963

Service Manual



EQUIPPED WITH
BOBCAT INTERLOCK
CONTROL SYSTEM (BICS™)

MELROE
INGERSOLL-RAND

6724545 (11–97)

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bobcat

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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.

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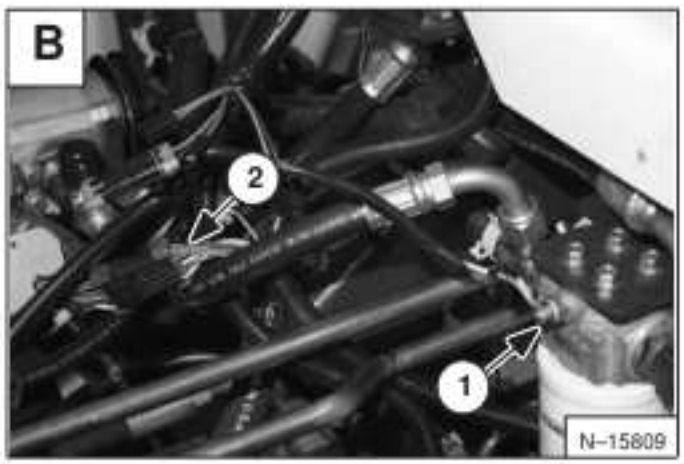
Removal And Installation (Cont'd)

Disconnect the engine wiring harness (Item 1) **[A]** from the loader cab wiring harness.



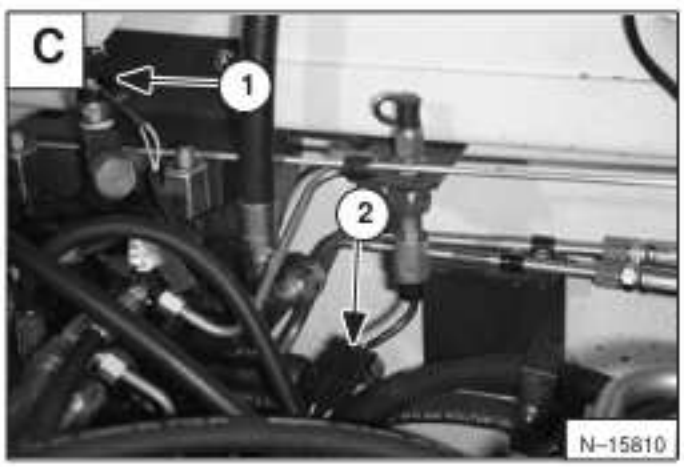
Disconnect the wiring harness (Item 1) **[B]** from the hydraulic filter sending switch.

Disconnect the wiring harness (Item 2) **[B]** from the loader PWM wiring harness.



Disconnect the wiring harness (Item 1) **[C]** from the hydraulic control valve sender.

Disconnect the wiring harness (Item 2) **[C]** from the charge pressure sender.

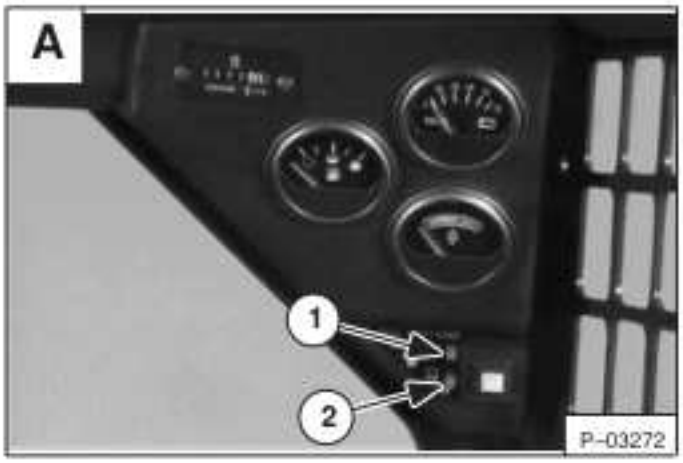


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Chart

The PWM module sends a diagnostic code to the Auxiliary Hydraulic Switch lights when the conditions listed in the chart below occur.

- When the lights are flashing, the key needs to be turned OFF and then ON. If the problem still exists they will continue to flash.
- Proportional flow cannot be engaged if the lights are blinking.
- Continuous flow (detent) can be engaged if alternate blinking lights are off after the key switch is turned OFF and then ON (during a proportional flow switch failure).



Momentary LED (Item 1) [A]	Detent LED (Item 2) [A]	PROBLEM AREA	PROBLEM CAUSE
Light Blinking	Light OFF	Base End Solenoid or Wiring	• Wires Disconnected • Wires Shorted • Wires Cut • Solenoid failed. Perform solenoid coil test. • PWM module failed.
Light Off	Light Blinking	Rod End Solenoid or Wiring	• Wires Disconnected • Wires Shorted • Wires Cut • Solenoid failed. Perform solenoid coil test. • PWM module failed.
Light Blinking	Light Blinking	Diverter Solenoid or Wiring	• Wires Disconnected • Wires Shorted • Wires Cut • Solenoid failed. Perform solenoid coil test. • PWM module failed.
*Blinking/OFF	*OFF/Blinking	Proportional Flow Switch (Right Handle)	• Wires Disconnected • Wires Shorted • Wires Cut • Proportional flow switch failed. Check voltage to switch. Perform handle test. • PWM module failed.

*Alternate Blinking Lights

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HYDRAULIC/HYDROSTATIC FLUID SPECIFICATIONS

Specifications

Use Melroe hydraulic/hydrostatic transmission fluid (P/N 6563328). If this fluid is not available, use 10W–30 or 10W–40 SAE Motor Oil (5W–30 for 0°F [–18°C] and Below).

