PREVENTIVE MAINTENANCE CHART

REF.	COMPONENT/SYSTEM	Daily - 10 Hours	Weekly - 50 Hours	2 Weeks - 100 Hours	Monthly - 250 Hours	2 Months - 500 Hours	6 Months - 1500 Hours	12 Months - 3000 Hours	SERVICE/CHECK	INSTRUCTION
1	ENGINE	X							Check oil, drain fuel filter	See Engine Manual
				X					Change oil and filters	See Engine Manual
2	RADIATOR, COOLING SYSTEM	X							Check coolant level	See page 16
			X						Clean fins, remove obstruction, check fan belts	See page 32
						X			Check specific gravity, add corrosion inhibitor	See page 31
								X	Drain and flush system	See Engine Manual
3	AIR CLEANER	X							Check restriction indicator, empty dust cup	See page 17
						X			Clean or replace element	See page 17
4	BATTERIES		X						Check electrolyte level (except "Maintenance Free" type)	See page 17
							X		Clean battery case, posts and connections	See page 17
5	FUEL TANK	X							Fill at end of shift, drain water from tank	See page 17
						X			Clean breather	See page 17
6	SWING GEARBOX		X						Check oil level	See page 18
							X		Change oil, clean breather	See page 18
7	TURNTABLE BEARING	X							Lubricate the ring gear	See page 18
			X						Lubricate the bearing race (thru Central Lube)	See Illustrated Listing
8	TURNTABLE CAPSCREWS				X				Check torque (See also "Special Maintenance" below)	See page 36
9	TRACK	X							Grease pillow blocks, clean tracks	See Illustrated Listing
			X						Check and adjust track tension	See page 25
10	LUBRICATION FITTINGS	X	X						Apply grease per intervals in Illustrated Listing	See page 14
11	HYDRAULIC FILTERS					X			Clean 100 mesh screens, replace paper elements	See page 19
12	HYDRAULIC OIL TANK	X							Check oil level	See page 19
						X			Replace breather	See page 19
							X		Change oil, clean screens	See page 19
13	FINAL DRIVE TRANS.		X						Check oil level, look for damage or leaks	See page 20
							X		Change oil	See page 20
14	CAB and CONTROLS	X							Clean cab, check operation of controls	See page 9
					X				Check condition and adjustment of the controls	See page 94
15	BOOM and ATTACHMENT	X							Lubricate thoroughly	See page 39

