LS-218H SHOP MANUAL CONTENTS WET0004-00

Section-4 Hydraulic System

Section-5 Hydraulic Unit

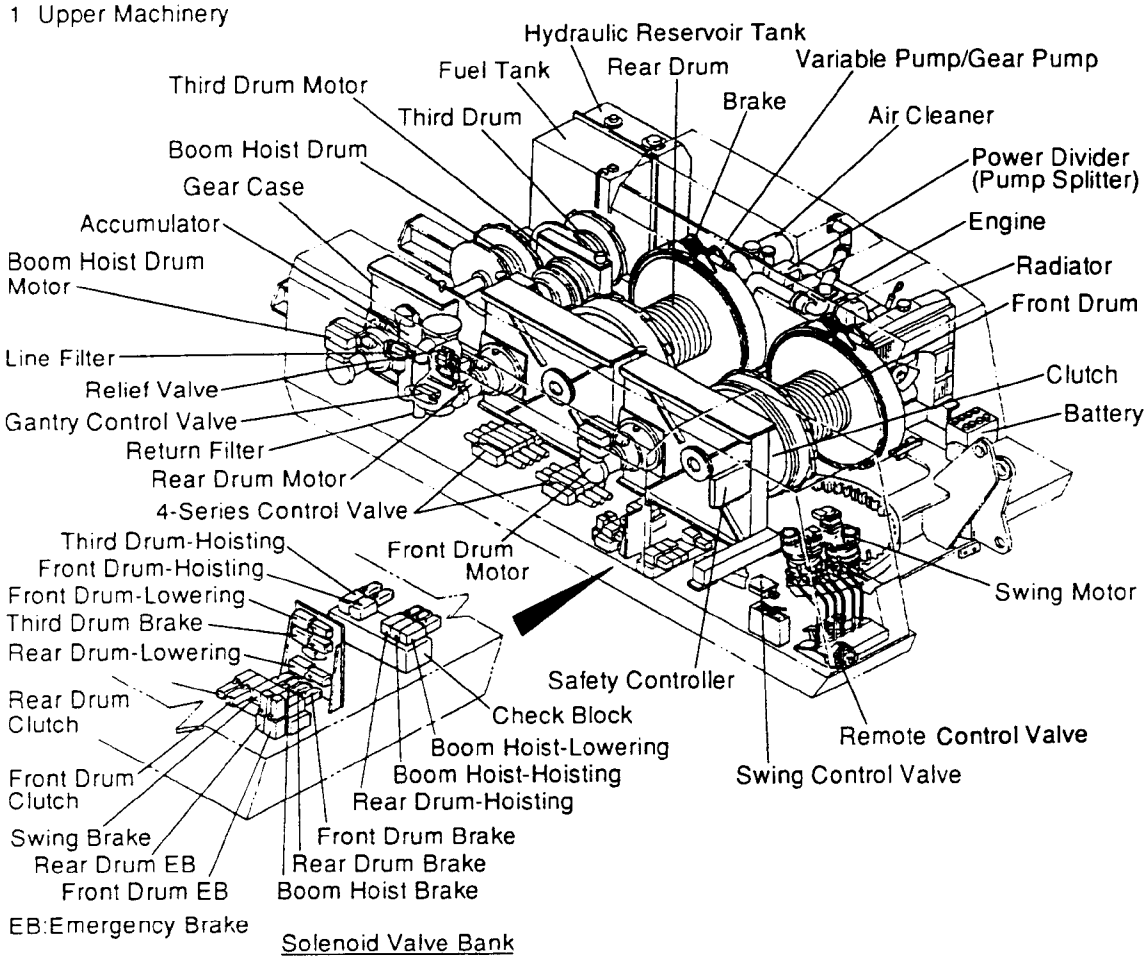
Section-6 Gantry

Section-7 Crane attachment

Section-13 Electrical System

Section-14 Tightening Torque Table

