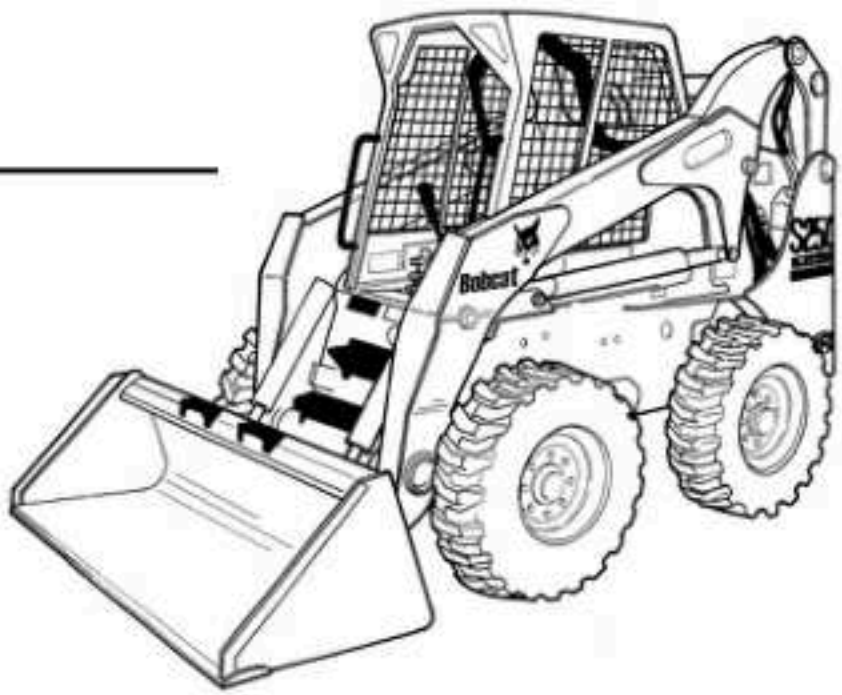
S250 TURBO

S250 TURBO HIGH FLOW

Bobcat®

Service Manual

S/N 520711001 & Above
S/N 520811001 & Above



EQUIPPED WITH BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)

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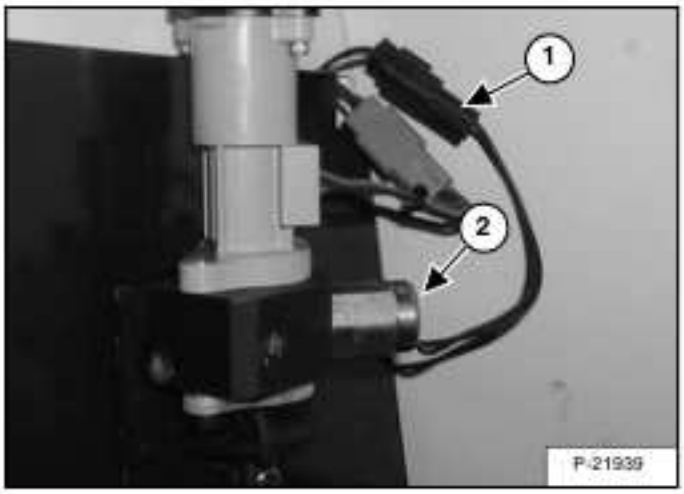
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Foot Lock Solenoid Removal And Installation (Cont'd)

Figure 60-120-55

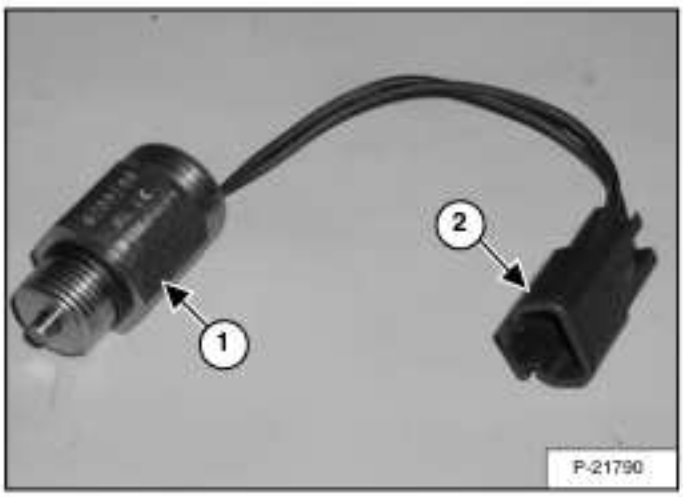


Disconnect the foot lock solenoid connector (Item 1) **[Figure 60-120-55]** from the harness.

