

8. Using suitable protection, clamp the cylinder rod in a vise or similar holding fixture as close to the piston as possible.
9. Remove the lock nut from the cylinder rod.
10. Screw the piston counterclockwise by hand and remove the piston from cylinder rod.
11. remove and discard the piston seal and o-ring.
12. Remove the rod from the holding fixture. Remove the cylinder head. Discard the o-ring, retaining ring, back-up ring, rod seal, wiper seal and wear ring.

CLEANING AND INSPECTION

1. Clean all parts thoroughly in an approved cleaning solvent.
2. Inspect the cylinder rod for scoring, tapering, ovality, or other damage. If necessary, dress rod with Scotch Brite or equivalent. Replace rod if necessary.
3. Inspect threaded portion of rod for excessive damage. Dress threads as necessary.
4. Inspect inner surface of cylinder barrel tube for scoring or other damage. Check inside diameter for tapering or ovality. Replace if necessary.
5. Inspect piston surface for damage and scoring and for distortion. Dress piston surface or replace piston as necessary.
6. Inspect threaded portion of piston for damage. Dress threads as necessary.
7. Inspect seal and o-ring grooves in piston for burrs and sharp edges. Dress applicable surfaces as necessary.
8. Inspect cylinder head inside diameter for scoring or other damage and for ovality and tapering. Replace as necessary.
9. Inspect seal and o-ring grooves in head for burrs and sharp edges. Dress applicable surfaces as necessary.
10. Inspect cylinder head outside diameter for scoring or other damage and ovality and tapering. Replace as necessary.
11. If applicable, inspect rod and barrel bearings for signs of correct excessive wear or damage. Replace as necessary.
 - a. Thoroughly clean hole, (steel bushing) of burrs, dirt etc. to facilitate bearing installation.
 - b. Inspect steel bushing for wear or other damage. If steel bushing is worn or damaged, rod/barrel must be replaced.
 - c. Lubricate inside of steel bushing prior to bearing installation.
 - d. Using an arbor of the correct size, carefully press the bearing into steel bushing.

NOTE: Install pin into the composite bearing dry. Lubrication is not required with nickel plated pins and bearings.

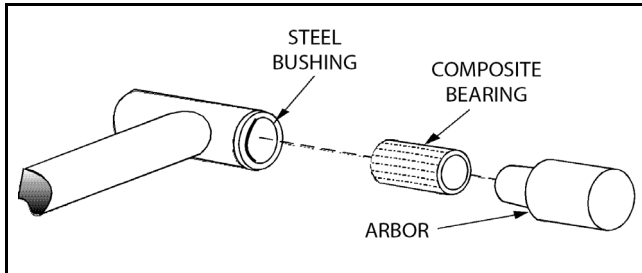


Figure 5-31. Composite Bearing Installation

12. If applicable, inspect port block fittings and holding valve. Replace as necessary.
13. Inspect the oil ports for blockage or the presence of dirt or other foreign material. Repair as necessary.
14. If applicable, inspect piston rings for cracks or other damage. Replace as necessary.

ASSEMBLY

NOTE: Prior to cylinder assembly, ensure that the proper cylinder seal kit is used. See your JLG Parts Manual.

NOTE: Apply a light film of hydraulic oil to all components prior to assembly.

1. A special tool is used to install a new rod seal into the applicable cylinder head groove.

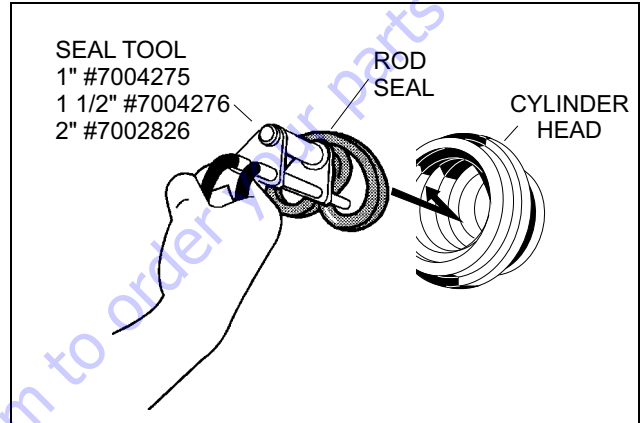


Figure 5-32. Rod Seal Installation

NOTICE

WHEN INSTALLING NEW SEALS, ENSURE SEALS ARE INSTALLED PROPERLY. IMPROPER SEAL INSTALLATION COULD RESULT IN CYLINDER LEAKAGE AND IMPROPER CYLINDER OPERATION.

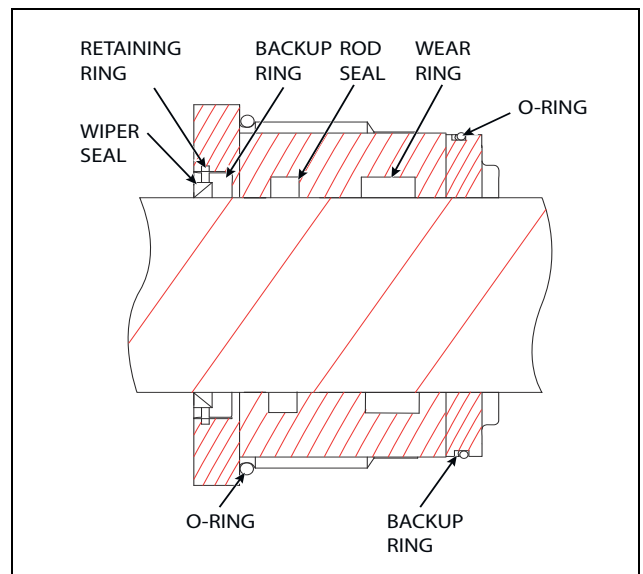


Figure 5-33. Cylinder Head Seal Installation

- Use a soft mallet to tap a new wiper seal into the applicable cylinder head groove.

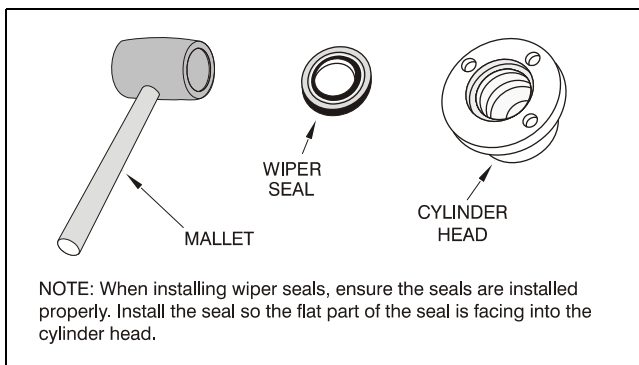


Figure 5-34. Wiper Seal Installation

- Place a new o-rings and back-up seal in the applicable outside diameter groove of the cylinder head.

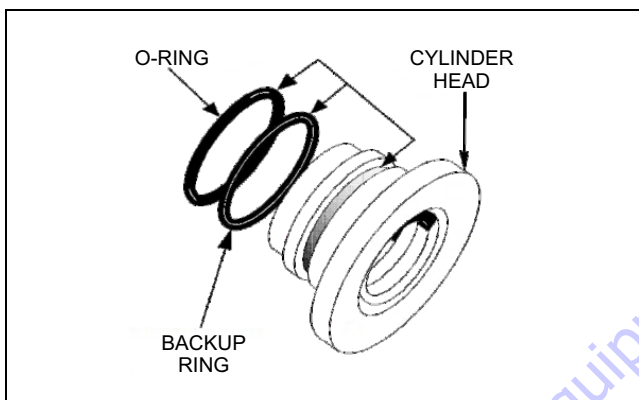


Figure 5-35. Installation of Head Seal Kit

- Install o-ring onto the cylinder rod. Carefully install the head on the rod, ensuring that the wiper seal and, rod seal and retaining ring are not damaged or dislodged. Push the head along the rod to the rod end.
- Place a new o-ring in the inner piston diameter groove.
- Using suitable protection, clamp the cylinder rod in a vise or similar holding fixture as close to piston as possible.
- Carefully thread the piston on the cylinder rod hand tight, ensuring that the o-ring are not damaged or dislodged.
- Install the lock nut onto the cylinder rod.
- Remove the piston rod from the holding fixture.

- Place new piston seal in the outer piston diameter groove. (A tube, with I.D. slightly larger than the O.D. of the piston is recommended to install the solid seal).

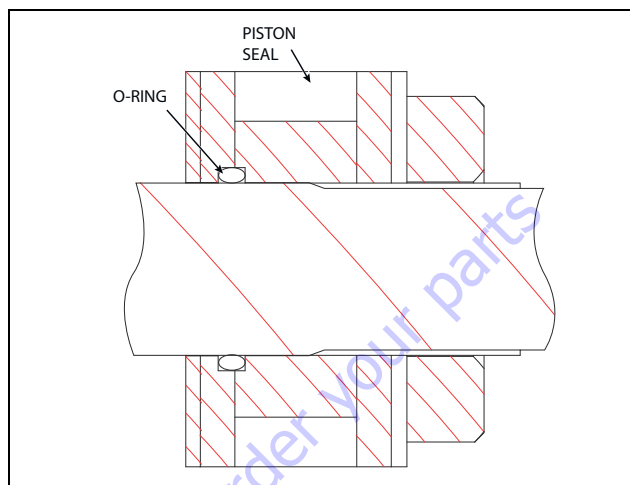


Figure 5-36. Piston Seal Kit Installation

- Position the cylinder barrel in a suitable holding fixture.

NOTICE

EXTREME CARE SHOULD BE TAKEN WHEN INSTALLING THE CYLINDER ROD, HEAD, AND PISTON. AVOID PULLING THE ROD OFF-CENTER, WHICH COULD CAUSE DAMAGE TO THE PISTON AND CYLINDER BARREL SURFACES.

- With barrel clamped securely, and while adequately supporting the rod, insert the piston end into the barrel cylinder. Ensure that the piston loading o-ring and seal ring are not damaged or dislodged.
- Continue pushing the rod into the barrel until the cylinder head can be inserted into the barrel cylinder.
- Screw the cylinder head into the barrel using a spanner wrench.
- After the cylinder has been reassembled, the rod should be pushed all the way in (fully retracted) prior to the re-installation of any holding valve or valves.
- Install the plugs into port blocks.

Tower Boom Lift Cylinder

DISASSEMBLY

NOTICE

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

1. Connect a suitable auxiliary hydraulic power source to the cylinder port block fitting.

WARNING

DO NOT FULLY EXTEND CYLINDER TO THE END OF STROKE. RETRACT CYLINDER SLIGHTLY TO AVOID TRAPPING PRESSURE.

2. Operate the hydraulic power source and extend the cylinder. Shut down and disconnect the power source. Adequately support the cylinder rod, if applicable.
3. Remove the bearings from the cylinder barrel.
4. Remove the all cartridge valves, plugs and orifice from the block ports of the cylinder. Discard the o-rings.
5. Place the cylinder barrel into a suitable holding fixture.

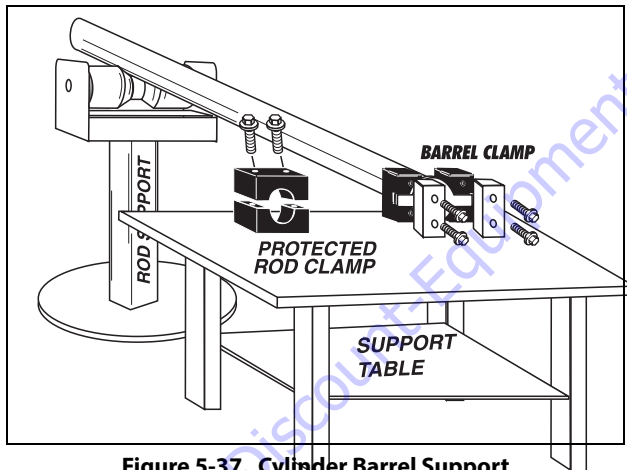


Figure 5-37. Cylinder Barrel Support

6. Using a hook spanner wrench, unscrew the cylinder head from the barrel.
7. Attach a suitable pulling device to the cylinder rod end.

NOTICE

EXTREME CARE SHOULD BE TAKEN WHEN REMOVING THE CYLINDER ROD, HEAD, AND PISTON. AVOID PULLING THE ROD OFF-CENTER, WHICH COULD CAUSE DAMAGE TO THE PISTON AND CYLINDER BARREL SURFACES.

8. With the barrel clamped securely, apply pressure to the rod pulling device and carefully withdraw the complete rod assembly from the cylinder barrel.

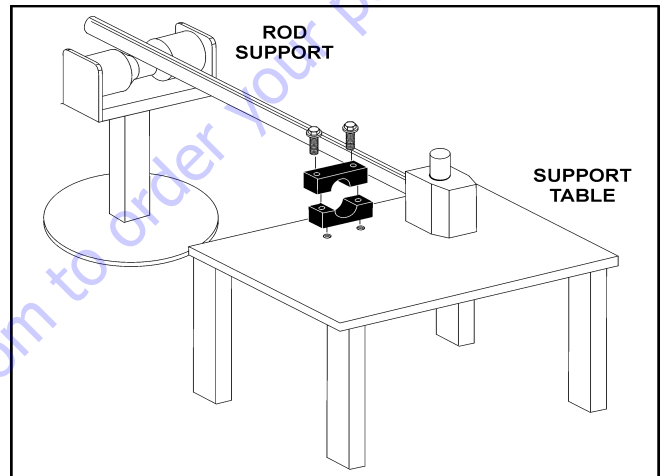
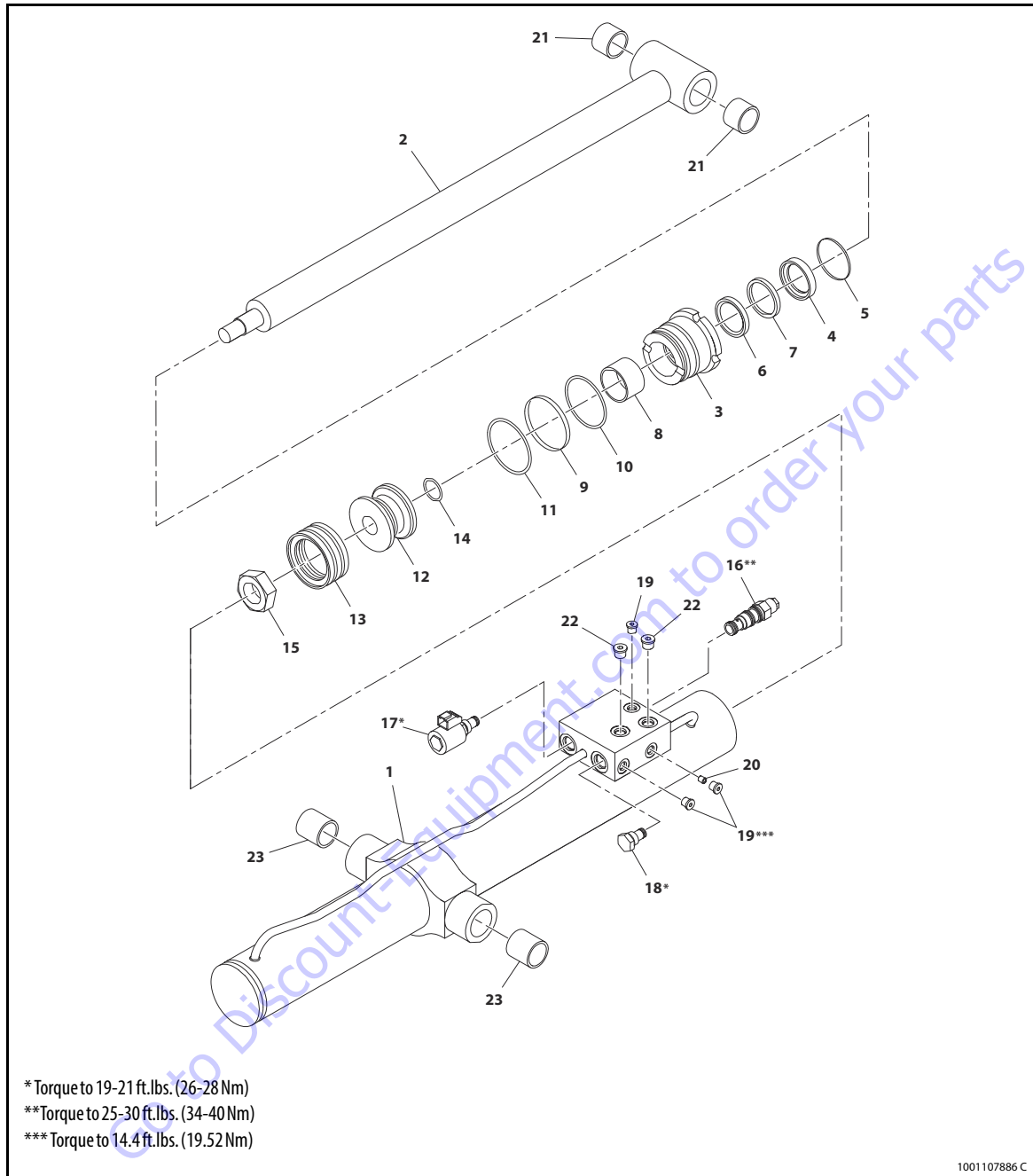


Figure 5-38. Cylinder Rod Support



- | | | | | |
|-------------------|-----------------|-----------------|---------------------|-------------|
| 1. Barrel | 6. Rod Seal | 11. O-ring | 16. Cartridge Valve | 20. Orifice |
| 2. Rod | 7. Backup Ring | 12. Piston | 17. Cartridge Valve | 21. Bearing |
| 3. Head | 8. Wear Ring | 13. Piston Seal | 18. Cartridge Valve | 22. Plug |
| 4. Wiper Seal | 9. O-ring | 14. O-Ring | 19. Plug | 23. Bearing |
| 5. Retaining Ring | 10. Backup Ring | 15. Nut | | |

Figure 5-39. Tower Boom Cylinder

9. Using suitable protection, clamp the cylinder rod in a vise or similar holding fixture as close to the piston as possible.
10. Remove the lock nut from the cylinder rod.
11. Screw the piston counterclockwise, by hand and remove the piston from cylinder rod.
12. Remove and discard the piston seal and o-ring.
13. Remove the cylinder head from rod. Remove and discard the o-ring, back-up ring, wear ring, rod seal, wiper seal and retaining ring.

CLEANING AND INSPECTION

1. Clean all parts thoroughly in an approved cleaning solvent.
2. Inspect the cylinder rod for scoring, tapering, ovality, or other damage. If necessary, dress rod with Scotch Brite or equivalent. Replace rod if necessary.
3. Inspect threaded portion of rod for excessive damage. Dress threads as necessary.
4. Inspect inner surface of cylinder barrel tube for scoring or other damage. Check inside diameter for tapering or ovality. Replace if necessary.
5. Inspect piston surface for damage and scoring and for distortion. Dress piston surface or replace piston as necessary.
6. Inspect threaded portion of piston for damage. Dress threads as necessary.
7. Inspect seal and o-ring grooves in piston for burrs and sharp edges. Dress applicable surfaces as necessary.
8. Inspect cylinder head inside diameter for scoring or other damage and for ovality and tapering. Replace as necessary.
9. Inspect seal and o-ring grooves in head for burrs and sharp edges. Dress applicable surfaces as necessary.
10. Inspect cylinder head outside diameter for scoring or other damage and ovality and tapering. Replace as necessary.
11. If applicable, inspect rod and barrel bearings for signs of correct excessive wear or damage. Replace as necessary.
 - a. Thoroughly clean hole, (steel bushing) of burrs, dirt etc. to facilitate bearing installation.
 - b. Inspect steel bushing for wear or other damage. If steel bushing is worn or damaged, rod/barrel must be replaced.
 - c. Lubricate inside of steel bushing prior to bearing installation.
 - d. Using an arbor of the correct size, carefully press the bearing into steel bushing.

SECTION 5 - BASIC HYDRAULIC INFORMATION & SCHEMATICS

NOTE: Install pin into the composite bearing dry. Lubrication is not required with nickel plated pins and bearings.

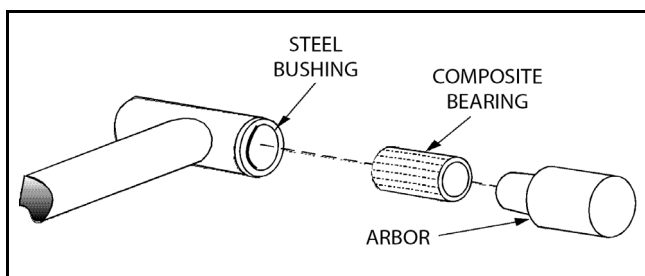


Figure 5-40. Composite Bearing Installation

12. Inspect port block fittings and holding valve. Replace as necessary.
13. Inspect the oil ports for blockage or the presence of dirt or other foreign material. Repair as necessary.
14. If applicable, inspect piston rings for cracks or other damage. Replace as necessary.

ASSEMBLY

NOTE: Prior to cylinder assembly, ensure that the proper cylinder seal kit is used. See your JLG Parts Manual.

NOTE: Apply a light film of hydraulic oil to all components prior to assembly.

1. A special tool is used to install a new rod seal into the applicable cylinder head groove.

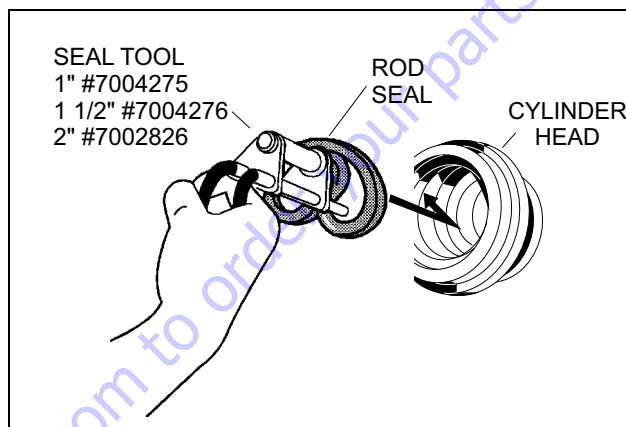


Figure 5-41. Rod Seal Installation

NOTICE

WHEN INSTALLING NEW SEALS, ENSURE SEALS ARE INSTALLED PROPERLY. IMPROPER SEAL INSTALLATION COULD RESULT IN CYLINDER LEAKAGE AND IMPROPER CYLINDER OPERATION.

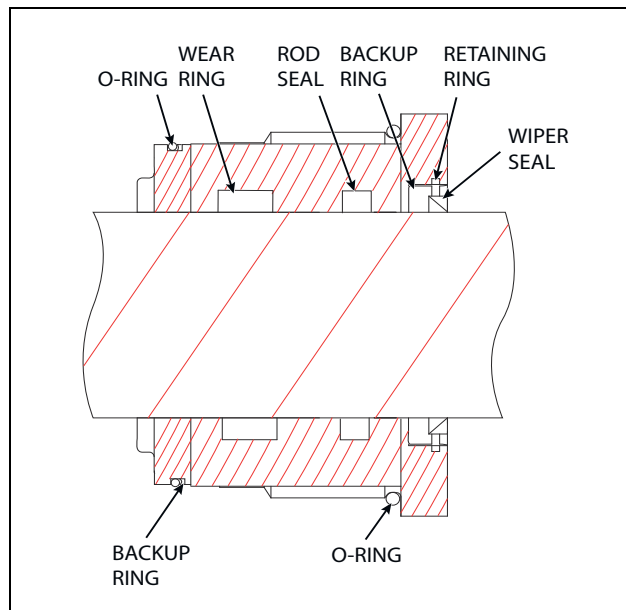


Figure 5-42. Cylinder Head Seal Installation

- Use a soft mallet to tap a new wiper seal into the applicable cylinder head groove. Install a new retaining ring into the applicable cylinder head groove.

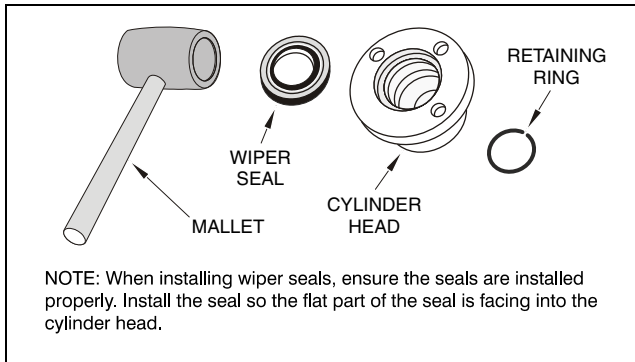


Figure 5-43. Wiper Seal Installation

- Place a new o-ring and back-up seal in the applicable outside diameter groove of the cylinder head.

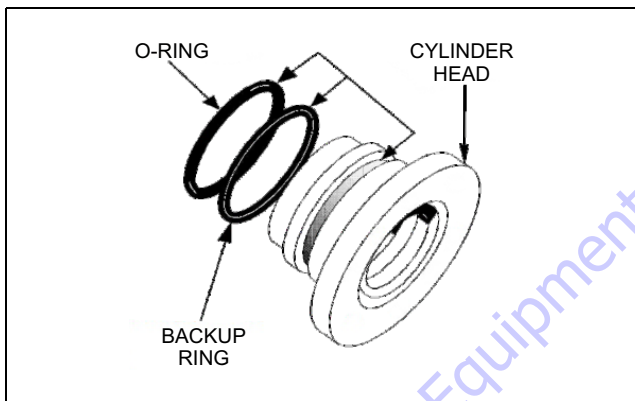


Figure 5-44. Installation of Head Seal Kit

- Install o-ring onto the cylinder rod. Carefully install the head on the rod, ensuring that the wiper seal and rod seal are not damaged or dislodged. Push the head along the rod to the rod end.
- Place a new o-ring in the inner piston diameter groove.
- Using suitable protection, clamp the cylinder rod in a vise or similar holding fixture as close to piston as possible.
- Carefully thread the piston on the cylinder rod hand tight, ensuring that the o-ring are not damaged or dislodged.
- Install the lock nut onto the cylinder rod.
- Remove the cylinder rod from the holding fixture.

- Place new piston seal and o-ring in the outer and inner piston diameter groove. (A tube, with I.D. slightly larger than the O.D. of the piston is recommended to install the solid seal).

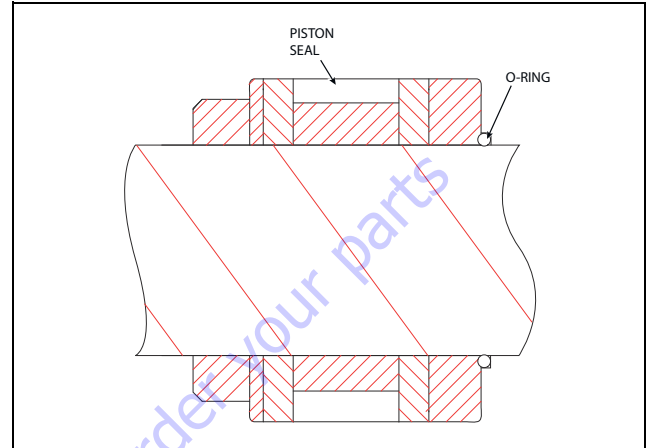


Figure 5-45. Piston Seal Kit Installation

- Position the cylinder barrel in a suitable holding fixture.

NOTICE

EXTREME CARE SHOULD BE TAKEN WHEN INSTALLING THE CYLINDER ROD, HEAD, AND PISTON. AVOID PULLING THE ROD OFF-CENTER, WHICH COULD CAUSE DAMAGE TO THE PISTON AND CYLINDER BARREL SURFACES.

- With barrel clamped securely, and while adequately supporting the rod, insert the piston into the barrel cylinder. Ensure that the piston loading o-ring and seal ring are not damaged or dislodged.
- Continue pushing the rod into the barrel until the cylinder head can be inserted into the barrel cylinder.
- Screw the cylinder head into the barrel using a spanner wrench.
- After the cylinder has been reassembled, the rod should be pushed all the way in (fully retracted) prior to the re-installation of any holding valve or valves.
- Install the 2 way poppet cartridge valve and torque to 19-21 ft.lbs. (26-28 Nm).
- Install the counterbalance cartridge valve and torque to 25-30 ft.lbs. (34-40 Nm).
- Install the check cartridge valve and torque to 19-21 ft.lbs. (26-28 Nm).
- Install the plugs and torque to 14.4 ft.lbs. (19.5 Nm).

Steer Cylinder

DISASSEMBLY

NOTICE

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

1. Connect a suitable auxiliary hydraulic power source to the cylinder port block fitting.

WARNING

DO NOT FULLY EXTEND CYLINDER TO THE END OF STROKE. RETRACT CYLINDER SLIGHTLY TO AVOID TRAPPING PRESSURE.

2. Operate the hydraulic power source and extend the cylinder. Shut down and disconnect the power source. Adequately support the cylinder rod, if applicable.
3. Place the cylinder barrel into a suitable holding fixture.

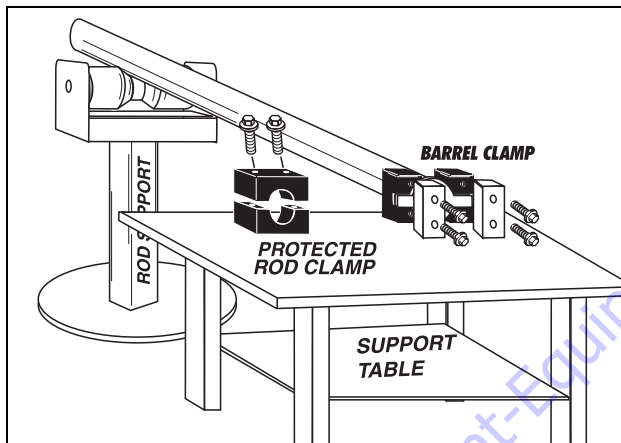


Figure 5-46. Cylinder Barrel Support

4. Using a hook spanner, loosen and remove spanner nut from cylinder barrel.
5. Attach a suitable pulling device to the cylinder rod end.

NOTICE

EXTREME CARE SHOULD BE TAKEN WHEN REMOVING THE CYLINDER ROD, HEAD, AND PISTON. AVOID PULLING THE ROD OFF-CENTER, WHICH COULD CAUSE DAMAGE TO THE PISTON AND CYLINDER BARREL SURFACES.

6. With the barrel clamped securely, apply pressure to the rod pulling device and carefully withdraw the complete rod assembly from the cylinder barrel.

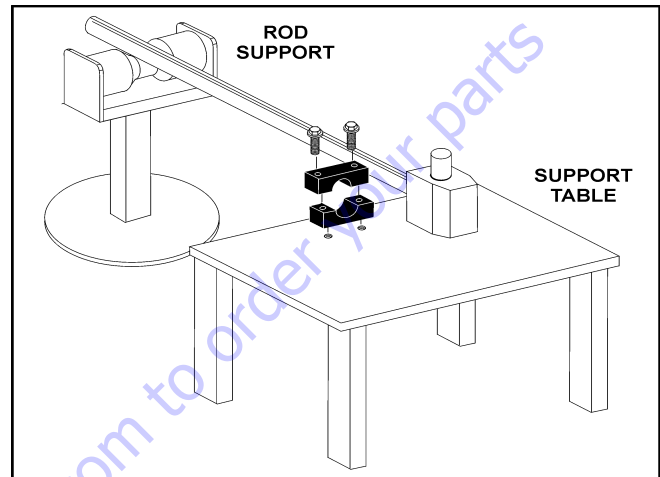
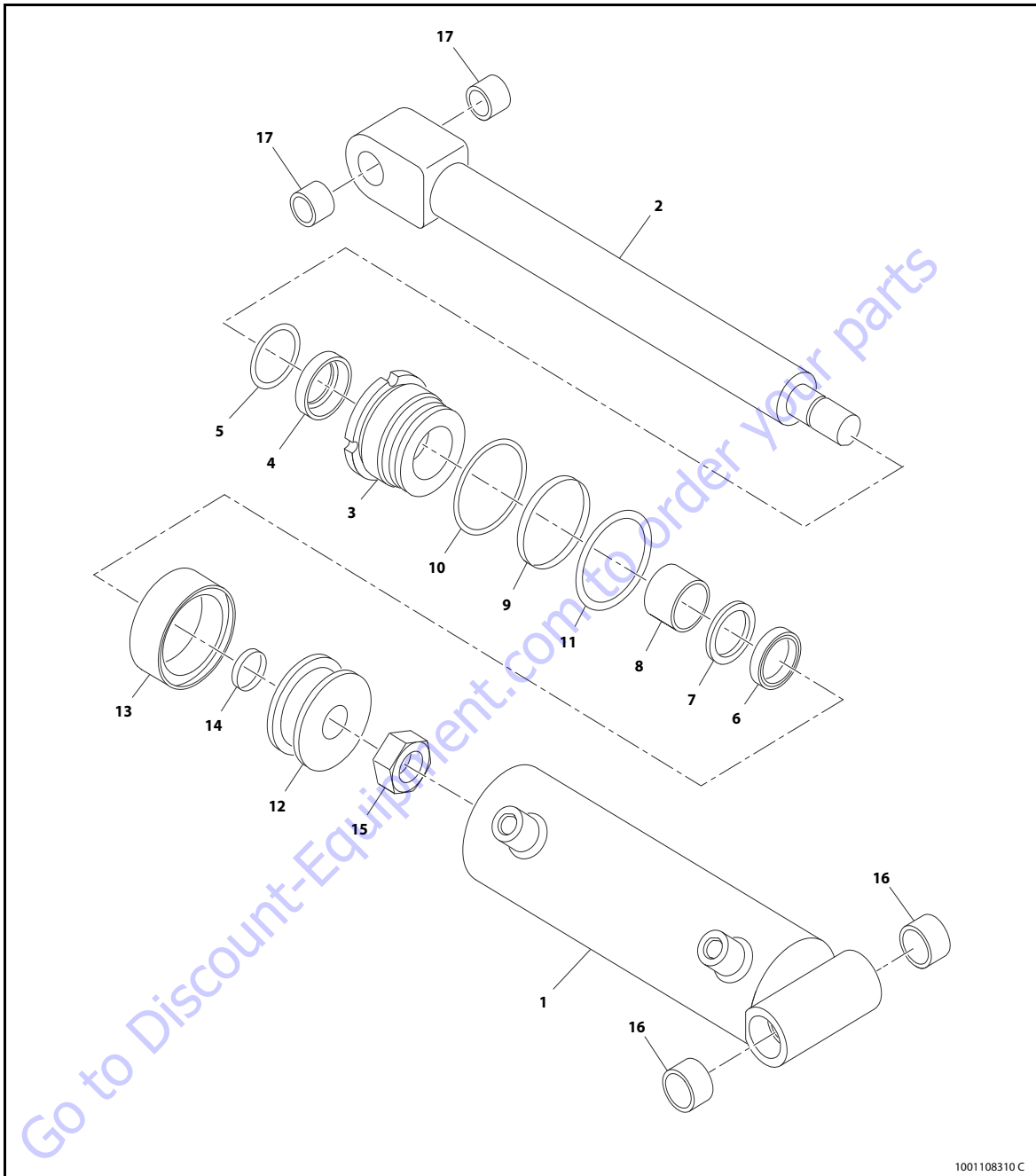


Figure 5-47. Cylinder Rod Support



1001108310 C

- | | | | | |
|---------------|-------------------|-----------------|-----------------|-------------|
| 1. Barrel | 5. Retaining Ring | 9. O-ring | 12. Piston | 15. Nut |
| 2. Rod | 6. Rod Seal | 10. Backup Ring | 13. Piston Seal | 16. Bearing |
| 3. Head | 7. Backup Ring | 11. O-ring | 14. O-Ring | 17. Bearing |
| 4. Wiper Seal | 8. Wear Ring | | | |

Figure 5-48. Steer Cylinder

7. Using suitable protection, clamp the cylinder rod in a vise or similar holding fixture as close to the piston as possible.
8. Remove the lock nut from the rod.
9. Remove and discard the piston o-rings, seals and wear rings.
10. Screw the piston counterclockwise, by hand and remove the piston from cylinder rod.
11. Remove the rod from the holding fixture. Remove the cylinder head. Discard the wear ring, back-up ring, o-ring, retaining ring, rod seal and wiper seal.

CLEANING AND INSPECTION

1. Clean all parts thoroughly in an approved cleaning solvent.
2. Inspect the cylinder rod for scoring, tapering, ovality, or other damage. If necessary, dress rod with Scotch Brite or equivalent. Replace rod if necessary.
3. Inspect threaded portion of rod for excessive damage. Dress threads as necessary.
4. Inspect inner surface of cylinder barrel tube for scoring or other damage. Check inside diameter for tapering or ovality. Replace if necessary.
5. Inspect piston surface for damage and scoring and for distortion. Dress piston surface or replace piston as necessary.
6. Inspect threaded portion of piston for damage. Dress threads as necessary.
7. Inspect seal and o-ring grooves in piston for burrs and sharp edges. Dress applicable surfaces as necessary.
8. Inspect cylinder Guide inside diameter for scoring or other damage and for ovality and tapering. Replace as necessary.
9. Inspect seal and o-ring grooves in guide for burrs and sharp edges. Dress applicable surfaces as necessary.
10. Inspect cylinder guide outside diameter for scoring or other damage and ovality and tapering. Replace as necessary.
11. Inspect piston tube for burrs and sharp edges. If necessary, dress inside diameter surface with Scotch Brite or equivalent.
12. Inspect the oil ports for blockage or the presence of dirt or other foreign material. Repair as necessary.
13. If applicable, inspect piston rings for cracks or other damage. Replace as necessary.

ASSEMBLY

NOTE: Prior to cylinder assembly, ensure that the proper cylinder seal kit is used. See your JLG Parts Manual.

NOTE: Apply a light film of hydraulic oil to all components prior to assembly.

1. A special tool is used to install a new rod seal into the applicable cylinder head groove.

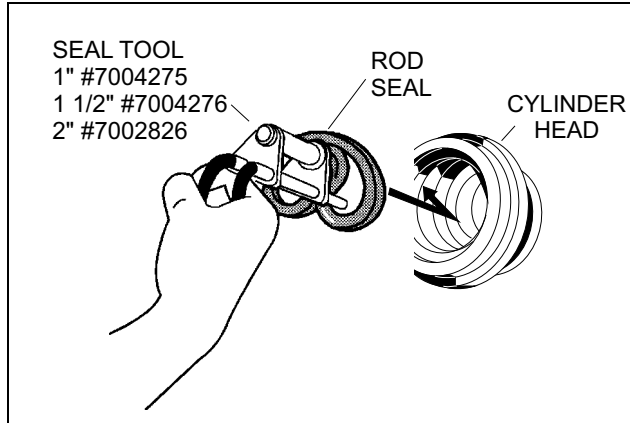


Figure 5-49. Rod Seal Installation

NOTICE

WHEN INSTALLING NEW SEALS, ENSURE SEALS ARE INSTALLED PROPERLY. IMPROPER SEAL INSTALLATION COULD RESULT IN CYLINDER LEAKAGE AND IMPROPER CYLINDER OPERATION.

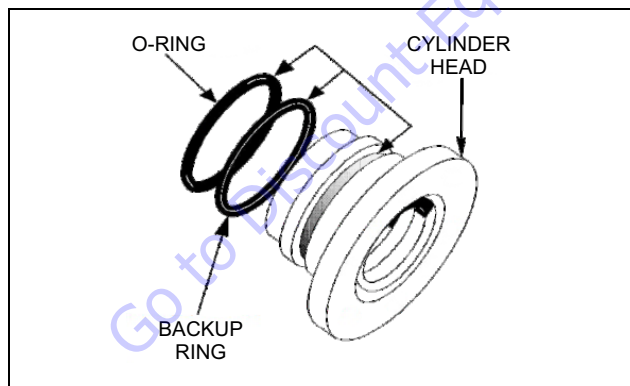


Figure 5-50. Cylinder Head Seal Installation

2. Use a soft mallet to tap a new wiper seal into the applicable cylinder guide gland groove. Install the new retaining ring into the applicable cylinder guide gland groove.

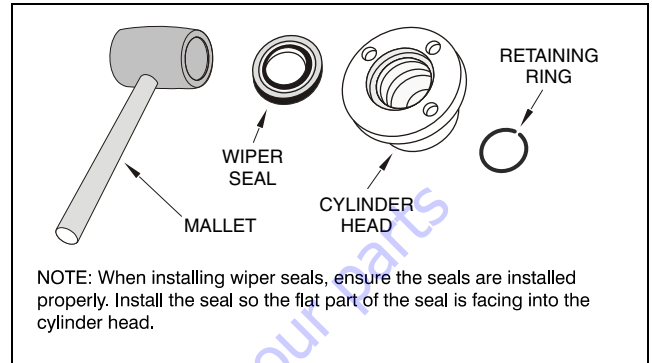


Figure 5-51. Wiper Seal Installation

3. Place a new o-ring and back-up seal in the applicable outside diameter groove of the cylinder guide.

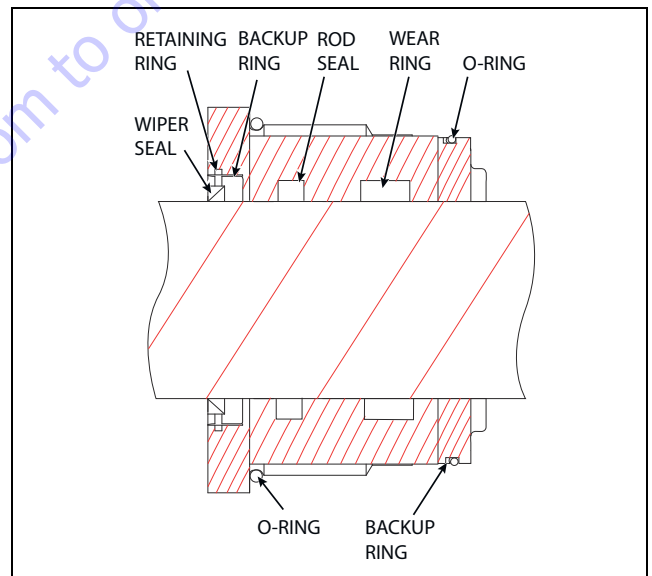


Figure 5-52. Installation of Head Seal Kit

4. Install the piston head on the rod, ensuring that the wiper seal and rod seal are not damaged or dislodged. Push the guide along the rod to the rod end.
5. Using suitable protection, clamp the cylinder rod in a vise or similar holding fixture as close to piston as possible.
6. Place a new o-ring in the inner piston diameter groove.
7. Install the retaining ring, back-up ring and o-ring onto the piston head.
8. Carefully thread the piston on the cylinder rod hand tight, ensuring that the o-ring are not damaged or dislodged.
9. Install the lock nut onto the cylinder rod.

10. Remove the cylinder rod from the holding fixture.
11. Place new piston seal and o-ring in the outer piston diameter groove. (A tube, with I.D. slightly larger than the O.D. of the piston is recommended to install the solid seal).

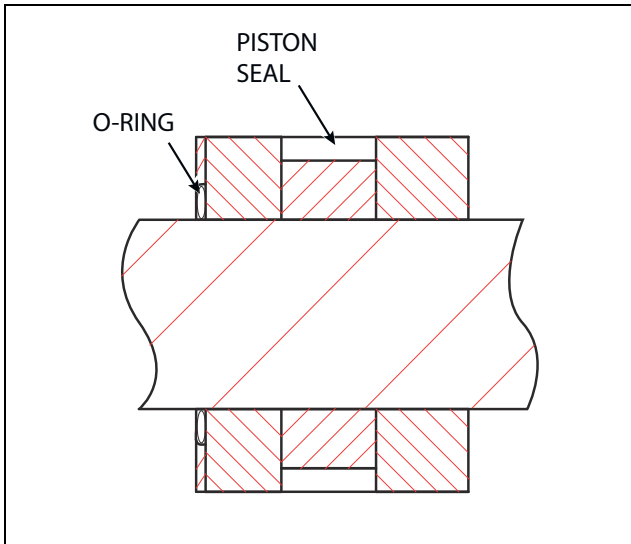


Figure 5-53. Piston Seal Kit Installation

12. Position the cylinder barrel in a suitable holding fixture.

NOTICE

EXTREME CARE SHOULD BE TAKEN WHEN INSTALLING THE CYLINDER ROD, HEAD, AND PISTON. AVOID PULLING THE ROD OFF-CENTER, WHICH COULD CAUSE DAMAGE TO THE PISTON AND CYLINDER BARREL SURFACES.

13. With barrel clamped securely, and while adequately supporting the rod, insert the piston end into the barrel cylinder. Ensure that the piston loading o-ring and seal are not damaged or dislodged.
14. Continue pushing the rod into the barrel until the cylinder head can be inserted into the barrel cylinder.
15. Screw the cylinder head into the barrel using a spanner wrench.
16. After the cylinder has been reassembled, the rod should be pushed all the way in (fully retracted) prior to the re-installation of any holding valve or valves.

Telescope Cylinder

DISASSEMBLY

NOTICE

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

1. Connect a suitable auxiliary hydraulic power source to the cylinder port block fitting.

WARNING

DO NOT FULLY EXTEND CYLINDER TO THE END OF STROKE. RETRACT CYLINDER SLIGHTLY TO AVOID TRAPPING PRESSURE.

2. Operate the hydraulic power source and extend the cylinder. Shut down and disconnect the power source. Adequately support the cylinder rod, if applicable.
3. Remove all the counterbalance valves and plugs from the cylinder port block and discard the o-rings.
4. Place the cylinder barrel into a suitable holding fixture.

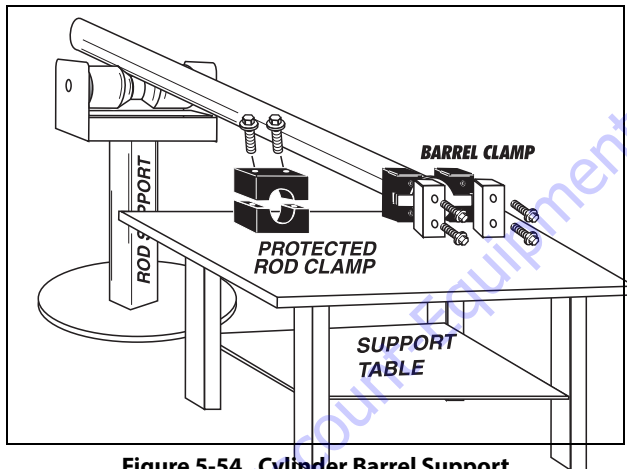


Figure 5-54. Cylinder Barrel Support

5. Using a hook spanner wrench, loosen and remove the cylinder head.
6. Attach a suitable pulling device to the cylinder rod end.

NOTICE

EXTREME CARE SHOULD BE TAKEN WHEN REMOVING THE CYLINDER ROD, HEAD, AND PISTON. AVOID PULLING THE ROD OFF-CENTER, WHICH COULD CAUSE DAMAGE TO THE PISTON AND CYLINDER BARREL SURFACES.

7. With the barrel clamped securely, apply pressure to the rod pulling device and carefully withdraw the complete rod assembly from the cylinder barrel.

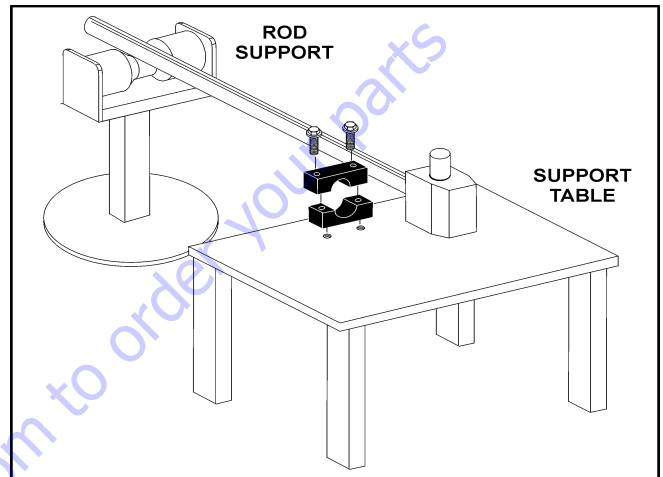
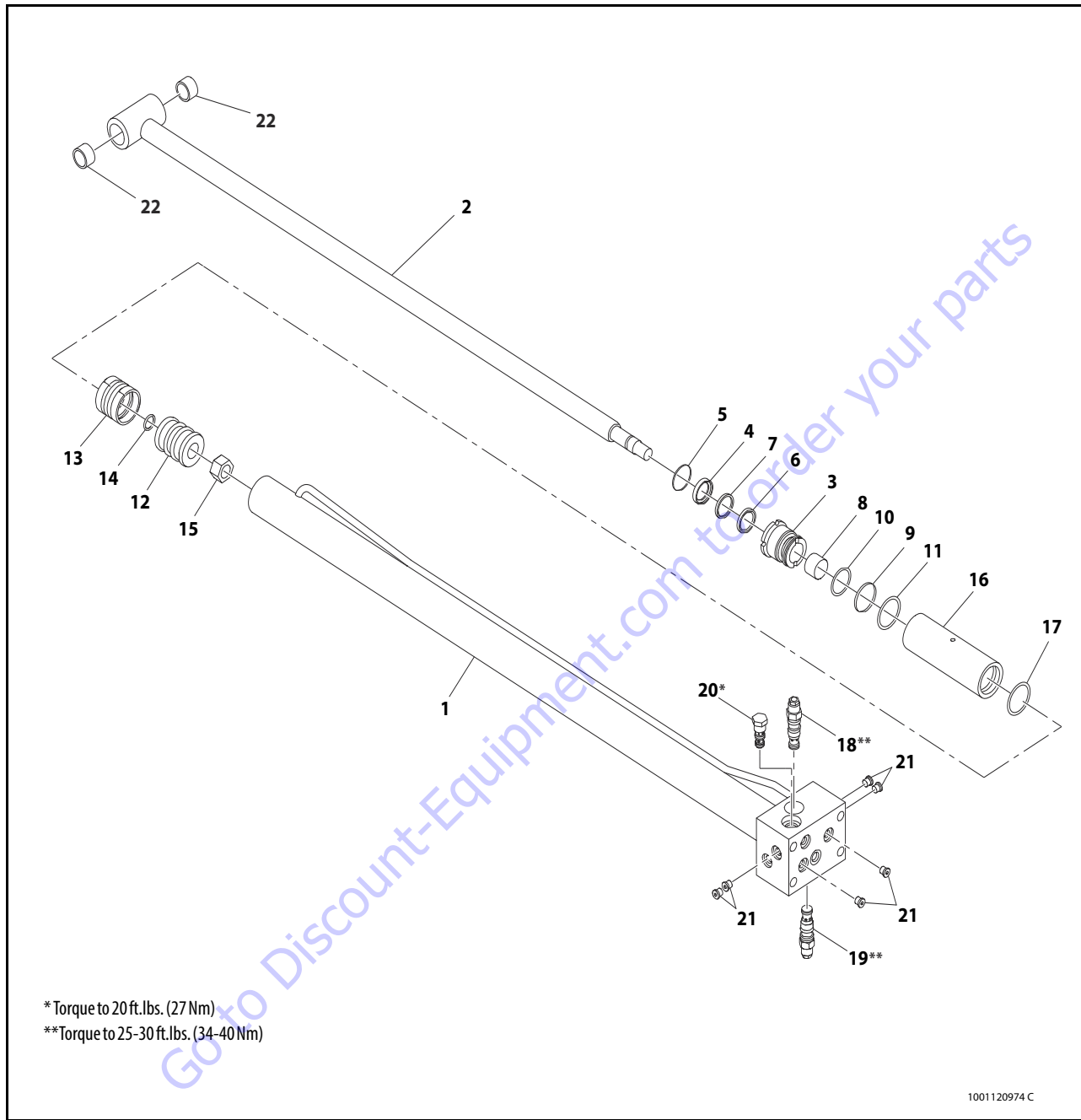


Figure 5-55. Cylinder Rod Support



- | | | | | |
|-------------------|-----------------|-----------------|---------------------|---------------------|
| 1. Barrel | 6. Rod Seal | 11. O-ring | 15. Nut | 19. Cartridge Valve |
| 2. Rod | 7. Backup Ring | 12. Piston | 16. Spacer | 20. Cartridge Valve |
| 3. Head | 8. Wear Ring | 13. Piston Seal | 17. O-ring | 21. Plug |
| 4. Wiper Seal | 9. O-ring | 14. O-Ring | 18. Cartridge Valve | 22. Bearing |
| 5. Retaining Ring | 10. Backup Ring | | | |

Figure 5-56. Telescope Cylinder

8. Using suitable protection, clamp the cylinder rod in a vise or similar holding fixture as close to the piston as possible.
9. Loosen and remove lock nut from the piston rod.
10. Screw the piston counterclockwise, by hand and remove the piston from cylinder rod.
11. Remove and discard the piston seal and o-ring.
12. Remove the spacer from the cylinder rod.
13. Remove the rod from the holding fixture. Remove the cylinder head. Discard the o-rings, back-up ring, wear ring, rod seal, wiper seal and retaining ring.

CLEANING AND INSPECTION

1. Clean all parts thoroughly in an approved cleaning solvent.
2. Inspect the cylinder rod for scoring, tapering, ovality, or other damage. If necessary, dress rod with Scotch Brite or equivalent. Replace rod if necessary.
3. Inspect threaded portion of rod for excessive damage. Dress threads as necessary.
4. Inspect inner surface of cylinder barrel tube for scoring or other damage. Check inside diameter for tapering or ovality. Replace if necessary.
5. Inspect piston surface for damage and scoring and for distortion. Dress piston surface or replace piston as necessary.
6. Inspect threaded portion of piston for damage. Dress threads as necessary.
7. Inspect seal and o-ring grooves in piston for burrs and sharp edges. Dress applicable surfaces as necessary.
8. Inspect cylinder head inside diameter for scoring or other damage and for ovality and tapering. Replace as necessary.
9. Inspect seal and o-ring grooves in head for burrs and sharp edges. Dress applicable surfaces as necessary.
10. Inspect cylinder head outside diameter for scoring or other damage and ovality and tapering. Replace as necessary.
11. If applicable, inspect rod and barrel bearings for signs of correct excessive wear or damage. Replace as necessary.
 - a. Thoroughly clean hole, (steel bushing) of burrs, dirt etc. to facilitate bearing installation.
 - b. Inspect steel bushing for wear or other damage. If steel bushing is worn or damaged, rod/barrel must be replaced.
 - c. Lubricate inside of steel bushing prior to bearing installation.
 - d. Using an arbor of the correct size, carefully press the bearing into steel bushing.

SECTION 5 - BASIC HYDRAULIC INFORMATION & SCHEMATICS

NOTE: Install pin into the composite bearing dry. Lubrication is not required with nickel plated pins and bearings.

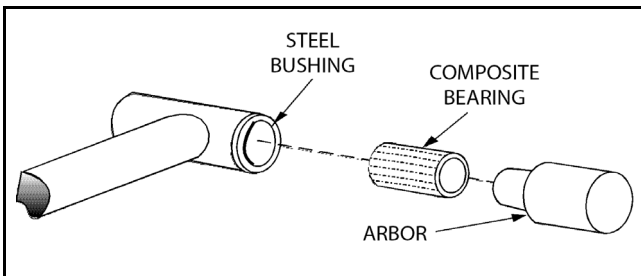


Figure 5-57. Composite Bearing Installation

12. Inspect spacer for burrs and sharp edges. If necessary, dress inside diameter surface with Scotch Brite or equivalent.
13. If applicable, inspect port block fittings and holding valve. Replace as necessary.
14. Inspect the oil ports for blockage or the presence of dirt or other foreign material. Repair as necessary.
15. If applicable, inspect piston rings for cracks or other damage. Replace as necessary.

ASSEMBLY

NOTE: Prior to cylinder assembly, ensure that the proper cylinder seal kit is used. See your JLG Parts Manual.

NOTE: Apply a light film of hydraulic oil to all components prior to assembly.

1. A special tool is used to install a new rod seal into the applicable cylinder head groove.

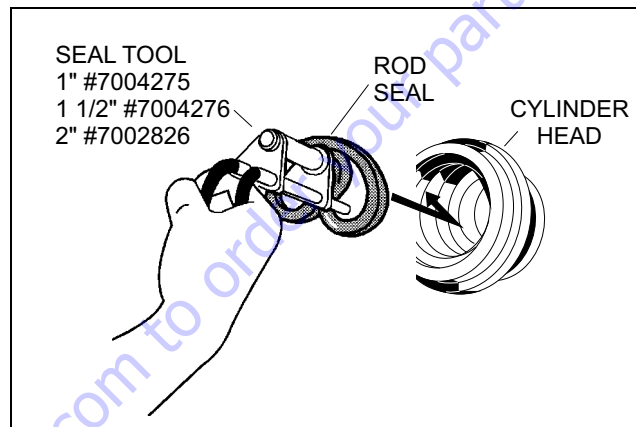


Figure 5-58. Rod Seal Installation

NOTICE

WHEN INSTALLING NEW SEALS, ENSURE SEALS ARE INSTALLED PROPERLY. IMPROPER SEAL INSTALLATION COULD RESULT IN CYLINDER LEAKAGE AND IMPROPER CYLINDER OPERATION.

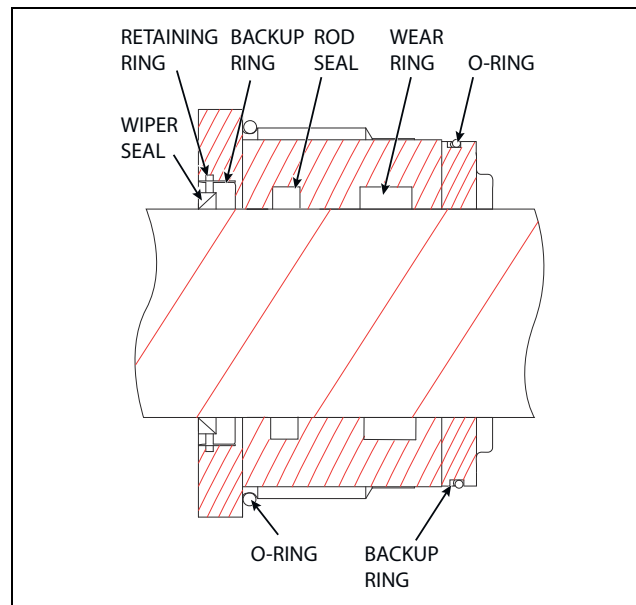


Figure 5-59. Cylinder Head Seal Installation

2. Use a soft mallet to tap a new wiper seal into the applicable cylinder head groove.

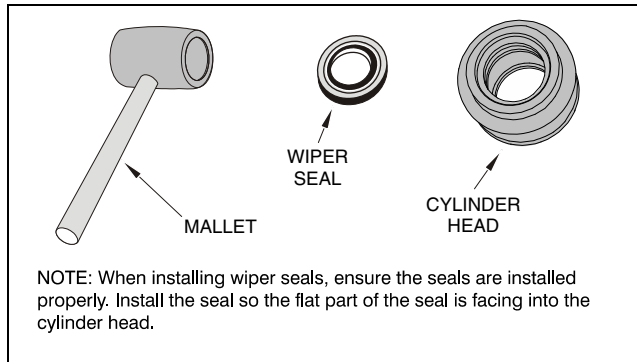


Figure 5-60. Wiper Seal Installation

3. Place a new o-ring and back-up seal in the applicable outside diameter groove of the cylinder head.

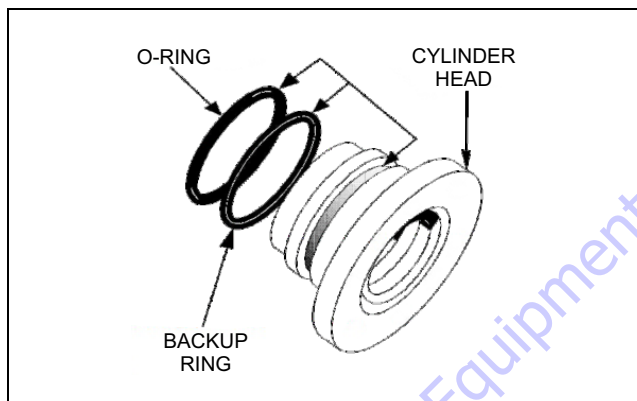


Figure 5-61. Installation of Head Seal Kit

4. Carefully install the head on the rod, ensuring that the wiper seal and rod seal are not damaged or dislodged. Push the head along the rod to the rod end.
5. Push the spacer onto the rod and use setscrew to attach spacer to the rod.
6. Install the retaining ring and wear ring on outer groove of the piston head.
7. Place a new o-ring in the inner piston diameter groove.
8. Using suitable protection, clamp the cylinder rod in a vise or similar holding fixture as close to piston as possible.
9. Carefully thread the piston on the cylinder rod hand tight until it abuts spacer end, ensuring that the o-ring are not damaged or dislodged.
10. Install the lock nut onto the cylinder rod.
11. Remove the cylinder rod from the holding fixture.

12. Place new piston seals and o-ring in the outer piston diameter groove. (A tube, with I.D. slightly larger than the O.D. of the piston is recommended to install the solid seal).

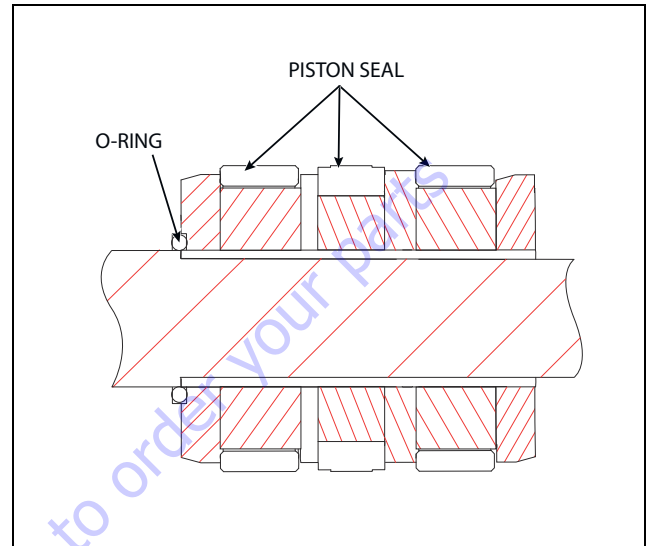


Figure 5-62. Piston Seal Kit Installation

13. Position the cylinder barrel in a suitable holding fixture.

NOTICE

EXTREME CARE SHOULD BE TAKEN WHEN INSTALLING THE CYLINDER ROD, HEAD, AND PISTON. AVOID PULLING THE ROD OFF-CENTER, WHICH COULD CAUSE DAMAGE TO THE PISTON AND CYLINDER BARREL SURFACES.

14. With barrel clamped securely, and while adequately supporting the rod, insert the piston end into the barrel cylinder. Ensure that the piston loading o-ring and seal ring are not damaged or dislodged.
15. Continue pushing the rod into the barrel until the cylinder head can be inserted into the barrel cylinder.
16. Screw the cylinder head into the barrel using a spanner wrench.
17. After the cylinder has been reassembled, the rod should be pushed all the way in (fully retracted) prior to the re-installation of any holding valve or valves.
18. Install the load shuttle counterbalance valve in the barrel port block. Torque to 20 ft.lbs. (27 Nm).
19. Install the counterbalance cartridge valves in the barrel port blocks. Torque to 25-30 ft.lbs. (34-40 Nm).
20. Install the plugs onto the port blocks.

5.3 CYLINDER REMOVAL AND INSTALLATION

Main Boom Lift Cylinder Removal

NOTE: The Main Boom weighs approximately 450lbs. (204kg).

1. Place the machine on a flat and level surface. Place the Main Boom in a horizontal position. Place Lower and Mid Booms 5 degree above horizontal. Support the platform end of main boom with suitable lifting device. Shut down machine and prop boom.
2. Tag and disconnect hydraulic lines from the main lift cylinder. Use suitable container to collect any residual hydraulic fluid. Cap hydraulic lines and ports.

NOTE: The Main Boom Lift Cylinder weighs approximately 97 lbs. (44kg).

3. Secure the main boom lift cylinder with suitable lifting device.
4. Remove the hardware securing the cylinder rod attach pin #1 to the boom. Using a suitable brass drift, drive out the cylinder rod attach pin #1.

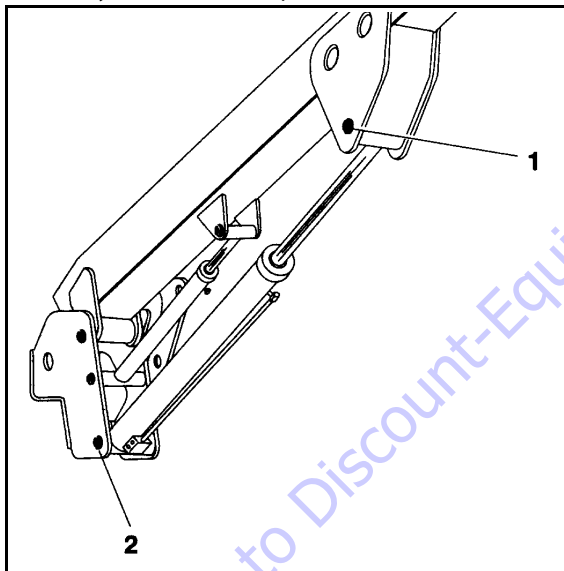


Figure 5-63. Main Boom Lift Cylinder Removal

5. Remove the hardware securing the barrel end attach pin #2. Using a suitable brass drift, drive out the barrel end attach pin #2.
6. Carefully remove the main lift cylinder from the boom and place in a suitable work area.

Main Boom Lift Cylinder Installation

NOTE: Coat I.D. of bushings with specified lubricant prior to installing pins.

NOTE: The Main Boom Lift Cylinder weighs approximately 97 lbs. (44kg).

1. Using suitable lifting device, place the Main Lift Cylinder in the position and align with mounting holes on upright.
2. Using a suitable drift, drive the barrel end attach pin #2 through the mounting holes in the lift cylinder and upright. Secure in place with pin retaining hardware.
3. Remove cylinder port plugs and hydraulic line caps and correctly attach lines to cylinder ports.
4. With function speed switch at its slowest setting, extend the cylinder rod until attach pin hole aligns with those in boom. Using a suitable drift, drive the cylinder rod attach pin #1 through the aligned holes. Secure the pin in place with pin retaining hardware.
5. Remove the lifting device from the main lift cylinder.
6. Cycle cylinder completely to check for proper functioning. Place boom in stowed position. Check hydraulic fluid level and adjust accordingly.

Main Boom Telescope Cylinder Removal

1. Place machine on flat and level surface, with Main Boom in the horizontal position.
2. Extend Main Boom until fly attach pin #1 is accessible on fly.

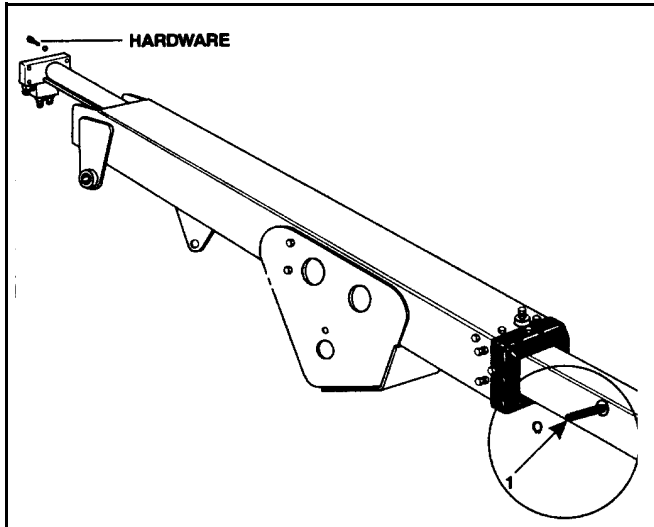


Figure 5-64. Main Telescope Cylinder Removal

NOTE: The Main Boom weighs approximately 450lbs. (204kg).

3. Support platform end of the Main Boom end with a prop. Support Main Upright end with suitable lifting device.
4. Tag, disconnect hydraulic lines to telescope cylinder. Use suitable container to retain any residual hydraulic fluid. Cap hydraulic lines and ports.
5. Remove the retaining rings that retain the telescope cylinder rod to the fly boom.
6. Using a suitable brass drift, carefully drive the telescope cylinder rod pin #1 from the fly boom.
7. Remove the four (4) bolts securing the telescope cylinder barrel end to the base boom.

NOTE: Care should be taken when removing the telescope cylinder, do not leave cylinder rest on powertrack which could cause damage to powertrack.

8. Using a suitable brass drift, carefully drive the telescope cylinder pin from the base boom.
9. Attach a suitable sling to the telescope cylinder. Using a suitable lifting device attached to the sling carefully pull the telescope cylinder from the boom assembly.

NOTE: The Main Telescope Cylinder weighs approximately 130 lbs. (46.8kg).

10. Using another lifting device, support the rod end of the cylinder and remove the cylinder from the boom assembly.
11. Carefully lift the cylinder clear of the boom assembly and lower to the ground or suitably supported work area.

Main Boom Telescope Cylinder Installation

1. Attach a hydraulic power supply to the telescope cylinder ports. Using suitable supports or lifting devices at each end of the cylinder, extend the rod so that the cylinder pin attach holes are the same distance apart as the boom pin attach holes.

NOTE: The Main Boom weighs approximately 450 lbs. (204kg).

2. Using suitable lifting equipment, carefully lower the cylinder to the boom assembly.

NOTE: The Main Telescope Cylinder weighs approximately 130 lbs. (46.8kg).

3. Using another lifting device, support the rod end of the cylinder and install the cylinder into the boom assembly.
4. Remove lifting devices from the telescope cylinder.
5. Carefully install the telescope cylinder rod pin #1 through the fly boom and secure it with the retaining rings.
6. Carefully install the telescope cylinder barrel end to base, securing cylinder to the base boom with four (4) bolts and hardware.
7. Remove applicable hydraulic line and port caps and correctly connect the hydraulic lines to the telescope cylinder. Ensure all hoses are correctly routed.
8. Remove boom prop and suitable lifting device. Activate hydraulic system.
9. Using all applicable safety precautions, operate the boom functions. Check for correct operation and hydraulic leaks. Secure as necessary.
10. Check fluid level of hydraulic tank and add as necessary.

Phase Check Cartridge

The phase valve is a back-to-back pair of check valves, one of which is mechanically actuated. This valve is installed in the piston of the level cylinder and is used to keep the master and level cylinders in phase.

NOTE: Activating the Level Override Up circuit for 30 seconds can bleed the level circuit.

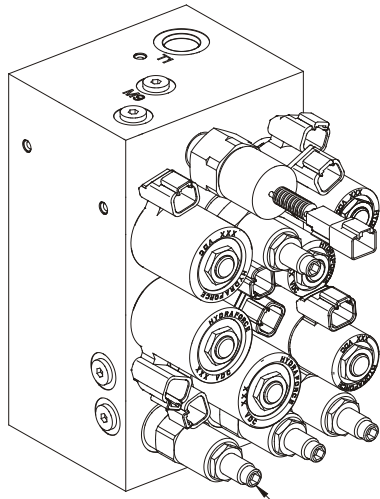
TEST PROCEDURE

1. Place the machine in the following position:
 - Firm and level surface
 - Upper boom horizontal (level)
 - Upper boom fully retracted
 - Jib down
 - Platform empty
2. With no load in the platform, activate Level Up for approximately 20 seconds. If the Upper Boom rises, the phase valve is not functioning correctly and must be replaced.

5.4 PRESSURE SETTING PROCEDURE

Adjustments made at the Main Valve Bank

MAIN PRESSURE RELIEF VALVE – 3000 PSI (207BAR)



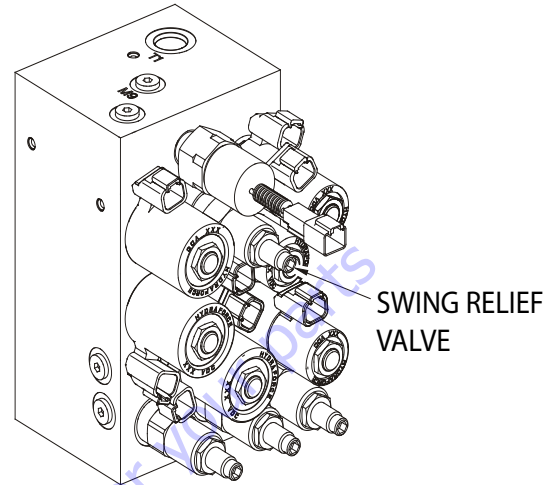
MAIN RELIEF VALVE

3. Install pressure gauge at port MP of Main Valve Bank.

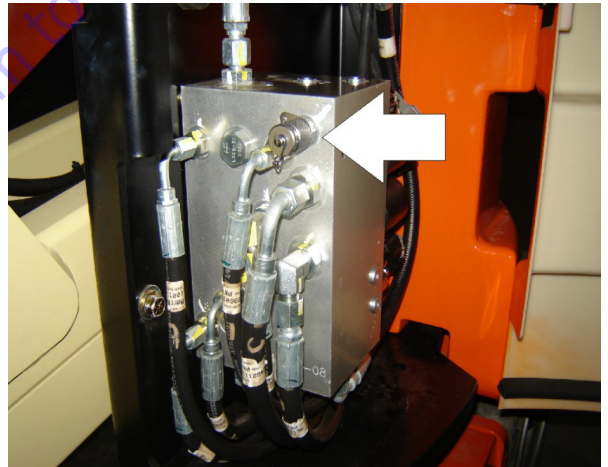


4. Actuate and hold Telescope In to "end of stroke" & take pressure reading.
5. After loosening relief valve jam nut, adjust valve clockwise to increase setting or counter-clockwise to reduce the setting accordingly.
6. Tighten relief valve jam nut and repeat step 2 to verify setting.

