

Figure 4-16. Locations for Threadlocker Application - Sheet 3 of 5

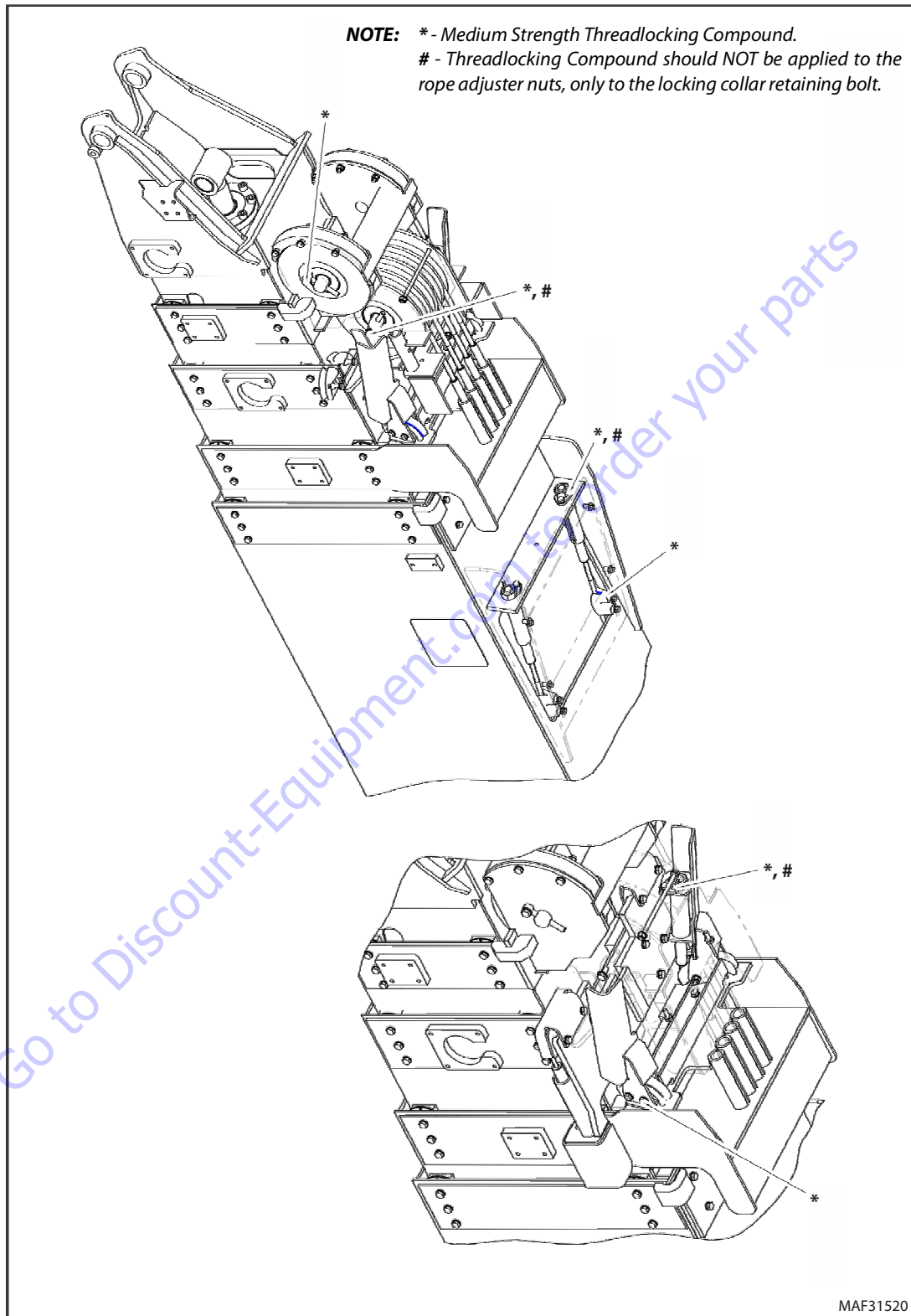


Figure 4-17. Locations for Threadlocker Application - Sheet 4 of 5

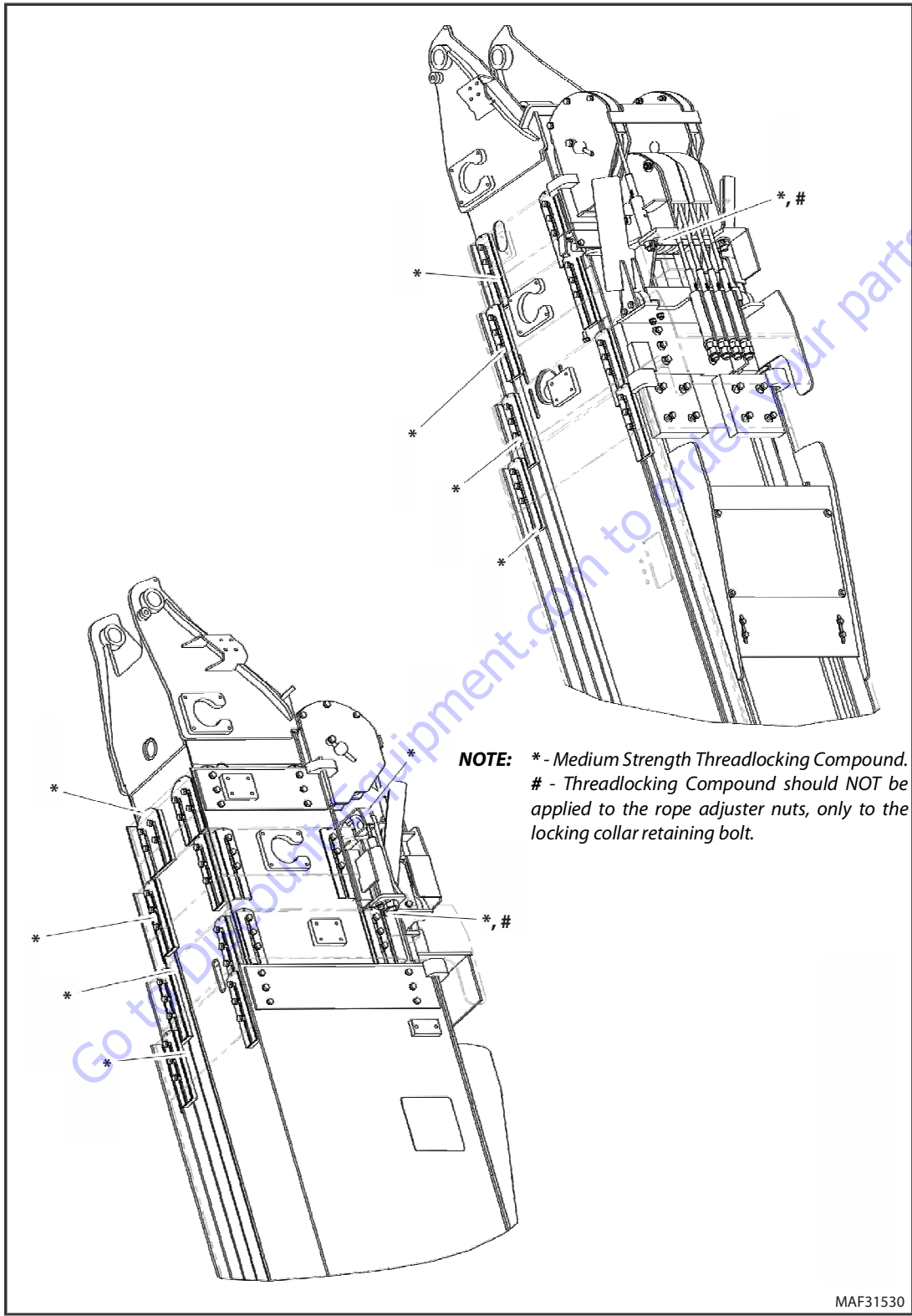


Figure 4-18. Locations for Threadlocker Application - Sheet 5 of 5

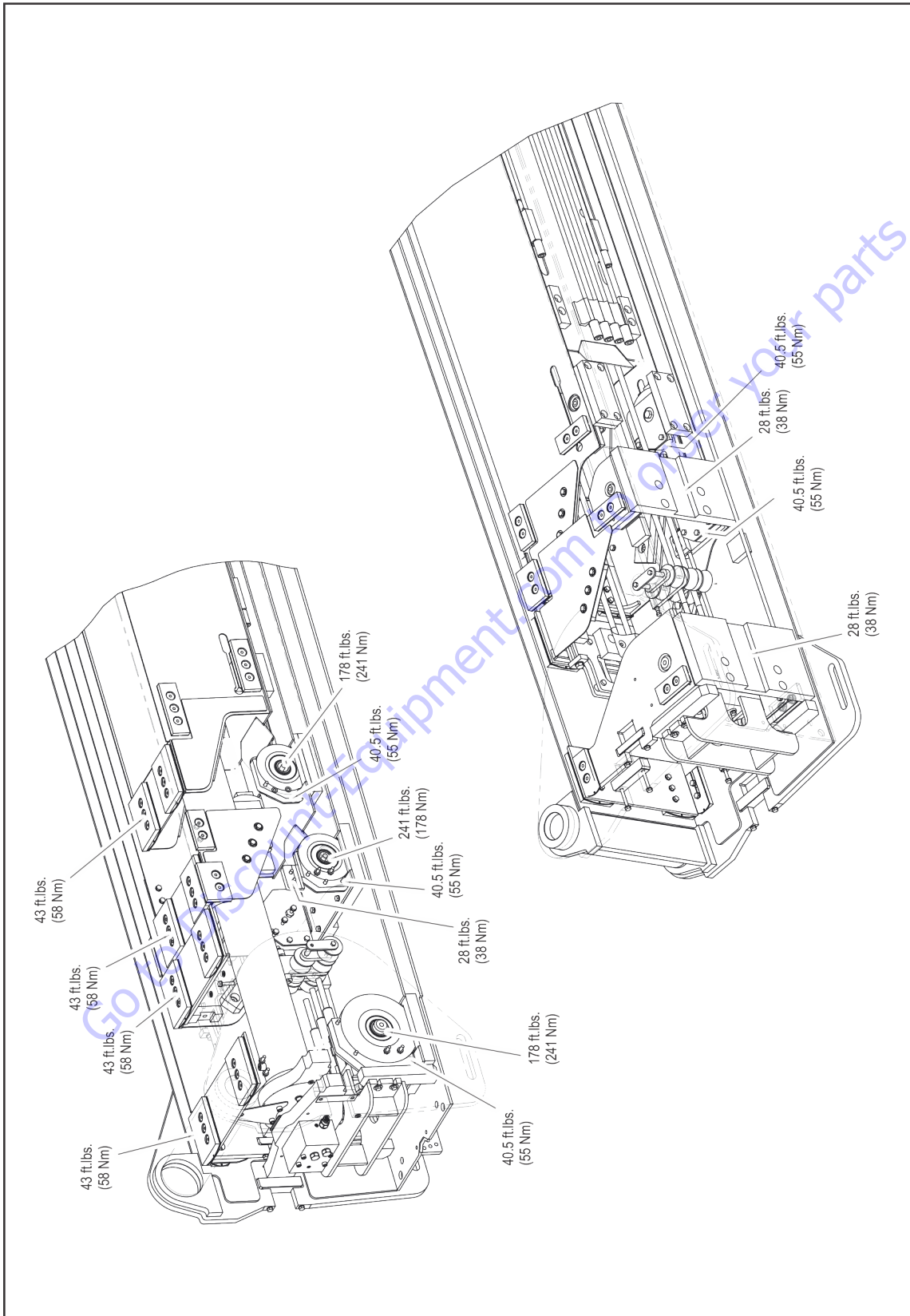


Figure 4-19. Boom Assembly Torque Values - Sheet 1 of 4

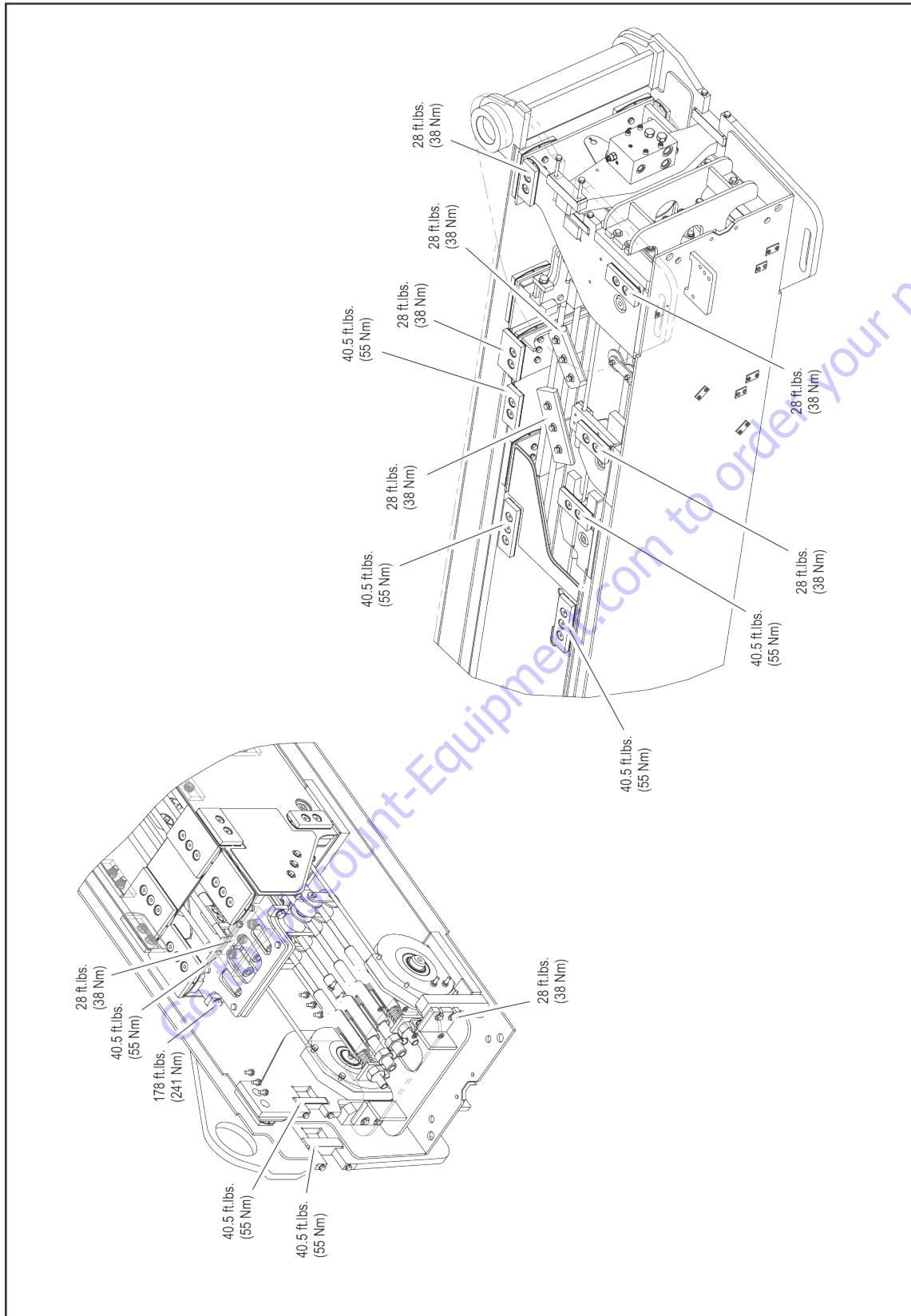


Figure 4-20. Boom Assembly Torque Values - Sheet 2 of 4

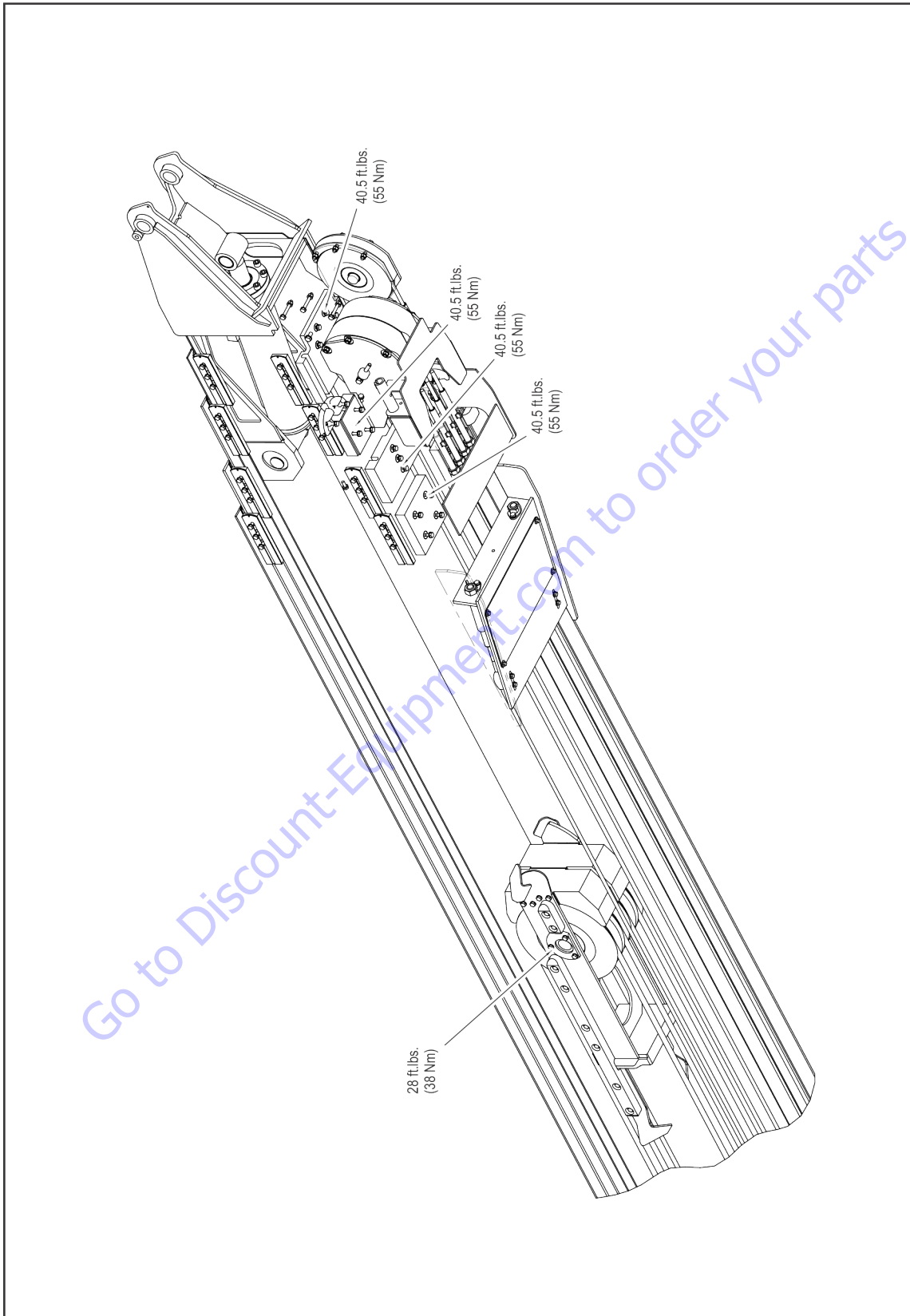


Figure 4-21. Boom Assembly Torque Values - Sheet 3 of 4

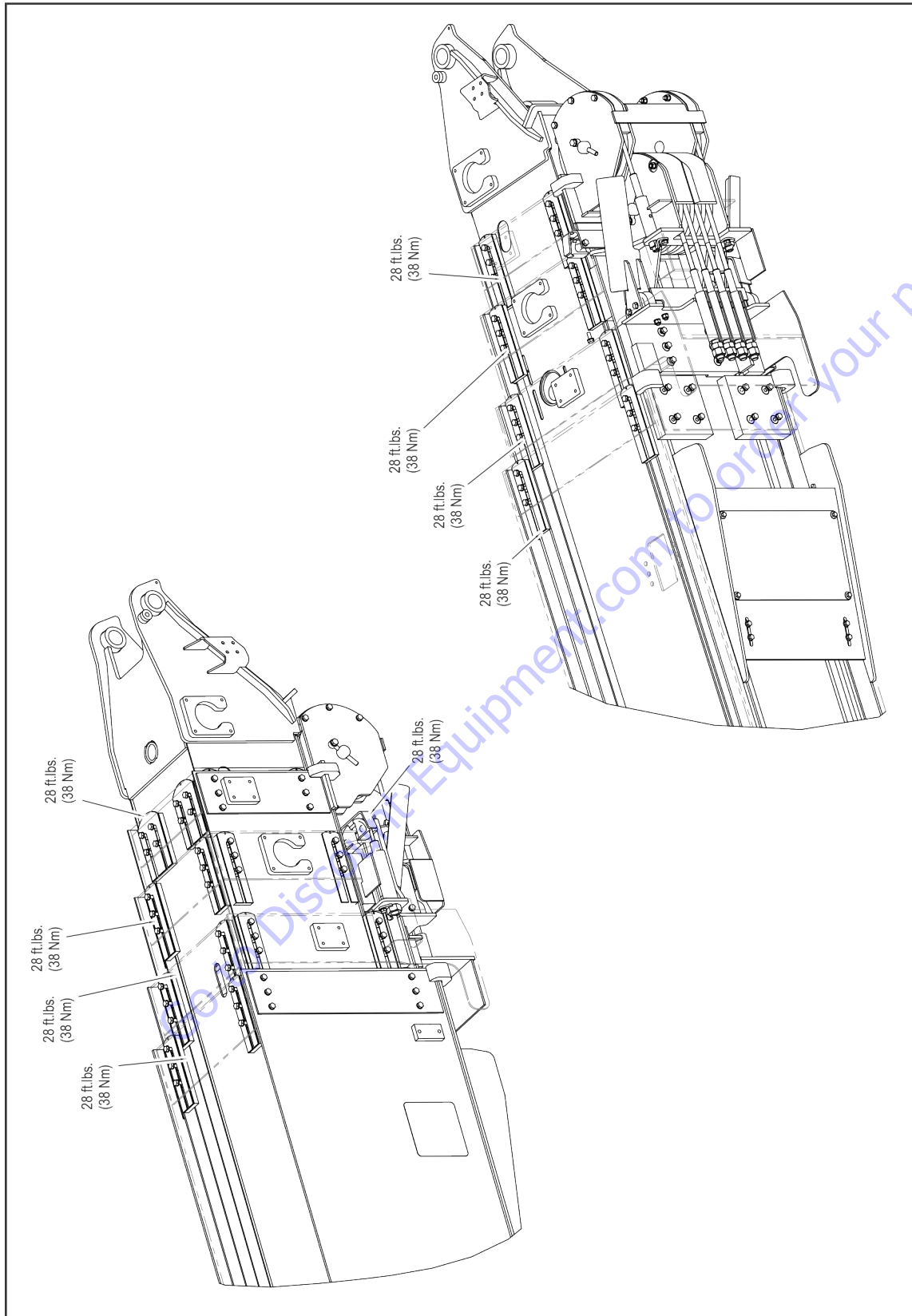
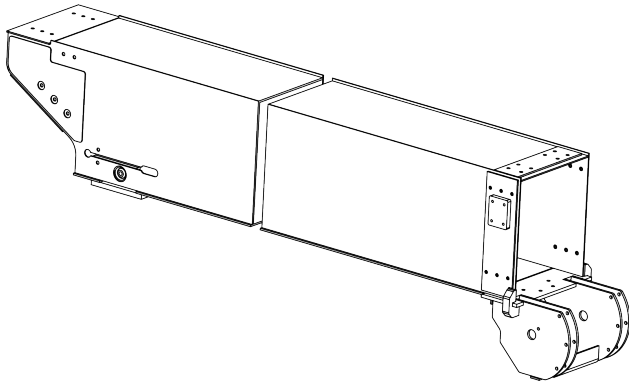


