# DESCRIPTION AND DIMENSIONS

## SPECIFICATIONS

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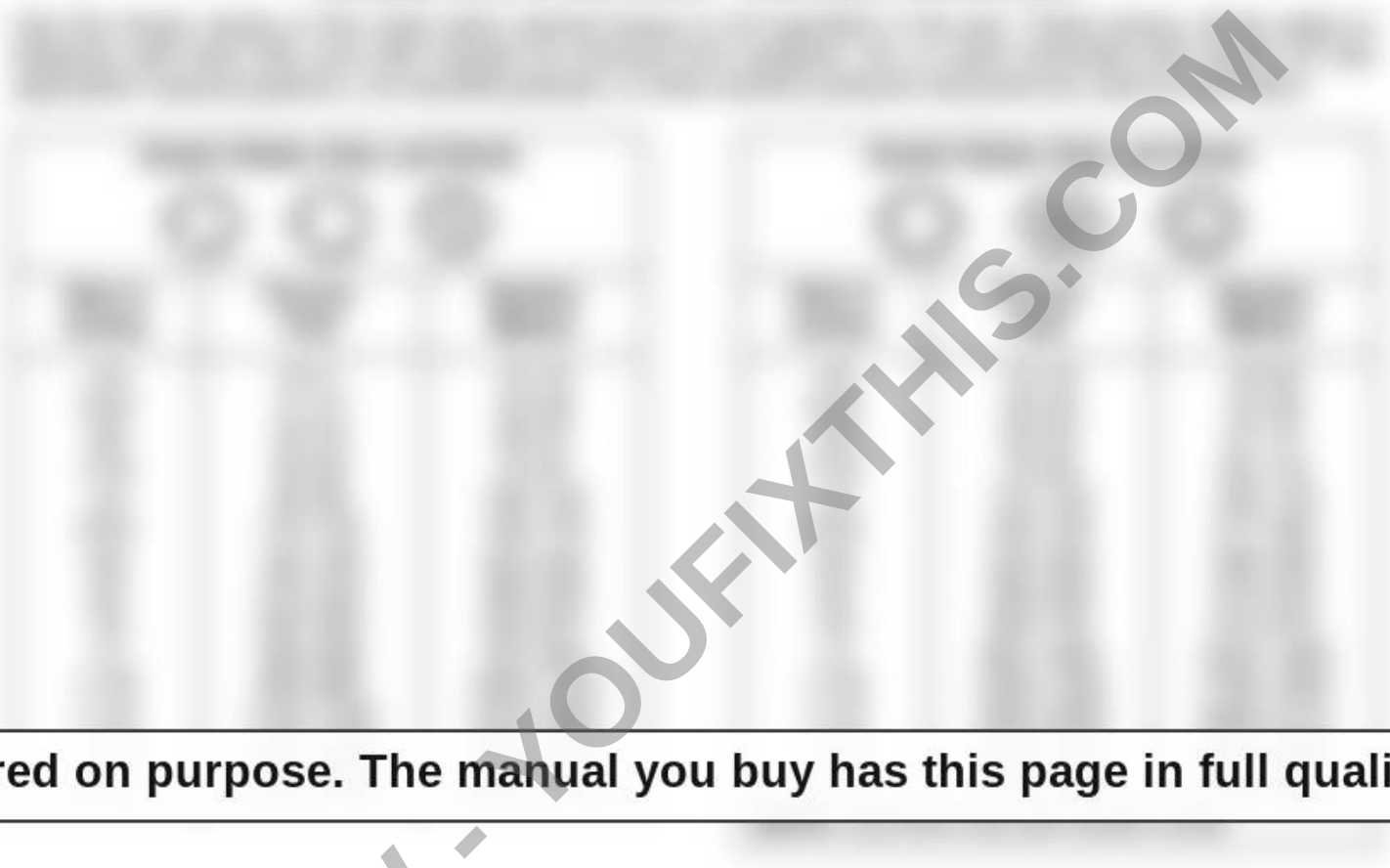
# STANDARD TORQUE SPECIFICATIONS

## TORQUE SPECIFICATIONS – DECIMAL HARDWARE



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# AIR CONDITIONING SYSTEM

## DESCRIPTION

The air conditioning compressor is mounted on the right side of the engine and is driven by a pulley and drive belt. See Section 1100 for information on the air conditioning system and troubleshooting procedures.

**CAUTION:** *Always remove the ignition keys when performing maintenance or service. Serious injury can occur if the engine is started or running while maintenance is being performed.*

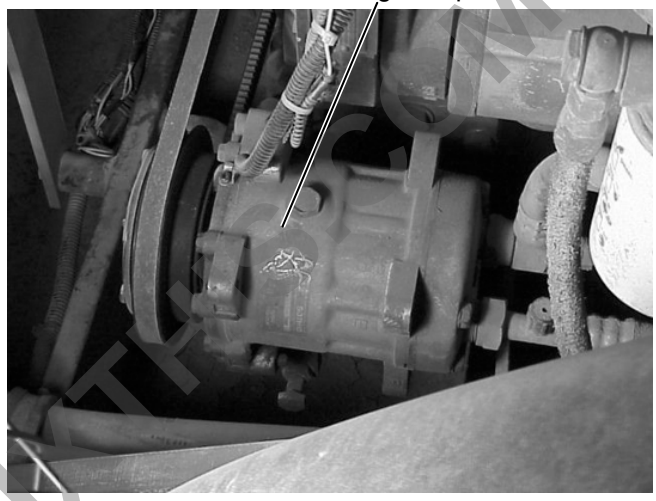


**Figure 1: Air Conditioning Compressor**

## REMOVAL

**CAUTION:** *Always wear protective eye cover and gloves to prevent permanent injury to eyes and freeze injuries to the skin.*

