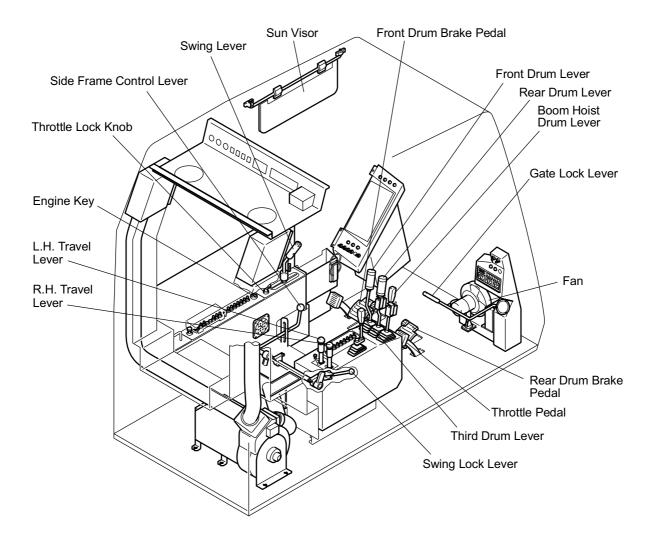
### **SECTION 0 General**

How To Use This Manual, General Service Instructions, And Safety Procedures  Equipment Layout	
SECTION 1 Upper Mechanism	
Power Transmission System Front And Rear Drum Shaft Maintenance Chart Front And Rear Drum Shaft Disassembly And Reassembly Boom Hoist Drum Structure And Outline Boom Hoist Drum Disassembly And Reassembly Clutch Structure And Outline Clutch Maintenance Chart Clutch Troubleshooting Clutch Disassembly And Reassembly Turntable Bearing Maintenance Chart Turntable Bearing Disassembly And Reassembly Drum Indicator Troubleshooting	ES01-10-2052.0R0S ES01-10-6070.0R0S ES01-15-0064.0R1S ES01-15-6067.0R0S ES01-17-0060.0R0S ES01-17-2073.0R0S ES01-17-4023.0R0S ES01-17-6051.1R0S ES01-30-2030.6R0S ES01-30-6055.0R0S
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Variable Delivery Pump Outline And Structure Variable Delivery Pump Maintenance Chart Variable Delivery Pump Troubleshooting Gear Pump Disassembly And Reassembly Accumulator Structure Accumulator Inspection Accumulator Disassembly And Reassembly Motor Structure And Outline Motor Maintenance Chart	ES05-02-2050.0R1S ES05-02-4009.0R1S ES05-03-6051.0R1S ES05-05-0035.1R1S ES05-05-5032.1R1S ES05-05-6046.1R1S ES05-09-0043.0R1S

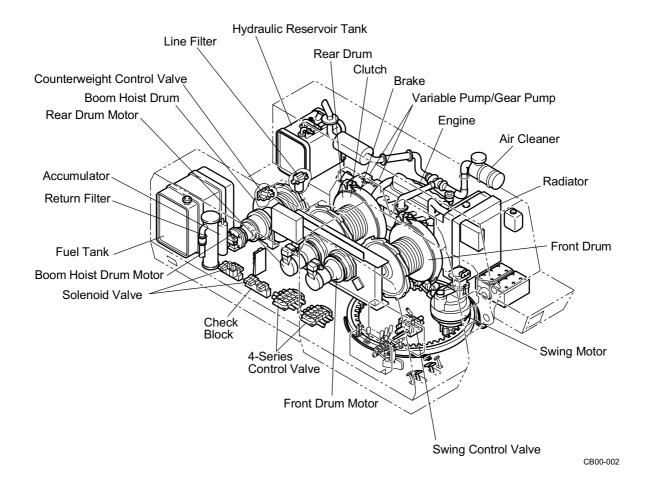
Motor Troubleshooting	ES05-09-4025.0R0S
Motor Disassembly And Reassembly	
Travel Motor Structure And Outline	ES05-13-0054.0R0S
Travel Motor Maintenance Chart	ES05-13-2048.0R0S
Travel Motor Disassembly And Reassembly	ES05-13-6026.0R0S
Rotating Joint Disassembly And Reassembly	ES05-14-6029.2R3S
Remote Control Valve Structure And Operation	ES05-17-0035.0R0S
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Clutch Cylinder Disassembly And Reassembly (1-Cylinder Type)	ES05-18-6073.0R1S
Automatic Brake Cylinder Disassembly And Reassembly	ES05-19-6032.1R0S
Retract Cylinder Disassembly And Reassembly	
Line Filter Inspection	
Line Filter Disassembly And Reassembly	
Return Filter Inspection	
Return Filter Disassembly And Reassembly	
8-Way Rotating Joint Inspection	
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Control Valve (2-Series) Structure And Working	
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Take-Up Cylinder Disassembly And Reassembly	
Counterweight Cylinder Disassembly And Reassembly	
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Crane Gantry Maintenance Chart	ES06-01-2065.0R1S
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Polt Tightoning Torquos	ES14 00 0004 0B1S

