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SAFETY PRECAUTIONS

CAUTION

Follow all safety recommendations and safe shop practices outlined in the front of this manual or those contained within this section.

Always use tools and equipment that are in good working order.

Use lifting and hoisting equipment capable of safely handling load.

Remember, that ultimately safety is your own personal responsibility.

APPLICABLE MODELS

The contents of this section apply to the following models and serial number ranges.

MODEL	SERIAL NUMBER RANGE
DX340LC	5980 and Up

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MODEL	SERIAL NUMBER RANGE
DX300LC	7440 and Up
DX340LC	5980 and Up
DX350LC	5980 and Up

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TOWING

Precautions When Towing

If any mistake is made in the method of selecting or inspecting the towing wire or in the method of towing, it may lead to serious personal injury. Always do the following:

- Always use the method of towing given in this Operation and Maintenance Manual. Do not use any other method.
- Use leather gloves when handling the wire rope.
- When carrying out the preparation work for towing with two or more workers, determine the signals to use and follow these signals correctly.
- Always fit the towing rope to the left and right hooks and secure in position.
- If the engine on the problem machine will not start or there is a failure in the brake system. always contact your *DOOSAN* distributor.
- Never go between the towing machine and the towed machine during the towing operation.
- It is dangerous to carry out towing on slopes, so select a place where the slope is gradual. If there is no place where the slope is gradual, carry out operations to reduce the angle of the slope before starting the towing operation.
- When towing a problem machine, always use a wire rope with a sufficient towing capacity.
- Do not use a frayed, kinked rope or a rope with any loss of diameter.
- Do not use the lightweight towing hook for towing another machine.

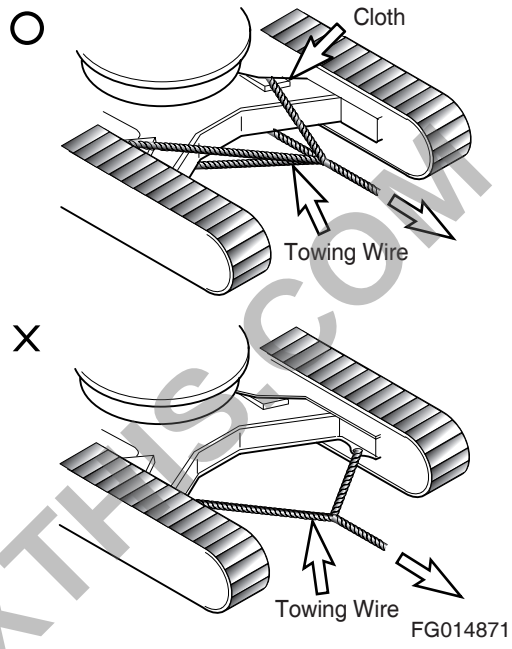
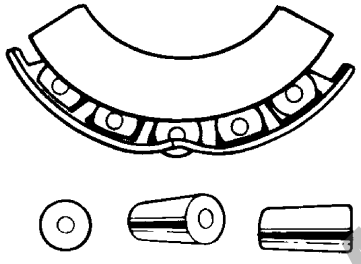


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Replace bearing.



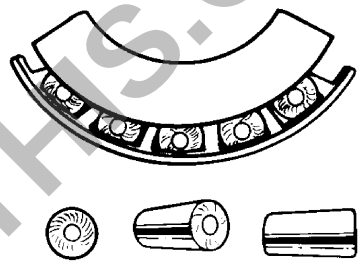
HASA470S

Figure 4

Galling

Metal smears on roller ends due to overheat, lubricant failure or overload.

Replace bearing - check seals and check for proper lubrication.



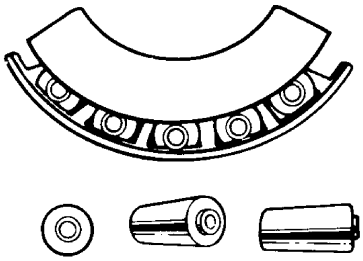
HASA480S

Figure 5

Abrasive Step Wear

Pattern on roller ends caused by fine abrasives.

Clean all parts and housings, check all parts and housings, check seals and bearings and replace if leaking, rough or noisy.