### STEP: 1
Using Section 1101 evacuate and recover the refrigerant from the air conditioning system.

### STEP: 2
Loosen the lower compressor mounting bolt and nut. This bolt is also used for adjustment of the best.

### STEP: 3
Loosen the upper compressor mounting bolt.

### STEP: 4
Push the compressor toward the left side of the loader, loosening the drive belt.

### STEP: 5
Remove the drive belt from the compressor pulley.

### STEP: 6
Tag, disconnect, and remove the wiring harness from the top of the compressor.

### STEP: 7
Tag and remove the air conditioning hoses from the back of the compressor.

### STEP: 8
While supporting the compressor, remove the upper and lower mounting bolts and nuts.

## INSTALLATION

### STEP: 9
Place the compressor in position, aligned with the mounting bracket.

### STEP: 10
Install the upper mounting bolt and nut loosely.



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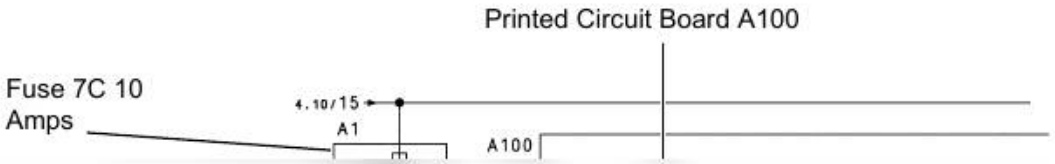


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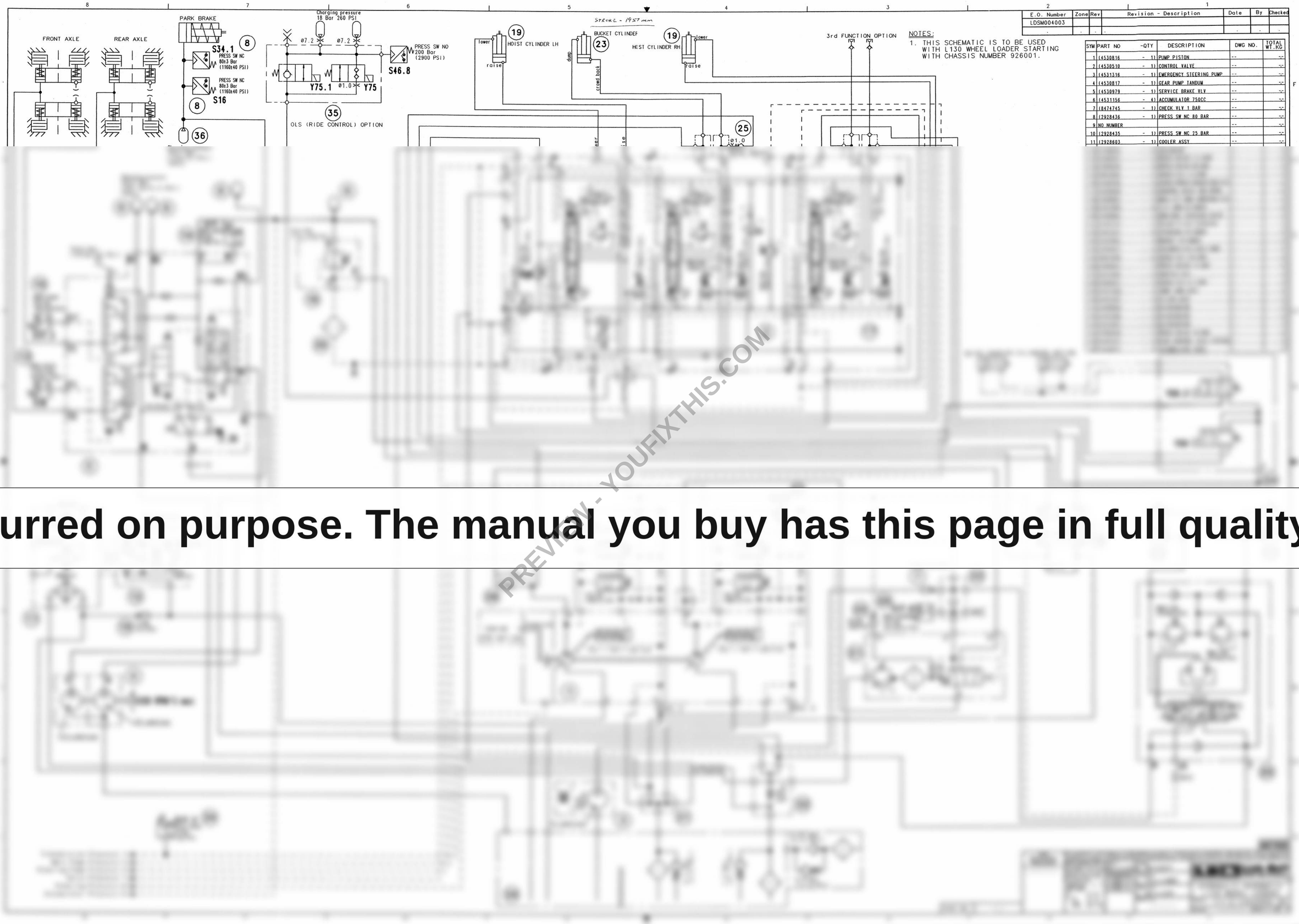


| E.O. Number | Zone | Rev | Revision - Description | Date | By | Checked |
|---|---|---|---|---|---|---|
| LDSM004003 | | | | | | |
| . | . | . | . | . | . | . |

| SYM | PART NO | -QTY | DESCRIPTION | DWG NO. | TOTAL WT.KG |
|---|---|---|---|---|---|
| 1 | (4530816 | - 1) | PUMP PISTON | -- | -- |
| 2 | (4530510 | - 1) | CONTROL VALVE | -- | -- |
| 3 | (4531316 | - 1) | EMERGENCY STEERING PUMP | -- | -- |
| 4 | (4530817 | - 1) | GEAR PUMP TANDUM | -- | -- |
| 5 | (4530979 | - 1) | SERVICE BRAKE VLV | -- | -- |
| 6 | (4531156 | - 4) | ACCUMULATOR 750CC | -- | -- |
| 7 | (8474745 | - 1) | CHECK VLV 1 BAR | -- | -- |
| 8 | (2928436 | - 1) | PRESS SW NC 80 BAR | -- | -- |
| 9 | NO NUMBER | | | -- | -- |
| 10 | (2928435 | - 1) | PRESS SW NC 25 BAR | -- | -- |
| 11 | (2928603 | - 1) | COOLER ASSY | -- | -- |

