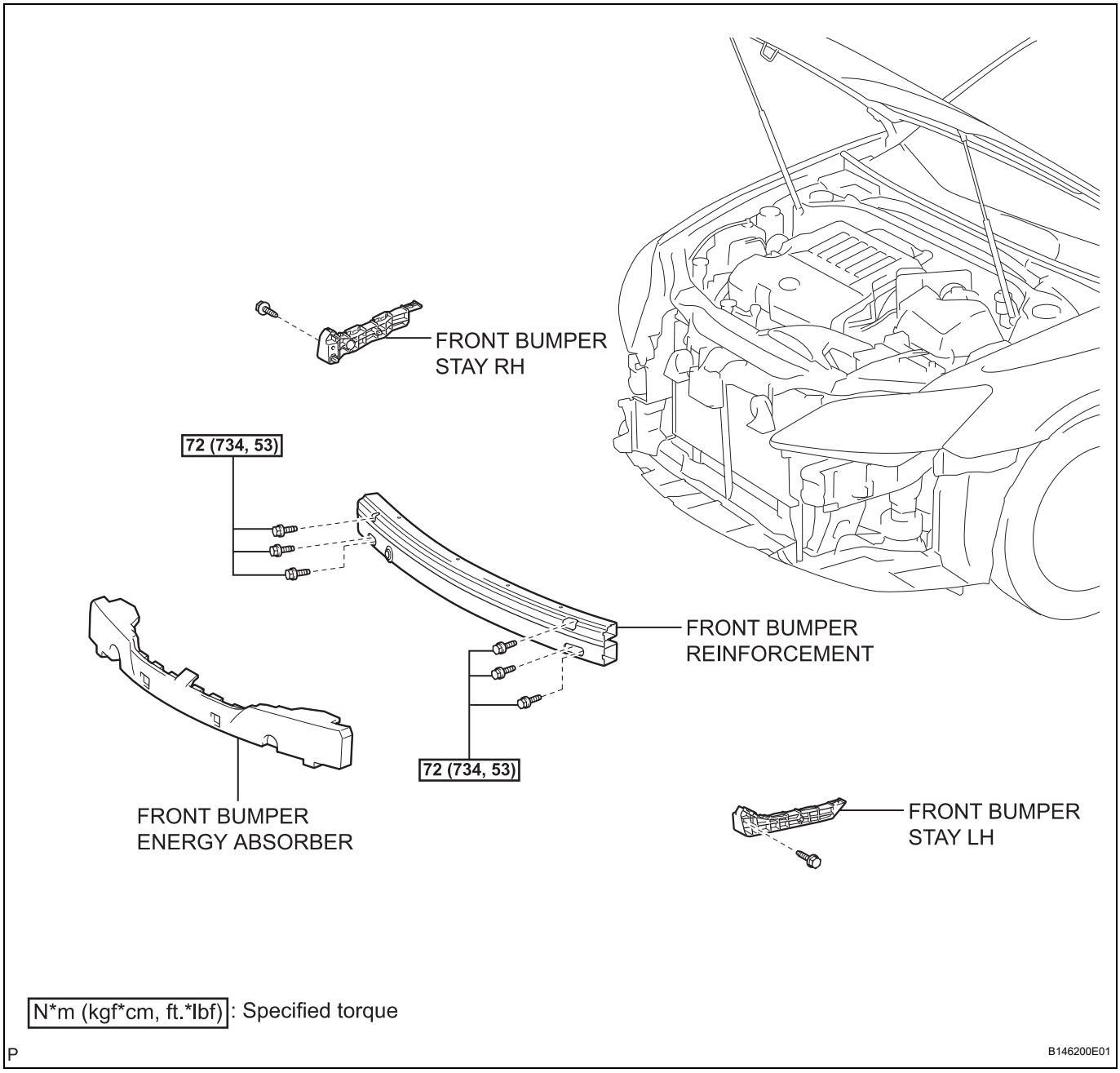


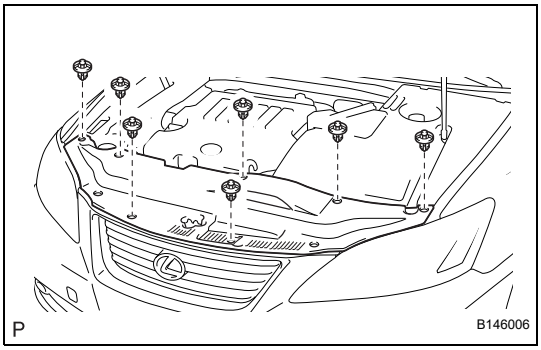
4. NOTICE FOR USING SWING ARM TYPE LIFT

(a) Follow the instruction manual of the lift for a safety operation.
(b) Use a cradle with a rubber attachment, as shown in the illustration.
(c) Set in the vehicle so as to make its center of gravity as close as possible to the center of the lift.
(d) Place the vehicle horizontally by adjusting the height of the cradle, and match the groove of the cradle and the safety stand support location accurately.
(e) Be sure to lock the swing arm during the operation.
(f) Lift the vehicle up until the tires float, and shake the vehicle to make sure that the vehicle is stable.

