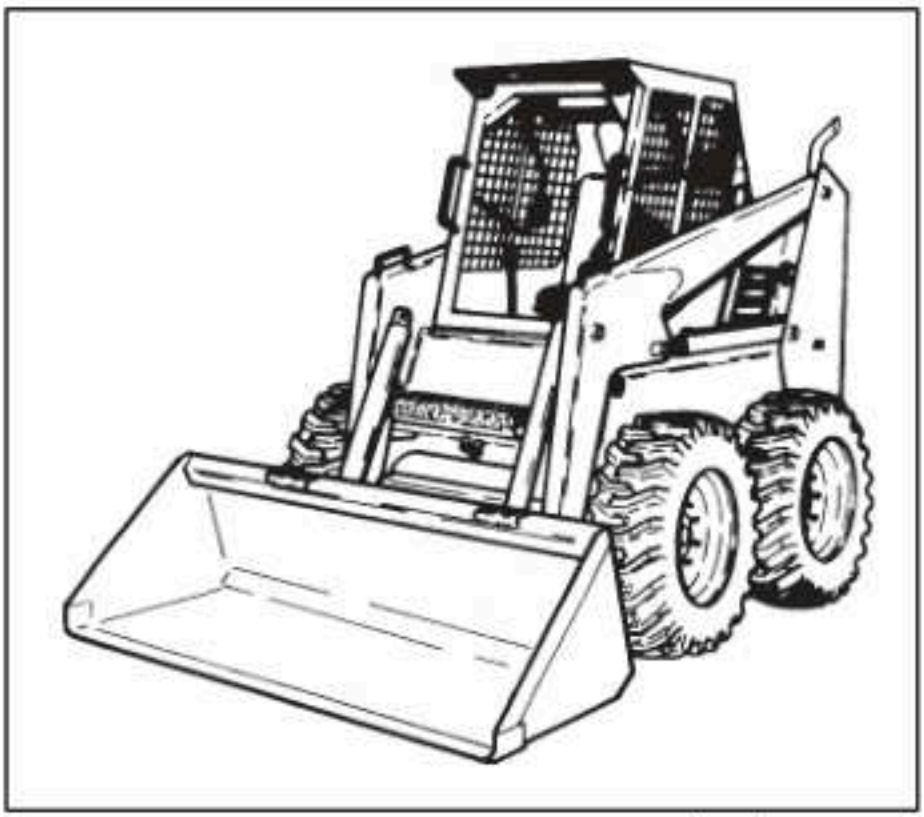
943

Service Manual



MELROE
INGERSOLL-RAND

6570008(4-86)

Printed in U.S.A.

bobcat

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6 ELECTRICAL SYSTEM

DESCRIPTION

The Bobcat loader has a 12 volt, negative ground electrical system. There are two main circuits.

a. The charging circuit has an alternator (with built–in regulator), a voltmeter and a battery.

b. The starting circuit has a starter motor, solenoids and other components for starting the engine.

The loader also has front and rear lights, optional windshield wiper, horn and back–up alarm.

The electrical system is protected by two fuses installed in the dash panel. Fuses protect the electrical system from an overload.

⚠ WARNING

Instructions are necessary before operating or servicing machine. Read Operation & Maintenance Manual, Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Failure to follow instructions can cause injury or death [A].

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TROUBLESHOOTING

The following troubleshooting chart is provided as an assistance in locating and correct problems which are most common. Many of the recommended procedures must be done by authorized Bobcat Service Personnel only.

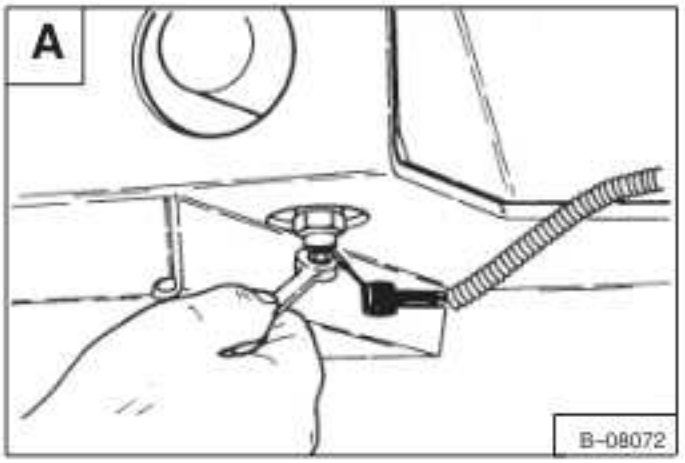
PROBLEM	CAUSE
Battery does not hold its charge.	1, 2, 3, 4, 5
Alternator will not charge.	1, 2, 5
Starter will not turn the engine.	2, 3, 4, 6, 7, 8, 9