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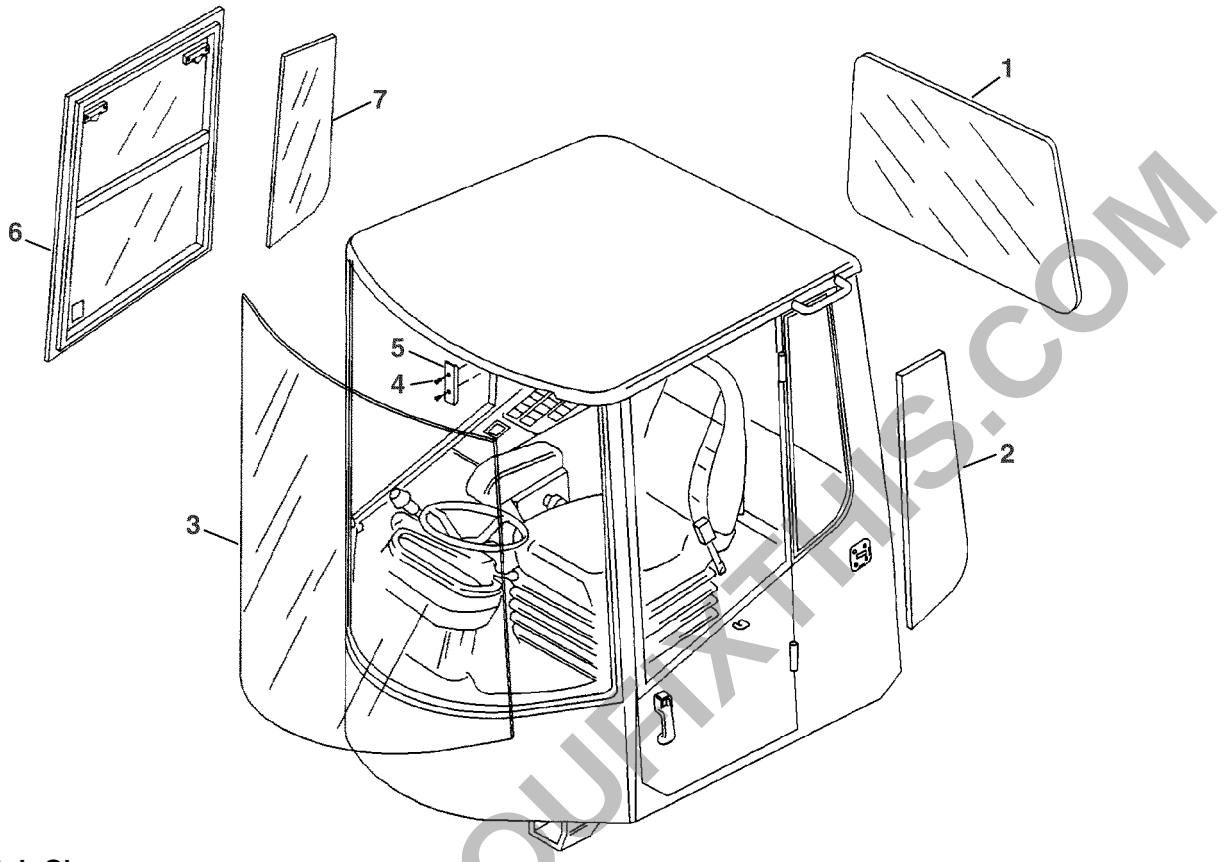


**Figure 1: Cab Glass**

| Glazing Operators Cab | | | | 34.230 |
|---|---|---|---|---|
| L125 /292827-92830/825001-... | | | | **T 2940915 - 000**<br>B 2940915 - 000 |
| **Item** | **Quantity** | **ME** | **Part No.** | **Description (Sub-assembly)** |
| 1. | 4 | 00 | 1493668 | Rear Window |
| 2. | 1 | 00 | 1493667 | Side Window |
| 3. | 1 | 00 | 1493665 | Windshield |
| 4. | 1 | 00 | 1493670 | Screw |
| 5. | 2 | 00 | 1493669 | Plate |
| 6. | 1 | 00 | 1493671 | Sliding Window |
| 7. | 1 | 00 | 1493666 | Side Window |
| ME: 00 = Piece 13 = m 26 = $m^2$ 39 = $m^3$ 43 = kg 50 = 3 l (litre) T = Text B = Illustration | | | | |

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## CONDENSER COMPRESSOR

The **condenser** is mounted in the engine compartment between the engine and radiator. The condenser receives the refrigerant in a gas form and with help from the engine cooling fan condenses the gas into a liquid form.

The **compressor** is mounted on the right side of the engine and driven by a belt and pulley. The compressor uses a magnetic clutch device to engage the compressor. When the compressor is not engaged the pulley turns freely without rotating the compressor drive. When the air conditioning switch on the cab control panel is placed in the ON position, the magnetic clutch engages and turns the compressor. The compressor compresses the gas refrigerant into a high-pressure gas and routes it from the dryer to the condenser and then through the system. The compressor cannot compress liquids.

