TOYOTA Service Bulletin

Section :	Chassis/ Power Train
Ref. No. :	CP−3006 (Revised)
Date :	Jul., 2003
Page :	1 of 14

Area Application : USA/Canada, Europe, General, G.C.C. Countries, Australia
Model Name : LAND CRUISER
Model Code : UZJ100, HDJ101

Subject : Diagnosis & Repair procedure of AHC pump sub−assembly

This Service Bulletin is to introduce the Diagnosis & Repair procedure, for the following AHC malfunctions:

- AHC does not work. (Vehicle height does not go up.)
- Vehicle height goes up, but only slowly.

Cause of problem:
Abnormal wear of main accumulator O−ring caused a clog in the pump strainer.

Production Countermeasure & F/Fix:
O−ring material has been changed with an increase in anti wear performance as of Nov. 2002 production.
F/Fix: Change the height control accumulator and pump sub−assembly as a set.

DIAGNOSTIC PROCEDURE

1	**Check pump motor operation.**

(a) Start the engine.
(b) Push the vehicle height control switch up.
(c) The pump motor can be heard operating.

No → **Refer to Repair Manual for the applicable troubleshooting procedure.**

Yes

2	**Check DTC.**

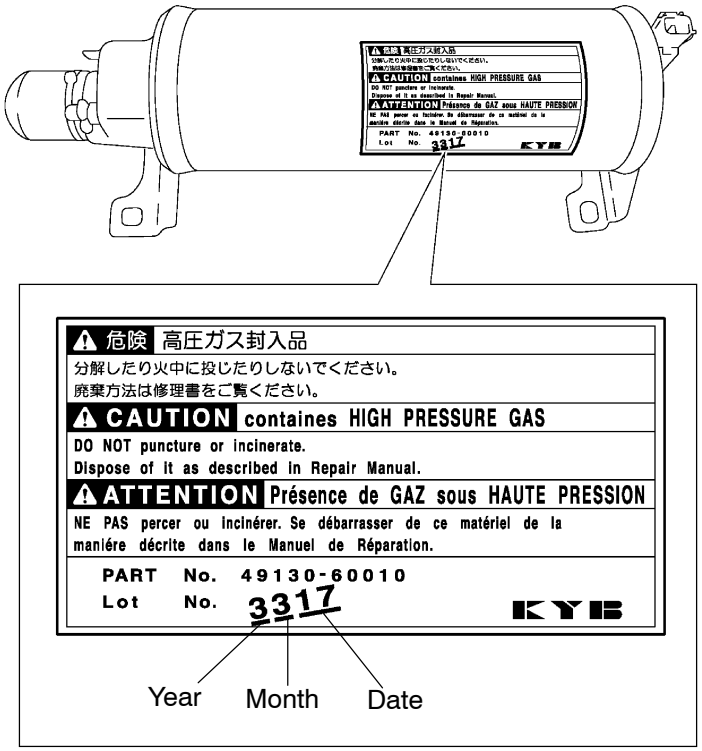
(a) Stop the engine.
(b) Check DTCs for ACTIVE HEIGHT CONTROL SUSPENSION & ADAPTIVE VARIABLE SUSPENSION.
(c) DTC C1751 and/or C1762 is/are recorded.

No → **Refer to Repair Manual for the applicable troubleshooting procedure.**

Yes

3	**Check production date code of height control accumulator.**

(a) Check the production date code of the height control accumulator.
(b) The production date code is before Oct. 25, 2002.



	Year
0	2000
1	2001
2	2002
3	2003

	Month
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
X	October
Y	November
Z	December

