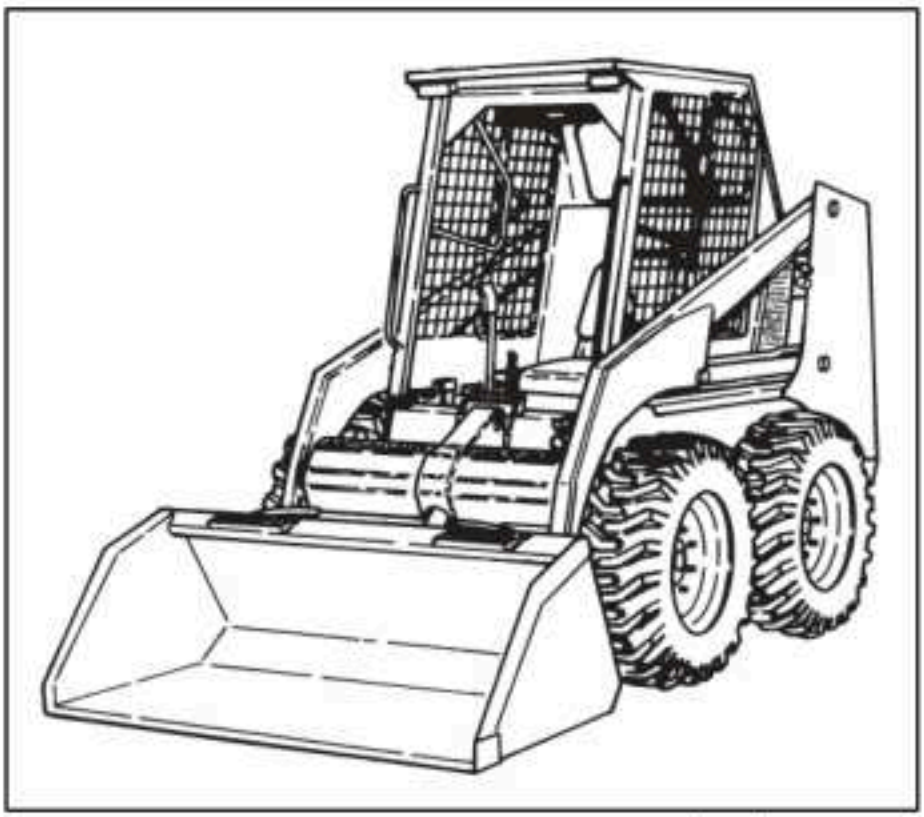
753

Service Manual



MELROE
INGERSOLL-RAND

6720326 (8–90)

Printed in U.S.A.

bobcat

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REMOTE START SWITCH

Procedure

The tool listed will be needed to do the following procedure:

MEL–1398 – Remote Start Switch

The short wire harness assembly is required when the operator cab is in the raised position for service and the serviceman needs to start the engine. The operator cab wire harness connectors must be separated from the engine wiring harness connector in the cab.

Connect the remote start switch to these connectors **[A]**.

This remote start switch is required when the serviceman is adjusting the steering linkage, checking the hydraulic/hydrostatic system.



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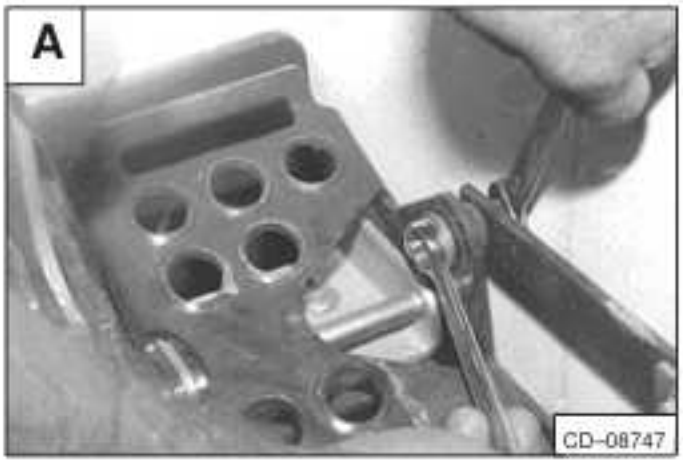
CONTROL PEDALS

Removal and Installation

Remove the bolt and nut from the pedal linkage **[A]**.