SPECIAL MAINTENANCE

End of First Day or First 10 Hours of Operation

Hydraulic Filters ..... Replace paper elements, clean 100 mesh screens

After First 20 Hours of Operation

Case engine ..... Change run-in oil and filters. See Engine Manual

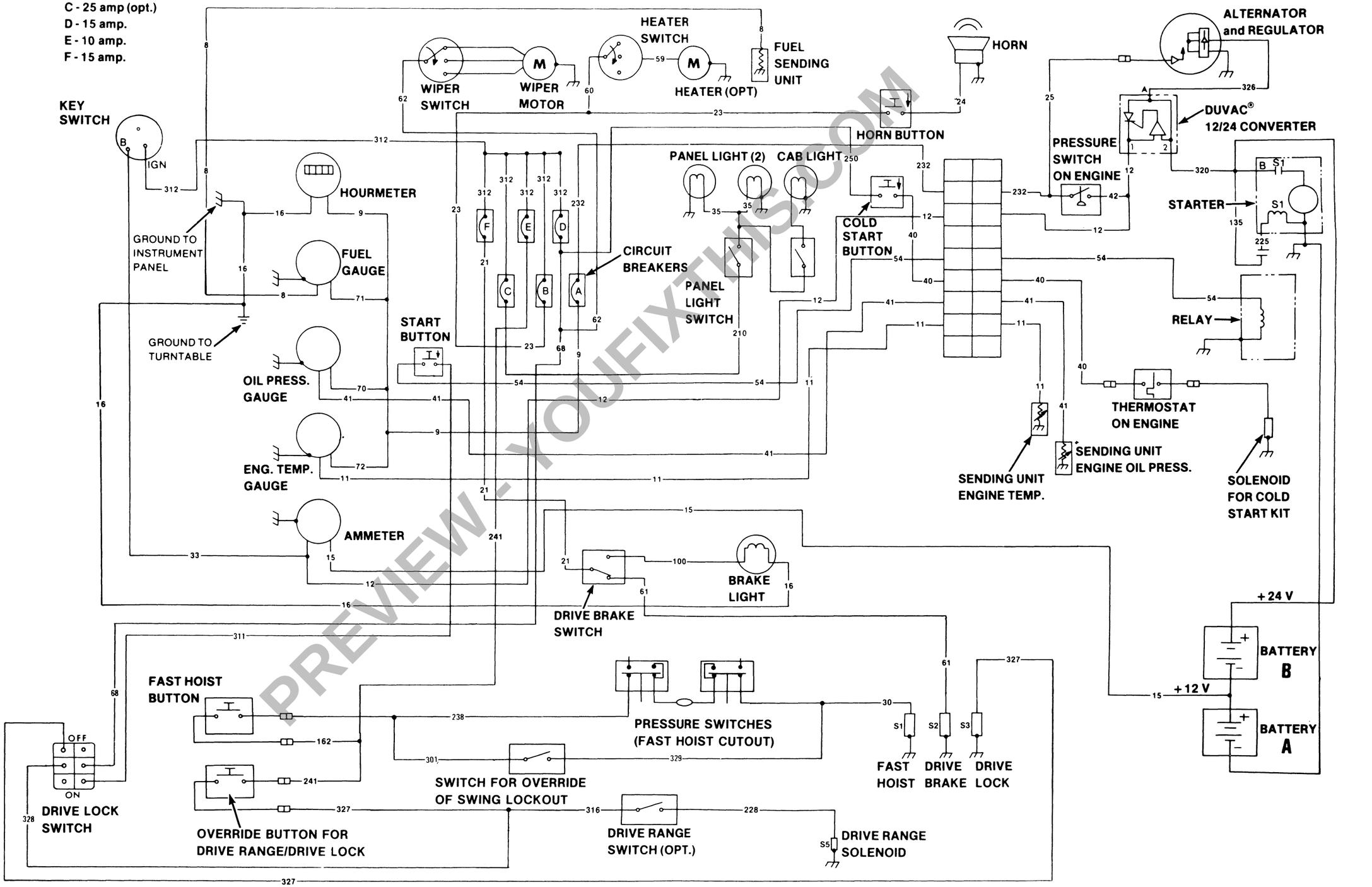
After First Week or 50 Hours of Operation