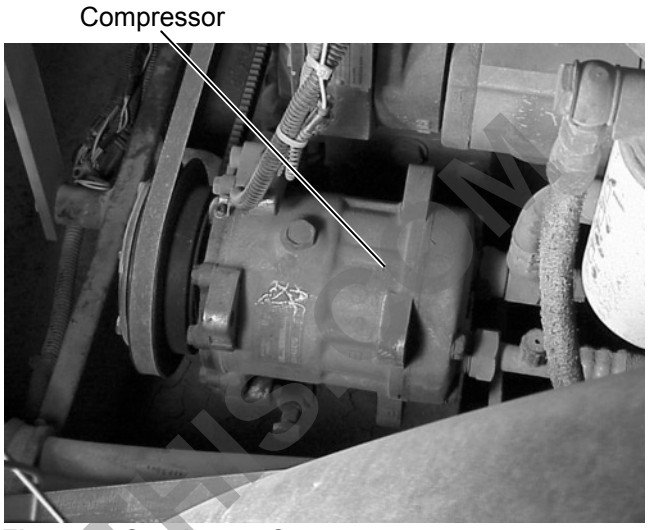


**Figure 7: Condenser Compressor**

The **refrigerant,** Freon 134A, is pumped into the compressor for circulation through the air conditioning system for moving heat and cold air to and from the cab.

## TROUBLESHOOTING

**Table 1: Troubleshooting**

| PROBLEMS | CAUSES | REMEDIES |
|---|---|---|
| System will not operate | ON/OFF Switch not ON | Place switch in ON position |
| | Refrigerant loss | Detect and repair leaks |
| | No power from vehicle | See Sections 4002 and 4004 |
| | ON/OFF Switch malfunction | See Sections 4002 and 4004 |
| | Pressure Switch | See Sections 4002 and 4004 |
| | Evaporator/radiator fan | Check fan operation |
| | Compressor clutch damaged | Replace compressor |
| | Compressor clutch not engaging | Check for power to clutch |
| | Compressor Drive belt | Adjust or replace belt |

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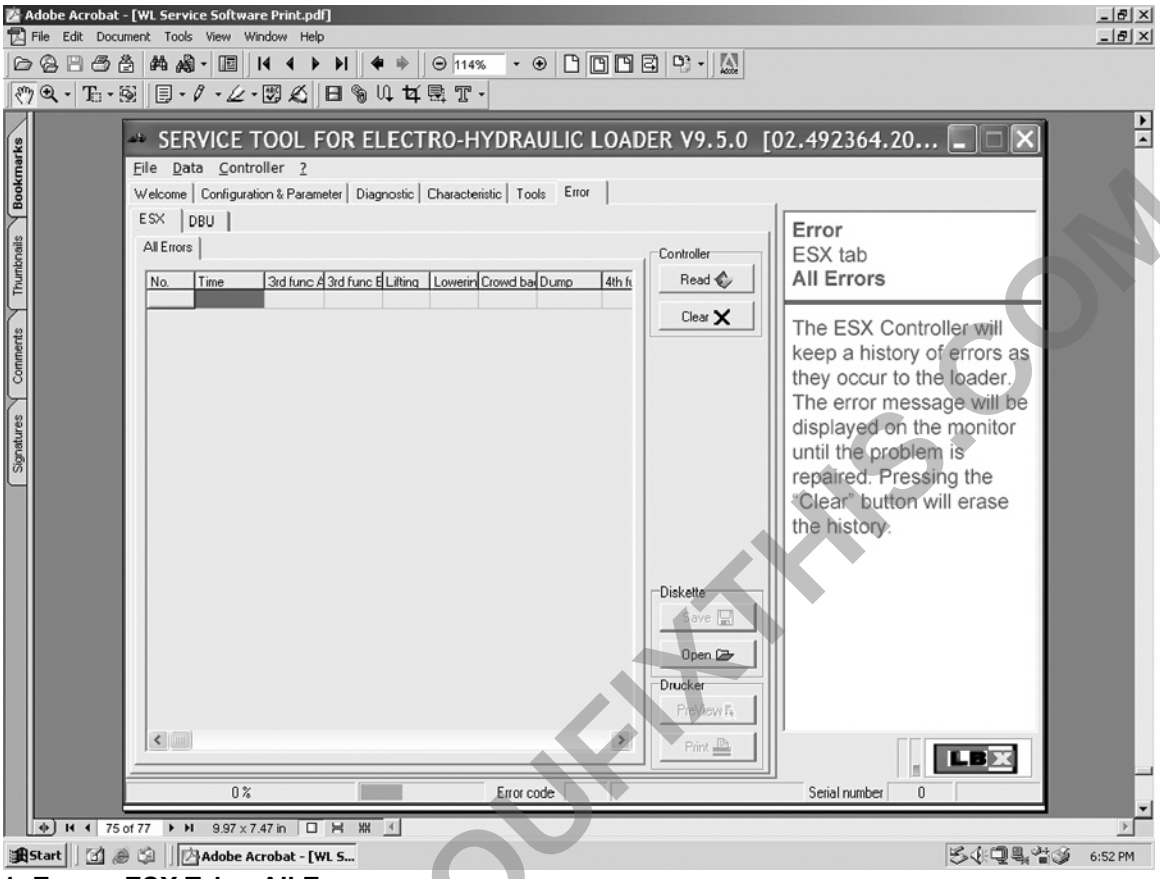


**Figure 101: Error—ESX Tab > All Errors**

**Table 1: Error Memory Descriptions—Part 1**

| Display | Error Memory | Description |
|---|---|---|
| 4001 | 3rd Function A - O/C* | Broken or loose proportional valve wire for 3rd Function A |
| 4002 | 3rd Function B - O/C | Broken or loose proportional valve wire for 3rd Function B |
| 4003 | Lift - O/C | Broken or loose proportional valve wire to lifting circuit |
| 4004 | Lower - O/C | Broken or loose proportional valve wire to lowering circuit |
| 4005 | Crowd - O/C | Broken or loose proportional valve wire to crowd circuit |
| 4006 | Dump - O/C | Broken or loose proportional valve wire to dump circuit |
| 4007 | Pump Regulation - O/C | Broken or loose proportional valve wire to pump regulator |
| 4008 | Engine Fan - O/C | Broken or loose proportional valve wire to engine fan |
| 4009 | Float - O/C | Broken or loose proportional valve wire to float circuit |
| 400A | Ride Control Loading - O/C | Broken or loose proportional valve wire to ride control accumulator(s) |
| 400B | Ride Control Active - O/C | Broken or loose proportional valve wire to ride control piston side |
| 400C | Lift Angle - Out of Time | No signal from lift arm angle sensor |
| 400D | Crowd Angle - Out of Time | No signal from bell-crank angle sensor (crowd) |
| 400E | Joystick - Out of Time | No signal from joystick |
| 400F | Dashboard - Out of Time | No signal from DBU |

