
LUBRICATION

CONTENTS

E12AA--

GENERAL INFORMATION	1-1	OIL PAN AND OIL SCREEN (PETROL-POWERED VEHICLES)	5
SPECIFICATIONS	3	OIL PAN AND OIL SCREEN (DIESEL-POWERED VEHICLES)	7
General Specifications	3	ENGINE OIL COOLER (DIESEL-POWERED VEHICLES)	9
Torque Specifications	3		
Lubricants	3		
Sealants and Adhesives	3		
SPECIAL TOOL	3		
TROUBLESHOOTING	3		
SERVICE ADJUSTMENT PROCEDURES	4		
Replacement of Engine Oil	4		
Replacement of Oil Filter	4		
Inspection of Oil Level Warning System (Vehicles for Europe)	4-1		

GENERAL INFORMATION

ENGINE OILS

Health Warning

Prolonged and repeated contact with mineral oil will result in the removal of natural fats from the skin, leading to dryness, irritation and dermatitis. In addition, used engine oil contains potentially harmful contaminants which may cause skin cancer. Adequate means of skin protection and washing facilities must be provided.

Recommended Precautions

The most effective precaution is to adapt working practices which prevent, as far as practicable, the risk of skin contact with mineral oils, for example by using enclosed systems for handling used engine oil and by degreasing components, where practicable, before handling them.

Other precautions:

- Avoid prolonged and repeated contact with oils, particularly used engine oils.
- Wear protective clothing, including impervious gloves where practicable.
- Avoid contaminating clothes, particularly underpants, with oil.
- Do not put oily rags in pockets, the use of overalls without pockets will avoid this.
- Do not wear heavily soiled clothing and oil-impregnated foot-wear. Overalls must be cleaned regularly and kept separate from personal clothing.
- Where there is a risk of eye contact, eye protection should be worn, for example, chemical goggles or face shields; in addition an eye wash facility should be provided.
- Obtain First Aid treatment immediately for open cuts and wounds.
- Wash regularly with soap and water to ensure all oil is removed, especially before meals (skin cleansers and nail brushes will help). After cleaning, the application of preparations containing lanolin to replace the natural skin oils is advised.
- Do not use petrol, kerosine, diesel fuel, gas oil, thinners or solvents for cleaning skin.
- Use barrier creams, applying them before each work period, to help the removal of oil from the skin after work.
- If skin disorders develop, obtain medical advice without delay.

NOTES

GENERAL INFORMATION

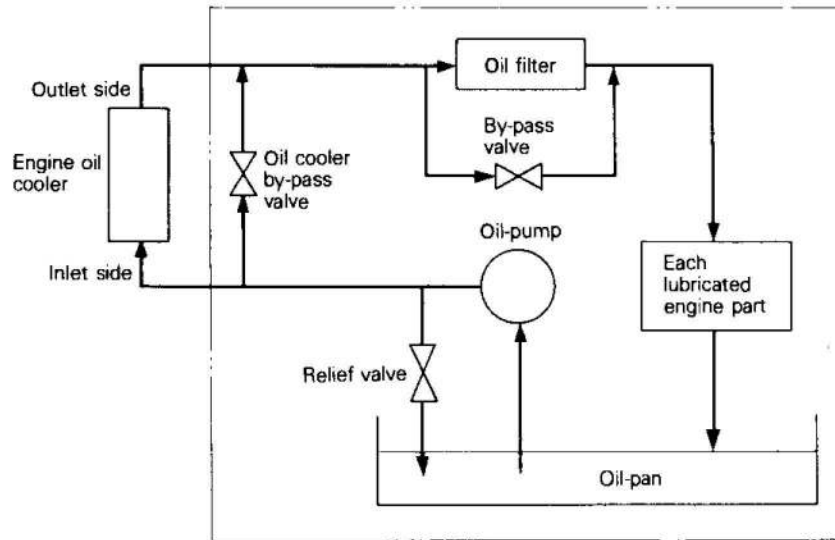
E12BAAD

ENGINE OIL COOLER (Diesel-powered vehicles)