SWING RIGHT / LEFT – 750 PSI (52 BAR)



1. Install pressure gauge at port MP of Main Valve Bank.



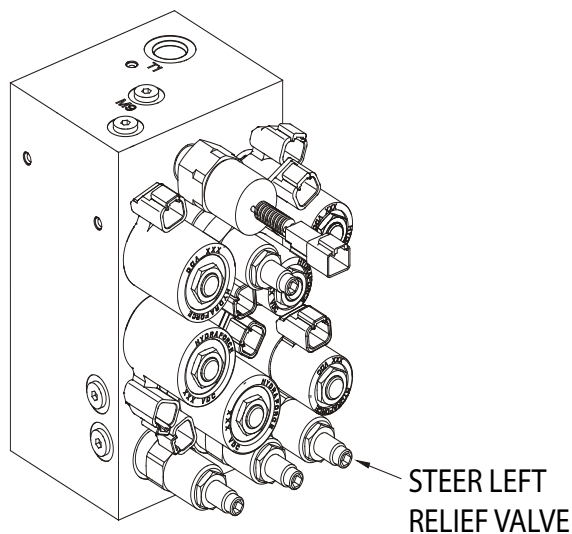
2. Activate Swing Right or Left and hold to the turntable stop. Take pressure reading.
3. After loosening the relief valve jam nut, adjust valve clockwise to increase pressure or counterclockwise to reduce pressure accordingly.

⚠ CAUTION

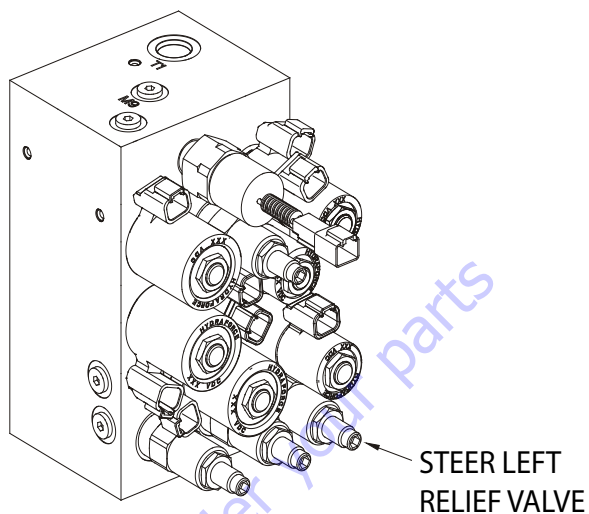
USE CAUTION NOT TO EXCEED A RELIEF VALVE SETTING OF 750 PSI (51 BAR) AS COMPONENTS OF THE SWING CIRCUIT CAN BE DAMAGED.

4. Tighten relief valve jam nut and repeat step 2 to verify setting.

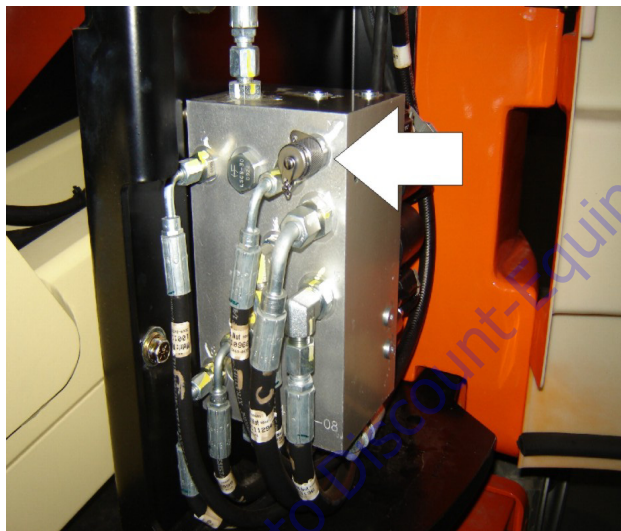
STEER RIGHT – 1400 PSI (97 BAR)



STEER LEFT – 2000 PSI (138 BAR)

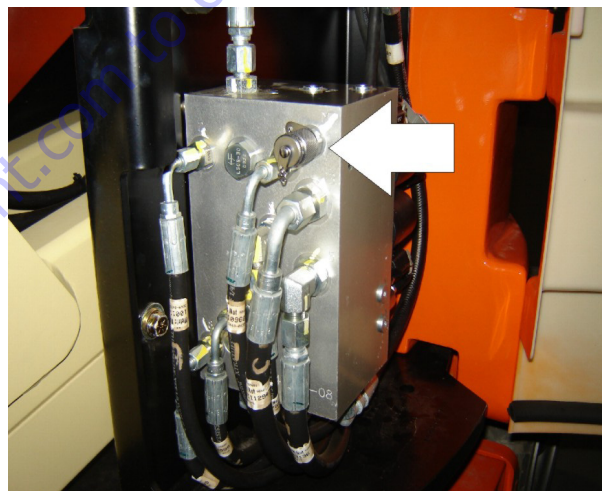


1. Install pressure gauge at port MP of Main Valve Bank.



2. Activate Steer Right and hold to end of stroke. Take pressure reading.
3. After loosening relief valve jam nut, adjust valve clockwise to increase pressure or counterclockwise to reduce pressure accordingly.
4. Tighten relief valve jam nut and repeat step 2 to verify setting.

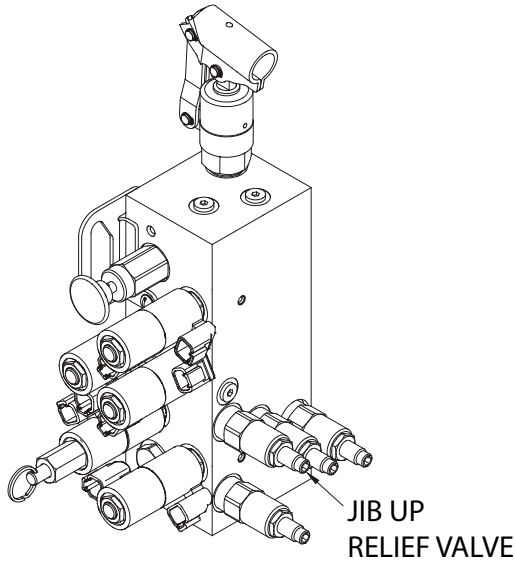
1. Install pressure gauge at port MP of Main Valve Bank.



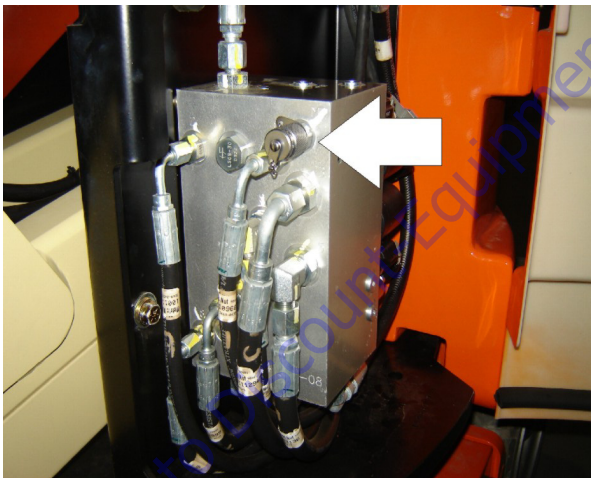
2. Activate Steer Left and hold to end of stroke. Take pressure reading.
3. After loosening relief valve jam nut, adjust valve clockwise to increase pressure or counterclockwise to reduce pressure accordingly.
4. Tighten relief valve jam nut and repeat step 2 to verify setting.

Adjustments made at the Boom Function Valve Bank

JIB LIFT UP – 2000 PSI (138 BAR)

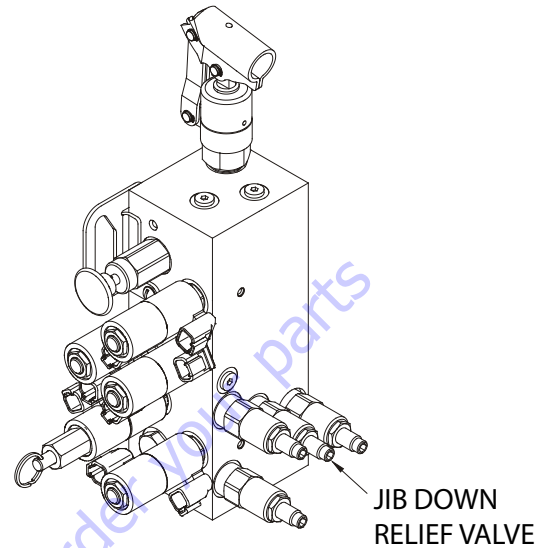


1. Install pressure gauge at port MP of Main Valve Bank.

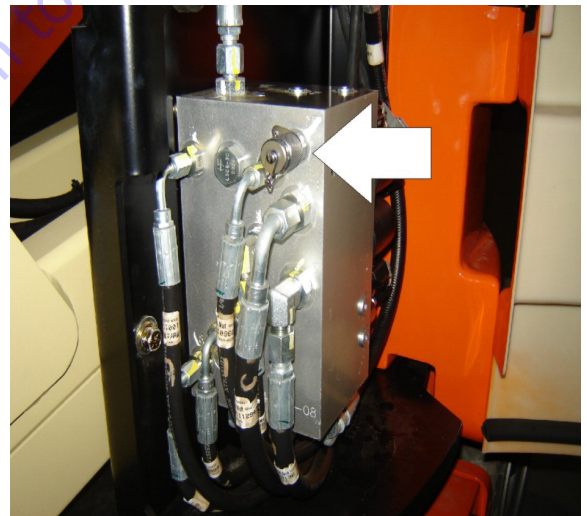


2. Activate Jib Lift Up and hold to end of stroke. Take pressure reading.
3. After loosening relief valve jam nut, adjust valve clockwise to increase pressure or counterclockwise to reduce pressure accordingly.
4. Tighten relief valve jam nut and repeat step 2 to verify setting.

JIB LIFT DOWN – 1200 PSI (83 BAR)

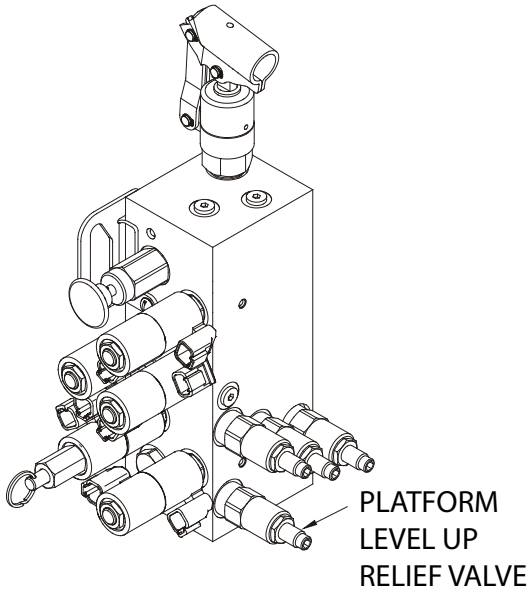


1. Install pressure gauge at port MP of Main Valve Bank.



2. Activate Jib Lift Down and hold to end of stroke. Take pressure reading.
3. After loosening relief valve jam nut, adjust valve clockwise to increase pressure or counterclockwise to reduce pressure accordingly.
4. Tighten relief valve jam nut and repeat step 2 to verify setting.

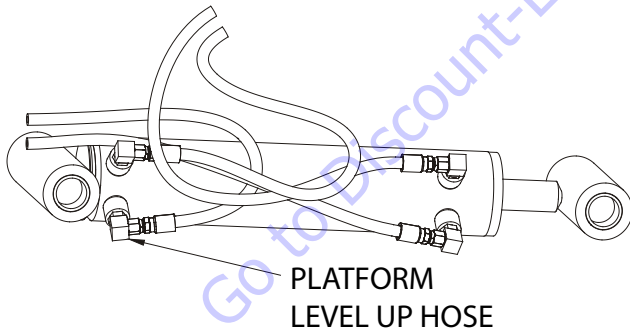
PLATFORM LEVEL UP – 3000 PSI (207 BAR)



1. Refer to the Main Pressure Relief Valve procedure and temporarily set Main Pressure Relief Valve to 3300 psi (227.5 Bar).
2. Disconnect, cap, & plug the platform level up hose & adapter either at the platform level master cylinder or at port 15 of the Boom Function Valve.

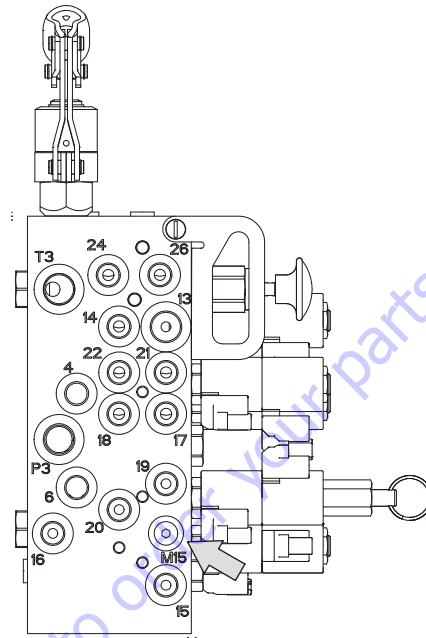
⚠ CAUTION

USE CAUTION WHEN DISCONNECTING / RECONNECTING HOSES ON THE PLATFORM LEVEL CIRCUIT AS THIS CIRCUIT MAINTAINS PRESSURE.

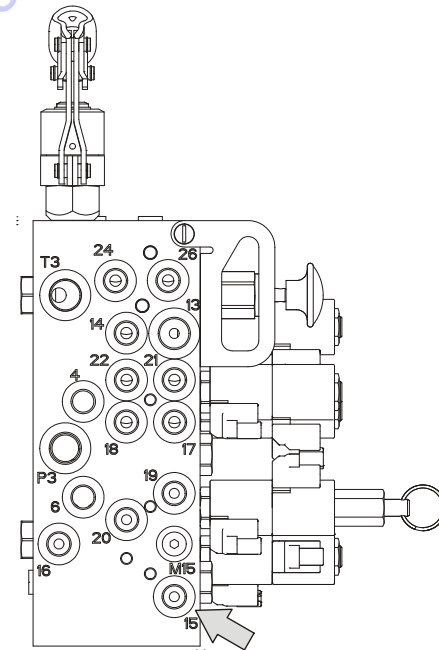


3. Install a pressure gauge in one of the following locations:

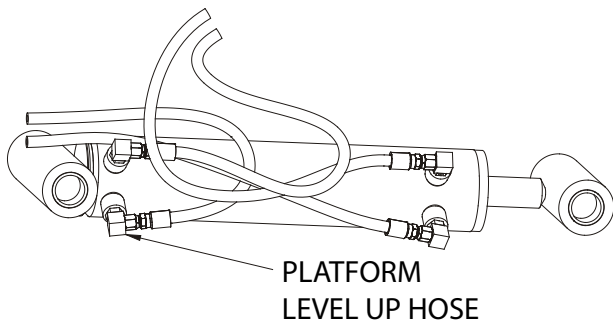
- at port M15 of Boom Function Valve



- at port 15 of Boom Function Valve



- at end of platform level up hose (do not use this location if port 15 was chosen in step 2.)



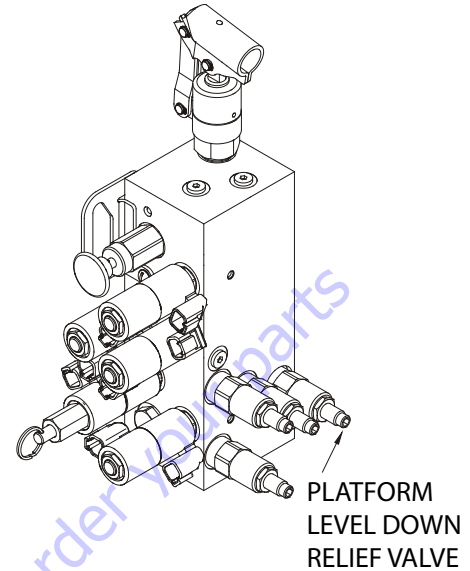
4. Activate Platform Level Up and hold. Take pressure reading.
5. After loosening relief valve jam nut, adjust valve clockwise to increase pressure or counterclockwise to reduce pressure accordingly.
6. Tighten relief valve jam nut. Repeat step 4 and verify the pressure setting.
7. Reconnect the platform level up hose that was disconnected in Step 2.

⚠ WARNING

USE CAUTION WHEN DISCONNECTING / RECONNECTING HOSES ON THE PLATFORM LEVEL CIRCUIT AS THIS CIRCUIT MAINTAINS PRESSURE

8. Refer to the Main Pressure Relief Valve procedure and return Main Pressure Relief Valve to 3000 psi (207 Bar).

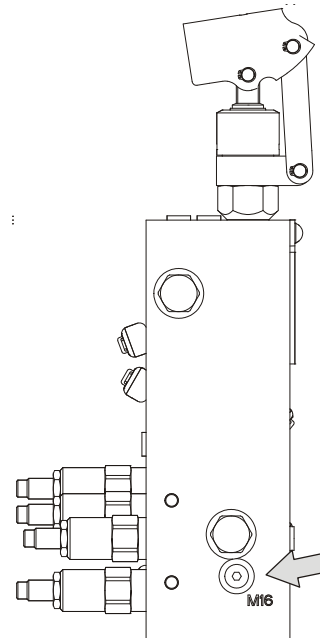
PLATFORM LEVEL DOWN – 1200 PSI (83 BAR)



There are two different methods that can be used to set the Platform Level Down pressure, Option 1 and Option 2. They are outlined as follows.

OPTION 1:

1. Install pressure gauge at port "M16" of Boom Function Valve Bank.



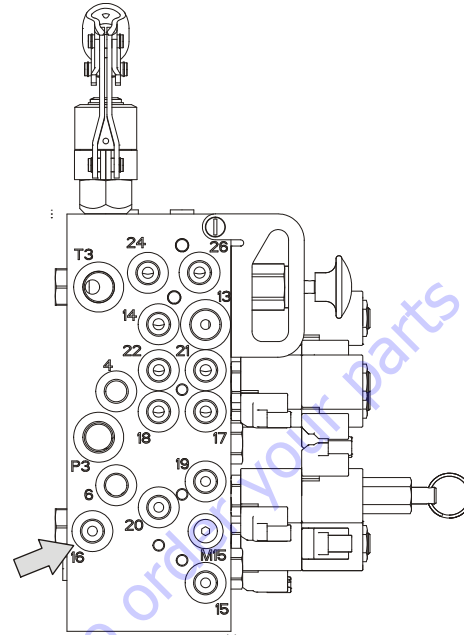
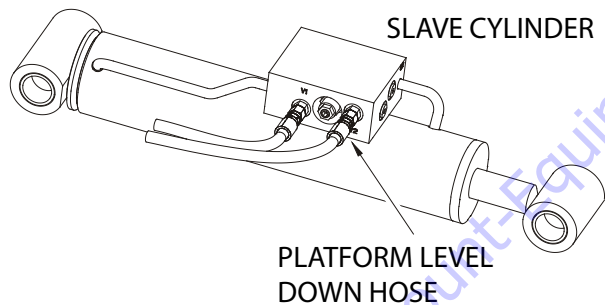
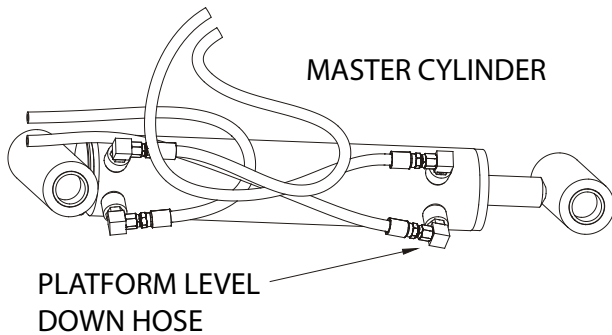
2. Activate Upper Lift Up and hold to end of stroke.
3. Activate Platform Level Down to end of stroke. Take pressure reading.

SECTION 5 - BASIC HYDRAULIC INFORMATION & SCHEMATICS

4. After loosening relief valve jam nut, adjust valve clockwise to increase pressure or counterclockwise to reduce pressure accordingly.
5. Tighten relief valve jam nut. Repeat step 3 and verify the pressure setting.

OPTION 2:

1. Disconnect, cap, and plug the platform level down hose and adapter either at the platform level master cylinder, at the platform level slave cylinder, or at port "16" of the Boom Function Valve Bank.



⚠ WARNING

USE CAUTION WHEN DISCONNECTING / RECONNECTING HOSES ON THE PLATFORM LEVEL CIRCUIT AS THIS CIRCUIT MAINTAINS PRESSURE

2. Install pressure gauge in one of the following locations:
 - at port "16" of Boom Function Valve Bank
 - at end of platform level down hose which was disconnected in step 1 (do not use this location if port "16" was chosen in step 1).
3. Activate Platform Level Down and hold. Take pressure reading.
4. After loosening relief valve jam nut, adjust valve clockwise to increase pressure or counterclockwise to reduce pressure accordingly.
5. Tighten relief valve jam nut. Repeat step 3 and verify the pressure setting.
6. Reconnect the platform level down hose that was disconnected in step 1.

⚠ WARNING

USE CAUTION WHEN DISCONNECTING / RECONNECTING HOSES ON THE PLATFORM LEVEL CIRCUIT AS THIS CIRCUIT MAINTAINS PRESSURE.

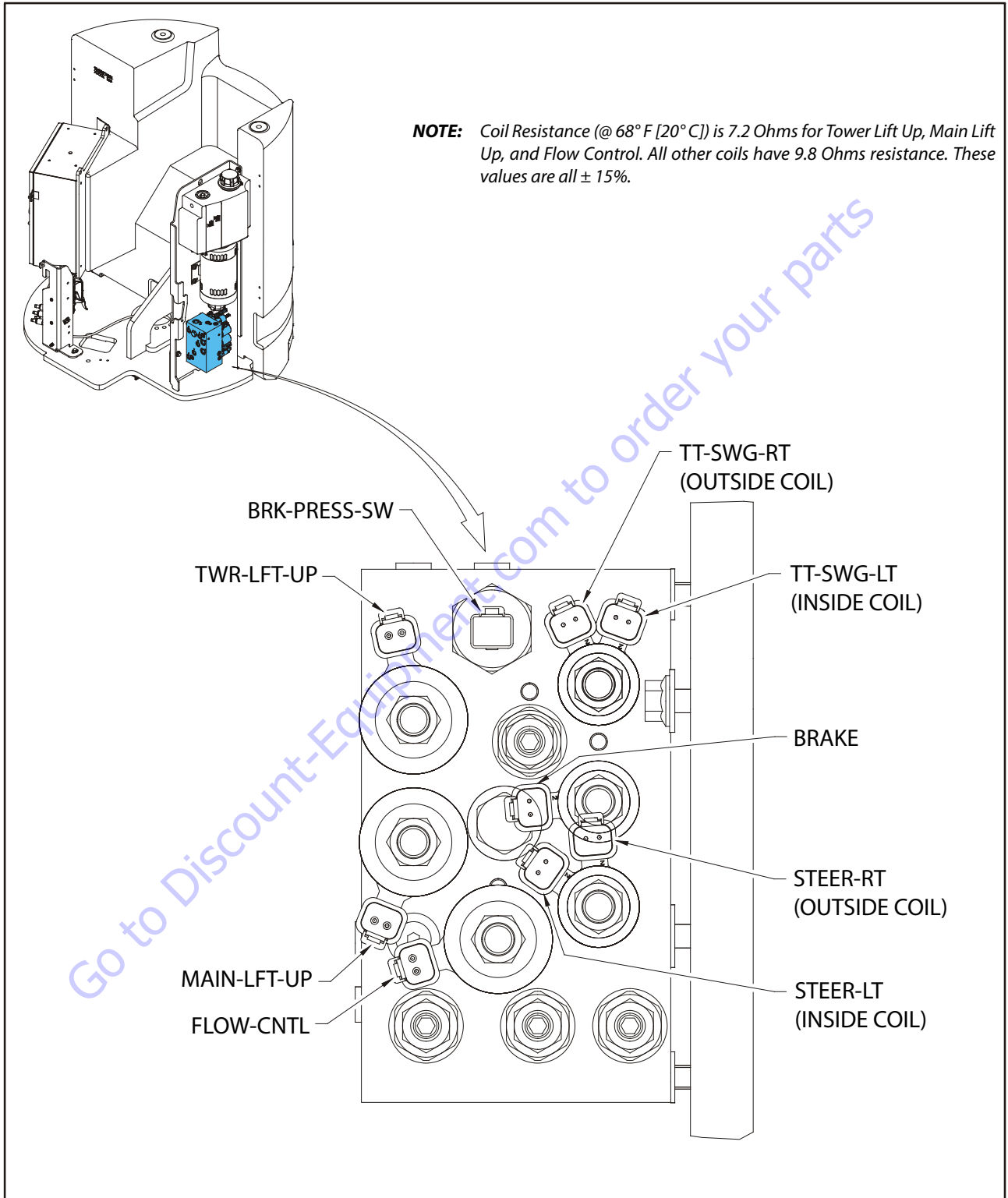


Figure 5-65. Main Control Valve - Sheet 1 of 2

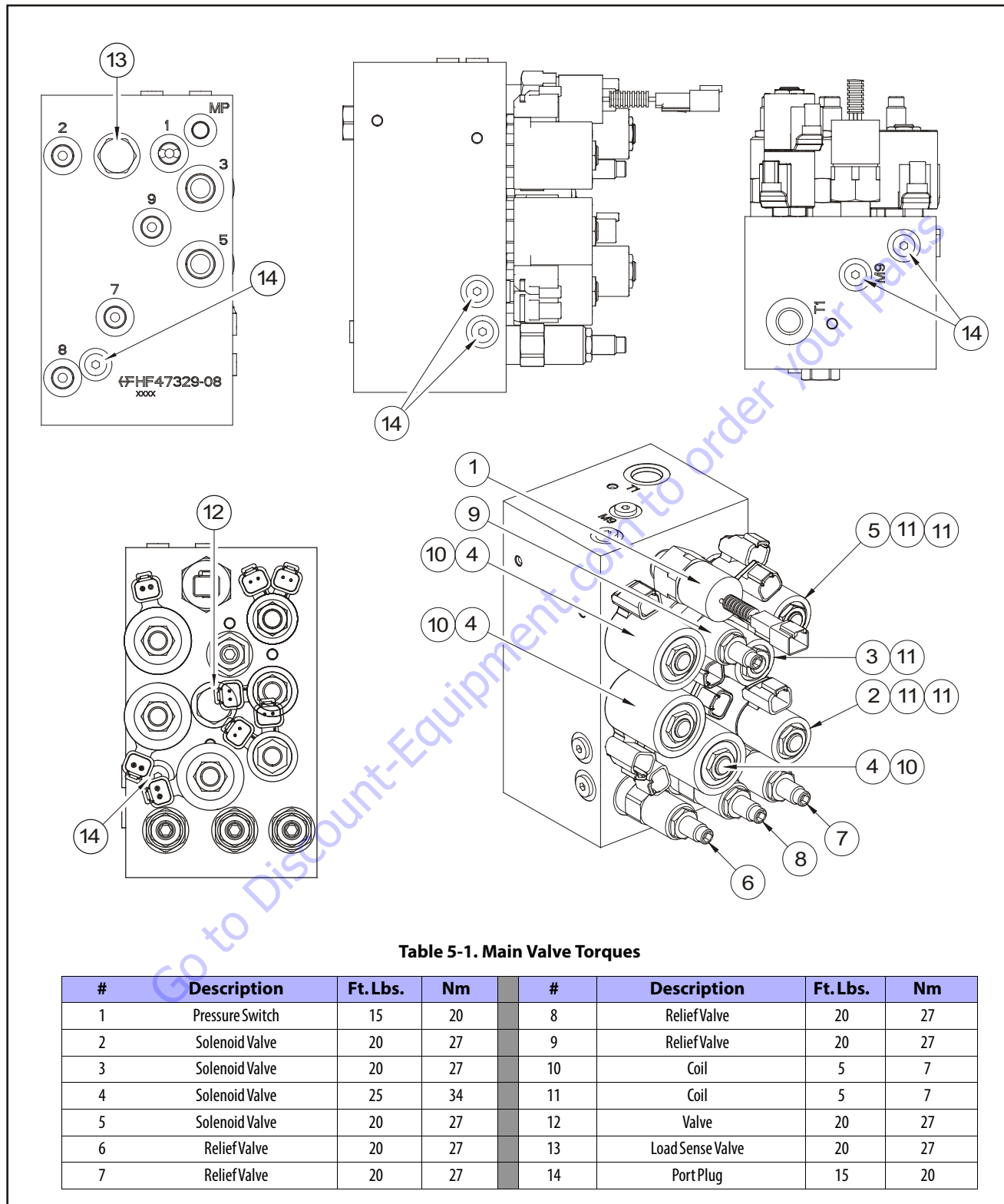


Figure 5-66. Main Control Valve - Sheet 2 of 2

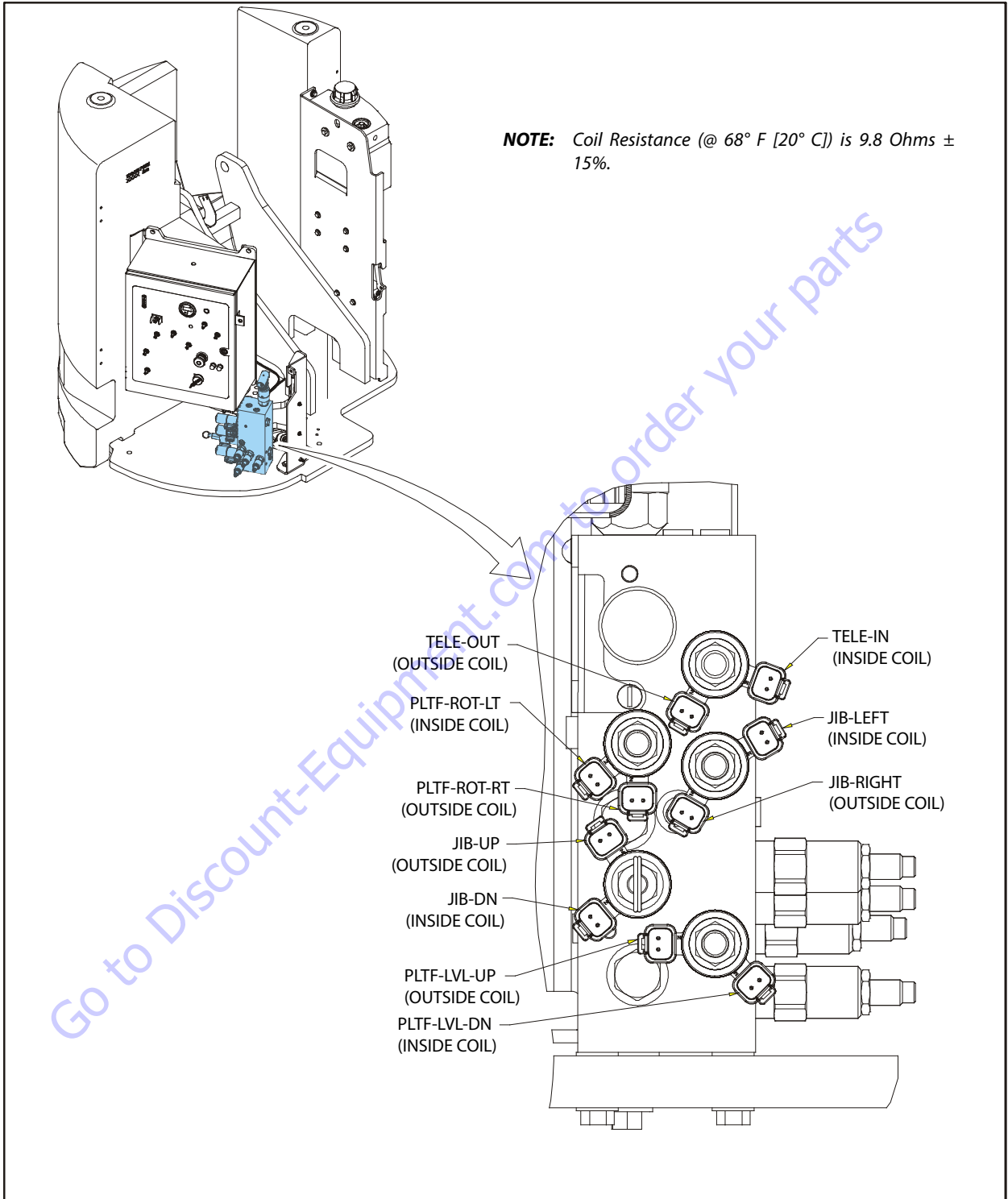


Figure 5-67. Boom Function Valve - Sheet 1 of 2

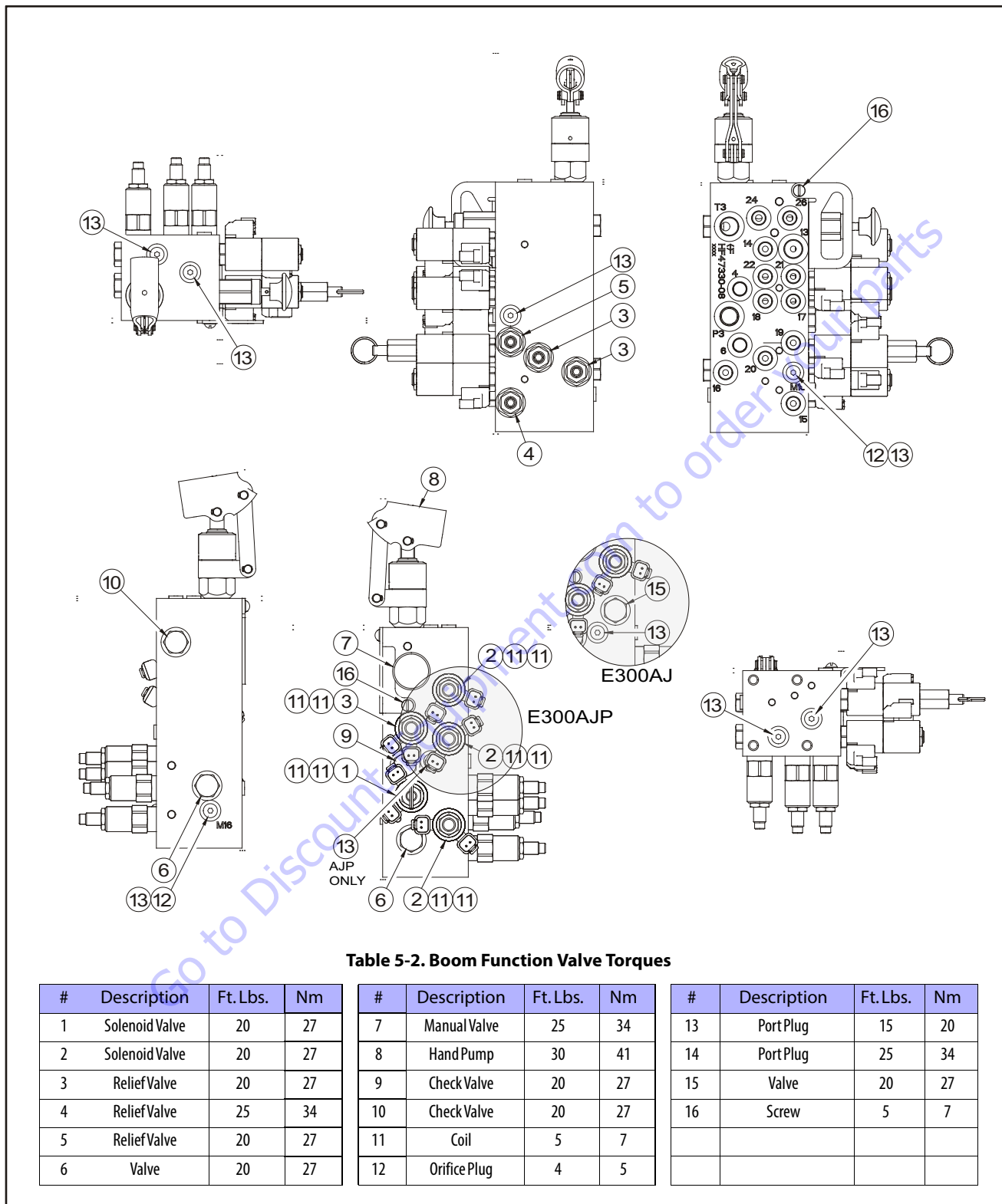


Figure 5-68. Boom Function Valve - Sheet 2 of 2

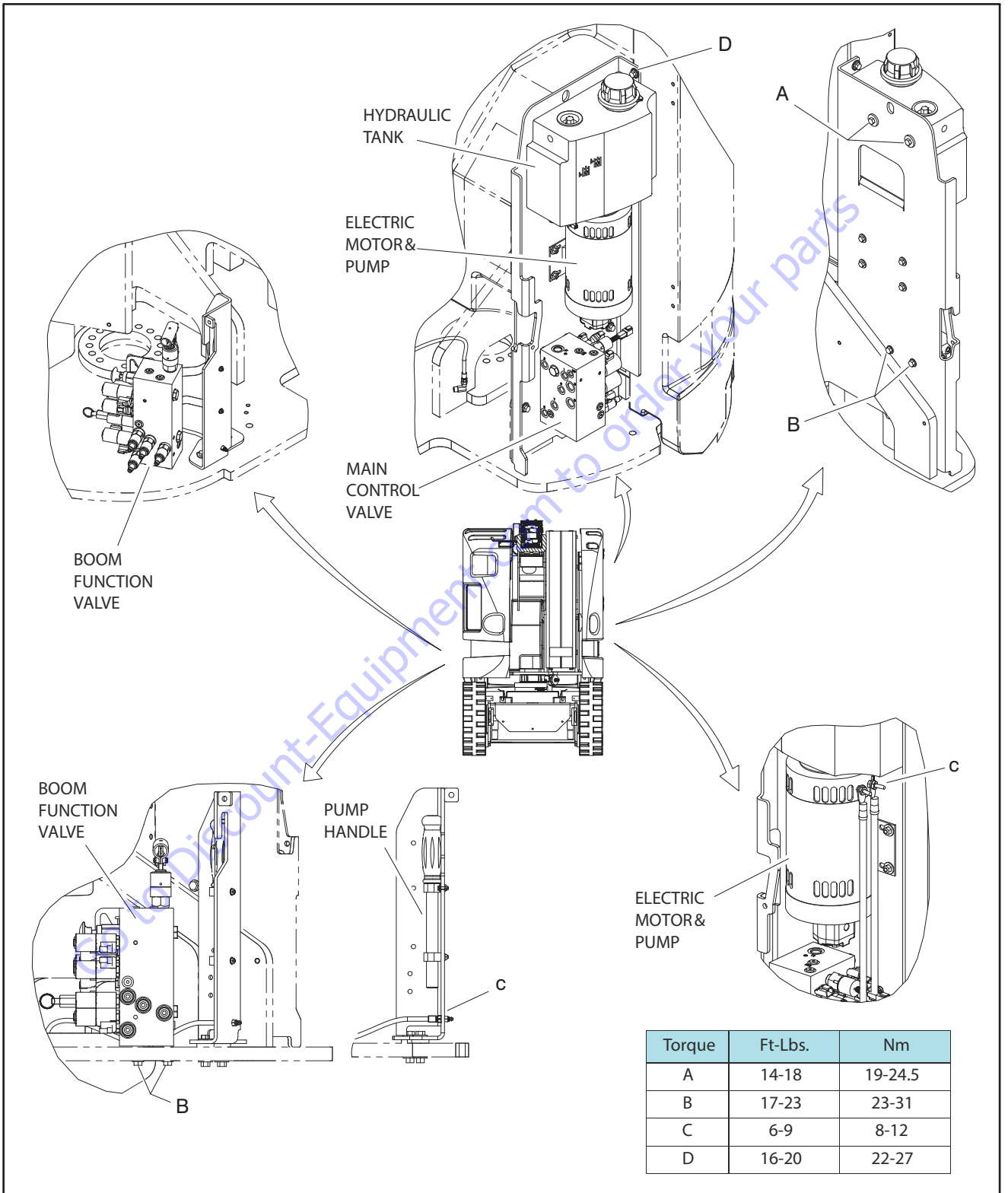


Figure 5-69. Hydraulic Components Location

5.5 INITIAL HYDRAULIC PUMP START-UP PROCEDURE

This procedure must be used when the hydraulic pump or pump/motor assembly is removed or replaced to ensure there is no air trapped in the hydraulic system. Having air in the system can cause damage to the pump.

Procedure

1. Fill the hydraulic reservoir approximately 3/4 full of hydraulic fluid.



2. Unscrew the breather/filler cap from the reservoir.
3. Connect a pressure test hose to the MP port on the Main Control Valve.



4. Insert the other end of the pressure test hose into the hydraulic reservoir's breather/filler port.



NOTE: Steps 5 and 6 require an assistant.

5. From the Ground Control Console, momentarily (1 second maximum) activate the platform rotate switch and release.



6. Continue activating the platform rotate switch momentarily until the assistant sees a clear, uniform stream of hydraulic fluid flowing from the test hose into the hydraulic reservoir.



NOTE: An audible change in the tone of the gear pump should be heard when the air is purged from the gear pump.

7. Disconnect the pressure test hose from the MP port on the Main Control Valve.
8. Remove the hose end from the hydraulic reservoir's breather/filler port.
9. Install the breather/filler cap.

Go to Discount-Equipment.com to order your parts

5.6 HYDRAULIC SCHEMATICS

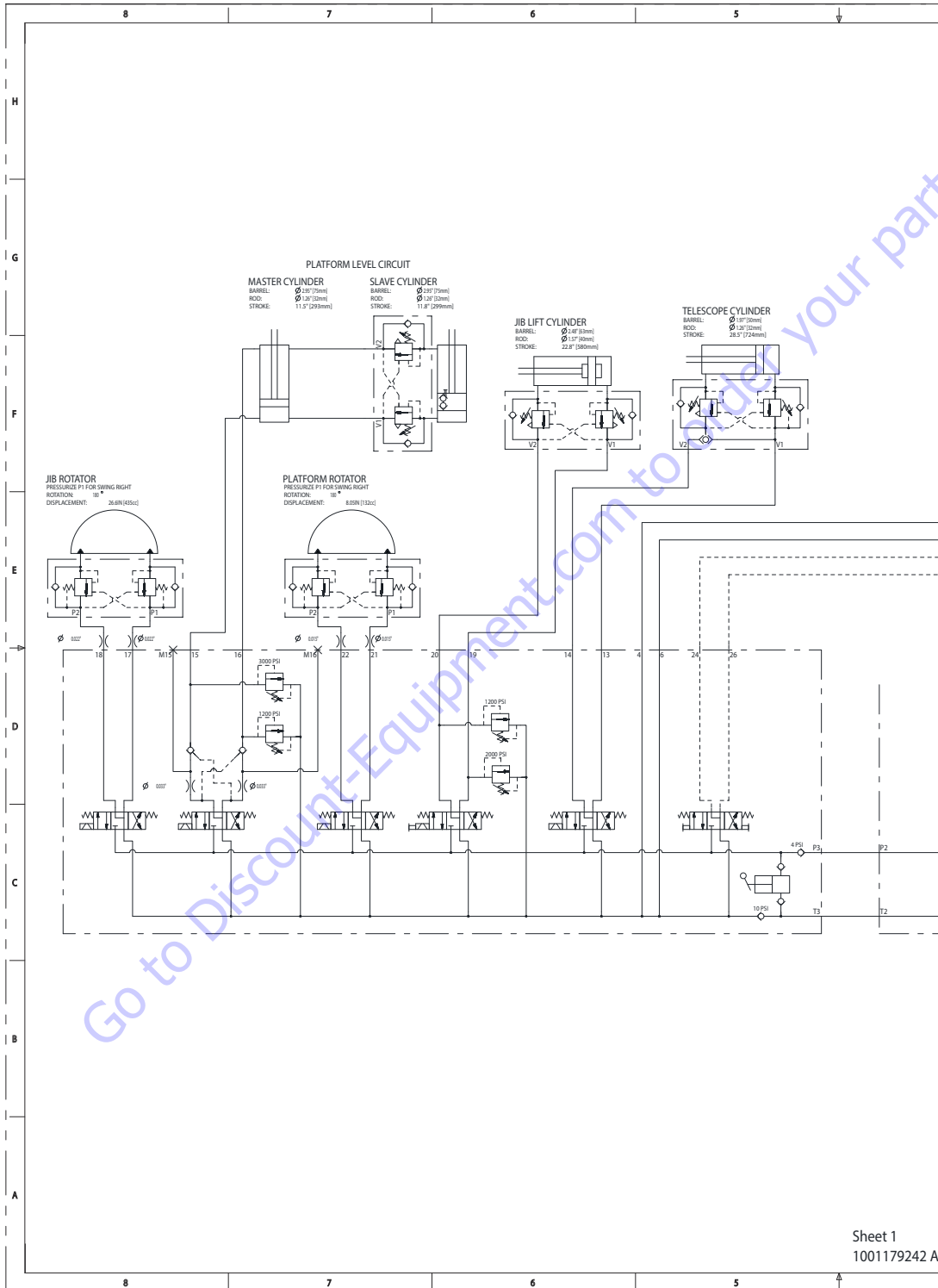


Figure 5-70. Hydraulic schematic (E300 AJP) - Sheet 1 of 4

SECTION 5 - BASIC HYDRAULIC INFORMATION & SCHEMATICS

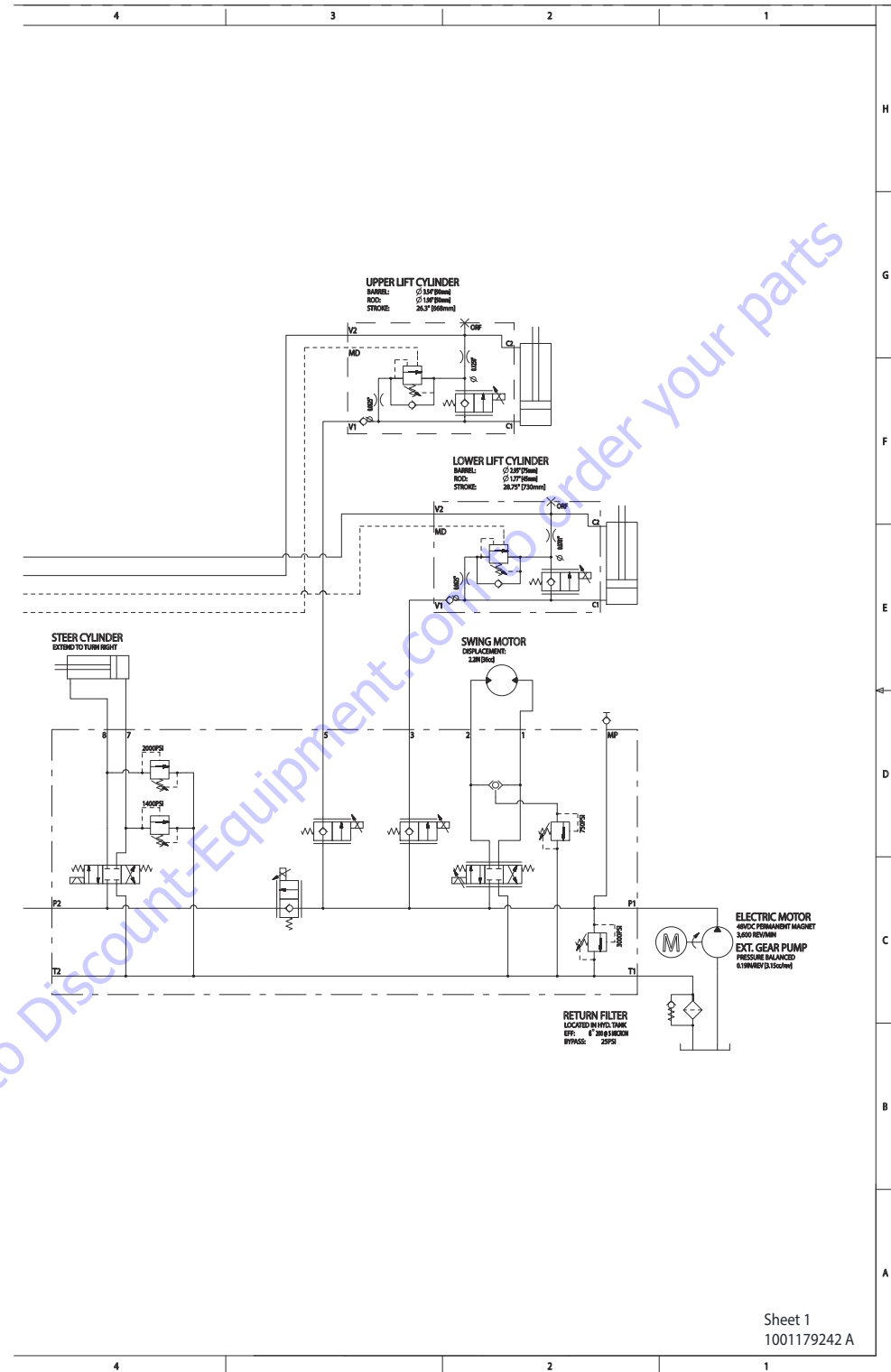


Figure 5-71. Hydraulic schematic (E300 AJP) - Sheet 2 of 4

SECTION 5 - BASIC HYDRAULIC INFORMATION & SCHEMATICS

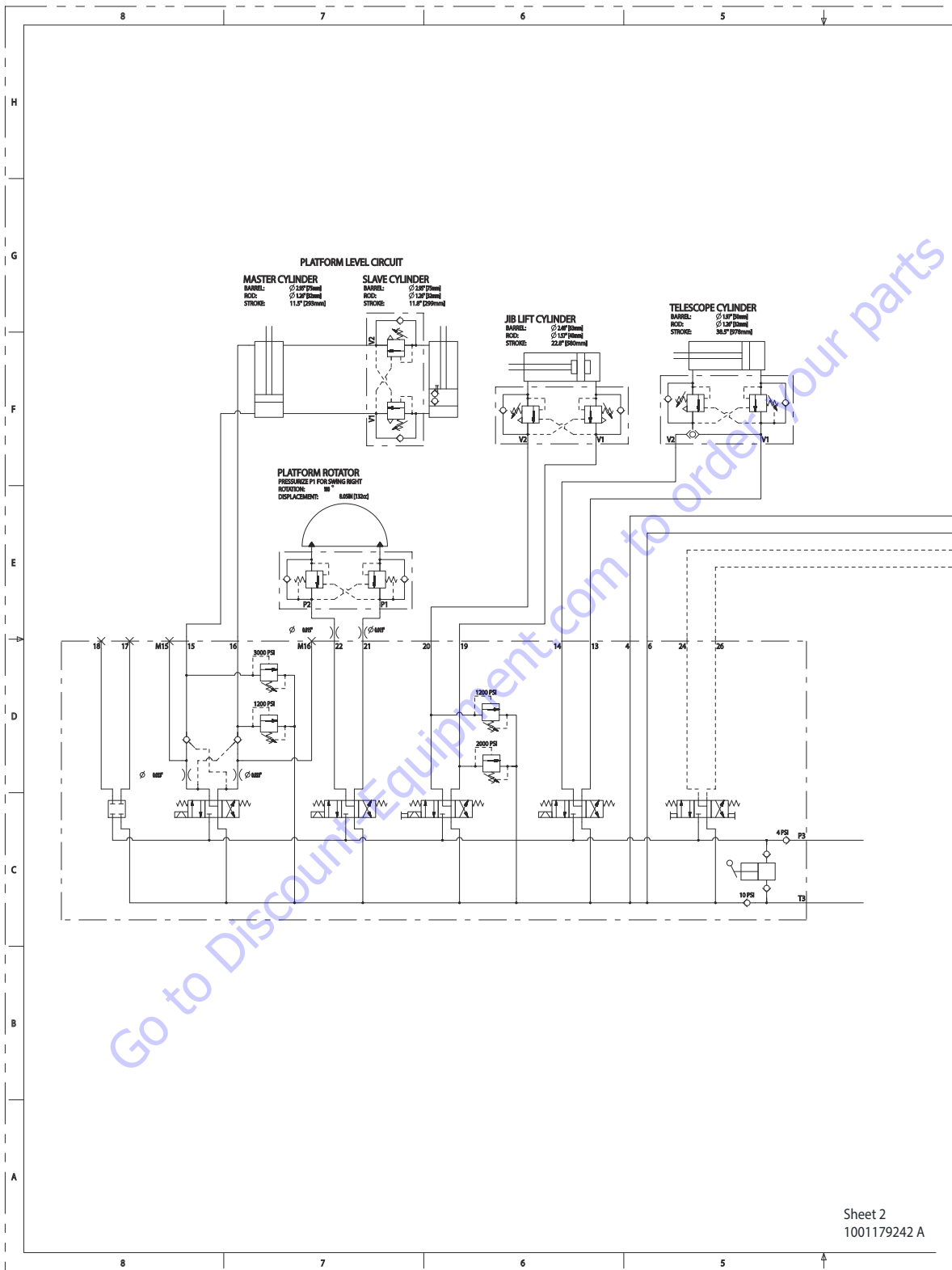


Figure 5-72. Hydraulic schematic (E300 AJP) - Sheet 3 of 4

Sheet 2
 1001179242 A

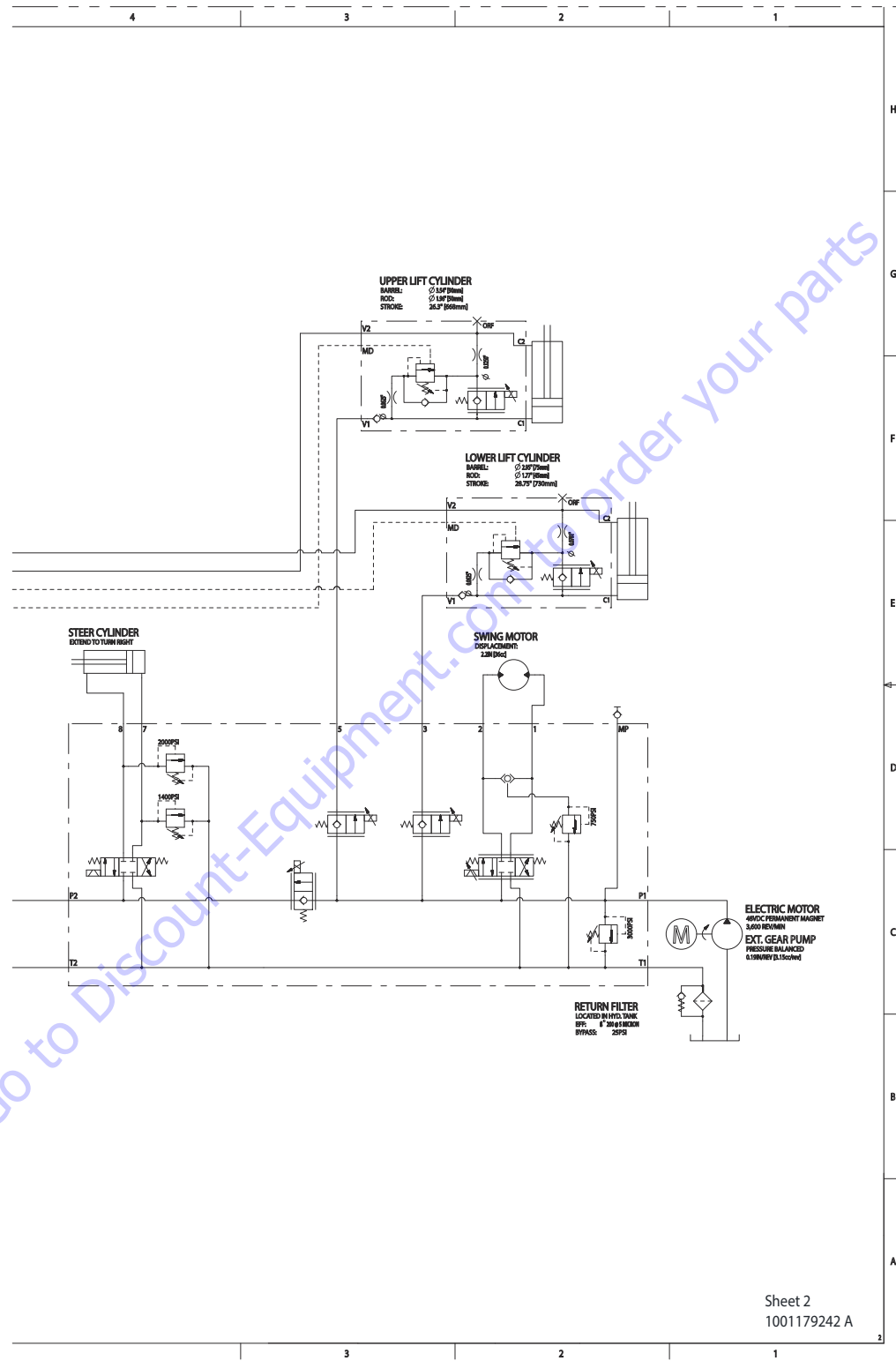


Figure 5-73. Hydraulic schematic (E300 AJP) - Sheet 4 of 4

PARTS FINDER

**Search Website
by Part Number**



**Search Manual
Library For Parts
Manual & Lookup Part
Numbers – Purchase
or Request Quote**

Search Manuals

Enter your manual number or part number to search for parts.

* Brand:

* Serial Number:

* Model:

Serial:

Part Number:

Quantity:

Submit

**Can't Find Part or
Manual? Request Help
by Manufacturer,
Model & Description**

Parts Order Form

Please fill in the following information:

Manufacturer:

Model:

Description:

Quantity:

Part Number:

Serial Number:

Brand:

Submit

Discount-Equipment.com is your online resource for quality parts & equipment.

Florida: **561-964-4949** Outside Florida TOLL FREE: **877-690-3101**

Need parts?

Click on this link: <http://www.discount-equipment.com/category/5443-parts/> and choose one of the options to help get the right parts and equipment you are looking for. Please have the machine model and serial number available in order to help us get you the correct parts. If you don't find the part on the website or on once of the online manuals, please fill out the request form and one of our experienced staff members will get back to you with a quote for the right part that your machine needs.

We sell worldwide for the brands: Genie, Terex, JLG, MultiQuip, Mikasa, Essick, Whiteman, Mayco, Toro Stone, Diamond Products, Generac Magnum, Airman, Haulotte, Barreto, Power Blanket, Nifty Lift, Atlas Copco, Chicago Pneumatic, Allmand, Miller Curber, Skyjack, Lull, Skytrak, Tsurumi, Husquvarna Target, , Stow, Wacker, Sakai, Mi-T- M, Sullair, Basic, Dynapac, MBW, Weber, Bartell, Bennar Newman, Haulotte, Ditch Runner, Menegotti, Morrison, Contec, Buddy, Crown, Edco, Wyco, Bomag, Laymor, Barreto, EZ Trench, Bil-Jax, F.S. Curtis, Gehl Pavers, Heli, Honda, ICS/PowerGrit, IHI, Partner, Imer, Clipper, MMD, Koshin, Rice, CH&E, General Equipment, ,AMida, Coleman, NAC, Gradall, Square Shooter, Kent, Stanley, Tamco, Toku, Hatz, Kohler, Robin, Wisconsin, Northrock, Oztec, Toker TK, Rol-Air, Small Line, Wanco, Yanmar

SECTION 6. JLG CONTROL SYSTEM

6.1 JLG CONTROL SYSTEM ANALYZER KIT
INSTRUCTIONS

Introduction

NOTICE

WHEN INSTALLING A NEW POWER MODULE CONTROLLER ON THE MACHINE, IT WILL BE NECESSARY TO PROGRAM THE CONTROLLER FOR THE PROPER MACHINE CONFIGURATION, INCLUDING OPTIONS.

NOTICE

IT IS A GOOD PRACTICE TO AVOID PRESSURE-WASHING ELECTRICAL/ELECTRONIC COMPONENTS. SHOULD PRESSURE-WASHING BE UTILIZED TO WASH AREAS CONTAINING ELECTRICAL/ELECTRONIC COMPONENTS, JLG INDUSTRIES, INC. RECOMMENDS A MAXIMUM PRESSURE OF 750 PSI (52 BAR) AT A MINIMUM DISTANCE OF 12 INCHES (30.5 CM) AWAY FROM THESE COMPONENTS. IF ELECTRICAL/ELECTRONIC COMPONENTS ARE SPRAYED, SPRAYING MUST NOT BE DIRECT AND BE FOR BRIEF TIME PERIODS TO AVOID HEAVY SATURATION.

The JLG designed Control System is a 48 volt based motor control unit installed on the boom lift.

The JLG Control System has reduced the need for exposed terminal strips, diodes and trim pots and provides simplicity in viewing and adjusting the various personality settings for

smooth control of: acceleration, deceleration, creep and max-speed for all boom, drive, and steering functions.

The main lift, swing, and drive are controlled by individual joysticks, with steering being controlled by a rocker switch built into the top the drive joystick. To activate Drive, Lift, and Swing simply pull up on the slide lock location on the joystick and move the handle into the direction desired.

The motor controller will control current output, as programmed for smooth operation and maximum cycle time. Ground control speeds for all boom functions can also be programmed into the motor controller. The motor controller also features an adjustable time limit for positive traction.

The JLG Control System controller has a built in LED to indicate any faults. The system stores recent faults which may be accessed for troubleshooting. Optional equipment includes an hour meter, beacon light, function cutout, and ground alarm. These options may be added later but must be programmed into the motor controller when installed.

The Control System may be accessed in one of two ways: Utilizing a custom designed, hand held analyzer (Analyzer Kit, JLG part no. 2901443) which will display two lines of information at a time, by scrolling through the program.

NOTE: Each module has a label with the JLG part number and a serial number which contains a date code.

The following instructions are for using the hand held analyzer.

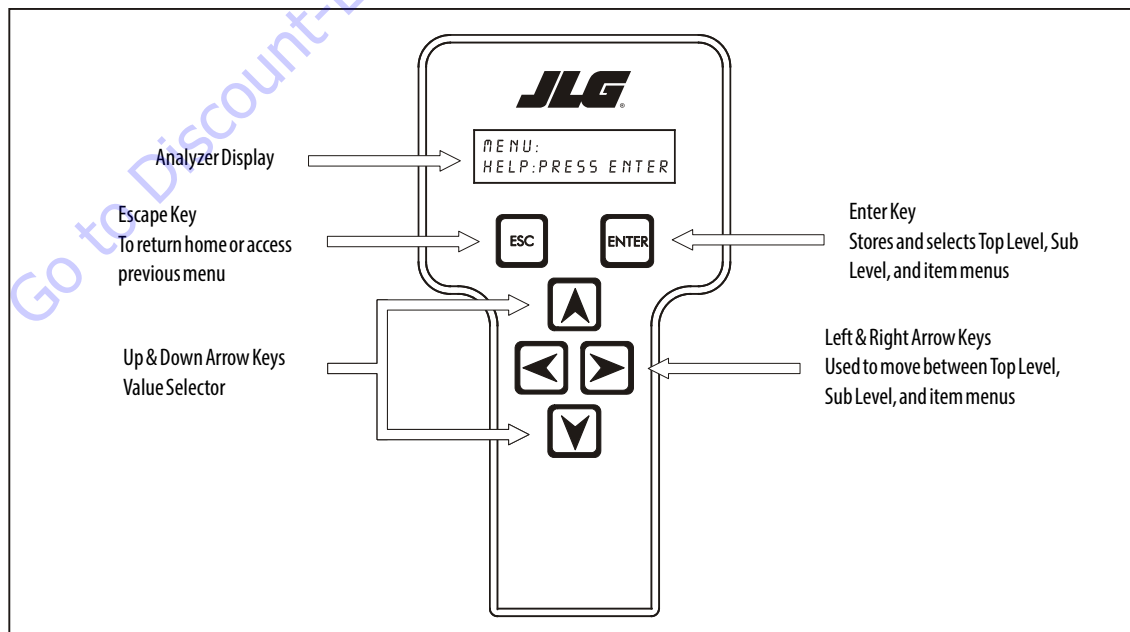


Figure 6-1. Hand Held Analyzer

To Connect the JLG Control System Analyzer

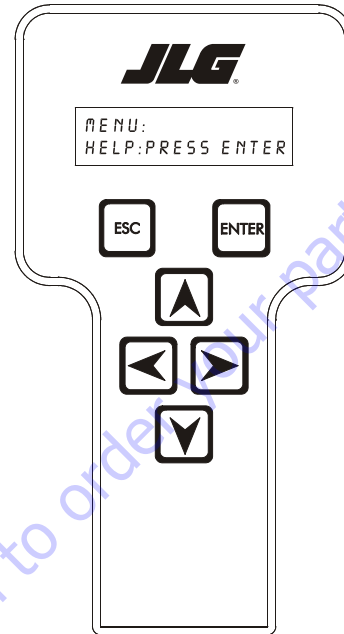
1. Connect the four pin end of the cable supplied with the analyzer, to the motor controller module located in the platform box or at the power module and connect the remaining end of the cable to the analyzer.

NOTE: The cable has a four pin connector at each end of the cable; the cable cannot be connected backwards.

2. Power up the Control System by turning the lower key to the platform or ground position and pulling both emergency stop buttons on.


Using the Analyzer


With the machine power on and the analyzer connected properly, the analyzer will display the following:



MENU:
HELP: PRESS ENTER


At this point, using the **RIGHT**  and **LEFT**  arrow keys, you can move between the top level menu items. To


select a displayed menu item, press **ENTER** . To cancel a

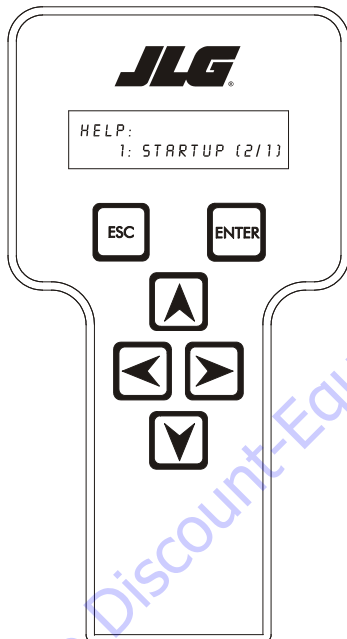
selected menu item, press **ESCAPE**  then you will be able to scroll using the right and left arrow keys to select a different menu item.

The top level menus are as follows:

- HELP
- DIAGNOSTICS
- SYSTEM TEST
- ACCESS LEVEL
- PERSONALITIES
- MACHINE SETUP
- CALIBRATIONS (view only)

If you press **ENTER** , at the **HELP: PRESS ENTER** display, and a fault is present, the analyzer display will scroll the fault across the screen. If there was no fault detected, the display will read: **HELP: EVERYTHING OK**. If powered up at the ground station, the display will read: **GROUND OK**.

If **ENTER**  is pressed again, the display moves to the following display:




LOGGED HELP
1: STARTUP (2/1)

At this point, the analyzer will display the last fault the system has seen, if any are present. You may scroll through the fault logs to view what the last 25 faults were. Use the right and left arrow keys to scroll through the fault logs. To return to the

beginning, press **ESCAPE**  two times. **STARTUP (2/1)** indicates a power up.

When a top level menu is selected, a new set of menu items may be offered: for example:

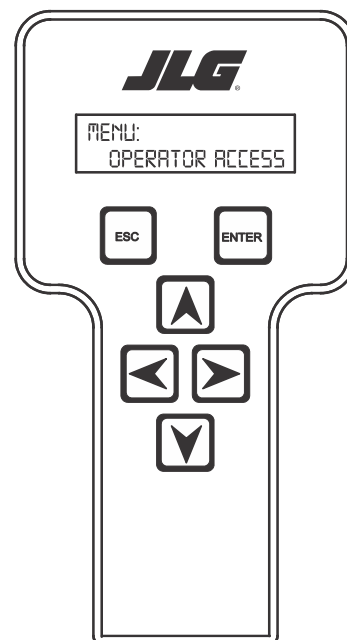
- DRIVE
- BOOM
- SYSTEM
- DATALOG
- VERSIONS

Pressing **ENTER**  with any of the above displayed menus, will display additional sub-menus within the selected menu. In some cases, such as **DRIVE**, the next level is the parameter or information to be changed. Refer to the flow chart for what menus are available within the top level menus. You may only view the personality settings for selected menu while in access level 2. Remember, you may always cancel a selected


menu item by pressing the **ESCAPE**  key.

Changing the Access Level of the Hand Held Analyzer

When the analyzer is first connected, you will be in access level 2 which enables you to only view most settings which cannot be changed until you enter a password to advance to a lower level. This ensures that a setting cannot be accidentally altered. To change the access level, the correct password must be entered. To enter the password, scroll to the **ACCESS LEVEL** menu. For example:




MENU:
OPERATOR ACCESS

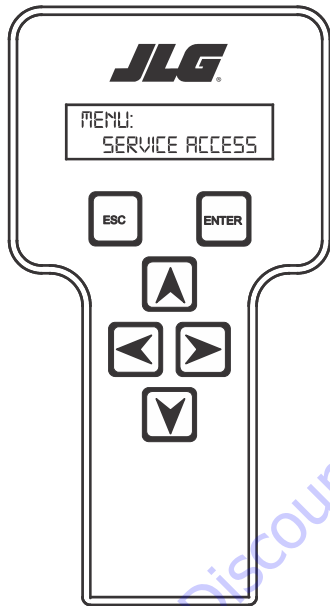
Press **ENTER**  to select the **ACCESS LEVEL** menu.

Using the **UP**  or **DOWN**  arrow keys, enter the first digit of the password, 3.

Then using the **RIGHT**  arrow key, position the cursor to the right one space to enter the second digit of the password.

Use the **UP**  or **DOWN**  arrow key to enter the second digit of the password which is 33271.

Once the correct password is displayed, press **ENTER** . The access level should display the following, if the password was entered correctly:



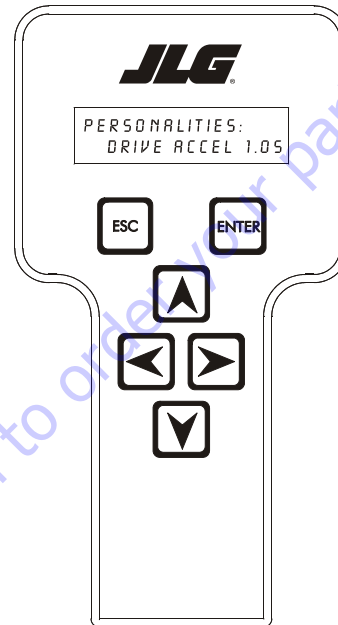
**MENU:
SERVICE ACCESS**

Repeat the above steps if the correct access level is not displayed or you can not adjust the personality settings.

Adjusting Parameters Using the Hand Held Analyzer


Once you have gained access to level 1, and a personality item


is selected, press the **UP**  or **DOWN**  arrow keys to adjust its value, for example:




**PERSONALITIES:
DRIVE ACCEL 1.0s**


There will be a minimum and maximum for the value to ensure efficient operation. The Value will not increase if the **UP**

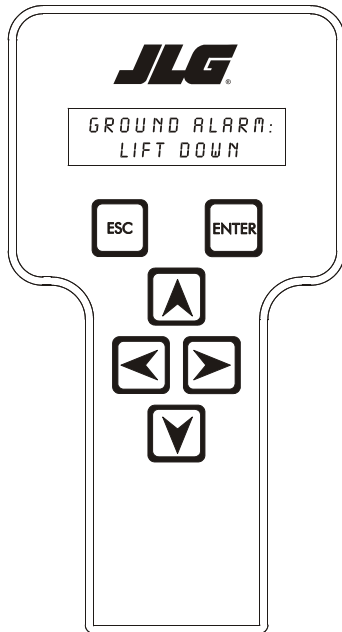
 arrow is pressed when at the maximum value nor will

the value decrease if the **DOWN**  arrow is pressed and the value is at the minimum value for any particular personality. If the value does not change when pressing the up and down arrows, check the access level to ensure you are at Service Access.

Machine Setup

When a machine digit item is selected, press the UP  or

DOWN  arrow keys to adjust its value, for example:



GROUND ALARM: LIFT DOWN

The effect of the machine digit value is displayed along with its value. The above display would be selected if the machine was equipped with a ground alarm and you wanted it to sound when driving. There are certain settings allowed to install optional features or select the machine model.

When selection the machine model to match the size of the machine, the personality settings will all default to the factory recommended setting.

NOTE: Refer to Table 6-5, Machine Setup Descriptions, and Table 6-5, Machine Setup Descriptions in this Service Manual for the recommended factory settings.

NOTE: Password 33271 will give you access to Access Level, which will permit you to change all machine personality settings.

There is a setting that JLG strongly recommends that you do not change. This setting is so noted below:

ELEVATION CUTBACK

WARNING

CHANGING THIS SETTING MAY ADVERSELY AFFECT THE PERFORMANCE OF YOUR MACHINE.

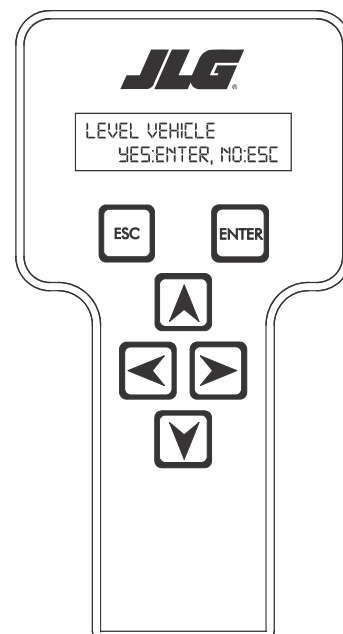
NOTICE

ITS IS A GOOD PRACTICE TO AVOID PRESSURE-WASHING ELECTRICAL/ELECTRONIC COMPONENTS. SHOULD PRESSURE-WASHING BE UTILIZED TO WASH AREAS CONTAINING ELECTRICAL/ELECTRONIC COMPONENTS, JLG INDUSTRIES INC. RECOMMENDS A MAXIMUM PRESSURE OF 750 PSI (52 BAR) AT A MINIMUM DISTANCE OF 12 INCHES (30.5CM) AWAY FROM THESE COMPONENTS. IF ELECTRICAL/ELECTRONIC COMPONENTS ARE SPRAYED, SPRAYING MUST NOT BE DIRECT AND BE FOR BRIEF TIME PERIODS TO AVOID HEAVY SATURATION.