KEY TO CORRECT THE CAUSE	
1. Alternator belt is loose or damaged.	5. The alternator is damaged.
2. Battery connections are dirty or loose.	6. The engine is locked.
3. Batteries are damaged.	7. The starter has damage.
4. The ground connection is not making a good contact.	8. The wiring or the solenoid is damaged.
	9. Check fuses.

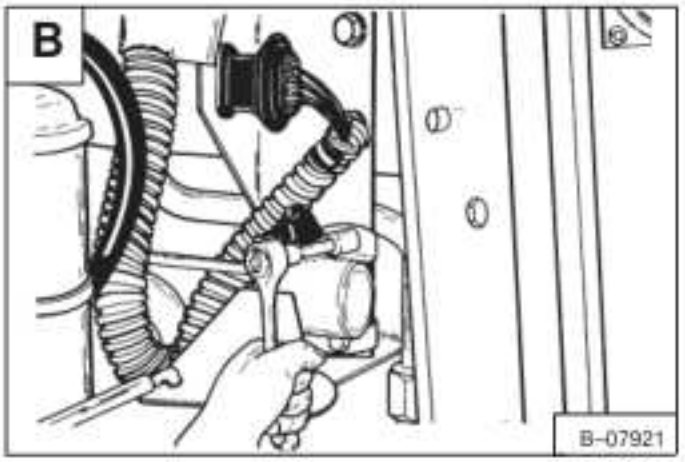
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Removal And Installation (Cont'd)

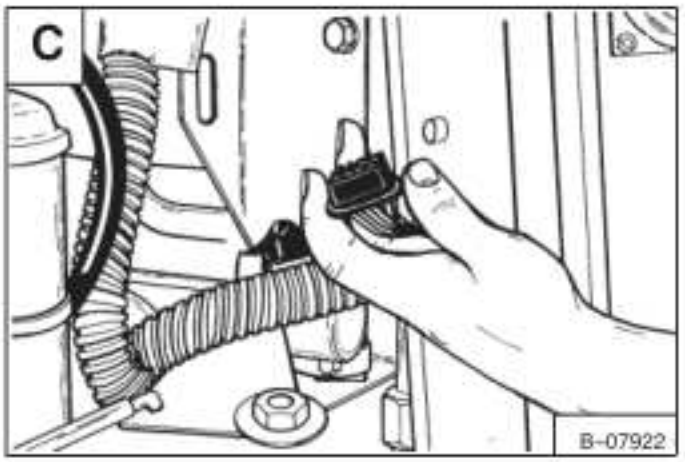
Disconnect the wires at the radiator temperature switch **[A]**.



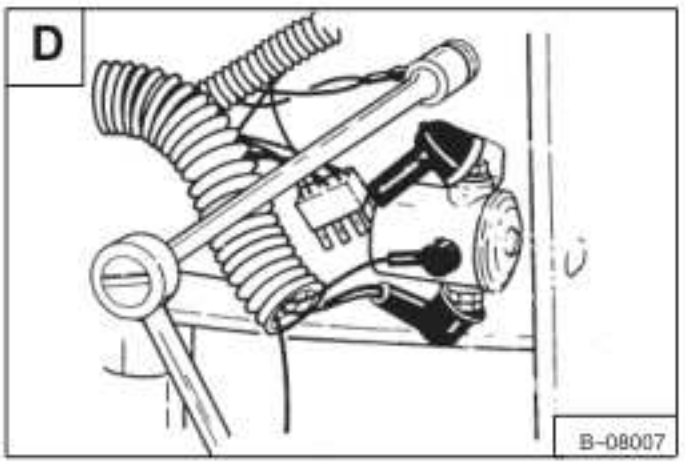
Remove the bolt at the chassis and engine harness connectors bracket **[B]**.



Disconnect the chassis and engine connectors **[C]**.



Remove the ground bolt and harness clamp at the upright frame **[D]**.



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BALANCER UNIT (Cont'd)

Disassembly And Assembly (Cont'd)

Remove the balancer weights **[A]**.