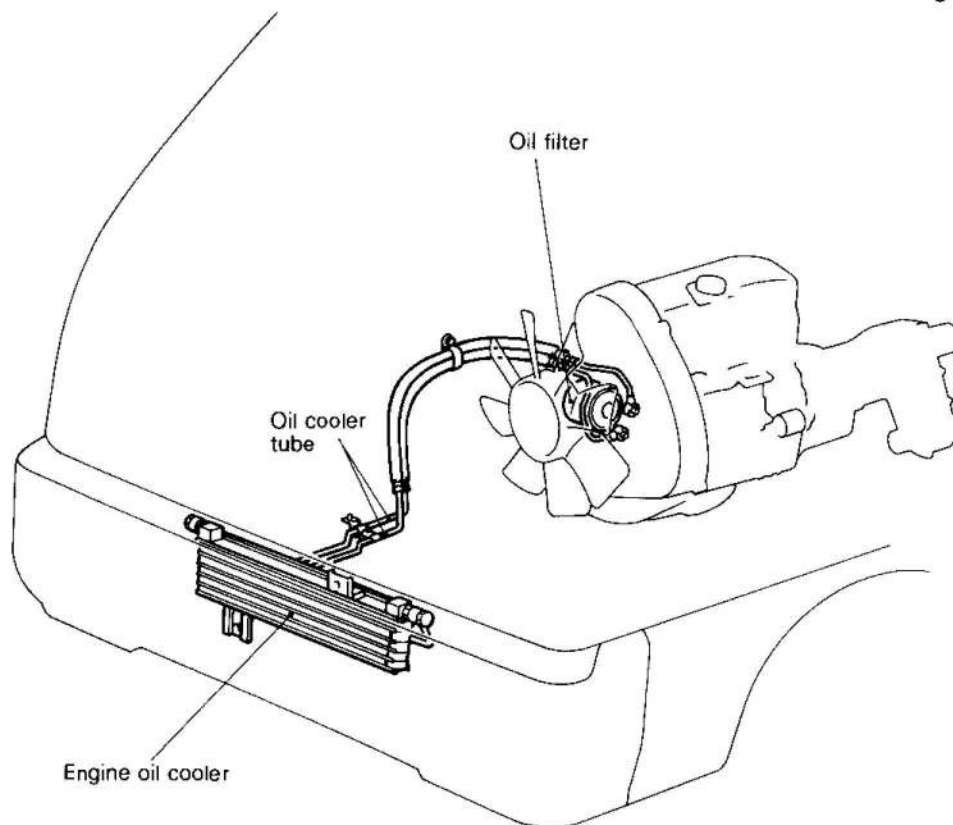
The corrugated fin type of engine oil cooler has been adopted. The cooler is installed at the rear of the front bumper. Cooling air is taken in through the front bumper opening to cool the engine oil.

Oil is circulated from the oil pump throughout the lubrication route to each part to be lubricated. A by-pass route (oil cooler by-pass valve) is provided at the engine to assure lubrication of each part of the engine even if for some unexpected reason there is foreign material (inside the oil cooler) which obstructs oil flow.

Note that this valve senses the engine oil temperature and also controls engine oil circulation to the oil cooler, thereby making engine warm-up faster.



04Y073



04G0030

SPECIFICATIONS**GENERAL SPECIFICATIONS**

E12CA--

Item	J/h	kcal/h	B.T.U./h
Engine oil cooler Performance			
Vehicles without a turbocharger	30,140 × 10 ³	7,200	28,570
Vehicles with a turbocharger	34,330 × 10 ³	8,200	32,540

TORQUE SPECIFICATIONS

E12CC--

Item	Nm	kgm	ft.lbs.
Oil level sensor attaching bolt	8–10	0.8–1.0	6–7
Oil screen attaching bolt or nut	15–22	1.5–2.2	11–16
Oil pan attaching nut	5–7	0.5–0.7	3.6–5.0
Oil pan attaching bolt	6–8	0.6–0.8	4.3–5.7
Oil pan drain plug	35–45	3.5–4.5	25–33
Engine oil cooler attaching bolt	9–14	0.9–1.4	6.5–10
Eye bolt attaching feed tube and return tube to the engine oil cooler	30–35	3.0–3.5	22–25
Eye bolt attaching feed tube and return tube to engine	40–45	4.0–4.5	29–33

LUBRICANTS

E12CD--

Item	lit	U.S.qts.	Imp.qts.
Engine oil cooler Quantity	0.23	0.24	0.2

SEALANTS AND ADHESIVES

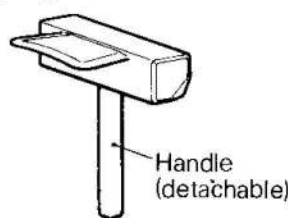
E12CE--

Items	Specified sealant	Remarks
Oil pan gasket	MITSUBISHI GENUINE Part No. MD970389 or equivalent	Semi-drying sealant

SPECIAL TOOL

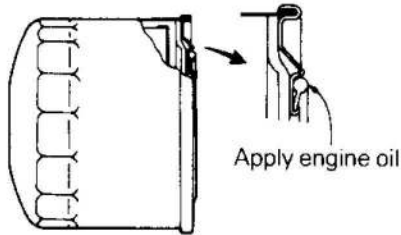
E12CF--

Tool (Number and name)	Use
MD998727 Oil pan gasket cutter	Removal of oil pan


TROUBLESHOOTING

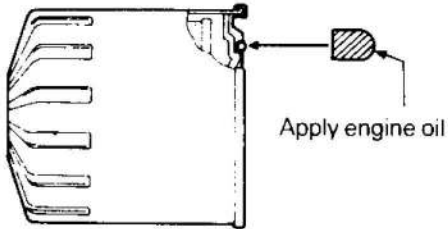
E12EAA0

Symptom	Probable cause	Remedy	Reference Page
Oil leakage from engine oil cooling system	Loosely connected tubes	Retighten	12–9
	Damaged oil tubes Cracked or damaged oil cooler body	Replace	

Petrol-powered vehicles

Apply engine oil

5LU011

Diesel-powered vehicles

Apply engine oil

1GE007

SERVICE ADJUSTMENT PROCEDURES

E12FAAA

REPLACEMENT OF ENGINE OIL

Refer to GROUP 11 ENGINE—Service Adjustment Procedures.

REPLACEMENT OF OIL FILTER

E12FBAA

1. Use filter wrench or the like to remove oil filter.
2. Apply a thin film of engine oil to the surface of gasket before screwing filter on.
3. Then tighten filter enough by hand.
4. Start and run engine and check for engine oil leaks.
5. After stopping engine, check oil level and replenish as necessary.

