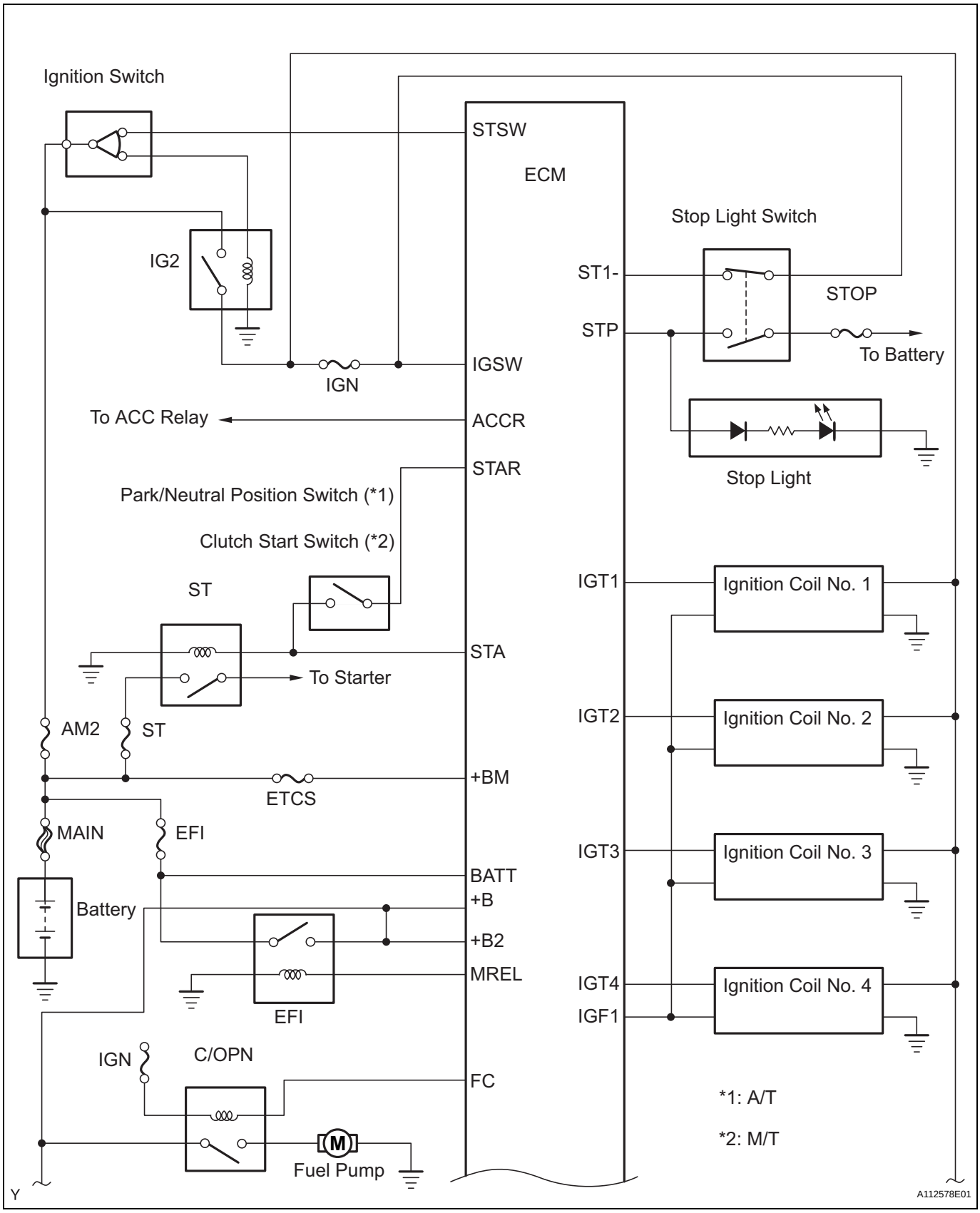
SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Diameter (mm)	Pitch (mm)	Specified torque					
			Hexagon head bolt			Hexagon flange bolt		
			N*m	kgf*cm	ft.*lbf	N*m	kgf*cm	ft.*lbf
4T	6	1	5	55	48 in.*lbf	6	60	52 in.*lbf
	8	1.25	12.5	130	9	14	145	10
	10	1.25	26	260	19	29	290	21
	12	1.25	47	480	35	53	540	39
	14	1.5	74	760	55	84	850	61
	16	1.5	115	1,150	83	-	-	-
5T	6	1	6.5	65	56 in.*lbf	7.5	75	65 in.*lbf
	8	1.25	15.5	160	12	17.5	175	13
	10	1.25	32	330	24	36	360	26
	12	1.25	59	600	43	65	670	48
	14	1.5	91	930	67	100	1,050	76
	16	1.5	140	1,400	101	-	-	-
6T	6	1	8	80	69 in.*lbf	9	90	78 in.*lbf
	8	1.25	19	195	14	21	210	15
	10	1.25	39	400	29	44	440	32
	12	1.25	71	730	53	80	810	59
	14	1.5	110	1,100	80	125	1,250	90
	16	1.5	170	1,750	127	-	-	-
7T	6	1	10.5	110	8	12	120	9
	8	1.25	25	260	19	28	290	21
	10	1.25	52	530	38	58	590	43
	12	1.25	95	970	70	105	1,050	76
	14	1.5	145	1,500	108	165	1,700	123
	16	1.5	230	2,300	166	-	-	-
8T	8	1.25	29	300	22	33	330	24
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1,100	80	120	1,250	90
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1,300	94	140	1,450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1,450	105	155	1,600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1,600	116	175	1,800	130

SYSTEM DIAGRAM



DTC	P0455	Evaporative Emission Control System Leak Detected (Gross Leak)

DTC	P0456	Evaporative Emission Control System Leak Detected (Very Small Leak)

DTC SUMMARY

DTCs	Monitoring Items	Malfunction Detection Conditions	Trouble Areas	Detection Timings	Detection Logic
P0455	EVAP gross leak	Leak detection pump creates negative pressure (vacuum) in EVAP system and EVAP system pressure measured. Reference pressure measured at start and at end of leak check. If stabilized pressure higher than [second reference pressure x 0.2], ECM determines that EVAP system has large leak.	• Fuel cap (loose) • Leakage from EVAP line (Canister - Fuel tank) • Leakage from EVAP line (Purge VSV - Canister) • Canister pump module • Leakage from fuel tank • Leakage from canister	While ignition switch OFF	2 trip
P0456	EVAP small leak	Leak detection pump creates negative pressure (vacuum) in EVAP system and EVAP system pressure measured. Reference pressure measured at start and at end of leak check. If stabilized pressure higher than second reference pressure, ECM determines that EVAP system has small leak.	• Fuel cap (loose) • Leakage from EVAP line (Canister - Fuel tank) • Leakage from EVAP line (Purge VSV - Canister) • Canister pump module • Leakage from fuel tank • Leakage from canister	While ignition switch OFF	2 trip

DESCRIPTION

The description can be found in the EVAP (Evaporative Emission) System (See page ES-319).