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SECTION 1109.....WINDSHIELD WIPERS

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### STEP: 27
Tag and remove the four hydraulic hoses from the back of the oil cooler. Immediately plug all hoses and ports.



**Figure 12: Hydraulic Hoses**

### STEP: 28
Remove the upper and lower radiator hoses from the radiator and engine. Tag and remove heater hoses from the radiator. Immediately plug all hoses and ports.

### STEP: 29
Secure the radiator with straps and an overhead hoist.

### STEP: 30
Using an overhead hoist, place enough tension on the radiator to prevent falling. Remove the radiator shock mounting bolts.



**Figure 13: Radiator Shock Mounting Bolts**

### STEP: 31
Carefully remove the radiator from the loader. Secure the radiator to prevent damage to the radiator core and cooling fans.

## RADIATOR INSTALLATION

### STEP: 32
Attach straps and overhead hoist to the radiator and position the radiator with the shock mounts and mounting bolt holes aligned.

### STEP: 33
Install the shock mounting bolts (see Figure 13).

### STEP: 34
Remove the straps and hoist from the radiator.

### STEP: 35
Using the tags created during removal, remove the plugs and install the upper and lower radiator hoses and heater hoses.

### STEP: 36
Using tags created during removal, install and tighten the four hydraulic hoses to the back of the oil cooler (see Figure 12).

### STEP: 37
Using an overhead hoist and straps, position the radiator frame for installation. Install and tighten the frame mounting bolts and washers (see Figure 11).

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## SOLENOIDS

Solenoid valves are electro-mechanical devices used to control the flow of liquids or gases to various components. Mounted in a hydraulic control valve, ether start device or in the component, the valve is activated using electrical current from the cab control panel. The upper portion of the valve is an electro-magnetic coil, which draws a spool or poppet toward the coil, opening the circuit and allowing flow to the component. After the current to the coil is stopped a spring returns the spool or poppet to the closed position.

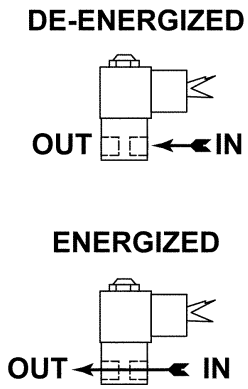


**Figure 5: Solenoid**

## RELAYS

Relays are electro-mechanical devices used to direct electrical current from one circuit to another. Using a relay, a small current flow can be used to control the flow of a much larger current.

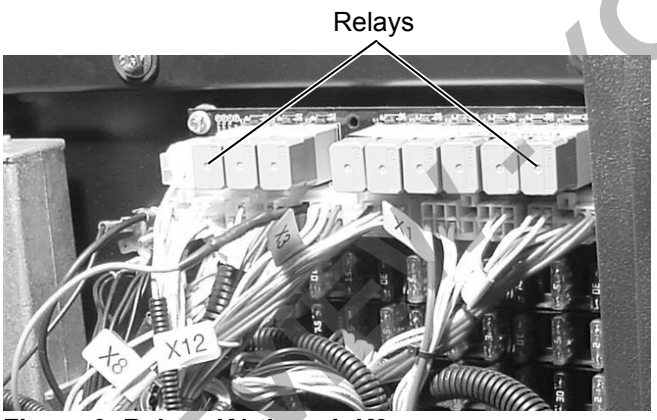


**Figure 6: Relays K1 though K9**

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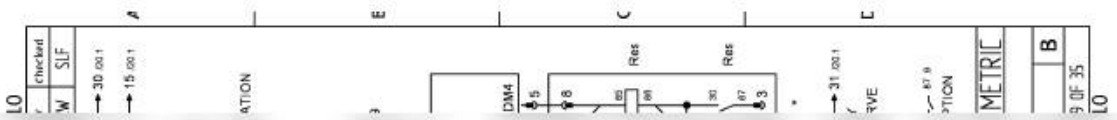


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Use the UP (46) arrow on the control panel to navigate through the sensor checks. Return to an item using the Down (48) arrow.

Using the following list of items, the sensor should indicate the corresponding signal if the sensor is operational. The sensor number will appear on the display monitor. See the Electrical Schematic Section for information and instructions on reading and understanding the electrical schematics.

