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USERS MANUAL P/N 29705
72100DX-30 WP DTCH.
30 FT BOOMS

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SECTION VI
PARTS

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MODEL 72100/60100 INSTALLATION INSTRUCTIONS

Read and understand these instructions completely before starting the work.
Before installing make sure you have all necessary parts. Please refer to the Owner's manual Section 4-1 for the list of parts required for installation. Report any shortages to Liftmoore, Inc. immediately.

1. The mounting surface for the crane must be capable of supporting the rated moment and the maximum load of the crane listed below:

72100:	72,000 Ft.-Lbs.	10,000 Lbs.	10,000 Lbs. @ 7.2 Ft.
60100:	60,000 Ft.-Lbs.	10,000 Lbs.	10,000 Lbs. @ 6.0 Ft.

2. Layout the mounting holes for the crane as shown in the drawing No. 50542. Cut the center hole for the crane swivel as shown on this drawing. Mount the crane with four 1 1/4" bolts of at least Grade 8 quality.

3. A manual disconnect switch with mounting bracket and terminals is provided with the crane. This switch will act as the main power disconnect for the crane. Removing power from the crane during periods of non-use will help to increase the life of the crane's electrical components. The switch should be mounted as near as possible to the crane and in a position which will facilitate its use. Determine the appropriate mounting position for the switch and use the supplied terminals to splice in to the crane's main power cable. Drawing No. 50378 illustrates how to install the disconnect switch and fuse.

4. Install the 30 Amp fuse, which is supplied with the crane, near the battery on the positive line. This fuse is to protect the wiring in event of an accidental grounding. Use a section of the wire and the terminals supplied to connect between the battery and the circuit breaker. See drawing No. 50378.

5. Run the 10 Ga. battery cable along the inside of the chassis frame to the positive battery terminal and connect it to the battery through the in-line fuse. See that the cable is protected. Avoid sharp edges and heat sources such as the muffler or catalytic converter. Use loom for protection whenever the cable passes through the body. On continuous rotation models, use the terminal supplied and connect the cable to the bolt located between the pipe nipples in the center of the swivel under the crane. On limited rotation models connect the battery wire to the 10 gage black wire under the crane.

6. Be certain that the crane and the battery are grounded to the truck chassis. A good ground must exist for the crane to work. Ground wire supplied.

7. Hydraulic Component Installation: The following description applies to Liftmoore's Hydraulic Installation Drawing No. 50026.

These cranes require a pump driven by the vehicle's engine. Pumps can be either Power Take Off or Fan Belt drive. For best, smoothest operation the pump needs to supply 8 GPM at 3,000 PSI with the engine at 1,000 RPM.

Do not use pumps that will deliver more than 8 GPM at engine speed. 10 GPM is the maximum flow acceptable to the valves in the crane. If a larger pump is installed on the vehicle for other functions, use a pressure compensated flow control valve to restrict the flow to the crane as required above.

A wire control or solenoid throttle advance can be used to increase the engine speed. Liftmoore can supply a solenoid throttle advance kit (Part No. 32592) that includes a control switch to be mounted near the crane. On engines with electronic throttles, the solenoid throttle advance cannot be used, check with the dealer for throttle advance information. Engine speed, start and stop control can be included in the pendant control box if ordered.

A reservoir of at least 25 gallon capacity is recommended. Reservoir capacity will need to be enlarged for increased running time. For run times of 15 minutes or less the 25 gallon capacity is adequate. For longer duty cycles the reservoir size should be increased.

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MODEL 72100/60100 INSTALLATION INSTRUCTIONS, Cont.

The reservoir should be equipped with a suction line strainer, return line diffuser, and filler/breather cap. A sight gage for displaying fluid level is also advisable. Locate the reservoir as close to the pump as possible and as high as possible above the pump.

A adjustable relief valve set @ 3,000 PSI should be installed at the pump's output to protect the pump from pressure surges. The crane incorporates a relief valve to protect its valves and hoses.

For up to 9.5 GPM flow the minimum suction line hose size is 1" ID. For the pressure line a 5/8" ID hose is needed. For the return line between the crane and reservoir a 3/4" ID is advised. Hose sizes can be reduced for lower flows.

A 10 Micron return line filter should be installed in a location that allows convenient access to the replaceable cartridge.

8. DO NOT RUN OIL THROUGH THE CRANE UNTIL THE OIL HAS BEEN FILTERED. An adapter union matching the crane fittings is included. Connect the supply and return lines together using this adapter, circulate the oil through the filter to insure a clean supply. After the pump has filtered 1.5 times the reservoir capacity, hook the hoses to the crane. It is now ready to run.

9. Connect the hydraulic hoses to the fittings projecting below the crane. The pressure hose must be connected to the port marked "P" (No. 8 size fitting). This is the smaller of the two fittings. The return line to the tank must be connected to the port marked "T" (No. 10 fitting). This is the larger of the two fittings. The port letters are stamped on the bottom of the swivel.

10. Verify that the anti two-block will stop extension out and winch up when the Bail arms device is lifted by either function. The Crane Assembly drawing in the owner's manual illustrates how the Bail arms should be installed on the crane.

11. READ AND UNDERSTAND OPERATORS MANUAL BEFORE OPERATING CRANE. Operate the crane through all its functions. Check that each switch operates the correct function. Verify speed of the unit.

12. A boom support is required for this crane. For bodies shorter than 132", place the support so that the traveling block hook is secured and does not block the truck cab door.

13. An outrigger rated at least that of the crane must be installed to keep the crane as level as possible under all expected working conditions. Keeping the crane level reduces the loads on the rotation gear. This will also protect the truck's springs, axle, and wheels when heavy loads are suspended from the crane. OSHA requirements require a stability test be performed on this installation.

14. Extra rear spring leaves or heavy coil springs may be needed to keep the truck level when the crane is mounted on corner or off center locations.

15. Place these instructions with the Operators Manual.

16. Load Chart and stability test decals are to be placed on the truck body for easy visibility by the user.

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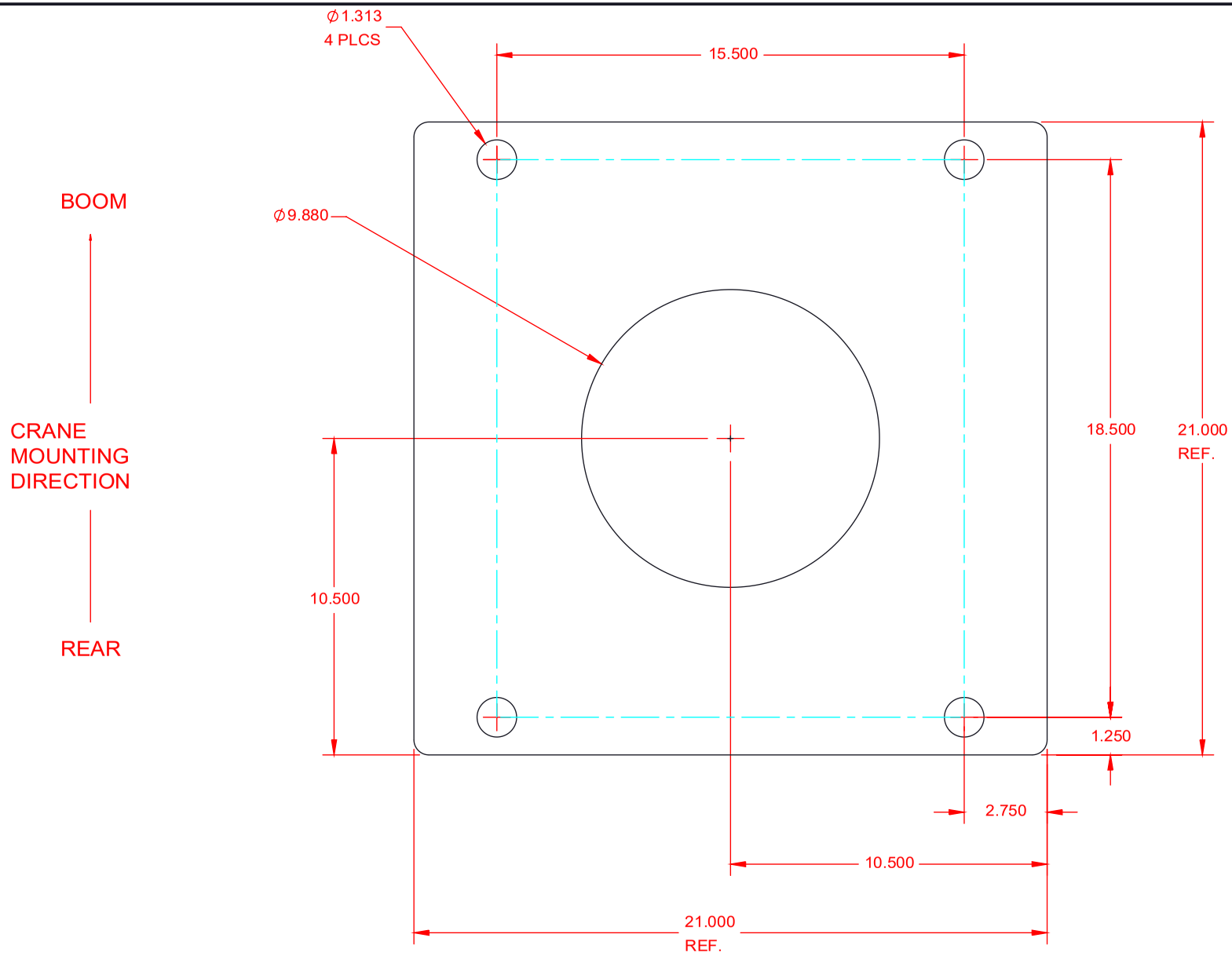
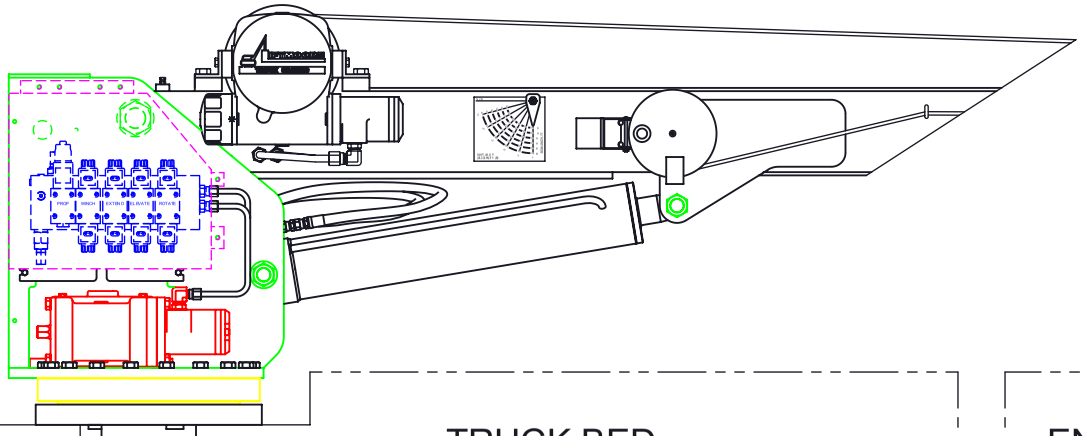
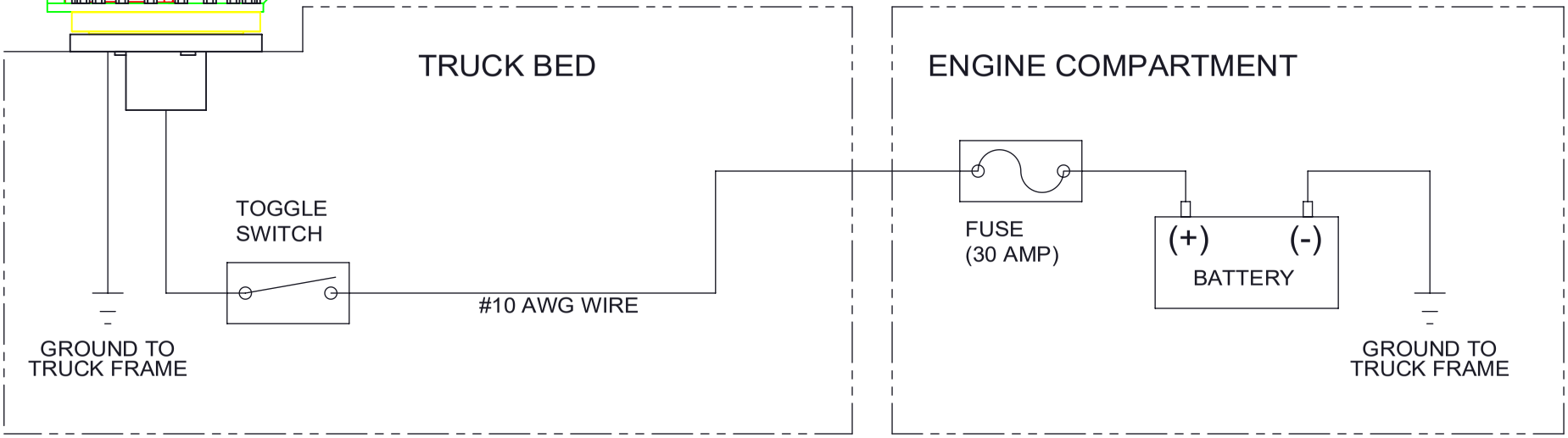


LIFTMOORE TRUCK CRANES	Houston TX (713)-688-5533 www.liftmoore.com	DRWN BY: KSP DATE: 6/2/21	PLATE, MOUNTING 60100/72100	DRAWING NO. 50542-D

SUGGESTED WIRING SCHEMATIC FOR LIFTMOORE HYDRAULIC CRANE INSTALLATION





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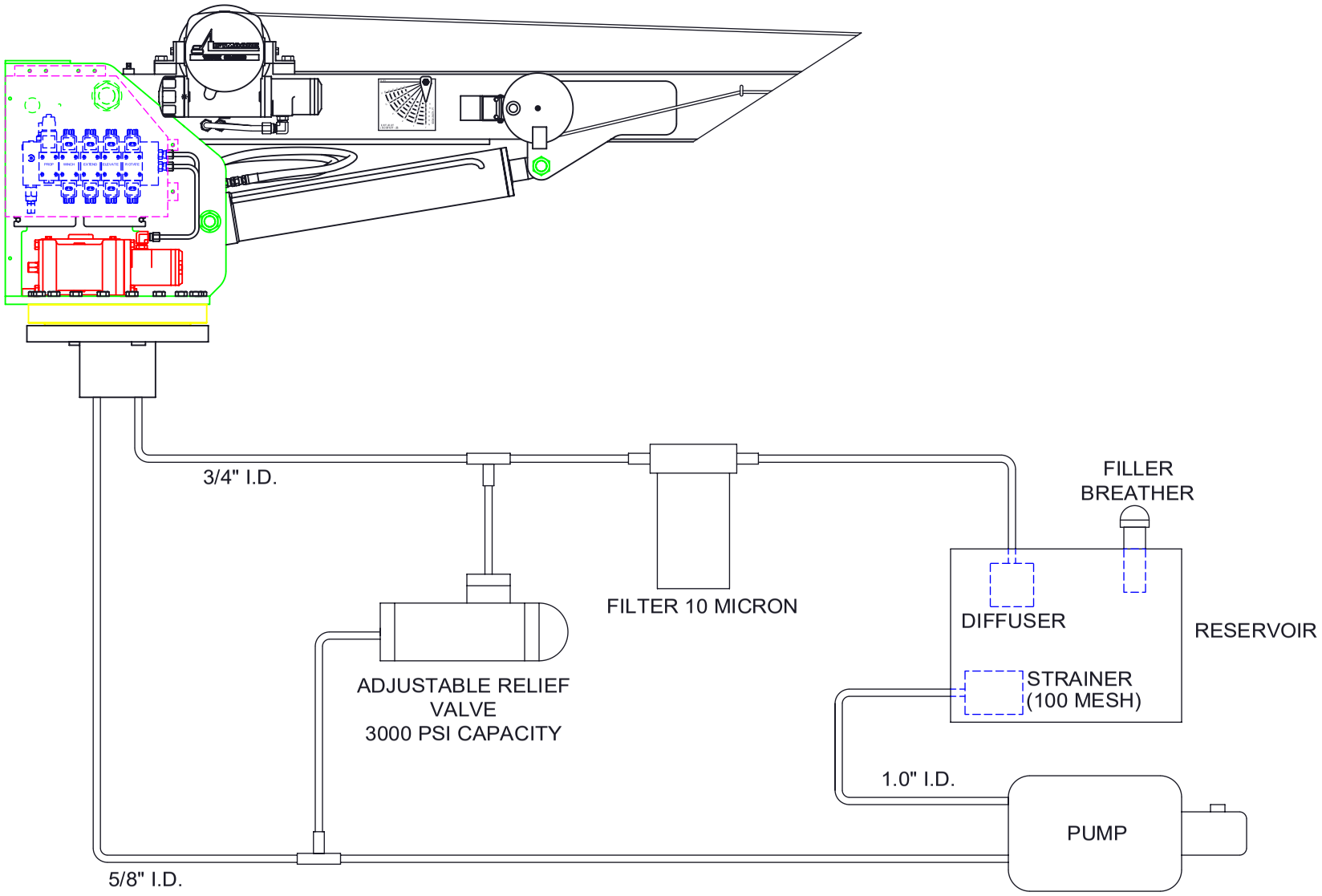
DRWN BY: TV	SCHEM, CRANE ELEC. INSTAL-HYDR	DRAWING NO.
DATE: 03/02/06		50378-B

SUGGESTED HYDRAULIC SCHEMATIC FOR LIFTMOORE HYDRAULIC CRANE INSTALLATION



LIFTMOORE TRUCK CRANES	Houston TX (713)-688-5533 www.liftmoore.com	DRWN BY: TV DATE: 03/02/06	SCHEM, CRANE HYD. INSTAL-HYD	DRAWING NO. 50026-B

OPTIONAL ENGINE CONTROL RECEIVER INSTALLATION

The engine control functions allow the user to start and stop the engine and also advance the idle, all from the crane remote pendant control.

The following instructions provide a general guideline for installing and wiring the receiver. Since engine controls vary from manufacture to manufacturer and even from year to year, it is impossible for Liftmoore to maintain specific information on your vehicle. You will have to contact the vehicle and/or engine manufacturer (contact information is provided below). Also, many new vehicles have a provisions for remote engine control built into the ECU, but these functions must be activated and/or programmed by a dealer or authorized service center.

MOUNTING THE RECEIVER

The receiver should be mounted vertically with the antenna up. For best reception, it should be mounted in cab in line of site of operator. Since interfacing connections will generally be inside the cab, a good mounting place is the inside, back the cab with the antenna visible though the back glass. The receiver can be mounted outside of the cab, however it should NOT be mounted inside the engine compartment because of interference generated by the engine.

ENGINE START

Engine start is accomplished by splicing the brown wire on the engine receiver control harness with the ECU start circuit.

WARNING!

Engine start may bypass some manufactures safety functions such as clutch or neutral interlock. It is the installer's responsibility to ensure safe and proper installation.

ENGINE STOP

If the ECU is not equipped with a remote engine kill circuit then a normally closed relay must be installed in the ECU power or engine run circuit. The gray wire on the engine control receiver harness is then connected to the solenoid coil. Activating the circuit will open the solenoid, killing the engine.

NOTE!

It is advisable to include a small jumper wire that can be installed to bypass the solenoid should it fail, otherwise the engine would not run.

ADVANCED IDLE

Many new diesel engines have an advanced idle control circuit built into to the ECU. Some automatically advance the idle when the PTO is activated. This feature may have to be activated and/or programmed by the dealer.

NOTE!

Some engines also require activating a PTO circuit to prevent "Service Engine Soon" or other erroneous errors during PTO operation.

For gas engines or engines without this feature, an after-market throttle advance will have to be purchased separately.

CONTACT INFORMATION

Your truck or engine dealer should be able to provide you with further assistance. Also check the manufacturer's body builder manual (some provided online). Before calling, please have your vehicles make, model, year, engine and transmission size and manufacturer, and VIN if available.