N

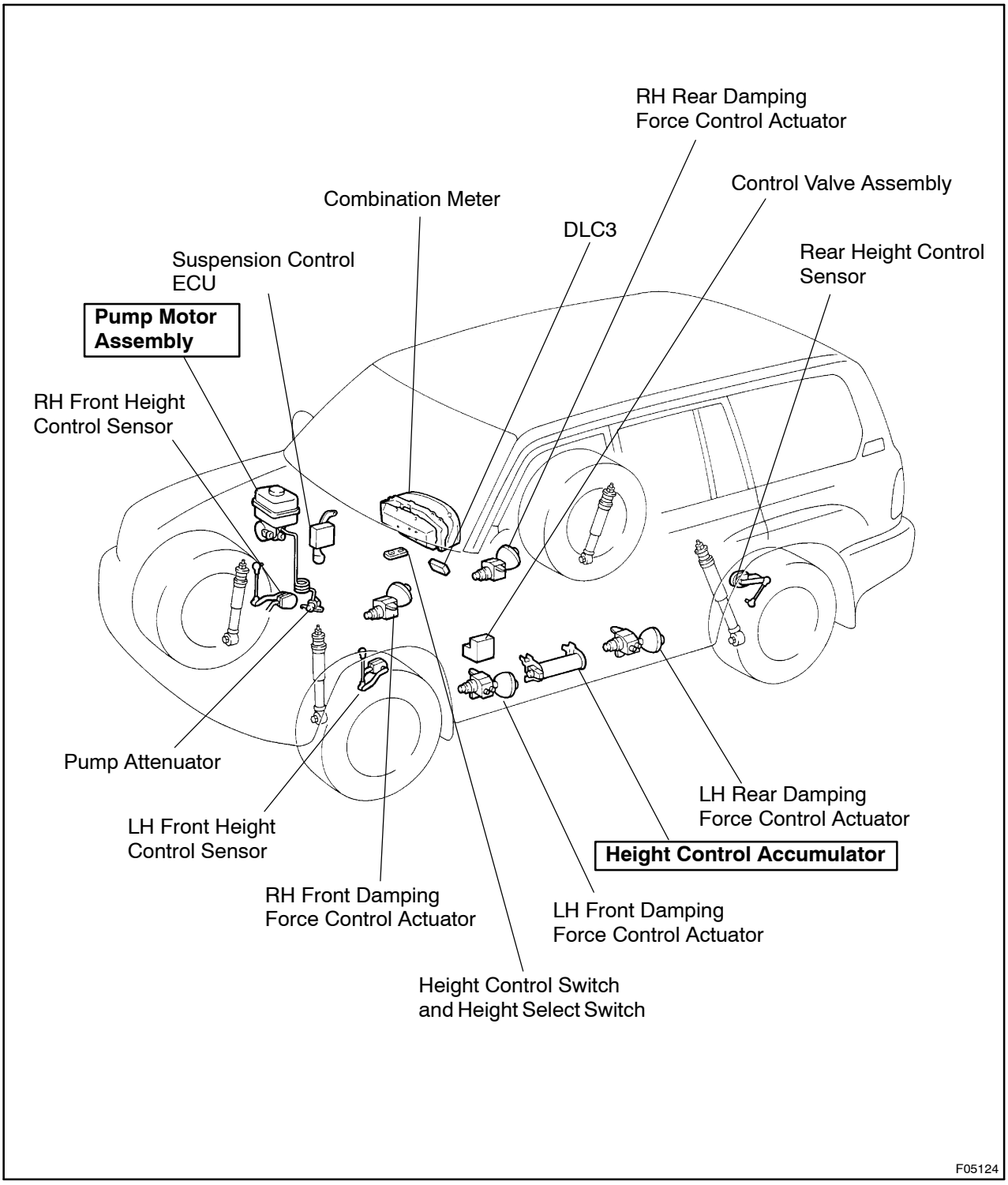
F18012

No → **Refer to Repair Manual for the applicable troubleshooting procedure.**

