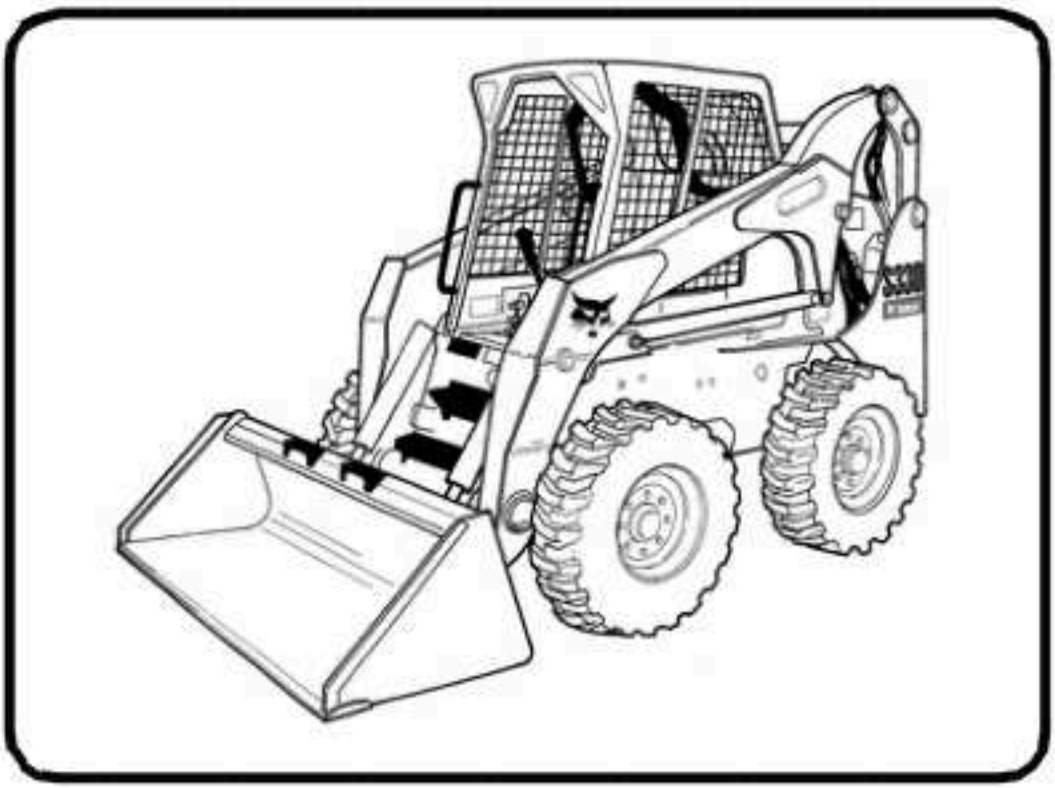
Bobcat®

Service Manual
S330 Skid-Steer Loader

S/N A02011001 - A02059999
S/N A02111001 - A02159999



EQUIPPED WITH
BOBCAT INTERLOCK
CONTROL SYSTEM (BICS™)

6904887 (3-09)

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Remote Start Procedure

⚠ WARNING

AVOID INJURY OR DEATH

With the 7-pin connector plugged into the loader and Remote Start Tool RUN button is not illuminated, the loader can still be started from the operator panel inside the cab.

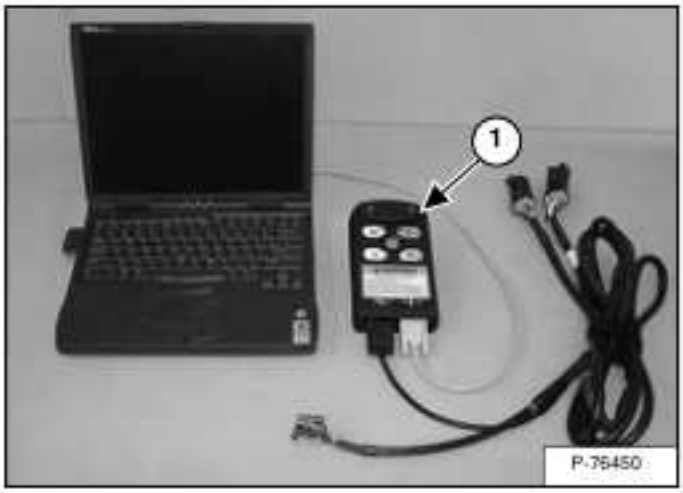
Pressing the RUN button on the Remote Start Tool disconnects the operator panel from the start circuit. If the service technician will be working in the engine area it is important to remove the operator panel key or lock the keypad with a unique password.