INSPECTION PROCEDURE

Refer to the EVAP System (See page ES-324).

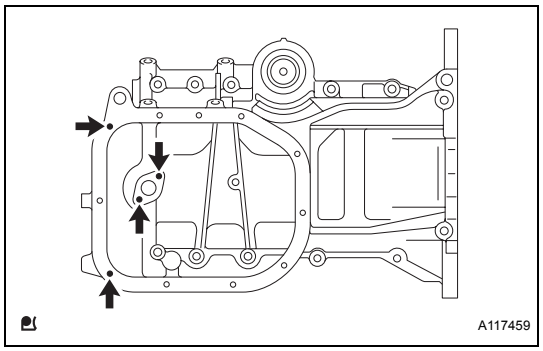
MONITOR DESCRIPTION

5 hours* after the ignition switch is turned to OFF, the leak detection pump creates negative pressure (vacuum) in the EVAP system. The ECM monitors for leaks and actuator malfunctions based on the EVAP pressure.

HINT:

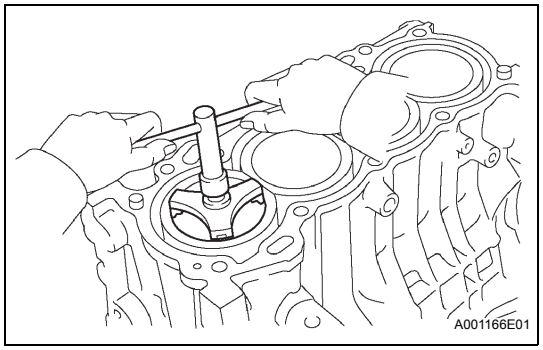
*: If the engine coolant temperature is not below 35°C (95°F) 5 hours after the ignition switch is turned to OFF, the monitor check starts 2 hours later. If it is still not below 35°C (95°F) 7 hours after the ignition switch is turned to OFF, the monitor check starts 2.5 hours later.

Sequence	Operations	Descriptions	Duration
-	ECM activation	Activated by soak timer, 5 hours (7 or 9.5 hours) after ignition switch turned to OFF.	-
A	Atmospheric pressure measurement	Vent valve turned OFF (vent) and EVAP system pressure measured by ECM in order to register atmospheric pressure. If pressure in EVAP system not between 76 kPa-a and 110 kPa-a (570 mmHg-a and 825 mmHg-a), ECM cancels EVAP system monitor.	10 seconds
B	First reference pressure measurement	In order to determine reference pressure, leak detection pump creates negative pressure (vacuum) through reference orifice and then ECM checks if leak detection pump and vent valve operate normally.	60 seconds



42. REMOVE STUD BOLT

(a) Remove the 4 stud bolts.



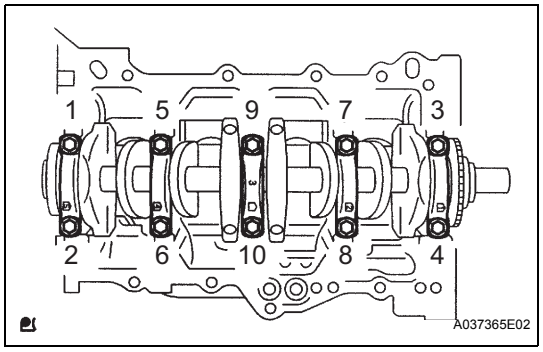
43. REMOVE PISTON SUB-ASSEMBLY WITH CONNECTING ROD

(a) Using a ridge reamer, remove all the carbon from the top of the cylinder.

(b) Push the piston, connecting rod assembly and upper bearing down through the top of the cylinder block to remove them.
HINT:
- Keep the bearing, connecting rod and cap together.
- Keep the piston and the connecting rod assemblies in the correct order so that they can be returned to their original locations when reassembled.

44. REMOVE CONNECTING ROD BEARING

45. REMOVE CRANKSHAFT



(a) Using several steps, loosen and remove the 10 bearing cap sub-assembly bolts uniformly with SST in the sequence shown in the illustration.
SST 09011-38121

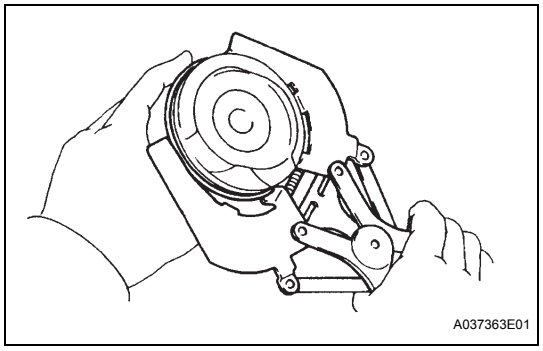
(b) Remove the bearing cap and the crankshaft.

46. REMOVE CRANKSHAFT BEARING

47. REMOVE CRANKSHAFT THRUST WASHER UPPER

48. REMOVE PISTON RING SET

NOTICE:
Keep the piston rings in the correct combination and correct order so that they can be returned to their original locations when reassembled.



