SERVICE MANUAL

B416 (J40-65Z)



FORM 1616862 Rev. 03/14

MidWestTech | Hyster B416 (J40-65Z) Forklift Service Manual | Publication 1616862 Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

General 1
Brush and Commutator Inspection 1
Hydraulic Pump Motor and Traction Motor 1
Steering Pump Motor 4
Normal Commutator Surface 5
Commutator Problems 5
Brush Replacement 8
Stoning the Commutator 10
Motors Repair 12
Disassemble 12
Traction Motor and Hydraulic Pump Motor 12
Steering Pump Motor 14
Assemble 16
Traction Motor and Hydraulic Pump Motor 16
Steering Pump Motor 17
Brush Alignment, Traction and Hydraulic Motors 19
Tests for Damaged Field and Armature 19
Test for an Open Circuit in One Armature Winding 19
Test for Short Circuit in One Armature Winding 20
Test for Short Circuit to Armature Shaft 20
Test for Open Circuit in Field Coil 20
Test for Short Circuit in Field Coil 21
Test for Short Circuit Between Field and Motor Case 21
Brush Holder Test 21
Troubleshooting 21

This section is for the following models:

All Electric Lift Trucks

©2008 HYSTER COMPANY

MidWestTech | Hyster B416 (J40-65Z) Forklift Service Manual | Publication 1616862 Order the manual at mid-west-tech.com >

Specifications

RELIEF VALVE PRESSURES*

E1.50-2.00XM (E25-40XM, E25-40XM$_2$) (D114) and E1.50-2.00XM (E25-35Z, 40ZS) (E114/F114)
Hydraulic System 17.9 ±0.7 MPa (2600 ±100 psi)
Steering System 5690 ±248 kPa (828 ±36 psi)
Tilt and Auxiliary Systems 15.50 ±0.7 MPa (2250 ±100 psi)

E2.00-3.20XM (E45-65XM, E45-65XM$_2$) (F108), and N30XMH and N30XMH$_2$ (C210)
Hydraulic System 20.7 ±0.7 MPa (3000 ±100 psi)
Steering System 8620 ±345 kPa (1250 ±50 psi)
Tilt and Auxiliary Systems 15.5 ±0.7 MPa (2250 ±100 psi)

J2.00-3.20XM (J40-60XM, J40-60XM$_2$) (A216), J2.00-3.20XM (J40-65Z) (A416, B416), E2.00-3.20XM (E45-65Z) (G108), and V30ZMD (D210/E210)
Hydraulic System 20.7 ±0.7 MPa (3000 ±100 psi)
Hydraulic System - J2.00-3.20XM (J40-65Z) (B416) Models 20.7 ±0.70 MPa (3000 ±100 psi)
Steering System 8909 ±345 kPa (1292 ±50 psi)
Steering System - E2.00-3.20XM (E45-65Z) (G108) Models 8620 ±248 kPa (1250 ±36 psi)
Tilt and Auxiliary Systems 15.5 ±0.7 MPa (2250 ±100 psi)

E3.50-5.50XL, E4.50XLS (E70-120Z, E100ZS) (D098/E098)
Hydraulic System 20.7 ±0.7 MPa (3000 ±100 psi)
Steering System 10,342 ±345 kPa (1500 ±50 psi)
Tilt and Auxiliary Systems 15.75 ±0.7 MPa (2250 ±100 psi)

HYDRAULIC TANK CAPACITY (DIPSTICK FULL MARK)

E1.50-2.00XM (E25-40XM, E25-40XM$_2$) (D114)
11.3 liter (3.0 gal)

*Oil temperature at 54 to 66°C (130 to 150°F).