HASA490S

Figure 6

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APPLICABLE MODELS

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MODEL	SERIAL NUMBER RANGE
DX340LC	5980 and Up
DX350LC	5980 and Up

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DISASSEMBLY

NOTE: *Clean all exterior surfaces of the gearbox before beginning disassembly.*

1. Remove the drain plugs and allow all oil to drain from the gearbox.

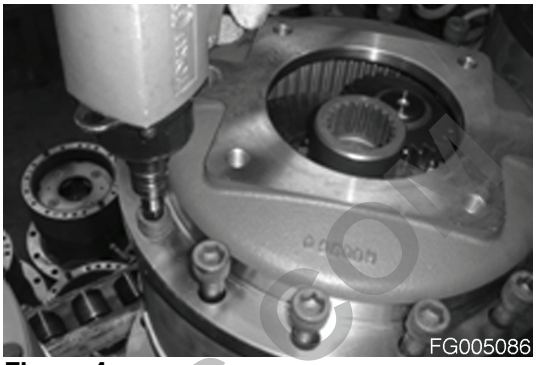


Figure 4

IMPORTANT

Use a clean, dry container (with at least 11 liters, or 2.9 gallons capacity) to catch gear oil. A clean container allows an evaluation to be made of the used oil. The presence or relative lack of metal wear shavings in the used oil or obvious deterioration or contamination of the oil can provide a useful indicator of the motor's general condition.

2. Remove the socket cap screws that hold the cover to the gearbox housing. Remove the cover from the housing.
3. Remove the sun gear.
4. Thread an eye bolt into each of the three shafts that support the 1st level planetary gears. Loop lifting straps through the eye bolts and lift the planetary gears and the first planetary mounting plate out of the gearbox.
5. Slide sun gear off the shaft and out of the gearbox.

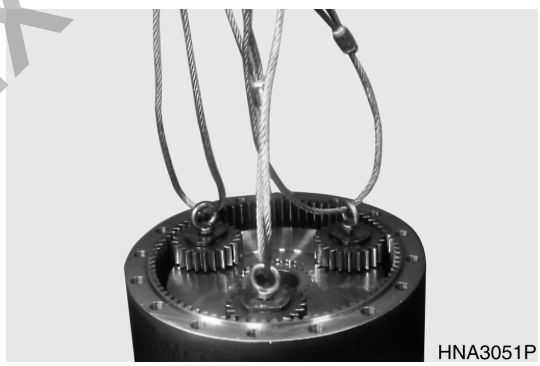


Figure 5

6. Thread an eye bolt into each of the three shafts that support the planetary gears. Loop lifting straps through the eye bolts and lift the gear housing assembly out of the gearbox.

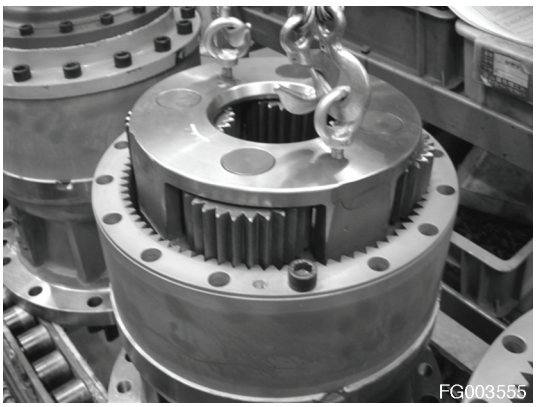


Figure 6

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SAFETY PRECAUTIONS

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DX340LC	5980 and Up
DX350LC	5980 and Up

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OPERATION OF WORKING COMPONENTS

Boom Operating Circuit

The boom operating circuit includes the right and left main

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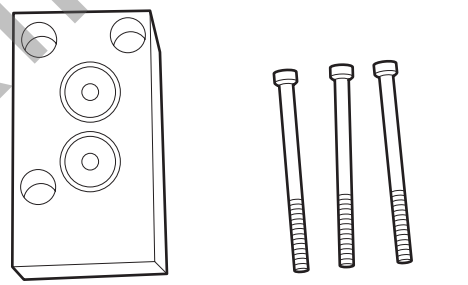
DISASSEMBLY

General Cautions

1. Prepare for a clean place for disassembly. Place a rubber sheet on place to prevent any damage to parts.
2. Wash out dust and foreign substance in motor and deceleration assembly.
3. Take care not to damage connecting parts and ways of O-ring, oil seal, seal surface, gear, pin, and surface of bearings.
4. Numbers in parentheses indicate those on sectional plans of motor.

