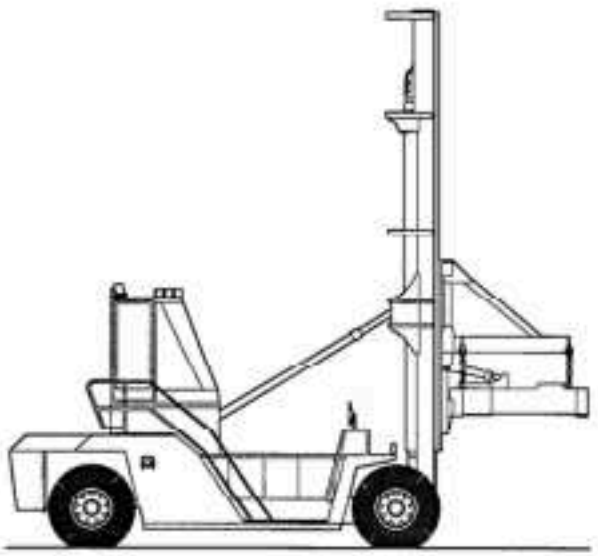
Service Manual



SM580
C500 Y 950 CH

This manual cover machine:

Serial No. Y950-1-8695 & above
Serial No. Y950-1-8855 & above

ALWAYS GIVE THE MACHINE SERIAL NUMBER WHEN ORDERING PARTS

CLARK
Technical Publications
Lexington, KY
40507-1640

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Testing the Thermostat (cont)

Place the thermostat fully immersed in a pan of water. Heat the pan slowly while stirring the water to produce an even temperature. Use a thermometer to measure the temperature at which the thermostat valve cracks (starts to open) and when it is fully open. Measure the valve lift distance of the fully opened valve. If the test results are not to specification, replace the thermostat.

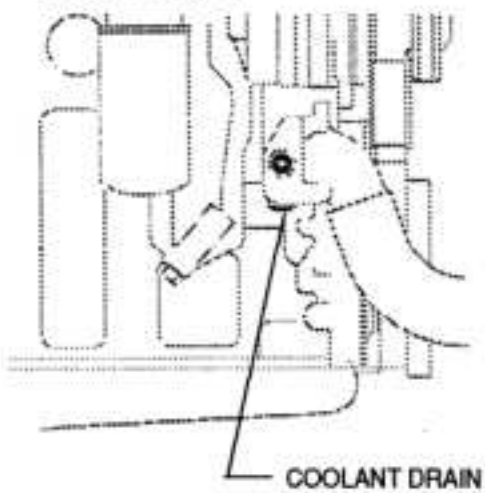
Cooling System Drain and Refill

Draining the Radiator and Cooling System

Place a large drain pan which has a minimum capacity of 73.8 liters (19.5 gal.) under the radiator and engine and remove radiator cap.

⚠ WARNING
STEAM

Do not remove radiator cap when the radiator is hot. Steam from the radiator will cause severe burns.



Remove the coolant drain plug from the engine block as shown and open drain cock on radiator.

Inspect the coolant hoses and clamps to determine if they need to be replaced.

Flushing the Cooling System

If the condition of the used coolant indicates severe contamination, rust deposits, scale or oil in the cooling system, it may be necessary to clean and flush the cooling system with a commercial cleaner. Choose a product from a reliable manufacturer and follow the manufacturer's recommendation in its use.

Reinstall the engine coolant drain plug and close the radiator drain cock.

Fill the cooling system and perform the cleaning and flushing operation in accordance with the manufacturer's recommended procedure.

Again drain the cooling system by removing the engine coolant drain plug and opening the radiator drain cock. Reinstall the engine coolant drain plug, close the radiator cock and remove the drain pan. Dispose of both used coolant and flushing fluid in the proscribed manner.

Fill the radiator to the bottom of the radiator filler neck and the overflow bottle to the "cold" level with the recommended 50/50 coolant mixture.

NOTE: The engine manufacturer recommends adding 3 units of Fleetgard DCA or equivalent per gallon of coolant. This additive is needed to protect the engine cylinder liners from corrosion and pitting.

Reinstall the radiator cap, start engine and allow it to run until it reaches operating temperature. Accelerate the engine to a moderate speed several time for brief periods, watching the fluid level in the overflow bottle which should be rising. If fluid reaches the "hot" level when engine has reached operating temperature, the cooling system is probably working properly.

If coolant level light comes on during engine warm-up, shut engine down and allow system to cool completely. Then remove radiator cap in prescribed manner with shop cloth and examine fiber seal in cap. If damaged, replace cap. Top off coolant in filler neck, reinstall radiator cap and retest as described above.