OIL PAN AND OIL SCREEN (PETROL-POWERED VEHICLES)

REMOVAL AND INSTALLATION

E12MA--

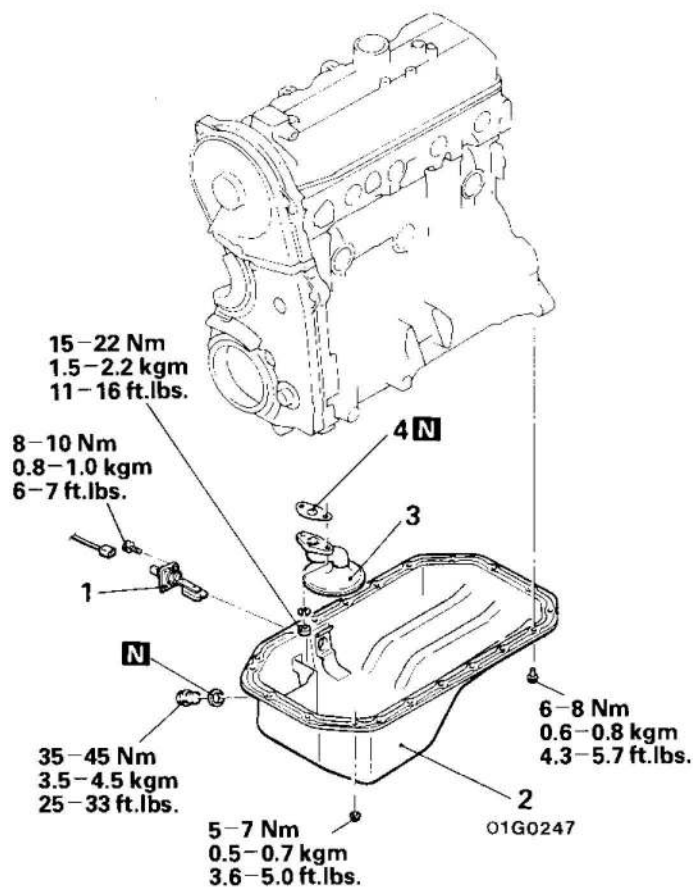
Pre-removal Operation

- Removal of undercover
(Refer to GROUP 42–Undercover and Protector.)
- Removal of oil pan protector <4WD>
(Refer to GROUP 42–Undercover and Protector.)
- Drainage of engine oil
(Refer to GROUP 11–Service Adjustment Procedures.)

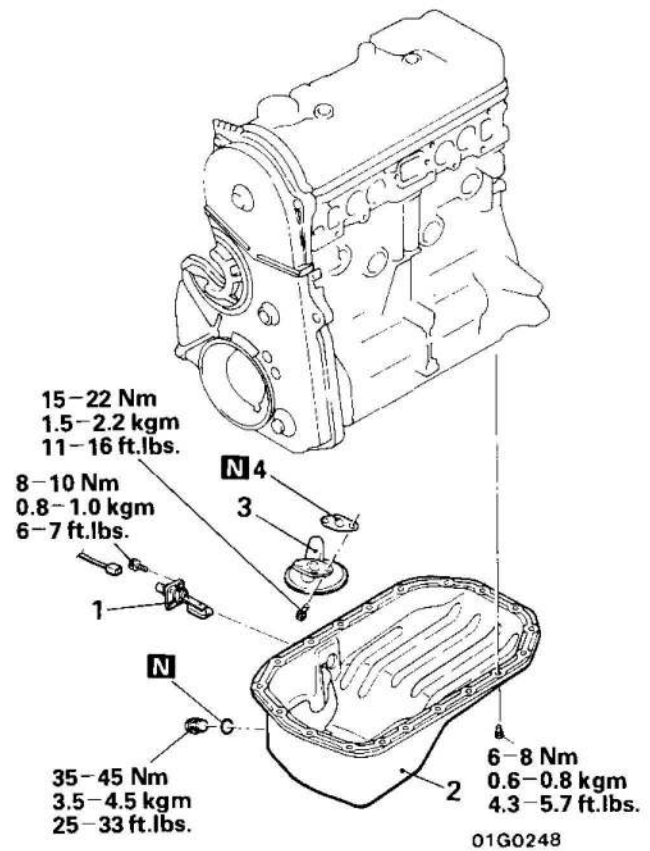
Post-installation Operation

- Installation of undercover
(Refer to GROUP 42–Undercover and Protector.)
- Installation of oil pan protector <4WD>
(Refer to GROUP 42–Undercover and Protector.)
- Filling of engine oil
(Refer to GROUP 11–Service Adjustment Procedures.)

