ENGINE MECHANICAL

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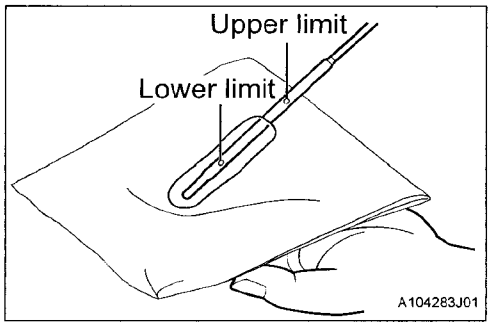
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ENGINE MECHANICAL SYSTEM

ON-VEHICLE INSPECTION

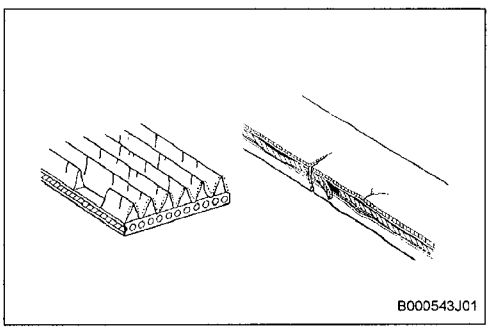
1. Cooling fluid check
   (1) Uncap the radiator.
   <WARNING>
   Do not uncap the radiator while the engine and the radiator are hot. Otherwise compressed liquid and gas may burst out to hurt you.
   (2) Check if there is excessive amount of rust or boiler scale accumulating around the radiator cap or the water inlet.
   <HINT>
   Replace cooling fluid if it is excessively contaminated.



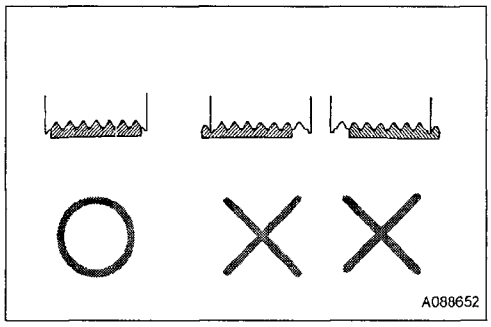
2. Engine oil check
   (1) Engine oil amount check
   (a)Stop the vehicle on level ground.
   (b)After warming up the engine, stop the engine and leave as it is for five minutes.
   (c)Open the bonnet (hood) and pull out the oil level gage. Wipe engine oil off the oil level gage.
   (d)Insert the oil level gage into the guide hole and then pull it out.
   (e)Check if the oil level is between the lower limit and the upper limit of the oil level gage.
   Reference: If the oil level is low, make sure that there is no leakage and then replenish the oil to the upper limit mark.
   <CAUTION>
   Do not let the oil level go beyond the upper limit mark.
   (2) Engine oil quality check
   (a)Check how the oil on the oil level gage is contaminated and check if the engine oil is not whitish.
   <HINT>
   Check if the oil is degraded, mixed with moisture, discolored, or diluted. If it is obviously bad in quality, replace the oil.

3. Battery check
   (1) Check battery specific gravity for each cell.
   Specified value: 1.25 - 1.29 (fluid temperature 20°C)
   <HINT>
   It should not vary greatly between the cells.

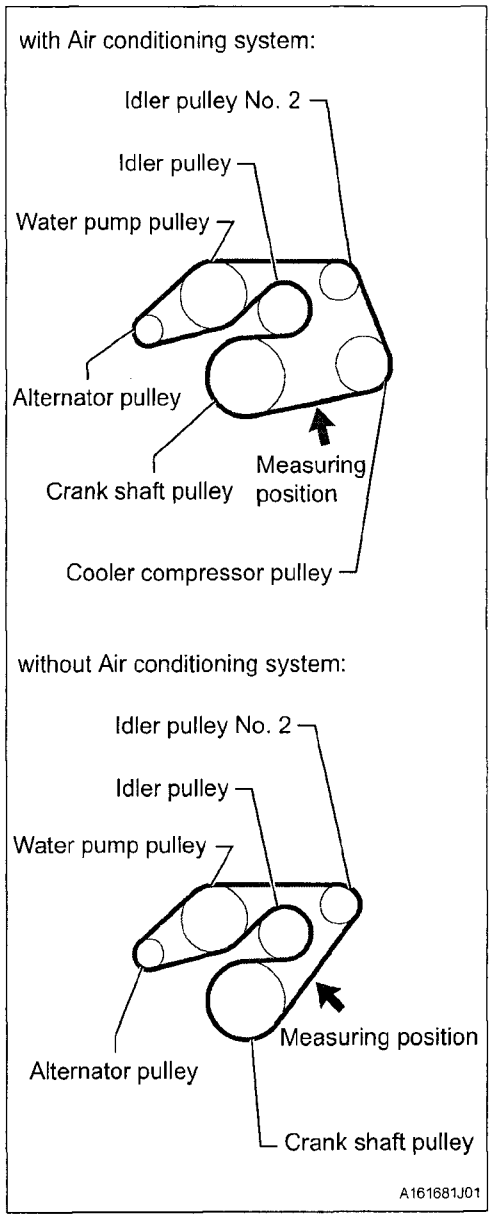
4. Air cleaner filter element check
   (1) Check if the air cleaner filter elements are dirty or clogged.



5. Fan & alternator V belt check
   (1) Check if the ribs and back of the belt has cracking or damage. Check the entire circumference.
   <CAUTION>
   > If the belt is so worn out that core wire is exposed, replace the belt.
   > If cracking reaches the core wire (in one or more locations), replace the belt.
   > If (one or more) ribbed rubbers are chipped, replace the belt.



(2) Make sure that each pulley belt is in place.



(3) Tension and flexible volume check
Specified value:

Item	Engine	Installation	Inspection
Tension (N{kgf})	3SZ-VE	834-932(85-95)	343-539(35-55)
	K3-VE	588-686(60-70)	343-539(35-55)
Flexible volume (100N{10.2kgf}[mm])	3SZ-VE	4-5	8-11
	K3-VE	6-7	7-9.5

<HINT>
It is recommended that the engine should be stopped and left as it is for five minutes or more before tension and flexible volume of the V belt is checked or adjusted.
<CAUTION>
> Tension and flexible volume of the V belt should be measured between the specified pulleys.
> Above-listed values of V belt tension and flexible volume assume that cranking has been done at least two times.
> Above-listed values of V belt tension and flexible volume assume as a guide that at least 120 minutes have passed since the warmed-up engine stopped.
> When checking the belt which has been used for 120 minutes or longer, refer to the specified values listed in the [Inspection] column.
> When adjusting the belt which has been used for 120 minutes or longer, set the measurements to the medians of the specified values listed in the [Inspection] column.
> When the belt tension gage is used for measurement, check its accuracy using the master gage beforehand.

6. Ignition timing check
(1) Check using DS-II
(a)Warm up the engine.
(b)Connect DS-II to DLC.
(c)According to the instructions on the screen, go to the [ECU data monitor] screen. Select [Ignition timing (#1)].

(d)Make sure that ignition timing is within the specified values.
Specified value

Engine	Ignition timing
3SZ-VE	0 - 15° BTDC (at idle speed)
K3-VE	0 - 15° BTDC (at idle speed)

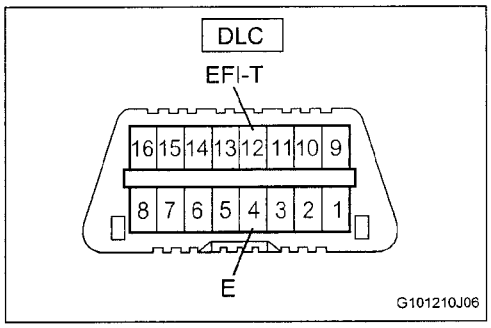
<CAUTION>
> Turn off all the accessory switches and A/C.
> Check it the electric fan is OFF.
> Before checking ignition timing, set the shift position to P range.

(e)Make sure that increasing engine rotation immediately advances ignition timing.
(f) According to the instructions on the screen, go to the [Active test] screen. Select [TC terminal ON] to turn it on.
Specified value

Engine	Ignition timing
3SZ-VE	4 - 8° BTDC (at idle speed)
K3-VE	4 - 8° BTDC (at idle speed)

<CAUTION>
> Turn off all the accessory switches and A/C.
> Check it the electric fan is OFF.
> Before checking ignition timing, set the shift position to P range.

(2) Check using general instruments
(a)Warm up the engine.
(b)Connect the timing light clip to the wire harness of the ignition coil assembly (No. 1 cylinder).
<CAUTION>
After check, tape the wire harness securely.



(c)Short-circuit between the DLC 12 (EFIT) ↔ 4 (E) terminals using diagnosis check wire and engine control system inspection wire.
SST 09991-87403, 09991-87404
<CAUTION>
Never confuse the short-circuit positions. Otherwise a failure may occur.

(d)Make sure that ignition timing is within the specified values.
Specified value

Engine	Ignition timing
3SZ-VE	4 - 8° BTDC (at idle speed)
K3-VE	4 - 8° BTDC (at idle speed)

<CAUTION>
> Turn off all the accessory switches and A/C.
> Check it when the electric fan is OFF.
> Before checking ignition timing, set the shift position to P range.

(e)Open the short-circuit between DLC 12 (EFIT) ↔ 4 (E) terminals.
(f) Make sure that ignition timing is within the Specified values.
Specified value

Engine	Ignition timing
3SZ-VE	0 - 15° BTDC (at idle speed)
K3-VE	0 - 15° BTDC (at idle speed)

<CAUTION>
> Turn off all the accessory switches and A/C.
> Check it when the electric fan is OFF.
> Before checking ignition timing, set the shift position to P range.

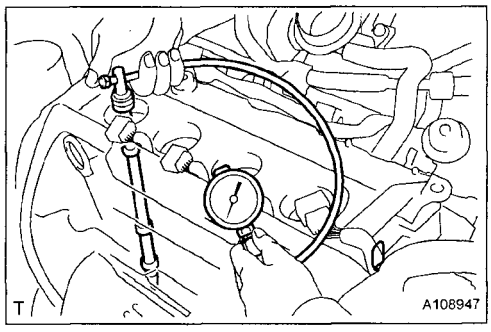
(g)Make sure that increasing engine rotation immediately advances ignition timing.

7. Engine idle speed check
   (1) Check using DS-II
   (a)Warm up the engine.
   (b)Connect DS-II to DLC.
   (c)According to the instructions on the screen, go to the [ECU data monitor] screen. Select [Engine rotation].
   (d)Make sure that engine idle speed is within the Specified values.
   Specified value

Engine	Engine idle speed
3SZ-VE	650-800 r/min
K3-VE	650-800 r/min

<CAUTION>
> Turn off all the accessory switches and A/C.
> Check it when the electric fan is OFF.
> Before checking engine idle speed, set the shift position to P range.

8. Compression check
   (1) Warm up the engine.
   (2) Remove the air cleaner assembly.
   (3) Remove all the ignition coil assemblies.
   (4) Remove all the spark plugs.
   (5) Remove all the fuel injector connectors.



   (6) Check compression of each cylinders
   (a)Attach the compression gage to the plug hole.
   (b)Fully open the throttle.
   (c)Crank the engine to check the compression.
   Specified value

Engine	Specified value kpa {kgf/cm^2}	Limit kpa {kgf/cm^2}	Allowable difference kpa {kgf/cm^2}
3SZ-VE	1470 {15.0}	1078 {11.0}	147 {1.5}
K3-VE	1470 {15.0}	1078 {11.0}	147 {1.5}

<CAUTION>
> Use a fully charged battery so that engine speed reaches at least 250 r/min.
> Compression should be measured quickly.
> When the check work is complete, be sure to check diagnostic trouble code output and erase it. Then check for normal code output.

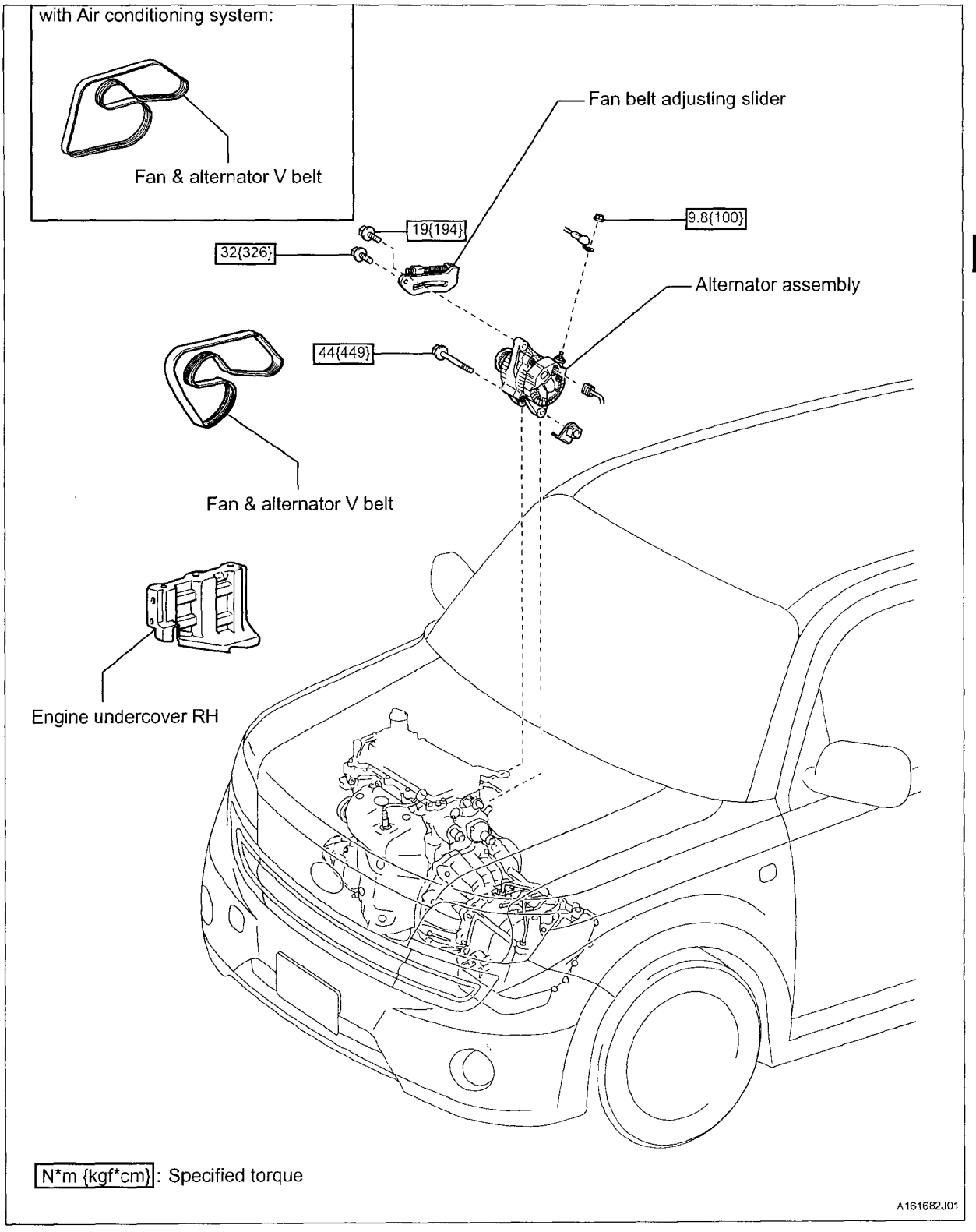
<HINT>
> If compression pressure is low, pour a small amount of engine oil into the cylinder and then measure compression again.
> If compression increases, the piston ring may be worn out.
> If compression does not change, valve-related parts may have a failure.

9. CO and HC level check
   (1) Start the engine.
   (2) Race the engine at 2500 r/min for 180 seconds.
   (3) At idle speed, insert the tester probe into the tail pipe as deep as at least 40 cm.
   (4) Check the levels of CO and HC.
   Specified value

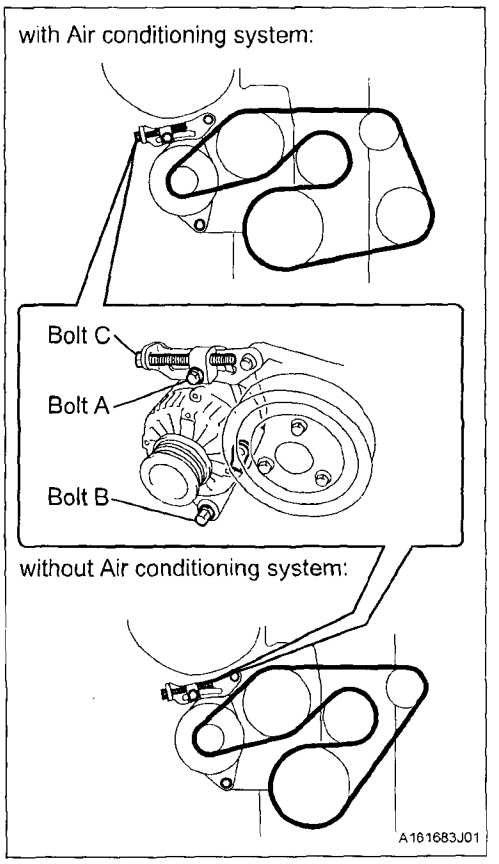
Engine	Level of CO	Level of HC
3SZ-VE	0.2 % or less	200 ppm or less
K3-VE	0.2 % or less	200 ppm or less

FAN AND ALTERNATOR V BELT

COMPONENTS



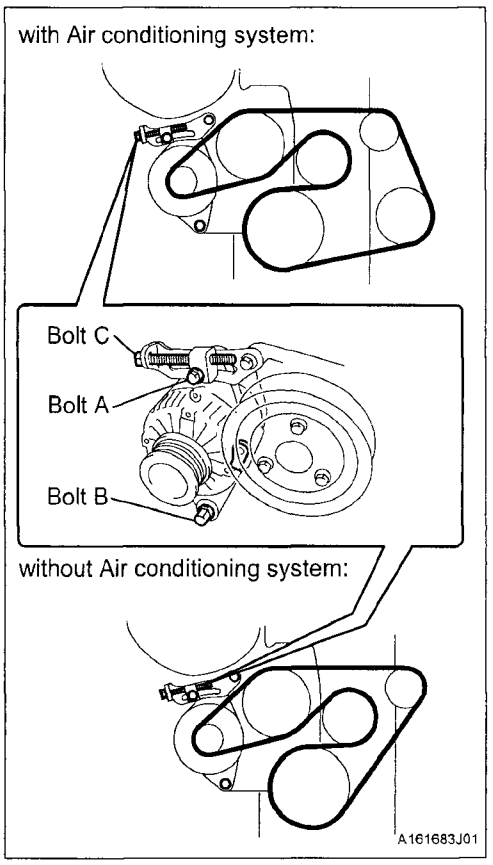
REMOVAL



1. Fan & alternator V belt removal
   (1) Loosen bolts A and B.
   (2) Turn adjusting bolt C to decrease tension of the fan & alternator V belt, and remove the fan & alternator V belt from each pulley.

INSTALLATION

1. Fan & alternator V belt installation
   (1) Temporarily attach the fan & alternator V belt to each pulley.



2. Fan & alternator V belt adjustment
   (1) Turn adjusting bolt C to adjust tension of the fan & alternator V belt.
   (2) Tighten bolts A and B.
   Tool: Preset torque wrench {Tonichi (QL25N-MH) or equivalent}
   Specified value: T=19N*m {194kgf*cm} (Bolt A)
   T=44N*m {449kgf*cm} (Bolt B)

3. Fan & alternator V belt check (See page 07-1)

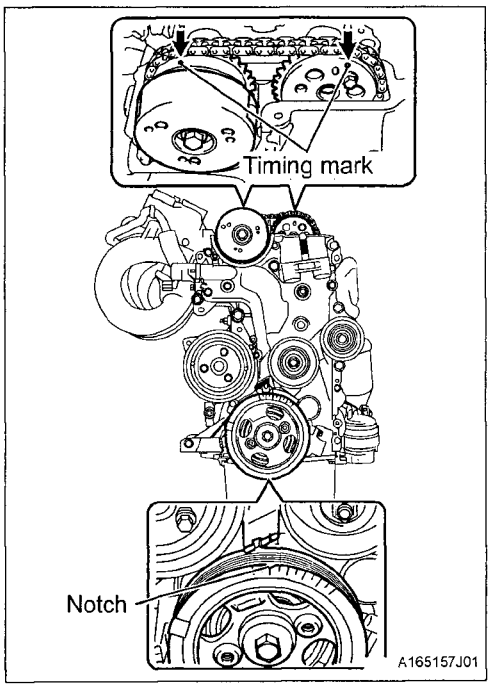
VALVE CLEARANCE (3SZ-VE, K3-VE)

INSPECTION

<HINT>

The illustrations are based on 3SZ-VE as typical examples.

1. Battery minus terminal disconnection
2. Engine undercover RH removal(See page 07-52)
3. Air cleaner cap removal
4. Air cleaner filter element removal
5. Vacuum sensor disconnection (See page 06-140)
6. Vacuum switching valve assembly (with Bracket) disconnection (RHD) (See page 06-140)
7. Vacuum switching valve assembly (with Bracket) disconnection (LHD) (See page 06-140)
8. Inlet air temperature sensor disconnection (See page 06-140)
9. Precleaner hose removal (See page 06-141)
10. Air cleaner assembly removal (See page 06-141)
11. Ventilation hose No. 2 removal (See page 06-141)
12. Ventilation hose disconnection (See page 07-231)
13. Accelerator control cable assembly disconnection (See page 06-177)
14. Throttle body bracket No. 2 removal (See page 06-142)
15. Accelerator control cable braket removal (LHD) (See page 07-61)
16. Air cleaner support bracket No. 2 removal (See page 07-61)
17. Noise filter removal (See page 07-231)
18. Ground cable disconnection (See page 07-232)
19. Engine wire disconnection (See page 07-232)
20. Ignition coil assembly removal (See page 07-232)
21. Oil level gage removal
22. Cylinder head cover removal (See page 07-232)

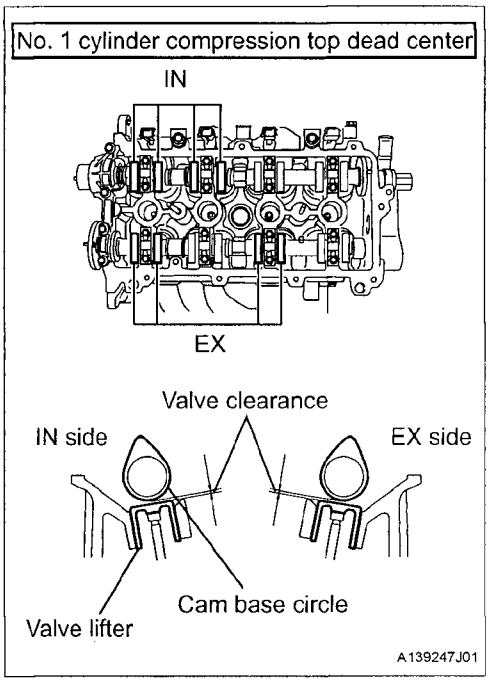


23. No. 1 cylinder compression top dead center setting
    (1) Positively rotate the crankshaft pulley and align the timing marks (notches) with the 0° position. Make sure that each timing mark is positioned as shown in the diagram.
    <HINT>
    If any timing mark is properly positioned, positively rotate the crankshaft pulley again to adjust the position.

24. Valve clearance check

<CAUTION>

Valve clearance should be checked when the engine is cold.



(1) Check the valve clearance at the location shown in the diagram.

(a) Measure the clearance between the valve lifter and the camshaft using a thickness gauge.

Specified value: IN 0.145 - 0.235 mm (when the engine is cold)

EX 0.275 - 0.365 mm (when the engine is cold)

<CAUTION>

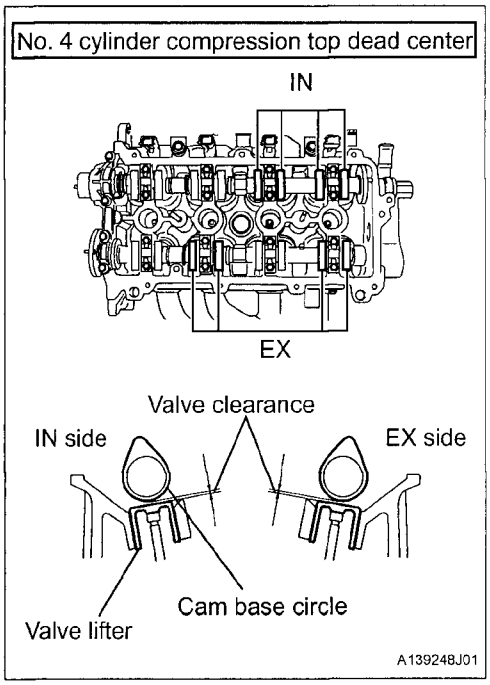
Valve clearance should be checked with the camshaft base circle.

<HINT>

In case of the value other than the standard value, record the clearance value.

07

(2) Positively rotate the crankshaft by 360° and set the No. 4 cylinder to the top dead center.



(3) Check the valve clearance at the location shown in the diagram.

(a) Measure the clearance between the valve lifter and the camshaft using a thickness gauge.

Specified value: IN 0.145 - 0.235 mm (when the engine is cold)

EX 0.275 - 0.365 mm (when the engine is cold)

<CAUTION>

Valve clearance should be checked with the camshaft base circle.

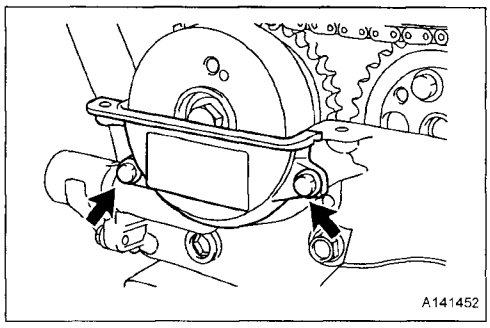
<HINT>

In case of the value other than the standard value, record the clearance value.

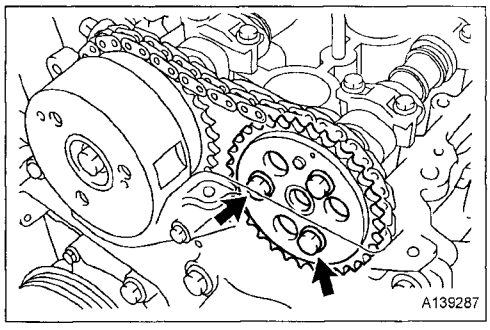
ADJUSTMENT

<HINT>

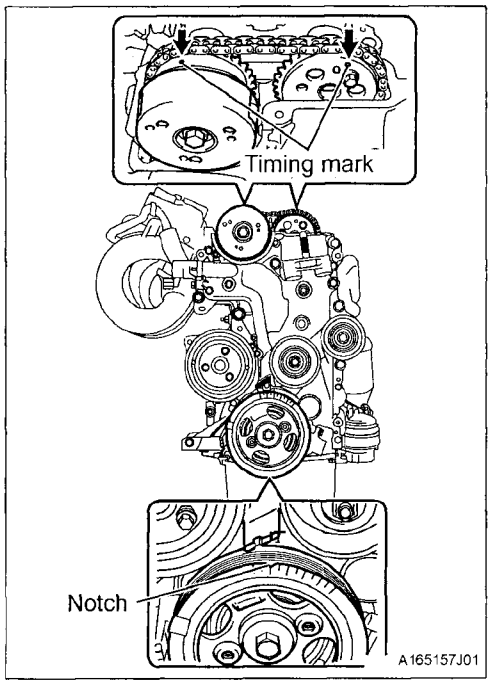
The illustrations are based on 3SZ-VE as typical examples.



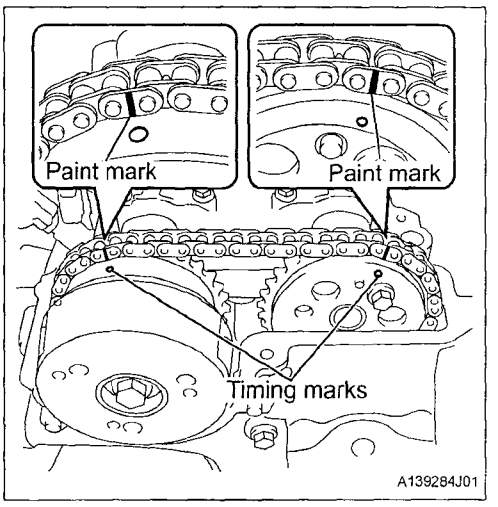
1. Valve clearance adjustment
   (1) Remove two bolts and then the timing chain cover No. 2.



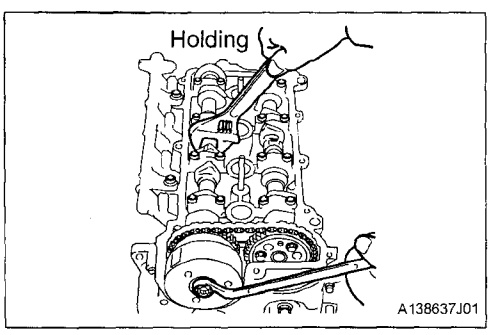
(2) Positively rotate the crankshaft pulley and remove only two camshaft timing gear installation bolts.



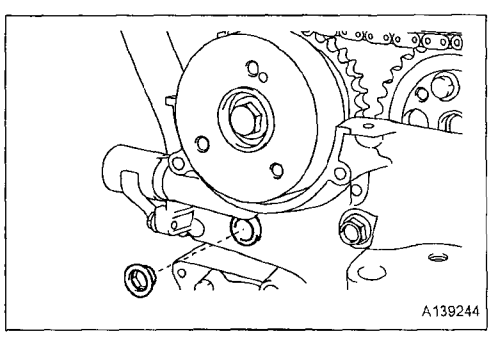
(3) Positively rotate the crankshaft pulley and align the timing marks (notches) with the 0° position. Make sure that each timing mark is positioned as shown in the diagram.
<CAUTION>
If any timing mark is properly positioned, positively rotate the crankshaft pulley again to adjust the position.



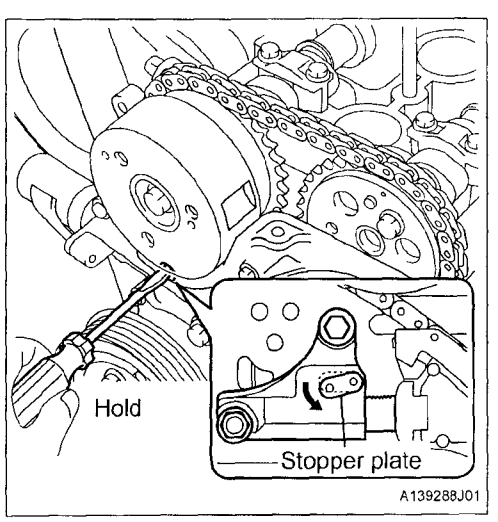
(4) Put a paint mark on each plate of the chain that matches the timing marks on the camshaft timing gear and the camshaft timing sprocket.
<HINT>
Yellow (3SZ-VE) or gold (K3-VE) mark plates are attached to the chain in three locations. If these mark plates match the dowel marks on each timing sprocket and timing gear, the above work is unnecessary.



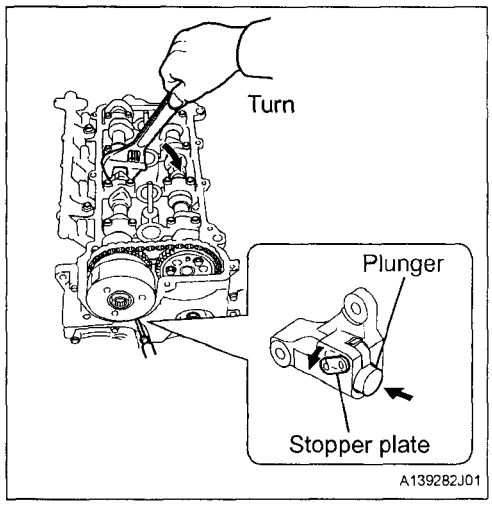
(5) Loosen the camshaft timing sprocket installation bolt by using the service hexagonal part of the camshaft.



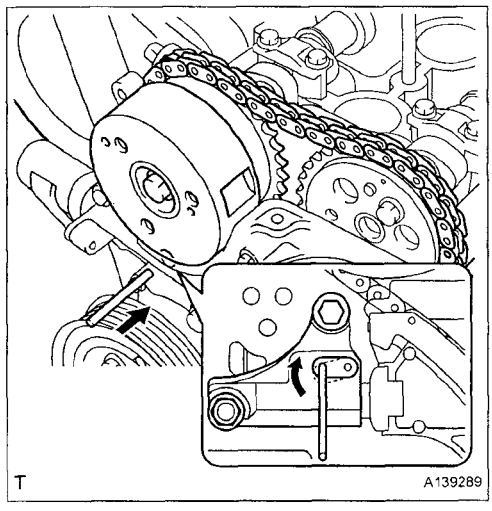
(6) Remove the chain cover service hole screw plug using a socket hexagon wrench 10.



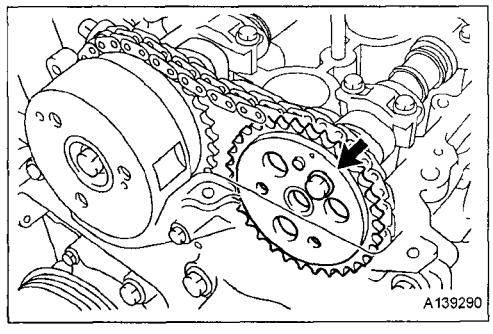
(7) Insert a flathead screwdriver into the chain tensioner service hole. Use the screwdriver to move the tensioner stopper plate downward and hold the stopper plate under unlocked state. [*1]
<CAUTION>
If it is difficult to unlock the stopper plate, use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and left sides.



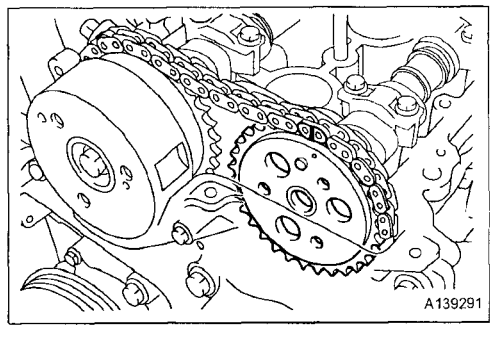
(8) From the state described in [*1], use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right, and hold it. [*2]
<HINT>
Rotating the camshaft to the right depresses the tensioner plunger.



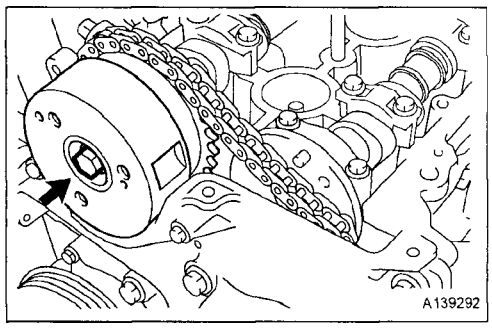
(9) From the state described in [*2], pull out the flathead screwdriver from the chain tensioner service hole. Align the holes of the stopper plate and the tensioner, and insert a rod of 2.5 mm in diameter.
<CAUTION>
> If it is difficult to insert a rod of 2.5 mm in diameter, slightly rotate the camshaft to the left and then to the right before attempting to insert the rod again.
> Hold the camshaft using the service hexagonal part of the camshaft.
> Fix the rod of 2.5 mm in diameter with tape to prevent it from dropping.



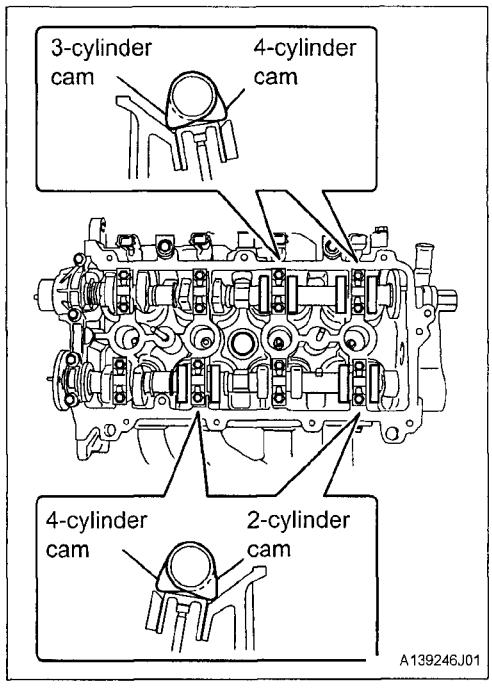
(10) Remove the camshaft timing gear installation bolt.



(11) Remove the camshaft timing sprocket.

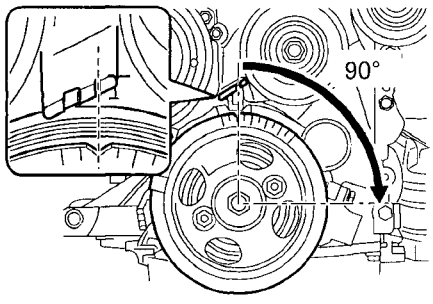


(12) Remove the bolt and then the camshaft timing sprocket.

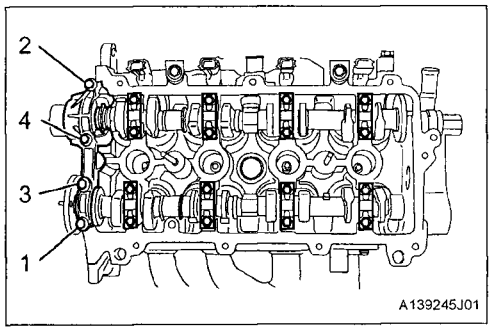


(13) Make sure that the camshaft and the camshaft No. 2 are positioned as shown in the diagram.

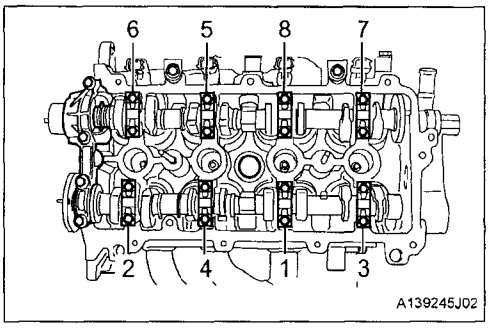
07



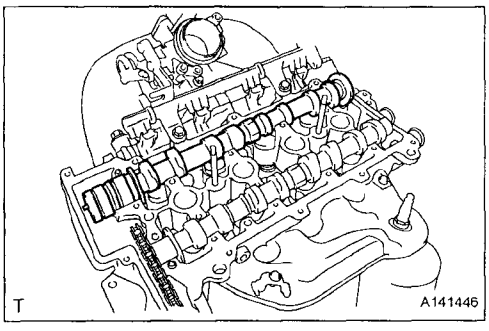
<CAUTION>
If you want to rotate the camshaft with the chain disconnected, positively rotate the crankshaft by 90° to prevent the fully opened valve from interfering with the piston, and make sure that the notches on the crankshaft pulley are positioned as shown in the diagram.



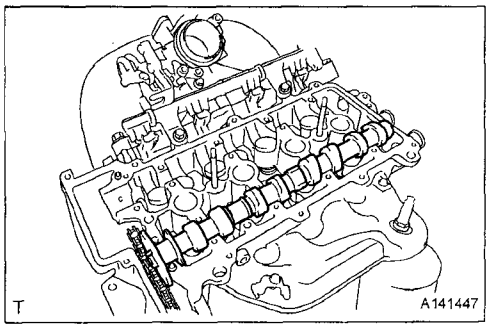
(14) Remove the camshaft bearing cap No. 1 in the order shown in the diagram.



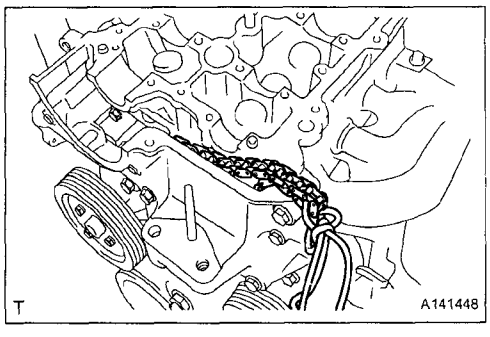
(15) Remove the camshaft bearing caps No. 2 in the order shown in the diagram.
<CAUTION>
Holding the camshaft in a horizontal position, loosen the bolts evenly.



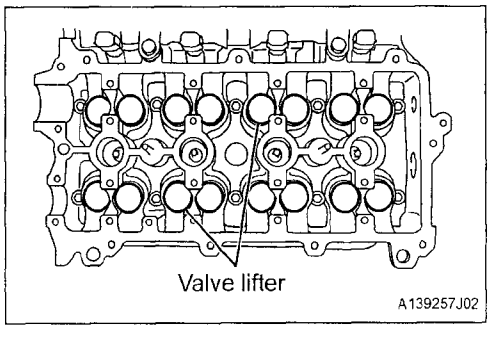
(16) Remove the camshaft.



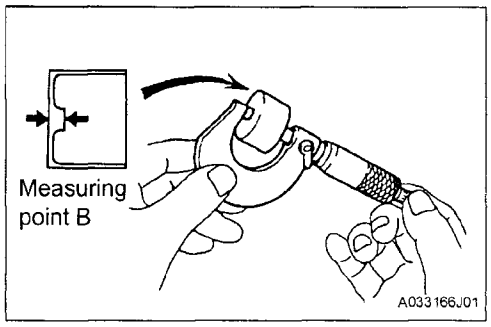
(17) Remove the camshaft No. 2.



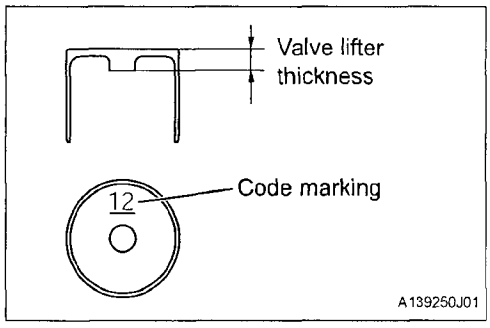
(18) Keep the chain hunging on with a rope or wire.
<CAUTION>
Prevent foreign particles from getting inside the timing chain cover.



(19) Remove the valve lifters.



(20) Measure the thickness of valve lifter using micrometer.



(21) Select a valve lifter so that valve clearance adapts within the Specified values and attach the valve lifter.

A	Valve lifter to be selected
B	Thickness of the removed valve lifter
C	Measured valve clearance

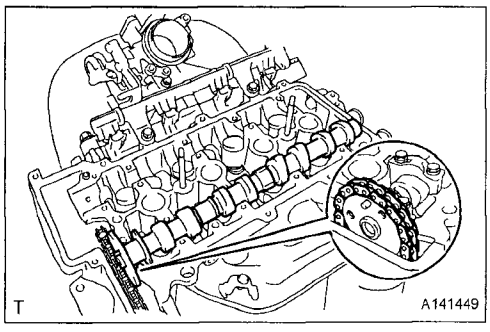
Specified value: IN A = B + (C - 0.18 mm)
EX A =B + (C - 0.31 mm)

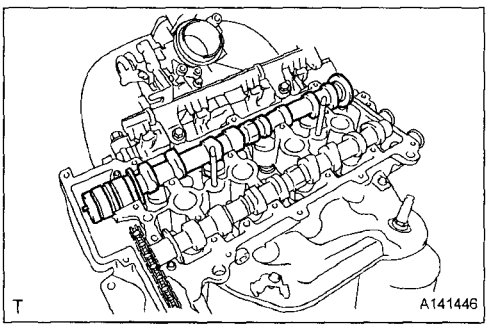
<HINT>
Twenty-nine types of valve lifter are provided within the range of 5.12 - 5.68 mm.

Identification No.	Thickness (mm)	Identification No.	Thickness (mm)
12	5.12	42	5.42
14	5.14	44	5.44
16	5.16	46	5.46
18	5.18	48	5.48
20	5.20	50	5.50
22	5.22	52	5.52
24	5.24	54	5.54
26	5.26	56	5.56
28	5.28	58	5.58
30	5.30	60	5.60
32	5.32	62	5.62
34	5.34	64	5.64
36	5.36	66	5.66
38	5.38	68	5.68
40	5.40	-	-

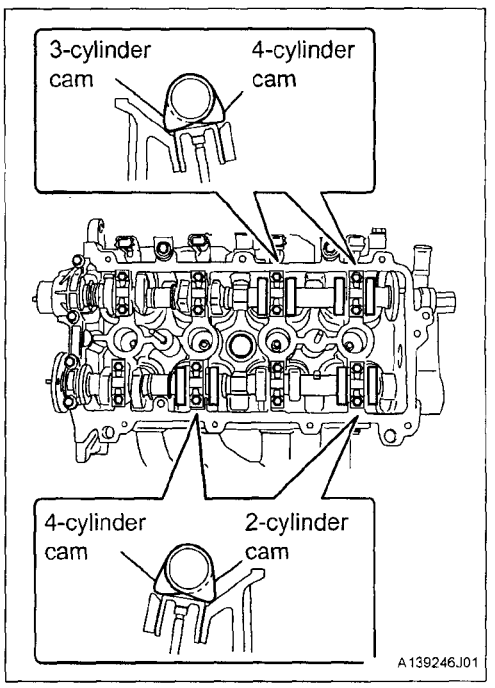
(22) Attach the valve lifters.

(23) Coat the cam of the camshaft No. 2 and the journals of the cylinder head with engine oil and attach the camshaft No. 2.

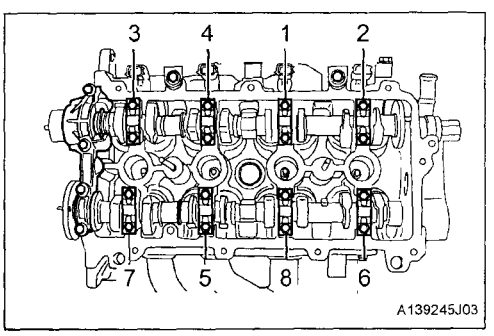




(24) Coat the cam of the camshaft and the journals of the cylinder head with engine oil and attach the camshaft.



(25) Adjust the positions of the camshaft and the camshaft No. 2 as shown in the diagram.



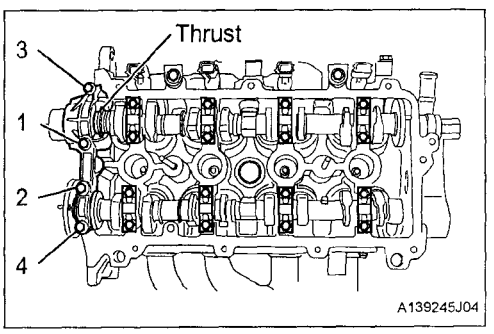
(26) Check the front marks and numbers on the camshaft bearing caps No. 2 and attach the camshaft bearing caps No. 2.

(27) Tighten the camshaft bearing caps No. 2 in the order shown in the diagram.

Specified value: T=12.5N*m {127kgf*cm}

<CAUTION>

Holding the camshaft in a horizontal position, tighten the bolts evenly.

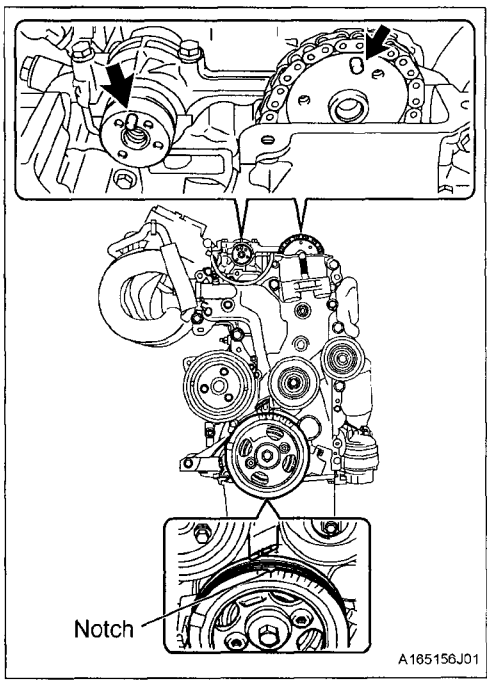


(28) Tighten the camshaft bearing cap No. 1 in the order shown in the diagram.

Specified value: T=12.5N*m {127kgf*cm}

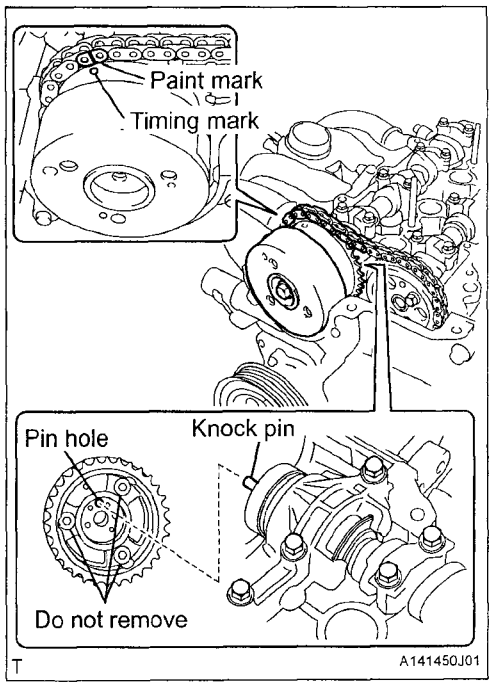
<CAUTION>

Make sure that the camshaft thrusts fit in the grooves in the camshaft bearing caps No. 1 before tightening the bolts.



(29) Adjust the positions of the timing marks on the camshaft timing sprocket and camshaft timing gear as shown in the diagram.

(30) Align the timing mark (notch) on the crankshaft pulley with the 0° position.



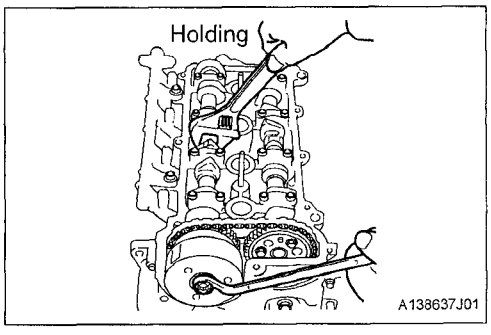
(31) Align the timing mark on the camshaft timing sprocket with the paint mark on the chain and attach the camshaft timing sprocket and the chain together.

(32) Align the knock pin of the camshaft with the pin hole in the camshaft timing sprocket and attach the camshaft timing sprocket to the camshaft.

<CAUTION>

> If the knock pin does not fit in the pin hole, use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and left sides until the knock pin fits in the pin hole. Do not strongly push the camshaft timing sprocket. Otherwise the end portion of the knock pin might damage the seal surface, resulting in seal defect.

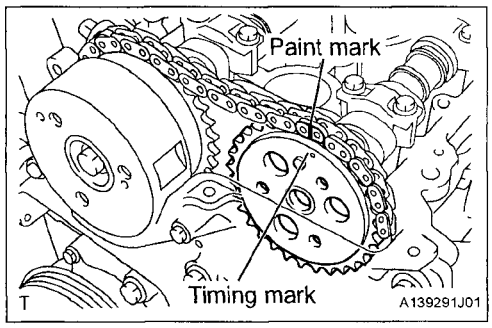
> Never remove three bolts. If they are removed, replace the camshaft timing sprocket.



(33) Coat the treaded part and bearing surface of the camshaft timing sprocket installation bolt with a small amount of engine oil and temporarily attach the bolt.

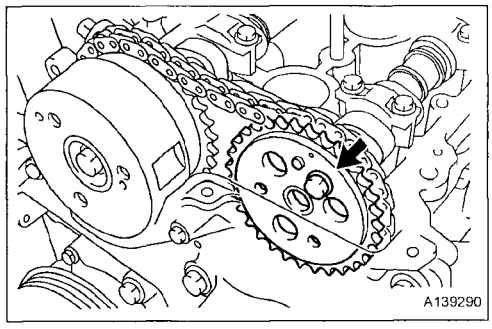
(34) Tighten the camshaft timing sprocket installation bolt by using the service hexagonal part of the camshaft.

Specified value:T=47N*m {479kgf*cm}

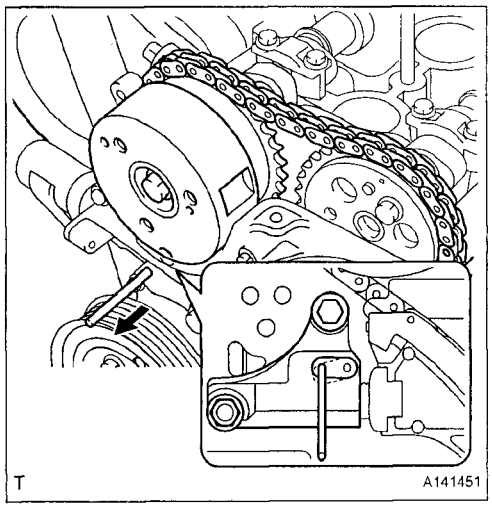


(35) Align the timing mark on the camshaft timing gear with the paint mark on the chain and attach the camshaft timing gear and the chain together.

(36) Align the knock pin of the camshaft No. 2 with the pin hole in the camshaft timing gear and attach the camshaft timing gear to the camshaft No. 2.



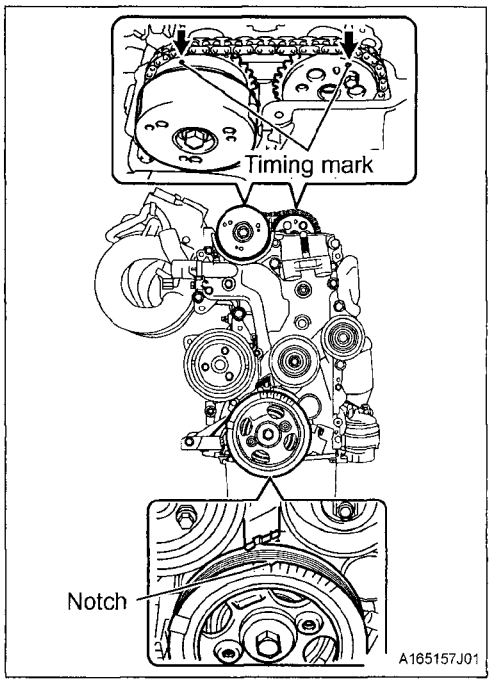
(37) Temporarily attach one camshaft timing gear installation bolt.



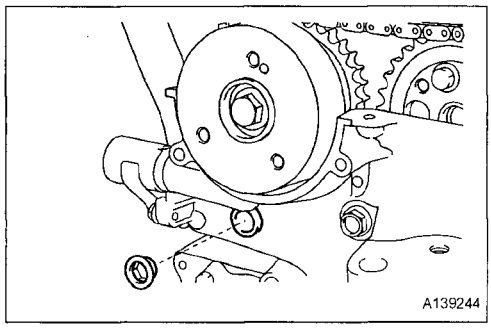
(38) Pull out the rod of 2.5 mm in diameter from the chain tensioner.

<CAUTION>

Use the service hexagonal part of the camshaft to slightly rotate the camshaft to the left. With the chain at the tensioner side sagging, pull out the rod of 2.5 mm in diameter.

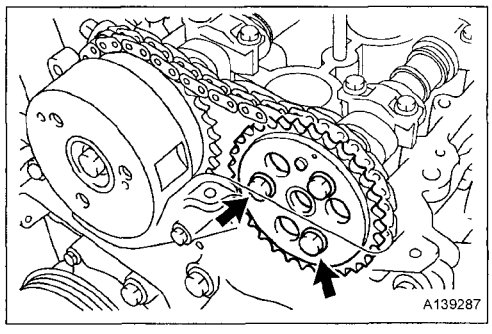


(39) Make sure that each timing mark is positioned as shown in the diagram.

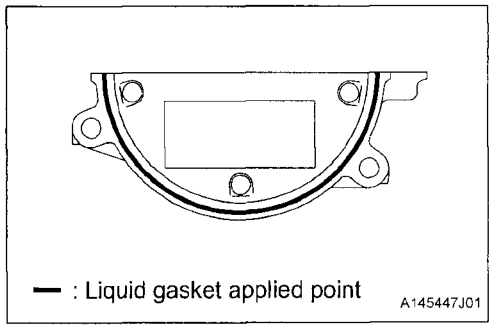


(40) Coat two or three threads from the bolt end portion of the chain cover service hole screw plug with Three Bond 1324.
<CAUTION>
Clean and degrease the bolt and the bolt hole.

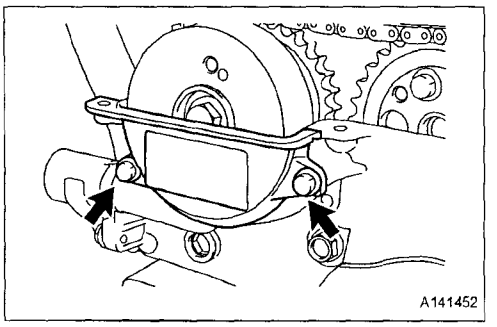
(41) Attach the chain cover service hole screw plug using a socket hexagon wrench 10.
Specified value: T=17N*m {173kgf*cm}



(42) Positively rotate the crankshaft pulley and attach two camshaft timing gear installation bolts.
Specified value: T=8.0N*m {82kgf*cm}



(43) Apply Three Bond 1280E in the location shown in the diagram.
<CAUTION>
> Clean and degrease the mating surface.
> Within three minutes after applying Three Bond 1280E, attach the mating surface.
> Avoid starting the engine for at least two hours after installation.

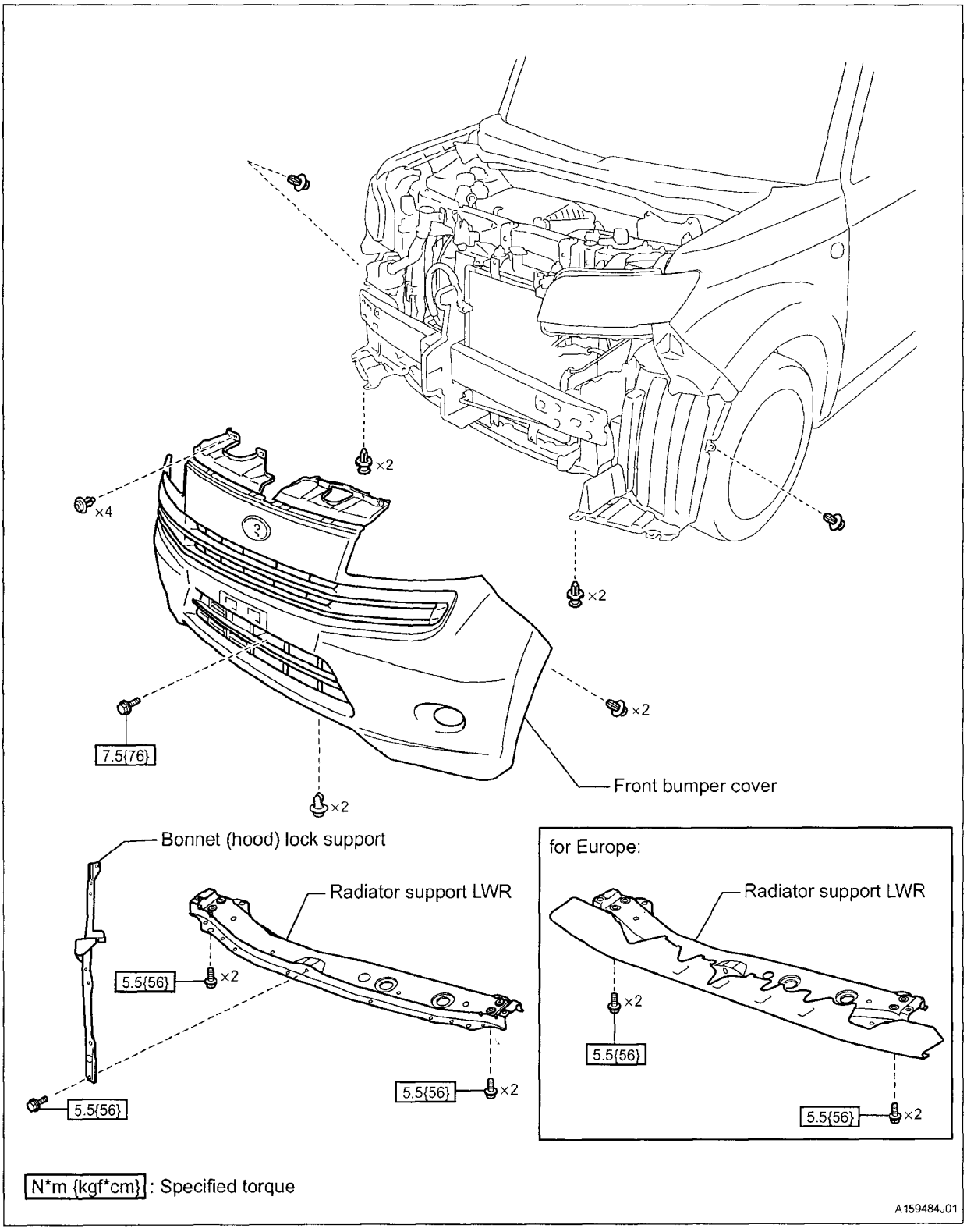


(44) Tighten two bolts to attach the timing chain cover No. 2.
Specified value:T=8.5N*m {87kgf*cm}

2. Cylinder head cover installation (See page 07-243)
3. Oil level gage installation
4. Ignition coil assembly installation (See page 07-243)
5. Engine wire connection (See page 07-244)
6. Ground cable connection (See page 07-244)
7. Noise filter installation (See page 07-244)
8. Air cleaner support bracket No. 2 installation (See page 07-75)
9. Accelerator control cable bracket installation (See page 07-76)
10. Throttle body bracket No. 2 installation (See page 06-148)
11. Accelerator control cable assembly connection (See page 06-148)
12. Ventilation hose connection (See page 07-244)
13. Ventilation hose No. 2 installation (See page 06-149)
14. Air cleaner assembly installation (See page 06-149)
15. Precleaner hose installation (See page 06-149)
16. Inlet air temperature sensor connection (See page 06-150)
17. Vacuum switching valve assembly (with Bracket) connection (RHD) (See page 06-150)
18. Vacuum switching valve assembly (with Bracket) connection (LHD) (See page 06-150)
19. Vacuum sensor connection (See page 06-150)
20. Air cleaner filter element installation
21. Air cleaner cap installation
22. Battery minus terminal connection
    Specified value:T=6.4N*m {65kgf*cm}
23. Engine oil leakage check
24. Engine undercover RH installation(See page 07-85)

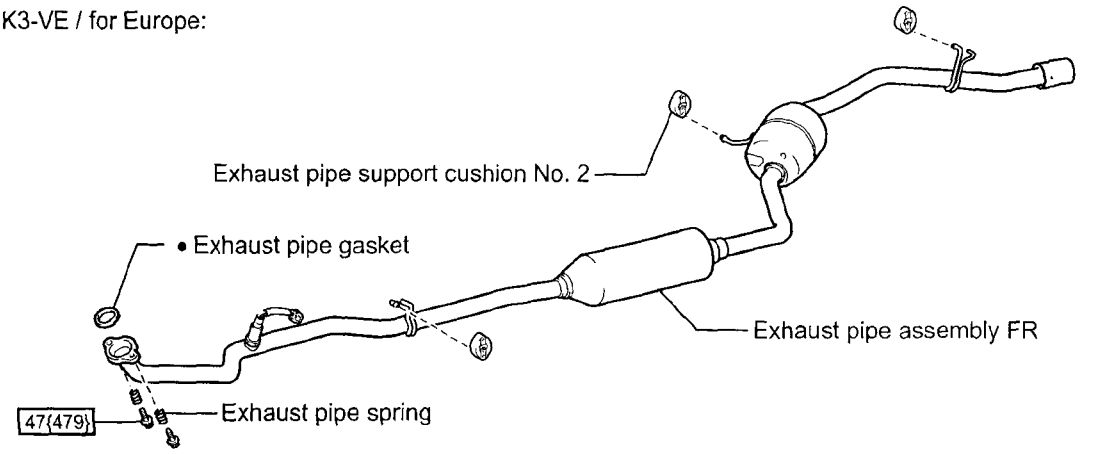
PARTIAL ENGINE ASSEMBLY (3SZ-VE, K3-VE / FF)

COMPONENTS

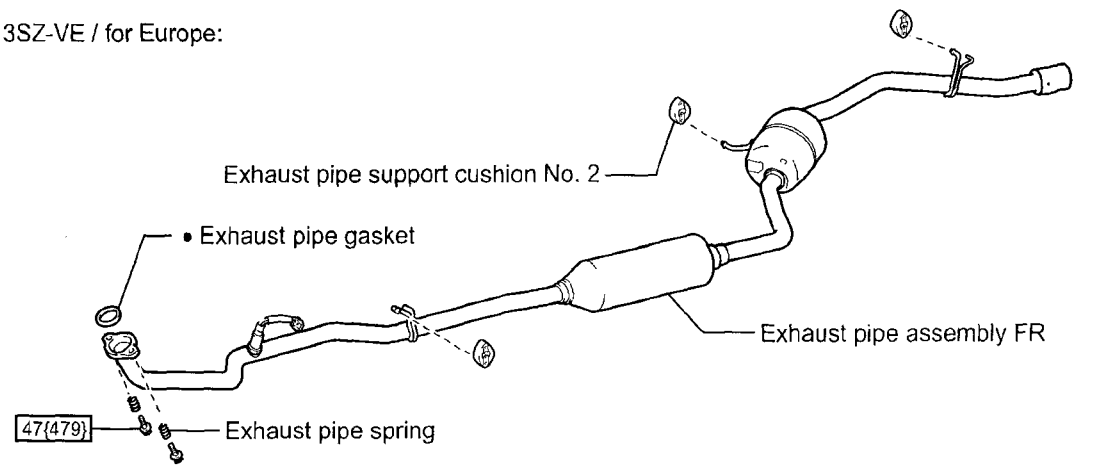


07

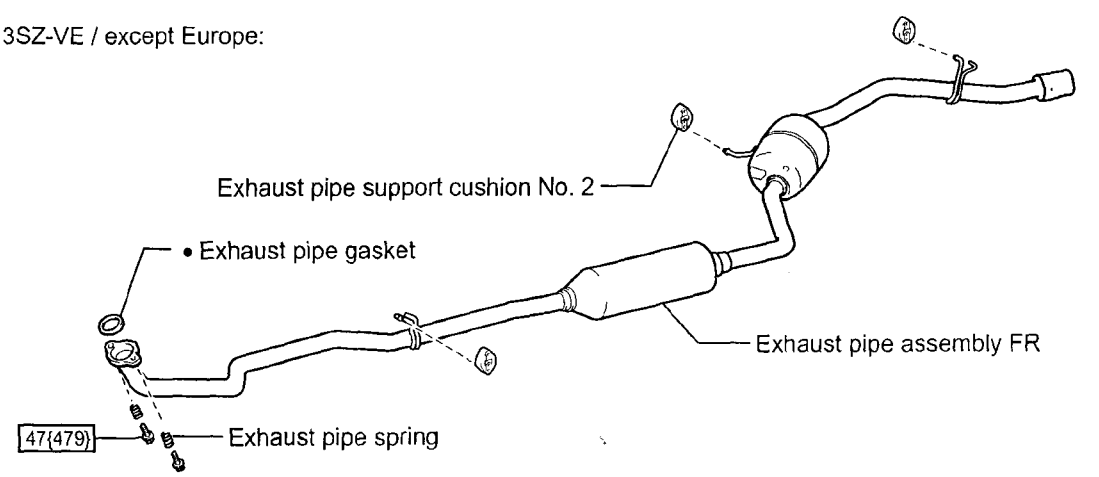
K3-VE / for Europe:



3SZ-VE / for Europe:

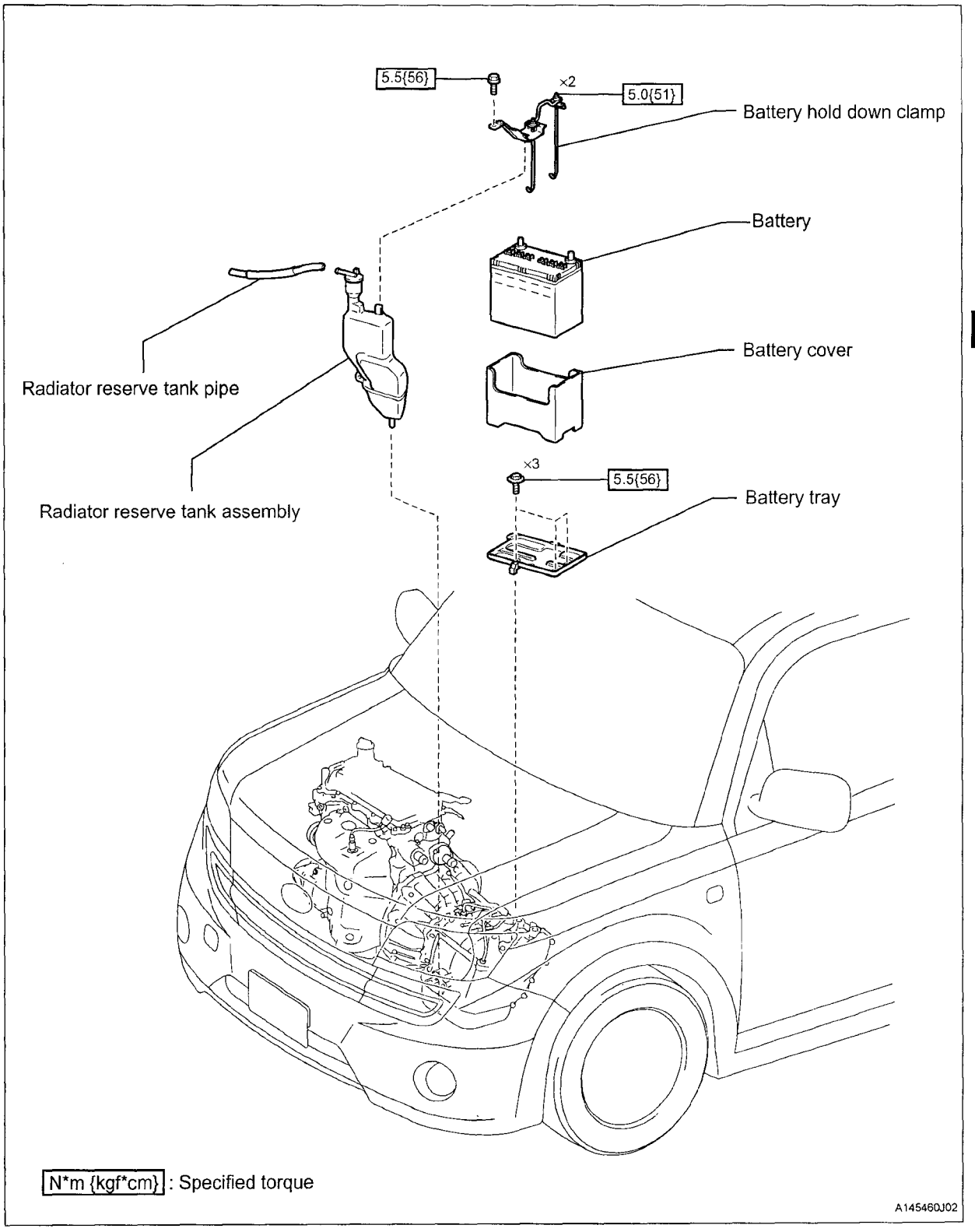


3SZ-VE / except Europe:

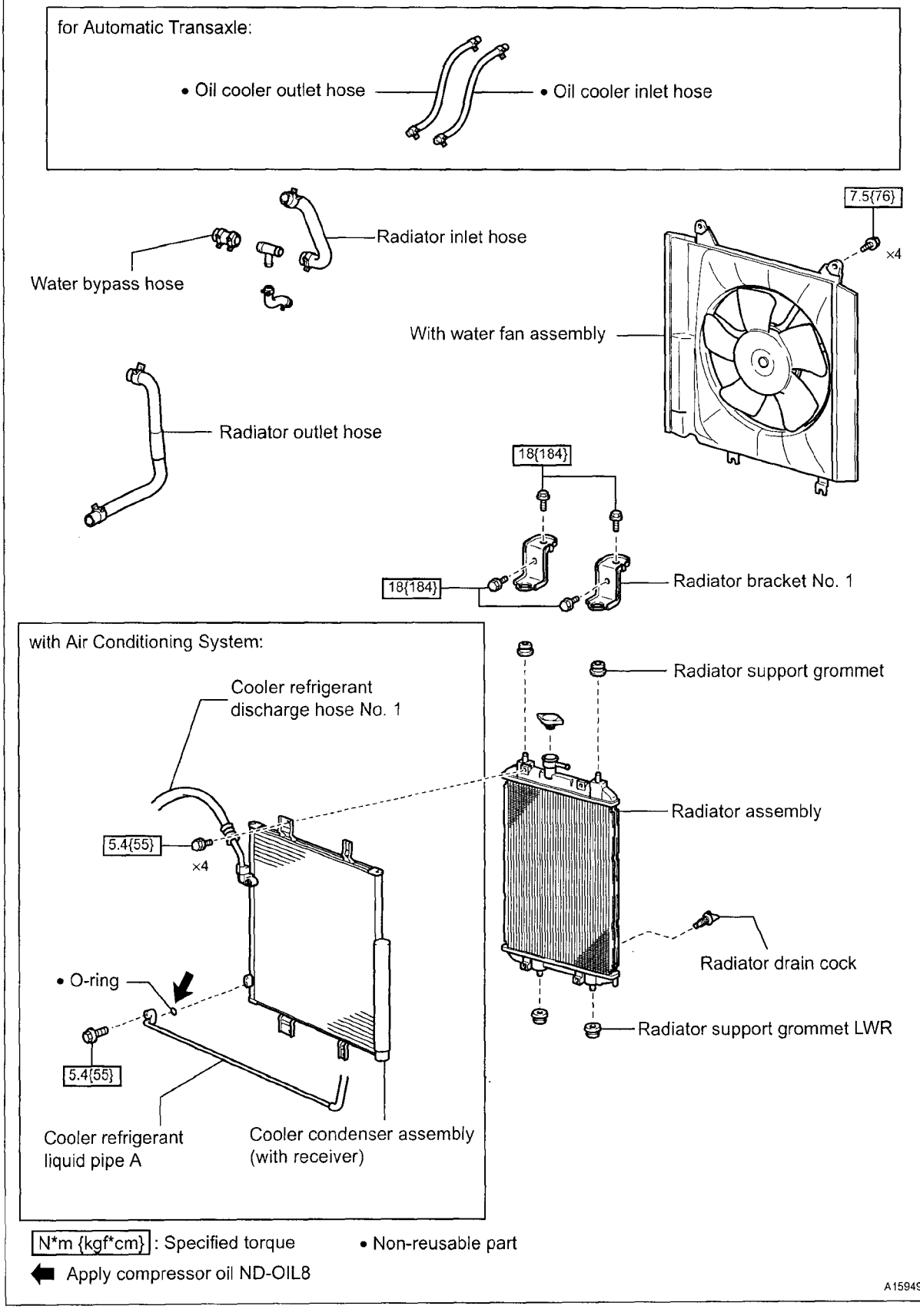


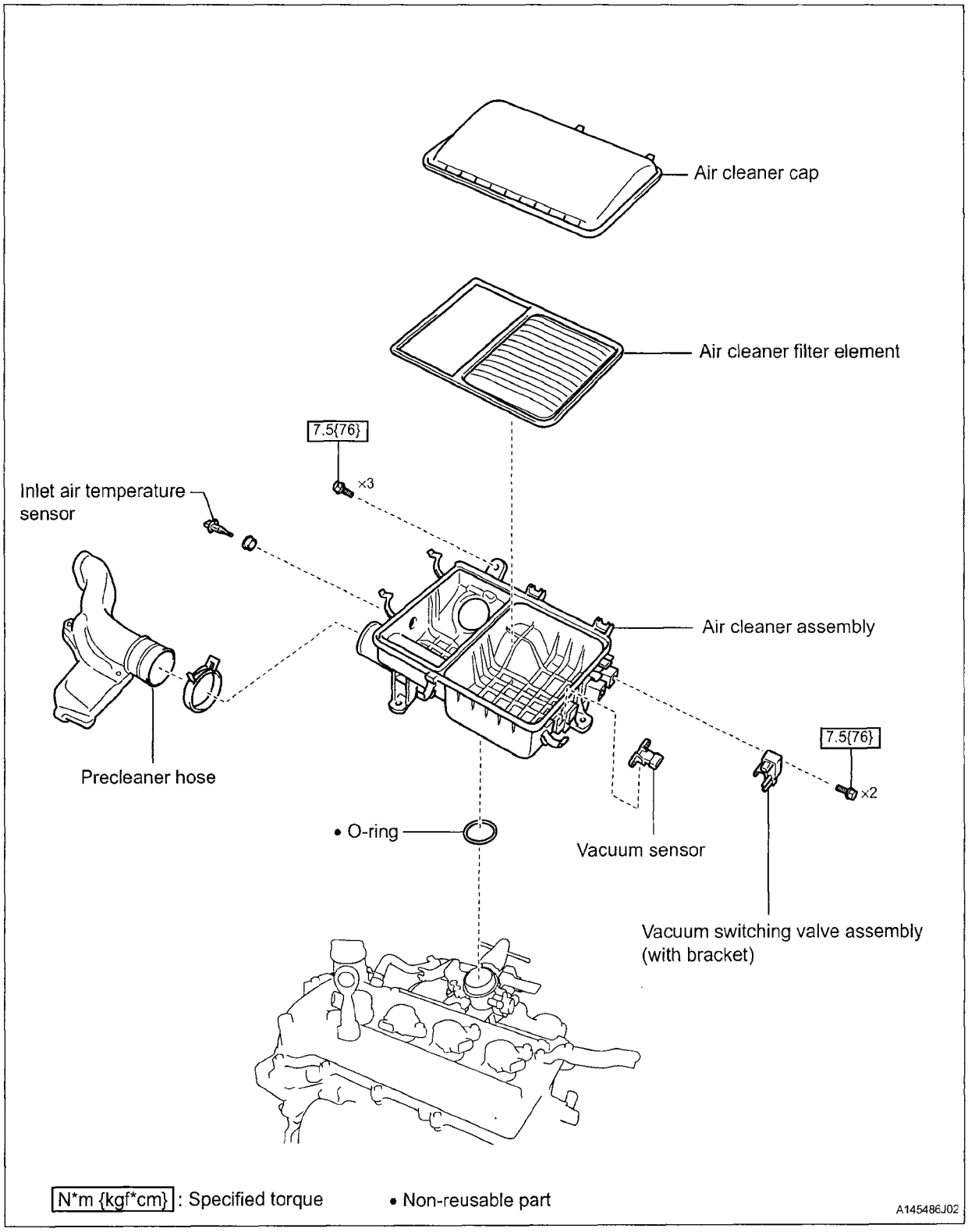
N*m {kgf*cm}: Specified torque • Non-reusable part

A159483J02


5.5{56}
×2
5.0{51}
Battery hold down clamp
Battery
Battery cover
Radiator reserve tank pipe
Radiator reserve tank assembly
×3
5.5{56}
Battery tray
N*m {kgf*cm} : Specified torque
A145460J02

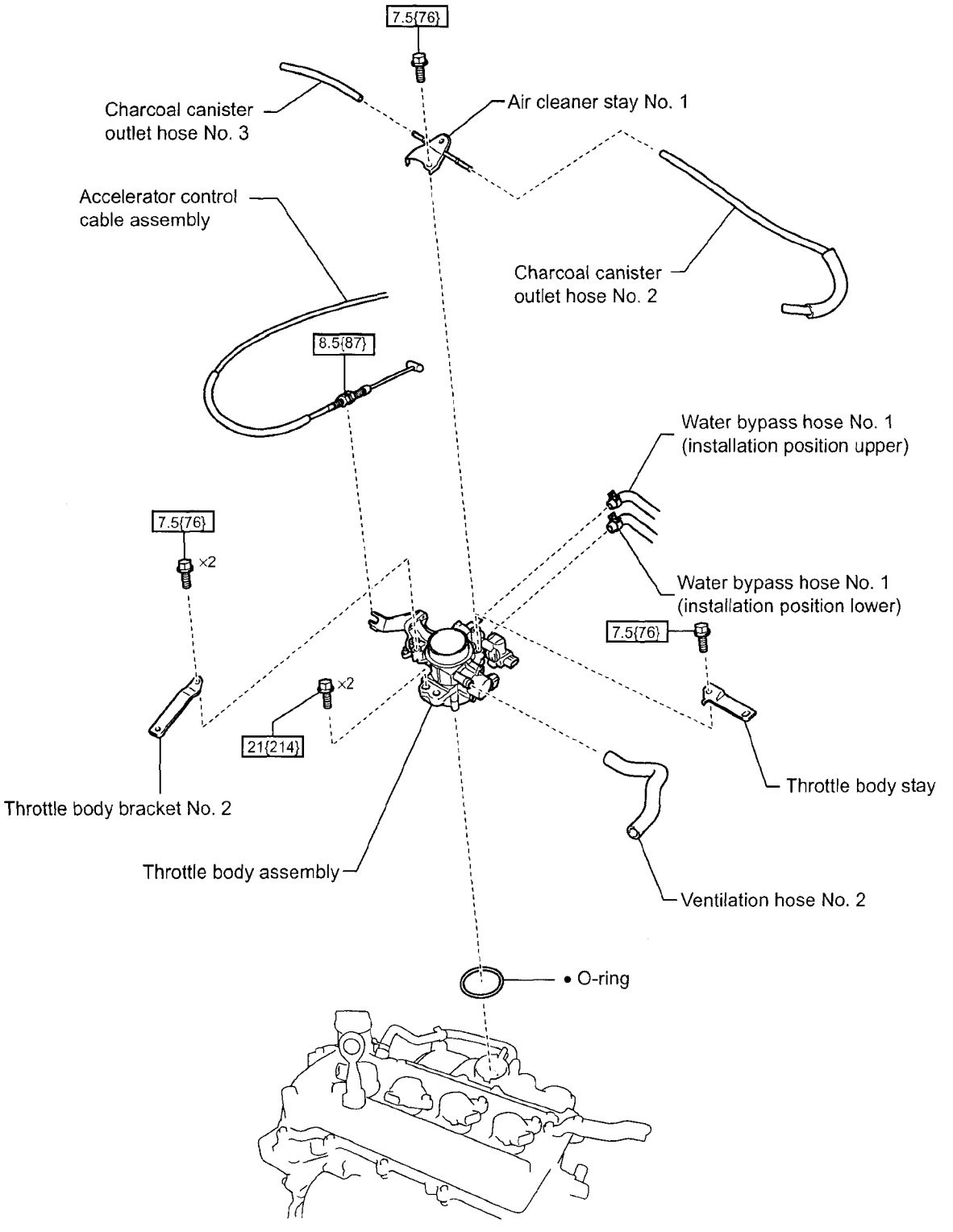
07


for Automatic Transaxle:
• Oil cooler outlet hose
• Oil cooler inlet hose
Radiator inlet hose
Water bypass hose
7.5{76}
×4
With water fan assembly
Radiator outlet hose
18{184}
18{184}
Radiator bracket No. 1
with Air Conditioning System:
Cooler refrigerant discharge hose No. 1
Radiator support grommet
Radiator assembly
5.4{55}
×4
Radiator drain cock
• O-ring
5.4{55}
Radiator support grommet LWR
Cooler refrigerant liquid pipe A
Cooler condenser assembly (with receiver)
N*m {kgf*cm} : Specified torque
• Non-reusable part
Apply compressor oil ND-OIL8
A159497J01


Air cleaner cap
Air cleaner filter element
7.5{76}
×3
Inlet air temperature sensor
Air cleaner assembly
Precleaner hose
7.5{76}
×2
• O-ring
Vacuum sensor
Vacuum switching valve assembly (with bracket)
N*m {kgf*cm}: Specified torque
• Non-reusable part
A145486J02

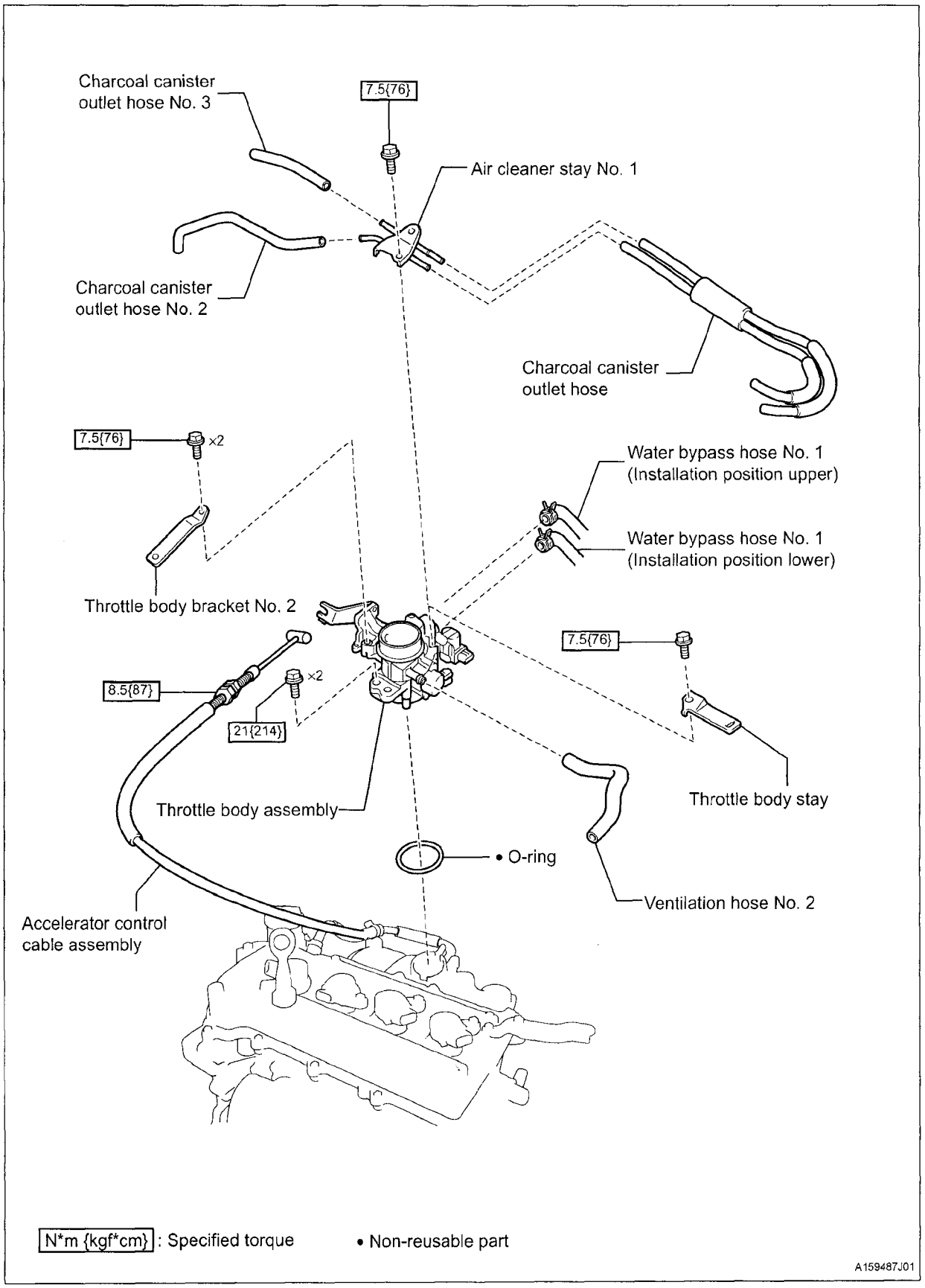
07

RHD:

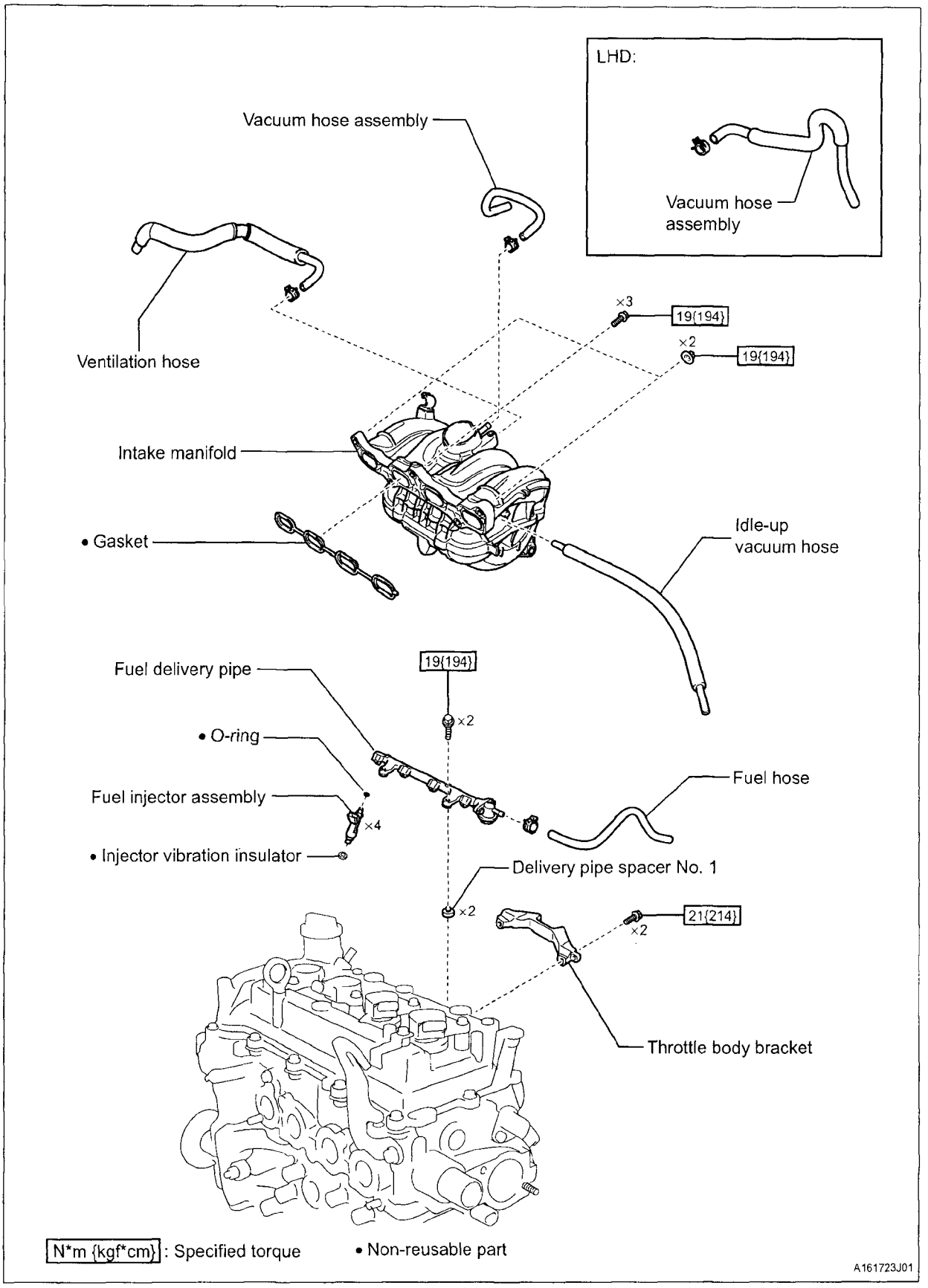


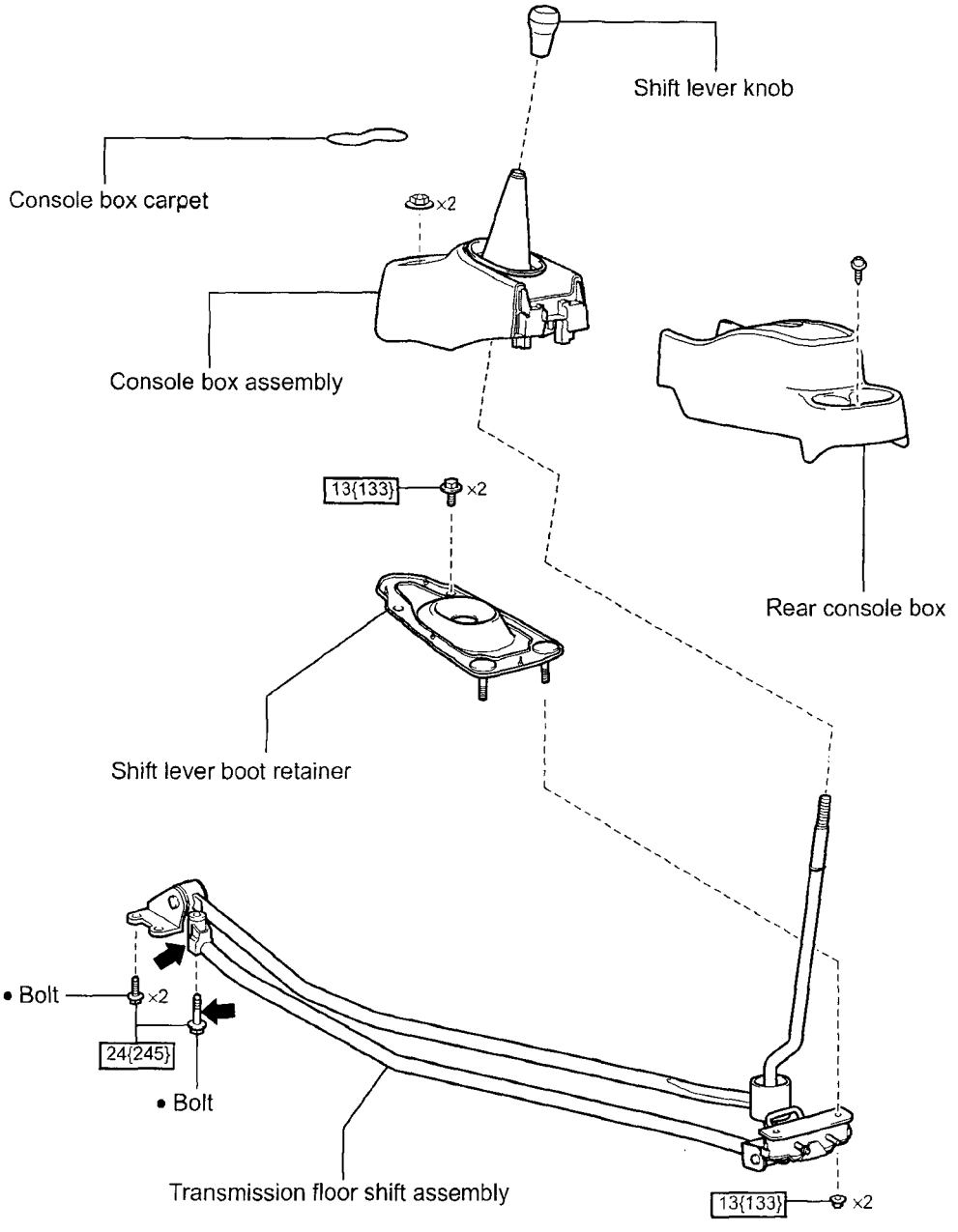
N*m {kgf*cm} : Specified torque • Non-reusable part

A145487J02


Charcoal canister outlet hose No. 3
7.5{76}
Air cleaner stay No. 1
Charcoal canister outlet hose No. 2
Charcoal canister outlet hose
7.5{76} ×2
Water bypass hose No. 1 (Installation position upper)
Water bypass hose No. 1 (Installation position lower)
Throttle body bracket No. 2
7.5{76}
8.5{87}
×2
21{214}
Throttle body assembly
Throttle body stay
• O-ring
Ventilation hose No. 2
Accelerator control cable assembly
N*m {kgf*cm} : Specified torque
• Non-reusable part
A159487J01

07


LHD:
Vacuum hose assembly
Vacuum hose assembly
Ventilation hose
×3
19{194}
×2
19{194}
Intake manifold
• Gasket
Idle-up vacuum hose
Fuel delivery pipe
19{194}
×2
• O-ring
Fuel injector assembly
×4
• Injector vibration insulator
Fuel hose
Delivery pipe spacer No. 1
×2
21{214}
×2
Throttle body bracket
N*m {kgf*cm}: Specified torque
• Non-reusable part
A161723J01

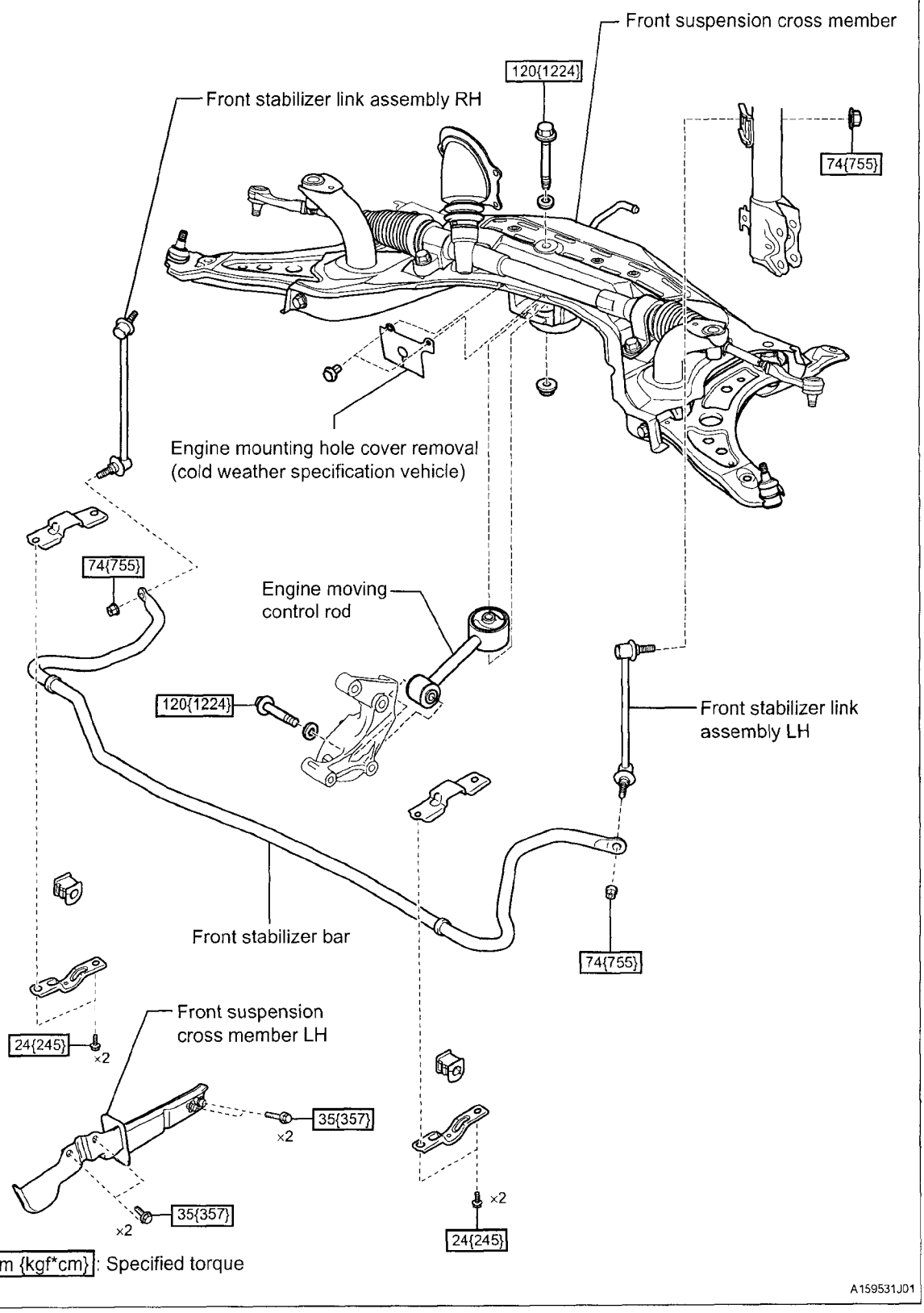


N*m {kgf*cm} : Spacified torque • Non-reusable part

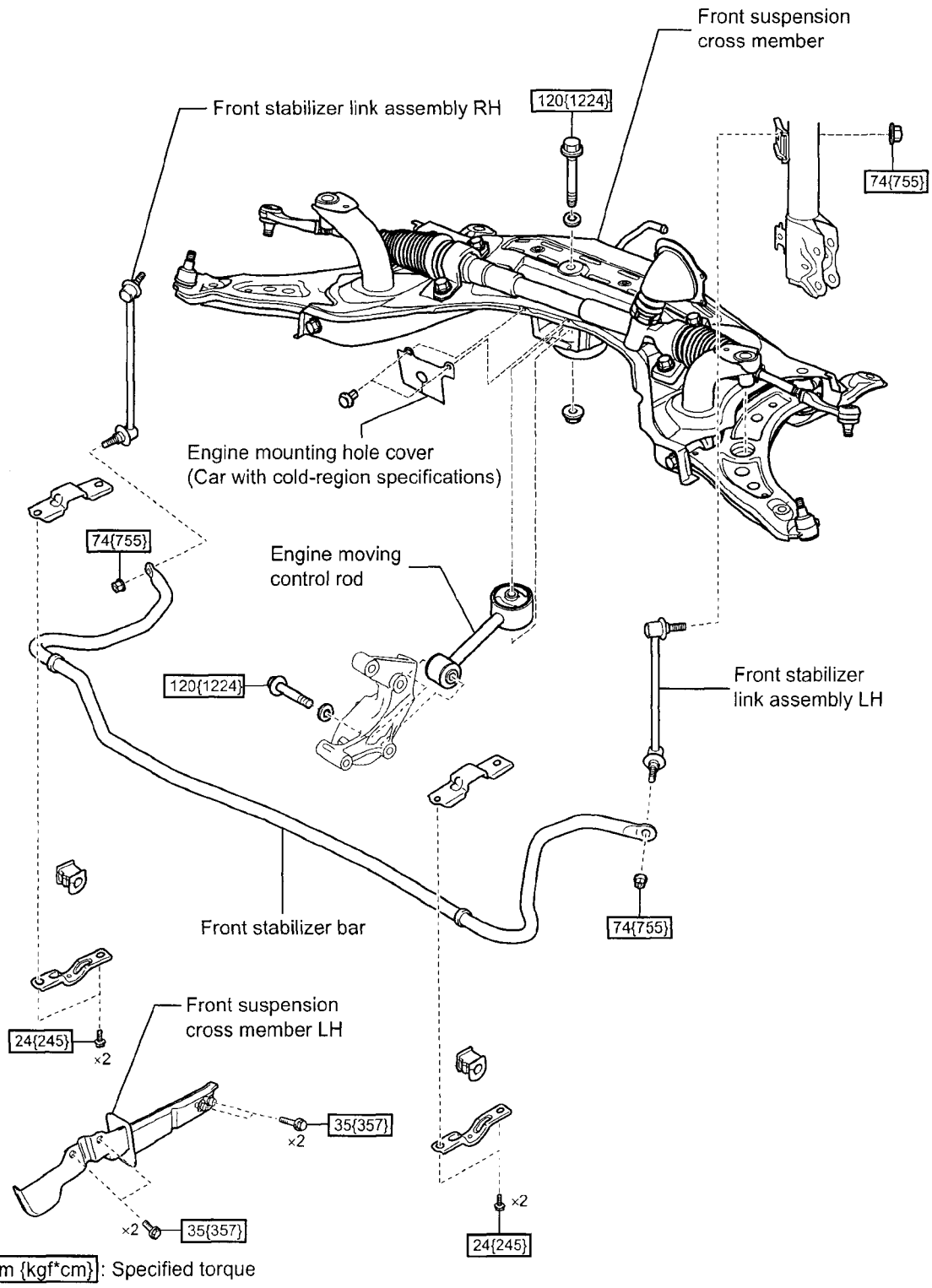
⬅ Apply MP Grease

C159934J02

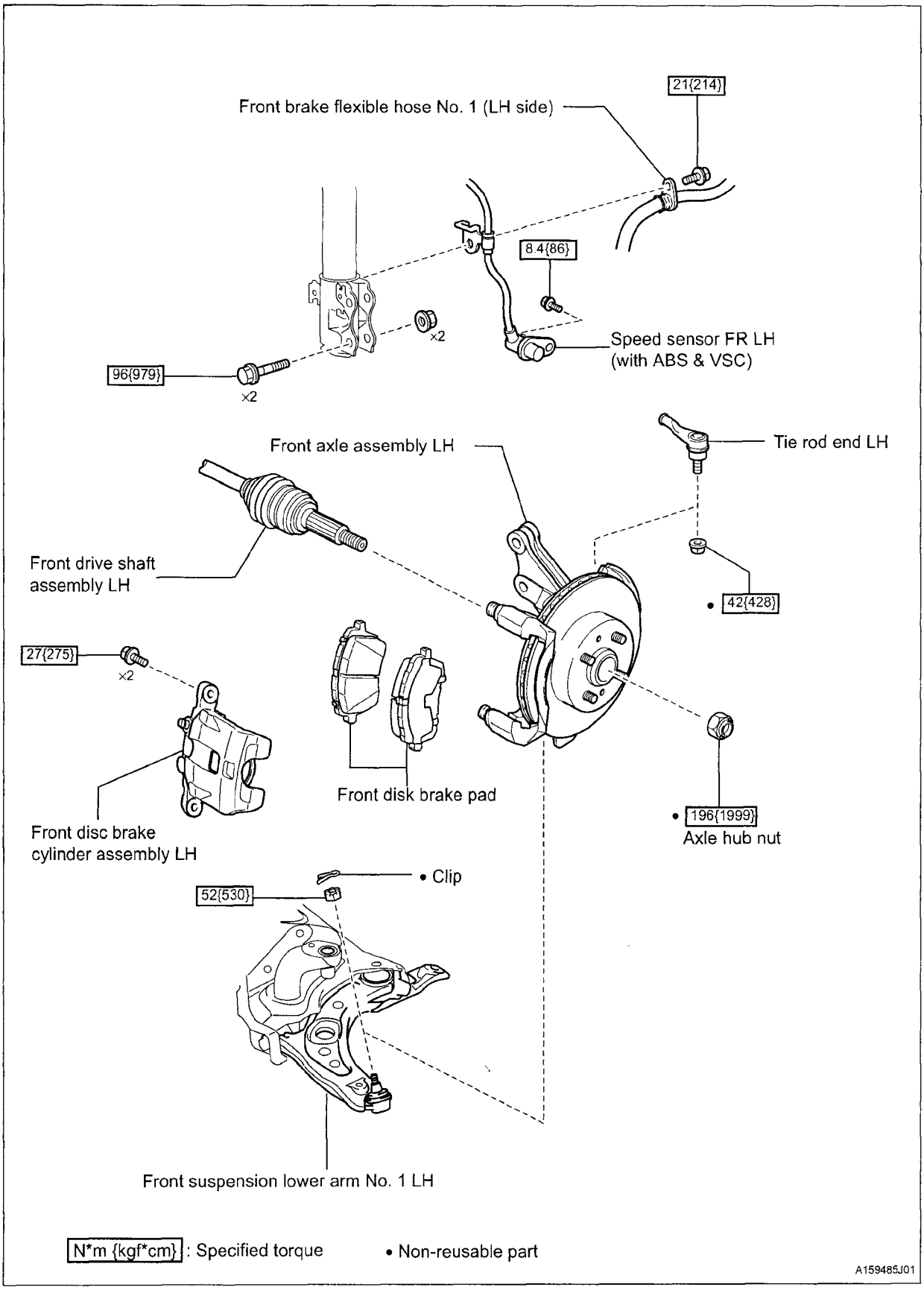
RHD:

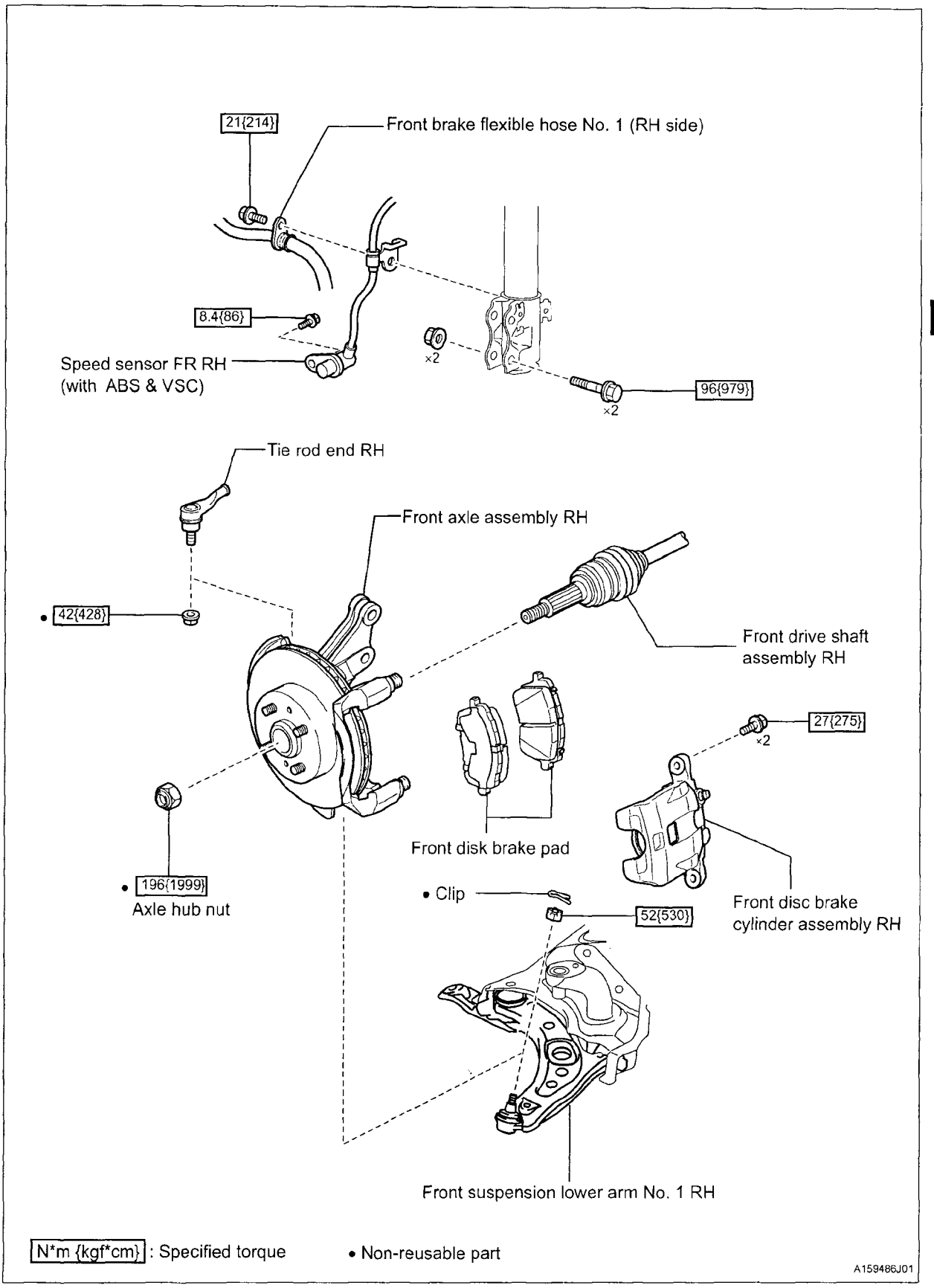

Front suspension cross member
120{1224}
Front stabilizer link assembly RH
74{755}
Engine mounting hole cover removal
(cold weather specification vehicle)
74{755}
Engine moving
control rod
120{1224}
Front stabilizer link
assembly LH
Front stabilizer bar
74{755}
Front suspension
cross member LH
24{245}
×2
35{357}
×2
35{357}
×2
×2
24{245}
N*m {kgf*cm}: Specified torque
A159531J01

LHD:

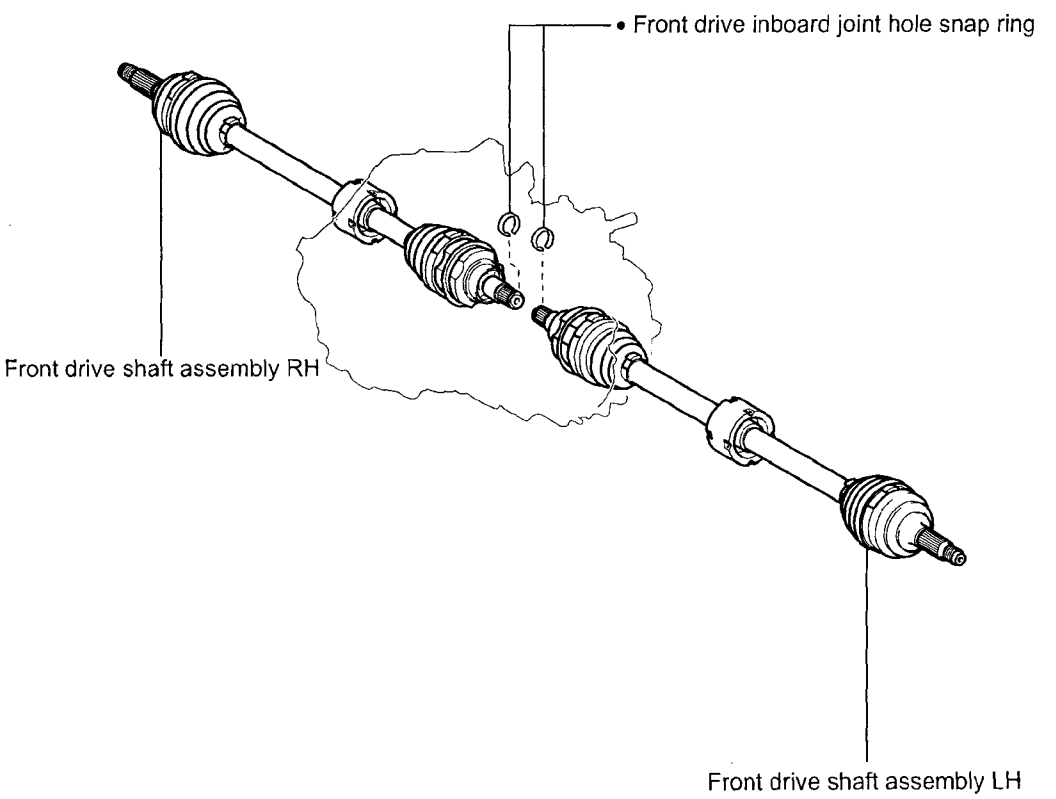

Front suspension cross member
Front stabilizer link assembly RH
120{1224}
74{755}
Engine mounting hole cover
(Car with cold-region specifications)
74{755}
Engine moving control rod
120{1224}
Front stabilizer link assembly LH
Front stabilizer bar
74{755}
Front suspension cross member LH
24{245}
×2
35{357}
×2
×2
35{357}
×2
24{245}
N*m {kgf*cm}: Specified torque
A161687J01

07


Front brake flexible hose No. 1 (LH side)
21{214}
8.4{86}
Speed sensor FR LH
(with ABS & VSC)
×2
96{979}
×2
Front axle assembly LH
Tie rod end LH
Front drive shaft
assembly LH
• 42{428}
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
Front disc brake
cylinder assembly LH
• Clip
52{530}
Front suspension lower arm No. 1 LH
N*m {kgf*cm}: Specified torque
• Non-reusable part
A159485J01


21{214}
Front brake flexible hose No. 1 (RH side)
8.4{86}
Speed sensor FR RH
(with ABS & VSC)
×2
96{979}
×2
Tie rod end RH
Front axle assembly RH
• 42{428}
Front drive shaft
assembly RH
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
• Clip
52{530}
Front disc brake
cylinder assembly RH
Front suspension lower arm No. 1 RH
N*m {kgf*cm} : Specified torque
• Non-reusable part
A159486J01

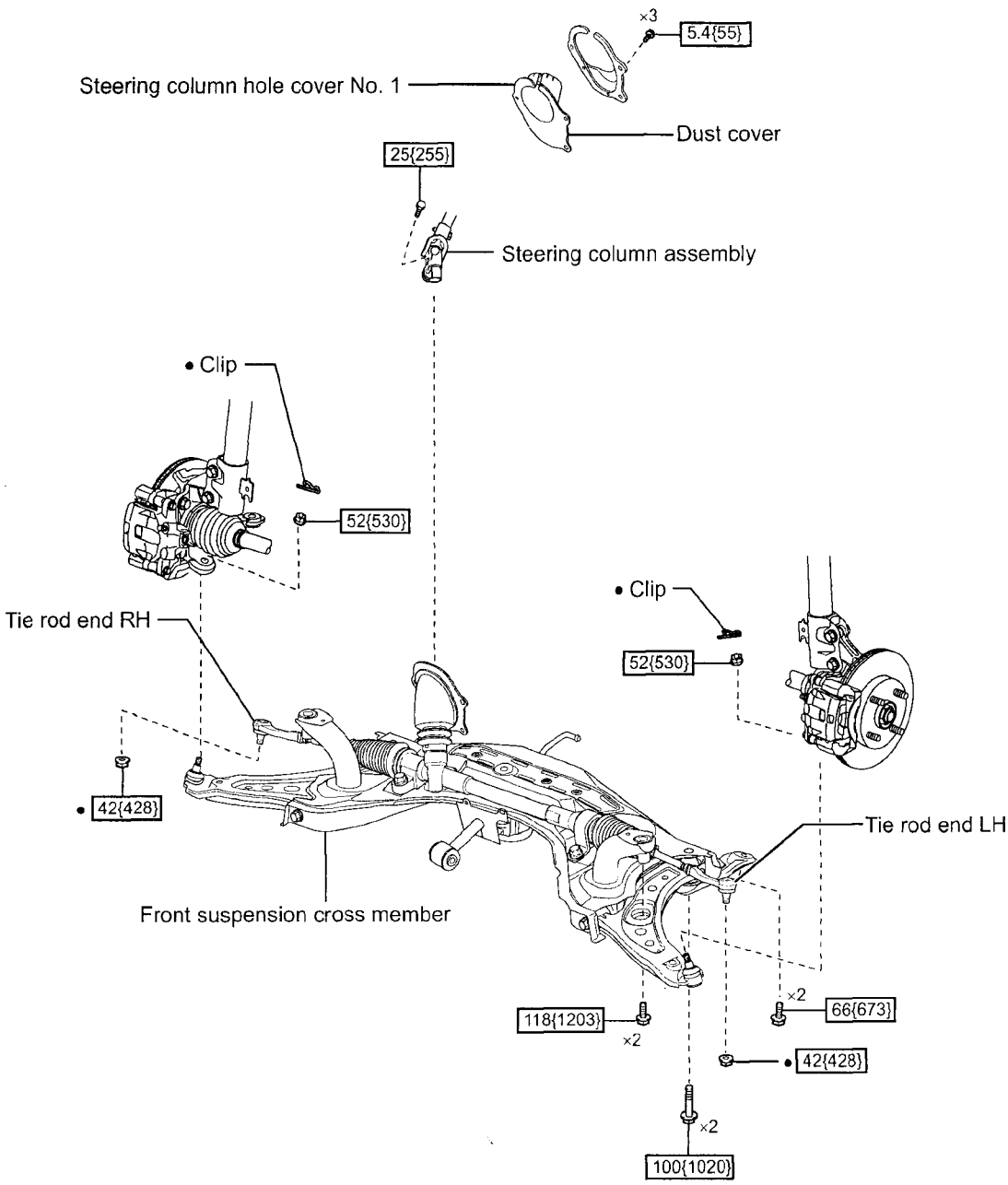
07



• Non-reusable part

A149649J01

RHD:

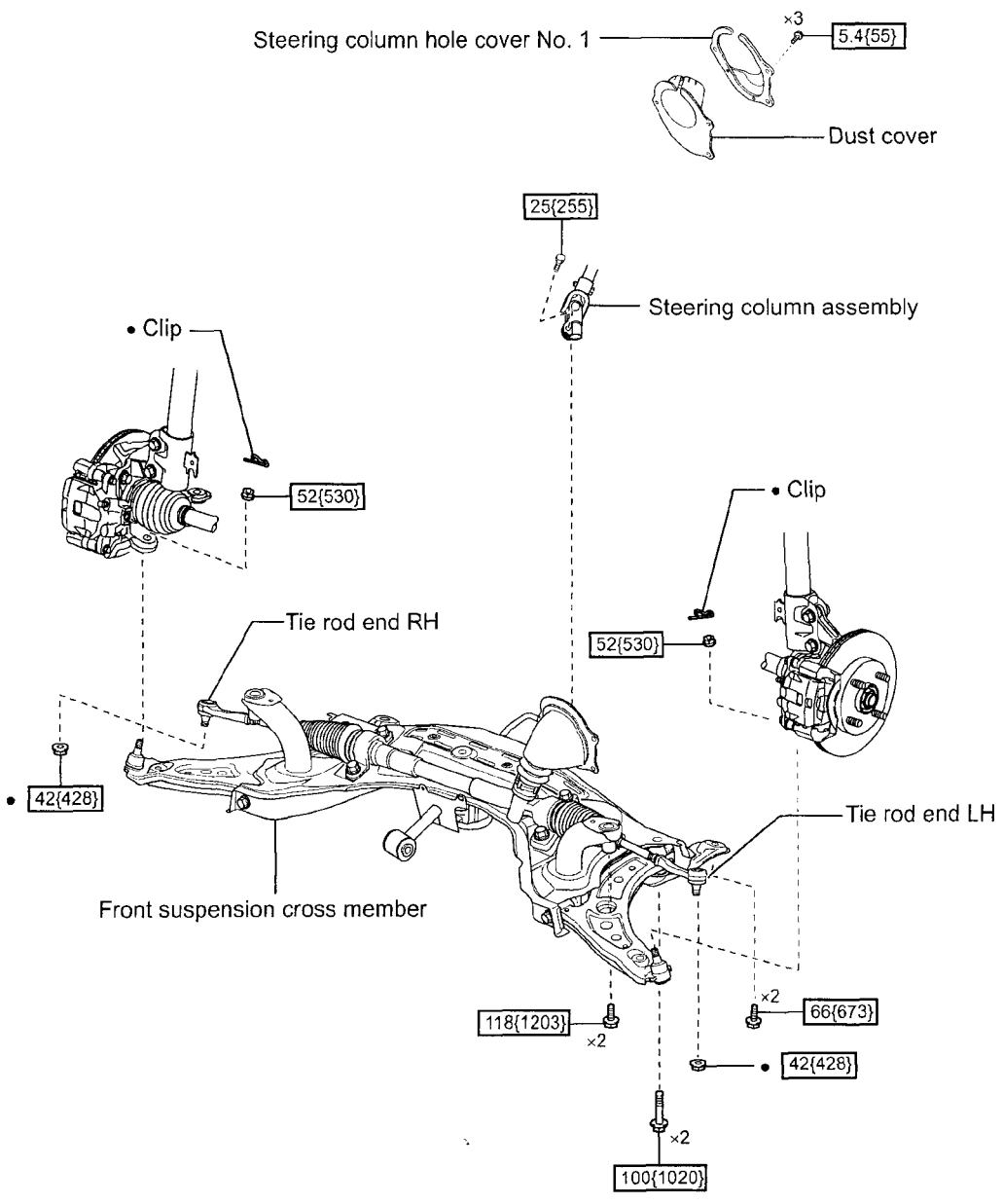


N*m {kgf*cm}: Specified torque • Non-reusable part

A159532J01

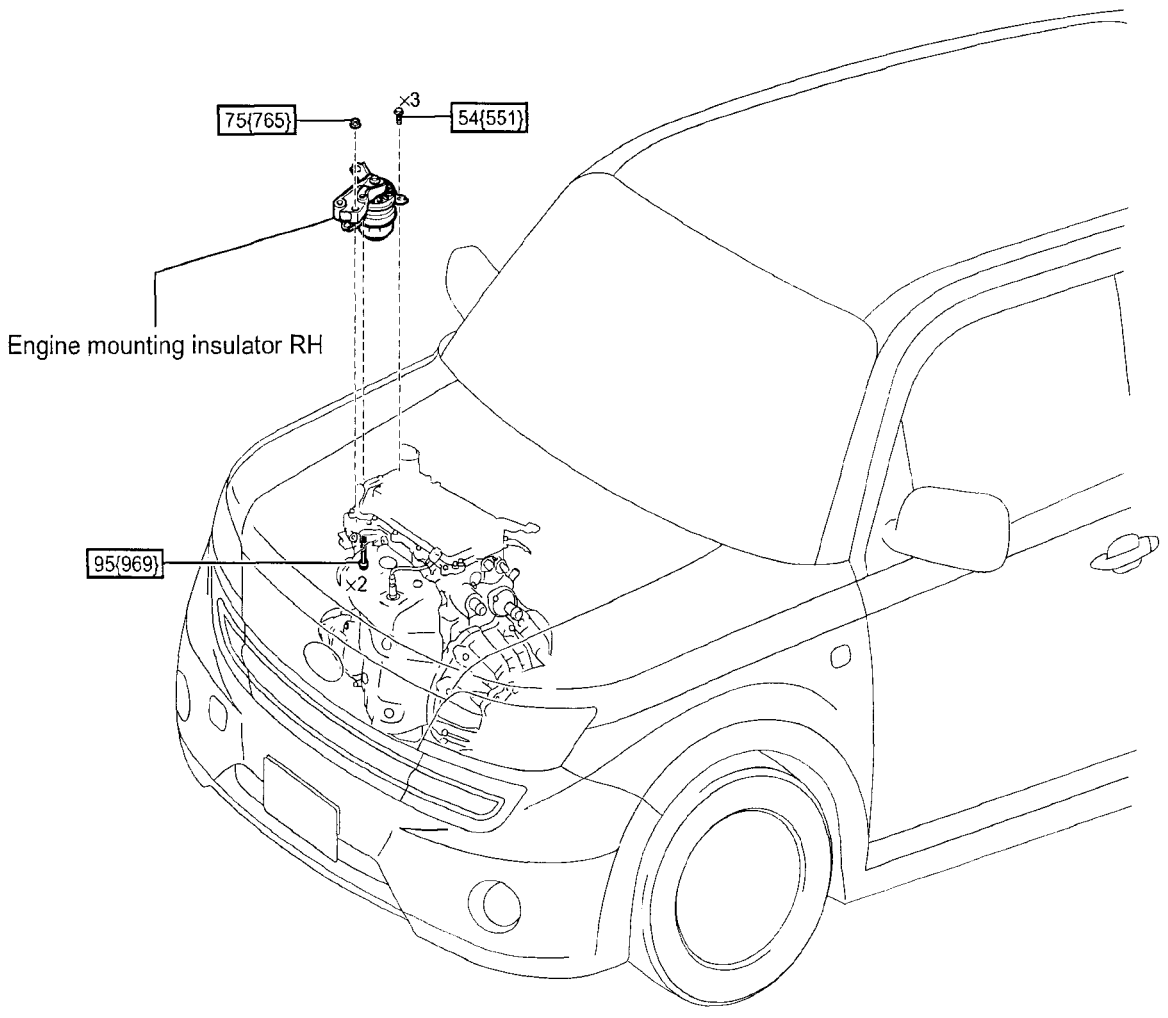
07

LHD:



N*m {kgf*cm}: Specified torque • Non-reusable part

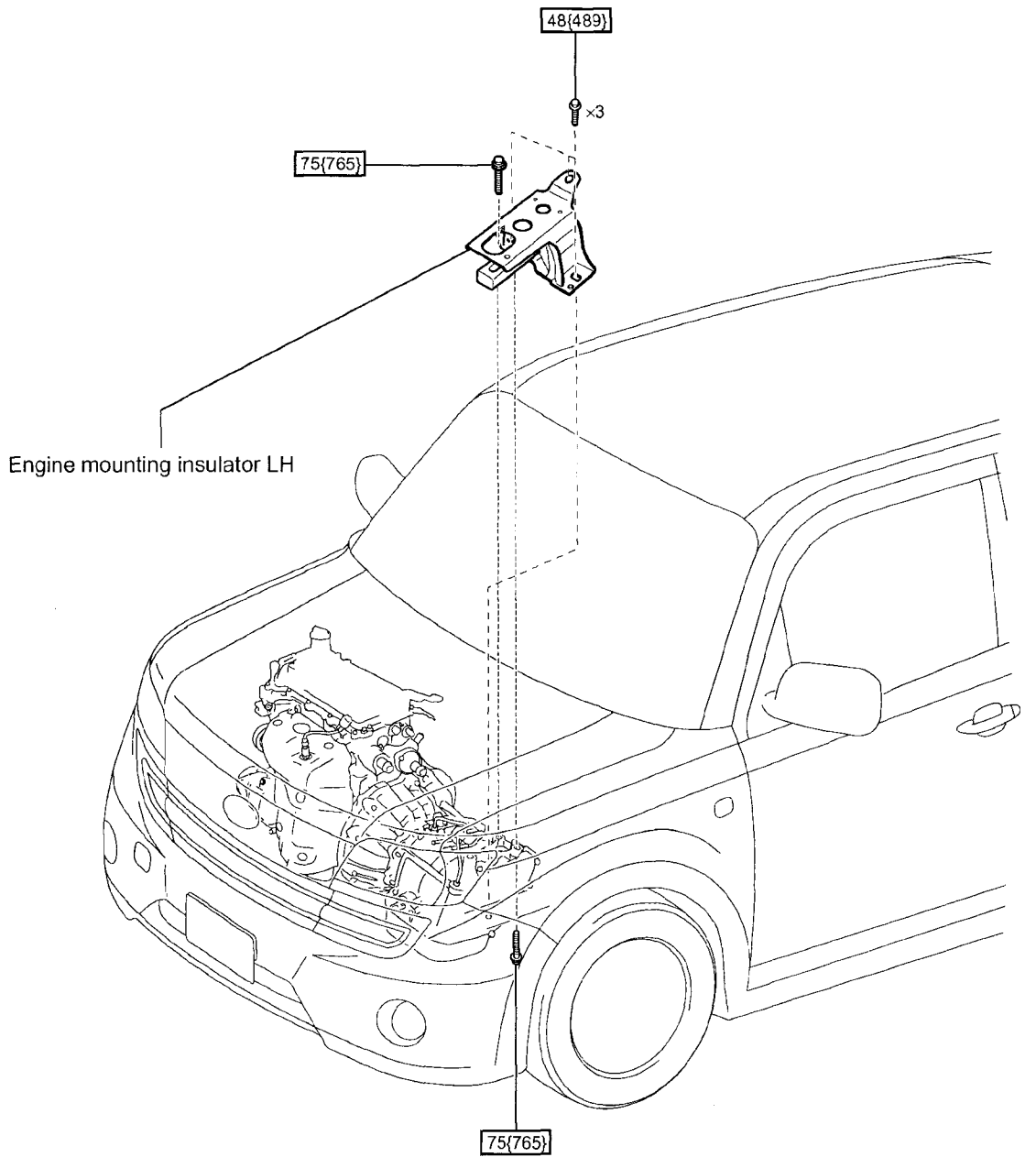
A151686J01



N*m {kgf*cm} : Specified torque

A159490J01

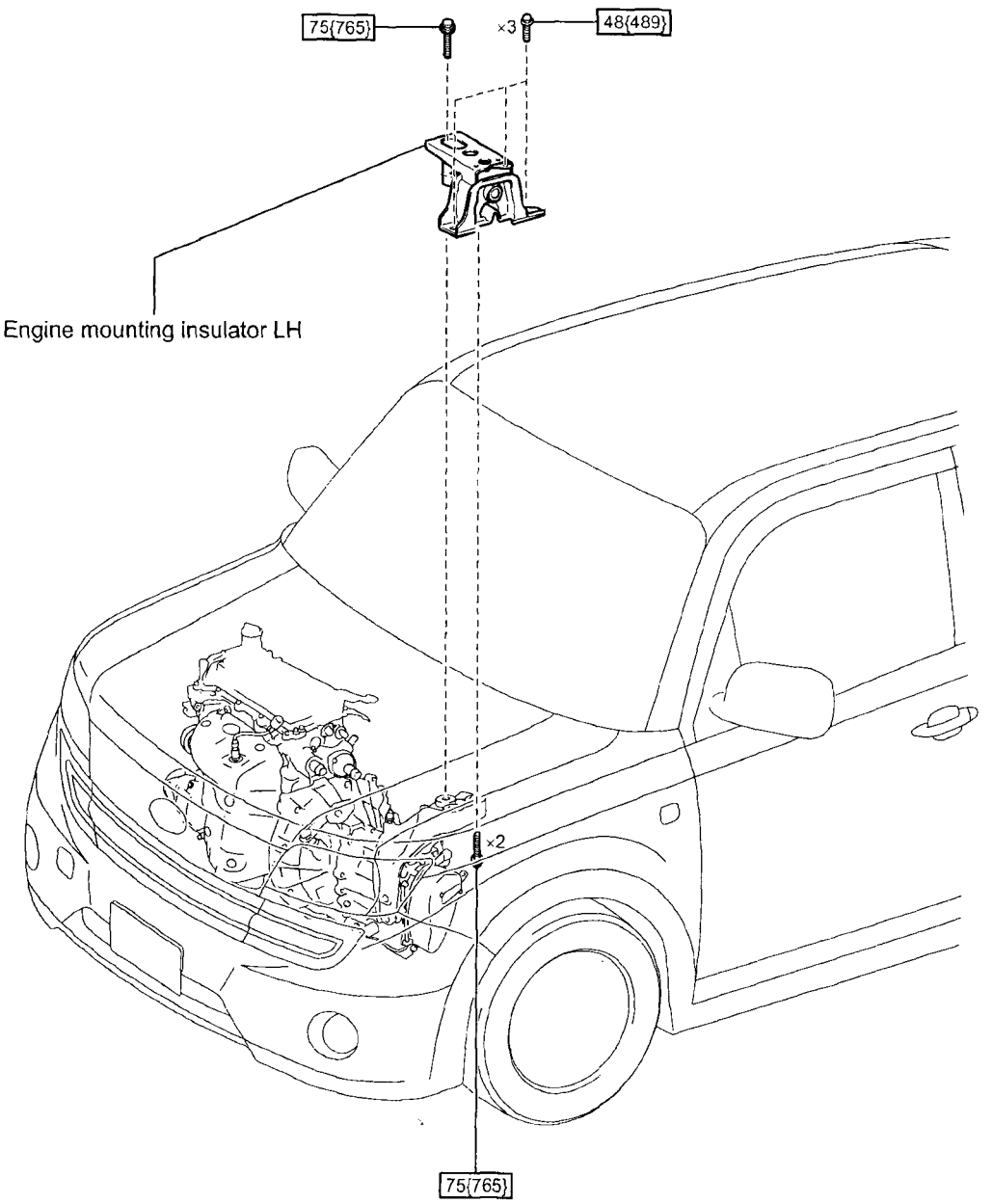
for Automatic transaxle:



N*m {kgf*cm} : Specified torque

A145465J02

for Manual transaxle:



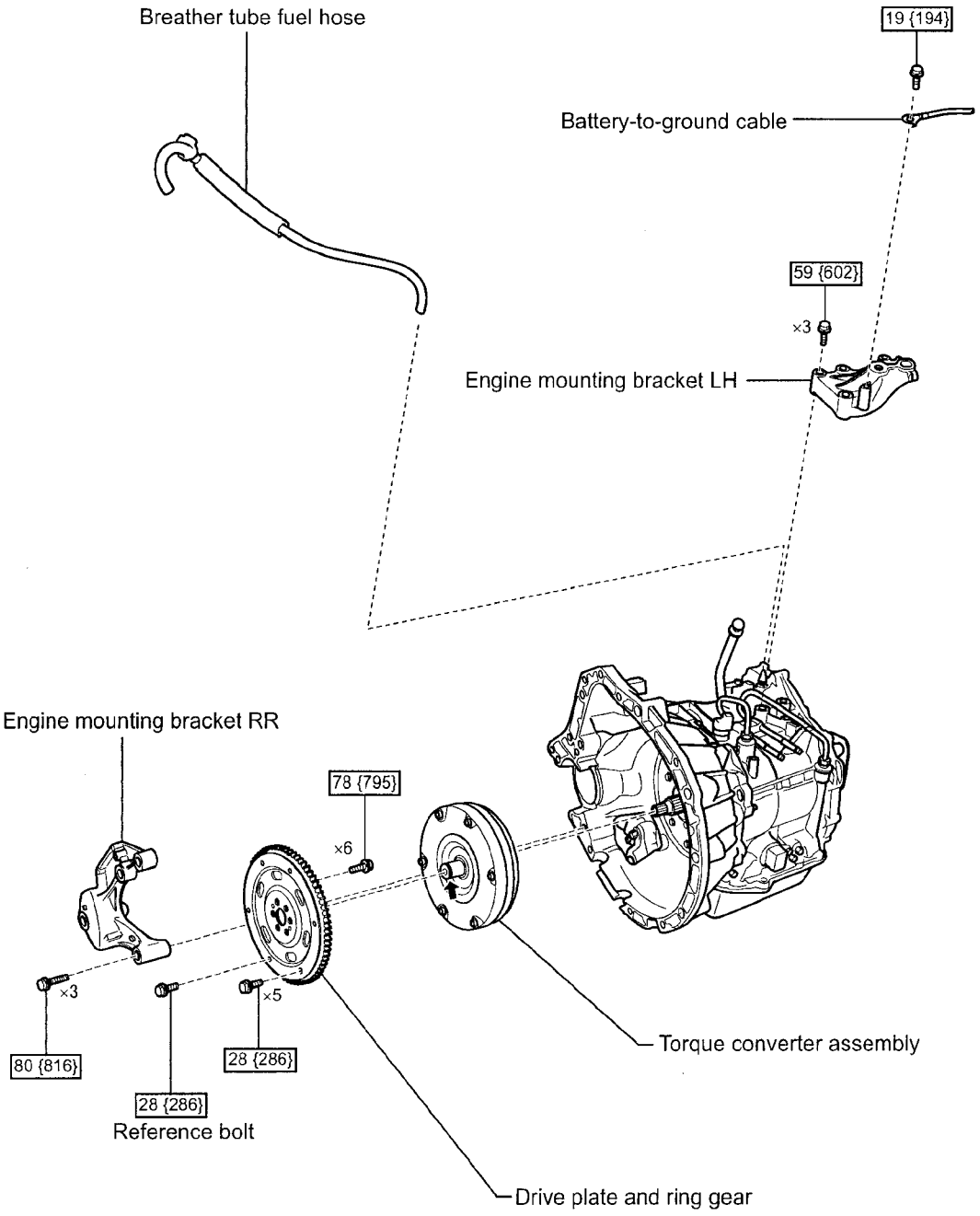
N*m {kgf*cm}: Specified torque

T

A161689J01

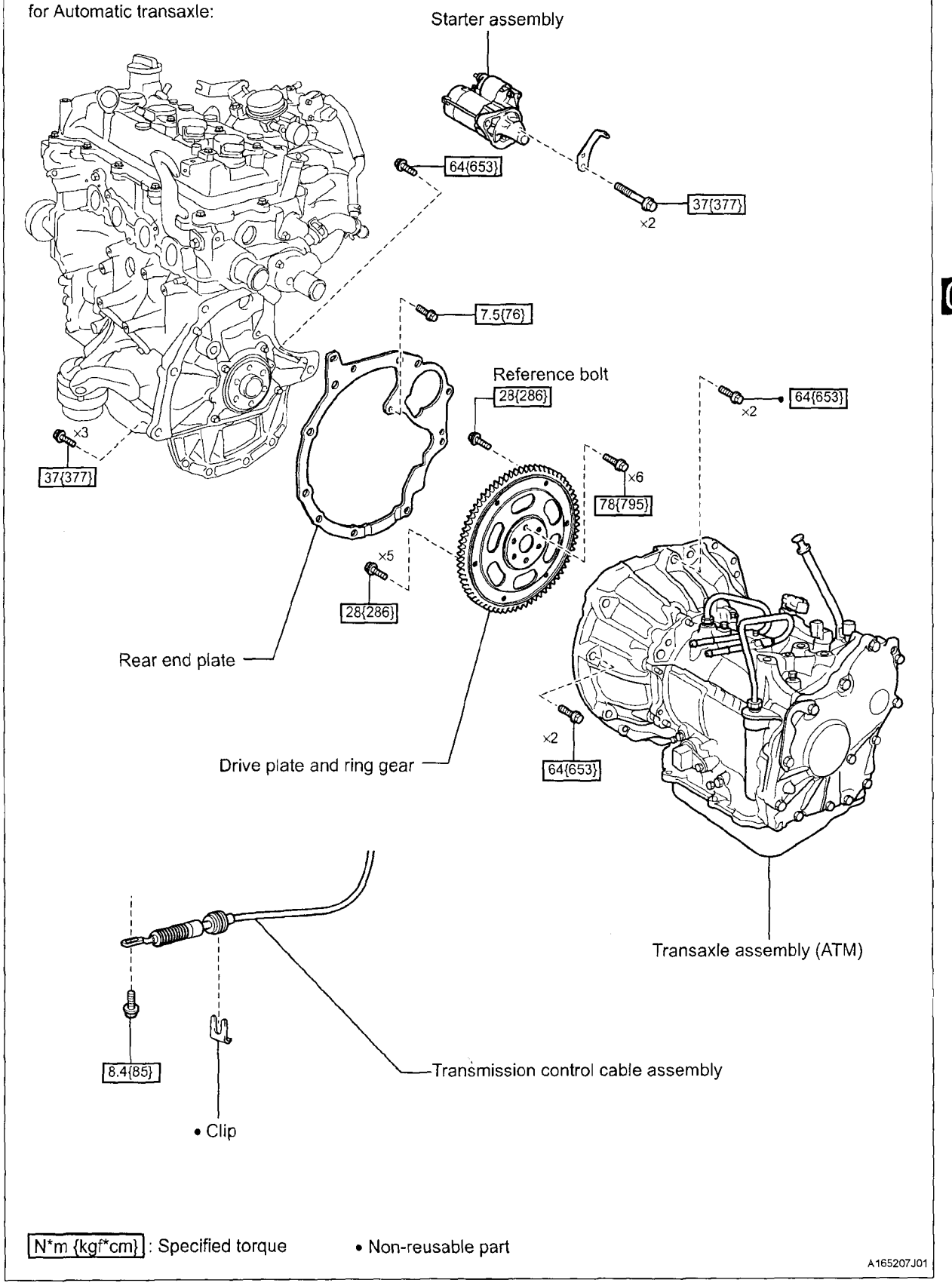
07

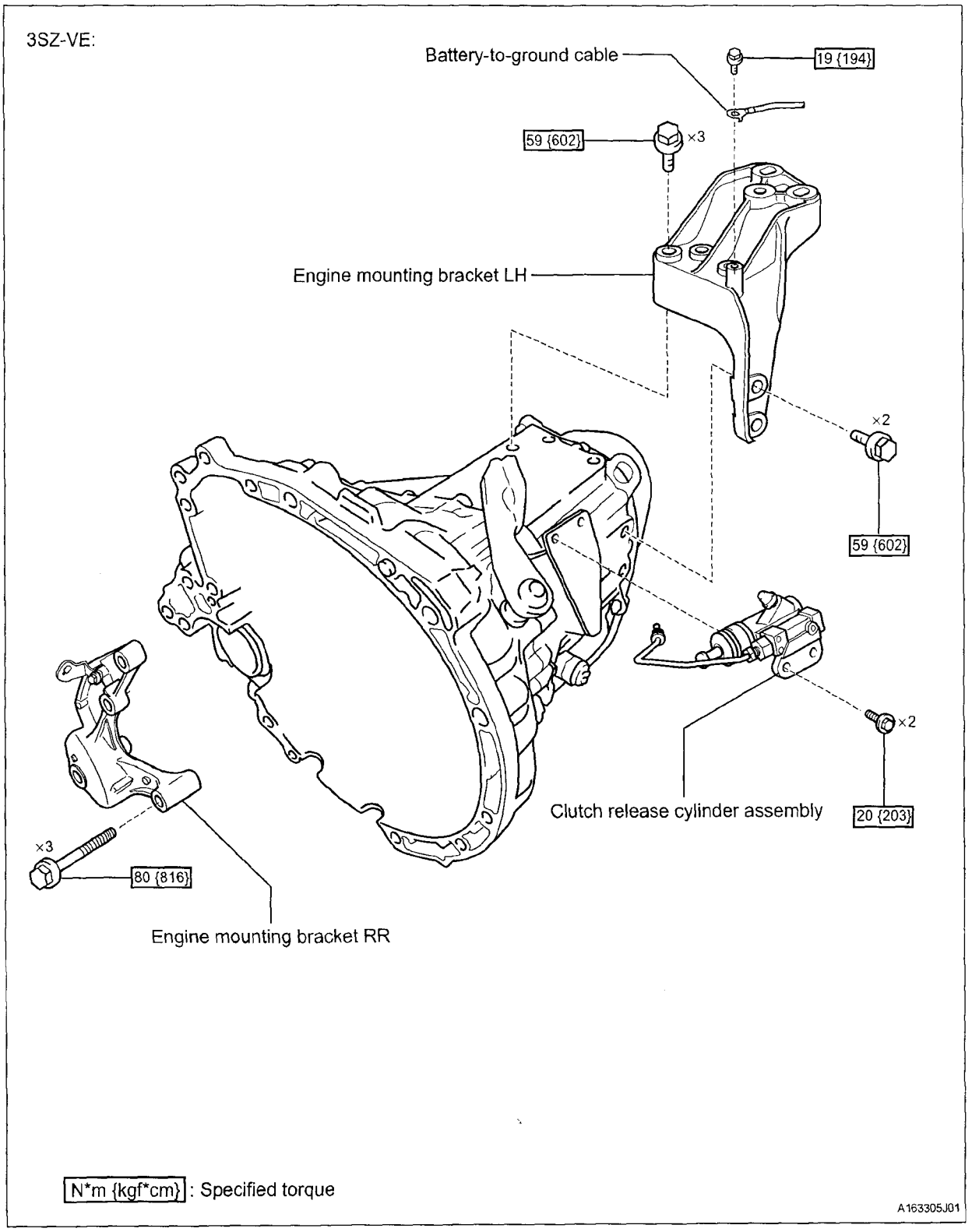
for Automatic transaxle:



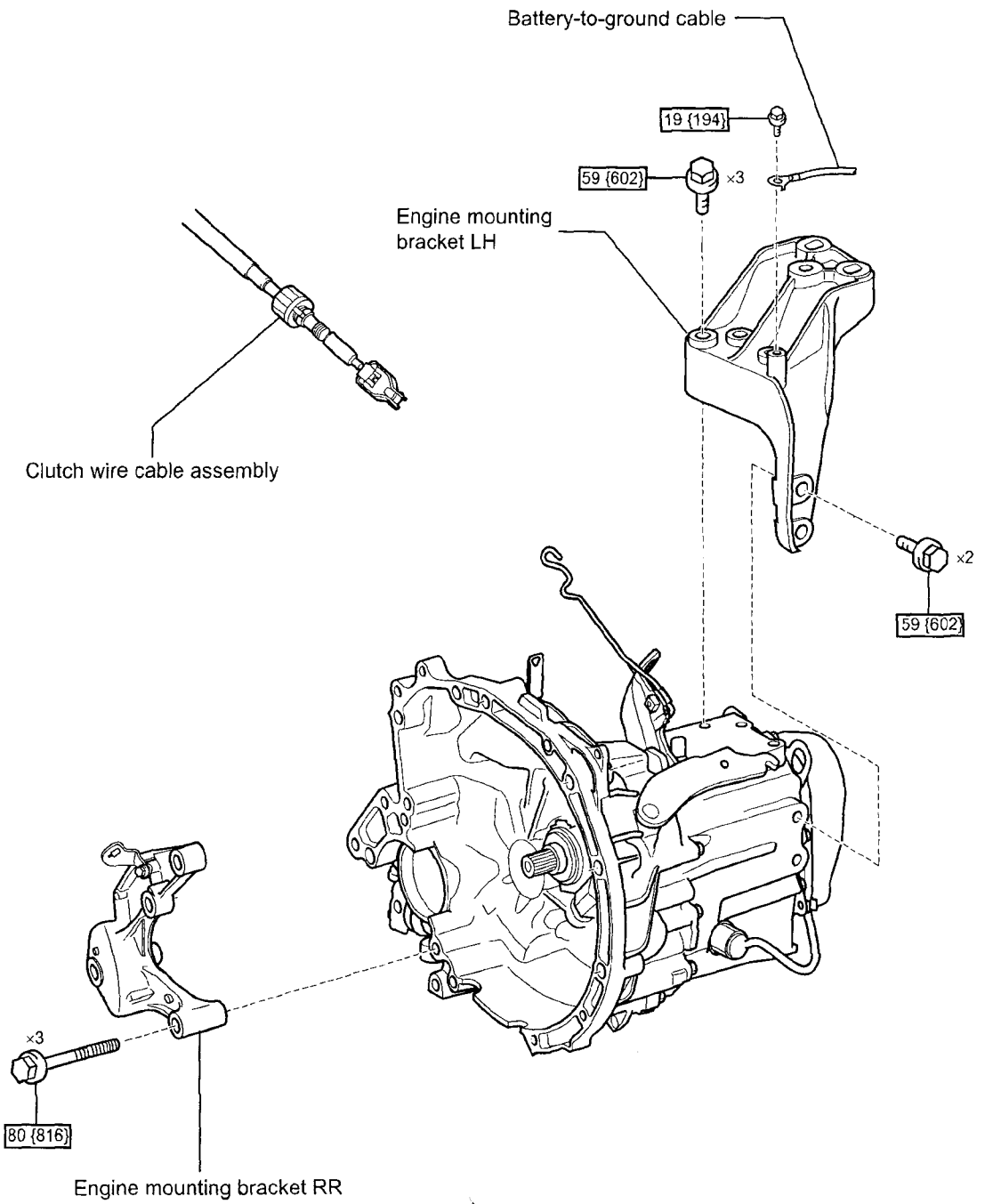
N*m {kgf*cm}: Specified torque ⬅ MP grease application

A149651J03


for Automatic transaxle:
Starter assembly
64{653}
37{377}
×2
7.5{76}
Reference bolt
28{286}
64{653}
×2
×3
37{377}
×6
78{795}
×5
28{286}
Rear end plate
Drive plate and ring gear
×2
64{653}
Transaxle assembly (ATM)
8.4{85}
Transmission control cable assembly
• Clip
N*m {kgf*cm} : Specified torque
• Non-reusable part
A165207J01


3SZ-VE:
Battery-to-ground cable
19 {194}
59 {602}
×3
Engine mounting bracket LH
×2
59 {602}
×2
20 {203}
Clutch release cylinder assembly
×3
80 {816}
Engine mounting bracket RR
N*m {kgf*cm} : Specified torque
A163305J01

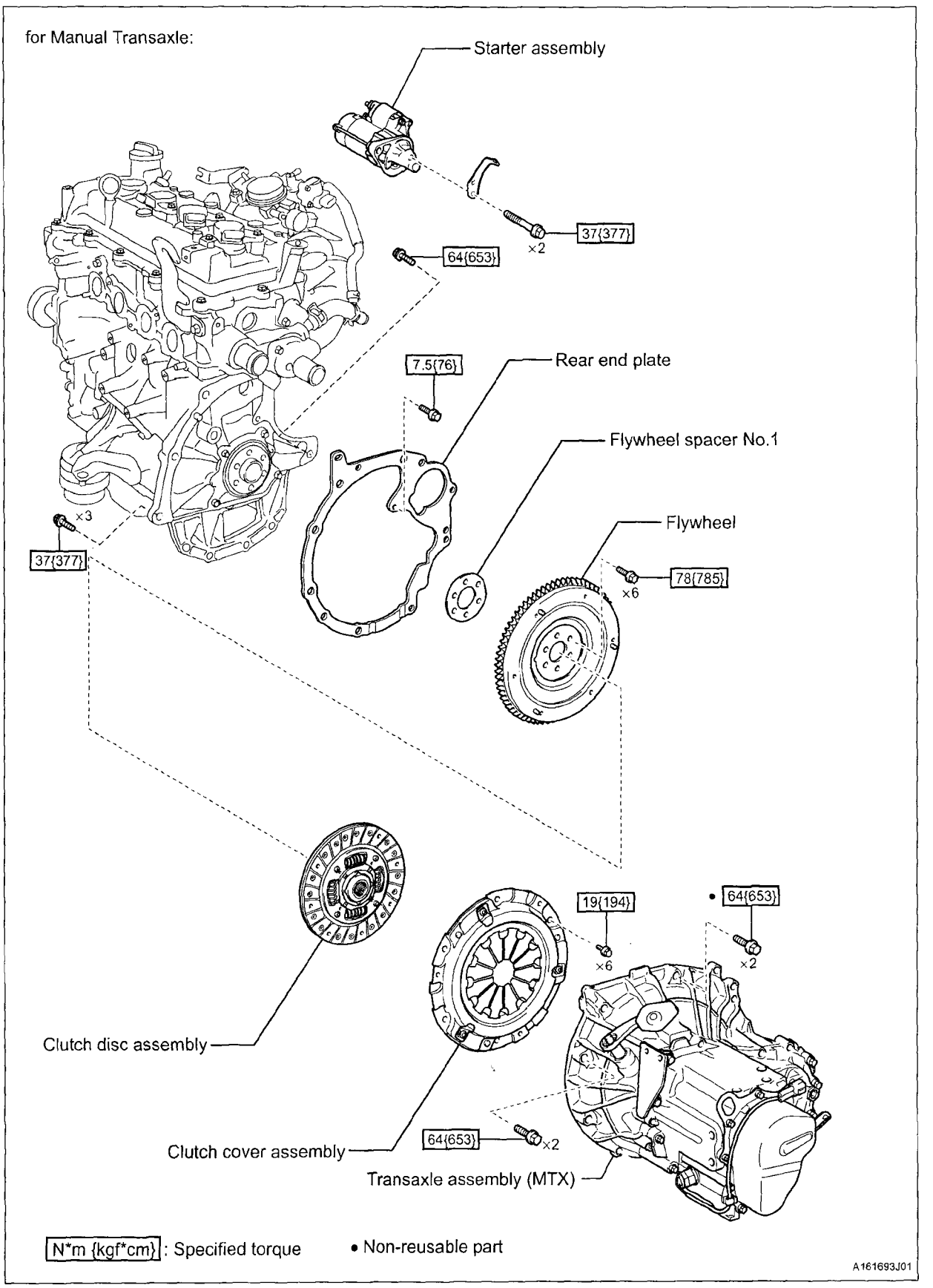
K3-VE:

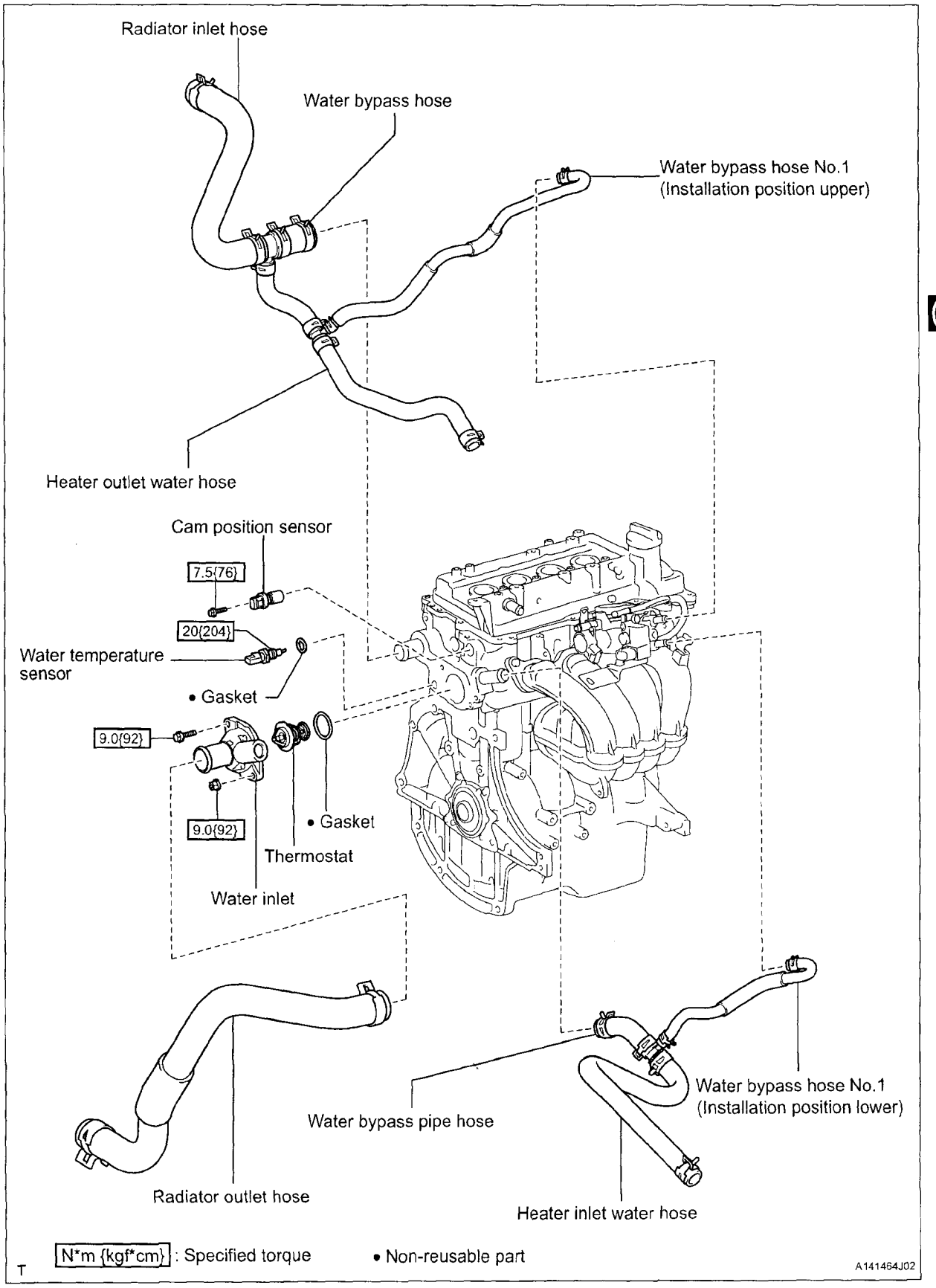


N*m{kgf*cm} : Specified torque

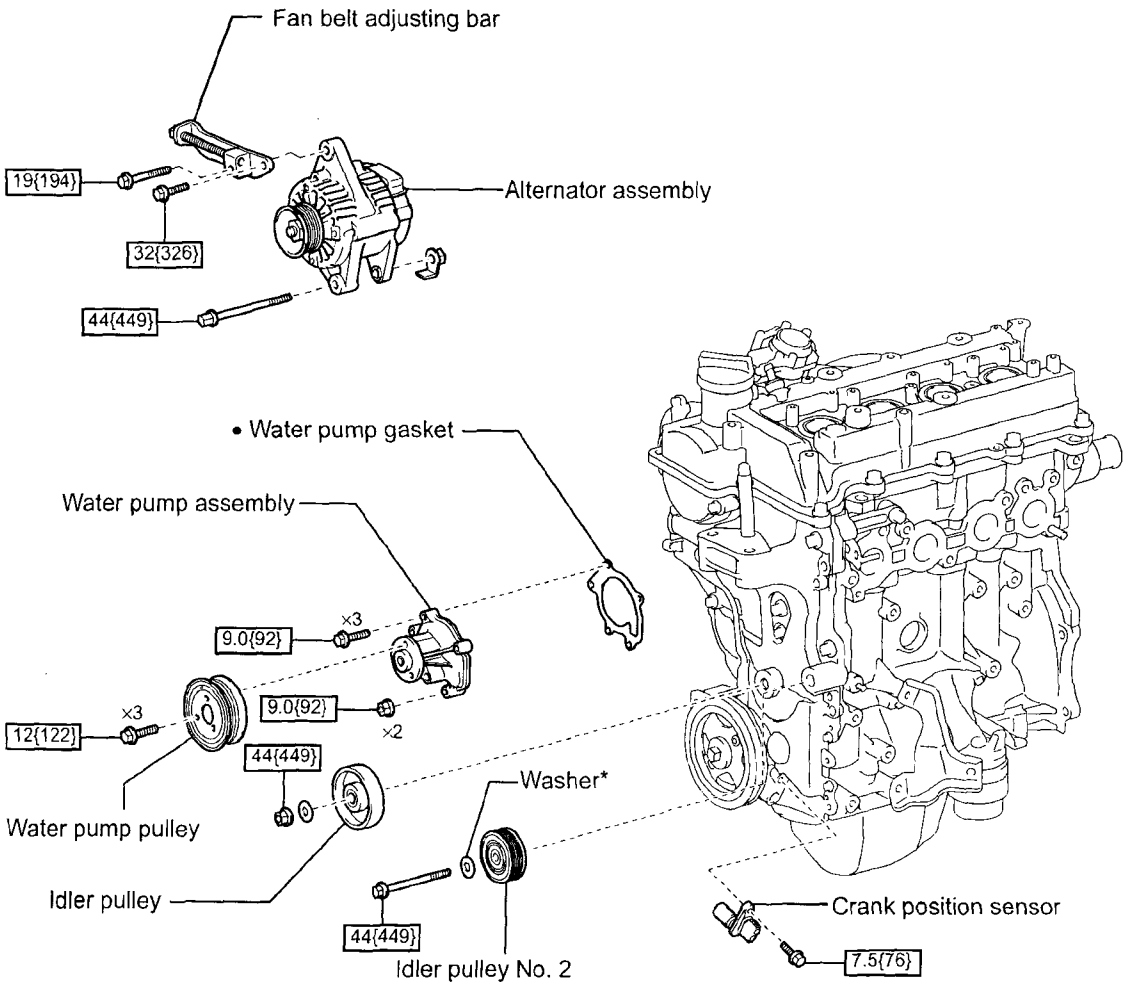
A163304J01

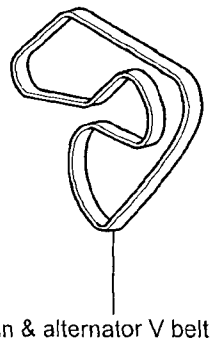
07


for Manual Transaxle:
Starter assembly
37{377}
×2
64{653}
7.5{76}
Rear end plate
Flywheel spacer No.1
Flywheel
78{785}
×6
×3
37{377}
19{194}
×6
• 64{653}
×2
Clutch disc assembly
Clutch cover assembly
64{653}
×2
Transaxle assembly (MTX)
N*m {kgf*cm}: Specified torque
• Non-reusable part
A161693J01

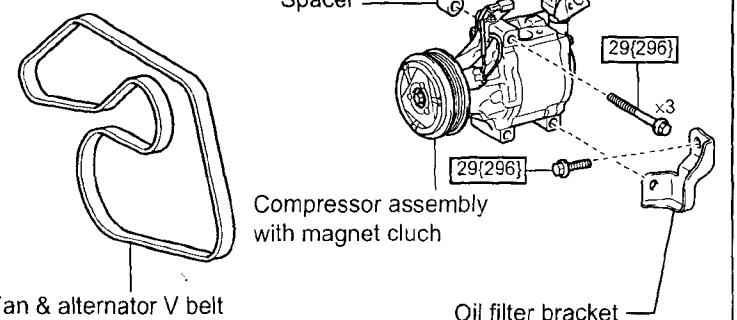

Radiator inlet hose
Water bypass hose
Water bypass hose No.1
(Installation position upper)
Heater outlet water hose
Cam position sensor
7.5{76}
20{204}
Water temperature sensor
• Gasket
9.0{92}
9.0{92}
• Gasket
Thermostat
Water inlet
Water bypass pipe hose
Water bypass hose No.1
(Installation position lower)
Radiator outlet hose
Heater inlet water hose
N*m {kgf*cm} : Specified torque
• Non-reusable part
T
A141464J02

07



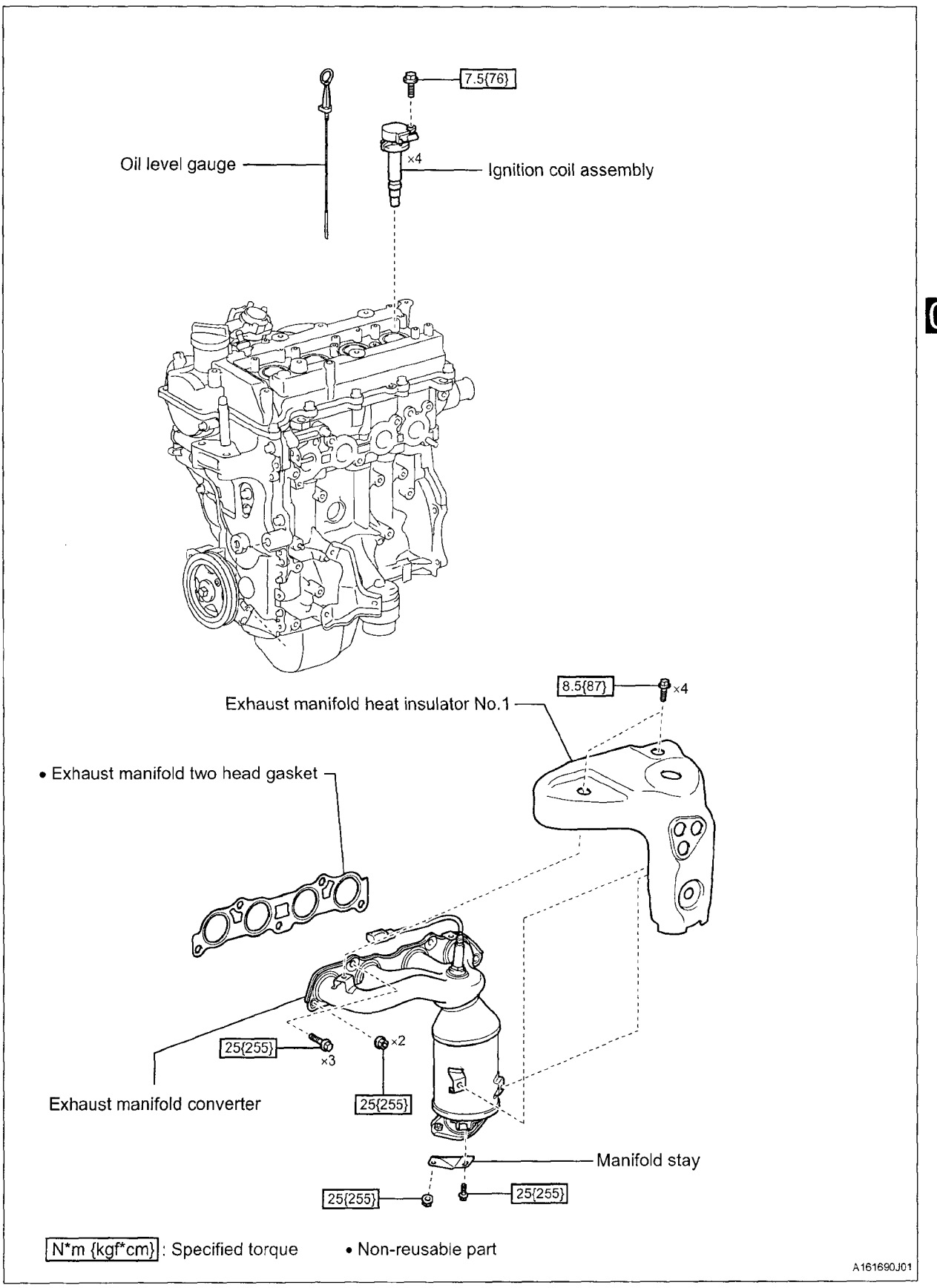


with Air Conditioning System:



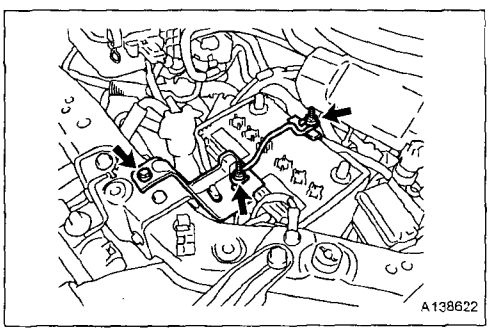
N*m {kgf*cm}: Specified torque • Non-reusable part *: 3SZ-VE

A159489J01

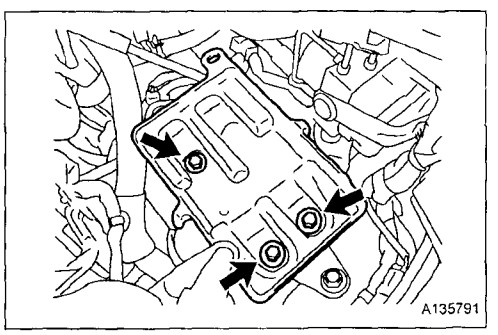

7.5{76}
Oil level gauge
×4
Ignition coil assembly
8.5{87}
×4
Exhaust manifold heat insulator No.1
• Exhaust manifold two head gasket
25{255}
×3
×2
Exhaust manifold converter
25{255}
Manifold stay
25{255}
25{255}
N*m {kgf*cm}: Specified torque
• Non-reusable part
A161690J01

REMOVAL

1. Fuel spill prevention work
   (See page 08-3)
2. Battery terminal disconnection
3. Cooling fluid withdrawal (See page 12-6)
4. Refrigerant HFC-134a (R134a) withdrawal (with Air conditioning system) (See page 52-42)
5. Front tire removal
6. Engine oil withdrawal
7. Automatic transaxle fluid withdrawal (for Automatic transaxle) (See page 26-102)
8. Manual transaxle oil withdrawal (for Manual transaxle)29-13)
9. Exhaust pipe assembly FR removal (See page 11-15)
10. Brake fluid withdrawal (for Manual transaxle)

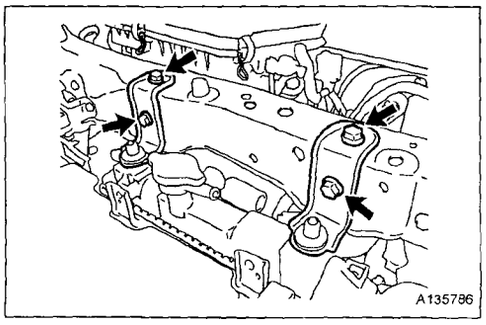


11. Battery hold down clamp removal
    (1) Remove one bolt, loosen two nuts, and remove the battery hold down clamp.
12. Radiator reserve tank assembly removal
    (1) Disconnect the radiator reserve tank pipe, and remove the radiator reserve tank assembly.
13. Battery cover removal
14. Battery removal

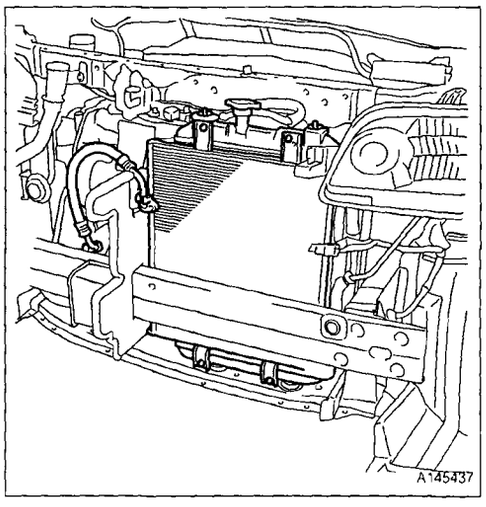


15. Battery tray removal
    (1) Remove three bolts and then remove the battery tray.
16. Air cleaner cap removal
17. Air cleaner filter element removal
18. Vacuum sensor disconnection (See page 06-140)
19. Vacuum switching valve assembly (with Bracket) disconnection (RHD) (See page 06-140)
20. Vacuum switching valve assembly (with Bracket) disconnection (LHD) (See page 06-140)
21. Inlet air temperature sensor disconnection (See page 06-140)
22. Precleaner hose removal (See page 06-141)
23. Air cleaner assembly removal (See page 06-141)
24. Radiator inlet hose disconnection (See page 12-10)
25. Water bypass hose disconnection (See page 12-10)
26. Radiator outlet hose disconnection (See page 12-10)
27. With water fan assembly removal (See page 12-11)
28. Oil cooler outlet hose removal (for Automatic transaxle) (See page 26-98)

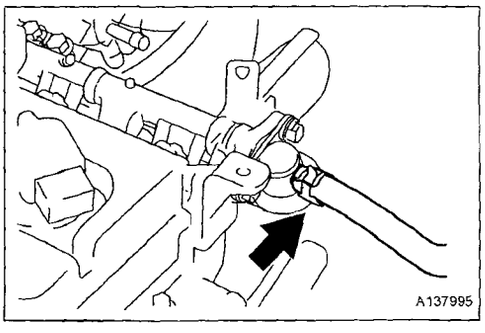
29. Oil cooler inlet hose removal (for Automatic transaxle) (See page 26-98)
30. Heater inlet water hose disconnection (RHD) (See page 52-73)
31. Heater inlet water hose disconnection (LHD) (See page 52-164)
32. Heater outlet water hose disconnection (RHD) (See page 52-73)
33. Heater outlet water hose disconnection (LHD) (See page 52-164)
34. Front bumper cover removal (See page 82-5)
35. Fan & alternator V belt removal (See page 07-6)
36. Cooler refrigerant suction hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
37. Cooler refrigerant discharge hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
38. Compressor assembly with magnet clutch removal (with Air conditioning system) (See page 52-131)
39. Cooler refrigerant liquid pipe A disconnection (with Air conditioning system) (See page 52-136)



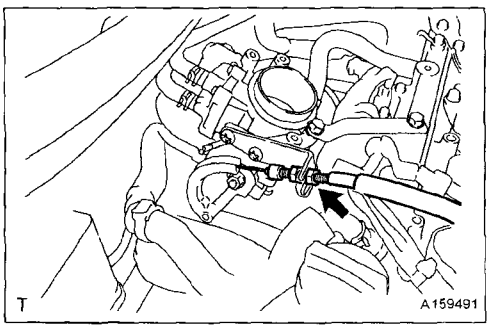
40. *Radiator assembly removal*
    (1) Remove four bolts and then the radiator bracket No. 1.



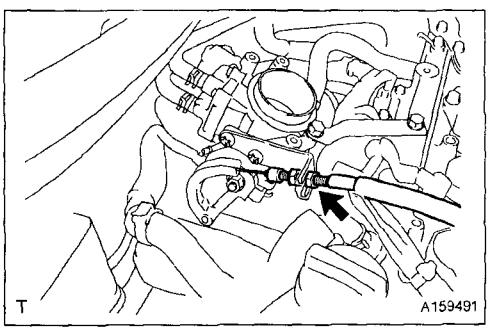
    (2) Remove the radiator assembly with the cooler condenser assembly (with Receiver) (with Air conditioning system).



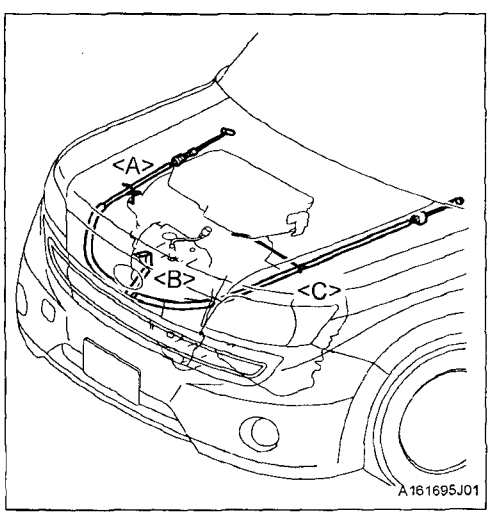
41. Fuel hose disconnection
    (1) Loosen the clip and disconnect the fuel hose.



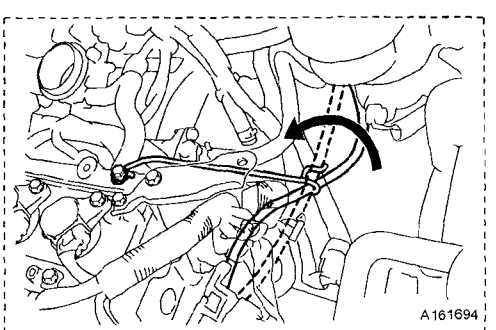
42. Accelerator control cable assembly disconnection (RHD)
    (1) Loosen one nut and disconnect the end part of the accelerator control cable assembly from the throttle body assembly.



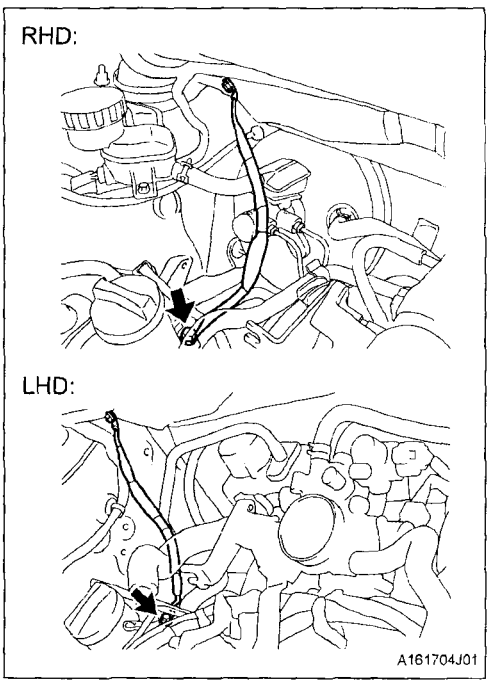
43. Accelerator control cable assembly disconnection (LHD)
    (1) Loosen one nut and disconnect the end part of the accelerator control cable assembly from the throttle body assembly.



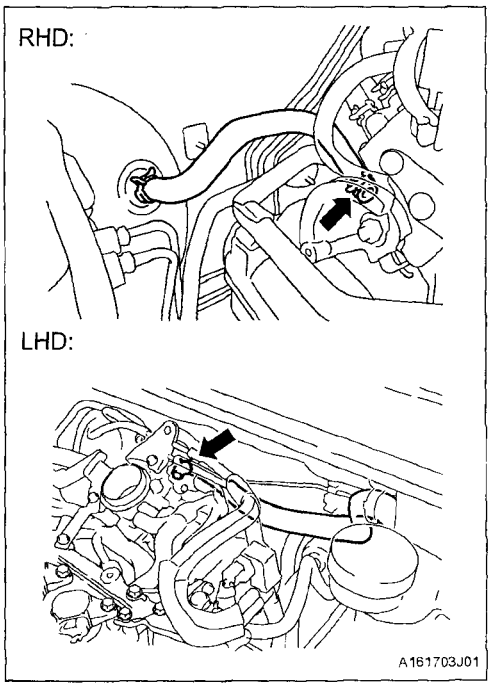
(2) Disconnect the accelerator control cable assembly in the order of the brackets <A>, <B>, and <C>.



<HINT>
As for bracket <C>, disconnect the accelerator control cable assembly as shown in the illustration.

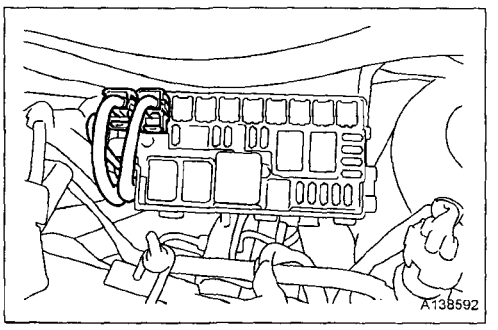


44. Ground cable disconnection
    (1) Remove the bolt and disconnect the ground cable.

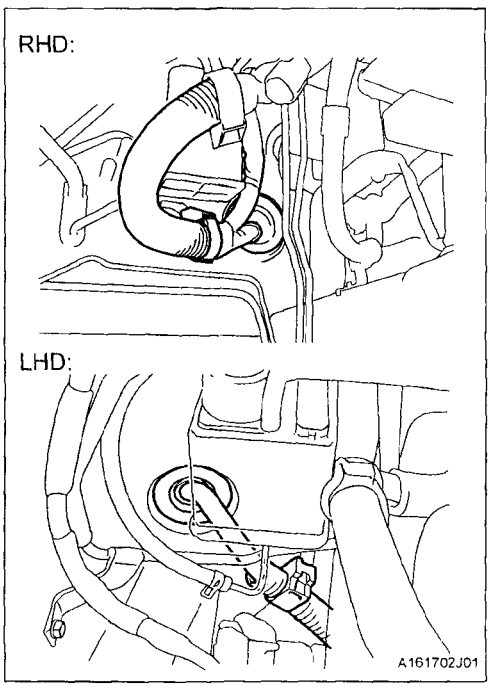


45. Vacuum hose assembly disconnection
    (1) Loosen the clip and disconnect the vacuum hose assembly.

46. Engine room main wire disconnection
    (1) Disconnect each connector and each clamp and then disconnect the engine room main wire from the transaxle assembly.
47. Engine wire disconnection
    (1) Remove the glove compartment door and disconnect the connector of the engine control computer (RHD).
    (2) Remove the instrument panel undercover No. 1 and disconnect the connector of the engine control computer (LHD).

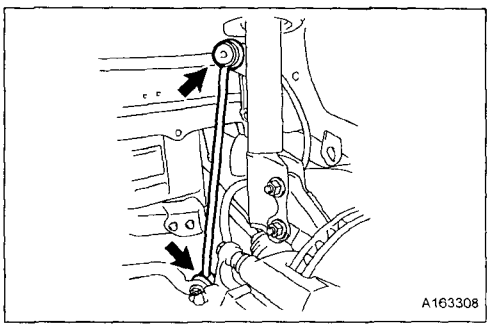


(3) Disconnect the connector from the engine room relay box.



(4) Remove the grommet and pull out the engine wire toward the engine room.

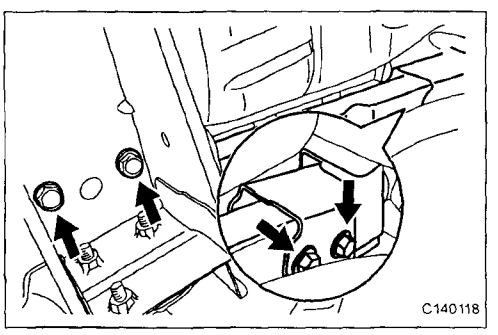
48. Clutch release cylinder assembly disconnection (3SZ-VE) (See page 29-14)
49. Clutch hose disconnection (3SZ-VE) (See page 29-14)
50. Clutch cable clamp removal (K3-VE) (See page 29-14)
51. Clutch release cable assembly disconnection (K3-VE) (See page 29-15)
52. Steering column hole cover No. 1 removal (RHD) (See page 48-6)
53. Steering column hole cover No. 1 removal (LHD) (See page 48-15)
54. Steering column assembly disconnection (RHD) (See page 49-55)
55. Steering column assembly disconnection (LHD) (See page 49-70)
56. Shift lever knob removal (for Manual transaxle) (See page 29-54)
57. Rear console box removal (for Manual transaxle) (See page 29-54)
58. Console box carpet removal (for Manual transaxle) (See page 29-54)
59. Console box assembly removal (for Manual transaxle) (See page 29-54)
60. Transmission floor shift assembly removal (for Manual transaxle) (See page 29-55)
61. Engine undercover LH removal
    (1) Remove three clips, the screw, and then the engine undercover LH.
62. Engine undercover RH removal
    <HINT>
    Remove it using the same procedure as the LH side.



63. Front stabilizer link assembly LH removal
    (1) Remove two nuts and then the front stabilizer link assembly LH.

64. Front stabilizer link assembly RH removal
    <HINT>
    Remove it using the same procedure as the LH side.

65. Front stabilizer bar removal (See page 42-16)



66. Front suspension cross member LH removal
    (1) Remove four bolts and then the front suspension cross member LH.

67. Front suspension cross member RH removal
    <HINT>
    Remove it using the same procedure as the LH side.

68. Front brake flexible hose No. 1 LH disconnection (without ABS & VSC) (See page 36-7)

69. Front brake flexible hose No. 1 RH disconnection (without ABS & VSC) (See page 36-7)

70. Speed sensor FR LH disconnection (with ABS & VSC) (See page 36-7)

71. Speed sensor FR RH disconnection (with ABS & VSC) (See page 36-7)

72. Front disc brake cylinder assembly LH removal (See page 36-8)

73. Front disc brake cylinder assembly RH removal (See page 36-8)

74. Axle hub nut removal (LH) (See page 36-8)

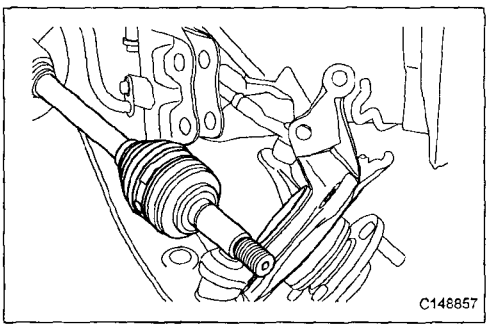
75. Axle hub nut removal (RH) (See page 36-8)

76. Tie rod end LH disconnection (See page 36-8)

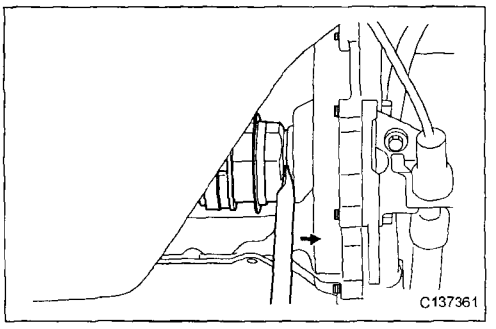
77. Tie rod end RH disconnection (See page 36-9)

78. Front shock absorber assembly LH disconnection
    (1) Remove two bolts and two nuts and disconnect the shock absorber assembly LH and the steering knuckle LH.

