



Technical Manual

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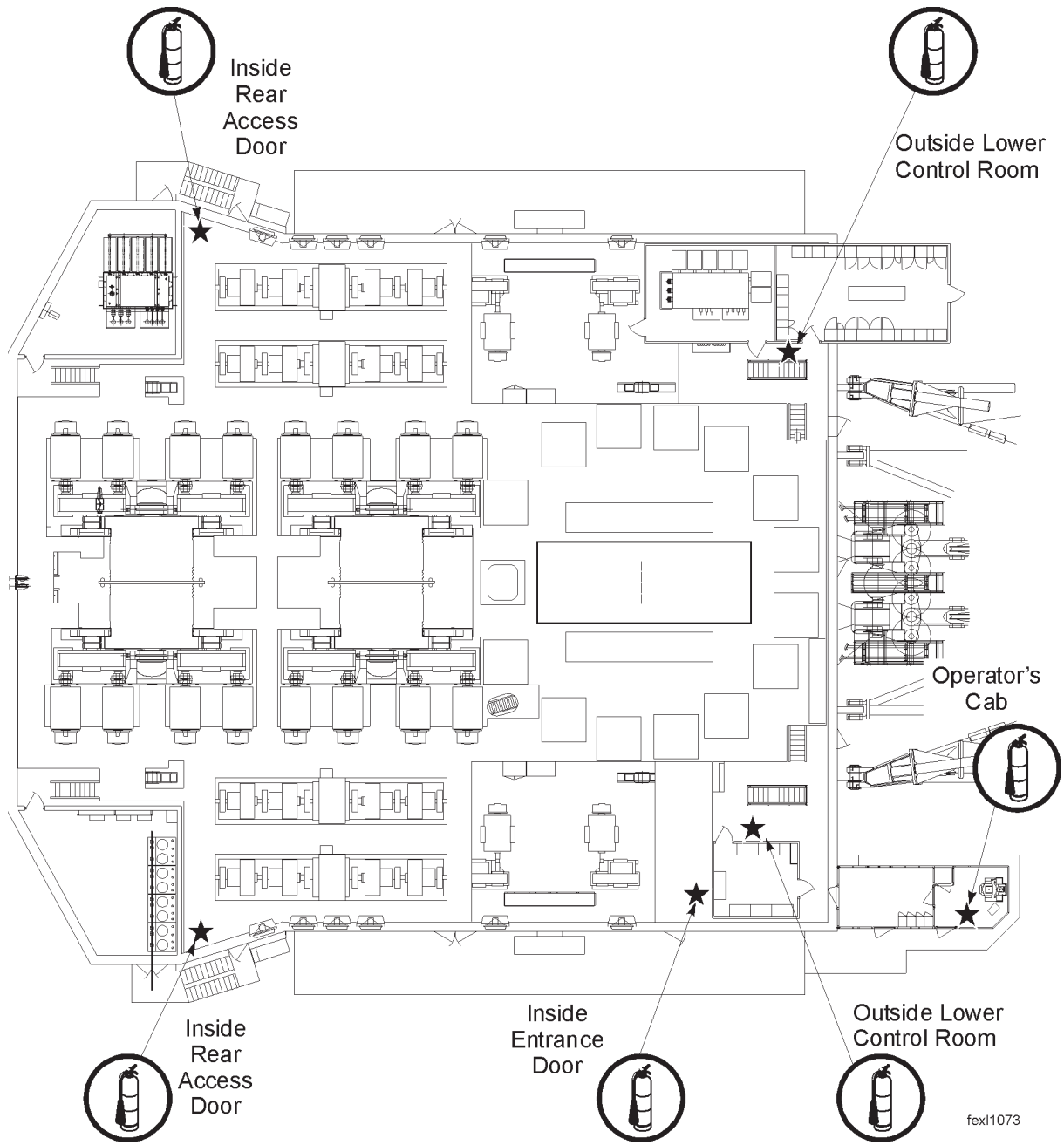


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FIRE PREVENTION



fex11073

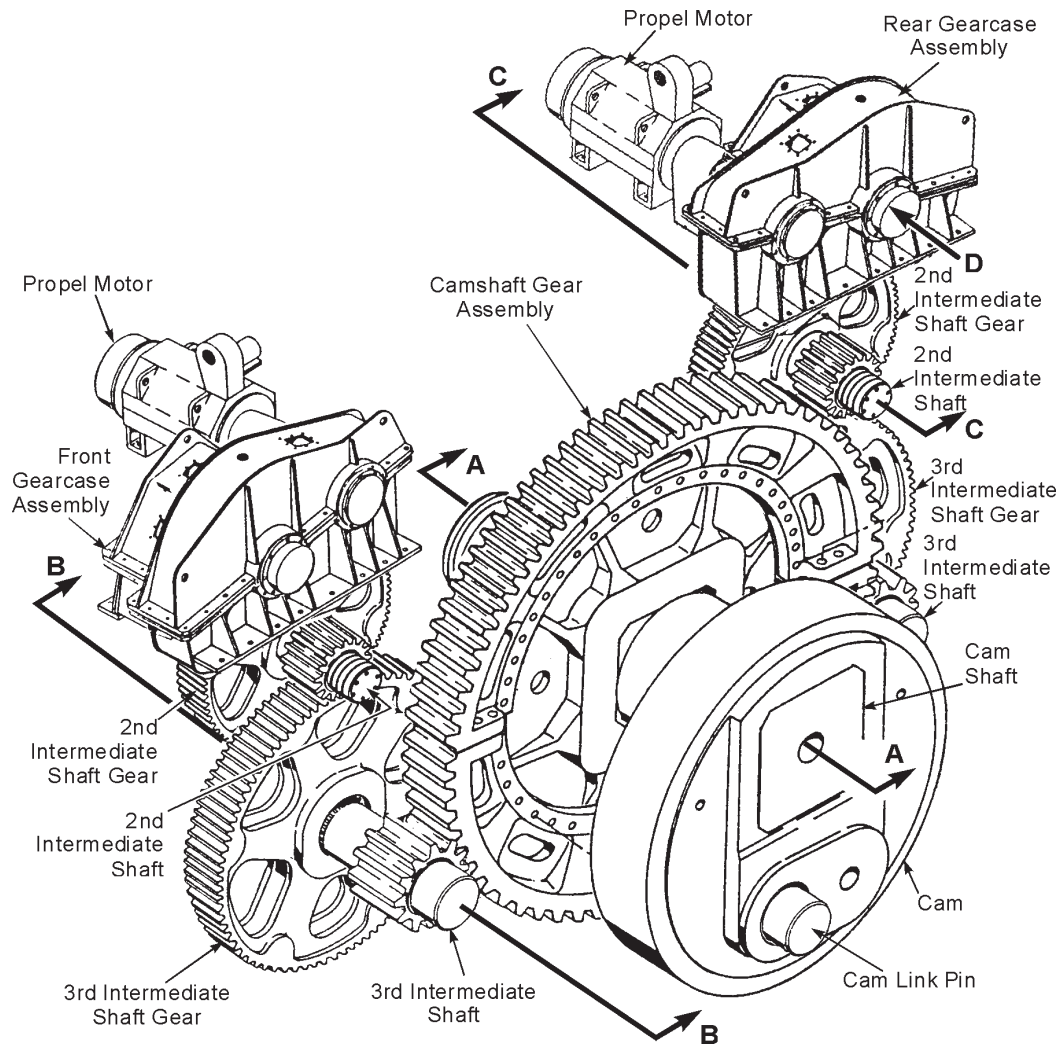
Fire Extinguisher Locations



PROPEL MACHINERY

The propel machinery is housed in and on the box-type walking girders on each side of the revolving frame. Location in this area provides a greater amount of work space on the revolving frame deck.

The two cams are mounted on forged steel walking shafts. Each shaft is driven through four stages of gear reduction by two motors each. The motor pinions and first reduction gears are herringbone and are mounted on anti-friction bearings in an enclosed gearcase. The second and third reductions are spur gearing and are also mounted on anti-friction bearings. The fourth reduction and cam shaft are supported by renewable bronze bushings. The support housing for the input and first intermediate propel shafts are contained in a welded and stress relieved gearcase which is factory machined for precise alignment. The support housing for the second and third intermediate shafts along with the inner cam shaft hub are contained in factory welded and stress relieved revolving frame girders which are line bored following the field alignment of the machined outer cam shaft bore and after all field welding is complete.



pr3d1073

Propel Machinery



The boom is supported by four “upper main” fixed length structural suspension pendants. The pendants are connected at the mast head by spherical bushing mounted links and at the boom point box.

Two sets of intermediate suspension structural pendants support the upper boom chords at two points on each side of the boom. The structural pendants are equipped with hydraulic adjusting jacks and are connected at the boom chords by open bridge sockets mounted by spherical ball bushed pins.

Spacer blocks are located along the length of the “upper main” boom support structural pendants. The spacer blocks, clamped to the two pendants on each side of the boom, prevent the strands from slapping together during the drag and swing cycles eliminating surface damage.

The cast alloy steel boom point sheaves with flame hardened grooves are mounted on anti-friction bearings in a swivel frame. The frame is a welded, stress relieved and machined structure mounted on sleeve bearings in the boom point box section. The swivel mounting permits the hoist ropes to align themselves with the bucket reducing wear on the ropes and sheaves.

The hoist ropes are supported by deflection sheaves at two points between the hoist drum and the boom point sheaves. The sheaves are free to move laterally. One set of sheaves is mounted in the mast structure, the other set are mounted on a deflection tower located on the boom. The use of the guide sheaves provides stability to the hoist ropes under varying digging conditions and prevents the ropes from slapping the boom and mast. A roller mounted over the sheaves is used to retain the hoist ropes in the sheave grooves.

A walkway is provided up each side of the boom structure providing inspection accessibility for all four chords and connects with a platform that extends completely around the boom point.

Access to the boom walkway is provided from both boom feet. Platforms and ladders are provided at all lighting panels, hoist rope support sheaves, and boom intermediate suspension connections. Platforms and walkways are made from grip strut surfaces. The boom chords are pressurized with dry air. An alarm system is provided to warn of loss of air pressure in any of the chords. Pressure relief plugs are provided for the lacings.

Raising and lowering the boom is accomplished by using the hoist ropes which are reeved in a two part hitch over the sheaves on the A-frame to the sheaves on the mast head and back to the revolving frame deck where they are equalized and anchored. Power from the hoist drum raises the boom into position. Structural pendants are then connected between the mast and A-frame. The hoist rope is then released and unreeved from the A-frame and mast. The hoist ropes are then reeved on to the boom and over the point sheaves to the hoist rigging of the bucket.

Two motor driven, dual speed auxiliary winches are provided for rope replacement. The winches are located behind the hoist drum allowing simultaneous replacement of two ropes. Cable mounted portable pendant type controls are provided.



BASE

| | | |
|---------------------------------|--------------|-------------|
| Outside Diameter | 84'0" | 25.6 M |
| Bearing Area | 5,542 Sq.Ft. | 514.9 Sq. M |
| Rail Circle Diameter | 54'0" | 16.5 M |
| Rollers (123) | | |
| Diameter (Avg.) | 16" | 0.4 M |
| Swing Rack Pitch Diameter | 42' 5" | 12.9 M |

REVOLVING FRAME

| | | |
|--|---------------|---------------|
| Upper Machinery Frame Width X Length | 98'-6" x 117' | 30.0 x 35.7 M |
| Girder Depth | 12' 0" | 3.7 M |

WALKING MOUNTING

| | | |
|-----------------------------------|---------------|--------------|
| Shoe Width x Length | 16' x 72' | 4.9 x 21.9 M |
| Combined Bearing Area | 2.304 Sq. Ft. | 214 Sq. M |
| Overall Width Over Shoes | 118'-6" | 36.1 M |
| Cam Diameter | 10'-0" | 3.0 M |
| Length of Step, approximate | 8'-6" | 2.6 M |
| Walking Speed, approximate | 0.15 mph | 0.24 Km/h |

ELECTRICAL EQUIPMENT

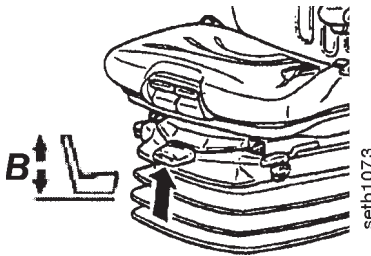
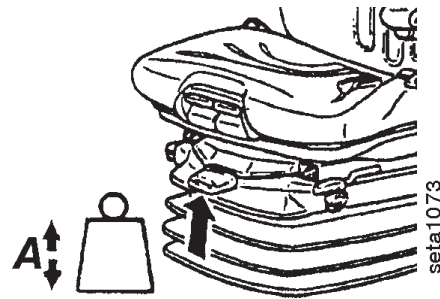
| | QTY | HP | KW |
|-----------------------------|-----|-------|---------|
| Hoist Motors (blown) | 8 | 1,550 | (1,156) |
| Drag Motors (blown) | 8 | 1,550 | (1,156) |
| Swing Motors (blown) | 14 | 800 | (597) |
| Propel Motors (blown) | 4 | 1,045 | (780) |
| MG Set Drives | 4 | 3,500 | (2,611) |

WEIGHTS

| | Lbs | Kgs |
|---|------------|-----------|
| Rated suspension load | 800,000 | 362,874 |
| Net weight with bucket, approximate | 15,500,000 | 7,030,676 |
| Working weight with bucket | 16,000,000 | 7,257,472 |
| Ballast weight (customer furnished) | 500,000 | 226,796 |

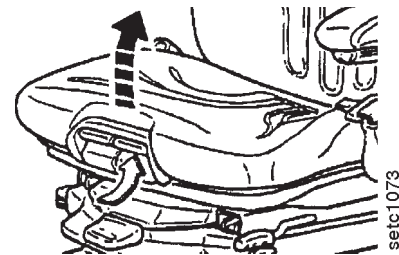
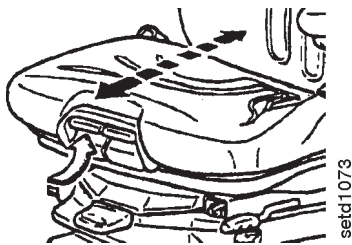
SEAT FUNCTIONS AND OPERATION

A. Weight Adjustment - The seat can be adjusted for the operator's weight by briefly pulling the actuator lever of the automatic weight and height adjuster (arrow). This should be done with the machine at a stand still and the operator sitting on the seat. The operator must sit absolutely still during adjustment. To prevent personal injury, the setting for the operator's weight must be checked and adjusted as necessary before the machine is operated.



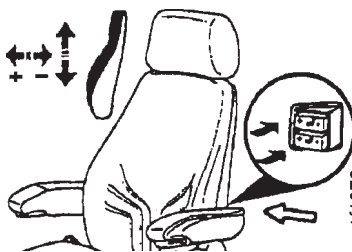
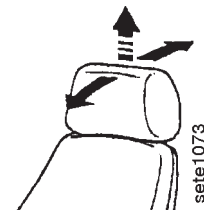
B. Height Adjustment - The seat height can be set pneumatically and is infinitely adjustable by pulling or pressing the actuator lever fully out or in (arrow). If the adjustment reaches the top or bottom end stop, the height is adjusted automatically in order to guarantee a minimum spring travel. In order to avoid damage, do not operate the compressor for more than 1 minute.

C. Seat Pan Angle Adjustment - To adjust the angle of the seat pan, lift the left handle (see arrow). By exerting pressure on or off the seat pan it can be moved to the desired angle position.



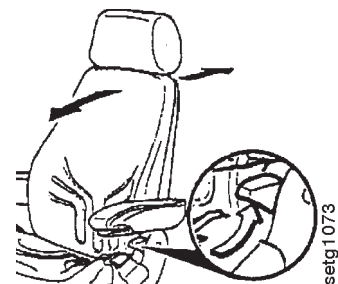
D. Seat Depth Adjustment - To adjust the depth of the seat cushion, lift the right handle (see arrow). By moving the seat cushion backwards or forwards the desired seating position can be obtained.

E. Headrest - The headrest can be adjusted for height by pulling it upward over the various increments to the end stop. By pushing forward or backward the angle of the headrest can be adjusted. To remove the headrest, pull it over the end stop.



F. Lumbar Support - The curve of the backrest cushion can be adjusted by pressing the upper and lower switches. This increases both the seating comfort and the performance of the operator.

