A300 TURBO

Bobcat®

Service Manual

S/N 521111001 & Above

BOBCAT SKID-STEER LOADER
With ALL WHEEL STEER (AWS)



EQUIPPED WITH
BOBCAT INTERLOCK
CONTROL SYSTEM (BICS™)

6901756 (3-08)

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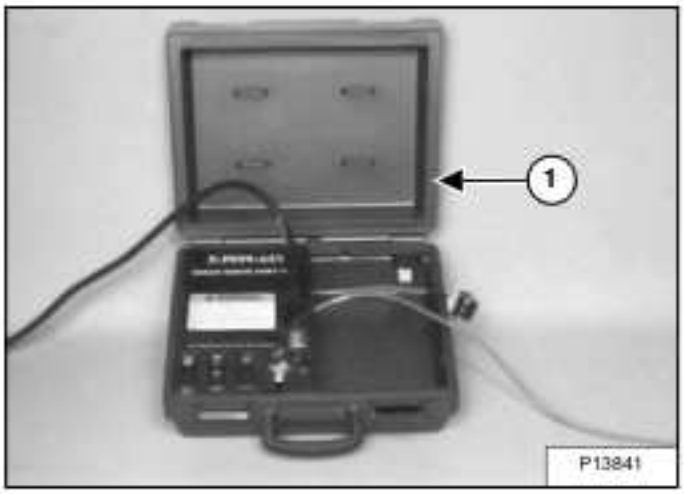
SPECIFICATIONS SPEC-01

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REMOTE START

Procedure For Loader W/O Attachments Control Harness

Figure 10-60-1



The tool listed will be need to do the following procedure:

MEL1563 - Remote Start Tool Kit

The remote start (Item 1) **[Figure 10-60-1]** is required when the operator cab is in the raised position for service and the service technician needs to turn the key switch on or start the engine. Example: adjusting the steering linkage.

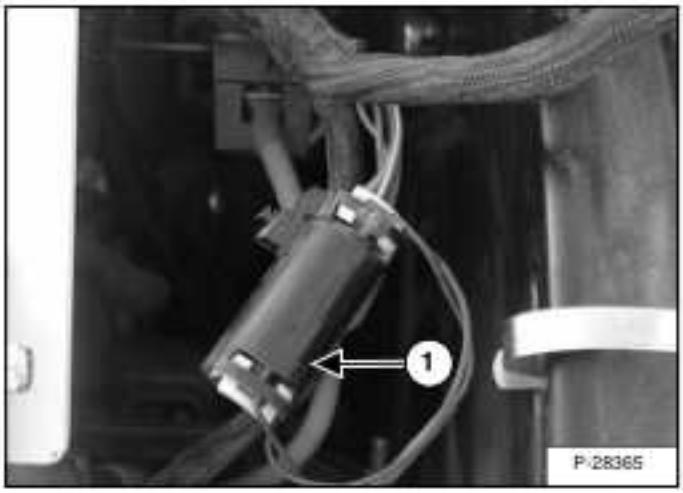
Lift and block the loader. (See Procedure on Page 10-10-1.)

Raise the lift arms (if required by the procedure) and install an approved lift arm support device. (See Installing The Lift Arm Support Device on Page 10-20-1.)

Raise the operator cab (if required by the procedure). (See Raising The Operator Cab on Page 10-30-1.)

Open the rear door of the loader.

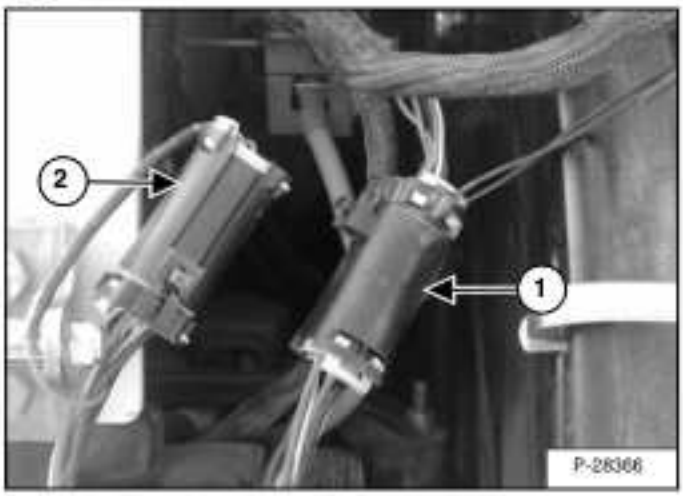
Figure 10-60-2



Remove the cap (Item 1) **[Figure 10-60-2]** from the loader harness.