W-2647-0707

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

6689779: Remote Start Tool (Service Tool) Kit

Figure 10-61-23



The Remote Start Tool (Service Tool) (Item 1) **[Figure 10-61-23]** is required when the operator cab is in the raised position for service and the service technician needs to turn on the loader or start the engine. Example: adjusting the steering linkage.

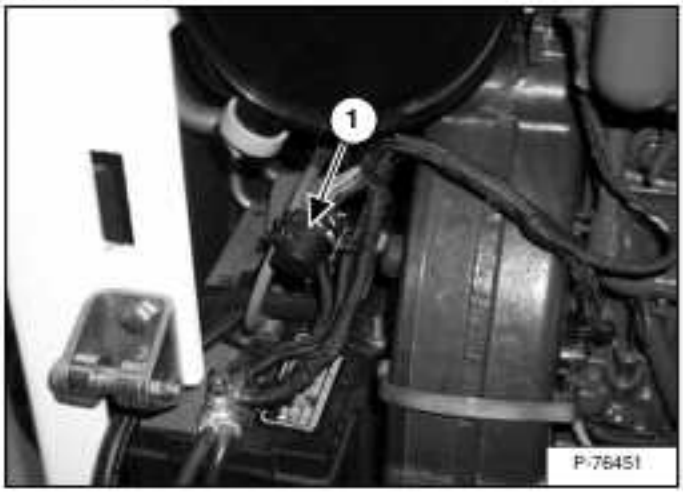
Lift and block the loader.

Raise the lift arms (if required by the procedure) and install an approved lift arm support device.

Raise the operator cab (if required by the procedure).

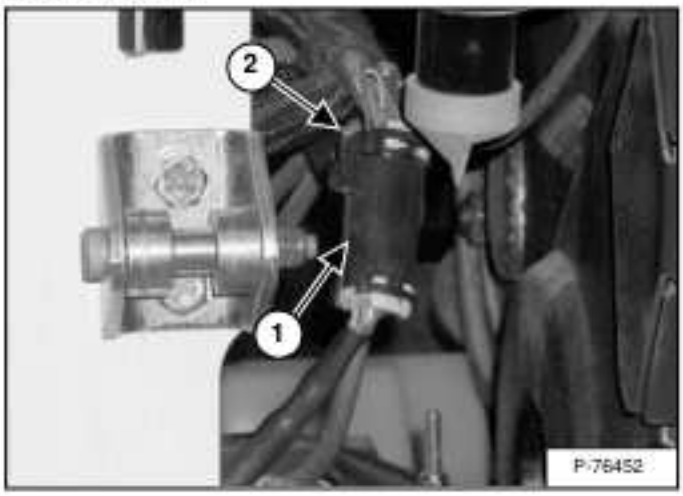
Open the rear door of the loader.

Figure 10-61-24



Loaders without an attachment control harness, remove the loader harness cap (Item 1) **[Figure 10-61-24]** and connect the Loader Service Tool Harness from the Remote Start Tool (Service Tool).

Figure 10-61-25



Loaders with an attachment control harness (7 pin or 14 pin), the attachment harness (Item 1) must be disconnected from the loader harness (Item 2) **[Figure 10-61-25]**.

When the remote start procedure is completed, replace the loader connector cap (Item 1) **[Figure 10-61-25]** or reconnect the attachment control harness to the loader harness **[Figure 10-61-25]**.

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HYDRAULIC/HYDROSTATIC SCHEMATIC
WITH SJC, 2 SPEED AND HIGH FLOW OPTION
S330 (S/N A02011001 - A02040000)
(S/N A02111001 - A02140000)

(PRINTED NOVEMBER 2007)
V-0864legend

LEGEND

(1) RESERVOIR:
Capacity . . . . . 18.8 qt. (17,8 L)

(2) SPRING LOADED FILTER BY-PASS VALVE: 45-55 PSI (3,1-3,8 bar)

(3) DIFFERENTIAL PRESSURE SWITCH:
36-44 PSI (2,5-3,0 bar)
Normally Closed

(4) DRIVE MOTOR SHUTTLE VALVE

(5) RELIEF/REPLENISHING VALVE - HIGH PRESSURE: 5075 PSI (350 bar)

(6) RELIEF VALVE - CHARGE INLET:
360 PSI (24,8 bar)
at High Engine Idle
With 140 degrees F. (60 degrees C.) Fluid