DO NOT use automatic transmission fluids in the loader or permanent damage to the transmission will result.

⚠ WARNING

Diesel fuel or hydraulic fluid under pressure can penetrate skin or eyes causing serious injury. Fluid leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks. Do not use your bare hand. Wear safety goggles. If fluid enters skin or eyes, get immediate medical attention.

W–2074–1285

When temperatures below zero degree F (–18°C) are common, the loader must be kept in a warm building. Extra warm–up time must be used each time the loader is started during cold temperature conditions. Cold fluid will not flow easily and it makes action of the hydraulic function slower. Loss of fluid flow to the hydrostatic transmission pump (indicated by TRANS light ON) can cause transmission damage in less than 60 seconds.

⚠ WARNING

During cold weather 32°F (0°C) and below, do not operate machine until the engine has run for at least five (5) minutes at less than half throttle. This warm–up period is necessary for foot pedal operation and safe stopping. Do not operate controls during warm–up period. When temperatures are below –20°F (30°C), the hydrostatic oil must be heated or kept warm. The hydrostatic system will not get enough oil at low temperatures. Park the machine in an area where the temperature will be above 0°F (–18°C), if possible.

W–2027–1285

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HYDRAULIC/HYDROSTATIC SCHEMATIC

963 (S/N 562211001-11686)
(S/N 516511001-11065)

(Printed March 1999)
MC2364LE

LEGEND

1. RESERVOIR:
   Capacity . 28 Qts. (26,5 L)
2. SPRING LOADED FILTER BYPASS VALVE: 45-55 PSI (311-379 kPa)
3. DIFFERENTIAL PRESSURE SWITCH:
   36-44 PSI (248-303 kPa)
   Without B.O.S.S.
   (Normally Open - Shown)
4. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - TWO SPEED
5. RELIEF/REPLENISHING VALVE - HIGH PRESSURE: 4640 PSI (31993 kPa)
6. RELIEF VALVE - CHARGE:
   150 ^{0} F. (65 ^{0} C.) Fluid ± Full RPM
   Neutral
   319 PSI (2200 kPa)
7. ANTI DRAIN BACK VALVE
8. HYDROSTATIC CHARGE PUMP:
   7.8 GPM (29,5 L/min.)
   @3525 RPM
9. HYDRAULIC PUMP: Gear Type
   27.9 GPM (105,6 L/min.)
   @3525 RPM
10. RELIEF VALVE - MAIN (DUAL PRESSURE) AT QUICK COUPLERS:
    3025 PSI (20857 kPa)
    SECOND STAGE
    3375 PSI (23270 kPa)
11. RELIEF VALVE - PORT:
    4000 PSI (27580 kPa)
12. ANTICAVITATION VALVE
13. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - AUXILIARY
14. RELIEF VALVE - AUXILIARY PORT:
    (Optional) 3500 PSI (24133 kPa)
15. LOAD CHECK VALVE
16. ORIFICE LOAD CHECK VALVE
17. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BICS CONTROL
18. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - TILT CONTROL
19. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - LIFT CONTROL
20. PULL BUTTON ACTIVATED DIRECTIONAL CONTROL VALVE - LIFT ARM BY PASS
21. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - UNLOADING SPOOL
22. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FLOW CONTROL SPOOL
23. FLOW DIVIDER ADJUSTMENT VALVE
24. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BLEED OFF REAR AUXILIARY ("SV2")
25. LOAD SHUTTLE VALVE - BLEED OFF
26. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY CLOSED ("P1" & "F1")
27. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY OPEN ("D2")
28. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY OPEN ("D1")
29. FILTER - DIVERTER VALVE (SCREEN) INTEGRATED IN SOLENOID
30. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - TO ACTIVATE REAR AUXILIARY ("SV1")
31. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY CLOSED ("P2" & "F2")
32. FILTER - HYDRAULIC (#3 SYNTHETIC MEDIA)
33. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BRAKE
34. FILTER - BICS VALVE (SCREEN) INTEGRATED IN CHECK VALVE
35. FILTER - BICS VALVE (SCREEN) INTEGRATED IN SOLENOID
36. CHECK VALVE - BUCKET POSITION VALVE
37. VARIABLE CAPACITY DISPLACEMENT BIDIRECTIONAL HYDROSTATIC PUMP
38. RELIEF VALVE - FLUSHING:
    260 PSI (1793 kPa)
39. VARIABLE CAPACITY DISPLACEMENT BIDIRECTIONAL HYDROSTATIC MOTOR
40. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE
41. CHECK VALVE - BICS VALVE
42. RESTRICTION . . . . . 0.080 inch
    (2,03 mm)
43. RELIEF VALVE - PORT (TILT ROD END):
    3500 PSI (24133 kPa)
44. RELIEF/ANTICAVITATION VALVE - PORT (TILT BASE END):
    3500 PSI (24133 kPa)
45. RELIEF VALVE - CHARGE:
    150 ^{0} F. (65 ^{0} C.) Fluid ± Full RPM
    Neutral
    406 PSI (2800 kPa)
46. RESTRICTION
47. DISPLACEMENT CONTROL SPOOL:
    72.5 - 290 PSI SPRINGS
48. RESTRICTION . . . . 0.071 inch
    (1,80 mm)
49. DA CONTROL VALVE
50. RESTRICTION 0.217inch
    (5,51 mm)
51. LEVER ACTIVATED CONTROLLER
52. PARKING BRAKE
53. DIRECTIONAL CONTROL VALVE - FLUSHING
54. DIRECTIONAL CONTROL VALVE - TWO SPEED
55. CHECK VALVE
56. FILTER - 90 Micron
57. SYNCHRONIZING PISTON

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

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