1 Upper Machinery



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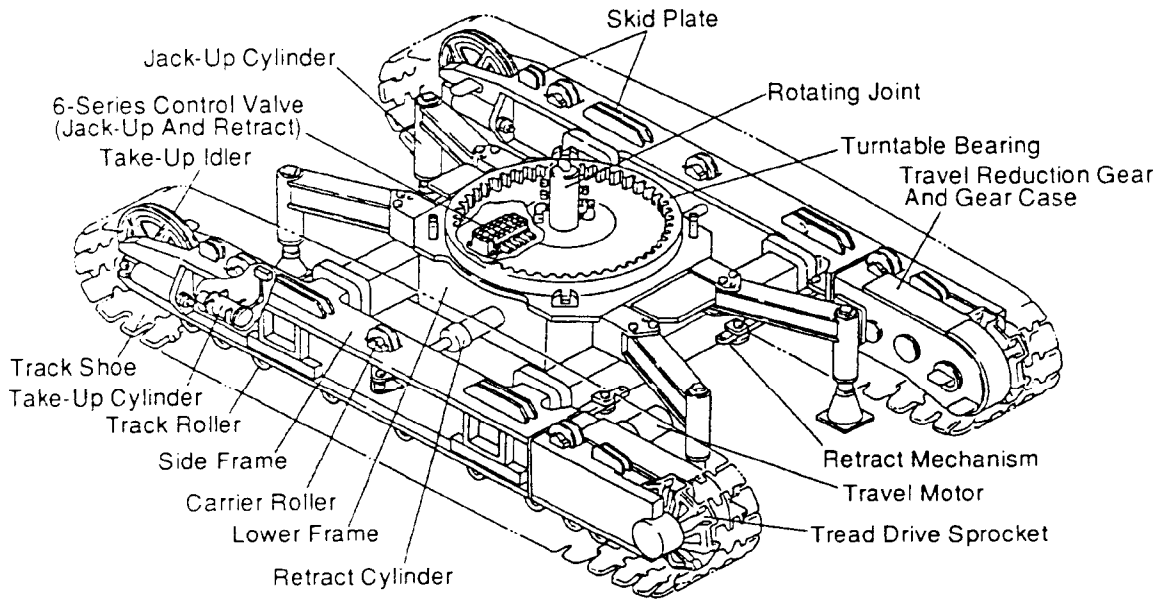
2 Lower Machinery



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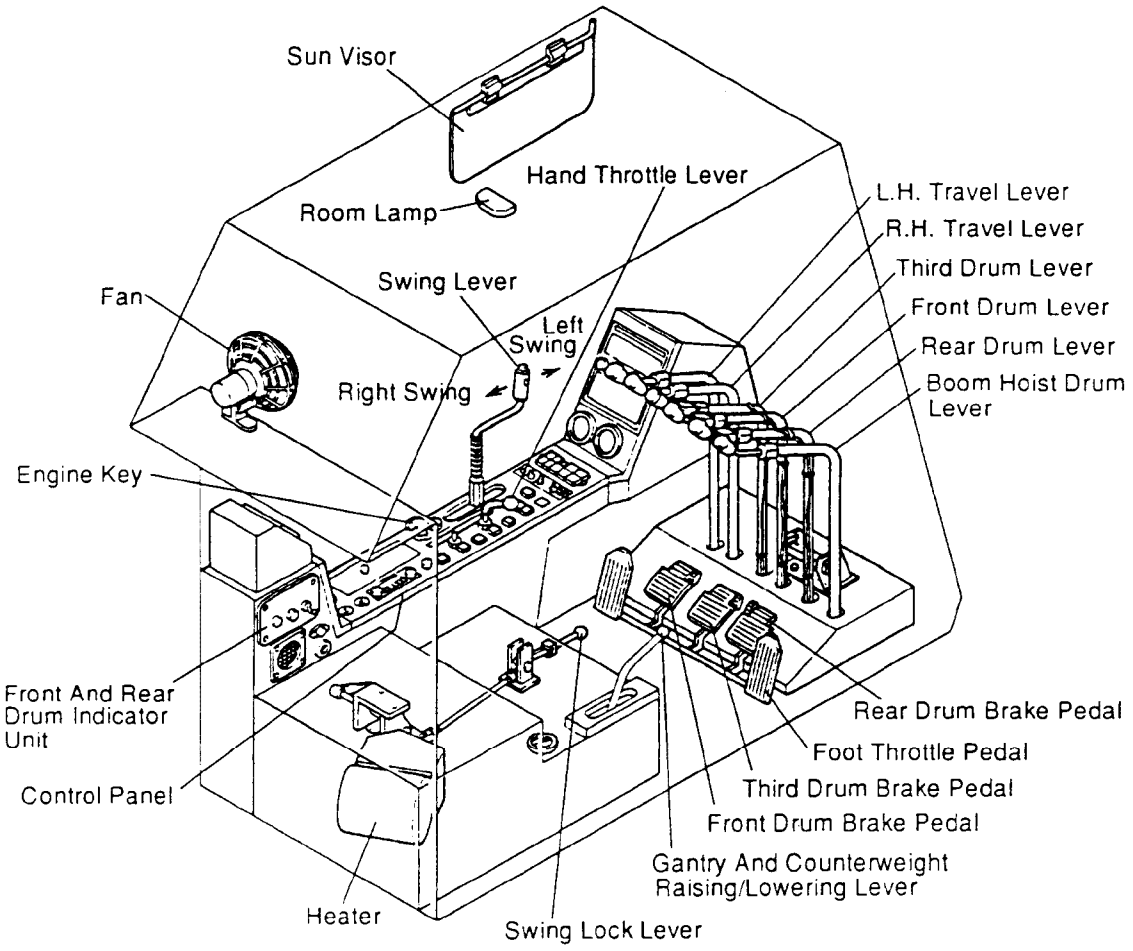
3 Components In Operator's Cab