TORQUE SPECIFICATIONS

Part Tightened		N*m	kgf*cm	ft.*lbf
Park/neutral position switch		5.4	55	48 in.*lbf
Control shaft lever x Control shaft		13	130	9
Transmission control cable x Control shaft lever		13	130	9
Transaxle housing x Engine block	Bolt A	64	653	47
	Bolt B	64	653	47
	Bolt C	46	469	34
	Bolt D	43	439	32
Torque converter clutch x Drive plate		41	418	30
Engine mounting front bracket x Transaxle case		64	653	47
Refill plug x Transaxle case		49	500	36
Over flow plug x Transaxle case		40	408	30
Control cable bracket No. 1 x Transaxle case		12	122	9
Oil cooler tube union (inlet oil cooler union) x Transaxle case		27	275	20
Oil cooler tube union (outlet oil cooler union) x Transaxle case		27	275	20
Wire harness x Transaxle case		12	122	9
Wire harness clamp bracket x Transaxle case		8.4	86	74 in.*lbf
Transmission revolution sensor x Valve body		11	112	8
No. 1 transmission oil filler tube x Oil pan		1.7	17	15 in.*lbf
Speedometer driven hole cover x Transaxle case		5.5	56	49 in.*lbf
Transmission wire (ATF temperature sensor) x Valve body		11	112	8
Oil pan x Transaxle case		7.5	76	66 in.*lbf
Transmission wire x Valve body		11	112	8
Valve body x Transaxle case		11	112	8
Oil strainer x Valve body		11	112	8
Breather bracket x Camshaft housing sub-assembly LH		5.5	56	49 in.*lbf
Air cleaner bracket x Body		7.8	80	69 in.*lbf
No. 2 shift cable grommet retainer x Body		5.0	51	44 in.*lbf
Flywheel housing under cover x Transaxle housing		7.8	80	69 in.*lbf
TCM x Transaxle case		11	112	8
Shift lock control unit x Body		12	122	9
Differential gear lube apply tube x Transaxle housing		23	234	17
Lock nut x Transaxle case		120	1,223	88
Transaxle case No. 1 plug x Transaxle rear cover		7.4	75	65 in.*lbf
Transaxle case No. 1 plug x Transaxle housing		7.4	75	65 in.*lbf
Transaxle case No. 1 plug x Transaxle case		29	296	20
Transaxle rear cover x Transaxle case	Bolt A	23	234	17
	Bolt B	17	173	12
Transaxle rear cover plate x Transaxle case		7.5	76	66 in.*lbf
Oil pump assembly x Transaxle case		23	234	17
Transaxle housing x Transaxle case	Bolt A	31	316	23
	Bolt B	23	234	17
Pawl shaft clamp x Transaxle case		23	234	17
Pawl stopper plate x Transaxle case		23	234	17
Manual detent spring x Transaxle case		23	234	17
Oil pump body x Stator shaft assembly		9.3	95	82 in.*lbf
Shift solenoid valve SL3 x Transmission valve body assembly		11	110	8
Shift solenoid valve SL4 x Transmission valve body assembly		11	110	8
Front differential case x Front differential ring gear		120	1,223	88





REMOVAL

1. REMOVE COOL AIR INTAKE DUCT SEAL

(a) Remove the 7 clips and cool air intake duct seal.

ET

OK

6	CHECK FOR SPARKS AND IGNITION

(a) Disconnect the injector connectors, in order to prevent the engine from starting.
(b) Install the spark plug to the ignition coil.
(c) Attach the spark plug assembly to the cylinder head cover.
(d) Crank the engine for less than 2 seconds and check the sparks.
OK:
Sparks jump across the electrode gap.
(e) Reconnect the injector connectors.

NG → **Go to step 8**

OK

7	CHECK CYLINDER COMPRESSION PRESSURE (MALFUNCTION CYLINDER)

(a) Measure the cylinder compression pressure of the misfiring cylinder.

OK → **Go to step 9**

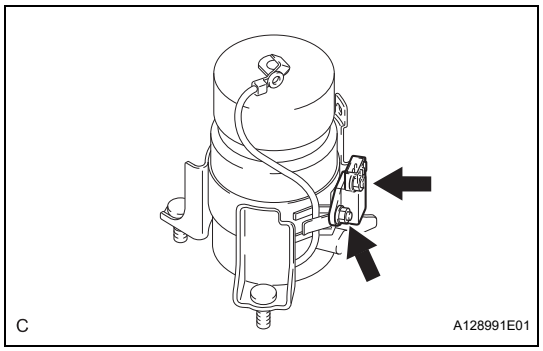
NG

REPAIR OR REPLACE ENGINE TO DETERMINE CAUSE OF LOW COMPRESSION

8	CHANGE SPARK PLUG WITH NORMAL ONE AND CHECK FOR SPARKS OF MISFIRING CYLINDER

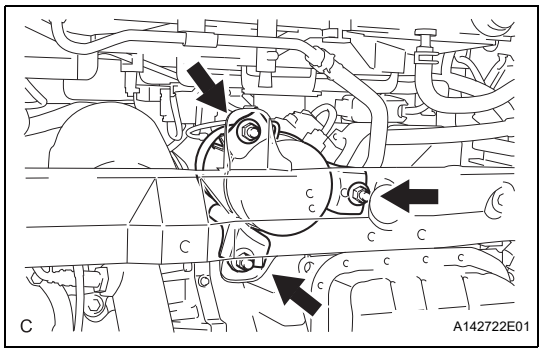
(a) Change the installed spark plug with a spark plug that functions normally.
(b) Perform a spark test.
CAUTION:
Always disconnect each injector connector.
NOTICE:
Do not crank the engine for more than 2 seconds.
(1) Install the spark plug to the ignition coil and connect the ignition coil connector.
(2) Disconnect the injector connector.
(3) Ground the spark plug.
(4) Check if sparks occur while the engine is being cranked.
OK:
Sparks jump across the electrode gap.