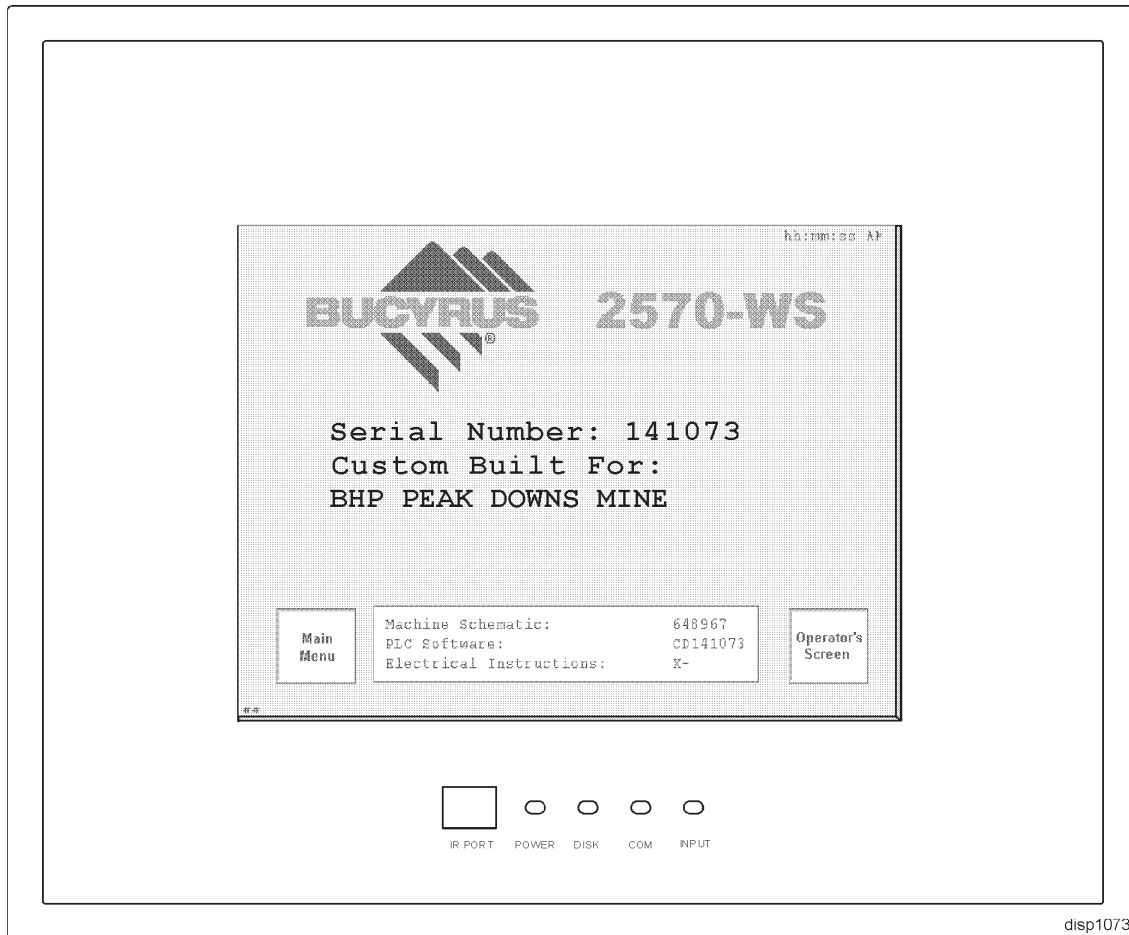
G. Backrest Adjustment - The backrest is adjusted using the locking lever (arrow). The locking lever must latch into the desired position. The backrest should not move when locked into position.





OPERATOR DISPLAY

The Operator Display is located to the left of the operator's seat on a swivel arm. It contains the Operator Interface Terminal (OIT).



OPERATOR INTERFACE TERMINAL (OIT)

Located in the top portion of the *LEFT OPERATOR CONSOLE* is the *OPERATOR INTERFACE TERMINAL (OIT)*. This color CRT display screen and its accompanying keys permit operator access to the on-board control, monitoring, and diagnostic computer.

This computer:

- Contains an annunciator system that monitors selected machine functions and components, and alerts the operator to any detected faults with audible and visual alarms.



With the bucket full, a correct combination of hoist and drag controller movement will increase the hoist speed (right controller back) and decrease the drag speed (left controller forward) to lift the bucket out of the pit. Keep just enough tension on the drag ropes to prevent the bucket dumping. Too much rope tension tightens the "line of bucket carry" and positions the bucket close to the boom. This adds strain to the boom and slows down the hoist speed. Swing the machine using either the right joystick or the foot pedals, as selected from the operator's display.

As soon as the bucket clears the digging face, swing the machine toward the dump point. A correct combination of hoist and drag effort with swing motion added avoids any excessive bucket and rope swing. Swing the machine and lift the bucket at the same time so that the bucket reaches the dump height and spoil location at the same time.



CAUTION: USE EXTREME CARE WHEN SWINGING TO INSURE THE BUCKET CLEARS ALL OBSTRUCTIONS AND THAT CLEARANCE EXISTS AROUND THE MACHINE.

Upon approaching the dump point, reverse the swing motion to bring the machine to a smooth and accurate stop. Coordinate the hoist and pay-out so that the bucket dumps as the machine stops swinging and the bucket is empty as it starts back to the pit.

The bucket is dumped by paying out the drag ropes. When the bucket is empty, reverse the controller to remove slack rope. Be cautious - do not allow an excessive amount of drag rope to pay out.

Never hold the load any longer than necessary to complete the dumping cycle. Once the material clears the bucket, slowly swing the machine back over the work area and lower the bucket into the pit, coordinating the hoist and drag motions to place the bucket.



DANGER: NEVER LOWER A FULL BUCKET OVER AN EXTENDED DISTANCE. DOING SO COULD CAUSE SEVERE DAMAGE TO THE ELECTRIC DRIVE COMPONENTS ON THIS DRAGLINE.

While operating the machine, observe its components for problems. Look for loose bucket pins; broken or frayed strands on the boom support, hoist, drag, and dump ropes; and bucket and rigging damage or wear. Keep an eye on the boom and the boom point. Report any maintenance requirements promptly to the appropriate personnel for attention so that unnecessary downtime can be minimized.

GROUND PREPARATION

Ground preparation is very important. The walking dragline requires a properly prepared ground base for operation. The tub and walking shoes must have full contact with the ground when the machine is digging or propelling. With the machine weight distributed over the entire tub bottom or the partial tub bottom and the two walking shoes area, moderate ground bearing pressure is obtained and the machine components are less stressed.



DISPLAY SCREENS

DISPLAY AREA AND INDICATORS

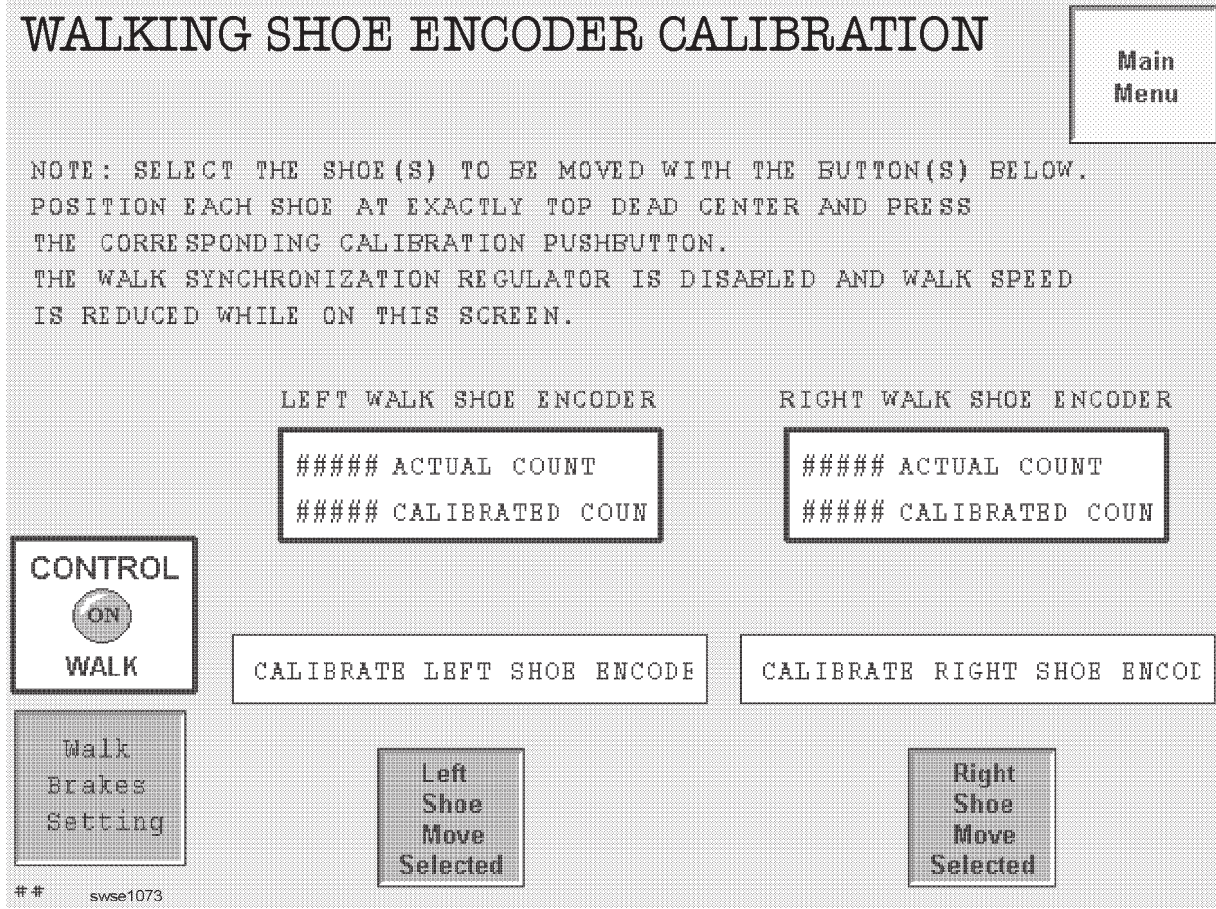
The display area of the monitor screen is the large area in the center of the screen. This area is “touch sensitive.” All information will be displayed on this area in either a text format or in the form of visual icons. The buttons and icons that appear on the screen will respond to touching the screen in the appropriate area of the icon.

These icons and buttons will react by activating the screen, switch activation, or display information relevant to the icon. The switches and buttons will be covered in the following pages under the screen topic in which they appear.

The indicators on the lower portion of the screen area are indicators and sensors which indicate functionality of the operator display and its interface with the machine’s PLC controller. They have no effect on machine operational use.

All the machine controls can be found on the Operator’s Display Panel touch sensitive screen or the LH and RH Control Consoles of the operator’s seat.





Walking Shoe Encoder Calibration Screen

This screen allows the operator to calibrate the encoders for the walking shoes. Proper calibration will give a proper view of positioning on other screens.

An on-screen indicator shows the control status of the walk motion. This is an indicator only and does not change its state.

The brakes can be controlled for the walk motion with the brake switch in the lower left corner. This operates the same as on the Operator’s screen. Refer to the on-screen instructions for the calibration procedure.

Security: User 4



TIGHTLINE PARAMETERS & OPERATING DATA

The screenshot displays the 'Tightline Parameters Screen' with the following elements:

- Parameter Settings:**
 - STATIC TIGHTLINE LENGTH: [###.##] METERS
 - DYNAMIC TIGHTLINE LENGTH: [###.##] METERS
 - HOIST CHAIN/HARDWARE LENGTH: [###.##] METERS
 - DRAG CHAIN/HARDWARE LENGTH: [###.##] METERS
 - ROPE VELOCITY FACTOR: [##.##]
- Summary Table:**

| | |
|----------------------|---------------|
| HOIST ROPE ACTIVE | ###.## Meters |
| DRAG ROPE ACTIVE | ###.## Meters |
| HOIST ROPE LENGTH | ###.## Meters |
| DRAG ROPE LENGTH | ###.## Meters |
| REFERENCE MULTIPLIER | ### |
- Control Buttons:**
 - Tightline System On (pushbutton)
 - Limit Calibration Screen (pushbutton)
 - Main Menu (pushbutton)
 - HELP! (pushbutton)
- Footer:** ## stpo1073

Tightline Parameters Screen

The Tightline Parameters Screen allows the user to set length and velocity factor values relative to tightline operation.

To change a setting, touch the number entry box for the desired setting. A keypad will pop up on the screen. Enter the desired number and then press the enter key. If you make a mistake, the bckSP key can be used to backspace over the error. The ESC key will cancel the change before it is entered.

Each entry is limited in the values that can be entered. These limits are predefined for the particular value being changed. If a number is entered outside these predefined limits, a "setting out of range" message will be displayed and the value will not be changed.

The tightline protection system can be made active (turned on) or disabled (turned off) by alternately pressing the "tightline system on-off" pushbutton.

Security: User 4



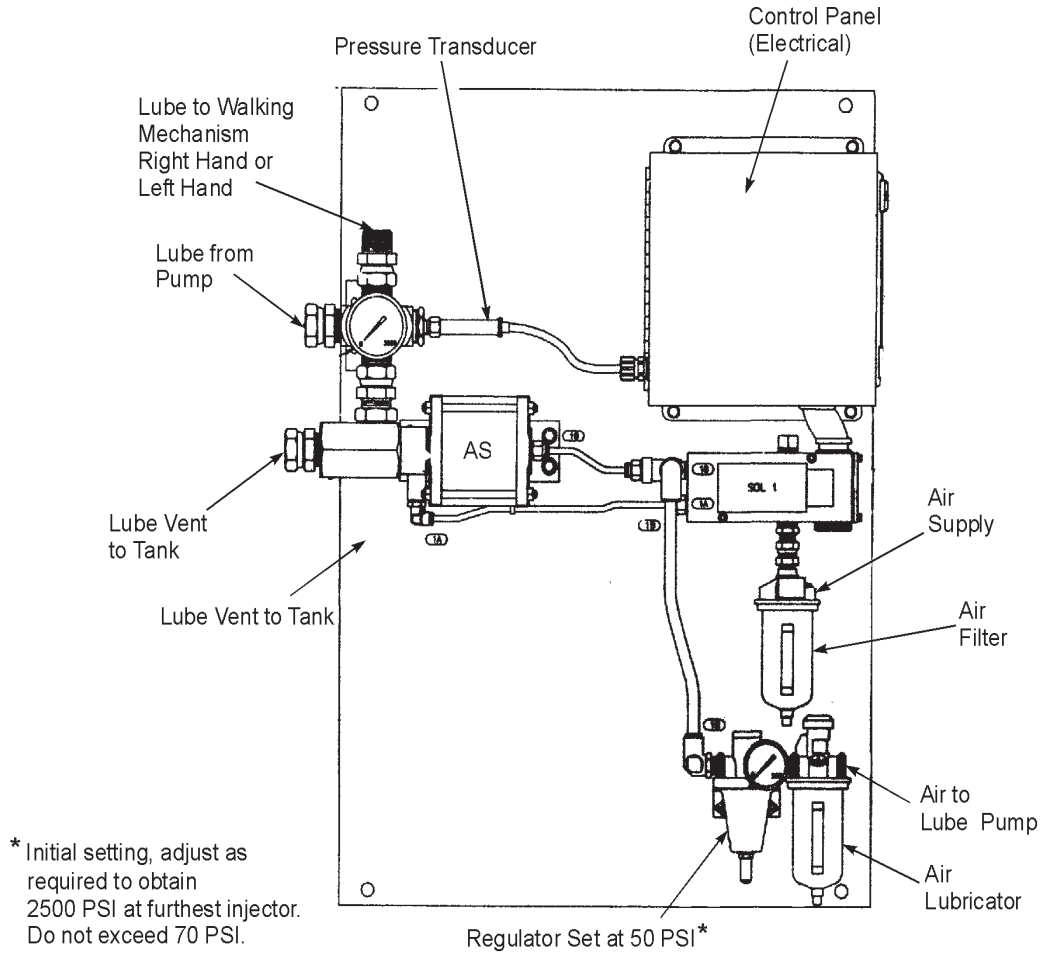
| Frame Size | Grease at each bearing Min. (Reservoir 1/2 full) & Max. (Reservoir 3/4 full) | | | |
|------------|---|--------------------------------|---------------|--------------|
| | Grease Inch ³ | Grease Centimeter ³ | Grease Ounces | Grease Grams |
| 802 | 3.5-4.5 | 57-74 | 1.75-2.25 | 50-64 |
| 803 | 4-5.5 | 66-90 | 2-2.75 | 50-78 |
| 804 | 5-7 | 82-115 | 2.5-3.5 | 71-99 |
| 806 | 6.5-9 | 107-147 | 3.25-4.5 | 92-128 |
| 808 | 8.5-11.5 | 139-188 | 4.25-5.75 | 120-163 |
| 810 | 13-17.5 | 213-287 | 6.5-8.75 | 184-248 |
| 812 | 17-23 | 279-377 | 8.5-11.5 | 241-326 |
| 814 | 20-27 | 328-442 | 10-13.5 | 284-383 |
| 816 | 24-32 | 393-524 | 12-16 | 340-454 |
| 818 | 24-33 | 393-541 | 12-16.5 | 340-468 |
| 820 | 29-38 | 475-623 | 14.5-19 | 411-539 |
| 822 | 34-45 | 557-737 | 17-22.5 | 482-638 |
| 824 | 42-51 | 688-836 | 21-25.5 | 595-723 |
| 828 | 67-78 | 1098-1278 | 33.5-39 | 950-1106 |

tbl_blub

Bearing Lubrication Data

For guidelines on purging motor bearing cavities and on replacing old bearing lube with new, refer to manufacturers publications and instructions.