Disassembly of drive shaft subassembly

1. Remove the wrench bolt (32) and take away the time delay valve assembly (31) from the body(1).



FG000682

Figure 10

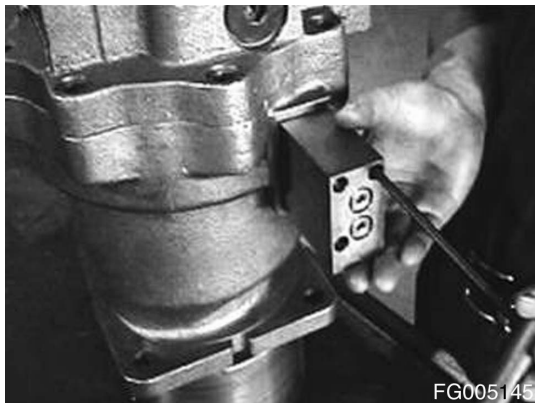
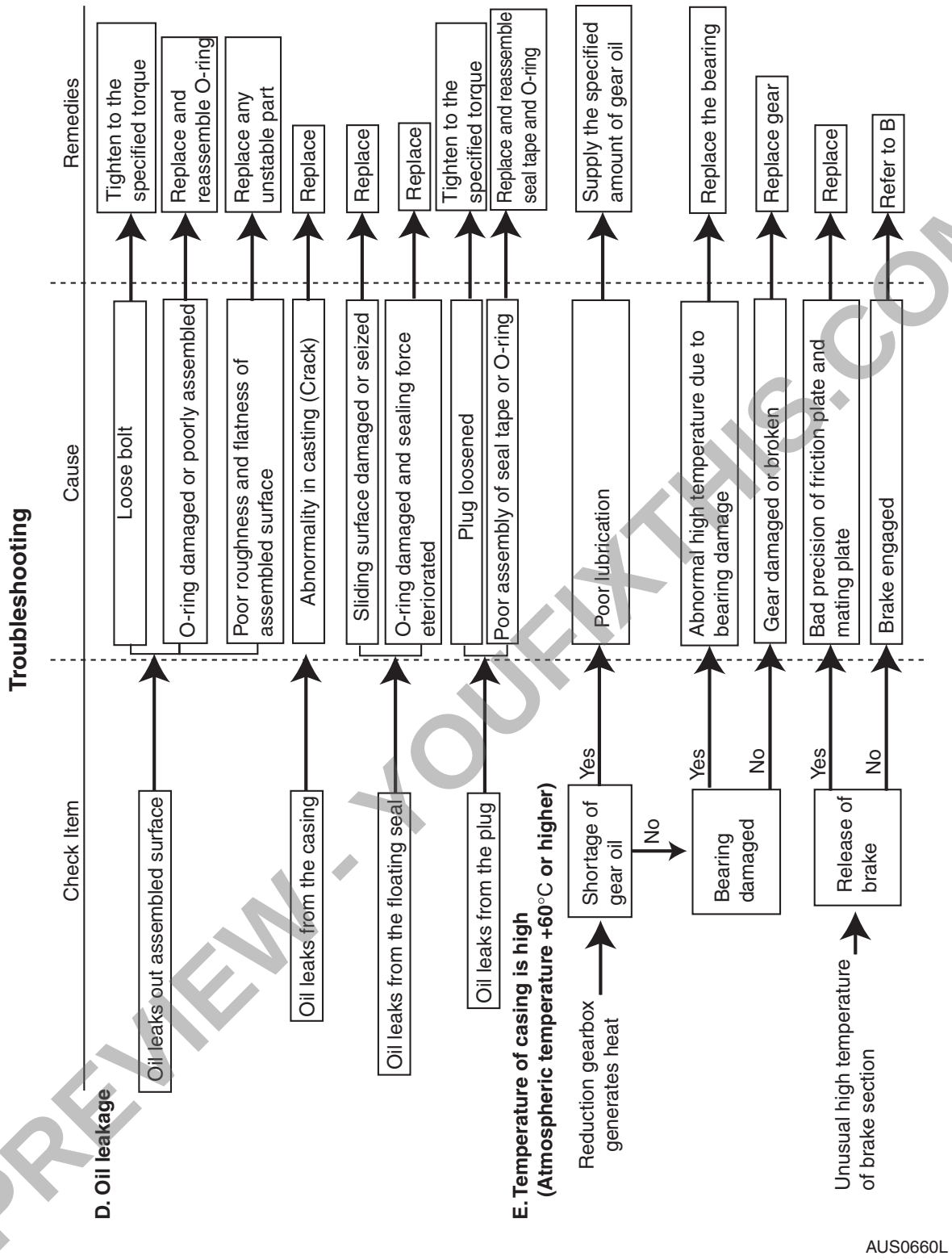