| Item | Description | Signal |
|---|---|---|
| 1. | Indicator Light – Battery/Alternator | 0 |
| 2. | Indicator Light – Engine Oil Pressure | 0 |
| 3. | Indicator Light – Parking Brake | 0 |
| 4. | Indicator Light – Brake Accumulator Pressure | 0 |
| 5. | Indicator Light – Emergency Steering | 0 |
| 6. | Indicator Light – Engine Temperature | 0 |
| 7. | Indicator Light – Coolant Temperature | 0 |
| 8. | Indicator Light – Coolant Level | 0 |
| 9. | Indicator Light – Test All | 0 |
| 10. | Indicator Light – Transmission Temperature | 0 |
| 11. | Indicator Light – Transmission Oil Pressure | 0 |
| 12. | Indicator Light – Air Filter Restriction | 0 |
| 13. | Option | 0 |
| 14. | LED - Wiper Intermittent, Rear | 0 |
| 15. | LED - Wiper, Rear | 0 |
| 16. | LED - F1 Fine Mode | 0 |
| 17. | LED - Standard Mode | 0 |
| 18. | LED - Heavy Mode | 0 |
| 19. | LED - Service | 0 |
| 20. | LED - Floodlights, Front | 0 |
| 21. | LED - Window Washer, Rear | 0 |
| 22. | LED - Floodlights, Rear | 0 |
| 23. | LED - Display Mode | 0 |
| 24. | LED - Float | 0 |
| 25. | LED - Quick-Coupler, Disengage | 0 |
| 26. | LED - Quick-Coupler, Engage | 0 |
| 27. | LED - Rotary Beacon | 0 |
| 28. | LED - Transmission Cutout Shutoff | 0 |
| 29. | LED - Hydraulic Lock-Out | 0 |
| 30. | LED - Ride Control | 0 |
| 31. | LED - F2 Mode | 0 |
| 32. | LED - Parking Brake | 0 |
| 33. | Output - Back-Up Alarm | 0 |
| 34. | Output - Optional Rotating Beacon | 0 |

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### STEP: 51
Install and tighten the steering pump mounting bolts.

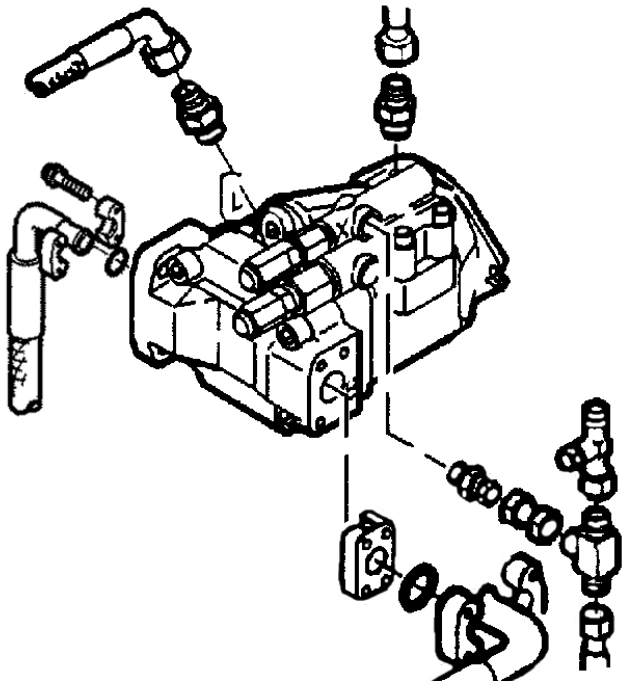

**Figure 15: Hydraulic Pump Hoses**

### STEP: 52
Using the tags installed during removal, remove plugs and install and all hydraulic hoses on the hydraulic pump. Be careful to inspect and replace any worn or damaged O-ring seals.

### STEP: 53
Using Section 1104 as a guide, install the ROPS cab.

### STEP: 54
Using Section 2001 as a guide, install the engine in the loader.

**NOTE:** *If a portable vacuum pump was used instead of pumping out the reservoir, turn off the pump and remove it from the reservoir.*

### STEP: 55
Using the external filtering pump, pump the hydraulic oil out of the 55-gallon drum and back into the hydraulic reservoir.

### STEP: 56
Tighten the hydraulic reservoir vent plug.

### STEP: 57
Install the hydraulic reservoir cover and cab side panel.

### STEP: 58
Using procedures in the Operating Instructions, change the transmission filter and fill the transmission with oil.

### STEP: 59
Using instructions in Section 6000 and the AEB Starter calibrate the transmission.

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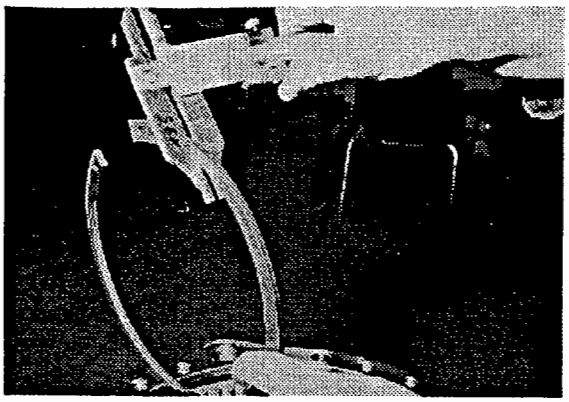

**Fig. 44**

Measure thickness of snap ring (206).
Record value Y.

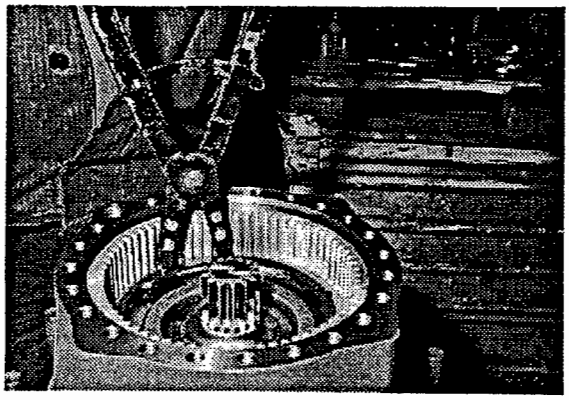

**Fig. 45**

Lock in snap ring (206).

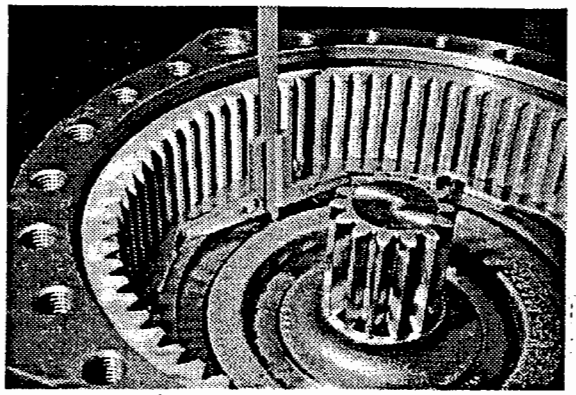

**Fig. 46**

Apply depth gauge to snap ring (206) and measure distance X to back-up ring (203).