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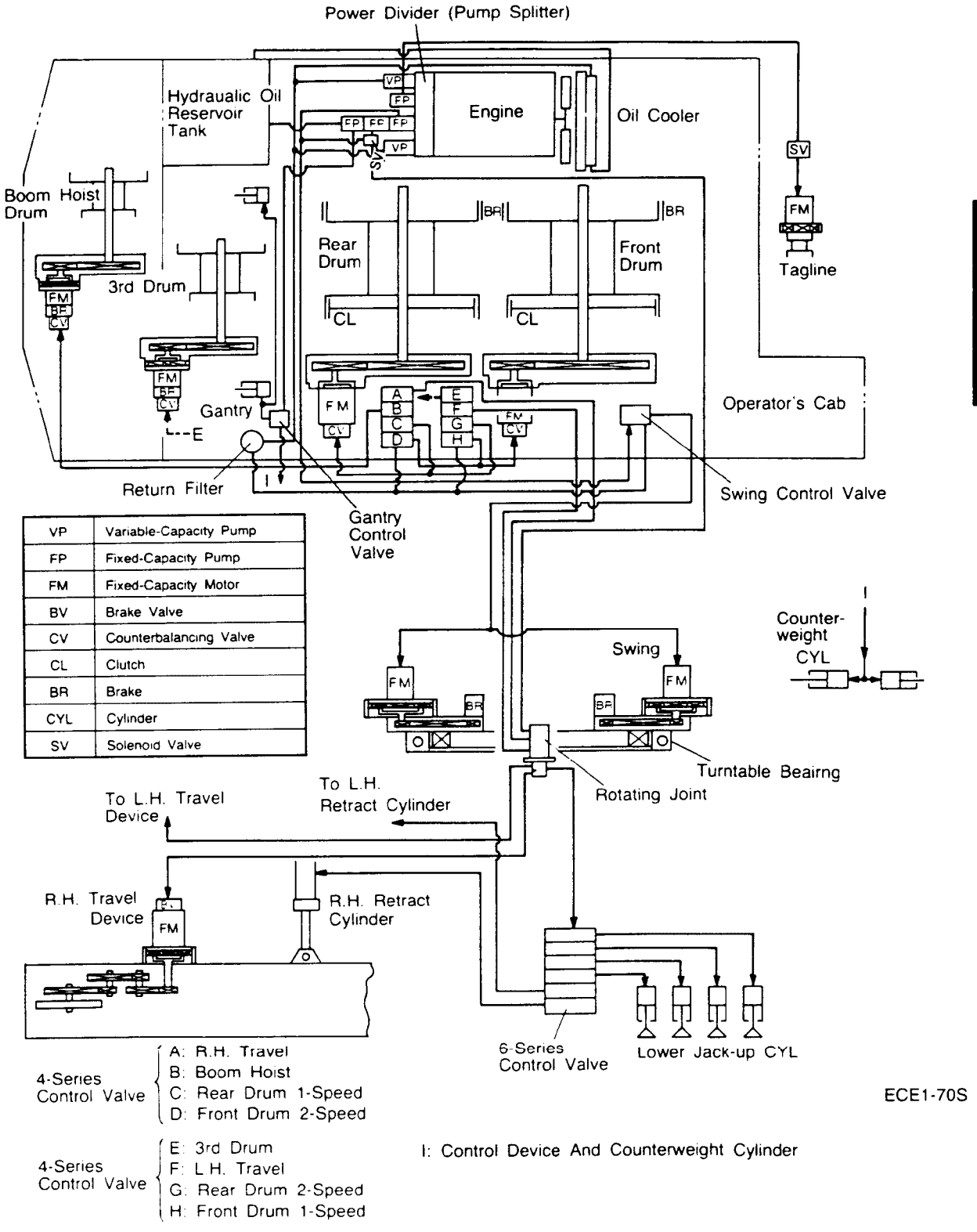
Note: For more details of operating levers, pedals and switches on the panel, refer to the operator's manual.

