

# 308 HYLAB 5 SERVICE MANUAL CONTENTS

0501R0

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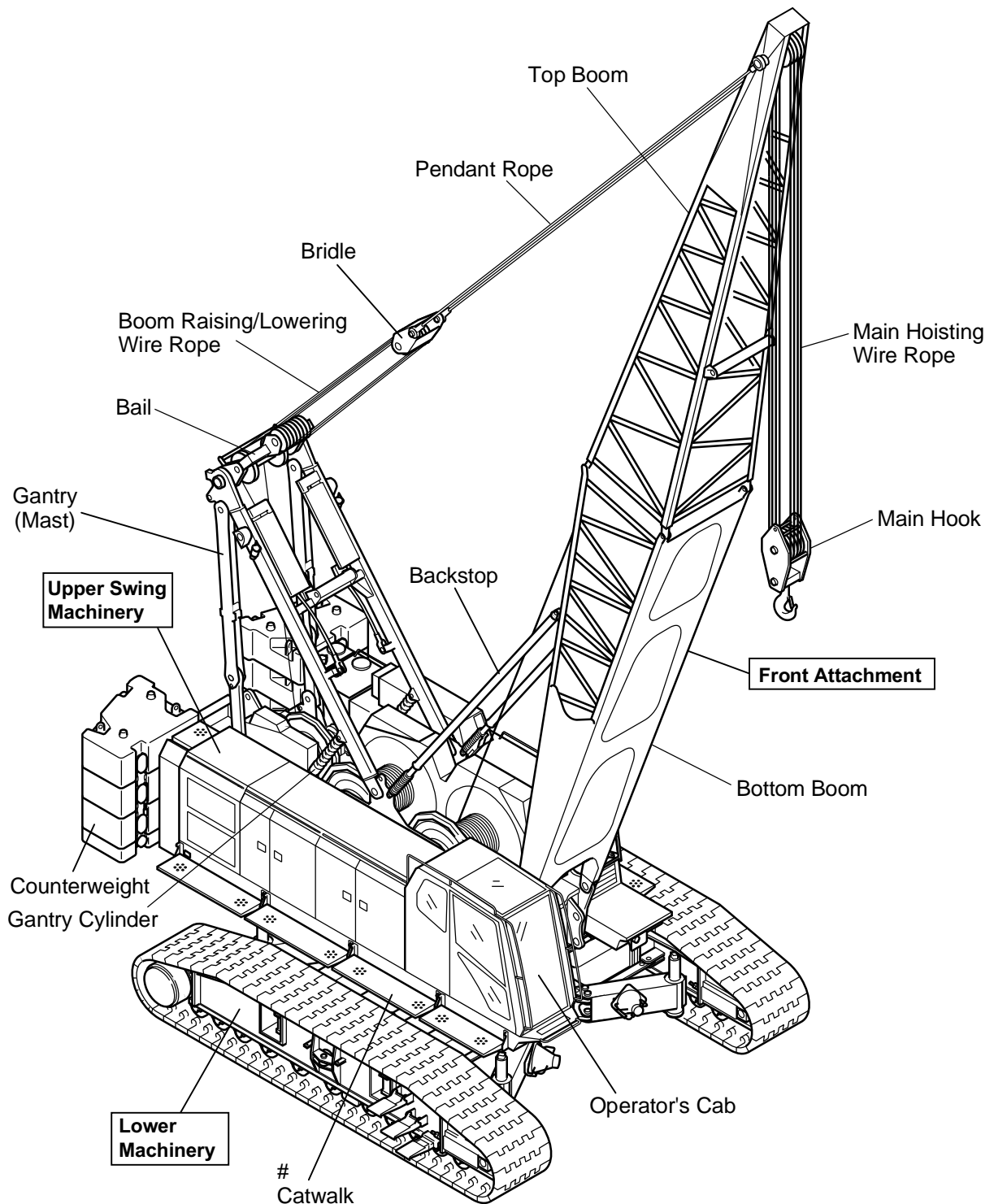
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## 1 Crane Main Body External View And Names