Figure 4-22. Boom Assembly Torque Values - Sheet 4 of 4

6. Place boom section 4 on a proper supporting device.



7. Apply Super Lube® lubricant (JLG PN 3020042) to all 4 sides of the boom approximately 3 to 4 feet on both ends. Apply Super Lube® to section 5 on the end that will go into section 4 only. Apply super lube to all outer surfaces of interior wear pads after they are installed.
8. Avoid getting super lube on painted surfaces. Slide section 5 into section 4 using adequate lifting equipment.



NOTE: Apply a thin coat of moly paste (JLG PN 3020039) on the inside diameter of the sheave bearing before installation of sheaves.

NOTE: Ensure the wire ropes remain untwisted through boom section 4.

9. Install the sheaves to the front of section 4. Apply Medium Strength Threadlocking Compound to the bolts and use the bolts, pins, keepers, and washers to secure the sheaves. Route the wire rope around the sheaves.

10. Install the wire rope retainer blocks to the front of section 4 boom using the washers, bolts, and nuts.



11. Install the bottom front wear pads and shims to section 4. Coat the retaining bolts with Medium Strength Threadlocking Compound and secure the wear pads with the bolts and washers. Torque the bolts to 43 ft.lbs. (58 Nm).
12. Install the front side wear pads and shims to section 4. Coat the retaining bolts with Medium Strength Threadlocking Compound and secure the wear pads with the bolts and washers. Torque the bolts to 28 ft.lbs. (38 Nm).
13. Install the front bottom wear pad and shims to section 4. Coat the retaining bolts with Medium Strength Threadlocking Compound and secure the wear pads with the bolts and washers. Torque the bolts to 28 ft.lbs. (38 Nm).
14. Install the front top wear pads and shims to section 4. Coat the retaining bolts with Medium Strength Threadlocking Compound and secure the wear pads with the bolts and washers. Torque the bolts to 28 ft.lbs. (38 Nm).
15. Install the rear top wear pads and shims to section 4. Coat the retaining bolts with Medium Strength Threadlocking Compound and secure the wear pads with the bolts and washers. Torque the bolts to 28 ft.lbs. (38 Nm).
16. Install the section 4 retract wire ropes to the rear of section 4.

NOTE: The retract wire ropes must be installed before side wear pads are installed.

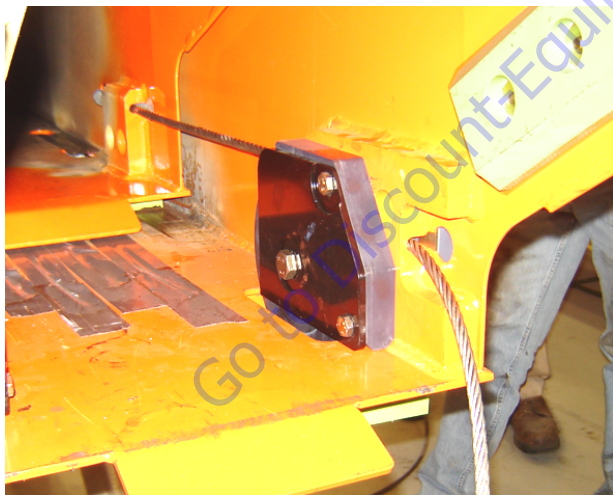
17. Install the rear side wear pads and shims to the outside of section 4. Coat the retaining bolts with Medium Strength Threadlocking Compound and secure the wear pads with the bolts and washers. Torque the bolts to 40.5 ft.lbs. (55 Nm).
18. Install the rear side wear pads to the inside of section 4. Coat the retaining bolts with Medium Strength Threadlocking Compound and secure the wear pads with the bolts and washers. Torque the bolts to 28 ft.lbs. (38 Nm).

SECTION 4 - BOOM & PLATFORM

19. Install the rear bottom wear pads to the outside of section 4. Coat the retaining bolts with Medium Strength Threadlocking Compound and secure the wear pads with the bolts and washers. Torque the bolts to 28 ft.lbs. (38 Nm).
20. Coat the inside diameter of the sheave bushings with moly paste and install the wire rope sheaves to the rear of section 4 boom using the bushings.



21. Coat the sheave retaining bolts with High Strength Threadlocking Compound and the sheave plate/retainer block retaining bolts with Medium Strength Threadlocking Compound. Install the sheave plate and rope retainer blocks to the rear of section 4 using the retaining bolts. Torque the sheave retaining bolts to 178 ft.lbs. (241 Nm). Torque the sheave plate/retainer block bolts to 40.5 ft.lbs. (55 Nm)

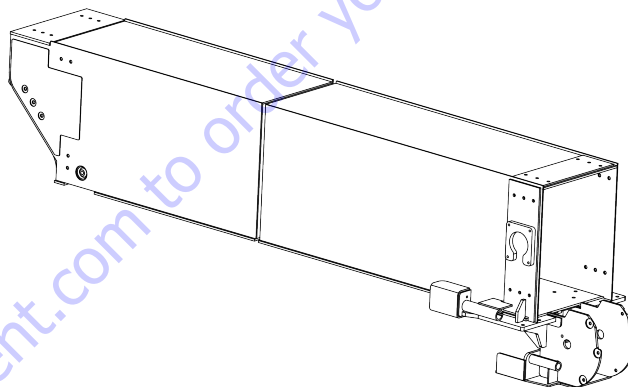


22. Install the section 4 extend ropes to section 4.



NOTE: Boom section 3 weighs approximately 2632 lb (1194 kg).

23. Place boom section 3 on a proper supporting device.



24. Apply Super Lube® lubricant (JLG PN 3020042) to all 4 sides of the boom approximately 3 to 4 feet on both ends. Apply Super Lube® only to the insertion end of section 4. Apply Super Lube® to all outer surfaces of interior wear pads after they are installed. Avoid getting Super Lube® on painted surfaces. Slide the section 4/section 5 assembly into section 3 using proper lifting procedures. The section 5 end of the section 4/5 assembly must be raised after section 4 is inserted in section 3 to allow the four extend rope anchors to clear the top of the four extend sheave mounts at the section 5 end of section 3.



- 25.** Install the fixed sheave shields, and deflector sheaves using the retaining bolts and washers. Coat the bolts with Medium Strength Threadlocking Compound before installation. Torque the bolts to 28 ft.lbs. (38 Nm).



- 26.** Coat the bolts with Medium Strength Threadlocking Compound and install the section 5 retract ropes to section 3 using the nuts, keeper plates, bolts, and washers.



- 27.** Coat the bolts with Medium Strength Threadlocking Compound and install the section 5 extend ropes to section 3 using nuts, keeper plates, bolts, and washers.

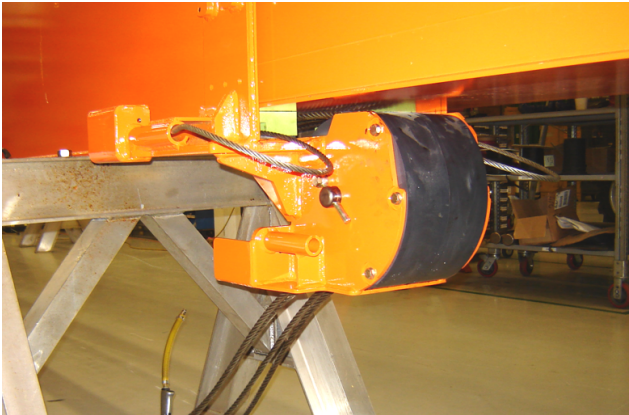


- 28.** Coat the bolts with Medium Strength Threadlocking Compound and install the front bottom wear pads to section 3 using washers, bolts, and shims. Torque the bolts to 43 ft.lbs. (58 Nm)



SECTION 4 - BOOM & PLATFORM

29. Apply a thin coat of moly paste on I.D. of sheave bearings. Coat the bolts with Medium Strength Threadlocking Compound and install the sheaves to the front of section 3 using the pin, keeper, bolt, and washer.
30. Coat the bolts with Medium Strength Threadlocking Compound. Install the rope retaining blocks to the front of section 3 using washers, bolts, and nuts.



31. Coat the bolts with Medium Strength Threadlocking Compound. Install the front side wear pads to section 3 using washers, bolts, and shims. Torque the bolts to 28 ft.lbs. (38 Nm).



32. Coat the bolts with Medium Strength Threadlocking Compound. Install the front upper wear pads to section 3 using washers, bolts, and shims. Torque the bolts to 28 ft.lbs. (38 Nm)

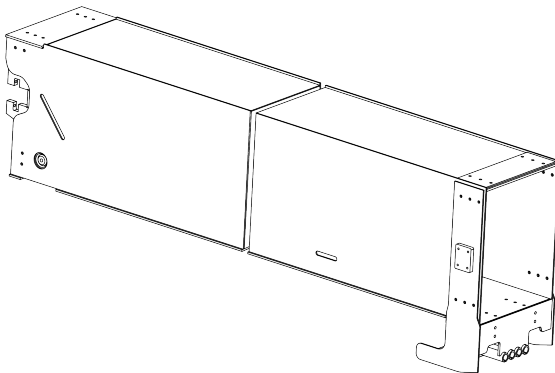


33. Coat the bolts with Medium Strength Threadlocking Compound. Install the rear upper wear pads to section 3 using washers, bolts, and shims. Torque the bolts to 28 ft.lbs. (38 Nm).
34. Coat the bolts with Medium Strength Threadlocking Compound. Install the outer rear side wear pads to section 3 using washers, bolts, and shims. Torque the bolts to 28 ft.lbs. (38 Nm).
35. Coat the bolts with Medium Strength Threadlocking Compound. Install the rear inner side wear pads to section 3 using washers, and bolts. Torque the bolts to 28 ft.lbs. (38 Nm)
36. Coat the bolts with Medium Strength Threadlocking Compound. Install the bottom rear wear pad to section 3 using washers and bolts. Torque the bolts to 28 ft.lbs. (38 Nm).
37. Apply moly paste to the I.D. of the sheave bearings. Install the sheaves to section 3.

38. Coat the two sheave center bolts with High Strength Threadlocking Compound and the sheave plate retaining bolts with Medium Strength Threadlocking Compound. Install the sheave plates and rope retainer blocks to section 3 using the retaining bolts. Torque the sheave center bolts to 178 ft.lbs. (241 Nm). Torque the sheave plate retaining bolts to 41 ft.lbs. (55 Nm)
39. Coat the bolts with Medium Strength Threadlocking Compound. Install the section 3 retract ropes to the rear of section 3 using washers, bolts, and pads. Torque the bolts to 28 ft.lbs. (38 Nm).

NOTE: Boom section 2 weighs approximately 3755 lb (1703 kg).

40. Place boom section 2 on a proper supporting device.



41. Apply Super Lube® lubricant (JLG PN 3020042) to all 4 sides of the boom approximately 3 to 4 feet on both ends. Apply Super Lube® to section 3 on the end that will go into section 2 only. Apply super lube to all outer surfaces of interior wear pads after they are installed. Slide sections 3,4, and 5 as an assembly into section 2 using proper lifting procedures.
42. Coat the bolts with Medium Strength Threadlocking Compound. Install the wear pads to section 2 using the bolts and washers. Torque the bolts to 43 ft.lbs. (58 Nm).
43. Install the adjustment nuts and lock nuts to the section 4 extend ropes.
44. Install the rope adjustment bracket to section 2 using washers, bolts, and nuts as shown.
45. Coat the bolts with Medium Strength Threadlocking Compound. Install the section 4 return ropes to the rope adjustment bracket on section 2 using washers, bolts, keepers, and nuts.

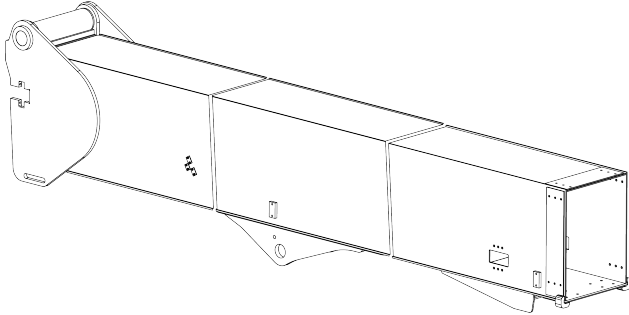
46. Coat the bolts with Medium Strength Threadlocking Compound. Install the sheave deflectors to the rope adjustment bracket on section 2 using nuts, bolts, and washers.
47. Coat the bolts with Medium Strength Threadlocking Compound. Install the front side wear pads to section 2 using washers, bolts, and shims. Torque the bolts to 28 ft.lbs. (38 Nm)
48. Coat the bolts with Medium Strength Threadlocking Compound. Install front top wear pads to section 2 using washers, bolts, and shims. Torque the bolts to 28 ft.lbs. (38 Nm)
49. Coat the bolts with Medium Strength Threadlocking Compound. Install the rear top wear pads to section 3 using washers, bolts, and shims. Torque the bolts to 28 ft.lbs. (38 Nm).
50. Coat the bolts with Medium Strength Threadlocking Compound. Install the rear side wear pads to section 2 using washers, bolts, and shims. Torque to 28 ft.lbs. (38 Nm).
51. Apply moly paste to the I.D. of the sheave bearings. Install the sheaves to section 2 boom.
52. Coat the two sheave center bolts with High Strength Threadlocking Compound and the sheave plate retaining bolts with Medium Strength Threadlocking Compound. Install the sheave plates and rope retainer blocks to section 2 using the retaining bolts. Torque the sheave center bolts to 178 ft.lbs. (241 Nm). Torque the sheave plate retaining bolts to 41 ft.lbs. (55 Nm)

SECTION 4 - BOOM & PLATFORM

53. Coat the bolts with Medium Strength Threadlocking Compound. Install the bottom rear wear pad to section 2 using washers, and bolts. Torque the bolts to 28 ft.lbs. (38 Nm)

NOTE: Boom section 1 weighs approximately 6045 lb (2742 kg).

54. Place boom section 1 on a proper supporting device.



55. Apply Super Lube® lubricant (JLG PN 3020042) to all 4 sides of the boom approximately 3 to 4 feet on both ends. Apply Super Lube® to section 2 on the end that will go into section 1 only. Apply super lube to all outer surfaces of interior wear pads after they are installed. Slide sections 2,3,4, and 5 as an assembly into section 1 using proper lifting procedures.

NOTE: Position the deflectors so the surface is 3-4 mm from the section 2 bottom plate.

56. Coat the bolts with Medium Strength Threadlocking Compound. Install the section 3 retract ropes to section 1 using deflectors, bolts, nuts, washers, and keepers.

57. Coat the bolts with Medium Strength Threadlocking Compound. Install the front bottom wear pads to section 1 using washers, bolts, and shims. Torque the bolts to 41 ft.lbs. (55 Nm).

58. Coat the bolts with Medium Strength Threadlocking Compound. Install the front side wear pads to section 1 using washers, bolts, and shims. Torque the bolts to 43 ft.lbs. (58 Nm).

59. Coat the bolts with Medium Strength Threadlocking Compound. Install the front top wear pads to section 1 using washers, bolts, and shims. Torque the bolts to 28 ft.lbs. (38 Nm).

60. Coat the bolts with Medium Strength Threadlocking Compound. Install the cover to the section 1.

NOTE: Center the cover over the hole in section 1.

61. Install the cover to side section 1 boom.

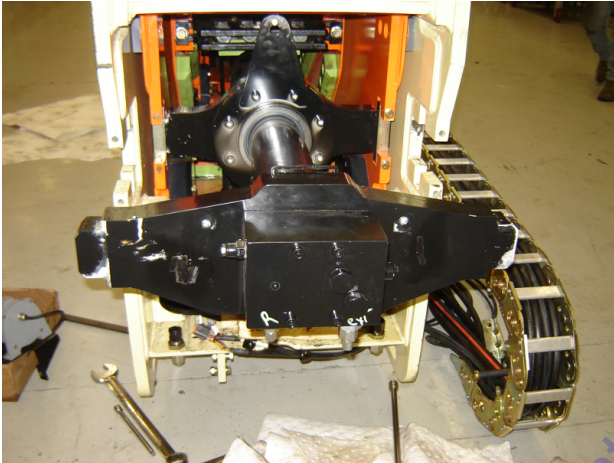
62. Coat the bolts with Medium Strength Threadlocking Compound and install the boom length bracket.

63. Route cables and hose's out thru the power track.

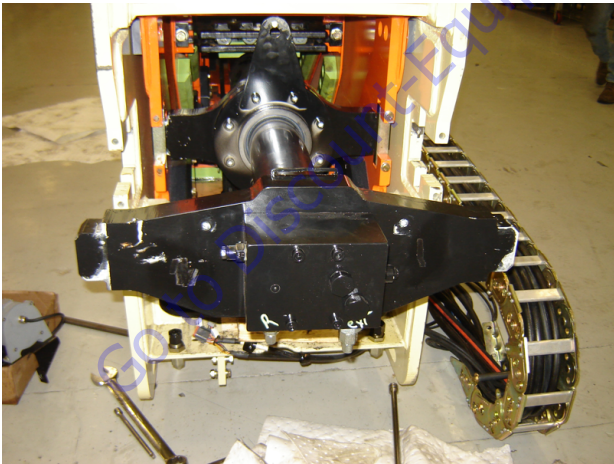
4.6 TELESCOPE CYLINDER

Removal

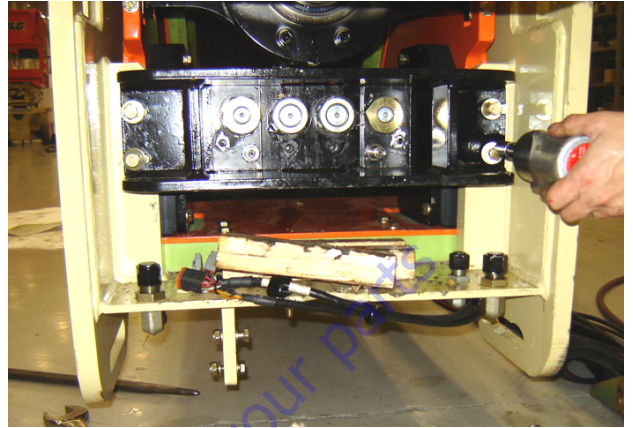
1. Remove the boom from the machine. Refer to Section - Boom Recovery Mode.
2. Remove the bolts and shims securing the telescope cylinder rod trunnion blocks to boom section 1 and remove the trunnion blocks. Using a hydraulic power supply, extend the telescope cylinder out of boom section 1.