CWSL CONTROL PANEL (2 PANELS)



csw1073

CWSL Control Panels:

System AS When transferred from dig to propel, the right walking shoe guides and wear plate are prelubed with 2 lube cycles. The system will continue to cycle once every step thereafter.

System AS When transferred from dig to propel, the left walking shoe guides and wear plate are prelubed with 2 lube cycles. The system will continue to cycle once every tenth step thereafter.



MULTIPURPOSE GREASE (MPG) TIMING #1

| | | |
|------|--|----------------------------------|
| ### | MINUTES - SYSTEM AP PROPEL MACHINERY BEAR INTERVAL TIME | Lube System Timing Menu |
| ### | SECONDS - SYSTEM AP VENT PRESSURE FAULT TIMER | Operator's Screen |
| ### | SECONDS - SYSTEM AP LOW PRESSURE FAULT TIMER | Lube Systems D & E |
| ### | MINUTES - SYSTEM B FAIRLEAD BEARINGS INTERVAL TIME | Lube Systems F & G |
| ### | SECONDS - SYSTEM B VENT PRESSURE FAULT TIMER | |
| ### | SECONDS - SYSTEM B LOW PRESSURE FAULT TIMER | |
| #### | PSI - LUBRICATION SYSTEM MAXIMUM PRESSURE | |
| ### | PSI - LUBRICATION SYSTEM VENT PRESSURE | HELP! |

smpa1073

Multipurpose Grease (MPG) Timing #1 Screen

The number entry boxes on the left side of the screen provide a digital readout of the current PLC settings for each time interval or pressure. A numerical keypad appears on the screen whenever a numerical readout is pressed. Enter a new value, within the preset limitations, and press the ENTER button. The original PLC setting is then replaced by the new value.

The recommended settings on the MPG Timing Screen #1 for Lube Systems AP and B are:

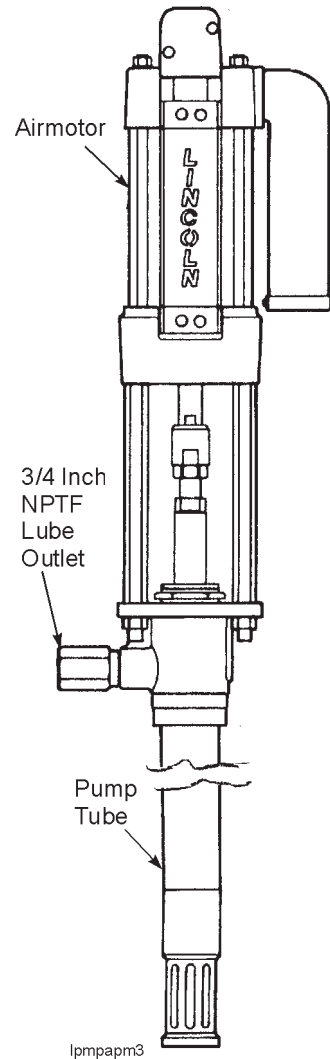
- 3 MINUTES - SYSTEM AP PROPEL MACHINERY BEARINGS INTERVAL TIME
- 60 SECONDS - SYSTEM AP VENT PRESSURE FAULT TIMER
- 60 SECONDS - SYSTEM AP LOW PRESSURE FAULT TIMER
- 30 MINUTES - SYSTEM B FAIRLEAD BEARINGS INTERVAL TIME
- 60 SECONDS - SYSTEM B VENT PRESSURE FAULT TIMER
- 60 SECONDS - SYSTEM B LOW PRESSURE FAULT TIMER
- 2500 PSI - LUBRICATION SYSTEM MAXIMUM PRESSURE
- 500 PSI - LUBRICATION SYSTEM VENT PRESSURE



PUMP PRIMING

To begin operation, the pump must be primed with the pumped material. The Power-Master III pump is a double acting (pumps material on "up" & "down" stroke) positive displacement reciprocating pump and as such intakes material only on the "up" stroke. To prime pump, open output line (material valve) and slowly open air supply valve until pump starts. Allow pump to cycle very slowly until all air is pushed out of lines and material fills up pump and lines. Close output line (material shut-off valve). Pump should stall against pressure.

Note: Pumps are factory tested with light oil. A small amount of oil is left in to protect pump parts during storage and transportation. To prevent contamination of lubricant being pumped, flush pump thoroughly before use.



| Troubleshooting | | |
|--|---|--|
| Problem | Possible Cause | Solution |
| Pump does not operate. | Restricted or inadequate air supply. Obstructed material output. | Check air supply pressure and air hose diameter (see Airmotor manual for minimum air supply hose diameter). Check output line for restrictions. |
| Erratic or accelerated operation. | Pump is not primed. Insufficient material supply. Material is too heavy for priming. | Prime pump (see "Pump Priming" instructions). Refill material supply. Lower output with material valve. Increase pressure to pressure primer (if in use). Check for inlet restrictions. |
| Pump operates on "down" stroke only (missing "up" stroke). | Worn or damaged Bushing & Plunger or Piston Check. | Check and replace if needed. |
| Pump operates on "up" stroke only (missing "down" stroke). | Worn or damaged Inlet Check. Insufficient material supply. Pump is not intaking enough material to dispense on both strokes. | Check and replace if needed. Check inlet for restrictions. Lower output with material valve. |
| Pump is operating but not dispensing material. | Inlet Check is not seating or is damaged. | Check and replace if needed. |

tbpptrbl



ADJUSTING THE VALVE PLUG

It is possible, even after pressure equalization described above, that at high temperatures, the valve plug assembly may become jammed of the valve seat -faces through unequal expansion of adjacent parts. Jamming can also occur if the strainer is accidentally hit or dropped on the valve stem. To remedy this condition proceed as follows:

- A. Loosen hex nuts slightly and be sure the set screw in the handle hub is tight.
- B. Place a piece of flat stock under the hub of the valve handle Using locking flange stud as a fulcrum, pry firmly so that the valve plug assembly is lifted in a vertical direction while the valve housing costing is tapped with a hammer.
- C. In rare instances it may be necessary to top the underside of the valve handle hub lightly in a vertical direction to break the valve free of its seat.
- D. To readjust the valve, after it has been free, tighten hex nuts evenly and a very little at a time. While doing this constantly try the action of the valve plug assembly by moving the valve handle through its cycle of operation, When the action just begins to feel tight or snug, the valve is in its proper position. To determine whether or not the valve is by-passing liquid, remove the cover of the chamber not in use and if the level of the liquid in this chamber continues to rise it will be necessary to further position the plug. E. To hold the plug in position bring the hex jam nuts up against the underside of the locking flange and the unit is ready for operation.

NOTE: NEVER try to force the valve plug assembly through its cycle of operation. It should at all times, move freely without the aid of any additional leverage other than that provided through the mechanical advantage of the valve handle.

Each valve plug is individually mated with the valve seat to produce a close fit. Therefore, NEVER put any pressure on the top of the valve plug assembly as this could force the tapered plug more firmly on its seat and could result in damaging the seat faces.

REPACKING THE STUFFING BOX

- A. Remove the valve handle and remove the Woodruff Key at hub (not shown).
- B. Remove the locking flange after first removing the hexnuts
- C. Remove the hex head cap screws.
- D. Remove the gland.
- E. The stuffing box may now be repacked. Use a good grade of 1/4" square graphited asbestos valve stem packing.
- F. To replace component parts, reverse procedure as above described.

**MPG - MULTI-PURPOSE TYPE GREASE****Scope:**

Lubricant performance requirements for Multi-Purpose Type Grease.

Application: For heavy duty ball, roller and plain bearings.

General Requirements:

1. Heat resistance - Shall be thermally stable.
2. Retention in bearings - Shall not exhibit high leakage.
3. Mechanical stability - Shall work continuously with a minimum change in consistency.
4. Water resistance - Shall withstand water wash-out or leaching.
5. Reversibility - Shall be stable with repeated heating and cooling.
6. Pressure oil separation - Shall resist oil-soap separation.
7. Dispensability- Shall have the ability to be pumped through automatic lubrication systems without the aid of heat tracing on the lube lines at the designated ambient temperatures.
8. Extreme pressure - Shall withstand heavy shock loading.
9. Compatibility - Low Temperature greases shall be compatible with mineral oil based greases and their oil seal material.

Compounding:

Suitable for producing the extreme pressure characteristics (without inert fillers) required for heavy duty ball, roller and plain bearing lubrication.



RGL - REGULAR TYPE GEAR LUBRICANT

Scope:

Lubricant performance requirements for Regular Type Gear Lubricant.

Application:

For enclosed helical, spur and herringbone or gear assemblies subjected to severe shock loads.

General Requirements:

| PROPERTY | PROCEDURE ASTM | ACCEPTANCE | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|-------------------|--|--------------|-------|-------------|--------------|---|------|---------|----------|---------------------|-------|------|------|------------|------|-------|-------|-----------------|--|--------|--------|
| Oxidation Stability | D2893 | Increase in Kinematic viscosity at 210 F should not exceed 8% | | | | | | | | | | | | | | | | | | | | |
| Rust Protection | D665 | No rust after 24 hours with syn thetic sea water | | | | | | | | | | | | | | | | | | | | |
| Corrosion Protection | D130 | #1b strip after 3 hours at 250 F | | | | | | | | | | | | | | | | | | | | |
| Foam Suppression | D892 | Test Limits Max. Vol. Of foam (ML) after: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Seq.</th> <th>Temp.</th> <th>5 Min. Blow</th> <th>10 Min. Rest</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>75oF</td> <td>75</td> <td>10</td> </tr> <tr> <td>II</td> <td>200oF</td> <td>75</td> <td>10</td> </tr> <tr> <td>III</td> <td>75oF</td> <td>75</td> <td>10</td> </tr> </tbody> </table> | Seq. | Temp. | 5 Min. Blow | 10 Min. Rest | I | 75oF | 75 | 10 | II | 200oF | 75 | 10 | III | 75oF | 75 | 10 | | | | |
| Seq. | Temp. | 5 Min. Blow | 10 Min. Rest | | | | | | | | | | | | | | | | | | | |
| I | 75oF | 75 | 10 | | | | | | | | | | | | | | | | | | | |
| II | 200oF | 75 | 10 | | | | | | | | | | | | | | | | | | | |
| III | 75oF | 75 | 10 | | | | | | | | | | | | | | | | | | | |
| Demulsability (Per para. 3.2) | D2711-69 | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="2" style="text-align: center;">AGMA GRADES</th> </tr> <tr> <th colspan="2"></th> <th style="text-align: center;">2EP-6EP</th> <th style="text-align: center;">7EP & UP</th> </tr> </thead> <tbody> <tr> <td>Max. % Water in Oil</td> <td></td> <td style="text-align: center;">1.0%</td> <td style="text-align: center;">1.0%</td> </tr> <tr> <td>Max. Cuff.</td> <td></td> <td style="text-align: center;">2.0ml</td> <td style="text-align: center;">4.0ml</td> </tr> <tr> <td>Min. Free Water</td> <td></td> <td style="text-align: center;">60.0ml</td> <td style="text-align: center;">50.0ml</td> </tr> </tbody> </table> | | | AGMA GRADES | | | | 2EP-6EP | 7EP & UP | Max. % Water in Oil | | 1.0% | 1.0% | Max. Cuff. | | 2.0ml | 4.0ml | Min. Free Water | | 60.0ml | 50.0ml |
| | | AGMA GRADES | | | | | | | | | | | | | | | | | | | | |
| | | 2EP-6EP | 7EP & UP | | | | | | | | | | | | | | | | | | | |
| Max. % Water in Oil | | 1.0% | 1.0% | | | | | | | | | | | | | | | | | | | |
| Max. Cuff. | | 2.0ml | 4.0ml | | | | | | | | | | | | | | | | | | | |
| Min. Free Water | | 60.0ml | 50.0ml | | | | | | | | | | | | | | | | | | | |
| Timken OK Load | D2782 | Pass typical of 55# | | | | | | | | | | | | | | | | | | | | |
| EP Test-4 Ball | D2783 | 1) Load wear index, Min. KG = 40 2) Load weld, Min. KG = 300 | | | | | | | | | | | | | | | | | | | | |
| Wear Test-4 Ball | D2266 | Wear scar diameter, mm. Max. = 6 1 Hr., 130 F, 180 RPM, 20 KG | | | | | | | | | | | | | | | | | | | | |
| Resistance to Separation | | Should not separate in storage and should maintain extreme pressure characteristics when subjected to centrifugal forces in use. | | | | | | | | | | | | | | | | | | | | |

tblprcr



Section **4**

Preventive Maintenance

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SCHEDULED COMPONENT REPLACEMENT

NOTE: The following schedule for component overhaul or replacement is intended to serve as a general guideline only. It does not constitute an implied warranty. There are significant variations due to specific operating conditions and maintenance personnel should be alerted to replacement requirements during the course of normal inspection and maintenance.

6,000 - 10,000 HOURS

1. Autolube System Air Pumps
Replace.
2. Enclosed Gearcases
Flush and clean cases. Add new oil.
3. Oil Seals in M-G Set Bearings
Replace.

12,000 - 16,000 HOURS

1. Air Compressors
Overhaul and/ or replace.
2. Oil Seals in Enclosed Gearcases
Replace seals. Flush and clean cases. Add new oil.
3. Oil Seals in M-G Set Bearings
Replace.
4. Fairlead Swivel Frame Bushings and Thrust Washers
Replace.

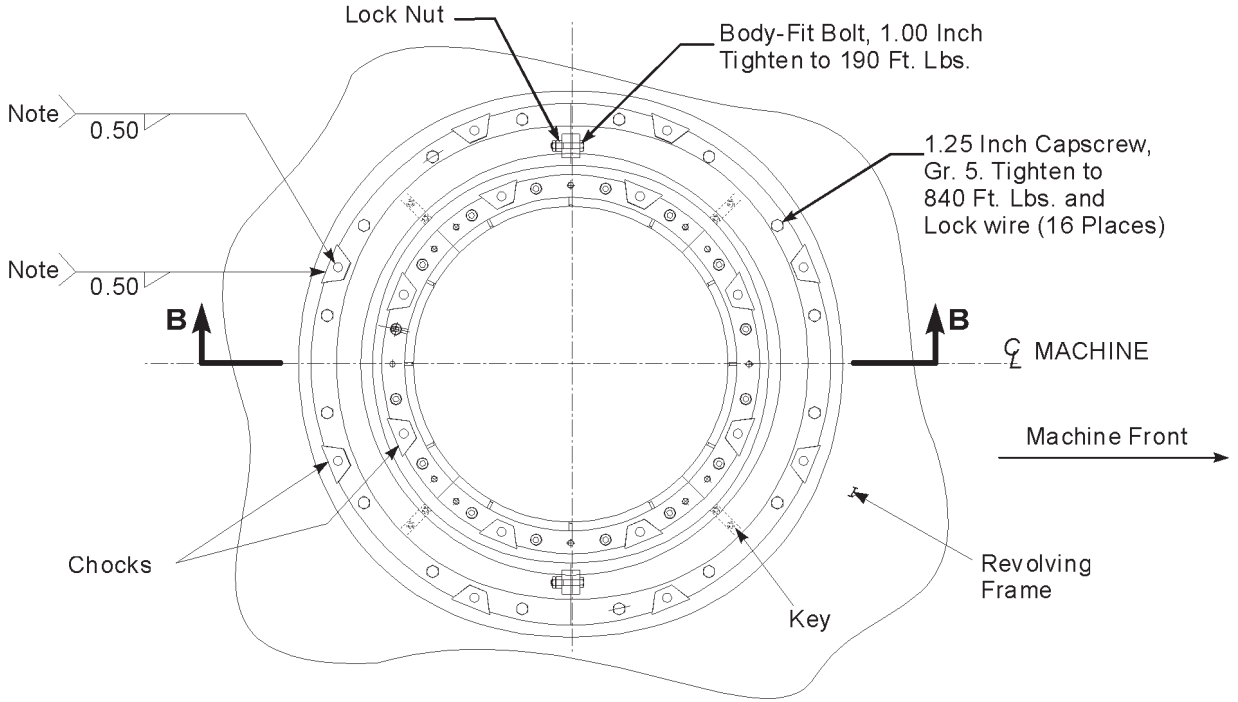
24,000 - 28,000 HOURS

1. Planetary Swing Case
Rebuild.
2. Rope Sheave Anti-Friction Bearings & Seals
Replace all bearings.
3. Hoist and Drag Drum Anti-Friction Bearings
Replace.
4. D.C. Motor Anti-Friction Bearings
Replace.
5. Motor-Generators Anti-Friction Bearings
Replace all bearings.
6. Autolube System Control Valves
Overhaul and/ or replace.
7. Brake Air Magnet Valves
Replace.