4G32, 4G33



2WD – 4G63, G63B, 4G64, G64B

**Removal steps**

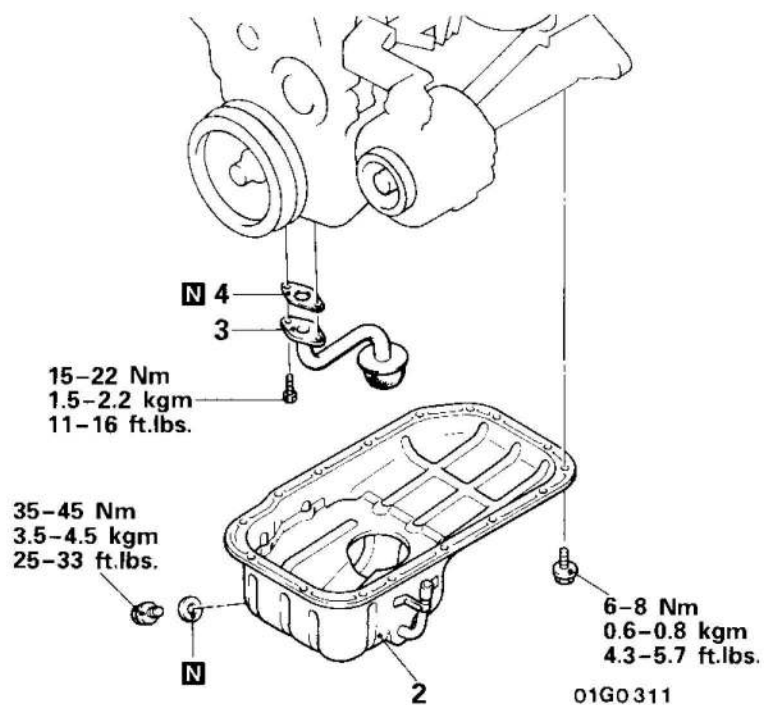
- ◆◆ 1. Oil level sensor
(Vehicles with oil level sensor)
- ◆◆◆◆ 2. Oil pan
- 3. Oil screen
- 4. Gasket

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆: Refer to "Service Points of Removal".
- (3) ◆◆◆: Refer to "Service Points of Installation".
- (4) **N**: Non-reusable parts

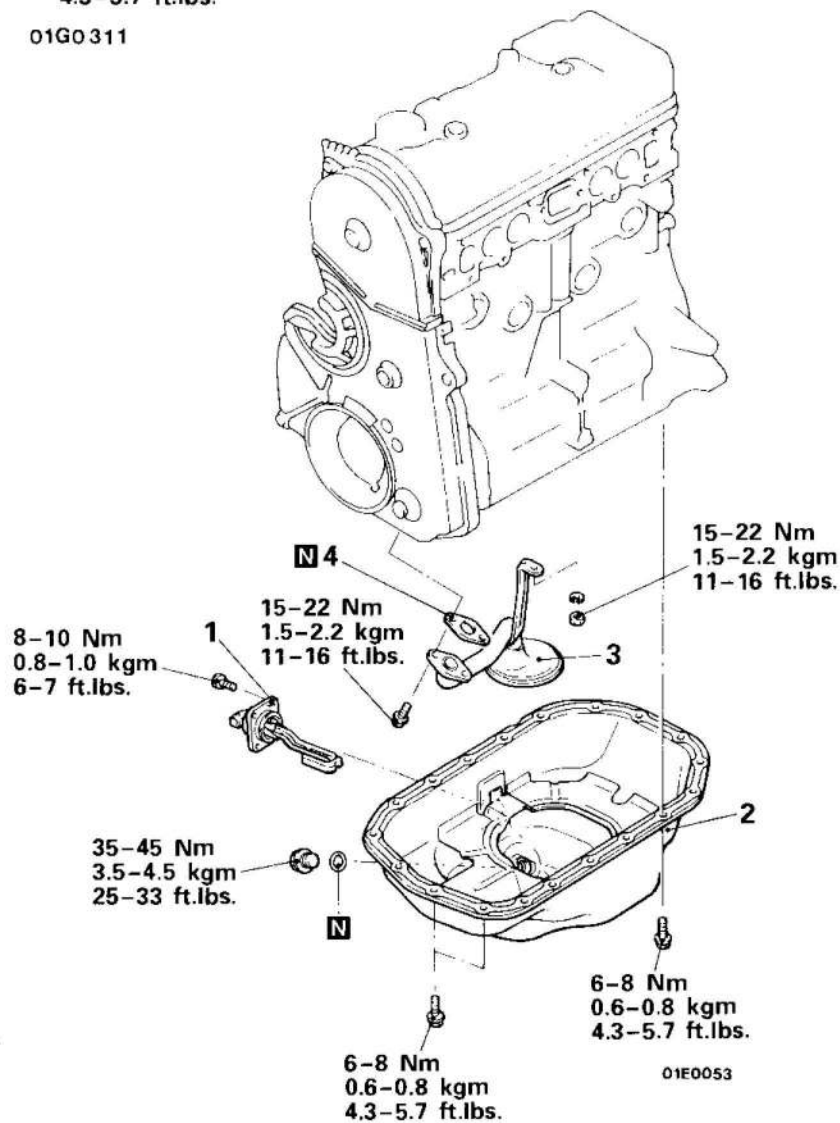
12-5-1 LUBRICATION – Oil Pan and Oil Screen (Petrol-powered Vehicles)