When the remote start procedure is completed, replace the loader connector cap (Item 1) **[Figure 10-60-2]**.

Figure 10-60-3



Connect the remote start tool to the engine harness connector (Item 1) **[Figure 10-60-3]**.

The connector (Item 2) **[Figure 10-60-3]** from the remote start harness is not used in the remote start procedure and should remain capped.

NOTE: The key switch on the right-hand side operator panel must be in the off position or the Remote Start Kit will not operate.

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TRACTION LOCK

Troubleshooting Chart

The following troubleshooting chart 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 #
Traction lock stays engaged.	1, 2, 3, 4, 5, 6
Intermittent activation of traction lock.	4, 5, 6,

1. Make sure brake switch is not engaged.
2. If all lights indicate the brake should be released, but it doesn't check the brake 25 amp. fuse.
3. When checking fuse, also check other fuses. Check the fuse block for correct orientation and location of fuse. (See Fuse Location on Page 60-10-5.)
4. Check wire connections for loose connector body.
5. Check for loose or bent pins in connectors
6. Check for loose spade connectors in fuse holder.

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All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parentheses.

Crankshaft And Main Bearings

Crankshaft Pin Width	1.220 (31,0)
Crankshaft Pin Diameter	2.165 - 0.0004 - 0.0012 (55,0 - 0,01 - 0,03)
Oval Wear Limit	0.0004 (0,01)
Crankshaft Journal Width	1.378 + 0.0016 (35,0 + 0,04)
Crankshaft Journal Diameter	2.756 - 0.0004 - 0.0012 (70,0 - 0,01 - 0,03)
Oval Wear Limit	0.0003 (0,008)
Eccentricity Max. Permitted	0.002 (0,05)
Thrust Bearing Journal Width	1.378 + 0.002 (35,0 + 0,04)
Main Bearing Shell I.D.	2.757 - 2.758 (70,02 - 70,055)
Radial Clearance	0.0011 - 0.0033 (0,03 - 0,084)
Wear Limit	0.0047 (0,12)
Bearing Bore in Crankcase	2.953 + 0.0007 (75,0 + 0,019)
Thrust Bearing Stop Rings O.D.	1.374 - 0.005 (34,9 - 0,133)
Oversize	0.0157 (0,4)
Limit for Oversize	1.406 - 0.0052 (35,7 - 0,133)
Crankshaft End Play	0.0039-0.0106 (0,1- 0,27)
Wear Limit	0.016 (0,4)

Camshaft And Bearings

Camshaft End Play	0.0118- 0.0236 (0,3 - 0,6)
Wear Limit	0.0315 (0,8)
Camshaft Bearing I.D.	2.126 + 0.0021 (54,0 + 0,054)
Wear Limit	2.129 (54,08)
Radial Clearance	0.0019 - 0.0048 (0,05 - 0,124)
Cam Lift (Intake)	0.260 (6,6)
Cam Lift (Exhaust)	0.268 (6,8)

Oil Pump

Oil Pump Pressure Setting	101.5 PSI (700 kPa) (7 bar)
Min. Eng. Oil Pressure, Oil Temp. 230°F (110°C) at:	
900 RPM	20.3 PSI (140 kPa) (1.4 bar)
1800 RPM	31.9 PSI (220 kPa) (2.2 bar)
2800 RPM	43.5 PSI (300 kPa) (3.0 bar)
Thermostat Rating	203°F (95°C)

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HYDRAULIC/HYDROSTATIC SCHEMATIC

A300 (S/N 521111293 - 521111550)

