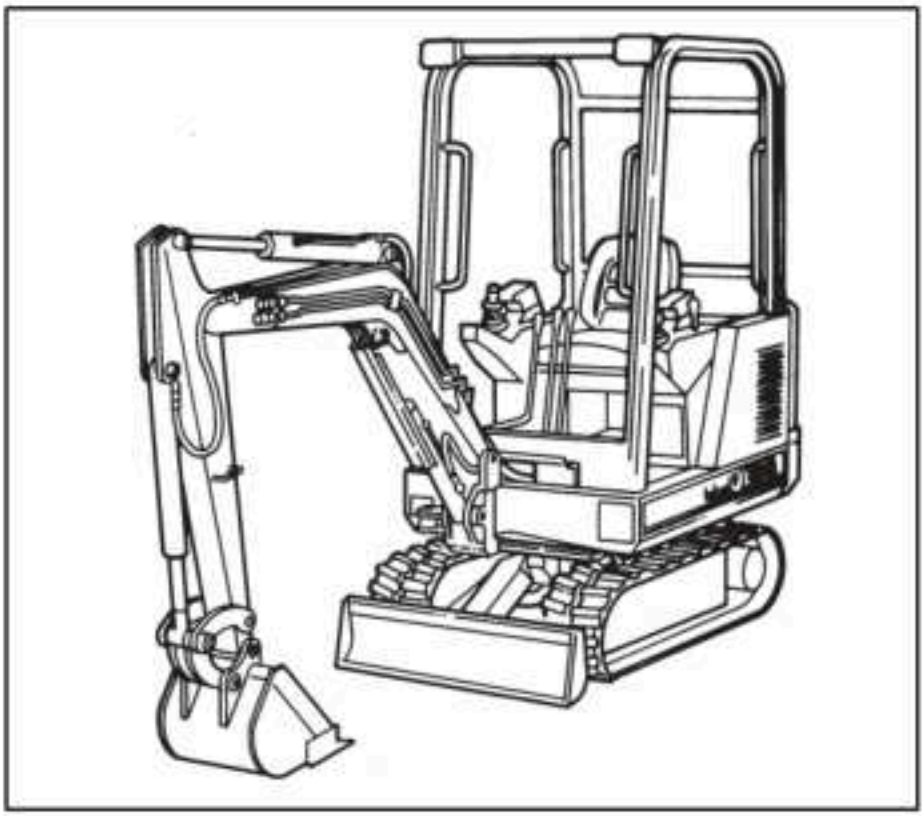
X 320/322

Excavator

Service Manual

(S/N 562313001 & Above)
(S/N 517811001 & Above)



Bobcat

6724910(1–97)

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PEDAL RIGHT HAND

Removal and Installation

Remove the floorboards. (See Page 3–3.)

Remove the nut from the ball joint **[A]**.



Remove the three bolts from the pedal mounting plate **[B]**.

Installation: Tighten the bolt to 29–37 ft.–lbs. (40–50 Nm) torque.



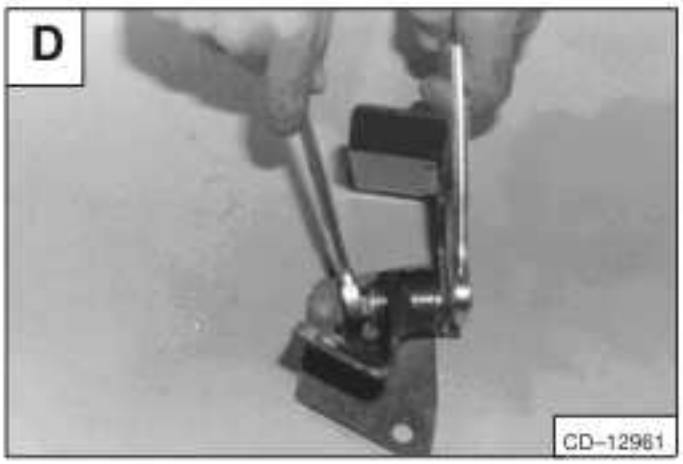
Remove the pedal and pedal mounting plate **[C]**.



Disassembly and Assembly

Remove the nut and bolt holding the pedal to the mounting plate **[D]**.

