An Oshkosh Corporation Company

Service and Maintenance Manual

Model

1230ES

PVC 2002

31215828

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ANSI

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Critical Stability Weights

⚠ WARNING

DO NOT REPLACE ITEMS CRITICAL TO STABILITY, SUCH AS BATTERIES OR SOLID TIRES, WITH ITEMS OF DIFFERENT WEIGHT OR SPECIFICATION. DO NOT MODIFY UNIT IN ANY WAY TO AFFECT STABILITY.

Component	Model 1230 ES	
Wheel and Tire Assembly (each)	15 lb	7 kg
Wheel/Tire and Drive Assembly (each)	93 lb	42 kg
Batteries - Standard (each)	62 lb	28 kg
Batteries - Standard - Combined	248 lb	112 kg
Batteries - AGM (each)	69.2 lb	31.4 kg
Batteries - AGM - Combined	276.8 lb	125.6 kg

1.2 LUBRICATION

Lubrication Capacities

Component	1230ES	
Hydraulic Tank	0.80 Gal.	3 L
Hydraulic System (Including Tank)	1.75 Gal.	4.1 L

Hydraulic Oil

NOTE: *Machines built in Europe installed hydraulic oil (Nervofluid 15) which has a BLUE TINT for identification purposes only, but is fully compatible and can be mixed with any of the JLG recommended hydraulic oils mentioned following.*

Table 1-3. Hydraulic Oil

Hydraulic System Operating Temperature Range	SAE Viscosity Grade
0°F to +23°F (-18°C to -5°C)	10W
0°F to 210°F (-18°C to +99°C)	10W-20, 10W-30
50°F to 210°F (+10°C to +210°C)	20W-20

NOTE: *Hydraulic oils must have anti-wear qualities at least to API Service Classification GL-3, and sufficient chemical stability for mobile hydraulic system service. JLG recommends premium hydraulic fluid, which has an SAE viscosity index of 140.*

When temperatures remain below 20Â° F (-7Â° C), JLG recommends the use of premium hydraulic fluid. Aside from JLG recommendations, it is not advisable to mix oils of different brands or types, as they may not contain the same required additives or be of comparable viscosities. If use of hydraulic oil other than premium hydraulic fluid is desired, contact JLG for proper recommendations.

Lubrication Specifications

Table 1-4. Lubrication Specifications

Key	Specifications
MPG	Multipurpose Grease having a minimum dripping point of 350° F. Excellent water resistance and adhesive qualities, and being of extreme pressure type. (Timken OK 40 pounds minimum.)
EPGL	Extreme Pressure Gear Lube (oil) meeting API service classification GL-5 or MIL-Spec MIL-L-2105.
HO	Hydraulic Oil. Mobil DTE 10 Excel 15

Hydraulic Oil Specifications

Table 1-5. Nervofluid 15

ISO Viscosity Grade	#15
Density	0.860 kg/dm^3 @ 59°F (15°C)
Pour Point, Max	-40°C (-40°F)
Flash Point, Min.	175°C (347°F)
Viscosity	
at 40°C	14.9 mm^2/s
at 100°C	3.8 mm^2/s
Viscosity Index	153

Table 1-6. Mobil DTE 10 Excel 15

ISO Viscosity Grade	#15
Pour Point, Max	-54°C
Flash Point, Min.	182°C
Density at 15°C	0.8375 kg/l
Density at 60°F	0.0302 lb/in^3
Viscosity	
at 40°C	15.8 cSt
at 100°C	4.07 cSt
Viscosity Index	168

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Hydraulic Cylinder - Disassembly

The following disassembly procedures shows the complete disassembly sequence of the cylinder assembly. However, your situation may not require complete disassembly, choose which procedures are required to repair the cylinder assembly for your situation.

NOTICE

DISASSEMBLY OF THE CYLINDER SHOULD BE PERFORMED ON A CLEAN WORK SURFACE IN A DIRT FREE WORK AREA.

