

LU-1

LUBRICATION SYSTEM

	Page
TROUBLESHOOTING	LU-2
OIL PRESSURE CHECK	LU-3
REPLACEMENT OF ENGINE OIL AND OIL FILTER	LU-4
OIL PUMP	LU-5
OIL COOLER AND RELIEF VALVE	LU-11
OIL NOZZLE AND CHECK VALVE	LU-14

LU

LUBRICATION SYSTEM — Troubleshooting

TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Oil leakage	Cylinder head, cylinder block or oil pump body damaged or cracked	Repair as necessary	EM-62 or EM-83
	Oil seal faulty	Replace oil seal	
	Gasket faulty	Replace gasket	
Low oil pressure	Oil leakage	Repair as necessary	LU-5
	Relief valve faulty	Repair relief valve	
	Oil pump faulty	Repair oil pump	LU-5
	Engine oil poor quality	Replace engine oil	LU-4
	Crankshaft bearing faulty	Replace bearing	EM-74
	Connecting rod bearing faulty	Replace bearing	EM-72
High oil pressure	Oil filter clogged	Replace oil filter	LU-4
	Relief valve faulty	Repair relief valve	LU-8

LUBRICATION SYSTEM

Recommended Viscosity (SAE):

°C	-29	-18	-7	4	16	27	38
°F	-20	0	20	40	60	80	100
SAE	5W	5W	5W	5W	10W	10W	10W

82329

FR Vehicles

Oil Pressure Gauge

Oil Pressure Switch

FF Vehicles w/o Oil Cooler

Oil Pressure Switch

FF Vehicles w/ Oil Cooler

Oil Pressure Switch

86306
86307
86308

OIL P

1. CHE

Che

or th

If thi

Use

oil.

If it

mea

NOT

boct

2. CHE

The

the l

If lon

3. REN

4. INS

5. STA

Star

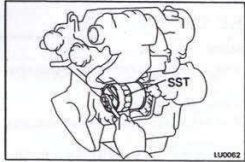
pera

6. ME/

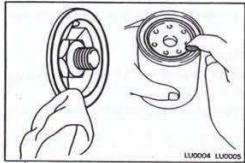
Oil i

NOT

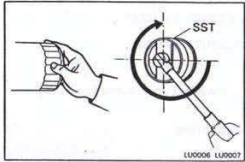
pres



LU0002



LU0004 LU0005



LU0006 LU0007

REPLACEMENT OF ENGINE OIL AND OIL FILTER

- DRAIN ENGINE OIL**
 - Remove the oil filler cap.
 - Remove the oil drain plug and drain the oil into a container.
- REPLACE OIL FILTER**
 - Using SST, remove the oil filter.
SST 09228-44010
 - Inspect and clean the oil filter installation surface.
 - Apply clean engine oil to the gasket of a new oil filter.
- FILL WITH ENGINE OIL**
 - Clean and install the oil drain plug with a new gasket. Torque the drain plug.
Torque: 400 kg-cm (29 ft-lb, 39 N-m)
 - Fill the engine with new oil, API grade CD or better. If it is impossible to get the CD or better grade by any means, you may use the CC grade.

NOTE: Be sure to use CD type for the vehicle with turbocharger.

	Oil capacity			Liters (USqts, Imp.qts)		
	FR vehicles	FF vehicles	CV only			
Drain and refill w/o Oil filter change	3.5 (3.7, 2.9)	3.8 (4.0, 3.3)	3.8 (4.0, 3.3)			
w/ Oil filter change	4.2 (4.4, 3.6)	4.3 (4.5, 3.8)	4.3 (4.5, 3.8)			
Dry fill	5.0 (5.3, 4.4)	4.8 (5.1, 4.2)	5.0 (5.3, 4.4)			

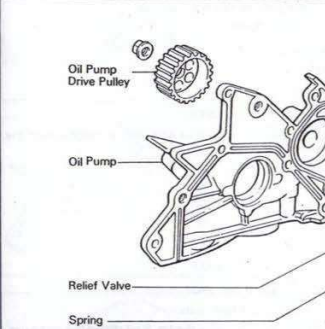
 - Lightly screw in the oil filter to where you feel resistance.
 - Then, using SST, tighten the oil filter an extra 3/4 turn.
SST 09228-44010
- FILL WITH ENGINE OIL**
 - Clean and install the oil drain plug with a new gasket. Torque the drain plug.
Torque: 400 kg-cm (29 ft-lb, 39 N-m)
 - Fill the engine with new oil, API grade CD or better. If it is impossible to get the CD or better grade by any means, you may use the CC grade.