Ford Body Builders Advisory Service	1.877.840.4338	www.fleet.ford.com/truckbbas
GM Upfitter Integration	1.800.875.4742	www.gmupfitter.com
Peterbilt	1.940.591.4000	
Caterpillar	1.800.847.4986	
Cummins	1.800.343.7357	
Dodge		Rambbg@chrysler.com
Navistar	1.800.336.4500	

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VEHICLE STABILITY TEST

OSHA (29CFR 1910.180c) requires a stability test be completed by the installer. A qualified person shall perform this test. Please call Liftmoore for any assistance required in completing this test.

TEST PREPARATIONS:

- Use as level of a test site as possible.
- Engage parking brake on vehicle.
- Set outriggers, jackstands, or other stability device in place.
    - Vehicle tires should remain in contact with the ground.
    - The vehicle should be level.

FILL OUT TEST FORM:

- Complete the Vehicle Information and Crane Information data at the top of Page 2 of this form.
- Use a known weight to determine the ***Initial Testing Load Radius.*** Write this number on all 3 locations on Page 2 of this form.

TEST PROCEDURE:

Determine Area Y Angle

1. With the crane extended to the ***Initial Testing Load Radius*** over the rear of the truck, lift the load. Keep the load less than 4" off of the ground.
2. Rotate the load counterclockwise. Monitor all vehicle tires to ensure they remain in contact with the test surface.
3. When one of the vehicle's tires breaks contact with the ground, stop the rotation.
4. Use a protractor to determine this angle. Write this angle on the **Stability Test Results** as ***Area Y***.

Determine Area W1 Length

5. Keeping the load off of the ground, retract or elevate the boom until all tires are in contact with the test surface.
6. Continue rotating the load counterclockwise while monitoring all vehicle tires.
7. When one of the vehicle's tires breaks contact with the ground, stop the rotation.
8. Keeping the load off of the ground, retract or elevate the boom until all tires are in contact with the test surface.
9. Repeat this procedure until either the vehicle prevents further rotation or a 180 degree rotation of the load is reached.
10. Record the load radius in feet at this point on page 2 of this form as ***Area W1 Length***.
11. Calculate the ***W1 % Rated Capacity***.
12. Write the ***W1 % Rated Capacity*** in the **Stability Test Results** on Page 2 of this form.

Determine Area Z Angle

13. Return the load to the rear of the vehicle and extend the load to the ***Initial Testing Load Radius***. Keep the load less than 4" off of the ground.
14. Rotate the load clockwise. Monitor all vehicle tires to ensure they remain in contact with the test surface.
15. When one of the vehicle's tires breaks contact with the ground, stop the rotation.
16. Use a protractor to determine this angle and write this angle on the **Stability Test Results** as ***Area Z***.

Determine Area W2 Length

17. Keeping the load off of the ground, retract or elevate the boom until all tires are in contact with the test surface.
18. Continue rotating the load clockwise while monitoring all vehicle tires.
19. When one of the vehicle's tires breaks contact with the ground, stop the rotation.
20. Keeping the load off of the ground, retract or elevate the boom until all tires are in contact with the test surface.
21. Repeat this procedure until either the vehicle prevents further rotation or a 180 degree rotation of the load is reached.
22. Record the load radius in feet at this point on page 2 of this form as ***Area W2 Length***.
23. Calculate the ***W2 % Rated Capacity***.
24. Write the ***W2 % Rated Capacity*** in the **Stability Test Results** on Page 2 of this form.

Record Stability Test Results on Placard

25. Record the information from the **Stability Test Results** on the **CRANE TRUCK STABILITY** plate (P.N. 18600) and install the plate in a visible position on the vehicle, preferably near the crane.

THIS TEST IS NOW COMPLETE

STABILITY TEST FORM

Operational limits of this vehicle

VEHICLE INFORMATION

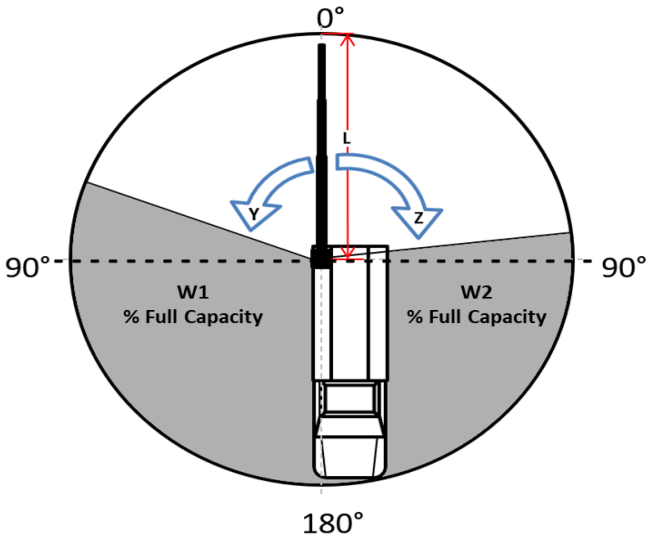
Year _____
Make _____
Model _____
VIN _____

CRANE INFORMATION

Model _____
Serial Number _____
Moment Rating (ft-lbs.) _____

Determine the ***Testing Load Radius*** by using the following:

Moment Rating (ft-lbs.)		_____
Multiply by 1.18	x	_____
Divide by known weight	¸	_____
Testing Load Radius (ft.)	=	_____



Area W1 Length _____
Testing Load Radius (ft.) _____
Multiply by 100 _____
W1 % Rated Capacity _____

Area W2 Length _____
Testing Load Radius (ft.) _____
Multiply by 100 _____
W2 % Rated Capacity _____

STABILITY TEST RESULTS

Area Y: _____ Degrees
Area Z: _____ Degrees
Area W1 Rated Capacity: _____ %
Area W2 Rated Capacity: _____ %

Test Performed By: _____ Date: _____

CRANE SAFETY RULES

CAUTION!

1. **READ AND UNDERSTAND OPERATOR'S MANUAL.**

2. **INSPECT VEHICLE AND CRANE, INCLUDING ITS OPERATION BEFORE DAILY USE.**

3. **USE THIS EQUIPMENT ONLY ON SOLID LEVEL GROUND WITH OUTRIGGERS OR JACKSTANDS PROPERLY SET.**

4. **BEFORE OPERATING THE CRANE REFER TO MAXIMUM LOAD CHART ON CRANE FOR OPERATING LOAD LIMITS.**

5. **BE SURE LOAD BEING LIFTED IS WITHIN SAFE WINCH CAPACITY AS WELL AS SAFE CRANE CAPACITY. MULTI-PART LINE OPERATION IS REQUIRED WHEN SINGLE LINE LOAD CAPACITY OF WINCH IS EXCEEDED.**

6. **DO NOT OPERATE, WALK, OR STAND UNDER THE BOOM OR ANY SUSPENDED LOAD.**

7. **ALWAYS PAY OUT LOAD LINE BEFORE EXTENDING BOOM. WIRE ROPE DAMAGE AND / OR BREAKAGE MAY OCCUR.**

8. **BOOM MUST BE IN ITS REST BEFORE MOVING VEHICLE.**

9. **BOOM TIP MUST BE DIRECTLY OVER THE LOAD BEFORE ANY LIFTING IS STARTED. DO NOT DRAG LOADS WITH THIS CRANE.**

10. **MAINTAIN THIS CRANE AS REQUIRED IN THE OWNER'S MANUAL.**

11. **DO NOT ALLOW PERSONNEL TO RIDE ON THE LOAD LINE, LOAD, OR BOOM OF THIS CRANE.**

12. **IT IS UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN TEN FEET OF HIGH VOLTAGE LINE**

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INTRODUCTION

This crane is a powerful machine designed to lift and move heavy loads. There are many hazards associated with these operations. Liftmoore has designed this crane to be as safe as possible but -

IT IS THE OPERATOR'S RESPONSIBILITY TO PREVENT ACCIDENTS!

This takes pre-planning, attention, and knowledge of basic principles and rules. Even if you have used similar cranes, reading this manual in its entirety will help prevent damage, injury, or even loss of life; benefits well worth the short amount of time it takes to read these pages.

REGULATORY AUTHORITY

Use of this crane is governed by OSHA 29 CFR 1910.180 and may be governed by other federal, state, or local regulations.

IT IS THE OPERATOR'S RESPONSIBILITY TO UNDERSTAND AND COMPLY WITH ALL APPLICABLE REGULATIONS GOVERNING THE OPERATION, INSPECTION, AND MAINTENANCE OF THIS CRANE.

Personnel should be trained, tested, and certified, as recommended by OSHA and ANSI standards, before operating this crane.

USING THIS MANUAL

This manual assumes that the crane is mounted on a typical service body type or similar truck, which is powered by the vehicle electrical or hydraulic system, and is controlled by either the standard pendant control or FM radio control sold by Liftmoore, Inc.

This manual is supplied to provide basic guidelines for the safe use, routine maintenance, and general inspections of this crane.
This manual is supplied to provide basic guidelines for the safe use, routine maintenance, and general inspections of this crane.

Laws, regulations, standards, or policies may be more restrictive than this manual. If a conflict exists for any limit or condition, the safest or most prohibitive shall be used. Under no circumstances shall the load, moment, or stability ratings be exceeded.

Pay particular attention to the following:

WARNING! – Draws attention to hazards, conditions, or procedures that if not observed could result in injury or death.

CAUTION! – Draws attention to hazards, conditions, or procedures that if not observed could result in damage to the crane, load, or other equipment. Equipment failure could in turn lead to injury or death.

NOTE! – Draws attention to conditions or procedures that are essential to emphasize.

For questions, interpretations, or to report errors, please contact Liftmoore, Inc, Engineering Dept.

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OPERATING RESTRICTIONS

DUTY CYCLE

For Electric Cranes the duty cycle time should be limited to 10%. This is limited by heat buildup in the motors and declining charge in the batteries. (Installing extra batteries near the crane helps keep the voltage at maximum.)

PERSONNEL

LIFTING OR MOVING OF PERSONNEL IS STRICTLY PROHIBITED! This crane was neither designed nor intended to lift personnel. Under no circumstances should anyone be allowed to ride on the crane, line, or load. All non-essential personnel must be kept away when using the crane. The load must never be moved over people, nor must anyone be allowed to pass or stand under a suspended load.

ELECTRICAL LINES

Consult ASME B30.5 for operating procedures, minimum safe distances, and prohibited zones when working around electrical lines or poles.

When operating near electrical power lines, the crane must be positioned so that the distance from the crane to the lines or poles is equal to or greater than the length of the fully extended boom plus the minimum safe distance required.

All parts of the crane, line, and load must be kept a minimum safe distance from electrical power lines and poles. This distance is 10 feet for electrical lines carrying 50kV or less.

UNDER NO CIRCUMSTANCES SHOULD A CRANE BE OPERATED UNDER ELECTRICAL POWER LINES.

SETUP

POSITION The vehicle must be positioned so that the load is kept as close to the crane base as possible to reduce the moment on the crane. Consideration must be given to starting and ending position as well as firmness and slope of the ground and any obstructions.

OUTRIGGERS The outriggers or jackstands must be firmly set and the vehicle as level as possible. This will reduce the stresses on the rotation drive and keep the load off the vehicle's suspension. Keep in mind that the weight on the vehicle will shift as the crane and load is rotated.

MANUAL BOOM EXTENSION If the manual extension part of the boom is needed, it must be extended and the boom pin placed in the required position. Insert the pin and replace the pin's hairpin keeper before attempting to lift any load.

LOAD LIMIT The operator must understand the crane load chart. The operator must ensure that the load is within the load limits over the entire range which it will be moved. Be sure to include the weight of any lifting devices including the travel block.

The load limit chart is attached to the side of the crane to aid the operator.

The boom angle indicator and chart aids the operator in determining the load capacity at various boom angles and extensions. It also gives the load limit at that configuration.

STABILITY A stability chart must be posted near the crane. The operator must understand the stability chart. The crane may be de-rated over some areas of its operating radius.

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TRAVEL BLOCK The operator must determine if the load is within the single line compatibility of the winch or if a multi-part line configuration is needed.

REEVING Ensure the proper routing of the rope through the sheaves and travel block. The rope must lie in the sheave groove and must not rub against any metal objects.

Ensure the rope is correctly wound on the winch drum. The crane assembly drawing will indicate if the rope must be wound over the top or bottom of the drum. The rope must never contact any part of the winch mounting.

WARNING!

If the winch winding direction is reversed the brake will not work and the load will fall.

ATTACHING THE LOAD

POSITION The boom tip must be moved over the load before lifting so that it will be lifted straight up.

CAUTION!

Never drag a load with the crane. Dragging a load puts very high stresses on the crane for which it was not designed.

ROPE Check the rope condition to ensure it is not frayed or damaged. Ensure that the rope is not kinked and that it does not contact any sharp edges or make any sharp bends.

If using double line configuration, ensure that the lines are not twisted.

CAUTION!

Never wrap the hoist rope around the load! Serious damage to the rope WILL occur.

HOOK Always make sure the load is applied to the throat of the hook. Never use a bent hook.

CAUTION!

Always lift with the throat of the hook. Never lift with the load applied to the tip of the hook. Doing so will bend the hook.

SLINGS If the load does not have a lifting eye, use a nylon, chain, or other type of sling designed for lifting and rated for loads greater than that being lifted.

BALANCE Ensure the load will be secure and balanced when lifted. Ensure that the load cannot shift in the sling and that the sling cannot slide across the hook should the load become unbalanced.

LIFTING THE LOAD

Before lifting, ensure that the load is free from all mountings and is no way attached or stuck to anything.

Ensure that at least five full wraps remain on the winch drum at all times.

Test the winch brake by lifting the load a few inches and ensuring that it does not slip.

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HOLDING THE LOAD

The operator must keep the load in sight at all times once it is lifted.

The operator must never leave the controls once the load is lifted.

The operator must ensure that no one is allowed to pass or stand under a suspended load.

CAUTION!

Never move the vehicle with a suspended load. Doing so will put dynamic loads on the crane for which it was not designed.

MOVING THE LOAD

Before moving the load, make sure the path is free of any obstructions or people.

Avoid sudden accelerations or stops. Speeds must be kept to a minimum, especially rotation, to keep the load from swinging.

Avoid sudden reversing of direction. Do not reverse direction while the load is still moving.

Make sure that no part of the crane, boom, or load makes contact with any obstruction or comes within a minimum of ten feet from any electrical line.

TRANSIT

While in transit, the crane must be stowed, preferably in a boom rest. The crane must be prevented from rotating and the hook prevented from swinging.

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INSPECTION AND MAINTENANCE

OSHA and ASME require frequent and periodic inspections. Records of these inspections must be kept readily available. Liftmoore requires periodic maintenance to ensure proper operation and prolonged life of the crane.

INSPECTION

DAILY INSPECTION

OSHA 29CFR 1910.180 (d)(2)(i) requires the following be checked daily prior to use:

- All control mechanisms for maladjustment interfering with proper operation as well as for excessive wear of components and contamination by lubricants or other foreign matter.
- All safety devices for malfunction. This should include the anti-two block and pressure switch.
- Deterioration or leakage in air or hydraulic systems.
- Crane hooks with deformations or cracks. For hooks with cracks or having more than 15 percent in excess of normal throat opening or more than 10 deg. twist from the plane of the unbent hook.
- Electrical apparatus for malfunctioning, signs of excessive deterioration, dirt, and moisture accumulation. This should include the battery terminals, master disconnect switch, electrical swivel
- The wire rope shall be replaced if any of the following conditions are noted:
    - Kinking, crushing, bird-caging, or other damage
    - Reductions from nominal diameter of more than one-sixty-fourth inch for diameters up to and including five-sixteenths inch, one-thirty-second inch for diameters three-eighths inch to and including one-half inch.
    - Thimble is not in place or is damaged
    - Any evidence of heat damage
    - Six or more randomly distributed broken wires in 1 lay
    - Three or more broken wires in 1 strand in 1 lay

MONTHLY INSPECTION

A thorough inspection of all ropes in use shall be made at least once a month and a certification record which includes the date of inspection, the signature of the person who performed the inspection and an identifier for the ropes shall be prepared and kept on file where readily available. All inspections shall be performed by an appointed or authorized person. Any deterioration, resulting in appreciable loss of original strength shall be carefully observed and determination made as to whether further use of the rope would constitute a safety hazard. Some of the conditions that could result in an appreciable loss of strength are the following:

- Reduction of rope diameter below nominal diameter due to loss of core support, internal or external corrosion, or wear of outside wires.
- A number of broken outside wires and the degree of distribution of concentration of such broken wires.
- Worn outside wires.

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- Corroded or broken wires at end connections.
- Corroded, cracked, bent, worn, or improperly applied end connections.
- Severe kinking, crushing, cutting, or unstranding.

PERIODIC INSPECTION

An Annual Inspection Form is included in this manual. OSHA 29CFR 1910.180 (d)(2)ii) requires periodic inspections of this crane. Liftmoore recommends an annual inspection using the included form.

MAINTENANCE PRECAUTIONS

The crane should be maintained monthly for safety reasons and to reduce stress on the crane.

WARNING!

Never perform any maintenance while the crane has any type of load on it. Use the manual operation procedure to lower the load if necessary.

WARNING!

Hydraulic cylinders may have high pressure stored in them even after hydraulic power is removed.

The counterbalance and pilot operated check valve in the cylinder will always hold some pressure in the cylinder. Slightly extending the cylinder then retracting a small amount will relieve most of the pressure in the cylinder. DO NOT DEADHEAD THE CYLINDER! This will store the maximum amount of pressure in the cylinder. Care should be taken when either valve is removed from the cylinder as some pressure will still remain.

After any maintenance has been performed the crane shall not be operated until all guards have been reinstalled, all safety devices reactivated, and maintenance equipment removed.

LUBRICATION Refer to the crane specification section for the periodic maintenance schedule and type of lubrication required.

BOLTS Bolts may loosen over time due to vibration; therefore, they should be checked periodically. If bolts need to be replaced, make sure they are replaced with bolts of equal or greater strength. Check the periodic maintenance schedule (Crane Specification Section) for bolt specification and torque.

NOTE!

Sheave and boom and cylinder pivot bolts are not standard bolts. The shank and thread length of these bolts have been modified so that they do not pivot on the threads. Consult the parts section of this manual for part numbers of these bolts.

OTHER MAINTENANCE

Refer to parts drawings for any specific maintenance or adjustment procedures such as hydraulic winch brake, rotation drive gear set adjustment, Etc.

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MONTHLY INSPECTION REPORT

Crane Model No._____ **Serial Number**_____

Are Boom Hitch Pins and Keepers in place?	Yes_____ No_____
Wire Line Hook with Safety Latch Working?	Yes_____ No_____
Is Hook OK, (Not bent)?	Yes_____ No_____
Is Thimble on Wire Rope OK?	Yes_____ No_____
Is Traveling Block in use?	Yes_____ No_____
Is Wire Rope OK, not kinked or frayed?	Yes_____ No_____
Are all Boom Sections straight?	Yes_____ No_____
Are Sheave Bolts in place and tight?	Yes_____ No_____
Do all Sheaves rotate easily?	Yes_____ No_____
Are Mounting Bolts tight?	Yes_____ No_____
Is Anti Two-Block functioning properly?	Yes_____ No_____
Is Boom Angle Indicator in place and functioning and is Chart legible?	Yes_____ No_____
Are Cylinder Mounting Bolts secure?	Yes_____ No_____
Are Winch Mounting Bolts tight?	Yes_____ No_____
When stopped does winch drift less than 1.0 Inches?	Yes_____ No_____
Is Load Chart in place and easily read?	Yes_____ No_____
Are functions on Pendant operating correctly?	Yes_____ No_____
Is Hydraulic Reservoir full?	Yes_____ No_____
Is Outrigger straight and functioning?	Yes_____ No_____

Any items checked 'No' must be repaired before using this crane.