NG → **REPLACE IGNITION COIL ASSEMBLY (See page IG-8)**

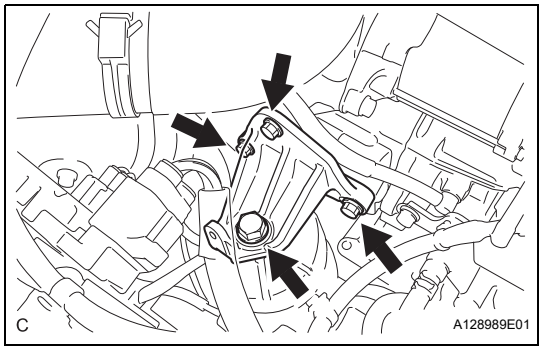


INSTALLATION

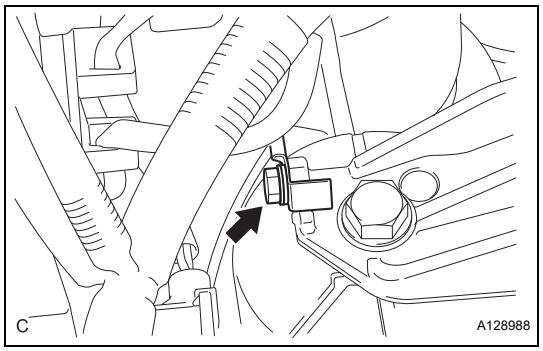
1. **INSTALL ACTIVE CONTROL ENGINE MOUNT**
   (a) Install the acceleration sensor with the 2 nuts.
   Torque: 8.0 N*m (81 kgf*cm, 71 in.*lbf)



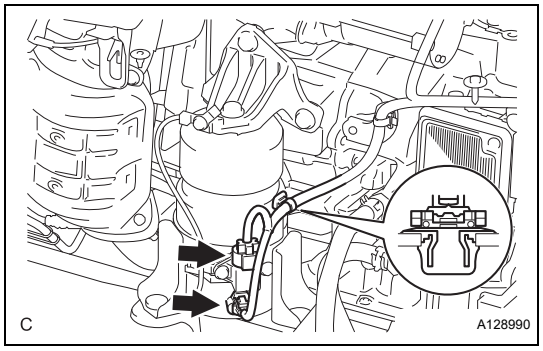
   (b) Install the active control engine mount with the 3 nuts.
   Torque: 52 N*m (530 kgf*cm, 38 ft.*lbf)



2. **INSTALL ENGINE MOUNTING BRACKET FR**
   (a) Install the engine mounting bracket FR with the 4 bolts.
   Torque: Automatic Transaxle Side
   64 N*m (653 kgf*cm, 47 ft.*lbf)
   Active Engine Mounting Side
   87 N*m (887 kgf*cm, 64 ft.*lbf)



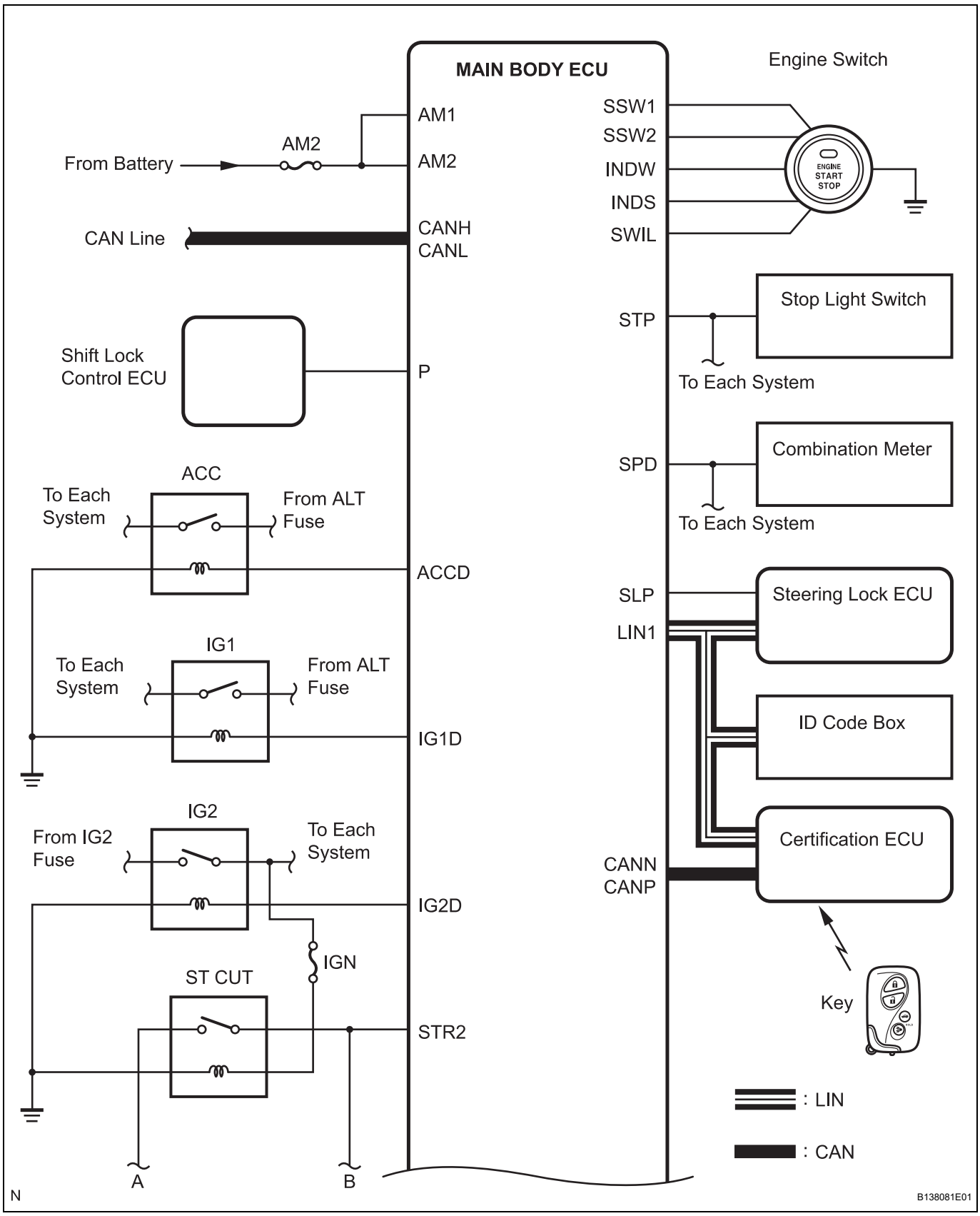
   (b) Connect the earth cable with the bolt.
   Torque: 5.0 N*m (51 kgf*cm, 44 in.*lbf)



   (c) Connect the 2 connectors and clamp.