### 1 Components In Operator's Cab



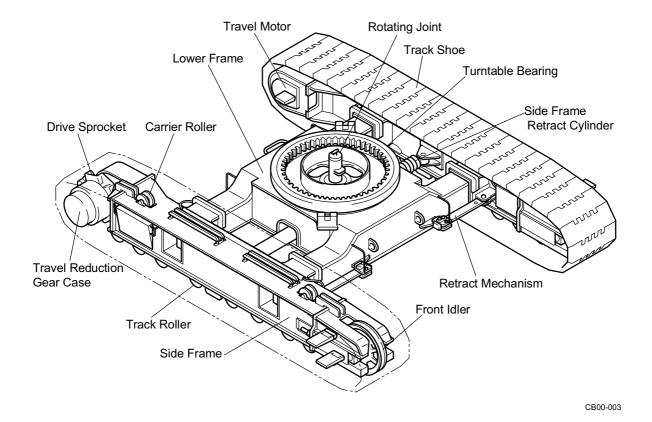
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## 2 General Equipment Of Upper Machinery



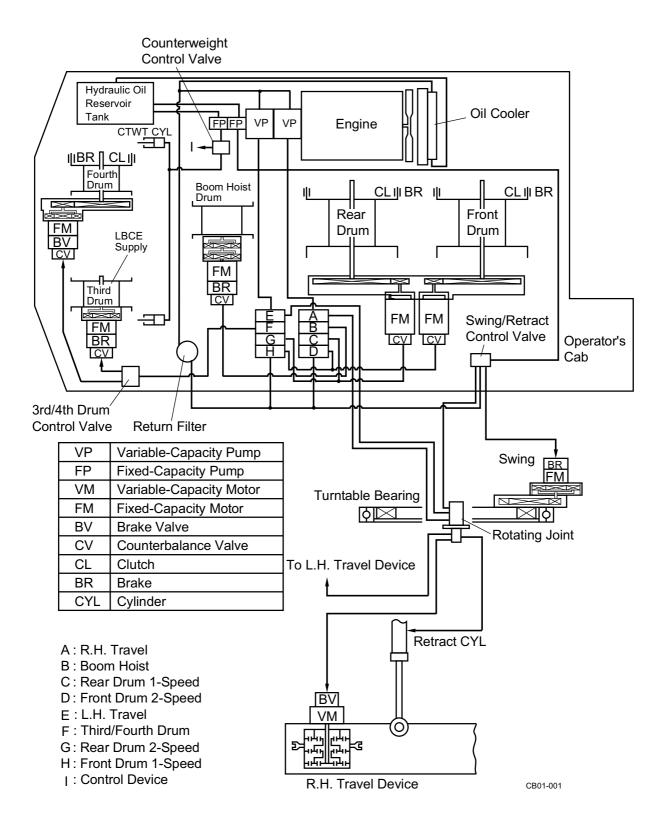
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## 3 Lower Travel Machinery



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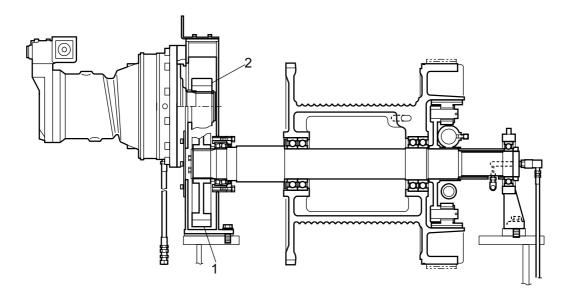
Power from the engine is drive hydraulic pumps. The rotating energy of engine power is also converted into fluid energy (the flow of high pressure hydraulic oil) which is directed by the control valves, through hydraulic lines, to various actuators.



