Technical Manual

ORDERING PARTS

The Parts Book covering this machine gives complete information on how to order parts. Order carefully so that the right parts in the right quantities can be furnished. Wrong parts, ordered by mistake, which are returned to the company are subject to a rehandling charge.

FURTHER INFORMATION

If further information is required which is not found in the Manual or in the Parts Books, communicate with the Marion Power Shovel Company, Inc., at Marion, Ohio.

CHARGE FOR SERVICE, LABOR, ETC.

No charges for service or labor are accepted unless the work has been previously authorized by the company in writing.

STANDARD WARRANTY

Marion Power Shovel Company, Inc. guarantees the equipment manufactured by it to be free from defects in material and workmanship under normal use and service, its obligation under this warranty being limited to making good at its factory any part or parts thereof manufactured by it which shall, within six (6) months after delivery to Buyer, be returned to it, with transportation charges prepaid, and which its examination shall disclose to its satisfaction to have been thus defective, this warranty being expressly in lieu of all warranties, express or implied, and of all other obligations or liabilities on Marion Power Shovel Company's part.

Marion Power Shovel Company, Inc. shall not be held responsible or liable in any event for special or consequential damages, arising from any cause whatsoever, and Buyer agress to indemnify and save Marion Power Shovel Company, Inc. harmless therefrom.

Marion Power Shovel Company, Inc. makes no guaranty or warranty, express or implied, as to adequancy, fitness, quality, or performance of any machinery, equipment, apparatus or accessories not manufactured at its own factory,

additional lubricant. Always install roto seal with short length of flexible hose to prevent binding of the rotating parts.

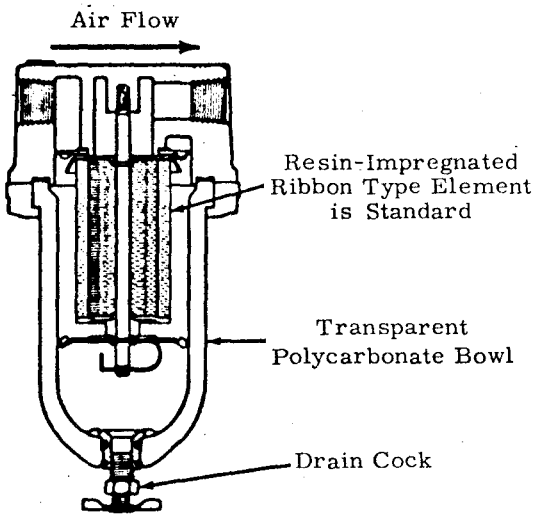


Fig. 8
FILTER

FILTER

The filter removes airborne moisture and contaminants, especially the carbonized compressor lubricants. At regular intervals the drain cock should be opened to expel the accumulated moisture.

To clean the filter element shut off the air pressure and separate the filter body and remove the bowl. Release the filter element by removing the lower baffle plate. Pull off quick release clip ring.

A mild soap solution is best for cleaning the filter bowl and element. Do not use cleaning solvents.

Blow out element from the inside with compressed air. Reassemble filter when dry.

REGULATOR

No regulator routine maintenance is required, in normal operation, when the regulator is protected by a filter. The secondary pressure should be check whenever the system requires change.

DESCRIPTION OF OIL AND GREASE CLASSIFICATION

CODE	NAME	DESCRIPTION
MPG (Formerly CG and WB)	Multipurpose Grease	A well manufactured E. P. grease having good resistance to both heat and water, possessing good mechanical stability and oxidation resistance. It must be suitable for use in Farval, Lincoln and Trabon automatic dispensing systems. It shall be free of corrosive and deleterious foreign matter of any kind. Special products not meeting the requirements of the Engineering Standard may be required for operation at sub-zero ambient temperatures. MPS Co. should be consulted regarding products intended for service at low ambient temperatures. USES - Anti-friction bearings both packed and gun lubricated, chassis and plain bearings and central lubricating systems.
RGL	Regular Gear Lubricant	Semi-fluid greases having just enough body to retain them in a semi-enclosed case. It must have good adhesive, load carrying and non-channeling properties. USES - Semi-enclosed gear cases.
OGL (Formerly GC)	Open Gear Lubricants	Either of two types of product may be specified. They are intended for use on open gearing where retention is a problem. Both must be adhesive in nature and resist dripping from or flinging off the exposed gearing either idle or in motion. They must be water and corrosion resistant and have E. P. properties.

