Fuel System [Diesel]

GENERAL		FLB - 2
NJECTION	N PUMP-MECHANICAL	FLB -11
UEL DELI	VERY SYSTEM-DIESEL	FLB -22

GENERAL

SPECIFICATIONS EFLB0010

Type Nozzle	Distribution type Clockwise as viewed from drive side 1 - 3 - 4 - 2 Centrifugal type Hydraulic Vane type Manual type Screw-on type Throttle type
Type	Throttle type
Engine control system	Pedal-operated cable type, incorporating electric engine stop mechanism interlocked with starter switch Throttle button type
Fuel tank	
Capacity lit. (U.S. gals., Imp.gals.)	65 (17.2, 14.4)

SERVICE SPECIFICATIONS EFLB0030

	Standard	Limit
Fuel injection pump Injection timing (when plunger lift 1 mm) Cam lift mm Plunger diameter mm Delivery valve opening pressure kPa (kg/cm²) Fuel cut solenoid	4° ATDC 2.2 10 2,150 (21.5) Rated voltage: 12V; Resistance: 8Ω	
Injection nozzle Injection orifice (Number-diameter) mm Breaking pressure kPa (kg/cm²) Idle speed rpm	1-1.02 12,000-13,000 (120-130) 750 ± 30	11,000 (110)
Engine control system Cable length Accelerator control cable mm Throttle cable mm	L: 2725-2735 A + B: 125-129 L: 642-648	
Throttle knob stroke mm	C: 60-62 25 or more	

TORQUE SPECIFICATIONS EFLB0050

	Nm	Kg·m	lb-ft
Injection pipe clamp bolts	4 - 6	0.4 - 0.6	3 - 4
Injection pipe union nuts	23 - 37	2.3 - 3.7	17 - 27
Pump bracket-to-cylinder block bolts	18 - 25	1.8 - 2.5	13 - 18
Injection pump-to-pump bracket bolts	20 - 27	2.0 - 2.7	14 - 19
Injection pump mounting nuts	15 - 22	1.5 - 2.2	11 - 16
Fuel return pipe nuts	30 - 40	3.0 - 4.0	22 - 29
Injection nozzle	50 - 60	5.0 - 6.0	36 - 43
Retaining nut-to-nozzle body	35 - 40	3.5 - 4.0	25 - 29
Pump sprocket nut	80 - 90	8.0 - 9.0	58 - 65
Fuel tank mounting bolts	15 - 22	1.5 - 2.2	11 - 16

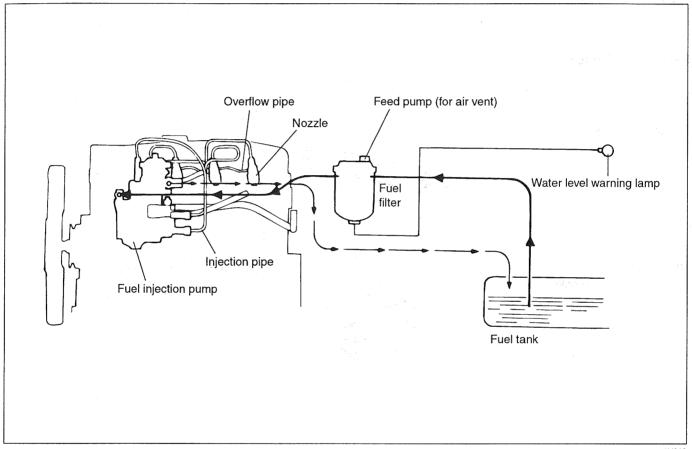
SPECIAL TOOLS EFLB0070

Tool (Number and name)	Illustration	Use
09310-43000 Prestroke measuring adapter		Injection timing adjustment
3		The second secon
	C1043000	
09314-43000 Injection pump sprocket puller		Removal of injection pump sprocket
	C1443000	

GENERAL INFORMATION EFIBODA

A distribution-type fuel injection pump is installed in the front upper case and is driven by the timing belt. The fuel is drawn from the fuel tank by a pump inside the fuel injection pump and sent to the injection pump through a filter which contains a water separator. The fuel under pressure enters the pump chamber, where the fuel pressure is regulated by a regulating valve. From the pump chamber, the fuel is sent through the distributor head passage and then the inlet port in the barrel to the high pressure chamber above the plunger. The plunger pumps the fuel

and the highly pressurized fuel is injected from the nozzle in accordance with the injection sequence. The excess fuel in the pump housing chamber is returned through the overflow valve and the overflow pipe to the fuel tank. The injection pump is cooled and lubricated by means of fuel circulation. The excess fuel at the nozzle holder is also returned through the overflow pipe with unions on the injection pump to the fuel tank. Since the injection pump is lubricated by fuel, water in the fuel will shorten the pump life to a great degree. Therefore, special care must be taken to prevent the entry of water, dust, etc. into the system.



AU012

TROUBLESHOOTING EFLB0090

FUEL INJECTION SYSTEM

Symptom	Probable cause	Remedy
Engine does not start	Cranking speed too low	Repair starting system or charge or replace battery so that engine cranks at a minimum of 150 rpm.
	No voltage at fuel cut-off solenoid on injection pump	Check for voltage with test light. If necessary, replace fuse or faulty wires.
	Fuel cut-off solenoid on injection pump loose or faulty	Tighten solenoid. Check that solenoid clicks when key is turned off and on. Replace faulty solenoid.
	No voltage at glow plug bus	If test light shows no voltage at bus with key at "ON" position, test relay and wiring.
	Glow plug faulty	Test and, if necessary, replace glow plug.
	Air in fuel system	Bleed fuel system.
	Injection pump not delivering fuel	If no fuel emerges from a looseness injection pipe during cranking, check timing belt and fuel supply from filter.
·	Injection pipes misconnected	Connect pipes in correct location
	Injection timing incorrect	Adjust injection timing.
	Faulty injection nozzles	Check and, if necessary, repair or replace nozzles.
	Engine mechanical faults, as described earlier under this heading	Test compression and, if necessary, repair engine.
	Faulty injection pump	Try to start engine with new pump installed. If necessary, replace pump permanently.
Idle speed incorrect	Idle speed incorrectly adjusted	Check and, if necessary, adjust the idle speed.
or idle rough irregular	Accelerator control binding	Check that accelerator lever on pump is not loose, then adjust accelerator cable.
	Loose fuel hose between filter and injection pump	Replace hose or secure with clamps, bleed air from system.
	Air in fuel system	Bleed fuel system.
	Inadequate fuel supply owing to clogged fuel filter, or fuel return line and injection pipes leaking, dirty, kinked, or squeezed at connections	Inspect and, if necessary, replace lines and hoses or replace fuel filter.
	Faulty injection nozzles	Check and, if necessary, repair or replace injection nozzles.
	Injection timing incorrect	Adjust injection timing.
	Engine mechanical faults, as described earlier under this heading	Test compression and, if necessary, repair engine.
	Faulty injection pump	Try engine at idle with new pump installed. If necessary, replace pump permanently.
	Engine lugging in too high a gear	Observe correct shift speeds.