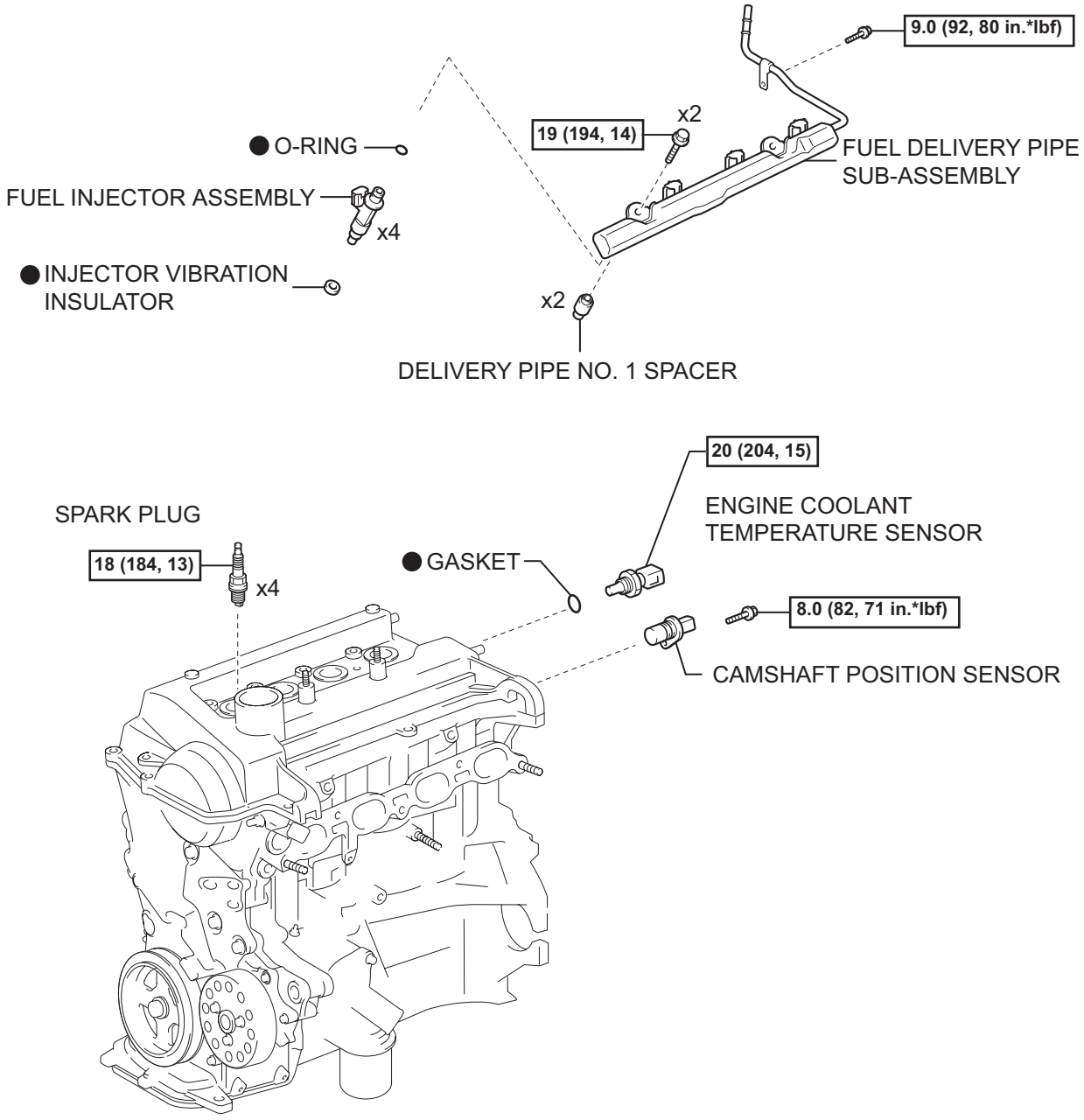
(a) Using a piston ring expander, remove the 2 compression rings.

(b) Remove the 2 side rails and the oil ring by hand.

ENGINE UNIT

COMPONENTS

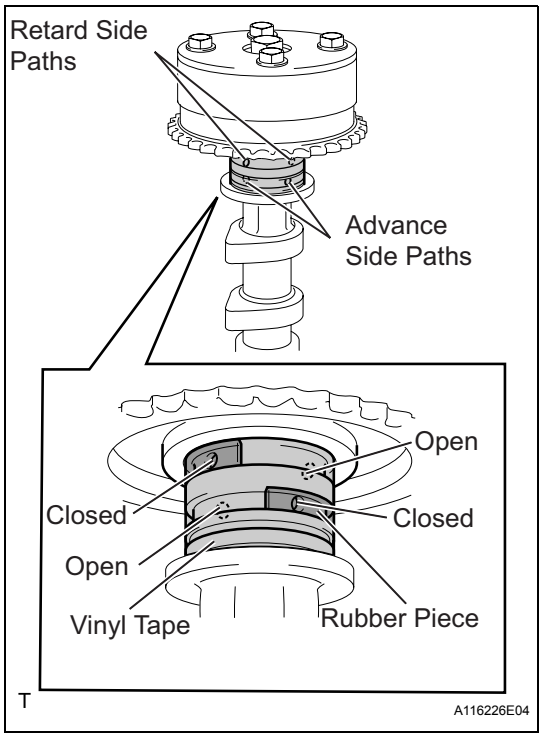
EM



N*m (kgf*cm, ft.*lbf) : Specified torque

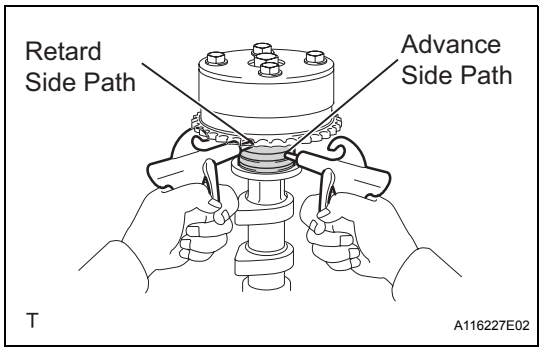
● Non-reusable part

A117466E01

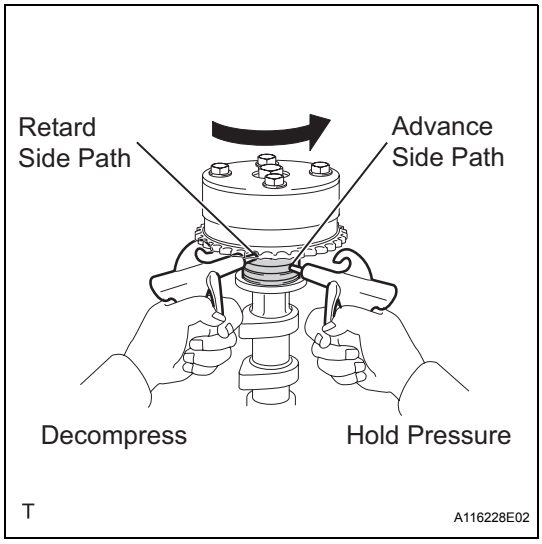


(b) Cover the 4 oil paths of the cam journal with tape as shown in the illustration.
HINT:
One of the 2 grooves located on the cam journal is for retarding cam timing (upper) and the other is for advancing cam timing (lower). Each groove has 2 oil paths. Plug one of the oil paths for each groove with a piece of rubber before wrapping the cam journal with the tape.

(c) Puncture the tape covering the advance oil path and the retard oil path on the opposite side from the advance oil path.



(d) Apply about 150 kPa (1.5 kgf*cm^2) air pressure into the 2 broken paths (the advance side path and the retard side path).
NOTICE:
Cover the paths with a shop rag or piece of cloth to prevent oil splashes.