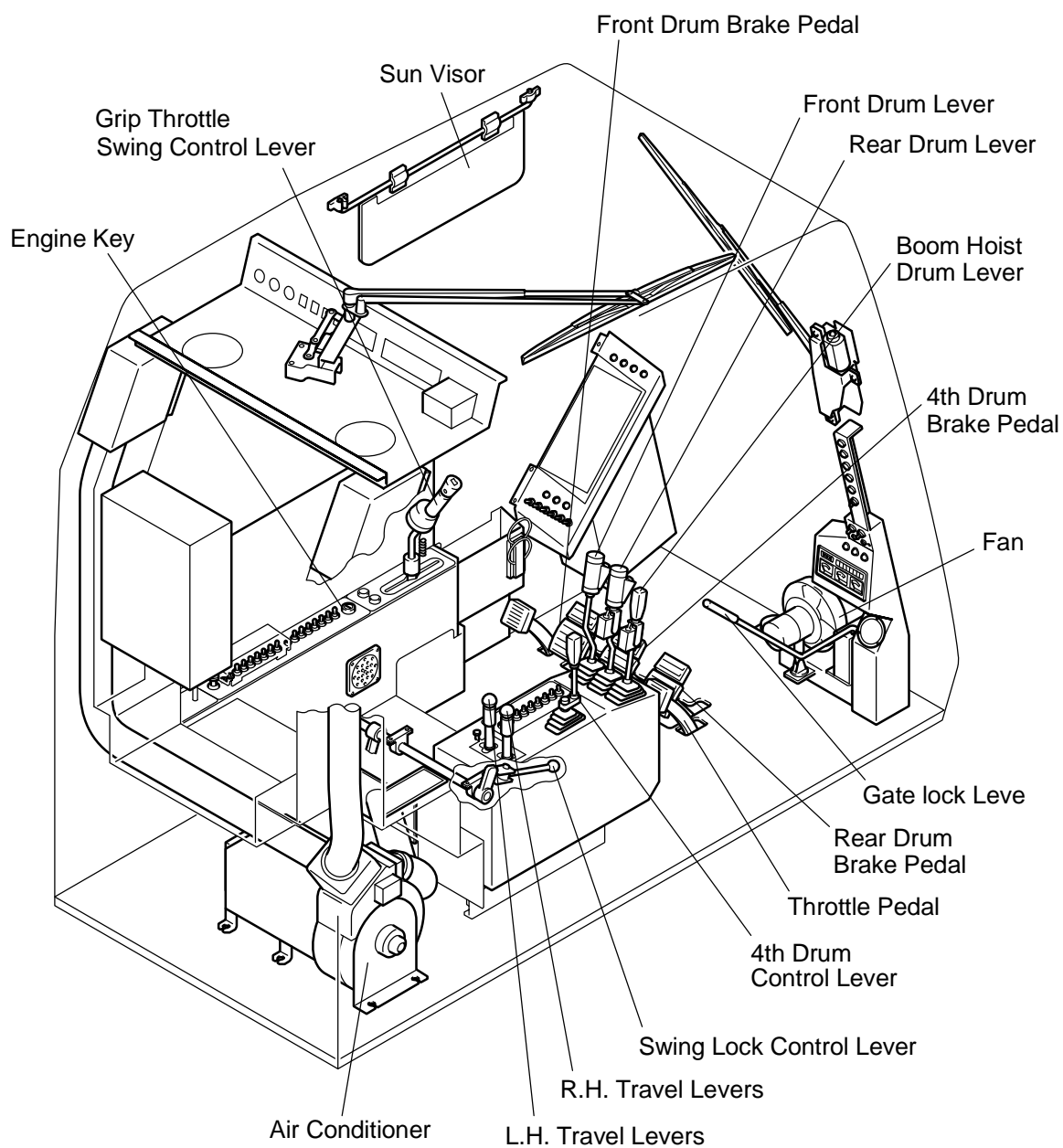
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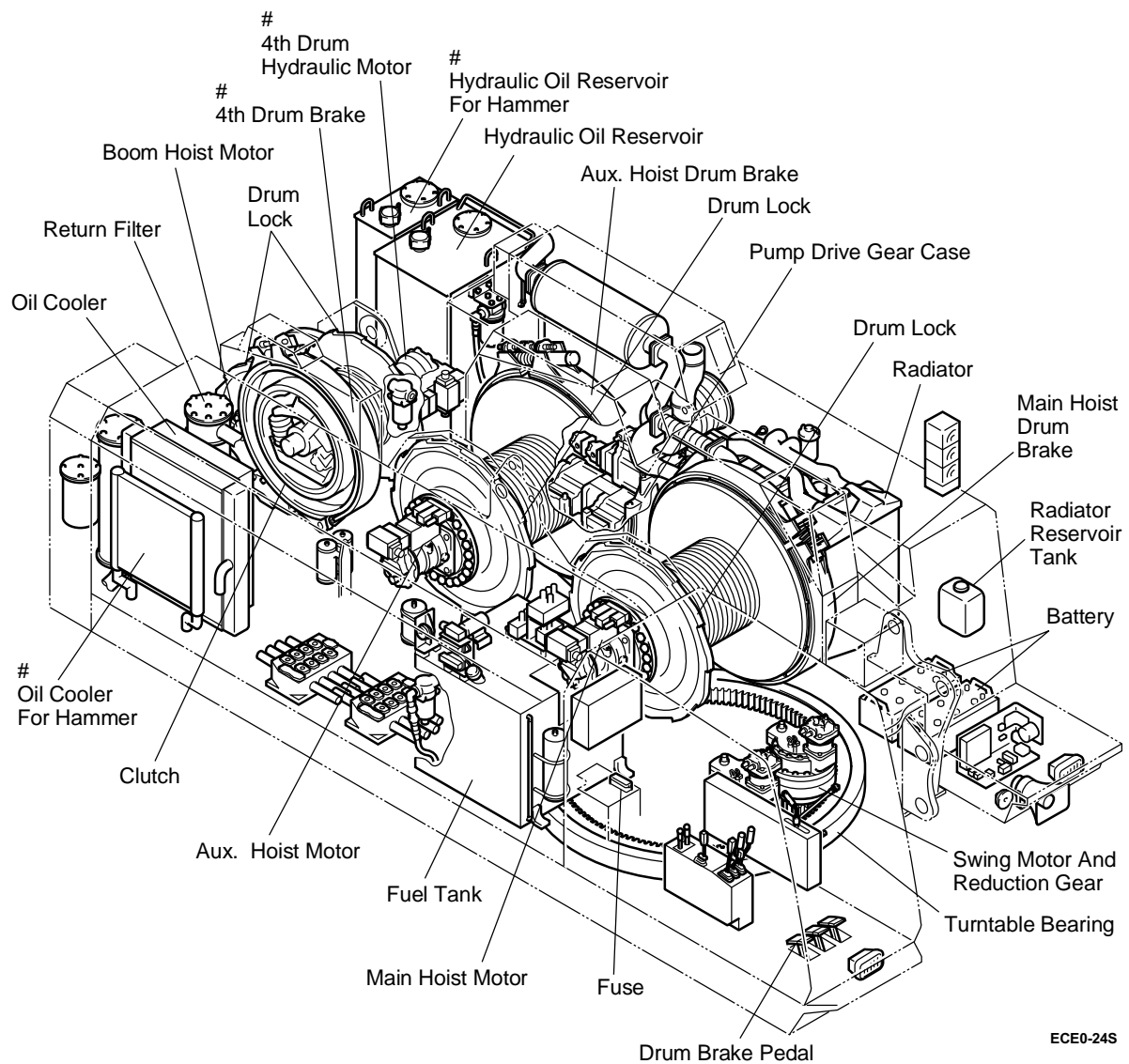
- For hydraulic equipment layout, refer to ES05-01-00--in this manual.
- For electric equipment layout, refer to ES13-10-00--in this manual.

