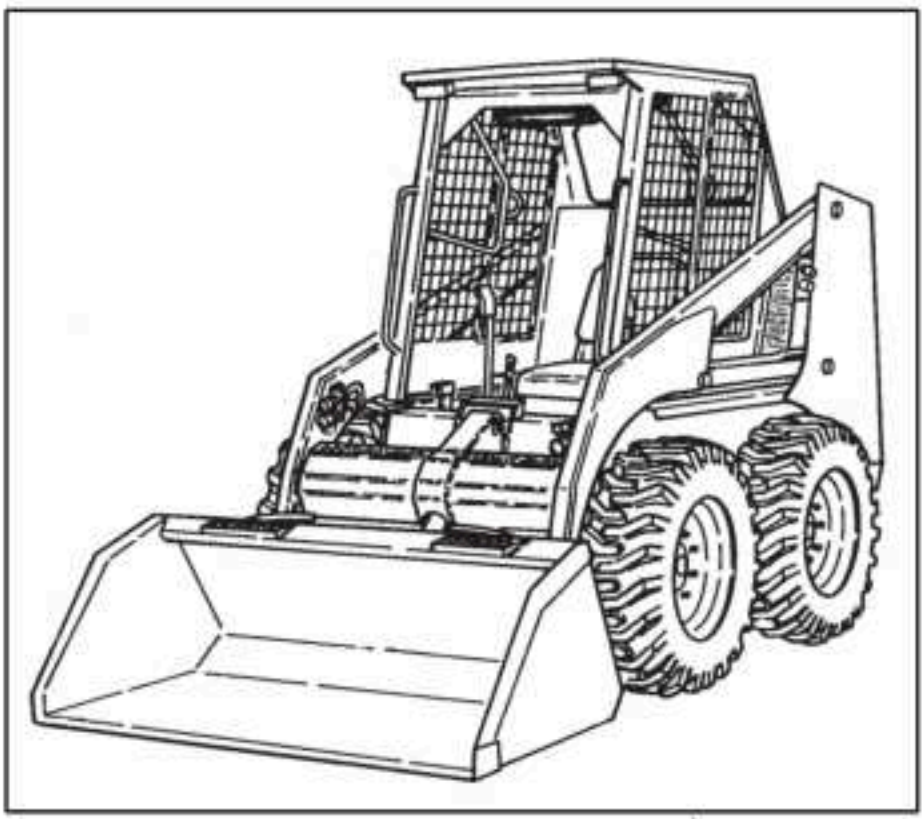
853

853H

EQUIPPED WITH
BOBCAT INTERLOCK
CONTROL SYSTEM (BICS™)

Service Manual



MELROE
INGERSOLL-RAND

6724012(4-95)

Printed in U.S.A.

bobcat

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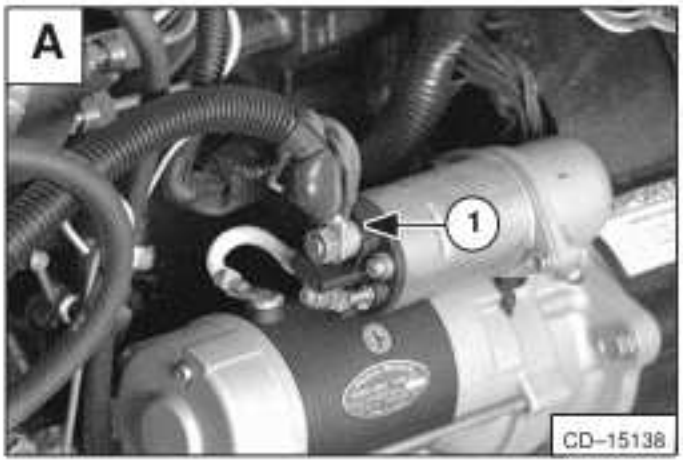
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STARTER

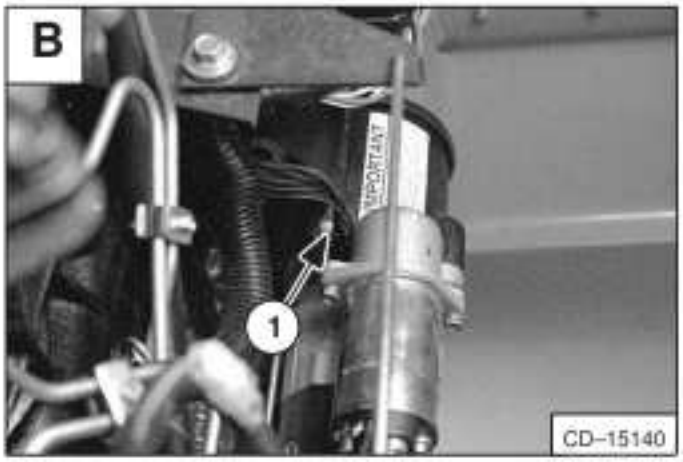
Removal and Installation

Disconnect the negative (–) cable from the battery.