Turntable Capscrews ..... Check for correct torque

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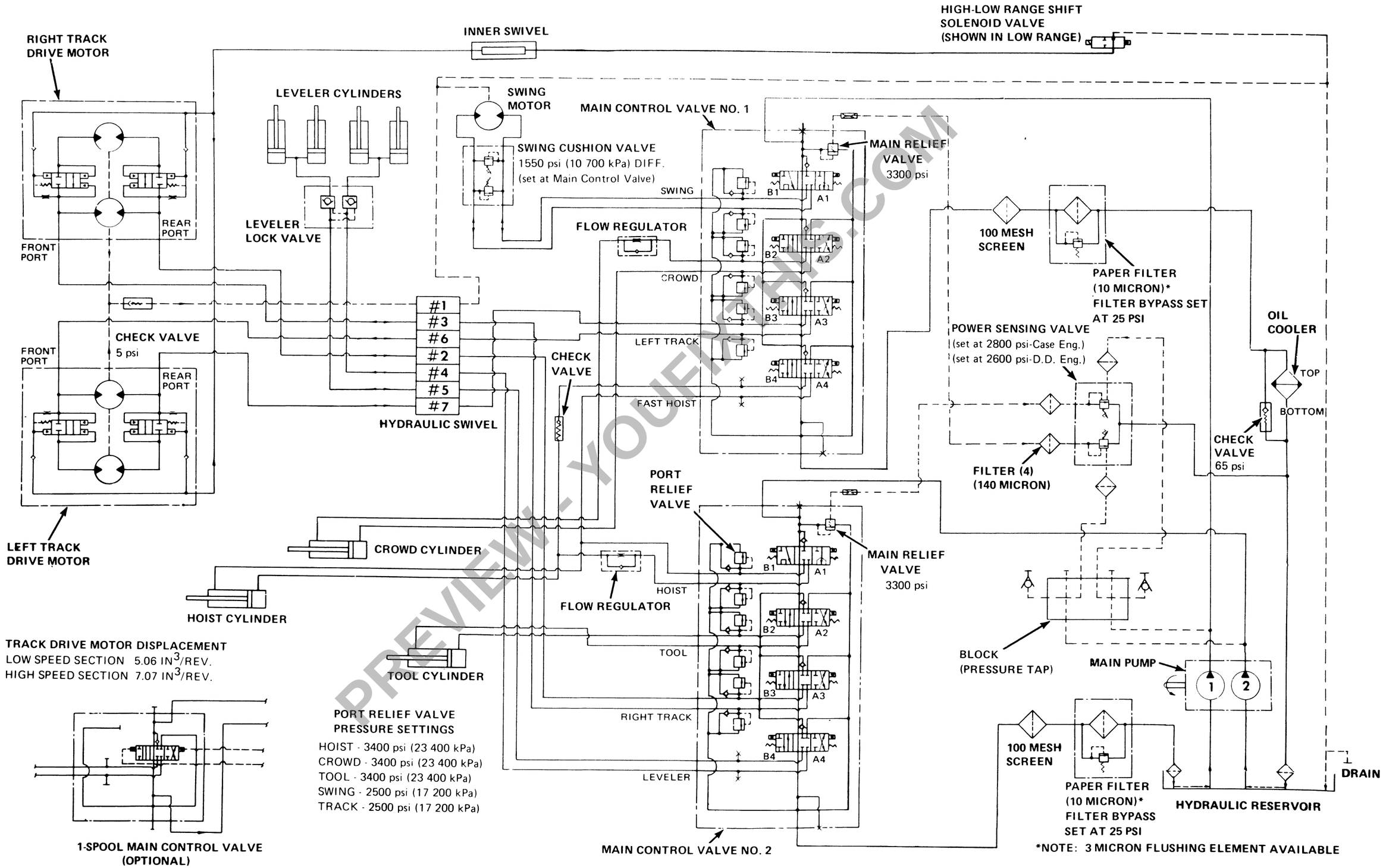
CIRCUIT BREAKERS
- A - 10 amp.
- B- 15 amp.
- C - 25 amp (opt.)
- D - 15 amp.
- E - 10 amp.
- F - 15 amp.



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Figure 278. Electrical Schematic - Machines through PIN 6280344

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Figure 280. Main Hydraulic System Schematic - Machines through PIN 6280344

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LUBRICATED TORQUE VALUES FOR GRADE 5, 8 AND SPECIAL DROTT CAPSCREWS (NC OR NF THREADED)					
Capscrew Size Diameter (Inches)	Socket Size (Inches)	Grade 5 Capscrew		Grade 8 (and Special DROTT Capscrews)	
		Lb-Ft	Nm	Lb-Ft	Nm
1/4	7/16	8	10	12	16
5/16	1/2	17	23	26	35
3/8	9/16	26	35	42	57
7/16	5/8	43	58	66	90
1/2	3/4	65	88	100	135
9/16	13/16	95	130	150	200
5/8	15/16	130	175	200	270
3/4	1-1/8	220	300	360	490
7/8	1-5/16	350	475	560	760
1	1-1/2	530	720	860	1160
1-1/8	1-11/16	750	1020	1200	1630
1-1/4	1-7/8	1050	1420	1700	2300
1-1/2	2-1/4	1800	2440	2950	4000
1-3/4	2-5/8	2850	3860	4700	6370
2	3	4400	5960	7250	9830

Torque values for bolts listed above are with Engine Oil and/or Loctite applied to threads and under head. Applies to plated and non-plated capscrews.