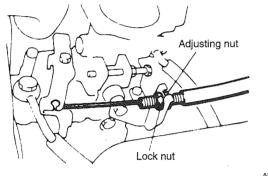
Symptom Probable cause		Remedy	
Smoky exhaust (black, blue or white)	Engine not reaching correct operating temperature	Check and, if necessary, replace cooling system thermostat.	
	Maximum rpm incorrect	Check and if necessary, replace injection pump.	
	Faulty injection nozzles	Check and, if necessary, repair or replace injection nozzles.	
	Injection timing incorrect	Adjust injection timing.	
	Restricted exhaust system	Check exhaust system for dents and obstructions.	
	Engine mechanical faulty, as described earlier under this heading	Test compression and, if necessary, repair engine.	
	Faulty injection pump	Observe exhaust with new pump installed if necessary, replace pump permanently.	
Poor power output, slow acceleration	Injection pump accelerator lever loose or not reaching maximum rpm adjusting screw	Tighten lever, check that accelerator pedal travel is not restricted, then adjust accelerator cable.	
(speedometer accurate, clutch	Maximum rpm incorrect	Check and, if necessary, replace injection pump.	
not slipping)	Air cleaner filter dirty	Clean or replace air cleaner filter.	
	Inadequate fuel supply owing to clogged fuel filter, or fuel return line and injection pipes leaking, dirty, kinked, or squeezed at connections	Inspect and, if necessary, replace lines and hoses, replaced fuel filter.	
	Air in fuel system	Bleed fuel system.	
	Ice or solidified wax in fuel lines. (winter time only)	Move car to a warm garage until ice or wax has become liquid, then bleed fuel system.	
	Faulty injection nozzles	Check and, if necessary, repair or replace injection nozzles.	
	Injection timing incorrect	Adjust injection timing.	
	Engine mechanical faults, as described earlier under this heading	Test compression and, if necessary, repair engine.	
	Faulty injection pump	Check acceleration and speed with new pump installed. If necessary, replace pump permanently.	

Symptom Probable cause		Remedy
Excessive fuel	Air cleaner filter dirty	Clean or replace air cleaner filter.
consumption	Fuel leaks	Check and, if necessary, replace or tighten all pipes, hoses and connections.
	Return pipe and hose blocked	Check return line for kinks and dents. Replace faulty lines. If line is clogged, blow it out with compressed air, then bleed fuel system.
	Idle speed too fast or maximum rpm too high	Check and, if necessary, adjust idle speed or replace injection pump.
	Faulty injection nozzles	Check and, if necessary, repair or replace injection nozzles.
	Injection timing incorrect	Adjust injection timing.
	Engine mechanical fault, as described earlier under this heading	Test compression and, if necessary, repair engine.
	Faulty injection pump	Check fuel consumption with new pump installed, if unnecessary, replace pump permanently.
Excessive	Rusty pedal arm	Clean and lubricate.
accelerator pedal effort required (Incomplete pedal	Incorrect routing	Ensure bending radius of 150 mm or more and correct excessively bent portion.
return included)	Rusty cable	Replace
	Shift throttle cable	Lubricate link and shaft.
Broken accelerator	Binding cable end	Remove rust and burrs from cable end.
control cable	Incorrect perpendicularity of cable end mounting point	Correct ends on the lever side.
	Incorrect perpendicularity between cable end and cable	Correct or replace parts.
Engine does not stop	Faulty starting switch operation	Correct or replace part.
	Broken harness between starting switch and fuel cut solenoid	Replace harness

INSPECTION AND ADJUSTMENT

ACCELERATOR CABLE

- 1. Warm engine until stabilized at idle.
- 2. Confirm idle rpm is at prescribed rpm.
- 3. Stop engine.
- Confirm there are no sharp bends in accelerator cable
- 5. Check inner cable for correct slack.



AU003

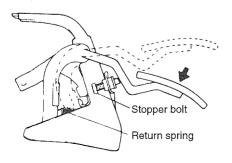
EFLB0150

- 6. If there is too much slack, adjust slack by the following procedures.
 - 1) Loosen adjusting nut. Fully close throttle lever.
 - Tighten adjusting nut until throttle lever just starts moving.

Return 1 turn and lock with lock nut. This adjusts accelerator cable play to standard value.

Standard value: approx. 1 mm (0.04 in.)

- 3) Adjust so that accelerator pedal stopper touches pedal arm when throttle lever is fully opened.
- 4) After adjusting, confirm that throttle level fully opens and closes by operating pedal.



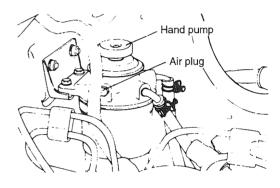
ADJUSTMENT =

EFLB0160

EVACUATION OF AIR FROM FUEL LINE

Evacuate air after following services.

- When fuel is drained and re-filled for service.
- When fuel filter is replaced.
- When main fuel line is removed.
- 1. Loosen fuel filter air plug.
- Place rags around air plug hole. Operate hand pump repeatedly until no bubbles come from plug hole. Tighten air plug.
- 3. Repeat until hand pump operation becomes stiff.



