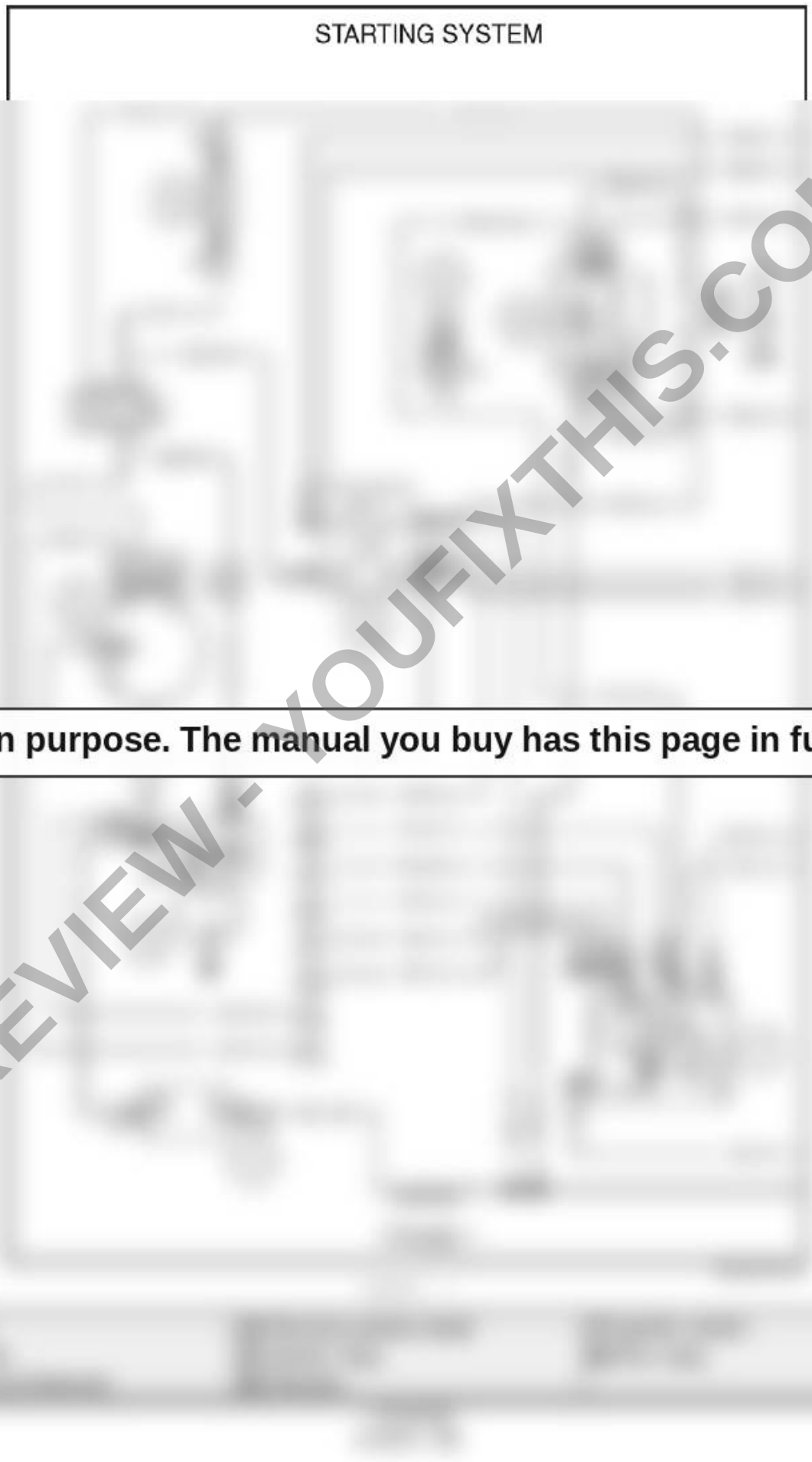
Wiring harness - Electrical schematic frame 01 (A.30.A.88 - C.20.E.01)

