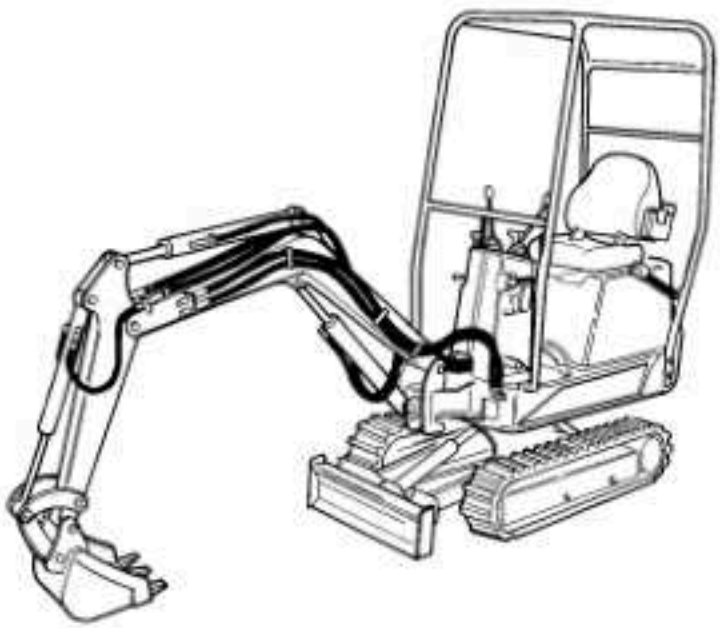
Bobcat®

316

Service Manual

S/N 522811001 & Above

S/N 522911001 & Above



Ingersoll Rand
Compact Vehicle Technologies

6902285 (2-06)

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Troubleshooting Chart (Cont'd)

TROUBLESHOOTING THE CYLINDER CIRCUIT		
PROBLEM	**CAUSE**	**CORRECTION**
Cylinder inoperable	Control lockout lever raised	Lower control lockout lever
	Loose fittings or broken hoses.	Repair or replace
	Low pump pressure	Test, repair or replace
	Control console lockout switch	Readjust or replace
	Cylinder internal leakage excessive	Repair or replace
	Faulty control valve	Clean and repair or replace control valve
Cylinder force insufficient	Lever linkage incorrectly adjusted	Readjust
	Pump pressure too low	Readjust or replace
	Port relief valve faulty	Readjust or replace
Cylinder speed too slow	Engine RPM too low	Check RPM or increase engine speed
	Cylinder internal leakage excessive	Repair or replace
	Main relief valve malfunctioning	Readjust or replace
	Control valve internal leakage excessive	Repair or replace
	Low or dirty fluid	Add or replace the hydraulic fluid

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ENGINE

Removal And Installation

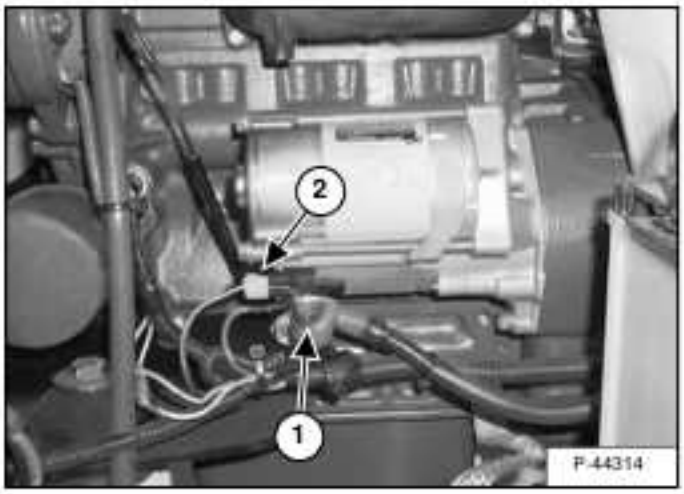
Remove the upperstructure covers. (See Left Upperstructure Cover Removal And Installation on Page 40-190-1 and See Right Upperstructure Cover Removal And Installation on Page 40-190-2.)

Remove the radiator. (See Removal And Installation on Page 60-40-1.)

Remove the hydraulic reservoir. (See Removal And Installation on Page 20-110-1.)

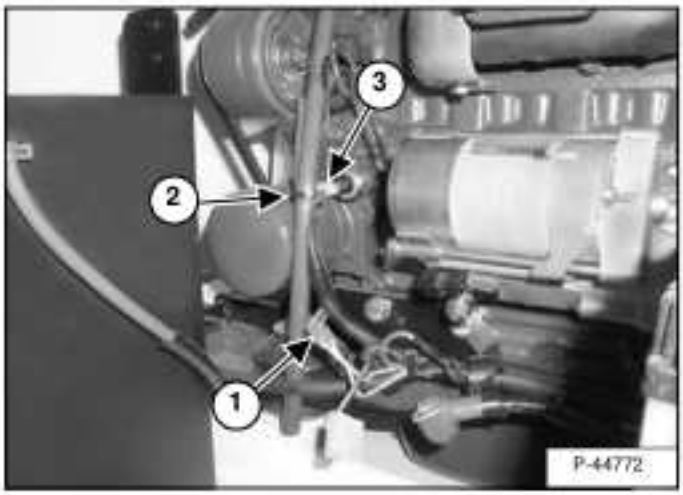
Disconnect the battery. (See Removal And Installation on Page 50-20-3.)