Play = X - Y.

The axial play for new disks
should be **0.3 - 0.4 mm** per friction face. Refer to the Table on page 15. Otherwise, replace back-up ring (203-205).

Check brake individually for leaks:
Apply manual hydraulic pump (e. g. Lukas) to brake line connection. Ensure that manual pump is filled with clean hydraulic oil.

Vent brake.

Build up a maximum brake pressure of 80 bar ten times and allow to escape.

Increase pressure to 100 bar and close stopcock. Pressure may fall by a maximum of 5 bar within 10 minutes. After this, establish a pressure of 5 - 10 bar. This pressure must remain constant for 5 minutes.

Repeat brake reassembling if the pressure goes down and oil is found to leak.

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- Screw on notched nut (255, Fig. 8) and tighten with notched nut wrench (S60).
  Tightening torque $M_A$ = 400 Nm.

  Further lift the axle or the vehicle and release the wheel. Turn the wheel with the hub and re-tighten the notched nut with the same tightening torque.

  Slacken the notched nut and re-tighten without applying any force. Then, tighten until fillister-head screw (256, Fig. 7) can be inserted. Compare the position of the notched nut with the mark made before. This mark must be reached again or be exceeded by 1 - 2 slots.

  Insert fillister-head screw (256) secured with LOCTITE 243. Tightening torque $M_A$ = 25 Nm.

- Insert bushing (352), disk carrier (207) and pinion shaft (351).

- Alternately insert outer (201) and inner disks (202). Begin with an outer disk.

  Put new inner disks (202) in API GL-5, SAE 90 LS, transmission oil for some 30 minutes prior to installation.

- Insert back-up ring (203) and lock in **snap ring (206).**

- Check individual brake for leaks:
  This test can be omitted when the "brake repair kit" has been installed.

  Apply a manual hydraulic pump (e. g. Lukas) to the brake line connection. It must be ensured that the manual pump is filled with clean hydraulic oil.

  Ventilate the brake.
  Build up a maximum brake pressure of 80 bar ten times and allow to escape.

  Increase the pressure to 100 bar and close the stopcock. The pressure may fall by a maximum of 5 bar within 10 minutes. After this, establish a pressure of 5 - 10 bar. This pressure must remain constant for 5 minutes.

  Repeat brake reassembling if the pressure goes down and oil is found to leak.

- Insert the planet carrier with a new O-ring (264).

- Connect the brake line and ventilate the brake.

- Fill in oil.

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# Section

# 7002

## ACCUMULATORS

**L130 Wheel Loader**

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## STEP: 6

Double-click `setup.bat` to create a `setup.exe` file (see Figure 4).