LUBRICATION OF CRAWLER (One of Two)

NO.	NAME OF PART	TYPE	NO. OF POINTS	LOCATION	LUB. SYM.	METHOD & FREQUENCY (HRS.)
1.	Front Roller	Bushing	1	In End of Roller Shaft	MPG	Manual 4-8 Hrs. (Automatic)
2.	Load Roller	Bushing	11	In End of Roller Shaft	MPG	Manual 4-8 Hrs. (Automatic)
3.	5th Intermediate Propel	Bushing	2	In Top of Bearing Boss	MPG	Manual 4-8 Hrs. (Automatic)
4.	Crawler Drive Chain	-	-	Apply to Chain	Dil. GL	Keep Coated
5.	Sprocket Shaft	Bushing	2	In Boss of Bearing	MPG	Manual 4-8 Hrs. (Automatic)

LUBRICATION OF LOWER FRAME

6.	Propel Brake Shaft	Bushing	2	In Bearing Boss Piped to Front of Frame	MPG	Manual 4-8 Hrs. (Automatic)
7.	2nd Intermediate Propel Shaft Bearing	Bushing	3	Through Gudgeon Piped to Rear of Frame	MPG	Manual 4-8 Hrs. (Automatic)
8.	3rd Intermediate Propel Shaft Bearing	Bushing	4	In Bearing Cap Piped to Rear of Frame	MPG	Manual 4-8 Hrs. (Automatic)