Level Vehicle Description

WARNING

DO NOT LEVEL VEHICLE EXCEPT ON A LEVEL SURFACE.



LEVEL VEHICLE YES:ENTER, NO:ESC

Not available at password level 2 ENTER confirms that vehicle is currently level, and zeroes the tilt sensor measurements

SECTION 6 - JLG CONTROL SYSTEM

Table 6-1. Analyzer Abbreviations

ABBREVIATION	MEANING
ACCEL	ACCELERATE
ACT	ACTIVE
A/D	ANALOG DIGITAL CONVERTER COUNT
AMB.	AMBIENT
ANG	ANGLE
AUX	AUXILIARY
BCS	BOOM CONTROL SYSTEM
BM	BOOM LENGTH ANGLE MODULE
BLAM	BOOM LENGTH ANGLE MODULE
BR	BROKEN
BSK	BASKET
CAL	CALIBRATION
CL	CLOSED
CM	CHASSIS MODULE
CNTL	CONTROL
CNTRL	CONTROL
C/O	CUTOUT
CONT(S)	CONTRACTOR(S)
COOR	COORDINATED
CRK PT	CRACK POINT
CRP	CREEP
CUT	CUTOUT
CYL	CYLINDER
DECEL	DECELERATE
D	DOWN
DN	DOWN
DWN	DOWN
DEG.	DEGREE
DOS	DRIVE ORIENTATION SYSTEM
DRV	DRIVE
E	ERROR
E&T	ELEVATED & TILTED
ELEV	ELEVATION
ENG	ENGINE
EXT	EXTEND
F	FRONT
FL	FLOW
FNT	FRONT
FOR	FORWARD
FWD	FORWARD
FSW	FOOT SWITCH
FUNC	FUNCTION
G	GROUND

Table 6-1. Analyzer Abbreviations

ABBREVIATION	MEANING
GND	GROUND
GRN	GREEN
GM	GROUND MODULE
H	HOURS
HW	HARDWARE
HWFS	HARDWARE FAILSAFE
I	IN or CURRENT
JOY	JOYSTICK
L	LEFT
LB	POUND
LEN	LENGTH
LIM	LIMIT
LT	LEFT
LVL	LEVEL
M	MINUTES
MIN	MINIMUM
MAX	MAXIMUM
M	MAIN
MN	MAIN
NO	NORMALLY OPEN or NO
NC	NORMALLY CLOSED
O	OUT
O/C	OPEN CIRCUIT
OP	OPEN
O/R	OVERRIDE or OUTRIGGER
O//R	OVERRIDE
OSC	OSCILLATING
OVRD	OVERRIDE
P	PLATFORM
P	PRESSURE
PCV	PROPORTIONAL CONTROL VALVE
PLAT	PLATFORM
PLT	PLATFORM
PM	PLATFORM MODULE
POT	POTENTIOMETER
PRES	PRESSURE
PRS	PRESSURE
PT	POINT
R	REAR or RIGHT
REV	REVERSE or REVISION
RET	RETRACT
ROT.	ROTATE
RT	RIGHT

Table 6-1. Analyzer Abbreviations

ABBREVIATION	MEANING
S/C	SHORT CIRCUIT
SEL	SELECTOR
SN	SERIAL NUMBER
SPD	SPEED
STOW	STOWED
STOWD	STOWED
SW	SWITCH or SOFTWARE
TELE	TELESCOPE
TEMP	TEMPERATURE
TORQ.	TORQUE
TRN	TRANSPORT
T/T	TURNTABLE
T	TOWER
TURNTBL	TURNTABLE
TWR	TOWER
U	UPPER or UP
V	VOLT
VER	VERSION
VLV	VALVE
WIT	WITNESS
YEL	YELLOW

Go to Discount-Equipment.com to order your parts

SECTION 6 - JLG CONTROL SYSTEM

Table 6-2. Machine Configuration Programming Information

Configuration Digit	Number	Description	Default Number
<p>NOTE: The machine configuration must be completed before any personality settings can be changed. Changing the personality settings first and then changing the model number of the machine configuration will cause the personality settings to return to default values.</p>			
MODEL NUMBER: 1	1	E300	1
	2	E400	
	3	E400N	
	4	E450	
	5	E600	
MARKET: 2	1	ANSI USA	1
	2	ANSI EXPORT	
	3	CSA	
	4	CE	
	5	AUSTRALIA	
	6	JAPAN	
	7	GB	
BATTERIES: 3* *Certain battery visibilities are dependent on model selection.	1	310AH Flooded	1-E300
	2	375AH Flooded	
	3	312AH AGM	
	4	415AH Flooded	
	5	390AH AGM)	

Table 6-2. Machine Configuration Programming Information

Configuration Digit	Number	Description	Default Number
TILT: 4	1	5 DEGREES+CUT: Reduces the maximum speed of all boom functions to creep when tilted more than 5 degrees and above elevation; also disallows the tower lift up, drive, telescope out and lift up.	1 ANSI USA, ANSI Export, CSA, JAPAN
	2	4 DEGREES+CUT: Reduces the maximum speed of all boom functions to creep when tilted more than 4 degrees and above elevation; also disallows the tower lift up, drive, telescope out and lift up.	
	3	3 DEGREES+CUT: Reduces the maximum speed of all boom functions to creep when tilted more than 3 degrees and above elevation; also disallows the tower lift up, drive, telescope out and lift up.	
GROUND ALARM: 5	1	NO: No ground alarm installed.	4
	2	DRIVE: Travel alarm sounds when the drive function is active.	
	3	DESCENT: Descent alarm sounds when lift down is active.	
	4	MOTION: Motion alarm sounds when any function is active.	
JIB: 6	1	NO: No jib installed.	2
	2	YES: Jib installed which has up and down movements only.	
JIB SWING: 7	1	NO: No jib swing installed.	2
	2	YES: Jib installed which has side to side movements.	
SKYGUARD: 8	1	NO: No Sky Guard system installed.	2
	2	YES: Sky Guard system installed.	
SOFT TOUCH: 9	1	NO: No Soft Touch system installed.	1
	2	YES: Soft Touch system installed.	
H&T LIGHTS: 10	1	NO: No head and tail lights installed.	1
	2	YES: head and tail lights installed	

SECTION 6 - JLG CONTROL SYSTEM

Table 6-2. Machine Configuration Programming Information

Configuration Digit	Number	Description	Default Number
LOAD SYSTEM: 11* * Only visible under certain market selections. * Certain market selections will limit load system options or alter default setting.	1	NO: No load sensor installed.	1
	2	WARN ONLY: Functions in creep, overload lamp lit, platform alarm beeps (5 sec ON, 2 sec OFF).	
	3	CUTOUT PLATFORM: All functions cutout, overload lamp lit, platform alarm beeps (5 sec ON, 2 sec OFF).	
	4	CUTOUT ALL: All functions cutout, flash overload light (500 mS on, 500 mS off), platform alarm beeps (5 sec ON, 2 sec OFF).	
FUNCTION CUTOUT: 12* * Only visible under certain market selections. * Certain market selections will limit load system options or alter default setting.	1	NO: No drive cutout.	1 ANSI USA, ANSI EXPORT, CSA, AUSTRALIA, JAPAN 2 CE
	2	BOOM CUTOUT: Boom function cutout while driving above elevation.	
	3	DRIVE CUTOUT: Drive and steer cutout above elevation.	
DISPLAY UNITS: 13	1	METRIC	1 CSA, CE, AUS, JAPAN, GB 2 ANSI USA, ANSI Export
	2	IMPERIAL	
ALERT BEACON: 14* * Only visible if Skyguard is selected.	1	OFF FOR CREEP.	1
	2	20 FPM FOR CREEP.	
TEMPOUTPUT: 15* * Certain market selection will display temp cutout options.	1	NO:	1
	2	YES: Low temp cutout system is installed.	

Table 6-2. Machine Configuration Programming Information

Configuration Digit	Number	Description	Default Number
WHEEL DRIVE: 16* * Only visible if E600 model is selected.	1	4WD: Front wheel assist (4WD) system is installed	1
	2	2WD: Front wheel assist (4WD) system is not installed.	
CHARGER INTERLOCK: 17	1	DRIVE ONLY: Drive function is disabled when battery charger is plugged in.	1
	2	CUTOUT ALL: Drive and bottom function is disabled when battery charger is plugged in.	
PLAT LVL OVR CUT: 18	1	NO: Platform level functions above elevation.	1
	2	YES: Platform level does not function above elevation.	

1001201628-C

Table 6-3. Machine Configuration Programming Settings

E300	ANSI USA	ANSI Export	CSA	CE	Australia	Japan
Model Number	1	1	1	1	1	1
Market	1	2	3	4	5	6
Batteries	1	1	1	1	1	1
	X	X	X	X	X	X
	3	3	3	3	3	3
	X	X	X	X	X	X
Tilt	1	1	1	X	1	1
	2	2	2	X	2	2
	3	3	3	3	3	3
Ground Alarm	1	1	1	1	1	1
	2	2	2	2	2	2
	3	3	3	3	3	3
	4	4	4	4	4	4
Jib	X	X	X	X	X	X
	X	X	X	X	X	X
Jib Swing	1	1	1	1	1	1
	2	2	2	2	2	2
Skyguard	1	1	1	1	1	1
	2	2	2	2	2	2
Soft Touch	X	X	X	X	X	X
	X	X	X	X	X	X
Head & Tail Lights	X	X	X	X	X	X
	X	X	X	X	X	X
Load System	X	1	X	1	1	1
	X	2	X	x	X	2
	X	3	X	X	3	3
	X	4	X	4	X	4
Function Cutout	1	1	1	X	1	1
	X	2	2	2	2	2
	3	3	3	X	3	3

Table 6-3. Machine Configuration Programming Settings

E300	ANSI USA	ANSI Export	CSA	CE	Australia	Japan
Display Units	1	1	1	1	1	1
	2	2	2	2	2	2
Alert Beacon	1	1	1	1	1	1
	2	2	2	2	2	2
Temp Cutout	X	1	X	1	X	X
	X	2	X	2	X	X
Wheel Drive	X	X	X	X	X	X
	X	X	X	X	X	X
Charger Interlock	1	1	1	1	1	1
	2	2	2	2	2	2
Plat Lvl Ovr Cut	1	1	1	1	1	1
	2	2	2	2	2	2

BOLD TEXT indicates the default setting. Plain text indicates another available selection. **ITALIC TEXT** indicates the default when option is factory installed. SHADED CELLS indicate hidden menu or selection.

6.2 MACHINE PERSONALITY SETTINGS

NOTE: Personality settings can be adjusted within the adjustment range in order to achieve optimum machine performance.

Table 6-4. Personality Ranges/Defaults

FUNCTION	PERSONALITY	RANGE	DEFAULTS
DRIVE	ACCEleration	0.5s to 5.0s	2.0s
	DECEleration	0.3s to 5.0s	3.0s
	DECEleration to stop	0.3s to 2.0s	1.0s
	MAXimum speed	75 to 100%	100%
	REDUCED MAXimum speed and MAXimum Reverse Drive	50 to 74%	60%
	ELEVATED MAXimum speed (ANSI)	5 to 15%	7%
	ELEVATED MAXimum speed (CE)	5 to 15%	7%
	CREEP MAXimum speed	5 to 15%	7%
STEER	ACCEleration	0.1 to 5.0s	2.0s
	DECEleration	0.1 to 5.0s	0.3s
	MINimum LEFT speed	20 to 40%	35%
	MAXimum LEFT speed	50 to 90%	65%
	MINimum RIGHT speed	20 to 40%	35%
	MAXimum RIGHT speed	50 to 90%	85%
SWING	ACCEleration	0.1 to 5.0s	2.5s
	DECEleration	0.1 to 5.0s	2.5s
	MINimum LEFT speed	1 to 15%	1%
	MAXimum LEFT speed	26 to 60%	35%
	CREEP Maximum LEFT speed	16 to 25%	20%
	MINimum RIGHT speed	1 to 15%	1%
	MAXimum RIGHT speed	26 to 60%	35%
	CREEP maximum RIGHT speed	16 to 25%	20%

SECTION 6 - JLG CONTROL SYSTEM

Table 6-4. Personality Ranges/Defaults

FUNCTION	PERSONALITY	RANGE	DEFAULTS
BOOM LIFT	ACCEleration	0.1 to 5.0s	2.5s
	DECEleration	0.1 to 5.0s	2.5s
	MINimum UP speed	1 to 15%	1%
	MAXimum UP speed	36 to 100%	80%
	CREEP maximum UP speed	16 to 35%	30%
	MINimum DOWN speed	1 to 15%	1%
	MAXimum DOWN speed	36 to 80%	45%
	CREEP maximum DOWN speed	16 to 35%	20%
TOWERLIFT	ACCEleration	0.1 to 5.0s	3s
	DECEleration	0.1 to 5.0s	1s
	MINimum UP speed	1 to 15%	15%
	MAXimum UP speed	51 to 100%	90%
	CREEP maximum UP speed	16 to 35%	30%
	MINimum DOWN speed	1 to 15%	15%
	MAXimum DOWN speed	26 to 60%	45%
	CREEP maximum DOWN speed	16 to 25%	20%
TELESCOPE	ACCEleration	0.1 to 5.0s	1.5s
	DECEleration	0.1 to 5.0s	1.5s
	MINimum IN speed	1 to 15%	1%
	MAXimum IN speed	31 to 60%	45%
	CREEP maximum IN speed	16 to 30%	20%
	MINimum OUT speed	1 to 15%	1%
	MAXimum OUT speed	31 to 60%	35%
	CREEP maximum OUT speed	16 to 30%	20%
JIBLIFT	ACCEleration	0.1 to 5.0s	1.2s
	DECEleration	0.1 to 5.0s	0.5s
	MINimum UP speed	1 to 15%	1%
	MAXimum UP speed	21 to 60%	45%
	CREEP maximum UP speed	16 to 20%	18%
	MINimum DOWN speed	1 to 15%	1%
	MAXimum DOWN speed	21 to 60%	30%

Table 6-4. Personality Ranges/Defaults

FUNCTION	PERSONALITY	RANGE	DEFAULTS
	CREEP maximum DOWN speed	16 to 20%	18%
JIBSWING	ACCEleration	0.1 to 5.0s	2.0s
	DECEleration	0.1 to 5.0s	1.0s
	MINimum LEFT speed	1 to 10%	1%
	MAXimum LEFT speed	21 to 50%	30%
	CREEP Maximum LEFT speed	11 to 20%	15%
	MINimum RIGHT speed	1 to 10%	1%
	MAXimum RIGHT speed	21 to 50%	30%
	CREEP maximum RIGHT speed	11 to 20%	15%
PLATFORM LEVEL	ACCEleration	0.1 to 5.0s	1.0s
	DECEleration	0.1 to 5.0s	0.5s
	MINimum UP speed	1 to 15%	1%
	MAXimum UP speed	36 to 60%	40%
	CREEP maximum UP speed	16 to 35%	20%
	MINimum DOWN speed	1 to 15%	1%
	MAXimum DOWN speed	36 to 60%	40%
	CREEP maximum DOWN speed	16 to 35%	20%
PLATFORM ROTATE	ACCEleration	0.1 to 5.0s	1.5s
	DECEleration	0.1 to 5.0s	1.5s
	MINimum LEFT speed	1 to 15%	1%
	MAXimum LEFT speed	19 to 50%	21%
	CREEP Maximum LEFT speed	16 to 18%	18%
	MINimum RIGHT speed	1 to 15%	1%
	MAXimum RIGHT speed	19 to 50%	22%
	CREEP maximum RIGHT speed	16 to 18%	18%
GROUND MODE	Swing	36 to 60%	34%
	Tower UP	51 to 100%	80%
	Tower Down	36 to 80%	50%
	Lift UP	36 to 80%	60%
	Lift DOWN	36 to 80%	40%
	Telescope IN	31 to 60%	40%

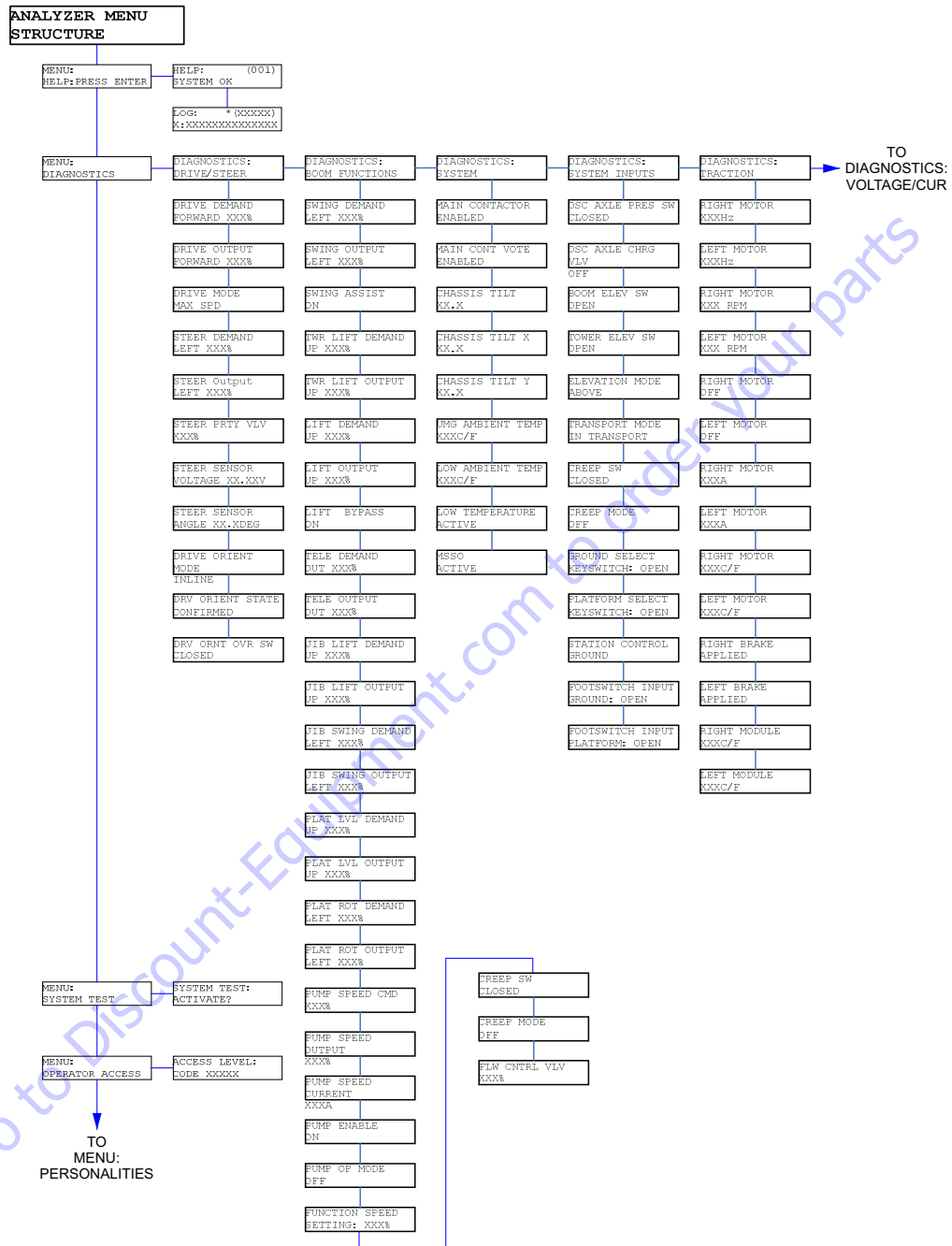
SECTION 6 - JLG CONTROL SYSTEM

Table 6-4. Personality Ranges/Defaults

FUNCTION	PERSONALITY	RANGE	DEFAULTS
	Telescope OUT	31 to 60%	40%
	Jib UP	31 to 60%	35%
	Jib DOWN	31 to 60%	35%
	Jib SWING	31 to 60%	35%
	Platform LEVEL	36 to 60%	38%
	Platform ROTATE	21 to 40%	21%
ALARM/HORN	Volume HORN	25 to 100%	100%
	Volume ALARM	25 to 100%	75%
TEMPERATURE CUT	LOW Cutout set	-30 to 0C	-30C
	OFFset	0 to 10C	5C

1001201627-G

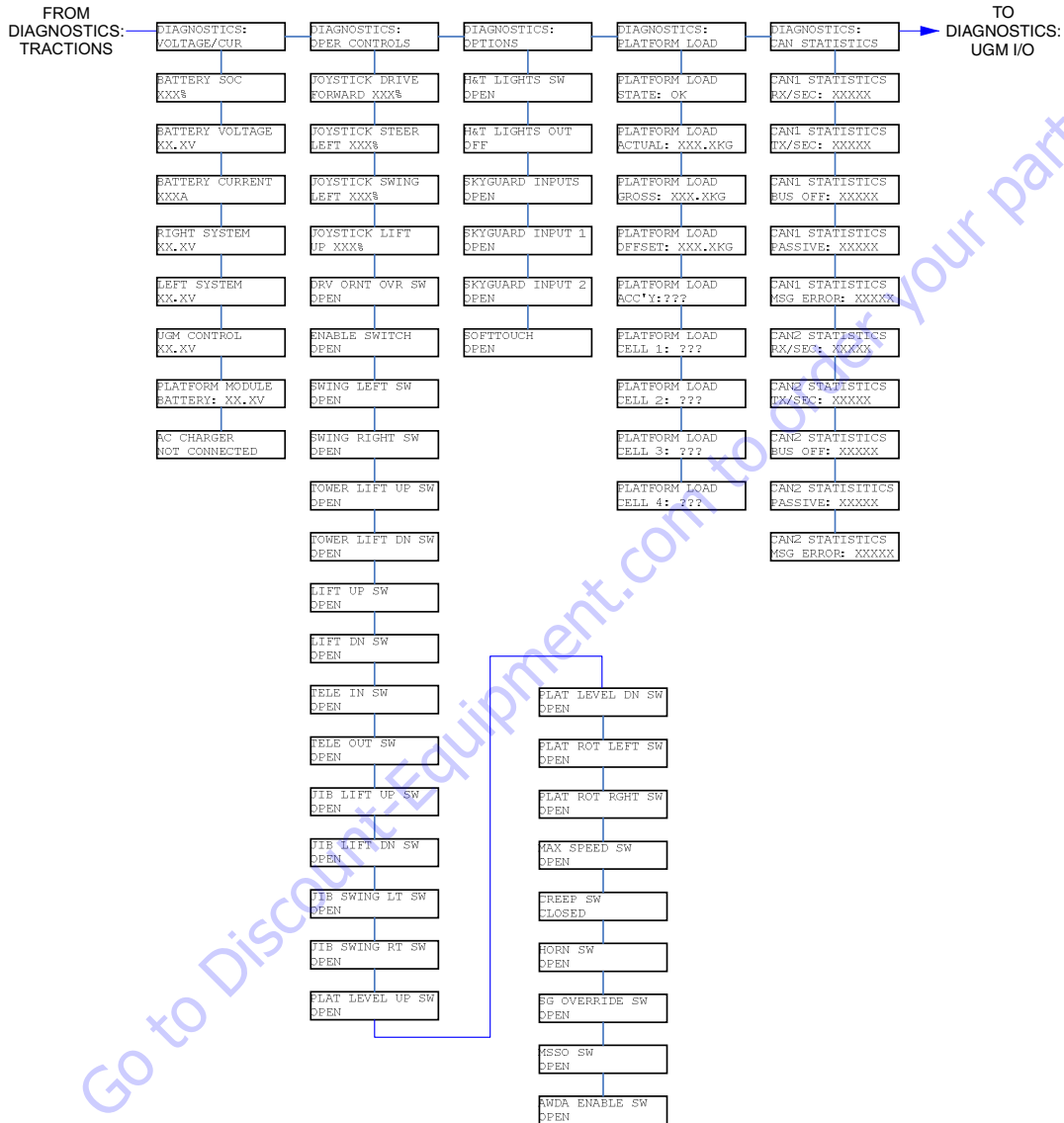
Go to Discount-Equipment.com to order your parts



NOTE: The layout shown includes all possible analyzer screens. Please note that some screens may not be available depending upon machine configuration.

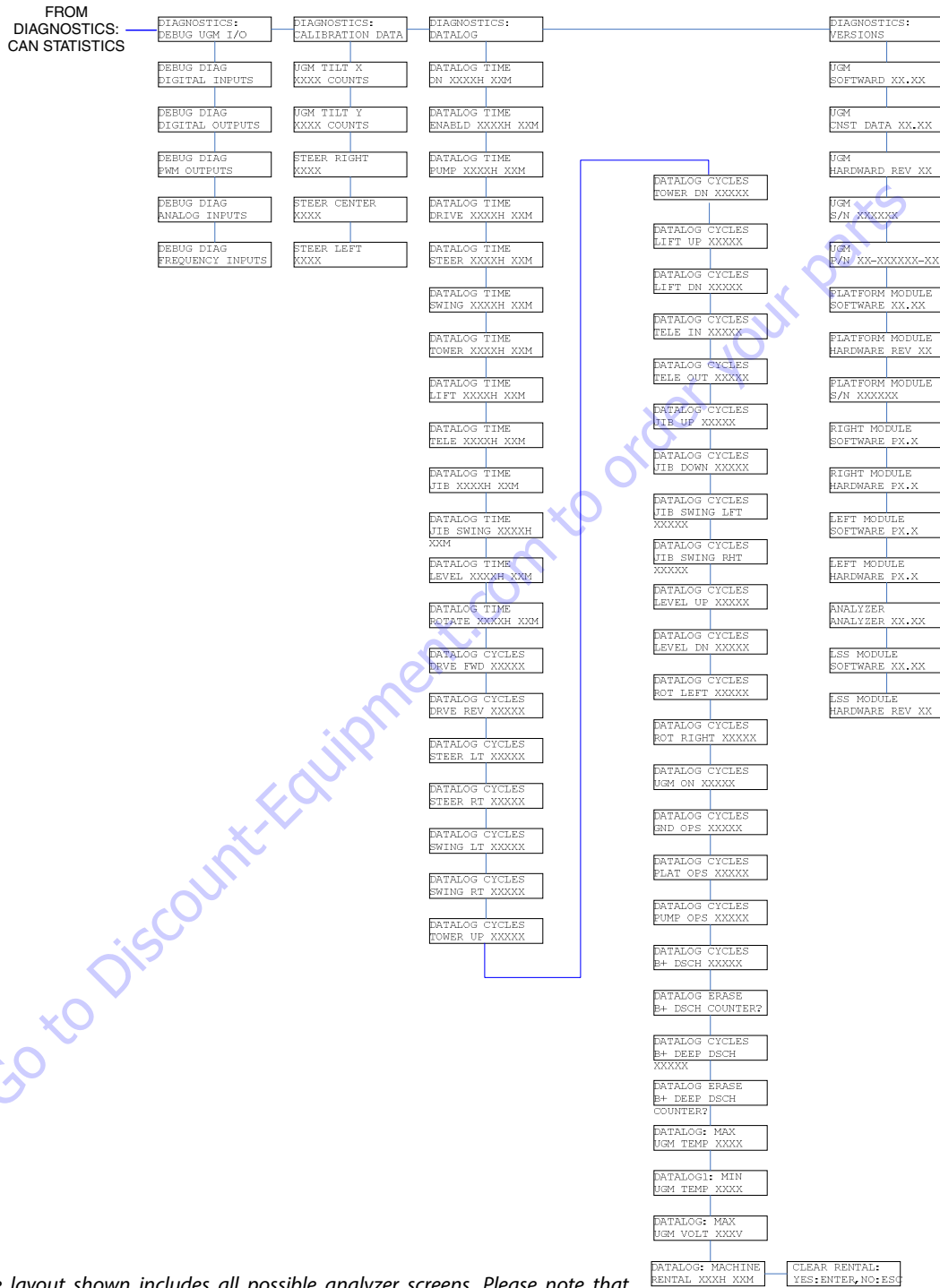
Figure 6-2. Analyzer Flow Chart, Version 1.3 - Sheet 1 of 5

SECTION 6 - JLG CONTROL SYSTEM



NOTE: The layout shown includes all possible analyzer screens. Please note that some screens may not be available depending upon machine configuration.

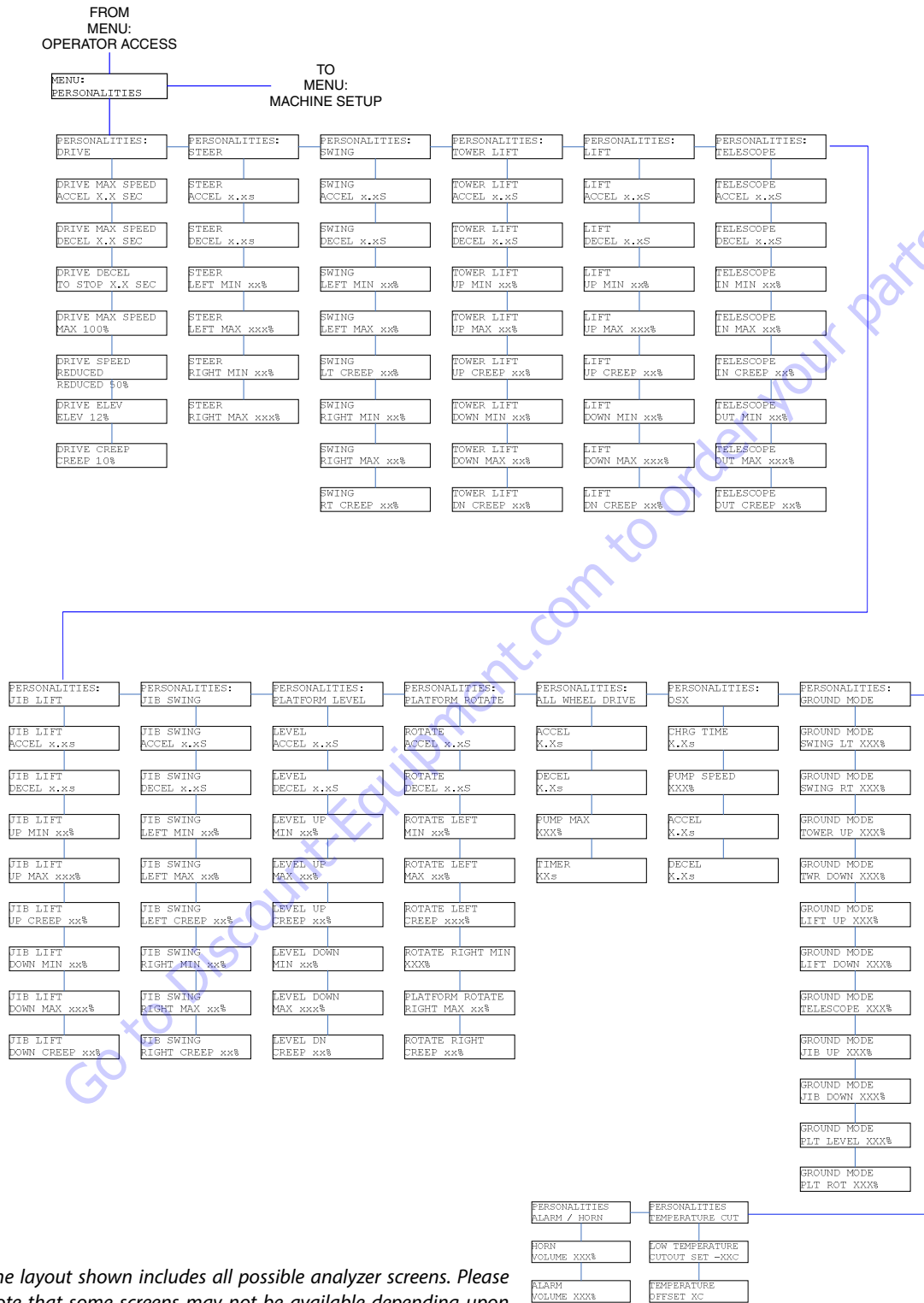
Figure 6-3. Analyzer Flow Chart, Version 1.3 - Sheet 2 of 5



NOTE: The layout shown includes all possible analyzer screens. Please note that some screens may not be available depending upon machine configuration.

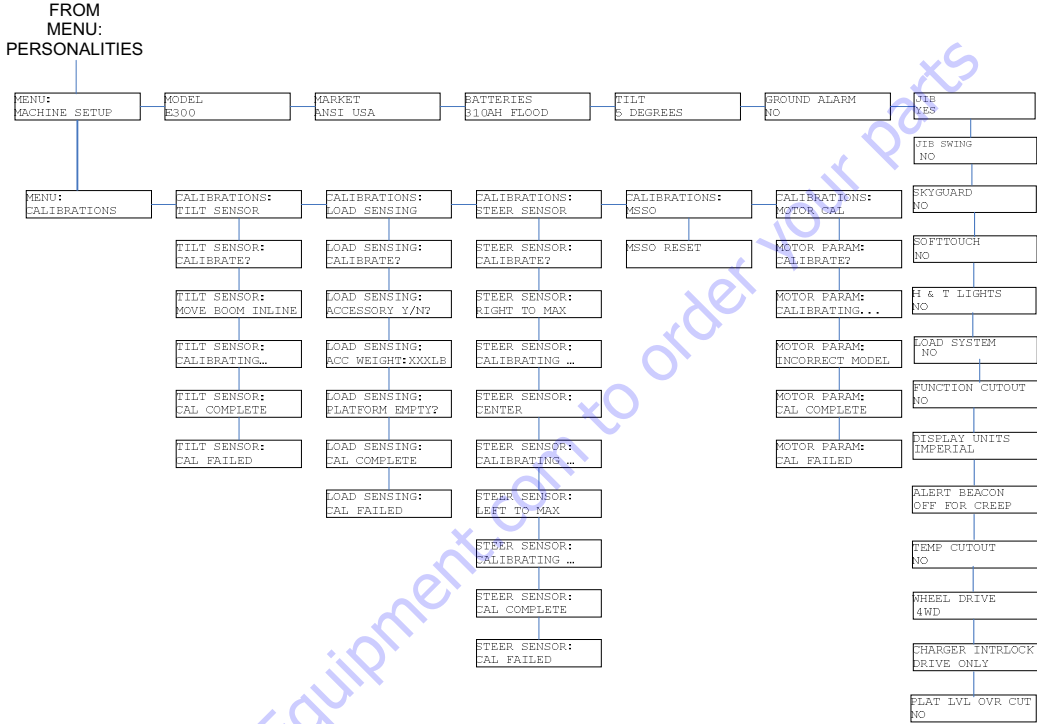
Figure 6-4. Analyzer Flow Chart, Version 1.3 - Sheet 3 of 5

SECTION 6 - JLG CONTROL SYSTEM



NOTE: The layout shown includes all possible analyzer screens. Please note that some screens may not be available depending upon machine configuration.

Figure 6-5. Analyzer Flow Chart, Version 1.3 - Sheet 4 of 5



NOTE: The layout shown includes all possible analyzer screens. Please note that some screens may not be available depending upon machine configuration.

Figure 6-6. Analyzer Flow Chart, Version 1.3 - Sheet 5 of 5

6.3 MACHINE ORIENTATION WHEN PERFORMING TEST

Drive (Below elevation): Test should be done on a smooth, level surface. The Drive select switch should be in the "Max Speed" position. Start approximately 25ft (7.6m) from starting point so the unit is at a maximum speed when starting the test. Result should be recorded for a 200ft (61m) course. Drive Forward, "High speed", record time. Drive Reverse, "High speed", record time.

Drive Reduced (below elevation): Test should be done on a smooth, level surface. The Drive select switch should be in the "Reduced Speed" position. Start approximately 25ft (7.6m) from starting point so the unit is at a maximum speed when starting the test. Result should be recorded for a 200ft (61m) course. Drive Forward, "Reduced speed", record Time. Drive Reverse, "Reduced speed", record Time.

Drive (above elevation): Test should be done on a smooth, level surface. The drive select switch should be in the "Max Speed" position, the boom should be >10° above horizontal to ensure the drive is operating in elevated mode. Result should be recorded for a 50ft (15.2m) course. Drive Forward, Record Time. Drive reverse, Record Time.

Swing: Boom at full elevation, Telescope retracted. Swing turntable right to end stop. Swing Left to end stop, record time. Swing Right to end stop, record time. Turn Platform Speed Control Knob fully counterclockwise to enter Creep mode; Creep light on Panel must be energized. Verify that machine will Swing left and right. Return Knob to fully clockwise.

Tower Lift: Tower Lift in stowed position, Telescope Retracted, Main lift horizontal. Tower Lift Up, record time. Tower Lift Down, record time. Turn Platform Speed Control Knob fully counterclockwise to enter Creep mode; Creep light on Panel must be energized. Verify that machine will Tower Up and Down. Return Knob to fully clockwise.

Main lift: Main Lift in stowed position Tower Lift in stowed position, Telescope Retracted. Main Lift Up, record time. Main Lift Down, record time. Turn Platform Speed Control Knob fully counterclockwise to enter Creep mode; Creep light on Panel must be energized. Verify that machine will Lift Up and Down. Return Knob to fully clockwise.

Telescope: Main Lift at full elevation, Telescope Retracted. Telescope Out, record time. Telescope In, record time. Turn Platform Speed Control Knob fully counterclockwise to enter creep mode; creep light on Panel must be energized. Verify that machine will Telescope Up and Down. Return Knob to fully clockwise.

Jib Lift: Platform level and centered with boom. Jib Lift Down until stop. Jib Lift Up, record time. Jib Lift Down, record time. Turn Platform Speed Control Knob fully counterclockwise to enter Creep mode; Creep light on Panel must be energized. Verify that machine will Jib Lift Up and Down. Return Knob to fully clockwise.

Jib Swing: Platform level and centered with boom. Jib Lift Horizontal and swing fully to left stop. Swing right to end stop, record time. Swing left to end stop, record time. Turn Platform Speed Control Knob fully counterclockwise to enter Creep mode; Creep light on Panel must be energized. Verify that machine will Jib swing left and right. Return Knob to fully clockwise.

Platform Rotate: Platform level, Rotate Platform Right until stop. Platform Left, record time. Platform Right, record time. Turn Platform Speed Control Knob fully counterclockwise to enter Creep mode; Creep light on Panel must be energized. Verify that machine will Platform Rotate Left and Right. Return Knob to fully clockwise.

Test Notes

1. Stop watch should be started with the function movement, not with actuation of joystick and switch.
2. Drive speeds should be set to the values below regardless of the tire size.
3. All speed tests are run from the platform. These speeds do not reflect the ground control operation.
4. The platform speed knob control must be at full speed (turned clockwise completely).
5. Some flow control functions may not work with the Platform Speed Control knob clicked into the creep position.
6. Functional speeds may vary due to cold, thick hydraulic oil. Test should be run with the oil temperature above 100° F (38° C).

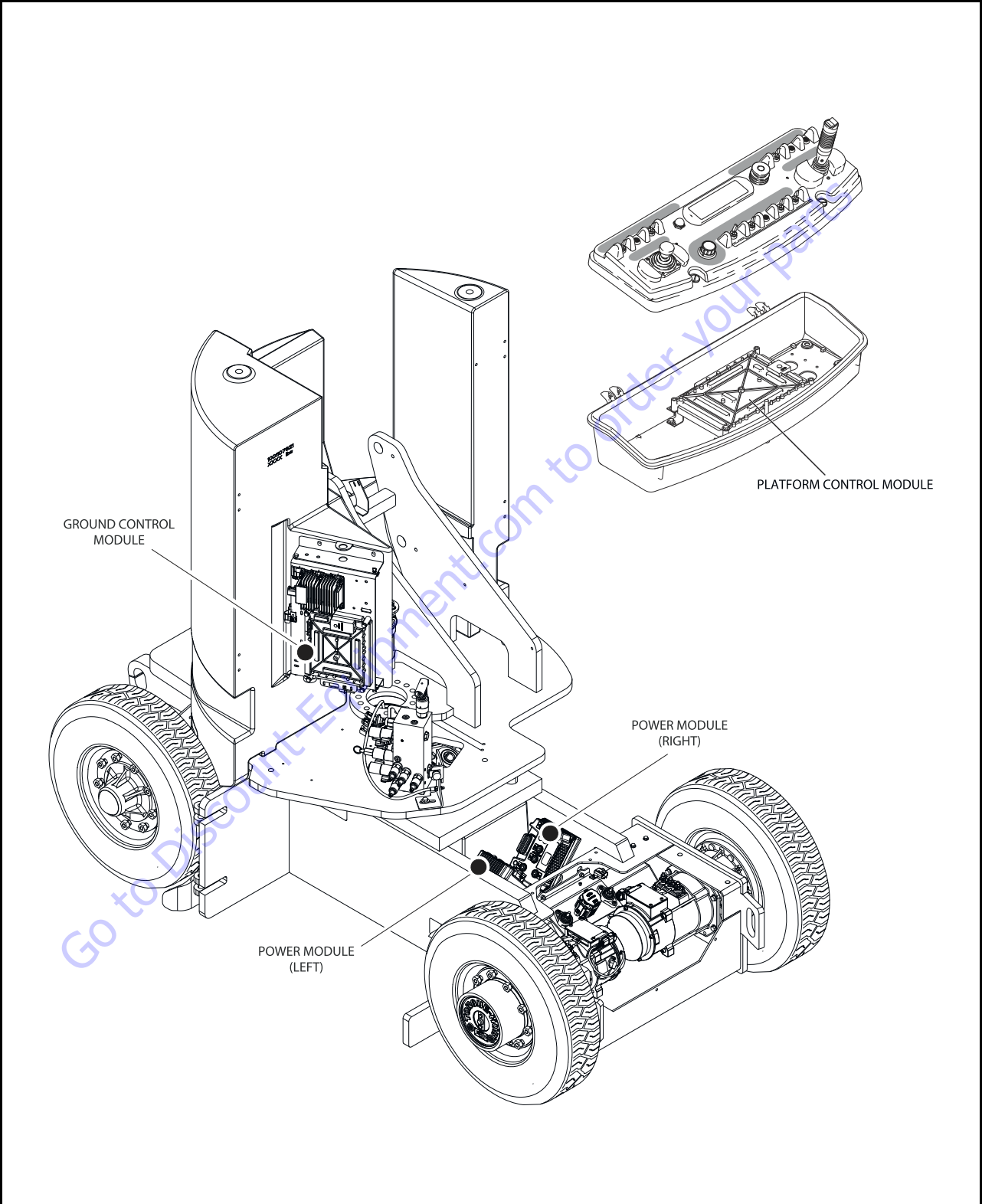


Figure 6-7. Control Module Location

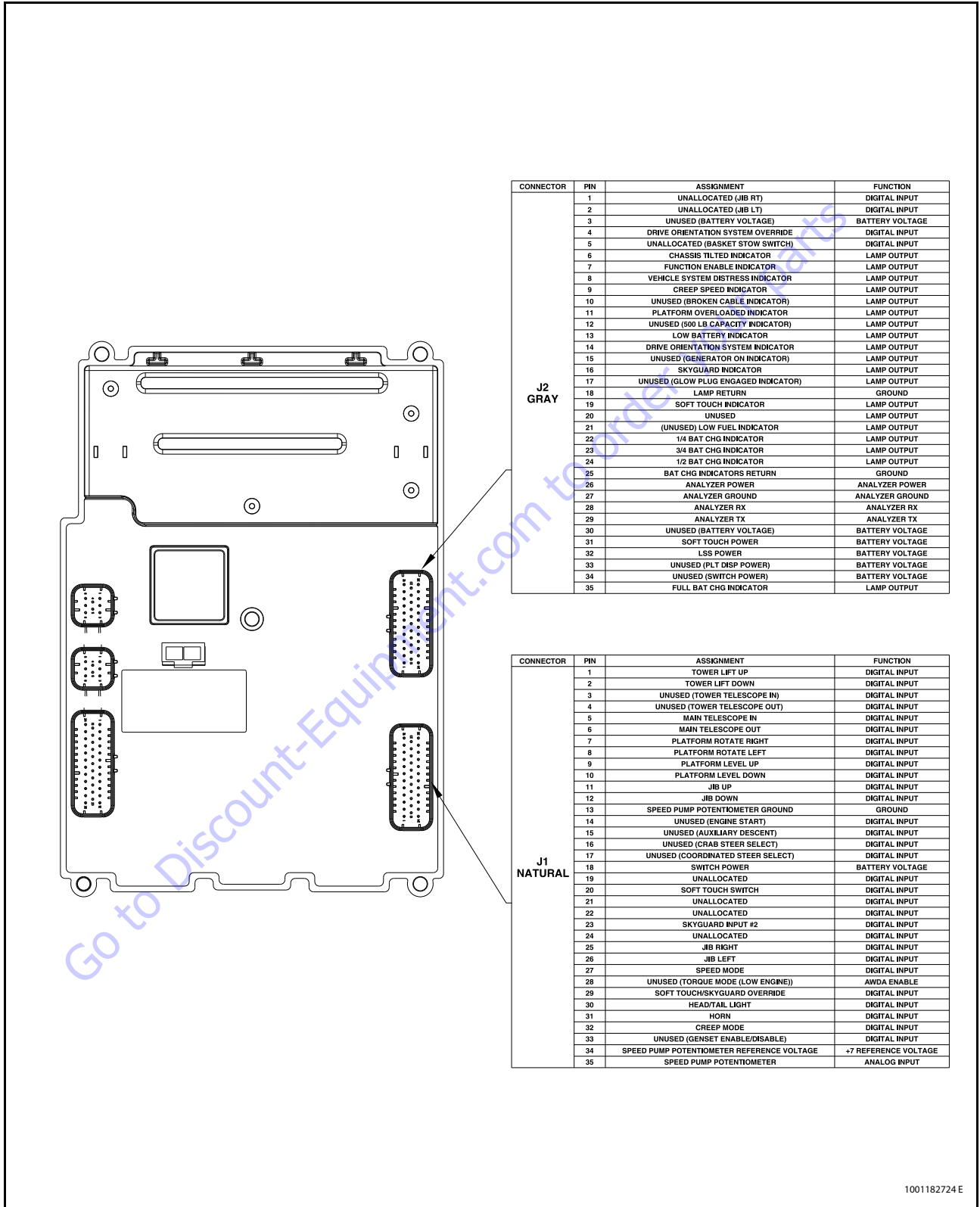


PLATFORM CONNECTION



GROUND CONTROL CONNECTION

Figure 6-8. Analyzer Connecting Points



CONNECTOR	PIN	ASSIGNMENT	FUNCTION
J2 GRAY	1	UNALLOCATED (JIB RT)	DIGITAL INPUT
	2	UNALLOCATED (JIB LT)	DIGITAL INPUT
	3	UNUSED (BATTERY VOLTAGE)	BATTERY VOLTAGE
	4	DRIVE ORIENTATION SYSTEM OVERRIDE	DIGITAL INPUT
	5	UNALLOCATED (BASKET STOW SWITCH)	DIGITAL INPUT
	6	CHASSIS TILTED INDICATOR	LAMP OUTPUT
	7	FUNCTION ENABLE INDICATOR	LAMP OUTPUT
	8	VEHICLE SYSTEM DISTRESS INDICATOR	LAMP OUTPUT
	9	CREEP SPEED INDICATOR	LAMP OUTPUT
	10	UNUSED (BROKEN CABLE INDICATOR)	LAMP OUTPUT
	11	PLATFORM OVERLOADED INDICATOR	LAMP OUTPUT
	12	UNUSED (500 LB CAPACITY INDICATOR)	LAMP OUTPUT
	13	LOW BATTERY INDICATOR	LAMP OUTPUT
	14	DRIVE ORIENTATION SYSTEM INDICATOR	LAMP OUTPUT
	15	UNUSED (GENERATOR ON INDICATOR)	LAMP OUTPUT
	16	SKYGUARD INDICATOR	LAMP OUTPUT
	17	UNUSED (GLOW PLUG ENGAGED INDICATOR)	LAMP OUTPUT
	18	LAMP RETURN	GROUND
	19	SOFT TOUCH INDICATOR	LAMP OUTPUT
	20	UNUSED	LAMP OUTPUT
	21	(UNUSED) LOW FUEL INDICATOR	LAMP OUTPUT
	22	1/4 BAT CHG INDICATOR	LAMP OUTPUT
	23	3/4 BAT CHG INDICATOR	LAMP OUTPUT
	24	1/2 BAT CHG INDICATOR	LAMP OUTPUT
	25	BAT CHG INDICATORS RETURN	GROUND
	26	ANALYZER POWER	ANALYZER POWER
	27	ANALYZER GROUND	ANALYZER GROUND
	28	ANALYZER RX	ANALYZER RX
	29	ANALYZER TX	ANALYZER TX
	30	UNUSED (BATTERY VOLTAGE)	BATTERY VOLTAGE
	31	SOFT TOUCH POWER	BATTERY VOLTAGE
	32	LSS POWER	BATTERY VOLTAGE
	33	UNUSED (PLT DISP POWER)	BATTERY VOLTAGE
	34	UNUSED (SWITCH POWER)	BATTERY VOLTAGE
	35	FULL BAT CHG INDICATOR	LAMP OUTPUT

CONNECTOR	PIN	ASSIGNMENT	FUNCTION
J1 NATURAL	1	TOWER LIFT UP	DIGITAL INPUT
	2	TOWER LIFT DOWN	DIGITAL INPUT
	3	UNUSED (TOWER TELESCOPE IN)	DIGITAL INPUT
	4	UNUSED (TOWER TELESCOPE OUT)	DIGITAL INPUT
	5	MAIN TELESCOPE IN	DIGITAL INPUT
	6	MAIN TELESCOPE OUT	DIGITAL INPUT
	7	PLATFORM ROTATE RIGHT	DIGITAL INPUT
	8	PLATFORM ROTATE LEFT	DIGITAL INPUT
	9	PLATFORM LEVEL UP	DIGITAL INPUT
	10	PLATFORM LEVEL DOWN	DIGITAL INPUT
	11	JIB UP	DIGITAL INPUT
	12	JIB DOWN	DIGITAL INPUT
	13	SPEED PUMP POTENTIOMETER GROUND	GROUND
	14	UNUSED (ENGINE START)	DIGITAL INPUT
	15	UNUSED (AUXILIARY DESCENT)	DIGITAL INPUT
	16	UNUSED (CRAB STEER SELECT)	DIGITAL INPUT
	17	UNUSED (COORDINATED STEER SELECT)	DIGITAL INPUT
	18	SWITCH POWER	BATTERY VOLTAGE
	19	UNALLOCATED	DIGITAL INPUT
	20	SOFT TOUCH SWITCH	DIGITAL INPUT
	21	UNALLOCATED	DIGITAL INPUT
	22	UNALLOCATED	DIGITAL INPUT
	23	SKYGUARD INPUT #2	DIGITAL INPUT
	24	UNALLOCATED	DIGITAL INPUT
	25	JIB RIGHT	DIGITAL INPUT
	26	JIB LEFT	DIGITAL INPUT
	27	SPEED MODE	DIGITAL INPUT
	28	UNUSED (TORQUE MODE (LOW ENGINE))	AWDA ENABLE
	29	SOFT TOUCH/SKYGUARD OVERRIDE	DIGITAL INPUT
	30	HEAD/TAIL LIGHT	DIGITAL INPUT
	31	HORN	DIGITAL INPUT
	32	CREEP MODE	DIGITAL INPUT
	33	UNUSED (GENSET ENABLE/DISABLE)	DIGITAL INPUT
	34	SPEED PUMP POTENTIOMETER REFERENCE VOLTAGE	+7 REFERENCE VOLTAGE
	35	SPEED PUMP POTENTIOMETER	ANALOG INPUT

1001182724 E

Figure 6-9. Platform Control Module - Sheet 1 of 2

SECTION 6 - JLG CONTROL SYSTEM

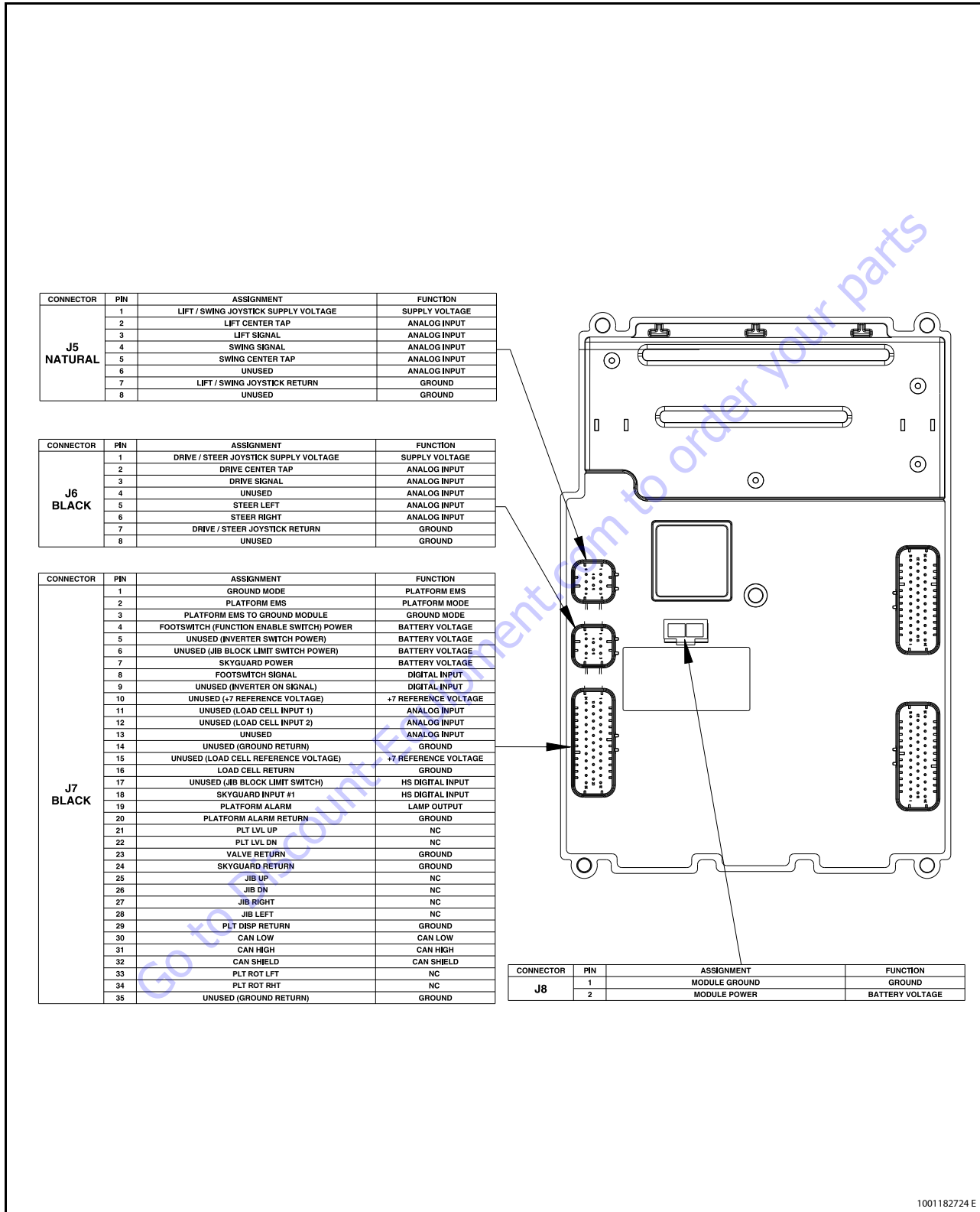
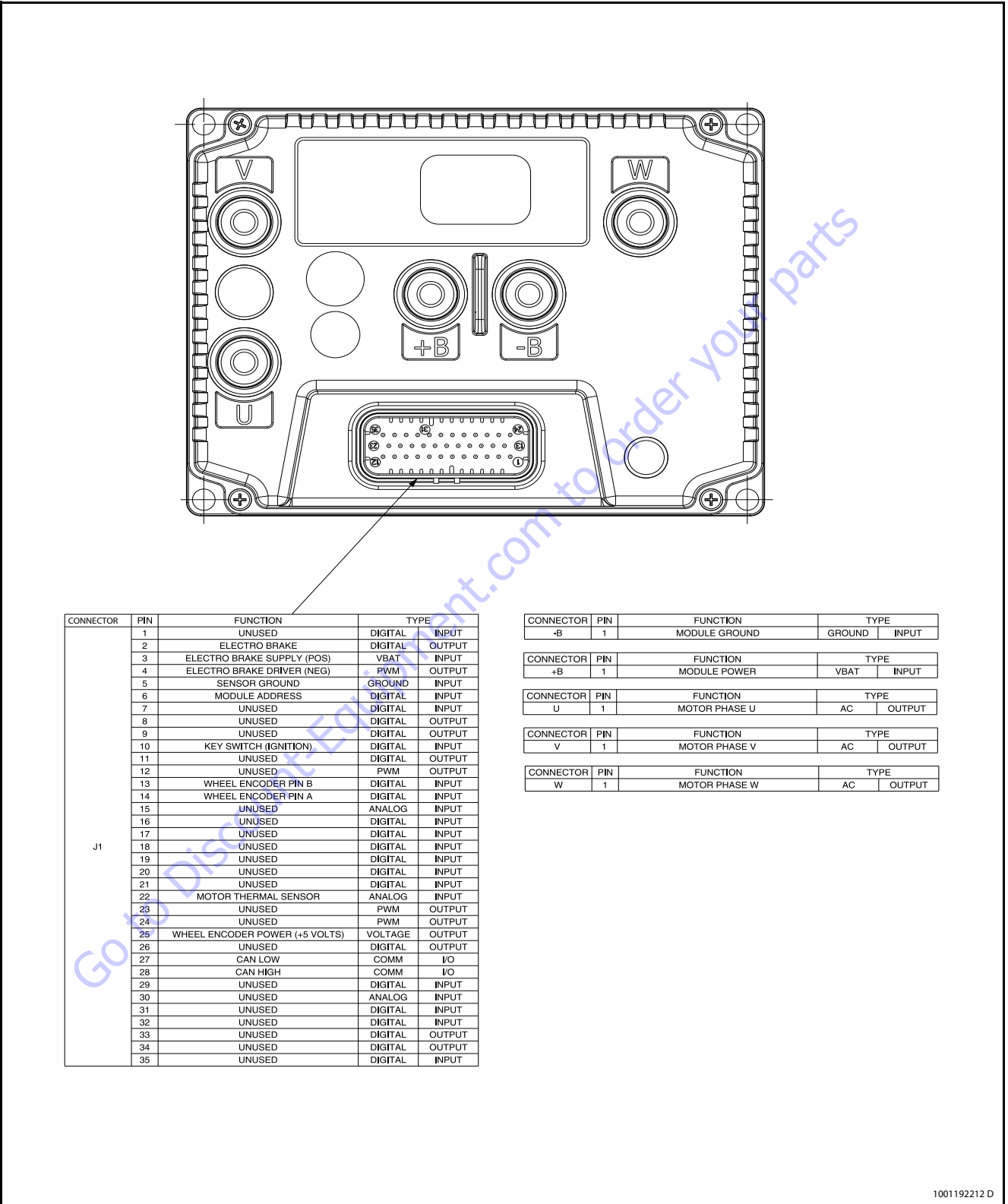


Figure 6-10. Platform Control Module - Sheet 2 of 2



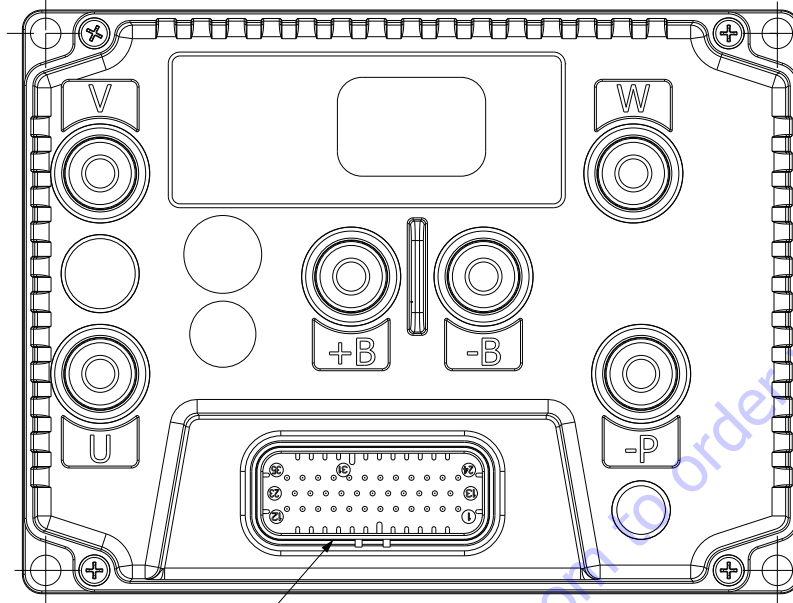
CONNECTOR	PIN	FUNCTION	TYPE
J1	1	UNUSED	DIGITAL INPUT
	2	ELECTRO BRAKE	DIGITAL OUTPUT
	3	ELECTRO BRAKE SUPPLY (POS)	VBAT INPUT
	4	ELECTRO BRAKE DRIVER (NEG)	PWM OUTPUT
	5	SENSOR GROUND	GROUND INPUT
	6	MODULE ADDRESS	DIGITAL INPUT
	7	UNUSED	DIGITAL INPUT
	8	UNUSED	DIGITAL OUTPUT
	9	UNUSED	DIGITAL OUTPUT
	10	KEY SWITCH (IGNITION)	DIGITAL INPUT
	11	UNUSED	DIGITAL OUTPUT
	12	UNUSED	PWM OUTPUT
	13	WHEEL ENCODER PIN B	DIGITAL INPUT
	14	WHEEL ENCODER PIN A	DIGITAL INPUT
	15	UNUSED	ANALOG INPUT
	16	UNUSED	DIGITAL INPUT
	17	UNUSED	DIGITAL INPUT
	18	UNUSED	DIGITAL INPUT
	19	UNUSED	DIGITAL INPUT
	20	UNUSED	DIGITAL INPUT
	21	UNUSED	DIGITAL INPUT
	22	MOTOR THERMAL SENSOR	ANALOG INPUT
	23	UNUSED	PWM OUTPUT
	24	UNUSED	PWM OUTPUT
	25	WHEEL ENCODER POWER (+5 VOLTS)	VOLTAGE OUTPUT
	26	UNUSED	DIGITAL OUTPUT
	27	CAN LOW	COMM I/O
	28	CAN HIGH	COMM I/O
	29	UNUSED	DIGITAL INPUT
	30	UNUSED	ANALOG INPUT
	31	UNUSED	DIGITAL INPUT
	32	UNUSED	DIGITAL INPUT
	33	UNUSED	DIGITAL OUTPUT
	34	UNUSED	DIGITAL OUTPUT
	35	UNUSED	DIGITAL INPUT

CONNECTOR	PIN	FUNCTION	TYPE
-B	1	MODULE GROUND	GROUND INPUT
+B	1	MODULE POWER	VBAT INPUT
U	1	MOTOR PHASE U	AC OUTPUT
V	1	MOTOR PHASE V	AC OUTPUT
W	1	MOTOR PHASE W	AC OUTPUT

Figure 6-11. Power Module - LH

1001192212 D

SECTION 6 - JLG CONTROL SYSTEM



CONNECTOR	PIN	FUNCTION	DIGITAL	TYPE
J1	1	UNUSED	DIGITAL	INPUT
	2	ELECTRO BRAKE	DIGITAL	OUTPUT
	3	ELECTRO BRAKE SUPPLY (POS)	VBAT	INPUT
	4	ELECTRO BRAKE DRIVER (NEG)	PWM	OUTPUT
	5	WHEEL ENCODER GROUND	GROUND	INPUT
	6	MODULE ADDRESS	DIGITAL	INPUT
	7	UNUSED	DIGITAL	INPUT
	8	UNUSED	DIGITAL	OUTPUT
	9	UNUSED	DIGITAL	OUTPUT
	10	KEY SWITCH (IGNITION)	DIGITAL	INPUT
	11	UNUSED	DIGITAL	OUTPUT
	12	CONTACTOR DRIVER (MASTER)	PWM	OUTPUT
	13	WHEEL ENCODER PIN B	DIGITAL	INPUT
	14	WHEEL ENCODER PIN A	DIGITAL	INPUT
	15	STEERING ANGLE (MASTER)	ANALOG	INPUT
	16	CHARGER INTERLOCK (MASTER)	DIGITAL	INPUT
	17	UNUSED	DIGITAL	INPUT
	18	UNUSED	DIGITAL	INPUT
	19	UNUSED	DIGITAL	INPUT
	20	UNUSED	DIGITAL	INPUT
	21	UNUSED	DIGITAL	INPUT
	22	MOTOR THERMAL SENSOR	ANALOG	INPUT
	23	UNUSED	PWM	OUTPUT
	24	UNUSED	PWM	OUTPUT
	25	WHEEL ENCODER POWER (+5 VOLTS)	VOLTAGE	OUTPUT
	26	UNUSED	DIGITAL	OUTPUT
	27	CAN LOW	COMM	I/O
	28	CAN HIGH	COMM	I/O
	29	UNUSED	DIGITAL	INPUT
	30	UNUSED	ANALOG	INPUT
	31	UNUSED	DIGITAL	INPUT
	32	UNUSED	DIGITAL	INPUT
	33	UNUSED	DIGITAL	OUTPUT
	34	UNUSED	DIGITAL	OUTPUT
	35	UNUSED	DIGITAL	INPUT

CONNECTOR	PIN	FUNCTION	GROUND	TYPE
-B	1	MODULE GROUND	GROUND	INPUT
CONNECTOR	PIN	FUNCTION	VBAT	TYPE
+B	1	MODULE POWER	VBAT	INPUT
CONNECTOR	PIN	FUNCTION	PWM	OUTPUT
-P	1	PUMP	PWM	OUTPUT
CONNECTOR	PIN	FUNCTION	AC	OUTPUT
U	1	MOTOR PHASE U	AC	OUTPUT
CONNECTOR	PIN	FUNCTION	AC	OUTPUT
V	1	MOTOR PHASE V	AC	OUTPUT
CONNECTOR	PIN	FUNCTION	AC	OUTPUT
W	1	MOTOR PHASE W	AC	OUTPUT

1001178339 E

Figure 6-12. Power Module - RH

Connector	Pin	Function	Type
J1 (Natural)	1	UNUSED	DIGITAL OUTPUT
	2	ALERT BEACON POWER	DIGITAL OUTPUT
	3	UNUSED	DIGITAL OUTPUT
	4	ALERT BEACON GROUND	GROUND INPUT
	5	UNUSED	GROUND INPUT
	6	UNUSED	DIGITAL OUTPUT
	7	UNUSED	DIGITAL OUTPUT
	8	UNUSED (GROUND)	GROUND INPUT
	9	UNUSED (GROUND)	GROUND INPUT
	10	UNUSED	DIGITAL OUTPUT
	11	UNUSED	DIGITAL OUTPUT
	12	UNUSED	DIGITAL OUTPUT
	13	DRIVE ENABLE RELAY (VOTE)	DIGITAL OUTPUT
	14	UNUSED	ANALOG INPUT
	15	UNUSED	ANALOG INPUT
	16	UNUSED	FREQUENCY INPUT
	17	UNUSED	GROUND INPUT
	18	UNUSED	GROUND INPUT
	19	DRIVE ENABLE RELAY GROUND (VOTE)	GROUND INPUT
	20	UNUSED	DIGITAL OUTPUT
	21	UNUSED	DIGITAL INPUT
	22	UNUSED	DIGITAL OUTPUT
	23	UNUSED	DIGITAL OUTPUT
	24	UNUSED	NC
	25	UNUSED (RESERVED FOR RS-485 HIGH)	SERIAL IO
	26	UNUSED (RESERVED FOR RS-485 LOW)	SERIAL IO
	27	UNUSED (GROUND)	GROUND INPUT
	28	ANALYZER POWER	VOLTAGE OUTPUT
	29	ANALYZER RS-232 RX	SERIAL INPUT
	30	ANALYZER RS-232 TX	SERIAL OUTPUT
	31	ANALYZER GROUND	GROUND INPUT
	32	UNUSED	DIGITAL OUTPUT
	33	UNUSED (GROUND)	GROUND INPUT
	34	UNUSED	DIGITAL INPUT
	35	UNUSED	DIGITAL INPUT

Connector	Pin	Function	Type
J2 (Gray)	1	UNUSED	DIGITAL OUTPUT
	2	UNUSED	DIGITAL OUTPUT
	3	TELESCOPE IN SOLENOID	DIGITAL OUTPUT
	4	JIB RIGHT SOLENOID	DIGITAL OUTPUT
	5	PLATFORM LEVEL UP SOLENOID	DIGITAL OUTPUT
	6	UNUSED	GROUND INPUT
	7	PLATFORM LEVEL DOWN SOLENOID	DIGITAL OUTPUT
	8	UNUSED	DIGITAL OUTPUT
	9	TOWER LIFT DOWN SOLENOID	DIGITAL OUTPUT
	10	PLATFORM ROTATE LEFT SOLENOID	DIGITAL OUTPUT
	11	MAIN LIFT UP SOLENOID	DIGITAL OUTPUT
	12	JIB UP SOLENOID	DIGITAL OUTPUT
	13	UNUSED	DIGITAL OUTPUT
	14	PLATFORM/JIB ROTATE SOLENOID GROUND	GROUND INPUT
	15	TELESCOPE OUT SOLENOID	DIGITAL OUTPUT
	16	SIDESWING LEFT SOLENOID	DIGITAL OUTPUT
	17	TELESCOPE SOLENOID GROUND	GROUND INPUT
	18	UNUSED	GROUND INPUT
	19	UNUSED	DIGITAL OUTPUT
	20	TOWER LIFT UP SOLENOID	DIGITAL OUTPUT
	21	PLATFORM ROTATE RIGHT SOLENOID	DIGITAL OUTPUT
	22	LIFT DOWN SOLENOID	DIGITAL OUTPUT
	23	JIB DOWN SOLENOID	DIGITAL OUTPUT
	24	UNUSED	DIGITAL INPUT
	25	UNUSED	ANALOG INPUT
	26	HEAD / TAIL LIGHT ENABLE RELAY	DIGITAL OUTPUT
	27	GROUND ALARM OUTPUT	DIGITAL OUTPUT
	28	STEER SOLENOID GROUND	GROUND INPUT
	29	GROUND ALARM GROUND	GROUND INPUT
	30	UNUSED	GROUND INPUT
	31	FLOW CONTROL SOLENOID	DIGITAL OUTPUT
	32	STEER RIGHT SOLENOID	DIGITAL OUTPUT
	33	STEER LEFT SOLENOID	DIGITAL OUTPUT
	34	SWING LEFT SOLENOID	DIGITAL OUTPUT
	35	SWING RIGHT SOLENOID	DIGITAL OUTPUT

Connector	Pin	Function	Type
J3 (Black)	1	UNUSED	GROUND INPUT
	2	MAIN LIFT CURRENT FEEDBACK (LSD CURRENT SENSE 2)	GROUND INPUT
	3	UNUSED (GROUND)	GROUND INPUT
	4	SWING CURRENT FEEDBACK (LSD CURRENT SENSE 4)	GROUND INPUT
	5	TOWER LIFT CURRENT FEEDBACK (LSD CURRENT SENSE 5)	GROUND INPUT
	6	FLOW CONTROL VALVE CURRENT FEEDBACK (LSD CURRENT SENSE 6)	GROUND INPUT
	7	BATTERY VOLTAGE FOR GROUND ALARM	VBAT OUTPUT
	8	UNUSED	DIGITAL INPUT
	9	UNUSED	DIGITAL INPUT
	10	UNUSED	DIGITAL INPUT
	11	UNUSED	DIGITAL INPUT
	12	UNUSED (+5 VOLTS)	VOLTAGE OUTPUT
	13	UNUSED	ANALOG INPUT
	14	UNUSED (LSD CURRENT SENSE 3)	GROUND INPUT

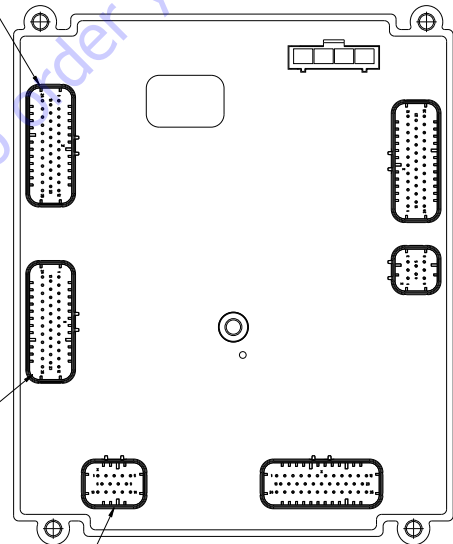


Figure 6-13. Ground Control Module - Sheet 1 of 3

1001182700 I

SECTION 6 - JLG CONTROL SYSTEM

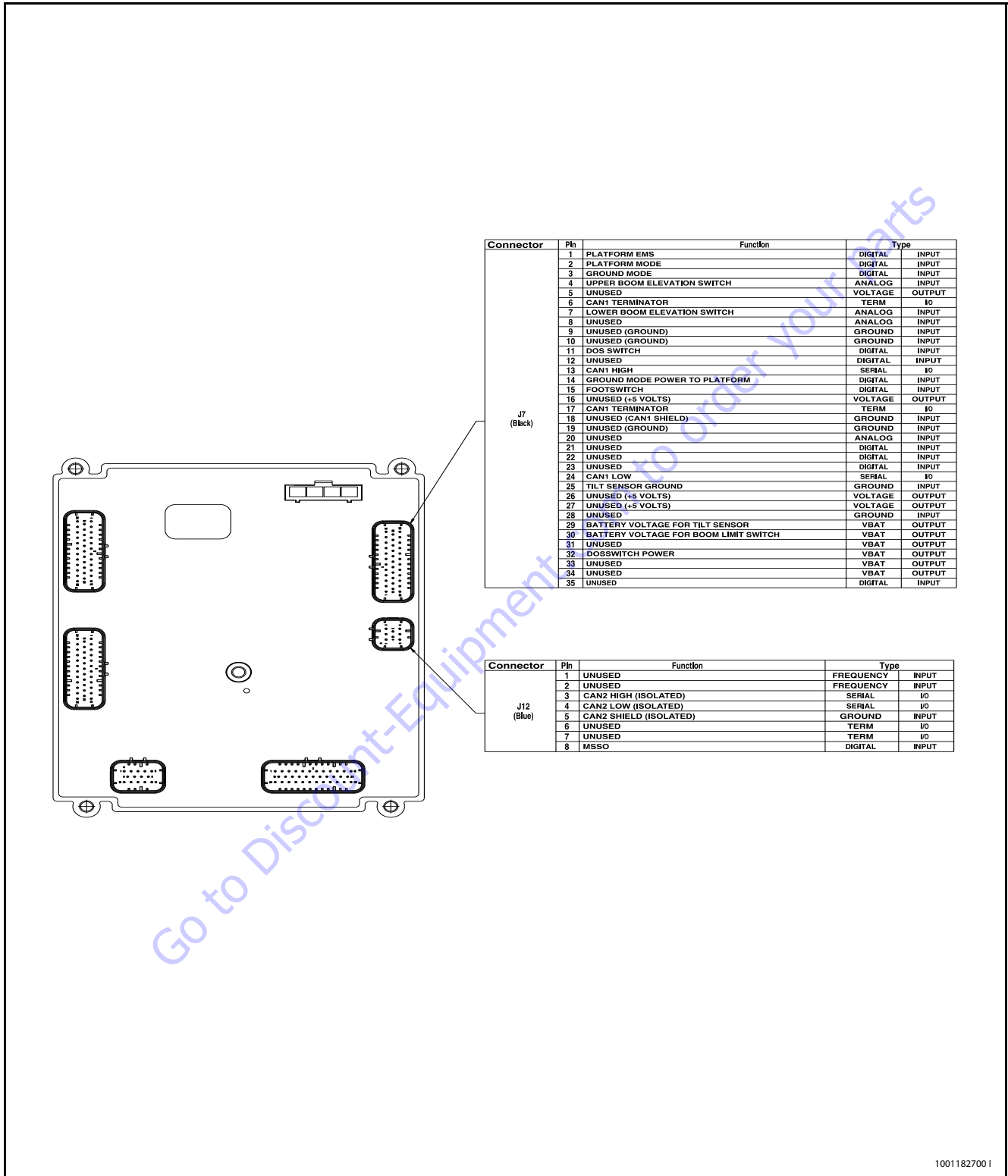


Figure 6-14. Ground Control Module - Sheet 2 of 3

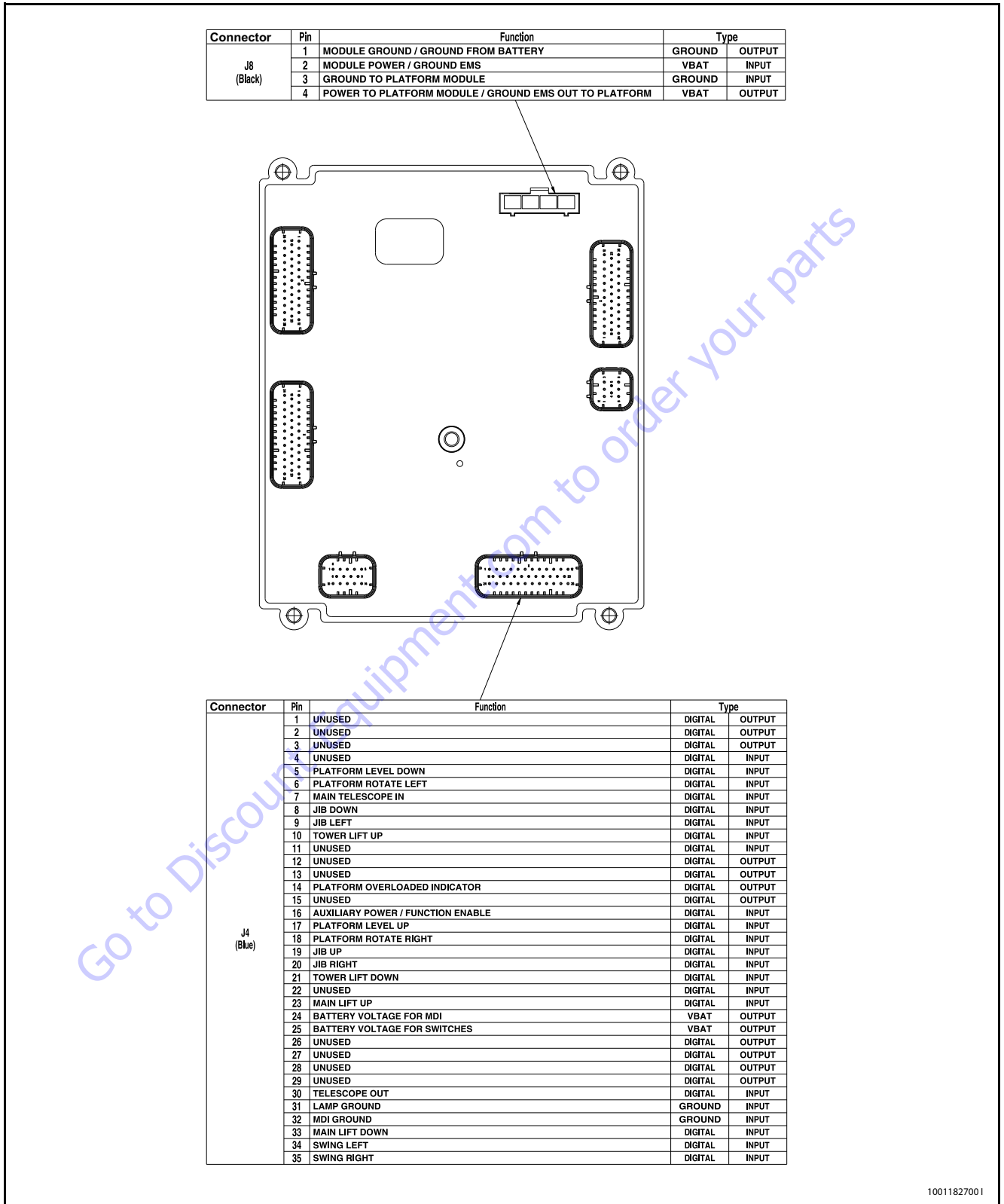


Figure 6-15. Ground Control Module - Sheet 3 of 3

Table 6-5. Machine Setup Descriptions

MODEL NUMBER...	Displays/adjusts machine model NOTE: all personalities reset to default when model number is altered
TILT...	Displays/adjusts tilt sensor function
DRIVE CUTOUT...	Displays/adjusts drive cutout switch presence/ function
FUNCTION CUTOUT...	Displays/adjusts function cutout switch presence/function
JIB...	Displays/adjusts jib presence
GROUND ALARM...	Displays/adjusts ground alarm presence/ function

Help Descriptions and Fault Flash Codes

Table 6-6. JLG Control System Flash Codes


Code	Description
2-1	Faulty Footswitch/EMS
2-2	Drive/Steer inputs/Footswitch Interlocks
2-3	Boom function inputs/Lift-Swing Joystick
2-5	Function Cutout/Drive Cutout
3-1	Contactors miswired/Motors miswired
3-2	Line contactor welded
3-3	Contactor short circuit or valve short circuit
4-2	Controller Overtemperature
4-4	Battery voltage out of range
6-6	CANbus inputs
7-7	Traction /Pump motor wiring or motor faulty
9-9	Problem with Controller


Go to Discount-Equipment.com to order JLG parts

Analyzer Diagnostics Menu Structure

In the following structure descriptions, an intended item is

selected by pressing ENTER ; pressing ESCAPE 

steps back to the next outer level. The LEFT  or RIGHT

 arrow keys move between items in the same level. The



UP  or DOWN  arrow keys alter a value if allowed.

