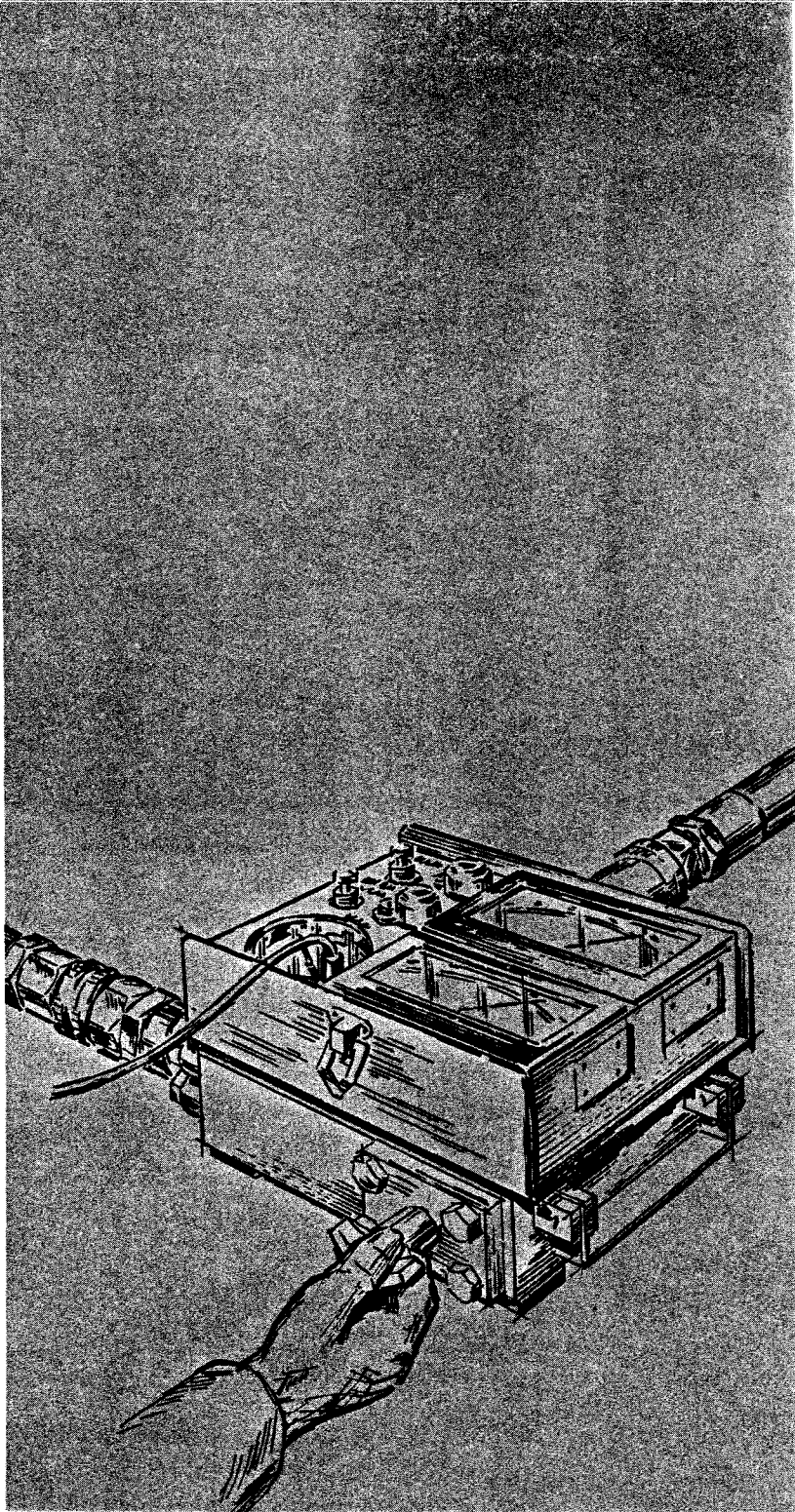
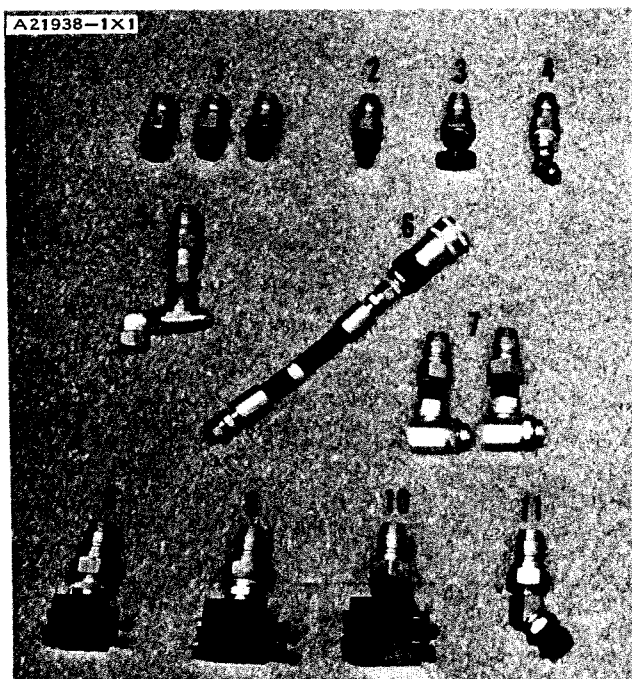


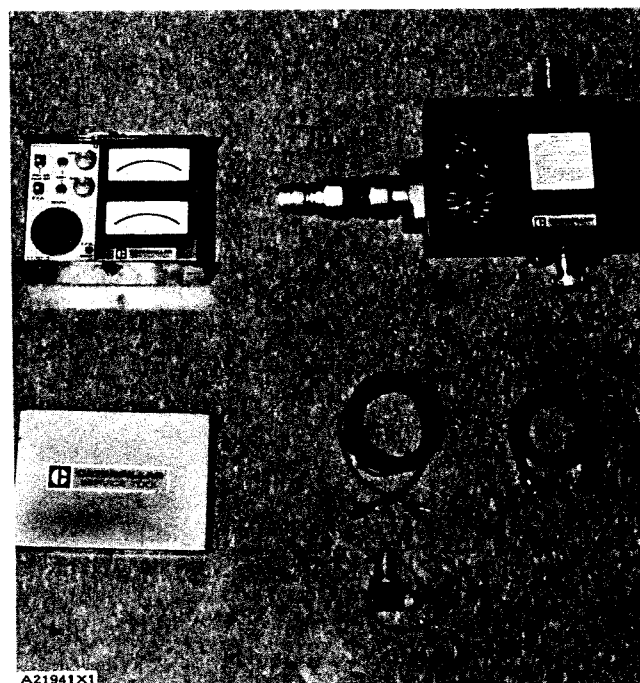


TEE TEST TOOLING

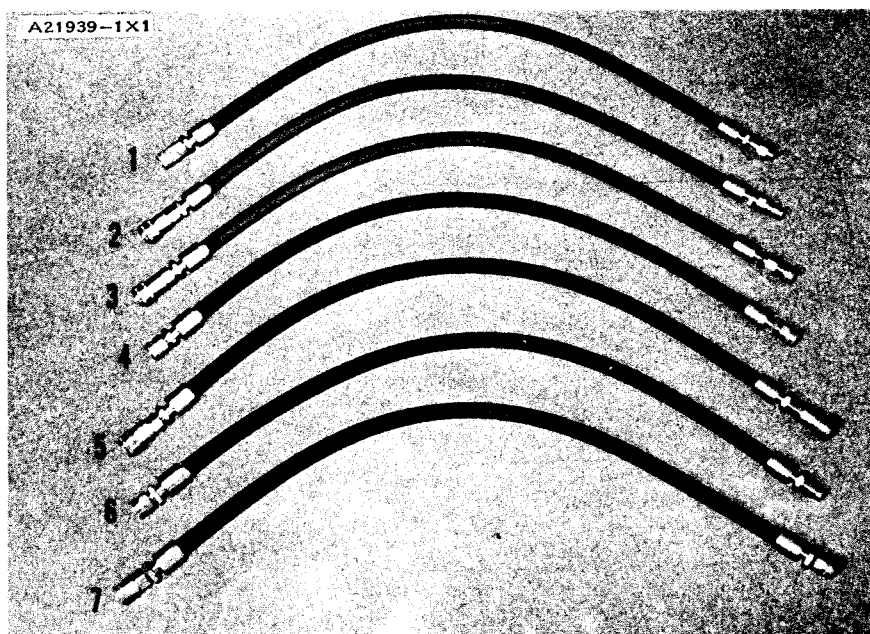
NOTE: The C that appears in any margin, indicates a change from previous issue.