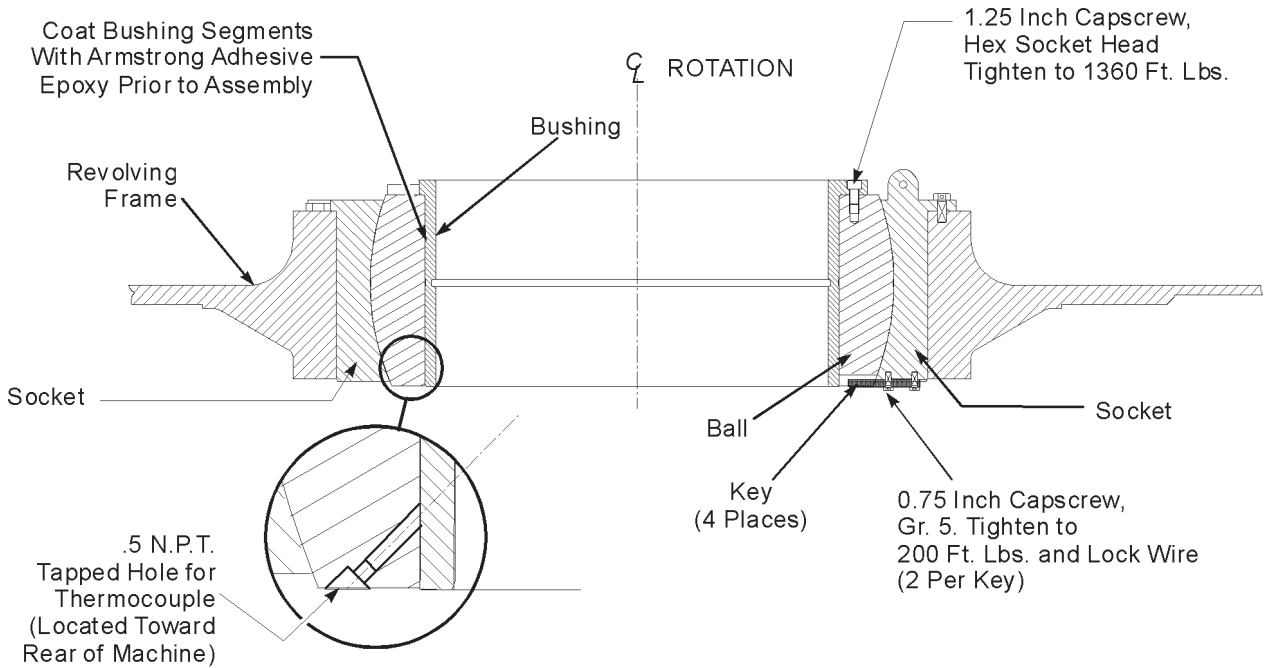


NOTE:

After tightening Capscrews, weld Chocks in place. Weld holes then edge.



VIEW A-A



VIEW B-B
Center Pintle Bushing Assembly

cpbg1073

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LOWER RAIL REPLACEMENT

1. Move the machine to a level work area.
2. Place the new rail segment on the base frame close to the rail to be removed.
3. Rotate the machine to place the rail to be removed at the rear of the revolving frame and in line with a roller circle segment.
4. Lift the revolving frame until the gap between the hook shoe and hook rail is removed by taking a partial propel step. Do not lift the base frame. Set all brakes. Tag and lock out the controls.



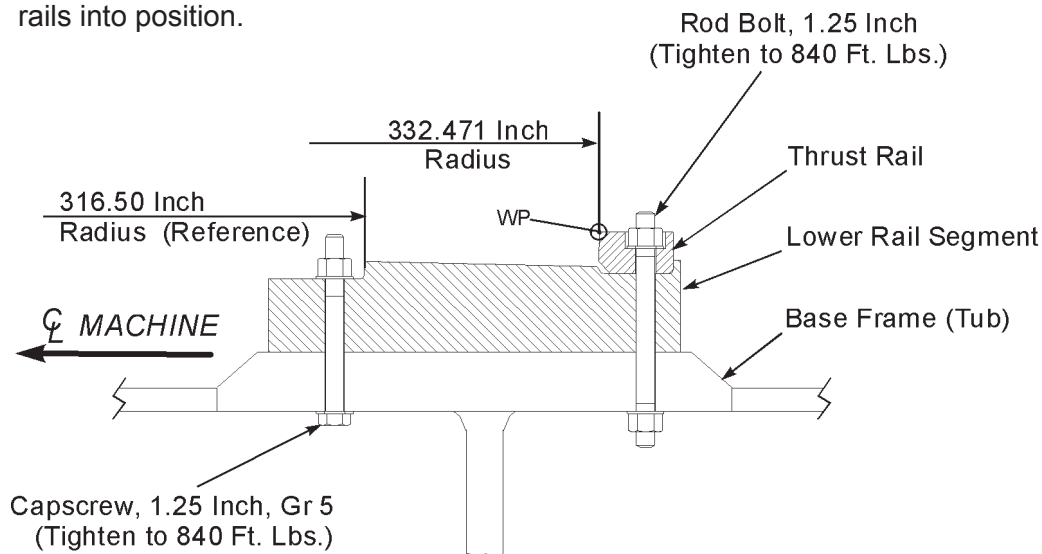
Danger: Failure to tag and isolate the controls could result in serious injury or possible death to personnel.

5. Block between the revolving and base frames. If additional rails are to be replaced, locate the blocking so that it does not interfere with the rails to be removed.



Danger: Do not remove any parts before blocking the frames.

6. Remove the bolts which secure the rail to the base frame. Remove the thrust rail.
7. Remove the outer roller circle retainer and the rollers which rest on the rail.
8. Remove the 4,000 lb. rail.
9. Clean all mating surfaces between the new rail and base frame. Set the new roller and thrust rails into position.



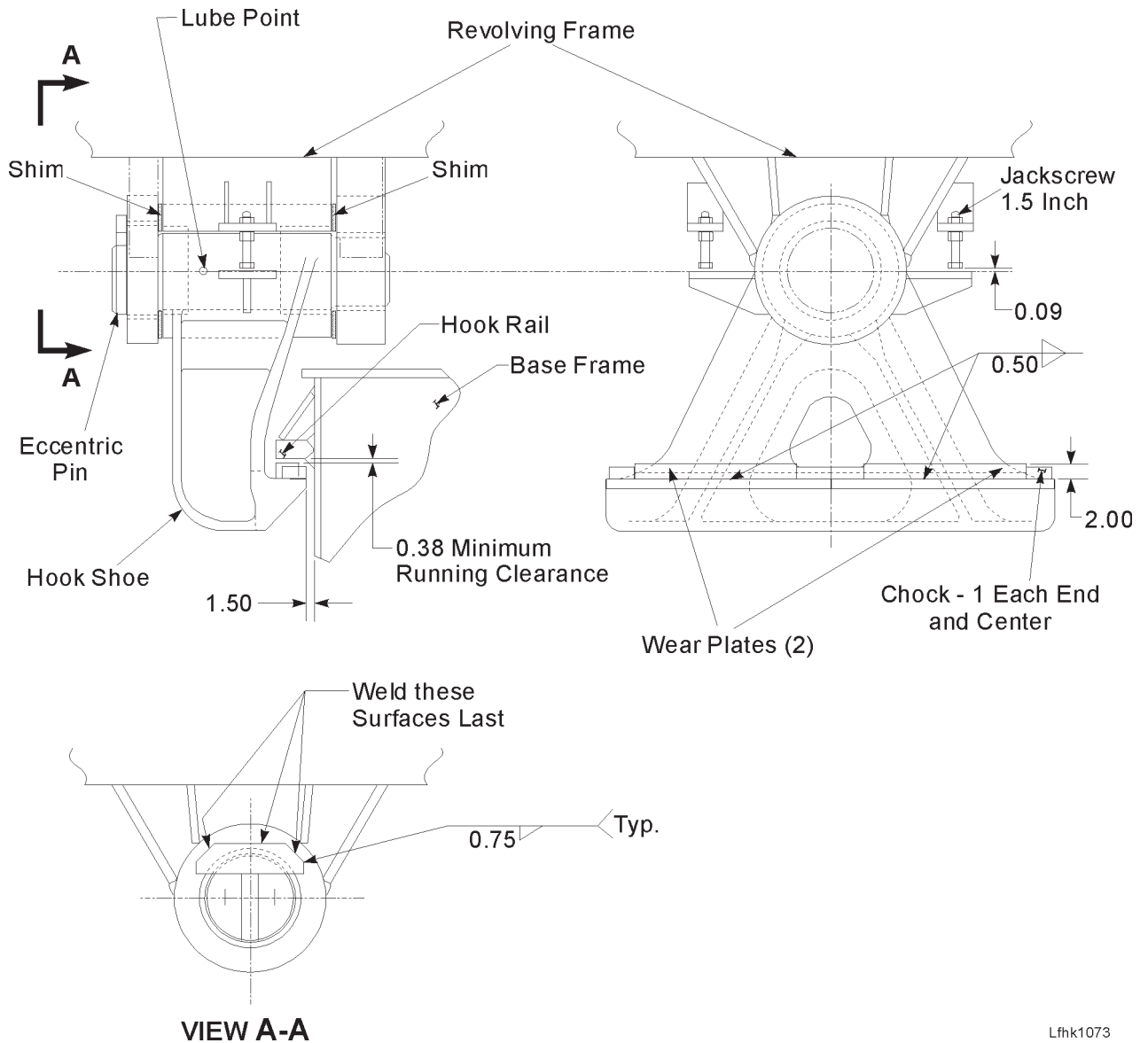
SECTION B-B

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LIFTING HOOK

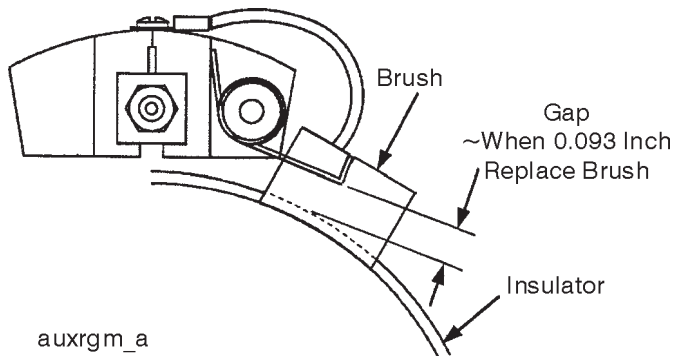
Two lifting hooks lift the leading edge of the base frame during the walking step. Each shoe is pinned to a support bracket which is an integral part of the revolving frame. Inspect the hook shoe, hook shoe bracket and hook rail weekly for cracks or damage. Weld repair or replace as required.



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BRUSHES

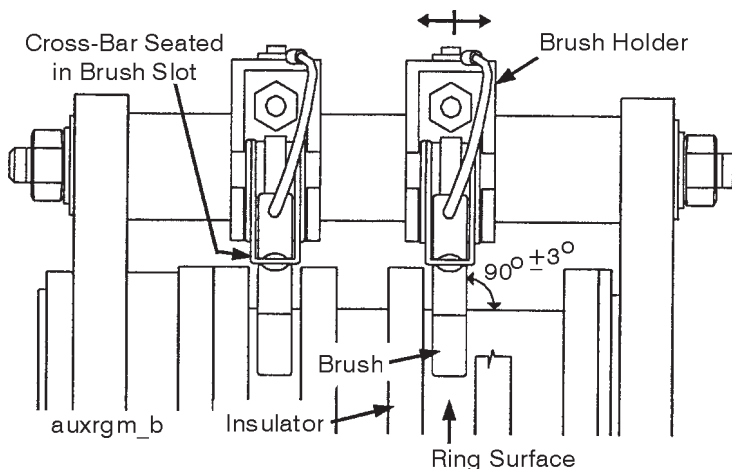


- Inspect for wear. If the distance from the top of the insulator to the lower part of the brush spring is 0.093" or less, replace the brush.
- Inspect brush contact surface by removing the brush. Remove surface dirt, oxidation, pitting, or other contaminants (with a wire brush).

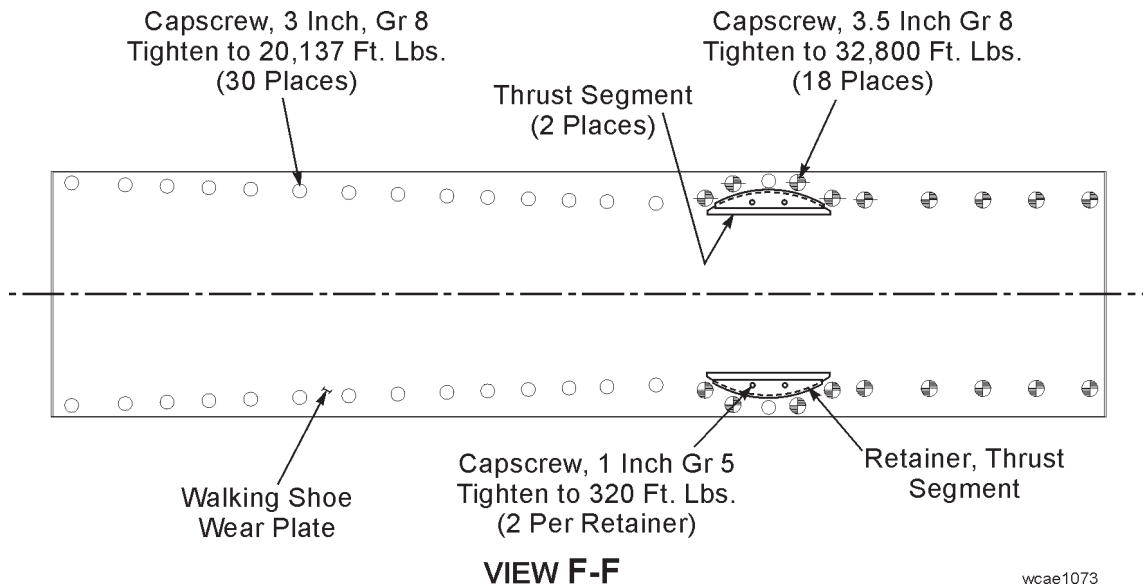
To remove and replace the brush:

1. Remove the clamp screw from the brush holder.
2. Remove the screw from the brush lead.
3. Remove the brush holder .
4. Replace the brush.
5. Reassemble.

BRUSH FIT INSPECTION



- Brushes must run at $90^{\circ} \pm 3^{\circ}$ square on the rings. If brush is not square, adjust position of brush holder on brush post.
- Brushes need not run on the center of the rings, but there should be no forceful friction against the insulators.
- The brush spring cross-bar must be seated in the brush slot.