Disconnect the positive (+) cable (Item 1) **[A]** and starter wires from the starter solenoid.



Remove the starter mounting bolt (Item 1) **[B]** and engine harness ground wires from the starter.



Remove the other two mounting bolts (Item 1) **[C]**.

Remove the starter from the engine.



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CAMSHAFT

Removal and Installation

Remove the rocker arm cover, rocker arm assembly and the push rods. (See Page 7–54.)

Remove the timing gearcase cover. (See Page 7–69.)

Remove the camshaft gear. (See Page 7–74.)

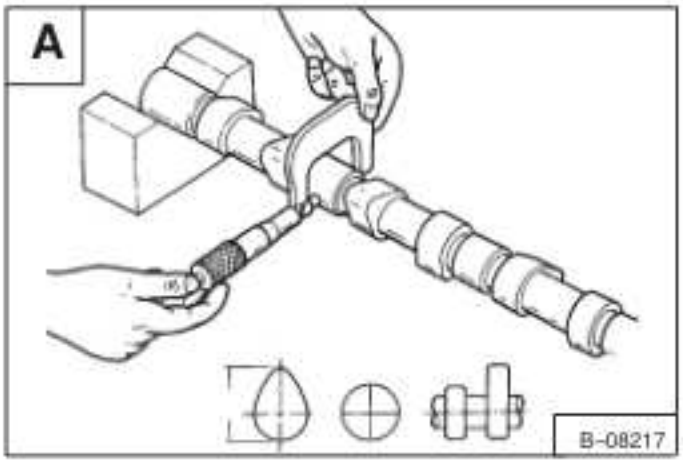
Remove the oil pan and oil pump. (See Pages 7–79 & 7–80.)

Remove the camshaft from the engine.

Checking

Check the camshaft journals **[A]**.

Standard – 1.9662–1.9675 inch (49,945–49,975 mm)
Limit – 1.9528 inch (49,60 mm)

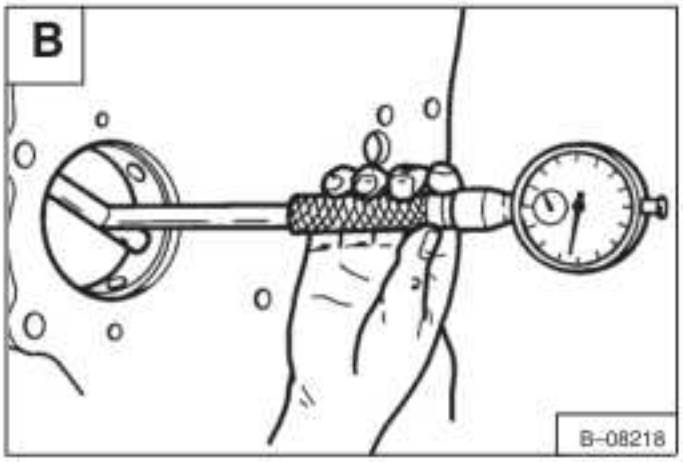


Check the bearing inside diameter **[B]**.

Standard – 1.9685–1.9697 inch (50,0–50,03 mm)

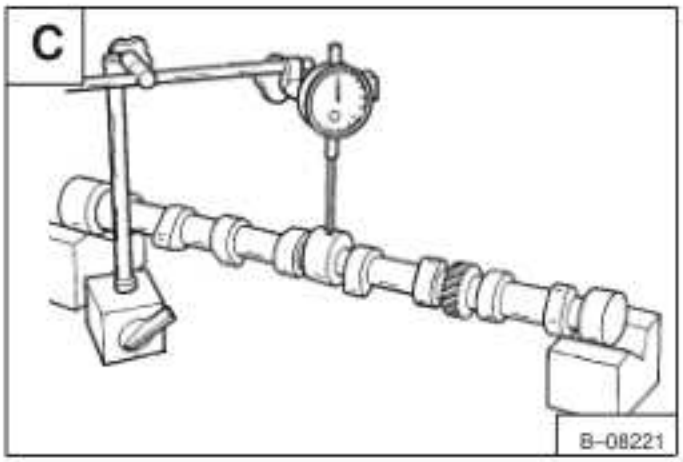
Clearance between camshaft journal and bearing:

Standard – 0.002 inch. (0,05 mm)
Limit – 0.0047 inch (0,12 mm)



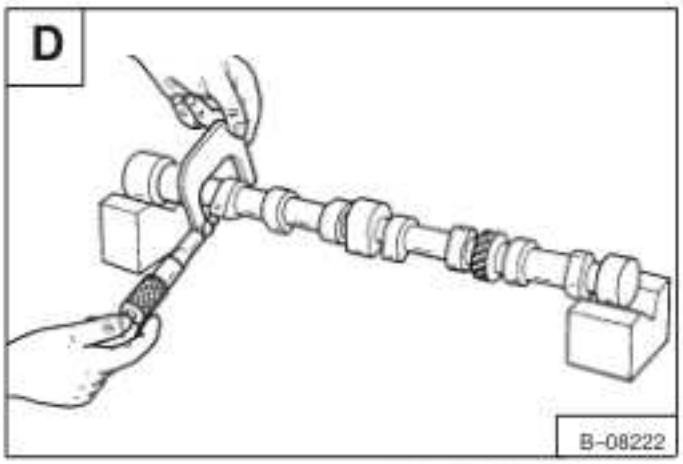
Check camshaft run–out **[C]**.

Limit – 0.0039 inch (0,1 mm)



Check cam lobe height **[D]**.

Standard – 1.654 inch (42,02 mm)
Limit – 1.640 inch (41,65 mm)



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Troubleshooting Guide (Cont'd)

The following troubleshooting guide is provided for assistance in locating and correcting BICS system problems. It is recommended that these procedures be done by authorized Bobcat Service Personnel only.

⚠ WARNING

Check for correct function after adjustments, repairs or service. Failure to make correct repairs or adjustments can cause injury or death.

W–2004–1285

LIFT LOCK BY–PASS VALVE

PROBLEM	SOLUTION #
By–pass valve stuck.	1
By–pass valve stem bent or broke.	2

SOLUTION SUGGESTIONS
1. Rotate shaft.
2. Replace manual spool cartridge.

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853 BICS™
OPERATOR CONTROLS WIRING DIAGRAM INDEX

USE YOUR LOADER SERIAL NUMBER and OPTIONS TO FIND THE CORRECT WIRING DIAGRAM SHEETS.

OPTION	LOADER S/N and COMMENTS	OPERATOR CONTROLS	CONNECTOR	SEE WIRING DIAGRAM SHEET NUMBER: CAB	ENGINE	ATTACHMENT
WITHOUT HI FLOW	512816001-18815, 512818817-18867, 512818869-18871, 512818873 508418001-18085	**1**	B	1 or 2		
			C		1 or 2	
			G, H, J, K, L, M			1
	512818816, 18868, 512818872, 512818874 and Above 508418086 and Above added proportional controls	**2**	B	1 or 2		
			C		1 or 2	
			G, H, J, K, N			1 or 2
WITH HI FLOW	512816001-18815, 512818817-18867, 512818869-18871, 512818873 509718001-18112	**3**	B	1 or 2		
			C		1 or 2	
			G, H, J, K, L, M, P			1
	512818816 512818868, 512818872, 512818874 and Above 509718113 and Above added proportional controls	**4**	B	1 or 2		
			C		1 or 2	
			G, H, J, K, N, P			1 or 2

HOW TO USE YOUR WIRING DIAGRAM INDEX:

OPTION (when listed): Which OPTION does your loader have?

LOADER S/N and COMMENTS Identify your loader's SERIAL NUMBER. COMMENTS (when listed) are items to identify the latest changes made within the range of S/N's listed.

SHEET NUMBERS in LARGE BOLD Print Represent the SHEET NUMBERS which correspond to this INDEX'S WIRING DIAGRAM TYPE. The heading directly above each LARGE BOLD NUMBER identifies this INDEX'S WIRING DIAGRAM TYPE.

CONNECTOR A list of all CONNECTORS for each range of S/N's for this WIRING DIAGRAM TYPE and each of it's SHEETS.