When the cooling system has been determined to be operating properly, shut engine down and inspect cooling system for any leaks that may have developed when the system was pressurized.

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SPECIFICATIONS AND SERVICE DATA—POWER SHIFT TRANSMISSION AND TORQUE CONVERTER

CONVERTER OUT PRESSURE	Converter outlet oil temp. 180° - 200° F. (82.2° - 93.3° C). Transmission in **NEUTRAL**. Operating specifications: 50 psi [379.3 kPa] minimum pressure at 2000 R.P.M. engine speed **AND** a maximum of 70 psi [482.6 kPa] outlet pressure with engine operating at no-load governed speed.
CONTROLS	Forward and Reverse — Manual Speed Selection — Manual
CLUTCH TYPE	Multiple discs, hydraulically actuated, spring released, automatic wear compensation and no adjustment. All clutches oil cooled and lubricated.
CLUTCH INNER DISC	Friction.
CLUTCH OUTER DISC	Steel.
OIL FILTRATION	Full flow oil filter safety by-pass, also strainer screen in sump at bottom of transmission case.
CLUTCH PRESSURE	180-220 psi [1241.1 - 1516.8 kPa] — With parking brake set (**see note**), oil temperature 180° - 200° F. [82.2° - 93.3° C], engine at idle (400 to 600 RPM), shift thru direction and speed clutches. All clutch pressure must be equal within 5 psi, [34.5 kPa] If clutch pressure varies in any one clutch more than 6 psi, [34.5 kPa] repair clutch.

NOTE: Never use service brakes while making clutch pressure checks. Units having brake actuated declutching in forward and/or reverse will not give a true reading.

ALWAYS USE PARKING BRAKE WHEN MAKING CLUTCH PRESSURE CHECKS.

LUBRICATION

TYPE OF OIL	See Lube Chart.
CAPACITY	Consult Operator's Manual on applicable machine model for system capacity. Torque Converter, Transmission and allied hydraulic system must be considered as a whole to determine capacity.
CHECK PERIOD	Check oil level DAILY with engine running at 500-600 RPM and oil at 180° to 200° F. [82, 2 - 93, 3° C]. Maintain oil level to FULL mark.
NORMAL * DRAIN PERIOD	Every 500 hours, change oil filter element. Every 1000 hours, drain and refill system as follows: Drain with oil at 150° to 200° F. [65, 6 - 93, 3° C].

NOTE: It is recommended that filter elements be changed after 50 and 100 hours of operation on new and rebuilt or repaired units.

(a) Drain transmission and remove sump screen. Clean screen thoroughly and replace, using new gaskets.

(b) Drain oil filters, remove and discard filter elements. Clean filter shells and install new elements.

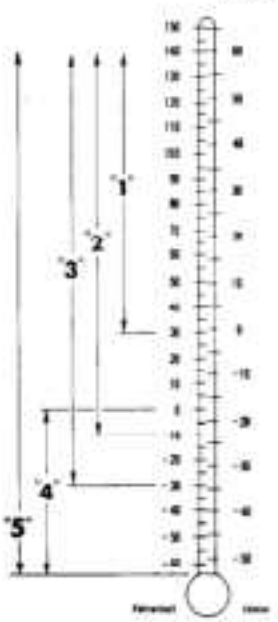
(c) Refill transmission to **LOW** mark.

(d) Run engine at 500-600 RPM to prime converter and lines.

(e) Recheck level with engine running at 500 - 600 RPM and add oil to bring level to **LOW** mark. When oil temperature is hot (180-200° F.) [82,2-93,3° C] make final oil level check. **BRING OIL LEVEL TO FULL MARK.**

RECOMMENDED LUBRICANTS FOR CLARK-HURTH COMPONENTS POWER SHIFTED TRANSMISSION AND TORQUE CONVERTERS

Prevailing Ambient Temperature



Temperature Range "1"
(a) C-2 Grade 30
(b) C-3 Grade 30
(c) Engine Oil-Grade 30 API-CD/SE or CD/SF
(d) MIL-L-2104D-Grade 30
(e) MIL-L-2104D-Grade 30

Temperature Range "2"
(a) MIL-L-2104D-Grade 10
(b) MIL-L-2104D-Grade 10
(c) C-2 Grade 10
(d) C-3 Grade 10
(e) Engine Oil-Grade 10 API-CD/SE or CD/SF
(f) Quintolubric 822-220 (Non Phosphate Ester Fire Resistant Fluid)

Temperature Range "3"
(a) *Dexron
(b) *Dexron II D. **See Caution Below.**

Temperature Range "4"
(a) MIL-L-46167
(b) MIL-L-46167 A

Temperature Range "5"
(a) Quaker HighPerformance Synthetic Motor Oil — Spec. No. 5715

PREFERRED OIL VISCOSITY: Select highest oil viscosity compatible with prevailing ambient temperatures and oil application chart. Temperature ranges "2" and "3" may be used to lower ambient temperatures when sump preheaters are used.