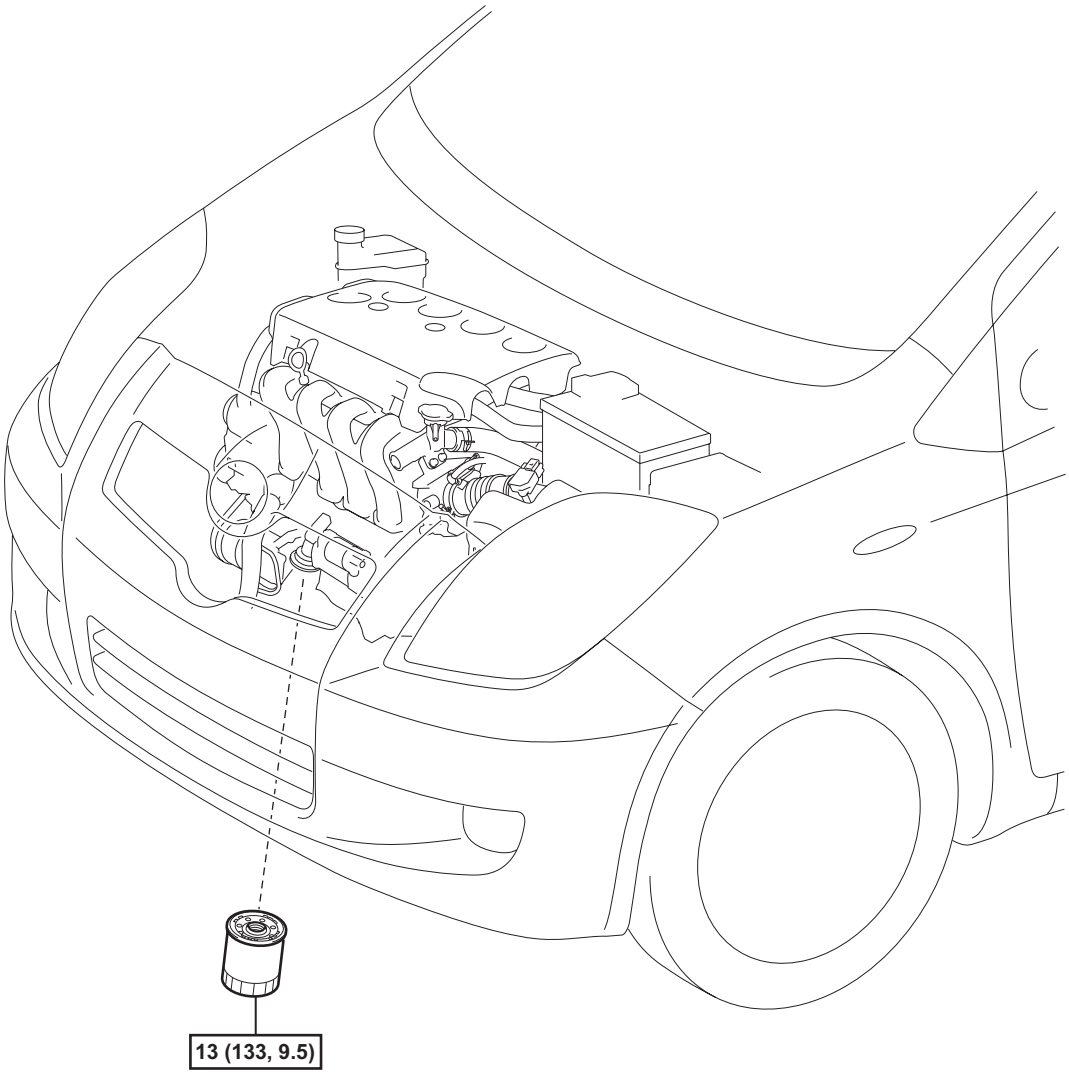


(e) Confirm that the camshaft timing gear assembly revolves in the timing advance direction when the air pressure on the timing retard path is reduced.
HINT:
The lock pin is released and the camshaft timing gear revolves in the advance direction.

(f) When the camshaft timing gear reaches the most advanced position, release the air pressure on the timing retard side path, and then release the air pressure on the timing advance side path.
NOTICE:
Camshaft timing gear assembly occasionally shifts to the retard side abruptly if the air pressure on the advance side path is released first. This often results in breakage of the lock pin.

OIL FILTER

COMPONENTS



● OIL FILTER SUB-ASSEMBLY

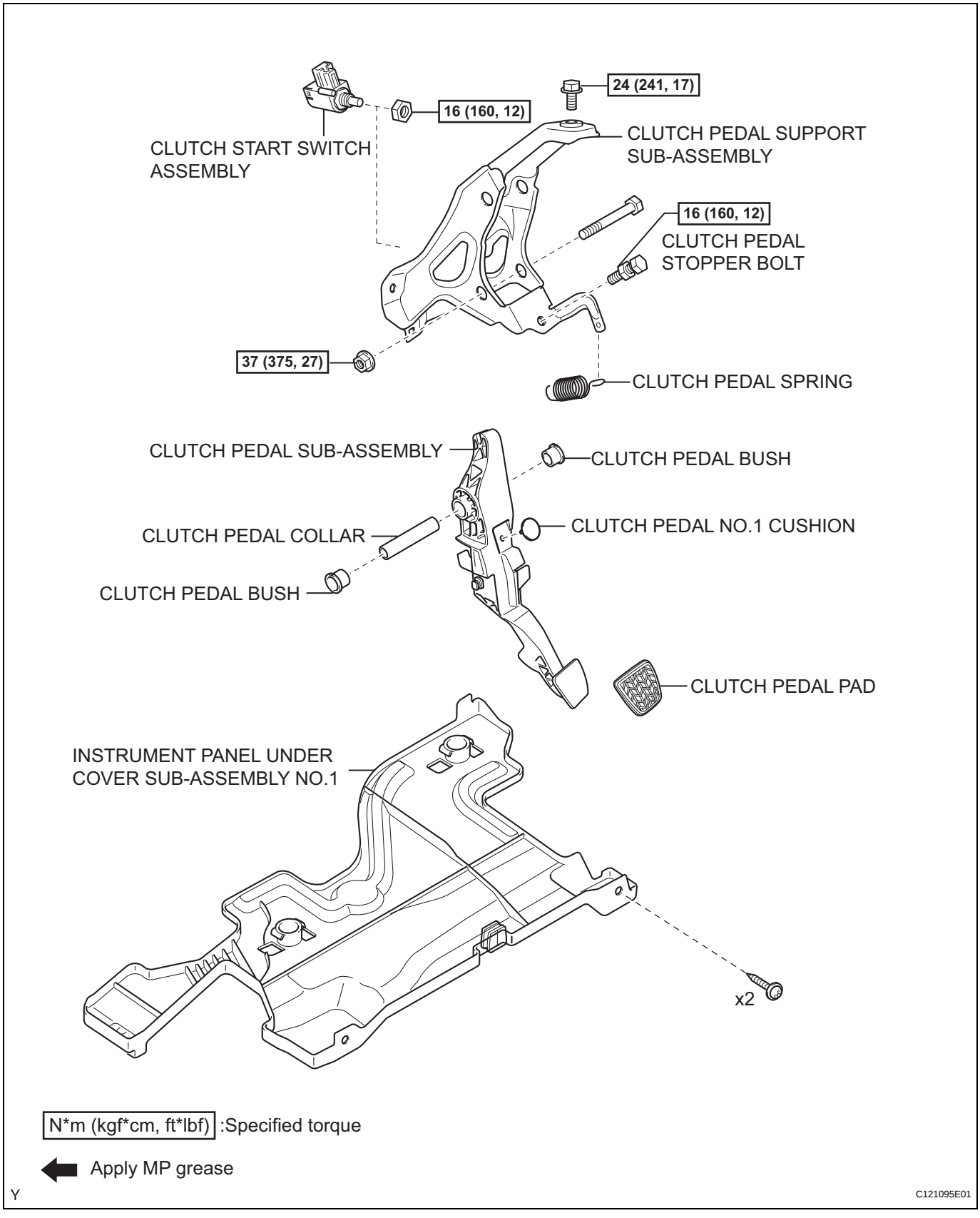
N*m (kgf*cm, ft.*lbf) : Specified torque ● Non-reusable part