Assembly: When assembling the balancer weights, make sure the weight flats are in alignment with each other **[A]**.

Inspection

Clean all parts with solvent. Use air pressure to dry them.

Check the front and rear drive shaft needle bearings for wear or damage.

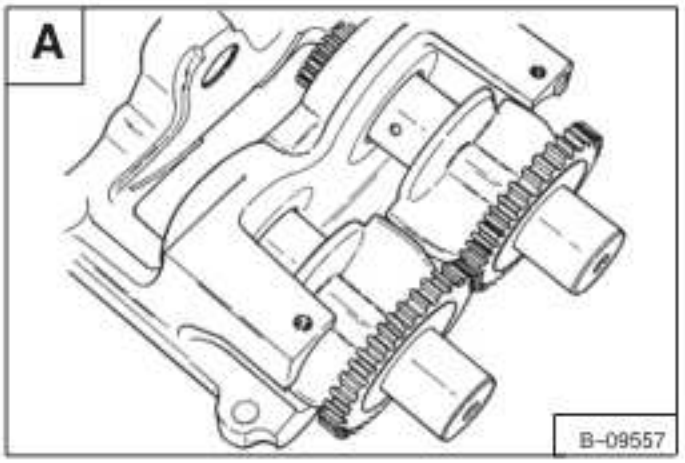
Check the balancer weights for damage.

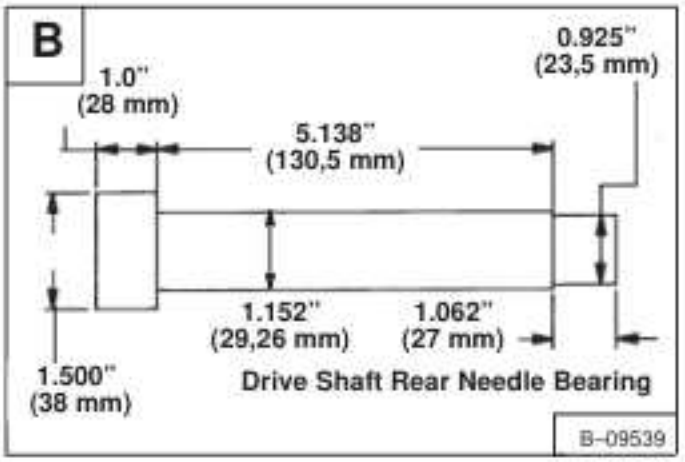
Check the balancer weight bearings for wear or damage.

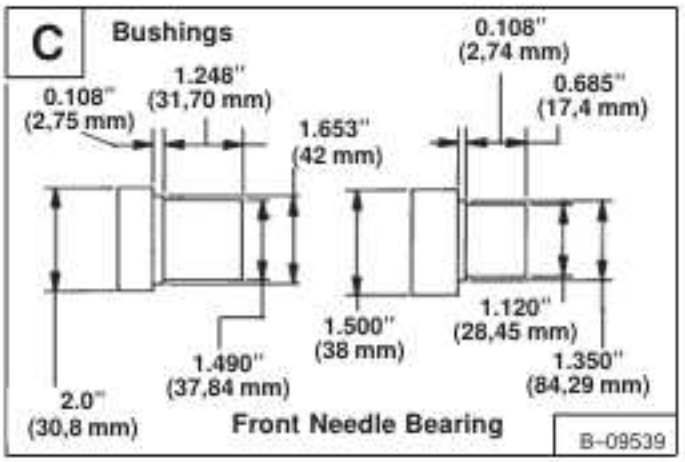
See *SPECIFICATIONS*, Section 8 for the correct dimensions.

NOTE: When needle bearings and bushing bearings are replaced, they must be pressed into position with the correct driver tools [B] & [C].

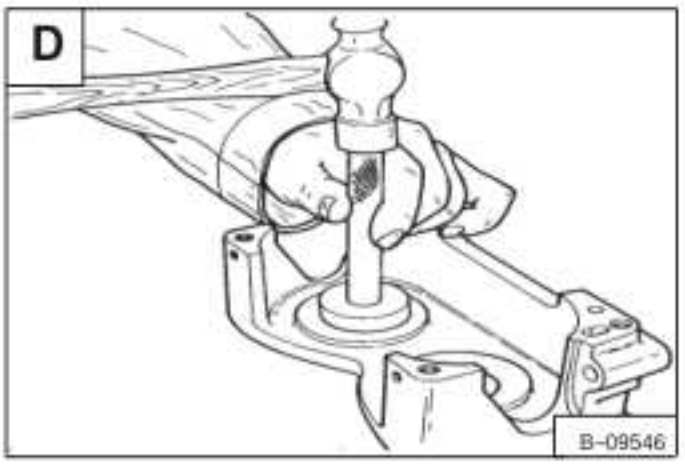
Clean and lubricate the frame bores.