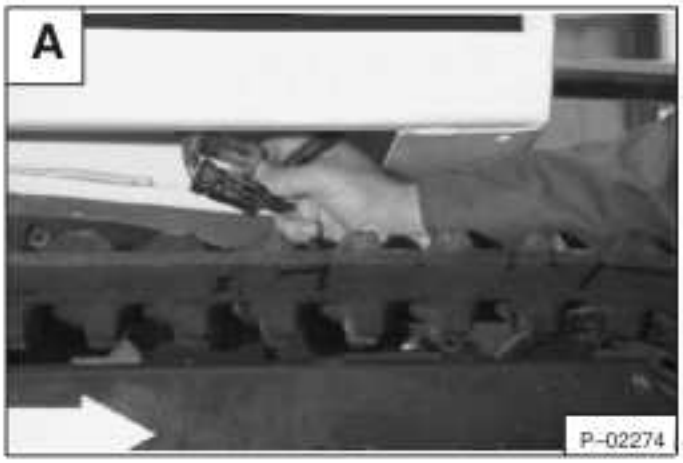
Installation: Tighten the nuts to 29–37 ft.–lbs. (40–50 Nm) torque.



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Removal and Installation (Cont'd)

Disconnect the cab harness from the main harness **[A]**. The harness connectors are located under the right hand upperstructure, next to the boom swing cylinder.



Install the lifting eyes on the cab **[B]**.

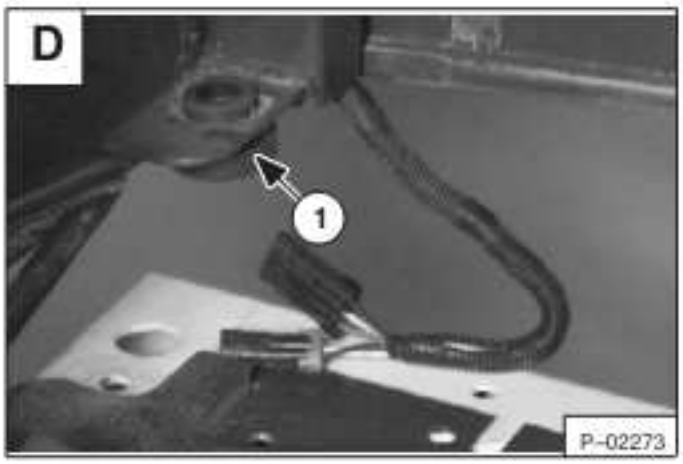


Install a lifting device of sufficient capacity to the lifting eyes and lift the cab up a few inches **[C]**.



With the cab lifted off of the upperstructure a few inches, the cab mounts (Item 1) **[D]** can be removed from the four cab corners.

Remove the cab wire harness through the access hole in the right hand front corner of the upperstructure.



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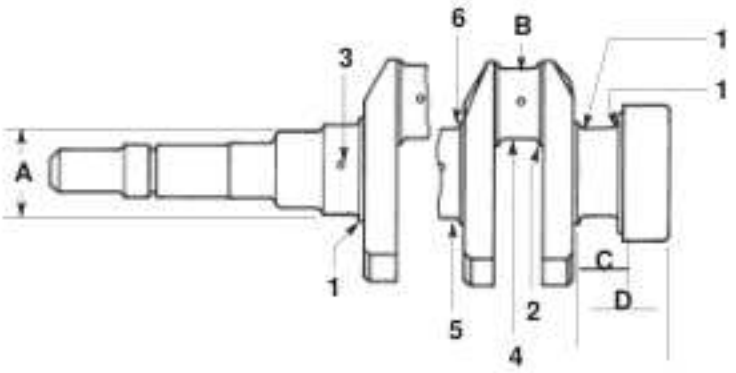
Re–Grinding The Crankshaft

If the standard size bearing cannot be used due to excessive wear of the crank pin and crank journal use undersize or oversize bearings.

For undersize or oversize bearing use, follow the precautions noted below.

Grind the crankpin and journal with a wheel which has specified round corner and width without shoulder **[A]**.

1. 0.071 to 0.087 (1,8 to 2,2 mm)
2. 0.091 to 0.106 (2,3 to 2,7 mm)
3. Be sure to chamfer the oil hole circumference to 0.04 to 0.06" (1,0 to 1,5 mm) radius with an oil stone.
4. The crankpin must be fine finished to higher than (0,4 to S).
5. The crank journal must be fine–finished to higher than (0,4–S).
6. The crank journal side surface must be fine–finished to higher than (1,6–S).