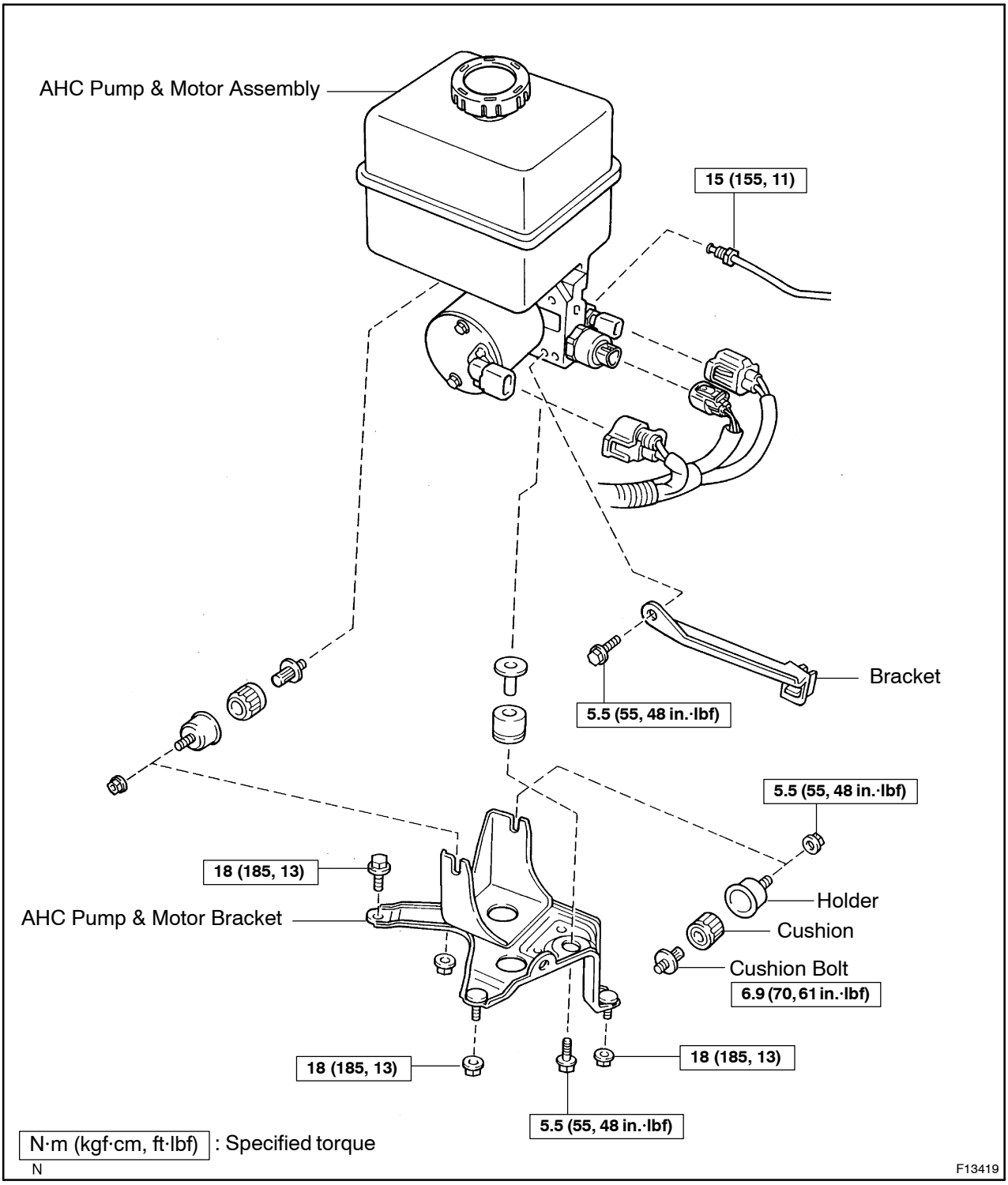
Yes

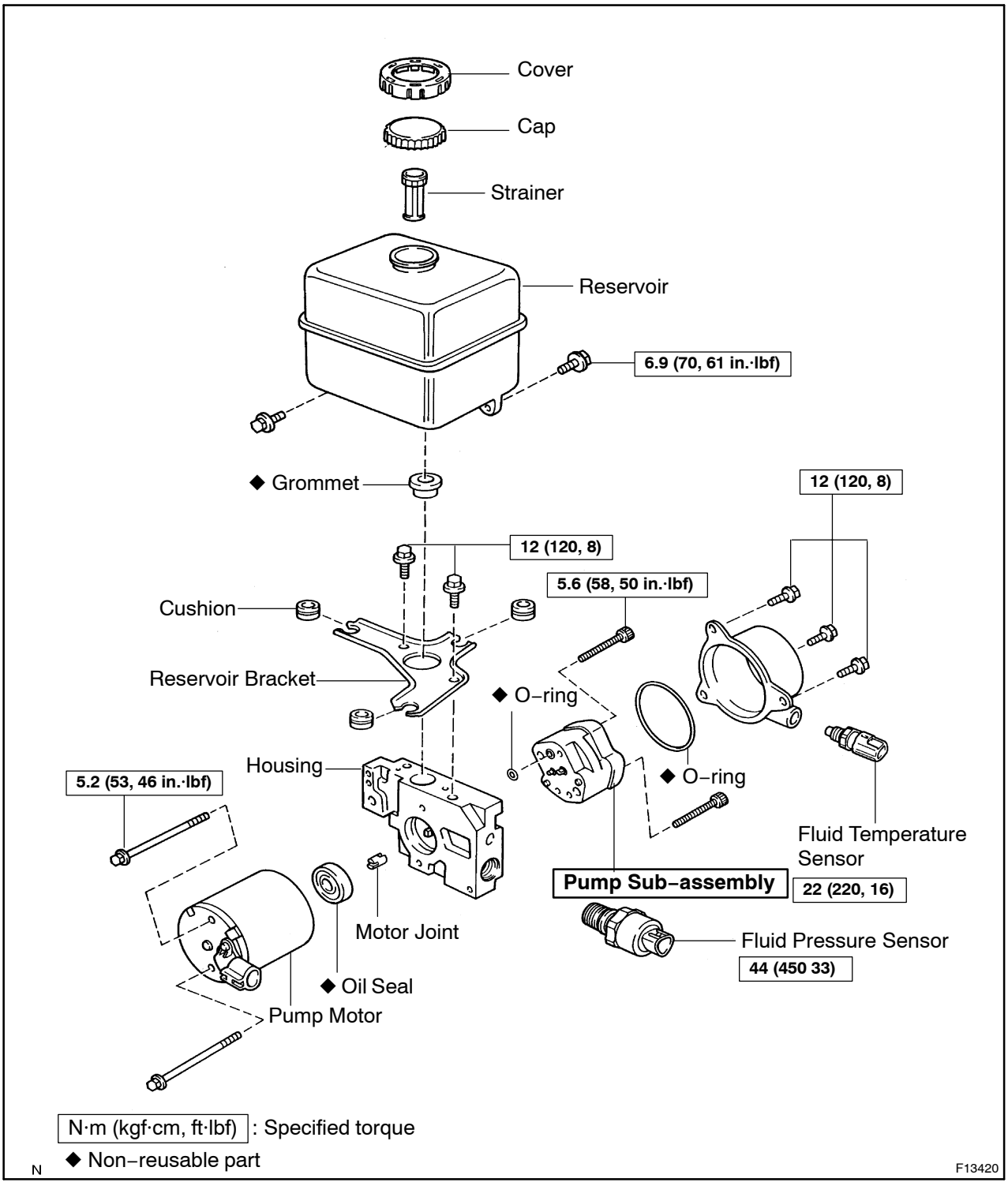
Replace height control accumulator and pump sub−assembly as a set (See next page).