E2.00-3.20XM (E45-65XM, E45-65XM$_2$) (F108); E2.00-3.20XM (E45-65Z) (G108); N30XMH and N30XMH$_2$ (C210); V30ZMD (D210/E210); J2.00-3.20XM (J40-60XM, J40-60XM$_2$ (A216); J2.00-3.20XM (J40-65Z) (A416); and E2.00-3.20XM (E45-65Z) (G108)
22.0 liter (5.6 gal)

E3.50-5.50XL, E4.50XLS (E70-120Z, E100ZS) (D098/E098)
Short Frame 33.3 liter (8.8 gal)
Long Frame 39.7 liter (10.5 gal)

J2.00-3.20XM (J40-65Z) (B416); J2.00-3.20XM (J40-60XM, J40-60XM$_2$ (A216); J2.00-3.20XM (J40-65Z) (A416);
27.4 liter/min (7.25 gal)

HYDRAULIC PUMP CAPACITIES - ALL MODELS EXCEPT E3.50-5.50XL, E4.50XLS (E70-120Z, E100ZS) (D098/E098)

Large Hydraulic Pump 19 cc/revolution (1.16 in^3/revolution)

Small Hydraulic Pump 12 cc/revolution (0.73 in^3/revolution)

Steering Pump 4.23 cc/revolution (0.26 in^3/revolution)

HYDRAULIC PUMP CAPACITIES - MODELS E3.50-5.50XL, E4.50XLS (E70-120Z, E100ZS) (D098/E098)

Hydraulic Pump 29 cc/revolution (1.77 in^3/revolution)

Steering Pump 6.36 cc/revolution (0.39 in^3/revolution)

MidWestTech | Hyster B416 (J40-65Z) Forklift Service Manual | Publication 1616862 Order the manual at mid-west-tech.com >

Status Code	Description	Memory Recall	Circuit
55	Dash display cannot communicate with master controller.	Yes	Traction

Symptom

Varies due to problem.

Possible Causes and Test Procedures

- If truck operates and code is displayed on dash, the CANbus communication is not working between the dash and the master controller. See the section Troubleshooting When Dash and/or Lift Truck is not Operational.
  Check for loose or broken wires.
- If truck does not operate and code is displayed on dash, see the section Troubleshooting When Dash and/or Lift Truck is not Operational.

Status Code	Description	Memory Recall	Circuit
56	Mini-lever module or joystick cannot communicate with the master controller.	No	E-Hydraulics

Symptom

Hydraulic functions are disabled.

Possible Causes and Test Procedures

- Check input to the mini-lever module (or joystick).
  Voltage should be in the range 9-16V.
- Check LED status of the valve driver module.
  Green LED should be on.
- CANbus communication between mini-lever module and master controller is not working
  Check for loose or broken wires.

Status Code	Description	Memory Recall	Circuit
57	Valve driver module cannot communicate with master controller.	No	E-Hydraulics

Symptom

Hydraulic functions are disabled.

Possible Causes and Test Procedures

- Check LED status of the valve driver module.
  Green LED should be on.
- CANbus communication between mini-lever module and master controller is not working
  Check for loose or broken wires.

MidWestTech | Hyster B416 (J40-65Z) Forklift Service Manual | Publication 1616862 Order the manual at mid-west-tech.com >