(7) FRONT AUXILIARY MANUAL PRESSURE BLEED-OFF VALVE

(8) HYDRAULIC PUMP . . . . . Gear Type
20.7 GPM (78,4 L/min.) at High Engine Idle

(9) RELIEF VALVE - MAIN:
3250-3350 PSI (224-231 bar)
at Front Quick Couplers

(10) PORT RELIEF/ANTICAVITATION VALVE
4000 PSI (276 bar)

(11) ANTICAVITATION VALVE

(12) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - AUXILIARY

(13) PORT RELIEF/ANTICAVITATION VALVE:
. . . . . (Optional)
3500 PSI (241,3 bar)

(14) LOAD CHECK VALVE

(15) LIFT CYLINDER SPOOL - MADE TO RESTRICT FLOW DURING BOOM DOWN BUT NOT DURING BOOM UP

(16) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BICS CONTROL

(17) PILOTED ACTIVATED DIRECTIONAL CONTROL VALVE - TILT CONTROL

(18) PILOTED ACTIVATED DIRECTIONAL CONTROL VALVE - LIFT CONTROL

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

(20) PILOTED ACTIVATED DIRECTIONAL CONTROL VALVE - UNLOADING SPOOL

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

(22) FLOW DIVIDER ADJUSTMENT VALVE

(23) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BASE

(24) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - ROD

(25) LOAD SHUTTLE VALVE - BLEED OFF

(26) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - TWO COIL

(27) PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - REAR AUXILIARY

(28) RESTRICTOR - 0.031 inch (0,8 mm)

(29) RELIEF VALVE: 3300 PSI (228 bar)

(30) HYDRAULIC BRAKE - SPRING APPLIED - PRESSURE RELEASE

(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 BI-DIRECTIONAL HYDROSTATIC PUMP

(37) SHUTTLE RELIEF VALVE
(Not Adjustable - Factory Set)
200 PSI (13,8 bar)

(38) FIXED CAPACITY DISPLACEMENT BI-DIRECTIONAL HYDROSTATIC MOTOR

(39) CHECK VALVE - With 80 PSI (5,5 bar) Spring

(40) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BUCKET POSITION VALVE (ON/OFF)

(41) CHECK VALVE - BICS CONTROL VALVE

(42) RESTRICTION - 0.343 inch (8,7 mm)

(43) FILTER - Bob-Tach Valve

(44) PILOT ACTIVATED DIRECTIONAL CONTROL VALVE - HYDRAULIC POWERED BOB-TACH

(45) RESTRICTION - 0.089 inch (2,26 mm)

(46) RESTRICTION - 0.025 inch (0,6 mm)

(47) RELIEF VALVE - 2000 PSI (137 bar)

(48) RELIEF VALVE - 1200 PSI (83 bar)

(49) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE (TWO COIL)

(50) RELIEF VALVE - 3300 PSI (228 bar)

(51) DUMP VALVE - (ON/OFF)

(52) CHECK VALVE

(53) AUXILIARY HYDRAULIC PUMP - 16.0 GPM (60,5 L/min) at High Engine Idle

(54) CHECK VALVE - With 300 PSI (20,7 bar) Spring with 0.016 inch (0,40 mm) orifice

(55) SOLENOID ACTIVATED CONTROL VALVE - FORWARD/REVERSE

(56) SERVO PISTON -Swash Plate

(57) POSITION SENSOR -Swash Plate

(58) CHARGE PRESSURE SENSOR

(59) CHARGE PUMP - 13.6 GPM (51,5 L/min) at High Engine Idle

(60) FIXED CAPACITY DISPLACEMENT HYDRAULIC MOTOR

(61) ANTICAVITATION VALVE

(62) PROPORTIONAL RELIEF VALVE – (Fan Speed Regulator):
1566 - 1784 PSI (108 - 123 bar)