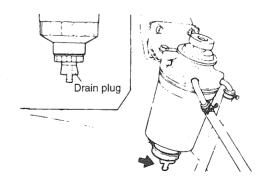
AU005

ADJUSTMENT EFLB0170

EVACUATION OF WATER FROM FUEL FILTER

Water is in the filter when fuel filter indicator lights. Evacuate water by the following procedures.

- 1. Loosen drain plug.
- 2. Drain water with hand pump. Finger-tighten drain plug.



AU006

INSPECTION AND ADJUSTMENT EFLB0180

INJECTION NOZZLE

INJECTION START PRESSURE

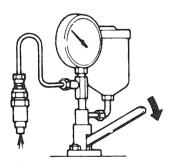
- 1. Set injection nozzle in nozzle tester and check the following.
- Move nozzle tester handle at about one stroke per second.
- 3. The pressure gauge pointer rises slowly and swings when injection is made. Read the position at which the pointer started to swing. Check the injection start pressure is the standard value.

Standard value:

12,000-13,000 kPa (120-130 kg/cm², 1,707-1,848 psi)

Limit:

11,000 kPa (110 kg/cm², 1,565 psi) or less



AU007

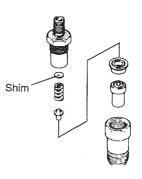
If the nozzle is faulty, disassemble and adjust injection start pressure to the standard value by changing the shim thickness. Injection pressure increases by approx. 1,000 kPa (10 kg/cm², 142 psi) as shim thickness is increased by 0.1 mm (0.0039 in.).



CAUTION

When disassembling nozzle holder, be careful not to allow entry of dirt or water.

5. If the injection start pressure can not be adjusted by changing the shim thickness, replace nozzle assembly.



EFLB018B

INJECTION STATUS

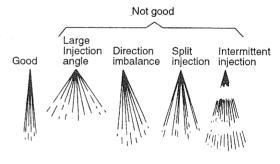
 Move nozzle tester handle at about 1 stroke per second.

[Needle valve vibration]

Inject on is normal if the characteristic intermittent sound is heard as the handle is operated, and vibration of the needle valve is felt at the handle.

[Spray]

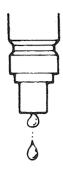
Check that the spray is good, as illustrated in the figure, in the test, the spray may be bolt shaped with a course mist and fuel may remain. This is phenomenon common in this type of inspection, and the nozzle function is normal.



EFLB018C

- Move nozzle tester handle at 4 to 6 strokes per second.
- 3. Confirm the spray is cone shaped with an angle of about 15°. This indicates a good condition.
- If the injection is not good, disassemble nozzle and replace nozzle tip or entire assembly.

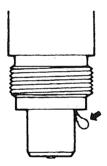
- 5. Confirm fuel does not drip after injection.
- 6. If dripping, disassemble injection nozzle and replace nozzle tip or entire assembly.



EFLB018D

NOZZLE OIL-SEAL

- Maintain internal nozzle pressure (pressure gauge indication value) with the nozzle tester at 10,000-11,000 kPa (100-110 kg/cm², 1,422-1,565 psi). Check for fuel leaking from nozzle tip in this condition.
- 2. If there is leakage, disassemble injection nozzle and replace nozzle tip or entire assembly.



EFLB018E

INJECTION PUMP-MECHANICAL

INSPECTION EFLB1010

FUEL INJECTION PUMP AND INJECTION NOZZLE ON VEHICLE

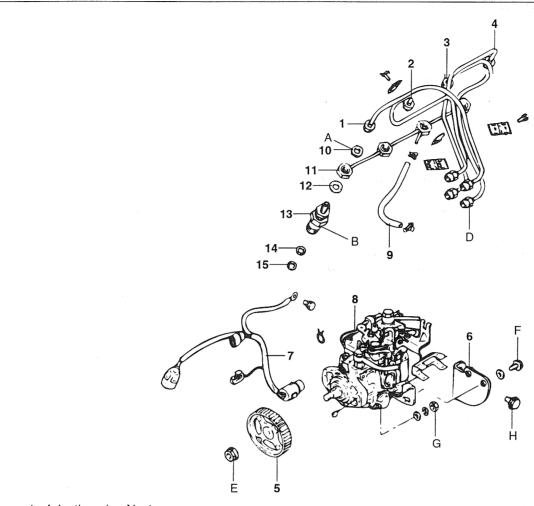
If found defective, replace the injection pump as assembly.

M NOTE

Limit the injection pump adjustment to the idle adjustment.

Description	Check procedure	Criteria
Idling run	Measure rpm	702-780 rpm
		Voluminous black smoke is unacceptable. (Smoke ref. value : within 50%)
Timer Operate accelerator lever to maintain an engine speed of approx. 1,500 rpm. In this condition, manually operate accelerator switch knob to see how engine speed changes.		Engine noise changes.
Fuel cut solenoid	Turn on and off ignition switch	Actuating sound (click) is heard.

COMPONENTS EFLB1030



- 1. Injection pipe No.1
- 2. Injection pipe No.2
- 3. Injection pipe No.3
- 4. Injection pipe No.4
- 5. Injection pump sprocket
- 6. Injection pump bracket
- 7. Injection pump harness assembly
- 8. Fuel injection pump
- 9. Fuel hose
- 10. Fuel return pipe nut
- 11. Fuel return pipe
- 12. Gasket
- 13. Injection nozzle
- 14. Holder gasket
- 15. Nozzle gasket

NOTE

Reverse the removal procedures to reinstall

	Nm	kg⋅m	lb·ft
Α	30-40	3.0-4.0	21-29
В	50-60	5.0-6.0	36-43
С	4-6	0.4-0.6	3-4
D	23-37	2.3-3.7	16-27
Ε	80-90	8.0-9.0	58-65
F	20-27	2.0-2.7	14-19
G	15-22	1.5-2.2	10-16
Н	18-25	1.8-2.5	13-18

EFLB103A

EFLB1050

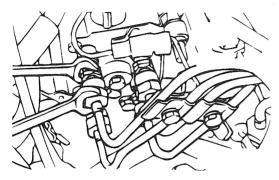
REMOVAL

INJECTION PIPE

When loosening the union nuts, hold delivery valve holder on fuel injection pump head or hexagon nut of fuel return pipe with a wrench to prevent it from rotating along with the union nut.