Removing the Valve Block Assembly

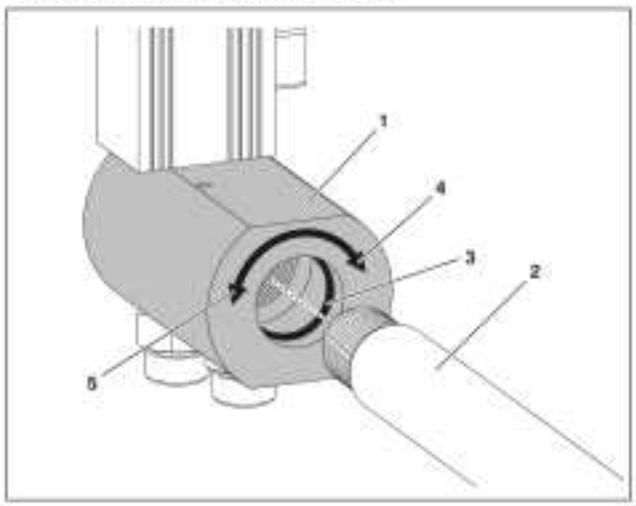


Figure 6-17. Valve Block - Removal

1. Valve Block
2. Cyl. #1 - Cylinder Rod
3. O-Ring Seal
4. Direction for Removing
5. Direction for Installing

NOTICE

PROTECT THE CYLINDER ROD SURFACE. DAMAGE TO THE CYLINDER ROD CHROME FINISH DUE TO SCRATCHING, INDENDATION, CHIPPING OR OTHERWISE WILL CAUSE EVENTUAL GLAND SEAL FAILURE. THE CYLINDER ROD MUST BE REPLACED IF DAMAGED.

1. Wrap the cylinder rod to protect it from damage, then clamp the cylinder rod into a vise or device to keep it from turning while removing the valve block assembly.
2. Using the proper size wrench, (approx. 55mm - 2.165"), turn the valve block assembly counterclockwise to remove it from the end of the cylinder rod.

Cylinder #2 and #3 - Removal from Stack

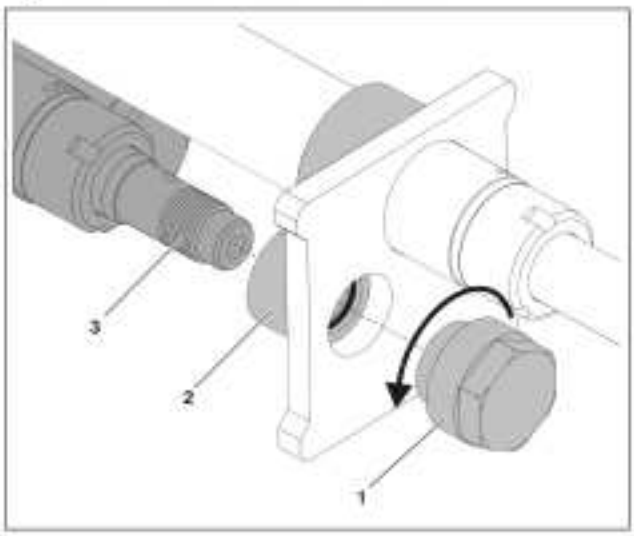


Figure 6-18. Cylinder #2 and #3 Assembly - Removal

1. Rod Attach Cap
2. Cylinder Joint
3. Cyl. #2 and #3 Assembly

1. Using the proper size wrench, (44mm - 1.732") remove cylinder #2 rod attach cap by turning the cap counterclockwise to remove.
2. Once the attach cap is removed from cylinder #2 rod, slide the cylinder #2 and #3 assembly out of the joint sleeve. Move the cylinder #2 and #3 assembly to a suitable workbench for disassembly.

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9.10 ELECTRICAL LAYOUT AND SCHEMATICS