4G92



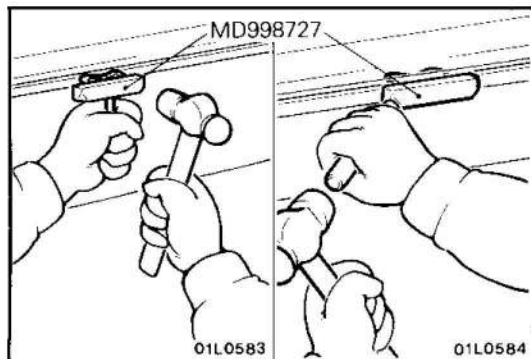
Removal steps

- ◆◆ 1. Oil level sensor
(Vehicles with oil level sensor)
- ◆◆ ◆◆ 2. Oil pan
- ◆◆ 3. Oil screen
- 4. Gasket



NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆: Refer to "Service Points of Removal".
- (3) ◆◆◆◆: Refer to "Service Points of Installation".
- (4) N: Non-reusable parts

**SERVICE POINTS OF REMOVAL**

E12MBAA

2. REMOVAL OF OIL PAN

- (1) For 4WD vehicles, set no.1 cylinder to top dead point.
- (2) After removing the oil pan mounting bolts and nuts, remove the oil pan with the special tool and a brass bar.

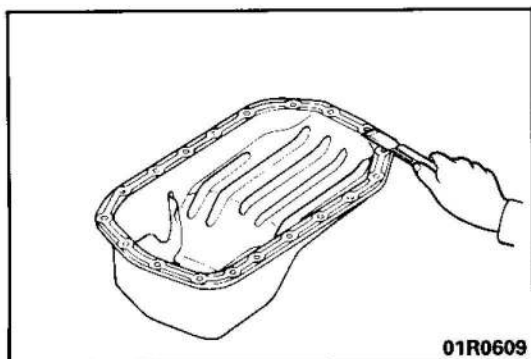
Caution

Perform this slowly to avoid deformation of the oil pan flange.

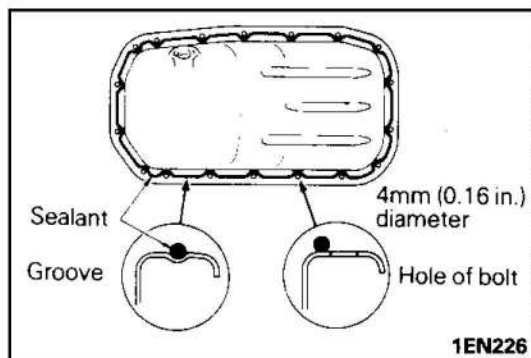
INSPECTION

E12MCAA

- Check the oil pan for cracks.
- Check the oil pan fitting surface for damage and deformation
- Check the oil screen for cracked, clogged or damaged wire net and pipe.



01R0609



1EN226

SERVICE POINTS OF INSTALLATION

E12MDAF

2. INSTALLATION OF OIL PAN

- (1) Remove sealant from oil pan and cylinder block mating surfaces.

- (2) Apply a 4mm (0.16 in.) wide bead of specified sealant to the entire circumference of the oil pan flange.

Specified sealant: MITSUBISHI GENUINE Part No. MD970389 or equivalent

- (3) Assemble oil pan to cylinder block within 15 minutes after applying the sealant.

1. INSTALLATION OF THE OIL LEVEL SENSOR**Caution**

For tightening, do not use a tool that would cause a sharp impact, such as an electric tightening tool, etc.

12-6-1 LUBRICATION – Oil Pan and Oil Screen (Petrol-powered vehicles)

NOTES

OIL PAN AND OIL SCREEN (DIESEL-POWERED VEHICLES)