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ANNUAL CRANE CERTIFICATION (29CFR1910.180)

*OWNER*_____

*MODEL NUMBER*_____*SERIAL NUMBER*_____

*DATE*_____

Check the following:

___*Crane Mounting Bolts (Torque)*

___*Winch mounting Bolts (Torque)*

___*Boom mounting bolts*

___*Cylinder mounting bolts*

___*Cracks on boom (Check when extended)*

___*Extension Pads not worn excessively*

___*Cracks on housing*

___*Weld cracks on boom*

___*Weld cracks on housing*

___*Boom swing approximately one inch or less at boom tip when retracted*

___*Hydraulic leaks*

___*Hoses not chafed or cracked*

Sheaves not cracked
- ___*Boom Tip*
- ___*Traveling Block*

___*Sheaves not worn excessively*
- ___*Boom Tip*
- ___*Traveling Block*

___*Sheaves rotate freely*
- ___*Boom Tip*
- ___*Traveling Block*

___Load Chart in place and legible

___Boom angle chart in place and legible

___Labels in place (See manufacturer's chart)

___Crane Hook Throat Opening within 15% of standard

___Crane Hook not bent more than 10 degrees from plane

___Hook safety latch operating properly

___Booms pin(s) and Keeper(s) in place (Manual Extension Section)

___Wire Rope removed if the following occurs:

Six randomly distributed broken wires in one lay or three broken wires in one strand in one lay.

Wear of one-third the original diameter of outside individual wires.

Kinking, crushing, bird-caging or any other damage.

Evidence of heat damage.

Reduction from nominal diameter of more than one sixty-fourth inch for diameters to five-sixteenths diameter and one-thirty-second inch for diameters three-eighths to one-half inch.

___Wire Line installed as manufacturer requires.

___Protective covers in place

___Grease crane as required

Check fluid level

___Winch

___Gearbox

___Reservoir

Control system for proper operation

___Winch Up and Down

___Boom Up and Down

___Boom In and Out

___Rotation CW and CCW

Anti Two-Block (Required on Power Extendible Cranes) interrupts:

___Boom Down

___Boom Out

___Winch Up

___Boom Up stopped by Up Limit Switch

___Outrigger or jackstand operable

___Outrigger crushing decal in place

___Outrigger and Jackstand operates properly

___Boom rest in place and used

___Load Sensor trips when overloaded

___Winch Down does not overrun when stopped

___Crane stability chart in place and visible.

I certify that I have performed the above tests and that any deficiencies were corrected and now comply as above.

Signed_____

Print Name_____

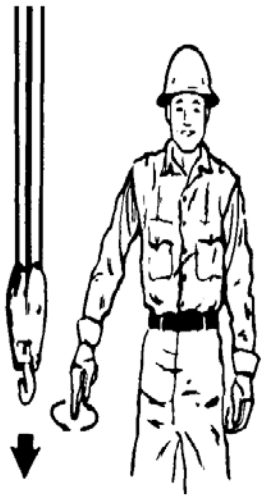
Company_____

Address_____

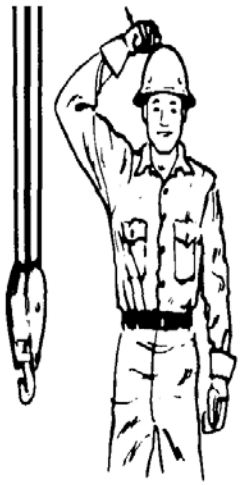
City_____ State_____

STANDARD HAND SIGNALS FOR CONTROLLING CRANE OPERATIONS

HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circle.

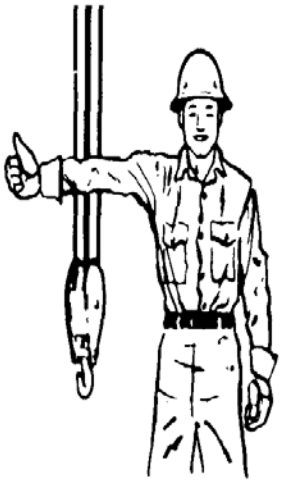


LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circle.

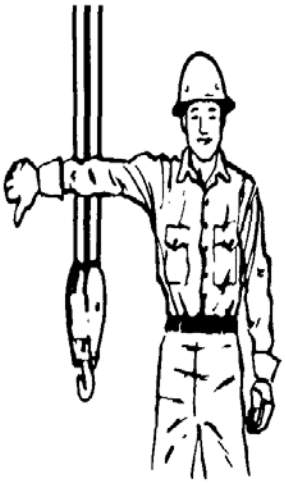


USE MAIN HOIST. Tap fist on head; then use regular signals.

USE WHIPLINE (Auxiliary Hoist). Tap elbow with one hand; then use regular signals.



RAISE BOOM. Arm extended, fingers closed, thumb pointing upward.



LOWER BOOM. Arm extended, fingers closed, thumb pointing downward.

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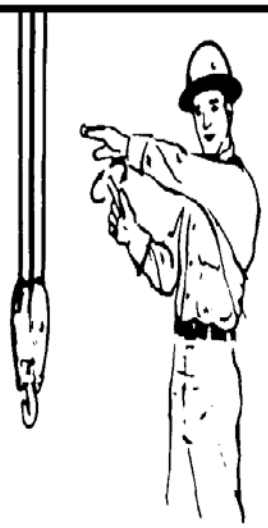
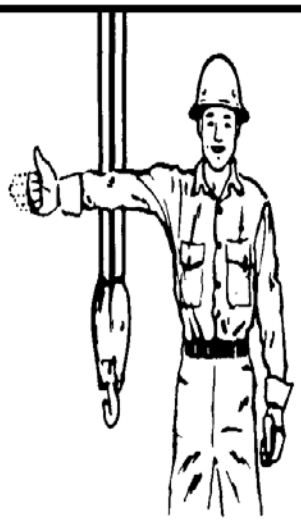
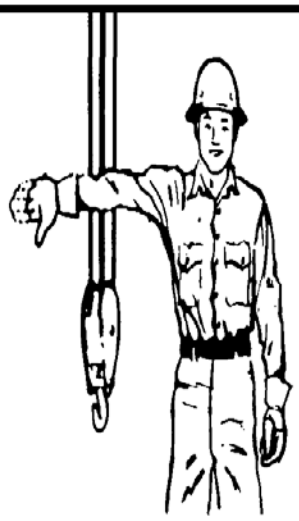


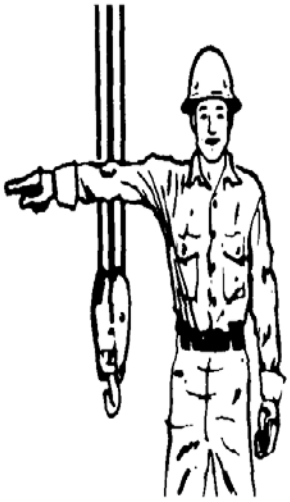
MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist slowly shown as example.)



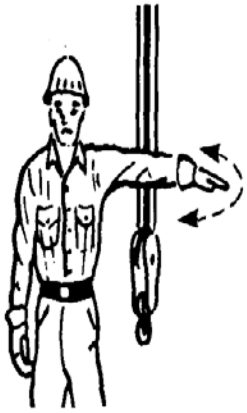
RAISE THE BOOM AND LOWER THE LOAD. With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.



LOWER THE BOOM AND RAISE THE LOAD. With arm extended, thumb pointing down, flex fingers in and out as long as load movement is desired.



SWING. Arm extended, point with finger in direction of swing of boom.



STOP. Arm extended, palm down, move arm back and forth horizontally.

EMERGENCY STOP. Both arms extended, palms down, move arms back and forth horizontally.

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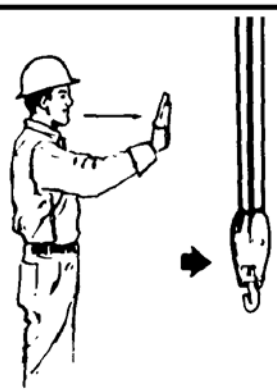
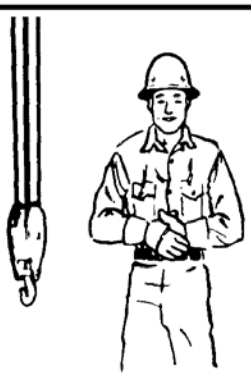


TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.



DOG EVERYTHING. Clasp hands in front of body.

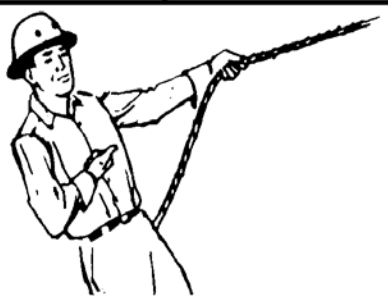
TRAVEL (Both Tracks). Use both fists in front of body, making a circular motion about each other, indicating direction of travel, forward or backward. (For land cranes only.)

TRAVEL. (One Track) Lock the track on side indicated by raised fist. Travel opposite track in direction indicated by circular motion of other fist, rotated vertically in front of body. (For land cranes only.)

EXTEND BOOM (Telescoping Booms). Both fists in front of body with thumbs pointing outward.

RETRACT BOOM (Telescoping Booms). Both fists in front of body with thumbs pointing toward each other.

EXTEND BOOM (Telescoping Boom). One Hand Signal. One fist in front of chest with thumb tapping chest.



RETRACT BOOM (Telescoping Boom). One Hand Signal. One fist in front of chest, thumb pointing outward and heel of fist tapping chest.

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GUIDER

RADIO/CAN REMOTE CONTROL SYSTEM

INSTALLATION AND OPERATION MANUAL

LIFTMOORE
3B278DAJ.doc
December 12, 2019
BK

F2724-0
5/5/21

INDEX

DESCRIPTION

The GUIDER REMOTE is a state of the art microprocessor based Radio Frequency (RF) control system. It will provide the operator the ability to wirelessly operate equipment. The operator is required to follow all OSHA www.osha.gov and other applicable safety standards when operating the equipment. Do not use high power radio devices in close proximity of this product.

The remote control system consists of: the radio transmitter, main receiver module, engine receiver module, and associated optional equipment such as wiring harnesses.

The transmitter is equipped with a trigger, twist to release E-stop switch, and toggle switches for the various functions. It includes a port for wired control via the built-in Controller Area Network (CAN) system[1]. This unit runs on a 3.7V rechargeable Li-Ion battery when in wireless mode. When in wired mode, the transmitter runs with power supplied by the CAN cable. This is useful if the battery power gets too low to operate the transmitter but continued operation is needed. The port is also used to charge the internal battery.

The system's radio receiver has both a proportional output and ON/OFF outputs to accommodate the functions available on the transmitter. All outputs are current-sourcing. It also includes a port for wired

[1] The CAN control will only work with the CRANE module. The ENGINE module only works on RF

(CAN) and RS-232 communication for system diagnostics.

OPERATION

Power must be applied to the receiver module for the system to work.

Releasing the E-STOP will turn on the transmitter. Pressing the E-STOP button will turn off the transmitter. Pressing the E-STOP will turn off all outputs as a safety feature. If the transmitter goes out of range for more than 2 seconds, all the momentary outputs will turn off as a safety feature, the e-stop output will turn off after 10 seconds.

To operate a proportional output, toggle the switch of the desired function and pull the trigger to the level desired. ***Please note that if the trigger is pulled before the function is selected, the proportional output will not work as a safety feature.** Release the trigger and begin again in the proper sequence.

Once the Guider transmitter is on, the operating screen will be displayed. On the top left corner of the screen is transmitter battery display. Plug in the transmitter as soon as possible after seeing the battery symbol turn red. See BATTERY CHARGING below. The top middle of the screen shows the LINK status with the receiver (CAN, RF, or NO LINK), and the top right of the screen shows the system voltage. Load capacity and any errors (if present) are then shown below this when connected to the CRANE receiver. When connected to

the ENGINE receiver, the display will show RUNNING ENGINE FUNCTIONS.

CONFIGURATION MENU

To navigate to the configuration menu turn the transmitter and receiver off. Press and hold the HORN button then turn on the transmitter. Keep holding the button for greater than 10 seconds until the menu is shown. There are the following options under the configuration menu: TEACH MODE, CLONE TX, SLEEP TIME, RESET TX, and EXIT. To select an option press the HORN button. To scroll down, use the AUX switch and to scroll up, use the RPM switch. To EXIT the configuration menu and go to the operating screen select EXIT.

TEACH MODE

Select this option to put the transmitter into teach mode and synchronize the receiver and transmitter. See transmitter and receiver synchronization below for more information.

SLEEP TIME

To save battery life, the transmitter will turn off after 60 minutes no buttons are pressed. The user must press and release the E-STOP at this point to restore transmitter operation. To change the sleep time, select this option and use the RPM and AUX switch to change the number of minutes the transmitter waits to go to sleep. Press the HORN button to save the selected sleep time and exit.

RESET TX

Warning! If the transmitter is reset, the receiver will have to be re-synchronized to the transmitter for operation! To reset the transmitter select RESET TX then press any button.

CLONE TX

Warning! This feature can pose a safety hazard for operators if both transmitters are used simultaneously! Use with caution! Occasionally, it is desirable to have more than one transmitter work with a single receiver. This is accomplished by a process called cloning. See CLONING below for more information.

INDICATOR LEDs

The receiver module can identify problems with the system in the form of an error code (red LED will be blinking). Check the decal on the receiver to diagnose system problems. Then, refer to the ERROR CODE CHART in this manual for explanation of the error codes. The green LED indicator will blink on the receiver during active operation. It will turn on solid when the Gate is connected to Wi-Fi.

TRANSMITTER AND RECEIVER SYNCHRONIZATION

Each radio remote system is designed to operate with a unique radio ID code and RF channel sequence. Each receiver is programmed to respond *only* to the transmitter with the correct ID code/RF channel

sequence for which it is set. This feature allows multiple systems to work in close proximity to one another without interference.

In the event that a transmitter becomes damaged and a new one is needed, the receiver can be reprogrammed to respond to the new transmitter. To teach the ID code to the receiver, use the following procedure. ***Please note that if this procedure is interrupted before it has completed, the system may have intermittent operation:**

For 3B2783A, Crane Receiver:

TEACH BY CAN CABLE

1. Plug the CAN cable into the CAN port on both the receiver and transmitter and operate a function on the transmitter until the LEDs on the front panel go from steady to flashing for at least 5 seconds. The units will be synchronized at this point

TEACH BY RF

1. Turn the transmitter and both receivers off
2. On the transmitter, go to the configuration menu above then select TEACH MODE
3. Apply power to the receiver (engine or crane). The transmitter will display SUCCESFUL and go to operating screen
4. Teach complete

CLONING

Warning! This feature can pose a safety hazard for operators if both transmitters are used simultaneously! Use with caution! Occasionally, it is desirable to have more than one

transmitter work with a single receiver. This is accomplished by a process called cloning. Cloning allows an additional transmitter (B) to have the same ID code as the original transmitter (A). If this feature is desired, use the following procedure:

1. Make sure transmitters and receivers are off
5. On transmitter A, go to the configuration menu above then select TEACH MODE
6. On transmitter B, go to the configuration menu above then select CLONE TX
2. Wait for a few seconds until the screen displays SUCCESFUL
3. Turn off both transmitters
4. Synchronize one of the transmitters to the receivers

If cloning feature has been invoked and is no longer desired, the ID code of one of the transmitters needs to be changed. This will unclone the transmitters. If this is desired, use the following procedure:

1. Make sure the receiver and transmitters are OFF
2. On the transmitter, go to the configuration menu above then select RESET TX
3. Press any switch again to select a new ID
4. Uncloning complete
5. Use transmitter and receiver synchronization procedure above to link the uncloned transmitter to new receivers

BATTERY CHARGING

The transmitter is designed with a smart battery charger. The battery can be charged by

connecting the CAN cable from the receiver module (powered on) to the port on the transmitter, or by plugging the AC wall charger or DC cigarette charger (minimum 2A @ 12.6VDC) into the port. Red and green LED indicators on the underside of the transmitter indicate the status of the charger: A red LED indicates that the battery is charging and a green LED indicates that the battery is fully charged.

IMPORTANT BATTERY INFO

When the battery is new, the run-time of the transmitter will be shorter until it has gone through the drain/charge cycle several times. After this point, the unit's current drain should allow at least 20 hours of run-time before a recharge is needed.

The temperature that the transmitter battery is exposed to affects performance and useful life. It is strongly recommended you keep within the following limits:

A. Charging: -4 to +86°F
B. Operating: -20 to +122°F
C. Storing: -4 to +86°F (lower is better)

OUTPUTS

Each of the outputs from the receiver module is designed with built-in short circuit and overload protection. The outputs can also detect a no-load or broken wire condition.

These error conditions are evident by the alphanumeric display on the receiver module *or* the HISTOGRAM page on the optional Gate.

The ON/OFF outputs will indicate an error under no load or broken wire status if NOT activated, and will detect a short IF activated. The proportional outputs will detect a no-load or short condition WHEN activated.

INPUTS

Digital inputs are available for ATB, BOOM LIMIT, and PRESSURE signals. They will function up to battery voltage levels. One analog input is available for a PRESSURE TRANSDUCER. This expects a signal from 4-20mA.

INSTALLATION

Refer to the WIRING CHART in this manual for hookup of the harness.

To install the receiver module, use the two mounting holes provided on the enclosure to attach it in a vertical manner with the connectors facing down. Please take extra caution not to damage internal components while installing. For high vibration applications, use shock absorbing mounts. It is advised to mount the unit as high as possible, keeping clear of metal obstructions around the antenna which might affect RF performance. Antenna extension cables are available from Kar-Tech to aid in this, if needed.

The main power to the receiver should be connected through a switched, fused line capable of a minimum of 20 amps. For best results, connect power (+) to the receiver via an auxiliary terminal of the ignition switch, PTO switch, or ignition relay. Be sure that the ground (-) is connected securely to the

chassis or battery with a star washer which digs into the base metal to insure good contact.

All connections must be properly insulated to protect against shorts.

Seal all connections with a non-conductive silicone grease to prevent corrosion.

BEFORE APPLYING POWER!

- Check power and ground for proper polarity.

- Check the wiring harness for possible shorts before connecting to output devices (i.e., valves and relays) by checking each mating pin terminal.

- Verify that the transmitter battery is fully charged.

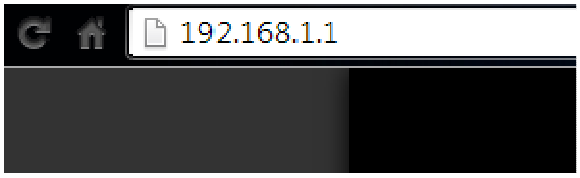
- Read the rest of this manual.

SYSTEM TROUBLESHOOTING USING ON BOARD GATE:

The GATE creates a Wi-Fi access point which allows you to connect to any device with Wi-Fi and web browser such as smart phones, pads or personal computers. It supports Google Chrome, Internet Explorer, Firefox and IOS Safari and allows user to configure, diagnose and troubleshoot the system.

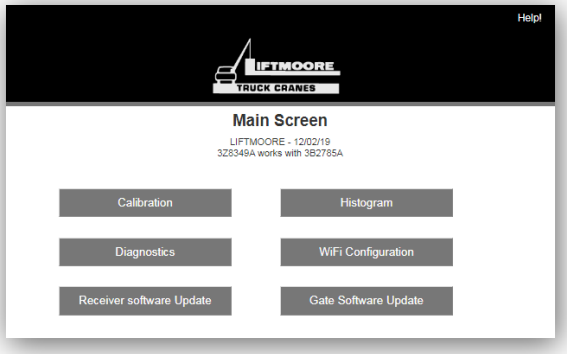
ACCESSING THE CONTROL PANEL

1. Turn on the power to the receiver.
2. Use your device and look for the available WiFi networks. A network under the name of "LIFTMOOREXXXXXXXXXX" should be available at this point.The "XXXXXXXXXX" should be the 10 digit numeric serial # on the crane WIFI receiver. Connect to the network, if required password is 3B2785A1.
3. Once the connection is established, open a web browser on your device. The Chrome browser is recommended.
4. Enter the address http://192.168.1.1 in the address bar



Address Bar

5. If the Gate is not used for 5 minutes after power up it will automatically turn off. Recycle power to the receiver to turn it back on.
6. The following options are available from the main screen.