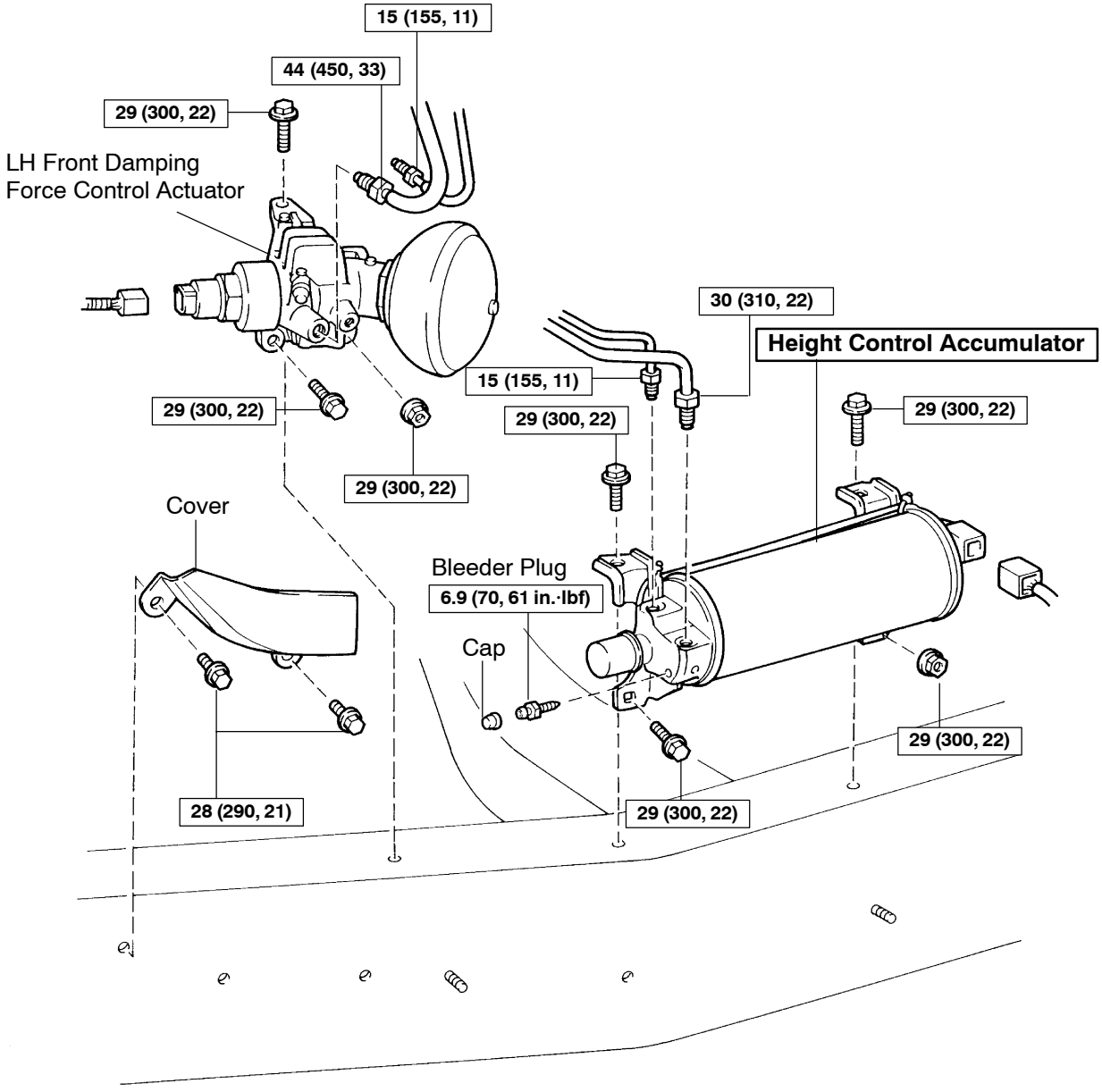
REPLACEMENT
LOCATION



COMPONENTS

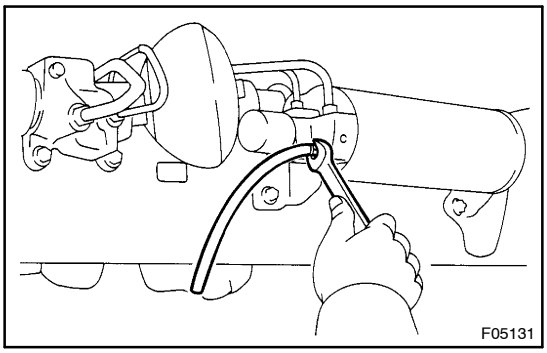

AHC Pump & Motor Assembly
15 (155, 11)
Bracket
5.5 (55, 48 in.·lbf)
5.5 (55, 48 in.·lbf)
18 (185, 13)
AHC Pump & Motor Bracket
Holder
Cushion
Cushion Bolt
6.9 (70, 61 in.·lbf)
18 (185, 13)
18 (185, 13)
5.5 (55, 48 in.·lbf)
N·m (kgf·cm, ft·lbf) : Specified torque
N
F13419


Cover
Cap
Strainer
Reservoir
6.9 (70, 61 in.·lbf)
◆ Grommet
12 (120, 8)
12 (120, 8)
5.6 (58, 50 in.·lbf)
Cushion
Reservoir Bracket
◆ O–ring
◆ O–ring
Housing
5.2 (53, 46 in.·lbf)
Fluid Temperature Sensor
Pump Sub–assembly
22 (220, 16)
Motor Joint
Fluid Pressure Sensor
44 (450 33)
◆ Oil Seal
Pump Motor
N·m (kgf·cm, ft·lbf) : Specified torque
◆ Non–reusable part
N
F13420



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

F05142



REMOVAL

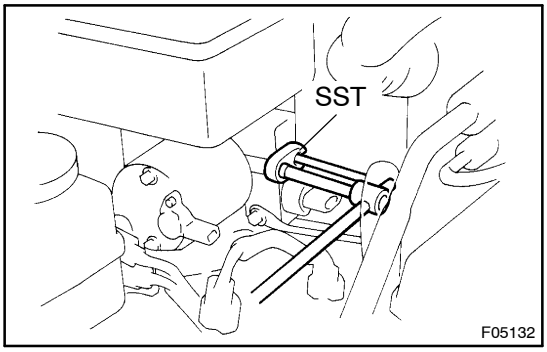
1. DRAIN SUSPENSION FLUID AHC