REMOVAL AND INSTALLATION

E12MA--

Pre-removal Operation

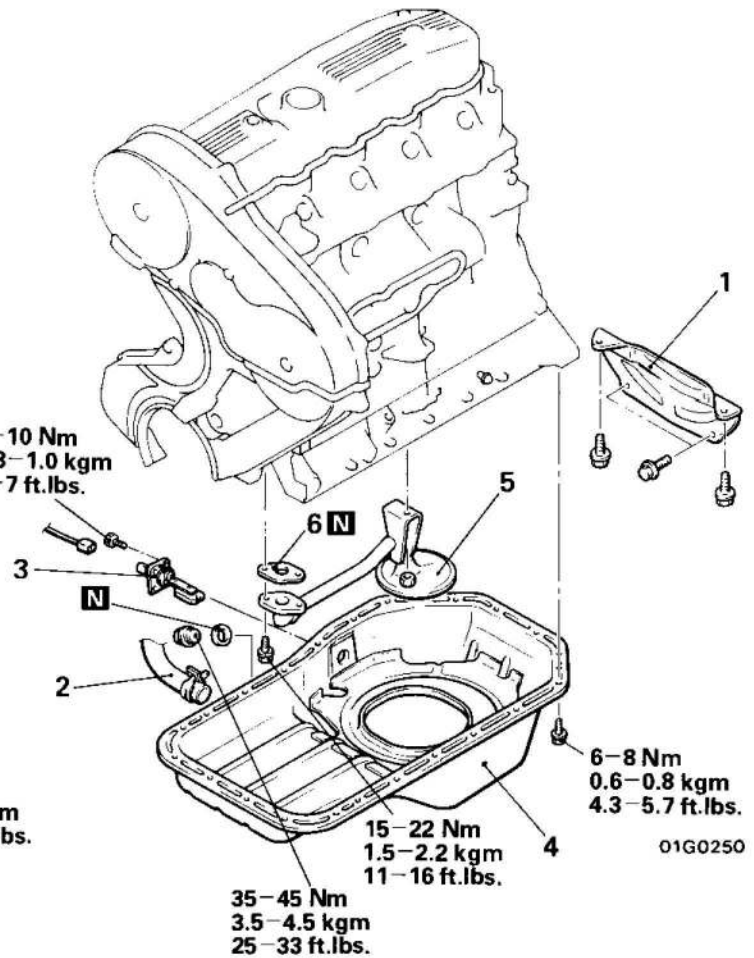
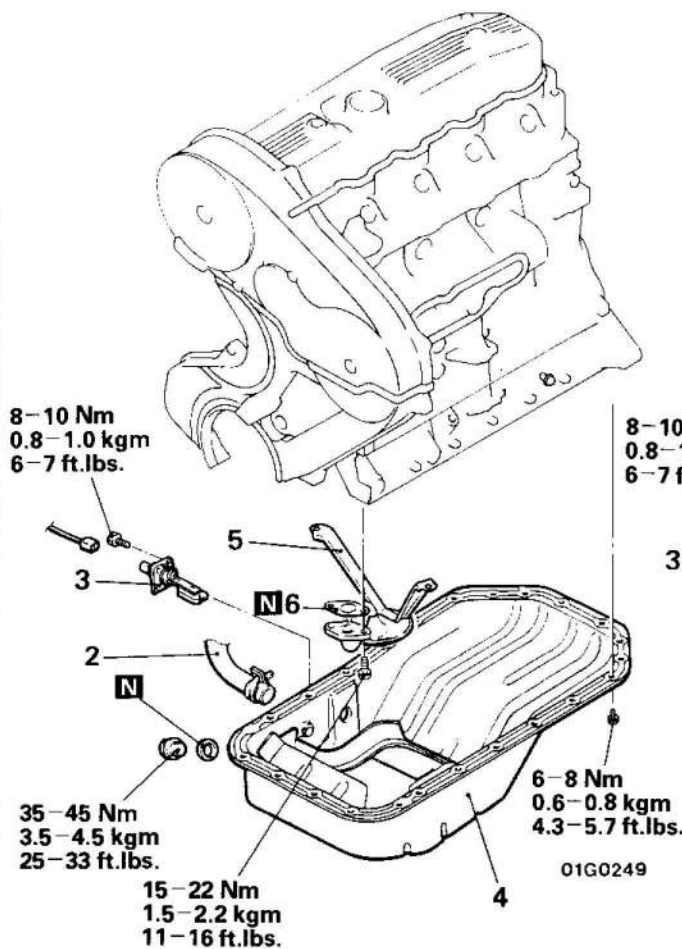
- Removal of undercover
(Refer to GROUP 42–Undercover and Protector.)
- Drainage of engine oil
(Refer to GROUP 11–Service Adjustment Procedures.)

Post-installation Operation

- Installation of undercover
(Refer to GROUP 42–Undercover and Protector.)
- Filling of engine oil
(Refer to GROUP 11–Service Adjustment Procedures.)

2WD

4WD

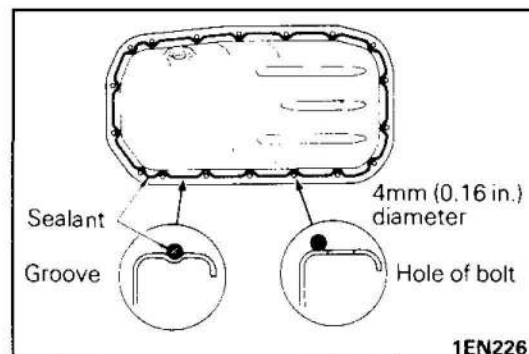
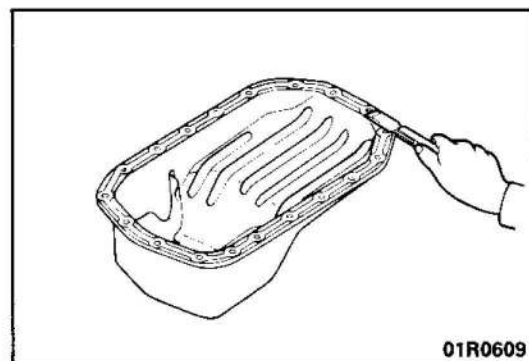
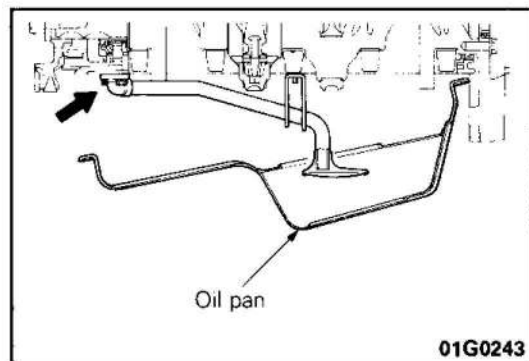
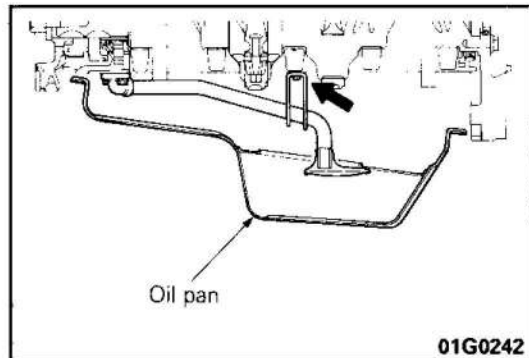
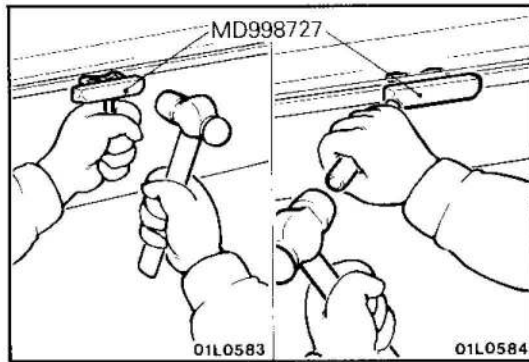