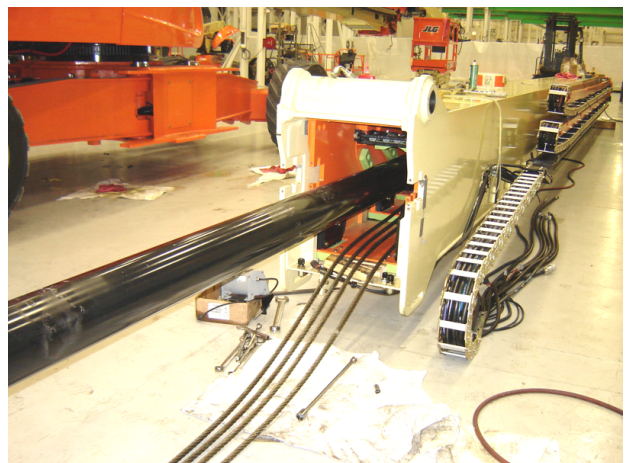
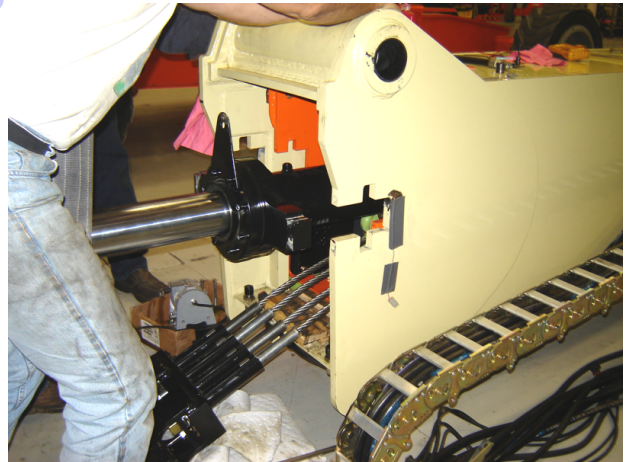
3. Remove the bolts and shims securing the telescope cylinder barrel trunnion blocks to boom section 2 and remove the trunnion blocks.



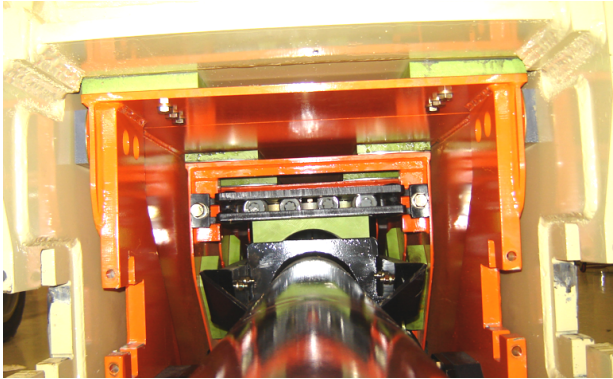
4. Remove the bolts securing the adjustment mount and disconnect the adjustment mount from boom section 1.



5. Carefully pull the cylinder and ropes from the boom assembly until there is access to the extend rope support. As the cylinder and ropes are removed from the assembled boom, do not allow slack to accumulate in the ropes between the rope support and the sheaves on the cylinder assembly. The rope adjuster mount must travel at twice the rate the cylinder is extracted to control slack.



6. Remove the bolts securing the extend rope support and disconnect the support from boom section 3.



7. Carefully remove the telescope cylinder and ropes from the boom assembly.



4.7 BOOM SHIMMING PROCEDURE

NOTE: Throughout this procedure, boom sections are identified numerically, 1-5. Boom Section 1 is at the base, Boom Section 5 is the fly.

1. Measure and record any sweep dimension and direction of Boom Section 5 per spec drawing 1280284 and record in Quality logbook. Measure and record the inside width and inside height of the Boom Section 4 opening.
2. Install the Internal Side wear pads on the Section 5 sides and shim as required to match the corresponding dimension recorded in step 1 within plus or minus 1/32". Shims should be divided as evenly as possible between the side pads unless corrections are needed to compensate for any sweep recorded in step 1. If the sweep is to the left the internal side pads on the right should have more shims than the left side pads and vice-versa.

NOTE: When installing wear pads in the following steps, the wear pad bolt lengths may need to be adjusted as shim thicknesses are adjusted. Bolt lengths should be flush to one thread below the surface of the insert.

3. Install the bottom wear pad(s) on Section 5 boom as specified on the boom assembly drawing.
4. Install the top wear pad(s) on Section 5 boom and shim as required to obtain the total dimension 0" to 1/16" under the corresponding dimension in step 1.
5. Slide Section 5 into Section 4 with 2 to 6 feet exposed.
6. Install the bottom wear pad(s) onto the end of Section 4 as specified on the boom assembly drawing.
7. Temporarily insert the External Side pads on one side and slide Section 5 boom to that side. Insert the other side pads using shims measure how many will be required to fill the remaining space. Once this is established, install the total amount of shims as evenly as possible between the two sides unless corrections are needed to compensate for out of square booms or for additional corrections for any sweep recorded in step 1. Care should be taken to keep the bottom pads evenly loaded while shimming the side pads. If the sweep is to the left the external side pads on the left should have more shims than the right side pads and vice-versa.

NOTE: Do not use a wedge to install more shims than will fit with the use of a pry bar. This may result in a boom being shimmed too tight. The use of pry bars should only be used to finish installing a shim that can be installed by hand more than 1/2 of its length.

8. Install the top wear pads and shims into the end of Section 4 leaving a gap of 0" to 1/16" between the top of the Section 5 and the pad inside Section 4.

9. Repeat steps 1-7 above to install the Section 5/4 assembly into boom Section 3.
10. Repeat steps 1-7 above to assemble the Section 5/4/3 assembly into Section 2.
11. Repeat steps 1-7 above to assemble the Section 5/4/3/2 assembly into Section 1.
12. Complete the boom and machine assembly. The boom should be functionally tested and evaluated for boom sweep. If necessary, the boom may be re-shimmed by moving shims from one side to the other to further correct any remaining boom sweep. There may be some instances where no shims are used under a given side pad to pass the criteria for boom sweep at final inspection of machine.

4.8 BOOM LUBRICATION APPLICATION

This procedure applies to booms after assembly or as necessary using Super Lube® lubricant (JLG PN 3020042).

NOTE: *This procedure should also be performed when the telescope in or telescope out functions are not operating smoothly.*

1. Position the boom on the boom rest using the 500 lb capacity setting.
2. Telescope main boom section as far as it will extend at this position, approximately 3 ft. (0.9 m).
3. From the front of the machine (boom pivot end), moderately apply lubricant to the interior surfaces of boom sections 1, 2, 3, and 4. To prevent misdiagnosis of hydraulic leaks, take care to prevent excessive application of lubrication.
4. At the rear of the machine, apply lubricant to the side, top and bottom surfaces of boom sections 5, 4, 3, and 2 specifically to wear pad contact paths. To prevent misdiagnosis of hydraulic leaks, take care to prevent excessive application of lubrication.
5. After application of the lubricant is complete, cycle the boom through its full range of travel 2 times.

4.9 BOOM CLEANLINESS GUIDELINES

The following are guidelines for internal boom cleanliness for machines that are used in excessively dirty environments.

1. JLG recommends the use of the JLG Hostile Environment Package if available to keep the internal portions of a boom cleaner and to help prevent dirt and debris from entering the boom. This package reduces the amount of contamination which can enter the boom but does not eliminate the need for more frequent inspections and maintenance when used in these types of environments.
2. JLG recommends that you follow all guidelines for servicing your equipment in accordance with the instructions outlined in the JLG Service & Maintenance Manual for your machine. Periodic maintenance and inspection is vital to the proper operation of the machine. The frequency of service and maintenance must be increased as environment, severity and frequency of usage requires.
3. Debris and foreign matter inside of the boom can cause premature failure of components and should be removed. Methods to remove debris should always be done using all applicable safety precautions outlined in the JLG Service & Maintenance Manuals.
4. The first attempt to remove debris from inside the boom must be to utilize pressurized air to blow the debris toward the nearest exiting point from the boom. Make sure that all debris is removed before operating the machine.
5. If pressurized air cannot dislodge the debris, then water with mild solvents applied via a pressure washer can be used. Again the method is to wash the debris toward the nearest exiting point from the boom. Make sure that all debris is removed, that no "puddling" of water has occurred, and that the boom internal components are dry prior to operating the machine. Make sure you comply with all federal and local laws for disposing of the wash water and debris.
6. If neither pressurized air nor washing of the boom dislodges and removes the debris, then disassemble the boom in accordance to the instructions outlined in the JLG Service & Maintenance Manual to remove the debris.

4.10 HOSE ADJUSTMENT PROCEDURE

1. Load the hoses and cables into the powertracks and push tubes according to Figure 4-58, Powertrack Hose Installation - Sheet 4 of 4.
2. Adjust the hose and cable lengths at the fly nose clamp (Location A) per their respective drawings and install clamp. Tighten the clamp at the end of the top push tube (Location B). Each clamp is considered tight when the contained hoses and cables cannot be moved.
3. With clamp B set, pull the hoses and cables until they are resting against the flat bars on the outside radius of the power track. Force additional hydraulic hose slack into the power track by pushing the hoses from the Location C. Tighten the clamp at location C.
4. While maintaining the hose and cable configuration listed in Figure 4-58, Powertrack Hose Installation - Sheet 4 of 4, insert a tool to ensure the minimum bend radius of 4 inches is not being violated as the hoses are routed into the push tube at location C. Once adjusted, tighten the clamp at Location D and remove the tool.
5. With clamp D set, pull the hoses and cables until they are resting against the flat bars on the outside radius of the power track. Force additional hydraulic hose slack into the power track by pushing the hoses from the Location E. Tighten the clamp at location E.
6. While maintaining the hose and cable configuration shown in Figure 4-58, Powertrack Hose Installation - Sheet 4 of 4, insert a tool to ensure the minimum bend radius of 4 inches is not being violated as the hoses are routed into the trays at location E. Once adjusted, tighten the clamp at Location F and remove the tool. Check additional lengths of the hoses and cables against the pull lengths listed on their respective drawings.
7. Attach all hydraulic hoses and pressurize the hoses by dead heading a function. Check hose clearance in both power tracks. There should be clearance between the hoses and the inside rollers or flat bars. Release the function.
8. If the hoses were in contact, loosen the clamps and pull additional length from the lower clamp (additional length at location B should be pulled through clamp C, additional length at location D should be pulled through clamp E). Steps 3 thru 7 should be followed when adjusting the hoses.
9. Repeat steps 7 and 8 until there is no contact between the hoses and the inside radius of the power track.