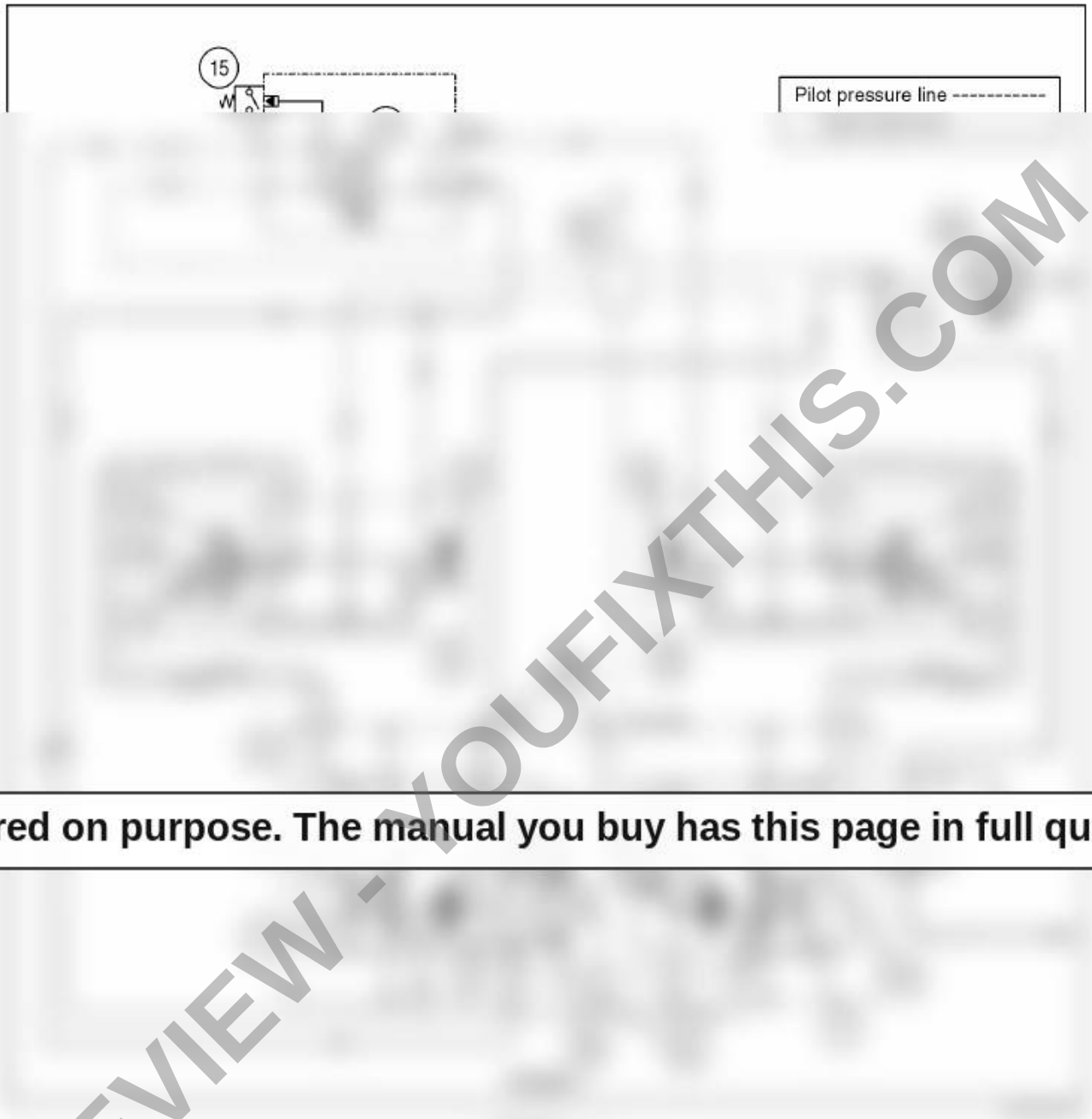


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PRIMARY HYDRAULIC POWER SYSTEM - Hydraulic schematic frame 01 (A.10.A - C.20.H.01)

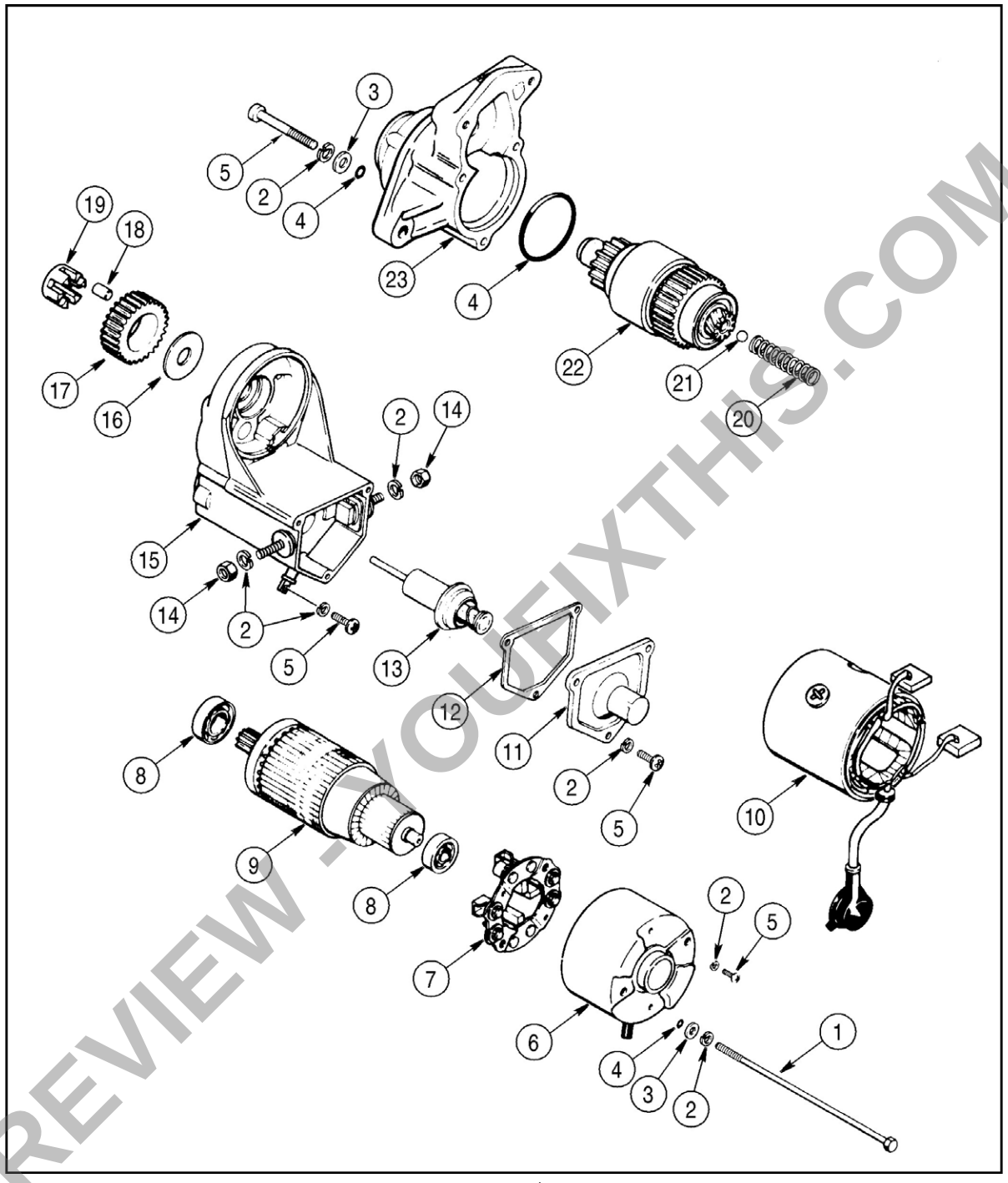


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Engine starter - Exploded view (B.80.A.82 - C.10.A.20)



