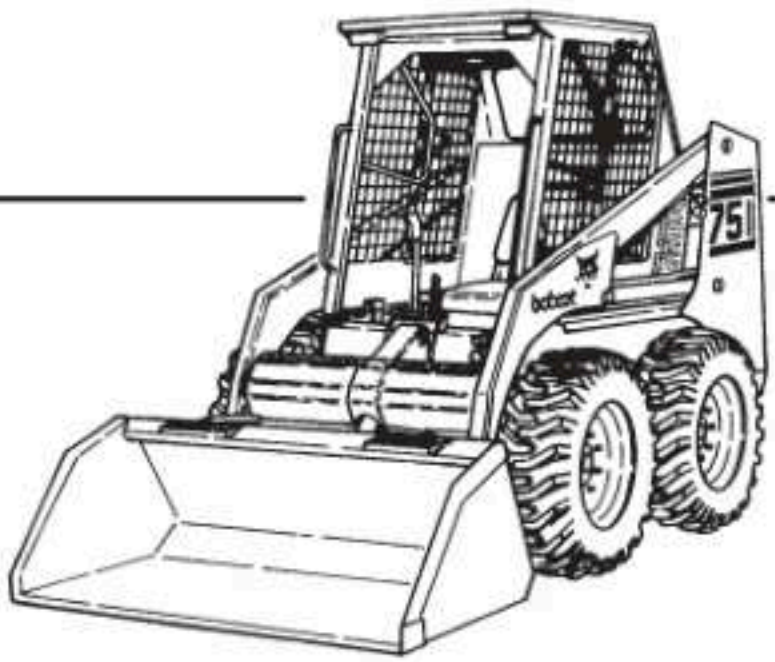
751

Bobcat®

Service Manual

S/N 515711001–515729999
S/N 515611001–515619999



EQUIPPED WITH
BOBCAT INTERLOCK
CONTROL SYSTEM (BICS™)

IR Bobcat

6900443 (9–97)

Printed in U.S.A.

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Revised Apr. 00

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CALIFORNIA PROPOSITION 65 WARNING

- Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.
- Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer, birth defects and other reproductive harm. **Wash hands after handling.**

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SEAT BAR SENSOR

Troubleshooting Guide

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

PROBLEM	SOLUTION #
Indicator light does not come ON when seat bar is lowered.	1, 2, 3, 4, 5, 6

SOLUTION SUGGESTIONS
1. Check controller power indicator light . It must be ON.
2. Check sensor wire connection.
3. Use the BICS sensor tester MEL1428 to check sensor and controller.
4. Check for loose hardware.
5. Check keyed bushing to make sure magnet collar rotates with seat bar.
6. Check magnet collar magnets for contamination such as metal particles.

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Torque For General Metric Bolts

Thread Size (Dia. x Pitch)	Material		
	Head Mark 4	Head Mark 7	Head Mark 10
M 5 x 0.8		3–4 ft.–lbs. (4–5 Nm)	
M 6 x 1.0		6–7 ft.–lbs. (8–9 Nm)	6–9 ft.–lbs. (8–12 Nm)
M 8 x 1.25	6–9 ft.–lbs. (8–12 Nm)	11–16 ft.–lbs. (15–22 Nm)	18–25 ft.–lbs. (24–34 Nm)
M 10 x 1.25	13–18 ft.–lbs. (18–24 Nm)	22–30 ft.–lbs. (30–41 Nm)	36–50 ft.–lbs. (49–68 Nm)
M 12 x 1.25	22–30 ft.–lbs. (30–41 Nm)	40–54 ft.–lbs. (54–73 Nm)	69–87 ft.–lbs. (94–118 Nm)
M 14 x 1.25	36–50 ft.–lbs. (49–68 Nm)	58–80 ft.–lbs. (79–108 Nm)	116–137 ft.–lbs. (157–186 Nm)

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ACTUATOR VOLTAGE TEST

Procedure

With Test Harness;

The test harness (MEL1554) and a digital multimeter are necessary to complete the following procedure.

Disconnect the actuator wire connector (Item 1) **[A]** for the tilt or (Item 2) **[A]** for the lift circuit from the controls harness.

NOTE: Each actuator has to be checked separately.

Install the test harness (Item 1) **[B]**.

Turn the key to the ON position with engine OFF.

With a digital multimeter, take a voltage reading at the four prong terminal connector (Item 2) **[B]**.