A - ASSEMBLIES (Pump Supply Line Adapters)



B - ASSEMBLY (Flow Meter Assembly)

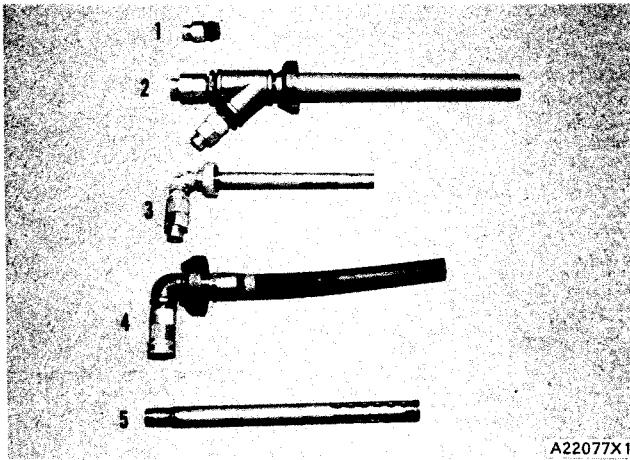


C - ASSEMBLIES (Connecting Hose Assembly)

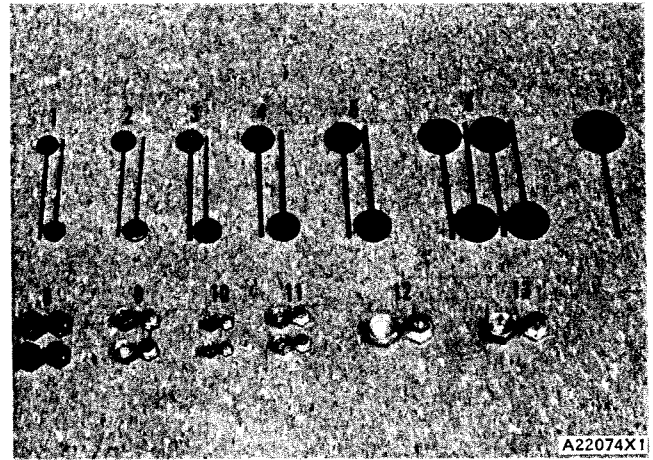
Assembly No.	Part No.	Description	Quan. Req.
A – Pump Supply Line Adapter			
1	8S9967	Adapter	3
	2S4078	O-Ring Seal (Part of 8S9967)	
	2P8336	Valved Nipple	3
2	9S7336	Adapter	1
	3D2824	O-Ring Seal (Part of 9S7336)	
	9S7337	Reducing Bushing	1
	2P8336	Valved Nipple	1
	2P8339	Quad Ring (Part of 2P8336)	
3	FT828	Filter Adapter	1
4	2P8336	Valved Nipple	1
	1P5596	Pipe Nipple	1
	307976	Adapter –45° Union	1
	3D2824	O-Ring Seal	1
5	5P2242	Tee	1
	5P2244	Union	1
	1P5597	Pipe Nipple (1" x 1¼")	1
	2P8336	Valved Nipple	1
	315744	Elbow–90°	1
6	8S6646	Hose	1
	3B7257	Bushing	1
	43099	Fitting	1
	2P8337	Valved Coupler	1
7	307980	Adapter–90°	2
	2S4078	O-Ring Seal	2
	1P5598	Pipe Nipple	2
	2P8336	Valved Nipple	2
8	5P3032	Adapter (1" Hose)	1
	1P5597	Pipe Nipple (1" x 1¼")	1
	4F7391	O-Ring Seal	1
	2P8336	Valved Nipple	1
	8S9191	Bolt	4
9	1D4717	Nut	4
	5P3033	Adapter (1¼" Hose)	1
	1P5597	Pipe Nipple (1" x 1¼")	1
	4F7952	O-Ring Seal	1
	2P8336	Valved Nipple	1
10	7H3472	Bolt	4
	1D4718	Nut	4
	5P3034	Adapter (1½" Hose)	1
	1P5598	Pipe Nipple (1¼" x 1¼")	1
11	7F8267	O-Ring Seal	1
	2P8336	Valved Nipple	1
	2H6488	Bolt	4
	1D4719	Nut	4
11	44977	Elbow–45°	1
	2P8336	Valved Nipple	1
	8S9967	Adapter	1

Assembly No.	Part No.	Description	Quan. Req.
B – Flow Meter Assembly			
	9S2000	Flow Meter	1
	9S3047	Tachometer Generator (Part of 9S2000)	
	2P5523	Cable Assembly (Part of 9S2000)	
	9S3048	Cable Assembly (Part of 9S2000)	
	9S6341	Safety Disc (.010" 4300 psi) (Part of 9S2000)	
	1P7411	Safety Disc (.013" 6200 psi) (Part of 9S2000)	
	3H4330	Split Flange	4
	S1587	Bolt	8
	3B4508	Lockwasher	8
	8S9964	Flange Type Fitting	2
	7F8267	O-Ring Seal	2
	8S9965	Pipe Nipple	2
	9S6278	Plain Nipple (Outlet)	1
	2P8334	Plain Nipple (Inlet)	1

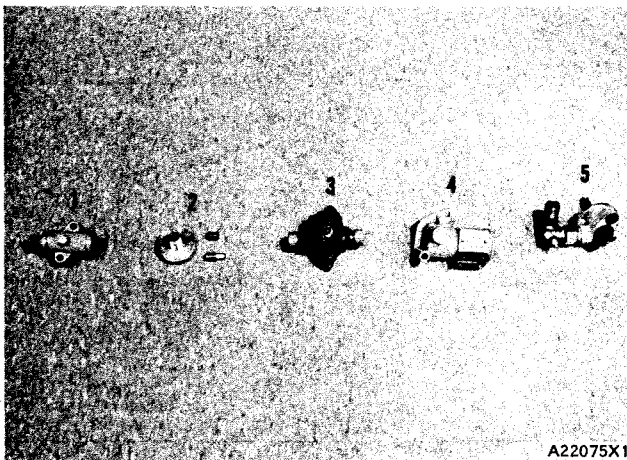
C – Connecting Hose Assembly			
1	2P2349	Hose Assembly (8B2496)	1
	8S9972	Plain Coupler	1
	8S9974	Valved Coupler	1
2	2P2349	Hose Assembly	1
	2P8335	Plain Coupler	1
	2P8334	Plain Nipple	1
3	2P2349	Hose Assembly (8B2496)	1
	8S9974	Valved Coupler	1
	2P8337	Valved Coupler	1
4	2P2349	Hose Assembly (8B2496)	1
	8S9972	Plain Coupler	2
5	2P2349	Hose Assembly	1
	2P8335	Plain Coupler	1
	2P8337	Valved Coupler	1
6	2P2349	Hose Assembly (8B2496)	1
	8S9972	Plain Coupler	1
	9S6278	Plain Nipple	1
7	2P2349	Hose Assembly (8B2496)	1
	8S9973	Valved Nipple	1
	8S9974	Valved Coupler	1
8S9976 Coupler Repair Kit (Part of 8S9972 & 8S9974)			