Figure 60-60-1



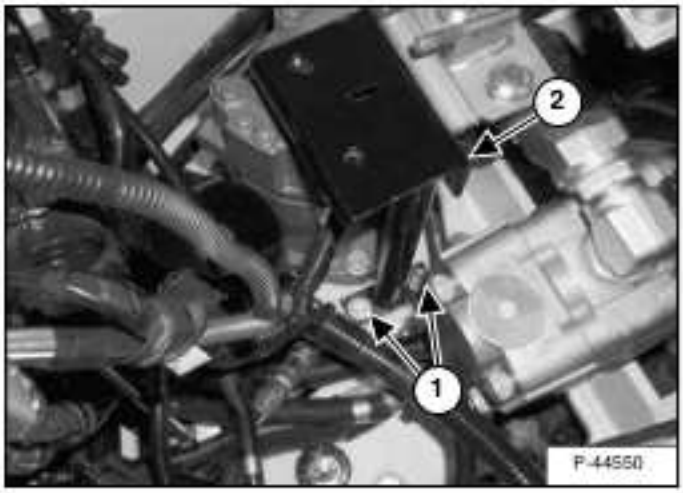
Remove the battery cable (Item 1) from the starter. Disconnect the wire harness (Item 2) **[Figure 60-60-1]** from the starter.

Figure 60-60-2



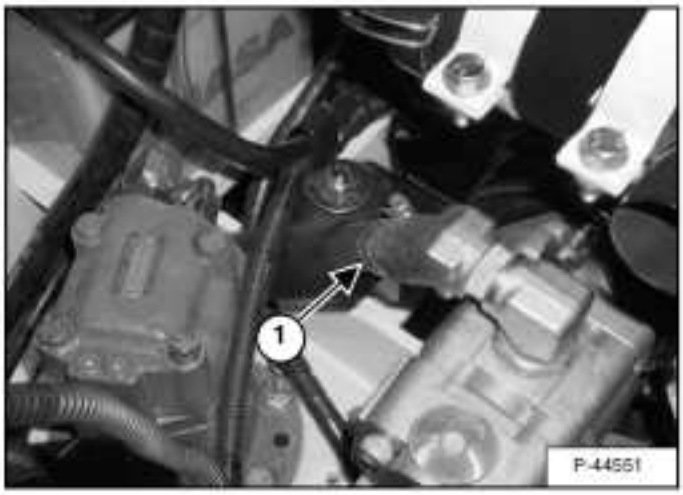
Mark and disconnect the alternator wire harness (Item 1). Cut and remove the cable tie (Item 2). Disconnect the wire harness (Item 3) **[Figure 60-60-2]** from the oil pressure switch.

Figure 60-60-3



Remove the bolts (Item 1) and washers. Remove the engine cover latch mount (Item 2) **[Figure 60-60-3]**.

Figure 60-60-4



Loosen the clamp (Item 1) **[Figure 60-60-4]** and remove the pump inlet hose.

IMPORTANT

When repairing hydrostatic and hydraulic systems, clean the work area before disassembly and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.

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All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parentheses.

Pistons

I.D. of Piston Bosses	0.787-0.788 (19,98-20,02)
Limit Permitted	0.789 (2,04)
O.D. of Piston Pin	0.787-0.788 (19,98-20,04)
I.D. of Connecting Rod Bushing (Small End, Fitted)	0.788-0.790 (20,02-20,07)
Clearance between Piston Pin & Bushing Limit Permitted	0.004 (0,10)
Connecting Rod Alignment Limit Permitted	0.002 (0,05)