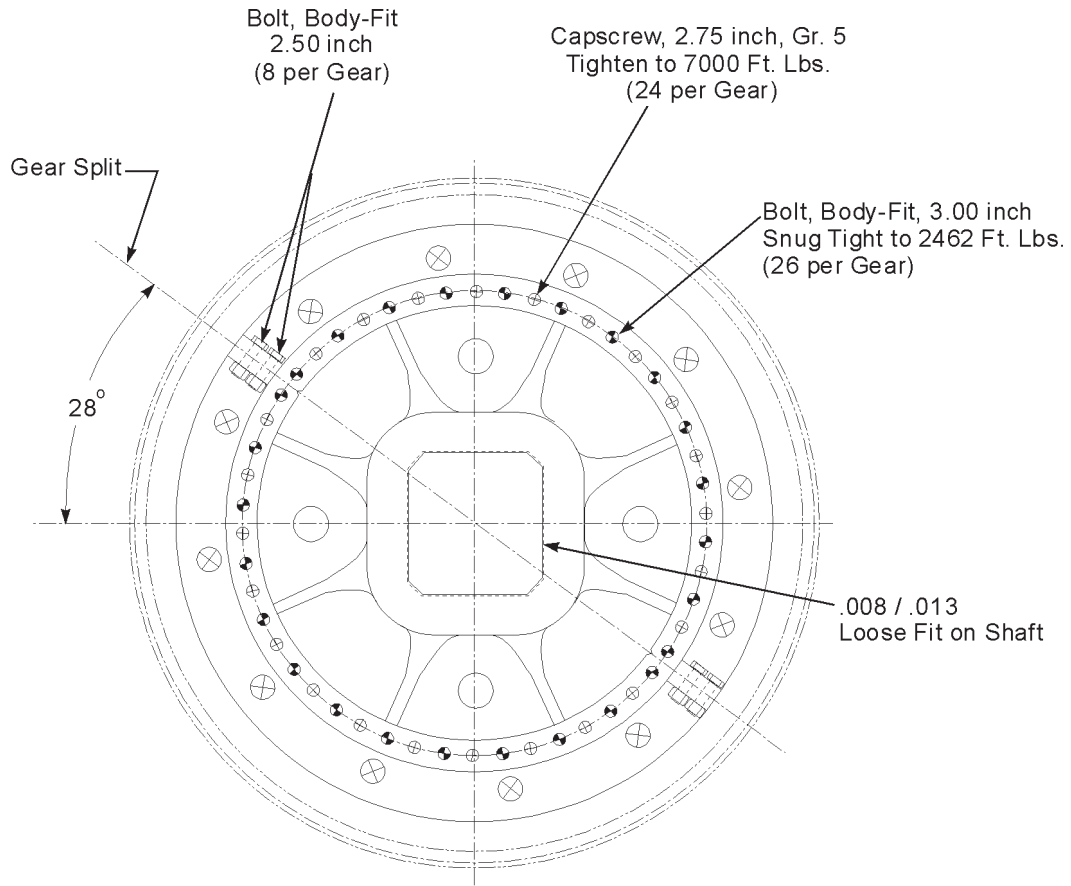


WALKING SHOE ASSEMBLY NOTES

- Apply a thin coat of Molycote type G to the sliding shoe wear plates at assembly.
- Adjust the Guide shoe shim height to provide no more than .060 inch gap between the sliding shoe and retainer wear plate.
- Install the shoe lug shims in the same location as removed.
- Replace the dirt shield seals.
- Install the shoe pins with the tapped hole to the outside.
- Apply a thin coat of Molycote type G to the cam link spherical bushings.
- As each component is assembled fill the lube passages and purge all lube lines before reconnecting.



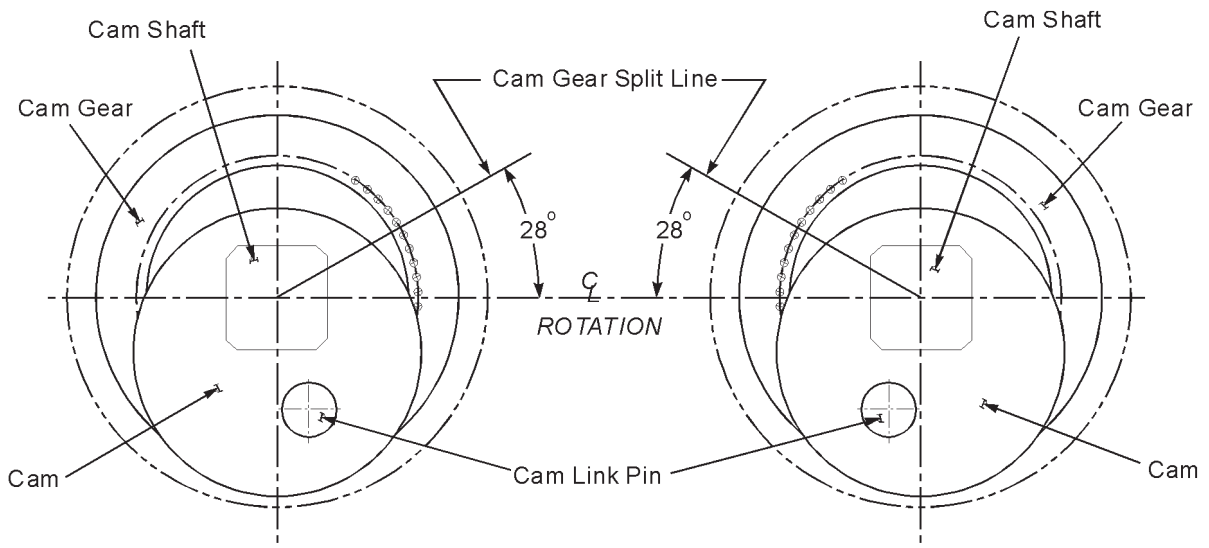
2570WS Walking Dragline



VIEW HH

NOTE:

The Cam Gear can be rotated 180° or reversed on the Spider to extend the Tooth Life.



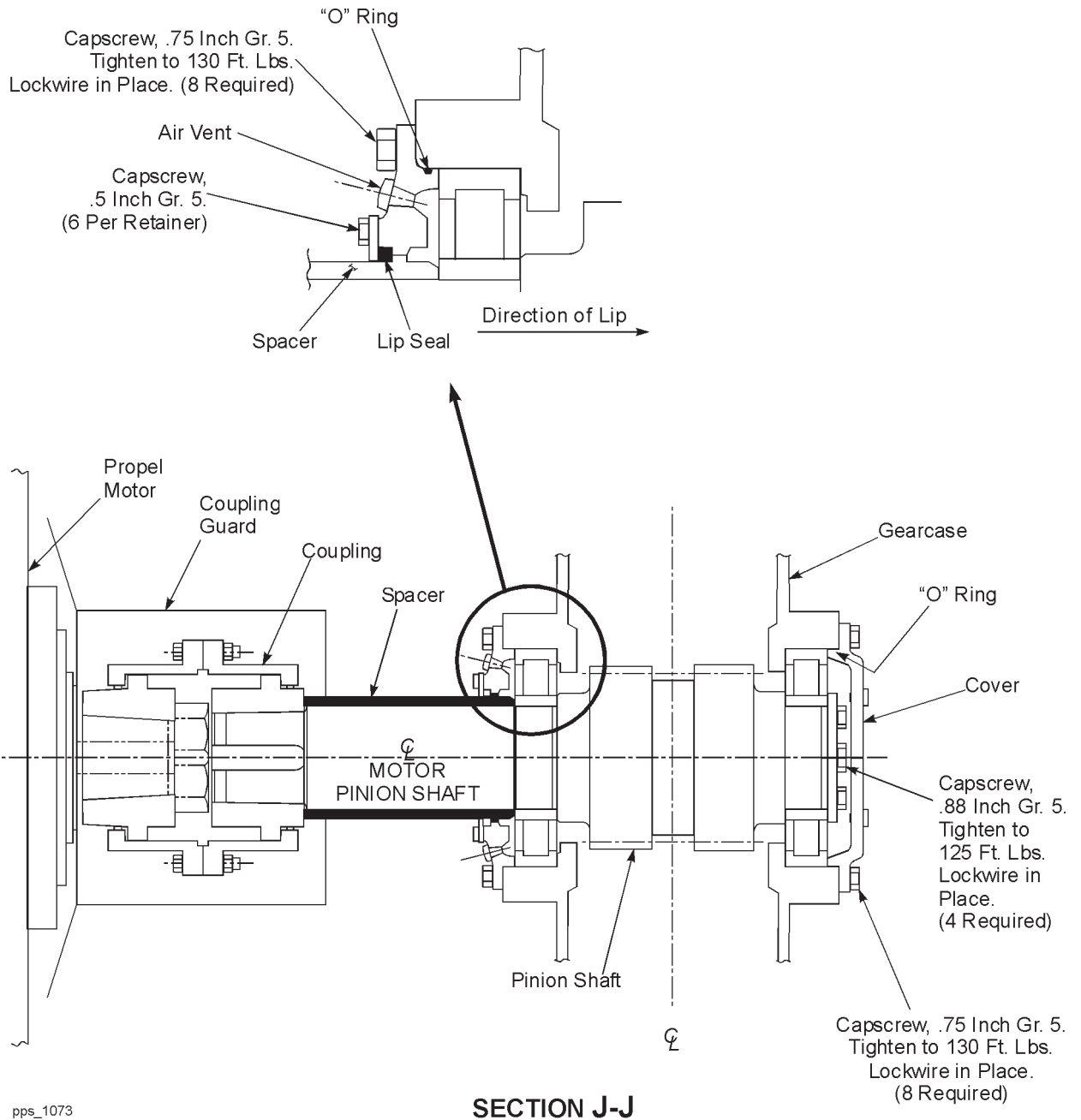
L.H. CAM GEAR ORIENTATION SHOWN

R.H. CAM GEAR ORIENTATION SHOWN

cmgr1073



PROPEL PINION SHAFT

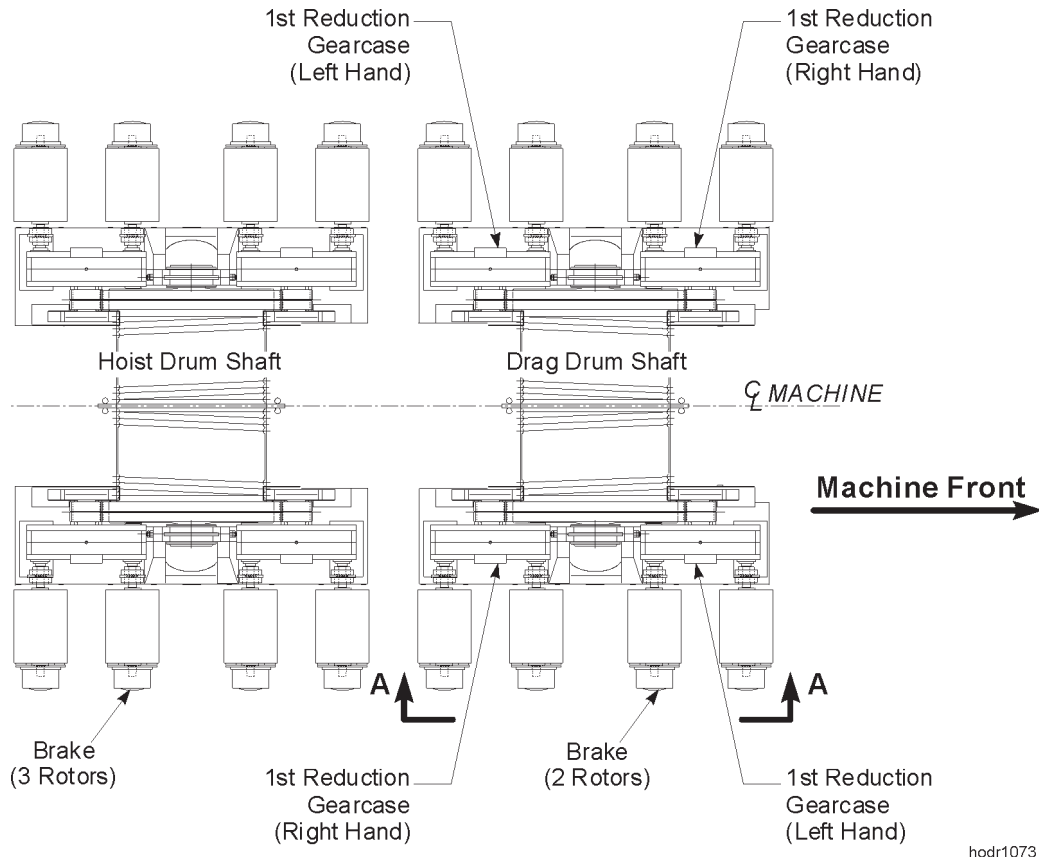


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HOIST AND DRAG MACHINERY

With the exception of the drums, rope anchor plates, machinery bases and motor pedestals, the hoist and drag machinery are the same. Each drum is driven by 8 horizontal shaft mill-type D.C. motors coupled to a double reduction gear train. The first reduction is mounted in an oil-tight gearcase. The second reduction is enclosed in a guard and lubricated with OGL.



Check the bases and pedestals for cracks, loose bolts and chocks monthly. Check for leaks and oil level on each of the first-reduction gearcases, inspect the drum gears and mating pinions for lube coverage and correct wear pattern daily.

NOTE: Do not weld the chocks in place until the base mounting bolts have been installed and tightened to specification. Clean the base, wedge and chock mating surfaces to obtain a minimum contact area of 70%.



7. Lift the 7,400 Lb. cover clear of the case. It may be necessary to drive a wedge between the case and cover to break the seal. The case covers are not interchangeable with other lower cases. Match-mark the case and cover before removing the cover.
8. Remove the remaining bearing retainer capscrews and retainers covering the ends of the pinion and intermediate shafts.
9. Remove each 2,100 Lb. input pinion shaft from the gearcase. Lift the shaft several inches and remove the outer bearing race from the inboard bearing.



CAUTION: THE OUTER BEARING RACE IS NOT RETAINED AND CAN FALL OFF THE SHAFT.

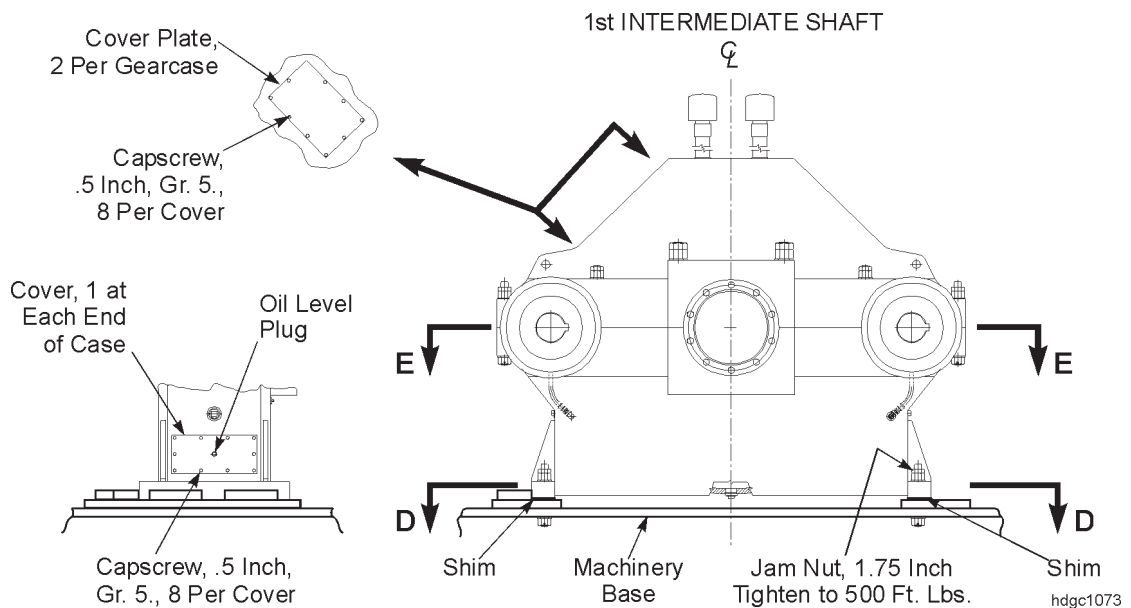
10. Remove the 16,300 Lb. first intermediate shaft from the gearcase. Lift the shaft several inches, and remove the outer bearing races at each end of the shaft.



CAUTION: THESE RACES ARE NOT RETAINED AND CAN FALL OFF THE SHAFT.