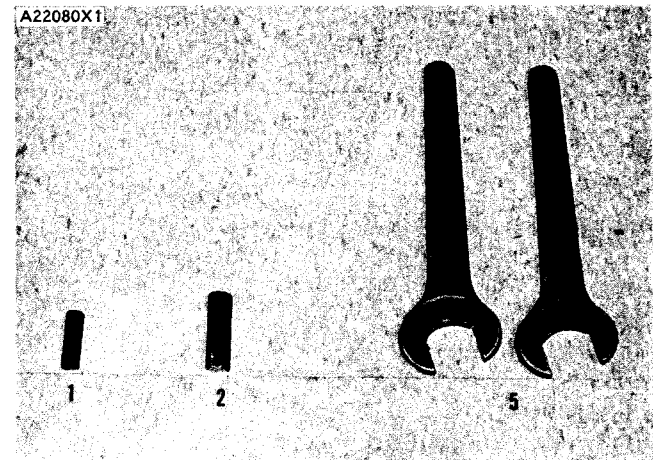
D – ASSEMBLIES (Return Line Assembly)



F – ASSEMBLIES (Blocking Plates Assembly)



E – ASSEMBLIES (Tachometer Drive)



G – ASSEMBLIES (Tools)

Assembly No.	Part No.	Description	Quan. Req.
D — Return Line Assembly			
1	8S9967	Adapter	1
	2S4078	O-Ring Seal (Part of 8S9967)	
	9S6278	Plain Nipple	1
2	3B7750	Pipe Nipple	2
	4J3815	Gasket	1
	1P58	Filler Return Group	1
	8S9973	Valved Nipple	2
3	3B6555	Street Ell	1
	3B7749	Nipple	1
	3B7257	Bushing	1
	9H6454	Gasket	1
	1P757	Filler Return Group (FT827)	1
	8S9973	Valved Nipple	1
4	FT794	Return Line Cap Assembly	1
5	5P3517	Tube Assembly—Return	1

E — Tachometer Drive

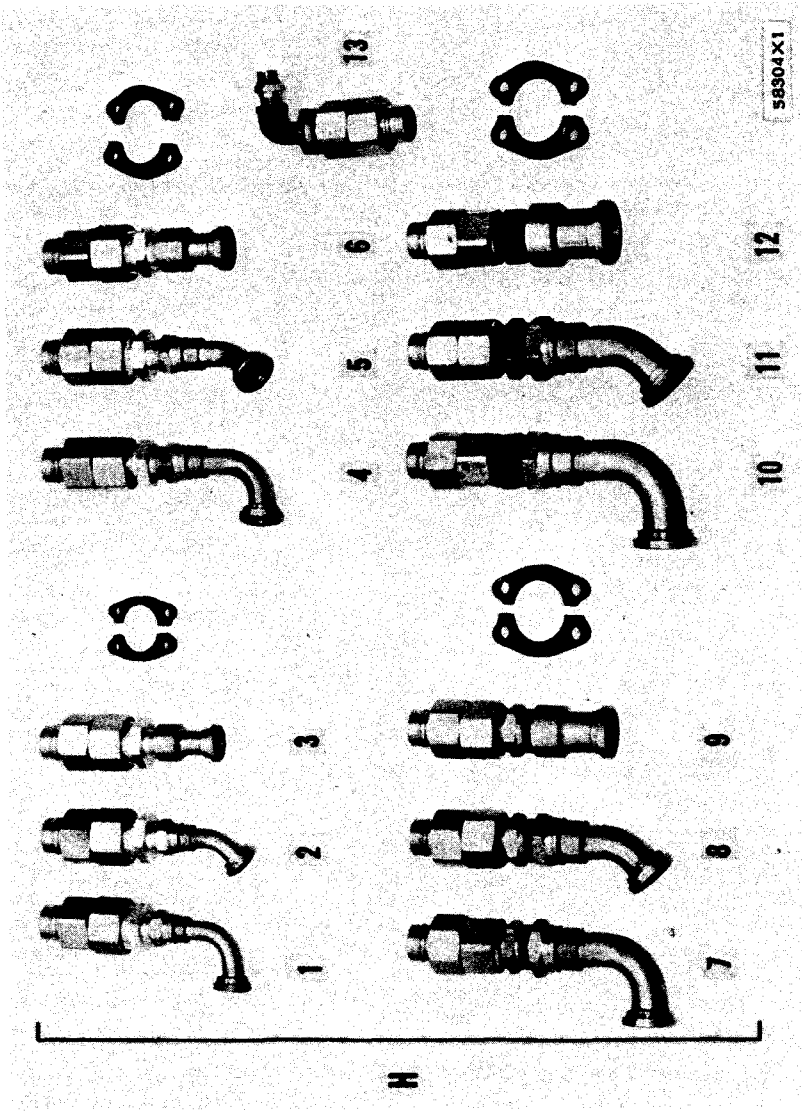
1	1M5061	Tachometer Drive Group	1
	1B9575	Bolt	2
	3B4505	Lockwasher	2
2	5P1759	Tachometer Adapter (9S5609)	1
	9N641	Adapter Group (Part of 5P1759)	
	4M8303	Seal (Part of 5P1759)	
	5P1758	Shaft Assembly (Part of 5P1759)	
	4N538	Coupling (Part of 5P1759)	
	9S211	Clamp	2
	9S3032	Clamp	2
3	4L8393	Tachometer Drive Group (1:1) (Drill out holes to 11/32" Dia.)	1
	1B2714	Bolt (1/4"-20 x 2 1/2")	2
	1D4539	Bolt (5/16"-18 x 2 1/2")	2
	3B4504	Lockwasher (1/4")	2
	3B4505	Lockwasher (5/16")	2
4	2S424	Service Meter Group	1
	2B2695	Bolt (5/16"-18 x 7/8")	1
	1D4539	Bolt (5/16"-18 x 2 1/2")	1
	3B4505	Lockwasher (5/16")	2
5	7M6006	Drive Group (Modified)	1
	5P935	Adapter Group	1
	5S6106	Adapter, 2:1 Drive	1
	1B7182	Bolts	2

Assembly No.	Part No.	Description	Quan. Req.
F — Blocking Plate Assemblies			
1	9S7358	Blocking Plate Assembly (1/2")	2
	5F7054	O-Ring Seal	2
2	9S8894	Blocking Plate Assembly (5/8")	2
	4J8996	O-Ring Seal	2
3	9S7359	Blocking Plate Assembly (3/4")	2
	4F1678	O-Ring Seal	2
4	9S8092	Blocking Plate Assembly (1")	2
	4F7391	O-Ring Seal	2
5	9S8093	Blocking Plate Assembly (1 1/4")	2
	4F7952	O-Ring Seal	2
6	9S8094	Blocking Plate Assembly (1 1/2")	4
	7F8267	O-Ring Seal	4
7	9S8095	Blocking Plate Assembly (2")	1
	8F6711	O-Ring Seal	1
8	9S8895	Plug (1 1/16"-12 Thread)	2
	9S8896	Cap (1 1/16"-12 Thread)	2
9	2P9697	Plug (7/8"-14 Thread)	2
	8L6111	Cap (7/8"-14 Thread)	2
10	9S8927	Plug (9/16"-18 Thread)	2
	8S4950	Cap (9/16"-18 Thread)	2
11	5P2909	Plug (3/4"-16 Thread)	2
	8S4951	Cap (3/4"-16 Thread)	2
12	5P2299	Plug (1 5/16"-12 Thread)	1
	3R6789	Cap (1 5/16"-12 Thread)	1
13	5P4299	Plug (1 3/16"-12 Thread)	1
	8L9137	Cap (1 3/16"-12 Thread)	1

G — Tools

1	1P3566	Bit—Tool (9/16")	1
2	1P3567	Bit—Tool (3/4")	1
3	2P2339	Box Assembly	1
4	2P2337	Box Assembly	1
5	V455	Wrench	2*

*One of the wrenches: grind out to provide a 2 in. (50.8 mm) opening.