GRADE 5



GRADE 8



Hardened Washer must be used with (Grade 8) or DROTT Capscrews.

NOTE: Torque values specified are with residual oil remaining on bolts. If special lubricants of high stress ability such as never-seez compound, graphite and oil, molybdenum di-sulfide, collodial copper or white lead are used, multiply the torque figures in the chart by the factor .90.

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ENGINE

PROBLEM	POSSIBLE CAUSE	REMEDY
Engine overheating	1. Faulty cooling system	1. See engine manual
Engine performance	1. Linkage out-of-adjustment	1. Check and adjust linkage to governor.
	2. Faulty fuel system or internal engine problem	2. See engine manual

UNDERCARRIAGE

PROBLEM	POSSIBLE CAUSE	REMEDY
Track jumps drive sprocket	1. Improper track tension (lockup in reverse)	1. Adjust
	2. Drive sprocket worn	2. Replace or switch left and right sprockets
	3. Track or sprocket mis-aligned	3. Check and correct. See Disassembly and Repair
	4. Track bushings and pins worn	4. Replace or rotate 180° in links
Track requires frequent tension adjustment	1. Leak in Adjuster cylinder	1. Replace seal; check adapter fitting for tightness; check for leakage in cylinder tube or grease fitting
Noisy travel	1. Incorrect track tension	1. Adjust
	2. Loose track pads	2. Check and correct (tighten bolts to 173-195 lb-ft)
	3. Worn link pins and bushings	3. Replace
	4. Binding or seized track rollers	4. Check and correct
	5. Brake not fully released	5. Bleed air from brake line
	6. Defective transmission	6. Repair
Excess play in idler wheel	1. Loose mounts on idler yoke	1. Check and correct
	2. Worn bushings	2. Replace

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7. Final Drive Transmission

Removal

1. Jack up and crib the machine on the side being serviced.

2. Remove the track (See page 117).

3. Remove the transmission drain plug and drain the oil.

4. Remove motor guard to gain access to motor and brake. Remove the motor and lay it aside. Disconnect the brake line from the brake. Remove the brake.

5. Attach a hoist and sling, or use a wheel dolly to aid in removing the transmission. Remove the pillow block mounting bolts, then carefully work the unit free and transfer to clean work area for disassembly.

NOTE: The transmission and brake assembly weighs approximately 800 lbs. (360 kg). Make adequate provision to handle this weight.

Disassembly.

1. Thoroughly clean outside of transmission prior to disassembly.

2. Remove brake adapter plate and input shaft seal by removing the three mounting capscrews.

3. Position transmission so cover is facing up. Remove the castle nut from the output shaft. Remove the outside pillow block, drive sprocket, and inside pillow block from the output shaft.

4. Remove first intermediate shaft bearing cover. Remove snap ring from outer bearing race. Remove bearing covers from input shaft, second intermediate shaft, and output shaft.

5. Remove cover to gear case capscrews. Four jackscrew holes are located in cover. Put four of the capscrews just removed into jackscrew holes. Alternate by tightening jackscrews to remove cover from gear case. (See Figure 135).