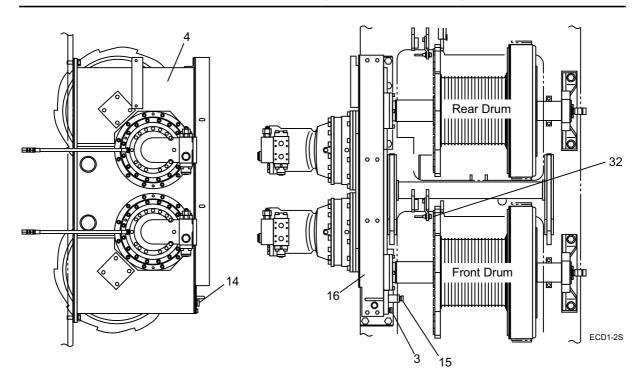
Unit: inches (mm)

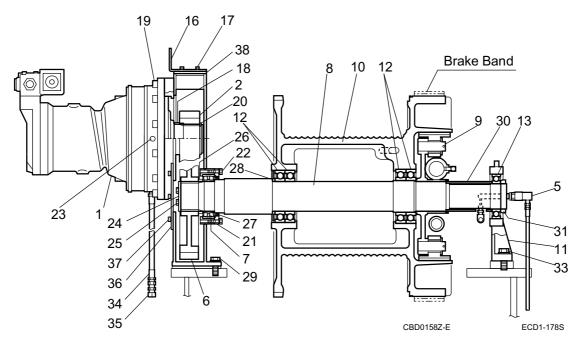
Item	Part name	Number Of Teeth	*1	Allowable Backlash	Treatment
1	Spur gear	6	8.0" (205.5)	.08" (2.0)	Danlacoment
2	Spur gear	3	3.7" (95.02)		Replacement

\*1 Allowable Displacement Over A Given Number Of Teeth.



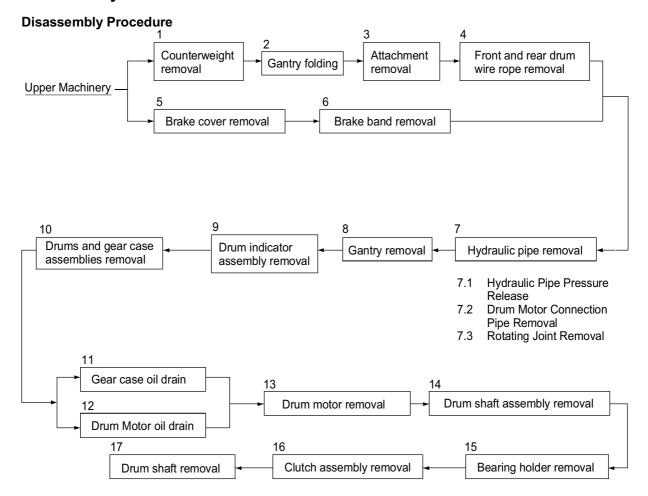
ECD1-177S





2Pinion12Ball Bearing23Plug34Hose3Plug13Ball Bearing24End Plate35Drain Cap4Gear Case14Oil Filler Cap25Bolt36Cover5Rotating Joint15Drain Plug26Spacer37Bolt6Gear16Check Cover27Oil Seal38Sponge Pa7Roller Bearing17Bolt28Seal Collar8Drum Shaft18Spacer29Bolt9Clutch Assembly19Bolt30Spacer10Hoist Drum20Snap Ring31Bearing Nut, Washer10Hoist Drum20Seal Retainer32Drum Indicator Assembly	
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### Disassembly



#### **Work Preparation**

Main body support

- 1) Park the machine on level and stable ground.
- Extend the side frames.
   For side frame extension, refer to the operator's manual.

# **A WARNING**

Since The Component Parts Related To This Procedure Are Heavy, Handle Them Carefully Or Accidents May Result. Use A Hoist To Handle Them Efficiently. Check That The Hoist Capacity Is Sufficient.

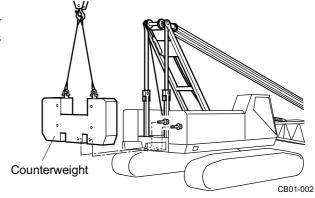
## **CAUTION**

Take The Surrounding Into Consideration, Select A Place Where Safe Operation Is Possible And Take Precautions Against Dangers. Particularly Avoid Slopes.

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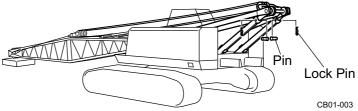
#### 1 Counterweight Removal

 To remove the counterweight with the gantry in the high position, refer to the operator's manual.