3. **INSTALL NO. 1 AIR CLEANER INLET (See page EM-48)**
4. **INSTALL AIR CLEANER INLET ASSEMBLY (See page EM-48)**
5. **INSTALL V-BANK COVER SUB-ASSEMBLY (See page EM-49)**
6. **INSTALL ENGINE ROOM SIDE COVER LH (See page EM-50)**

SYSTEM DIAGRAM



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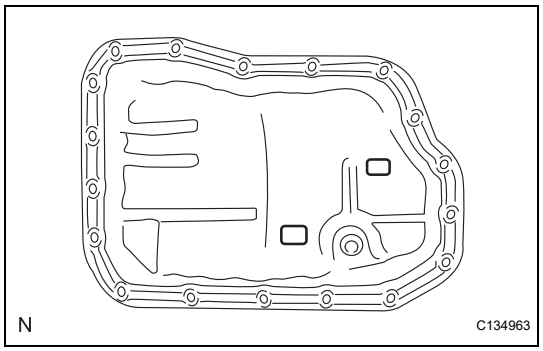


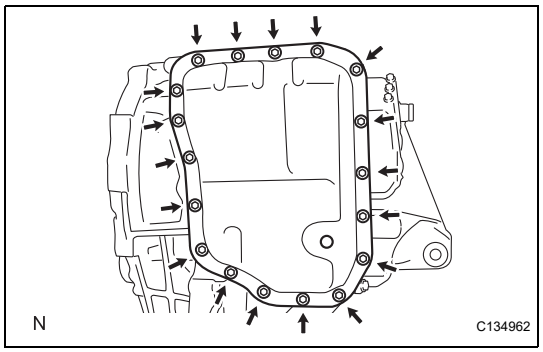
57. INSTALL AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY

(a) Install the 2 magnets in the automatic transaxle oil pan sub-assembly.

(b) Apply adhesive to the 18 bolts.

Adhesive:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent.

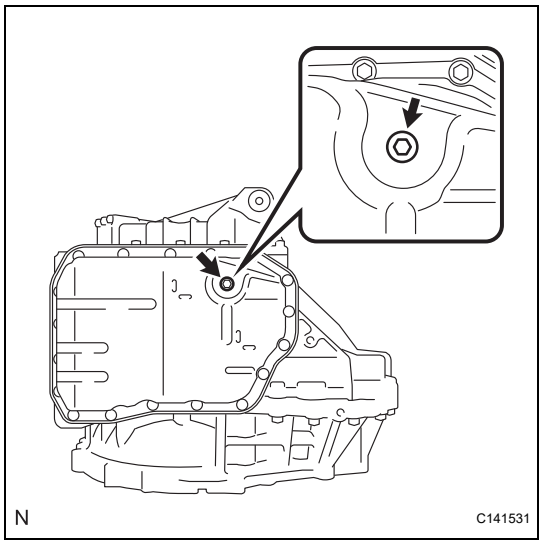


(c) Install the automatic transaxle oil pan sub-assembly and a new gasket to the transaxle case with the 18 bolts.

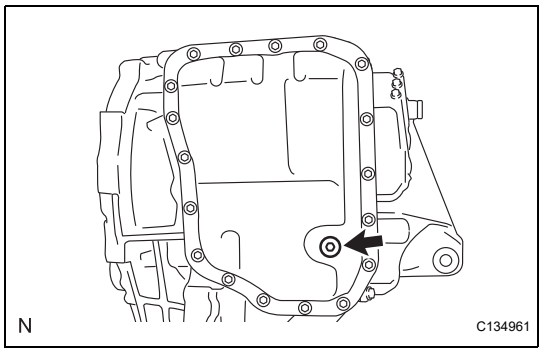
Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)

NOTICE:

- **In order to ensure proper sealing of the transmission pan bolts, apply adhesive to the bolts and install them within 10 minutes of adhesive application.**
- **Completely remove any oil or grease from the contact surface of the transaxle case and oil pan sub-assembly with the gasket before installation.**



(d) Install the No. 1 oil filler tube from the automatic transaxle assembly.



(e) Install the overflow plug and a new gasket to the oil pun sub-assembly.

Torque: 40 N*m (408 kgf*cm, 30 ft.*lbf)

58. INSTALL NO. 1 TRANSAXLE CASE PLUG

(a) Install the 3 gaskets to the 3 hexagon bolts.

(b) Apply adhesive to the 3 hexagon bolts.

Adhesive:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent.

NOTICE:

In order to ensure proper sealing of the hexagon bolts, apply adhesive to the bolts and install them within 10 minutes of adhesive application.