Figure 11

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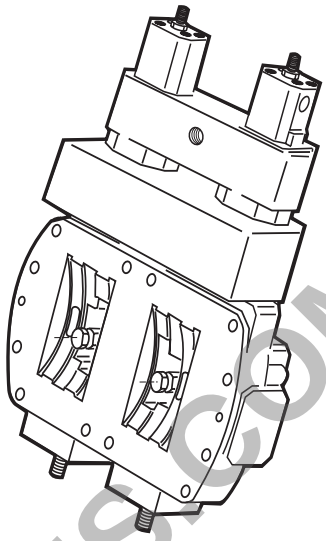
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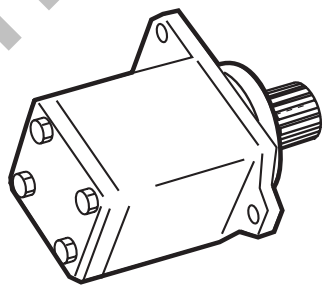
8. Control, pre-adjusted.



ASS0140L

Figure 15

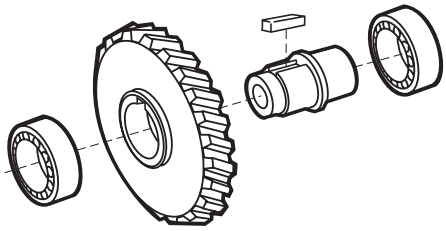
9. Gear pump, complete.



ASS0150L

Figure 16

10. Intermediate gear.



ASS0160L

Figure 17

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SAFETY PRECAUTIONS

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DX340LC	5980 and Up
DX350LC	5980 and Up

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Operation

1. The overload relief valve is between cylinder port (HP) and low-pressure oil passage (LP). Pressurized oil at cylinder port (HP), flows through an orifice in piston (C), to fill internal cavity (G). Due to the difference in area between (A and B) on which the hydraulic pressure acts, main poppet (D) seats on sleeve (K).

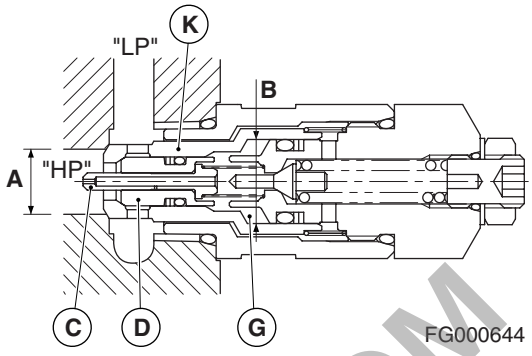


Figure 27

2. When pressure in cylinder port (HP) rises and exceeds the relief valve setting, pilot poppet (E) opens. Pressurized oil then flows through pilot poppet (E) into low-pressure oil passage (LP), passing through hole (H).