The sensor supply voltage between terminal ***1*** (ground) and terminal ***3*** **[C]** should be 4.3 ± 0.1 volts (5.0 ± 0.1 volts Hall–Effect).

The signal voltage reading between terminal ***1*** (ground) and terminal ***2*** **[C]** should be from 1.55 to 1.85 volts (1.80 to 2.15 volts*).

NOTE: Terminal *4* [C] is an open terminal not used at this time.

Without Test Harness;

A digital multimeter is necessary to complete this test.

The wiring harness connectors must remain connected to complete this test.

If the test harness (MEL1554) is not available the sensor supply voltage test 4.3 ± 0.1 volts (5.0 ± 0.1 volts*) can be taken between terminal ***1*** and terminal ***3*** on the tilt control harness (Item 1) **[D]** and the lift control harness (Item 2) **[D]**.

The signal voltage reading 1.55 to 1.85 volts (1.80 to 2.15 volts*) can be taken between terminal ***1*** and terminal ***2*** on the tilt control harness (Item 1) **[D]** and the lift control harness (Item 2) **[D]**.

Wire Code For Tilt Control Harness: (Item 1) **[D]**

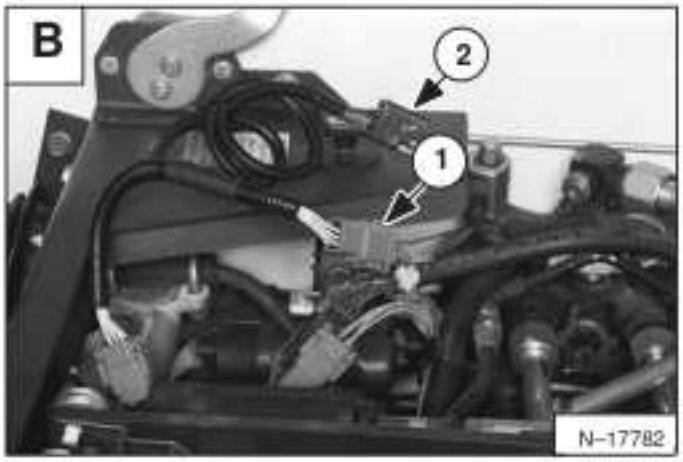
Terminal 1 .... Light Blue/Yellow
Terminal 2 .... Light Blue/White
Terminal 3 .... Light Blue
Terminal 4 .... Open
Terminal 5 .... Pink/White
Terminal 6 .... Light Blue/Red
Terminal 7 .... Black
Terminal 8 .... Pink/Yellow

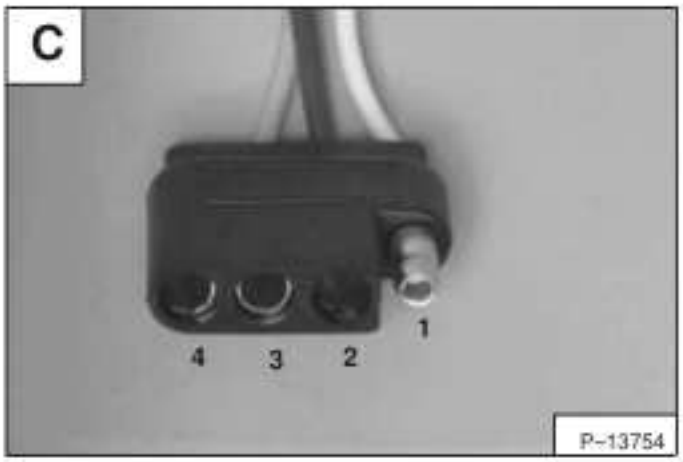
Wire Code For Lift Control Harness: (Item 2) **[A]**