AX

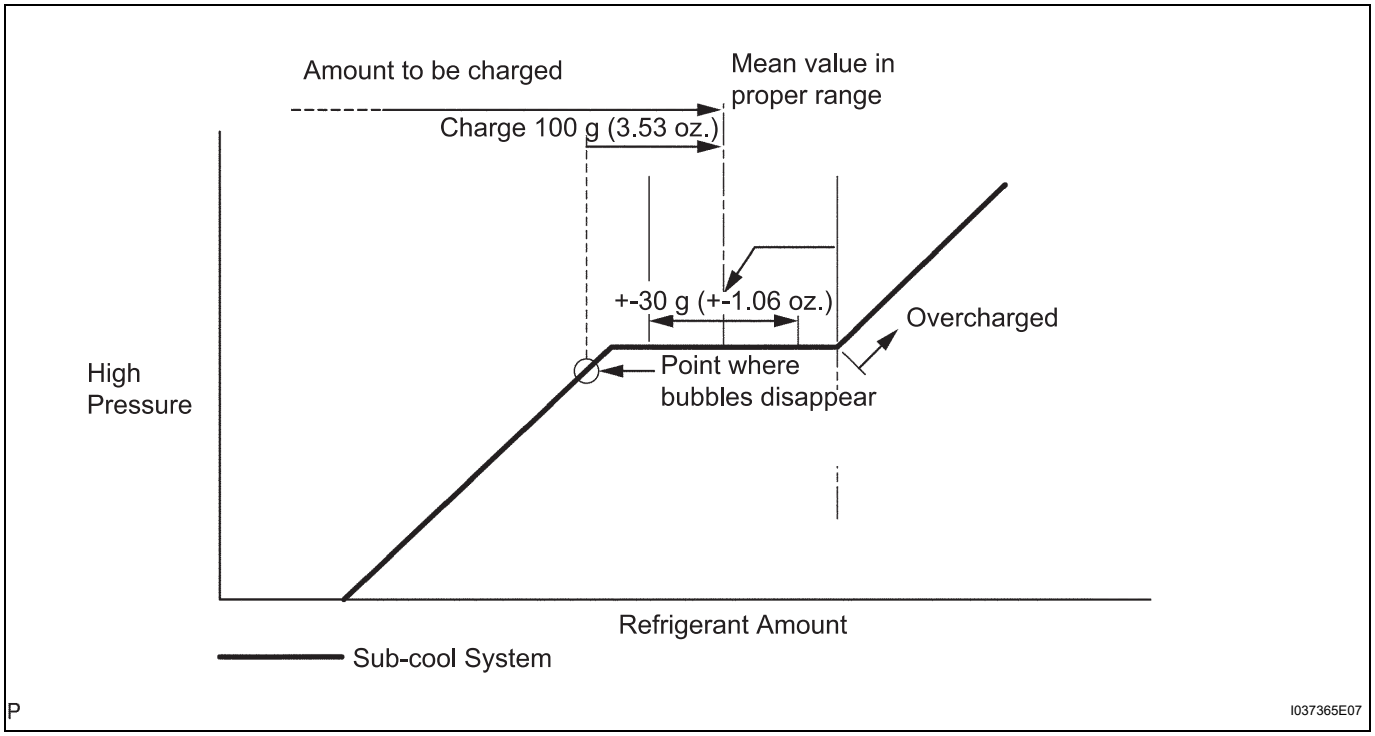
REPLACEMENT

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

(a) Start up the engine.
(b) Turn the A/C switch on.
(c) Operate the cooler compressor at an engine speed of approximately 1,000 rpm for 5 to 6 minutes to circulate the refrigerant. This causes most of the compressor oil from the various components of the A/C system to collect in the A/C compressor.
(d) Stop the engine.
(e) Recover the refrigerant from the A/C system using a refrigerant recovery unit.

2. CHARGE WITH REFRIGERANT

(a) Perform vacuum purging using a vacuum pump.
(b) Using SST charge with refrigerant HFC-134a (R134a).



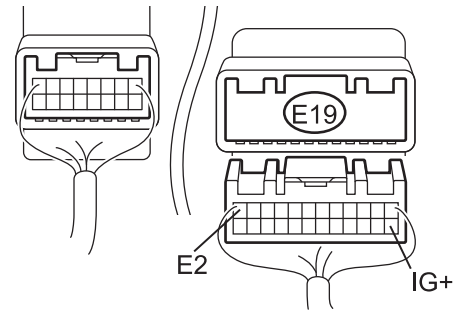
Standard:
470 to 530 g (16.6 to 18.7 oz.)
SST 07110-58060 (07117-58060, 07117-58070, 07117-58080, 07117-58090, 07117-78050, 07117-88060, 07117-88070, 07117-88080)
NOTICE:

- **Do not turn the A/C on before charging with refrigerant. Doing so will cause the cooler compressor to work without refrigerant, resulting in overheating of the cooler compressor.**

3	CHECK WIRE HARNESS (SOURCE VOLTAGE OF COMBINATION METER)

RS

Combination Meter Assembly Wire Harness View:



(a) Turn the engine switch off.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the E19 connector from the combination meter assembly.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the engine switch on (IG).
(f) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
E19-13 (IG+) - E12-12 (E2)	Engine switch on (IG)	10 to 14 V

NG → **REPAIR OR REPLACE WIRE HARNESS**

OK

4	CHECK SRS WARNING LIGHT

(a) Turn the engine switch off.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the combination meter assembly.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the engine switch on (IG).
(f) Check the SRS warning light condition.

OK:

After the primary check period, SRS warning light goes off for approximately 10 seconds and remains on.

HINT:
The primary check period is approximately 6 seconds after the engine switch is turned on (IG).

NG → **GO TO METER / GAUGE SYSTEM (See page ME-14)**

OK

REPLACE CENTER AIRBAG SENSOR ASSEMBLY (See page RS-468)

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:
*: Use the intelligent tester.