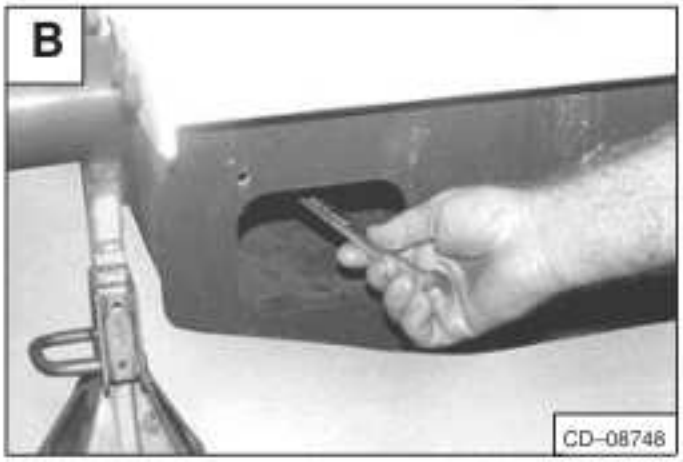
Installation: Tighten the bolt and nut to 21–25 ft.–lbs. (28–34 Nm) torque.

Check the rubber bushing in the pedal for wear and replace as needed.



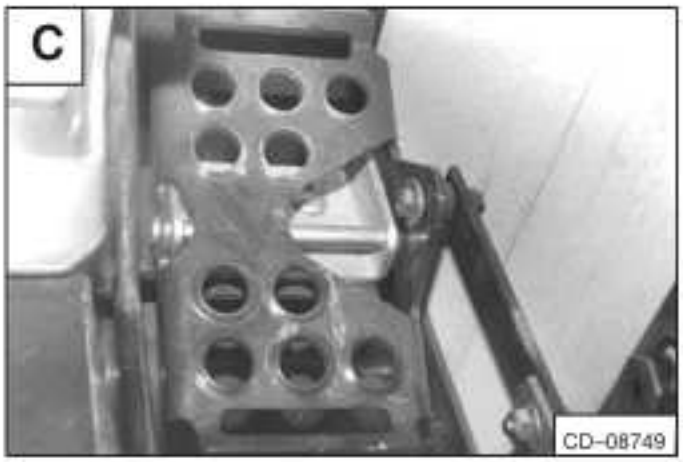
Remove the two mounting bolts **[B]**.

Remove the pedal assembly from the loader.



Adjustment

After installing the pedal, adjust the pedal so that there is clearance under the rear of the pedal **[C]**. The valve spool must travel full stroke without the pedal hitting the floor panel.



⚠ WARNING

AVOID INJURY OR DEATH

Adjust locking tabs on pedal control linkage so that lift and tilt control pedals are locked in neutral when the seat bar is up.

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ENGINE SPECIFICATIONS (Cont'd)

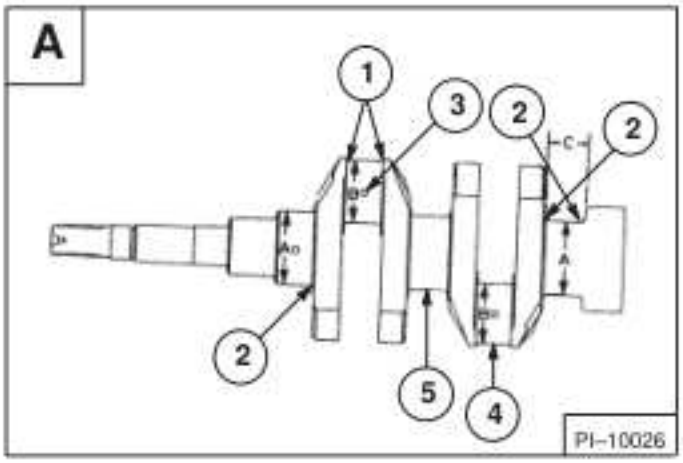
Crankshaft Re–Grind Data

if the standard size bearing cannot be employed due to excessive wear of the crankpin 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. 0.1299–0.1457" (3,3–3,7 mm)
2. 0.1102–0.1260" (2,8–3,2 mm)
3. Be sure to chamfer the oil hole circumference to 0.04–0.06" (1,0–1,5 mm) radius with and oil stone.
4. The crankpin must be fine finished to higher than (0,4–5).
5. The crank journal must be fine–finished to higher than (0,4–5).
6. The crank journal side surface must be fine–finished to higher than (1,6–5).



