

GENERAL DESCRIPTION

Theory of Operation

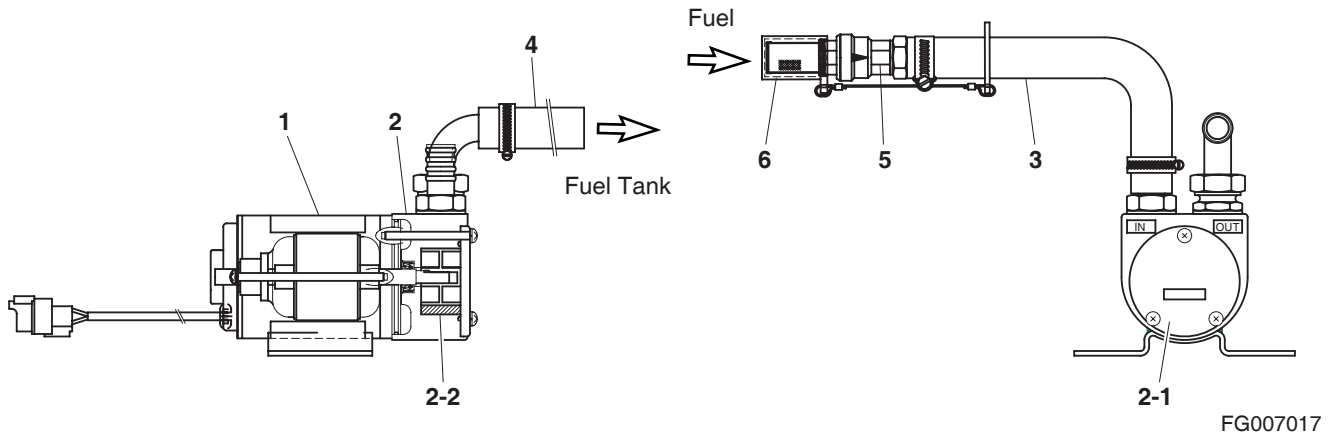


Figure 1

Reference Number	Description
1	Motor
2	Pump
2-1	Pump Cover
2-2	Rotor and Vane

Reference Number	Description
3	Inlet Hose
4	Outlet Hose
5	Check Valve
6	Strainer Cap

The fuel pump consists of a motor, pump, switch, and hose assembly.

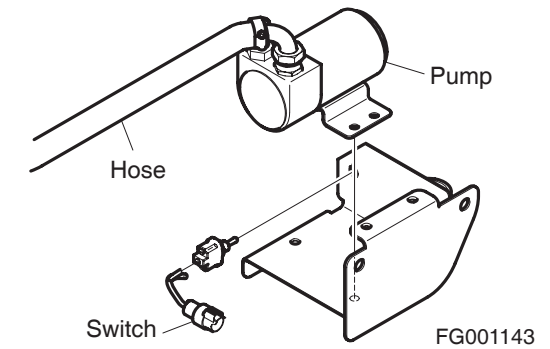


Figure 2

TROUBLESHOOTING

On some pumps the ON-OFF switch is installed separately at a remote location.

A thermal limiter, built into the motor, will automatically shut off power if motor is overheating to protect it from being damaged.

NOTE: *OPEN TEMP: $150 \pm 5^{\circ}\text{C}$ ($302 \pm 41^{\circ}\text{F}$). After circuit is automatically shut off due to overheating the pump will stop running. When temperature drops below 143°C (289°F) the circuit will reactivate allowing the pump to restart.*

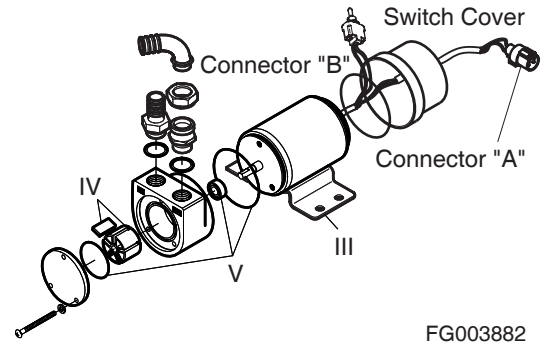


Figure 3 WITH TOGGLE SWITCH

Check resistance at connectors "A." If reading is zero, or very close to zero, the motor is bad and must be replaced.

On units equipped with a toggle switch, check the resistance through the toggle switch, while the switch is in the "ON" position. If continuity is not present, the switch is bad. Be sure to check resistance through the motor.

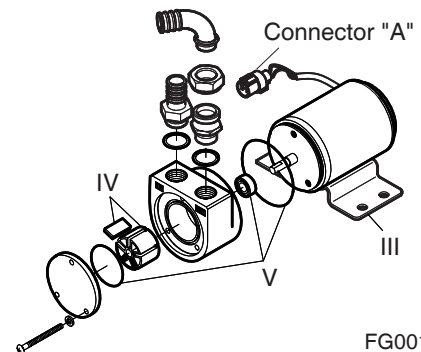


Figure 4 WITHOUT TOGGLE SWITCH

REPLACEMENT OF ROTOR AND VANE

If dirt or other foreign materials enter the pump during operation, it can become lodged between the rotor and/or vanes and generate heat which can cause the pump damage.

Remove the pump cover and check the rotor and vane. If any pump parts or components become lost, damaged or inoperable, immediately replace them with new ones.