79. Front shock absorber assembly RH disconnection
    <HINT>
    Disconnect as LH side.



80. Front drive shaft assembly LH removal
    (1) Use a plastic hammer to lightly hit the end portion of the front drive shaft assembly LH and pull the front drive shaft assembly LH out of the steering knuckle LH.
    <CAUTION>
    > Avoid damaging the drive shaft outboard joint boot.
    > Avoid damaging the speed sensor rotor.

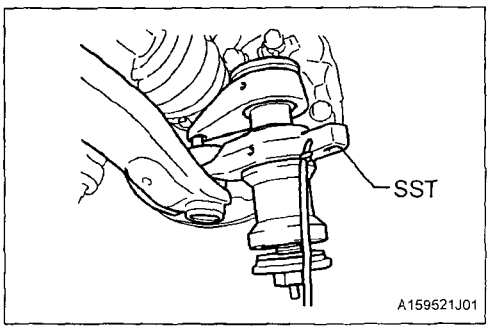


    (2) Put the end portion of the hub nut wrench on the front drive shaft inboard joint and remove the front drive shaft assembly LH.
    <CAUTION>
    > Avoid damaging the oil seal.
    > Avoid damaging the boot of the front drive shaft assembly LH.
    > Be sure not to drop the front drive shaft assembly LH.

07

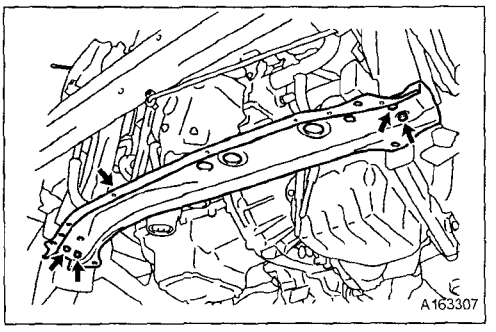
81. Front drive shaft assembly RH removal
    <HINT>
    Disconnect as LH side.

82. Steering knuckle LH removal
    (1) Remove the clip and the nut.

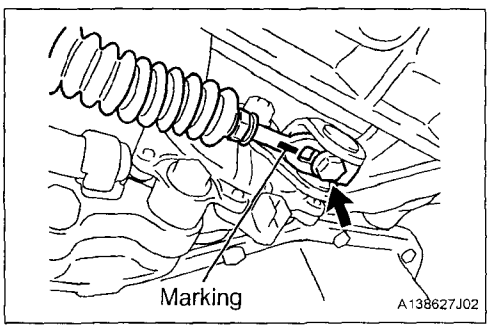


    (2) Disconnect the lower arm ball joint from the steering knuckle by using SST.
    SST 09628-00011
    <CAUTION>
    > Avoid damaging the dust cover LH of the front suspension lower arm No. 1 LH.
    > Keep SST hung on a string.

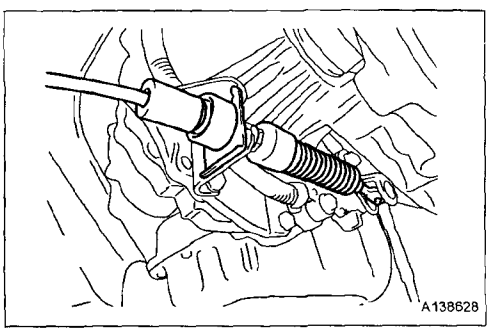
83. Steering knuckle RH removal
    <HINT>
    Disconnect as LH side.



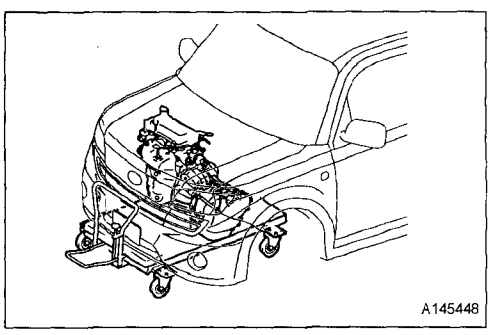
84. Radiator support LWR removal
    (1) Remove five bolts and then the radiator support LWR.



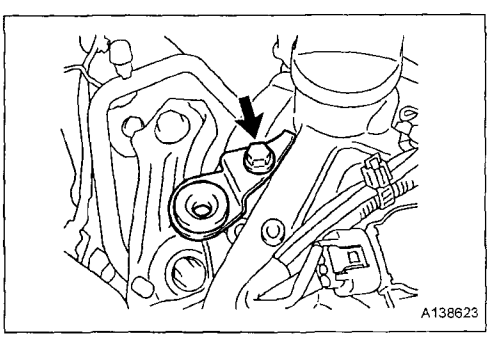
85. Transmission control cable assembly disconnection (for Automatic transaxle)
    (1) To identify top and bottom, put a marking on the transmission control cable assembly.
    (2) Remove the bolt.



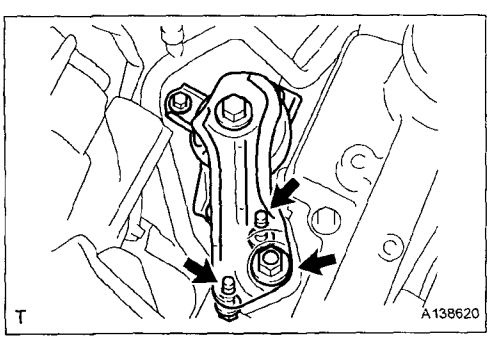
    (3) Remove the clip and disconnect the transmission control cable assembly.



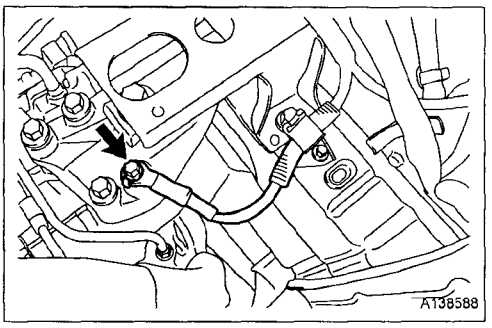
86. Engine assembly with transaxle removal
    (1) Place the engine lifter.



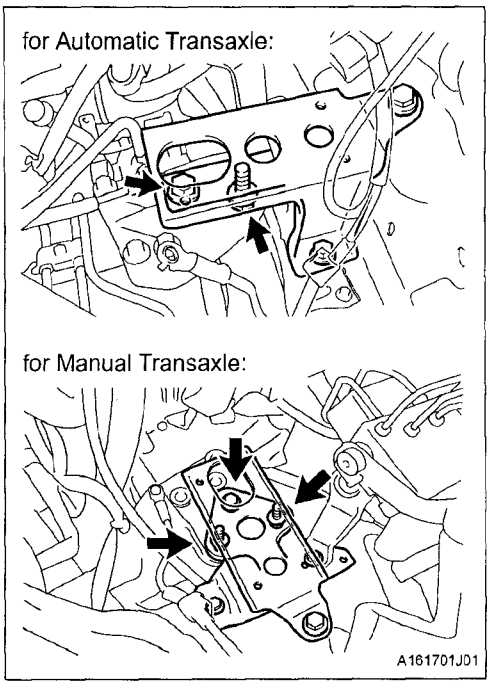
    (2) Remove the bolt and then the air cleaner inlet bracket No. 1.



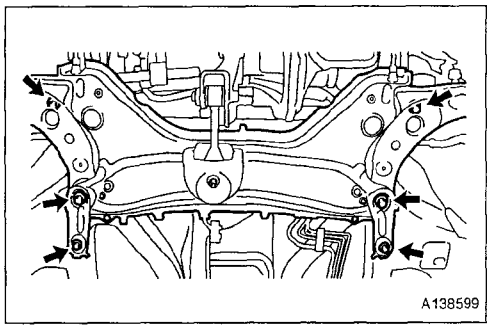
    (3) Remove two bolts and one nut and disconnect the engine mounting insulator RH.



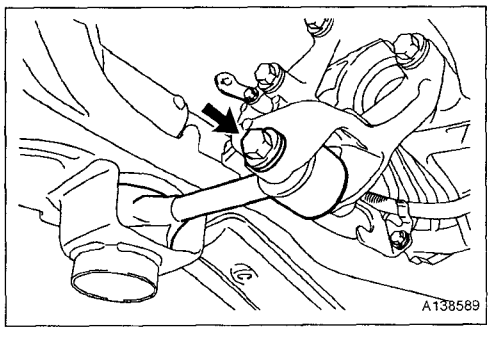
(4) Remove the bolt and disconnect the battery-to-ground cable.



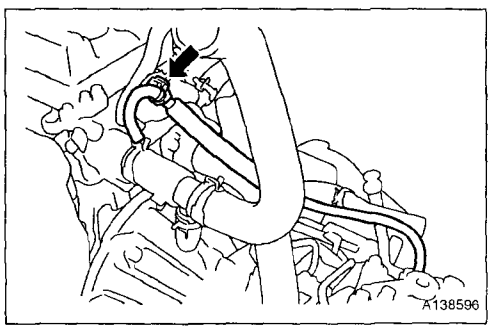
(5) Remove two bolts and disconnect the engine mounting insulator LH (for Automatic transaxle).
(6) Remove three bolts and disconnect the engine mounting insulator LH (for Manual transaxle).



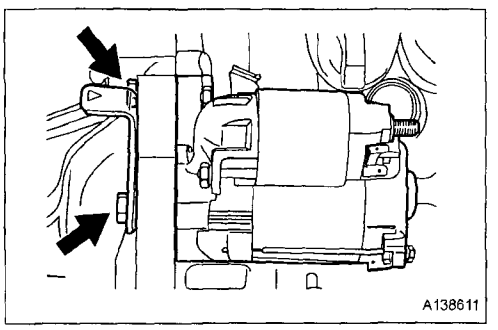
(7) Remove six bolts and disconnect the front suspension cross member from the vehicle.
(8) Operate the engine lifter to remove the engine assembly with transaxle from the vehicle.



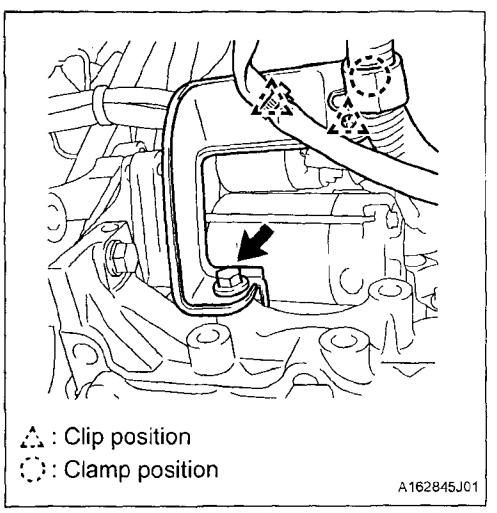
87. Front suspension cross member removal
(1) Remove one bolt of the engine moving control rod and disconnect the front suspension cross member.



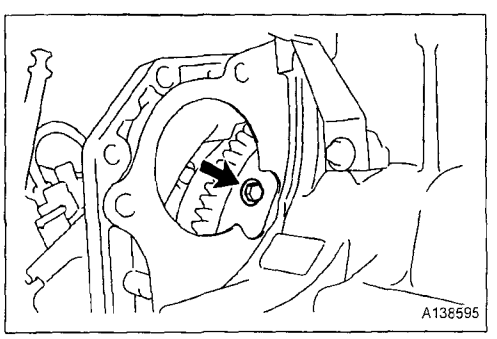
88. Breather tube fuel hose removal (for Automatic transaxle)
    (1) Remove the clamp and then the breather tube fuel hose.



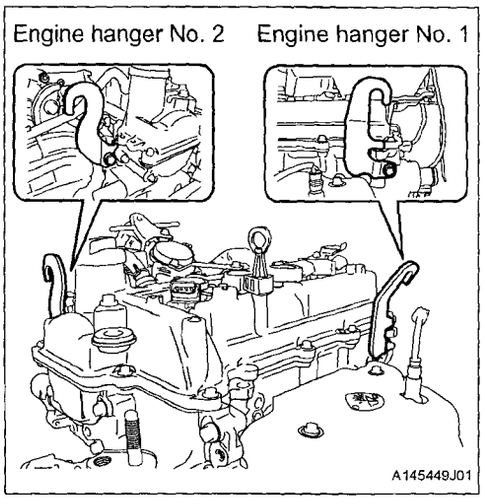
89. Starter assembly removal
    (1) Turn up the terminal cap and remove the nut and then terminal 30.
    (2) Disconnect the connector.



    (3) Remove the bolt and then the wire harness bracket and disconnect two clips and the clamp (LHD).
    (4) Remove two bolts and then the starter assembly.



90. Torque converter set bolt removal (for Automatic transaxle)
    (1) Remove six torque converter set bolts.

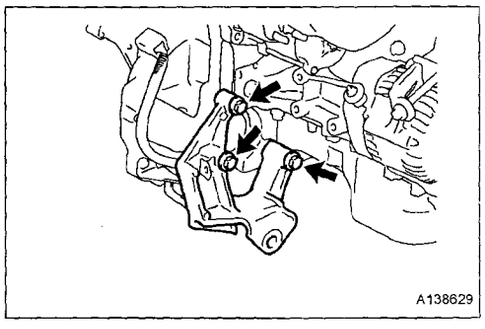


91. Transaxle assembly (ATM) removal (for Automatic transaxle)
    (1) Attach the engine hangers No. 1 and No. 2 to the locations shown in the diagram.

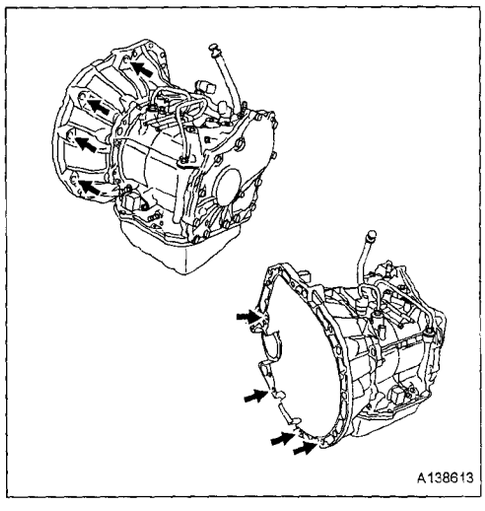
Engine hanger No. 1	12281-97401
Engine hanger No. 2	12282-97403
Bolts	91671-80820

<HINT>
The engine hangers No. 1 and No. 2 and the bolts are supply parts.
Specified value:T=20N*m {204kgf*cm}

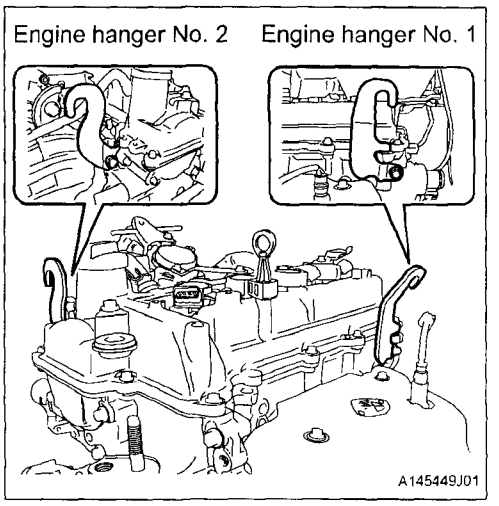
    (2) Use the engine sling device and the chain block to hang the engine assembly with transaxle.
    (3) Use a transmission jack to support the transaxle assembly (ATM).



    (4) Remove three bolts and then the engine mounting bracket RR.



    (5) Remove eight bolts and then the transaxle assembly (ATM).



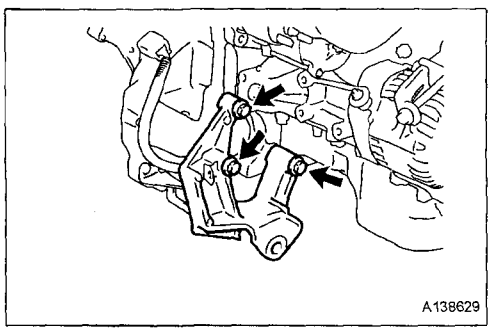
92. Transaxle assembly (MTX) removal (for Manual transaxle)
(1) Attach the engine hangers No. 1 and No. 2 to the locations shown in the diagram.

Engine hanger No. 1	12281-97401
Engine hanger No. 2	12282-97403
Bolts	91671-80820

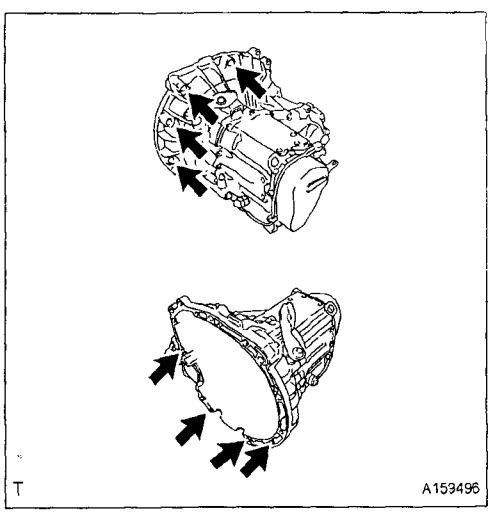
<HINT>
The engine hangers No. 1 and No. 2 and the bolts are supply parts.
Specified value:T=20N*m {204kgf*cm}

(2) Use the engine sling device and the chain block to hang the engine assembly with transaxle.
(3) Use a transmission jack to support the transaxle assembly (MTX).

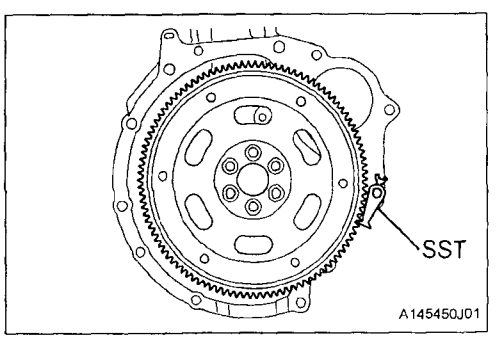
07



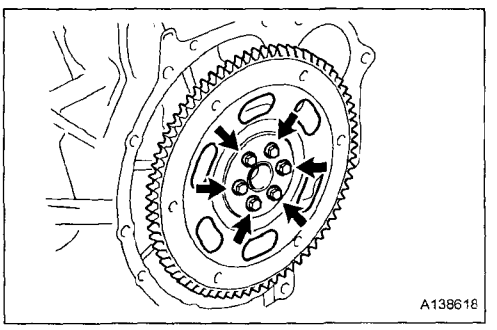
(4) Remove three bolts and then the engine mounting bracket RR.



(5) Remove eight bolts and then the transaxle assembly (MTX).



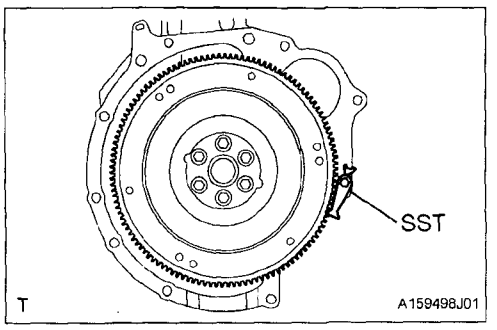
93. Drive plate and ring gear removal (for Automatic transaxle)
(1) Use SST to fix the crankshaft.
SST 09210-87701



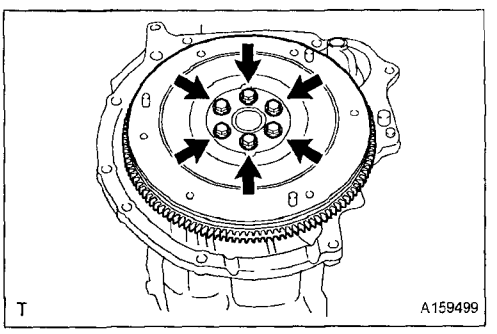
(2) Remove six bolts and then the drive plate and ring gear.

94. Clutch cover assembly removal (for Manual transaxle) (See page 27-48)
95. Clutch disc assembly removal (for Manual transaxle) (See page 27-48)

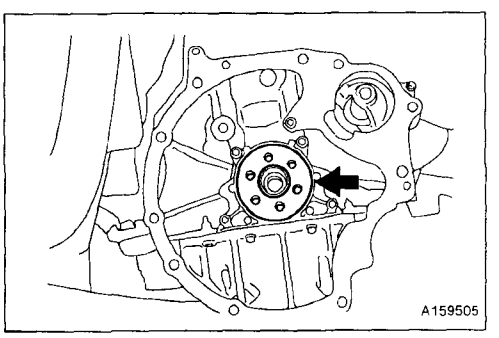
07



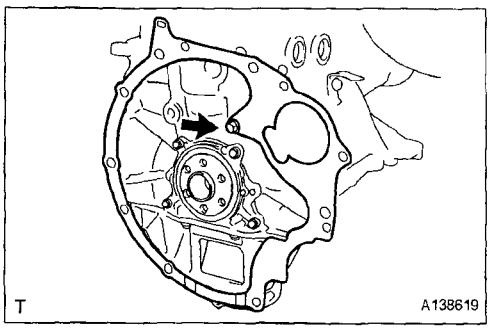
96. Flywheel removal (for Manual transaxle)
(1) Use SST to fix the crankshaft.
SST 09210-87701



(2) Remove six bolts and then the flywheel.



97. Flywheel spacer No. 1 removal (for Manual transaxle)
(1) Remove the flywheel spacer No. 1 from the crankshaft.



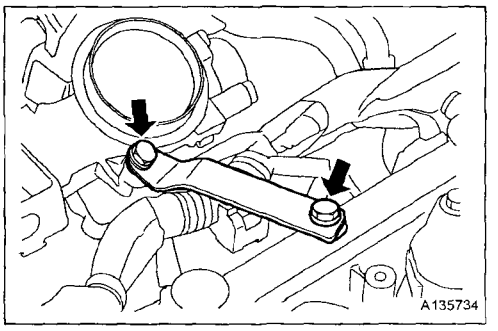
98. Rear end plate removal
    (1) Remove the bolt and then the rear end plate.

99. Water bypass hose No. 1 removal (Upper)
    (1) Loosen the clip, disconnect the water bypass hose No. 1 (Upper), and remove the heater outlet water hose from the radiator inlet hose.

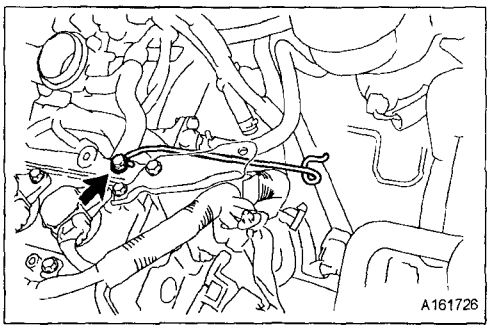
100. Water bypass pipe hose disconnection
    (1) Loosen the clip and disconnect the water bypass pipe hose.

101. Water bypass hose No. 1 removal (Lower)
    (1) Loosen the clip, disconnect the water bypass hose No. 1 (Lower), and remove the heater inlet water hose from the water bypass pipe hose.

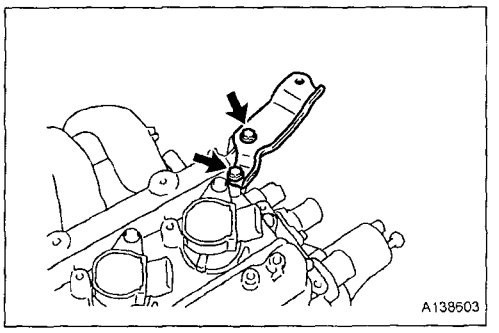
102. Radiator outlet hose removal
    (1) Loosen the clip and remove the radiator outlet hose.



103. Throttle body bracket No. 2 removal
    (1) Remove two bolts and then the throttle body bracket No. 2.



104. Accelerator control cable bracket removal (LHD)
    (1) Remove the bolt and then the accelerator control cable bracket.

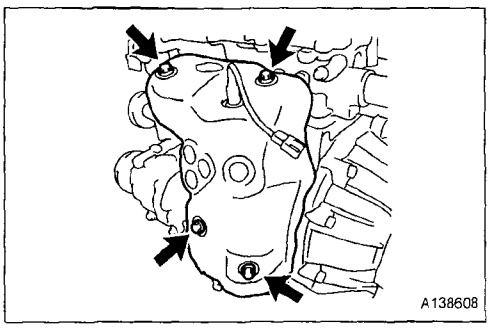


105. Air cleaner support bracket No. 2 removal
    (1) Remove two bolts and then the air cleaner support bracket No. 2.

106. Ventilation hose No. 2 removal (See page 06-141)

107.Engine wire removal

(1) Disconnect each sensor connector and the clamp and remove the engine wire.

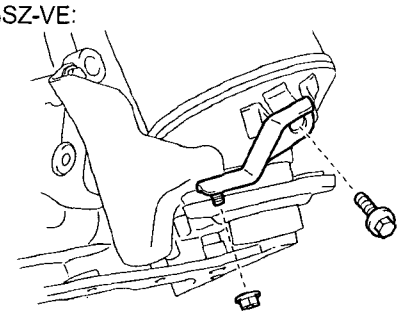


108.Exhaust manifold heat insulator No. 1 removal

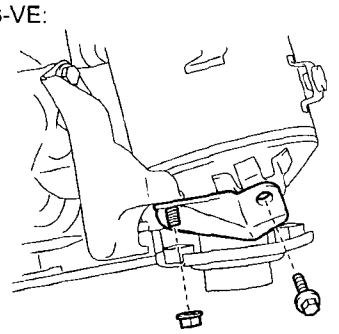
(1) Remove four bolts and then the exhaust manifold heat insulator No. 1.

07

3SZ-VE:

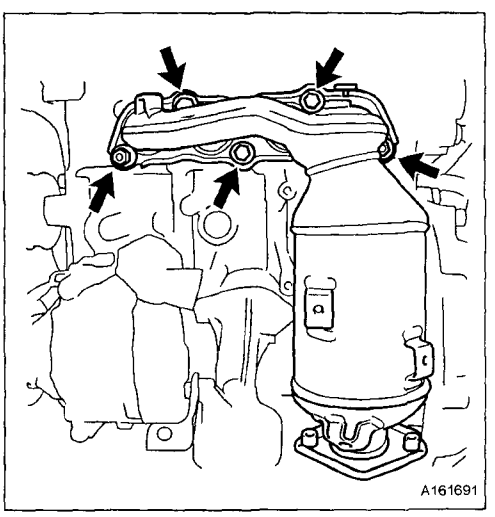


K3-VE:



109.Manifold stay removal

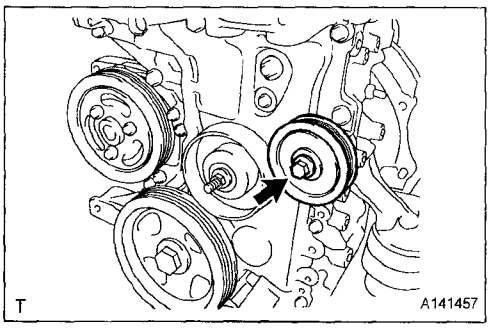
(1) Remove the bolt, the nut, and the manifold stay.



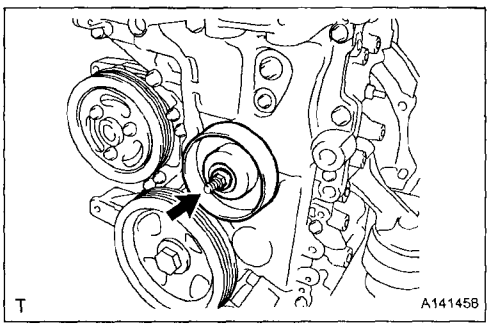
110.Exhaust manifold converter removal

(1) Remove three bolts, two nuts, and the exhaust manifold converter.

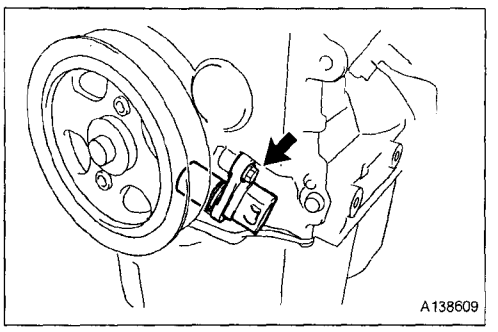
(2) Remove the exhaust manifold to-head gasket.



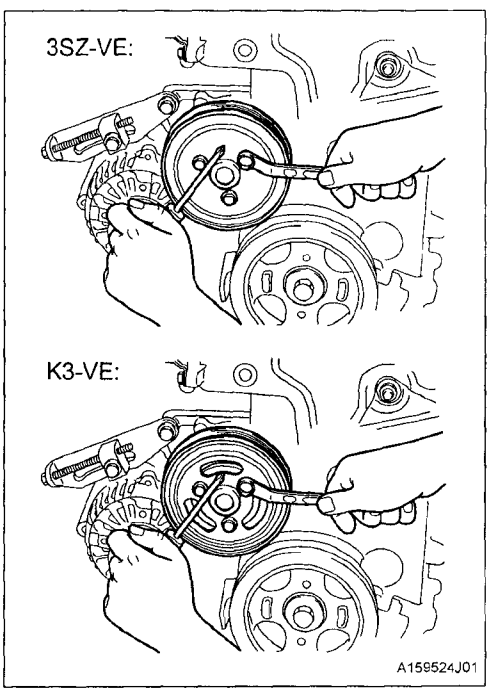
111. Idler pulley No. 2 removal
(1) Remove the bolt, the washer, and the idler pulley No. 2.
<HINT>
K3-VE does not have a washer



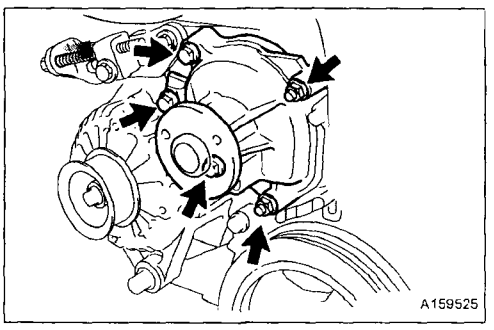
112. Idler pulley removal
(1) Remove the nut and washer, and the idler pulley.



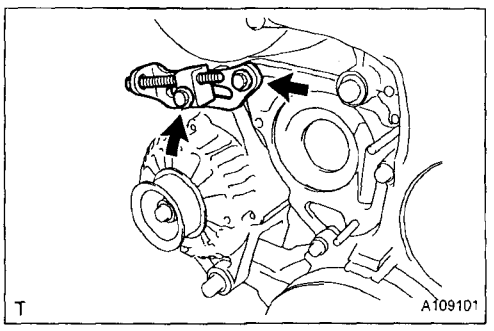
113. Crank position sensor removal
(1) Remove the bolt and then the crank position sensor.



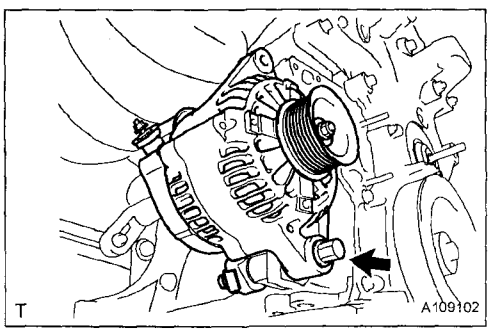
114. Water pump pulley removal
(1) Use a screwdriver as an anti-rotation stopper. Remove three bolts and then the water pump pulley.



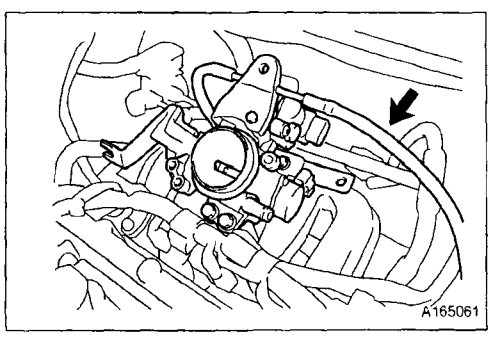
115.Water pump assembly removal
(1) Remove three bolts, two nuts, and the water pump assembly.



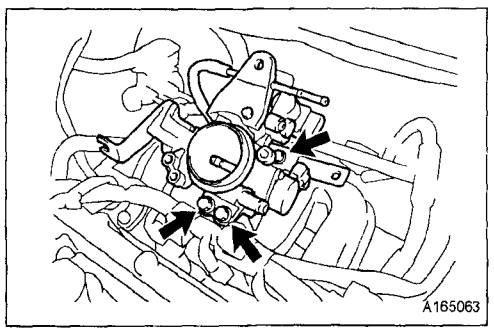
116.Fan belt adjusting bar removal
(1) Remove two bolts and then the fan belt adjusting bar.



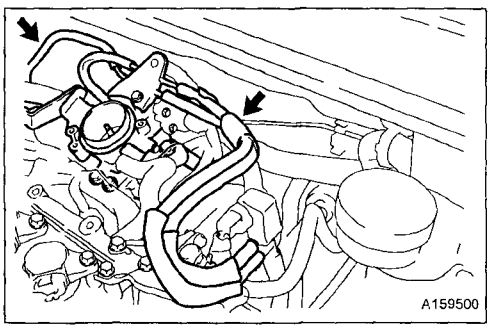
117.Alternator assembly removal
(1) Remove the through bolt, the nut, and the alternator assembly.



118.Throttle body assembly removal (RHD)
(1) Disconnect the charcoal canister outlet hose No. 2.
<CAUTION>
> Exercise care not to deform and damage the hose.
> If the hose is damaged, replace it with a new one.



(2) Remove three bolts and the throttle body stay and remove the throttle body assembly.



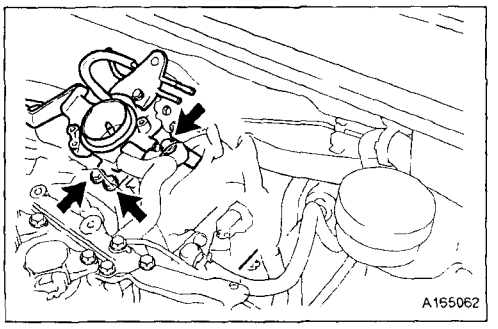
119.Throttle body assembly removal (LHD)

(1) Disconnect the charcoal canister outlet hose No. 1 and No. 2.

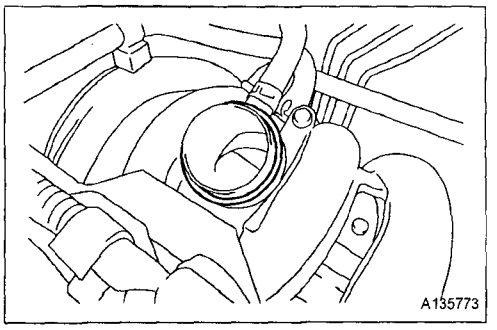
<CAUTION>

> Take care not to deform and damage the hose.

> If the hose is deformed or damaged, replace it with a new one.

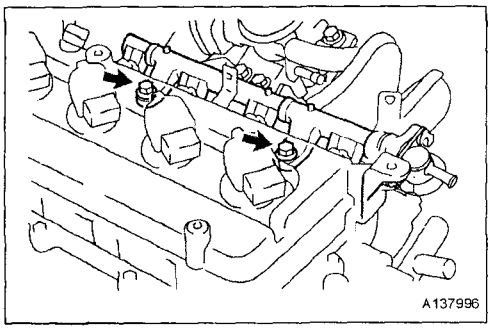


(2) Remove three bolts and the throttle body stay and remove the throttle body assembly.



120.O-ring removal

(1) Remove the O-ring.

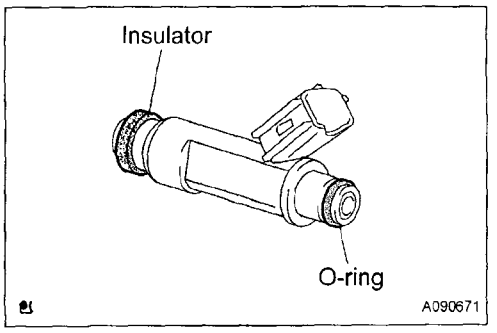


121.Fuel delivery pipe removal

(1) Remove two bolts and then the fuel delivery pipe with fuel injector assembly, and delivery pipe spacer No. 1.

<CAUTION>

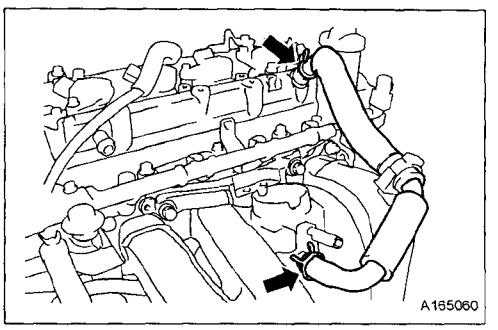
Be sure not to drop the fuel injector assembly.



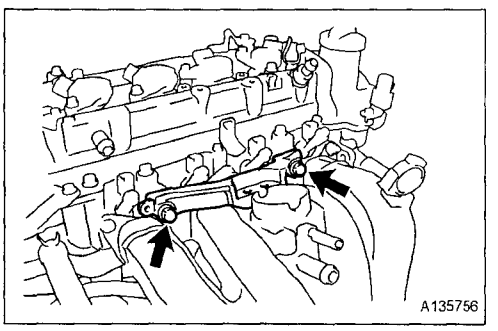
122.Fuel injector assembly removal

(1) Remove the fuel injector assembly from the fuel delivery pipe.

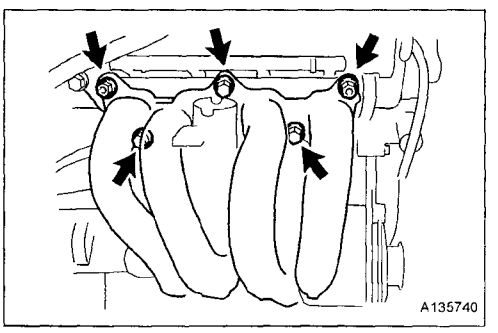
(2) Remove the fuel injector O-ring and the injector vibration insulator from the fuel injector assembly.



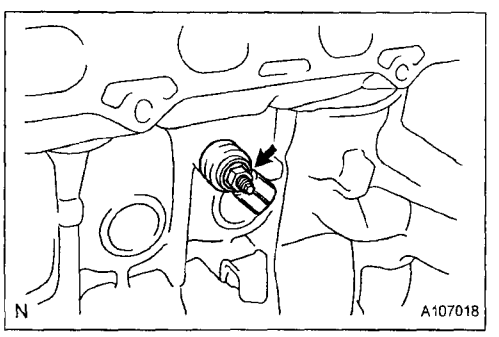
123.Ventilation hose removal
(1) Loosen the clip and remove the ventilation hose.



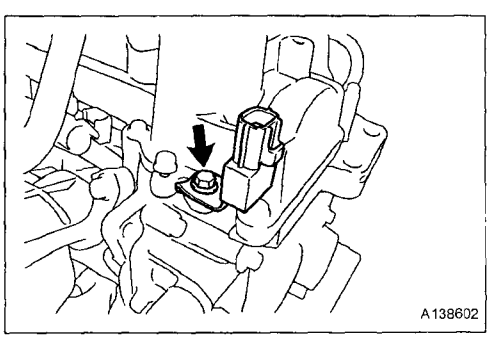
124.Throttle body bracket removal
(1) Remove two bolts and then the throttle body bracket.



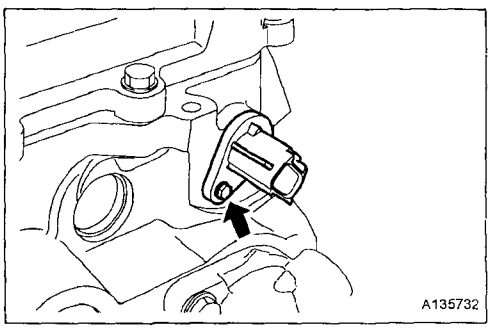
125.Intake manifold removal
(1) Remove three bolts, two nuts, and the intake manifold.



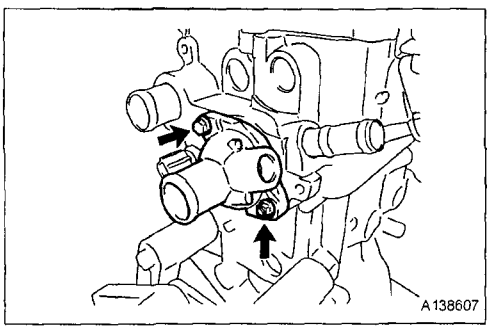
126.Knock control sensor removal
(1) Remove the nut and then the knock control sensor.



127.Noise filter removal
(1) Remove the bolt and then the noise filter.

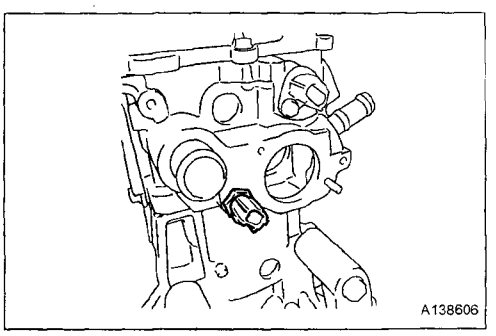


128.Cam position sensor removal
(1) Remove the bolt and then the cam position sensor.

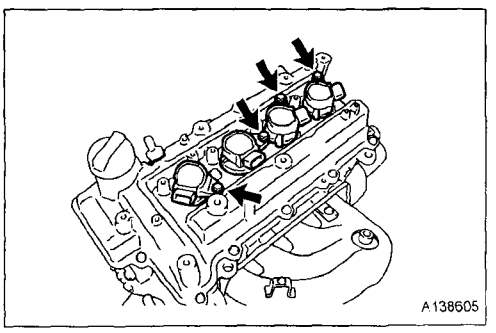


129.Water inlet removal
(1) Remove the bolt, the nut, and the water inlet.

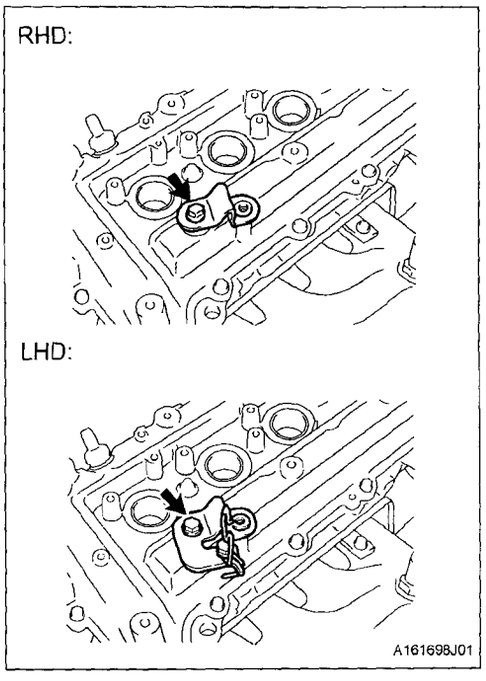
130.Thermostat removal



131.Water temperature sensor removal
(1) Use the water temperature sensor socket to remove the water temperature sensor.
Tool: Water temperature sensor socket {KTC (B20T-19) or equivalent}



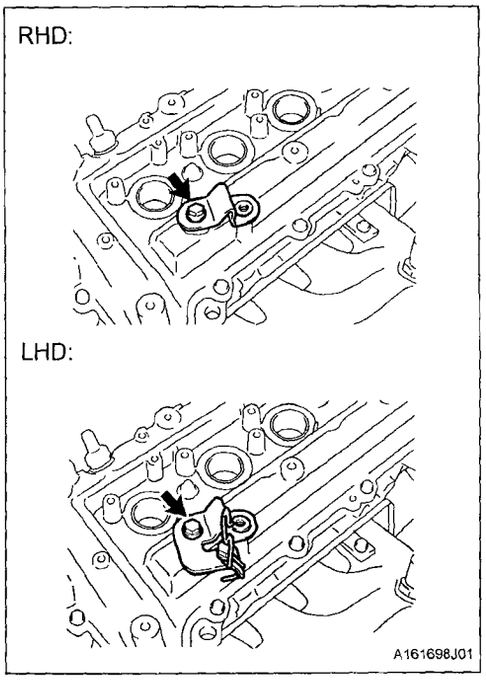
132.Ignition coil assembly removal
(1) Remove the bolt and then the ignition coil assembly.



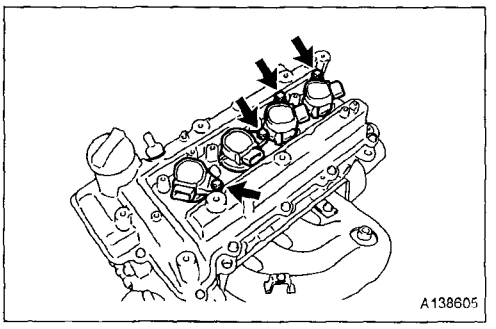
133.Oil level gage removal
(1) Remove the oil level gage.
(2) Remove the bolt and then the oil level gage bracket.

134.Partial engine assembly replacement

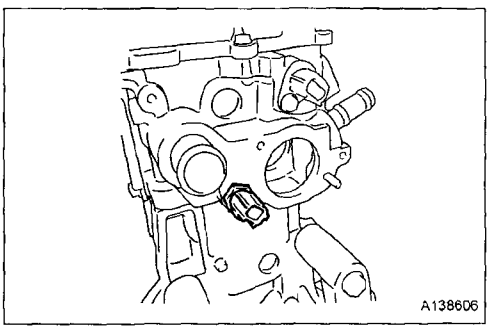
INSTALLATION



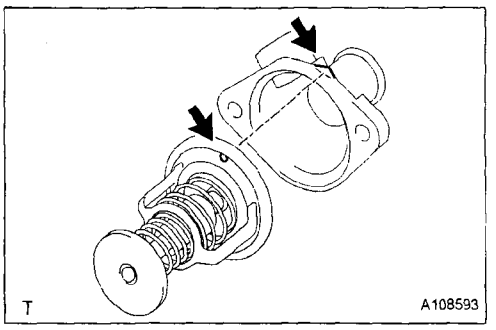
1. Oil level gage installation
(1) Insert the oil level gage bracket into the guide hole in the head cover and use a bolt to attach the bracket.
Specified value:T=7.5N*m {76kgf*cm}
(2) Attach the oil level gage.



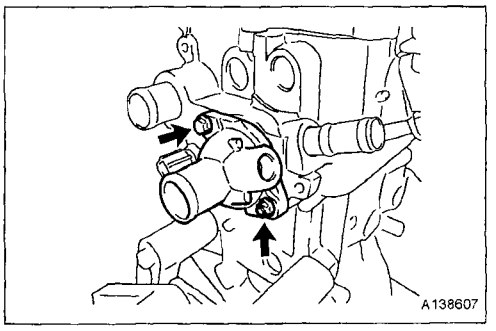
2. Ignition coil assembly installation
   (1) Use a bolt to attach the ignition coil assembly.
   Specified value:T=7.5N*m {76kgf*cm}



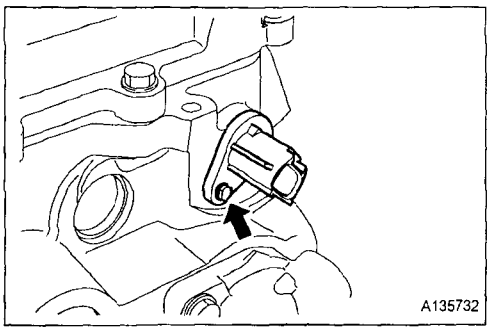
3. Water temperature sensor installation
   (1) Attach the water temperature sensor using the water temperature sensor sockeet through a new gasket.
   Tool: Water temperature sensor socket {KTC(B20T-19) or equivalent}Preset torque wrench with ratchet {Tohnichi(QL25N-MH) or equivalent}
   Specified value:T=20N*m {204kgf*cm}



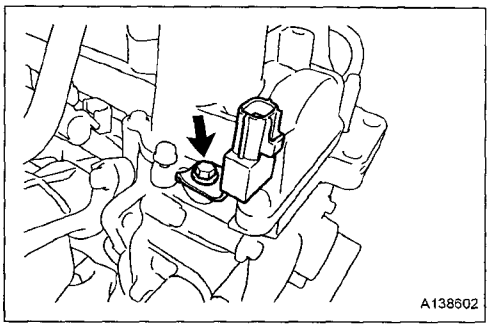
4. Thermostat installation
   (1) Attach a new gasket to the thermostat.
   (2) Align the dowel mark on the water inlet with the jiggle valve on the thermostat and attach the thermostat.



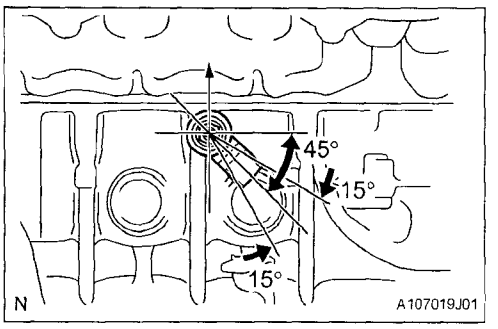
5. Water inlet installation
   (1) Use a bolt and nut to attach the water inlet.
   Specified value:T=9.0N*m {92kgf*cm} (Bolt)
   T=9.0N*m {92kgf*cm} (Nut)



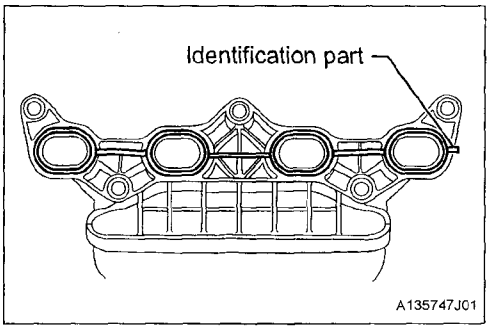
6. Cam position sensor installation
   (1). Coat the O-ring with a small amount of engine oil.
   (2) Use a bolt to attach the cam position sensor.
   Specified value:T=7.5N*m {76kgf*cm}
   <CAUTION>
   During installation, make sure that the O-ring is not cut or pinched.



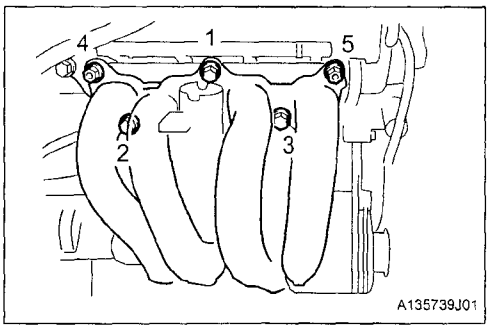
7. Noise filter installation
   (1) Use a bolt to attach the noise filter.
   Specified value:T=9.0N*m {92kgf*cm}



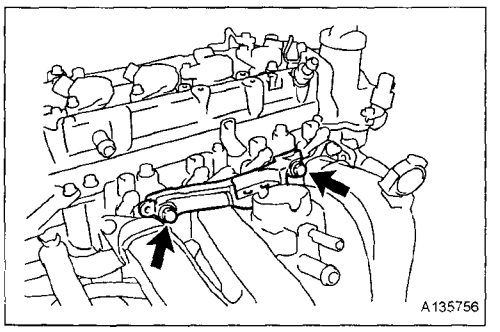
8. Knock control sensor installation
   (1) Use nuts to attach the knock control sensor.
   Specified value:T=20N*m {204kgf*cm}
   <HINT>
   Attach the knock control sensor in the range shown in the diagram.



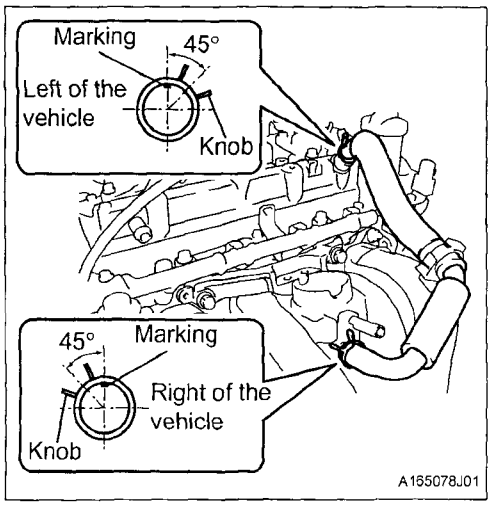
9. Intake manifold installation
   (1) Align the identification parts and attach a new gasket to the intake manifold.



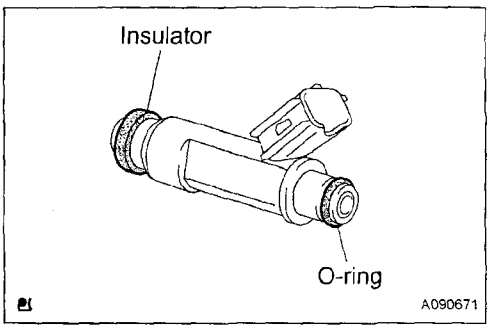
   (2) Use three bolts and two nuts to attach the intake manifold temporarily.
   (3) Tighten the bolts and the nuts in the order shown in the diagram.
   Specified value:T=19N*m {194kgf*cm} (Bolt)
   T=19N*m {194kgf*cm} (Nut)



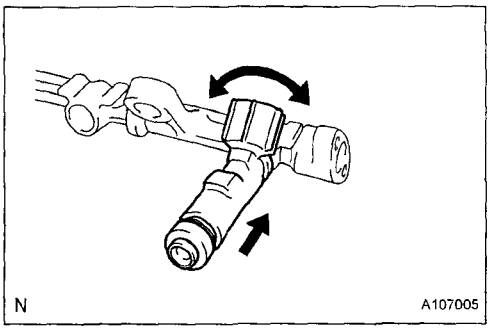
10. Throttle body bracket installation
   (1) Use two bolts to attach the throttle body bracket.
   Specified value:T=21N*m {214kgf*cm}



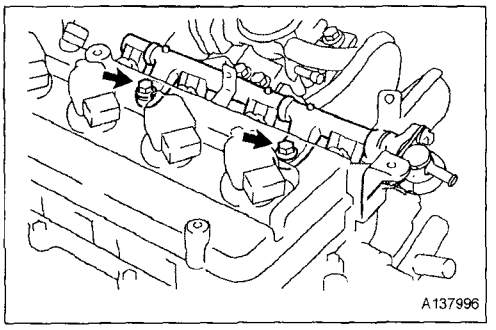
11. Ventilation hose installation (See page 27-48)
    (1) Adjust two markings to the upper side of the vehicle and attach the ventilation hose.
    <HINT>
    As shown in the diagram, attach the marking and clip.



12. Fuel injector assembly installation
    (1) Attach a new injector vibration insulator.
    (2) Coat a new fuel injector O-ring with gasoline.

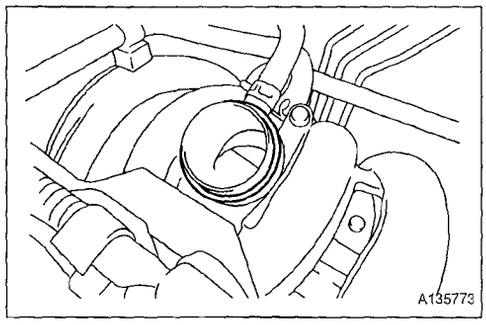


    (3) While rotating the fuel injector assembly to the right and left sides, attach the fuel delivery pipe.
    <CAUTION>
    During installation, make sure that the O-ring is not twisted or pinched.
    (4) Make sure that the fuel injector assembly rotates smoothly.
    <CAUTION>
    If the fuel injector assembly does not rotate smoothly, replace the O-ring with a new one and attach the fuel injector assembly again.

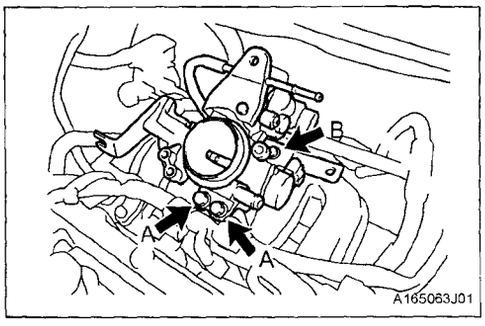


13. Fuel delivery pipe installation
    (1) Attach delivery pipe spacer No. 1 and temporarily attach the fuel delivery pipe and fuel injector assembly with two bolts.
    <CAUTION>
    When attaching the fuel delivery pipe, be sure not to drop the fuel injector assembly.
    (2) Make sure that the fuel injector assembly rotates smoothly.
    <CAUTION>
    If the fuel injector assembly does not rotate smoothly, replace the O-ring with a new one and attach the fuel injector assembly again.
    (3) Tighten two bolts.
    Specified value:T=21N*m {214kgf*cm}

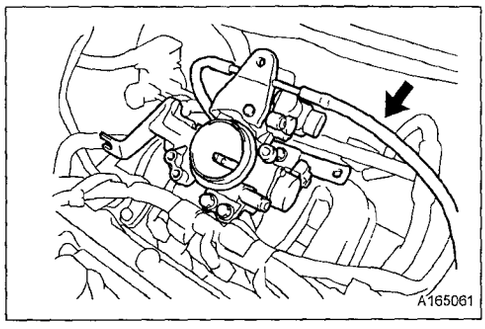
07



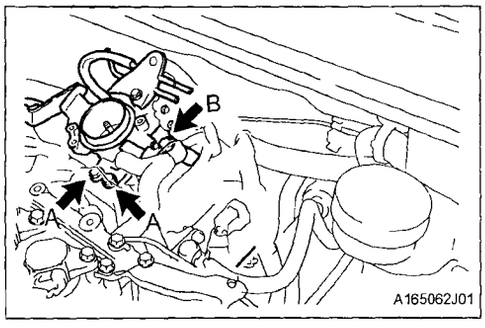
14. O-ring installation
    (1) Attach a new O-ring.



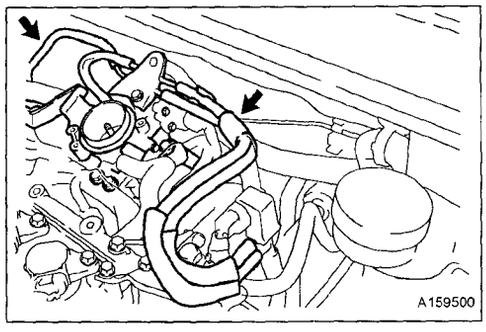
15. Throttle body assembly installation (RHD)
    (1) Use two bolts (A) and a bolt (B) to attach the throttle body assembly and the throttle body stay.
    Specified value:T=21N*m {214kgf*cm} (Bolt A)
    T=7.5N*m {76kgf*cm} (Bolt B)



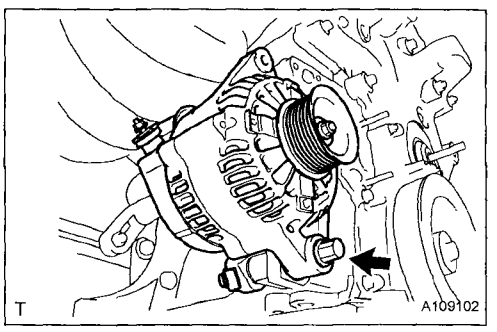
    (2) Connect the charcoal canister outlet hose No. 2.
    <CAUTION>
    Attach the hose so that its marking matches that of the tube.



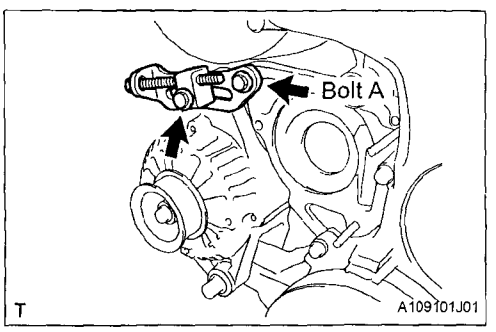
16. Throttle body assembly installation (LHD)
    (1) Use two bolts (A) and a bolt (B) to attach the throttle body assembly and the throttle body stay.
    Specified value:T=21N*m {214kgf*cm} (Bolt A)
    T=7.5N*m {76kgf*cm} (Bolt B)



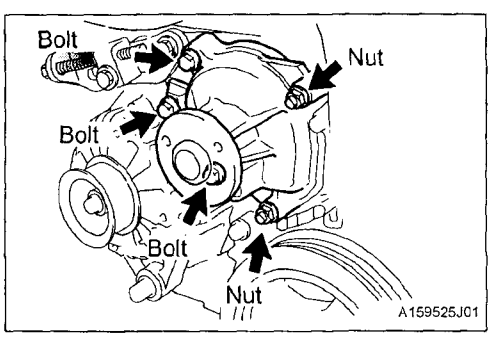
    (2) Connect the charcoal canister outlet hose and No. 2.
    <CAUTION>
    Attach the hose so that its marking matches that of the tube.



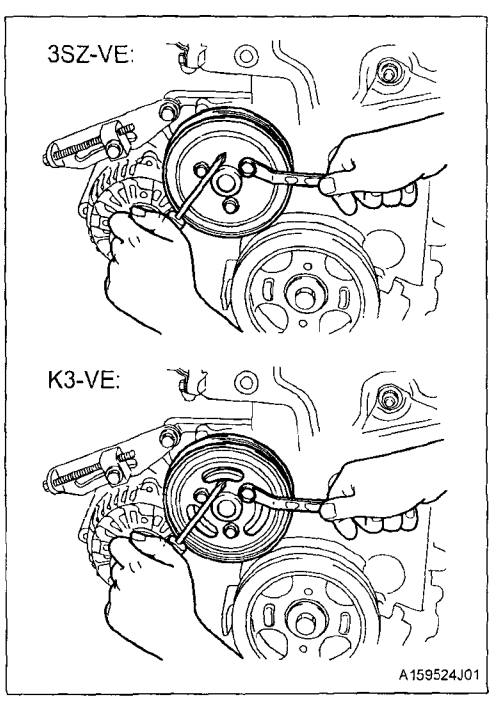
17. Alternator assembly installation
    (1) Use a through bolt and nut to temporarily attach the alternator assembly.



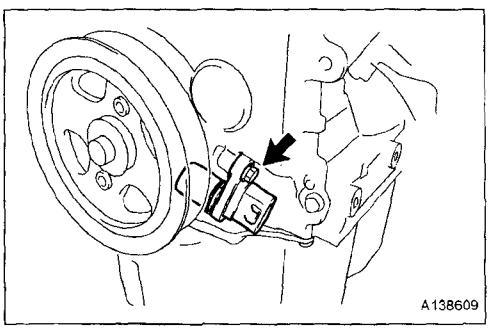
18. Fan belt adjusting bar installation
    (1) Use two bolts to temporarily attach the fan belt adjusting bar.
    (2) Tighten bolt A.
    Specified value:T=32N*m {326kgf*cm} (Bolt A)



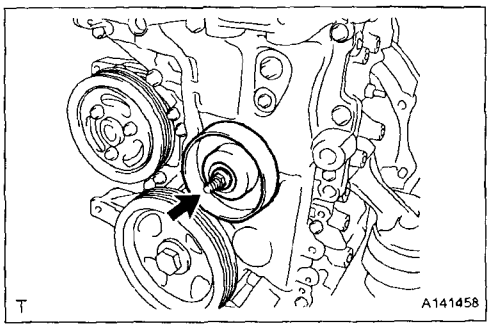
19. Water pump assembly installation
    (1) Use three bolts and two nuts to attach the water pump assembly through a new gasket.
    Tool: Preset torque wrench with ratchet {QL25N-MH from Tohnichi or its equivalent}
    Specified value:T=9.0N*m {92kgf*cm} (Bolt)
    T=9.0N*m {92kgf*cm} (Nut)



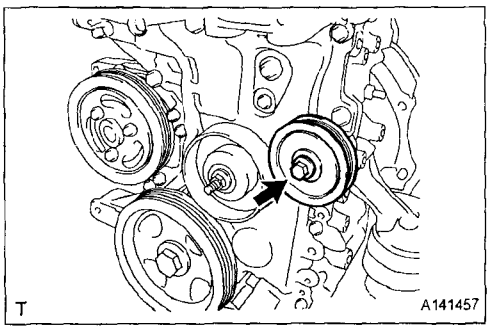
20. Water pump pulley installation
    (1) Use three bolts to temporarily attach the water pump pulley.
    (2) Use a screwdriver as an anti-rotation stopper. Tighten three bolts.
    Specified value:T=12N*m {122kgf*cm}



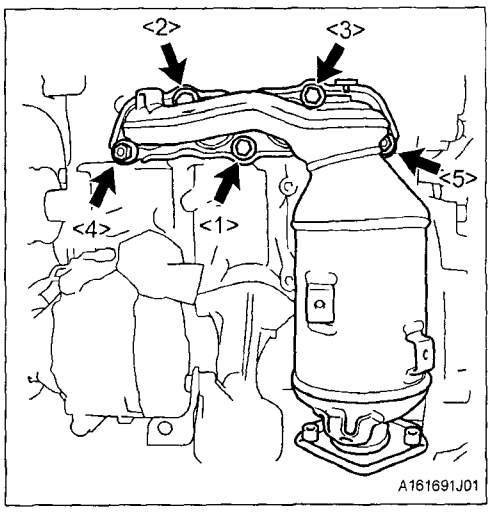
21. Crank position sensor installation
    (1) Coat the O-ring with a small amount of engine oil.
    (2) Use a bolt to attach the crank position sensor.
    Specified value:T=7.5N*m {76kgf*cm}
    <CAUTION>
    During installation, make sure that the O-ring is not twisted or pinched.



22. Idler pulley installation
    (1) Use a nut and washer to attach the idler pulley.
    Specified value:T=44N*m {449kgf*cm}

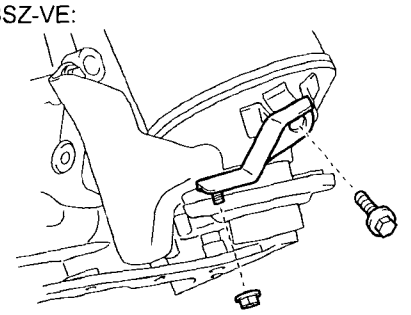


23. Idler pulley No. 2 installation
    (1) Use a bolt and washer to attach the idler pulley No. 2.
    Specified value:T=44N*m {449kgf*cm}
    <HINT>
    K3-VE does not have a washer

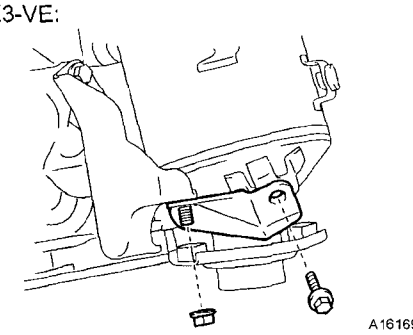


24. Exhaust manifold converter installation
    (1) Use three bolts and two nuts to temporarily attach the exhaust manifold converter through a new exhaust manifold two-head gasket.
    (2) Tighten three bolts and two nuts in the order shown in the diagram.
    Specified value:T=25N*m {255kgf*cm} (Bolt)
    T=25N*m {255kgf*cm} (Nut)

3SZ-VE:

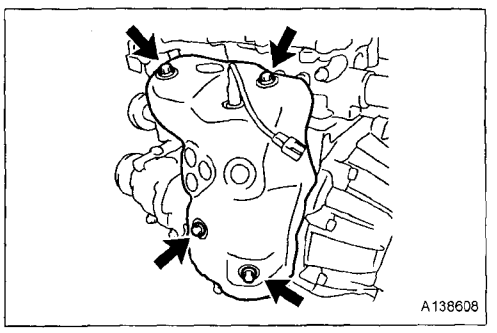


K3-VE:



A161696J01

25. Manifold stay installation
    (1) Use a bolt and nut to attach the manifold stay.
        Specified value:T=25N*m {255kgf*cm} (Bolt)
        T=25N*m {255kgf*cm} (Nut)

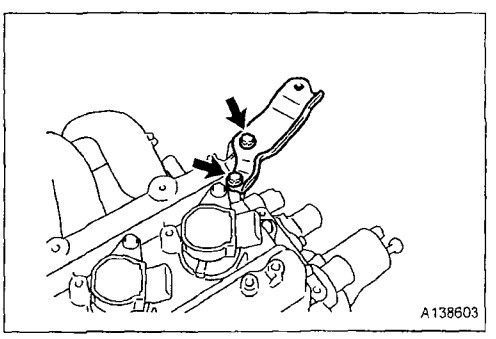


A138608

26. Exhaust manifold heat insulator No. 1 installation
    (1) Use four bolts to attach the exhaust manifold heat insulator No. 1.
        Specified value:T=8.5N*m {87kgf*cm}

27. Engine wire connection
    (1) Connect each sensor connector and the clamp and attach the engine wire.

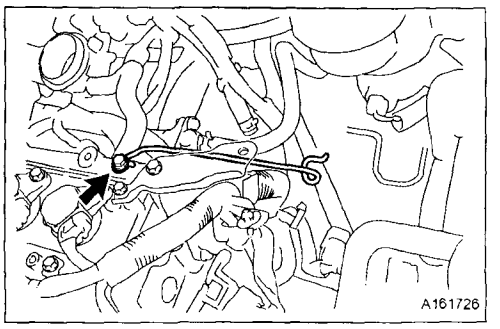
28. Ventilation hose No. 2 installation (See page 06-149)



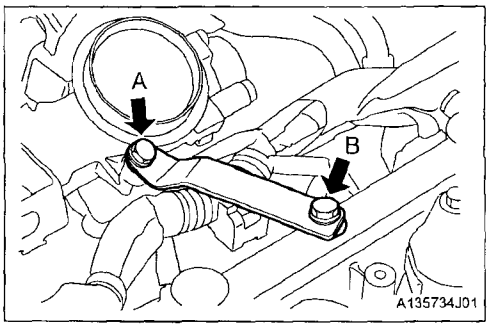
A138603

29. Air cleaner support bracket No. 2 installation
    (1) Use two bolts to attach the air cleaner support bracket No. 2.
        Specified value:T=7.5N*m {76kgf*cm}

07

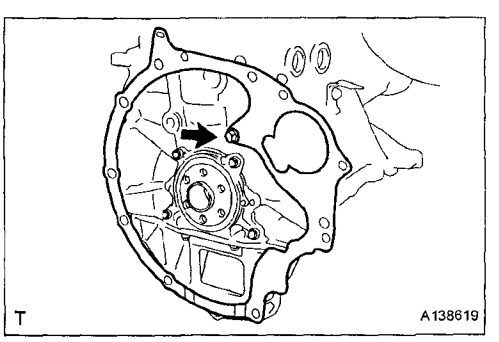


30. Accelerator control cable bracket installation (LHD)
    (1) Use a bolt to attach the accelerator control cable bracket.
    Specified value:T=5.0N*m {51kgf*cm}



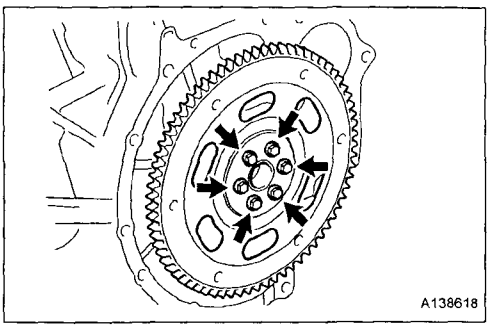
31. Throttle body bracket No. 2 installation
    (1) Temporarily tighten the bolt (A) and securely tighten bolt (B) and (A) in that order to attach the throttle body bracket No. 2.
    Specified value:T=7.5N*m {76kgf*cm} (Bolt A, B)

32. Radiator outlet hose installation
    (1) Use a clip to attach the radiator outlet hose.
    <HINT>
    When attaching the radiator outlet hose, make sure that its marking and clip knob face the vehicle top.
33. Water bypass hose No. 1 connection (Lower)
    (1) Use a clip to attach the water bypass hose No. 1 (Lower).
    <HINT>
    When attaching the water bypass hose No. 1, make sure that its marking faces the vehicle top and that its clip knob faces the right of the vehicle.
34. Water bypass pipe hose installation
    (1) Use a clip to attach the water bypass pipe hose.
    <HINT>
    When attaching the water bypass pipe hose, make sure that its marking and clip knob face the vehicle top.
35. Water bypass hose No. 1 installation (Upper)
    (1) Use a clip to attach the water bypass hose No. 1 (Upper).
    <HINT>
    When attaching the water bypass hose No. 1, make sure that its marking faces the vehicle top and that its clip knob faces the right of the vehicle.

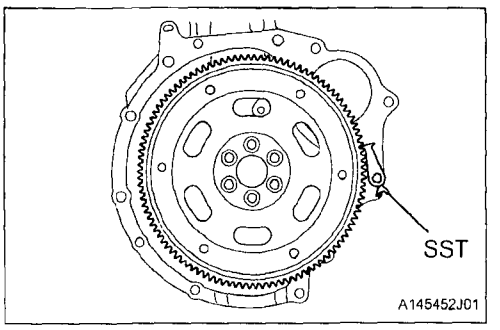


36. Rear end plate installation
    (1) Use a bolt to attach the rear end plate.
    Specified value:T=7.5N*m {76kgf*cm}

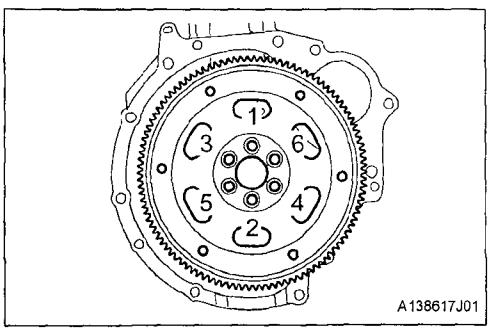
37. Drive plate and ring gear installation (for Automatic transaxle)
    (1) Coat two or three threads from the end portion of the drive plate and ring gear installation bolt with Three Bond 1324.
    <CAUTION>
    Clean/degrease the drive plate and ring gear installation bolt and the bolt hole.



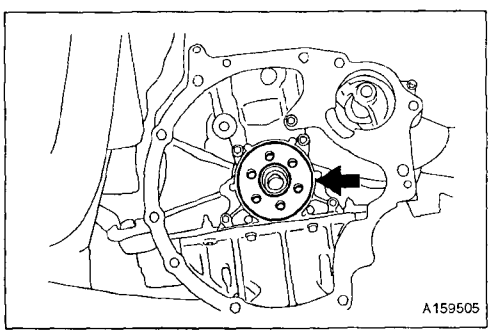
(2) Use six bolts to attach the drive plate and ring gear



(3) Use SST to fix the crankshaft.
SST 09210-87701



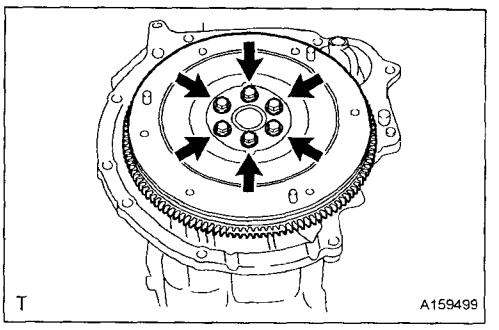
(4) Tighten six bolts in the order shown in the diagram.
Specified value:T=78N*m {795kgf*cm}
<CAUTION>
Avoid starting the engine for at least one hour after installation.



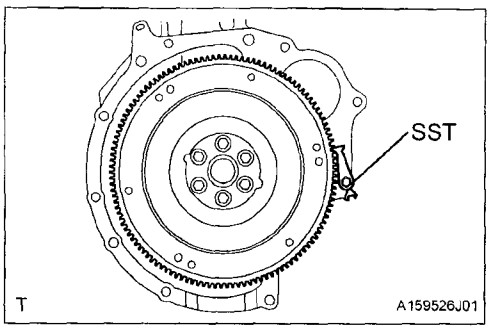
38. Flywheel spacer No. 1 installation (for Manual transaxle)
(1) Attach the flywheel spacer No. 1 to the crankshaft.

39. Flywheel installation (for Manual transaxle)
(1) Coat two or three threads from the end portion of the flywheel installation bolt with Three Bond 1324.
<CAUTION>
Clean and degrease the flywheel installation bolt and the bolt hole.

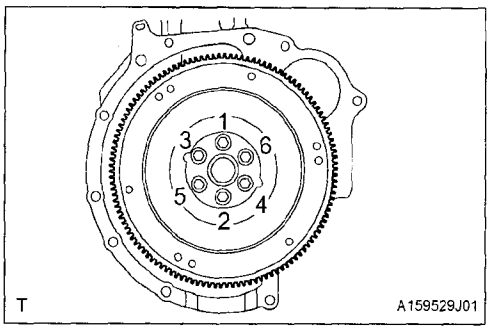
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(2) Use six bolts to attach the flywheel.

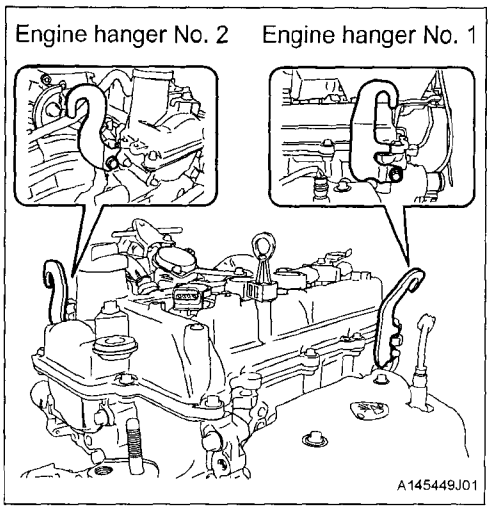


(3) Use SST to fix the crankshaft.
SST 09210-87701



(4) Tighten six bolts in the order shown in the diagram.
Specified value:T=78N*m {795kgf*cm}
<CAUTION>
Avoid starting the engine for at least one hour after installation.

40. Clutch disc assembly installation (for Manual transaxle) (See page 27-50)
41. Clutch cover assembly check (for Manual transaxle) (See page 27-49)
42. Clutch cover assembly installation (for Manual transaxle) (See page 27-50)

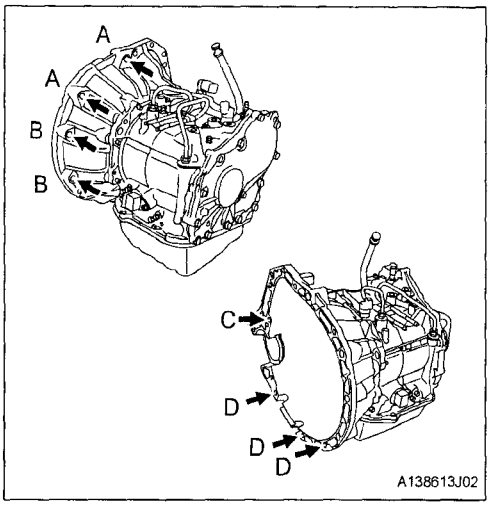


43. Transaxle assembly (ATM) installation
(1) Attach the engine hangers No. 1 and No. 2 to the locations shown in the diagram.

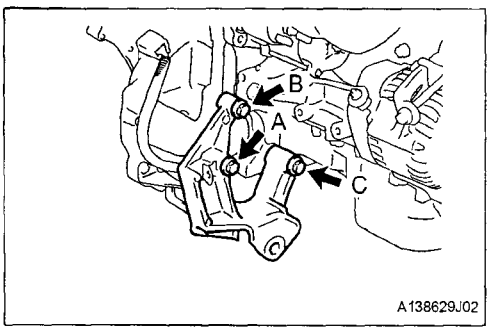
Engine hanger No. 1	12281-97401
Engine hanger No. 2	12282-97403
Bolts	91671-80820

<HINT>
The engine hangers No. 1 and No. 2 and the bolts are supply parts.
Specified value:T=20N*m {204kgf*cm}

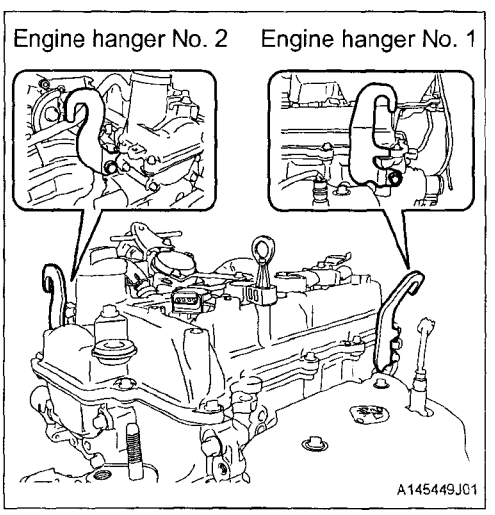
(2) Use the engine sling device and the chain block to hang the engine assembly with transaxle.
(3) Use a transmission jack to support the transaxle assembly (ATM).



(4) Use two new seal bolts (A) and six bolts (B, C, and D) to attach the transaxle assembly (ATM).
Specified value:T=64N*m {653kgf*cm} (Bolt A)
T=64N*m {653kgf*cm} (Bolt B)
T=64N*m {653kgf*cm} (Bolt C)
T=37N*m {377kgf*cm} (Bolt D)



(5) Use three bolts to attach the engine mounting bracket RR.
(a) Temporarily tighten bolt C.
(b) Tighten bolts A and B (in any order).
Specified value:T=80N*m {816kgf*cm}
(c) Tighten bolt C.
Specified value:T=80N*m {816kgf*cm}
Tool: Ratchet preset torque wrench {Tonichi (QL100N-MH) or equivalent}

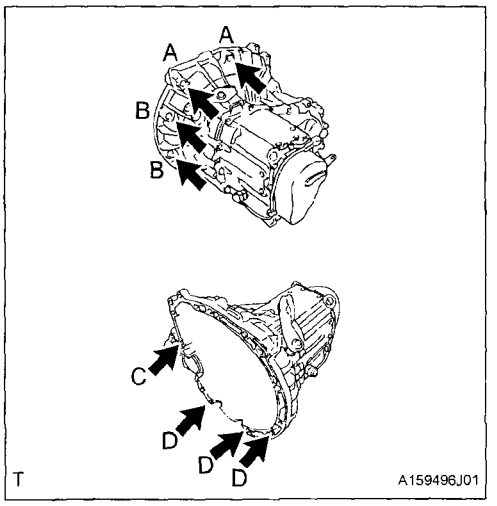


44. Transaxle assembly (MTX) installation
(1) Attach the engine hangers No. 1 and No. 2 to the locations shown in the diagram.

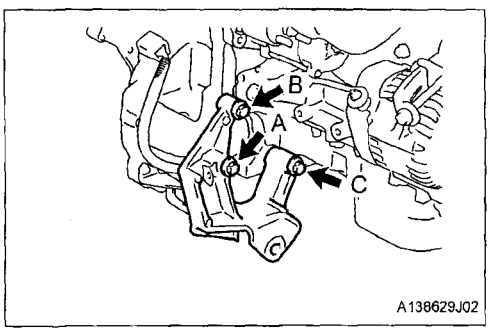
Engine hanger No. 1	12281-97401
Engine hanger No. 2	12282-97403
Bolts	91671-80820

<HINT>
The engine hangers No. 1 and No. 2 and the bolts are supply parts.
Specified value:T=20N*m {204kgf*cm}
(2) Use the engine sling device and the chain block to hang the engine assembly with transaxle.
(3) Use a transmission jack to support the transaxle assembly (MTX).

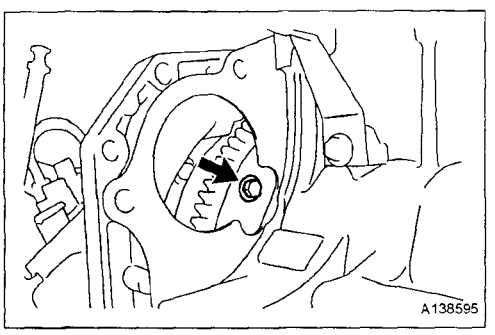
07



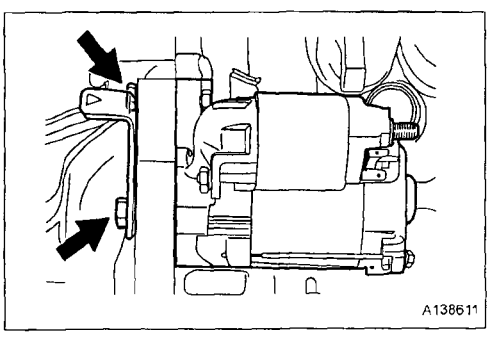
(4) Use two new seal bolts (A) and six bolts (B, C, and D) to attach the transaxle assembly (MTX).
Specified value: T=64N*m {653kgf*cm} (Bolt A)
T=64N*m {653kgf*cm} (Bolt B)
T=64N*m {653kgf*cm} (Bolt C)
T=37N*m {377kgf*cm} (Bolt D)



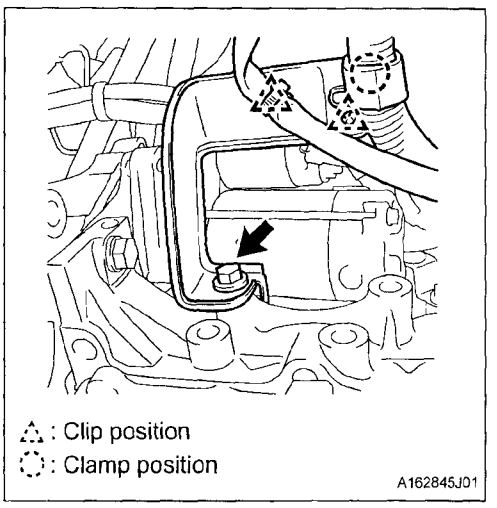
(5) Use three bolts (A and B) to attach the engine mounting bracket RR.
(a) Temporarily tighten bolt C.
(b) Tighten bolts A and B (in any order).
Specified value: T=80N*m {816kgf*cm}
(c) Tighten bolt C.
Specified value: T=80N*m {816kgf*cm}
Tool: Ratchet preset torque wrench {Tonichi (QL100N-MH) or equivalent}



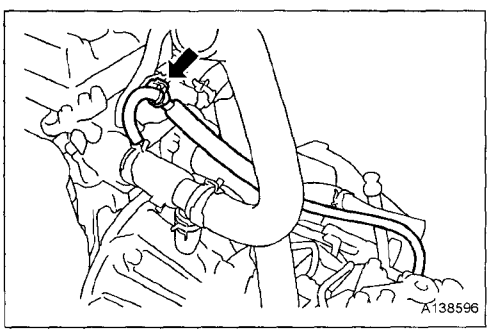
45. Torque converter set bolt installation (for Automatic transaxle)
(1) Attach six torque converter set bolts.
Specified value: T=28N*m {286kgf*cm}
<HINT>
Begin by tightening the reference bolt (silver).
<CAUTION>
Be sure to use specified bolts. Use of other bolts may cause tightening failure or deformation of the inside shape of the converter, resulting in converter malfunction.



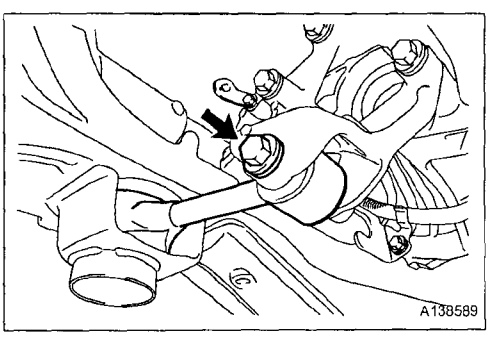
46. Starter assembly installation
(1) Use two bolts to attach the starter assembly.
Specified value: T=37N*m {377kgf*cm}
(2) Connect the connector.



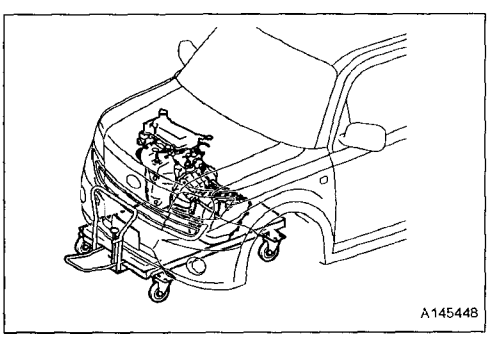
(3) Attach two clips and a clamp to the wire harness bracket, and use a bolt to attach the wire harness bracket (LHD).
Specified value:T=19N*m {194kgf*cm}
(4) Use nuts to attach terminal 30.
Specified value:T=8.8N*m {90kgf*cm}



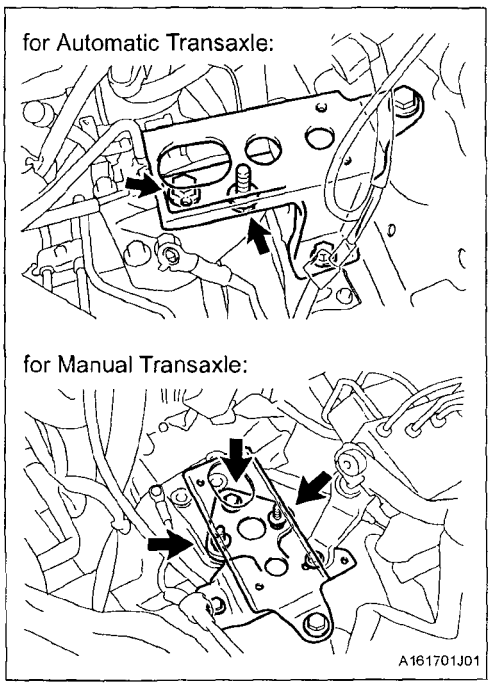
47. Breather tube fuel hose installation (for Automatic transaxle)
(1) Attach the breather tube fuel hose.



48. Front suspension cross member installation
(1) Use a bolt for the engine moving control rod to attach the front suspension cross member.
Specified value:T=120N*m {1224kgf*cm}

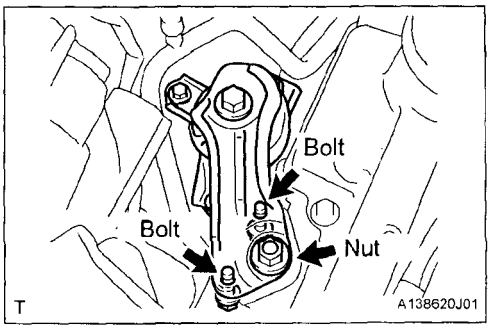


49. Engine assembly with transaxle installation
(1) Place the engine lifter.
(2) Operate the engine lifter to place the engine assembly with transaxle in the vehicle.

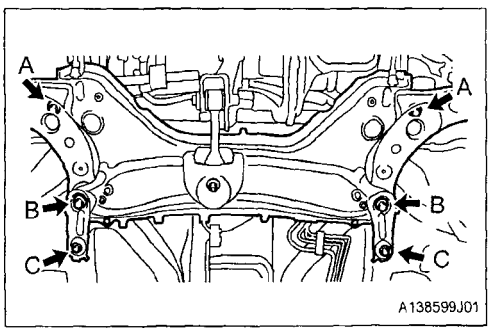


(3) Use two bolts to attach the engine mounting insulator LH (for Automatic transaxle).
Specified value:T=75N*m {765kgf*cm}

(4) Use three bolts to attach the engine mounting insulator LH (for Automatic transaxle).
Specified value:T=75N*m {765kgf*cm}

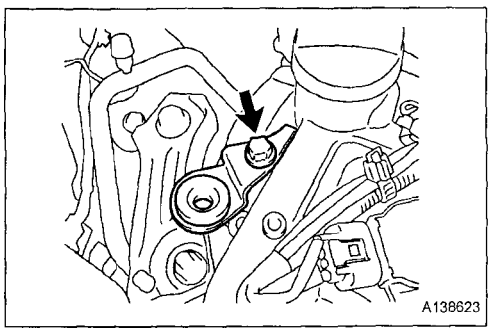


(5) Use two bolts and one nut to attach the engine mounting insulator RH.
Specified value:T=95N*m {969kgf*cm} (Bolt)
T=75N*m {765kgf*cm} (Nut)

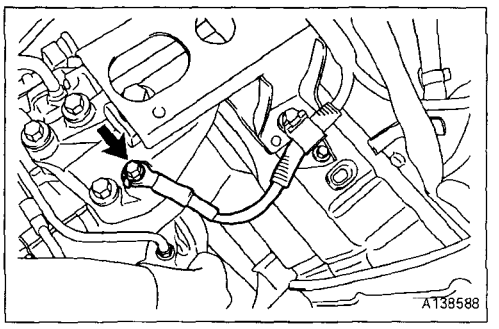


(6) Use six bolts to temporarily attach the front suspension cross member to the vehicle.

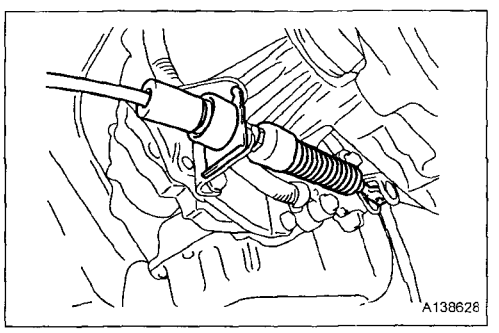
(7) Adjusting the position, tighten the RH and LH side bolts A, B, and C with the specified torque by tightening each bolt in small steps.
Specified value:T=118N*m {1203kgf*cm} (Bolt A)
T=100N*m {1020kgf*cm} (Bolt B)
T=66N*m {673kgf*cm} (Bolt C)



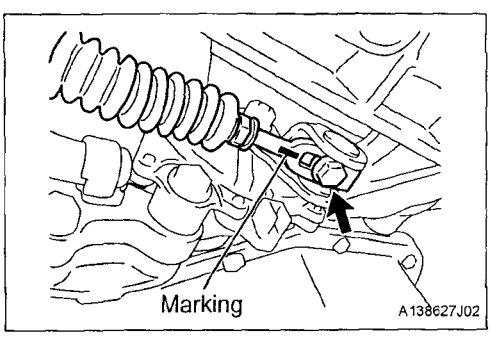
(8) Use a bolt to attach the air cleaner inlet bracket No. 1.
Specified value:T=18N*m {184kgf*cm}



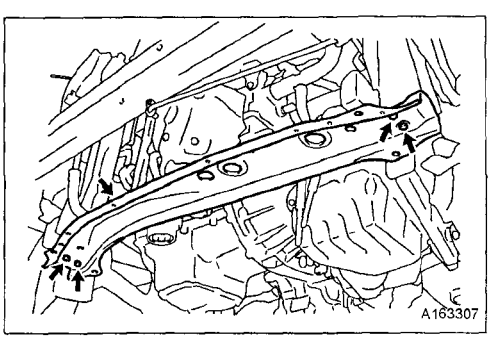
(9) Use a bolt to attach the battery-to-ground cable.
Specified value:T=19N*m {194kgf*cm}



50. Transmission control cable assembly installation (for Automatic transaxle)
(1) Use a new clip to attach the transmission control cable assembly.



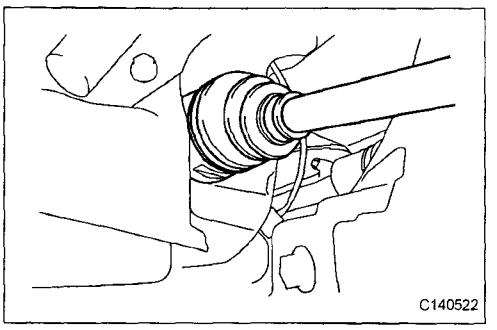
(2) Align the top and bottom identification marking and connect the transmission control cable assembly with a bolt.
Specified value:T=8.4N*m {85kgf*cm}
<HINT>
For information on transmission control cable assembly connection, (See page 26-66)



51. Radiator support LWR installation
(1) Use five bolts to attach the radiator support LWR.
Specified value:T=5.5N*m {56kgf*cm}

52. Steering knuckle LH installation
(1) Attach the steering knuckle LH to the front suspension lower arm No. 1 LH and tighten the nut.
Specified value:T=52N*m {530kgf*cm}
(2) Attach a new clip.

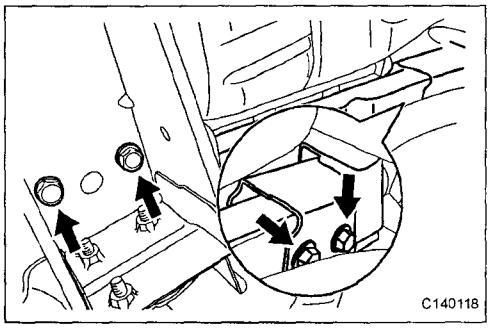
53. Steering knuckle RH installation
<HINT>
Attach it using the same procedure as the LH side.



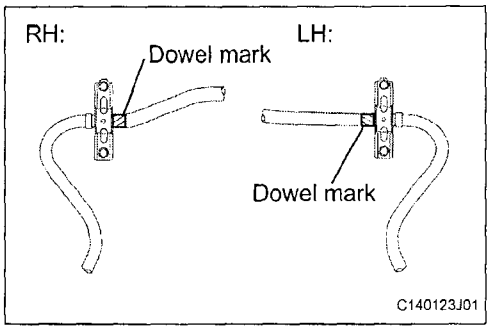
54. Front drive shaft assembly LH installation
    (1) Fit the spline of the inboard joint assembly LH and insert the front drive shaft assembly LH.
    <CAUTION>
    > Avoid damaging the oil seal.
    > Avoid damaging the drive shaft boot.
    (2) Fit the spline of the front drive shaft assembly LH in the steering knuckle LH and insert it.
    <CAUTION>
    > Avoid damaging the drive shaft outboard joint boot.
    > Make sure that there is any foreign particle attached to the speed sensor rotor and the insertion area.
    > Avoid damaging the speed sensor rotor.
    > Avoid damaging the oil seal.

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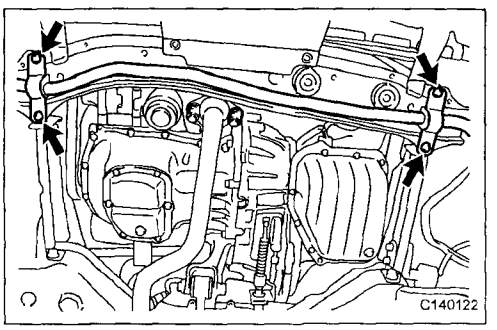
55. Front drive shaft assembly RH installation
    <HINT>
    Attach it using the same procedure as the LH side.
56. Front shock absorber assembly LH installation (See page 36-16)
57. Front shock absorber assembly RH installation (See page 36-16)
58. Tie rod end LH installation (See page 36-16)
59. Tie rod end RH installation (See page 36-16)
60. Axle hub nut installation (LH) (See page 36-16)
61. Axle hub nut installation (RH) (See page 36-16)
62. Front disc brake cylinder assembly LH installation (See page 36-16)
63. Front disc brake cylinder assembly RH installation (See page 36-17)
64. Speed sensor FR LH installation (with ABS & VSC) (See page 36-17)
65. Speed sensor FR RH installation (with ABS & VSC) (See page 36-17)
66. Front brake flexible hose No. 1 (LH) installation (without ABS & VSC) (See page 36-18)
67. Front brake flexible hose No. 1 (RH) installation (without ABS & VSC) (See page 36-18)



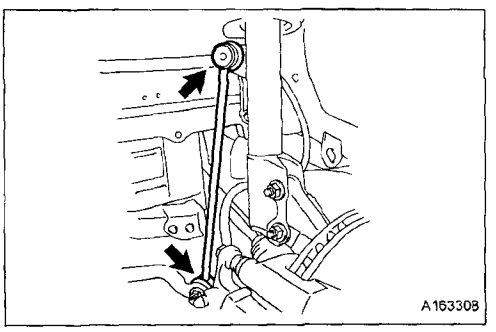
68. Front suspension cross member LH installation
    (1) Use four bolts to attach the front suspension cross member LH.
    Specified value:T=35N*m {357kgf*cm}
69. Front suspension cross member RH installation
    <HINT>
    Attach it using the same procedure as the LH side.



70. Front stabilizer bar installation
    (1) Align the dowel marks and attach the front stabilizer bar bush No. 1 to the front stabilizer bar.



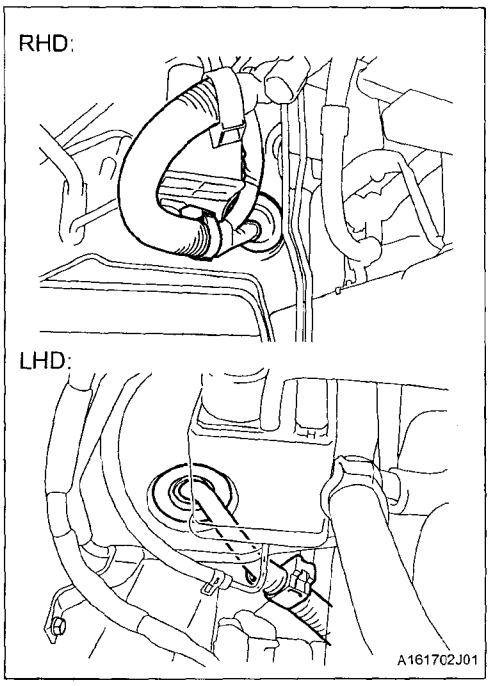
(2) Attach the stabilizer bracket to the front stabilizer bar with the bracket notch portion facing the vehicle front.
(3) Use four bolts to attach the front stabilizer bar to the vehicle.
Specified value:T=24N*m {245kgf*cm}



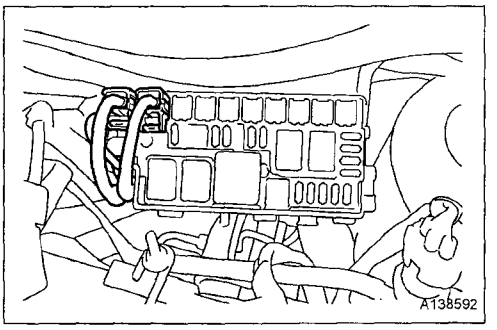
(4) Connect the front stabilizer link assembly LH and the front stabilizer bar with a nut.
Specified value:T=74N*m {755kgf*cm}
<CAUTION>
The ball joint should not be strained.
(5) Connect the front stabilizer link assembly RH and the front stabilizer bar with a nut.
Specified value:T=74N*m {755kgf*cm}
<CAUTION>
The ball joint should not be strained.

07

71. Engine undercover LH installation
(1) Use a screw and three clips to attach the engine undercover LH.
72. Engine undercover RH installation
<HINT>
Attach it using the same procedure as the LH side.
73. Transmission floor shift assembly installation (for Manual transaxle) (See page 29-55)
74. Console box assembly installation (for Manual transaxle) (See page 29-56)
75. Console box carpet installation (for Manual transaxle) (See page 29-56)
76. Rear console box installation (for Manual transaxle) (See page 29-57)
77. Shift lever knob installation (for Manual transaxle) (See page 29-57)
78. Steering column assembly connection (RHD) (See page 49-64)
79. Steering column assembly connection (LHD) (See page 49-79)
80. Steering column hole cover No. 1 installation (RHD) (See page 48-10)
81. Steering column hole cover No. 1 installation (LHD) (See page 48-18)
82. Clutch release cable assembly installation (K3-VE) (See page 29-21)
83. Clutch release cable assembly adjustment (K3-VE) (See page 27-21)
84. Clutch cable clamp installation (K3-VE) (See page 29-21)
85. Clutch hose installation (3SZ-VE) (See page 29-22)
86. Clutch release cylinder assembly installation (3SZ-VE) (See page 29-22)

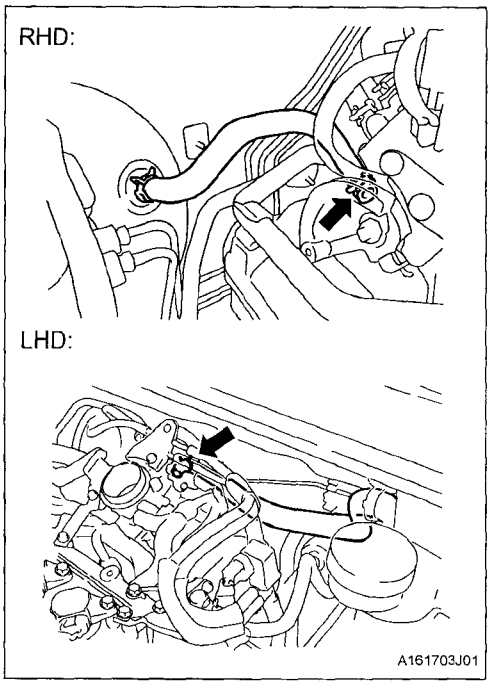


87. Engine wire connection
    (1) Bring the engine wire into the vehicle interior and attach the grommet.

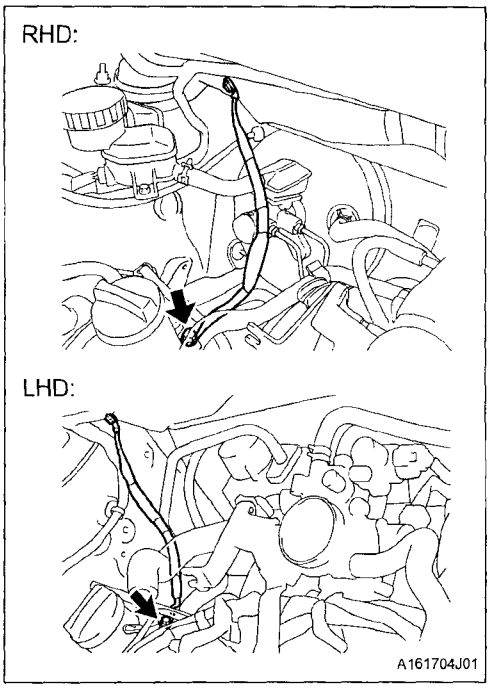


    (2) Connect the connector to the engine room relay box.
    (3) Connect the connector of the engine control computer and attach the glove compartment door (RHD).
    (4) Connect the connector of the engine control computer and attach the instrument panel undercover No. 1 (LHD).

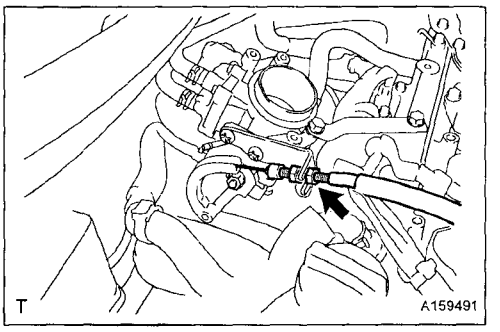
88. Engine room main wire connection
    (1) Connect each connector and the clamp and connect the engine room main wire to the transaxle assembly.



89. Vacuum hose assembly connection
    (1) Connect the vacuum hose assembly with a clip.

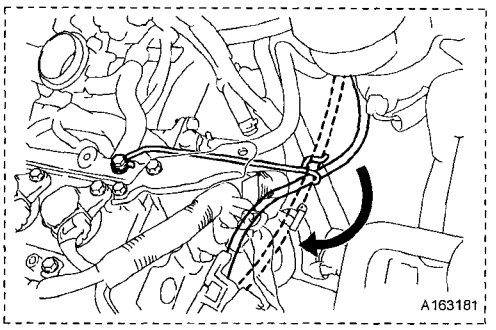


90. Ground cable connection
    (1) Connect the ground cable with a bolt.
    Specified value:T=8.0N*m {82kgf*cm}

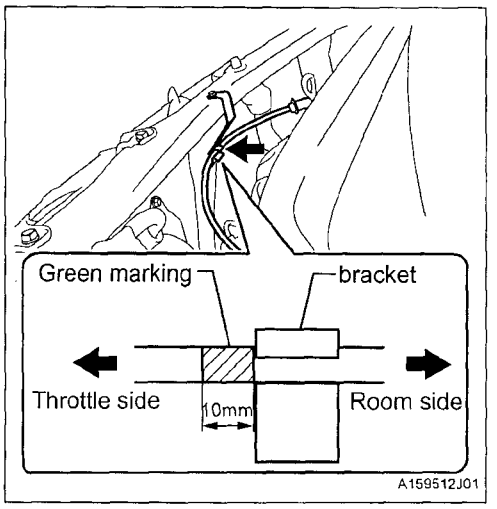


91. Accelerator control cable assembly connection (RHD)
    (1) Connect the end part of the accelerator control cable assembly to the throttle body assembly and use the crow foot wrench and the torque wrench to tighten one nut.
    Tool: Crow foot wrench {KTC (NBNS3-12) or equivalent}
    Specified value:T=8.5N*m {87kgf*cm}
    <HINT>
    > For the adjustment procedure of the accelerator control cable assembly.(See page 06-179)

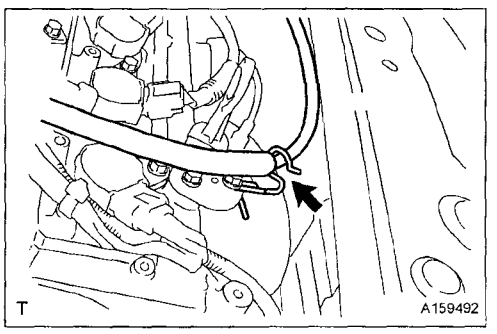
> If you use a torque wrench with an SST or tool to tighten it with extended overall length, calculate the torque wrench reading with the specified calculation formula. (See page 01-5.)



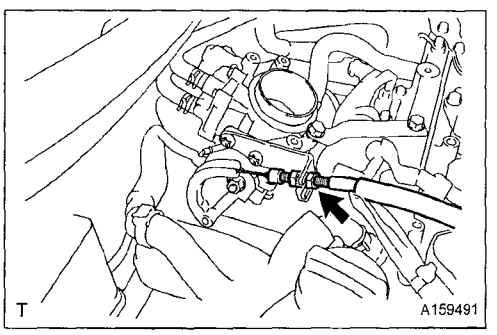
92. Accelerator control cable assembly connection (LHD)
(1) Attach the accelerator control cable assembly to bracket <C> as shown in the diagram.



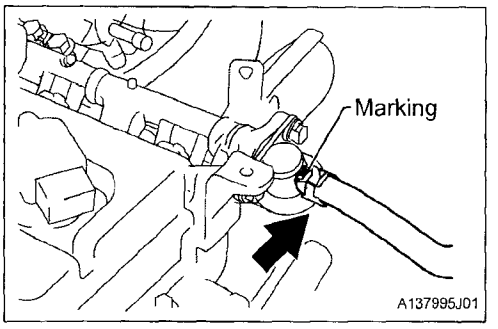
(2) Align the green marking position on the accelerator control cable assembly with bracket <B> and attach the accelerator control cable assembly.
<HINT>
Align the bracket and the green marking for attachment as shown in the digram.



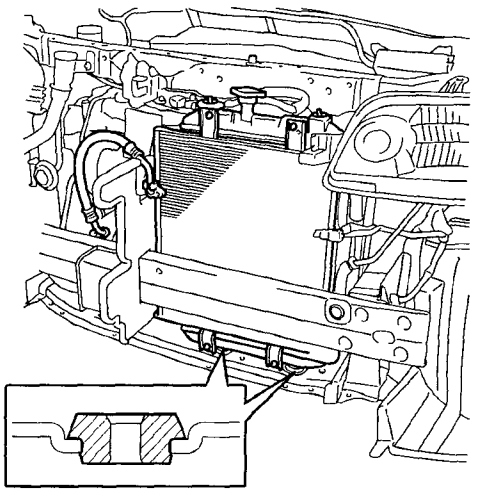
(3) Attach the accelerator control cable assembly to the bracket <A>.



(4) Connect the end part of the accelerator control cable assembly to the throttle body assembly and use the crow foot wrench and the torque wrench to tighten one nut.
Tool: Crow foot wrench {KTC (NBNS3-12) or equivalent}
Specified value: T=8.5N*m {87kgf*cm}
<HINT>
> See 06-184 for the adjustment procedure of the accelerator control cable assembly.
> When the total length of the cable is extended to tighten the cable using a torque wrench with SST and the tools, determine the reading of the torque wrench by the formula (See page 01-5)

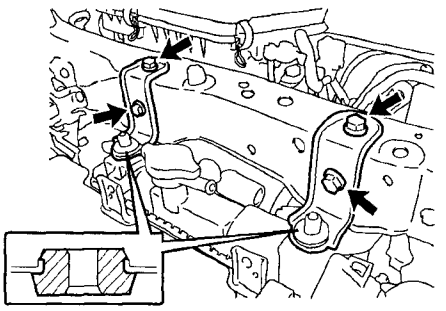


93. Fuel hose connection
    (1) Connect the fuel hose with a clip.
    <HINT>
    When connecting the fuel hose, make sure that its marking and clip knob face the vehicle top.



94. Radiator assembly installation
    (1) Install the radiator support grommets LWR to the radiator support LWR.Then install the radiator assembly with the cooler condenser assembly (with Receiver) (with Air conditioning system).
    <CAUTION>
    Install the radiator support grommet LWR with its smaller diameter side facing downward.

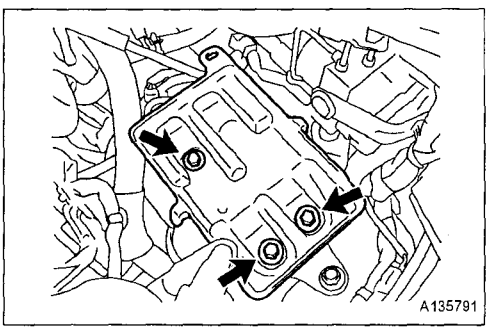
07



    (2) Install the radiator bracket No.1 with 4 bolts after installing the radiator support grommets.
    Specified value:T=18N*m {184kgf*cm}
    <CAUTION>
    Install the radiator support grommet with its larger diameter side facing downward.

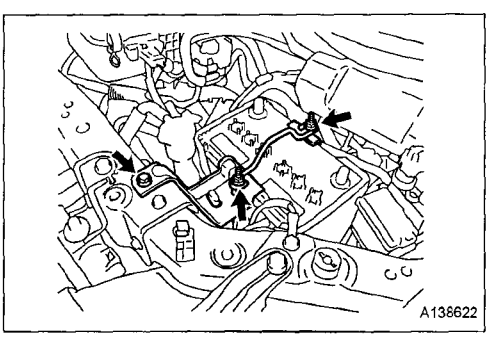
95. Cooler refrigerant liquid pipe A connection (with Air conditioning system) (See page 52-137)
96. Compressor assembly with magnet clutch installation (with Air conditioning system) (See page 52-134)
97. Cooler refrigerant discharge hose No. 1 connection (with Air conditioning system) (See page 52-134)
98. Cooler refrigerant suction hose No. 1 connection (with Air conditioning system) (See page 52-134)
99. Fan & alternator V belt installation
    (See page 07-6)
100. Front bumper cover installation (See page 82-15)
101. Heater outlet water hose connection (RHD) (See page 52-87)
102. Heater outlet water hose connection (LHD) (See page 52-177)
103. Heater inlet water hose connection (RHD) (See page 52-87)
104. Heater inlet water hose connection (LHD) (See page 52-178)
105. Oil cooler inlet hose installation (for Automatic transaxle) (See page 26-99)
106. Oil cooler outlet hose installation (for Automatic transaxle) (See page 26-100)
107. With water fan assembly installation (See page 12-13)

108.Radiator outlet hose connection (See page 12-14)
109.Water bypass hose connection (See page 12-14)
110.Radiator inlet hose connection (See page 12-14)
111.Air cleaner assembly installation (See page 06-149)
112.Precleaner hose installation (See page 06-149)
113.Inlet air temperature sensor connection (See page 06-150)
114.Vacuum switching valve assembly (with Bracket) connection (RHD) (See page 06-150)
115.Vacuum switching valve assembly (with Bracket) connection (LHD) (See page 06-150)
116.Vacuum sensor connection (See page 06-150)
117.Air cleaner filter element installation
118.Air cleaner cap installation



119.Battery tray installation
(1) Use three bolts to attach the battery tray.
Specified value:T=5.5N*m {56kgf*cm}

120.Battery installation
121.Battery cover installation
122.Radiator reserve tank assembly installation
(1) Connect the radiator reserve tank pipe and attach the radiator reserve tank assembly.



123.Battery hold down clamp installation
(1) Attach one bolt, tighten two nuts, and attach the battery hold down clamp.
Specified value:T=5.5N*m {56kgf*cm} (Bolt)
T=5.0N*m {51kgf*cm} (Nut)

124.Exhaust pipe assembly FR installation (See page 11-16)
125.Battery terminal connection (See page 11-16)
Specified value:T=6.4N*m {65kgf*cm}
126.Brake fluid replenishment (for Manual transaxle) (See page 45-4)
127.Clutch pipeline air bleeding (for Manual transaxle) (See page 27-3)
128.Clutch fluid leakage check (for Manual transaxle)
129.Brake fluid amount check (for Manual transaxle) (See page 45-4)
130.Coolant replenishment (See page 12-6)
131.Engine oil replenishment
132.Automatic transaxle fluid replenishment (for Automatic transaxle) (See page 26-103)
133.Automatic transaxle fluid check (for Automatic transaxle) (See page 26-63)
134.Manual transaxle oil replenishment (for Manual transaxle) (See page 29-23)
135.Shift lever position check (for Automatic transaxle)
(See page 26-136)

136.Coolant leakage check (See page 12-6)

137.Coolant amount check

138.Oil leakage check

139.Fuel leakage check (See page 08-7)

140.Exhaust gas leakage check (See page 11-16)

141.Engine idle-speed check (See page 07-4)

142.Ignition timing check (See page 07-2)

143.CO and HC level check (See page 07-4)

144.Refrigerant HFC-134a (R134a) filling (with Air conditioning system) (See page 52-42)

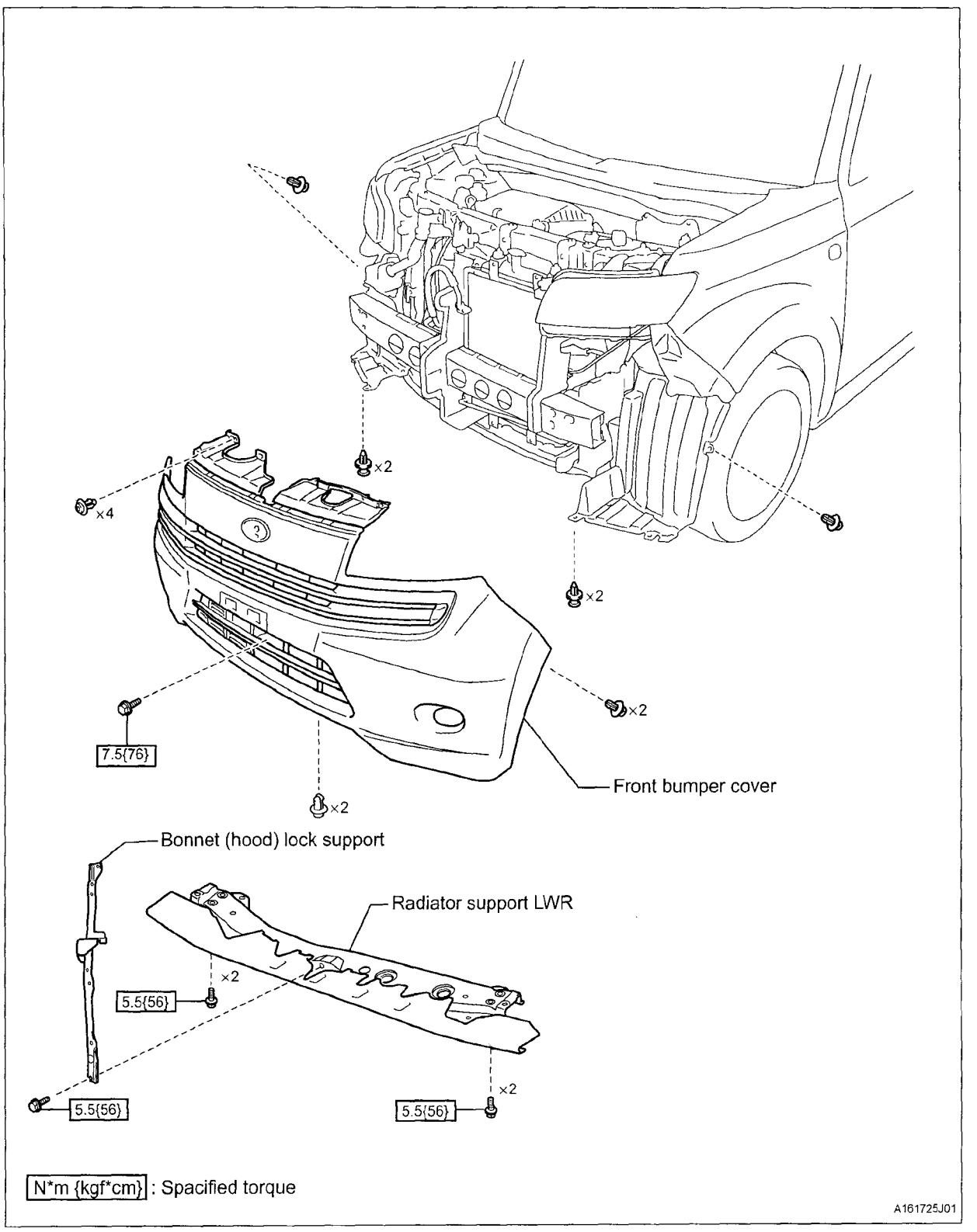
145.Front wheel installation
Specified value:T=103N*m {1050kgf*cm}

146.Front wheel alignment check and adjustment
(See page 42-5)

147.Test mode check (Speed Sensor Circuit)
with ABS: (See page 44-15)
with VSC: (See page 44-76)

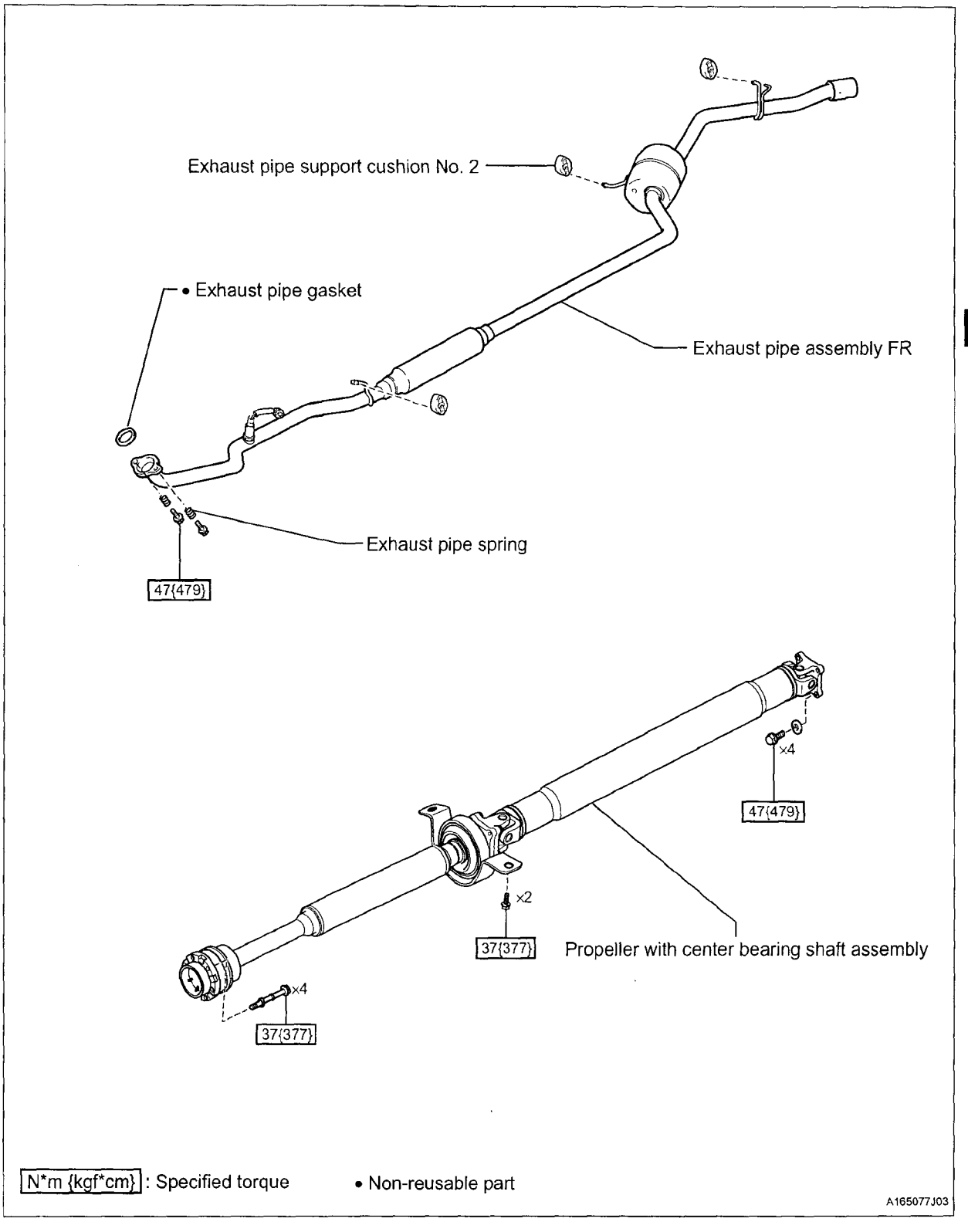
PARTIAL ENGINE ASSEMBLY (3SZ-VE / 4WD)

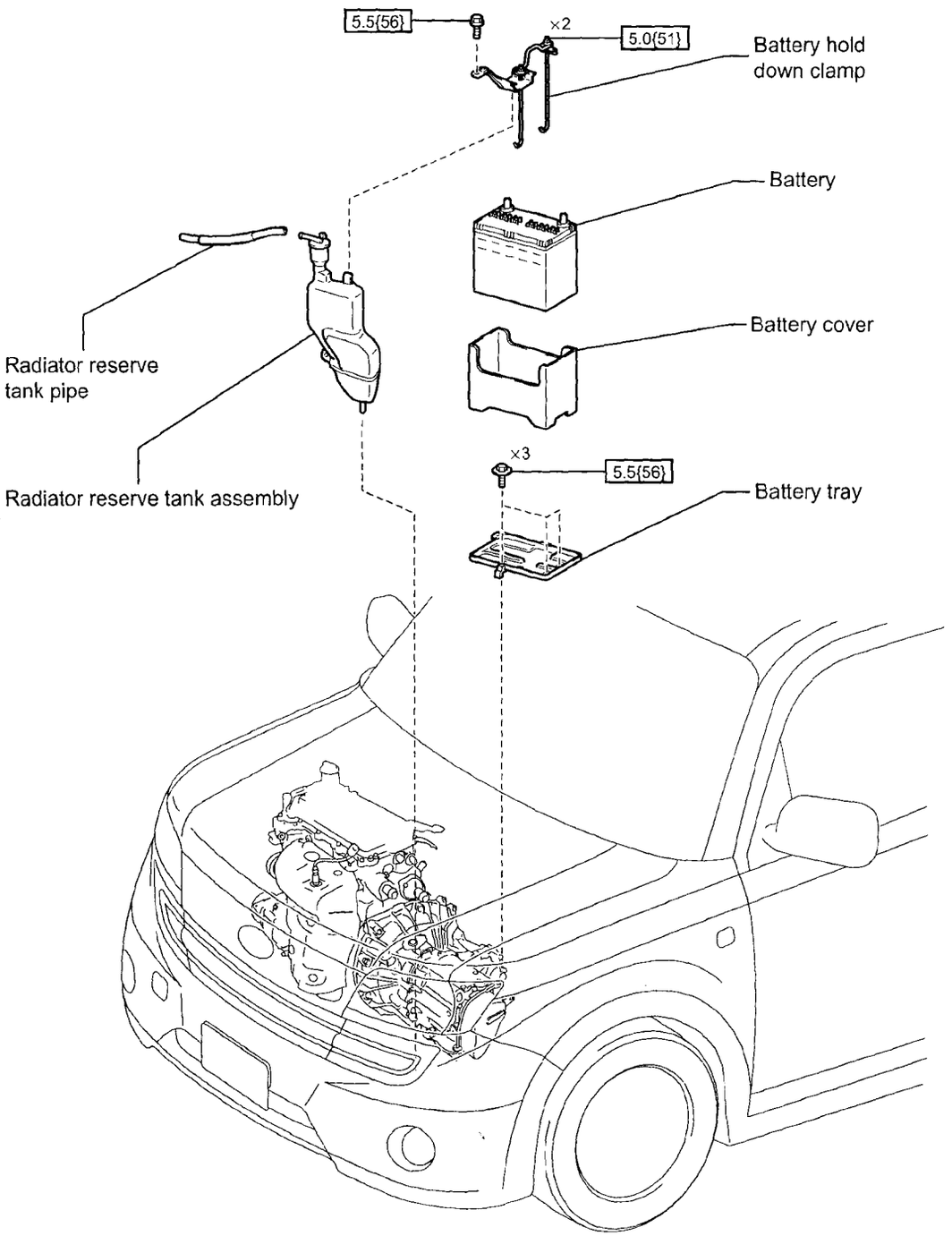
COMPONENTS



N*m {kgf*cm} : Spacified torque

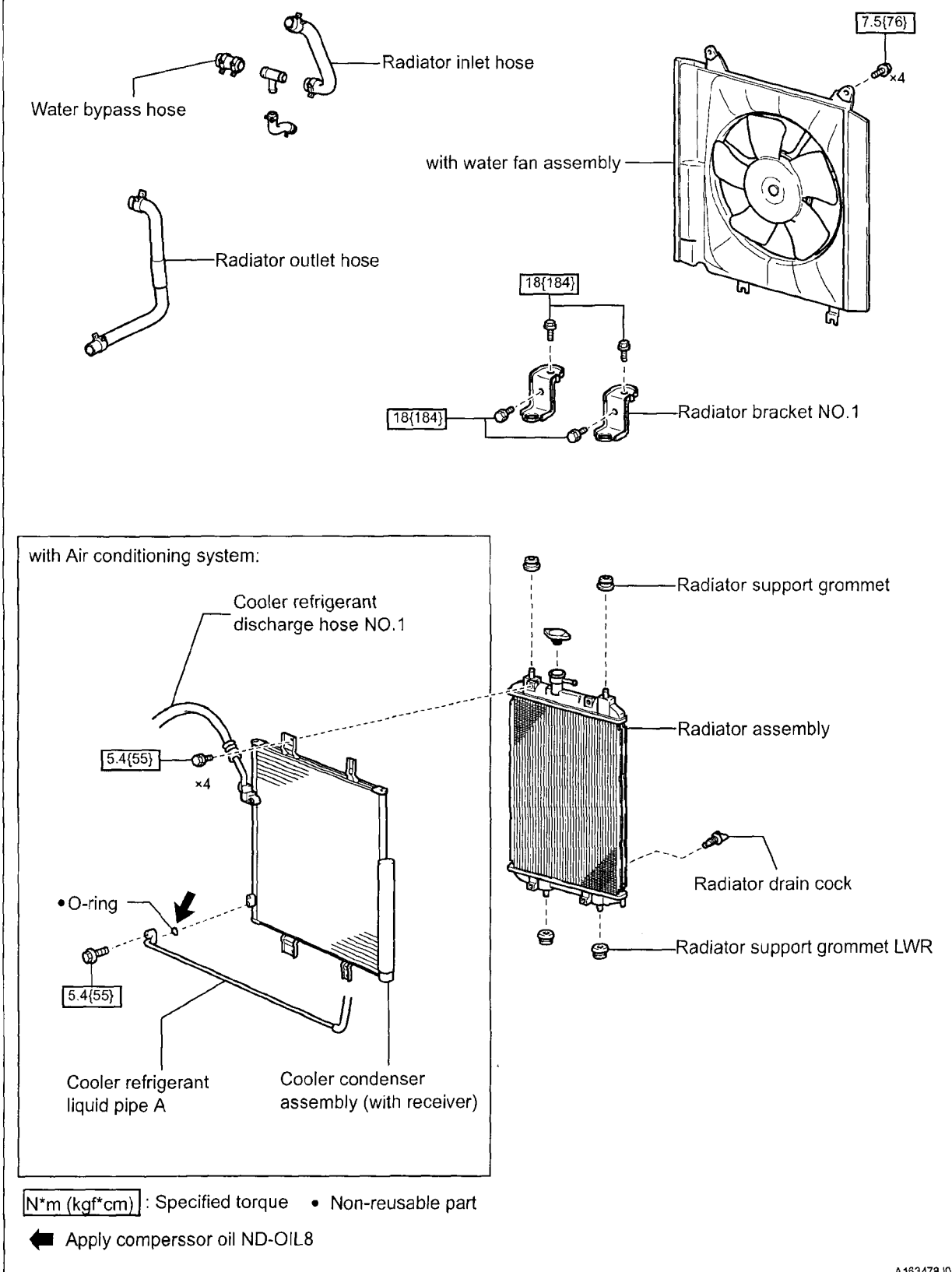
A161725J01


Exhaust pipe support cushion No. 2
• Exhaust pipe gasket
Exhaust pipe assembly FR
Exhaust pipe spring
47{479}
×4
47{479}
×2
37{377}
Propeller with center bearing shaft assembly
×4
37{377}
N*m {kgf*cm} : Specified torque
• Non-reusable part
A165077J03

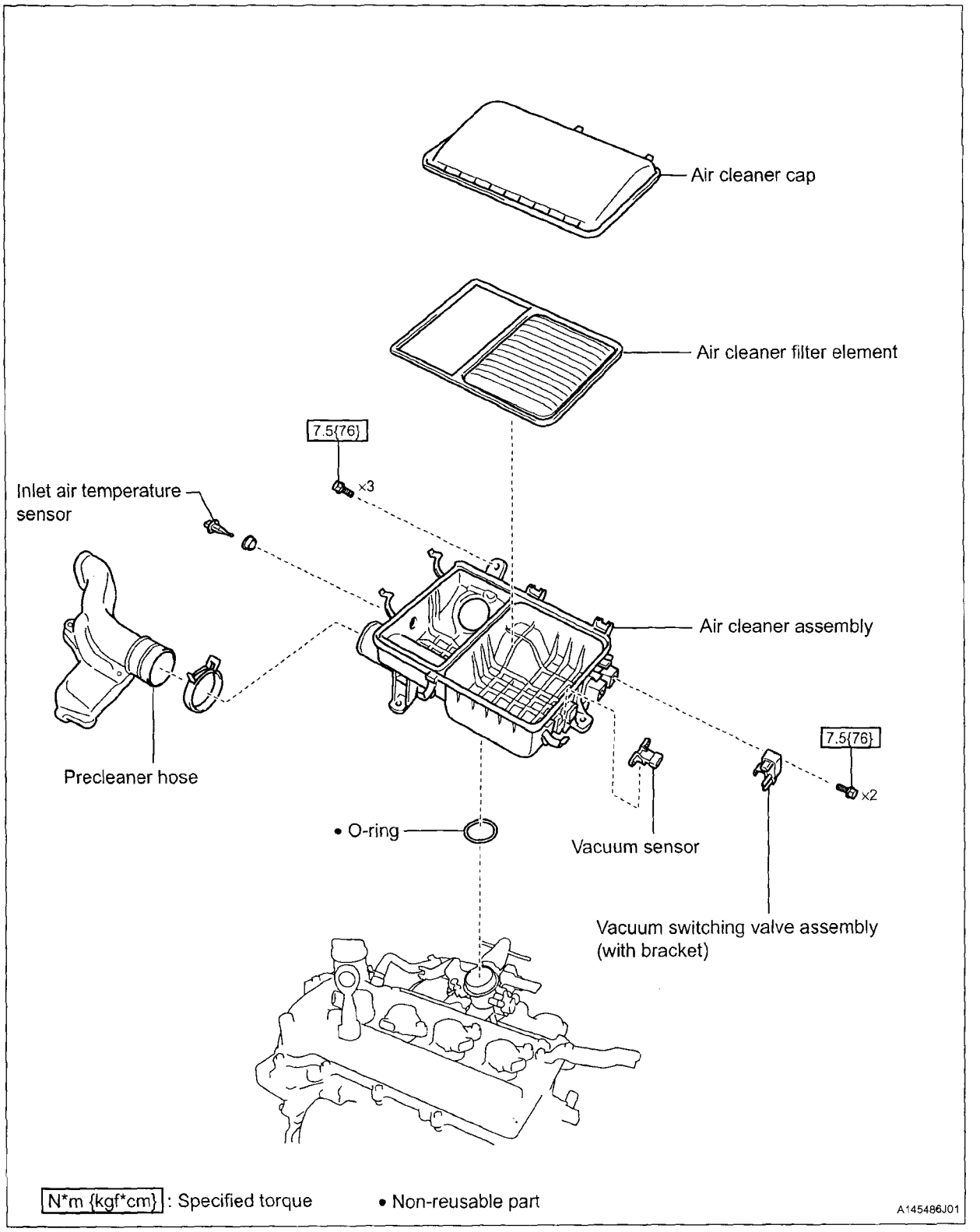


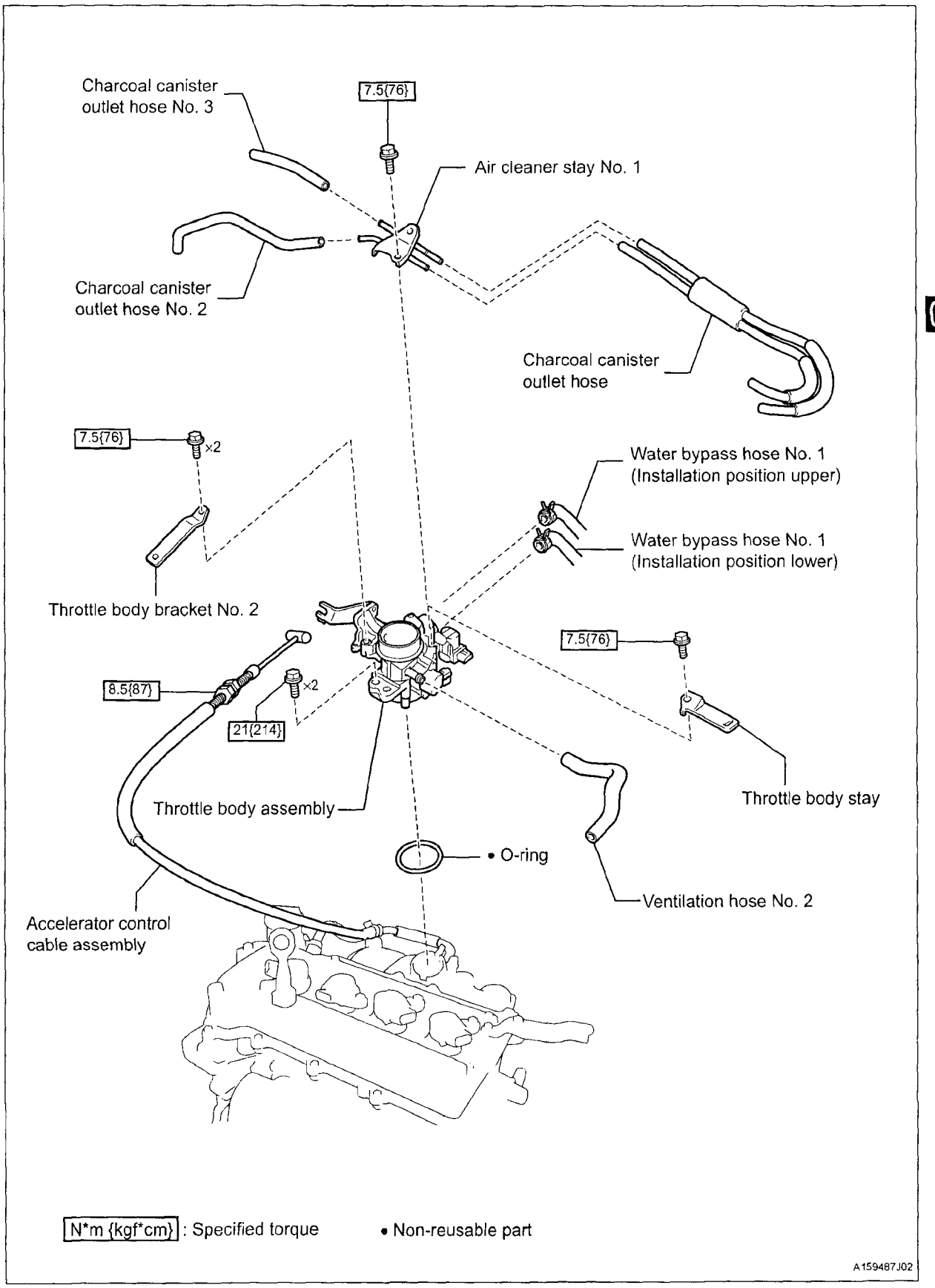
N*m {kgf*cm} : Spacified torque

A161724J01

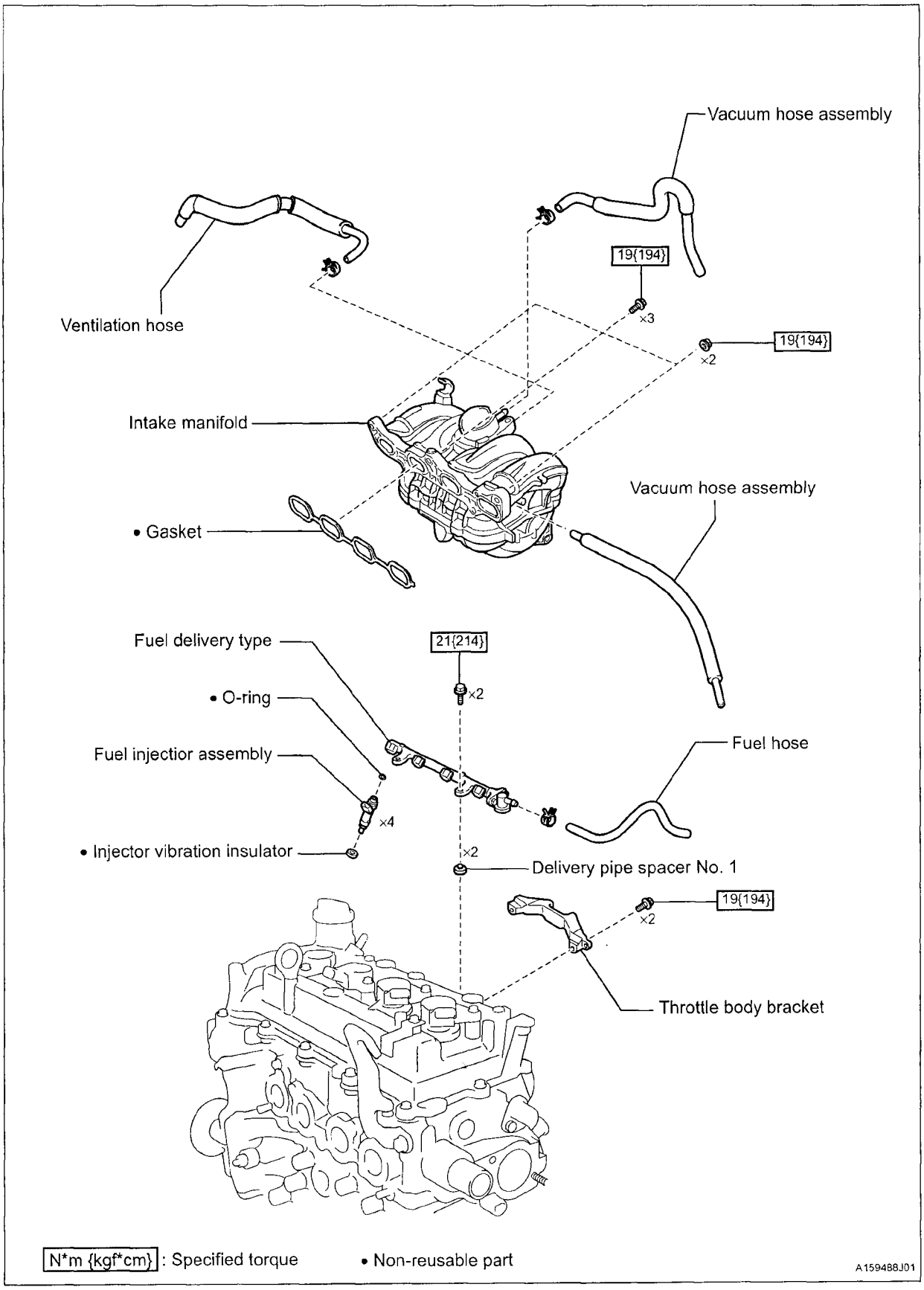

Radiator inlet hose
Water bypass hose
7.5{76}
×4
with water fan assembly
Radiator outlet hose
18{184}
18{184}
Radiator bracket NO.1
with Air conditioning system:
Cooler refrigerant discharge hose NO.1
Radiator support grommet
5.4{55}
×4
Radiator assembly
Radiator drain cock
• O-ring
5.4{55}
Radiator support grommet LWR
Cooler refrigerant liquid pipe A
Cooler condenser assembly (with receiver)
N*m (kgf*cm) : Specified torque
• Non-reusable part
Apply comperssor oil ND-OIL8
A163478J01

07


Air cleaner cap
Air cleaner filter element
7.5{76}
×3
Inlet air temperature sensor
Air cleaner assembly
Precleaner hose
7.5{76}
×2
• O-ring
Vacuum sensor
Vacuum switching valve assembly (with bracket)
N*m {kgf*cm} : Specified torque
• Non-reusable part
A145486J01

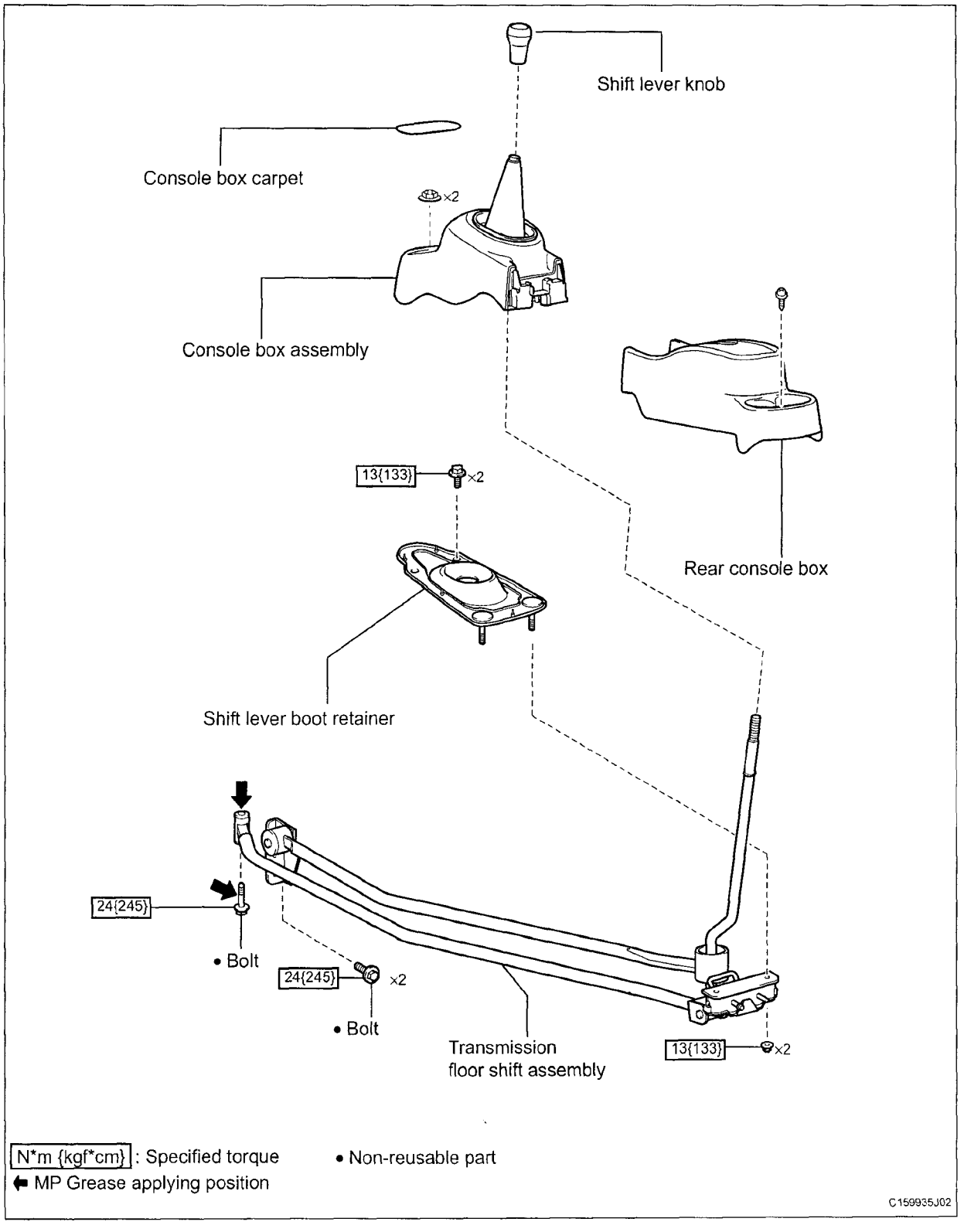

Charcoal canister outlet hose No. 3
7.5{76}
Air cleaner stay No. 1
Charcoal canister outlet hose No. 2
Charcoal canister outlet hose
7.5{76}
×2
Water bypass hose No. 1 (Installation position upper)
Water bypass hose No. 1 (Installation position lower)
Throttle body bracket No. 2
8.5{87}
21{214}
×2
7.5{76}
Throttle body assembly
Throttle body stay
• O-ring
Ventilation hose No. 2
Accelerator control cable assembly
N*m {kgf*cm} : Specified torque
• Non-reusable part
A159487J02

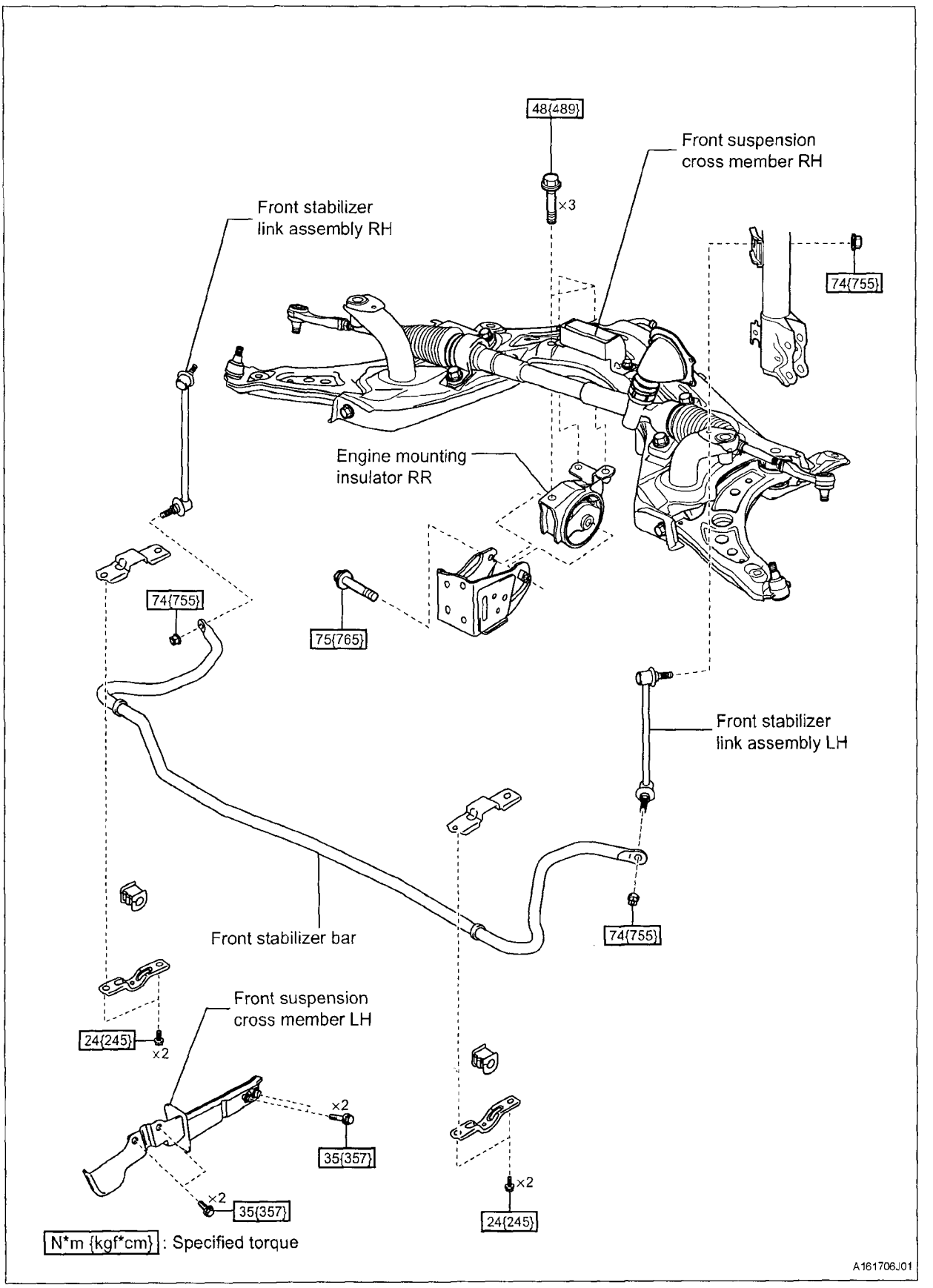
07

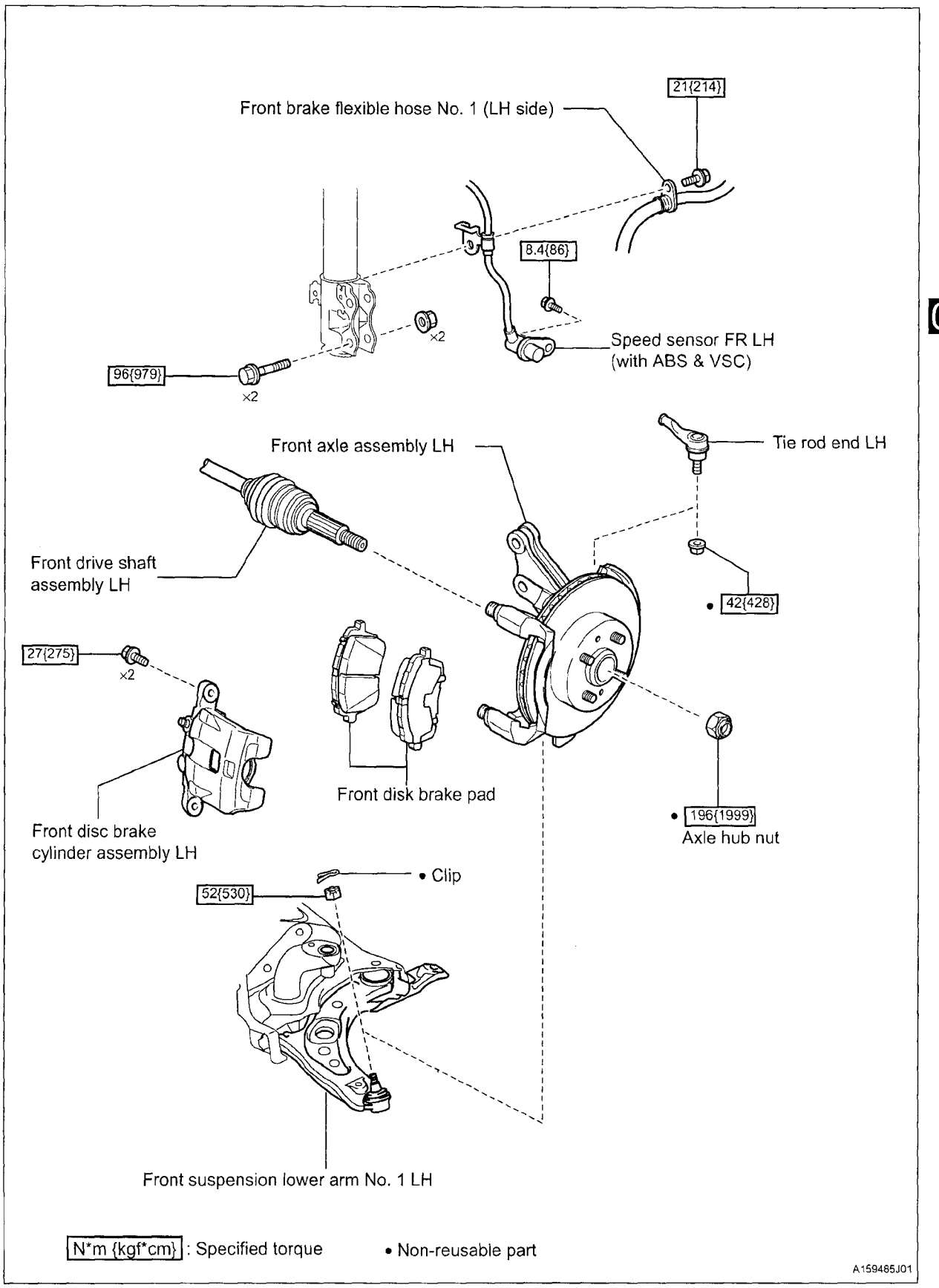


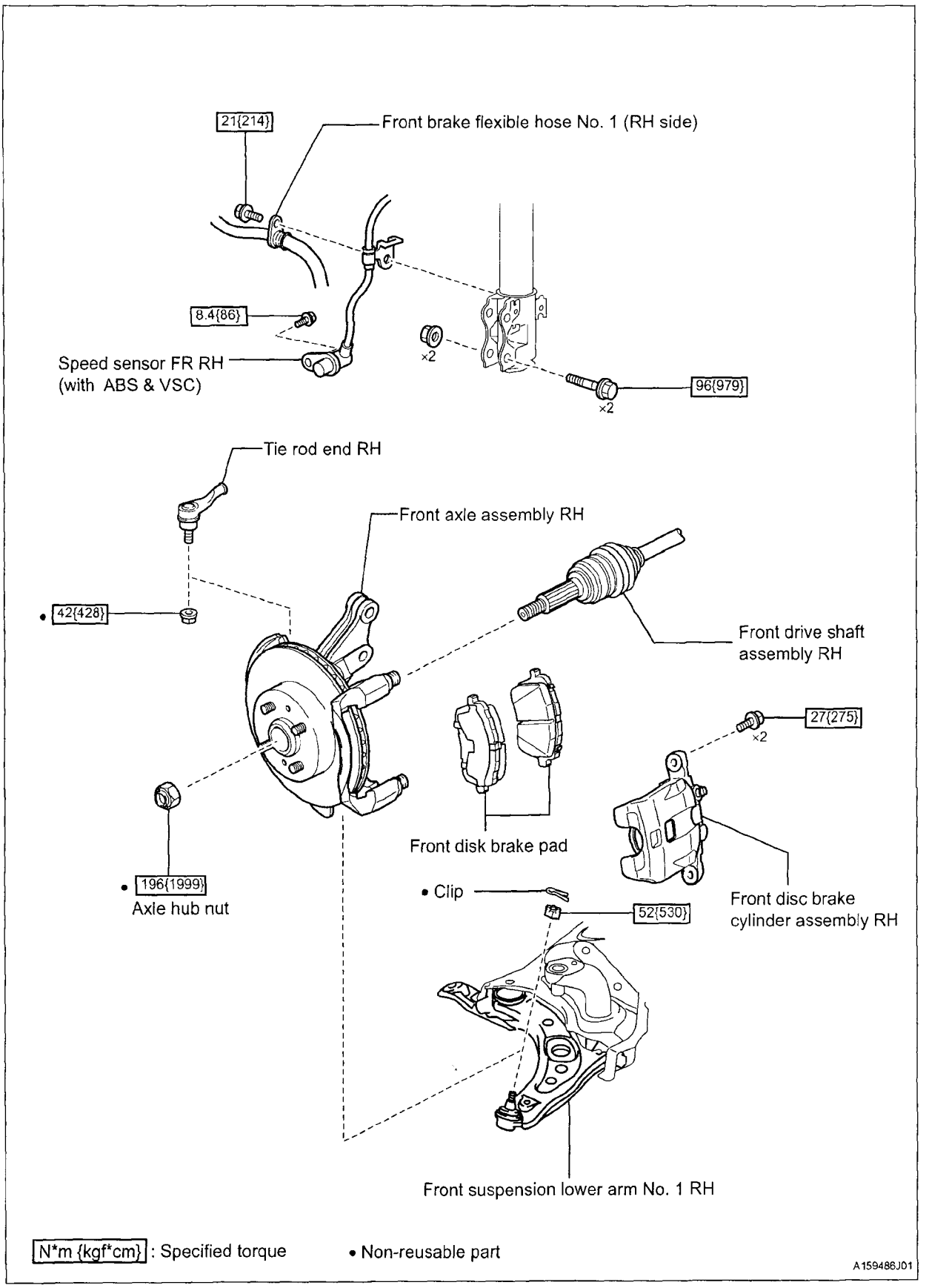
N*m {kgf*cm} : Specified torque • Non-reusable part

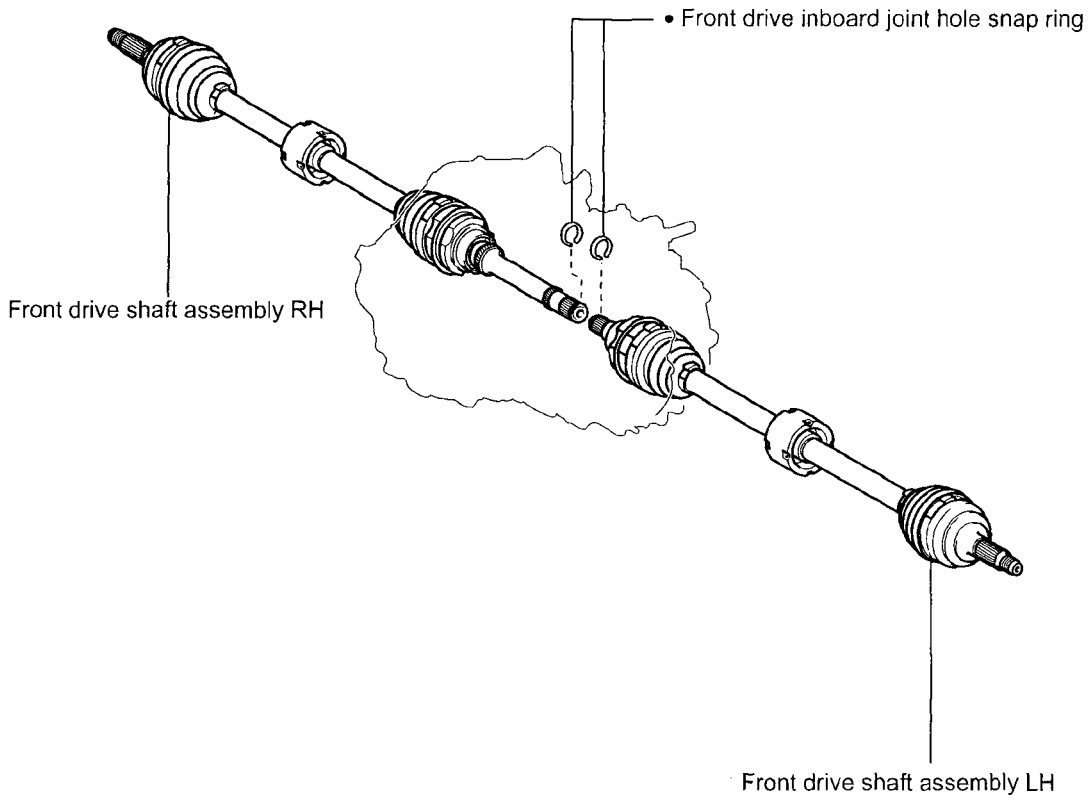
A159488J01


Shift lever knob
Console box carpet
×2
Console box assembly
Rear console box
13{133}
×2
Shift lever boot retainer
24{245}
• Bolt
24{245}
×2
• Bolt
Transmission
floor shift assembly
13{133}
×2
N*m {kgf*cm} : Specified torque
• Non-reusable part
⬅ MP Grease applying position
C159935J02


48{489}
×3
Front suspension cross member RH
Front stabilizer link assembly RH
74{755}
Engine mounting insulator RR
74{755}
75{765}
Front stabilizer link assembly LH
Front stabilizer bar
74{755}
Front suspension cross member LH
24{245}
×2
×2
35{357}
×2
35{357}
×2
24{245}
N*m {kgf*cm} : Specified torque
A161706J01


Front brake flexible hose No. 1 (LH side)
21{214}
8.4{86}
Speed sensor FR LH
(with ABS & VSC)
×2
96{979}
×2
Front axle assembly LH
Tie rod end LH
Front drive shaft
assembly LH
• 42{428}
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
Front disc brake
cylinder assembly LH
• Clip
52{530}
Front suspension lower arm No. 1 LH
N*m {kgf*cm}: Specified torque
• Non-reusable part
A159485J01

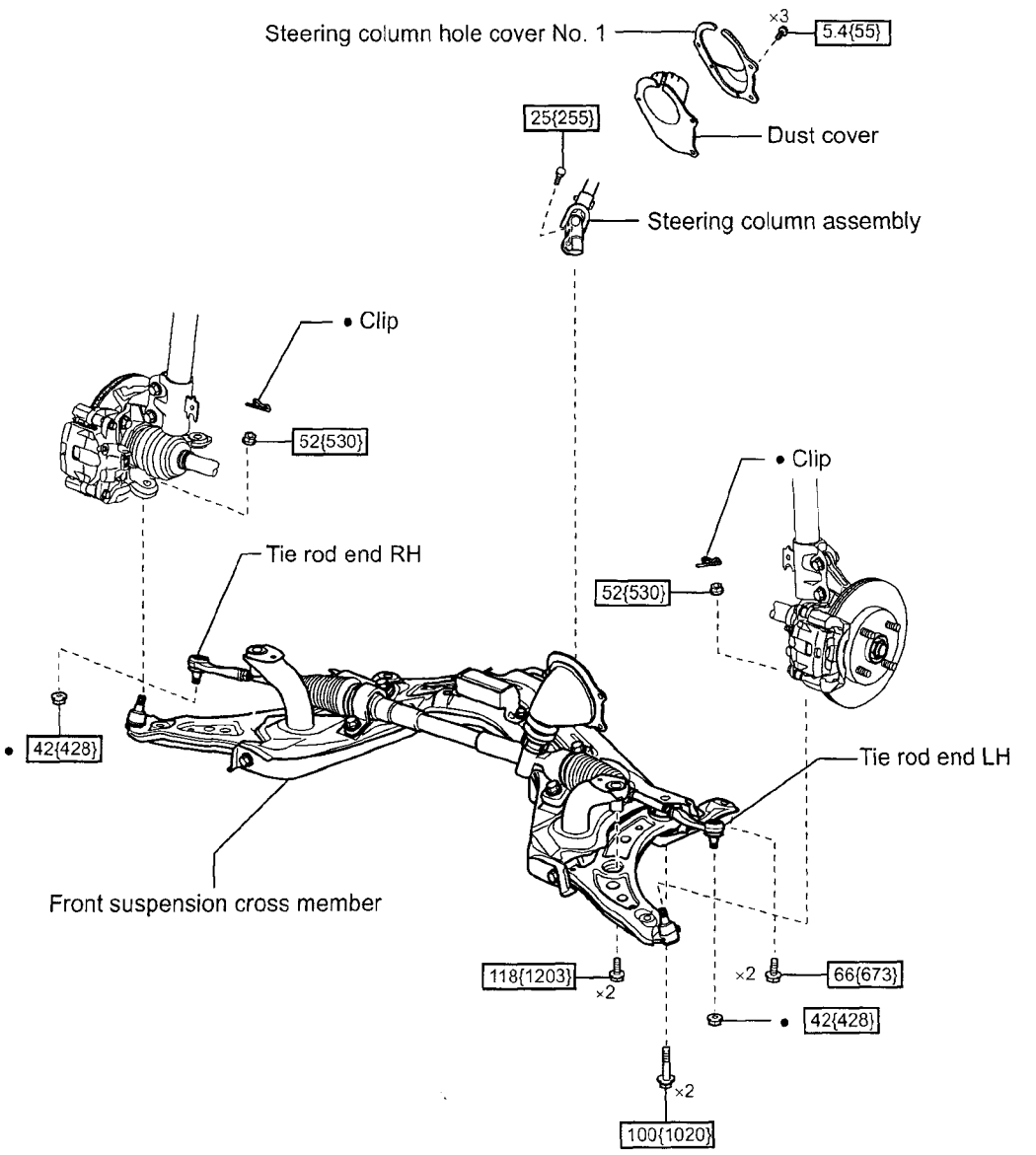

21{214}
Front brake flexible hose No. 1 (RH side)
8.4{86}
Speed sensor FR RH
(with ABS & VSC)
×2
96{979}
×2
Tie rod end RH
Front axle assembly RH
• 42{428}
Front drive shaft
assembly RH
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
• Clip
52{530}
Front disc brake
cylinder assembly RH
Front suspension lower arm No. 1 RH
N*m {kgf*cm} : Specified torque
• Non-reusable part
A159486J01



• Non-reusable part

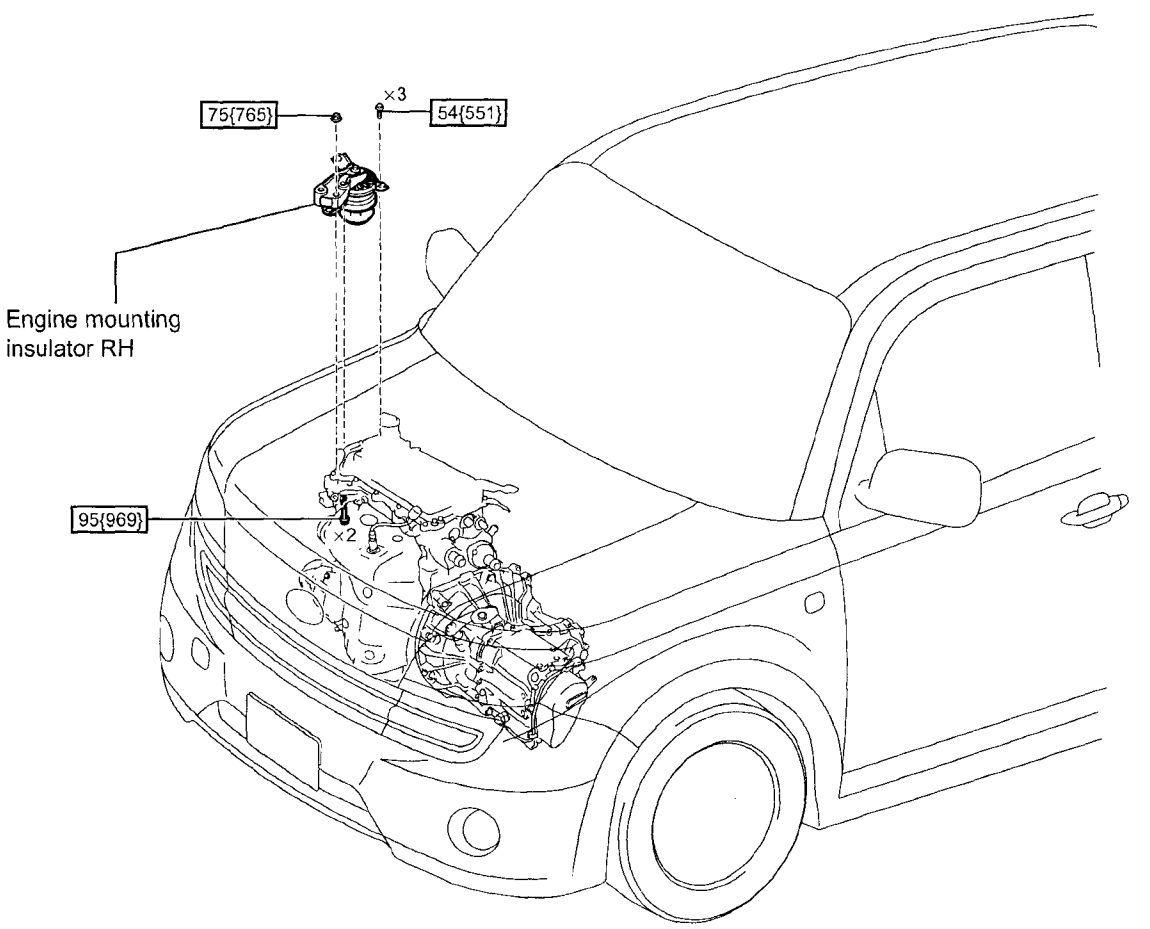
A149650J01

07



N*m {kgf*cm} : Specified torque • Non-reusable part

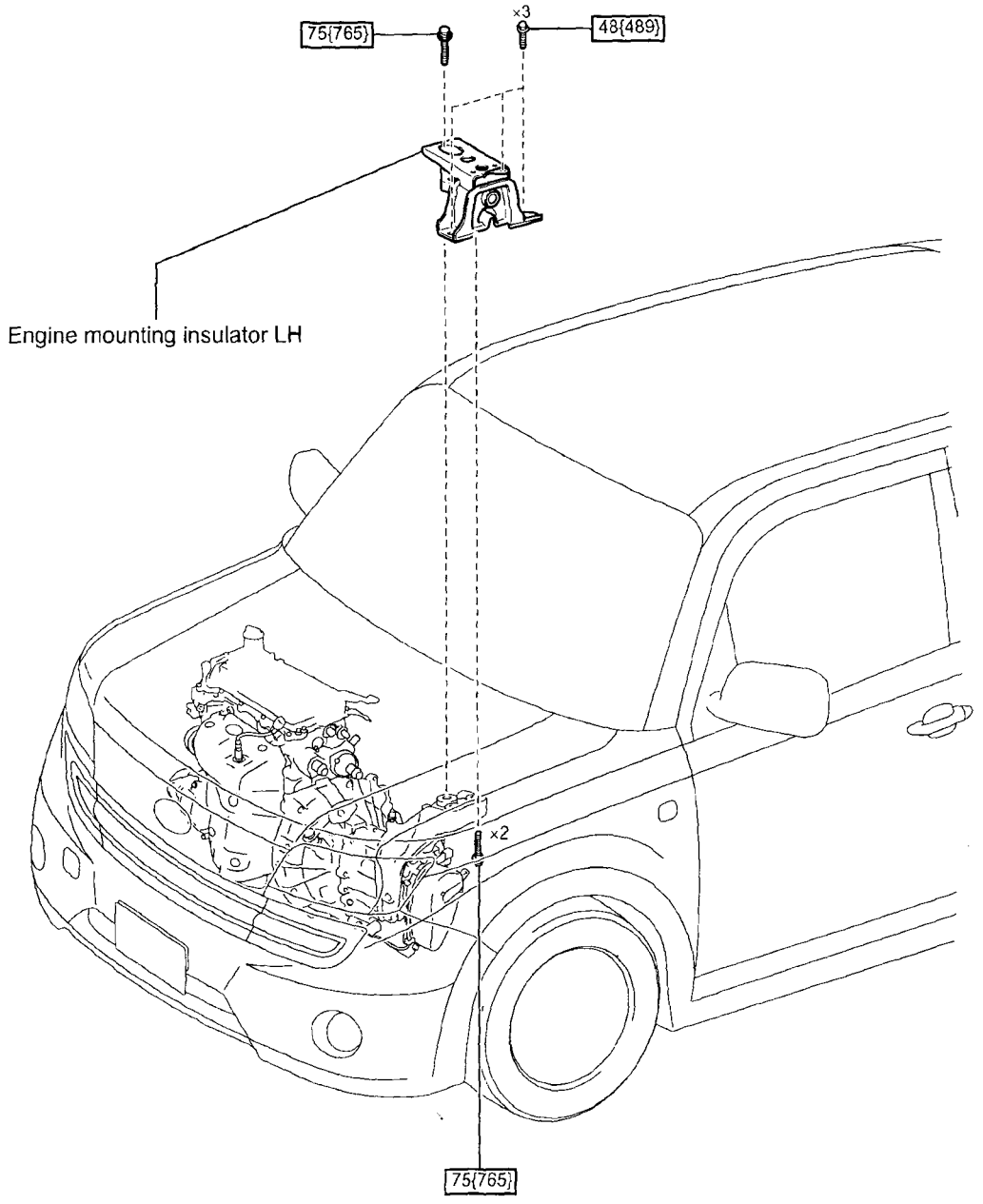
A161688J01



N*m {kgf*cm} : Specified torque

A161707J01

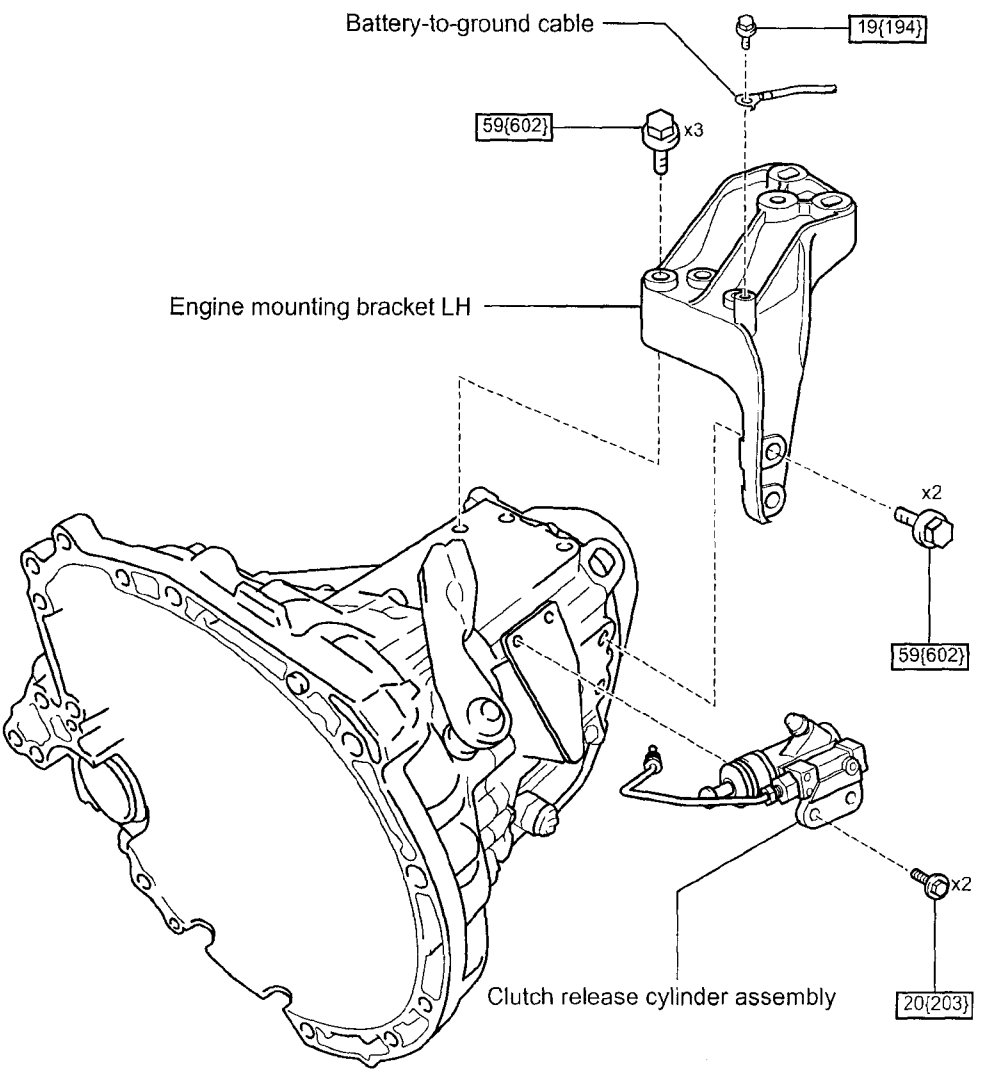
07



N*m {kgf*cm}: Specified torque

T

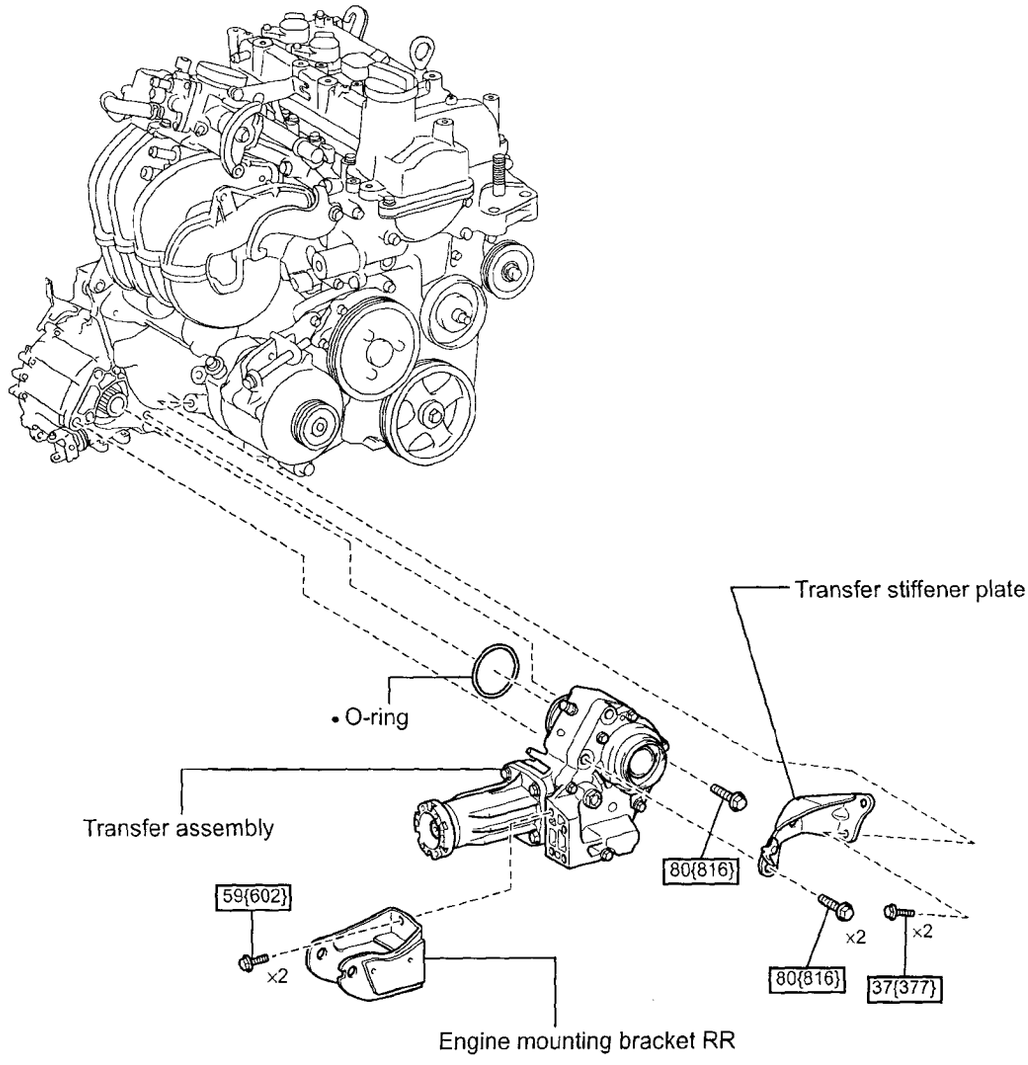
A161689J03



N*m (kgf*cm) : Specified torque

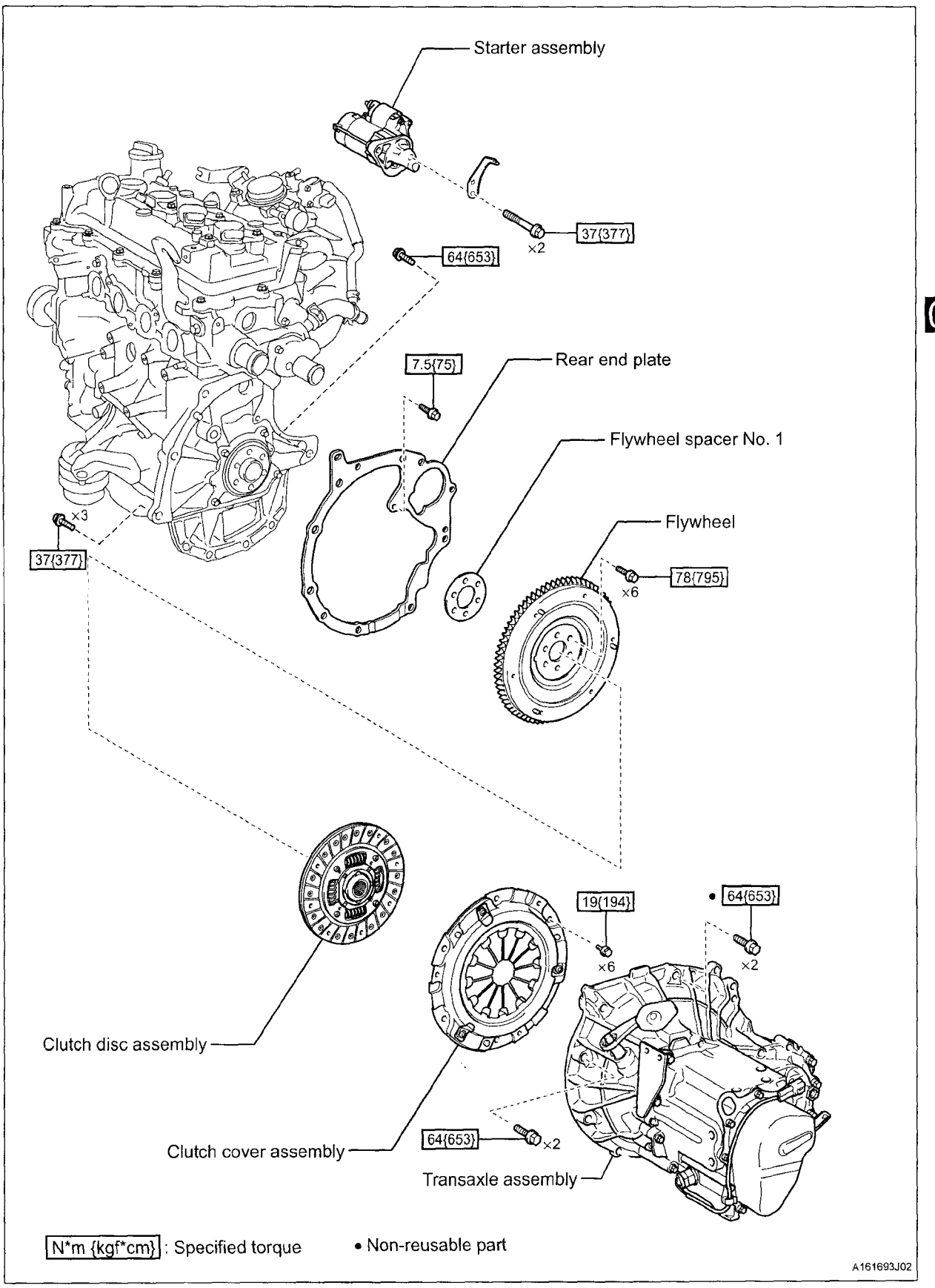
A163477J01

07

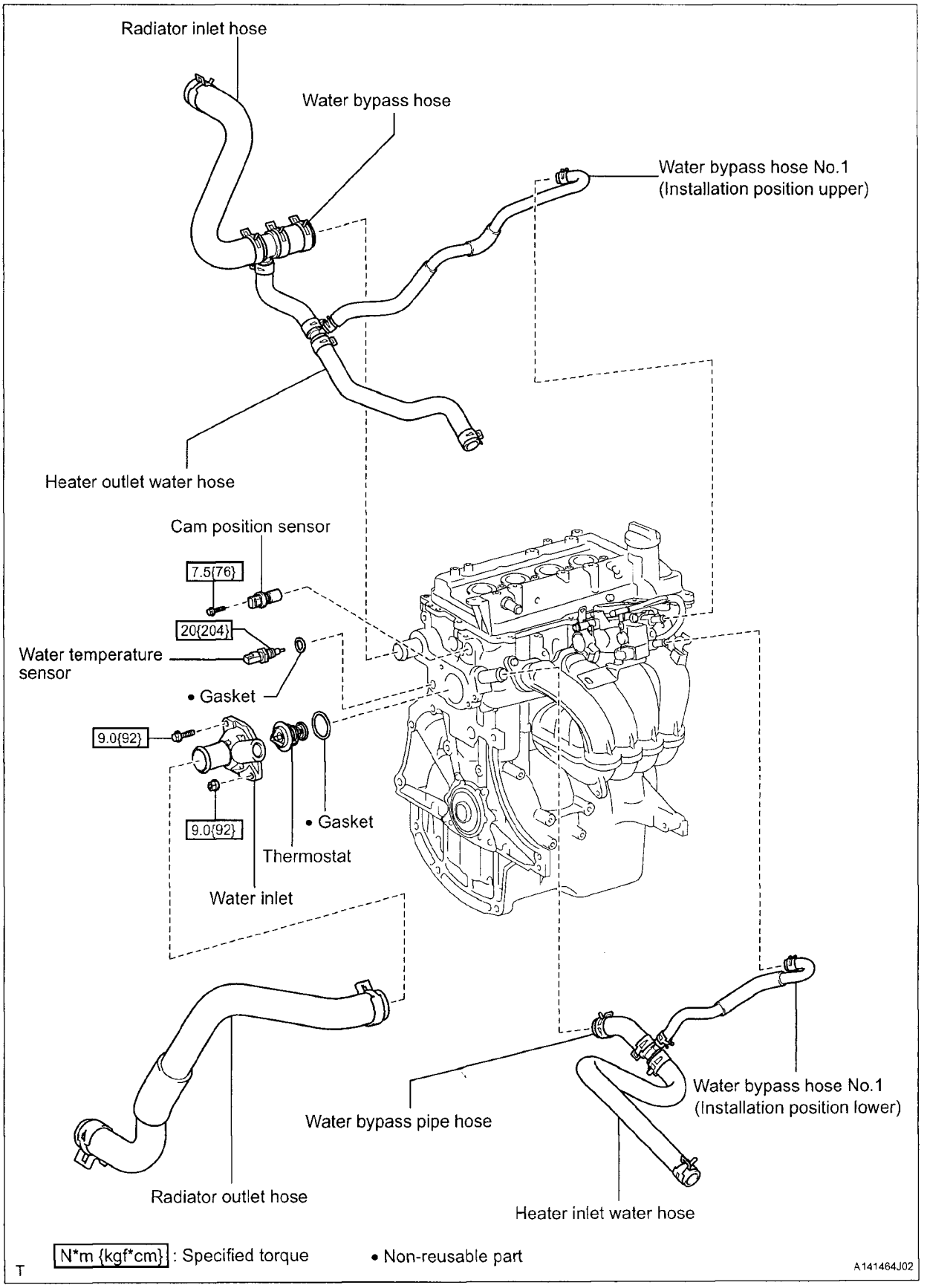


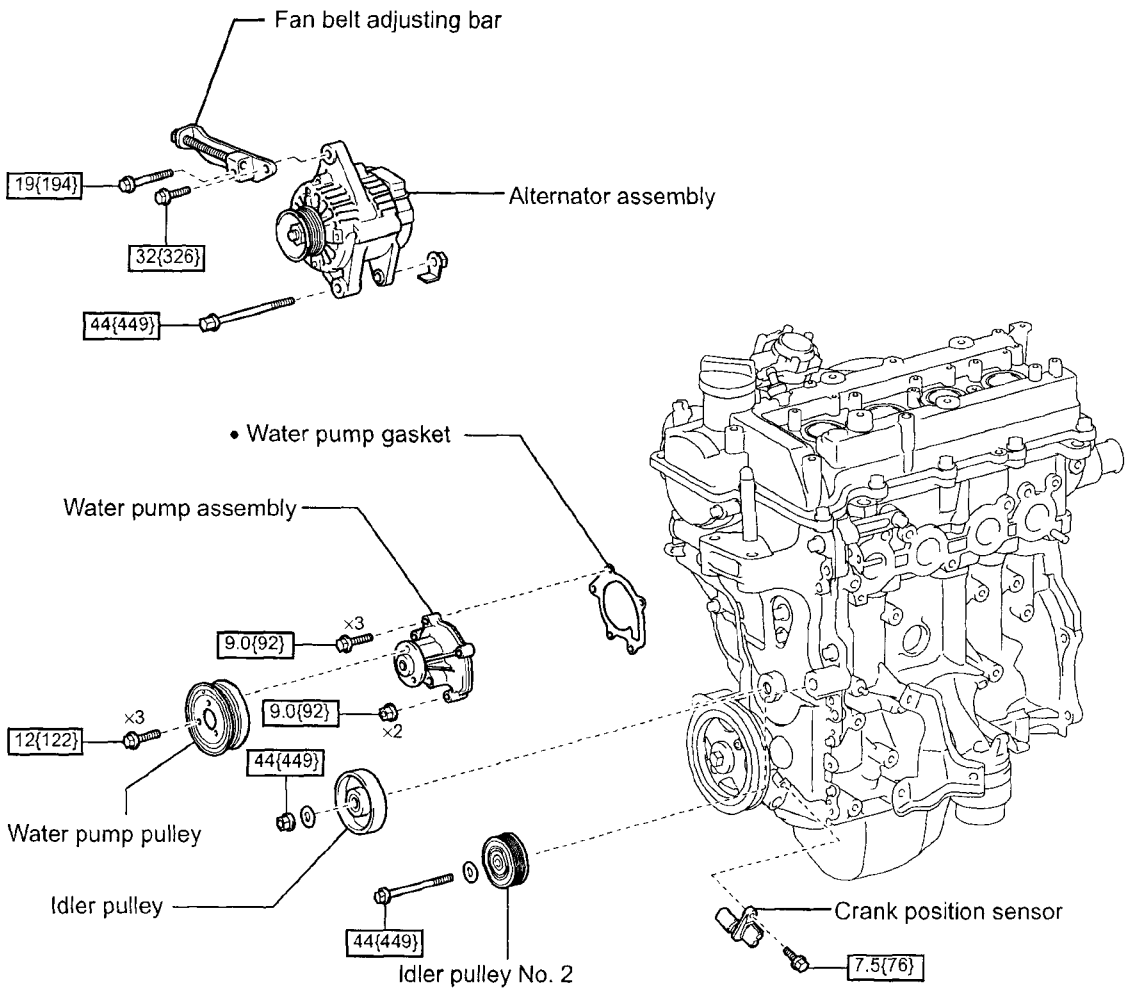
N*m {kgf*cm} : Specified torque • Non-reusable part

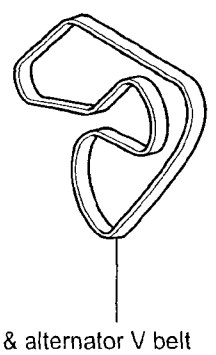
C159889J02

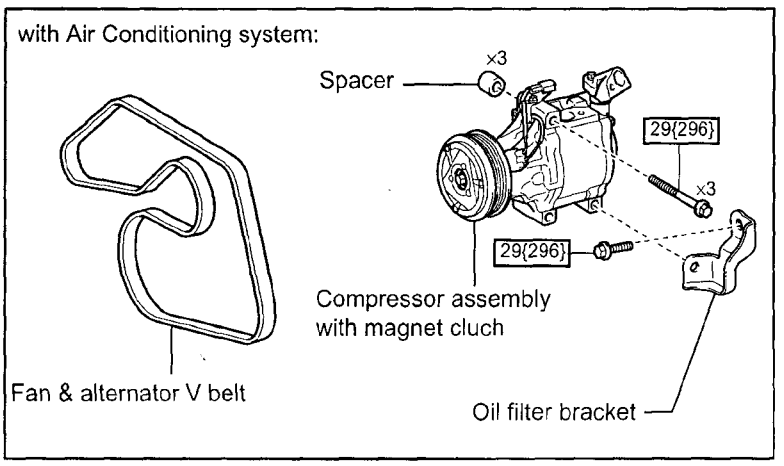

Starter assembly
37{377}
×2
64{653}
7.5{75}
Rear end plate
Flywheel spacer No. 1
Flywheel
78{795}
×6
×3
37{377}
19{194}
×6
• 64{653}
×2
Clutch disc assembly
Clutch cover assembly
64{653}
×2
Transaxle assembly
N*m {kgf*cm}: Specified torque
• Non-reusable part
A161693J02

07


Radiator inlet hose
Water bypass hose
Water bypass hose No.1
(Installation position upper)
Heater outlet water hose
Cam position sensor
7.5{76}
20{204}
Water temperature sensor
• Gasket
9.0{92}
9.0{92}
• Gasket
Thermostat
Water inlet
Water bypass pipe hose
Water bypass hose No.1
(Installation position lower)
Radiator outlet hose
Heater inlet water hose
N*m {kgf*cm} : Specified torque
• Non-reusable part
T
A141464J02



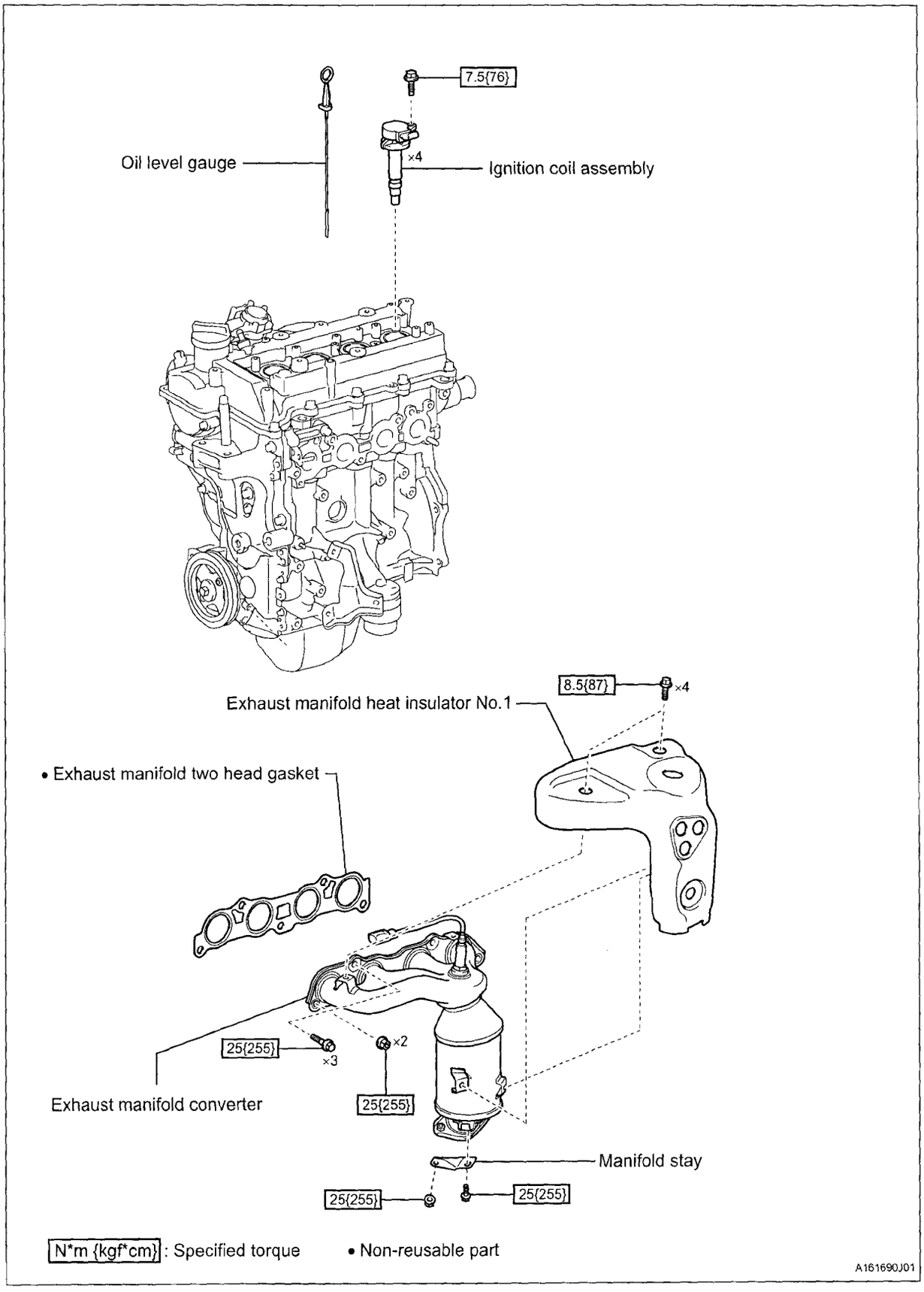




N*m {kgf*cm} : Specified torque • Non-reusable part

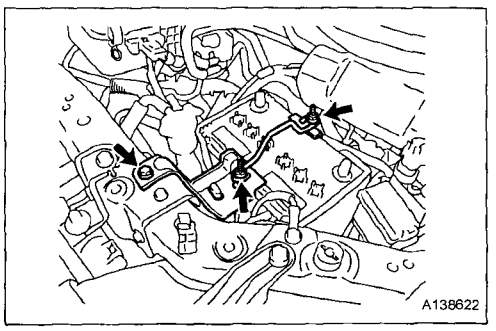
A159489J02

07

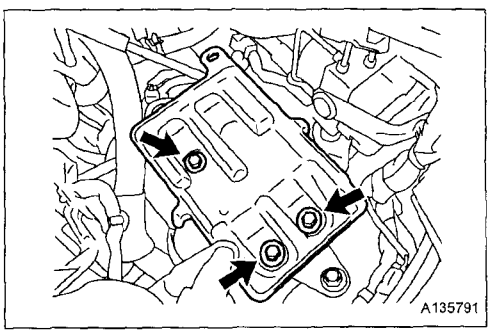

7.5{76}
Oil level gauge
×4
Ignition coil assembly
8.5{87}
×4
Exhaust manifold heat insulator No.1
• Exhaust manifold two head gasket
25{255}
×3
×2
Exhaust manifold converter
25{255}
Manifold stay
25{255}
25{255}
N*m {kgf*cm}: Specified torque
• Non-reusable part
A161690J01

REMOVAL

1. Fuel spill prevention work
   (See page 08-3)
2. Battery terminal disconnection
3. Cooling fluid withdrawal (See page 12-6)
4. Refrigerant HFC-134a (R134a) withdrawal (with Air conditioning system) (See page 52-42)
5. Front tire removal
6. Engine oil withdrawal
7. Manual transaxle oil withdrawal (See page 29-37)
8. Exhaust pipe assembly FR removal (See page 11-15)
9. Propeller with a center bearing shaft assembly removal (See page 35-3)
10. Brake fluid withdrawal

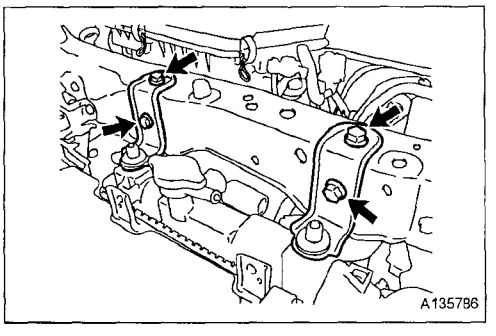


11. Battery hold down clamp removal
    (1) Remove one bolt, loosen two nuts, and remove the battery hold down clamp.
12. Radiator reserve tank assembly removal
    (1) Disconnect the radiator reserve tank pipe, and remove the radiator reserve tank assembly.
13. Battery cover removal
14. Battery removal

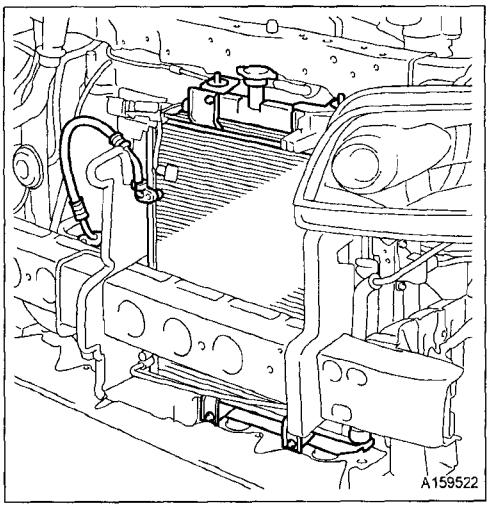


15. Battery tray removal
    (1) Remove three bolts and then the battery tray.
16. Air cleaner cap removal
17. Air cleaner filter element removal
18. Vacuum sensor disconnection (See page 06-140)
19. Vacuum switching valve assembly (with Bracket) disconnection (See page 06-140)
20. Inlet air temperature sensor disconnection (See page 06-140)
21. Precleaner hose removal (See page 06-141)
22. Air cleaner assembly removal (See page 06-141)
23. Radiator inlet hose disconnection (See page 12-10)
24. Water bypass hose disconnection (See page 12-10)
25. Radiator outlet hose disconnection (See page 12-10)
26. With water fan assembly removal (See page 12-11)
27. Heater inlet water hose disconnection (See page 52-164)
28. Heater outlet water hose disconnection (See page 52-164)

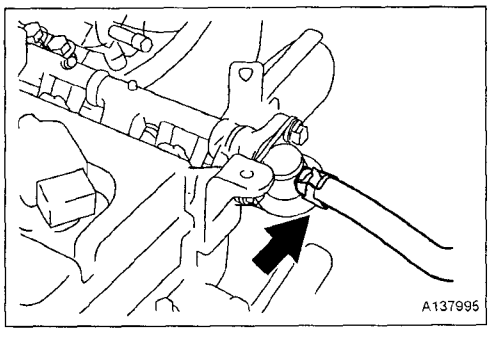
29. Front bumper cover removal (See page 82-5)
30. Fan & alternator V belt removal (See page 07-6)
31. Cooler refrigerant suction hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
32. Cooler refrigerant discharge hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
33. Compressor assembly with magnet clutch removal (with Air conditioning system) (See page 52-131)
34. Cooler refrigerant liquid pipe A disconnection (with Air conditioning system) (See page 52-136)



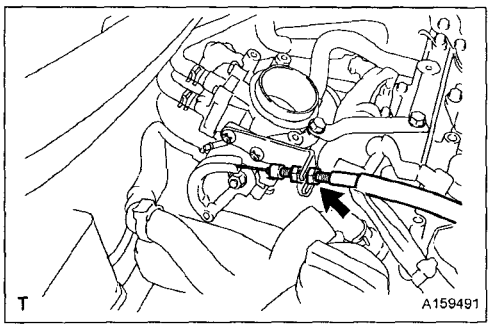
35. Radiator assembly removal
    (1) Remove four bolts and then the radiator bracket No. 1.