SIZE	CODE NO.	NAME OF BEARING	BEARING MARK	CRANKSHAFT PROCESSING DIM.	
–0.008" (0,2 mm)	17331–2391–1	Crankshaft Bearing 1 0.008" minus (0,2 minus)	020 US	A	2.0363–2.037" (51,721–51,74 mm)
–0.008" (0,2 mm)	17331–2393–1	Crankshaft Bearing 2 0.008" minus (0.2 minus)	020 US		
–0.016" (0,4 mm)	17331–2392–1	Crankshaft Bearing 1 0.016" minus (0,4 minus)	040 US		2.0284–2.0291" (51,521–51.54 mm)
–0.016" (0,4 mm)	17331–2394–1	Crankshaft Bearing 2 0.016" minus (0,4 minus)	040 US		
–0.008" (0,2 mm)	17331–2297–1	Crank Pin Bearing 0.008" minus (0,2 minus)	020 US	B	1.8409–1.8415" (46,759–46,775 mm)
–0.016" (0,4 mm)	17331–2298–1	Crank Pin Bearing 0.016" minus (0,4 minus)	040 US		1.8330–1.8337" (46,559–46,575 mm)
+0.008" (+0,2 mm)	15221–2395–1	Thrust Bearing 1 – 0.008" plus (0,2 mm plus)	020 US	C	1.8330–1.8337" (46,559–46,575 mm)
	19202–2397–1	Thrust Bearing 2 – 0.008" plus (0,2 mm plus)			
+0.016" (+0,4 mm)	15221–2396–1	Thrust Bearing 1 – 0.016" plus (0,4 mm plus)	040 US		1.0315–1.0335" (26,20–25,25 mm)
	19202–2398–1	Thrust Bearing 2 – 0.016" plus (0,4 mm plus)			

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MONITOR SERVICE CODES

One of the following Alphabetic Codes may appear on your monitor.


Engine Coolant Level


Engine Coolant Temperature


Engine Oil Pressure


Engine Speed


Air Filter


Hydrostatic Fluid Temperature


battery


FUEL Level


Hydraulic Filter


Hydraulic Fluid Pressure

One of the following Numeric Codes will appear following one of the above Alphabetic Codes. Example: 


Shut Down


Warning


Wiring Not Connected


Wiring Shorted


High Sensor Voltage


Sensor No Signal


Sensor Out of Range

(See Pages 8–29 & 8–30 for additional code information)

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HYDRAULIC / HYDROSTATIC SYSTEM OPERATION

To Be Used With

HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

753H

Chart #6722833 (Printed November 1993)

CHART LEGEND

1. **FLUID RESERVOIR:** Cap.: . . . . . 14 Qts. (13,2 L)
2. **BREATHER**
3. **FILL CAP**
4. **SCREEN,** . . . . . 60 Mesh
5. **SELECT VALVE**
   a. Select Valve—"Hi Flow" detent or momentary mode.
   b. Select Valve—Male Secondary and Rear Auxiliary Couplers Pressurized.
   c. Select Valve—Female Secondary and Rear Auxiliary Couplers Pressurized.
6. **REAR AUXILIARY QUICK COUPLERS (OPTIONAL)**
7. **FRONT AUXILIARY QUICK COUPLERS**
8. **CASE DRAIN FILTER** . . Sintered Bronze (90 Micron)
9. **HYDROSTATIC MOTOR**
10. **LIFT CYLINDERS**
11. **DUAL PRESSURE MAIN RELIEF VALVE:** Low setting - 2300 PSI (15900 kPa) @ Front Quick Couplers
    High setting - 3300 PSI (22700 kPa) @ Front Quick Couplers
12. **HYDRAULIC CONTROL VALVE**
13. **LOAD CHECK VALVES (2)**
14. **PORT RELIEF VALVE,** . . . . . 3500 PSI (24100 kPa)
15. **ANTI-CAVITATION VALVE**
16. **ELECTRICAL AUXILIARY SOLENOIDS**
17. **PORT RELIEF VALVE (Optional):** 2500 PSI (17238 kPa)
18. **TILT CYLINDER**
19. **CHECK VALVE**
20. **UN-LOADING SPOOL**
21. **PRESSURE RELIEF VALVE**
22. **FLOW CONTROL SPOOL**
23. **BUCKET POSITION VALVE (OPTIONAL)**
24. **FLOW ADJUSTMENT VALVE**
25. **CHARGE PRESSURE SENDER**
26. **HYDRAULIC/HYDROSTATIC FILTER:** #3 Synthetic Media
27. **TEMPERATURE SENSOR**
28. **DIFFERENTIAL PRESSURE SWITCH:** (Normally Closed) 36-44 PSI (250-300 kPa)
29. **FILTER BY-PASS VALVE:** 45-55 PSI (315-375 kPa)
30. **OIL COOLER**
31. **HYDRAULIC PUMP,** Gear Type 13.0 GPM (49,2 L/min.) @ 2480 RPM @ 1150 PSI (7929 kPa)
32. **HYDROSTATIC PUMPS**
33. **HIGH PRESSURE RELIEF/REPLENISHING VALVES** . . . . 5000 PSI (34475 kPa)
34. **CHARGE IN-LET RELIEF (Normal Flow), 155-165 PSI (1069-1138 kPa) @ 13.0 GPM (49,2 L/min.) @ 2480 RPM W/120° F. (49° C.) Fluid**
35. **CASE DRAIN QUICK COUPLER**
36. **SECONDARY FRONT AUXILIARY QUICK COUPLER**
37. **HI FLOW HYDRAULIC PUMP,** Gear Type 8.7 GPM (32,9 l/Min.) @ 2480 RPM 1150 PSI (7930 kPa)
38. **HI FLOW MAIN RELIEF VALVE,** 3250-3300 PSI (22400 - 23100 kPa) @ Secondary Front Quick Couplers
39. **ORIFICE**
40. **SOLENOID VALVE (Two Coil)**
41. **CHECK VALVE**
42. **PILOT-to-OPEN CHECK VALVE**
43. **SOLENOID VALVE**
44. **INTERNAL ORIFICE**
45. **REPLENISHING VALVES**