Press in the bushing bearings until they are 0.098–0.108 inch (2,50–2,75 mm) below the machined surface **[D]**.



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HYDRAULIC / HYDROSTATIC SYSTEM OPERATION

To Be Used With

HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

943 (S/N 11001 Thru 11999)

Chart # 6570067 (Printed April 1992)

CHART LEGEND

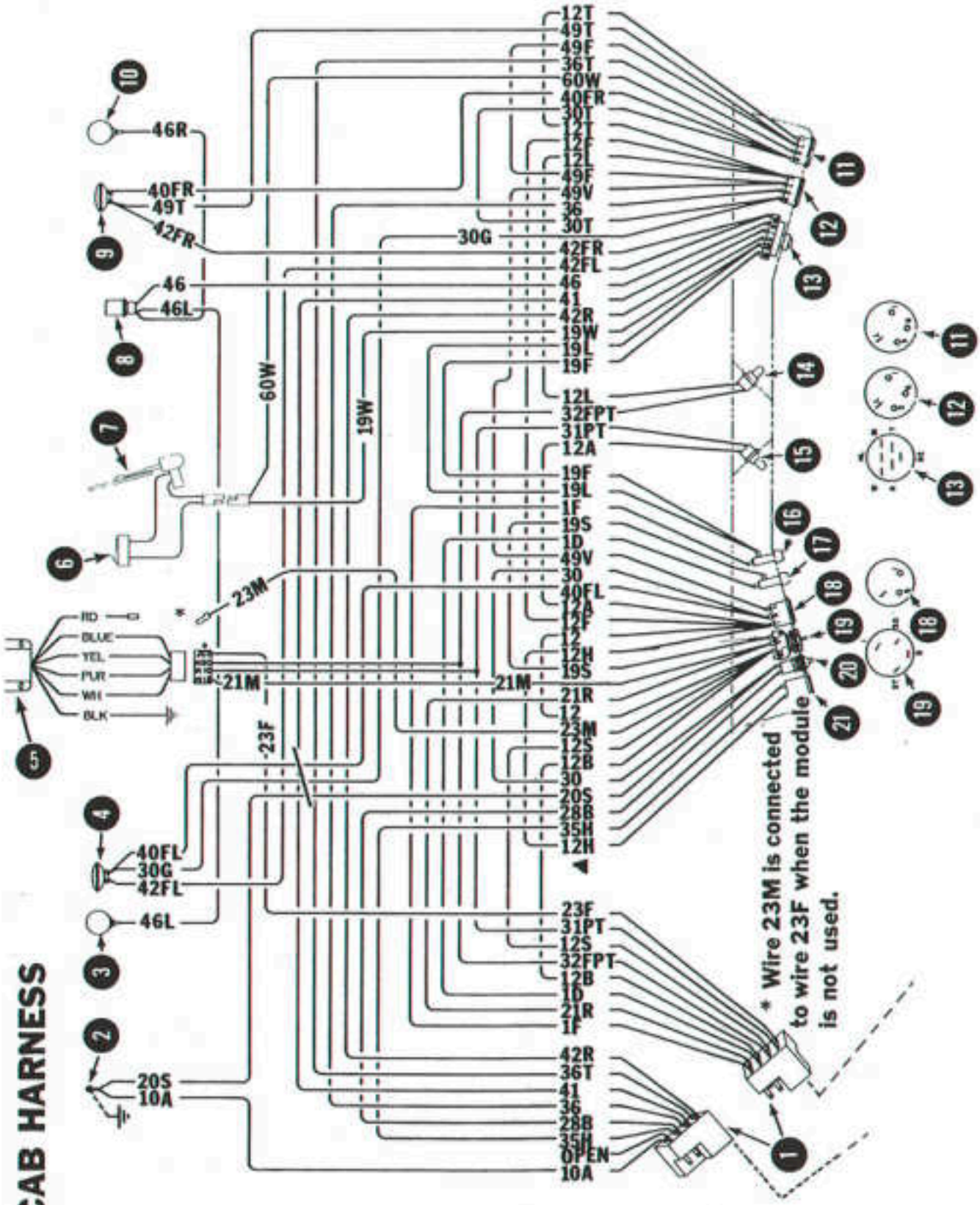
1. **RESERVOIR** . . . . Working Cap.: 6 Gals. (22,7 L)
2. **BREATHER CAP** . . . . . 5 Micron
3. **FILL NECK STRAINER** . . . . 1180 Micron
4. **PORT BLOCK**
5. **CHARGE PUMP** . . Gear Type-17.5 GPM (66,2 L/min.) @ 2000 Engine RPM
6. **PRESSURE COMPENSATOR VALVE**
7. **HYDRAULIC PUMP,** Piston Type-25 GPM (94,6 L/min.) @ 2000 Engine RPM @ 2100 PSI (14480 kPa)
8. **OIL COOLER**
9. **FAN MOTOR** . . . . . Gear Type
10. **FAN MOTOR PORT BLOCK**
11. **OIL COOLER BY-PASS VALVE,** 80-120 PSI (552-827 kPa)
12. **TEMPERATURE SWITCH,** 200°F (93°C)
13. **TEMPERATURE SWITCH,** 230°F (110°C)
14. **SOLENOID VALVE**
15. **FAN MOTOR LOW SPEED BY-PASS CHANNEL**
16. **FILTER** . . . . . Hydrostatic #3 Media
17. **DIFFERENTIAL PRESSURE SWITCH**
    S/N 11001-11084 . . . . . 19 PSI (131 kPa)
    Starting With S/N 11085 . . 40 PSI (276 kPa)
18. **RESTRICTOR** . . . . . 0.042" (1,07 mm)
    May not be present on all Model Pumps (See Parts Microfiche)
19. **FILTER BY-PASS VALVE**
    S/N 11001-11084 . . . . 25 PSI (172 kPa)
20. **TEMPERATURE SWITCH,** 100°F (38°C) Normally Open