Crankshaft

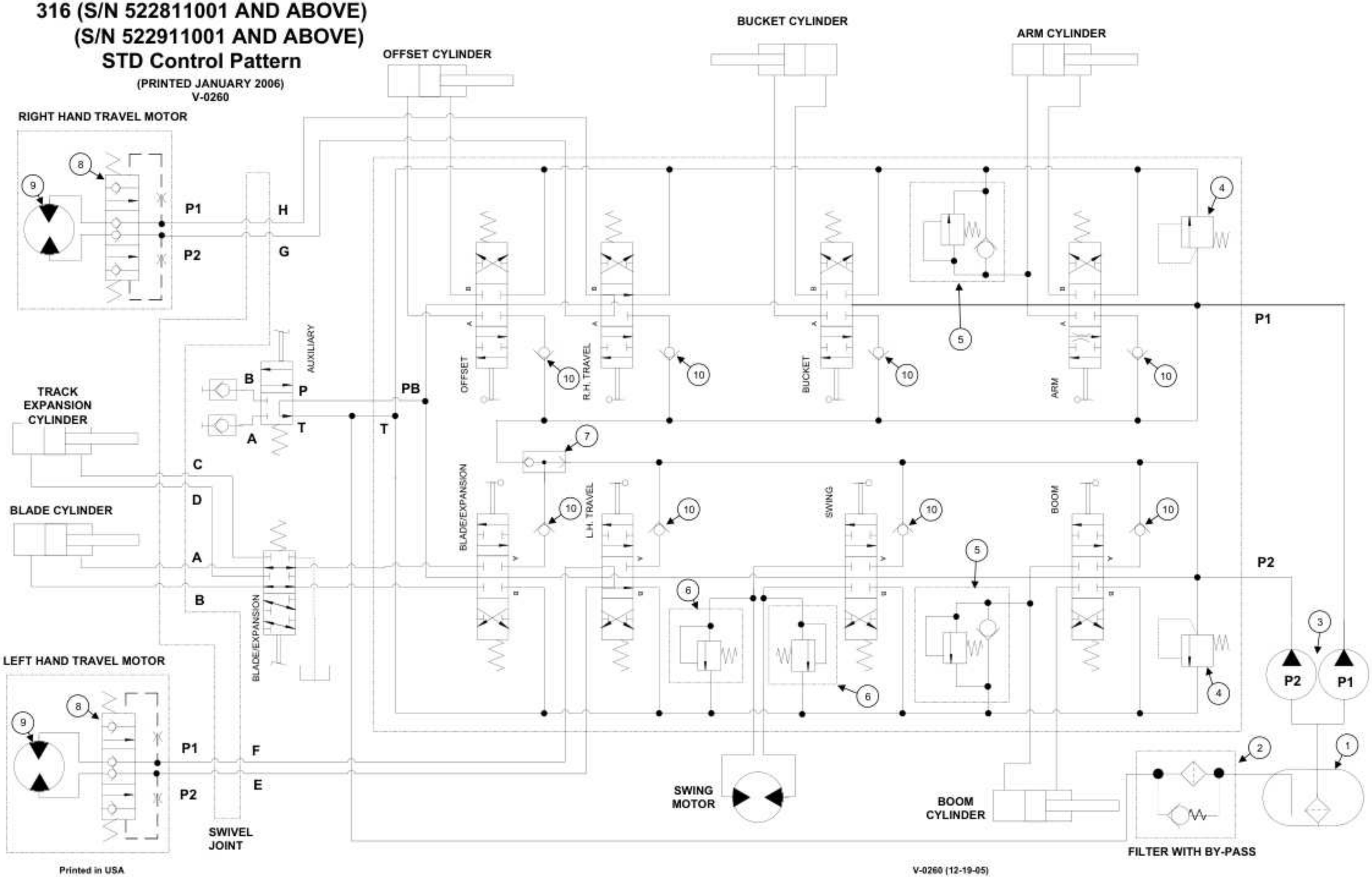
Crankshaft Alignment Limit Permitted	0.003 (0,02)
O.D. of Crankshaft Journal No. 1 & No. 3	1.5722-1.5728 (39,93-39,95)
O.D. of Crankshaft Journal No. 2	1.7297-1.7303 (43,93-43,95)
I.D. of Crankshaft Bearing No. 1	1.5742-1.5763 (39,98-40,04)
I.D. of Crankshaft Bearing No. 2	1.7317-1.7333 (43,98-44,03)
I.D. of Crankshaft Bearing No. 3	1.5742-1.5758 (39,98-40,03)
Clearance between No. 1 Crankshaft Journal and Bearing	0.0013-0.0042 (0,03-0,11)
Limit Permitted	0.008 (0,20)
Clearance between No. 2 Crankshaft Journal Bearing	0.0013-0.0036 (0,03-0,09)
Limit Permitted	0.008 (0,20)
Clearance between No. 3 Crankshaft Journal and Bearing	0.0013-0.0036 (0,03-0,09)
Limit Permitted	0.008 (0,20)
O.D. of Connecting Rod Journals	1.3370-1.3376 (33,96-33,98)
I.D. of Connecting Rod Bearings	1.3386-1.3402 (33,99-34,04)
Clearance between Connecting Rod Journals and Bearings	0.008-0.0032 (0,02-0,08)
Limit Permitted	0.006 (0,15)
Crankshaft End Play	0.006-0.012 (0,15-0,30)
Limit Permitted	0.020 (0,50)

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HYDRAULIC SCHEMATIC
316 (S/N 522811001 AND ABOVE)
(S/N 522911001 AND ABOVE)
STD Control Pattern

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