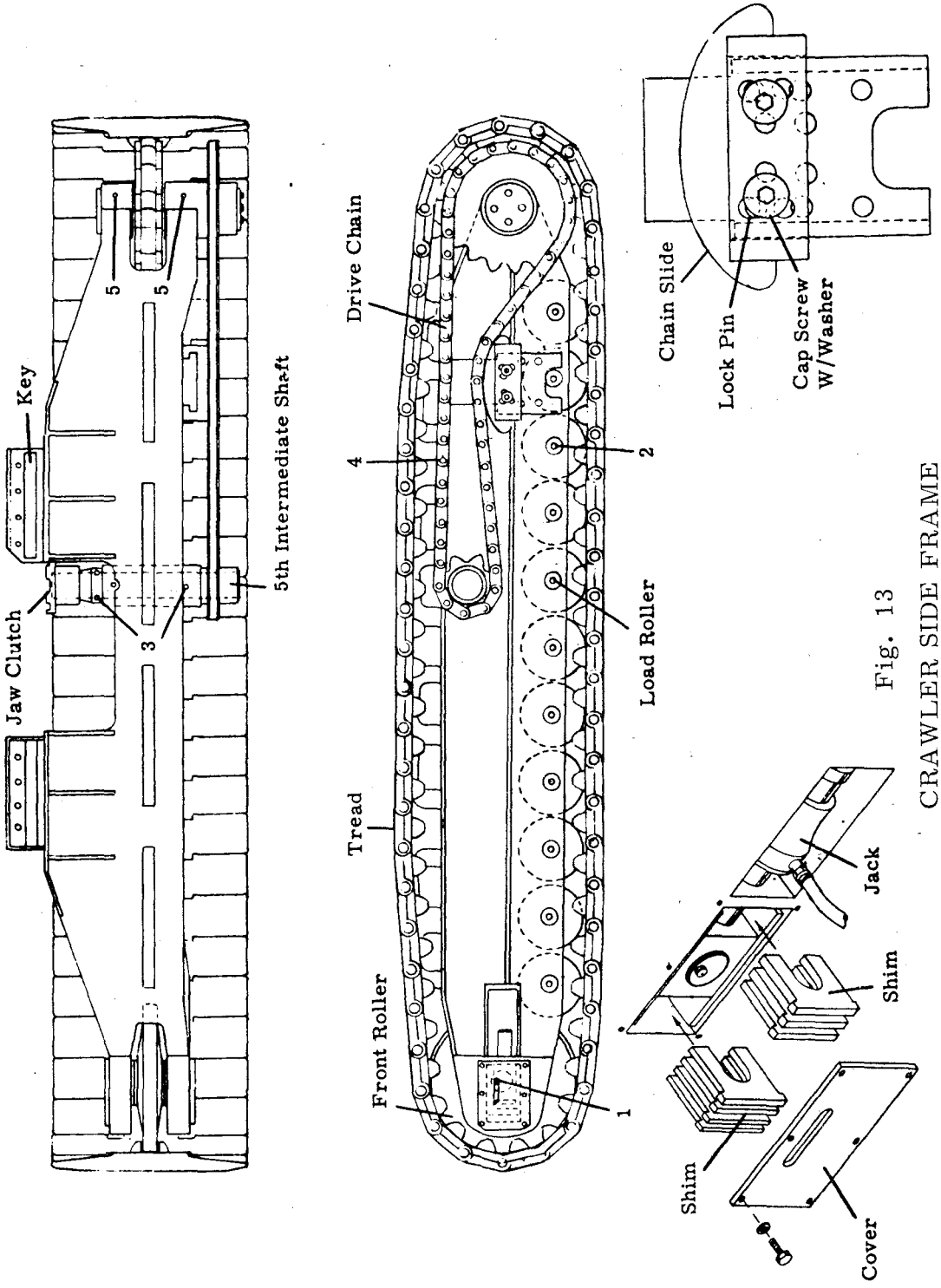


Fig. 13 CRAWLER SIDE FRAME

Back off the set screw and turn off the adjusting nut. Lower the shaft by cribbing down with hydraulic jacks. Lower the shaft out of the splines at the top bevel gear and remove gear from the top of the center journal. Lower the 2nd intermediate ahsft to the ground and remove from the pit.

TO REMOVE CENTER JOURNAL

Place the cribbing and hydraulic jacks under the center journal. Arrange the block and jack in a way to hold the bottom lock plate, but not to interfere with the removal of the lock ring bolts. Remove the cap screw from the center journal nut and the lock washer and turn off the center journal nut. Remove the nut and lock washer. Remove the grease piping and fittings, be sure the pipe nipples are removed from the pin, (three places through the gudgeon of the lower frame). Remove the bolts from the lock plate at the bottom flange of the center pin, lower the center journal into the pit. Watch out for loose key. Remove assembly from the pit.

TO REMOVE 4TH INTERMEDIATE PROPEL SHAFT
(ONE OF TWO)

The 5th intermediate propel shaft must be removed from the crawler side frame (or crawler side frame removed). Lower the propel chain tightener and remove propel chain. Remove split collar from 5th intermediate propel shaft at inside of crawler side frame. Pull the shaft out at the side frame and jaw clutch member. The jaw clutch is assembled with a light press fit.

Move the sliding gear clutch into engagement with the high ratio gear (outside) and block both gear and clutch solidly in place, enough to support the weight of the gears. Remove the cap screw and retainer plate from the end of the 4th intermediate propel shaft at the center of the lower frame. Force the shaft toward the center of the frame as far as it will go, or until it strikes the retainer plate of the opposite hand shaft assembly.

Remove the jaw clutch from the end bearing and roll out the high ratio gear and the sliding gear clutch. The clutch shift-

TO REMOVE MAIN ROTATING SHAFT

The shaft must be removed from the bottom of the rotating frame. Remove the swing pinion shield and rotate the machine until the shaft to be removed is directly over the front center of the lower frame, between the propel brake and the lubricator cabinet. Drain the lubricant from the gear case by opening the globe valve adjacent to the swing pinion.

Place cribbing and hydraulic jack under the swing pinion or use any suitable support. Remove the three cap screws and retainer washer from the end of the shaft. Lower the swing pinion to the ground.

Remove the eight cap screws, bearing retainer ring and grease seal from the bottom of bearing boss.

Replace cribbing and hydraulic jack under the main rotating shaft with just enough pressure against the shaft to support the weight of the shaft. Remove the six cap screws and retainer plate from the top of the shaft. Reach the cap screws and retainer plate through the opening in the side of the gear case. Lower the shaft to the ground. The cylindrical bearing and the top labyrinth grease seal come out of the bearing boss with shaft.

Replace the shaft by reversing the procedure. The main rotating pinion can be assembled by using a long threaded 3/4" rod, and a plate or bar with a 7/8" hole at the center. Place through the bar and pinion and thread the rod into the tapped hole in the bottom of the main rotating shaft. Turn the nut with an impact wrench with a long shank socket to drive the pinion onto the splines of the shaft. Block the pinion in place and install retainer plate and cap screws. Use lock wire.

To disassemble the gear case, the electric motor should be removed. Remove the front house panels to remove motor and gear case. Remove propel brake air piping, electrical connection and etc.

Use choker cable on lifting crane to remove motor. Guide

Remove the four bearing housing rod bolts. Attach the lifting crane hook to the drum with choker cables and lift drum straight up, use pinch bar to lift bearing housing from machinery side frame. Keep all shims intact after the bearing blocks are free from the machinery support and the drive gear disengaged, turn the assembly enough for the bearings to clear the gantry legs.