**NOTE:** *The Figure 5 briefly displays when the `setup.exe` file initiates.*

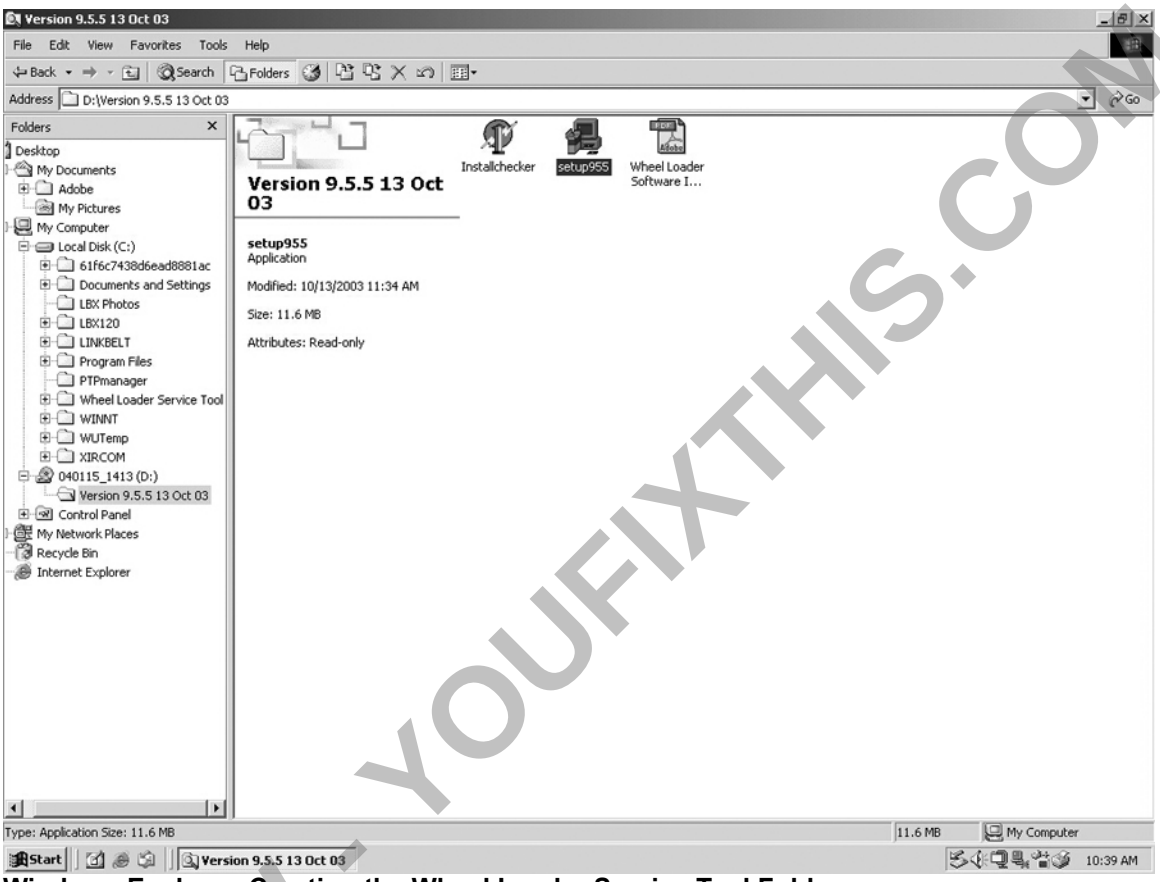


**Figure 4: Windows Explorer, Creating the Wheel Loader Service Tool Folder**

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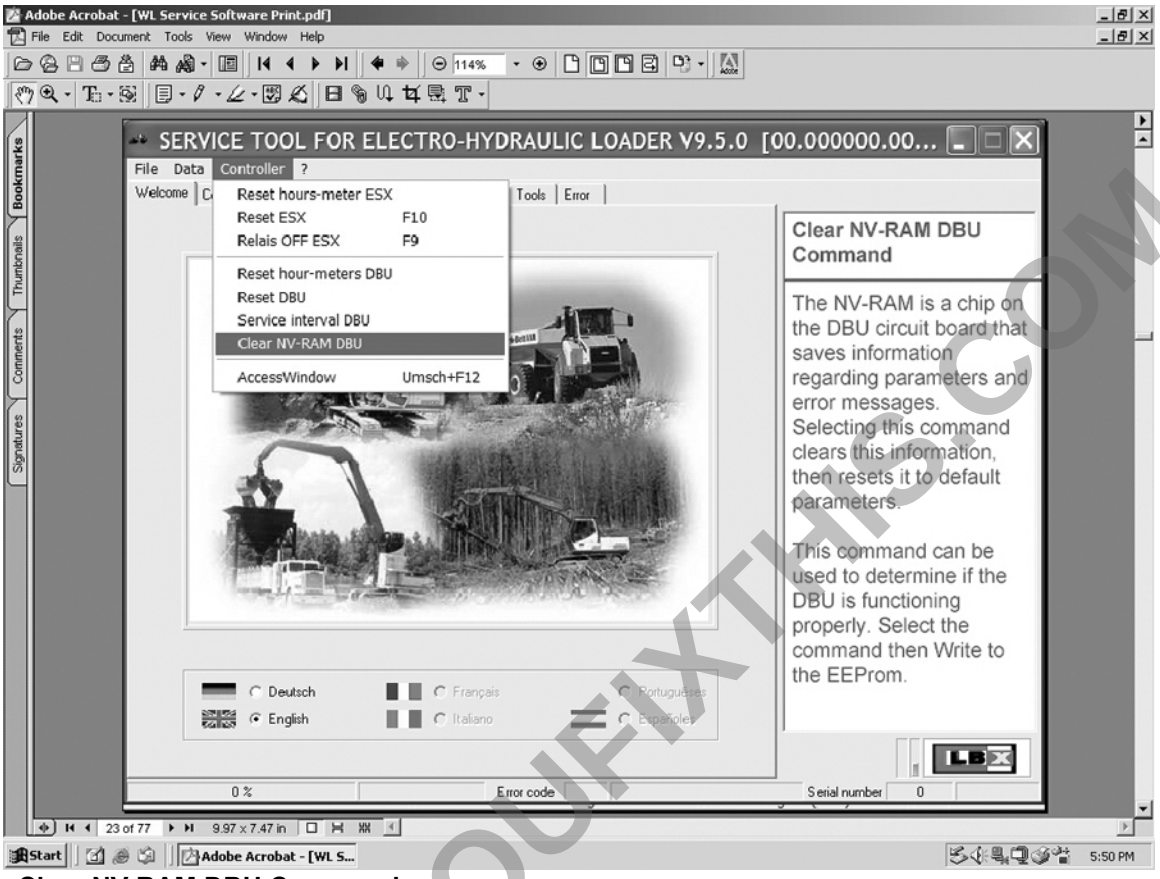


**Figure 48: Clear NV-RAM DBU Command**

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## Standard Work Modes: 3rd Function A




The F1 button on the control panel to the left of the steering column allows the operator to change work modes, or hydraulic responsiveness of the machine to meet application needs:

LED 1 = Fine Mode; LED 2 = Standard Mode; LED 3 = Heavy Mode. Each of the modes can be described as following: Fine Mode - slower, smoother hydraulic response; Standard Mode - medium speed hydraulic response; Heavy Mode - quicker, faster, more aggressive hydraulic response.

Each of the work modes is indicated above as Fine, Medium (a.k.a. Standard) and Heavy. For any given function of the hydraulics, (raise, lower, dump, etc.), hydraulic responsiveness can be altered by changing the Y axis value above (mA signal). For instance, an operator may prefer the auxiliary circuit open quickly upon activation regardless of which work mode is selected. In this example, the mA signal (Y axis) could be changed to 650 mA for positions 1 and 2 of the joystick (X axis) for any or all of the different work modes. Similarly, the mA signal can be changed at any position for any work mode; faster in the Fine mode and slower in the Heavy mode, or vice versa.

**X Axis** - Represents joystick position throughout its total distance of movement for a given function (digital signal from the joystick (0 to 512,+ or -); neutral position = 0, maximum position = 512. Changing these values is NOT recommended.

**Y Axis** - The mA signal output to the proportional valve of the given function at the X axis position of the joystick. The maximum output is 720 mA per work mode, per function for the L 120 and 800 mA for the L 125 and L 130.

**NOTE:** *Changing these settings affect both a separate auxiliary control lever and the main joystick if it has been selected to control the auxiliary circuit. For more information on utilizing the main joystick to control the auxiliary circuit, see (page 62).*

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THIS SCHEMATIC IS TO BE USED ON ALL L130 WHEEL LOADERS EXCEPT FOR THE FOLLOWING CHASSIS NUMBERS:
295565, 295590, 295672, 295678

22.10/ 30 → 30 /24.1

22.10/ 15 → 15 /24.1

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