T

A106606E04

CLUTCH PEDAL

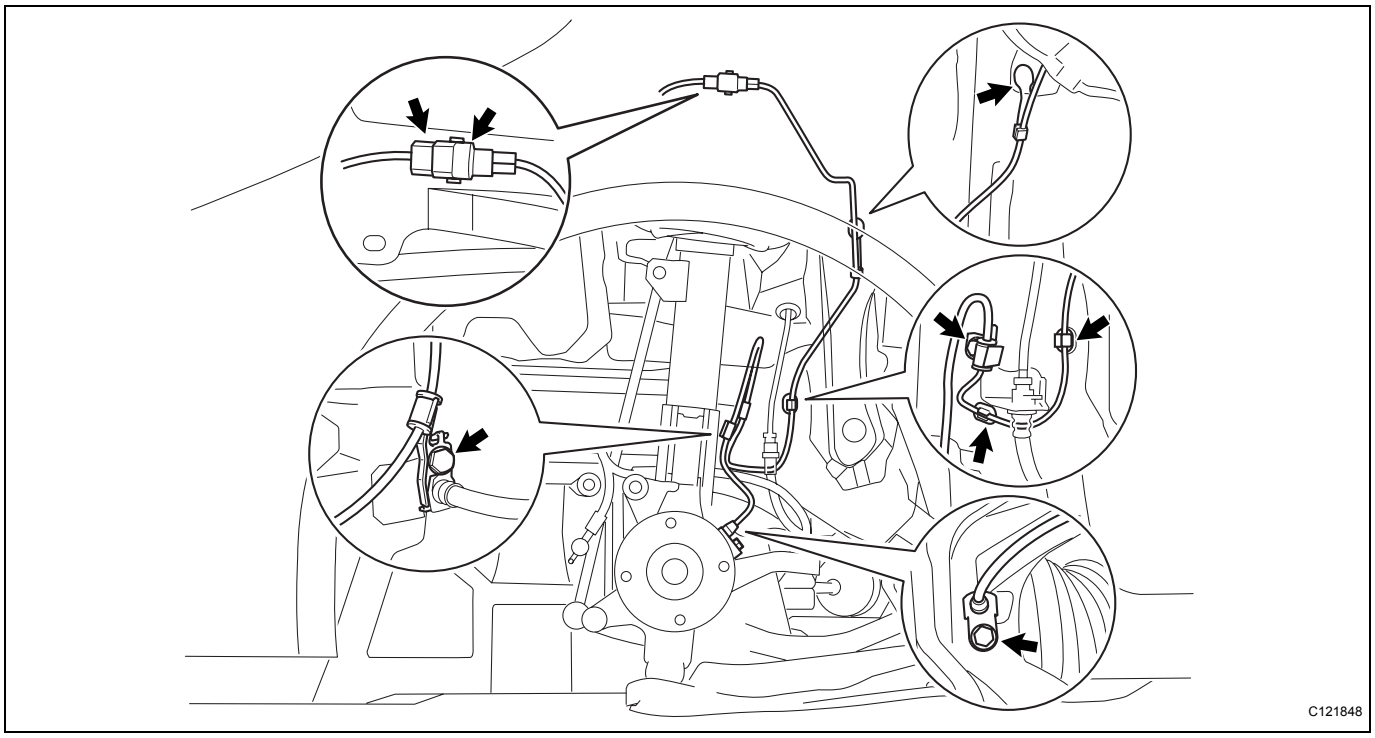
COMPONENTS



CL

INSTALLATION

1. INSTALL FRONT SPEED SENSOR



(a) Install the speed sensor onto the steering knuckle with the bolt.
Torque: 8.5 N*m (87 kgf*cm, 75 in.*lbf)
NOTICE:
- **Check that the speed sensor tip and installation portion are free of foreign matter.**
- **Install the speed sensor without turning it from its original installation angle.**

(b) Install the clamp onto the shock absorber with the bolt.
Torque: 29 N*m (300 kgf*cm, 22 ft.*lbf)

(c) Install the clamp onto the body with the bolt.
Torque: 6.0 N*m (61 kgf*cm, 53 in.*lbf)

(d) Install the 3 clips.

(e) Connect the speed sensor connector.

(f) Install the speed sensor clip onto the body.

2. INSTALL FRONT FENDER LINER

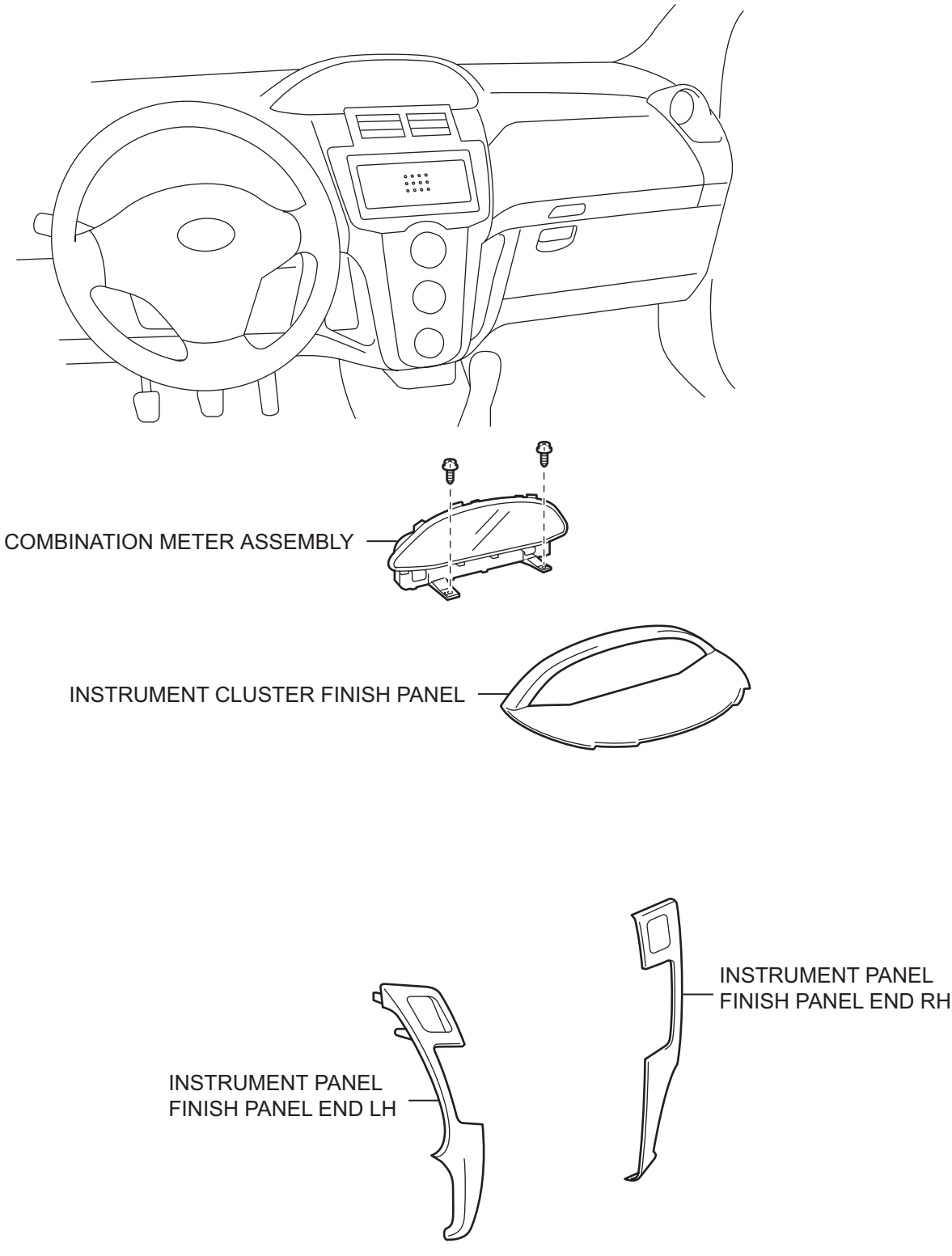
(a) Install the front fender liner with the 3 screws, 6 clips and 4 grommets.
NOTICE:
The speed sensor wire should not protrude beyond the front fender liner.