## 2 Upper Machinery

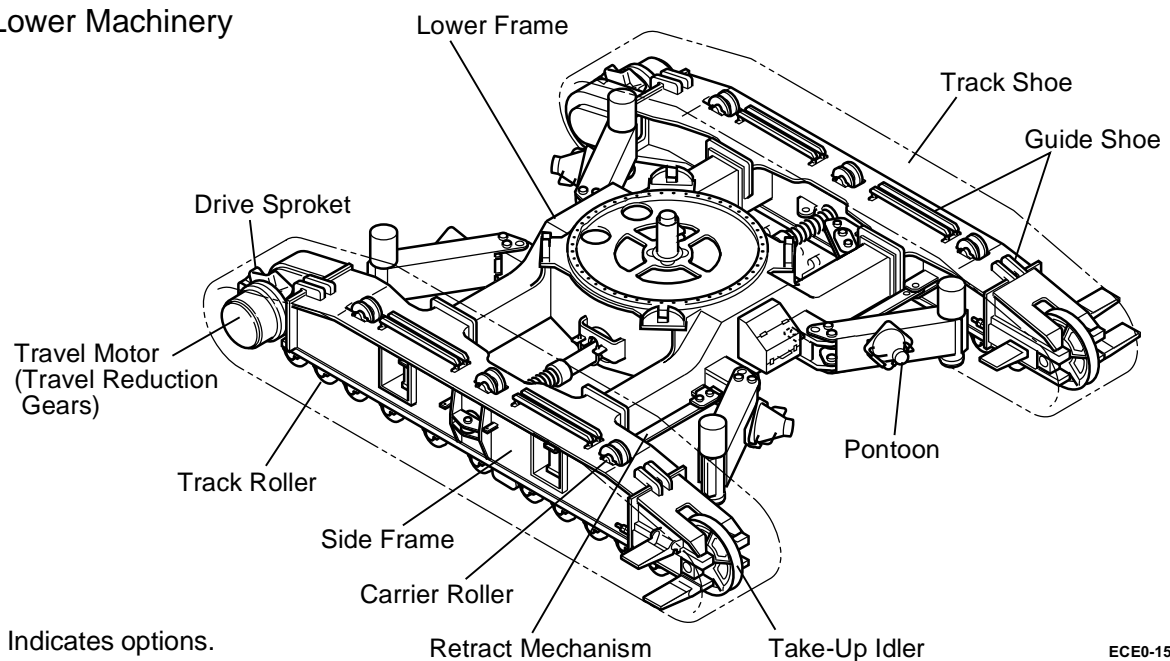
### 2.1 Operating Equipment Inside Operator's Cab