CAUTION

Because VE type injection pipe is different from DPC type injection pipe, be careful when you install. (VE type injection pipe is coated vellow)



FFI B105A

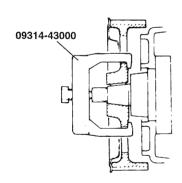
INJECTION PUMP SPROCKET

Use the special tool to remove the injection pump sprocket.



/ CAUTION

Jarring the sprocket may cause injection pump malfunction.



EFLB105B

FUEL INJECTION PUMP

When removing the fuel return pipe nut, hold the fuel return pipe by the hexagon nut with a wrench.



/!\ CAUTION

If you remove the hexagon nut without holding the fuel return pipe nut, the pipe might be damaged. So you must remove the hexagon nut with holding return pipe.

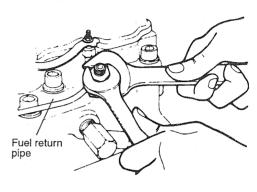
FUEL RETURN PIPE NUT

When removing the fuel return pipe nut, hold the fuel return pipe by the hexagon nut with a wrench.



/!\ CAUTION

If you remove the hexagon nut without holding the fuel return pipe nut, the pipe might be damaged. So you must remove the hexagon nut with holding return pipe.



EELB1050

INJECTION NOZZLE

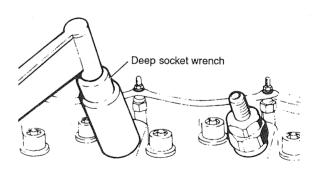
Using a deep socket wrench, loosen the injection nozzle and remove.



/!\ CAUTION

Write the number of the cylinder on the injection nozzle that has been removed.

Cover the opening with an appropriate cap to prevent entry of dust, water and foreign material into the fuel passage land combustion chamber.

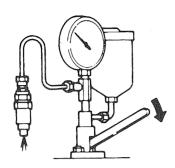


EFLB105D

INSPECTION EFLB1070

INJECTION NOZZLE

Make the following checks and, if defects are found, correct or replace.



AU007

CHECKING OF INJECTION PRESSURE

- 1. Mount nozzle on nozzle tester and operate tester handle to bleed the nozzle.
- Operate tester handle at a rate of approximately one stroke/sec and read the pressure gauge.
 If the pressure reading is below the service limit, disassemble nozzle and adjust it by replacing the interior shim so that the pressure reading will be within the standard value range.

Standard value:

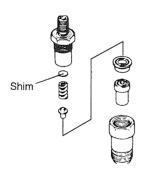
12,000-13,000 kPa (120-130 kg/cm²)

Service limit :

11,000 kPa (110 kg/cm²)



- Increase of 0.1 mm shim thickness will result in increase of pressure to 1,000 kPa (10 kg/cm²).
- 2. 20 different shims available ranging in thickness from 1.00-1.95 mm.



EFLB018B

CHECKING OF SPRAY CHARACTERISTICS

 Operate tester handle at a rate of approximately on stroke/sec. When the tester handle is moved, the nozzle should inject fuel producing a characteristic intermittent noise, and vibration of needle valve should be palpable at the tester handle.

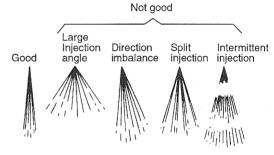


Fuel may remain at the nozzle tip after injection. This sometimes occurs when checking the nozzle but it does not mean that the nozzle is malfunctioning.

2. Spray condition

Only one shows the good spray condition, others being poor. Spray may be shaped like a rod with coarse fuel particles and the gas oil may be present at the orifice after injection. This is a symptom that occurs uniquely during this inspection and does note represent any abnormal condition of the nozzle.

3. Operate the tester handle 4 to 6 strokes per second. The shape of spray is conical with an angle of about 30 degree.



EFLB018C

NOZZLE OIL TIGHTENESS

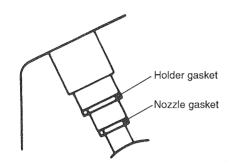
Operate the nozzle tester so that the interior pressure of the nozzle is maintained at a pressure gauge reading of 10,000-11,000 kPa (100-110 kg/cm²) and check nozzle tip for fuel leakage.

INSTALLATION

EFLB1090

NOZZLE GASKET AND HOLDER GASKET

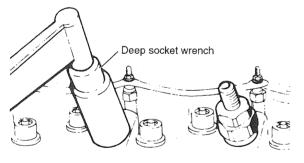
- Clean nozzle holder installation area of the cylinder 1. head.
- 2. Fit a new nozzle gasket and holder gasket into the nozzle holder hole in the cylinder head.



EFLB109A

INJECTION NOZZLE

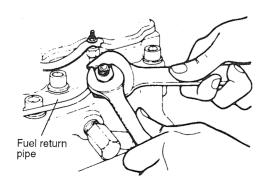
Install the injection nozzle in the cylinder head and tighten to the specified torque, using a deep socket wrench.



EFLB105D

FUEL RETURN PIPE NUT

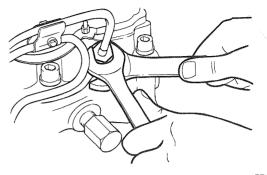
While holding the fuel return pipe by the hexagon nut with a wrench, tighten the fuel return pipe nut to the specified torque.



EFLB105C

INJECTION PIPE

When tightening the injection pipe nuts, hold the delivery valve holder or the fuel return pipe by the hexagon nut with a wrench in order to prevent it from rotating along with the



FEI R109R

ADJUSTMENT EFLB1110

- Loosen (but do not remove) two nuts and two bolts holding the injection pump.
- Loosen (but do not remove) the 4 nuts on the injection pump side which hold the injection pipes.