Table 6-7. DIAGNOSTICS - Menu Descriptions

Diagnosics Submenu (Displayed on Analyzer 1 st Line)	Parameter (Displayed on Analyzer 1 st Line)	Parameter Value (Displayed on Analyzer 2 nd Line)	Description
DRIVE/STEER [Platform Mode =True]	DRIVE DEMAND	FORWARD/REVERSE XXX%	Direction and calibrated Control System Command percentage
	DRIVE OUTPUT	FORWARD/REVERSE XXX%	UGM direction and output speed command
	DRIVE MODE	MAX SPEED/REDUCED SPEED	Drive Mode status
	STEER DEMAND	LEFT/RIGHT XXX%	Direction and percentage of input command from Drive/Steer Joystick
	STEER OUTPUT	LEFT/RIGHT XXX%	UGM directional valve output status
	STEER SENSOR	VOLTAGE XX.XXV	Steer sensor raw voltage reported by MTM
	STEER SENSOR	ANGLE XX.XDEG	Steer sensor angle reported by MTM
	DRV ORIENT MODE	INLINE/SWUNG	State of DOS switch (prox energized when in line to close normally open contacts)
	DRV ORIENT STATE	CONFIRMED/REQUIRED	InLine and DOS Active = Confirmed
	DRV ORNT OVR SW	CLOSED/OPEN	State of Drive Orientation Override Switch
BOOM FUNCTIONS	SWING DEMAND	LEFT/RIGHT XXX%	Direction and percentage of input command from Swing Joystick or Ground %
	SWING OUTPUT	LEFT/RIGHT XXX%	Direction and valve PWM output percentage
	TWR LIFT DEMAND	UP/DOWN XXX%	Direction and percentage of input command from Function Speed Pot or Ground %
	TWR LIFT OUTPUT	UP/DOWN XXX%	Direction and valve PWM output percentage
	LIFT DEMAND	UP/DOWN XXX%	Direction and percentage of Lift input command
	LIFT OUTPUT	UP/DOWN XXX%	Direction and valve PWM output percentage
	TELE DEMAND	IN/OUT XXX%/CREEP	Direction and percentage of input command (or CREEP if applicable) from Function Speed Pot or Ground%
	TELE OUTPUT	IN/OUT/OFF	Direction/state of Tele directional valve
	JIB LIFT DEMAND	UP/DOWN XXX%/CREEP	Direction and percentage of input command (or CREEP if applicable) from Function Speed Pot or Ground% [Machine SetUP -> JIB -> YES]
	JIB LIFT OUTPUT	UP/OFF/DOWN XXX%	Direction for Up, but % command for Down [Machine SetUP -> JIB -> YES]
	JIB SWING DEMAND	LEFT/RIGHT XXX%/CREEP	Direction and percentage of input command (or CREEP if applicable) from Function Speed Pot or Ground% [Machine SetUP -> JIB SWING -> YES]
	JIB SWING OUTPUT	LEFT/RIGHT XXX%	Direction for Left, but % command for Right [Machine SetUP -> JIB SWING -> YES]

Table 6-7. DIAGNOSTICS - Menu Descriptions

Diagnosics Submenu (Displayed on Analyzer 1 st Line)	Parameter (Displayed on Analyzer 1 st Line)	Parameter Value (Displayed on Analyzer 2 nd Line)	Description
	PLAT LVL DEMAND	UP/DOWN XXX%/CREEP	Direction and percentage of input command (or CREEP if applicable) from Function Speed Pot or Ground%
	PLAT LVL OUTPUT	UP/DOWN XXX%	Direction/state of Level directional valve
	PLAT ROT DEMAND	LEFT/RIGHT XXX%/CREEP	Direction and percentage of input command (or CREEP if applicable) from Function Speed Pot or Ground%
	PLAT ROT OUTPUT	LEFT/RIGHT XXX%	Direction/state of Rotate directional valve
	PUMP SPEED CMD	XXX%	UGM pump command value: 0-100%
	PUMP SPEED FDBK	XXX%	Pump PWM reported from MTM
	PUMP CURRENT	FDBK: XXXA	Pump current reported from MTM
	PUMP ENABLE	ON/OFF	UGM pump enable bit status
	PUMP OP MODE	OFF/RUNNING	Pump status from MTM
	FUNCTION SPEED [Platform Mode = True]	SETTING: XXX%	Displays the percentage demand from the Function Speed Potentiometer.
	CREEP SW [Platform Mode = True]	OPEN/CLOSED	Status of Creep Switch Input
	CREEP MODE	ON/OFF	Displays status of Creep Mode
	FLOW CONTRL VLV	XXX%	Duty cycle of flow control proportional valve
SYSTEM	MAIN CONTACTOR	ENABLED/DISABLED	Status of Main Contactor reported by Zapi module
	MAIN CONT VOTE	ENABLED/DISABLED	Status of Main Contactor voting relay by UGM
	CHASSIS TILT	XX.XDEG	Combined X/Y Absolute Angle
	CHASSIS TILT	X-AXIS: XX.XDEG	X Angle with respect to sign
	CHASSIS TILT	Y-AXIS: XX.XDEG	Y Angle with respect to sign
	UGM AMBIENT TEMP	XXXC/XXXF	Ambient Temperature Sensor Reading from on-board UGM Sensor
	LOW AMBIENT TEMP	XXXC/XXXF	Low Temp Cutout Sensor Ambient Temperature sensor Reading [MACHINE SETUP ' TEMP CUTOUT = YES
	LOW TEMPERATURE	CUTOUT: ACTIVE/INACTIVE/FAULTY	Status of Low Temperature Cutout; Only displayed if MACHINE SETUP → TEMP CUTOUT = YES
	MSSO	ACTIVE/INACTIVE	Status of MSSO [MACHINE SETUP MARKET=CE and Operating Mode=Ground]

Table 6-7. DIAGNOSTICS - Menu Descriptions

Diagnosics Submenu (Displayed on Analyzer 1 st Line)	Parameter (Displayed on Analyzer 1 st Line)	Parameter Value (Displayed on Analyzer 2 nd Line)	Description	
SYSTEM INPUTS	BOOM ELEV SW	OPEN/CLOSED	State of Boom Elevation Switch #1	
	TOWER ELEV SW	OPEN/CLOSED	State of Boom Elevation Switch #2	
	ELEVATION MODE	ABOVE/NOT ABOVE	Elevation State	
	TRANSPORT MODE	IN TRANSPORT/OUT OF TRANSPORT	Transport Position	
	CREEP SW	OPEN/CLOSED	Status of Creep Switch Input	
	CREEP MODE	ON/OFF	Displays status of Creep Mode	
	GROUND SELECT	KEYSWITCH: OPEN	KEYSWITCH: CLOSED	Displays whether Ground Keyswitch position is being selected
		KEYSWITCH: CLOSED		
	PLATFORM SELECT	KEYSWITCH: OPEN	KEYSWITCH: CLOSED	Displays whether Platform Keyswitch position is being selected
		KEYSWITCH: CLOSED		
	STATION CONTROL	GROUND/PLATFORM	Displays Active control station per System Mode definition	
	FOOTSWITCH INPUT	GROUND: OPEN	GROUND: CLOSED	State of Footswitch input at UGM (Open with Footswitch is not activated).
		GROUND: CLOSED		
FOOTSWITCH INPUT	PLATFORM: CLOSED	PLATFORM: OPEN	State of Footswitch input at PM (Closed when footswitch not activated).	
	PLATFORM: OPEN			
TRACTION	RIGHT MOTOR	FREQ XXX.X Hz	Motor drive frequency reported by associated PM	
	LEFT MOTOR	FREQ XXX.X Hz	Motor drive frequency reported by associated PM	
	RIGHT MOTOR	SPEED XXX RPM	Motor encoder speed reported by associated PM	
	LEFT MOTOR	SPEED XXX RPM	Motor encoder speed reported by associated PM	
	RIGHT MOTOR	OFF/REGEN/DRIVE/MOTOR BRAKE/ PARKING BRAKE	Traction mode status as reported by associated PM	
	LEFT MOTOR	OFF/REGEN/DRIVE/MOTOR BRAKE/ PARKING BRAKE	Traction mode status as reported by associated PM	
	RIGHT MOTOR	CURRENT XXXA	ACrms Motor current reported by associated PM; display in Platform Mode only	
	LEFT MOTOR	CURRENT XXXA	ACrms Motor current reported by associated PM; display in Platform Mode only	
	RIGHT MOTOR	TEMP XXXC/F	Module temperature reported by PM; display in Platform Mode only	
	LEFT MOTOR	TEMP XXXC/F	Module temperature reported by PM; display in Platform Mode only	
	RIGHT BRAKE	APPLIED/RELEASED	Brake status reported by associated PM	
	LEFT BRAKE	APPLIED/RELEASED	Brake status reported by associated PM	
	RIGHT MODULE	TEMP XXXC/F	Module temperature reported by PM; display in Platform Mode only	
	LEFT MODULE	TEMP XXXC/F	Module temperature reported by PM; display in Platform Mode only	

SECTION 6 - JLG CONTROL SYSTEM

Table 6-7. DIAGNOSTICS - Menu Descriptions

Diagnosics Submenu (Displayed on Analyzer 1 st Line)	Parameter (Displayed on Analyzer 1 st Line)	Parameter Value (Displayed on Analyzer 2 nd Line)	Description
VOLTAGE/CUR	BATTERY SOC	XXX%/DISCHARGED/DEEP DISCHARGED	UGM calculated battery State-of-Charge; display percentage unless Discharged or Deeply Discharged
	BATTERY VOLTAGE	XX.XXV	UGM computed Vbat from MTM with compensation for voltage drop
	BATTERY CURRENT	XXXA	
	RIGHT SYSTEM	VOLTAGE XX.XXV	Real time system voltage reported by associated PM and compensated by UGM; not SOC
	LEFT SYSTEM	VOLTAGE XX.XXV	Real time system voltage reported by associated PM and compensated by UGM; not SOC
	UGM CONTROL	VOLTAGE XX.XV	UGM measured system control voltage
	PLATFORM MODULE	VOLTAGE XX.XV	Platform Module reported battery voltage measurement
	AC CHARGER	CONNECTED/NOT CONNECTED	Reflect status of charger connectivity reported by MTM
OPER CONTROLS	JOYSTICK DRIVE	FORWARD/REVERSE XXX%	Drive Joystick drive direction and command percentage as reported from PM [Platform Mode = TRUE]
	JOYSTICK STEER	LEFT/RIGHT XXX%	Drive Joystick steer direction and percentage command as reported from PM [Platform Mode = TRUE]
	JOYSTICK SWING	LEFT/RIGHT XXX%	Lift/Swing Joystick Swing direction and percentage command as reported from PM [Platform Mode = TRUE]
	JOYSTICK LIFT	UP/DOWN XXX%	Lift/Swing Joystick Lift direction and percentage command as reported from PM [Platform Mode = TRUE]
	DRV ORNT OVR SW	CLOSED/OPEN	State of Drive Orientation Override Switch [Platform Mode = TRUE]
	ENABLE	OPEN/CLOSED	Status of FUNCTION ENABLE Toggle Switch Input [Ground Mode = TRUE]
	SWING LEFT SW	OPEN/CLOSED	Status of Ground Toggle Switch Input [Ground Mode = TRUE]
	SWING RIGHT SW	OPEN/CLOSED	Status of Ground Toggle Switch Input [Ground Mode = TRUE]
	TOWER LIFT UP SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input
	TOWER LIFT DN SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input
	LIFT UP SW	OPEN/CLOSED	Status of Ground Toggle Switch Input [Ground Mode = TRUE]
	LIFT DN SW	OPEN/CLOSED	Status of Ground Toggle Switch Input [Ground Mode = TRUE]
	TELE IN SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input
	TELE OUT SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input

Table 6-7. DIAGNOSTICS - Menu Descriptions

Diagnosics Submenu (Displayed on Analyzer 1 st Line)	Parameter (Displayed on Analyzer 1 st Line)	Parameter Value (Displayed on Analyzer 2 nd Line)	Description
	JIB LIFT UP SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input [MACHINE SETUP ' Jib = YES]
	JIB LIFT DN SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input [MACHINE SETUP ' Jib = YES]
	JIB SWING LT SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input [MACHINE SETUP ' Jib Swing = YES]
	JIB SWING RT SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input [MACHINE SETUP ' Jib Swing = YES]
	PLAT LEVEL UP SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input
	PLAT LEVEL DN SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input
	PLAT ROT LEFT SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input
	PLAT ROT RIGHT SW	OPEN/CLOSED	Status of Ground/Platform Toggle Switch Input
	MAX SPEED SW	OPEN/CLOSED	Status of Platform Toggle Switch Input [Platform Mode = TRUE]
	CREEP SW	OPEN/CLOSED	Status of Creep Switch Input [Platform Mode = TRUE]
	HORN SW	OPEN/CLOSED	Status of Platform Switch Input [Platform Mode = TRUE]
	SG OVERRIDE SW	OPEN/CLOSED	Status of Platform SkyGuard Override Switch Input if MACHINE SETUP → SKYGUARD = YES
	MSSO SW	OPEN/CLOSED	Status of MSSO switch; [MACHINE SETUP' MARKET=CE and Ground mode = TRUE]
OPTIONS	H&T LIGHTS SW	OPEN/CLOSED	Status of Platform Toggle Switch Input [Platform Mode = TRUE and MACHINE SETUP ' H&T LIGHTS = YES]
	H&T LIGHTS OUT	ON/OFF	UGM Nite Brite Relay Enable output [Platform Mode = TRUE and MACHINE SETUP ' H&T LIGHTS = YES]
	SKYGUARD INPUTS	OPEN/CLOSED/DISAGREE	SkyGuard Input #1 (PLT J7-18) AND SkyGuard Input #2 (PLT J1-23) state [Platform Mode = TRUE and MACHINE SETUP ' SKYGUARD ? NO]
	SKYGUARD INPUT 1	OPEN/CLOSED	State of SkyGuard Platform Input #1 (J7-18); relay NC contacts - closed when active [Platform Mode = true and MACHINE SETUP ' SKYGUARD ? NO]
	SKYGUARD INPUT 2	OPEN/CLOSED	State of SkyGuard Platform Input #2 (J1-23); relay NC contacts - closed when active [Platform Mode= TRUE and MACHINE SETUP ' SKYGUARD ? NO]
	SOFTTOUCH INPUT	OPEN/CLOSED	State of softtouch input (Platform input J1-20) [MACHINE SETUP ' SOFTTOUCH = YES]

SECTION 6 - JLG CONTROL SYSTEM

Table 6-7. DIAGNOSTICS - Menu Descriptions

Diagnostics Submenu (Displayed on Analyzer 1st Line)	Parameter (Displayed on Analyzer 1st Line)	Parameter Value (Displayed on Analyzer 2nd Line)	Description
PLATFORM LOAD (DISPLAY ONLY IF MACHINE SETUP → LOAD SYSTEM ≠ NO)	PLATFORM LOAD	STATE: OK/OVER LOAD	LSS Status
	PLATFORM LOAD	ACTUAL: XXX.XKG	Actual measured weight
	PLATFORM LOAD	GROSS: XXX.XKG	Combined weight of all cells; accounting for sign.
	PLATFORM LOAD	OFFSET: XXX.XKG	Tare weight of Platform Empty
	PLATFORM LOAD	ACC'Y XXX.XKG	Stored Accessory weight; visible only if Accessory recognized
	PLATFORM LOAD	CELL 1: XXX.XKG	Gross weight reading of Cell 1
	PLATFORM LOAD	CELL 2: XXX.XKG	Gross weight reading of Cell 2
	PLATFORM LOAD	CELL 3: XXX.XKG	Gross weight reading of Cell 3
	PLATFORM LOAD	CELL 4: XXX.XKG	Gross weight reading of Cell 4
CAN STATISTICS	CAN 1 STATISTICS	RX/SEC: XXX	
	CAN 1 STATISTICS	TX/SEC: XXX	
	CAN 1 STATISTICS	BUS OFF: XXX	
	CAN 1 STATISTICS	PASSIVE: XXX	
	CAN 1 STATISTICS	MSG ERROR: XXXX	
	CAN 2 STATISTICS	RX/SEC: XXX	
	CAN 2 STATISTICS	TX/SEC: XXX	
	CAN 2 STATISTICS	BUS OFF: XXX	
	CAN 2 STATISTICS	PASSIVE: XXX	
	CAN 2 STATISTICS	MSG ERROR: XXXX	

Go to Discount-Equipment.com to order your parts

System Self Test

The system self test is utilized to locate typical problems. See Table 6-8, System Test Descriptions and Table 6-9, System Test Messages for information concerning the tests performed and available messages in this mode.

1. When the key switch is in the platform position and the self test enabled, the self test function will test all valves, contactors, platform inputs, indicator lamps, and system alarms for various fault conditions.

When the key switch is in the ground position, the self test function will test all valves, the line contactor, ground control inputs, and the ground alarm output for various fault conditions.

2. In order to test the inputs on the machine, the controller will ask the service technician to perform various tasks at the appropriate operator control station. An example of this is "Close LLU Switch". The controller expects the

operator to close the lower lift up switch. When the controller sees that the lower lift up switch has been closed, it will move on to the next input, lower lift down LLD. If the switch is faulty or the wiring is faulty, the controller will not move on to the next input. The controller will continue to wait for the closure of the input. If the operator knows the switch is faulty and wants to continue the tests he must simply press the enter key on the analyzer to continue.

3. After the controller has conducted the tests from the chosen operator station, it will display "TESTS COMPLETE". This indicates that the controller has checked all inputs and outputs for that station.

NOTICE

IN ORDER FOR THE MACHINE TO FUNCTION AFTER THE SELF TEST IS COMPLETE, POWER MUST BE RECYCLED USING THE EMS OR THE KEY SWITCH.

Table 6-8. System Test Descriptions

<p>RUN SYSTEM TEST</p>	<p>ENTER starts system test Not available until tests are activated Displays messages while system test runs Some messages are prompts, requiring user intervention. ENTER can be pressed if a fault is found, to confirm that the fault has been noted and to continue the system test. NOTE: a flashing message is critical, and prevents the system test running</p>
<p>ACTIVATE YES:ENTER, NO:ESC</p>	<p>Not available once tests are activated ENTER activates system tests NOTE: cannot be done while controller is in use (footswitch closed) and for a short time afterwards</p>

Table 6-9. System Test Messages

Message Displayed on Analyzer	Message Displayed on Analyzer	Description
RUNNING		Initial display when system test is run while running certain "critical" checks are made.
	CHECK GROUND/PLATFORM SELECT	The analyzer must be connected to the active control station to run the system test
	CHECK CAN WIRING	The system test cannot run unless the CAN Bus is operating properly
	BATTERY VOLTAGE TOO LOW	The system test cannot run with MTM-reported battery voltage below 39.5V (not UGM-compensated value)
	BATTERY VOLTAGE TOO HIGH	The system test cannot run with the MTM-reported battery voltage above 65V
	CHECK SPEED	Reported vehicle speed must = 0 Hz (or mph)
	HIGH TILT ANGLE	The vehicle is tilted > 3° or the tilt sensor is faulty
	OPEN FOOTSWITCH	In platform mode, the footswitch must be open at the start of the test.
	CLOSE FOOTSWITCH	In platform mode, the operator must close the footswitch when this message is displayed
	BAD FOOTSWITCH	The two footswitch signals are not changing together, probably because one is open circuit. Check footswitch and wiring.
	OPEN FOOTSWITCH	In platform mode, the operator must open the footswitch when this message is displayed.
	PLATFORM OVERLOADED	Load Sensing is configured and the ground module considers the platform to be overloaded
TESTING VALVES	CLOSE FOOTSWITCH	*Check for Footswitch closed
	OPEN FOOTSWITCH	*Wait for Footswitch to open
	PRESS AND HOLD FOOTSWITCH	*The operator must engage and hold the footswitch for the next batch of tests to be successful. This is due to the hardware high side driver cutout in the ground module
	OPEN FOOTSWITCH	*Wait for Footswitch to open the advance
	FLOW CTRL VALVE	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	STEER RIGHT	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	STEER LEFT	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	SWING LEFT	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	SWING RIGHT	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	LIFT UP	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	LIFT DOWN	SHORT TO BATTERY or OPEN-CIRCUIT; or SHORT TO GROUND (or advance test after short delay) do not energize for E300
	TELESCOPE OUT	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	TELESCOPE IN	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	TOWER UP (E300)	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	TOWER DOWN (E300)	SHORT TO BATTERY or OPEN-CIRCUIT; or SHORT TO GROUND (or advance test after short delay). do not energize for E300
	JIB UP	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	JIB DOWN	SHORT TO BATTERY or OPEN-CIRCUIT (or advance test after short delay)
	JIB LT VALVE	SHORT TO BATTERY or OPEN-CIRCUIT (or advance test after short delay)
	JIB RT VALVE	SHORT TO BATTERY or OPEN-CIRCUIT (or advance test after short delay)
	PLATFORM LT VALVE	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)

Table 6-9. System Test Messages

Message Displayed on Analyzer	Message Displayed on Analyzer	Description
	PLATFORM RT VALVE	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	PLATFORM LEVEL UP	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	PLATFORM LEVEL DOWN	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay)
	HEAD/TAIL LIGHTS	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay); displayed if the head/tail light option is configured.
	VOTE RELAY	SHORT TO BATTERY or OPEN-CIRCUIT or SHORT TO GROUND (or advance test after short delay); displayed if the head/tail light option is configured.
CHECKING PLATFORM INPUTS	DRIVE MAX SPEED	OPEN or CLOSED (advance after switch closed to open)
	DRIVE REDUCED SPEED	OPEN or CLOSED (advance after switch closed to open)
	CL PLATFORM UP	OPEN or CLOSED (advanced test after switch toggles)
	OP PLATFORM UP	OPEN or CLOSED (advanced test after switch toggles)
	CL PLATFORM DOWN	OPEN or CLOSED (advanced test after switch toggles)
	OP PLATFORM DOWN	OPEN or CLOSED (advanced test after switch toggles)
	LIFT JOYSTICK TO UP MAX	(wait for joystick to reach +100% then advance)
	LIFT JOYSTICK TO DOWN MAX	(wait for joystick to reach -100% then advance)
	SWING JOYSTICK TO LEFT MAX	(wait for joystick to reach -100% then advance)
	SWING JOYSTICK TO RIGHT MAX	(wait for joystick to reach +100% then advance)
	CREEP SWITCH CCW	OPEN or CLOSED (advanced test after switch toggles)
	CREEP SWITCH CW	OPEN or CLOSED (advanced test after switch toggles)
	FUNC SPD TO MAX	
	FUNC SPD TO MIN	
	CL HORN	OPEN or CLOSED (advanced test after switch toggles)
	OP HORN	OPEN or CLOSED (advanced test after switch toggles)
	CL PLATFORM LEFT	OPEN or CLOSED (advanced test after switch toggles)
	OP PLATFORM LEFT	OPEN or CLOSED (advanced test after switch toggles)
	CL PLATFORM RIGHT	OPEN or CLOSED (advanced test after switch toggles)
	OP PLATFORM RIGHT	OPEN or CLOSED (advanced test after switch toggles)
	CL TOWER UP	OPEN or CLOSED (advanced test after switch toggles) (E300)
	OP TOWER UP	OPEN or CLOSED (advanced test after switch toggles) (E300)
	CL TOWER DOWN	OPEN or CLOSED (advanced test after switch toggles) (E300)
	OP TOWER DOWN	OPEN or CLOSED (advanced test after switch toggles) (E300)
	CL JIB UP	OPEN or CLOSED (advanced test after switch toggles)
	OP JIB UP	OPEN or CLOSED (advanced test after switch toggles)
	CL JIB DOWN	OPEN or CLOSED (advanced test after switch toggles)
	OP JIB DOWN	OPEN or CLOSED (advanced test after switch toggles)
	CL JIB LEFT	OPEN or CLOSED (advanced test after switch toggles)
	OP JIB LEFT	OPEN or CLOSED (advanced test after switch toggles)
	CL JIB RIGHT	OPEN or CLOSED (advanced test after switch toggles)
	OP JIB RIGHT	OPEN or CLOSED (advanced test after switch toggles)
	CL TELE IN	OPEN or CLOSED (advanced test after switch toggles)

Table 6-9. System Test Messages

Message Displayed on Analyzer	Message Displayed on Analyzer	Description
	OP TELE IN	OPEN or CLOSED (advanced test after switch toggles)
	CL TELE OUT	OPEN or CLOSED (advanced test after switch toggles)
	OP TELE OUT	OPEN or CLOSED (advanced test after switch toggles)
	CL DRIVE ORIENT	OPEN or CLOSED (advanced test after switch toggles)
	OP DRIVE ORIENT	OPEN or CLOSED (advanced test after switch toggles)
	DRIVE JOYSTICK TO FORWARD MAX	(wait for joystick to reach +100% then advance)
	DRIVE JOYSTICK TO BACK MAX	(wait for joystick to reach -100% then advance)
	STEER TO LEFT MAX	OPEN or CLOSED (advanced test after switch toggles)
	STEER TO RIGHT MAX	OPEN or CLOSED (advanced test after switch toggles)
	CL HEADLIGHT SWITCH	OPEN or CLOSED (advanced test after switch toggles)
	OP HEADLIGHT SWITCH	OPEN or CLOSED (advanced test after switch toggles)
	CL SKYGUARD OVR	OPEN or CLOSED (advanced test after switch toggles); display on if MACHINE SETUP 'SKYGUARD = YES
	OP SKYGUARD OVR	OPEN or CLOSED (advanced test after switch toggles); display on if MACHINE SETUP 'SKYGUARD = YES
	ENGAGE SKYGUARD	SkyGuard bar pressed; SkyGuard inputs #1 and #2 must both change to low state for passing condition; display on if MACHINE SETUP 'SKYGUARD = YES
	RELEASE SKYGUARD	Both SkyGuard inputs must change to high; display on if MACHINE SETUP 'SKYGUARD = YES
	ENGAGE SOFTTOUCH	OPEN or CLOSED (advanced test after switch toggles); display on if MACHINE SETUP 'SOFTTOUCH = YES
	RELEASE SOFTTOUCH	OPEN or CLOSED (advanced test after switch toggles); display on if MACHINE SETUP 'SOFTTOUCH = YES
CHECKING GROUND INPUTS	CL SWING RIGHT	OPEN or CLOSED (advanced test after switch toggles)
	OP SWING RIGHT	OPEN or CLOSED (advanced test after switch toggles)
	CL SWING LEFT	OPEN or CLOSED (advanced test after switch toggles)
	OP SWING LEFT	OPEN or CLOSED (advanced test after switch toggles)
	CL TOWER UP	OPEN or CLOSED (advanced test after switch toggles)
	OP TOWER UP	OPEN or CLOSED (advanced test after switch toggles)
	CL TOWER DOWN	OPEN or CLOSED (advanced test after switch toggles)
	OP TOWER DOWN	OPEN or CLOSED (advanced test after switch toggles)
	CL LIFT UP	OPEN or CLOSED (advanced test after switch toggles)
	OP LIFT UP	OPEN or CLOSED (advanced test after switch toggles)
	CL LIFT DOWN	OPEN or CLOSED (advanced test after switch toggles)
	OP LIFT DOWN	OPEN or CLOSED (advanced test after switch toggles)
	CL TELE OUT	OPEN or CLOSED (advanced test after switch toggles)
	OP TELE OUT	OPEN or CLOSED (advanced test after switch toggles)
	CL TELE IN	OPEN or CLOSED (advanced test after switch toggles)
	OP TELE IN	OPEN or CLOSED (advanced test after switch toggles)
	CL JIB UP	OPEN or CLOSED (advanced test after switch toggles)
	OP JIB UP	OPEN or CLOSED (advanced test after switch toggles)
	CL JIB DOWN	OPEN or CLOSED (advanced test after switch toggles)

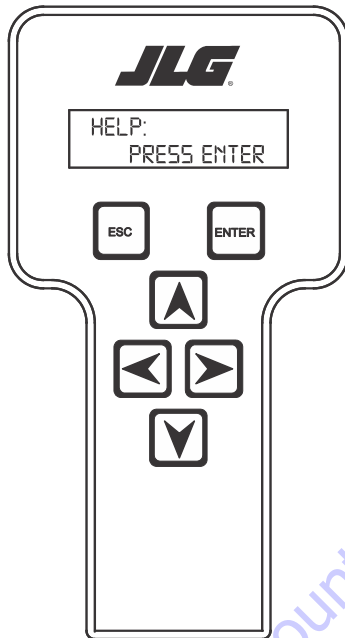
Table 6-9. System Test Messages

Message Displayed on Analyzer	Message Displayed on Analyzer	Description
	OP JIB DOWN	OPEN or CLOSED (advanced test after switch toggles)
	CL JIB SWING LEFT	OPEN or CLOSED (advanced test after switch toggles)
	OP JIB SWING LEFT	OPEN or CLOSED (advanced test after switch toggles)
	CL JIB SWING RIGHT	OPEN or CLOSED (advanced test after switch toggles)
	OP JIB SWING RIGHT	OPEN or CLOSED (advanced test after switch toggles)
	CL PLATFORM LEFT	OPEN or CLOSED (advanced test after switch toggles)
	OP PLATFORM LEFT	OPEN or CLOSED (advanced test after switch toggles)
	CL PLATFORM RIGHT	OPEN or CLOSED (advanced test after switch toggles)
	OP PLATFORM RIGHT	OPEN or CLOSED (advanced test after switch toggles)
	CL PLATFORM UP	OPEN or CLOSED (advanced test after switch toggles)
	OP PLATFORM UP	OPEN or CLOSED (advanced test after switch toggles)
	CL PLATFORM DOWN	OPEN or CLOSED (advanced test after switch toggles)
	OP PLATFORM DOWN	OPEN or CLOSED (advanced test after switch toggles)
	CL FUNC ENABLE	OPEN or CLOSED (advanced test after switch toggles)
	OP FUNC ENABLE	OPEN or CLOSED (advanced test after switch toggles)
	CL MSSO SWITCH	OPEN or CLOSED (advanced test after switch toggles); display only if MACHINE SETUP' MARKET = CE
	OP MSSO SWITCH	OPEN or CLOSED (advanced test after switch toggles); display only if MACHINE SETUP' MARKET = CE
TESTING PLATFORM LAMPS	BAT FULL LAMP ON	
	BAT 3/4 LAMP ON	
	BAT 1/2 LAMP ON	
	BAT 1/4 LAMP ON	
	LOW BATTERY	
	ENABLE LAMP ON	
	CREEP LAMP ON	
	DISTRESS LAMP ON	
	TILT LAMP ON	
	OVERLOAD LAMP ON	Display only if LSS configured
	DRIVE ORIENTATION LAMP ON	
	SKYGUARD LAMP ON	Display on if SkyGuard configured
	SOFTTOUCH	Display if Soft Touch configured
	PLAT ALARM ON	
	HORN ON	
TESTING GROUND LAMPS	OVERLOAD LAMP ON	Display only if MACHINE SETUP' MARKET = CE
	ALERT BEACON	Display only if MACHINE SETUP-> ALERT BEACON = 20FPM FOR CREEP
TESTS COMPLETE		Indicates that the system test is complete. Any problems reported should have been noted and should now be rectified. Press ESC/CANCEL to return to the RUN SYSTEM TEST Analyzer menu.

6.4 CALIBRATING STEER

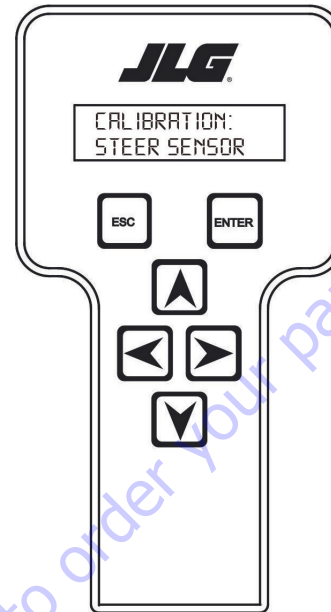
When calibrating steering, each individual wheel must be calibrated in order to make the tire and wheel parallel with the frame. Two methods to help ensure proper calibration are the use of a carpenter's square to square the spindle to the axle or aligning the two wheels on one side using a stretched string.

1. Position the Platform/Ground select switch to the Platform position.
2. Plug the analyzer into the connector at the base of the platform control box.
3. Pull out the Emergency Stop switch and Start the engine.
4. The analyzer screen should read:

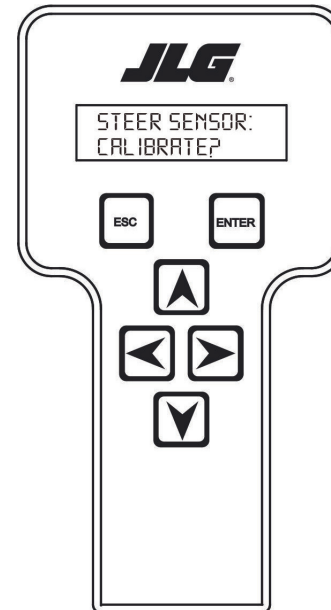


5. Use the arrow button to reach ACCESS LEVEL. Hit Enter.
6. Enter the Access Code, 33271.
7. Use the right Arrow key to reach CALIBRATIONS. Hit Enter.

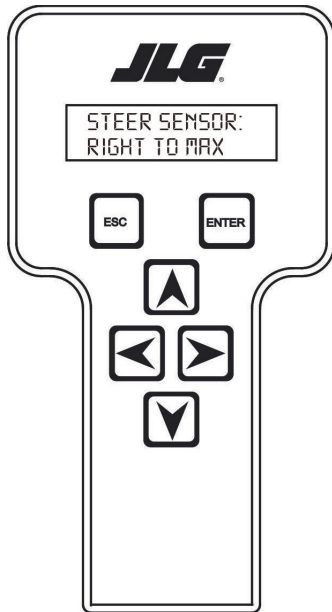
8. Use the arrow keys to reach STEER SENSOR. The screen will read:



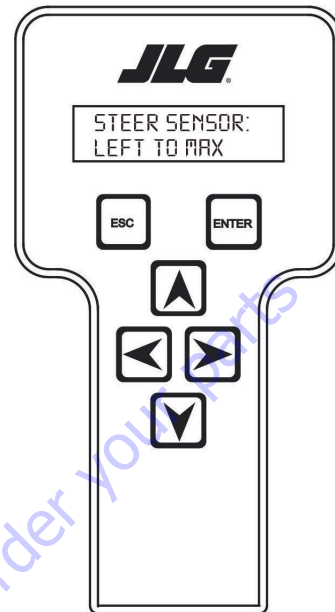
9. Hit Enter. The screen will read:



10. Hit Enter. The screen will read:

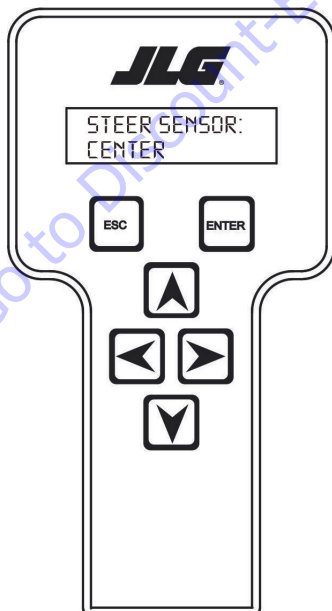


14. Hit Enter. The screen will read:

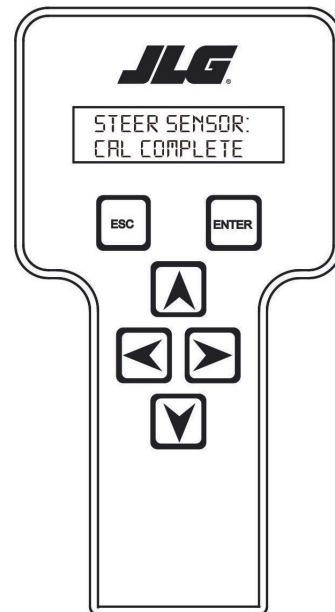


11. Activate the steer control until the tire and wheel are straight in relationship with the chassis, then leave off the control. The display will read Right Steer Maximum value.
12. Hit Enter. The screen will read:

NOTE: It's important that the tires are pointed as straight as possible. This will allow Max Drive Speed, longer run times and reduced motor and controller heat.



15. The display will read Left Steer Maximum value.
16. Hit Enter. The screen will read:



17. After completing all the Steer Calibrations, hit ESC twice to go back to CALIBRATIONS.

13. The display will read steering Center position value.

6.5 CALIBRATING TILT SENSOR

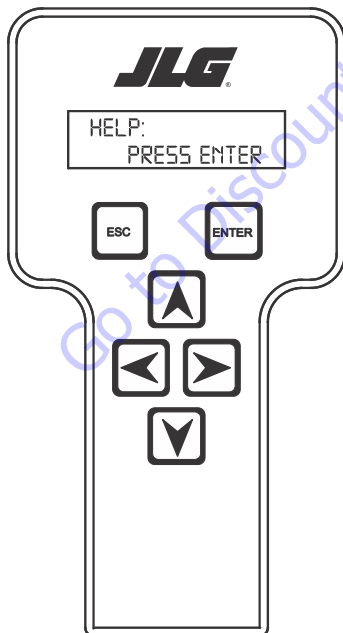
NOTICE

A NEW TILT MODULE WILL ACT AS IF IT IS TILTED ALL OF THE TIME UNTIL THE FOLLOWING PROCEDURE IS PERFORMED.

WARNING

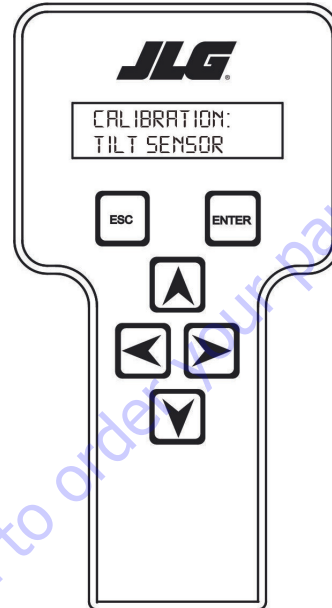
DO NOT CALIBRATE THE LEVEL SENSOR EXCEPT ON A LEVEL SURFACE.

1. Use the following procedure to calibrate the tilt sensor.
2. Before the tilt sensor can be calibrated, the following conditions must be met:
 - a. Steering previously calibrated.
 - b. Wheels straight.
 - c. Turntable centered.
 - d. Boom fully retracted.
 - e. Boom angle is less than 45°.
 - f. Machine on firm, level ground.
3. Position the Platform/Ground select switch to the Platform position.
4. Plug the analyzer into the connector inside the Ground control box.
5. Pull out the Emergency Stop switch and Start the engine.
6. The analyzer screen should read:

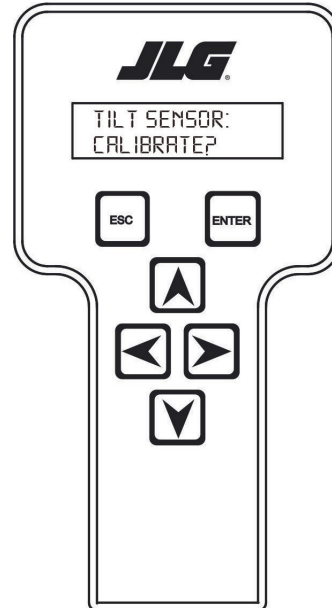


7. Use the arrow button to reach ACCESS LEVEL. Hit Enter.
8. Enter the Access Code, 33271.

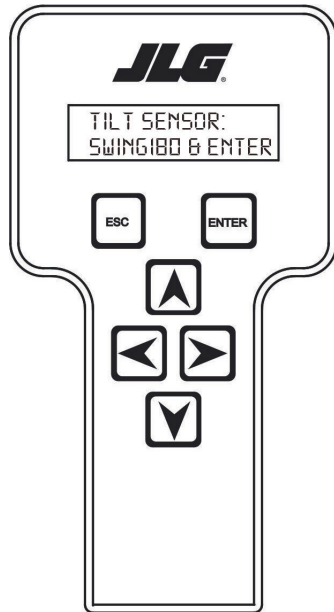
9. Use the right Arrow key to reach CALIBRATIONS. Hit Enter.
10. Use the arrow keys to reach TILT SENSOR. The screen will read:



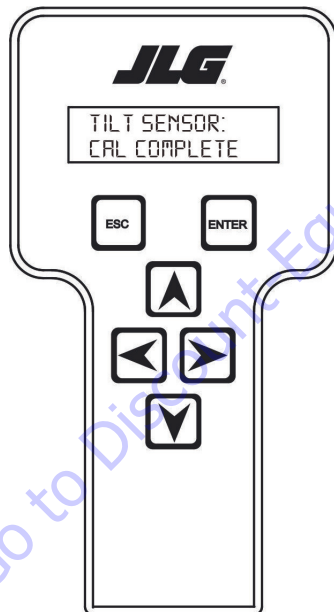
11. Hit Enter. The screen will read:



12. When prompted, swing turntable 180° to opposite end of chassis.



13. Hit Enter. The screen will read:

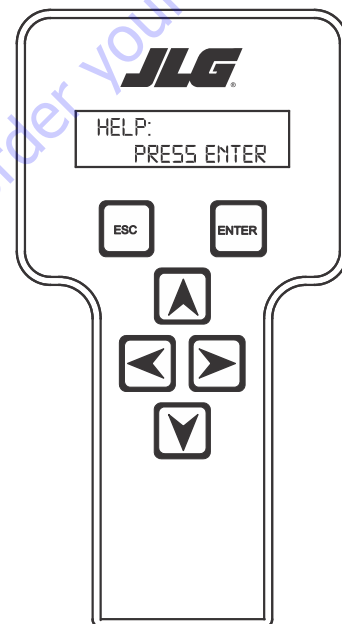


14. Upon completing swing calibration, swing turntable 180° back to the stowed position.
15. Hit ESC twice to go back to CALIBRATIONS.

6.6 CALIBRATING LOAD SENSING

NOTE: Calibration sub-menu LOAD SENSING is visible only if MACHINE SET-UP sub-menu LOAD SYSTEM is selected to NO.

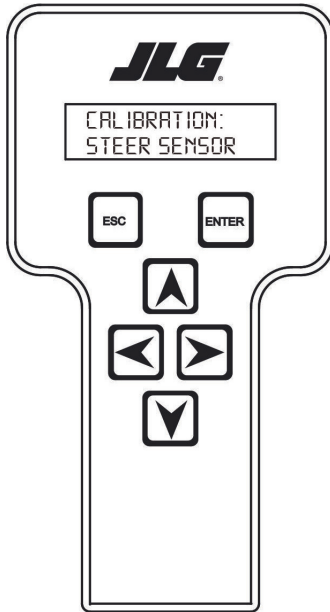
1. Position the Platform/Ground select switch to the Platform position.
2. Plug the analyzer into the connector at the base of the platform control box.
3. Pull out the Emergency Stop switch and Start the engine.
4. The analyzer screen should read:



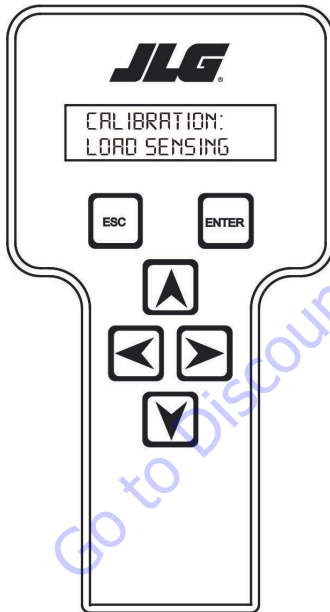
5. Use the arrow button to reach ACCESS LEVEL. Hit Enter.
6. Enter the Access Code, 33271.
7. Use the right Arrow key to reach CALIBRATIONS. Hit Enter.

SECTION 6 - JLG CONTROL SYSTEM

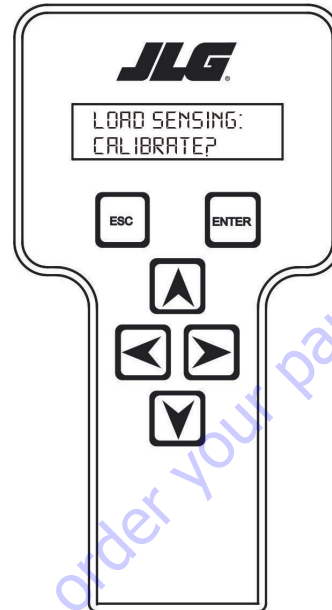
8. Use the arrow keys to reach LOAD SENSING. The screen will read:



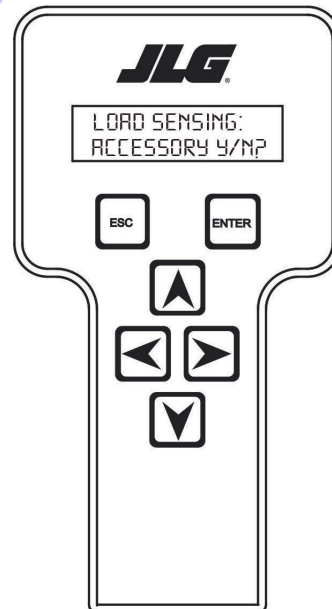
9. Hit Enter. The screen will read:



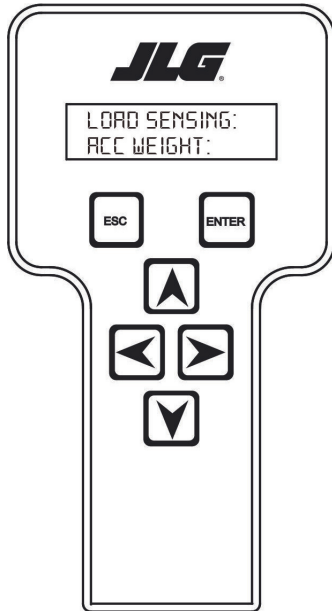
10. Hit Enter. The screen will read:



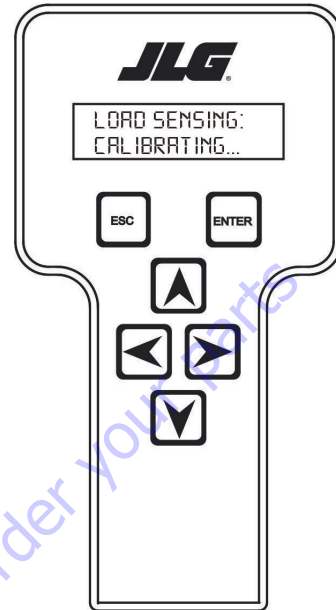
11. Hit Enter. The screen will read:



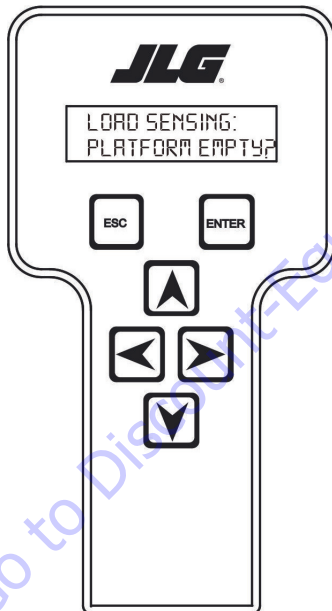
12. Hit Enter. The screen will read:



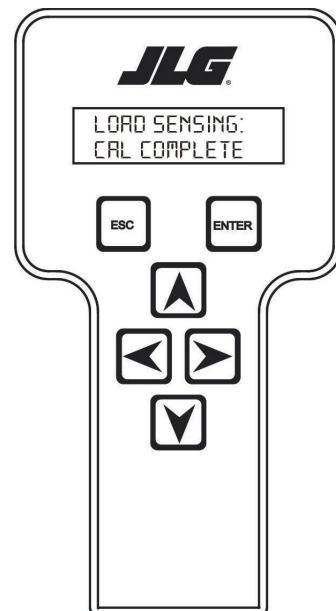
14. Hit Enter. The screen will read:



13. Hit Enter. The screen will read:



15. After few seconds, the screen will read:



16. Hit ESC twice to go back to CALIBRATIONS

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
001	EVERYTHINGOK	The UGM determines that platform station (EVERYTING OK) OR ground station (GROUND MODE OK) is selected and no system faults exist, including Power Module check; 0 (No Fault)	Occurrence of active DTC
002	GROUND MODE OK	The normal help message in Ground Mode. Displays on the analyzer only.	Ground Mode selected; & occurrence of active DTC
008	FUNCTIONS LOCKED OUT - SYSTEM POWERED DOWN	Conditions exist and time for automatic power-down has expired.	Power cycled
0010	RUNNING AT CUTBACK - OUT OF TRANSPORT POSITION	Machine is in the Out Of Transport Position	Machine is not Out of Transport; If Swung, DOS transition requirements are required to return to In Line speed
0011	FSWOPEN	Machine is in Platform Mode; Any of the following Platform inputs become active after power up, but before Machine Enabled: Drive joystick is not in the neutral position, Steer, Lift and/or Swing joystick is not in the neutral position; Tower Lift; Telescope; Platform Level; Platform Rotate; Jib Lift (if MACHINE SETUP -> JIB = YES); Jib Swing (if MACHINE SETUP -> JIB PLUS = YES);	Controls initialized
0012	RUNNING AT CREEP - CREEP SWITCH OPEN	Machine is in Platform Mode; Platform creep switch input = HIGH; Fault RUNNING AT CREEP – TILTED AND ABOVE ELEVATION (0013) is not active	Platform creep switch input = Low
0013	RUNNING AT CREEP - TILTED AND ABOVE ELEVATION	Machine is in Platform mode; Machine is Above Elevation and Tilted; MACHINE SETUP-> TILT (not + CUT)	Not all of the trigger conditions are met; Then non-Creep function speed permitted after controls initialized
0033	TRACTION MOTOR AT CURRENT LIMIT	Machine is in Platform Mode and UGM detects that Traction Current reported by any Power Module > 270A for 3000ms; MTM or SPM will keep the Traction motor current below limit (280A@48V) but will not report fault;	Currents return to levels below trigger level for same time period as trigger; UGM shall remove Creep speed restriction after controls initialized
0036	FUNCTION PREVENTED - FUNCTION SELECTED BEFORE GROUND ENABLE	Machine is in Ground Mode (DTC 002); Machine is not enabled; Any valid ground control input becomes active;	Controls Initialized.
0039	SKYGUARD ACTIVE – FUNCTIONS CUTOUT	Machine is in Platform Mode and SkyGuard Enabled	Trigger conditions are no longer true
0047	DRIVING IN CREEP – STEEP DESCENT	UGM detects that the machine is descending a grade steeper than the MAX Grade setpoint (greater than or equal to): MAX Grade setpoint = 16.5 degrees for period of greater than 1 second. [MACHINE SETUP = E300].	The UGM detects that the grade in direction of travel is more than 3 degrees less than the machine's trip point.

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
0048	BATTERY CHARGE LOW	Battery SOC < 10%	Battery SOC > Discharged; speed restrictions removed after controls initialized
0046	TORQUE CUTBACK - EXCESSIVE TILT	UGM detects that the machine is ascending an inclination of greater than or equal to: 16.5 degrees for period of greater than 1 second. [MACHINE SETUP = E300].	The UGM detects that the grade in direction of travel is more than 3 degrees less than the machine's trip point
211	POWER CYCLE	The normal help message is issued to designate the start of each power cycle in Analyzer Logged Help; new entry only recorded if new DTCs occurred since last power cycle	No special conditions required
212	KEYSWITCH FAULTY	UGM Ground Mode (input J7-3) and UGM Platform Mode (input J7-2) are both HIGH at the same time	UGM Ground Mode (input J7-3) or UGM Platform Mode (input J7-2) = LOW
213	FSW FAULTY	The ground footswitch input and platform footswitch input have been both HIGH or both LOW for greater than or equal to 1 second	Power cycled
221	FUNCTION PROBLEM - HORN PERMANENTLY SELECTED	The horn switch was closed during power-up	Horn switch input = LOW
224	FUNCTION PROBLEM - STEER LEFT PERMANENTLY SELECTED	Machine in Platform Mode; Steer Left Switch input = HIGH at Startup	Steer Left Switch returns to neutral; steer functions enabled after remaining controls are initialized
225	FUNCTION PROBLEM - STEER RIGHT PERMANENTLY SELECTED	Machine in Platform Mode; Steer Right Switch input = HIGH at Startup	Steer Right Switch returns to neutral; Steer functions enabled after remaining controls are initialized
227	STEER SWITCHES FAULTY	Both steer switch inputs on the Drive/Steer joystick are High (detectable in Platform or Ground mode).	Steer Right and Steer Left are no longer simultaneous HIGH: steer and full Drive speed permitted after controls are initialized
2211	FSW INTERLOCK TRIPPED	Machine is in Platform Mode; A Machine Enabled state has been active for greater than or equal to 7 seconds without activation of any drive, steer, or boom functions	The footswitch is released
2212	DRIVE LOCKED - JOYSTICK MOVED BEFORE FOOTSWITCH	The machine is in Platform Mode and the drive joystick is not in the neutral position immediately following Start Up. The machine is in Platform Mode and a proper machine enable signal is received or DTC 2213, 2221 or 2223 is active while the drive joystick is not in the neutral position.	If triggered by the drive joystick not being in the neutral position immediately following Start Up THEN when Drive joystick is returned to its neutral position and the machine is not in the Enabled state. If triggered by proper machine enable signal being received while the drive joystick is not in the neutral position then when the Drive joystick is returned to neutral or the footswitch is released
2213	STEER LOCKED - SELECTED BEFORE FOOTSWITCH	The UGM detects that the machine is in Platform Mode and a proper machine enable signal is received or DTC 2212, 2221 or 2223 is active while the steer controls are not in the neutral position.	When the steer controls are returned to neutral or the footswitch is released
2216	D/S JOY. OUT OF RANGE HIGH	The PM detects that the drive or steer joystick signal voltage > 8.1V and reports the fault to the UGM.	The PM no longer reports the fault

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
2217	D/S JOY. CENTER TAP BAD	The PM detects that the drive/steer center tap voltage is not between 3.31 volts and 3.75 volts and reports the fault to the UGM	The PM detects that the drive/steer center tap voltage is between 3.31 and 3.75 volts and no longer reports the fault to the UGM
2219	L/S JOY. OUT OF RANGE HIGH	The PM detects that the Lift or Swing joystick signal voltage > 8.1V and reports the fault to the UGM.	The PM detects that the lift/swing center tap voltage is between 3.31 and 3.75 volts and no longer reports the fault to the UGM
2220	L/S JOY. CENTER TAP BAD	The PM detects that the Lift or Swing center tap voltage is not between 3.31 volts and 3.75 volts and reports the fault to the UGM	The PM detects that the lift/swing center tap voltage is between 3.31 and 3.75 volts and no longer reports the fault to the UGM
2221	LIFT/SWING LOCKED - JOYSTICK MOVED BEFORE FOOTSWITCH	The machine is in Platform Mode and the Lift and/or Swing controls are not in the neutral position immediately following Start Up -OR- The machine is in Platform Mode and a proper machine enable signal is received or DTC 2212, 2213 or 2223 is active while the Lift/Swing joystick is not in the neutral position.	If triggered by the Lift/Swing controls not being in the neutral position immediately following Start Up, then when Lift/Swing controls are returned to neutral and the machine is not in the Enabled state. If triggered by proper machine enable signal being received while the Lift/Swing controls are not in the neutral position, then when the Lift/Swing controls are returned to neutral or the footswitch is released
2222	WAITING FOR FSW TO BE OPEN	Machine is in Platform Mode AND Footswitch has been engaged since Start Up	Footswitch is disengaged
2223	FUNCTION SWITCHES LOCKED - SELECTED BEFORE ENABLE	The machine is in Platform Mode and a proper machine enable signal is received or DTC 2212, 2213 or 2221 is active while any of the following boom control inputs are engaged: AWDA Enable, Tower Lift, Telescope, Platform Level, Platform Rotate, Jib Lift (if MACHINE SETUP -> JIB = YES) and Jib Rotate (if MACHINE SETUP -> JIB PLUS = YES)	None of the boom controls that trigger this fault are engaged or the Footswitch is disengaged.
2245	FUNCTION PROBLEM - JIB SWING LEFT PERMANENTLY SELECTED	The machine is in Platform mode and the Jib Swing Left input = High at Startup	Jib Swing Left input = LOW while the machine is not Enabled
2246	FUNCTION PROBLEM - JIB SWING RIGHT PERMANENTLY SELECTED	The machine is in Platform mode and the Jib Swing Right input = High at Startup	Jib Swing Right input = LOW while the machine is not Enabled
2247	FUNCTION PROBLEM - PLATFORM ROTATE LEFT PERMANENTLY SELECTED	The machine is in Platform mode and the Platform Rotate Left input = High at Startup	Platform Rotate Left input = LOW while the machine is not Enabled
2248	FUNCTION PROBLEM - PLATFORM ROTATE RIGHT PERMANENTLY SELECTED	The machine is in Platform mode and the Platform Rotate Right input = High at Startup	Platform Rotate Right input = LOW while the machine is not Enabled
2249	FUNCTION PROBLEM - JIB LIFT UP PERMANENTLY SELECTED	The machine is in Platform mode and the Jib Lift Up input = High at Startup	Jib Lift Up input = LOW while the machine is not Enabled
2250	FUNCTION PROBLEM - JIB LIFT DOWN PERMANENTLY SELECTED	The machine is in Platform mode and the Jib Lift Down input = High at Startup	Jib Lift Down input = LOW while the machine is not Enabled
2251	FUNCTION PROBLEM - TELESCOPE IN PERMANENTLY SELECTED	The machine is in Platform mode and the Telescope In input = High at Startup	Telescope In input = LOW while the machine is not Enabled
2252	FUNCTION PROBLEM - TELESCOPE OUT PERMANENTLY SELECTED	The machine is in Platform mode and the Telescope Out input = High at Startup	Telescope Out input = LOW while the machine is not Enabled
2257	FUNCTION PROBLEM - TOWER LIFT UP PERMANENTLY SELECTED	The machine is in Platform mode and the Tower Lift Up input = High at Startup	Telescope Out input = LOW while the machine is not Enabled
2258	FUNCTION PROBLEM - TOWER LIFT DOWN PERMANENTLY SELECTED	The machine is in Platform mode and the Tower Lift Down input = High at Startup	Tower Lift Down input = LOW while the machine is not Enabled

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
2262	FUNCTION PROBLEM - PLATFORM LEVEL UP PERMANENTLY SELECTED	The machine is in Platform mode and the Platform Level Up input = High at Startup	Platform Level Up input = LOW while the machine is not Enabled
2263	FUNCTION PROBLEM - PLATFORM LEVEL DOWN PERMANENTLY SELECTED	The machine is in Platform mode and the Platform Level Down input = High at Startup	Platform Level Down input = LOW while the machine is not Enabled
2264	FUNCTION PROBLEM - DOS OVERRIDE PERMANENTLY SELECTED	The machine is in Platform mode and the Drive Orientation switch input = High at Startup	Drive Orientation input = LOW while the machine is not Enabled
2286	FUNCTION PROBLEM - SOFT TOUCH / SKY-GUARD OVERRIDE PERMANENTLY SELECTED	[(MACHINE SETUP → SKYGUARD = YES) or (MACHINE SETUP → SOFT TOUCH = YES)]; Machine is in Platform Mode; The Soft Touch / SkyGuard Override switch input = High at Startup	The Soft Touch / SkyGuard Override switch input = Low
234	FUNCTION SWITCHES FAULTY - CHECK DIAGNOSTICS/BOOM	Both inputs associated with mutually exclusive operations are simultaneously active.	Trigger conditions no longer true.
2310	FUNCTION PROBLEM - GROUND ENABLE PERMANENTLY SELECTED	The machine is in Ground mode and the Function Enable input = High at Startup	Enable switch = LOW; Enable permitted after controls initialize
2370	FUNCTION PROBLEM - JIB LIFT UP PERMANENTLY SELECTED	If MACHINE SETUP → JIB = YES and the machine is in Ground mode and the subject switch input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
2371	FUNCTION PROBLEM - JIB LIFT DOWN PERMANENTLY SELECTED	If MACHINE SETUP → JIB = YES and the machine is in Ground mode and the subject switch input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
2372	FUNCTION PROBLEM - SWING LEFT PERMANENTLY SELECTED	The machine is in Ground mode and the Swing Left = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
2373	FUNCTION PROBLEM - SWING RIGHT PERMANENTLY SELECTED	The machine is in Ground mode and the Swing Right input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23105	FUNCTION PROBLEM - TOWER LIFT UP PERMANENTLY SELECTED	The machine is in Ground mode and the Tower Lift Up input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23106	FUNCTION PROBLEM - TOWER LIFT DOWN PERMANENTLY SELECTED	The machine is in Ground mode and the Tower Lift Down input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23107	FUNCTION PROBLEM - LIFT UP PERMANENTLY SELECTED	The machine is in Ground mode and the Lift Up input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23108	FUNCTION PROBLEM - LIFT DOWN PERMANENTLY SELECTED	The machine is in Ground mode and the Lift Down input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23109	FUNCTION PROBLEM - TELESCOPE IN PERMANENTLY SELECTED	The machine is in Ground mode and the Telescope In input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23110	FUNCTION PROBLEM - TELESCOPE OUT PERMANENTLY SELECTED	The machine is in Ground mode and the Telescope Out input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23111	FUNCTION PROBLEM - PLATFORM LEVEL UP PERMANENTLY SELECTED	The machine is in Ground mode and the Platform Level Up input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23112	FUNCTION PROBLEM - PLATFORM LEVEL DOWN PERMANENTLY SELECTED	The machine is in Ground mode and the Platform Level Down input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23113	FUNCTION PROBLEM - PLATFORM ROTATE LEFT PERMANENTLY SELECTED	The machine is in Ground mode and the Platform Rotate Left input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23114	FUNCTION PROBLEM - PLATFORM ROTATE RIGHT PERMANENTLY SELECTED	The machine is in Ground mode and the Platform Rotate Right input = High at Start Up	Function switch returns to neutral and the machine is not in the Enabled state.
23163	FUNCTION PROBLEM - MSSO PERMANENTLY SELECTED	UGM determines that MSSO low-side switch is selected at Startup	Function switch returns to neutral and the machine is not in the Enabled state.
23171	FUNCTION PROBLEM - JIB SWING LEFT PERMANENTLY SELECTED	The machine is in Ground mode and the Jib Swing Left input = High at Start Up	Jib Swing Left input = LOW and the machine is not in the Enabled state.