## 2.2 General Equipment Of Upper Machinery



## 3 Lower Machinery

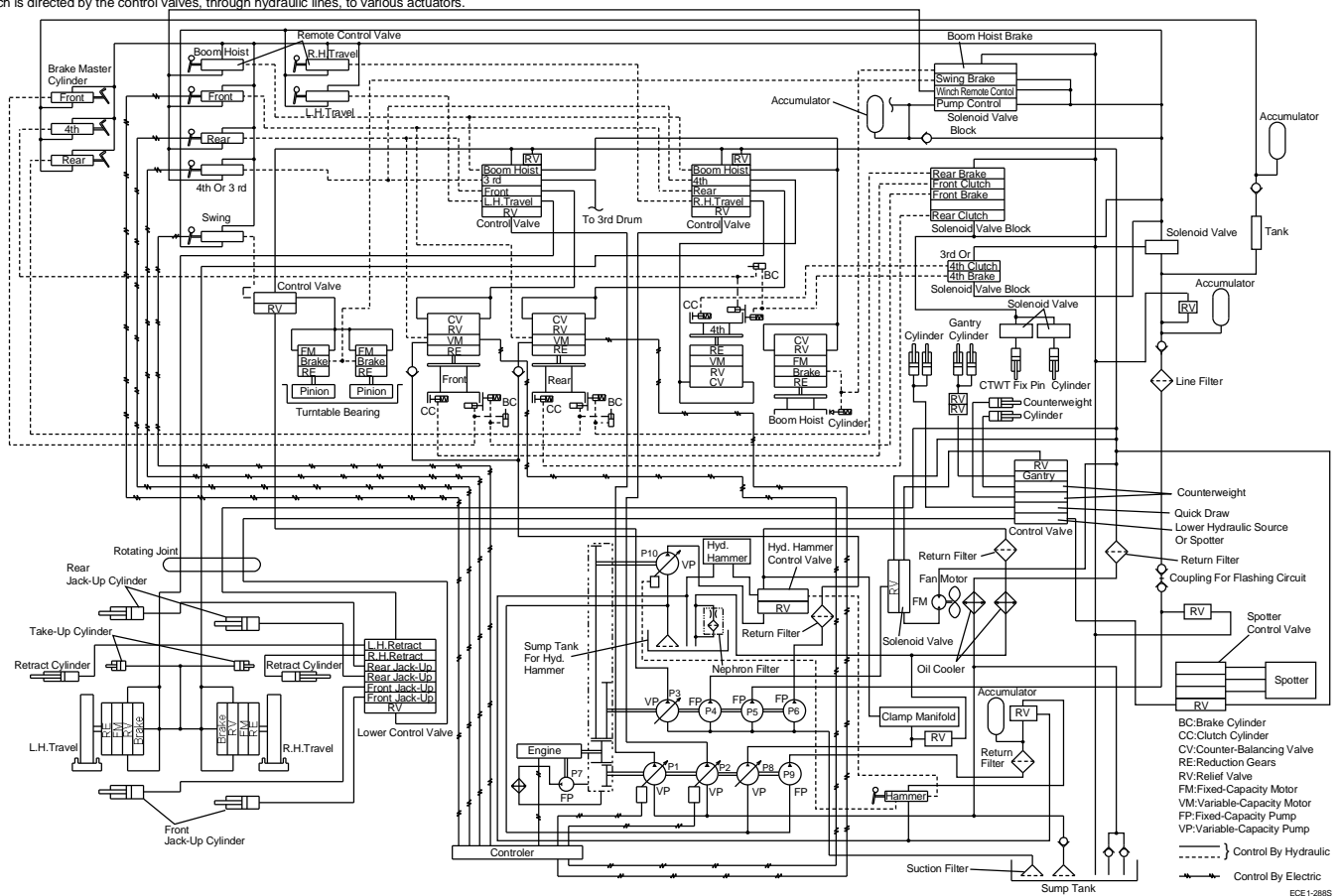




## System Diagram Of Hydraulic Control

ES01-01-0069.0R0S

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.