RS

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 CUSTOMER PROBLEM ANALYSIS

(a) Confirm problem symptoms (See page IN-39).

NEXT

3 CHECK CAN COMMUNICATION SYSTEM*

(a) Check for DTC outputs (See page CA-41).
HINT:
The center airbag sensor assembly is connected to the CAN communication system. Therefore, before starting troubleshooting, make sure to check that there is no trouble in the CAN communication system.

Result

Result	Proceed to
CAN communication DTC is not output.	A
CAN communication DTC is output.	B

B → INSPECT CAN COMMUNICATION CIRCUIT

A

4 SRS WARNING LIGHT CHECK

NEXT

5 CHECK DTC (Present and Past DTCs)*

(a) Check for DTC outputs.

Result

Result	Proceed to
DTC is output.	A
DTC is not output.	B

B → PROBLEM SYMPTOMS TABLE

A

Cruise Main Indicator Light Circuit

DESCRIPTION

- The ECM detects a cruise control switch signal and sends it to the combination meter through the CAN communication system. Then the CRUISE main indicator light comes on.
- The CRUISE main indicator light circuit uses CAN communication. If there is a malfunction in this circuit, check for DTCs in the CAN communication system before troubleshooting this circuit.

INSPECTION PROCEDURE

CC

1 **PERFORM ACTIVE TEST USING INTELLIGENT TESTER**

(a) Connect the intelligent tester to the DLC3.
(b) Check the CRUISE main indicator light by performing ACTIVE TEST.

Combination meter

Tester Display	Test Part	Control Range	Diagnostic Note
CRUISE INDIC	Turns CRUISE main indicator light	ON / OFF	-

OK:
Indicator light comes on / goes off.

NG → **REPLACE COMBINATION METER ASSEMBLY (See page ME-67)**

OK ↓

2 **READ VALUE ON INTELLIGENT TESTER**

(a) Connect the intelligent tester to the DLC3.
(b) Turn the engine switch on (IG) and turn the intelligent tester main switch on.
(c) Check the DATA LIST for proper functioning of the CRUISE main indicator light.

ECM (Cruise control):

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
CCS INDICATOR M	Cruise indicator signal (Main CPU) / ON or OFF	ON: "CRUISE" on OFF: "CRUISE" off	-

OK:
When the cruise control main switch is operated, the display changes as shown above.