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
23172	FUNCTION PROBLEM - JIB SWING RIGHT PERMANENTLY SELECTED	The machine is in Ground mode and the Jib Swing Right input = High at Start Up	Jib Swing Right input = LOW and the machine is not in the Enabled state.
241	AMBIENT TEMPERATURE SENSOR - OUT OF RANGE LOW	System is in platform mode; MACHINE SETUP -> TEMP CUTOUT = yes; Low Temperature Cutout Sensor reads less than or equal to -50 C.f	Ambient Temperature sensor reading > -50°C THEN speed restrictions removed after controls are initialized
242	AMBIENT TEMPERATURE SENSOR - OUT OF RANGE HIGH	System is in platform mode; MACHINE SETUP -> TEMP CUTOUT = yes; Low Temperature Cutout Sensor reads greater than or equal to 85 C.	Ambient Temperature sensor reading > -50°C; Speed restrictions removed after controls are initialized
253	DRIVE PREVENTED - CHARGER CONNECTED	MACHINE SETUP => CHARGER INTERLOCK = DRIVE ONLY;	Trigger conditions not true; Restrictions remove after Cntlni
259	MODEL CHANGED - HYDRAULICS SUSPENDED - CYCLE EMS	The MACHINE SETUP => MODEL has changed	Power cycle
2514	BOOM PREVENTED - DRIVE SELECTED	MACHINE SETUP => FUNCTION CUTOUT = BOOM CUTOUT; Drive or Steer is already engaged; The boom is Above Elevation; The operator is attempting to activate one of the boom functions DTC 2514 supersedes DTC 2518 if drive/steer and boom functions are both active when machine transitions from Below Elevation to Above Elevation.	Not all of the trigger conditions are met
2516	DRIVE PREVENTED - ABOVE ELEVATION	MACHINE SETUP => FUNCTION CUTOUT = DRIVE CUTOUT; The boom is Above Elevation; The operator is attempting to activate Drive or Steer;	Not all of the trigger conditions are met
2518	DRIVE PREVENTED – BOOM SELECTED	MACHINE SETUP => FUNCTION CUTOUT = DRIVE CUTOUT; The boom is Above Elevation; The operator is attempting to activate Drive or Steer;	Not all of the trigger conditions are met
2538	FUNCTION PREVENTED – CHARGER CONNECTED	MACHINE SETUP => CHARGER INTERLOCK = CUTOUT ALL; MTM reports charger connected; UGM determines that machine is Enabled, and a function command was attempted.	Not all of the trigger conditions are met; Restricts removed after Cntlni
2548	SYSTEM TEST MODE ACTIVE	UGM determines that System Test Mode is active	Power cycled
2549	DRIVE & BOOM PREVENTED - SOFT TOUCH ACTIVE	MACHINE SETUP → SOFT TOUCH = YES; Machine is in Platform Mode; Soft Touch State = Enabled	Not all of the trigger conditions are met
2563	SKYGUARD SWITCH – DISAGREEMENT	MACHINE SETUP => SKYGUARD ≠ NO; Machine is in Platform Mode; [(SkyGuard input #1 Platform Module J7-18) ≠ (SkyGuard input #2 Platform Module J1-23)] > 160ms	[(SkyGuard inputs (Platform Module J7-18 = High) and (Platform Module J1-23 = High)) and (Footswitch State = Not Depressed)]
2564	DRIVE PREVENTED – LEFT BRAKE NOT RELEASING	Module detects brakes have not released because EB coil is damaged	Power cycle
2565	DRIVE PREVENTED – RIGHT BRAKE NOT RELEASING	Module detects brakes have not released because EB coil is damaged	Power cycle

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
2568	TEMPERATURE CUTOUT ACTIVE – AMBIENT TEMPERATURE TOO LOW	Low Temperature Cutout = Active	Low Temperature Cutout = Inactive; speed restrictions removed after controls are initialized
2576	PLATFORM LEVEL PREVENTED – ABOVE ELEVATION	UGM has determined that all of the following conditions exist: Platform Level Override Cutout = Enabled; Machine is Enabled; The Platform Level Up or Down switch input = High;	Not all of the trigger conditions are met
2578	FUNCTION PREVENTED – TILTED & ABOVE ELEVATION	Machine is in Platform mode Machine is Above Elevation and Tilted MACHINE SETUP → TILT → X DEGREES + CUT and the operator is attempting to activate Drive or Steer, Lift Up, Tower Up or Telescope Out. Where X = 3, 4, or 5 Degrees)	At least one of the trigger conditions is not met; then non-Creep function speed permitted after controls initialized.
2579	DRIVE PREVENTED – EXCESSIVE GRADE	DTC 0046 is active; Drive speed request, in direction of ascending grade, is greater than zero;	CntlNi (drive joystick returned to center position)
3111	MAIN CONTACTOR DRIVER – PERMANENTLY OFF	Master Traction Module detects that the line contactor driver is out of order and not able to close (Contactor Driver; 75)	Power cycle
3112	MAIN CONTACTOR – OPEN CIRCUIT	Master Traction Module detects current through Contactor Coil but no voltage on Contactor contacts during active traction or pump.	Power cycled
3212	MAIN CONTACTOR – WELDED OR MISWIRED	Master Traction Module determines at Startup that Line Contactor is closed/stuck before command	Power cycle
3213	MAIN CONTACTOR DRIVER – PERMANENTLY ON	Master Traction Module detects that the line contactor driver output failed short or contactor coil is disconnected/open circuit	Power cycle
334	LIFT UP VALVE – OPEN CIRCUIT	The UGM detects OC at the Lift Up Solenoid	UGM no longer detects OC; Speed restriction removed after CntlNi;
336	LIFT DOWN VALVE – OPEN CIRCUIT	The UGM detects OC at the Lift Down Solenoid	UGM no longer detects open circuit; Inhibits and restrictions removed after CntrlNi;
337	STEER LEFT VALVE – SHORT TO BATTERY	UGM detects a short to battery at steer left output	Power cycle
338	STEER LEFT VALVE – OPEN CIRCUIT	The UGM detects an open circuit at steer left output	UGM no longer detects OC; Speed restriction removed after CntlNi.
339	STEER RIGHT VALVE – SHORT TO BATTERY	The UGM detects a short to battery at steer right output	Power cycle
3310	STEER RIGHT VALVE – OPEN CIRCUIT	The UGM detects an open circuit at steer right output	UGM no longer detects OC; Speed restriction removed after CntlNi.
3311	GROUND ALARM – SHORT TO BATTERY	The UGM detects a short to 12V battery at this output	Power cycle
3371	GROUND ALARM – SHORT TO GROUND	The UGM detects a short to ground at this output	Power cycle
3376	HEAD TAIL LIGHT - SHORT TO GROUND	MACHINE SETUP -> H & T LIGHTS = YES; UGM detects a short to ground at head/tail light relay output	Power cycle
3377	HEAD TAIL LIGHT - OPEN CIRCUIT	MACHINE SETUP -> H & T LIGHTS = YES; UGM detects a short to ground at head/tail light relay output	UGM no longer detects open circuit

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
3378	HEAD TAIL LIGHT - SHORT TO BATTERY	MACHINE SETUP -> H & T LIGHTS = YES; UGM detects a short to battery at head/tail light relay output	Power cycle
3382	PLATFORM LEVEL UP VALVE - SHORT TO GROUND	The UGM detects a short to ground at the platform level up output	Power cycle
3383	PLATFORM LEVEL UP VALVE - OPEN CIRCUIT	The UGM detects an open circuit at the platform level up output	UGM no longer detects open circuit; speed restrictions removed after controls are initialized
3384	PLATFORM LEVEL UP VALVE - SHORT TO BATTERY	The UGM detects a short to 12V battery at the platform level up output	Power cycle
3388	PLATFORM LEVEL DOWN VALVE - SHORT TO GROUND	The UGM detects a short to ground at the platform level down output	Power cycle
3389	PLATFORM LEVEL DOWN VALVE - OPEN CIRCUIT	The UGM detects an open circuit at the platform level down output	UGM no longer detects open circuit; Prohibits and restrictions removed after CntlNi
3390	PLATFORM LEVEL DOWN VALVE - SHORT TO BATTERY	The UGM detects a short to 12V battery at the platform level down output	Power cycle
3394	PLATFORM ROTATE LEFT VALVE - SHORT TO GROUND	UGM detects a short to ground at platform rotate left output	Power cycle
3395	PLATFORM ROTATE LEFT VALVE - OPEN CIRCUIT	UGM detects an open circuit at platform rotate left output	UGM no longer detects OC; Speed restrictions removed after CntlNi;
3396	PLATFORM ROTATE LEFT VALVE - SHORT TO BATTERY	UGM detects a short to battery at platform rotate left output	Power cycle
3397	PLATFORM ROTATE RIGHT VALVE - SHORT TO GROUND	UGM detects a short to ground at platform rotate right output	Power cycle
3398	PLATFORM ROTATE RIGHT VALVE - OPEN CIRCUIT	UGM detects an open circuit at platform rotate right output	UGM no longer detects OC; Speed restrictions removed after CntlNi;
3399	PLATFORM ROTATE RIGHT VALVE - SHORT TO BATTERY	UGM detects a short to battery at platform rotate right output	Power cycle
33100	JIB LIFT UP VALVE - SHORT TO GROUND	MachineSetup -> Jib = YES; UGM detects a short to ground at the jib lift up output;	Power cycle
33101	JIB LIFT UP VALVE - OPEN CIRCUIT	MachineSetup -> Jib = YES; UGM detects an open circuit at the jib lift up output	UGM no longer detects OC; Speed restriction removed after CntlNi;
33102	JIB LIFT UP VALVE - SHORT TO BATTERY	MachineSetup -> Jib = YES; UGM detects a short to battery at the jib lift up output	Power cycle
33103	JIB LIFT DOWN VALVE - SHORT TO GROUND	MachineSetup -> Jib = YES; UGM detects a short to ground at the jib lift down output	Power cycle
33104	JIB LIFT DOWN VALVE - OPEN CIRCUIT	MachineSetup -> Jib = YES; UGM detects an open circuit at the jib lift down output	UGM no longer detects open circuit; Inhibits and restrictions removed after CntrlNi;
33105	JIB LIFT DOWN VALVE - SHORT TO BATTERY	MachineSetup -> Jib = YES; UGM detects a short to battery at the jib lift down output	Power cycle
33106	TOWER LIFT UP VALVE - SHORT TO GROUND	The UGM detects a short to ground at the tower lift up output	Power cycle
33107	TOWER LIFT UP VALVE - OPEN CIRCUIT	The UGM detects an open circuit at the tower lift up output	UGM no longer detects OC; Speed restriction removed after CntlNi;

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
33108	TOWER LIFT UP VALVE - SHORT TO BATTERY	The UGM detects a short to ground at the tower lift up output	Power cycle
33109	TOWER LIFT DOWN VALVE - SHORT TO GROUND	The UGM detects a short to ground at this output	Power cycle
33110	TOWER LIFT DOWN VALVE - OPEN CIRCUIT	The UGM detects an open circuit supporting the Tower Down Solenoid	UGM no longer detects open circuit; Inhibits and restrictions removed after CntrlInj;
33111	TOWER LIFT DOWN VALVE - SHORT TO BATTERY	The UGM detects a short to ground at the tower lift down output	Power cycle
33118	SWING RIGHT VALVE - SHORT TO GROUND	The UGM detects a short to ground at the Swing Right output	Power cycle
33119	SWING RIGHT VALVE - OPEN CIRCUIT	The UGM detects an open circuit at the Swing Right output	UGM no longer detects OC; Speed restrictions removed after CntlInj
33120	TELESCOPE IN VALVE - SHORT TO BATTERY	The UGM detects a short to 12V battery at this output	Power cycle
33122	SWING LEFT VALVE - SHORT TO GROUND	The UGM detects a short to ground at the Swing Left output	Power cycle
33123	TELESCOPE OUT VALVE - SHORT TO BATTERY	The UGM detects a short to 12V battery at this output	Power cycle
33175	JIB ROTATE LEFT VALVE - OPEN CIRCUIT	MACHINE SETUP -> JIB PLUS = YES; UGM detects an open circuit at the jib rotate left output	UGM no longer detects OC; Speed restrictions removed after CntlInj
33176	JIB ROTATE LEFT VALVE - SHORT TO BATTERY	MACHINE SETUP -> JIB PLUS = YES; UGM detects a short to ground at the jib rotate left output	Power cycle
33177	JIB ROTATE LEFT VALVE - SHORT TO GROUND	MACHINE SETUP -> JIB PLUS = YES; UGM detects a short to battery at the jib rotate left output	Power cycle
33178	JIB ROTATE RIGHT VALVE - OPEN CIRCUIT	MACHINE SETUP -> JIB PLUS = YES; UGM detects an open circuit at the jib rotate right output	UGM no longer detects OC; Speed restrictions removed after CntlInj
33179	JIB ROTATE RIGHT VALVE - SHORT TO BATTERY	MACHINE SETUP -> JIB PLUS = YES; UGM detects a short to battery at the jib rotate right output	Power cycle
33180	JIB ROTATE RIGHT VALVE - SHORT TO GROUND	MACHINE SETUP -> JIB PLUS = YES; UGM detects a short to ground at the jib rotate right output	Power cycle
33182	LIFT VALVES - SHORT TO BATTERY	UGM detects a short to 12V battery at either the Lift Up or Lift Down valve	Power cycle
33186	TELESCOPE OUT VALVE - OPEN CIRCUIT	UGM detects an open circuit at this output	UGM no longer detects OC. Speed restrictions removed after CntlInj
33188	TELESCOPE OUT VALVE - SHORT TO GROUND	The UGM detects a short to ground at this output	Power cycle
33189	TELESCOPE IN VALVE - OPEN CIRCUIT	The UGM detects an open circuit at this output	UGM no longer detects OC. Speed restrictions removed after CntlInj
33190	TELESCOPE IN VALVE - SHORT TO GROUND	The UGM detects a short to ground at this output	Power cycle
33295	SWING LEFT VALVE - OPEN CIRCUIT	The UGM detects an open circuit at the Swing Left output	UGM no longer detects OC; Speed restrictions removed after CntlInj
33298	STEER LEFT - SHORT TO GROUND	The UGM detects a short to ground at steer left output.	Power cycle

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
33305	STEER RIGHT - SHORT TO GROUND	The UGM detects a short to ground at steer right output.	Power cycle
33314	FLOW CONTROL VALVE - OPEN CIRCUIT	The UGM detects an OC at this output	Power cycle
33315	FLOW CONTROL VALVE - SHORT TO BATTERY	The UGM detects a short to 12V battery at this output	Power cycle
33316	FLOW CONTROL VALVE - SHORT TO GROUND	The UGM detects a short to ground at this output	Power cycle
33406	LIFT UP VALVE - SHORT TO GROUND	The UGM detects STG at the Lift Up Solenoid	Power cycle
33407	LIFT DOWN VALVE - SHORT TO GROUND	The UGM detects STG at the Lift Down Solenoid	Power cycle
33412	SWING VALVES - SHORT TO BATTERY	The UGM detects a short to 12V battery at the either Swing output	Power cycle
33425	TOWER LIFT VALVES - SHORT TO BATTERY	The UGM detects a short to battery at either the Tower Lift Up or Tower Lift Down valve.	Power cycle
33479	VOTING RELAY - SHORT TO BATTERY	UGM detects a short to battery at this output	Power cycle
33480	VOTING RELAY - SHORT TO GROUND	UGM detects a short to ground at the voting relay output	Power cycle
33549	VOTING RELAY - OPEN CIRCUIT	UGM detects an open circuit at the voting relay output	Power cycle
33578	STEER PRIORITY BYPASS VALVE - OPEN CIRCUIT	The UGM detects an OC at steer priority bypass output	UGM no longer detects OC; Speed restriction removed after CntlNi.
33579	STEER PRIORITY BYPASS VALVE - SHORT TO GROUND	The UGM detects a short to ground at steer priority bypass output	Power cycle
33580	STEER PRIORITY BYPASS VALVE - SHORT TO BATTERY	The UGM detects a short to battery at steer priority bypass output	Power cycle
33624	SWING BYPASS VALVE - SHORT TO GROUND	The UGM detects a short to ground at swing bypass output	Power cycle
33625	SWING BYPASS VALVE - SHORT TO BATTERY	The UGM detects a short to battery at swing bypass output	Power cycle
33626	SWING BYPASS VALVE - OPEN CIRCUIT	The UGM detects open circuit at swing bypass output	UGM no longer detects OC; Speed restriction removed after CntlNi.
33627	LIFT BYPASS VALVE - SHORT TO GROUND	The UGM detects STG at lift bypass output;	Power cycle
33628	LIFT BYPASS VALVE - SHORT TO BATTERY	The UGM detects STB at lift bypass output	Power cycle
33629	LIFT BYPASS VALVE - OPEN CIRCUIT	The UGM detects OC at lift bypass output	Power cycle
4219	REAR LEFT MODULE TEMPERATURE - OUT OF RANGE	The Power Module temperature sensor is out of the permitted operating range and reports a fault	Traction module no longer reporting fault; Creep restriction removed after controls initialized
4220	REAR RIGHT MODULE TEMPERATURE - OUT OF RANGE	The Front Right Power Module temperature sensor is out of the permitted operating range and reports a fault	Traction module no longer reporting fault; Creep restriction removed after controls initialized
4223	REAR LEFT MODULE TOO HOT - PLEASE WAIT	Associated Power Module has reached thermal cutout limit	Traction module no longer reporting fault; Creep restriction removed after controls initialized
4224	REAR RIGHT MODULE TOO HOT - PLEASE WAIT	Front Right Power Module has reached thermal cutout limit	Traction module no longer reporting fault; Creep restriction removed after controls initialized
4228	REAR LEFT MOTOR TEMPERATURE - OUT OF RANGE	The Power Module reports that motor temperature sensor is out of range due to Open-Circuit (Temp Out of Range – High > 240°C), STG (Temp Out of Range – Low < -30°C) or damage	Traction module no longer reporting fault; Creep restriction removed after controls initialized

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
4229	REAR RIGHT MOTOR TEMPERATURE - OUT OF RANGE	The Power Module reports that motor temperature sensor is out of range due to Open-Circuit (Temp Out of Range – High > 240°C), STG (Temp Out of Range – Low < -30°C) or damage	Traction module no longer reporting fault; Creep restriction removed after controls initialized
4232	REAR LEFT MOTOR TOO HOT - PLEASE WAIT	The UGM determines that the drive motor temperature reported by the PM > 140°C but < 200°C or the PM determines that motor temperature sensor is reporting > 150°C UGM to suppress if DTCs 4228 is active.	Power Module no longer report fault and UGM determines motor temp ≤ 140°C (149-10°C) and Controls initialized. Drive disable reset when motor temp ≤ 139°C (149-10°C) and Drive Joystick in Neutral.
4233	REAR RIGHT MOTOR TOO HOT - PLEASE WAIT	The UGM determines that the drive motor temperature reported by the PM > 140°C but < 200°C or the PM determines that motor temperature sensor is reporting > 150°C UGM to suppress if DTCs 4229 is active.	Power Module no longer report fault and UGM determines motor temp ≤ 140°C (149-10°C) and Controls initialized. Drive disable reset when motor temp ≤ 139°C (149-10°C) and Drive Joystick in Neutral.
441	BATTERY VOLTAGE TOO LOW - SYSTEM SHUTDOWN	The UGM detects that its 12V supply voltage is less than 9.0 volts for 5 seconds.	UGM voltage > 9.25V
442	BATTERY VOLTAGE TOO HIGH - SYSTEM SHUTDOWN	The UGM detects that its 12V supply voltage > 16.0 volts	Power cycle
443	LSS BATTERY VOLTAGE TOO HIGH	MACHINE SETUP -> LOAD SYSTEM ≠ NO; The UGM determines that LSS error bit is set for supply voltage too high (> 34.0V)	Not all of the trigger conditions are met; motion restrictions removed after controls initialized
444	LSS BATTERY VOLTAGE TOO LOW	MACHINE SETUP -> LOAD SYSTEM ≠ NO; The UGM determines that LSS error bit is set for supply voltage too low (< 9.0V)	Not all of the trigger conditions are met; motion restrictions removed after controls initialized
4420	BATTERY DEEPLY DISCHARGED	UGM determines that the SOC% related to the Battery has reached the Deeply Discharged condition. Based on SOC% only, not Voltage threshold; No audible annunciation for this DTC.	Power cycle
4430	BATTERY VOLTAGE TOO LOW	UGM detects that its supply voltage < 11 volts for 5 seconds.	UGM voltage > 11.25V
4463	REAR LEFT MODULE - VOLTAGE OUT OF RANGE	Associated Power Module determines System Overvoltage/Undervoltage, Voltage measurement ≥ 65V or ≤ 12V	Traction modules no longer report fault then controls initialized.
4464	REAR RIGHT MODULE - VOLTAGE OUT OF RANGE	Associated Power Module determines System Overvoltage/Undervoltage, Voltage measurement ≥ 65V or ≤ 12V	Traction modules no longer report fault then controls initialized.
4692	REAR LEFT BRAKE - SHORT TO GROUND OR OPEN CIRCUIT	Associated Power Module detects A4 shorted to ground: at Standby as or at Running (PWM Supplemental info not applicable to this DTC for initiating separate DTC: Power Module detects A4 shorted to ground at Startup as or Power Module detects A2 shorted to ground only at Startup, not detected in Standby or Running.	Power cycle
4693	REAR RIGHT BRAKE - SHORT TO GROUND OR OPEN CIRCUIT	Associated Power Module detects A4 shorted to ground: at Standby as or at Running (PWM Supplemental info not applicable to this DTC for initiating separate DTC: Power Module detects A4 shorted to ground at Startup as or Power Module detects A2 shorted to ground only at Startup, as not detected in Standby or Running.	Power cycle

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
46100	REAR LEFT BRAKE RETURN - SHORT TO BATTERY	Traction Module detects an overcurrent condition on pin A4, indicating a short between B+ and the Electric Brake FET	Power cycle
46130	MAIN CONTACTOR / REAR RIGHT BRAKE RETURN - SHORT TO BATTERY	At Startup, the Master Traction Module detects an overcurrent condition on pin A12, indicating a short between B+ and the Main Contactor. During active traction, the Master Traction Module detects an overcurrent condition on pin A4. Electric Brake FET	Power cycle
46104	REAR LEFT SPEED SENSOR - NOT RESPONDING PROPERLY	Associated Power Module has detected an encoder or directional sensing problem	Power cycle
46105	REAR RIGHT SPEED SENSOR - NOT RESPONDING PROPERLY	Associated Power Module has detected an encoder or directional sensing problem	Power cycle
46108	REAR LEFT SPEED SENSOR - RPM HIGH	Associated Power Module determines an over-speed condition (measured motor speed > DRIVE MAX + 15Hz) has occurred on a motor	Power cycle
46109	REAR RIGHT SPEED SENSOR - RPM HIGH	Associated Power Module determines an over-speed condition (measured motor speed > DRIVE MAX + 15Hz) has occurred on a motor	Power cycle
46136	REAR LEFT BRAKE SUPPLY VOLTAGE – OUT OF RANGE LOW	Associated Power Module determines that a low parking brake supply voltage condition exists.	Power cycle
46137	REAR RIGHT BRAKE SUPPLY VOLTAGE – OUT OF RANGE LOW	Associated Power Module determines that a low parking brake supply voltage condition exists.	Power cycle
662	CANBUS FAILURE - PLATFORM MODULE	UGM does not receive any CAN messages from Platform Module in 250ms	CAN1 messages are received from the PM and controls are initialized
663	CANBUS FAILURE - LOAD SENSING SYSTEM MODULE	MACHINE SETUP -> LOAD SYSTEM ≠ NO; UGM does not receive any CAN messages from the LSS module in 1000ms	Not all of the trigger conditions are met; motion restrictions removed after controls initialized
6613	CANBUS FAILURE - EXCESSIVE CANBUS ERRORS	UGM observes more than 22 error frames per second for 4 seconds or more than 500 Buss Off conditions since last power cycle.	Power cycle
6635	CANBUS FAILURE - CHASSIS TILT SENSOR	UGM does not receive any CAN1 messages from Chassis Tilt Sensor in 250ms	CAN1 messages are received from the sensor and controls are initialized;
6654	CANBUS FAILURE - REAR LEFT MODULE	After Startup complete, Power Module CAN2 messages are not received in 200ms	UGM receives all traction modules CAN2 messages and shall command main contactor closed; once fault reset, motion permitted after controls are initialized. If CAN messages are lost more than 5 times, the fault shall be latched until Power Cycle.G352
6655	CANBUS FAILURE - REAR RIGHT MODUL	After Startup complete, UGM or Power Modules not receive the designated CAN messages in 200ms (250ms for UGM)	UGM receives all traction modules CAN2 messages and shall command main contactor closed; once fault reset, motion permitted after controls are initialized. If CAN messages are lost more than 5 times, the fault shall be latched until Power Cycle.
6657	CANBUS FAILURE - TEMPERATURE SENSOR	UGM determines that: • MACHINE SETUP → TEMP CUTOUT = YES • UGM does not receive any CAN1 messages from the Low Temperature Cutout sensor in 250ms Suppress DTCs 241 and 242 if this DTC is active.	UGM receives CAN1 messages from the Ambient Temperature sensor; speed restrictions removed after controls initialized

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
7725	PUMP MOTOR - NOT RESPONDING	The Master Traction Module detects that the pump motor feedback is not responding when the pump is being commanded	Power cycle
7730	PUMP MOTOR OUTPUT - OUT OF RANGE HIGH	Master Traction Module detects that the pump motor voltage output is higher than expected (Pump Vmn High; 29/MC Drive Open). Too high with respect to PWM applied.	Power cycle
7731	PUMP MOTOR OUTPUT - OUT OF RANGE LOW	Master Traction Module detects that the pump motor voltage output lower than expected. Too low with respect to PWM applied.	Power cycle
7737	PUMP MOTOR OVERLOADED	UGM detects that Pump Current reported by MTM > 210A for 3000ms (both Constant Data Values); MTM detects pump current > 220A	Currents return to levels below trigger level for same time period as trigger and controls initialized. UGM shall remove Drive Creep speed restriction after controls initialized
7753	REAR LEFT MOTOR STALLED	The UGM or Power Module(s) detects that the motor is stalled during active traction. For the UGM commanded speed \geq Creep AND (RIGHT) +30 > Steer Angle < -45 (LEFT), the reported avg motor encoder feedback < 70 counts/s for 5 seconds (1.685 Hz). Avg motor encoder feedback evaluate on a 1s running average. For MTM, the encoder-measured motor speed < 0.6Hz for 5 seconds, when applied frequency > 1.5 Hz and Command > 10 Hz	UGM and Left Power Module shall clear the fault after drive joystick returns to neutral (and command returns to zero).
7754	REAR RIGHT MOTOR STALLED	The UGM or Power Module(s) detects that the motor is stalled during active traction. For the UGM commanded speed \geq Creep AND (RIGHT) +30 > Steer Angle < -45 (LEFT), the reported avg motor encoder feedback < 70 counts/s for 5 seconds (1.685 Hz). Avg motor encoder feedback evaluate on a 1s running average. For MTM, the encoder-measured motor speed < 0.6Hz for 5 seconds, when applied frequency > 1.5 Hz and Command > 10 Hz	UGM and Right Power Module shall clear the fault after drive joystick returns to neutral (and command returns to zero)
7757	REAR LEFT MOTOR OUTPUT - OUT OF RANGE HIGH	Associated Power Module detects at Startup or during active traction that the motor voltage output is higher than expected	Power cycle
7758	REAR RIGHT MOTOR OUTPUT - OUT OF RANGE HIGH	Associated Power Module detects at Startup or during active traction that the motor voltage output is higher than expected	Power cycle
7761	REAR LEFT MOTOR OUTPUT - OUT OF RANGE LOW	Associated Power Module detects at Startup or during active traction that the motor voltage output is lower than expected	Power cycle
7762	REAR RIGHT MOTOR OUTPUT - OUT OF RANGE LOW	Associated Power Module detects at Startup or during active traction that the motor voltage output is lower than expected	Power cycle
7765	REAR LEFT MOTOR - FEEDBACK FAILURE	After main contactor is closed, Power Module detects that the motor voltage feedback circuits are damaged	Power cycle

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
7766	REAR RIGHT MOTOR - FEEDBACK FAILURE	After main contactor is closed, Power Module detects that the motor voltage feedback circuits are damaged	Power cycle
7769	REAR LEFT MOTOR - ROTATION OPPOSITE CONTROL	Associated Power Module detects that the motor is rotating in the direction opposite of the commanded direction and deceleration is less than 15% of deceleration personality setting for a period of more than 0.5 seconds	Power cycle
7770	REAR RIGHT MOTOR - ROTATION OPPOSITE CONTROL	Associated Power Module detects that the motor is rotating in the direction opposite of the commanded direction and deceleration is less than 15% of deceleration personality setting for a period of more than 0.5 seconds	Power cycle
7773	REAR LEFT MOTOR - OPEN CIRCUIT	When motor output is active, the Power Module detects that a motor phase is disconnected/open during active traction	Power cycle
7774	REAR RIGHT MOTOR - OPEN CIRCUIT	When motor output is active, the Power Module detects that a motor phase is disconnected/open during active traction	Power cycle
813	CHASSIS TILT SENSOR NOT CALIBRATED	UGM determines that tilt sensor, <ul style="list-style-type: none"> has not been calibrated serial number does not match stored value uninitialized sensor has been installed 	Tilt sensor calibrated;
814	CHASSIS TILT SENSOR OUT OF RANGE	Fault CHASSIS TILT SENSOR NOT CALIBRATED (813) is not present and either of the external tilt sensor X or Y axis \geq ABS [35°] for 4 seconds. Not to be reported during Tilt Sensor calibration.	Not all of the trigger conditions are met;
818	TILT SENSOR STAGNANT	UGM shall consider the Tilt Sensor stagnant if neither the X-axis or Y-axis unfiltered reading change by $\geq \pm 0.05^\circ$ in 5000ms while the reported Drive speed \geq Drive Creep Hz for all Traction modules	Power cycle;
821	LSS CELL #1 ERROR	MACHINE SETUP -> LOAD SYSTEM \neq NO; The UGM detects that LSS is reporting error with Cell #1	Not all of the trigger conditions are met; motion restrictions removed after controls initialized
822	LSS CELL #2 ERROR	MACHINE SETUP -> LOAD SYSTEM \neq NO; The UGM detects that LSS is reporting error with Cell #2	Not all of the trigger conditions are met; motion restrictions removed after controls initialized
823	LSS CELL #3 ERROR	MACHINE SETUP -> LOAD SYSTEM \neq NO; The UGM detects that LSS is reporting error with Cell #3	Not all of the trigger conditions are met; motion restrictions removed after controls initialized
824	LSS CELL #4 ERROR	MACHINE SETUP -> LOAD SYSTEM \neq NO; The UGM detects that LSS is reporting error with Cell #4	Not all of the trigger conditions are met; motion restrictions removed after controls initialized
825	LSS HAS NOT BEEN CALIBRATED	MACHINE SETUP -> LOAD SYSTEM \neq NO The load sensor has not been calibrated, or DTC 992 (LSS EEPROM ERROR) is active, or DTC 9977 (LSS CORRUPT EEPROM) is active	Not all of the trigger conditions are met
826	RUNNING AT CREEP - PLATFORM OVERLOADED	MACHINE SETUP -> LOAD SYSTEM = WARN ONLY; The platform is Overloaded;	UGM determines that the Platform is not Overloaded; motion restrictions removed after controls initialized

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
829	FUNCTIONS CUTOFF - PLATFORM OVER-LOADED	The Platform is Overloaded and MACHINE SETUP -> LOAD SYSTEM = CUTOFF PLATFORM, Platform Mode is active, and conditions of LSS section apply. -or- The Platform is Overloaded and MACHINE SETUP -> LOAD SYSTEM = CUTOFF ALL and conditions of LSS section apply	UGM determines that the Platform is not Overloaded; motion restrictions removed after controls initialized
8211	LSS READING UNDER WEIGHT	MACHINE SETUP -> LOAD SYSTEM ≠ NO; The load sensor has been calibrated and Gross Platform Weight < (0.5 * Empty Platform Weight)	Not all of the trigger conditions are met; full functionality permitted after controls initialized
8664	STEER SENSOR - OUT OF RANGE HIGH	The UGM observes the Master Traction Module reported steer raw voltage signal ≥ 4.5V (Constant Data)	UGM observes steer voltage within calibrated range for 1000ms; Drive Creep restriction lifted after fault clears and controls initialized
8665	STEER SENSOR - OUT OF RANGE LOW	The UGM observes the Master Traction Module reported steer raw voltage signal ≤ 0.3V (Constant Data)	UGM observes steer angle voltage within calibrated range for 1000ms; Drive Creep restriction lifted after fault clears and controls initialized
8666	STEER SENSOR - DECOUPLED	The UGM observes the Master Traction Module reported steer raw voltage 0.3V < signal < 0.5V (Constant Data)	UGM determines steer angle within allowed range; Drive Creep restriction removed after fault clears and controls initialized;
8667	STEER SENSOR - NOT RESPONDING	The UGM determines that the Master Traction Module reported Machine Steer Angle does not change ≥ 1.0° in 4000ms while the steering output is being commanded while steer is calibrated and properly reported by MTM in range that is not within 3deg of calibrated MAX.	UGM determines steer angle changes more than trigger amount while in allowed evaluation range; Drive Creep restriction removed after fault clears and controls initialized
8668	STEER SENSOR - NOT CALIBRATED	UGM determines that the steering sensor has not been calibrated; UGM EEPROM values are default, do not match MTM, or UGM fails to successfully read from 0x212, 0x213, or 0x214 three times during Startup	UGM determines that sensor is calibrated
873	MACHINE SAFETY SYSTEM OVERRIDE OCCURRED	UGM determines that an MSSO has occurred	TBD
991	LSS WATCHDOG RESET	MACHINE SETUP -> LOAD SYSTEM ≠ NO; UGM detects LSS report of an anomaly exists that has caused a WatchDog Timer reset.	Power cycle
992	LSS EEPROM ERROR	MACHINE SETUP -> LOAD SYSTEM ≠ NO; UGM detects LSS report of an anomaly that exists in the LSS EEPROM	Power cycle
993	LSS INTERNAL ERROR - PIN EXCITATION	MACHINE SETUP -> LOAD SYSTEM ≠ NO; UGM detects LSS report of improper excitation voltage	Power cycle
994	LSS INTERNAL ERROR - DRDY MISSING FROM A/D	MACHINE SETUP -> LOAD SYSTEM ≠ NO; UGM detects LSS report of an anomaly that exists in the LSS A/D converter operations.	Power cycle
998	EEPROM FAILURE - CHECK ALL SETTINGS	The UGM has detected an anomaly in EEPROM that can not be auto-corrected from the backup EEPROM bank.	Power cycle

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
9910	FUNCTIONS LOCKED OUT - PLATFORM MODULE SOFTWARE VERSION IMPROPER	The UGM software version type is 'P' The UGM has received valid version information from the PM. The PM software version type is 'P' The UGM software major version number does not match the major version number of the platform software	Not all of the trigger conditions are met
9911	FUNCTIONS LOCKED OUT - LSS MODULE SOFTWARE VERSION IMPROPER	MACHINE SETUP -> LOAD SYSTEM \neq NO; The UGM determines that the LSS software version is not compatible with existing code per the referenced Software Version Compatibility table.	Power cycle
9919	GROUND SENSOR REF VOLTAGE OUT OF RANGE	The UGM has detected reference voltage is out of range: $2.3V < \text{Reference Voltage} < 2.7V$ (debounced for 100ms)	Power cycle
9920	PLATFORM SENSOR REF VOLTAGE OUT OF RANGE	The UGM detects that its reference voltage being reported by PM out of range ($4.8V < \text{voltage} < 5.2V$);debounced for 100ms	Power cycle
9921	GROUND MODULE FAILURE - HIGH SIDE DRIVER CUTOFF FAULTY	The UGM footswitch input J7-15 is LOW	Power cycle
9922	PLATFORM MODULE FAILURE - HWFS CODE 1	The PM detects that its V(low) FET has failed and reports this fault to the UGM	Power cycle
9924	FUNCTIONS LOCKED OUT - MACHINE NOT CONFIGURED	The machine is powered up and no model has been selected yet in the MACHINE SETUP menu	Power cycle
9927	GROUND MODULE CONSTANT DATA UPDATE REQUIRED	The UGM detects one of the following conditions when software type is 'P' or 'B': The Version Verification Word #1 or the Version Verification Word #2 values located in the constant data sector of flash memory (found on constant data spreadsheet tab pstConstantDataVersion) do not match the values located in the code area of flash memory. The Version Major value located in the constant data sector of flash memory (found on constant data spreadsheet tab pstConstantDataVersion) does not match the value located in the code area of flash memory.	A different application code or constant data version is programmed so that the values match; Power cycled
9944	CURRENT FEEDBACK GAINS OUT OF RANGE	One or more of the current feedback gains that are calculated and written to flash memory during the JDES manufacturing test process are detected as being out of range	Power cycle
9945	CURRENT FEEDBACK CALIBRATION CHECKSUM INCORRECT	The current feedback gains checksum that is calculated and written to flash memory during the JDES manufacturing test process is detected as being incorrect	Power cycle
9949	MACHINE CONFIGURATION OUT OF RANGE - CHECK ALL SETTINGS	UGM has detected an anomaly in EEPROM with regard to the Machine Setup configuration.	Power cycle
9977	LSS CORRUPT EEPROM	MACHINE SETUP -> LOAD SYSTEM \neq NO and one of the following conditions: UGM determines LSS-stored values for Unloaded weight in Indirect 0x100 \neq 0x108 or UGM determines LSS-stored values for Accessory weight in Indirect 0x102 \neq 0x10A; UGM determines LSS-stored checksum 1 (0x10F) \neq checksum 2 (0x107)	Power cycle

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
9979	FUNCTIONS LOCKED OUT - GROUND MODULE SOFTWARE VERSION IMPROPER	Ground software has been installed on a UGM with a ST10F274 processor (Hardware Rev < 6), which does not have guaranteed flash storage in the sector where Constant Data is written.	Power cycle
9986	GROUND MODULE VLOW FET FAILURE	VLow FET determined to be failed on Startup; UGM unable to read high-sensing inputs.	Power cycle
99167	PUMP COMMAND ERROR	Master Traction Module determines that an inconsistency has occurred between the Pump Enable bits and the Pump commands; Pump enable bit = set, but Pump Command = 0	Power cycle
99234	REAR LEFT MODULE - EEPROM FAILURE	Applicable Power Module determines at Startup that an internal EEPROM error exists or UGM fails to successfully verify or write to/read back Indirect Table three times	Power cycle
99235	REAR LEFT MODULE - PROTECTION FAILURE	Applicable Power Module determines that an internal failure exists in the hardware protection circuit	Power cycle
99236	REAR LEFT MODULE - CHECK POWER CIRCUITS OR MOSFET SHORT CIRCUIT	Applicable Power Module determines at Startup that a short circuit exists on the power MOSFET outputs	Power cycle
99237	REAR LEFT MODULE - WATCHDOG RESET	Applicable Power Module determines that Watchdog failure/reset has occurred to one if two, or both	Power cycle
99238	REAR LEFT MODULE - WATCHDOG2 RESET	Applicable Power Module determines that Watchdog2 failure/reset has occurred	Power cycle
99239	REAR LEFT MODULE - RAM FAILURE	Applicable Power Module determines that a RAM checksum error has occurred	Power cycle
99240	REAR LEFT MODULE - INTERNAL ERROR	Applicable Power Module determines at Startup that the current gain is incorrect and may cause incorrect data acquisition values	Power cycle
99241	REAR LEFT MODULE - INTERNAL ERROR	Applicable Power Module determines that the data acquisition is in error	Power cycle
99242	REAR LEFT MODULE - INTERNAL ERROR	Applicable Power Module determines that the Pump current is being measured is not zero when expected to be zero at Startup or during standby	Power cycle
99243	REAR LEFT MODULE - INTERNAL ERROR	Applicable Power Module determines that the Slip Profile is in error	Power cycle
99244	REAR LEFT MODULE - INTERNAL ERROR	Applicable Power Module determines that the current feedbacks are out of range at Startup or when in standby	Power cycle
99245	REAR LEFT MODULE - INTERNAL ERROR	Applicable Power Module determines at Startup that there is a problem with overvoltage/under-voltage detection	Power cycle
99246	REAR LEFT MODULE - CAPACITOR BANK FAULT	The power capacitor bank of the Power Module is not charging properly (increasing voltage) at Startup	Power cycle
99247	REAR LEFT MODULE - A/D FAILURE	Applicable Power Module determines that an internal Analog Input error exists	Power cycle

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
99248	REAR RIGHT MODULE - EEPROM FAILURE	Applicable Power Module determines at Startup that an internal EEPROM error exists or UGM fails to successfully verify or write to/read back Indirect Table three times	Power cycle
99249	REAR RIGHT MODULE - PROTECTION FAILURE	Applicable Power Module determines that an internal failure exists in the hardware protection circuit	Power cycle
99250	REAR RIGHT MODULE - CHECK POWER CIRCUITS OR MOSFET SHORT CIRCUIT	Applicable Power Module determines at Startup that a short circuit exists on the power MOSFET outputs	Power cycle
99251	REAR RIGHT MODULE - WATCHDOG RESET	Applicable Power Module determines that Watchdog failure/reset has occurred to one if two, or both	Power cycle
99252	REAR RIGHT MODULE - WATCHDOG2 RESET	Applicable Power Module determines that Watchdog2 failure/reset has occurred	Power cycle
99253	REAR RIGHT MODULE - RAM FAILURE	Applicable Power Module determines that a RAM checksum error has occurred	Power cycle
99254	REAR RIGHT MODULE - INTERNAL ERROR	Applicable Power Module determines at Startup that the current gain is incorrect and may cause incorrect data acquisition values	Power cycle
99255	REAR RIGHT MODULE - INTERNAL ERROR	Applicable Power Module determines that the data acquisition is in error	Power cycle
99256	REAR RIGHT MODULE - INTERNAL ERROR	Applicable Power Module determines that the Pump current is being measured is not zero when expected to be zero at Startup or during standby	Power cycle
99257	REAR RIGHT MODULE - INTERNAL ERROR	Applicable Power Module determines that the Slip Profile is in error	Power cycle
99258	REAR RIGHT MODULE - INTERNAL ERROR	Applicable Power Module determines that the current feedbacks are out of range at Startup or when in standby	
99259	REAR RIGHT MODULE - INTERNAL ERROR	Applicable Power Module determines at Startup that there is a problem with overvoltage/under-voltage detection	Power cycle
99260	REAR RIGHT MODULE - CAPACITOR BANK FAULT	The power capacitor bank of the Power Module is not charging properly (increasing voltage) at Startup	Power cycle
99261	REAR RIGHT MODULE - A/D FAILURE	Applicable Power Module determines that an internal Analog Input error exists	Power cycle
99264	REAR LEFT MODULE - CURRENT MEASUREMENT ERROR	Power Module determines at when traction is active that the current feedback sensors are out of the permitted range and may cause incorrect data acquisition values	Power cycle
99265	REAR RIGHT MODULE - CURRENT MEASUREMENT ERROR	Power Module determines at when traction is active that the current feedback sensors are out of the permitted range and may cause incorrect data acquisition values	Power cycle
99270	REAR RIGHT MODULE - DRIVE COMMAND ERROR	Power Modules determine that an inconsistency has occurred between the Drive direction/enable bits and Drive magnitude/direction command	Power cycle

Table 6-10. Diagnostic Trouble Codes

DTC Cat	DTC Text	Fault Description	Solution
99269	REAR LEFT MODULE - DRIVE COMMAND ERROR	Power Modules determine that an inconsistency has occurred between the Drive direction/enable bits and Drive magnitude/direction command	Power cycle
99273	FUNCTIONS LOCKED OUT – REAR LEFT MODULE SOFTWARE VERSION IMPROPER	The UGM software version type is 'P' The UGM has received valid version information from all Power Modules. The Power Module major version number is not compliant with the version specified on the Software section of this document.	Not all of the trigger conditions are met
99274	FUNCTIONS LOCKED OUT – REAR RIGHT MODULE SOFTWARE VERSION IMPROPER	The UGM software version type is 'P' The UGM has received valid version information from all Power Modules. The Power Module major version number is not compliant with the version specified on the Software section of this document.	Not all of the trigger conditions are met
99281	FUNCTIONS LOCKED OUT - IMPROPER MOTOR PARAMETERS	The UGM determines an incorrect protected Indirect Table value at start-up	Power cycle

Go to Discount-Equipment.com to order your parts

PARTS FINDER

**Search Website
by Part Number**



**Search Manual
Library For Parts
Manual & Lookup Part
Numbers – Purchase
or Request Quote**

Search Manuals

Enter the information below to search our manual library for parts manuals.

* Brand:

* Model:

* Serial:

* Part Number:

SEARCH

**Can't Find Part or
Manual? Request Help
by Manufacturer,
Model & Description**

Parts Order Form

Please fill in the information below to request help finding a part or manual.

Manufacturer:

Model:

Description:

Part Number:

Quantity:

Price:

Submit

Discount-Equipment.com is your online resource for quality parts & equipment.

Florida: **561-964-4949** Outside Florida TOLL FREE: **877-690-3101**

Need parts?

Click on this link: <http://www.discount-equipment.com/category/5443-parts/> and choose one of the options to help get the right parts and equipment you are looking for. Please have the machine model and serial number available in order to help us get you the correct parts. If you don't find the part on the website or on one of the online manuals, please fill out the request form and one of our experienced staff members will get back to you with a quote for the right part that your machine needs.

We sell worldwide for the brands: Genie, Terex, JLG, MultiQuip, Mikasa, Essick, Whiteman, Mayco, Toro Stone, Diamond Products, Generac Magnum, Airman, Haulotte, Barreto, Power Blanket, Nifty Lift, Atlas Copco, Chicago Pneumatic, Allmand, Miller Curber, Skyjack, Lull, Skytrak, Tsurumi, Husquvarna Target, , Stow, Wacker, Sakai, Mi-T- M, Sullair, Basic, Dynapac, MBW, Weber, Bartell, Bennar Newman, Haulotte, Ditch Runner, Menegotti, Morrison, Contec, Buddy, Crown, Edco, Wyco, Bomag, Laymor, Barreto, EZ Trench, Bil-Jax, F.S. Curtis, Gehl Pavers, Heli, Honda, ICS/PowerGrit, IHI, Partner, Imer, Clipper, MMD, Koshin, Rice, CH&E, General Equipment, ,AMida, Coleman, NAC, Gradall, Square Shooter, Kent, Stanley, Tamco, Toku, Hatz, Kohler, Robin, Wisconsin, Northrock, Oztec, Toker TK, Rol-Air, Small Line, Wanco, Yanmar

SECTION 7. BASIC ELECTRICAL INFORMATION & SCHEMATICS

7.1 GENERAL

This section contains basic electrical information and schematics to be used for locating and correcting most of the operating problems which may develop. If a problem should develop which is not presented in this section or which is not corrected by listed corrective actions, technically qualified guidance should be obtained before proceeding with any maintenance.

NOTE: Some of the procedures/connectors shown in this section may not be applicable to all models.

7.2 MULTIMETER BASICS

A wide variety of multimeter's or Volt Ohm Meters (VOM) can be used for troubleshooting your equipment. This section shows diagrams of a common, digital VOM configured for several different circuit measurements. Instructions for your VOM may vary. Please consult the meter operator's manual for more information.

Grounding

"Grounding the meter" means to take the black lead (which is connected to the COM (common) or negative port) and touch it to a good path to the negative side of the Voltage source.

Backprobing

To "backprobe" means to take the measurement by accessing a connector's contact on the same side as the wires, the back of the connector. Readings can be done while maintaining circuit continuity this way. If the connector is the sealed type, great care must be taken to avoid damaging the seal around the wire. It is best to use probes or probe tips specifically designed for this technique, especially on sealed connectors. Whenever possible insert probes into the side of the connector such that the test also checks both terminals of the connection. It is possible to inspect a connection within a closed connector by backprobing both sides of a connector terminal and measuring resistance. Do this after giving each wire a gentle pull to ensure the wires are still attached to the contact and contacts are seated in the connector.

Min/Max

Use of the "Min/Max" recording feature of some meters can help when taking measurements of intermittent conditions while alone. For example, you can read the Voltage applied to a solenoid when it is only operational while a switch, far from the solenoid and meter, is held down.

Polarity

Getting a negative Voltage or current reading when expecting a positive reading frequently means the leads are reversed. Check what reading is expected, the location of the signal and that the leads are connected to the device under test correctly. Also check that the lead on the "COM" port goes to the Ground or negative side of the signal and the lead on the other port goes to the positive side of the signal.

Scale

M = Mega = 1,000,000 * (Displayed Number)

k = kilo = 1,000 * (Displayed Number)

m = milli = (Displayed Number) / 1,000

μ = micro = (Displayed Number) / 1,000,000

Example: 1.2 kW = 1200 W

Example: 50 mA = 0.05 A

Voltage Measurement

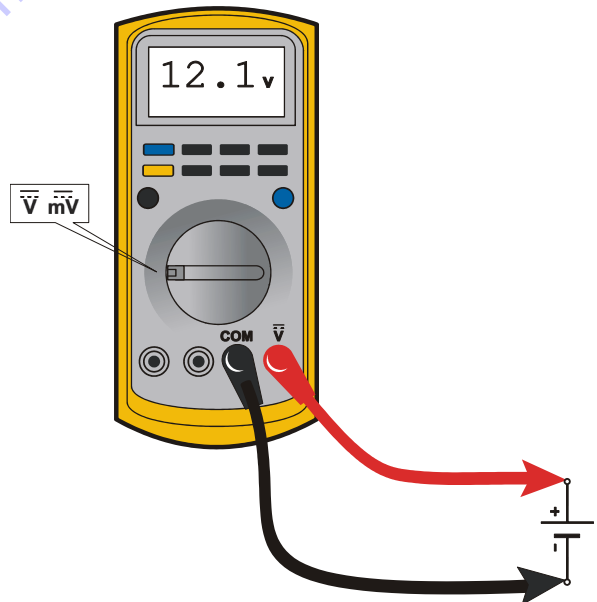


Figure 7-1. Voltage Measurement (DC)

- If meter is not auto ranging, set it to the correct range (See multimeter's operation manual).
- Use firm contact with meter leads.

Resistance Measurement

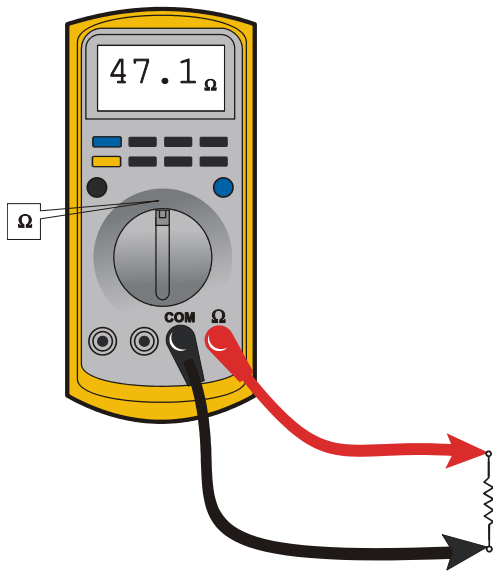


Figure 7-2. Resistance Measurement

- First test meter and leads by touching leads together. Resistance should read a short circuit (very low resistance).
- Circuit power must be turned OFF before testing resistance.
- Disconnect component from circuit before testing.
- If meter is not auto ranging, set it to the correct range (See multimeter's operation manual).
- Use firm contact with meter leads.

Continuity Measurement

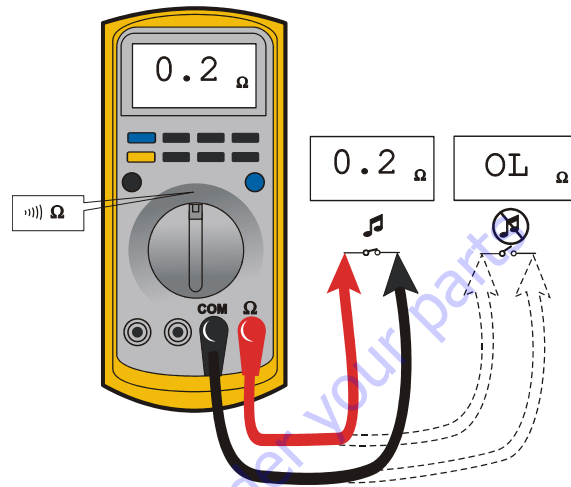


Figure 7-3. Continuity Measurement

- Some meters require a separate button press to enable audible continuity testing.
- Circuit power must be turned OFF before testing continuity.
- Disconnect component from circuit before testing.
- Use firm contact with meter leads.
- First test meter and leads by touching leads together. Meter should produce an audible alarm, indicating continuity.

Current Measurement

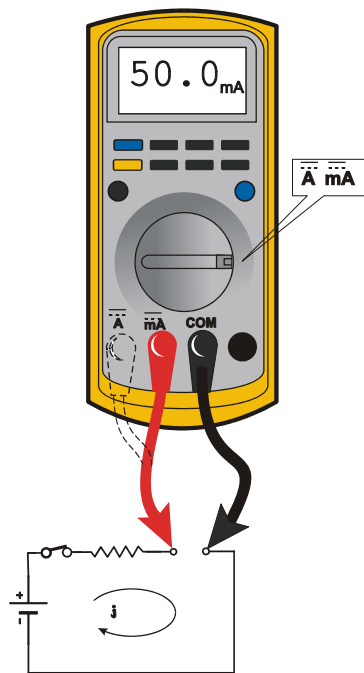


Figure 7-4. Current Measurement (DC)

- Set up the meter for the expected current range.
- Be sure to connect the meter leads to the correct jacks for the current range you have selected.
- If meter is not auto ranging, set it to the correct range (See multi meter's operation manual).
- Use firm contact with meter leads.

7.3 CHECKING SWITCHES

Basic Check

The following check determines if the switch is functioning properly, not the circuit in which the switch is placed. A switch is functioning properly when there is continuity between the correct terminals or contacts only when selected.

1. De-energize the circuit.
2. Isolate the switch from the rest of the circuit if possible. If not possible, keep in mind it may affect readings.
3. Access the terminals to the switch.
4. If the switch has two terminals:
 - a. Measure resistance across the terminals.
 - b. Change the switch position.
 - c. Measure resistance again with the leads in the same positions. If the meter was reading short, it should read an open. If the meter was reading open it should read short.
5. If the switch has more than two terminals, consult the schematic or switch diagram to determine what terminals will be connected. The test is similar to testing a switch with two terminals.
 - a. Place one meter lead on the common contact and the other on a different contact in the same circuit.
 - b. Cycle through all positions of the switch. The meter should read short only when the switch connects the two terminals and open otherwise.
 - c. If the switch has more than one common contact repeat the process for that circuit.

Limit Switches

Limit switches are used to control movement or indicate position. Mechanical limit switches are just like manually operated switches except that the moving object operates the switch. These switches can be tested the same way as a standard switch by manually operating the sensing arm.

Another type of limit switch used by JLG is the inductive proximity switch, also referred to as a "prox switch". Inductive proximity switches are actuated only by ferrous metal (metal that contains Iron, such as steel) near the switch. They do not require contact, and must be energized to actuate. These types of switches can be used to detect boom or platform position, for example. These switches have a sensing face where the switch can detect ferrous metal close to it. To find the sensing face, take note how the switch is mounted and how the mechanisms meet the switch. Test this type of switch as follows:

1. Remove proximity switch from its mount.
2. Reconnect harness if it was disconnected for step a, and turn on machine.
3. Hold switch away from metal and observe switch state in the control system diagnostics using the Analyzer. See vehicle or control system documentation on how to do this.
4. Place sensing face of switch on the object to be sensed by the switch. If that is not available, use a piece of ferrous metal physically similar to it. The switch state in the control system diagnostics should change.
5. When reinstalling or replacing switch be sure to follow mounting instructions and properly set the gap between the switch and object sensed.

Automatic Switches

If the switch is actuated automatically, by temperature or pressure for example, find a way to manually actuate the switch to test it. Do this either by applying heat or pressure, for example, to the switch. These switches may need to be energized to actuate.

1. Connect instrumentation to monitor and/or control the parameter the switch is measuring.
2. Observe switch state in control system with the Analyzer. See vehicle or control system documentation on how to do this.
3. Operate system such that the switch actuates. This could be going over a certain pressure or temperature, for example. The state indicated in the control system should change.

Switch Wiring - Low Side, High Side

When controlling a load, a switch can be wired between the positive side of the power source and the load. This switch is called a "high side" switch. The switch supplies the power to the load. When a switch is wired between the negative side of the power source and the load, it is a "low side" switch. The switch provides the ground to the load.

A low side switch will allow voltage to be present on the load. No power is applied because the switch is stopping current flow. This voltage can be seen if the measurement is taken with one test lead on the load and the other on the battery negative side or grounded to the vehicle. What is actually being measured is the voltage drop across the switch. This could mislead a technician into thinking the load is receiving power but not operating. To produce an accurate picture of power or voltage applied to the load, measure voltage across the load's power terminals. Also, the technician can measure the voltage at both power terminals with respect to battery ground. The difference between those two measurements is the voltage applied to the load.

7.4 APPLYING SILICONE DIELECTRIC COMPOUND TO ELECTRICAL CONNECTIONS

NOTE: This section is not applicable for battery terminals.

NOTICE

JLG P/N 0100048 DIELECTRIC GREASE (NOVAGARD G661) IS THE ONLY MATERIAL APPROVED FOR USE AS A DIELECTRIC GREASE.

NOTE: Do NOT apply dielectric grease to the following connections:

- Main Boom Rotary sensor connections (on Celesco Sensor),
- LSS Modules connections,
- Deutz EMR 2 ECM connection.

Silicone Dielectric Compound must be used on all electrical connections except for those mentioned above for the following reasons:

- To prevent oxidation at the mechanical joint between male and female pins.
- To prevent electrical malfunction caused by low level conductivity between pins when wet.

Use the following procedure to apply Silicone Dielectric Compound to the electrical connectors. This procedure applies to all plug connections not enclosed in a box. Silicone grease should not be applied to connectors with external seals.

1. To prevent oxidation, silicone grease must be packed completely around male and female pins on the inside of the connector prior to assembly. This is most easily achieved by using a syringe.

NOTE: Over a period of time, oxidation increases electrical resistance at the connection, eventually causing circuit failure.

2. To prevent shorting, silicone grease must be packed around each wire where they enter the outside of the connector housing. Also, silicone grease must be applied at the joint where the male and female connectors come together. Any other joints (around strain reliefs, etc.) where water could enter the connector should also be sealed.

NOTE: This condition is especially common when machines are pressure washed since the washing solution is much more conductive than water.

3. Anderson connectors for the battery boxes and battery chargers should have silicone grease applied to the contacts only.

NOTE: Curing-type sealants might also be used to prevent shorting and would be less messy, but would make future pin removal more difficult.

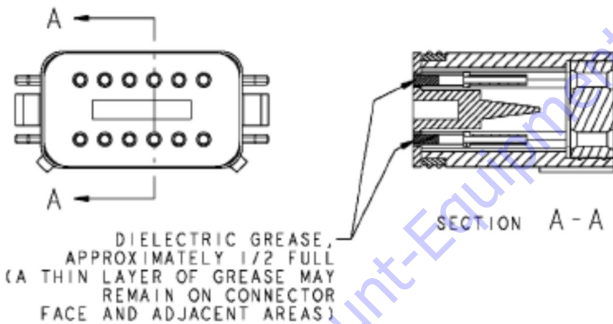
When applied to electrical connections, dielectric grease helps to prevent corrosion of electrical contacts and improper conductivity between contacts from moisture intrusion. Open and sealed connectors benefit from the application of dielectric grease.

Dielectric grease shall be applied to all electrical connectors at the time of connection (except those noted under Exclusions).

Installation of Dielectric Grease

Before following these instructions, refer to excluded connector types (See Exclusions below).

1. Use dielectric grease in a tube for larger connection points or apply with a syringe for small connectors.
2. Apply dielectric grease to the female contact (fill it approximately $\frac{1}{2}$ full; see example below).
3. Leave a thin layer of dielectric grease on the face of the connector.
4. Assemble the connector system immediately to prevent moisture ingress or dust contamination.
5. Pierce one of the unused wire seals prior to assembly if the connector system tends to trap air (i.e. AMP Seal) and then install a seal plug.



Deutsch HD, DT, DTM, DRC Series

The Deutsch connector system is commonly used for harsh environment interconnect. Follow the installation instructions.



AWP Seal

The AWP Seal connector system is used on the Control ADE Platform and Ground Modules.

Apply dielectric grease to the female contact. If trapped air prevents the connector from latching, pierce one of the unused wire seals. After assembly, install a seal plug (JLG #4460905) in that location to prevent moisture ingress.

Note that seal plugs may be installed by the wire harness manufacturer if an unused wire seal becomes compromised (wire inserted in the wrong cavity during assembly and then corrected).



Figure 7-5. Application to Female Contacts

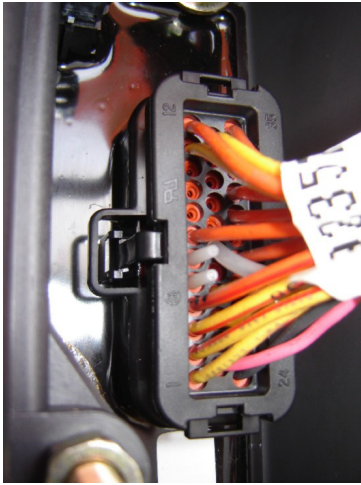
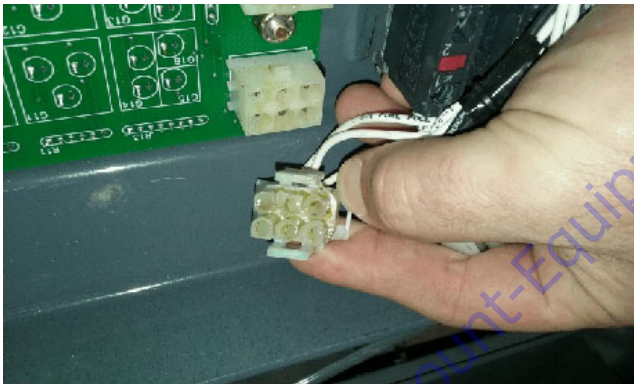


Figure 7-6. Use of Seal Plugs

AMP Mate-N-Lok

This connector system is widely used inside enclosures for general-purpose interconnect. Follow the installation instructions.



DIN Connectors

This connector is typically used on hydraulic valves. Follow the installation instructions.



Exclusions

A limited number of connectors do not benefit from dielectric grease, or may be permanently damaged by application. Dielectric grease may not be required in properly sealed enclosures.

BRAD HARRISON / PHOENIX CONTACT M12

The connector uses gold contact material to resist corrosion and an o-ring seal for moisture integrity. If dielectric grease is mistakenly applied to this connector system, the low-force contacts cannot displace the grease to achieve electrical contact. Once contaminated, there is no practical way to remove the dielectric grease (replacement of female contacts required). The JLG Load Sensing System and 1250AJP Rotary Angle Sensors are examples of components with the M12 connector system.



AMP JUNIOR TIMER

This type of connector uses back-seals for moisture integrity. However, the low-force contacts cannot displace dielectric grease and create electrical contact. It is possible to use solvents (i.e. contact cleaner or mineral spirits) for the removal of improperly applied dielectric grease. The EMR2 engine control module from Deutz employs this connector system (for example).



7.5 AMP CONNECTOR

Applying Silicone Dielectric Compound to AMP Connectors

Silicone Dielectric Compound must be used on the AMP connections for the following reasons:

- To prevent oxidation at the mechanical joint between male and female pins.
- To prevent electrical malfunction caused by low level conductivity between pins when wet.

Use the following procedure to apply Silicone Dielectric Compound to the electrical connectors.

1. To prevent oxidation and low level conductivity, silicone dielectric grease must be packed completely around male and female pins on the inside of the connector after the mating of the housing to the header. This is easily achieved by using a syringe to fill the header with silicone dielectric compound, to a point just above the top of the male pins inside the header. When assembling the housing to the header, it is possible that the housing will become air locked, thus preventing the housing latch from engaging.
2. Pierce one of the unused wire seals to allow the trapped air inside the housing to escape.
3. Install a hole plug into this and/or any unused wire seal that has silicone dielectric compound escaping from it.

Assembly

Check to be sure the wedge lock is in the open, or as-shipped, position (See Figure 7-7.). Proceed as follows:

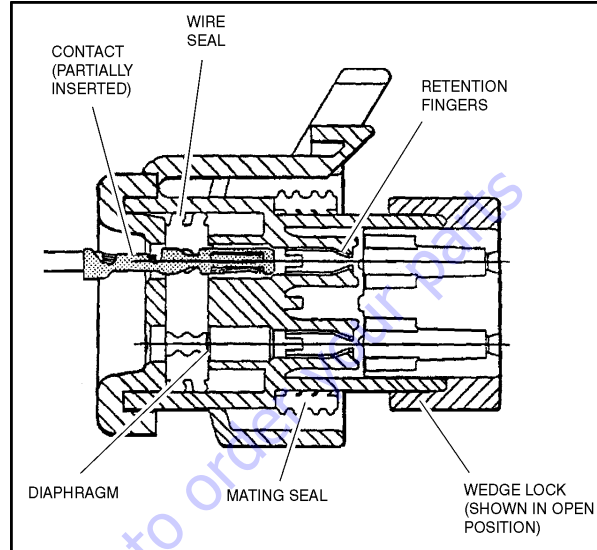


Figure 7-7. Connector Assembly Figure 1

1. To insert a contact, push it straight into the appropriate circuit cavity as far as it will go (See Figure 7-9.).
2. Pull back on the contact wire with a force of 1 or 2 lbs. to be sure the retention fingers are holding the contact (See Figure 7-9.).

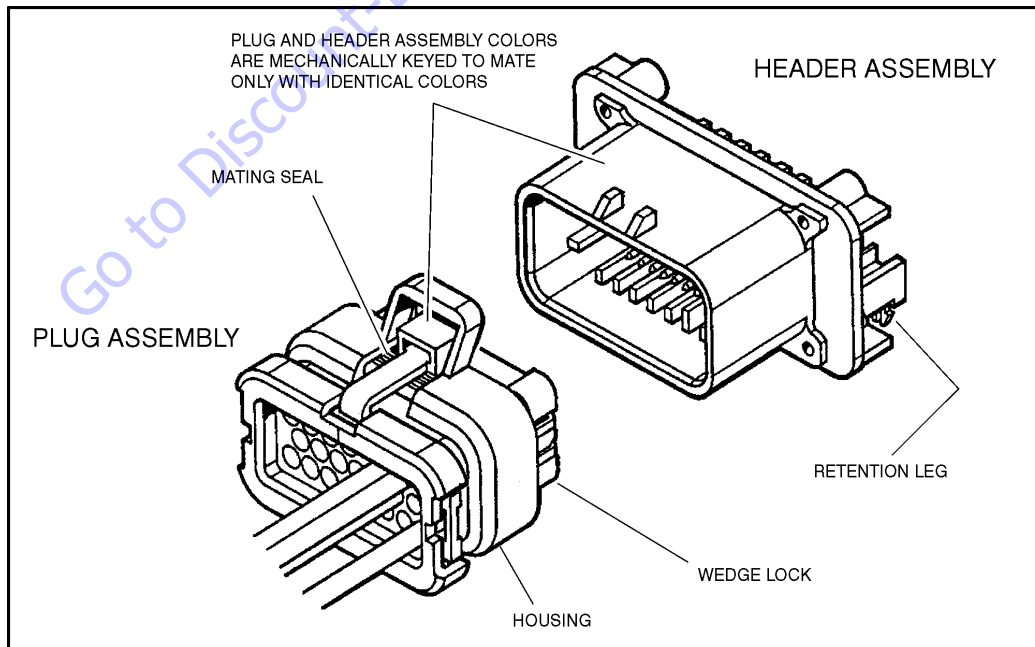


Figure 7-8. AMP Connector

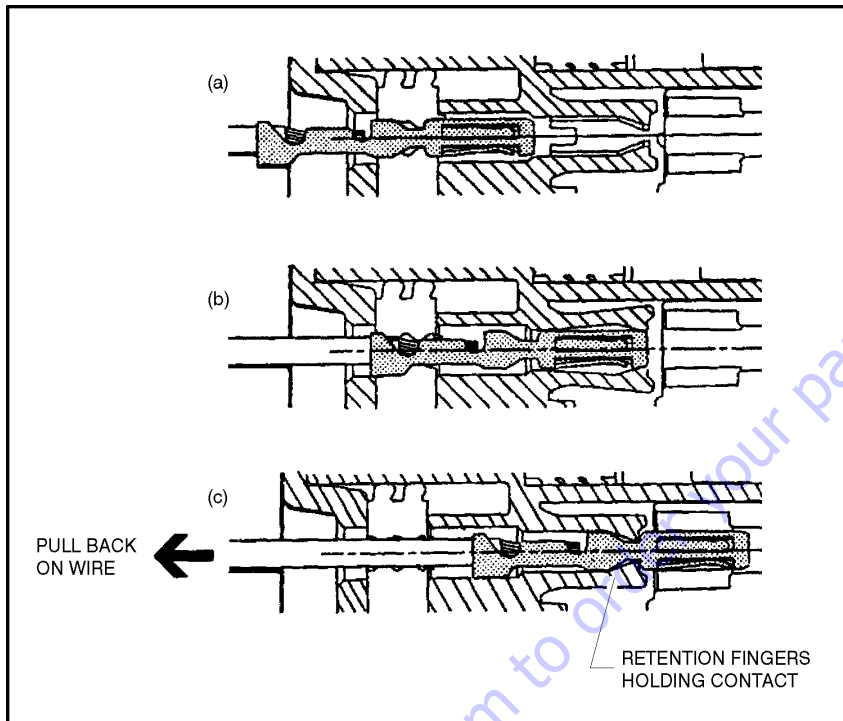


Figure 7-9. Connector Assembly Figure 2

3. After all required contacts have been inserted, the wedge lock must be closed to its locked position. Release the locking latches by squeezing them inward (See Figure 7-10.).

4. Slide the wedge lock into the housing until it is flush with the housing (See Figure 7-11.).

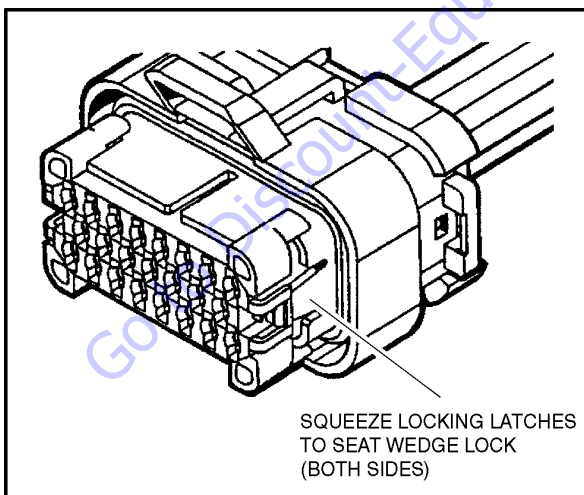


Figure 7-10. Connector Assembly Figure 3

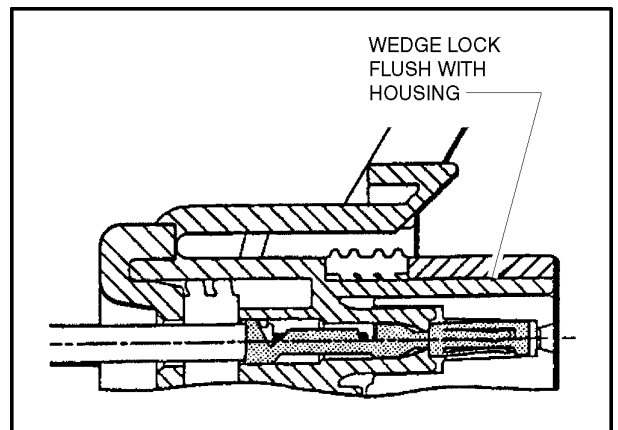


Figure 7-11. Connector Assembly Figure 4

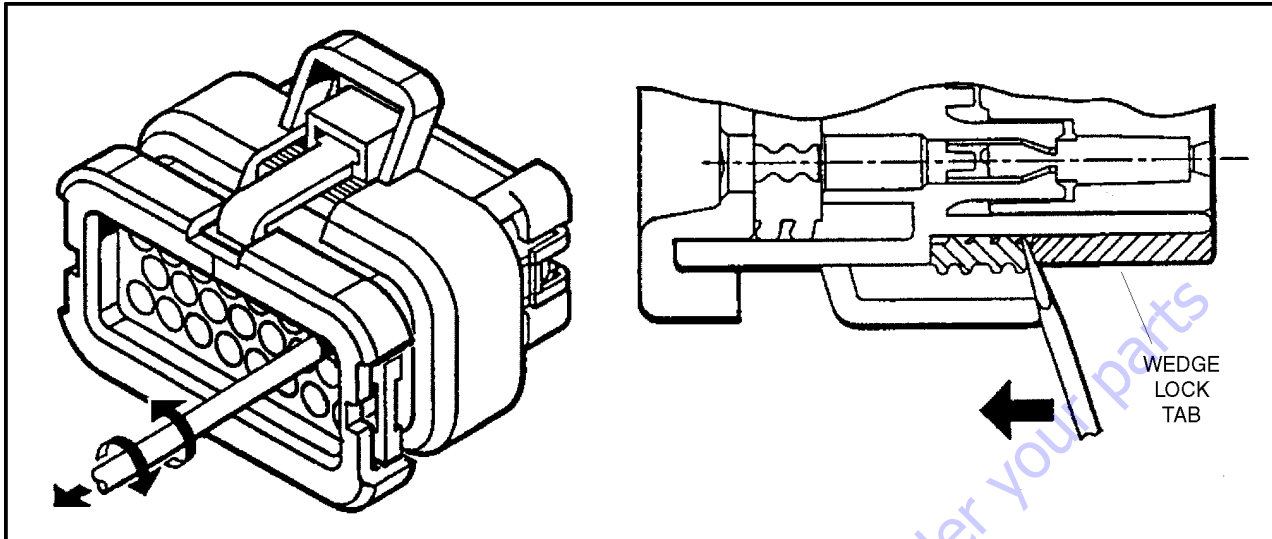


Figure 7-12. Connector Disassembly

Disassembly

5. Insert a 4.8 mm (3/16") wide screwdriver blade between the mating seal and one of the red wedge lock tabs.
6. Pry open the wedge lock to the open position.
7. While rotating the wire back and forth over a half turn (1/4 turn in each direction), gently pull the wire until the contact is removed.

NOTE: The wedge lock should never be removed from the housing for insertion or removal of the contacts.

Wedge Lock

The wedge lock has slotted openings in the forward, or mating end. These slots accommodate circuit testing in the field, by using a flat probe such as a pocket knife. DO NOT use a sharp point such as an ice pick.

Service - Voltage Reading

NOTICE

DO NOT PIERCE WIRE INSULATION TO TAKE VOLTAGE READINGS.

It has been common practice in electrical troubleshooting to probe wires by piercing the insulation with a sharp point. This practice should be discouraged when dealing with the AMPSEAL plug assembly, or any other sealed connector system. The resulting pinholes in the insulation will allow moisture to invade the system by traveling along the wire strands. This nullifies the effectiveness of the connector seals and could result in system failure.