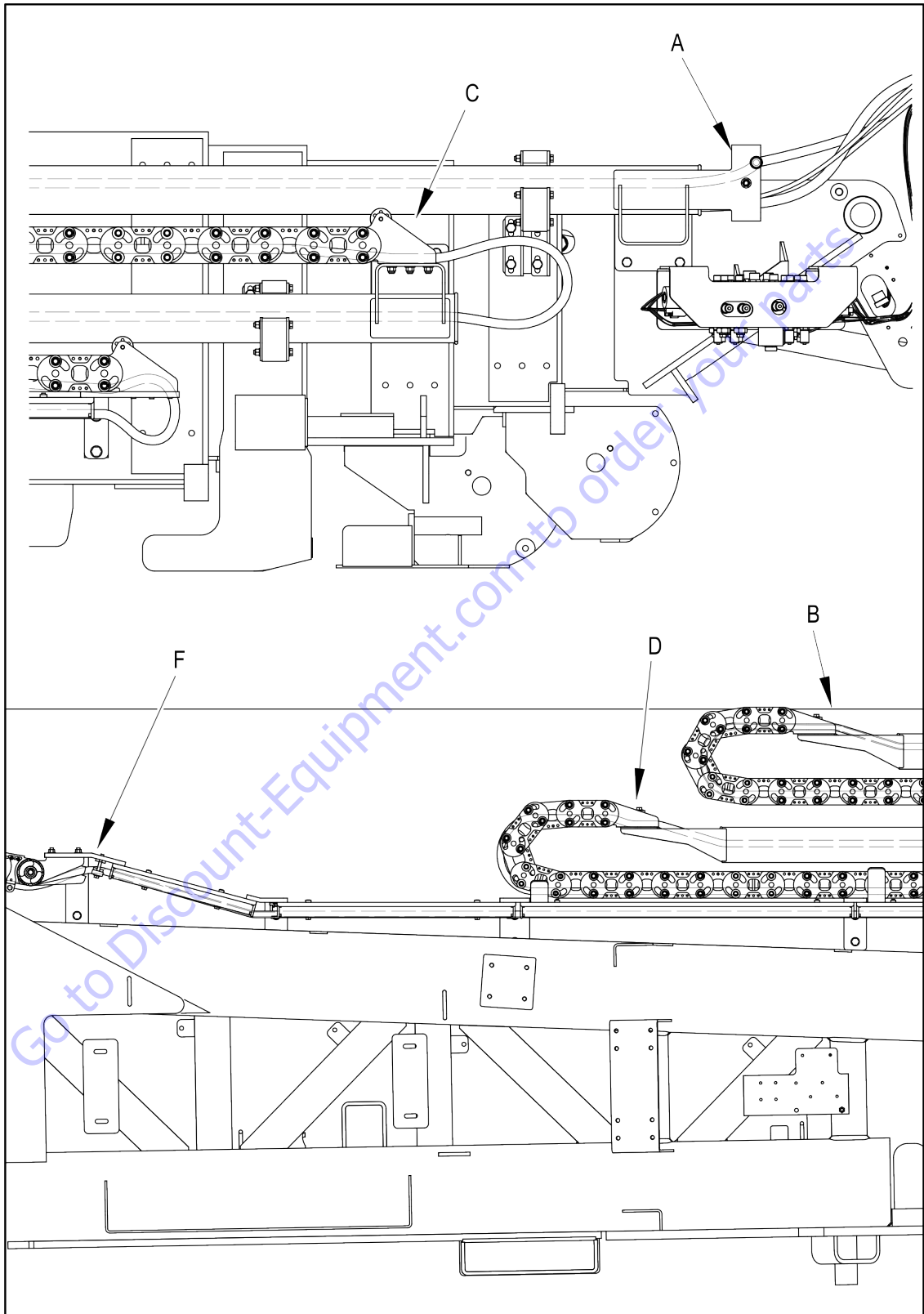


Figure 4-23. Hose Adjustment

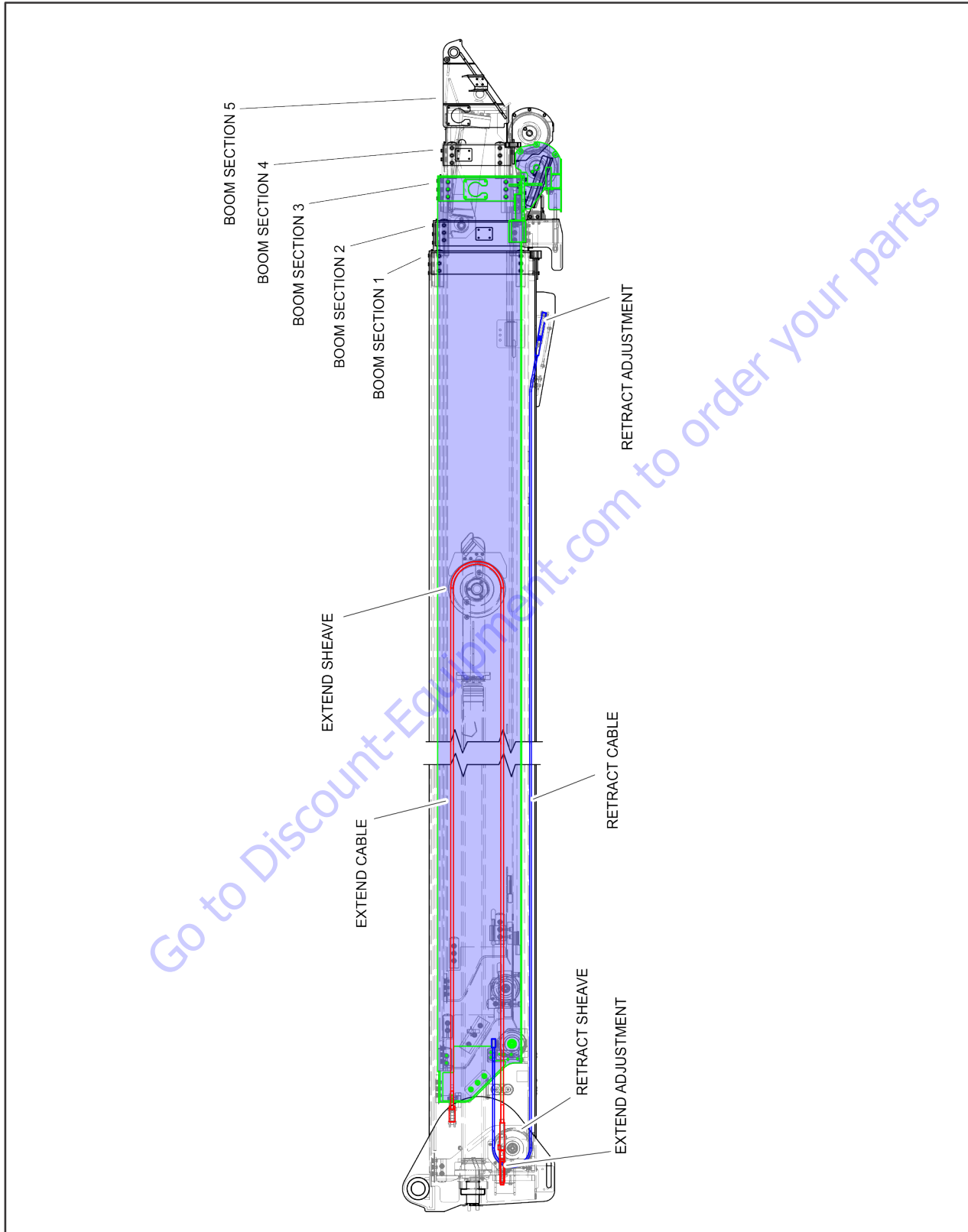


Figure 4-24. Section 3 Boom Cables

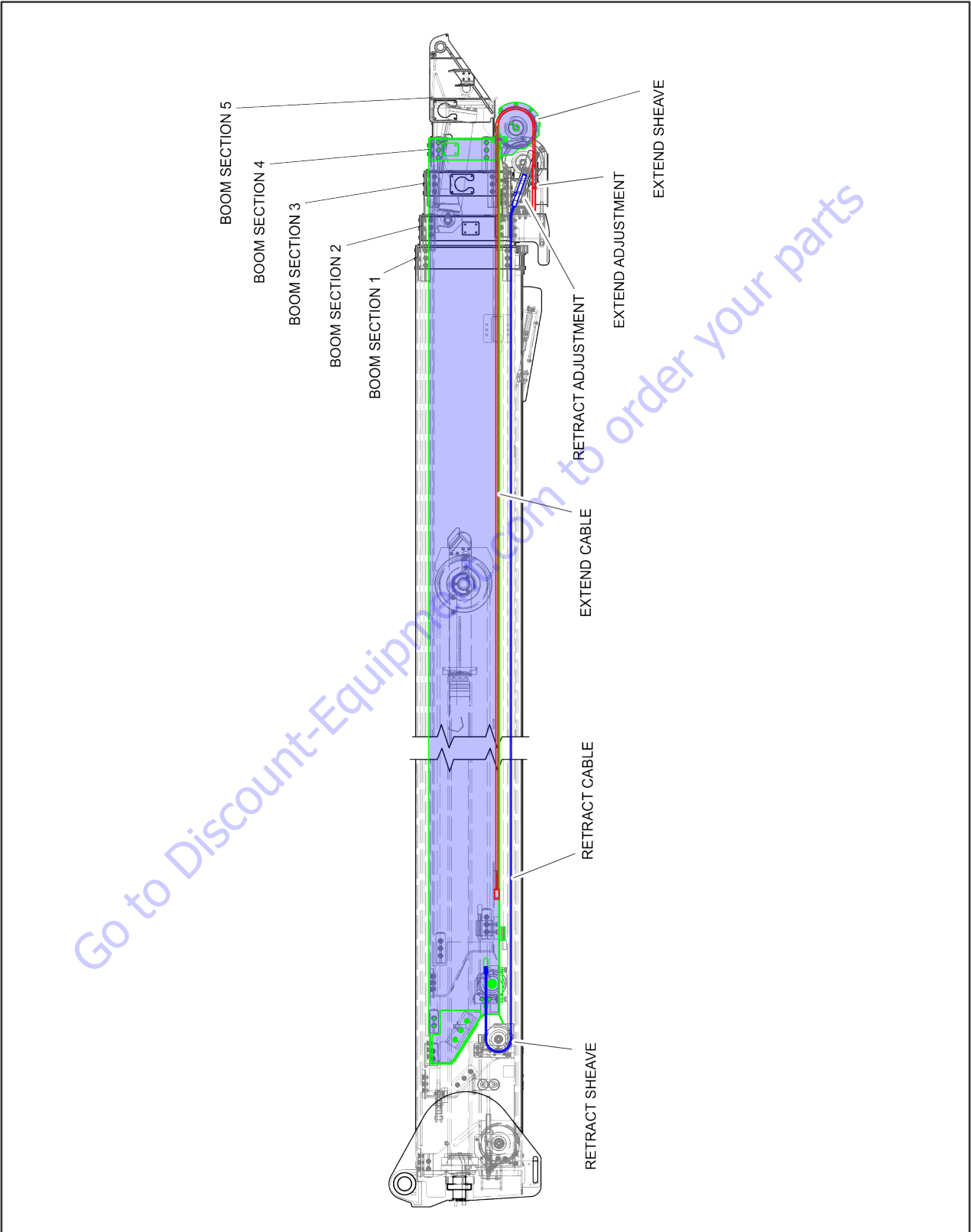


Figure 4-25. Section 4 Boom Cables

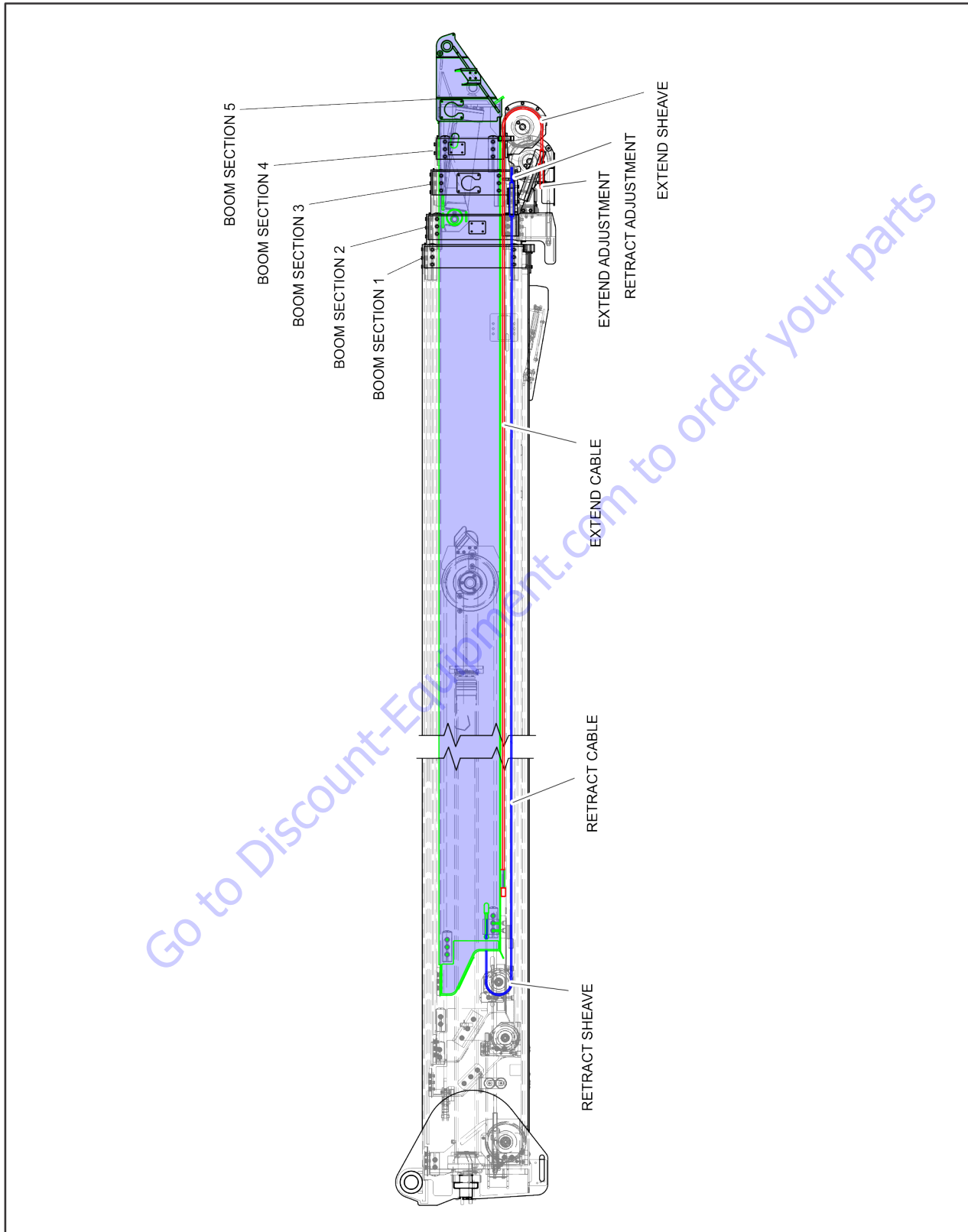


Figure 4-26. Section 5 Boom Cables

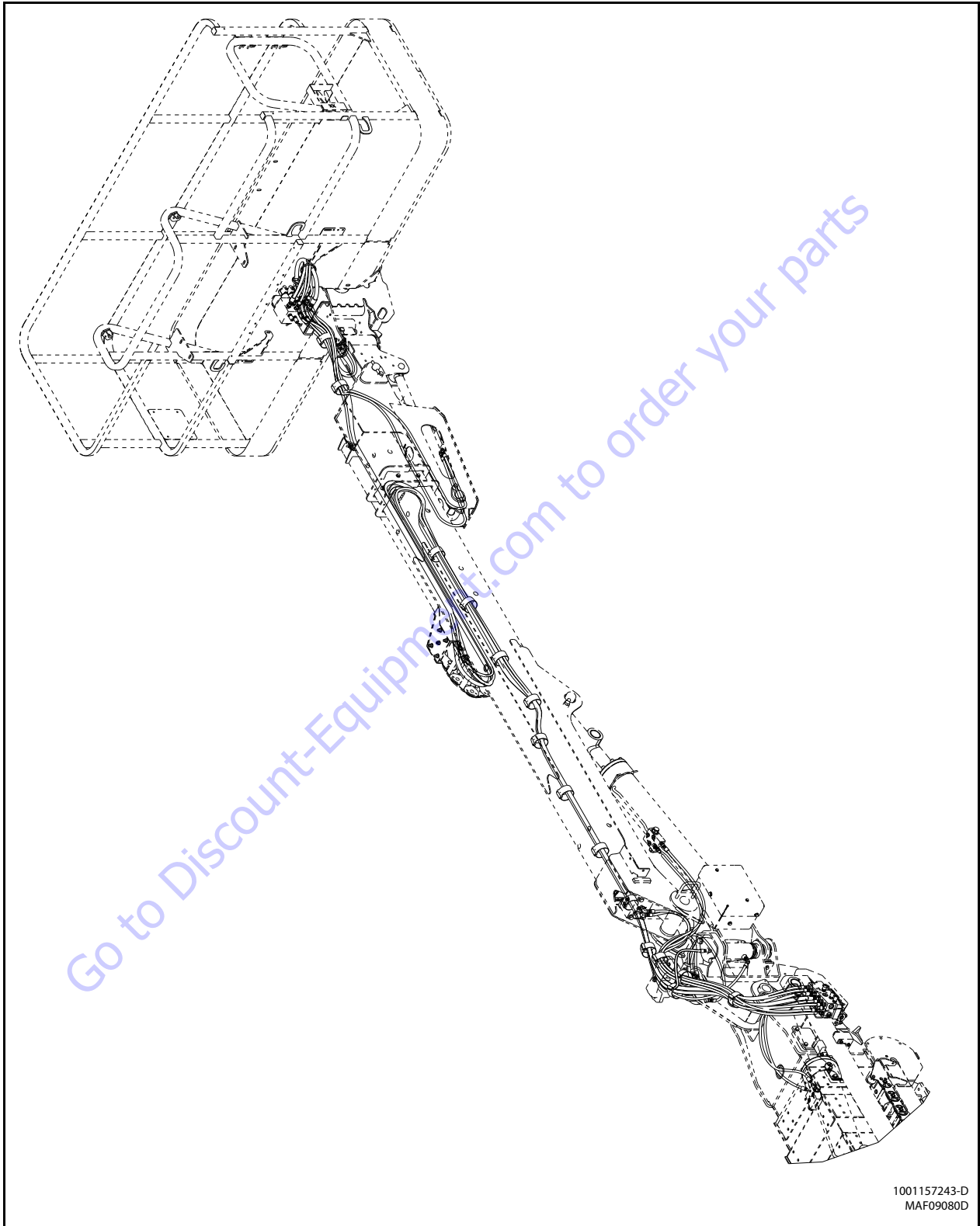


Figure 4-27. Jib Hydraulics - Sheet 1 of 7

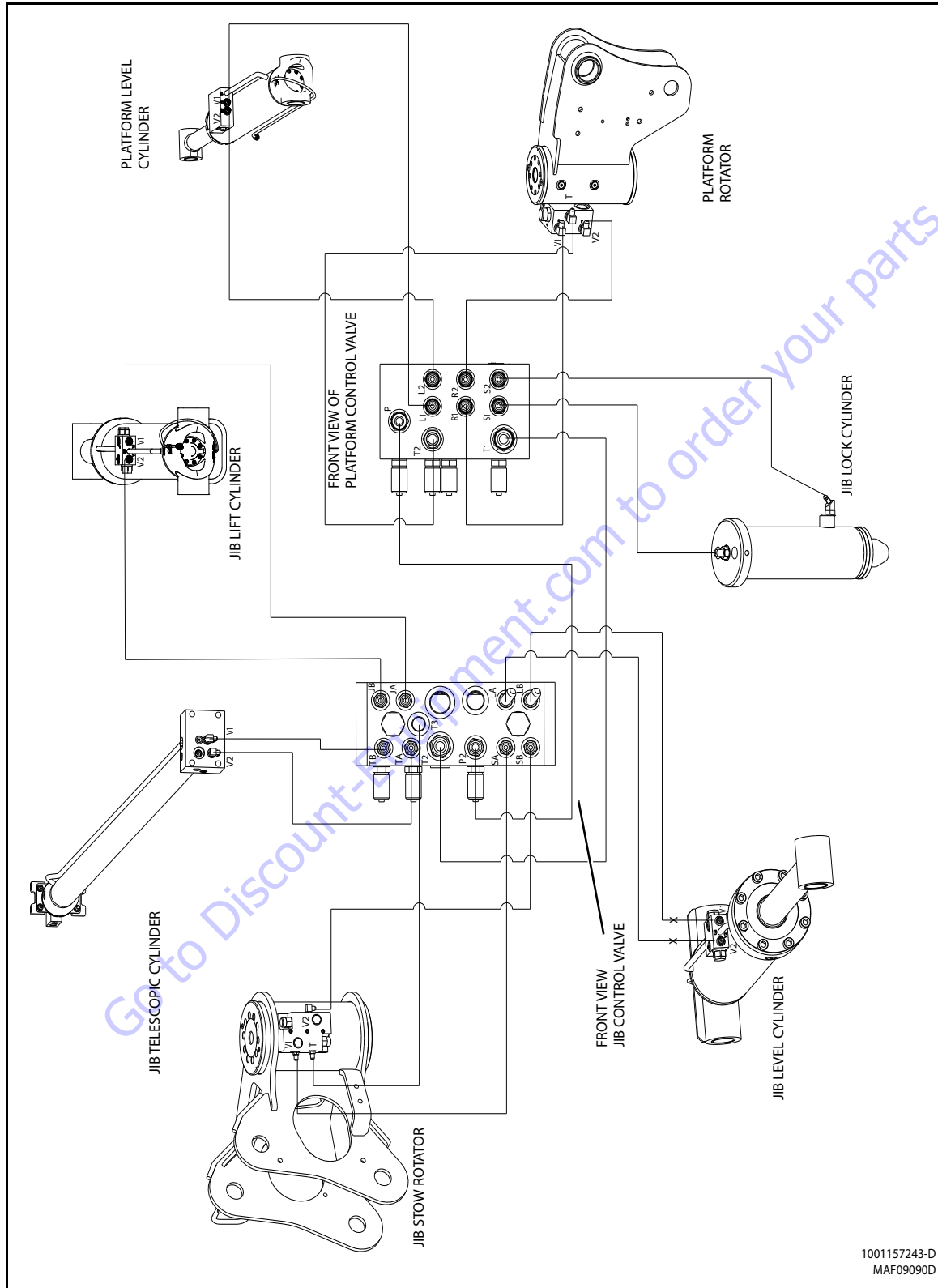


Figure 4-28. Jib Hydraulics - Sheet 2 of 7

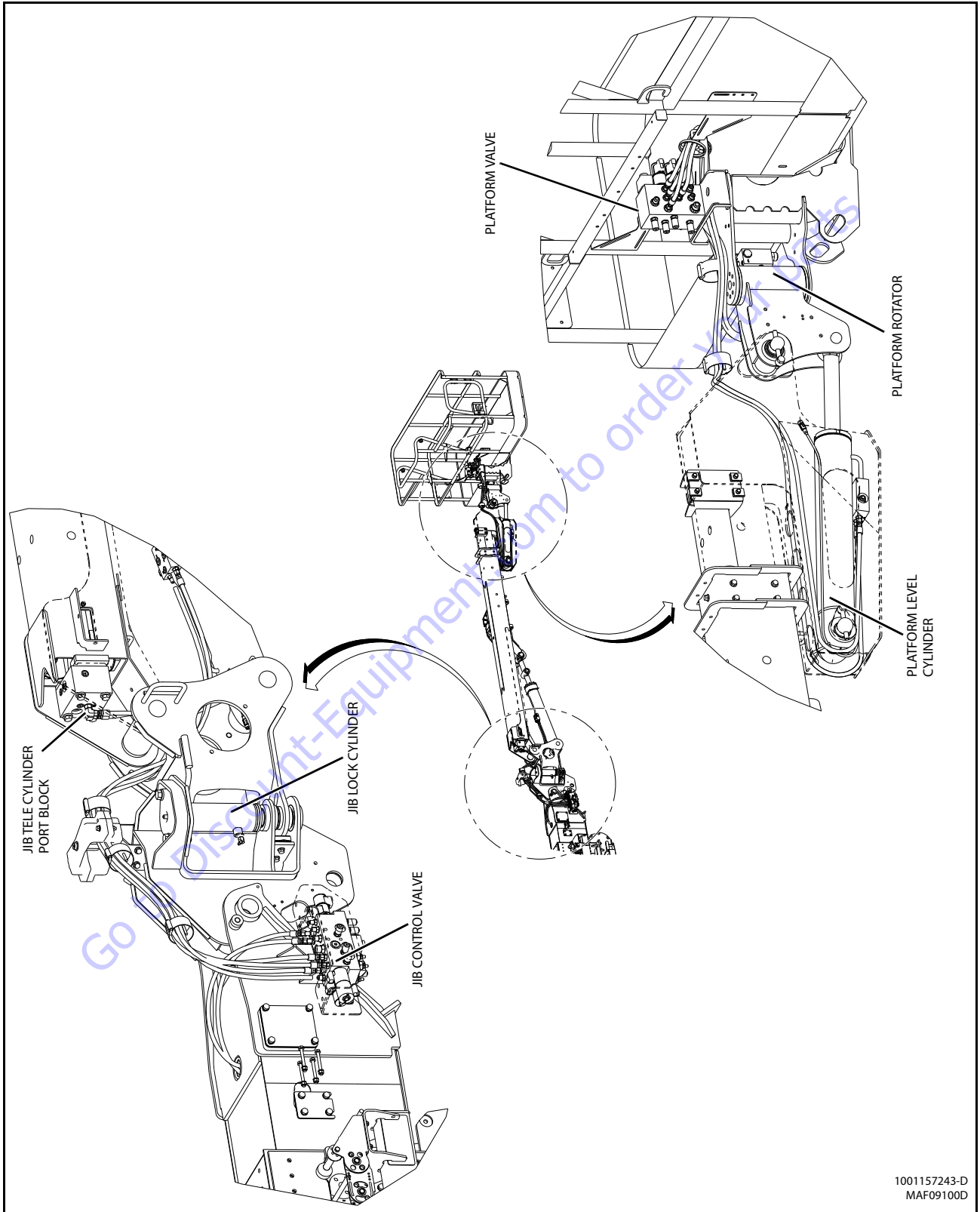


Figure 4-29. Jib Hydraulics - Sheet 3 of 7

1001157243-D
MAF09100D

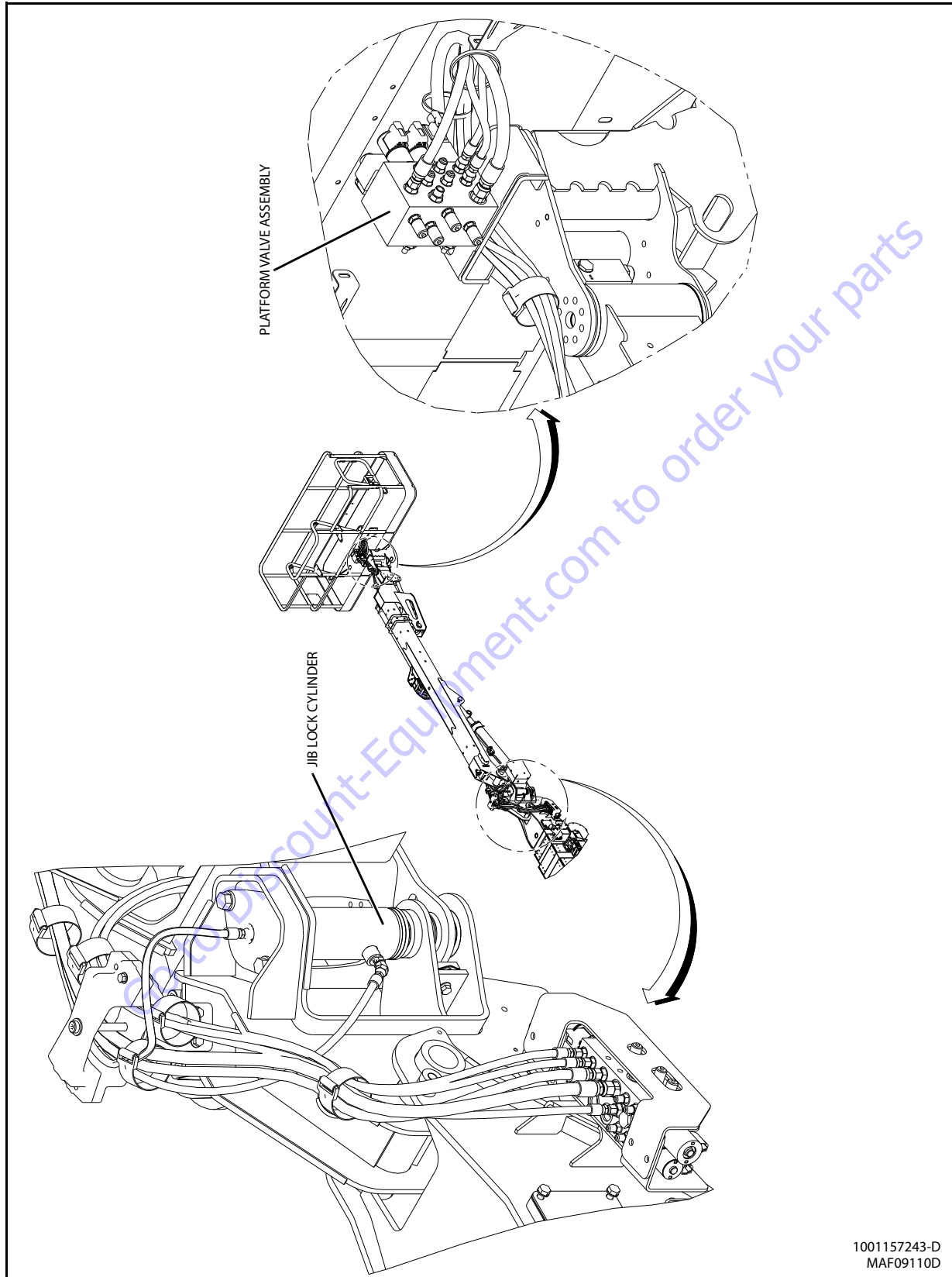


Figure 4-30. Jib Hydraulics - Sheet 4 of 7

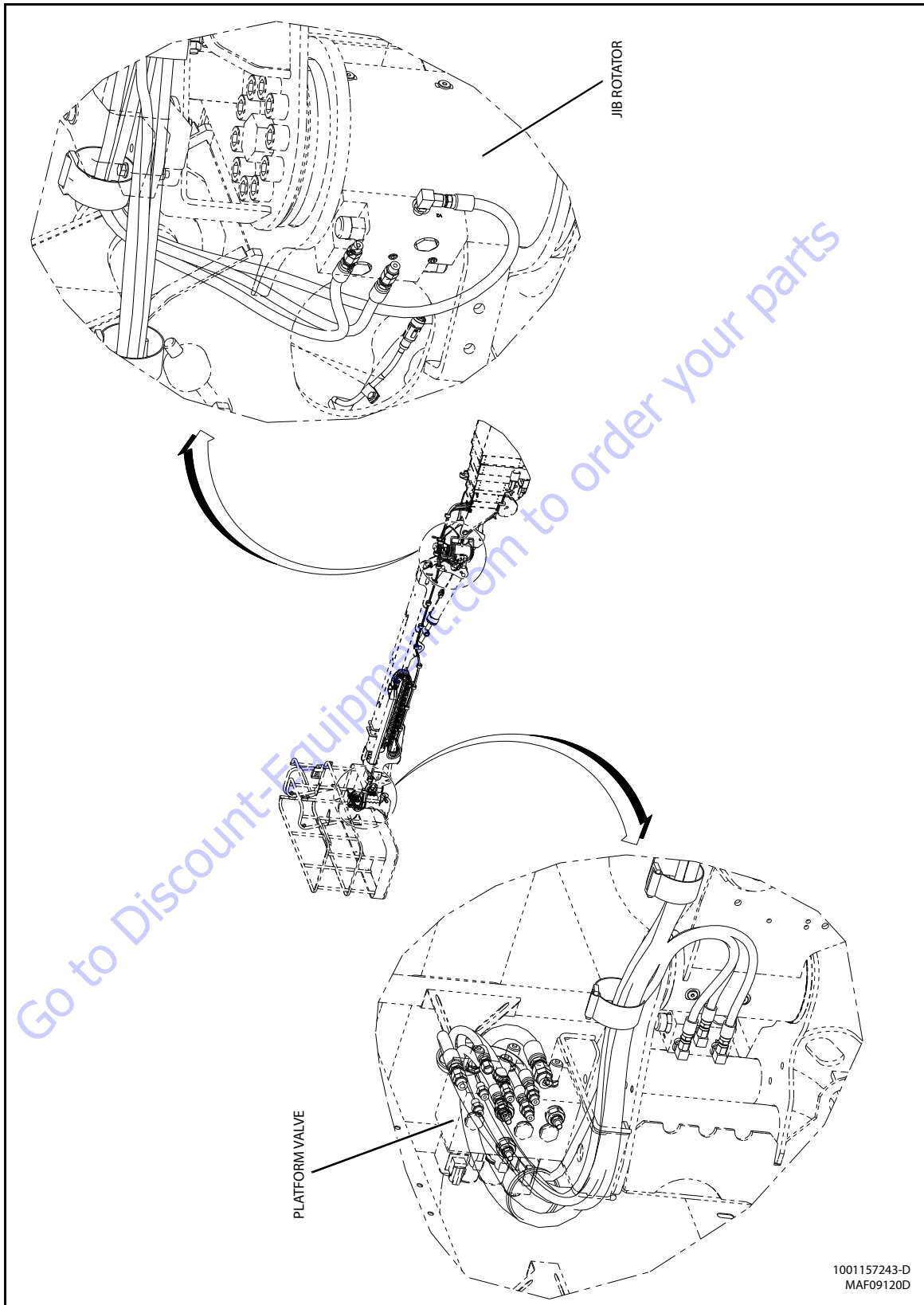


Figure 4-31. Jib Hydraulics - Sheet 5 of 7

1001157243-D
MAF09120D

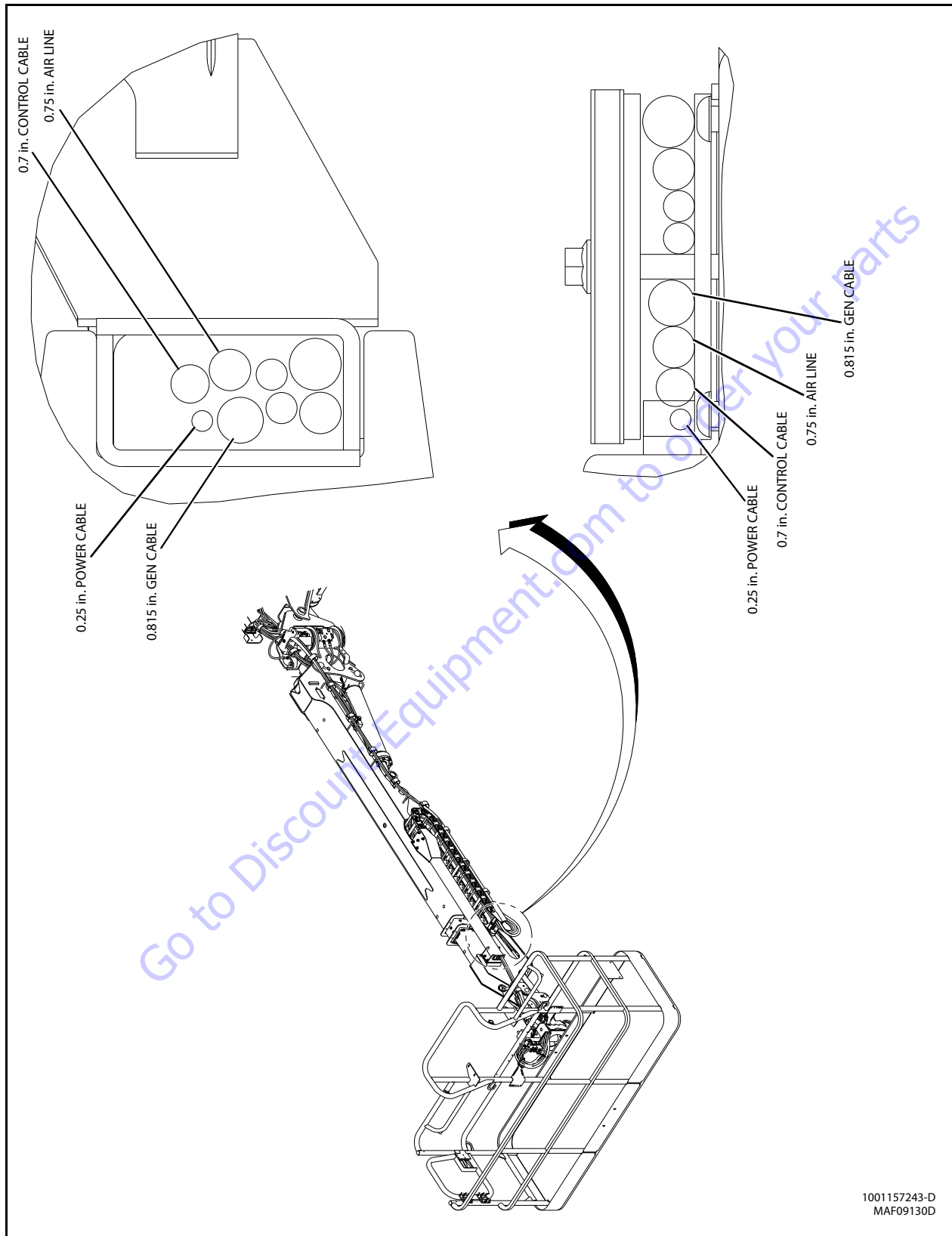


Figure 4-32. Jib Hydraulics - Sheet 6 of 7

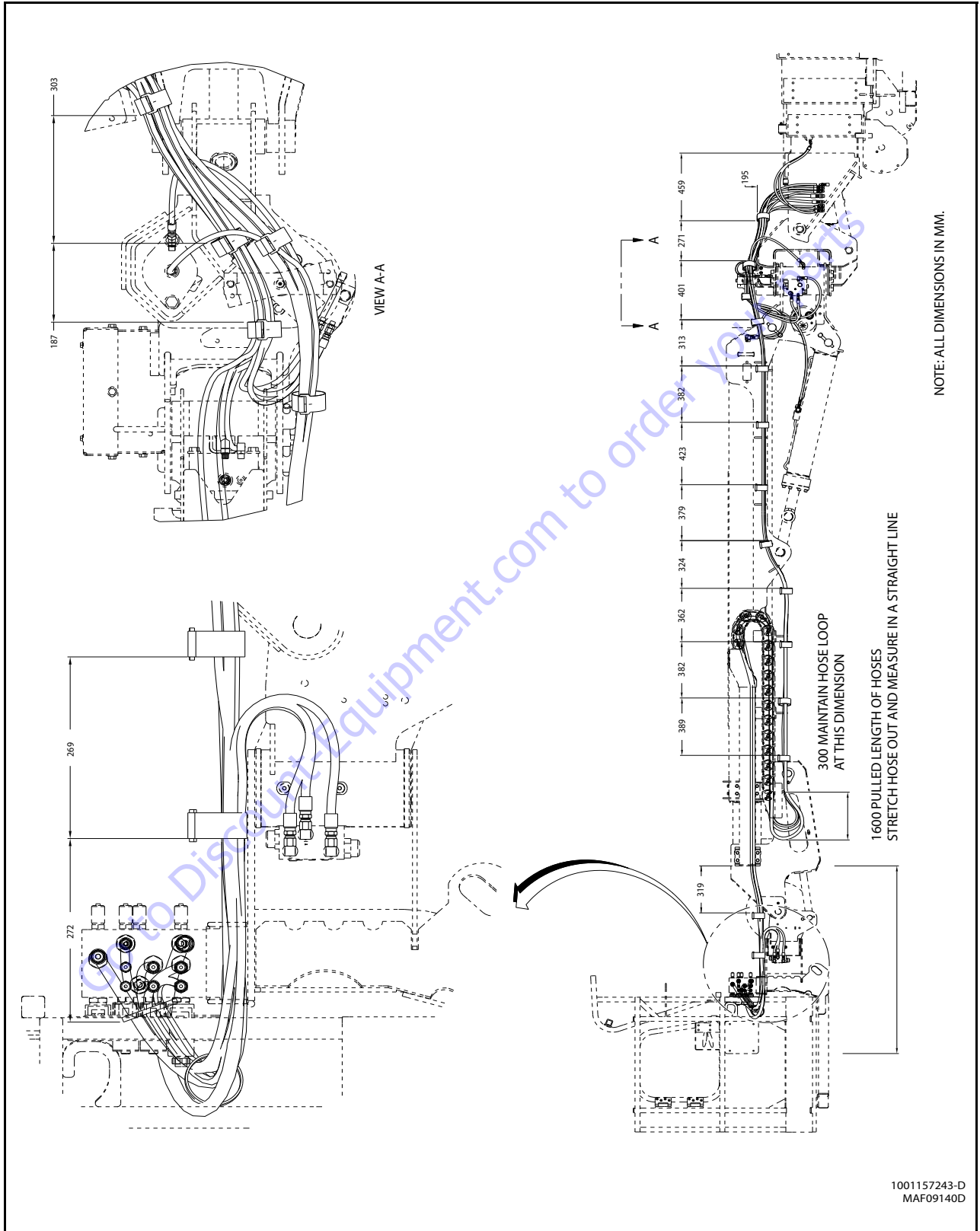
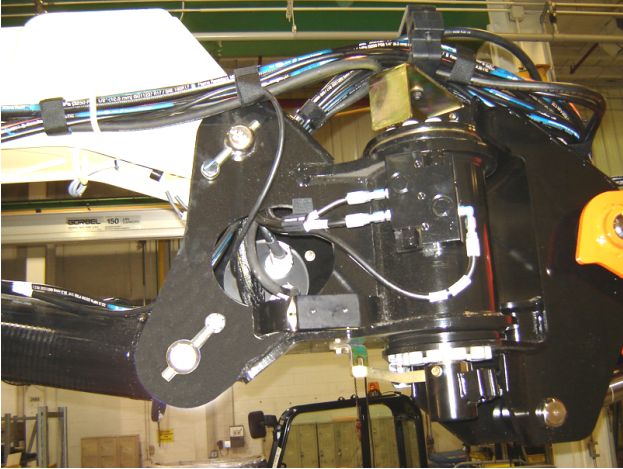


Figure 4-33. Jib Hydraulics - Sheet 7 of 7

4.11 JIB

Removal

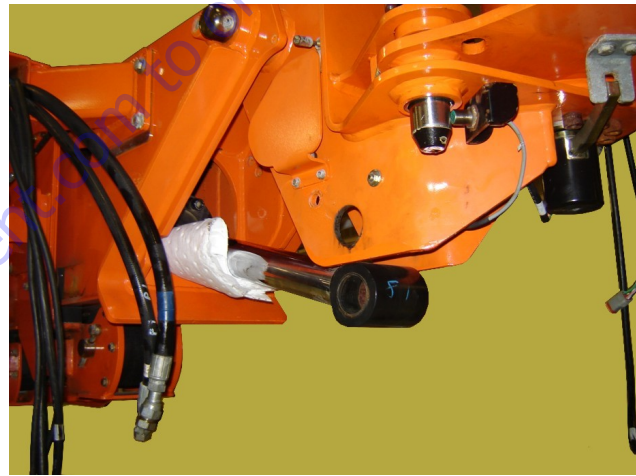
1. Lower the platform to the ground or onto blocking to support the weight of the jib.
2. Tag and disconnect the electrical harnesses that run to the jib. If necessary, loosen the guide block to allow the harnesses and hoses to move more freely.



3. Remove the jib valve protection plate.
4. Have a container or absorption material ready to catch residual hydraulic fluid. Tag and disconnect the hydraulic hoses that run from the boom to the jib control valve. It may be necessary to disconnect additional lines to gain access to certain fittings. Cap or plug all openings.
5. Unbolt the valve from the boom.
6. Lay the jib control valve aside on the jib. Secure it in place so it does not fall.
7. Disconnect the jib protractor sensor linkage from the boom.

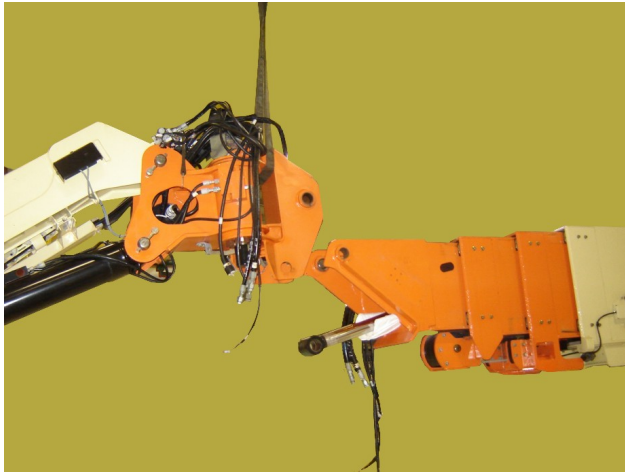


8. Remove the bolt and keeper pin securing the jib level pivot pin and remove the pin. Place blocking under the cylinder rod or a soft material under the cylinder rod to protect the rod from being scratched.