SHEET NUMBERS in SMALLER Print Represent the SHEET NUMBERS which contain the matching CONNECTOR on a different TYPE of WIRING DIAGRAM. The matching WIRING DIAGRAM TYPE is identified in the heading directly above these SMALLER NUMBERS. If multiple SHEET NUMBERS are listed, refer to that WIRING DIAGRAM INDEX page to determine the correct SHEET NUMBER your SERIAL NUMBER loader is represented on.

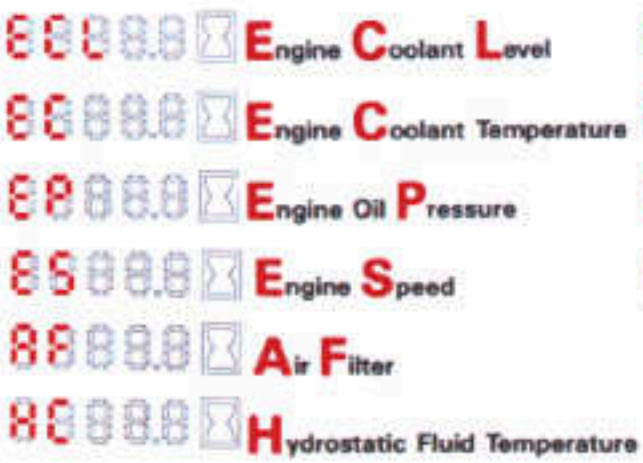
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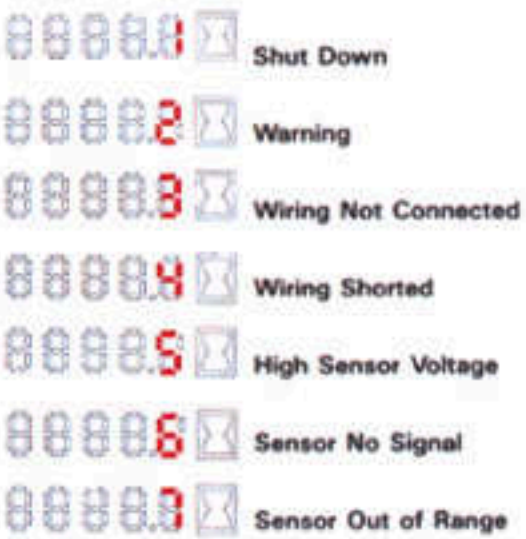
MONITOR SERVICE CODES

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



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





SC01-0198

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WIRE LEGEND

NO. 's	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	12
1AA	Red	12 or 14
1AB	Red	12
1B	Red	10
1CB	Red	16
1D	Red	16
1E	Red	14
1H	Red	14
1L	Red	12
1S	Red	12
1SA	Red	12
1SB	Red	16
1SC	Red	16
1SD	Red	12
1SP	Red	15
1W	Red	14
10	Black	14
10A	Black	12
10A	Black (Heater Harness)	14
10E	Black	16
10H	Black	16
10HA	Black	16
10K	Black	12
10L	Black	12
10S	Black	16
12	Orange	16
12B	Orange	16
12C	Orange	14
12CA	Orange	14
12CB	Orange	12 or 16
12CC	Orange	16
12CD	Orange	14
12DL	Orange	16
12DR	Orange	16
12G	Orange	16
12GA	Orange	16
12H	Orange	16
12H	Orange (Heater Harness)	14
12S	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19A	White	14
19E	Red/White	14
19H	Red/White	14
19L	Red/White	12
19S	Red/White	14 or 16
19W	Red/White	14
^ 19WR	Red/White	16
19WRA	Red/White	16
20	Black	16
20	Red (Heater Harness)	14
20B	Black	16
20M	Black	16
20S	Black	16
21	Yellow	14
21R	White	16
21RA	White	16
21S	White/Lt. Green	12 or 14
22	Orange	14
23F	White/Black	16
23FA	Red/Blue	16
28A	Lt. Blue/Orange	16
28B	Lt. Blue/Orange	12
30AF	Black	16
30CL	Black	16
30F	Black	16
30H	Black	16
30P	Black	16
30PE	Black	16
30S	Black	16
30T	Black	16
30TE	Black	16
31S	Yellow/Lt. Blue	16

WIRE LEGEND (Cont'd)