Power from the engine is separated by the power divider (pump splitter) to drive hydraulic pumps. The rotating energy of engine power is also converted into fluid energy (the flow of high pressure hydraulic oil) which is directed by the control valves, through hydraulic lines, to various actuators.

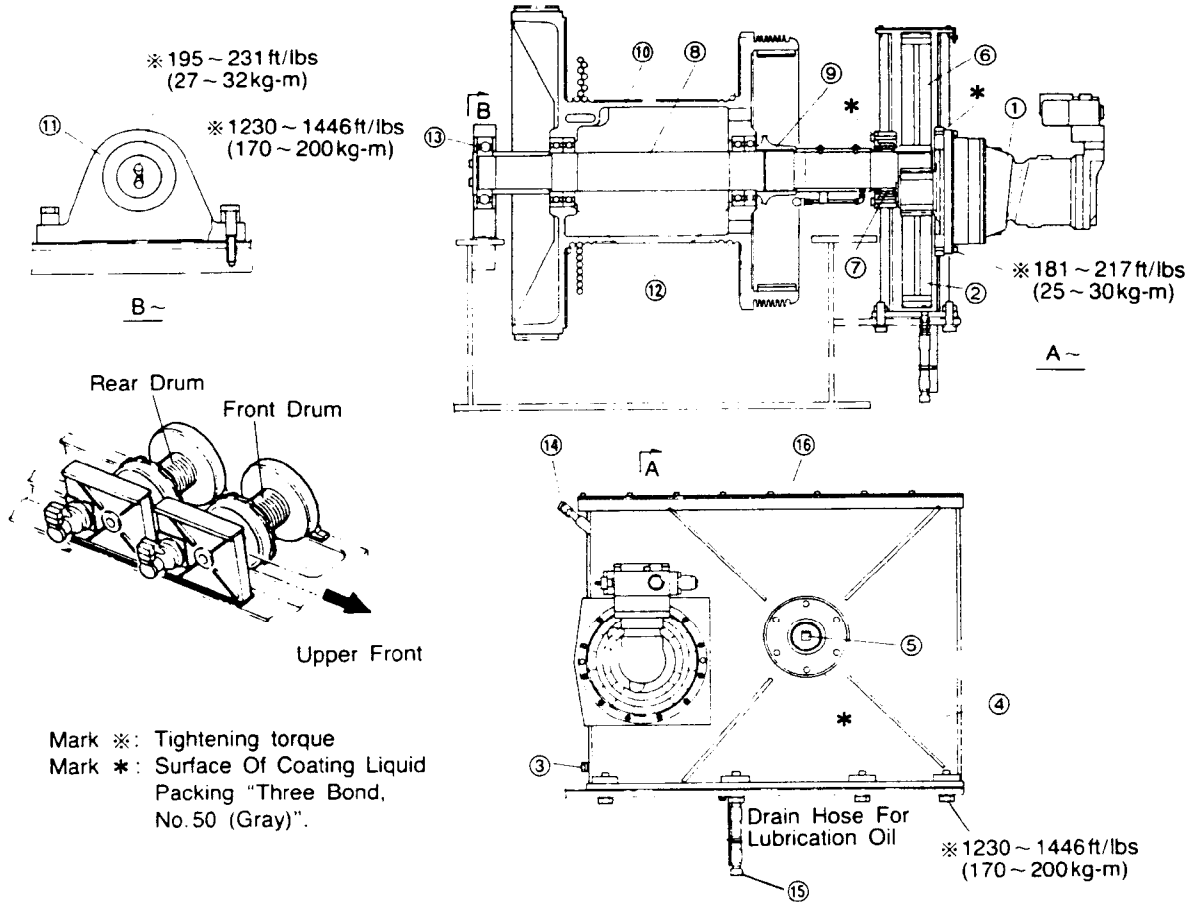


VP	Variable-Capacity Pump
FP	Fixed-Capacity Pump
FM	Fixed-Capacity Motor
BV	Brake Valve
CV	Counterbalancing Valve
CL	Clutch
BR	Brake
CYL	Cylinder
SV	Solenoid Valve

The hydraulic motor drives the drum via reduction gears. Separate motors and reduction gears are used for each drum.

1 Structure

The drum shaft mainly consists of a reduction gear case ④, drum shaft ⑧, clutch ⑨ and drum ⑩. The reduction gear ⑥ and drum shaft ⑧ are supported through bearings ⑦, ⑫ and ⑬. These are also clamped on the revolving frame with high tensile strength bolts. The clutch assembly is splined to the drum shaft. The drum is designed to rotate freely on the drum shaft with bearings ⑫. Spur gear lubrication oil is stored in the gear case, being an oil bath type.