B831437 1

Engine Starter (Exploded View)		
1. Bolt	9. Armature	17. Idler gear
2. Lock washer	10. Field frame	18. Roller (5)
3. Flat washer	11. Cover	19. Bearing cage
4. O-ring	12. Gasket	20. Spring
5. Screw	13. Plunger	21. Steel ball
6. Cover	14. Nut	22. Starter drive
7. Brush holder	15. Starter solenoid assembly	23. Starter drive housing
8. Bearing	16. Thrust washer	

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Torque (- A.90.A.10)

BOLT TORQUE INFORMATION

DECIMAL HARDWARE

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TRANSMISSION Hydrostatic - Troubleshooting (C.20.F - G.40.A.10)

Problem	Possible Cause	Correction
One transmission works (Left or Right) works correctly and the other does not.	1. Check to see that the direction control levers are adjusted correctly. Refer to **Command Steering command - Adjust (C.20.F.05.06 - F.45.A.01)**for adjustment procedure.	A. Is there still a problem? No: Troubleshooting complete. Yes: Go to Next Step 2.
	2. Check for charge pressure at the servo bypass valve fitting while in neutral.	A. Charge pressure OK? Stroke the control lever. A 20 psi or greater drop indicates a leaky servo. B. Is there still a problem? No: Troubleshooting complete. Yes: Go to Step 3.
	3. Check the pressure setting of the circuit relief valve for the transmission with the problem.	A. Preform Checking the Circuit Relief Valve Test Refer to **Relief valve - Pressure test (C.20.F.16 - F.40.A.30)** B. Is there still a problem? No: Troubleshooting complete. Yes: Go to Step 4.
	4. There is too much leakage in the hydrostatic system.	Disassemble and inspect the piston pump and drive. Repair as required.
Machine Does Not Have Enough Power	1. Full throttle and rated engine speeds are incorrect.	A. Is there still a problem? No: Troubleshooting complete. Yes: Go to Step 2.
	2. Full throttle engine speed is good, rated engine speed is low.	A. Problem in engine or fuel system. Repair as required. B. Is there still a problem? No: Troubleshooting complete. Yes: Go to Step 3.
	3. Insufficient Charge Pressure	Perform Checking Charge Pressure Test **Charge pump - Pressure test (A.10.A.21 - F.40.A.30)** Also check for damaged parts. Adjust pressure setting. A. Is there still a problem? No: Troubleshooting complete. Yes: Go to Step 4.
	4. Faulty hydrostatic pump or hydrostatic drive motors.	Disassemble and inspect the hydrostatic pump and hydrostatic drive motors. Repair as required.

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PRIMARY HYDRAULIC POWER SYSTEM - Cleaning (A.10.A - F.30.A.10)

1. Contamination in the hydraulic system is a major cause of the malfunction of hydraulic components. Contamination is any foreign material in the hydraulic oil. Contamination can enter the hydraulic system in several ways.
   (A) When you drain the oil or disconnect any line.
   (B) When you disassemble a component.
   (C) From normal wear of the hydraulic components.
   (D) From damaged or worn seals.
   (E) From a damaged component in the hydraulic system.

2. All hydraulic systems operate with some contamination. The design of the components in this hydraulic system permits efficient operation with a small amount of contamination. An increase in this amount of contamination can cause problems in the hydraulic system. The following list includes some of these problems.
   (A) Cylinder rod seals leak.
   (B) Control valve spools do not return to neutral.
   (C) Movement of control valve spools is difficult.
   (D) Hydraulic oil becomes too hot.
   (E) Pump gears, housing, and other parts wear rapidly.
   (F) Relief valves or check valves held open by dirt.
   (G) Quick failure of components that have been repaired.
   (H) Cycle times are slow; machine does not have enough power.

3. If your machine has any of these problems, check the hydraulic oil for contamination. See types of contamination below. If you find contamination, use the Portable Filter to clean the hydraulic system.

NOTE: *There are two types of contamination, microscopic and visible.*

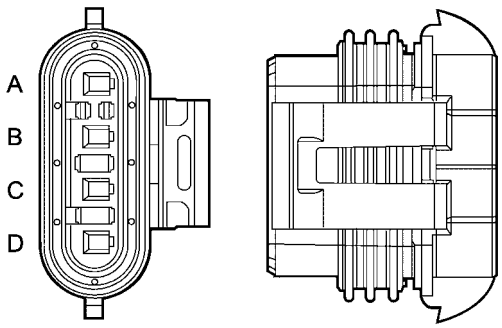
4. Microscopic contamination occurs when very fine particles of foreign material are in suspension in the hydraulic oil.

5. These particles are too small to see or feel. Microscopic contamination can be found by identification of the following problems or by testing in a laboratory. Examples of the problems:
   (A) Cylinder rod seal leak.
   (B) Control valve spools do not return to NEUTRAL.
   (C) The hydraulic system has a high operating temperature.