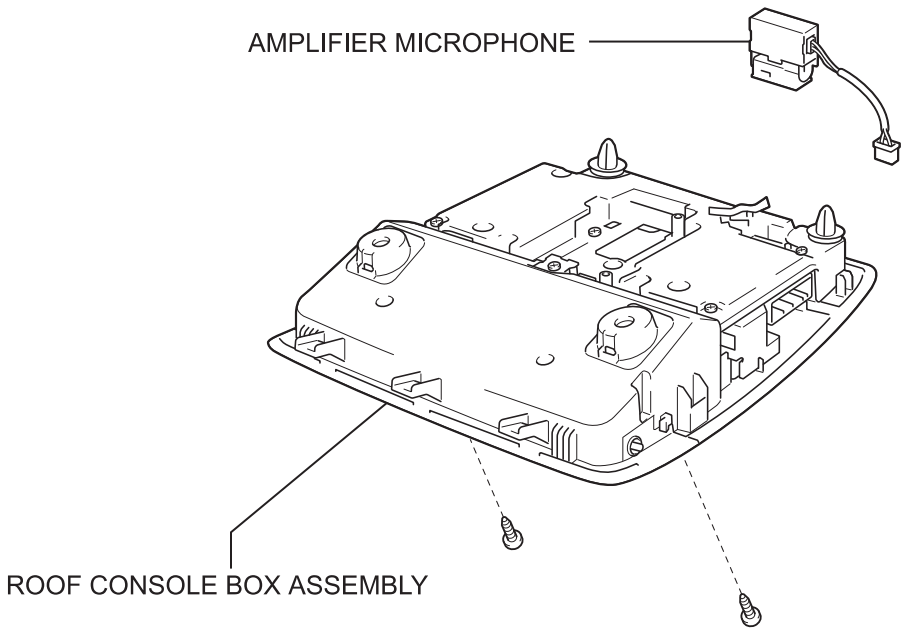
NG → **REPLACE ECM (See page ES-543)**

OK ↓

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

MICROPHONE

COMPONENTS

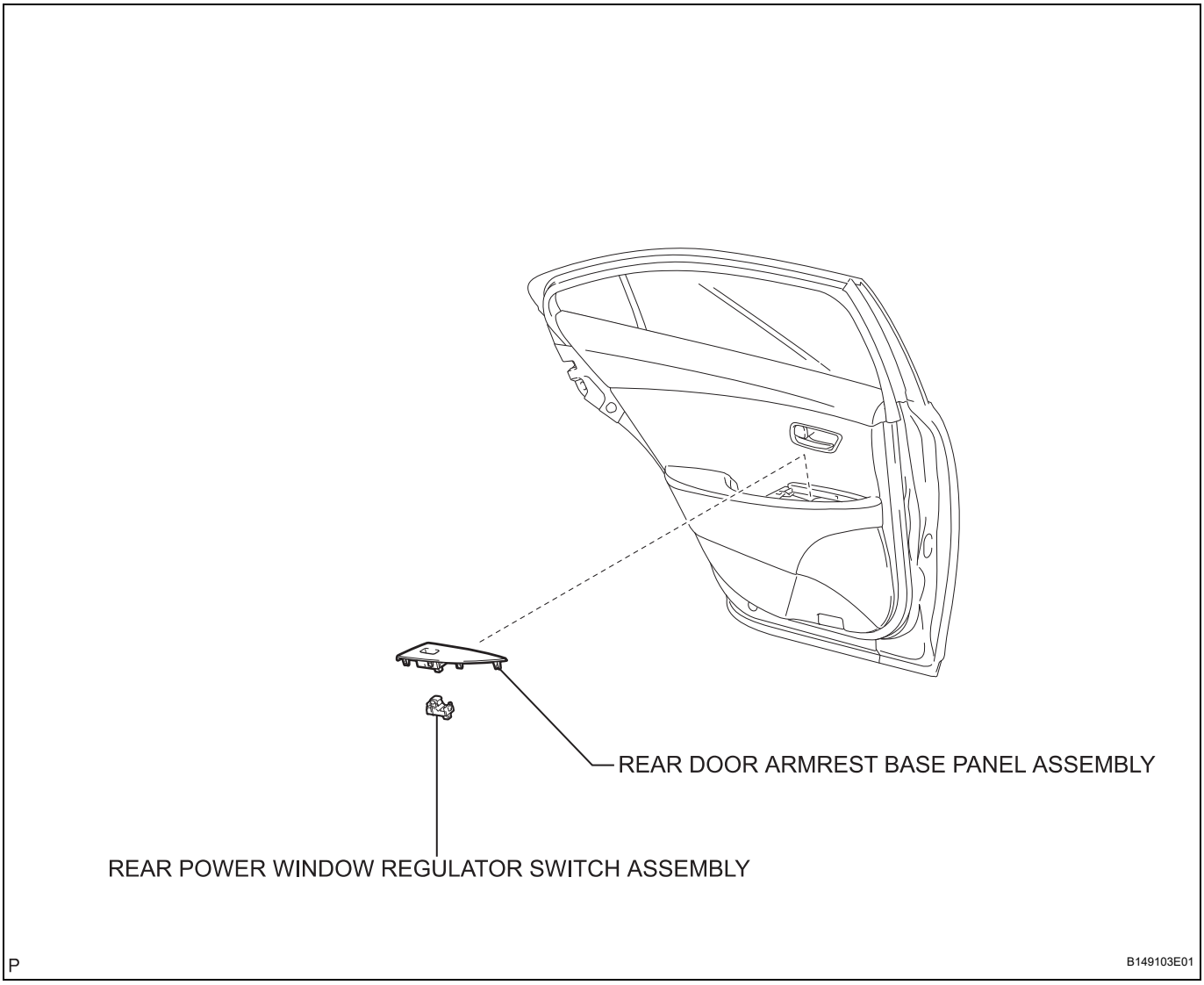


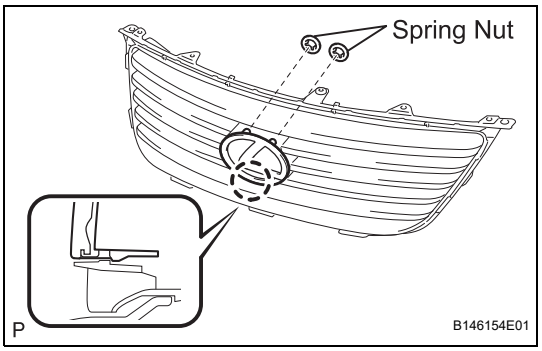
P

E132316E01

REAR POWER WINDOW SWITCH

COMPONENTS

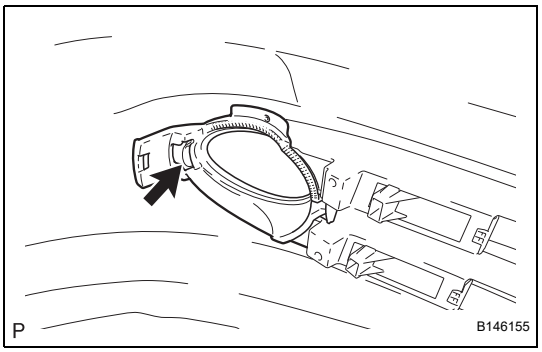




9. **REMOVE RADIATOR GRILLE EMBLEM (w/ Dynamic Radar Cruise Control System)**
   (a) Remove the 2 spring nuts.
   (b) Disengage the claw and remove the radiator grille emblem.

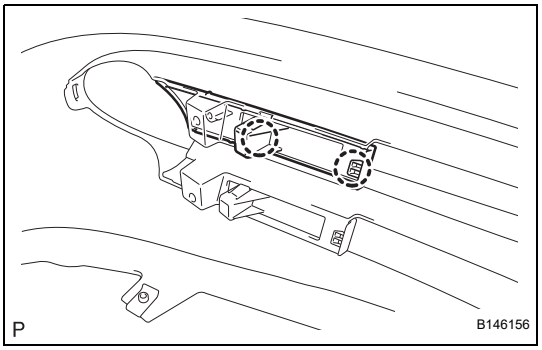
10. **REMOVE FOG LIGHT ASSEMBLY LH (See page LI-141)**

11. **REMOVE FOG LIGHT ASSEMBLY RH**

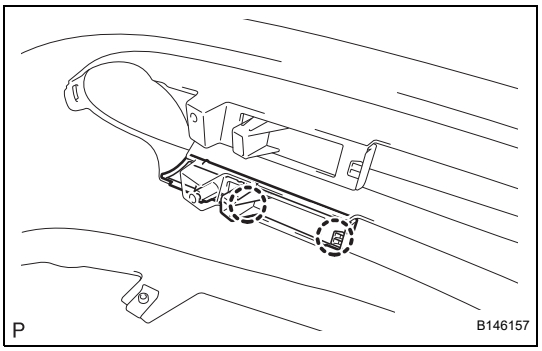


12. **REMOVE FOG LIGHT BRACKET LH**
   (a) Disengage the claw and remove the fog light bracket LH.