(a) Connect a hose to the bleeder plug for the height control accumulator and loosen the bleeder plug.

(b) After the fluid pressure has dropped and the oil has drained out, tighten the bleeder plug and remove the hose.

Torque: 6.9 N·m (70 kgf·cm, 61 in.·lbf)

2. DISCONNECT CONNECTORS



3. DISCONNECT AHC FLUID LINE

Using an SST, disconnect the AHC fluid line from the AHC pump & motor.

SST 09023–00100

Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

4. REMOVE FRONT LH DAMPING FORCE CONTROL ACTUATOR

(a) Remove the 2 bolts and cover.

Torque: 28 N·m (290 kgf·cm, 21 ft·lbf)

(b) Disconnect the connector.

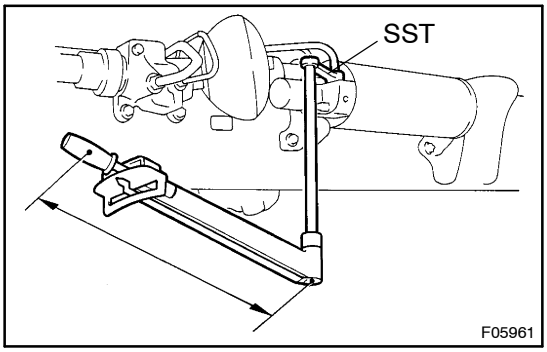
(c) Disconnect the 2 fluid lines from the damping force control actuator.

Torque:
Inlet: 15 N·m (155 kgf·cm, 11 ft·lbf)
Outlet: 44 N·m (450 kgf·cm, 33 ft·lbf)

(d) Remove the nut, 2 bolts and damping force control actuator.

Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

5. DISCONNECT CONNECTOR

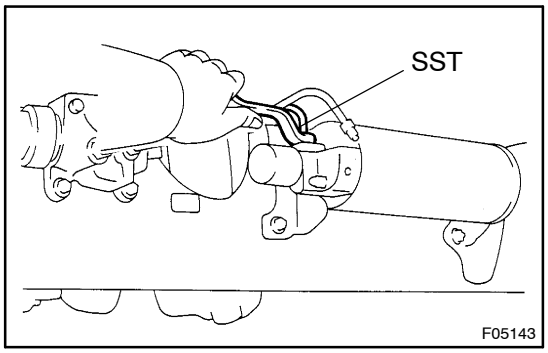


6. REMOVE HEIGHT CONTROL ACCUMULATOR

(a) Using an SST, disconnect the inlet fluid line from the height control accumulator.

SST 09023–38400

Torque: 30 N·m (310 kgf·cm, 22 ft·lbf)



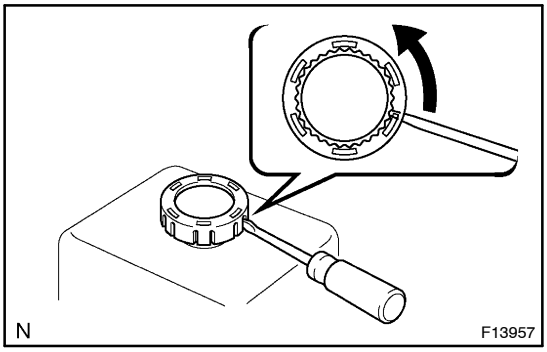
(b) Using an SST, disconnect the outlet fluid line from the height control accumulator.
SST 09751–36011
Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

(c) Remove the nut, 3 bolts and height control accumulator.
Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

DISASSEMBLY

1. REMOVE RESERVOIR

(a) Remove the 2 bolts and pull out the reservoir.



(b) Insert the tip of a flat−head screwdriver into the slit of the cover until it reaches the reservoir cap. Turn the cap and the cover together.
Remove the cover and cap.

(c) Remove the cover from the cap.

(d) Remove the strainer and grommet from the reservoir.

2. REMOVE RESERVOIR BRACKET

(a) Remove the 2 bolts and reservoir bracket from the housing.

(b) Remove the 3 cushions from the reservoir bracket.

3. REMOVE FLUID PRESSURE SENSOR

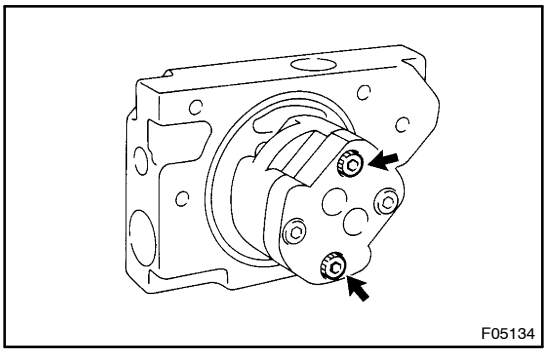
Remove the fluid pressure sensor from the housing.

4. REMOVE FLUID TEMPERATURE SENSOR

Remove the fluid temperature sensor from the housing.

5. REMOVE PUMP COVER

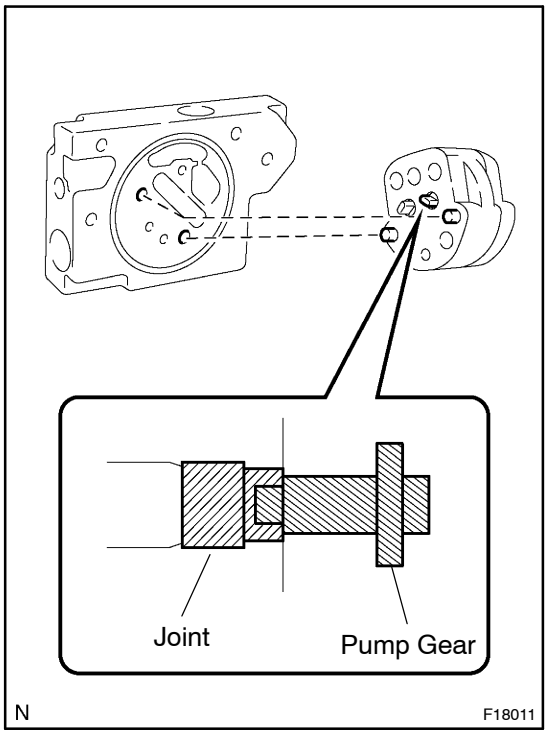
Remove the 3 bolts, pump cover and O−ring.



6. REMOVE PUMP SUB−ASSEMBLY

(a) Using a hexagon wrench, remove the 2 bolts and pump sub−assembly.