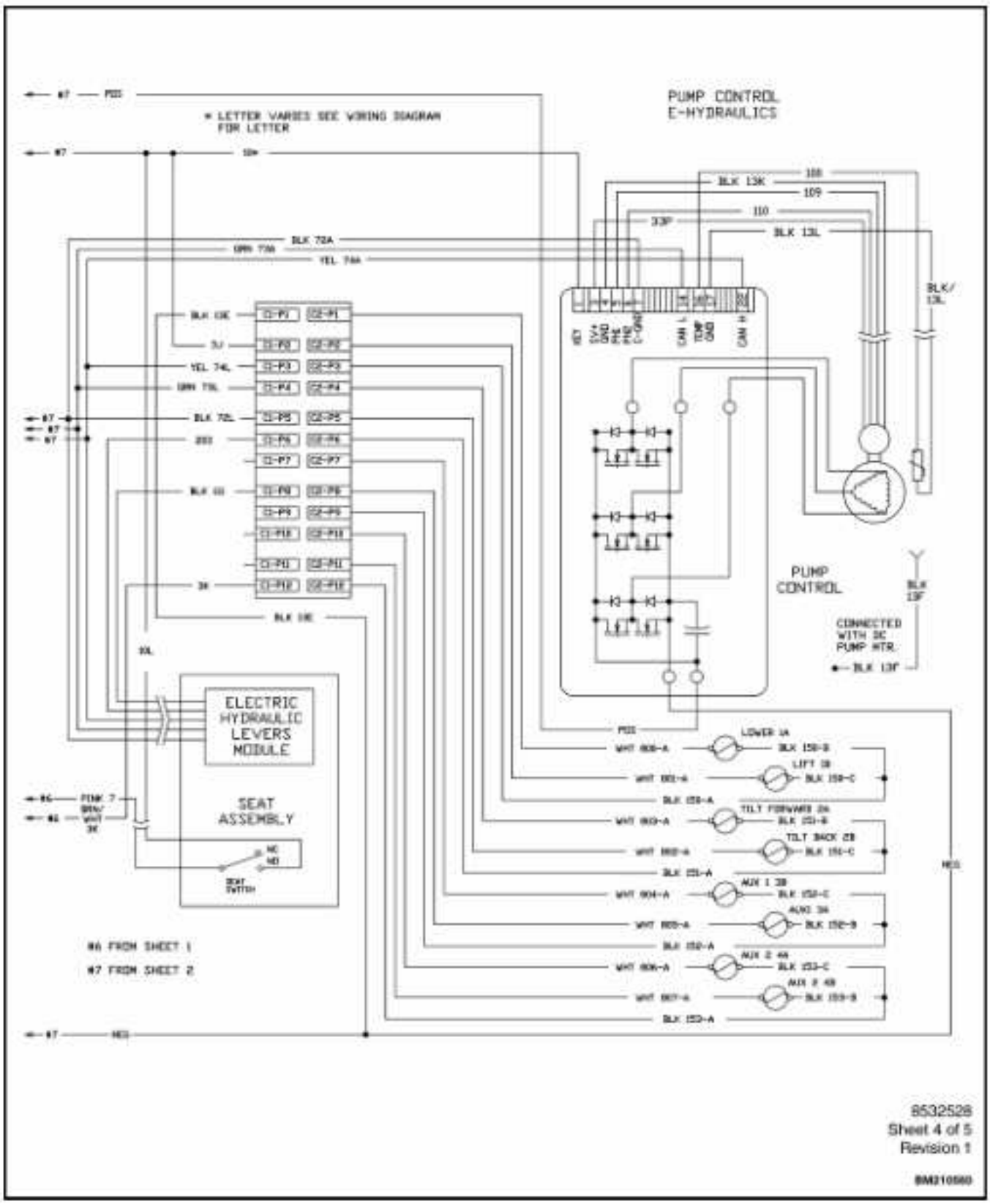


Figure 1. Schematic Diagram (Sheet 4 of 5)

MidWestTech | Hyster B416 (J40-65Z) Forklift Service Manual | Publication 1616862 Order the manual at mid-west-tech.com >

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

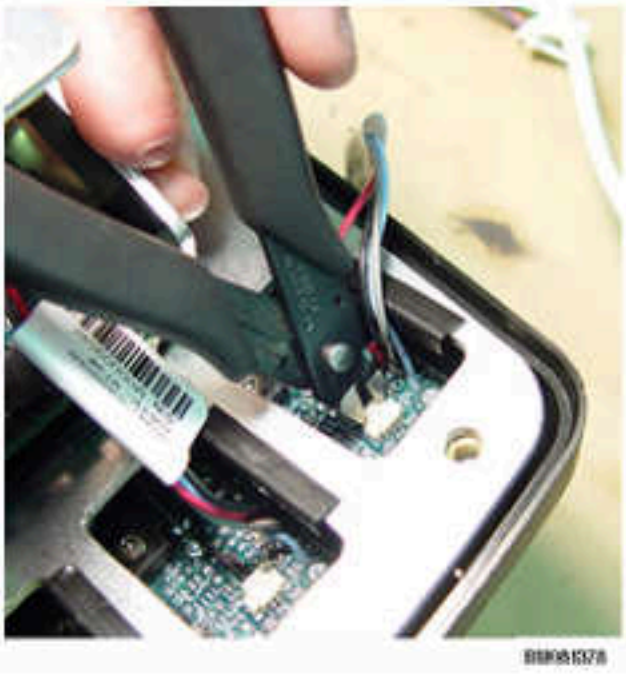


Figure 52. MLM Push Button Switch Connector

MidWestTech | Hyster B416 (J40-65Z) Forklift Service Manual | Publication 1616862 Order the manual at mid-west-tech.com >