Removal steps

1. Bell housing cover
2. Oil hose
- ◆◆ 3. Oil level sensor
(Vehicles with oil level sensor)
- ◆◆◆◆ 4. Oil pan
- ◆◆ 5. Oil screen
6. Gasket

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆: Refer to "Service Points of Removal".
- (3) ◆◆◆: Refer to "Service Points of Installation".
- (4) **N**: Non-reusable parts



SERVICE POINTS OF REMOVAL

E12MBAB

4. REMOVAL OF OIL PAN/5. OIL SCREEN

After removing the oil pan mounting bolts and nuts, remove the oil pan with the special tool and a brass bar.

Caution

Perform this slowly to avoid deformation of the oil pan flange.

<4WD>

Because the oil screen obstructs the oil separator plate inside the oil pan and the oil pan does not come off readily, remove the oil screen according to the following procedure, then remove the oil pan as well.

(1) Lower the rear side of the oil pan then remove the installation nut from the oil screen stay.

(2) Lower the front side of the oil pan and remove the oil screen installation bolt.

INSPECTION

E12MCAA

- Check the oil pan for cracks
- Check the oil pan fitting surface for damage and deformation
- Check the oil screen for cracked, clogged or damaged wire net and pipe

SERVICE POINTS OF INSTALLATION

E12MDAG

4. INSTALLATION OF OIL PAN

- (1) Remove sealant from oil pan and cylinder block mating surfaces.
- (2) Apply a 4mm (0.16 in.) wide bead of specified sealant to the entire circumference of the oil pan flange.

Specified sealant: MITSUBISHI GENUINE Part No. MD970389 or equivalent

- (3) Assemble oil pan to cylinder block within 15 minutes after applying the sealant.

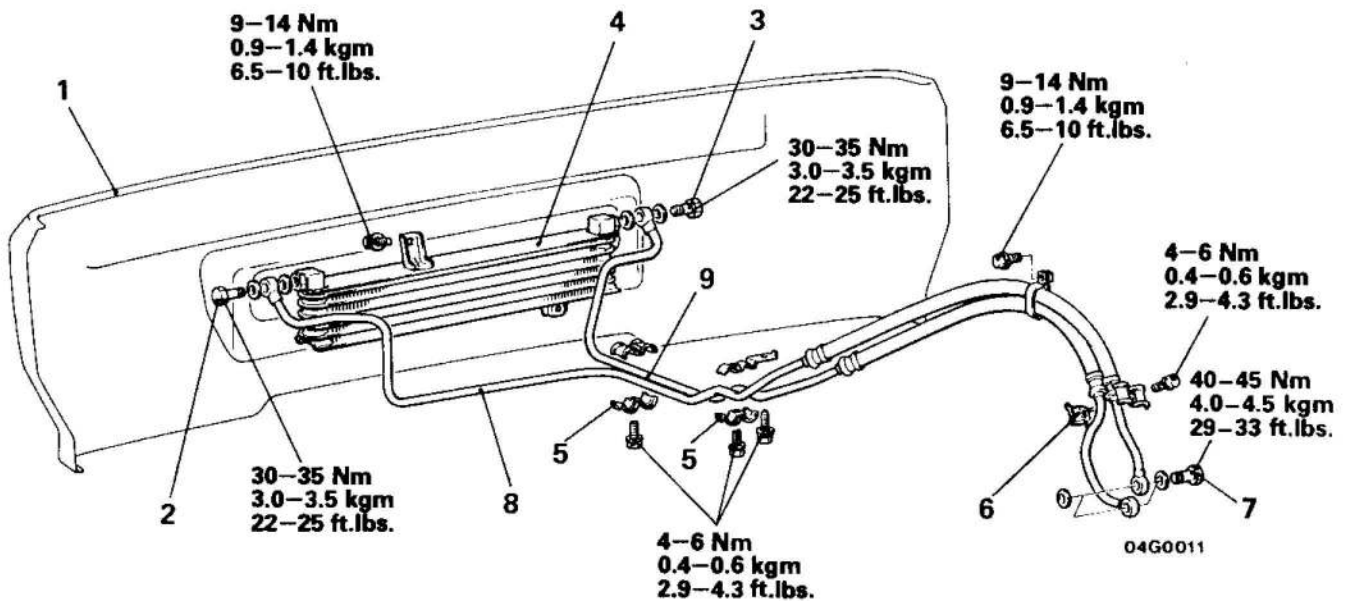
3. INSTALLATION OF THE OIL LEVEL SENSOR

Caution

For tightening, do not use a tool that would cause a sharp impact, such as an electric tightening tool, etc.