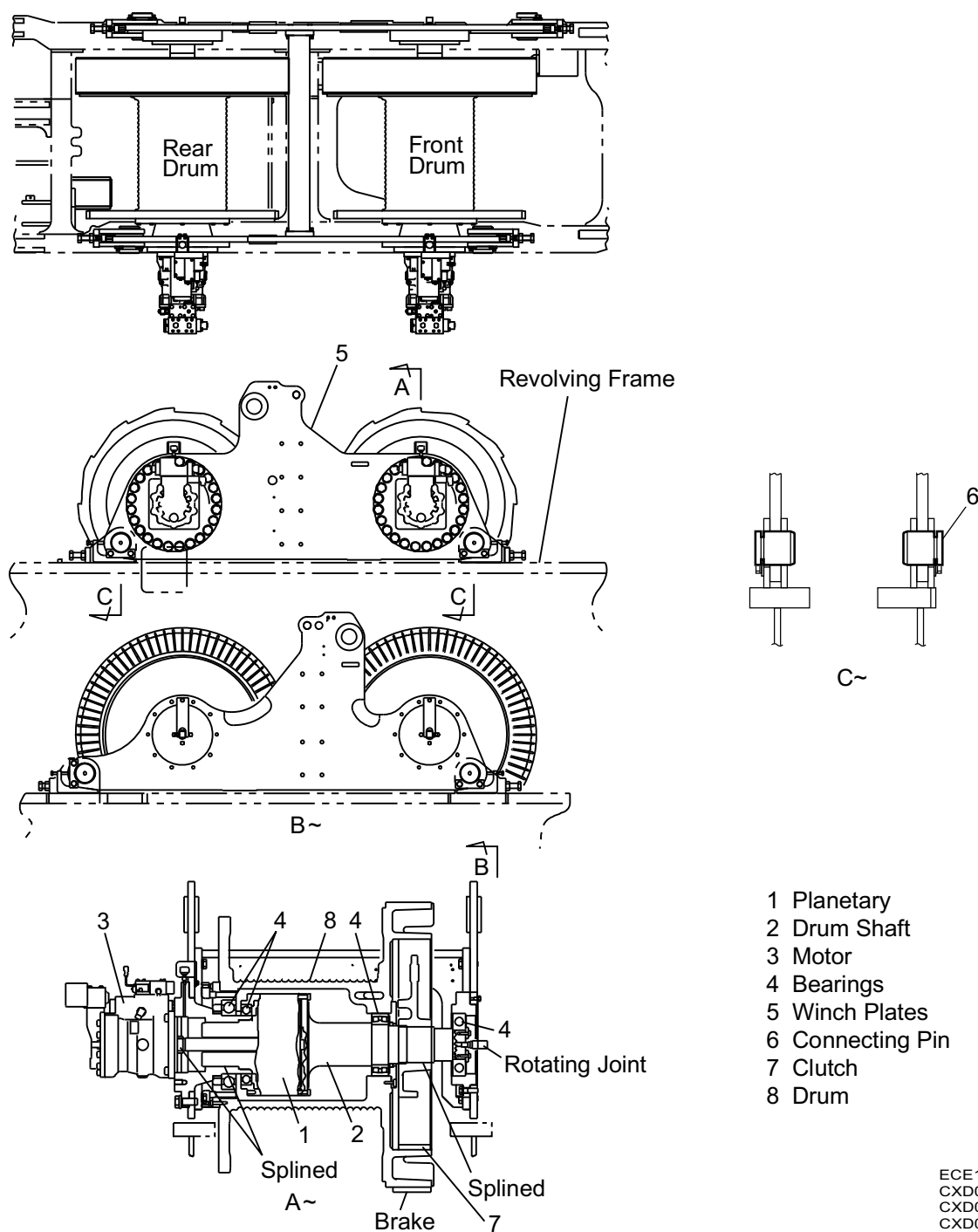


## 1 Structure And Outline

Power of the hydraulic motor is increased with the planetary 1 and transmitted to the drum through the drum shaft 2 and clutch 7. The motor 3 and drum shaft are supported by the right and left side winch plates 5 through the bearings 4. The winch plates 5 with the winch units are connected the revolving frame with the connecting pins 6. When the winch unit is overhauled, remove the winch plates assembly from the revolving frame.

The winch unit mainly consists of a planetary, drum shaft, clutch 7 and drum 8. The clutch assembly is splined to the drum shaft. The drum rotates freely on the drum shaft with bearings.

The lubricant is stored in the drum for an oil bath type lubrication system.



## 2 Winch With Brake

The front and rear drums are driven by the newly developed variable-displacement hydraulic motor, and controlled through the use of planetary and clutch.

These two winches work independently of each other: each has a dedicated set consisting of a pump, motor and drum. They provide any type of combined control.

The winch has a clutch on the side of the drum to control its winding power effectively.

It also has a brake on the side of the drum, for improved radiation efficiency and durability.

The band type clutch is hydraulically released.

The clutch and brake can either be automatically or manually controlled: see the table below for available operation modes.

The band brake can be selected from two types : automatic brake and foot brake.

The foot brake is equipped with hydraulic assistance that enables slight foot pressure to generate great breaking force.

### Automatic brake and free-fall functions

This unit possesses two operating styles. One is safety brake function and the other is free fall function.

#### Automatic brake :

The automatic brake function constantly activates the clutch and the drum shaft and drum are connected.

When the control lever is moved either to hoist or lower, the brake is disengaged to rotate the drum.

#### Foot brake :

In the case of operation under free fall function, the automatic brake is disengaged at all time, and the control lever is moved either to hoist or lower will activate the clutch to connect the drum shaft and drum. Thus the drum is rotated.