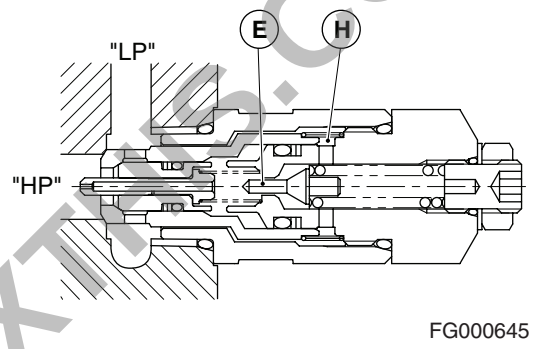


Figure 28

3. As pilot poppet (E) opens, pressurized oil flows through orifice (I) so that pressure on back of piston (C) lowers to move piston (C). As a result, piston (C) seats on pilot poppet (E).

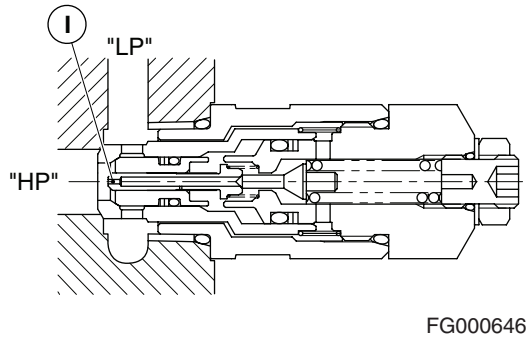


Figure 29

4. Pressurized oil in passage (HP) flows through orifice (F) in piston (C) so that pressure on back of main poppet (D) moves main poppet (D). Pressurized oil then flows into passage (HP) and directly into passage (LP).