(PRINTED MAY 2004)
V-0575legend

LEGEND

1. RESERVOIR:
   Capacity . . . . . 18.8 Qts. (17.8 L)
2. FILTER - CASE DRAIN (90 Micron)
3. FILTER - HYDRAULIC (CANISTER)
4. SPRING LOADED FILTER BY-PASS VALVE: 45-55 PSI (3,1-3,8 Bar)
5. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - HYDRAULIC POWERED BOB-TACH
6. DIFFERENTIAL PRESSURE SWITCH:
   36-44 PSI (2,5-3,0 Bar)
7. FLOW DIVIDER ADJUSTMENT VALVE
8. CHECK VALVE - BUCKET POSITION VALVE
9. FIXED CAPACITY DISPLACEMENT BIDIRECTIONAL HYDROSTATIC MOTOR
10. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - FLOW CONTROL SPOOL
11. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - UNLOADING SPOOL
12. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - TILT CONTROL
13. PILOT 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 - BOOM DOWN
18. LOAD CHECK VALVE - LIFT AND TILT
19. RELIEF VALVE - MAIN:
    3250-3350 PSI (224-231 Bar)
    at Front Quick Couplers
20. RELIEF VALVE - PORT:
    4000 PSI (276 Bar)
21. ANTICAVITATION VALVE
22. RELIEF/ANTICAVITATION VALVE - PORT (TILT BASE END)
    3500 PSI (241 Bar)
23. ONE WAY RESTRICTOR VALVE
24. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - AUXILIARY
25. RELIEF VALVE - PORT: . . . . . (Optional)
    3500 PSI (241 Bar)
26. RELIEF/REPLENISHING VALVE - HIGH PRESSURE: 5000 PSI (345 Bar)
27. CHARGE PRESSURE SWITCH
28. RELIEF VALVE - CHARGE:
    120 degrees F. (53 degrees C.)Fluid
    350 PSI (24,1 Bar) at High Engine Idle
29. CHARGE PUMP
    12.0 GPM (45,4 L/min.) at High Engine Idle
30. HYDRAULIC PUMP . . . . . Gear Type
    20.7 GPM (78,35 L/min.) at High Engine Idle
31. DRIVE MOTOR SHUTTLE VALVE
32. SHUTTLE RELIEF VALVE:
    200 PSI (13,8 Bar)
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. LIFT ARM BY-PASS RESTRICTOR
43. CHECK VALVE - AUXILIARY (Removed at S/N 521111295 And Above)
44. FILTER - CASE DRAIN (Attachment)
45. VARIABLE CAPACITY DISPLACEMENT BIDIRECTIONAL HYDROSTATIC PUMP
46. TWO-STAGE RELIEF
    1000/2000 PSI (69 / 138 Bar)
47. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE (TWO COIL)
48. RELIEF VALVE - 1200 PSI (83 Bar)
49. RESTRICTOR - 0.015 inch (0,381 mm)
50. PRESSURE COMPENSATED FLOW CONTROL
51. RELIEF VALVE - PORT:
    4000 PSI (276 Bar)
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. PUSH BUTTON SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BRAKE
56. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - MAKE-UP
57. SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - TWO SPEED
58. FILTER (BRAKE)
59. PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - TWO SPEED DRIVE MOTOR
60. PUMP SERVO
61. HYDRAULIC STEERING PUMP - Gear Type
    13.0 GPM (49,2 L/min.) at High Engine Idle
62. FILTER - STEERING (10 MICRON)
63. SOLENOID ACTIVATED PROPORTIONAL FLOW CONTROL VALVE - STEERING
64. SOLENOID ACTIVATED PRESSURE CONTROL VALVE
    0-2000 PSI (0-138 Bar)
65. STEERING CYLINDER
66. CHECK VALVE - 270 PSI (18,6 Bar)
67. PRESSURE CONTROL PILOT VALVE - 2 COILS
    0 - 0.085 Ampere
68. DISPLACEMENT CONTROL SPOOL
69. FRONT AUXILIARY MANUAL PRESSURE BLEED-OFF VALVE

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

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