H — ADAPTERS (Pump Supply Line)

ADAPTERS FOR THE 9S2000 FLOW METER

This set of adapters can be used to make a hydraulic pump test on all Caterpillar machines. With these adapters, the Flow Meter can be connected to the pump outlet for a pump test. The adapters can also be used on systems with more than one pump, like the 992 Wheel Loader, to find which pump is damaged.

Assembly No.	Part No.	Description	Quan. Req.	Assembly No.	Part No.	Description	Quan. Req.	Assembly No.	Part No.	Description	Quan. Req.
H — Pump Supply Line Adapter				6	1P5570	Flange Type Fitting (1")	1	11	1P7371	Flanged Adapter Assembly (1½" x 45°)	1
1	1P7365	Flanged Adapter Assembly (¾" x 90°)	1		1P5597	Pipe Nipple (1" x 1¼")	1		8S9965	Pipe Nipple (1½" x 1¼")	1
	1P5596	Pipe Nipple (¾" x 1¼")	1		8S9973	Valved Nipple (1¼")	1		8S9973	Valved Nipple (1¼")	1
	8S9973	Valved Nipple (1¼")	1		4F7391	O-Ring Seal	1		7F8267	O-Ring Seal	1
	5F1678	O-Ring Seal	1		1H3305	Split Flange	2		3H4330	Split Flange	2
	2K190	Split Flange	2	7	1P7366	Flanged Adapter Assembly (1¼" x 90°)	1	12	8S9964	Flange Type Fitting (1½")	1
2	1P7368	Flanged Adapter Assembly (¾" x 45°)	1		1P5598	Pipe Nipple (1¼" x 1¼")	1		8S9965	Pipe Nipple (1½" x 1¼")	1
	1P5596	Pipe Nipple (¾" x 1¼")	1		8S9973	Valved Nipple (1¼")	1		8S9973	Valved Nipple (1¼")	1
	8S9973	Valved Nipple (1¼")	1		4F7952	O-Ring Seal	1		7F8267	O-Ring Seal	1
	5F1678	O-Ring Seal	1		3H3667	Split Flange	2		3H4330	Split Flange	2
	2K190	Split Flange	2	8	1P7370	Flanged Adapter Assembly (1¼" x 45°)	1	13	1P5595	Male Adapter Assembly (7/8" Std. Thd. x 1½" NPTF)	1
3	1P5568	Flange Type Fitting (¾")	1		1P5598	Pipe Nipple (1¼" x 1¼")	1		3B7259	Street Ell (½" x 90°)	1
	1P5596	Pipe Nipple (¾" x 1¼")	1		8S9973	Valved Nipple (1¼")	1		1P5599	Reducer Bushing (½" x 1¼")	1
	8S9973	Valved Nipple (1¼")	1		4F7952	O-Ring Seal	1		2M9780	O-Ring Seal	1
	5F1678	O-Ring Seal	1		3H3667	Split Flange	2		8S9973	Valved Nipple (1¼")	1
	2K190	Split Flange	2	9	1P5575	Flange Type Fitting (1¼")	1	Not Shown: FT1043 Blocking Cover (Use this with 9S2000 Flow Meter when flow testing the large section of D9G Tractor hydraulic system with a gear pump and also the D8H hydraulic pumps).			
4	1P7364	Flanged Adapter Assembly (1" x 90°)	1		1P5598	Pipe Nipple (1¼" x 1¼")	1				
	1P5597	Pipe Nipple (1" x 1¼")	1		8S9973	Valved Nipple (1¼")	1				
	8S9973	Valved Nipple (1¼")	1		4F7952	O-Ring Seal	1				
	4F7391	O-Ring Seal	1		3H3667	Split Flange	2				
	1H3305	Split Flange	2	10	1P7367	Flanged Adapter Assembly (1½" x 90°)	1				
5	1P7369	Flanged Adapter Assembly (1" x 45°)	1		8S9965	Pipe Nipple (1½" x 1¼")	1				
	1P5597	Pipe Nipple (1" x 1¼")	1		8S9973	Valved Nipple (1¼")	1				
	8S9973	Valved Nipple (1¼")	1		7F8267	O-Ring Seal	1				
	4F7391	O-Ring Seal	1		3H4330	Split Flange	2				
	1H3305	Split Flange	2								