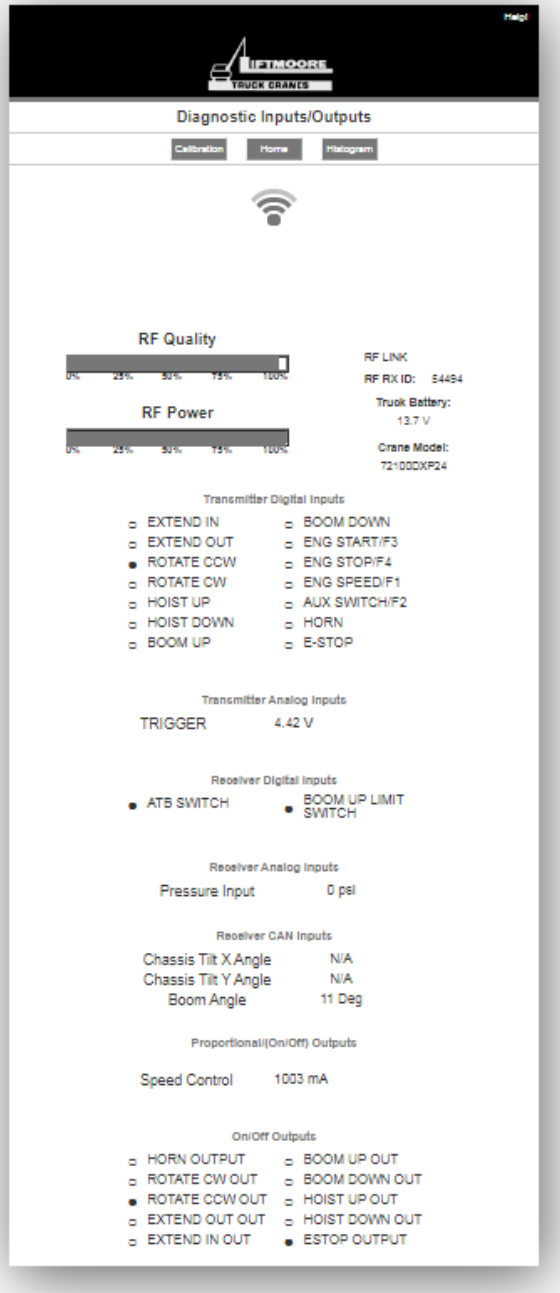


Main Screen

DIAGNOSTICS

Tap the `Diagnostic` button to see the diagnostic screens, which shows the present state of remote communications, and system I/O.

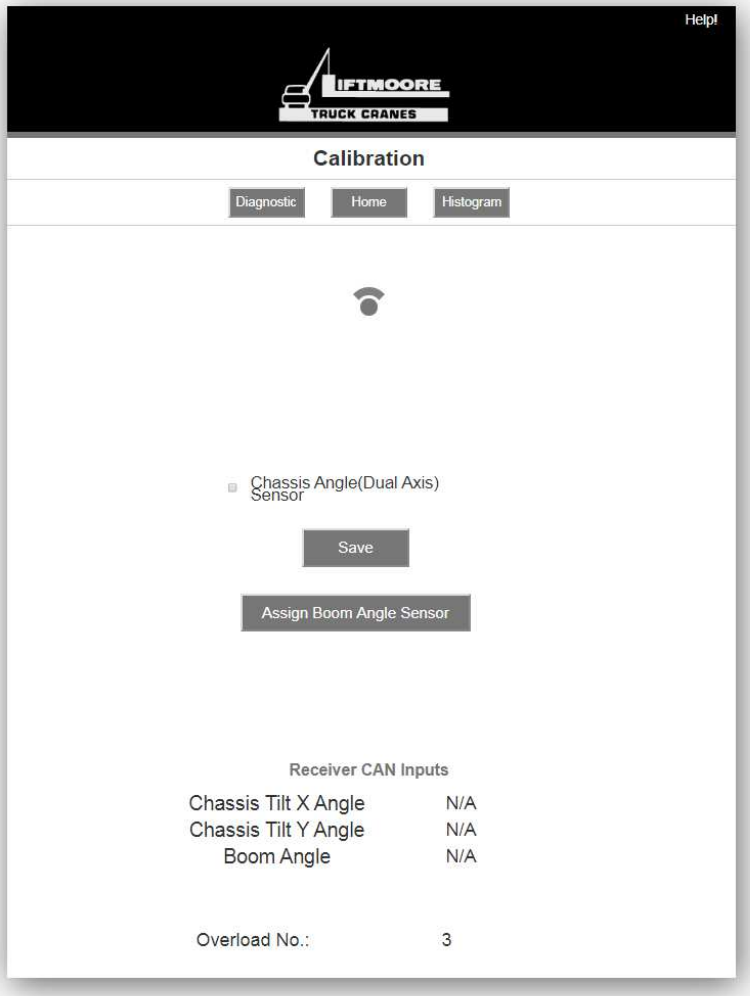
When the round circle next to a label is dark, the corresponding ON/OFF input or output is sensed to be active or ON.



Diagnostics

CALIBRATION

To change the configuration of the unit, tap the `Calibration` icon.



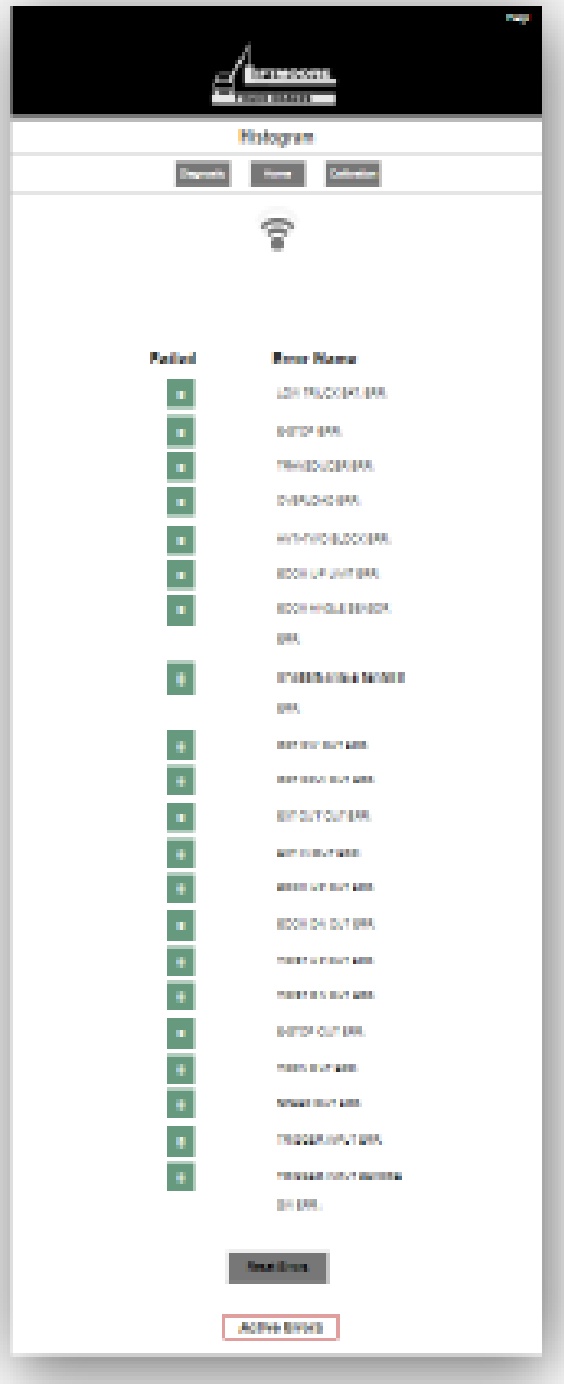
End user Calibration
Page Password = 1713

HISTOGRAM

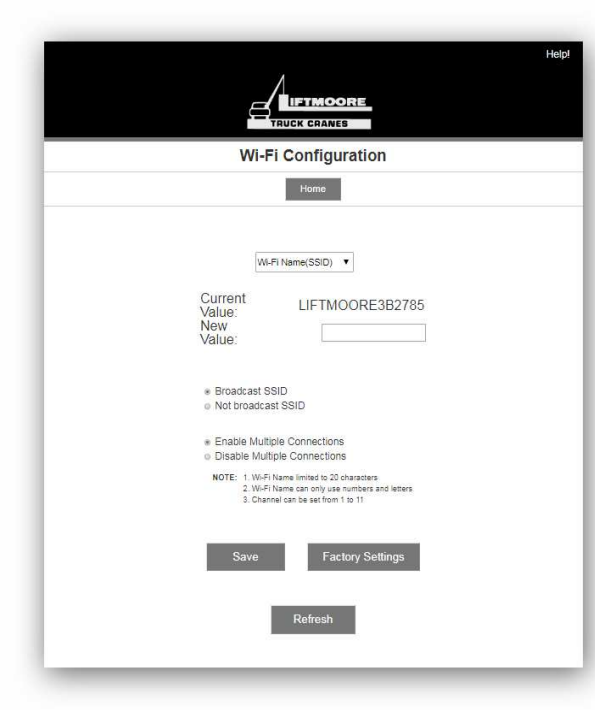
Tap the `Histogram` icon to see a set of screens that show which error codes are active and how many times the specific error code has been active.

This feature can be used to troubleshoot machine wiring and other problems. Tapping the `Reset` button resets the error code counts. The password to reset error codes is (*Contact Liftmoore Inc.*). Tap the `Home` button to return to the main menu.

Note: the GATE is not a precision measurement instrument. There may be delays.



Histogram Page



Gate Configuration Page

GATE CONFIGURATION

The password to gain access to the gate configuration page is (*Contact Liftmoore Inc.*).

This page allows you to change the name (SSID) of the Wi-Fi network you are connecting to. Factory settings will rename the Wi-Fi to its original name.

If Broadcast SSID option is selected, the Wi-Fi name (SSID) is public and it will be visible to any other Wi-Fi devices. Otherwise, the Wi-Fi name (SSID) is hidden and it would require manual connection to the network.

If Enable Multiple Connections is selected, multiple connections up to 4 devices could be connected to the GATE. However, only one of the connected devices can use the GATE. If Single connection is enabled, only one device can be connected to the GATE.

NOTE: A reconnect to the new Wi-Fi connection is needed after each change. It is advised to keep a note of the Wi-Fi name in case if Not Broadcast SSID option is selected. Forgetting the Wi-Fi name after selecting this to be sent to KAR-TECH for RESET .

WIRING CRANE RECEIVER

P1 - DEUTSCH DTM13-12PA, GRAY

PIN	DESCRIPTION
1	GROUND
2	CANH
3	CANL
4	N/C
5	N/C
6	BOOM PRESSURE 4-20mA INPUT
7	ANTI-TWO-BLOCK SWITCH INPUT
8	N/C
9	N/C
10	PROPORTIONAL SPEED CONTROL OUTPUT
11	HORN OUTPUT
12	POWER (9-30V)

P2 - DEUTSCH DTM13-12PB, BLACK

PIN	DESCRIPTION
1	ROTATION CW OUTPUT
2	ROTATION CCW OUTPUT
3	EXTEND OUT OUTPUT
4	EXTEND IN OUTPUT
5	BOOM UP OUTPUT
6	BOOM DOWN OUTPUT
7	HOIST UP OUTPUT
8	HOIST DOWN OUTPUT
9	N/C
10	E-STOP OUTPUT
11	N/C
12	BOOM UP LIMIT SWITCH INPUT

WIRING ENGINE RECEIVER

DEUTSCH DTM13-12PA

PIN	DESCRIPTION
1	GROUND
2	N/C
3	N/C
4	N/C
5	ENGINE SPEED SELECT DIGITAL INPUT
6	N/C
7	N/C
8	AUXILIARY OUTPUT
9	ENGINE START OUTPUT
10	ENGINE STOP OUTPUT
11	ENGINE SPEED OUTPUT
12	POWER (9-30V)

TRANSMITTER PORT

A POWER
B GROUND
C CAN HIGH
D CAN LOW
E NO CONNECTION

WIRING TILT AND ROTATIONAL SENSOR

DT04-4P-E008 CON/ KT PN: 055-157-0402	
PIN	DESCRIPTION
1	POWER 9-30V
2	GROUND
3	CAN HIGH
4	CAN LOW

ROUTINE MAINTENANCE

Clean transmitter regularly with a damp cloth and mild detergent.

Inspect electrical wiring for wear points or other damage. Repair as required.

Inspect all connections for looseness or corrosion. Tighten and/or "seal" as necessary.

Guider pendants that include a trigger control should be cleaned periodically by blowing air around the trigger area to remove any debris that would prevent proper operation. Apply a light machine oil to the point of rotation when clean.

MAINTENANCE PRECAUTIONS

When performing any inspection or maintenance work on the remote system, always exercise care to prevent injury to yourself and others or damage to the equipment. The following are general precautions, which should be closely followed in carrying out any maintenance work.

Do not have hydraulic power available to the valves when performing electrical tests.

Never operate or test any function if any person is in an area where they could be hurt by being hit or squeezed by the hydraulic equipment.

Turn power off before connecting or disconnecting valve coils or other electrical loads.

TROUBLESHOOTING

This next section provides basic operator level troubleshooting for the GUIDER REMOTE system. If, after following these instructions, the system still does not function, contact your sales representative for further instructions or servicing.

TROUBLESHOOTING CHART

PROBLEM	***SOLUTION***
No functions work	1. Verify transmitter power source – battery, CAN cable, external supply, etc 2. Verify that receiver control module power source is present at its input connector 3. Check for proper system ground 4. Check the receiver or control module LED status display for functionality or errors 3. Check the hydraulic system 4. Check to see if the crane receiver has sufficient cooling.
Certain functions do not work	1. Check the wiring and connections from the receiver control module to the control module to the valve coil for the particular function that does not work 2. Check the receiver control module LED status display for possible fault or error indication 3. Check the hydraulic system 4. Check the electrical system 5. Check to see if the crane receiver has sufficient cooling.
Functions operate intermittently	1. Check for loose connections at the valve coil 2. Check the receiver control module LED status display for functionality or errors 3. Check the receiver antenna for damage

	and possible obstructions 1. Check the hydraulic system 2. Check to see if the crane receiver has sufficient cooling.

ERROR CODES CRANE RECEIVER

Receiver Display	Error Code	Transmitter Display
NOLK	RF Communication Error	RF signal will show red x
WiFi	WiFi Linked to Device	N/A
RLV	Low Truck Battery Error	Truck low batt err
ESTP	E-STOP Condition	E-STOP mode err
XDCR	Transducer Error	Transducer err
OVLD	Overload Condition	Overload err
ATB	ANTI-TWO-BLOCK Condition	ANTI-TWO-BLOCK
BLMT	BOOM UP LIMIT Condition	Boom limit err
BSNS	BOOM (Rotate) Sensor Error	Boom angle sens err
CSNS	CHASSIS (Tilt) Sensor Error	Tilt sensor err
EC01	ROTATE CW Output Error	Rotate CW err
EC02	ROTATE CCW Output Error	Rotate CCW err
EC03	EXTEND OUT Output Error	Extend out err
EC04	EXTEND IN Output Error	Extend in err
EC05	BOOM UP Output Error	Boom up err
EC06	BOOM DOWN Output Error	Boom down err
EC07	HOIST UP Output Error	Hoist up err
EC08	HOIST DOWN Output Error	Hoist down err
EC09	E-STOP Output Error	E-STOP out err
EC10	HORN Output Error	Horn err
EC11	SPEED Output Error	Speed out err
EC12	TRIGGER Input Error	Trigger err
EC13	TRIGGER before Switch Error	Trigger start err
N/A	N/A	Chassis tilted

Error code explanations:

NOLK Transmitter is off
Transmitter went to sleep mode
Interference in RF communication link

RLV System voltage is below 11V (12V system)

ESTP E-STOP button is pressed on the transmitter

GUIDER REMOTE

XDCR No voltage present at pressure input or voltage is out of specified range (4-20mA)

OVLD Overload condition based on Gate setting is present

ATB Anti-Two Block condition present, ATB input is low

BLMT Boom Limit input active, BOOM LIMIT input is low

CSNS No CAN messages are being received from Tilt sensor. Check wiring

BSNS No CAN messages are being received from Rotational sensor. Check wiring

EC1-10 Short or open load/coil on output

EC11 Current at SPEED output is above rated current, output will turn off

EC12 No voltage present on trigger in transmitter

EC13 Trigger was pulled on transmitter before switch was activated

Chassis tilted - If the chassis is tilted over five degrees, all functions are reduced to slow speed. The following outputs will also be disabled: Boom Down, Hoist Up, and Extend Out.

ERROR CODES ENGINE RECEIVER

EC	POSSIBLE CAUSE
1	RF COMMUNICATION ERROR
2	ENGINE SPEED OUTPUT ERROR

Error code explanations:

1 Transmitter is off

Transmitter went to sleep mode

Interference in RF communication link

2 Short or open load/coil on output

PARTS LIST

PART NUMBER	*DESCRIPTION*
28790	RADIO TRANSMITTER
28792	CRANE RADIO RECEIVER
28793	ENGINE RADIO RECEIVER
28796	CAN ADAPTOR CABLE 25’
28794	SENSOR, PRESSURE,5K PSI, 4-20, 1/4-18 NPT, DT04-3P
20186	CHARGER, 12 VDC CIGARETTE LIGHTER PLUG
24510	FAST CHARGER SUPPLY, 110V AC WALL
28795	TILT SENSOR
28853	ROTATIONAL SENSOR

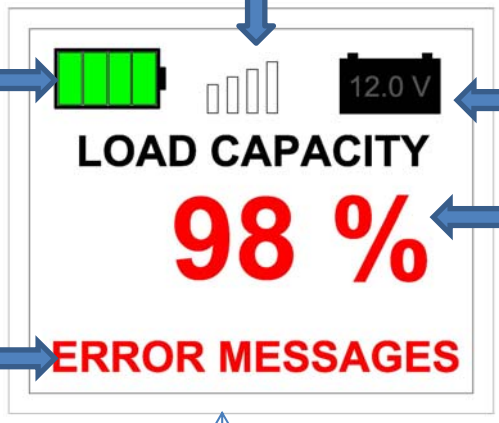
There are no user-serviceable parts inside the transmitter or the receiver. Return the units for service.

Note: For operation with negative ground systems only.

WARNING:

The GUIDER REMOTE must be operated in compliance with all applicable safety regulations, rules, and practices. Failure to follow required safety practices may result in death or serious injury.