3. INSTALL FRONT WHEEL
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL
Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

POWER STEERING ECU (for Hatchback)

COMPONENTS

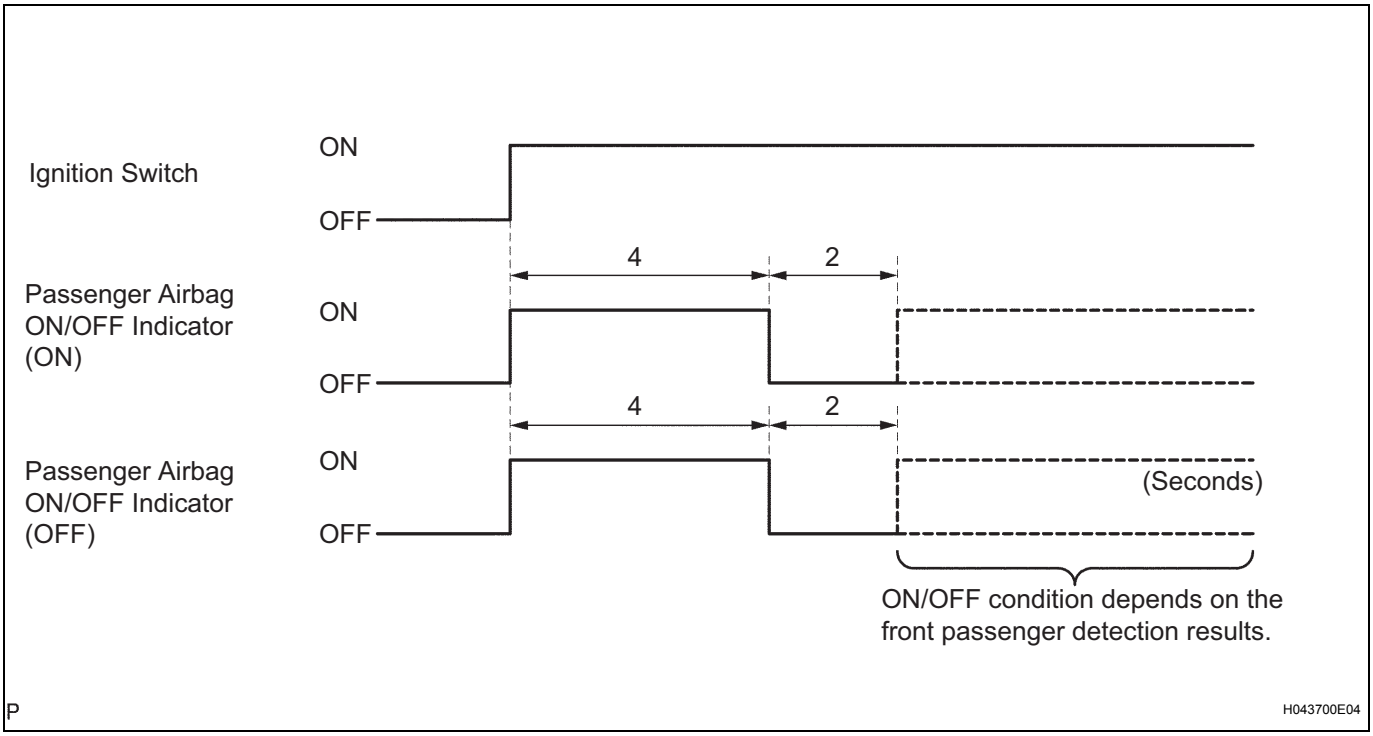


(2) The passenger airbag ON/OFF indicator (ON and OFF) comes on for approximately 4 seconds, then goes off for approximately 2 seconds.
(3) Approximately 6 seconds after the ignition switch is turned to the on position, the passenger airbag ON/OFF indicator will be ON/OFF depending on the conditions listed below.

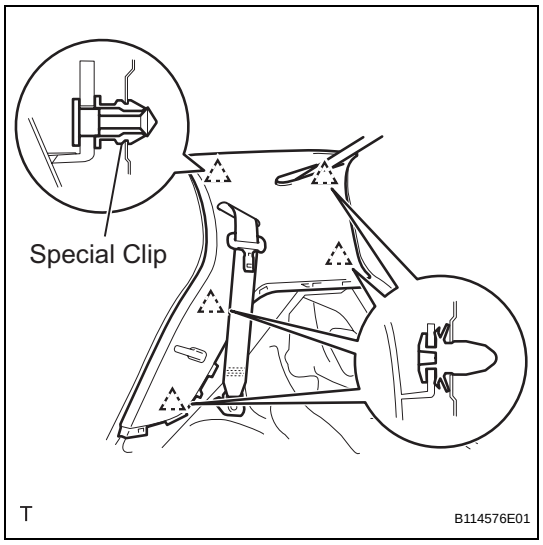
RS

Condition	ON Indicator	OFF Indicator
Vacant	OFF	OFF
Adult is seated	ON	OFF
Child is seated	OFF	ON
Child restraint system is set	OFF	ON
Front passenger occupant classification system failure	OFF	ON

HINT:
- The passenger airbag ON/OFF indicator operates based on the timing chart below in order to check the indicator light circuit.



- When the occupant classification system has trouble, both the SRS warning light and the passenger airbag ON/OFF indicator (OFF) come on. In this case, check the DTCs in the airbag system first.



