250
500
650
1000

Series B Travelift

(Drott Product)

Service Manual

S406243M2

CASE CONSTRUCTION

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3. MAIN SYSTEM HYDRAULICS

General

The TRAVELIFT Main Hydraulic System is a closed circuit, supercharged system. Supercharging protects against cavitation in the system by providing a positive supply of oil to the main pumps during operation. A closed system means that oil from the pump is fed through the components and routed back to the manifold and to the pumps without going back through the reservoir.

The main system consists of a reservoir, supercharge gear pump, manifold, two variable displacement piston pumps, two main control valves and related lines, filters and relief valves.

The supercharge pump receives its oil supply from the reservoir. Output from the pump is routed through a filter to the return line manifold. On the 250, 500 and 650 model Travelifts, a check valve (plus the restriction of the return line itself) maintains the desired supercharge pressure. On the 1000 model Travelift, a relief valve between the manifold and the reservoir maintains the supercharge pressure. Supercharge pressure is necessary to assure an ample supply of oil to the main pumps.

Output from the main pumps is routed through filters to the two main control valves. To protect

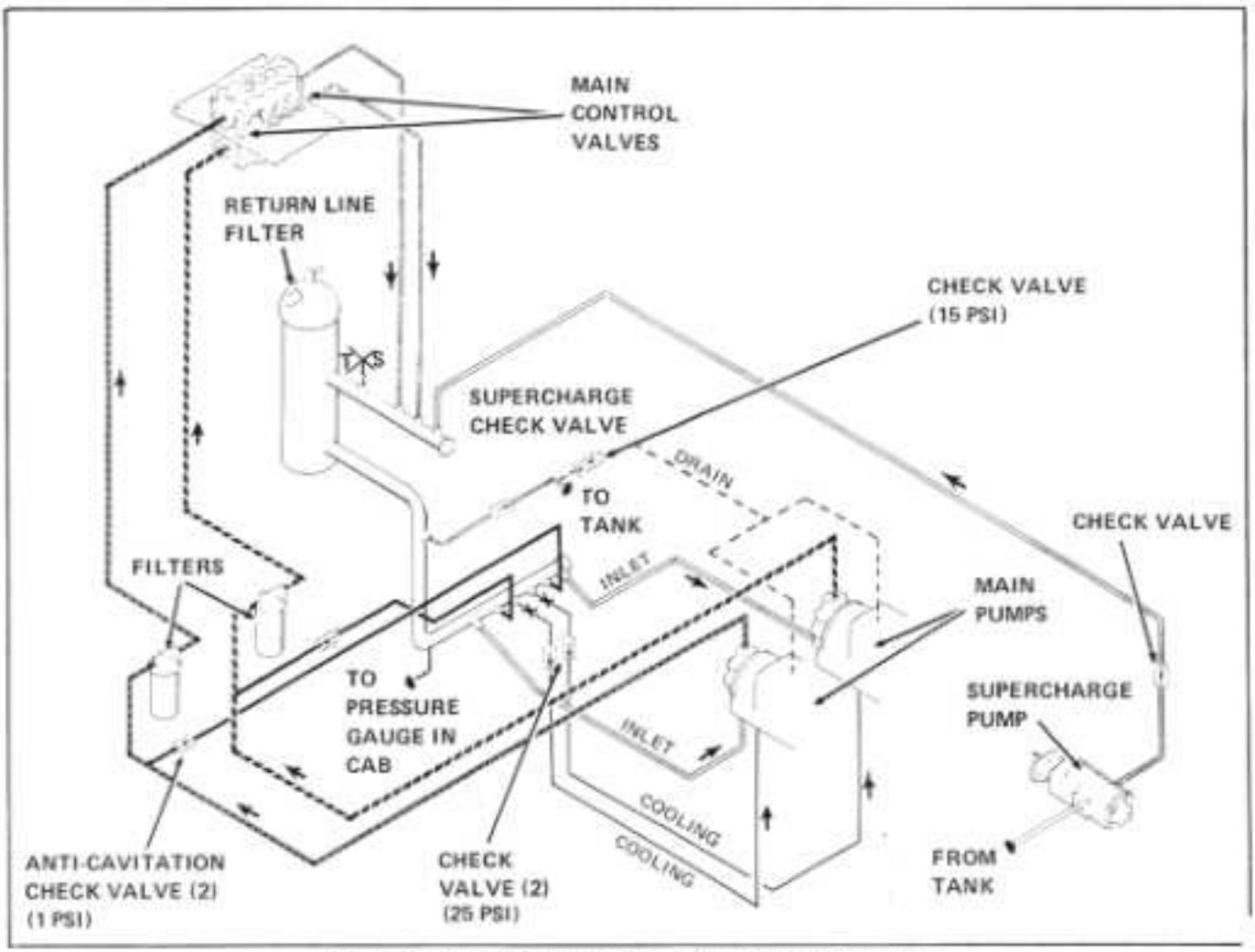


Figure 47. Main Hydraulic System (250, 500, 650 models)

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MAIN HYDRAULIC SYSTEM (CON'T.)

PROBLEM	POSSIBLE CAUSE	REMEDY
Loss of motion during operation	1. Insufficient oil	1. Check level of oil in oil tank and add oil if necessary
	2. Pump defective	2. Repair or replace.
	3. Broken connecting line, or hose	3. Replace
	4. Either of the following listed under "No motion of hydraulic system when first started" 1,3,4, 5,6,7,8,9.	
Short life of pump bearings, shafts, wear plates, etc.	1. Dirty oil	1. System should be drained, flushed and refilled. Breathers, seals and gaskets must be kept in good condition.
	2. Wrong oil	2. Use of proper viscosity oil
	3. Incorrect pump assembly	3. Disassemble and correct
Oil heating up	1. Foreign matter lodged between the relief valve plunger and relief valve seat.	1. Inspect and remove foreign matter.
	2. Using very light oil in a hot climate	2. Drain and refill with proper oil
	3. Dirty oil	3. Drain, flush and refill with oil
	4. Oil level too low	4. Fill to proper level
	5. Insufficient relief valve pressure	5. Set to correct pressure