11. Disassemble the shafts, clean and inspect the parts. Replace any worn or damaged parts

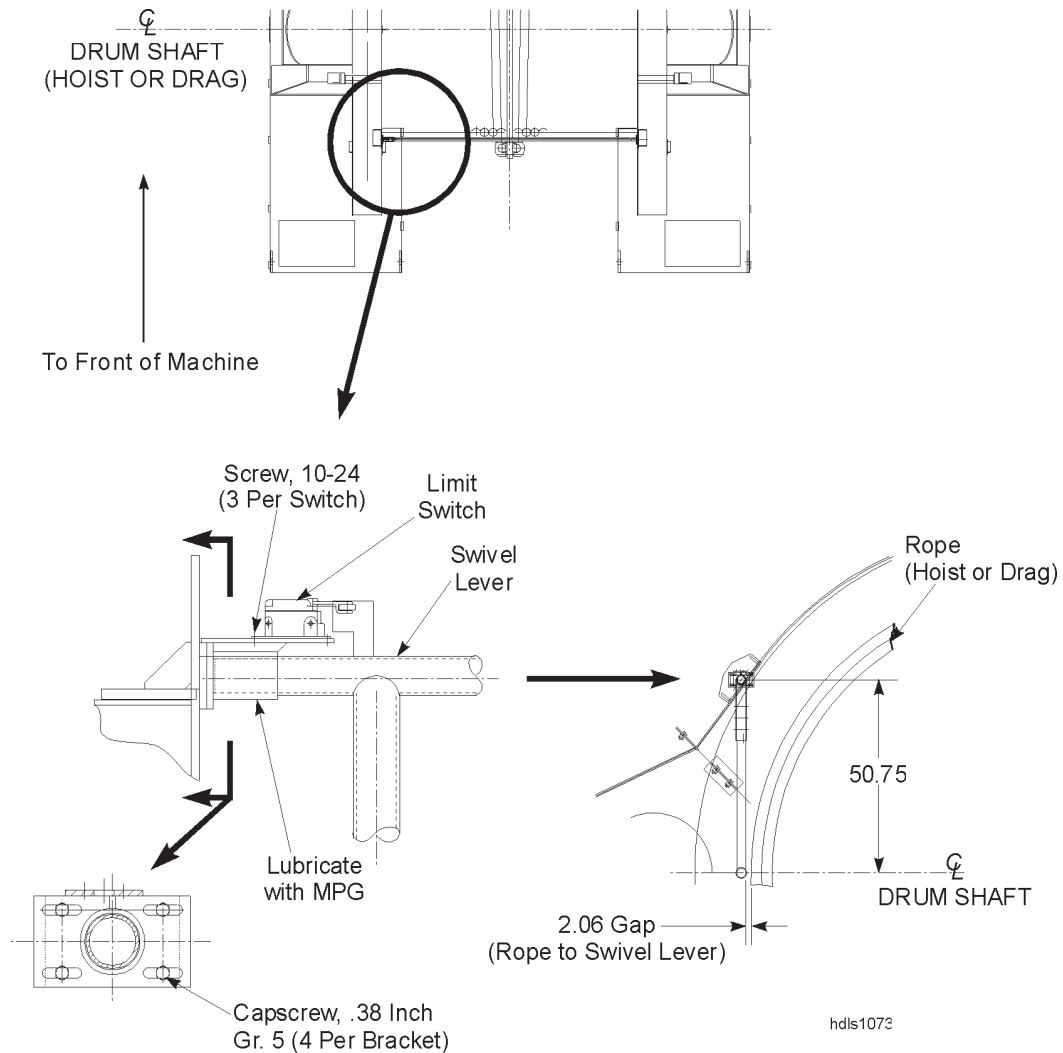
HOIST/DRAW GEARCASE ASSEMBLY





SLACK HOIST/DRAG ROPE LIMIT SWITCHES

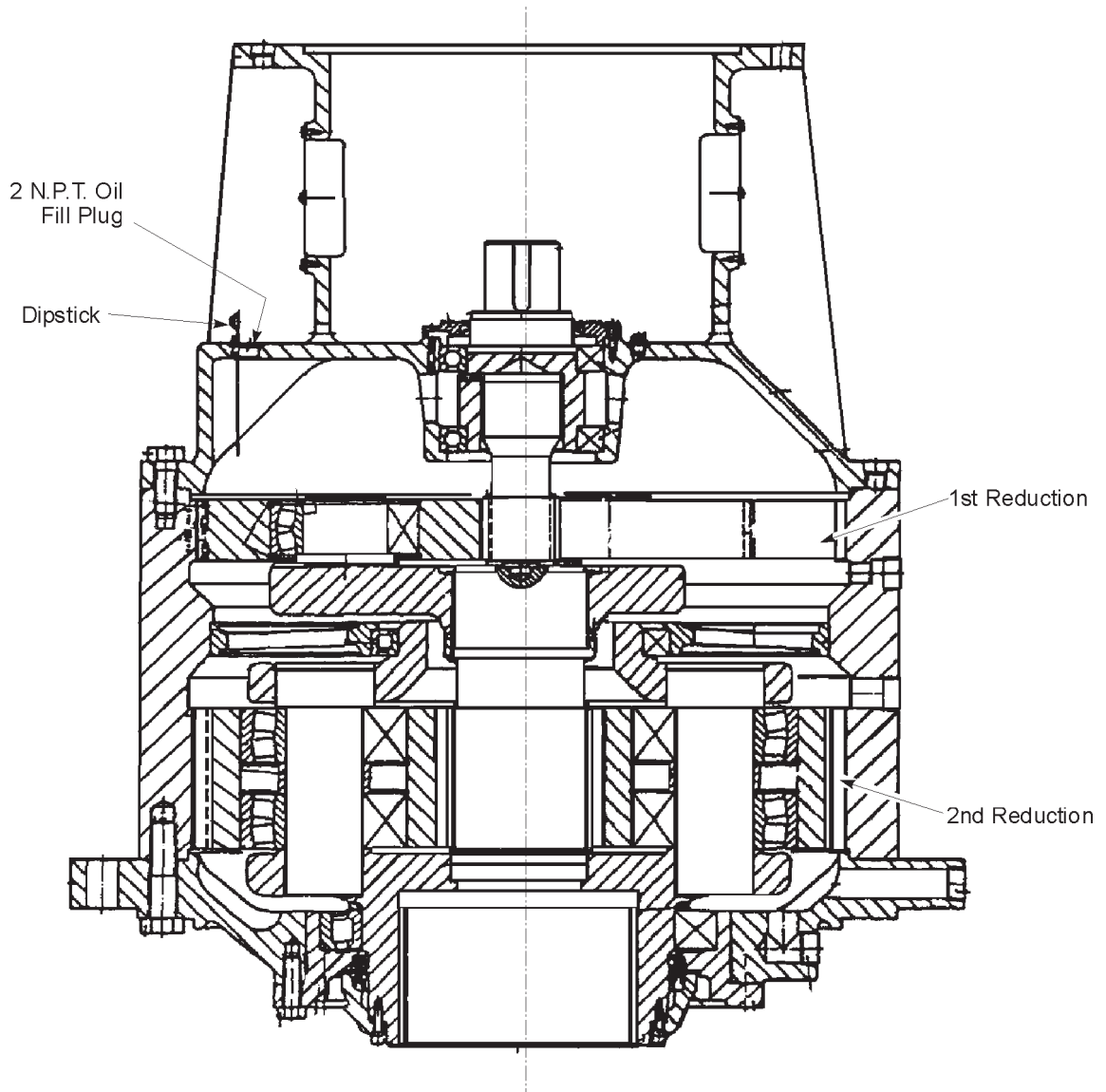
Located behind the hoist and drag drum shafts are the slack rope limit switches. These limit switches will open and deactivate line excitation (L.E.) after 1 second when the ropes are out of their groove. Adjust the swivel lever to obtain a 2.06 Inch clearance with the ropes. Be sure the lever is parallel with the drum and will swing freely. To adjust the limit switch, loosen the 3 screws which secure the switch to the swivel support then move the switch toward the drum until the switch trips (the contacts close). Tighten the 3 mounting screws. Lubricate the swivel lever pivots monthly.





SWING GEARCASE ASSEMBLY

The swing gearcase is a totally enclosed, double-reduction, planetary gearcase. To minimize downtime, it is recommended that the gearcase be replaced as a complete unit if a problem should develop within the gearcase. It is also recommended that the gearcases be scheduled for overhaul after 25,000 operating hours. Contact the Bucyrus International Service Department for assistance with gearcase replacement or service.



SECTION VIEW
(Swing Gearcase)

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To replace the thrust washers:

1. Park the machine on a level area, set the brakes, lock out and tag the controls.
2. Remove the guard over the lower pin, loosen the 4 - 2 inch nuts that secure the adjusting flange and remove all the shims.
3. Raise the 99,000 Lb. swivel frame assembly 1 inch and block in position.



DANGER: FAILURE TO BLOCK THE SWIVEL FRAME COULD RESULT IN SERIOUS INJURY.

4. Remove both thrust washers and clean the mounting surfaces. Remove any nicks or burrs.
5. Coat both new thrust washers with MPG and install. Note that the thrust washer halves are match-marked. Do not interchange these parts.
6. Lower the swivel frame assembly on to the thrust washers and install the adjuster flange shims. Adjust the shims to obtain a gap of approximately .06 inch.
7. Tighten the adjuster flange nuts and install the guard.
8. Return the machine to operation.



MAST PRESSURIZATION

The four main mast chords and the right and left bottom apex chords are pressurized with air to 90 PSI. If the pressure drops to 55 PSI an alarm will sound in the operator’s cab. In the event of an alarm, shut down the machine, determine which member has set off the alarm from the computer in the power control room, check the air piping for leaks then check the member for cracks. Refer to page 134 for line identification. For weld repairs refer to Section 9.

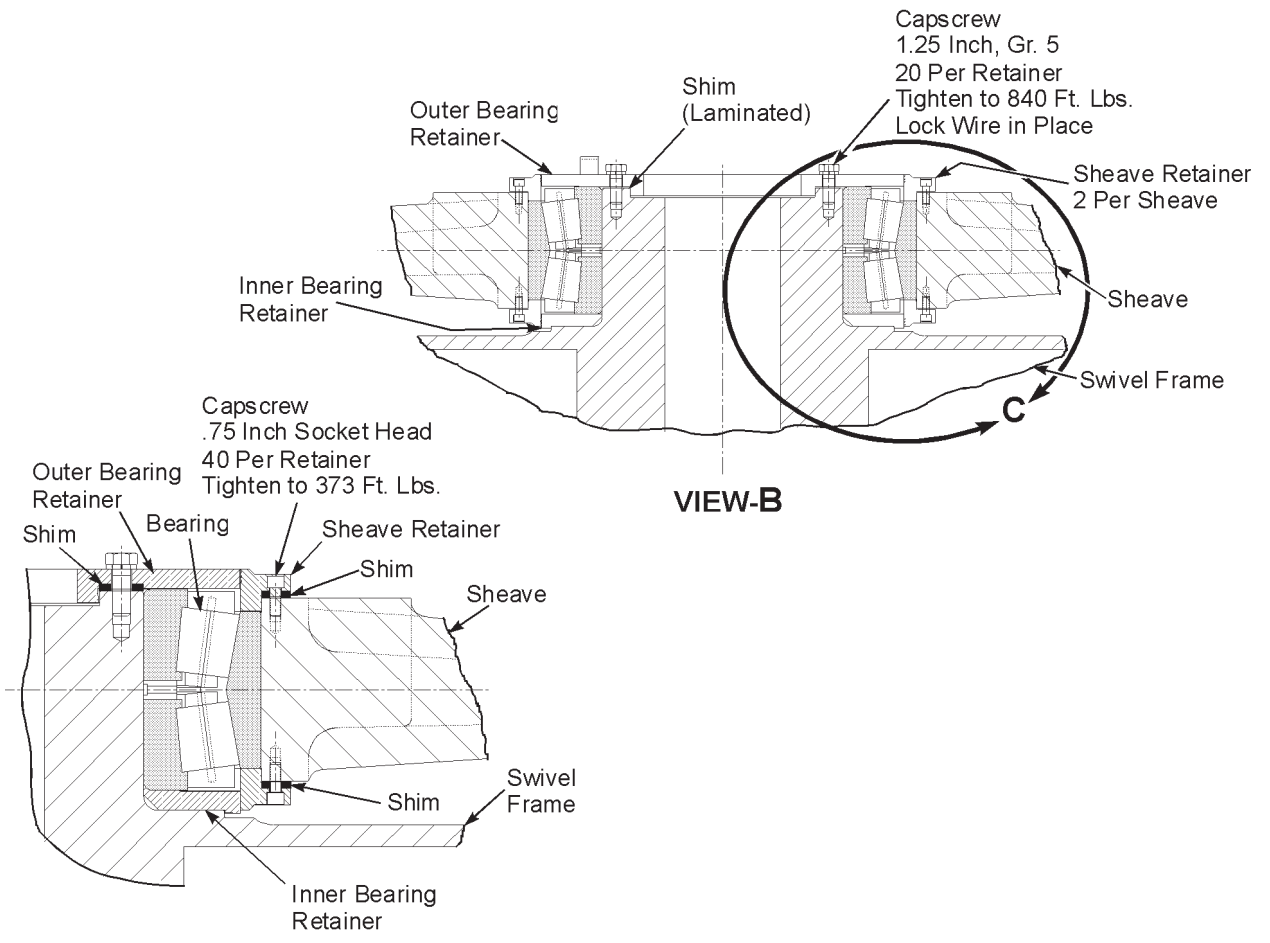
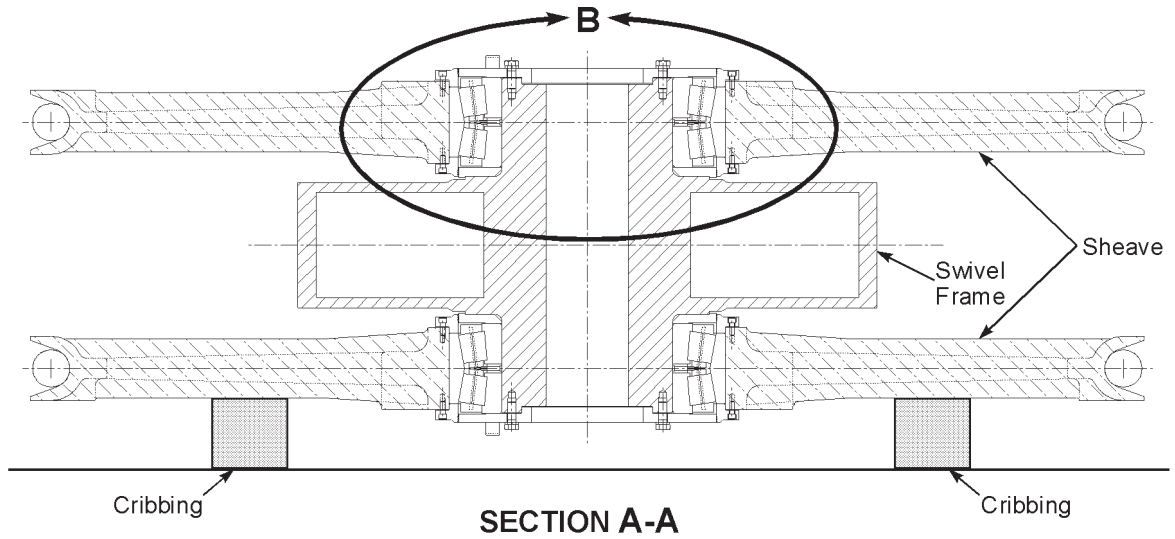
HOIST ROPE DEFLECTING SHEAVE/ROLLER ASSEMBLY

The brackets which support the hoist rope deflecting sheaves and rollers were mounted on the mast with the top hole in the bracket in line with the second hole down from top hole in the mast. If there is excessive bushing wear, or the sheaves spin when the ropes change direction, the sheave brackets can be moved. To reposition each 4,400 Lb. sheave/roller assembly:

1. Lift the hoist ropes off the sheaves, attach winch ropes to the outboard support and inboard supports.
2. Remove the capscrews which attach the brackets to the mast. Do not remove the bracket guides.
3. Slide both brackets along the mast mounting surface to the next hole and secure.
4. Check the sheave for proper operation. Manually lubricate the sheave bearings every 20 hours of operation.



2570WS Walking Dragline



bpsb1073



CAUTION: NEVER ATTEMPT TO LOWER OR RAISE THE BOOM DURING INCLEMENT WEATHER OR AT NIGHT.



CAUTION: ALWAYS USE A SAFETY HARNESS WHEN WORKING ON THE BOOM, MAST, A-FRAME AND UPPER AREAS OF THE HOUSE.

To lower the boom:

1. Set the bucket on the ground and slacken the hoist and drag ropes. Replace the hoist ropes. Refer to the rope replacement procedure. It is recommended that new ropes be used when lowering or rising the boom.
2. On the operator's display terminal, select the boom raising/lowering screen. (This screen is password protected.) Carefully read the help screen before proceeding. In this mode drum speed is reduced to 15% of maximum.
3. Check the tension on the upper and lower suspension pendants. Adjust as required.
4. Remove the rope access covers on the filter house roof and floor.
5. Remove the hand railing behind the boom raising sheaves at the mast head.



9. Install the remaining clamps. Tighten the socket head capscrews to specification.
10. Attach the drag ropes to the bucket.
11. Press the Mode Disable Mode touch pad on the rope reeving screen.
12. Reset the drag drum encoder. Refer to the procedure in Section 2 of this manual.
13. Return the machine to operation.

DRAGLINE BUCKET

The drag bucket operating characteristics are determined by the bucket design. However digging conditions can alter the operation. Advise the bucket manufacturer of any problem and request assistance.

Refer to the manufacturer for lubrication and maintenance information.

