SERVICE MANUAL

E098 (E70Z, E80Z, E100Z)



Rev. 03/14

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E098 (E70Z, E80Z, E100Z/ZS, E120Z)
SERVICE MANUAL CONTENTS

Section	SRM Number	Rev Date
FRAME	0100 SRM 1200	11/06
AC MOTOR REPAIR	0620 SRM 1098	03/10
DRIVE AXLE, SPEED REDUCER, AND DIFFERENTIAL	1400 SRM 0413	11/06
STEERING AXLE	1600 SRM 0326	03/07
STEERING CONTROL UNIT	1600 SRM 0720	11/06
STEERING SYSTEM	1600 SRM 1054	11/06
BRAKE SYSTEM	1800 SRM 0338	05/09
HYDRAULIC SYSTEM	1900 SRM 0559	02/09
MAIN CONTROL VALVE	2000 SRM 0077	02/09
MAIN CONTROL VALVE E-CONTROLS	2000 SRM 1224	04/08
CYLINDER REPAIR (MAST S/N A551, A555, A559, A661, A662, A663,	2100 SRM 1139	02/14
A66, B507, B508, B509, B551, B555, B559, B562, B563, B564, B661,	2100 SRM 1139	02/14
MASTS	4000 SRM 0736	07/10
MAST REPAIRS (S/N A513, A514, A613, A614, A702, A703, A704, A705,	4000 SRM 1250	02/14
A706, A707, A751, A752, B513, B514, B586, B587, B588, B589, B590,	4000 SRM 1250	02/14
ELECTRICAL SYSTEM (TRUCKS WITH AC CONTROLLERS)	2200 SRM 1055	10/09
AC MOTOR CONTROLLER DESC/CHKS/ADJ/TRBLSHT/REP/THEORY	2200 SRM 1056	03/09
OF OPERATION/DISPLAY PANEL	2200 SRM 1056	03/09
TROUBLESHOOTING AND ADJUSTMENTS USING THE AC	2200 SRM 1058	04/11
CONTROLS PROGRAM	2200 SRM 1058	04/11
INDUSTRIAL BATTERY	2240 SRM 0001	03/14
METRIC AND INCH (SAE) FASTENERS	8000 SRM 0231	12/04
PERIODIC MAINTENANCE	8000 SRM 1201	02/10
CAPACITIES AND SPECIFICATIONS	8000 SRM 1202	11/06
DIAGRAMS	8000 SRM 1203	02/09

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PROBLEM	POSSIBLE CAUSE	PROCEDURE OR ACTION
The pressure for the steering system is below specifications.	The relief valve at the pump is not adjusted correctly.	Adjust or install new relief valve.
	The relief valve has damage.	Repair or install new relief valve.
	The pump is worn.	Repair or install new pump.
The flow for the steering system is below specifications.	The pump has damage, is worn, or has a restriction.	Check that inlet hose is not soft or has a restriction or air leak. Check, and if necessary, replace pump.
	The relief valve is not adjusted correctly.	Adjust or install new relief valve.

NOTE: Troubleshooting for the main control valve is in the section **Manual hydraulic Control Valve** 2000 SRM 562 for the E1.50-2.00XM (E25-40XM, E25-40XM$_2$) (D114), E2.00-3.20XM (E45-65XM, E45-65XM$_2$) (F108), J2.00-3.20XM (J40-60XM, J40-60XM$_2$) (A216), and E1.50-2.00XM (E25-35Z, 40ZS) (E114/F114), and for J2.00-3.20XM (J40-65Z) (B416), and E2.00-3.20XM (E45-65Z) (G108) trucks with a manual hydraulic control valve. For the N30XMH and N30XMH$_2$ (C210), and V30ZMD (D210) model trucks, see the section **Manual hydraulic Control Valve** 2000 SRM 591. For lift truck models E3.50-5.50XL, E4.50XLS (E70-120Z, E100ZS) (D098/E098), see the section **Manual hydraulic Control Valve** 2000 SRM 77. For lift truck models J2.00-3.20XM (J40-65Z) (B416) with a electronic hydraulic control valve, see the section **Electro-Hydraulic Control Valve** 2000 SRM 1224.

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1. Adjust the stroke of the tilt cylinders WITHOUT tilt limit spacers as follows:

   a. Adjust the rod ends to

      (1) 15 mm (0.6 in.) for lift truck model

      - S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004), See Figure 7.