After the drag drum is removed the hoist drum shaft assembly can be lifted from the machine in the same manner.

Remove the diesel generator set and main engine through the back of the machine.

Both the front and rear panels of the house are removable.

HOIST AND DRAG CHECK BRAKES

The hoist and drag brakes are similar. Each consists of an external friction band which acts on a friction housing on the drum carrier.

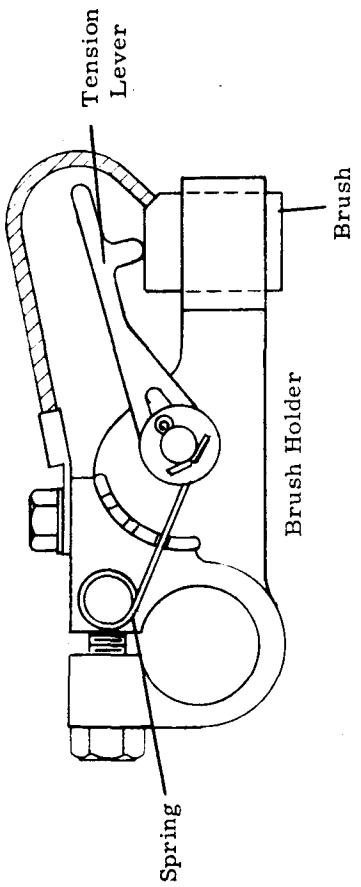
The brake is adjusted by turning the nut and bolt that connects the two halves of the band together. To adjust the bolt push the spring loaded lock fork, back off the nut and turn the "U" shaped pin on the end of the fork rod to hold the fork in disengaged position. Turn the adjusting bolt nut to tighten the band. Adjust the band so that when the band is tight the air cylinder piston is 2" from the end of the cylinder. Release the band and adjust the band lifter and the band stops to support the band with 1/8" clearance between the housing and the band. The band must release promptly and not drag on the housing, when adjusting allow for wear of the band.

After the band is adjusted be sure to release the lock fork. Set the release compression spring tight enough to release the band promptly but not to restrict the air cylinder.

The operating bellcrank or lever, is mounted on sealed antifriction bearings. No lubrication is required.

The friction blocks should be replaced when 7/16" of the block remains.

Keep the band lifter channel tight and aligned with the friction housing.



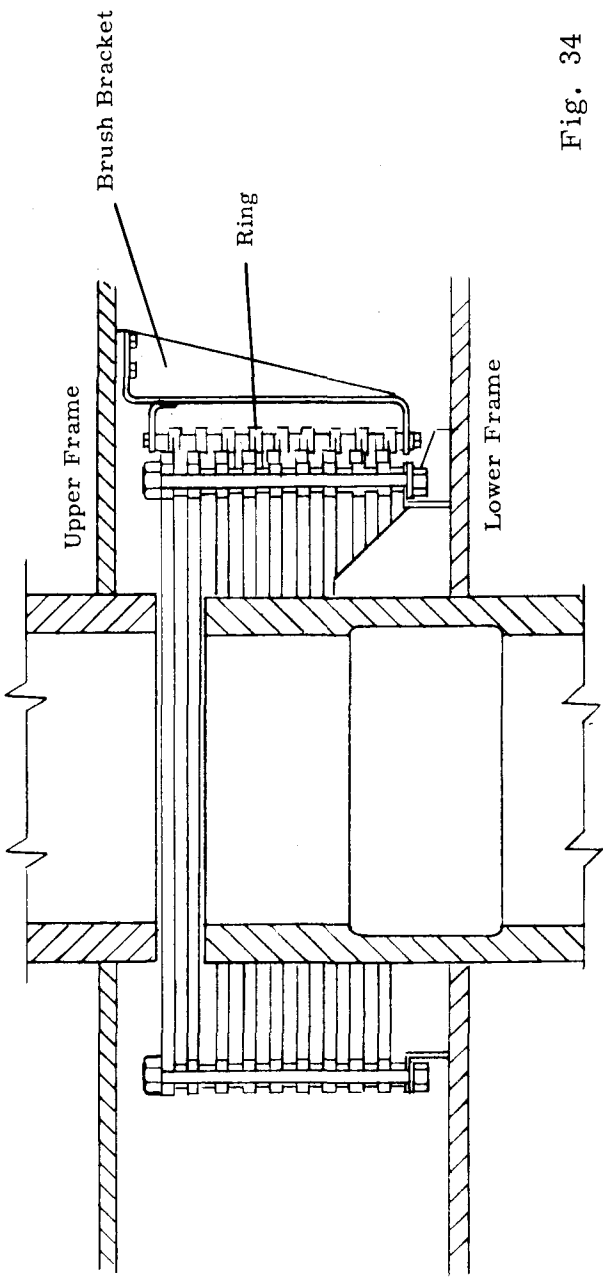


Fig. 34
COLLECTOR RINGS

At the leading edge of the sheave case two wear plates are bolted in place. The wear plates can be replaced by removing the bolts.