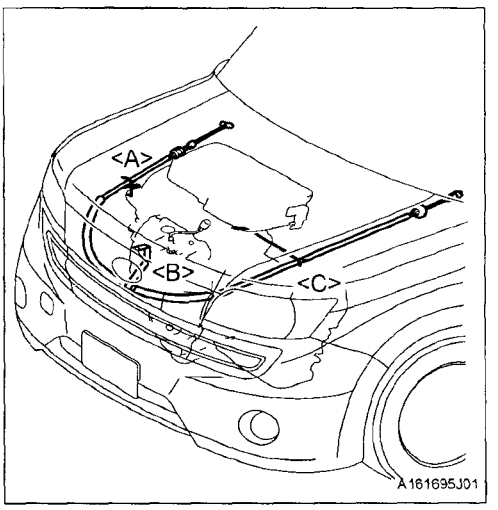
    (2) Remove the radiator assembly with the cooler condenser assembly (with Receiver) installed (with Air conditioning system).



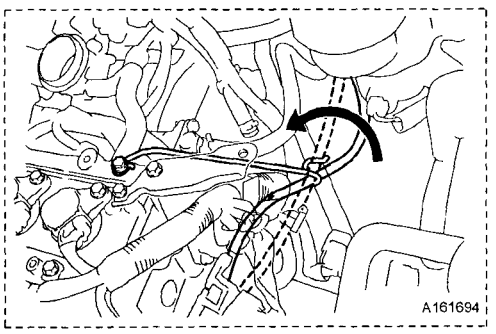
36. Fuel hose disconnection
    (1) Loosen the clip and disconnect the fuel hose.



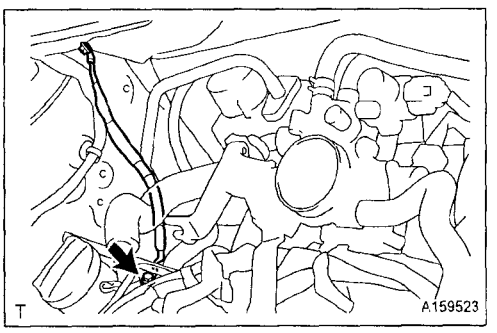
37. Accelerator control cable assembly disconnection
    (1) Loosen one nut and disconnect the end part of the accelerator control cable assembly from the throttle body assembly.



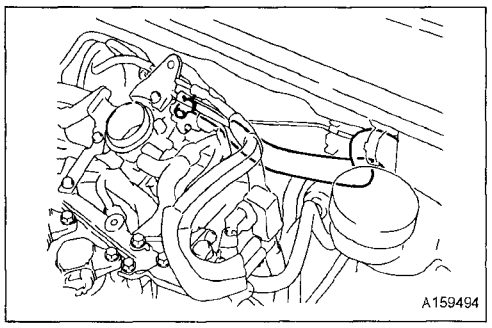
    (2) Disconnect the accelerator control cable in the order of the brackets <A>, <B>, and <C>.



<HINT>
As for bracket <C>, disconnect the accelerator control cable assembly as shown in the illustration.



38. Ground cable disconnection
    (1) Remove the bolt and disconnect the ground cable.

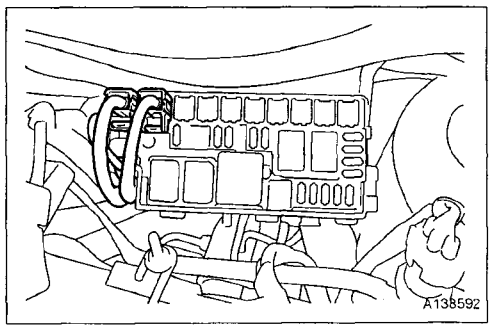


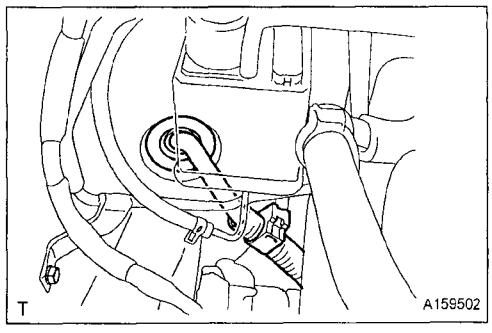
39. Vacuum hose assembly disconnection
    (1) Loosen the clip and disconnect the vacuum hose assembly.

40. Engine room main wire disconnection
    (1) Disconnect each connector and the clamp and disconnect the engine room main wire from the transaxle assembly.

07

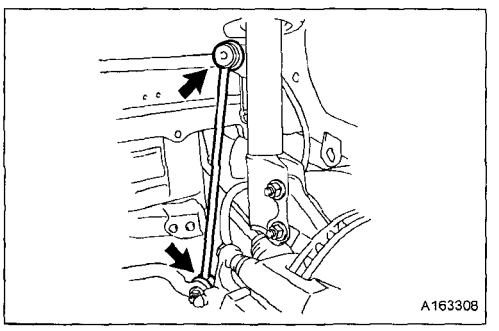
41. Engine wire disconnection
    (1) Remove the instrument panel undercover No. 1 and disconnect the connector of the engine control computer.
    (2) Disconnect the connector from the engine room relay box.





    (3) Remove the grommet and pull out the engine wire toward the engine room.

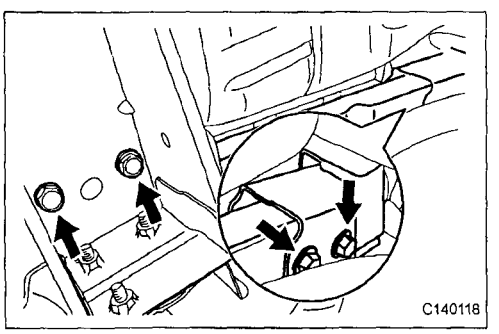
42. Clutch release cylinder assembly disconnection (See page 29-38)
43. Clutch hose disconnection (See page 29-38)
44. Steering column hole cover No. 1 removal (See page 48-15)
45. Steering column assembly disconnection (See page 49-70)
46. Shift lever knob removal (See page 29-59)
47. Rear console box removal (See page 29-59)
48. Console box carpet removal (See page 29-59)
49. Console box assembly removal (See page 29-59)
50. Transmission floor shift assembly removal (See page 29-60)
51. Engine undercover LH removal
    (1) Remove the screw, three clips, and the engine undercover LH.
52. Engine undercover RH removal
    <HINT>
    Remove it using the same procedure as the LH side.



53. Front stabilizer link assembly LH removal
    (1) Remove two nuts and then the front stabilizer link assembly LH.

54. Front stabilizer link assembly RH removal
    <HINT>
    Remove it using the same procedure as the LH side.

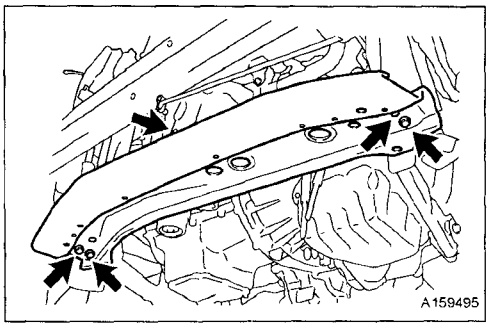
55. Front stabilizer bar removal (See page 42-16)



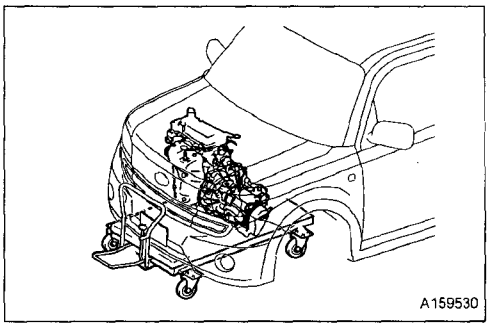
56. Front suspension cross member LH removal
    (1) Remove four bolts and then the front suspension cross member LH.

57. Front suspension cross member RH removal
    <HINT>
    Remove it using the same procedure as the LH side.

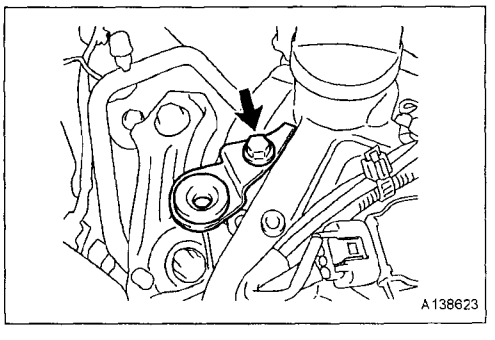
58. Speed sensor FR LH disconnection (See page 36-7)
59. Speed sensor FR RH disconnection (See page 36-7)
60. Front disc brake cylinder assembly LH removal (See page 36-8)
61. Front disc brake cylinder assembly RH removal (See page 36-8)
62. Axle hub nut removal (LH) (See page 36-8)
63. Axle hub nut removal (RH) (See page 36-8)
64. Tie rod end LH disconnection (See page 36-8)
65. Tie rod end RH disconnection (See page 49-85)
66. Front shock absorber assembly LH disconnection (See page 07-53)
67. Front shock absorber assembly RH disconnection (See page 07-53)
68. Front drive shaft assembly LH removal (See page 07-54)
69. Front drive shaft assembly RH removal (See page 07-54)
70. Steering knuckle LH removal (See page 07-54)
71. Steering knuckle RH removal (See page 07-54)



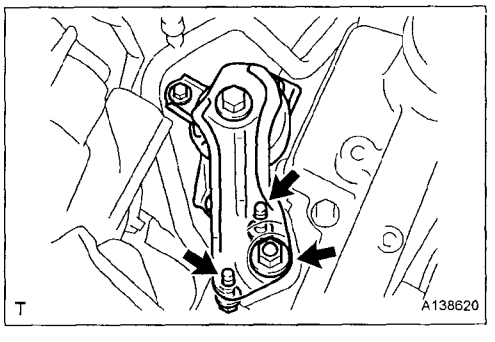
72. Radiator support LWR removal
    (1) Remove five bolts and then the radiator support LWR.



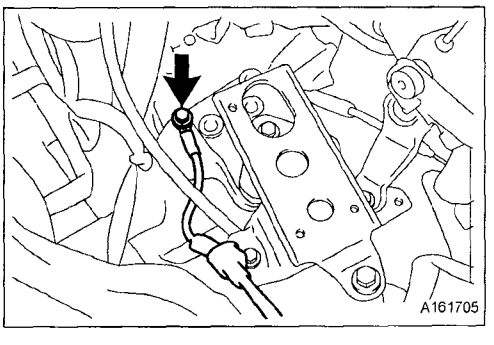
73. Engine assembly W transaxle removal
    (1) Place the engine lifter.



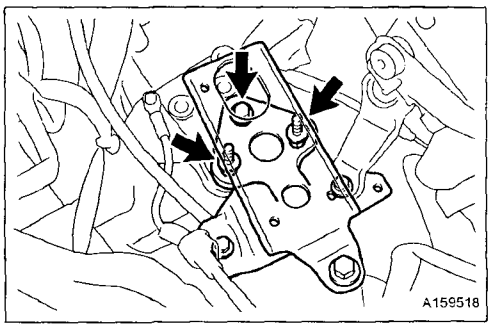
(2) Remove the bolt and then the air cleaner inlet bracket No. 1.



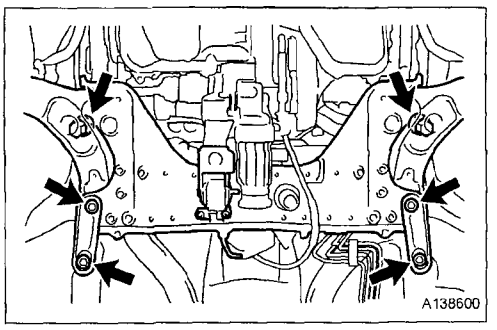
(3) Remove two bolts and one nut and disconnect the engine mounting insulator RH.



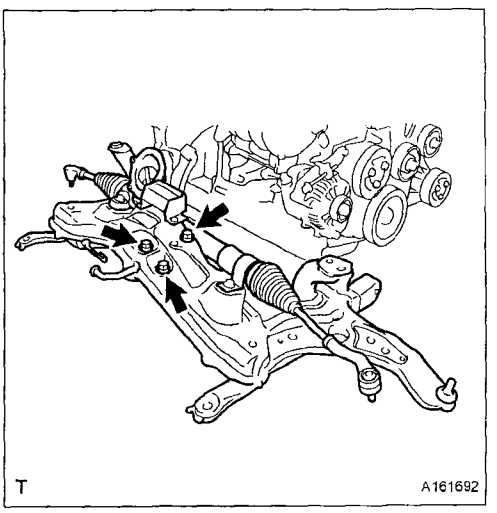
(4) Remove the bolt and disconnect the battery-to-ground cable.



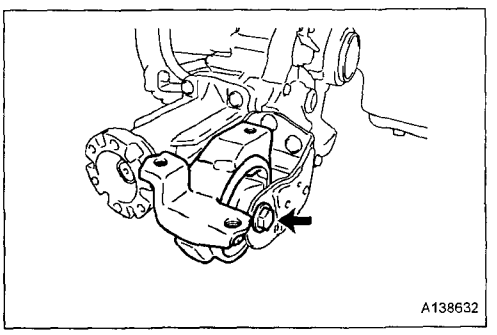
(5) Remove three bolts and disconnect the engine mounting insulator LH.



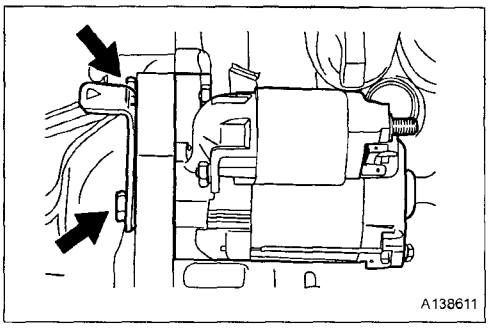
(6) Remove six bolts and disconnect the front suspension cross member from the vehicle.
(7) Operate the engine lifter to remove the engine assembly with transaxle from the vehicle.



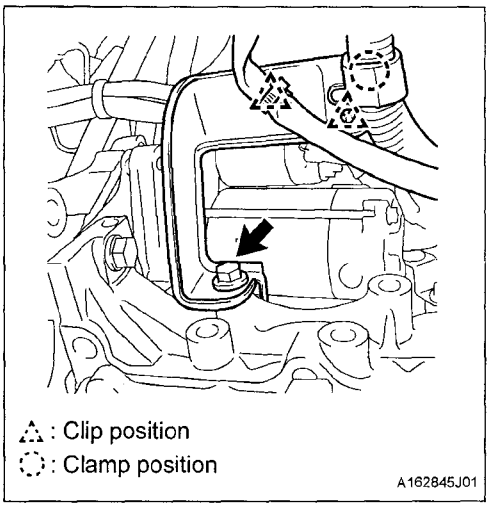
74. Front suspension cross member removal
(1) Remove three bolts of the engine mounting insulator RR and disconnect the front suspension cross member.



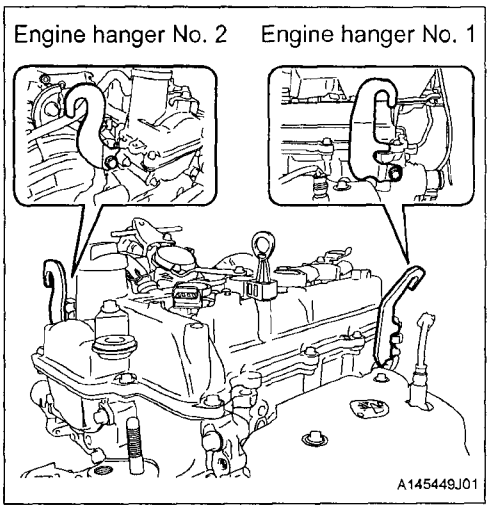
75. Engine mounting insulator RR removal
(1) Remove the bolt and then the engine mounting insulator RR.



76. Starter assembly removal
    (1) Turn up the terminal cap and remove the nut and then terminal 30.
    (2) Disconnect the connector.



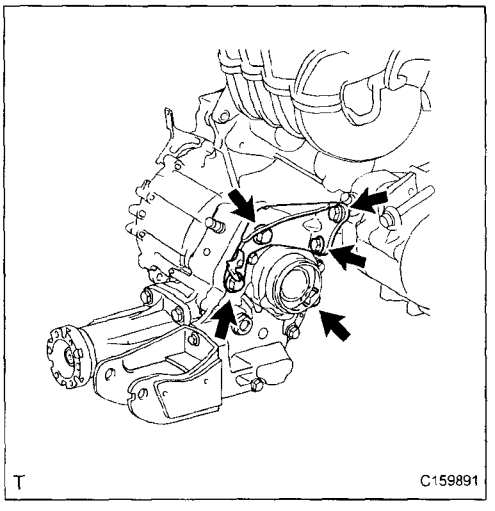
    (3) Remove the bolt and then the wire harness bracket. Disconnect two clips and the clamp.
    (4) Remove two bolts and then the starter assembly.



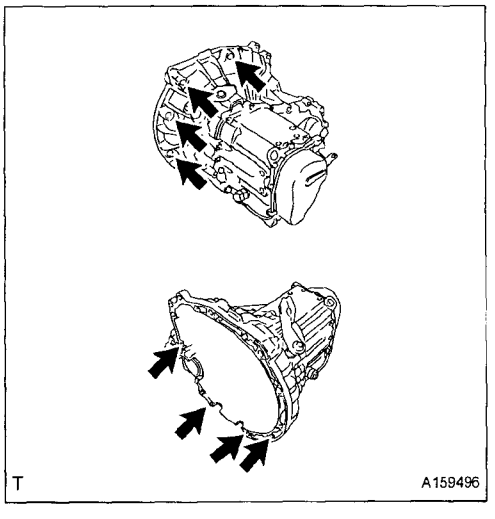
77. Transaxle assembly support
    (1) Attach the engine hangers No. 1 and No. 2 to the locations shown in the diagram.

Engine hanger No. 1	12281-97401
Engine hanger No. 2	12282-97403
Bolts	91671-80820

    <HINT>
    The engine hangers No. 1 and No. 2 and the bolts are supply parts.
    Specified value:T=20N*m {204kgf*cm}
    (2) Use the engine sling device and the chain block to hang the engine assembly with transaxle.
    (3) Use the transmission jack to support the transaxle assembly.

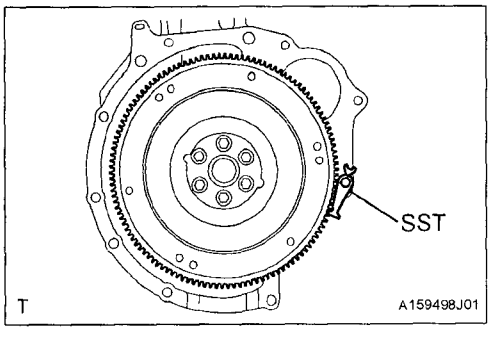


78. Transfer assembly removal
    (1) Remove five bolts, the transfer stiffener plate RH, and the transfer assembly.

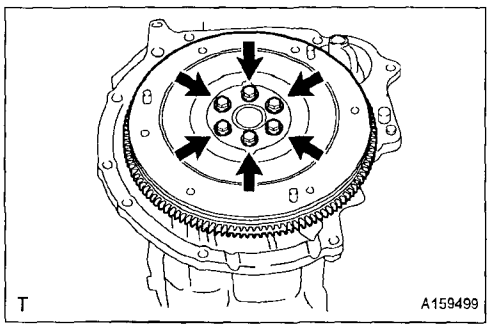


79. Transaxle assembly removal
    (1) Remove eight bolts and then the transaxle assembly.

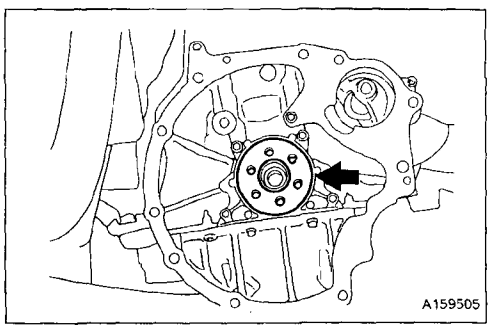
80. Clutch cover assembly removal (See 27-67)
81. Clutch disc assembly removal (See 27-67)



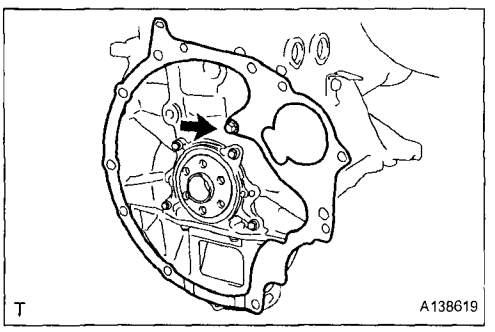
82. Flywheel removal
    (1) Use SST to fix the crankshaft.
        SST 09210-87701



(2) Remove six bolts and then the flywheel.



83. Flywheel spacer No. 1 removal
(1) Remove the flywheel spacer No. 1 from the crankshaft.



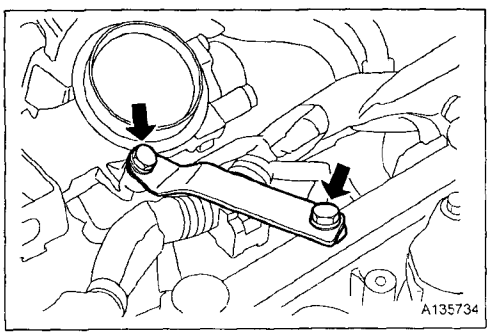
84. Rear end plate removal
(1) Remove the bolt and then the rear end plate.

85. Water bypass hose No. 1 removal (Upper)
(1) Loosen the clip, disconnect the water bypass hose No. 1 (Upper), and remove the heater outlet water hose from the radiator inlet hose.

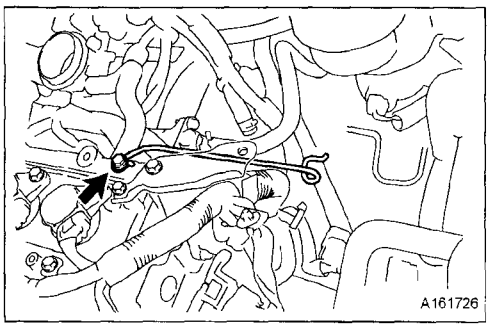
86. Water bypass pipe hose disconnection
(1) Loosen the clip and disconnect the water bypass pipe hose.

87. Water bypass hose No. 1 removal (Lower)
(1) Loosen the clip, disconnect the water bypass hose No. 1 (Lower), and remove the heater inlet water hose from the water bypass pipe hose.

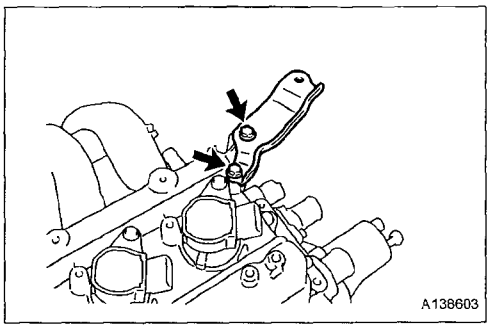
88. Radiator outlet hose removal
(1) Loosen the clip and remove the radiator outlet hose.



89. Throttle body bracket No. 2 removal
(1) Remove two bolts and then the throttle body bracket No. 2.

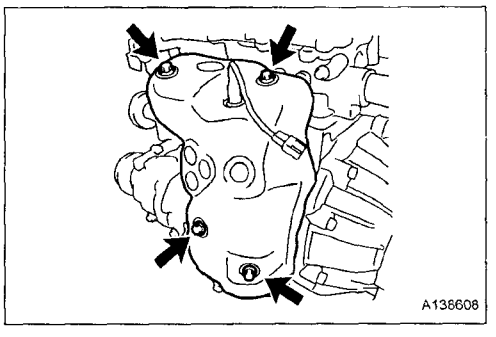


90. Accelerator control cable bracket removal
    (1) Remove the bolt and then the accelerator control cable bracket.

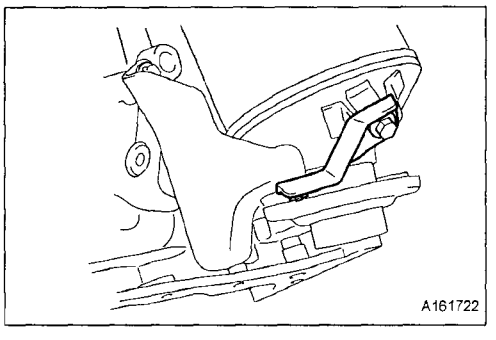


91. Air cleaner support bracket No. 2 removal
    (1) Remove two bolts and then the air cleaner support bracket No. 2.

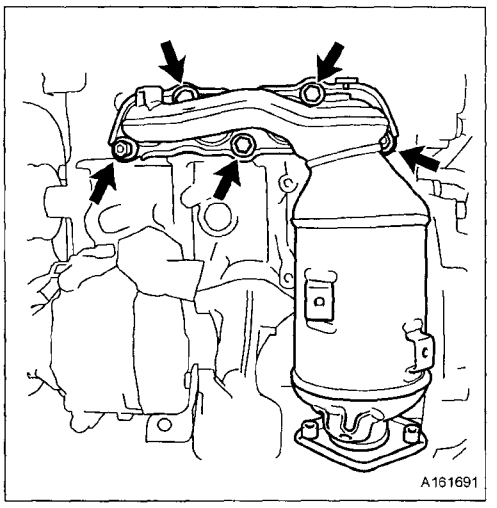
92. Ventilation hose No. 2 removal (See page 06-141)
93. Engine wire removal
    (1) Disconnect each sensor connector and the clamp and remove the engine wire.



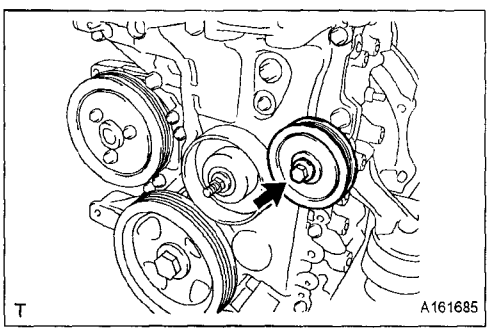
94. Exhaust manifold heat insulator No. 1 removal
    (1) Remove four bolts and then the exhaust manifold heat insulator No. 1.



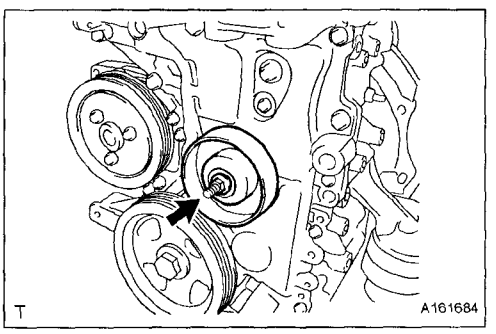
95. Manifold stay removal
    (1) Remove the bolt, the nut, and the manifold stay.



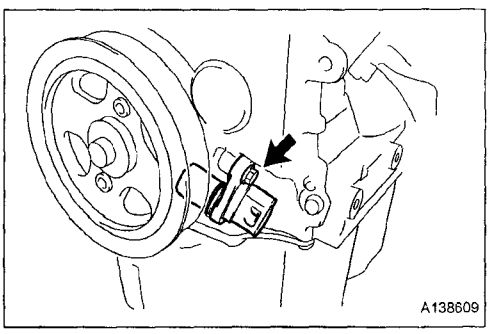
96. Exhaust manifold converter removal
    (1) Remove three bolts, two nuts, and the exhaust manifold converter.
    (2) Remove the exhaust manifold two-head gasket.



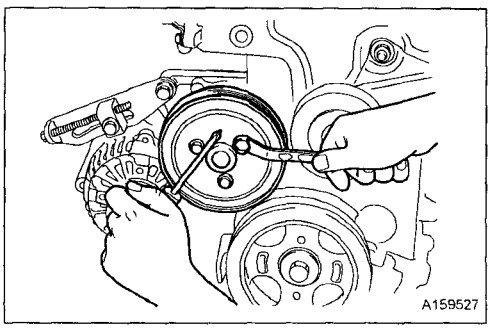
97. Idler pulley No. 2 removal
    (1) Remove the bolt, the washer, and the idler pulley No. 2.



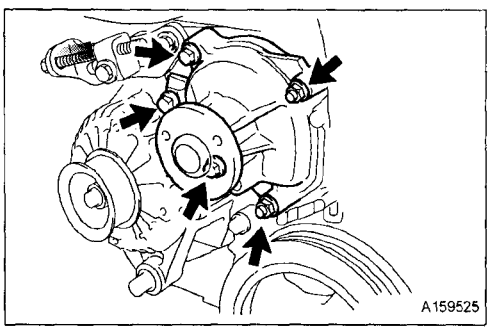
98. Idler pulley removal
    (1) Remove the nut and washer, and the idler pulley.



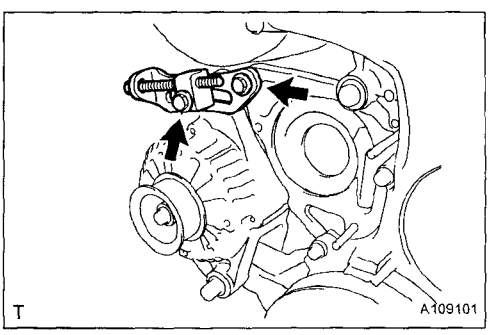
99. Crank position sensor removal
    (1) Remove the bolt and then the crank position sensor.



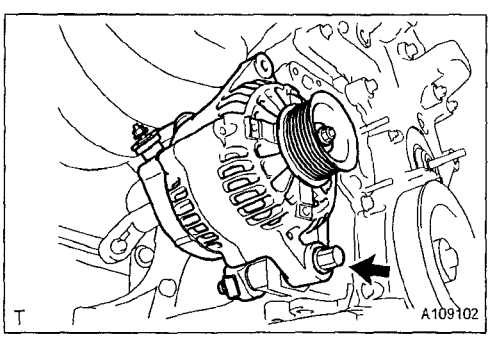
100.Water pump pulley removal
(1) Use a screwdriver as an anti-rotation stopper. Remove three bolts and then the water pump pulley.



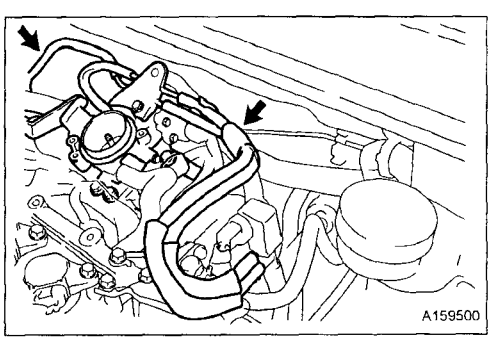
101.Water pump assembly removal
(1) Remove three bolts, two nuts, and the water pump assembly.



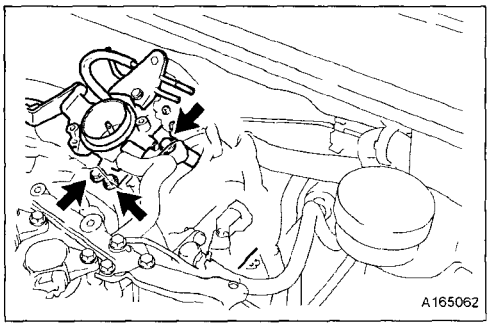
102.Fan belt adjusting bar removal
(1) Remove two bolts and then the fan belt adjusting bar.



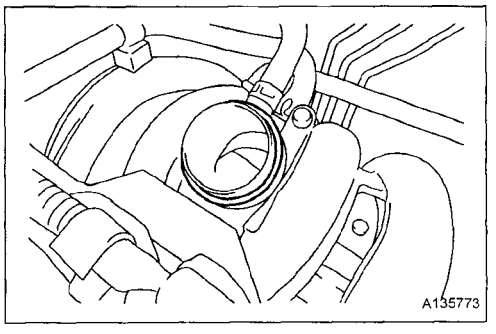
103.Alternator assembly removal
(1) Remove the through bolt, the nut, and the alternator assembly.



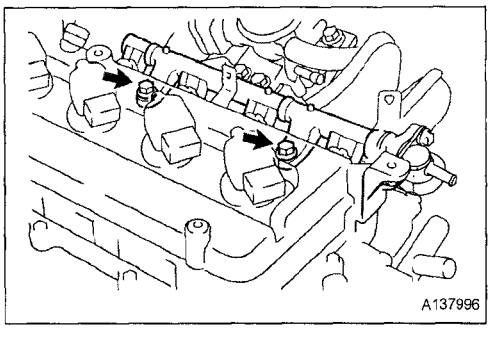
104.Throttle body assembly removal
(1) Disconnect the charcoal canister outlet hose No. 1 and No. 2.
<CAUTION>
> Exercise care not to deform and damage the hose.
> If the hose is deformed or damaged, replace it with a new one.



(2) Remove three bolts and the throttle body stay and remove the throttle body assembly.



(3) Remove the O-ring.

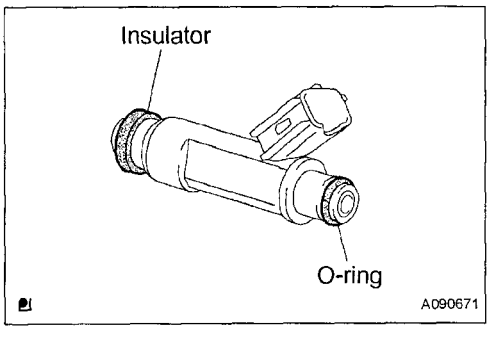


105.Fuel delivery pipe removal

(1) Remove two bolts and then the fuel delivery pipe with fuel injector assembly, and delivery pipe spacer No. 1.

<CAUTION>

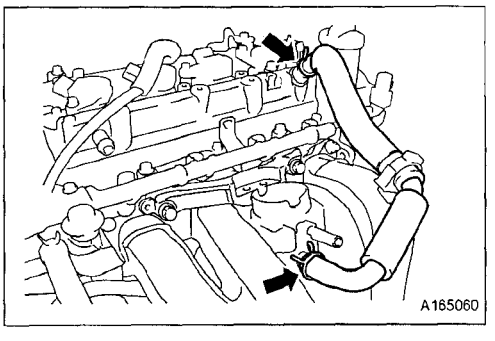
Be sure not to drop the fuel injector assembly.



106.Fuel injector assembly removal

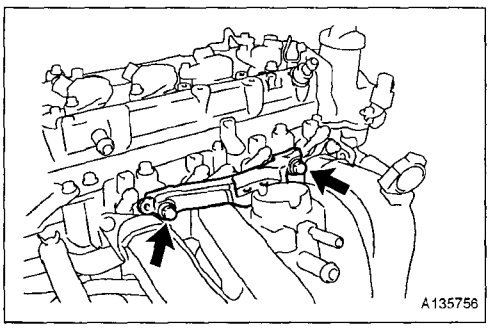
(1) Remove the fuel injector assembly from the fuel delivery pipe.

(2) Remove the fuel injector O-ring and the injector vibration insulator from the fuel injector assembly.

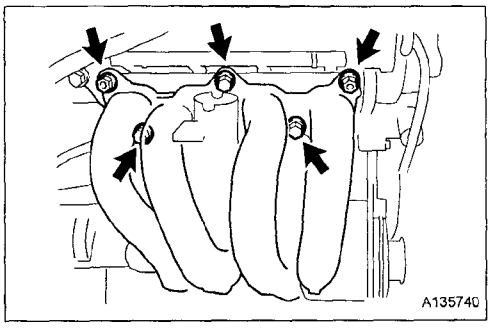


107.Ventilation hose removal

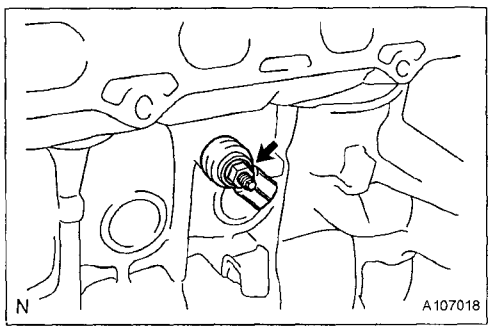
(1) Loosen the clip and remove the ventilation hose.



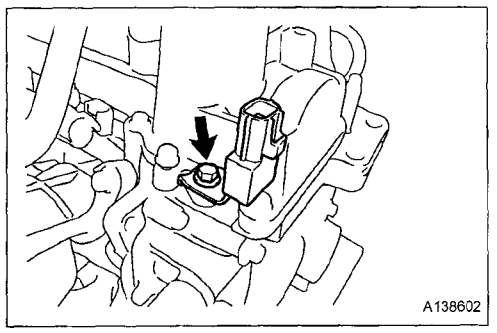
108.Throttle body bracket removal
(1) Remove two bolts and then the throttle body bracket.



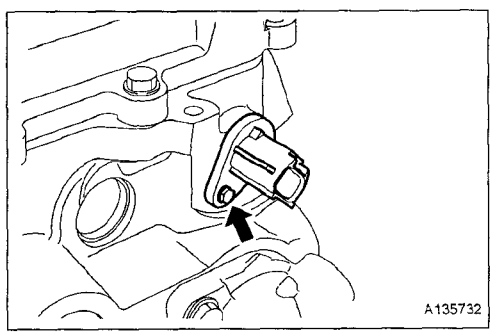
109.Intake manifold removal
(1) Remove three bolts, two nuts, and the intake manifold.



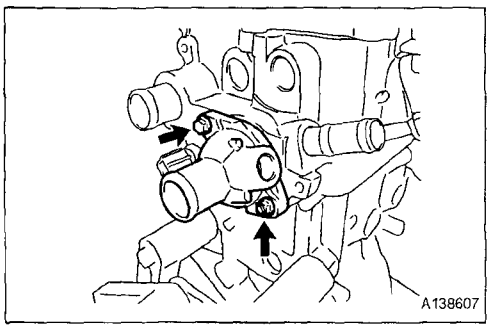
110.Knock control sensor removal
(1) Remove the nut and then the knock control sensor.



111.Noise filter removal
(1) Remove the bolt and then the noise filter.



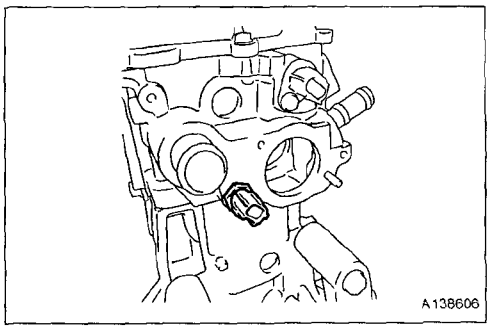
112.Cam position sensor removal
(1) Remove the bolt and then the cam position sensor.



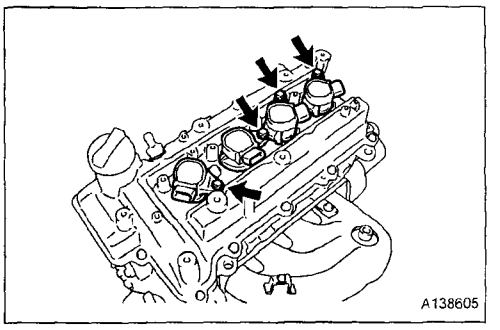
113.Water inlet removal
(1) Remove the bolt, the nut, and the water inlet.

114.Thermostat removal

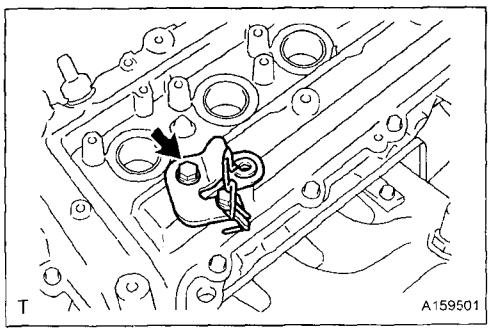
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115.Water temperature sensor removal
(1) Use the water temperature sensor socket to remove the water temperature sensor.
Tool: Water temperature sensor socket {KTC (B20T-19) or equivalent}



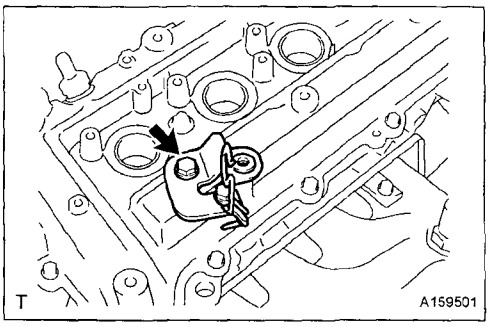
116.Ignition coil assembly removal
(1) Remove the bolt and then the ignition coil assembly.



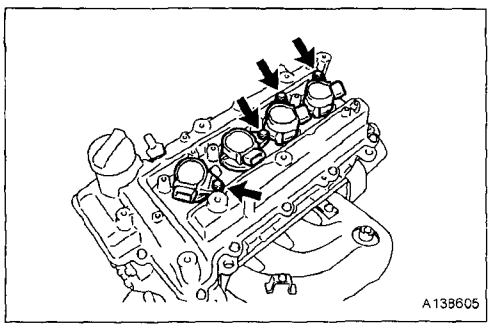
117.Oil level gage removal
(1) Remove the oil level gage.
(2) Remove the bolt and then the oil level gage bracket.

118.Partial engine assembly replacement

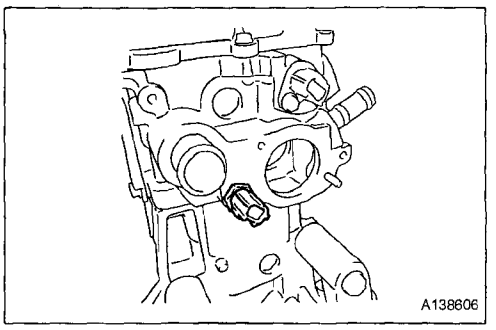
INSTALLATION



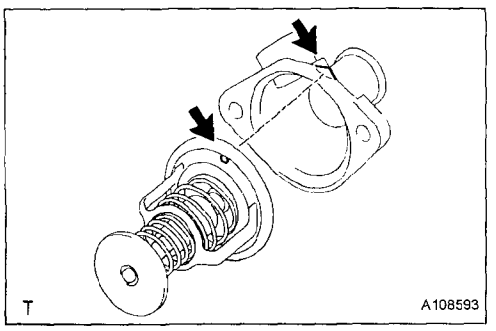
1. Oil level gage installation
   (1) Use a bolt to attach the oil level gage bracket.
   Specified value:T=7.5N*m {76kgf*cm}
   (2) Attach the oil level gage.



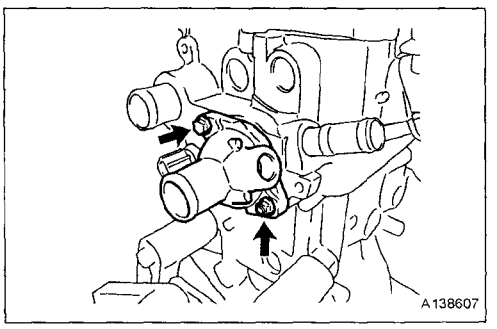
2. Ignition coil assembly installation
   (1) Use a bolt to attach the ignition coil assembly.
   Specified value:T=7.5N*m {76kgf*cm}



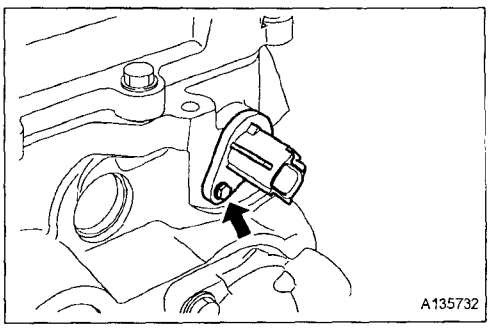
3. Water temperature sensor installation
   (1) Attach the water temperature sensor using the water temperature sensor sockeet through a new gasket.
   Tool: Water temperature sensor socket {KTC (B20T-19) or equivalent}
   Preset torque wrench with ratchet {QL25N-MH from Tohnichi or its equivalent}
   Specified value:T=20N*m {204kgf*cm}



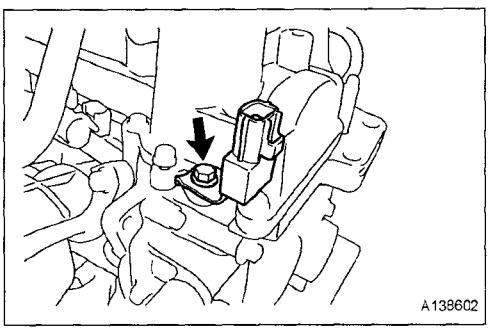
4. Thermostat installation
   (1) Attach a new gasket to the thermostat.
   (2) Align the dowel mark on the water inlet with the jiggle valve on the thermostat and attach the thermostat.



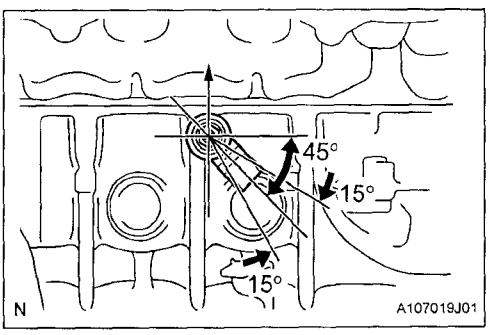
5. Water inlet installation
   (1) Use a bolt and nut to attach the water inlet.
   Specified value:T=9.0N*m {92kgf*cm} (Bolt)
   T=9.0N*m {92kgf*cm} (Nut)



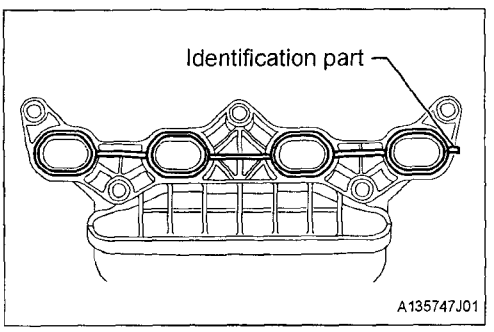
6. Cam position sensor installation
   (1) Coat the O-ring with a small amount of engine oil.
   (2) Use a bolt to attach the cam position sensor.
   Specified value:T=7.5N*m {76kgf*cm}
   <CAUTION>
   During installation, make sure that the O-ring is not cut or pinched.



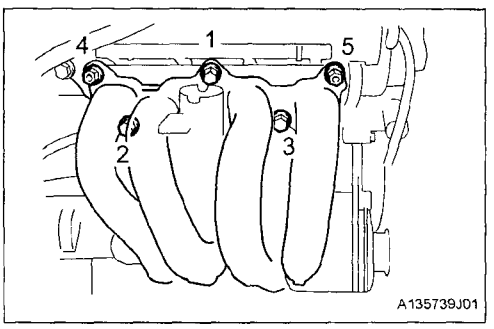
7. Noise filter installation
   (1) Use a bolt to attach the noise filter.
   Specified value:T=9.0N*m {92kgf*cm}



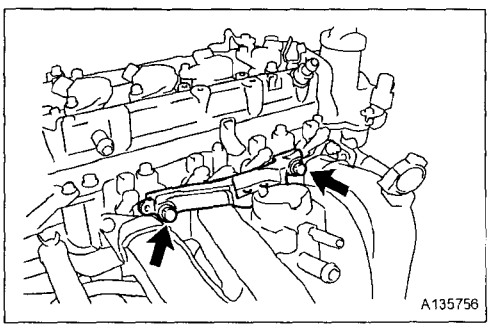
8. Knock control sensor installation
   (1) Use nuts to attach the knock control sensor.
   Specified value:T=20N*m {204kgf*cm}
   <HINT>
   Attach the knock control sensor in the range shown in the diagram.



9. Intake manifold installation
   (1) Align the identification parts and attach a new gasket to the intake manifold.

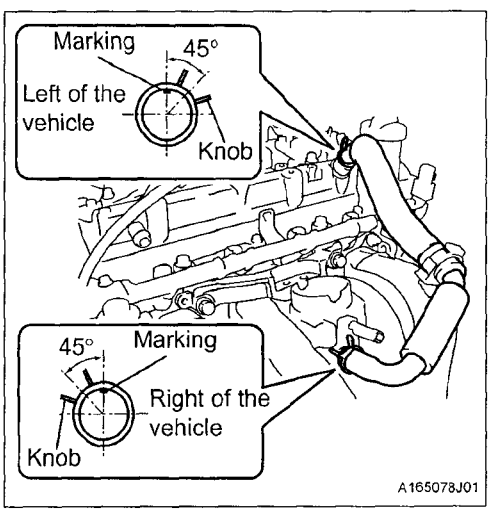


(2) Use three bolts and two nuts to attach the intake manifold temporarily.
(3) Tighten the bolts and the nuts in the order shown in the diagram.
Specified value:T=19N*m {194kgf*cm} (Bolt)
T=19N*m {194kgf*cm} (Nut)

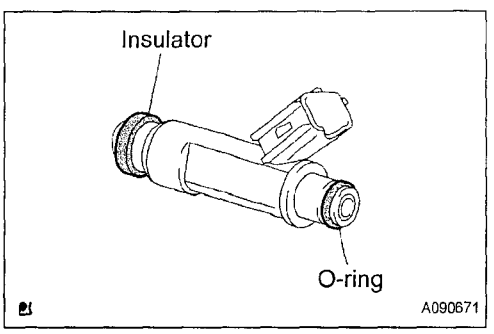


10. Throttle body bracket installation
(1) Adjust two markings to the upper side of the vehicle and attach the ventilation hose.
Specified value:T=21N*m {214kgf*cm}

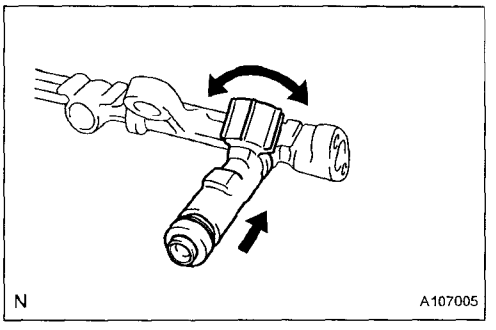
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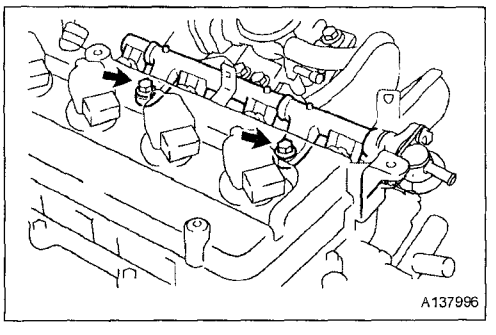
11. Ventilation hose installation
(1) Adjust two markings to the upper side of the vehicle and attach the ventilation hose.
<HINT>
As shown in the diagram, attach the marking and clip.



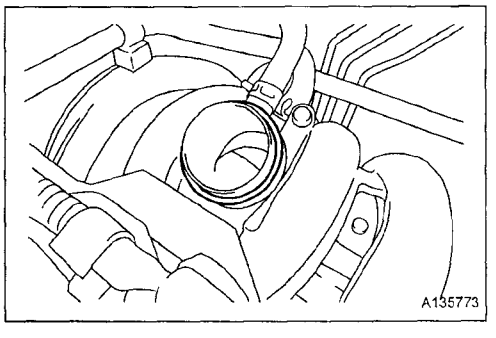
12. Fuel injector assembly installation
(1) Attach a new injector vibration insulator.
(2) Coat a new fuel injector O-ring with gasoline.



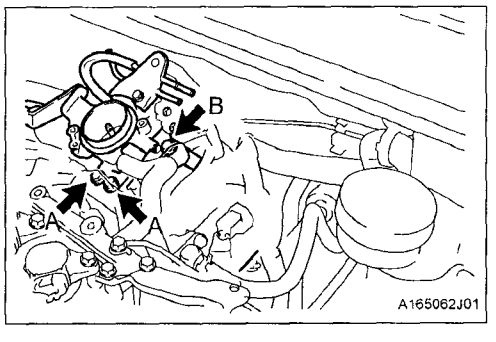
(3) While rotating the fuel injector assembly to the right and left sides, attach the fuel delivery pipe.
<CAUTION>
During installation, make sure that the O-ring is not twisted or pinched.
(4) Make sure that the fuel injector assembly rotates smoothly.
<CAUTION>
If the fuel injector assembly does not rotate smoothly, replace the O-ring with a new one and attach the fuel injector assembly again.



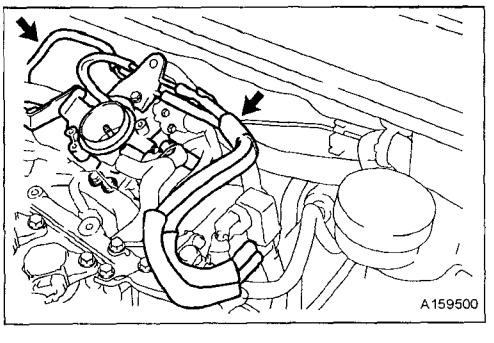
13. Fuel delivery pipe installation
(1) Attach delivery pipe spacer No. 1 and temporarily attach the fuel delivery pipe and fuel injector assembly with two bolts.
<CAUTION>
When attaching the fuel delivery pipe, be sure not to drop the fuel injector assembly.
(2) Make sure that the fuel injector assembly rotates smoothly.
<CAUTION>
If the fuel injector assembly does not rotate smoothly, replace the O-ring with a new one and attach the fuel injector assembly again.
(3) Tighten two bolts.
Specified value:T=21N*m {214kgf*cm}



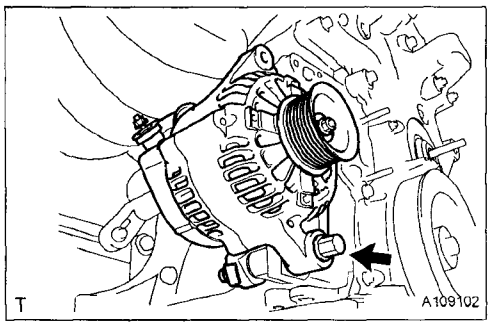
14. Throttle body assembly installation
(1) Attach a new O-ring.



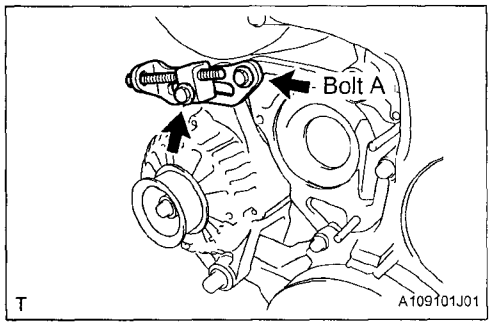
(2) Use two bolts (A) and a bolt (B) to attach the throttle body assembly and the throttle body stay.
Specified value:T=21N*m {214kgf*cm} (Bolt A)
T=7.5N*m {76kgf*cm} (Bolt B)



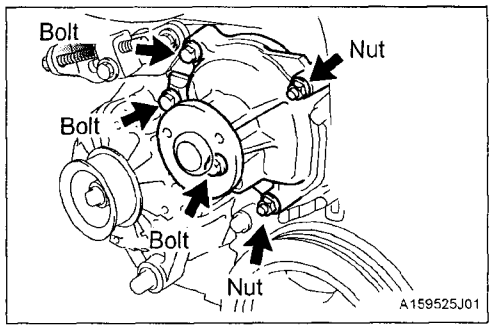
(3) Connect the charcoal canister outlet hose No. 1 and No. 2.
<CAUTION>
Attach the hose so that its marking matches that of the tube.



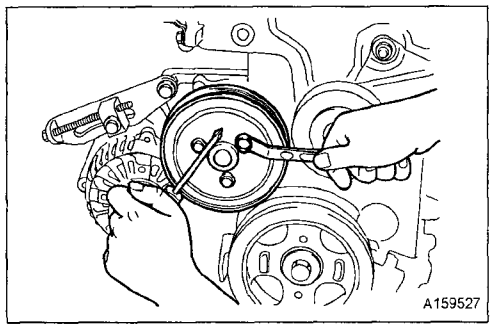
15. Alternator assembly installation
    (1) Use a through bolt and nut to temporarily attach the alternator assembly.



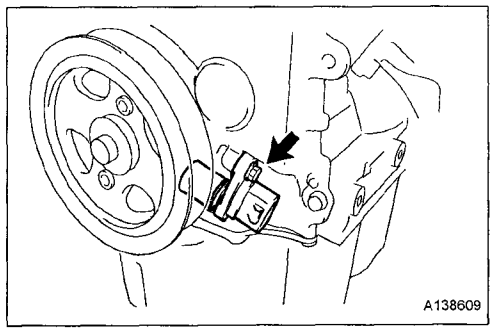
16. Fan belt adjusting bar installation
    (1) Use two bolts to temporarily attach the fan belt adjusting bar.
    (2) Tighten bolt A.
    Specified value: T=32N*m {326kgf*cm} (Bolt A)



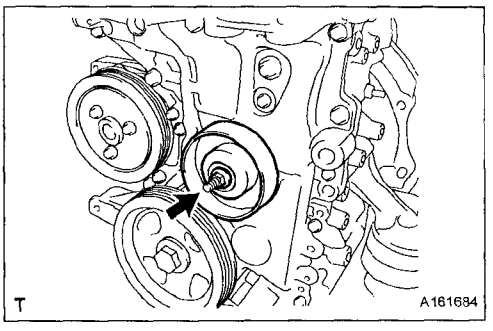
17. Water pump assembly installation
    (1) Use three bolts and two nuts to attach the water pump assembly through a new gasket.
    Tool: Preset torque wrench with ratchet {QL25N-MH from Tohnichi or its equivalent}
    Specified value: T=9.0N*m {92kgf*cm} (Bolt)
    T=9.0N*m {92kgf*cm} (Nut)



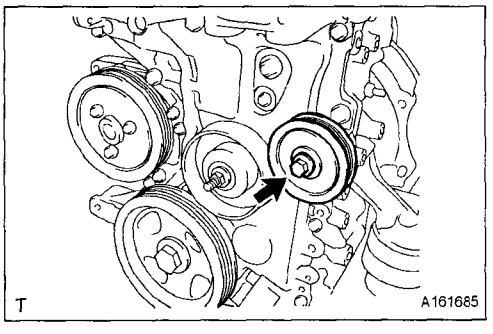
18. Water pump pulley installation
    (1) Use three bolts to temporarily attach the water pump pulley.
    (2) Use a screwdriver as an anti-rotation stopper. Tighten three bolts.
    Specified value: T=12N*m {122kgf*cm}



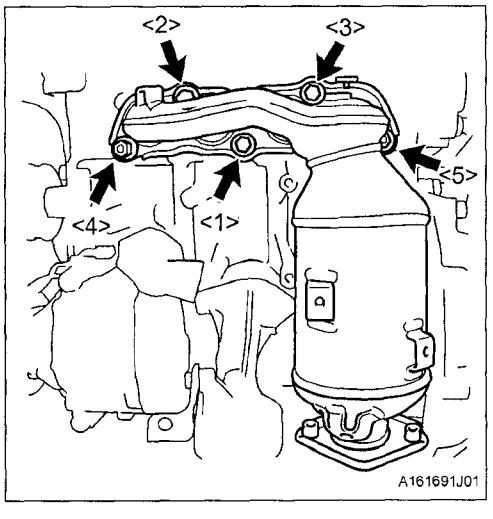
19. Crank position sensor installation
    (1) Coat the O-ring with a small amount of engine oil.
    (2) Use a bolt to attach the crank position sensor.
    Specified value: T=7.5N*m {76kgf*cm}
    <CAUTION>
    During installation, make sure that the O-ring is not twisted or pinched.



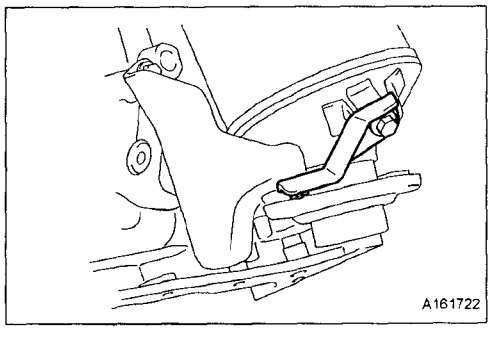
20. Idler pulley installation
    (1) Attach the idler pulley with a nut and a washer.
    Specified value:T=44N*m {449kgf*cm}



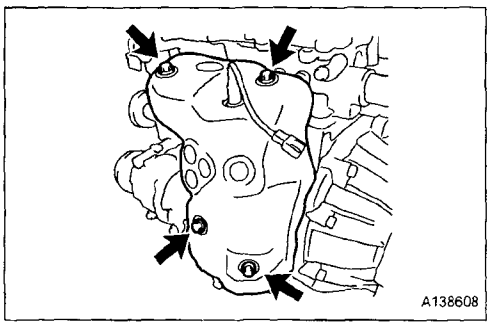
21. Idler pulley No. 2 installation
    (1) Use a bolt and washer to attach the idler pulley No. 2.
    Specified value:T=44N*m {449kgf*cm}



22. Exhaust manifold converter installation
    (1) Use a bolt and nut to attach the manifold stay.
    (2) Tighten three bolts and two nuts in the order shown in the diagram.
    Specified value:T=25N*m {255kgf*cm} (Bolt)
    T=25N*m {255kgf*cm} (Nut)



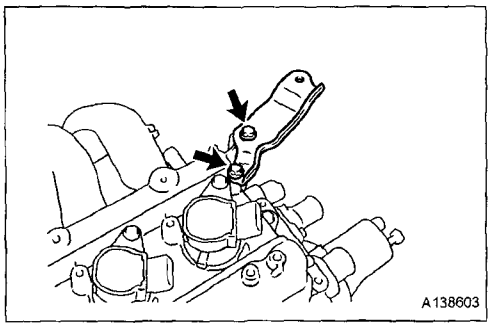
23. Manifold stay installation
    (1) Use a bolt and nut to attach the manifold stay.
    Specified value:T=25N*m {255kgf*cm} (Bolt)
    T=25N*m {255kgf*cm} (Nut)



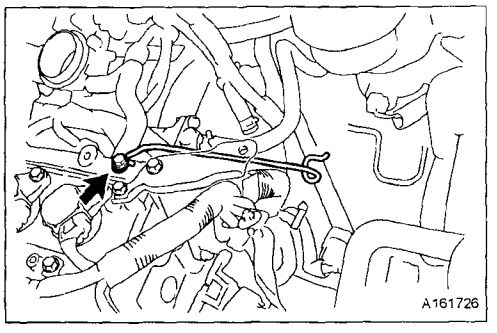
24. Exhaust manifold heat insulator No. 1 installation
    (1) Use four bolts to attach the exhaust manifold heat insulator No. 1.
    Specified value:T=8.5N*m {87kgf*cm}

25. Engine wire installation
    (1) Connect each sensor connector and the clamp and attach the engine wire.

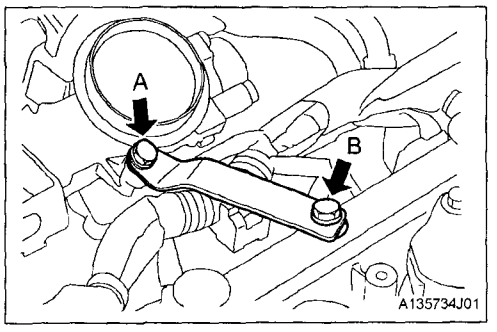
26. Ventilation hose No. 2 installation (See page 06-149)



27. Air cleaner support bracket No. 2 installation
    (1) Use two bolts to attach the air cleaner support bracket No. 2.
    Specified value:T=7.5N*m {76kgf*cm}



28. Accelerator control cable bracket installation
    (1) Use a bolt to attach the accelerator control cable bracket.
    Specified value:T=5.0N*m {51kgf*cm}



29. Throttle body bracket No. 2 installation
    (1) Temporarily tighten the bolt (A) and securely tighten bolt (B) and (A) in that order to attach the throttle body bracket No. 2.
    Specified value:T=7.5N*m {76kgf*cm} (Bolt A, B)

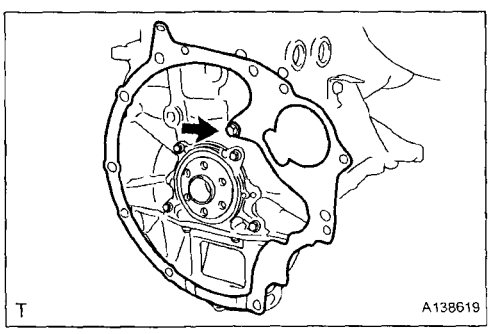
30. Radiator outlet hose installation
    (1) Use a clip to attach the radiator outlet hose.
    <HINT>
    When attaching the radiator outlet hose, make sure that its marking and clip knob face the vehicle top.

31. Water bypass hose No. 1 installation (Lower)
    (1) Use a clip to attach the water bypass hose No. 1 (Lower).

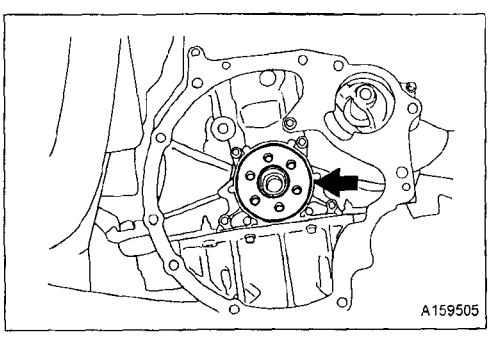
<HINT>
When attaching the water bypass hose No. 1, make sure that its marking faces the vehicle top and that its clip knob faces the right of the vehicle.

32. Water bypass pipe hose installation
    (1) Use a clip to attach the water bypass pipe hose.
    <HINT>
    When attaching the water bypass pipe hose, make sure that its marking and clip knob face the vehicle top.
33. Water bypass hose No. 1 installation (Upper)
    (1) Use a clip to attach the water bypass hose No. 1 (Upper).
    <HINT>
    When attaching the water bypass hose No. 1, make sure that its marking faces the vehicle top and that its clip knob faces the right of the vehicle.

07

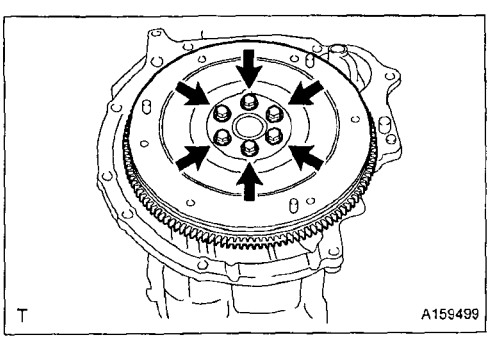


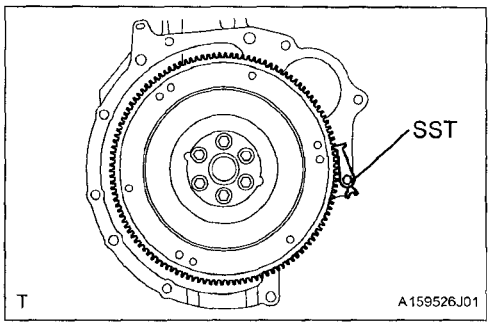
34. Rear end plate installation
    (1) Use a bolt to attach the rear end plate.
    Specified value:T=7.5N*m {76kgf*cm}



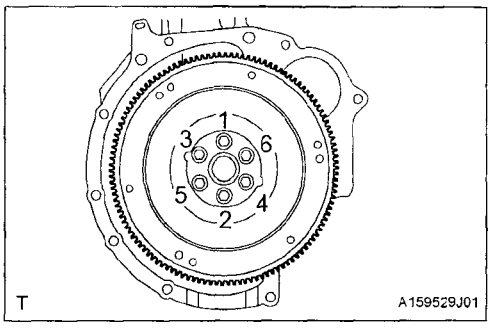
35. Flywheel spacer No. 1 installation
    (1) Attach the flywheel spacer No. 1 to the crankshaft.

36. Flywheel installation
    (1) Coat two or three threads from the end portion of the flywheel installation bolt with Three Bond 1324.
    <CAUTION>
    Clean and degrease the flywheel installation bolt and the bolt hole.
    (2) Use six bolts to attach the flywheel.





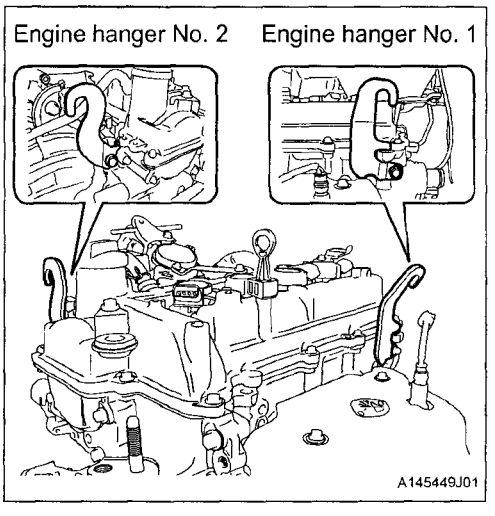
(3) Use SST to fix the crankshaft.
SST 09210-87701



(4) Tighten six bolts in the order shown in the diagram.
Specified value:T=78N*m {795kgf*cm}
<CAUTION>
Avoid starting the engine for at least one hour after installation.

07

37. Clutch disc assembly installation (See page 27-69)
38. Clutch cover assembly check (See page 27-68)
39. Clutch cover assembly installation (See page 27-69)

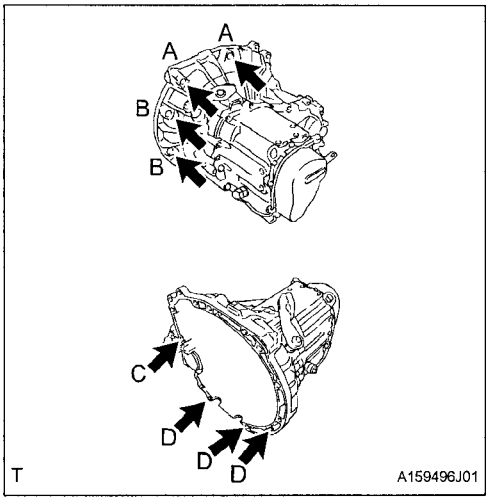


40. Transaxle assembly support
(1) Attach the engine hangers No. 1 and No. 2 to the locations shown in the diagram.

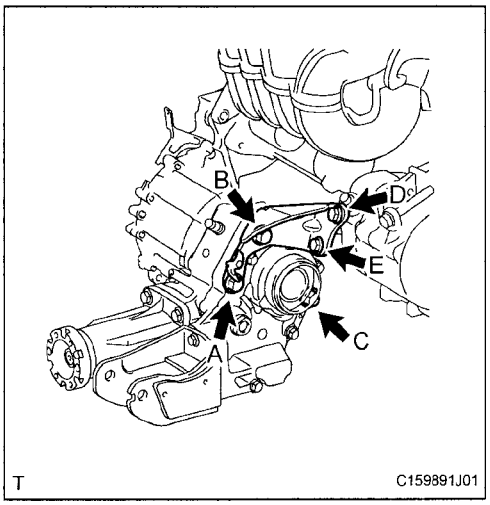
Engine hanger No. 1	12281-97401
Engine hanger No. 2	12282-97403
Bolts	91671-80820

<HINT>
The engine hangers No. 1 and No. 2 and the bolts are supply parts.
Specified value:T=20N*m {204kgf*cm}

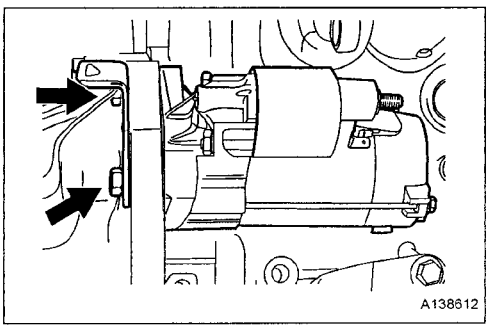
(2) Use the engine sling device and the chain block to hang the engine assembly with transaxle.
(3) Use the transmission jack to support the transaxle assembly.



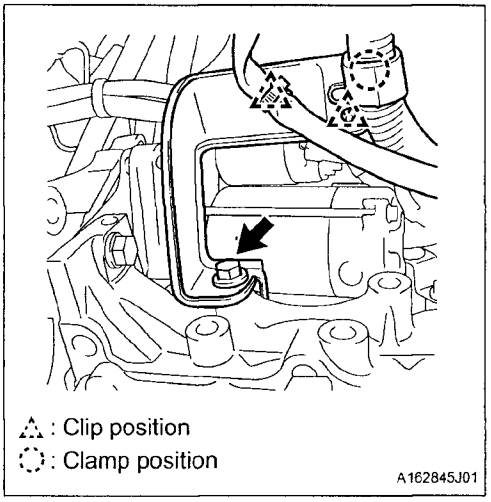
41. Transaxle assembly installation
    (1) Use two new seal bolts (A) and six bolts (B, C, and D) to attach the transaxle assembly.
    Specified value: T=64N*m {653kgf*cm} (Bolt A)
    T=64N*m {653kgf*cm} (Bolt B)
    T=64N*m {653kgf*cm} (Bolt C)
    T=37N*m {377kgf*cm} (Bolt D)



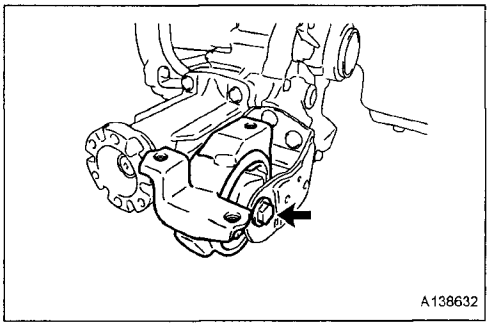
42. Transfer assembly installation
    (1) Temporary tighten bolts A, B, and C.
    (2) Pushing the transfer stiffener plate RH against the transfer assembly, tighten bolt D and then E.
    (3) Tighten bolts A, B, and C.
    Specified value: T=80N*m {816kgf*cm} (Bolts A, B, and C)
    T=37N*m {377kgf*cm} (Bolts D and E)



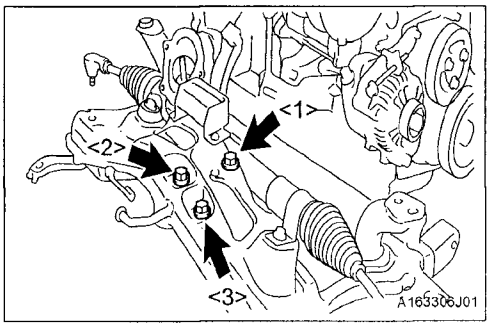
43. Starter assembly installation
    (1) Use two bolts to attach the starter assembly.
    Specified value: T=37N*m {377kgf*cm}
    (2) Connect the connector.



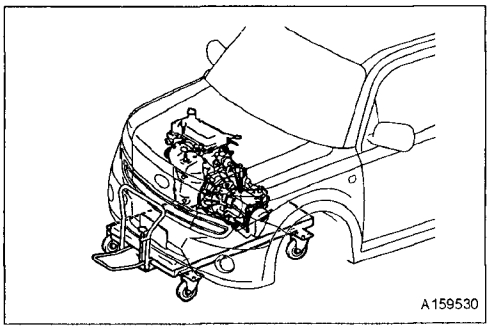
(3) Attach two clips and a clamp to the wire harness bracket, and use a bolt to attach the wire harness bracket.
Specified value:T=19N*m {194kgf*cm}
(4) Use nuts to attach terminal 30.
Specified value:T=8.8N*m {90kgf*cm}



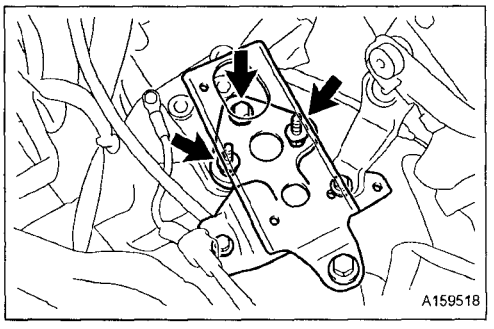
44. Engine mounting insulator RR installation
(1) Use a bolt to attach the engine mounting insulator RR.
Specified value:T=75N*m {765kgf*cm}
<HINT>
Before final tightening, attach the engine assembly with transaxle to the vehicle.



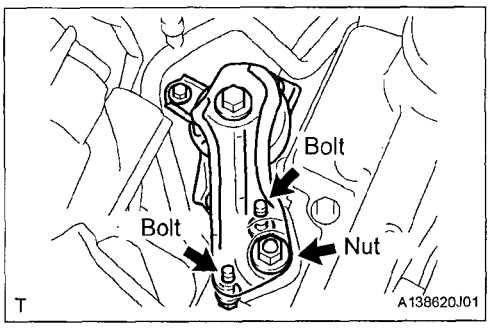
45. Front suspension cross member installation
(1) Use three bolts of the engine mounting insulator RR to attach the front suspension cross member.
Specified value:T=48N*m {489kgf*cm}
<HINT>
Tighten the bolts in the order shown in the diagram.



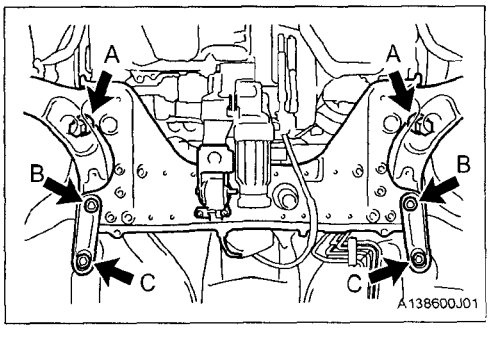
46. Engine assembly with transaxle installation
(1) Place the engine lifter.
(2) Operate the engine lifter to place the engine assembly with transaxle in the vehicle.



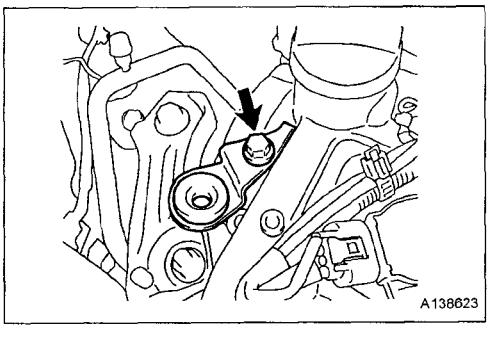
(3) Use three bolts to attach the engine mounting insulator LH.
Specified value:T=75N*m {765kgf*cm}



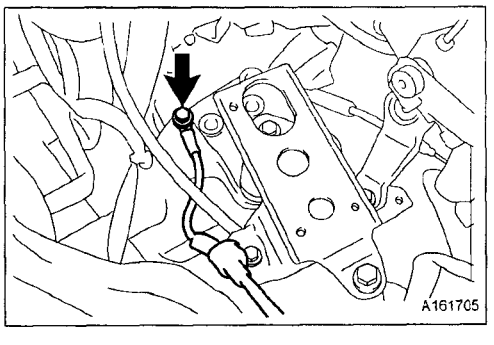
(4) Use two bolts and one nut to attach the engine mounting insulator RH.
Specified value:T=95N*m {969kgf*cm} (Bolt)
T=75N*m {765kgf*cm} (Nut)



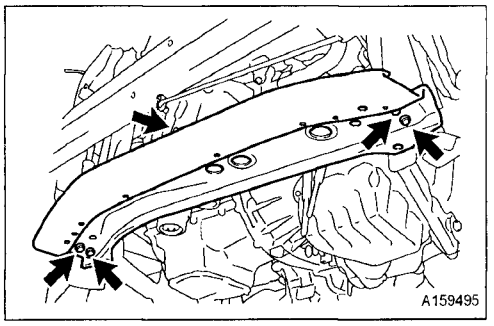
(5) Use six bolts to temporarily attach the front suspension cross member to the vehicle.
(6) Adjusting the position, tighten the RH and LH side bolts A, B, and C with the specified torque by tightening each bolt in small steps.
Specified value:T=118N*m {1203kgf*cm} (Bolt A)
T=100N*m {1020kgf*cm} (Bolt B)
T=66N*m {673kgf*cm} (Bolt B)



(7) Use a bolt to attach the air cleaner inlet bracket No. 1.
Specified value:T=18N*m {184kgf*cm}

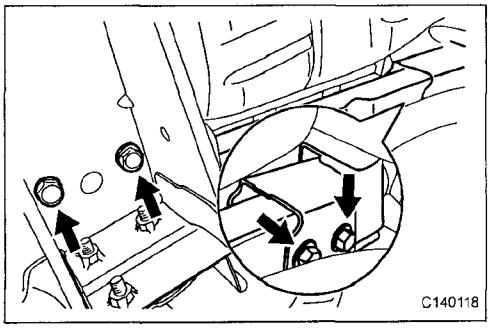


(8) Use a bolt to attach the battery-to-ground cable.
Specified value:T=19N*m {194kgf*cm}

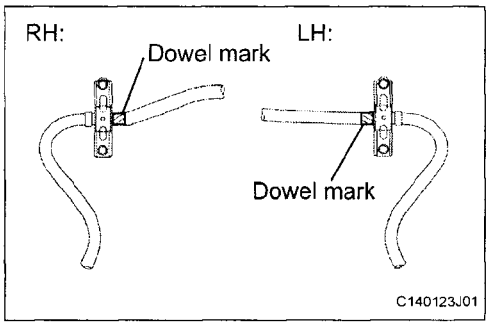


47. Radiator support LWR installation
    (1) Use five bolts to attach the radiator support LWR.
    Specified value:T=5.5N*m {56kgf*cm}

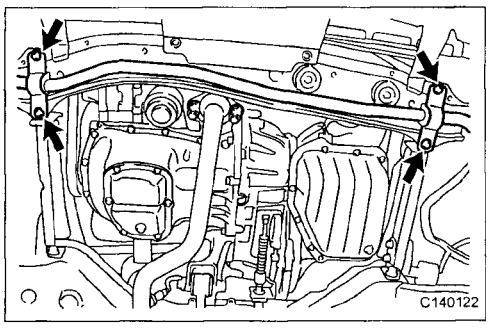
48. Steering knuckle LH installation
    (1) Attach the steering knuckle LH to the front suspension lower arm No. 1 LH and tighten the nut.
    Specified value:T=52N*m {530kgf*cm}
    (2) Attach a new clip.
49. Steering knuckle RH installation
    <HINT>
    Attach it using the same procedure as the LH side.
50. Front drive shaft assembly LH installation (See page 07-84)
51. Front drive shaft assembly RH installation (See page 07-84)
52. Front shock absorber assembly LH installation (See page 36-16)
53. Front shock absorber assembly RH installation (See page 36-16)
54. Tie rod end LH installation (See page 36-16)
55. Tie rod end RH installation (See page 36-16)
56. Axle hub nut installation (LH) (See page 36-16)
57. Axle hub nut installation (RH) (See page 36-16)
58. Front disc brake cylinder assembly LH installation (See page 36-16)
59. Front disc brake cylinder assembly RH installation
    <HINT>
    Attach it using the same procedure as the LH side.
60. Speed sensor FR LH installation (See page 36-17)
61. Speed sensor FR RH installation
    <HINT>
    Attach it using the same procedure as the LH side.



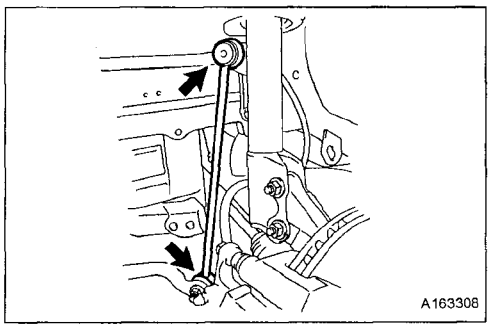
62. Front suspension cross member LH installation
    (1) Use four bolts to attach the front suspension cross member LH.
    Specified value:T=35N*m {357kgf*cm}
63. Front suspension cross member RH installation
    <HINT>
    Attach it using the same procedure as the LH side.



64. Front stabilizer bar installation
    (1) Align the dowel marks and attach the front stabilizer bar bush No. 1 to the front stabilizer bar.

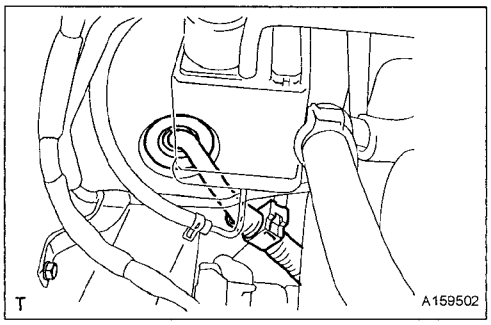


    (2) Attach the stabilizer bracket to the front stabilizer bar with the bracket notch portion facing the vehicle front.
    (3) Use four bolts to attach the front stabilizer bar to the vehicle.
    Specified value:T=24N*m {245kgf*cm}

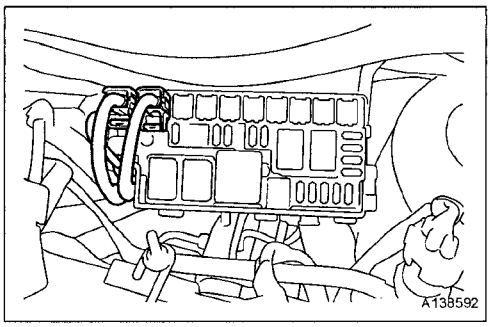


    (4) Connect the front stabilizer link assembly LH and the front stabilizer bar with a nut.
    Specified value:T=74N*m {755kgf*cm}
    <CAUTION>
    The ball joint should not be strained.
    (5) Connect the front stabilizer link assembly RH and the front stabilizer bar with a nut.
    Specified value:T=74N*m {755kgf*cm}
    <CAUTION>
    The ball joint should not be strained.

65. Engine undercover LH installation
    (1) Use a screw and three clips to attach the engine undercover LH.
66. Engine undercover RH installation
    <HINT>
    Attach it using the same procedure as the LH side.
67. Transmission floor shift assembly installation (See page 29-60)
68. Console box assembly installation (See page 78-35)
69. Console box carpet installation (See page 78-36)
70. Rear console box installation (See page 78-36)
71. Shift lever knob installation (See page 78-36)
72. Steering column assembly connection (See page 49-79)
73. Steering column hole cover No. 1 installation (See page 48-18)
74. Clutch hose connection (See page 29-43)
75. Clutch release cylinder assembly installation (See page 29-44)

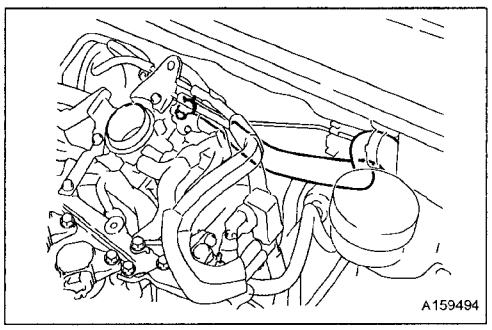


76. Engine wire connection
    (1) Bring the engine wire into the vehicle interior and attach the grommet.

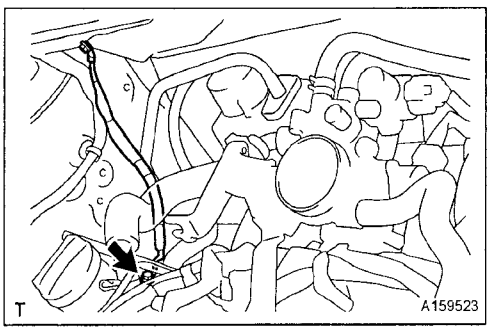


    (2) Connect the connector to the engine room relay box.
    (3) Connect the connector of the engine control computer and attach the instrument panel undercover No. 1.

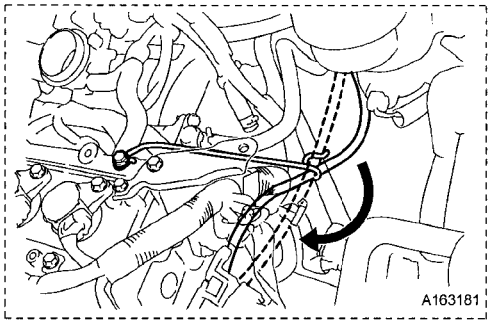
77. Engine room main wire connection
    (1) Connect each connector and the clamp and connect the engine room main wire to the transaxle assembly.



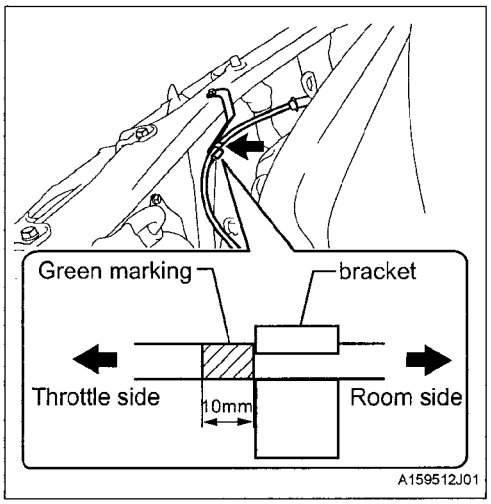
78. Vacuum hose assembly connection
    (1) Connect the vacuum hose assembly with a clip.



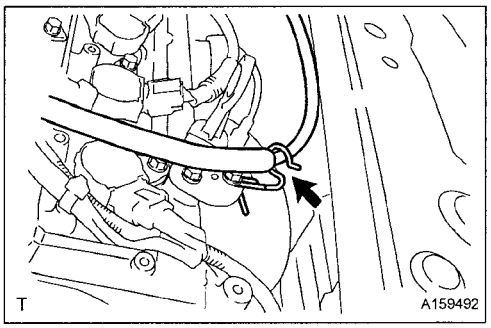
79. Ground cable connection
    (1) Connect the ground cable with a bolt.
    Specified value:T=8.0N*m {82kgf*cm}



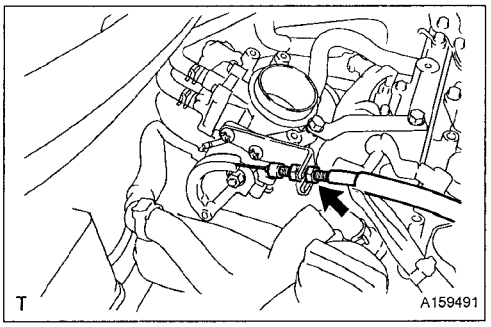
80. Accelerator control cable assembly connection
(1) Attach the accelerator control cable assembly to bracket <C> as shown in the diagram.



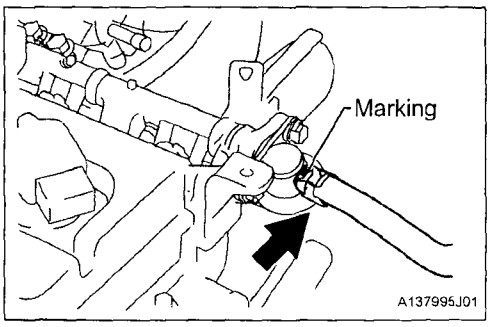
(2) Align the green marking position on the accelerator control cable assembly with bracket <B> and attach the accelerator control cable assembly.
<HINT>
Align the bracket and the green marking for attachment as shown in the digram.



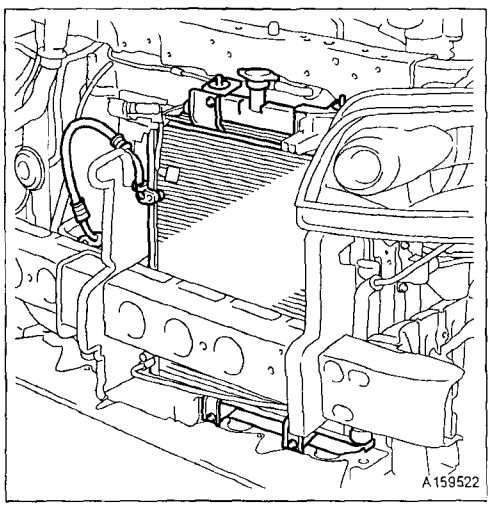
(3) Attach the accelerator control cable assembly to the bracket <A>.



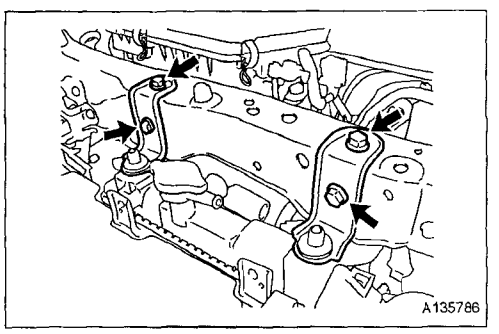
(4) Connect the end part of the accelerator control cable assembly to the throttle body assembly and use the crow foot wrench and the torque wrench to tighten the nut.
Tool: Crow foot wrench {KTC (NBNS3-12) or equivalent}
Specified value:T=8.5N*m {87kgf*cm}
<HINT>
> See page 06-184 for the adjustment procedure of the accelerator control cable assembly.
> When the total length of the cable is extended to tighten the cable using a torque wrench with SST and the tools, determine the reading of the torque wrench by the formula (See page 01-5)



81. Fuel hose connection
    (1) Connect the fuel hose with a clip.
    <HINT>
    When connecting the fuel hose, make sure that its marking and clip knob face the vehicle top.



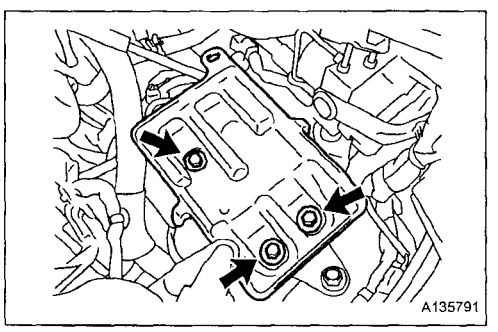
82. Radiator assembly installation
    (1) Install the radiator support grommets LWR to the radiator support LWR.Then install the radiator assembly with the cooler condenser assembly (with Receiver) (with Air conditioning system).
    <CAUTION>
    Install the radiator support grommet LWR with its smaller diameter side facing downward.



    (2) Install the radiator bracket No.1 with 4 bolts after installing the radiator support grommets.
    Specified value:T=18N*m {184kgf*cm}
    <CAUTION>
    Install the radiator support grommet with its larger diameter side facing downward.

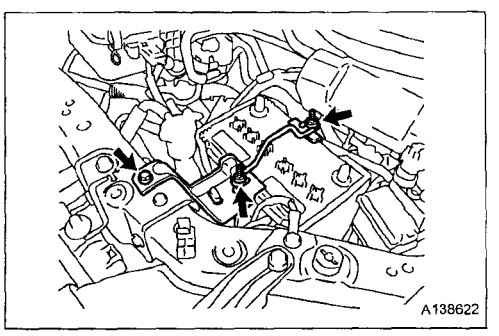
83. Cooler refrigerant liquid pipe A connection (with Air conditioning system) (See page 52-137)
84. Compressor assembly with magnet clutch installation (with Air conditioning system) (See page 52-134)
85. Cooler refrigerant discharge hose No. 1 connection (with Air conditioning system) (See page 52-134)
86. Cooler refrigerant suction hose No. 1 connection (with Air conditioning system) (See page 52-134)
87. Fan & alternator V belt installation
    (See page 07-6)
88. Front bumper cover installation (See page 82-15)
89. Heater outlet water hose connection (See page 52-177)
90. Heater inlet water hose connection (See page 52-178)
91. With water fan assembly installation (See page 12-13)
92. Radiator outlet hose connection (See page 12-14)
93. Water bypass hose connection (See page 12-14)
94. Air cleaner assembly installation (See page 12-14)
95. Air cleaner assembly installation (See page 06-149)
96. Precleaner hose installation (See page 06-149)

97. Inlet air temperature sensor connection (See page 06-150)
98. Vacuum switching valve assembly (with Bracket) connection (See page 06-150)
99. Vacuum sensor connection (See page 06-150)
100. Air cleaner filter element installation
101. Air cleaner cap installation



102. Battery tray installation
    (1) Use three bolts to attach the battery tray.
    Specified value: T=5.5N*m {56kgf*cm}

103. Battery installation
104. Battery cover installation
105. Radiator reserve tank assembly installation (See page 12-15)



106. Battery hold down clamp installation
    (1) Attach one bolt, tighten two nuts, and attach the battery hold down clamp.
    Specified value: T=5.5N*m {56kgf*cm} (Bolt)
    T=5.0N*m {51kgf*cm} (Nut)

107. Temporary tightening of the propeller with a center bearing shaft assembly (See page 35-5)
108. Final tightening of the propeller with a center bearing shaft assembly (See page 35-5)
109. Exhaust pipe assembly FR installation (See page 11-16)
110. Battery terminal connection
    Specified value: T=6.4N*m {65kgf*cm}
111. Brake fluid replenishment (See page 45-4)
112. Clutch pipeline air bleeding (See page 27-3)
113. Clutch fluid leakage check
114. Brake fluid amount check (See page 45-4)
115. Cooling fluid replenishment (See page 12-6)
116. Engine oil replenishment
117. Manual transaxle oil replenishment (See page 29-45)
118. Cooling fluid leakage check (See page 12-6)
119. Cooling fluid amount check
120. Oil leakage check
121. Fuel leakage check (See page 08-7)
122. Exhaust gas leakage check (See page 11-16)
123. Engine idle-speed check (See page 07-4)
124. Ignition timing check (See page 07-2)
125. CO and HC level check (See page 07-4)
126. Refrigerant HFC-134a (R134a) filling (with Air conditioning system) (See page 52-42)

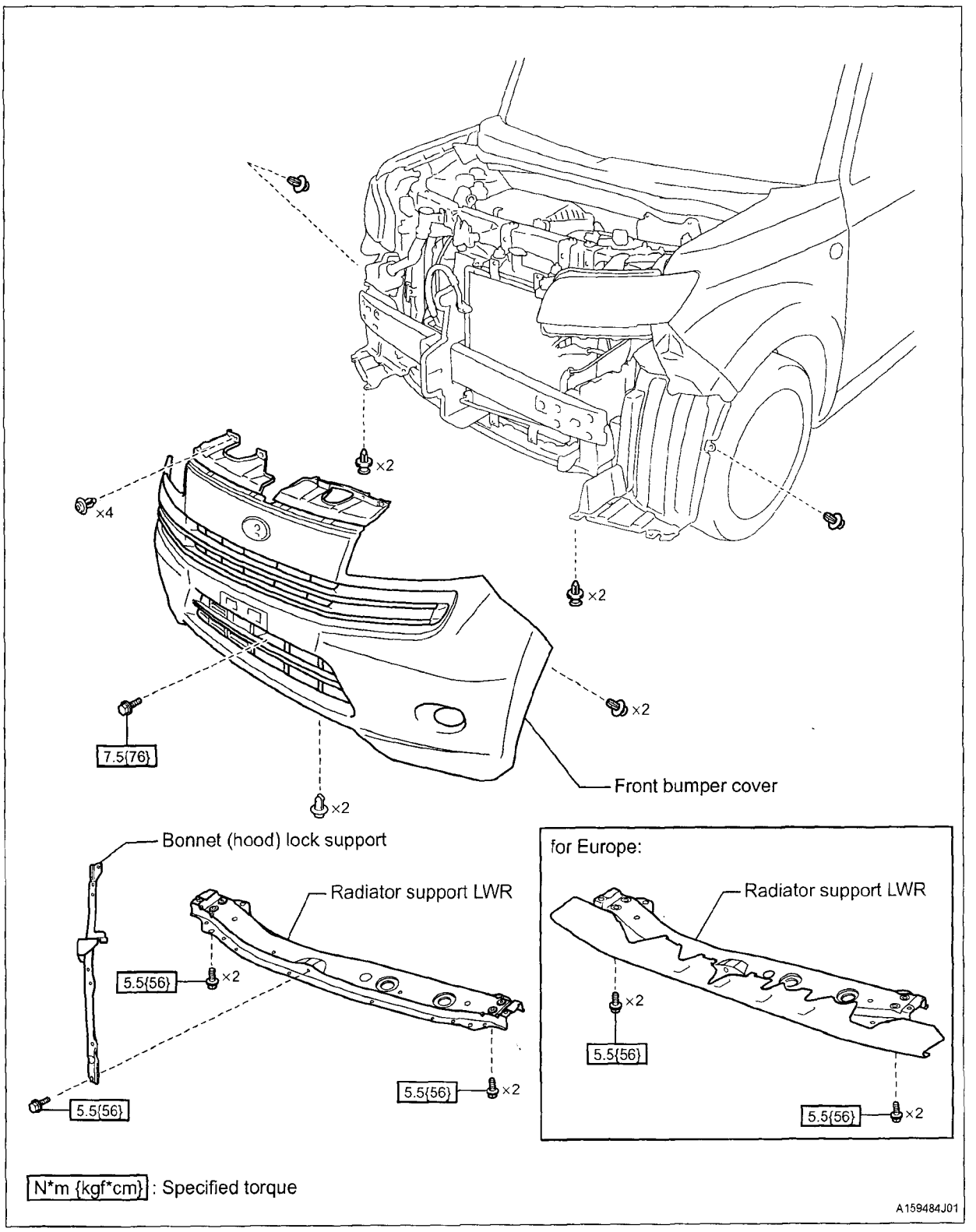
127.Front tire installation
Specified value:T=103N*m {1050kgf*cm}

128.Front wheel alignment check · adjustment
(See page 42-5)

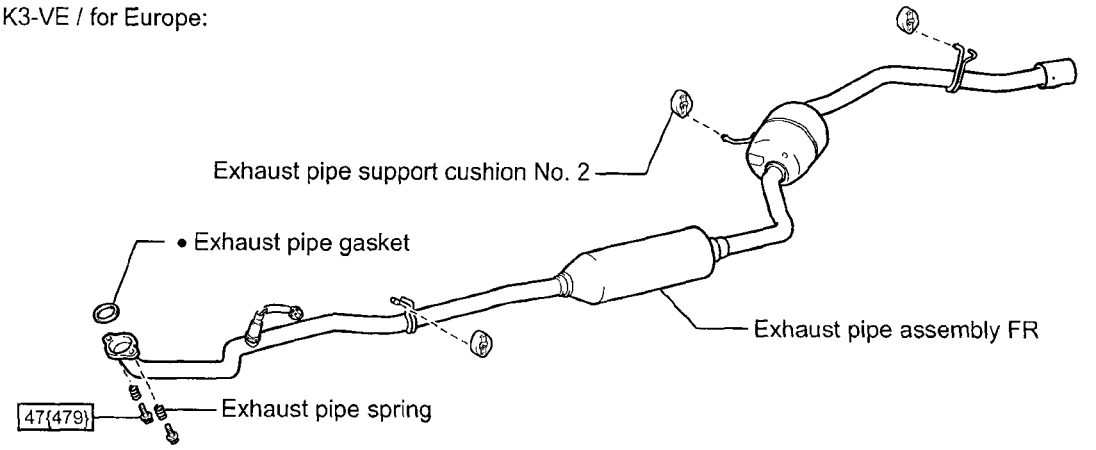
129.Test mode check (speed sensor system)
with ABS: (See page 44-15)

CHAIN (3SZ-VE, K3-VE / FF)

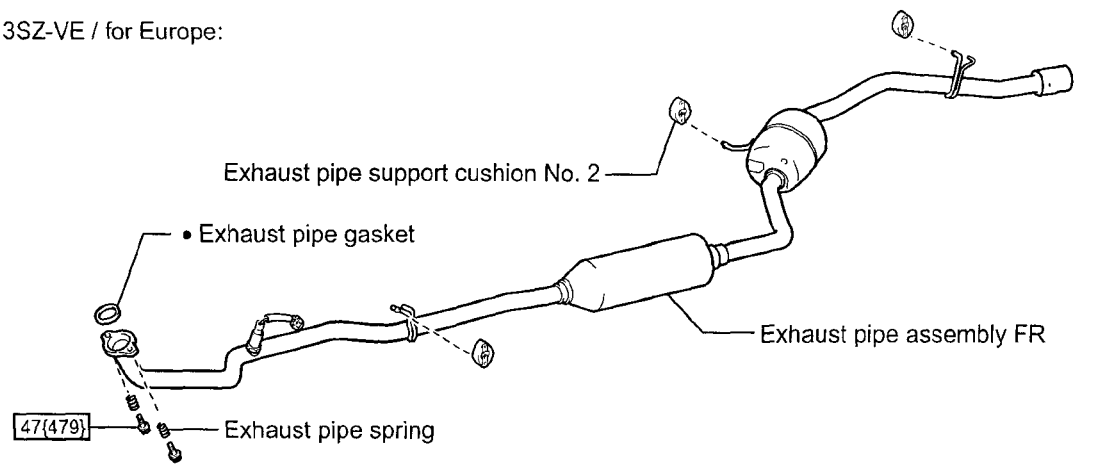
COMPONENTS



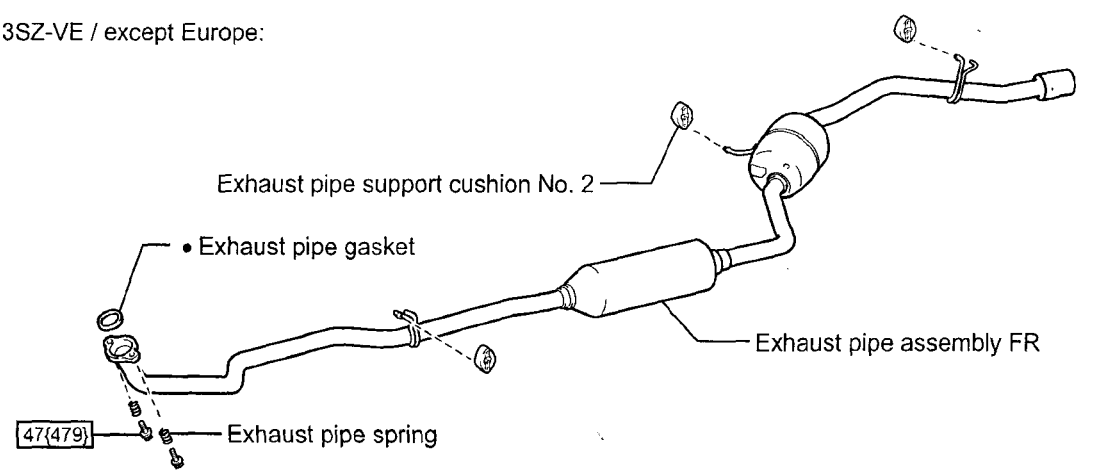
K3-VE / for Europe:



3SZ-VE / for Europe:

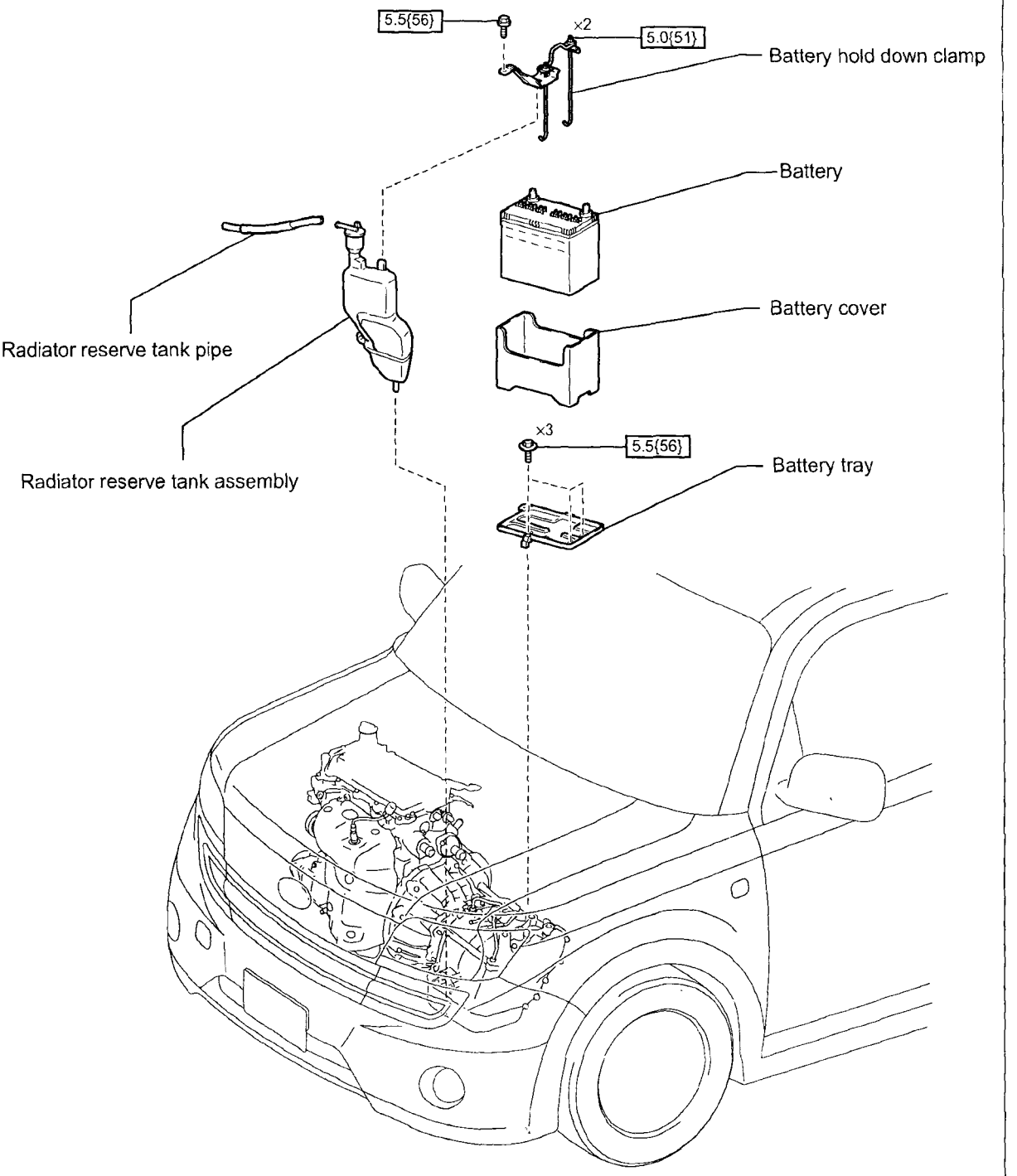


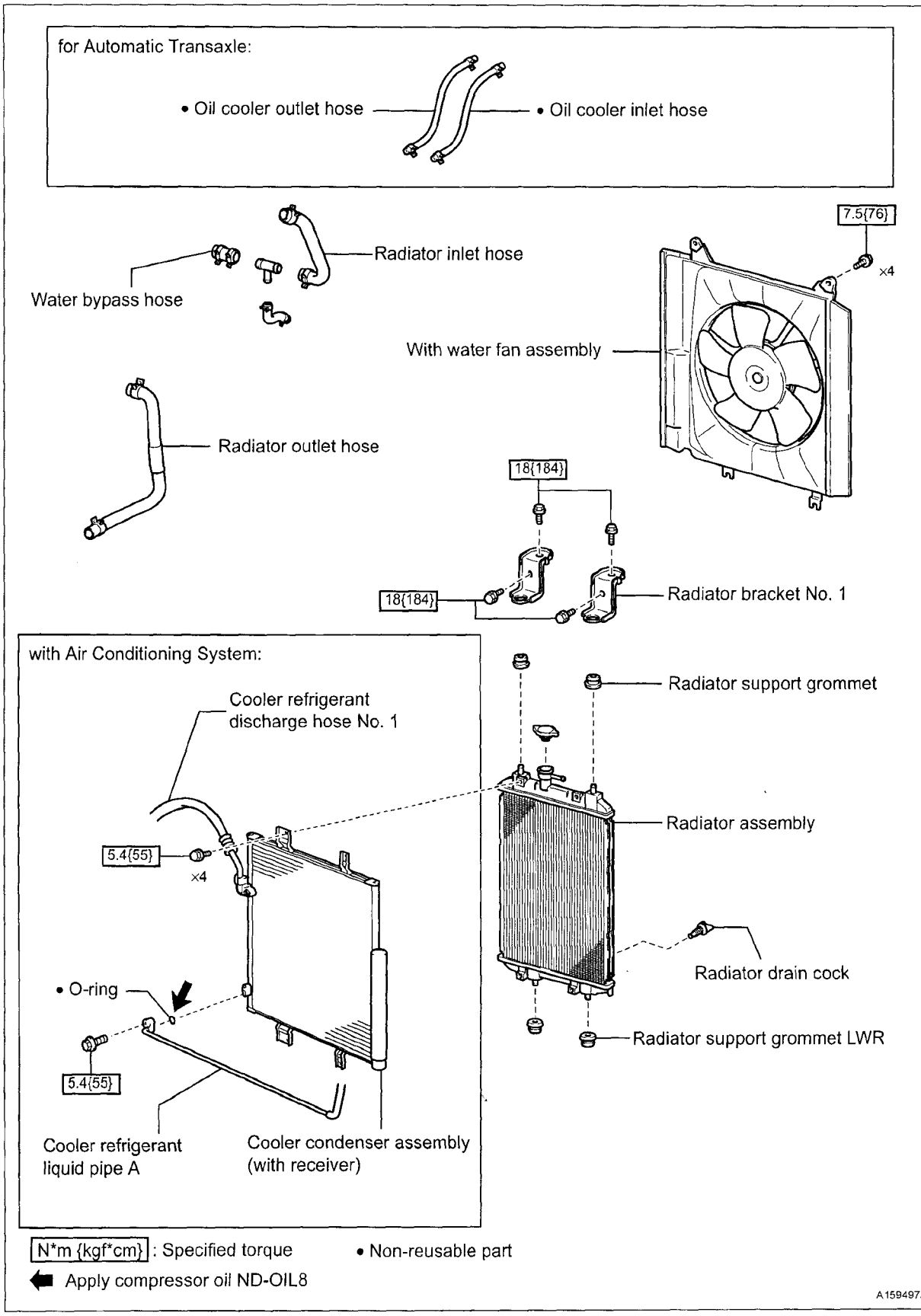
3SZ-VE / except Europe:



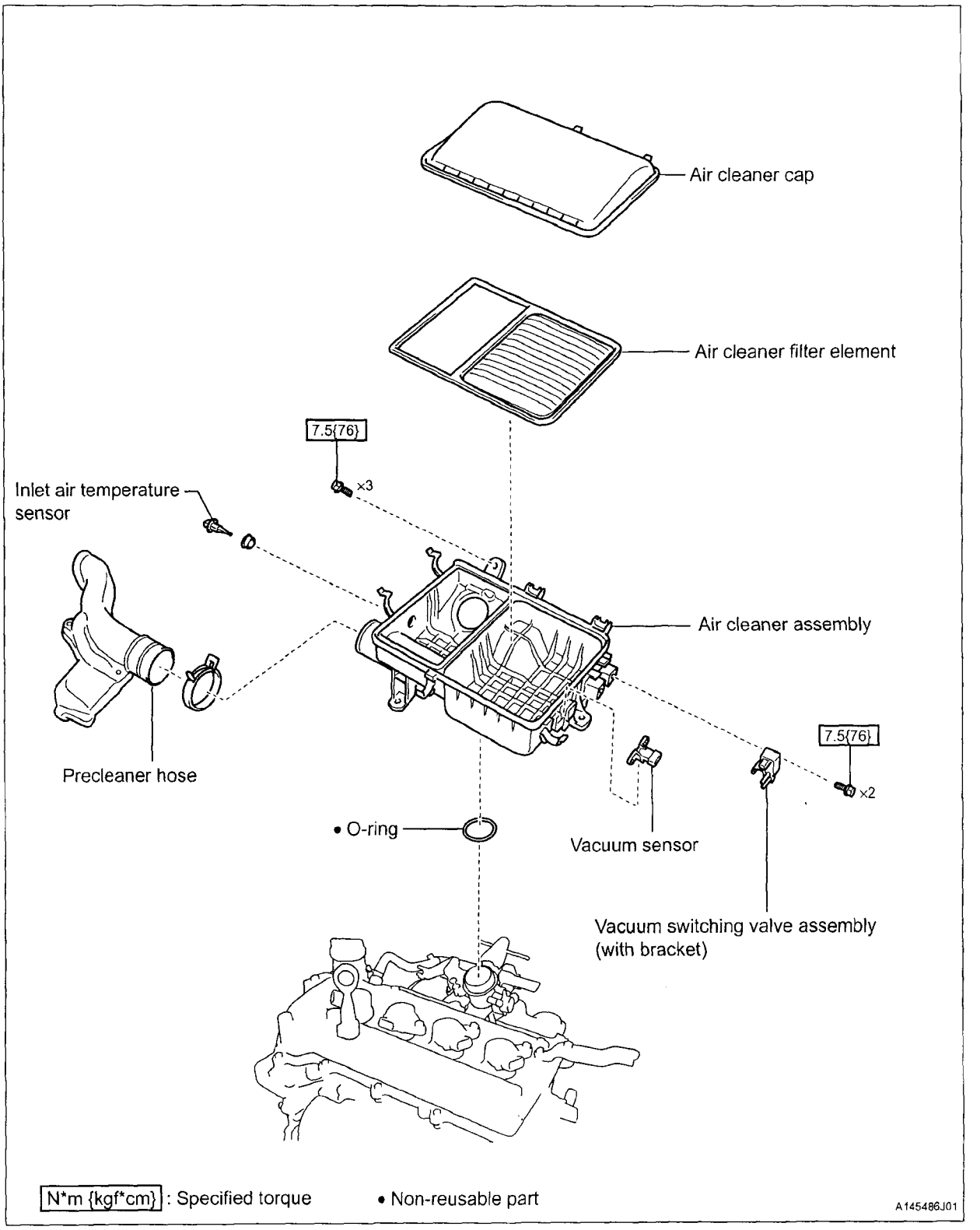
N*m {kgf*cm} : Specified torque • Non-reusable part

A159483J02

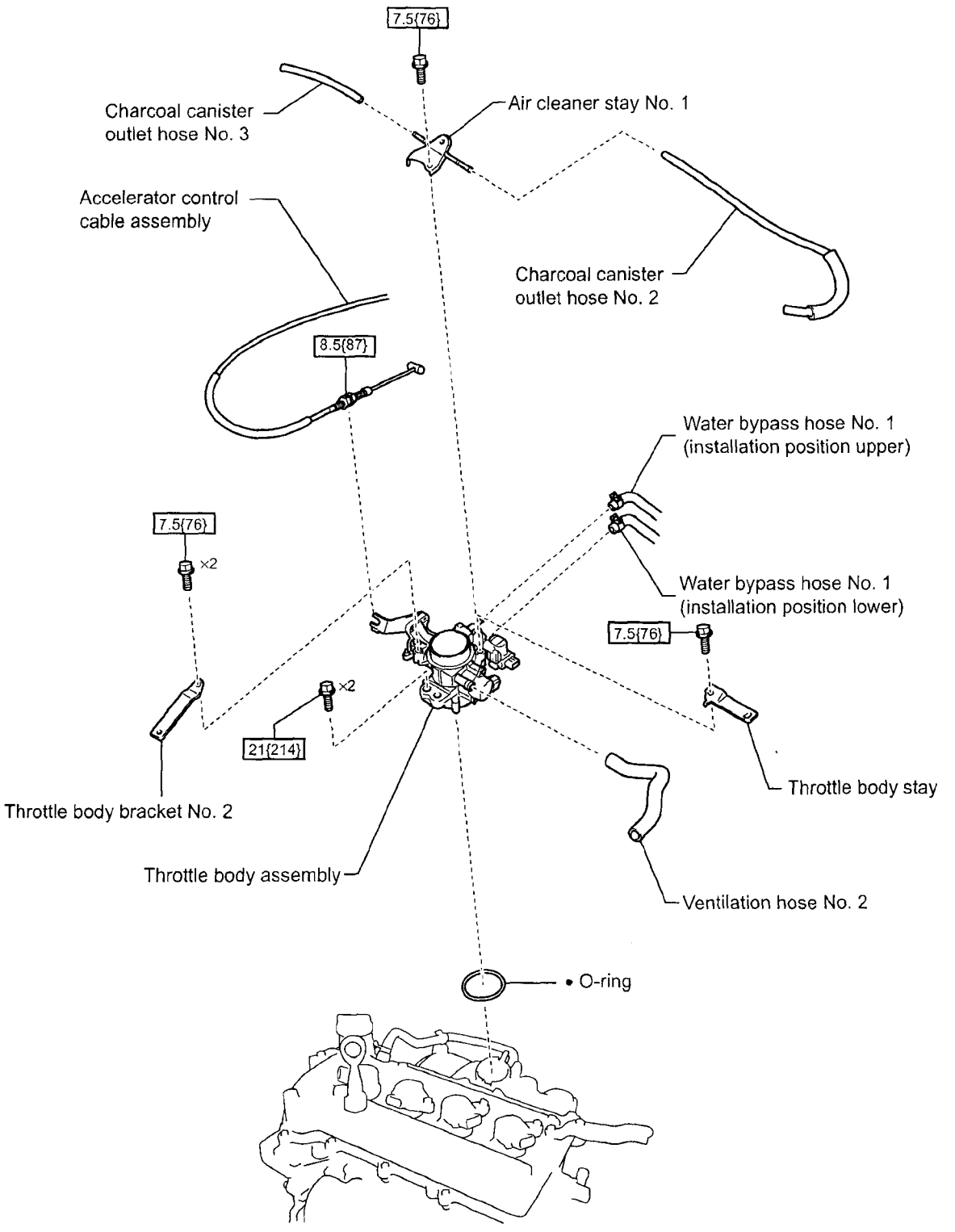

5.5{56}
×2
5.0{51}
Battery hold down clamp
Battery
Battery cover
Radiator reserve tank pipe
Radiator reserve tank assembly
×3
5.5{56}
Battery tray
N*m {kgf*cm} : Specified torque
A145460J02


for Automatic Transaxle:
• Oil cooler outlet hose
• Oil cooler inlet hose
Radiator inlet hose
Water bypass hose
7.5{76}
×4
With water fan assembly
Radiator outlet hose
18{184}
18{184}
Radiator bracket No. 1
with Air Conditioning System:
Cooler refrigerant discharge hose No. 1
Radiator support grommet
Radiator assembly
5.4{55}
×4
• O-ring
Radiator drain cock
5.4{55}
Radiator support grommet LWR
Cooler refrigerant liquid pipe A
Cooler condenser assembly (with receiver)
N*m {kgf*cm}: Specified torque
• Non-reusable part
Apply compressor oil ND-OIL8
A159497J01

07


Air cleaner cap
Air cleaner filter element
7.5{76}
×3
Inlet air temperature sensor
Air cleaner assembly
Precleaner hose
7.5{76}
×2
• O-ring
Vacuum sensor
Vacuum switching valve assembly (with bracket)
N*m {kgf*cm} : Specified torque
• Non-reusable part
A145486J01

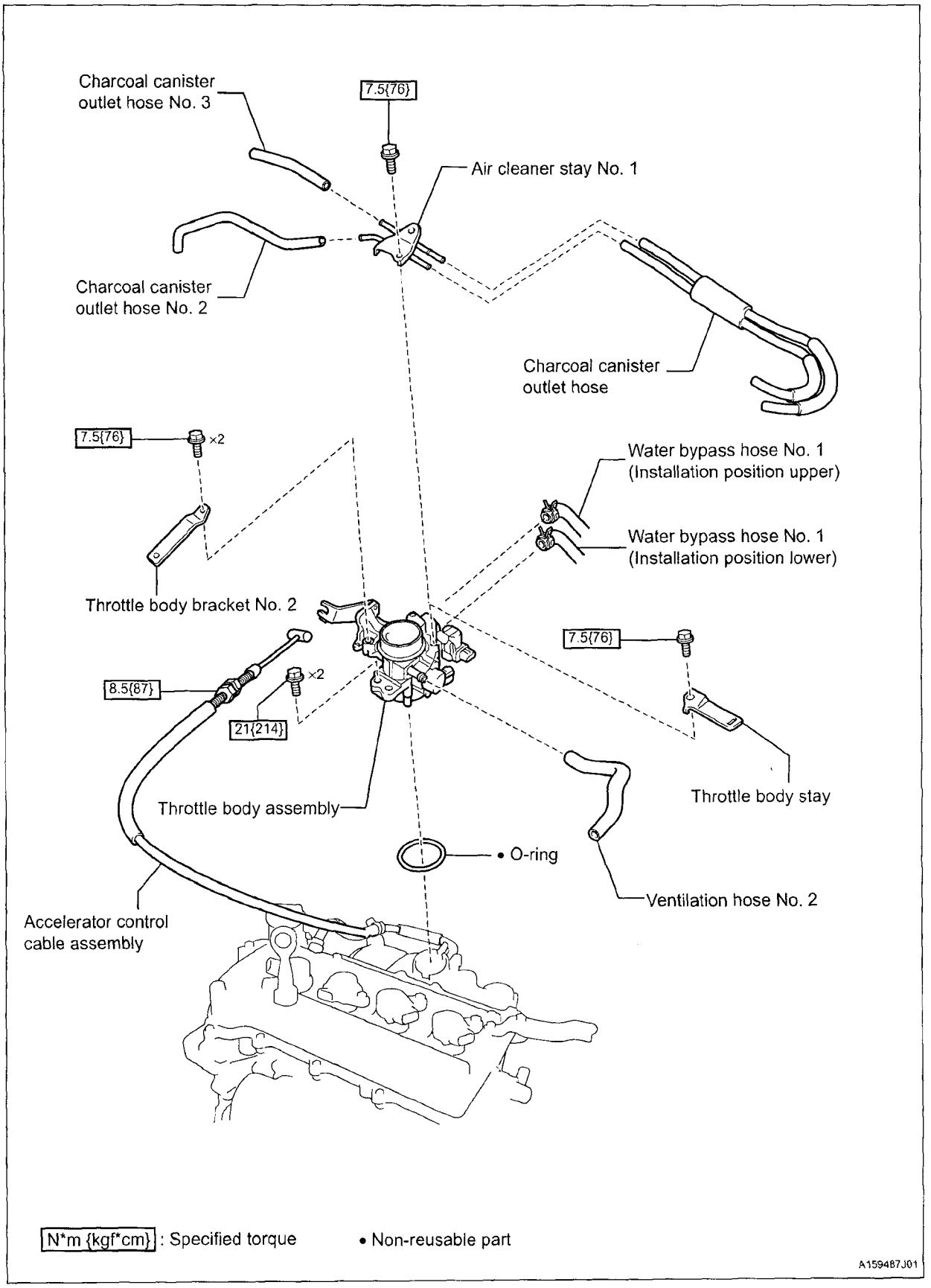
RHD:

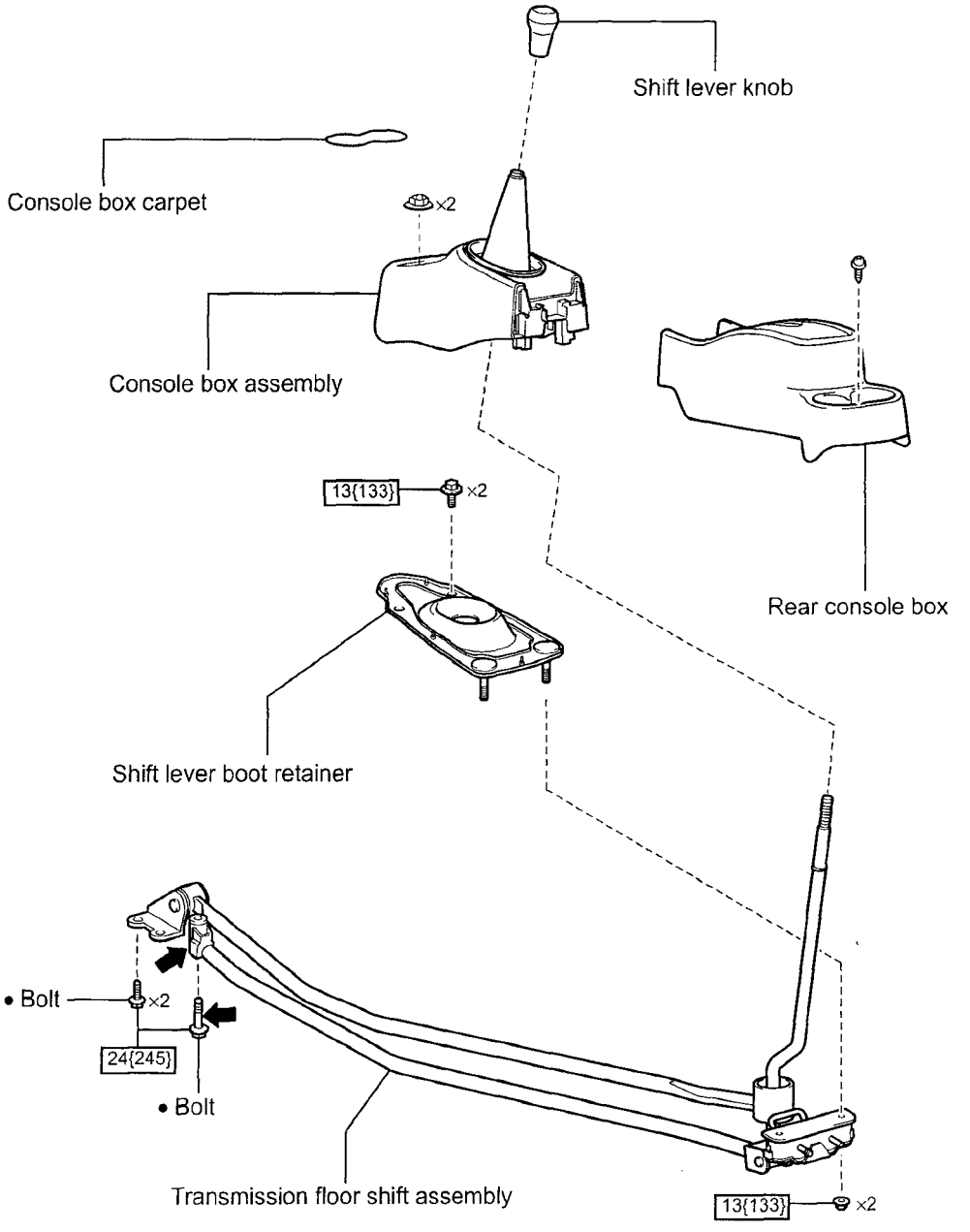


N*m {kgf*cm}: Specified torque • Non-reusable part

A145487J02

07


Charcoal canister outlet hose No. 3
7.5{76}
Air cleaner stay No. 1
Charcoal canister outlet hose No. 2
Charcoal canister outlet hose
7.5{76} ×2
Water bypass hose No. 1 (Installation position upper)
Water bypass hose No. 1 (Installation position lower)
Throttle body bracket No. 2
7.5{76}
8.5{87}
×2
21{214}
Throttle body assembly
Throttle body stay
• O-ring
Ventilation hose No. 2
Accelerator control cable assembly
N*m {kgf*cm} : Specified torque
• Non-reusable part
A159487J01

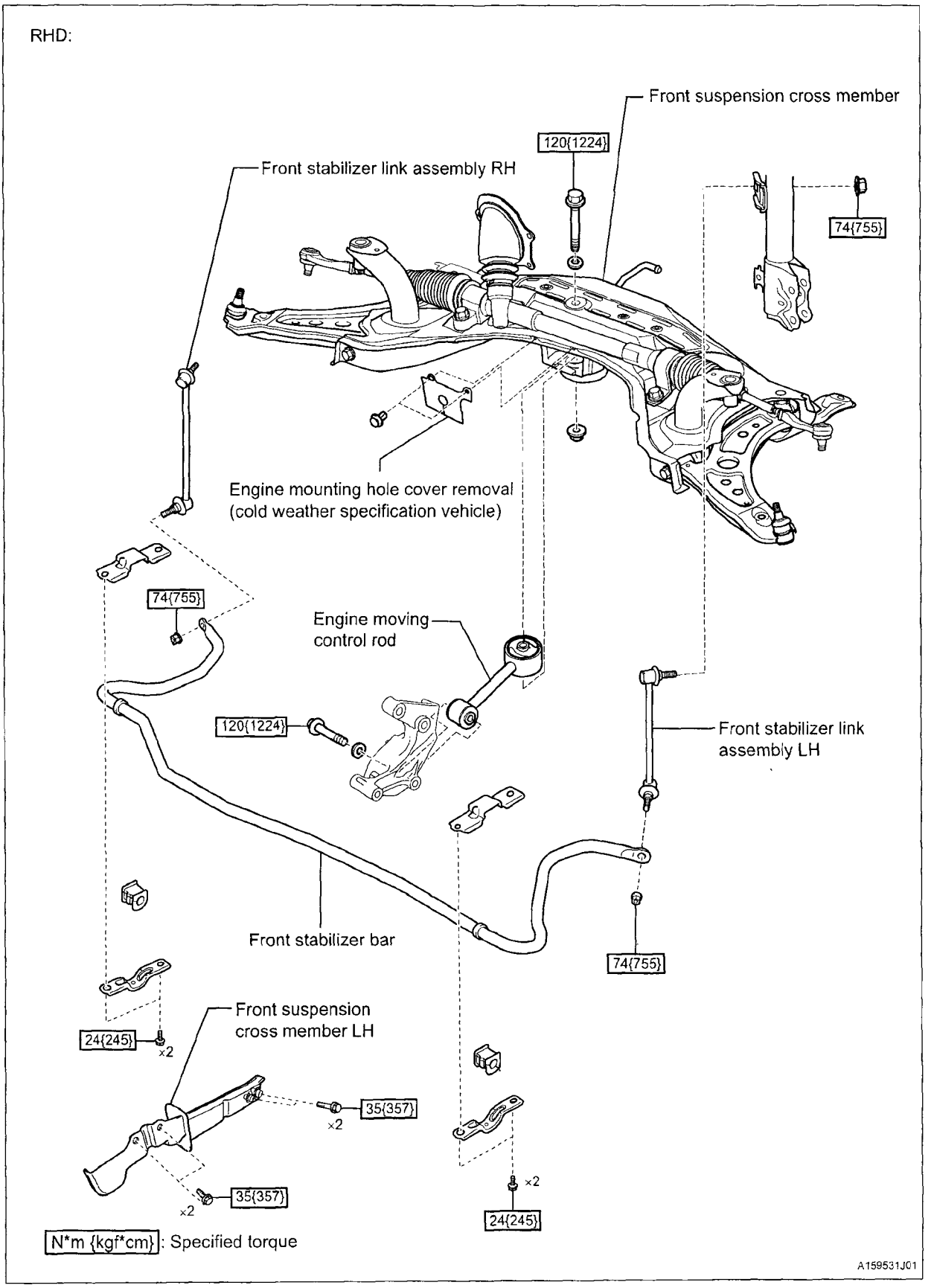


N*m {kgf*cm} : Spacified torque • Non-reusable part

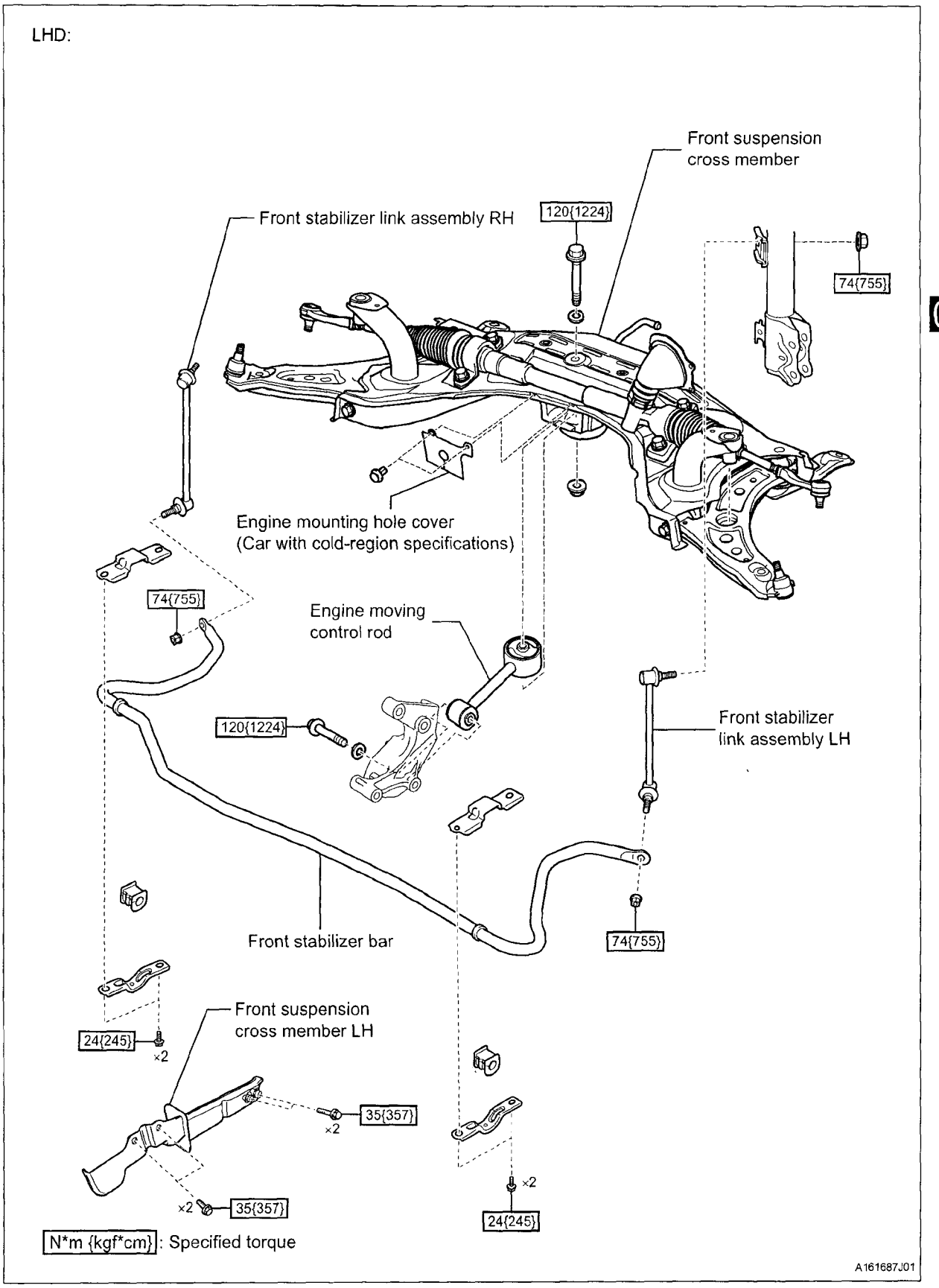
⬅ Apply MP Grease

C159934J02

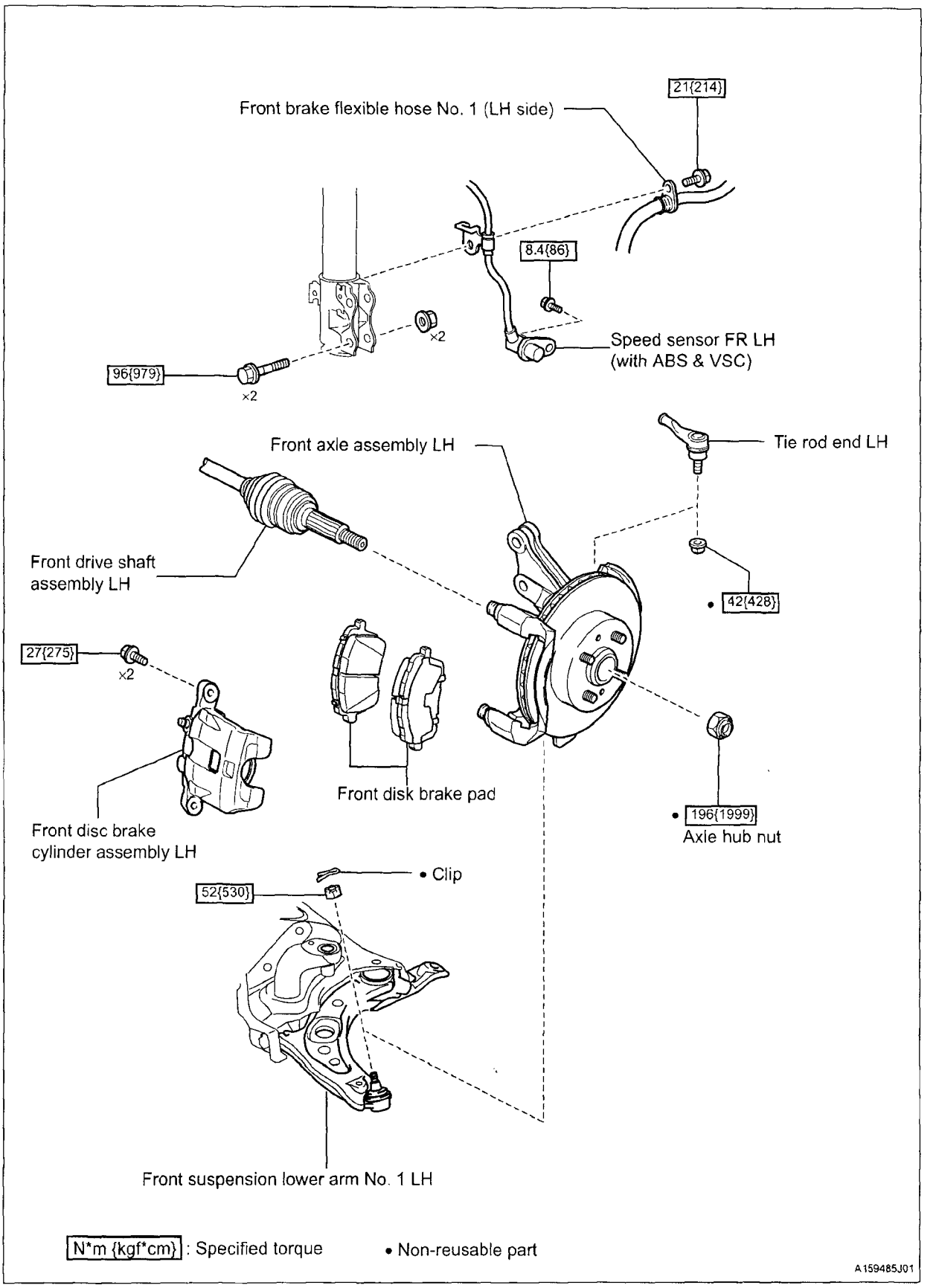
RHD:

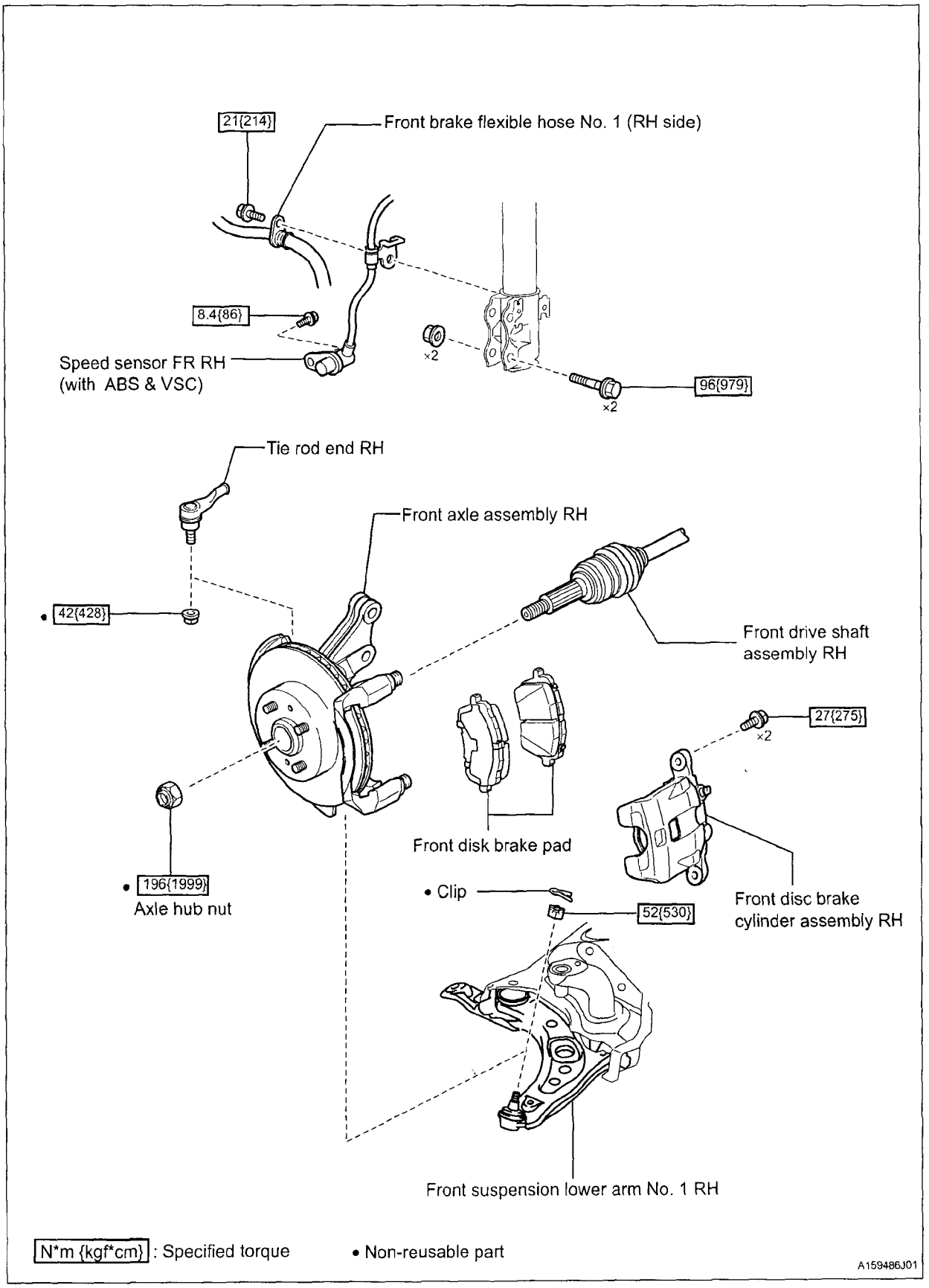

Front suspension cross member
120{1224}
Front stabilizer link assembly RH
74{755}
Engine mounting hole cover removal
(cold weather specification vehicle)
74{755}
Engine moving
control rod
120{1224}
Front stabilizer link
assembly LH
Front stabilizer bar
74{755}
Front suspension
cross member LH
24{245} ×2
35{357}
×2
35{357}
×2
×2
24{245}
N*m {kgf*cm}: Specified torque
A159531J01

LHD:


Front suspension cross member
Front stabilizer link assembly RH
120{1224}
74{755}
Engine mounting hole cover
(Car with cold-region specifications)
74{755}
Engine moving control rod
120{1224}
Front stabilizer link assembly LH
Front stabilizer bar
74{755}
Front suspension cross member LH
24{245}
×2
35{357}
×2
×2
35{357}
×2
24{245}
N*m {kgf*cm}: Specified torque
A161687J01

07

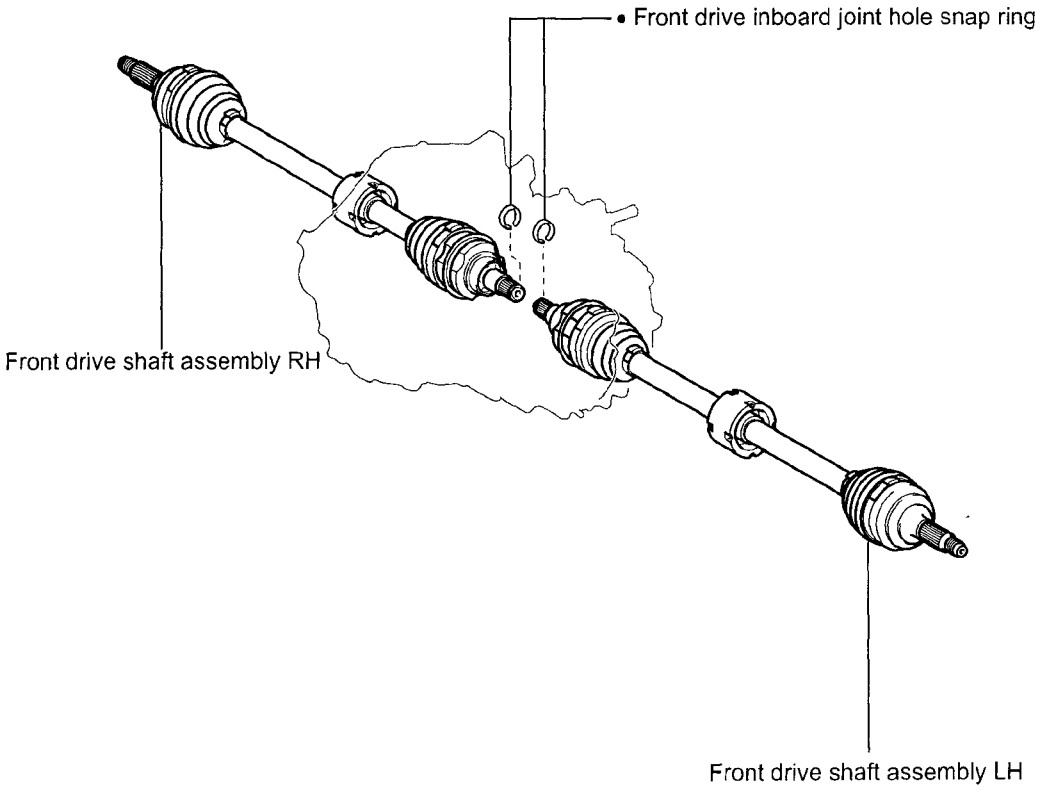

Front brake flexible hose No. 1 (LH side)
21{214}
8.4{86}
×2
Speed sensor FR LH
(with ABS & VSC)
96{979}
×2
Front axle assembly LH
Tie rod end LH
Front drive shaft
assembly LH
• 42{428}
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
Front disc brake
cylinder assembly LH
• Clip
52{530}
Front suspension lower arm No. 1 LH
N*m {kgf*cm} : Specified torque
• Non-reusable part
A159485J01



N*m {kgf*cm} : Specified torque • Non-reusable part

A159486J01

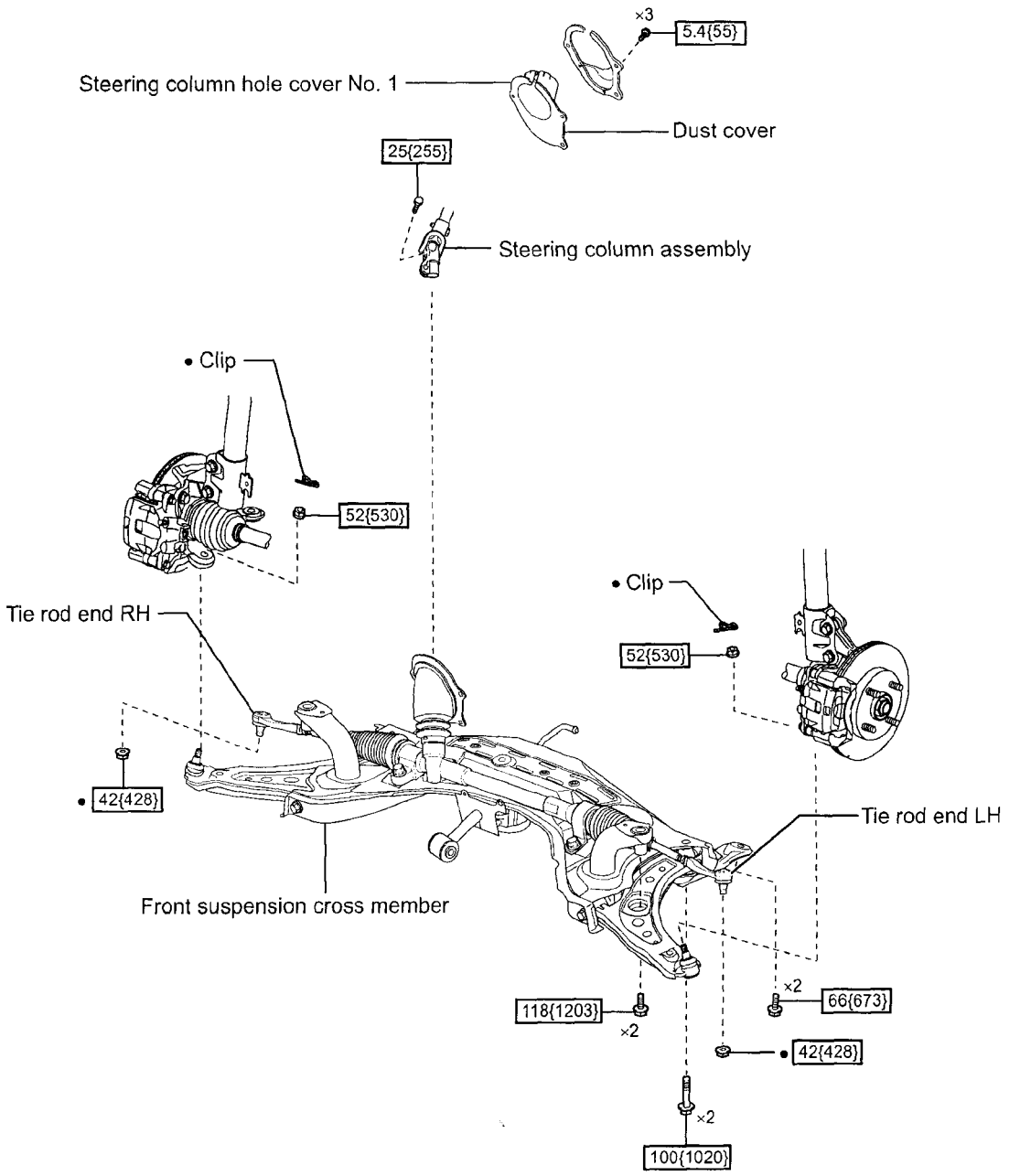
07



• Non-reusable part

A149649J01

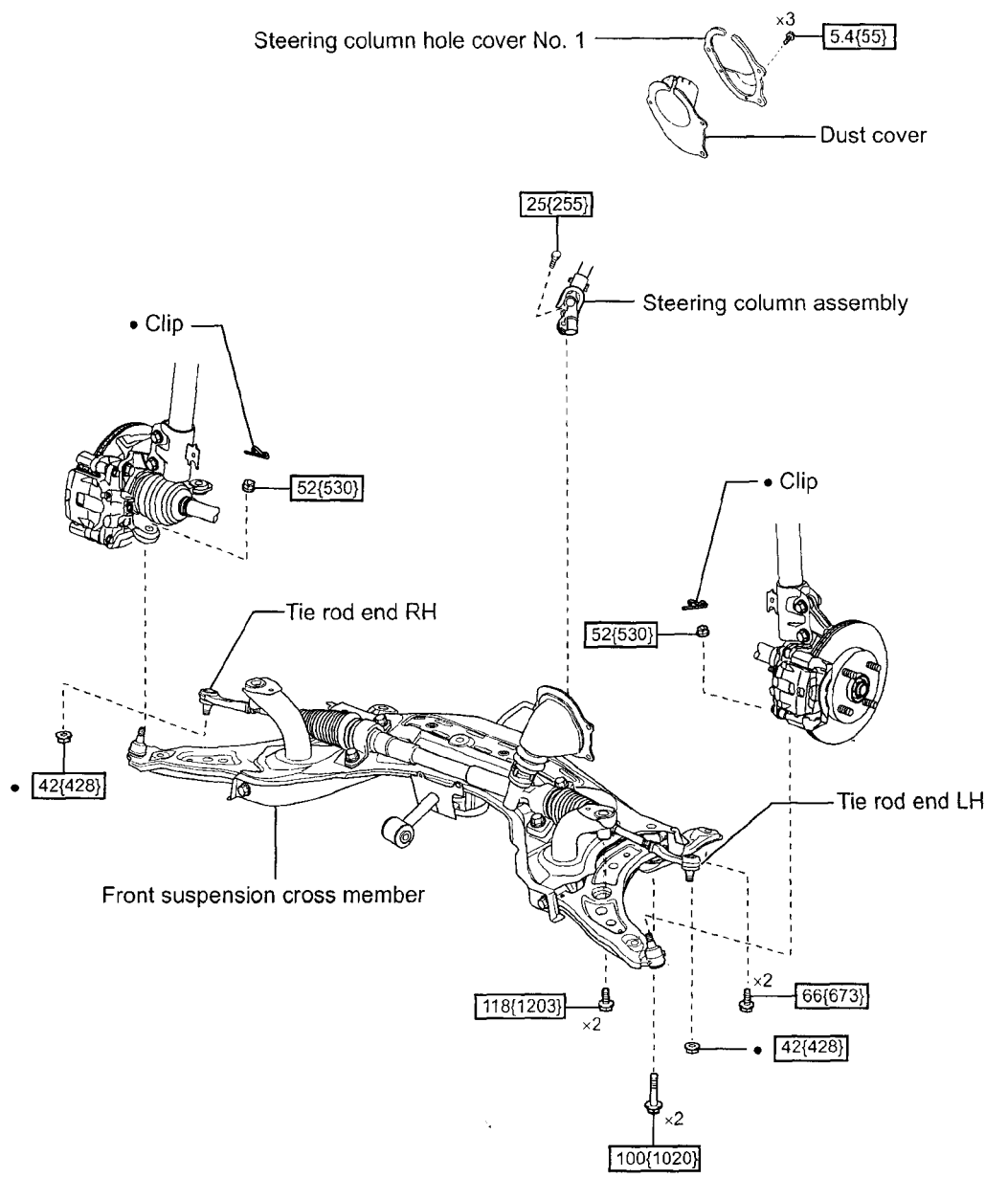
RHD:



N*m {kgf*cm}: Specified torque • Non-reusable part

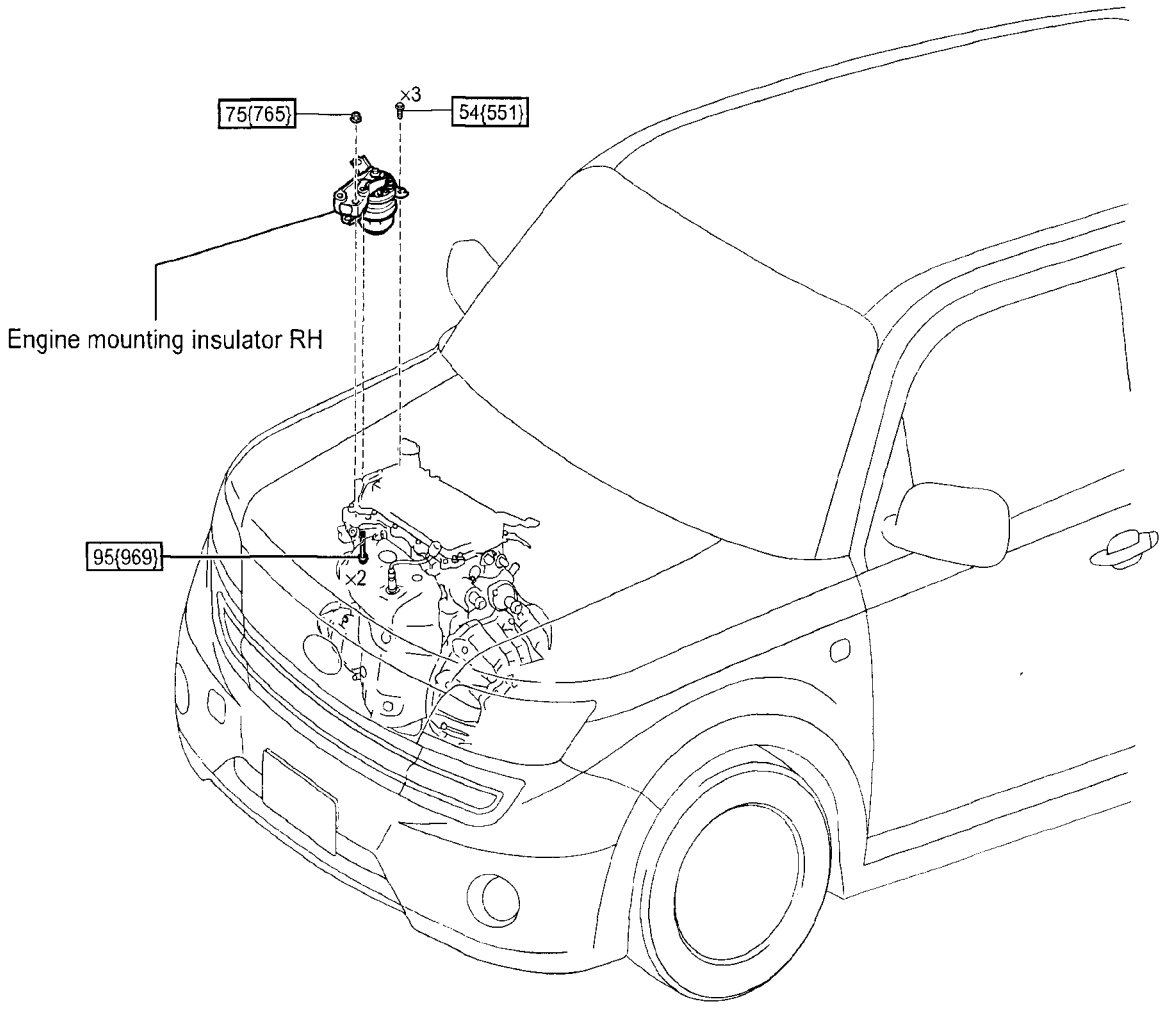
A159532J01

LHD:



N*m {kgf*cm}: Specified torque • Non-reusable part

A161686J01

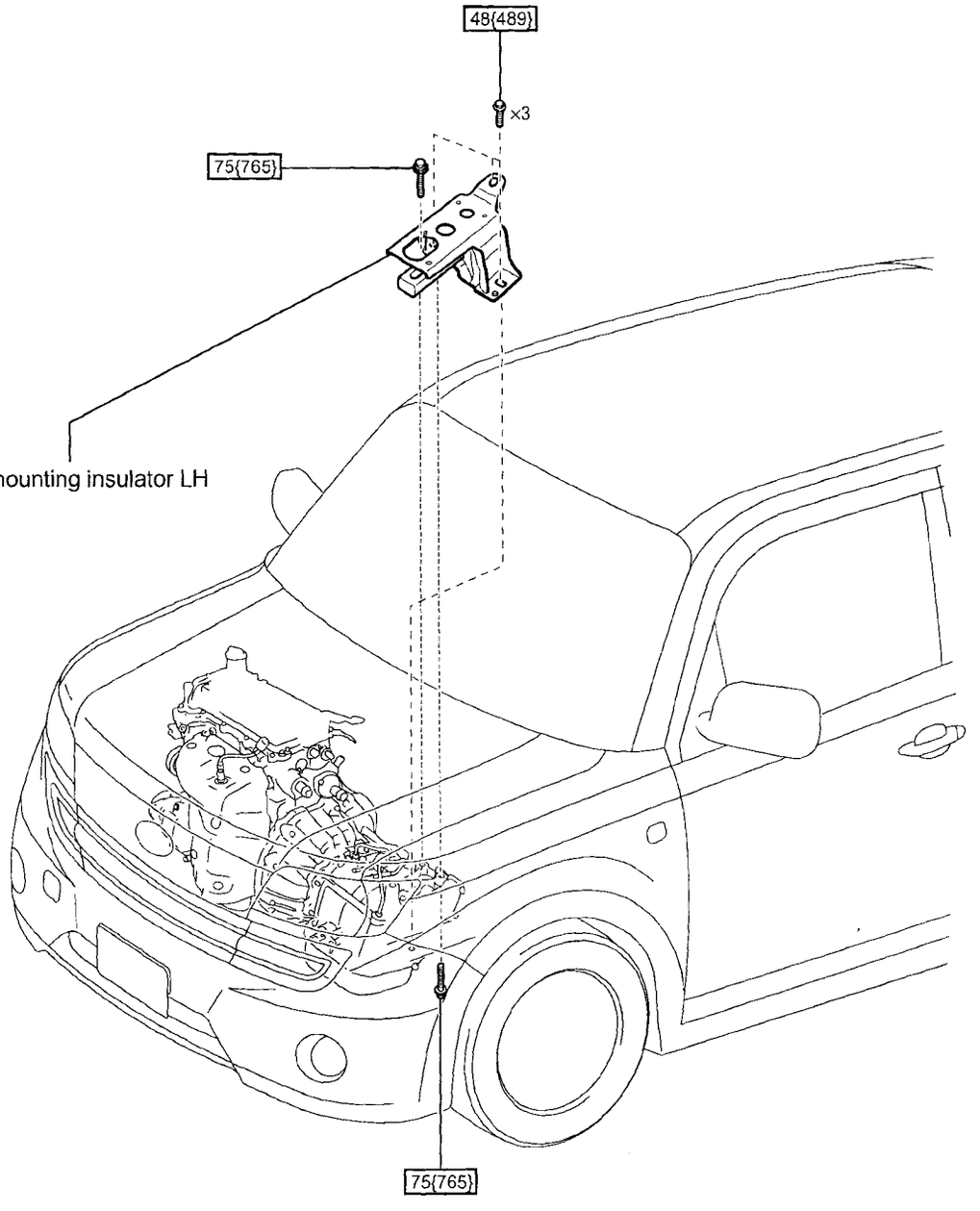


N*m {kgf*cm} : Specified torque

A159490J01

07

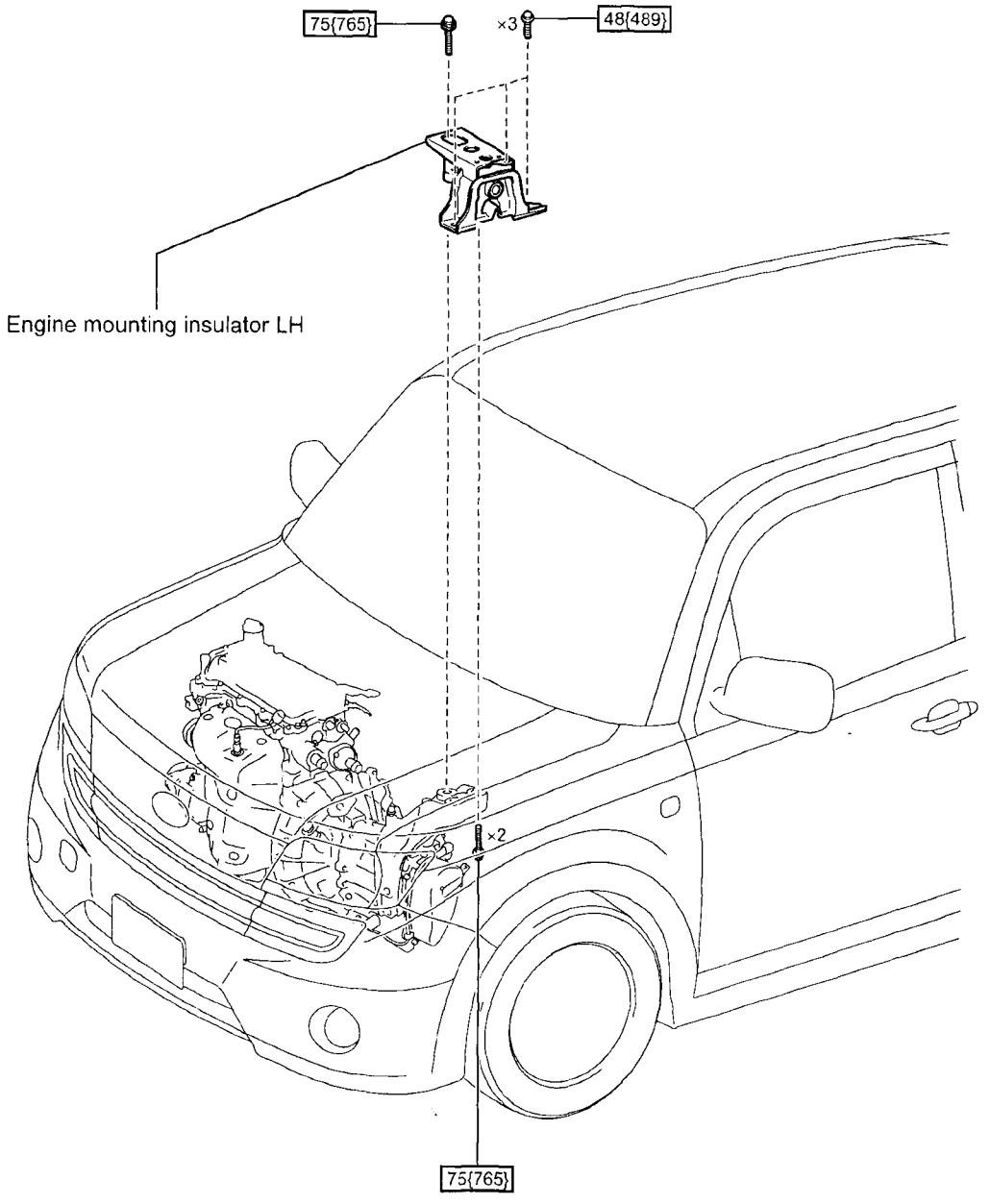
for Automatic transaxle:



N*m {kgf*cm} : Specified torque

A145465J02

for Manual transaxle:



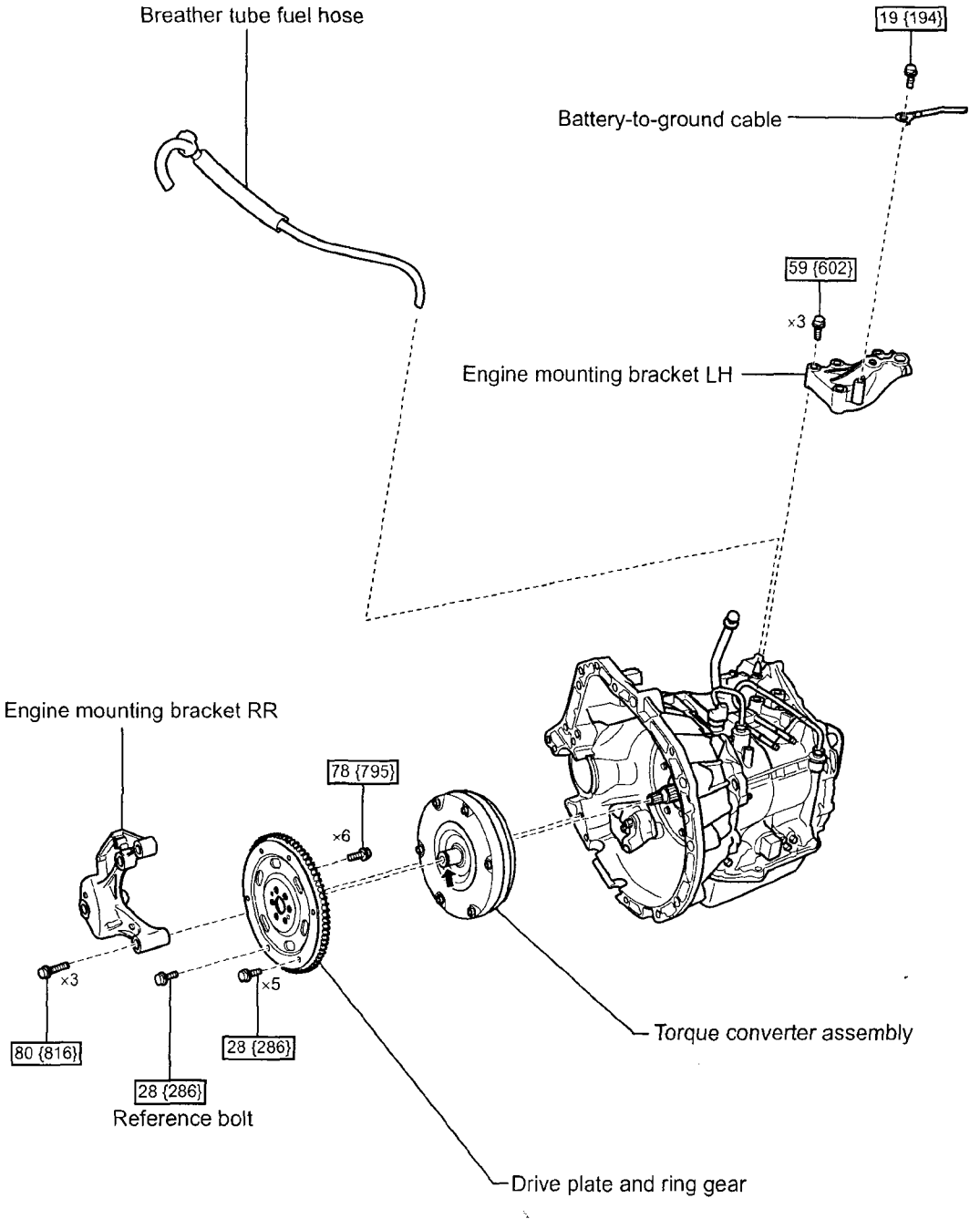
N*m {kgf*cm}: Specified torque

T

A161689J01

07

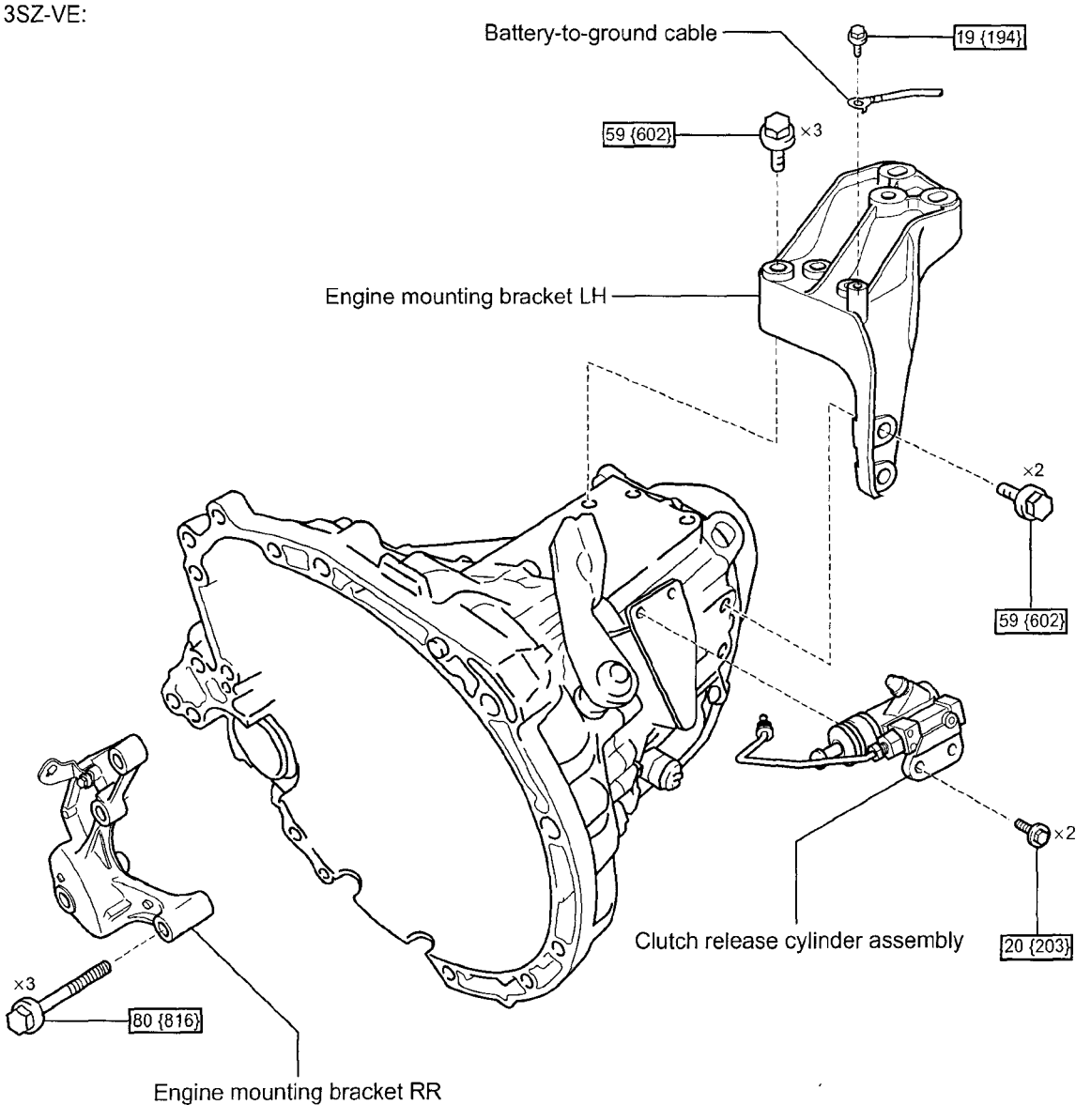
for Automatic transaxle:



N*m {kgf*cm}: Specified torque ⬅ MP grease application

A149651J03

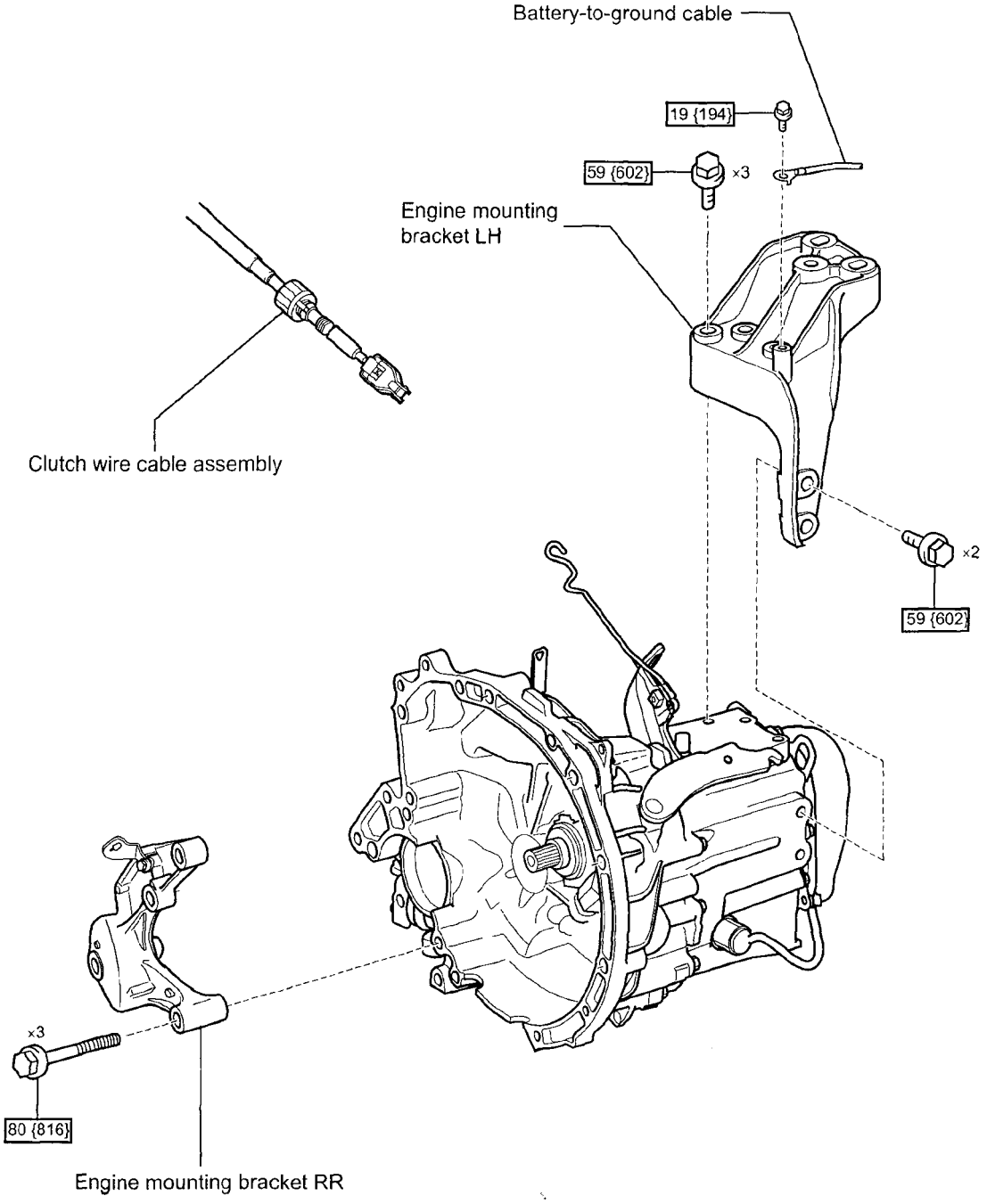
3SZ-VE:



N*m {kgf*cm} : Specified torque

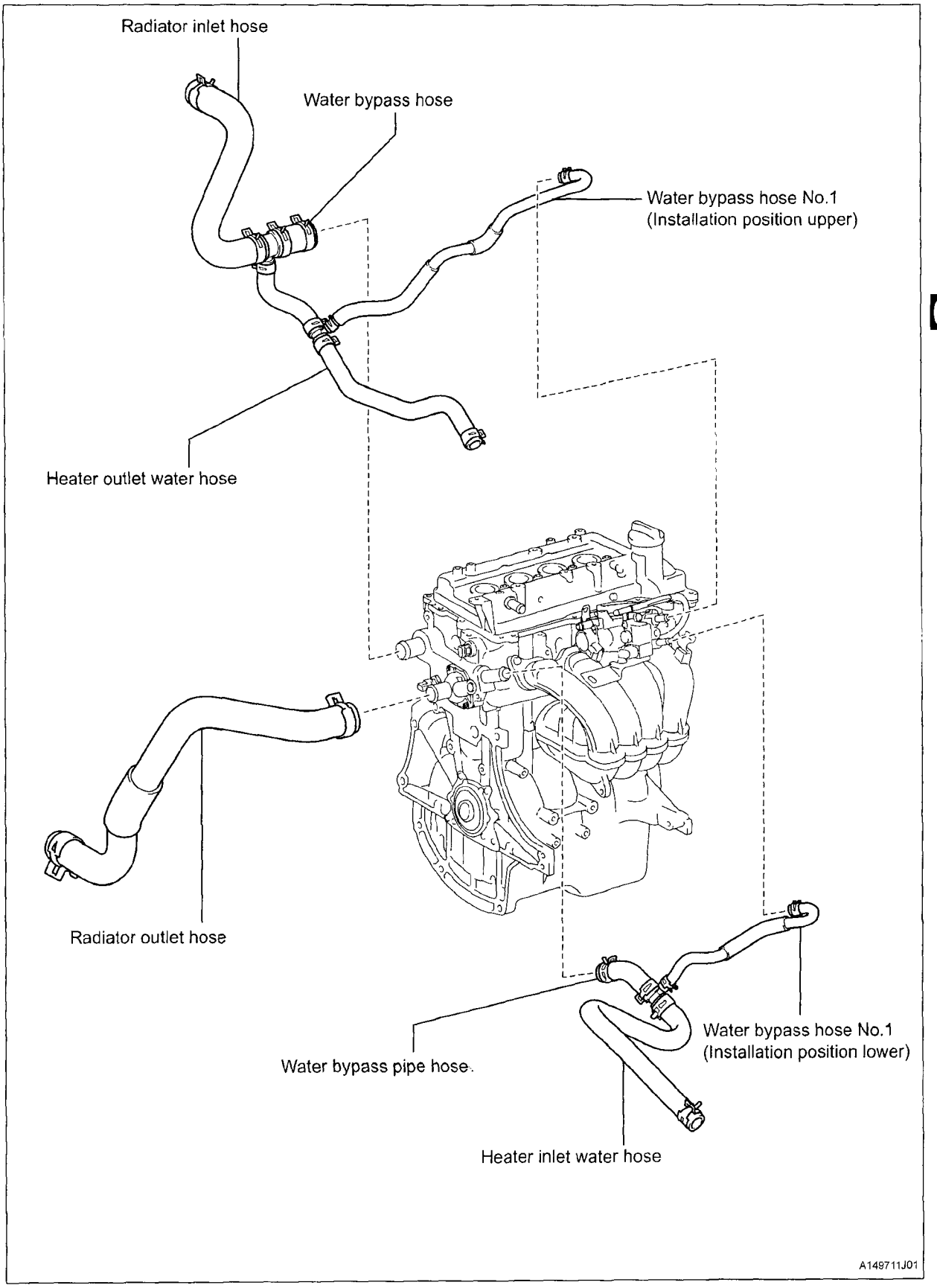
A163305J01

K3-VE:

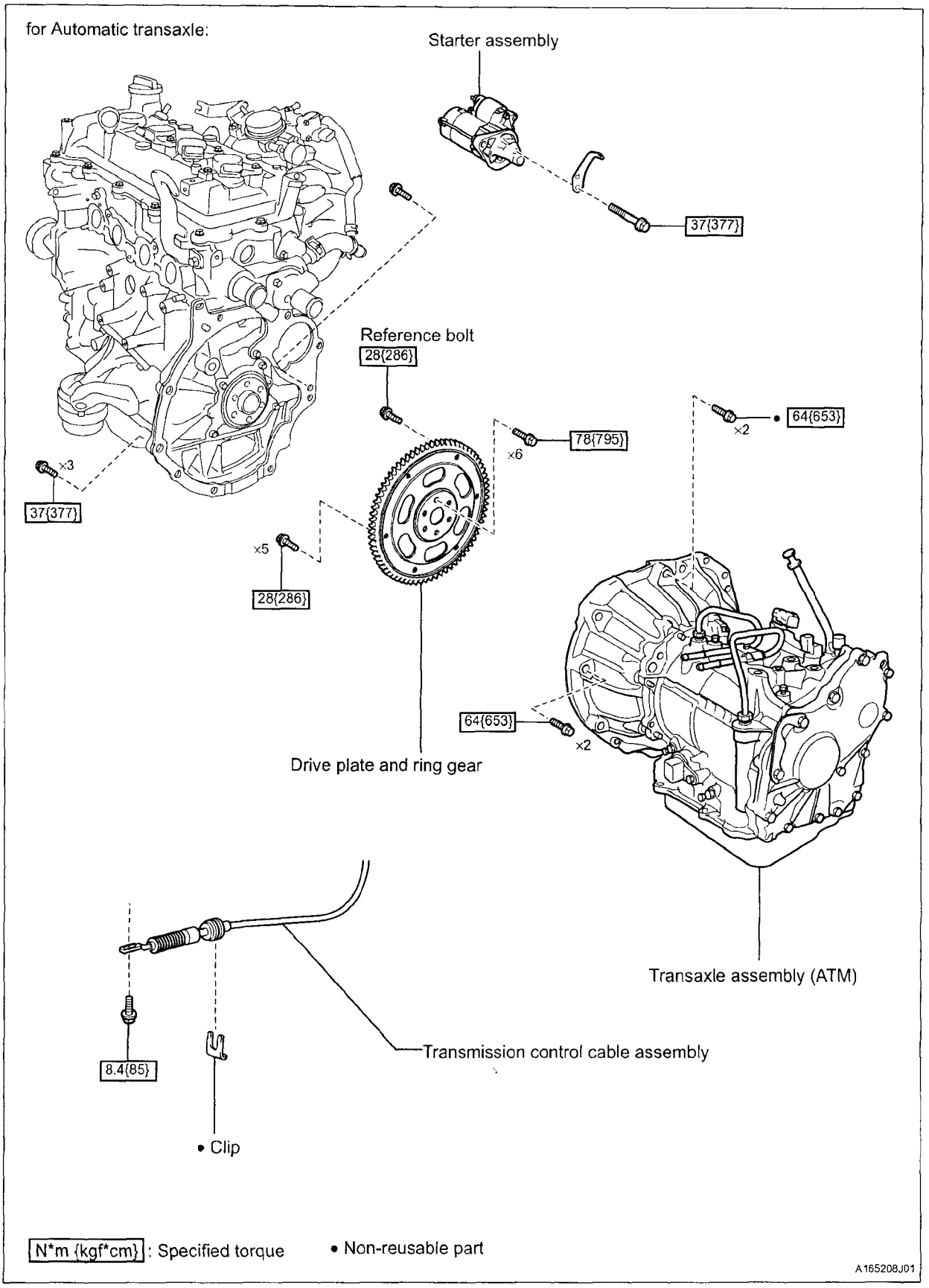


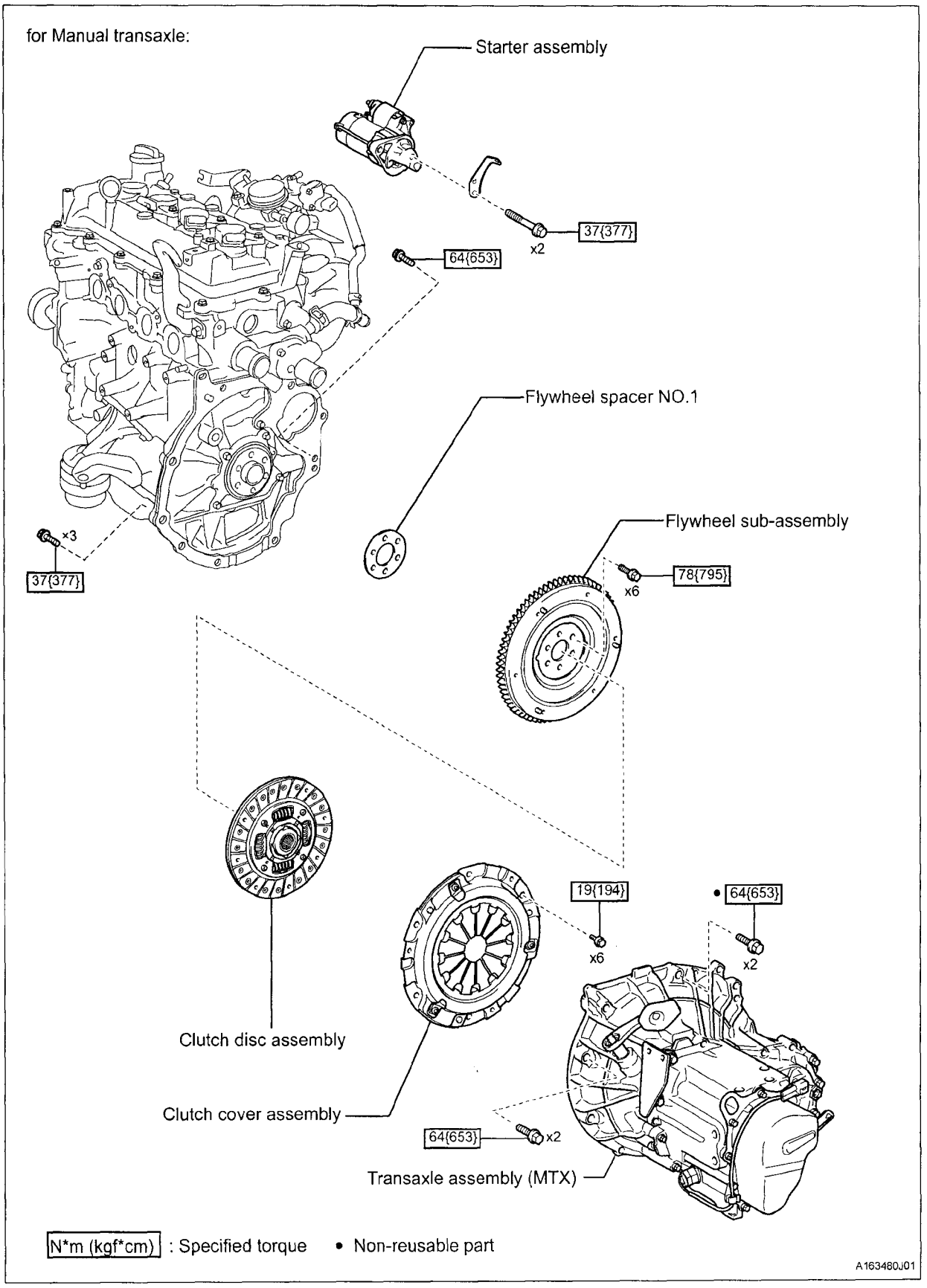
N*m{kgf*cm} : Specified torque

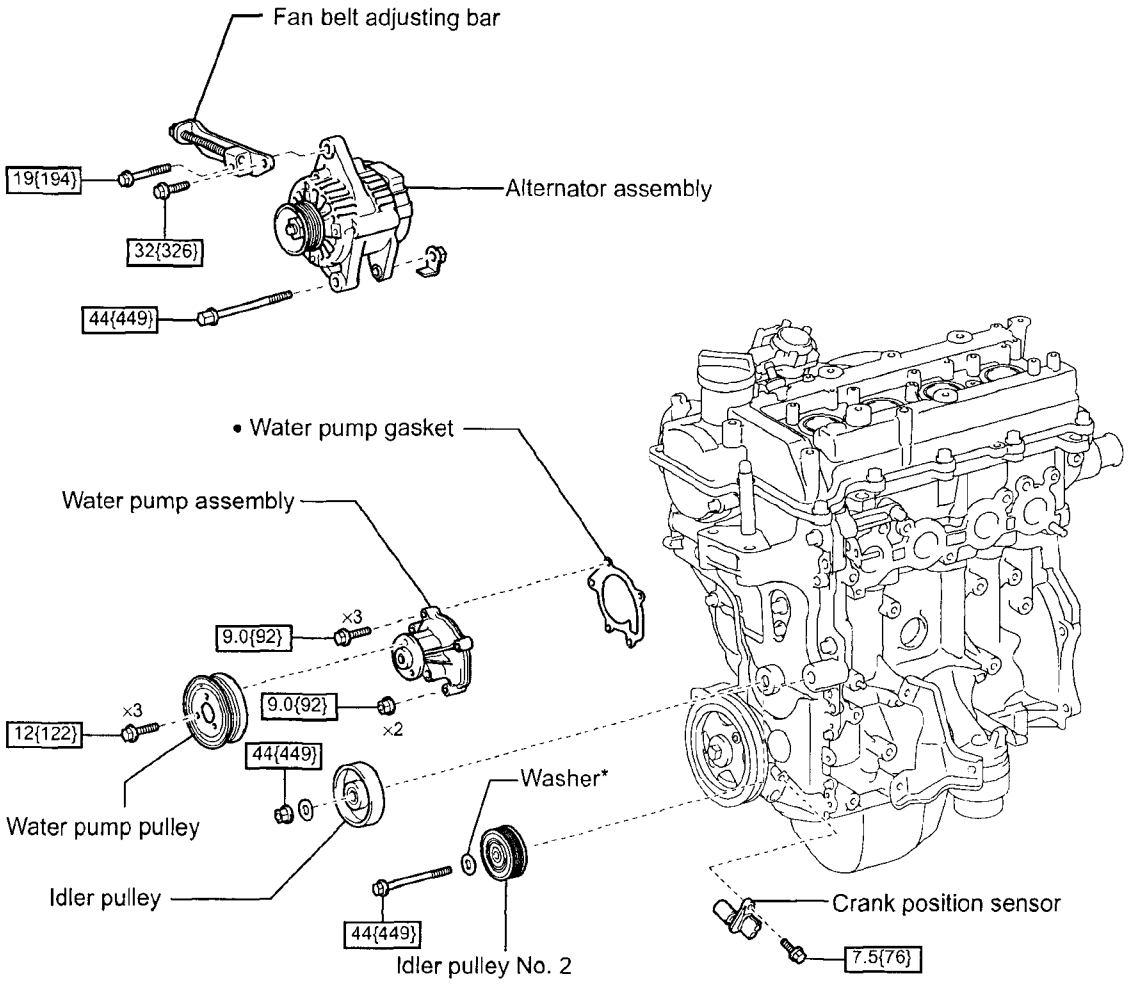
A163304J01

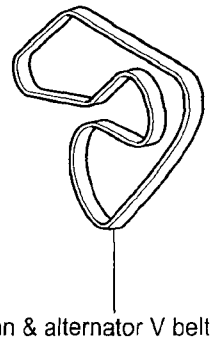

Radiator inlet hose
Water bypass hose
Water bypass hose No.1
(Installation position upper)
Heater outlet water hose
Radiator outlet hose
Water bypass pipe hose
Water bypass hose No.1
(Installation position lower)
Heater inlet water hose
A149711J01

07

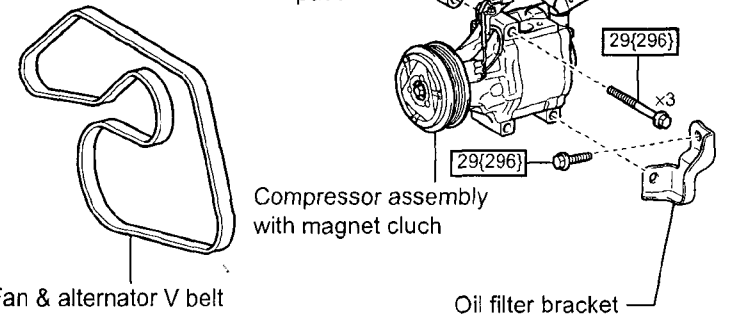

for Automatic transaxle:
Starter assembly
37{377}
Reference bolt
28{286}
78{795}
×6
64{653}
×2
×3
37{377}
×5
28{286}
Drive plate and ring gear
64{653}
×2
Transaxle assembly (ATM)
8.4{85}
Transmission control cable assembly
• Clip
N*m {kgf*cm}: Specified torque
• Non-reusable part
A165208J01


for Manual transaxle:
Starter assembly
37{377}
x2
64{653}
Flywheel spacer NO.1
x3
37{377}
Flywheel sub-assembly
78{795}
x6
19{194}
x6
• 64{653}
x2
Clutch disc assembly
Clutch cover assembly
64{653}
x2
Transaxle assembly (MTX)
N*m (kgf*cm) : Specified torque • Non-reusable part
A163480J01





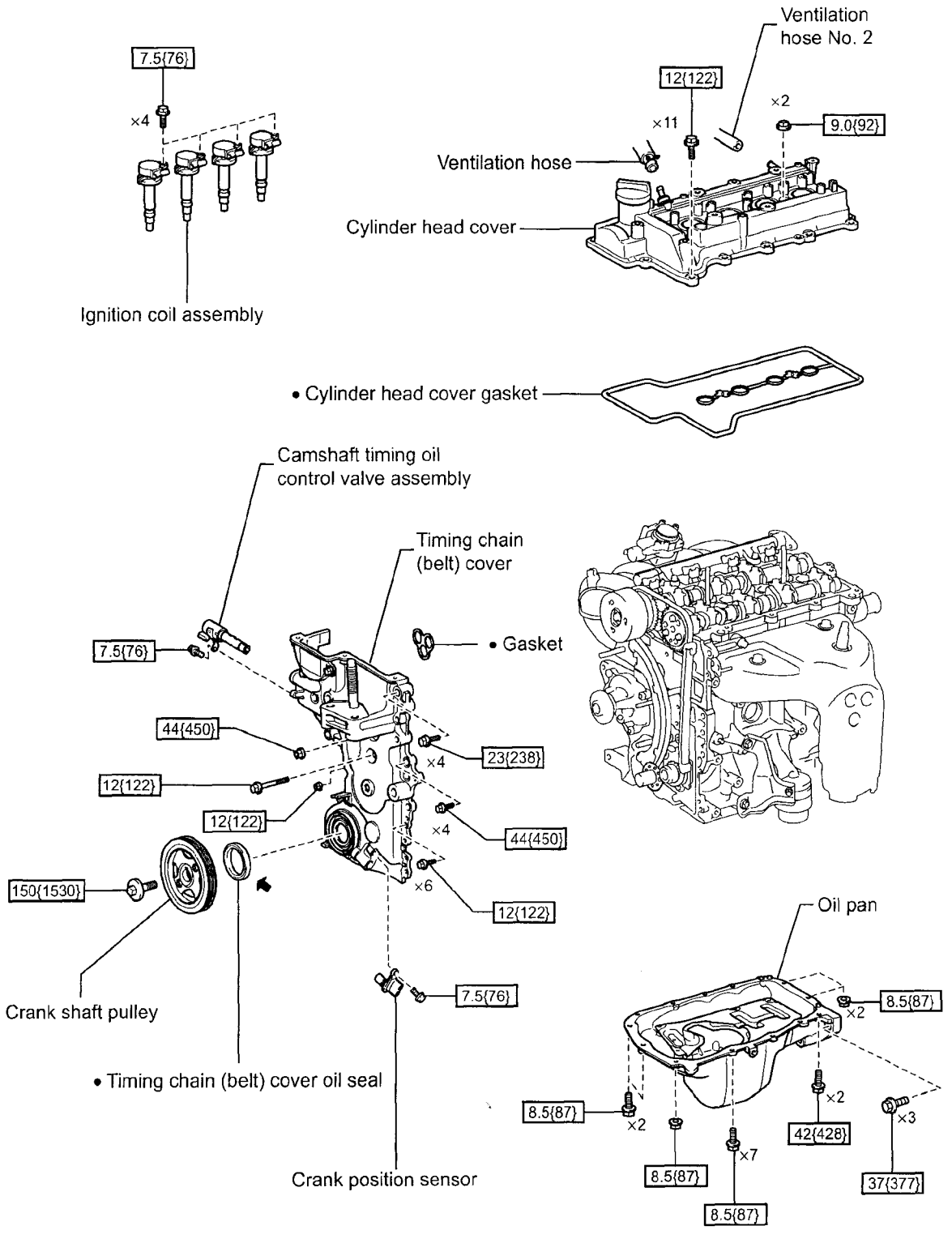
with Air Conditioning System:



N*m {kgf*cm}: Specified torque • Non-reusable part *: 3SZ-VE

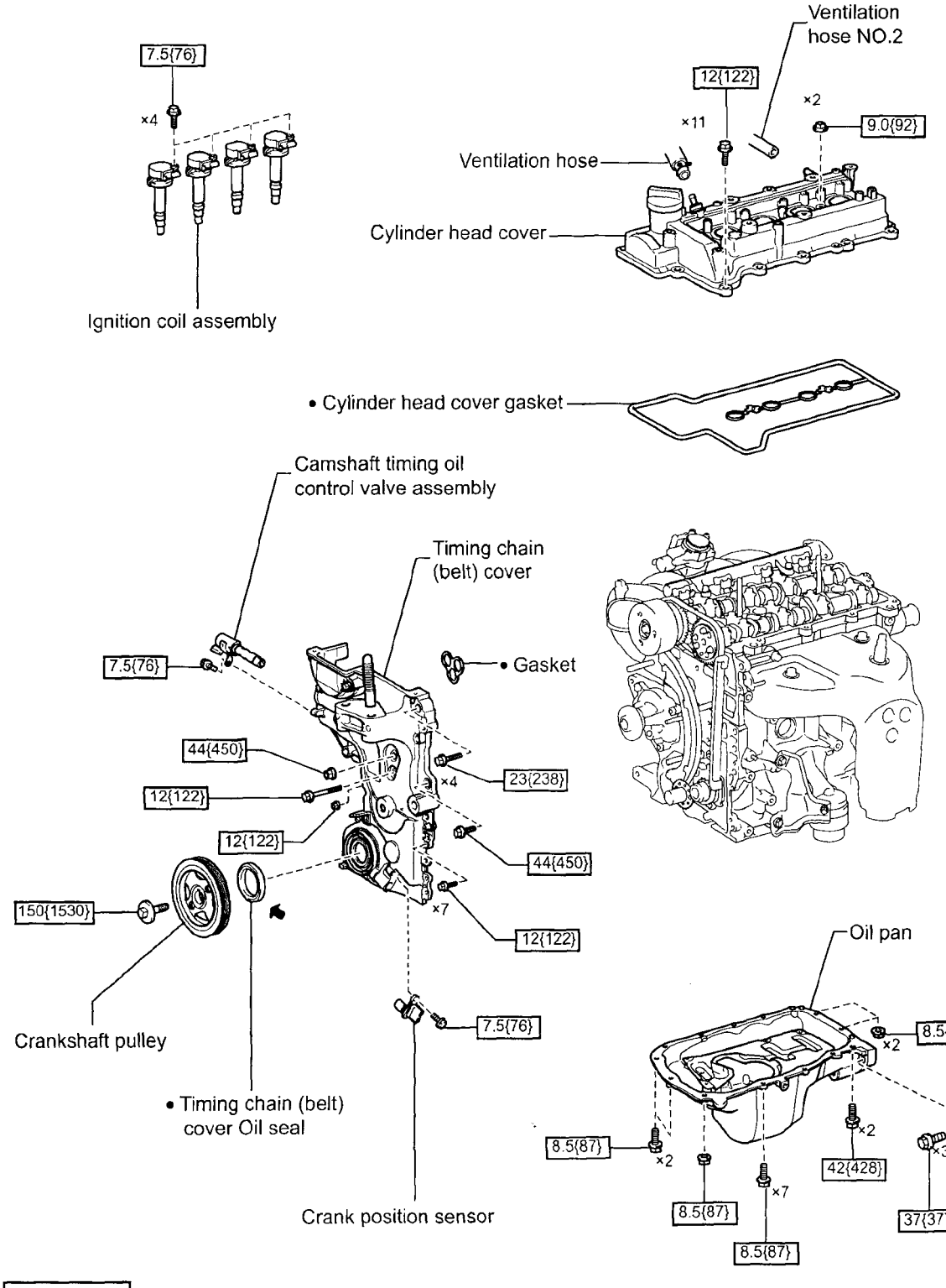
A159489J01

3SZ-VE:


7.5{76}
×4
Ignition coil assembly
Ventilation hose No. 2
12{122}
×11
×2
9.0{92}
Ventilation hose
Cylinder head cover
• Cylinder head cover gasket
Camshaft timing oil control valve assembly
Timing chain (belt) cover
• Gasket
7.5{76}
44{450}
12{122}
12{122}
23{238}
×4
×4
44{450}
×6
12{122}
150{1530}
Crank shaft pulley
• Timing chain (belt) cover oil seal
7.5{76}
Crank position sensor
Oil pan
8.5{87}
×2
8.5{87}
×2
×2
42{428}
×3
×7
8.5{87}
8.5{87}
37{377}
N*m {kgf*cm}: Specified torque
• Non-reusable part
MP grease application
A161720J01

07

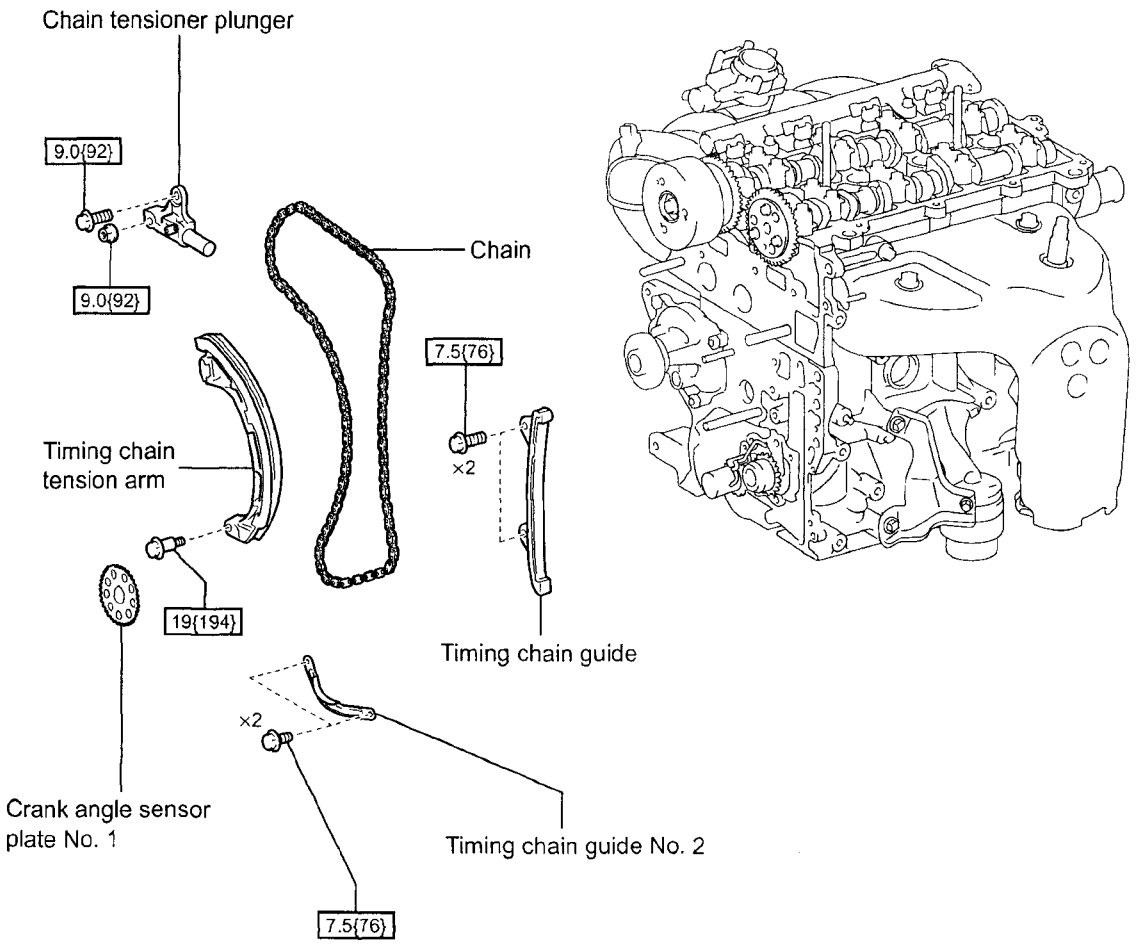
K3-VE:



N*m (kgf*cm) : Specified torque • Non-reusable part

⬅ Apply MP grease

A163479J01



N*m {kgf*cm} : Specified torque

A161718J01

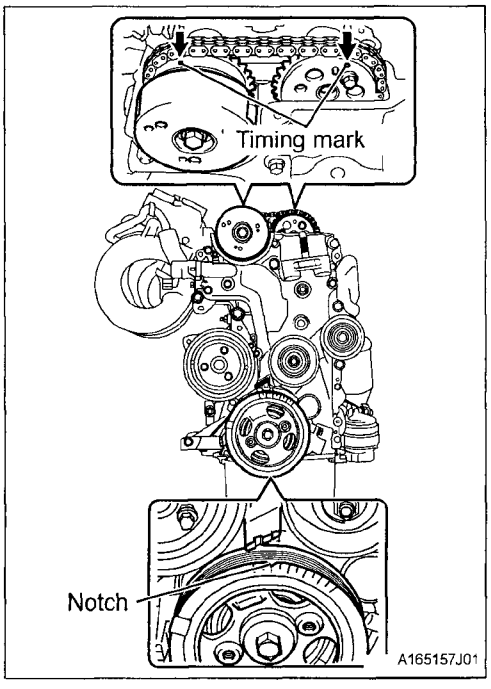
REMOVAL

1. Fuel spill prevention work
   (See page 08-3)
2. Battery terminal disconnection
3. Cooling fluid withdrawal (See page 12-6)
4. Refrigerant HFC-134a (R134a) withdrawal (with Air conditioning system) (See page 52-42)
5. Front tire removal
6. Engine oil withdrawal
7. Automatic transaxle fluid withdrawal (for Automatic transaxle) (See page 26-102)
8. Manual transaxle oil withdrawal (for Manual transaxle) (See page 29-13)
9. Exhaust pipe assembly FR removal (See page 11-15)

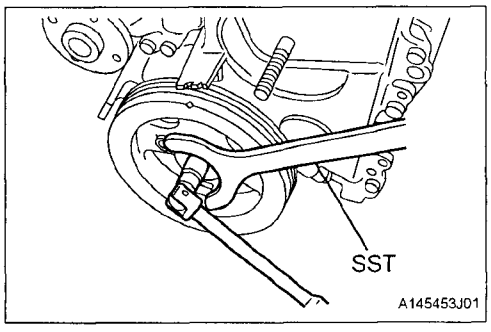
10. Brake fluid withdrawal (for Manual transaxle)
11. Battery hold down clamp removal (See page 07-48)
12. Radiator reserve tank assembly removal (See page 07-48)
13. Battery cover removal
14. Battery removal
15. Battery tray removal (See page 07-48)
16. Air cleaner cap removal
17. Air cleaner filter element removal
18. Vacuum sensor disconnection (See page 06-140)
19. Vacuum switching valve assembly (with Bracket) disconnection (RHD) (See page 06-140)
20. Vacuum switching valve assembly (with Bracket) disconnection (LHD) (See page 06-140)
21. Inlet air temperature sensor disconnection (See page 06-140)
22. Precleaner hose removal (See page 06-141)
23. Air cleaner assembly removal (See page 06-141)
24. Radiator inlet hose disconnection (See page 12-10)
25. Water bypass hose disconnection (See page 12-10)
26. Radiator outlet hose disconnection (See page 12-10)
27. With water fan assembly removal (See page 12-11)
28. Oil cooler outlet hose removal (for Automatic transaxle) (See page 26-98)
29. Oil cooler inlet hose removal (for Automatic transaxle) (See page 26-98)
30. Heater inlet water hose disconnection (RHD) (See page 52-73)
31. Heater inlet water hose disconnection (LHD) (See page 52-164)
32. Heater outlet water hose disconnection (RHD) (See page 52-73)
33. Heater outlet water hose disconnection (LHD) (See page 52-164)
34. Front bumper cover removal (See page 82-5)
35. Fan & alternator V belt removal (See page 07-6)
36. Cooler refrigerant suction hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
37. Cooler refrigerant discharge hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
38. Compressor assembly with magnet cluch removal (with Air conditioning system) (See page 52-131)
39. Cooler refrigerant liquid pipe A disconnection (with Air conditioning system) (See page 52-136)
40. Radiator assembly removal (See page 07-49)
41. Fuel hose disconnection (See page 07-49)
42. Accelerator control cable assembly disconnection (RHD) (See page 07-50)
43. Accelerator control cable assembly disconnection (LHD) (See page 07-50)
44. Ground cable disconnection (See page 07-51)
45. Vacuum hose assembly disconnection (See page 07-51)
46. Engine room main wire disconnection (See page 07-51)

47. Engine wire disconnection (See page 07-51)
48. Clutch release cylinder assembly removal (3SZ-VE) (See page 29-14)
49. Clutch hose disconnection (3SZ-VE) (See page 29-14)
50. Clutch cable clamp removal (K3-VE) (See page 29-14)
51. Clutch release cable assembly disconnection (K3-VE) (See page 29-14)
52. Steering column hole cover No. 1 removal (RHD) (See page 48-6)
53. Steering column hole cover No. 1 removal (LHD) (See page 48-15)
54. Steering column assembly disconnection (RHD) (See page 49-55)
55. Steering column assembly disconnection (LHD) (See page 49-70)
56. Shift lever knob removal (for Manual transaxle) (See page 29-54)
57. Rear console box removal (for Manual transaxle) (See page 29-54)
58. Console box carpet removal (for Manual transaxle) (See page 29-54)
59. Console box assembly removal (for Manual transaxle) (See page 29-54)
60. Transmission floor shift assembly removal (for Manual transaxle) (See page 29-55)
61. Engine undercover LH removal (See page 07-52)
62. Engine undercover RH removal (See page 07-52)
63. Front stabilizer link assembly LH removal (See page 07-53)
64. Front stabilizer link assembly RH removal (See page 07-53)
65. Front stabilizer bar removal (See page 42-16)
66. Front suspension cross member LH removal (See page 07-53)
67. Front suspension cross member RH removal (See page 07-53)
68. Front brake flexible hose No. 1 LH disconnection (without ABS & VSC) (See page 36-7)
69. Front brake flexible hose No. 1 RH disconnection (without ABS & VSC) (See page 36-7)
70. Speed sensor FR LH disconnection (with ABS & VSC) (See page 36-7)
71. Speed sensor FR RH disconnection (with ABS & VSC) (See page 36-7)
72. Front disc brake cylinder assembly LH removal (See page 36-8)
73. Front disc brake cylinder assembly RH removal (See page 36-8)
74. Axle hub nut removal (LH) (See page 36-8)
75. Axle hub nut removal (RH) (See page 36-8)
76. Tie rod end LH disconnection (See page 36-8)
77. Tie rod end RH disconnection (See page 36-9)
78. Front shock absorber assembly LH disconnection (See page 07-53)
79. Front shock absorber assembly RH disconnection (See page 07-53)
80. Front drive shaft assembly LH removal (See page 07-54)
81. Front drive shaft assembly RH removal (See page 07-54)
82. Steering knuckle LH removal (See page 07-54)
83. Steering knuckle RH removal (See page 07-54)
84. Radiator support LWR removal (See page 07-54)
85. Transmission control cable assembly disconnection (for Automatic transaxle) (See page 07-55)
86. Engine assembly with transaxle removal (See page 07-55)
87. Front suspension cross member removal (See page 07-56)
88. Breather tube fuel hose removal (for Automatic transaxle) (See page 07-57)
89. Starter assembly removal (See page 07-57)
90. Torque converter set bolt removal (for Automatic transaxle) (See page 07-57)
91. Transaxle assembly (ATM) removal (for Automatic transaxle) (See page 07-58)
92. Transaxle assembly (MTX) removal (for Manual transaxle) (See page 07-59)
93. Throttle body bracket No. 2 removal (See page 07-61)
94. Accelerator control cable bracket removal (LHD) (See page 07-61)

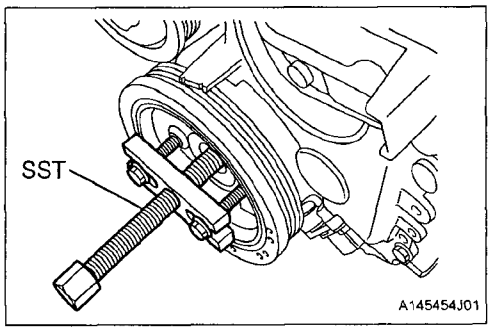
95. Air cleaner support bracket No. 2 removal (See page 07-61)
96. Ventilation hose No. 2 removal (See page 06-141)
97. Engine wire removal (See page 07-62)
98. Ventilation hose removal (See page 07-66)
99. Noise filter removal (See page 07-66)
100. Ignition coil assembly removal (See page 07-67)
101. Oil level gage removal (See page 07-68)
102. Cylinder head cover removal (See page 07-232)



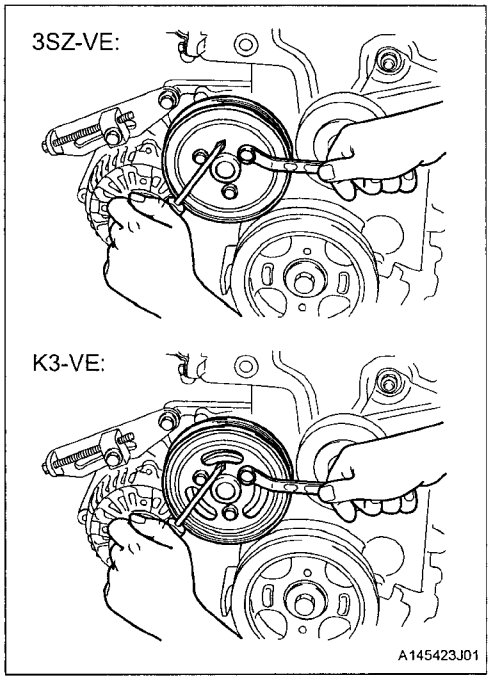
103. Crankshaft pulley removal
(1) Positively rotate the crankshaft pulley and align the timing marks (notches) with the 0° position. Make sure that each timing mark is positioned as shown in the diagram.
<HINT>
If any timing mark is properly positioned, positively rotate the crankshaft pulley again to adjust the position.



(2) Fix the crankshaft pulley and loosen the bolt by using SST.
SST 09278-87201

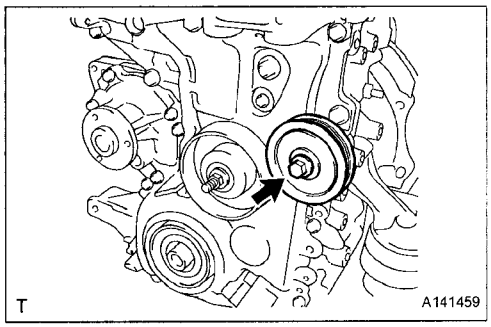


(3) Use SST and the crankshaft pulley bolt to remove the crankshaft pulley.
SST 09306-87501
<CAUTION>
When attaching SST to the crankshaft, check the installation position to make sure that the SST fixing bolt does not come in contact with the chain cover.



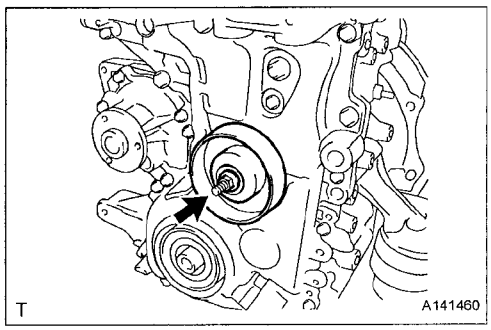
104.Water pump pulley removal

(1) Use a screwdriver as an anti-rotation stopper. Remove three bolts and then the water pump pulley.



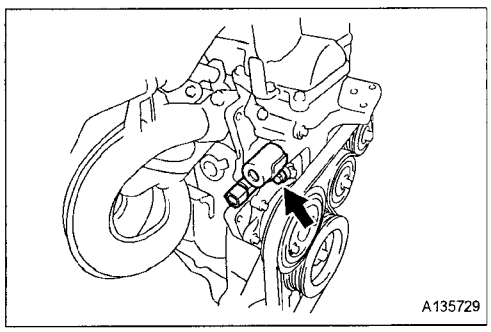
105.Idler pulley No. 2 removal

(1) Remove the bolt, the washer, and the idler pulley No. 2.
<HINT>
K3-VE does not have a washer



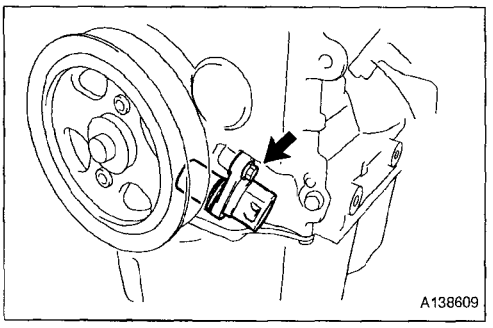
106.Idler pulley removal

(1) Remove the nut and washer,and the idler pulley.

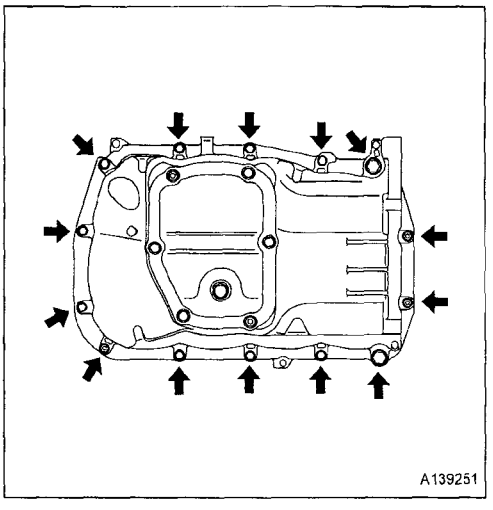


107.Camshaft timing oil control valve assembly removal

(1) Remove the bolt and then the camshaft timing oil control valve assembly.

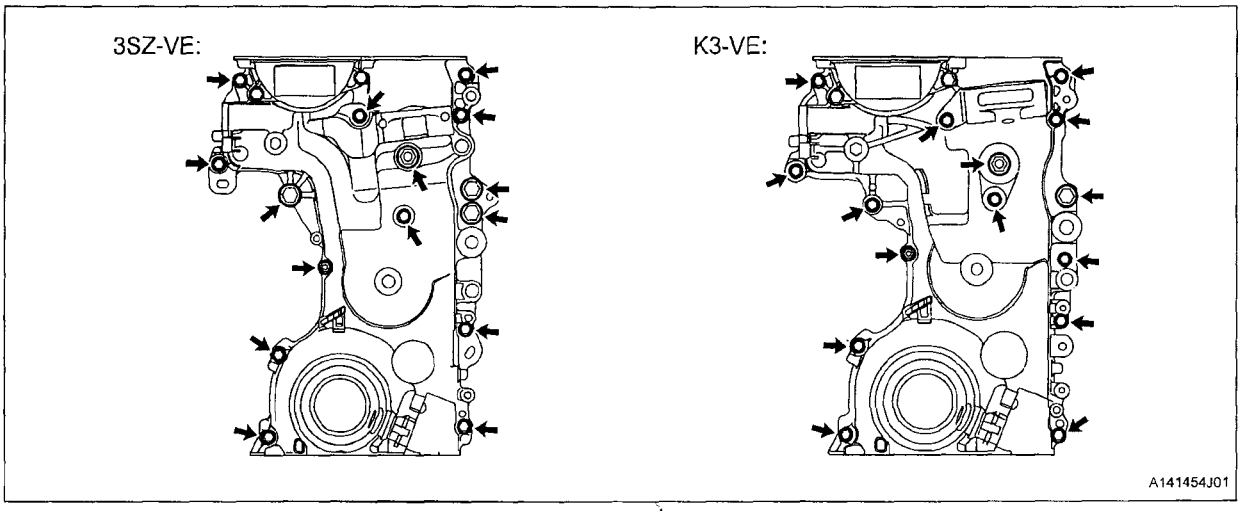


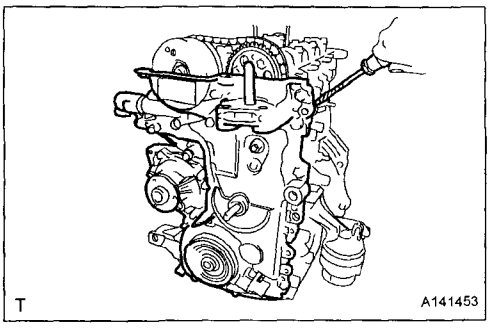
108.Crank position sensor removal
(1) Remove the bolt and then the crank position sensor.



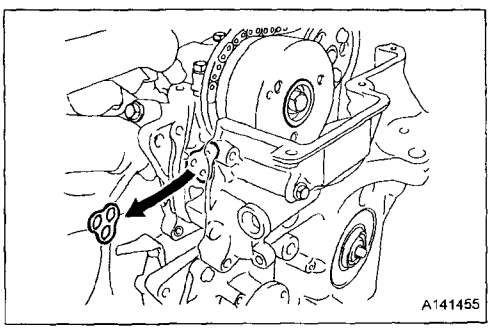
109.Oil pan removal
(1) Remove eleven bolts and three nuts.
(2) Use a flathead screwdriver wrapped in protective tape to remove the oil pan.
<CAUTION>
Avoid damaging the oil pan and the cylinder block.

110.Timing chain (belt) cover removal
(1) Remove thirteen bolts and two nuts.

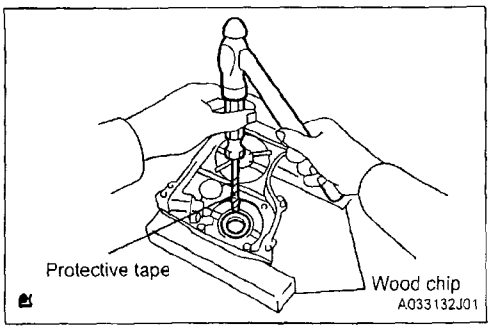




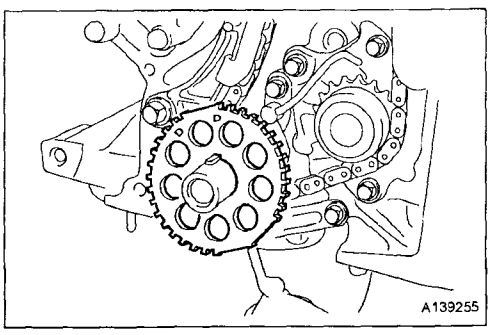
(2) Use a flathead screwdriver wrapped in protective tape to shake and remove the timing chain cover.
<CAUTION>
Avoid damaging the timing chain cover, the cylinder block, and the cylinder head.



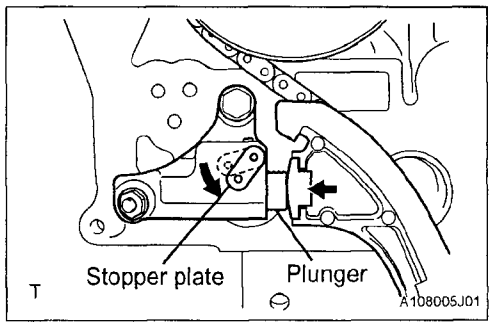
(3) Remove the gasket.



111. Timing chain (belt) cover oil seal removal
(1) Use a flathead screwdriver to remove the timing chain (belt) cover oil seal.



112. Crank angle sensor plate No. 1 removal
(1) Remove the crank angle sensor plate No. 1.

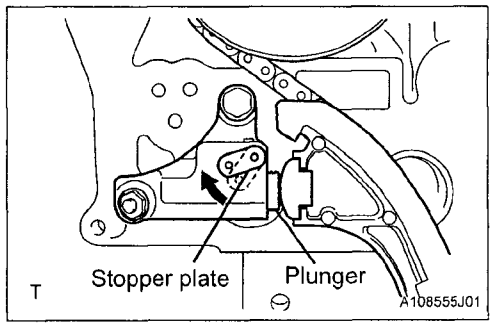


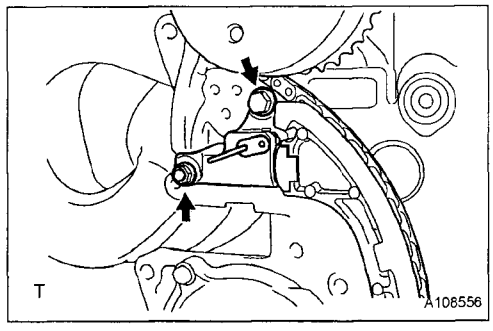
113.Chain tensioner plunger removal

(1) Move the stopper plate downward and hold it under unlocked state. [*1]
<HINT>
If it is difficult to unlock the stopper plate, use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and left sides.

(2) From the state described in [*1], use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and hold it. [*2]
<HINT>
Rotating the camshaft to the right depresses the tensioner plunger.

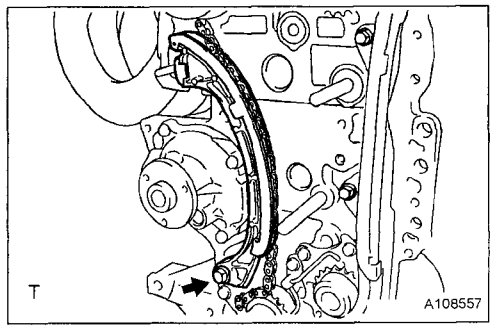
(3) From the state described in [*2], align the holes in the stopper plate and the chain tensioner plunger. [*3]
<HINT>
If it is difficult to align the holes in the stopper plate and the chain tensioner plunger, slightly rotate the camshaft to the left side and then to the right side before attempting to align them again.





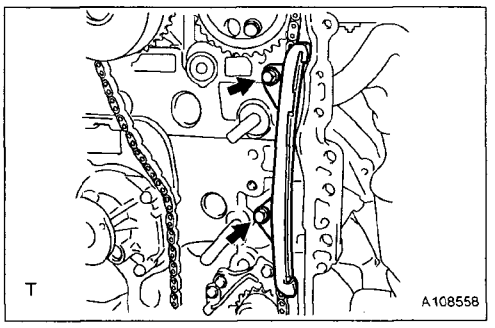
(4) From the state described in [*3], insert a rod of 2.5 mm in diameter into the holes in the stopper plate and the chain tensioner plunger.

(5) Remove the bolt, the nut, and the chain tensioner plunger.

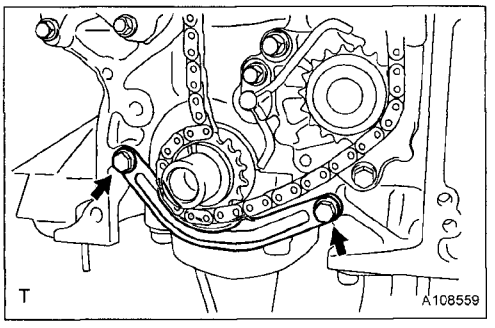


114.Timing chain tension arm removal

(1) Remove the bolt and then the timing chain tension arm.



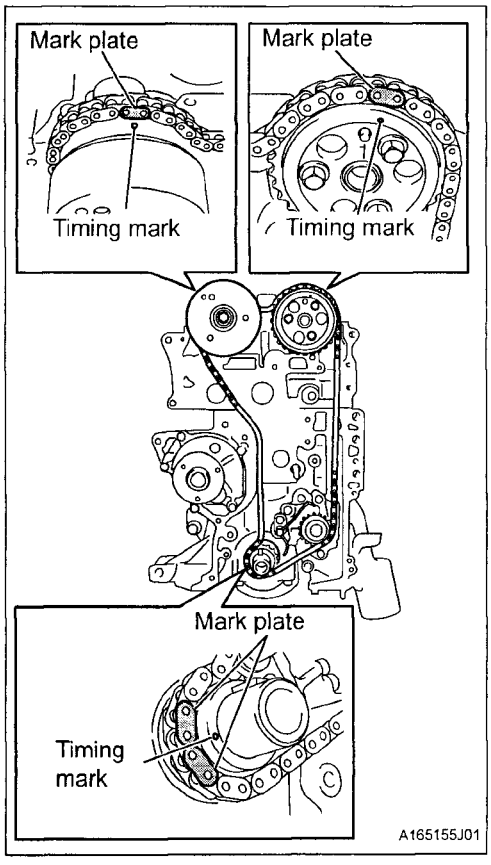
115. Timing chain guide removal
(1) Remove two bolts and then the timing chain guide.



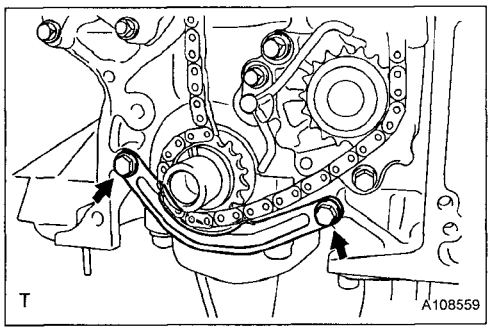
116. Timing chain guide No. 2 removal
(1) Remove two bolts and then the timing chain guide No. 2.

117. Chain removal

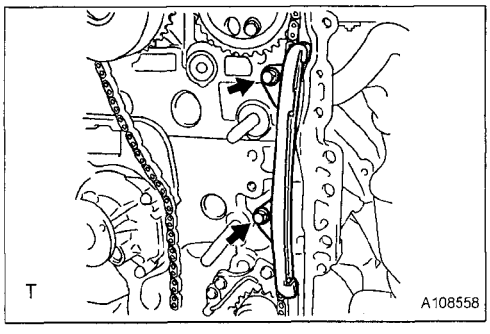
INSTALLATION



1. Chain installation
   (1) Align the mark plates in the locations shown in the diagram (yellow [3SZ-VE] or gold [K3-VE]) with the timing marks and attach the chain.
   <CAUTION>
   Attach the pulley with the timing mark at the crank shaft side between the two mark plates.

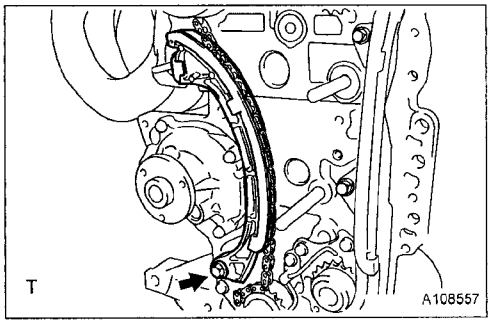


2. Timing chain guide No. 2 installation
   (1) Use two bolts to attach the timing chain guide No. 2.
   Specified value:T=7.5N*m {76kgf*cm}

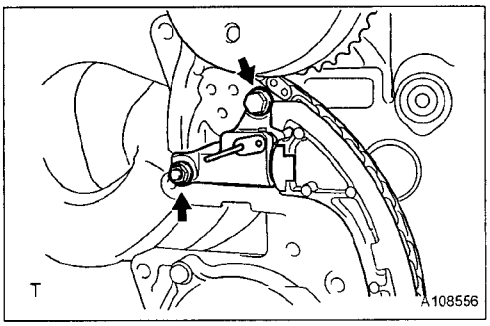


3. Timing chain guide installation
   (1) Use two bolts to attach the timing chain guide.
   Specified value:T=7.5N*m {76kgf*cm}

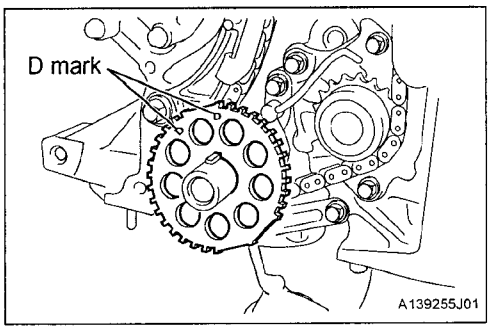
07



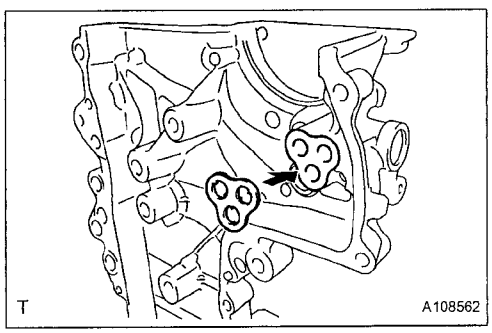
4. Timing chain tension arm installation
   (1) Use a bolt to attach the timing chain tension arm.
   Specified value:T=19N*m {194kgf*cm}



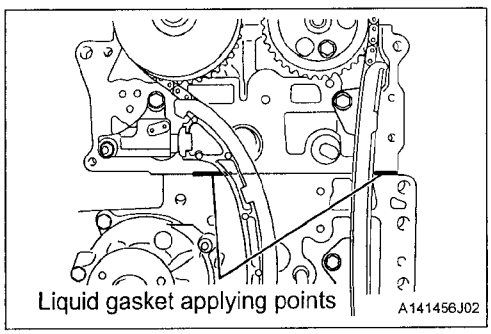
5. Chain tensioner plunger installation
   (1) Use a bolt and nut to attach the chain tensioner plunger.
   Specified value:T=9.0N*m {92kgf*cm}
   <HINT>
   Use the service hexagonal part of the camshaft to slightly rotate the camshaft to the left. With the chain at the chain tensioner plunger side sagging, attach the chain tensioner plunger.
   (2) Pull out the rod of 2.5 mm in diameter from the chain tensioner plunger.



6. Crank angle sensor plate No. 1 installation
   (1) Attach the crank angle sensor plate No. 1 in such a way that "D" marks are visible.

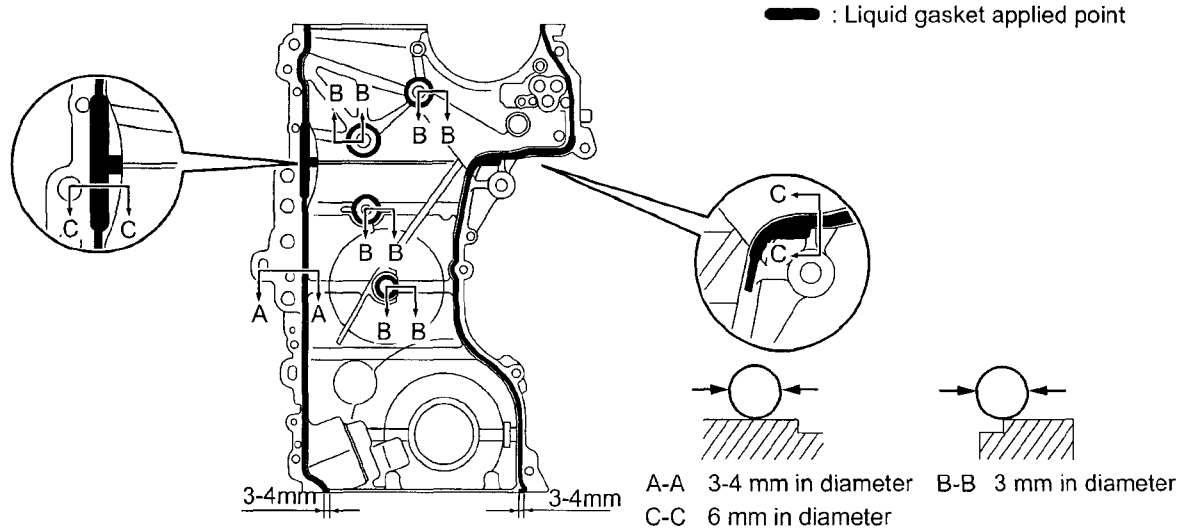


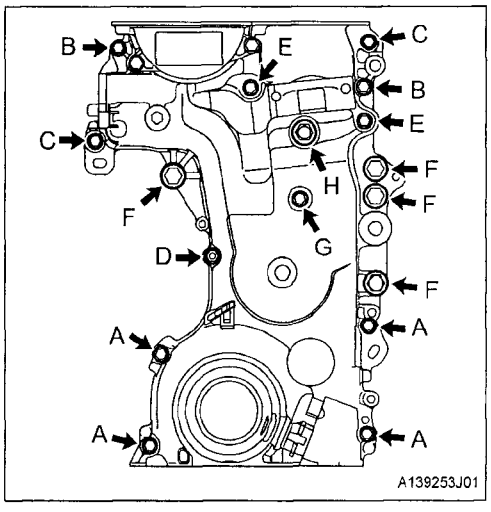
7. Timing chain (belt) cover installation (3SZ-VE)
   (1) Attach a new gasket to the timing chain cover.



   (2) Apply Three Bond 1280E in the location shown in the diagram.
   <CAUTION>
   > Clean and degrease the mating surface.
   > Within three minutes after applying Three Bond 1280E, attach the timing chain cover.
   > Within fifteen minutes after applying Three Bond 1280E, tighten the chain cover with the specified torque.
   > Avoid starting the engine for at least two hours after installation.

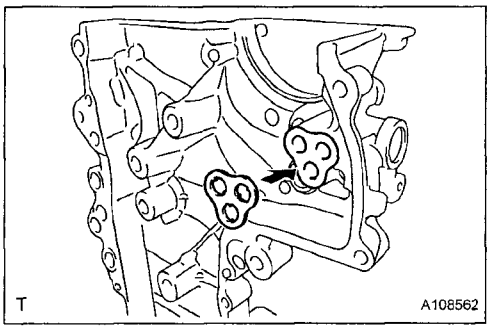
3SZ-VE:



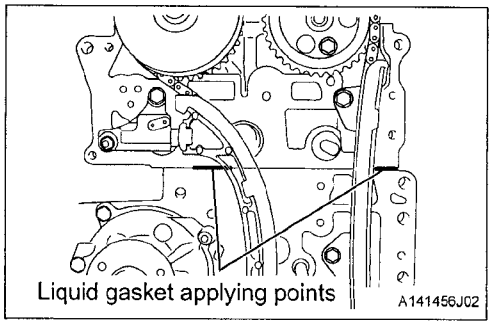


(3) Use fifteen bolts and two nuts to attach the timing chain cover.
Specified value:T=12N*m {122kgf*cm} (Bolt A, B)
T=23N*m {238kgf*cm} (Bolt C)
T=12N*m {122kgf*cm} (Nut D)
T=23N*m {238kgf*cm} (Bolt E)
T=44N*m {450kgf*cm} (Bolt F, Nut H)
T=12N*m {122kgf*cm} (Bolt G)

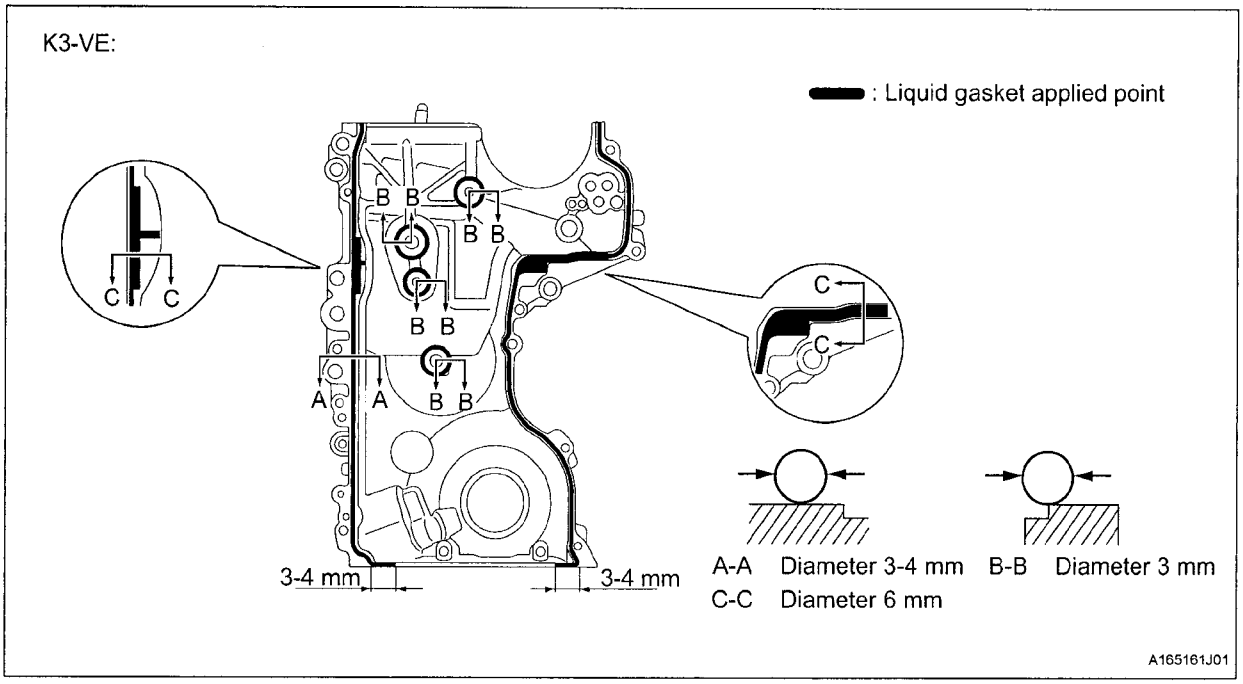
Bolts	Nominal length [mm]	Nominal diameter [mm]
A	14	6
B	30	6
C	35	8
E	80	8
F	30	10
G	25	6

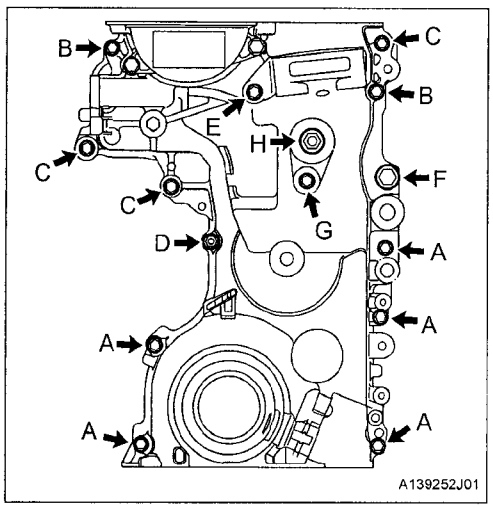


8. Timing chain (belt) cover installation (K3-VE)
(1) Attach a new gasket to the timing chain cover.



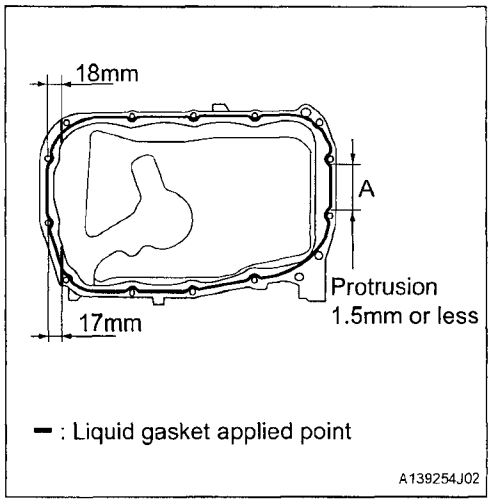
(2) Apply Three Bond 1280E in the location shown in the diagram.
<CAUTION>
> Clean and degrease the mating surface.
> Within three minutes after applying Three Bond 1280E, attach the timing chain cover.
> Within fifteen minutes after applying Three Bond 1280E, tighten the chain cover with the specified torque.
> Avoid starting the engine for at least two hours after installation.



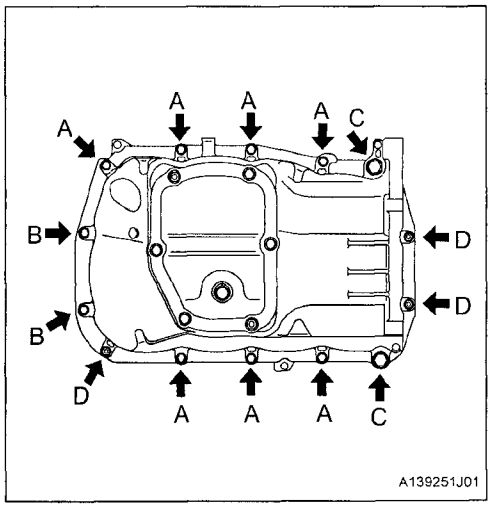


(3) Use thirteen bolts and two nuts to attach the timing chain cover.
Specified value:T=12N*m {122kgf*cm} (Bolt A, B)
T=23N*m {238kgf*cm} (Bolts C and E)
T=12N*m {122kgf*cm} (Nut D)
T=44N*m {450kgf*cm} (Bolt F, nut H)
T=12N*m {122kgf*cm} (Bolt G)

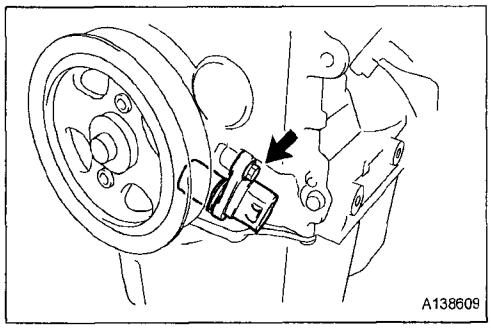
Bolts	Nominal length [mm]	Nominal diameter [mm]
A	14	6
B	30	6
C	35	8
E	80	8
F	25	10
G	25	6



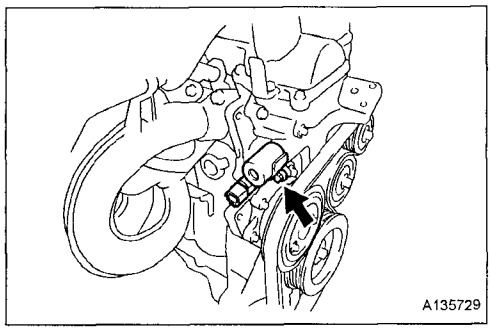
9. Oil pan installation
   (1) Apply Three Bond 1280E (3 - 4 mm in diameter) in the location shown in the diagram.
   <HINT>
   Within range A in the diagram, protrusion of Three Bond 1280E toward the transaxle assembly (ATM) should be 1.5 mm or less.
   <CAUTION>
   > Clean and degrease the mating surface.
   > Within three minutes after applying Three Bond 1280E, attach the oil pan.
   > Within fifteen minutes after applying Three Bond 1280E, tighten the oil pan with the specified torque.
   > Avoid starting the engine for at least two hours after installation.



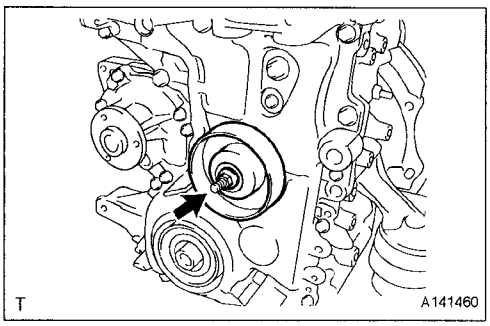
   (2) Use eleven bolts and three nuts to attach the oil pan.
   Specified value:T=8.5N*m {87kgf*cm} (Bolt A and B, Nut D)
   T=42N*m {428kgf*cm} (Bolt C)



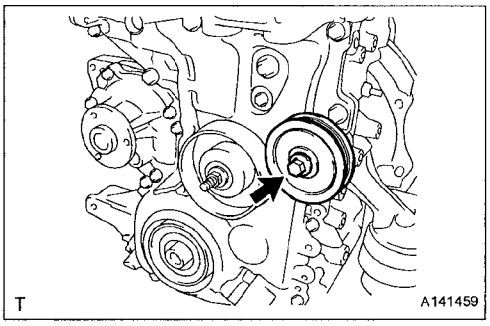
10. Crank position sensor installation
   (1) Coat a new O-ring with a small amount of engine oil.
   (2) Use a bolt to attach the crank position sensor.
   Specified value:T=7.5N*m {76kgf*cm}
   <CAUTION>
   During installation, make sure that the O-ring is not cut or pinched.



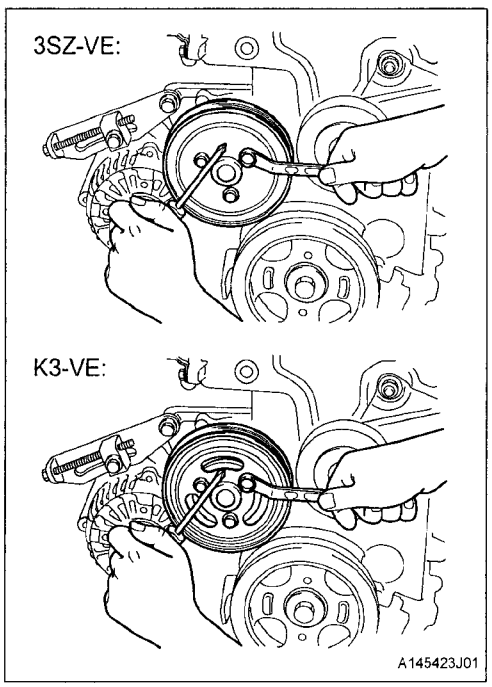
11. Camshaft timing oil control valve assembly installation
   (1) Coat a new O-ring with a small amount of engine oil.
   (2) Use bolts to attach the camshaft timing oil control valve assembly.
   Specified value:T=7.5N*m {76kgf*cm}
   <CAUTION>
   During installation, make sure that the O-ring is not cut or pinched.



12. Idler pulley installation
    (1) Use a nut and washer to attach the idler pulley.
    Specified value:T=44N*m {449kgf*cm}

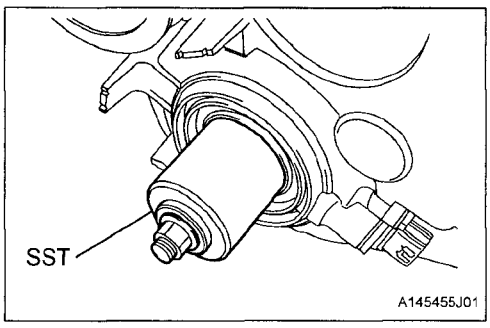


13. Idler pulley No. 2 installation
    (1) Use a bolt and washer to attach the idler pulley No. 2.
    Specified value:T=44N*m {449kgf*cm}
    <HINT>
    K3-VE does not have a washer

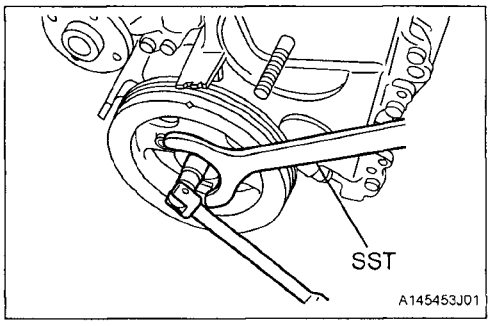


14. Water pump pulley installation
    (1) Use three bolts to temporarily attach the water pump pulley.
    (2) Use a screwdriver as an anti-rotation stopper. Tighten three bolts.
    Specified value:T=12N*m {122kgf*cm}

15. Timing chain (belt) cover oil seal installation
    (1) Coat the lip of a new timing chain (belt) cover oil seal with a small amount of MP grease.
    <CAUTION>
    Keep chips, sand, and other foreign particles off the lip.
    <HINT>
    Press fit length from the end surface of the timing chain (belt) cover: pop-up amount of 0.5 mm or less and press fit depth of 1 mm or less



(2) Use SST to vertically press fit a new timing chain (belt) cover oil seal.
SST 09223-87202
<CAUTION>
Do not diagonally press in the timing chain (belt) cover oil seal.



16. Crankshaft pulley installation
(1) Fix the crankshaft pulley and tighten the bolt by using SST.
SST 09278-87201
Specified value:T=150N*m {1530kgf*cm}

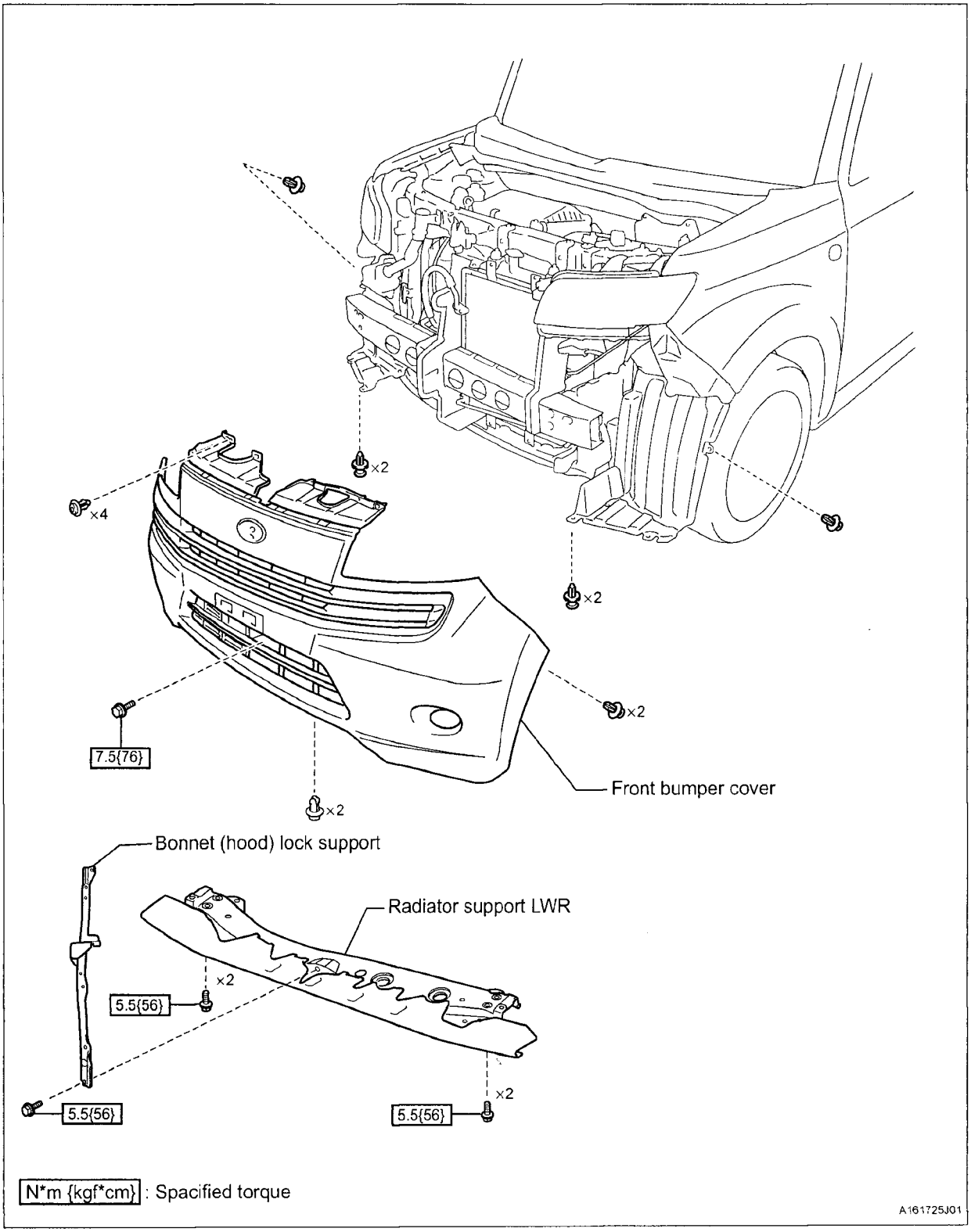
17. Cylinder head cover installation (See page 07-243)
18. Oil level gage installation (See page 07-68)
19. Ignition coil assembly installation (See page 07-69)
20. Noise filter installation (See page 07-70)
21. Ventilation hose installation (See page 07-71)
22. Engine wire installation (See page 07-75)
23. Ventilation hose No. 2 installation (See page 06-149)
24. Air cleaner support bracket No. 2 installation (See page 07-75)
25. Accelerator control cable bracket installation (LHD) (See page 07-76)
26. Throttle body bracket No. 2 installation (See page 07-76)
27. Transaxle assembly (ATM) installation (See page 07-78)
28. Transaxle assembly (MTX) installation (See page 07-79)
29. Torque converter set bolt installation (for Automatic transaxle) (See page 07-80)
30. Starter assembly installation (See page 07-80)
31. Breather tube fuel hose installation (for Automatic transaxle) (See page 07-81)
32. Front suspension cross member installation (See page 07-81)
33. Engine assembly with transaxle installation (See page 07-81)
34. Transmission control cable assembly installation (for Automatic transaxle) (See page 07-83)
35. Radiator support LWR installation (See page 07-83)
36. Steering knuckle LH installation (See page 07-83)
37. Steering knuckle RH installation (See page 07-83)
38. Front drive shaft assembly LH installation (See page 07-84)
39. Front drive shaft assembly RH installation (See page 07-84)
40. Front shock absorber assembly LH installation (See page 36-16)
41. Front shock absorber assembly RH installation (See page 36-16)
42. Tie rod end LH installation (See page 36-16)
43. Tie rod end RH installation (See page 36-16)
44. Axle hub nut installation (LH) (See page 36-16)
45. Axle hub nut installation (RH) (See page 36-16)

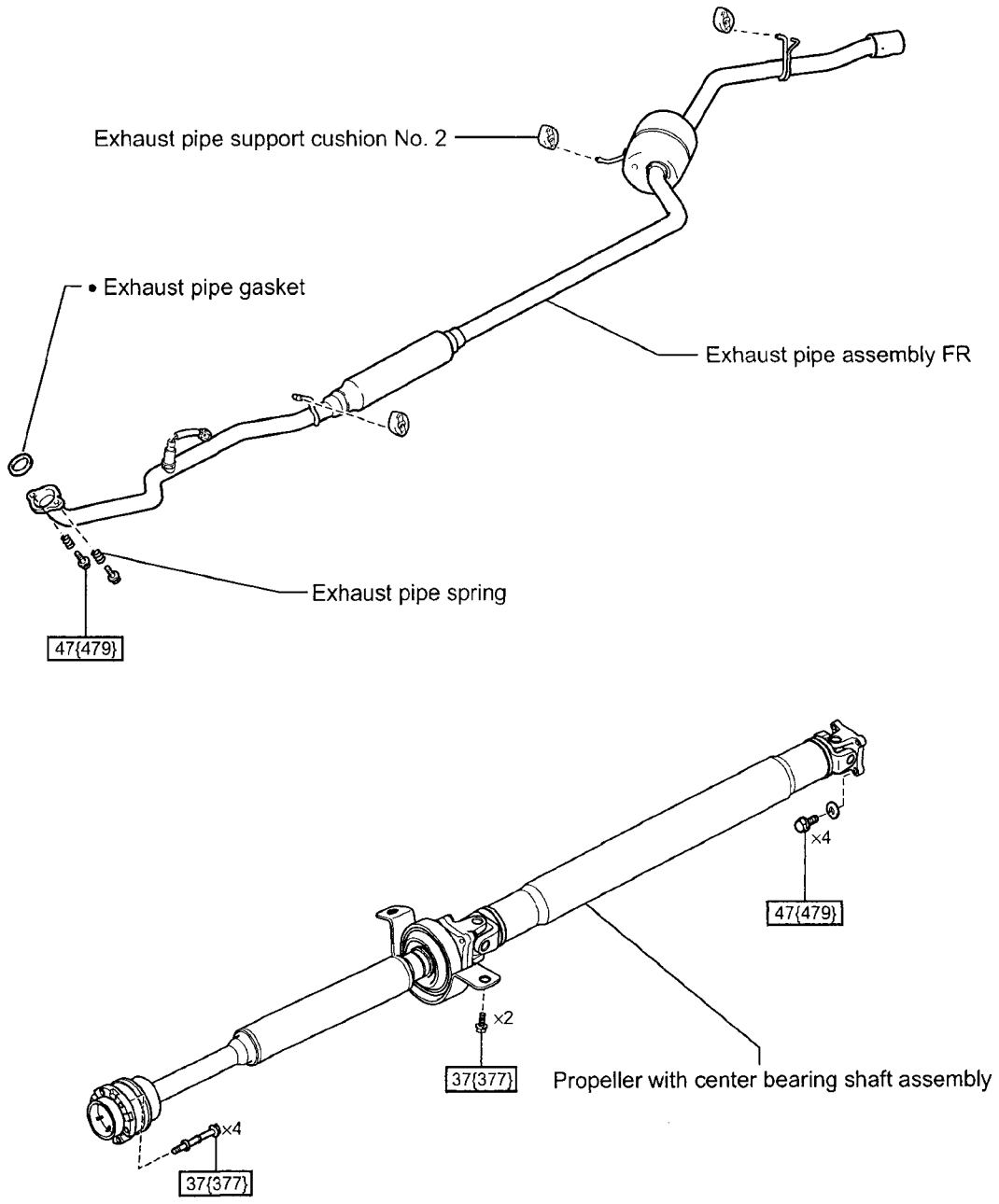
46. Front disc brake cylinder assembly LH installation (See page 36-16)
47. Front disc brake cylinder assembly RH installation (See page 36-17)
48. Speed sensor FR LH installation (with ABS & VSC) (See page 36-17)
49. Speed sensor FR RH installation (with ABS & VSC) (See page 36-17)
50. Front brake flexible hose No. 1 (LH) installation (without ABS & VSC) (See page 36-18)
51. Front brake flexible hose No. 1 (RH) installation (without ABS & VSC) (See page 36-18)
52. Front suspension cross member LH installation (See page 07-84)
53. Front suspension cross member RH installation (See page 07-84)
54. Front stabilizer bar installation (See page 07-84)
55. Engine undercover LH installation (See page 07-85)
56. Engine undercover RH installation (See page 07-85)
57. Transmission floor shift assembly installation (for Manual transaxle) (See page 29-55)
58. Console box assembly installation (for Manual transaxle) (See page 29-56)
59. Console box carpet installation (for Manual transaxle) (See page 29-56)
60. Rear console box installation (for Manual transaxle) (See page 29-57)
61. Shift lever knob installation (for Manual transaxle) (See page 29-57)
62. Steering column assembly connection (RHD) (See page 49-64)
63. Steering column assembly connection (LHD) (See page 49-79)
64. Steering column hole cover No. 1 installation (RHD) (See page 48-10)
65. Steering column hole cover No. 1 installation (LHD) (See page 48-18)
66. Clutch release cable assembly installation (K3-VE) (See page 29-21)
67. Clutch release cable assembly adjustment (K3-VE) (See page 27-21)
68. Clutch cable clamp installation (K3-VE) (See page 29-21)
69. Clutch hose installation (3SZ-VE) (See page 29-22)
70. Clutch release cylinder assembly installation (3SZ-VE) (See page 29-22)
71. Engine wire connection (See page 07-86)
72. Engine room main wire connection (See page 07-86)
73. Vacuum hose assembly connection (See page 07-87)
74. Ground cable connection (See page 07-87)
75. Accelerator control cable assembly connection (RHD) (See page 06-148)
76. Accelerator control cable assembly connection (LHD) (See page 07-88)
77. Fuel hose connection (See page 07-89)
78. Radiator assembly installation (See page 07-89)
79. Cooler refrigerant liquid pipe A connection (with Air conditioning system) (See page 52-137)
80. Compressor assembly (with magnet clutch) installation (with Air conditioning system) (See page 52-134)
81. Cooler refrigerant discharge hose No. 1 connection (with Air conditioning system) (See page 52-134)
82. Cooler refrigerant suction hose No. 1 connection (with Air conditioning system) (See page 52-134)
83. Fan & alternator V belt installation
    (See page 07-6)
84. Front bumper cover installation (See page 82-15)
85. Heater outlet water hose connection (RHD) (See page 52-87)
86. Heater outlet water hose connection (LHD) (See page 52-177)
87. Heater inlet water hose connection (RHD) (See page 52-87)
88. Heater inlet water hose connection (LHD) (See page 52-178)
89. Oil cooler inlet hose installation (for Automatic transaxle) (See page 26-99)
90. Oil cooler outlet hose installation (for Automatic transaxle) (See page 26-100)
91. With water fan assembly installation (See page 12-13)
92. Radiator outlet hose connection(See page 12-14)

93. Water bypass hose connection (See page 12-14)
94. Radiator inlet hose connection (See page 12-14)
95. Air cleaner assembly installation (See page 06-149)
96. Precleaner hose installation (See page 06-149)
97. Inlet air temperature sensor connection (See page 06-150)
98. Vacuum switching valve assembly (with Bracket) connection (RHD) (See page 06-150)
99. Vacuum switching valve assembly (with Bracket) connection (LHD) (See page 06-150)
100. Vacuum sensor connection (See page 06-150)
101. Air cleaner filter element installation
102. Air cleaner cap installation
103. Battery tray installation (See page 07-90)
104. Battery installation
105. Battery cover installation
106. Radiator reserve tank assembly installation (See page 07-90)
107. Battery hold down clamp installation (See page 07-90)
108. Exhaust pipe assembly FR installation (See page 11-16)
109. Battery terminal connection
    Specified value:T=6.4N*m {65kgf*cm}
110. Brake fluid replenishment (for Manual transaxle) (See page 45-4)
111. Clutch pipeline air bleeding (for Manual transaxle) (See page 27-3)
112. Clutch fluid leakage check (for Manual transaxle)
113. Brake fluid amount check (for Manual transaxle) (See page 45-4)
114. Cooling fluid replenishment (See page 12-6)
115. Engine oil replenishment
116. Automatic transaxle fluid replenishment (for Automatic transaxle) (See page 26-103)
117. Automatic transaxle fluid check (for Automatic transaxle) (See page 26-63)
118. Manual transaxle oil replenishment (for Manual transaxle) (See page 29-23)
119. Shift lever position check (for Automatic transaxle)
    (See page 26-136)
120. Cooling fluid leakage check (See page 12-6)
121. Cooling fluid amount check
122. Oil leakage check
123. Fuel leakage check (See page 08-7)
124. Exhaust gas leakage check (See page 11-16)
125. Engine idle-speed check (See page 07-4)
126. Ignition timing check (See page 07-2)
127. CO and HC level check (See page 07-4)
128. Refrigerant HFC-134a (R134a) filling (with Air conditioning system) (See page 52-42)
129. Front tire installation
    Specified value:T=103N*m {1050kgf*cm}
130. Front wheel alignment check · adjustment
    (See page 42-5)
131. Test mode check (Speed sensor circuit)
    with ABS: (See page 44-15)
    with VSC: (See page 44-76)

CHAIN (3SZ-VE / 4WD)

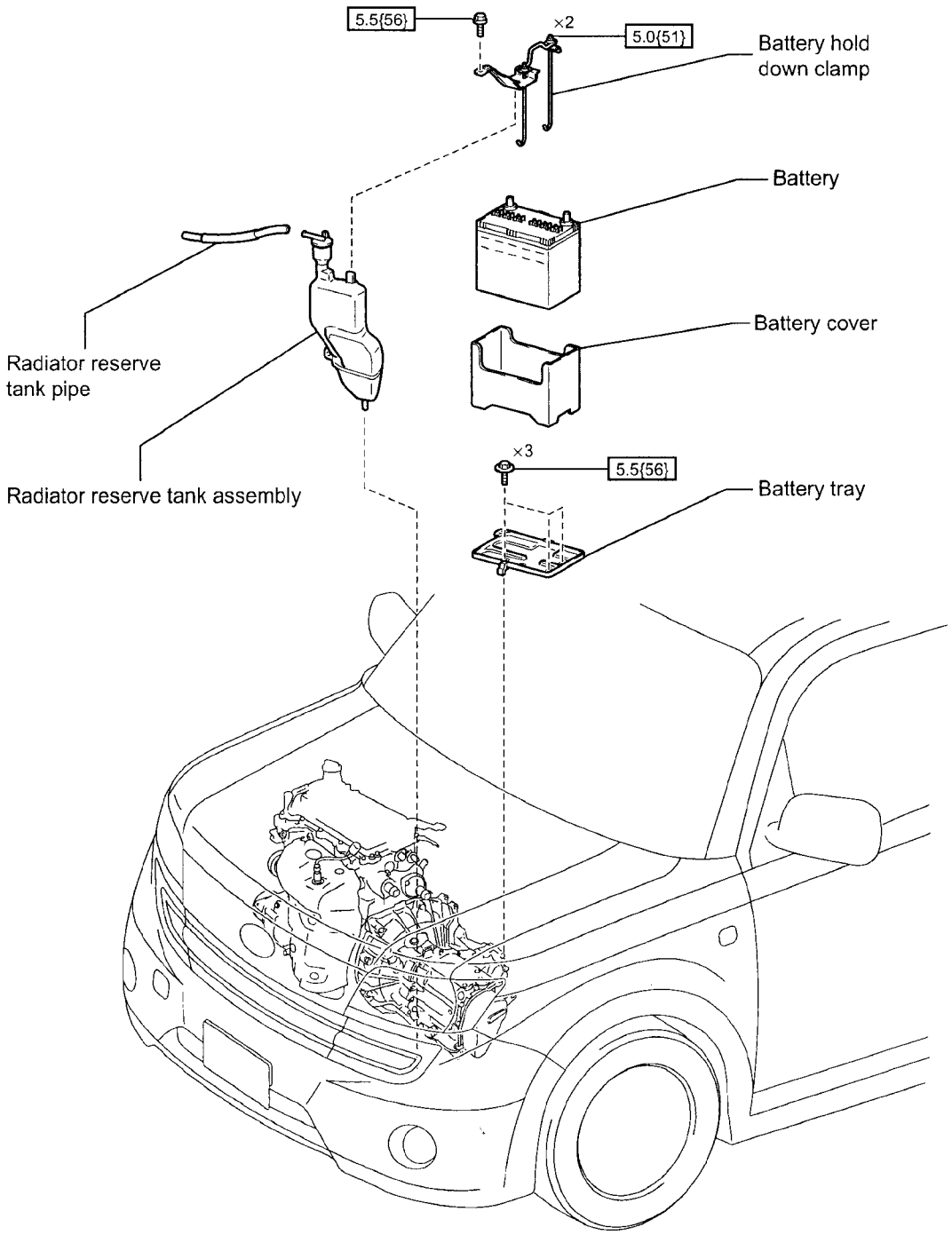
COMPONENTS





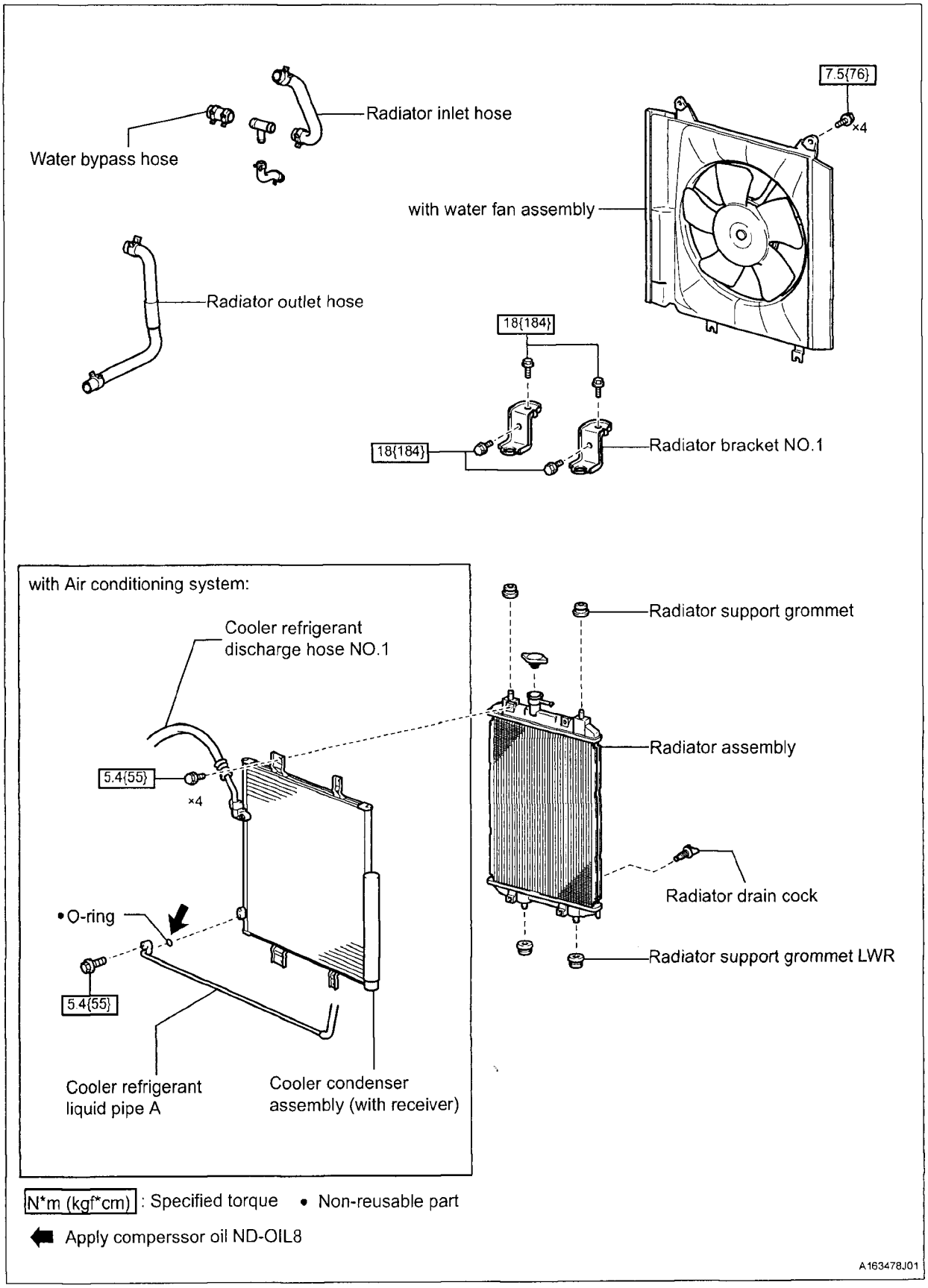
N*m {kgf*cm} : Specified torque • Non-reusable part

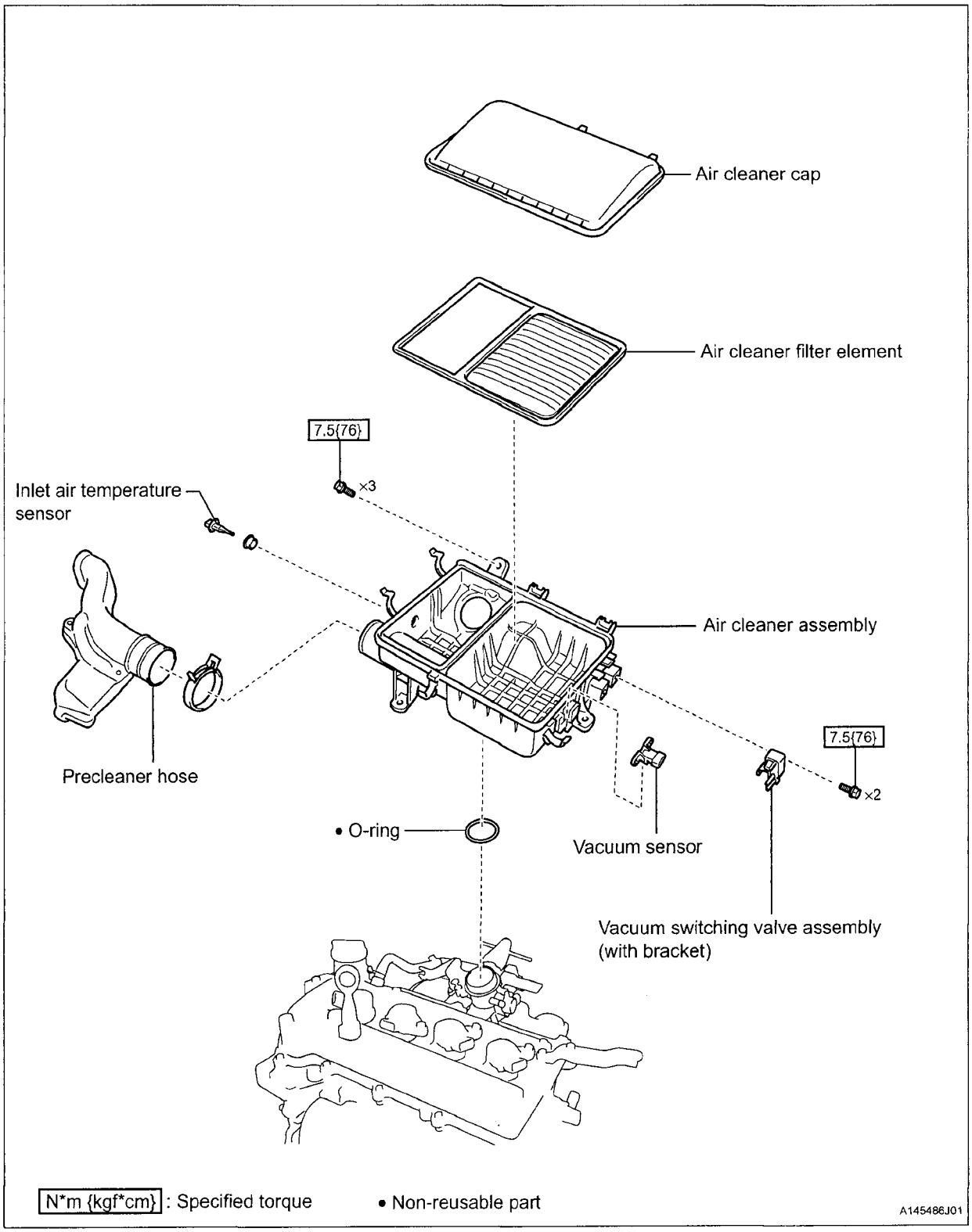
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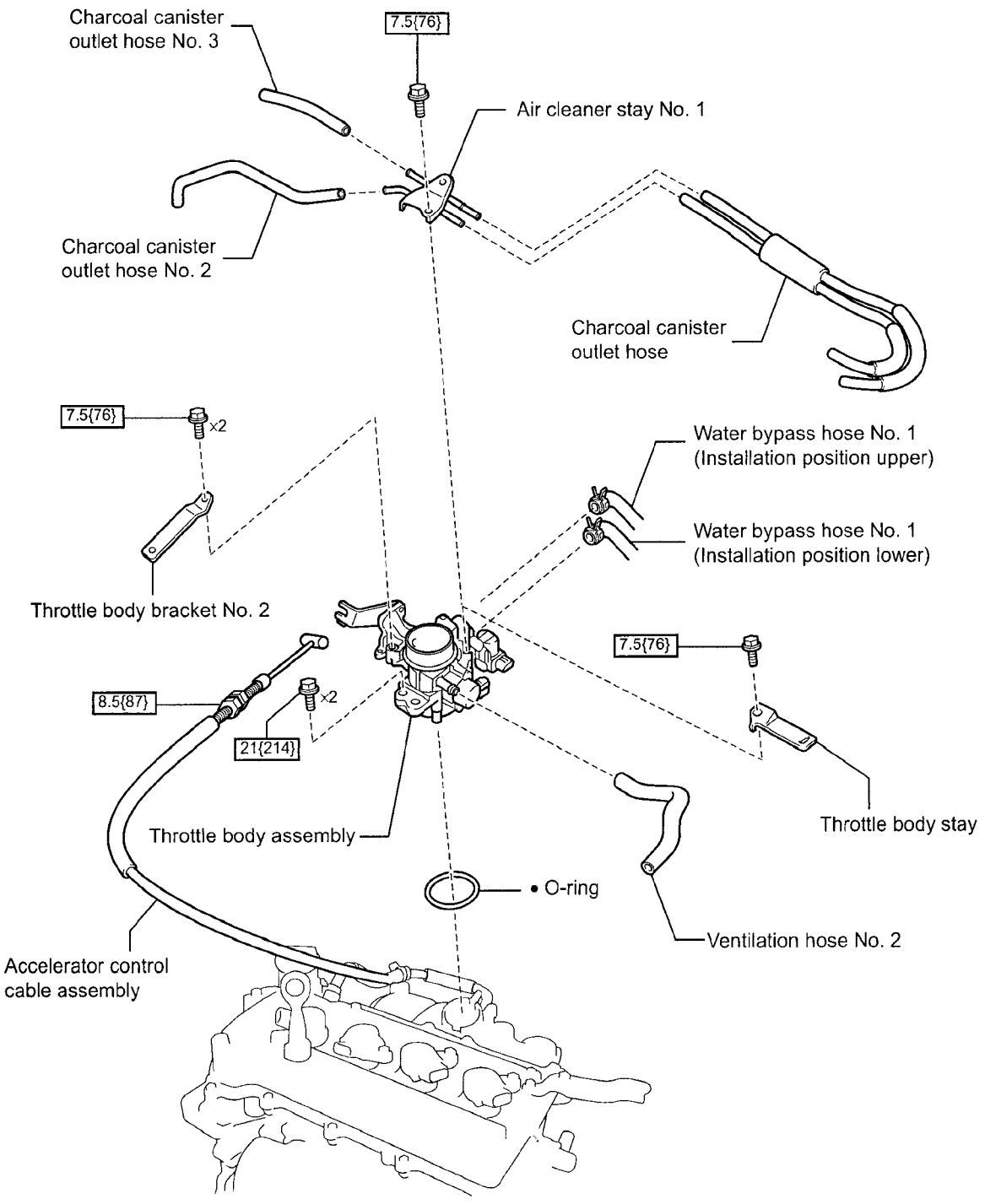


N*m {kgf*cm} : Spacified torque

A161724J01

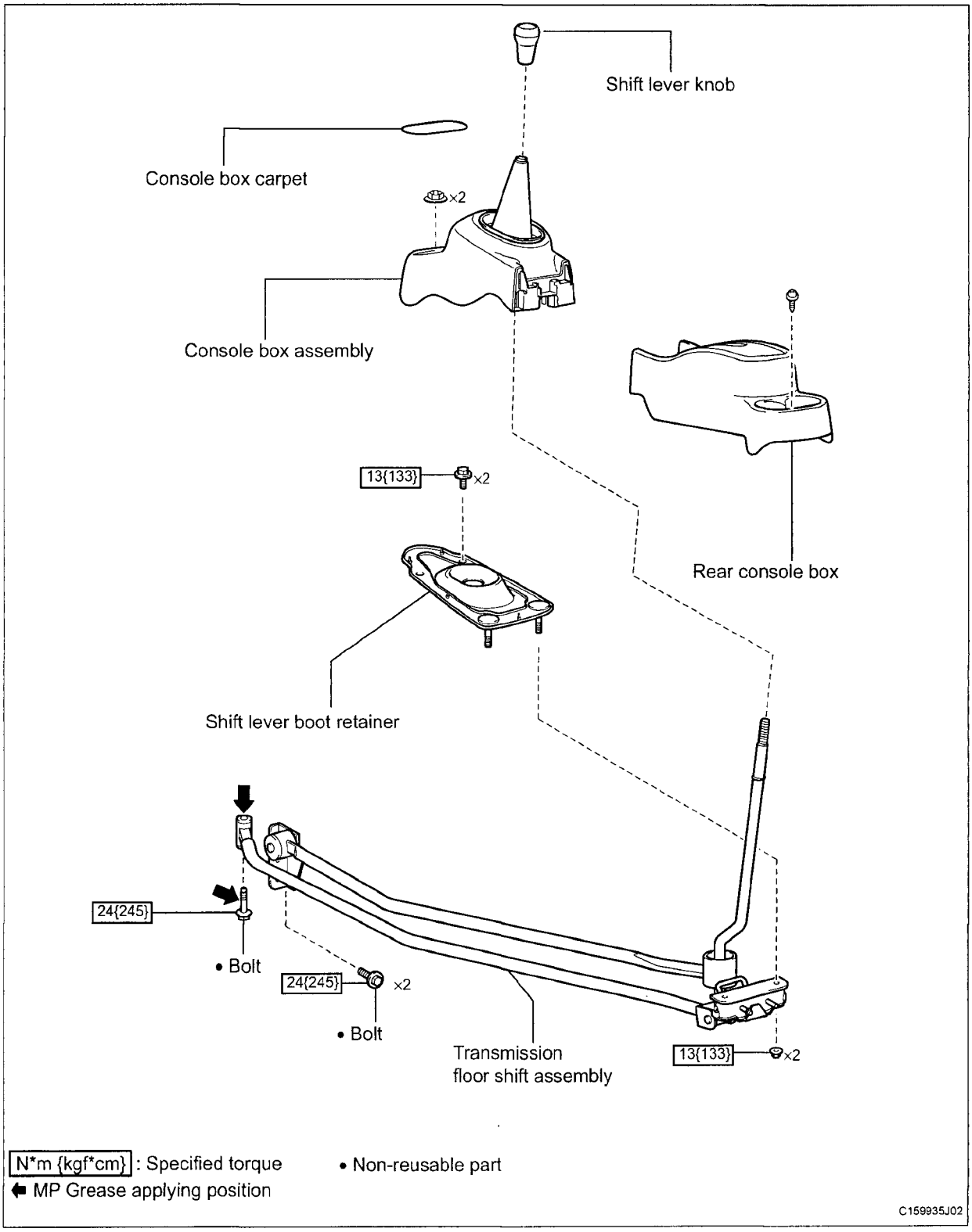

Radiator inlet hose
Water bypass hose
7.5{76}
×4
with water fan assembly
Radiator outlet hose
18{184}
18{184}
Radiator bracket NO.1
with Air conditioning system:
Cooler refrigerant discharge hose NO.1
Radiator support grommet
Radiator assembly
5.4{55}
×4
Radiator drain cock
•O-ring
5.4{55}
Radiator support grommet LWR
Cooler refrigerant liquid pipe A
Cooler condenser assembly (with receiver)
N*m (kgf*cm) : Specified torque • Non-reusable part
Apply comperssor oil ND-OIL8
A163478J01


Air cleaner cap
Air cleaner filter element
7.5{76}
×3
Inlet air temperature sensor
Air cleaner assembly
Precleaner hose
7.5{76}
×2
• O-ring
Vacuum sensor
Vacuum switching valve assembly (with bracket)
N*m {kgf*cm}: Specified torque
• Non-reusable part
A145486J01

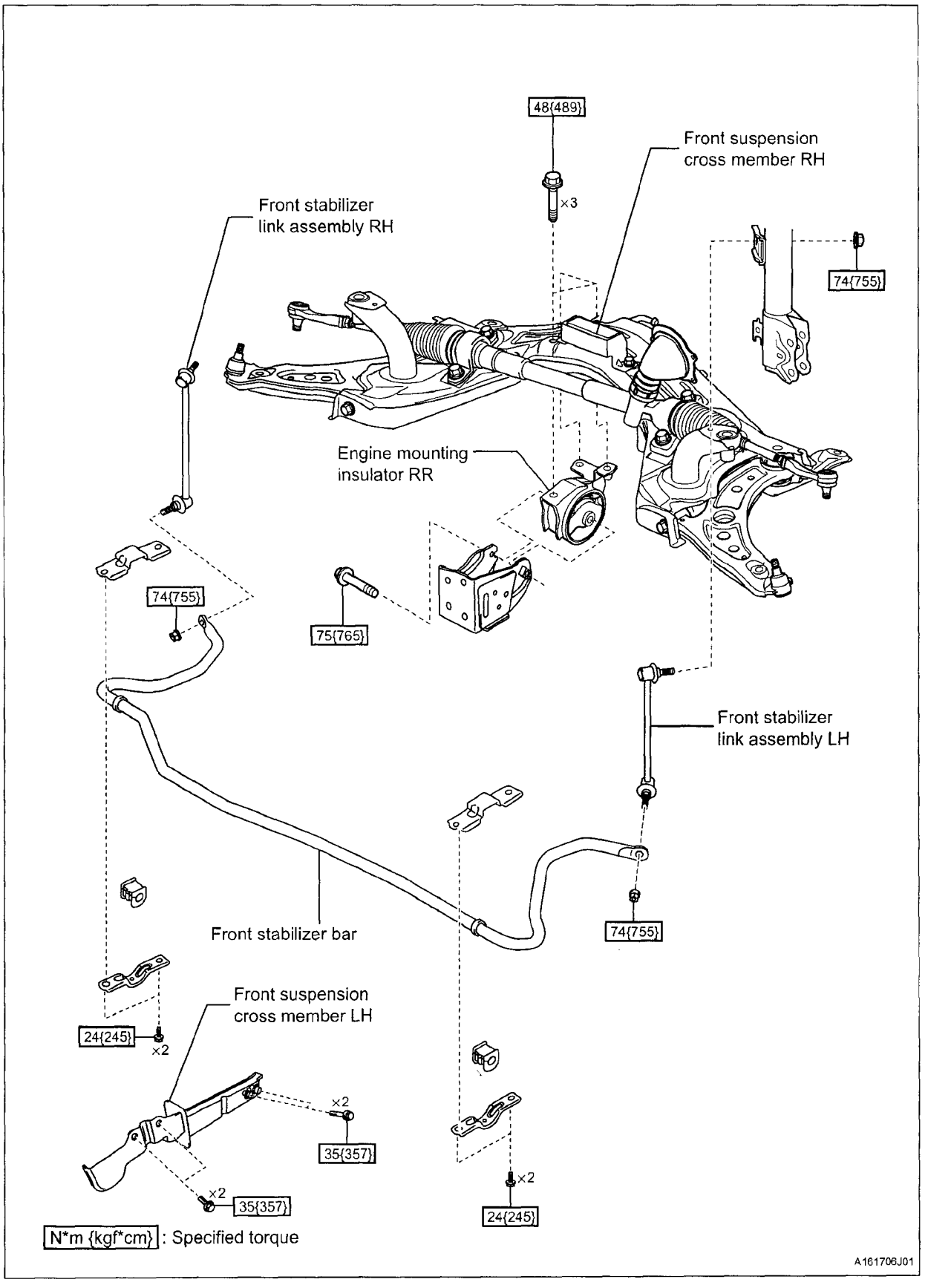


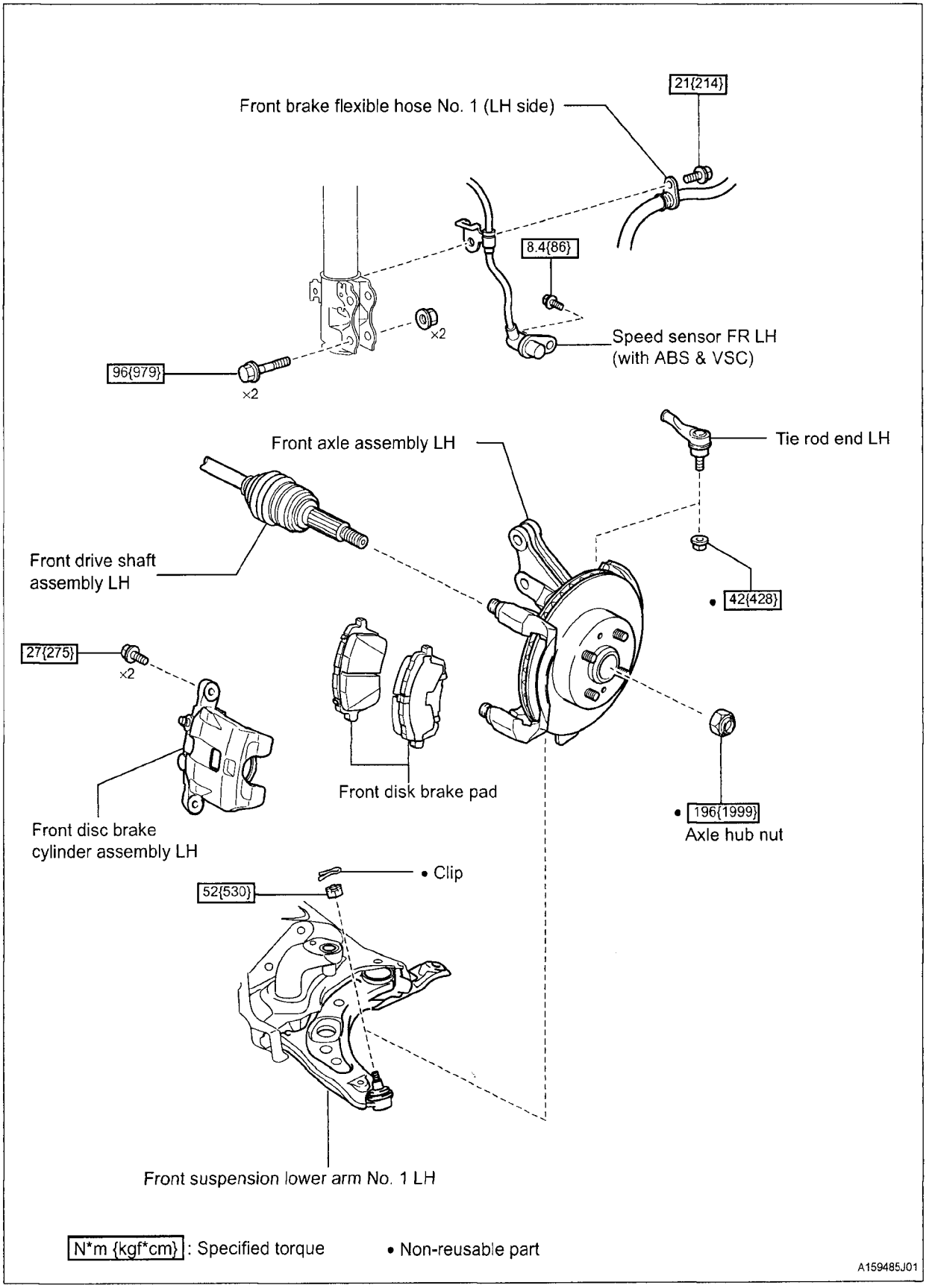
N*m {kgf*cm} : Specified torque • Non-reusable part

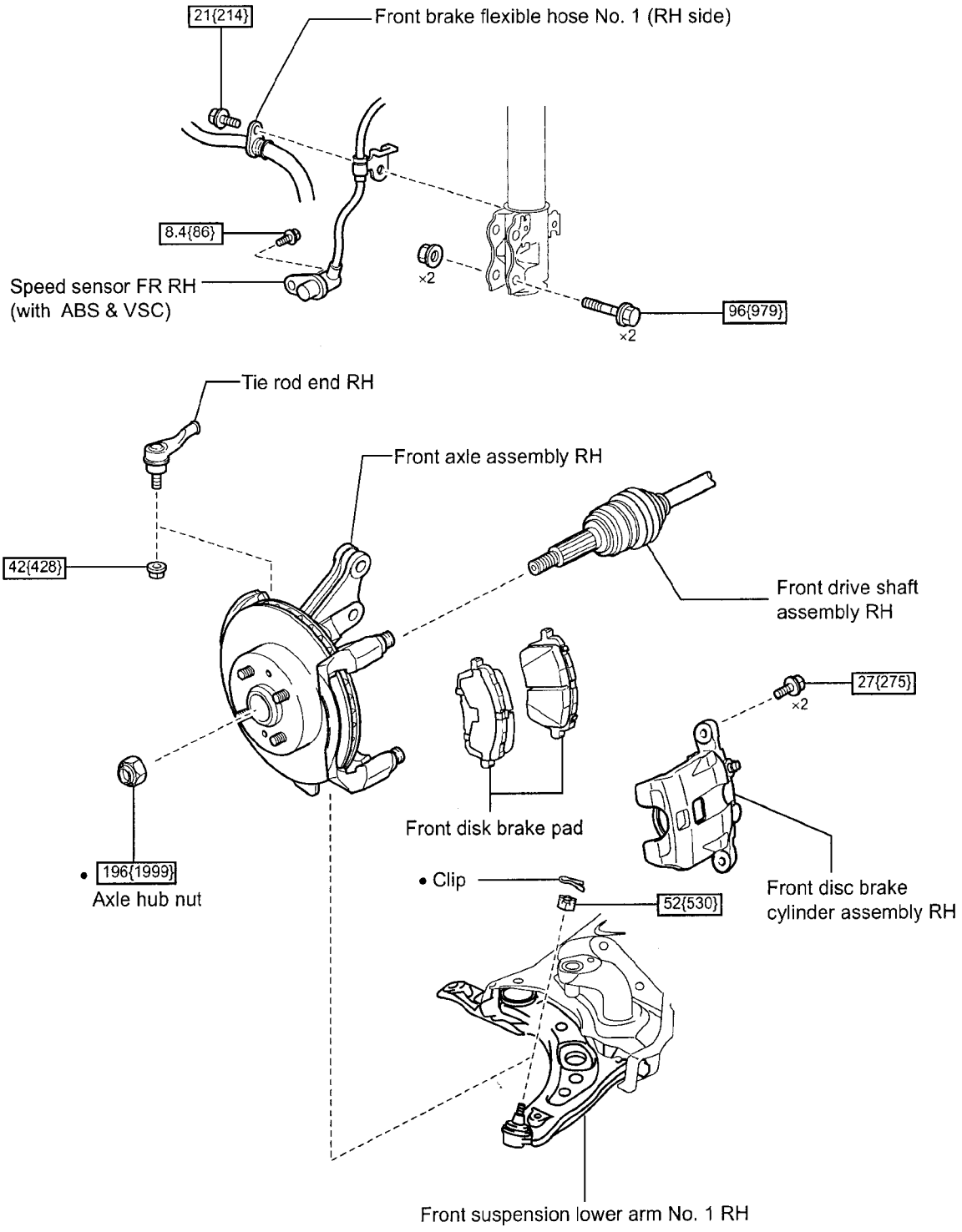
A159487J02


Shift lever knob
Console box carpet
×2
Console box assembly
13{133}
×2
Rear console box
Shift lever boot retainer
24{245}
• Bolt
24{245}
×2
• Bolt
Transmission
floor shift assembly
13{133}
×2
N*m {kgf*cm} : Specified torque
• Non-reusable part
MP Grease applying position
C159935J02

07

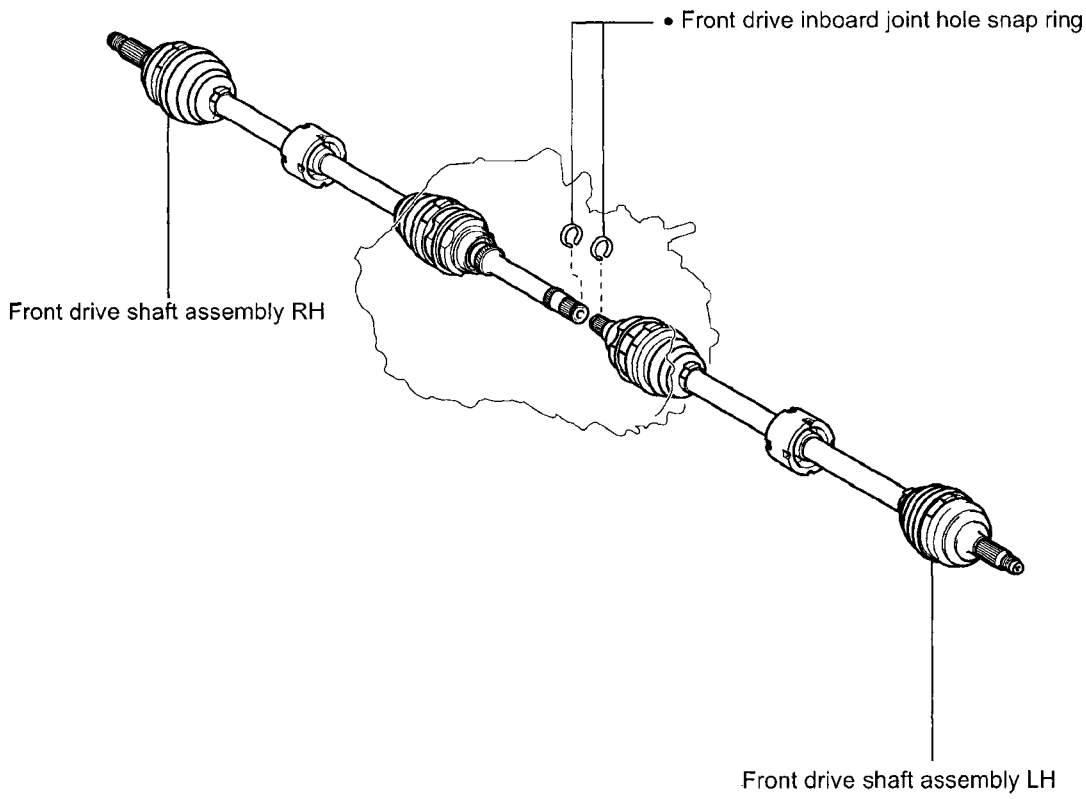

48{489}
×3
Front suspension cross member RH
Front stabilizer link assembly RH
74{755}
Engine mounting insulator RR
75{765}
74{755}
Front stabilizer link assembly LH
Front stabilizer bar
74{755}
Front suspension cross member LH
24{245}
×2
×2
35{357}
×2
35{357}
×2
24{245}
N*m {kgf*cm} : Specified torque
A161706J01


Front brake flexible hose No. 1 (LH side)
21{214}
8.4{86}
Speed sensor FR LH
(with ABS & VSC)
×2
96{979}
×2
Front axle assembly LH
Tie rod end LH
Front drive shaft
assembly LH
• 42{428}
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
Front disc brake
cylinder assembly LH
• Clip
52{530}
Front suspension lower arm No. 1 LH
N*m {kgf*cm}: Specified torque
• Non-reusable part
A159485J01



N*m {kgf*cm}: Specified torque • Non-reusable part

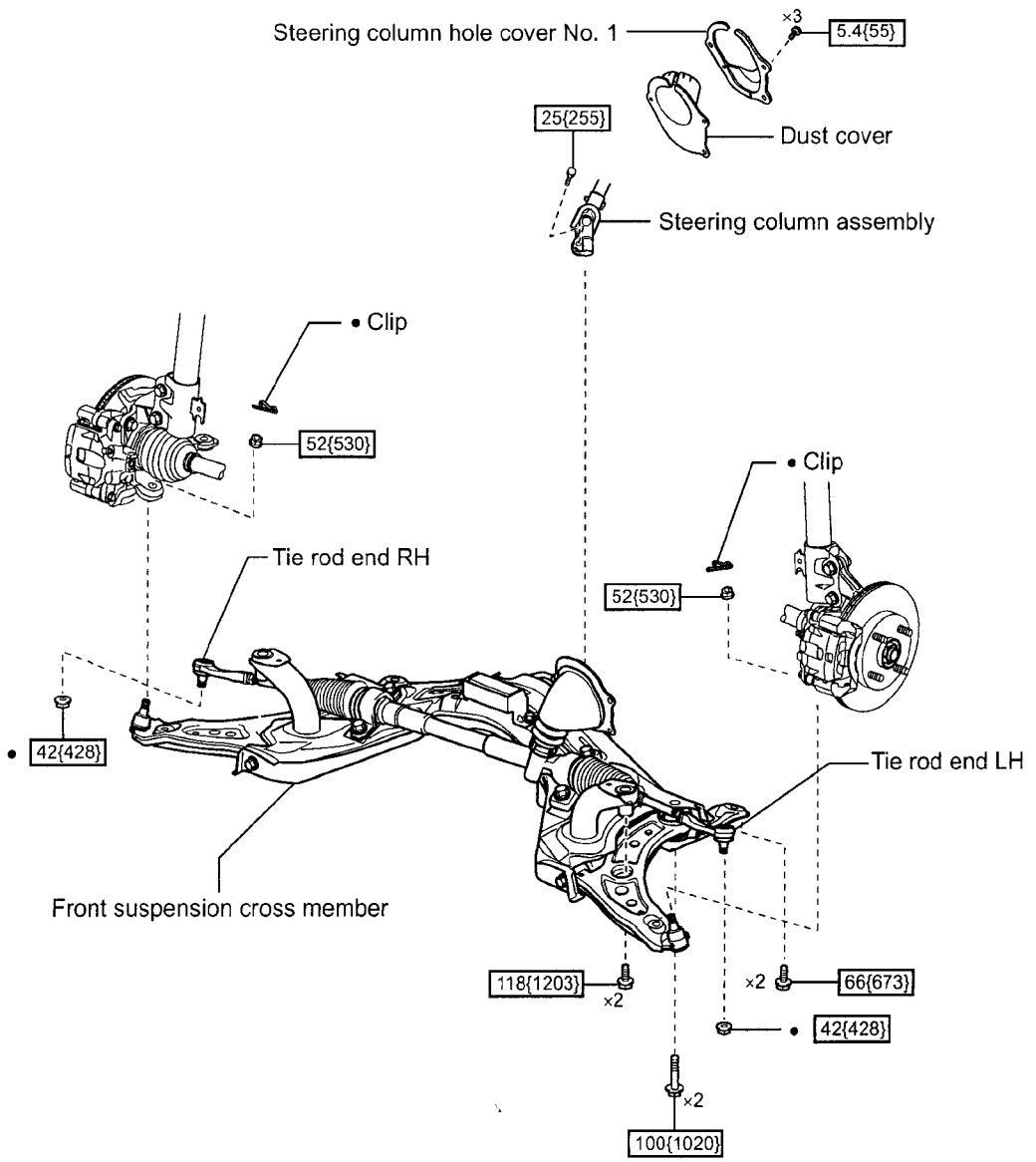
A159486J01



• Non-reusable part

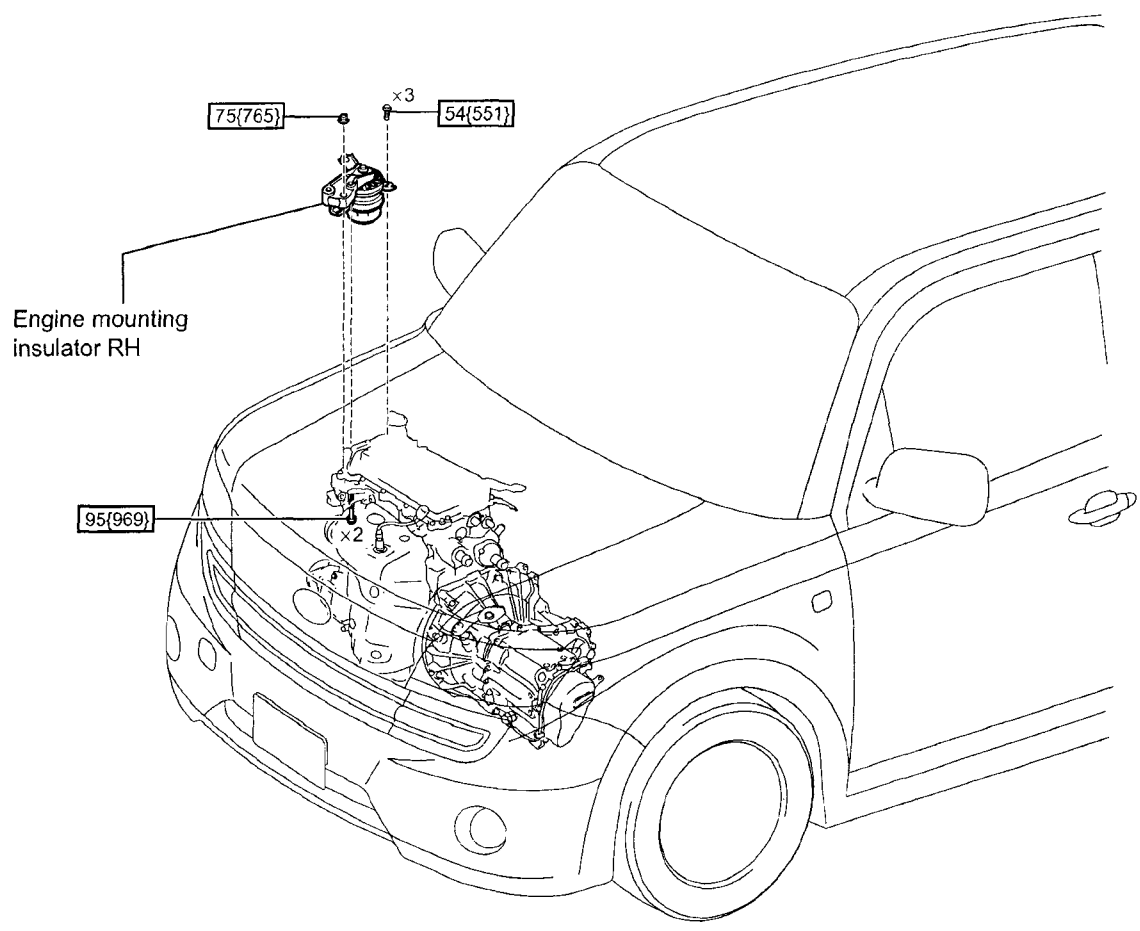
A149650J01

07



N*m {kgf*cm} : Specified torque • Non-reusable part

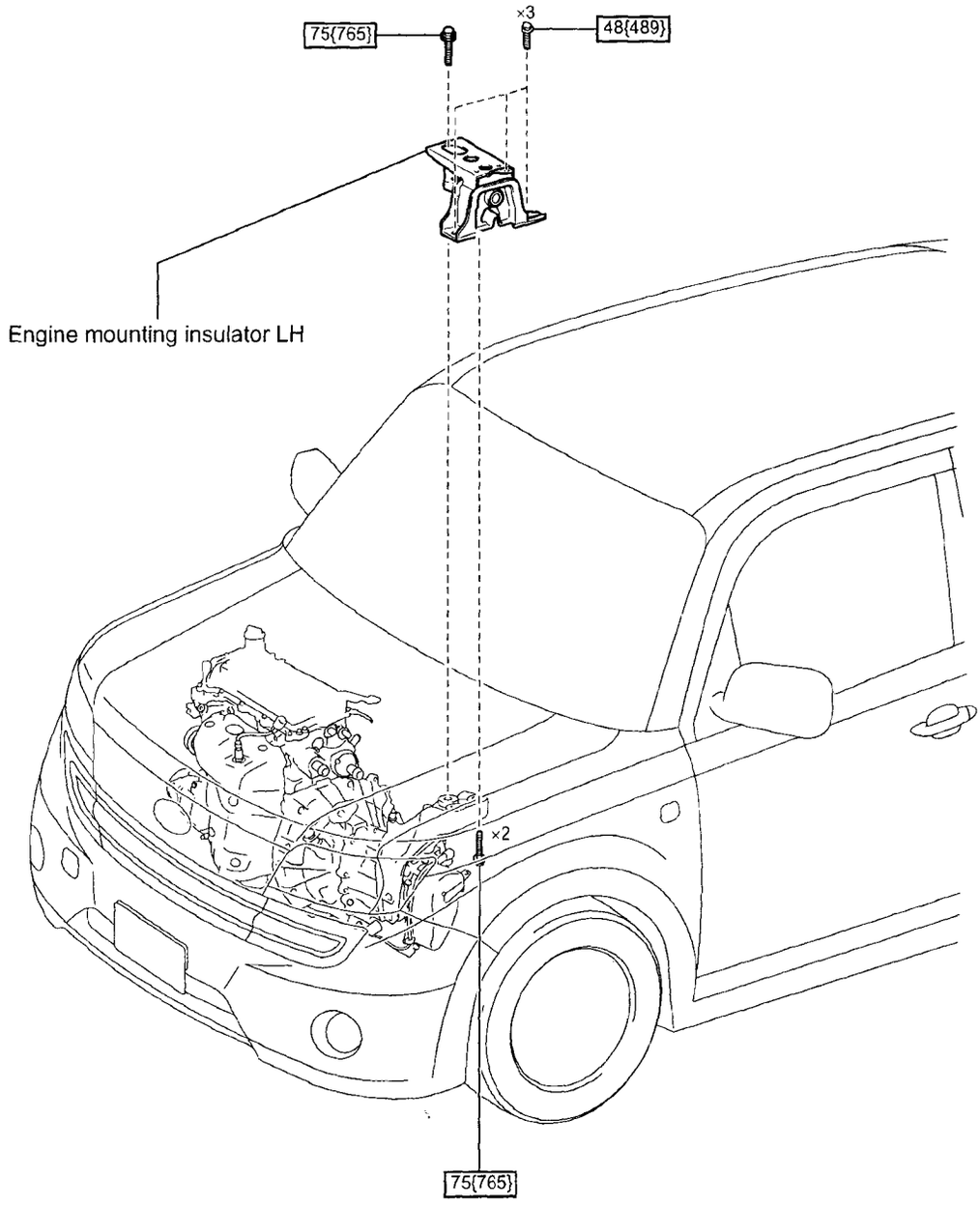
A161688J01



N*m {kgf*cm} : Specified torque

A161707J01

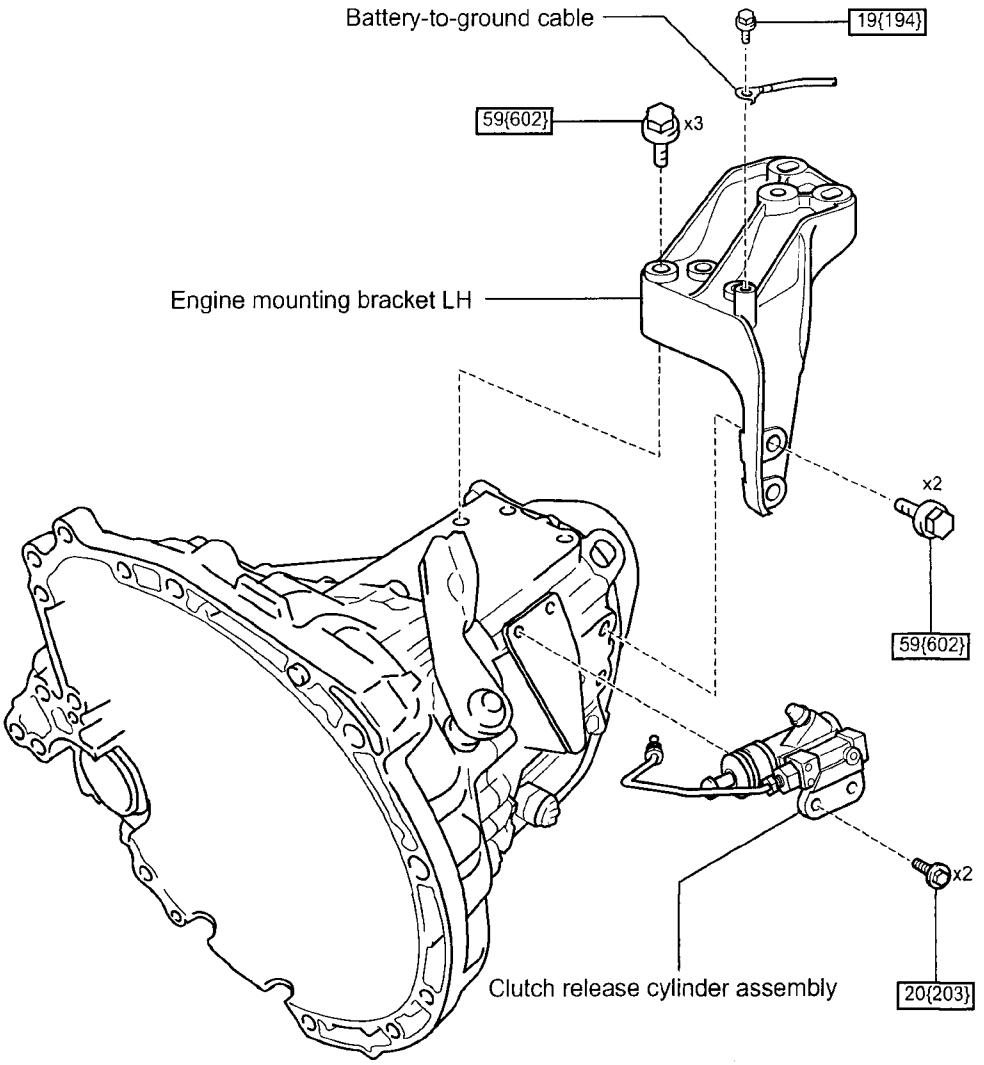
07



N*m {kgf*cm}: Specified torque

T

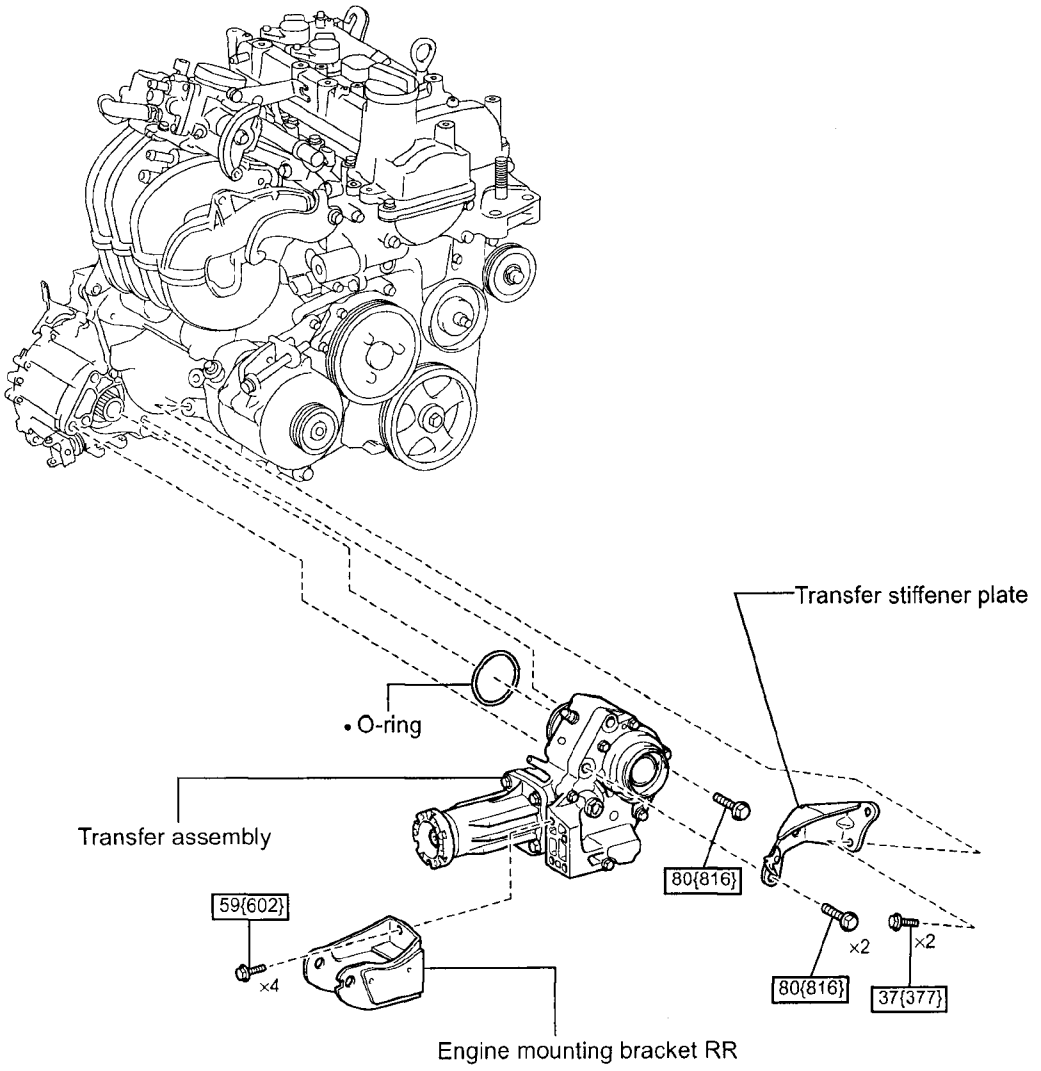
A161689J03



N*m (kgf*cm) : Specified torque

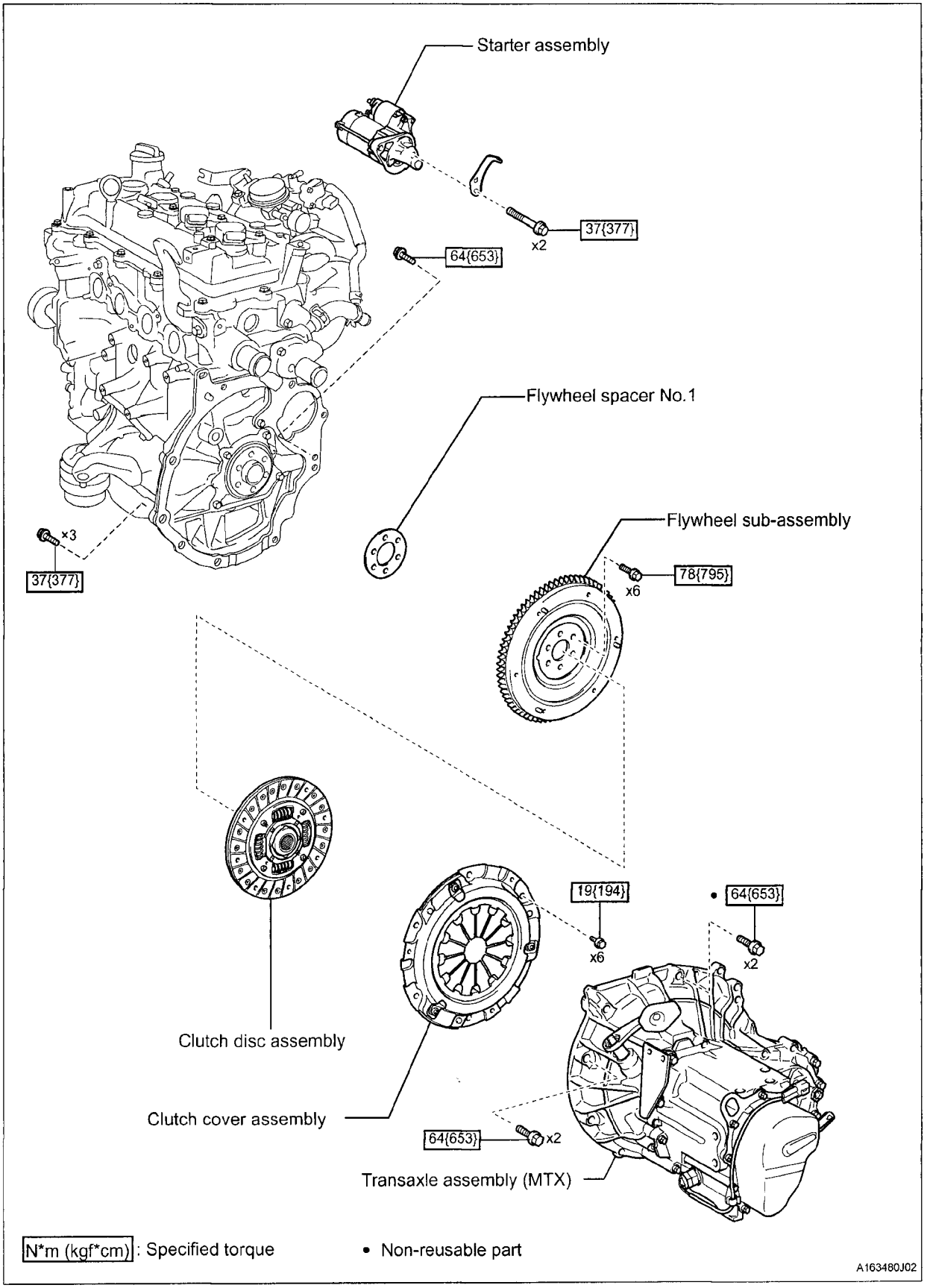
A163477J01

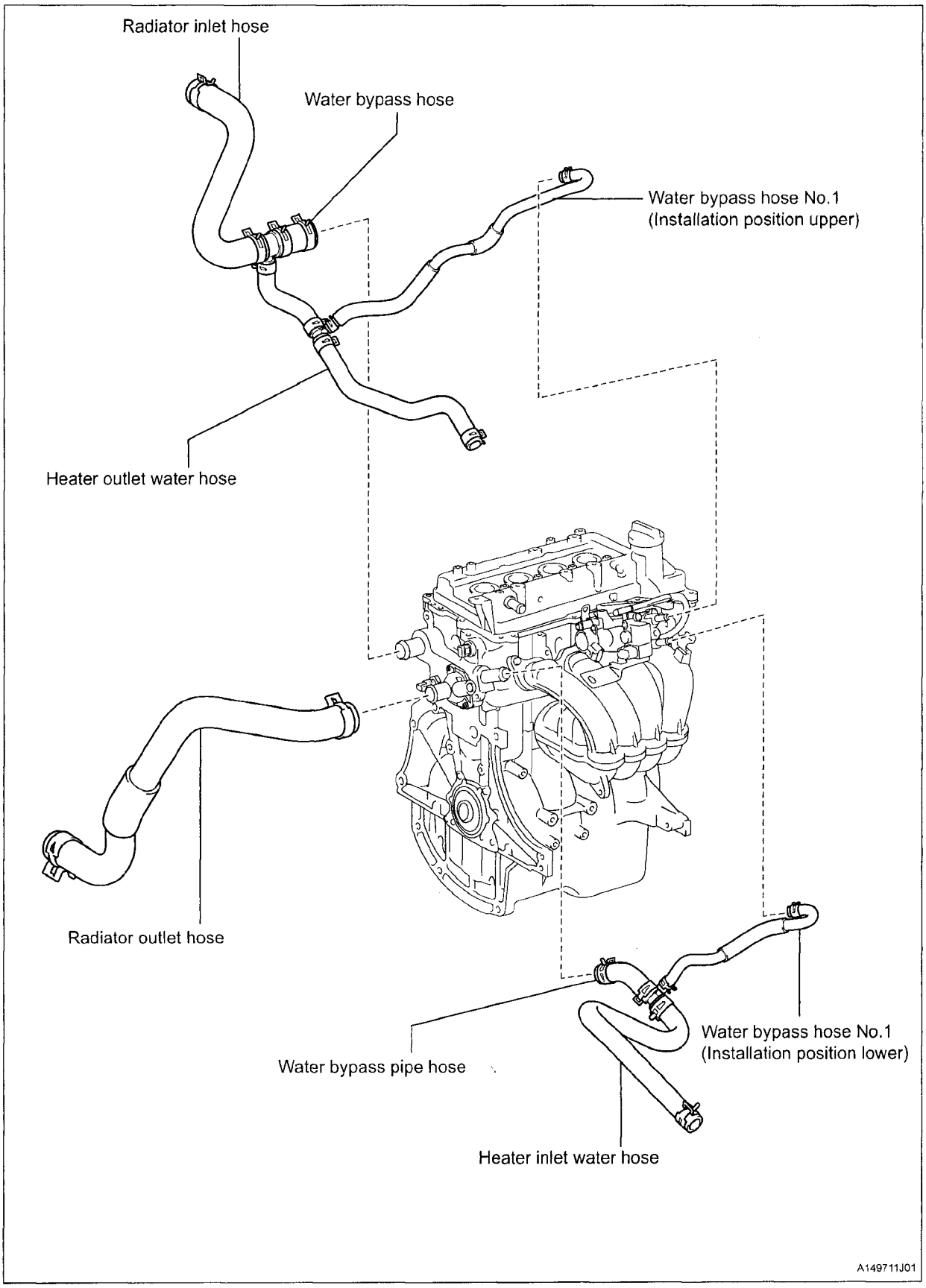
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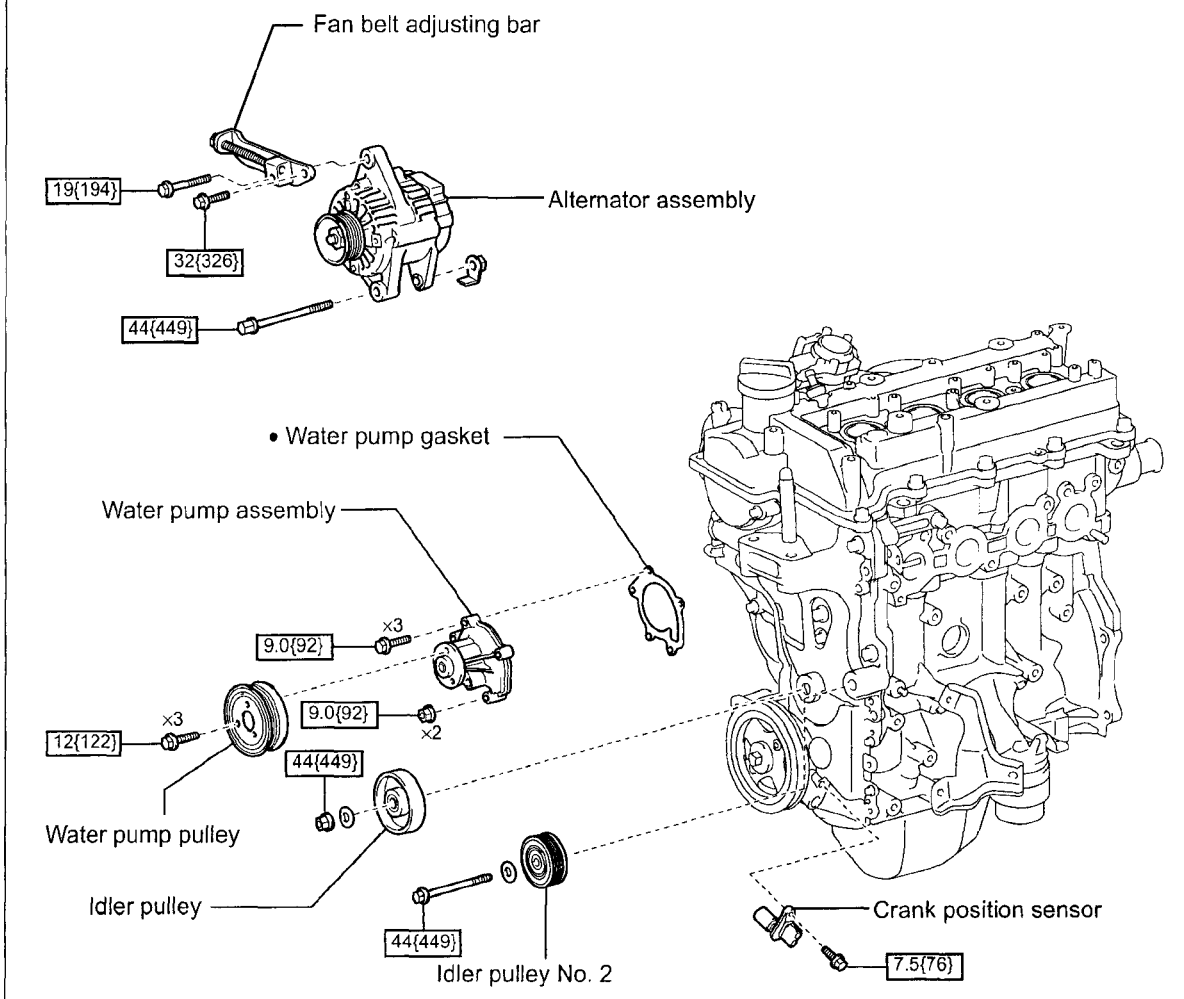


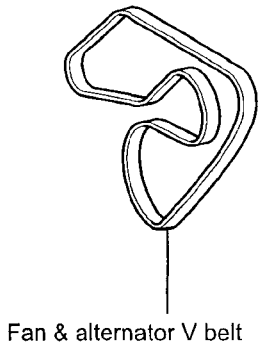
N*m {kgf*cm} : Specified torque • Non-reusable part

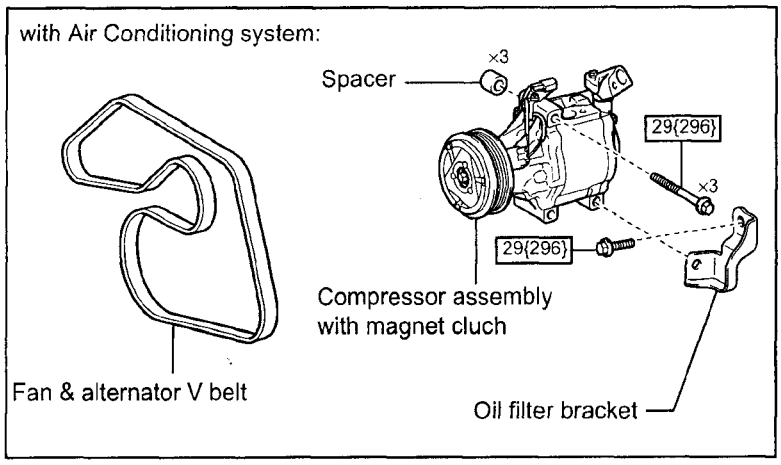
C159889J01


Starter assembly
37{377}
x2
64{653}
Flywheel spacer No.1
x3
37{377}
Flywheel sub-assembly
78{795}
x6
Clutch disc assembly
19{194}
x6
• 64{653}
x2
Clutch cover assembly
64{653}
x2
Transaxle assembly (MTX)
N*m (kgf*cm): Specified torque
• Non-reusable part
A163480J02


Radiator inlet hose
Water bypass hose
Water bypass hose No.1
(Installation position upper)
Heater outlet water hose
Radiator outlet hose
Water bypass pipe hose
Water bypass hose No.1
(Installation position lower)
Heater inlet water hose
A149711J01

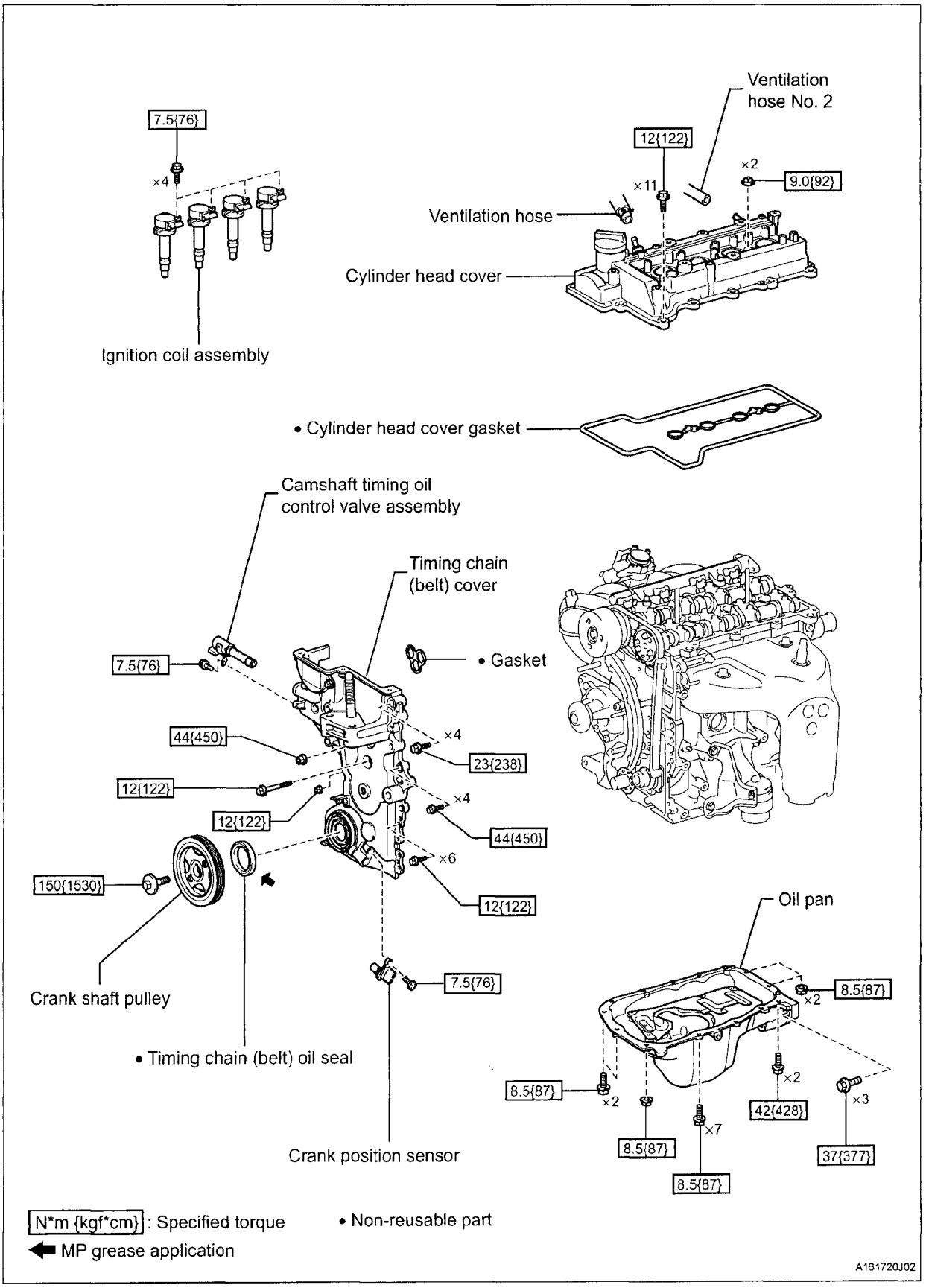


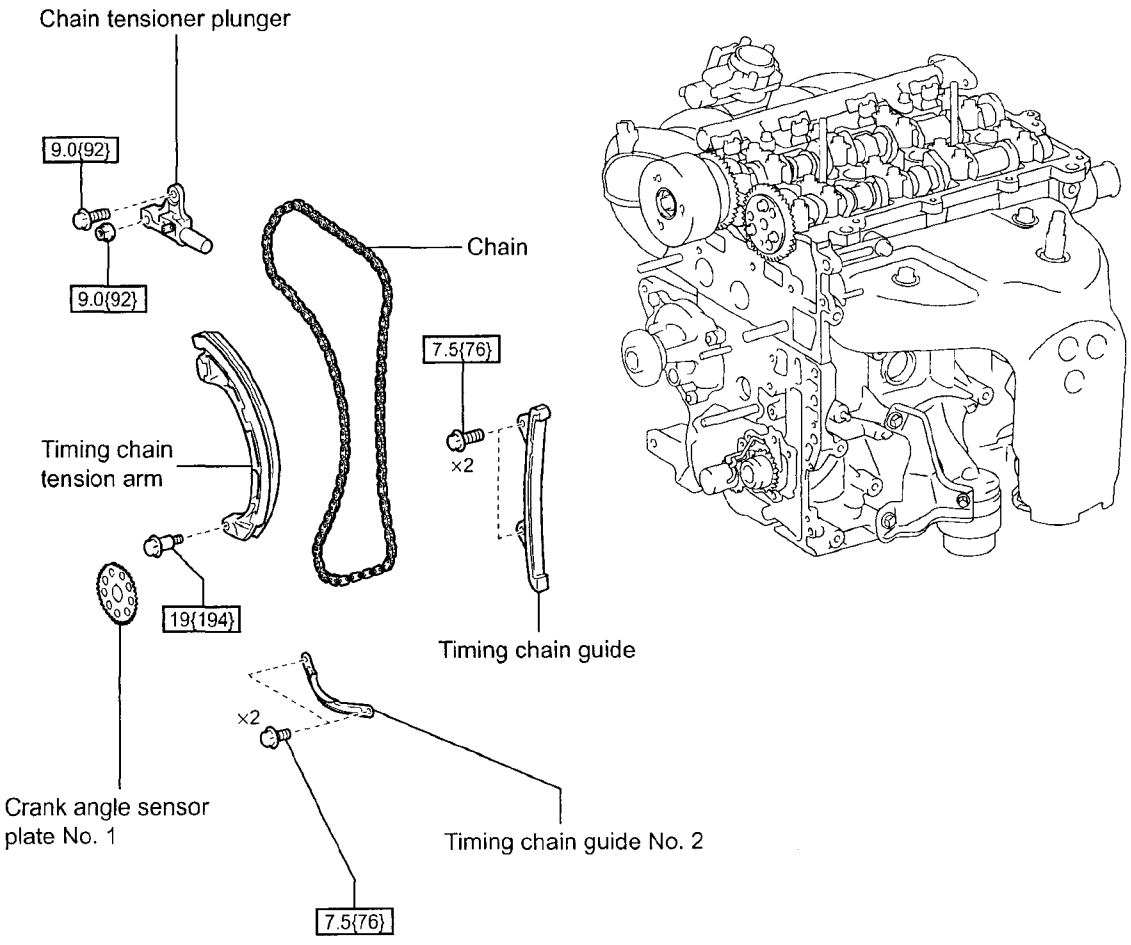




N*m {kgf*cm} : Specified torque • Non-reusable part

A159489J02


7.5{76}
×4
Ignition coil assembly
Ventilation hose No. 2
12{122}
×2
9.0{92}
×11
Ventilation hose
Cylinder head cover
• Cylinder head cover gasket
Camshaft timing oil control valve assembly
Timing chain (belt) cover
7.5{76}
• Gasket
44{450}
×4
23{238}
12{122}
×4
12{122}
44{450}
×6
150{1530}
12{122}
Crank shaft pulley
• Timing chain (belt) oil seal
7.5{76}
Crank position sensor
Oil pan
8.5{87}
×2
8.5{87}
×2
×2
42{428}
×3
×7
8.5{87}
37{377}
8.5{87}
N*m {kgf*cm}: Specified torque
• Non-reusable part
MP grease application
A161720J02



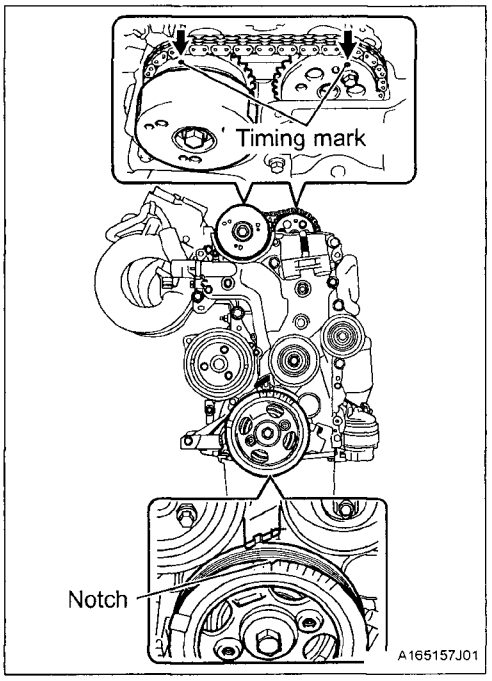
N*m {kgf*cm} : Specified torque

A161718J01

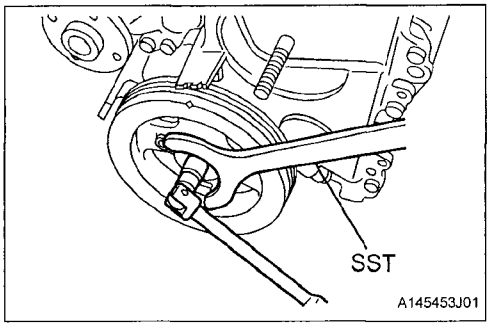
REMOVAL

1. Fuel spill prevention work
   (See page 08-3)
2. Battery terminal disconnection
3. Cooling fluid withdrawal (See page 12-6)
4. Refrigerant HFC-134a (R134a) withdrawal (with Air conditioning system) (See page 52-42)
5. Front tire removal
6. Engine oil withdrawal
7. Manual transaxle oil withdrawal (See page 29-37)
8. Exhaust pipe assembly FR removal (See page 11-15)
9. Propeller with a center bearing shaft assembly removal (See page 35-3)
10. Brake fluid withdrawal
11. Battery hold down clamp removal (See page 07-113)
12. Radiator reserve tank assembly removal (See page 07-113)
13. Battery cover removal
14. Battery removal
15. Battery tray removal (See page 07-113)
16. Air cleaner cap removal
17. Air cleaner filter element removal
18. Vacuum sensor disconnection (See page 06-140)
19. Vacuum switching valve assembly (with Bracket) disconnection (See page 06-140)
20. Inlet air temperature sensor disconnection (See page 06-140)
21. Precleaner hose removal (See page 06-141)
22. Air cleaner assembly removal (See page 06-141)
23. Radiator inlet hose disconnection (See page 12-10)
24. Water bypass hose disconnection (See page 12-10)
25. Radiator outlet hose disconnection (See page 12-10)
26. With water fan assembly removal (See page 12-11)
27. Heater inlet water hose disconnection (See page 52-164)
28. Heater outlet water hose disconnection (See page 52-164)
29. Front bumper cover removal (See page 82-5)
30. Fan & alternator V belt removal (See page 07-6)
31. Cooler refrigerant suction hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
32. Cooler refrigerant discharge hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
33. Compressor assembly with magnet clutch removal (with Air conditioning system) (See page 52-131)
34. Cooler refrigerant liquid pipe A disconnection (with Air conditioning system) (See page 52-136)
35. Radiator assembly removal (See page 07-114)
36. Fuel hose disconnection (See page 07-114)
37. Accelerator control cable assembly disconnection (See page 07-115)
38. Ground cable disconnection (See page 07-115)
39. Vacuum hose assembly disconnection (See page 07-116)
40. Engine room main wire disconnection (See page 07-116)
41. Engine wire disconnection (See page 07-116)
42. Clutch release cylinder assembly removal (See page 29-38)
43. Clutch hose disconnection (See page 29-38)
44. Steering column hole cover No. 1 removal (See page 48-15)
45. Steering column assembly disconnection (See page 49-70)
46. Shift lever knob removal (See page 29-59)

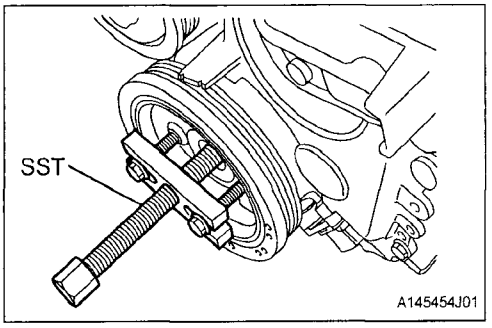
47. Rear console box removal (See page 29-59)
48. Console box carpet removal (See page 29-59)
49. Console box assembly removal (See page 29-59)
50. Transmission floor shift assembly removal (See page 29-60)
51. Engine undercover LH removal (See page 07-116)
52. Engine undercover RH removal (See page 07-116)
53. Front stabilizer link assembly LH removal (See page 07-117)
54. Front stabilizer link assembly RH removal (See page 07-117)
55. Front stabilizer bar removal (See page 42-16)
56. Front suspension cross member LH removal (See page 07-117)
57. Front suspension cross member RH removal (See page 07-117)
58. Speed sensor FR LH disconnection (See page 36-7)
59. Speed sensor FR RH disconnection (See page 36-7)
60. Front disc brake cylinder assembly LH removal (See page 36-8)
61. Front disc brake cylinder assembly RH removal (See page 36-8)
62. Axle hub nut removal (LH) (See page 36-8)
63. Axle hub nut removal (RH) (See page 36-8)
64. Tie rod end LH disconnection (See page 36-8)
65. Tie rod end RH disconnection (See page 36-9)
66. Front shock absorber assembly LH disconnection (See page 07-53)
67. Front shock absorber assembly RH disconnection (See page 07-53)
68. Front drive shaft assembly LH removal (See page 07-54)
69. Front drive shaft assembly RH removal (See page 07-54)
70. Steering knuckle LH removal (See page 07-54)
71. Steering knuckle RH removal (See page 07-54)
72. Radiator support LWR removal (See page 07-118)
73. Engine assembly with transaxle removal (See page 07-118)
74. Front suspension cross member removal (See page 07-119)
75. Engine mounting insulator RR removal (See page 07-119)
76. Starter assembly removal (See page 07-120)
77. Transaxle assembly support (See page 07-120)
78. Transfer assembly removal (See page 07-121)
79. Transaxle assembly removal (See page 07-121)
80. Throttle body bracket No. 2 removal (See page 07-122)
81. Accelerator control cable bracket removal (See page 07-123)
82. Air cleaner support bracket No. 2 removal (See page 07-123)
83. Ventilation hose No. 2 removal (See page 06-141)
84. Engine wire removal (See page 07-123)
85. Ventilation hose removal (See page 07-126)
86. Noise filter removal (See page 07-127)
87. Ignition coil assembly removal (See page 07-128)
88. Oil level gage removal (See page 07-128)
89. Cylinder head cover removal (See page 07-249)



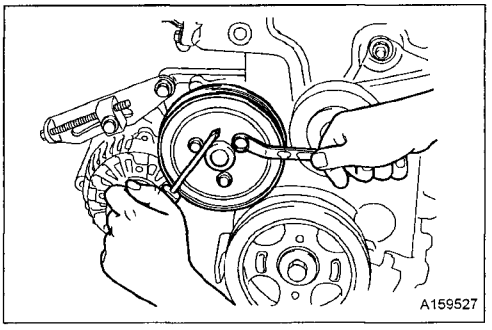
90. Crankshaft pulley removal
    (1) Positively rotate the crankshaft pulley and align the timing marks (notches) with the 0° position. Make sure that each timing mark is positioned as shown in the diagram.
    <HINT>
    If any timing mark is properly positioned, positively rotate the crankshaft pulley again to adjust the position.