	6. Relief valve pressure too high	6. Set to correct pressure
	7. Pump worn. (Slippage)	7. Replace or repair
	8. Engine rpm's too high	8. Lower to recommended rpm
Hydraulic oil tank overflows when unit stands for several days	1. Supercharge pump outlet check valve leaking	1. Replace seat and O-ring in supercharge check valve.
	2. Pump case drain check valves faulty	2. Replace case drain check valves.

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2. PUMP DRIVE TRANSMISSION (1000 Model Travelifts)

Removal

Because of the weight of the variable displacement pumps and the pump drive transmission, use a hoist to relieve the weight of the components during removal and replacement.

1. If possible steam clean the pumps and transmission. If steam cleaning is not practical wash down thoroughly with non-flammable solvent and blow dry with compressed air. Drain and discard transmission oil.
2. Disconnect and remove pumps. Cap all lines and ports to prevent entrance of foreign material.
3. Relieve weight of transmission with hoist. Remove capscrews that attach flywheel housing cover to engine flywheel housing.
4. Pull the transmission housing away from the flywheel housing until input shaft spline is free of the drive plate.

Disassembly

1. Remove the flywheel housing cover from transmission case by removing the capscrews and washers. It may be necessary to work the cover loose. The bearings are pressed onto the pinion gear shaft cover and case.
2. O-ring, oil seal, bearings and pinion gear can now be removed.
3. Remove the three pump adapters from the case. Take care not to mar or damage the mating surface between the adapter or the case.
4. Remove gear and bearing assemblies, sleeves and o-rings.

Inspection and Repair

1. Clean all parts in non-flammable solvent and blow dry with compressed air. See Cleaning Instructions on page 81. Discard old o-rings and seals.
2. Inspect all parts thoroughly. Check gear teeth for wear and distortion, splines for wear or nicks and machined surfaces for nicks or scratches.
3. Check each bearing for excessive wear. Check bearing bores for burrs or distortion.

Assembly

1. Press bearings into bores of transmission case. Then press the drive gears and pinion gear into the bearings.
2. Press remaining bearings on to the gear shafts.
3. Coat o-rings lightly with grease, then install onto adapters and flywheel housing cover. Mount the adapter plates and flywheel housing cover.
4. Install and torque all capscrew and nuts per torque charts.
5. Check that gears turn freely without excessive noise or binding.

