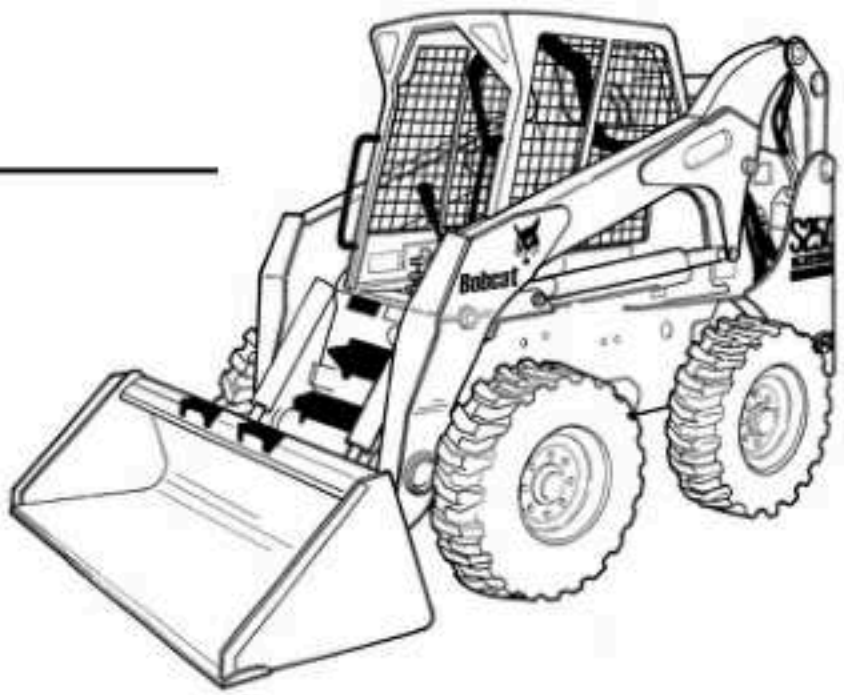
S250 TURBO

S250 TURBO HIGH FLOW

Bobcat®

Service Manual

S/N 520711001 & Above



EQUIPPED WITH BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)

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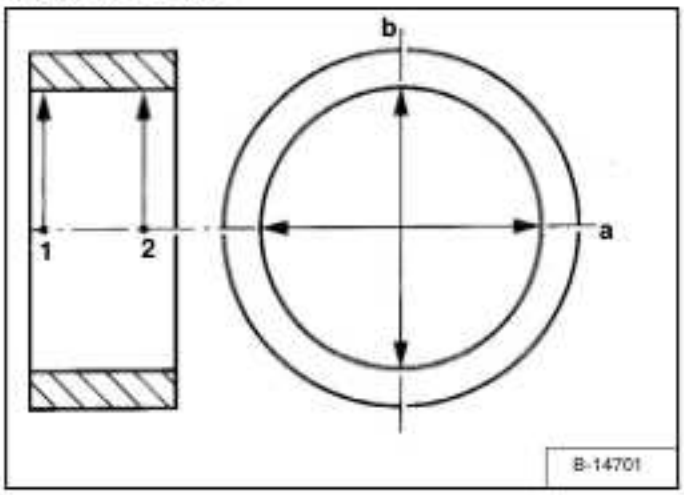
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Connecting Rod, Checking

Figure 70-100-119



When checking the connecting rod large and small end, measure at the points (1) and (2) and in planes (a) and (b) **[Figure 70-100-119]**.

Figure 70-100-120

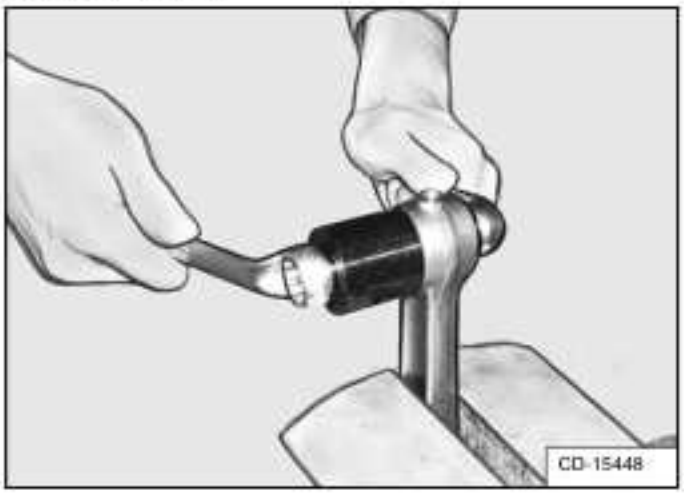


Check the small end bushing **[Figure 70-100-120]**.

Specifications:

I.D. of Small End Bushing . . . . . 1.181 inch. (30 mm)
Wear Limit Bushing Clearance . . (0.003 inch. (0,08 mm)

Figure 70-100-121



Replace small end busing as needed **[Figure 70-100-121]**.

Bore for Small End Bushing . . . . . 1..299 + 0.0008 inch. (33 + 0,02 mm)
O.D. of Small End Bushing . . . . . 1..3017 - 1.303 inch. (33,07 - 33,11 mm)

Figure 70-100-122



Press in the small end bushing, make sure the lubrication holes are in alignment **[Figure 70-100-122]**.

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AIR CONDITIONING SYSTEM FLOW

Principals

In an air conditioning system the refrigerant is circulated under pressure through five major components in a closed circuit. At these five points in the system the refrigerant goes through pressure and temperature changes.

The compressor (Item 1) See Chart on Page 80-10-3. takes in heated, low pressure refrigerant gas through the suction valve (low pressure side) and as the name indicates, pressurizes the heated refrigerant and forces it through the discharge valve (high pressure side) on the condenser (Item 2) See Chart on Page 80-10-3.

Ambient air passing through the condenser removes the heat from refrigerant resulting in physical state change in the refrigerant from a gas to a liquid.

The liquid refrigerant moves on to the receiver/drier (Item 3) See Chart on Page 80-10-3. where impurities such as moisture and dirt are filtered out. The receiver/drier also serves as the storage tank for the liquid refrigerant. The liquid refrigerant (still under high pressure) flows to the expansion valve (Item 4) See Chart on Page 80-10-3.

The expansion valve meters the amount of refrigerant into the evaporator coil (Item 5) See Chart on Page 80-10-3. As the refrigerant passes through the expansion valve, it again changes its physical state. It becomes a low temperature, low-pressure liquid and saturated vapor. The low pressure liquid immediately starts to boil and vaporize as it enters the evaporator. The hot humid air of the machine's cab is drawn through or blown into the evaporator by the evaporator fan (Item 6) See Chart on Page 80-10-3. Since the refrigerant is colder than the air, it absorbs the heat from the air and produces cooled air, which is pushed into the cab by the fan. The moisture in the air condenses on the evaporator coil and drips into the drain pan, which directs the water out of the cab.

The refrigerant cycle is completed when the heated low pressure gas is again drawn into the compressor.

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Gauge Pressure Related Troubleshooting (Cont'd)

Possible Cause	Inspection	Solution
High pressure side Too low.		
1. Low refirgerant charge.	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.
System pressures Equal		
1. Clutch not operating.	See magnetic clutch related topics above.	
2. Compressor not pumping.	Equal high and low pressures.	Replace compressor.

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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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