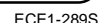
Once the control lever is returned to the neutral position, the clutch is disengaged to free the drum.

Then the braking operation by the brake pedal is required.

- Refer to the operator's manual for operation procedures.

Clutch and brake action

Mode Selection		Automatic brake	Free-fall
Action			
Brake	Front Drum	Released during lever operations	Pedal actuation
	Rear Drum	Ditto	Ditto
Clutch	Front Drum	Constant engagement	Released during lever neutral position
	Rear Drum	Ditto	Ditto



Hydraulic motor, Planetary	} Check for oil leakage.
All moving portions	
Clutch, Drum	Check for excessive wear and cracks.
Planetary	Check lubricant oil level. With the check plug removed, the oil should be to the level of the check 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.

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#### 4 Front And Rear Winch Drum Lubrication

Check the oil level in the planetary after every 250 hours of operation. The oil, in a new or rebuilt planetary, should be changed after the initial 200 hours of operation. Thereafter, change the oil with each 1000 hours of operation or seasonally, whichever occurs first.

##### 4.1 Winch Drum Planetary Oil Level Check

1. Park the crane on a firm level surface.
2. Position the oil fill plug at the top and upper directly over the front or rear of the crawler, engage the travel swing lock, and shutdown the engine.
3. Thoroughly clean the exterior surface of the planetary around the check and fill plugs to prevent contamination from entering the unit.
4. Remove the check and fill plugs.
5. Add oil until it begins to flow from the check plug hole.

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

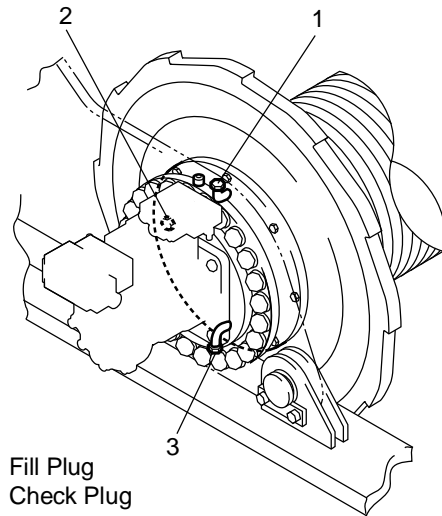
6. Clean and install the check and fill plugs.

##### 4.2 Winch Drum Planetary Oil Change

1. Park the crane on a firm level surface.
2. Cycle the winch for several minutes, without a load to agitate and warm the oil within the planetary.
3. Position the oil fill plug at the top and upper directly over the front or rear of the crawler, engage the travel swing lock and shutdown the engine.
4. Thoroughly clean the exterior surface of the planetary around the check, fill, and drain plugs to prevent contamination from entering the unit.
5. Remove the check, fill, and drain plugs and allow the oil to drain into a suitable container.
6. After the oil has thoroughly drained, clean and install the drain plug.
7. Fill the unit with oil through the fill hole, until it begins to flow from the check plug hole.

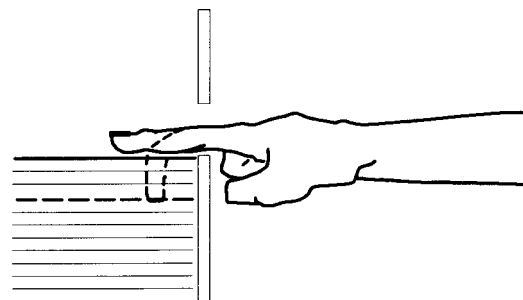
Note: For proper oils, refer to the operator's manual.

8. Clean and install the check and fill plugs. Properly dispose of the used oil.



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#### Front And Rear Winch Drum Planetary



- **Correct;**  
Oil level at bottom of filler hole.
- - - **Incorrect;**  
Oil level below filler hole.

**Note:** Oil level close enough to the hole to be seen or touched is not sufficient. It must be level with the bottom of the hole.

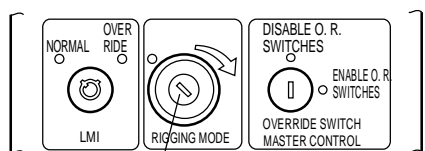
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#### Checking The Oil Level

## 1 Disassembly

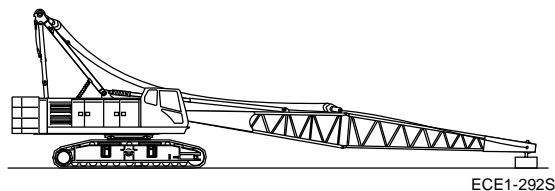
### 1.1 Removing the winch plate assembly

- 1) Put the boom tip on the blocking.
  - Turn the key switch to "Rigging Mode".