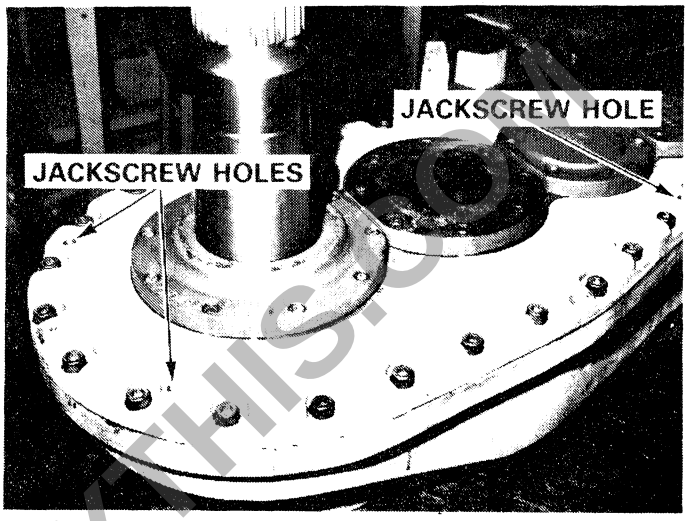


Figure 135. Final Drive Transmission

6. When cover has been loosened from gear case, lift cover over output shaft. Remove second intermediate shaft bearing from cover. The bearing should be removed before cover is installed back on gear case.

7. Lift the output shaft from the gear case. Now lift the two intermediate gear assemblies straight up. When the bearings are free of the gear case, lift up the second intermediate assembly. Then lift the first intermediate assembly. Lift the input shaft from gear case.

8. Gear sub-assemblies can be disassembled. Remove snap rings from shaft. Use a bearing puller to remove bearings and race from shaft. Slide gears off the shaft.

   Second intermediate shaft bearings will remain in gear case and cover. Use a puller to remove these bearings.

NOTE: All bearings and races are matched sets. If the bearing set must be separated for reassembly MAKE SURE that the bearing and race are assembled back together.

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SAFETY

THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL, WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

WARNING: Always use a non-flammable solvent for cleaning parts. DO NOT use gasoline or other flammable substances.

WARNING: Clean Rubber parts by washing in clean brake fluid. DO NOT use mineral base cleaning solvents such as acetone or paint thinner on any rubber parts. If a mineral base solvent is used, the rubber will start to deteriorate and continue to deteriorate after the part is put back into service. The continued deterioration of the rubber could cause the part to fail.

WARNING: DO NOT service the machine with the engine running. If necessary to make checks with engine operating, have one man stay at the controls while the other makes the check.

Whenever servicing the machine, always tag mark the ignition switch to alert other operators and prevent accidental start-ups.

WARNING: To help prevent eye injury, wear eye protection when servicing this machine.

CAUTION: When checking coolant level, remove cap on radiator slowly to relieve pressure within the system.

CAUTION: Disconnect both leads from the batteries when working on the engine or electrical system. Always disconnect the Ground lead first.

WARNING: Use extreme care when handling the track. Never insert fingers between track shoes when removing track.

DANGER: Exhaust fumes can kill. If necessary to start engine in an enclosed area, be sure to provide adequate ventilation.

CAUTION: ENGINE FAN AND BELTS - To prevent possible serious injury avoid contact with rotating fan and belts.

WARNING: BATTERIES PRODUCE EXPLOSIVE GASES. Keep flames, sparks and cigarettes away. Ventilate when charging or using in enclosed space. Always shield eyes when working near batteries.

POISON/DANGER: BATTERY ACID CAUSES SEVERE BURNS. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing.

Antidote: EXTERNAL - flush with water. INTERNAL - drink large quantities of water or milk. Follow with Milk of Magnesia, beaten egg or vegetable oil. Call physician immediately. EYES: Flush with water for 15 minutes and get prompt medical attention.

KEEP OUT OF REACH OF CHILDREN.

WARNING: Do not allow battery fluid to contact skin, eyes, fabric or painted surfaces. Battery fluid is sulfuric acid solution which could cause serious injury or property damage.

CAUTION: When working on the hydraulic system, be sure to relieve all pressure in the lines by working the controls back and forth several times before removing component.