(63) CHECK VALVE

(64) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE - BRAKE

(65) FIXED CAPACITY DISPLACEMENT BI-DIRECTIONAL HYDROSTATIC MOTOR – 2 SPEED

(66) PILOTED ACTIVATED DIRECTIONAL CONTROL VALVE – 2 SPEED

(67) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE – 2 SPEED

(68) SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE – MAKE-UP

(69) FILTER - BRAKE

(70) SWITCH – CHARGE PRESSURE – Fan Filter

(71) SWITCH – HYD. TEMP. – Hyd. Filter

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

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TROUBLESHOOTING

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

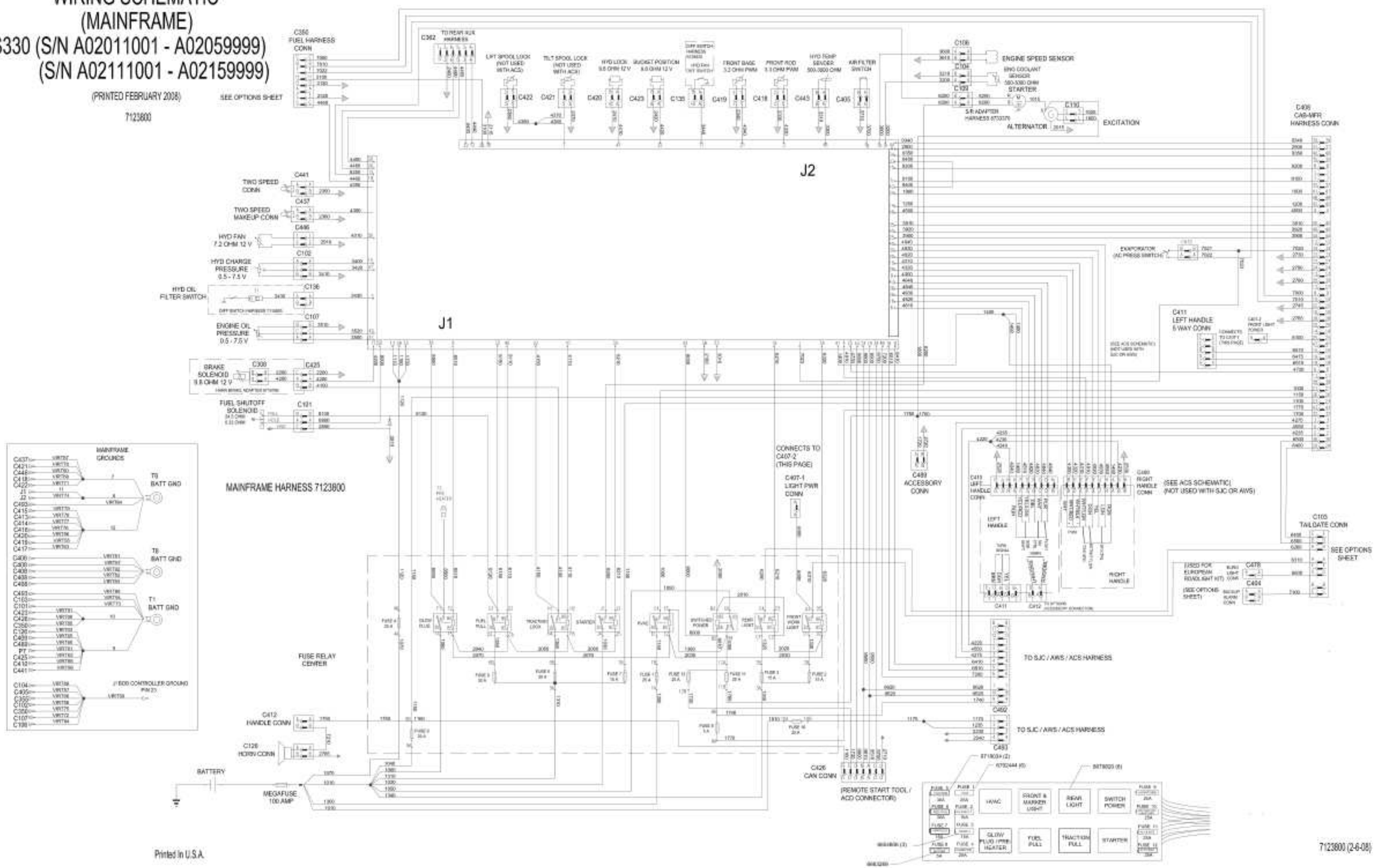
Possible Cause	Inspection	Solution
1. Loose drive belt.	The belt is vibrating or oscillating.	Adjust tension.
2. Internal compressor malfunction.	The compressor is locked up and the belt slips.	Replace compressor.
	Magnetic clutch related	
3. Low battery voltage.	Clutch slips.	Recharge the battery.
4. Faulty coil.	Clutch slips.	Replace the magnetic clutch.
5. Oil on the clutch surface.	Clutch slips.	Replace or clean the clutch surface.
6. Open coil.	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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WIRING SCHEMATIC
(MAINFRAME)
S330 (S/N A02011001 - A02059999)
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