### 2 Gantry Folding

1) To position the gantry from high to low, refer to the operator's manual.



#### 3 Attachment Removal

1) To remove the attachment from the upper section, refer to the operator's manual.

#### 4 Front and Rear Drum Wire Rope Removal

## **CAUTION**

Avoid Injury To Yourself.

Replace Or Rearrange Rope Carefully To Avoid An Accident. Rope Wrapped Around Sheaves May Become Twisted.

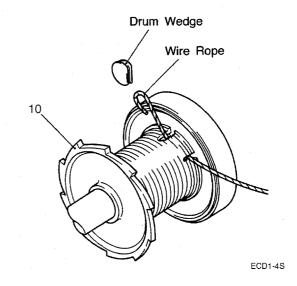
When Released, The Rope Can Spin As The Dead End Pins Or Sockets Are Removed.

1) Pull out wire ropes from the front and rear drums, and wind them with the winder.

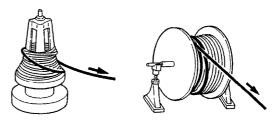
## **CAUTION**

Properly Release The Hoist Drum Brake During Removal Of Wire Rope Or Rope May Become Kinked Or Twisted, Resulting In Excessive Deformation, Shortening Wire Rope Life.

2) Remove the drum wedge, and remove the wire rope from the hoist drum.



Winder Types



Proper Wire Rope Releasing

EAM81

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#### 5 Brake Cover Removal

- 1) Open the upper cover of the brake cover.
- Loosen the locknut and remove the adjusting nut. The hanging bolt and spring cannot be separated from the band.
- 3) Remove the bolt and brake cover.



 For brake band removal, refer to "front and rear drum brake control disassembly and reassembly" ES03-05-60 in this manual.



7.1 Hydraulic pipe pressure release

# **AWARNING**

All Trapped Hydraulic Pressure Must Be Exhausted From The System Before Removing Any Line Or Component. A Sudden Release Of Hot Oil Could Cause Burns Or Other Serious Injury.

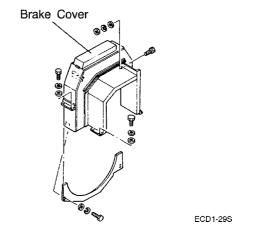
 Operate the control lever back and forth several times to release any hydraulic pressure trapped in the lines.

Note: Even if pressure is completely released, oil remains. Before disconnecting a pipe or valve, position a container to collect the oil.

### 7.2 Drum motor connection pipe removal

- 1) Remove all pipes connected to the motor. (Except hoses 34)
- Attach blank plugs, blank flanges, caps, etc. to the pipe ports of the motor and the ports of the removed pipes to prevent oil from flowing out and foreign materials from entering.

Note: Place the removed pipes where disassembly and reassembly are not hindered. Label pipes, hoses, fittings, and other parts to prevent errors during reassembly.



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#### 7.3 Rotating joint removal

Loosen hose ferrule (a) and disconnecty hose
 (b) from adapter (c).

Note: To prevent oil from contacting the linings, cover with a cloth before disconnecting hose (b).

Note: To prevent entry of foreign materials, cap or plug the opening of the disconnected hose.

Note: Contamination in the hydraulic equipment causes excessive parts wear.

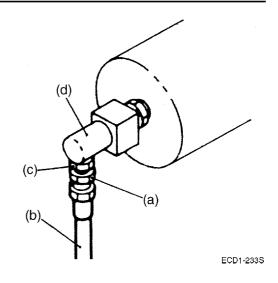
- 2) Loosen rotating joint (d) and remove it as an assembly with adapter (c).
- 3) Remove the hose (b) and piping connected to the hose (b), if necessary.
- 4) Disassemble the rotating joint. (Refer to ES05-14-60) in this manual.)

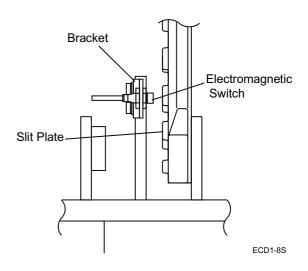


 For gantry removal, refer to "gantry disassembly and reassembly" ES06-01-60 in this manual.

#### 9 Drum Indicator Assembly Removal

- Remove bolt, and remove bracket as an assembly with electromagnetic switch.
- 2) Disassemble removed bracket, and put it where reassembly is not hindered.
- 3) Remove spacer.
- 4) Remove bolt and slit plate.





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