NOTE: The jib and platform assembly weighs approximately 2100 lb (953 kg).

9. Attach an adequate supporting device to the jib to support its weight. Remove the bolt and keeper pin securing the jib pivot pin and remove the pin.



10. Remove the jib and platform assembly from the boom.

Installation

1. Attach an adequate lifting device to the jib and position it in front of the boom.
2. Place something under the front of the jib that will allow it to slide or move along the ground easily. Attach a lifting device to the rear of the jib, allowing the front to pivot on the ground.
3. Lift the jib into position on the boom fly section and install the jib pivot pin. Secure the pin in place with the keeper pin and bolt.



4. Attach a lifting device to the front of the jib and align the jib level cylinder attachment fittings. Install the pivot pin. Apply High Strength Threadlocking Compound to the bolt threads and secure the pin in place with the

keeper pin and bolt. Torque the bolt to 165 ft.lbs. (224 Nm).

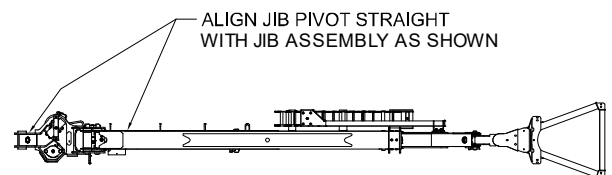


5. Place the mounting bracket on the jib valve and bolt the jib valve to the fly boom section.
6. Install the wiring harnesses and hydraulic hoses on the jib valve as tagged during removal.
7. Install the jib valve protection plate.
8. Perform a boom calibration as described in Section 6 under Calibrating the Boom Sensors.

4.12 JIB SHIMMING PROCEDURES

Jib Straight Shimming Procedure

1. Install the Jib Lock Cylinder and fully extend the rod through the bearing housings in the jib rotator and jib pivot.
2. Align the jib pivot straight with the jib assembly.
3. Insert shims (16 and 20 gauge) between the wear pad and the pivot pad mount.
4. Add enough shims as required to fill the gap between the wear pad and the edge of the bottom plate of the jib rotator.
5. Only shim until the thinnest shim can not fit. Do not over shim. This will cause jib pivot and jib assembly misalignment.
6. When shimmed properly, the jib pivot should line up straight with the jib assembly as shown below.