ENGINE OIL COOLER (DIESEL-POWERED VEHICLES)**REMOVAL AND INSTALLATION**

E12JA---

**Pre-removal Operation**

- Removal of undercover (Refer to GROUP 42–Undercover and Protector.)
- Removal of front seat (driver's seat) and seat underframe (Refer to GROUP 42–Seat, Underframe.)

Post-installation Operation

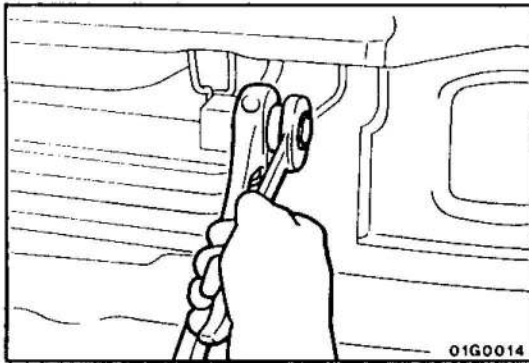
- Installation of undercover (Refer to GROUP 42–Undercover and Protector.)
- Filling of engine oil and checking oil level (Refer to GROUP 11–Service Adjustment Procedures.)
- Checking of oil leak
- Checking of interference with power steering hose and brake hose each other
- Installation of front seat (driver's seat) and seat underframe (Refer to GROUP 42–Seat, Underframe.)

Removal steps

- ◆◆◆1. Front bumper
- ◆◆◆2. Eye bolt (return side)
- ◆◆◆3. Eye bolt (feed side)
- 4. Oil cooler
- 5. Clamp
- ◆◆6. Clamp
- 7. Eye bolt
- ◆◆8. Return tube
- ◆◆9. Feed tube

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆: Refer to "Service Points of Removal".
- (3) ◆◆◆: Refer to "Service Points of Installation".

**SERVICE POINTS OF REMOVAL**

E12JBAC

1. REMOVAL OF FRONT BUMPER

Refer to GROUP 51 EXTERIOR–Bumper.

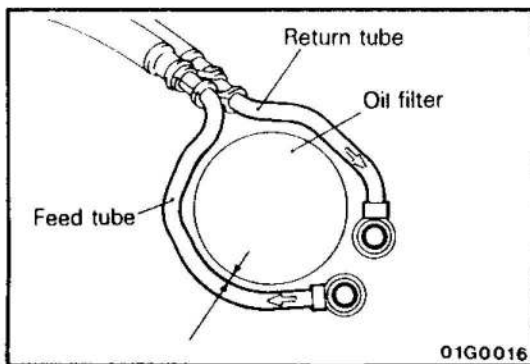
2. REMOVAL OF EYE BOLT (Return side)/3. EYE BOLT (Feed side)

Use a wrench or appropriate tool to fix the connector to avoid excessive force to the oil cooler connector and remove the eye bolt.

INSPECTION

E12JCAA

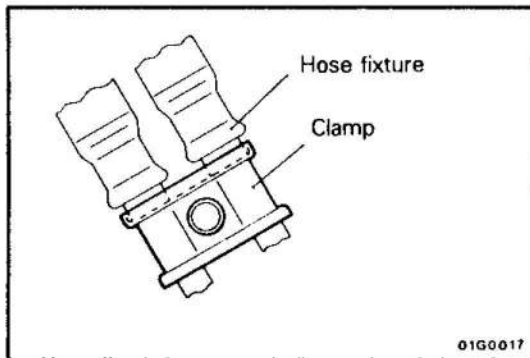
- Check for foreign material between oil cooler fins.
- Check the oil cooler fins for bend or damage.
- Check the oil cooler tubes for crack, damage, clogging or deterioration.
- Check the gaskets for damage or deformation.
- Check the eye bolts for clogging or deformation.

**SERVICE POINTS OF INSTALLATION**

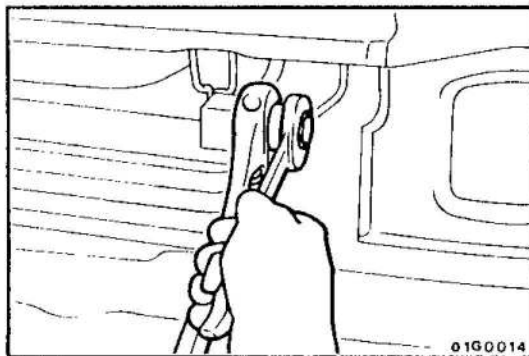
E12JDAD

9. INSTALLATION OF FEED TUBE/8. RETURN TUBE

Set the oil feed tube and return tube so that the clearance between the tubes and the oil filter is no less than 4 mm (0.16 in.)

**6. INSTALLATION OF CLAMP**

Fix the clamp at the end of the hose fixture.

**3. INSTALLATION OF EYE BOLT (Feed side)/2. EYE BOLT (Return side)**

- (1) Carefully clean the connecting screws and contacting surface.
- (2) Use a wrench or appropriate tool to fix the connector to avoid excessive force to the oil cooler and tighten the eye bolt.

1. INSTALLATION OF FRONT BUMPER

Refer to GROUP 51 EXTERIOR–Bumper.