Remove foot lock solenoid (Item 2) **[Figure 60-120-55]**.

Installation: Apply a drop of oil on the solenoid threads and tighten the solenoid to 35 - 40 ft.-lb. (47 - 54 N•m) lubed torque.

Figure 60-120-56

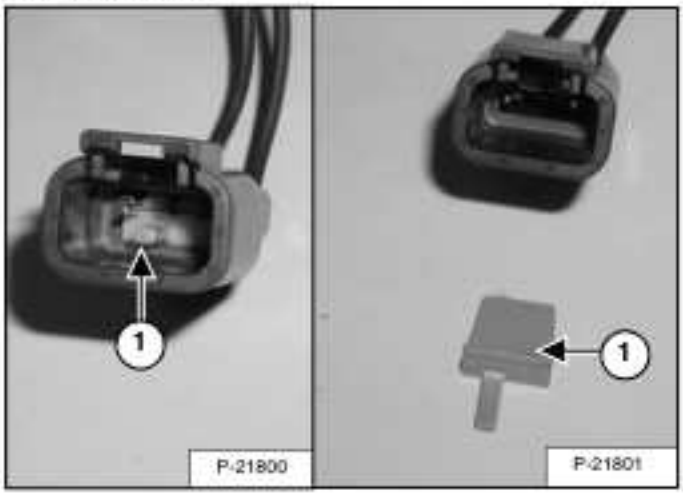


Check the O-ring (Item 1) **[Figure 60-120-56]** for damage. Replace as necessary.

Foot Lock Solenoid Connector

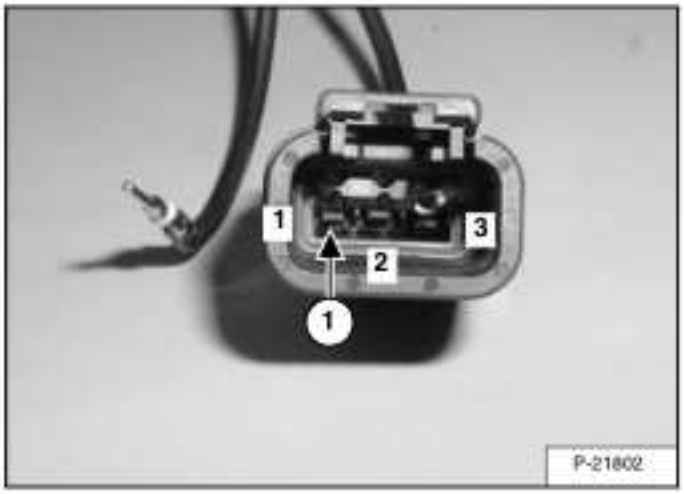
The wire connector (Item 2) **[Figure 60-120-56]** can be removed from the solenoid wires, use the following procedure.

Figure 60-120-57



Remove the wedge (Item 1) **[Figure 60-120-57]** from the connector.

Figure 60-120-58



With a pointed tool, lift the tab (Item 1) **[Figure 60-120-58]** and pull the wire from the connector.

Installation: Install the wires into the connector as listed below **[Figure 60-120-58]**:

1 - Terminal - Black
2 - Terminal - Open
3 - Terminal - Black

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SYSTEM TROUBLESHOOTING CHART

Blower motor does not operate

Possible Cause	Inspection	Solution
1. Blown fuse.	Inspect the fuse / wiring.	Replace fuse / repair wiring.
2. Broken wiring or bad connection.	Check the fan motor ground and connectors.	Repair the wiring or connector.
3. Fan motor malfunction.	Check the lead wires form the motor with a circuit tester.	Replace Motor.
4. Resistor malfunction.	Check resistor using a circuit tester.	Replace Resistor.
5. Fan motor switch malfunction.	Check power into and out of the fan switch.	Replace Fan Switch.

Blower motor operates normally, but air flow is insufficient

Possible Cause	Inspection	Solution
1. Evaporator inlet obstruction.	Check evaporator for plugging.	Remove obstruction and clean evaporator fins with air or water.
2. Air leak.	Check to make sure air hoses are properly hooked to Louvers, and air ducts.	Repair of adjust.
3. Defective thermo. switch (frozen evaporator).	Check thermostat using a circuit tester.	Replace thermostat.
4. Plugged cab filters	Check cab filter condition.	Clean or replace filters.