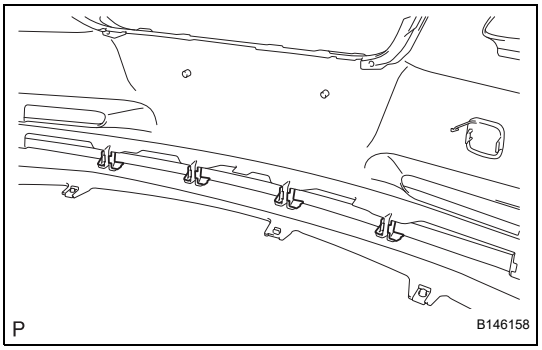
13. **REMOVE FOG LIGHT BRACKET RH**



14. **REMOVE RADIATOR GRILLE GARNISH**
   (a) Disengage the 2 claws and radiator grille garnish.
   HINT:
   Use the same procedures for the RH side and LH side.



15. **REMOVE NO. 2 RADIATOR GRILLE GARNISH**
   (a) Disengage the 2 claws and No. 2 radiator grille garnish.
   HINT:
   Use the same procedures for the RH side and LH side.



16. **REMOVE NO. 3 RADIATOR GRILLE GARNISH**
   (a) Remove the 4 No. 3 radiator grille garnishes.

ET

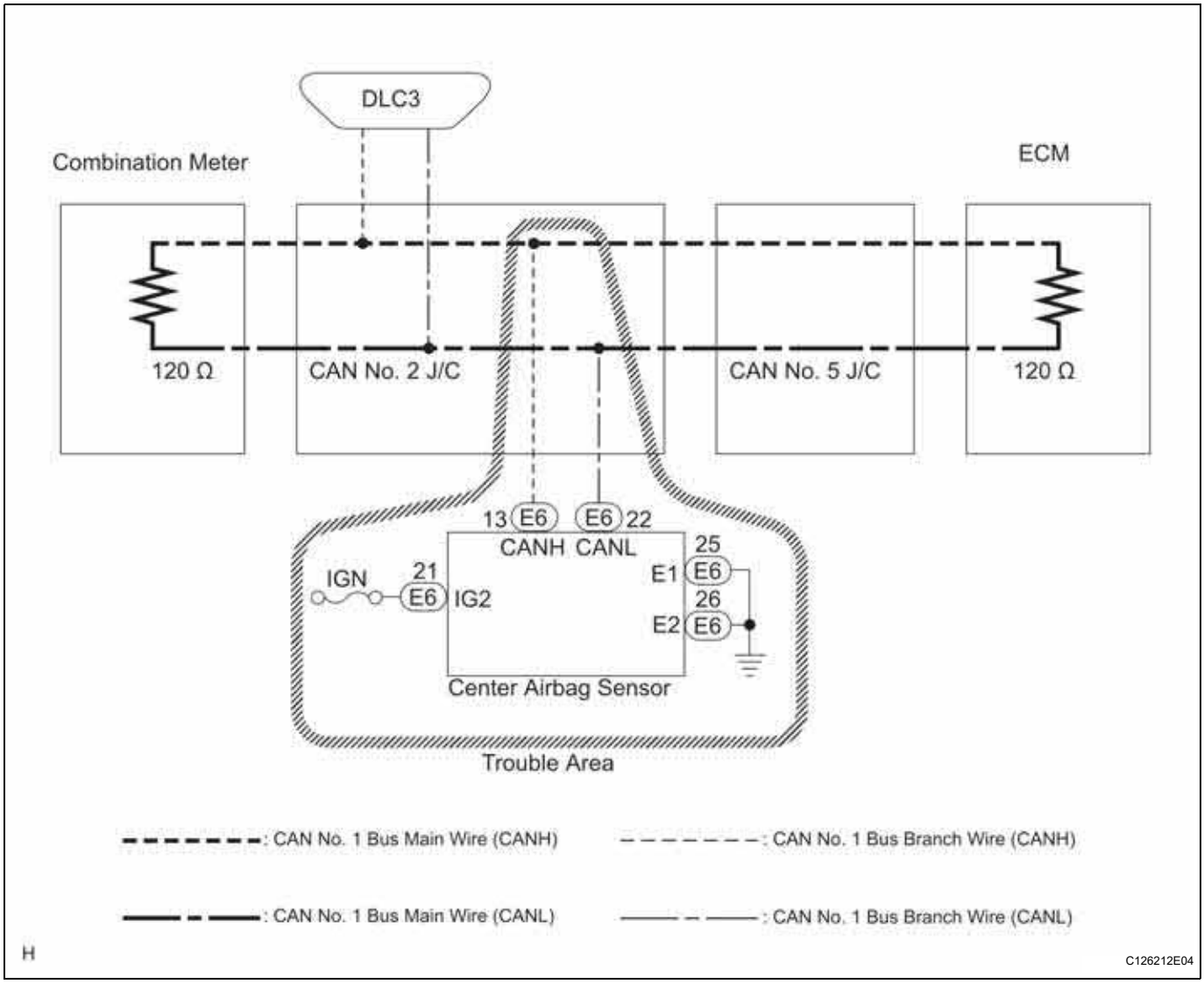
Center Airbag Sensor Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Center Airbag Sensor Communication Stop Mode	• "SRS AIRBAG" is not displayed on the "BUS CHECK" screen of the intelligent tester • Applies to "Center Airbag Sensor Communication Stop Mode" in the "DTC COMBINATION TABLE"	1. Power source circuit of the center airbag sensor 2. Center airbag sensor branch wire or connector 3. Center airbag sensor

HINT:
"SRS AIRBAG" refers to the circuit that includes the center airbag sensor.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Turn the engine switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**

CA