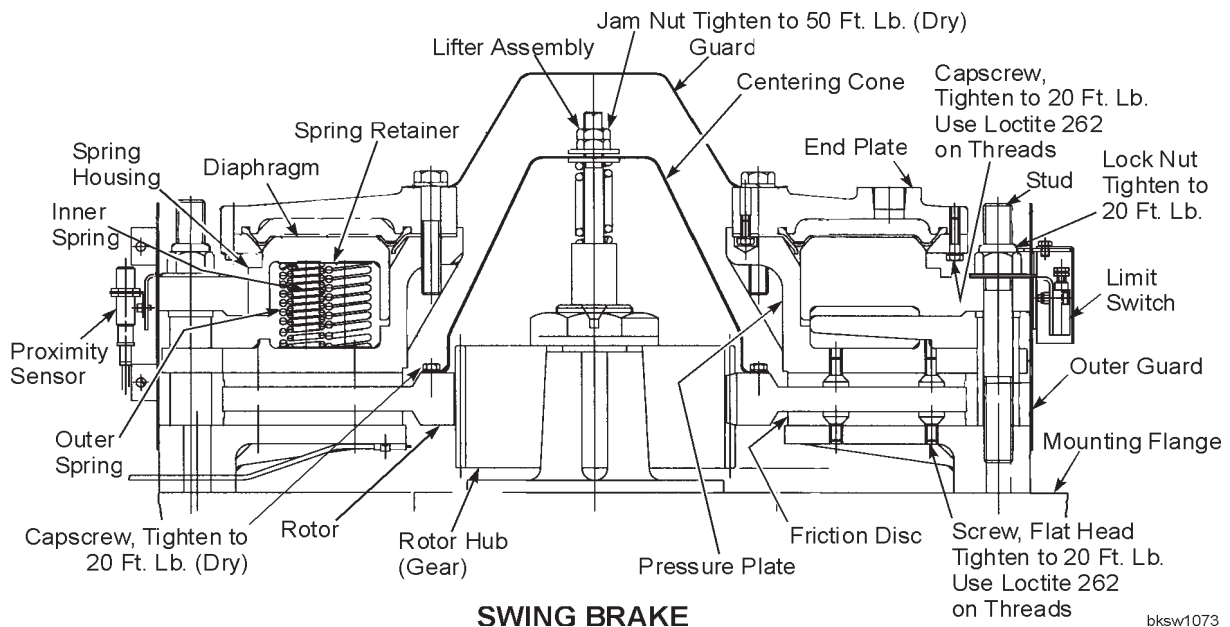
OVERHEAD CRANE

For maintenance and operation of the overhead crane refer to the manufacturer manuals.

Because the hoist ropes interfere with the crane travel, the hoist ropes must be repositioned if the crane is to be used in the forward portion of the machinery house.



SWING BRAKE ASSEMBLY INSTALLATION



1. Install the rotor hub per the instructions for a coupling on a 814 frame D.C. motor. Refer to page 42. Use the nut furnished with the motor to secure the hub.
2. Lightly coat the hub teeth with Molub-Alloy O.G. heavy grease.
3. Set the brake assembly, less the end guard and outer shield, over the rotor hub. Be sure the centering plug engages the countersunk hole in the motor shaft. To align the mounting bolt holes, attach the air line and apply air to the brake to release the brake rotor.



CAUTION: DO NOT EXCEED 120 PSI AIR PRESSURE ON THE BRAKE.

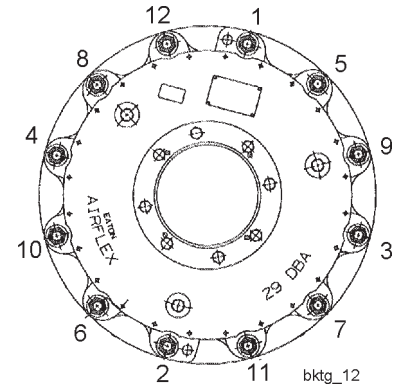
4. Install the six capscrews which secure the brake to the adapter and tighten to specification.

NOTE: For proper operation and service life, the brake must be mounted at right angles to the shaft. The brake should be perpendicular to the shaft within .014 inch TIR on a 29 inch diameter circle. Check that the adapter mounting surfaces are parallel and motor mounting pads are perpendicular to the motor shaft. Machine as required to correct. Do not use shims to align the brake. The use of shims could cause the mounting flange to be warped when the capscrews are tightened.



Partial disassembly is required to install the multiple disc brakes utilizing the disc centering option.

1. Lay the brake assembly on a clean, flat surface, with the mounting flange facing down.
2. Loosen the stud locknuts ONE TURN AT A TIME in an alternating (crosswise) pattern until the spring force is relieved.



CAUTION: THE LOCKNUTS MUST BE LOOSENED GRADUALLY TO PREVENT DAMAGE TO THE BRAKE COMPONENTS.

NOTE: To ease disassembly & removal of the locknuts, apply regulated air pressure (maximum 120 PSI) to release the brake, remove all locknuts, then slowly release the air pressure.



CAUTION: A PINCH POINT EXISTS WHEN ACTUATING THE SPRING HOUSING SUBASSEMBLY.

3. Remove the locknuts and washers and slide the end plate, spring housing and the pressure plate off the studs as an assembly. Set it aside on a clean dry surface. Remove this subassembly slowly to allow for removal of the wear spacers as they clear the ends of the studs. The wear spacers will not pass through the holes in the pressure plate.

NOTE: If a stud should happen to come loose, remove it completely and clean the threads in the mounting flange. Apply Loctite Loc-Quic Primer Grade 'T' to the stud threads. After the threads have dried, apply Loctite #277 and install the stud until it bottoms in the threaded hole in the mounting flange.



CAUTION: LOCTITE #277 MUST BE SHAKEN PRIOR TO APPLICATION.



CAUTION: LOCTITE #277 MAY IRRITATE SENSITIVE SKIN. REFER TO THE PRODUCT LABEL FOR PROPER SAFETY PRECAUTIONS.

4. Remove the discs, reaction springs and reaction plates from the mounting flange. Set them aside on a clean dry surface.
5. Position the spacer plates on the spacer plate on the rotor hub. Apply Loctite #242 (blue) to the threads of the hex head screws. Install and tighten the screws to 75 In-Lbs.



FRICION DISC REPLACEMENT

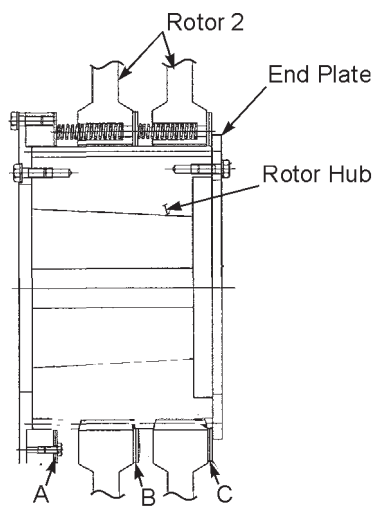


CAUTION: USE ONLY GENUINE AIRFLEX FRICTION MATERIAL. USE OF FRICTION MATERIAL NOT OF AIRFLEX ORIGIN MAY RESULT IN UNPREDICTABLE BRAKE PERFORMANCE AND/OR EXCESSIVE WEAR OF THE BRAKE COMPONENTS.

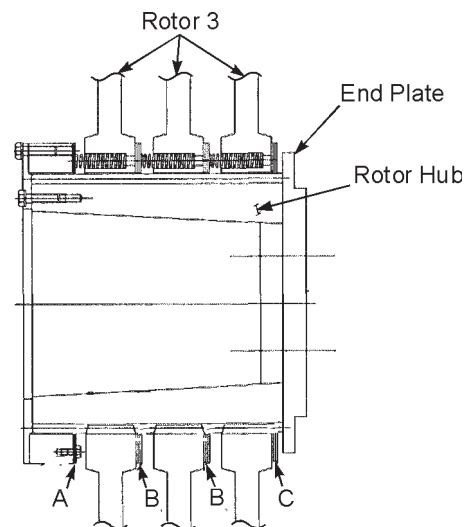
Friction disc replacement is required when wear gap “X” has reached the minimum allowable gap of 4.00 inches for 2-rotor brakes or 6.67 inches for 3-rotor brakes. Friction discs should also be replaced if the friction material has worn to the wear indicating step, or oil or grease have contaminated the surface. To ensure proper brake operation, it is recommended that friction discs be replaced as a set, if any require replacement.

To replace the friction discs:

1. Disconnect and plug the air line to the brake.
2. Disconnect the thermocouple.
3. Remove the brake from the motor.



**Drag / Propel Brake
Adjusted to X Position**



**Hoist Brake
Adjusted to X Position**

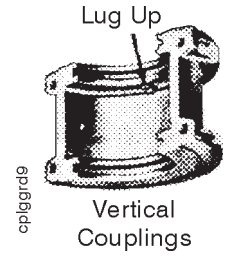
bk_waps

4. Remove the old friction discs from the pressure plate, reaction plate and mounting flange. Use of a pinpoint torch to heat the screws will help to soften the Loctite for easier screw removal. Check the iron surfaces for burrs, and smooth with a course stone, if necessary. Remove any Loctite residue from the threaded holes and clean the mounting surfaces.



5. Pack with Grease and Assemble Covers

Pack the spaces between and around the grid with as much lubricant as possible and wipe off excess flush with top of grid. Position seals on hubs to line up with grooves in cover. Position gaskets on flange of lower cover half and assemble covers so that the match marks are on the same side as shown above. If shafts are not level (horizontal) or coupling is to be used vertically, assembly cover halves with the lug and match mark up, or on the high side. Secure covers halves with fasteners and tighten to torque specified in the coupling data table. **MAKE SURE LUBE PLUGS ARE INSTALLED BEFORE OPERATING!**



6. Periodic Lubrication

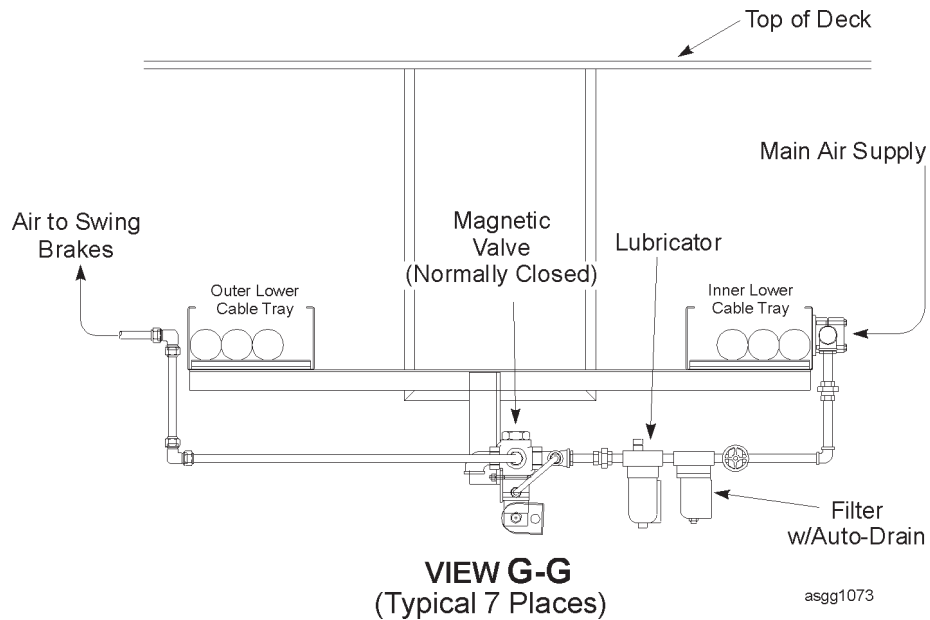
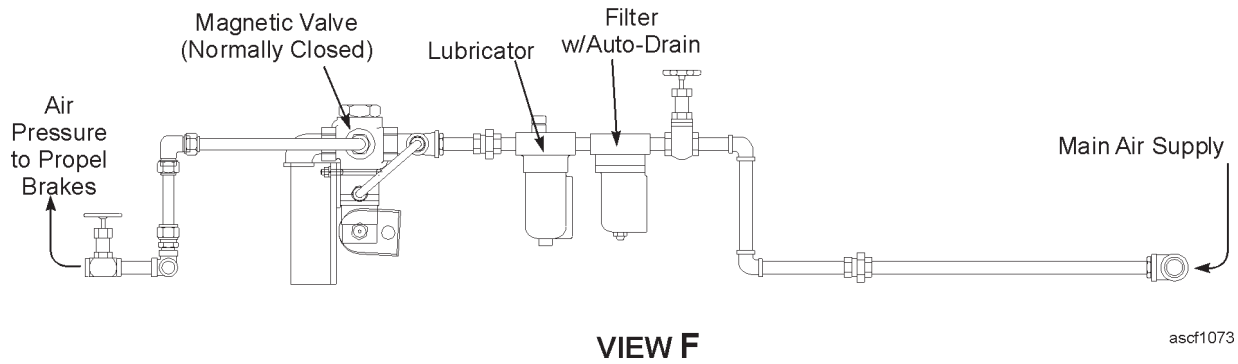
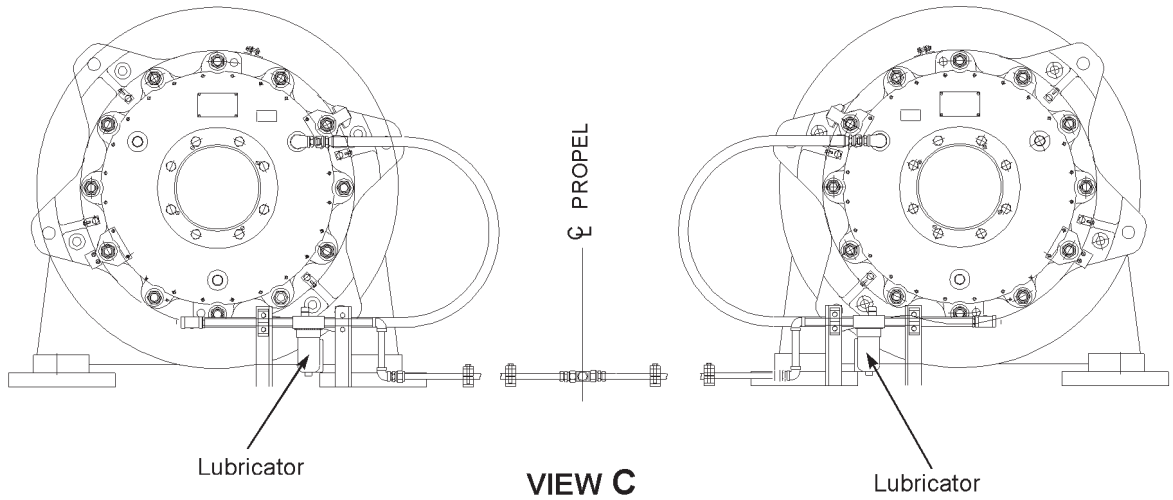
Remove both lube plugs and insert a lube fitting. Fill with recommended lubricant until an excess appears at hole opposite; then insert plug. Lubricate couplings at least once ever year. Lubricate more frequently when exposed to excessive-moisture, extreme temperatures, rapid reversing or shock loads or excessive misalignment. It is not necessary to re-lube couplings filled with Long Term Grease (LTG) until disassembled for service to attached components.

Horizontal lines for notes or additional instructions.



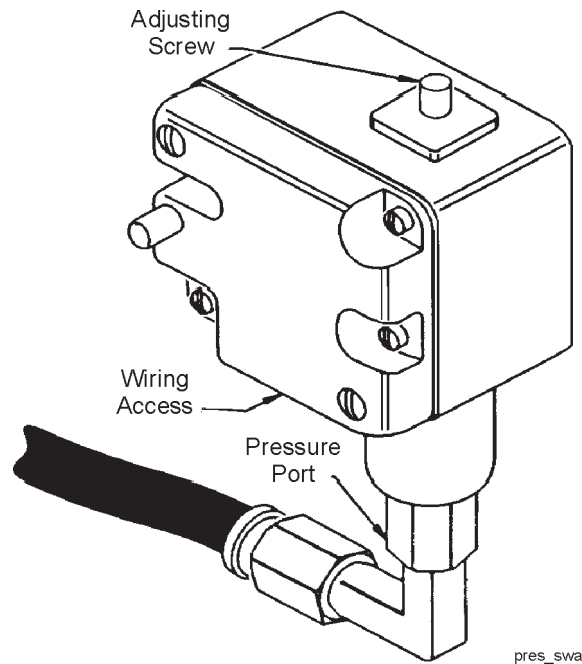
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These devices are used in the air receiver supply line and in the swing, drag, hoist, and propel brake circuits to monitor system pressure and brake operation. These switches are all double-make double-break units that have snap action switching elements. They automatically reset by a snap action of the switch. **DO NOT PLUG THE DRAIN PORT ON THESE UNITS.** Each switch is adjustable externally within the ranges listed on it. Refer to the air system schematic for the setting on each pressure switch.



AIR PRESSURE SWITCH

If the air pressure in any circuit falls below a preset value on its pressure switch, then an electrical interlock will be activated that will alert the operator of the malfunction and, in some instances, shutdown the machine.

A pressure switch in the auto lube air supply circuit monitors that system for pressure in excess of a preset amount. If this pressure is exceeded, the operator is notified of the situation via the operator's display panel.