NOTE: Be sure to use CD type for the vehicle with turbocharger.

	Oil capacity			Liters (USqts, Imp.qts)		
	FR vehicles	FF vehicles	CV only			
Drain and refill w/o Oil filter change	3.5 (3.7, 2.9)	3.8 (4.0, 3.3)	3.8 (4.0, 3.3)			
w/ Oil filter change	4.2 (4.4, 3.6)	4.3 (4.5, 3.8)	4.3 (4.5, 3.8)			
Dry fill	5.0 (5.3, 4.4)	4.8 (5.1, 4.2)	5.0 (5.3, 4.4)			

 - Install the oil filler cap.
- START ENGINE AND CHECK FOR LEAKS**
- RECHECK OIL LEVEL**

Recheck the engine oil level and refill as necessary.



Oil Pump Drive Pulley

Oil Pump

Relief Valve

Spring

OIL PUMP COMPONENTS

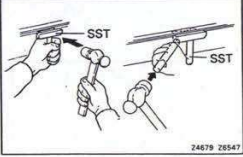
REMOVAL

NOTE: strain

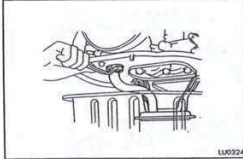
- RAISE CAUTION
- DRAIN
- REMOVE (See :)
- REMOVE PULL

LU-6

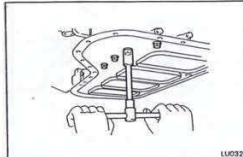
LUBRICATION SYSTEM — Oil Pump



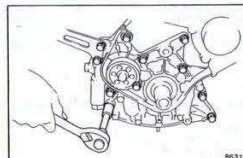
24679 28547



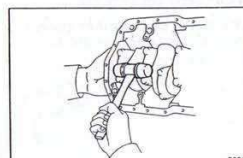
LU0924



LU0925



BE314



BE315

5. REMOVE NO. 1 OIL PAN

(a) Remove the bolts and nuts.

(b) Insert the blade of SST between the No. 1 oil pan, No. 2 oil pan and cylinder block, cut off the sealer and then remove the No. 1 oil pan.

SST 09032-00100

6. REMOVE OIL STRAINER

Remove the two bolts, two nuts and oil strainer with the gasket.

7. REMOVE NO. 2 OIL PAN

(a) Remove the four bolts.

(b) Using SST, remove the No. 2 oil pan in the same procedure (step 5).

SST 09032-00100

NOTE:

- Do not use SST for the oil pump body side. If necessary, use a screwdriver.
- When removing the oil pan, be careful not to damage the oil pan flange.

8. REMOVE OIL PUMP

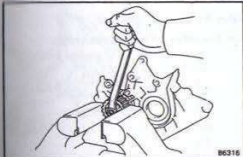
(a) Remove the eleven bolts and alternator stay.

(b) Using a plastic hammer, carefully tap off the oil pump and remove it.

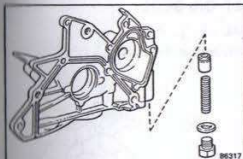
CAUTION:

- Be careful not to damage the crankshaft oil seal with the crankshaft woodruff key.
- Do not drop the driven rotor.

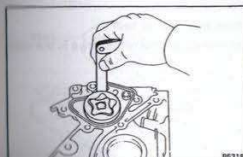
LUBRICATION SYS



BE316



BE317



BE318



BE319



BE320

DISASS

(See page

1. REM

(a)

(b)

CAU

If th

(#40

(c)

2. REM

Unsc

relief

INSPEC

1. ME/

Usin

drive

Max

Star

If th

oil p

2. ME/

Usin

roto

Ma

Star

If th

oil p

3. ME/

Usin

clear

Ma

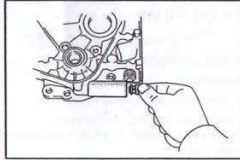
Star

If th

roto

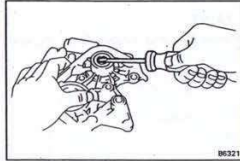
LU-8

LUBRICATION SYSTEM — Oil Pump



4. INSPECT RELIEF VALVE

Check the relief valve for scoring or wear.
If damaged, replace the valve or pump assembly.