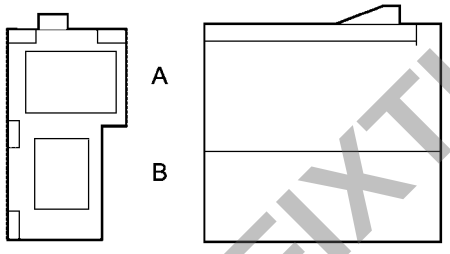
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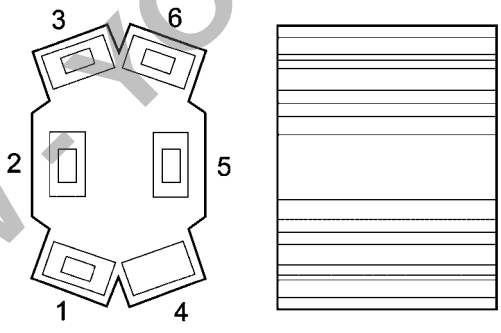
Connector - Component diagram (A.30.A.87 - C.20.A.71)



PAC_12186568 1



PAC_2973781 2



PAC_8911352 3

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ENGINE - General specification (B.10.A - D.40.A.10)

LS180.B

Engine Specifications	
Manufacturer	CNH Family III
Make and Model	New Holland - 334/M2
Number of Cylinders	3

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B877558M_1 4

CAS-1804 Pressure Test Fitting Kit

PRIMARY HYDRAULIC POWER SYSTEM - General specification (A.10.A - D.40.A.10)

Hydraulic System Oil	Type of Oil	Capacity
Total System	**NEW HOLLAND AMBRA AUTO SUPREME SAE 10W-30**	**57 L (14.8 US gal)**
Chain Tank (LS180.B and LS185.B Machines)	**NEW HOLLAND AMBRA AUTO SUPREME SAE 10W-30**	Each Side **10.1 L (10.7 US qt)**
Chain Tank (LS190.B Machines)	**NEW HOLLAND AMBRA AUTO SUPREME SAE 10W-30**	Each Side **12.3 L (13 US qt)**

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ENVIRONMENT CONTROL Air-conditioning system E.40.C

SAFETY SECURITY ACCESSORIES Safety E.50.B

WORKING ARM H

BOOM Lift H.20.B

SINGLE ARM Lift H.40.B

SINGLE ARM TOOL ATTACHMENT Tilt H.50.C

TOOLS AND COUPLERS J

CARRYING Unarticulated tools J.50.B

COUPLING Hydraulic coupling J.80.C

COUPLING Mechanical coupling J.80.B

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Hydraulic pump - Visual inspection (A.10.A.20 - F.40.A.10)

1. Inspect the brass surfaces of the wear plates for wear. Replace as required.



GD98J815 1

2. Inspect the drive and idler shafts for wear or damage. Replace as required.



GD98J816 2

3. Inspect the bearing sleeves of the drive and idler shafts in the body and cover for wear or damage. Replace as required.



GD98J817_2 3

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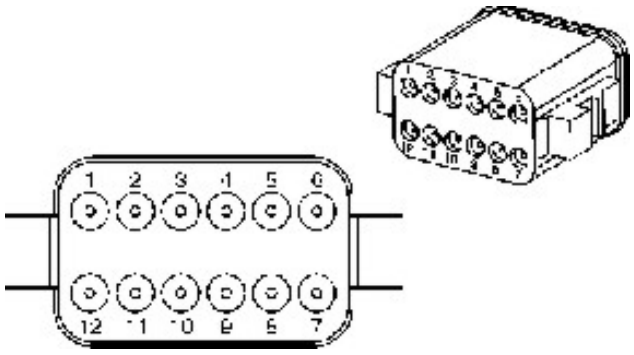
15. The hydraulic reservoir is located on the left rear side of the machine. Loosen and remove the drain plug from the reservoir.
16. Using the fitting kit **CAS10508**, install the valve in the hole for the drain plug. Make sure that the valve is closed.
17. Stop the vacuum pump.
18. Connect the inlet hose for the portable filter to the valve that is installed in the hole for the drain plug.
19. Disconnect the vacuum pump.
20. Install the outlet hose for the portable filter in the hydraulic reservoir filler neck.
21. Open the valve that is installed in the hole for the drain plug.
22. Move the switch for the portable filter to the ON position.
23. Start and run the engine at half throttle.
24. Run the portable filter for 10 minutes with the engine running at half throttle.
25. Continue to run the portable filter. Increase the engine speed to full throttle. Do the following to heat the oil to operating temperature:
    (A) Increase the engine speed to full throttle.
    (B) Hold the bucket control lever in the ROLLBACK position for five seconds.
    (C) Return the blade control lever in the NEUTRAL position for five seconds.
    (D) Repeat steps 25B and 25C until the oil is at operating temperature.
26. With the engine running at full throttle and the portable filter running, completely extend and retract the lift cylinders and the bucket cylinders. Continue to operate the cylinders two times, one after the other for 30 minutes
27. Decrease the engine speed to low idle.
28. Continue to run the portable filter for 10 minutes. During this time, move the hose up and down to help mix the oil in the reservoir.
29. Stop the portable filter
30. Stop the engine.
31. Remove the hose from the hydraulic reservoir.
32. **Reservoir - Apply vacuum (A.10.A.22 - F.35.A.50)**
33. Close the valve that is installed in the hole for the drain plug.
34. Disconnect the inlet hose for the portable filter from the valve.
35. Start the vacuum pump. .
36. Remove the valve from the hole for the drain plug.
37. Install and tighten the drain plug.