Temperature range "4" should be used only in ambient temperature range shown.

MODULATED SHIFT TRANSMISSIONS: T12000, 16000, 24000, 26000 & 32000 series transmissions with modulated shift use only C-3 or temperature range 3 items (a) & (b) *Dexron or *Dexron II D. **SEE CAUTION BELOW.** 3000, 4000, 5000, 6000, 8000, 16000 & 24000 series transmissions with modulated shift use only C-3 or temperature range 3 item (a) only *Dexron. Do **NOT** use *Dexron II D. **SEE CAUTION BELOW.**

CAUTION: *Dexron II D is not compatible with graphitic clutch plate friction material UNLESS IT MEETS THE APPROVED C-3 SPECIFICATIONS. *Dexron II D cannot be used in the 3000, 4000, 5000, 6000, 8000, 16000 or 24000 series power shift transmissions, or the HR28000 & HR32000 series having conventional hookup, or the DET2 series converter having lock-up UNLESS IT MEETS THE APPROVED C-3 SPECIFICATIONS.

Any deviation from this chart must have written approval from the application department of the Clark-Hurth Components Engineering and Marketing Departments.

*Dexron is a registered trademark of General Motors Corporation.

*** Normal drain periods and filter change intervals are for average environmental and duty-cycle conditions. Severe or sustained high operating temperatures or very dusty atmospheric conditions will cause accelerated deterioration and contamination. For extreme conditions judgment must be used to determine the required change intervals.**

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TROUBLESHOOTING CONTINUED

Steering/Aux

The steering pump supplies steering first and then the aux functions. If the truck has hard or slow steering but the aux functions work correctly, suspect trouble in steering cylinders or hydrostatic steer unit or steering demand valve.

If steering, tilt and aux functions are all faulty, suspect steer pump.