TRANSMITTER PICTORIAL



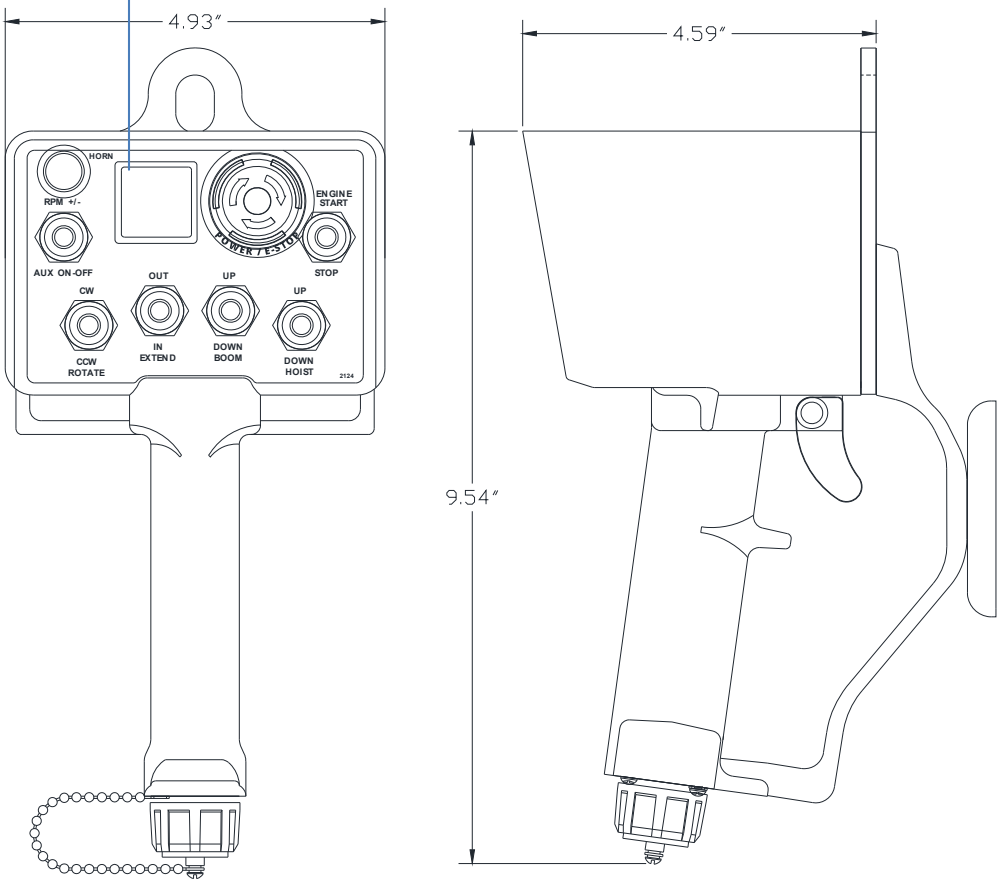
TRANSMITTER SIGNAL STRENGTH TO CRANE.

TRANSMITTER BATTERY LIFE.

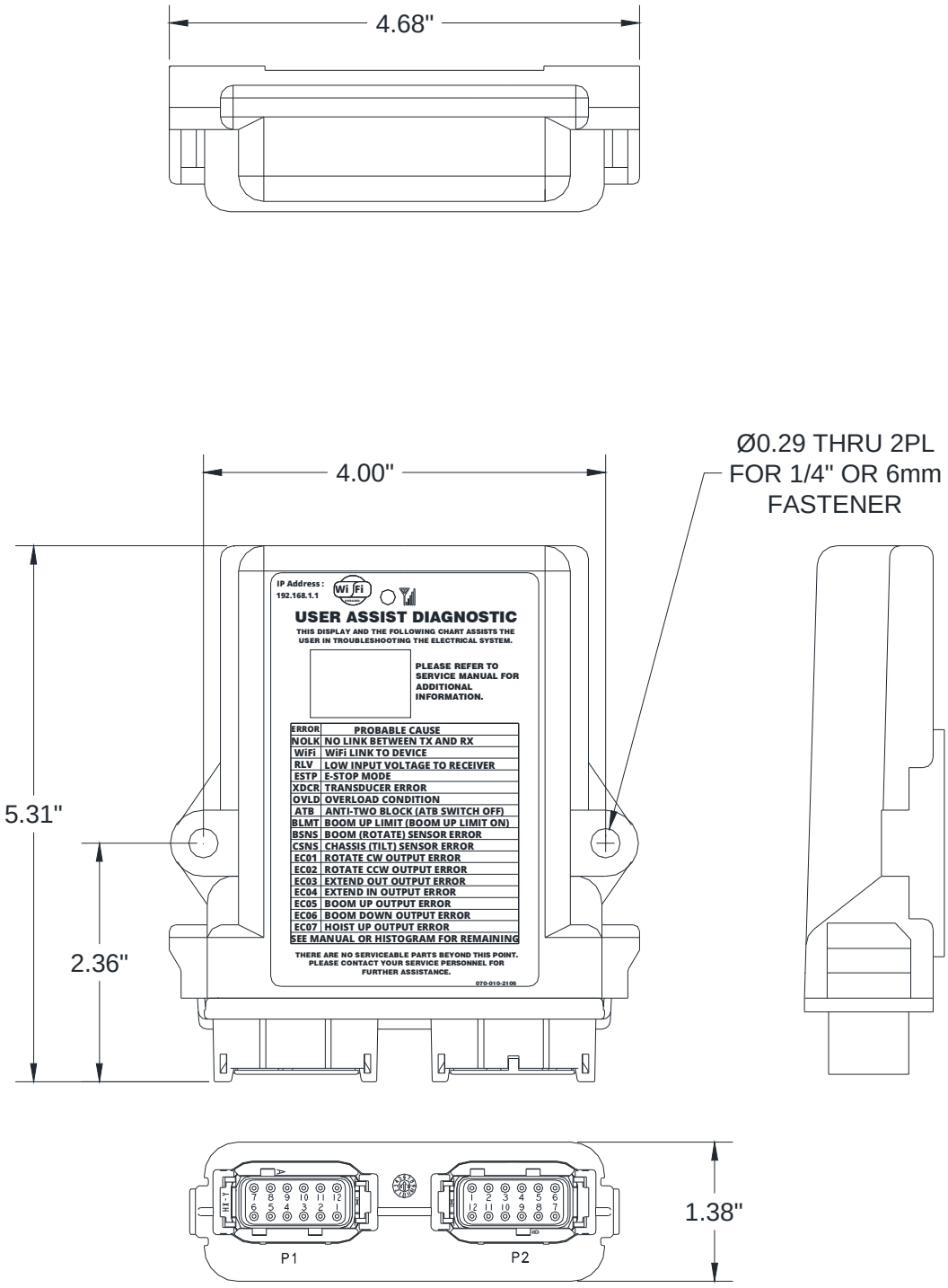
CRANE BATTERY VOLTAGE.

LOAD CAPACITY PERCENTAGE IS IN REFERENCE TO DECAL, LOAD CAPACITY CHART **(WHEN BOOM IS FULLY EXTENDED, INCLUDES ALL ANGLES).**

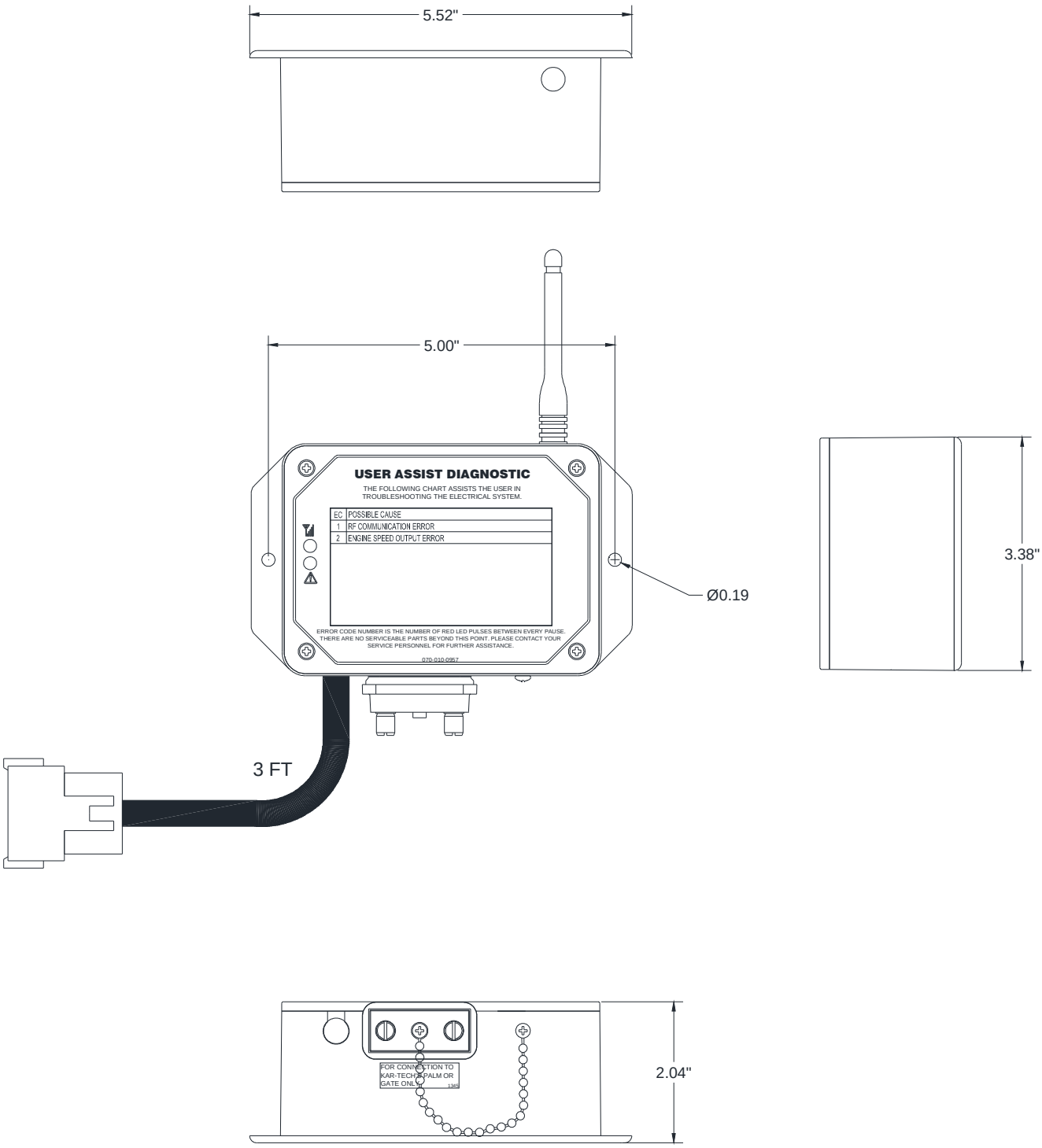
CRANE ERROR MESSAGE DISPLAY VOLTAGE **(SEE PAGE 28 FOR ERROR CODES).**



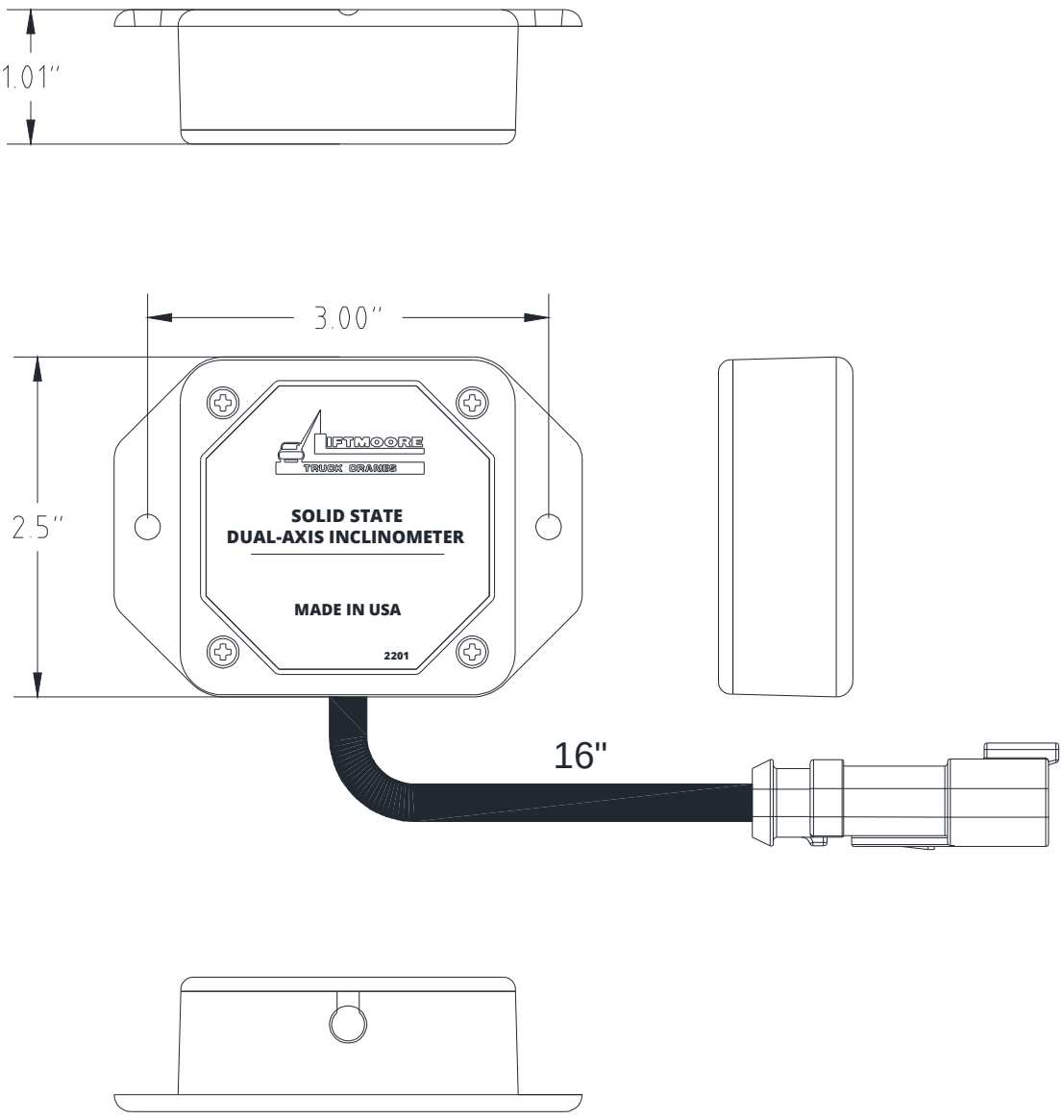
CRANE RECEIVER PICTORIAL



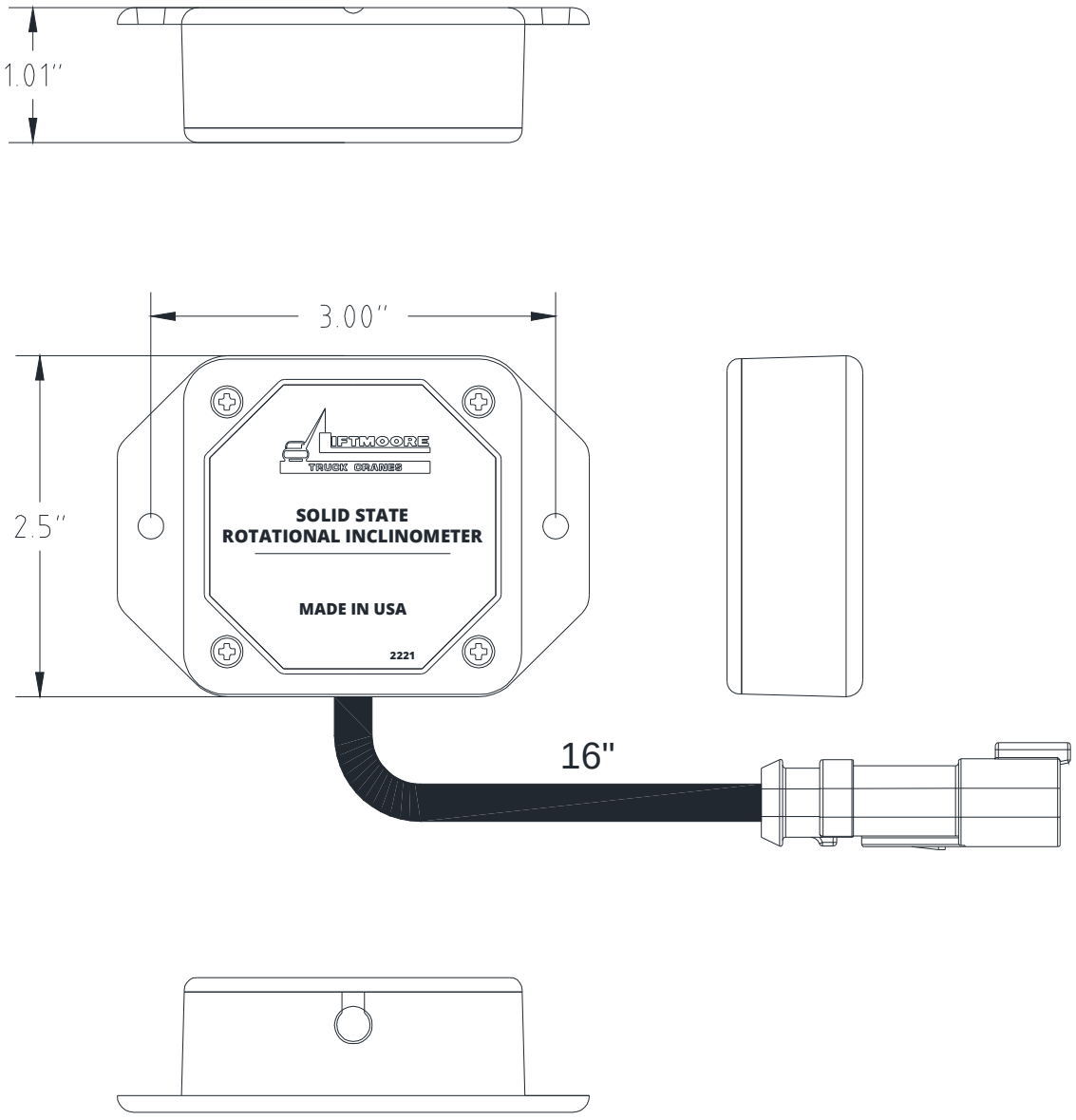
ENGINE RECEIVER PICTORIAL



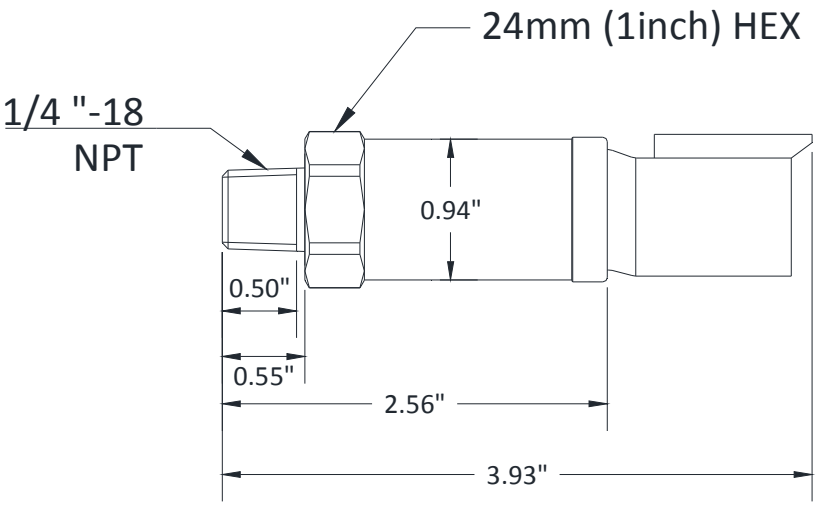
TILT, CHASSIS SENSOR PICTORIAL

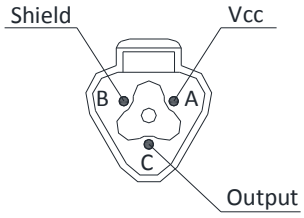


ROTATIONAL, BOOM SENSOR PICTORIAL



PRESSURE SENSOR PICTORIAL





Parameter	
Pressure Range	0~5000psi
Pressure Connection Type	NPT1/4
Electrical Connection	DT04-3P
Supply Voltage	10~36VDC
Output Signal	4~20mA
Accuracy	±0.5%F.S
Pressure cycle	$>10^8$
Overload Pressure	2X
Burst Pressure	10X
Long-term stability	±0.25F.S/Year
Working Temperature	-40~125?
Ingress protection	IP65

SPECIFICATIONS

FCC ID: P4U-MOD164
Industry Canada Certification Number: 4534A-MOD164
EQUIPMENT CLASS: PART 15 SPREAD SPECTRUM TRANSMITTER

TRANSMITTER

Power supply ..... 3.7V Li-Ion Rechargeable Battery
Fast charger temperature range ..... +5˚C to +60˚C
Operating temperature - Radio ..... -40˚C to +85˚C
Storage temperature ..... -40˚C to +100˚C
RF Frequency ..... 902-928 MHz
RF Transmit power (EIRP) ..... 100 mW
LCD display operating range (if equipped) ..... -20˚C to +70˚C
Vibration ..... 3G to 200Hz
Shock 50G
NEMA 12

RECEIVER

Power supply voltage 9-30VDC
Operating temperature ..... -40˚C to +85˚C
Storage temperature ..... -40˚C to +100˚C
Outputs ..... 5.0A max each, sourcing, 20A system max
Digital Inputs (when equipped) ..... supply voltage
Analog Inputs (when equipped) 0-5VDC/4-20mA
RF Frequency ..... 902-928 MHz
Vibration ..... 3G to 200Hz
Shock 100G
NEMA 4X

INSTRUCTION TO THE USER

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient or relocate the receiving antenna.