Rigging Mode Key Switch

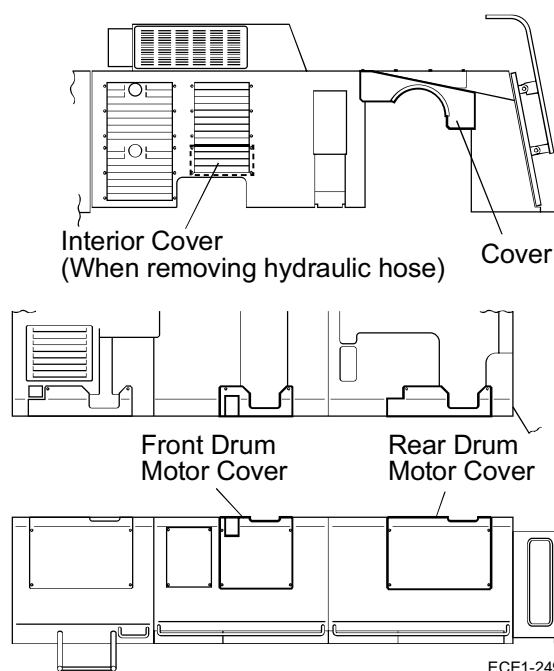
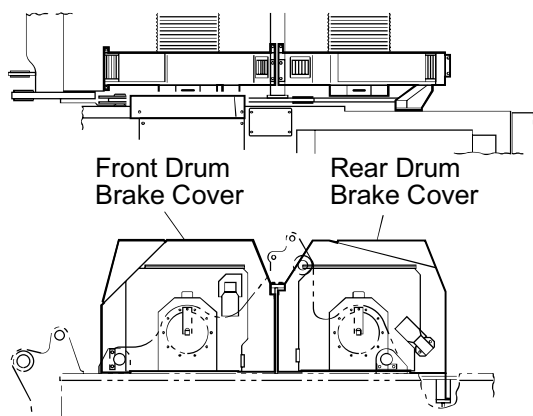
ECE1-247S



- 2) Remove the wire rope of front and rear drum.

- 3) Remove the covers.

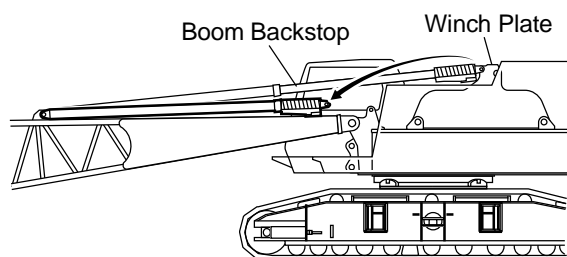
- (1) Remove the brake cover of front and rear drum.
- (2) Remove the motor cover of the right-hand house.
- (3) Remove the interior cover of the left-hand house.



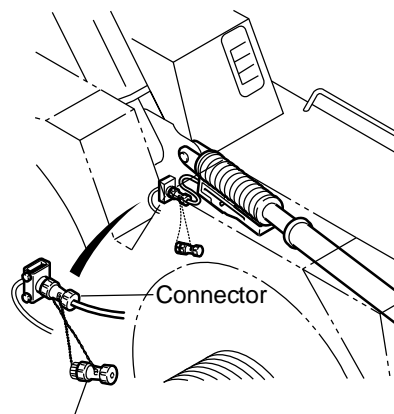
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- 4) Remove the boom backstop from the winch plate.

- Disconnect the connector of the boom back-stop limit.



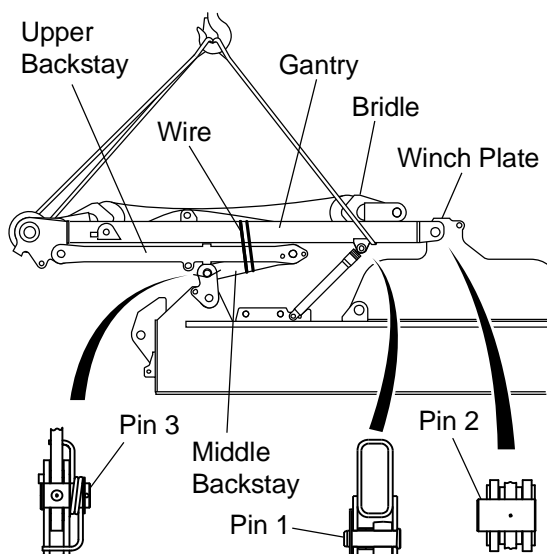
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Short Circuit Connector