Installation

Install transmission in reverse order of removal. Check that capscrews holding the drive plate are secure and drive plate is in good condition. With transmission in position on the flywheel housing, align the spline of the input shaft with the internal spline on the drive plate. Push transmission into position. After securing transmission to flywheel housing and pumps to transmission, connect all hydraulic lines. Check entire installation. Refill transmission with recommended oil.

NOTE: See Hydraulic System section for initial pump startup procedure.

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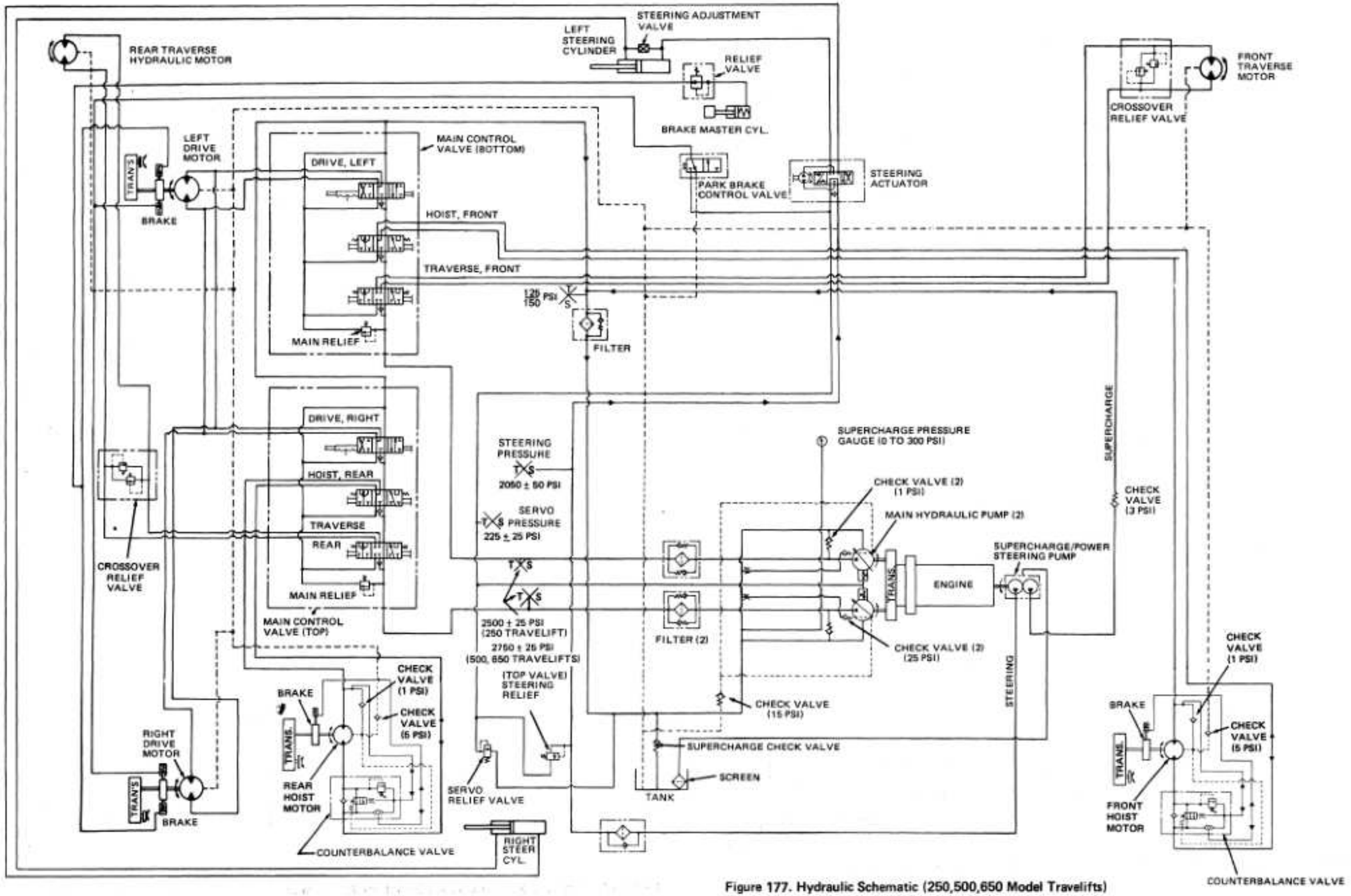


Figure 177. Hydraulic Schematic (250,500,650 Model Travelifts)

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