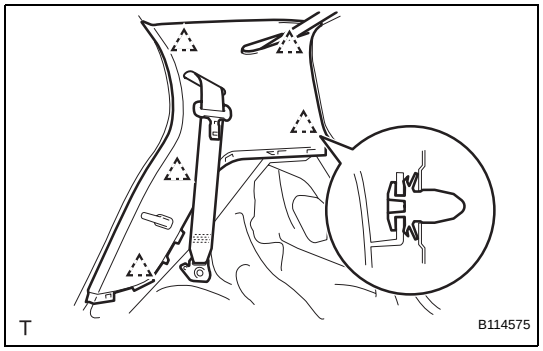
5. INSTALL ROOF SIDE INNER GARNISH RH

(a) w/ Curtain Shield Airbag:

(1) Install a new special clip.

(2) Pass the rear seat outer belt and the rear center seat outer belt through the slit in the roof side inner garnish.

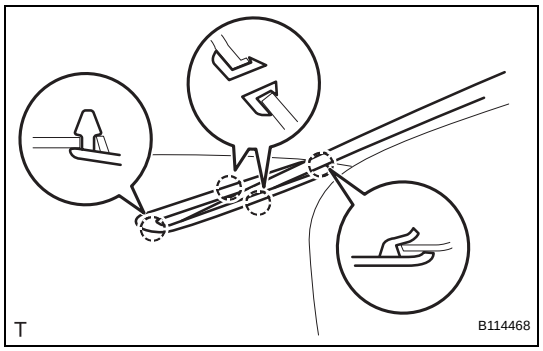
(3) Engage the 5 clips and install the roof side inner garnish.



(b) w/o Curtain Shield Airbag:

(1) Pass the rear seat outer belt and the rear center seat outer belt through the slit in the roof side inner garnish.

(2) Engage the 5 clips and install the roof side inner garnish.



(c) Engage the 4 claws and install the center belt guide.

6. INSTALL ROOF SIDE INNER GARNISH LH (See page IR-77)

7. INSTALL DECK TRIM SIDE PANEL ASSEMBLY RH (See page IR-79)

8. INSTALL DECK TRIM SIDE PANEL ASSEMBLY LH (See page IR-79)

9. INSTALL REAR SEAT OUTER BELT ASSEMBLY RH (See page IR-79)

10. INSTALL REAR SEAT OUTER BELT ASSEMBLY LH (See page IR-80)

11. INSTALL REAR DECK TRIM COVER (See page IR-82)

12. INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP RH (See page SB-119)

13. INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP LH

HINT:

Use the same procedure as for the RH side.

14. INSTALL REAR DOOR SCUFF PLATE RH (See page IR-80)

15. INSTALL REAR DOOR SCUFF PLATE LH (See page IR-80)

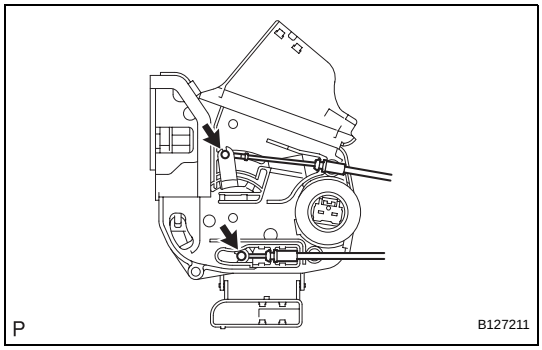
SB

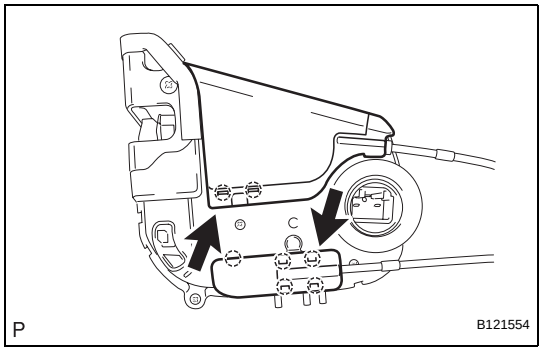
INSTALLATION

1. **INSTALL REAR DOOR LOCK**
   NOTICE:
   - **If reusing a door lock that has been removed, replace the packing in the connecting part with new.**
   - **Make sure that no grease or dirt adheres to the packing surface in the connecting part.**

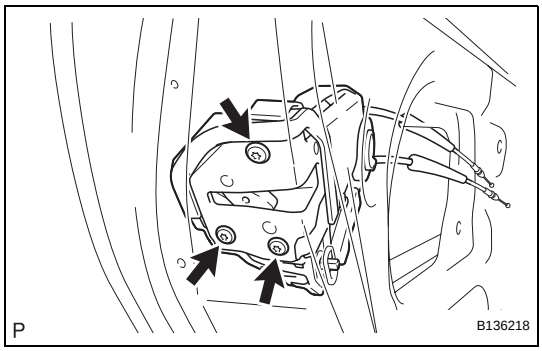
   (a) Apply MP grease to the sliding and rotating areas of the front door lock.

   (b) Connect the rear door lock remote control cable and rear door inside locking cable.





   (c) Close the 2 covers.
   (d) Insert the door lock into the outside handle frame release plate, then set it onto the door panel.
   (e) Make sure that the outside handle frame link is securely engaged with the door lock.
   (f) Apply adhesive to the threads of the screws.
   Adhesive:
   Toyota Genuine Adhesive 1324, Three Bond 1324 or the equivalent.