NO. 's	COLOR	GAUGE
33P	Yellow/Green	16
33T	Yellow/Red	16
34F	Yellow/Dk. Blue	16
34FR	Yellow/Dk. Blue	16
34P	Yellow/Lt. Blue	16
34T	Yellow/Brown	16
36A	Purple/Red	16
36C	Purple/Lt. Blue	16
36F	Purple	16
38A	Purple/Red	16
38B	Purple/White	16
40	Black	16
40L	Black	16
40LA	Black	16
40R	Black	16
40RA	Black	16
41	Pink	16
41C	Pink	16
41L	Pink	16
41R	Pink	16
42R	Dk. Blue/White	16
42RR	Dk. Blue/White	16
46LA	Brown/Yellow or Yellow	16
46LR	Brown/Yellow	16
46LRA	Brown/Yellow	16
46R	Dk. Green	16
46RA	Brown/Green or Green	16
46RR	Brown/Green	16
46RRA	Brown/Green	16
46T	Brown	16
50A	Black	16
+ 50B	Black	16
50V	Black	16
51	Lt. Blue/White	16
51A	Lt. Blue/White	16
51B	Orange/Blue	16
51S	Orange/White	16
51SA	Orange/White	16
51SB	Orange/White	16
51SS	White/Orange	16
+ 56RB	Dk. Green/Yellow	16
57DA	Yellow	16
57F	Lt. Blue/Red	16
59E	Orange	16
60B	Black	16
60BA	Black	16
60W	Black	16
63W	Orange/Black	16
^ 63WR	Blue/Black	16
64	Orange/Blue	16
66	Orange/Green	16
70	Black	14
70C	Black	16
72B	Pink/White	16
78	White or Red	14

^ May NOT be found on all Harnesses.

+ Found ONLY on Harness 6709892 -
S/N 512820647 and Above
508418144 and Above
509718237 and Above

PARTS LEGEND

1. Engine Harness (With BOSS)
   • 6707605 Rev. D or + 6709892 Rev. A
2. Rear Wiper Harness (Opt.) 6708285
3. Rear Wiper Switch (Opt.)
4. Rear Wiper Motor (Opt.)
5. System Operating Unit
6. Coolant Level Sensor
7. Magnetic Pickup (Engine RPM)
+8. Rear Auxiliary Bleed (Opt.)
9. Diverter Valve (Opt.)
10. Fuel Sensor
11. Engine Oil Pressure Sensor
12. Engine Coolant Temperature Sensor
13. Hydraulic Fluid (Oil) Temperature Sensor
14. Hydraulic Oil Charge Pressure Sensor
15. Vacuum Switch
16. Hydraulic Filter - Return Pressure Sensor
17. Hydraulic Filter Differential Pressure Sensor
18. Shut-Down Relay
19. Diode
20. Engine Shut-Off Solenoid
21. Hourmeter Harness (Opt.) 6700228
22. Hourmeter (Opt.)
23. Glow Plugs
24. Alternator
25. Starter
26. Battery
27. Switched Power Relay
28. Starter Relay
29. Glow Plug Relay
30. Brake Relay
31. Fused 10 Amp - BICS
32. Fused 15 Amp - Engine
33. Fused 15 Amp - PWM (Attachment)
34. Fused 25 Amp - Brake
35. Fused 25 Amp - Accessories
36. Fused 25 Amp - Accessories
37. Fused 25 Amp - Lights
38. Fused 10 Amp - BOSS

PARTS LEGEND (Cont'd)

39. Accessory Fused and Switch Power
40. BICS Connector
41. Auxiliary Hydraulic Connector
42. Back-Up Alarm Harness (Opt.) 6704358
43. Back-Up Alarm Switch (Opt.)
44. Heater Relay Switch (Opt.)
45. Heater and Heater Motor (Opt.)
46. Heater Harness (Heater Section) (Opt.) 6660892
47. Heater Fan Switch (Opt.)
48. Heater Harness (Eng. Section) (Opt.) 6660894
49. Fuse and Fuse Cap (Opt.)
50. Rear Light Harness 6707669 Rev. B
51. Left Rear Taillight
52. Left Rear Work Light
53. Back-Up Alarm (Opt.)
54. Right Rear Work Light
55. Right Rear Taillight
56. Rear Light Harness (> Euro. Std.) 6709048 Rev. A
57. Left Rear Taillight (> Euro. Std.)
58. License Plate Light (> Euro. Opt. ONLY)
59. Right Rear Taillight (> Euro. Std.)
60. Rear Windshield Washer Pump and Reservoir Tank (Opt.)

* Harness 6707605 -
S/N 512816001-20646
508418001-18143
509718001-18236

+ Found ONLY on Harness 6709892 -
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508418144 and Above
509718237 and Above

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