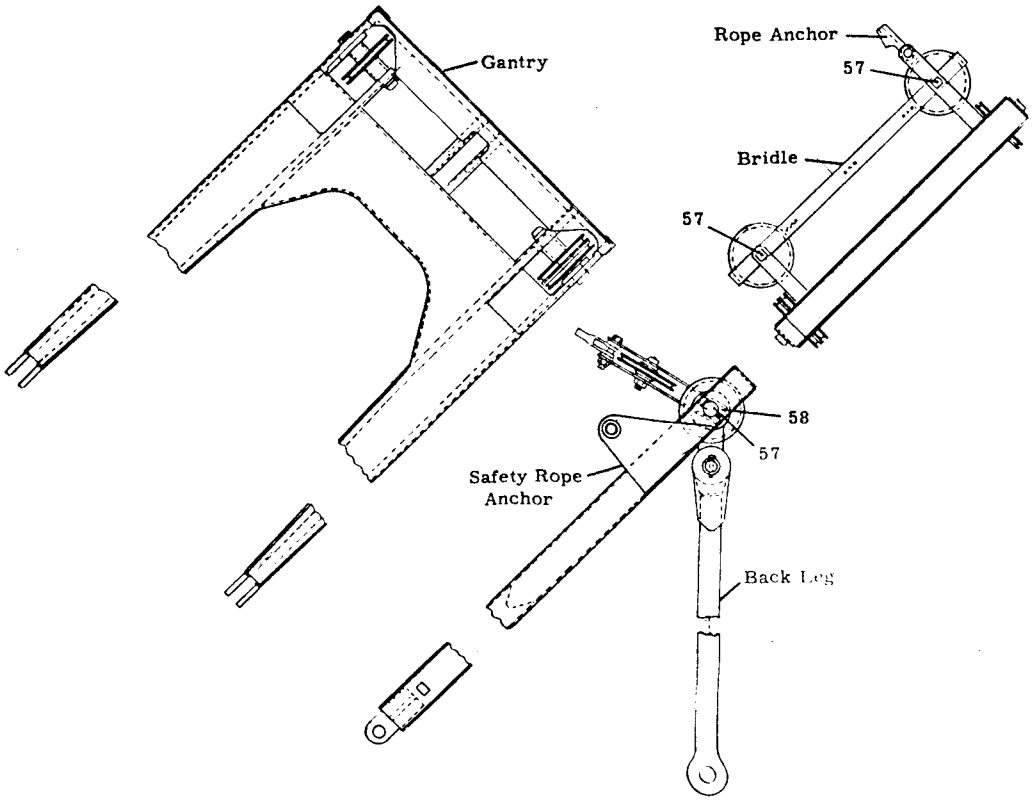


Fig. 39

GANTRY

to "Reverse". Pull handle of propel clutch air valve, move the valve slowly until all gear backlash is absorbed. Latch lever in full "On" position. Regulate the speed of travel with engine throttle lever.

To steer the machine, disengage propel clutch. Move air valve handle to neutral. Move toggle switch "Steer Right" or "Steer Left" as required to "On" position. Then proceed as for regular travel. Always stop the machine to change direction of travel or for steering. After travel is completed, return all toggle switches to normal position.

EMERGENCY STOP

To stop diesel engines, push down on engine stop air valve.

BOOM HOIST

To operate the boomhoist the engine generator set must be in operation.

Release the worm shaft drive gear clamp and boomhoist motor drag brake.

Operating buttons are located on the rear of electrical cabinet. To boom up, press button marked "Hoist". To lower boom, press button marked "Lower". When the "Hoist" or "Lower" button is pressed the circuit will remain energized until the "Stop" button is pressed.

When proper boom angle is reached, set boomhoist motor drag brake and clamp the worm shaft drive gear.

CHECK LIST

Before the initial start up of the machine, make a careful inspection of the machine.

Note especially the following items:

The machine should be thoroughly cleaned. All loose pieces removed or stowed in proper compartments.