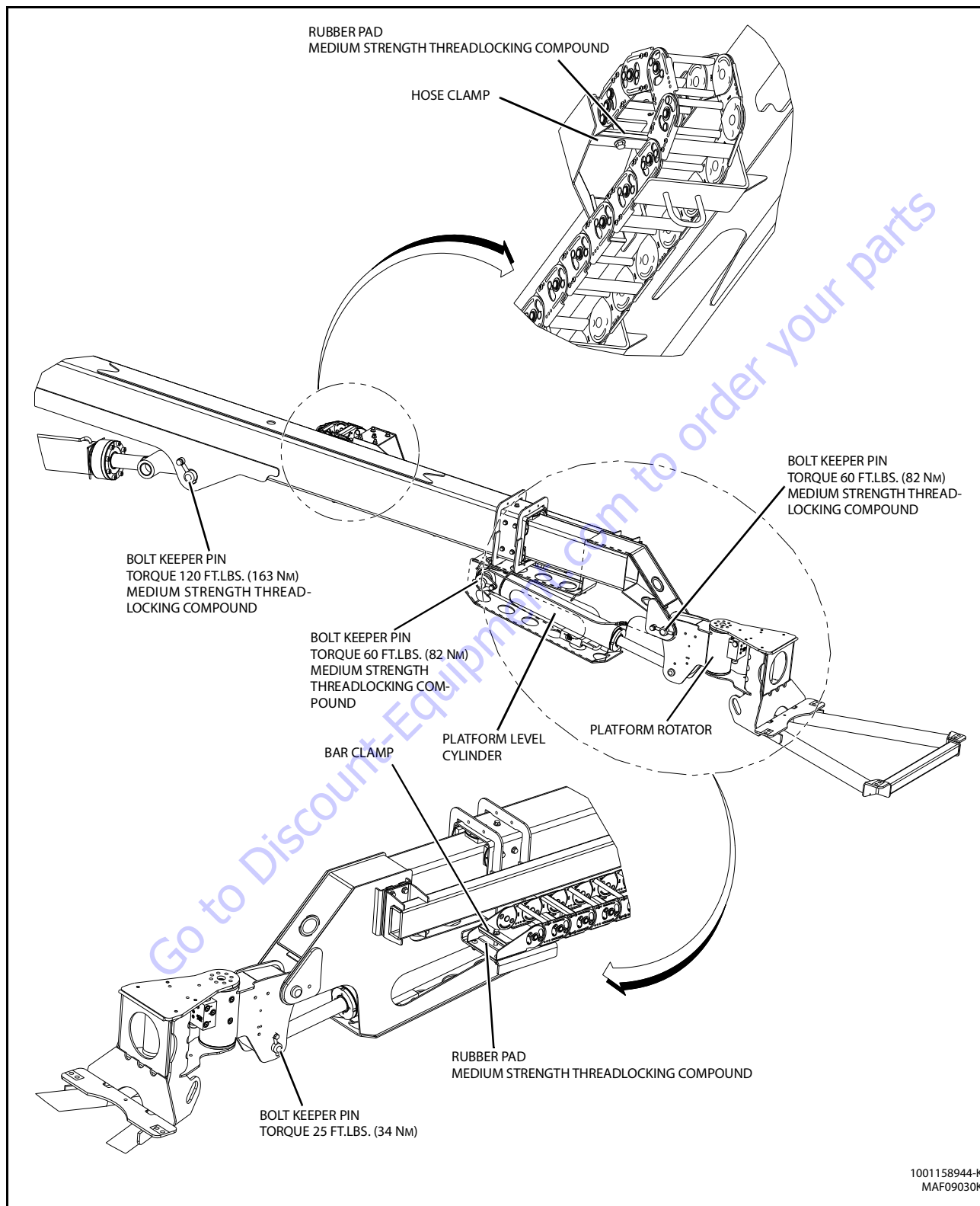


Figure 4-34. Jib Assembly - Sheet 1 of 4

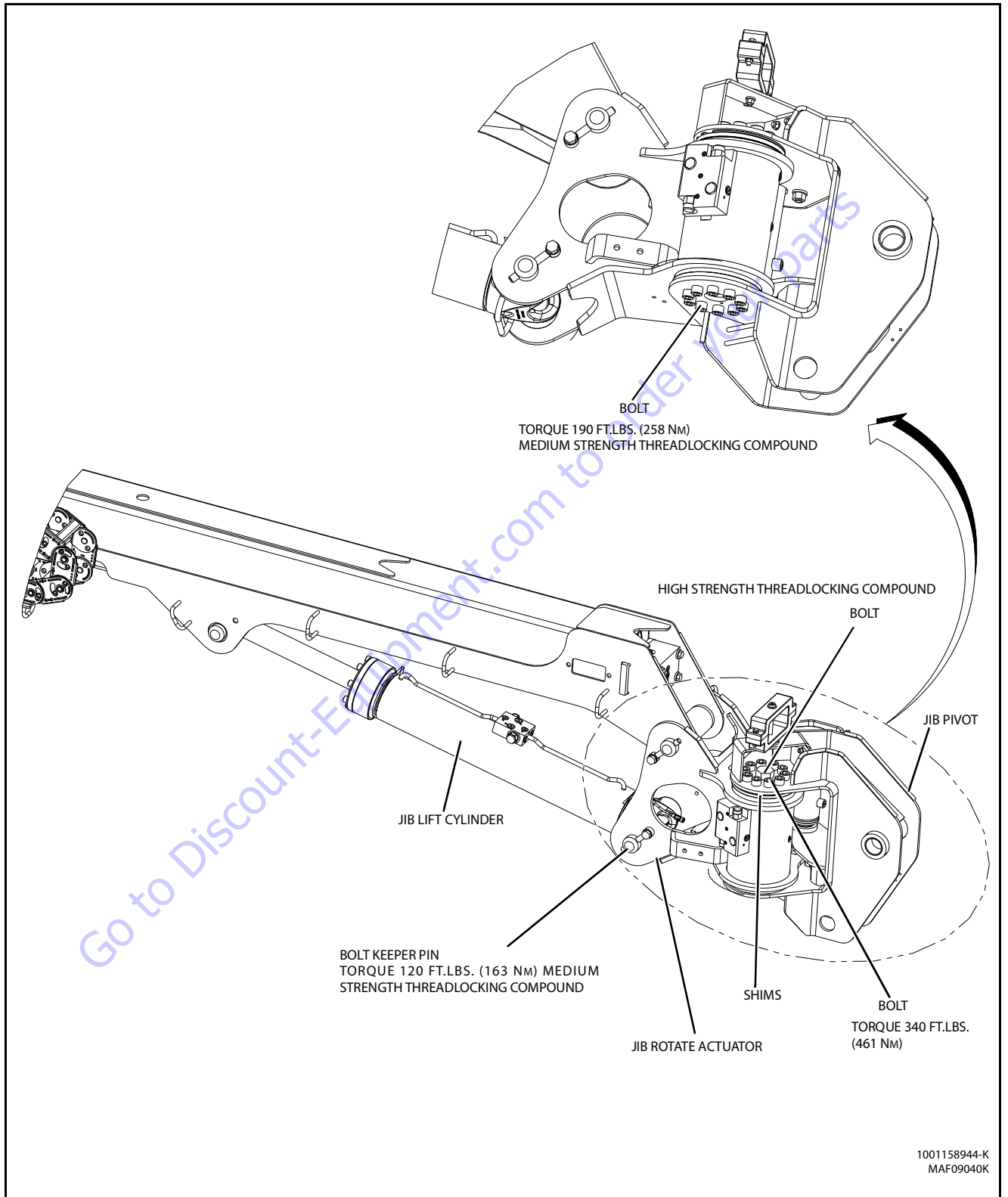


Figure 4-35. Jib Assembly - Sheet 2 of 4

SECTION 4 - BOOM & PLATFORM

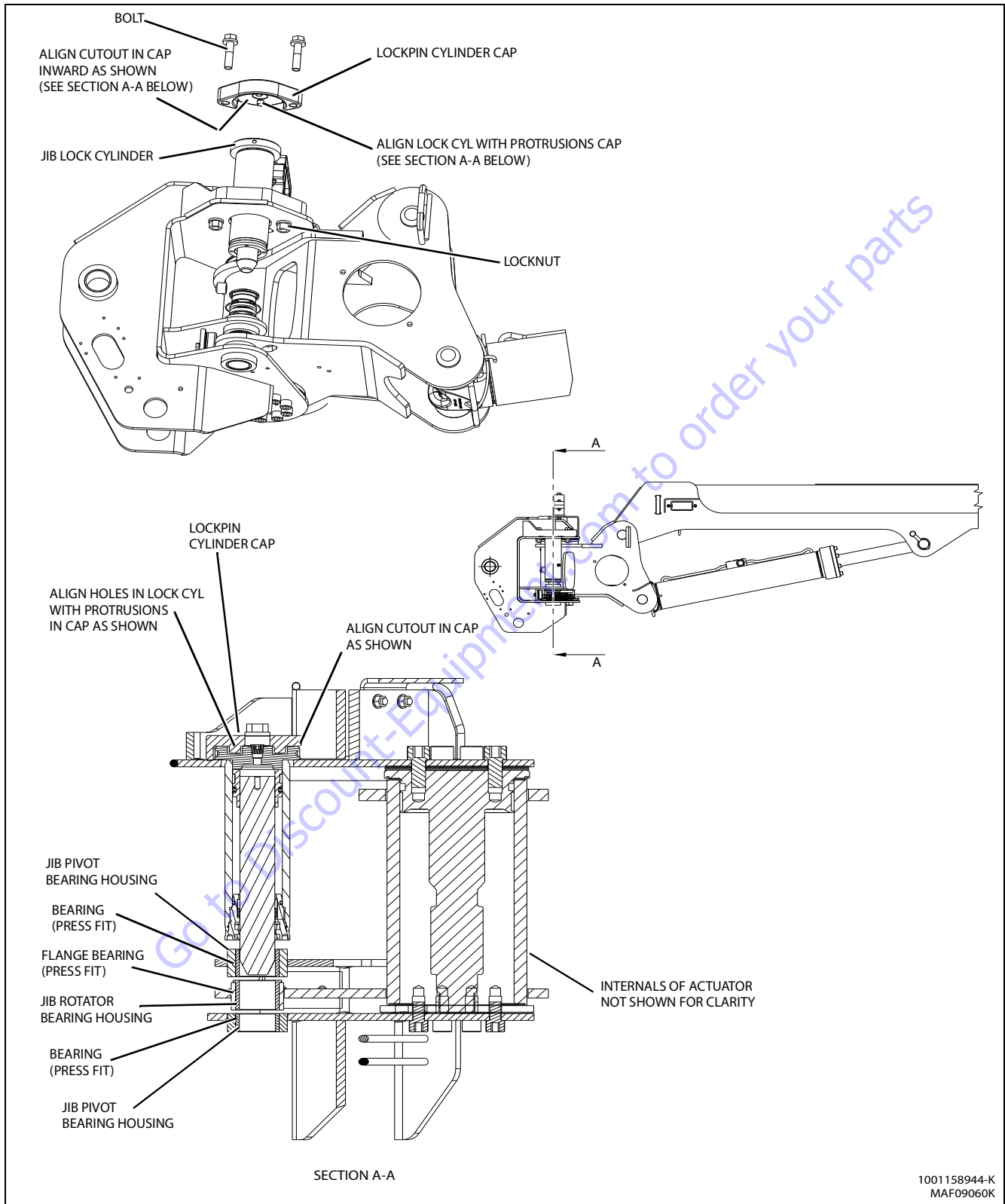


Figure 4-36. Jib Assembly - Sheet 3 of 4

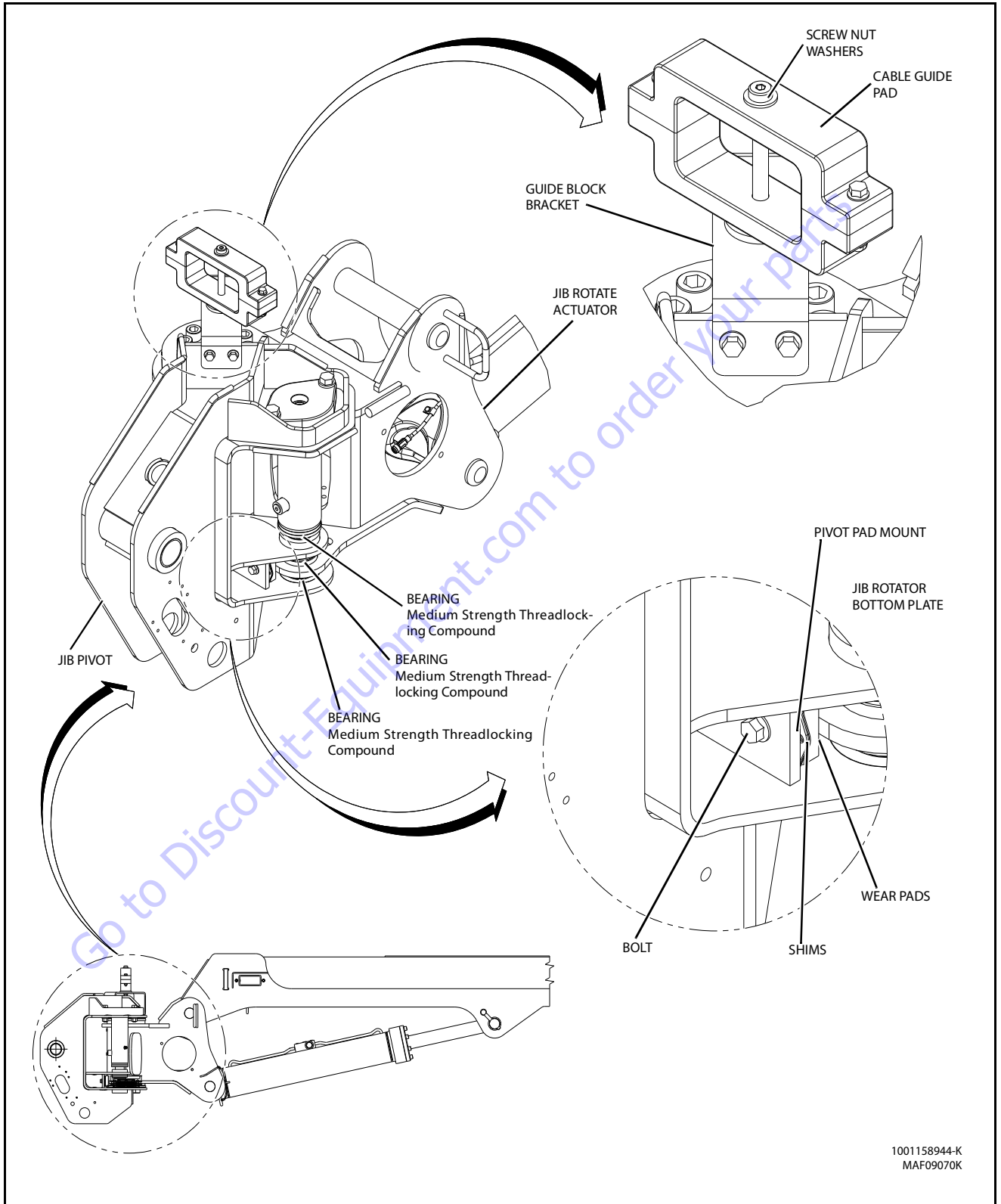
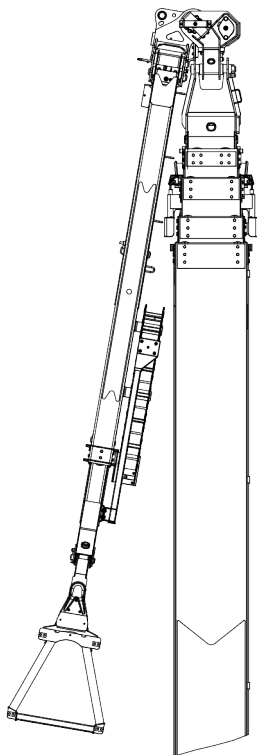


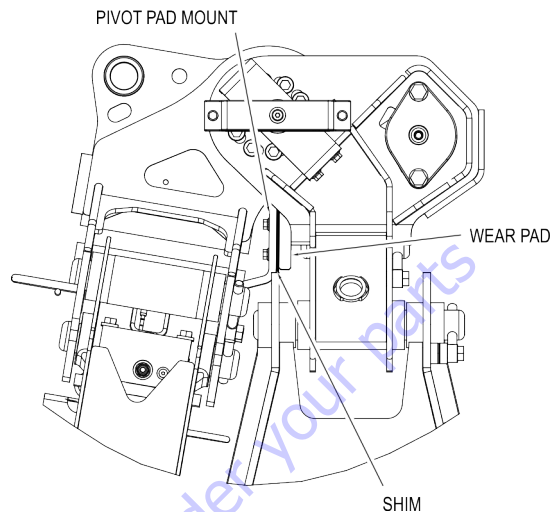
Figure 4-37. Jib Assembly - Sheet 4 of 4

Stowed Jib Shimming Procedure

1. Rotate the jib to the appropriate position as shown below.



2. Insert a shim between the wear pad and pivot pad mount.



3. Add shims as required to fill the gap between the wear pad and the edge of the side plate of the jib rotator.
4. Shim until the distance between the jib and the side of the base boom reaches the dimension shown in Figure 4-38., Jib Stow Shimming Measurements.

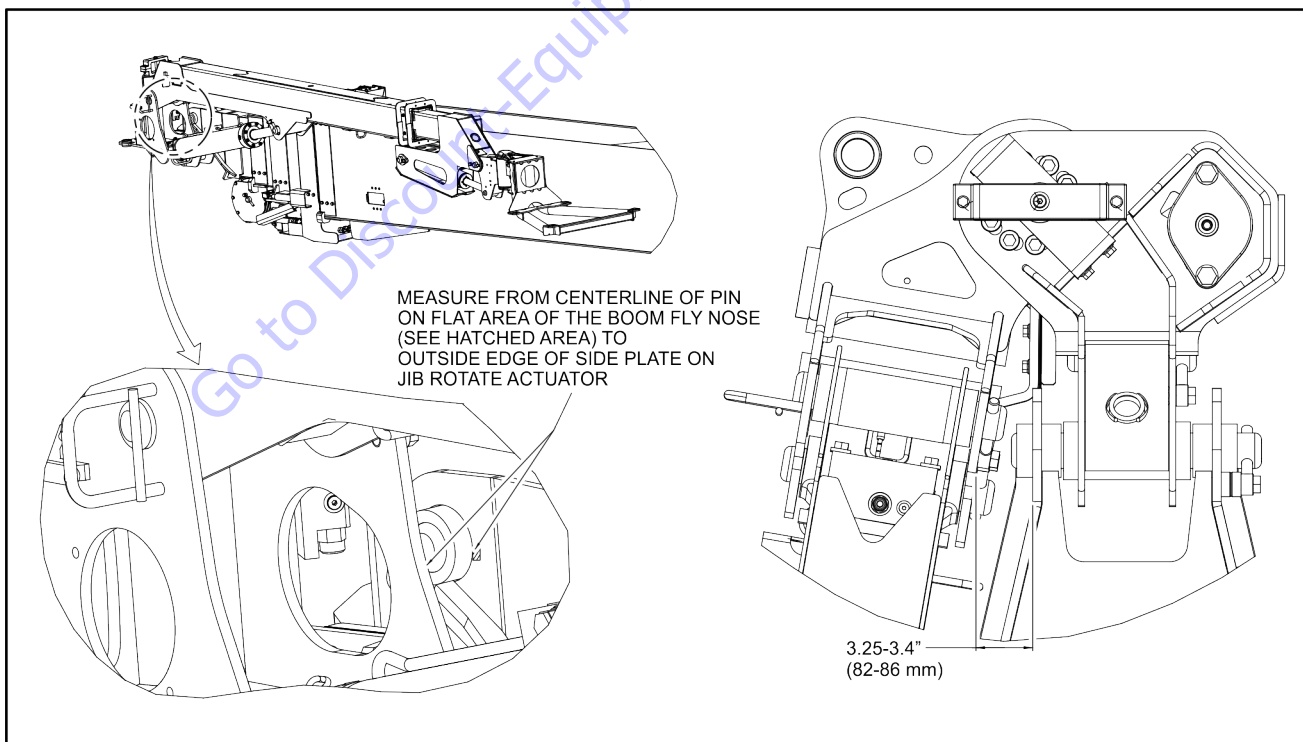


Figure 4-38. Jib Stow Shimming Measurements

4.13 WIRE ROPE

⚠ CAUTION

WIRE ROPE CAN HAVE SHARP EDGES AND CAUSE SERIOUS INJURY. NEVER HANDLE WIRE ROPE WITH BARE HANDS.

Each day before using machine:

1. Raise main boom approximately horizontal.
2. Extend and retract the boom sections.
3. Check for delayed movement of fly section which indicates loose wire ropes.

⚠ WARNING

IF DELAYED MOVEMENT IS DETECTED IN WIRE ROPE OPERATION, LOWER PLATFORM TO STOWED POSITION, SHUT DOWN MACHINE, AND HAVE WIRE ROPES INSPECTED/SERVICED BY A QUALIFIED JLG MECHANIC. LOOSE OR MISADJUSTED WIRE ROPES COULD RESULT IN SERIOUS INJURY OR DEATH.

Inspection

NOTE: *The pictures in this paragraph are just samples to show the replacement criteria of the rope.*

1. Inspect ropes for broken wires, particularly valley wire breaks and breaks at end terminations.

NOTE: *Flexing a wire rope can often expose broken wires hidden in valleys between strands.*

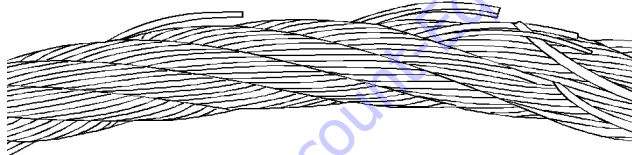


Figure 4-39. Wire Rope Wire Breaks

2. Inspect ropes for corrosion.
3. Inspect ropes for kinks or abuse.

NOTE: *A kink is caused by pulling down a loop in a slack line during improper handling, installation, or operation.*

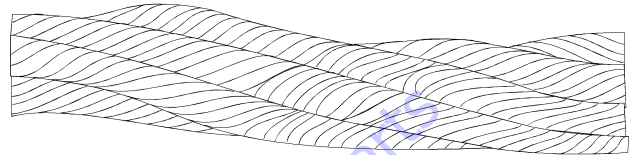


Figure 4-40. Wire Rope Kink

4. Inspect sheaves for condition of bearings/pins. (See Dimension Of Sheaves for proper dimension.)
5. Inspect sheaves for condition of flanges. (See Dimension Of Sheaves for proper dimension.)
6. Inspect sheaves with a groove wearout gauge for excessive wear.

NOTE: *Check groove so that it may be clearly seen whether the contour of the gauge matches the contour of the bottom of the groove.*

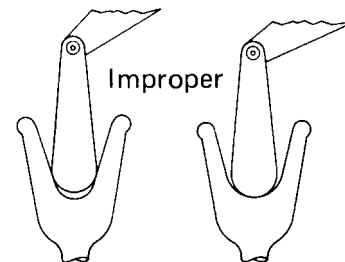


Figure 4-41. Sheave Groove Wear

7. Ropes passing inspection should be lubricated with wire rope lubricant before reassembly.

Three Month Inspection

1. Remove boom covers and visually (with flashlight) inspect the ropes for rust, broken wires, frays, abuse, or any signs of abnormalities.
2. Check rope tension by deflecting the ropes by hand...properly tensioned ropes should have little or no movement.

NOTE: *Delayed movement of the fly boom indicates loose wire ropes.*

Additional Inspection Required If:

1. Machine is exposed to hostile environment or conditions.
2. Erratic boom operation or unusual noise exists.
3. Machine is idle for an extended period.
4. Boom is overloaded or sustained a shock load.
5. Boom exposed to electrical arc. Wires may be fused internally.

12 Year or 7000 Hour Replacement

1. Mandatory wire rope and sheave replacement.

Additional Replacement Criteria

1. Sheaves and wire rope must be replaced as sets.
2. Rusted or corroded wire ropes.
3. Kinked, "bird caged", or crushed ropes.
4. Ropes at end of adjustment range.
5. Sheaves failing wearout gage inspection.
6. Ropes with 6 total broken wires in one rope lay, 3 in one strand in one rope lay, 1 valley break, or 1 break at any end termination.

4.14 WIRE ROPE TENSIONING ADJUSTMENT

If new wire ropes are installed, there is a general starting point for the initial exposed thread length for each wire rope adjuster stud. Refer to Figure 4-42., Fully Retracted Boom Section Positions for these dimensions. The proper position of the boom sections (See Figure 4-42.) must be achieved with wire rope equalized on both sides of the sheaves and ropes properly seated in sheave grooves prior to tensioning. This will allow for proper tensioning of the wire ropes.