CAUTION

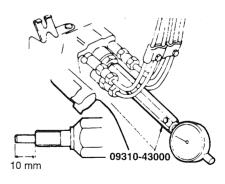
When loosening the nuts, hold the delivery valve holder with a wrench to prevent it from turning along with the nut.

Remove the plug from the rear of injection pump, and attach the special tool and dial indicator.



/!\ CAUTION

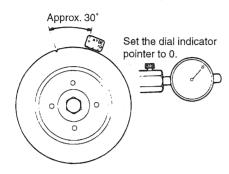
Before installing the adapter, make sure that the push rod projects 10mm. Push rod projection can be adjusted by means of the interior nut.



EFLB111A

4. Set the notch on the crank pulley at approximately 30° BTDC of the compression stroke of the No.1 cylinder. With the notch in this position, set the dial indicator at zero. Turn the crank pulley slightly in both directions to make sure that the dial indicator pointer does not deviate from the zero position.

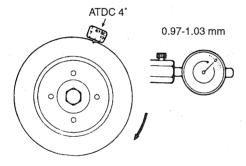
If the pointer deviates, the notch position is not correct. Readjust it to 30° BTDC.



EFLB111B

 Turn the crankshaft clockwise to bring the notch on the pulley to 4° ATDC, and check to be sure that the dial indicator reading is within the standard value range.

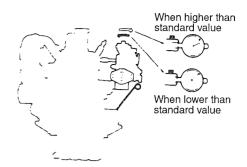
Standard value: 0.97-1.03 mm



EFLB111C

- If dial indicator reading is not within the standard value range, tilt the injection pump body to the right or left until the reading is within the standard value range. Then, temporarily tighten the injection pump nuts and bolts.
- 7. Repeat Steps 4 and 6 to make sure that the adjustment has been correctly performed.
- 8. Remove the dial indicator and the special tool.

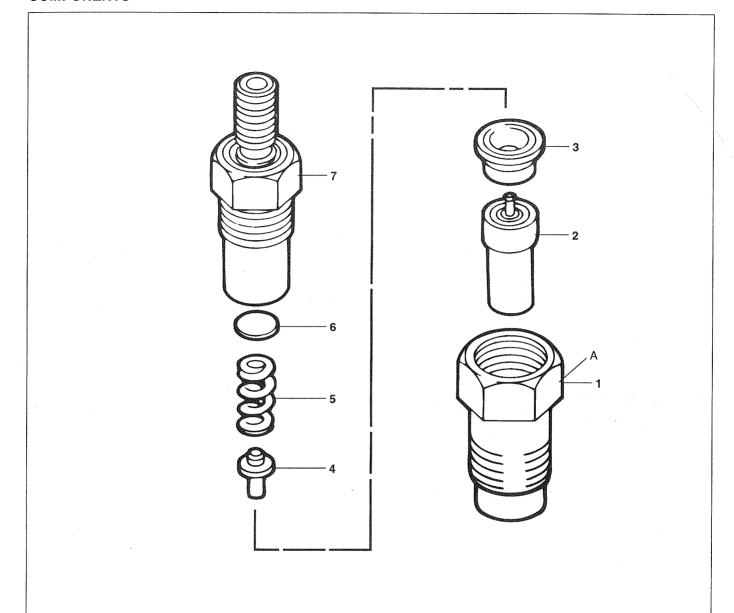
9. Tighten the bolts and nuts to the specified torque.



EFLB111D

INJECTION NOZZLE HOLDER EFLB1130

COMPONENTS



- 1. Retaining nut
- 2. Nozzle tip
- 3. Spacer
- 4. Retaining pin
- 5. Pressure spring
- 6. Shim
- 7. Nozzle holder body

NOTE

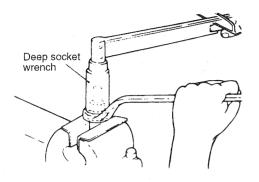
Reverse the disassembly procedures to reassembly.

	Nm	kg⋅m	lb·ft
Α	35-40	3.5-4.0	25-29

DISASSEMBLY EFLB1150

RETAINING NUT

- 1. Lightly clamp the retaining nut with a cushion bracket
- 2. Hold the retaining nut with a box wrench, and loosen the nozzle holder body using a deep socket wrench.



EFLB115A

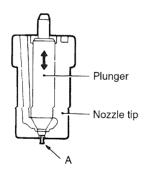
INSPECTION

NOZZLE TIP

 Check the nozzle tip for carbon deposits: Scrape off carbon deposits with a piece of wood land clean each part with patrol. After cleaning, keep parts submerged in diesel fuel. Take particular care to protect the nozzle tip needle valve from damage.

EFLB1170

- 2. While the nozzle tip is submerged in diesel fuel, check that the needle valve slides smoothly. If the needle valve does not slide smoothly, replace the nozzle tip. When replacing the nozzle tip, completely wash off the anticorrosive oil from the new nozzle tip with clean diesel fuel before using it.
- 3. Check plunger tip "A" for deformation and breakage. If "A" is damaged or broken replace it.



EFLB117A

DISTANCE PIECE

Check the surface in contact with the nozzle holder body by using minimum.

PRESSURE SPRING

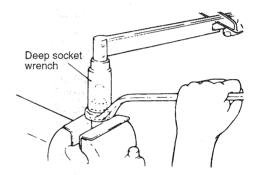
Check spring for weakness and breakage.

REASSEMBLY EFLB1190

RETAINING NUT

- 1. Finger-tighten the nozzle holder body.
- 2. Lightly clamp the retaining nut in a vise with cushion plates.
- 3. While holding the retaining nut with a box wrench, tighten the nozzle holder body to the specified torque with a deep socket wrench.