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Connector - Component diagram 11 (A.30.A.87 - C.20.F.11)

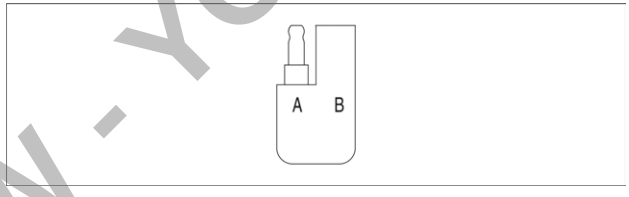
Connector 74 (Brown)



225389c1 1

Cavity	Circuit ID	Description
1	771H	To connector 163B pin 1
2	791H	To connector 163B pin 3
3	754E	To connector 163B pin 1
4	890H	To connector 83 pin 3
5	898A	To connector 83 pin 2
6	899A	To connector 83 pin 1
7	565B	To connector 79F pin B
9	890L	To connector 79F pin A
10	890J	To splice
11	892B	To connector 82A pin B

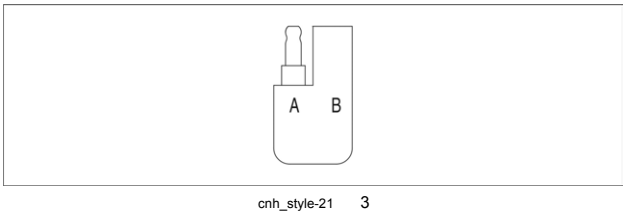
Connector 79F



cnh_style-21 2

Cavity	Circuit ID	Description
A	890L	From connector 74 pin 9
B	565B	From connector 74 pin 7
A	890K	To connector 82A pin A

Connector 82A



cnh_style-21 3

Cavity	Circuit ID	Description
A	890F	From splice
B	892B	From connector 74 pin 11
A	890K	From connector 79F pin A

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Battery - Visual inspection (A.30.A.83 - F.40.A.10)

⚠ WARNING ⚠

Never try to charge the battery if the electrolyte in the battery is frozen. 47-83A

⚠ WARNING ⚠

Never cause sparks to occur or smoke near batteries that are charging or have been recently charged. 13-8A

⚠ WARNING ⚠

Disconnect the ground cable first when the battery cables are disconnected from the battery. Connect the ground cable last when the battery cables are connected to the battery. 47-55A

⚠ WARNING ⚠

Some batteries have a ventilation tube. If there is battery acid in the ventilation tube, this battery acid can be released when the battery is turned upside down. If you turn the battery upside down, make sure that the end of the ventilation tube is away from you and away from any other people in the area. Battery acid can cause severe burns. 48-57B

⚠ WARNING ⚠

BATTERY ACID CAUSES SEVERE BURNS. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL - flush with water. INTERNAL - Drink large quantities of water or milk. DO NOT induce vomiting. Seek medical attention immediately. EYES - Flush with water for 15 minutes and seek medical attention immediately. BATTERIES PRODUCE EXPLOSIVE GASES. Keep sparks, flame, cigars and cigarettes away. Ventilate when charging or using in enclosed area. Always wear eye protection when working near batteries. Wash hands after handling. KEEP OUT OF REACH OF CHILDREN. M144B

1. If the battery is a maintenance free battery, check the level of the electrolyte every 1000 hours of operation or six months, whichever occurs first. For all other batteries, check the level of the electrolyte every 250 hours of operation.

NOTE: *A maintenance free battery will have the words Maintenance Free on the decal on the top of the battery. If the center part of the decal has been removed for access to the battery caps, it is possible that the words Maintenance Free have been removed from the decal.*

2. Check the level of the electrolyte more often during hot weather. The use of a large amount of water by the battery can be caused by high battery temperature or a voltage regulator setting that is too high. Keep the electrolyte level above the top of the plates in the battery at all times to prevent damage to the battery.

NOTE: *On maintenance free batteries it is necessary to remove the center part of the decal for access to the battery caps. Do not discard the center part of the decal. Install the center part of the decal after the battery caps have been installed.*

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30. Lift the engine slightly to allow the engine to slide rearward towards the back of the skid steer. Make sure all components that could interfere with the engine are clear.

ATTENTION: *If the batteries remained in the skid steer, take extreme care to protect the batteries from damage during engine removal.*

31. Either place the engine on floor jacks (blocking under the engine motor mounts), or place the engine in a suitable engine repair stand.

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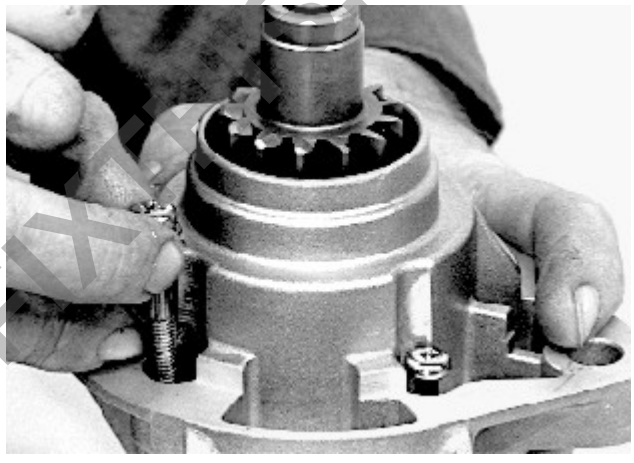
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17. Lubricate the O-ring for each starter drive screw with multipurpose grease. Please refer to **Engine starter - Grease (B.80.A.82 - F.60.A.20)**. Slide one lock washer, flat washer and O-ring onto each starter drive screw.