CAUTION: NEVER lay metal objects across the battery posts to check the charge. The air directly above the batteries contains highly explosive hydrogen gas. Sparks may cause an explosion.

DO NOT wear loose clothing which may catch in moving parts.

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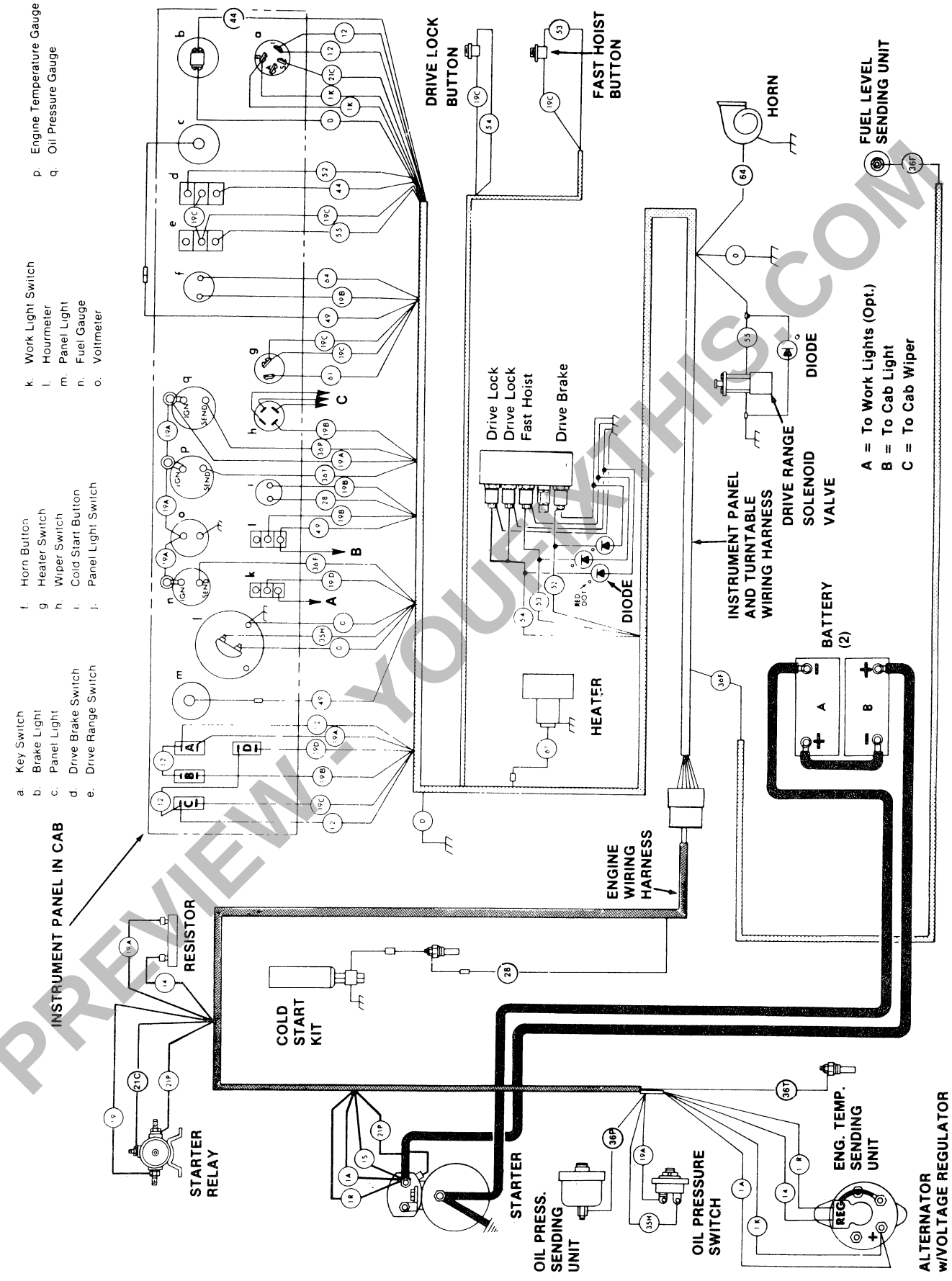