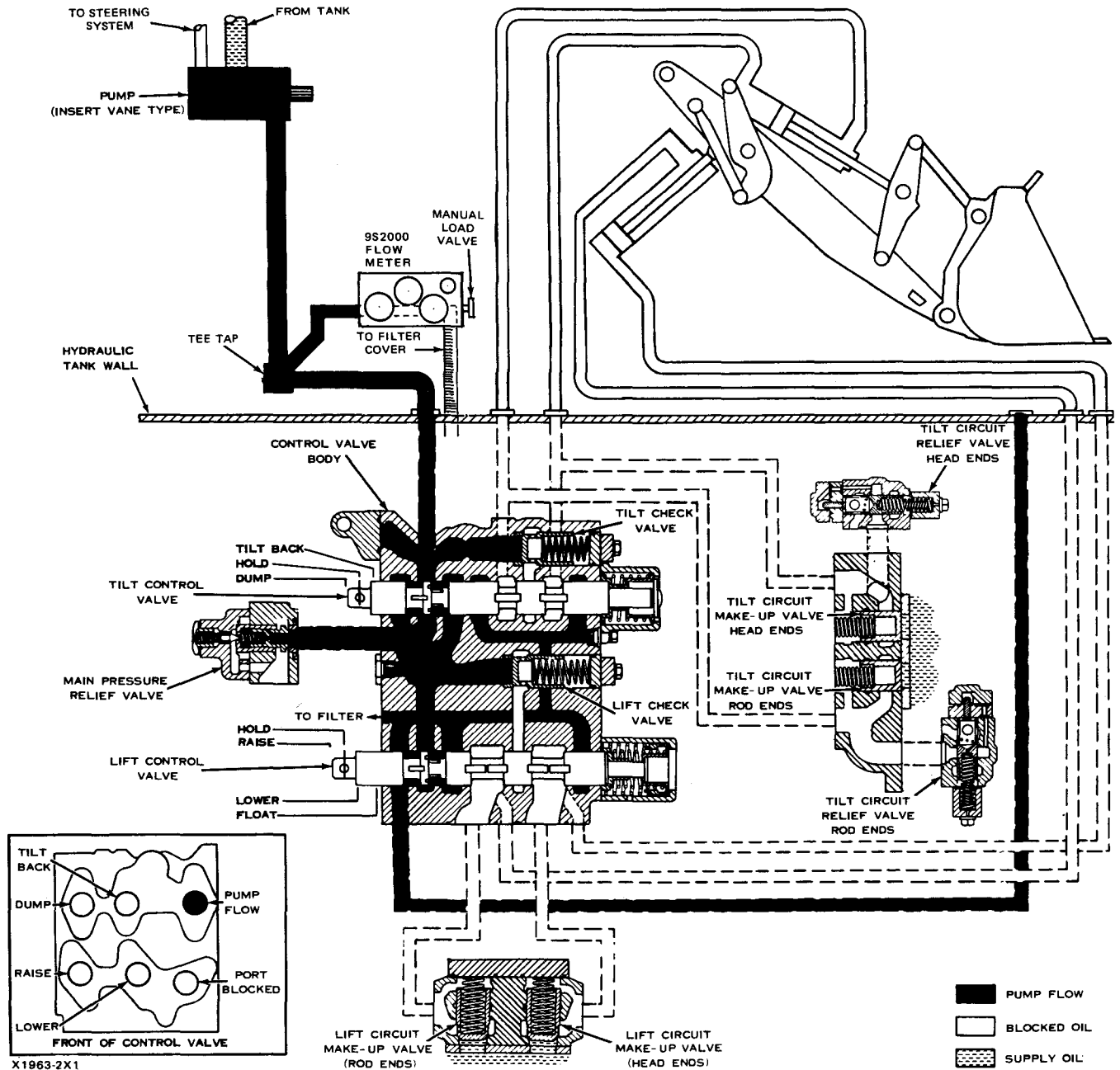


CATERPILLAR

PARTS REQUIRED TO MODIFY OLDER LOADERS, WHEEL DOZERS AND COMPACTORS FOR "TEE TESTING"

Model	Serial Numbers Requiring Pressure Line Change		Pressure Line Parts For "Tee Testing"		Filter Cover Parts Necessary
			Remove	Install	
824	29G—Up			8S7467 Tube Assembly	7J8014 Cover
834	36H1—36H348		9M6917 Tube Assembly	9S8010 Plug	9S8010 Plug
	43E1—43E338			2S4078 Seal	2S4078 Seal
				6J3650 Seal	
				S1573 Bolt (2)	
941	15F1—Up	75H1—75H511		7K7676 Tube Assembly	
951	19H1—19H920	78J1—Up		9S8004 Plug	
	32F1—32F554	79H1—Up	6K7585 Tube Assembly	3J1907 Seal	Use 1P757 Filler
	63K1—Up	80H1—80H2554		9S8008 Plug	Return Group
	69H1—69H1723	86J1—86J1931		3D2824 Seal	
	70H1—70H1817	89A1—Up		4J520 Seal (2)	
	72J1—Up	92A1—Up			
955K	31J1—Up	61H1—Up	7K6528 Tube Assembly	7K7072 Elbow	7J9197 Cover
	48H1—UP	64J1—64J3993	OR	9S8010 Plug	9S8010 Plug
	53H1—UP	71J1—71J2652	6J2676 Filter Group	2S4078 Seal	2S4078 Seal
	57J1—57J390	85J1—85J3390		9S8004 Plug	
				3J1907 Seal	
				5J1358 Seal (2)	
977K	11K1—11K3246	70J1—70J1219	7K6407 Tube Assembly	7K8875 Tube Assembly	7J9197 Cover
	46H1—Up	76H1—Up	OR	9S8010 Plug	9S8010 Plug
	48J1—48J585		6J2676 Filter Group	2S4078 Seal	2S4078 Seal
			6K6699 Flange	9S8004 Plug	
			6K4196 Tube Assembly	3J1907 Seal	
				5J1358 Seal (2)	
950	15J1—Up	73J1—73J2392		8K5010 Tube Assembly	7J8014 Cover
	18R1—18R3844	81J1—81J3844		4J524 Seal	9S8010 Plug
	31K1—31K956	90A1—Up	5K2503 Tube Assembly	4J522 Seal	2S4078 Seal
	43J1—43J2526	99A1—Up			
	58H1—Up				
966B	57H1—57H434		5K3421 Tube Assembly	7K6844 Tube Assembly	
	75A1—75A4828			6K6227 Bracket Assembly	
				3B1915 Bolt (2)	7J8014 Cover
				3B4506 L/W (2)	9S8010 Plug
				5J4715 Washer (4)	2S4078 Seal
				1D4717 Nut (2)	
				1A2029 Bolt (2)	
				1A5822 Bolt (2)	
				4J524 Seal (2)	
966C	30K1—30K1254	75A4829—Up		7K6844 Tube Assembly	7J8014 Cover
	42J1—42J2455	76J1—76J4137	6K6232 Tube Assembly	4J524 Seal (2)	9S8010 Plug
					2S4078 Seal
988	87A745—87A1485		3S8681 Tube Assembly	5S1916 Tube Assembly	7J8014 Cover
				9S8010 Plug	9S8010 Plug
				2S4078 Seal	2S4078 Seal
				6J3650 Seal (2)	OR
					Use FT794 Return
					Line Cap Assembly
992	25K1—25K123		6K6443 Manifolds (2)	7K4483 Manifold	
			6K6676 Spacer	2S4078 Seal (2)	
			6K6673 Bracket Assembly	9S8010 Plug (2)	Use 1P58 Filler
				7B3235 Bolt (16)	Return Group
				1A2029 Bolt (8)	
				7K4531 Bracket Assembly	
				6J3650 Seal (4)	
				6J3600 Seal (2)	

ISSUED 6-72



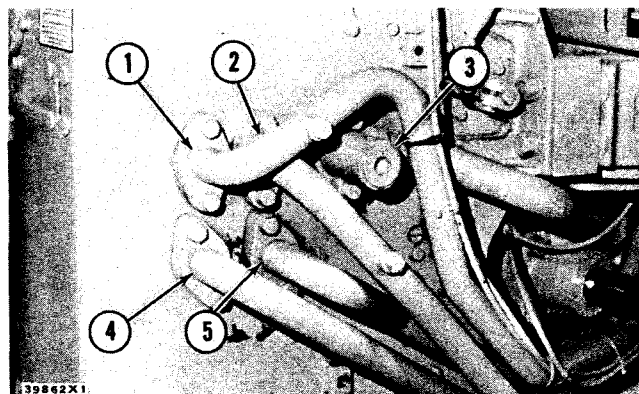
HYDRAULIC SCHEMATIC OF LOADER WITH FLOW METER INSTALLED

NOTE—Machines 43J1-43J2526, 73J1-73J2392, 31K1-31K956 and 81J1-81J3844 can be adapted by removing the 5K2503 Tube Assembly between the tank and pump and installing an 8K5010 Tube Assembly, 4J524 Seal and 4J522 Seal. A 7J8014 Filter Cover, 9S8010 Plug and 2S4078 Seal is needed on many of these machines.