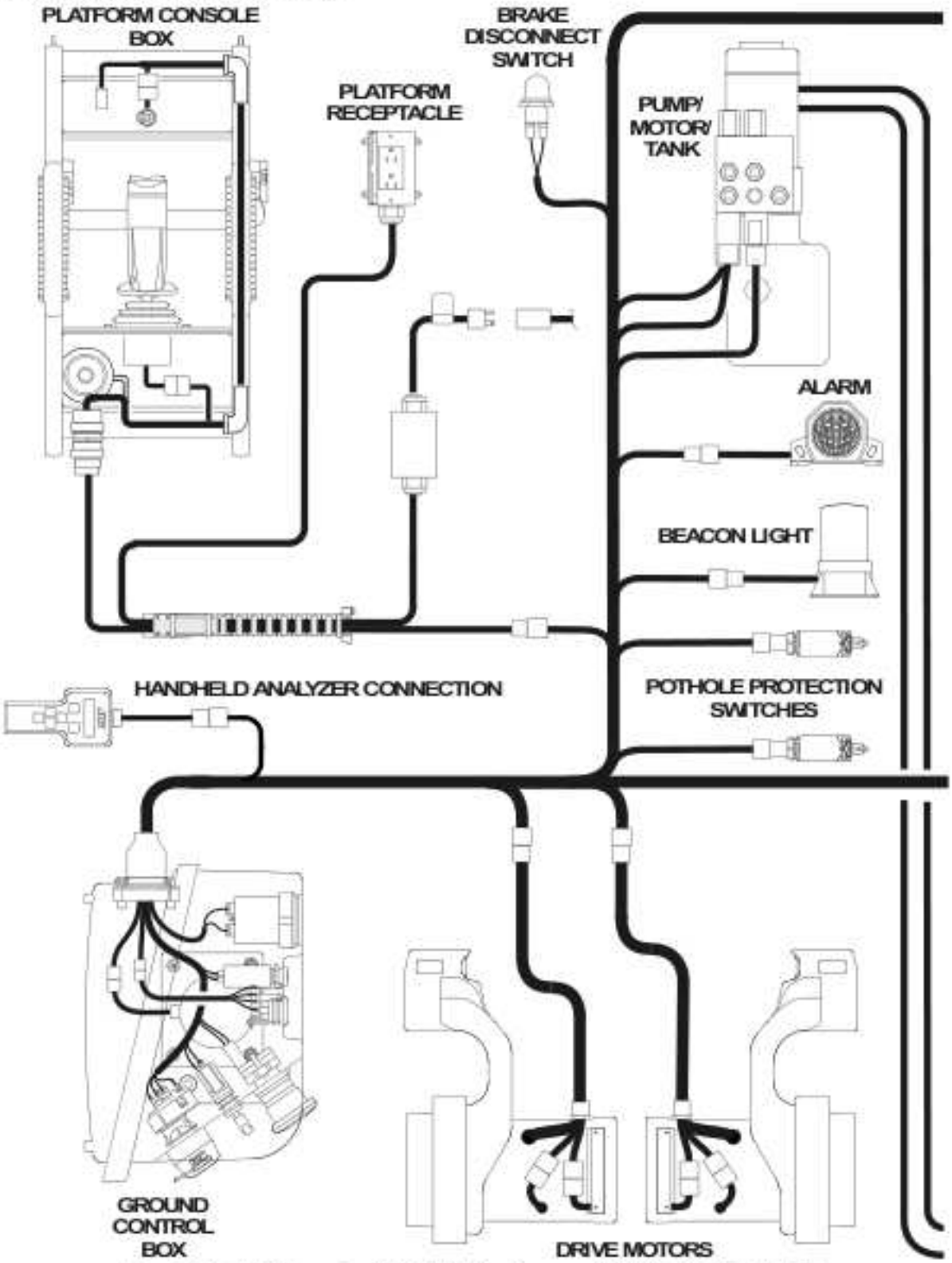


Figure 9-14. 1230ES - Overview of Electrical System Components. (1001092456 Drive Module)

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5.5 GROUND CONTROL MODULE - SERVICE PROCEDURE

NOTE: *The Ground Control Station supplied with the ZAPI Power Module PN-1001092456 (production start mid-year 2010) does not require use of the printed circuit board inside the ground control module.*
However box installation and removal instructions shown are exactly the same as the ground control box which does contain a printed circuit board and is used with previous machines supplied with the SEVCON Power Module.

Ground Control Station

(See Figure 5-3., Ground Control Station Assembly)

NOTICE

DO NOT ATTEMPT TO DISASSEMBLE THE GROUND CONTROL MODULE IF MACHINE IS STILL UNDER WARRANTY. OPENING THE GROUND CONTROL MODULE WHILE THE MACHINE IS UNDER WARRANTY WILL VOID THE WARRANTY. IF UNDER WARRANTY REQUEST A REPLACEMENT MODULE FROM THE FACTORY.

The Ground Control Module allows for field replacement of components internal to the module.

Printed Circuit Board (PCB) Replacement

NOTE: *Anytime the ground control box is removed the tilt sensor must be recalibrated. Refer to Section 7.4, Tilt Sensor Calibration to recalibrate the tilt.*



1. Remove the three bolts at the bottom of the ground control station.



2. Remove the four screws where the control cable enters into the control box.
3. Remove plug and place control box face down on a suitable work bench..