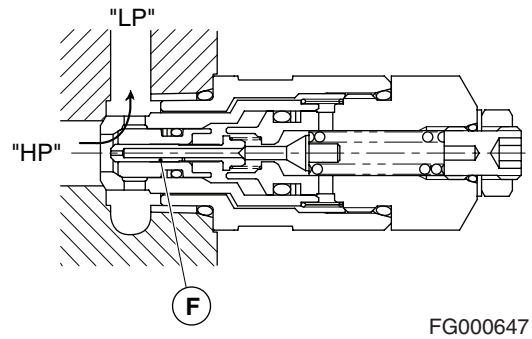


Figure 30

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DISASSEMBLY

1. Remove lead wire from bushing (29).

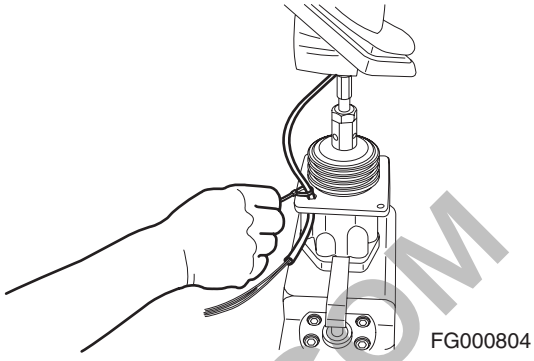


Figure 3

2. Remove lever assembly from case (1).

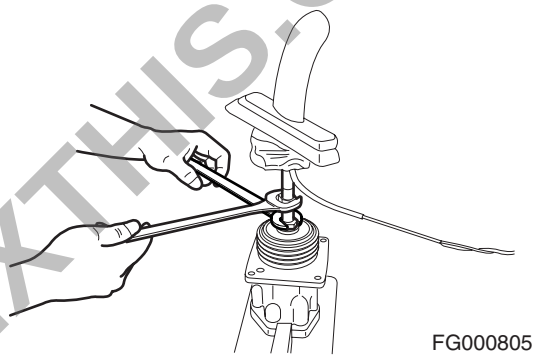


Figure 4

3. Remove hex nut (23) and swash plate (22) from case.

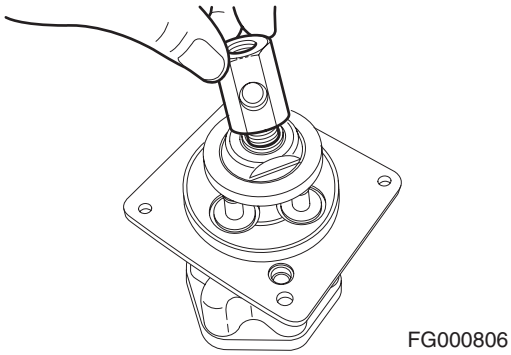


Figure 5

4. Remove joint assembly (21) from case.

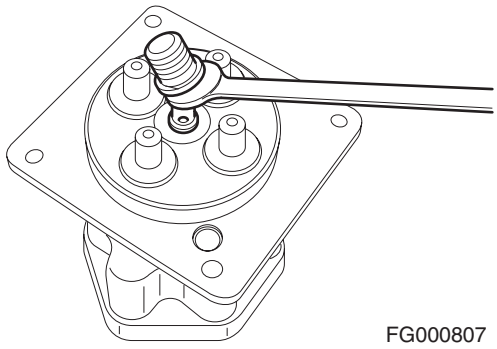


Figure 6

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Assembly Diagram and Tools Required

Figure 2, shows assembly torques recommended for components in the solenoid valve. Designated tools and torques should be used.