REPLACEMENT OF OIL SEAL

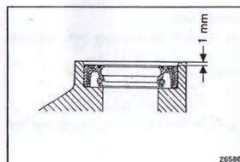
1. REMOVE OIL SEAL

Using a screwdriver, pry out the oil seal.



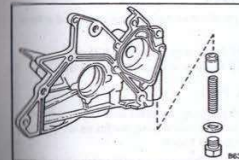
2. INSTALL OIL SEAL

- Apply MP grease to a new oil seal.
- Using a socket wrench and hammer, drive in the new oil seal.



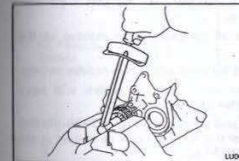
CAUTION: Drive in the oil seal to the depth of about 1 mm (0.04 in.) from the pump body edge.

LUBRICATION SYSTEM



ASSEMBLY
(See page 10)

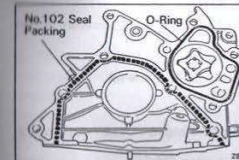
1. INSTA
Insert
relief



2. INST
(a) F
(b) F
(c) F
Torqu
CAU1
If thi
(#40)



- (d) f



INSTALL
(See page

1. INST
(a) I
(b) J

NOTE

- NOTE
- Do
 - Ins
 - ap
- (c) I

Torque

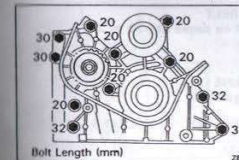
CAU

• WI

da

- Do

NOTE



Bolt Length (mm)

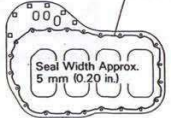
28

LU-10

LUBRICATION SYSTEM — Oil Pump

FR Vehicles

No. 102 Seal Packing



Seal Width Approx.
5 mm (0.20 in.)

FF Vehicles

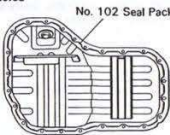
No. 102 Seal Packing



Seal Width Approx.
5 mm (0.20 in.)

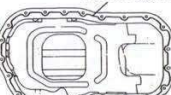
FR Vehicles

No. 102 Seal Packing



FF Vehicles

No. 102 Seal Packing



2. INSTALL OIL STRAINER

Install the strainer with the two bolts, two nuts and a new gasket.

Torque: Bolt 185 kg-cm (13 ft.-lb, 18 N-m)
Nut 55 kg-cm (48 in.-lb, 5.4 N-m)

3. INSTALL NO. 2 OIL PAN

(a) Remove any old packing material and be careful not to drop any oil on the contacting surfaces of the No. 2 oil pan and cylinder block.

• Using a razor blade and gasket scraper remove all the old packing (FIPG) material from the gasket surfaces and sealing groove.

• Thoroughly clean all components to remove all the loose material.

• Clean both sealing surfaces with a non-residue solvent.

CAUTION: Do not use a solvent which will have adverse affect on the painted surfaces.

(b) Apply No. 102 seal packing (Part No. 08826-00080) or equivalent to the No. 2 oil pan as shown in the figure.

• Install a nozzle that has been cut to the 5 mm (0.20in.) opening.

NOTE: Avoid applying an excess amount to the surface. Be especially careful near oil passages.

• Parts must be assembled within 15 minutes of application. Otherwise, the material must be removed and reapplied.

• Immediately remove nozzle from tube and reinstall cap.

(c) Install the No. 2 oil pan with seven bolts.

Torque: 75 kg-cm (65 in.-lb, 7.4 N-m)

4. INSTALL NO. 1 OIL PAN

(a) Install the No. 1 oil pan in the same procedure of step 3.

(b) Install the bolts and nuts.