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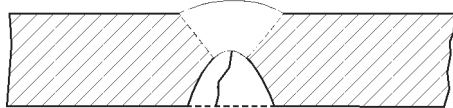
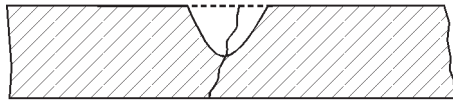
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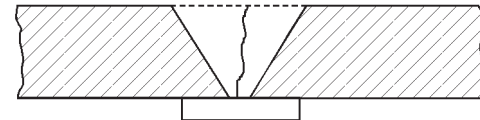


REPAIR WELDING PROCEDURES

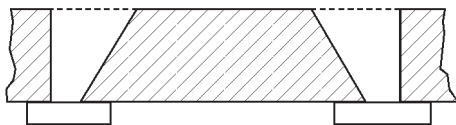
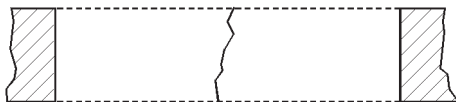
GENERAL PROCEDURE FOR REPAIR OF CRACKS



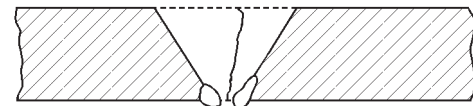
GOUGE AND WELD BOTH SIDES



GOUGE THROUGH-FIT BACKING



CUT OUT AND REPLACE MATERIAL



GOUGE THROUGH-PREPARE JOINT

JOINT PREPARATION FOR REPAIR OF CRACKS

wldrpr-b

Remove the entire crack by arc air-gouging or grinding. Prepare a V-groove of approximately 45-60° included angle for rewelding. If cracked through the full thickness and if it is possible to make the repair from both sides, a double V preparation is preferred. When welding from both sides, back-gouging for complete penetration is always recommended.

When it is not physically possible to back-gouge and weld the second side, an alternate approach must be taken. Sometimes it is possible to gouge through to completely remove the crack, then fit a back-up bar on the underside to facilitate making a complete penetration weld.

NOTE: The back-up bar must fit tightly to the underside otherwise poor welding conditions conducive to cracking may occur.

When it is not possible to fit a back-up due to limited accessibility to the underside, it is advisable to remove a portion of the defective plate and weld in a new piece, using back up bars on all sides to ensure complete penetration welds.

A further alternative is to gouge through, removing the crack, and then weld small stringer beads to



FLUORESCENT LIGHTING

MANUFACTURER - Leeds & Northrup Company

THERMOCOUPLE EXTENSION WIRE

DUPLEX WIRES - Chromel-Alumel - Type K - 16 AWG Stranded

LENGTH - Total External Resistance for both Wires including Thermocouple not to exceed 2500 Ohms or 410 Feet.

WIRE RESISTANCE - Nominal Resistance, Ohm per Foot at 20°C (66°F) - Chromel - Ohms - Alumel - .0683 Ohms.

WIRE INSULATION - each Conductor Enamel, Asbestos (Twisted Pair) Overall Asbestos Braid

WIRE CODE -Alumel, Negative Wire (Red); Chromel, Positive Wire (Yellow)

OVERALL COLOR - Yellow

CATALOG No. 16-59-17

POLARITY DISCONNECT

CHROMEL-ALUMEL COMPENSATED CONNECTION

JACK Color Code (Yellow) - Catalog No. 040419

PLUG Color Code (Yellow) - Catalog No. 040434

CABLE CLAMP - Catalog No. 072513

ADAPTER - Catalog No. 076794

THERMOCOUPLE ELEMENT

CHROMEL-ALUMEL - Type K - Swagged One (1) Inch Stripped

CHROMEL POSITIVE WIRE Color Code (None)

ALUMEL NEGATIVE WIRE Color Code (Red)

CATALOG No. 8784-K-1-3-12"-D

1. 588003 Kaopak Flex Heaters
2. 588004 Kaopak Collector Streamer Type
3. Kaopak Blankets 3, 5, or 6 Pocket Size as needed for Size Pipe being Stressed Relieved

Thermocouple Assembly, Complete

Catalog No 8784-K-1-3-12"-Q

Temperature Heating Pellets

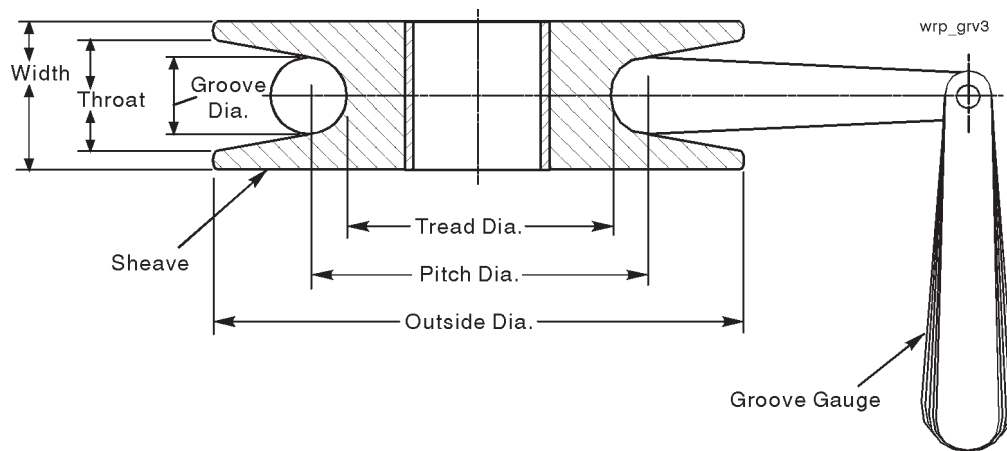
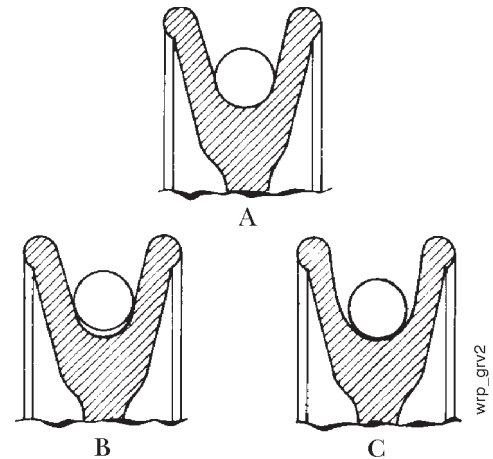
Range: 1050°F 1100°F - 1200°F 1250°F

Mean Accuracy: +/-1%

These Tempil Pellets will begin to melt at the temperature specified.



These sheave-groove cross-sections represent three wire rope seating conditions: "A" is a new rope in a new groove; "B" is a new rope in a worn groove; and "C" is a worn rope in a worn groove.



Using a Groove Gauge on a Sheave

BREAKING IN A NEW WIRE ROPE

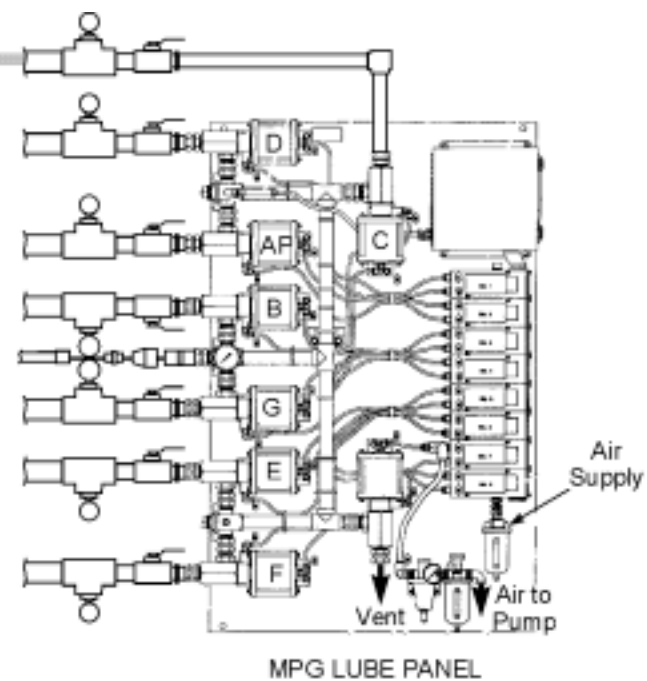
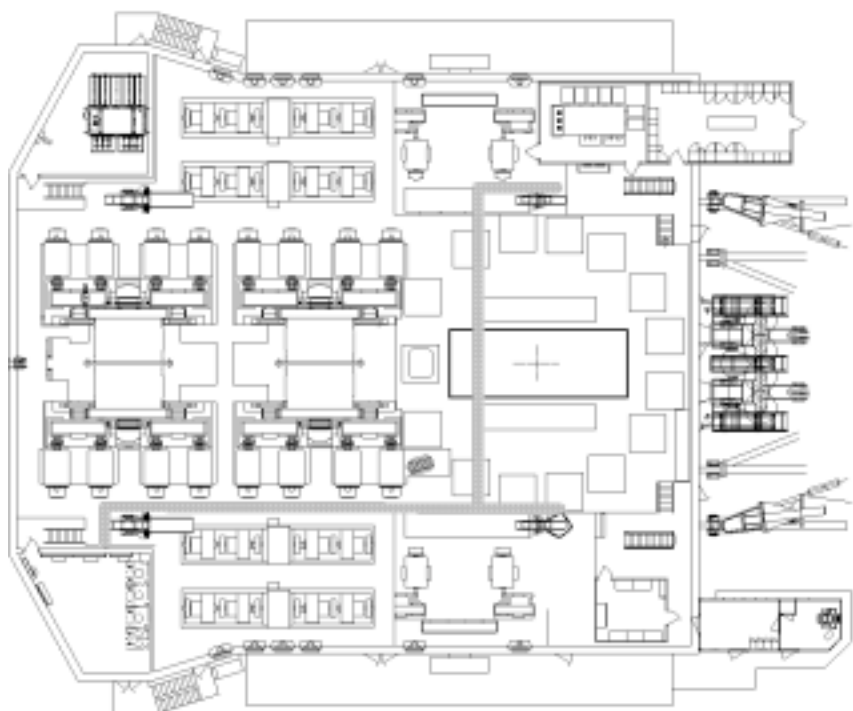
A new wire rope requires careful installation and close adherence to following all the appropriate procedures previously noted. After the rope has been installed and the ends secured in the correct manner, the mechanisms should be started carefully and then permitted to run through a cycle of operation at very slow speed. During this trial operation, a very close watch should be kept on all working parts—sheaves, drums, rollers—to make certain that the rope runs freely, and without any possible obstructions as it makes its way through the system. If no problems appear in running the rope, the next step should include several run-through's of the normal operational cycle under light load and at reduced speed. This procedure allows the component parts of the new rope to make a gradual adjustment to the actual operating conditions.



FIRST REDUCTION INITIAL BREAK-IN AND LAPPING

The following procedure is to be followed during the break-in period of the first reduction main machinery gearing. These procedures are recommended as an overview to be followed to maximize the gearing contact and subsequent life.

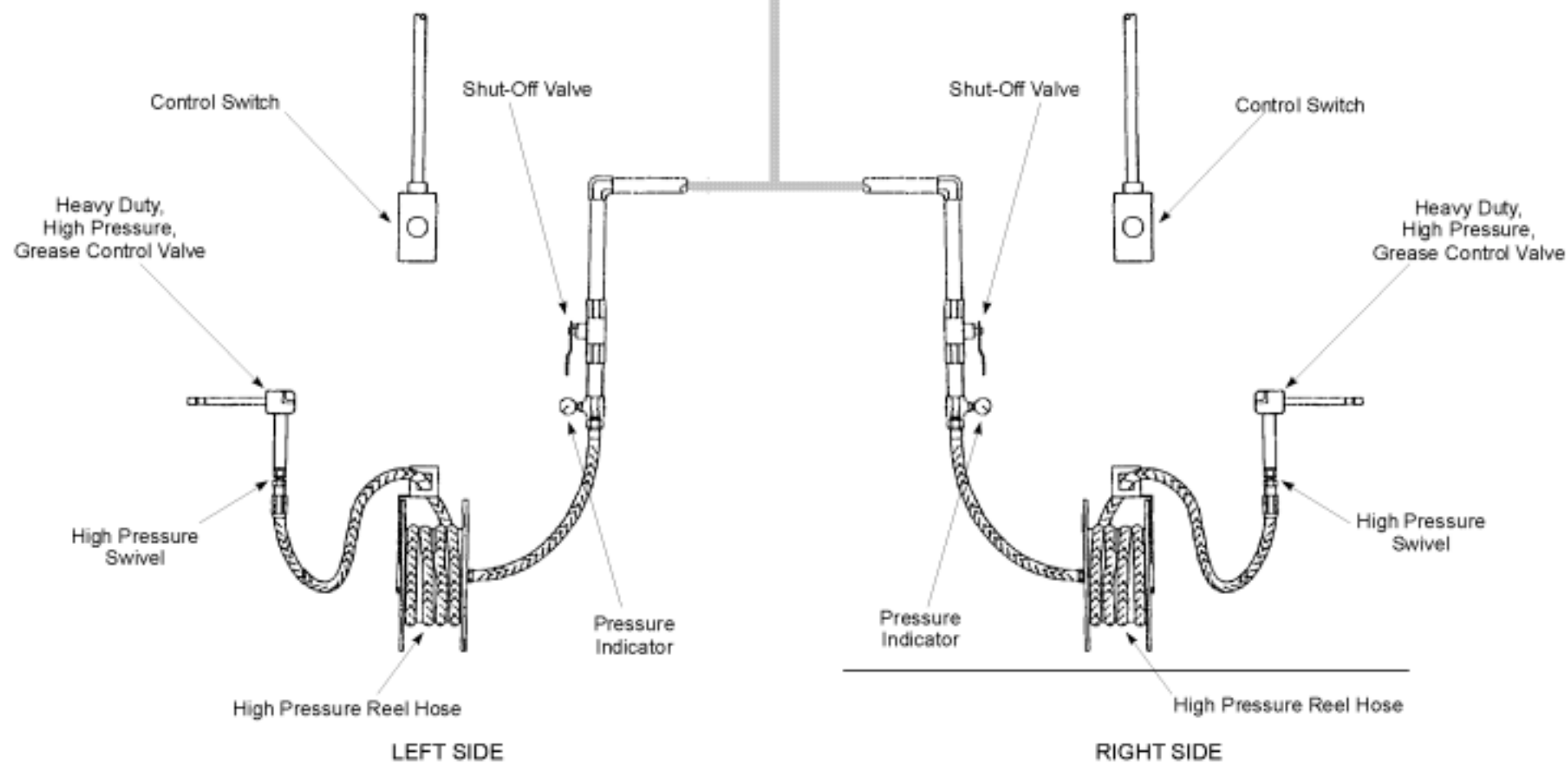
1. Apply Dykem Red to the motor pinion(s) and intermediate gear.
2. Fill the gearcase with new lubricant to B-E specifications. It is recommended that an oil analysis be performed prior to lubricant installation.
3. Begin operating hoist and/or drag motions, set at reduced power, at very slow speed, with an empty bucket, for a period of 12 hours.
4. Shut down for gear inspection to evaluate contact patterns under load.
5. If less than full contact is observed by viewing the Dykem Red removed from the motor pinion(s) and intermediate gear during this initial phase of the break-in process, lapping of the gear set will be required. The first reduction gear set is lapped in the following manner.
 - a. Electrically reduce the reference voltage to the motion(s) involved so that the motor(s) run at approximately 125 R.P.M.
 - b. Drain the oil from the gearcase(s) to undergo the lapping process. Necessary precautions should be taken to maintain the cleanliness of the lubricant during its removal so that it may be re-used after the lapping process is completed.
 - c. Protect the bearings against the possible entrance of lapping compound by packing with heavy cup or paraffin grease and/or the installation of bearing protective shields.
 - d. Prepare the lapping mixture by combining one part Timesaver lapping compound #77 medium green label with four parts BECO spec. gearcase oil by volume.
 - e. Coat both pinion(s) and intermediate gear with lapping mixture and begin operating the motion(s) with an empty bucket at a speed just below that which would throw the mixture from the teeth. Continuously monitor the lapping operation using a strobe light, periodically stopping the machine for visual gear tooth inspection. Reapply lapping mixture at approximately 15 minute intervals while gears are turning. Add material to the bucket, if necessary, to achieve the desired rate of lapping progression. This process should be continued until optimum face contact (evidence of full face contact line at the pitch line) is achieved. Once the optimum contact is achieved, the lapping should be immediately discontinued.



2570WS Walking Dragline

Serial Number 141073

MPG Schematic System "C" Roller Circle Manual Lubrication



92mc1073

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