* Increase the separation between the equipment and receiver.

* Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

* Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

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LIFTMOORE
TRUCK CRANES

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SAFETY SYSTEM

The safety system is designed to help prevent damage to the crane that would be caused by overload or two-blocking. The system consists of a load sensor, anti-two block device (optional on smaller, electric cranes), and limiting system control board.

When the applicable switch detects an overloading or two-block condition, the limiting system will prevent activation of winch up, and extend out since these directions would cause damage. Winch down, boom down, boom up, extend in, and power rotation will still function so that the crane can be moved to a safe configuration.

CAUTION!

Never de-activate or override safety functions. Doing so can result in serious damage to the crane and possibly injury or death.

LOAD SENSOR

A pressure activated switch in the elevation cylinder acts as a load sensor. This switch is normally closed and opens at the preset pressure corresponding to the load rating of the crane.

CAUTION!

The load sensor will not function when the elevation cylinder is fully retracted and is inaccurate when the boom is below horizontal.

CAUTION!

The operator must never rely strictly on the load sensor to determine overload conditions. The load and load limits must always be known and adhered to.

ANTI-TWO BLOCK

The anti-two block device (optional on smaller electric cranes), mounted on the boom crown plate, consists of a normally open switch actuated by a lever. A weight is attached to the lever and holds the switch closed. If the weight is lifted by the hook or travel block the switch opens.

The power and signal wires are wired through the cord reel, which is in turn wired to the ATB switch.

LIMITING SYSTEM CONTROL

Two systems are included to limit crane overloads and wire rope breakage. When a crane overload occurs, the load sensor will stop winch up, extension out and boom down. To prevent breaking the wire rope, the Anti Two-Block device stops winch up and extension out when either is engaged.

The capacity of boom up is limited by the pressure setting of the relief valve in the manifold.

There is a one second delay before the deactivation of boom down when the load sensor is tripped to prevent false readings caused by pressure spikes.

MISCELLANEOUS

UP LIMIT SWITCH

The up limit switch prevents the elevation cylinder from reaching full extension. If the elevation cylinder were to “dead-head”, the resulting pressure would activate the load sensor, preventing boom down. The boom would then have to be lowered using the manual operation buttons on the solenoid valves.

CIRCUIT BREAKER, FUSE

For electric cranes a 150 Amp circuit breaker is supplied with the crane. It should be installed as close to the battery as possible. For hydraulic cranes a 10 Amp blade type fuse is supplied.

DISCONNECT SWITCH

A power disconnect switch is supplied with the crane. Power to the crane should be turned off whenever not in use. This is to prevent inadvertent or unauthorized use and will help prevent corrosion at electrical connections.

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HYDRAULIC SYSTEM

Sterling HYD Proportional

The hydraulic system consists of the hydraulic swivel, manifold with solenoid valves, and actuators (cylinders, motors) Hydraulic power is received from an external hydraulic source, typically a PTO driven pump attached to the vehicle transmission. The hydraulic manifold is plumbed in series and uses open center valves so that more than one function can be operated simultaneously.

SWIVEL

The hydraulic swivel is a two-port swivel that allows continuous, unlimited rotation. Refer to drawing for more information.

MANIFOLD

The hydraulic manifold contains the system relief valve, proportional flow control valve, and a directional control valve for each function.

The system relief valve prevents damage that would be caused by over pressurizing the system. It is a cartridge type valve located at the pump port of the manifold.

The proportional valve is an electrically operated flow control valve. Regulated flow is directed to the manifold while excess flow is returned to tank. Before activation, all flow is returned directly to tank, minimizing heat build up. During operation the flow is regulated proportionally to the input voltage(1) allowing the operator to control the speed of the crane. The valve cracks at approximately 2V and allows approximately 6-8 GPM at 6V Depending on crane model. A screw on top of the valve is used to manually operate the valve.

Each hydraulically operated function is controlled by a 4 way, 3 position open center solenoid valve. It is electrically operated and spring biased to center. A manual operation feature is also incorporated.

CYLINDERS

Hydraulic cylinders are double acting cylinders with integrally mounted counterbalance valves. This valve performs 3 functions:

- Controls the rate of decent when lowering the load.
- Keeps load from falling in the event of sudden loss of system pressure, such as when a hose bursts.
- Acts as a relief valve to prevent damage from induced load or thermal expansion.

It allows free flow to extend, then blocks flow until opened by pilot pressure to the retract port or when the relief pressure is reached.

Some cylinders utilize a pilot operated check valve on the retract port to prevent the cylinder from creeping out under no load conditions. This valve allows flow into, but prevents flow from the retract port, thus hydraulically locking the cylinder until opened by pilot pressure to the extend port.

MOTORS

The hydraulic motors used by the rotation drive and hydraulic winch are high torque, low speed constant displacement motor.

(1) Technically, flow is directly proportional to amperage. Since the resistance is essentially constant, voltage is proportional to amperage. Within the accuracy required for this application, it can be said that the flow is directly proportional to the voltage

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MANUAL VALVE OPERATION

If electrical problems occur the proportional valve and function valves may be operated manually. Refer to the manifold drawing for valve location and directions.

To operate the crane, both the function valve and the proportional valve must be opened. If only the proportional system is not functioning, it will be easiest to manually set the proportional valve and operate the function with the pendant control. If the functions are not operating, it will be easiest to operate both the function valves and proportional valve manually.

To operate the function valves, pull the locking collar back to unlock it. The manual operation button my then be pushed or pulled depending on desired direction. The valve is spring bias to center so the function will stop when the manual operation button is released.

The proportional valve must also be opened for the crane to operate. It uses a screw type manual override that allows precise control of the speed. To set, operate a function valve, then turn knurled knob on the proportional valve counter-clockwise until the crane begins moving. Adjust until the desired speed is reached. When finished be sure to reset the valve by screwing the knob all the way in (clockwise).

CAUTION!

If the proportional valve is not reset the crane will operate without trigger input. This may result in unexpected motion of the crane, resulting in equipment damage or personal injury.

MANUAL LOWERING OF LOAD

WARNING!

The following procedure should be used in extreme cases only. Improper application of this procedure could result in injury or death.

WARNING!

The following procedure requires adjusting a safety valve. If the valve is not returned to the correct setting it may fail to hold a load, resulting in injury or death.

If hydraulic power is lost while a load is suspended, the load may be lowered by decreasing the setting on the counterbalance valve. This should only be done in extreme cases. The valve must be reset and tested before the crane is returned to normal use.

WARNING!

When the valve setting is decreased, the boom and cylinder may come done suddenly. Do not position yourself under the boom or position any part of your body between the cylinder and boom or between the cylinder and housing.

To decrease the setting, loosen the locknut on the valve, then **SLOWLY** turn the adjustment stem CLOCKWISE until the load begins to lower. Count the number of turns so that the valve can be immediately returned to its approximate setting.

Before the crane is returned to regular service, the valve must be precisely set and tested. Contact Liftmoore for exact setting and procedure information. The setting may be tested by lifting a known load near the moment rating.

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TROUBLESHOOTING THE PROPORTIONAL SYSTEM

If no functions work or if all functions are slow when controlled by the pendant, but work correctly when the manual operation button is pressed on the proportional valve then the problem is with the proportional electronic control system.

Proportional Valve Parameters

Cracking voltage	2.6V
Full open voltage	7.75V
Coil Resistance	3.66Ω

CHECK VOLTAGE AT VALVE

Have the engine running to generate sufficient voltage (13-14V). As the trigger is pulled the valve voltage should start near zero, jump to the valve cracking voltage after slight trigger travel, increase steadily as the trigger is pulled, reaching the full open voltage.

If the voltages are correct, check the resistance across the coil. If the resistance differs significantly from the nominal resistance replace the coil.

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DEUTSCH CONNECTIONS & PINS

P/N 30908
PLUG CONTROL 4-PIN

P/N 30635
4 PIN POLLACK

P/N 18753
PLUG 14 PIN DTCH

P/N 18751
SOCKET 14 PIN DEUTSCH

P/N 19916
DTCH 1P PLUG

P/N 19917
DTCH 1P RECPT

P/N 20322
DTCH 5P RECPT PLUG

P/N 20185
DTCH 5P RECPT PLUG
W/ 25' WIRE

FEMALE'S

P/N 19915 CONT. DTCH 20GA
P/N 18757 CONT. DTCH 16 GA
P/N 19918 CONT. DTCH 12 GA

P/N 19935
SEALING PLUG DTCH 20GA

P/N 21285
BUSS DTCH 12P RECPT12PB

P/N 19854
WEDGE DEUTSCH 12P PLUG

P/N 19853
DTCH 12P-B PLUG

MALE'S

P/N 20771 CONT. DTCH 20GA
P/N 18756 CONT. DTCH 16 GA
P/N 19919 CONT. DTCH 12 GA

P/N 18758
SEALING PLUG DTCH 16GA

P/N 19847
DTCH 2P PLUG

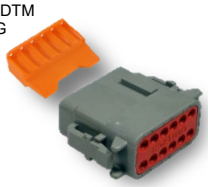
P/N 19846
WEDGE, DEUTSCH 2P PLUG

P/N 19848
WEDGE, DEUTSCH 2P RECPT

P/N 19845
DTCH 2P RECPT

P/N 19909
WEDGE DTCH DTM
12P-A PLUG

P/N 19908
DTCH DTM 12P-B PLUG



P/N 19907
DTCH DTM 12P-A PLUG

P/N 19857
DTCH 6P RECPT BUSS

P/N19850
WEDGE DTCH 6P PLUG

P/N19849
CONNECTOR, DTCH 6P PLUG

RED RING INSUL
P/N 18770 22-18GA #10

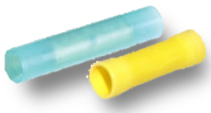
BLU RING INSUL
P/N 15802 14-16GA #8
P/N 15736 14-16GA #10
P/N 21478 14-16GA 0.25
P/N 15871 14-16GA 0.31

YEL RING INSUL
P/N 16781 10-12GA #8
P/N 16111 10-12GA 0.25
P/N 15771 10-12GA 0.31
P/N 26725 14-16GA .437

BRAZED RING
P/N 15837 4GA 0.31
P/N 15563 6GA 0.25
P/N 15148 6GA 0.31
P/N 15737 1/0GA 0.31

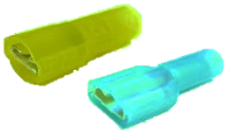
LUG RING
P/N 16915 #1GA 0.25
P/N 17063 #1GA 0.37
P/N 16922 #4GA 0.25
P/N 17064 #4GA 0.37
P/N 16923 #1/0GA 0.25
P/N 17062 #1/0GA 0.37

QUICK SPLICE
P/N 31407 14-18GA (TAN)
P/N 32141 18-22GA (RED)



BUTTED CONN
P/N 15565 14-16GA (BLU)
P/N 16110 10-12GA (YLW)

FUSE CONN.
P/N 19921 HOLDER 16GA
P/N 18456 15AMP BLADE



FEMALE TERM
P/N 15797 10-12GA (YLW)
P/N 15566 14-16GA (BLU)

MALE TERM
P/N 15838 10-12GA (YLW)
P/N 32118 14-16GA (BLU)

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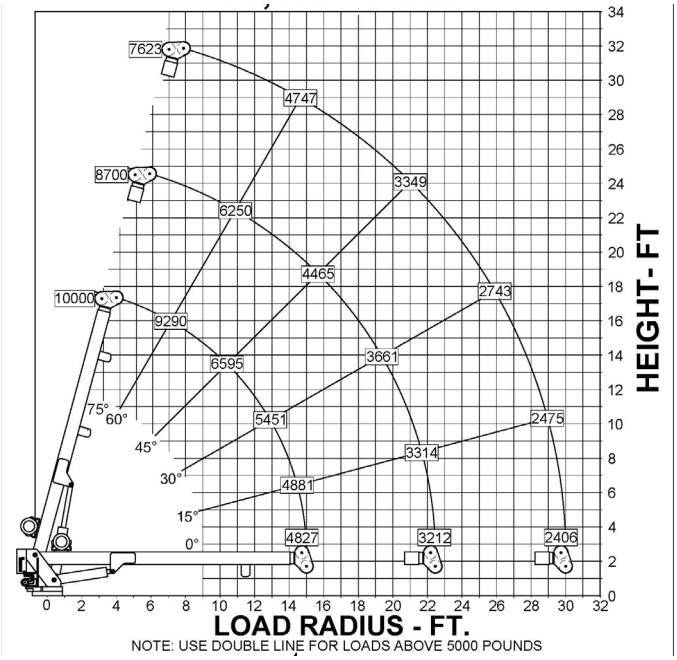
SECTION V
CRANE SPECIFICATIONS
MODEL 72100 CRANES

MOMENT RATING 72,000 FT-LBS

MAX SINGLE LINE LOAD 5,000 LBS
MAX DOUBLE LINE LOAD 10,000 LBS

LIFTING CAPACITIES AT VARIOUS LOAD RADII



POWERED FUNCTIONS AND EXPECTED TIMES

WINCH	UP:	14 s	DOWN:	16 s	1 REVOLUTION
BOOM ELEVATION	UP:	30 s	DOWN:	25 s	
BOOM EXTENSION	OUT:	54 s	IN:	44 s	
ROTATION	90°	11 s			

HYDRAULIC REQUIREMENTS

PRESSURE	2,900 PSI
FLOW	8 GPM

ELECTRICAL REQUIREMENTS

VOLTAGE	12 VDC
FUSE	15 AMP (REFER TO EWH DIAGRAM IN “PARTS” SECTION)
FUSE	30 AMP (REFER TO ELECTRICAL INSTALLATION IN “CRANE INSTALLATION INSTRUCTIONS” SECTION)

NOTE: FUNCTION TIMES ARE BASED ON THESE INPUT VALUES

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PERIODIC MAINTENANCE SCHEDULE MODEL 72100 CRANES		
BOLTS		
MOUNTING BOLTS	1.25-8 GRADE 8 TORQUE DRY 1545 FT-LBS	EVERY 4 MONTHS
BEARING BOLTS	5/8-11 GRADE 8 TORQUE DRY 175 FT-LBS	EVERY 4 MONTHS
LUBRICATION		
GREASE FITTINGS	SEE DRAWING 50048	EVERY OTHER WEEK
HYDRAULIC FLUID	STANDARD Chevron AW Hydraulic Oil 46 or equivalent SAE 15 weight oil COLD WEATHER AW 32 or equivalent SAE 10 weight oil	CHECK DAILY, FILL AS NEEDED
WINCH (DINAMIC OIL A55)	HLP ISO VG 46	EVERY MONTH
ROTATION GEARBOX	Sunco Prestige 740 EP or NLGI Grade 0	EVERY MONTH
BEARING (ZERK AND TEETH)	Oil Center Research PM 600 Military grease or equivalent NGLI Grade 2 grease	EVERY 6 HOURS OF OPERATION

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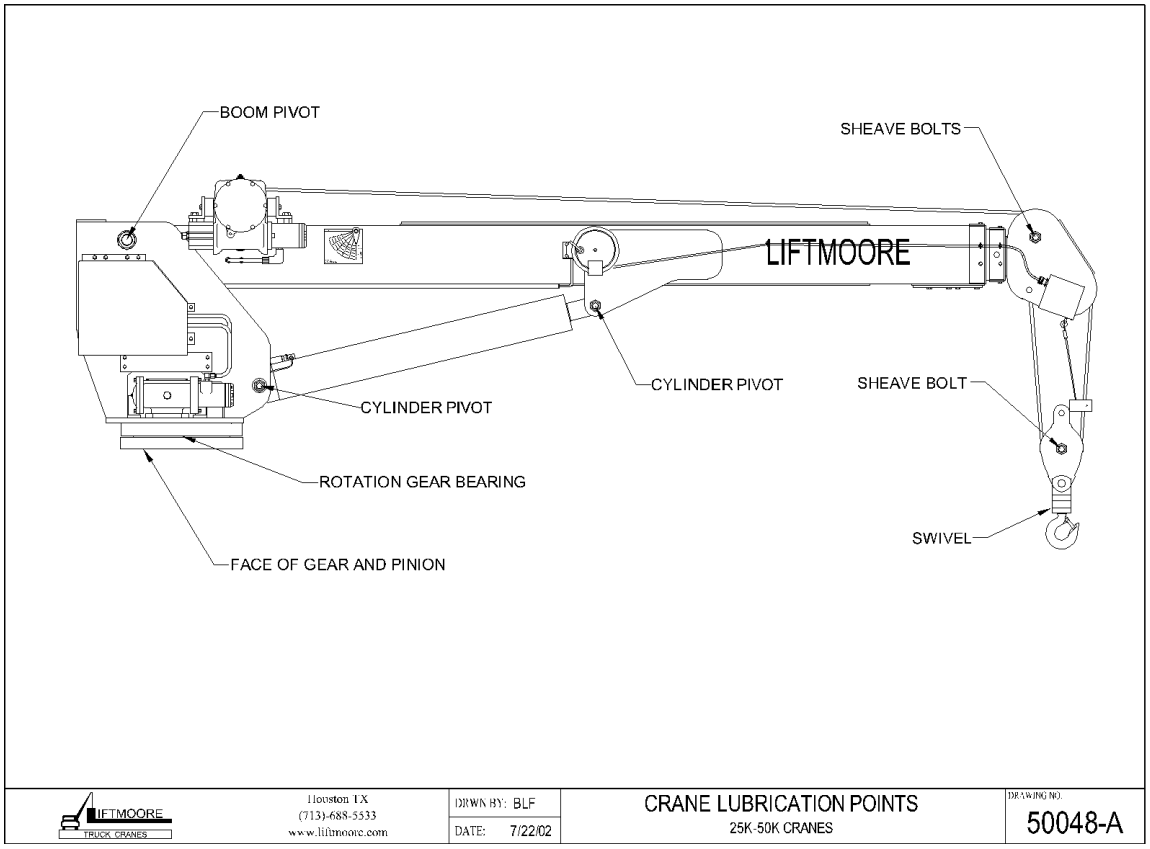

CRANE LUBRICATION POINTS

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LIST FOR BOX, CRANE PARTS 72100DX-30

Items with * have detailed DWG's.