Torque: 75 kg-cm (65 in.-lb, 7.4 N-m)

5. INSTALL CRANKSHAFT TIMING PULLEY AND NO. 2 IDLER PULLEY

(See steps 1 and 3 on page EM-32)

6. INSTALL TIMING BELT

(See steps 7 to 20 on pages EM-33 to 37)

7. LOWER ENGINE

8. REFILL WITH ENGINE OIL

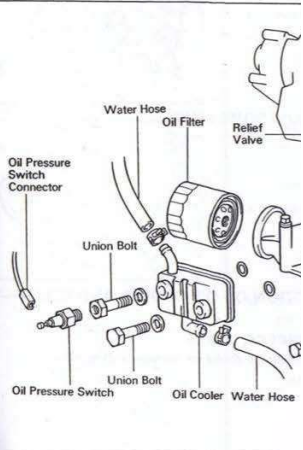
(See step 3 on page LU-4)

9. START ENGINE AND CHECK FOR LEAKS

10. RECHECK OIL LEVEL

LUBRICATION SYSTEM —

OIL C
COMP



Water Hose

Oil Filter

Relief Valve

Oil Pressure Switch Connector

Union Bolt

Oil Pressure Switch

Union Bolt

Oil Cooler

Water Hose

REMOVAL VALVE

1. DRA

2. REM

(a)

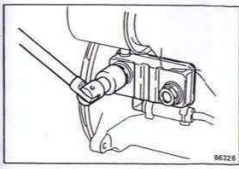
(b)

3. REM

(a)

(b)

4. REM



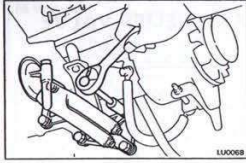
96324

<https://cardiagn.com/lubrication-c-engine/>

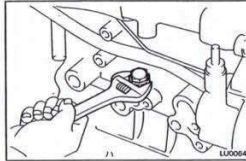
6/8

LU-12

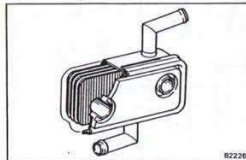
LUBRICATION SYSTEM — Oil Cooler and Relief Valve



5. **REMOVE OIL FILTER BRACKET**
Remove the five bolts and oil filter bracket with the O-ring.
6. **REMOVE EXHAUST MANIFOLD STAY (CV)**

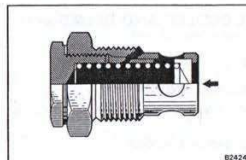


- ## 7. REMOVE RELIEF VALVE

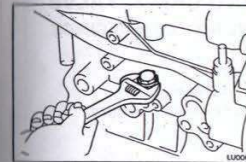


INSPECTION OF OIL COOLER AND RELIEF VALVE

- 1. INSPECT OIL COOLER**
Check the oil cooler for damage or clogging.
- 2. INSPECT RELIEF VALVE**
Push the valve with a screwdriver to check if it is stuck.



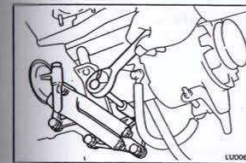
LUBRICATION SYSTEM –



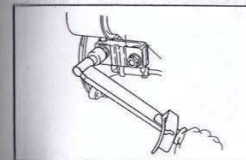
**INSTA
VALVI**

(See page 10)

1. INS
2. INS

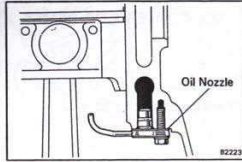


3. INS
(a)
(b)
Tot
4. INS



- | | |
|----|------|
| 5. | INS |
| | (a) |
| | (b) |
| | (c) |
| | Tot |
| 6. | INS |
| | (a) |
| | (b) |
| 7. | RE |
| | (Se |
| 8. | ST |
| 9. | CH |
| | Fill |

LU-14 LUBRICATION SYSTEM — Oil Nozzle and Check Valve

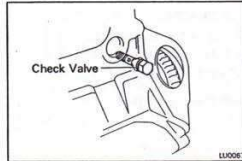


OIL NOZZLE AND CHECK VALVE

INSPECTION OF OIL NOZZLE AND CHECK VALVE

1. INSPECT OIL NOZZLES

LOCATION: In the cylinder block.
Check the oil nozzles for damage or clogging.



2. INSPECT CHECK VALVE

LOCATION: Behind the starter.

Push the valve with a wooden stick to check if it is stuck.