21. **FAN MOTOR BY-PASS VALVE** 750-1050 PSI (5171-7240 kPa)
22. **HYDROSTATIC PUMP**
23. **REPLENISHING VALVES**
24. **TOW VALVES**
25. **DISPLACEMENT CONTROL VALVE**
26. **HIGH PRESSURE RELIEF VALVES** 5250 PSI (36199 kPa)
27. **CHARGE PRESSURE VALVE,** 370±20 PSI (2552±138 kPa) Oil Temp. @ 190°F.
28. **CHARGE PRESSURE SWITCH** . . . . Dual Function Hourmeter/Warning Light @ 190 PSI (1310 kPa)
29. **HYDROSTATIC MOTOR**
30. **LIFT CYLINDERS**
31. **FLOW-CONTROL SPOOL**
32. **PRESSURE RELIEF VALVE**
33. **PRESSURE RELIEF VALVE**
34. **FILTER** . . . . . #4 Media
35. **CHECK VALVE**
36. **PRESSURE SWITCH**
    S/N 11001-11209 . . . . . 19 PSI (131 kPa)
    S/N 11210 & Above . . . 40 PSI (276 kPa)
37. **FILTER BY-PASS**
    S/N 11001-11209 . . . . 25 PSI (172 kPa)
    S/N 11210 & Above . . . 50 PSI (345 kPa)
38. **BUCKET POSITION VALVE**
39. **UNLOADING SPOOL**
40. **PORT RELIEF** . . . . . 3450-3550 PSI (23788-24477 kPa) @ 5 GPM (19 L/min.)
41. **REAR AUXILIARY HYDRAULICS**
42. **HYDRAULIC CONTROL VALVE**
43. **RESTRICTOR ROD END (2-way),** 0.104-0.111" (2,6-2,8 mm)
44. **PORT RELIEF** . . . . . 2550-2650 PSI (17582-18272 kPa) @ 5 GPM (19 L/min.)
45. **ANTI-CAVITATION VALVE**
46. **TILT CYLINDERS**
47. **JUNCTION PORT BLOCK**
48. **FRONT AUXILIARY QUICK COUPLERS**

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WIRING DIAGRAM (P/N 6570073)

943 (S/N 11001 thru 11999)

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HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