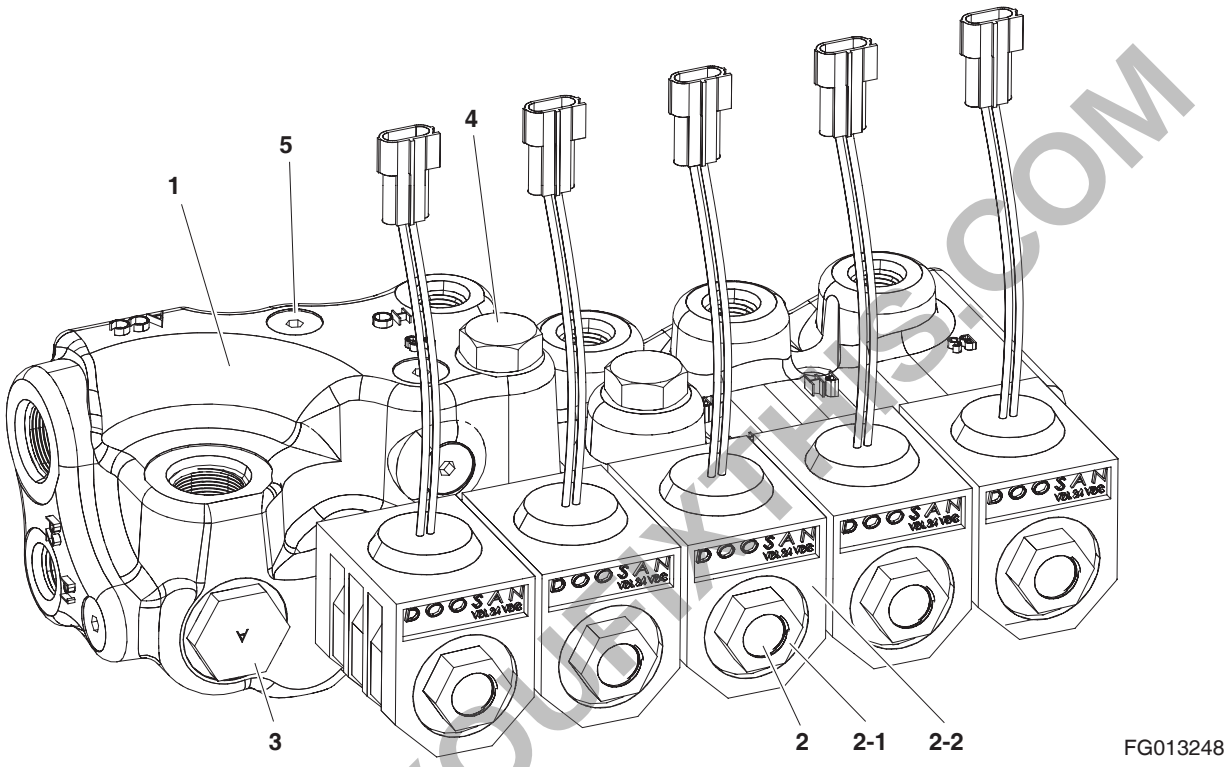


Figure 2

Reference Number	Description	Sizes	Torques (kg•cm)	Tools
2	Solenoid Valve	UNF7/8 - 14"	200 ±25 kg•cm (170 ±20 in lb)	Hex torque wrench/1," socket
2-1	Coil Locknut	UNF1/2 - 20"	60 ±2 kg•cm (50 ±2 in lb)	Hex torque wrench/19 mm, socket
3	Check Valve	UNF7/8 - 14"	400 ±2 kg•cm (350 ±2 in lb)	Hex torque wrench/1," socket
4	PT 1/4" Plug	UNF1/4 - 19"	250 ±25 kg•cm (220 ±20 in lb)	Hex torque wrench/19 mm, socket
5	PT 1/8" Plug Bolt	UNF1/8 - 28"	280 kg•cm (240 in lb)	Hex torque wrench/5 mm, wrench socket

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ENGINE STOP

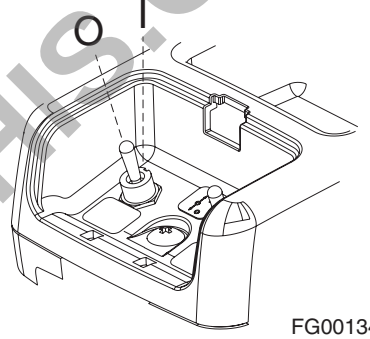
When starter switch (5) is turned "ON" the engine controller (8) is activated. The engine controller monitors and controls the engine including the injector solenoid (9). It controls the fuel deliver rate and the injection timing for each cylinder.

NOTE: *There is an individual injector solenoid (9) for each of the six cylinders. Only one soleniod is shown in Figure 7.*

When starter switch (5) is turned "OFF," the engine controller stops suppling power to the injector solenoid (9). This stops fuel from being injexted into the engine cylinder, thus stopping the engine.

In the event that the engine can be shut down using the starter switch (5), an emergency stop switch (10) is provided to shut down engine. To activate the emergancy stop switch, move it to the "I" (EMERGENCY STOP) position.

The emergency stop switch (10) is in its "O" (OFF) position during normal operation. The switch must be moved and held in the "I" (EMERGENCY STOP) position until the engine stops. When released it will automatically move back to the "O" (OFF) position.