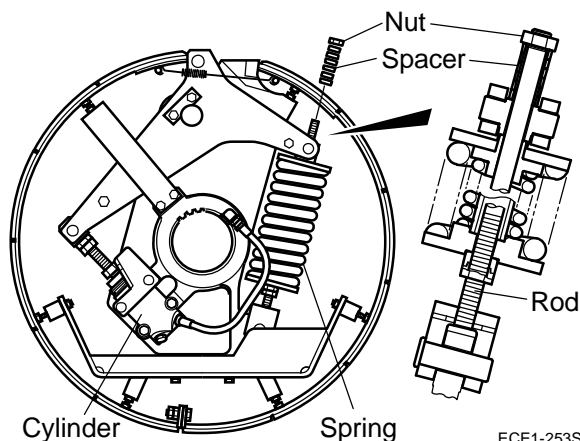
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- 5) Remove the gantry.
  - (1) Lower the gantry in the low position.
    - Carry out according to the separate operator's manual.
  - (2) Put the bridle on the gantry.
    - After disconnecting the bridle from the pendant rope, put the bridle on the gantry as winding the boom hoist wire rope and fasten it with the wires.
  - (3) Fasten the upper backstay and middle backstay to the gantry with the wires.
  - (4) Remove the gantry.
    - Remove the gantry after pulling out the pin 1, 2 and 3.
    - Remove electric wiring of the load detector.
    - Let out the boom hoist wire rope as required.



ECE1-252S

- 6) Lock the clutch spring.
  - (1) Start the engine and place the gate lock lever in "Operation" side.
  - (2) Switch the brake into the free mode.
    - The clutch spring is compressed by the cylinder.
  - (3) Install six spacers to the rod of the clutch spring part and lock with the nut.
    - Part number of the spacer : CDC0166
    - Nut : M20



ECE1-253S

- 7) Remove the brake band.
  - Refer to "Front And Rear Drum Band Brake Adjustment" in the operator's manual.
- 8) Shutdown the engine and place the gate lock lever in "Stop" side.

- 9) Disconnect all hydraulic hoses and electric wirings from the winch and the winch plate.

## ⚠ WARNING

**All trapped hydraulic pressure must be exhausted from the system before removing any plug or cover. A sudden release of hot oil could cause burns or other serious injury.**

### Hydraulic Hoses

Hoisting, Lowering Line  
Pilot Line  
Servo Line  
Drain Line  
Clutch Line

### Electric Wirings

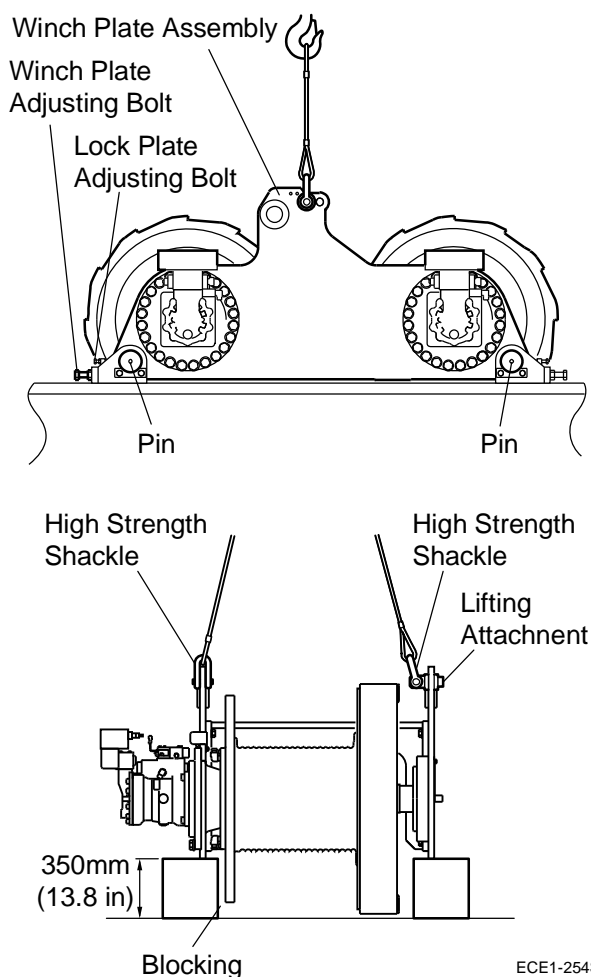
Backstop Limit  
Drum Rotation Indicator  
Motor Regulator

- Install the cap on the hydraulic hose removed so that the foreign materials do not come in.

- 10) Remove the winch plate assembly.

- (1) Loosen the winch plate adjusting bolts. (4 places)
- (2) Screw the adjusting bolt of the lock plate and loosen the lock plate. (4 places)
- (3) Remove the pins. (4 places)
- (4) Hoist the winch plate assembly and put on the blocking.

- Install the lifting attachment on the rear hole of the left-hand winch plate and sling with installing the shackle directly on the right-hand.
- Adjust the sling rope length so that the winch plate assembly does not incline.
- Use the sling rope with a sufficient strength.
  - Mass : 5450 kg (12015 lb)
  - Part number of lifting attachment for the winch plates : JACDD215
  - High strength shackle
  - Use the shackle with the allowable load of 6 t (13228 lb) or more.
  - Shackle installing hole diameter : 41.5 mm (1.63 in)



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