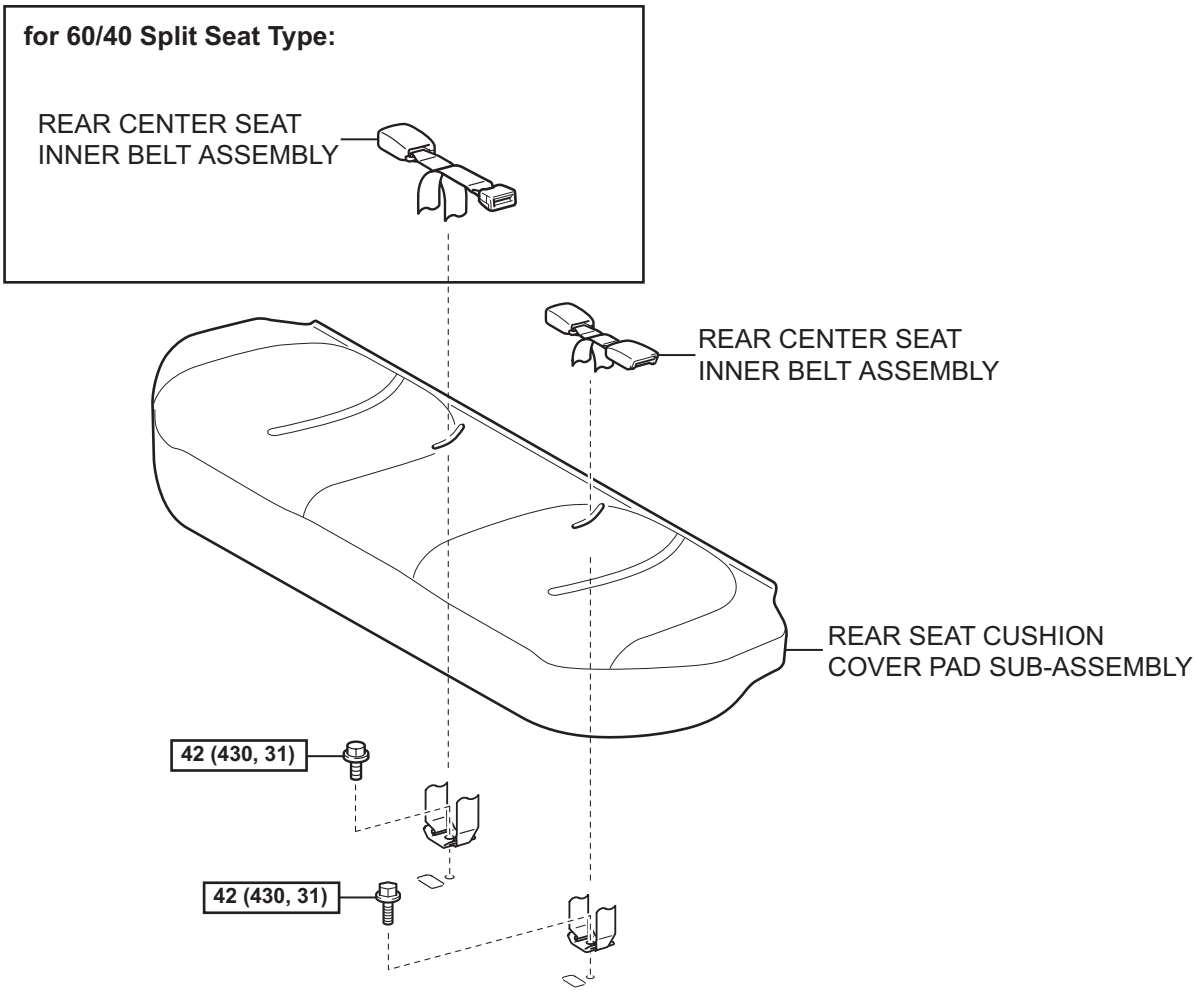
   (g) Using "Torx" socket wrench T30, install the rear door lock with the 3 screws.
   Torque: 5.0 N*m (51 kgf*cm, 44 in.*lbf)

2. **INSTALL REAR DOOR GLASS SUB-ASSEMBLY (See page ED-90)**
3. **INSTALL REAR DOOR WINDOW DIVISION BAR SUB-ASSEMBLY (See page ED-91)**
4. **INSTALL REAR DOOR GLASS RUN (See page ED-91)**
5. **INSTALL REAR DOOR BELT MOULDING (See page ET-95)**
6. **INSTALL REAR DOOR WEATHERSTRIP (See page ED-92)**
7. **INSTALL REAR DOOR CHECK ASSEMBLY (See page ED-92)**
8. **INSTALL REAR DOOR SERVICE HOLE COVER (See page ED-92)**
9. **INSTALL REAR DOOR TRIM BRACKET (See page ED-93)**

REAR CENTER SEAT INNER BELT ASSEMBLY (for Sedan)

COMPONENTS

SB



N*m (kgf*cm, ft*lbf) : Specified torque

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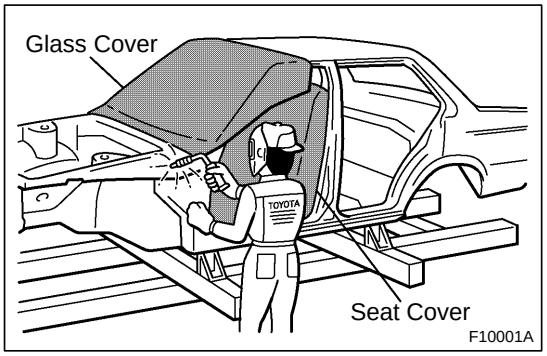
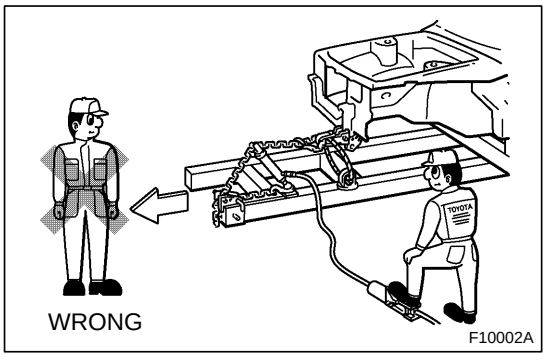
GENERAL REPAIR INSTRUCTIONS

1. WORK PRECAUTIONS



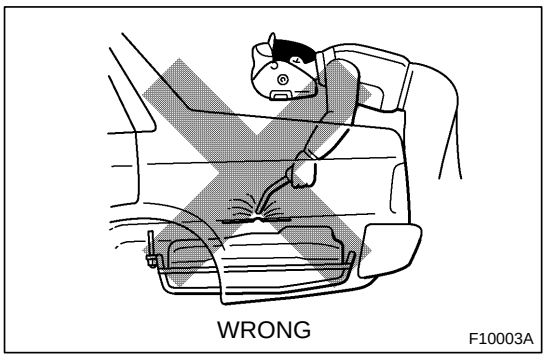
(a) VEHICLE PROTECTION

(1) When welding, protect the painted surfaces, windows, seats and carpet with heat resistant, fireproof covers.



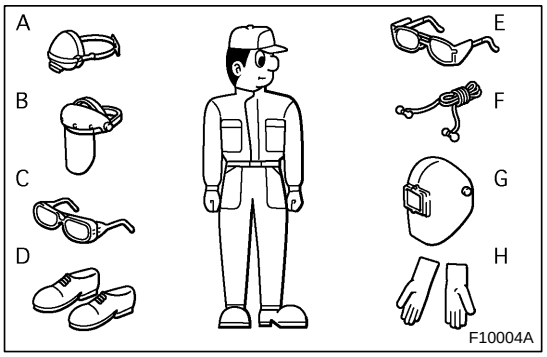
(b) SAFETY

(1) Never stand in a direct line with the chain when using a puller on the body or frame, and be sure to attach a safety cable.



(2) Before performing repair work, check for fuel leaks. If a leak is found, be sure to close the opening completely.

(3) If it is necessary to use a flame in the area of the fuel tank, first remove the tank and plug the fuel line.



(c) SAFETY WORK CLOTHES

(1) In addition to the usual mechanic's wear, cap and safety shoes, the appropriate gloves, head protector, glasses, ear plugs, face protector, dust-prevention mask, etc. should be worn as the situation demands.

Code	Name
A	Dust-Prevention Mask
B	Face Protector
C	Eye Protector
D	Safety Shoes
E	Welder's Glasses
F	Ear Plugs
G	Head Protector
H	Welder's Gloves