4. Remove the six screws at the back of the ground control and separate.
5. Pull the pin connectors from the printed circuit board.



6. Remove the two screws inside the control box that affix the printed circuit board to the control box.
7. Replace the printed circuit board and reassemble the ground control box.

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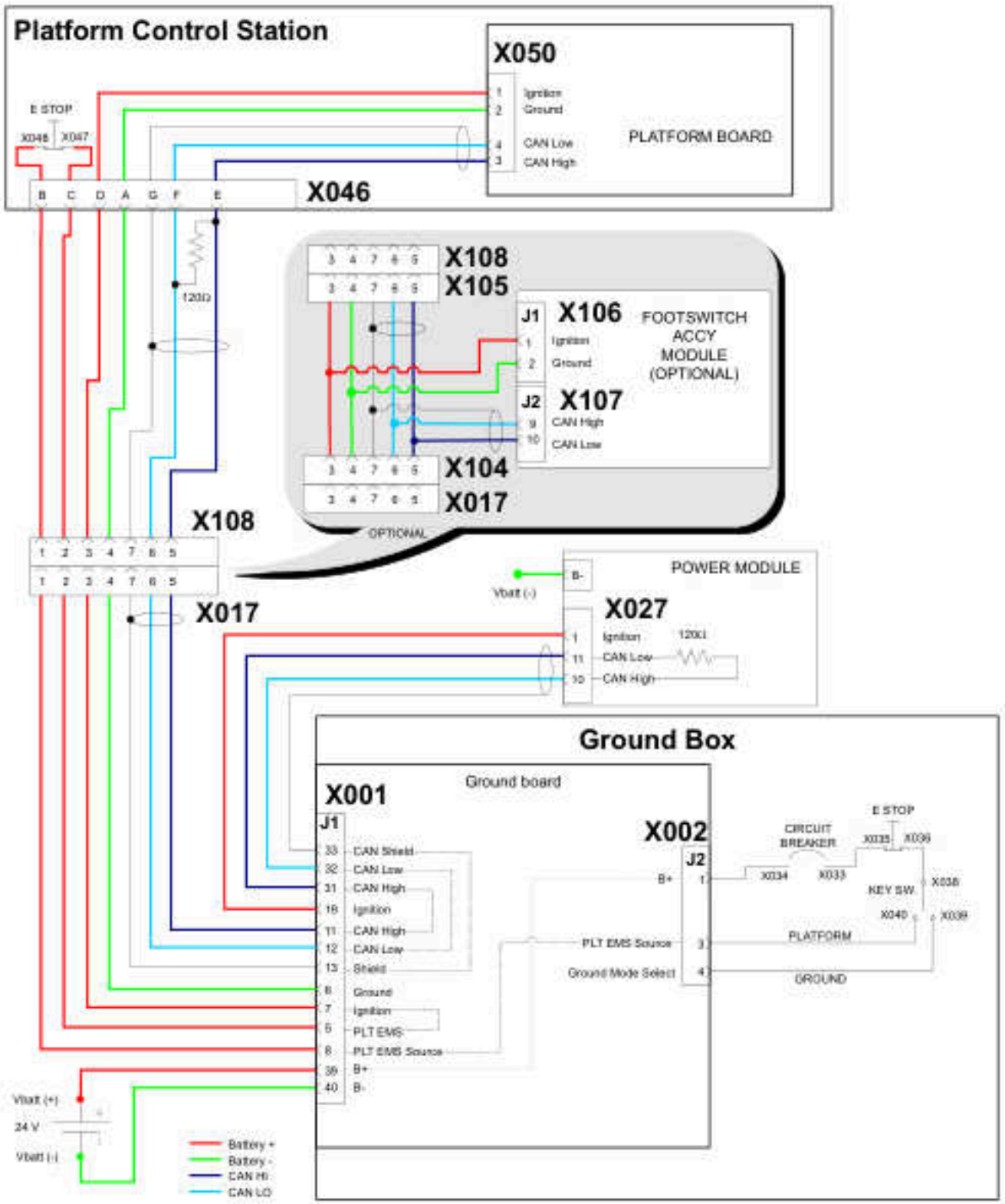


Figure 3-1. Basic Electronic Module Connections

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