      (2) 20 mm (0.8 in.) for lift truck models

      - H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005) See Figure 7.

      (3) 32 mm (1.25 in.) for lift truck model

      - J1.60-2.00XMT (J30-40ZT) (J160) See Figure 7.

   b. Slowly tilt the mast backward until one cylinder rod stops. On the opposite cylinder, loosen the capscrews on the rod end. Measure the distance from the end of the cylinder to the back end of the rod end. Use a wrench and turn the cylinder rod IN until the dimension starts to decrease, then stop. Repeat this procedure until both cylinder rods stop at the same position within:

      (1) 1 mm (0.04 in.) for lift truck models

      - S30FT, S35FT, S40FTS (E010)
      - H1.6FT, H1.8FT, H2.0FTS (H30FT, H35FT, H40FTS) (F001)
      - S2.0-3.5FT (S40-S70FT, S55FTS) (F187)
      - H2.0-3.5FT (H40-70FT) (L177)
      - E1.50-2.00XM (E25-35Z, E40ZS) (E114,F114)
      - E2.00-3.20XM (E45-65Z) (G108)
      - J2.00-3.20XM (J40-65Z) (B416)
      - J1.60-2.00XMT (J30-40ZT) (J160)
      - H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005)
      - E3.50-5.50XL, E4.50XLS (E70-120Z, E100ZS) (E098)
      - S50CT (A267)
      - H2.0-2.5CT (H50CT) (A274)

      (2) 0.5 mm (0.02 in.) for lift truck model

      - S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004)

      (3) After the adjustments are complete, tighten the nuts on the rod ends to 90 N•m (66 lbf ft).

   c. Tilt the mast fully backward and measure the tilt angle. See the Nameplate for tilt angles. If necessary, adjust both rod ends equally for the correct angle.

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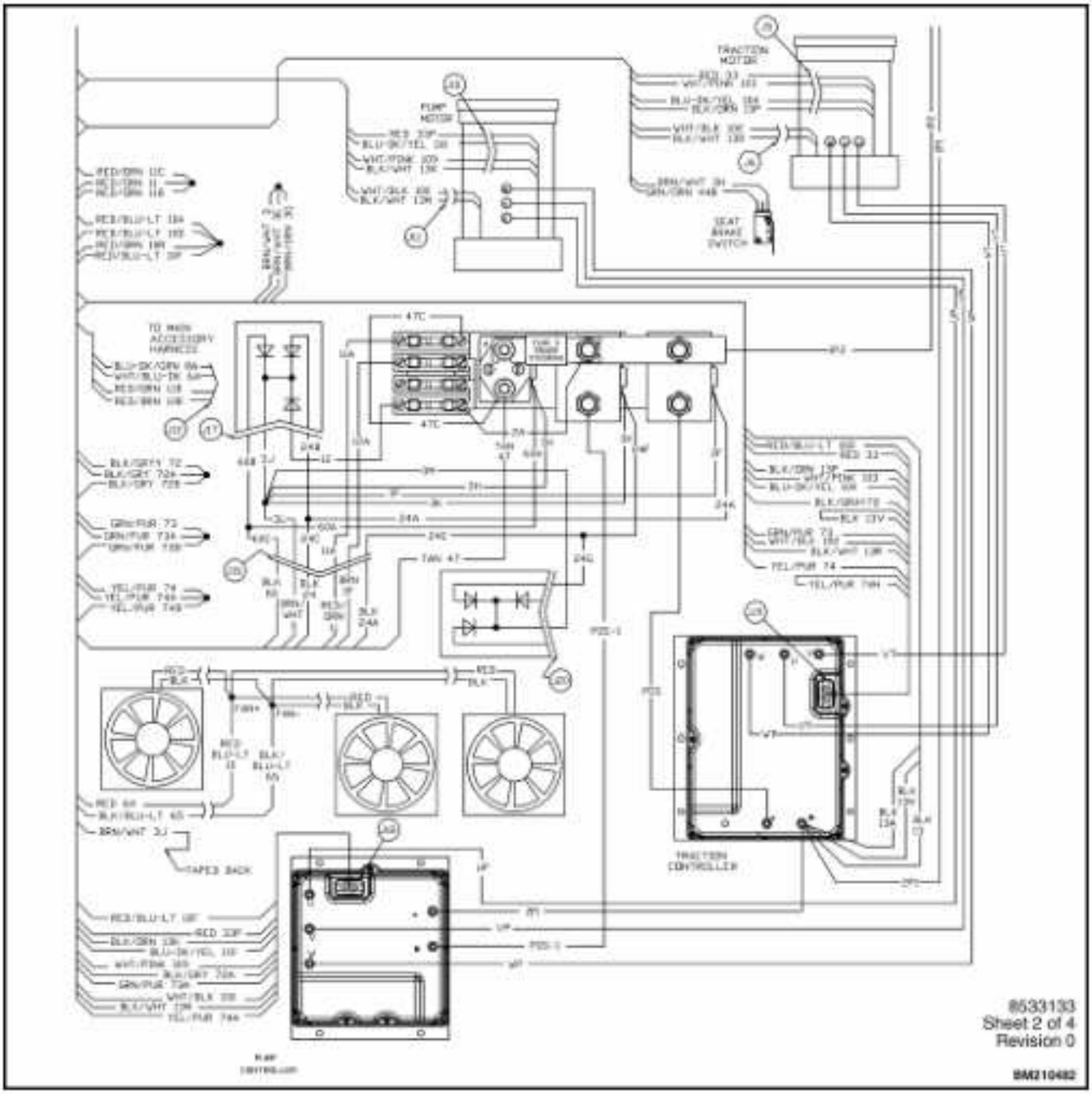