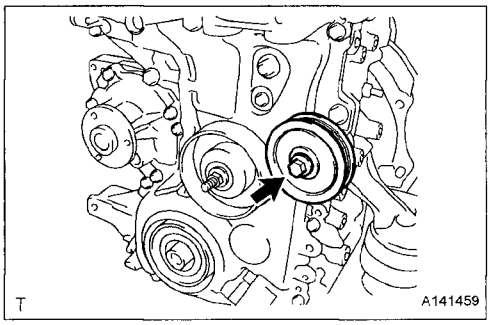
    (2) Fix the crankshaft pulley and loosen the bolt by using SST.
    SST 09278-87201



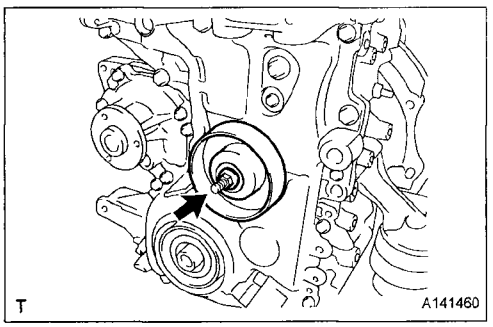
    (3) Use SST and the crankshaft pulley bolt to remove the crankshaft pulley.
    SST 09306-87501
    <CAUTION>
    When attaching SST to the crankshaft, check the installation position to make sure that the SST fixing bolt does not come in contact with the chain cover.



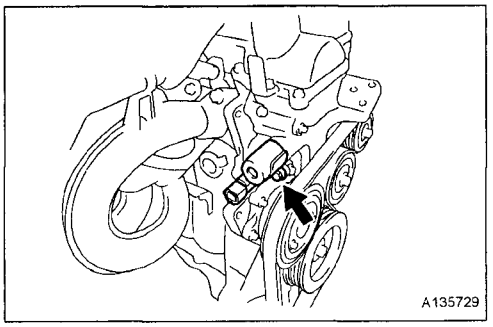
91. Water pump pulley removal
    (1) Use a screwdriver as an anti-rotation stopper. Remove three bolts and then the water pump pulley.



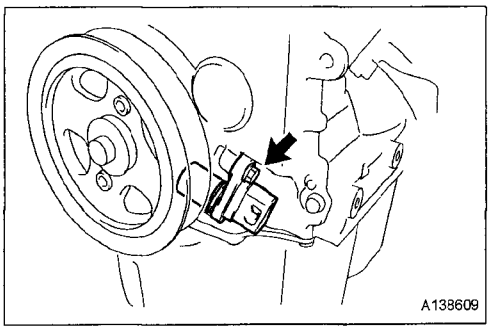
92. Idler pulley No. 2 removal
    (1) Remove the bolt, the washer, and the idler pulley No. 2.



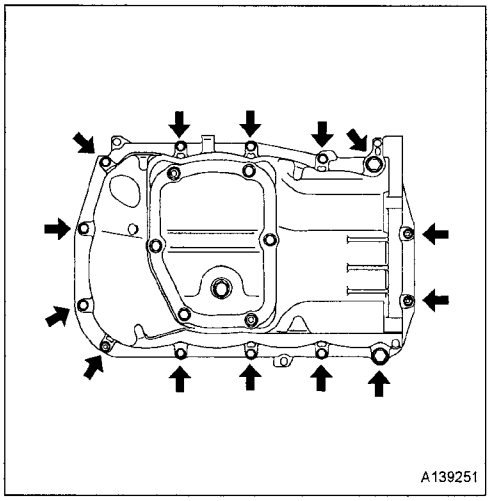
93. Idler pulley removal
    (1) Remove the nut and,washer then the idler pulley.



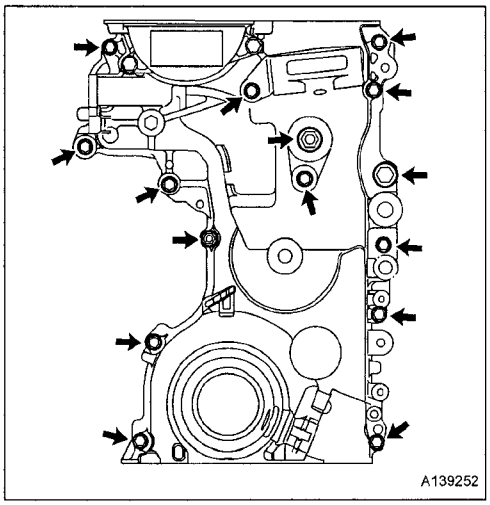
94. Camshaft timing oil control valve assembly removal
    (1) Remove the bolt and then the camshaft timing control valve assembly.



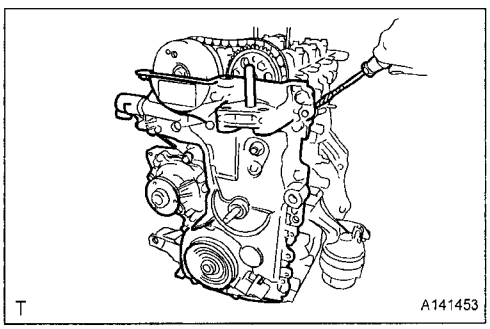
95. Crank position sensor removal
    (1) Remove the bolt and then the crank position sensor.



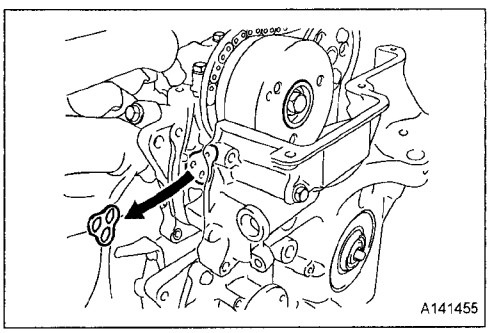
96. Oil pan removal
    (1) Remove eleven bolts and three nuts.
    (2) Use a flathead screwdriver wrapped in protective tape to shake and remove the oil pan.
    <CAUTION>
    Avoid damaging the oil pan and the cylinder block.



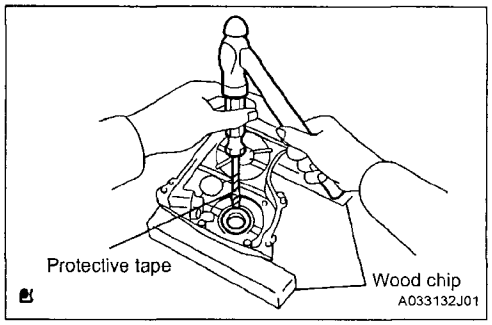
97. Timing chain (belt) cover removal
    (1) Remove thirteen bolts and two nuts.



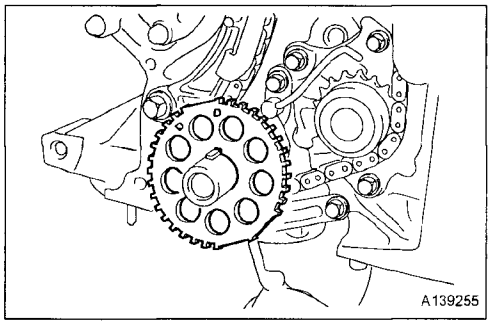
    (2) Use a flathead screwdriver wrapped in protective tape to shake and remove the timing chain cover.
    <CAUTION>
    Avoid damaging the timing chain cover, the cylinder block, and the cylinder head.



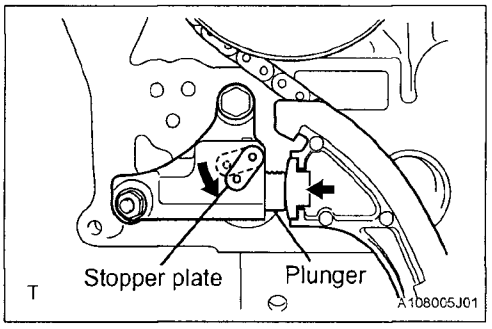
    (3) Remove the gasket.



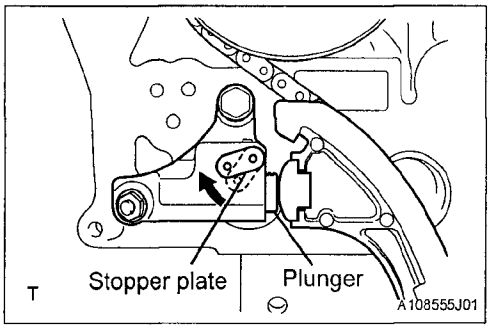
98. Timing chain (belt) cover oil seal removal
    (1) Use a flathead screwdriver to remove the timing chain (belt) oil seal.



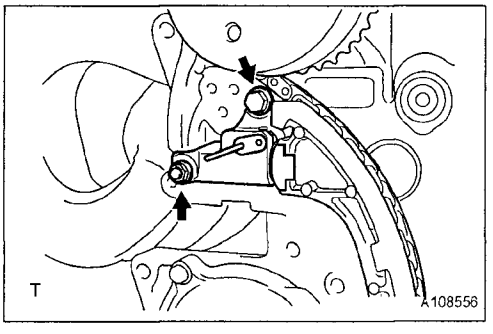
99. Crank angle sensor plate No. 1 removal
    (1) Remove the crank angle sensor plate No. 1.



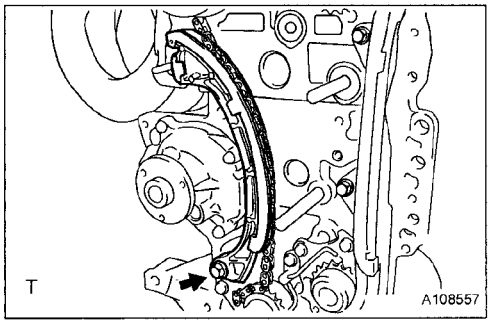
100. Chain tensioner plunger removal
    (1) Move the stopper plate downward and hold it under unlocked state. [*1]
    <HINT>
    If it is difficult to unlock the stopper plate, use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and left sides.
    (2) From the state described in [*1], use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and hold it. [*2]
    <HINT>
    Rotating the camshaft to the right depresses the tensioner plunger.



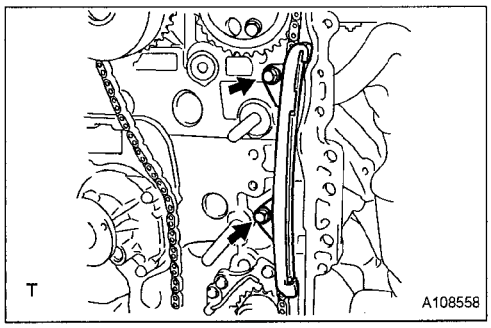
    (3) From the state described in [*2], align the holes in the stopper plate and the chain tensioner plunger. [*3]
    <HINT>
    If it is difficult to align the holes in the stopper plate and the chain tensioner plunger, slightly rotate the camshaft to the left side and then to the right side before attempting to align them again.



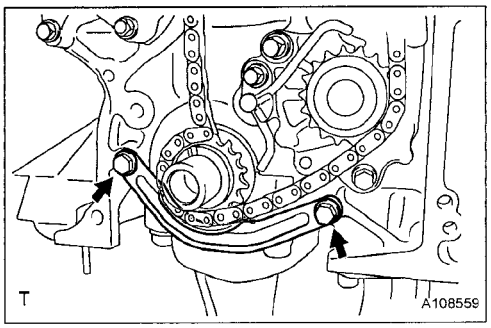
    (4) From the state described in [*3], insert a rod of 2.5 mm in diameter into the holes in the stopper plate and the chain tensioner plunger.
    (5) Remove the bolt, the nut, and the chain tensioner plunger.



101.Timing chain tension arm removal
(1) Remove the bolt and then the timing chain tension arm.



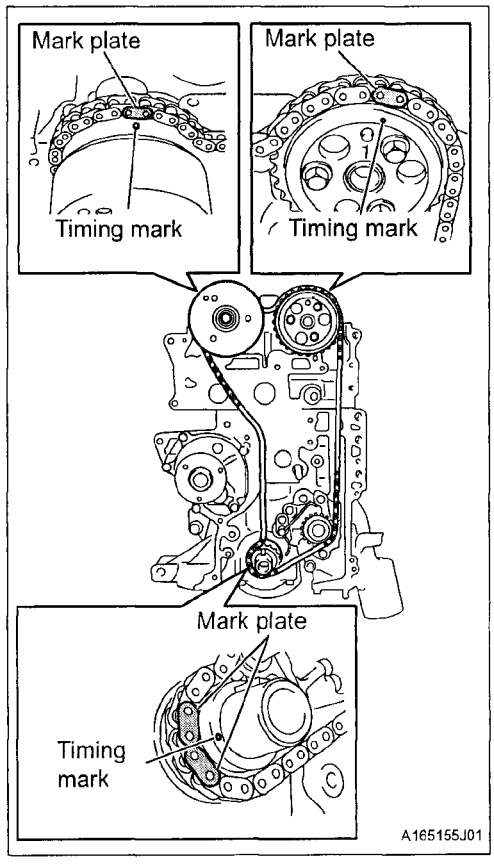
102.Timing chain guide removal
(1) Remove two bolts and then the timing chain guide.



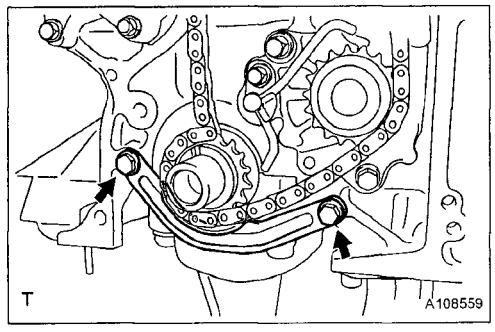
103.Timing chain guide No. 2 removal
(1) Remove two bolts and then the timing chain guide No. 2.

104.Chain removal

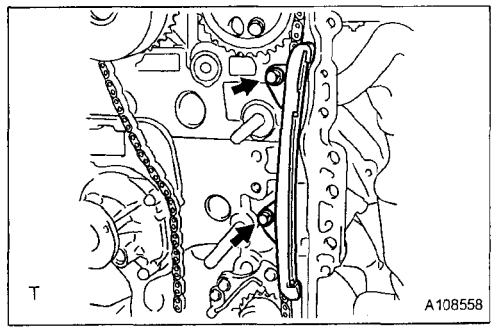
INSTALLATION



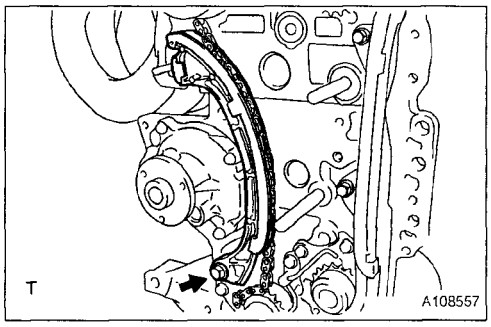
1. Chain installation
   (1) Align the mark plates (gold) in the location shown in the diagram with the timing marks and attach the chain.
   <CAUTION>
   Attach the pulley with the timing mark at the crank shaft side between the two mark plates.



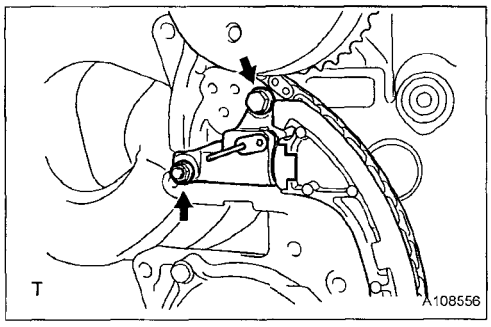
2. Timing chain guide No. 2 installation
   (1) Use two bolts to attach the timing chain guide No. 2.
   Specified value:T=7.5N*m {76kgf*cm}



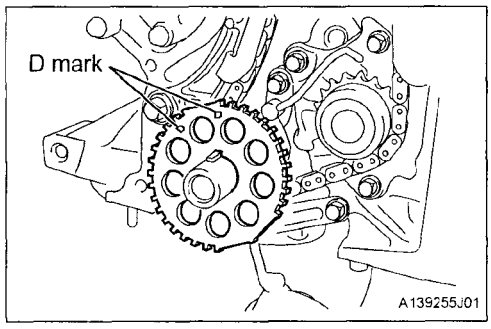
3. Timing chain guide installation
   (1) Use two bolts to attach the timing chain guide.
   Specified value:T=7.5N*m {76kgf*cm}



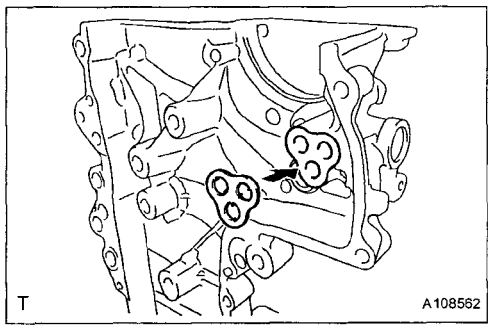
4. Timing chain tension arm installation
   (1) Use a bolt to attach the timing chain tension arm.
   Specified value:T=19N*m {194kgf*cm}



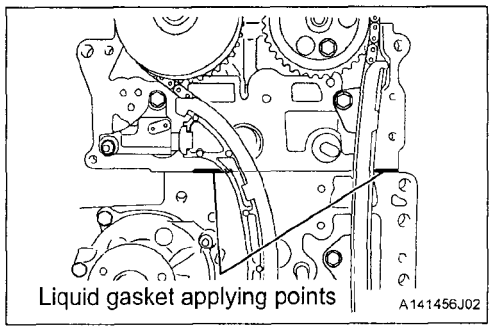
5. Chain tensioner plunger installation
   (1) Use a bolt and nut to attach the chain tensioner plunger.
   Specified value:T=9.0N*m {92kgf*cm}
   <HINT>
   Use the service hexagonal part of the camshaft to slightly rotate the camshaft to the left. With the chain at the chain tensioner plunger side sagging, attach the chain tensioner plunger.
   (2) Pull out the rod of 2.5 mm in diameter from the chain tensioner plunger.



6. Crank angle sensor plate No. 1 installation
   (1) Attach the crank angle sensor plate No. 1 in such a way that "D" marks are visible.

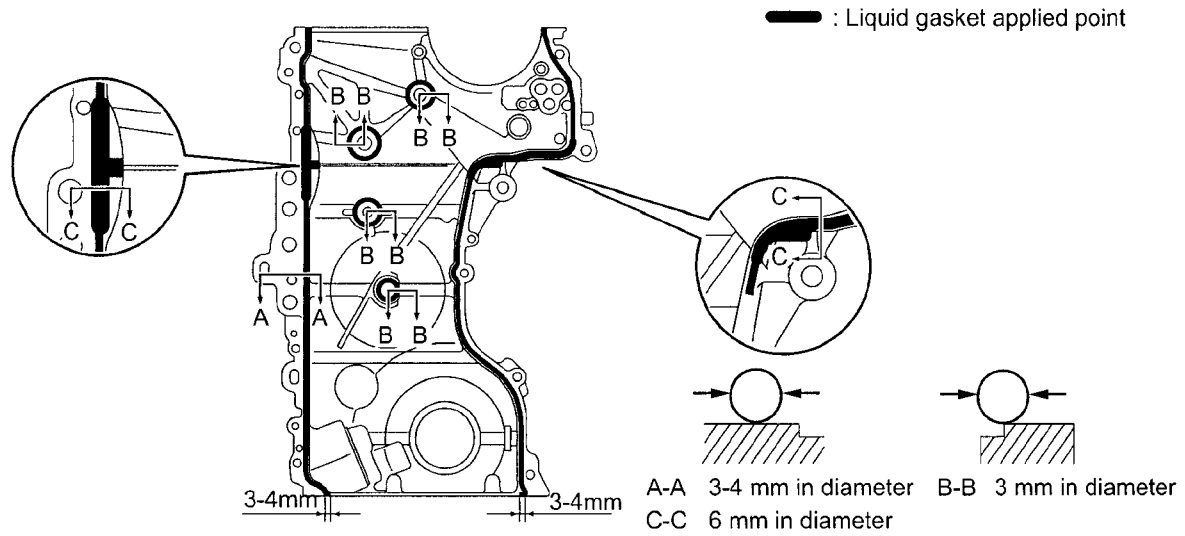


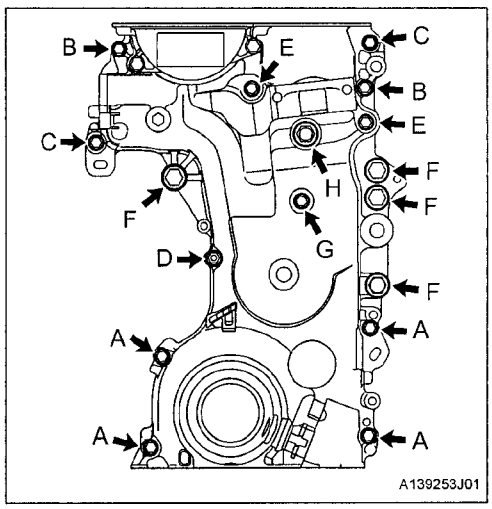
7. Timing chain (belt) cover installation
   (1) Attach a new gasket to the timing chain cover.



   (2) Apply Three Bond 1280E in the location shown in the diagram.
   <CAUTION>
   > Clean and degrease the mating surface.
   > Within three minutes after applying Three Bond 1280E, attach the timing chain cover.
   > Within fifteen minutes after applying Three Bond 1280E, tighten the chain cover with the specified torque.
   > Avoid starting the engine for at least two hours after installation.

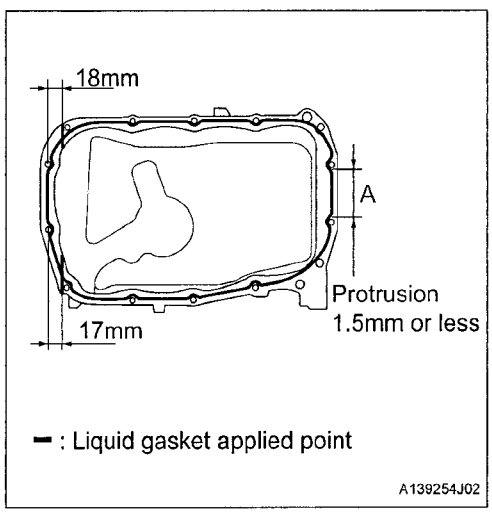
3SZ-VE:



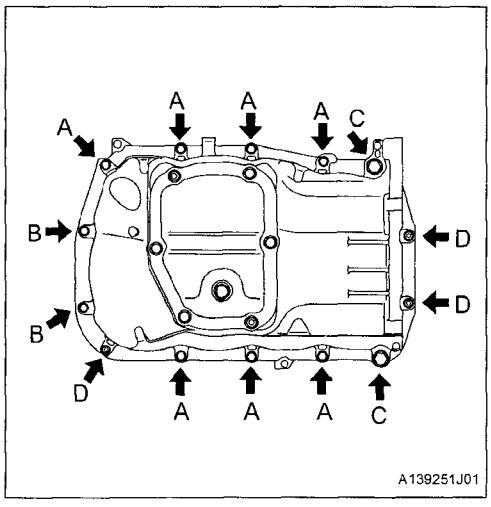


(3) Use fifteen bolts and two nuts to attach the timing chain cover.
Specified value:T=12N*m {122kgf*cm} (Bolt A, B)
T=23N*m {238kgf*cm} (Bolt C)
T=12N*m {122kgf*cm} (Nut D)
T=23N*m {238kgf*cm} (Bolt E)
T=44N*m {450kgf*cm} (Bolt F, Nut H)
T=12N*m {122kgf*cm} (Bolt G)

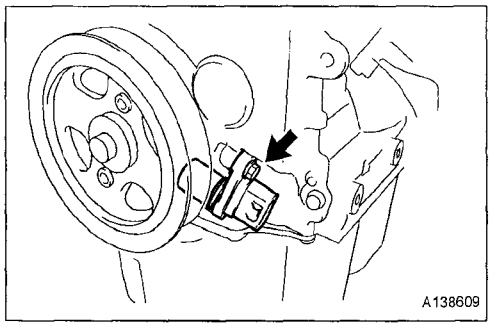
Bolts	Nominal length [mm]	Nominal diameter [mm]
A	14	6
B	30	6
C	35	8
E	80	8
F	30	10
G	25	6



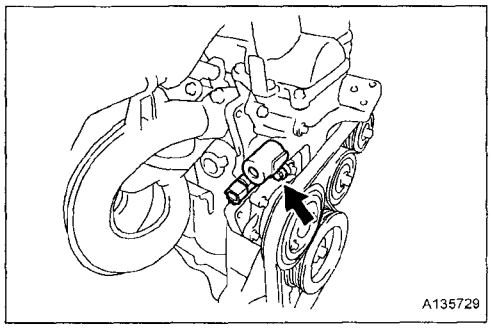
8. Oil pan installation
(1) Apply Three Bond 1280E (3 - 4 mm in diameter) in the location shown in the diagram.
<HINT>
Within range A in the diagram, protrusion of Three Bond 1280E toward the transaxle assembly (ATM) should be 1.5 mm or less.
<CAUTION>
> Clean and degrease the mating surface.
> Within three minutes after applying Three Bond 1280E, attach the oil pan.
> Within fifteen minutes after applying Three Bond 1280E, tighten the oil pan with the specified torque.
> Avoid starting the engine for at least two hours after installation.



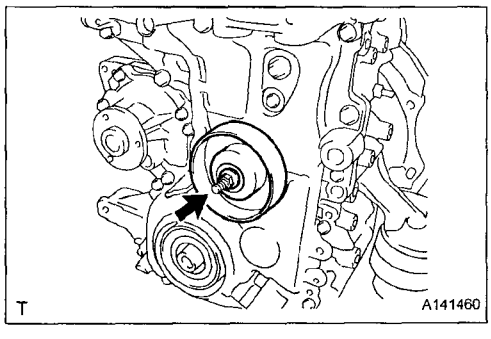
(2) Use eleven bolts and three nuts to attach the oil pan.
Specified value:T=8.5N*m {87kgf*cm} (Bolt A and B, Nut D)
T=42N*m {428kgf*cm} (Bolt C)



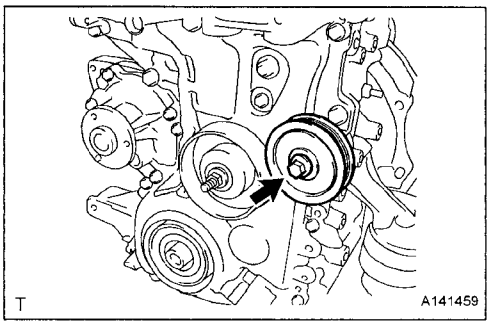
9. Crank position sensor installation
(1) Coat a new O-ring with a small amount of engine oil.
(2) Use a bolt to attach the crank position sensor.
Specified value:T=7.5N*m {76kgf*cm}
<CAUTION>
During installation, make sure that the O-ring is not cut or pinched.



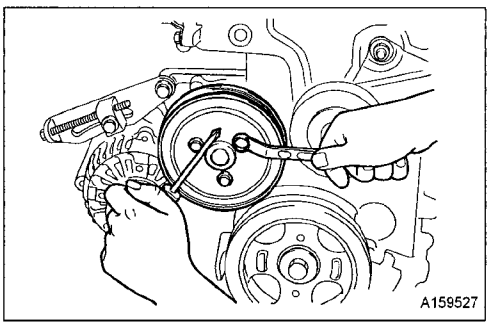
10. Camshaft timing oil control valve assembly installation
(1) Coat a new O-ring with a small amount of engine oil.
(2) Use bolts to attach the camshaft timing oil control valve assembly.
Specified value:T=7.5N*m {76kgf*cm}
<CAUTION>
During installation, make sure that the O-ring is not cut or pinched.



11. Idler pulley installation
(1) Use a nut and washer to attach the idler pulley.
Specified value:T=44N*m {449kgf*cm}

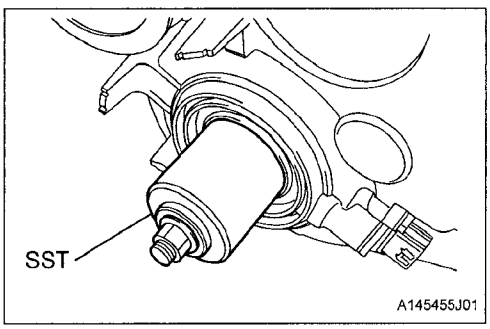


12. Idler pulley No. 2 installation
    (1) Use a bolt and washer to attach the idler pulley No. 2.
    Specified value:T=44N*m {449kgf*cm}

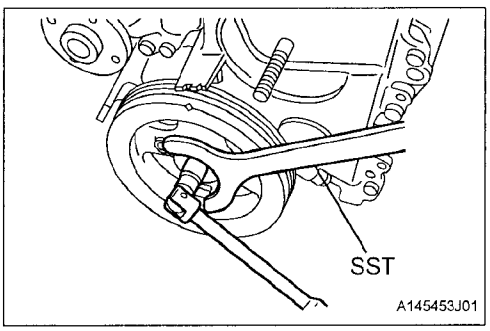


13. Water pump pulley installation
    (1) Use three bolts to temporarily attach the water pump pulley.
    (2) Use a screwdriver as an anti-rotation stopper. Tighten three bolts.
    Specified value:T=12N*m {122kgf*cm}

14. Timing chain (belt) cover oil seal installation
    (1) Coat the lip of a new timing chain (belt) cover oil seal with a small amount of Ammix MP grease.
    <CAUTION>
    Keep chips, sand, and other foreign particles off the lip.
    <HINT>
    Press fit length from the end surface of the timing chain (belt) cover: pop-up amount of 0.5 mm or less and press fit depth of 1 mm or less



    (2) Use SST to vertically press fit a new timing chain (belt) cover oil seal.
    SST 09223-87202
    <CAUTION>
    Do not diagonally press in the timing chain (belt) cover oil seal.



15. Crankshaft pulley installation
    (1) Fix the crankshaft pulley and tighten the bolt by using SST.
    SST 09278-87201
    Specified value:T=150N*m {1530kgf*cm}

16. Cylinder head cover installation (See page 07-260)
17. Oil level gage installation (See page 07-129)
18. Ignition coil assembly installation (See page 07-129)
19. Noise filter installation (See page 07-130)

20. Ventilation hose installation (See page 07-131)
21. Engine wire installation (See page 07-131)
22. Ventilation hose No. 2 installation (See page 06-149)
23. Air cleaner support bracket No. 2 installation (See page 07-135)
24. Accelerator control cable bracket installation (See page 07-135)
25. Throttle body bracket No. 2 installation (See page 07-135)
26. Transaxle assembly support (See page 07-137)
27. Transfer assembly installation (See page 07-138)
28. Transfer assembly installation (See page 07-138)
29. Starter assembly installation (See page 07-138)
30. Engine mounting insulator RR installation (See page 07-139)
31. Front suspension cross member installation (See page 07-139)
32. Engine assembly with transaxle installation (See page 07-139)
33. Radiator support LWR installation (See page 07-141)
34. Steering knuckle LH installation (See page 07-141)
35. Steering knuckle RH installation (See page 07-141)
36. Front drive shaft assembly LH installation (See page 07-84)
37. Front drive shaft assembly RH installation (See page 07-84)
38. Front shock absorber assembly LH installation (See page 36-16)
39. Front shock absorber assembly RH installation (See page 36-16)
40. Tie rod end LH installation (See page 36-16)
41. Tie rod end RH installation (See page 36-16)
42. Axle hub nut installation (LH) (See page 36-16)
43. Axle hub nut installation (RH) (See page 36-16)
44. Front disc brake cylinder assembly LH installation (See page 36-16)
45. Front disc brake cylinder assembly RH installation (See page 36-17)
46. Speed sensor FR LH installation (See page 36-17)
47. Speed sensor FR RH installation (See page 36-17)
48. Front suspension cross member LH installation (See page 07-141)
49. Front suspension cross member RH installation (See page 07-141)
50. Front stabilizer bar installation (See page 07-142)
51. Engine undercover LH installation (See page 07-142)
52. Engine undercover RH installation (See page 07-142)
53. Transmission floor shift assembly installation (See page 29-60)
54. Console box assembly installation (See page 29-61)
55. Console box carpet installation (See page 29-61)
56. Rear console box installation (See page 29-62)
57. Shift lever knob installation (See page 29-62)
58. Steering column assembly connection (See page 49-79)
59. Steering column hole cover No. 1 installation (See page 48-18)
60. Clutch hose connection (See page 29-43)
61. Clutch release cylinder assembly installation (See page 29-44)
62. Engine wire connection (See page 07-143)
63. Engine room main wire connection (See page 07-143)
64. Vacuum hose assembly connection (See page 07-143)
65. Ground cable connection (See page 07-143)
66. Accelerator control cable assembly connection (See page 07-144)

67. Fuel hose connection (See page 07-145)
68. Radiator assembly installation (See page 07-145)
69. Cooler refrigerant liquid pipe A connection (with Air conditioning system) (See page 52-137)
70. Compressor assembly with magnet clutch installation (with Air conditioning system) (See page 52-134)
71. Cooler refrigerant discharge hose No. 1 connection (with Air conditioning system) (See page 52-134)
72. Cooler refrigerant suction hose No. 1 connection (with Air conditioning system) (See page 52-134)
73. Fan & alternator V belt installation (See page 07-6)
74. Front bumper cover installation (See page 82-15)
75. Heater outlet water hose connection (See page 52-177)
76. Heater inlet water hose connection (See page 52-178)
77. With water fan assembly installation (See page 12-13)
78. Radiator outlet hose connection (See page 12-14)
79. Water bypass hose connection (See page 12-14)
80. Radiator inlet hose connection (See page 12-14)
81. Air cleaner assembly installation (See page 06-149)
82. Precleaner hose installation (See page 06-149)
83. Inlet air temperature sensor connection (See page 06-150)
84. Vacuum switching valve assembly (with Bracket) connection (See page 06-150)
85. Vacuum sensor connection (See page 06-150)
86. Air cleaner filter element installation
87. Air cleaner cap installation
88. Battery tray (See page 07-146)
89. Battery installation
90. Battery cover installation
91. Radiator reserve tank assembly installation (See page 12-15)
92. Battery hold down clamp installation (See page 07-146)
93. Temporary tightening of the propeller with a center bearing shaft assembly (See page 35-5)
94. Final tightening of the propeller with a center bearing shaft assembly (See page 35-5)
95. Exhaust pipe assembly FR installation (See page 11-16)
96. Battery terminal connection
    Specified value:T=6.4N*m {65kgf*cm}
97. Brake fluid replenishmeng (See page 45-4)
98. Clutch pipeline air bleeding (See page 27-3)
99. Clutch fluid leakage check
100. Brake fluid amount checkt (See page 45-4)
101. Cooling fluid replenishment (See page 12-6)
102. Engine oil replenishment
103. Manual transaxle oil replenishment (See page 29-45)
104. Cooling fluid leakage check(See page 12-6)
105. Cooling fluid amount check
106. Oil leakage check
107. Fuel leakage check (See page 08-7)
108. Exhaust gas leakage check (See page 11-16)
109. Engine idle-speed check (See page 07-4)
110. Ignition timing check (See page 07-2)
111. CO and HC level check (See page 07-4)
112. Refrigerant HFC-134a (R134a) filling (with Air conditioning system) (See page 52-42)

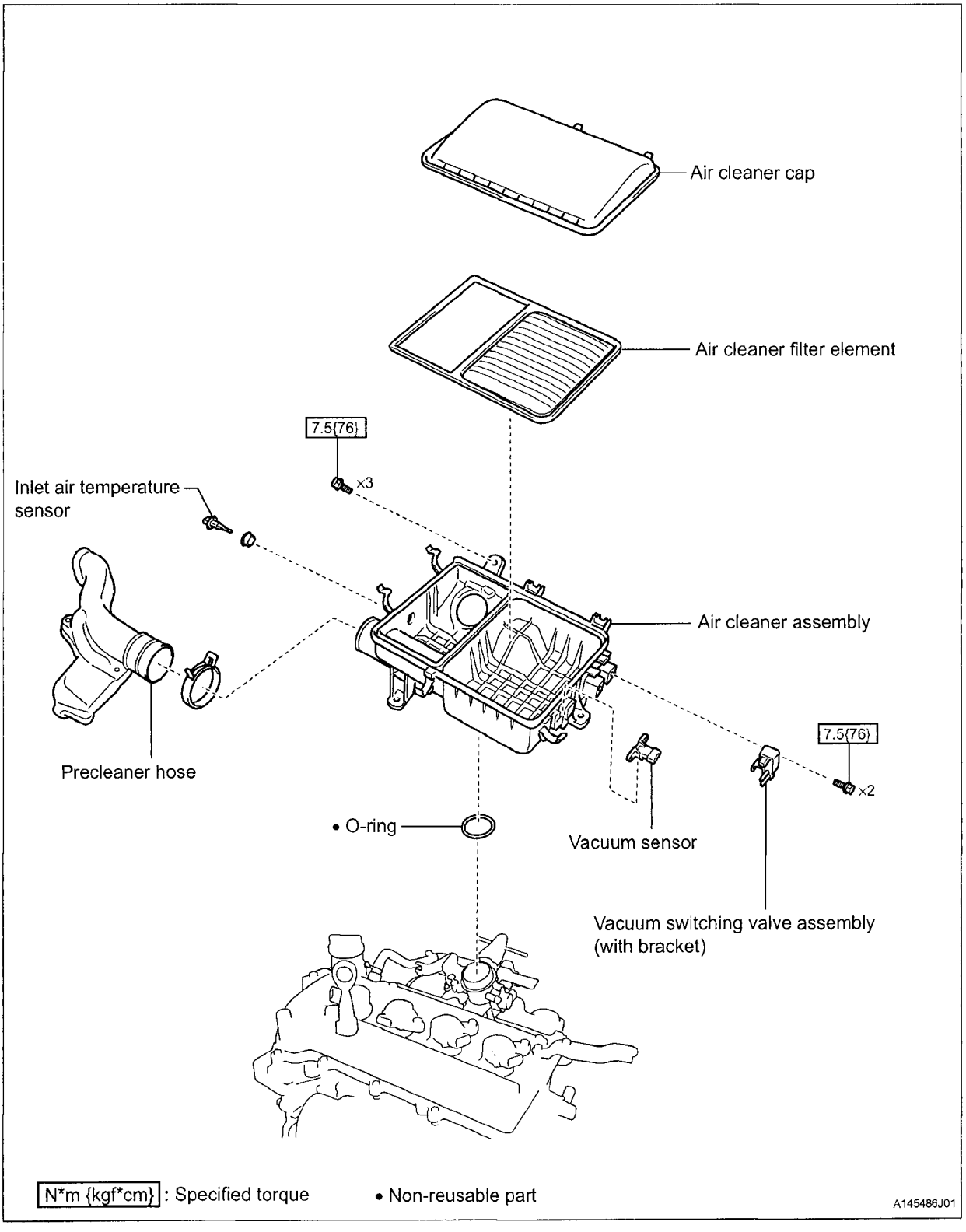
113. Front tire installation
Specified value: T=103N*m {1050kgf*cm}

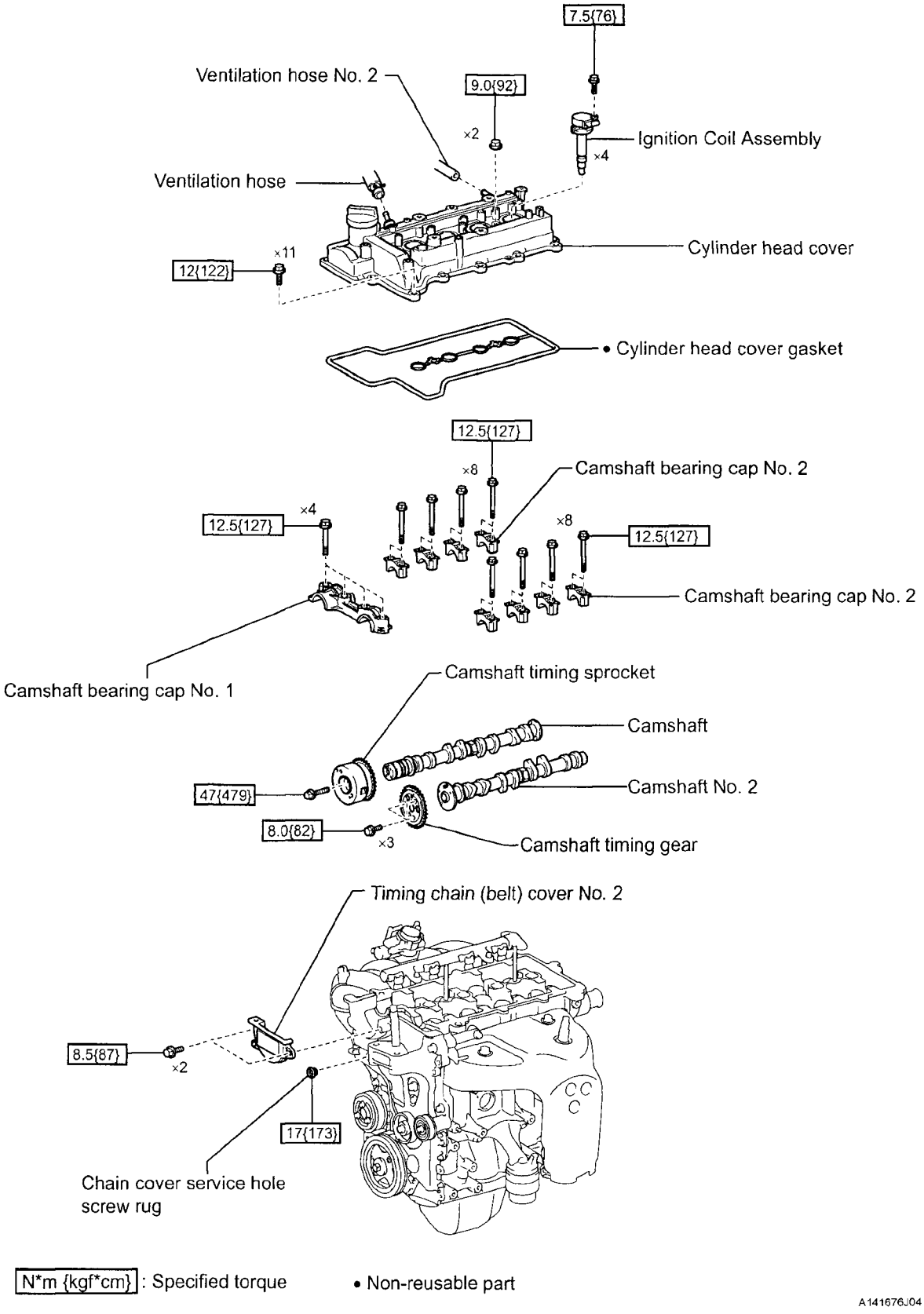
114. Front wheel alignment check · adjustment
(See page 42-5)

115. Test mode check (Speed sensor circuit)
with ABS: (See page 44-15)

CAMSHAFT (3SZ-VE)

COMPONENTS



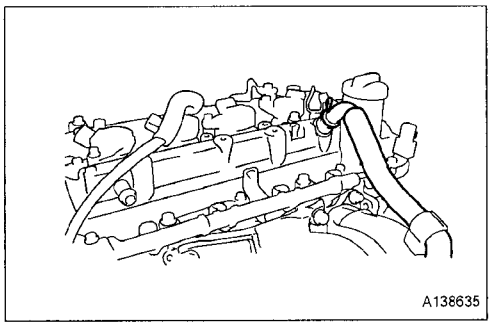


N*m {kgf*cm} : Specified torque • Non-reusable part

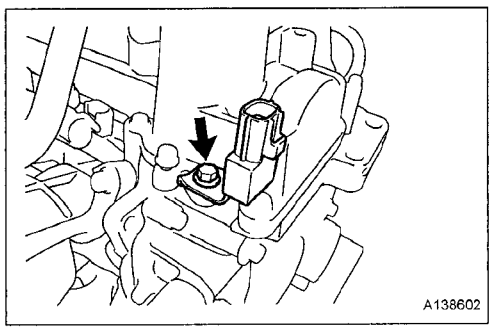
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REMOVAL

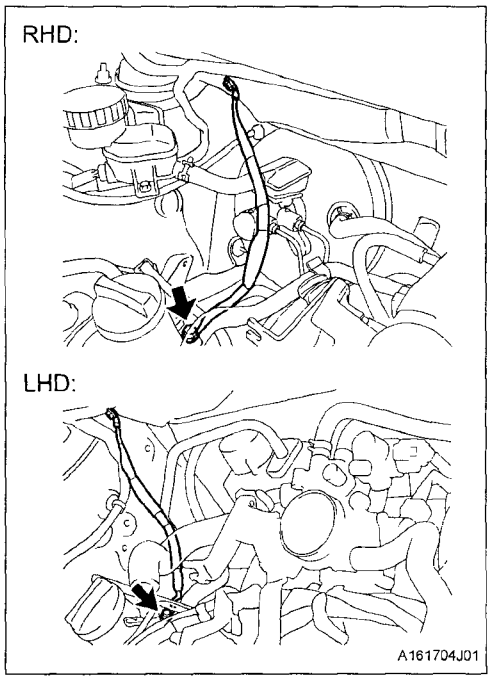
1. Battery minus terminal disconnection
2. Engine undercover RH removal (See page 07-52)
3. Air cleaner cap removal
4. Air cleaner filter element removal
5. Vacuum sensor disconnection (See page 06-140)
6. Vacuum switching valve assembly (with Bracket) disconnection (RHD) (See page 06-140)
7. Vacuum switching valve assembly (with Bracket) disconnection (LHD) (See page 06-140)
8. Inlet air temperature sensor disconnection (See page 06-140)
9. Precleaner hose removal (See page 06-141)
10. Air cleaner assembly removal (See page 06-141)
11. Ventilation hose No. 2 removal (See page 06-141)



12. Ventilation hose disconnection
    (1) Loosen the clip and disconnect the ventilation hose.
13. Accelerator control cable assembly disconnection (RHD) (See page 06-142)
14. Accelerator control cable assembly disconnection (LHD) (See page 07-50)
15. Throttle body bracket No. 2 removal (See page 06-142)
16. Accelerator control cable bracket removal (LHD) (See page 07-61)
17. Air cleaner support bracket No. 2 removal (See page 07-61)

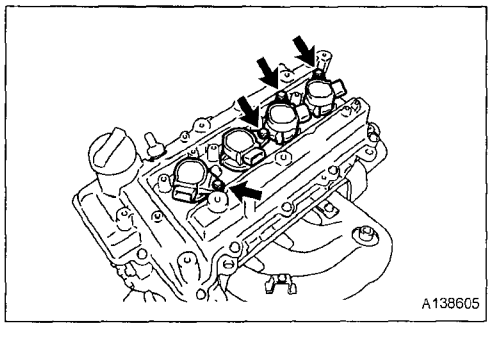


18. Noise filter removal
    (1) Remove the bolt and then the noise filter.



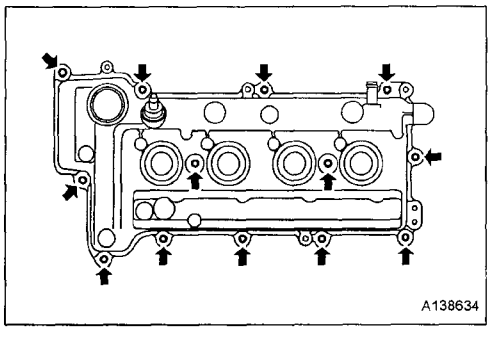
19. Ground cable disconnection
    (1) Remove the bolt and disconnect the ground cable.

20. Engine wire disconnection
    (1) Remove sensor connectors and harness clamps and disconnect the engine wire.

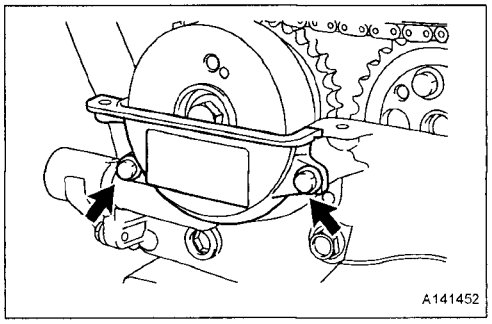


21. Ignition coil assembly removal
    (1) Disconnect the ignition coil connector.
    (2) Remove the bolt and then the ignition coil assembly.

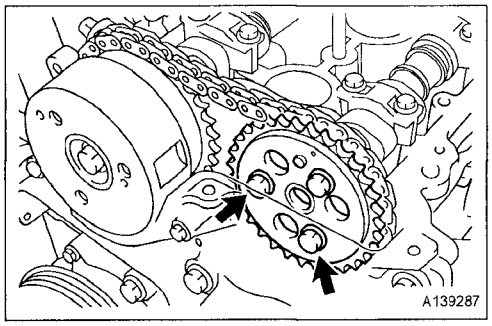
22. Oil level gage removal



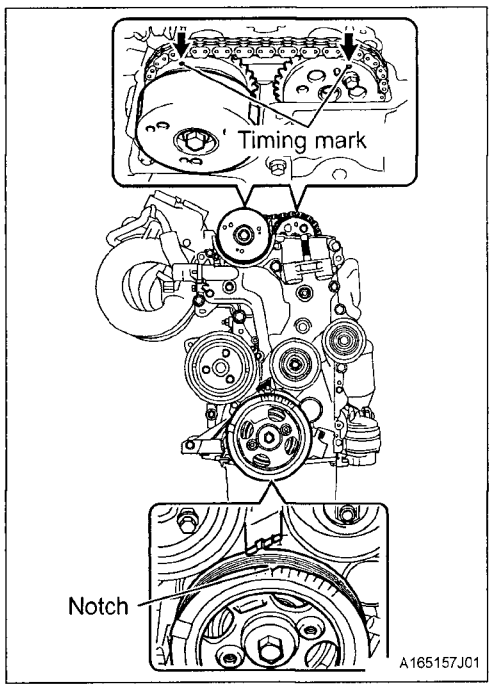
23. Cylinder head cover removal
    (1) Remove eleven bolts, two nuts, and the cylinder head cover.



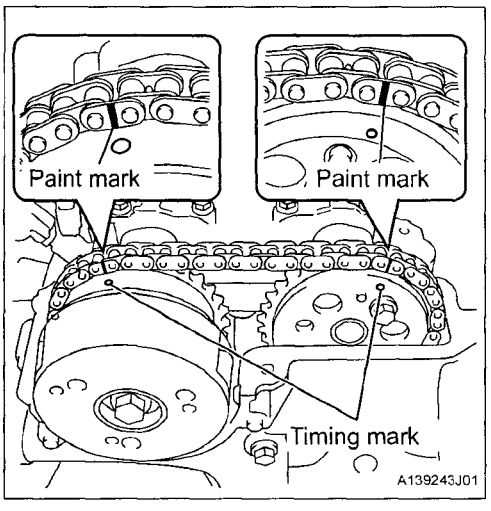
24. Timing chain (belt) cover No. 2 removal
    (1) Remove two bolts and then the timing chain cover No. 2.



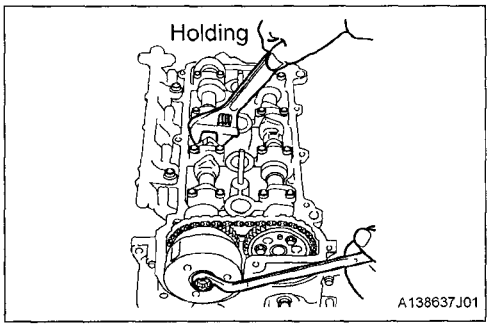
25. Camshaft timing gear removal
    (1) Positively rotate the crankshaft pulley and remove only two camshaft timing gear installation bolts.



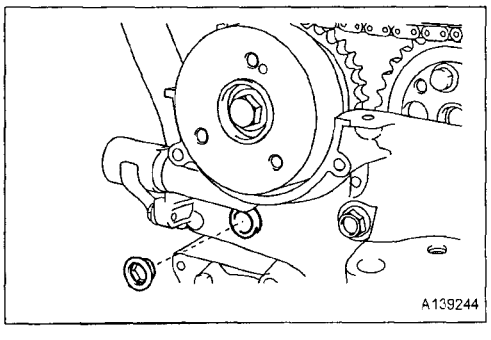
    (2) Positively rotate the crankshaft pulley and align the timing marks (notches) with the 0° position. Make sure that each timing mark is positioned as shown in the diagram.
    <HINT>
    If any timing mark is properly positioned, positively rotate the crankshaft pulley again to adjust the position.



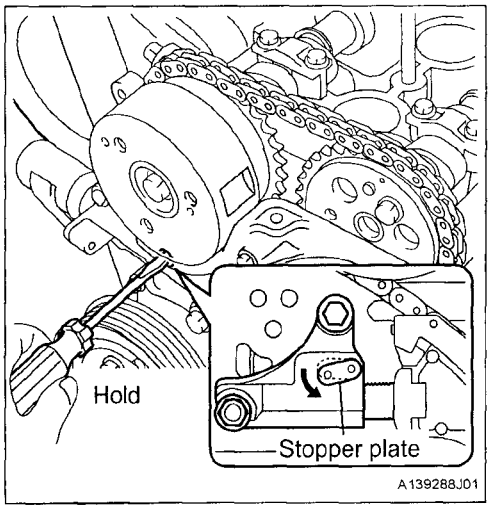
(3) Put a paint mark on each plate of the chain that matches the timing marks on the camshaft timing gear and the camshaft timing sprocket.
<HINT>
Yellow mark plates are attached to the chain in three locations. If these yellow mark plates match the dowel marks on each timing sprocket and the timing gear, the above step is unnecessary.



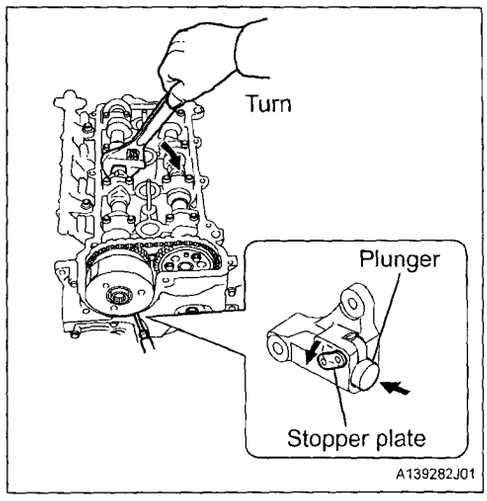
(4) Loosen the camshaft timing sprocket installation bolt by using the service hexagonal part of the camshaft.



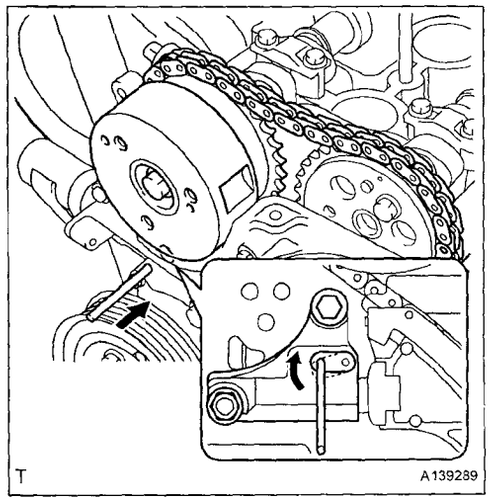
(5) Remove the chain cover service hole screw plug using a socket hexagon wrench 10.



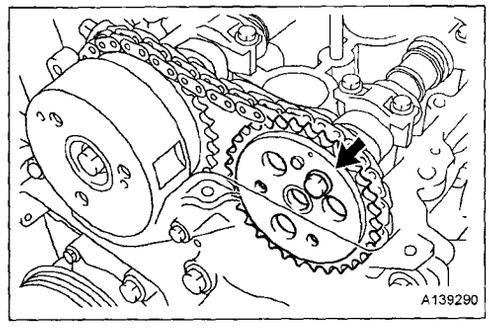
(6) Insert a flathead screwdriver into the chain tensioner service hole. Use the screwdriver to move the tensioner stopper plate downward and hold the stopper plate under unlocked state. [*1]
<HINT>
If it is difficult to unlock the stopper plate, use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and left sides.



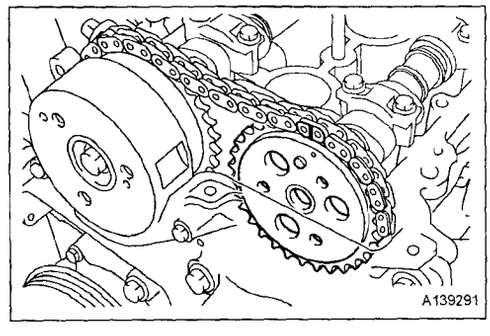
(7) From the state described in [*1], use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and hold it. [*2]
<HINT>
Rotating the camshaft to the right depresses the tensioner plunger.



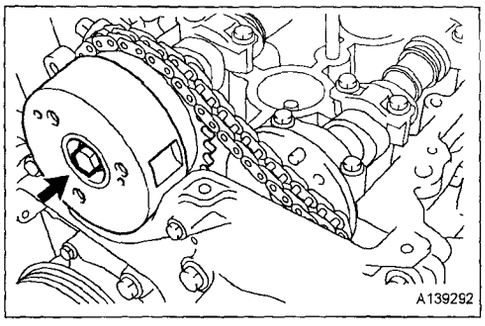
(8) From the state described in [*2], pull out the flathead screwdriver from the chain tensioner service hole. Align the holes of the stopper plate and the tensioner and insert a rod of 2.5 mm in diameter.
<CAUTION>
> If it is difficult to insert a rod of 2.5 mm in diameter, slightly rotate the camshaft to the left and then to the right before attempting to insert the rod again.
> Hold the camshaft using the service hexagonal part of the camshaft.
> Fix the rod of 2.5 mm in diameter with tape to prevent it from dropping.



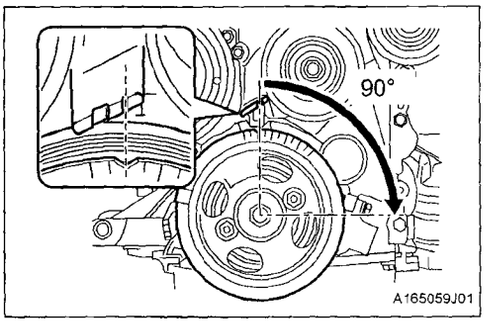
(9) Remove the camshaft timing gear installation bolt.



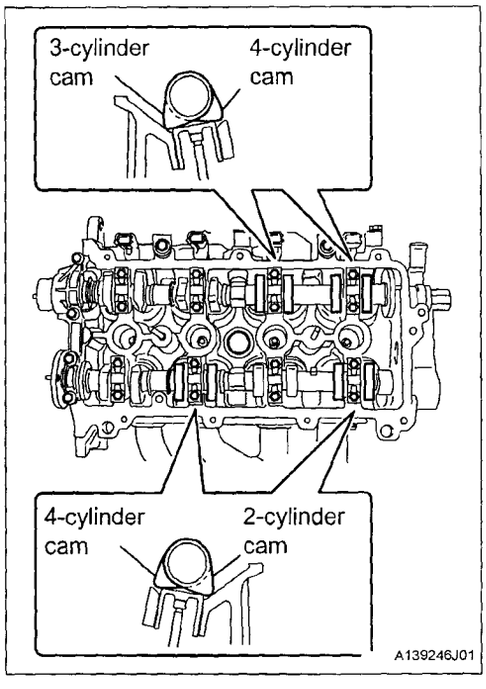
(10) Remove the camshaft timing gear.



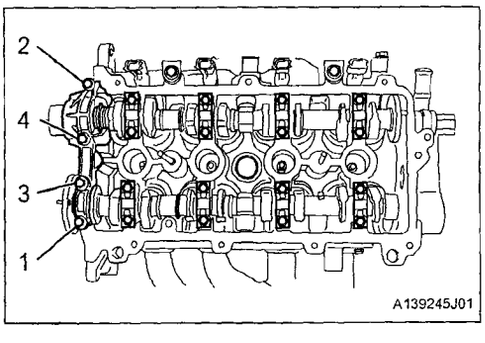
26. Camshaft timing sprocket removal
    (1) Remove the bolt and then the camshaft timing sprocket.



27. Camshaft bearing cap No. 1 removal
    <CAUTION>
    If you want to rotate the camshaft with the chain disconnected, positively rotate the crankshaft by 90° to prevent the fully opened valve from interfering with the piston, and make sure that the notches on the crankshaft pulley are positioned as shown in the diagram.

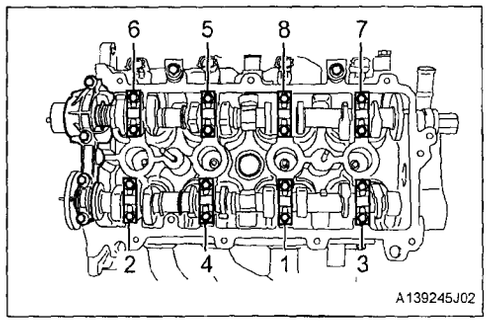


    (1) Make sure that the camshaft and the camshaft No. 2 are positioned as shown in the diagram.

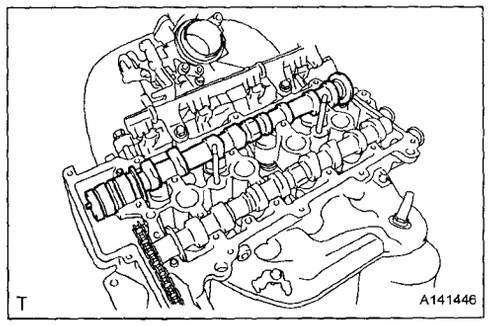


    (2) Remove the camshaft bearing cap No. 1 in the order shown in the diagram.

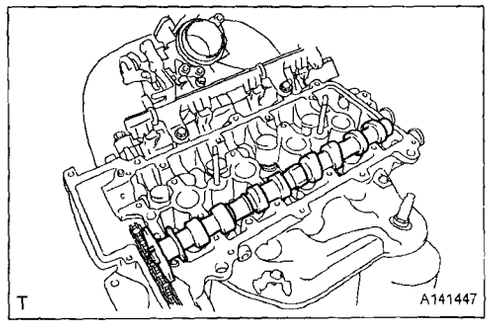
07



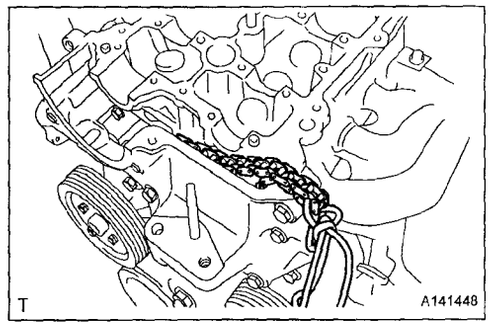
28. Camshaft bearing cap No. 2 removal
    (1) Remove the camshaft bearing caps No. 2 in the order shown in the diagram.
    <CAUTION>
    Holding the camshaft in a horizontal position, loosen the bolts evenly.



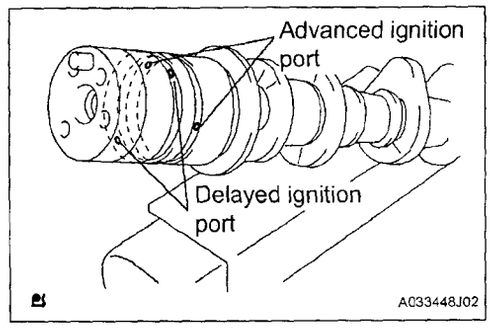
29. Camshaft removal
    (1) Remove the camshaft.



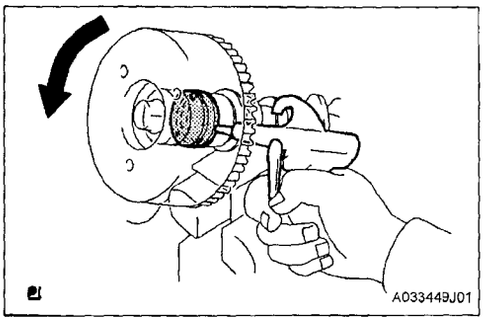
30. Camshaft No. 2 removal
    (1) Remove the camshaft No. 2.



    (2) Keep the chain hung on a rope or wire.
    <CAUTION>
    Prevent foreign particles from getting inside the timing chain cover.



31. Camshaft timing sprocket check
    (1) Use a vinyl tape or suchlike to cover the ports except for one port on the timing advance side shown in the diagram.
    (2) Fix the hexagon part for after-service of the camshaft to the vise using the base and attach it to the camshaft timing sprocket with a bolt.
    Specified value:T=47N*m {479kgf*cm}



(3) Use the air gun and add the air pressure of approx. 100 kPa {1 kgf/cm^2} to the timing advance side port shown in the diagram.
<CAUTION>
Use the waste or suchlike for covering to avoid the oil scattering when the air pressure is added.
<HINT>
Implement above to release the lock pin for the latest lag angle lock.

(4) Rotate the camshaft timing sprocket to the timing advance side by hand (the direction of the arrow shown in the diagram) with the condition above.
Reference: The sprocket rotates.
<HINT>
> The camshaft timing sprocket may rotate in the timing advance direction by the air pressure without rotating by hand. In addition, it may be difficult to unlock the lock pin in the condition where the pressure is hard to be applied due to air leakage from the port part.
> If the camshaft timing sprocket is rotated before the lock pin is unlocked, a force is applied from the transverse direction and make it difficult to unlock the pin.

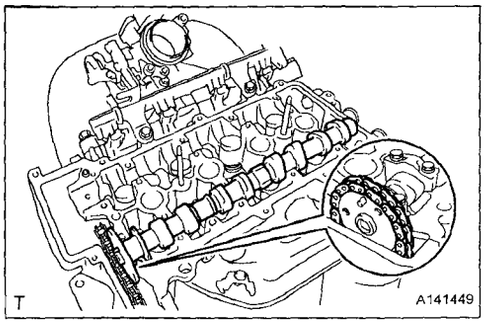
(5) Avoid the latest lag angle position where the lock pin is fitted and move the camshaft timing sprocket back and forth a few times to check the range of movment and sliding.
Reference: Must be able to move smoothly in a range of approx. 22.5°.

(6) Rotate the camshaft timing sprocket by hand and lock it at the latest lag angle position.

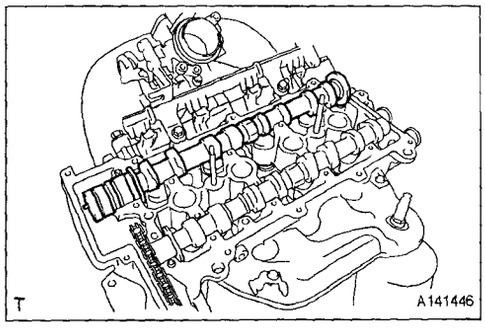
(7) Remove the bolt and then the camshaft timing sprocket.

07

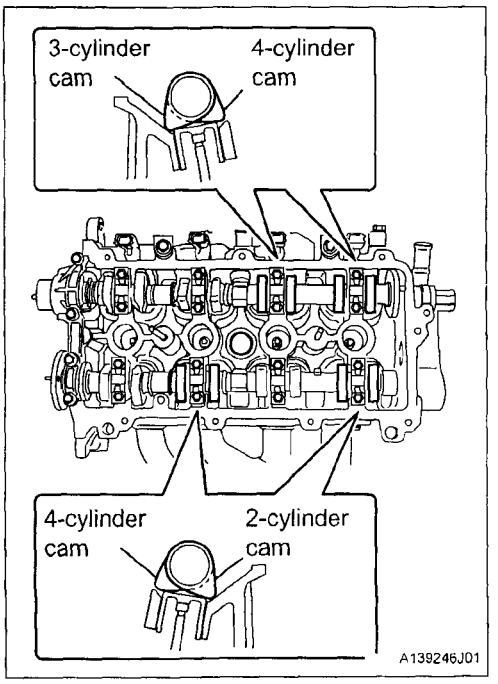
INSTALLATION



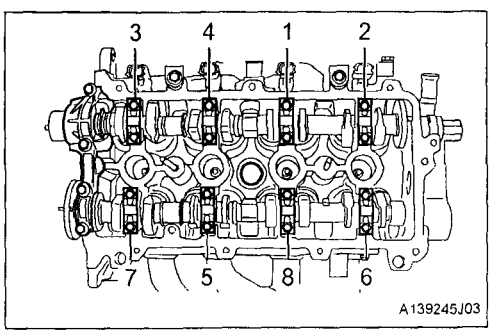
1. Camshaft No. 2 installation
(1) Coat the cam of the camshaft No. 2 and the journals of the cylinder head with engine oil and attach the camshaft No. 2.



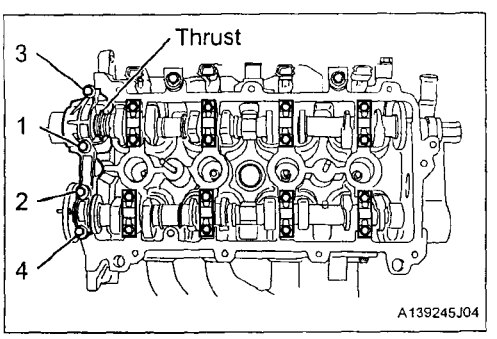
2. Camshaft installation
(1) Coat the cam of the camshaft and the journals of the cylinder head with engine oil and attach the camshaft.



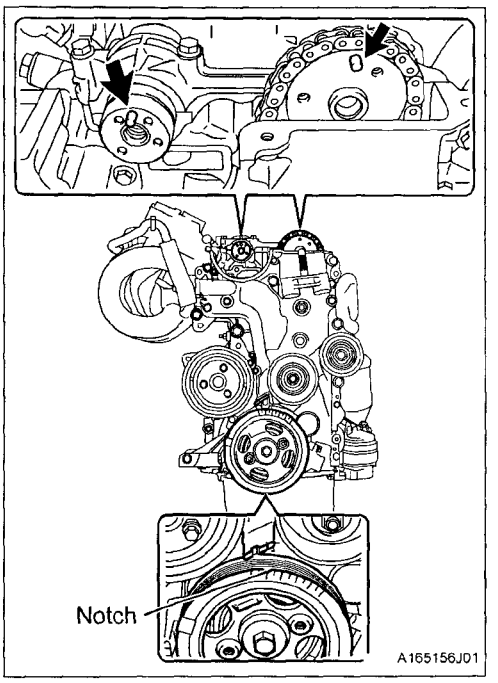
3. Camshaft bearing cap No. 2 installation
   (1) Adjust the positions of the camshaft and the camshaft No. 2 as shown in the diagram.



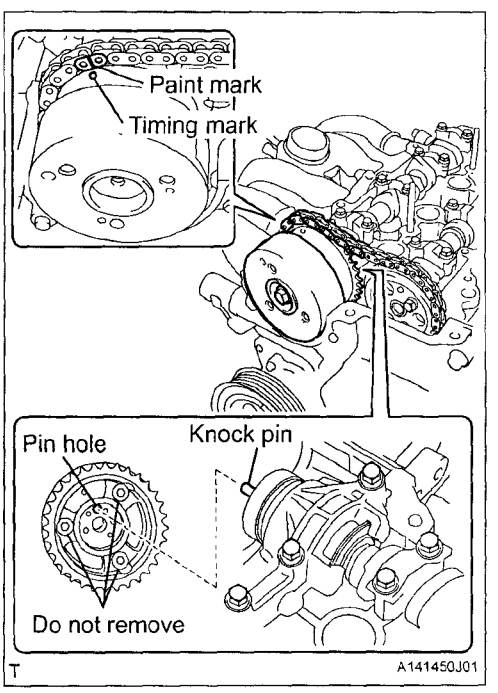
   (2) Check the front marks and numbers on the camshaft bearing caps No. 2 and attach the camshaft bearing caps No. 2.
   (3) Tighten the camshaft bearing caps No. 2 in the order shown in the diagram.
   Specified value:T=12.5N*m {127kgf*cm}
   <CAUTION>
   Holding the camshaft in a horizontal position, tighten the bolts evenly.



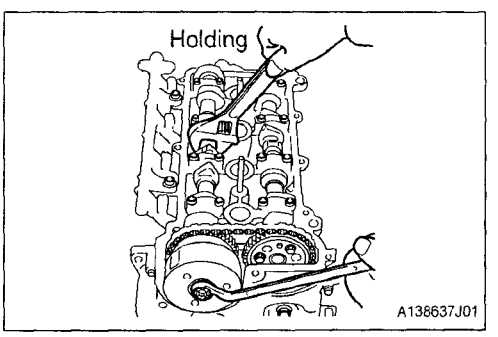
4. Camshaft bearing cap No. 1 installation
   (1) Tighten the camshaft bearing cap No. 1 in the order shown in the diagram.
   Specified value:T=12.5N*m {127kgf*cm}
   <CAUTION>
   Make sure that the camshaft thrusts fit in the grooves in the camshaft bearing caps No. 1 before tightening the bolts.



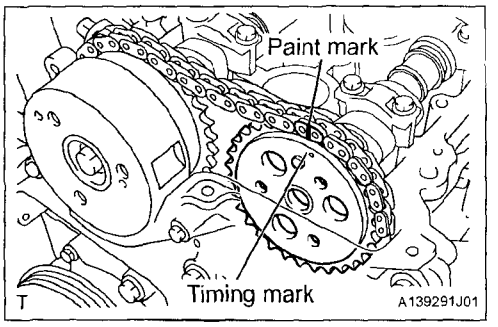
5. Camshaft timing sprocket installation
   (1) Adjust the positions of the timing marks on the camshaft timing sprocket and camshaft timing gear as shown in the diagram.
   (2) Align the timing mark (notch) on the crankshaft pulley with the 0° position.
   (3) Align the timing mark on the camshaft timing sprocket with the paint mark on the chain and attach the camshaft timing sprocket and the chain together.



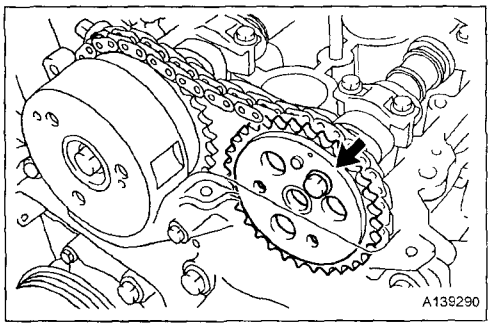
   (4) Align the knock pin of the camshaft with the pin hole in the camshaft timing sprocket and attach the camshaft timing sprocket to the camshaft.
   <CAUTION>
   > If the knock pin does not fit in the pin hole, use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and left sides until the knock pin fits in the pin hole. Do not strongly push the camshaft timing sprocket. Otherwise the end portion of the knock pin might damage the seal surface, resulting in seal defect.
   > Never remove three bolts. If they are removed, replace the camshaft timing sprocket.



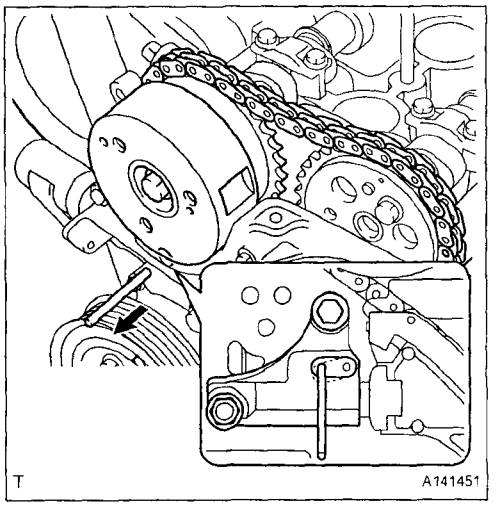
   (5) Coat the treaded part and bearing surface of the camshaft timing sprocket installation bolt with a small amount of engine oil and temporarily attach the bolt.
   (6) Tighten the camshaft timing sprocket installation bolt by using the service hexagonal part of the camshaft.
   Specified value:T=47N*m {479kgf*cm}



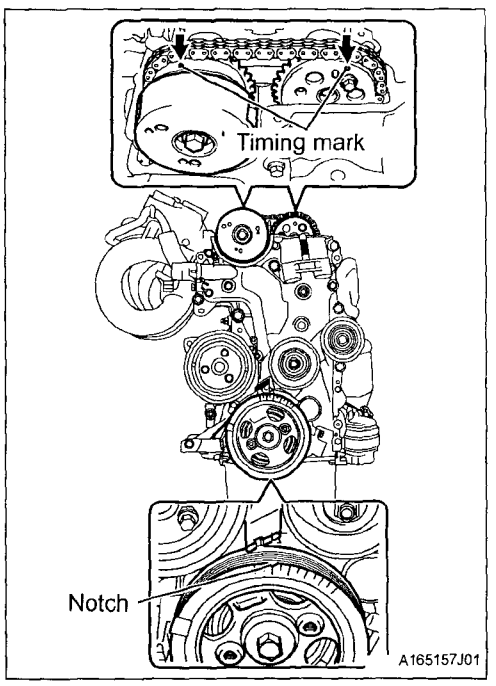
6. Camshaft timing gear installation
   (1) Align the timing mark on the camshaft timing gear with the paint mark on the chain and attach the camshaft timing gear and the chain together.
   (2) Align the knock pin of the camshaft No. 2 with the pin hole in the camshaft timing gear and attach the camshaft timing gear to the camshaft No. 2.



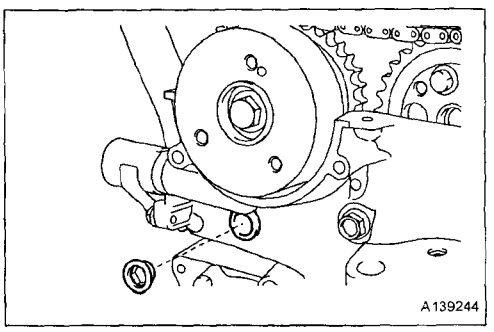
   (3) Temporarily attach one camshaft timing gear installation bolt.



   (4) Pull out the rod of 2.5 mm in diameter from the chain tensioner.
   <CAUTION>
   Use the service hexagonal part of the camshaft to slightly rotate the camshaft to the left. With the chain at the tensioner side sagging, pull out the rod of 2.5 mm in diameter.

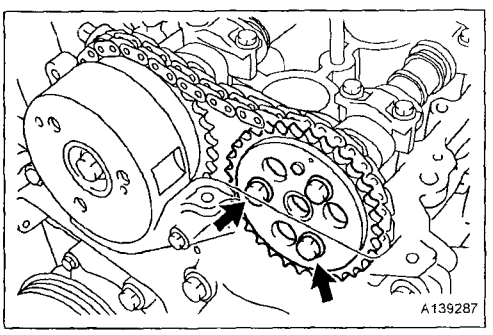


(5) Make sure that each timing mark is positioned as shown in the diagram.



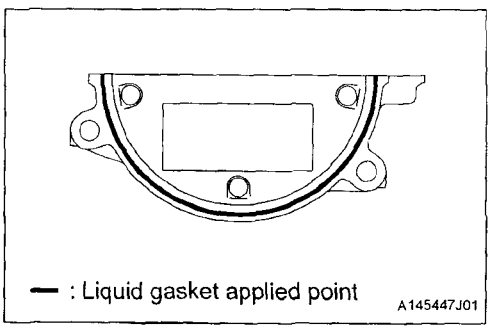
(6) Coat two or three threads from the bolt end portion of the chain cover service hole screw plug with Three Bond 1324.
<CAUTION>
Clean and degrease the bolt and the bolt hole.

(7) Attach the chain cover service hole screw plug using a socket hexagon wrench 10.
Specified value:T=17N*m {173kgf*cm}

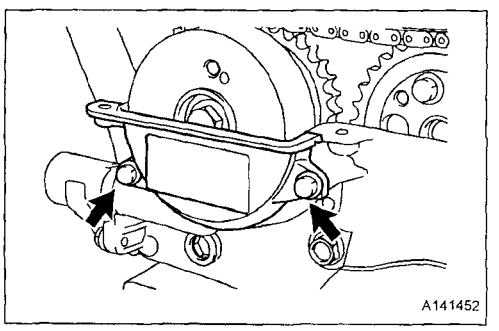


(8) Positively rotate the crankshaft pulley and attach two camshaft timing gear installation bolts.
Specified value:T=8.0N*m {82kgf*cm}

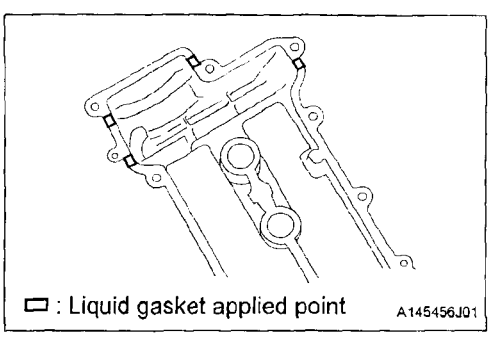
7. Valve clearance check (See page 07-9)
8. Valve clearance adjustment
<HINT>
For information on valve clearance (See page 07-10)



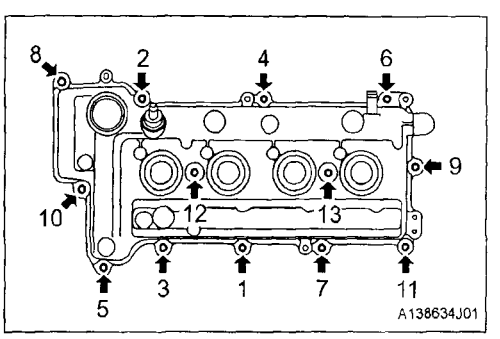
9. Timing chain (belt) cover No. 2 installation
   (1) Apply Three Bond 1280E in the location shown in the diagram.
   <CAUTION>
   > Clean and degrease the mating surface.
   > Within three minutes after applying Three Bond 1280E, attach the mating surface.
   > Avoid starting the engine for at least two hours after installation.



   (2) Use two bolts to attach the timing chain cover No. 2.
   Specified value:T=8.5N*m {87kgf*cm}

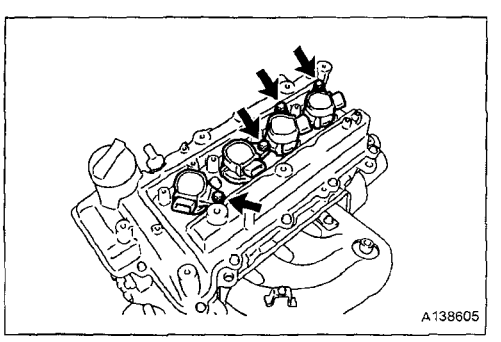


10. Cylinder head cover installation
   (1) Apply Three Bond 1280E in the location shown in the diagram.
   <CAUTION>
   > Clean and degrease the mating surface.
   > Within three minutes after applying Three Bond 1280E, attach the mating surface.
   > Avoid starting the engine for at least two hours after installation.



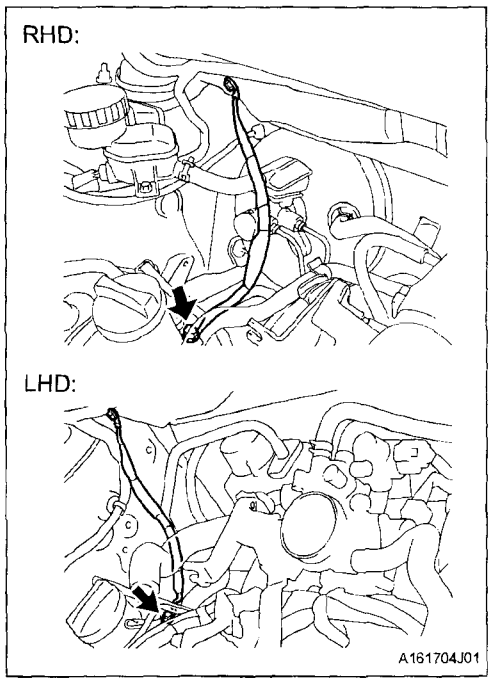
   (2) Tighten eleven bolts and two nuts in small steps in the order shown in the diagram to attach the cylinder head cover.
   Specified value:T=12N*m {122kgf*cm} (Bolt)
   T=9.0N*m {92kgf*cm} (Nut)

11. Oil level gage installation

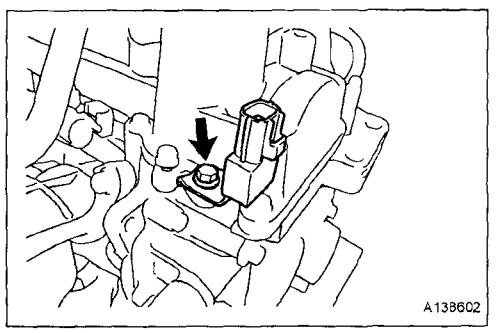


12. Ignition coil assembly installation
   (1) Use a bolt to attach the ignition coil assembly.
   Specified value:T=7.5N*m {76kgf*cm}

13. Engine wire installation
    (1) Connect sensor connectors and wire harness clamps and attach the engine wire.
    (2) Connect the ignition coil assembly connector.

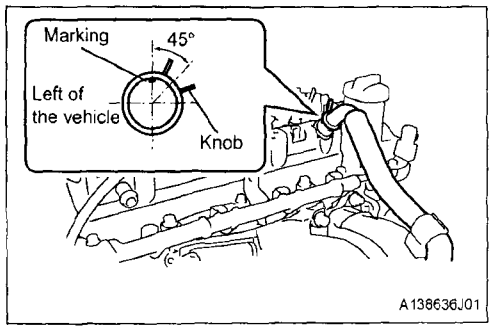


14. Ground cable connection
    (1) Connect the ground cable with a bolt.
    Specified value:T=8.0N*m {82kgf*cm}



15. Noise filter installation
    (1) Use a bolt to attach the noise filter.
    Specified value:T=9.0N*m {92kgf*cm}

16. Air cleaner support bracket No. 2 installation (See page 07-75)
17. Accelerator control cable bracket installation (LHD) (See page 07-76)
18. Throttle body bracket No. 2 installation (See page 06-148)
19. Accelerator control cable assembly connection (RHD) (See page 06-148)
20. Accelerator control cable assembly connection (LHD) (See page 07-88)



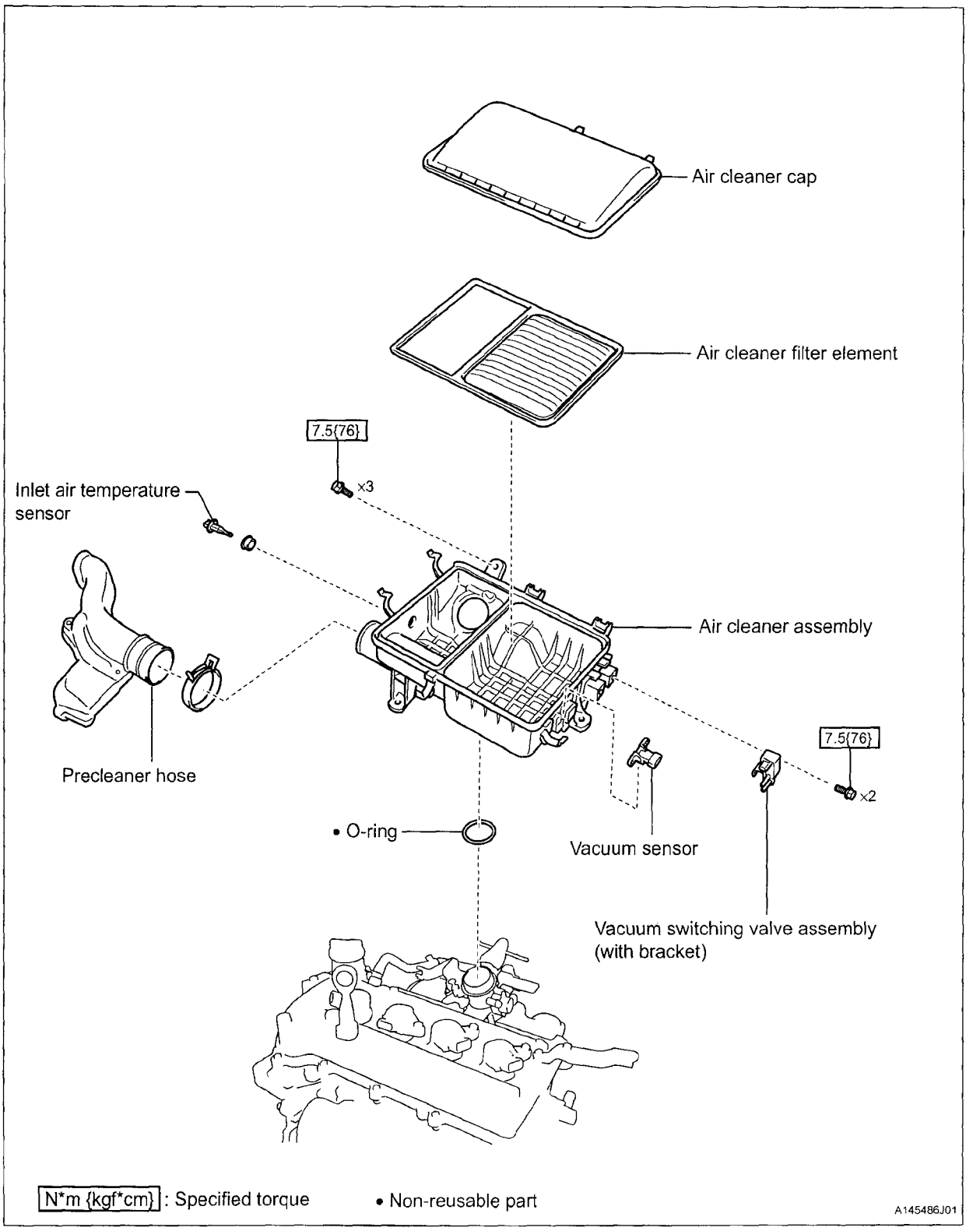
21. Ventilation hose connection
    (1) Connect the ventilation hose with the marking facing the vehicle top.
    <HINT>
    As shown in the diagram, attach the marking and clip.

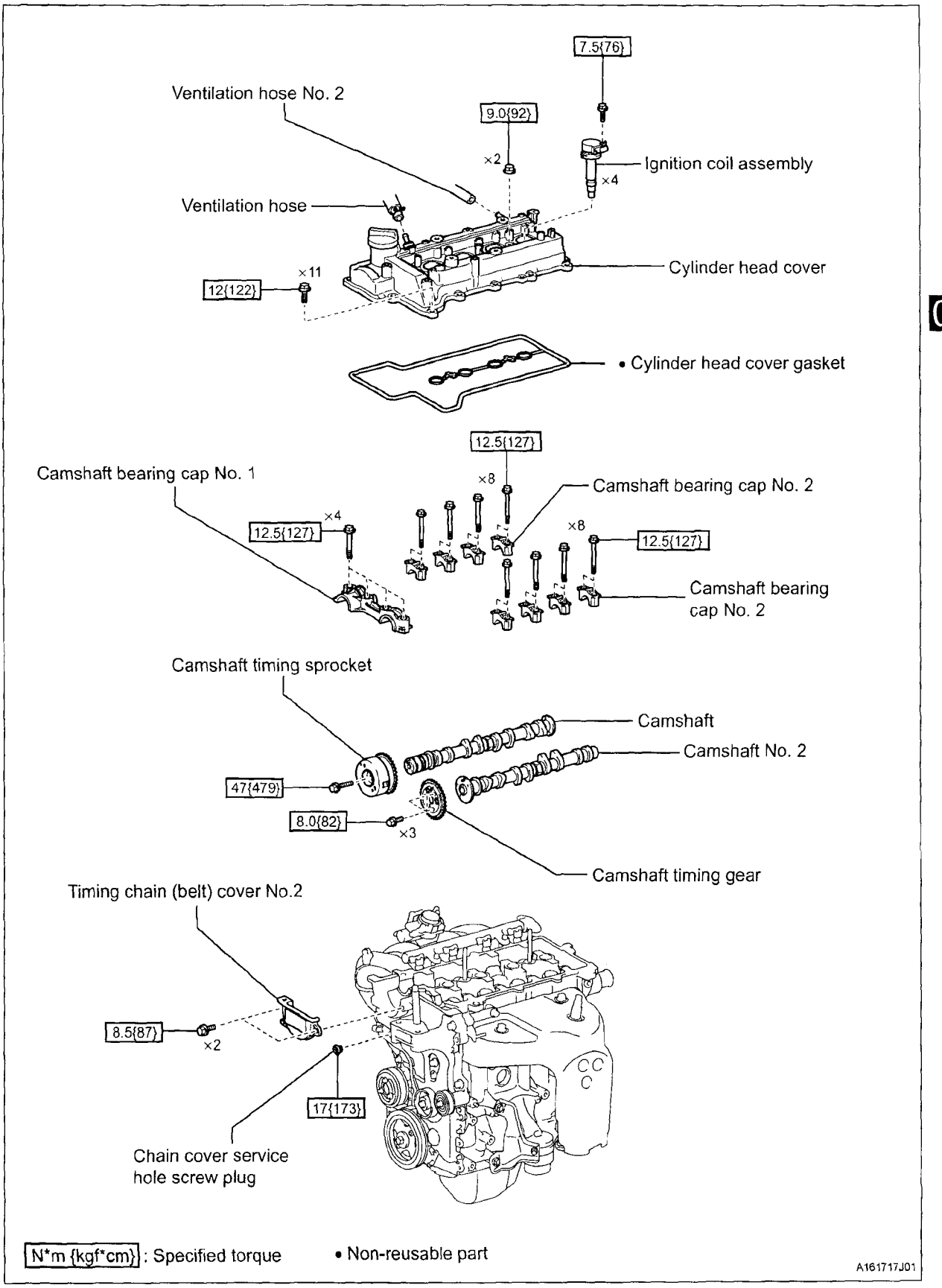
22. Ventilation hose No. 2 installation (See page 06-149)
23. Air cleaner assembly installation (See page 06-149)

24. Precleaner hose installation (See page 06-149)
25. Inlet air temperature sensor connection (See page 06-150)
26. Vacuum switching valve assembly (with Bracket) connection (RHD) (See page 06-150)
27. Vacuum switching valve assembly (with Bracket) connection (LHD) (See page 06-150)
28. Vacuum sensor connection (See page 06-150)
29. Air cleaner filter element installation
30. Air cleaner cap installation
31. Battery minus terminal connection
    Specified value:T=6.4N*m {65kgf*cm}
32. Engine oil leakage check
33. Engine undercover RH installation (See page 07-85)

CAMSHAFT (K3-VE)

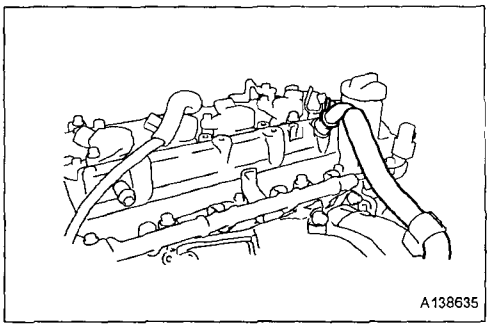
COMPONENTS



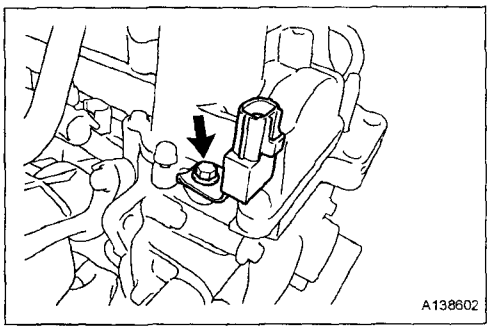

7.5{76}
Ventilation hose No. 2
9.0{92}
×2
Ignition coil assembly
×4
Ventilation hose
Cylinder head cover
×11
12{122}
• Cylinder head cover gasket
12.5{127}
Camshaft bearing cap No. 1
×8
Camshaft bearing cap No. 2
×4
12.5{127}
×8
12.5{127}
Camshaft bearing cap No. 2
Camshaft timing sprocket
Camshaft
Camshaft No. 2
47{479}
8.0{82}
×3
Camshaft timing gear
Timing chain (belt) cover No.2
8.5{87}
×2
17{173}
Chain cover service hole screw plug
N*m {kgf*cm}: Specified torque
• Non-reusable part
A161717J01

REMOVAL

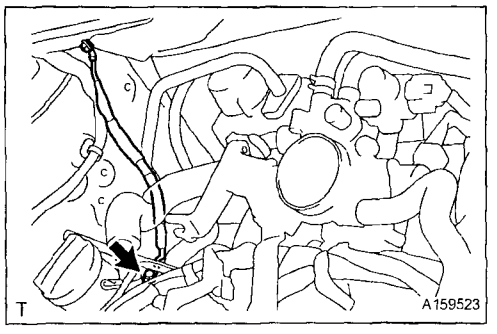
1. Battery minus terminal disconnection
2. Engine undercover RH removal(See page 07-52)
   <HINT>
   Remove it using the same procedure as the LH side(See page 07-52)
3. Air cleaner cap removal
4. Air cleaner filter element removal
5. Vacuum sensor disconnection (See page 06-140)
6. Vacuum switching valve assembly (with Bracket) disconnection (See page 06-140)
7. Inlet air temperature sensor disconnection (See page 06-140)
8. Precleaner hose removal (See page 06-141)
9. Air cleaner assembly removal (See page 06-141)
10. Ventilation hose No. 2 removal (See page 06-141)



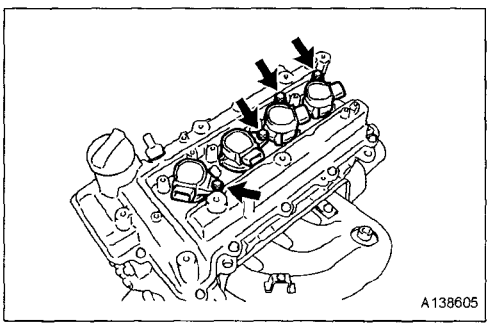
11. Ventilation hose disconnection
    (1) Loosen the clip and disconnect the ventilation hose.
12. Accelerator control cable assembly disconnection (See page 06-142)
13. Throttle body bracket No. 2 removal (See page 06-142)
14. Accelerator control cable bracket removal (See page 07-61)
15. Air cleaner support bracket No. 2 removal (See page 07-61)



16. Noise filter removal
    (1) Remove the bolt and disconnect the ground cable.

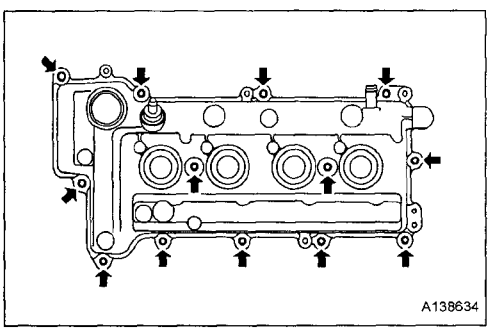


17. Ground cable disconnection
    (1) Remove the bolt and disconnect the ground cable.
18. Engine wire disconnection
    (1) Remove sensor connectors and harness clamps and disconnect the engine wire.

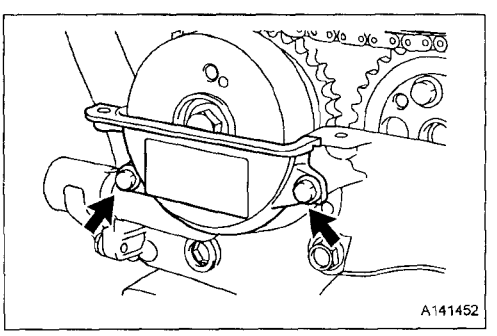


19. Ignition coil assembly removal
    (1) Disconnect the ignition coil connector.
    (2) Remove the bolt and then the ignition coil assembly.

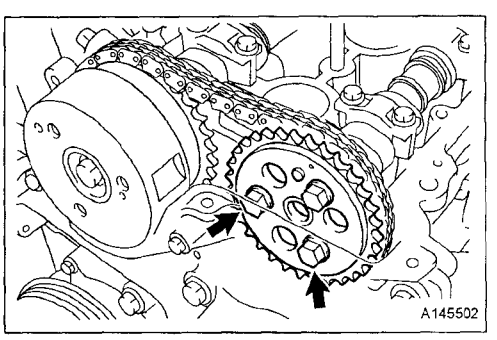
20. Oil level gage removal



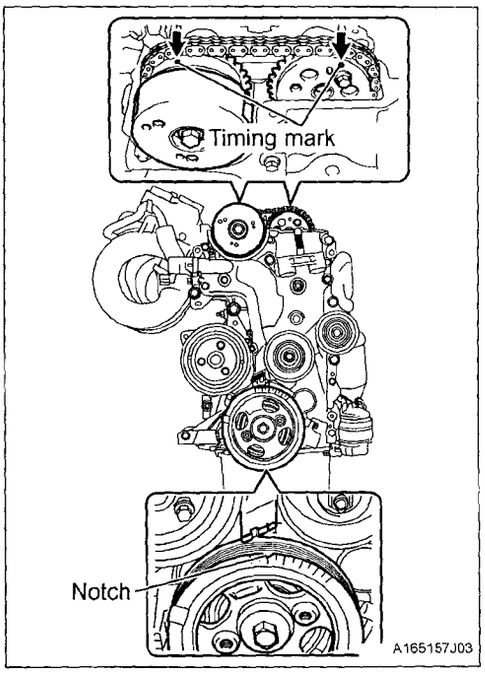
21. Cylinder head cover removal
    (1) Remove eleven bolts, two nuts, and the cylinder head cover.



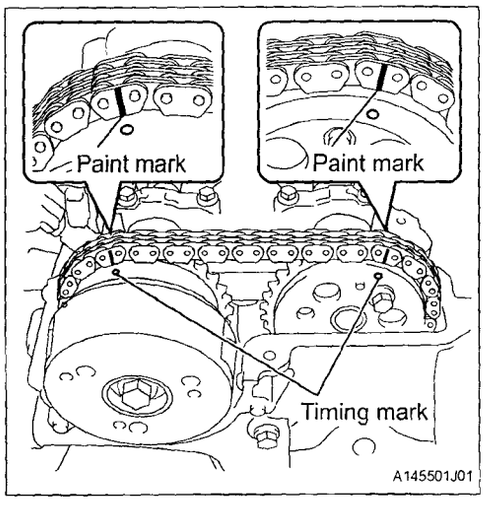
22. Timing chain (belt) cover No. 2 removal
    (1) Remove two bolts and then the timing chain cover No. 2.



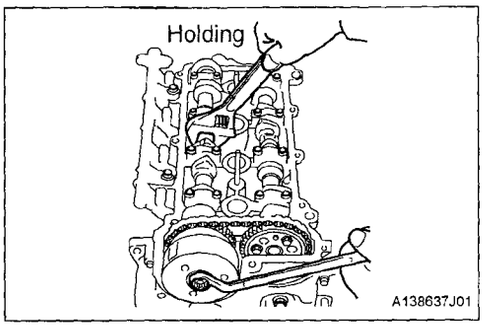
23. Camshaft timing gear removal
    (1) Positively rotate the crankshaft pulley and remove only two camshaft timing gear installation bolts.



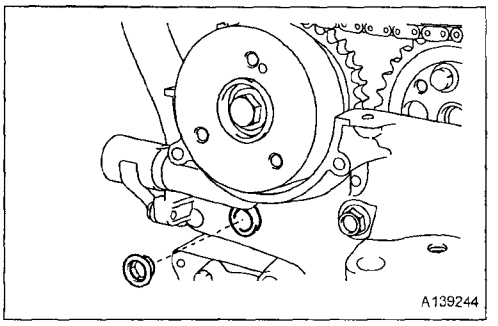
(2) Positively rotate the crankshaft pulley and align the timing marks (notches) with the 0° position. Make sure that each timing mark is positioned as shown in the diagram.
<HINT>
If any timing mark is properly positioned, positively rotate the crankshaft pulley again to adjust the position.



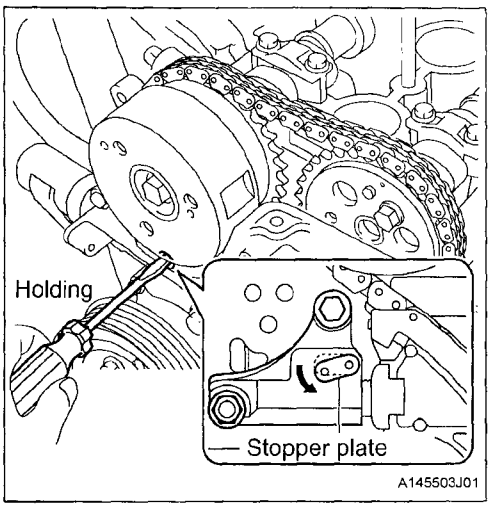
(3) Put a paint mark on each plate of the chain that matches the timing marks on the camshaft timing gear and the camshaft timing sprocket.
<HINT>
Yellow mark plates are attached to the chain in three locations. If these yellow mark plates match the dowel marks on each timing sprocket and the timing gear, the above step is unnecessary.



(4) Loosen the camshaft timing sprocket installation bolt by using the service hexagonal part of the camshaft.

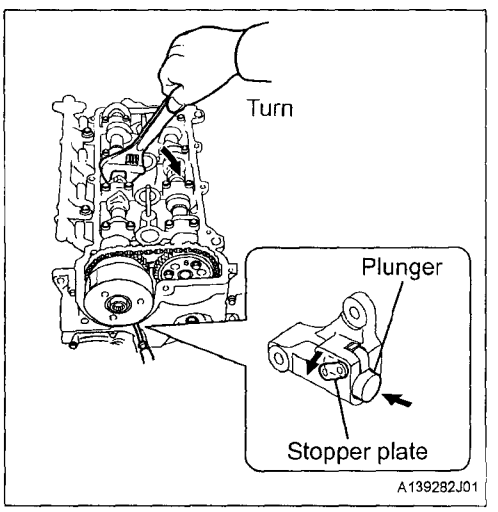

A139244

(5) Remove the chain cover service hole screw plug using a socket hexagon wrench 10.



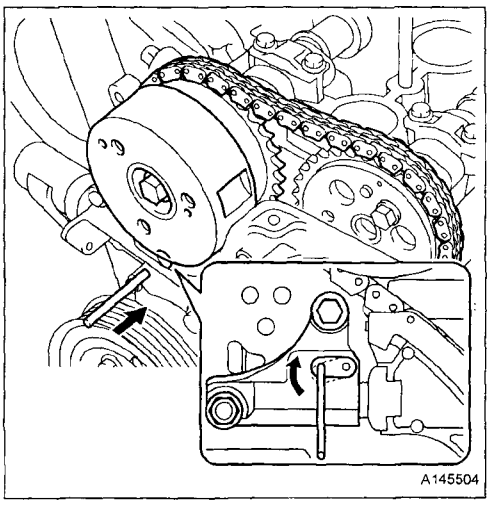
A145503J01

(6) Insert a flathead screwdriver into the chain tensioner service hole. Use the screwdriver to move the tensioner stopper plate downward and hold the stopper plate under unlocked state. [*1]
<HINT>
If it is difficult to unlock the stopper plate, use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and left sides.

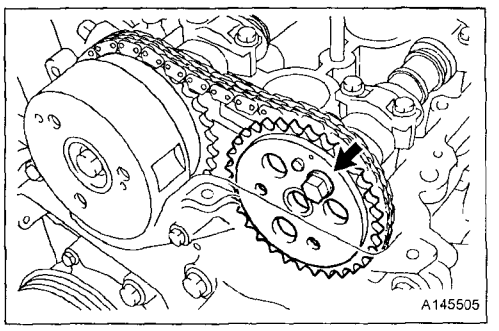


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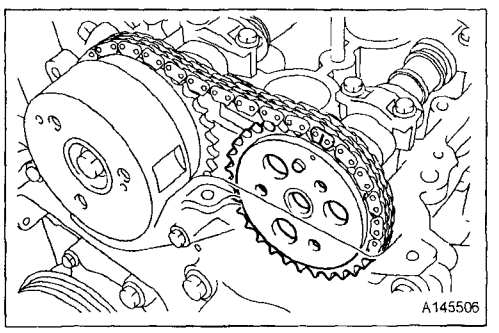
(7) From the state described in [*1], use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and hold it. [*2]
<HINT>
Rotating the camshaft to the right depresses the tensioner plunger.



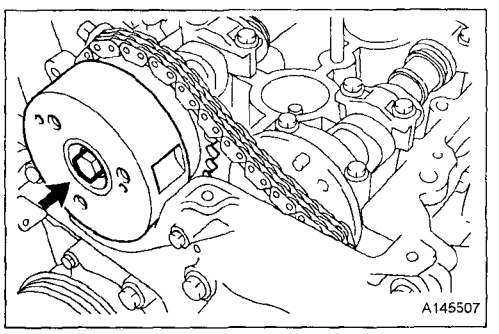
(8) From the state described in [*2], pull out the flathead screwdriver from the chain tensioner service hole. Align the holes of the stopper plate and the tensioner and insert a rod of 2.5 mm in diameter.
<CAUTION>
> If it is difficult to insert a rod of 2.5 mm in diameter, slightly rotate the camshaft to the left and then to the right before attempting to insert the rod again.
> Hold the camshaft using the service hexagonal part of the camshaft.
> Fix the rod of 2.5 mm in diameter with tape to prevent it from dropping.



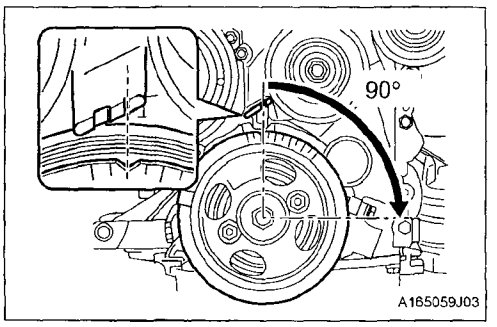
(9) Remove the camshaft timing gear installation bolt.



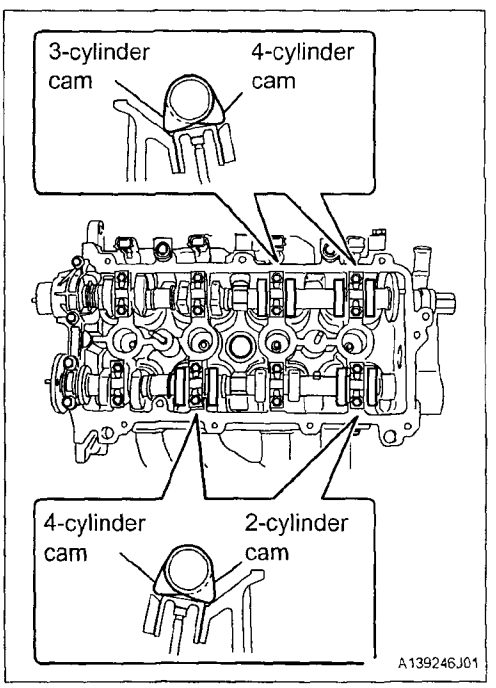
(10) Remove the camshaft timing gear.



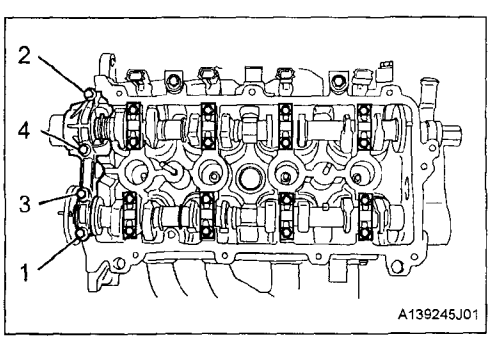
24. Camshaft timing sprocket removal
(1) Remove the bolt and then the camshaft timing sprocket.



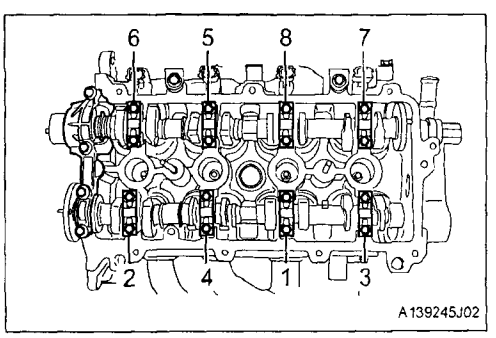
25. Camshaft bearing cap No. 1 removal
<CAUTION>
If you want to rotate the camshaft with the chain disconnected, positively rotate the crankshaft by 90° to prevent the fully opened valve from interfering with the piston, and make sure that the notches on the crankshaft pulley are positioned as shown in the diagram.



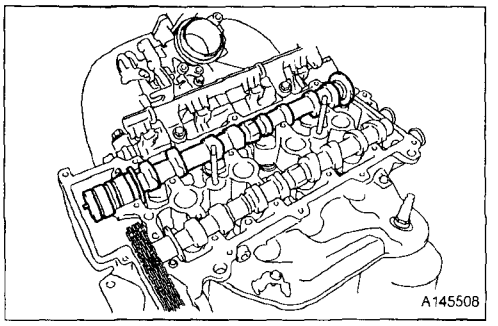
(1) Make sure that the camshaft and the camshaft No. 2 are positioned as shown in the diagram.



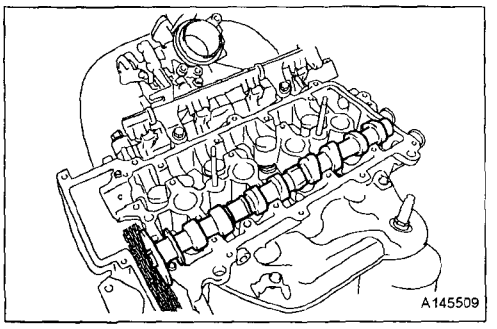
(2) Remove the camshaft bearing cap No. 1 in the order shown in the diagram.



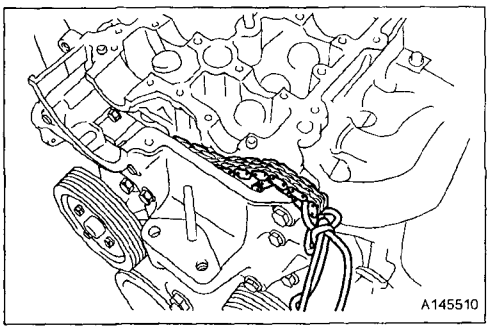
26. Camshaft bearing cap No. 2 removal
(1) Remove the camshaft bearing caps No. 2 in the order shown in the diagram.
<CAUTION>
Holding the camshaft in a horizontal position, loosen the bolts evenly.



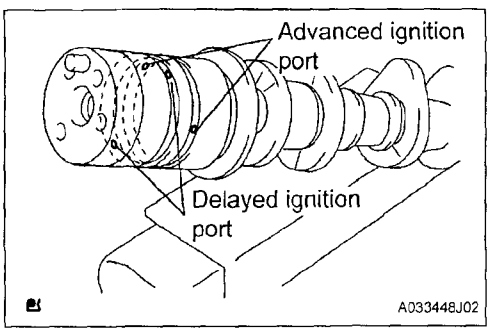
27. Camshaft removal
    (1) Remove the camshaft.



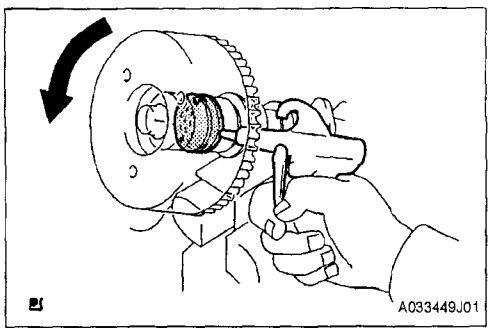
28. Camshaft No. 2 removal
    (1) Remove the camshaft No. 2.



    (2) Keep the chain hung on a rope or wire.
    <CAUTION>
    Prevent foreign particles from getting inside the timing chain cover.



29. Camshaft timing sprocket check
    (1) Block all the ports except one timing advance side port with vinyl tape.
    (2) Fix the hexagon part for after-service of the camshaft to the vise using the base and attach it to the camshaft timing sprocket with a bolt.
    Specified value:T=47N*m {479kgf*cm}

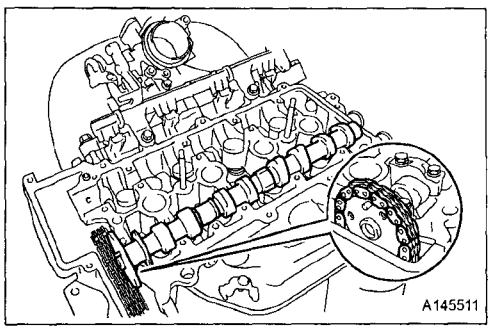


    (3) Use the air gun and add the air pressure of approx. 100 kPa {1 kgf/cm^2} to the timing advance side port shown in the diagram.
    <CAUTION>
    Use the waste or suchlike for covering to avoid the oil scattering when the air pressure is added.
    <HINT>
    Implement above to release the lock pin for the latest lag angle lock.
    (4) Rotate the camshaft timing sprocket to the timing advance side by hand (the direction of the arrow shown in the diagram) with the condition above.
    Reference: The sprocket rotates.

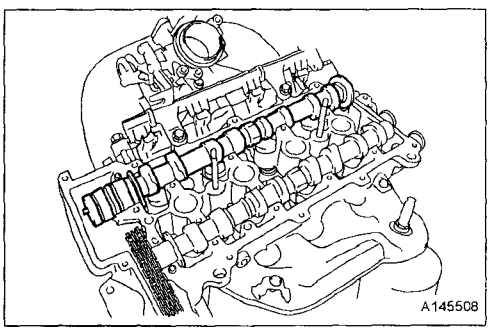
<HINT>
> The camshaft timing sprocket may rotate in the timing advance direction by the air pressure without rotating by hand. In addition, it may be difficult to unlock the lock pin in the condition where the pressure is hard to be applied due to air leakage from the port part.
> If the camshaft timing sprocket is rotated before the lock pin is unlocked, a force is applied from the transverse direction and make it difficult to unlock the pin.

(5) Avoid the latest lag angle position where the lock pin is fitted and move the camshaft timing sprocket back and forth a few times to check the range of movment and sliding.
Reference: Must be able to move smoothly in a range of approx. 22.5°.
(6) Rotate the camshaft timing sprocket by hand and lock it at the latest lag angle position.
(7) Remove the bolt and then the camshaft timing sprocket.

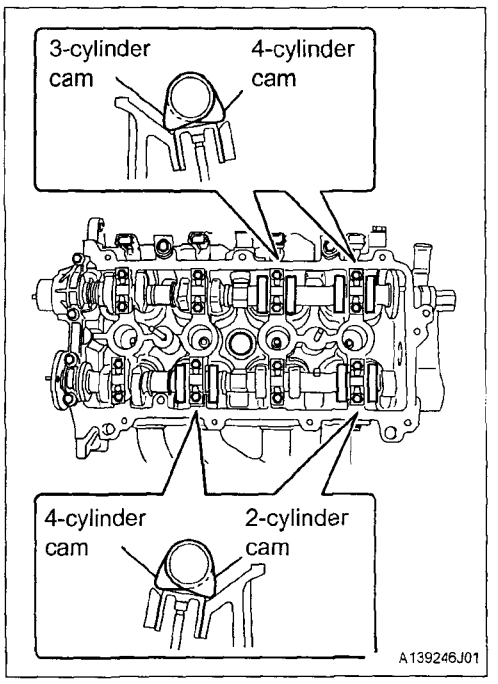
INSTALLATION



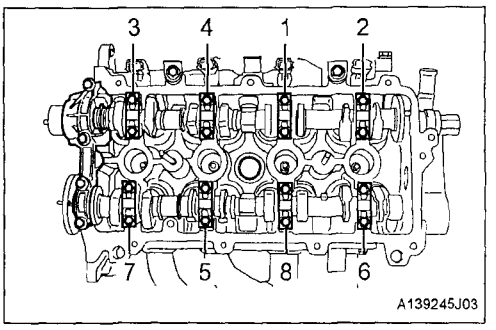
1. Camshaft No. 2 installation
(1) Coat the cam of the camshaft No. 2 and the journals of the cylinder head with engine oil and attach the camshaft No. 2.



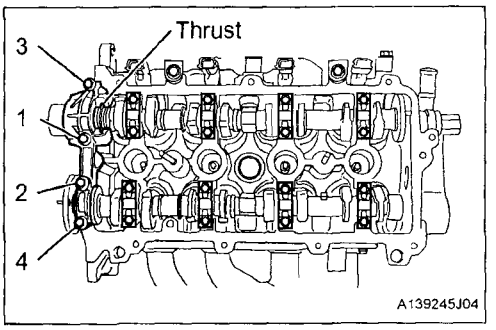
2. Camshaft installation
(1) Coat the cam of the camshaft and the journals of the cylinder head with engine oil and attach the camshaft.



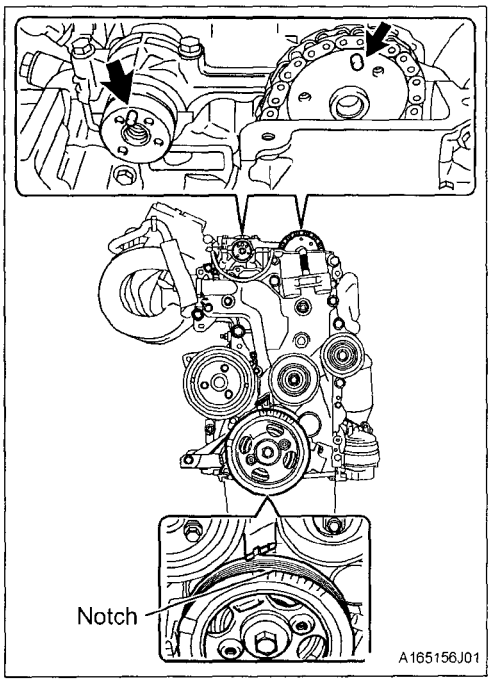
3. Camshaft bearing cap No. 2 installation
   (1) Adjust the positions of the camshaft and the camshaft No. 2 as shown in the diagram.



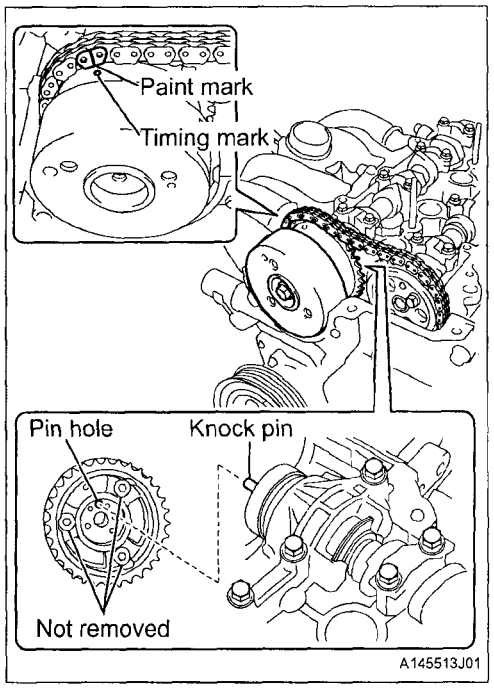
   (2) Check the front marks and numbers on the camshaft bearing caps No. 2 and attach the camshaft bearing caps No. 2.
   (3) Tighten the camshaft bearing caps No. 2 in the order shown in the diagram.
   Specified value:T=12.5N*m {127kgf*cm}
   <CAUTION>
   Holding the camshaft in a horizontal position, tighten the bolts evenly.



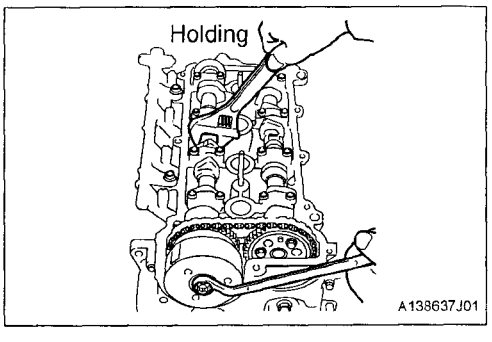
4. Camshaft bearing cap No. 1 installation
   (1) Tighten the camshaft bearing cap No. 1 in the order shown in the diagram.
   Specified value:T=12.5N*m {127kgf*cm}
   <CAUTION>
   Make sure that the camshaft thrusts fit in the grooves in the camshaft bearing caps No. 1 before tightening the bolts.



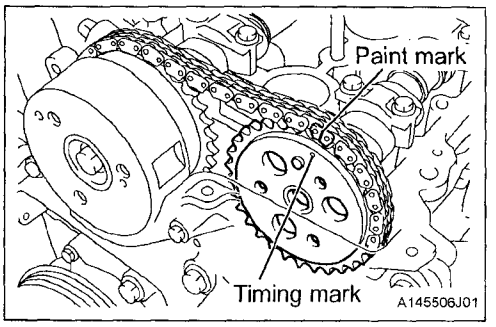
5. Camshaft timing sprocket installation
   (1) Adjust the positions of the timing marks on the camshaft timing sprocket and camshaft timing gear as shown in the diagram.
   (2) Align the timing mark (notch) on the crankshaft pulley with the 0° position.
   (3) Align the timing mark on the camshaft timing sprocket with the paint mark on the chain and attach the camshaft timing sprocket and the chain together.



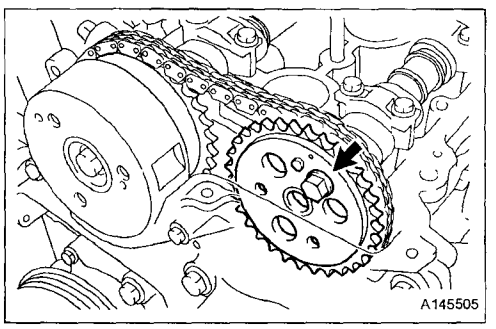
   (4) Align the knock pin of the camshaft with the pin hole in the camshaft timing sprocket and attach the camshaft timing sprocket to the camshaft.
   <CAUTION>
   > If the knock pin does not fit in the pin hole, use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and left sides until the knock pin fits in the pin hole. Do not strongly push the camshaft timing sprocket. Otherwise the end portion of the knock pin might damage the seal surface, resulting in seal defect.
   > Never remove three bolts. If they are removed, replace the camshaft timing sprocket.



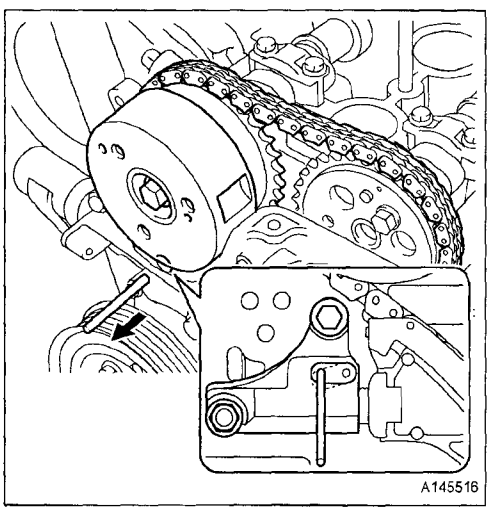
   (5) Coat the treaded part and bearing surface of the camshaft timing sprocket installation bolt with a small amount of engine oil and temporarily attach the bolt.
   (6) Tighten the camshaft timing sprocket installation bolt by using the service hexagonal part of the camshaft.
   Specified value:T=47N*m {479kgf*cm}



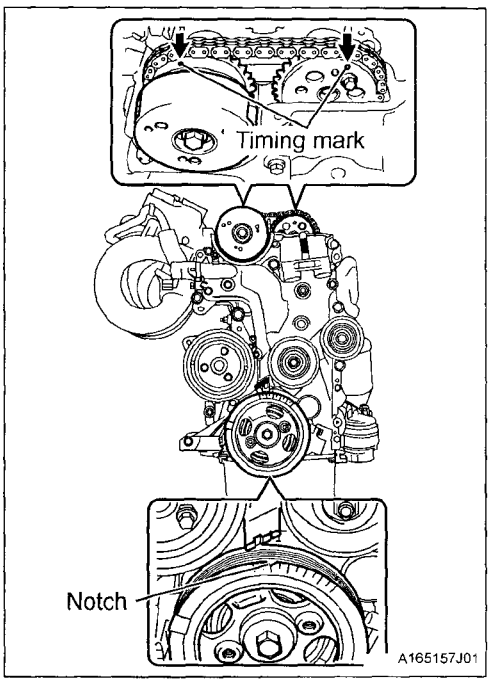
6. Camshaft timing gear installation
   (1) Align the dowel marks on the camshaft timing gear and the chain and attach the camshaft timing gear.
   (2) Align the knock pin of the camshaft No. 2 with the pin hole in the camshaft timing gear and attach the camshaft timing gear to the camshaft No. 2.



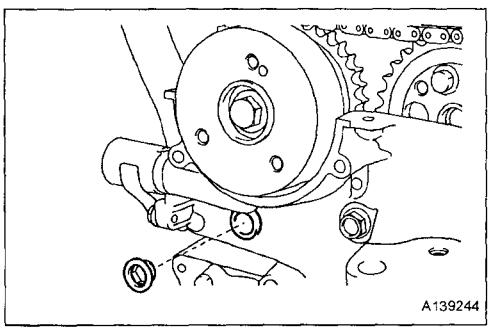
   (3) Temporarily attach one camshaft timing gear installation bolt.



   (4) Pull out the rod of 2.5 mm in diameter from the chain tensioner.
   <CAUTION>
   Use the service hexagonal part of the camshaft to slightly rotate the camshaft to the left. With the chain at the tensioner side sagging, pull out the rod of 2.5 mm in diameter.

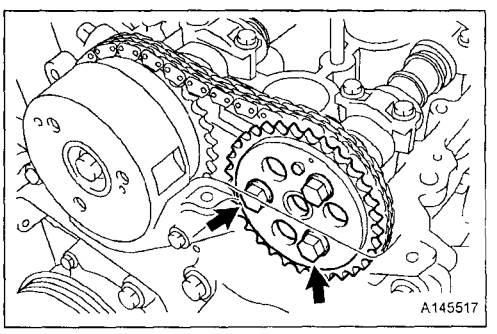


(5) Make sure that each timing mark is positioned as shown in the diagram.



(6) Coat two or three threads from the bolt end portion of the chain cover service hole screw plug with Three Bond 1324.
<CAUTION>
Clean and degrease the bolt and the bolt hole.

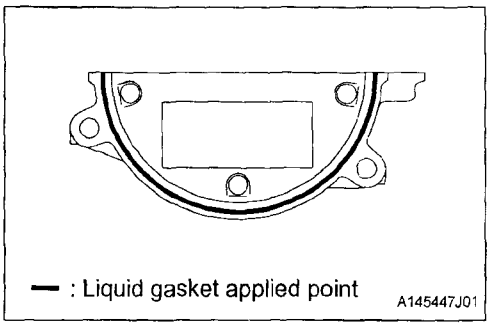
(7) Attach the chain cover service hole screw plug using a socket hexagon wrench 10.
Specified value:T=17N*m {173kgf*cm}



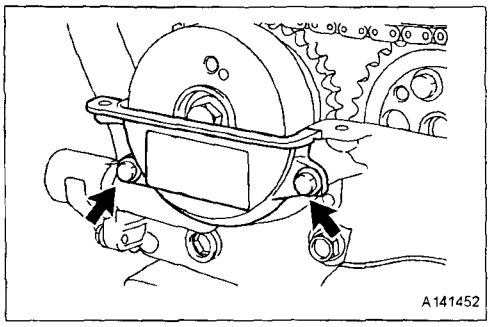
(8) Positively rotate the crankshaft pulley, attach two camshaft timing gear installation bolts, and attach the temporarily-tightened bolt and two bolts.
Specified value:T=8.0N*m {82kgf*cm}

7. Valve clearance check (See page 07-9)
8. Valve clearance adjustment
<HINT>
For information on valve clearance(See page 07-10)

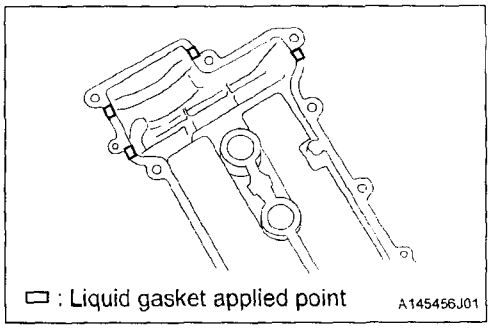
07



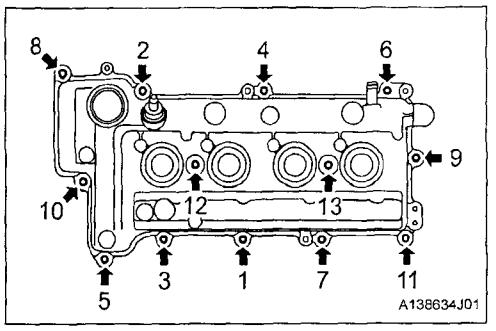
9. Timing chain (belt) cover No. 2 installation
   (1) Apply Three Bond 1280E in the location shown in the diagram.
   <CAUTION>
   > Clean and degrease the mating surface.
   > Within three minutes after applying Three Bond 1280E, attach the mating surface.
   > Avoid starting the engine for at least two hours after installation.



   (2) Use two bolts to attach the timing chain cover No. 2.
   Specified value:T=8.5N*m {87kgf*cm}

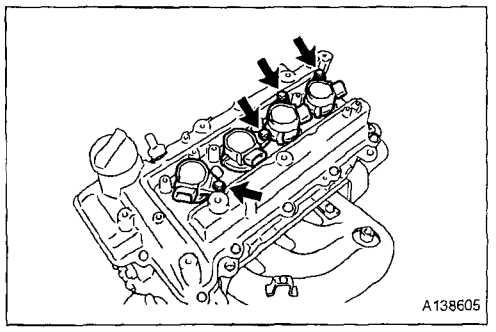


10. Cylinder head cover installation
   (1) Apply Three Bond 1280E in the location shown in the diagram.
   <CAUTION>
   > Clean and degrease the mating surface.
   > Within three minutes after applying Three Bond 1280E, attach the mating surface.
   > Avoid starting the engine for at least two hours after installation.



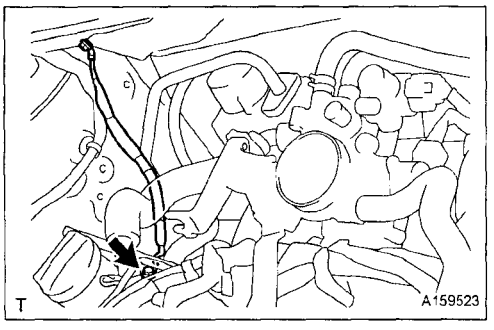
   (2) Tighten eleven bolts and two nuts in small steps in the order shown in the diagram to attach the cylinder head cover.
   Specified value:T=12N*m {122kgf*cm} (Bolt)
   T=9.0N*m {92kgf*cm} (Nut)

11. Oil level gage installation

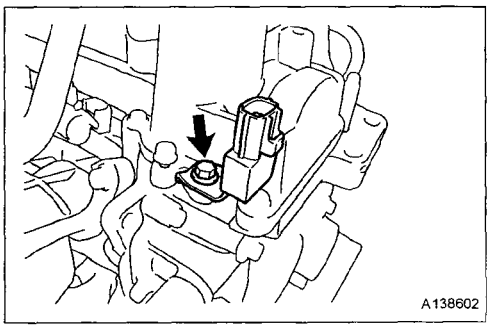


12. Ignition coil assembly installation
   (1) Use a bolt to attach the ignition coil assembly.
   Specified value:T=7.5N*m {76kgf*cm}

13. Engine wire installation
    (1) Connect sensor connectors and wire harness clamps and attach the engine wire harness.
    (2) Connect the ignition coil assembly connector.

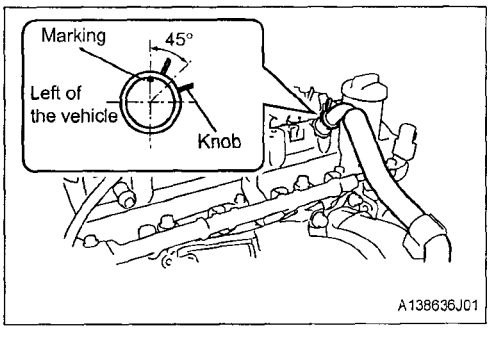


14. Ground cable connection
    (1) Connect the engine wire harness with a bolt.
    Specified value:T=8.0N*m {82kgf*cm}



15. Noise filter installation
    (1) Use a bolt to attach the noise filter.
    Specified value:T=9.0N*m {92kgf*cm}

16. Air cleaner support bracket No. 2 installation (See page 07-75)
17. Accelerator control cable bracket installation (See page 07-76)
18. Throttle body bracket No. 2 installation (See page 06-148)
19. Accelerator control cable assembly connection (See page 06-148)

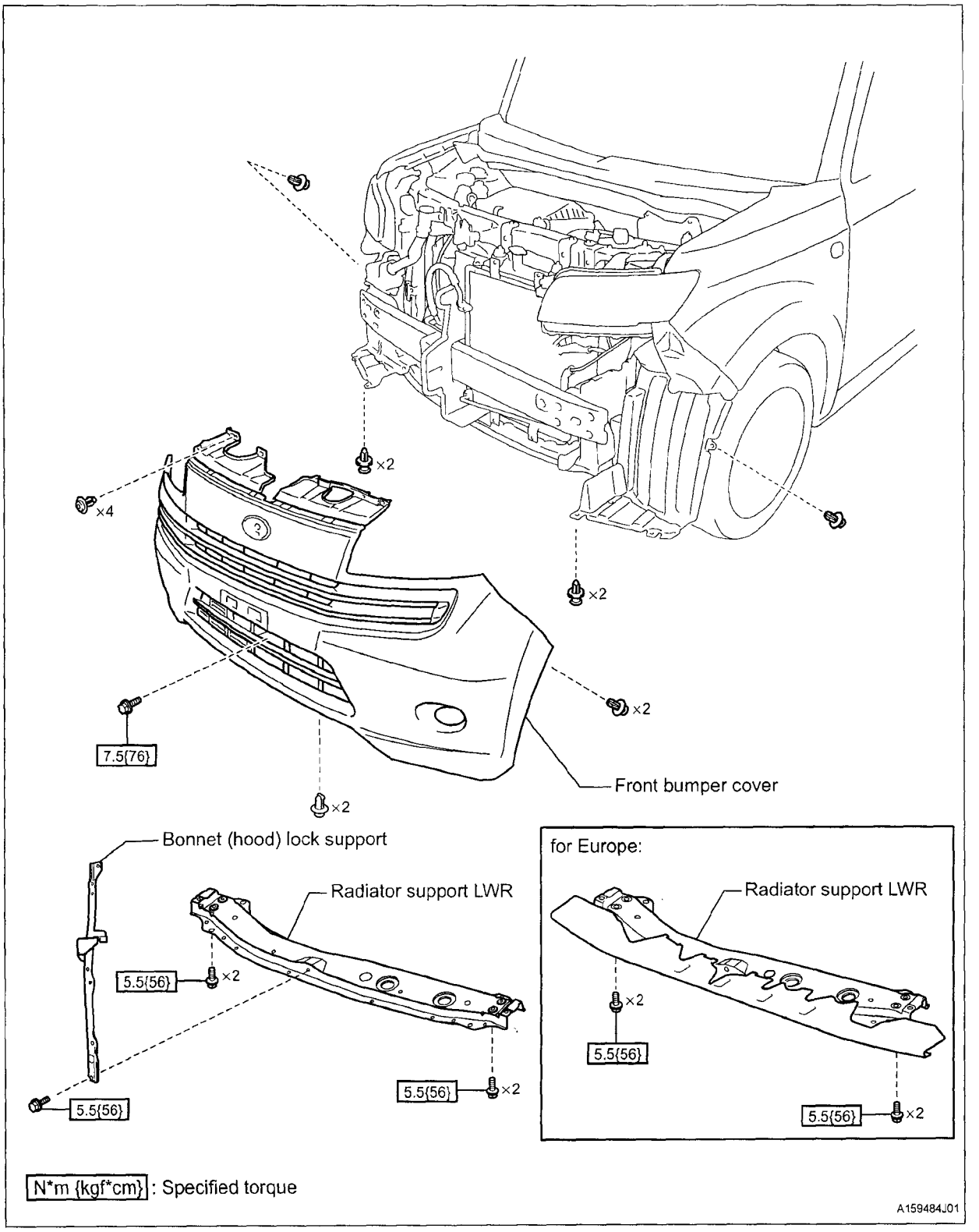


20. Ventilation hose connection
    (1) Connect the ventilation hose with the marking facing the vehicle top.
    <HINT>
    As shown in the diagram, attach the marking and clip.

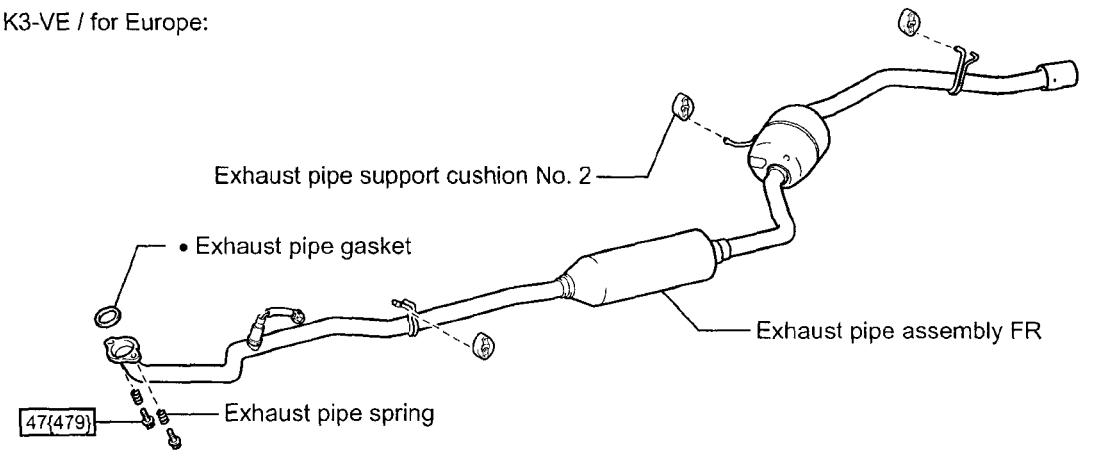
21. Ventilation hose No. 2 installation (See page 06-149)
22. Air cleaner assembly installation (See page 06-149)
23. Precleaner hose installation (See page 06-149)
24. Inlet air temperature sensor connection (See page 06-150)
25. Vacuum switching valve assembly (with Bracket) connection (See page 06-150)
26. Vacuum sensor connection (See page 06-150)
27. Air cleaner filter element installation
28. Air cleaner cap installation
29. Battery minus terminal connection
    Specified value:T=6.4N*m {65kgf*cm}
30. Engine oil leakage check
31. Engine undercover RH installation (See page 07-85)

CYLINDER HEAD GASKET (3SZ-VE, K3-VE / FF)

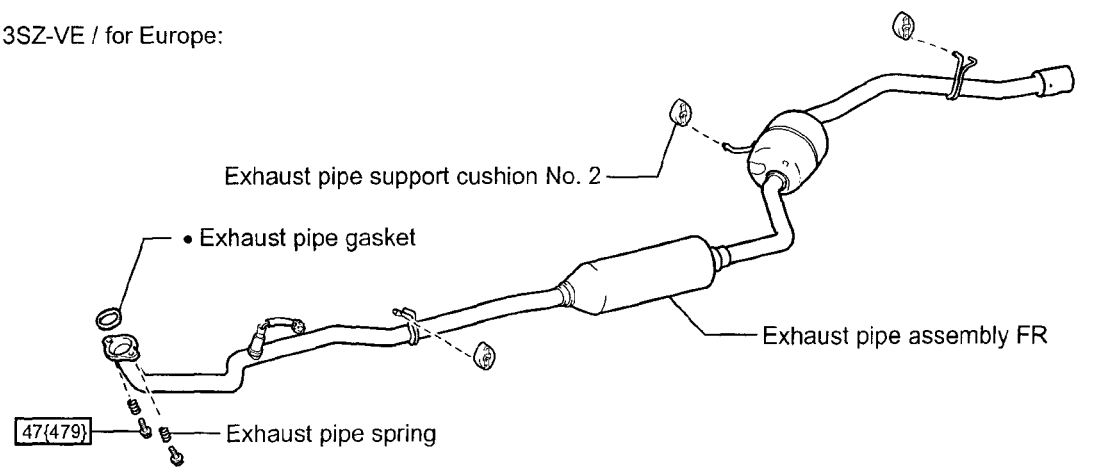
COMPONENTS



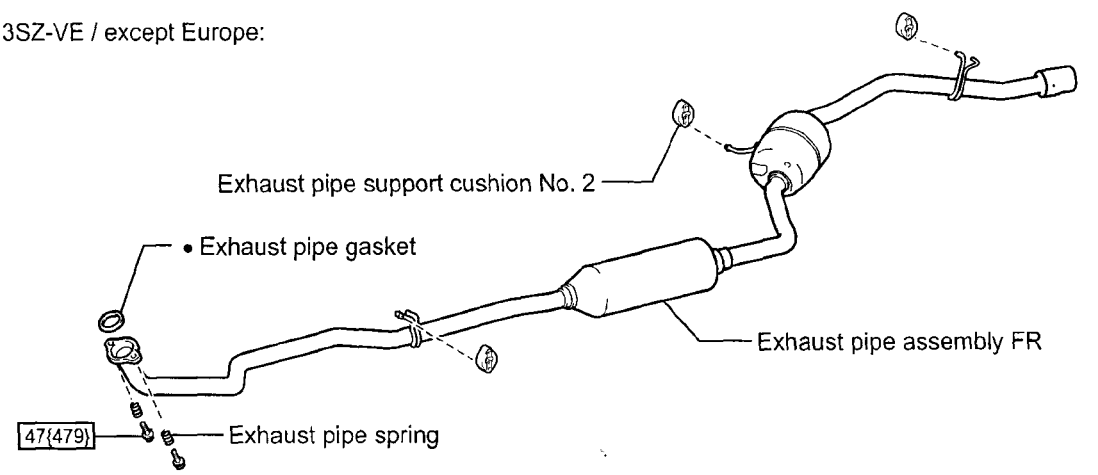
K3-VE / for Europe:



3SZ-VE / for Europe:

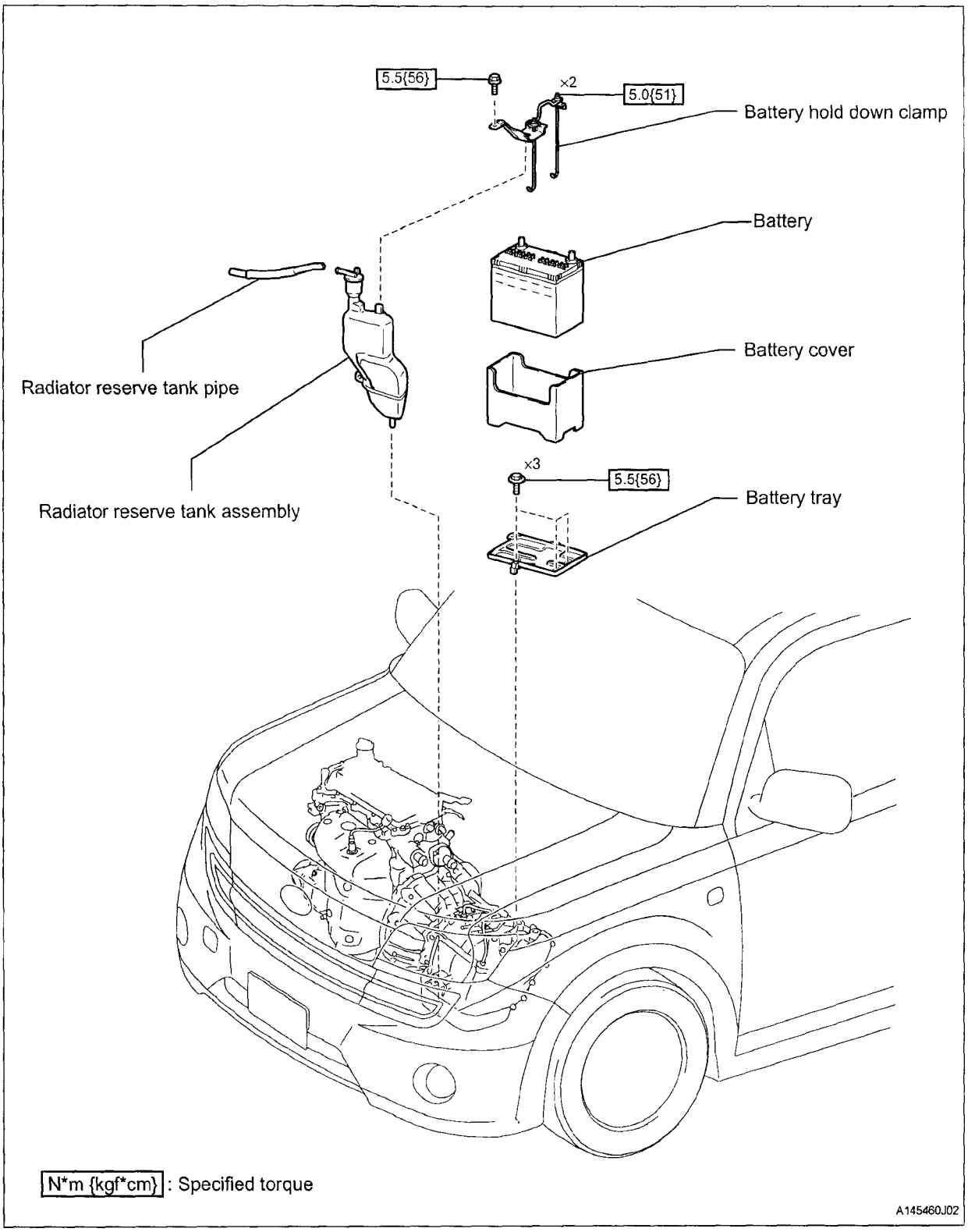


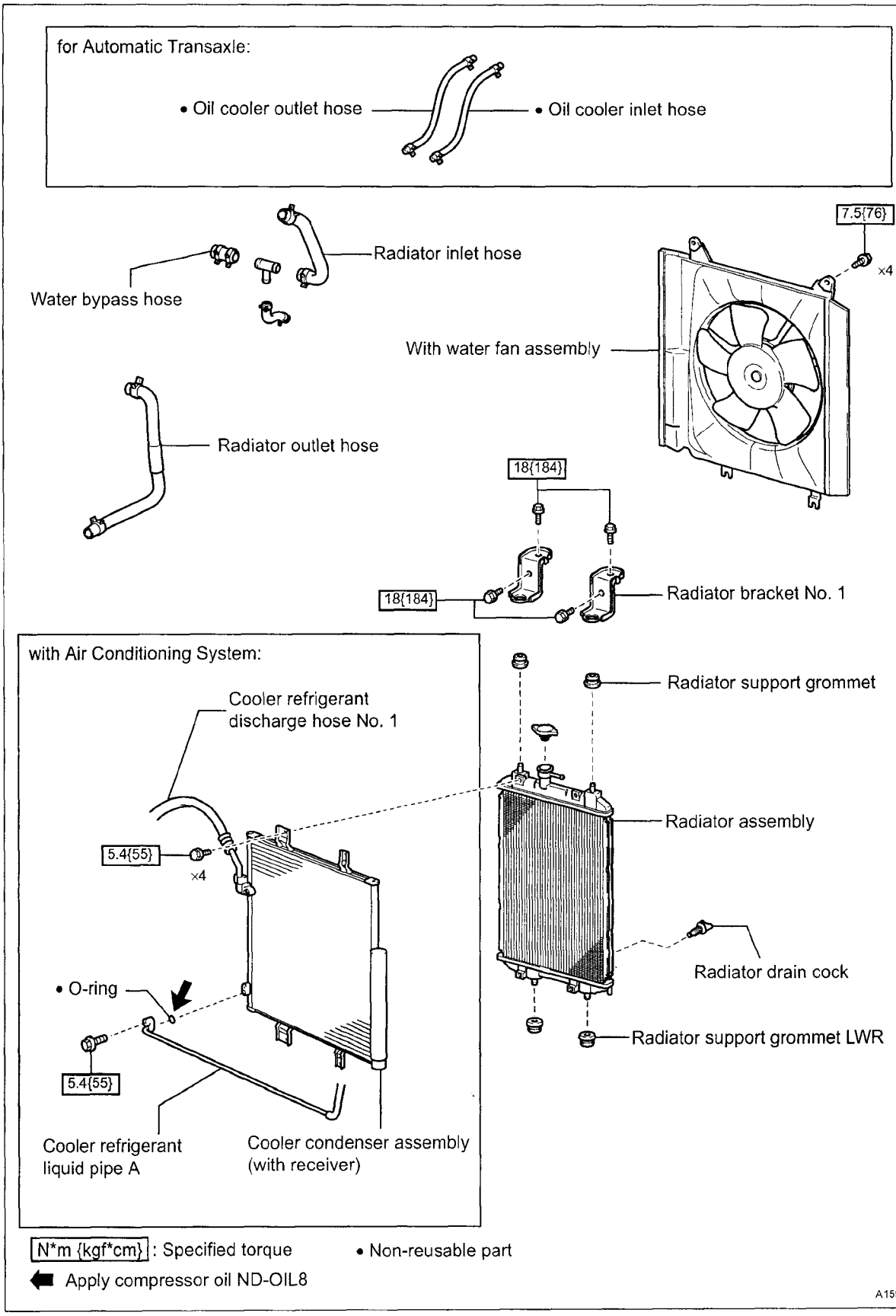
3SZ-VE / except Europe:



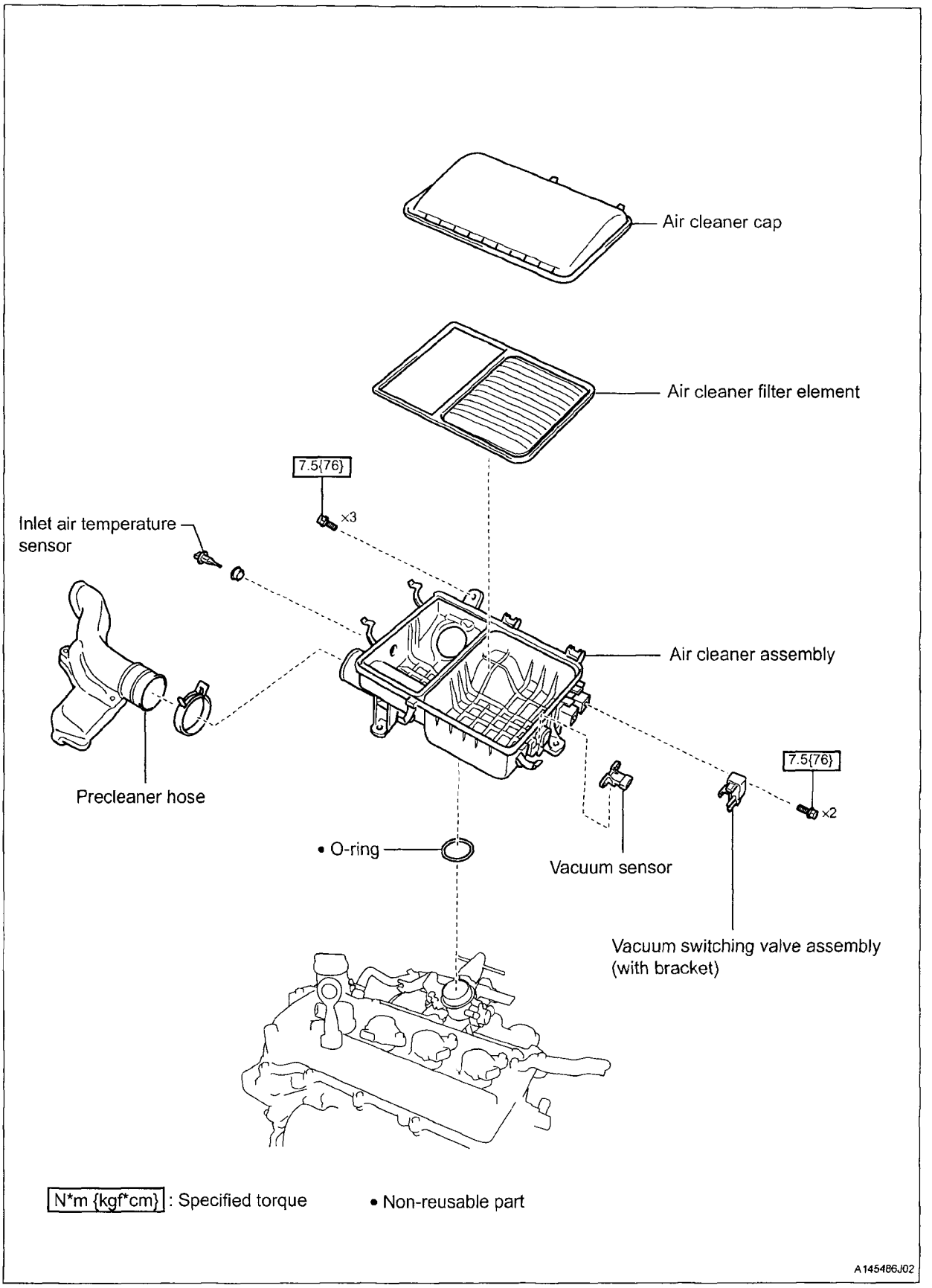
N*m {kgf*cm} : Specified torque • Non-reusable part

A159483J02

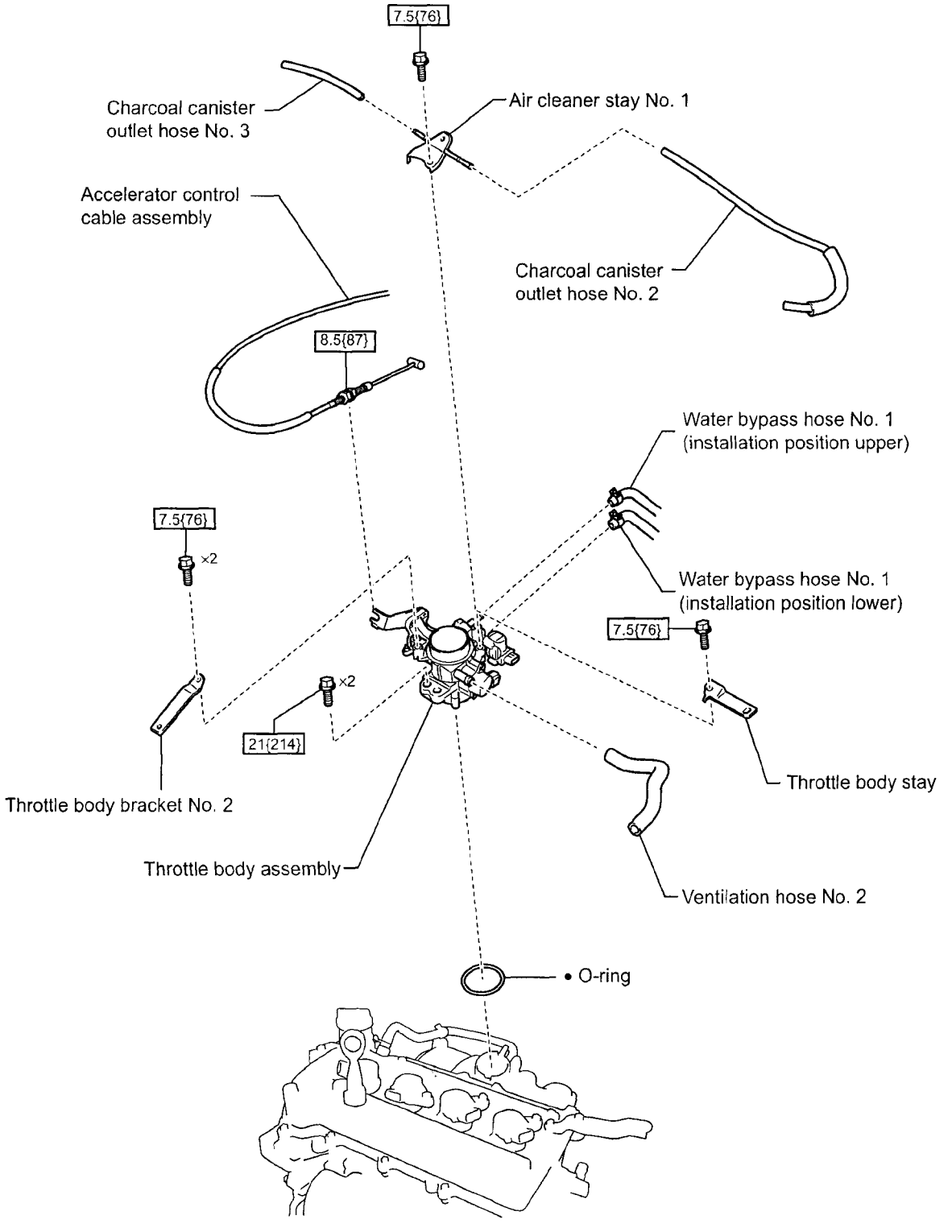

5.5{56}
×2
5.0{51}
Battery hold down clamp
Battery
Battery cover
Radiator reserve tank pipe
Radiator reserve tank assembly
×3
5.5{56}
Battery tray
N*m {kgf*cm} : Specified torque
A145460J02


for Automatic Transaxle:
• Oil cooler outlet hose
• Oil cooler inlet hose
Radiator inlet hose
Water bypass hose
7.5{76}
×4
With water fan assembly
Radiator outlet hose
18{184}
18{184}
Radiator bracket No. 1
with Air Conditioning System:
Radiator support grommet
Cooler refrigerant discharge hose No. 1
Radiator assembly
5.4{55}
×4
Radiator drain cock
• O-ring
5.4{55}
Radiator support grommet LWR
Cooler refrigerant liquid pipe A
Cooler condenser assembly (with receiver)
N*m {kgf*cm} : Specified torque
• Non-reusable part
Apply compressor oil ND-OIL8
A159497J01

07

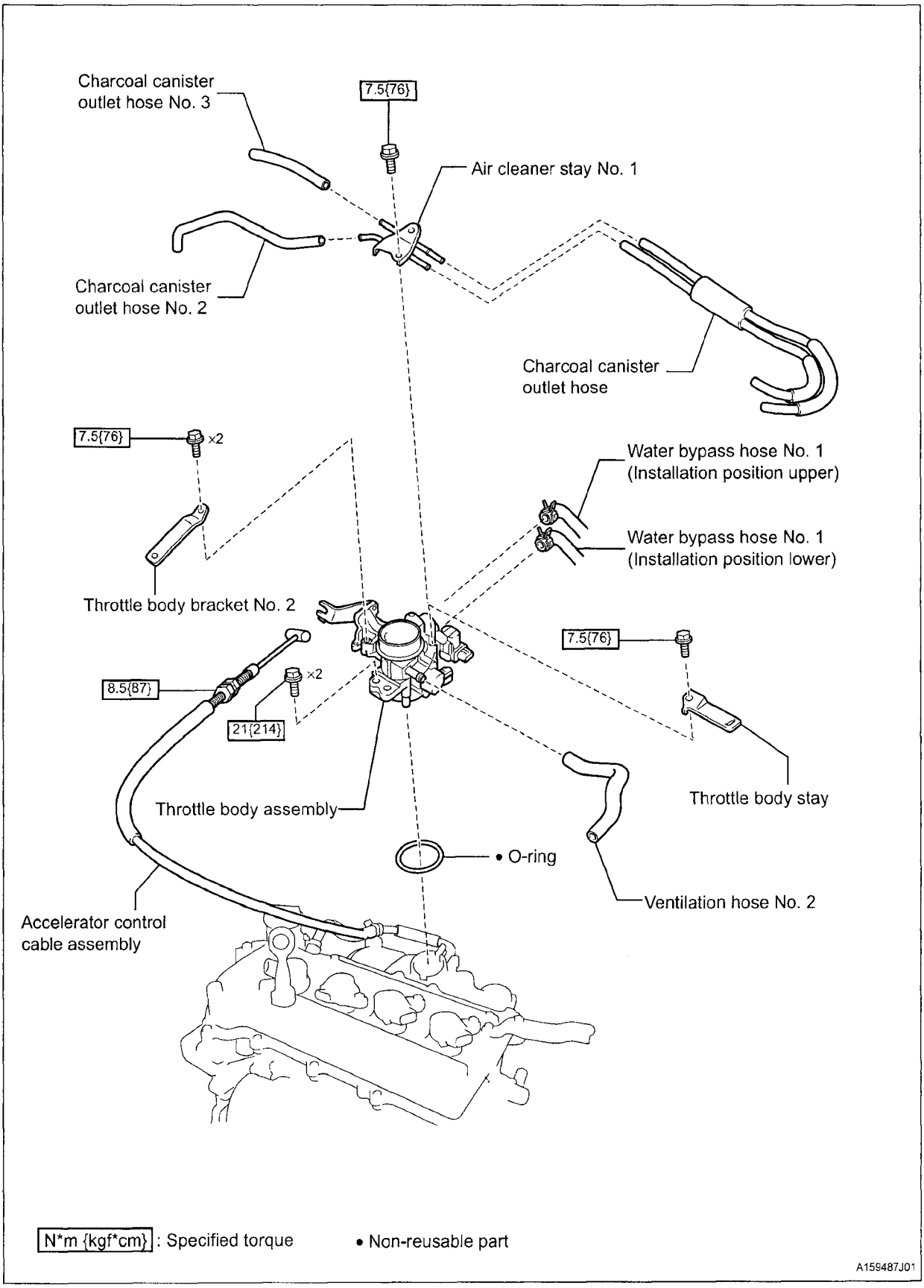

Air cleaner cap
Air cleaner filter element
7.5{76}
×3
Inlet air temperature sensor
Air cleaner assembly
Precleaner hose
7.5{76}
×2
• O-ring
Vacuum sensor
Vacuum switching valve assembly (with bracket)
N*m {kgf*cm} : Specified torque
• Non-reusable part
A145486J02

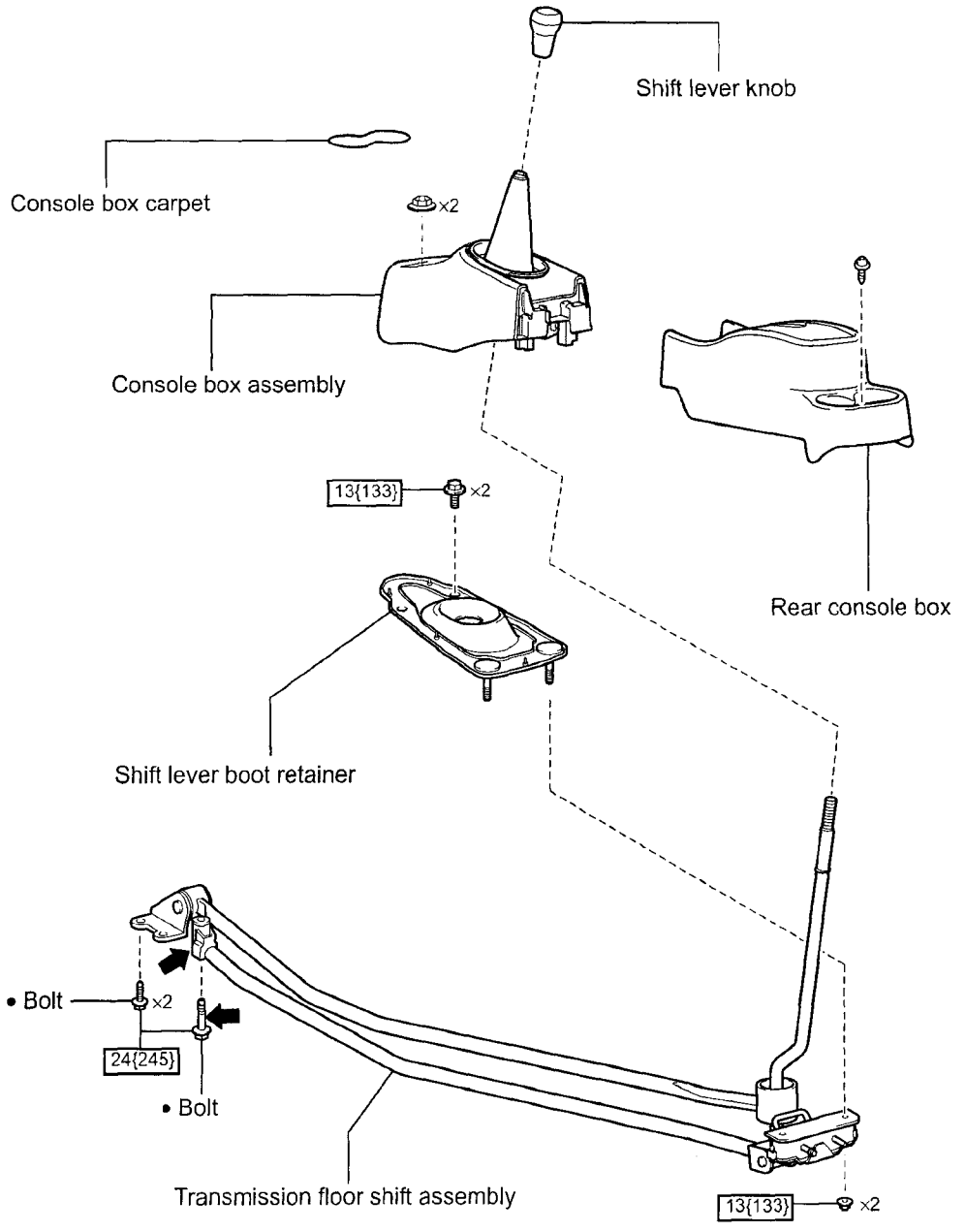
RHD:



N*m {kgf*cm} : Specified torque • Non-reusable part

A145487J02


Charcoal canister outlet hose No. 3
7.5{76}
Air cleaner stay No. 1
Charcoal canister outlet hose No. 2
Charcoal canister outlet hose
7.5{76} ×2
Water bypass hose No. 1 (Installation position upper)
Water bypass hose No. 1 (Installation position lower)
Throttle body bracket No. 2
7.5{76}
8.5{87}
×2
21{214}
Throttle body assembly
Throttle body stay
• O-ring
Ventilation hose No. 2
Accelerator control cable assembly
N*m {kgf*cm} : Specified torque
• Non-reusable part
A159487J01



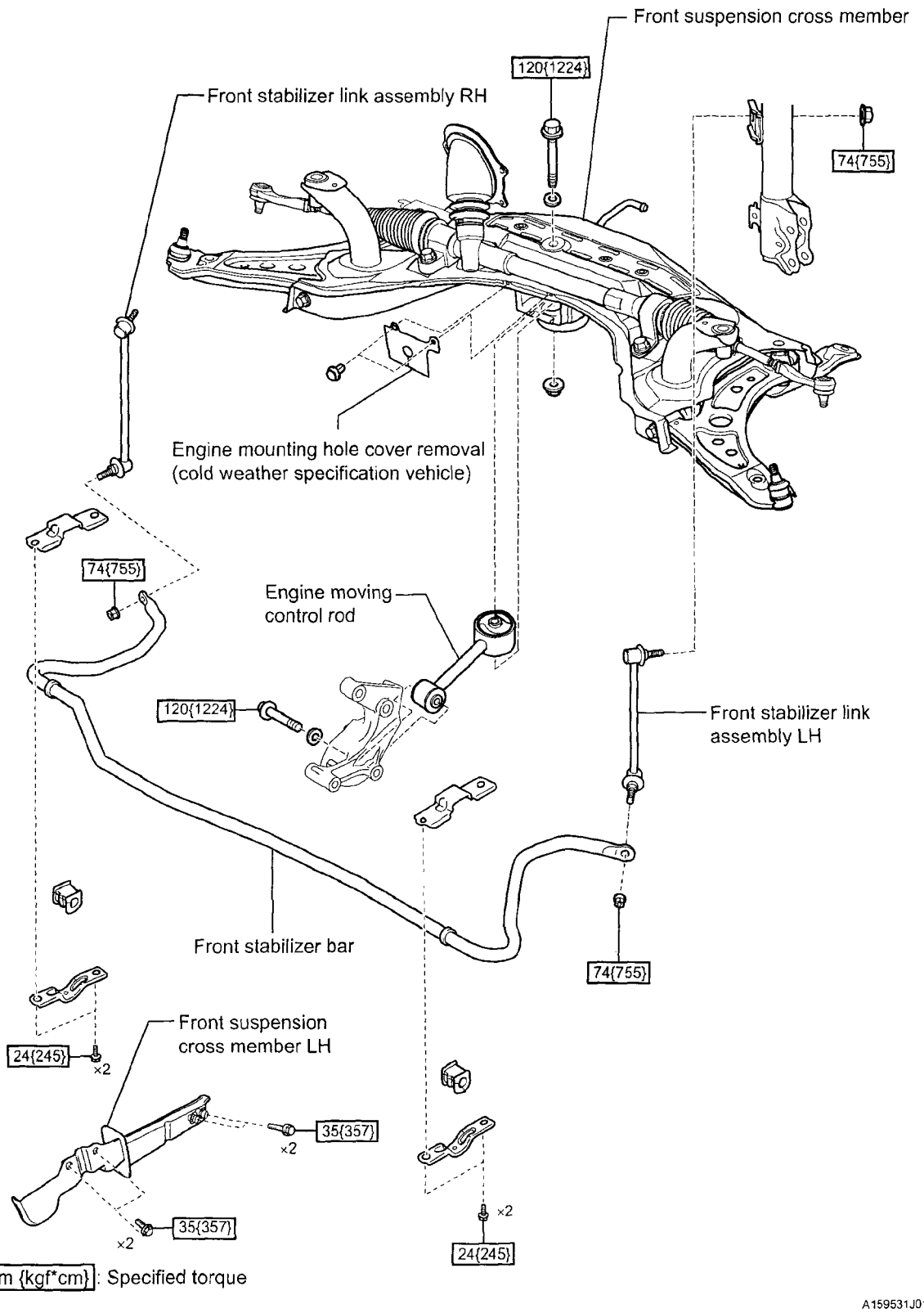
N*m {kgf*cm} : Spacified torque • Non-reusable part

⬅ Apply MP Grease

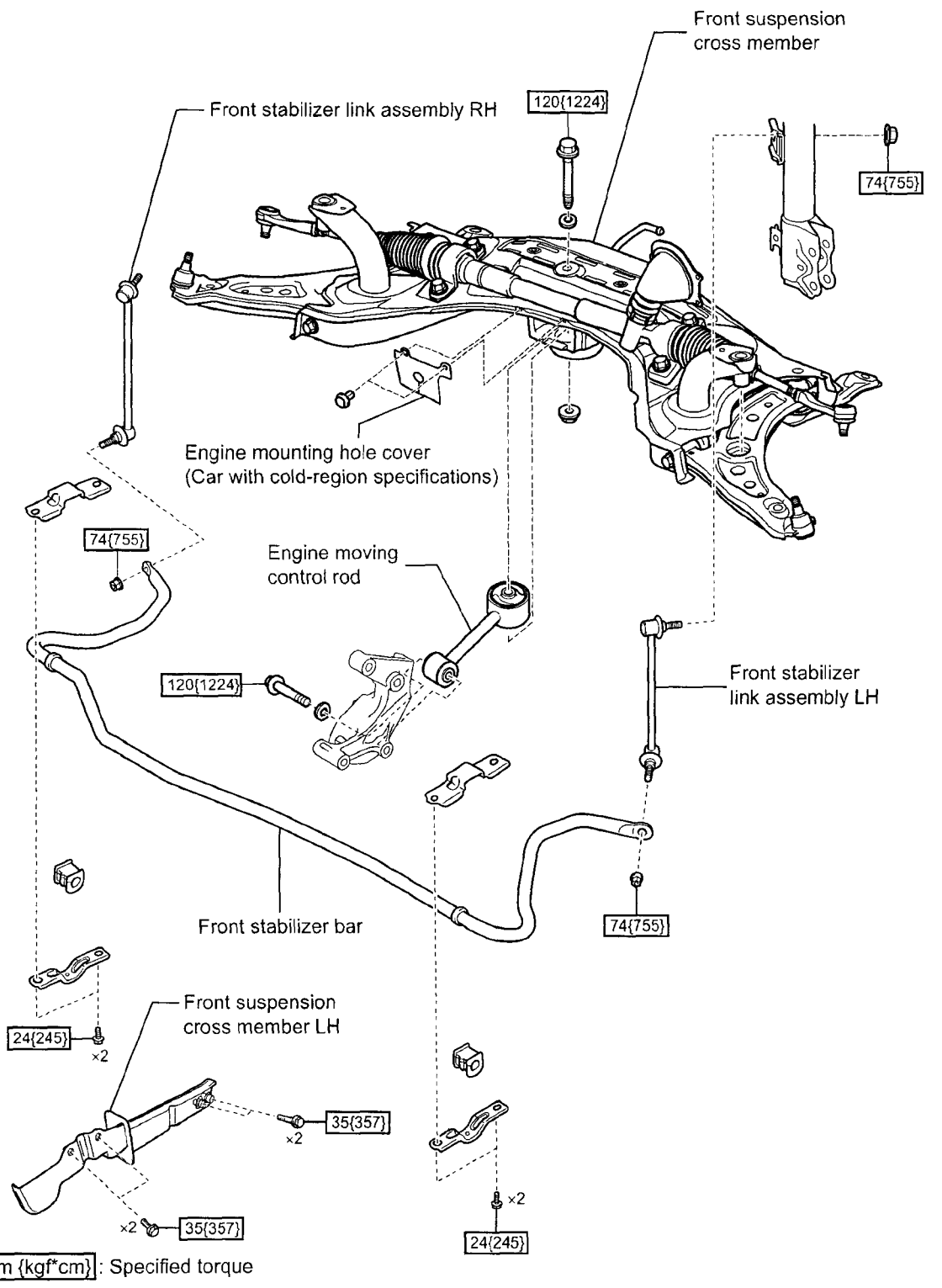
C159934J02

07

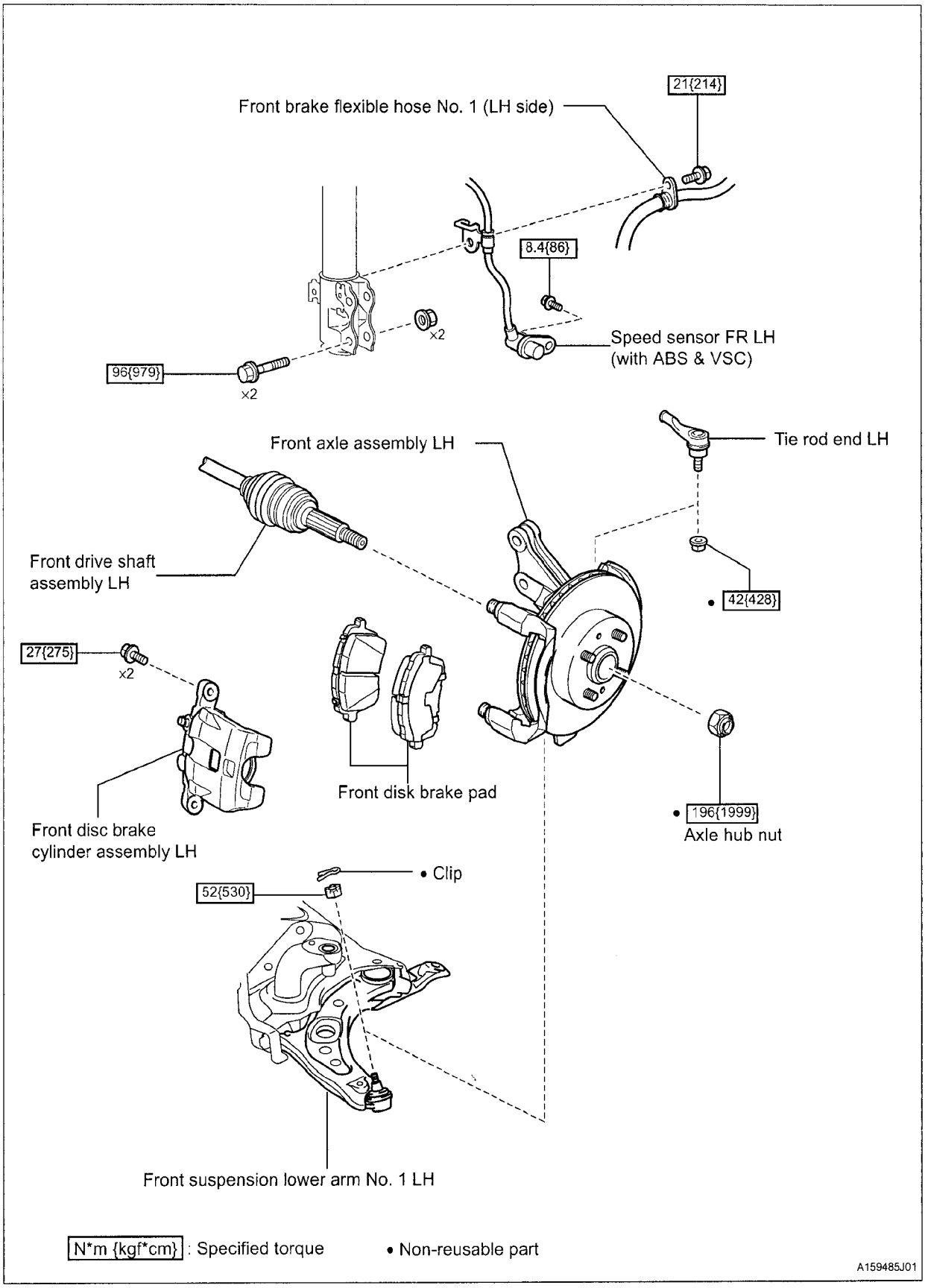
RHD:

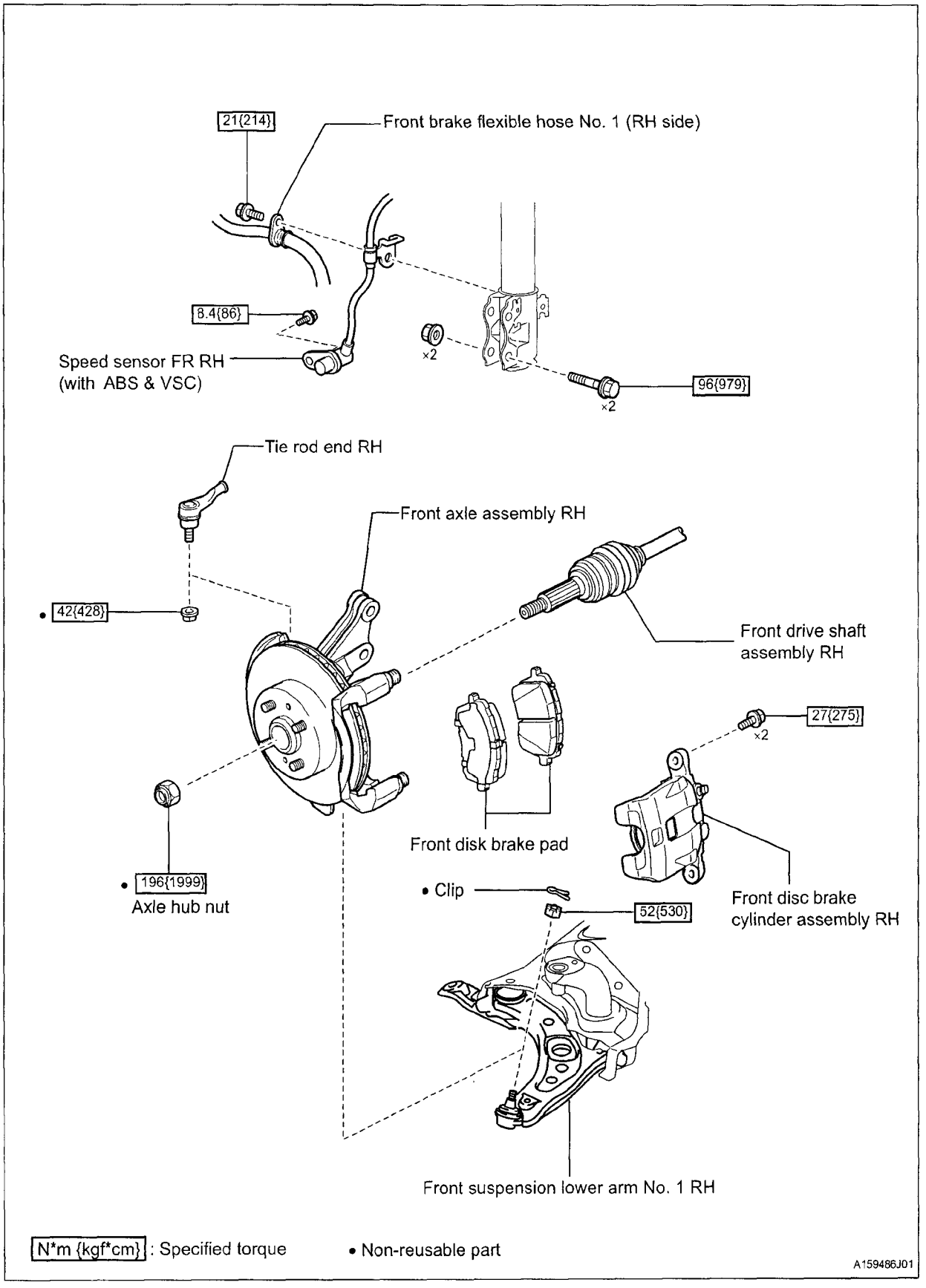

Front suspension cross member
120{1224}
Front stabilizer link assembly RH
74{755}
Engine mounting hole cover removal
(cold weather specification vehicle)
74{755}
Engine moving
control rod
120{1224}
Front stabilizer link
assembly LH
Front stabilizer bar
74{755}
Front suspension
cross member LH
24{245}
×2
35{357}
×2
35{357}
×2
×2
24{245}
N*m {kgf*cm}: Specified torque
A159531J01

LHD:

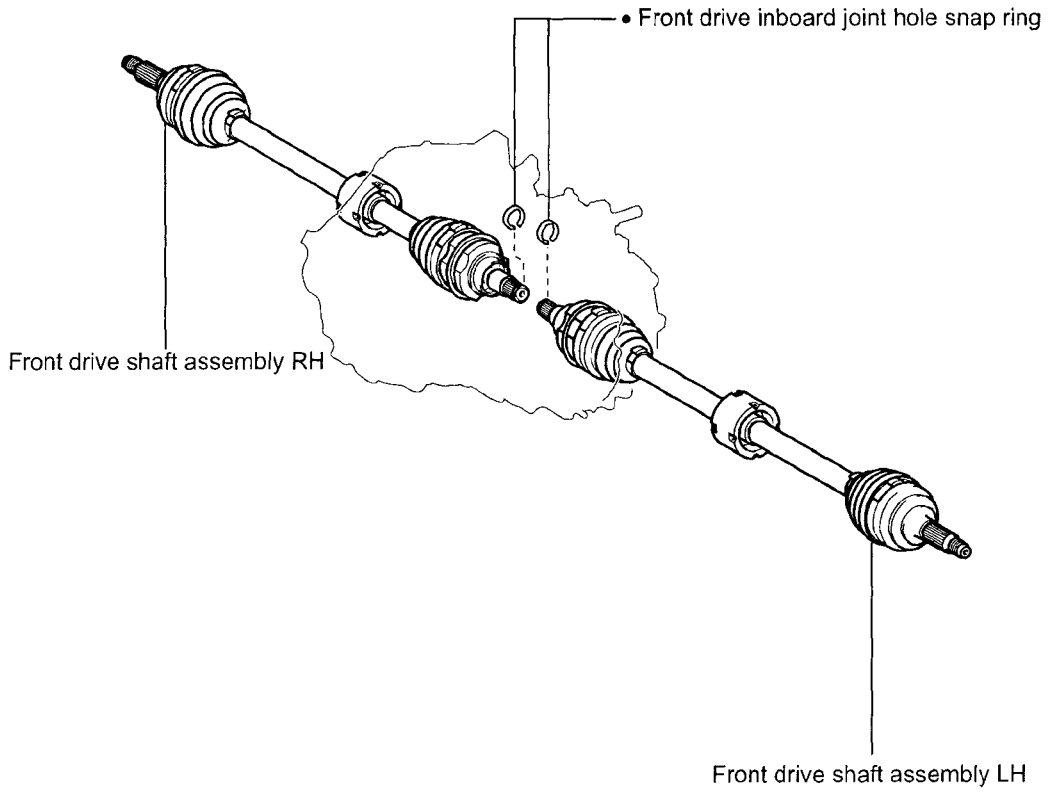

Front suspension cross member
Front stabilizer link assembly RH
120{1224}
74{755}
Engine mounting hole cover (Car with cold-region specifications)
74{755}
Engine moving control rod
120{1224}
Front stabilizer link assembly LH
Front stabilizer bar
74{755}
Front suspension cross member LH
24{245}
×2
35{357}
×2
×2
35{357}
×2
24{245}
N*m {kgf*cm}: Specified torque
A161687J01

07


Front brake flexible hose No. 1 (LH side)
21{214}
8.4{86}
Speed sensor FR LH
(with ABS & VSC)
×2
96{979}
×2
Front axle assembly LH
Tie rod end LH
Front drive shaft
assembly LH
• 42{428}
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
Front disc brake
cylinder assembly LH
• Clip
52{530}
Front suspension lower arm No. 1 LH
N*m {kgf*cm} : Specified torque
• Non-reusable part
A159485J01


21{214}
Front brake flexible hose No. 1 (RH side)
8.4{86}
Speed sensor FR RH
(with ABS & VSC)
×2
96{979}
×2
Tie rod end RH
Front axle assembly RH
• 42{428}
Front drive shaft
assembly RH
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
• Clip
52{530}
Front disc brake
cylinder assembly RH
Front suspension lower arm No. 1 RH
N*m {kgf*cm}: Specified torque
• Non-reusable part
A159486J01

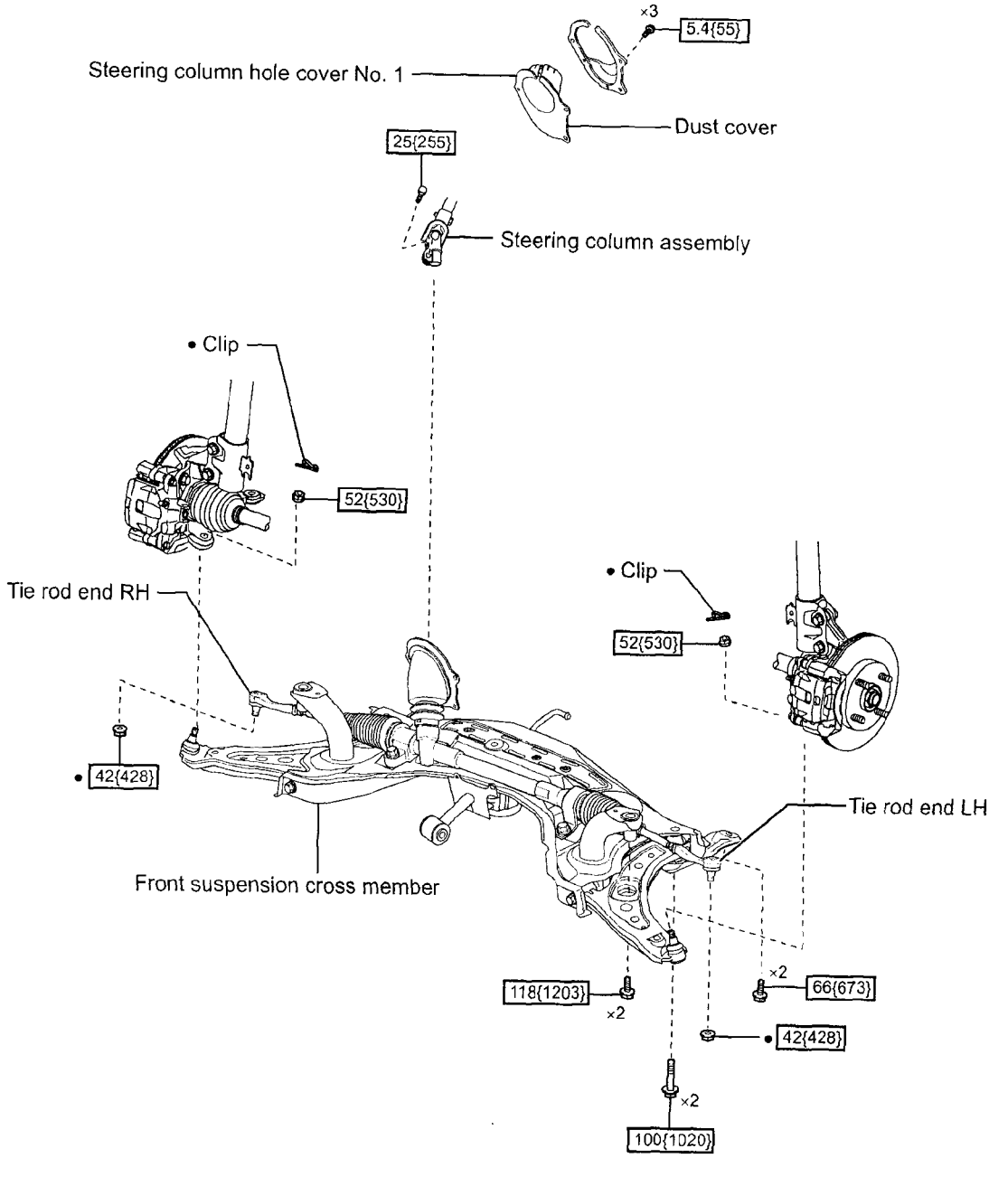
07



• Non-reusable part

A149649J01

RHD:

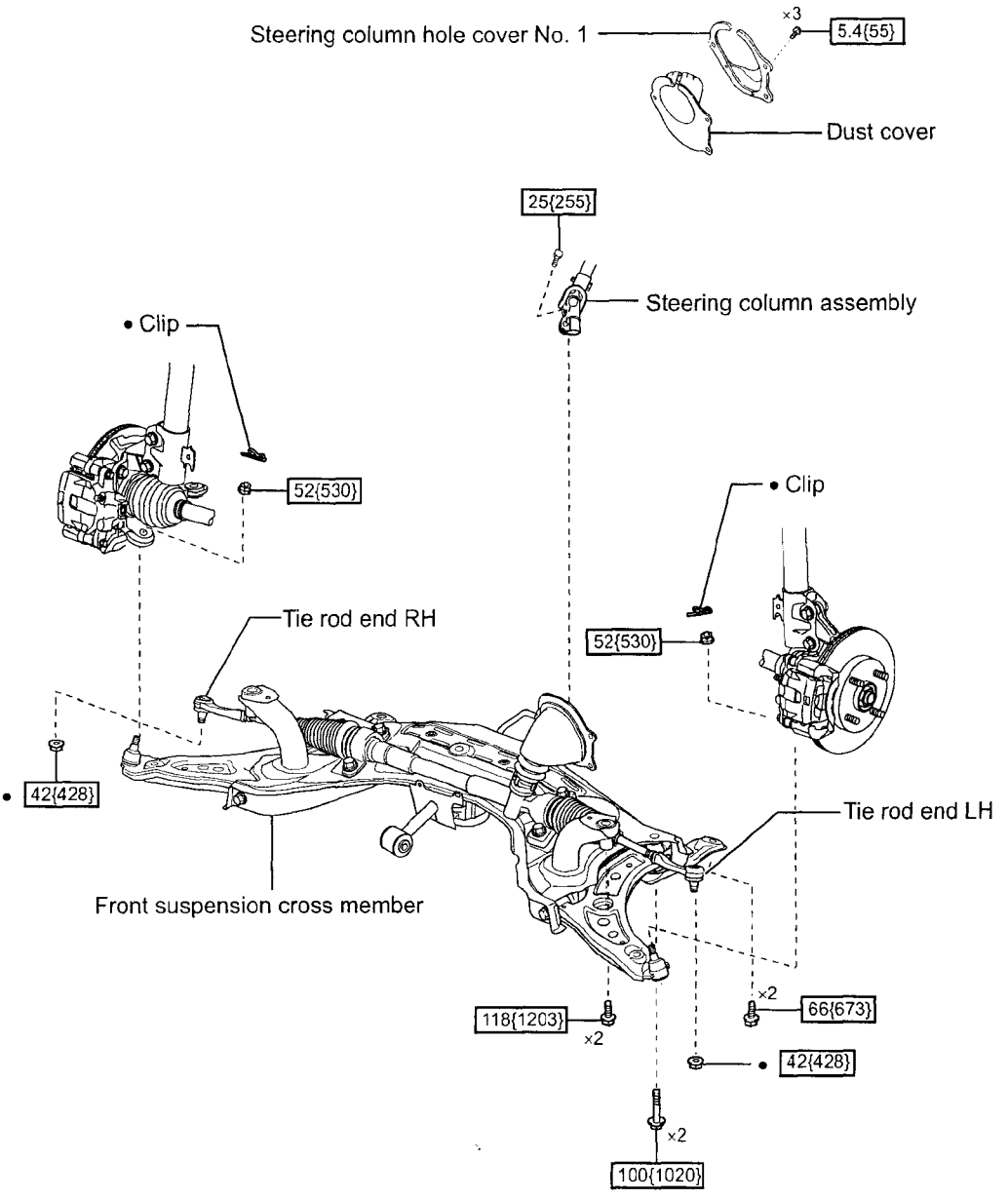


N*m {kgf*cm}: Specified torque • Non-reusable part

A159532J01

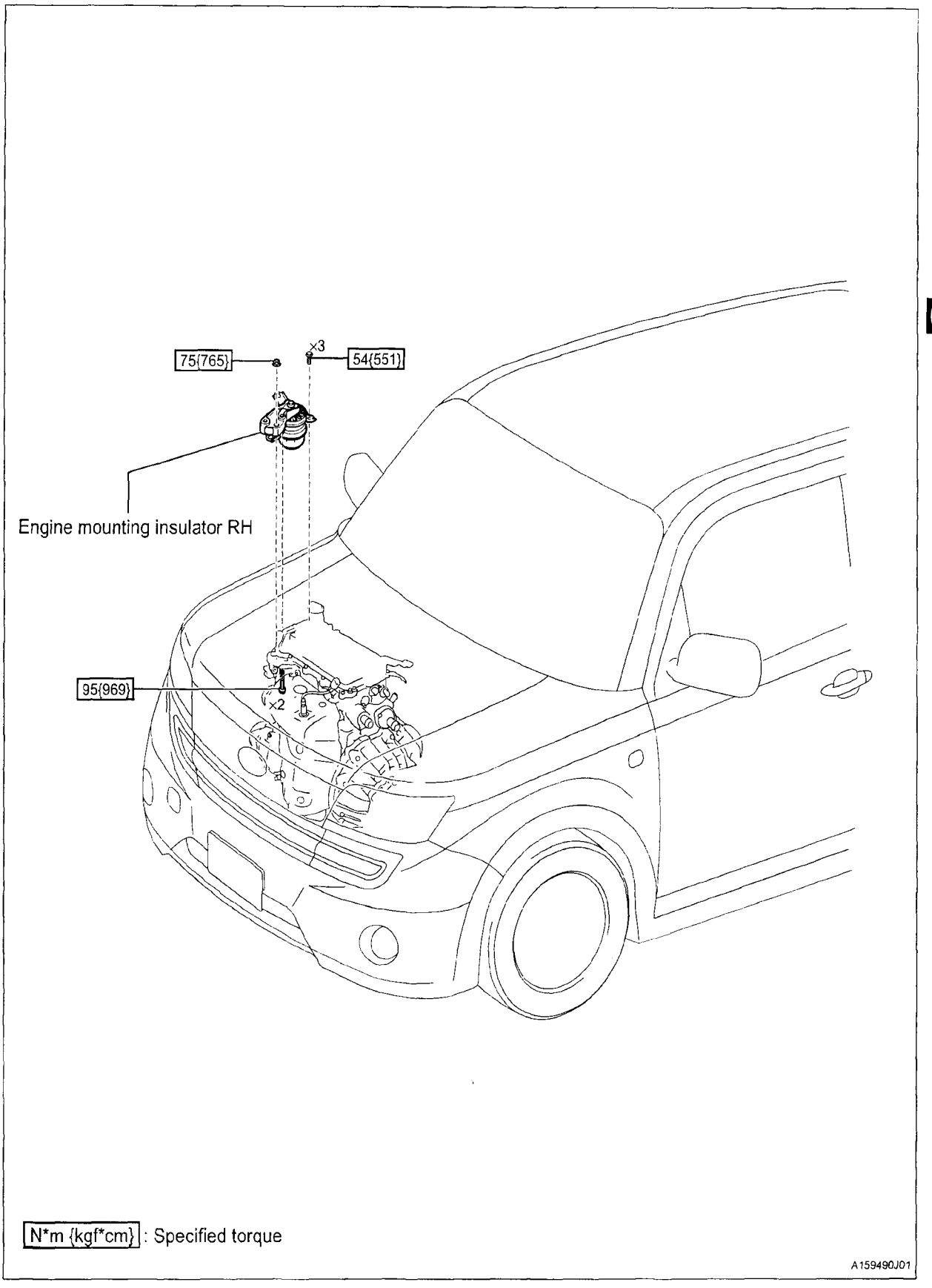
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LHD:

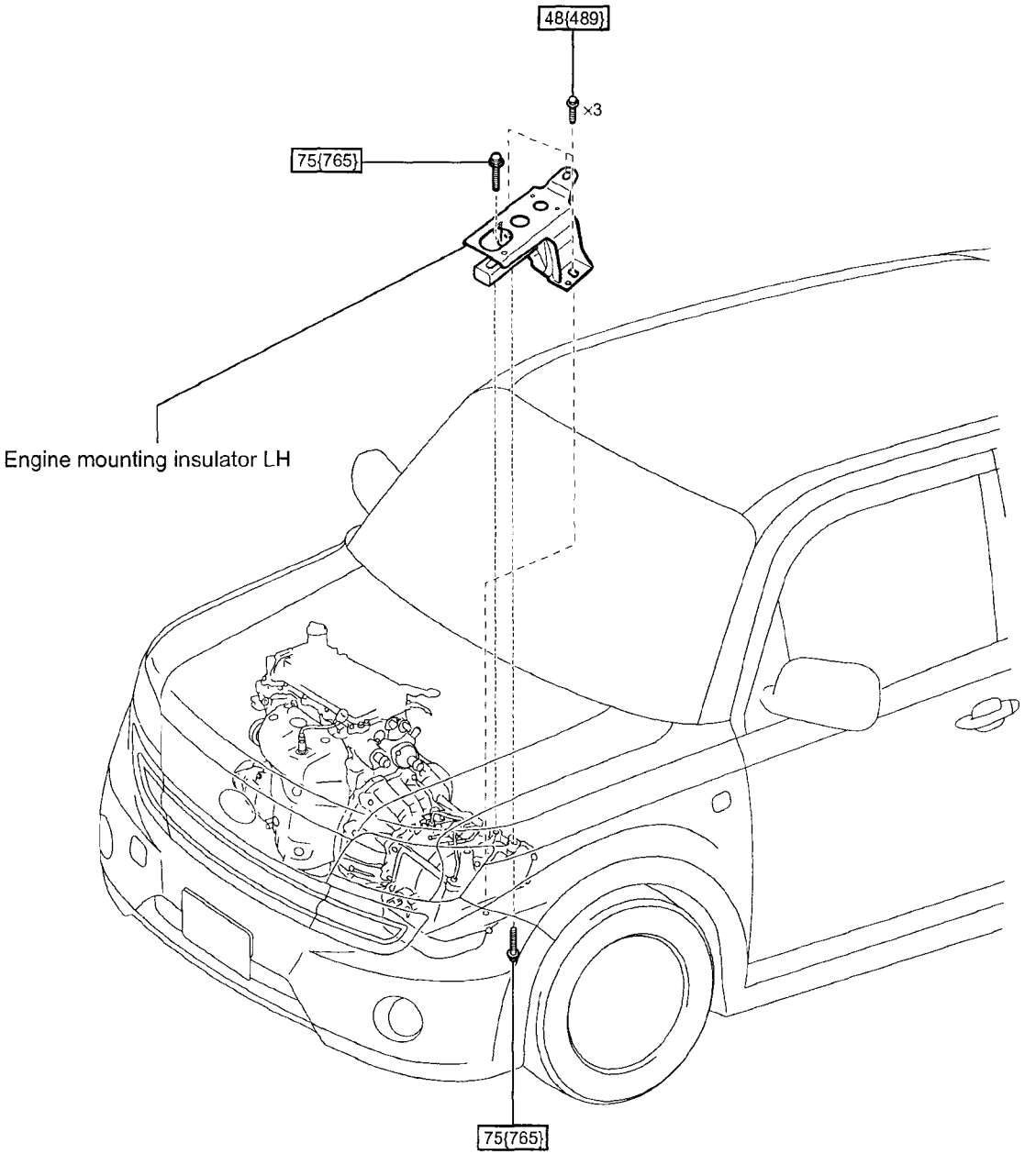


N*m {kgf*cm}: Specified torque • Non-reusable part

A161686J01


75{765}
×3
54{551}
Engine mounting insulator RH
95{969}
×2
N*m {kgf*cm} : Specified torque
A159490J01

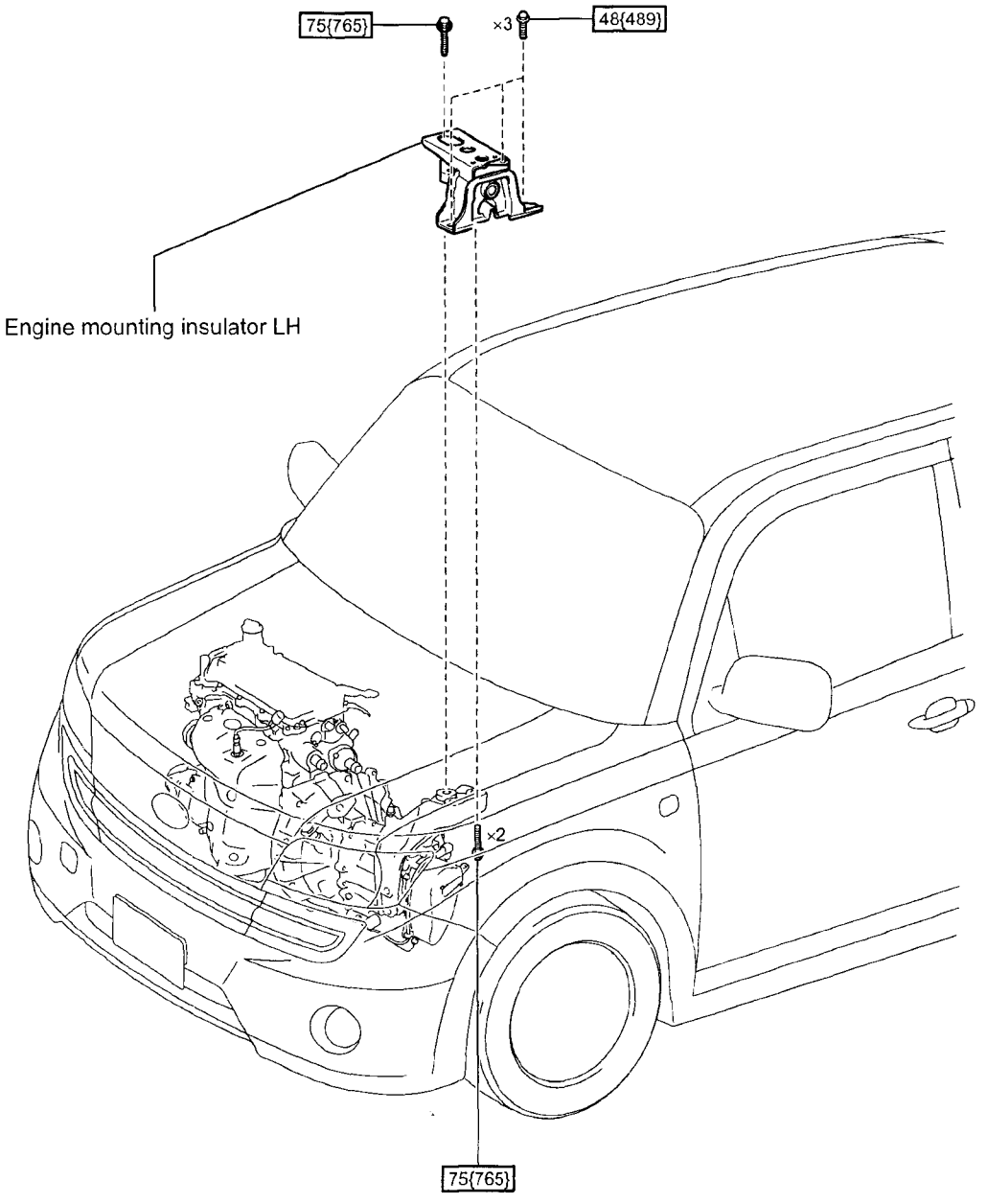
for Automatic transaxle:



N*m {kgf*cm} : Specified torque

A145465J02

for Manual transaxle:



N*m {kgf*cm}: Specified torque

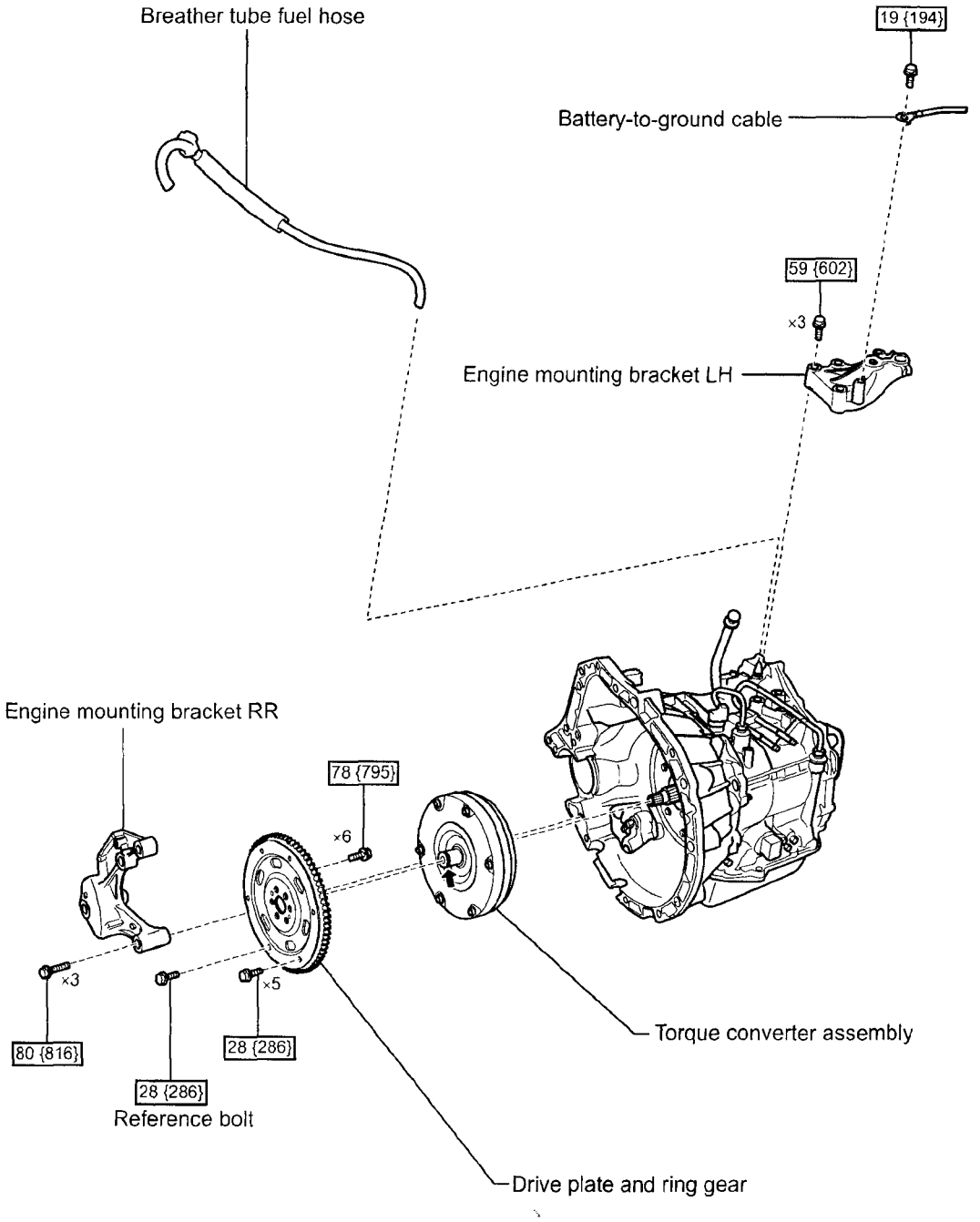
A161689J01

T

07

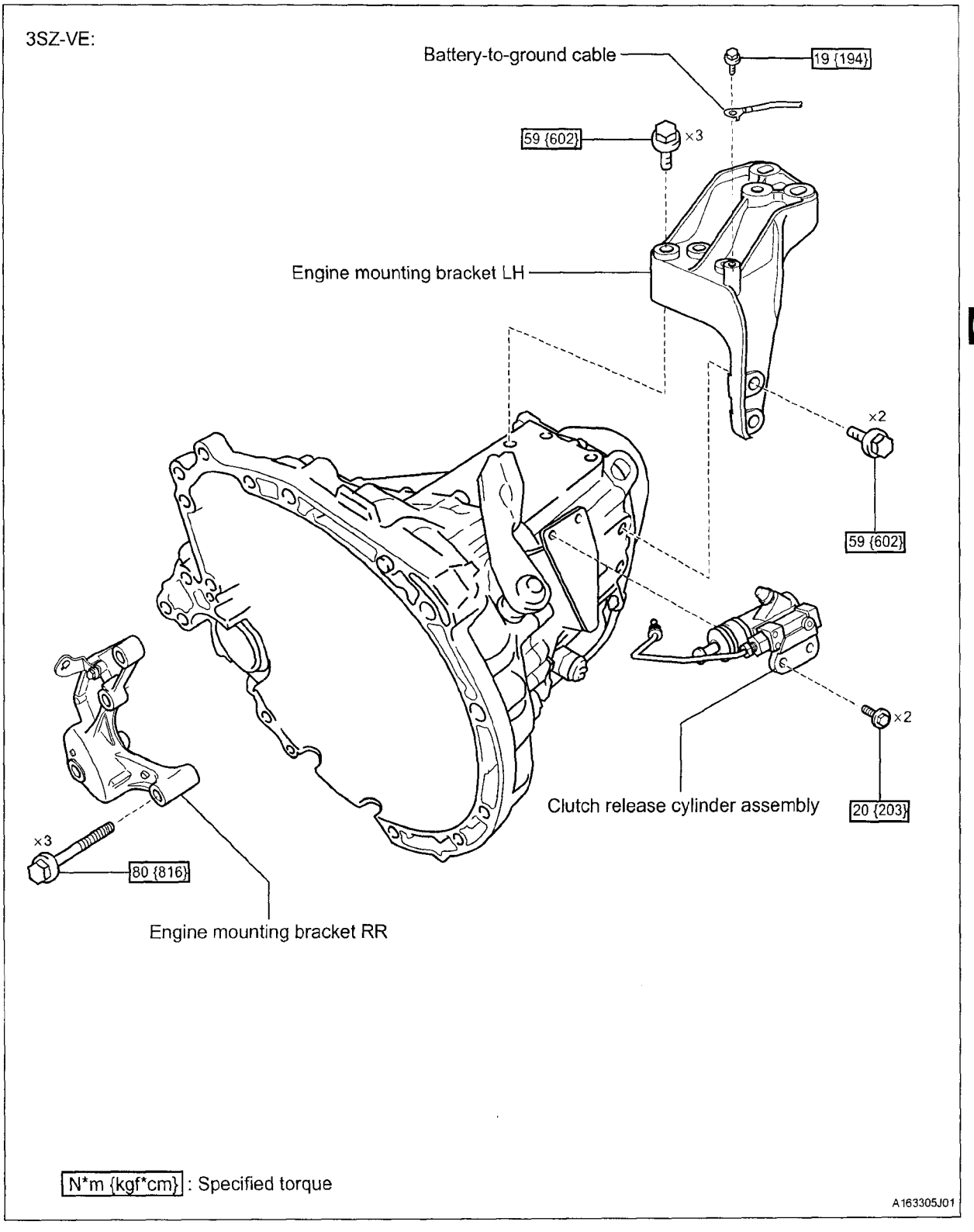
07

for Automatic transaxle:

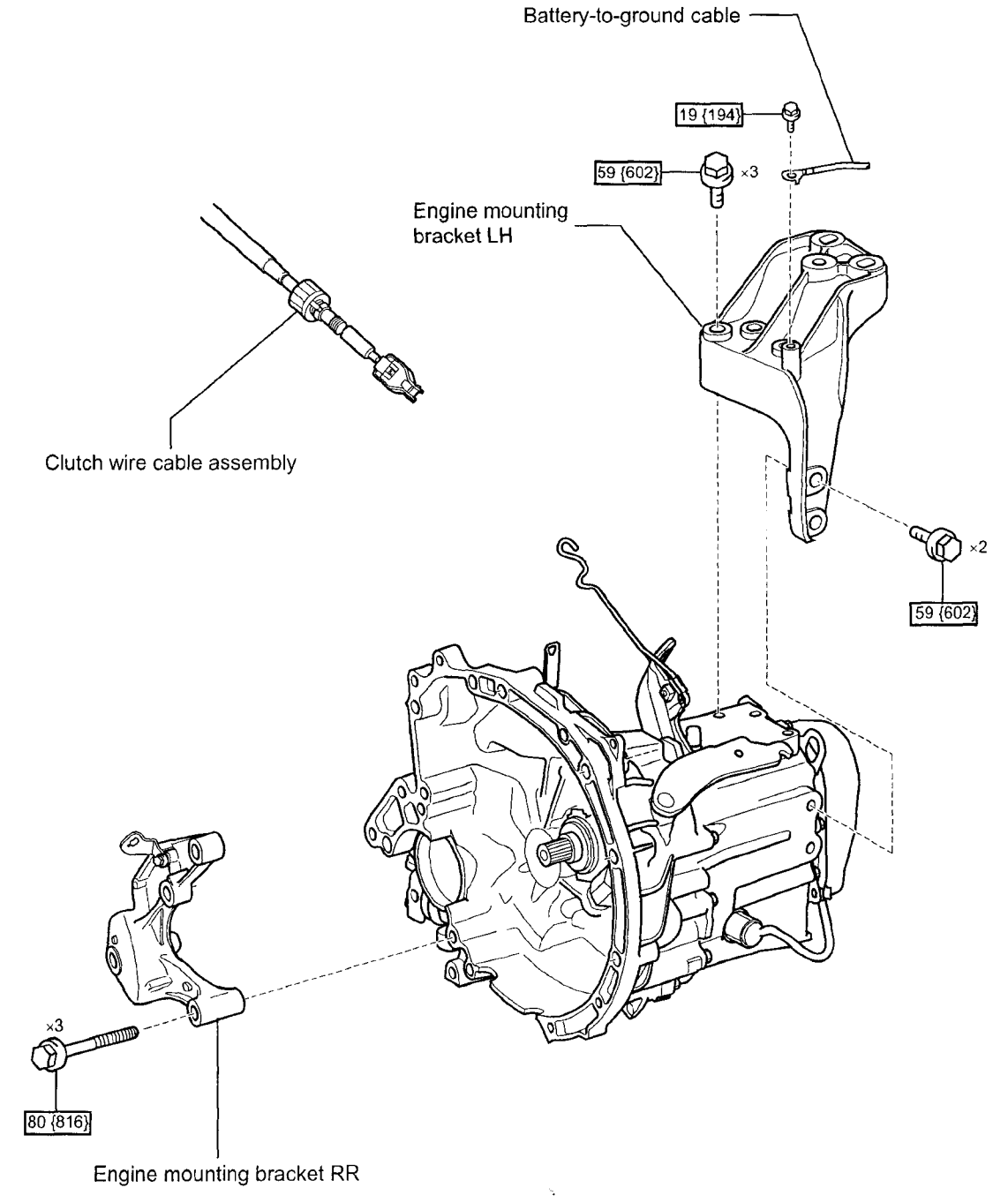


N*m {kgf*cm}: Specified torque ⬅ MP grease application

A149651J03

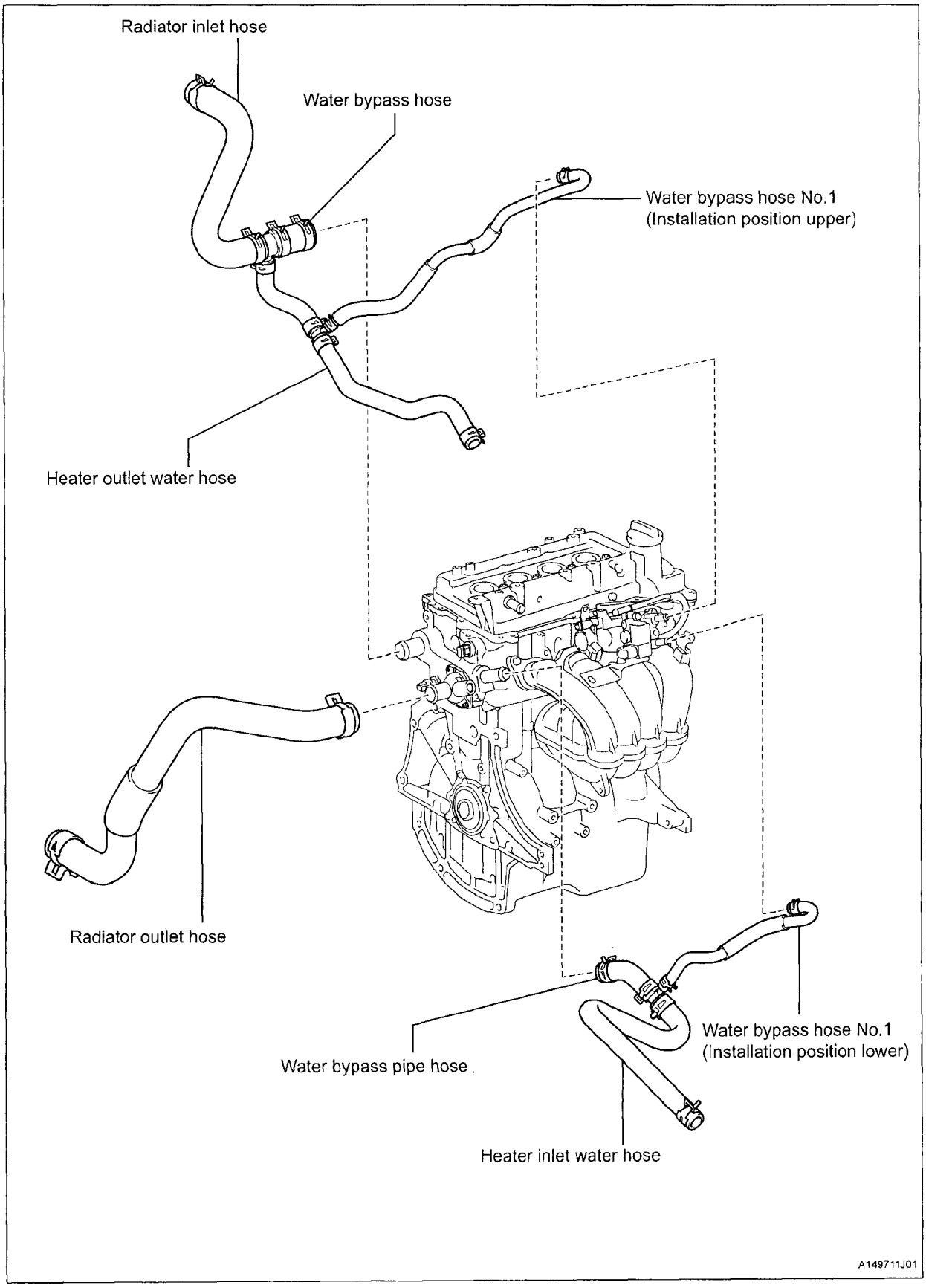

3SZ-VE:
Battery-to-ground cable
19 {194}
59 {602}
×3
Engine mounting bracket LH
×2
59 {602}
×2
20 {203}
Clutch release cylinder assembly
×3
80 {816}
Engine mounting bracket RR
N*m {kgf*cm} : Specified torque
A163305J01

K3-VE:

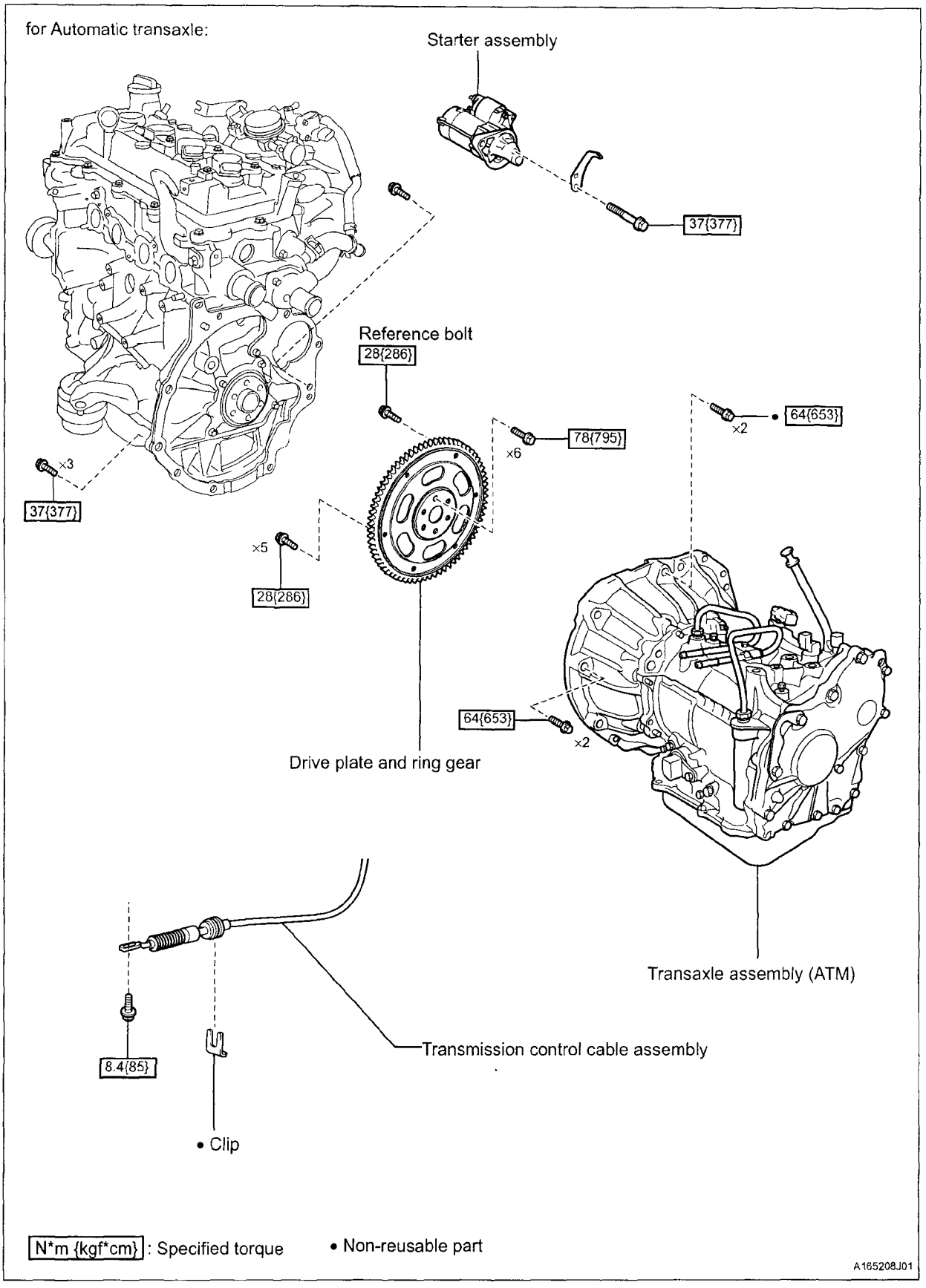


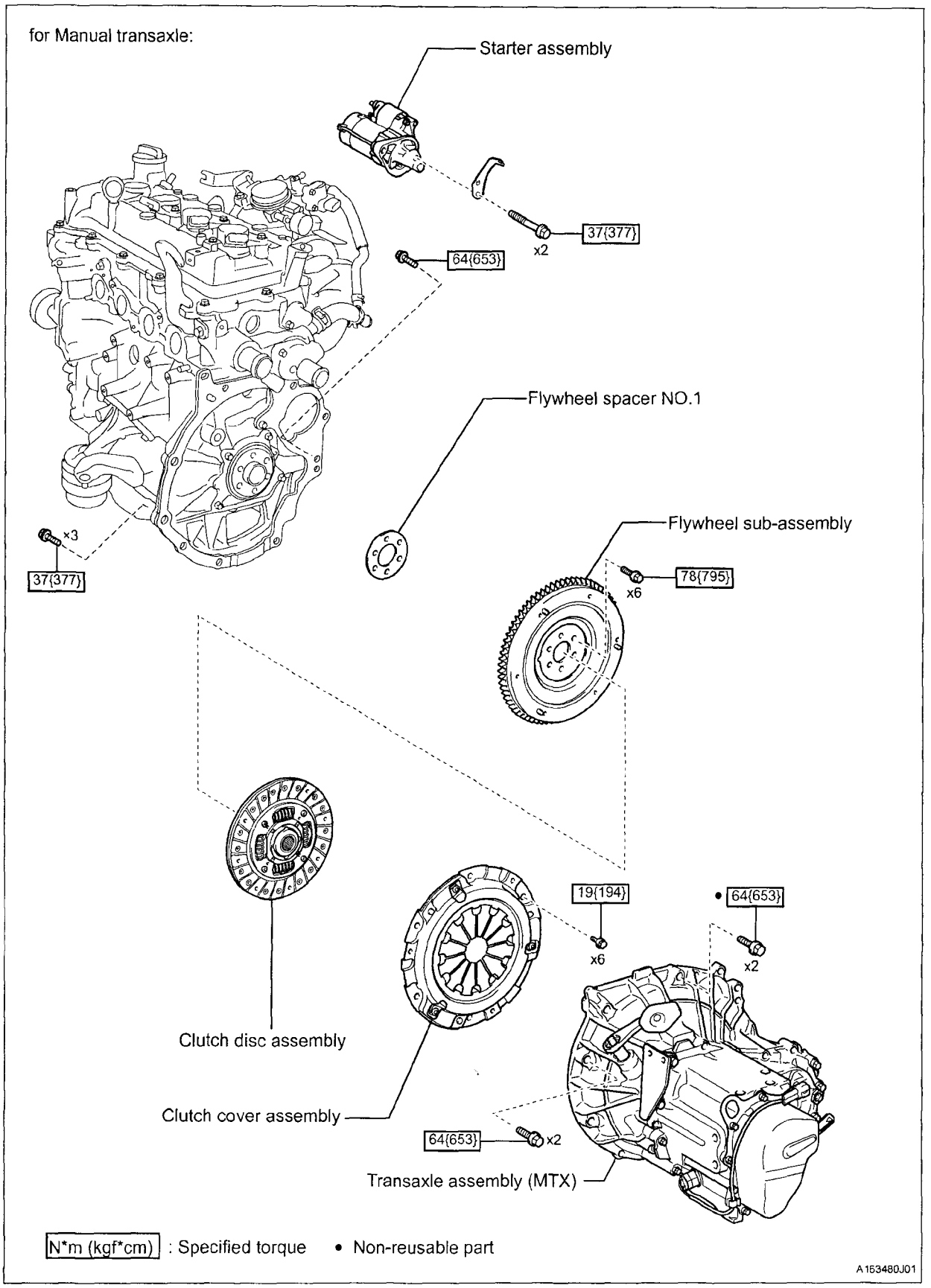
N*m{kgf*cm} : Specified torque

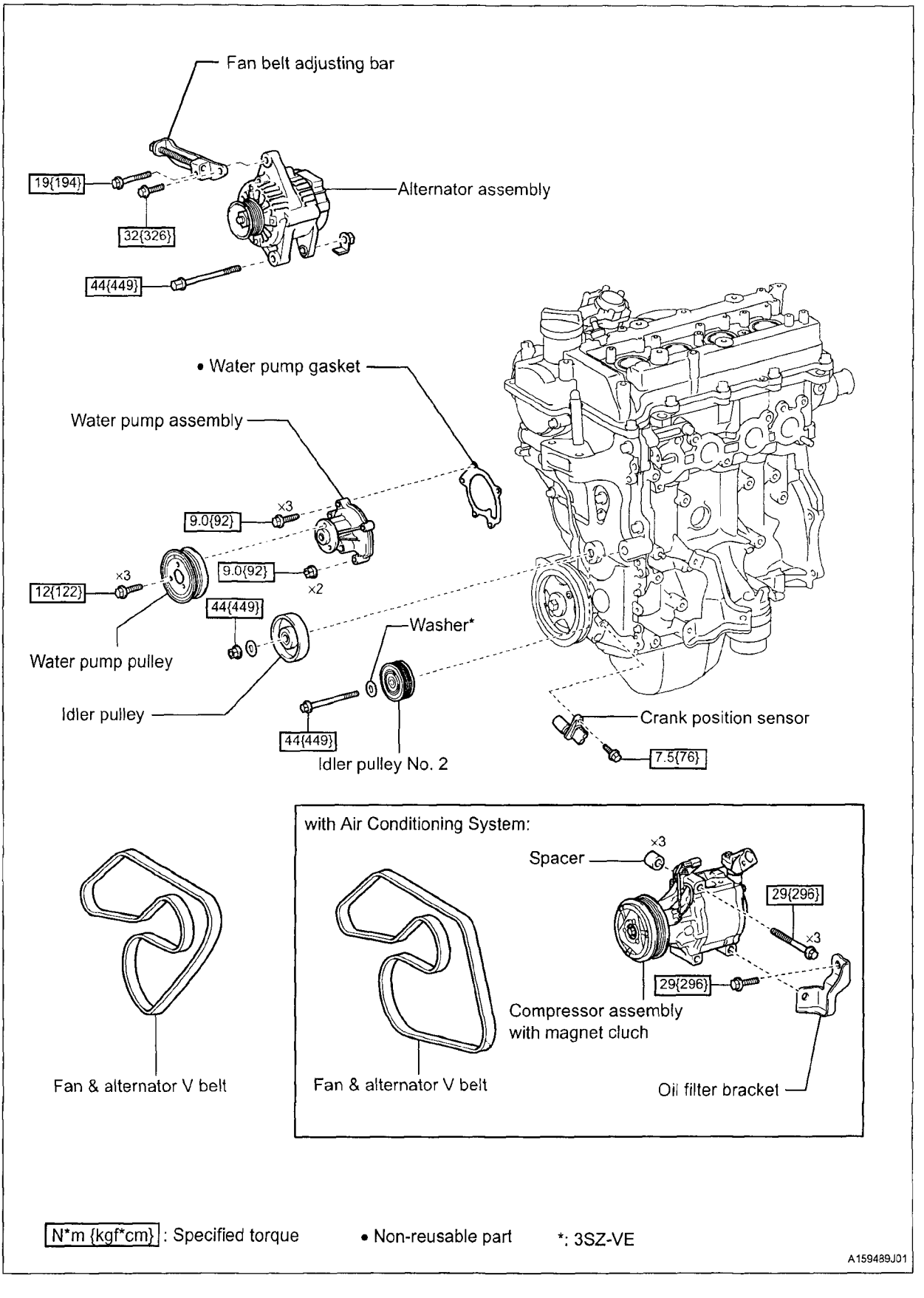
A163304J01

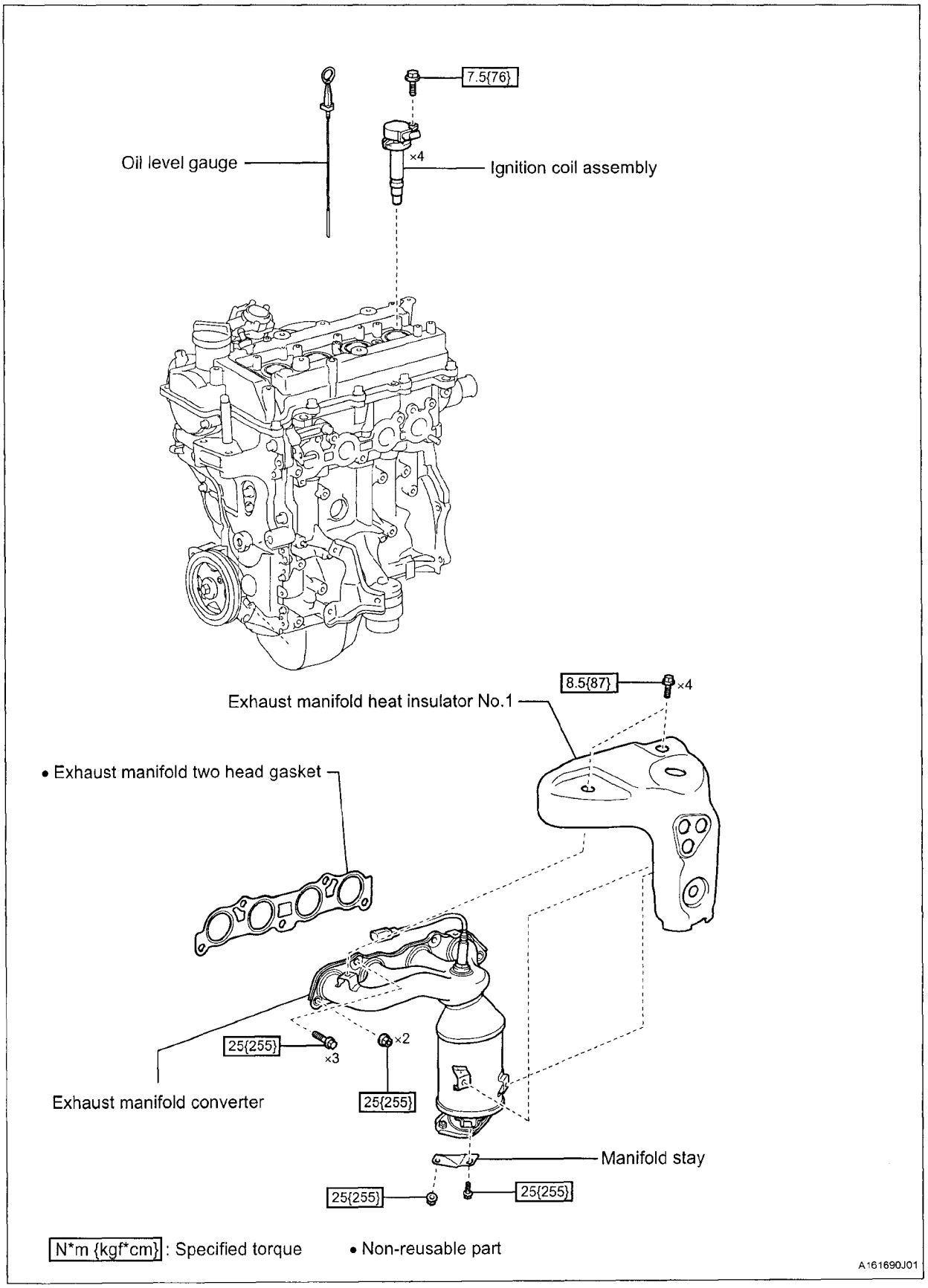

Radiator inlet hose
Water bypass hose
Water bypass hose No.1
(Installation position upper)
Heater outlet water hose
Radiator outlet hose
Water bypass pipe hose
Water bypass hose No.1
(Installation position lower)
Heater inlet water hose
A149711J01

07


for Automatic transaxle:
Starter assembly
37{377}
Reference bolt
28{286}
78{795}
×6
64{653}
×2
×3
37{377}
×5
28{286}
Drive plate and ring gear
64{653}
×2
Transaxle assembly (ATM)
8.4{85}
Transmission control cable assembly
• Clip
N*m {kgf*cm} : Specified torque
• Non-reusable part
A165208J01

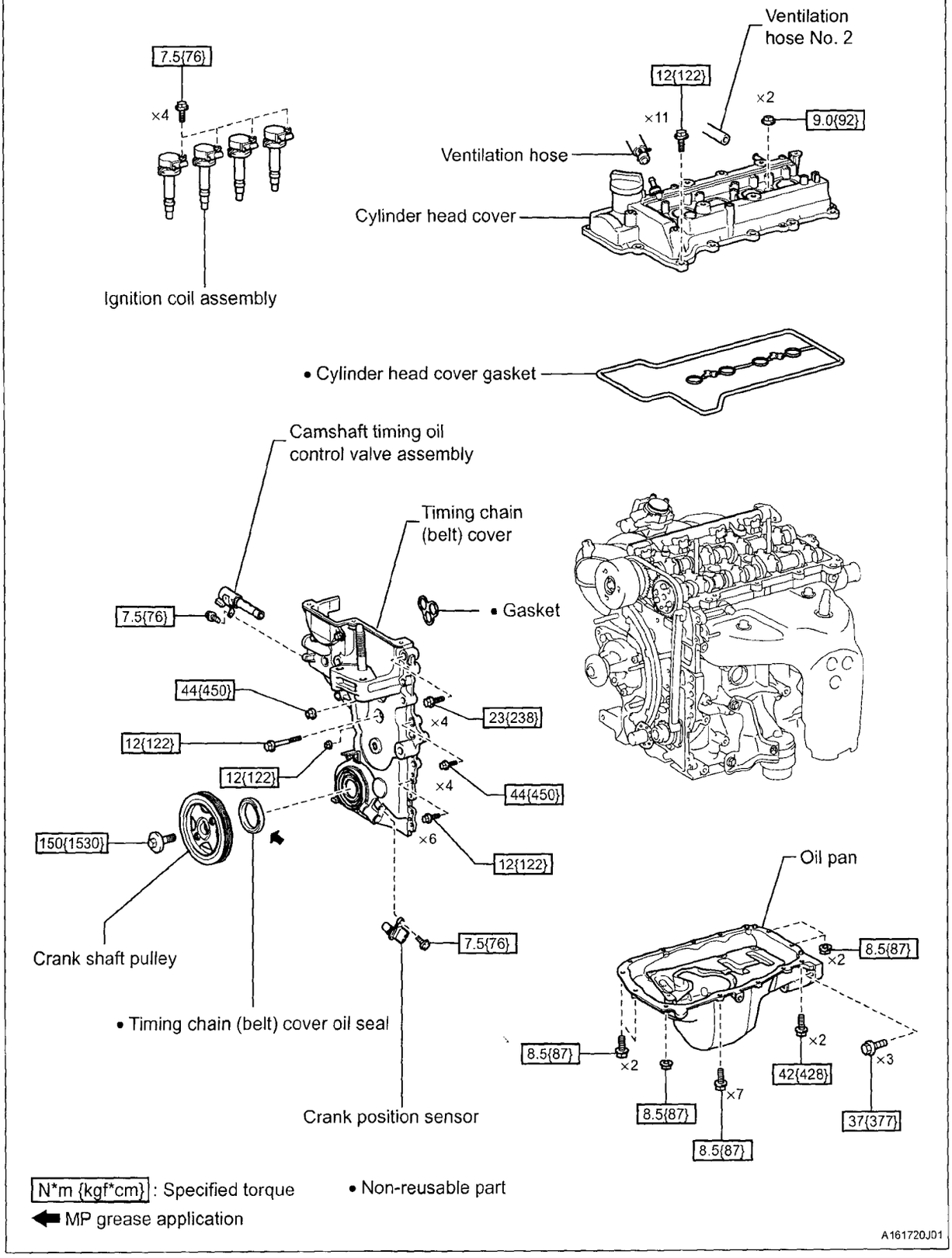

for Manual transaxle:
Starter assembly
37{377}
x2
64{653}
Flywheel spacer NO.1
x3
37{377}
Flywheel sub-assembly
78{795}
x6
19{194}
x6
• 64{653}
x2
Clutch disc assembly
Clutch cover assembly
64{653}
x2
Transaxle assembly (MTX)
N*m (kgf*cm) : Specified torque
• Non-reusable part
A153480J01


Fan belt adjusting bar
19{194}
32{326}
Alternator assembly
44{449}
• Water pump gasket
Water pump assembly
9.0{92}
×3
9.0{92}
×2
12{122}
×3
44{449}
Water pump pulley
Idler pulley
Washer*
44{449}
Idler pulley No. 2
Crank position sensor
7.5{76}
Fan & alternator V belt
with Air Conditioning System:
Spacer
×3
29{296}
×3
29{296}
Compressor assembly
with magnet cluch
Fan & alternator V belt
Oil filter bracket
N*m {kgf*cm} : Specified torque
• Non-reusable part
*: 3SZ-VE
A159489J01

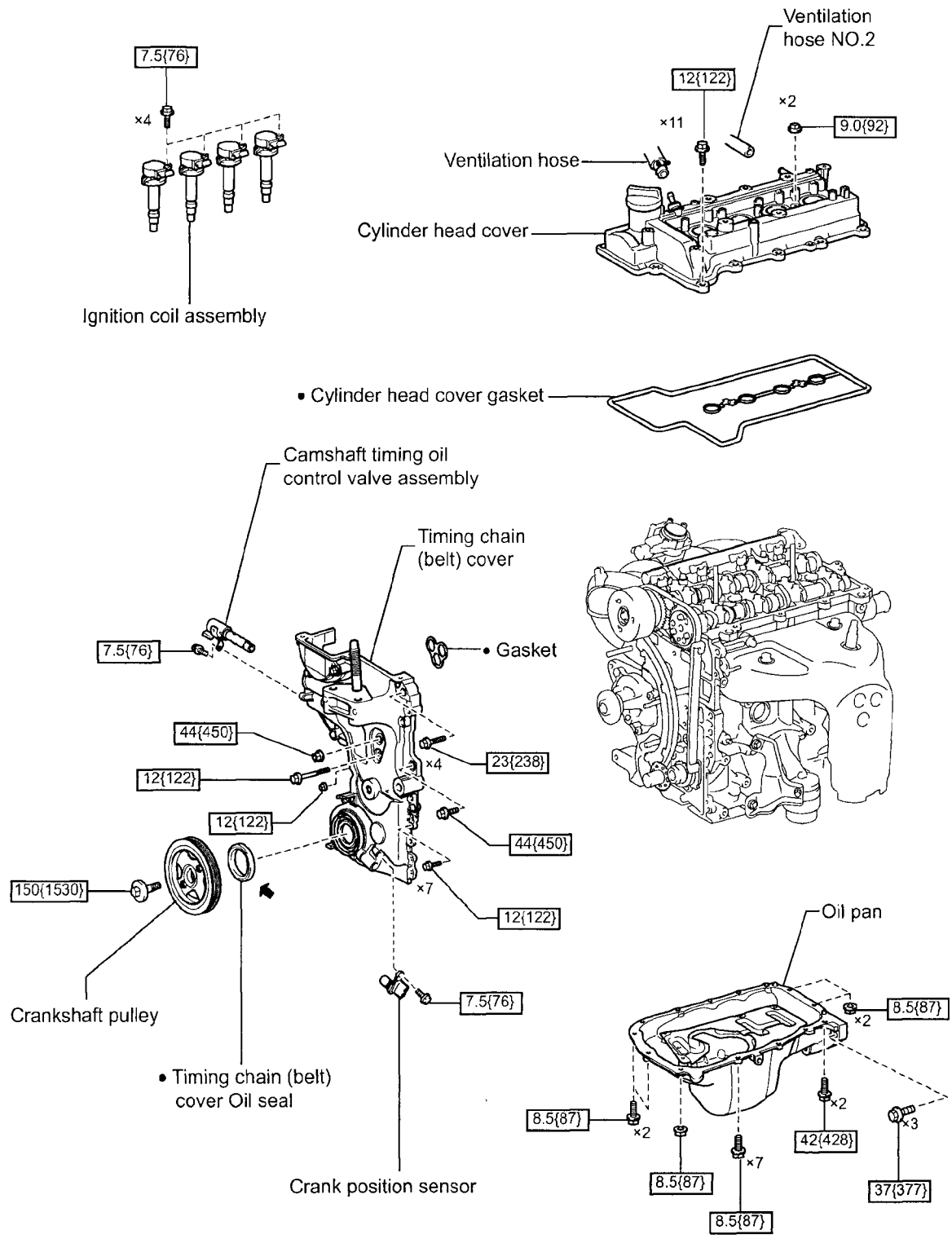

7.5{76}
Oil level gauge
×4
Ignition coil assembly
8.5{87}
×4
Exhaust manifold heat insulator No.1
• Exhaust manifold two head gasket
25{255}
×3
×2
Exhaust manifold converter
25{255}
Manifold stay
25{255}
25{255}
N*m {kgf*cm}: Specified torque
• Non-reusable part
A161690J01

07

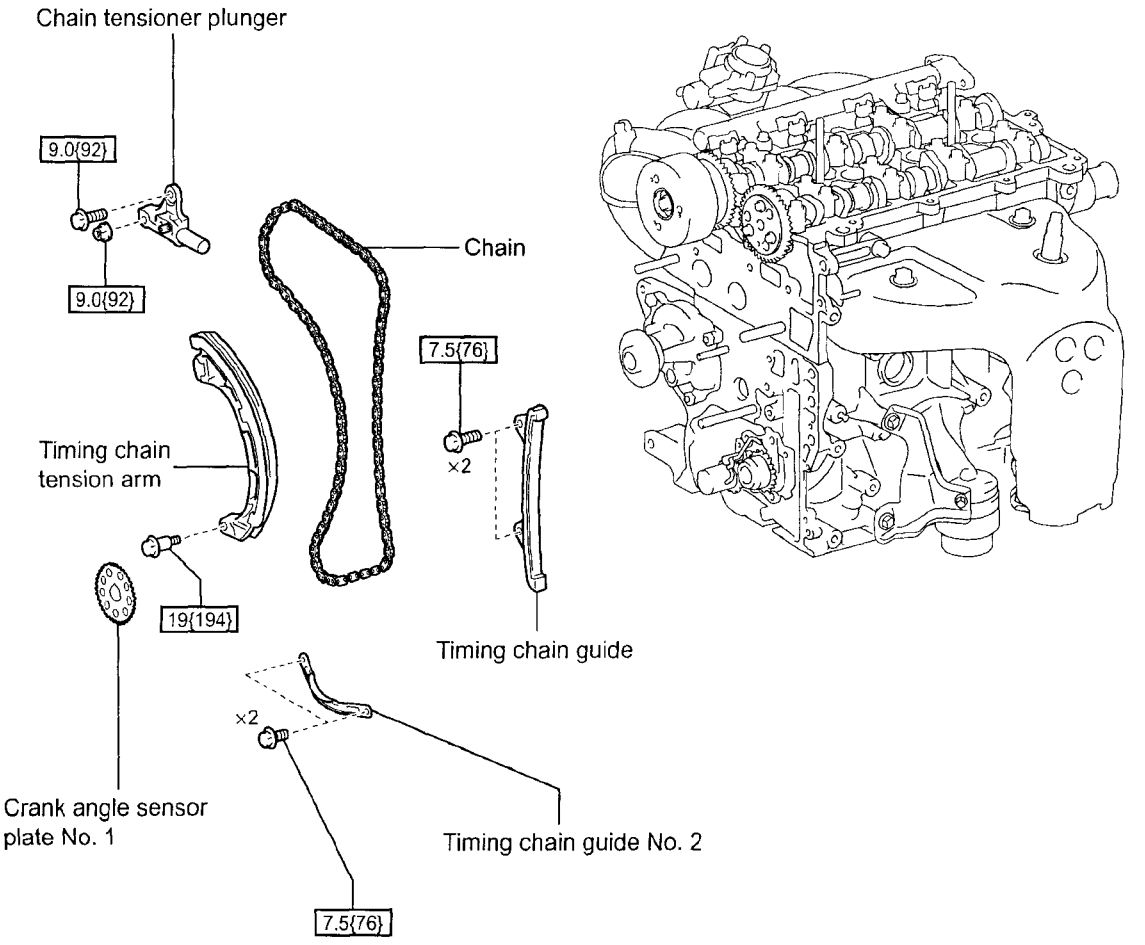
3SZ-VE:


7.5{76}
×4
Ignition coil assembly
Ventilation hose No. 2
12{122}
×11
×2
9.0{92}
Ventilation hose
Cylinder head cover
• Cylinder head cover gasket
Camshaft timing oil control valve assembly
Timing chain (belt) cover
• Gasket
7.5{76}
44{450}
12{122}
12{122}
×4
23{238}
×4
44{450}
×6
12{122}
150{1530}
Crank shaft pulley
• Timing chain (belt) cover oil seal
7.5{76}
Crank position sensor
Oil pan
8.5{87}
×2
8.5{87}
×2
×2
42{428}
×3
37{377}
8.5{87}
×7
8.5{87}
N*m {kgf*cm}: Specified torque
• Non-reusable part
MP grease application
A161720J01

K3-VE:

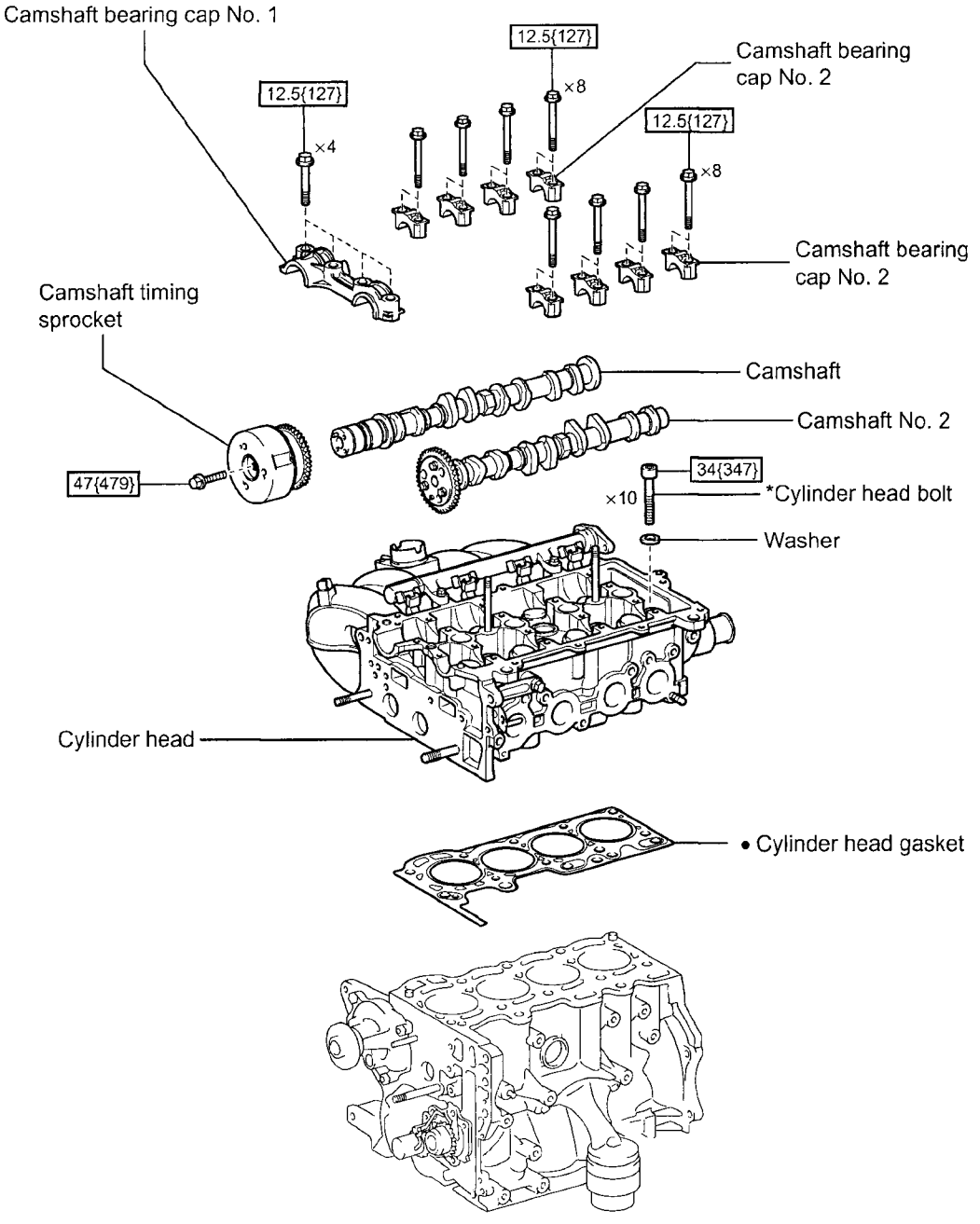

7.5{76}
×4
Ignition coil assembly
Ventilation hose NO.2
12{122}
×2
×11
9.0{92}
Ventilation hose
Cylinder head cover
• Cylinder head cover gasket
Camshaft timing oil control valve assembly
Timing chain (belt) cover
7.5{76}
• Gasket
44{450}
12{122}
×4
23{238}
12{122}
44{450}
150{1530}
×7
12{122}
Crankshaft pulley
7.5{76}
• Timing chain (belt) cover Oil seal
Crank position sensor
Oil pan
8.5{87}
×2
8.5{87}
×2
42{428}
×2
×3
8.5{87}
×7
37{377}
8.5{87}
N*m (kgf*cm) : Specified torque
• Non-reusable part
Apply MP grease
A163479J01

07



N*m {kgf*cm} : Specified torque

A161718J01



*: Plastic region clamping method

N*m {kgf*cm} : Specified torque • Non-reusable part

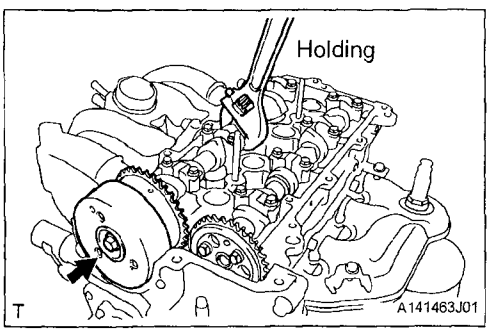
A161716J01

REMOVAL

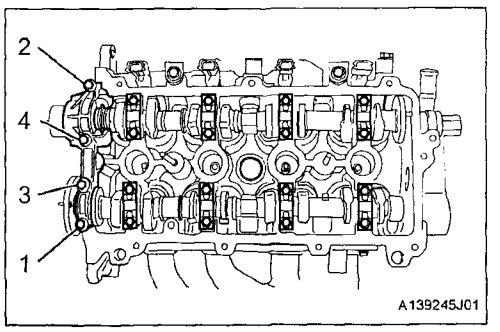
1. Fuel spill prevention work
   (See page 08-3)
2. Battery minus terminal disconnection
3. Cooling fluid withdrawal (See page 12-6)
4. Refrigerant HFC-134a (R134a) withdrawal (with Air conditioning system) (See page 52-42)
5. Front tire removal
6. Engine oil withdrawal
7. Automatic transaxle fluid withdrawal (for Automatic transaxle) (See page 26-102)
8. Manual transaxle oil withdrawal (for Manual transaxle) (See page 29-13)
9. Exhaust pipe assembly FR removal (See page 11-15)
10. Brake fluid withdrawal (for Manual transaxle)
11. Battery hold down clamp removal (See page 07-48)
12. Radiator reserve tank assembly removal (See page 07-48)
13. Battery cover removal
14. Battery removal
15. Battery tray removal (See page 07-48)
16. Air cleaner cap removal
17. Air cleaner filter element removal
18. Vacuum sensor disconnection (See page 06-140)
19. Vacuum switching valve assembly (with Bracket) disconnection (RHD) (See page 06-140)
20. Vacuum switching valve assembly (with Bracket) disconnection (LHD) (See page 06-140)
21. Inlet air temperature sensor disconnection (See page 06-140)
22. Precleaner hose removal (See page 06-141)
23. Air cleaner assembly removal (See page 06-141)
24. Radiator inlet hose disconnection (See page 12-10)
25. Water bypass hose disconnection (See page 12-10)
26. Radiator outlet hose disconnection (See page 12-10)
27. With water fan assembly removal (See page 12-11)
28. Oil cooler outlet hose removal (for Automatic transaxle) (See page 26-98)
29. Oil cooler inlet hose removal (for Automatic transaxle) (See page 26-98)
30. Heater inlet water hose disconnection (RHD) (See page 52-73)
31. Heater inlet water hose disconnection (LHD) (See page 52-164)
32. Heater outlet water hose disconnection (RHD) (See page 52-73)
33. Heater outlet water hose disconnection (LHD) (See page 52-164)
34. Front bumper cover removal (See page 82-5)
35. Fan & alternator V belt removal (See page 07-6)
36. Cooler refrigerant suction hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
37. Cooler refrigerant discharge hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
38. Compressor assembly with magnet clutch removal (with Air conditioning system) (See page 52-131)
39. Cooler refrigerant liquid pipe A disconnection (with Air conditioning system) (See page 52-136)
40. Radiator assembly removal (See page 07-49)
41. Fuel hose disconnection (See page 07-49)
42. Accelerator control cable assembly disconnection (RHD) (See page 07-50)
43. Accelerator control cable assembly disconnection (LHD) (See page 07-50)
44. Ground cable disconnection (See page 07-51)
45. Vacuum hose assembly disconnection (See page 07-51)
46. Engine room main wire disconnection (See page 07-51)

47. Engine wire disconnection (See page 07-51)
48. Clutch release cylinder assembly removal (3SZ-VE) (See page 29-14)
49. Clutch hose disconnection (3SZ-VE) (See page 29-14)
50. Clutch cable clamp removal (K3-VE) (See page 29-14)
51. Clutch release cable assembly disconnection (K3-VE) (See page 29-14)
52. Steering column hole cover No. 1 removal (RHD) (See page 48-6)
53. Steering column hole cover No. 1 removal (LHD) (See page 48-15)
54. Steering column assembly disconnection (RHD) (See page 49-55)
55. Steering column assembly disconnection (LHD) (See page 49-70)
56. Shift lever knob removal (for Manual transaxle) (See page 29-54)
57. Rear console box removal (for Manual transaxle) (See page 29-54)
58. Console box carpet removal (for Manual transaxle) (See page 29-54)
59. Console box assembly removal (for Manual transaxle) (See page 29-54)
60. Transmission floor shift assembly removal (for Manual transaxle) (See page 29-55)
61. Engine undercover LH removal (See page 07-52)
62. Engine undercover RH removal (See page 07-52)
63. Front stabilizer link assembly LH removal (See page 07-53)
64. Front stabilizer link assembly RH removal (See page 07-53)
65. Front stabilizer bar removal (See page 42-16)
66. Front suspension cross member LH removal (See page 07-53)
67. Front suspension cross member RH removal (See page 07-53)
68. Front brake flexible hose No. 1 LH disconnection (without ABS & VSC) (See page 36-7)
69. Front brake flexible hose No. 1 RH disconnection (without ABS & VSC) (See page 36-7)
70. Speed sensor FR LH disconnection (with ABS & VSC) (See page 36-7)
71. Speed sensor FR RH disconnection (with ABS & VSC) (See page 36-7)
72. Front disc brake cylinder assembly LH removal (See page 36-8)
73. Front disc brake cylinder assembly RH removal (See page 36-8)
74. Axle hub nut removal (LH) (See page 36-8)
75. Axle hub nut removal (RH) (See page 36-8)
76. Tie rod end LH disconnection (See page 36-8)
77. Tie rod end RH disconnection (See page 36-9)
78. Front shock absorber assembly LH disconnection (See page 07-53)
79. Front shock absorber assembly RH disconnection (See page 07-53)
80. Front drive shaft assembly LH removal (See page 07-54)
81. Front drive shaft assembly RH removal (See page 07-54)
82. Steering knuckle LH removal (See page 07-54)
83. Steering knuckle RH removal (See page 07-54)
84. Radiator support LWR removal (See page 07-54)
85. Transmission control cable assembly disconnection (for Automatic transaxle) (See page 07-55)
86. Engine assembly with transaxle removal (See page 07-55)
87. Front suspension cross member removal (See page 07-56)
88. Breather tube fuel hose removal (for Automatic transaxle) (See page 07-57)
89. Starter assembly removal (See page 07-57)
90. Torque converter set bolt removal (for Automatic transaxle) (See page 07-57)
91. Transaxle assembly (ATM) removal (for Automatic transaxle) (See page 07-58)
92. Transaxle assembly (MTX) removal (for Manual transaxle) (See page 07-59)
93. Throttle body bracket No. 2 removal (See page 07-61)
94. Accelerator control cable bracket removal (LHD) (See page 07-61)

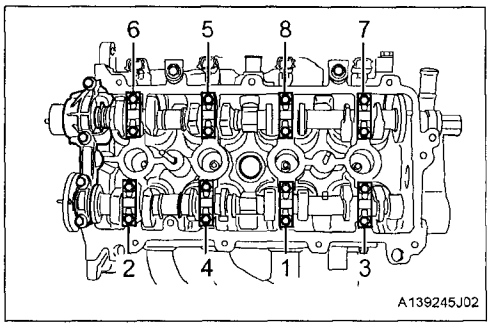
95. Air cleaner support bracket No. 2 removal (See page 07-61)
96. Ventilation hose No. 2 removal (See page 06-141)
97. Engine wire removal (See page 07-62)
98. Ventilation hose removal (See page 07-66)
99. Noise filter removal (See page 07-66)
100. Ignition coil assembly removal (See page 07-67)
101. Oil level gage removal (See page 07-68)
102. Cylinder head cover removal (See page 07-232)
103. Crankshaft pulley removal (See page 07-178)
104. Water pump pulley removal (See page 07-179)
105. Idler pulley No. 2 removal (See page 07-179)
106. Idler pulley removal (See page 07-179)
107. Camshaft timing oil control valve assembly removal (See page 07-179)
108. Crank position sensor removal (See page 07-180)
109. Oil pan removal (See page 07-180)
110. Timing chain (belt) cover removal (See page 07-180)
111. Timing chain (belt) cover oil seal removal (See page 07-181)
112. Crank angle sensor plate No. 1 removal (See page 07-181)
113. Chain tensioner plunger removal (See page 07-182)
114. Timing chain tension arm removal (See page 07-182)
115. Timing chain guide removal (See page 07-183)
116. Timing chain guide No. 2 removal (See page 07-183)
117. Chain removal



118. Camshaft timing sprocket removal
    (1) Remove the camshaft timing sprocket installation bolt by using the service hexagonal part of the camshaft.

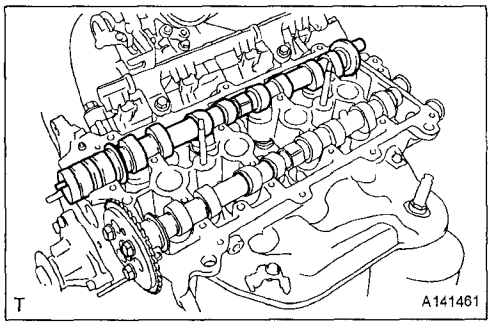


119. Camshaft bearing cap No. 1 removal
    (1) Remove the camshaft bearing cap No. 1 in the order shown in the diagram.



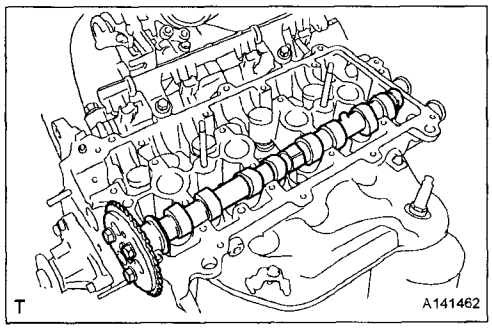
120.Camshaft bearing cap No. 2 removal

(1) Remove the camshaft bearing caps No. 2 in the order shown in the diagram.
<CAUTION>
Holding the camshaft in a horizontal position, loosen the bolts evenly.



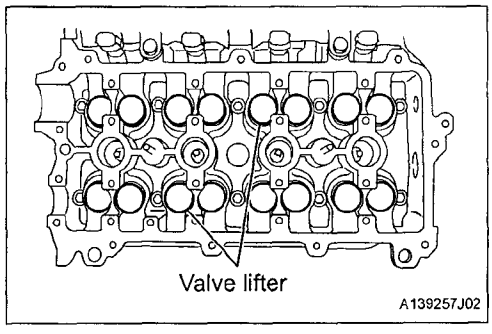
121.Camshaft removal

(1) Remove the camshaft.



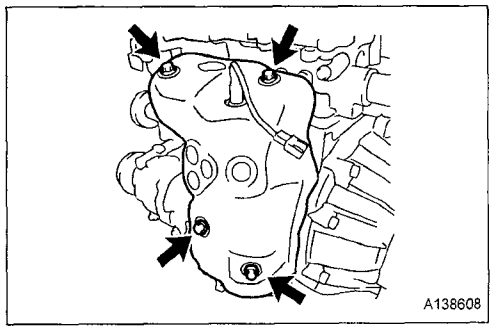
122.Camshaft No. 2 removal

(1) Remove the camshaft No. 2.



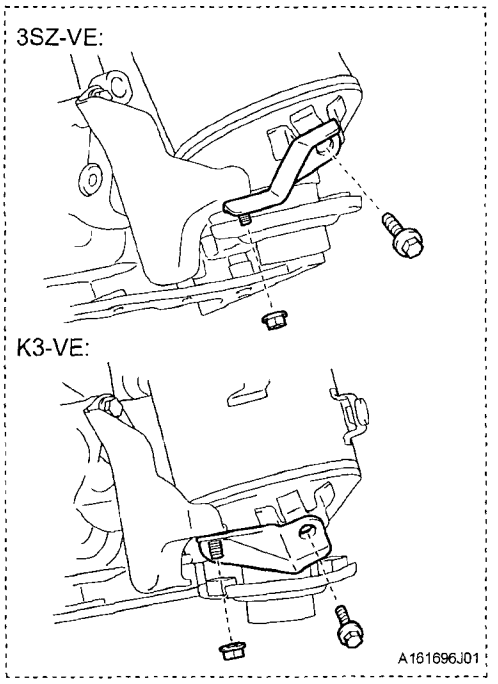
123.Valve lifter removal

(1) Remove sixteen valve lifters.
<CAUTION>
Organize the removed valve lifters by installation position.



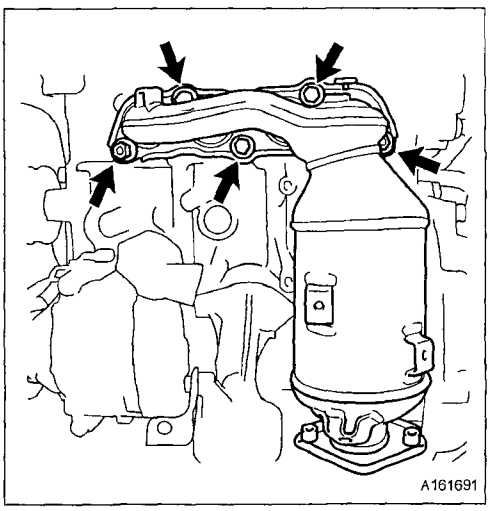
124.Exhaust manifold heat insulator No. 1 removal

(1) Remove four bolts and then the exhaust manifold heat insulator No. 1.



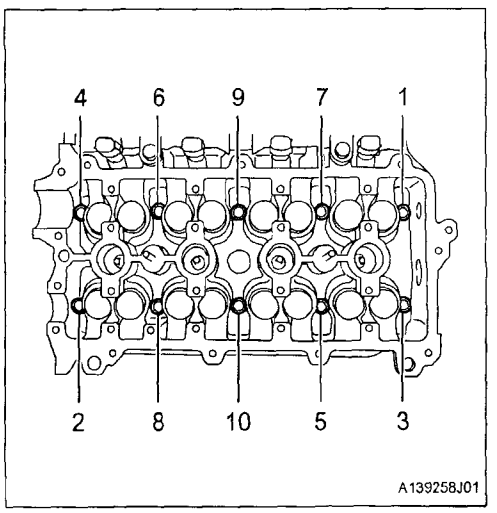
125.Manifold stay removal

(1) Remove the bolt, the nut, and the manifold stay.



126.Exhaust manifold converter removal

(1) Remove three bolts, two nuts, and the exhaust manifold converter.



127.Cylinder head removal

(1) Use a double hexagon wrench 8 to loosen the cylinder head bolts in small steps in the order shown in the diagram and then remove the cylinder head bolts and washers.

SST: 09043-97401

<CAUTION>

> When pulling out the cylinder head bolts, be sure not to drop the washers in the cylinder head.

> Deviation from the specified order may damage the cylinder head.

(2) Remove the cylinder head.

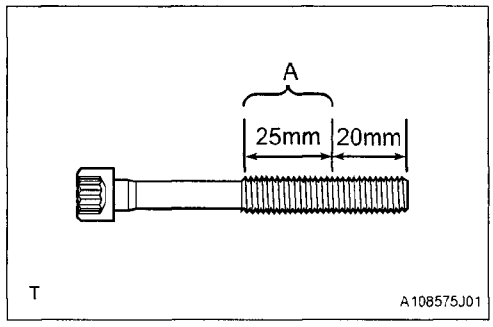
128.Cylinder head gasket removal

(1) Remove the cylinder head gasket.

<HINT>

> Clean and check the bolt hole on the cylinder block side.

> Any damage should be repaired with a tap.



129.Cylinder head bolt check

(1) Measure the outside diameter of the part within range A in the diagram using a vernier caliper.

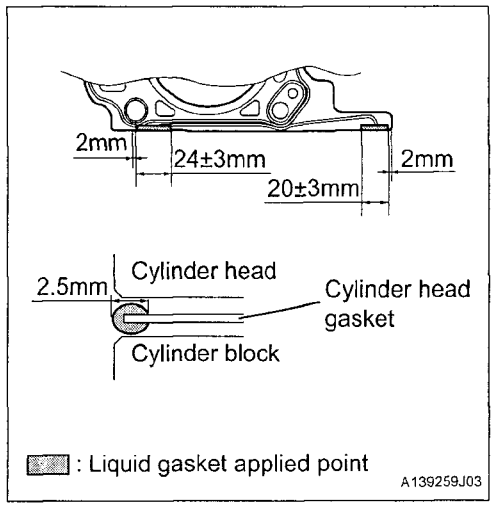
Limits: 8.75 mm

<HINT>

The outside diameter should be measured in more than one location. If the minimum value is at or above the limits, be sure to replace the cylinder head bolt with a new one. Otherwise the bolt may damage the engine.

07

INSTALLATION



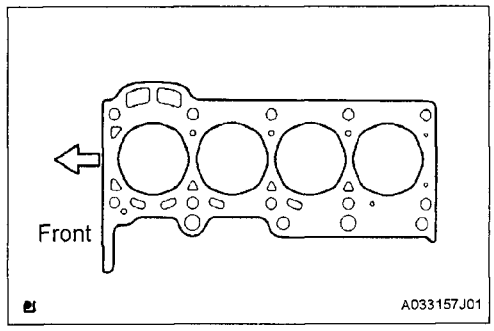
1. Cylinder head gasket installation

(1) Apply Three Bond 1280E in the location shown in the diagram.

<CAUTION>

> Clean and degrease the mating surface.

> After applying Three Bond 1280E, attach the cylinder head gasket within three minutes and tighten the cylinder head bolt within fifteen minutes.



(2) Attach a new cylinder head gasket in the direction shown in the diagram.

<CAUTION>

Check installation direction.

2. Cylinder head installation

<CAUTION>

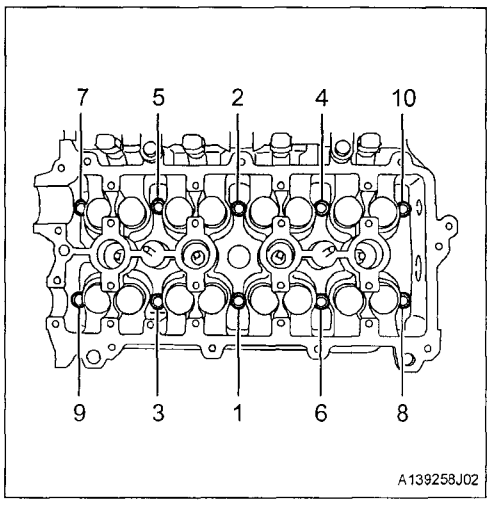
Tighten the cylinder head bolt by the plastic region clamping method.

(1) Attach the cylinder head.

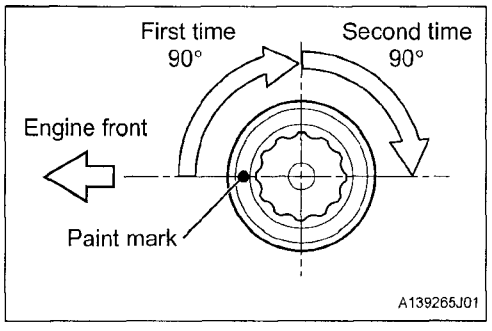
<CAUTION>

Avoid damaging the cylinder head gasket during installation.

(2) Coat the threaded part and bearing surface of the cylinder head bolt with a small amount of engine oil.

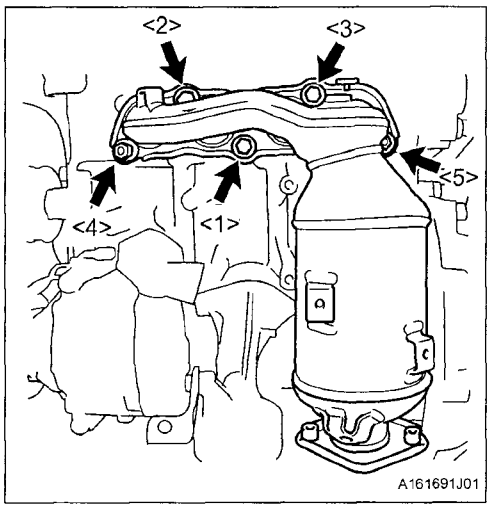


(3) Use a double hexagon wrench 8 to temporarily tighten the cylinder head bolts and washers in small steps in the order shown in the diagram and then tighten them with the specified torque.
SST: 09043-97401
Specified value: T=34N*m {347kgf*cm}

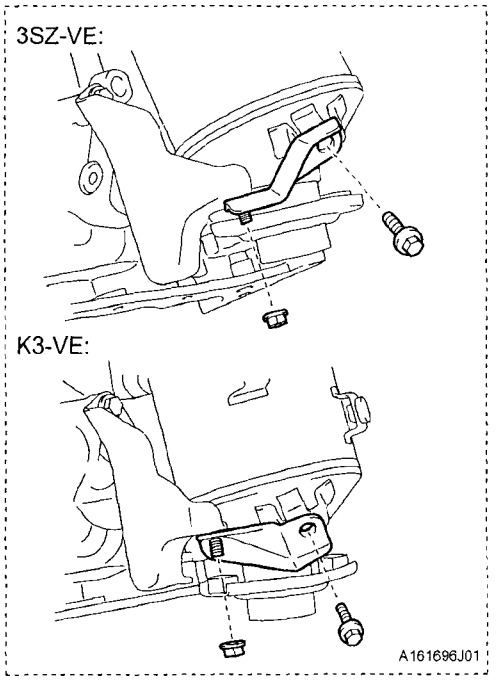


(4) Put a paint mark on the engine front side of the head of each cylinder head bolt.

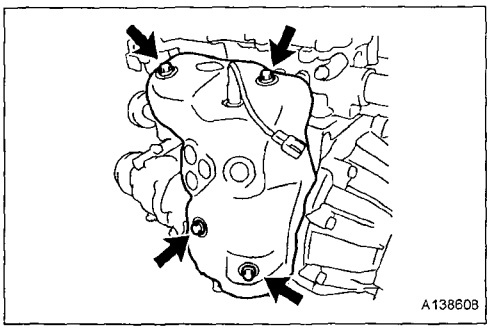
(5) Using the paint mark as a guide, tighten each cylinder head bolt in two steps, 90° at a time, in the order shown in the diagram.
(6) Make sure that positions of all the paint marks show that the bolts have been tightened 180°.
(7) When attaching the cylinder head, wipe off protruded liquid gasket.
<CAUTION>
When wiping off the liquid gasket, prevent it from getting inside the holes of the bolts and knock pins.



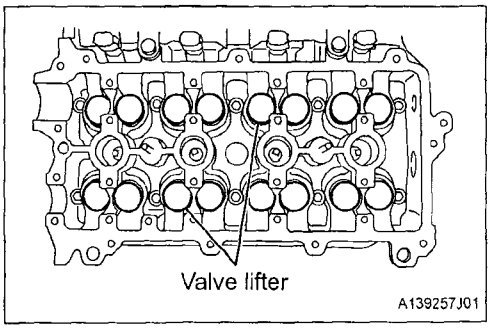
3. Exhaust manifold converter installation
(1) Use three bolts and two nuts to attach the exhaust manifold converter in the order shown in the diagram.
(2) Use three bolts and two nuts to attach the exhaust manifold converter in the order shown in the diagram.
Specified value: T=25N*m {255kgf*cm} (Bolt)
T=25N*m {255kgf*cm} (Nut)



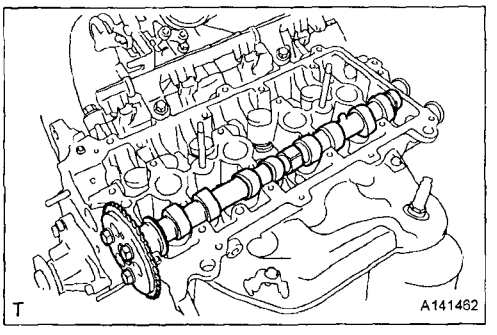
4. Manifold stay installation
   (1) Use a bolt and nut to attach the manifold stay.
   Specified value:T=25N*m {255kgf*cm} (Bolt)
   T=25N*m {255kgf*cm} (Nut)



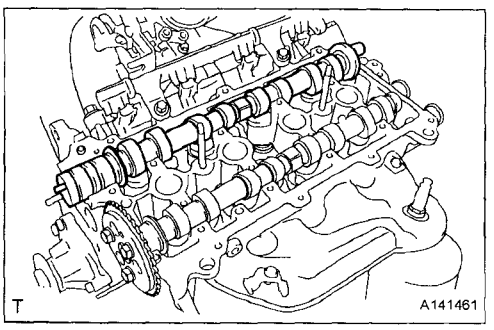
5. Exhaust manifold heat insulator No. 1 installation
   (1) Use four bolts to attach the exhaust manifold heat insulator No. 1.
   Specified value:T=8.5N*m {87kgf*cm}



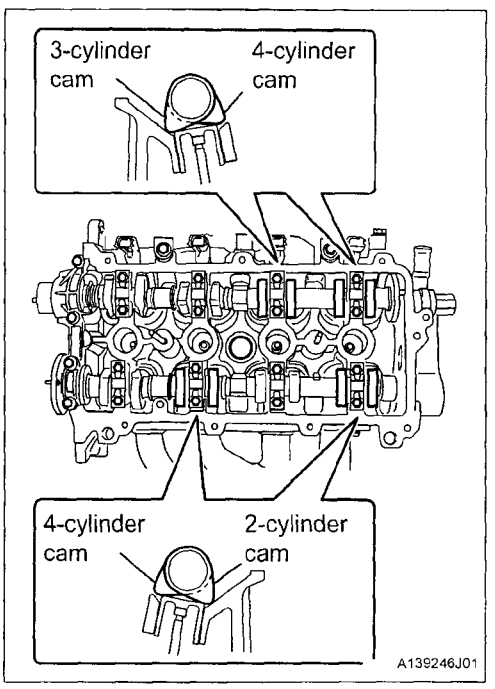
6. Valve lifter installation
   (1) Coat the end portion of the valve stem with engine oil.
   (2) Attach sixteen valve lifters.
   <CAUTION>
   Attach them back to the original positions.



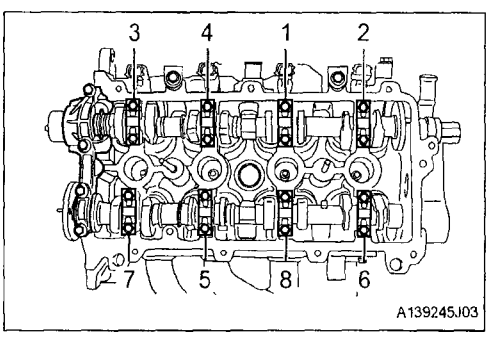
7. Camshaft No. 2 installation
   (1) Coat the cam of the camshaft No. 2 and the journals of the cylinder head with engine oil and attach the camshaft No. 2.



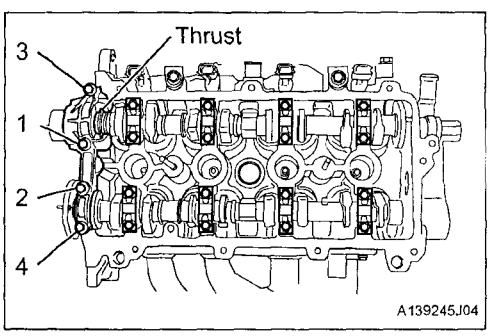
8. Camshaft installation
   (1) Coat the cam of the camshaft and the journals of the cylinder head with engine oil and attach the camshaft.



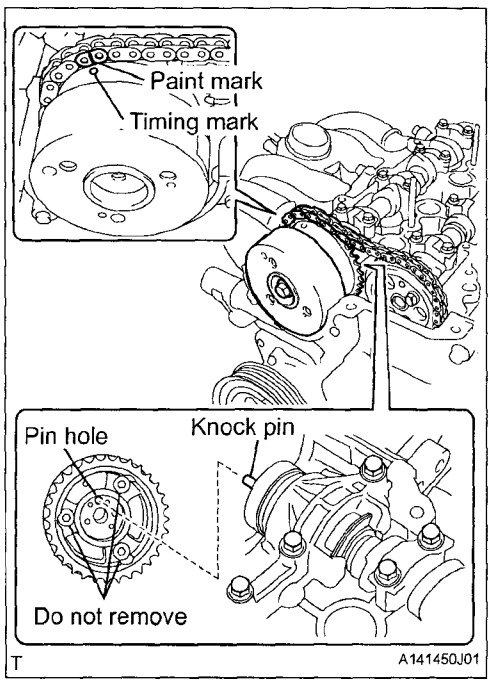
9. Camshaft bearing cap No. 2 installation
   (1) Adjust the positions of the camshaft and the camshaft No. 2 as shown in the diagram.



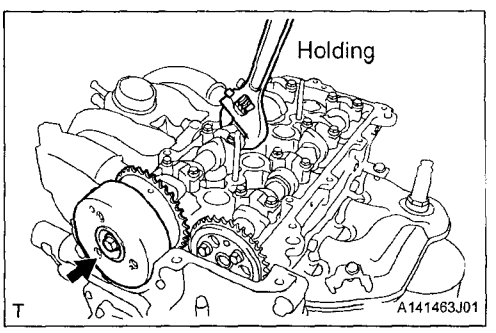
   (2) Check the front marks and numbers on the camshaft bearing caps No. 2 and attach the camshaft bearing caps No. 2.
   (3) Tighten the camshaft bearing caps No. 2 in the order shown in the diagram.
   Specified value:T=12.5N*m {127kgf*cm}
   <CAUTION>
   Holding the camshaft in a horizontal position, tighten the bolts evenly.



10. Camshaft bearing cap No. 1 installation
   (1) Tighten the camshaft bearing cap No. 1 in the order shown in the diagram.
   Specified value:T=12.5N*m {127kgf*cm}
   <CAUTION>
   Before tightening them, make sure that the camshaft thrusts fit in the grooves of the camshaft bearing caps No. 1.



11. Camshaft timing sprocket installation
    (1) Align the knock pin of the camshaft with the pin hole in the camshaft timing sprocket and attach the camshaft timing sprocket to the camshaft.
    <CAUTION>
    > If the knock pin does not fit in the pin hole, use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and left sides until the knock pin fits in the pin hole. Do not strongly push the camshaft timing sprocket. Otherwise the end portion of the knock pin might damage the seal surface, resulting in seal defect.
    > Never remove three bolts. If they are removed, replace the camshaft timing sprocket.



    (2) Coat the treaded part and bearing surface of the camshaft timing sprocket installation bolt with a small amount of engine oil and temporarily attach the bolt.
    (3) Tighten the camshaft timing sprocket installation bolt by using the service hexagonal part of the camshaft.
    Specified value:T=47N*m {479kgf*cm}

12. Chain installation (See page 07-184)
13. Timing chain guide No. 2 installation (See page 07-184)
14. Timing chain guide installation (See page 07-184)
15. Timing chain tension arm installation (See page 07-185)
16. Chain tensioner plunger installation (See page 07-185)
17. Timing chain (belt) cover oil seal installation (See page 07-189)
18. Timing chain (belt) cover installation (3SZ-VE) (See page 07-185)
19. Crank angle sensor plate No. 1 installation (See page 07-185)
20. Timing chain (belt) cover installation (K3-VE) (See page 07-186)
21. Oil pan installation (See page 07-188)
22. Crank position sensor installation (See page 07-188)
23. Camshaft timing oil control valve assembly installation (See page 07-188)
24. Idler pulley installation (See page 07-189)
25. Idler pulley No. 2 installation (See page 07-189)
26. Water pump pulley installation (See page 07-189)
27. Crankshaft pulley installation (See page 07-190)
28. Cylinder head cover installation (See page 07-243)
29. Oil level gage installation (See page 07-68)
30. Ignition coil assembly installation (See page 07-69)

31. Noise filter installation (See page 07-70)
32. Ventilation hose installation (See page 07-71)
33. Engine wire installation (See page 07-75)
34. Ventilation hose No. 2 installation (See page 06-149)
35. Air cleaner support bracket No. 2 installation (See page 07-75)
36. Accelerator control cable bracket installation (LHD) (See page 07-76)
37. Throttle body bracket No. 2 installation (See page 07-76)
38. Transaxle assembly (ATM) installation (See page 07-78)
39. Transaxle assembly (MTX) installation (See page 07-79)
40. Torque converter set bolt installation (for Automatic transaxle) (See page 07-80)
41. Starter assembly installation (See page 07-80)
42. Breather tube fuel hose installation (for Automatic transaxle) (See page 07-81)
43. Front suspension cross member installation (See page 07-81)
44. Engine assembly with transaxle installation (See page 07-81)
45. Transmission control cable assembly installation (for Automatic transaxle) (See page 07-83)
46. Radiator support LWR installation (See page 07-83)
47. Steering knuckle LH installation (See page 07-83)
48. Steering knuckle RH installation (See page 07-83)
49. Front drive shaft assembly LH installation (See page 07-84)
50. Front drive shaft assembly RH installation (See page 07-84)
51. Front shock absorber assembly LH installation (See page 36-16)
52. Front shock absorber assembly RH installation (See page 36-16)
53. Tie rod end LH installation (See page 36-16)
54. Tie rod end RH installation (See page 36-16)
55. Axle hub nut installation (LH) (See page 36-16)
56. Axle hub nut installation (RH) (See page 36-16)
57. Front disc brake cylinder assembly LH installation (See page 36-16)
58. Front disc brake cylinder assembly RH installation (See page 36-17)
59. Speed sensor FR LH installation (with ABS & VSC) (See page 36-17)
60. Speed sensor FR RH installation (with ABS & VSC) (See page 36-17)
61. Front brake flexible hose No. 1 (LH) installation (without ABS & VSC) (See page 36-18)
62. Front brake flexible hose No. 1 (RH) installation (without ABS & VSC) (See page 36-18)
63. Front suspension cross member LH installation (See page 07-84)
64. Front suspension cross member RH installation (See page 07-84)
65. Front stabilizer bar installation (See page 07-84)
66. Engine undercover LH installation (See page 07-85)
67. Engine undercover RH installation (See page 07-85)
68. Transmission floor shift assembly installation (for Manual transaxle) (See page 29-55)
69. Console box assembly installation (for Manual transaxle) (See page 29-56)
70. Console box carpet installation (for Manual transaxle) (See page 29-56)
71. Rear console box installation (for Manual transaxle) (See page 29-57)
72. Shift lever knob installation (for Manual transaxle) (See page 29-57)
73. Steering column assembly connection (RHD) (See page 49-64)
74. Steering column assembly connection (LHD) (See page 49-79)
75. Steering column hole cover No. 1 installation (RHD) (See page 48-10)
76. Steering column hole cover No. 1 installation (LHD) (See page 48-18)
77. Clutch release cylinder assembly installation (K3-VE) (See page 29-21)

78. Clutch release cable assembly adjustment (K3-VE) (See page 27-21)
79. Clutch cable clamp installation (K3-VE) (See page 29-21)
80. Clutch hose installation (3SZ-VE) (See page 29-22)
81. Clutch release cylinder assembly installation (3SZ-VE) (See page 29-22)
82. Engine wire connection (See page 07-86)
83. Engine room main wire connection (See page 07-86)
84. Vacuum hose assembly connection (See page 07-87)
85. Ground cable connection (See page 07-87)
86. Accelerator control cable assembly connection (RHD) (See page 07-87)
87. Accelerator control cable assembly connection (LHD) (See page 07-88)
88. Fuel hose connection (See page 07-89)
89. Radiator assembly installation (See page 07-89)
90. Cooler refrigerant liquid pipe A connection (with Air conditioning system) (See page 52-137)
91. Compressor assembly (with magnet clutch) installation (with Air conditioning system) (See page 52-134)
92. Cooler refrigerant discharge hose No. 1 connection (with Air conditioning system) (See page 52-138)
93. Cooler refrigerant suction hose No. 1 connection (with Air conditioning system) (See page 52-134)
94. Fan & alternator V belt installation
    (See page 07-6)
95. Front bumper cover installation (See page 82-15)
96. Heater outlet water hose connection (RHD) (See page 52-87)
97. Heater outlet water hose connection (LHD) (See page 52-177)
98. Heater inlet water hose connection (RHD) (See page 52-87)
99. Heater inlet water hose connection (LHD) (See page 52-178)
100. Oil cooler inlet hose installation (for Automatic transaxle) (See page 26-99)
101. Oil cooler outlet hose installation (for Automatic transaxle) (See page 26-100)
102. With water fan assembly installation (See page 12-13)
103. Water bypass hose connection (See page 12-14)
104. Water bypass hose connection (See page 12-14)
105. Radiator inlet hose connection (See page 12-14)
106. Air cleaner assembly installation (See page 06-149)
107. Precleaner hose installation (See page 06-149)
108. Inlet air temperature sensor connection (See page 06-150)
109. Vacuum switching valve assembly (with Bracket) connection (RHD) (See page 06-150)
110. Vacuum switching valve assembly (with Bracket) connection (LHD) (See page 06-150)
111. Vacuum sensor connection (See page 06-150)
112. Air cleaner filter element installation
113. Air cleaner cap installation
114. Battery tray installation (See page 07-90)
115. Battery installation
116. Battery cover installation
117. Radiator reserve tank assembly installation (See page 07-90)
118. Battery hold down clamp installation (See page 07-90)
119. Exhaust pipe assembly FR installation (See page 11-16)
120. Battery terminal connection
    Specified value: T=6.4N*m {65kgf*cm}
121. Brake fluid replenishment (for Manual transaxle) (See page 45-4)
122. Clutch pipeline air bleeding (for Manual transaxle) (See page 27-3)
123. Clutch fluid leakage check (for Manual transaxle)

124.Brake fluid amount check (for Manual transaxle) (See page 45-4)

125.Cooling fluid replenishment (See page 12-6)

126.Engine oil replenishment

127.Automatic transaxle fluid replenishment (for Automatic transaxle) (See page 26-103)

128.Automatic transaxle fluid check (for Automatic transaxle) (See page 26-63)

129.Manual transaxle oil replenishment (for Manual transaxle) (See page 29-23)

130.Shift lever position check
(See page 26-136)

131.Cooling fluid leakage check (See page 12-6)

132.Cooling fluid amount check

133.Oil leakage check

07

134.Fuel leakage check (See page 08-7)

135.Exhaust gas leakage check (See page 11-16)

136.Engine idle-speed check (See page 07-4)

137.Ignition timing check (See page 07-2)

138.CO and HC level check (See page 07-4)

139.Refrigerant HFC-134a (R134a) filling (with Air conditioning system) (See page 52-42)

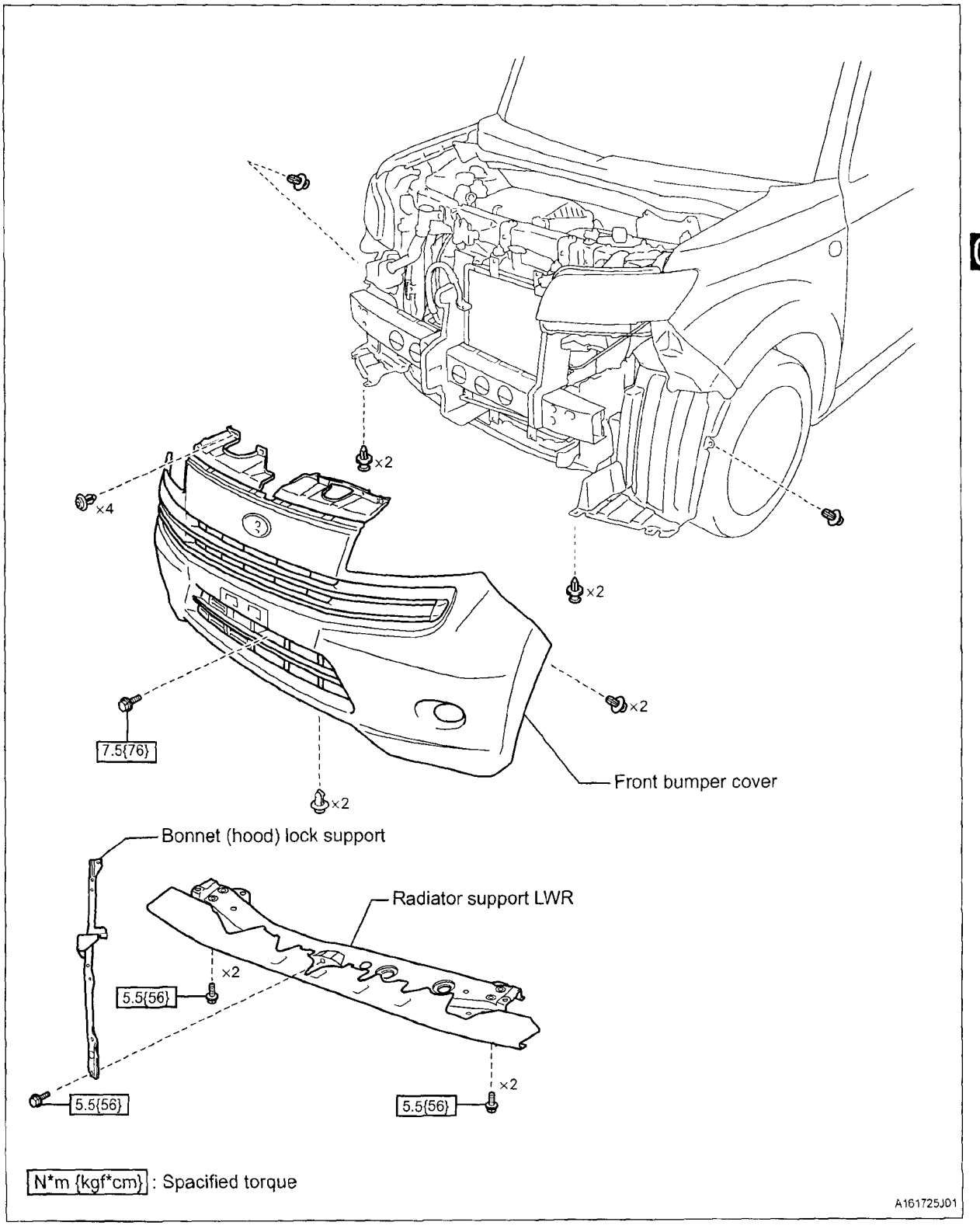
140.Front tire installation
Specified value:T=103N*m {1050kgf*cm}

141.Front wheel alignment check · adjustment
(See page 42-5)

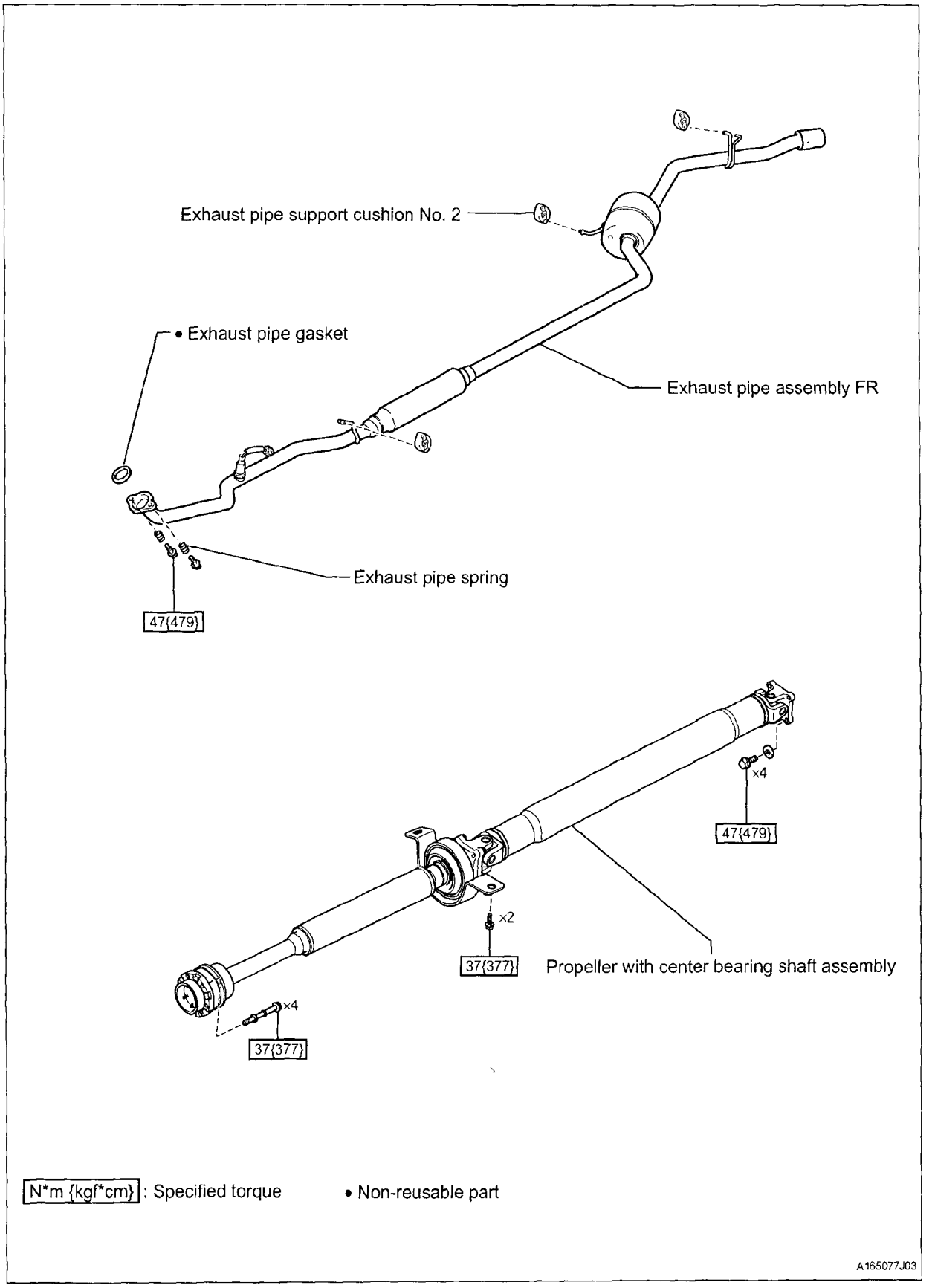
142.Test mode check (Speed sensor circuit)
with ABS: (See page 44-15)
with VSC: (See page 44-76)

CYLINDER HEAD GASKET (3SZ-VE / 4WD)

COMPONENTS

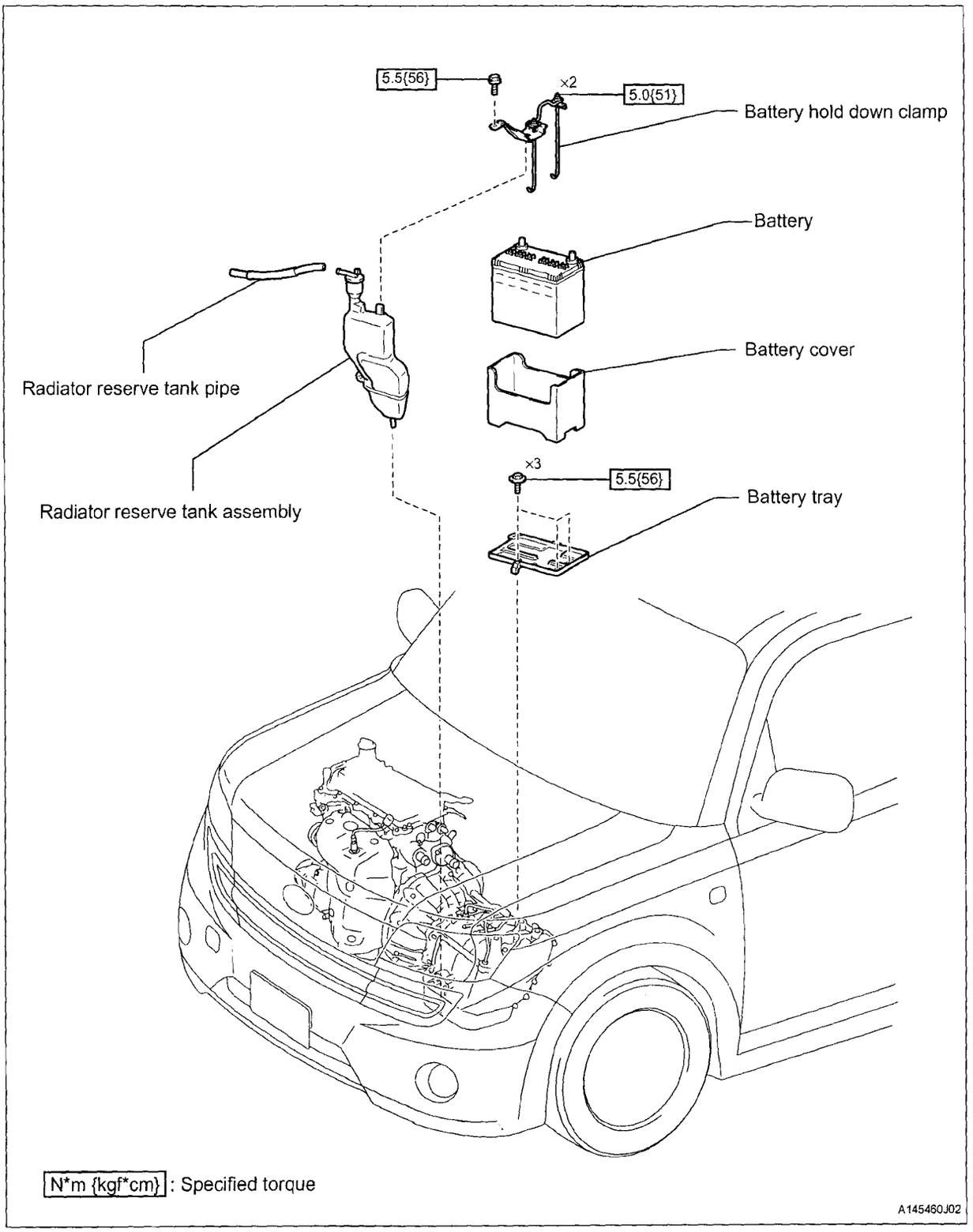


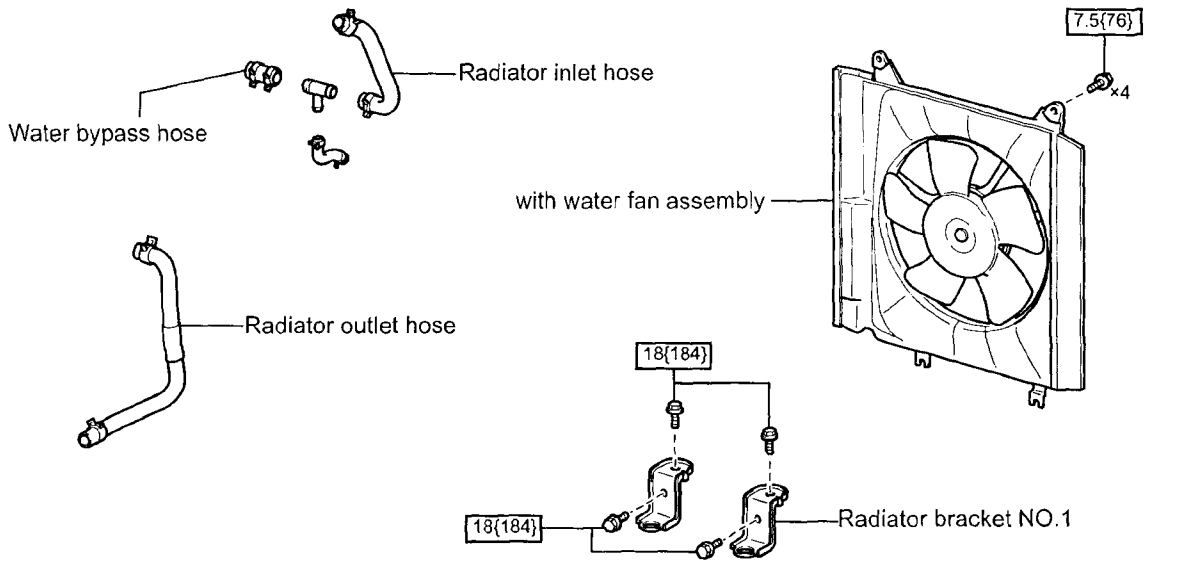
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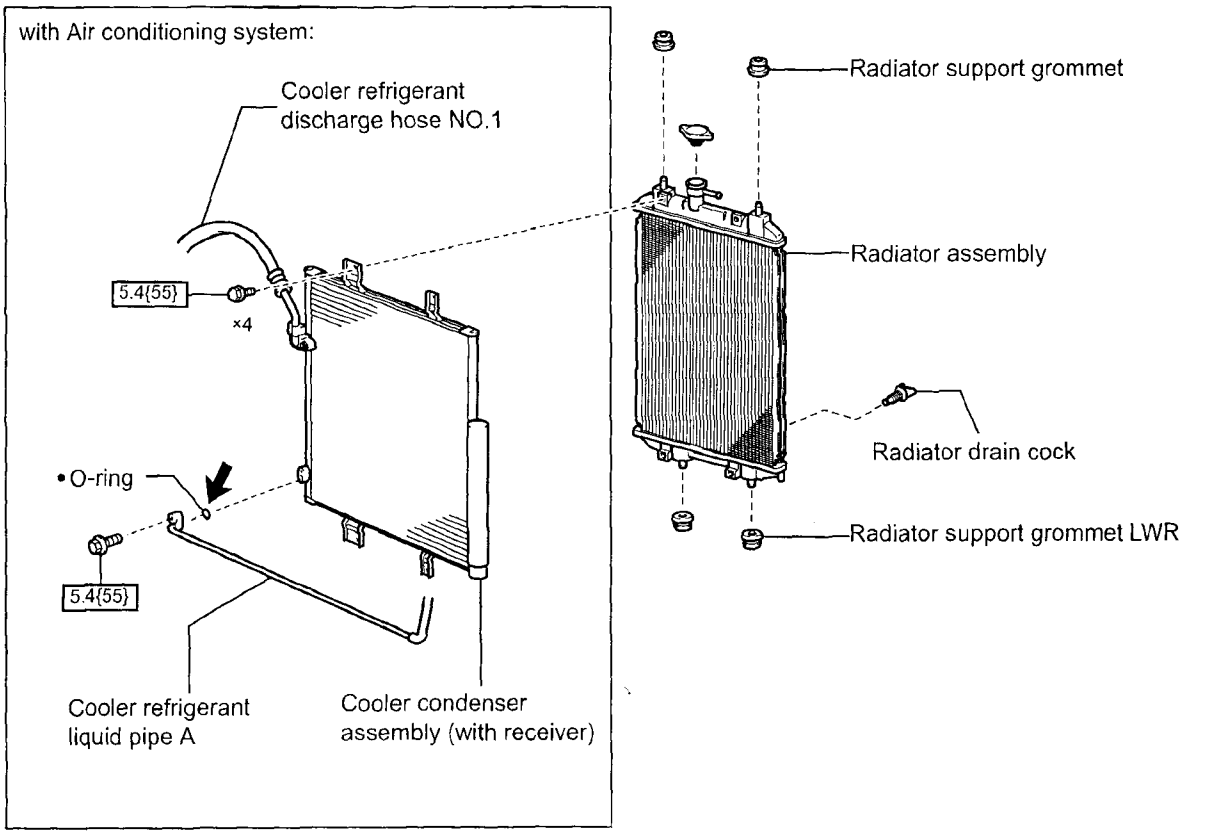


N*m {kgf*cm} : Specified torque • Non-reusable part

A165077J03


5.5{56}
×2
5.0{51}
Battery hold down clamp
Battery
Battery cover
Radiator reserve tank pipe
Radiator reserve tank assembly
×3
5.5{56}
Battery tray
N*m {kgf*cm} : Specified torque
A145460J02

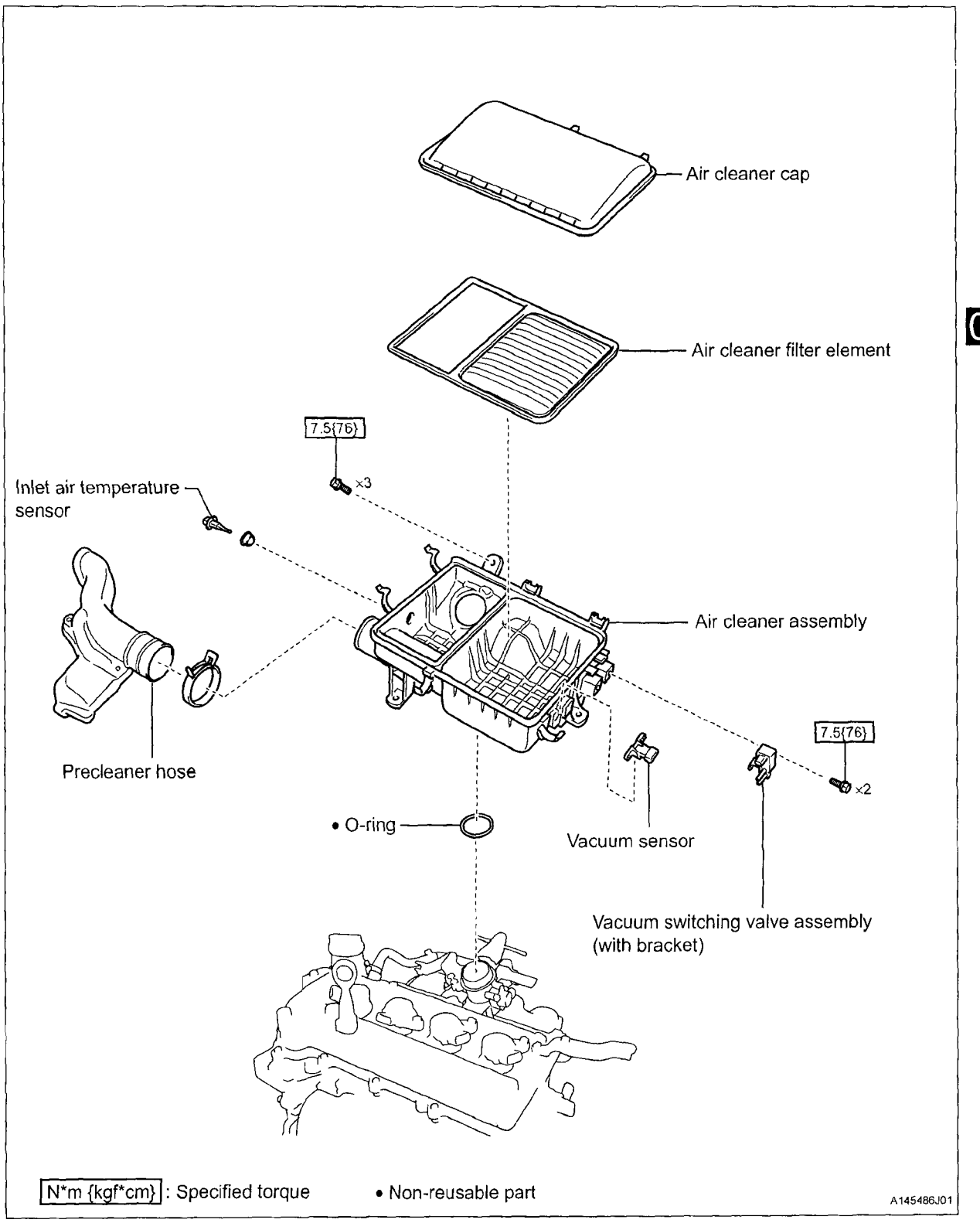




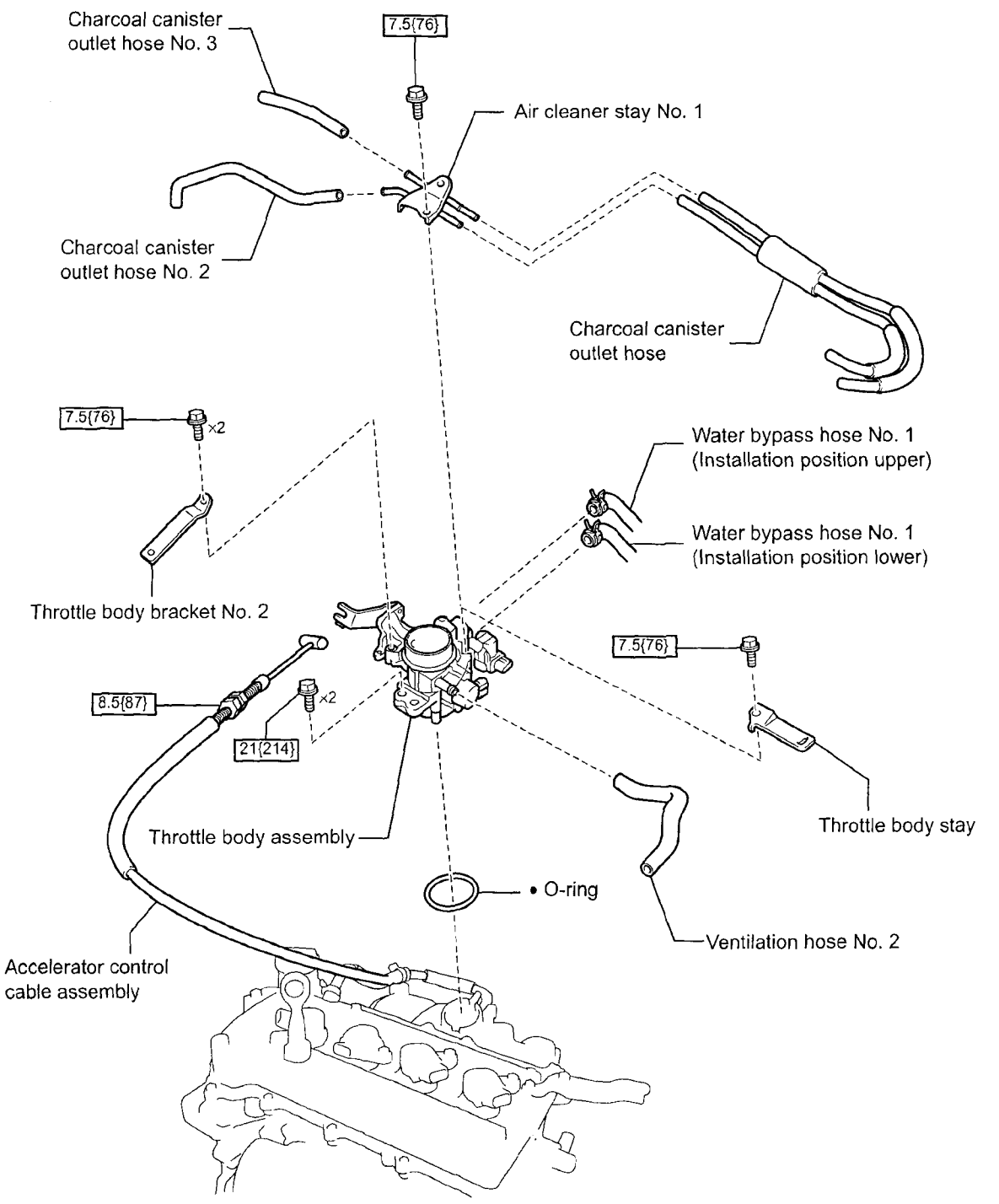
N*m (kgf*cm) : Specified torque • Non-reusable part

Apply comperssor oil ND-OIL8

A163478J01

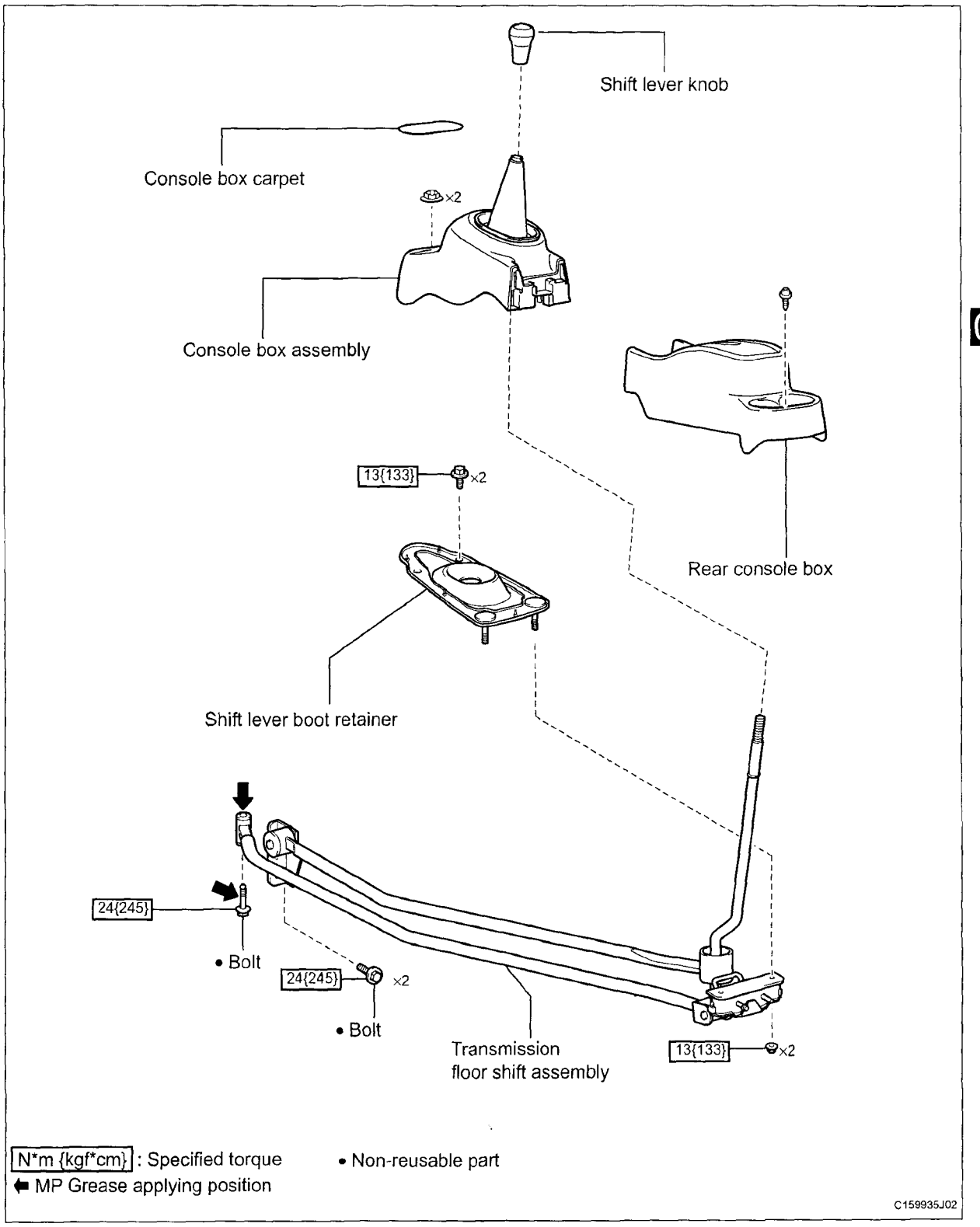

Air cleaner cap
Air cleaner filter element
7.5{76}
×3
Inlet air temperature sensor
Air cleaner assembly
7.5{76}
×2
Precleaner hose
• O-ring
Vacuum sensor
Vacuum switching valve assembly (with bracket)
N*m {kgf*cm}: Specified torque
• Non-reusable part
A145486J01

07

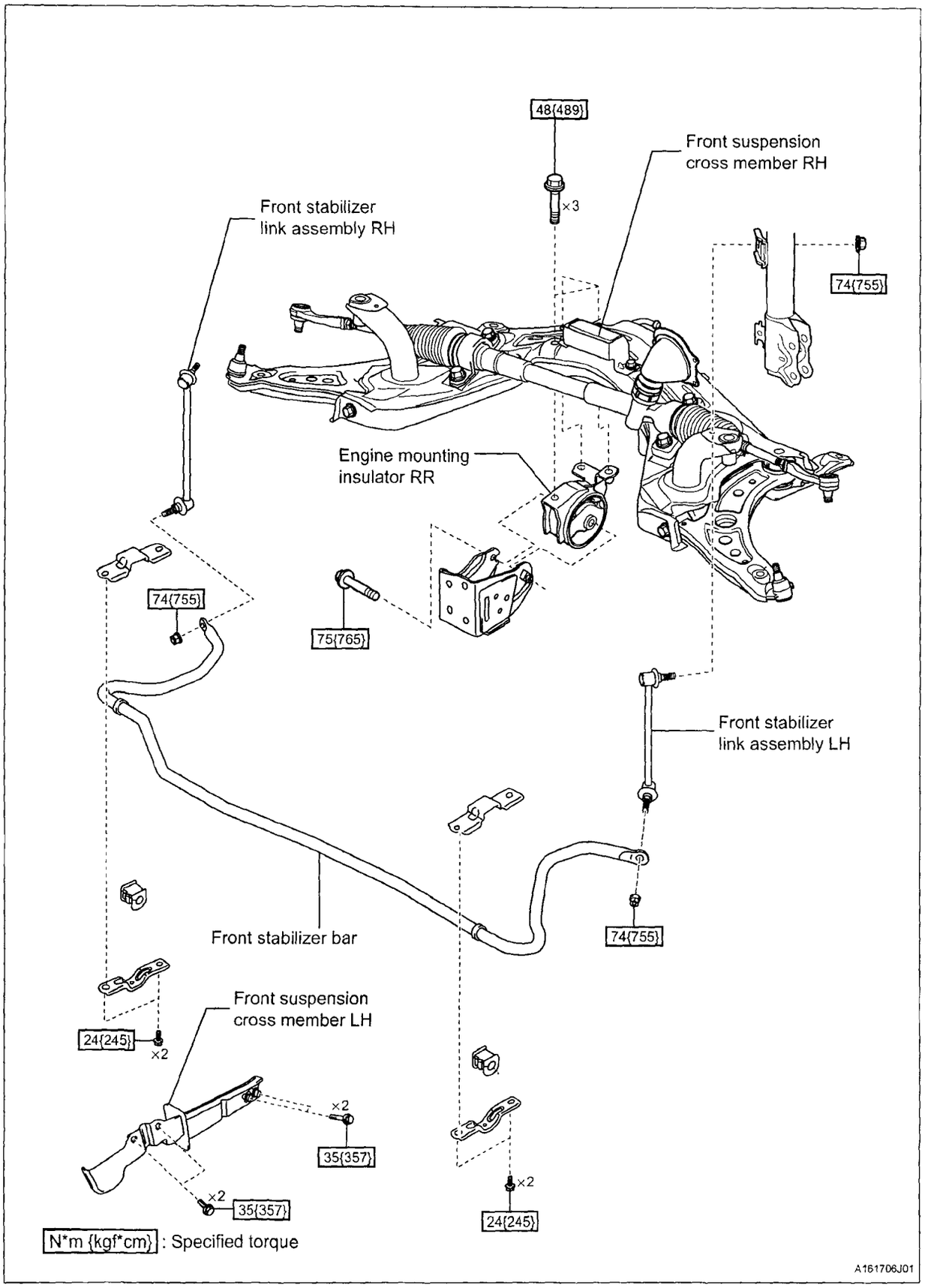


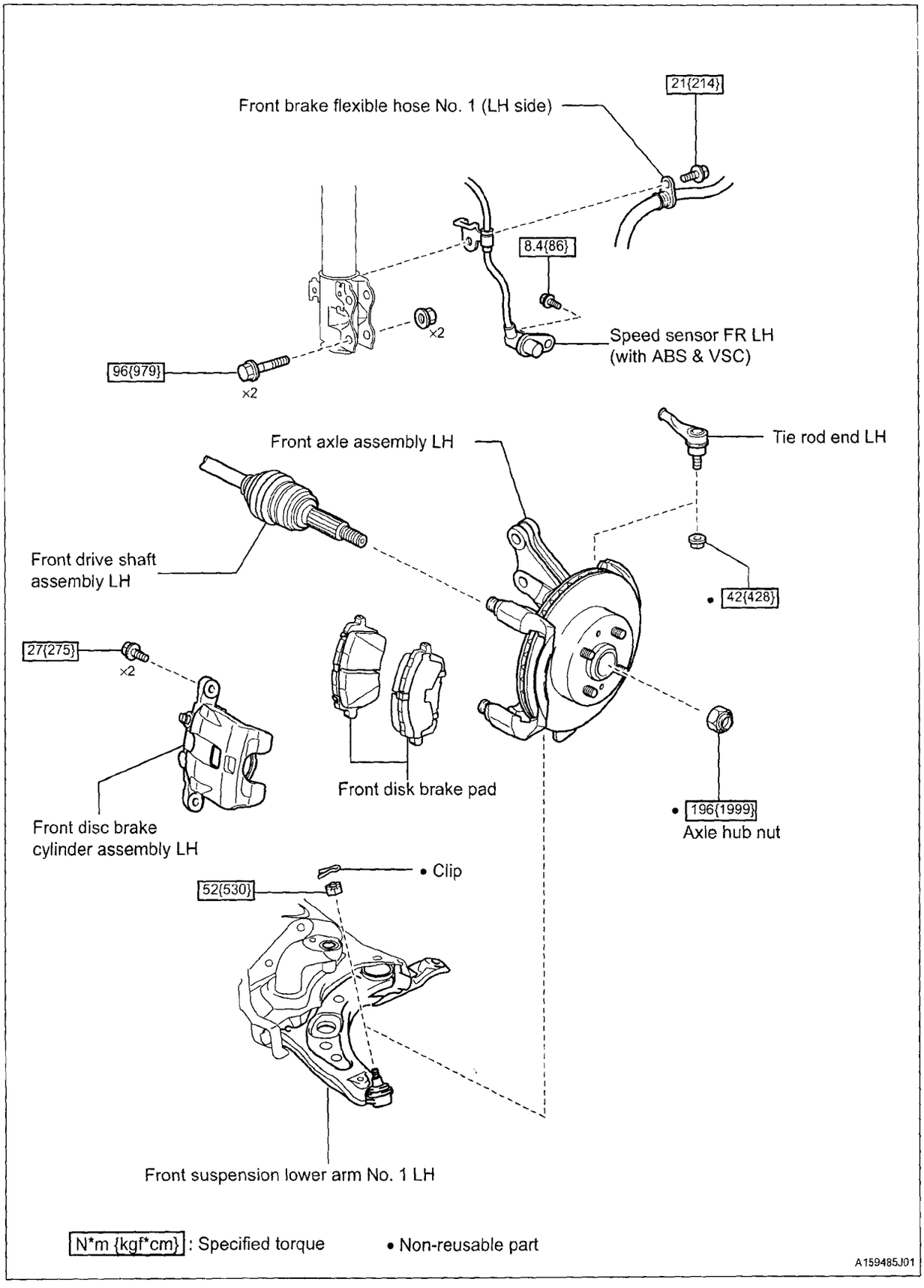
N*m {kgf*cm} : Specified torque • Non-reusable part

A159487J02

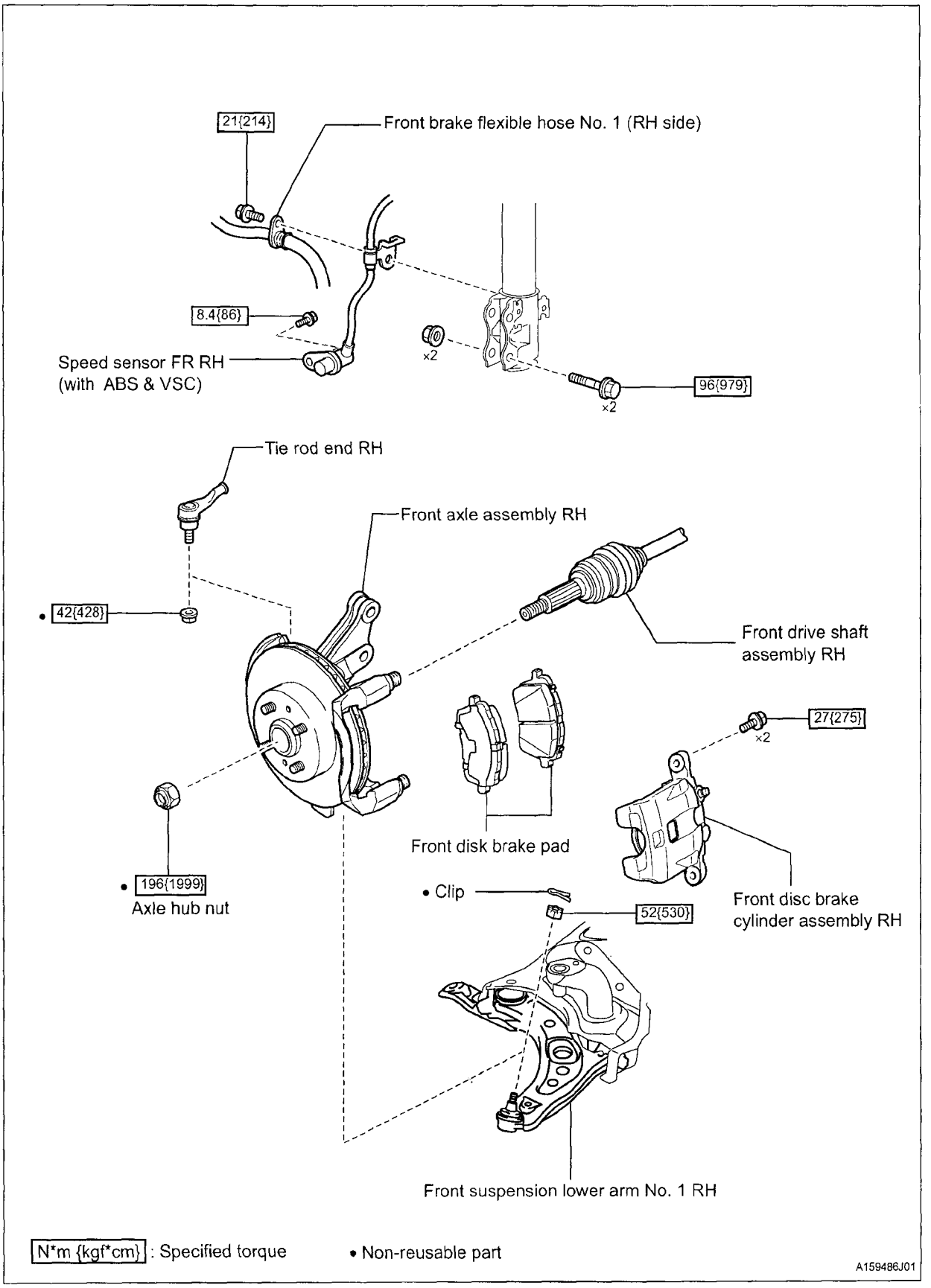

Shift lever knob
Console box carpet
×2
Console box assembly
13{133}
×2
Rear console box
Shift lever boot retainer
24{245}
• Bolt
24{245}
×2
• Bolt
Transmission
floor shift assembly
13{133}
×2
N*m {kgf*cm} : Specified torque
• Non-reusable part
MP Grease applying position
C159935J02

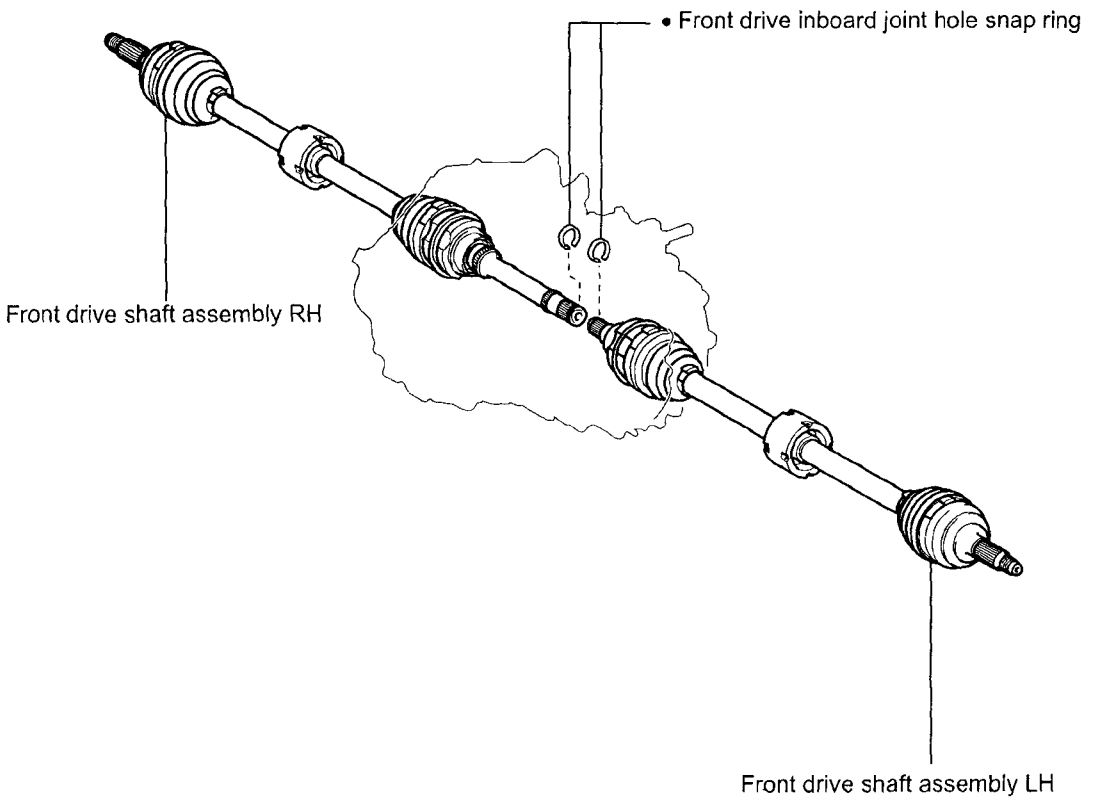
07


48{489}
×3
Front suspension cross member RH
Front stabilizer link assembly RH
74{755}
Engine mounting insulator RR
75{765}
74{755}
Front stabilizer link assembly LH
Front stabilizer bar
74{755}
Front suspension cross member LH
24{245}
×2
×2
35{357}
×2
35{357}
×2
24{245}
N*m {kgf*cm} : Specified torque
A161706J01


Front brake flexible hose No. 1 (LH side)
21{214}
8.4{86}
Speed sensor FR LH
(with ABS & VSC)
×2
96{979}
×2
Front axle assembly LH
Tie rod end LH
Front drive shaft
assembly LH
• 42{428}
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
Front disc brake
cylinder assembly LH
• Clip
52{530}
Front suspension lower arm No. 1 LH
N*m {kgf*cm}: Specified torque
• Non-reusable part
A159485J01

07

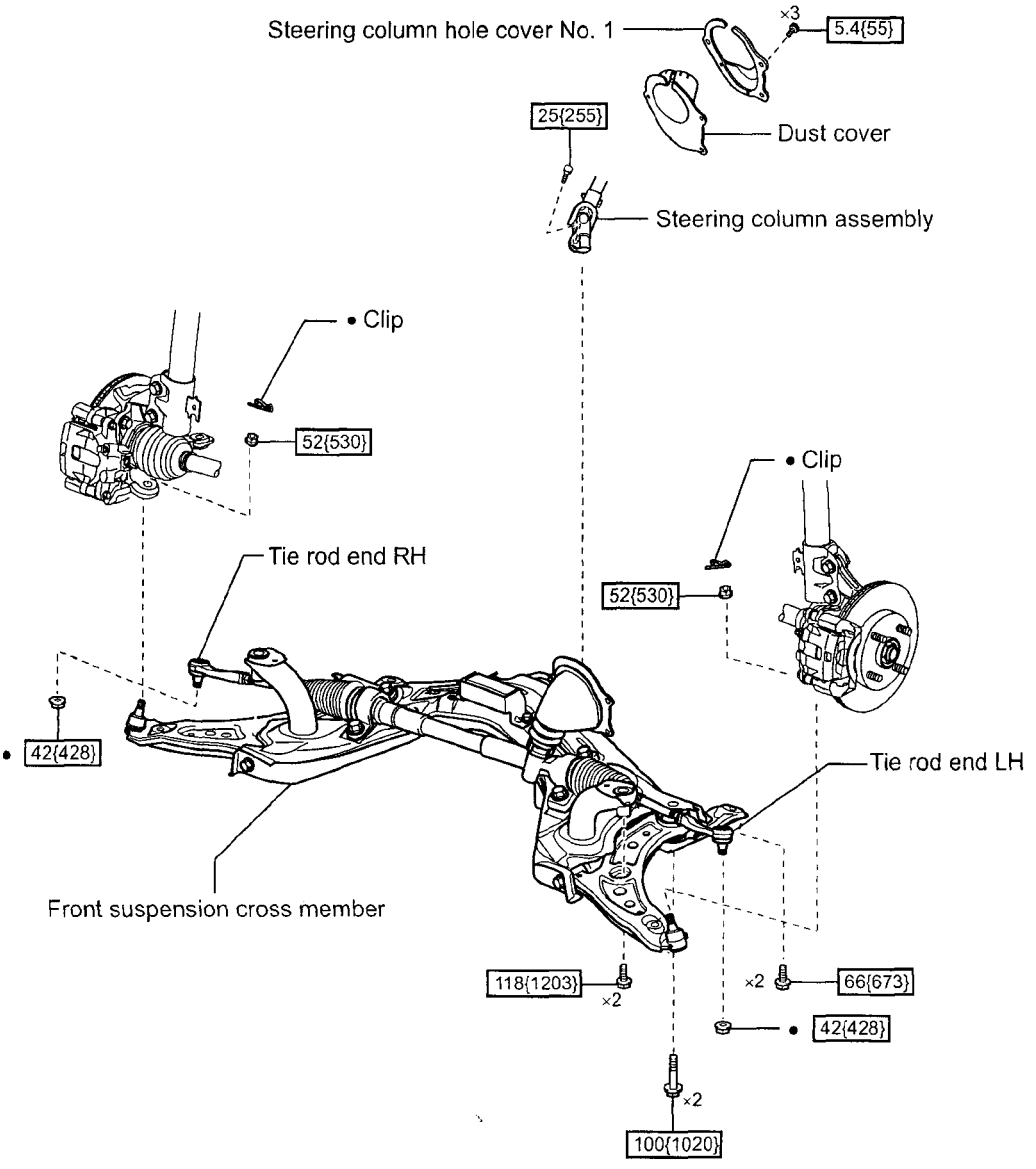

21{214}
Front brake flexible hose No. 1 (RH side)
8.4{86}
Speed sensor FR RH
(with ABS & VSC)
×2
96{979}
×2
Tie rod end RH
Front axle assembly RH
• 42{428}
Front drive shaft
assembly RH
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
• Clip
52{530}
Front disc brake
cylinder assembly RH
Front suspension lower arm No. 1 RH
N*m {kgf*cm}: Specified torque
• Non-reusable part
A159486J01



• Non-reusable part

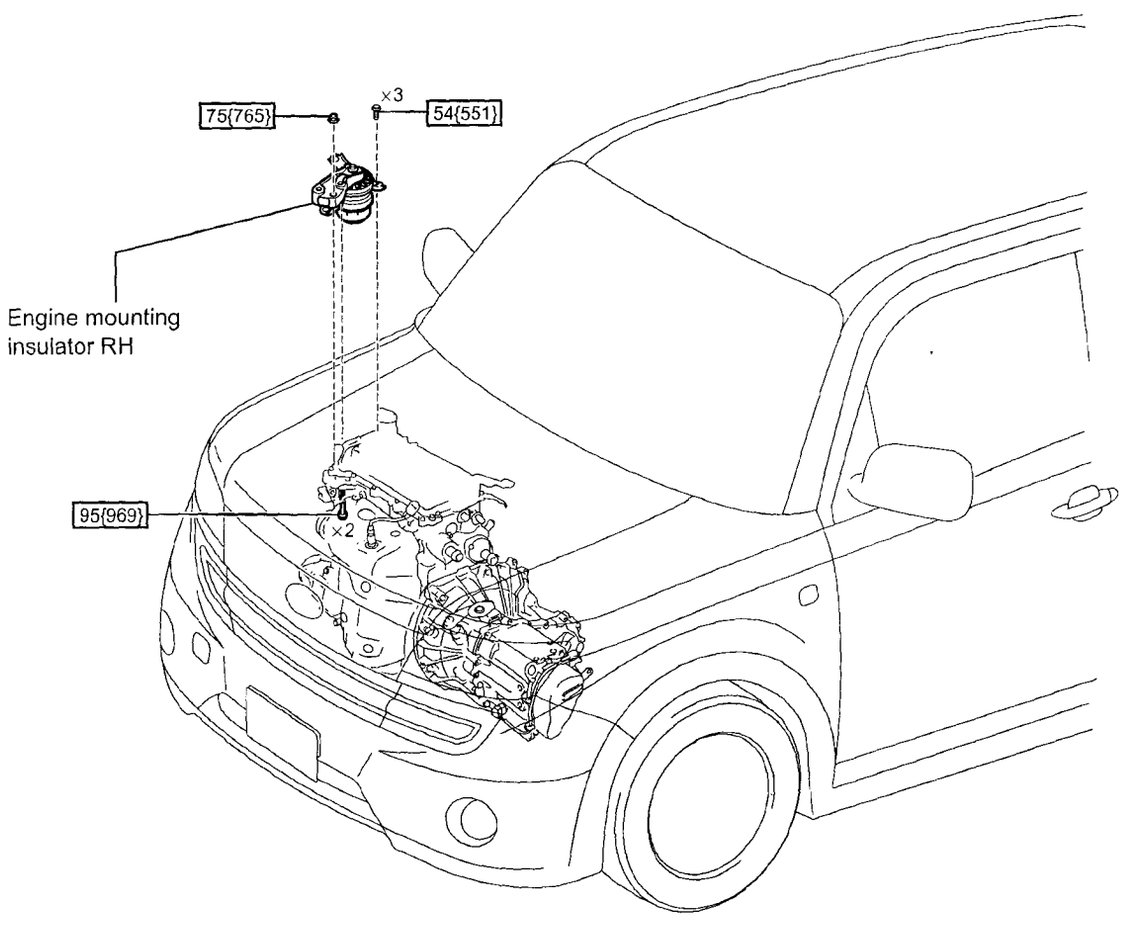
A149650J01

07



N*m {kgf*cm}: Specified torque • Non-reusable part

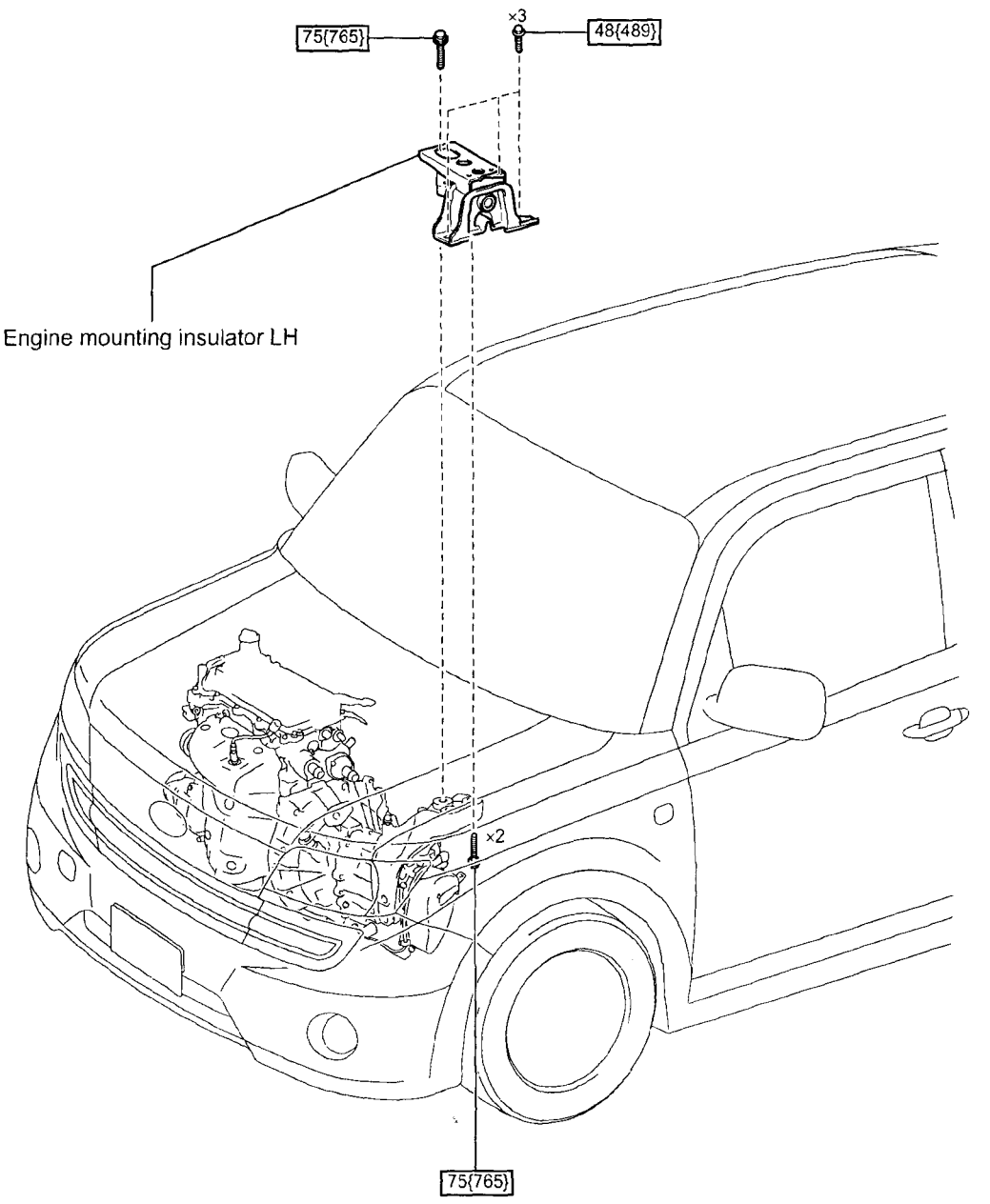
A161688J01



N*m {kgf*cm} : Specified torque

A161707J01

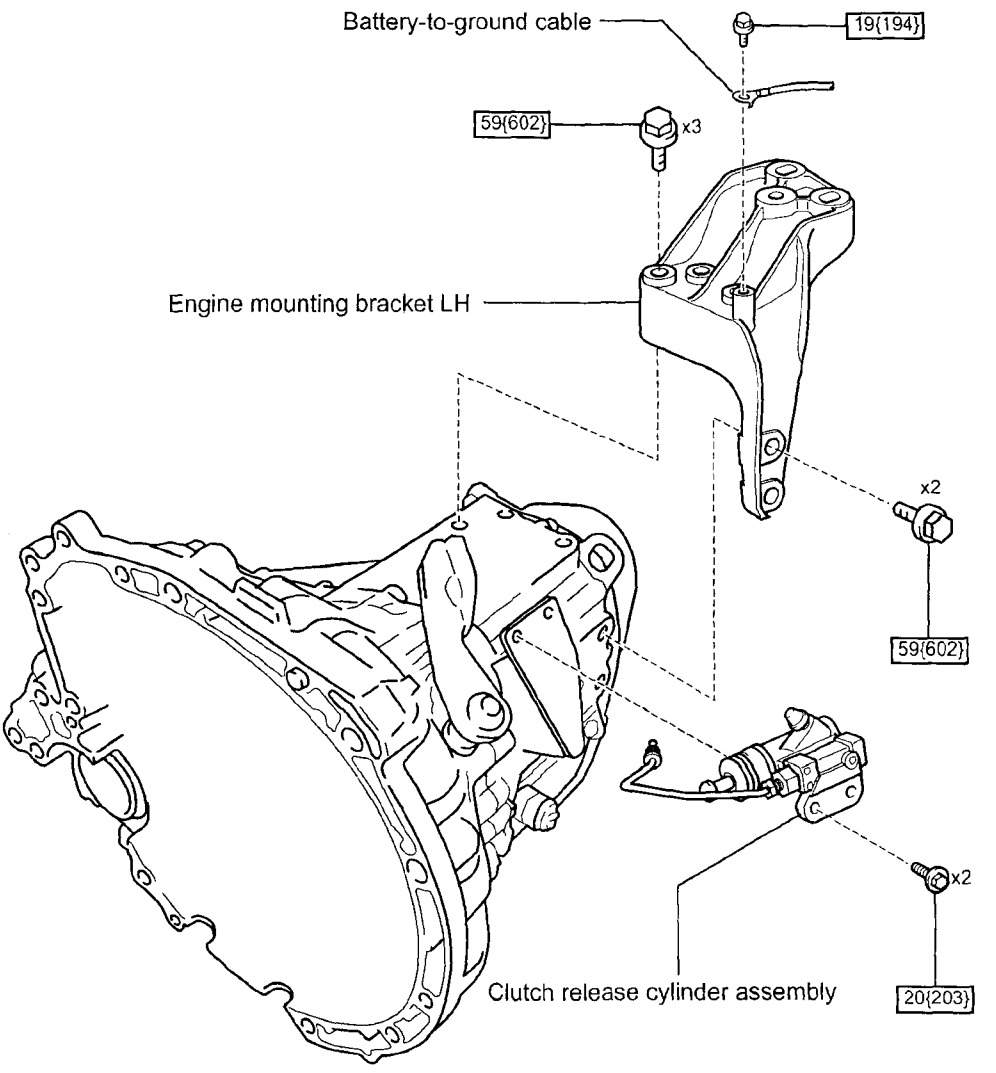
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N*m {kgf*cm}: Specified torque

T

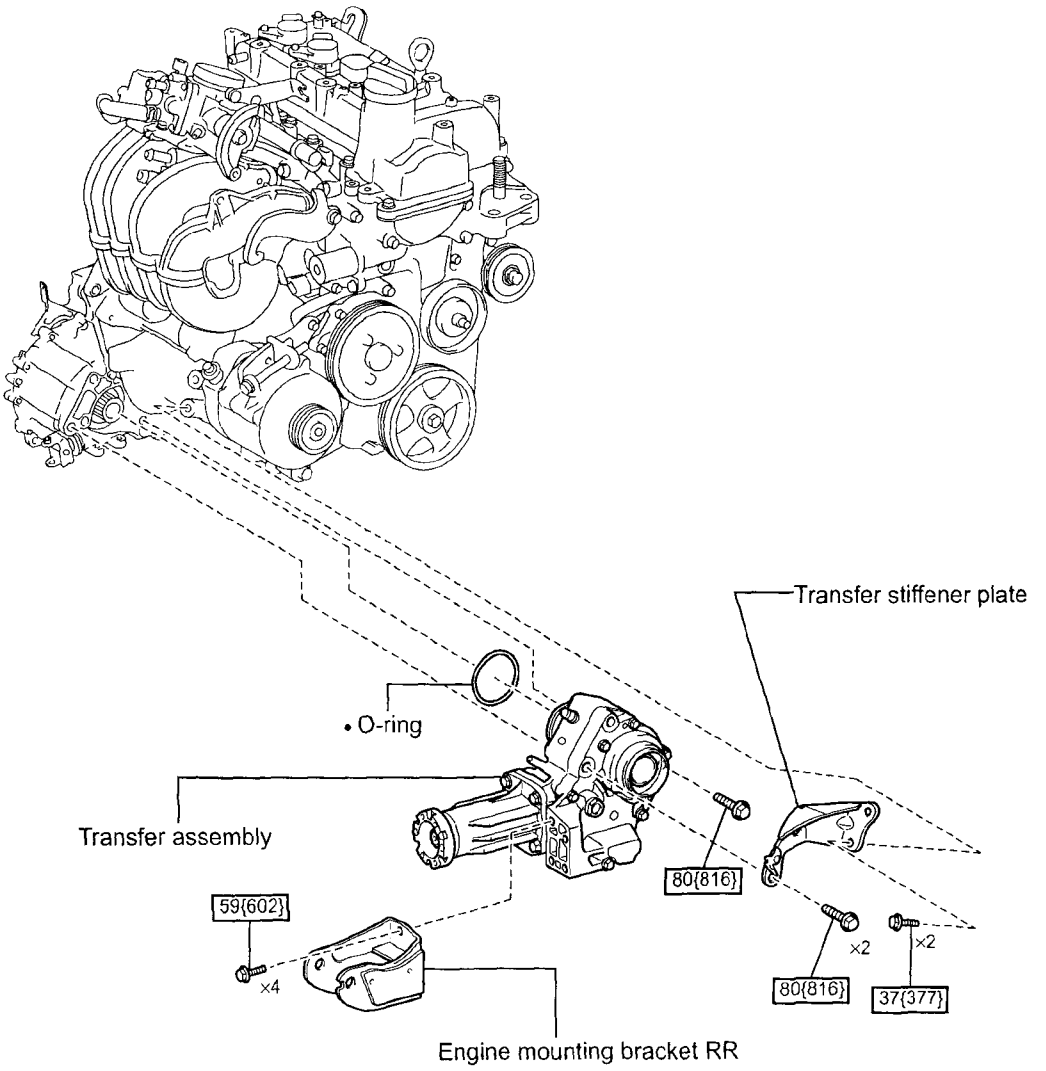
A161689J03



N*m (kgf*cm): Specified torque

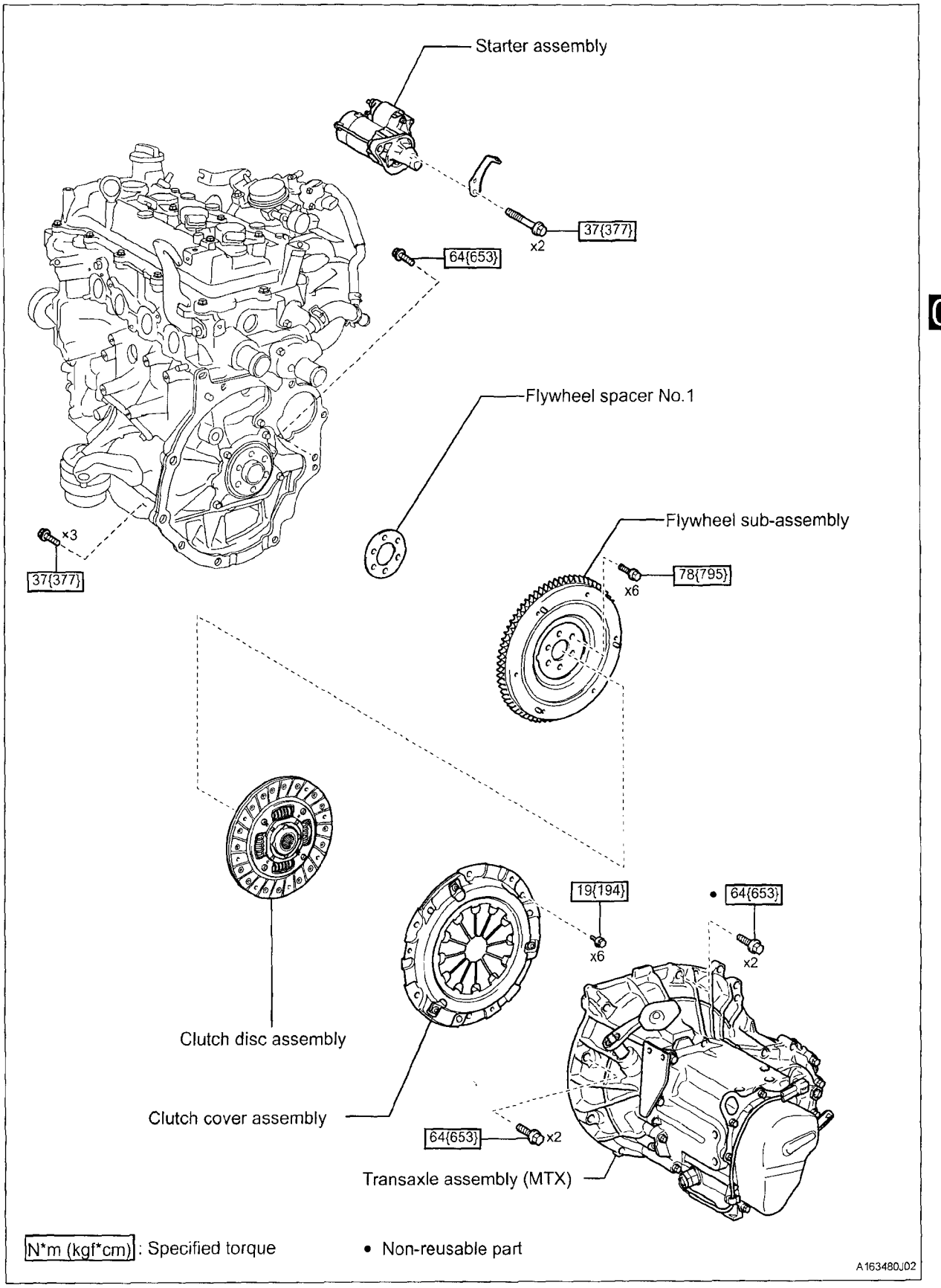
A163477J01

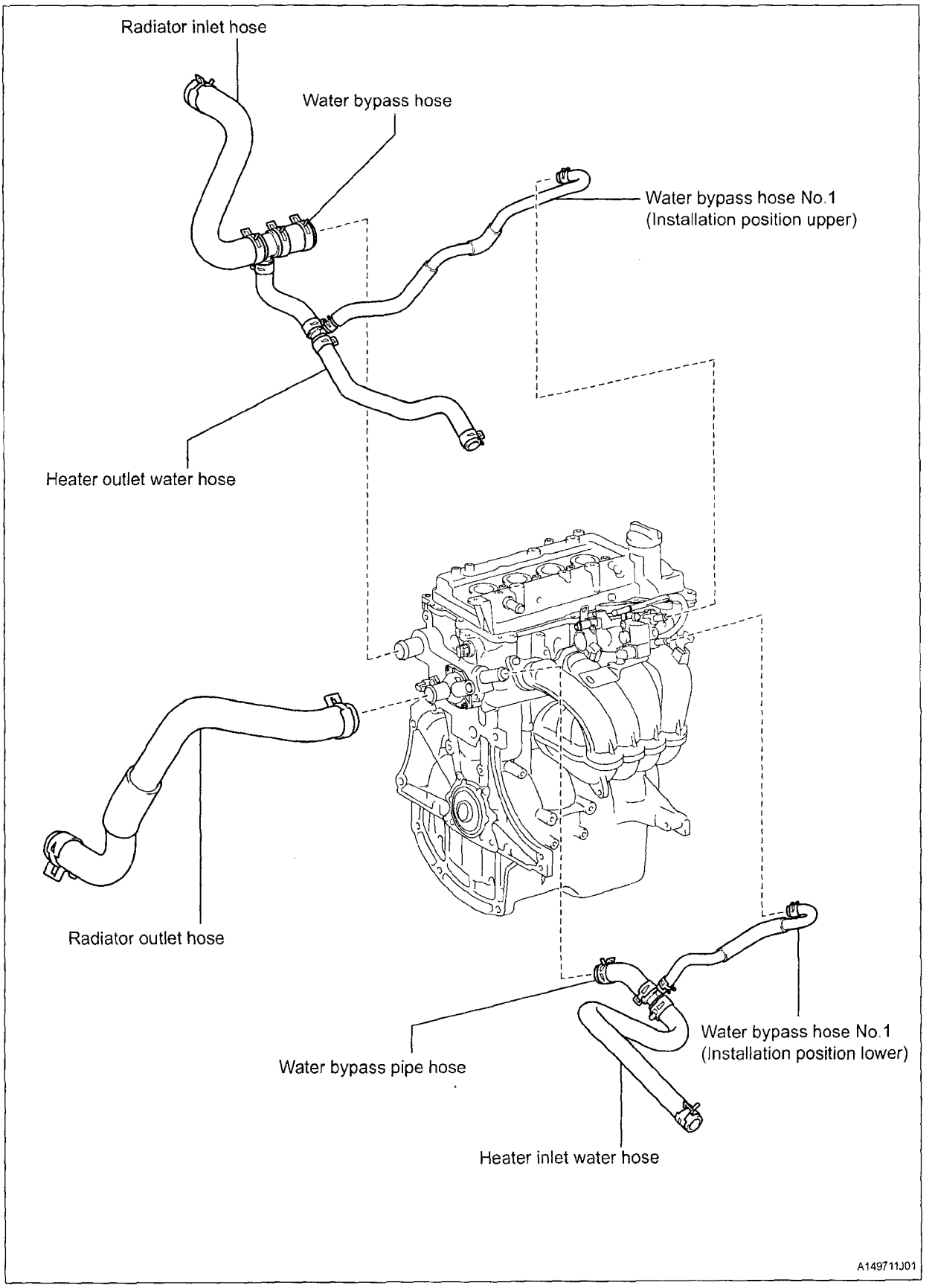
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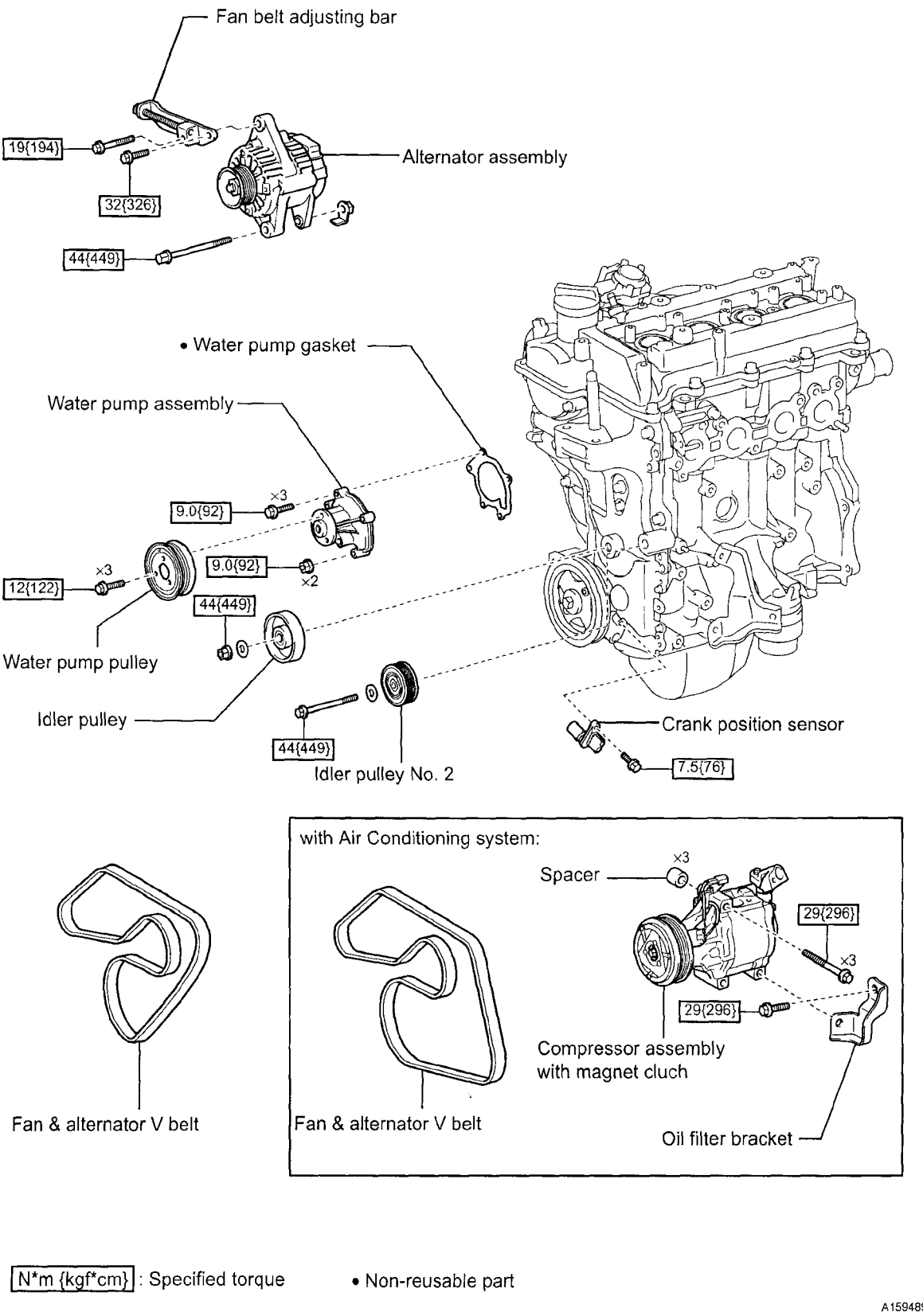


N*m {kgf*cm} : Specified torque • Non-reusable part

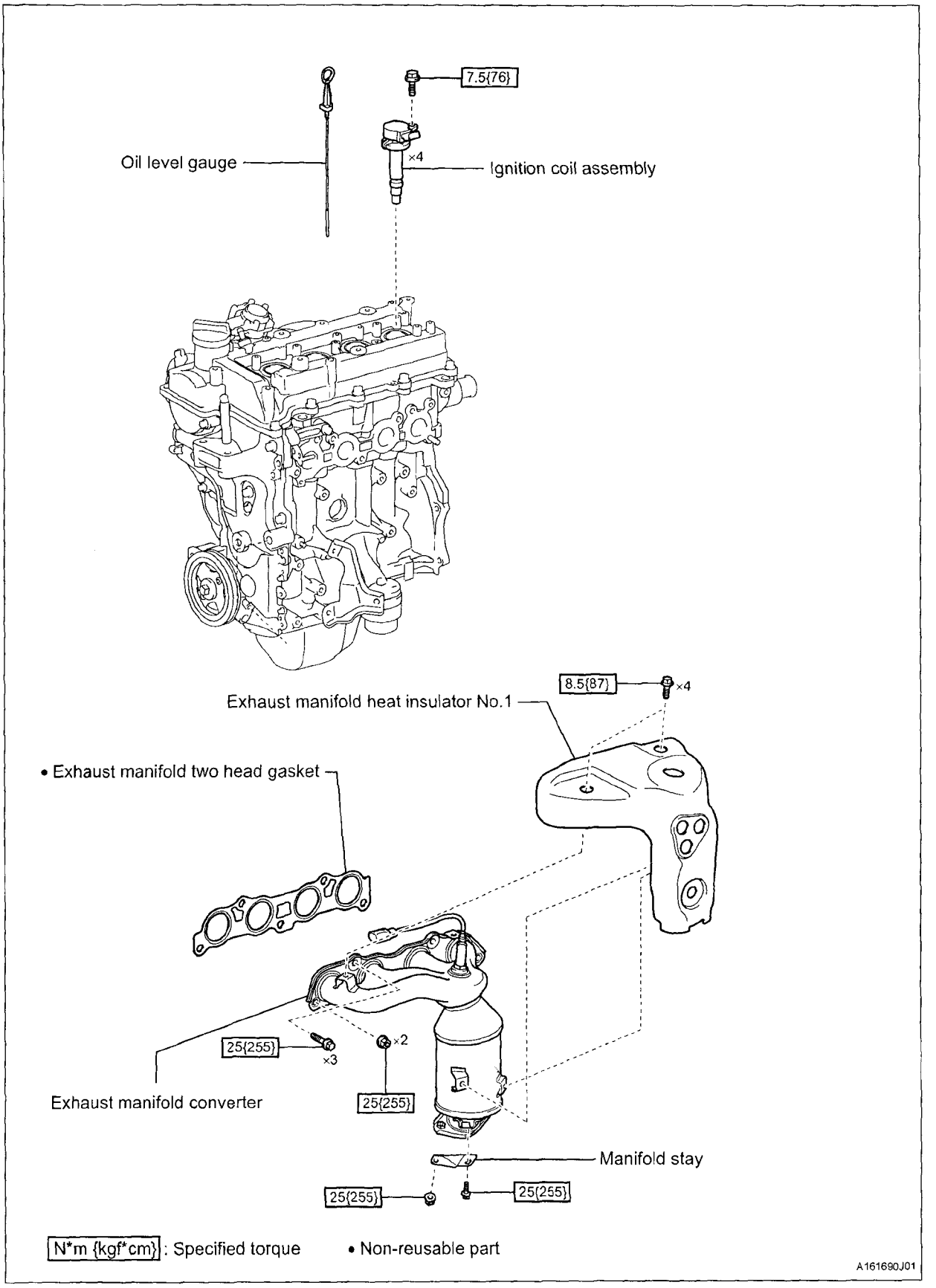
C159889J01

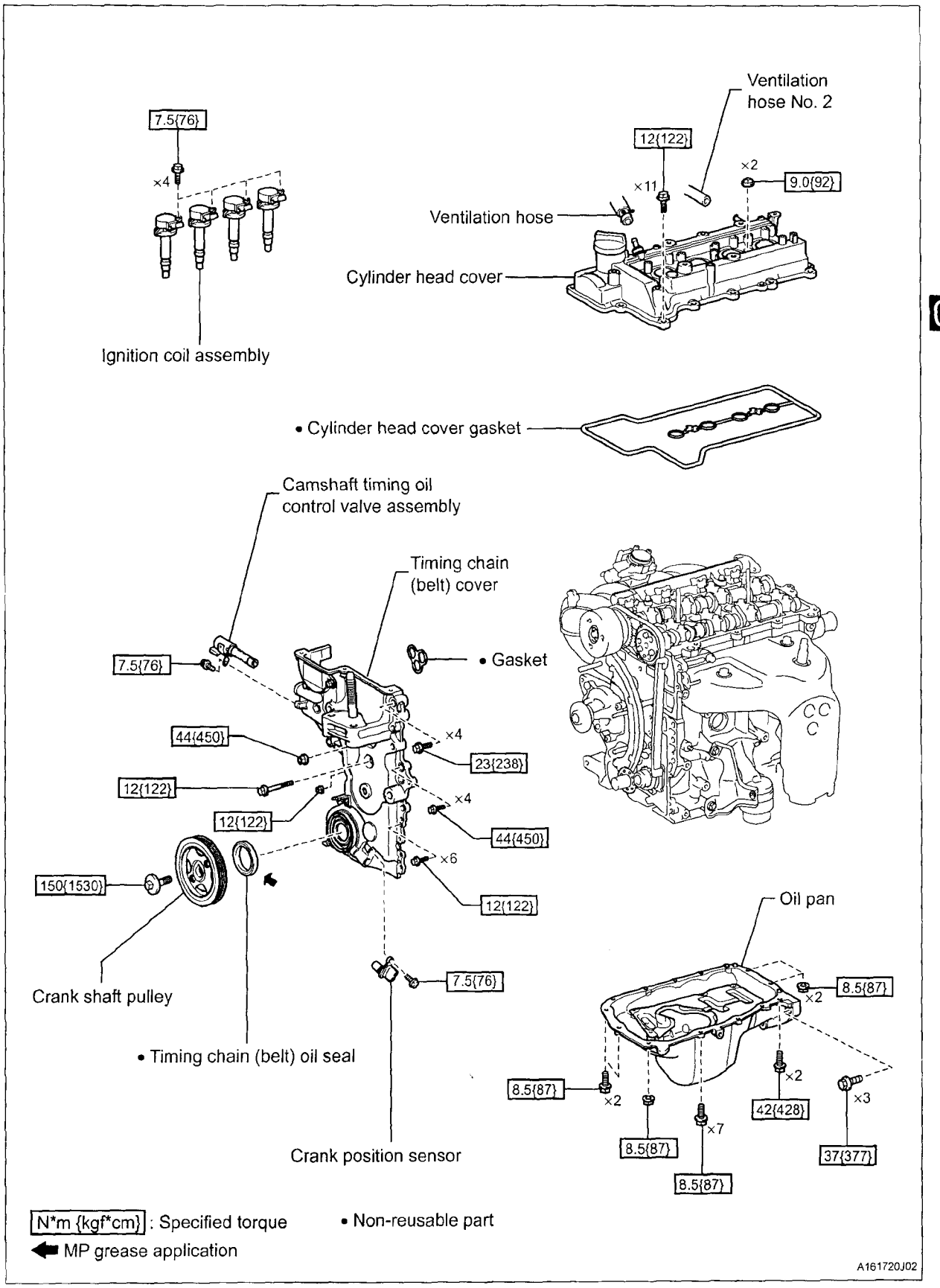

Starter assembly
37{377}
x2
64{653}
Flywheel spacer No.1
x3
37{377}
Flywheel sub-assembly
78{795}
x6
19{194}
x6
• 64{653}
x2
Clutch disc assembly
Clutch cover assembly
64{653}
x2
Transaxle assembly (MTX)
N*m (kgf*cm): Specified torque
• Non-reusable part
A163480J02


Radiator inlet hose
Water bypass hose
Water bypass hose No.1
(Installation position upper)
Heater outlet water hose
Radiator outlet hose
Water bypass pipe hose
Water bypass hose No.1
(Installation position lower)
Heater inlet water hose
A149711J01

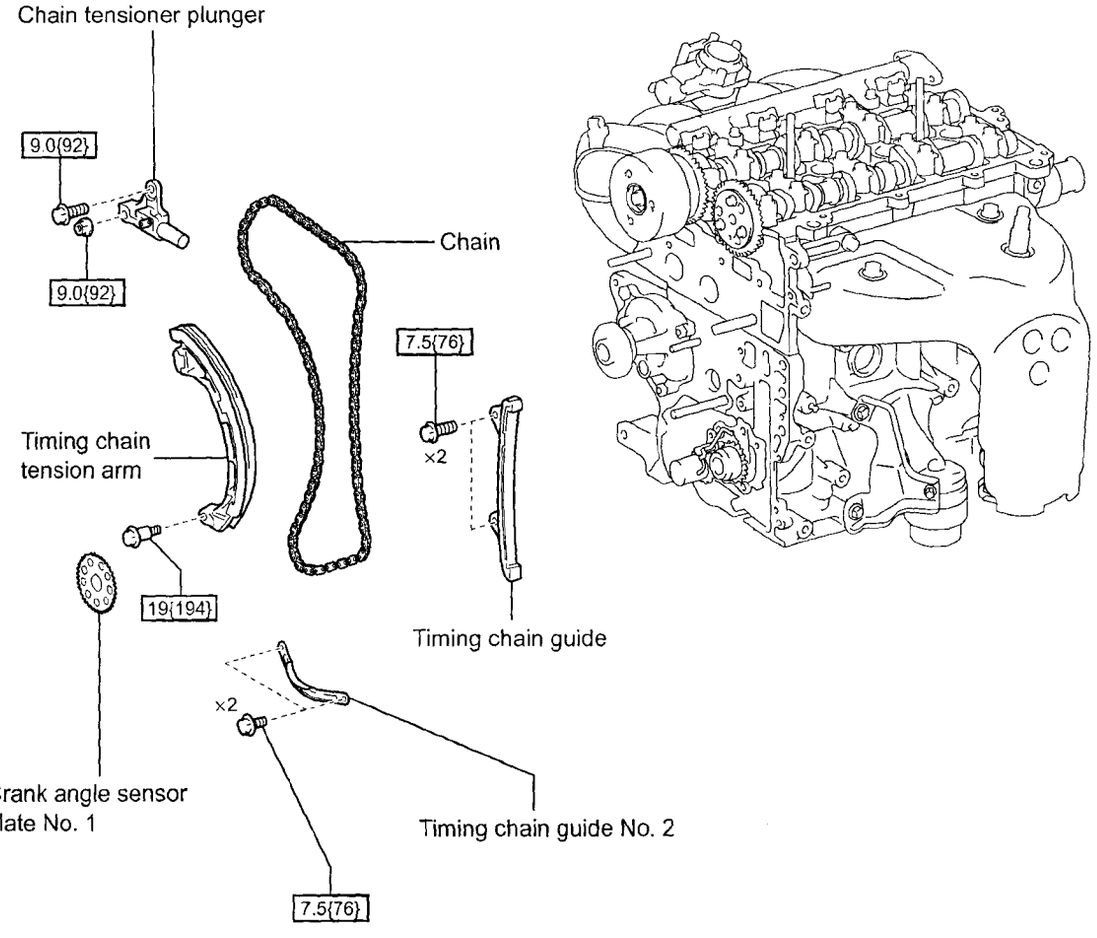

Fan belt adjusting bar
19{194}
32{326}
Alternator assembly
44{449}
• Water pump gasket
Water pump assembly
9.0{92}
×3
9.0{92}
×2
12{122}
×3
44{449}
Water pump pulley
Idler pulley
44{449}
Idler pulley No. 2
Crank position sensor
7.5{76}
with Air Conditioning system:
Spacer
×3
29{296}
×3
29{296}
Compressor assembly
with magnet cluch
Oil filter bracket
Fan & alternator V belt
Fan & alternator V belt
N*m {kgf*cm} : Specified torque
• Non-reusable part
A159489J02

07


7.5{76}
Oil level gauge
×4
Ignition coil assembly
8.5{87}
×4
Exhaust manifold heat insulator No.1
• Exhaust manifold two head gasket
25{255}
×3
×2
Exhaust manifold converter
25{255}
Manifold stay
25{255}
25{255}
N*m {kgf*cm}: Specified torque
• Non-reusable part
A161690J01

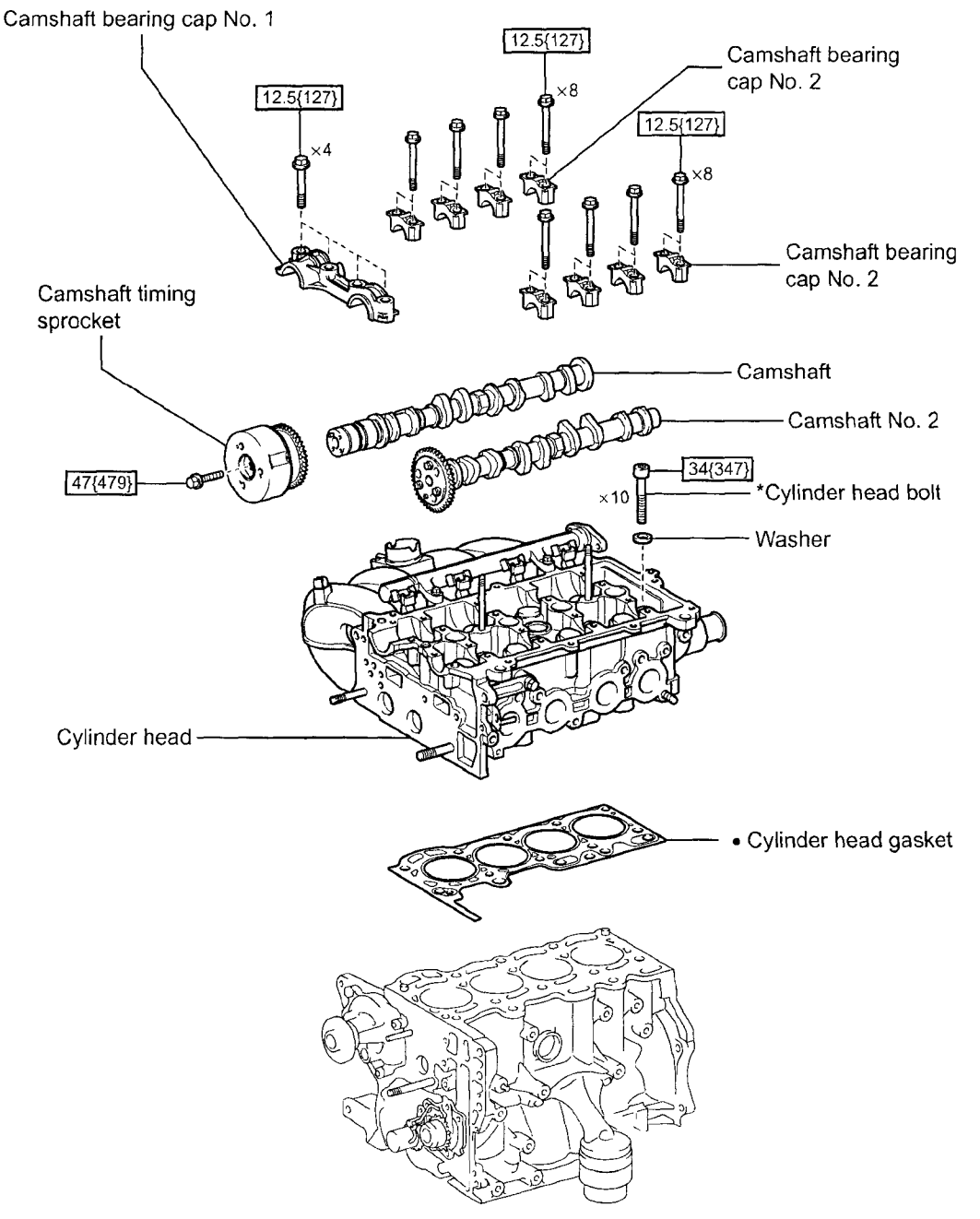

7.5{76}
×4
Ignition coil assembly
Ventilation hose No. 2
12{122}
×11
×2
9.0{92}
Ventilation hose
Cylinder head cover
• Cylinder head cover gasket
Camshaft timing oil control valve assembly
Timing chain (belt) cover
7.5{76}
• Gasket
44{450}
×4
23{238}
12{122}
×4
12{122}
44{450}
×6
150{1530}
12{122}
Crank shaft pulley
• Timing chain (belt) oil seal
7.5{76}
Crank position sensor
Oil pan
8.5{87}
×2
8.5{87}
×2
×2
42{428}
×3
8.5{87}
×7
37{377}
8.5{87}
N*m {kgf*cm} : Specified torque
• Non-reusable part
MP grease application
A161720J02

07



N*m {kgf*cm} : Specified torque

A161718J01



*: Plastic region clamping method

N*m {kgf*cm}: Specified torque • Non-reusable part

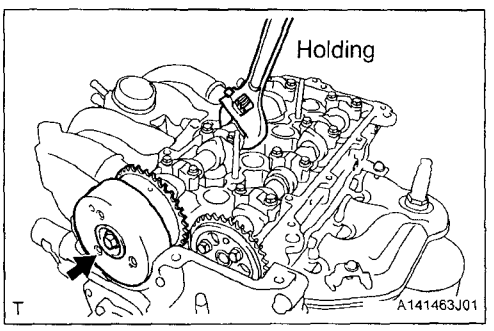
A161716J01

REMOVAL

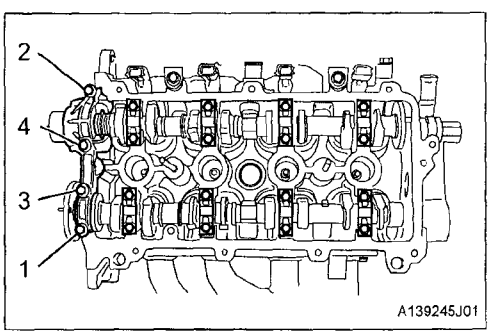
1. Fuel spill prevention work
   (See page 08-3)
2. Battery terminal disconnection
3. Cooling fluid withdrawal (See page 12-6)
4. Refrigerant HFC-134a (R134a) withdrawal (with Air conditioning system) (See page 52-42)
5. Front tire removal
6. Engine oil withdrawal
7. Manual transaxle oil withdrawal (See page 29-37)
8. Exhaust pipe assembly FR removal (See page 11-15)
9. Propeller with a center bearing shaft assembly removal (See page 35-3)
10. Brake fluid withdrawal
11. Battery hold down clamp removal (See page 07-113)
12. Radiator reserve tank assembly removal (See page 07-113)
13. Battery cover removal
14. Battery removal
15. Battery tray removal (See page 07-113)
16. Air cleaner cap removal
17. Air cleaner filter element removal
18. Vacuum sensor disconnection (See page 06-140)
19. Vacuum switching valve assembly (with Bracket) disconnection (See page 06-140)
20. Inlet air temperature sensor disconnection (See page 06-140)
21. Precleaner hose removal (See page 06-141)
22. Air cleaner assembly removal (See page 06-141)
23. Radiator inlet hose disconnection (See page 12-10)
24. Water bypass hose disconnection (See page 12-10)
25. Radiator outlet hose disconnection (See page 12-10)
26. With water fan assembly removal (See page 12-11)
27. Heater inlet water hose disconnection (See page 52-164)
28. Heater outlet water hose disconnection (See page 52-164)
29. Front bumper cover removal (See page 82-5)
30. Fan & alternator V belt removal (See page 07-6)
31. Cooler refrigerant suction hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
32. Cooler refrigerant discharge hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
33. Compressor assembly with magnet clutch removal (with Air conditioning system) (See page 52-131)
34. Cooler refrigerant liquid pipe A disconnection (with Air conditioning system) (See page 52-136)
35. Radiator assembly removal (See page 07-114)
36. Fuel hose disconnection (See page 07-114)
37. Accelerator control cable assembly disconnection (See page 07-115)
38. Ground cable disconnection (See page 07-115)
39. Vacuum hose assembly disconnection (See page 07-116)
40. Engine room main wire disconnection (See page 07-116)
41. Engine wire disconnection (See page 07-116)
42. Clutch release cylinder assembly disconnection (See page 29-38)
43. Clutch hose disconnection (See page 29-38)
44. Steering column hole cover No. 1 removal (See page 48-15)
45. Steering column assembly disconnection (See page 49-70)
46. Shift lever knob removal (See page 29-59)

47. Rear console box removal (See page 29-59)
48. Console box carpet removal (See page 29-59)
49. Console box assembly removal (See page 29-59)
50. Transmission floor shift assembly removal (See page 29-60)
51. Engine undercover LH removal (See page 07-116)
52. Engine undercover RH removal (See page 07-116)
53. Front stabilizer link assembly RH removal(See page 07-117)
54. Front stabilizer link assembly RH removal (See page 07-117)
55. Front stabilizer bar removal (See page 42-16)
56. Front suspension cross member LH removal (See page 07-117)
57. Front suspension cross member RH removal (See page 07-117)
58. Speed sensor FR LH disconnection (See page 36-7)
59. Speed sensor FR RH disconnection (See page 36-7)
60. Front disc brake cylinder assembly LH removal (See page 36-8)
61. Front disc brake cylinder assembly RH removal (See page 36-8)
62. Axle hub nut removal (LH) (See page 36-8)
63. Axle hub nut removal (RH) (See page 36-8)
64. Tie rod end LH disconnection (See page 36-8)
65. Tie rod end RH disconnection (See page 36-9)
66. Front shock absorber assembly LH disconnection (See page 07-53)
67. Front shock absorber assembly RH disconnection (See page 07-53)
68. Front drive shaft assembly LH removal (See page 07-54)
69. Front drive shaft assembly RH removal (See page 07-54)
70. Steering knuckle LH removal (See page 07-54)
71. Steering knuckle RH removal (See page 07-54)
72. Radiator support LWR removal (See page 07-118)
73. Engine assembly with transaxle removal (See page 07-118)
74. Front suspension cross member removal (See page 07-119)
75. Engine mounting insulator RR removal (See page 07-119)
76. Starter assembly removal (See page 07-120)
77. Transaxle assembly support (See page 07-120)
78. Transfer assembly removal (See page 07-121)
79. Transaxle assembly removal (See page 07-121)
80. Throttle body bracket No. 2 removal (See page 07-122)
81. Accelerator control cable bracket removal (See page 07-123)
82. Air cleaner support bracket No. 2 removal (See page 07-123)
83. Ventilation hose No. 2 removal (See page 06-141)
84. Engine wire removal (See page 07-123)
85. Ventilation hose removal (See page 07-126)
86. Noise filter removal (See page 07-127)
87. Ignition coil assembly removal (See page 07-128)
88. Oil level gage removal (See page 07-128)
89. Cylinder head cover removal (See page 07-249)
90. Crankshaft pulley removal (See page 07-216)
91. Water pump pulley removal (See page 07-216)
92. Idler pulley No. 2 removal (See page 07-217)
93. Idler pulley removal (See page 07-217)
94. Camshaft timing oil control valve assembly removal (See page 07-217)

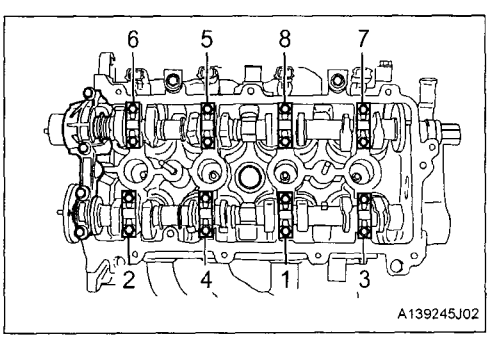
95. Crank position sensor removal (See page 07-217)
96. Oil pan removal (See page 07-218)
97. Timing chain (belt) cover removal (See page 07-218)
98. Timing chain (belt) cover oil seal removal (See page 07-219)
99. Crank angle sensor plate No. 1 removal (See page 07-219)
100. Chain tensioner plunger removal (See page 07-219)
101. Timing chain tension arm removal (See page 07-220)
102. Timing chain guide removal (See page 07-220)
103. Timing chain guide No. 2 removal (See page 07-220)
104. Chain removal



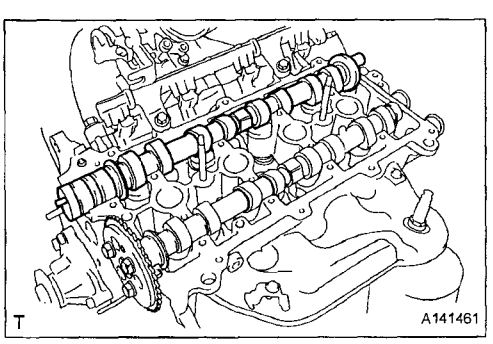
105. Camshaft timing sprocket removal
(1) Remove the camshaft timing sprocket installation bolt by using the service hexagonal part of the camshaft.