(b) Remove the O−ring.



REASSEMBLY

1. INSTALL NEW PUMP SUB−ASSEMBLY

(a) Install a new O−ring to the housing.

(b) Turn the pump gear of the pump sub−assembly by hand and adjust its direction to meet the direction of the joint on the housing.

(c) Paying attention not to apply unnecessary force to the pump gear, install the pump sub−assembly on the housing by fitting the pins of the pump sub−assembly in the holes on the housing.

NOTICE:

- **Be careful not to allow the shaft portion to interfere with other portions.**
- **When installing the pump sub−assembly, if applying unnecessary force to the pump gear, it may result in making clearance inside the pump, unsabling the fluid pressure to rise.**

(d) Using a hexagon wrench, install the 2 bolts.

Torque: 5.6 N·m (58 kgf·cm, 50 in.·lbf)

2. INSTALL PUMP COVER

Install a new O−ring and the pump cover with the 3 bolts.

Torque: 15 N·m (150 kgf·cm, 11 ft·lbf)

3. INSTALL FLUID TEMPERATURE SENSOR

Install the fluid temperature sensor to the pump cover.

Torque: 22 N·m (220 kgf·cm, 16 ft·lbf)

4. INSTALL FLUID PRESSURE SENSOR

Install the fluid pressure sensor to the housing.

Torque: 44 N·m (450 kgf·cm, 33 ft·lbf)

5. INSTALL RESERVOIR BRACKET

(a) Install the 3 cushions to the reservoir bracket.

(b) Install the reservoir bracket with the 2 bolts to the housing.

Torque: 12 N·m (120 kgf·cm, 8 ft·lbf)

6. INSTALL RESERVOIR

(a) Install a new grommet to the reservoir.

(b) Install the strainer.

(c) Install the cover to the cap.

INSTALLATION

Installation is in the reverse order of removal.

HINT:

After installation, fill the AHC pump & motor reservoir with the suspension fluid AHC, bleed the AHC system and check for leaks using the following steps.

1. FILL RESERVOIR WITH NEW SUSPENSION FLUID AHC

While the vehicle is stopped, pour the suspension fluid AHC into the reservoir tank.

Fluid: Suspension fluid AHC (08886–01805)

NOTICE:

- **Do not start the engine until the reservoir tank is filled with the fluid.**
- **Do not use the drained fluid again because it may cause a malfunction.**

2. BLEED AHC FLUID LINES

(a) Start the engine and push the vehicle height select switch to ”N” mode.

NOTICE:

After the AHC pump is replaced, starting the engine may cause air inflow in the AHC fluid line. In this condition, the AHC system can not be operated even if the fluid is poured into the reservoir tank. If this happens, raise the vehicle height of the front or rear wheels by conducting the active test and activate the AHC pump & motor for approximately 10 seconds.

(b) After vehicle height adjustment is completed, check that the AHC pump motor is stopped, then stop the engine.

(c) Connect a hose to the bleeder plug for either right or left damping force control actuator.

(d) Loosen the bleeder plug.

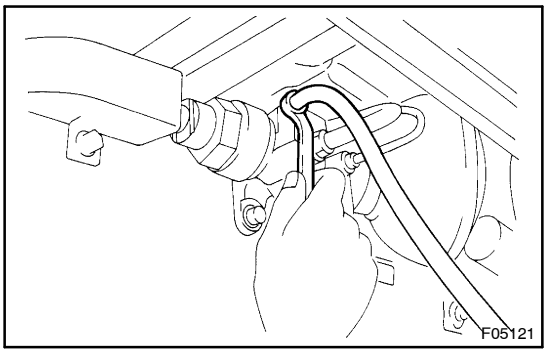
CAUTION:

While the fluid is being discharged, the vehicle’s height is lowered suddenly.

(e) After the emulsified fluid containing air is discharged, retighten the bleeder plug.

Torque: 8.3 N·m (84 kgf·cm, 73 in.·lbf)

(f) Perform steps (d) and (e) for the damping force control actuator on the rear side.