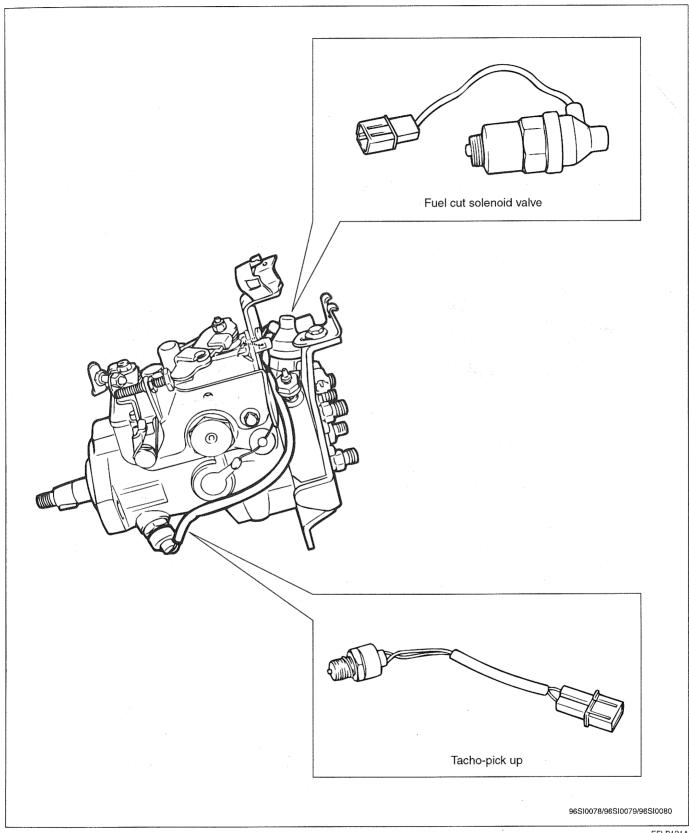
Tightening torque: 35-40 Nm (3.5-4.0 kgm)



EFLB115A

LUCAS INJECTION PUMP EFLB1210

COMPONENTS



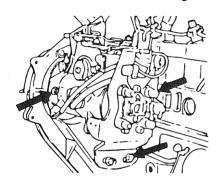
INSPECTION AND ADJUSTMENT EFLB12

INJECTION TIMING

- Preparation
 - Turn off the engine.
 - Set the timing belt in normal mounting condition.
 - Set the transmission in neutral position
- Untighten the upper installation nut and bolt of injection pump and also untighten the injection pump and also untighten the injection pipe halfway.



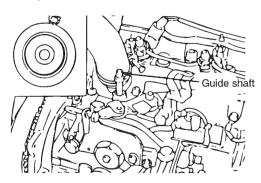
When untightening injection pipe nut, hold the valve holder with spanner so that the delivery valve holder shall not be turned together.



EFLB123A

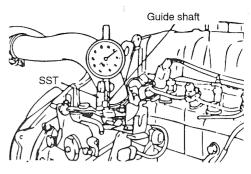
 Using box wrench, turn the crankshaft pulley to mate the V-groove at ATDC 4°.

Disconnect the timing check plug of injection pump, then insert the SST (Timing Measurement Guide Shaft).



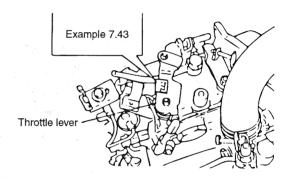
EFLB123B

 Set the dial gauge to zero (0) after dial gauge installation special tool and dial gauge are installed to timing check guide shaft.



EFLB123C

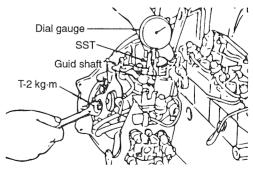
- 4. With the V-groove of crankshaft pulley being positioned at ATDC 4°by turning the crankshaft clockwise of 1 rotation, check to sure that the dial indicator reading is within the value indicated on throttle lever.
 - If dial indicator reading is not within the standard value range, tilt the injection pump body to the right or left until the reading is within the standard value range.



EFLB123D

5. Tighten the injection pump nut and bolt and injection pipe nut. Turn the crankshaft pulley counterclockwise more than 90° and then match to ATDC 4°by turning the crankshaft clockwise. And, check the dial gauge indicating value and adjusting value.

Limited Value: ± 0.05 mm



EFLB123E

 Remove the timing adjusting data and SST and Guide Shaft, then assemble the check plug using hexagon wrench.

INSPECTION AND ADJUSTMENT

EFLB1240

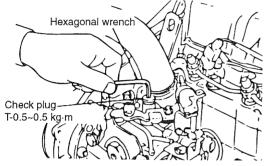
IDLE RPM

1. Set the vehicle in the following conditions before inspection and adjustment.

- Engine coolant temperature: 80-90

Lights, accessories : OFFTransmission position : Neutral

- 2. Check that the valve clearance is within standard value.
- 3. Check that the injection timing within standard value

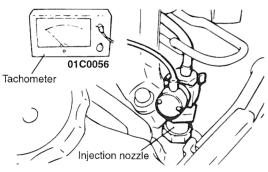


EFLB123F

4. Set the tachometer to injection nozzle or injection pipe.

NOTE

When setting tachometer to injection pipe, fully loosen the assembly clamp of pipe prior to set.



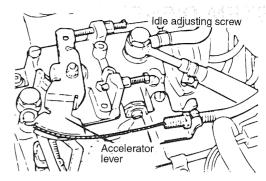
EFLB123G

5. Check that the idle rpm is with standard value.

Standard Value: 750 ± 50 rpm

6. If the idle rpm is over the standard value, loosen the lock nut of idle adjusting screw to the standard value.

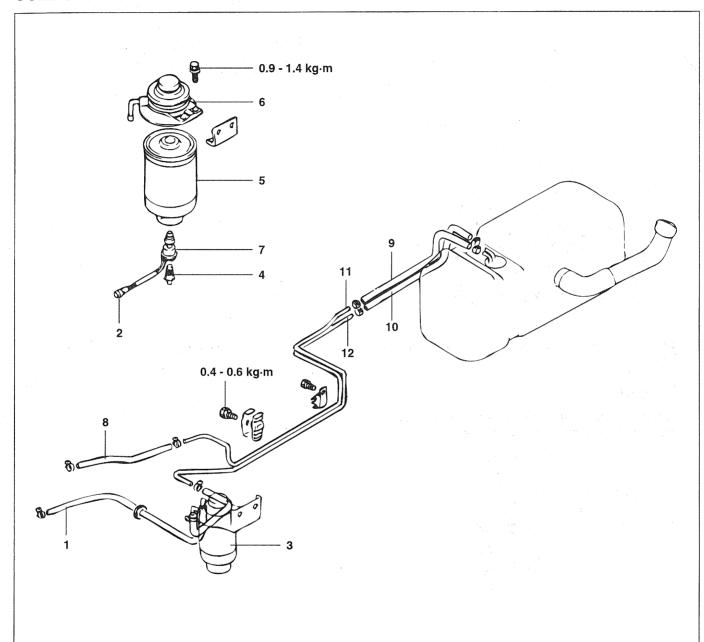
7. After adjustment, completely tighten the lock nut.