P/N 29704 - BOX, CRANE PARTS 72100DX-30

1) P/N 29705 - MANUAL, CRANE 72100DX-30 WP…..……1pc
2) *P/N 29145 - BLOCK, TRAV ASSY 10K lbs/9.0D…… 1pc
3) P/N 19487 - CW, 10 GA X 300"……. 1pc
4) P/N 18457 - FUSE HOLDER, ATO 12GA SEALED……...…….. 1pc
5) P/N 21154 - FUSE, 30 AMP BLADE…..…… 1pc
6) P/N 32613 - ADAPTER, 8MJ-10MJ……...……. 1pc
7) P/N 17012 - SWITCH, TOGGLE SPST MAINT. /S ……. 1pc
8) P/N 17011 - BRACKET, SWITCH MNT. HYD. CRN.……. 1pc
9) P/N 16781 - TERMINAL, RING 10-12 GA #8…..……. 2pcs
10) P/N 17013 - PLATE, ON-OFF FOR TOGGLE SWCH. …….…… 1pc
11) P/N 18600 - PLATE, CRANE-TRUCK STABILITY CHART……... 1pc
12) P/N 23144 – LEVEL AND TAPE ASSEMBLY…….....1pc
13) P/N 30675 – COVER, TOGGLE SWITCH……..1pc
14) P/N 70053 – NUT, TOGGLE SWITCH…….…….…. 1pc
15) P/N 70054 – WASHER, LOCK TOGGLE SWITCH……...1pc
16) P/N 70055 – SCREW, MH FH 6-32 X 0.25……..2pcs
17) P/N 29410 – DECAL, LOAD CAPACITY 72,000……1pc

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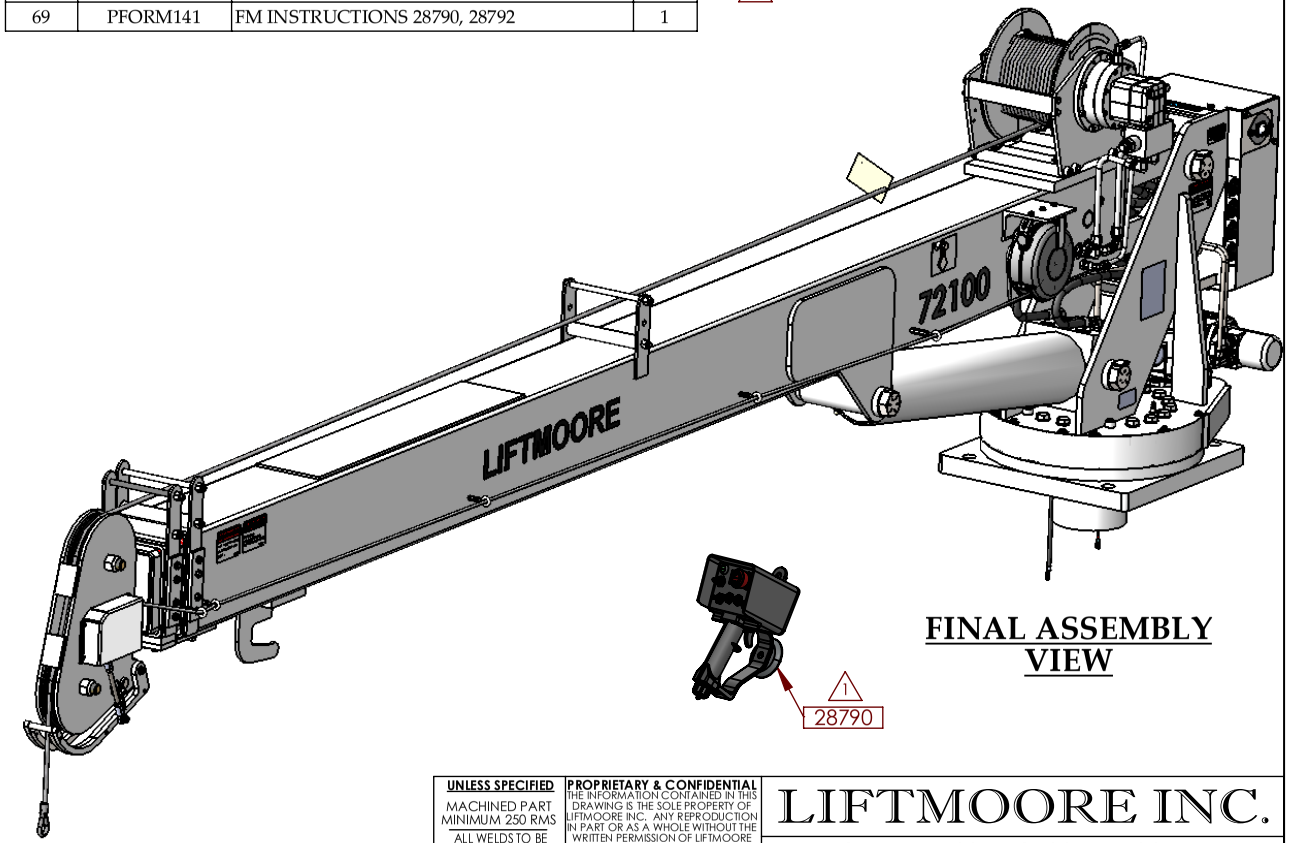
ITEM	PART NUMBER	DESCRIPTION	QTY
1	29702	BOOM-BODY ASSY 72100DXP-30	1
2	29515	EWH, DTCH HYD XP 72/60100 WP	1
3	29549	REEL, CORD 34 FT ASSY 4 WIRE	1
4	70052	BRACKET, CORD REEL ZECA	1
5	28703	NUT, HEX NYLOC 0.25-20 SS	3
6	29405	WASHER, FLAT 0.25 SS 316	3
7	28705	SCREW, HHC 0.25-20 X 1.00 SS	3
8	19845	CONNECTOR, DTCH 2P RECPT	1
9	19848	WEDGE, DEUTSCH 2P RECPT	1
10	22394	PENDULUM, LOAD RADIUS DIA. HD	2
11	31017	SCREW, SHOULDER 0.31-18 X 0.75	2
12	28690	WASHER, LOCK 0.25 316 SS	10
13	34069	SCREW, HHC 0.25-20 X 0.50 SS	10
14	32500	ADAPTER, CAPNUT #10	1
15	32499	ADAPTER, CAPNUT #8	1
16	28041	SCREW, SHEAVE SINGLE 1-8 4 MAC	2
17	30838	NUT, HEX NYLOC 1.00-8 GRADE 5	2
18	30936	ZERK, 0.25-28 STRAIGHT	2
19	31224	COVER, ZERK 1/4	2
20	24063	SHEAVE ASSY 8.09PD X 0.43 ROPE	2
21	19846	WEDGE, DEUTSCH 2P PLUG	1
22	19847	CONNECTOR, DTCH 2P PLUG	1
23	29752	NUT, HEX NYLOC 0.50-13 SS	6
24	21634	SCREW, HHC 0.50-13 X 8.50 GR5	2
25	21631	ROLLER, ROPE 4064 NYLON	1
26	29739	ROLLER, ROPE NYLON	2
27	29751	SCREW, HHC 0.50-13 X 9.50 SS	4
28	31948	CLIP, HAIRPIN 0.187 - 1.00	1
29	32658	PIN, CLEVIS 0.87 X 3.50 PLATED	1
30	24960	CLAMP, HOSE SUPPORT 0.25 ID	6
31	26582	SCREW, SOC HD 0.25-20 X 0.37SS	6
32	30889	WASHER, LOCK 0.25 GR5 PLATED	2
33	17164	SCREW, SOC HD 10-24 X 0.62 SS	10
34	25347	SCREW, SHOULDER 0.375 X 3.75	1
35	34256	NUT, HEX NYLOC 0.31-18 SS 304	1
36	32368	WASHER, FLAT 0.37 SAE 304SS	4
37	33424	BUSHING, 0.37 X 0.50 X 0.50L N	5
38	25144	LEVER, ATB ANTI-TWO BLK MACH.	1
39	25130	SCREW, SHOULDER 0.375 X 0.625	3
40	25152	SCREW, SHOULDER 0.313 X 2.25	1
41	33352	WASHER, FLAT 0.25 SS	1
42	25151	SPRING, COMPRESSION, 76LBS.	1
43	25128	ALL THREAD STUD 3/8-24 X 5.75"	1
44	26045	NUT, HEX 0.37-24 SS GR8	2
45	25129	BALL JOINT ROD END	2
46	29071	LEVER, ATB BAIL15.3 LT MACH	1
47	29072	LEVER, ATB BAIL 15.3" RT MACH	1
48	25345	SPACER, LEVER	1
49	29073	LEVER, BAIL SUPPORT 72,60 MACH	2

ITEM	PART NUMBER	DESCRIPTION	QTY
50	27132	SWITCH, LIMIT ATB ASSY 2W DTCH	1
51	32639	WASHER, LOCK #10 GR2 PLATED	2
52	26852	COVER, SMALL BAIL ATB	1
53	26909	SCREW, SOC HD 10-24 X 0.37	4
54	26910	WASHER, FLAT #10 316SS	4
55	23135	ADAPTER, 4FP-6FJ SWIVEL	1
56	23123	PRESSURE GAUGE, 0-3000 PSI	1
57	32533	ADAPTER, 90° 4MP-4FP	1
58	28794	TRANSDUCER, PRESSURE 5000 PSI	1
59	28963	SCREW, SOC HD 8-32 X 0.37 SS	2
60	17882	WASHER, LOCK #8 GR2 PLATED	2
61	28853	INCLINOMETER, BOOM ANGLE CAN	1
62	18310	DECAL, WARNING TAG -DO NOT EXT	1
63	24062	ROPE, WIRE 0.43 X 135' W/THMBL	1
64	21544	PLATE, SERIAL 72100-30	1
65	21546	DECAL KIT 72100X-30	1
66	25704	TAPE, REFLECTIVE 6"WHITE/6"RED 90" LG	4
67	29299	WASHER, LOCK 0.25 STAR SS	1
68	PFORM137	TEST SHEET 72100DXP-30 REV-0	1
69	PFORM141	FM INSTRUCTIONS 28790, 28792	1

NOTES

1. - ITEMS ARE LOCATED IN FM BOX PARTS.
2. - RUN CORD REEL AND INCLINOMETER WIRES THRU CLAMPS.
3. - APPLY VIBRA-TITE VC-3 TO THREADS.
4. - HAND TIGHT USING APPROPRIATE TOOL.
5. - TORQUE TO 5 FT-LBS.
6. - SEE PAGE 8 SCHEMATIC.
7. - APPLY TEFLON TAPE ON THREADS.
8. - INSTALL ITEMS # (66) ON TOP CORNERS OF 1ST & 2ND INNER BOOMS ON BOTH SIDES 2.75" & 1.00" RESPECTIVELY AWAY FROM THE BOOM EDGE.
9. - CONNECT GROUND WIRES.
10. - HAND TIGHT AND MAKE SURE SHEAVE SPINS FREELY.
11. - WIRE SEQUENCE: BROWN ⟷ PIN1
    BLUE ⟷ PIN2
12. - MAKE SURE TO GREASE ALL ZERKS.
13. - FROM PORT "E" ON ELEV. CYL. TO PORT "A" ON MANIFOLD.
14. - FROM PORT "R" ON ELEV. CYL. TO PORT "B" ON MANIFOLD.



FINAL ASSEMBLY VIEW

6-2

DESC: Corrected wiring schematic wiring, winch & elevation.	BY	NA	05/26/2021 REV B

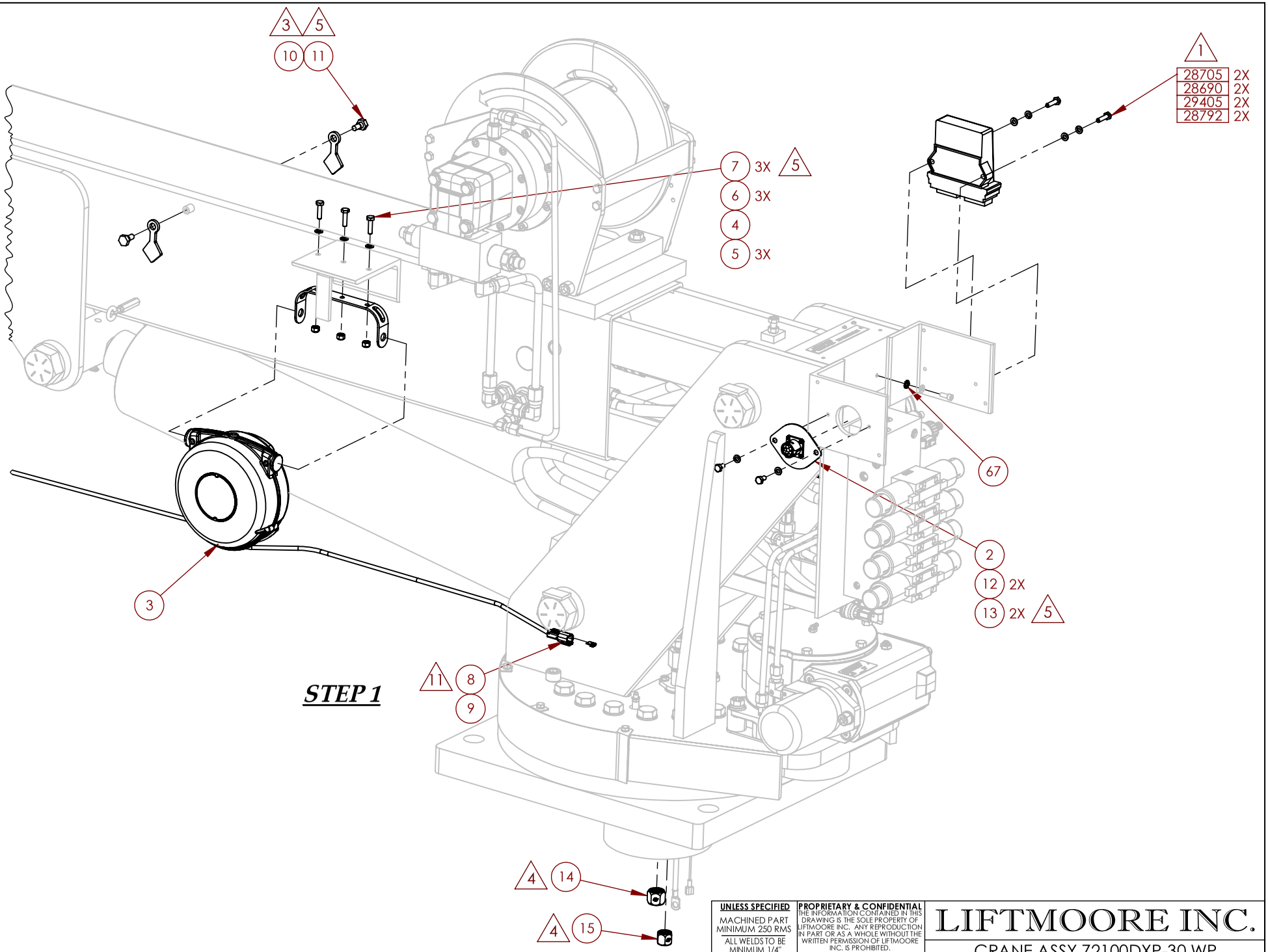
UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

THIRD ANGLE PROJECTION

LIFTMOORE INC.

CRANE ASSY 72100DXP-30 WP
DINAMIC OIL, PERFEC-GEAR, ZECA

DRAWN	NA	05/26/2021	DWG. NO.		REV
CHECKED	JE	05/26/2021	MTRL:	SHEET 1 - 8	29703 B
ENG APPR.	DP	05/26/2021	WEIGHT: 3075.000 Lbs		



STEP 1

DESC: Corrected wiring schematic wiring, winch & elevation.	BY	NA	05/26/2021	REV B			

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

THIRD ANGLE PROJECTION

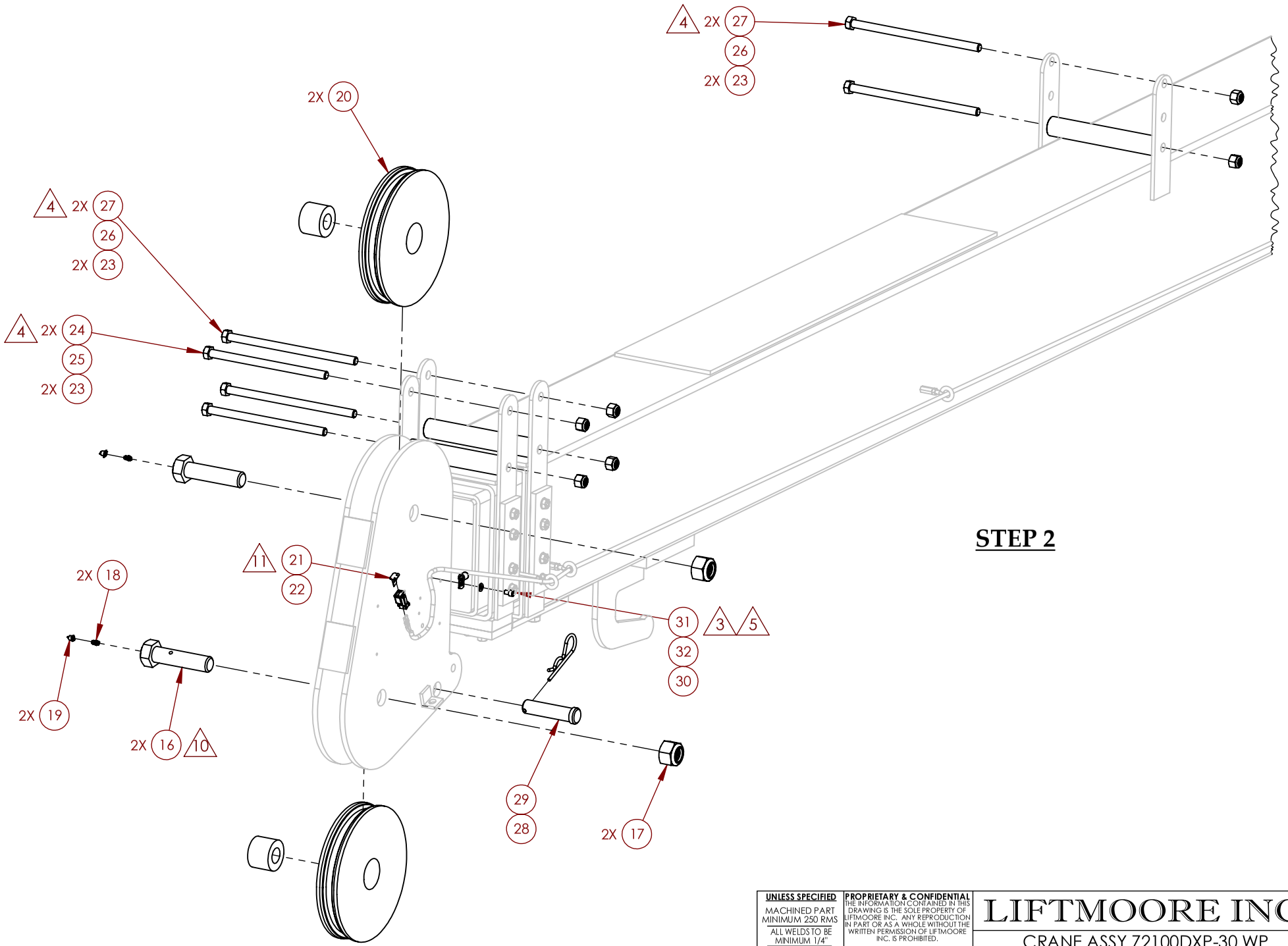
CHECKED	JE	05/26/2021
ENG APPR.	DP	05/26/2021

LIFTMOORE INC.

CRANE ASSY 72100DXP-30 WP

DINAMIC OIL, PERFEC-GEAR, ZECA

DRAWN	NA	05/26/2021	DWG. NO. 29703	REV B
MTRL:		SHEET 2 - 8		
WEIGHT: 3075.000 Lbs				



DESC: Corrected wiring schematic wiring, winch & elevation.	BY	NA	05/26/2021	REV	B	

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

THIRD ANGLE PROJECTION

CHECKED	JE	05/26/2021
ENG APPR.	DP	05/26/2021

LIFTMOORE INC.