B–5928

SIZE	CODE NO.	NAME OF BEARING	BEARING MARK	CRANKSHAFT PROCESSING DIM.	
–.008 in. (–0,2 mm)	15861–23911	Crankshaft Bearing 1 0.008in. minus (0,2 minus)	020 US	A	1.5643 to 1.5650 in. (39,734 to 39,750 mm)
–0.008 in. (–0,2 mm)	15694–23931	Crankshaft Bearing 2 0.008 in. minus (0,2 minus)	020 US		
–0.008 in. (–0,2 mm)	15861–23861	Crankshaft Bearing 3 0.008 minus (0,2 minus)	020 US		1.7218 to 1.7224 in. (43,734 to 43,750 mm)
–0.016 in. (–0,4 mm)	15861–23921	Crankshaft Bearing 1 0.016 in. minus (0,4 minus)	040 US		1.5565 to 1.5571 in. (39,534 to 39,550 mm)
–0.016 in. (–0,4 mm)	15699–23941	Crankshaft Bearing 2 0.016 in. minus (0,4 minus)	040 US		
–0.0016 in. (–0,4 mm)	15861–23871	Crankshaft Bearing 3 0.016 minus (0,4 minus)	040 US		1.7139 to 1.7146 in. (43,534 to 43,550 mm)
–0.008 in. (–0,2 mm)	15861–22971	Crank Pin Bearing 0.008 in. minus (0,2 minus)	020 US	B	1.3291 to 1.3297 in. (33,759 to 33,775mm)
–0.016 (–0,4 mm)	15861–22981	Crank Pin Bearing 0.016 in. minus (0,4 minus)	040 US		1.3212 to 1.3219 in. (33,559 to 33,575 mm)
+0.008 in. (+0,2 mm)	15261–23951	Thrust Bearing 1 0.008 in. plus (0,2 plus)	020 OS	C	1.815 to 1.823 in. (46,1 to 46,3 mm)
	15261–23971	Thrust Bearing 2 0.008 in. plus (0,2 plus)			
+0.016 in. (+0,4 mm)	15261–23961	Thrust Bearing 1 0.016 in. plus (0,4 plus)	040 OS		1.823 to 1.831 in. (46,3 to 46,5 mm)
	15261–23981	Thrust Bearing 2 0.016 in. plus (0,4 plus)			
0.008 in. (0,2 mm)		Crankshaft over size Dimension		D	1.815 to 1.823 in. (46,1 to 46,3 mm)
0.016 in. (0,4 mm)					1.823 to 1.831 in. (46,3 to 46,5 mm)

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CONTROLS LEVERS AND BOOM SWING PEDAL

Forward and Reverse Travel is controlled by the left and right steering levers/foot pedals that mechanically actuate the respective hydraulic control valve **[9]** spools.

Right hand travel lever/foot pedal pushed forward – right track forward: Fluid flows from the *A* port of the right hand travel section through the *B* port of the center swivel joint **[33]** and to the *P1* port of the right hand travel motor **[36]**.

Right hand travel lever/foot pedal pulled back – right track reverse: Fluid flows from the *B* port of the right hand travel section through the *D* port of the center swivel joint **[33]** and to the *P2* port of the right hand travel motor **[36]**.

Left hand travel lever/foot pedal pushed forward – left track forward: Fluid flows from the *A* port of the left hand travel section through the *C* port of the center swivel joint **[33]** and to the *P2* port of the left hand travel motor **[34]**.

Left hand travel lever/foot pedal pulled back – left track reverse: fluid flows from the *B* port of the left hand travel section through the *A* port of the center swivel joint **[33]** and to the *P1* port of the left hand travel motor **[34]**.

Return fluid flows from the travel motor(s) **[34]** & **[36]** through the non pressurized *P* port, the corresponding center swivel joint **[33]** port and back through the hydraulic control valve **[9]** internally, to the oil cooler **[41]**, to the oil filter **[4]** and to the hydraulic reservoir **[1]** or to the pump **[6]**.

Travel motor case drain fluid returns from the travel motor **[34]**, **[36]** *T1*, *T2* ports, to the center swivel joint **[33]** *G* port, to the return port block **[39]**, through the case drain filter **[40]**, and to the reservoir **[1]**.

The Blade Control Lever mechanically controls the hydraulic control valve **[9]** blade section spool.

The blade control lever pushed forward – lowers the blade: Fluid flows from the *B* port of the hydraulic control valve **[9]** blade section spool to the center swivel joint **[33]** *E* port and to the base end of the blade cylinder **[31]**.

The blade control lever pulled back – raises the blade: Fluid flows from the *A* port of the hydraulic control valve **[9]** blade section spool to the center swivel joint **[33]** *F* port and to rod end of the blade cylinder **[31]**.

The Boom Swing Pedal mechanically controls the hydraulic control valve **[9]** boom swing section spool.