There are two major steps to this procedure:

- Positioning the boom sections so proper tensioning can be achieved
- Tensioning the wire rope

Boom Preparation for Section Repositioning

NOTE: *Because each rope actuated section controls the movement of the next smaller section, any repositioning of the larger will affect the position of the next smaller. Correctly position Section #3 before setting the position of Section #4, followed by section #5.*

Use the Boom Telescope function to position the boom sections. Using the wire rope adjustment nuts to position the boom sections will cause damage to the wire rope adjusters.

1. Before making any adjustments, confirm the boom assembly is in the fully retracted position (See Figure 4-42., Fully Retracted Boom Section Positions).
2. Take preliminary measurements of the position of each boom section with the boom in the fully retracted position and compare them to Figure 4-42., Fully Retracted Boom Section Positions.
3. If the measurements fall within tolerance shown on Figure 4-42., proceed to the Wire Rope Tensioning Procedure.

NOTE: *Proper boom position does not confirm that rope tension is correct, at this point.*

4. If the measurements do not fall within the tolerances in Figure 4-42., adjust the position using the re-position procedures in this sub-section

BOOM SECTION #2 REPOSITIONING:

NOTE: *Boom Section #2 is positioned by the telescope cylinder. No adjustments to this section are necessary. The wire ropes within this assembly only control the movement of the remaining smaller sections.*

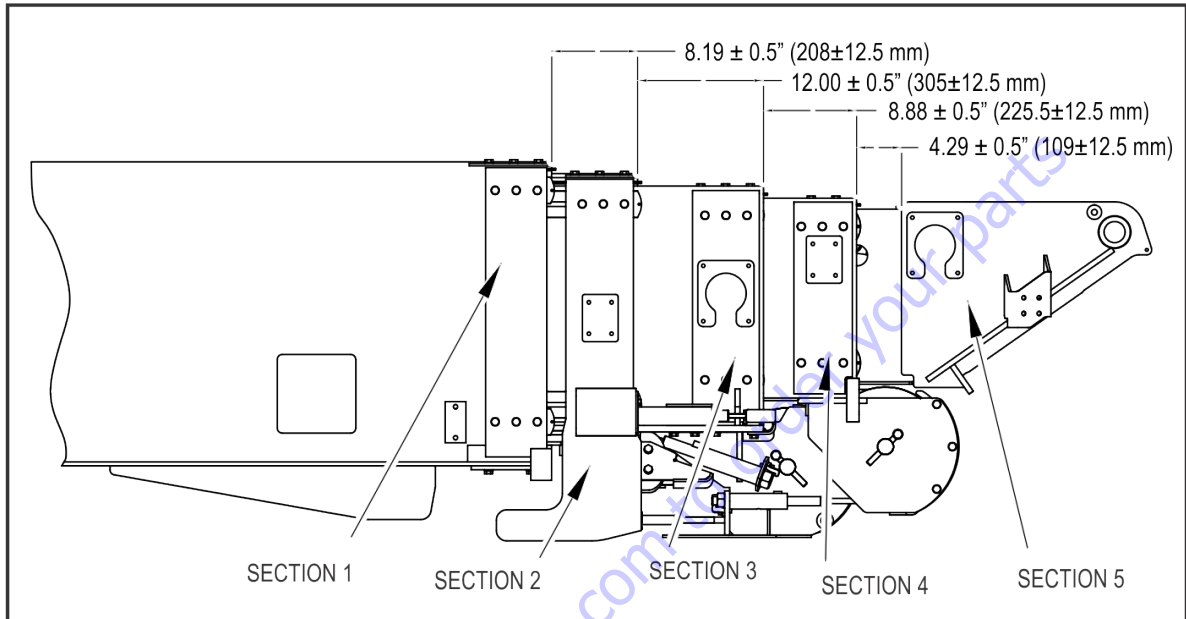


Figure 4-42. Fully Retracted Boom Section Positions

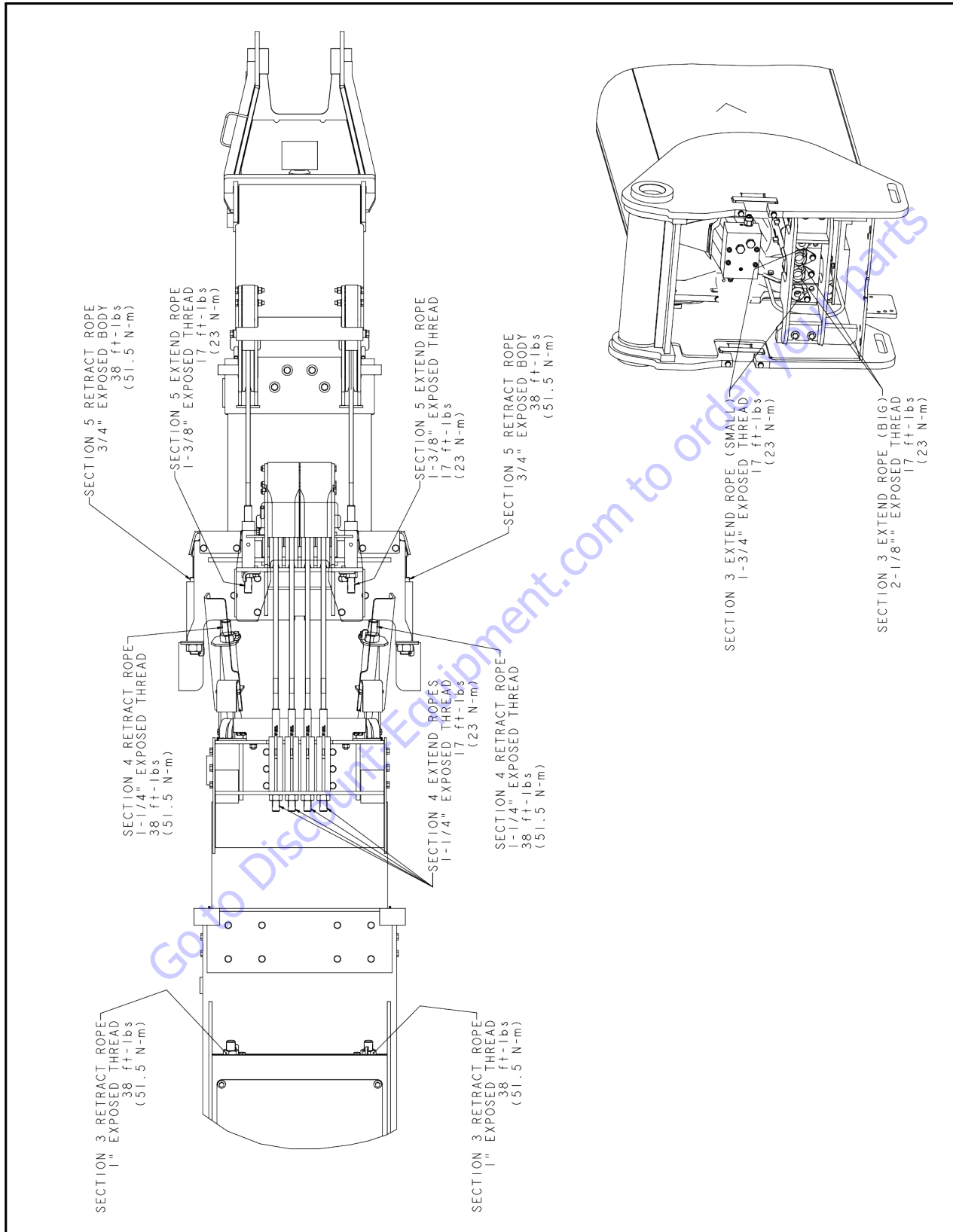
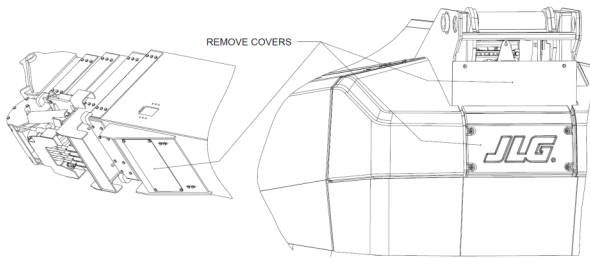


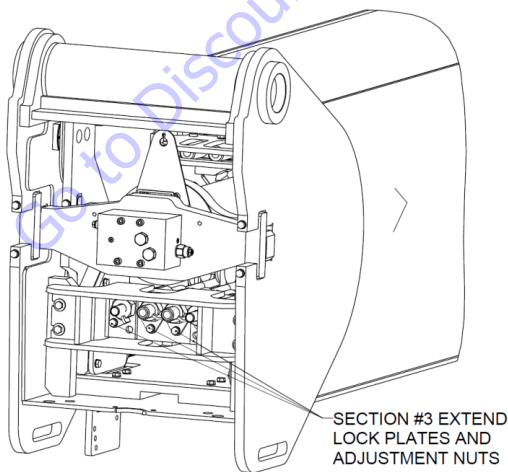
Figure 4-43. Initial Exposed Thread Length for Wire Rope Adjustment

BOOM SECTION #3 REPOSITIONING:

1. If Boom Section #3 falls within the dimension and tolerance shown in Figure 4-42. with the boom fully retracted, proceed to Boom Section #4 Repositioning procedure in this section.
2. If Boom Section #3 does not fall within the dimension and tolerance shown in Figure 4-42. with the boom fully retracted.
3. If the Section needs to be RETRACTED (measured dimension is greater than dimension shown in Figure 4-42.):
 - a. Remove any covers necessary to access the wire rope adjustment nuts.

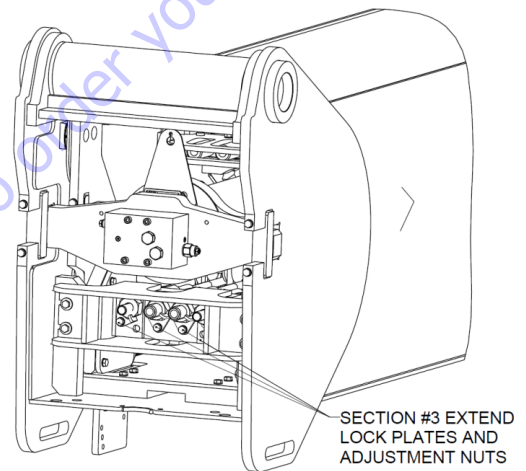


- b. Remove lock plates and nylon collar locknuts from wire rope adjustment studs.
- c. Loosen the Section #3 Extend Adjustment Nuts, moving them a distance equal to twice what the section needs to move to be within tolerance. (E.g. If the section must move 1/2 in. to fall within the dimension shown, loosen the nut such that it moves 1 in. closer to the exposed end of the adjustment stud.)

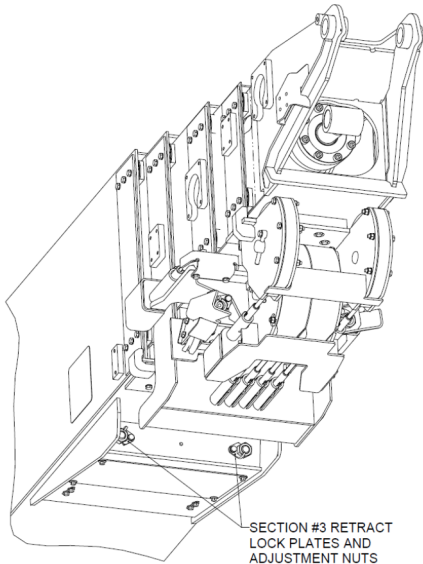


- d. Extend the boom assembly such that the platform moves 4 to 5 feet (1.2m-1.5m) from the fully retracted position.

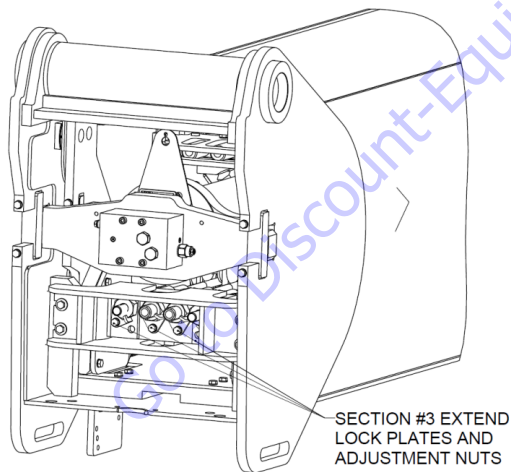
- e. Tighten the Section #3 Retract Adjustment Nuts, moving them a distance equal to what the section needs to move to be within tolerance (for example, if the section must move 0.5 inches to fall within the dimension shown, tighten the nut so it moves 0.5 inches further from the exposed end of the adjustment stud).
- f. Fully retract the boom.
- g. To remove slack resulting from the adjustment in step e., tighten the Section #4 Extend adjustment.
- h. To remove slack resulting from the adjustment in step d., tighten the Section #4 Retract Adjustment Nuts shown below until they contact the rope mount plate.



- i. Extend the boom assembly so the platform moves 4 to 5 feet, then fully retract.
- j. Repeat step i three times to equalize rope position.
- k. Go to step 5.
4. If the Section needs to be EXTENDED (measured dimension is less than dimension shown in Figure 4-42.):
 - a. Remove any covers necessary to access the wire rope adjustment nuts.
 - b. Remove lock plates and nylon collar locknuts from wire rope adjustment studs.
 - c. Extend the boom assembly such that the platform moves 4 to 5 feet (1.2m-1.5m) from the fully retracted position.
 - d. Loosen the Section #3 Retract Adjustment Nuts, moving them a distance equal to twice what the section needs to move to be within tolerance. (E.g. If the section must move 1/2 in. to fall within the dimension shown, loosen the nut such that it moves 1 in. closer to the exposed end of the adjustment stud.)



- e. Retract the boom assembly such that the platform moves 2 to 3 feet (0.6m-0.9m) from the previous extended position in Step c.
- f. Tighten the Section #3 Extend Adjustment Nuts shown below, moving them a distance equal to what the section needs to move to be within tolerance. (For example, if the section must move 0.5 inches to fall within the dimension shown, tighten the nut such that it moves 0.5 inches further from the exposed end of the adjustment stud.)



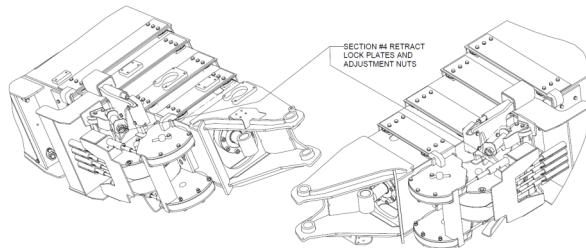
- g. To remove slack resulting from the adjustment in Step d., tighten the Section #4 Extend Adjustment Nuts until they contact the rope mount plate.
- h. Extend the boom assembly so the platform moves 4 to 5 feet, then fully retract.
- i. Repeat Step h. three times to equalize rope position.
- j. Go to Step 5.

5. Fully retract the boom sections.

6. Verify that the exposed boom section dimensions meet the dimension and tolerance of Figure 4-42.
 - a. If Section #3 still does not fall within the dimension and tolerance of Figure 4-42., repeat the steps outlined in 3. Boom Section #3 Repositioning.
 - b. If Section #3 does fall within the dimension and tolerance of Figure 4-42., proceed to 4. Boom Section #4 Repositioning.

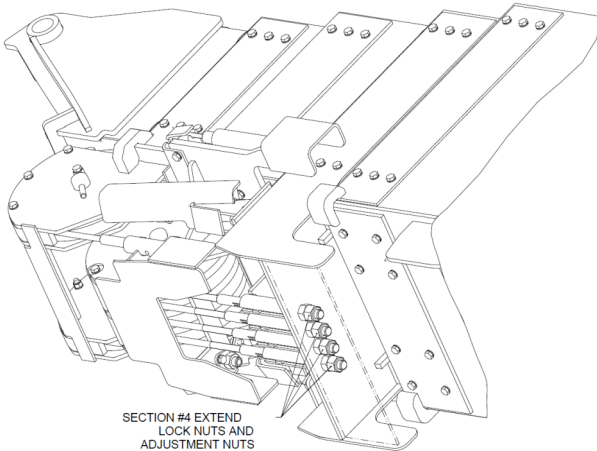
BOOM SECTION #4 REPOSITIONING:

1. If Boom Section #4 falls within the dimension and tolerance shown in Figure 4-42. with the boom fully retracted, proceed to Boom Section #5 Repositioning procedure in this section.
2. If Boom Section #4 does not fall within the dimension and tolerance shown in Figure 4-42. with the boom fully retracted, perform the following procedure:
3. If the Section needs to be RETRACTED (measured dimension is greater than dimension shown in Figure 4-42.):
 - a. Remove any covers necessary to access the wire rope adjustment nuts.
 - b. Remove lock plates and nylon collar locknuts from wire rope adjustment studs.
 - c. Loosen the Section #4 Extend Adjustment Nuts, moving them a distance equal to twice what the section needs to move to be within tolerance. (E.g. If the section must move 1/2 in. to fall within the dimension shown, loosen the nut such that it moves 1 in. closer to the exposed end of the adjustment stud.)
 - d. Extend the boom assembly such that the platform moves 4 to 5 feet (1.2m-1.5m) from the fully retracted position.
 - e. Tighten the Section #4 Retract Adjustment Nuts shown below, moving them a distance equal to what the section needs to move to be within tolerance. (E.g. If the section must move 1/2 in. to fall within the dimension shown, tighten the nut such that it moves 1/2 in. farther from the exposed end of the adjustment stud.)

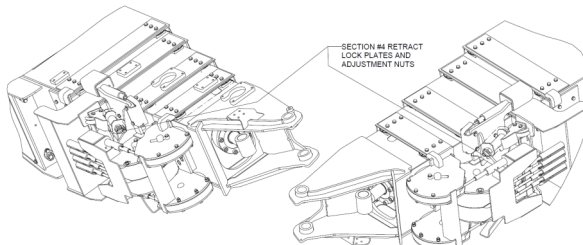


- f. Fully retract the boom.

- g.** To remove slack resulting from the adjustment in c, tighten the Section #4 Extend Adjustment Nuts shown below until they contact the rope mount plate.

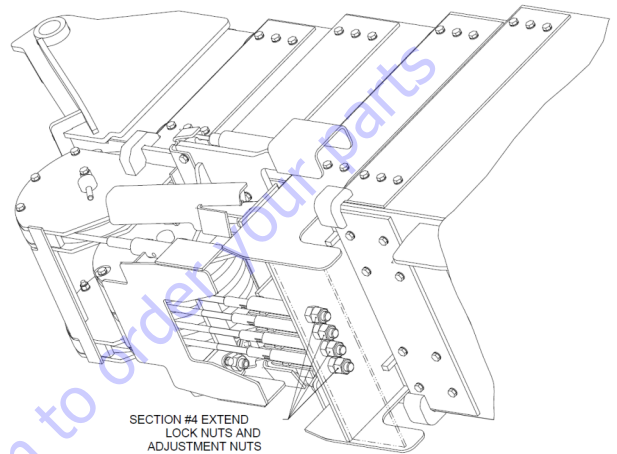


- h.** Extend the boom assembly so the platform moves 4 to 5 feet, then fully retract.
 - i.** Repeat step h three times to equalize rope position.
 - j.** Go to step 5.
- 4.** If the Section needs to be EXTENDED (measured dimension is less than dimension shown in Figure 4-42.):
- a.** Remove any covers necessary to access the wire rope adjustment nuts.
 - b.** Remove lock plates and nylon collar locknuts from wire rope adjustment studs.
 - c.** Extend the boom assembly such that the platform moves 4 to 5 feet (1.2m-1.5m) from the fully retracted position.
 - d.** Loosen the Section #4 Retract Adjustment Nuts shown below, moving them a distance equal to twice what the section needs to move to be within tolerance. (E.g. If the section must move 1/2 in. to fall within the dimension shown, loosen the nut such that it moves 1 in. closer to the exposed end of the adjustment stud.)

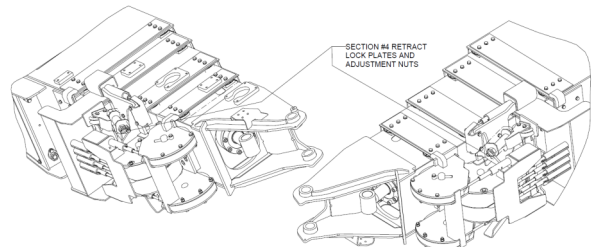


- e.** Retract the boom assembly such that the platform moves 2 to 3 feet (0.6m-0.9m) from the previous extended position in step c.

- f.** Tighten the Section #4 Extend Adjustment Nuts shown below, moving them a distance equal to what the section needs to move to be within tolerance. (E.g. If the section must move 1/2 in. to fall within the dimension shown, tighten the nut such that it moves 1/2 in. farther from the exposed end of the adjustment stud.)