FLUID FLOW EXPLANATION

The fluid flows by gravity from the reservoir 1 to the hydraulic pump 31 . The hydraulic pump 31 is a "gear type" pump and is driven by a shaft through the hydrostatic pumps 32 . The fluid from the hydraulic pump 31 goes to the hydraulic control valve 12 .

The hydraulic control valve 12 has an adjustable relief valve 11 . When all spools of the control valve 12 are in the neutral position, the fluid goes through the control valve 12 and to the oil cooler 30 . If one of the spools is activated, the fluid goes out the respective port and to either the base end, or rod end of the cylinder(s) 10 18 . As the fluid goes into one end of the cylinder(s) 10 18 the fluid from the other side of the cylinder flows back into the control valve 12 .

ALSO SEE BUCKET POSITIONING SYSTEM OPERATION (OPTIONAL).

When the cylinder(s) 10 18 reaches the end of the stroke, the fluid attains the low pressure setting of the dual pressure main relief valve 11 , it will open and let the fluid by-pass the hydraulic circuit (internally) and go back to the oil cooler 30 which becomes "charge supply fluid" for the hydrostatic pumps 32 .

When the spool goes back to neutral position, fluid is then available for the other sections of the control valve 12 . Two sections of the control valve 12 can be used at the same time if the dual pressure main relief valve 11 is not open.

The fluid flows from the oil cooler 30 through the #3 synthetic media filter 26 to the hydrostatic pumps 32 . This fluid is called "charge supply fluid". In the hydrostatic pumps 32 the fluid is against the charge relief valve 34 and four replenishing valves 33 . The hydrostatic pumps 32 do not need the full volume of fluid flow so there is extra fluid. This extra fluid goes to the charge relief valve 34 . The replenishing valves 33 open and let fluid into the pumps 32 for replenishing, lubrication and cooling.

With the replenishing valves 33 open this flow of fluid becomes "drive loop fluid". When the steering levers are in neutral, the pumps 32 and the motors 9 are not working, but do have charge pressure fluid. When the steering levers are moved, the swashplates in the pumps 32 are angled and the fluid is forced out of the pressure side of the pumps 32 and to the motors 9 . This flow of fluid is called "drive pressure". Drive pressure is much higher than charge pressure causing the replenishing valves 33 to close, allowing the flow of the fluid to go to the motors 9 .

There are two hydrostatic pumps 32 and two hydrostatic motors 9 . One pump and one motor work together as a pair to drive on one side of the loader. The other pump and motor work as a pair to drive the opposite side of the loader.

The hydrostatic motors 9 are a "roller-geroler" type. The case drain fluid from the right motor 9 goes to the hydrostatic pump 32 . Case drain fluid from the left motor 9 joins

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