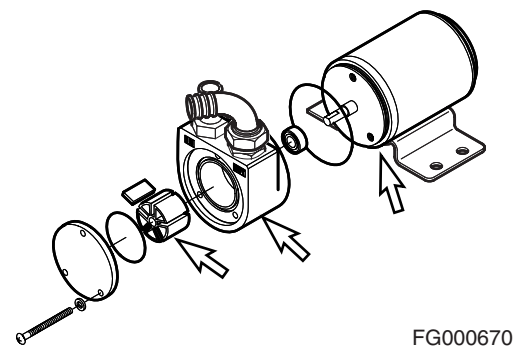
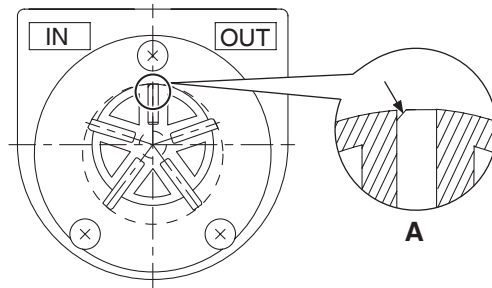


Figure 5 WITHOUT TOGGLE SWITCH

Insert vane, with the circled edge of vane facing in the counterclockwise direction. (Detail A)

Insert a new O-ring during reassembly of pump cover.



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Figure 6

REPLACEMENT OF REAR COVER

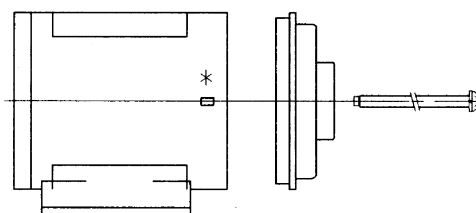
Brush assembly and a thermal limiter are installed in the rear cover. If you find any damage, replace them with new ones.

Remove the switch cover and screw (M5 x L95) from the rear cover.

Remove cover.

At reassembly of rear cover, widen the space of the brush and insert it to the armature. Then fit the hole of screw in the housing.

Be careful when installing the screw. The cover screw may be attracted by the motor magnet.



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Figure 7

REPLACEMENT OF ARMATURE

You can replace only the armature in case motor was damaged by a short circuit.

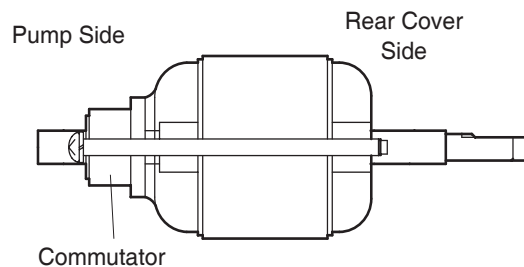
Remove the switch cover and rear cover, than remove the armature from the housing.

Remove the pump cover and remove the rotor and vane.

Insert a new armature into the housing.

Refer to "Replacement of Rear Cover" on page 1-9, for installation of the rear cover.

Fit the rotor into the shaft flute of the armature. Insert vane to the rotor being careful of the direction. Refer to "Replacement of Rotor and Vane" on page 1-8.



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Figure 8

Swing Bearing

Edition 1

MEMO

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Swing Bearing

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MEMO

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
DX190W	5001 and Up

SWING BEARING MAINTENANCE

Operating Recommendation

The service life of the swing bearing may be extended if a conscious, daily effort is made to equalize usage over both ends of the excavator. If the excavator is used in the same operating configuration day in and day out (for example, with the travel motors always under the counterweight, or with the attachment over one side of the machine more than the other), the bearing's service life could be reduced. Taking a few minutes in the middle of each work shift to reposition the excavator, to work the opposite end of the bearing, will provide a payoff in terms of more even, gradual rate of wear and extended service life.

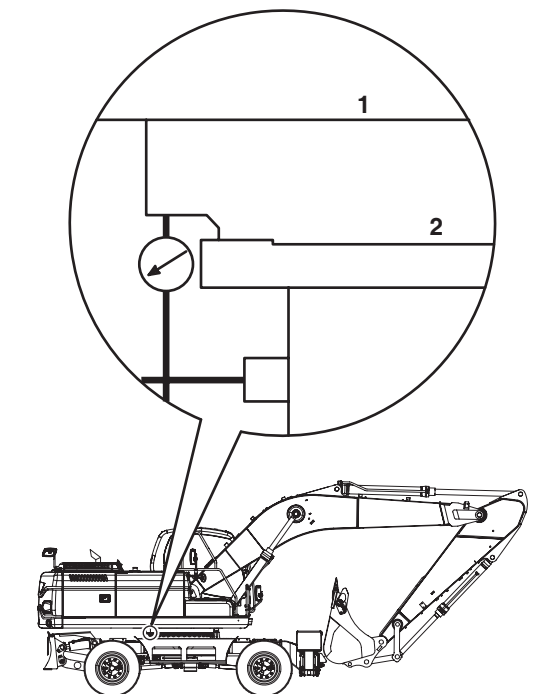
Measuring Swing Bearing Axial Play

Periodic, regular checks of bearing displacement should be made at least twice a year. Use a dial indicator. Push the attachment against the ground to lift the excavator off the ground and take measurements at 4 points, 90° apart, around the circumference of the bearing (Figure 1).

Record and keep all measurements. Play in the bearing should increase minimally from one inspection to the next. Eventually, however, as the bearing begins to approach the limit of its service life, clearance increases become much more pronounced and the actual measured play in the bearing could exceed twice the value that was measured when the machine was new.

Measuring Bearing Lateral Play

When vertical checks are made, the side to side play in the bearing can be checked by fully retracting the arm and bucket cylinders and extending the tip of the bucket as far forward as it will go. With the excavator parked on a flat, level surface and the bucket tip just off the ground, push against the bucket sideways to take up all of the lateral clearance in the bearing. (Less than 100 lb of force should be required to move the bucket over all the way.) Check lateral play in both directions and record the values. When the bearing is beginning to approach the end of its service life, measured lateral clearance should start to show larger and larger increases.



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Figure 1