EFLB123H

FUEL DELIVERY SYSTEM-DIESEL

COMPONENTS EFLB2010



- 1. Fuel hose (main)
- 2. Water level sensor connector
- 3. Fuel filter
- 4. Drain plug
- 5. Fuel filter cartridge
- 6. Fuel filter pump

- 7. Water level sensor
- 8. Fuel return hose (main)
- 9. Fuel hose (connection)
- 10. Fuel return hose (connection)
- 11. Fuel main pipe
- 12. Fuel return pipe

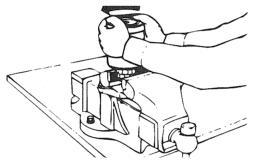
REMOVAL EFLB2030

1. Fuel filter cartridge
With holding fuel filter pump in vice, remove the fuel
filter cartridge using fuel filter wrench.



EFLB203A

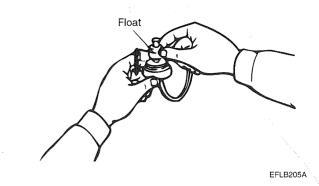
Water level sensor
 With holding water level sensor in vice, turn and remove the fuel filter cartridge with both hands.



EFLB203B

INSPECTION EFLB2050

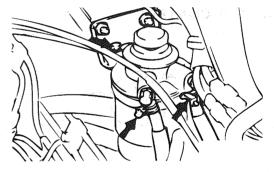
- 1. Normal inspection
 - Check hose and pipe for crack, cooking, blaze and clog.
 - 2) Check fuel filter for clog and damage.
- Operation of water level sensor
 Connect circuit tester to water level sensor connector.
 If the circuit is discontinuity or continuity when the float is moved up or down, the water level sensor is good.



REPLACEMENT EFLB2070

Fuel filter

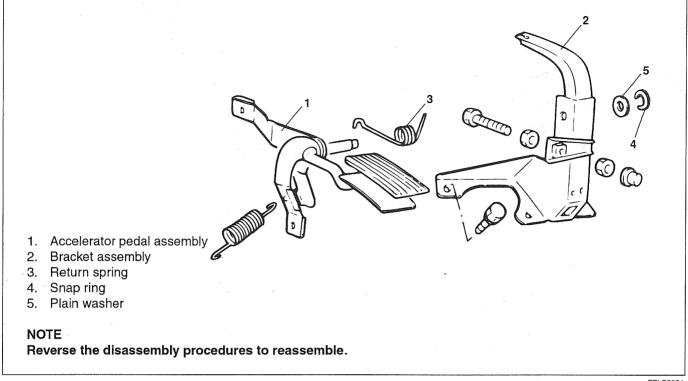
- Lower the fuel tank pressure by removing fuel filler cap.
- 2. Disconnect the connector of water level sensor.
- 3. Remove fuel filter cartridge from fuel filter pump body with hand.
- 4. Disconnect fuel lose(main) from fuel filter pump.
- 5. Remove fuel filter pump.
- 6. Replace fuel filter.



EFLB207A

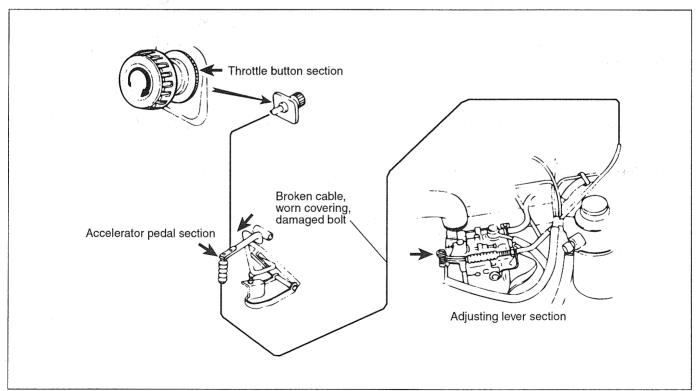
ENGINE CONTROL EFLB2090

ACCELERATOR PEDAL



EFLB209A

THROTTLE CONTROL EFLB2110



EFLB211A

REASSEMBLY

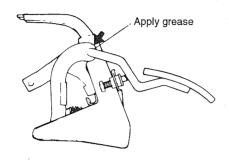
EFLB2130

ACCELERATOR PEDAL

Apply grease to accelerator pedal slide-contacting surface.

RETURN SPRING

Apply grease to inner surface.



EFLB213A

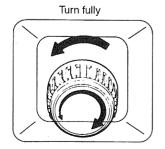
CABLE INSTALLATION AND **ADJUSTMENT** EFLB2150

THROTTLE CABLE

Turn the throttle button fully in the opposite direction to that of arrow indicated on the button. With the inner cable most protruded, install the accelerator pedal arm or accelerator lever. At that time, make sure that when the engine speed reaches the lowest speed, the inner cable is in the most protruded state.

NOTE

- Make this adjustment with the cab tilt and tilt handle down.
- 2. Route each cable so that it may not come in contact with the edge of sheet metal.
- 3. The routing radius of each cable shall 150 mm or more.