Right side pedal pressure – swings the boom to the right: Fluid flows from the *A* port of the hydraulic control valve **[9]** boom swing section spool to the rod end of the boom swing cylinder **[30]**.

Left side pedal pressure – swings the boom to the left: Fluid flows from the *B* port of the hydraulic control valve **[9]** boom swing section spool to the base end of the boom swing cylinder **[30]**.

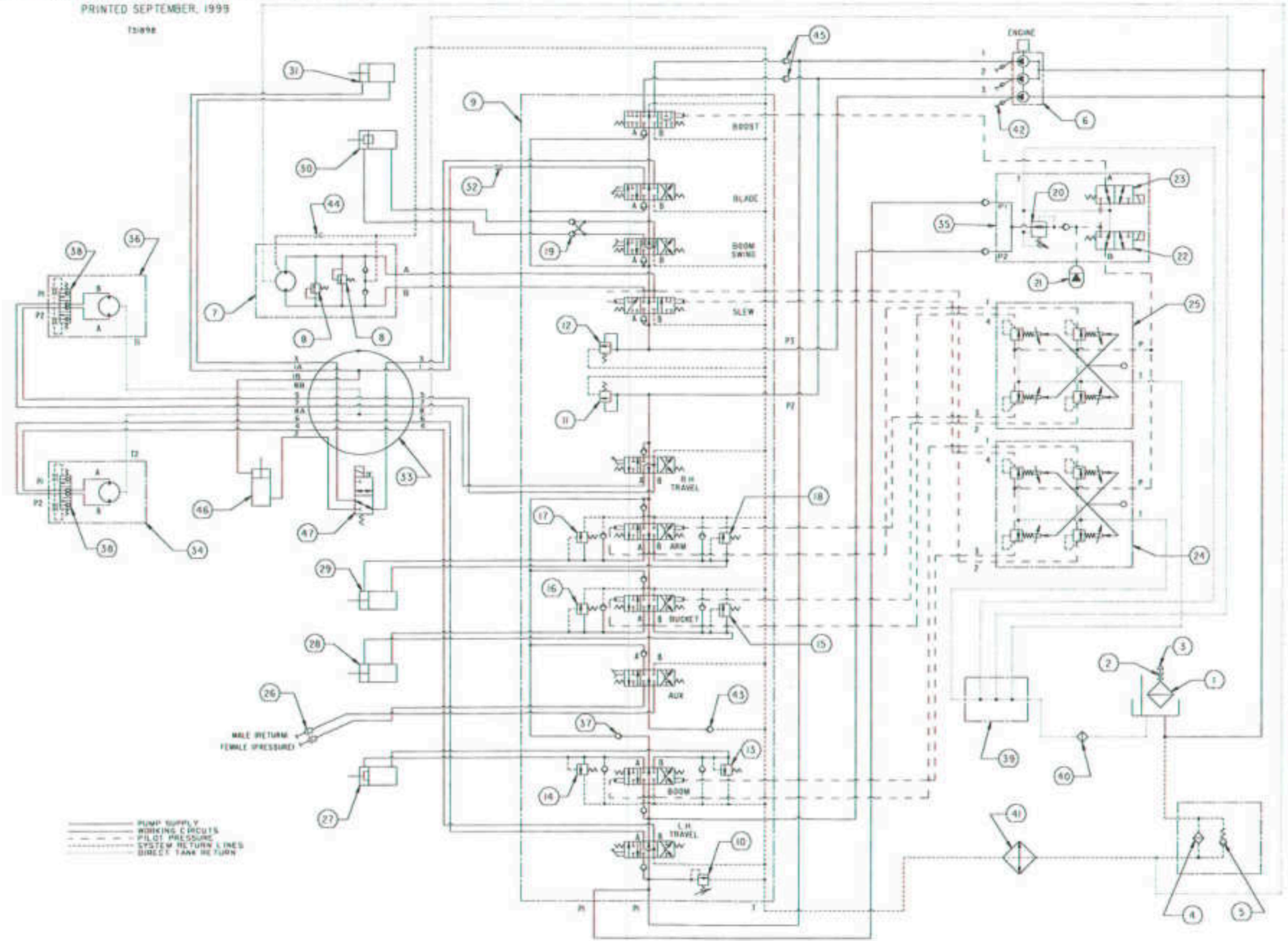
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HYDRAULIC SCHEMATIC
STANDARD CONTROLS
320 EXCAVATOR (S/N 562320001 & ABOVE)
322 EXCAVATOR (S/N 517811001 & ABOVE)

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