Insufficient cooling although air flow and compressor operation are normal

Possible Cause	Inspection	Solution
1. System low on refrigerant.	The high side pressure will be low and bubbles may be present in sight glass on receive drier.	Repair any leaks and recharge the refrigerant to the correct level.
2. Excessive refrigerant.	The high pressure side pressure will be high.	Use refrigerant recovery equipment to capture excess refrigerant. Charge to the correct refrigerant level.

The compressor does not operate at all, or operates improperly

Possible Cause	Inspection	Solution
1. Loose drive belt.	The belt is vibrating or oscillating.	Adjust tension.
2. Internal compressor malfunction.	The compressor is locked up and the belt slips.	Replace compressor.
	Magnetic clutch related	
3. Low battery voltage.	Clutch slips.	Recharge the battery.
4. Faulty coil.	Clutch slips.	Replace the magnetic clutch.
5. Oil on the clutch surface.	Clutch slips.	Replace or clean the clutch surface.
6. Open oil.	Clutch does not engage and there is no reading when a circuit tester is connected between the coil and terminals.	Replace clutch.
7. Broken wiring or poor ground.	Clutch will not engage. Inspect the ground and connections.	Repair.
8. Wiring harness components.	Test the conductance of the pressure switch, thermostat, Relay, etc.	Check operation.

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LOADER TORQUE

Specifications

ITEM	ft.-lb.	N•m
Air Cleaner Manifold Bolts (M6 Torx)	15	20
Adapter Housing Bolts (M12)	21 - 24	28 - 33
Camshaft Bolts (M14 x 1.5 x 110)	22	30
Plus 210 degrees		
Camshaft Thrust Washer Bolt (M8)	15	20
Connecting Rod Cap Nuts	22	30
Plus 60 degrees, 60 degrees = 120 degrees		
Crankcase Screw Plugs (M18)	37	50
(M24)	82	111
(M30)	12 - 15	16 - 20
Crankshaft Gear Mount Bolt	243 - 295	330 - 400
Cylinder Head Bolts - Step 1	22	30
Step 2	59	80
Step 3	118	160
Plus 90 degrees		
Exhaust Manifold Bolts (M10)	30	40
Exhaust Turbocharger Nuts (M8)	22	30
Flywheel Bolts	22	30
Plus 60 degrees, 30 degrees = 90 degrees		
Front Cover Bolts	15	20
Front Mount Foot Bolts (M14 x 55)	38	52
Fuel Lift Pump Bolts (M8 Torx)	15	20
Glow Plug	15 - 18	20 - 24
Injector Cap Nut	35	47
Injector Pump Mounting Nuts	15	21
Main Bearing Bolts	37	50
Plus 60 degrees, 45 degrees = 105 degrees		
Oil Pan Bolts (M8)	15	20
Oil Pan Drain Plug	40	54
Oil Pump Bolts (M6 Torx)	16	22
Oil Pressure Control Valve Screw Plug	82	111
Oil Return Line Cap Nut	13 - 14	18 - 19
Oil Suction Pipe	16	22
Oil Temperature Switch	21	28
Rocker Arm Bracket Bolts (M8 Torx)	15	20
Rear Cover Bolts	15	20
Rear Mounting Foot Bolts (M12)	23	31
Starter Carrier Bolts (M12)	15 - 18	20 - 24
Starter Fastening Bolts	25 - 28	34 - 38
Thermostat Housing Screw Plug (M38)	82	111
Timing Belt Tensioner Pulley Nut	33	45
V-Belt Pulley Bolts (M10)	30 - 36	41 - 49

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HYDRAULIC/HYDROSTATIC SCHEMATIC
WITH TWO SPEED VALVE AND HIGH FLOW OPTION
S250 (S/N 520711001 AND ABOVE)