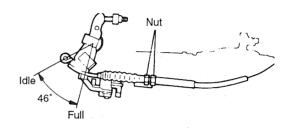
ACCELERATOR CONTROL CABLE

Turn the throttle button in the opposite direction to that of arrow indicated on the button and make sure that the accelerator pedal does not move. Install the accelerator control cable to the adjusting lever and secure the engine side of the cable by tightening the nut.



M NOTE

Do not move the engine side adjusting lever when the accelerator control cable is installed.

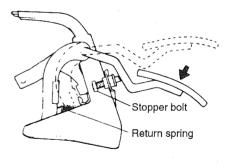


EELB215B

ACCELERATOR PEDAL STOPPER

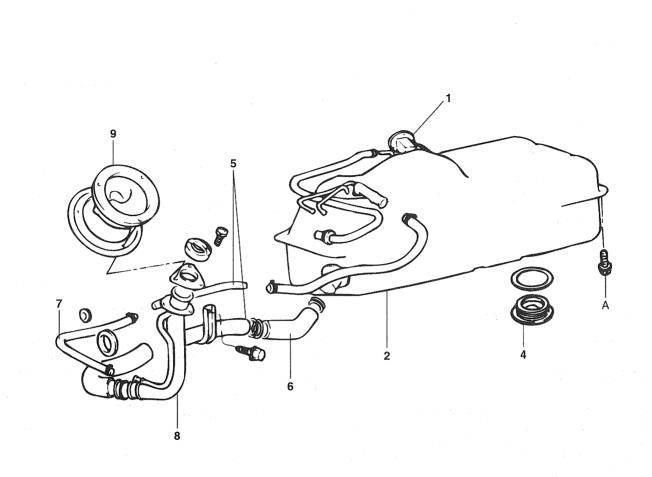
Make adjustment so that when the engine side adjusting lever is in contact with the fuel stopper, clearance between accelerator pedal and adjusting bolt is equal to dimension A.

Dimension A: 0 - 5 mm



AU004

COMPONENTS EFLB2170



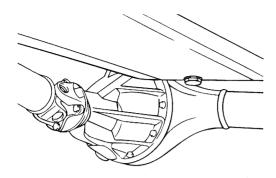
- Fuel gauge unit
 Breather hose
- 3. Fuel tank
- 4. Drain plug5. Filler and breather pipe assembly6. Filler hose
- 7. Breather hose
- 8. Filler neck
- 9. Filler neck cover

	Nm	kg⋅m	lb·ft
Α	15-22	1.5-2.2	11-16

EFLB217A

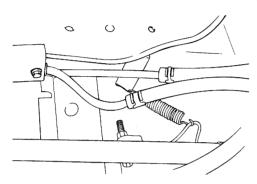
REMOVAL EFLB2190

1. Discharge fuel with the drain plug removed.



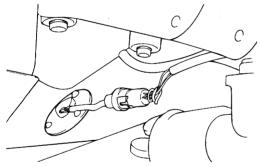
EFLB219A

2. Disconnect the fuel feed hose and return hose.



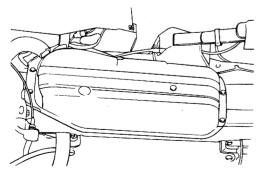
EFLB219B

3. Disconnect the fuel gauge unit connector.



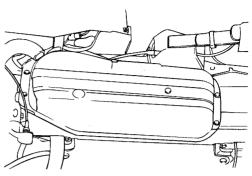
EFLB219C

4. Disconnect the breather hose and filler hose.



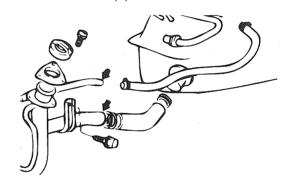
EFLB219D

Remove the fuel tank.
 Remove the fuel gauge unit if necessary.



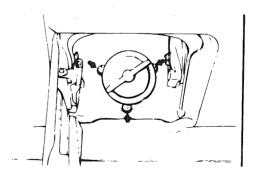
EFLB219D

- 6. Remove the filler neck and filler pipe by the following procedure.
 - 1) Disconnect the filler and breather hose from filler and breather pipes.



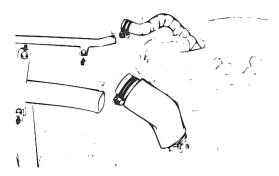
EFLB219E

Pull out the filler neck cover and then remove the filler neck.



EFLB219F

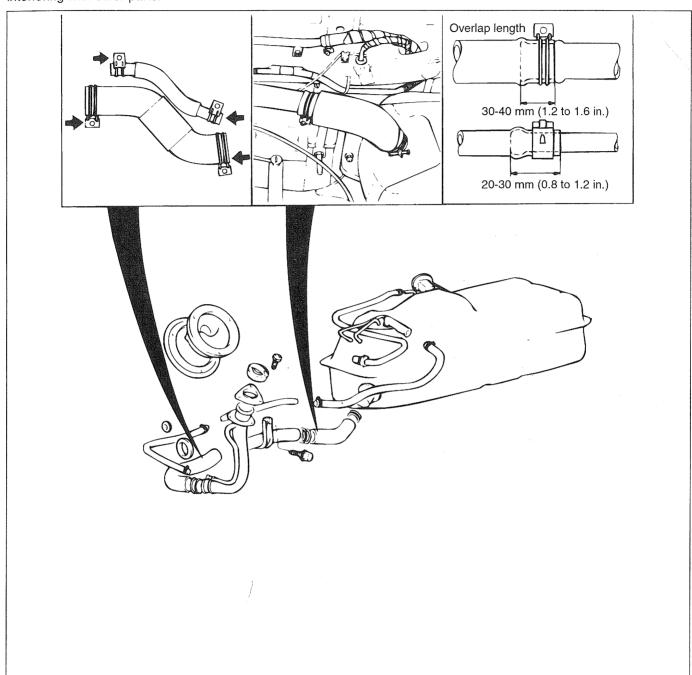
3) Remove the filler and breather pipe assembly.



EFLB219G

INSTALLATION EFLB2210

When hose are connected to pipes, make that specified overlap length are observed. Tighten hose clamps as position shown in the illustration to prevent the hoses from interfering with other parts.



EFLB221A