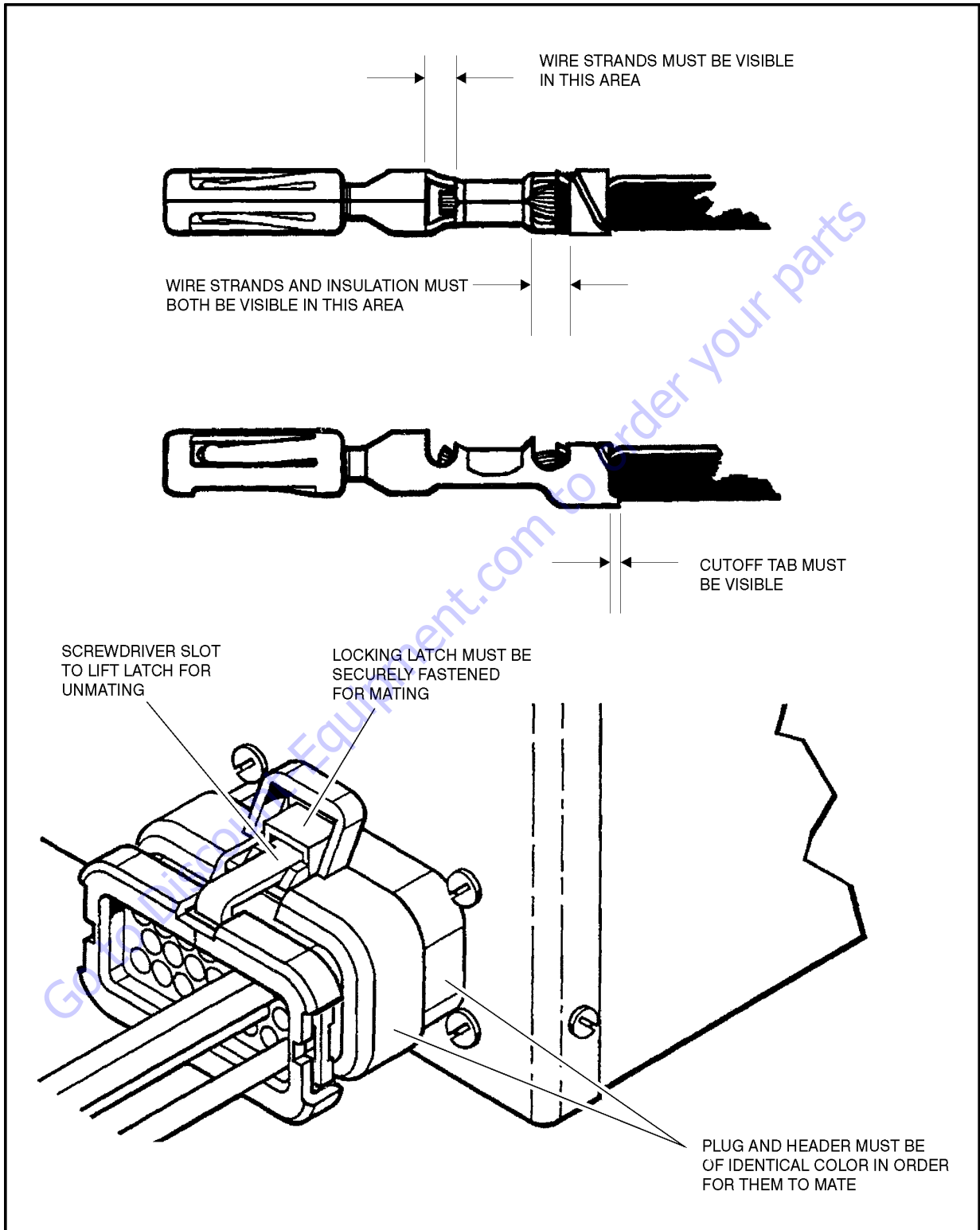


Figure 7-13. Connector Installation

7.6 DEUTSCH CONNECTORS

DT/DTP Series Assembly

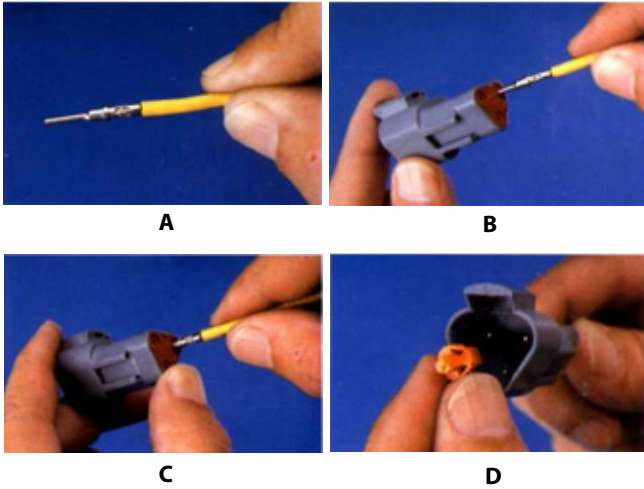


Figure 7-14. DT/DTP Contact Installation

1. Grasp crimped contact about 25mm behind the contact barrel.
2. Hold connector with rear grommet facing you.
3. Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.
4. Once all contacts are in place, insert wedgelock with arrow pointing toward exterior locking mechanism. The wedgelock will snap into place. Rectangular wedges are not oriented. They may go in either way.

NOTE: The receptacle is shown - use the same procedure for plug.

DT/DTP Series Disassembly

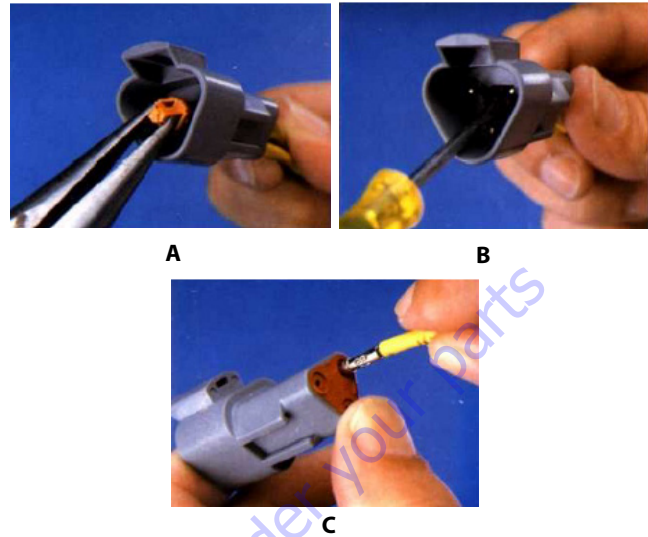


Figure 7-15. DT/DTP Contact Removal

5. Remove wedgelock using needle nose pliers or a hook shaped wire to pull wedge straight out.
6. To remove the contacts, gently pull wire backwards, while at the same time releasing the locking finger by moving it away from the contact with a screwdriver.
7. Hold the rear seal in place, as removing the contact may displace the seal.

HD30/HDP20 Series Assembly

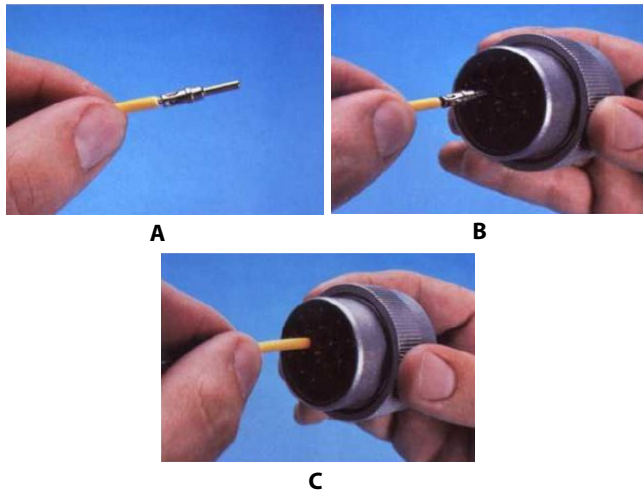


Figure 7-16. HD/HDP Contact Installation

8. Grasp contact about 25mm behind the contact crimp barrel.
9. Hold connector with rear grommet facing you.
10. Push contact straight into connector grommet until a positive stop is felt. A slight tug will confirm that it is properly locked in place.

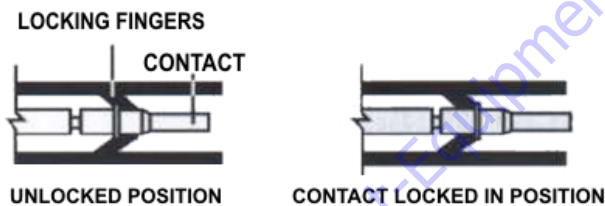


Figure 7-17. HD/HDP Locking Contacts Into Position

NOTE: For unused wire cavities, insert sealing plugs for full environmental sealing.

HD30/HDP20 Series Disassembly

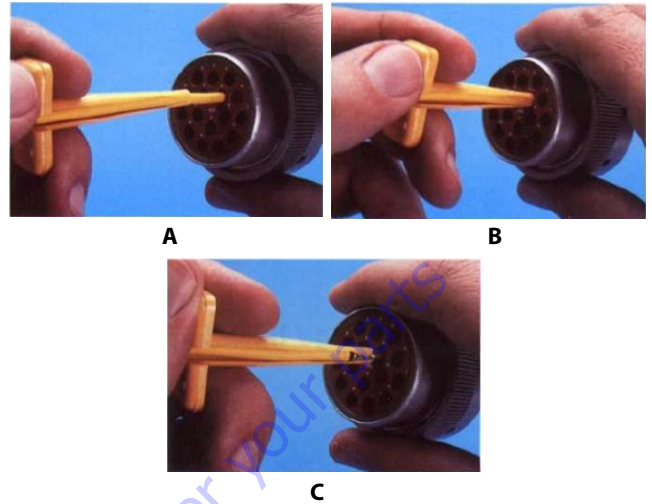


Figure 7-18. HD/HDP Contact Removal

11. With rear insert toward you, snap appropriate size extractor tool over the wire of contact to be removed.
12. Slide tool along into the insert cavity until it engages contact and resistance is felt.
13. Pull contact-wire assembly out of connector.

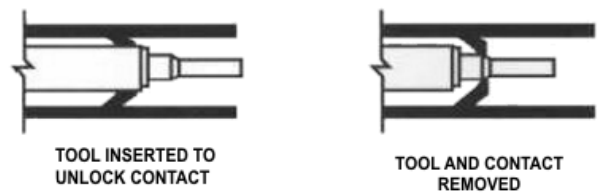


Figure 7-19. HD/HDP Unlocking Contacts

NOTE: Do Not twist or insert tool at an angle.

7.7 WIRING HARNESS CONNECTOR LABELS

Connector Labels

Connectors between harnesses are identified by the prefix "X" and a sequentially assigned number. An optional suffix (letters & numbers) may be added when multiple terminations occur at one device or when there are optional connections.

Example:

X25 connects to X25 in another harness

X65A, X65B connect to different portions of one device.

X163 connects to X163A in ANSI and X163B in CE machine.

Component Labels

Every component on the vehicle has a unique identification. A standard prefix letter is assigned according to the table below, followed by a unique sequential number. An optional suffix (letters & numbers) may be added when multiple terminations occur at one device.

Terminals that are not loaded into connectors are considered independent components and labeled in the same fashion.

Go to Discount-Equipment.com to order your parts

Table 7-1. Wiring Harness Connector Labels

Components	Category	Label
Audible	Alarms	AH
	Horns	
Battery	Batteries	BT
	Battery Terminals	
Control Module	Ground	CO
	LSS	
	Platform	
Engine	Alternator	EC
	Cold Start	
	Controller	
	Coolant Temp	
	Fuel Pump	
	Fuel Solenoid	
	Glow Plugs	
	Oil Pressure	
	Starter	
Fuse & CB Fuse FC	Fuse	FC
	Fusible Link	FC
	Circuit Breaker	CB
Gauge & Display	Board	GD
	Cluster	
	Hour meter	
	LMI	
	Speedometer	
Inline	Resistor	R
	Diode	D
Joystick & Steering	Electronic	JS
	Hydraulic	
Lights	Dome	LB
	Headlights	
	Simple	
	Taillights	
Membrane Panel		MP
Miscellaneous	Radio	MS
	Speakers	
	Splice Blocks	
	T-Connectors	

Table 7-1. Wiring Harness Connector Labels

Components	Category	Label	
Other Switches	Disconnect	SW	
	EMS		
	Foot		
		HVAC	WH
		Key	SW
		Park brake	
		Pump pot	
		Push	
		Shifter	
Turn signal			
Relay	5 Pin	RL	
	4 Pin		
	Contactors		
	Power module		
Rocker Switch		SW	
Sensor	Angle	SN	
	Fuel		
	Length		
	Limit		
	Load		
	Pressure		
	Proximity		
	Speed		
Temperature			
Terminals	Pins	T	
	Sockets		
	Male Blades		
	Female Blades		
	Rings		
	Forks		
Toggle Switch	DPDT	SW	
	DPST		
	SPDT		
	SPST		
	Special		
Valves	Simple	HV	
	Suppression		

Examples:

T67 is a ring terminal connected during installation.
 CO1-J3 is the J3 connector for a UGM control module.
 EC9 is a glow plug supplied with the engine

7.8 ELECTRICAL SCHEMATICS

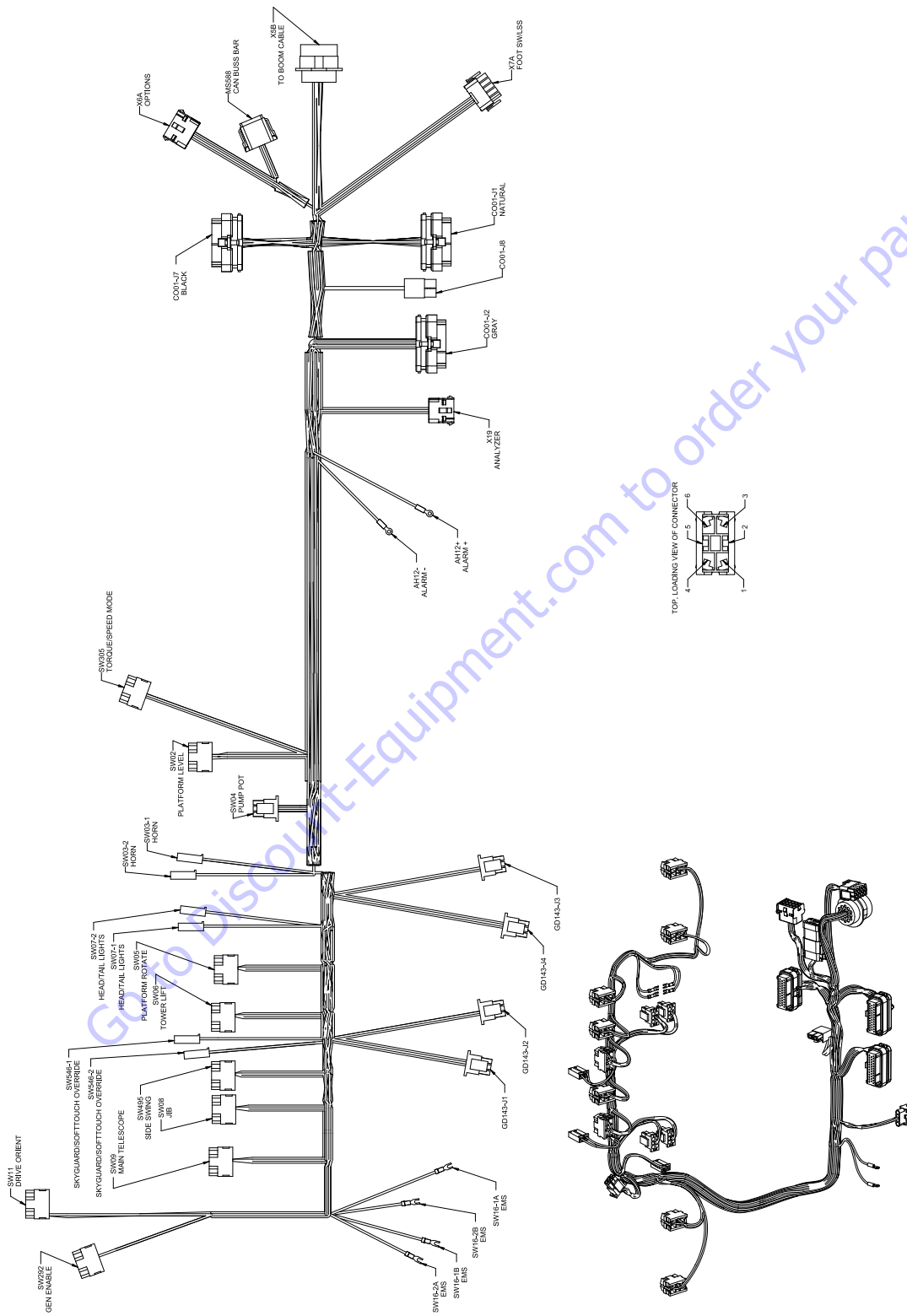


Figure 7-20. Platform Console Harness - Sheet 1 of 4

100119131H

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

SW11 - DRIVE ORIENT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	122-1 DOS	18 AWG	GXL	1001159186		CO01-J2 (4)
2	YEL	5-14-10	18 AWG	GXL	4460419		SW546-2 (1)
3	YEL	5-14-9	18 AWG	GXL	4460419		SW03-1 (1)
4							
5							
6							

SW09 - MAIN TELESCOPE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	14-0 MAIN TELE OUT	18 AWG	GXL	1001159186		CO01-J1 (6)
2	YEL	5-14-2	18 AWG	GXL	4460419		SW06 (2)
3	YEL	5-14-3	18 AWG	GXL	4460419		SW05 (2)
4	WHT	134-0 MAIN TELE IN	18 AWG	GXL	1001159186		CO01-J1 (5)
5							
6							

SW292 - GEN ENABLE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1							
2	WHT	2-122 GEN ENABLE IGN	18 AWG	GXL	1001159186		X5B (7)
3	WHT	8-3 GEN ENABLE	18 AWG	GXL	1001159186		X5B (6)
4							
5							
6							

SW08 - JIB							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	28-0 JIB DN	18 AWG	GXL	1001159186		CO01-J1 (12)
2	YEL	5-14-5	18 AWG	GXL	4460419		SW02 (2)
3	YEL	5-14-6	18 AWG	GXL	4460419		SW495 (2)
4	WHT	27-0 JIB UP	18 AWG	GXL	1001159186		CO01-J1 (11)
5							
6							

SW07-1 - HEAD/TAIL LIGHTS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	88-1 HEAD/TAIL T	18 AWG	GXL	4460259		CO01-J1 (30)

SW495 - SIDE SWING							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	31-0 SIDE SWING LEFT	18 AWG	GXL	1001159186		CO01-J1 (26)
2	YEL	5-14-8	18 AWG	GXL	4460419		SW08 (2)
3	YEL	5-14-7	18 AWG	GXL	4460419		SW04 (1)
4	WHT	32-0 SIDE SWING RIGHT	18 AWG	GXL	1001159186		CO01-J1 (25)
5							
6							

SW07-2 - HEAD/TAIL LIGHTS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-14-11	18 AWG	GXL	4460259		SW546-2 (1)

SW16-2A - EMS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
2A	YEL	5-11-3	18 AWG	GXL			CO01-J7 (2)

SW06 - TOWER LIFT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	29-30 TWR LFT DN	18 AWG	GXL	1001159186		CO01-J1 (2)
2	YEL	5-14-1	18 AWG	GXL	4460419		SW305 (2)
3	YEL	5-14-1	18 AWG	GXL	4460419		SW305 (2)
4	YEL	5-14-2	18 AWG	GXL	4460419		SW09 (2)
5	WHT	29-0 TWR LFT UP	18 AWG	GXL	1001159186		CO01-J1 (1)
6							

SW16-1B - EMS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1B	YEL	5-2-6	18 AWG	GXL			X5B (13)

SW16-2B - EMS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
2B	YEL	5-2-5	18 AWG	GXL			X5B (15)

SW05 - PLATFORM ROTATE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	23-0 PLAT ROT LFT	18 AWG	GXL	1001159186		CO01-J1 (8)
2	YEL	5-14-3	18 AWG	GXL	4460419		SW09 (2)
3	YEL	5-14-4	18 AWG	GXL	4460419		SW02 (2)
4	WHT	24-0 PLAT ROT RT	18 AWG	GXL	1001159186		CO01-J1 (7)
5							
6							

SW16-1A - EMS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1A	YEL	5-11-2	18 AWG	GXL			X5B (9)

GD143-J2							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	98-7 BAT LOW	18 AWG	GXL	4460226		CO01-J2 (13)
2	WHT	131-3 FUNC ENABLE	18 AWG	GXL	4460226		CO01-J2 (7)
3							
4							
5							
6	WHT	1-26 DISPLAY GND	18 AWG	GXL	4460226		CO01-J2 (18)

SW546-1 - SKYGUARD/SOFTTOUCH OVERRIDE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	124-3 OVERRIDE	18 AWG	GXL	4460259		CO01-J1 (29)

GD143-J4							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	125-1 TILT	18 AWG	GXL	4460226		CO01-J2 (6)
2	WHT	126-1 OVERLOAD	18 AWG	GXL	4460226		CO01-J2 (11)
3	WHT	127-1 SYS FAULT	18 AWG	GXL	4460226		CO01-J2 (8)
4	WHT	122-2 DOS	18 AWG	GXL	4460226		CO01-J2 (14)
5					4460226		
6							

SW546-2 - SKYGUARD/SOFTTOUCH OVERRIDE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-14-10	18 AWG	GXL	4460259		SW11 (2)
1	YEL	5-14-11	18 AWG	GXL	4460259		SW07-2 (1)

GD143-J1							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	98-3 1/4 BAT CHG	18 AWG	GXL	4460226		CO01-J2 (22)
2	WHT	98-4 1/2 BAT CHG	18 AWG	GXL	4460226		CO01-J2 (24)
3	WHT	98-5 3/4 BAT CHG	18 AWG	GXL	4460226		CO01-J2 (23)
4	WHT	1-25 CHG IND GND	18 AWG	GXL	4460226		CO01-J2 (25)
5					4460226		
6	WHT	98-6 BAT FULL	18 AWG	GXL	4460226		CO01-J2 (35)

GD143-J3							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	125-2 CREEP MODE	18 AWG	GXL	4460226		CO01-J2 (9)
2	WHT	130-1 SOFT TOUCH	18 AWG	GXL	4460226		CO01-J2 (19)
3	WHT	134 SKY GUARD	18 AWG	GXL	4460226		CO01-J2 (16)
4							
5							
6					4460226		

Figure 7-21. Platform Console Harness - Sheet 2 of 4

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

SW03-2 - HORN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	490-1 HORN	18 AWG	GXL	4460259		CO01-J1 (31)

SW03-1 - HORN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-14-3	18 AWG	GXL	4460259		SW04 (1)
1	YEL	5-14-3	18 AWG	GXL	4460259		SW11 (2)

SW305 - TORQUE/SPEED MODE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	120-2 ANDAMAN	18 AWG	GXL	1001159186		CO01-J1 (28)
2	YEL	5-14-1	18 AWG	GXL	1001159186		SW06 (2)
3	WHT	120-1 TORQUE/SPEED MODE	18 AWG	GXL	1001159186		CO01-J1 (27)
4							
5							
6							

SW02 - PLATFORM LEVEL							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	25-0 PLAT LVL DN	18 AWG	GXL	1001159186		CO01-J1 (10)
2	YEL	5-14-4	18 AWG	GXL	4460419		SW05 (2)
2	YEL	5-14-5	18 AWG	GXL	4460419		SW08 (2)
3	WHT	25-0 PLAT LVL UP	18 AWG	GXL	1001159186		CO01-J1 (9)
4							
5							
6							

SW04 - PUMP POT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-14-7	18 AWG	GXL	4460267		SW495 (2)
1	YEL	5-14-8	18 AWG	GXL	4460267		SW03-1 (1)
2	YEL	5-14	18 AWG	GXL	4460267		CO01-J1 (18)
3	WHT	125-1 CREEP MODE	18 AWG	GXL	4460267		CO01-J1 (32)
4	WHT	125-1 PUMP POT PWR	18 AWG	GXL	4460267		CO01-J1 (34)
5	WHT	1-23 PUMP POT RETURN	18 AWG	GXL	4460267		CO01-J1 (13)
6	WHT	125-2 PUMP POT CMD	18 AWG	GXL	4460267		CO01-J1 (35)

AH12 - ALARM -							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	1-27 ALARM GND	18 AWG	GXL			CO01-J7 (20)

AH12+ - ALARM +							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	132 PLAT ALARM	18 AWG	GXL			CO01-J7 (19)

X19 - ANALYZER							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	51-0 ANALYZER PWR	18 AWG	GXL	4460227		CO01-J2 (26)
2	GRN	52-0 ANALYZER RX	18 AWG	GXL	4460227		CO01-J2 (28)
3	WHT	53-0 ANALYZER TX	18 AWG	GXL	4460227		CO01-J2 (29)
4	BLK	54-0 ANALYZER GND	18 AWG	GXL	4460227		CO01-J2 (27)

CO01-J7 - BLACK							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	81-0 GND MODE RX	18 AWG	GXL	4460871		X5B (11)
1	WHT	132 PLAT ALARM	18 AWG	GXL	4460871		AH12+ (1)
1					4460871		
2	YEL	5-11-3	18 AWG	GXL	4460871		SW16-2A (2A)
3	WHT	82-0 PLAT TX	18 AWG	GXL	4460871		X5B (4)
4	WHT	3-16 FOOTSWITCH	18 AWG	GXL	4460871		X7A (5)
5					4460905		
6					4460905		
7	WHT	3-18 SKYG PWR	18 AWG	GXL	4460871		X7A (7)
8	WHT	131-1 FOOT SWITCH	18 AWG	GXL	4460871		X7A (4)
9					4460905		
10					4460905		
11					4460905		
12					4460905		
13					4460905		
14					4460905		
15					4460905		
16	WHT	1-28 LSS GND	18 AWG	GXL	4460871		X7A (14)
17					4460905		
18	WHT	124-1 SKYG INPUT#1	18 AWG	GXL	4460871		X7A (10)
19					4460871		
20	WHT	1-27 ALARM GND	18 AWG	GXL	4460871		AH12- (1)
21	WHT	25-0-3 PLAT LVL UP	18 AWG	GXL	4460871		X6A (13)
22	WHT	26-0-3 PLAT LVL DN	18 AWG	GXL	4460871		X6A (14)
23	WHT	1-30 VLV GND	18 AWG	GXL	4460871		X6A (5)
24	WHT	1-36 SKYG GND	18 AWG	GXL	4460871		X7A (8)
25	WHT	27-0-3 JIB UP	18 AWG	GXL	4460871		X6A (3)
26	WHT	28-0-3 JIB DN	18 AWG	GXL	4460871		X6A (4)
27	WHT	31-0-3 JIB RHT	18 AWG	GXL	4460871		X6A (11)
28	WHT	30-0-3 JIB LFT	18 AWG	GXL	4460871		X6A (12)
29	WHT	1-29 OPTION GND	18 AWG	GXL	4460871		X6A (6)
30	GRN	CAN1 LOW	18 AWG	GXL	4460871		MSS88 (3)
31	YEL	CAN1 HIGH	18 AWG	GXL	4460871		MSS88 (1)
32					4460905		
33	WHT	23-0-3 PLAT ROT LFT	18 AWG	GXL	4460871		X6A (1)
34	WHT	24-0-3 PLAT ROT RHT	18 AWG	GXL	4460871		X6A (2)
35					4460905		
NC					4460871		

X6A - OPTIONS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	23-0-3 PLAT ROT LFT	18 AWG	GXL	4460226		CO01-J7 (33)
2	WHT	24-0-3 PLAT ROT RHT	18 AWG	GXL	4460226		CO01-J7 (34)
3	WHT	27-0-3 JIB UP	18 AWG	GXL	4460226		CO01-J7 (25)
4	WHT	28-0-3 JIB DN	18 AWG	GXL	4460226		CO01-J7 (26)
5	WHT	1-30 VLV GND	18 AWG	GXL	4460226		CO01-J7 (23)
6	WHT	1-29 OPTION GND	18 AWG	GXL	4460226		CO01-J7 (29)
7							
8	YEL	CAN1 HIGH	18 AWG	GXL	4460226		MSS88 (8)
9	GRN	CAN1 LOW	18 AWG	GXL	4460226		MSS88 (6)
10							
11	WHT	31-0-3 JIB RHT	18 AWG	GXL	4460226		CO01-J7 (27)
12	WHT	30-0-3 JIB LFT	18 AWG	GXL	4460226		CO01-J7 (28)
13	WHT	25-0-3 PLAT LVL UP	18 AWG	GXL	4460226		CO01-J7 (21)
14	WHT	26-0-3 PLAT LVL DN	18 AWG	GXL	4460226		CO01-J7 (22)
15							

MS588 - CAN BUSS BAR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	CAN1 HIGH	18 AWG	GXL	4460465		CO01-J7 (31)
2					4460466		
3	GRN	CAN1 LOW	18 AWG	GXL	4460465		CO01-J7 (30)
4					4460466		
5	GRN	CAN1 LOW	18 AWG	GXL	4460465		X5B (2)
6	GRN	CAN1 LOW	18 AWG	GXL	4460465		X6A (9)
7	YEL	CAN1 HIGH	18 AWG	GXL	4460465		X5B (3)
8	YEL	CAN1 HIGH	18 AWG	GXL	4460465		X6A (8)

Figure 7-22. Platform Console Harness - Sheet 3 of 4

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

X5B - TO BOOM CABLE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460466		
2	GRN	CANI LOW	18 AWG	GXL	4460464		MS588 (5)
3	YEL	CANI HIGH	18 AWG	GXL	4460464		MS588 (7)
4	WHT	8-0 PLAT TX	18 AWG	GXL	4460464		CO01-J7 (3)
5	WHT	8-3 GEN ENABLE	18 AWG	GXL	4460464		SW292 (3)
6	GRN	131-2 FOOT PEDAL	18 AWG	GXL	4460464		X7A (6)
7	WHT	2-12-2 GEN ENABLE IGN	18 AWG	GXL	4460464		SW292 (2)
8					4460466		
9	YEL	5-11-2	18 AWG	GXL	4460464		SW16-1A (1A)
10					4460466		
11	WHT	81-0 GND MODE RX	18 AWG	GXL	4460464		CO01-J7 (1)
12	YEL	3-8 PLAT IGN	12 AWG	GXL	4460508		CO01-J8 (2)
13	YEL	5-2-6	18 AWG	GXL	4460464		SW16-1B (1B)
14					4460466		
15	YEL	5-2-5	18 AWG	GXL	4460464		SW16-2B (2B)
16	BLK	1-5 PLAT GND	12 AWG	GXL	4460508		CO01-J8 (1)
17					4460466		
18					4460466		
19					4460466		

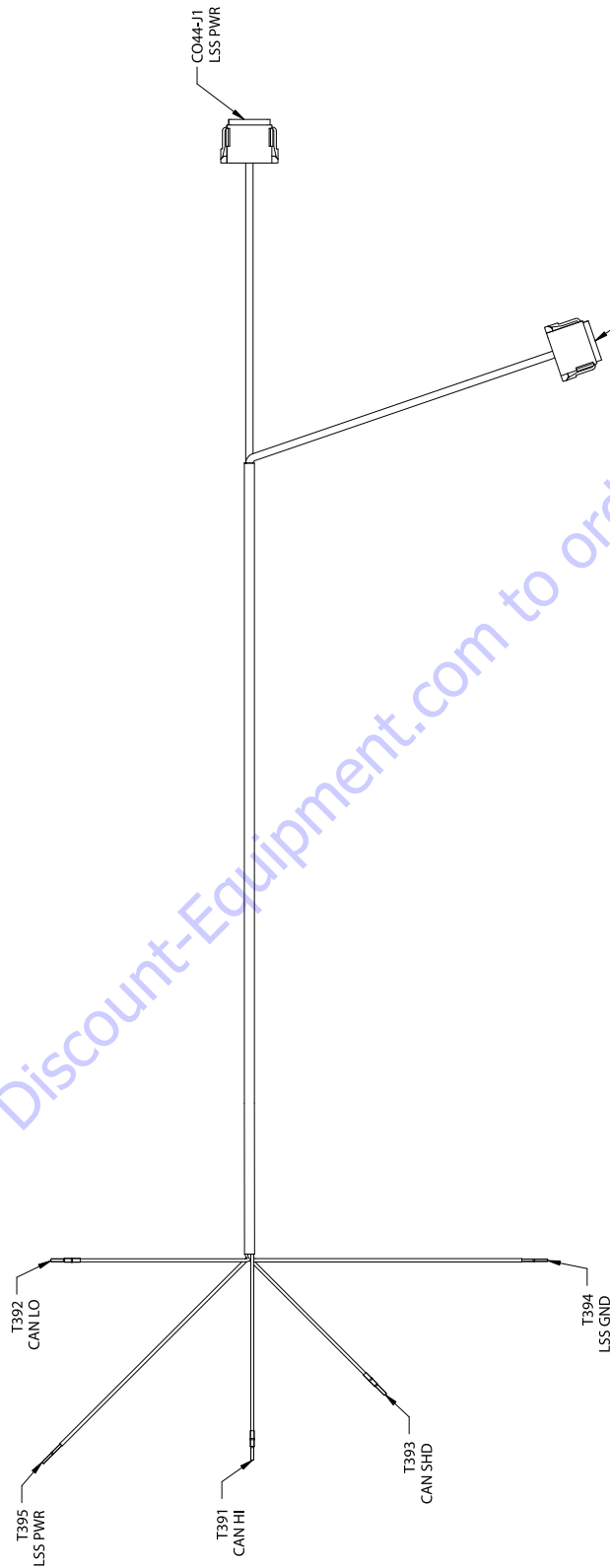
CO01-J1 - NATURAL							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	29-0 TWR LFT UP	18 AWG	GXL	4460871		SW06 (3)
2	WHT	29-30 TWR LFT DN	18 AWG	GXL	4460871		SW06 (1)
3					4460905		
4					4460905		
5	WHT	13-0 MAIN TELE IN	18 AWG	GXL	4460871		SW09 (3)
6	WHT	14-0 MAIN TELE OUT	18 AWG	GXL	4460871		SW09 (1)
7	WHT	24-0 PLAT ROT RT	18 AWG	GXL	4460871		SW05 (3)
8	WHT	23-0 PLAT ROT LFT	18 AWG	GXL	4460871		SW05 (1)
9	WHT	25-0 PLAT LVL UP	18 AWG	GXL	4460871		SW02 (3)
10	WHT	26-0 PLAT LVL DN	18 AWG	GXL	4460871		SW02 (1)
11	WHT	27-0 JIB UP	18 AWG	GXL	4460871		SW08 (3)
12	WHT	28-0 JIB DN	18 AWG	GXL	4460871		SW08 (1)
13	WHT	1-23 PUMP POT RETURN	18 AWG	GXL	4460871		SW04 (5)
14					4460905		
15					4460905		
16					4460905		
17					4460905		
18	YEL	5-14	18 AWG	GXL	4460871		SW04 (2)
19					4460905		
20	WHT	124-5 SOFTT	18 AWG	GXL	4460871		X7A (12)
21					4460905		
22					4460905		
23	WHT	124-2 SKYG INPUT#2	18 AWG	GXL	4460871		X7A (11)
24					4460905		
25	WHT	32-0 SIDE SWING RIGHT	18 AWG	GXL	4460871		SW495 (3)
26	WHT	31-0 SIDE SWING LEFT	18 AWG	GXL	4460871		SW495 (1)
27	WHT	120-1 TORQUE/SPEED MODE	18 AWG	GXL	4460871		SW305 (3)
28	WHT	120-2 AVDA MAN	18 AWG	GXL	4460871		SW305 (1)
29	WHT	124-3 OVERRIDE	18 AWG	GXL	4460871		SW546-1 (1)
30	WHT	88-1 HEADTAIL LT	18 AWG	GXL	4460871		SW07-1 (1)
31	WHT	49-0-1 HORN	18 AWG	GXL	4460871		SW03-2 (1)
32	WHT	125-1 CREEP MODE	18 AWG	GXL	4460871		SW04 (3)
33					4460905		
34	WHT	126-1 PUMP POT PWR	18 AWG	GXL	4460871		SW04 (4)
35	WHT	126-2 PUMP POT CMD	18 AWG	GXL	4460871		SW04 (6)

CO01-J2 - GRAY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460905		
2					4460905		
3					4460905		
4	WHT	122-1 DOS	18 AWG	GXL	4460871		SW11 (1)
5					4460905		
6	WHT	129-1 TILT	18 AWG	GXL	4460871		GD143-J4 (1)
7	WHT	131-3 FUNC ENABLE	18 AWG	GXL	4460871		GD143-J2 (2)
8	WHT	127-1 SYS FAULT	18 AWG	GXL	4460871		GD143-J4 (3)
9	WHT	125-2 CREEP MODE	18 AWG	GXL	4460871		GD143-J3 (1)
10					4460905		
11	WHT	128-1 OVERLOAD	18 AWG	GXL	4460871		GD143-J4 (2)
12					4460905		
13	WHT	98-7 BAT LOW	18 AWG	GXL	4460871		GD143-J2 (1)
14	WHT	122-2 DOS	18 AWG	GXL	4460871		GD143-J4 (4)
15					4460905		
16	WHT	134 SKY GUARD	18 AWG	GXL	4460871		GD143-J3 (5)
17					4460905		
18	WHT	1-26 DISPLAY GND	18 AWG	GXL	4460871		GD143-J2 (6)
19	WHT	130-1 SOFT TOUCH	18 AWG	GXL	4460871		GD143-J3 (2)
20					4460905		
21					4460905		
22	WHT	98-3 14 BAT CHG	18 AWG	GXL	4460871		GD143-J1 (1)
23	WHT	98-5 34 BAT CHG	18 AWG	GXL	4460871		GD143-J1 (3)
24	WHT	98-4 12 BAT CHG	18 AWG	GXL	4460871		GD143-J1 (2)
25	WHT	1-25 CHG IND GND	18 AWG	GXL	4460871		GD143-J1 (4)
26	RED	51-0 ANALYZER PWR	18 AWG	GXL	4460871		X19 (1)
27	BLK	54-0 ANALYZER GND	18 AWG	GXL	4460871		X19 (4)
28	GRN	52-0 ANALYZER RX	18 AWG	GXL	4460871		X19 (2)
29	WHT	53-0 ANALYZER TX	18 AWG	GXL	4460871		X19 (3)
30					4460905		
31	WHT	3-25 SOFTT PWR	18 AWG	GXL	4460871		X7A (9)
32	WHT	3-20 LSS PWR	18 AWG	GXL	4460871		X7A (15)
33					4460905		
34					4460905		
35	WHT	98-6 BAT FULL	18 AWG	GXL	4460871		GD143-J1 (6)

X7A - FOOT SW/LSS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1							
2							
3	WHT	1-651 JUMPER	18 AWG	GXL	4460227		X7A (13)
4	WHT	131-1 FOOT SWITCH	18 AWG	GXL	4460227		CO01-J7 (8)
5	WHT	3-16 FOOTSWITCH	18 AWG	GXL	4460227		CO01-J7 (4)
6	GRN	131-2 FOOT PEDAL	18 AWG	GXL	4460227		X5B (6)
7	WHT	3-18 SKYG PWR	18 AWG	GXL	4460227		CO01-J7 (7)
8	WHT	1-36 SKYG GND	18 AWG	GXL	4460227		CO01-J7 (24)
9	WHT	3-25 SOFTT PWR	18 AWG	GXL	4460227		CO01-J2 (31)
10	WHT	124-1 SKYS INPUT#1	18 AWG	GXL	4460227		CO01-J7 (18)
11	WHT	124-2 SKYS INPUT#2	18 AWG	GXL	4460227		CO01-J1 (23)
12	WHT	124-5 SOFTT	18 AWG	GXL	4460227		CO01-J1 (20)
13	WHT	1-651 JUMPER	18 AWG	GXL	4460227		X7A (3)
14	WHT	1-28 LSS GND	18 AWG	GXL	4460227		CO01-J7 (16)
15	WHT	3-20 LSS PWR	18 AWG	GXL	4460227		CO01-J2 (32)

CO01-J8							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	1-5 PLAT GND	12 AWG	GXL	4460887		X5B (16)
2	YEL	3-8 PLAT IGN	12 AWG	GXL	4460887		X5B (12)

Figure 7-23. Platform Console Harness - Sheet 4 of 4



1001192283 D

Figure 7-24. Load Sensing System Harness (LSS) - Sheet 1 of 2

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

T394 - LSS GND							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	1-28 LSS GND	18 AWG	GXL	N/A		CO44-J1 (2)

T395 - LSS PWR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	3-20 LSS PWR	18 AWG	GXL	N/A		CO44-J1 (1)

T393 - CAN SHD							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	SHLD	TP CAN CABLE	20 AWG	J1939 CABLE	N/A		CO44-J2 (NC)

T392 - CAN LO							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	GRN	TP CAN CABLE	20 AWG	J1939 CABLE	N/A		CO44-J2 (9)

T391 - CAN HI							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	TP CAN CABLE	20 AWG	J1939 CABLE	N/A		CO44-J2 (4)

CO44-J2 - LSS CAN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460466		
2					4460466		
3					4460466		
4	YEL	TP CAN CABLE	20 AWG	J1939 CABLE	4460944		T391 (1)
5					4460466		
6					4460466		
7					4460466		
8					4460466		
9	GRN	TP CAN CABLE	20 AWG	J1939 CABLE	4460944		T392 (1)
10					4460466		
11					4460466		
12					4460466		
NC	SHLD	TP CAN CABLE	20 AWG	J1939 CABLE	N/A		T393 (1)

CO44-J1 - LSS PWR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	3-20 LSS PWR	18 AWG	GXL	4460465		T395 (1)
2	WHT	1-28 LSS GND	18 AWG	GXL	4460465		T394 (1)
3					4460466		
4					4460466		
5					4460466		
6					4460466		
7					4460466		
8					4460466		
9					4460466		
10					4460466		
11					4460466		
12					4460466		

Figure 7-25. Load Sensing System Harness (LSS) - Sheet 2 of 2

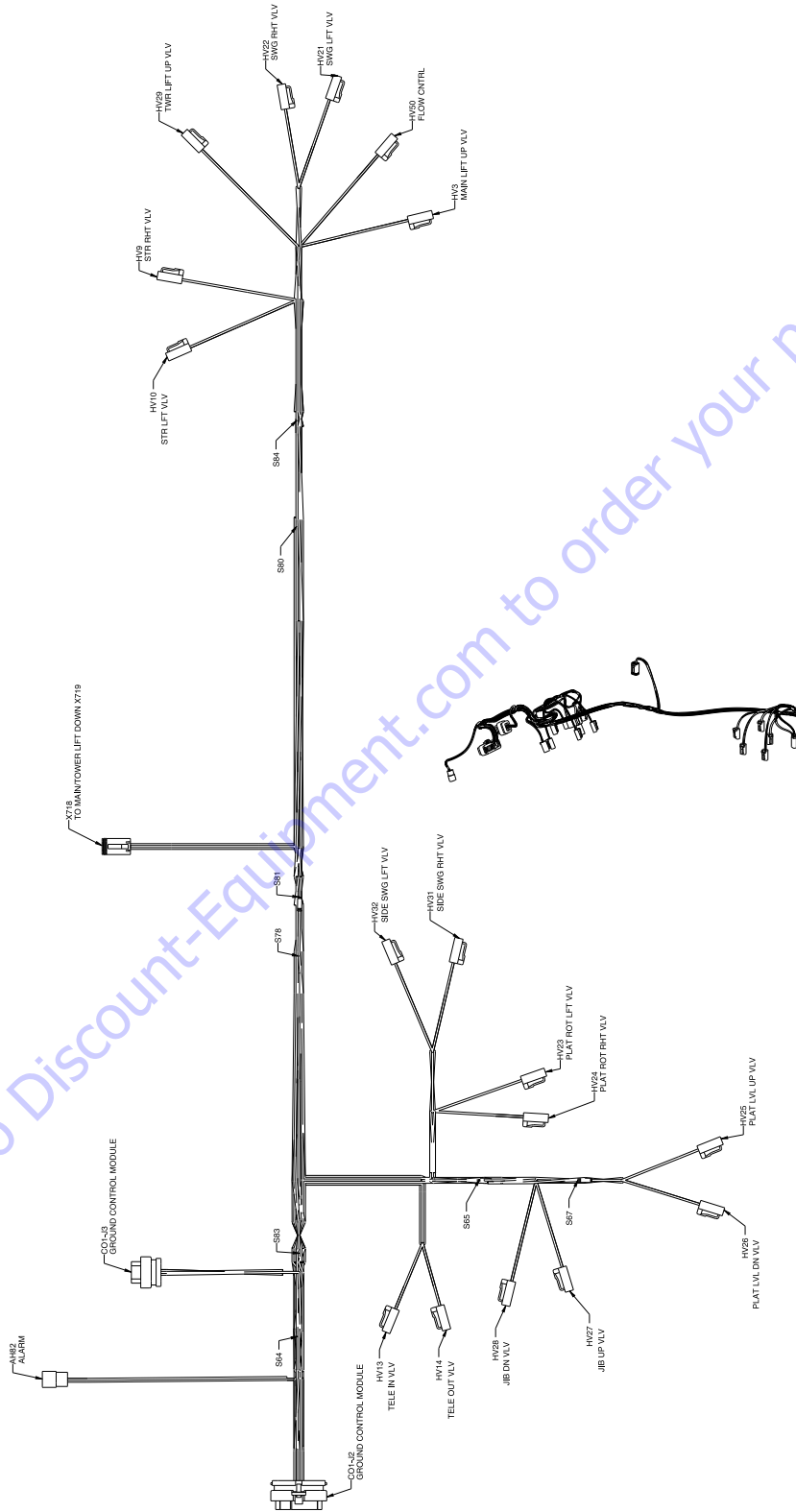


Figure 7-26. Main Valve Harness - Sheet 1 of 3

100182474 F

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

AH82-ALARM							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
A	WHT	38-4 ALARM POWER	18 AWG	GXL	4460465		CO1-J3 (7)
B	WHT	49-2 ALARM SIGNAL	18 AWG	GXL	4460465		CO1-J2 (27)
C	BLK	4-2 RTN	18 AWG	GXL	4460465		CO1-J2 (29)

S80							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	4-0-1 RTN	18 AWG	GXL	N/A		HV10 (1)
1	BLK	4-0-2 RTN	18 AWG	GXL	N/A		HV9 (2)
2	BLK	4-0 RTN	18 AWG	GXL	N/A		CO1-J2 (28)

CO1-J3 - GROUND CONTROL MODULE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460905		
2	WHT	38-3 CURNT FBACK	18 AWG	GXL	4460871		S81 (2)
3					4460905		
4	WHT	38-5 CURNT FBACK	18 AWG	GXL	4460871		S84 (2)
5	WHT	38-1 CURNT FBACK	18 AWG	GXL	4460871		S78 (2)
6	WHT	38-0 CURNT FBACK	18 AWG	GXL	4460871		HV50 (1)
7	WHT	38-4 ALARM POWER	18 AWG	GXL	4460871		AH82 (A)
8					4460905		
9					4460905		
10					4460905		
11					4460905		
12					4460905		
13					4460905		
14					4460905		

S84							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	38-5-1 CURNT FBACK	18 AWG	GXL	N/A		HV21 (2)
1	WHT	38-5-2 CURNT FBACK	18 AWG	GXL	N/A		HV22 (2)
2	WHT	38-5 CURNT FBACK	18 AWG	GXL	N/A		CO1-J3 (4)

S81							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	38-3-1 CURNT FBACK	18 AWG	GXL	N/A		HV3 (2)
1	WHT	38-3-2 CURNT FBACK	18 AWG	GXL	N/A		X718 (2)
2	WHT	38-3 CURNT FBACK	18 AWG	GXL	N/A		CO1-J3 (2)

S64							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	4-27-1 RTN	16 AWG	GXL	N/A		S67 (2)
1	BLK	4-27-2 RTN	16 AWG	GXL	N/A		S65 (1)
2	BLK	4-27 RTN	16 AWG	GXL	N/A		CO1-J2 (14)

CO1-J2 - GROUND CONTROL MODULE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460905		
2					4460905		
3	WHT	13-0-3 TELE IN	18 AWG	GXL	4460871		HV13 (1)
4	WHT	32-0-4 SIDE SWG RHT	18 AWG	GXL	4460871		HV31 (1)
5	WHT	25-0-4 PLAT LVL UP	18 AWG	GXL	4460871		HV25 (1)
6					4460905		
7	WHT	25-0-4 PLAT LVL DN	18 AWG	GXL	4460871		HV26 (1)
8					4460905		
9	WHT	30-0-3 TWR DN	18 AWG	GXL	4460871		X718 (1)
10	WHT	23-0-4 PLAT ROT LFT	18 AWG	GXL	4460871		HV23 (1)
11	WHT	11-0-2 MAIN LIFT UP	18 AWG	GXL	4460871		HV3 (1)
12	WHT	27-0-4 JIB UP	18 AWG	GXL	4460871		HV27 (1)
13					4460905		
14	BLK	4-27 RTN	16 AWG	GXL	4460871		S64 (2)
15	WHT	14-0-3 TELE OUT	18 AWG	GXL	4460871		HV14 (1)
16	WHT	31-0-4 SIDE SWG LFT	18 AWG	GXL	4460871		HV32 (1)
17	BLK	4-13 RTN	18 AWG	GXL	4460871		S83 (2)
18					4460905		
19					4460905		
20	WHT	29-0-3 TWR UP	18 AWG	GXL	4460871		HV29 (1)
21	WHT	24-0-4 PLAT ROT RHT	18 AWG	GXL	4460871		HV24 (1)
22	WHT	12-0-2 MAIN LIFT DN	18 AWG	GXL	4460871		X718 (3)
23	WHT	28-0-4 JIB DN	18 AWG	GXL	4460871		HV28 (1)
24					4460905		
25					4460905		
26					4460905		
27	WHT	49-2 ALARM SIGNAL	18 AWG	GXL	4460871		AH82 (B)
28	BLK	4-0 RTN	18 AWG	GXL	4460871		S80 (2)
29	BLK	4-2 RTN	18 AWG	GXL	4460871		AH82 (C)
30					4460905		
31	WHT	50-0-1 FLOW CNTRL	18 AWG	GXL	4460871		HV50 (2)
32	WHT	9-2 STEER RT	18 AWG	GXL	4460871		HV9 (1)
33	WHT	10-1 STEER LT-1	18 AWG	GXL	4460871		HV10 (2)
34	WHT	21-0-1 SWG LFT	18 AWG	GXL	4460871		HV21 (1)
35	WHT	22-0-1 SWG RHT	18 AWG	GXL	4460871		HV22 (1)

S83							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	4-13-1 RTN	18 AWG	GXL	N/A		HV14 (2)
1	BLK	4-13-2 RTN	18 AWG	GXL	N/A		HV13 (2)
2	BLK	4-13 RTN	18 AWG	GXL	N/A		CO1-J2 (17)

S65							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	4-27-2 RTN	16 AWG	GXL	N/A		S64 (1)
1	BLK	4-27-2-3 RTN	18 AWG	GXL	N/A		HV32 (2)
1	BLK	4-27-2-4 RTN	18 AWG	GXL	N/A		HV31 (2)
2	BLK	4-27-2-1 RTN	18 AWG	GXL	N/A		HV27 (2)
2	BLK	4-27-2-2 RTN	18 AWG	GXL	N/A		HV28 (2)

HV13- TELE IN VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	13-0-3 TELE IN	18 AWG	GXL	4460465		CO1-J2 (3)
2	BLK	4-13-2 RTN	18 AWG	GXL	4460465		S83 (1)

HV14- TELE OUT VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	14-0-3 TELE OUT	18 AWG	GXL	4460465		CO1-J2 (15)
2	BLK	4-13-1 RTN	18 AWG	GXL	4460465		S83 (1)

S78							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	38-1-1 CURNT FBACK	18 AWG	GXL	N/A		HV29 (2)
1	WHT	38-1-2 CURNT FBACK	18 AWG	GXL	N/A		X718 (2)
2	WHT	38-1 CURNT FBACK	18 AWG	GXL	N/A		CO1-J3 (5)

HV28- JIB DN VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	28-0-4 JIB DN	18 AWG	GXL	4460465		CO1-J2 (23)
2	BLK	4-27-2-2 RTN	18 AWG	GXL	4460465		S65 (2)

HV10- STR LFT VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	4-0-1 RTN	18 AWG	GXL	4460465		S80 (1)
2	WHT	10-1 STEER LT-1	18 AWG	GXL	4460465		CO1-J2 (33)

HV27- JIB UP VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	27-0-4 JIB UP	18 AWG	GXL	4460465		CO1-J2 (12)
2	BLK	4-27-2-1 RTN	18 AWG	GXL	4460465		S65 (2)

HV9- STR RHT VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	9-2 STEER RT	18 AWG	GXL	4460465		CO1-J2 (32)
2	BLK	4-0-2 RTN	18 AWG	GXL	4460465		S80 (1)

Figure 7-27. Main Valve Harness - Sheet 2 of 3

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

HV25 - SWG RHT VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	222 SWG RHT	21 AWG	GXL	4460468		CO1-J2 (38)
5	WHT	38-49 CURNT FBACK	21 AWG	GXL	4460468		S84 (4)

HV34 - SIDE SWG RHT VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	32-01 SIDE SWG RHT	21 AWG	GXL	4460468		CO1-J2 (7)
5	BLK	4-27-2-1 RTN	21 AWG	GXL	4460468		S65 (4)

HV24 - SWG LFT VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	212 SWG LFT	21 AWG	GXL	4460468		CO1-J2 (37)
5	WHT	38-48 CURNT FBACK	21 AWG	GXL	4460468		S84 (4)

HV35 - SIDE SWG LFT VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	31-01 SIDE SWG LFT	21 AWG	GXL	4460468		CO1-J2 (19)
5	BLK	4-27-20 RTN	21 AWG	GXL	4460468		S65 (4)

HV53 - FLOW CNTRL							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	383 CURNT FBACK	21 AWG	GXL	4460468		CO1-J3 (9)
5	WHT	502 FLOW CNTRL	21 AWG	GXL	4460468		CO1-J2 (34)

S70							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	BLK	4-27-8 RTN	21 AWG	GXL	N/A		HV25 (5)
4	BLK	4-27-9 RTN	21 AWG	GXL	N/A		HV26 (5)
5	BLK	4-288 RTN	19 AWG	GXL	N/A		S64 (4)
5	BLK	4-27-10 RTN	21 AWG	GXL	N/A		HV23 (5)
5	BLK	4-27-1-1 RTN	21 AWG	GXL	N/A		HV24 (5)

HV6 - MAIN LIFT UP VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	111 MAIN LIFT UP	21 AWG	GXL	4460468		CO1-J2 (14)
5	WHT	38-28 CURNT FBACK	21 AWG	GXL	4460468		S81 (4)

HV32 - TWR LIFT UP VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	23-00 TWR UP	21 AWG	GXL	4460468		CO1-J2 (23)
5	WHT	38-8 CURNT FBACK	21 AWG	GXL	4460468		S78 (4)

X721 - TO MAIN/TOWER LIFT DOWN X722							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	30-00 TWR DN	21 AWG	GXL	4460468		CO1-J2 (12)
5	WHT	38-9 CURNT FBACK	21 AWG	GXL	4460468		S78 (4)
6	WHT	121 MAIN LIFT DN	21 AWG	GXL	4460468		CO1-J2 (25)
7	WHT	38-29 CURNT FBACK	21 AWG	GXL	4460468		S81 (4)

HV26 - PLAT ROT LFT VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	23-0-1 PLAT ROT LFT	21 AWG	GXL	4460468		CO1-J2 (13)
5	BLK	4-27-10 RTN	21 AWG	GXL	4460468		S67 (5)

HV27 - PLAT ROT RHT VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	24-0-1 PLAT ROT RHT	21 AWG	GXL	4460468		CO1-J2 (24)
5	BLK	4-27-1-1 RTN	21 AWG	GXL	4460468		S67 (5)

HV29 - PLAT LVL DN VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	25-0-1 PLAT LVL DN	21 AWG	GXL	4460468		CO1-J2 (10)
5	BLK	4-27-9 RTN	21 AWG	GXL	4460468		S67 (4)

HV28 - PLAT LVL UP VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
4	WHT	25-0-1 PLAT LVL UP	21 AWG	GXL	4460468		CO1-J2 (8)
5	BLK	4-27-8 RTN	21 AWG	GXL	4460468		S67 (4)

Figure 7-28. Main Valve Harness - Sheet 3 of 3

Go to Discount-Equipment.com to order your parts

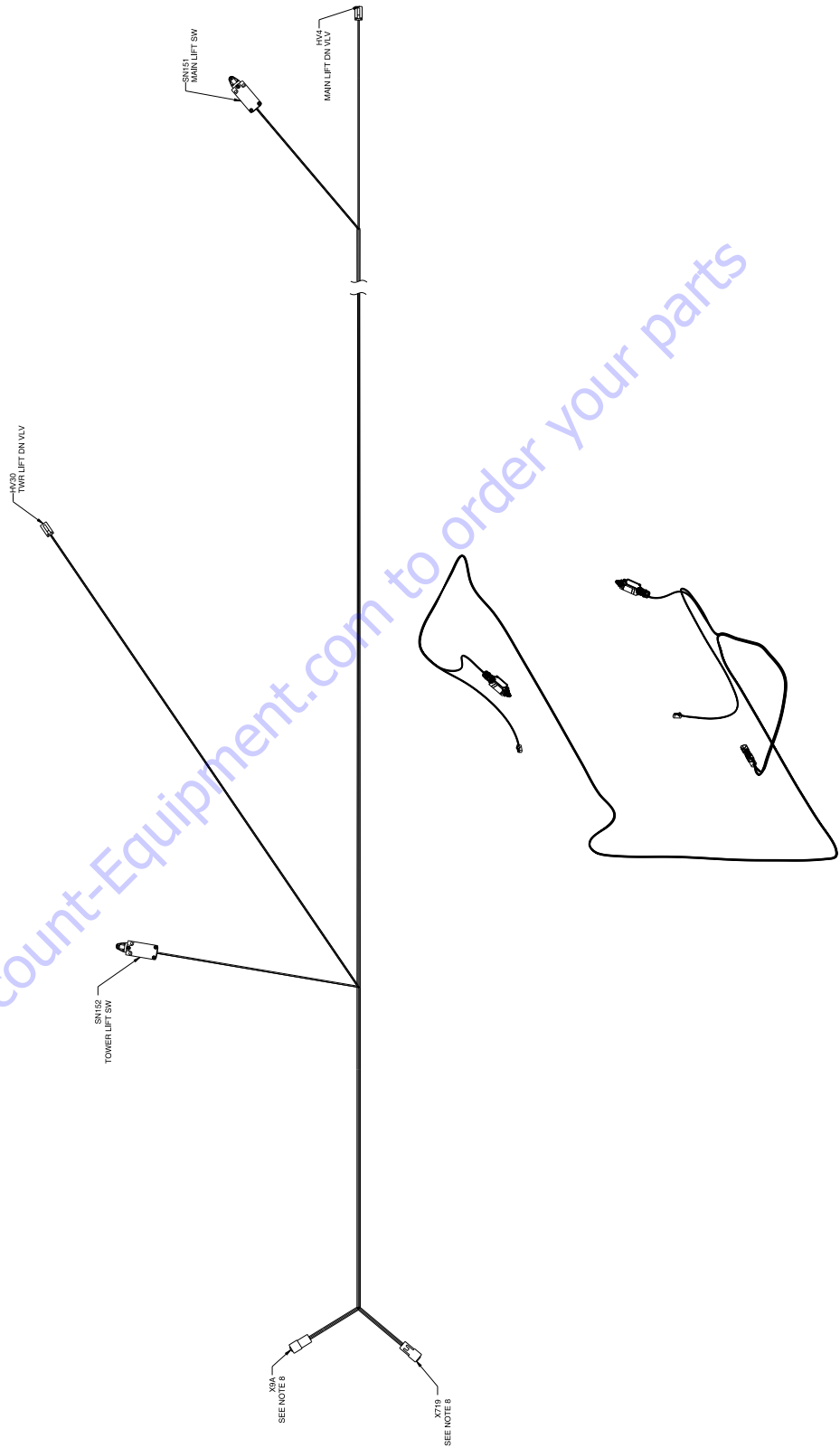


Figure 7-29. Boom Valve Harness - Sheet 1 of 2

1001183062 E

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

HV30- TWR LIFT DN VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	30-0-3 TWN DN	18 AWG	GXL	4460465		X719 (1)
2	WHT	38-1-2 CURNT FBCK	18 AWG	GXL	4460465		X719 (2)

SN152- TOWER LIFT SW							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
21	BLK	5-33-2 LOWER LIM SW 1	18 AWG	GXL			X9A (3)
22	WHT	58-0 LOWER LIM SW 2	18 AWG	GXL			X9A (4)
NC							
NC1							

X9A- TO TURN TABLE HARNESS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	57-0 UPPER LIM SW 1	18 AWG	GXL	4460464		SN151 (21)
2	BLK	5-33-1 UPPER LIM SW 2	18 AWG	GXL	4460464		SN151 (22)
3	BLK	5-33-2 LOWER LIM SW 1	18 AWG	GXL	4460464		SN152 (21)
4	WHT	58-0 LOWER LIM SW 2	18 AWG	GXL	4460464		SN152 (22)

HV4- MAIN LIFT DN VLV							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	12-0-2 MAIN LIFT DN	18 AWG	GXL	4460465		X719 (3)
2	WHT	38-3-2 CURNT FBCK	18 AWG	GXL	4460465		X719 (4)

SN151- MAIN LIFT SW							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
21	WHT	57-0 UPPER LIM SW 1	18 AWG	GXL			X9A (1)
22	BLK	5-33-1 UPPER LIM SW 2	18 AWG	GXL			X9A (2)
NC							
NC1							

X719- TO VALVE HARNESS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	30-0-3 TWN DN	18 AWG	GXL	100116693		HV30 (1)
2	WHT	38-1-2 CURNT FBCK	18 AWG	GXL	100116693		HV30 (2)
3	WHT	12-0-2 MAIN LIFT DN	18 AWG	GXL	100116693		HV4 (1)
4	WHT	38-3-2 CURNT FBCK	18 AWG	GXL	100116693		HV4 (2)

Figure 7-30. Boom Valve Harness - Sheet 2 of 2

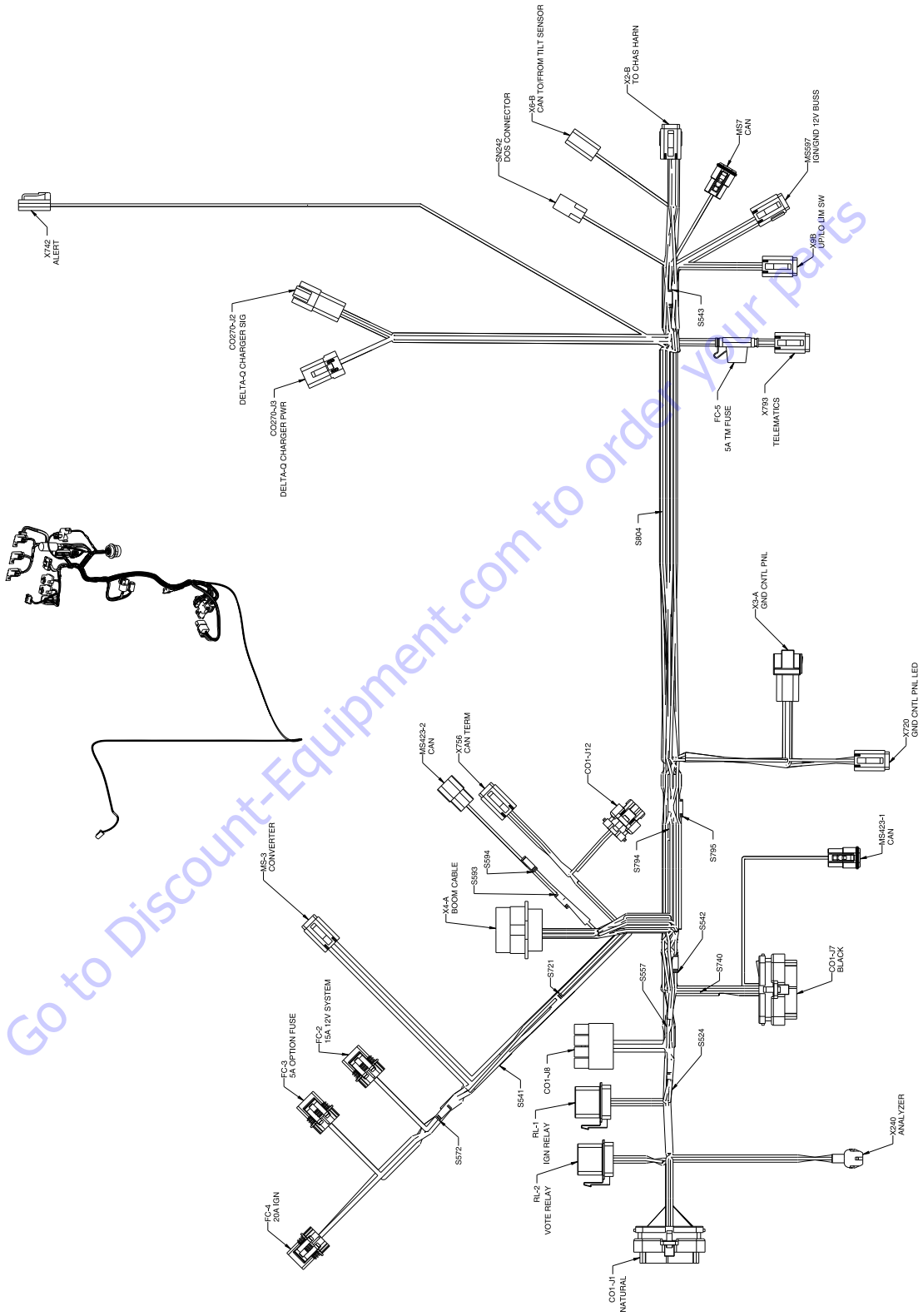


Figure 7-31. Turntable Harness - Sheet 1 of 3

100182475G

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

X4-A - BOOM CABLE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460466		
2	GRN	CAN1 LO	18 AWG	GXL	4460943		S593 (2)
3	YEL	CAN1 HI	18 AWG	GXL	4460943		S594 (2)
4	WHT	82-0 PLAT TX	18 AWG	GXL	4460464		S740 (2)
5					4460466		
6	WHT	131-3 FOOTSWITCH	18 AWG	GXL	4460464		CO1-J7 (15)
7					4460466		
8					4460466		
9	YEL	5-11-1-1 IGN PLAT	18 AWG	GXL	4460464		S795 (2)
10	YEL	5-6	14 AWG	GXL	4460508		MS597 (5)
11	WHT	81-0 GND MODE RX	18 AWG	GXL	4460464		CO1-J7 (14)
12	YEL	PLATFORM PWR	12 AWG	GXL	4460508		CO1-J8 (4)
13	YEL	5-2-6	18 AWG	GXL	4460464		X3-A (3)
14					4460466		
15	YEL	5-2-5 IGN	18 AWG	GXL	4460464		S542 (1)
16	BLK	PLAT GND	12 AWG	GXL	4460508		CO1-J8 (3)
17					4460466		
18	BLK	4-20	14 AWG	GXL	4460508		MS597 (2)
19					4460466		

S795							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-11-1 IGN PLAT	18 AWG	GXL	N/A		X3-A (5)
1	YEL	5-11-2 IGN PLAT	18 AWG	GXL	N/A		X793 (4)
2	YEL	5-11-1-1 IGN PLAT	18 AWG	GXL	N/A		X4-A (9)

S542							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-2-1 IGN MODE	18 AWG	GXL	N/A		X3-A (4)
1	YEL	5-2-5 IGN	18 AWG	GXL	N/A		X4-A (15)
2	WHT	5-2-2 IGN	18 AWG	GXL	N/A		RL-1 (2)

MS423-2 - CAN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
A	YEL	CAN1 HI	18 AWG	GXL	4460944		S594 (1)
B	GRN	CAN1 LO	18 AWG	GXL	4460944		S593 (1)
C					4460466		

MS423-1 - CAN							
CONNECTOR PART NUMBER: 100116612							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
A	YEL	CAN1 HI	18 AWG	GXL	4460944		CO1-J7 (13)
B	GRN	CAN1 LO	18 AWG	GXL	4460944		CO1-J7 (24)
C					4460466		

X240 - ANALYZER							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	51-1 ANALYZER PWR	18 AWG	GXL	4460227		CO1-J1 (28)
2	WHT	52-1 ANALYZER RS-232 RX	18 AWG	GXL	4460227		CO1-J1 (29)
3	WHT	53-1 ANALYZER RS-232 TX	18 AWG	GXL	4460227		CO1-J1 (30)
4	WHT	54-1 ANALYZER GND	18 AWG	GXL	4460227		CO1-J1 (31)

S594							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	CAN1 HI	18 AWG	GXL	N/A		MS423-2 (A)
2	YEL	CAN1 HI	18 AWG	GXL	N/A		X4-A (3)
2	YEL	CAN1 HI	18 AWG	GXL	N/A		X6-B (1)

S593							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	GRN	CAN1 LO	18 AWG	GXL	N/A		MS423-2 (B)
2	GRN	CAN1 LO	18 AWG	GXL	N/A		X4-A (2)
2	GRN	CAN1 LO	18 AWG	GXL	N/A		X6-B (2)

S794							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	3-0 CONSTANT 12V	12 AWG	GXL	N/A		FC-2 (2)
2	RED	3-0-1 CONSTANT 12V	12 AWG	GXL	N/A		X3-A (1)
2	RED	3-0-2 CONSTANT 12V	18 AWG	GXL	N/A		X793 (1)

RL-1 - IGN RELAY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	1-0-2 B+	18 AWG	GXL	100116732		S524 (2)
2	WHT	5-2-2 IGN	18 AWG	GXL	100116732		S542 (2)
3							
4	YEL	6-2 IGN 48 VOLT	18 AWG	GXL	100116732		S721 (2)
5	WHT	4-0-2 INSTR GND	18 AWG	GXL	100116732		S657 (2)

RL-2 - VOTE RELAY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	1-0-3 B+	16 AWG	GXL	100116733		S524 (2)
2	WHT	49-10 VOTE RELAY	18 AWG	GXL	100116732		CO1-J1 (13)
3							
4	YEL	VOTE-RLY-NO	16 AWG	GXL	100116733		X2-B (5)
5	WHT	4-0-2 INSTR GND	18 AWG	GXL	100116732		CO1-J1 (19)

MS-3 - CONVERTER							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	1-0-1 B+	12 AWG	GXL	1001157890		S524 (1)
2	YEL	6-2-3 IGN 48 VOLT	18 AWG	GXL	4460465		S721 (1)
3	WHT	2-0 B-	12 AWG	GXL	1001157890		X2-B (1)
4	RED	3-0 CONSTANT 12V	12 AWG	GXL	1001157890		FC-2 (1)
5	YEL	5-10-0 IGN	12 AWG	GXL	1001157890		S572 (1)
6	BLK	4-0 INSTR GRND	12 AWG	GXL	1001157890		S557 (1)

FC-2 - 15A 12V SYSTEM							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	3-0 CONSTANT 12V	12 AWG	GXL	100116734		MS-3 (4)
2	RED	3-0 CONSTANT 12V	12 AWG	GXL	100116734		S794 (1)

FC-3 - 5A OPTION FUSE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-10-2 IGN	12 AWG	GXL	100116734		S572 (2)
2	YEL	5-10-2 IGN	12 AWG	GXL	100116734		MS597 (4)

FC-4 - 20A IGN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-10-1 IGN	12 AWG	GXL	100116734		S572 (2)
2	WHT	5-10-1 IGN	12 AWG	GXL	100116734		S541 (2)

S541							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-10-1-1 SWITCHED PWR	12 AWG	GXL	N/A		CO1-J8 (2)
1	YEL	5-10-1-2 IGN	12 AWG	GXL	N/A		X3-A (2)
1	YEL	5-10-1-3 SW PWR	14 AWG	GXL	N/A		S804 (1)
2	WHT	5-10-1 IGN	12 AWG	GXL	N/A		FC-4 (2)

S572							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-10-0 IGN	12 AWG	GXL	N/A		MS-3 (5)
2	YEL	5-10-1 IGN	12 AWG	GXL	N/A		FC-4 (1)
2	YEL	5-10-2 IGN	12 AWG	GXL	N/A		FC-3 (1)

Figure 7-32. Turntable Harness - Sheet 2 of 3

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

S557							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	4-0 INSTR GRND	12 AWG	GXL	N/A		MS-3 (6)
1	BLK	4-0-3 INSTR GRND	14 AWG	GXL	N/A		MS597 (1)
2	BLK	4-0-1 INSTR GRND	12 AWG	GXL	N/A		CO1-J8 (1)
2	WHT	4-0-2 INSTR GRND	18 AWG	GXL	N/A		RL-1 (5)

S721							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	6-2-3 IGN 48 VOLT	18 AWG	GXL	N/A		MS-3 (2)
2	YEL	6-2 IGN 48 VOLT	18 AWG	GXL	N/A		RL-1 (4)
2	YEL	6-2-3 IGN 48 VOLT	18 AWG	GXL	N/A		X2-B (4)

S740							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	82-1 PLAT TX	18 AWG	GXL	N/A		CO1-J7 (2)
1	WHT	82-2 PLAT TX	18 AWG	GXL	N/A		CO1-J7 (1)
2	WHT	82-0 PLAT TX	18 AWG	GXL	N/A		X4-A (4)

S524							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	1-0 B+	12 AWG	GXL	N/A		X2-B (2)
1	RED	1-0-1 B+	12 AWG	GXL	N/A		MS-3 (1)
2	RED	1-0-2 B+	18 AWG	GXL	N/A		RL-1 (1)
2	RED	1-0-3 B+	16 AWG	GXL	N/A		RL-2 (1)

CO1-J1-NATURAL							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460905		
2	WHT	300-1 ALERT PWR	18 AWG	GXL	4460871		X742 (1)
3					4460905		
4	BLK	300-2 ALERT GND	18 AWG	GXL	4460871		X742 (2)
5					4460905		
6					4460905		
7					4460905		
8					4460905		
9					4460905		
10					4460905		
11					4460905		
12					4460905		
13	WHT	49-10 VOTE RELAY	18 AWG	GXL	4460871		RL-2 (2)
14					4460905		
15					4460905		
16					4460905		
17					4460905		
18					4460905		
19	WHT	4-52 INSTR GND	18 AWG	GXL	4460871		RL-2 (5)
20					4460905		
21					4460905		
22					4460905		
23					4460905		
24					4460905		
25					4460905		
26					4460905		
27					4460905		
28	WHT	51-1 ANALYZER PWR	18 AWG	GXL	4460871		X240 (1)
29	WHT	52-1 ANALYZER RS-232 RX	18 AWG	GXL	4460871		X240 (2)
30	WHT	53-1 ANALYZER RS-232 TX	18 AWG	GXL	4460871		X240 (3)
31	WHT	54-1 ANALYZER GND	18 AWG	GXL	4460871		X240 (4)
32					4460905		
33					4460905		
34					4460905		
35					4460905		