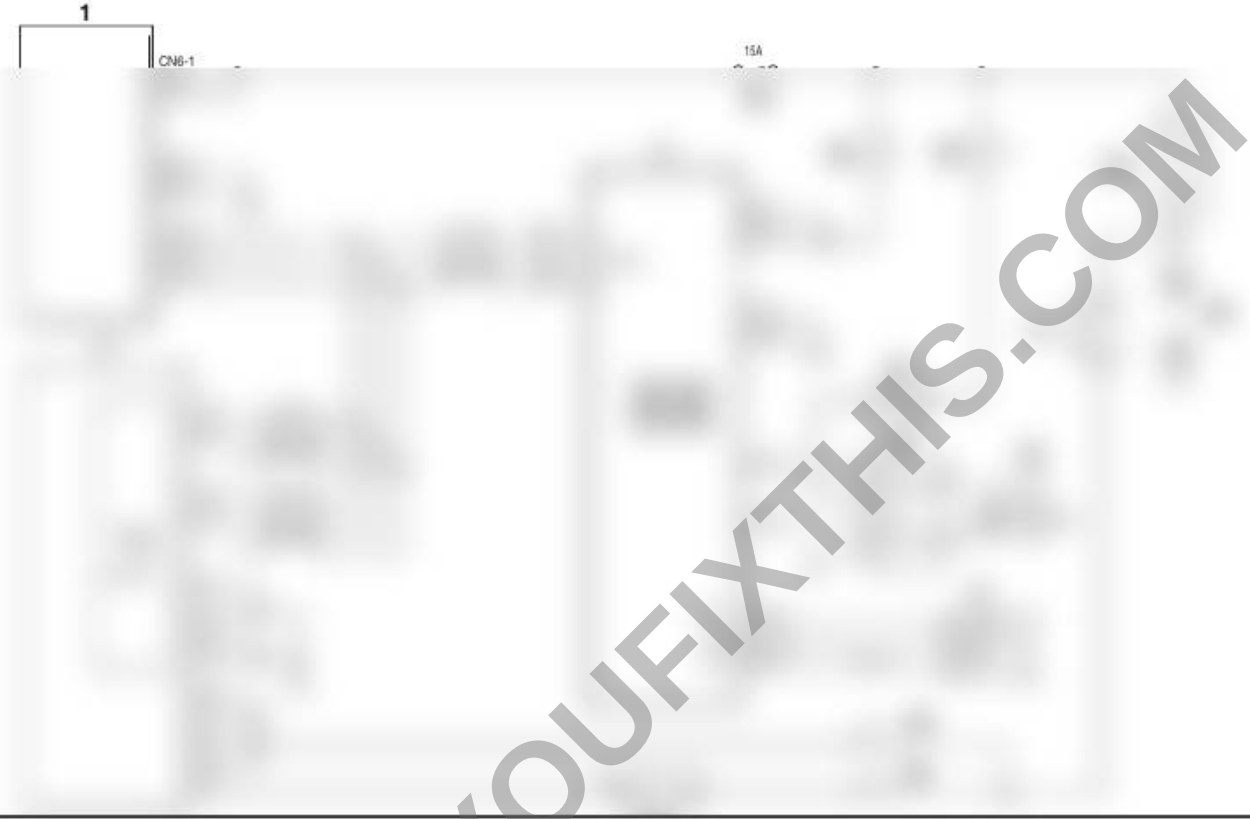
FG001344

Figure 6 ENGINE EMERGENCY STOP SWITCH

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POWER / ECONOMY MODE
CONTROL - CIRCUIT DIAGRAM



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Refrigerant Recovery

Reference Number	Description
1	To Compressor
2	Low-pressure Side
3	High-pressure Side
4	From Receiver
5	Refrigerant Recovery Tank

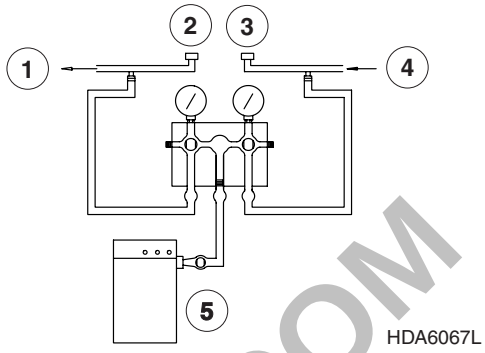


Figure 97

1. Attach the manifold gauges and the refrigerant recovery unit to the refrigerant lines as shown.

   NOTE: *Be careful not to switch the connections for the low and high-pressure valves.*

2. Open the high-pressure valve slowly to release the refrigerant to the recovery unit.

   NOTE: *Open the valve slowly, while checking to see that refrigerant is not leaking out.*

3. When the manifold gauge dial falls below 3.5 kg/cm^2 (50 psi), slowly open the low-pressure valve.

4. Open both the high and low-pressure valves slowly until the manifold gauge dials indicates 0 kg/cm^2 (0 psi).

Vacuuming Refrigerant System

Reference Number	Description
1	To Compressor
2	Low-pressure Side
3	High-pressure Side
4	From Receiver
5	Vacuum Pump

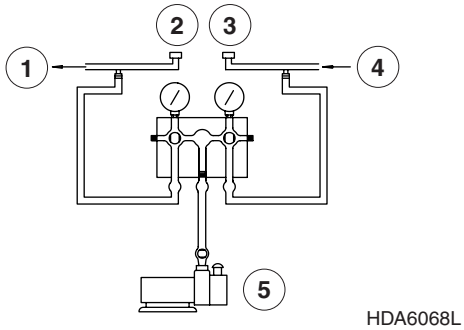


Figure 98

1. Vacuuming Procedure

   NOTE: *When the A/C system has been exposed to the air, it must be vacuumed out. Perform vacuum process for 30 minutes for complete moisture and air evacuation.*

   A. Attach the manifold gauges and vacuum pump to the refrigerant system as shown.

   B. Turn on the vacuum pump and open both valves.

   C. When the low-pressure gauge shows approximately 710 mmHg, close both valves and turn off vacuum pump.

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