Figure 4. Wiring Diagram E3.50-5.50XL, E4.50XLS (E70-120Z, E100ZS) (D098), 80 Volts (Sheet 2 of 4)

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4. Unplug the mini-lever connector from the main PCB. See Figure 51.

⚠ CAUTION

DO NOT TRY TO REMOVE CONNECTOR BY PULLING ON THE WIRES.

5. If push button switch connector is attached to the mini-lever PCB then unplug this connector. Carefully grip plug with flush cutting wire cutters. Gently work the plug out of the socket. See Figure 52.

6. Locate the mini-lever mounting screws. See Figure 53.

7. Remove screws using a No. 10 torx driver. Carefully slide lever out of the top of the MLM. Be sure wires do no catch on any sharp edges.

Clean and Inspect

Remove any grease or dirt from MLM housing exterior.

Install

1. Install the seal (supplied in mini-lever kit) onto the base of the new mini-lever.

NOTE: Mini-lever will only insert in one direction.

2. Carefully position the mini-lever over the mounting hole. Use index pins to align with matching hole pattern.

3. Insert one screw and hand tighten to hold the mini-lever in place. See Figure 53.

4. Insert the remaining 3 screws but do not tighten.

5. Tighten all screws per the tightening sequence using a No. 10 torx driver. See Figure 53. Torque to 0.62 N•m (5.5 lbf in). If no torque measurement device is available, tightened firmly. Do not over tighten.



Figure 51. MLM Connector

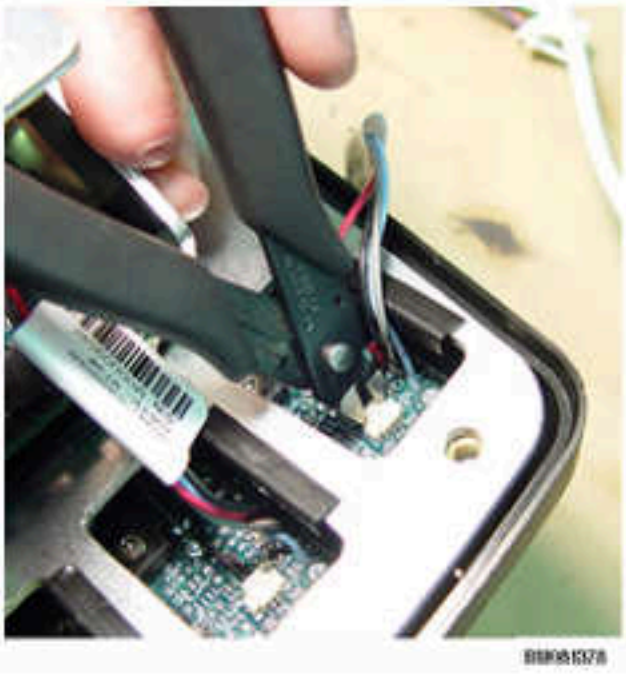


Figure 52. MLM Push Button Switch Connector

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