950: 31K1–UP 966: 25U1–UP
 43J1–UP 30K1–UP
 73J1–UP 42J1–UP
 81J1–UP 76J1–UP
 78G1–UP

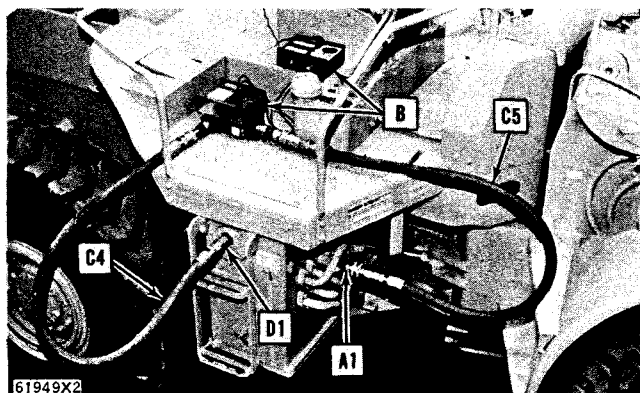
TOOLS NEEDED		
Assembly No.	Description	Quantity
A1	Pump Supply Line Adapter	1
B	Flow Meter Assembly	1
C4	Connecting Hose Assembly	1
C5	Connecting Hose Assembly	1
D1	Return Line Assembly	1
E2	Tachometer Drive	1
(E3)*	Tachometer Drive	1
F3	Blocking Plate Assembly (¾")	2
F4	Blocking Plate Assembly (1")	2
F5	Blocking Plate Assembly (1¼")	2
F6	Blocking Plate Assembly (1½")	2

*Needed on 966 with Serial Numbers 75A1 thru 75A1091.

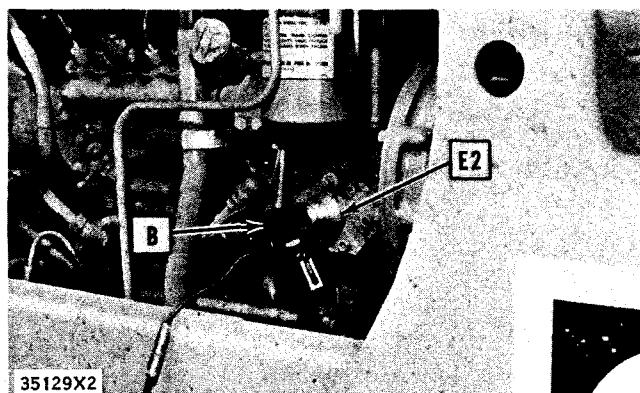


CYLINDER LINES ON HYDRAULIC TANK

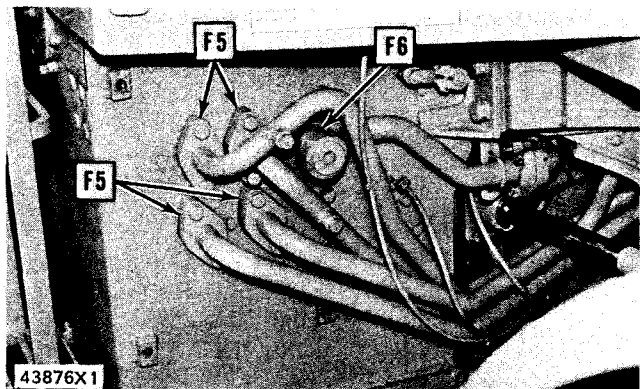
1. Tilt cylinders (rod end). 2. Tilt cylinders (head ends). 3. Pump supply line. 4. Lift cylinders (head end). 5. Lift cylinders (rod end).



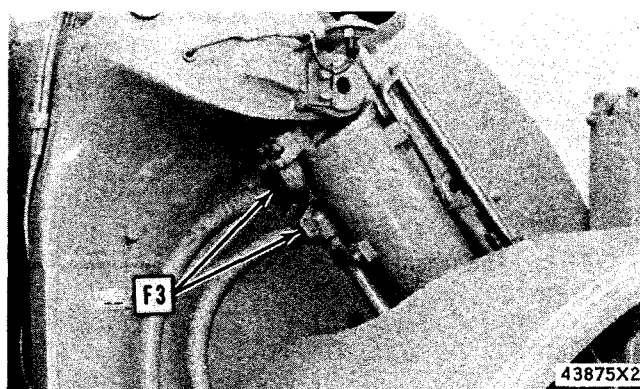
FLOW METER INSTALLED
 (See Tee Test Tooling Chart for parts reference)



TACHOMETER DRIVE INSTALLED
 (See Tee Test Tooling Chart for parts reference)



LIFT AND TILT CYLINDERS BLOCKING LOCATIONS
 (See Tee Test Tooling Chart for parts reference)



TILT CYLINDER BLOCKING LOCATION
 (See Tee Test Tooling Chart for parts reference)

TEE-TEST

950 WHEEL LOADER
SYSTEM TEST

PROCEDURE DATA SHEET

CHART A

MACHINE SERIAL NUMBER 31K1,43J1,
73J1,81J1-UP

SERVICE METER READING

Test Name	Maximum Pressure Relief Valve Setting	System Oil Temperature (Start)	System Base Flow Rate	Lift LOWER Flow Rate	Lift RAISE Flow Rate	Tilt TILTBACK Flow Rate	Tilt DUMP Flow Rate	Auxiliary RETRACT Flow Rate	Auxiliary EXTEND Flow Rate	System Oil Temperature (Finish)	Lift Circuit Drift Comparison	Tilt Circuit Drift Comparison	Auxiliary Circuit Drift Comparison
Test Number	1	2	3	4	5	6	7	8	9	10	11	12	13
Control Lever Position	Lift LOWER	Lift LOWER	Lift LOWER	Lift LOWER	Lift RAISE	Tilt TILTBACK	Tilt DUMP	Auxiliary RETRACT	Auxiliary EXTEND	Lift RAISE	Lift 1.HOLD 2.RAISE	Tilt 1.HOLD 2.TILTBACK	Auxiliary 1.HOLD 2.RAISE
Bucket Position	Fully Lowered	Fully Lowered	Fully Lowered	Fully Lowered	Fully Raised	Lift Arms Horizontal Full Tiltback	Lift Arms Horizontal Full Dump	Ripper Lowered or Log Fork Clamp Open	Ripper Raised or Log Fork Clamp Closed	Lift Arms Horizontal	Lift Arms Horizontal Bucket Level	Lift Arms Horizontal Bucket Level	Ripper Raised or Log Fork Clamp Open
Engine Speed	2000 RPM	Any Speed	2000 RPM	2000 RPM	2000 RPM	2000 RPM	2000 RPM	2000 RPM	2000 RPM	Any Speed	Low Idle or Stopped	Low Idle or Stopped	Low Idle or Stopped
System Test Pressure	Maximum	0-100 PSI	100 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	0-100 PSI	0 PSI	0 PSI	0 PSI
Test Data	<u>2200</u> + <u>50</u> PSI	<u>150</u> ± <u>5</u> °F	<u>58.0</u> GPM	<u>49.0</u> GPM	<u>49.0</u> GPM	<u>49.0</u> GPM	<u>49.0</u> GPM	<u>49.0</u> GPM	<u>49.0</u> GPM	<u>150</u> ± <u>5</u> °F	RAISE Drift M S Than HOLD Drift Rate	TILTBACK M S Than HOLD Drift Rate	RAISE Drift M S Than HOLD Drift Rate
Flow Differential				(3-4) <u>9.0</u> GPM	(3-5) <u>9.0</u> GPM	(3-6) <u>9.0</u> GPM	(3-7) <u>9.0</u> GPM	(3-8) <u>9.0</u> GPM	(3-9) <u>9.0</u> GPM				
Percent Flow Loss *				$\frac{(3-4)}{3} \times 100$ <u>15</u> %	$\frac{(3-5)}{3} \times 100$ <u>15</u> %	$\frac{(3-6)}{3} \times 100$ <u>15</u> %	$\frac{(3-7)}{3} \times 100$ <u>15</u> %	$\frac{(3-8)}{3} \times 100$ <u>15</u> %	$\frac{(3-9)}{3} \times 100$ <u>15</u> %				

30863X6

*Components that are worn, or not working correctly, are found by their flow difference (loss) and percent of flow loss or lower system efficiency. System values for new and rebuilt machines must not be greater than the percent of flow loss in the system tests shown on CHART A for the specific machine. The permissible flow difference (loss) is a function of machine application. For applications with long travel distance the permissible flow difference may be more than for applications with short travel distance.