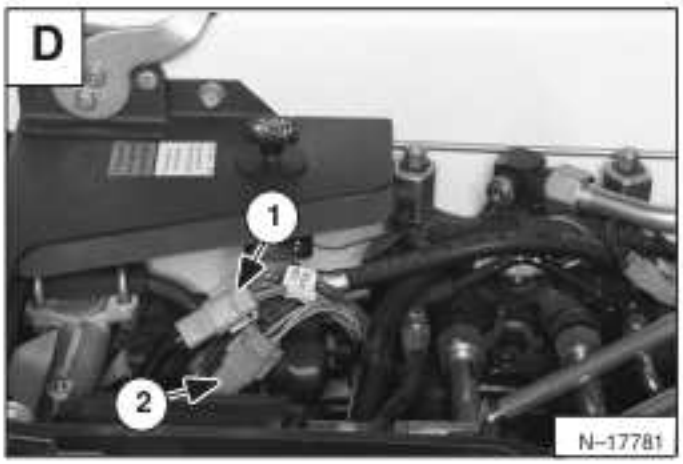
Terminal 1 .... Light Green/Yellow
Terminal 2 .... Light Green/White
Terminal 3 .... Light Green
Terminal 4 .... Open
Terminal 5 .... Brown/White
Terminal 6 .... Light Green/Orange
Terminal 7 .... Black
Terminal 8 .... Brown/Yellow

*** Hall–Effect (Identified by yellow push button float switch on left–hand handle).**









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HYDRAULIC/HYDROSTATIC SCHEMATIC
751 BICS ™ (S/N 515711001-29999)
(S/N 515611001-19999)

(PRINTED DECEMBER 2001)

MC233ILB

LEGEND

(1) RESERVOIR:
Capacity . . . 14 Qts. (13.2 L)

(2) SPRING LOADED FILTER BYPASS VALVE: 45-55 PSI (311-379 kPa)

(3) DIFFERENTIAL PRESSURE SWITCH: 36-44 PSI (250-300 kPa)

(4) DRIVE MOTOR SHUTTLE VALVE

(5) RELIEF/REPLENISHING VALVE - HIGH PRESSURE: 5000 PSI (34475 kPa)

(6) RELIEF VALVE - CHARGE INLET: 185-195 PSI (1276-1345 kPa) at 13.0 GPM (49.2 L/min.) at 2844 RPM W/120° F. (49° C.) Fluid

(7) RELIEF/REPLENISHING VALVE -HIGH PRESSURE: 5000 PSI (34475 kPa)

(8) HYDRAULIC PUMP: Gear Type 13.0 GPM (49.2 L/min.) at 2844 RPM at 1150 PSI (7929 kPa)

(9) RELIEF VALVE - MAIN: 2500-2600 PSI (17300-17927 kPa) at Front Quick Couplers

(10) RELIEF VALVE - PORT: 3500 PSI (24132 kPa)

(11) ANTICAVITATION VALVE

(12) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - AUXILIARY

(13) RELIEF VALVE - PORT: (Optional) 3500 PSI (24132 kPa)

(14) LOAD CHECK VALVE

(15) ONE WAY RESTRICTOR VALVE

(16) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - LIFT/TILT CONTROL

(17) PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - TILT CONTROL

(18) PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - LIFT CONTROL

(19) PULL BUTTON ACTIVATED DIRECTIONAL CONTROL VALVE - LIFT ARM BY PASS

(20) PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - UNLOADING SPOOL

(21) PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FLOW CONTROL SPOOL

(22) FLOW DIVIDER ADJUSTMENT VALVE

(23) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BLEED OFF REAR AUXILIARY ("SV2")

(24) LOAD SHUTTLE VALVE - BLEED OFF

(25) PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY CLOSED ("P1" & "F1")

(26) PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY OPEN ("D2")

(27) PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY OPEN ("D1")

(28) FILTER - DIVERTER VALVE (SINTERED BRONZE)

(29) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - TO ACTIVATE REAR AUXILIARY ("SV1")

(30) PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY CLOSED ("P2" & "F2")

(31) FILTER - HYDRAULIC (CANISTER)

(32) FILTER - CASE DRAIN (SINTERED BRONZE)

(33) FILTER - BICS CONTROL VALVE (SCREEN)

(34) CHECK VALVE - BUCKET POSITION VALVE

(35) RESTRICTION

(36) VARIABLE CAPACITY DISPLACEMENT BIDIRECTIONAL HYDROSTATIC PUMP

(37) VARIABLE CAPACITY DISPLACEMENT BIDIRECTIONAL HYDROSTATIC PUMP

(38) FIXED CAPACITY DISPLACEMENT BIDIRECTIONAL HYDROSTATIC MOTOR

(39) CHECK VALVE - BUCKET POSITION VALVE

(40) CHECK VALVE - BICS CONTROL VALVE

(41) SHUTTLE RELIEF VALVE: (Not Adjustable - Factory Set) 65 PSI (448 kPa)

NOTE: Unless otherwise specified springs have NO significant pressure value.

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