CO1-J12							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460905		
2					4460905		
3	YEL	83-1-1 CAN2 HIGH	18 AWG	GXL	4460871		X756 (2)
4	GRN	84-1-1 CAN2 LOW	18 AWG	GXL	4460871		X756 (3)
5					4460905		
6					4460905		
7					4460905		
8	WHT	80-0 MSSO	18 AWG	GXL	4460871		X3-A (7)
NC							

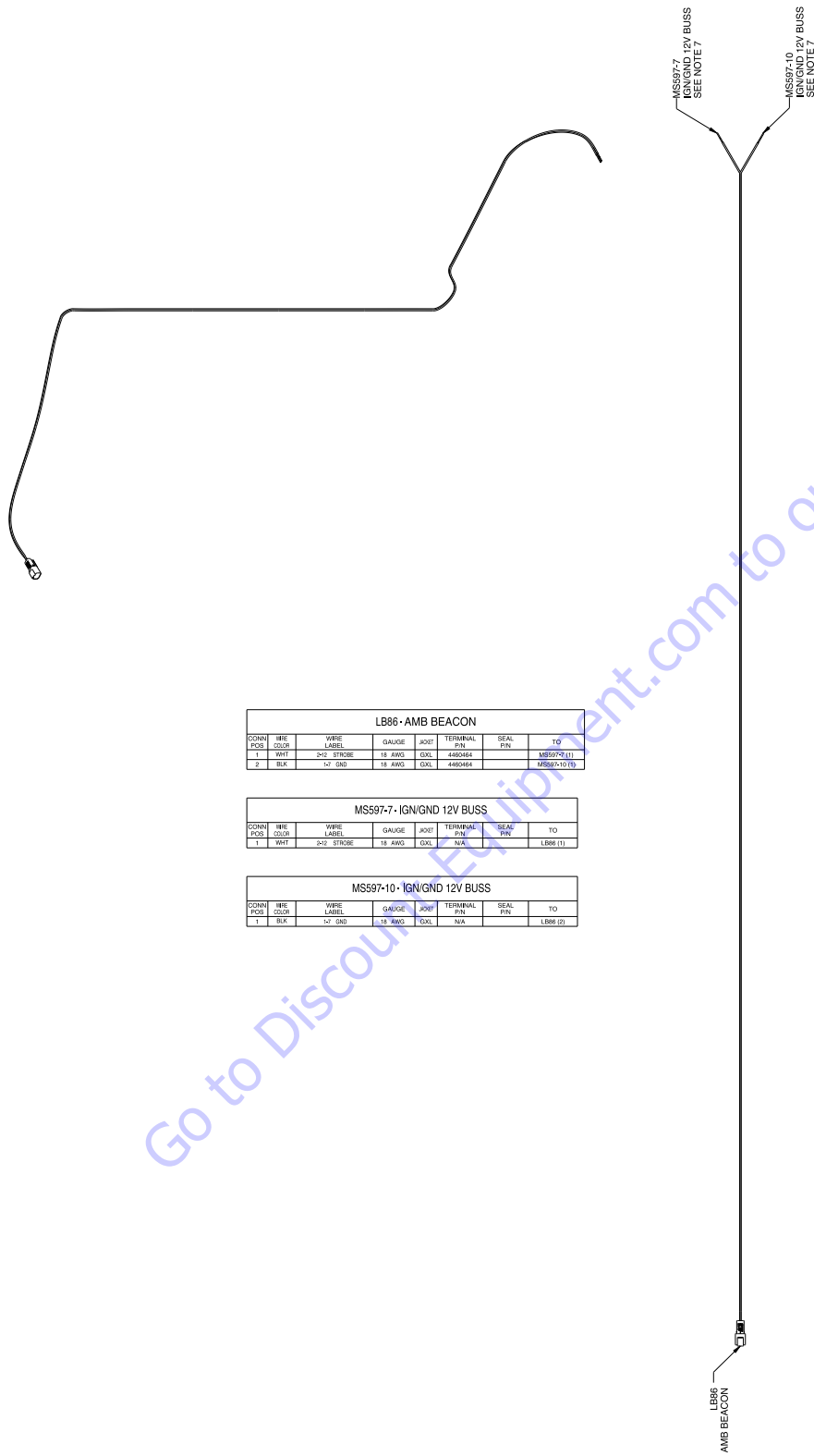
CO1-J7 - BLACK							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	82-2 PLAT TX	18 AWG	GXL	4460871		S740 (1)
2	WHT	82-1 PLAT TX	18 AWG	GXL	4460871		S740 (1)
3	YEL	5-10-6	18 AWG	GXL	4460871		X3-A (6)
4	WHT	57-0 UPPER BOOM	18 AWG	GXL	4460871		X9B (1)
5					4460905		
6	WHT	CAN TERM JUMPER	18 AWG	GXL	4460871		CO1-J7 (17)
7	WHT	58-0 LOWER BOOM	18 AWG	GXL	4460871		X9B (4)
8					4460905		
9					4460905		
10					4460905		
11	YEL	5-5	18 AWG	GXL	4460871		SN242 (2)
12					4460905		
13	YEL	CAN1 HI	18 AWG	GXL	4460871		MS423-1 (A)
14	WHT	81-0 GND MODE RX	18 AWG	GXL	4460871		X4-A (11)
15	WHT	131-3 FOOTSWITCH	18 AWG	GXL	4460871		X4-A (6)
16					4460905		
17	WHT	CAN TERM JUMPER	18 AWG	GXL	4460871		CO1-J7 (6)
18					4460905		
19					4460905		
20					4460905		
21					4460905		
22					4460905		
23					4460905		
24	GRN	CAN1 LO	18 AWG	GXL	4460871		MS423-1 (B)
25	BLK	4-55	18 AWG	GXL	4460871		X2-B (10)
26					4460905		
27					4460905		
28					4460905		
29	YEL	5-50	18 AWG	GXL	4460871		X2-B (9)
30	YEL	5-33 IGN LIM SW	18 AWG	GXL	4460871		S543 (2)
31					4460905		
32	WHT	59-0 DOS	18 AWG	GXL	4460871		SN242 (1)
33					4460905		
34					4460905		
35					4460905		

CO1-J8							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	4-0-1 INSTR GND	12 AWG	GXL	4460887		S557 (2)
2	YEL	5-10-1-1 SWITCHED PWR	12 AWG	GXL	4460887		S541 (1)
3	BLK	PLAT GND	12 AWG	GXL	4460887		X4-A (16)
4	YEL	PLATFORM PWR	12 AWG	GXL	4460887		X4-A (12)

X756 - CAN TERM							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	83-1 CAN2 HIGH	18 AWG	GXL	4460465		MS7 (A)
2	YEL	83-1-1 CAN2 HIGH	18 AWG	GXL	4460465		CO1-J12 (3)
3	GRN	84-1-1 CAN2 LOW	18 AWG	GXL	4460465		CO1-J12 (4)
4	GRN	84-1 CAN2 LOW	18 AWG	GXL	4460465		MS7 (B)

Figure 7-33. Turntable Harness - Sheet 3 of 3

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS



LB86 - AMB BEACON							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JOINT	TERMINAL PIN	SEAL PIN	TO
1	WHT	2-12 STROBE	18 AWG	DXL	4402464		MSS97-7 (1)
2	BLK	3-12 GND	18 AWG	DXL	4402464		MSS97-10 (1)

MSS97-7 - IGN/GND 12V BUSS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JOINT	TERMINAL PIN	SEAL PIN	TO
1	WHT	2-12 STROBE	18 AWG	DXL	NA		LB86 (1)

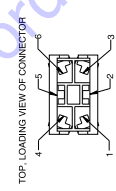
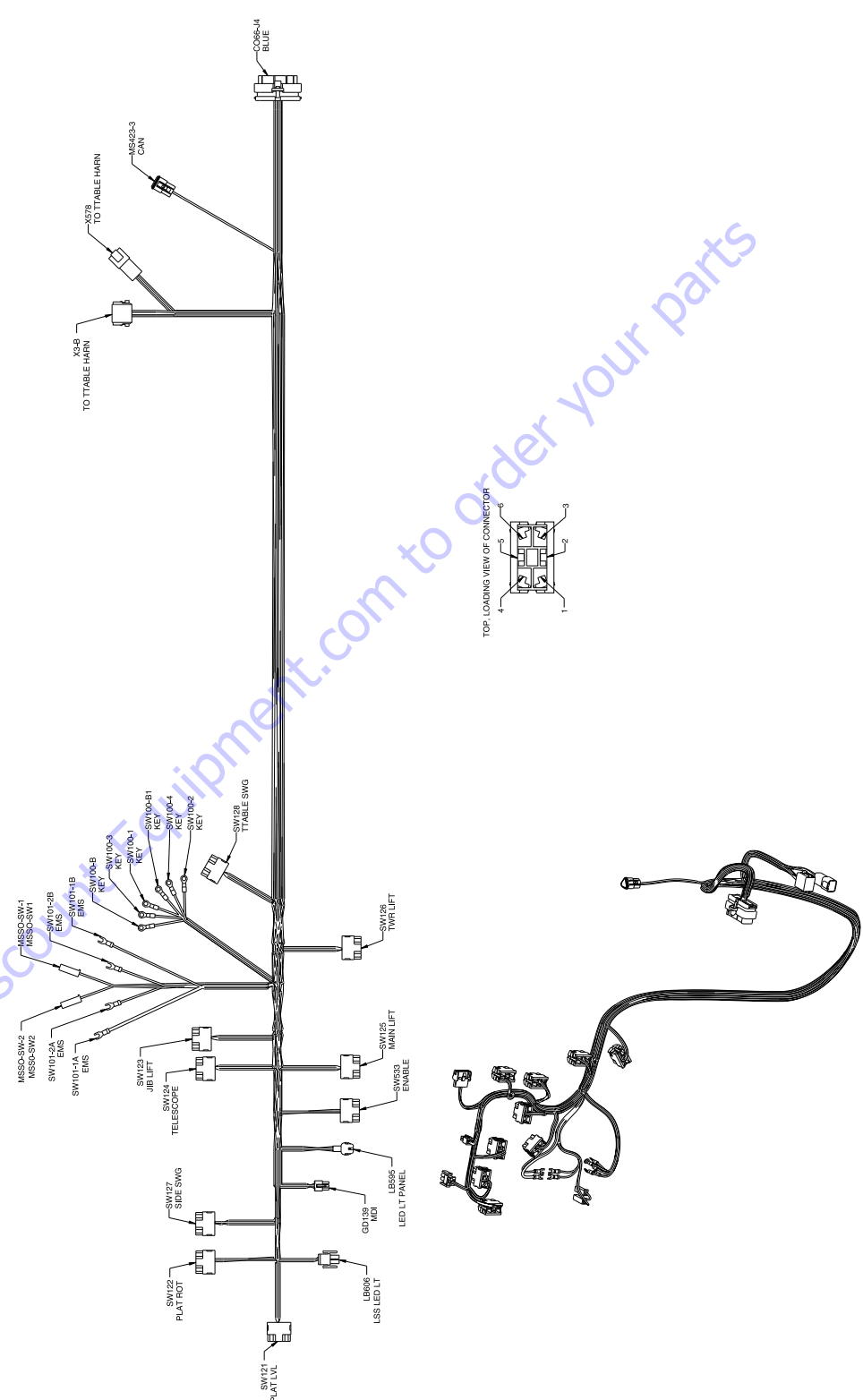
MSS97-10 - IGN/GND 12V BUSS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JOINT	TERMINAL PIN	SEAL PIN	TO
1	BLK	3-12 GND	18 AWG	DXL	NA		LB86 (2)

Go to DiscountEquipment.com to order your parts

Figure 7-34. Amber Beacon Harness

1001194071 C

Go to DiscountEquipment.com to order your parts



1001181095 G

Figure 7-35. Ground Panel Harness - Sheet 1 of 3

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

GD139 - MDI							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1		METER PWR	METER PWR	18 AWG	GXL	4460877	CO66-J4 (24)
2		METER GND	METER GND	18 AWG	GXL	4460877	CO66-J4 (32)
3		CAN1 LO		18 AWG	GXL	4460877	MS423-3 (B)
4		CAN1 HI		18 AWG	GXL	4460877	MS423-3 (A)
5							
6							

SW127 - SIDE SWG							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	31-0-1	SIDE SWG RHT	18 AWG	GXL	1001159186	CO66-J4 (20)
2	YEL	5-15-6		18 AWG	GXL	4460419	SW123 (2)
2	YEL	5-15-9		18 AWG	GXL	4460419	SW121 (2)
3	WHT	32-0-1	SIDE SWG LFT	18 AWG	GXL	1001159186	CO66-J4 (9)
4							
5							
6							

SW121 - PLAT LVL							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	25-0-1	PLAT LVL UP	18 AWG	GXL	1001159186	CO66-J4 (17)
2	YEL	5-15-7		18 AWG	GXL	4460419	SW122 (2)
2	YEL	5-15-9		18 AWG	GXL	4460419	SW127 (2)
3	WHT	26-0-1	PLAT LVL DN	18 AWG	GXL	1001159186	CO66-J4 (5)
4							
5							
6							

SW128 - TTABLE SWG							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	22-1	SWG RHT	18 AWG	GXL	1001159186	CO66-J4 (35)
2	YEL	5-15-2		18 AWG	GXL	4460419	SW124 (2)
2	YEL	5-15-3		18 AWG	GXL	4460419	SW126 (2)
3	WHT	21-1	SWG LFT	18 AWG	GXL	1001159186	CO66-J4 (34)
4							
5							
6							

SW122 - PLAT ROT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	24-0-1	PLAT ROT RHT	18 AWG	GXL	1001159186	CO66-J4 (18)
2	YEL	5-15-7		18 AWG	GXL	1001159186	SW121 (2)
3	WHT	23-0-1	PLAT ROT LFT	18 AWG	GXL	1001159186	CO66-J4 (6)
4							
5							
6							

SW533 - ENABLE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	99-0	ENABLE	18 AWG	GXL	1001159186	CO66-J4 (16)
2	YEL	5-15		18 AWG	GXL	4460419	CO66-J4 (25)
2	YEL	5-15-1		18 AWG	GXL	4460419	SW124 (2)
3							
4							
5							
6							

SW123 - JIB LIFT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	27-0-1	JIB UP	18 AWG	GXL	1001159186	CO66-J4 (19)
2	YEL	5-15-5		18 AWG	GXL	4460419	SW125 (2)
2	YEL	5-15-6		18 AWG	GXL	4460419	SW127 (2)
3	WHT	28-0-1	JIB DN	18 AWG	GXL	1001159186	CO66-J4 (8)
4							
5							
6							

MSSO-SW-1							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	4-23		18 AWG	GXL	4460259	LB606 (2)

MSSO-SW-2							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	80-0	MSSO	18 AWG	GXL	4460259	X3-B (7)

SW124 - TELESCOPE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	14-0-2	TELE OUT	18 AWG	GXL	1001159186	CO66-J4 (30)
2	YEL	5-15-1		18 AWG	GXL	4460419	SW533 (2)
2	YEL	5-15-2		18 AWG	GXL	4460419	SW128 (2)
3	WHT	13-0-2	TELE IN	18 AWG	GXL	1001159186	CO66-J4 (7)
4							
5							
6							

SW101-1A - EMS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1A	RED	3-0	CONSTANT 12V	12 AWG	GXL	N/A	X3-B (1)

SW101-2A - EMS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
2A	YEL	5-1	IGN	18 AWG	GXL	N/A	SW100-B1 (1)

SW125 - MAIN LIFT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	3-1	MAIN LIFT UP	18 AWG	GXL	1001159186	CO66-J4 (23)
2	YEL	5-15-4		18 AWG	GXL	4460419	SW126 (2)
2	YEL	5-15-5		18 AWG	GXL	4460419	SW123 (2)
3	WHT	4-1	MAIN LIFT DN	18 AWG	GXL	1001159186	CO66-J4 (33)
4							
5							
6							

SW101-1B - EMS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1B	YEL	5-10-3	IGN	18 AWG	GXL	N/A	X3-B (2)

SW126 - TWR LIFT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	29-0-2	TWR UP	18 AWG	GXL	1001159186	CO66-J4 (10)
2	YEL	5-15-3		18 AWG	GXL	4460419	SW128 (2)
2	YEL	5-15-4		18 AWG	GXL	4460419	SW125 (2)
3	WHT	30-0-2	TWR DN	18 AWG	GXL	1001159186	CO66-J4 (21)
4							
5							
6							

SW101-2B - EMS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
2B	YEL	2-26	IGN	18 AWG	GXL	N/A	SW100-B (1)

Figure 7-36. Ground Panel Harness - Sheet 2 of 3

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

SW100-1 - KEY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	5-11-1 IGN PLAT	18 AWG	GXL	N/A		X3-B (5)

SW100-2 - KEY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-2-6 IGN	18 AWG	GXL	N/A		X3-B (3)

SW100-3 - KEY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-10-6 IGN GMODE	18 AWG	GXL	N/A		X3-B (6)

SW100-4 - KEY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-2-1 IGN GMODE	18 AWG	GXL	N/A		X3-B (4)

SW100-B - KEY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	2-26 IGN	18 AWG	GXL	N/A		SW101-2B (2B)

SW100-B1 - KEY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-1 IGN	18 AWG	GXL	N/A		SW101-2A (2A)

LB595- LED LT PANEL							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	4-56	18 AWG	GXL	4460226		X578 (4)
2	WHT	206 YEL LED	18 AWG	GXL	4460226		X578 (2)
3	WHT	207 GRN LED	18 AWG	GXL	4460226		X578 (3)
4	WHT	205 RED LED	18 AWG	GXL	4460226		X578 (1)

LB606- LSS LED LT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	108-0 LSS LAMP	18 AWG	GXL	4460227		CO66-J4 (14)
2	BLK	4-22	18 AWG	GXL	4460267		CO66-J4 (31)
2	BLK	4-23	18 AWG	GXL	4460267		MSSO-SW-1 (1)

X578 - TO TTABLE HARN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	205 RED LED	18 AWG	GXL	100116693		LB595 (4)
2	WHT	206 YEL LED	18 AWG	GXL	100116693		LB595 (2)
3	WHT	207 GRN LED	18 AWG	GXL	100116693		LB595 (3)
4	BLK	4-56	18 AWG	GXL	100116693		LB595 (1)

X3-B - TO TTABLE HARN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	3-0 CONSTANT 12V	12 AWG	GXL	1001157890		SW101-1A (1A)
2	YEL	5-10-3 IGN	18 AWG	GXL	100116692		SW101-1B (1B)
3	YEL	5-2-6 IGN	18 AWG	GXL	100116692		SW100-2 (1)
4	YEL	5-2-1 IGN GMODE	18 AWG	GXL	100116692		SW100-4 (1)
5	WHT	5-11-1 IGN PLAT	18 AWG	GXL	100116692		SW100-1 (1)
6	YEL	5-10-6 IGN GMODE	18 AWG	GXL	100116692		SW100-3 (1)
7	WHT	80-0 MSSO	18 AWG	GXL	100116692		MSSO-SW-2 (1)
8					4460466		

MS423-3 - CAN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
A		CAN1 HI	18 AWG	GXL	4460944		GD139 (4)
B		CAN1 LO	18 AWG	GXL	4460944		GD139 (3)
C					4460466		

CO66-J4 - BLUE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460905		
2					4460905		
3					4460905		
4					4460905		
5	WHT	25-0-1 PLAT LVL DN	18 AWG	GXL	4460871		SW121 (3)
6	WHT	23-0-1 PLAT ROT LFT	18 AWG	GXL	4460871		SW122 (3)
7	WHT	13-0-2 TELE IN	18 AWG	GXL	4460871		SW124 (3)
8	WHT	29-0-1 JIB DN	18 AWG	GXL	4460871		SW123 (3)
9	WHT	32-0-1 SIDE SWG LFT	18 AWG	GXL	4460871		SW127 (3)
10	WHT	29-0-2 TWR UP	18 AWG	GXL	4460871		SW126 (1)
11					4460905		
12					4460905		
13					4460905		
14	WHT	108-0 LSS LAMP	18 AWG	GXL	4460871		LB606 (1)
15					4460905		
16	WHT	99-0 ENABLE	18 AWG	GXL	4460871		SW533 (1)
17	WHT	25-0-1 PLAT LVL UP	18 AWG	GXL	4460871		SW121 (1)
18	WHT	24-0-1 PLAT ROT RHT	18 AWG	GXL	4460871		SW122 (1)
19	WHT	27-0-1 JIB UP	18 AWG	GXL	4460871		SW123 (1)
20	WHT	31-0-1 SIDE SWG RHT	18 AWG	GXL	4460871		SW127 (1)
21	WHT	30-0-2 TWR DN	18 AWG	GXL	4460871		SW126 (3)
22					4460905		
23	WHT	3-1 MAIN LIFT UP	18 AWG	GXL	4460871		SW125 (1)
24	WHT	METER PWR METER PWR	18 AWG	GXL	4460871		GD139 (1)
25	YEL	5-15	18 AWG	GXL	4460871		SW533 (2)
26					4460905		
27					4460905		
28					4460905		
29					4460905		
30	WHT	14-0-2 TELE OUT	18 AWG	GXL	4460871		SW124 (1)
31	BLK	4-22	18 AWG	GXL	4460871		LB606 (2)
32	BLK	METER GND METER GND	18 AWG	GXL	4460871		GD139 (2)
33	WHT	4-1 MAIN LIFT DN	18 AWG	GXL	4460871		SW125 (3)
34	WHT	21-1 SWG LFT	18 AWG	GXL	4460871		SW128 (3)
35	WHT	22-1 SWG RHT	18 AWG	GXL	4460871		SW128 (1)

Figure 7-37. Ground Panel Harness - Sheet 3 of 3

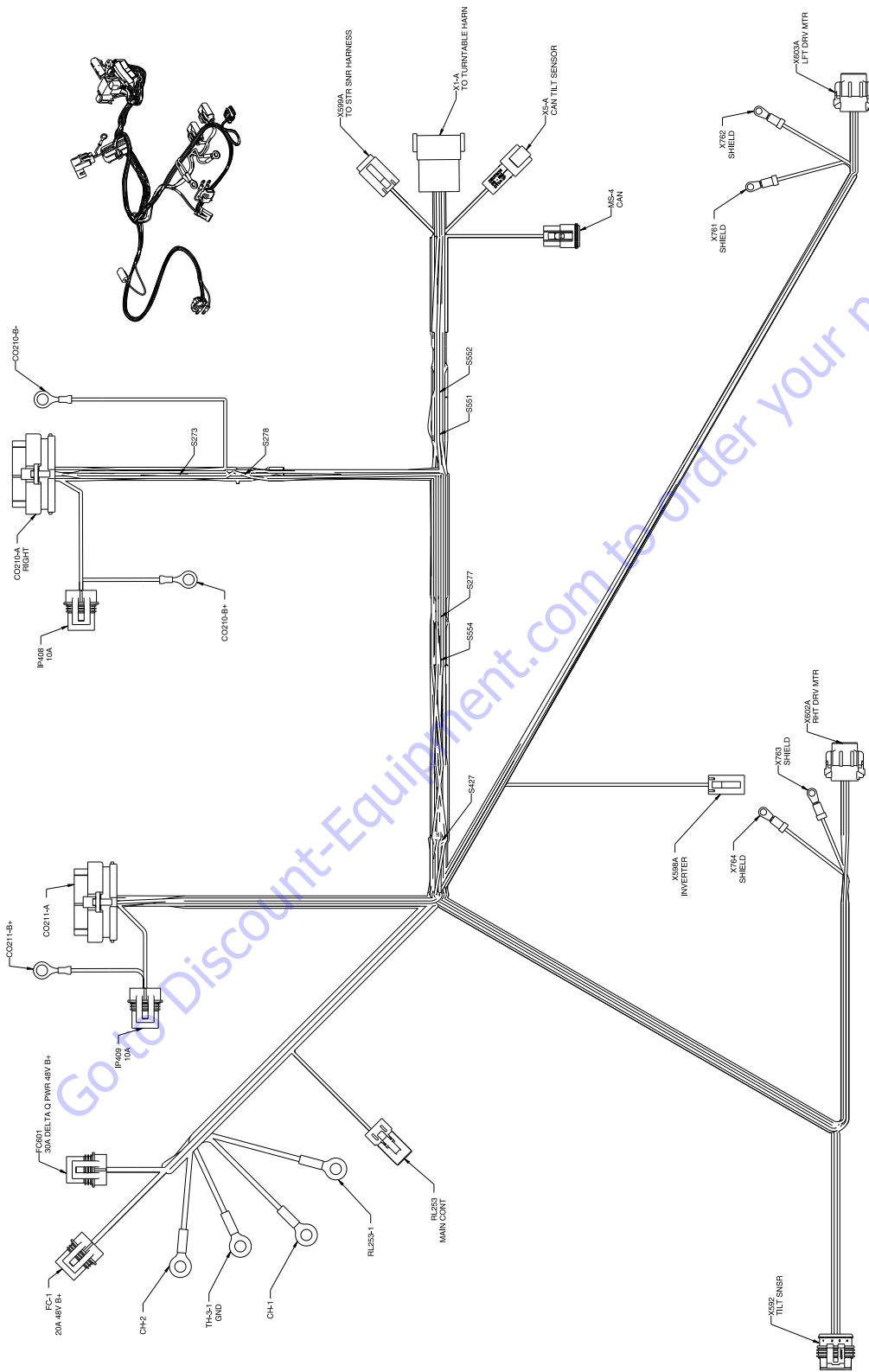


Figure 7-38. Chassis Traction Harness - Sheet 1 of 3

1001192110H

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

IP409							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	BRAKE2-IN	16 AWG	GXL	1001116733		CO211-A (3)
2	RED	BRAKE2-IN-2	16 AWG	GXL	1001116733		CO211-B+ (1)

CH-2							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	2-2	12 AWG	GXL	N/A		X1-A (7)

CO211-B+							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	BRAKE2-IN-2	16 AWG	GXL	N/A		IP409 (2)

TH-3-1 - GND							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	B- 2-0	12 AWG	GXL	N/A		X1-A (1)

RL253 - MAIN CONT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	VOTE-RLY-NO	18 AWG	GXL	1001126008		X1-A (5)
2	WHT	CONTACTOR-LS	18 AWG	GXL	1001126008		CO210-A (12)

IP408							
CONNECTOR PART NUMBER: 1001217843 MUST INCLUDE JLG P/N: 1001217842 COVER AND 8229234 FUSE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	BRAKE1-IN	16 AWG	GXL	1001116733		CO210-A (3)
2	RED	BRAKE1-IN-2	16 AWG	GXL	1001116733		CO210-B+ (1)

CO211-A - LEFT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460905		
2	WHT	100 LFT BRK	18 AWG	GXL	4460871		X603A (7)
3	RED	BRAKE2-IN	16 AWG	GXL	4460871		IP409 (1)
4	BLK	1-2 LFT BRK GND	18 AWG	GXL	4460871		X603A (8)
5	BLK	2-1	18 AWG	GXL	4460871		S273 (2)
6	YEL	6-2-4 IGN 48 VOLT	18 AWG	GXL	4460871		S427 (2)
7					4460905		
8					4460905		
9					4460905		
10	YEL	6-2-6 IGN 48 VOLT	18 AWG	GXL	4460871		S427 (2)
11					4460905		
12					4460905		
13	GRN	184 CABLE	18 AWG	CABLE	4460871		X603A (2)
14	WHT	184 CABLE	18 AWG	CABLE	4460871		X603A (3)
15					4460905		
16					4460905		
17					4460905		
18					4460905		
19					4460905		
20					4460905		
21					4460905		
22	RED	182 STP	18 AWG	CABLE	4460871		X603A (5)
23					4460905		
24					4460905		
25	RED	184 CABLE	18 AWG	CABLE	4460871		X603A (1)
26					4460905		
27	GRN	CAN2 LO	18 AWG	GXL	4460871		S552 (2)
28	YEL	CAN2 HI	18 AWG	GXL	4460871		S551 (2)
29					4460905		
30					4460905		
31					4460905		
32					4460905		
33					4460905		
34					4460905		
35					4460905		
NC	SHIELD	184 CABLE	18 AWG	SHLD	N/A		X761 (1)
NC	SHIELD	182 CABLE	18 AWG	SHLD	N/A		X762 (1)

CO210-B+							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	BRAKE1-IN-2	16 AWG	GXL	N/A		IP408 (2)

S273							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	184 CABLE	18 AWG	CABLE	N/A		X603A (4)
1	BLK	182 STP	18 AWG	CABLE	N/A		X603A (6)
2	BLK	2-1	18 AWG	GXL	N/A		CO211-A (5)

S427							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	6-2-2 IGN 48 VOLT	18 AWG	GXL	N/A		S554 (1)
1	WHT	6-2-5 IGN 48 VOLT	16 AWG	GXL	N/A		CO210-A (10)
2	YEL	6-2-4 IGN 48 VOLT	18 AWG	GXL	N/A		CO211-A (6)
2	YEL	6-2-6 IGN 48 VOLT	18 AWG	GXL	N/A		CO211-A (10)

X598A - INVERTER							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	43-1 INVERTER	18 AWG	GXL	4460465		S554 (1)
2					4460466		

X592 - TILT SNSR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	5-50	18 AWG	GXL	1001107854	1001104498	X1-A (9)
2	BLK	4-55	18 AWG	GXL	1001107854	1001104498	X1-A (10)
3	YEL	CAN1 HI	18 AWG	GXL	1001107854	1001104498	X5-A (1)
4	GRN	CAN1 LO	18 AWG	GXL	1001107854	1001104498	X5-A (2)

FC-1 - 20A 48V B+							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	1-0-1 B+	12 AWG	GXL	1001116734		RL253-1 (1)
2	RED	1-0-2 B+	12 AWG	GXL	1001116734		X1-A (2)

X761 - SHIELD							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	SHIELD	184 CABLE	18 AWG	SHLD			CO211-A (NC)

FC601 - 30A DELTA Q PWR 48V B+							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	1-6 B+	12 AWG	GXL	1001116734	8220159	CH-1 (1)
2	RED	1-7 B+	12 AWG	GXL	1001116734	8220159	X1-A (6)

X762 - SHIELD							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	SHIELD	182 CABLE	18 AWG	SHLD			CO211-A (NC)

RL253-1							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	1-0-1 B+	12 AWG	GXL	N/A		FC-1 (1)

X763 - SHIELD							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	SHIELD	182 STP	18 AWG	SHLD			CO210-A (NC)

CH-1							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	1-6 B+	12 AWG	GXL	N/A		FC601 (1)

X764 - SHIELD							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	SHIELD	184 CABLE	18 AWG	SHLD			CO210-A (NC)

Figure 7-39. Chassis Traction Harness - Sheet 2 of 3

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

X603A - LFT DRV MTR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	184 CABLE	18 AWG	CABLE	1001126008		CO211-A (25)
2	GRN	184 CABLE	18 AWG	CABLE	1001126008		CO211-A (13)
3	WHT	184 CABLE	18 AWG	CABLE	1001126008		CO211-A (14)
4	BLK	184 CABLE	18 AWG	CABLE	1001126008		S273 (1)
5	RED	182 STP	18 AWG	CABLE	1001126008		CO211-A (22)
6	BLK	182 STP	18 AWG	CABLE	1001126008		S273 (1)
7	WHT	100 LFT BRK	18 AWG	GXL	1001126008		CO211-A (2)
8	BLK	1-2 LFT BRK GND	18 AWG	GXL	1001126008		CO211-A (4)
NC							

X599A - TO STR SNR HARNESS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	201-1 STR SNR	18 AWG	GXL	4460465		S277 (1)
2	BLU	STEER-SIG	18 AWG	GXL	4460465		CO210-A (15)
3	BLK	GND1-3	18 AWG	GXL	4460465		S278 (2)
4					4460466		

CO210-B-							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	GND-ADDR	18 AWG	GXL	N/A		CO210-A (6)

MS-4- CAN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
A	YEL	CAN2 HI	18 AWG	GXL	4460944		S551 (1)
B	GRN	CAN2 LO	18 AWG	GXL	4460944		S552 (1)
C					4460466		

CO210-A - RIGHT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460905		
2	WHT	200 RT BRK	18 AWG	GXL	4460871		X602A (7)
3	RED	BRAKE1-N	18 AWG	GXL	4460871		IP408 (1)
4	BLK	2-6 RT BRK GND	18 AWG	GXL	4460871		X602A (8)
5	BLK	GND1-0	18 AWG	GXL	4460871		S278 (1)
6	BLK	GND-ADDR	18 AWG	GXL	4460871		CO210-B- (1)
7					4460905		
8					4460905		
9					4460905		
10	WHT	6-2-5 IGN 48 VOLT	18 AWG	GXL	4460871		S427 (1)
11					4460905		
12	WHT	CONTACTORLS	18 AWG	GXL	4460871		RL253 (2)
13	GRN	184 CABLE	18 AWG	CABLE	4460871		X602A (2)
14	WHT	184 CABLE	18 AWG	CABLE	4460871		X602A (3)
15	BLU	STEER-SIG	18 AWG	GXL	4460871		X599A (2)
16	WHT	CHRG-STAT	18 AWG	GXL	4460871		X1-A (8)
17					4460905		
18					4460905		
19					4460905		
20					4460905		
21					4460905		
22	RED	182 STP	18 AWG	CABLE	4460871		X602A (5)
23					4460905		
24					4460905		
25	WHT	201-2 RT SNR PWR	18 AWG	GXL	4460871		S277 (1)
26					4460905		
27	GRN	CAN2 LO	18 AWG	GXL	4460871		S552 (2)
28	YEL	CAN2 HI	18 AWG	GXL	4460871		S551 (2)
29					4460905		
30					4460905		
31					4460905		
32					4460905		
33					4460905		
34					4460905		
35					4460905		
NC	SHIELD	182 STP	18 AWG	SHLD	N/A		X763 (1)
NC	SHIELD	184 CABLE	18 AWG	SHLD	N/A		X764 (1)

X5-A- CAN TILT SENSOR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	CAN1 HI	18 AWG	GXL	4460464		X592 (3)
2	GRN	CAN1 LO	18 AWG	GXL	4460464		X592 (4)

S551							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	CAN2 HI	18 AWG	GXL	N/A		MS-4 (A)
2	YEL	CAN2 HI	18 AWG	GXL	N/A		CO210-A (28)
2	YEL	CAN2 HI	18 AWG	GXL	N/A		CO211-A (28)

S278							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	GND1-0	18 AWG	GXL	N/A		CO210-A (5)
2	BLK	184 CABLE	18 AWG	CABLE	N/A		X602A (4)
2	BLK	182 STP	18 AWG	CABLE	N/A		X602A (6)
2	BLK	GND1-3	18 AWG	GXL	N/A		X599A (3)

S277							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	201-1 STR SNR	18 AWG	GXL	N/A		X599A (1)
1	WHT	201-2 RT SNR PWR	18 AWG	GXL	N/A		CO210-A (25)
2	RED	184 CABLE	18 AWG	CABLE	N/A		X602A (1)

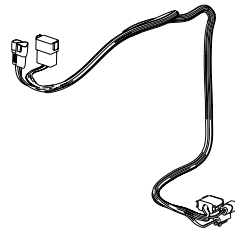
S552							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	GRN	CAN2 LO	18 AWG	GXL	N/A		MS-4 (B)
2	GRN	CAN2 LO	18 AWG	GXL	N/A		CO210-A (27)
2	GRN	CAN2 LO	18 AWG	GXL	N/A		CO211-A (27)

X602A- RHT DRV MTR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	184 CABLE	18 AWG	CABLE	1001126008		S277 (2)
2	GRN	184 CABLE	18 AWG	CABLE	1001126008		CO210-A (13)
3	WHT	184 CABLE	18 AWG	CABLE	1001126008		CO210-A (14)
4	BLK	184 CABLE	18 AWG	CABLE	1001126008		S278 (2)
5	RED	182 STP	18 AWG	CABLE	1001126008		CO210-A (22)
6	BLK	182 STP	18 AWG	CABLE	1001126008		S278 (2)
7	WHT	200 RT BRK	18 AWG	GXL	1001126008		CO210-A (2)
8	BLK	2-6 RT BRK GND	18 AWG	GXL	1001126008		CO210-A (4)
NC							

X1-A- TO TURNABLE HARN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	B- 2-0	12 AWG	GXL	1001157891		TH-3-1 (1)
2	RED	1-0 B+	12 AWG	GXL	1001157891		FC-1 (2)
3	YEL	6-8 IGN PWR 48 VOLT	18 AWG	GXL	4460464		S554 (1)
4	YEL	6-2-3 IGN 48 VOLT	18 AWG	GXL	4460464		S554 (2)
5	YEL	VOTE-RLY-MO	18 AWG	GXL	4460464		RL253 (1)
6	RED	1-7 B+	12 AWG	GXL	1001157891		FC601 (2)
7	BLK	2-2	12 AWG	GXL	1001157891		CH-2 (1)
8	WHT	CHRG-STAT	18 AWG	GXL	4460464		CO210-A (16)
9	YEL	5-50	18 AWG	GXL	4460464		X592 (1)
10	BLK	4-55	18 AWG	GXL	4460464		X592 (2)
11					4460466		
12					4460466		

S554							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	6-2-2 IGN 48 VOLT	18 AWG	GXL	N/A		S427 (1)
1	YEL	6-8 IGN PWR 48 VOLT	18 AWG	GXL	N/A		X1-A (3)
1	WHT	43-1 INVERTER	18 AWG	GXL	N/A		X598A (1)
2	YEL	6-2-3 IGN 48 VOLT	18 AWG	GXL	N/A		X1-A (4)

Figure 7-40. Chassis Traction Harness - Sheet 3 of 3



X2-A - TO TTABLE HARN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JOCT	TERMINAL P/N	SEAL P/N	TO
1	BLK	S4 5-	12 AWG	GXL	1001157891		X1-B (1)
2	RED	14 5-	12 AWG	GXL	1001157891		X1-B (2)
3	YEL	64 RHN PWR 48 VOLT	18 AWG	GXL	4460464		X1-B (3)
4	YEL	600 RHN 48 VOLT	18 AWG	GXL	4460464		X1-B (4)
5	YEL	48-10 VOTER 48V	18 AWG	GXL	4460464		X1-B (5)
6	RED	17	12 AWG	GXL	1001157891		X1-B (6)
7	BLK	S2	12 AWG	GXL	1001157891		X1-B (7)
8	WHT	CHRGS-TAT	18 AWG	GXL	4460464		X1-B (8)
9	YEL	S05	18 AWG	GXL	4460464		X1-B (9)
10	BLK	L35	18 AWG	GXL	4460464		X1-B (10)
11					4460466		
12					4460466		

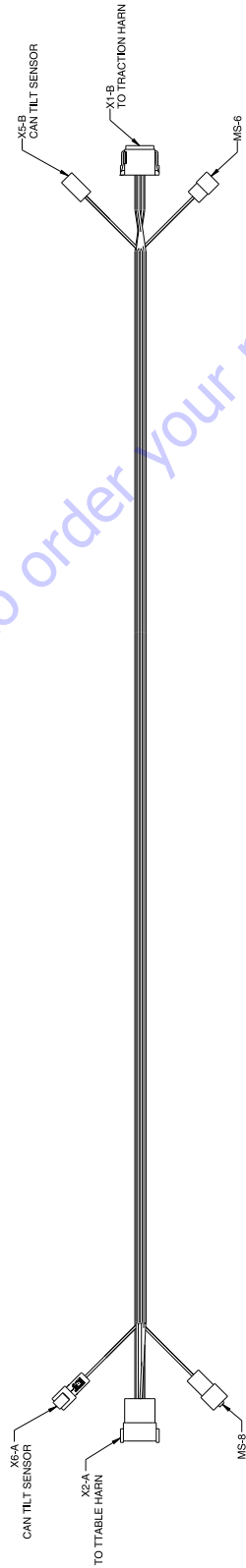
MS-6							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JOCT	TERMINAL P/N	SEAL P/N	TO
A	YEL	84-1 CAN2 HIGH	18 AWG	GXL	4460463		MS-6 (A)
B	GRN	84-1 CAN2 LOW	18 AWG	GXL	4460463		MS-6 (B)
C					4460466		

X6-A - CAN TILT SENSOR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JOCT	TERMINAL P/N	SEAL P/N	TO
1	YEL	GRN HI	18 AWG	GXL	4460465		X6-A (1)
2	GRN	CAN1 LO	18 AWG	GXL	4460465		X6-A (2)

MS-6							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JOCT	TERMINAL P/N	SEAL P/N	TO
A	YEL	84-1 CAN2 HIGH	18 AWG	GXL	4460464		MS-6 (A)
B	GRN	84-1 CAN2 LOW	18 AWG	GXL	4460464		MS-6 (B)
C					4460466		

X5-B - CAN TILT SENSOR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JOCT	TERMINAL P/N	SEAL P/N	TO
1	YEL	CAN1 HI	18 AWG	GXL	4460465		X5-B (1)
2	GRN	CAN1 LO	18 AWG	GXL	4460465		X5-B (2)

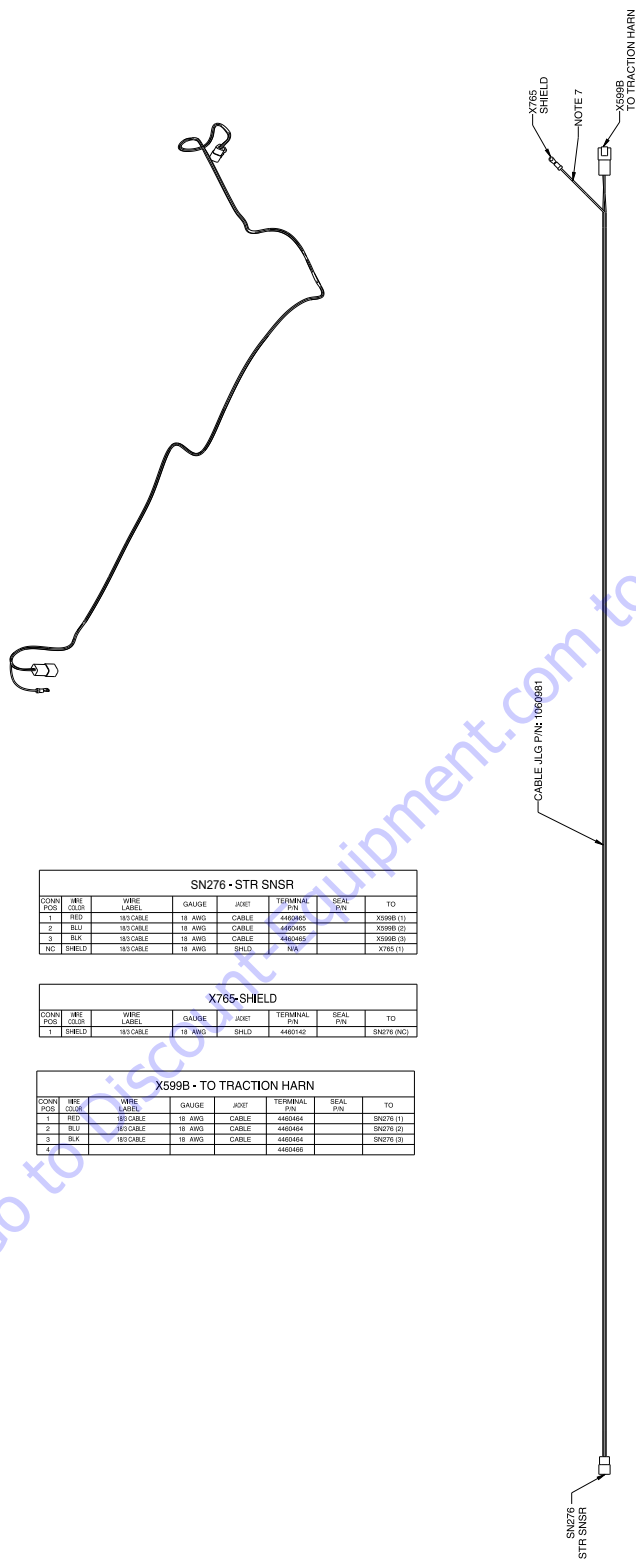
X1-B - TO TRACTION HARN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JOCT	TERMINAL P/N	SEAL P/N	TO
1	BLK	S4 5-	12 AWG	GXL	1001157890		X2-A (1)
2	RED	14 5-	12 AWG	GXL	1001157890		X2-A (2)
3	YEL	64 RHN PWR 48 VOLT	18 AWG	GXL	4460465		X2-A (3)
4	YEL	600 RHN 48 VOLT	18 AWG	GXL	4460465		X2-A (4)
5	YEL	48-10 VOTER 48V	18 AWG	GXL	4460465		X2-A (5)
6	RED	17	12 AWG	GXL	1001157890		X2-A (6)
7	BLK	S2	12 AWG	GXL	1001157890		X2-A (7)
8	WHT	CHRGS-TAT	18 AWG	GXL	4460465		X2-A (8)
9	YEL	S05	18 AWG	GXL	4460465		X2-A (9)
10	BLK	L35	18 AWG	GXL	4460465		X2-A (10)
11					4460466		
12					4460466		



Go to DiscountParts.com to order your parts

Figure 7-41. Chassis Traction to Turntable Harness

1001192112 E



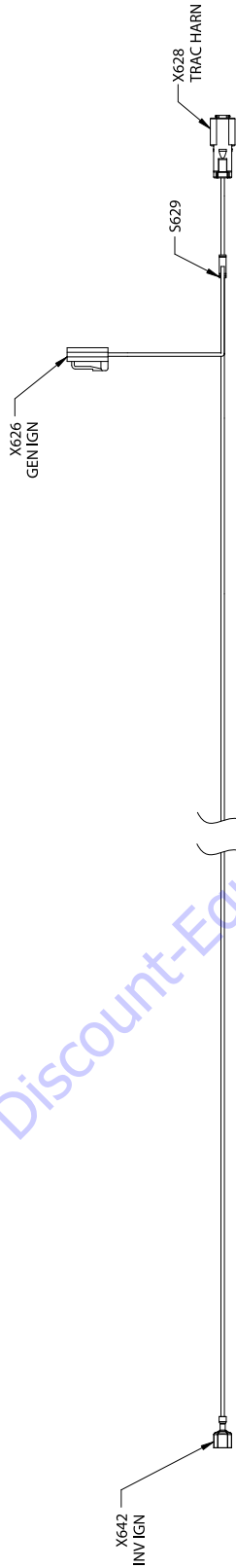
SN276 - STR SNSR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL PIN	SEAL PIN	TO
1	RED	185 CABLE	18 AWG	CABLE	4460465		X599B (1)
2	BLU	185 CABLE	18 AWG	CABLE	4460465		X599B (2)
3	BLK	185 CABLE	18 AWG	CABLE	4460465		X599B (3)
NC	SHIELD	185 CABLE	18 AWG	SHLD	N/A		X765 (1)

X765-SHIELD							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL PIN	SEAL PIN	TO
1	SHIELD	185 CABLE	18 AWG	SHLD	4460742		SN276 (NC)

X599B - TO TRACTION HARN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL PIN	SEAL PIN	TO
1	RED	185 CABLE	18 AWG	CABLE	4460464		SN276 (1)
2	BLU	185 CABLE	18 AWG	CABLE	4460464		SN276 (2)
3	BLK	185 CABLE	18 AWG	CABLE	4460464		SN276 (3)
4					4460465		

Figure 7-42. Steering Sensor Harness

10011921.13 E



X642 - INV IGN						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	WHT	IGN-48V	18 AWG	GXL	1001193545	S629 (2)

X626 - GEN IGN						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	WHT	8-8-3	18 AWG	GXL	4460465	S629 (2)
2					4460466	

X628 - TRAC HARN						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	WHT	8-8-1	18 AWG	GXL	4460464	S629 (1)
2					4460466	

S629						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	WHT	8-8-1	18 AWG	GXL	N/A	X628 (1)
2	WHT	IGN-48V	18 AWG	GXL	N/A	X642 (1)
2	WHT	8-8-3	18 AWG	GXL	N/A	X626 (1)

Go to Discount-Equipment.com to order your parts

Figure 7-43. Inverter Ign Harness

100119293.C

J8_1						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	-	12 AWG	GXL	4460887	J8 (1)
1	BLK	-	16 AWG	GXL	4460887	LIGHTS (3)
2	YEL/RED	-	12 AWG	GXL	4460887	J8 (2)
2	-	SEE NOTE 3	-	-	4460887	IP396 (2)

IP396						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	-	SEE NOTE 3	-	-	N/A	LIGHTS (4)
2	-	SEE NOTE 3	-	-	N/A	J8_1 (2)

LIGHTS						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	-	16 AWG	GXL	4460465	J8 (1)
2	-	SEE NOTE 3	-	-	4460465	IP395 (1)
3	BLK	-	16 AWG	GXL	4460465	J8_1 (1)
4	-	SEE NOTE 3	-	-	4460465	IP396 (1)

IP395						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	-	SEE NOTE 3	-	-	N/A	LIGHTS (2)
2	-	SEE NOTE 3	-	-	N/A	J8 (2)

J8						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	-	12 AWG	GXL	100120477	J8_1 (1)
1	BLK	-	16 AWG	GXL	100120477	LIGHTS (1)
2	YEL/RED	-	12 AWG	GXL	100120477	J8_1 (2)
2	-	SEE NOTE 3	-	-	100120477	IP395 (2)

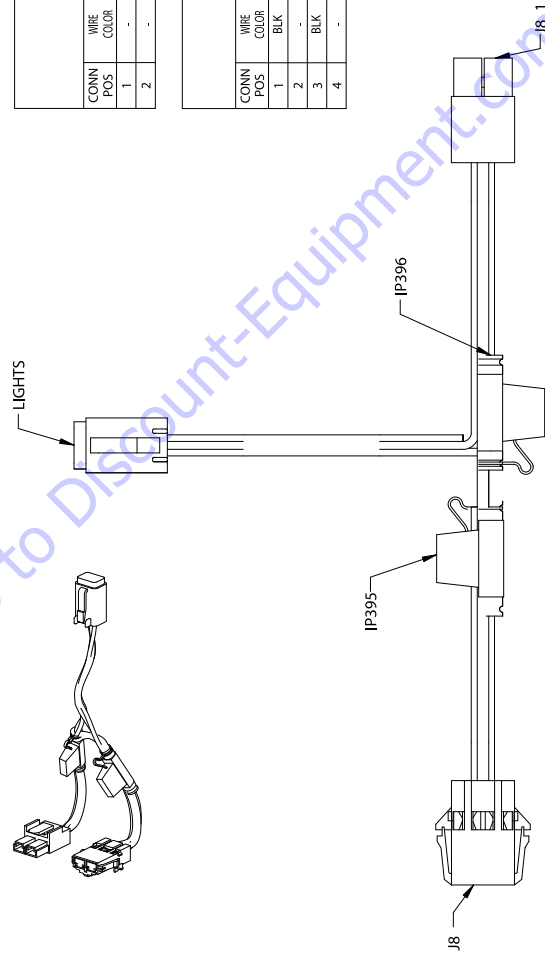


Figure 7-44. Platform Work Light Harness

100120484 B

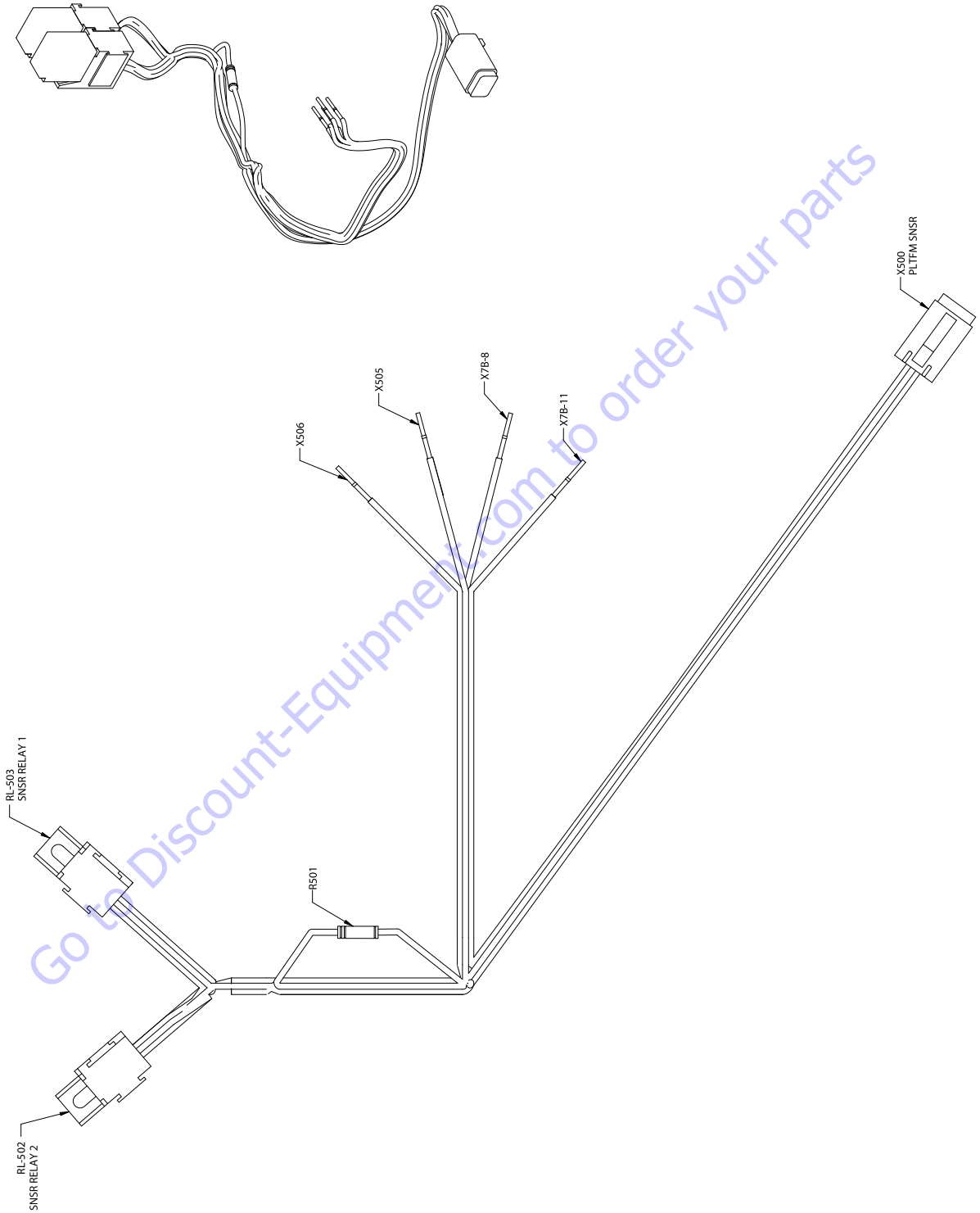


Figure 7-45. SkyGuard Harness - Sheet 1 of 2

100119292 B

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

X506							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	P1	18 AWG	GXL			RL-503 (87)

X505							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	P2	18 AWG	GXL			R501 (1)
1	WHT	P9	18 AWG	GXL			RL-503 (30)

X7B-8							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	P6	18 AWG	GXL			X500 (2)

X7B-11							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	P3	18 AWG	GXL			RL-502 (87)

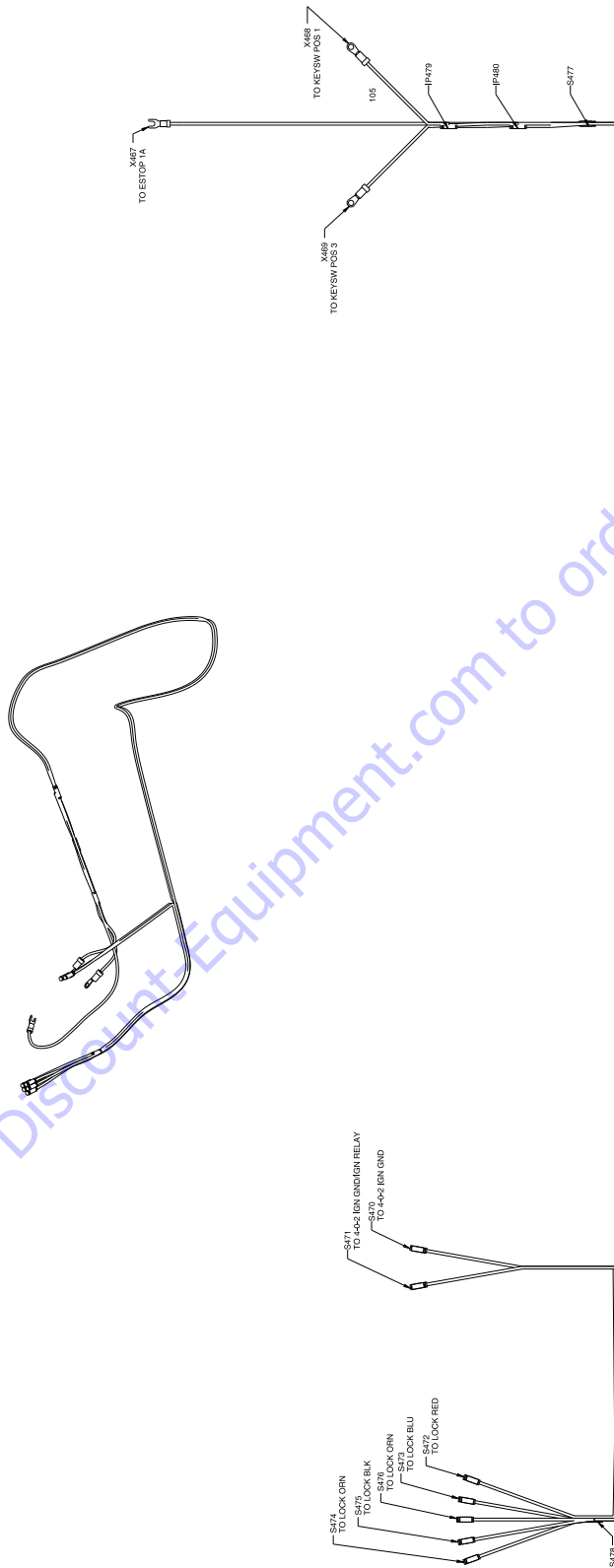
X500 - PLTFM SNSR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	P10	18 AWG	GXL	4460465		R501 (2)
2	WHT	P6	18 AWG	GXL	4460465		X7B-8 (1)
3	WHT	P4	18 AWG	GXL	4460465		RL-502 (86)
4	WHT	P5	18 AWG	GXL	4460465		RL-502 (85)

RL-502 - SNSR RELAY 2							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
30	WHT	P9-1	18 AWG	GXL	1001116720		RL-503 (30)
85	WHT	P5	18 AWG	GXL	1001116720		X500 (4)
85	WHT	P5-1	18 AWG	GXL	1001116720		RL-503 (85)
86	WHT	P4	18 AWG	GXL	1001116720		X500 (3)
86	WHT	P4-1	18 AWG	GXL	1001116720		RL-503 (86)
87	WHT	P3	18 AWG	GXL	1001116720		X7B-11 (1)
87a							

RL-503 - SNSR RELAY 1							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
30	WHT	P9	18 AWG	GXL	1001116720		X505 (1)
30	WHT	P9-1	18 AWG	GXL	1001116720		RL-502 (30)
85	WHT	P5-1	18 AWG	GXL	1001116720		RL-502 (85)
86	WHT	P4-1	18 AWG	GXL	1001116720		RL-502 (86)
87	WHT	P1	18 AWG	GXL	1001116720		X506 (1)
87a							

R501							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	P2	18 AWG	GXL	N/A		X505 (1)
2	WHT	P10	18 AWG	GXL	N/A		X500 (1)

Figure 7-46. SkyGuard Harness - Sheet 2 of 2



1001199296 A

Figure 7-47. Security Lock Harness - Sheet 1 of 2

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

S472 - TO LOCK RED							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	2-16 12V+	16 AWG	GXL	N/A		X467 (1)
2					N/A		

X467 - TO ESTOP 1A							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	2-16 12V+	16 AWG	GXL	N/A		S472 (1)

S473 - TO LOCK BLU							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	90-1 LOCK	16 AWG	GXL	N/A		S477 (2)
2					N/A		

X468 - TO KEYSW POS 1							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	90-1-1 LOCK	16 AWG	GXL	N/A		IP479 (2)

S474 - TO LOCK ORN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	90-2-1 LOCK	16 AWG	GXL	N/A		S478 (2)
2					N/A		

X469 - TO KEYSW POS 3							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	90-1-2 LOCK	16 AWG	GXL	N/A		IP480 (2)

S475 - TO LOCK BLK							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	90-2-2 LOCK	16 AWG	GXL	N/A		S478 (2)
2					N/A		

IP479							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	90-1-1 LOCK	16 AWG	GXL	N/A		S477 (1)
2	WHT	90-1-1 LOCK	16 AWG	GXL	N/A		X468 (1)

S476 - TO LOCK ORN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	90-3 LOCK	16 AWG	GXL	N/A		S471 (2)
2					N/A		

IP480							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	90-1-2 LOCK	16 AWG	GXL	N/A		S477 (1)
2	WHT	90-1-2 LOCK	16 AWG	GXL	N/A		X469 (1)

S470 - TO 4-0-2 IGN GND							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					N/A		
2	WHT	90-2 LOCK	16 AWG	GXL	N/A		S478 (1)

S471 - TO 4-0-2 IGN GND/IGN RELAY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					N/A		
2	WHT	90-3 LOCK	16 AWG	GXL	N/A		S476 (1)

S478							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	90-2 LOCK	16 AWG	GXL	N/A		S470 (2)
2	WHT	90-2-1 LOCK	16 AWG	GXL	N/A		S474 (1)
2	WHT	90-2-2 LOCK	16 AWG	GXL	N/A		S475 (1)

S477							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	90-1-1 LOCK	16 AWG	GXL	N/A		IP479 (1)
1	WHT	90-1-2 LOCK	16 AWG	GXL	N/A		IP480 (1)
2	WHT	90-1 LOCK	16 AWG	GXL	N/A		S473 (1)

Figure 7-48. Security Lock Harness - Sheet 2 of 2

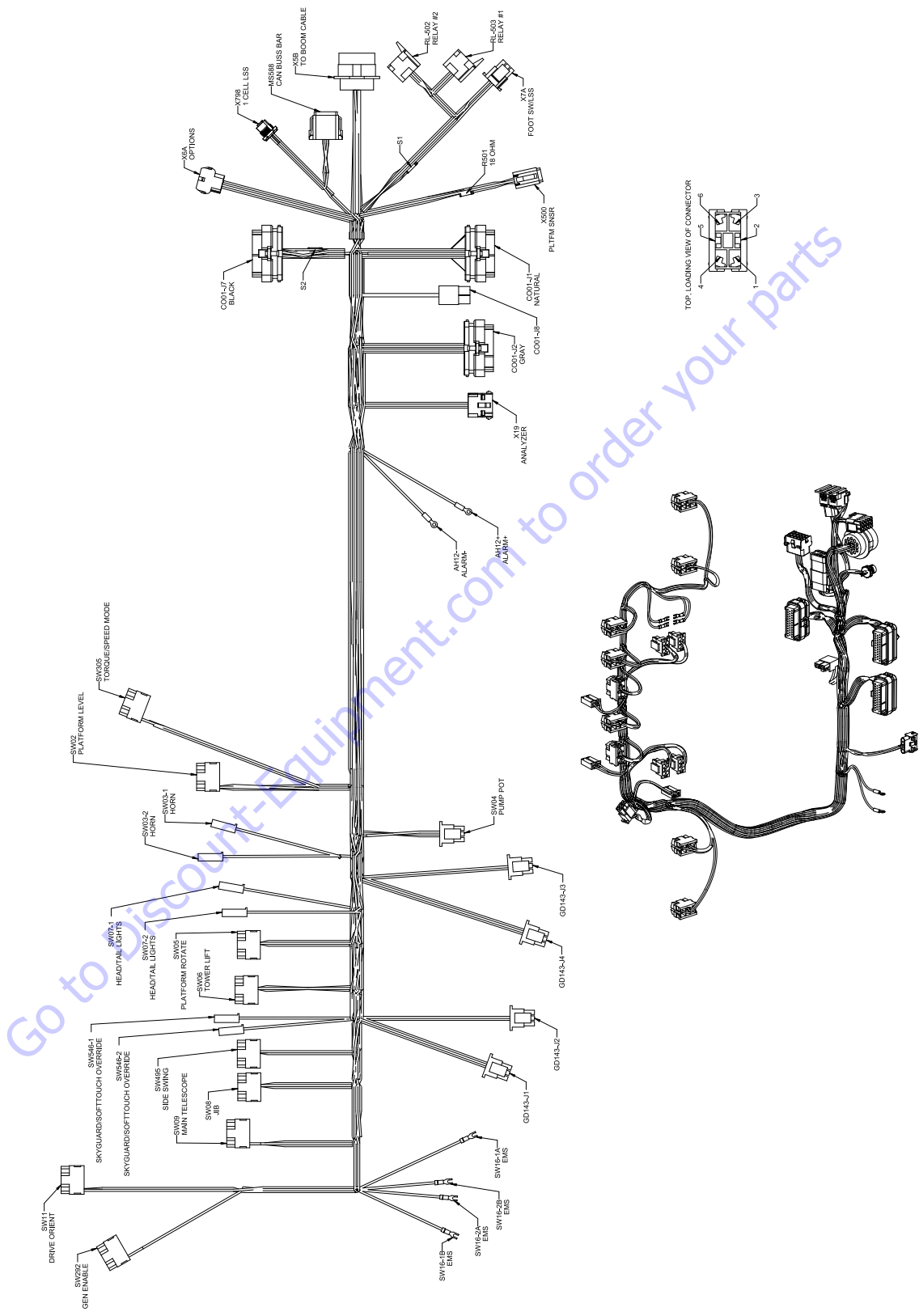


Figure 7-49. Console Harness with SkyGuard and 1 CELL LSS - Sheet 1 of 4

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

SW11 - DRIVE ORIENT							
CONNECTOR PART NUMBER: 4460418							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	122-1 DOS	18 AWG	GXL	1001159186		CO01-J2 (4)
2	WHT	5-14-10	18 AWG	GXL	4460419		SW546-2 (1)
3	WHT	5-14-9	18 AWG	GXL	4460419		SW03-1 (1)
4							
5							
6							

SW495 - SIDE SWING							
CONNECTOR PART NUMBER: 4460418							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	31-0 SIDE SWING LEFT	18 AWG	GXL	1001159186		CO01-J1 (26)
2	WHT	5-14-6	18 AWG	GXL	4460419		SW08 (2)
2	WHT	5-14-7	18 AWG	GXL	4460419		SW04 (1)
3	WHT	32-0 SIDE SWING RIGHT	18 AWG	GXL	1001159186		CO01-J1 (25)
4							
5							
6							

SW292 - GEN ENABLE							
CONNECTOR PART NUMBER: 4460418							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1							
2	WHT	2-12-2 GEN ENABLE IGN	18 AWG	GXL	1001159186		X5B (7)
3	WHT	8-3 GEN ENABLE	18 AWG	GXL	1001159186		X5B (5)
4							
5							
6							

SW06 - TOWER LIFT							
CONNECTOR PART NUMBER: 4460418							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	29-30 TWR LFT DN	18 AWG	GXL	1001159186		CO01-J1 (2)
2	WHT	5-14-3	18 AWG	GXL	4460419		SW305 (2)
2	WHT	5-14-2	18 AWG	GXL	4460419		SW09 (2)
3	WHT	29-0 TWR LFT UP	18 AWG	GXL	1001159186		CO01-J1 (1)
4							
5							
6							

SW07-1 - HEAD/TAIL LIGHTS							
CONNECTOR PART NUMBER: 4460260							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	88-1 HEAD/TAIL LT	18 AWG	GXL	4460259		CO01-J1 (30)

SW05 - PLATFORM ROTATE							
CONNECTOR PART NUMBER: 4460418							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	23-0 PLAT ROT LFT	18 AWG	GXL	1001159186		CO01-J1 (8)
2	WHT	5-14-3	18 AWG	GXL	4460419		SW09 (2)
2	WHT	5-14-4	18 AWG	GXL	4460419		SW02 (2)
3	WHT	24-0 PLAT ROT RT	18 AWG	GXL	1001159186		CO01-J1 (7)
4							
5							
6							

SW07-2 - HEAD/TAIL LIGHTS							
CONNECTOR PART NUMBER: 4460260							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	5-14-11	18 AWG	GXL	4460259		SW546-2 (1)

SW546-1 - SKYGUARD/SOFTTOUCH OVERRIDE							
CONNECTOR PART NUMBER: 4460260							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	124-3 OVERRIDE	18 AWG	GXL	4460259		CO01-J1 (29)

SW16-2A - EMS							
CONNECTOR PART NUMBER: 4460888							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
2A	WHT	5-11-3	18 AWG	GXL	N/A		CO01-J7 (2)

SW546-2 - SKYGUARD/SOFTTOUCH OVERRIDE							
CONNECTOR PART NUMBER: 4460260							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	5-14-10	18 AWG	GXL	4460259		SW11 (2)
1	WHT	5-14-11	18 AWG	GXL	4460259		SW07-2 (1)

SW16-1B - EMS							
CONNECTOR PART NUMBER: 4460888							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1B	WHT	5-2-6	18 AWG	GXL	N/A		X5B (13)

SW16-2B - EMS							
CONNECTOR PART NUMBER: 4460888							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
2B	WHT	5-2-5	18 AWG	GXL	N/A		X5B (15)

SW16-1A - EMS							
CONNECTOR PART NUMBER: 4460888							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1A	WHT	5-11-2	18 AWG	GXL	N/A		X5B (9)

GD143-J1							
CONNECTOR PART NUMBER: 4460225							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	98-3 1/4 BAT CHG	18 AWG	GXL	4460226		CO01-J2 (22)
2	WHT	98-4 1/2 BAT CHG	18 AWG	GXL	4460226		CO01-J2 (24)
3	WHT	98-5 3/4 BAT CHG	18 AWG	GXL	4460226		CO01-J2 (23)
4	WHT	1-25 CHG IND GND	18 AWG	GXL	4460226		CO01-J2 (25)
5							
6	WHT	98-6 BAT FULL	18 AWG	GXL	4460226		CO01-J2 (35)

SW09 - MAIN TELESCOPE							
CONNECTOR PART NUMBER: 4460418							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	14-0 MAIN TELE OUT	18 AWG	GXL	1001159186		CO01-J1 (6)
2	WHT	5-14-2	18 AWG	GXL	4460419		SW06 (2)
2	WHT	5-14-3	18 AWG	GXL	4460419		SW05 (2)
3	WHT	13-0 MAIN TELE IN	18 AWG	GXL	1001159186		CO01-J1 (5)
4							
5							
6							

GD143-J2							
CONNECTOR PART NUMBER: 4460225							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	98-7 BAT LOW	18 AWG	GXL	4460226		CO01-J2 (13)
2	WHT	131-3 FUNC ENABLE	18 AWG	GXL	4460226		CO01-J2 (7)
3							
4							
5							
6	WHT	1-26 DISPLAY GND	18 AWG	GXL	4460226		CO01-J2 (18)

SW08 - JIB							
CONNECTOR PART NUMBER: 4460418							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	28-0 JIB DN	18 AWG	GXL	1001159186		CO01-J1 (12)
2	WHT	5-14-5	18 AWG	GXL	4460419		SW02 (2)
2	WHT	5-14-6	18 AWG	GXL	4460419		SW495 (2)
3	WHT	27-0 JIB UP	18 AWG	GXL	1001159186		CO01-J1 (11)
4							
5							
6							

GD143-J4							
CONNECTOR PART NUMBER: 4460225							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	128-1 TLT	18 AWG	GXL	4460226		CO01-J2 (6)
2	WHT	128-4 OVERLOAD	18 AWG	GXL	4460226		CO01-J2 (11)
3	WHT	127-1 SYS FAULT	18 AWG	GXL	4460226		CO01-J2 (8)
4	WHT	122-2 DOS	18 AWG	GXL	4460226		CO01-J2 (14)
5							
6							

GD143-J3							
CONNECTOR PART NUMBER: 4460225							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	125-2 CREEP MODE	18 AWG	GXL	4460226		CO01-J2 (9)
2	WHT	130-1 SOFT TOUCH	18 AWG	GXL	4460226		CO01-J2 (19)
3	WHT	134 SKY GUARD	18 AWG	GXL	4460226		CO01-J2 (16)
4							
5							
6							

GD143-J3							
CONNECTOR PART NUMBER: 4460225							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	125-2 CREEP MODE	18 AWG	GXL	4460226		CO01-J2 (9)
2	WHT	130-1 SOFT TOUCH	18 AWG	GXL	4460226		CO01-J2 (19)
3	WHT	134 SKY GUARD	18 AWG	GXL	4460226		CO01-J2 (16)
4							
5							
6							

Figure 7-50. Console Harness with SkyGuard and 1 CELL LSS - Sheet 2 of 4

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

SW03-2 - HORN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	49-0-1 HORN	18 AWG	GXL	4460259		CO01-J1 (31)

SW03-1 - HORN							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	5-14-8	18 AWG	GXL	4460259		SW04 (1)
1	WHT	5-14-9	18 AWG	GXL	4460259		SW11 (2)

AH12- - ALARM-							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	1-27 ALARM GND	18 AWG	GXL	N/A		CO01-J7 (20)

AH12+ - ALARM+							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	132 PLAT ALARM	18 AWG	GXL	N/A		CO01-J7 (19)

X19 - ANALYZER							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	RED	51-0 ANALYZER PWR	18 AWG	GXL	4460227		CO01-J2 (26)
2	GRN	52-0 ANALYZER RX	18 AWG	GXL	4460227		CO01-J2 (28)
3	WHT	53-0 ANALYZER TX	18 AWG	GXL	4460227		CO01-J2 (29)
4	BLK	54-0 ANALYZER GND	18 AWG	GXL	4460227		CO01-J2 (27)