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TEE-TEST

PROCEDURE DATA SHEET

MACHINE SERIAL NUMBER 31K1, 43J1,
73J1, 81J1-UP

950 WHEEL LOADER

PUMP TEST

CHART B

SERVICE METER READING _____

Test Name	Full Speed Pump Flow		Half Speed Pump Flow		Pump Test For Aeration And/Or Cavitation							
	Low Pressure	High Pressure	Low Pressure	High Pressure	Varied Speeds -- Constant Pressure							
Test Number	14	15	16	17	18	19	20	21	22	23	24	25
Engine Speed	2000 RPM	2000 RPM	1000 RPM	1000 RPM	600 RPM	800 RPM	1000 RPM	1200 RPM	1400 RPM	1600 RPM	1800 RPM	2000 RPM
Pump Test Pressure	100 PSI	1000 PSI	100 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI
Oil Temperature	<u>150</u> ±5 °F	<u>150</u> ±5 °F	<u>150</u> ±5 °F	<u>150</u> ±5 °F	<u>150</u> ±5 °F	<u>150</u> ±5 °F	<u>150</u> ±5 °F	<u>150</u> ±5 °F	<u>150</u> ±5 °F	<u>150</u> ±5 °F	<u>150</u> ±5 °F	<u>150</u> ±5 °F
Test Data	<u>58.0</u> GPM	<u>52.0</u> GPM	<u>29.0</u> GPM	<u>23.0</u> GPM	<u>11.5</u> GPM	<u>17.5</u> GPM	<u>23.0</u> GPM	<u>29.0</u> GPM	<u>35.0</u> GPM	<u>40.5</u> GPM	<u>46.5</u> GPM	<u>52.0</u> GPM
Flow Differential		(14-15) <u>6.0</u> GPM		(16-17) <u>6.0</u> GPM	(19-18) <u>6.0</u> GPM	(20-19) <u>5.5</u> GPM	(21-20) <u>6.0</u> GPM	(22-21) <u>6.0</u> GPM	(23-22) <u>5.5</u> GPM	(24-23) <u>6.0</u> GPM	(25-24) <u>5.5</u> GPM	
Percent Flow Loss		$\frac{(14-15)}{14} \times 100$ <u>10</u> %										

30864X6-1



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TEE-TEST

PROCEDURE DATA SHEET

CHART C

950 WHEEL LOADER
BLOCKED CYLINDERS TEST

MACHINE SERIAL NUMBER 31K1,43J1,
73J1,81J1-UP
SERVICE METER READING _____

Test Name	All Cylinders Blocked								Right Cylinder Blocked				
	System Oil Temperature (Start)	Lift LOWER Flow Rate	Lift RAISE Flow Rate	Tilt TILTBACK Flow Rate	Tilt DUMP Flow Rate	Auxiliary RETRACT Flow Rate	Auxiliary EXTEND Flow Rate	System Oil Temperature (End)	System Oil Temperature (Start)	Lift LOWER Flow Rate	Tilt TILTBACK Flow Rate	Auxiliary RETRACT Flow Rate	System Oil Temperature (End)
Test Number	26	27	28	29	30	31	32	33	34	35	36	37	38
Control Lever Position	Lift LOWER	Lift LOWER	Lift RAISE	Tilt TILTBACK	Tilt DUMP	Auxiliary RETRACT	Auxiliary EXTEND	Lift LOWER	Lift LOWER	Lift LOWER	Tilt TILTBACK	Auxiliary RETRACT	Lift LOWER
Engine Speed	Any Speed	2000 RPM	2000 RPM	2000 RPM	2000 RPM	2000 RPM	2000 RPM	Any Speed	Any Speed	2000 RPM	2000 RPM	2000 RPM	Any Speed
System Test Pressure	0-100 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	0-100 PSI	0-100 PSI	1000 PSI	1000 PSI	1000 PSI	0-100 PSI
Test Data	$\pm \frac{150}{5}$ °F	$\frac{49.5}{\text{GPM}}$	$\frac{49.5}{\text{GPM}}$	$\frac{49.5}{\text{GPM}}$	$\frac{49.5}{\text{GPM}}$	$\frac{49.5}{\text{GPM}}$	$\frac{49.5}{\text{GPM}}$	$\pm \frac{150}{5}$ °F	$\frac{150}{5}$ °F	$\frac{49.0}{\text{GPM}}$ $\frac{49.5}{\text{GPM}}$	$\frac{49.0}{\text{GPM}}$ $\frac{49.5}{\text{GPM}}$	$\frac{49.0}{\text{GPM}}$ $\frac{49.5}{\text{GPM}}$	$\pm \frac{150}{5}$ °F
Cylinder Leakage Rate		(27-4) $\frac{0.5}{\text{GPM}}$	(28-5) $\frac{0.5}{\text{GPM}}$	(29-6) $\frac{0.5}{\text{GPM}}$	(30-7) $\frac{0.5}{\text{GPM}}$	(31-8) $\frac{0.5}{\text{GPM}}$	(32-9) $\frac{0.5}{\text{GPM}}$		Right Cylinder Leakage	(35-4) $\frac{0-0.5}{\text{GPM}}$	(36-6) $\frac{0-0.5}{\text{GPM}}$	(37-8) $\frac{0-0.5}{\text{GPM}}$	
Control Valve Group Leakage		(15-27) $\frac{2.5}{\text{GPM}}$	(15-28) $\frac{2.5}{\text{GPM}}$	(15-29) $\frac{2.5}{\text{GPM}}$	(15-30) $\frac{2.5}{\text{GPM}}$	(15-31) $\frac{2.5}{\text{GPM}}$	(15-32) $\frac{2.5}{\text{GPM}}$		Left Cylinder Leakage	(27-35) $\frac{0.5-0}{\text{GPM}}$	(29-36) $\frac{0.5-0}{\text{GPM}}$	(31-37) $\frac{0.5-0}{\text{GPM}}$	

30865X6



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966 WHEEL LOADER
SYSTEM TEST