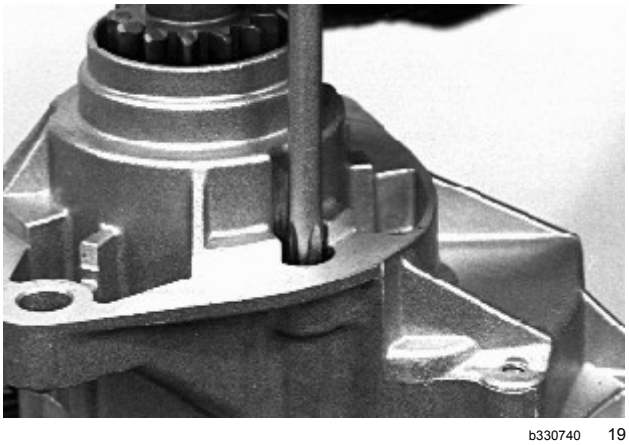
b330805 17

18. Mount the starter drive housing with the starter drive screws.



b330807 18

19. Fasten the starter solenoid in a vise. Tighten the starter drive screws. Do not overtighten.



b330740 19

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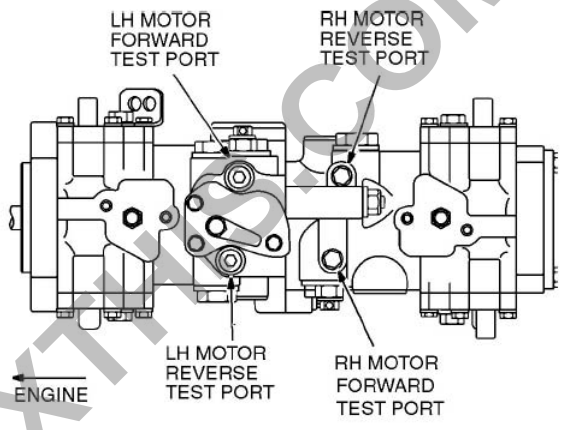
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Relief valve - Pressure test (C.20.F.16 - F.40.A.30)

IMPORTANT: *It is important to raise and block the machine securely off of the ground so the wheels or tracks are not in contact with the ground in case the park brakes would fail to hold during the test procedure.*

1. Raise the machine until the wheels or tracks are completely off the ground. Securely block the machine in the raised position.
2. Raise the operators seat and securely latch the seat in the raised position.
3. Connect a 690 bar (10 000 psi) pressure gauge to the test port. See the illustration.

NOTE: *To create a hydrostatic stall the park brakes must applied. If the park brakes are not applied, push the park brake button and apply the park brakes.*



RH AND LH MOTOR TEST PORT LOCATIONS

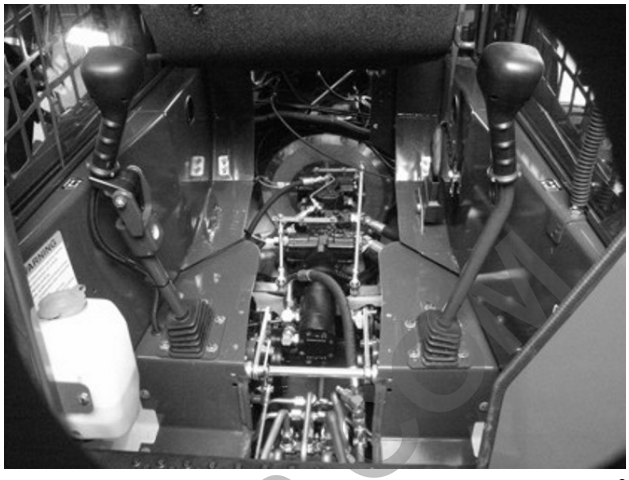
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4. Disconnect the positive terminal of the Neutral Override Solenoid / Brake valve from the chassis harness and connect the positive terminal of the Neutral Override Solenoid / Brake valve to a 12 volt power source.
5. If the hydraulic oil is not at operating temperature, run the engine at full throttle and hold the bucket control lever in the ROLLBACK position for 5 seconds. Then return the bucket control lever to NEUTRAL for 5 seconds. Repeat this cycle until the temperature of the oil is at least 52°C (125°F).
6. Increase the engine speed to full throttle. Move the control lever for the circuit being tested one half the distance of full travel and watch the pressure gauge. When the pressure gauge stops increasing, read the pressure gauge and move the control lever to NEUTRAL.

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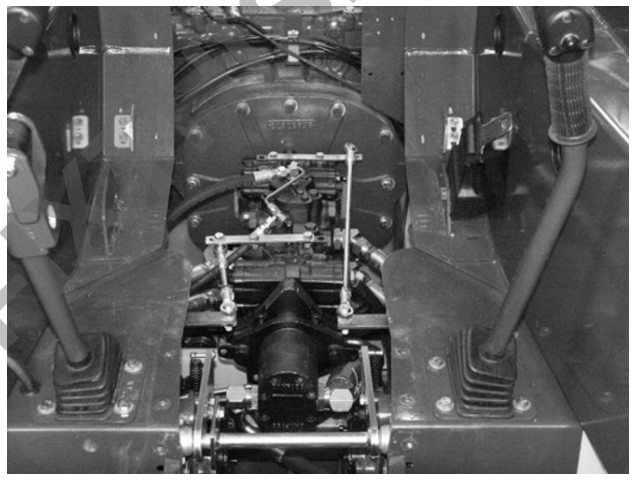
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7. Remove the mounting bolts and washers for the step shield and remove the step shield.



bd04j031 3

8. Loosen and remove the nuts on the ball joints for the control lever linkage. Remove the control lever linkage from the tandem pump mounting locations.



bd04j033 4

9. Disconnect the wiring from the connectors on each of the backup alarm switches on the tandem pump.

10. Disconnect the wire from the case drain temperature switch on the tandem pump.



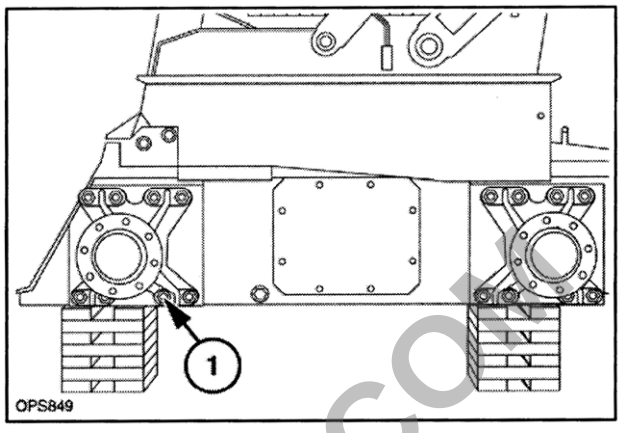
bd04c029 5

11. **Reservoir - Apply vacuum (A.10.A.22 - F.35.A.50)** Start the vacuum pump. Disconnect all of the hoses from the tandem pump. Tag the hoses and fittings for use during assembly. Install caps and plugs on the fittings.