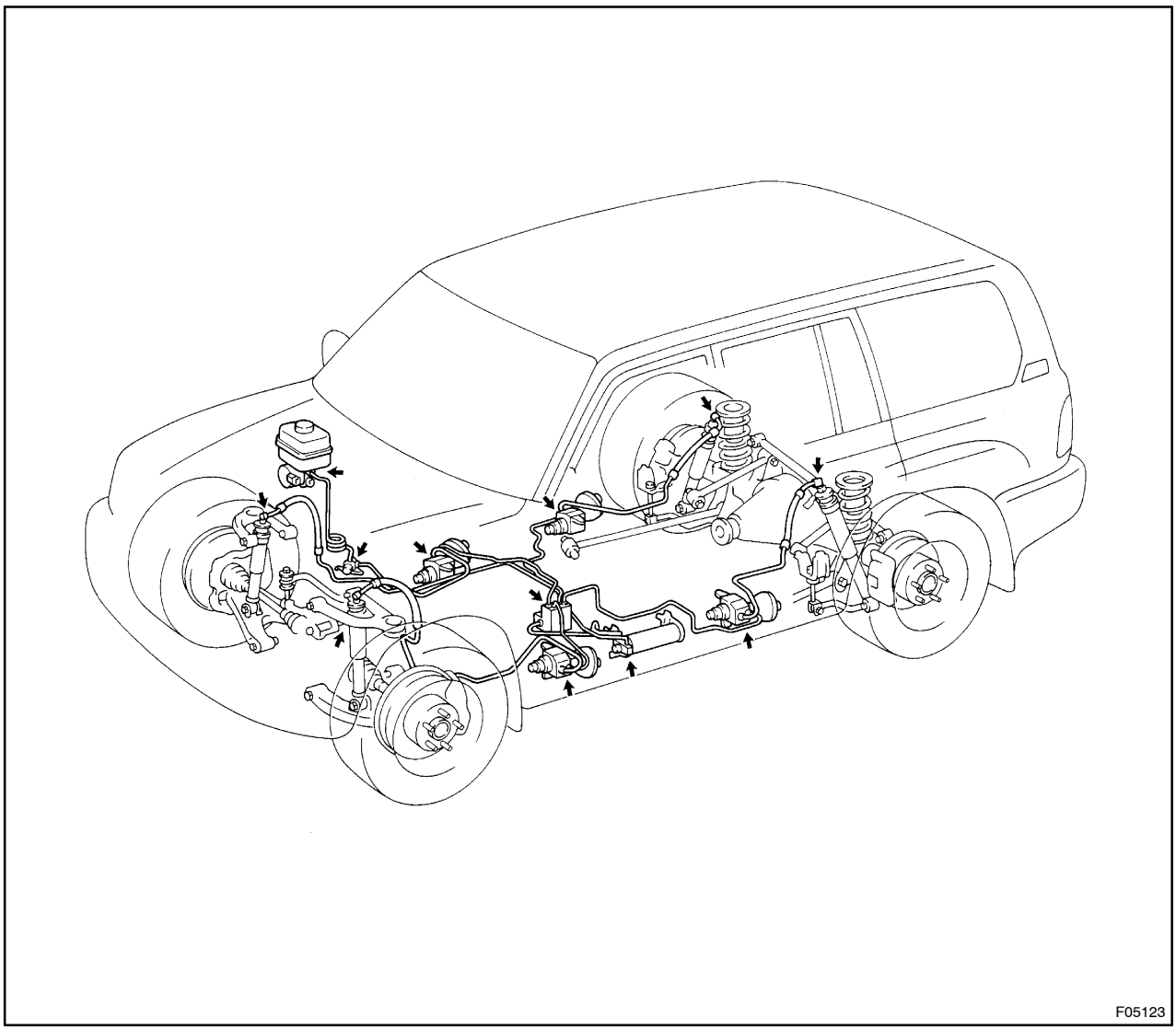


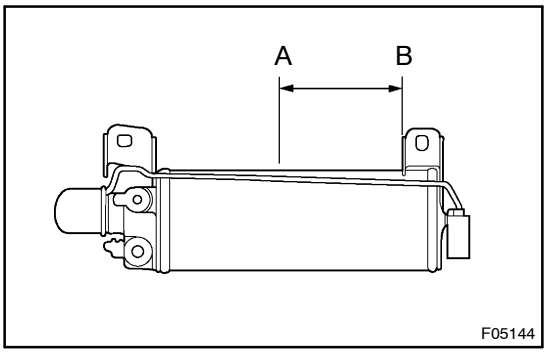
(g) Repeat steps (b) through (f) for left and right damping force control actuators alternately.
(h) Start the engine on level ground. Adjust the vehicle height to the N position with the vehicle unloaded.
(i) Check that the fluid level in the reservoir tank is within the standard range.

NOTICE:
Temperature should be normal (20 °C, 68 °F).

3. CHECK FOR FLUID LEAKAGE

Check the connections of tube and parts for fluid leakage.





DISPOSAL

DISPOSAL OF HEIGHT CONTROL ACCUMULATOR

Place the accumulator in a vise and make a hole between "A" and "B" in the illustration, using a saw or other tool to discharge the gas inside.

CAUTION:

- **Before discharging the gas, loosen the bleeder plug to bleed high pressure oil.**
- **The discharged gas is colorless, odorless and harmless.**
- **Make a hole while covering the saw with a shop rag because chips may fly about.**