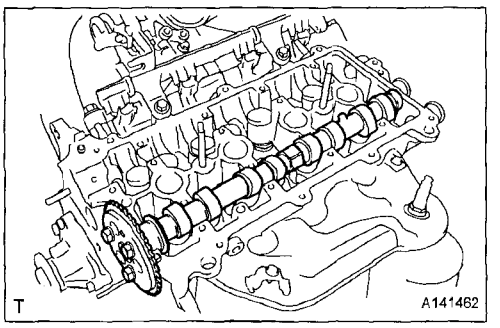
106. Camshaft bearing cap No. 1 removal
(1) Remove the camshaft bearing cap No. 1 in the order shown in the diagram.



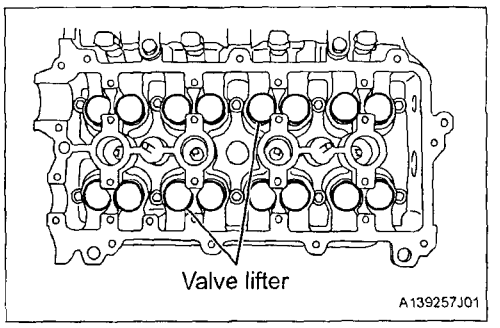
107. Camshaft bearing cap No. 2 removal
(1) Remove the camshaft bearing caps No. 2 in the order shown in the diagram.
<CAUTION>
Holding the camshaft in a horizontal position, loosen the bolts evenly.



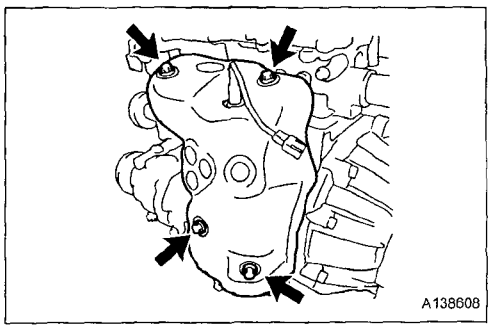
108. Camshaft removal
(1) Remove the camshaft.



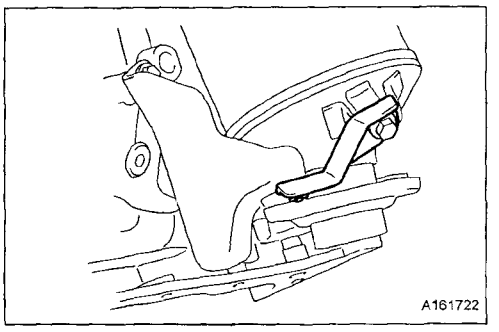
109.Camshaft No. 2 removal
(1) Remove the camshaft No. 2.



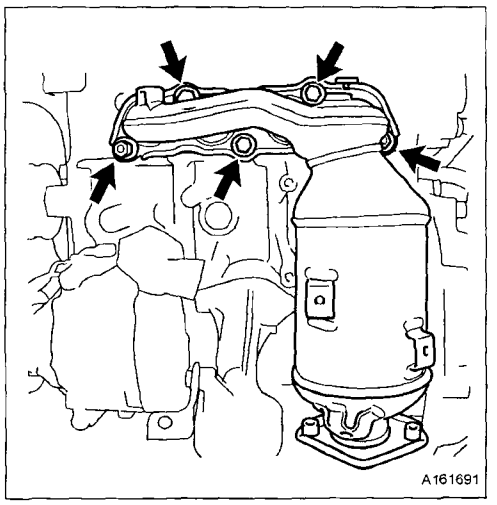
110.Valve lifter removal
(1) Remove sixteen valve lifters.
<CAUTION>
Organize the removed valve lifters by installation position.



111.Exhaust manifold heat insulator No. 1 removal
(1) Remove four bolts and then the exhaust manifold heat insulator No. 1.

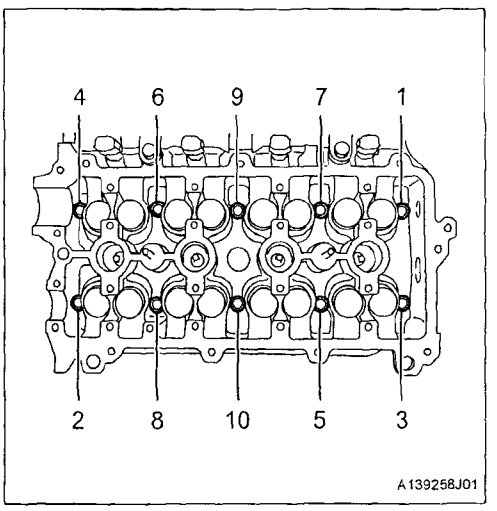


112.Manifold stay removal
(1) Remove the bolt, the nut, and the manifold stay.



113.Exhaust manifold converter removal

(1) Remove three bolts, two nuts, and the exhaust manifold converter.



114.Cylinder head removal

(1) Use a double hexagon wrench 8 to loosen the cylinder head bolts in small steps in the order shown in the diagram and then remove the cylinder head bolts and washers.

<CAUTION>

> When pulling out the cylinder head bolts, be sure not to drop the washers in the cylinder head.

> Deviation from the specified order may damage the cylinder head.

(2) Remove the cylinder head.

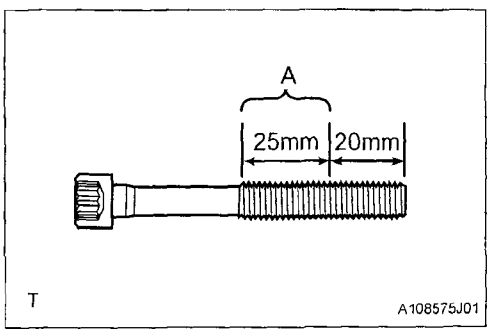
115.Cylinder head gasket removal

(1) Remove the cylinder head gasket.

<HINT>

> Clean and check the bolt hole on the cylinder block side.

> Any damage should be repaired with a tap.



116.Cylinder head bolt check

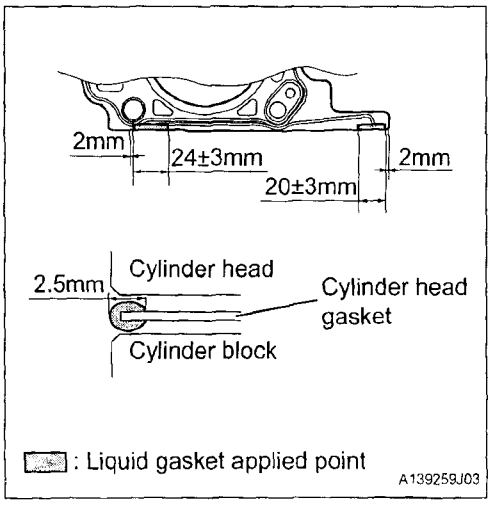
(1) Measure the outside diameter of the part within range A in the diagram using a vernier caliper.

Limits: 8.75 mm

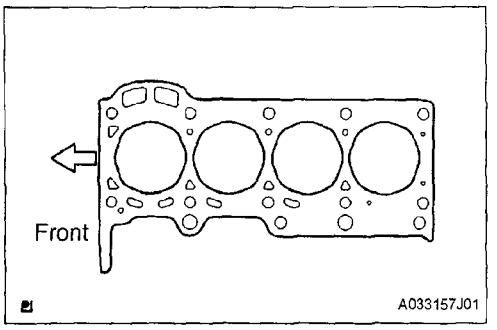
<HINT>

The outside diameter should be measured in more than one location. If the minimum value is at or above the limits, be sure to replace the cylinder head bolt with a new one. Otherwise the bolt may damage the engine.

INSTALLATION

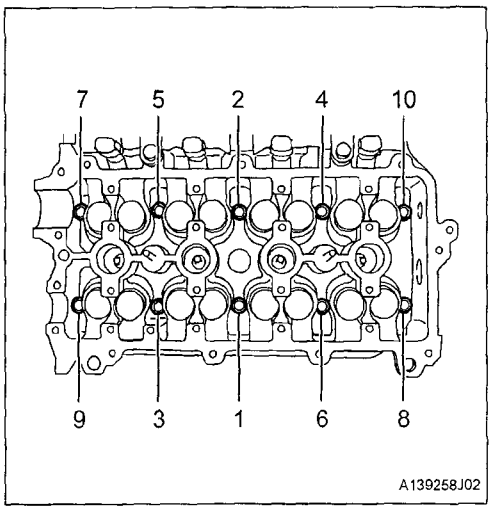


1. Cylinder head gasket installation
   (1) Apply Three Bond 1280E in the location shown in the diagram.
   <CAUTION>
   > Clean and degrease the mating surface.
   > After applying Three Bond 1280E, attach the cylinder head gasket within three minutes and tighten the cylinder head bolt within fifteen minutes.



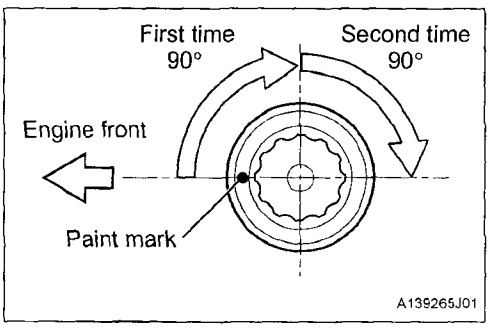
   (2) Attach a new cylinder head gasket in the direction shown in the diagram.
   <CAUTION>
   Check installation direction.

2. Cylinder head installation
   <CAUTION>
   Tighten the cylinder head bolt by the plastic region clamping method.
   (1) Attach the cylinder head.
   <CAUTION>
   Avoid damaging the cylinder head gasket during installation.
   (2) Coat the threaded part and bearing surface of the cylinder head bolt with a small amount of engine oil.



   (3) Use a double hexagon wrench 8 to temporarily tighten the cylinder head bolts and washers in small steps in the order shown in the diagram and then tighten them with the specified torque.
   Specified value:T=34N*m {347kgf*cm}

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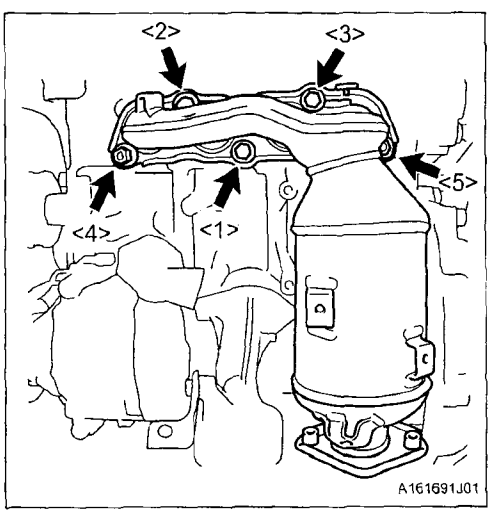
(4) Put a paint mark on the engine front side of the head of each cylinder head bolt.

(5) Using the paint mark as a guide, tighten each cylinder head bolt in two steps, 90° at a time, in the order shown in the diagram.

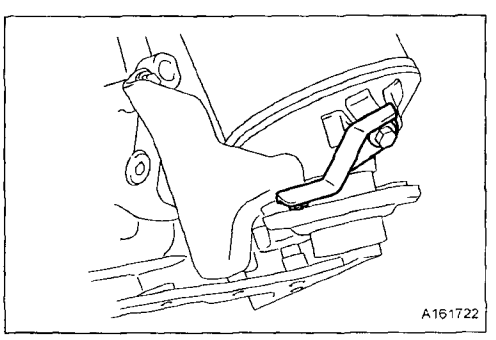
07

(6) Make sure that positions of all the paint marks show that the bolts have been tightened 180°.

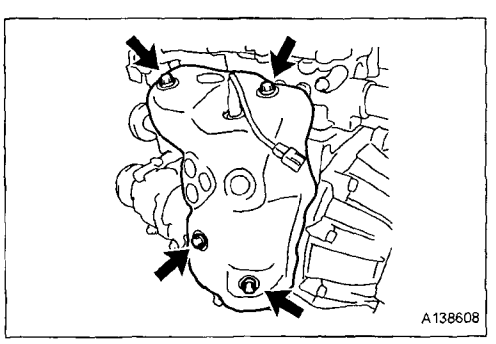
(7) When attaching the cylinder head, wipe off protruded liquid gasket.
<CAUTION>
When wiping off the liquid gasket, prevent it from getting inside the holes of the bolts and knock pins.



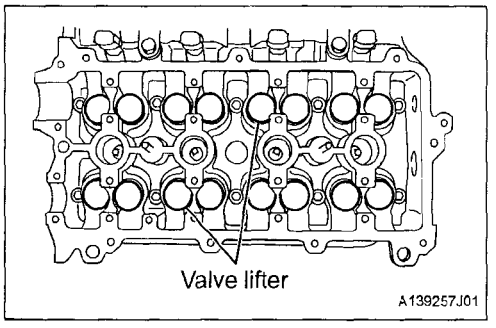
3. Exhaust manifold converter installation
(1) Attach a new exhaust manifold converter through a new gasket.
(2) Use three bolts and two nuts to attach the exhaust manifold converter in the order shown in the diagram.
Specified value:T=25N*m {255kgf*cm} (Bolt)
T=25N*m {255kgf*cm} (Nut)



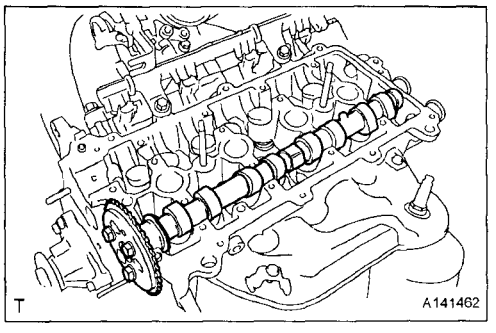
4. Manifold stay installation
(1) Use a bolt and nut to attach the manifold stay.
Specified value:T=25N*m {255kgf*cm} (Bolt)
T=25N*m {255kgf*cm} (Nut)



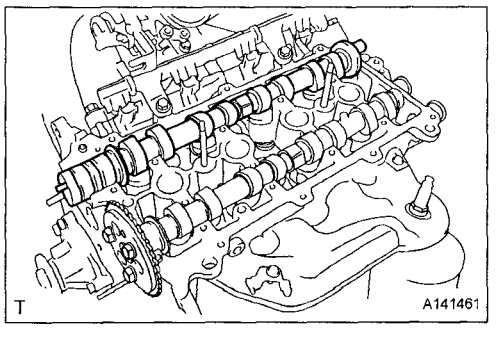
5. Exhaust manifold heat insulator No. 1 installation
(1) Use four bolts to attach the exhaust manifold heat insulator No. 1.
Specified value:T=8.5N*m {87kgf*cm}



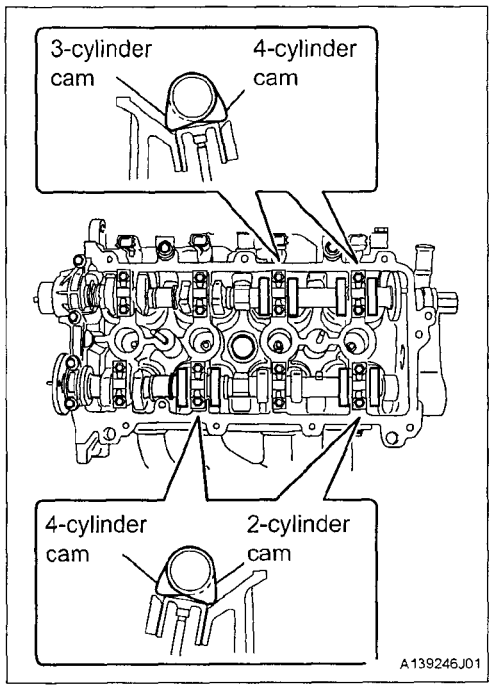
6. Valve lifter installation
   (1) Coat the end portion of the valve stem with engine oil.
   (2) Attach sixteen valve lifters.
   <CAUTION>
   Attach them back to the original positions.



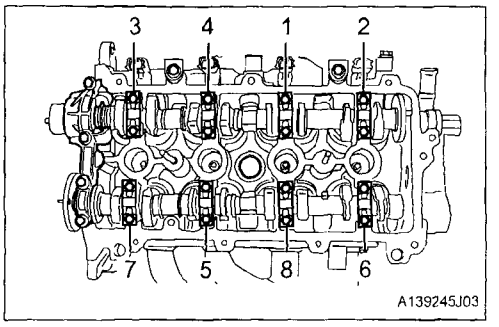
7. Camshaft No. 2 installation
   (1) Coat the cam of the camshaft No. 2 and the journals of the cylinder head with engine oil and attach the camshaft No. 2.



8. Camshaft installation
   (1) Coat the cam of the camshaft and the journals of the cylinder head with engine oil and attach the camshaft.

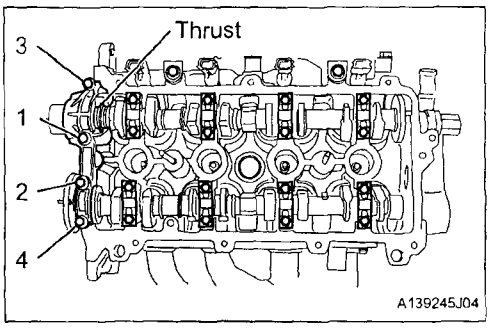


9. Camshaft bearing cap No. 2 installation
   (1) Adjust the positions of the camshaft and the camshaft No. 2 as shown in the diagram.



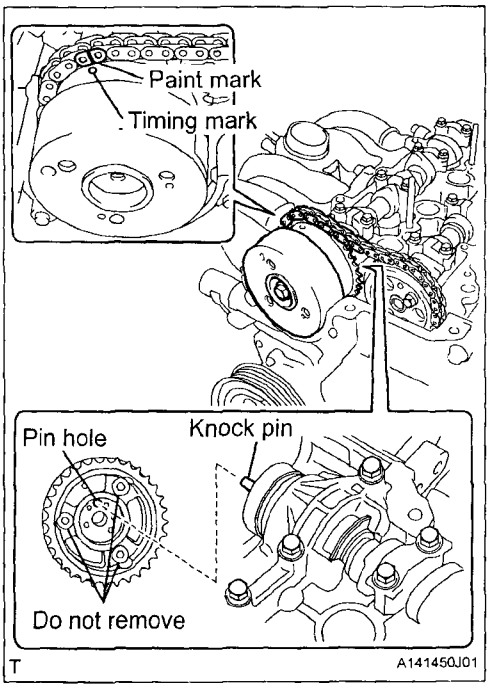
(2) Check the front marks and numbers on the camshaft bearing caps No. 2 and attach the camshaft bearing caps No. 2.

(3) Tighten the camshaft bearing caps No. 2 in the order shown in the diagram.
Specified value:T=12.5N*m {127kgf*cm}
<CAUTION>
Holding the camshaft in a horizontal position, tighten the bolts evenly.



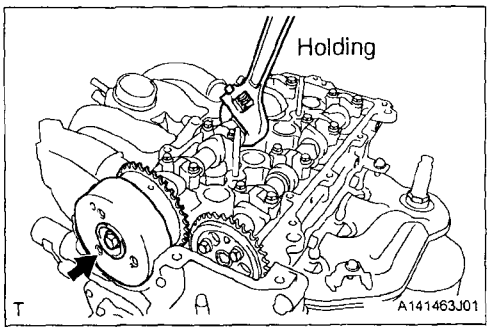
10. Camshaft bearing cap No. 1 installation

(1) Tighten the camshaft bearing cap No. 1 in the order shown in the diagram.
Specified value:T=12.5N*m {127kgf*cm}
<CAUTION>
Before tightening them, make sure that the camshaft thrusts fit in the grooves of the camshaft bearing caps No. 1.



11. Camshaft timing sprocket installation

(1) Align the knock pin of the camshaft with the pin hole in the camshaft timing sprocket and attach the camshaft timing sprocket to the camshaft.
<CAUTION>
> If the knock pin does not fit in the pin hole, use the service hexagonal part of the camshaft to slightly rotate the camshaft to the right and left sides until the knock pin fits in the pin hole. Do not strongly push the camshaft timing sprocket. Otherwise the end portion of the knock pin might damage the seal surface, resulting in seal defect.
> Never remove three bolts. If they are removed, replace the camshaft timing sprocket.



(2) Coat the treaded part and bearing surface of the camshaft timing sprocket installation bolt with a small amount of engine oil and temporarily attach the bolt.

(3) Tighten the camshaft timing sprocket installation bolt by using the service hexagonal part of the camshaft.
Specified value:T=47N*m {479kgf*cm}

12. Chain installation (See page 07-221)
13. Timing chain guide No. 2 installation (See page 07-221)
14. Timing chain guide installation (See page 07-221)
15. Timing chain tension arm installation (See page 07-222)
16. Chain tensioner plunger installation (See page 07-222)
17. Crank angle sensor plate No. 1 installation (See page 07-222)
18. Timing chain (belt) cover installation (See page 07-222)
19. Timing chain (belt) cover oil seal installation (See page 07-225)
20. Oil pan installation (See page 07-223)
21. Crank position sensor installation (See page 07-224)
22. Camshaft timing oil control valve assembly installation (See page 07-224)
23. Idler pulley installation (See page 07-224)
24. Idler pulley No. 2 installation (See page 07-225)
25. Water pump pulley installation (See page 07-225)
26. Crankshaft pulley installation (See page 07-225)
27. Cylinder head cover installation (See page 07-260)
28. Oil level gage installation (See page 07-129)
29. Ignition coil assembly installation (See page 07-129)
30. Noise filter installation (See page 07-130)
31. Ventilation hose installation (See page 07-131)
32. Engine wire installation (See page 07-135)
33. Ventilation hose No. 2 installation (See page 06-149)
34. Air cleaner support bracket No. 2 installation (See page 07-135)
35. Accelerator control cable bracket installation (See page 07-135)
36. Throttle body bracket No. 2 installation (See page 07-135)
37. Transaxle assembly support (See page 07-137)
38. Transaxle assembly installation (See page 07-138)
39. Transfer assembly installation (See page 07-138)
40. Starter assembly installation (See page 07-138)
41. Engine mounting insulator RR installation (See page 07-139)
42. Front suspension cross member installation (See page 07-139)
43. Engine assembly with transaxle installation (See page 07-139)
44. Radiator support LWR installation (See page 07-141)
45. Steering knuckle LH installation (See page 07-141)
46. Steering knuckle RH installation (See page 07-141)
47. Front drive shaft assembly LH installation (See page 07-84)
48. Front drive shaft assembly RH installation (See page 07-84)
49. Front shock absorber assembly LH installation (See page 36-16)
50. Front shock absorber assembly RH installation (See page 36-16)
51. Tie rod end LH installation (See page 36-16)
52. Tie rod end RH installation (See page 49-92)
53. Axle hub nut installation (LH) (See page 36-16)
54. Axle hub nut installation (RH) (See page 36-16)
55. Front disc brake cylinder assembly LH installation (See page 36-16)
56. Front disc brake cylinder assembly RH installation (See page 36-17)
57. Speed sensor FR LH installation (See page 36-17)
58. Speed sensor FR RH installation (See page 36-17)
59. Front suspension cross member LH installation (See page 07-141)

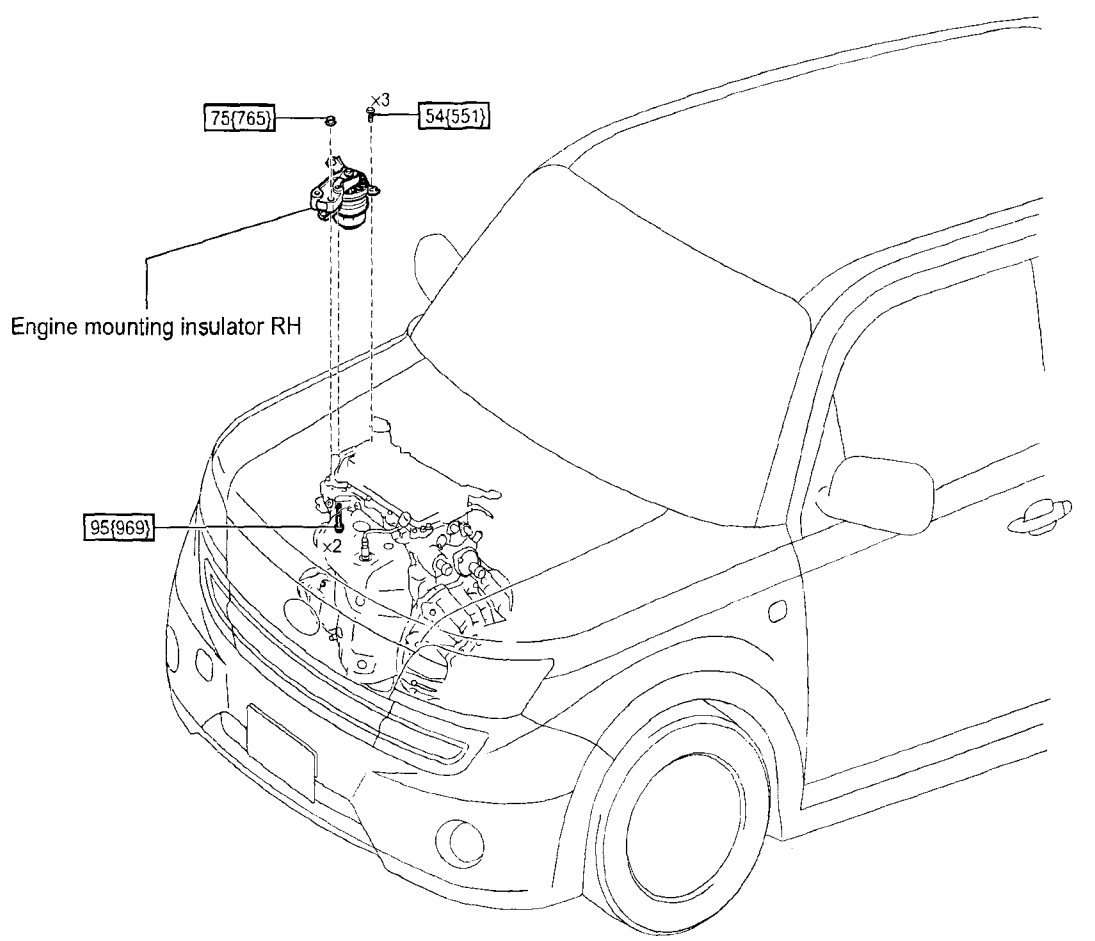
60. Front suspension cross member RH installation (See page 07-141)
61. Front stabilizer bar installation (See page 07-142)
62. Engine undercover LH installation (See page 07-142)
63. Engine undercover RH installation (See page 07-142)
64. Transmission floor shift assembly installation (See page 29-60)
65. Console box assembly installation (See page 29-61)
66. Console box carpet installation (See page 29-61)
67. Rear console box installation (See page 29-62)
68. Shift lever knob installation (See page 29-62)
69. Steering column assembly connection (See page 49-79)
70. Steering column hole cover No. 1 installation (See page 48-18)
71. Clutch hose connection (See page 29-43)
72. Clutch release cylinder assembly installation (See page 29-44)
73. Engine wire connection (See page 07-143)
74. Engine room main wire connection (See page 07-143)
75. Vacuum hose assembly connection (See page 07-143)
76. Ground cable connection (See page 07-143)
77. Accelerator control cable assembly connection (See page 07-144)
78. Fuel hose connection (See page 07-145)
79. Radiator assembly installation (See page 07-145)
80. Cooler refrigerant liquid pipe A connection (with Air conditioning system) (See page 52-137)
81. Compressor assembly (with magnet clutch) installation (with Air conditioning system) (See page 52-134)
82. Cooler refrigerant discharge hose No. 1 connection (with Air conditioning system) (See page 52-134)
83. Cooler refrigerant suction hose No. 1 connection (with Air conditioning system) (See page 52-134)
84. Fan & alternator V belt installation (See page 07-6)
85. Front bumper cover installation (See page 82-15)
86. Heater outlet water hose connection (See page 52-177)
87. Heater inlet water hose connection (See page 52-178)
88. With water fan assembly installation (See page 12-13)
89. Radiator outlet hose connection (See page 12-14)
90. Water bypass hose connection (See page 12-14)
91. Radiator inlet hose connection (See page 12-14)
92. Air cleaner assembly installation (See page 06-149)
93. Precleaner hose installation (See page 06-149)
94. Inlet air temperature sensor connection (See page 06-150)
95. Vacuum switching valve assembly (with Bracket) connection (See page 06-150)
96. Vacuum sensor connection (See page 06-150)
97. Air cleaner filter element installation
98. Air cleaner cap installation
99. Battery tray installation (See page 07-146)
100. Battery installation
101. Battery cover installation
102. Radiator reserve tank assembly installation (See page 12-15)
103. Battery hold down clamp installation (See page 07-146)
104. Temporary tightening of the propeller with a center bearing shaft assembly (See page 35-5)
105. Final tightening of the propeller with a center bearing shaft assembly (See page 35-5)
106. Exhaust pipe assembly FR installation(See page 11-16)

107.Battery terminal connection
Specified value:T=6.4N*m {65kgf*cm}
108.Brake fluid replenishment (See page 45-4)
109.Clutch pipeline air bleeding (See page 27-3)
110.Clutch fluid leakage check
111.Brake fluid amount check (See page 45-4)
112.Cooling fluid replenishment (See page 12-6)
113.Engine oil replenishment
114.Manual transaxle oil replenishment (See page 29-45)
115.Cooling fluid leakage check (See page 12-6)
116.Cooling fluid amount check
117.Oil leakage check
118.Fuel leakage check (See page 08-7)
119.Exhaust gas leakage check (See page 11-16)
120.Engine idle-speed check (See page 07-4)
121.Ignition timing check (See page 07-2)
122.CO and HC level check (See page 07-4)
123.Refrigerant HFC-134a (R134a) filling (with Air conditioning system) (See page 52-42)
124.Front tire installation
Specified value:T=103N*m {1050kgf*cm}
125.Front wheel alignment check · adjustment
(See page 26-135)
126.Test mode check (speed sensor system)
with ABS: (See page 44-15)

TIMING CHAIN (BELT) COVER OIL SEAL (3SZ-VE, K3-VE)

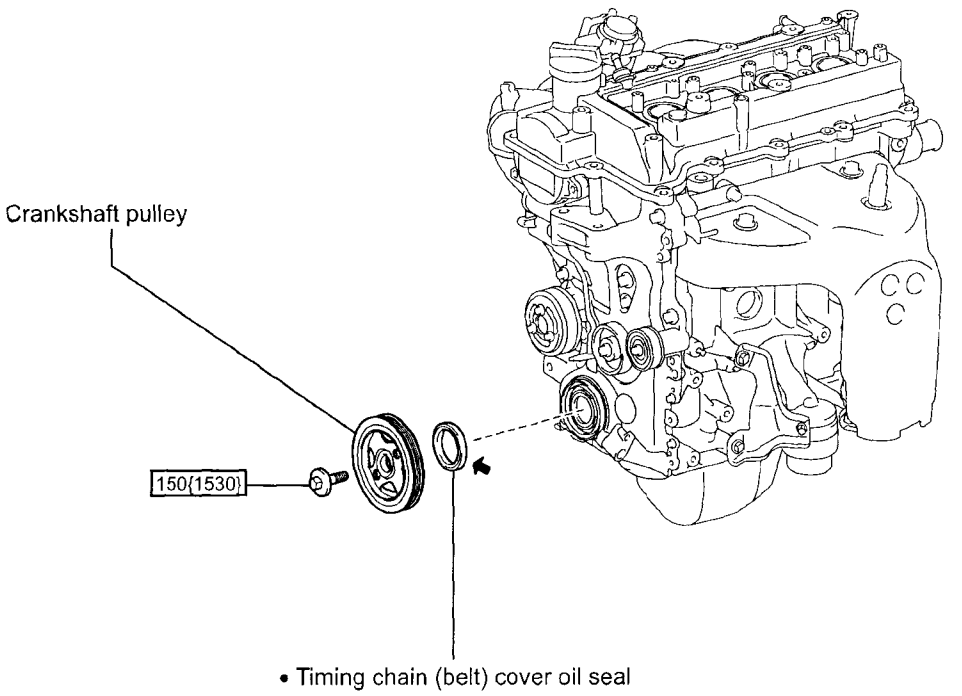
COMPONENTS

07



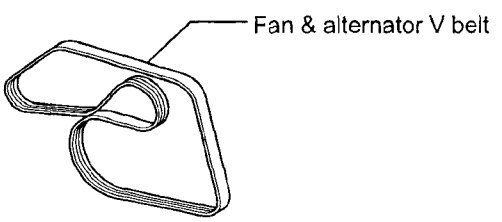
N*m {kgf*cm} : Specified torque

A159490J01





with Air conditioning system:



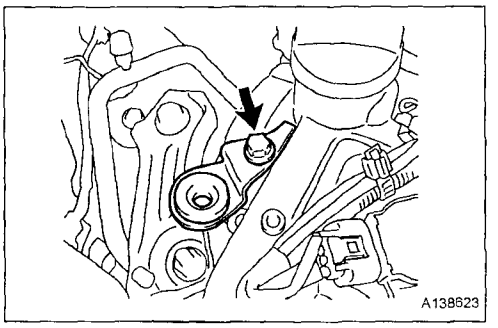
N*m {kgf*cm} : Specified torque • Non-reusable part

⬅ MP grease application

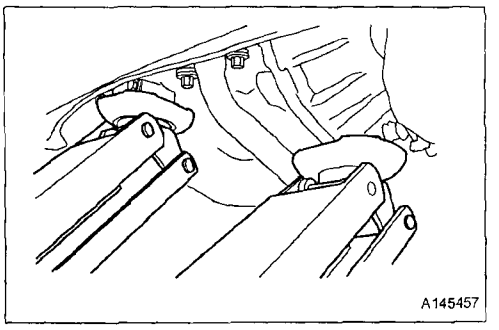
A161712J01

REMOVAL

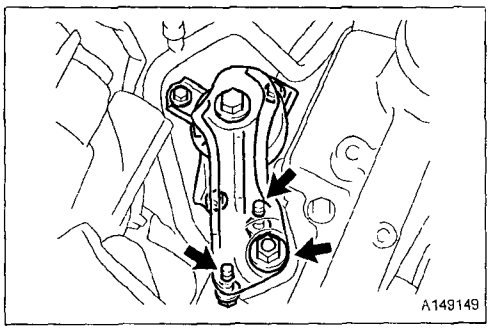
1. Front tire RH removal
2. Engine undercover RH removal
   (1) Remove one bolt, three clips, and the engine undercover RH.
3. Fan & alternator V belt removal (See page 07-6)
4. Precleaner hose removal (See page 06-141)



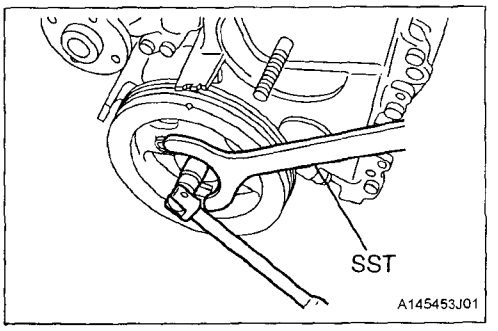
5. Air cleaner inlet bracket No. 1 removal
   (1) Remove the bolt and then the air cleaner inlet bracket No. 1.



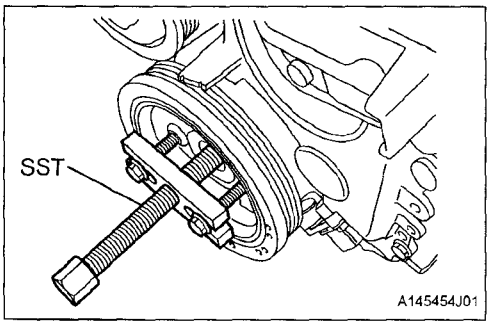
6. Engine mounting insulator RH removal
   (1) Support the engine assembly W transaxle with a jack.
   <CAUTION>
   When attaching a garage jack, put a piece of damage prevention waste.



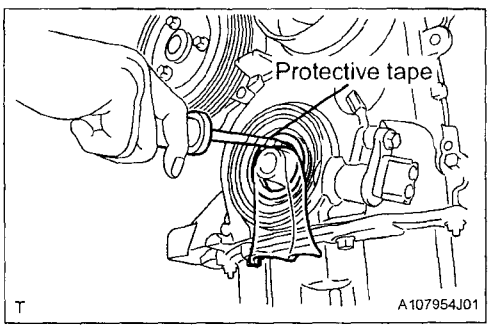
   (2) Remove two bolts and nuts and disconnect the engine mounting insulator RH.



7. Crankshaft pulley removal
   (1) Fix the crankshaft pulley by using SST and loosen the bolt.
   SST 09278-87201



(2) Use SST to remove the crankshaft pulley.
SST 09306-87501
<CAUTION>
When attaching SST to the crankshaft, check the installation position to make sure that the SST fixing bolt does not come in contact with the chain cover.

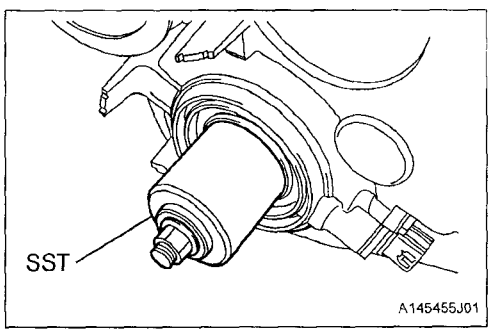


8. Timing chain (belt) cover oil seal removal
(1) Use a flathead screwdriver wrapped in protective tape to remove the timing chain (belt) cover oil seal.
<CAUTION>
After the timing chain (belt) cover oil seal is removed, make sure that the crankshaft has no flaw. If it has a flaw, mend it with sand paper (#400).

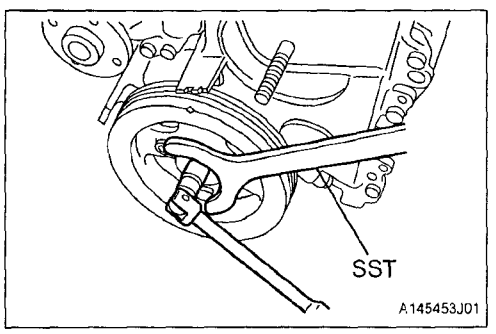
07

INSTALLATION

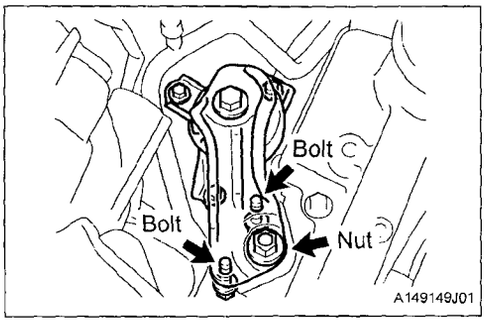
1. Timing chain (belt) cover oil seal installation
(1) Coat the lip of a new timing chain (belt) cover oil seal with a small amount of Ammix MP grease.
<CAUTION>
Keep chips, sand, and other foreign particles off the lip.



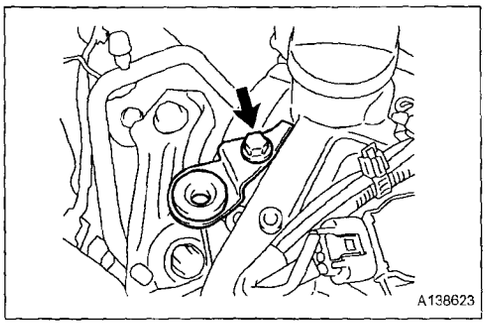
(2) Use SST to vertically press fit a new timing chain (belt) cover oil seal.
SST 09223-87202
<CAUTION>
> Do not diagonally press in the timing chain (belt) cover oil seal.
> Wipe grease off the crankshaft.
<HINT>
Press fit length from the end surface of the timing chain (belt) cover: pop-up amount of 0.5 mm or less and press fit depth of 1 mm or less



2. Crankshaft pulley installation
(1) Fix the crankshaft pulley and tighten the bolt by using SST.
SST 09278-87201
Specified value:T=150N*m {1,530kgf*cm}



3. Engine mounting insulator RH installation
   (1) Operate the jack to connect the engine mounting insulator RH with two bolts and a nut.
   Specified value:T=95N*m {969kgf*cm} (Bolt)
   T=75N*m {765kgf*cm} (Nut)
   (2) Remove the jack.



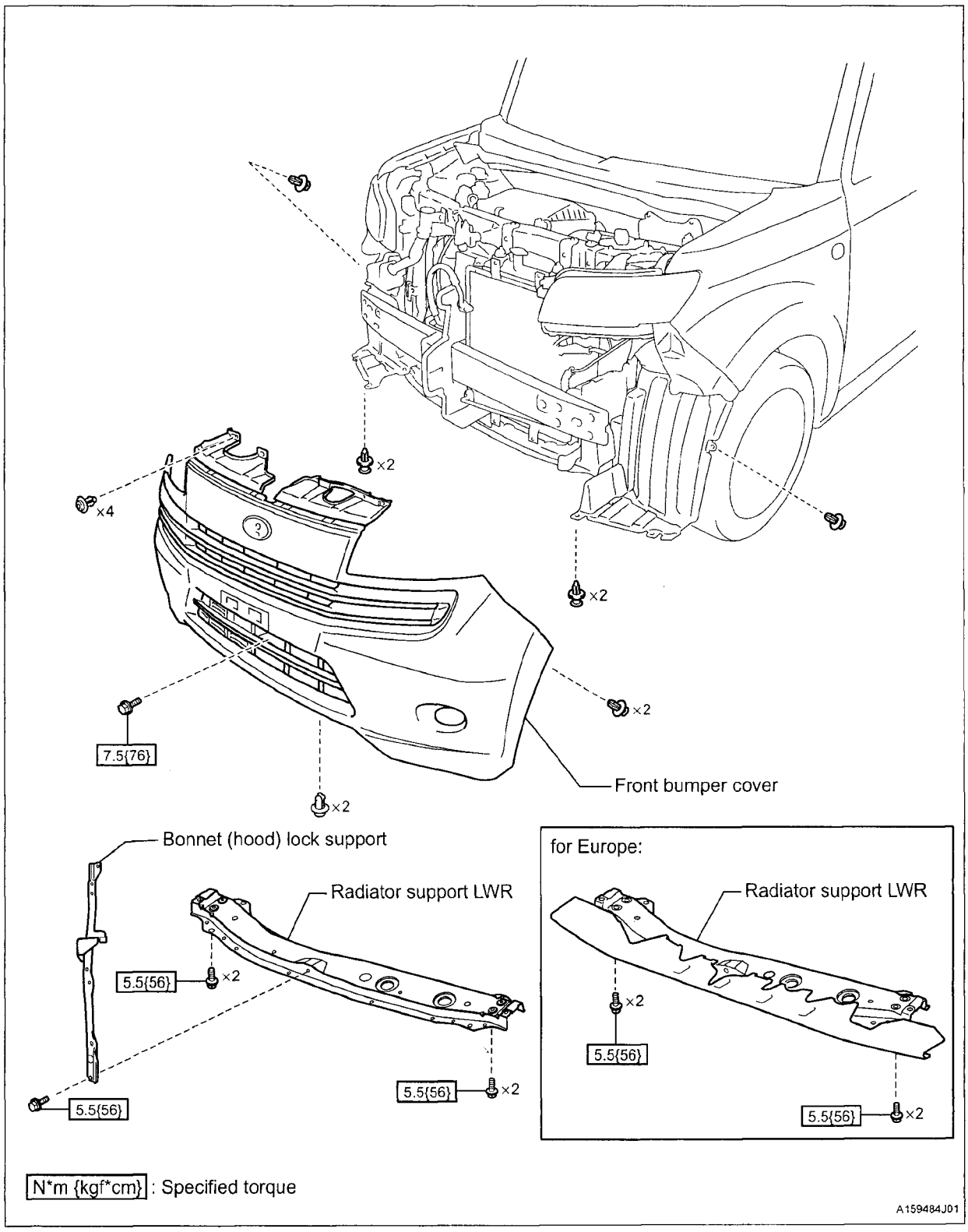
4. Air cleaner inlet bracket No. 1 installation
   (1) Use a bolt to attach the air cleaner inlet bracket No. 1.
   Specified value:T=18N*m {184kgf*cm}

07

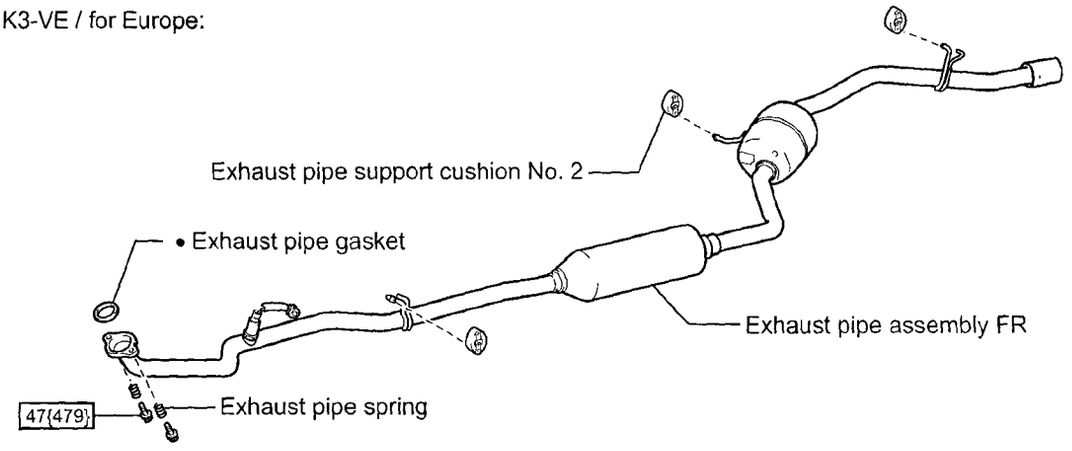
5. Precleaner hose installation (See page 06-149)
6. Fan & alternator V belt installation (See page 07-6)
7. Fan & alternator V belt adjustment (See page 07-7)
8. Fan & alternator V belt check(See page 07-1)
9. Engine oil leakage check
10. Engine undercover RH installation(See page 07-85)
11. Front tire RH installation
    Specified value:T=103N*m {1,050kgf*cm}

ENGINE REAR OIL SEAL (3SZ-VE, K3-VE / FF)

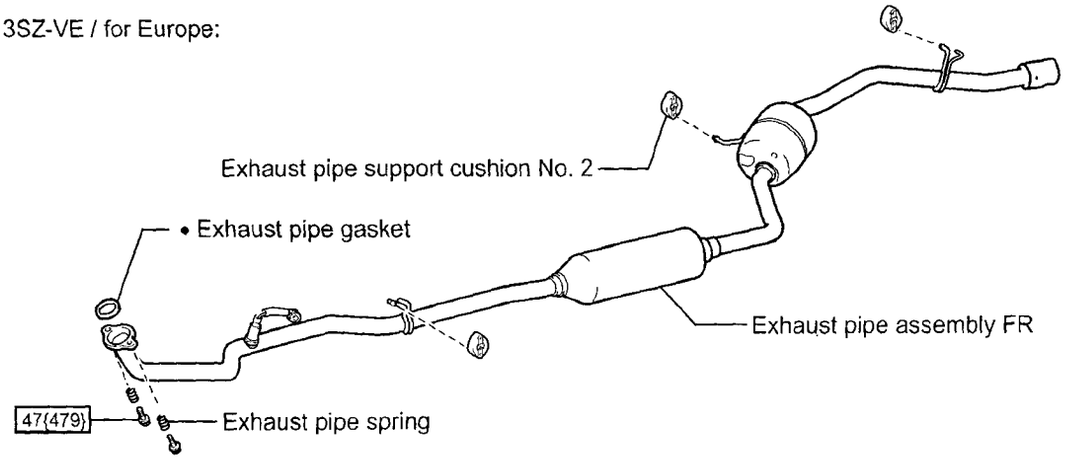
COMPONENTS



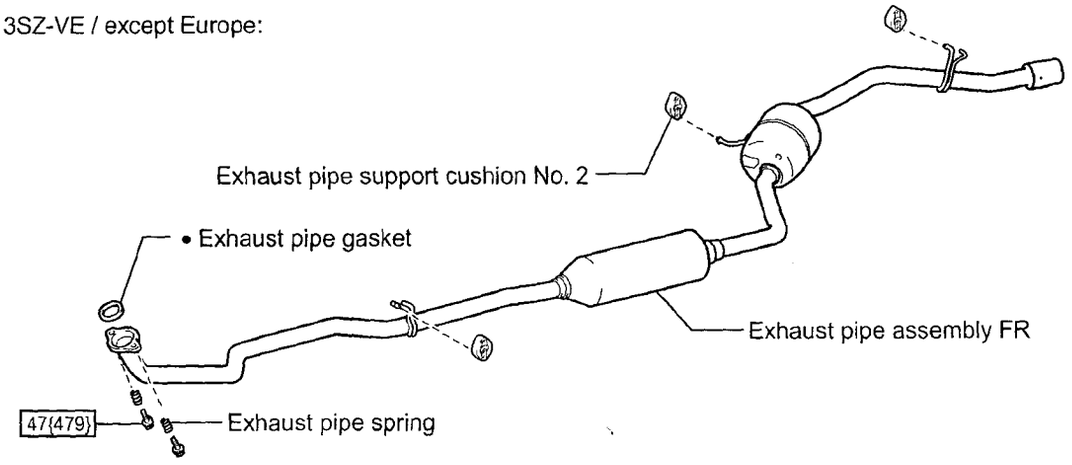
K3-VE / for Europe:



3SZ-VE / for Europe:

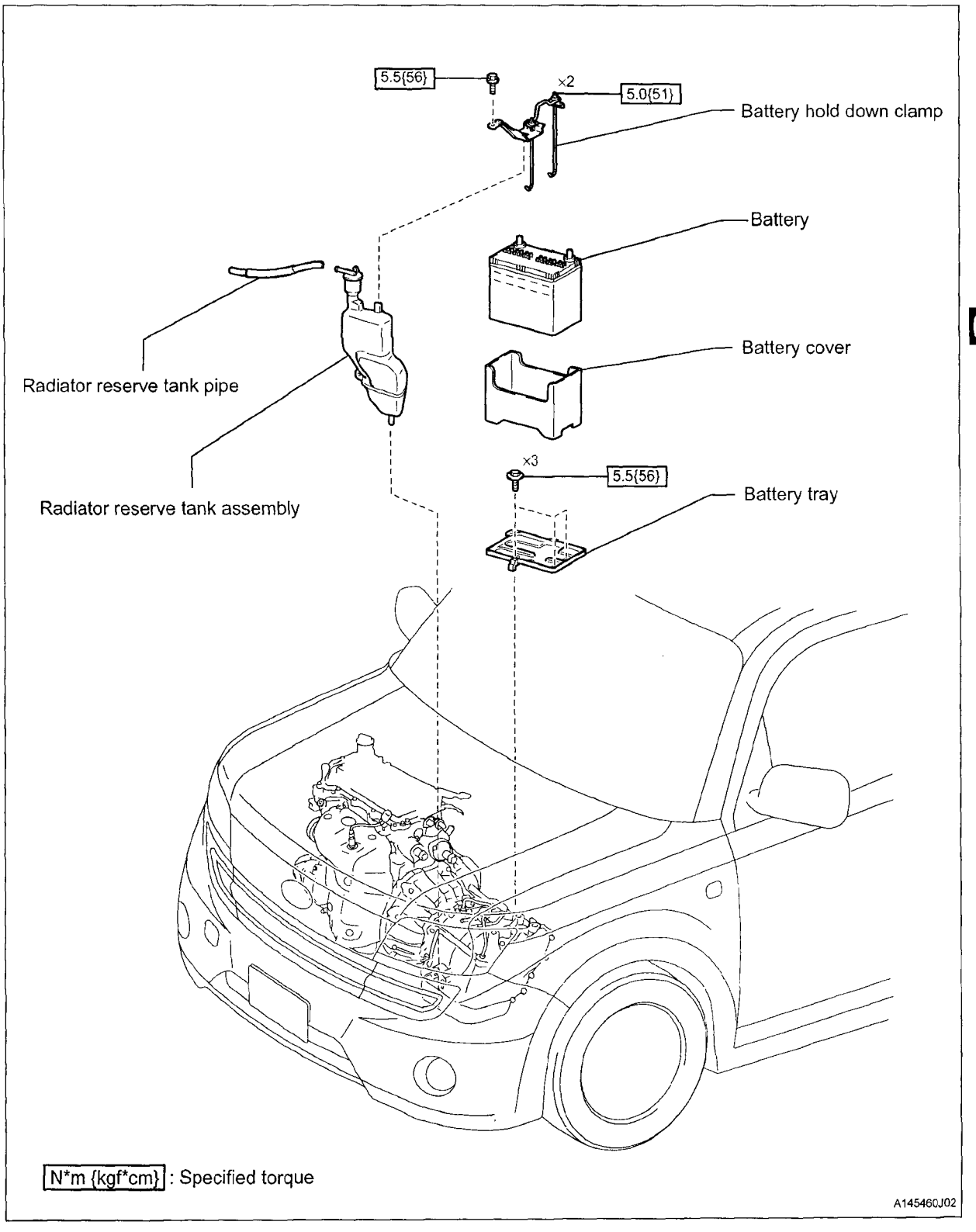


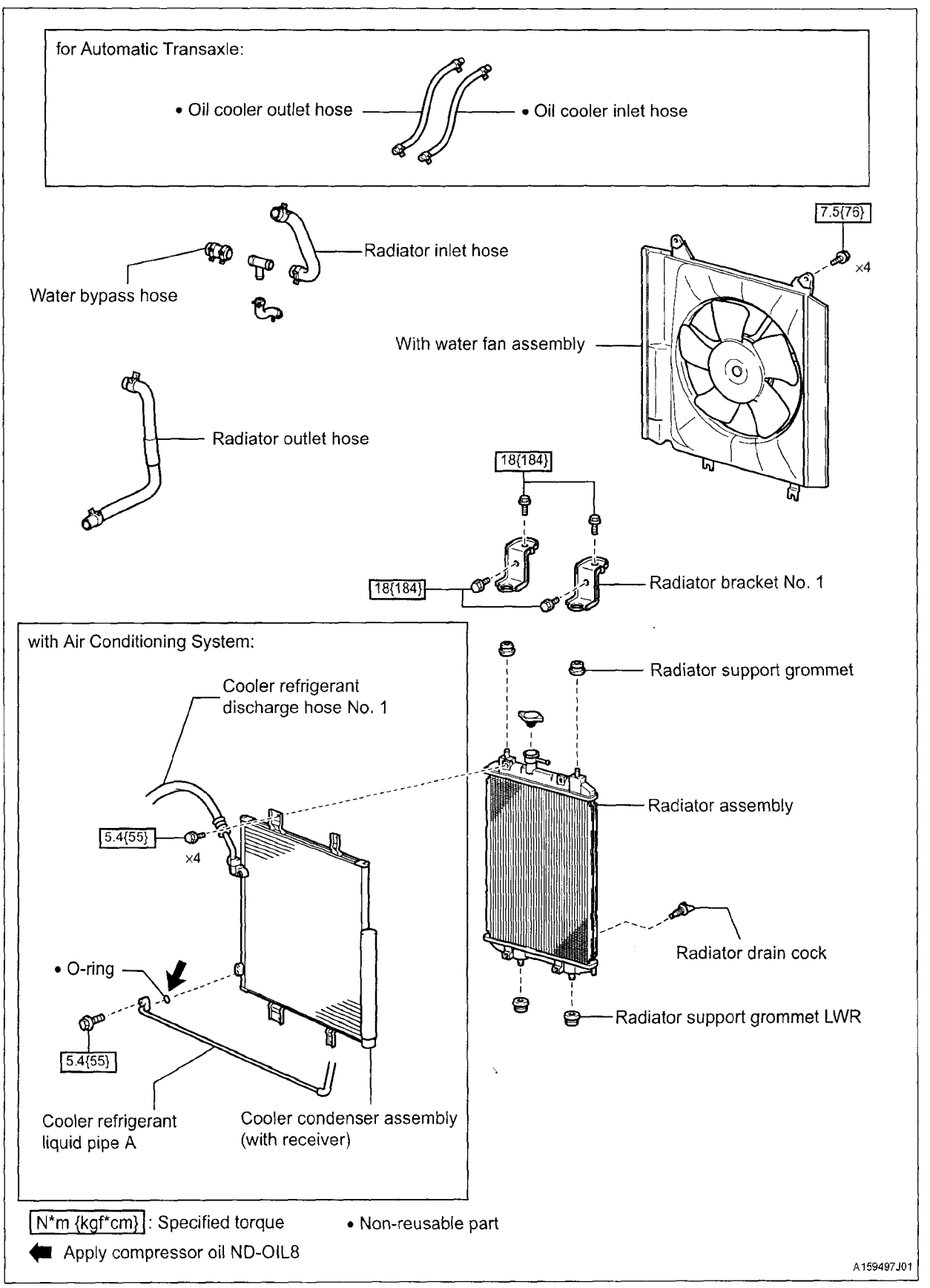
3SZ-VE / except Europe:

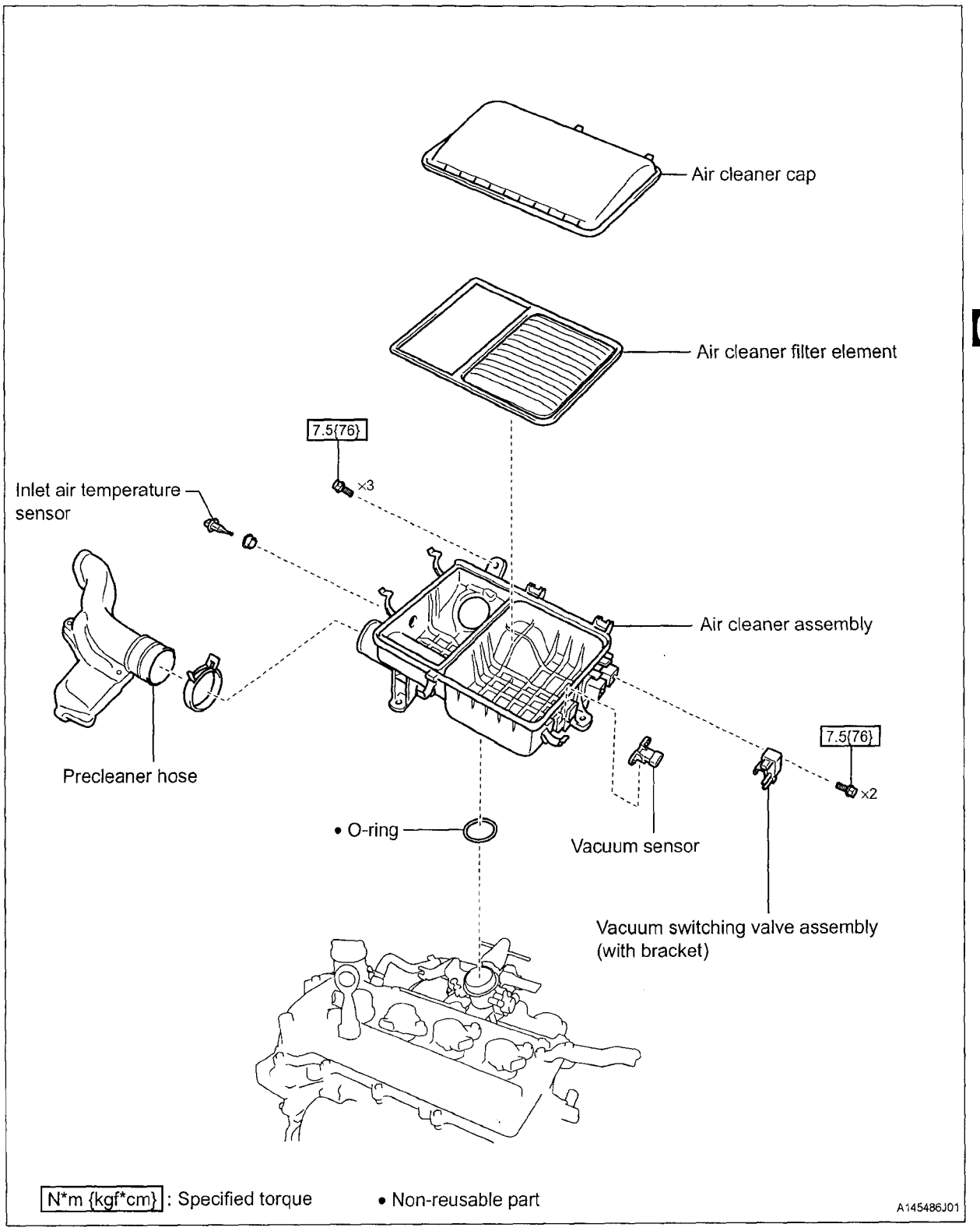


N*m {kgf*cm} : Specified torque • Non-reusable part

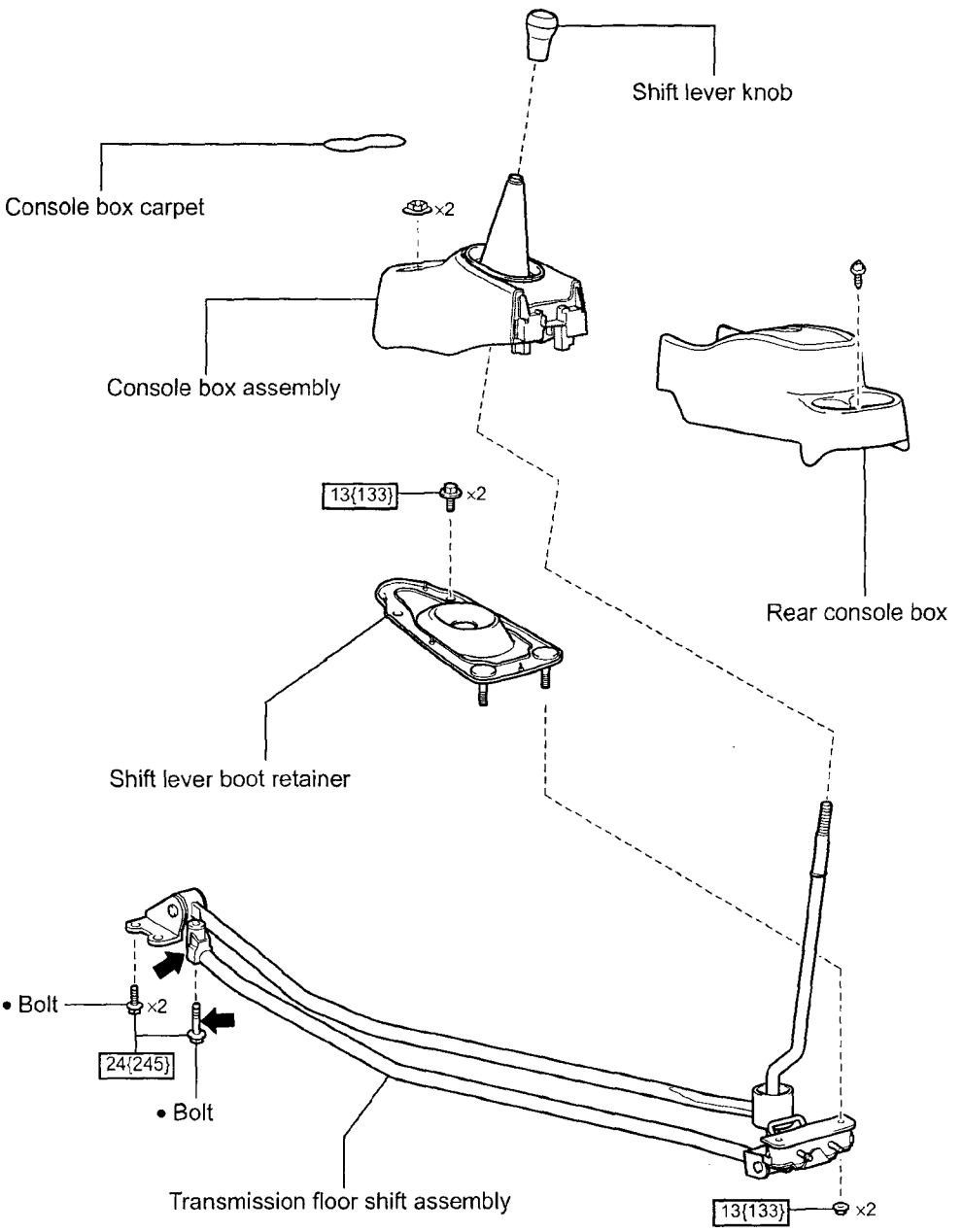
A159483J02


5.5{56}
×2
5.0{51}
Battery hold down clamp
Battery
Battery cover
Radiator reserve tank pipe
Radiator reserve tank assembly
×3
5.5{56}
Battery tray
N*m {kgf*cm} : Specified torque
A145460J02


for Automatic Transaxle:
• Oil cooler outlet hose
• Oil cooler inlet hose
Radiator inlet hose
Water bypass hose
7.5{76}
×4
With water fan assembly
Radiator outlet hose
18{184}
18{184}
Radiator bracket No. 1
with Air Conditioning System:
Cooler refrigerant discharge hose No. 1
Radiator support grommet
Radiator assembly
5.4{55}
×4
• O-ring
Radiator drain cock
5.4{55}
Radiator support grommet LWR
Cooler refrigerant liquid pipe A
Cooler condenser assembly (with receiver)
N*m {kgf*cm}: Specified torque
• Non-reusable part
Apply compressor oil ND-OIL8
A159497J01


Air cleaner cap
Air cleaner filter element
7.5{76}
×3
Inlet air temperature sensor
Air cleaner assembly
Precleaner hose
7.5{76}
×2
• O-ring
Vacuum sensor
Vacuum switching valve assembly (with bracket)
N*m {kgf*cm} : Specified torque
• Non-reusable part
A145486J01

07

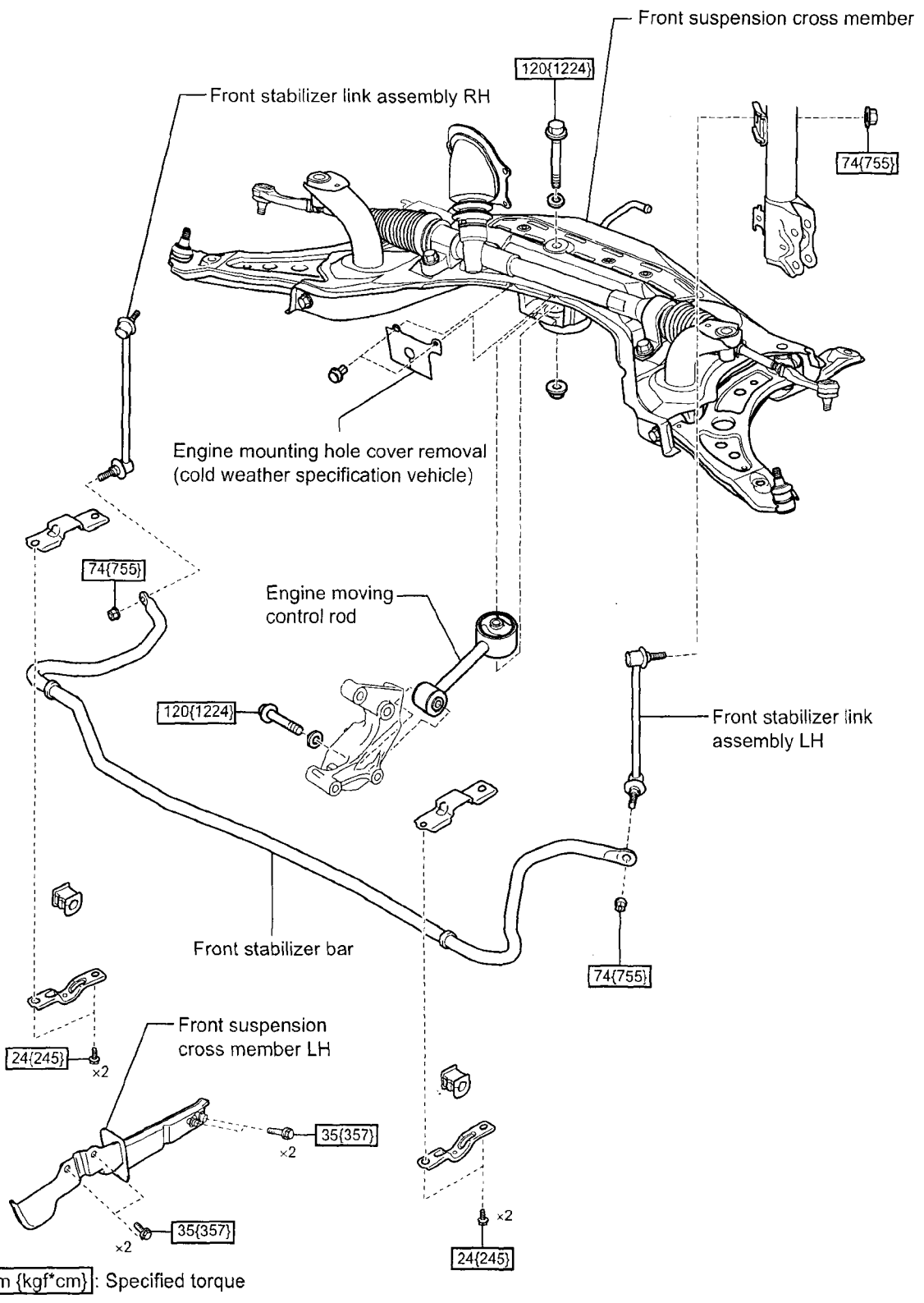


N*m {kgf*cm} : Spacified torque • Non-reusable part

⬅ Apply MP Grease

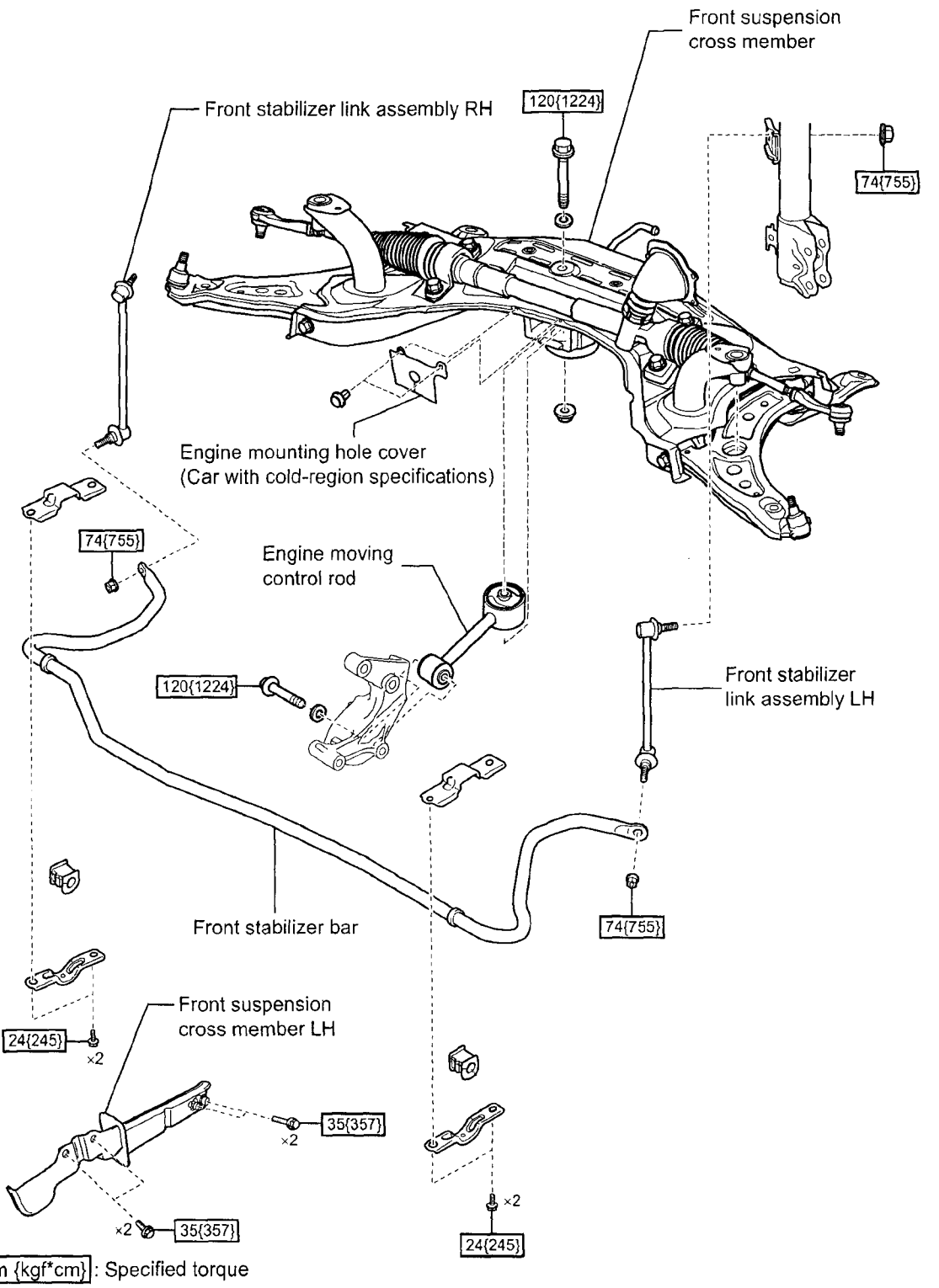
C159934J02

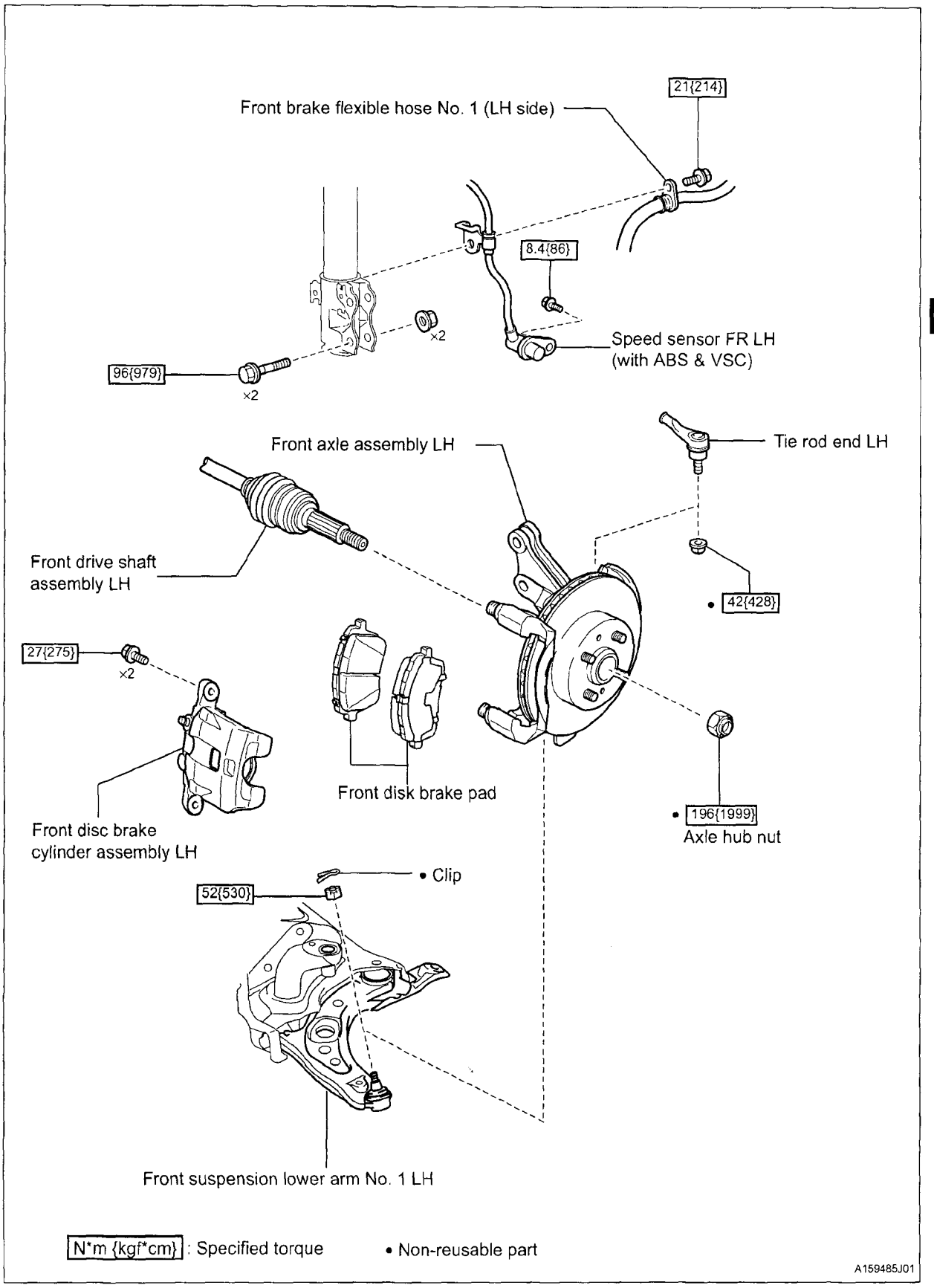
RHD:

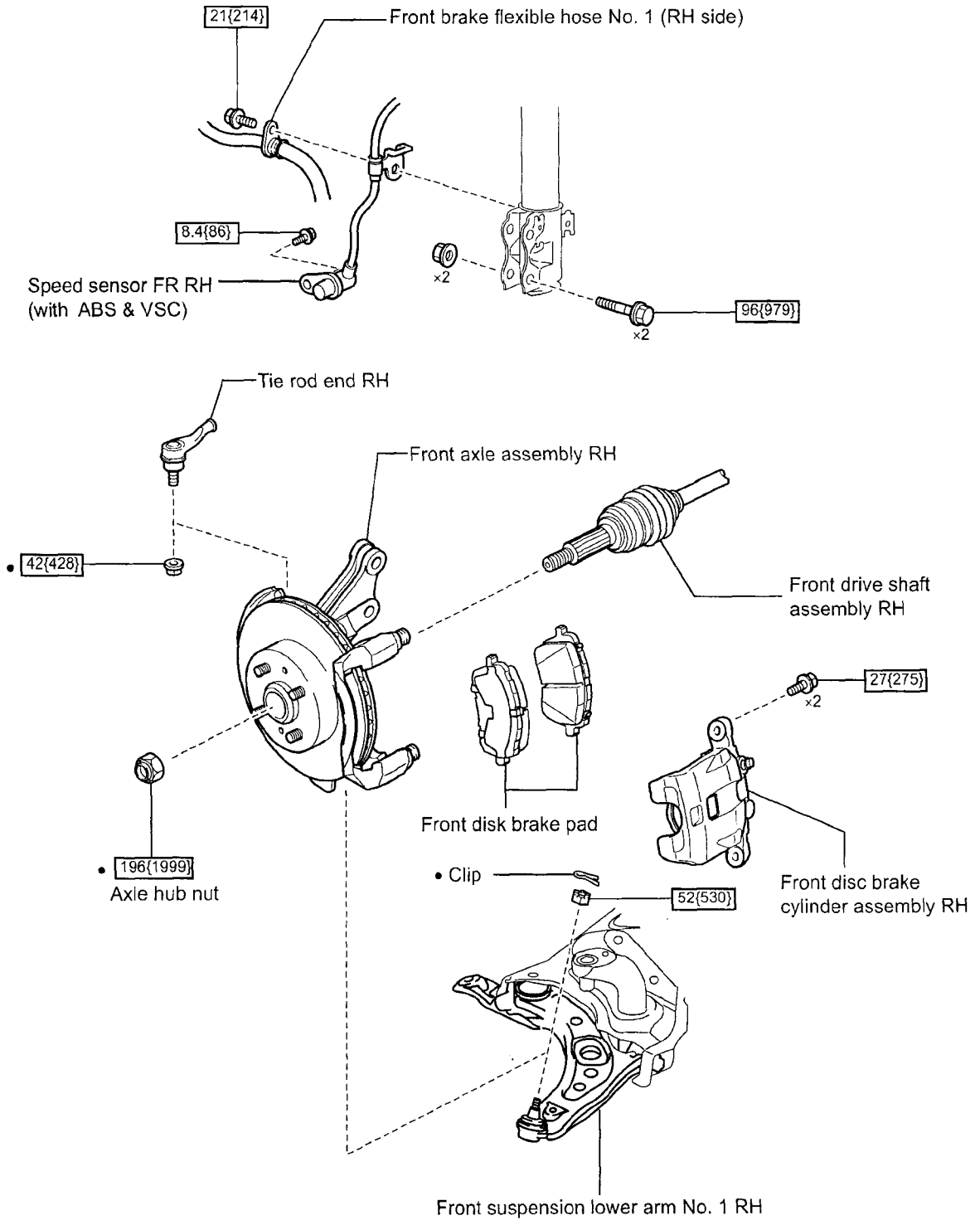

Front suspension cross member
120{1224}
Front stabilizer link assembly RH
74{755}
Engine mounting hole cover removal
(cold weather specification vehicle)
74{755}
Engine moving
control rod
120{1224}
Front stabilizer link
assembly LH
Front stabilizer bar
74{755}
Front suspension
cross member LH
24{245}
×2
35{357}
×2
35{357}
×2
×2
24{245}
N*m {kgf*cm}: Specified torque
A159531J01

07

LHD:

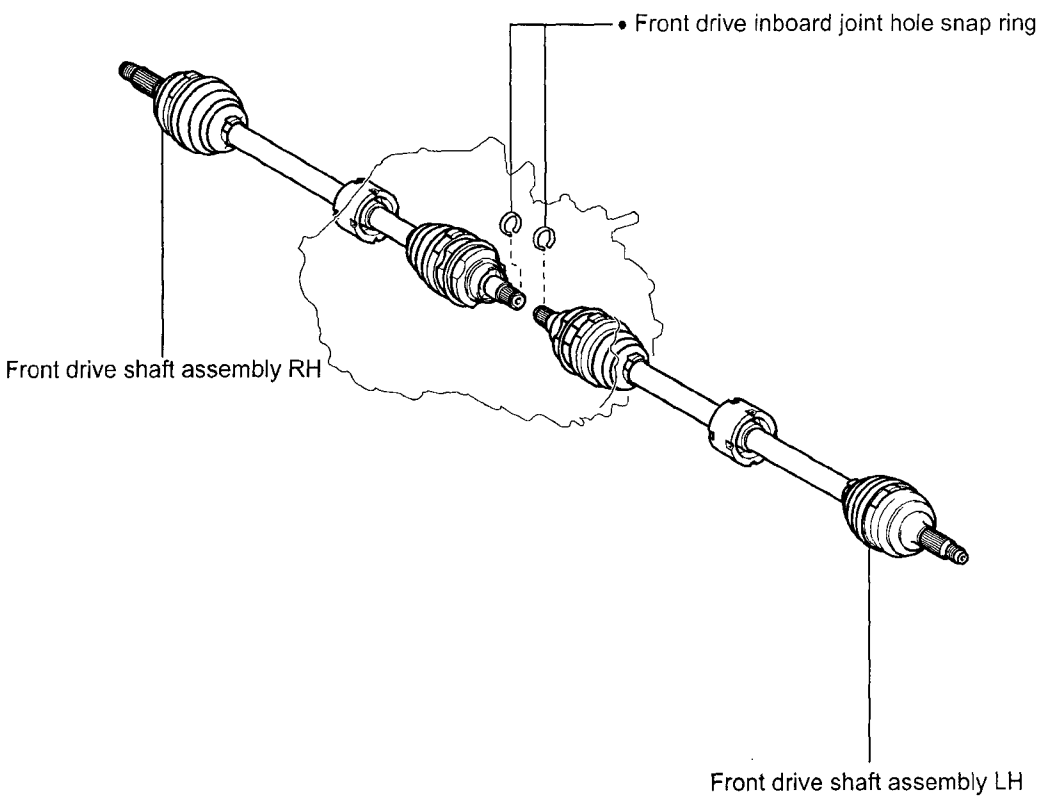

Front suspension cross member
Front stabilizer link assembly RH
120{1224}
74{755}
Engine mounting hole cover
(Car with cold-region specifications)
74{755}
Engine moving control rod
120{1224}
Front stabilizer link assembly LH
Front stabilizer bar
74{755}
Front suspension cross member LH
24{245}
×2
35{357}
×2
×2
35{357}
×2
24{245}
N*m {kgf*cm}: Specified torque
A161687J01


Front brake flexible hose No. 1 (LH side)
21{214}
8.4{86}
Speed sensor FR LH
(with ABS & VSC)
×2
96{979}
×2
Front axle assembly LH
Tie rod end LH
Front drive shaft
assembly LH
• 42{428}
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
Front disc brake
cylinder assembly LH
• Clip
52{530}
Front suspension lower arm No. 1 LH
N*m {kgf*cm}: Specified torque
• Non-reusable part
A159485J01



N*m {kgf*cm} : Specified torque • Non-reusable part

A159486J01

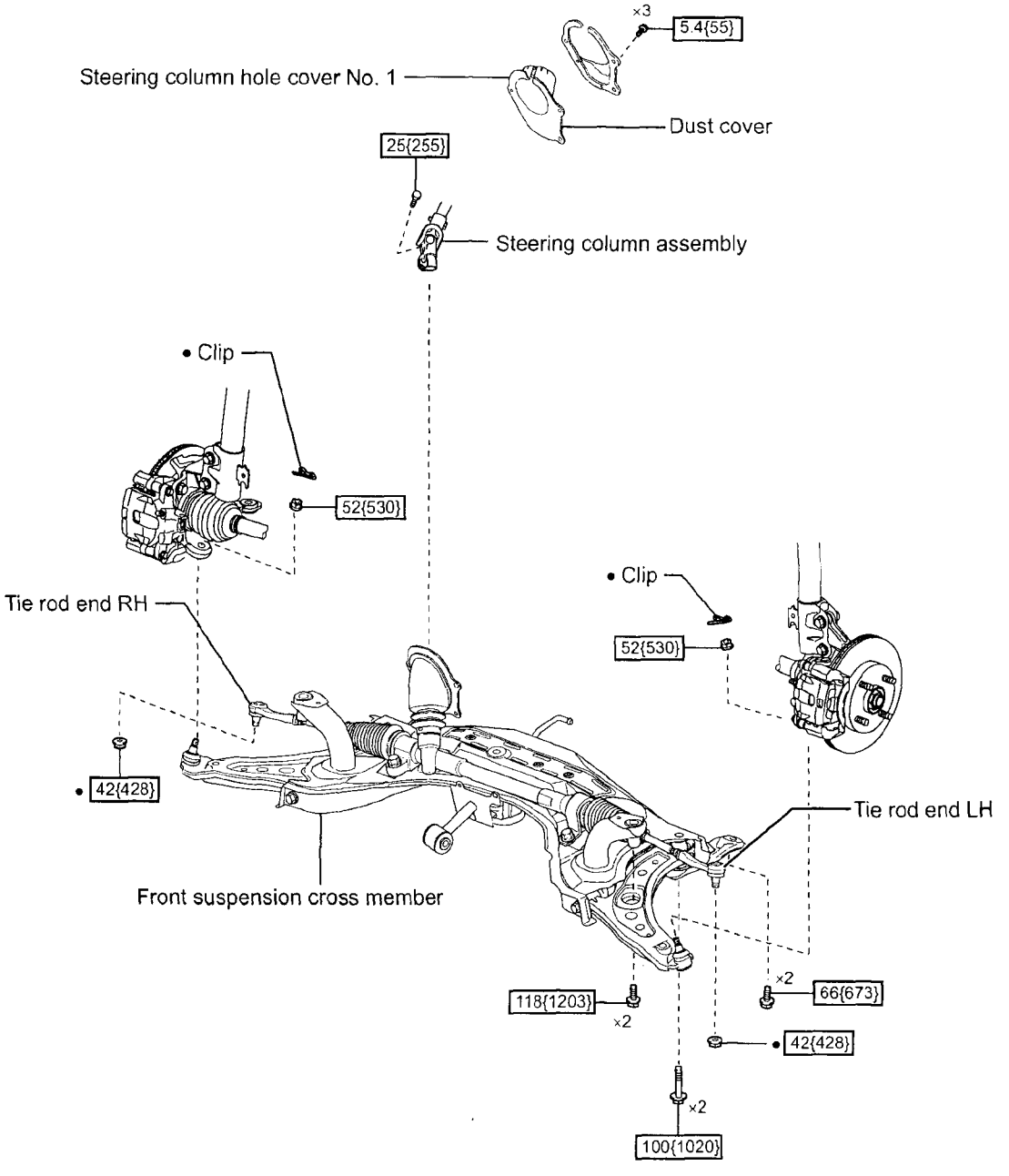


• Non-reusable part

A149649J01

07

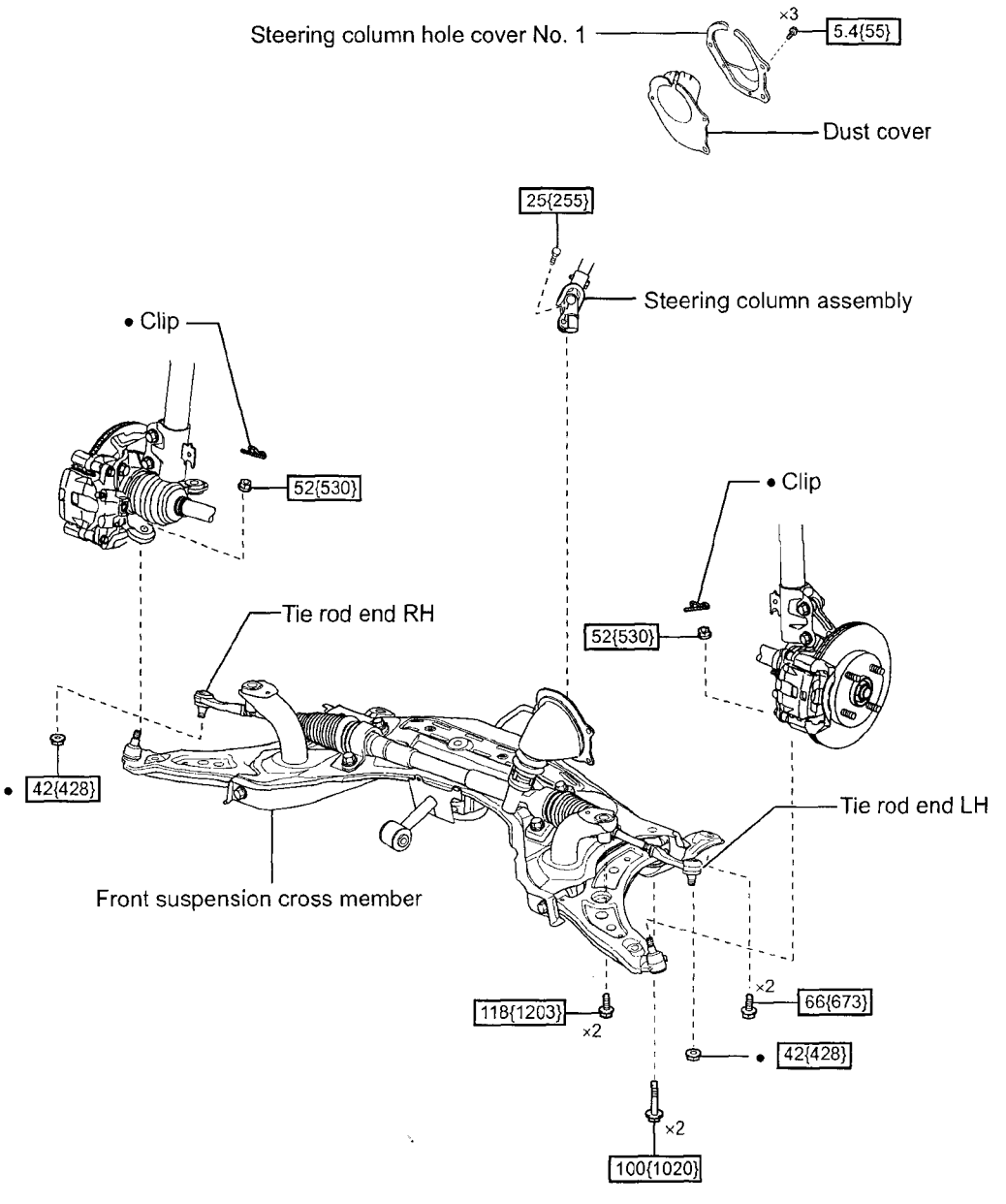
RHD:



N*m {kgf*cm}: Specified torque • Non-reusable part

A159532J01

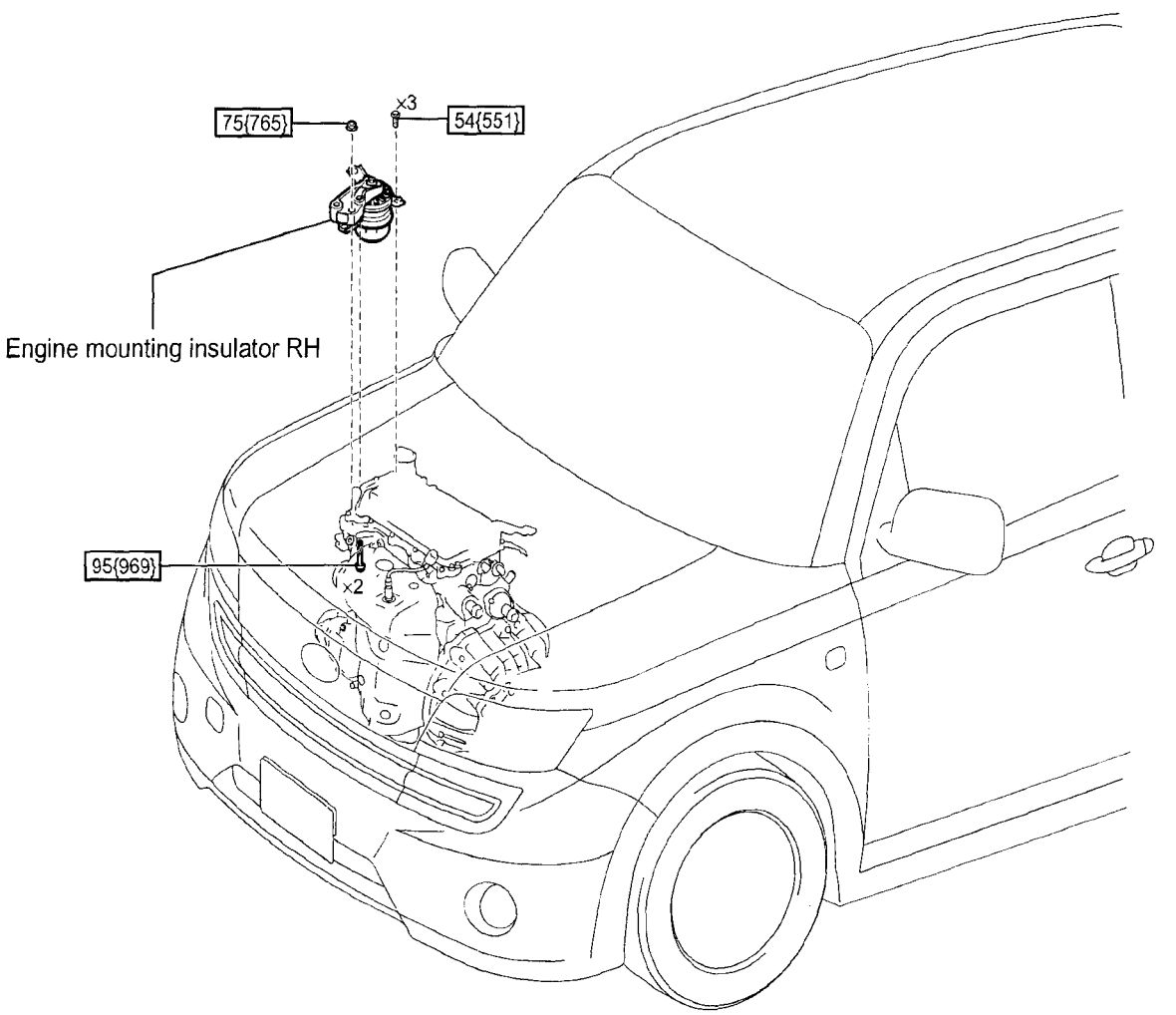
LHD:



N*m {kgf*cm} : Specified torque • Non-reusable part

A161686J01

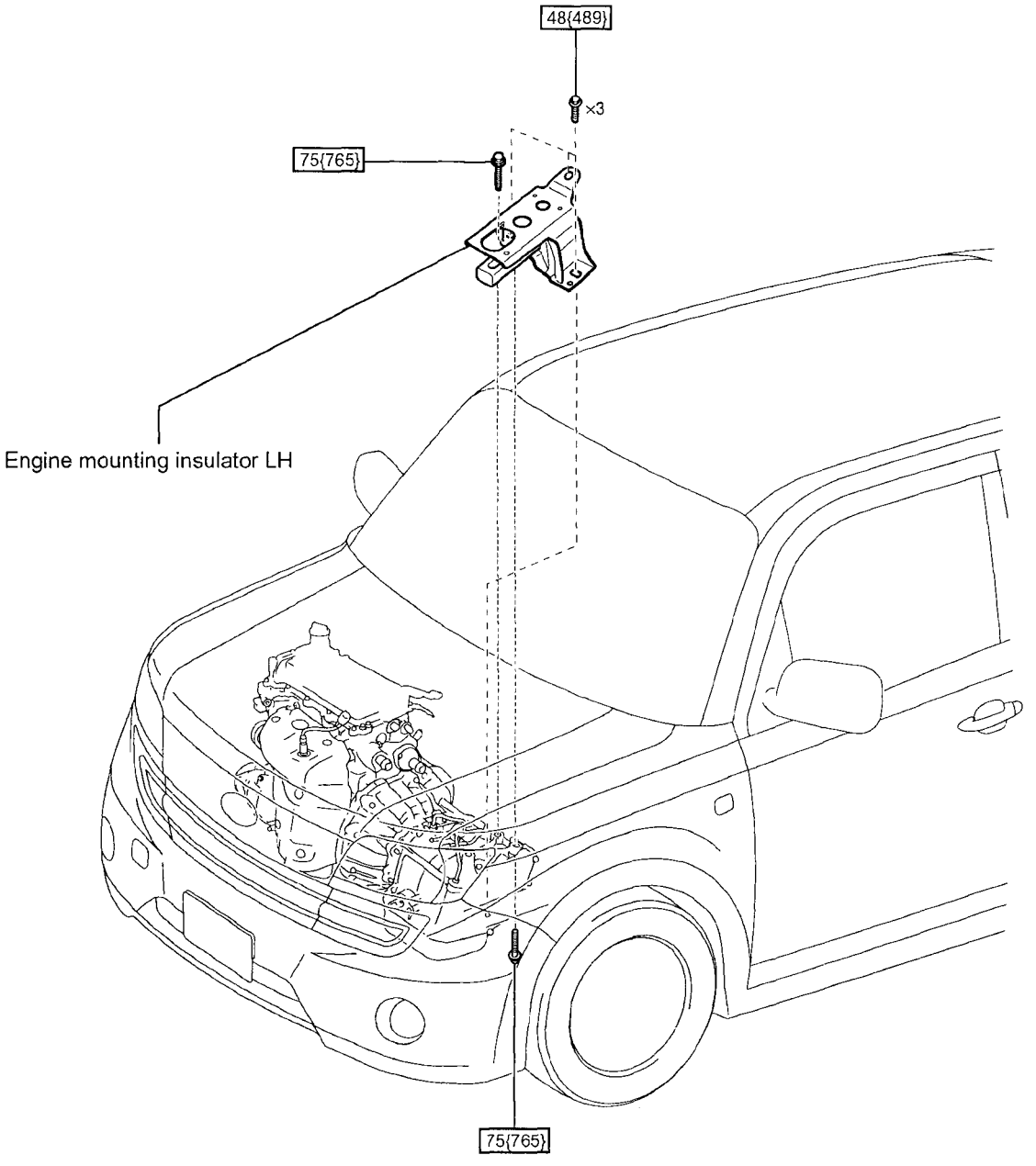
07



N*m {kgf*cm} : Specified torque

A159490J01

for Automatic transaxle:

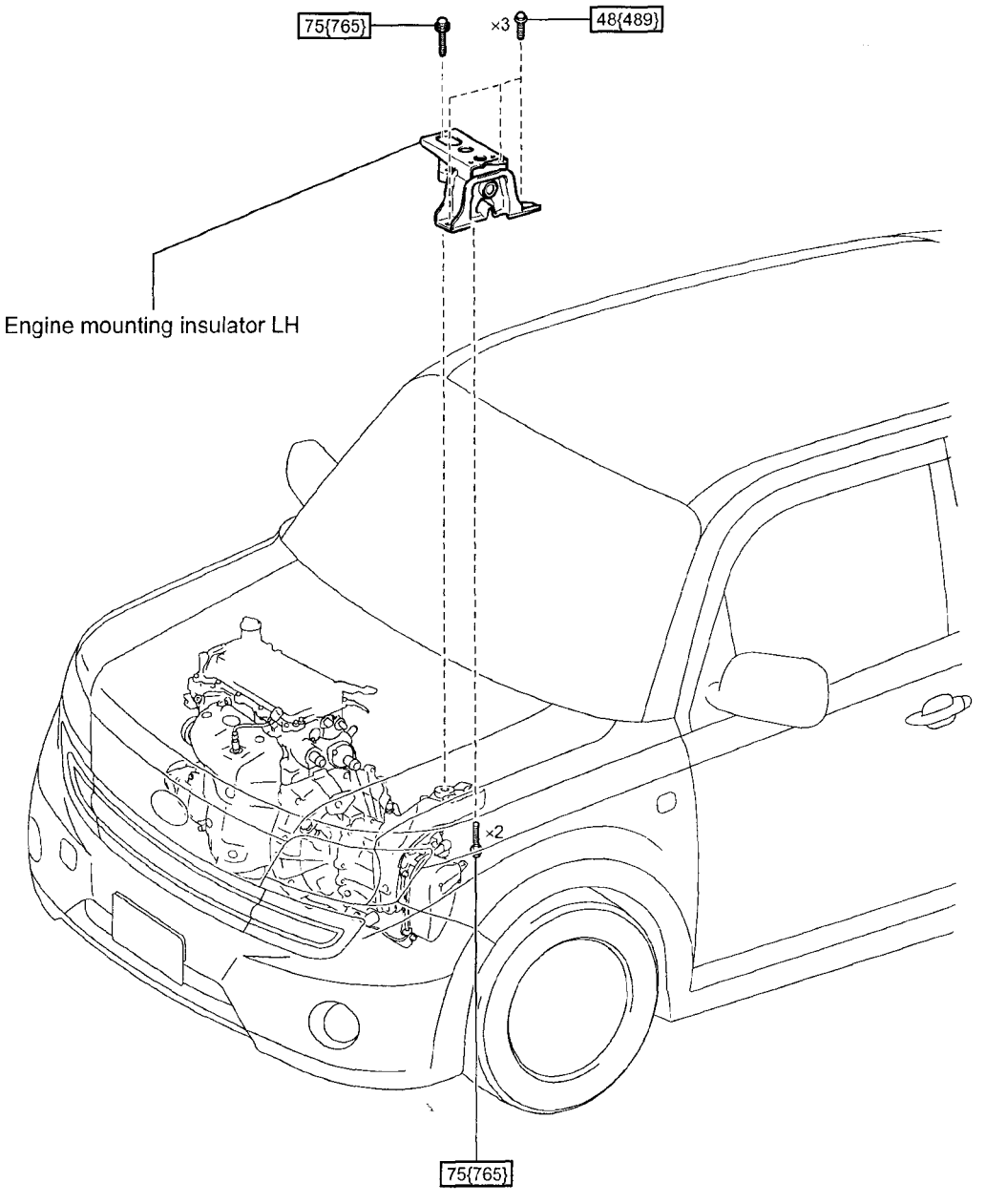


N*m {kgf*cm} : Specified torque

A145465J02

07

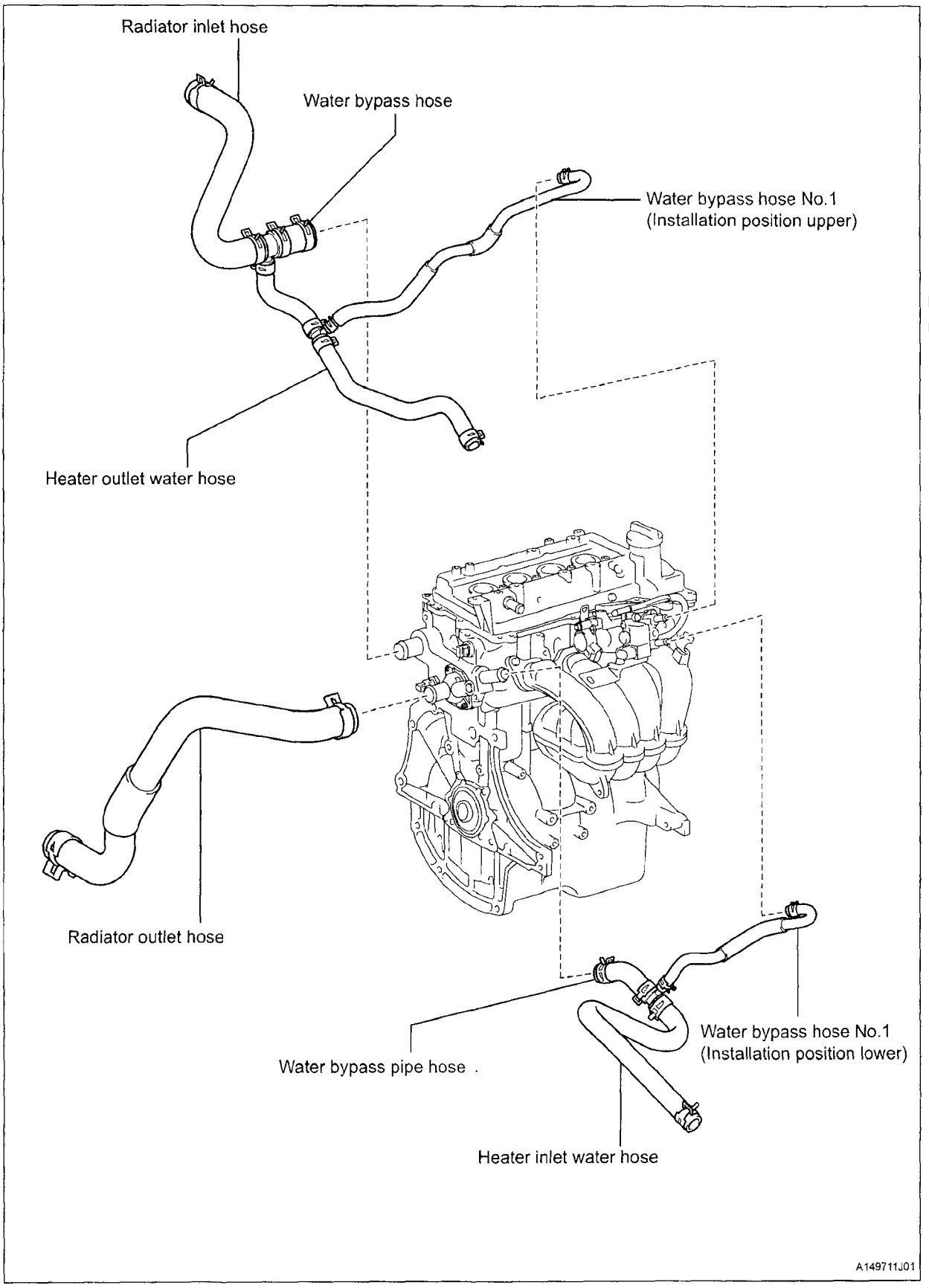
for Manual transaxle:



N*m {kgf*cm}: Specified torque

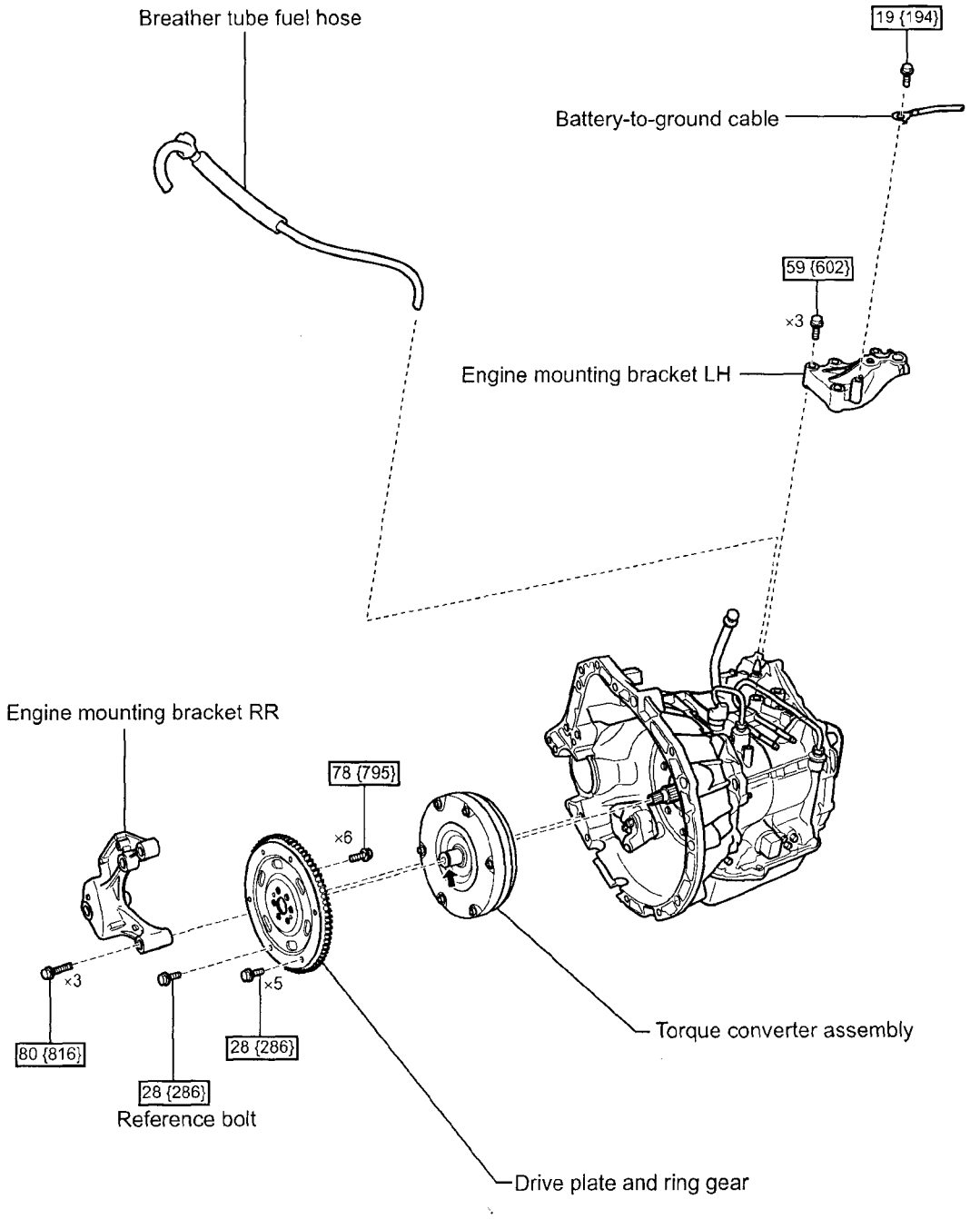
T

A161689J01


Radiator inlet hose
Water bypass hose
Water bypass hose No.1
(Installation position upper)
Heater outlet water hose
Radiator outlet hose
Water bypass pipe hose
Water bypass hose No.1
(Installation position lower)
Heater inlet water hose
A149711J01

07

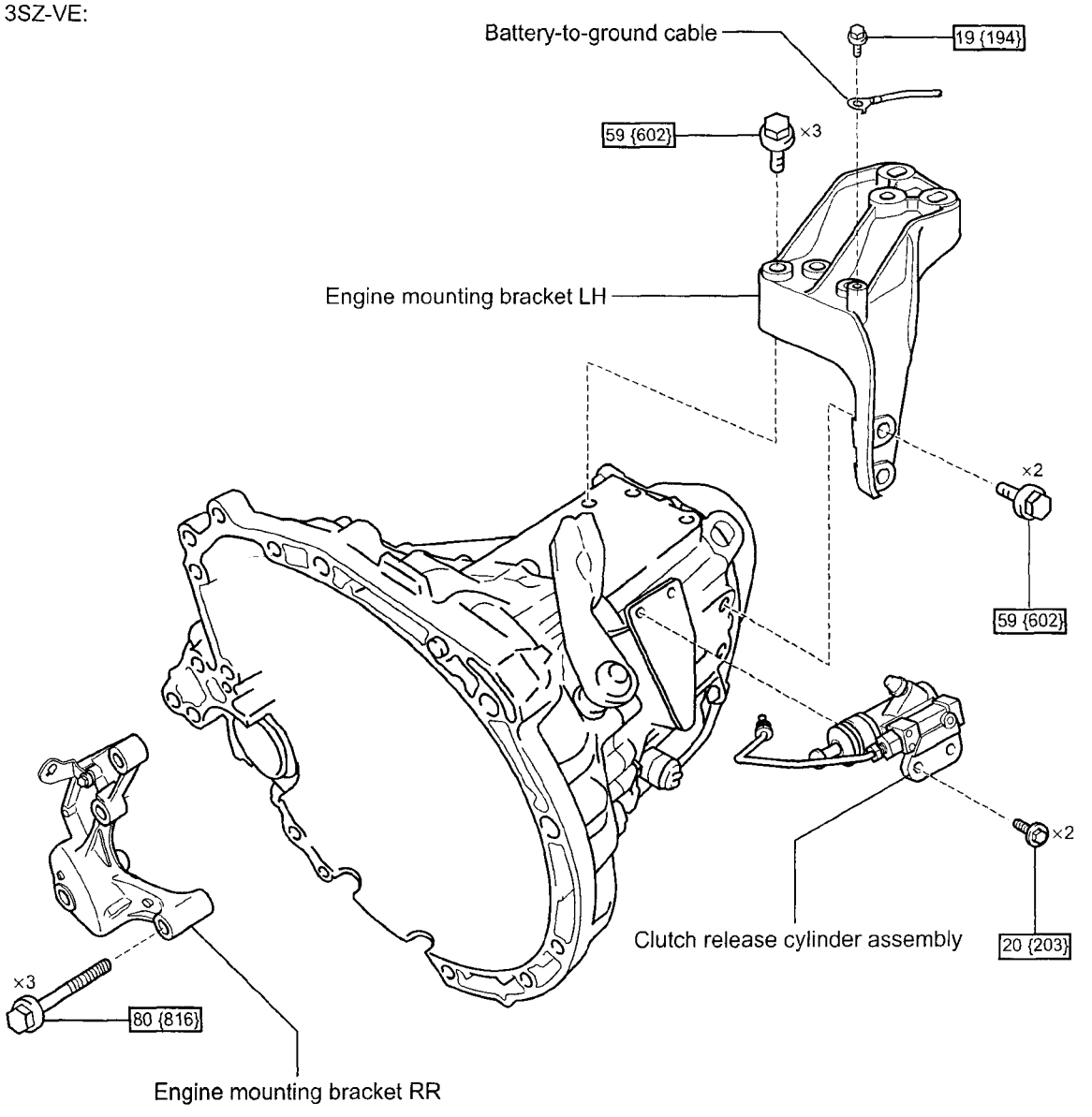
for Automatic transaxle:



N*m {kgf*cm}: Specified torque ⬅ MP grease application

A149651J03

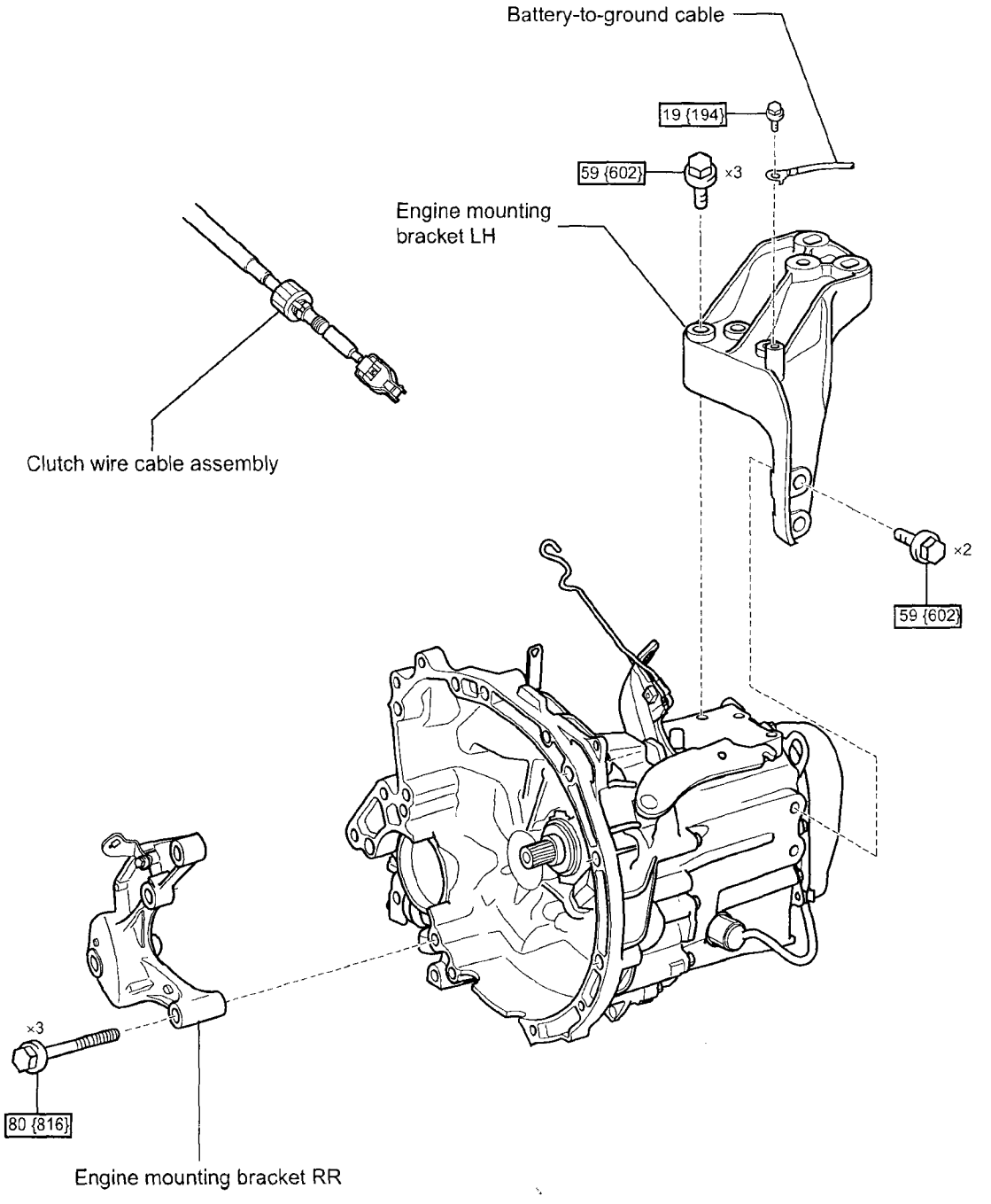
3SZ-VE:



N*m {kgf*cm} : Specified torque

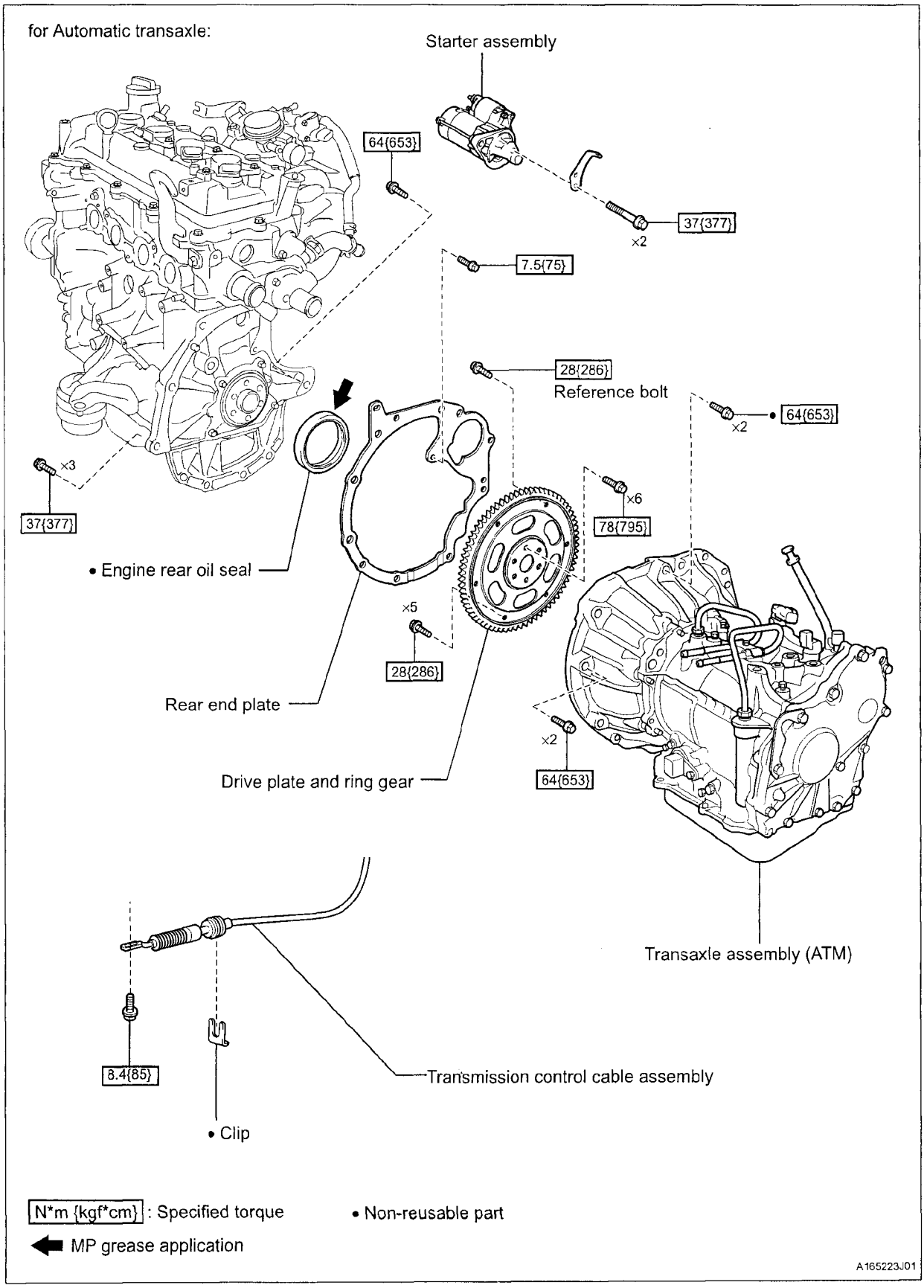
A163305J01

K3-VE:

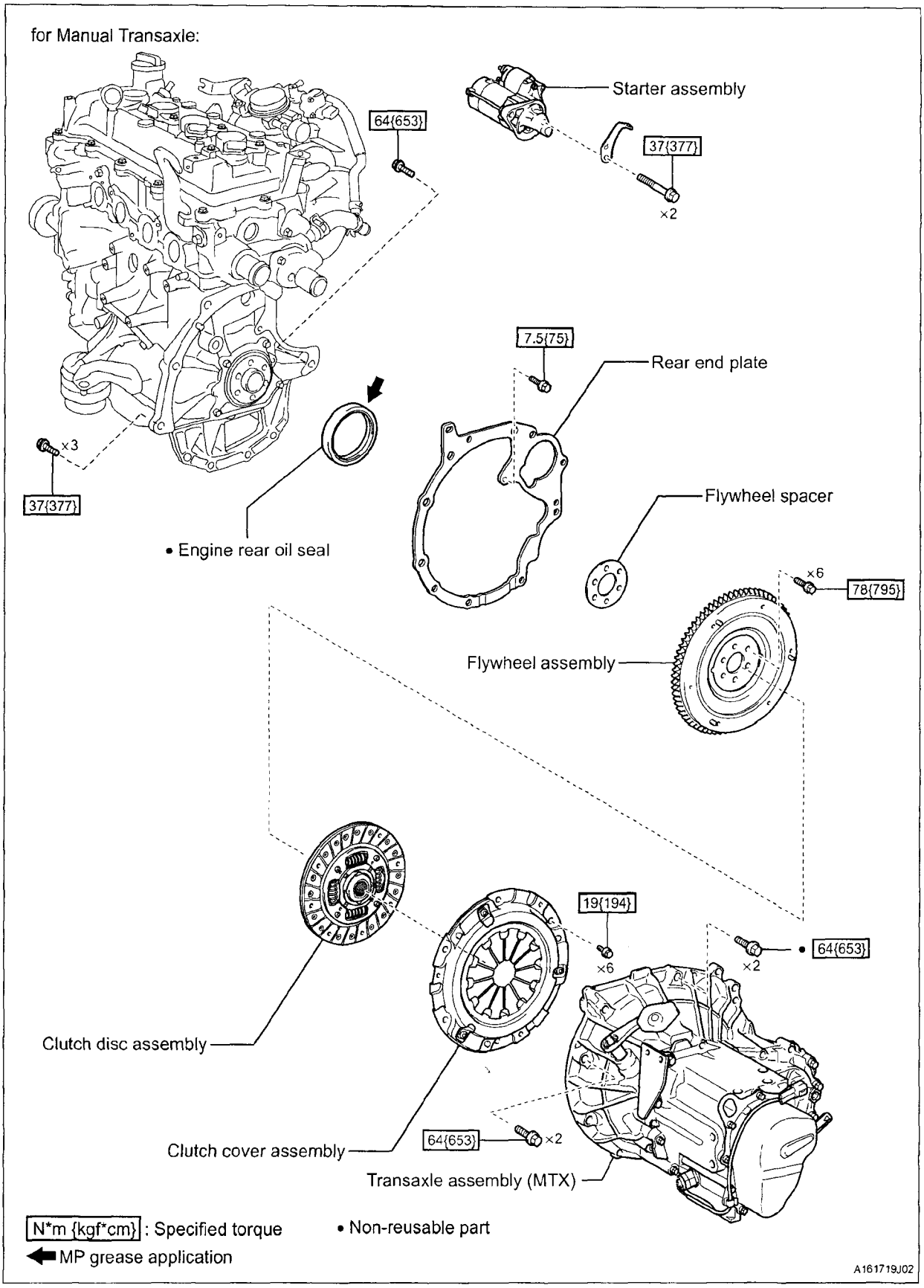


N*m{kgf*cm}: Specified torque

A163304J01


for Automatic transaxle:
Starter assembly
64{653}
37{377}
×2
7.5{75}
28{286}
Reference bolt
64{653}
×2
×3
37{377}
×6
78{795}
• Engine rear oil seal
×5
28{286}
Rear end plate
Drive plate and ring gear
×2
64{653}
Transaxle assembly (ATM)
8.4{85}
Transmission control cable assembly
• Clip
N*m {kgf*cm} : Specified torque
• Non-reusable part
MP grease application
A165223J01

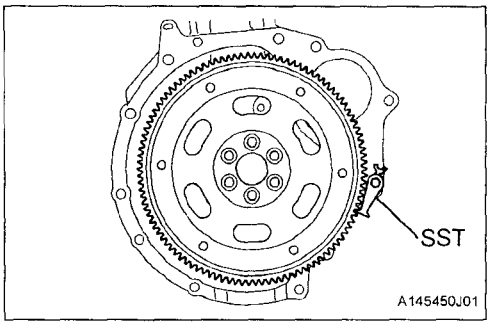
07


for Manual Transaxle:
Starter assembly
64{653}
37{377}
×2
×3
37{377}
7.5{75}
Rear end plate
• Engine rear oil seal
Flywheel spacer
×6
78{795}
Flywheel assembly
19{194}
×6
• 64{653}
×2
Clutch disc assembly
Clutch cover assembly
64{653}
×2
Transaxle assembly (MTX)
N*m {kgf*cm}: Specified torque
• Non-reusable part
MP grease application
A161719J02

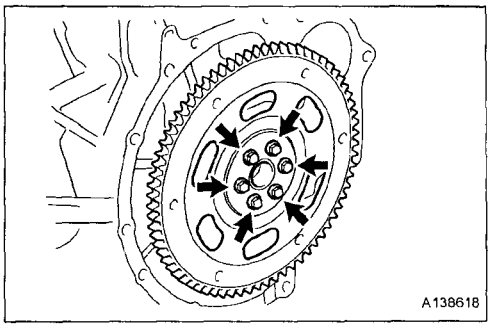
REMOVAL

1. Fuel spill prevention work (See page 08-3)
2. Battery terminal disconnection
3. Cooling fluid withdrawal (See page 12-6)
4. Refrigerant HFC-134a (R134a) withdrawal (with Air conditioning system) (See page 52-42)
5. Front tire removal
6. Engine oil withdrawal
7. Automatic transaxle fluid withdrawal (for Automatic transaxle) (See page 26-102)
8. Manual transaxle oil withdrawal (for Manual transaxle) (See page 29-13)
9. Exhaust pipe assembly FR removal (See page 11-15)
10. Brake fluid withdrawal (for Manual transaxle)
11. Battery hold down clamp removal (See page 07-48)
12. Radiator reserve tank assembly removal (See page 07-48)
13. Battery cover removal
14. Battery removal
15. Battery tray removal (See page 07-48)
16. Air cleaner cap removal
17. Air cleaner filter element removal
18. Vacuum sensor disconnection (See page 06-140)
19. Vacuum switching valve assembly (with Bracket) disconnection (RHD) (See page 06-140)
20. Vacuum switching valve assembly (with Bracket) disconnection (LHD) (See page 06-140)
21. Inlet air temperature sensor disconnection (See page 06-140)
22. Precleaner hose removal (See page 06-141)
23. Air cleaner assembly removal (See page 06-141)
24. Radiator inlet hose disconnection (See page 12-10)
25. Water bypass hose disconnection (See page 12-10)
26. Radiator outlet hose disconnection (See page 12-10)
27. With water fan assembly removal (See page 12-11)
28. Oil cooler outlet hose removal (for Automatic transaxle) (See page 26-98)
29. Oil cooler inlet hose removal (for Automatic transaxle) (See page 26-98)
30. Heater inlet water hose disconnection (RHD) (See page 52-73)
31. Heater inlet water hose disconnection (LHD) (See page 52-164)
32. Heater outlet water hose disconnection (RHD) (See page 52-73)
33. Heater outlet water hose disconnection (LHD) (See page 52-164)
34. Front bumper cover removal (See page 82-5)
35. Fan & alternator V belt removal (See page 07-6)
36. Cooler refrigerant suction hose No. 1 disconnection (for Automatic transaxle) (See page 52-131)
37. Cooler refrigerant discharge hose No. 1 disconnection (for Automatic transaxle) (See page 52-131)
38. Compressor assembly with magnet clutch removal (for Automatic transaxle) (See page 52-131)
39. Cooler refrigerant liquid pipe A disconnection (for Automatic transaxle) (See page 52-136)
40. Radiator assembly removal (See page 07-49)
41. Fuel hose disconnection (See page 07-49)
42. Accelerator control cable assembly disconnection (RHD) (See page 07-50)
43. Accelerator control cable assembly disconnection (LHD) (See page 07-50)
44. Ground cable disconnection (See page 07-51)
45. Vacuum hose assembly disconnection (See page 07-51)
46. Engine room main wire disconnection (See page 07-51)
47. Engine wire disconnection (See page 07-51)

48. Clutch release cylinder assembly disconnection (3SZ-VE) (See page 29-14)
49. Clutch hose disconnection (3SZ-VE) (See page 29-14)
50. Clutch cable clamp removal (K3-VE) (See page 29-14)
51. Clutch release cable assembly disconnection (K3-VE) (See page 29-14)
52. Steering column hole cover No. 1 removal (RHD) (See page 48-6)
53. Steering column hole cover No. 1 removal (LHD) (See page 48-15)
54. Steering column assembly disconnection (RHD) (See page 49-55)
55. Steering column assembly disconnection (LHD) (See page 49-70)
56. Shift lever knob removal (for Manual transaxle) (See page 29-54)
57. Rear console box removal (for Manual transaxle) (See page 29-54)
58. Console box carpet removal (for Manual transaxle) (See page 29-54)
59. Console box assembly removal (for Manual transaxle) (See page 29-54)
60. Transmission floor shift assembly removal (for Manual transaxle) (See page 29-55)
61. Engine undercover LH removal (See page 07-52)
62. Engine undercover RH removal (See page 07-52)
63. Front stabilizer link assembly LH removal (See page 07-53)
64. Front stabilizer link assembly RH removal (See page 07-53)
65. Front stabilizer bar removal (See page 42-16)
66. Front suspension cross member LH removal (See page 07-53)
67. Front suspension cross member RH removal (See page 07-53)
68. Front brake flexible hose No. 1 LH disconnection (without ABS & VSC) (See page 36-7)
69. Front brake flexible hose No. 1 RH disconnection (without ABS & VSC) (See page 36-7)
70. Speed sensor FR LH disconnection (with ABS & VSC) (See page 36-7)
71. Speed sensor FR RH disconnection (with ABS & VSC) (See page 36-7)
72. Front disc brake cylinder assembly LH removal (See page 36-8)
73. Front disc brake cylinder assembly RH removal (See page 36-8)
74. Axle hub nut removal (LH) (See page 36-8)
75. Axle hub nut removal (RH) (See page 36-8)
76. Tie rod end LH disconnection (See page 36-8)
77. Tie rod end RH disconnection (See page 36-9)
78. Front shock absorber assembly LH disconnection (See page 07-53)
79. Front shock absorber assembly RH disconnection (See page 07-53)
80. Front drive shaft assembly LH removal (See page 07-54)
81. Front drive shaft assembly RH removal (See page 07-54)
82. Steering knuckle LH removal (See page 07-54)
83. Steering knuckle RH removal (See page 07-54)
84. Radiator support LWR removal (See page 07-54)
85. Transmission control cable assembly disconnection (for Automatic transaxle) (See page 07-55)
86. Engine assembly with transaxle removal (See page 07-55)
87. Front suspension cross member removal (See page 07-56)
88. Breather tube fuel hose removal (for Automatic transaxle) (See page 07-57)
89. Starter assembly removal (See page 07-57)
90. Torque converter set bolt removal (for Automatic transaxle) (See page 07-57)
91. Transaxle assembly (ATM) removal (for Automatic transaxle) (See page 07-58)
92. Transaxle assembly (MTX) removal (for Manual transaxle) (See page 07-59)

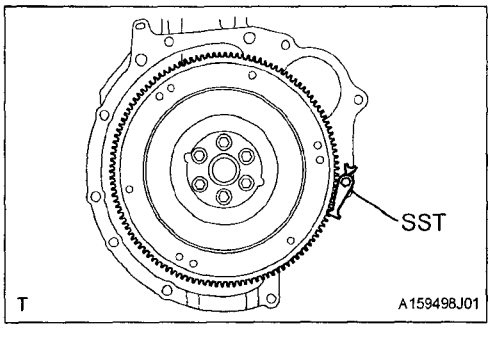


93. Drive plate and ring gear removal (for Automatic transaxle)
    (1) Use SST to fix the crankshaft.
        SST 09210-87701

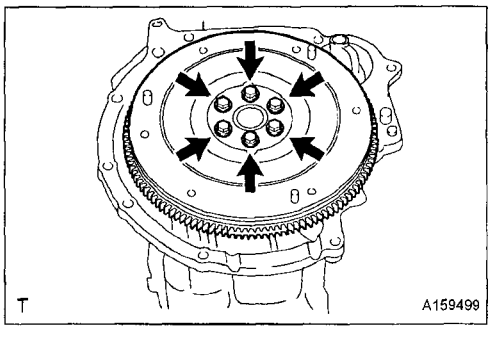


    (2) Remove six bolts and then the drive plate and ring gear.

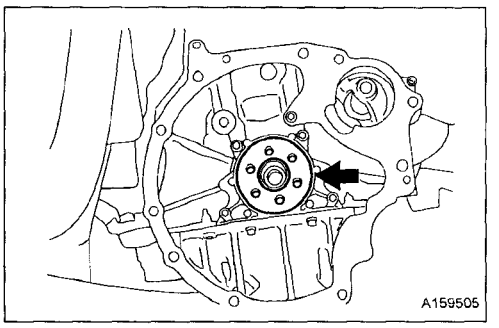
94. Clutch cover assembly removal (for Manual transaxle) (See page 27-48)
95. Clutch disc assembly removal (for Manual transaxle) (See page 27-48)



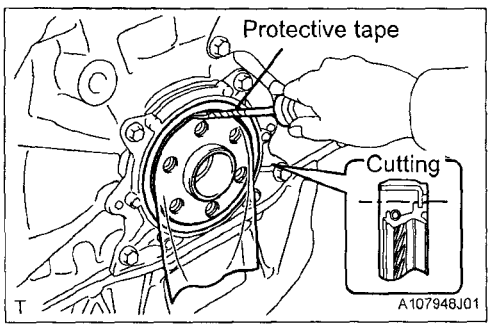
96. Flywheel removal (for Manual transaxle)
    (1) Use SST to fix the crankshaft.
        SST 09210-87701



    (2) Remove six bolts and then the flywheel.

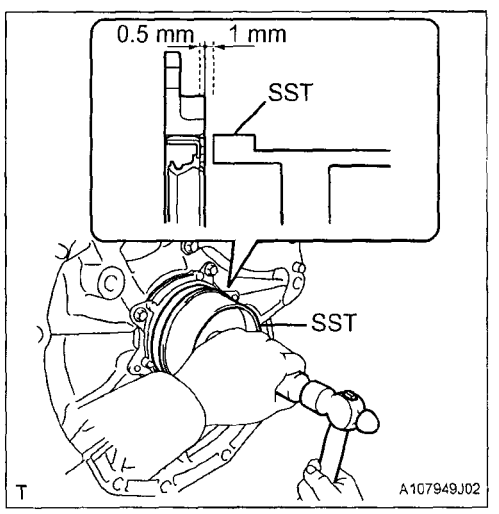


97. Flywheel spacer No. 1 removal (for Manual transaxle)
    (1) Remove the flywheel spacer No. 1 from the crankshaft.



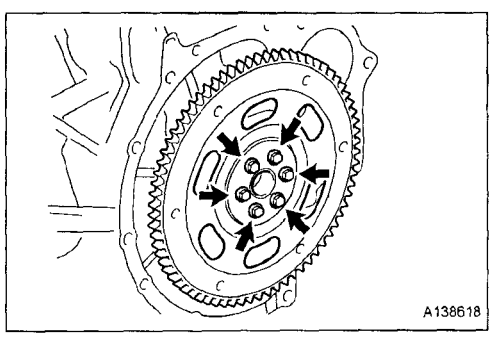
98. Engine rear oil seal removal
    (1) Use a utility knife to cut off the lip of the engine rear oil seal.
    (2) Use a flathead screwdriver wrapped in protective tape to remove the engine rear oil seal.
        <CAUTION>
        > After the engine rear oil seal is removed, make sure that the crankshaft has no flaw.
        > If it has a flaw, mend it with sand paper (#400).

INSTALLATION

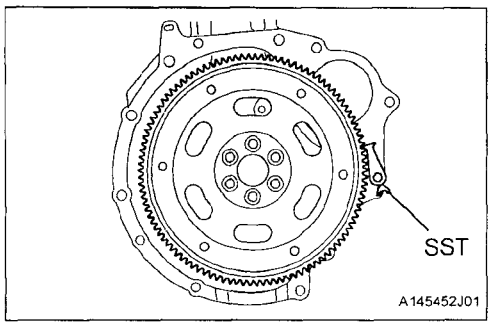


1. Engine rear oil seal installation
    (1) Coat the lip of a new engine rear oil seal with a small amount of MP grease.
        <CAUTION>
        Keep chips, sand, and other foreign particles off the lip.
    (2) Use SST to knock in a new engine rear oil seal to the location shown in the diagram.
        SST 09608-87302
        <CAUTION>
        > Do not diagonally knock in the engine rear oil seal.
        > Wipe grease off the crankshaft.

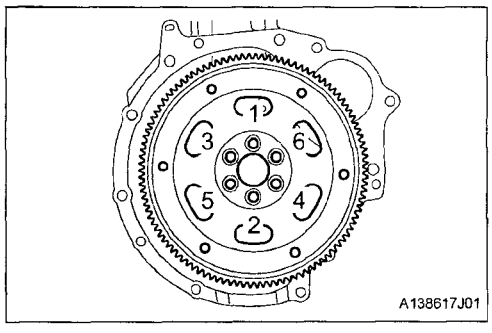
2. Drive plate and ring gear installation (for Automatic transaxle)
    (1) Coat two or three threads from the end portion of the drive plate and ring gear installation bolt with Three Bond 1324.
        <CAUTION>
        Clean · degrease the drive plate and ring gear installation bolt and the bolt hole.



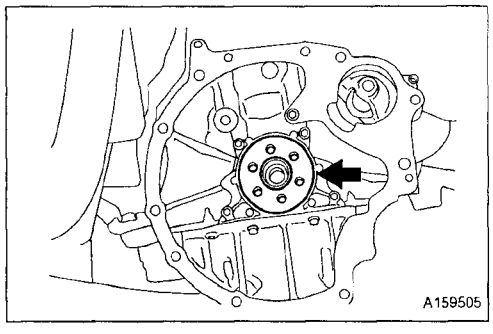
    (2) Use six bolts to attach the drive plate and ring gear.



(3) Use SST to fix the crankshaft.
SST 09210-87701

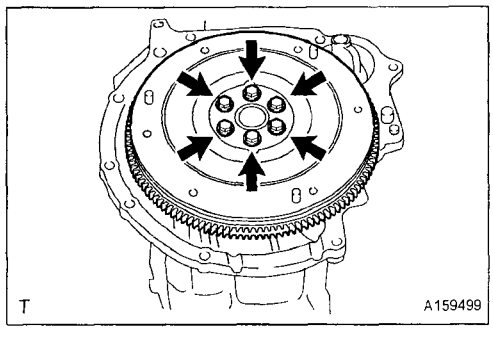


(4) Tighten six bolts in the order shown in the diagram.
Specified value:T=78N*m {795kgf*cm}
<CAUTION>
Avoid starting the engine for at least one hour after installation.

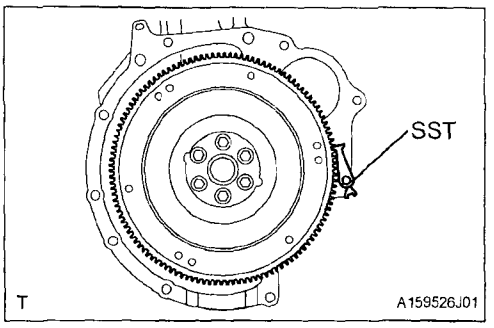


3. Flywheel spacer No. 1 installation (for Manual transaxle)
(1) Attach the flywheel spacer No. 1 to the crankshaft.

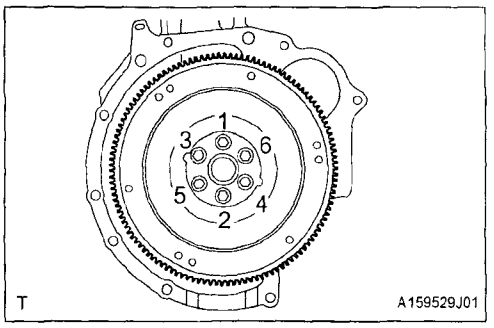
4. Flywheel installation (for Manual transaxle)
(1) Coat two or three threads from the end portion of the flywheel installation bolt with Three Bond 1324.
<CAUTION>
Clean · degrease the flywheel installation bolts and bolt holes.



(2) Use six bolts to attach the flywheel.



(3) Use SST to fix the crankshaft.
SST 09210-87701



(4) Tighten six bolts in the order shown in the diagram.
Specified value:T=78N*m {795kgf*cm}
<CAUTION>
Avoid starting the engine for at least one hour after installation.