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6. Remove the tire and wheel from the axle being serviced.



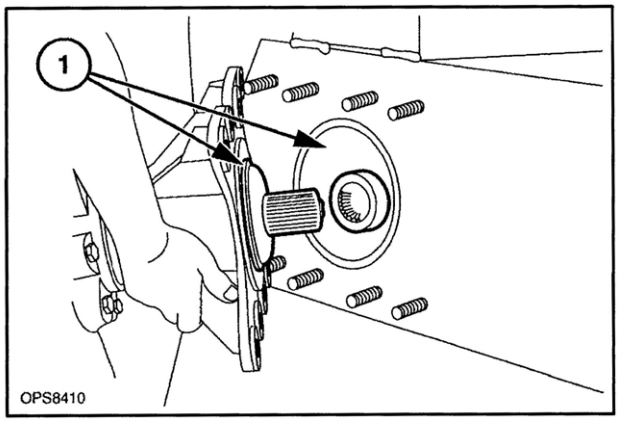
OPS849 3

7. Clean the axle and final drive area to prevent debris from entering the final drive case.
8. Remove the eight axle housing retaining nuts and washers, **(1)**.
9. Slide the axle housing from the retaining studs and lift the assembly from the final drive case.

ATTENTION: *The axle assembly is heavy and may require two persons to adequately support if handling manually.*

NOTE: *When the axle assembly is removed, the drive sprocket and chain will drop slightly to the bottom of the case.*

10. There is a large O-ring at **(1)** that seals the axle housing to the side of the final drive case. Remove the O-ring from the case or the axle housing.



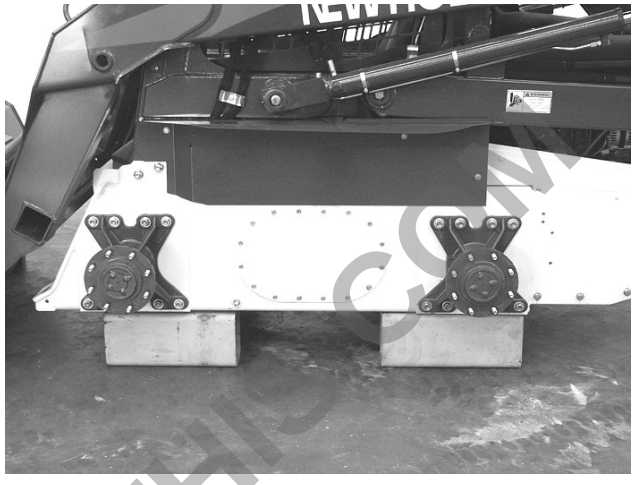
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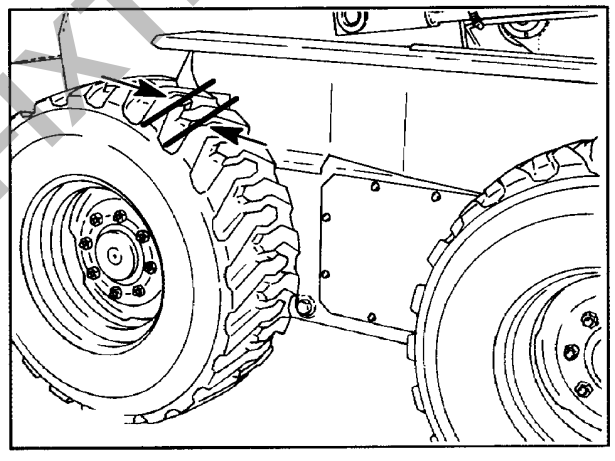
Drive chain - Tension adjust (D.50.C.42 - F.45.A.40)

1. Lower the loader bucket or the attachment to the ground.
2. Use a jack or hoist to lift the machine off of the ground. Place blocks or stands under the machine to raise it completely off the ground.



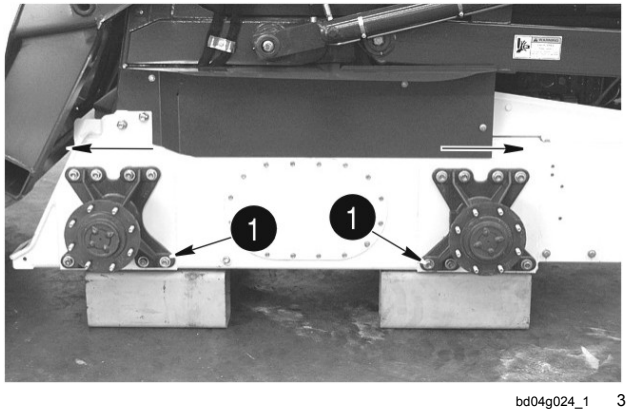
bd04g024 1

3. With the machine raised off the ground, rotate each tire and check for allowable movement. at the outer edge of the tire tread. The allowable range is **0 to 6 - mm (0 to 1/4 - in)** If the movement is not in the allowable range, adjust the drive chain tension.



bs04h104 2

4. Remove the wheels from the machine. Loosen the axle retaining nuts **(1)** on the front and rear axles.



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ROPS - Visual inspection (E.34.A.74 - F.40.A.10)

ATTENTION: *ROLLOVER PROTECTIVE STRUCTURE (ROPS) CAB STRUCTURAL FRAME (CSF)*

1. The Rollover Protective Structure (ROPS) or Cab Structural Frame (CSF) is a special safety component of your machine.
2. DO NOT attach any device to the ROPS or CSF for pulling purposes.
3. The ROPS or CSF is a certified structural support and any damage, fire, corrosion or modification will weaken the structure and reduce your protection. If this occurs, the ROPS or CSF MUST be replaced so that it will provide the same protection as a new ROPS or CSF.
4. After an accident, fire or rollover, the following MUST be performed before returning the machine to field or job site operation:
   The ROPS or CSF structure MUST be replaced.