(PRINTED MAY 2002)
V-0142legend

LEGEND

1. RESERVOIR:
   Capacity . . . . . 21 Qts. (19.9 L)
2. FILTER - CASE DRAIN (90 Micron)
3. FILTER - HYDRAULIC (CANISTER)
4. SPRING LOADED FILTER BYPASS VALVE: 45-55 PSI (311-379 kPa)
5. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - HYDRAULIC POWERED BOB-TACH
6. DIFFERENTIAL PRESSURE SWITCH:
   36-44 PSI (248-303 kPa)
7. FLOW DIVIDER ADJUSTMENT VALVE
8. CHECK VALVE - BUCKET POSITION VALVE
9. FIXED CAPACITY DISPLACEMENT BIDIRECTIONAL HYDROSTATIC MOTOR
10. PILOTED ACTIVATED DIRECTIONAL CONTROL VALVE - FLOW CONTROL SPOOL
11. PILOTED ACTIVATED DIRECTIONAL CONTROL VALVE - UNLOADING SPOOL
12. PILOTED ACTIVATED DIRECTIONAL CONTROL VALVE - TILT CONTROL
13. PILOTED ACTIVATED DIRECTIONAL CONTROL VALVE - LIFT CONTROL
14. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BICS CONTROL
15. PULL BUTTON ACTIVATED DIRECTIONAL CONTROL VALVE - LIFT ARM BY PASS
16. FILTER - BICS CONTROL VALVE (SCREEN)
17. ONE WAY RESTRICTOR
18. LOAD CHECK VALVE
19. RELIEF VALVE - MAIN:
    3250-3350 PSI (22408-23097 kPa)
    at Front Quick Couplers
20. RELIEF VALVE - PORT:
    4000 PSI (27579 kPa)
21. ANTICAVITATION VALVE
22. RELIEF/ANTICAVITATION VALVE - PORT (TILT BASE END)
    3500 PSI (24132 kPa)
23. ONE WAY RESTRICTOR VALVE
24. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - AUXILIARY
25. RELIEF VALVE - PORT: . . . . . (Optional)
    3500 PSI (24132 kPa)
26. RELIEF/REPLENISHING VALVE - HIGH PRESSURE: 5000 PSI (34475 kPa)
27. PRESSURE SWITCH
28. RELIEF VALVE - CHARGE:
    120 degrees F. (53 degrees C.)Fluid
    at 1775 Pump RPM
    390 - 430 PSI (2689 - 2965 kPa)
29. CHARGE PUMP
    14.0 GPM (53.0 L/min.) at 2750 RPM
30. HYDRAULIC PUMP . . . . . Gear Type
    20.7 GPM (78.35 L/min.) at 2750 RPM
31. DRIVE MOTOR SHUTTLE VALVE
32. SHUTTLE RELIEF VALVE:
    200 PSI (1378 kPa)
33. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BLEED OFF REAR AUXILIARY ("SV2")
34. LOAD SHUTTLE VALVE - BLEED OFF
35. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY CLOSED ("P2" and "F2")
36. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY OPEN ("D1" and "P1")
37. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY OPEN ("D2" and "P2")
38. FILTER - DIVERTER VALVE (SCREEN) INTEGRATED IN SOLENOID
39. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - TO ACTIVATE REAR AUXILIARY ("SV1")
40. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FOR REAR AUXILIARY - NORMALLY CLOSED ("P1" and "F1")
41. CHECK VALVE - BICS CONTROL VALVE
42. RESTRICTION
43. CHECK VALVE - AUXILIARY
44. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - TWO SPEED DRIVE MOTOR
45. VARIABLE CAPACITY DISPLACEMENT BIDIRECTIONAL HYDROSTATIC PUMP
46. TWO STAGE RELIEF 1000 PSI/2000 PSI
47. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE (TWO COIL)
48. RELIEF VALVE - 1200 PSI (8268 kPa)
49. PRESSURE COMPENSATED FLOW CONTROL
50. CHECK VALVE WITH 0.015 RESTRICTION
51. RELIEF VALVE - PORT:
    4000 PSI (27579 kPa)
52. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BUCKET POSITION VALVE (ON/OFF)
53. FIXED CAPACITY DISPLACEMENT BIDIRECTIONAL HYDROSTATIC MOTOR
54. HYDRAULIC BRAKE - SPRING APPLIED - PRESSURE TO RELEASE
55. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BRAKE
56. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - MAKE-UP
57. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - TWO SPEED
58. FRONT AUXILIARY MANUAL PRESSURE BLEED-OFF VALVE
59. FILTER - CASE DRAIN (ATTACHMENT)
60. RELIEF VALVE - 3300 PSI (22754 kPa)
61. DUMP VALVE (ON/OFF)
62. CHECK VALVE
63. FILTER (BRAKE)
64. AUXILIARY HYDRAULIC PUMP
    10 GPM (37.85 L/min.)

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

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