Figure 68. Wiring Harness and Electrical Components - Machines with PIN 6280345 and After

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PILOT CONTROL SYSTEM

PROBLEM	POSSIBLE CAUSE	REMEDY
Low System Pressure	1. External leakage 2. Relief valve stuck open 3. Pump worn 4. Oil bypassing in Modulator Valve	1. Locate and correct 2. Disassemble and clean 3. Repair or replace pump 4. Repair or replace Modulator Valve
High System Pressure	1. Defective relief valve	1. Clean or replace
Delayed operation of work function after control is moved	1. See No. 1 and No. 2 under Low System Pressure 2. Scored or sticking Main Control Valve spool	1. Same as above 2. Repair or replace
Work function movement with control in neutral	1. Restriction of Linkage 2. Defective Modulator Valve 3. Defective Main Control Valve	1. Check and correct 2. Inspect and Repair 3. Repair or replace

MAIN HYDRAULIC SYSTEM

PROBLEM	POSSIBLE CAUSE	REMEDY
Slow operating speed - all functions	1. Insufficient engine rpm	1. Adjust
	2. Air in system	2. Check for leak in pump inlet line, cycle functions several times to vent air back to tank
	3. Partially clogged pump inlet	3. Check and correct; drain and flush system if necessary
	4. Oil viscosity too heavy	4. Use correct oil for ambient temperature
	5. Pump worn or damaged	5. Check pump efficiency with flowmeter; repair or replace pump as required.
	6. Leak in Main Relief or Power Sensing Valve due to damaged o-ring or scored piston	6. Repair or replace valve(s)
Slow Motion one function only	1. Restriction of pilot line	1. Check and correct
	2. Port relief valve leaking or out-of-adjustment	2. Adjust, repair or replace
	3. Motor or cylinder worn	3. Repair or replace

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15. Pilot Hydraulic Pump

Removal

1. Relieve hydraulic pressure in the line from the pump to the solenoid control valve by engaging and disengaging the drive locks several times with engine off.

2. Remove and cap the hydraulic lines at the pump. Plug pump ports to prevent entry of dirt.

3. Remove pump mounting hardware. Remove pump.

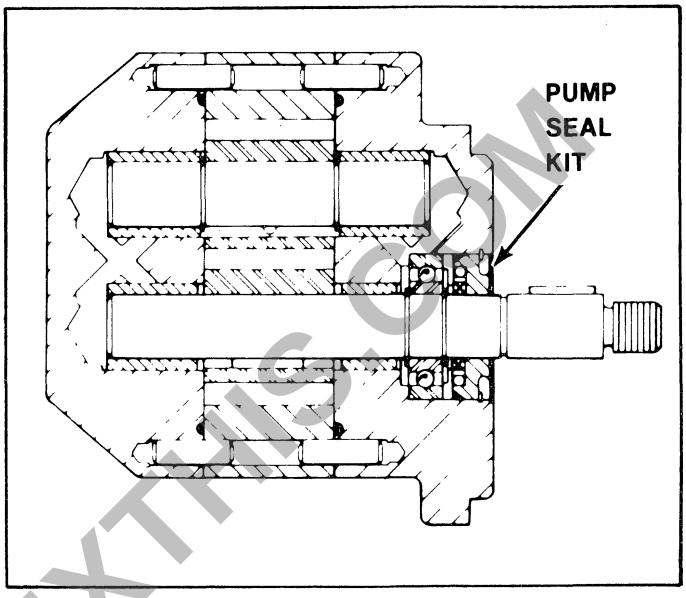


Figure 214. Cross-Section View of Pilot Pump

Disassembly for Seal Replacement

Pump service is limited to seal replacement. A seal replacement kit is available. See Parts Book.