SW305 - TORQUE/SPEED MODE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	120-2 AWDA MAN	18 AWG	GXL	1001159186		CO01-J1 (28)
2	WHT	5-14-1	18 AWG	GXL	1001159186		SW06 (2)
3	WHT	120-1 TORQUE/SPEED MODE	18 AWG	GXL	1001159186		CO01-J1 (27)
4							
5							
6							

SW02 - PLATFORM LEVEL							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	26-0 PLAT LVL DN	18 AWG	GXL	1001159186		CO01-J1 (10)
2	WHT	5-14-4	18 AWG	GXL	4460419		SW05 (2)
2	WHT	5-14-5	18 AWG	GXL	4460419		SW08 (2)
3	WHT	25-0 PLAT LVL UP	18 AWG	GXL	1001159186		CO01-J1 (9)
4							
5							
6							

SW04 - PUMP POT							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	5-14-7	18 AWG	GXL	4460267		SW495 (2)
1	WHT	5-14-8	18 AWG	GXL	4460267		SW03-1 (1)
2	WHT	5-14	18 AWG	GXL	4460267		CO01-J1 (18)
3	WHT	125-1 CREEP MODE	18 AWG	GXL	4460267		CO01-J1 (32)
4	WHT	126-1 PUMP POT PWR	18 AWG	GXL	4460267		CO01-J1 (34)
5	WHT	1-23 PUMP POT RETURN	18 AWG	GXL	4460267		CO01-J1 (13)
6	WHT	126-2 PUMP POT CMD	18 AWG	GXL	4460267		CO01-J1 (35)

CO01-J7 - BLACK							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	81-0 GND MODE RX	18 AWG	GXL	4460871		X5B (11)
2	WHT	5-11-3	18 AWG	GXL	4460871		SW16-2A (2A)
3	WHT	82-0 PLAT TX	18 AWG	GXL	4460871		X5B (4)
4	WHT	3-16 FOOTSWITCH	18 AWG	GXL	4460871		X7A (5)
5					4460905		
6					4460905		
7	WHT	3-18 SKYG PWR	18 AWG	GXL	4460871		R501 (1)
8	WHT	131-1 FOOT SWITCH	18 AWG	GXL	4460871		X7A (4)
9					4460905		
10					4460905		
11					4460905		
12					4460905		
13					4460905		
14					4460905		
15					4460905		
16	WHT	1-28 LSS GND	18 AWG	GXL	4460871		S2 (1)
17					4460905		
18	WHT	124-1 SKYG INPUT#1	18 AWG	GXL	4460871		RL-503 (87)
19	WHT	132 PLAT ALARM	18 AWG	GXL	4460871		AH12+ (1)
20	WHT	1-27 ALARM GND	18 AWG	GXL	4460871		AH12- (1)
21	WHT	25-0-3 PLAT LVL UP	18 AWG	GXL	4460871		X6A (13)
22	WHT	26-0-3 PLAT LVL DN	18 AWG	GXL	4460871		X6A (14)
23	WHT	1-30 VLV GND	18 AWG	GXL	4460871		X6A (5)
24	WHT	1-36 SKYG GND	18 AWG	GXL	4460871		X500 (2)
25	WHT	27-0-3 JIB UP	18 AWG	GXL	4460871		X6A (3)
26	WHT	28-0-3 JIB DN	18 AWG	GXL	4460871		X6A (4)
27	WHT	31-0-3 JIB RHT	18 AWG	GXL	4460871		X6A (11)
28	WHT	30-0-3 JIB LFT	18 AWG	GXL	4460871		X6A (12)
29	WHT	1-29 OPTION GND	18 AWG	GXL	4460871		X6A (6)
30	GRN	CANT LOW	18 AWG	GXL	4460871		MS588 (3)
31	YEL	CANT HIGH	18 AWG	GXL	4460871		MS588 (1)
32					4460905		
33	WHT	23-0-3 PLAT ROT LFT	18 AWG	GXL	4460871		X6A (1)
34	WHT	24-0-3 PLAT ROT RHT	18 AWG	GXL	4460871		X6A (2)
35					4460905		
NC					4460905		

X6A - OPTIONS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	23-0-3 PLAT ROT LFT	18 AWG	GXL	4460226		CO01-J7 (33)
2	WHT	24-0-3 PLAT ROT RHT	18 AWG	GXL	4460226		CO01-J7 (34)
3	WHT	27-0-3 JIB UP	18 AWG	GXL	4460226		CO01-J7 (25)
4	WHT	28-0-3 JIB DN	18 AWG	GXL	4460226		CO01-J7 (26)
5	WHT	1-30 VLV GND	18 AWG	GXL	4460226		CO01-J7 (23)
6	WHT	1-29 OPTION GND	18 AWG	GXL	4460226		CO01-J7 (29)
7							
8	YEL	CANT HIGH	18 AWG	GXL	4460226		MS588 (8)
9	GRN	CANT LOW	18 AWG	GXL	4460226		MS588 (6)
10							
11	WHT	31-0-3 JIB RHT	18 AWG	GXL	4460226		CO01-J7 (27)
12	WHT	30-0-3 JIB LFT	18 AWG	GXL	4460226		CO01-J7 (28)
13	WHT	25-0-3 PLAT LVL UP	18 AWG	GXL	4460226		CO01-J7 (21)
14	WHT	26-0-3 PLAT LVL DN	18 AWG	GXL	4460226		CO01-J7 (22)
15							

X798 - 1 CELL LSS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					N/A		
2	WHT	3-20-2 LSS PWR	20 AWG	CABLE	N/A		S1 (1)
3	BLU	1-28-2 LSS GND	20 AWG	CABLE	N/A		S2 (2)
4	BLK	CANT HIGH	20 AWG	CABLE	N/A		MS588 (2)
5	GRY	CANT LOW	20 AWG	CABLE	N/A		MS588 (4)

Figure 7-51. Console Harness with SkyGuard and 1 CELL LSS - Sheet 3 of 4

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

MS588 - CAN BUSS BAR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	YEL	CAN1 HIGH	18 AWG	GXL	4460465		CO01-J7 (31)
2	BLK	CAN1 HIGH	20 AWG	CABLE	4460465		X798 (4)
3	GRN	CAN1 LOW	18 AWG	GXL	4460465		CO01-J7 (30)
4	GRY	CAN1 LOW	20 AWG	CABLE	4460465		X798 (5)
5	GRN	CAN1 LOW	18 AWG	GXL	4460465		X5B (2)
6	GRN	CAN1 LOW	18 AWG	GXL	4460465		X6A (9)
7	YEL	CAN1 HIGH	18 AWG	GXL	4460465		X5B (3)
8	YEL	CAN1 HIGH	18 AWG	GXL	4460465		X6A (8)

X5B- TO BOOM CABLE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460466		
2	GRN	CAN1 LOW	18 AWG	GXL	4460464		MS588 (5)
3	YEL	CAN1 HIGH	18 AWG	GXL	4460464		MS588 (7)
4	WHT	82-0 PLAT TX	18 AWG	GXL	4460464		CO01-J7 (3)
5	WHT	8-3 GEN ENABLE	18 AWG	GXL	4460464		SW292 (3)
6	WHT	131-3 FOOT PEDAL	18 AWG	GXL	4460464		X7A (6)
7	WHT	2-22 GEN ENABLE IGN	18 AWG	GXL	4460464		SW292 (2)
9	WHT	5-11-2	18 AWG	GXL	4460464		SW16-1A (1A)
10					4460466		
11	WHT	81-0 GND MODE RX	18 AWG	GXL	4460464		CO01-J7 (1)
12	WHT	3-8 PLAT IGN	12 AWG	GXL	4460508		CO01-J8 (2)
13	WHT	5-3-6	18 AWG	GXL	4460464		SW16-1B (1B)
14					4460466		
15	WHT	5-3-5	18 AWG	GXL	4460464		SW16-2B (2B)
16	WHT	1-5 PLAT GND	12 AWG	GXL	4460508		CO01-J8 (1)
17					4460466		
18					4460466		
19					4460466		

CO01-J2 - GRAY							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1					4460905		
2					4460905		
3					4460905		
4	WHT	122-1 DOS	18 AWG	GXL	4460871		SW11 (1)
5					4460905		
6	WHT	129-1 TLT	18 AWG	GXL	4460871		GD143-J4 (1)
7	WHT	131-3 FLUNC ENABLE	18 AWG	GXL	4460871		GD143-J2 (2)
8	WHT	127-3 SYS FAULT	18 AWG	GXL	4460871		GD143-J4 (3)
9	WHT	125-2 CREEP MODE	18 AWG	GXL	4460871		GD143-J3 (1)
10					4460905		
11	WHT	128-1 OVERLOAD	18 AWG	GXL	4460871		GD143-J4 (2)
12					4460905		
13	WHT	98-7 BAT LOW	18 AWG	GXL	4460871		GD143-J2 (1)
14	WHT	122-2 DOS	18 AWG	GXL	4460871		GD143-J4 (4)
15					4460905		
16	WHT	134 SKY GUARD	18 AWG	GXL	4460871		GD143-J3 (3)
17					4460905		
18	WHT	1-26 DISPLAY GND	18 AWG	GXL	4460871		GD143-J2 (6)
19	WHT	130-1 SOFT TOUCH	18 AWG	GXL	4460871		GD143-J3 (2)
20					4460905		
21					4460905		
22	WHT	98-3 1/4 BAT CHG	18 AWG	GXL	4460871		GD143-J1 (1)
23	WHT	98-5 3/4 BAT CHG	18 AWG	GXL	4460871		GD143-J1 (3)
24	WHT	98-4 1/2 BAT CHG	18 AWG	GXL	4460871		GD143-J1 (2)
25	WHT	1-25 CRGIND GND	18 AWG	GXL	4460871		GD143-J1 (4)
26	RED	51-0 ANALYZER PWR	18 AWG	GXL	4460871		X19 (1)
27	BLK	54-0 ANALYZER GND	18 AWG	GXL	4460871		X19 (1)
28	GRN	52-0 ANALYZER RX	18 AWG	GXL	4460871		X19 (2)
29	WHT	53-0 ANALYZER TX	18 AWG	GXL	4460871		X19 (3)
30					4460905		
31	WHT	3-25 SOFTT PWR	18 AWG	GXL	4460871		X7A (9)
32	WHT	3-20 LSS PWR	18 AWG	GXL	4460871		S1 (1)
33					4460905		
34					4460905		
35	WHT	98-6 BAT FULL	18 AWG	GXL	4460871		GD143-J1 (6)

CO01-J8							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	1-5 PLAT GND	12 AWG	GXL	4460887		X5B (16)
2	WHT	3-8 PLAT IGN	12 AWG	GXL	4460887		X5B (12)

R501-18 OHM							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	3-18 SKYG PWR	18 AWG	GXL	N/A		CO01-J7 (7)
1	WHT	P9	18 AWG	GXL	N/A		RL-503 (30)
2	WHT	P10	18 AWG	GXL	N/A		X500 (1)

X500 - PLTFM SNSR							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	P10	18 AWG	GXL	4460465		R501 (2)
2	WHT	1-36 SKYG GND	18 AWG	GXL	4460465		CO01-J7 (24)
3	WHT	P4	18 AWG	GXL	4460465		RL-502 (86)
4	WHT	P5	18 AWG	GXL	4460465		RL-502 (85)

S1							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	3-20 LSS PWR	18 AWG	GXL	N/A		CO01-J2 (32)
1	WHT	3-20-2 LSS PWR	20 AWG	CABLE	N/A		X798 (2)
2	WHT	3-20-1 LSS PWR	18 AWG	GXL	N/A		X7A (15)

S2							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	1-28 LSS GND	18 AWG	GXL	N/A		CO01-J7 (16)
2	WHT	1-28-1 LSS GND	18 AWG	GXL	N/A		X7A (14)
2	BLU	1-28-2 LSS GND	20 AWG	CABLE	N/A		X798 (3)

CO01-J1 - NATURAL							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	25-0 TWR LFT UP	18 AWG	GXL	4460871		SW08 (3)
2	WHT	29-30 TWR LFT DN	18 AWG	GXL	4460871		SW05 (1)
3					4460905		
4					4460905		
5	WHT	13-0 MAIN TELE IN	18 AWG	GXL	4460871		SW09 (3)
6	WHT	14-0 MAIN TELE OUT	18 AWG	GXL	4460871		SW09 (1)
7	WHT	24-0 PLAT ROT RT	18 AWG	GXL	4460871		SW05 (3)
8	WHT	23-0 PLAT ROT LFT	18 AWG	GXL	4460871		SW05 (1)
9	WHT	25-0 PLAT LVL UP	18 AWG	GXL	4460871		SW02 (3)
10	WHT	26-0 PLAT LVL DN	18 AWG	GXL	4460871		SW02 (1)
11	WHT	27-0 JIB UP	18 AWG	GXL	4460871		SW08 (3)
12	WHT	28-0 JIB DN	18 AWG	GXL	4460871		SW08 (1)
13	WHT	1-23 PUMP POT RETURN	18 AWG	GXL	4460871		SW04 (5)
14					4460905		
15					4460905		
16					4460905		
17					4460905		
18	WHT	5-14	18 AWG	GXL	4460871		SW04 (2)
19					4460905		
20	WHT	124-5 SOFTT	18 AWG	GXL	4460871		X7A (12)
21					4460905		
22					4460905		
23	WHT	124-2 SKYG INPUT#2	18 AWG	GXL	4460871		RL-502 (87)
24					4460905		
25	WHT	32-0 SIDE SWING RIGHT	18 AWG	GXL	4460871		SW495 (3)
26	WHT	31-0 SIDE SWING LEFT	18 AWG	GXL	4460871		SW495 (1)
27	WHT	129-4 TORQUE/SPEED MODE	18 AWG	GXL	4460871		SW305 (3)
28	WHT	129-2 AVDA MAN	18 AWG	GXL	4460871		SW305 (1)
29	WHT	124-3 OVERRIDE	18 AWG	GXL	4460871		SW546-1 (1)
30	WHT	88-1 HEADTAIL T	18 AWG	GXL	4460871		SW07-1 (1)
31	WHT	49-0-1 HORN	18 AWG	GXL	4460871		SW03-2 (1)
32	WHT	125-1 CREEP MODE	18 AWG	GXL	4460871		SW04 (3)
33					4460905		
34	WHT	126-1 PUMP POT PWR	18 AWG	GXL	4460871		SW04 (4)
35	WHT	126-2 PUMP POT CMD	18 AWG	GXL	4460871		SW04 (6)

X7A - FOOT SWLSS							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1							
2							
3	WHT	1-551 JUMPER	18 AWG	GXL	4460227		X7A (13)
4	WHT	131-1 FOOT SWITCH	18 AWG	GXL	4460227		CO01-J7 (8)
5	WHT	3-16 FOOTSWITCH	18 AWG	GXL	4460227		CO01-J7 (4)
6	WHT	131-3 FOOT PEDAL	18 AWG	GXL	4460227		X5B (6)
7							
8							
9	WHT	3-25 SOFTT PWR	18 AWG	GXL	4460227		CO01-J2 (31)
10							
11							
12	WHT	124-5 SOFTT	18 AWG	GXL	4460227		CO01-J1 (20)
13	WHT	1-551 JUMPER	18 AWG	GXL	4460227		X7A (3)
14	WHT	1-28-1 LSS GND	18 AWG	GXL	4460227		S2 (2)
15	WHT	3-20-1 LSS PWR	18 AWG	GXL	4460227		S1 (2)

RL-502 - RELAY #2							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
30	WHT	P5-1	18 AWG	GXL	4460421		RL-503 (30)
85	WHT	P5	18 AWG	GXL	4460420		X500 (4)
85	WHT	P5-1	18 AWG	GXL	4460420		RL-503 (85)
86	WHT	P4	18 AWG	GXL	4460420		X500 (3)
86	WHT	P4-1	18 AWG	GXL	4460420		RL-503 (86)
87	WHT	124-2 SKYG INPUT#2	18 AWG	GXL	4460421		CO01-J1 (23)
87a							

RL-503 - RELAY #1							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
30	WHT	P9	18 AWG	GXL	4460420		R501 (1)
30	WHT	P5-1	18 AWG	GXL	4460420		RL-502 (30)
85	WHT	P5-1	18 AWG	GXL	4460421		RL-502 (85)
86	WHT	P4-1	18 AWG	GXL	4460421		RL-502 (86)
87	WHT	124-1 SKYG INPUT#1	18 AWG	GXL	4460421		CO01-J7 (18)
87a							

Figure 7-52. Console Harness with SkyGuard and 1 CELL LSS - Sheet 4 of 4

This page left blank intentionally.

Go to Discount-Equipment.com to order your parts

ELECTRICAL SCHEMATICS

SHEET 2: FUNCTION ABBREVIATION

SHEET 3: PLATFORM CONSOLE WIRING

CONSOLE HARNESS

SHEET 4: PLATFORM AND BOOM COMPONENTS

LOAD SENSING SYSTEM (LSS)

SHEET 5: TURNTABLE, AND UGM WIRING

MAIN VALVE HARNESS

BOOM VALVES HARNESS

TURNTABLE HARNESS

AMBER BEACON

SHEET 6: GROUND CONTROL WIRING

GROUND PANEL HARNESS

SHEET 7: CHASSIS WIRING

TRACTION HARNESS

TRACTION TO TURNTABLE HARNESS

STEERING SENSOR

SHEET 8: OPTIONS:

INVERTER IGN

PLATFORM WORK LIGHT

SKY GUARD

SECURITY LOCK

SHEET 9: PLATFORM:

CONSOLE HARNESS WITH SKYGUARD AND 1 CELL LSS

SHEET 10: PLATFORM INTERFACE:

GEN 2 PLAT INTERFACE

Figure 7-53. Electrical Schematic - Sheet 1 of 17

SHEET 2: FUNCTION ABBREVIATION

COMPONENT IDENTIFICATION

C03-J1-RL LEFT POWER MODULE
 C04-J1-RL RIGHT POWER MODULE
 FC-1 10 AMP FUSE
 FC-2 CONSTANT 12 V
 MS -1 RIGHT BRAKE
 MS -2 LEFT BRAKE
 MS -3 DC TO DC CONVERTER
 MS -4 CAN 2 POWER MODULES
 MS -5 POWER MODULE TERMINATION RESISTOR
 MS -6 CAN 2 TO UGM
 MS -7 CAN 2 TO CHASSIS
 RL-1 IGNITION RELAY
 RL-2 VOTE RELAY
 RL-3 MAIN CONTACTOR
 SN-1 RIGHT ENCODER
 SN-2 RIGHT THERMAL
 SN-3 LEFT ENCODER
 SN-4 LEFT THERMAL
 SN-5 STEER SENSOR
 T-1 RIGHT POWER MODULE ADDRESS B+ 48
 T-2 RIGHT POWER MODULE B-
 T-3 LEFT POWER MODULE ADDRESS B+ 48
 T-4 LEFT POWER MODULE B-
 X1-A CHASSIS, TURNTABLE JUMPER HARNESS CONNECTION
 X1-B CHASSIS, TURNTABLE JUMPER HARNESS CONNECTION
 X2-A TURNTABLE AND UGM JUMPER HARNESS CONNECTION
 X2-A TURNTABLE AND UGM JUMPER HARNESS CONNECTION
 X2-B TURNTABLE AND UGM JUMPER HARNESS CONNECTION
 X2A-7 SKYGUARD POWER CONNECTION TO UGM
 X1A-15 LLS POWER CONNECTION TO UGM
 X1A-9 SOFT TOUCH POWER TO UGM CONNECTION
 X2B-7 SKYGUARD POWER CONNECTION TO X2A
 X1B-15 LLS POWER CONNECTION TO X2A
 X1B-9 SOFT TOUCH POWER TO X1A
 X3-A TO GROUND CONTROL
 X3-A TO GROUND CONTROL
 X3-B TO TURNTABLE AND UGM
 X4-A TO PLATFORM
 X4-B TO TURNTABLE AND UGM
 X5-A BOOM CONTROL CONNECTION
 X5-A BOOM CONTROL CONNECTION
 X6-A TO PLATFORM
 X6-B TO BOOM CONTROL CABLE
 X1A-11 SKY GUARD TO UGM
 X1A-12 SOFT TOUCH TO UGM
 X1B-11 SKY GUARD TO X1A CONNECTOR
 X1B-12 SOFT TOUCH TO X1A CONNECTOR
 HV-13 TEL IN
 HV-14 TEL OUT
 HV-21 SWING LEFT
 HV-22 SWING RIGHT
 HV-39 SWING ARREST
 HV-39 SWING ARREST
 HV-26 PLAT LEVEL DOWN
 HV-23 PLAT ROT LEFT
 HV-24 PLAT ROT RIGHT
 HV-27 JIB UP
 HV-28 JIB DOWN
 HV-32 SIDE SWING LEFT
 HV-31 SIDE SWING RIGHT
 HV-3 MAIN LIFT UP
 HV-3 MAIN LIFT UP
 HV-29 TOWER LIFT UP
 HV-30 TOWER LIFT DOWN
 HV-30 TOWER LIFT DOWN
 HV-50 FLOW CONTROL
 HV-10 STEER LEFT
 HV-9 STEER RIGHT
 HV-41 P. BYPASS
 SW 305 SPEED MODE
 SW 06 TOWER LIFT
 SW 09 MAIN TELESCOPE
 SW 05 PLAT ROTATE
 SW02 PLAT LEVEL
 SW08 JIB
 SW495 SIDE SWING
 SW04 PUMP POT
 B_SW03-2 HORN
 B_SW03-1 HORN
 SW11 DOS
 SW546-2 SKY GUARD
 SW546-1 SKYGUARD
 SW07-2 HEAD TAIL
 SW07-1 HEAD TAIL
 SW292 MANUAL START

Figure 7-54. Electrical Schematic - Sheet 2 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

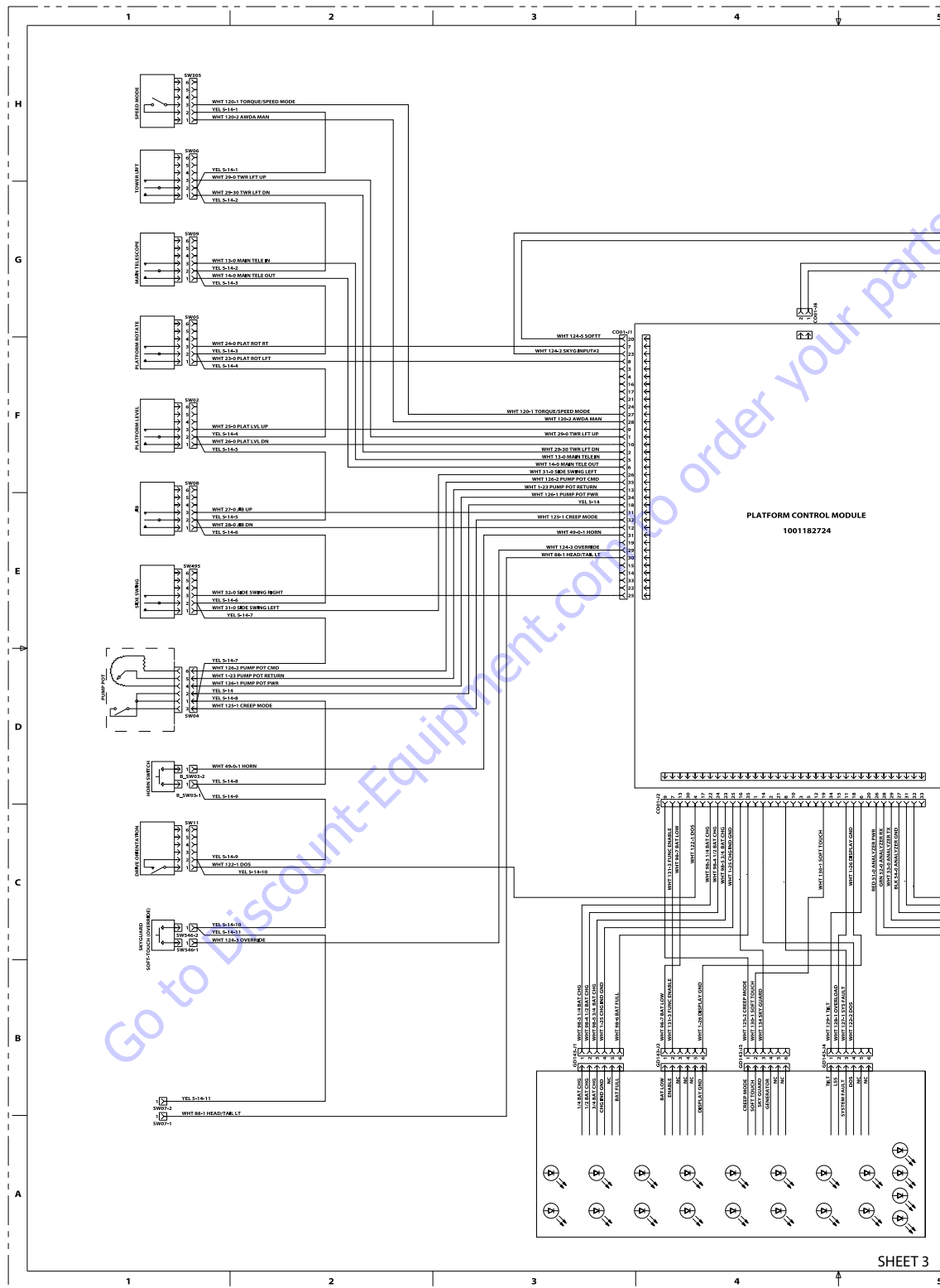


Figure 7-55. Electrical Schematic - Sheet 3 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

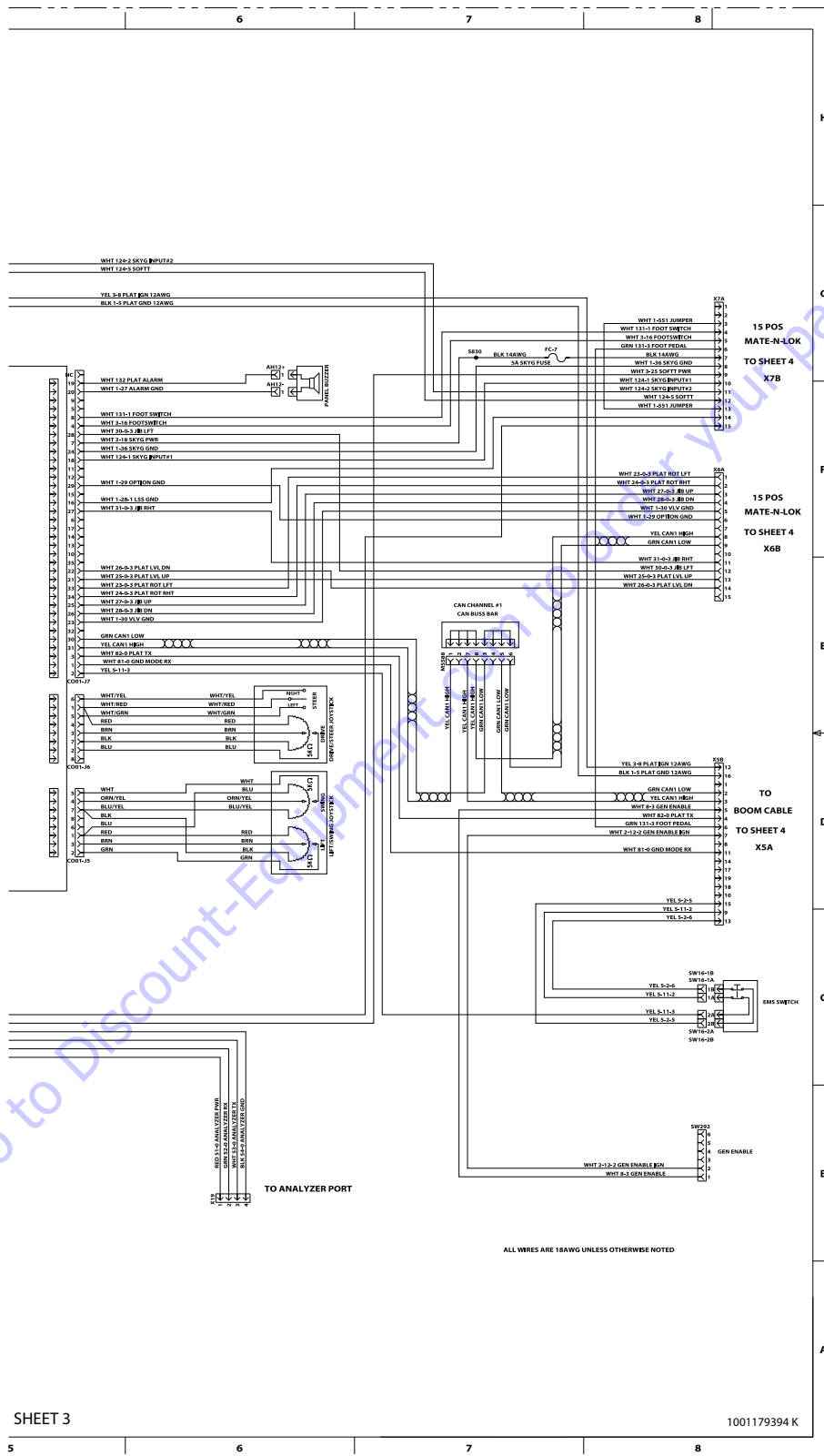


Figure 7-56. Electrical Schematic - Sheet 4 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

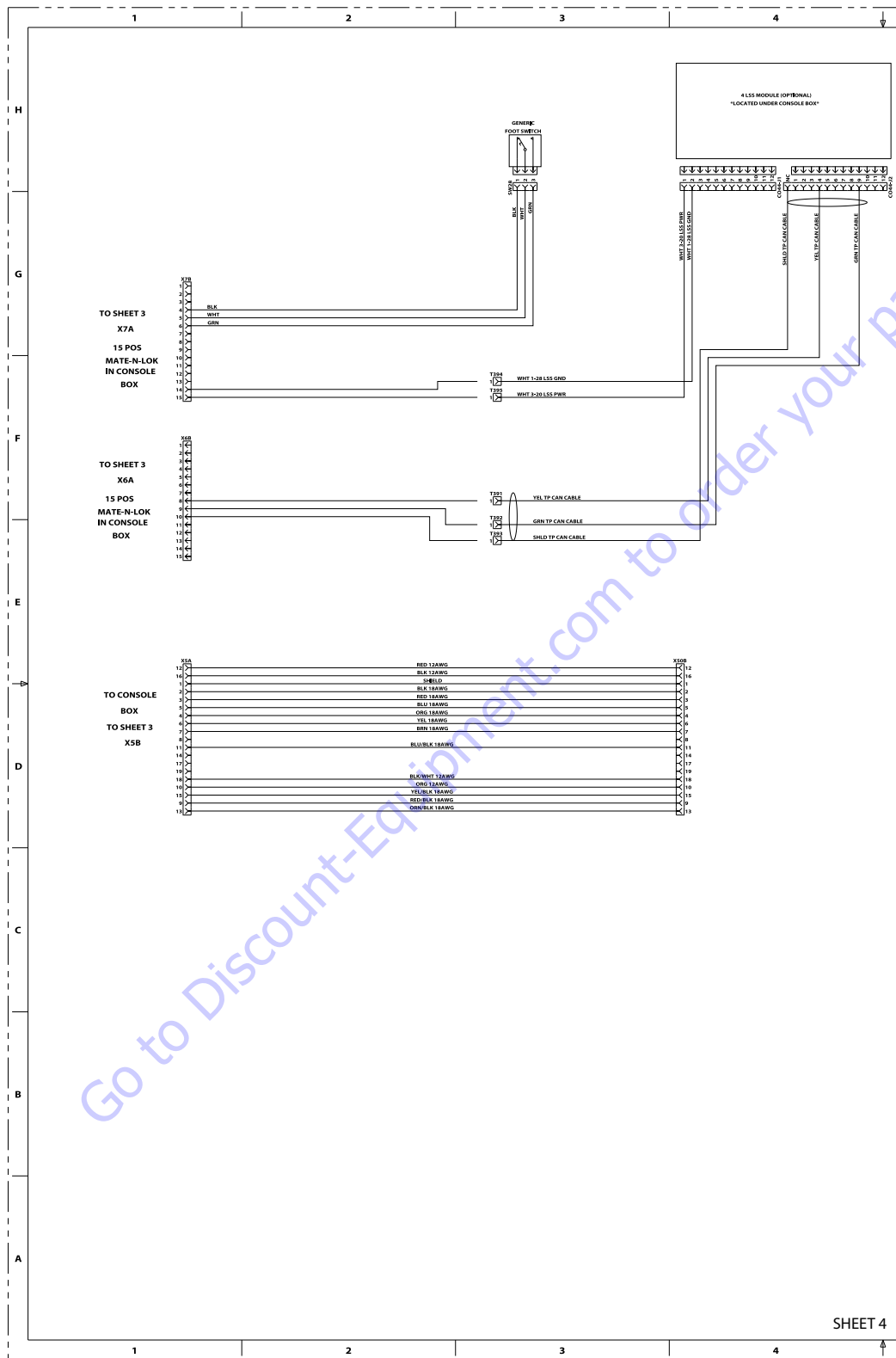


Figure 7-57. Electrical Schematic - Sheet 5 of 17

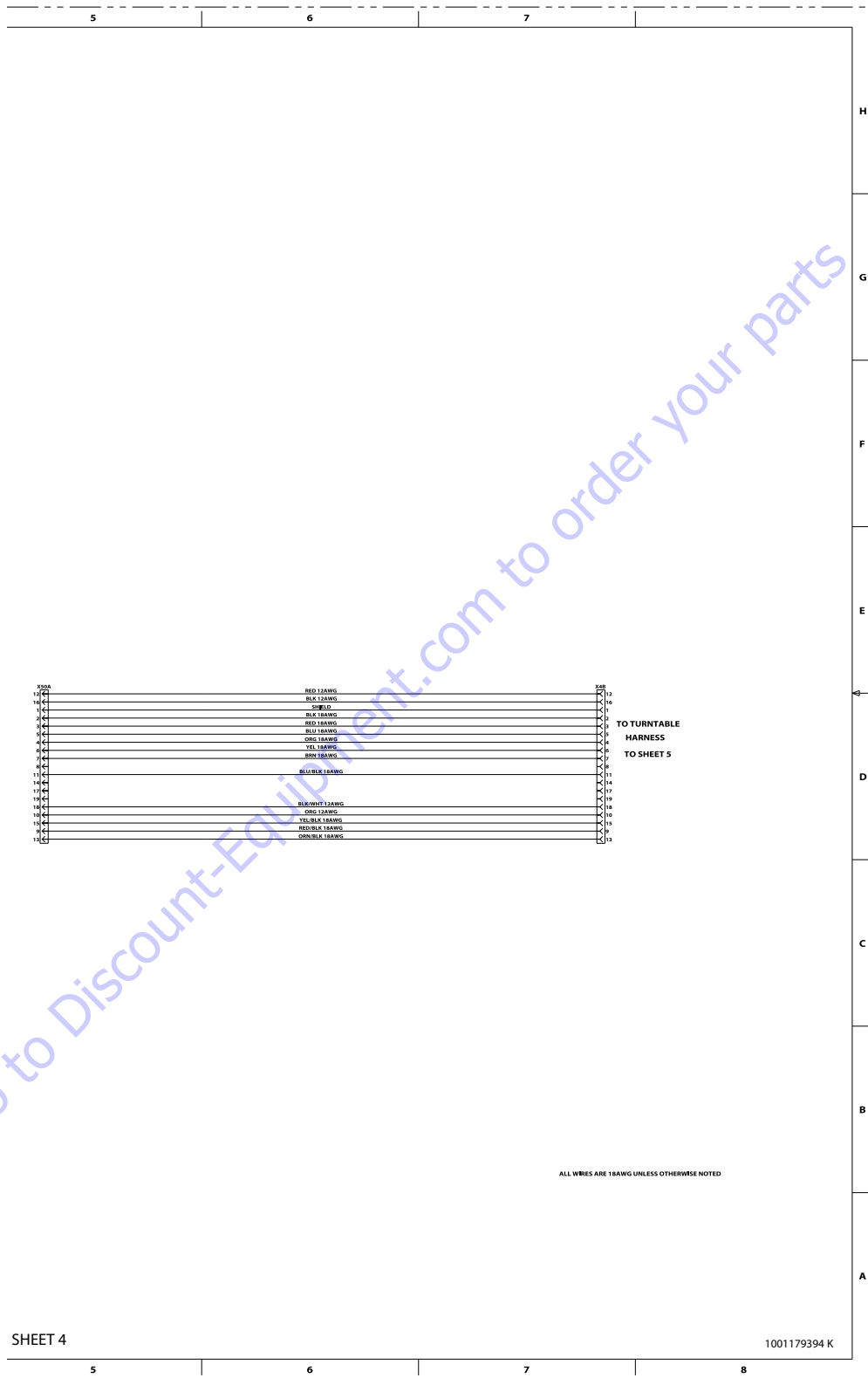


Figure 7-58. Electrical Schematic - Sheet 6 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

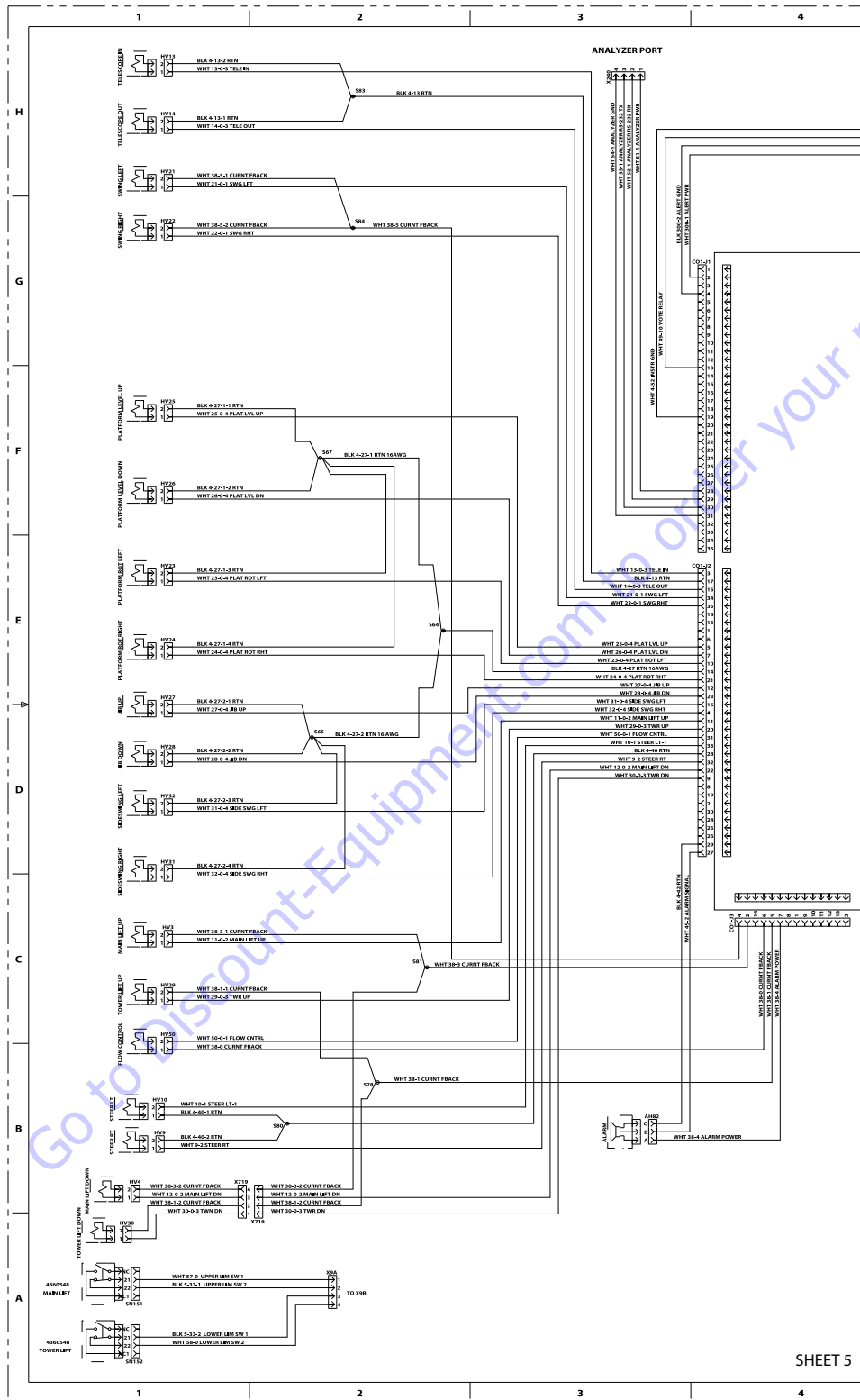


Figure 7-59. Electrical Schematic - Sheet 7 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

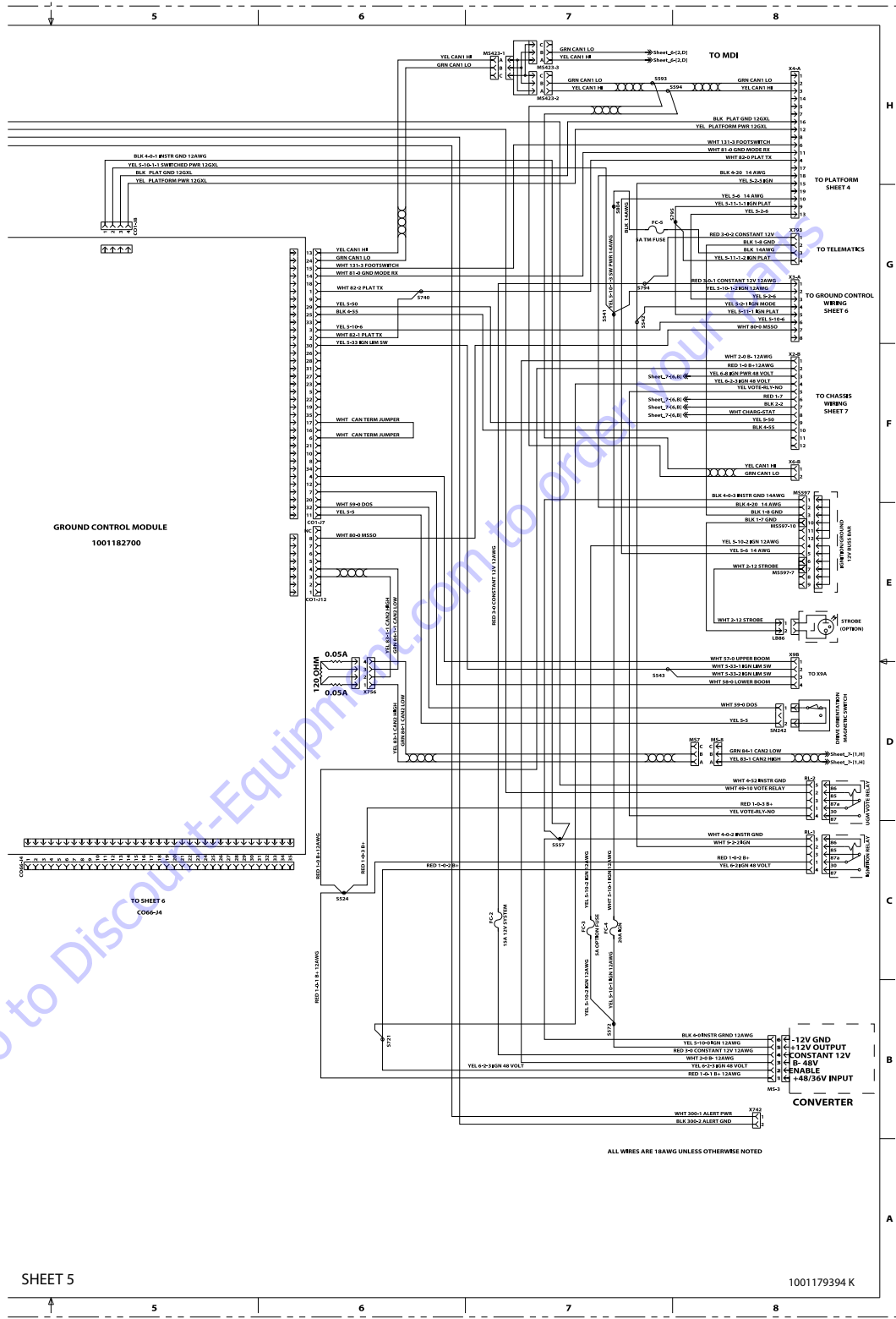


Figure 7-60. Electrical Schematic - Sheet 8 of 11

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

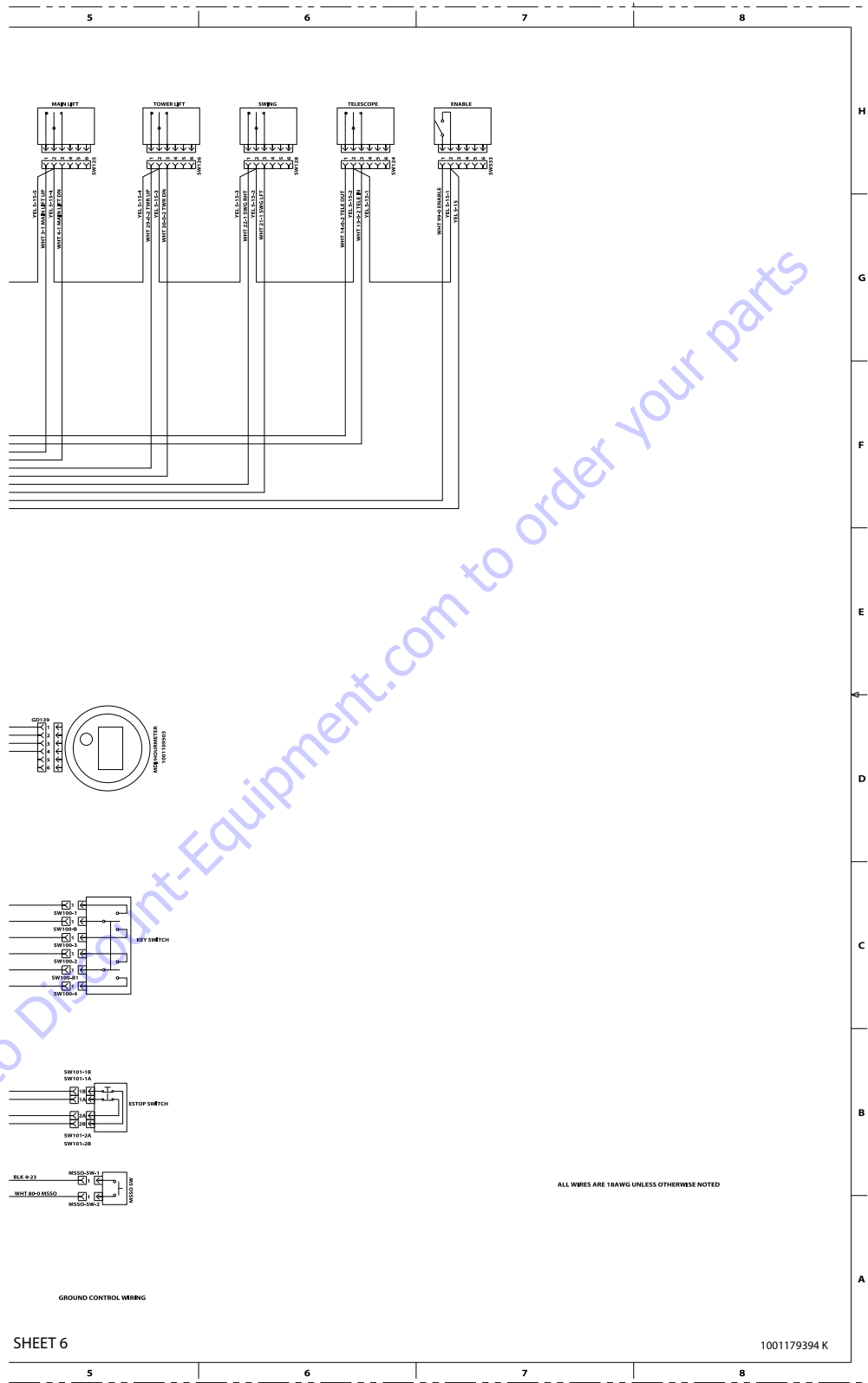


Figure 7-62. Electrical Schematic - Sheet 10 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

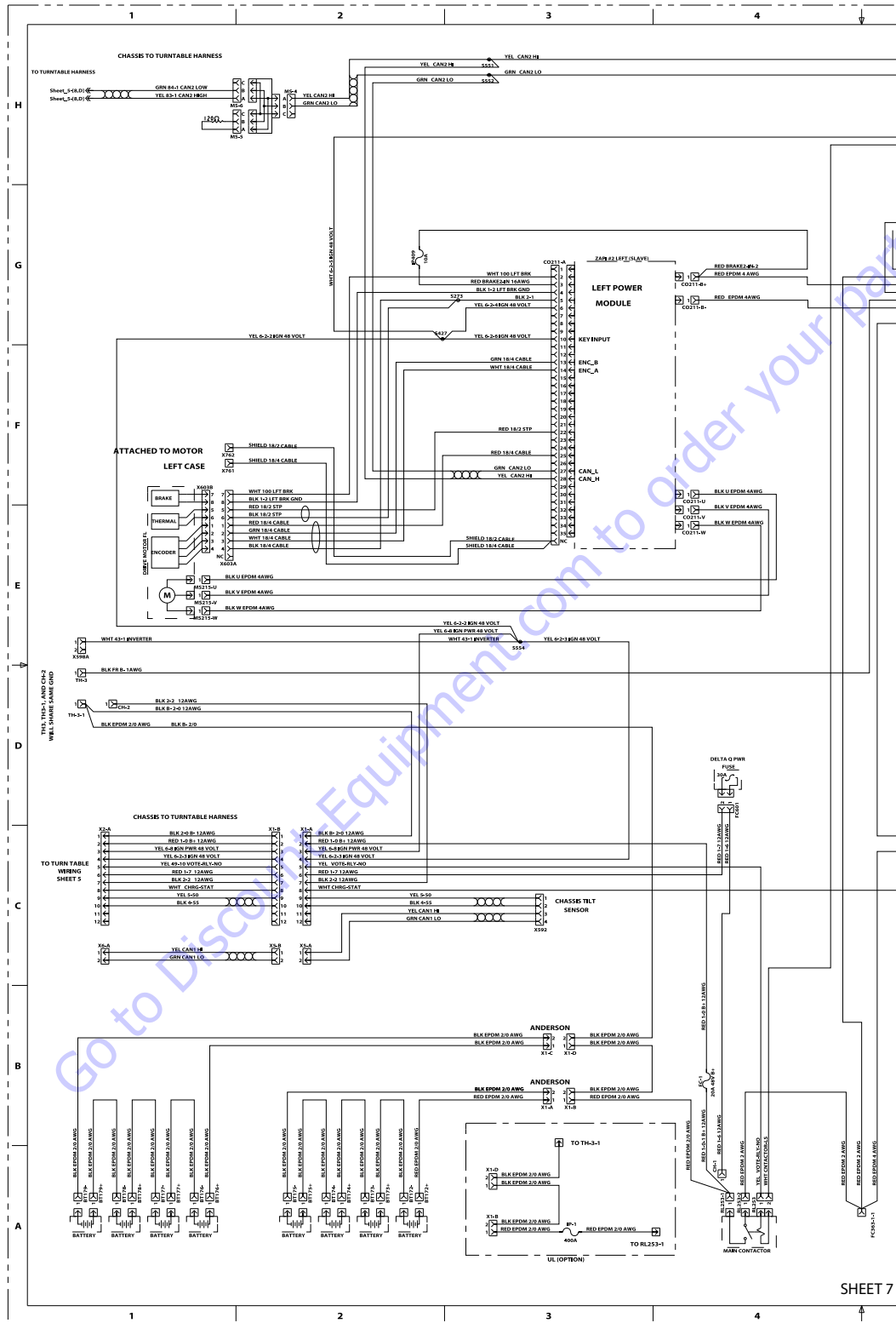


Figure 7-63. Electrical Schematic - Sheet 11 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

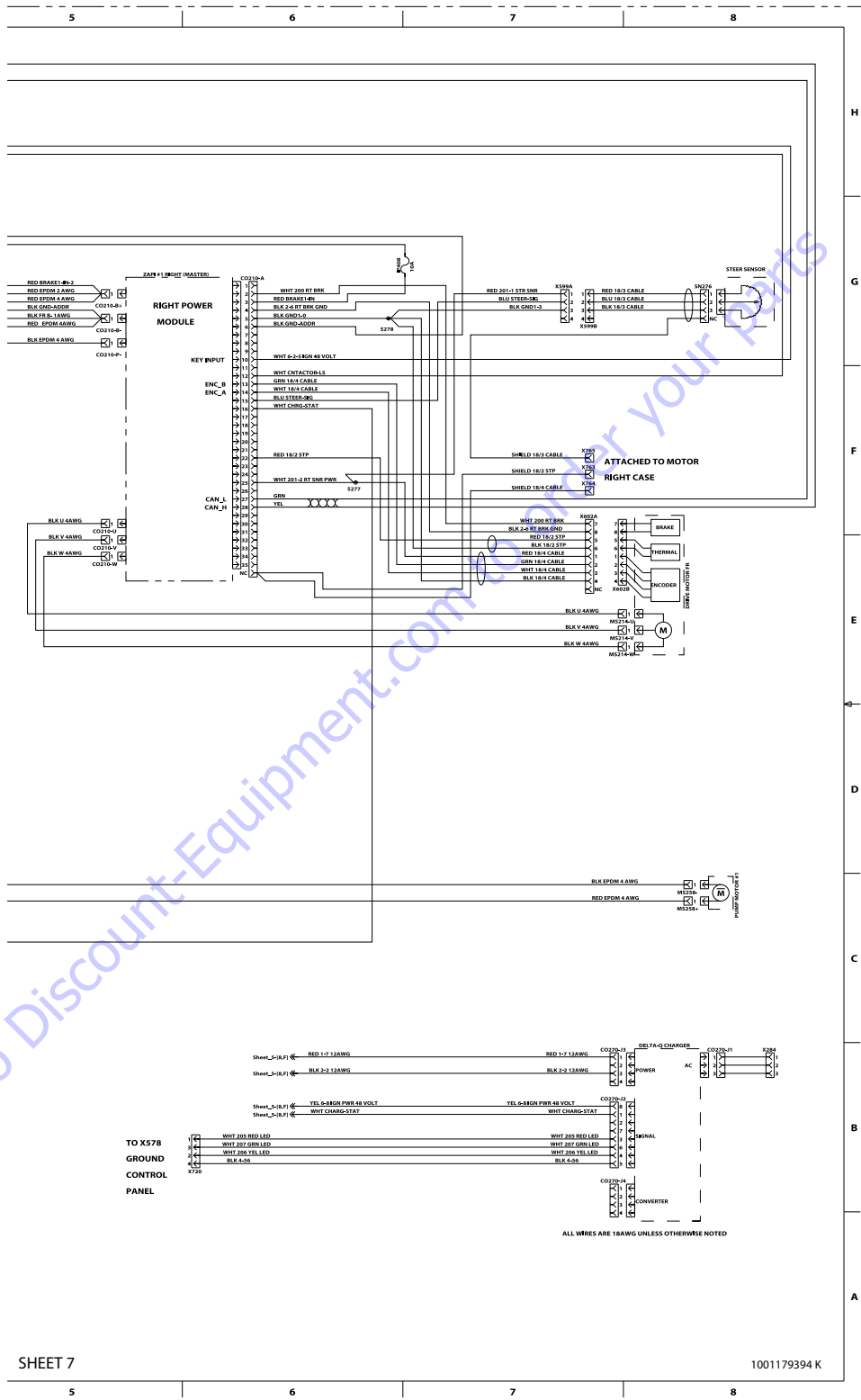


Figure 7-64. Electrical Schematic - Sheet 12 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

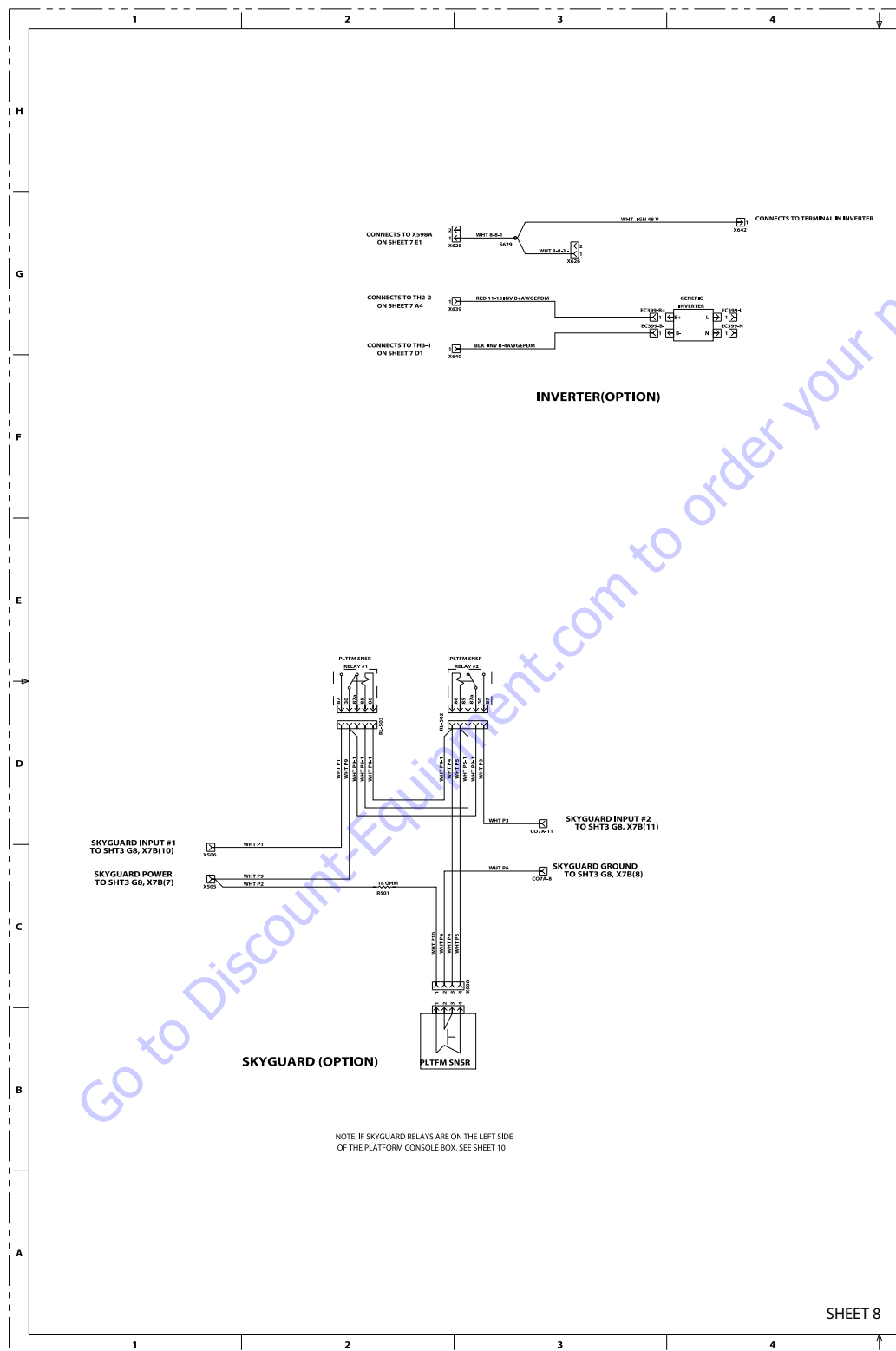


Figure 7-65. Electrical Schematic - Sheet 13 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

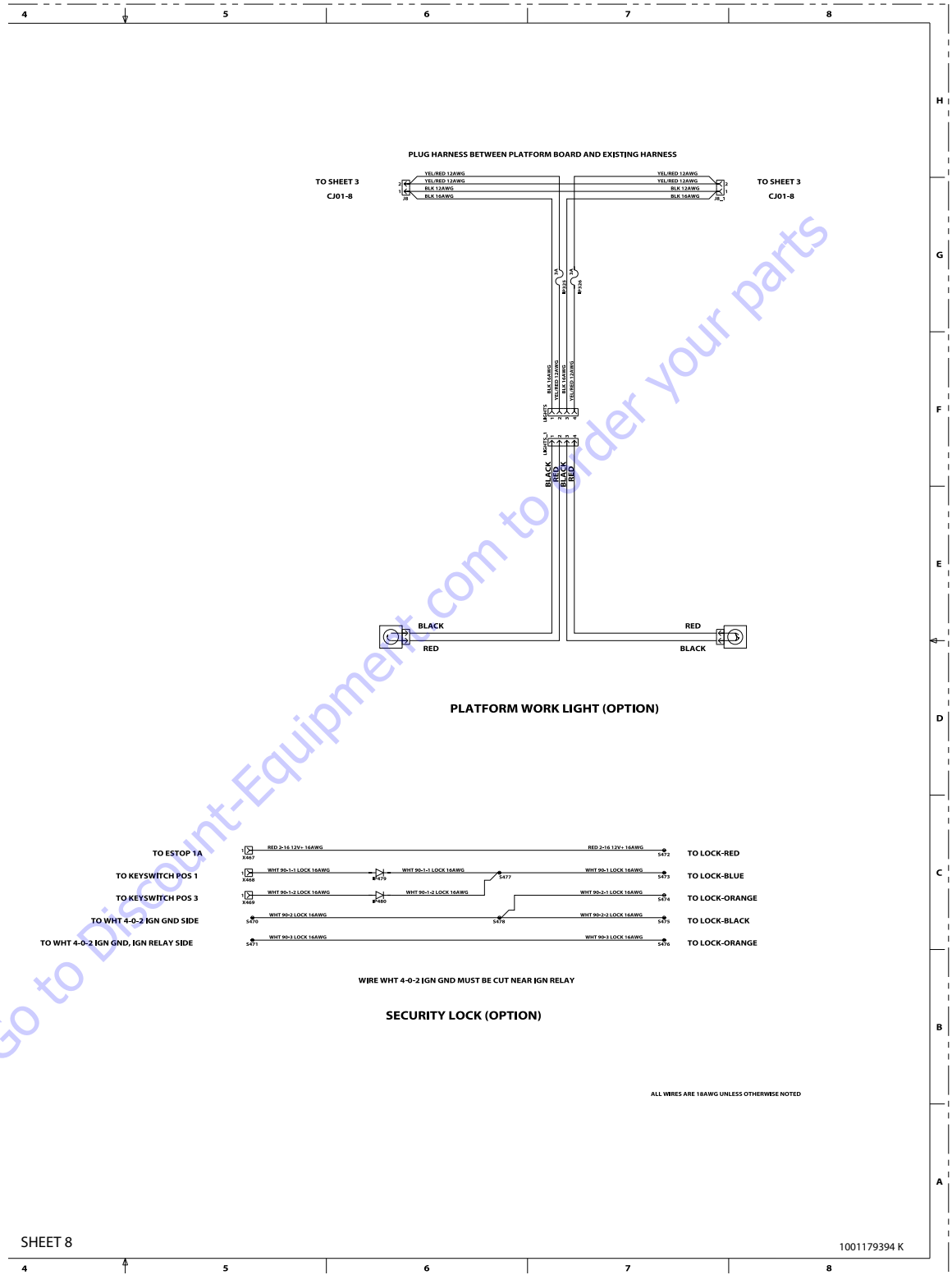


Figure 7-66. Electrical Schematic - Sheet 14 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

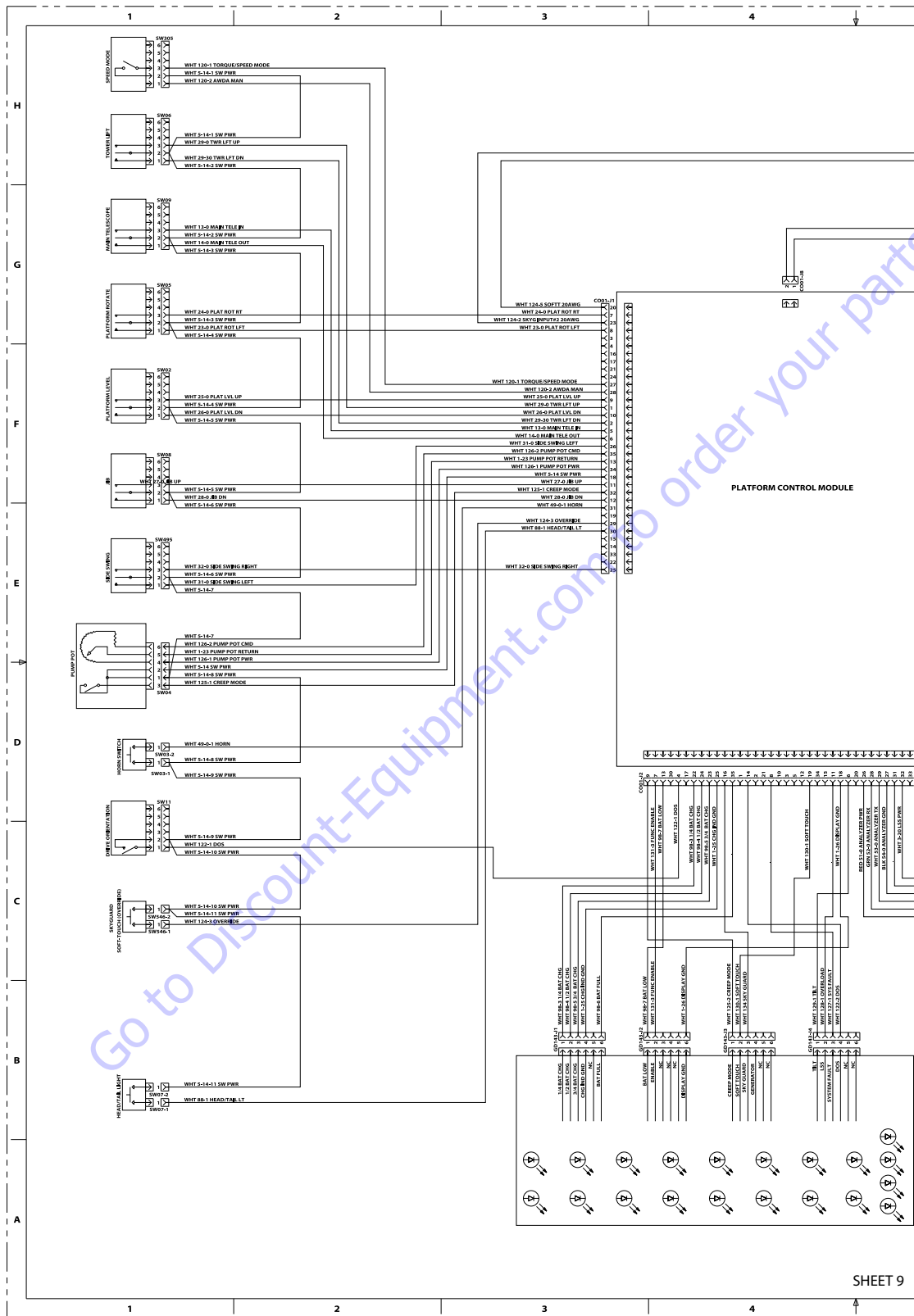


Figure 7-67. Electrical Schematic - Sheet 15 of 17

SECTION 7 - BASIC ELECTRICAL INFORMATION & SCHEMATICS

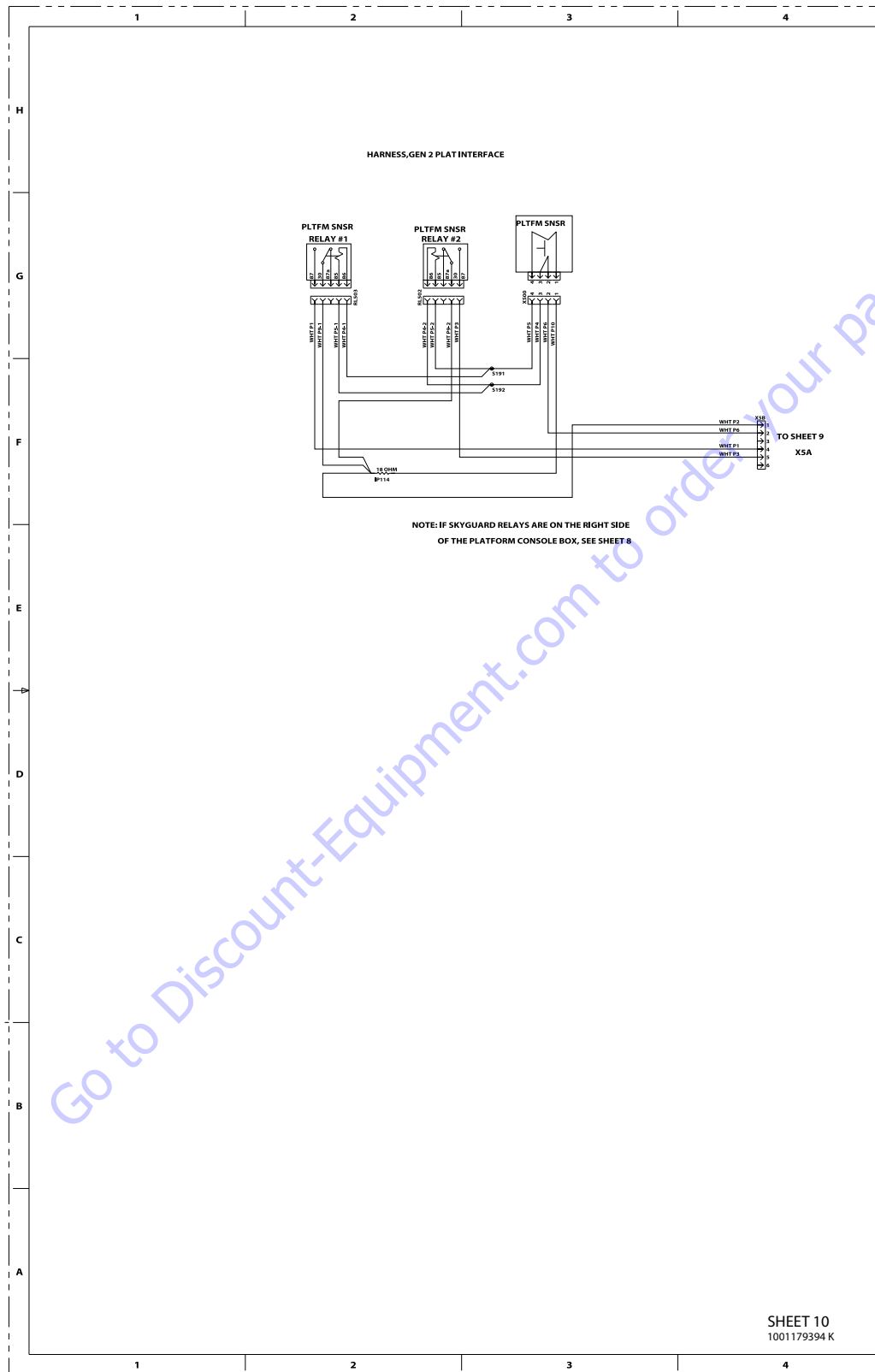


Figure 7-69. Electrical Schematic - Sheet 17 of 17

PARTS FINDER

**Search Website
by Part Number**



**Search Manual
Library For Parts
Manual & Lookup Part
Numbers – Purchase
or Request Quote**

Search Manuals

Enter your information to search for manuals and parts.

* Brand:

* Model:

* Serial:

* Part Number:

SEARCH

**Can't Find Part or
Manual? Request Help
by Manufacturer,
Model & Description**

Parts Order Form

Please fill in the following information:

Manufacturer:

Model:

Description:

Quantity:

Part Number:

Part Name:

Part Description:

Part Location:

Part Condition:

Part Status:

Part Price:

Part Weight:

Part Dimensions:

Part Material:

Part Color:

Part Finish:

Part Notes:

Part Images:

Part Attachments:

Part Specifications:

Part Certifications:

Part Compliance:

Part Safety:

Part Environmental:

Part Other:

Submit

Discount-Equipment.com is your online resource for quality parts & equipment.

Florida: **561-964-4949** Outside Florida TOLL FREE: **877-690-3101**

Need parts?

Click on this link: <http://www.discount-equipment.com/category/5443-parts/> and choose one of the options to help get the right parts and equipment you are looking for. Please have the machine model and serial number available in order to help us get you the correct parts. If you don't find the part on the website or on once of the online manuals, please fill out the request form and one of our experienced staff members will get back to you with a quote for the right part that your machine needs.

We sell worldwide for the brands: Genie, Terex, JLG, MultiQuip, Mikasa, Essick, Whiteman, Mayco, Toro Stone, Diamond Products, Generac Magnum, Airman, Haulotte, Barreto, Power Blanket, Nifty Lift, Atlas Copco, Chicago Pneumatic, Allmand, Miller Curber, Skyjack, Lull, Skytrak, Tsurumi, Husquvarna Target, , Stow, Wacker, Sakai, Mi-T- M, Sullair, Basic, Dynapac, MBW, Weber, Bartell, Bennar Newman, Haulotte, Ditch Runner, Menegotti, Morrison, Contec, Buddy, Crown, Edco, Wyco, Bomag, Laymor, Barreto, EZ Trench, Bil-Jax, F.S. Curtis, Gehl Pavers, Heli, Honda, ICS/PowerGrit, IHI, Partner, Imer, Clipper, MMD, Koshin, Rice, CH&E, General Equipment, ,AMida, Coleman, NAC, Gradall, Square Shooter, Kent, Stanley, Tamco, Toku, Hatz, Kohler, Robin, Wisconsin, Northrock, Oztec, Toker TK, Rol-Air, Small Line, Wanco, Yanmar



3121720



An Oshkosh Corporation Company



www.Discount-Equipment.com

Go to Discount-Equipment.com to order your parts

c c