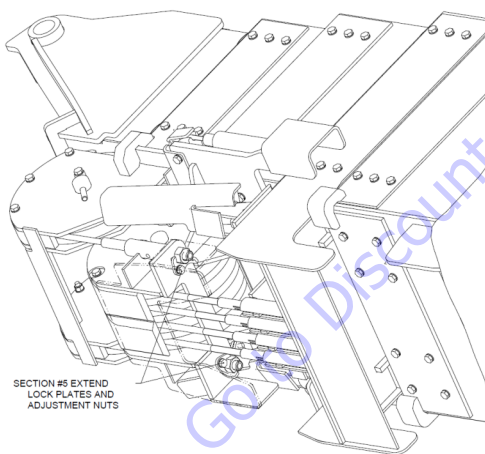
- g.** To remove slack resulting from the adjustment in step d, tighten the Section #4 Retract Adjustment Nuts shown below until they contact the rope mount plate.



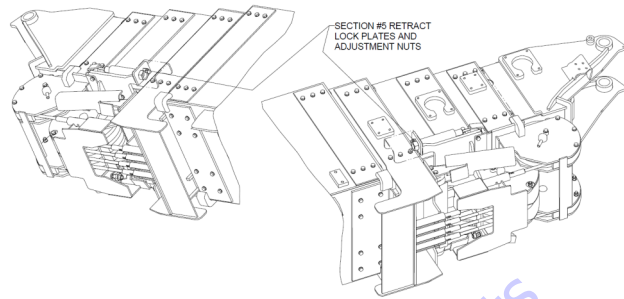
- h.** Extend the boom assembly such that the platform moves 4 to 5 feet, then fully retract.
 - i.** Repeat step h three times to equalize rope position.
 - j.** Go to step 5.
- 5.** Fully retract the boom sections.
- 6.** Verify that the exposed boom section dimensions meet the dimension and tolerance of Figure 4-42.
- a.** If Section #4 still does not fall within the dimension and tolerance of Figure 4-42., repeat the steps outlined in 4. Boom Section #4 Repositioning.
 - b.** If Section #4 does fall within the dimension and tolerance of Figure 4-42., proceed to 5. Boom Section #5 Repositioning.

BOOM SECTION #5 REPOSITIONING:

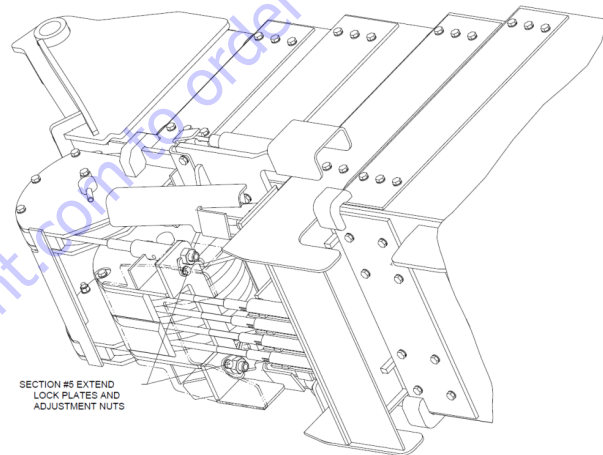
1. If Boom Section #5 falls within the dimension and tolerance shown in Figure 4-42. with the boom fully retracted, proceed to Wire Rope Tensioning procedure in Section 6 of this document.
2. If Boom Section #5 does not fall within the dimension and tolerance shown in Figure 4-42. with the boom fully retracted, perform the following procedure:
3. If the Section needs to be RETRACTED (measured dimension is greater than dimension shown in Figure 4-42.):
 - a. Remove any covers necessary to access the wire rope adjustment nuts.
 - b. Remove lock plates and nylon collar locknuts from wire rope adjustment studs.
 - c. Loosen the Section #5 Extend Adjustment Nuts, shown below, moving them a distance equal to twice what the section needs to move to be within tolerance. (E.g. If the section must move 1/2 in. to fall within the dimension shown, loosen the nut such that it moves 1 in. closer to the exposed end of the adjustment stud.)



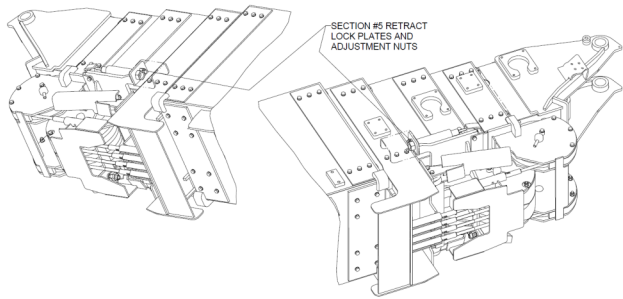
- d. Extend the boom assembly such that the platform moves 4 to 5 feet (1.2m-1.5m) from the fully retracted position.
- e. Tighten the Section #5 Retract Adjustment Nuts shown below, moving them a distance equal to what the section needs to move to be within tolerance. (E.g. If the section must move 1/2 in. to fall within the dimension shown, tighten the nut such that it moves 1/2 in. farther from the exposed end of the adjustment stud.)



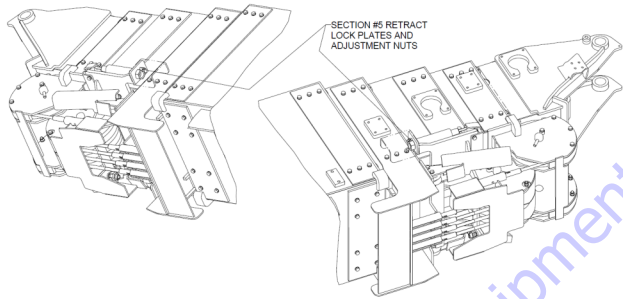
- f. Fully retract the boom.
- g. To remove slack resulting from the adjustment in step c, tighten the Section #5 Retract Adjustment Nuts shown below until they contact the rope mount plate.



- h. Extend the boom assembly such that the platform moves 4 to 5 feet, then fully retract.
- i. Repeat h three times to equalize rope position
- j. Go to Step 5.
4. If the Section needs to be EXTENDED (measured dimension is less than dimension shown in Figure 4-42.):
 - a. Remove any covers necessary to access the wire rope adjustment nuts.
 - b. Remove lock plates and nylon collar locknuts from wire rope adjustment studs.
 - c. Extend the boom assembly so the platform moves 4 to 5 feet (1.2m-1.5m) from the fully retracted position.
 - d. Loosen the Section #5 Retract Adjustment Nuts, shown below, moving them a distance equal to twice what the section needs to move to be within tolerance. (E.g. If the section must move 1/2 in. to fall within the dimension shown, loosen the nut such that it moves 1 in. closer to the exposed end of the adjustment stud.)



- e. Retract the boom assembly such that the platform moves 2 to 3 feet (0.6m-0.9m) from the previous extended position in Boom Section #3 Positioning, Step 4c.
- f. To remove slack resulting from the adjustment in Step 3d, tighten the Section #4 Extend Adjustment Nuts shown below until they contact the rope mount plate.



- g. Go to Step 5.
5. Fully retract the boom sections.
 6. Verify that the exposed boom section dimensions meet the dimension and tolerance of Figure 4-42..
 - a. If Section #5 still does not fall within the dimension and tolerance of Figure 4-42., repeat the steps outlined in Boom Section #5 Repositioning.
 - b. If Section #5 does fall within the dimension and tolerance of Figure 4-42., proceed to Wire Rope Tensioning Procedure.

Wire Rope Tensioning Procedure

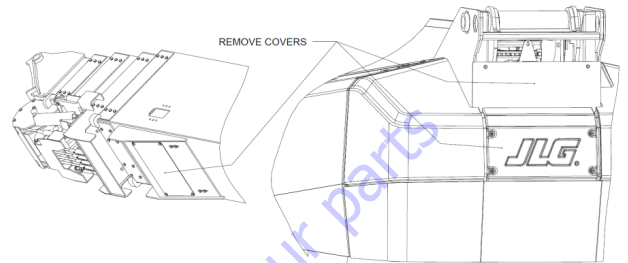
NOTE: Repeat Wire Rope Tensioning Procedure only as necessary to achieve proper tension.

Verification of the rope tension should be determined by proper deployment function of the boom assembly and by the dimensions and tolerances shown in Figure 4-42..

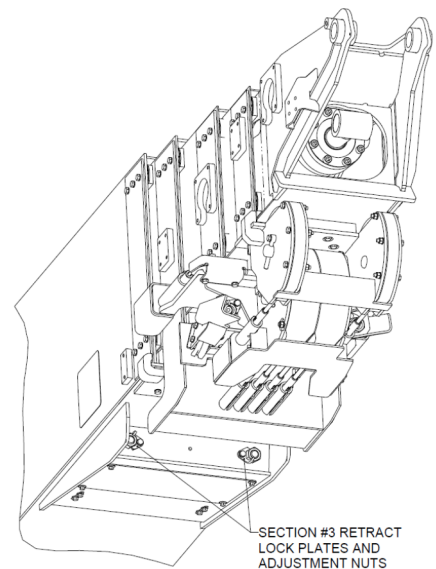
If the boom sections have been properly positioned but there is not enough adjustment travel remaining on a wire rope to achieve proper torque, the service life of the rope

has been consumed. Do not continue with the remainder of this procedure. Replace all wire ropes and sheaves.

1. Remove any covers necessary to access the wire rope adjustment nuts.



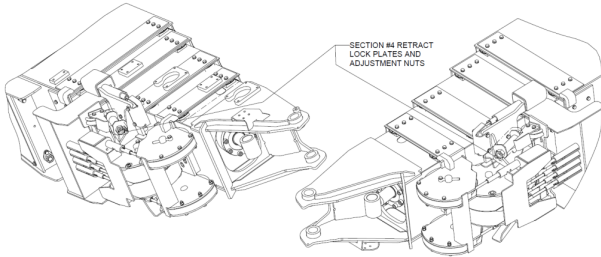
2. Remove lock plates and nylon collar nuts from wire rope adjustment studs.
3. Position the boom so that it is horizontal within +/- 5°, and not supported by the boom rest.
4. Extend the boom assembly such that the platform moves 4 to 5 feet (1.2m-1.5m) from the fully retracted position. The purpose of this step is to position the boom sections such that the ropes to be tensioned are not under load. If the extending boom reaches end of stroke and then automatically retracts a small amount, the ropes may still be under load. In such case, the following additional steps are necessary:
 - a. Note where the boom reached end of stroke.
 - b. Retract 3 to 4 feet (1m-1.3m).
 - c. Extend the boom, stopping just before end of stroke is reached.



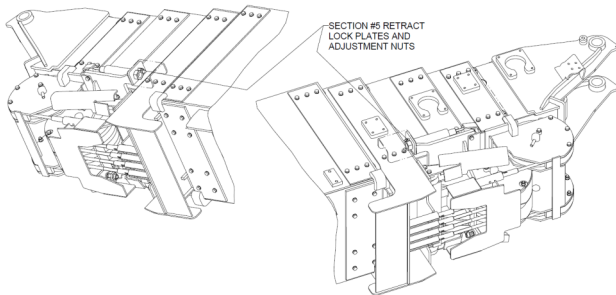
5. Using tool, JLG PN 1001162217, torque Section #3 Retract Adjustment Nuts to 38 ft-lb (51.5 Nm), alternat-

SECTION 4 - BOOM & PLATFORM

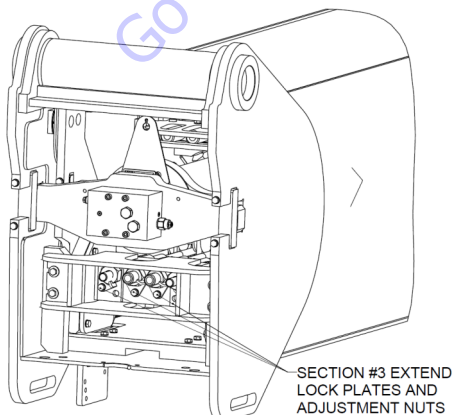
ing between the two ropes until both maintain the required torque.



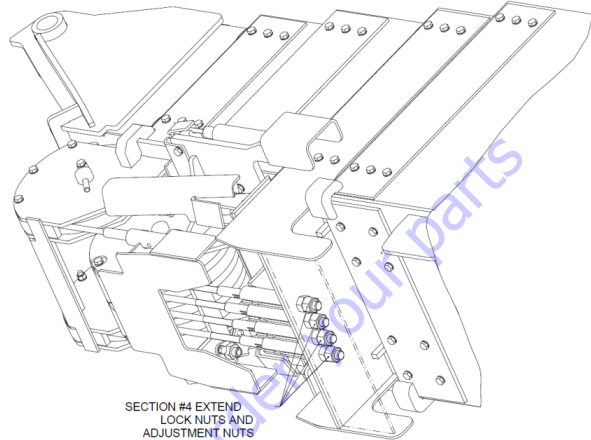
- Using tool, JLG PN 1001162217, torque Section #4 Retract Adjustment Nuts to 38 ft-lb (51.5 Nm), alternating between the two ropes until both maintain the required torque.



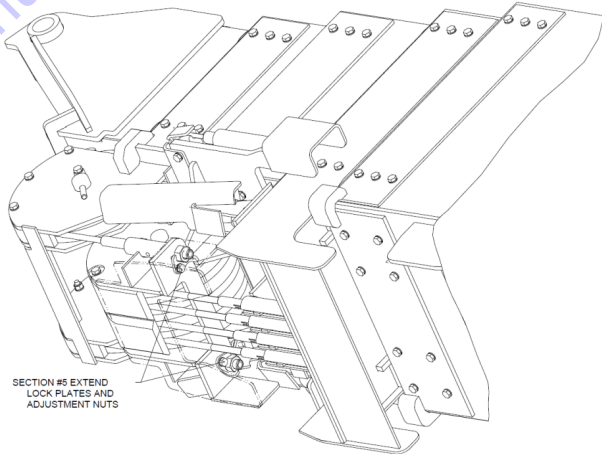
- Using tool, JLG PN 1001162217, torque Section #5 Retract Adjustment Nuts to 38 ft-lb (51.5 Nm), alternating between the two ropes until both maintain the required torque.
- Retract the boom 2-3 feet (0.6 m – 1.0 m) Do NOT fully retract the boom or bottom out any section.
- Using tool, JLG PN 1001162218, torque Section #3 Extend Adjustment Nuts to 17 ft-lb (23 Nm), alternating between the two ropes until both maintain the required torque.



- Using tool, JLG PN 1001162216, torque Section #4 Extend Adjustment Nuts to 17 ft-lb (23 Nm), alternating between the two ropes until both maintain the required torque.



- Using tool, JLG PN 1001162216, torque Section #5 Extend Adjustment Nuts to 17 ft-lb (23 Nm), alternating between the two ropes until both maintain the required torque.



- Equalize the rope tension across the sheaves by exercising the boom telescope position:
 - Fully retract the boom
 - Extend the boom 4 to 5 feet (1.2m-1.5m) from the fully retracted position or to the stroke limit identified in 6.4.
 - Repeat 12a and 12b for a minimum of three cycles, stopping with the boom extended 4 to 5 feet (1.2m-1.5m) from the fully retracted position or to the stroke limit identified in Step 4.
- Verify wire rope torque values for retract ropes.

14. Retract the boom 2-3 feet (0.6m – 1.0m) Do NOT fully retract the boom or bottom out any section.
15. Verify wire rope torque values for extend ropes.
16. If the torque values are NOT correct, repeat the Wire Rope Tensioning Procedure.
17. If the torque values are correct, proceed to Confirm Proper Boom Deployment Function.

Confirm Proper Boom Deployment Function

Exercise the boom telescope function. When wire ropes are properly torqued, all traveling sections will move simultaneously when extending and retracting.

Re-Assembly

1. Install nylon collar locknuts on Section #4 extend wire rope fittings.
 - a. Do not re-use the nylon collar lock nuts. Replace with new nylon collar lock nuts.
 - b. Torque locknuts to 10 ft-lb (13.5 Nm).
2. Reinstall lock plates to remaining adjuster nuts.
3. Install all covers.

Boom Calibration

Any adjustment of wire rope tension should be immediately followed by Boom Calibration. For Boom calibration Refer Section 6.1, JLG Control System Analyzer Kit Instructions.

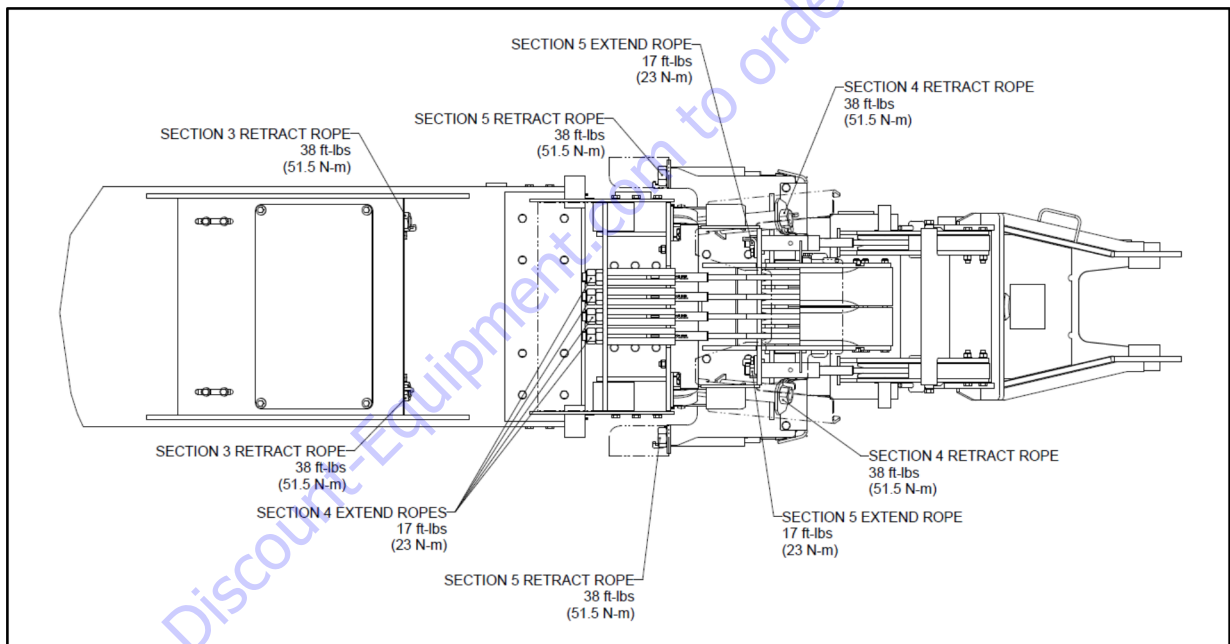


Figure 4-44. Boom Wire Rope Torques

4.15 BROKEN BOOM CABLE PROXIMITY SWITCH

This system uses a proximity switch to detect excessive movement of the cable block. If movement is detected the Cable Break indicator will illuminate in the platform control panel. No restrictions are made to the functionality of the control system. It is the responsibility of the operator to take immediate action.

To avoid damaging the proximity switch, install and adjust after assembling the switch block, compression spring, and torquing the wire ropes.

Adjusting the Proximity Switch

1. Thread the switch in until it contacts the adjuster block.
2. Thread the switch out 1/8 to 1/2 turn to achieve proper sensing range.

NOTE: *The LED light on the sensor illuminates when power is applied and the sensor is within the proper range.*

3. Tighten the jam nut.

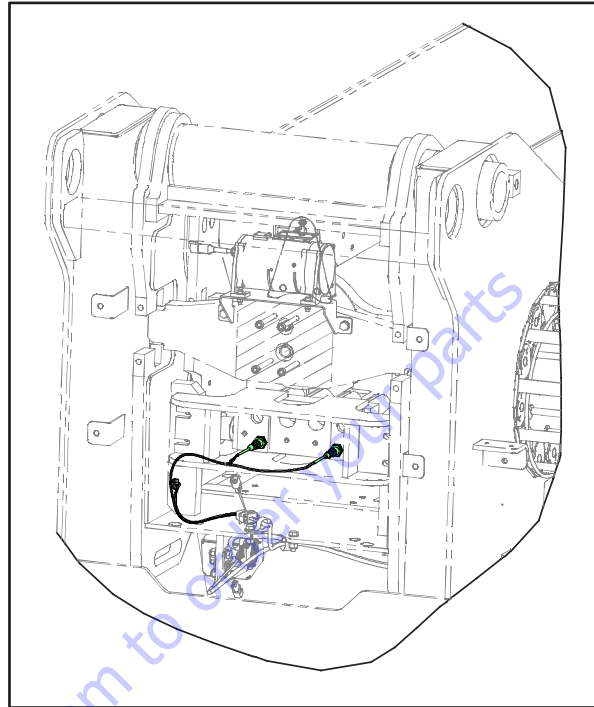


Figure 4-45. Broken Cable Proximity Switch Location