   The ROPS or CSF mounting or suspension, operator seat and suspension, seat belts and mounting components and wiring within the operator's protective system MUST be carefully inspected for damage.

   All damaged parts MUST be replaced.

   DO NOT WELD, ATTEMPT TO STRAIGHTEN OR REPAIR THE ROPS OR CAB STRUCTURAL FRAME.

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ENVIRONMENT CONTROL Air-conditioning system - Leakage test (E.40.C - F.40.A.40)

1. Shut off the engine.

⚠ WARNING ⚠

When refrigerant comes in contact with an open flame, it forms phosgene gas. Never breathe these fumes. SM109A

2. Use electronic leak detector **OEM1437** to inspect all connections. Use instructions from manufacturer of leak finding tool.

NOTE: *When checking compressor seal for a leak, remove the dust cover and rotate the clutch shaft clockwise.*

NOTE: *To properly check the expansion valve for leaks, remove the insulation tape.*

3. Repair all leaks and recharge the system.

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Back up alarm Right switch - Testing (E.50.B.82.81 - G.40.A.20)

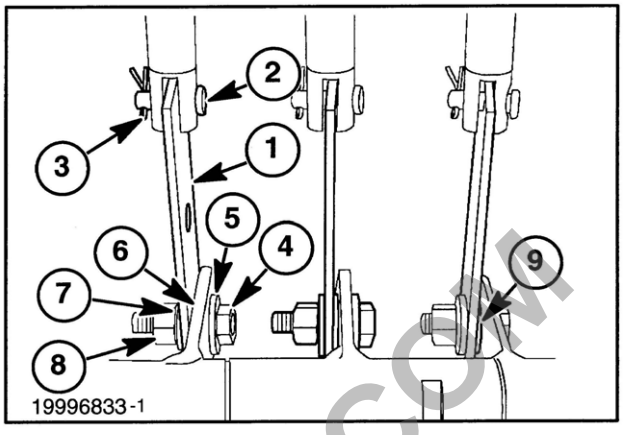
NOTE: *For wiring diagram refer to* ***Wiring harness - Electrical schematic frame 19 (A.30.A.88 - C.20.E.19)***

N°	Test Point	Expected Result	Other Result (Possible Cause)
1	Place the skid steer loader on acceptable supports so that all four wheels are raised off the floor. Disconnect the electrical connectors from the backup alarm switches. Turn the key switch to the ON position. Check between the switch terminal for wire 895B (O) to ground.	Approximately 12 volts	Check the circuit from between the backup alarm switch wire 895B (O) to the 5 amp fuse in the rear fuse block No. 2. Also check the 5 amp fuse.
2	Check between opposite ends of wire 896A (O).	Continuity	Bad circuit between backup alarm switches.
3	Check between the terminals of each individual switch.	Open	Bad seat bar switch.
4	Start the engine and run at low idle. Have another person move the control handles to the REVERSE position. Check between the terminals of each individual switch.	Continuity	Check the backup alarm.
5	Terminal for wire 178AD (B) to ground.	Continuity	Bad wire or connection.
6	Terminal for wire 897A (O) to ground.	Approximately 12 volts and the backup alarm sounds.	Bad backup alarm.

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27. Install the control spool links, **(1)**, with clevis pins, **(2)**, and cotter pins, **(3)**.

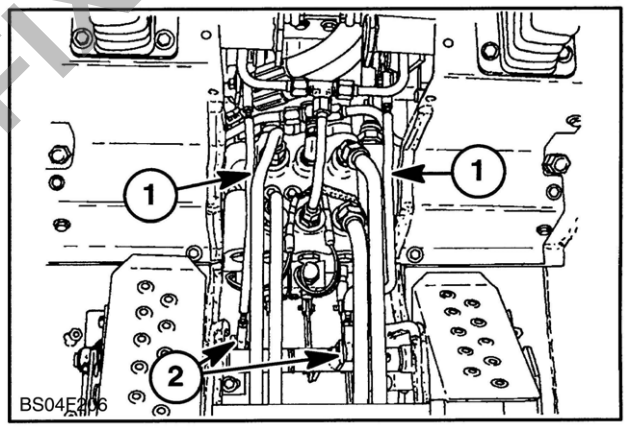


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28. Link the boom valve link and the bucket valve link to the hub arms with 3/8" hex head bolts, **(4)**, flat washer, **(5)**, thick link washers, **(6)**, lock washer, **(7)**, and nut, **(8)**.

29. Install the auxiliary hydraulic link with 3/8" hex head bolts, flat washer, two flat washers, **(9)**, lock washer, and nut.

30. Install control rods, **(1)**, to the pedal hub arms, **(2)**, with the bolts, washers, lock washers and nuts removed during pedal removal.



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31. Install the step shield and step shield hardware.

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Command Lever - Install (H.50.C.05.05 - F.10.A.15)

1. Tilt Command Lever Install is the reverse procedure of **Command Lever - Remove (H.50.C.05.05 - F.10.A.10)**.

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