1. Remove self-locking nut and flat washer from end of drive shaft.

2. Pull the drive gear off the drive shaft. Remove snap ring and key.

3. Remove seal retainer snap ring and seal retainer. Discard quad ring seal, o-ring collar, o-rings and back-up ring.

4. Reassemble in reverse order.

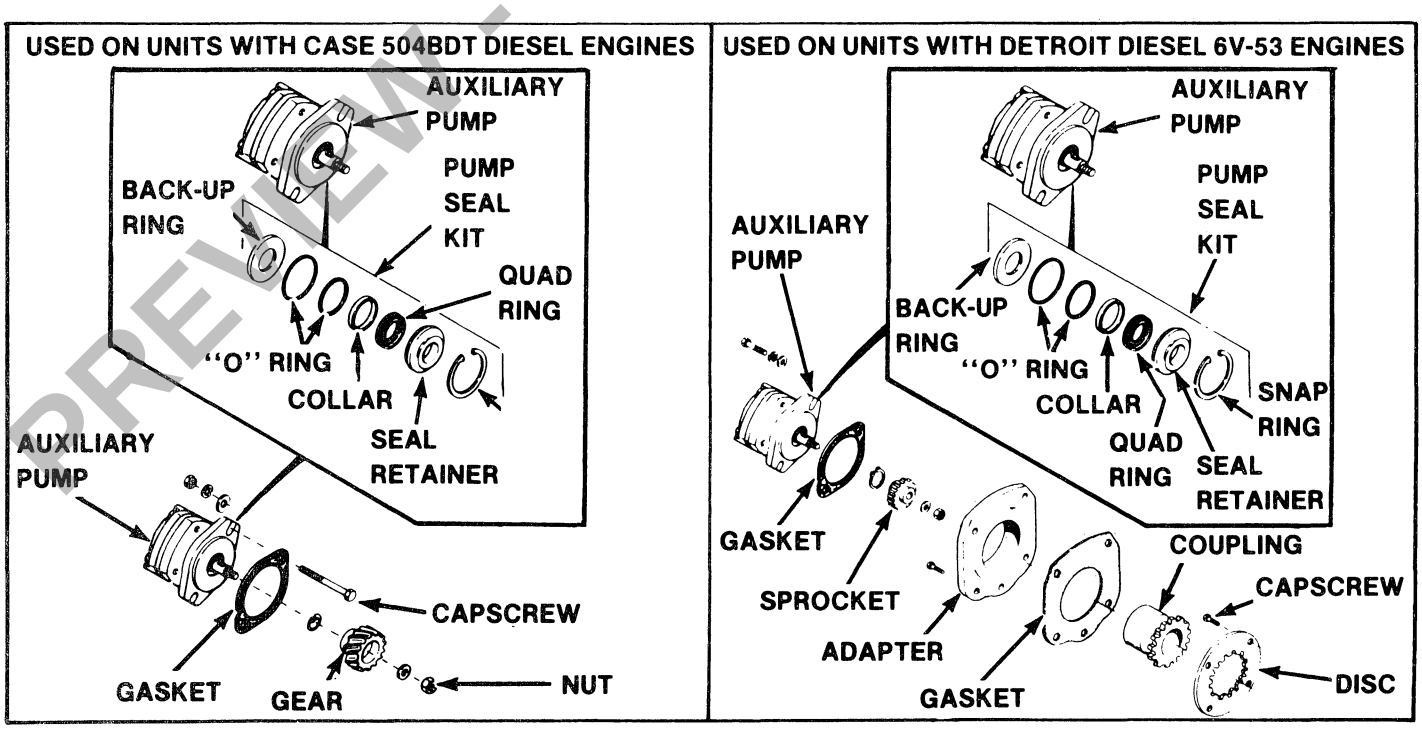


Figure 215. Auxiliary Pump

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