5. Clutch disc assembly installation (for Manual transaxle) (See page 27-50)
6. Clutch cover assembly check/adjustment (for Manual transaxle) (See page 27-49)
7. Clutch cover assembly installation (for Manual transaxle) (See page 27-50)
8. Transaxle assembly (ATM) installation (See page 07-78)
9. Transaxle assembly (MTX) installation (See page 07-79)
10. Torque converter set bolt installation (for Automatic transaxle) (See page 07-80)
11. Starter assembly installation (See page 07-80)
12. Breather tube fuel hose installation (for Automatic transaxle) (See page 07-81)
13. Front suspension cross member installation (See page 07-81)
14. Engine assembly with transaxle installation (See page 07-81)
15. Transmission control cable assembly installation (for Automatic transaxle) (See page 07-83)
16. Radiator support LWR installation (See page 07-83)
17. Steering knuckle LH installation (See page 07-83)
18. Steering knuckle RH installation (See page 07-83)
19. Front drive shaft assembly LH installation (See page 07-84)
20. Front drive shaft assembly RH installation (See page 07-84)
21. Front shock absorber assembly LH installation (See page 36-16)
22. Front shock absorber assembly RH installation (See page 36-16)
23. Tie rod end LH installation (See page 36-16)
24. Tie rod end RH installation (See page 36-16)
25. Axle hub nut installation (LH) (See page 36-16)
26. Axle hub nut installation (RH) (See page 36-16)
27. Front disc brake cylinder assembly LH installation (See page 36-16)
28. Front disc brake cylinder assembly RH installation (See page 36-17)
29. Speed sensor FR LH installation (with ABS & VSC) (See page 36-17)
30. Speed sensor FR RH installation (with ABS & VSC) (See page 36-17)
31. Front brake flexible hose No. 1 (LH) installation (without ABS & VSC) (See page 36-18)
32. Front brake flexible hose No. 1 (RH) installation (without ABS & VSC) (See page 36-18)
33. Front suspension cross member LH installation (See page 07-84)

34. Front suspension cross member RH installation (See page 07-84)
35. Front stabilizer bar installation (See page 07-84)
36. Engine undercover LH installation (See page 07-85)
37. Engine undercover RH installation (See page 07-85)
38. Transmission floor shift assembly installation (for Manual transaxle) (See page 29-55)
39. Console box assembly installation (for Manual transaxle) (See page 29-56)
40. Console box carpet installation (for Manual transaxle) (See page 29-56)
41. Rear console box installation (for Manual transaxle) (See page 29-57)
42. Shift lever knob installation (for Manual transaxle) (See page 29-57)
43. Steering column assembly connection (RHD) (See page 49-64)
44. Steering column assembly connection (LHD) (See page 49-79)
45. Steering column hole cover No. 1 installation (RHD) (See page 48-10)
46. Steering column hole cover No. 1 installation (LHD) (See page 48-18)
47. Clutch release cable assembly installation (K3-VE) (See page 29-21)
48. Clutch release cable assembly adjustment (K3-VE) (See page 27-21)
49. Clutch cable clamp installation (K3-VE) (See page 29-21)
50. Clutch hose installation (3SZ-VE) (See page 29-22)
51. Clutch release cylinder assembly installation (3SZ-VE) (See page 29-22)
52. Engine wire connection (See page 07-86)
53. Engine room main wire connection (See page 07-86)
54. Vacuum hose assembly connection (See page 07-87)
55. Ground cable connection (See page 07-87)
56. Accelerator control cable assembly connection (RHD) (See page 07-87)
57. Accelerator control cable assembly connection (LHD) (See page 07-88)
58. Fuel hose connection (See page 07-89)
59. Radiator assembly installation (See page 07-89)
60. Cooler refrigerant liquid pipe A connection (with Air conditioning system) (See page 52-137)
61. Compressor assembly with magnet clutch installation (with Air conditioning system) (See page 52-134)
62. Cooler refrigerant discharge hose No. 1 connection (with Air conditioning system) (See page 52-134)
63. Cooler refrigerant suction hose No. 1 connection (with Air conditioning system) (See page 52-134)
64. Fan & alternator V belt installation
    (See page 07-6)
65. Front bumper cover installation (See page 82-15)
66. Heater outlet water hose connection (RHD) (See page 52-87)
67. Heater outlet water hose connection (LHD) (See page 52-177)
68. Heater inlet water hose connection (RHD) (See page 52-87)
69. Heater inlet water hose connection (LHD) (See page 52-178)
70. Oil cooler inlet hose installation (for Automatic transaxle) (See page 26-99)
71. Oil cooler outlet hose installation (for Automatic transaxle) (See page 26-100)
72. With water fan assembly installation (See page 12-13)
73. Radiator outlet hose connection (See page 12-14)
74. Water bypass hose connection (See page 12-14)
75. Radiator inlet hose connection (See page 12-14)
76. Air cleaner assembly installation (See page 06-149)
77. Precleaner hose installation (See page 06-149)
78. Inlet air temperature sensor connection (See page 06-150)
79. Vacuum switching valve assembly (with Bracket) connection (RHD) (See page 06-150)
80. Vacuum switching valve assembly (with Bracket) connection (LHD) (See page 06-150)

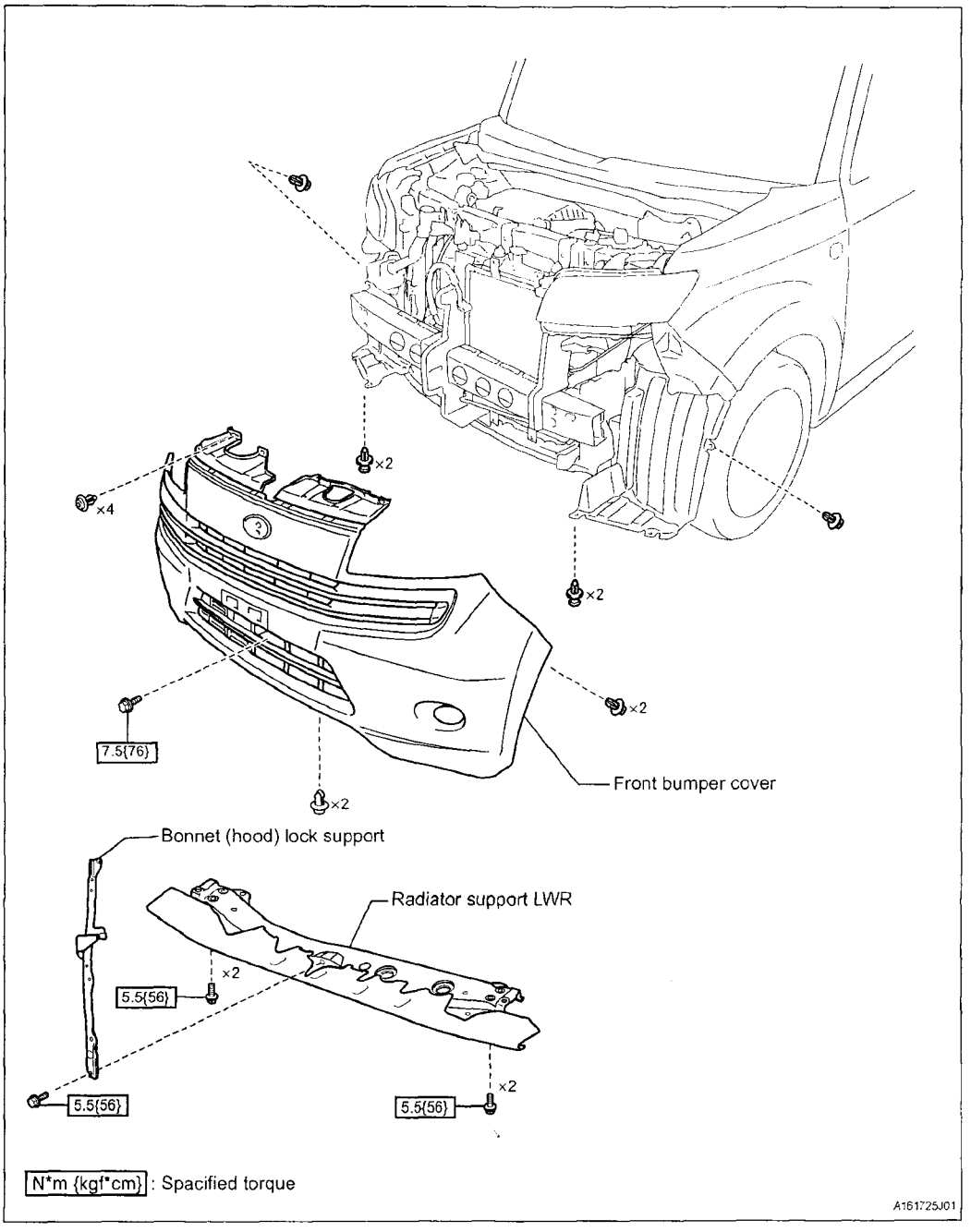
81. Vacuum sensor connection (See page 06-150)
82. Air cleaner filter element installation
83. Air cleaner cap installation
84. Battery tray installation (See page 07-90)
85. Battery installation
86. Battery cover installation
87. Radiator reserve tank assembly installation (See page 07-90)
88. Battery hold down clamp installation (See page 07-90)
89. Exhaust pipe assembly FR installation (See page 11-16)
90. Battery terminal connection
    Specified value:T=6.4N*m {65kgf*cm}

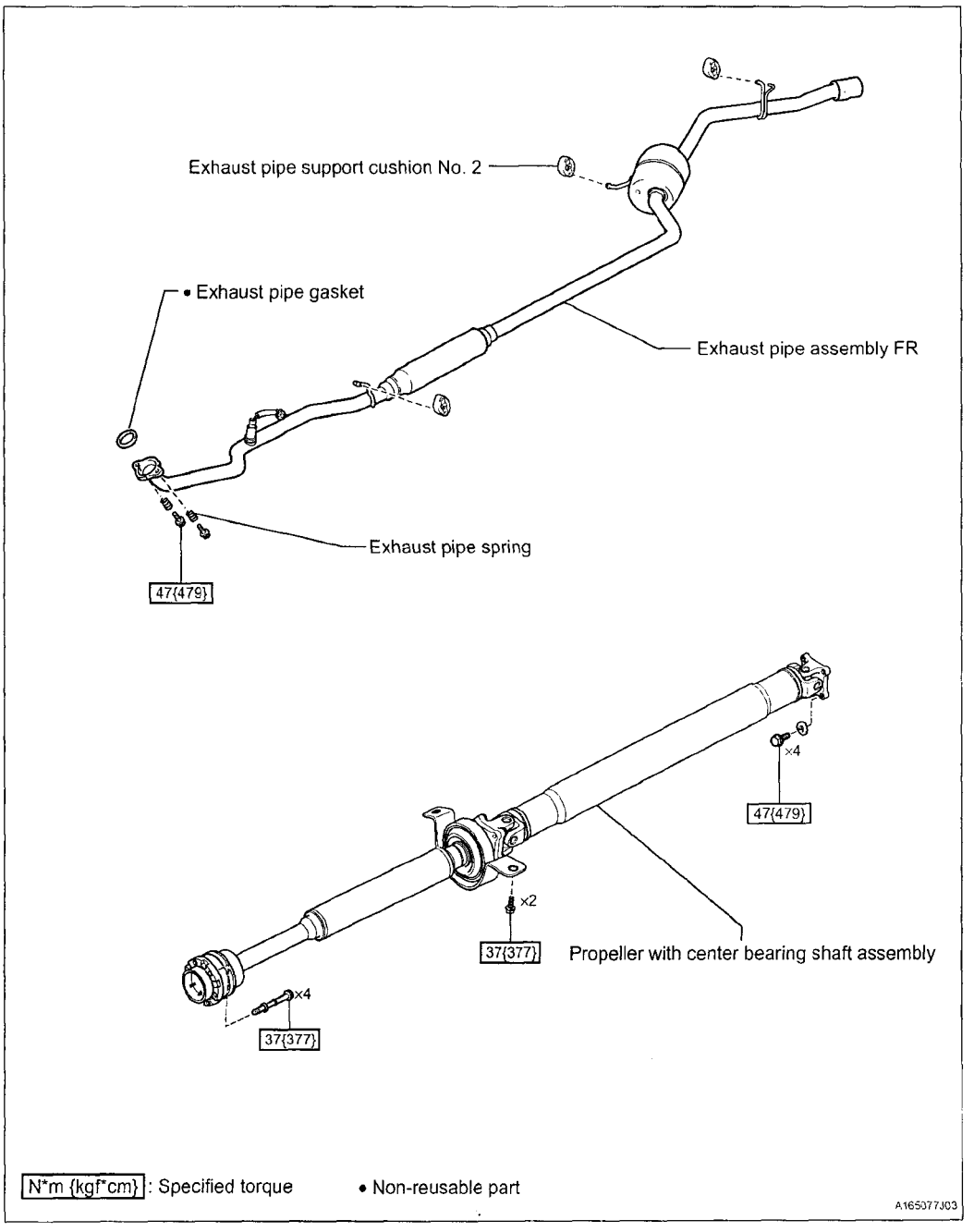
91. Brake fluid replenishment (for Manual transaxle) (See page 45-4)
92. Clutch pipeline air bleeding (for Manual transaxle) (See page 27-3)
93. Clutch fluid leakage check (for Manual transaxle)
94. Brake fluid amount check (for Manual transaxle) (See page 45-4)
95. Cooling fluid replenishment (See page 12-6)
96. Engine oil replenishment
97. Automatic transaxle fluid replenishment (for Automatic transaxle) (See page 26-103)
98. Automatic transaxle fluid check (for Automatic transaxle) (See page 26-63)
99. Manual transaxle oil replenishment (for Manual transaxle) (See page 29-23)
100. Shift lever position check (for Automatic transaxle) (See page 07-90)
101. Cooling fluid leakage check (See page 12-6)
102. Cooling fluid amount check
103. Oil leakage check
104. Fuel leakage check (See page 08-7)
105. Exhaust gas leakage check (See page 11-16)
106. Engine idle-speed check (See page 07-4)
107. Ignition timing check (See page 07-2)
108. CO and HC level check (See page 07-4)
109. Refrigerant HFC-134a (R134a) filling (with Air conditioning system) (See page 52-42)
110. Front tire installation (See page 07-91)
111. Front wheel alignment check · adjustment
    (See page 42-5)
112. Test mode check (Speed sensor circuit)
    with ABS: (See page 44-15)
    with VSC: (See page 44-76)

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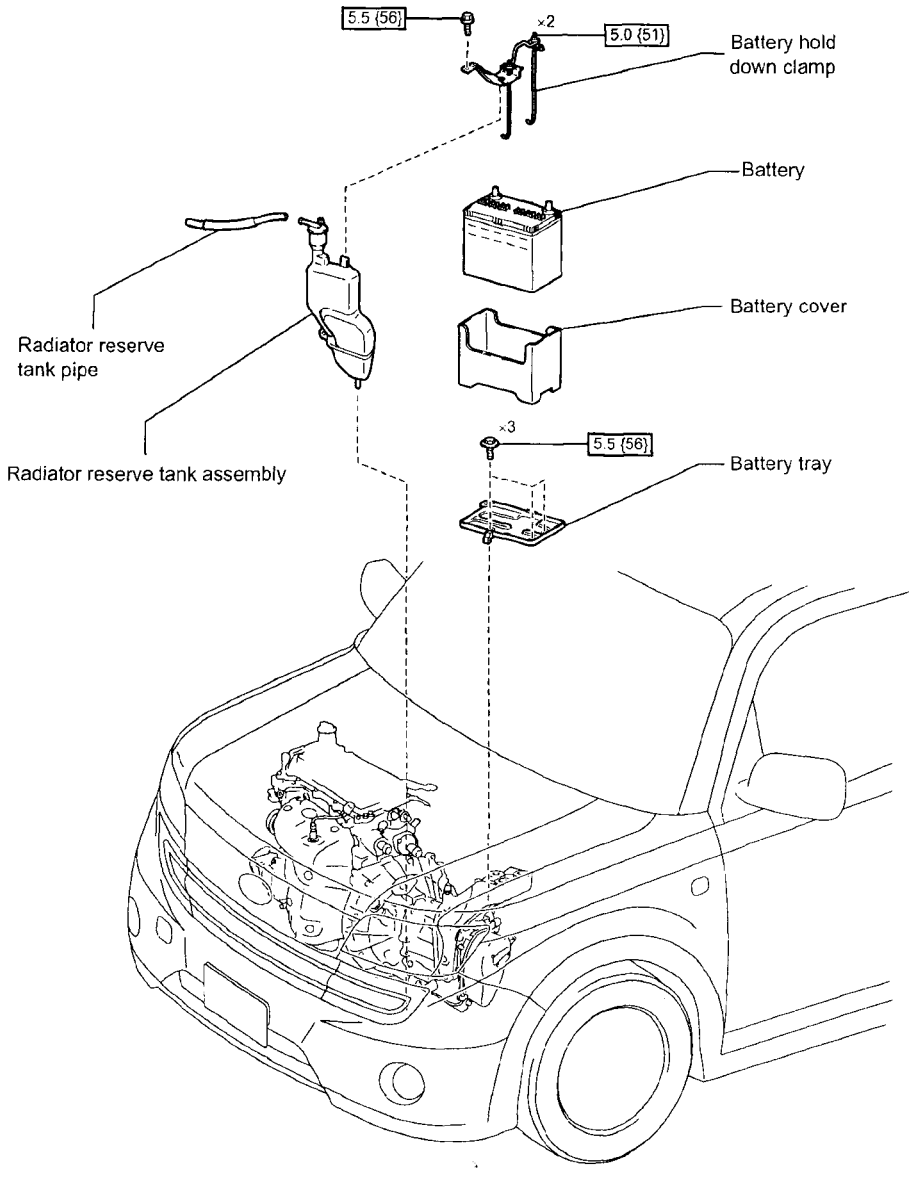
ENGINE REAR OIL SEAL (3SZ-VE / 4WD)

COMPONENTS




Exhaust pipe support cushion No. 2
• Exhaust pipe gasket
Exhaust pipe assembly FR
Exhaust pipe spring
47{479}
×4
47{479}
×2
37{377}
Propeller with center bearing shaft assembly
×4
37{377}
N*m {kgf*cm}: Specified torque
• Non-reusable part
A165077J03

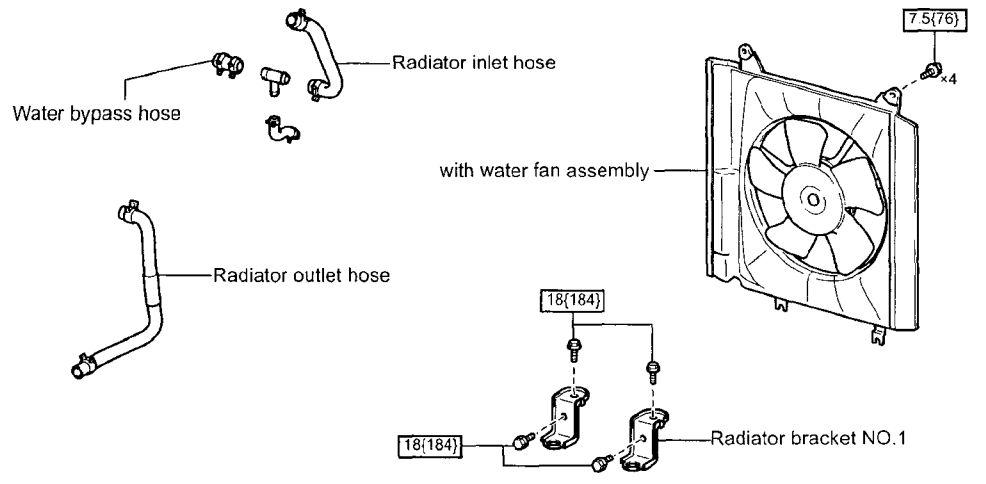
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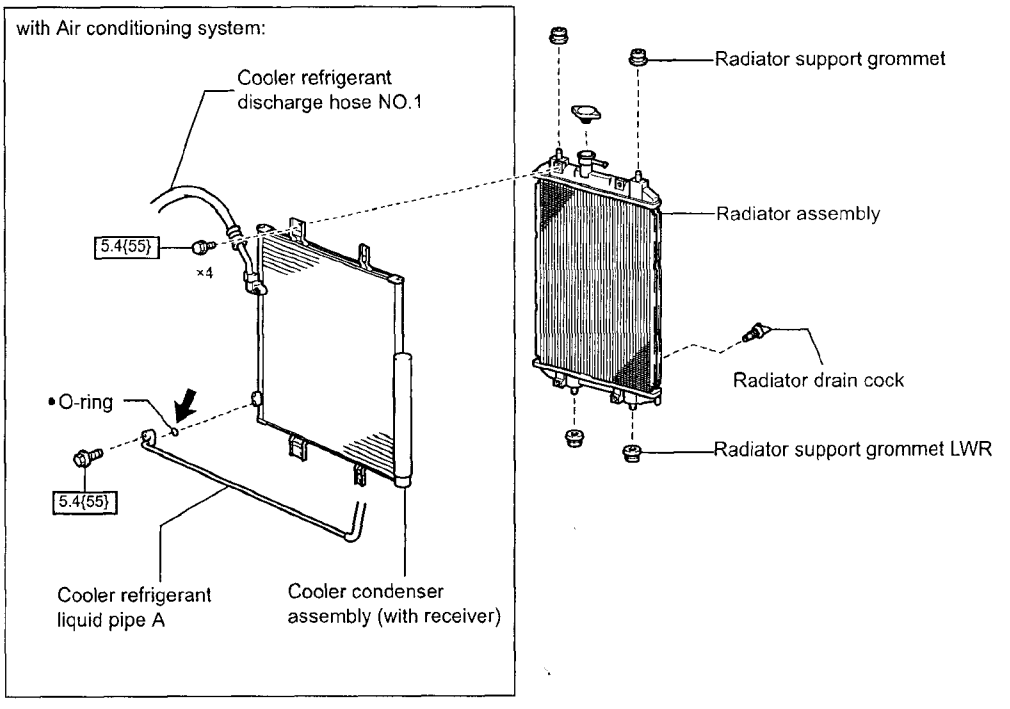


N*m {kgf*cm}: Specified torque

A163299J01

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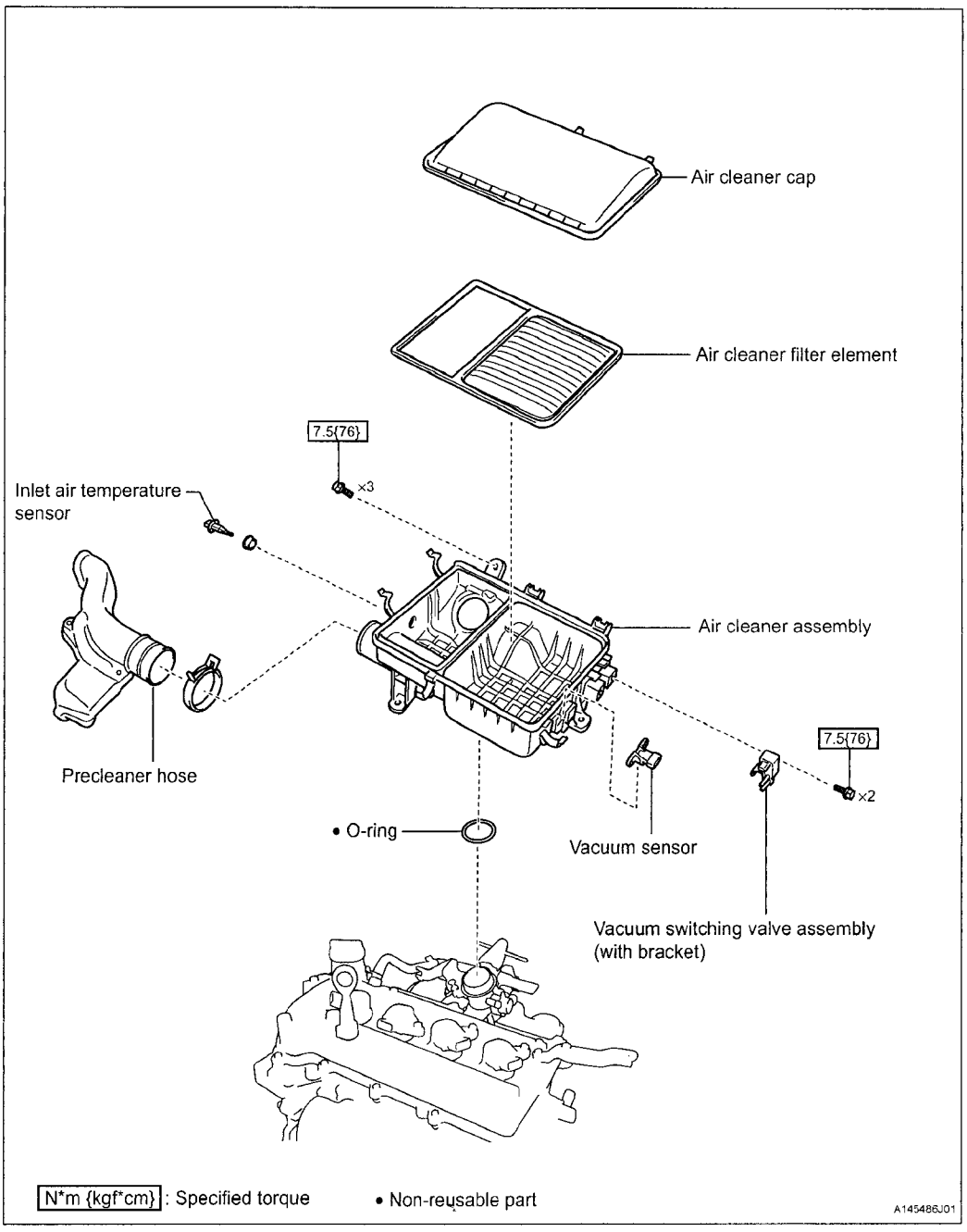


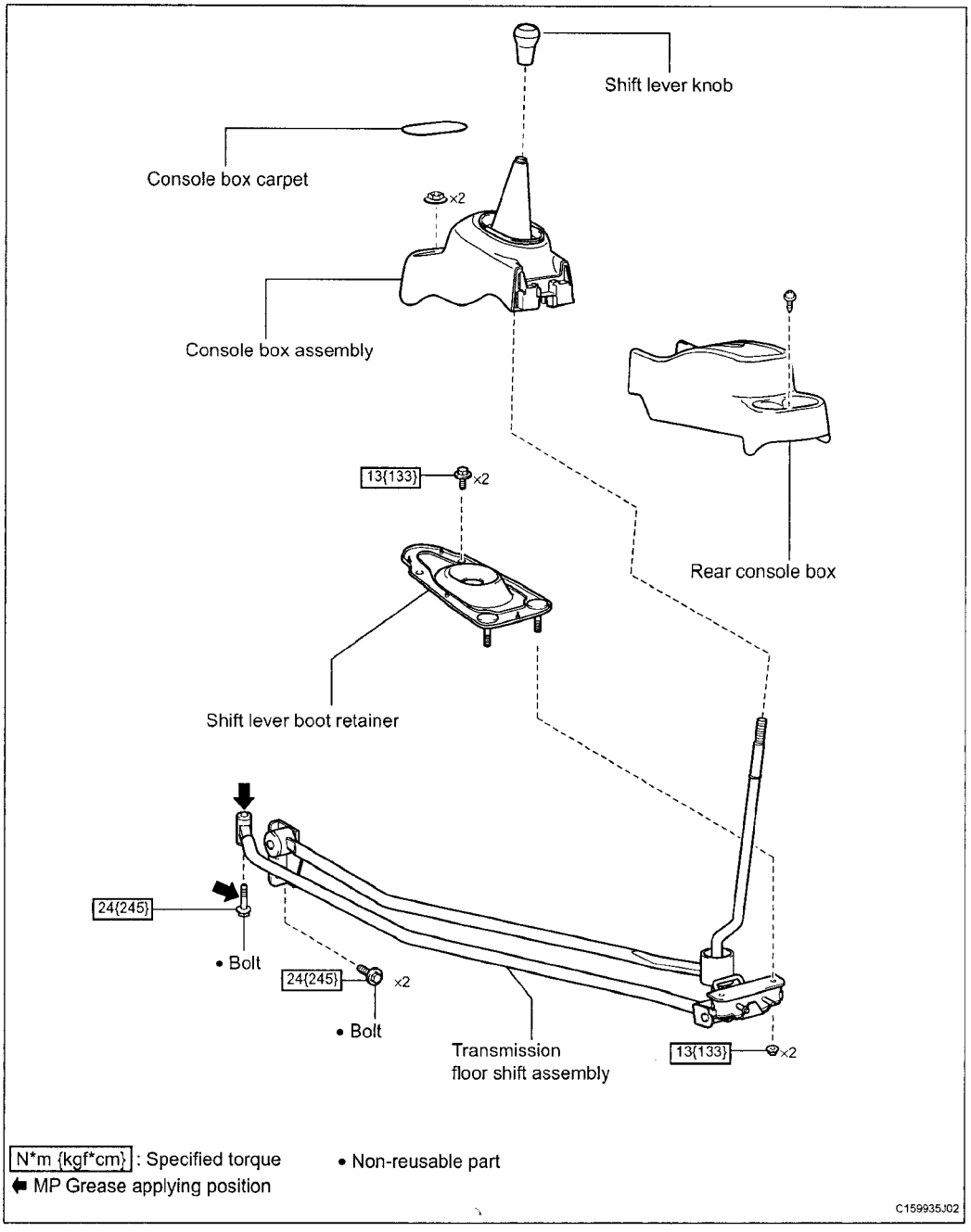
N*m (kgf*cm) : Specified torque • Non-reusable part

Apply comperssor oil ND-OIL8

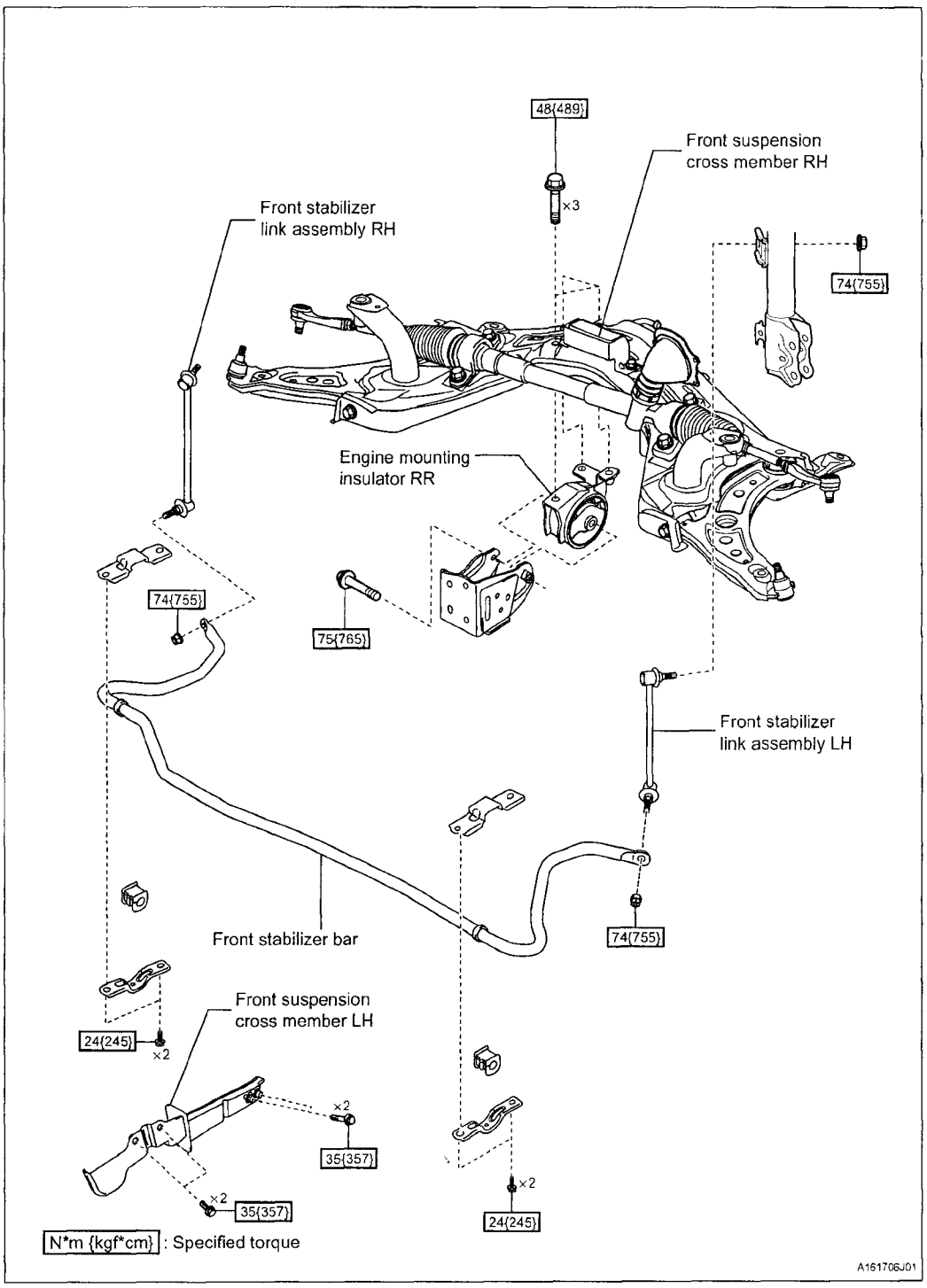
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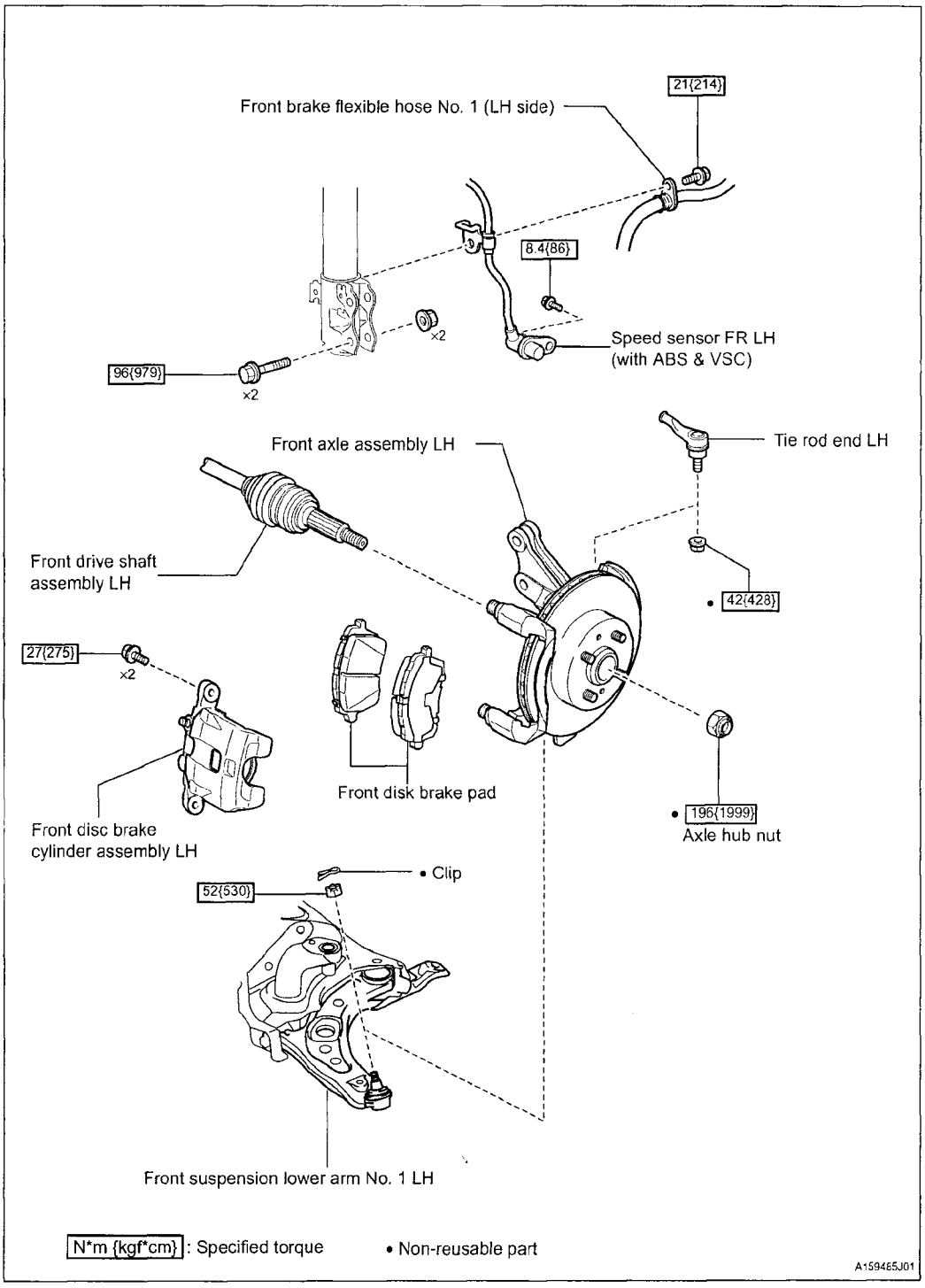



Shift lever knob
Console box carpet
×2
Console box assembly
13{133}
×2
Rear console box
Shift lever boot retainer
24{245}
• Bolt
24{245}
×2
• Bolt
Transmission
floor shift assembly
13{133}
×2
N*m {kgf*cm} : Specified torque
• Non-reusable part
MP Grease applying position
C159935J02

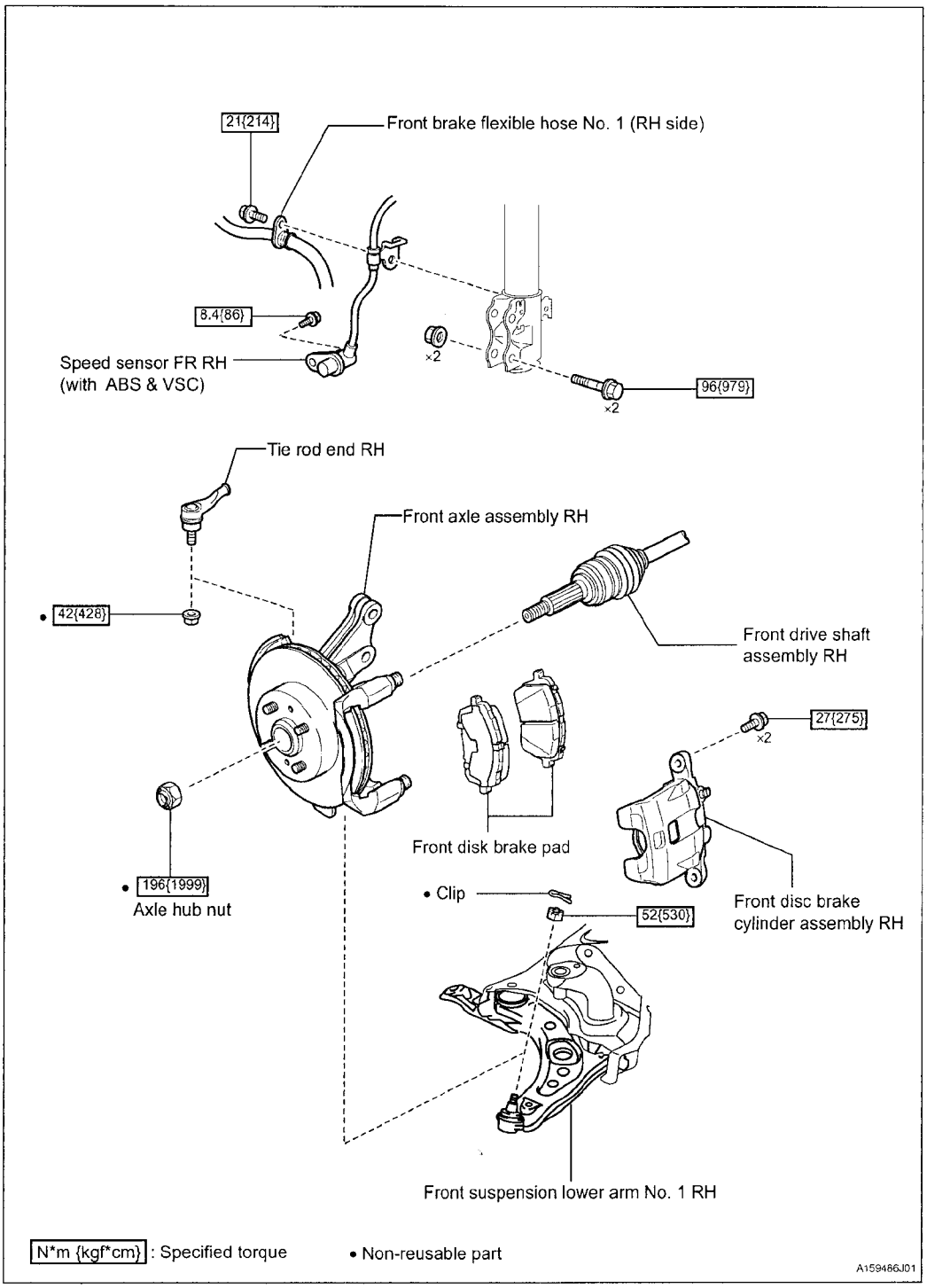
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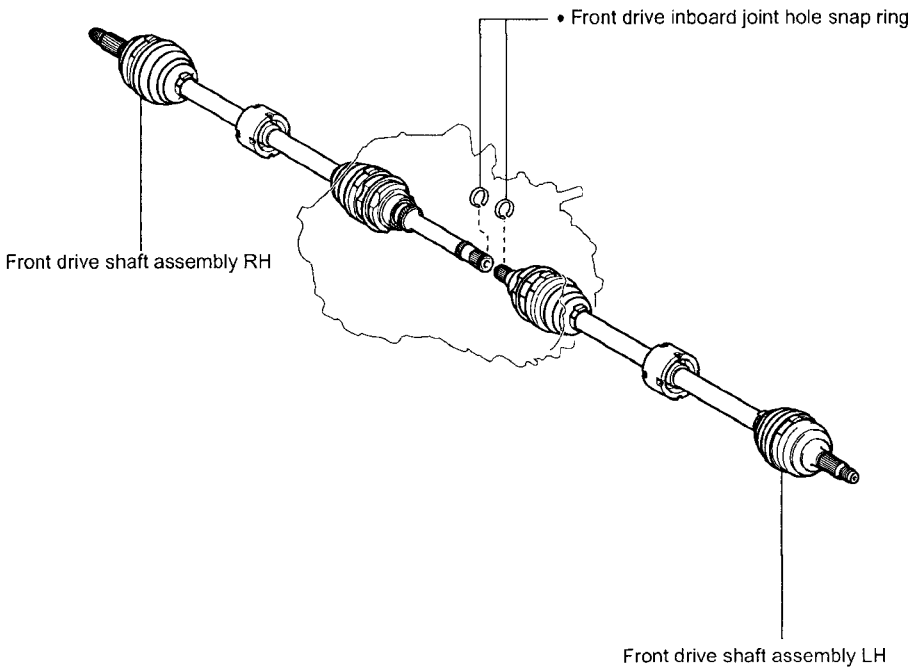


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0050I4-1000A_S000W_73Z10_T006X.fm Page 383 Tuesday, March 20, 2007 9:40 AM

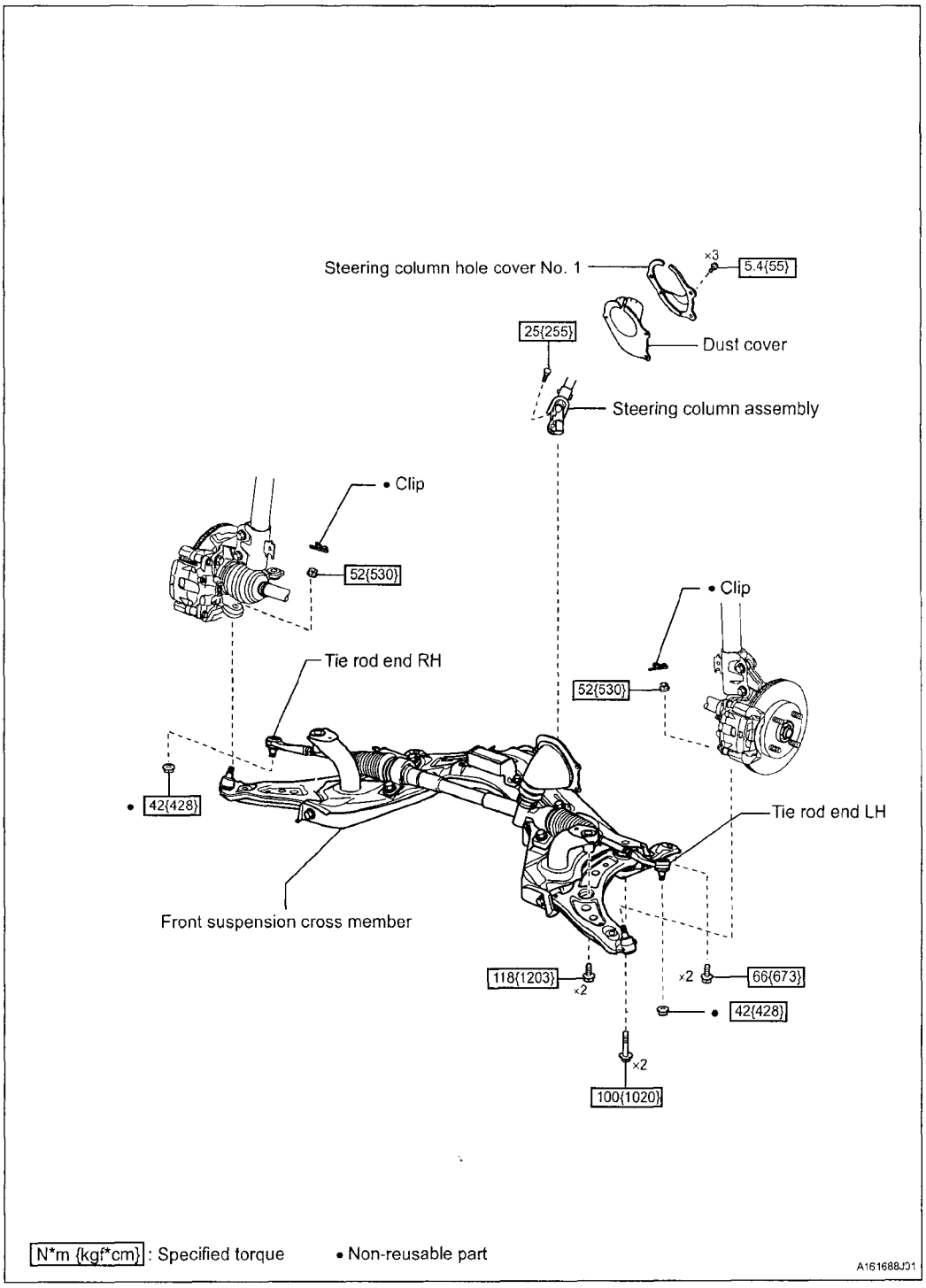




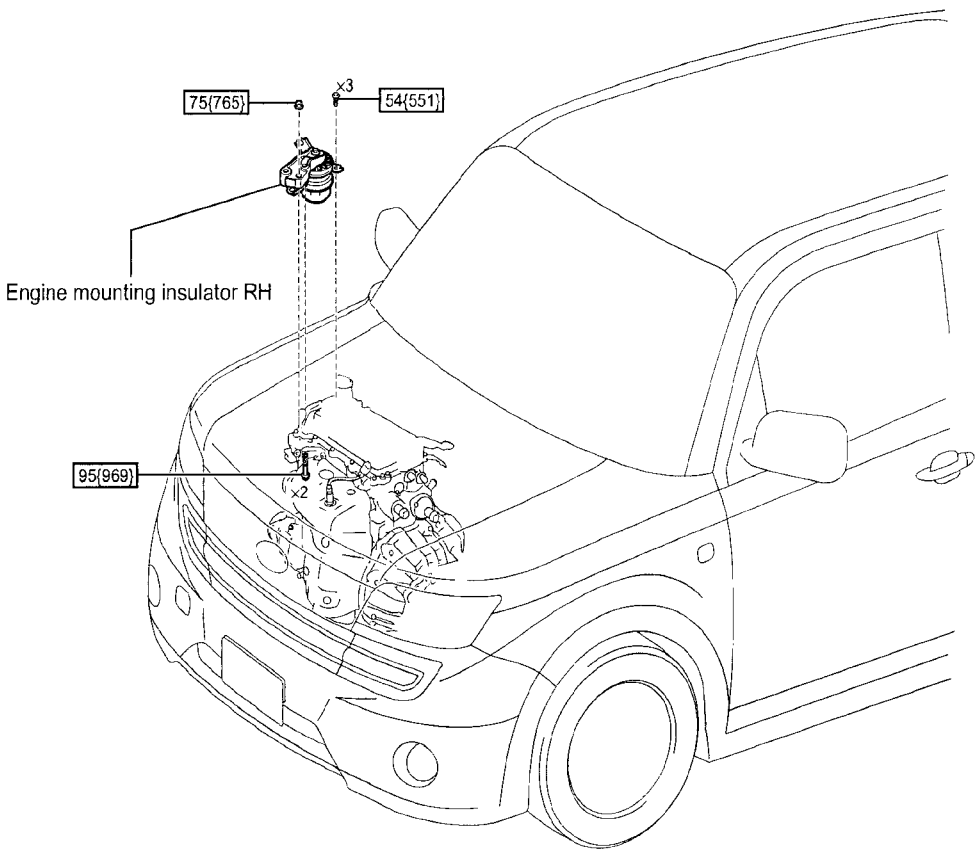
• Non-reusable part

A149650J01

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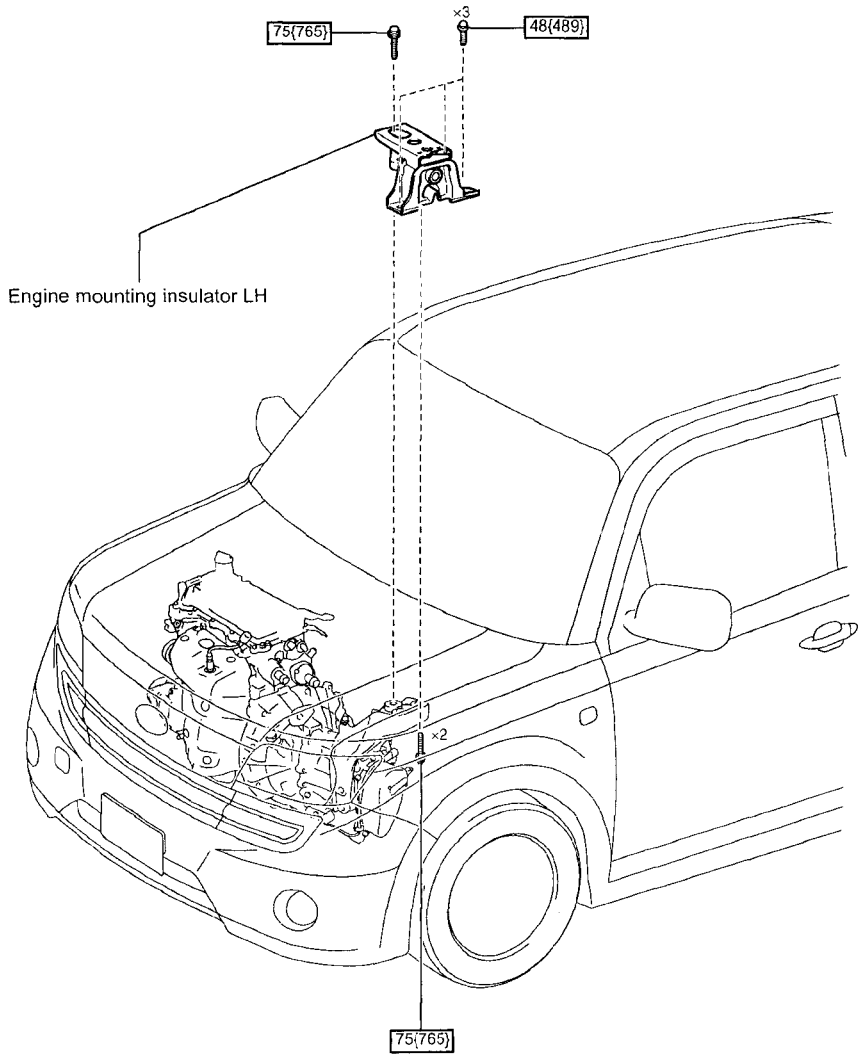


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N*m {kgf*cm} : Specified torque

A159490J01

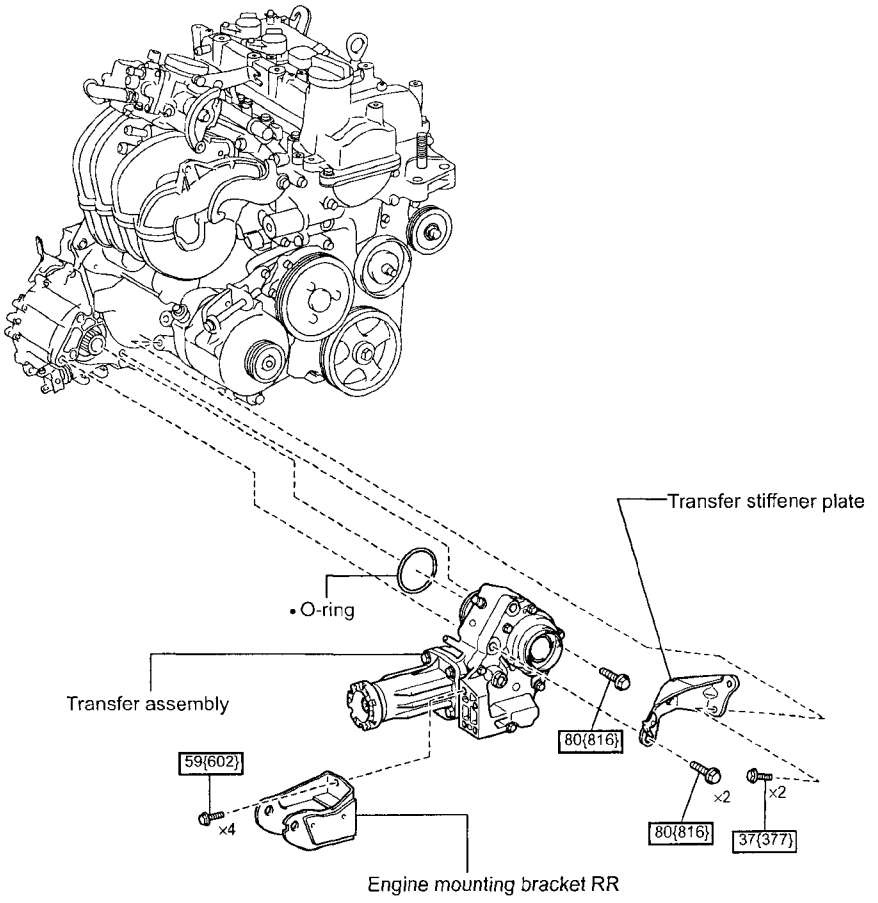


N*m {kgf*cm}: Specified torque

T

A161689J03

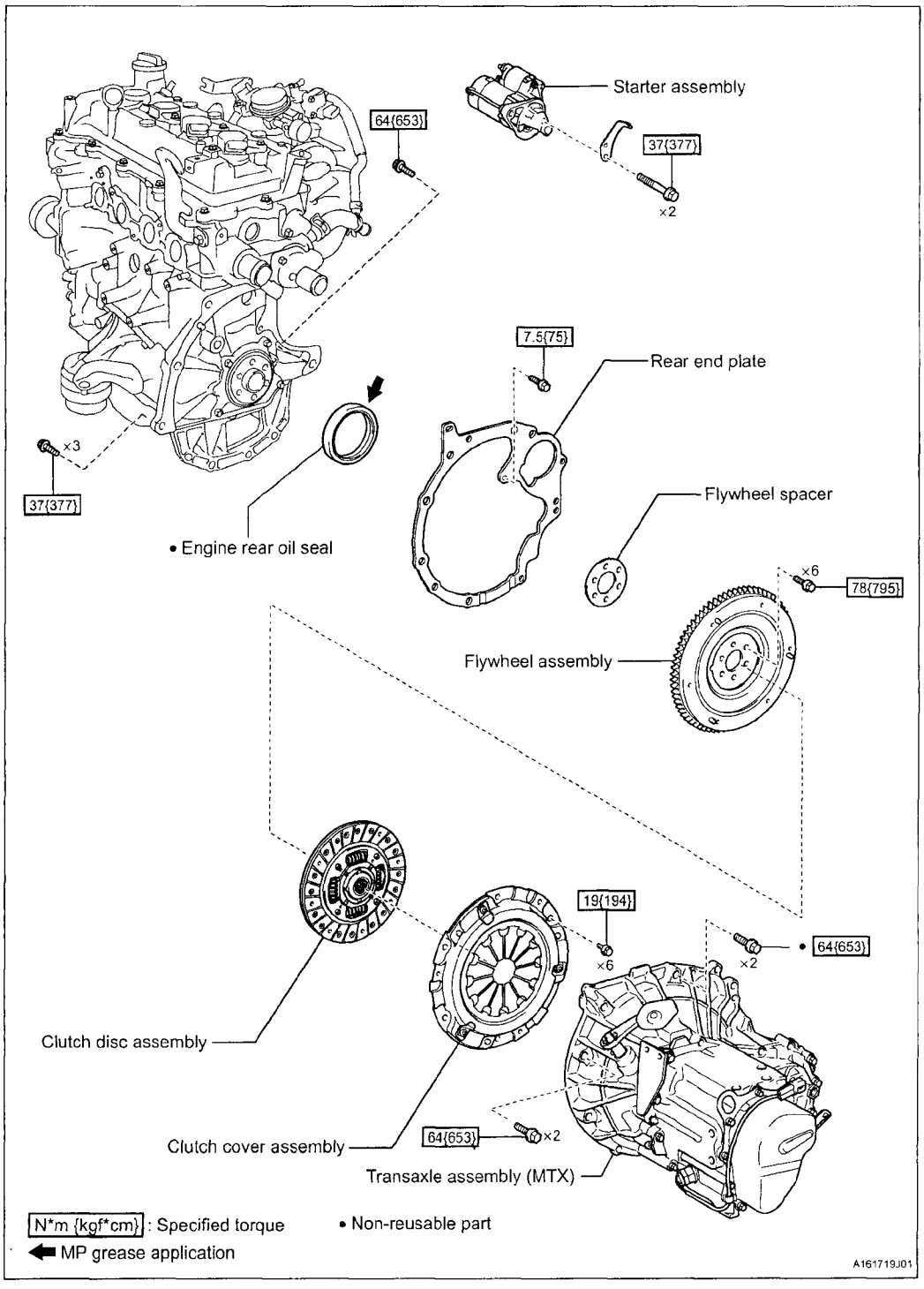
0050l4-1000A_S000W_73Z10_T006X.fm Page 388 Tuesday, March 20, 2007 9:40 AM



N*m {kgf*cm} : Specified torque • Non-reusable part

C159889J01

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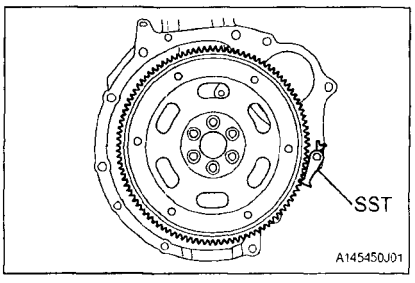


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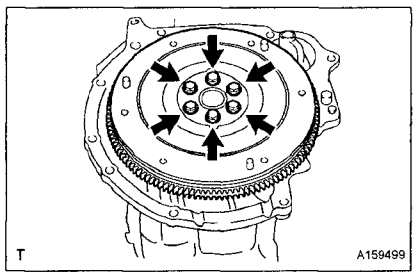
REMOVAL

1. Fuel spill prevention work (See page 08-3)
2. Battery terminal disconnection
3. Cooling fluid withdrawal (See page 12-6)
4. Refrigerant HFC-134a (R134a) withdrawal (with Air conditioning system) (See page 52-42)
5. Front tire removal
6. Engine oil withdrawal
7. Manual transaxle oil withdrawal (See page 29-37)
8. Exhaust pipe assembly FR removal (See page 11-15)
9. Propeller with a center bearing shaft assembly removal (See page 35-3)
10. Brake fluid withdrawal
11. Battery hold down clamp removal (See page 07-113)
12. Radiator reserve tank assembly removal (See page 07-113)
13. Battery cover removal
14. Battery removal
15. Battery tray removal (See page 07-113)
16. Air cleaner cap removal
17. Air cleaner filter element removal
18. Vacuum sensor disconnection (See page 06-140)
19. Vacuum switching valve assembly (with bracket) disconnection (See page 06-140)
20. Inlet air temperature sensor disconnection (See page 06-140)
21. Precleaner hose removal (See page 06-141)
22. Air cleaner assembly removal (See page 06-141)
23. Radiator inlet hose disconnection (See page 12-10)
24. Water bypass hose disconnection (See page 12-10)
25. Radiator outlet hose disconnection (See page 12-10)
26. With water fan assembly removal (See page 12-11)
27. Heater inlet water hose disconnection (See page 52-164)
28. Heater outlet water hose disconnection (See page 52-164)
29. Front bumper cover removal (See page 82-5)
30. Fan & alternator V belt removal (See page 07-6)
31. Cooler refrigerant suction hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
32. Cooler refrigerant discharge hose No. 1 disconnection (with Air conditioning system) (See page 52-131)
33. Compressor assembly with magnet clutch removal (with Air conditioning system) (See page 52-131)
34. Cooler refrigerant liquid pipe A disconnection (with Air conditioning system) (See page 52-136)
35. Radiator assembly removal (See page 07-114)
36. Fuel hose disconnection (See page 07-114)
37. Accelerator control cable assembly disconnection (See page 07-115)
38. Ground cable disconnection (See page 07-115)
39. Vacuum hose assembly disconnection (See page 07-116)
40. Engine room main wire disconnection (See page 07-116)
41. Engine wire disconnection (See page 07-116)
42. Clutch release cylinder assembly disconnection (See page 29-38)
43. Clutch hose disconnection (See page 29-38)
44. Steering column hole cover No. 1 removal (See page 48-15)
45. Steering column assembly disconnection (See page 49-70)
46. Shift lever knob removal (See page 29-59)

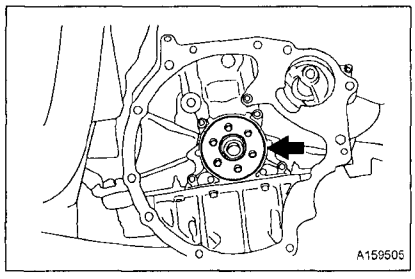
47. Rear console box removal (See page 29-59)
48. Console box carpet removal (See page 29-59)
49. Console box assembly removal (See page 29-59)
50. Transmission floor shift assembly removal (See page 29-60)
51. Engine undercover LH removal (See page 07-116)
52. Engine undercover RH removal (See page 07-116)
53. Front stabilizer link assembly LH removal (See page 07-117)
54. Front stabilizer link assembly RH removal (See page 07-117)
55. Front stabilizer bar removal (See page 42-16)
56. Front suspension cross member LH removal (See page 07-117)
57. Front suspension cross member RH removal (See page 07-117)
58. Speed sensor FR LH disconnection (See page 36-7)
59. Speed sensor FR RH disconnection (See page 36-7)
60. Front disc brake cylinder assembly LH removal (See page 36-8)
61. Front disc brake cylinder assembly RH removal (See page 36-8)
62. Axle hub nut removal (LH) (See page 36-8)
63. Axle hub nut removal (RH) (See page 36-8)
64. Tie rod end LH disconnection (See page 36-8)
65. Tie rod end RH disconnection (See page 36-9)
66. Front shock absorber assembly LH disconnection (See page 07-53)
67. Front shock absorber assembly RH disconnection (See page 07-53)
68. Front drive shaft assembly LH removal (See page 07-54)
69. Front drive shaft assembly RH removal (See page 07-54)
70. Steering knuckle LH removal (See page 07-54)
71. Steering knuckle RH removal (See page 07-54)
72. Radiator support LWR removal (See page 07-118)
73. Engine assembly with transaxle removal (See page 07-118)
74. Front suspension cross member removal (See page 07-119)
75. Engine mounting insulator RR removal (See page 07-119)
76. Starter assembly removal (See page 07-120)
77. Transaxle assembly support (See page 07-120)
78. Transfer assembly removal (See page 07-121)
79. Transaxle assembly removal (See page 07-121)
80. Clutch cover assembly removal (See page 27-67)
81. Clutch disc assembly removal (See page 27-67)



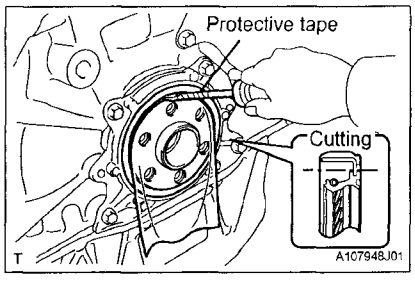
82. Flywheel removal
    (1) Use SST to fix the crankshaft.
        SST 09210-87701



(2) Remove six bolts and then the flywheel.

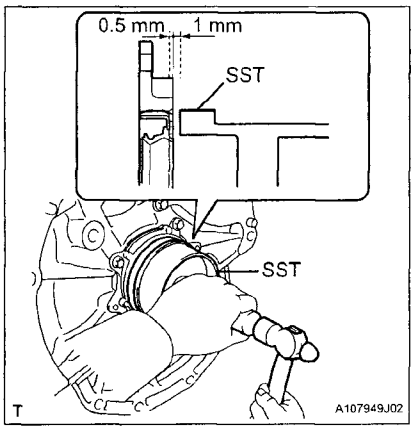


83. Flywheel spacer No. 1 removal
(1) Remove the flywheel spacer No. 1 from the crankshaft.



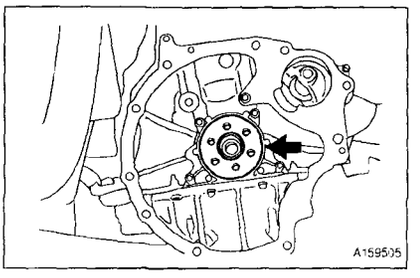
84. Engine rear oil seal removal
(1) Use a utility knife to cut off the lip of the engine rear oil seal.
(2) Use a flathead screwdriver wrapped in protective tape to remove the engine rear oil seal.
<CAUTION>
> After the engine rear oil seal is removed, make sure that the crankshaft has no flaw.
> If it has a flaw, mend it with sand paper (#400).

INSTALLATION



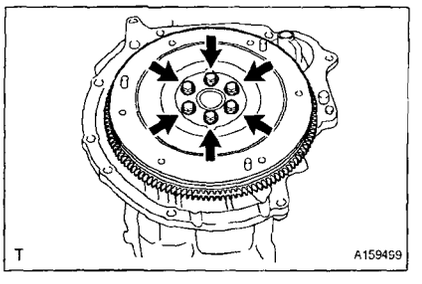
1. Engine rear oil seal installation
(1) Coat the lip of a new engine rear oil seal with a small amount of MP grease.
<CAUTION>
Keep chips, sand, and other foreign particles off the lip.
(2) Use SST to knock in a new engine rear oil seal to the location shown in the diagram.
SST 09608-87302
<CAUTION>
> Do not diagonally knock in the engine rear oil seal.
> Wipe grease off the crankshaft.

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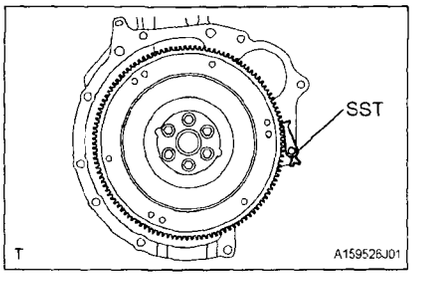


2. Flywheel spacer No. 1 installation
   (1) Attach the flywheel spacer No. 1 to the crankshaft.

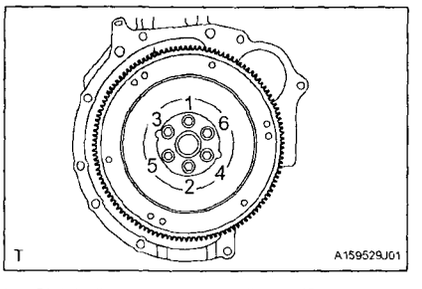
3. Flywheel installation
   (1) Coat two or three threads from the end portion of the flywheel installation bolt with Three Bond 1324.
   <CAUTION>
   Clean/degrease the flywheel installation bolts and bolt holes.



   (2) Use six bolts to attach the flywheel.



   (3) Use SST to fix the crankshaft.
   SST 09210-87701



   (4) Tighten six bolts in the order shown in the diagram.
   Specified value:T=78N*m {795kgf*cm}
   <CAUTION>
   Avoid starting the engine for at least one hour after installation.

4. Clutch disc assembly installation (See page 27-69)
5. Clutch cover assembly installation (See page 27-68)
6. Clutch cover assembly check · adjustment (See page 27-69)
7. Transaxle assembly support (See page 07-137)
8. Transaxle assembly installation (See page 07-138)
9. Transfer assembly installation (See page 07-138)
10. Starter assembly installation (See page 07-138)

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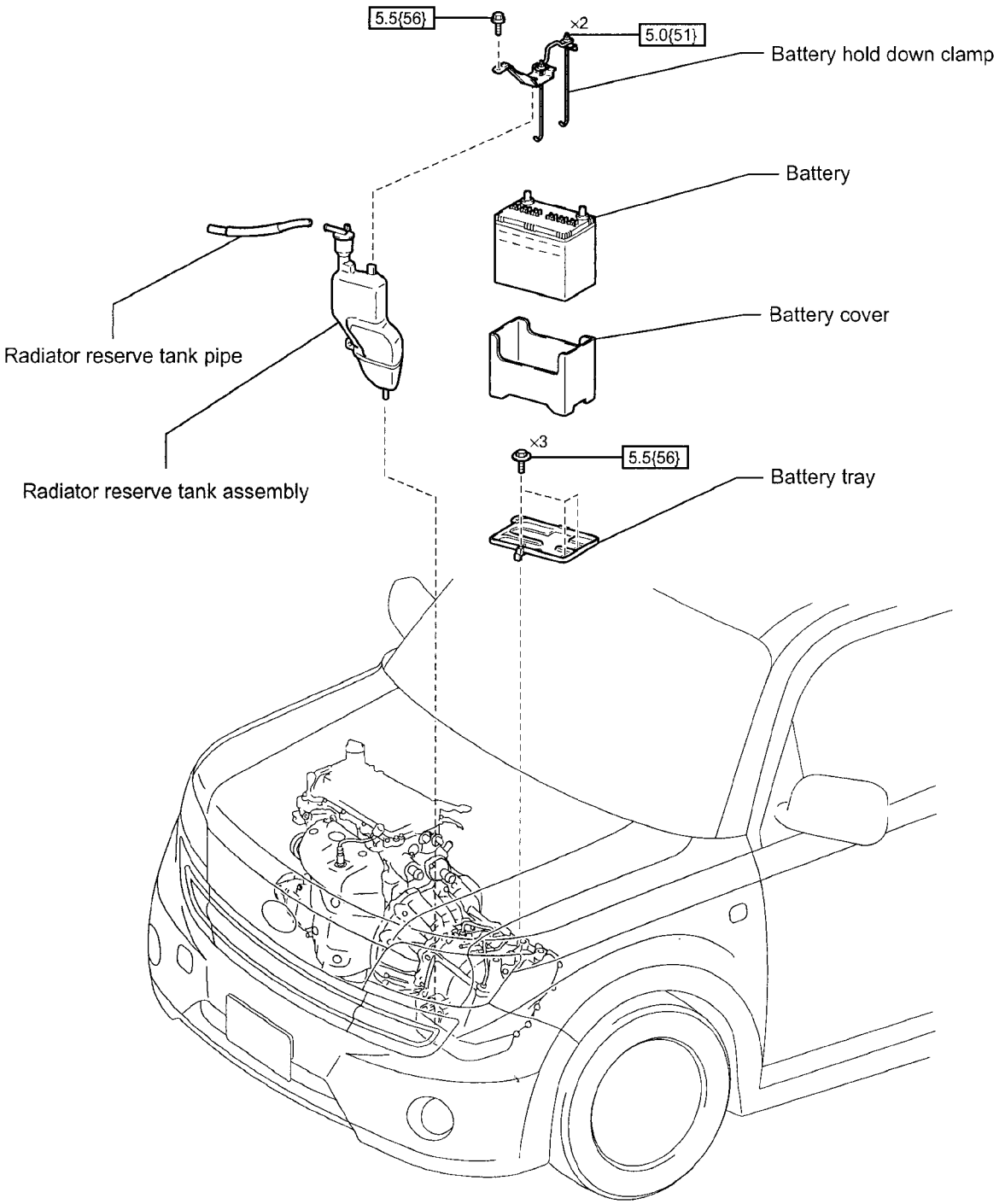
11. Engine mounting insulator RR installation (See page 07-139)
12. Front suspension cross member installation (See page 07-139)
13. Engine assembly with transaxle installation (See page 07-139)
14. Radiator support LWR installation (See page 07-141)
15. Steering knuckle LH installation (See page 07-141)
16. Steering knuckle RH installation (See page 07-141)
17. Front drive shaft assembly LH installation (See page 07-84)
18. Front drive shaft assembly RH installation (See page 07-84)
19. Front shock absorber assembly LH installation (See page 36-16)
20. Front shock absorber assembly RH installation (See page 36-16)
21. Tie rod end LH installation (See page 36-16)
22. Tie rod end RH installation (See page 49-92)
23. Axle hub nut installation (LH) (See page 36-16)
24. Axle hub nut installation (RH) (See page 36-16)
25. Front disc brake cylinder assembly LH installation (See page 36-16)
26. Front disc brake cylinder assembly RH installation (See page 36-17)
27. Speed sensor FR LH installation (See page 44-159)
28. Speed sensor FR RH installation (See page 07-141)
29. Front suspension cross member LH installation (See page 07-141)
30. Front suspension cross member RH installation (See page 07-141)
31. Front stabilizer bar installation (See page 07-142)
32. Engine undercover LH installation (See page 07-142)
33. Engine undercover RH installation (See page 07-142)
34. Transmission floor shift assembly installation (See page 29-60)
35. Console box assembly installation (See page 29-61)
36. Console box carpet installation (See page 29-61)
37. Rear console box installation (See page 29-62)
38. Shift lever knob installation (See page 29-62)
39. Steering column assembly connection (See page 49-79)
40. Steering column hole cover No. 1 installation (See page 48-18)
41. Clutch hose connection (See page 29-43)
42. Clutch release cylinder assembly installation (See page 29-44)
43. Engine wire connection (See page 07-143)
44. Engine room main wire connection (See page 07-143)
45. Vacuum hose assembly connection (See page 07-143)
46. Ground cable connection (See page 07-143)
47. Accelerator control cable assembly connection (See page 07-144)
48. Fuel hose connection (See page 07-145)
49. Radiator assembly installation (See page 07-145)
50. Cooler refrigerant liquid pipe A connection (with Air conditioning system) (See page 52-86)
51. Compressor assembly with magnet clutch installation (with Air conditioning system) (See page 52-134)
52. Cooler refrigerant discharge hose No. 1 connection (with Air conditioning system) (See page 52-134)
53. Cooler refrigerant suction hose No. 1 connection (with Air conditioning system) (See page 52-86)
54. Fan & alternator V belt installation
    (See page 07-6)
55. Front bumper cover installation (See page 82-15)
56. Heater outlet water hose connection (See page 52-177)
57. Heater inlet water hose connection (See page 52-178)

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58. With water fan assembly installation (See page 12-13)
59. Radiator outlet hose connection (See page 12-14)
60. Water bypass hose connection (See page 12-14)
61. Radiator inlet hose connection (See page 12-14)
62. Air cleaner assembly installation (See page 06-149)
63. Precleaner hose installation (See page 06-149)
64. Inlet air temperature sensor connection (See page 06-150)
65. Vacuum switching valve assembly (with Bracket) connection (See page 06-150)
66. Vacuum sensor connection (See page 06-150)
67. Air cleaner filter element installation
68. Air cleaner cap installation
69. Battery tray installation (See page 07-146)
70. Battery installation
71. Battery cover installation
72. Radiator reserve tank assembly installation (See page 12-15)
73. Battery hold down clamp installation (See page 07-146)
74. Temporary tightening of the propeller with a center bearing shaft assembly (See page 35-5)
75. Final tightening of the propeller with a center bearing shaft assembly (See page 35-5)
76. Exhaust pipe assembly FR installation(See page 11-16)
77. Battery terminal connection
    Specified value:T=6.4N*m {65kgf*cm}
78. Brake fluid replenishment (See page 45-4)
79. Clutch pipeline air bleeding (See page 27-3)
80. Clutch fluid leakage check
81. Brake fluid amount check (See page 45-4)
82. Cooling fluid replenishment (See page 12-6)
83. Engine oil replenishment
84. Manual transaxle oil replenishment (See page 29-45)
85. Cooling fluid leakage check (See page 12-6)
86. Cooling fluid amount check
87. Oil leakage check
88. Fuel leakage check (See page 08-7)
89. Exhaust gas leakage check (See page 11-16)
90. Engine idle-speed check (See page 07-4)
91. Ignition timing check (See page 07-2)
92. CO and HC level check (See page 07-4)
93. Refrigerant HFC-134a (R134a) filling (with Air conditioning system) (See page 52-42)
94. Front tire installation (See page 07-147)
95. Front wheel alignment check · adjustment
    (See page 42-5)
96. Test mode check (Speed sensor circuit)
    with ABS: (See page 44-15)

ENGINE MOUNTING INSULATOR LH

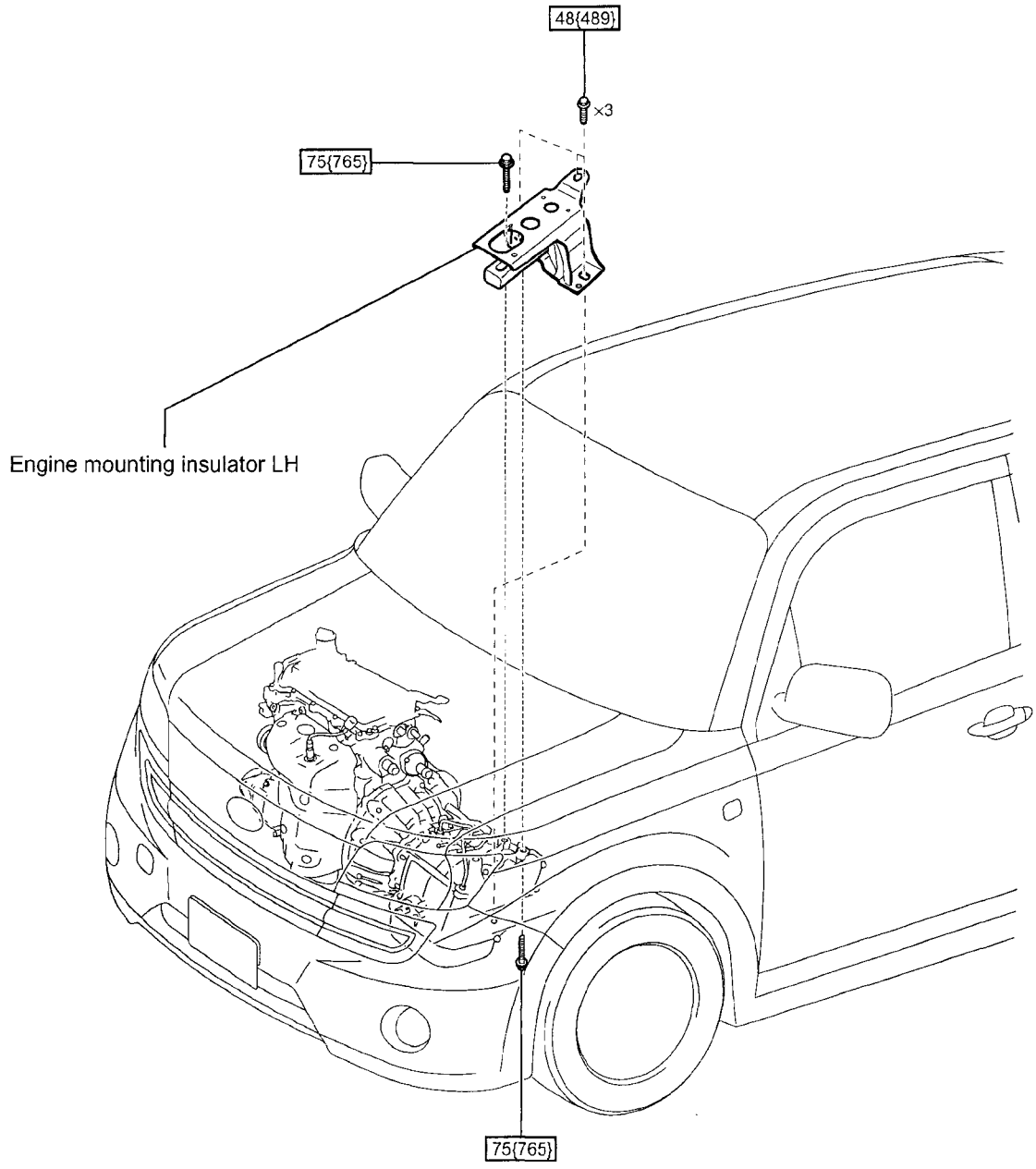
COMPONENTS



N*m {kgf*cm} : Specified torque

A145460J01

for Automatic transaxle:

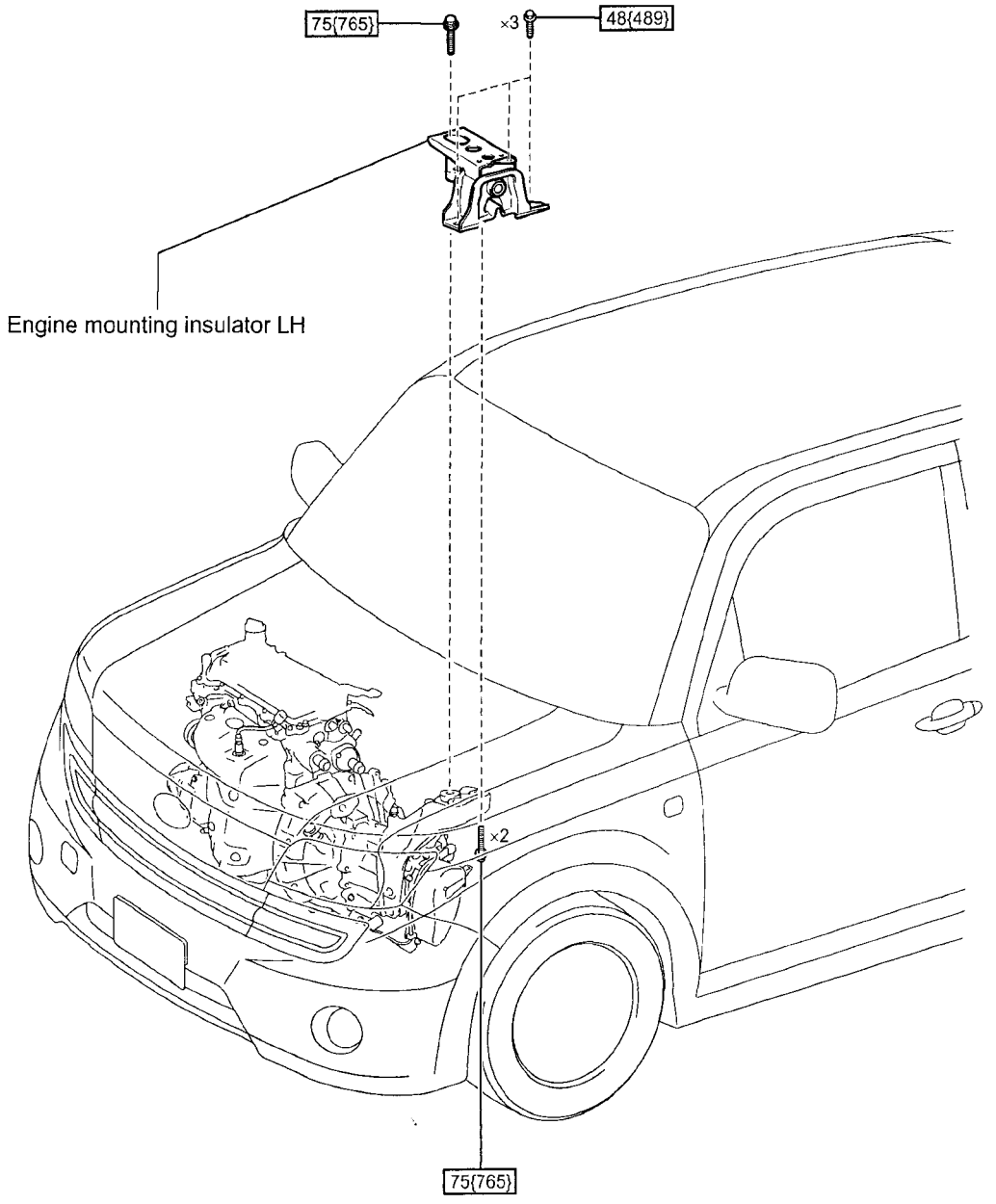


N*m {kgf*cm} : Specified torque

A145465J02

07

for Manual transaxle:



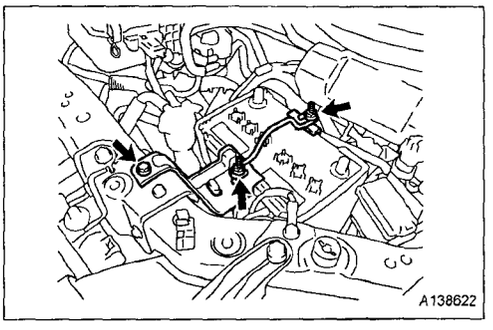
N*m {kgf*cm}: Specified torque

T

A161689J01

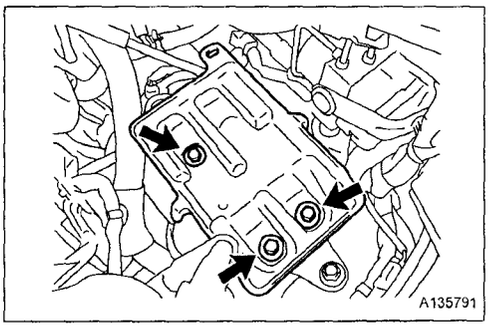
REMOVAL

1. Battery terminal disconnection
2. Front tire LH removal
3. Engine undercover LH removal
   (1) Remove the bolt, three clips, and the engine undercover LH.

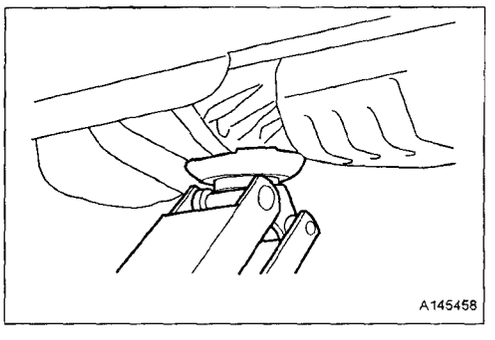


4. Battery hold down clamp removal
   (1) Remove one bolt, loosen two nuts, and remove the battery hold down clamp.

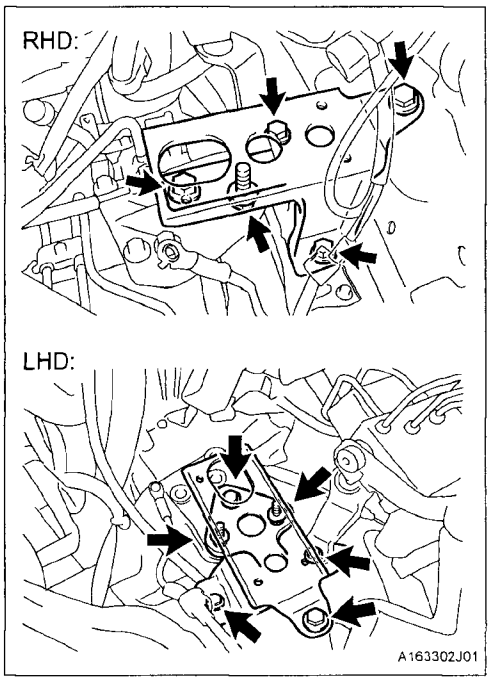
5. Radiator reserve tank assembly removal
   (1) Disconnect the radiator reserve tank pipe and remove the radiator reserve tank assembly.
6. Battery cover removal
7. Battery removal



8. Battery tray removal
   (1) Remove three bolts and then the battery tray.

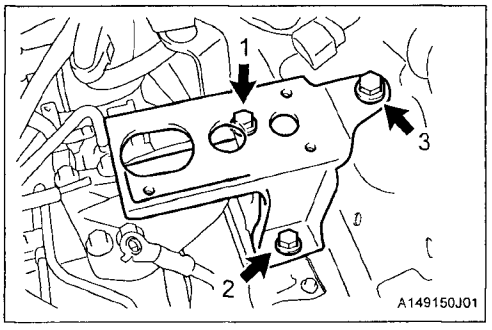


9. Engine mounting insulator LH removal
   (1) Attach a jack to the joint of the engine assembly W transaxle to support it.
   <CAUTION>
   When attaching a garage jack, put a piece of damage prevention waste.

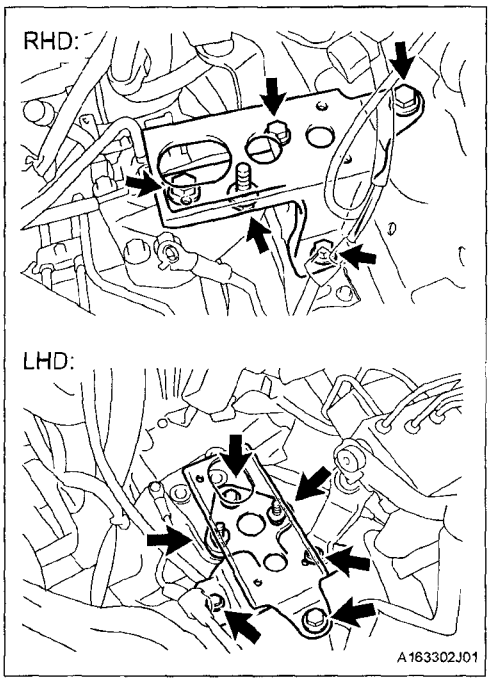


(2) Remove five bolts and then the engine mounting insulator LH (for Automatic transaxle).
(3) Remove six bolts and then the engine mounting insulator LH (for Manual transaxle).

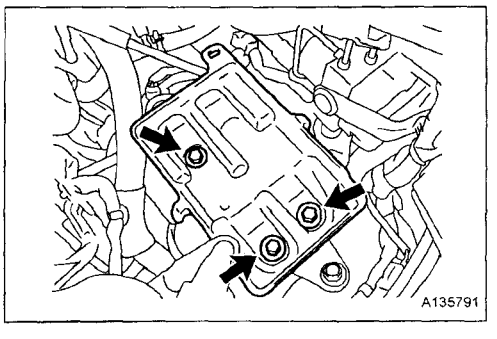
INSTALLATION



1. Engine mounting insulator LH installation
   (1) Use three bolts to attach the engine mounting insulator LH to the vehicle.
   <HINT>
   Tighten the bolts in the order shown in the diagram.
   Specified value:T=48N*m {489kgf*cm}

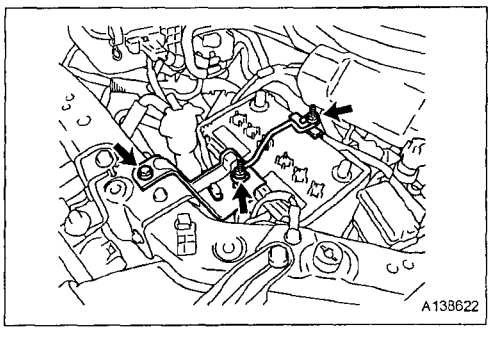


(2) Adjust the positions of the engine mounting insulator LH and the engine mounting bracket LH and use two bolts to temporarily attach them together (for Automatic transaxle).
(3) Adjust the positions of the engine mounting insulator LH and the engine mounting bracket LH and use three bolts to temporarily attach them together (for Manual transaxle).
(4) Remove the jack.
(5) Fully tighten two bolts.
Specified value:T=75N*m {765kgf*cm}



2. Battery tray installation
(1) Use three bolts to attach the battery tray.
Specified value:T=5.5N*m {56kgf*cm}

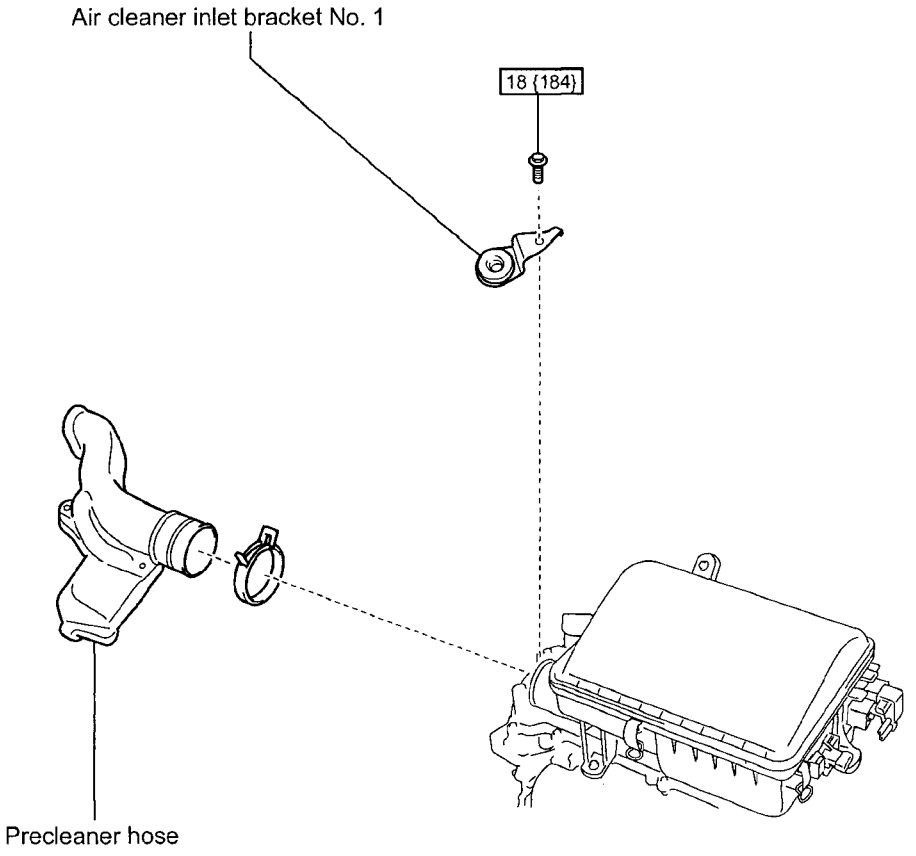
3. Battery installation
4. Battery cover installation
5. Radiator reserve tank assembly installation
(1) Connect the radiator reserve tank pipe and attach the radiator reserve tank assembly.



6. Battery hold down clamp installation
(1) Attach one bolt, tighten two nuts, and attach the battery hold down clamp.
Specified value:T=5.5N*m {56kgf*cm} (Bolt)
T=5.0N*m {51kgf*cm} (Nut)

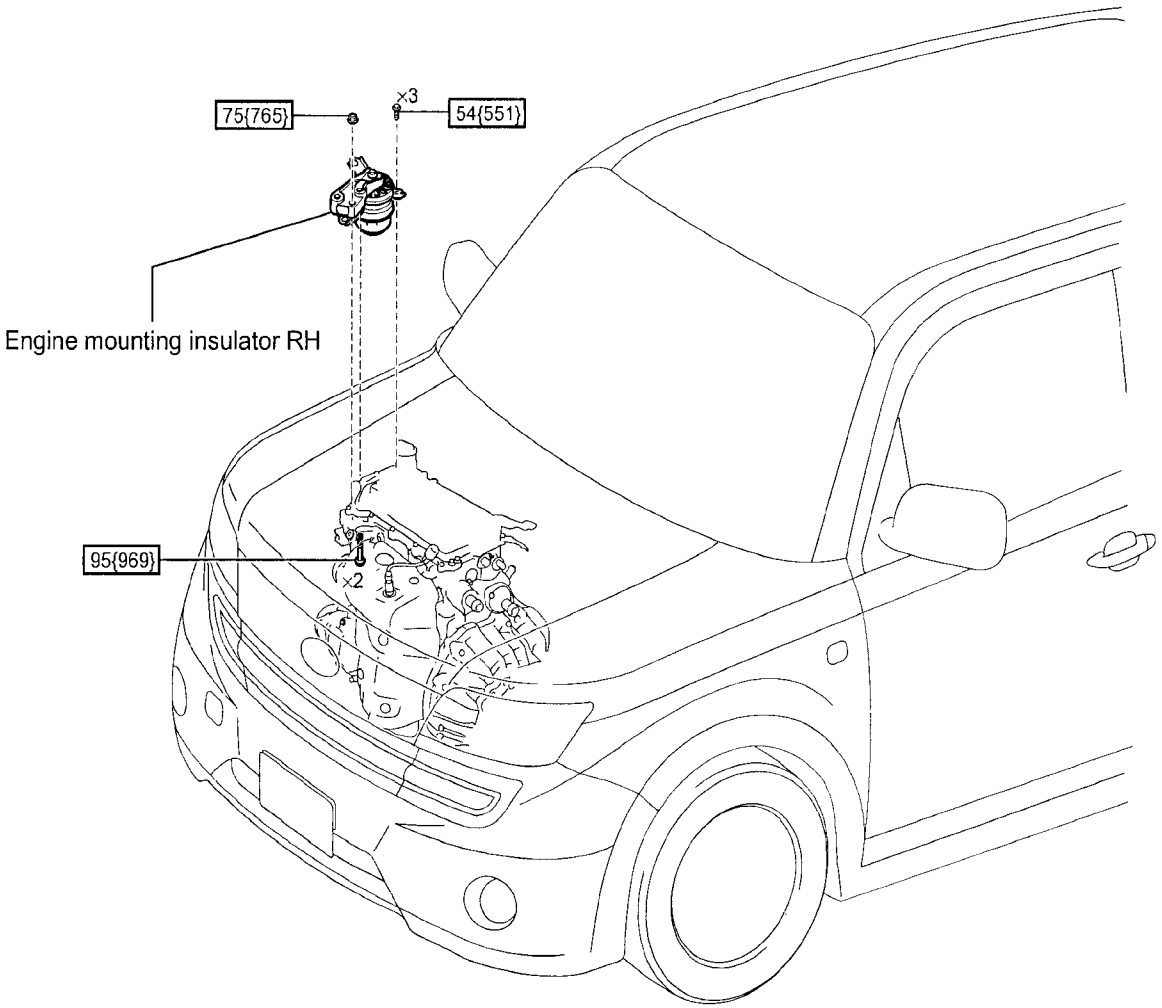
7. Engine undercover LH installation
(1) Use a bolt and three clips to attach the engine undercover LH.
8. Front tire LH installation
Specified value:T=103N*m {1050kgf*cm}
9. Battery terminal connection
Specified value:T=6.4N*m {65kgf*cm}

COMPONENTS



N*m {kgf*cm}: Specified torque

A149152J01

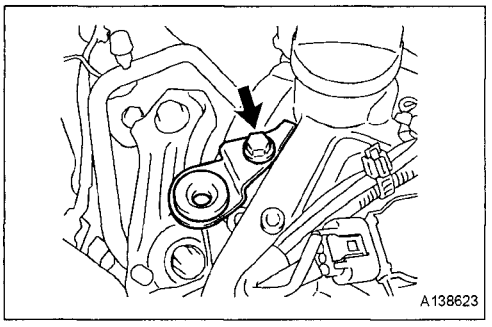


N*m {kgf*cm} : Specified torque

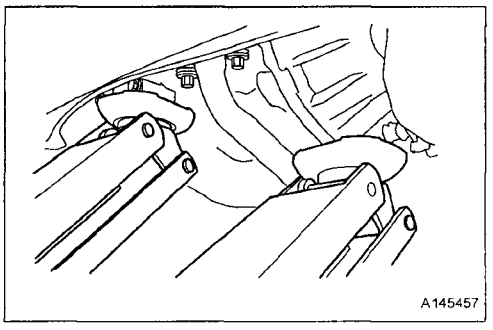
A159490J01

REMOVAL

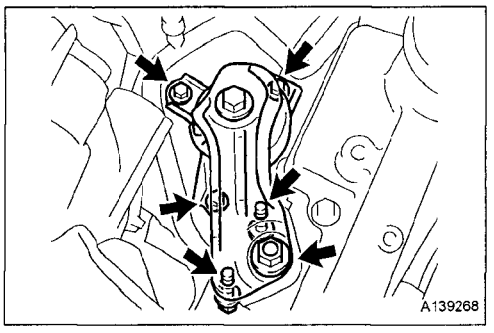
1. Front tire RH removal
2. Engine undercover RH removal
   (1) Remove the bolt, three clips, and the engine undercover RH.
3. Precleaner hose removal (See page 06-141)



4. Air cleaner inlet bracket No. 1 removal
   (1) Remove the bolt and then the air cleaner inlet bracket No. 1.

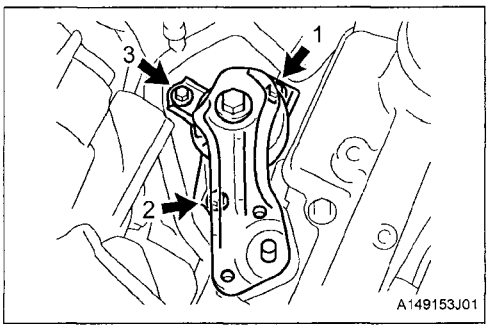


5. Engine mounting insulator RH removal
   (1) Support the engine assembly W transaxle with a jack.
   <CAUTION>
   When attaching a garage jack, put a piece of damage prevention waste.

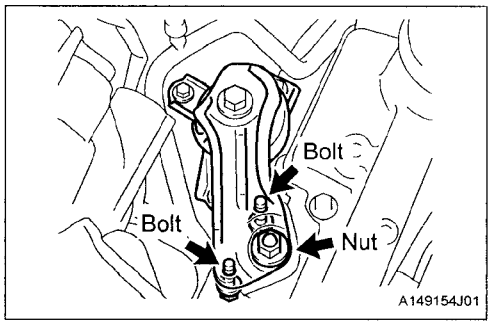


   (2) Remove five bolts, one nut, and the engine mounting insulator RH.

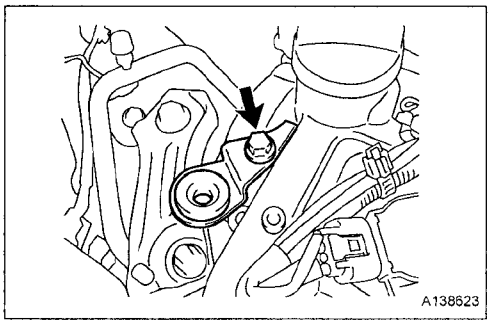
INSTALLATION



1. Engine mounting insulator RH installation
   (1) Use three bolts to attach the engine mounting insulator RH to the vehicle.
   <HINT>
   Tighten the bolts in the order shown in the diagram.
   Specified value:T=54N*m {551kgf*cm}



(2) Adjust the positions of the engine mounting insulator RH and the engine assembly and use two bolts and a nut to temporarily attach them together.
(3) Remove the jack.
(4) Fully tighten two bolts and the nut.
Specified value:T=95N*m {969kgf*cm} (Bolt)
T=75N*m {765kgf*cm} (Nut)

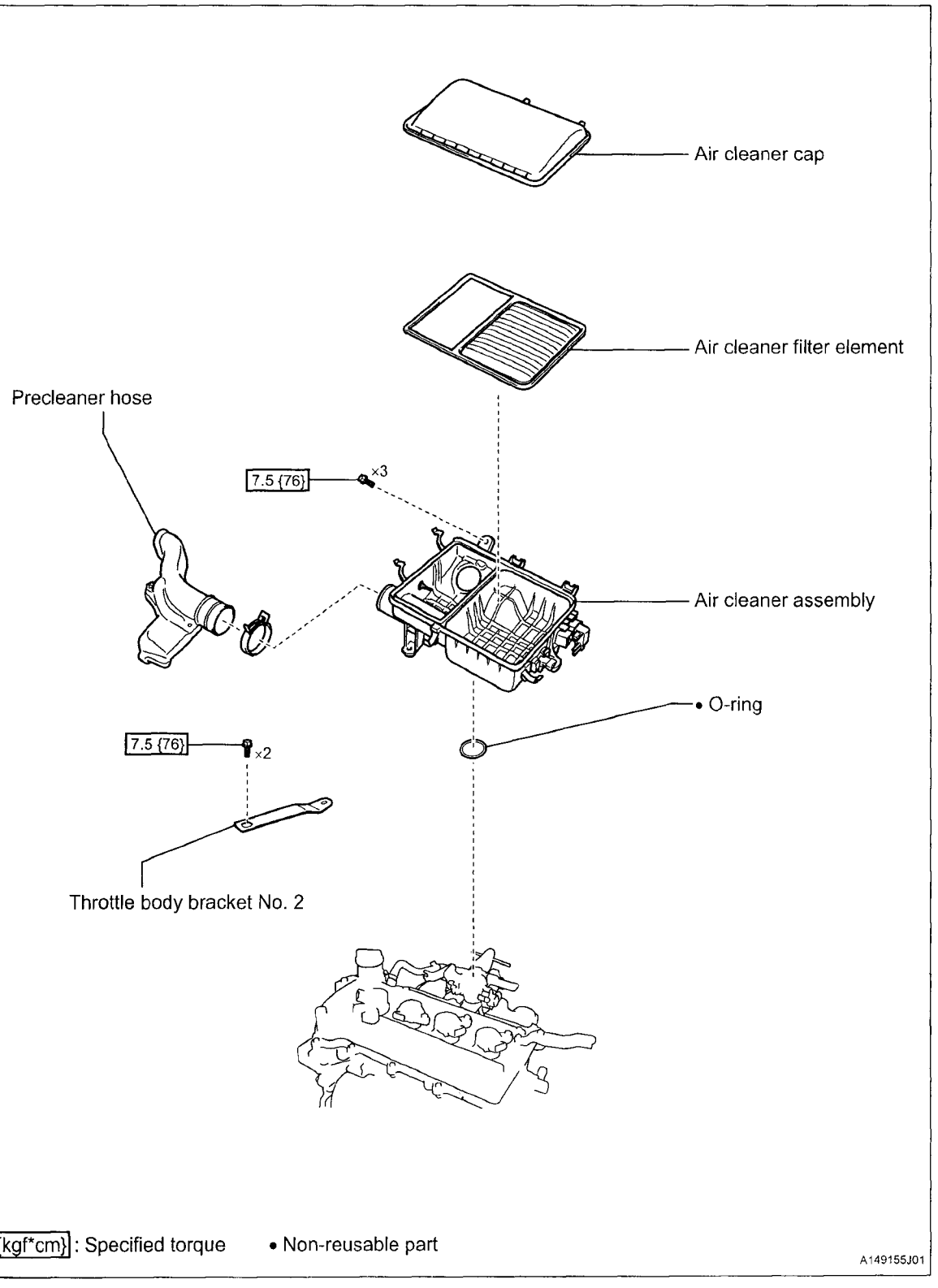


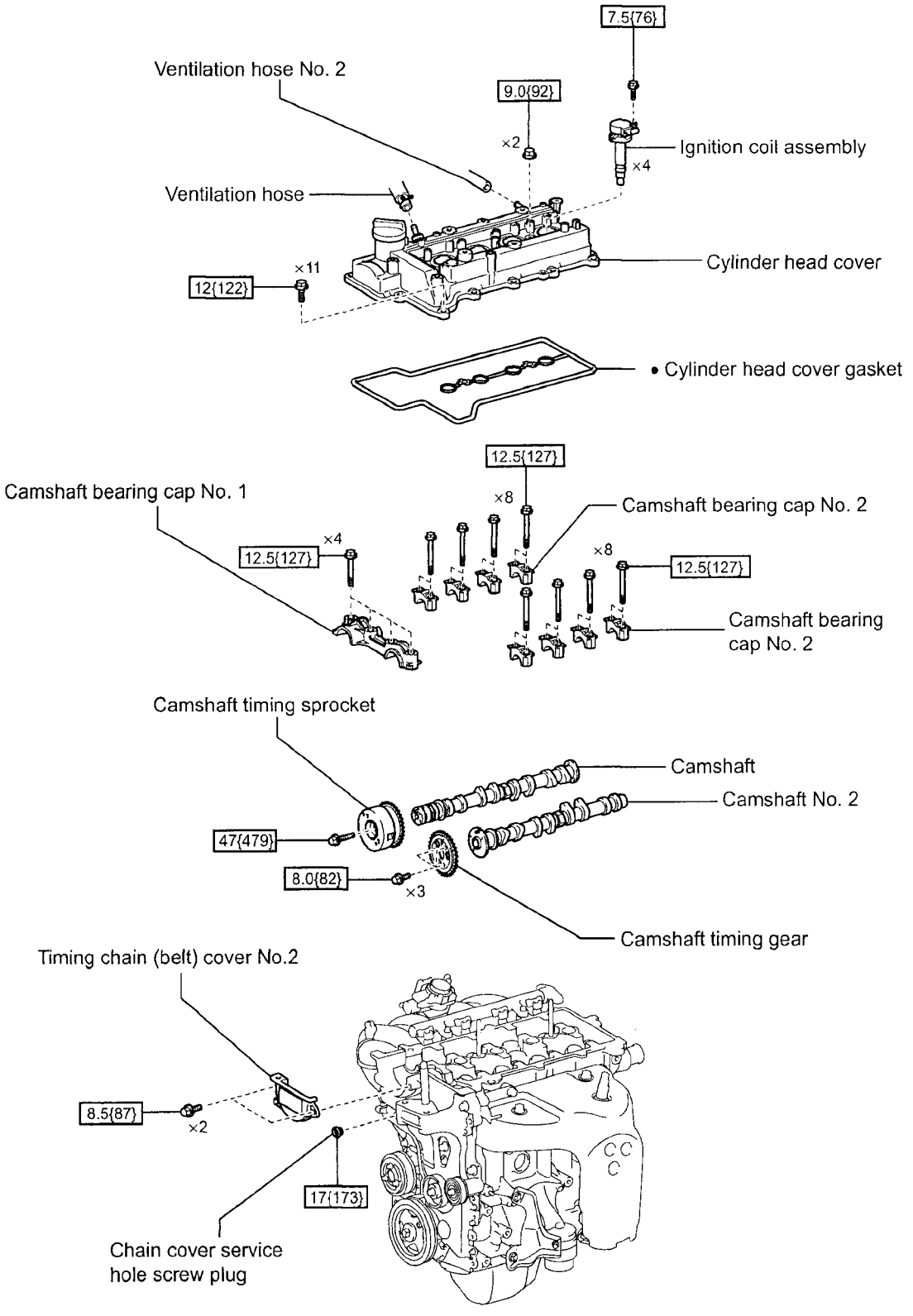
2. Air cleaner inlet bracket No. 1 installation
(1) Use a bolt to attach the air cleaner inlet bracket No. 1.
Specified value:T=18N*m {184kgf*cm}

3. Precleaner hose installation (See page 06-149)
4. Engine undercover RH installation(See page 07-85)
5. Front tire RH installation
Specified value:T=103N*m {1050kgf*cm}

VALVE STEM OIL SEAL (O-RING) (3SZ-VE, K3-VE)

COMPONENTS

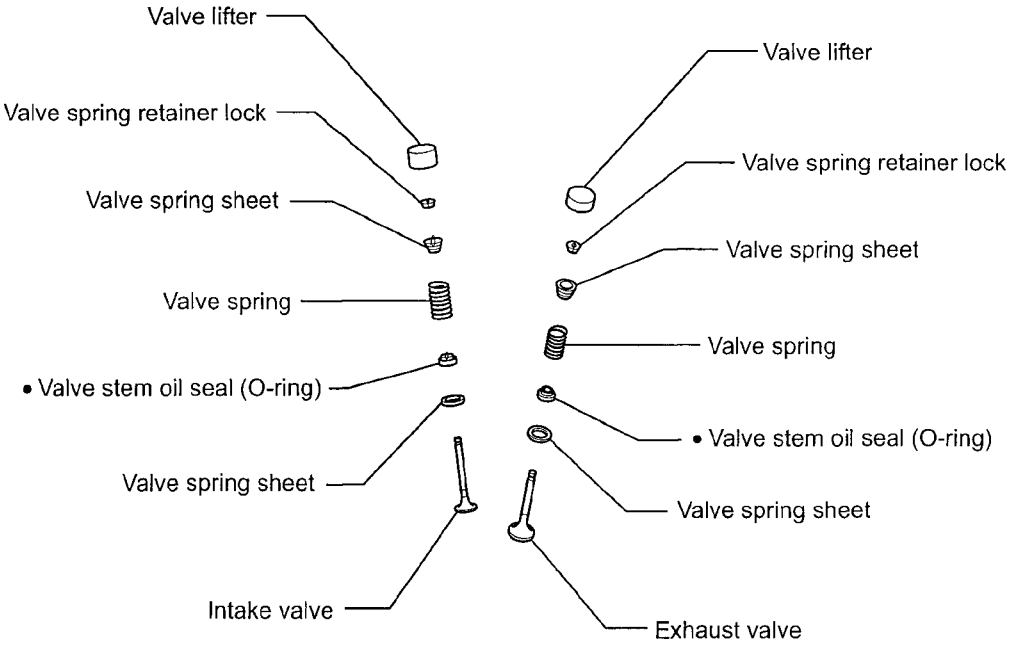


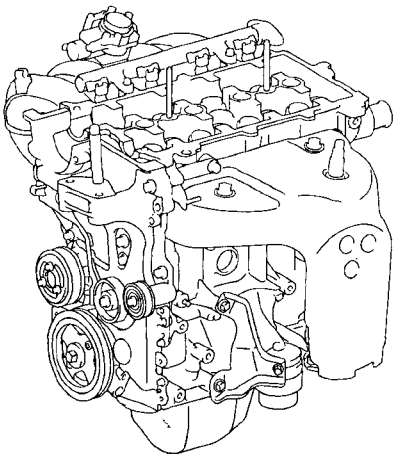


N*m {kgf*cm} : Specified torque • Non-reusable part

A161717J01

07





• Non-reusable part

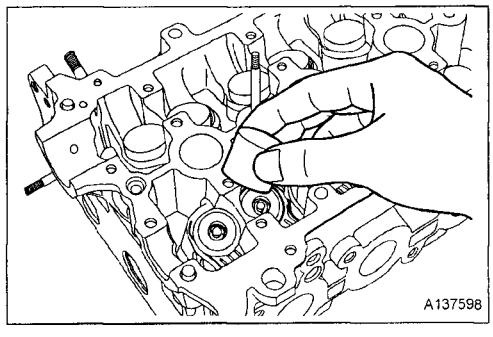
A163303J01

REMOVAL

1. Battery minus terminal disconnection
2. Engine undercover RH removal(See page 07-52)
3. Air cleaner cap removal
4. Air cleaner filter element removal
5. Vacuum sensor disconnection (See page 06-140)
6. Vacuum switching valve assembly (with Bracket) disconnection (RHD)(See page 06-140)
7. Vacuum switching valve assembly (with Bracket) disconnection (LHD) (See page 06-140)
8. Inlet air temperature sensor disconnection (See page 06-140)
9. Precleaner hose removal (See page 06-141)
10. Air cleaner assembly removal (See page 06-141)
11. Ventilation hose No. 2 removal (See page 06-141)
12. Ventilation hose disconnection (See page 07-231)
13. Accelerator control cable assembly disconnection (See page 06-142)
14. Throttle body bracket No. 2 removal (See page 06-142)
15. Noise filter removal (See page 07-231)
16. Ground cable disconnection (See page 07-232)
17. Engine wire disconnection (See page 07-232)
18. Ignition coil assembly removal (See page 07-232)
19. Oil level gage removal
20. Cylinder head cover removal (See page 07-232)
21. Timing chain (belt) cover No. 2 removal (See page 07-233)
22. Camshaft timing gear removal (See page 07-233)
23. Camshaft timing sprocket removal (See page 07-236)
24. Camshaft bearing cap No. 1 removal (See page 07-236)
25. Camshaft bearing cap No. 2 removal (See page 07-237)
26. Camshaft removal (See page 07-237)
27. Camshaft No. 2 removal (See page 07-237)
28. Valve lifter removal

    <CAUTION>

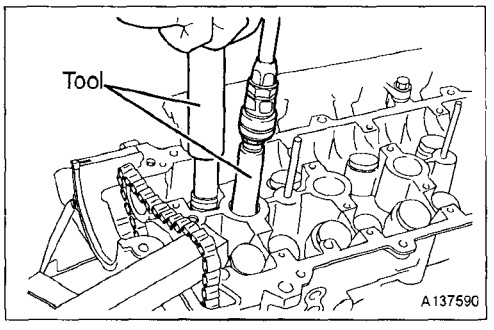
    Block the oil return hole in the cylinder head with a piece of waste to prevent the valve spring retainer lock from dropping into the hole.



(1) Remove the valve lifters.

<CAUTION>

Before removing the valve lifters, note the markings on them that correspond to each valve.



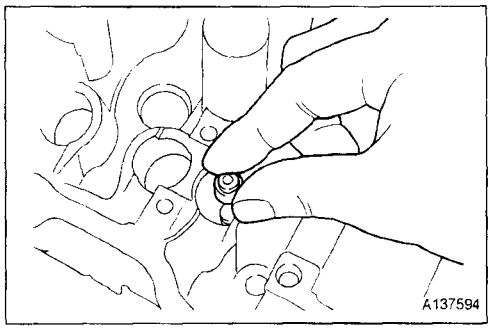
29. Valve spring retainer lock removal
    (1) Find the piston of the cylinder where the valve spring retainer lock is to be removed. Set the piston to be the bottom dead center and remove the spark plug.
    (2) Attach the air nozzle of the valve cotter tool to the spark plug hole and inject air into the hole.
    <CAUTION>
    After the nozzle O-ring is hit, give it another turn.
    (3) Attach the attachment to the handle, and place its end portion in the valve spring retainer.
    (4) Push it down straight without shaking it and remove the valve spring retainer lock.
    (5) Remove the valve spring sheet.
    (6) Remove the valve spring.

07

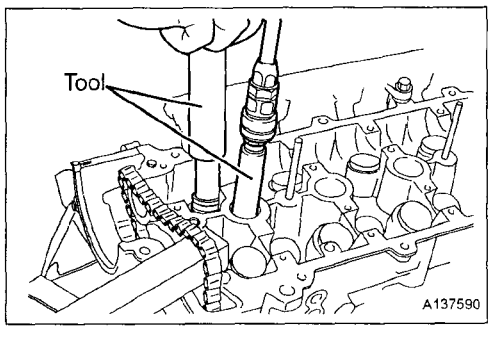
30. Valve stem oil seal (O-ring) removal
    (1) Use long-nose pliers to remove the valve stem oil seal (O-ring).

INSTALLATION

1. Valve stem oil seal (O-ring) installation
    (1) Apply engine oil inside the valve stem oil seal (O-ring).

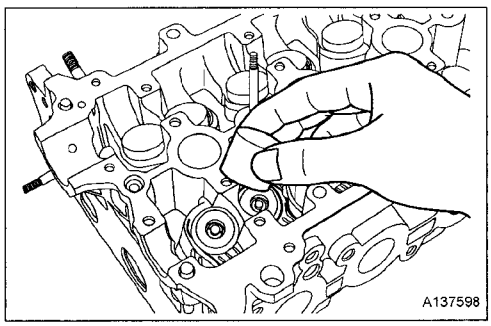


    (2) Push the shoulder of the valve stem oil seal (O-ring) with a finger to attach the valve stem oil seal (O-ring).
    <CAUTION>
    After it is attached, pull it lightly to check if it is securely installed.



2. Valve spring retainer lock installation
    <CAUTION>
    Block the oil return hole in the cylinder head with a piece of waste to prevent the valve spring retainer lock from dropping into the hole.
    (1) Find the piston of the cylinder where the valve spring retainer lock is to be attached. Set the piston to be the bottom dead center and remove the spark plug.
    <CAUTION>
    Be careful not to drop the valve.
    (2) Attach the air nozzle of the valve cotter tool to the spark plug hole.
    <CAUTION>
    After the O-ring is hit, give it another turn.
    (3) Place the valve spring retainer lock in the valve spring retainer and attach them to the valve spring.
    (4) Attach the attachment to the handle and place its end portion in the valve spring retainer lock.
    (5) Fit the lock in place and then push it deeply to attach the lock.
    <CAUTION>
    When only one side of the lock is pushed in, repeat pumping it to attach the lock securely.
    (6) Remove the valve cotter tool.
    <CAUTION>
    After the O-ring is hit, give it another turn.

3. Valve lifter installation
    (1) Coat valve lifter with engine oil.



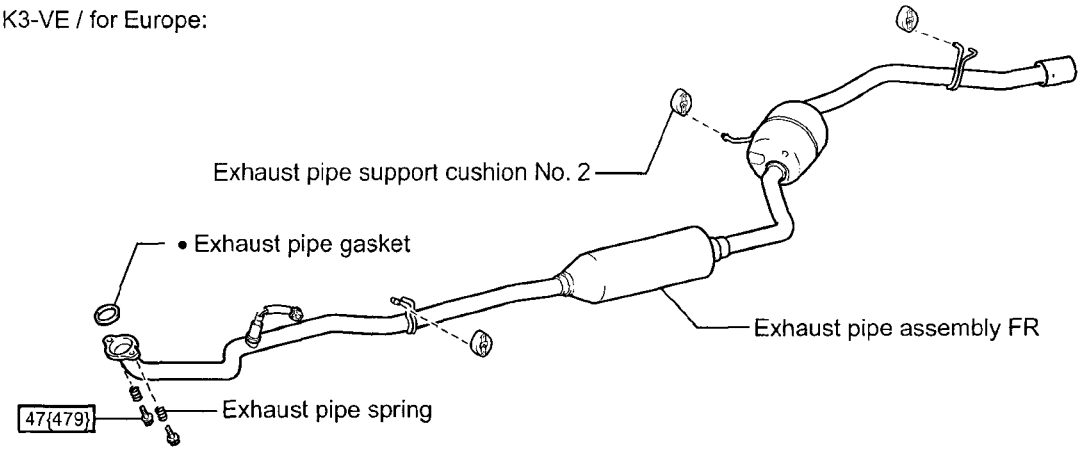
(2) Insert it straight into the valve lifter hole to attach it.
<HINT>
After the valve lifter is attached, check if it rotates smoothly.

4. Camshaft No. 2 installation (See page 07-238)
5. Camshaft installation (See page 07-238)
6. Camshaft bearing cap No. 2 installation (See page 07-239)
7. Camshaft bearing cap No. 1 installation (See page 07-239)
8. Camshaft timing sprocket installation (See page 07-240)
9. Camshaft timing gear installation (See page 07-241)
10. Valve clearance check (See page 07-9)
11. Valve clearance adjustment (See page 07-10)
12. Timing chain (belt) cover No. 2 installation (See page 07-243)
13. Cylinder head cover installation (See page 07-243)
14. Oil level gage installation
15. Ignition coil assembly installation (See page 07-243)
16. Engine wire installation (See page 07-244)
17. Ground cable connection (See page 07-244)
18. Noise filter installation (See page 07-244)
19. Throttle body bracket No. 2 installation (See page 06-148)
20. Accelerator control cable assembly connection (See page 06-148)
21. Ventilation hose connection (See page 07-244)
22. Ventilation hose No. 2 installation (See page 06-149)
23. Air cleaner assembly installation (See page 06-149)
24. Precleaner hose installation (See page 06-149)
25. Inlet air temperature sensor connection (See page 06-150)
26. Vacuum switching valve assembly (with Bracket) connection (RHD) (See page 06-150)
27. Vacuum switching valve assembly (with Bracket) connection (LHD) (See page 06-150)
28. Vacuum sensor connection (See page 06-150)
29. Air cleaner filter element installation
30. Air cleaner cap installation
31. Battery minus terminal connection
    Specified value:T=6.4N*m {65kgf*cm}
32. Engine oil leakage check
33. Engine undercover RH installation(See page 07-85)
34. Ignition timing check (See page 07-2)
35. Engine idle-speed check (See page 07-4)
36. CO and HC level check (See page 07-4)

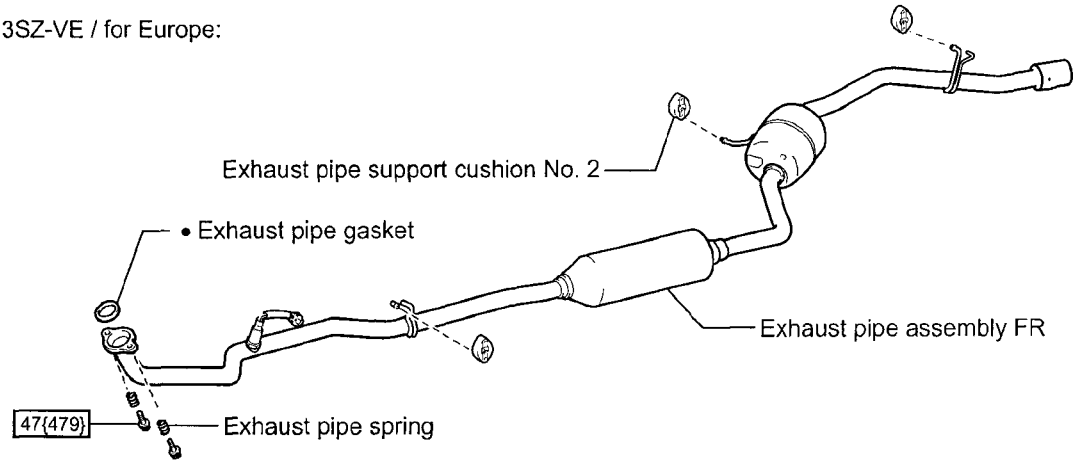
ENGINE MOVING CONTROL ROD (FF)

COMPONENTS

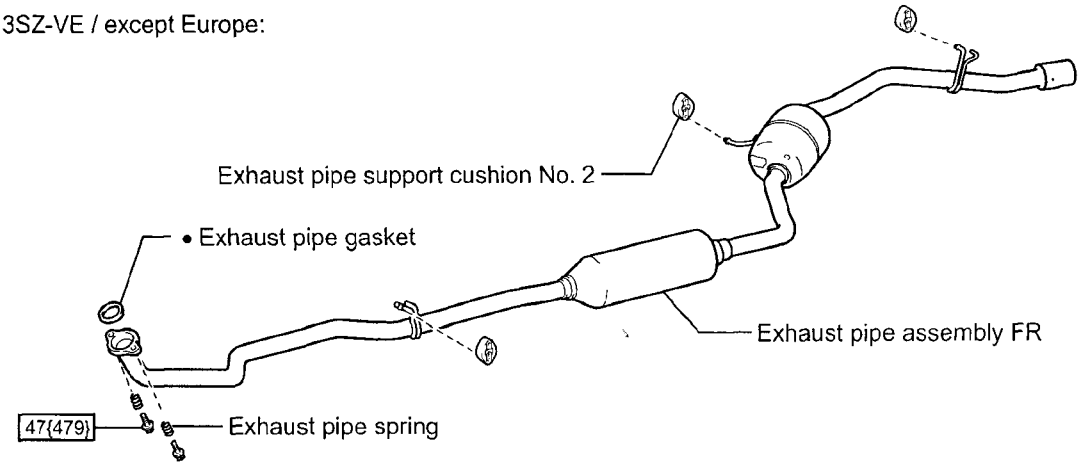
K3-VE / for Europe:



3SZ-VE / for Europe:

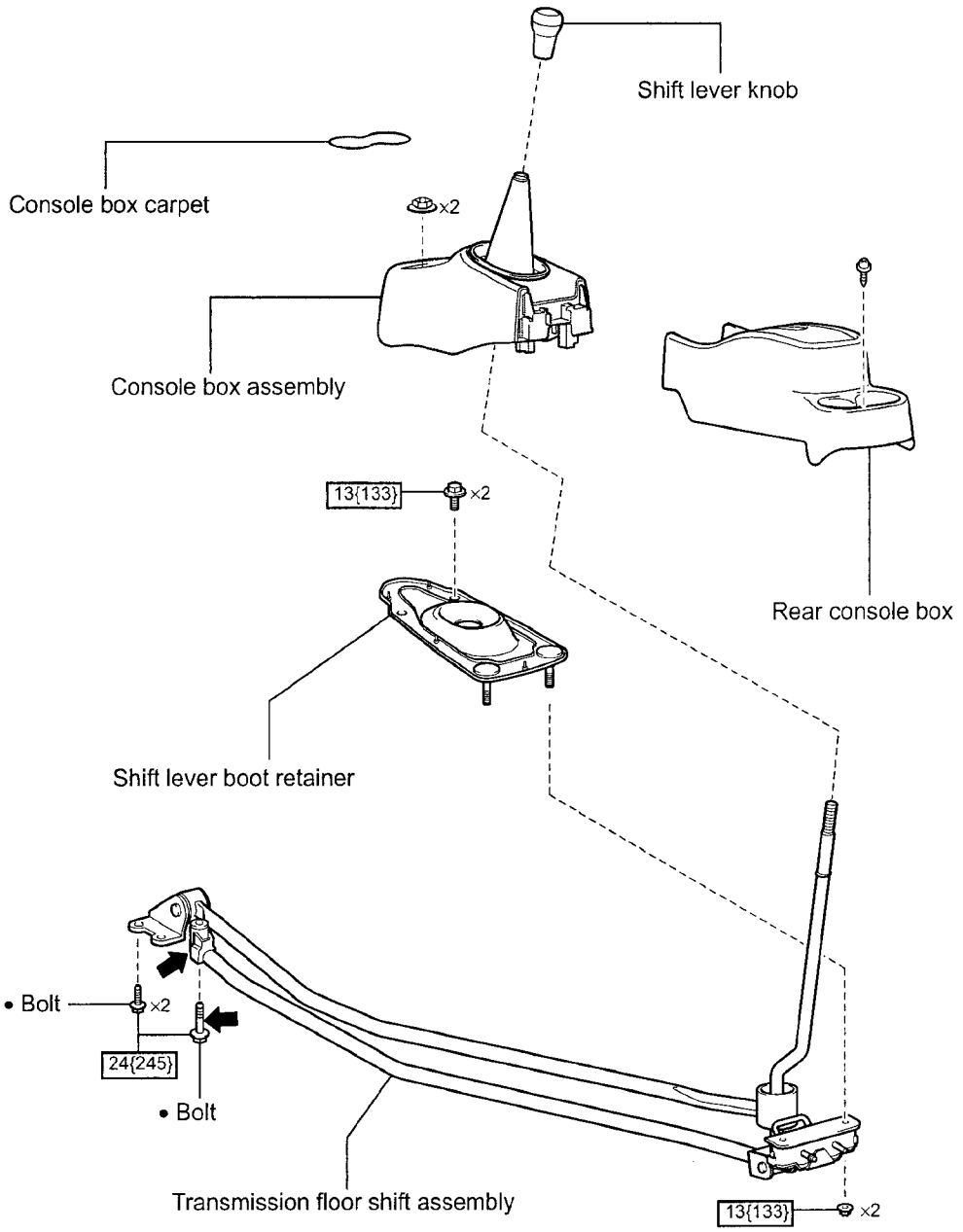


3SZ-VE / except Europe:



N*m {kgf*cm} : Specified torque • Non-reusable part

A159483J02

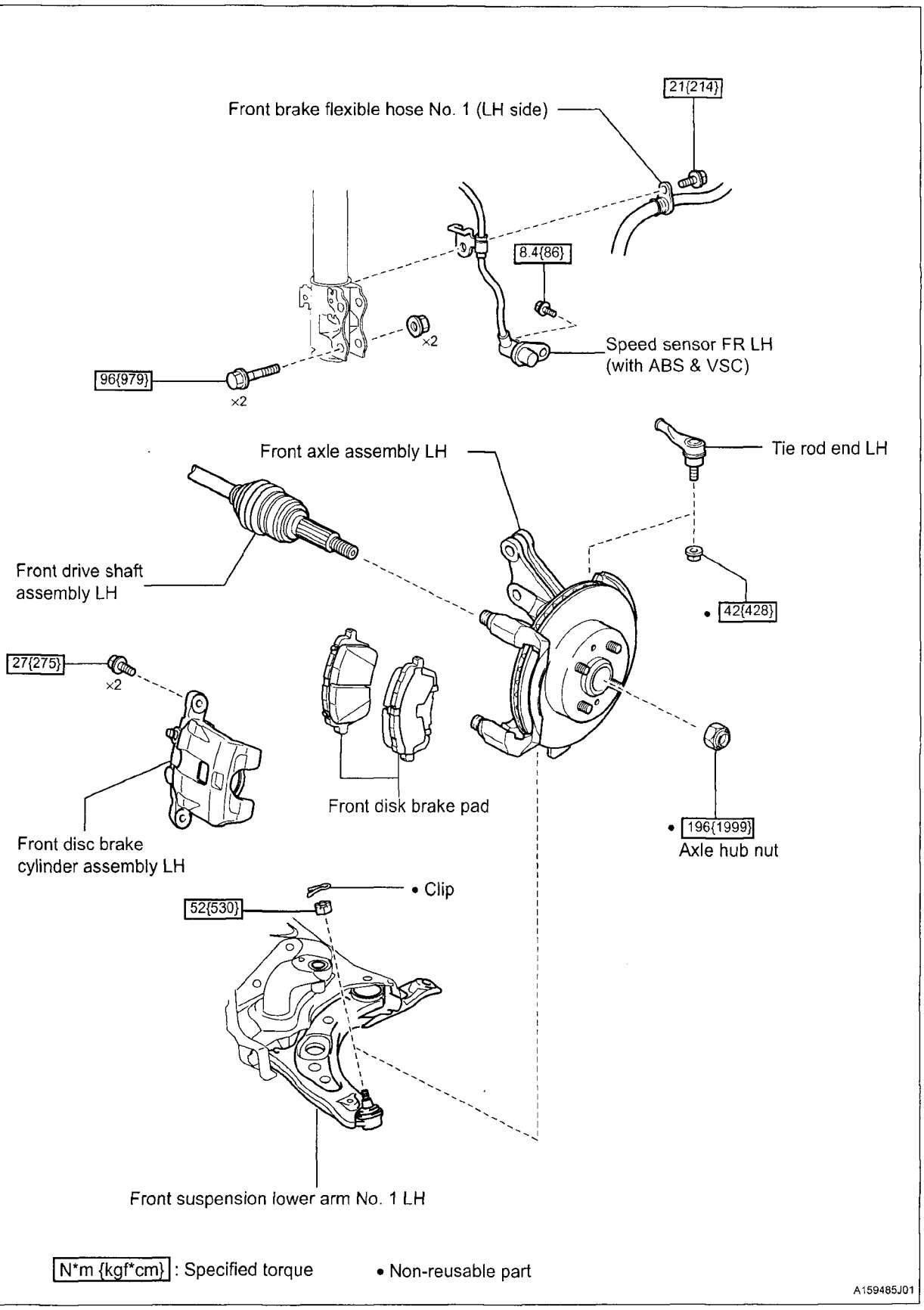


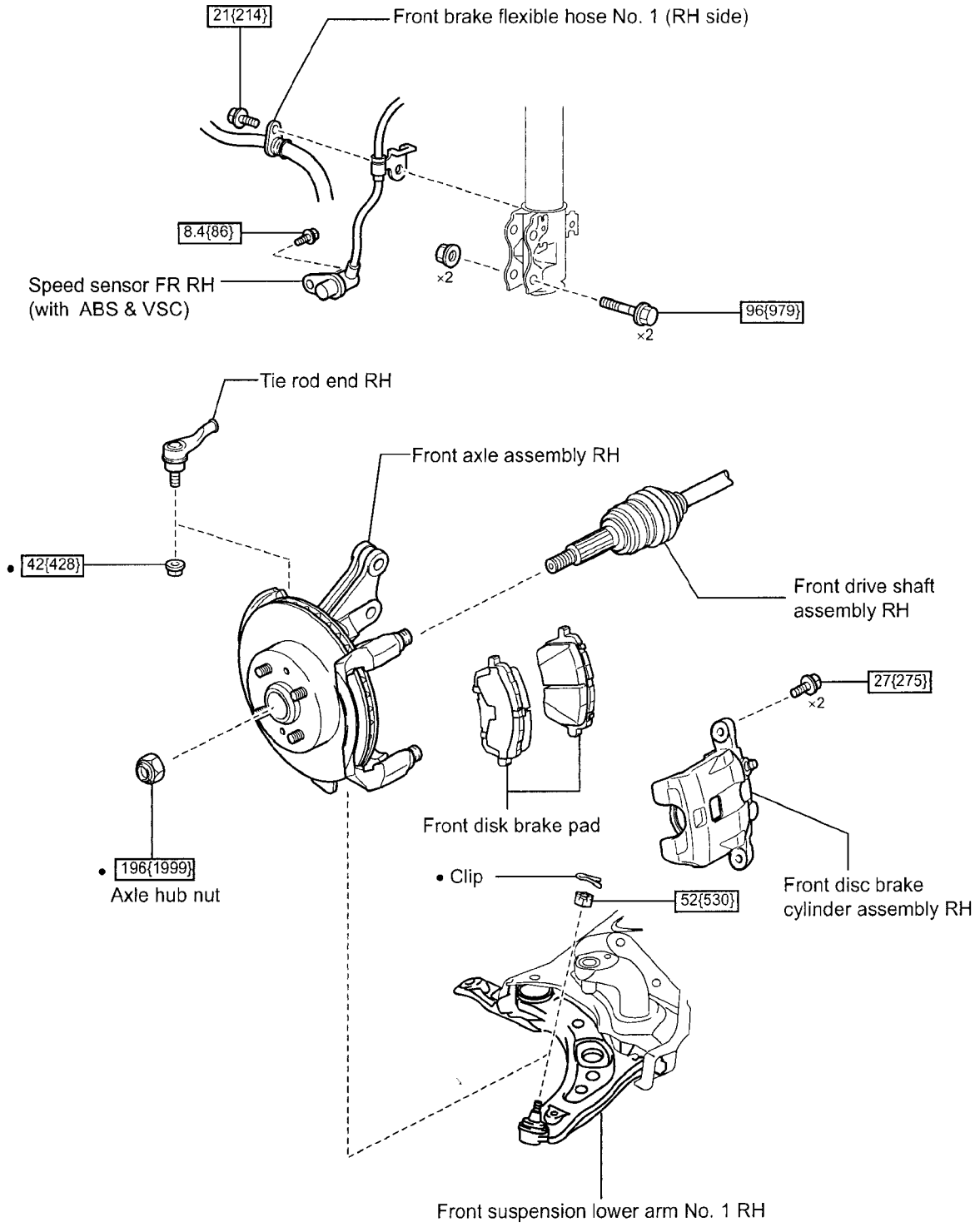
N*m {kgf*cm} : Spacified torque • Non-reusable part

⬅ Apply MP Grease

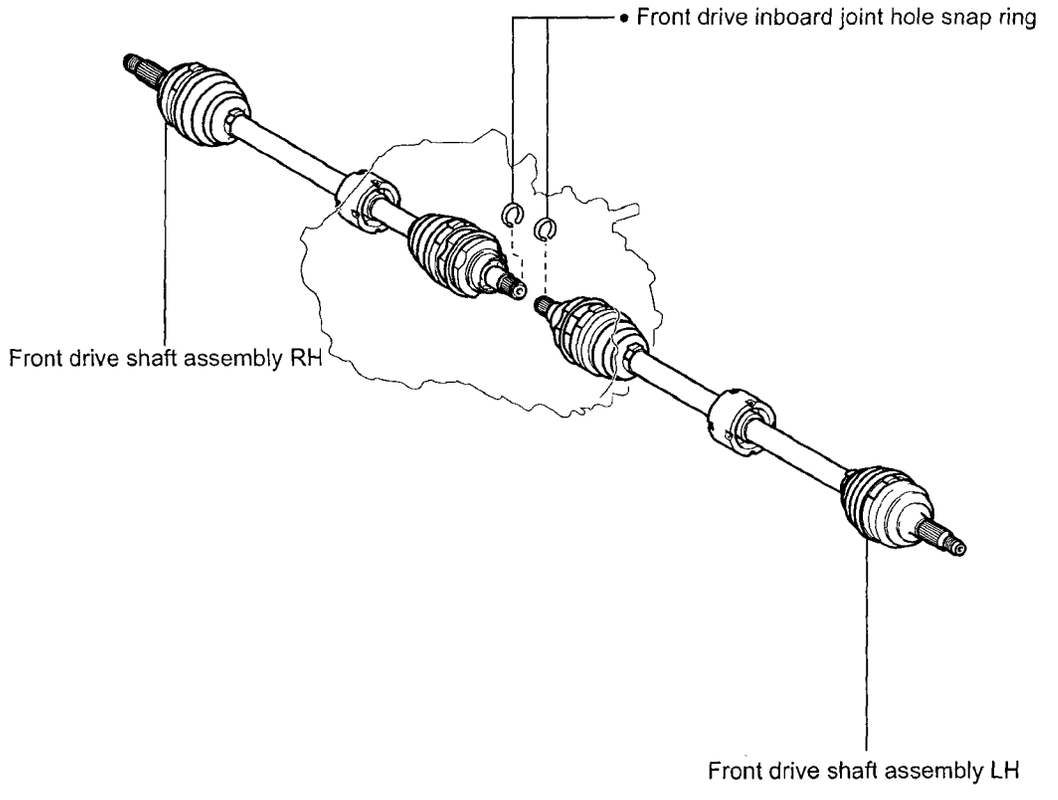
C159934J02

07


Front brake flexible hose No. 1 (LH side)
21{214}
8.4{86}
Speed sensor FR LH
(with ABS & VSC)
×2
96{979}
×2
Front axle assembly LH
Tie rod end LH
Front drive shaft
assembly LH
• 42{428}
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
Front disc brake
cylinder assembly LH
• Clip
52{530}
Front suspension lower arm No. 1 LH
N*m {kgf*cm}: Specified torque
• Non-reusable part
A159485J01


21{214}
Front brake flexible hose No. 1 (RH side)
8.4{86}
Speed sensor FR RH
(with ABS & VSC)
×2
96{979}
×2
Tie rod end RH
Front axle assembly RH
• 42{428}
Front drive shaft
assembly RH
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
• Clip
52{530}
Front disc brake
cylinder assembly RH
Front suspension lower arm No. 1 RH
N*m {kgf*cm}: Specified torque
• Non-reusable part
A159486J01

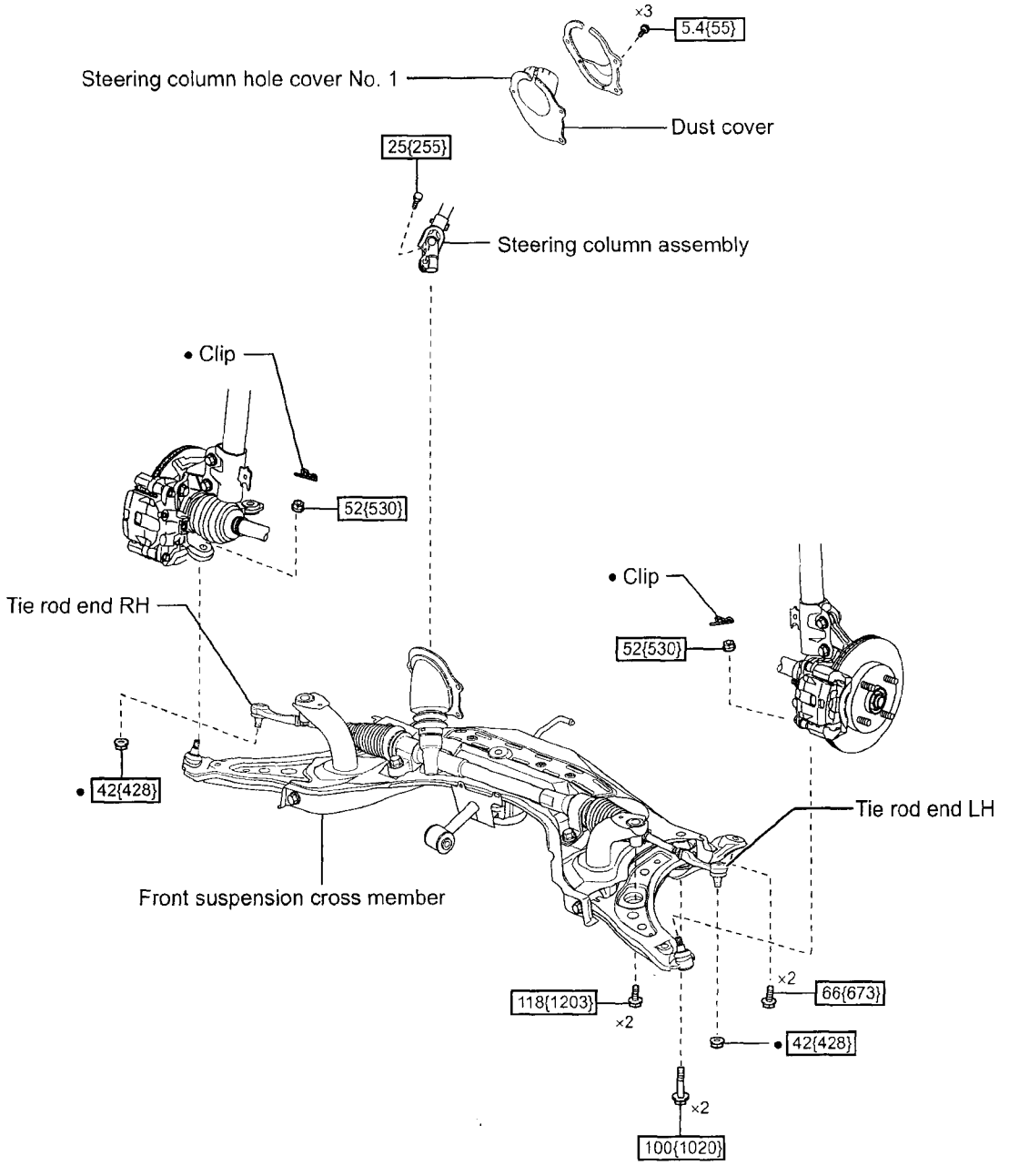
07



• Non-reusable part

A149649J01

RHD:

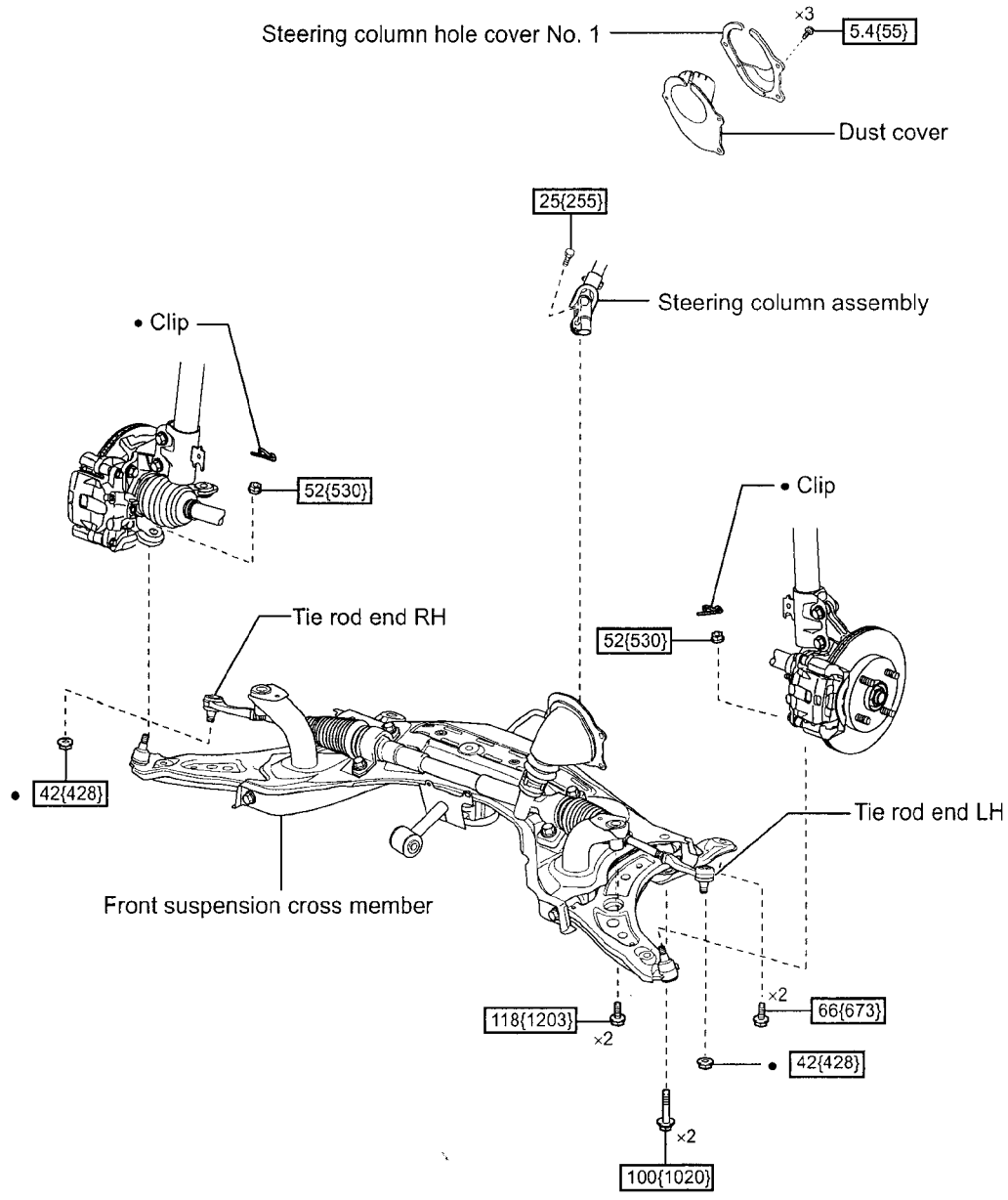


N*m {kgf*cm}: Specified torque • Non-reusable part

A159532J01

07

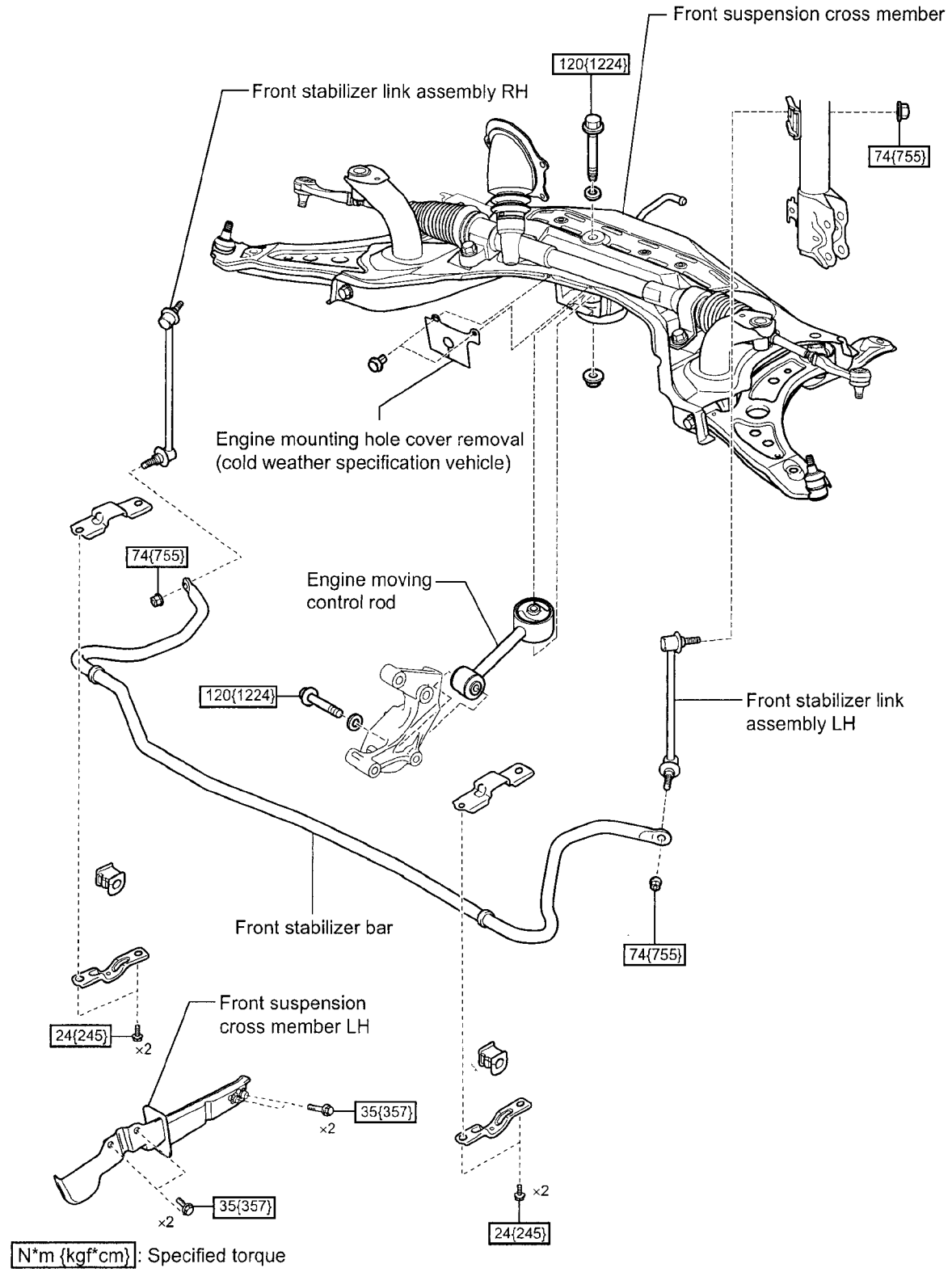
LHD:



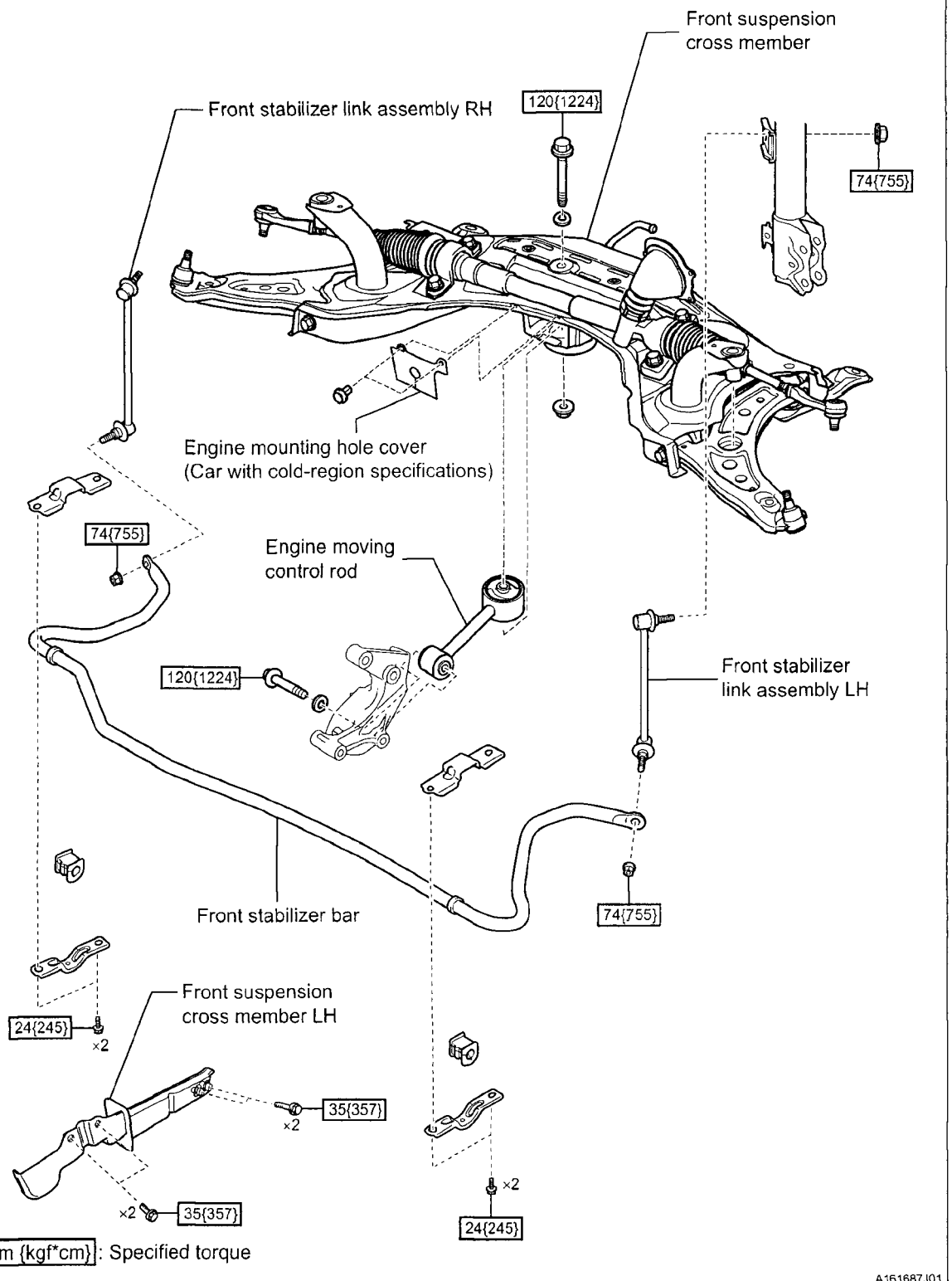
N*m {kgf*cm} : Specified torque • Non-reusable part

A161686J01

RHD:

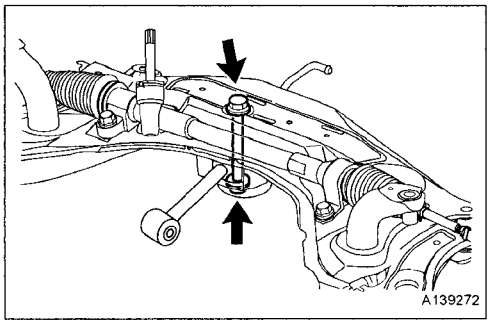

Front suspension cross member
120{1224}
Front stabilizer link assembly RH
74{755}
Engine mounting hole cover removal
(cold weather specification vehicle)
74{755}
Engine moving
control rod
120{1224}
Front stabilizer link
assembly LH
Front stabilizer bar
74{755}
Front suspension
cross member LH
24{245}
×2
35{357}
×2
35{357}
×2
×2
24{245}
N*m {kgf*cm}: Specified torque
A159531J01

LHD:


Front suspension cross member
Front stabilizer link assembly RH
120{1224}
74{755}
Engine mounting hole cover (Car with cold-region specifications)
74{755}
Engine moving control rod
120{1224}
Front stabilizer link assembly LH
Front stabilizer bar
74{755}
Front suspension cross member LH
24{245}
×2
35{357}
×2
×2
35{357}
×2
24{245}
N*m {kgf*cm}: Specified torque
A161687J01

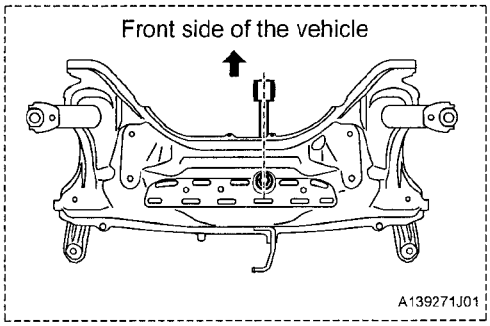
REMOVAL

1. Battery minus terminal disconnection
2. Front tire removal
3. Automatic transaxle fluid withdrawal (for Automatic transaxle) (See page 26-102)
4. Manual transaxle oil withdrawal (for Manual transaxle)(See page29-36)
5. Exhaust pipe assembly FR removal (See page 11-15)
6. Transmission control cable assembly disconnection (for Automatic transaxle) (See page 07-55)
7. Steering column hole cover No. 1 removal (RHD) (See page 48-7)
8. Steering column hole cover No. 1 removal (LHD) (See page 48-15)
9. Steering column assembly disconnection (RHD) (See page 49-55)
10. Steering column assembly disconnection (LHD) (See page 49-70)
11. Shift lever knob removal (for Manual transaxle)(See page29-61)
12. Rear console box removal (for Manual transaxle)(See page29-61)
13. Console box carpet removal (for Manual transaxle)(See page29-61)
14. Console box assembly removal (for Manual transaxle)(See page29-61)
15. Transmission floor shift assembly removal (for Manual transaxle)(See page29-62)
16. Engine under cover LH removal removal (See page07-53)
17. Engine under cover RH removal removal (See page07-53)
18. Front stabilizer link assembly LH removal (See page 07-53)
19. Front stabilizer link assembly RH removal (See page 07-53)
20. Front stabilizer bar removal(See page42-16)
21. Front suspension cross member LH removal (See page 07-53)
22. Front suspension cross member RH removal (See page 07-53)
23. Front brake flexible hose No. 1 LH disconnection (without ABS & VSC)(See page36-7)
24. Front brake flexible hose No. 1 RH disconnection (without ABS & VSC)(See page36-7)
25. Speed sensor FR LH disconnection (with ABS & VSC) (See page 36-7)
26. Speed sensor FR RH disconnection (with ABS & VSC) (See page 36-7)
27. Front disc brake cylinder assembly LH removal (See page 36-8)
28. Front disc brake cylinder assembly RH removal (See page 36-8)
29. Axle hub nut removal (LH) (See page 36-8)
30. Axle hub nut removal (RH) (See page 36-8)
31. Tie rod end LH disconnection (See page 36-8)
32. Tie rod end RH disconnection (See page 36-9)
33. Front shock absorber assembly LH disconnection (See page 07-53)
34. Front shock absorber assembly RH disconnection (See page 07-53)
35. Front drive shaft assembly LH removal (See page 07-54)
36. Front drive shaft assembly RH removal (See page 07-54)
37. Steering knuckle LH removal (See page 07-54)
38. Steering knuckle RH removal (See page 07-54)
39. Front suspension cross member removal (See page 07-56)
40. Engine mounting hole cover removal (for Cold area)
    (1) Remove two clips and then the engine mounting hole cover.

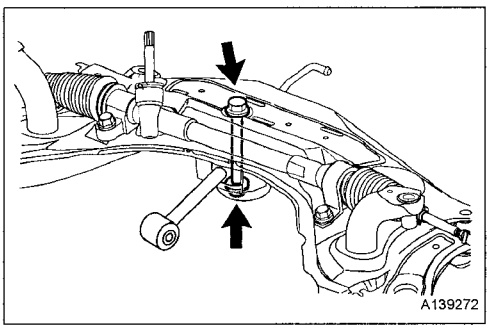


41. Engine moving control rod removal
    (1) Remove the bolt, the nut, and the engine moving control rod.
    <HINT>
    Loosen the bolt side to remove it.

INSTALLATION



1. Engine moving control rod installation
    (1) Place the engine moving control rod in the front suspension cross member.



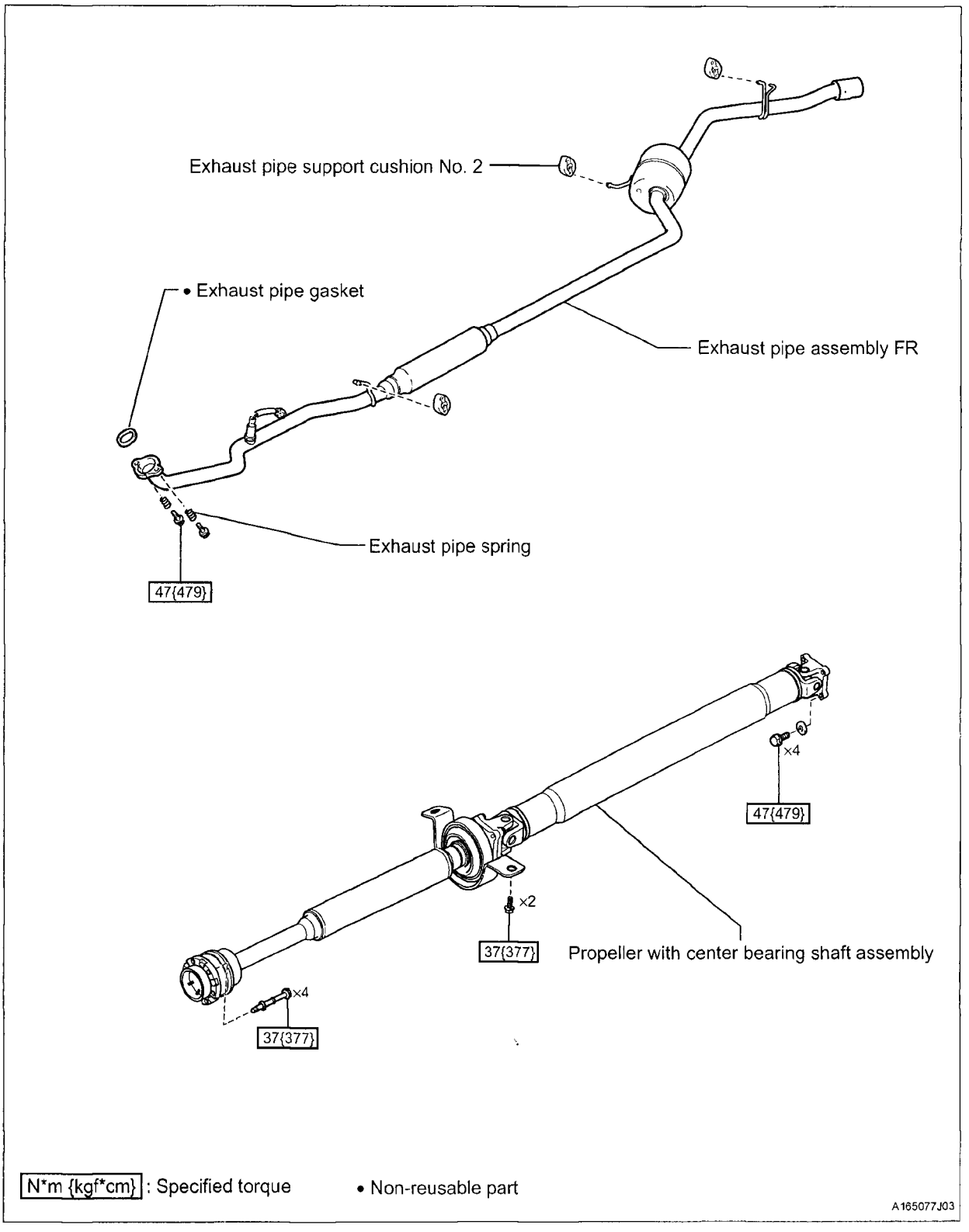
    (2) Use a bolt and nut to attach the engine moving control rod.
    Specified value:T=120N*m {1224kgf*cm}
    <HINT>
    Tighten the bolt side.

2. Engine mounting hole cover installation (for Cold area)
    (1) Use two clips to attach the engine mounting hole cover.
3. Front suspension cross member installation (See page 07-81)
4. Steering knuckle LH installation (See page 07-83)
5. Steering knuckle RH installation (See page 07-83)
6. Front drive shaft assembly LH installation (See page 07-84)
7. Front drive shaft assembly RH installation (See page 07-84)
8. Front shock absorber assembly LH installation (See page 36-16)
9. Front shock absorber assembly RH installation (See page 36-16)
10. Tie rod end LH installation (See page 36-16)
11. Tie rod end RH installation (See page 36-16)
12. Axle hub nut installation (LH) (See page 36-16)
13. Axle hub nut installation (RH) (See page 36-16)
14. Front disc brake cylinder assembly LH installation (See page 36-16)
15. Front disc brake cylinder assembly RH installation (See page 36-17)
16. Speed sensor FR LH installation (with ABS & VSC) (See page 36-17)
17. Speed sensor FR RH installation (with ABS & VSC) (See page 36-17)
18. Front brake flexible hose No. 1 (LH) installation (without ABS & VSC) (See page 36-18)

19. Front brake flexible hose No. 1 (RH) installation (without ABS & VSC) (See page 36-18)
20. Front suspension cross member LH installation (See page 07-84)
21. Front suspension cross member RH installation (See page 07-84)
22. Front stabilizer bar installation (See page 07-84)
23. Engine under cover LH installation (See page 07-85)
24. Engine under cover RH installation (See page 07-85)
25. Transmission control cable assembly installation (for Automatic transaxle) (See page 07-83)
26. Transmission floor shift assembly installation (for Manual transaxle)(See page 29-55)
27. Console box assembly installation (for Manual transaxle)(See page 29-56)
28. Console box carpet installation (for Manual transaxle)(See page 29-56)
29. Rear console box installation (for Manual transaxle)(See page 29-57)
30. Shift lever knob installation (for Manual transaxle)(See page 29-57)
31. Steering column assembly connection (RHD) (See page 49-64)
32. Steering column assembly connection (LHD) (See page 49-79)
33. Steering column hole cover No. 1 installation (RHD) (See page 48-10)
34. Steering column hole cover No. 1 installation (LHD) (See page 48-18)
35. Exhaust pipe assembly FR installation(See page 11-16)
36. Battery minus terminal connection
    Specified value:T=6.4N*m {65kgf*cm}
37. Automatic transaxle fluid replenishment (for Automatic transaxle)(See page 26-91)
38. Automatic transaxle fluid check (for Automatic transaxle)(See page 26-91)
39. Manual transaxle oil replenishment (for Manual transaxle)(See page 29-23)
40. Shift lever position check (for Automatic transaxle) (See page 07-90)
41. Exhaust gas leakage check (See page 11-16)
42. Front tire installation
    Specified value:T=103N*m {1050kgf*cm}
43. Front wheel alignment check · adjustment
    (See page 42-6)
44. Test mode check (Speed sensor circuit)
    with ABS: (See page 44-15)
    with VSC: (See page 44-73)

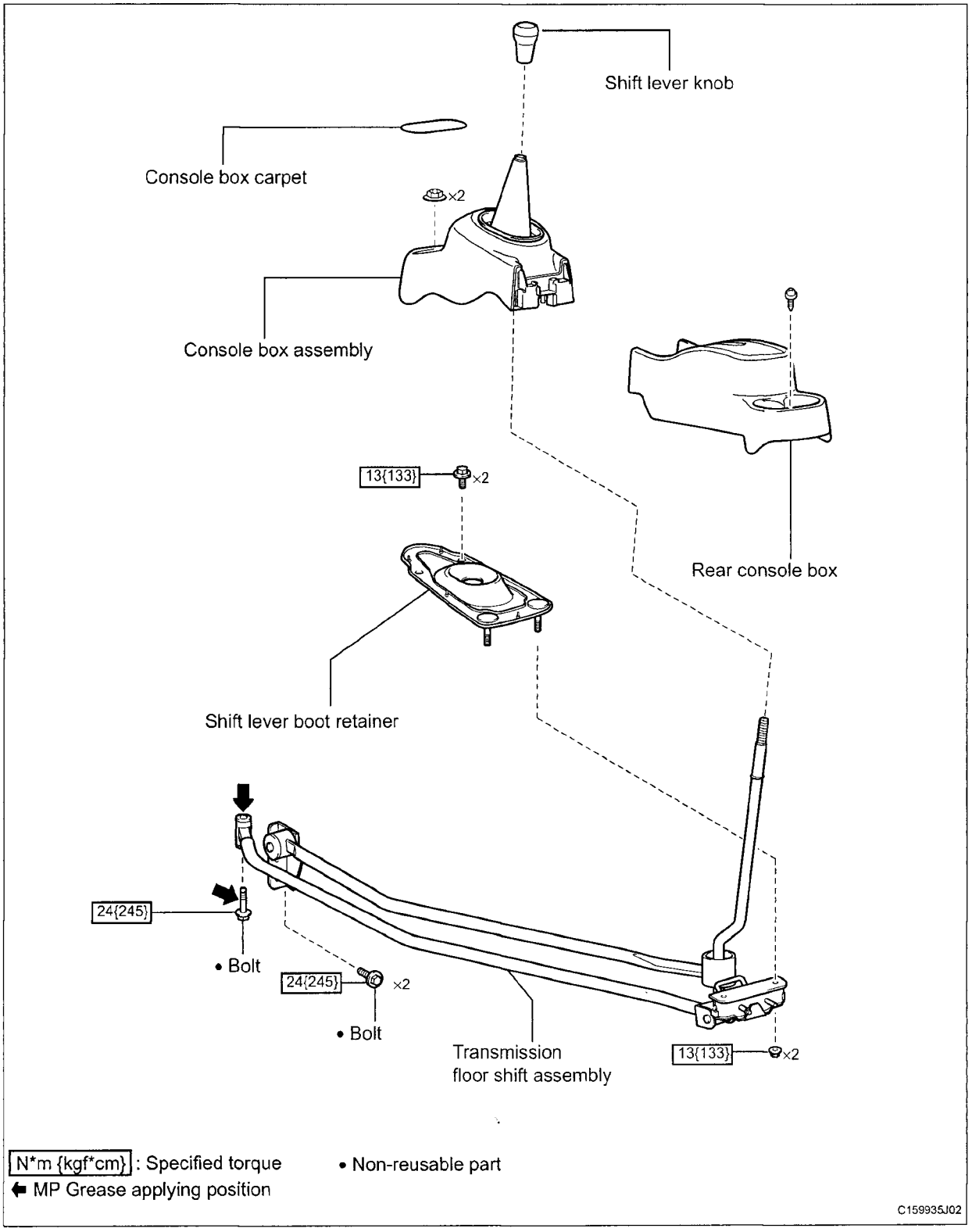
ENGINE MOUNTING INSULATOR RR (4WD)

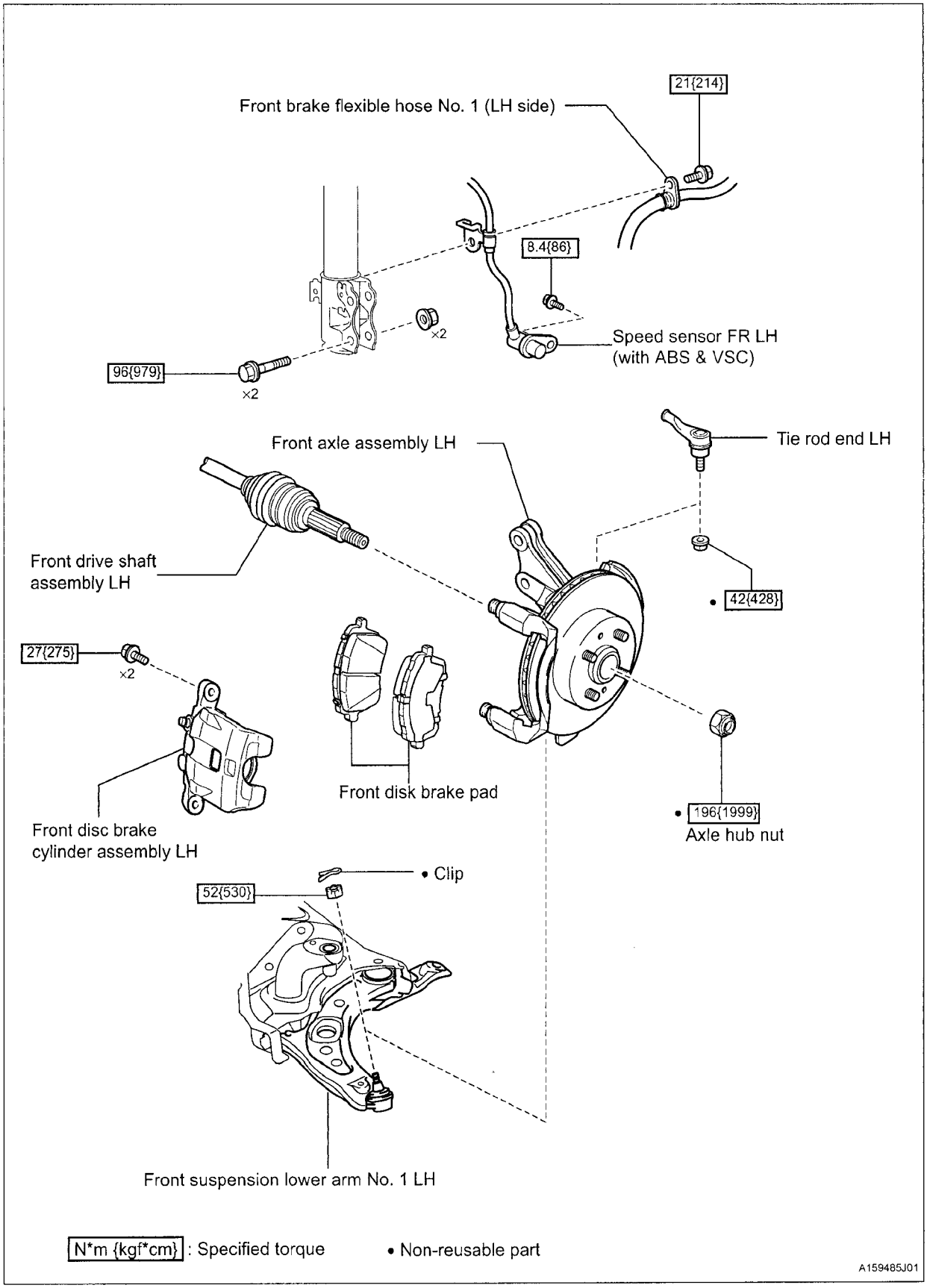
COMPONENTS

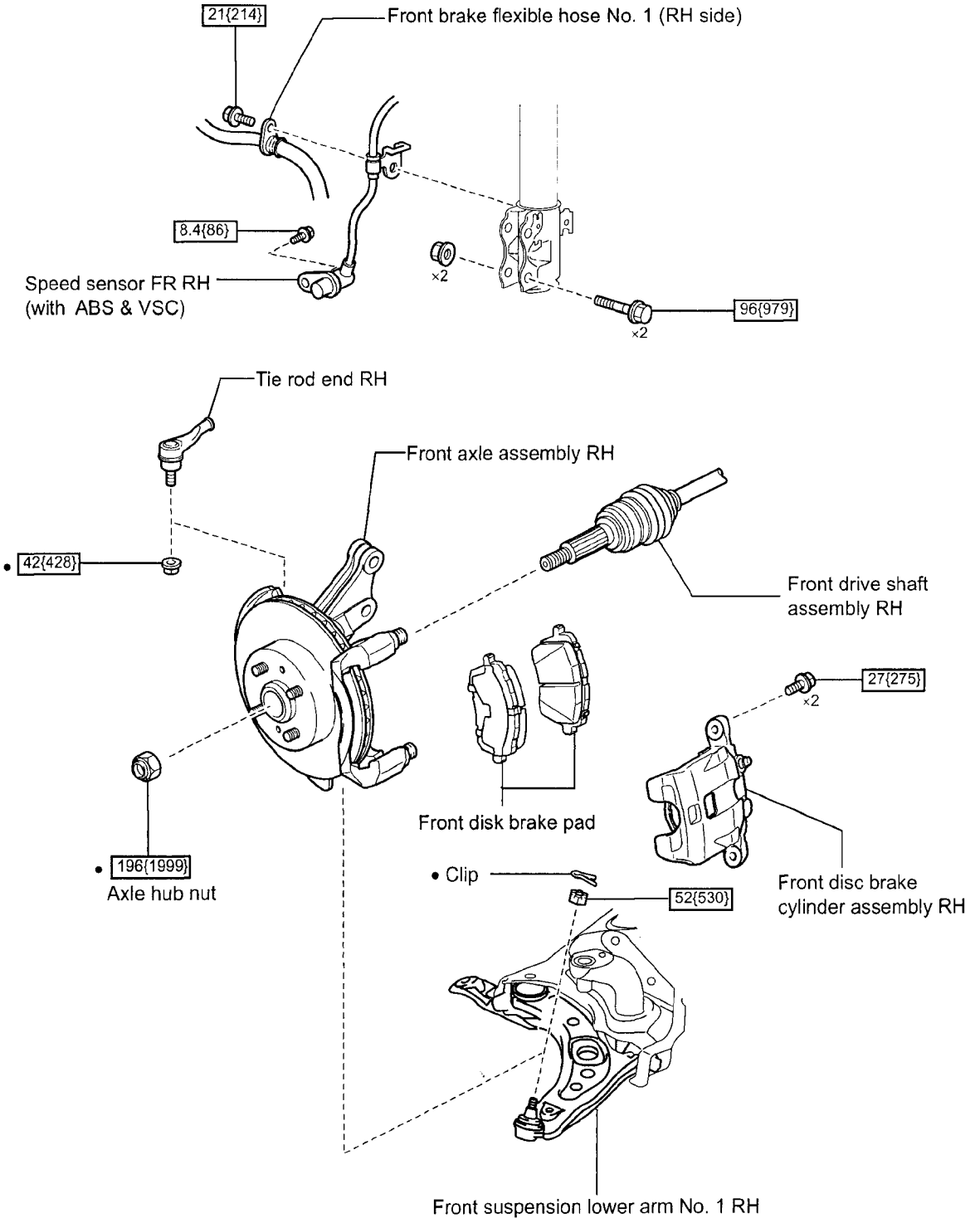


N*m {kgf*cm} : Specified torque • Non-reusable part

A165077J03

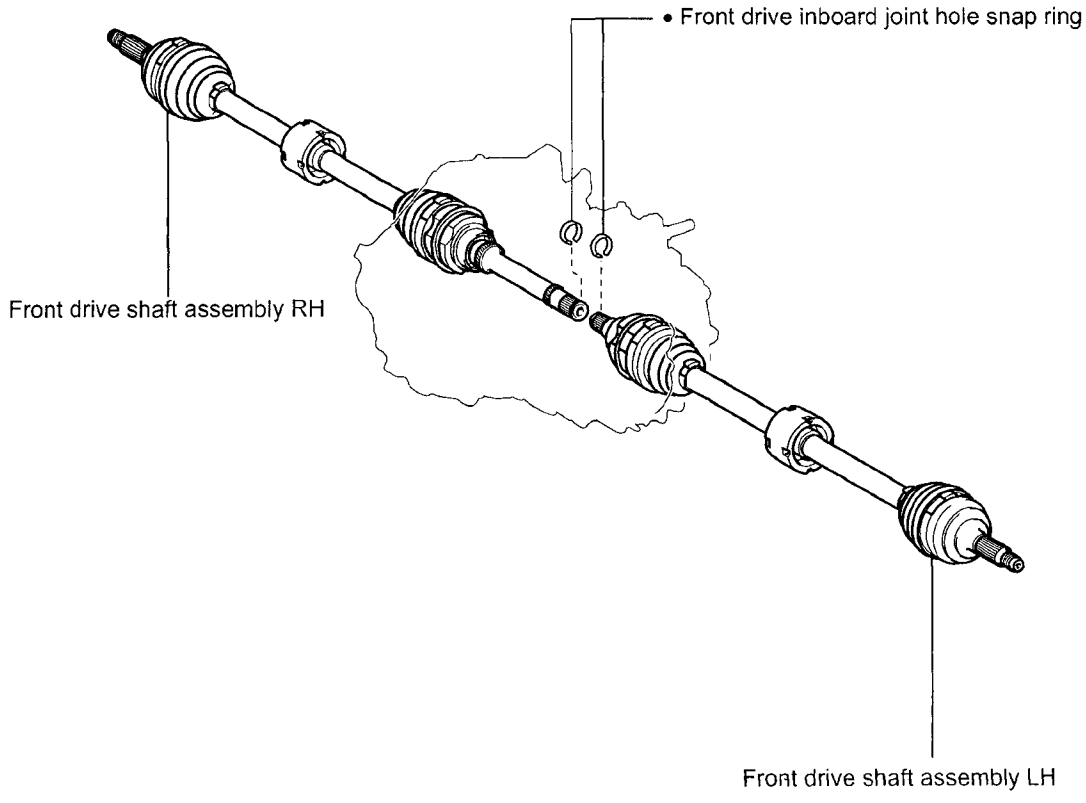

Shift lever knob
Console box carpet
×2
Console box assembly
Rear console box
13{133}
×2
Shift lever boot retainer
24{245}
• Bolt
24{245}
×2
• Bolt
Transmission
floor shift assembly
13{133}
×2
N*m {kgf*cm}: Specified torque
• Non-reusable part
MP Grease applying position
C159935J02


Front brake flexible hose No. 1 (LH side)
21{214}
8.4{86}
×2
Speed sensor FR LH
(with ABS & VSC)
96{979}
×2
Front axle assembly LH
Tie rod end LH
Front drive shaft
assembly LH
• 42{428}
27{275}
×2
Front disk brake pad
• 196{1999}
Axle hub nut
Front disc brake
cylinder assembly LH
• Clip
52{530}
Front suspension lower arm No. 1 LH
N*m {kgf*cm} : Specified torque
• Non-reusable part
A159485J01



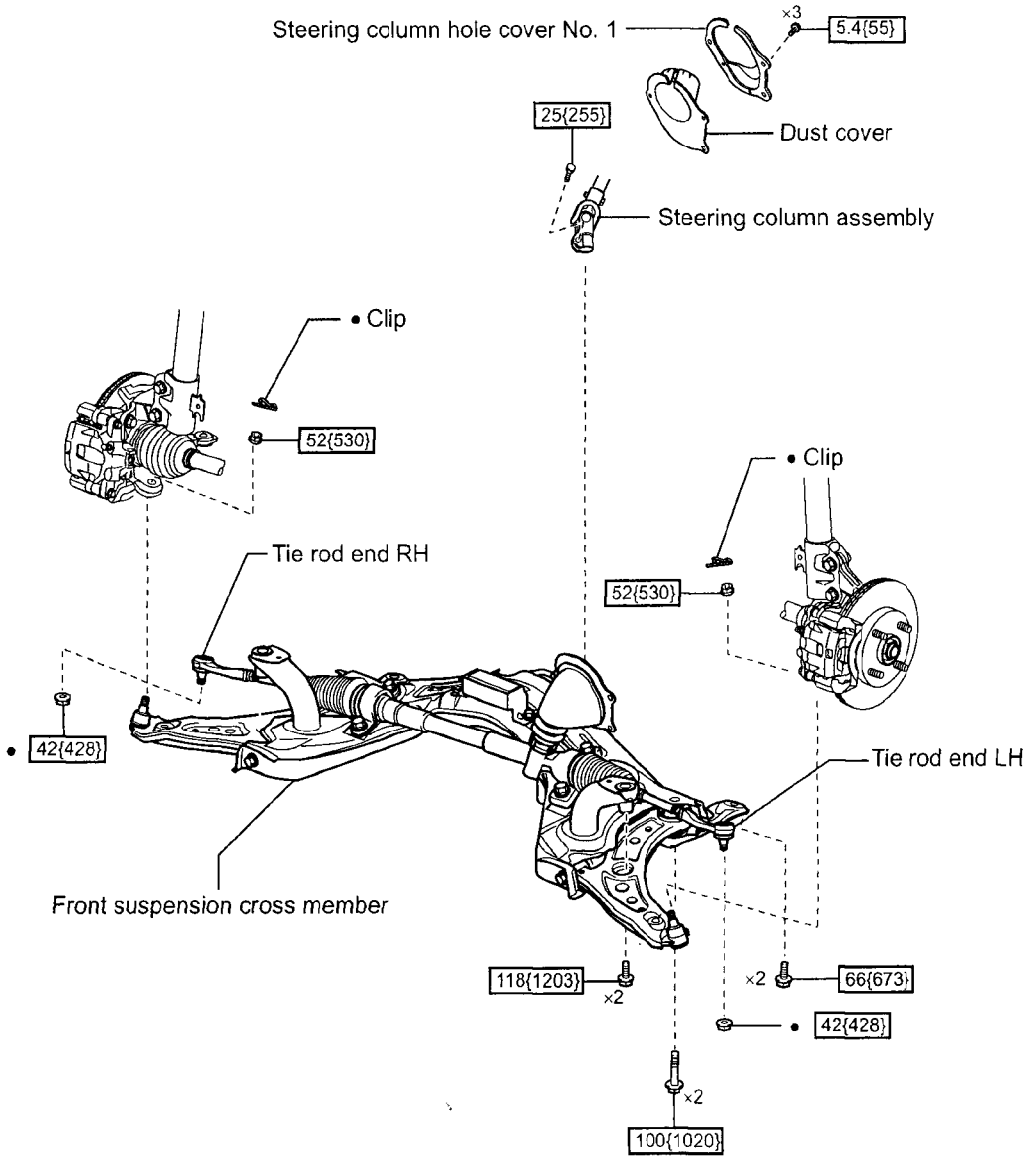
N*m {kgf*cm}: Specified torque • Non-reusable part

A159486J01



• Non-reusable part

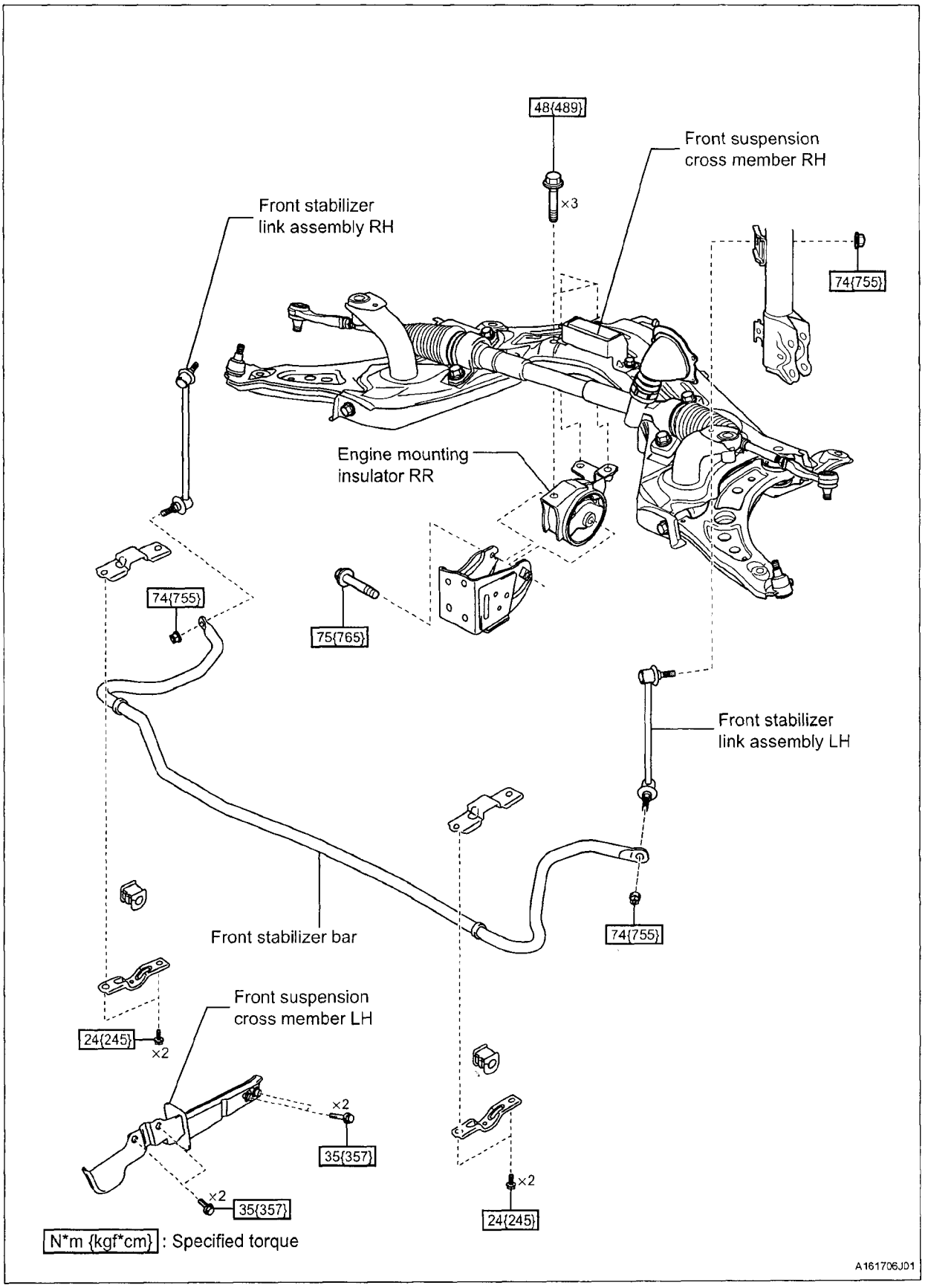
A149650J01



N*m {kgf*cm} : Specified torque • Non-reusable part

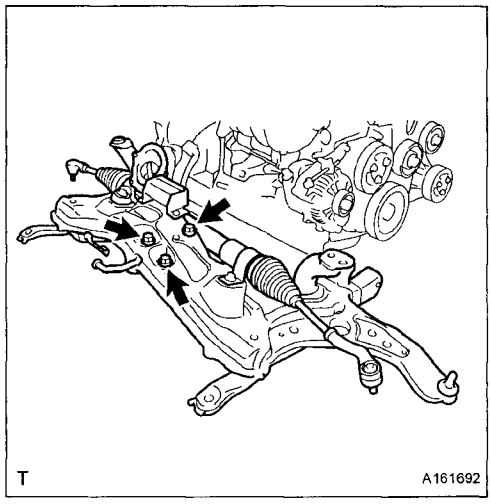
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07

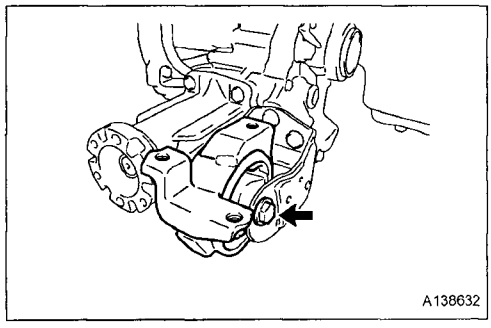

48{489}
×3
Front suspension cross member RH
Front stabilizer link assembly RH
74{755}
Engine mounting insulator RR
75{765}
74{755}
Front stabilizer link assembly LH
Front stabilizer bar
74{755}
Front suspension cross member LH
24{245}
×2
×2
35{357}
×2
35{357}
×2
24{245}
N*m {kgf*cm} : Specified torque
A161706JD1

REMOVAL

1. Battery minus terminal disconnection
2. Front tire removal
3. Manual transaxle oil withdrawal (See page29-36)
4. Exhaust pipe assembly FR removal (See page11-15)
5. Propeller with a center bearing shaft assembly removal(See page35-3)
6. Steering column assembly disconnection (See page 48-15)
7. Steering column assembly disconnection (See page 49-70)
8. Shift lever knob removal (See page29-56)
9. Rear console box removal (See page29-56)
10. Console box carpet removal (See page29-56)
11. Console box assembly removal (See page29-56)
12. Transmission floor shift assembly removal (See page29-57)
13. Engine undercover LH removal (See page 07-116)
14. Engine undercover RH removal (See page 07-116)
15. Front stabilizer link assembly LH removal (See page 07-117)
16. Front stabilizer link assembly RH removal (See page 07-117)
17. Front stabilizer bar removal (See page42-16)
18. Front suspension cross member LH removal (See page 07-117)
19. Front suspension cross member RH removal (See page 07-117)
20. Speed sensor FR LH disconnection (See page 36-7)
21. Speed sensor FR RH disconnection (See page 36-7)
22. Front disc brake cylinder assembly LH removal (See page36-8)
23. Front disc brake cylinder assembly RH removal (See page36-8)
24. Axle hub nut removal (LH) (See page36-8)
25. Axle hub nut removal (RH) (See page36-8)
26. Tie rod end LH disconnection (See page36-8)
27. Tie rod end RH disconnection (See page36-9)
28. Front shock absorber assembly LH disconnection (See page 07-53)
29. Front shock absorber assembly RH disconnection (See page 07-53)
30. Front drive shaft assembly LH removal (See page 07-54)
31. Front drive shaft assembly RH removal (See page 07-54)
32. Steering knuckle LH removal (See page 07-54)
33. Steering knuckle RH removal (See page 07-54)
34. Front suspension cross member removal (See page 07-119)

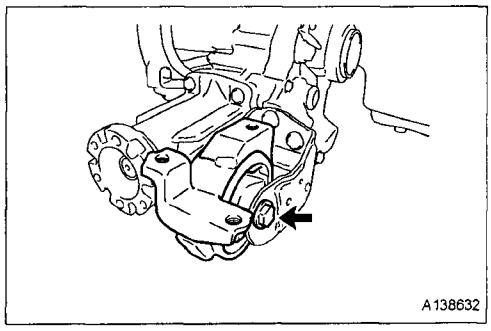


35. Engine mounting insulator RR removal
    (1) Remove three bolts and disconnect the engine mounting insulator RR.

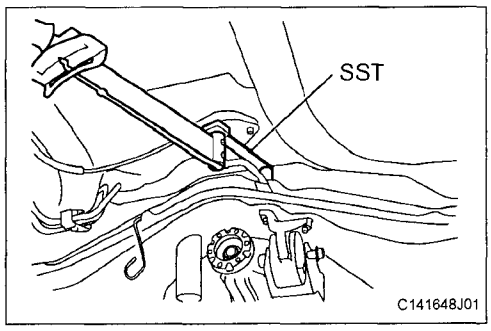


(2) Remove the bolt and then the engine mounting insulator RR.

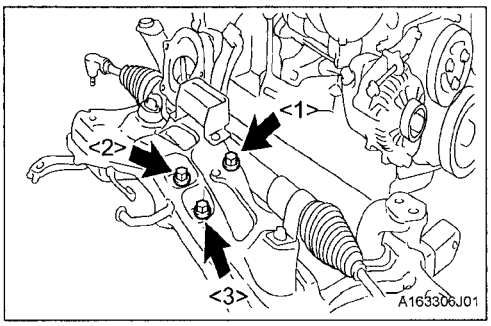
INSTALLATION



1. Engine mounting insulator RR installation
    (1) Use a bolt to attach the engine mounting insulator RR to the engine mounting bracket RR.
    Specified value:T=75N*m {765kgf*cm}
    <HINT>
    Before final tightening, attach the front suspension cross member to the vehicle.



(2) Use SST and three bolts to attach the engine mounting insulator RR to the front suspension cross member.
    SST 09249-63010
    Specified value:T=48N*m {489kgf*cm}



<HINT>
Tighten the bolts in the order shown in the diagram.

2. Front suspension cross member installation (See page 07-139)
3. Steering knuckle LH installation (See page 07-141)
4. Steering knuckle RH installation (See page 07-141)
5. Front drive shaft assembly LH installation (See page 07-84)
6. Front drive shaft assembly RH installation (See page 07-84)
7. Front shock absorber assembly LH installation (See page36-16)
8. Front shock absorber assembly RH installation (See page36-16)
9. Tie rod end LH installation (See page36-16)
10. Tie rod end RH installation (See page36-16)
11. Axle hub nut installation (LH) (See page36-16)
12. Axle hub nut installation (RH) (See page36-16)
13. Front disc brake cylinder assembly LH installation (See page36-8)
14. Front disc brake cylinder assembly RH installation (See page36-17)
15. Speed sensor FR LH installation (See page36-17)
16. Speed sensor FR RH installation (See page36-17)
17. Front suspension cross member LH installation (See page 07-141)
18. Front suspension cross member RH installation (See page 07-141)
19. Front stabilizer bar installation (See page 07-142)
20. Engine undercover LH installation (See page 07-142)
21. Engine undercover RH installation (See page 07-142)
22. Transmission floor shift assembly installation (See page29-62)
23. Console box assembly installation (See page29-63)
24. Console box carpet installation (See page29-63)
25. Rear console box installation (See page29-64)
26. Shift lever knob installation (See page29-64)
27. Steering column assembly connection (See page 49-79)
28. Steering column hole cover No. 1 installation (See page 48-18)
29. Temporary tightening of the propeller with a center bearing shaft assembly (See page35-5)
30. Final tightening of the propeller with a center bearing shaft assembly (See page35-5)
31. Exhaust pipe assembly FR installation (See page11-16)
32. Battery minus terminal connection
    Specified value:T=6.4N*m {65kgf*cm}
33. Manual transaxle oil replenishment (See page29-46)
34. Oil leakage check
35. Exhaust gas leakage check (See page11-16)
36. Front tire installation
    Specified value:T=103N*m {1050kgf*cm}

37. Front wheel alignment check · adjustment
    (See page42-6)
38. Test mode check (Speed sensor circuit)
    with ABS: (See page44-15)