TEE-TEST
PROCEDURE DATA SHEET

MACHINE SERIAL NUMBER 25U1, 30K1, 42J1,
76J1, 78G1-UP

CHART A

SERVICE METER READING

Test Name	Maximum Pressure Relief Valve Setting	System Oil Temperature (Start)	System Base Flow Rate	Lift LOWER Flow Rate	Lift RAISE Flow Rate	Tilt TILTBACK Flow Rate	Tilt DUMP Flow Rate	Auxiliary RETRACT Flow Rate	Auxiliary EXTEND Flow Rate	System Oil Temperature (Finish)	Lift Circuit Drift Comparison	Tilt Circuit Drift Comparison	Auxiliary Circuit Drift Comparison	
Test Number	1	2	3	4	5	6	7	8	9	10	11	12	13	
Control Lever Position	Lift LOWER	Lift LOWER	Lift LOWER	Lift LOWER	Lift RAISE	Tilt TILTBACK	Tilt DUMP	Auxiliary RETRACT	Auxiliary EXTEND	Lift RAISE	Lift 1. HOLD 2. RAISE	Tilt 1. HOLD 2. TILTBACK	Auxiliary 1. HOLD 2. RAISE	
Bucket Position	Fully Lowered	Fully Lowered	Fully Lowered	Fully Lowered	Fully Raised	Lift Arms Horizontal Full Tiltback	Lift Arms Horizontal Full Dump	Ripper Lowered or Log Fork Clamp Open	Ripper Raised or Log Fork Clamp Closed	Lift Arms Horizontal	Lift Arms Horizontal Bucket Level	Lift Arms Horizontal Bucket Level	Ripper Raised or Log Fork Clamp Open	
Engine Speed	2000 RPM	Any Speed	2000 RPM	2000 RPM	2000 RPM	2000 RPM	2000 RPM	2000 RPM	2000 RPM	Any Speed	Low Idle or Stopped	Low Idle or Stopped	Low Idle or Stopped	
System Test Pressure	Maximum	0-100 PSI	100 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	0-100 PSI	0 PSI	0 PSI	0 PSI	
Test Data	2200 ± 50 PSI	150 ± 5 °F	85.0 GPM	72.0 GPM	72.0 GPM	72.0 GPM	72.0 GPM	72.0 GPM	72.0 GPM	150 ± 5 °F	RAISE Drift M S Than HOLD Drift Rate		TILTBACK M S Than HOLD Drift Rate	RAISE Drift M S Than HOLD Drift Rate
Flow Differential				(3-4) 13.0 GPM	(3-5) 13.0 GPM	(3-6) 13.0 GPM	(3-7) 13.0 GPM	(3-8) 13.0 GPM	(3-9) 13.0 GPM					
Percent Flow Loss				$\frac{(3-4)}{3} \times 100$ 15 %	$\frac{(3-5)}{3} \times 100$ 15 %	$\frac{(3-6)}{3} \times 100$ 15 %	$\frac{(3-7)}{3} \times 100$ 15 %	$\frac{(3-8)}{3} \times 100$ 15 %	$\frac{(3-9)}{3} \times 100$ 15 %					

30863X10-1

*Components that are worn, or not working correctly, are found by their flow difference (loss) and percent of flow loss or lower system efficiency. System values for new and rebuilt machines must not be greater than the percent of flow loss in the system tests shown on CHART A for the specific machine. The permissible flow difference (loss) is a function of machine application. For applications with long travel distance the permissible flow difference may be more than for applications with short travel distance.



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TEE-TEST

PROCEDURE DATA SHEET

966 WHEEL LOADER
PUMP TEST

CHART B

MACHINE SERIAL NUMBER 25U1, 30K1, 42J1,
76J1, 78G1-UP
SERVICE METER READING _____

Test Name	Full Speed Pump Flow		Half Speed Pump Flow		Pump Test For Aeration And/Or Cavitation							
	Low Pressure	High Pressure	Low Pressure	High Pressure	Varied Speeds -- Constant Pressure							
Test Number	14	15	16	17	18	19	20	21	22	23	24	25
Engine Speed	2000 RPM	2000 RPM	1000 RPM	1000 RPM	600 RPM	800 RPM	1000 RPM	1200 RPM	1400 RPM	1600 RPM	1800 RPM	2000 RPM
Pump Test Pressure	100 PSI	1000 PSI	100 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI
Oil Temperature	150 ± 5 °F	150 ± 5 °F	150 ± 5 °F	150 ± 5 °F	150 ± 5 °F	150 ± 5 °F	150 ± 5 °F	150 ± 5 °F	150 ± 5 °F	150 ± 5 °F	150 ± 5 °F	150 ± 5 °F
Test Data	85.0 GPM	76.0 GPM	43.0 GPM	34.0 GPM	17.0 GPM	25.0 GPM	34.0 GPM	42.0 GPM	51.0 GPM	59.0 GPM	68.0 GPM	76.0 GPM
Flow Differential		(14-15) 9.0 GPM		(16-17) 9.0 GPM	(19-18) 8.0 GPM	(20-19) 9.0 GPM	(21-20) 8.0 GPM	(22-21) 9.0 GPM	(23-22) 8.0 GPM	(24-23) 9.0 GPM	(25-24) 8.0 GPM	
Percent Flow Loss		$\frac{(14-15)}{14} \times 100$ 10 %										

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FLOW METER TEE TEST PROCEDURE - II

966: 25U1-UP
30K1-UP
42J1-UP
76J1-UP
78G1-UP



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TEE-TEST

PROCEDURE DATA SHEET

MACHINE SERIAL NUMBER 25U1, 30K1, 42J1,
76J1, 78G1-UP966 WHEEL LOADER
BLOCKED CYLINDERS TEST

CHART C

SERVICE METER READING _____

Test Name	All Cylinders Blocked								Right Cylinder Blocked				
	System Oil Temperature (Start)	Lift LOWER Flow Rate	Lift RAISE Flow Rate	Tilt TILTBACK Flow Rate	Tilt DUMP Flow Rate	Auxiliary RETRACT Flow Rate	Auxiliary EXTEND Flow Rate	System Oil Temperature (End)	System Oil Temperature (Start)	Lift LOWER Flow Rate	Tilt TILTBACK Flow Rate	Auxiliary RETRACT Flow Rate	System Oil Temperature (End)
Test Number	26	27	28	29	30	31	32	33	34	35	36	37	38
Control Lever Position	Lift LOWER	Lift LOWER	Lift RAISE	Tilt TILTBACK	Tilt DUMP	Auxiliary RETRACT	Auxiliary EXTEND	Lift LOWER	Lift LOWER	Lift LOWER	Tilt TILTBACK	Auxiliary RETRACT	Lift LOWER
Engine Speed	Any Speed	2000 RPM	2000 RPM	2000 RPM	2000 RPM	2000 RPM	2000 RPM	Any Speed	Any Speed	2000 RPM	2000 RPM	2000 RPM	Any Speed
System Test Pressure	0-100 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	1000 PSI	0-100 PSI	0-100 PSI	1000 PSI	1000 PSI	1000 PSI	0-100 PSI
Test Data	$\frac{150}{\pm 5}$ °F	$\frac{73.0}{\text{GPM}}$	$\frac{73.0}{\text{GPM}}$	$\frac{73.0}{\text{GPM}}$	$\frac{73.0}{\text{GPM}}$	$\frac{73.0}{\text{GPM}}$	$\frac{73.0}{\text{GPM}}$	$\frac{73.0}{\text{GPM}}$	$\frac{150}{\pm 5}$ °F	$\frac{72.0}{-73.0}$ GPM	$\frac{72.0}{-73.0}$ GPM	$\frac{72.0}{-73.0}$ GPM	$\frac{150}{\pm 5}$ °F
Cylinder Leakage Rate		(27-4) $\frac{1.0}{\text{GPM}}$	(28-5) $\frac{1.0}{\text{GPM}}$	(29-6) $\frac{1.0}{\text{GPM}}$	(30-7) $\frac{1.0}{\text{GPM}}$	(31-8) $\frac{1.0}{\text{GPM}}$	(32-9) $\frac{1.0}{\text{GPM}}$		Right Cylinder Leakage	(35-4) $\frac{0-1.0}{\text{GPM}}$	(36-6) $\frac{0-1.0}{\text{GPM}}$	(37-8) $\frac{0-1.0}{\text{GPM}}$	
Control Valve Group Leakage		(15-27) $\frac{3.0}{\text{GPM}}$	(15-28) $\frac{3.0}{\text{GPM}}$	(15-29) $\frac{3.0}{\text{GPM}}$	(15-30) $\frac{3.0}{\text{GPM}}$	(15-31) $\frac{3.0}{\text{GPM}}$	(15-32) $\frac{3.0}{\text{GPM}}$		Left Cylinder Leakage	(27-35) $\frac{1.0-0}{\text{GPM}}$	(29-36) $\frac{1.0-0}{\text{GPM}}$	(31-37) $\frac{1.0-0}{\text{GPM}}$	

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