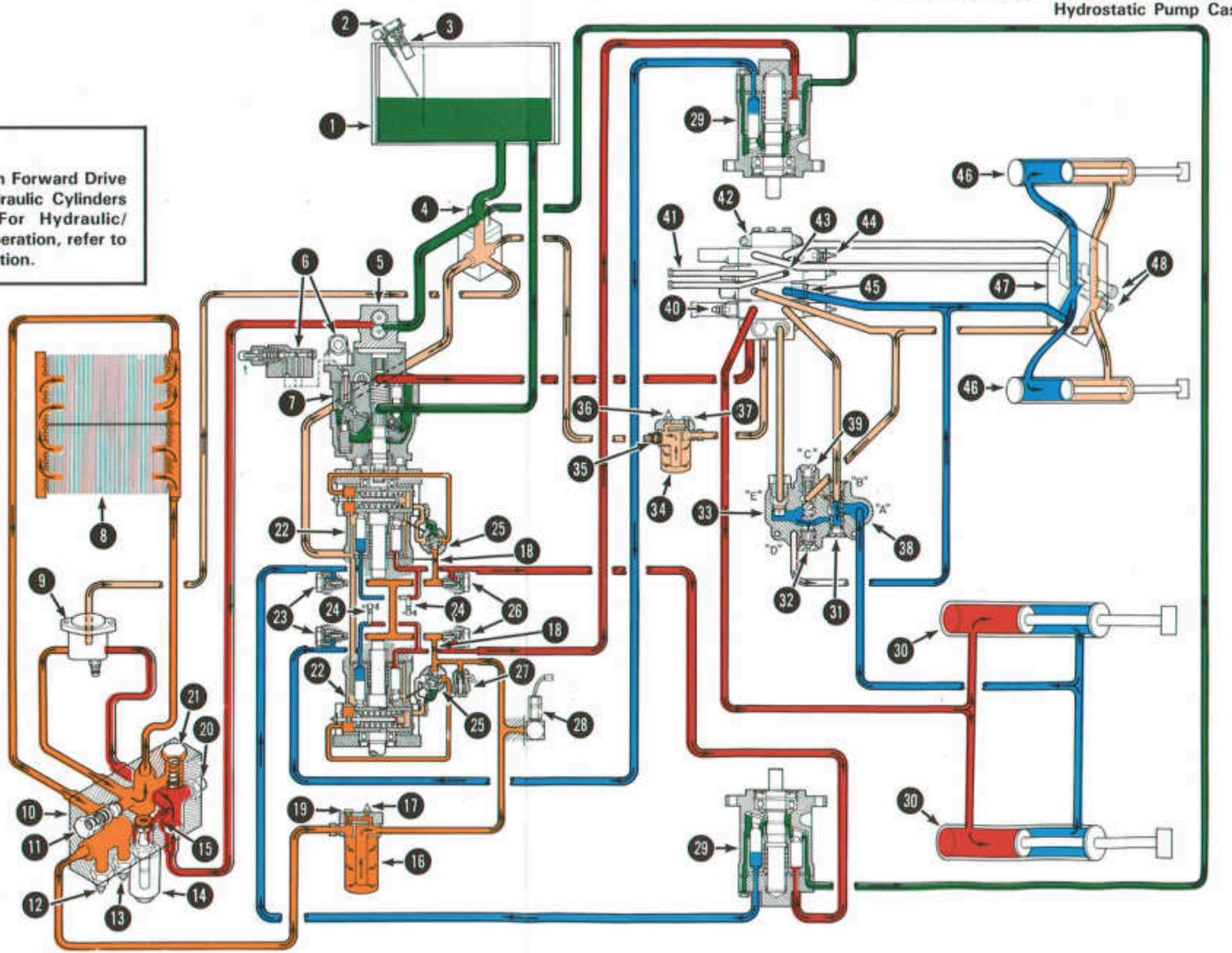
943 (S/N 11001 Thru 11999)

Chart # 6570067 (Printed April 1992)

RED - - - - - - - High Pressure
BLUE - - - - - - Low Pressure
GREEN - - - - - Case Drain & Reservoir
ORANGE - - - - Charge Pressure
LT. ORANGE - Hydraulic Pump Charge Pressure
Hydrostatic Pump Case Pressure

NOTE

Chart shows oil flow in Forward Drive Position and with Hydraulic Cylinders Partially Extended. For Hydraulic/ Hydrostatic System Operation, refer to Sheet 2 of this publication.



6570067 (4-92)

(Sheet 1 of 2)

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