Mark ※: Tightening torque
Mark ✱: Surface Of Coating Liquid Packing "Three Bond, No.50 (Gray)".

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① Hydraulic Motor	⑥ Reduction Gear	⑪ Bearing Holder	⑯ Inspection Cover
② Pinion	⑦ Bearing	⑫ Bearing	
③ Level Plug	⑧ Drum Shaft	⑬ Bearing	
④ Reduction Gear Case	⑨ Clutch	⑭ Filler Cap	
⑤ Rotating Joint	⑩ Drum	⑮ Drain Cap	

Automatic brake and free fall operation

This unit possesses two modes of operation. One is an automatic brake function and the other is a free fall function. The automatic brake function constantly activates the clutch and thus the drum shaft and drum are connected. When the control lever is moved either hoist or lower, the brake is disengaged to rotate the drum. In the case of operation under free fall function, the automatic brake is disengaged at all time, and the control lever moved either to hoist or lower will activate the clutch to connect the drum shaft and drum. Thus the drum is rotated. When the control lever is placed in neutral, the drum becomes free with the clutch disengaged. Therefore, the braking operation by the brake pedal is required. For more details, refer to the operator's manual.

2 Inspection And Adjustment

Hydraulic motor Reduction gear case Rotating joint	Check for oil leakage.
All moving portions	Listen for any unusual noises and smell with load.
Pinion, Gear, Drum	Check for excessive wear, cracks and damage of teeth.
Reduction gear case	Check for lubricant oil level. With the check plug removed, the oil should be to the level of the plug hole. If below that level, add oil.
Mounting portions	Check for looseness and missing parts. If loosened or missing, replace and/or retighten with specified torque as required.

Note: After inspecting the above, disassemble or repair, as necessary.

2.1 Oil inspection of reduction gear case

1) Remove the level plug ③ and check the oil level. If the level is at the lower part of the level plug ③ hole, the oil is in proper quantity. If the oil level is too low, supply gear oil from the oil filler port.

- When oil overflows from the level plug ③ hole, the oil stands at the standard level.

Note: For proper oils, refer to the operator's manual.

2.2 Oil replacement of reduction gear case

Change oil yearly or 1000 hours of operations, which ever comes first.

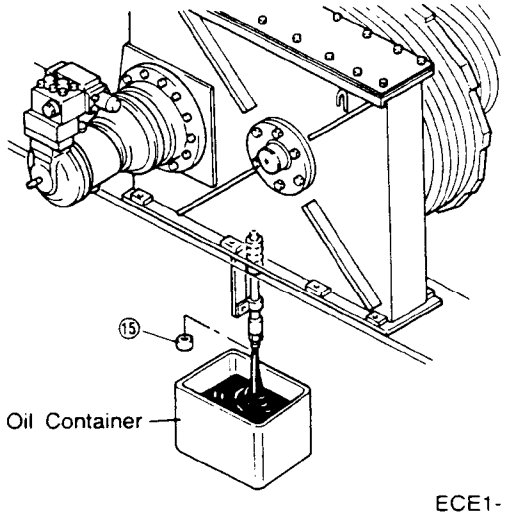
1) Park the machine on level ground.
2) Engage the swing lock and shutdown the engine.
3) Wipe off the dirt from the drain cap ⑮, filler cap ⑭ and level plug ③ to prevent foreign material from entering.
4) Place a clean oil container under the drain cap ⑮.
5) Remove the drain cap ⑮, filler cap ⑭, level plug ③ and drain the oil.
   Lubricant capacity: 6.2gal. (23.4lit.)

Note: Check foreign materials for the drained oil. If many foreign materials are found, check the case internal.

6) Screw the drain plug ⑮.
7) Fill the gear case with lubricant through the filler port up to the level at the lower part of the level plug ③.

Note: For proper lubricants, refer to the operator's manual.

8) Install the level plug ③ and the filler cap ⑭.



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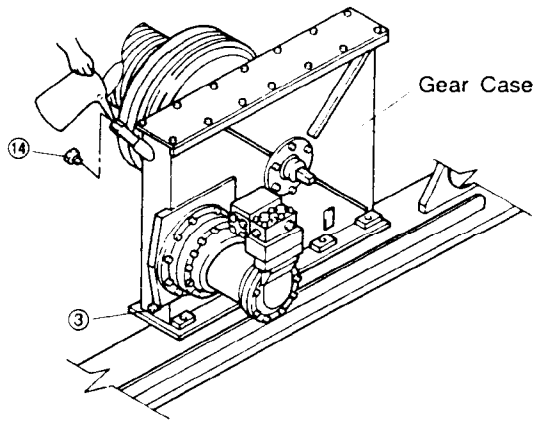

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