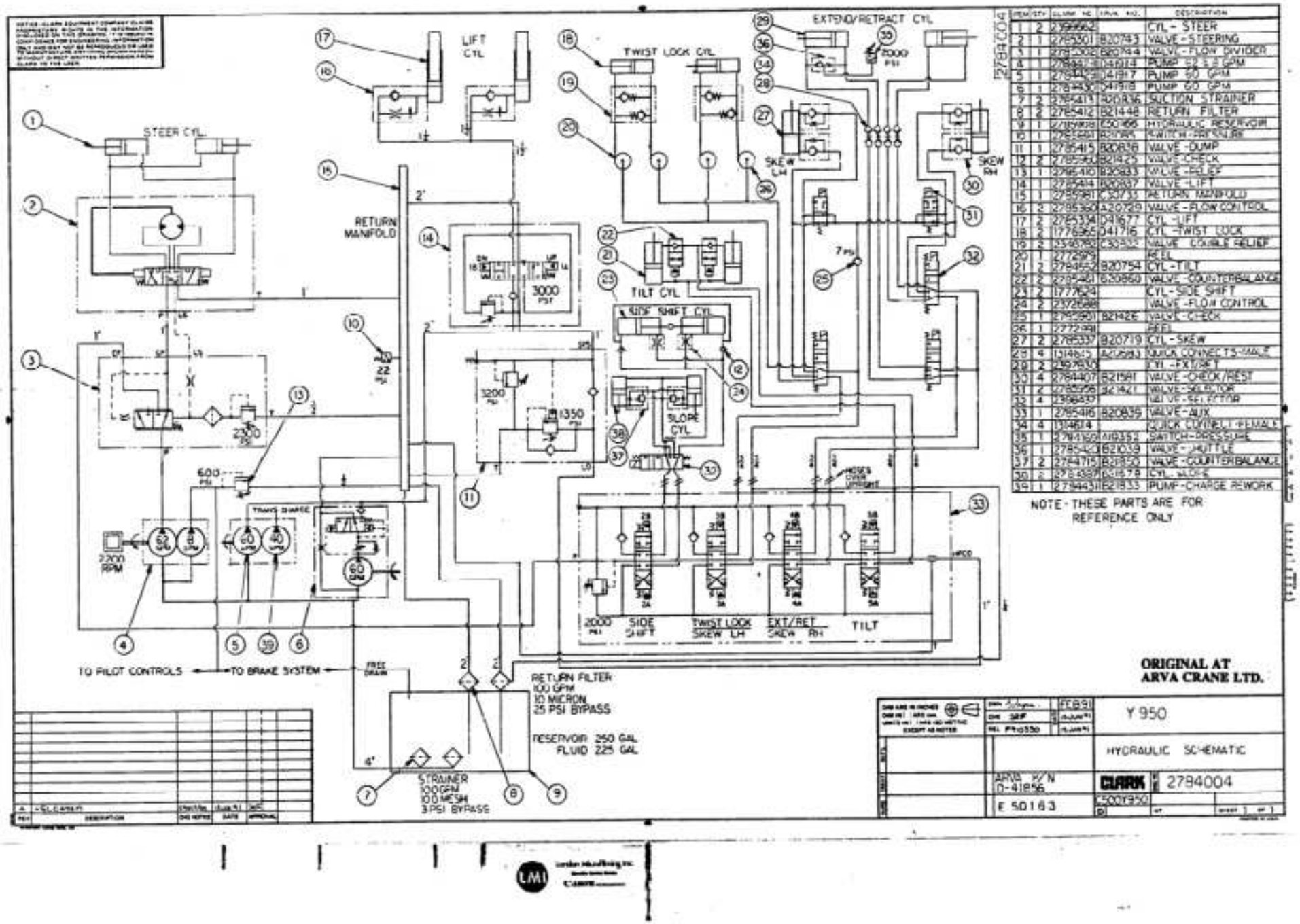
Lift

The easiest method of determining malfunctions in the lift system is to record lift speeds empty and loaded and relate them to the respective pump/valve combinations. If the lift speed is slow empty, suspect the dump valve not closing. If the lift system labors the engine abnormally at high RPM, suspect the pump valve not pumping to tank. If the lift system labors the engine at low speed, suspect the speed sensitive pump, etc. The pressure in the lift system while lifting empty should be 900 to 950 PSI.

Summary

The hydraulic system on the C500 Y 950CH is a fairly straight forward system, with a high tolerance for contamination and a "fail to basic function" philosophy. Hydraulic filters should be changed regularly, suction strainers and tanks thoroughly cleaned if a major component failure occurs. Dirt in the pilot circuits will migrate to the spool covers on the main and aux valves. Sticking spools can usually be cured by cleaning and light buffing with crocus cloth on tight spots.

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ITEM	QTY	CLARK NO.	ARVA NO.	DESCRIPTION
1	2	2799662		CYL - STEER
2	1	2785501	B20743	VALVE - STEERING
3	1	2784302	B20744	VALVE - FLOW DIVIDER
4	1	2784431	041914	PUMP 52 & 8 GPM
5	1	2784429	041917	PUMP 50 GPM
6	1	2784430	041918	PUMP 60 GPM
7	2	2785413	A00836	SUCTION STRAINER
8	2	2785412	B21448	RETURN FILTER
9	1	2784938	C50166	HYDRAULIC RESERVOIR
10	1	2785421	B20764	SWITCH-PRESSURE
11	1	2785415	B20838	VALVE - DUMP
12	2	2785420	B21425	VALVE-CHECK
13	1	2785410	B20833	VALVE-RELIEF
14	1	2785414	B20837	VALVE-LIFT
15	1	2785411	C20733	RETURN MANIFOLD
16	2	2785350	A20729	VALVE - FLOW CONTROL
17	2	2785334	041677	CYL - LIFT
18	2	1776965	041716	CYL - TWIST LOCK
19	2	2548760	C50332	VALVE COUPLE RELIEF
20	1	2772999		REEL
21	2	2794552	B20754	CYL - TILT
22	2	2785401	B20860	VALVE - COUNTERBALANCE
23	2	1777524		CYL - SIDE SHIFT
24	2	2572588		VALVE - FLOW CONTROL
25	1	2785901	B21426	VALVE - CHECK
26	1	2772998		REEL
27	2	2785337	B20719	CYL - SKEW
28	4	1314615	A20883	QUICK COUPLER-MALE
29	2	2797600		3 YD - FX LOAD
30	4	2784407	B21581	VALVE - CHECK/REST
31	2	2785526	B21421	VALVE-SELECTOR
32	4	2598837		VALVE-RELIEF
33	1	2785416	B20835	VALVE - AUX
34	4	1314614		QUICK COUPLER-FEMALE
35	1	2784152	A18352	SWITCH-PRESSURE
36	1	2785423	B21039	VALVE - SHUTTLE
37	2	2784715	B21850	VALVE - COUNTERBALANCE
38	2	2785338	041679	CYL - SLOPE
39	1	2784431	B21833	PUMP - CHARGE REWORK

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