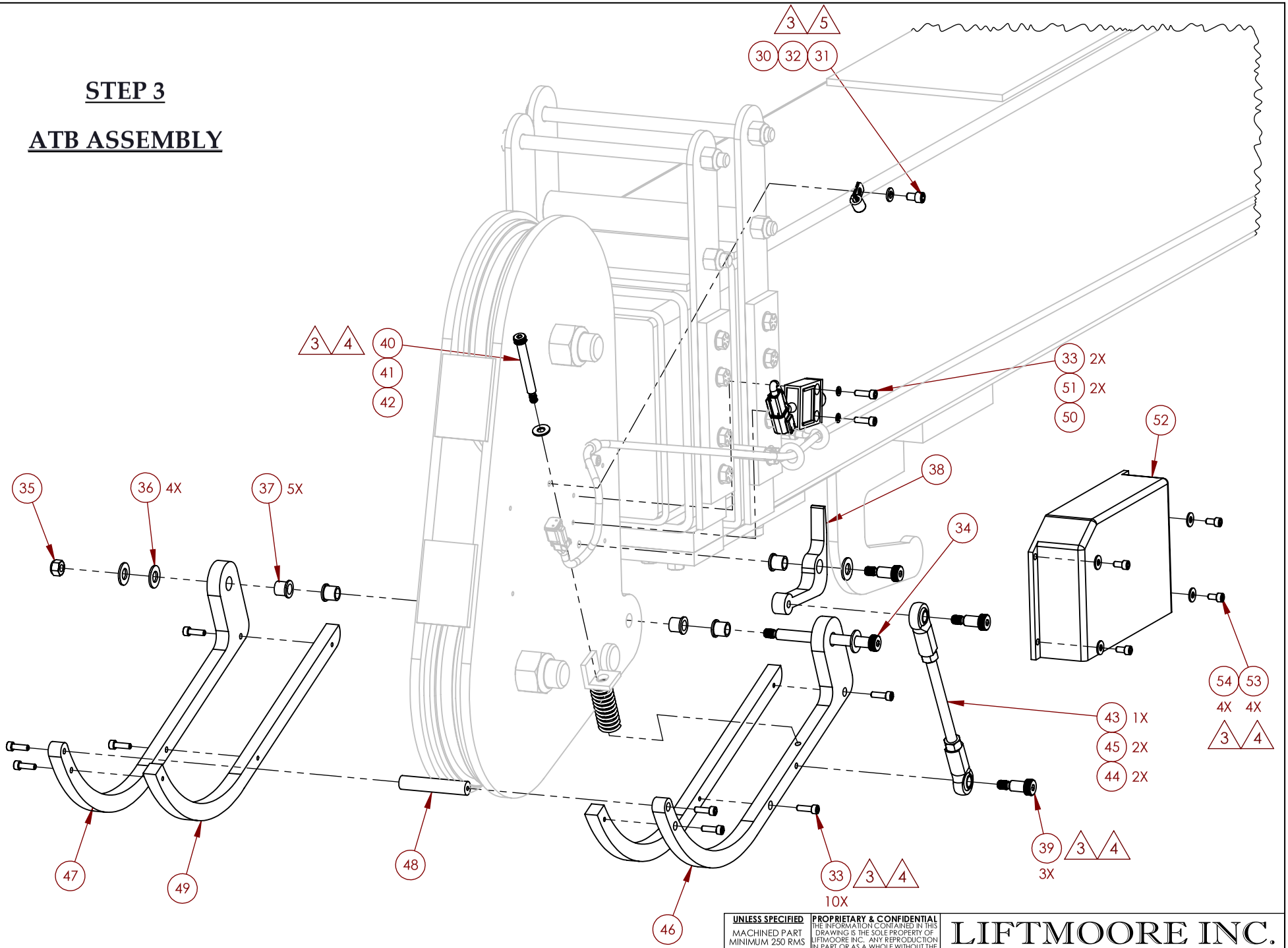
CRANE ASSY 72100DXP-30 WP

DINAMIC OIL, PERFEC-GEAR, ZECA

DRAWN	NA	05/26/2021	DWG. NO. 29703	REV B
MTRL:		SHEET 3 - 8		
WEIGHT: 3075.000 Lbs				

STEP 3

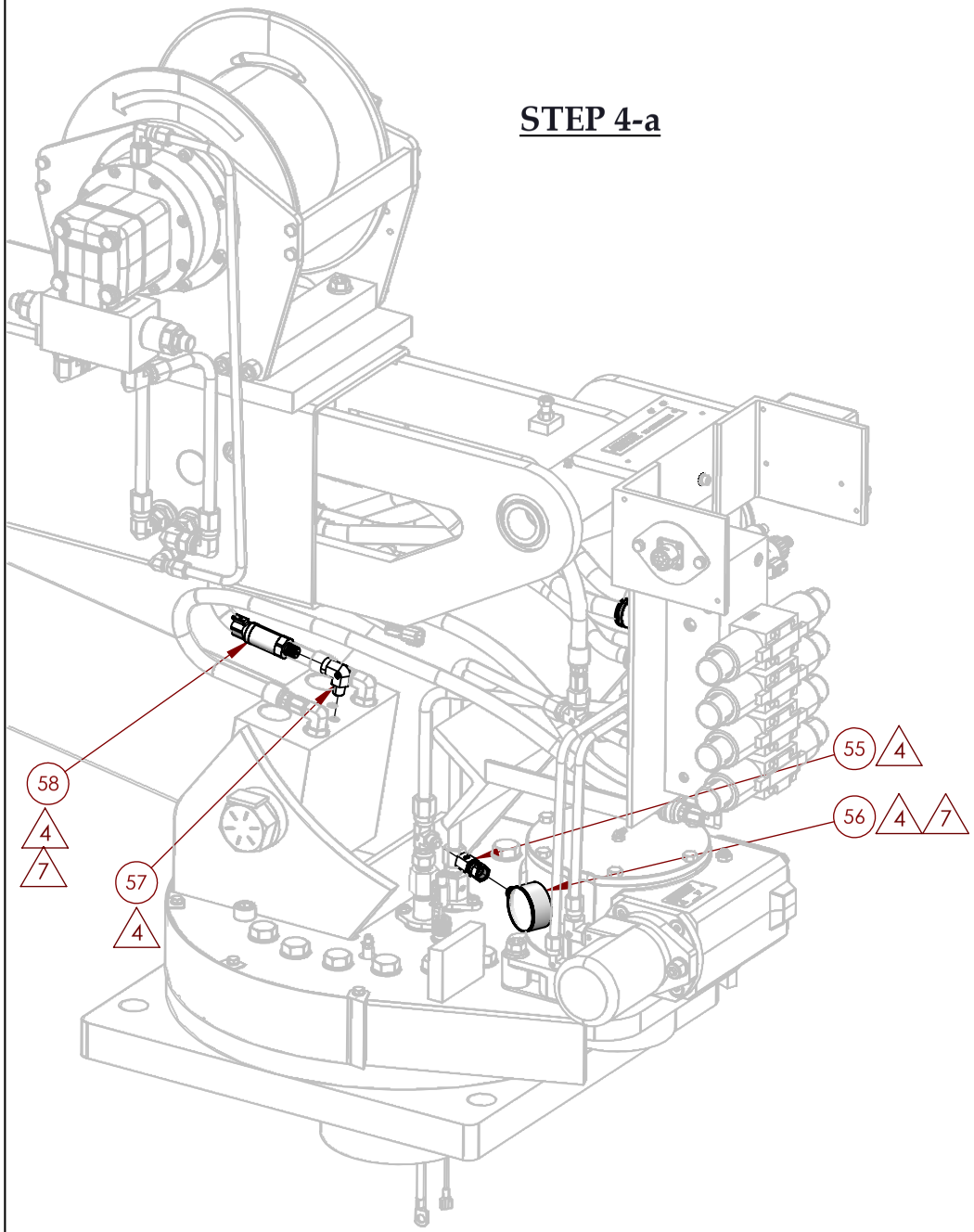
ATB ASSEMBLY



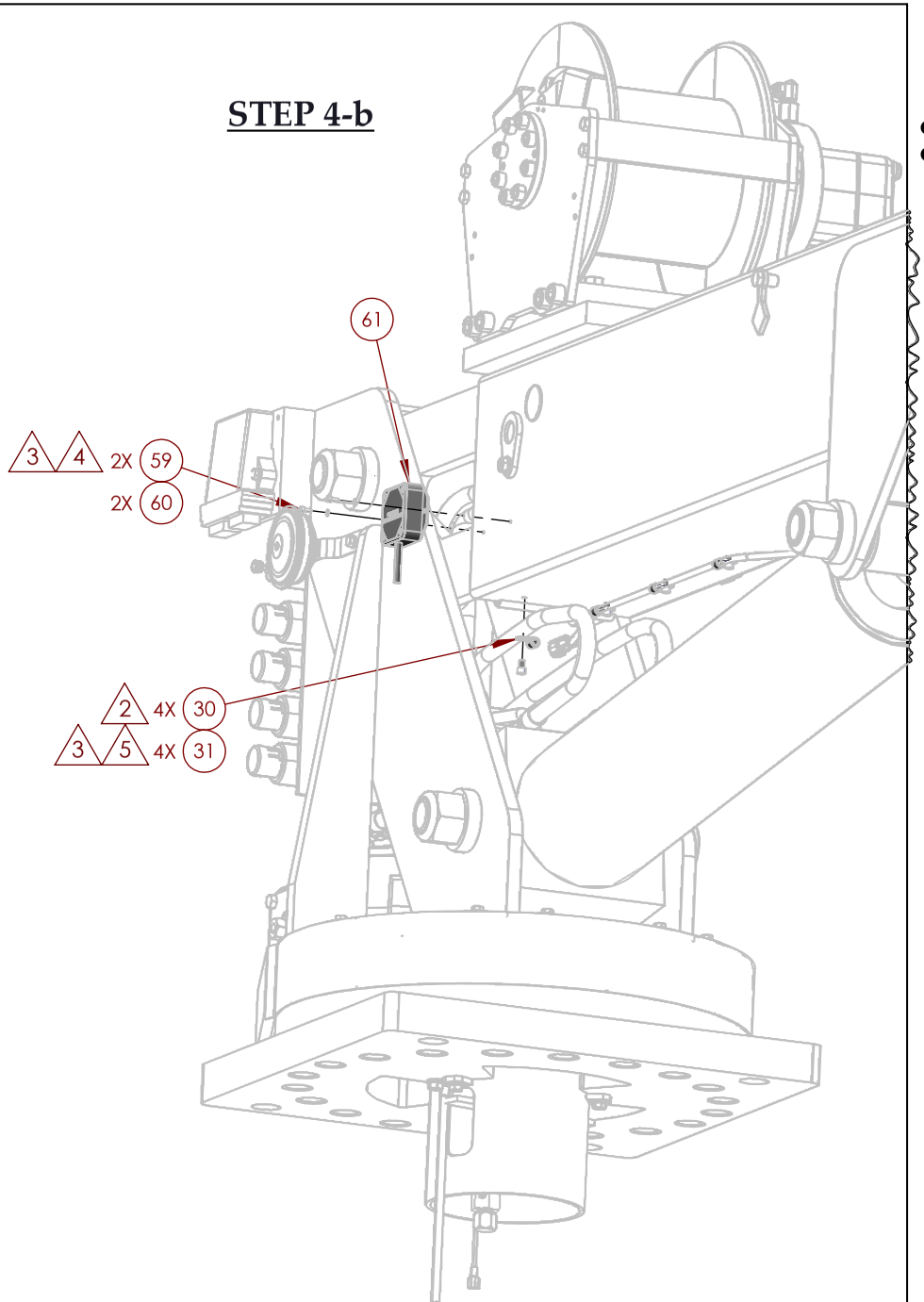
UNLESS SPECIFIED	PROPRIETARY & CONFIDENTIAL	LIFTMOORE INC.				
MACHINED PART MINIMUM 250 RMS ALL WELDS TO BE MINIMUM 1/4" DIM. TOLERANCES .XXX ± .005 .XX ± .030 .X ± .100 FRAC. ± 1/16 XX° ± .5°	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF LIFTMOORE INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF LIFTMOORE INC. IS PROHIBITED. THIRD ANGLE PROJECTION	CRANE ASSY 72100DXP-30 WP DINAMIC OIL, PERFEC-GEAR, ZECA				
		DRAWN	NA	05/26/2021	DWG. NO.	REV
		CHECKED	JE	05/26/2021	29703	B
		ENG APPR.	DP	05/26/2021	MTRL:	SHEET 4 - 8
					WEIGHT: 3075.000 Lbs	

DESC: Corrected wiring schematic wiring, winch & elevation.	BY	NA	05/26/2021	REV B

STEP 4-a



STEP 4-b



DESC: Corrected wiring schematic wiring, winch & elevation.	BY	NA	05/26/2021	REV	B	

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

THIRD ANGLE PROJECTION

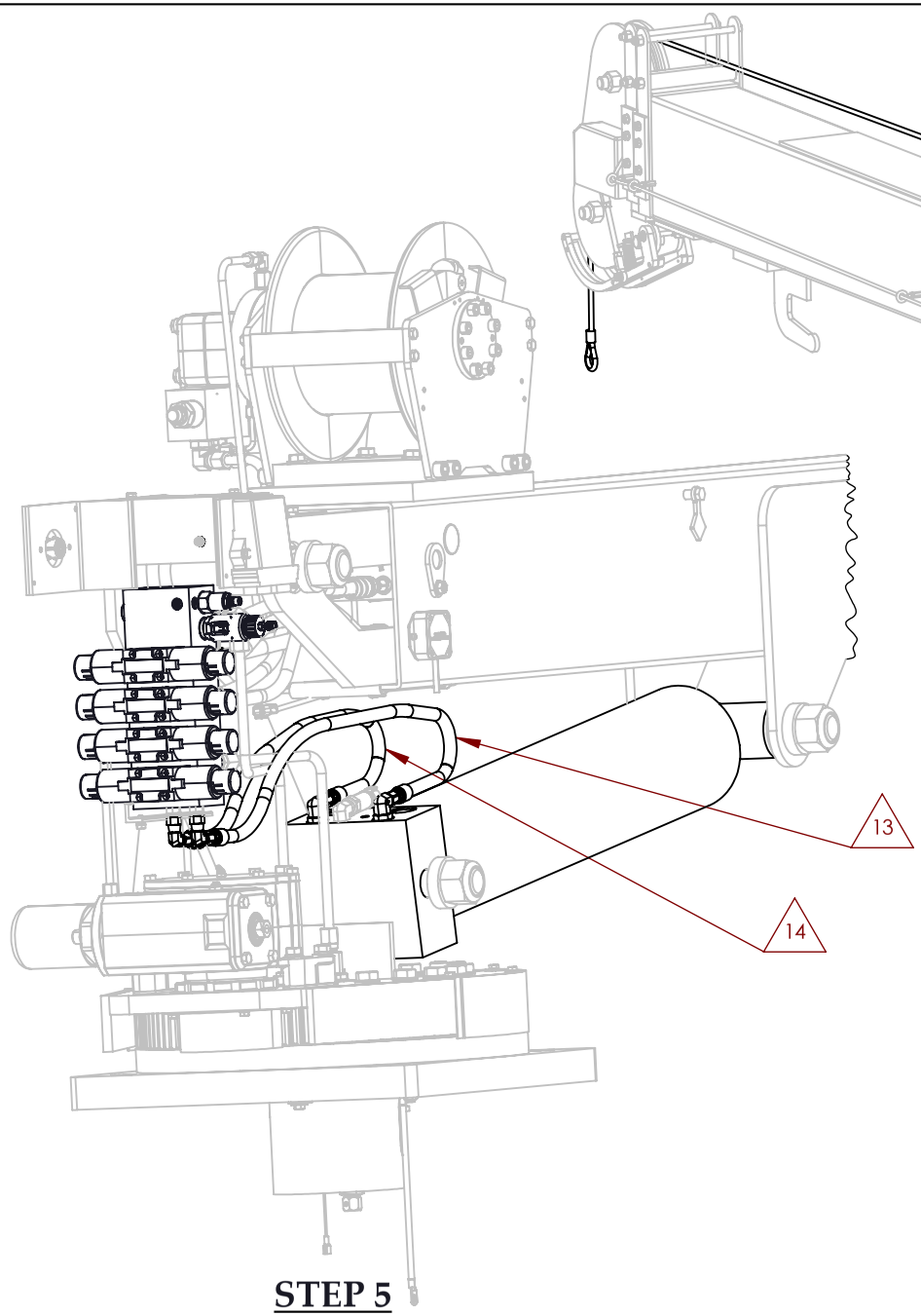
CHECKED	JE	05/26/2021
ENG APPR.	DP	05/26/2021

LIFTMOORE INC.

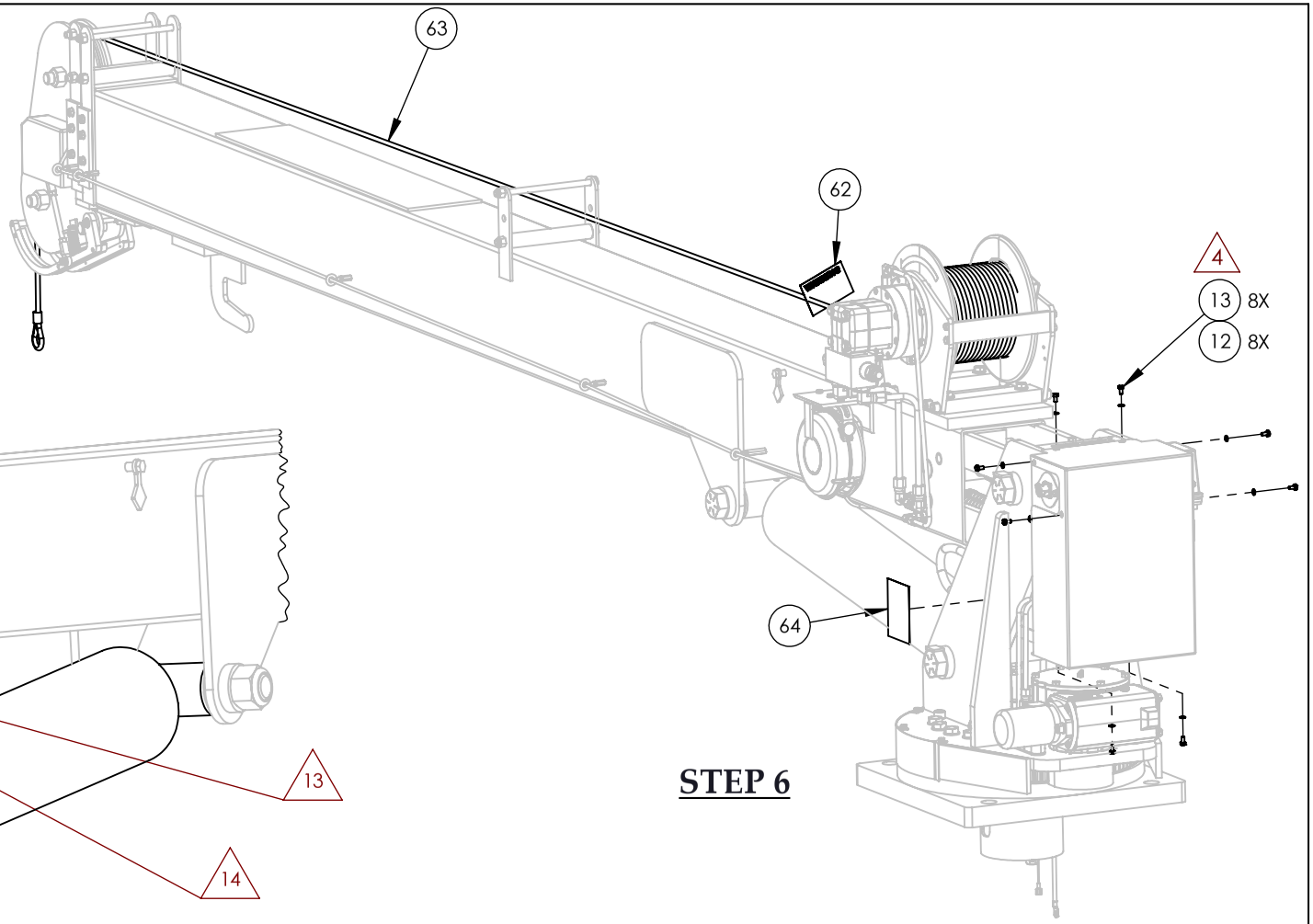
CRANE ASSY 72100DXP-30 WP

DINAMIC OIL, PERFEC-GEAR, ZECA

DRAWN	NA	05/26/2021	DWG. NO. 29703	REV B
MTRL:		SHEET 5 - 8		
WEIGHT: 3075.000 Lbs				



STEP 5



STEP 6

ELEV. CYL. HOSES LAYOUT

DESC: Corrected wiring schematic wiring, winch & elevation.	BY	NA	05/26/2021	REV	B

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

THIRD ANGLE PROJECTION

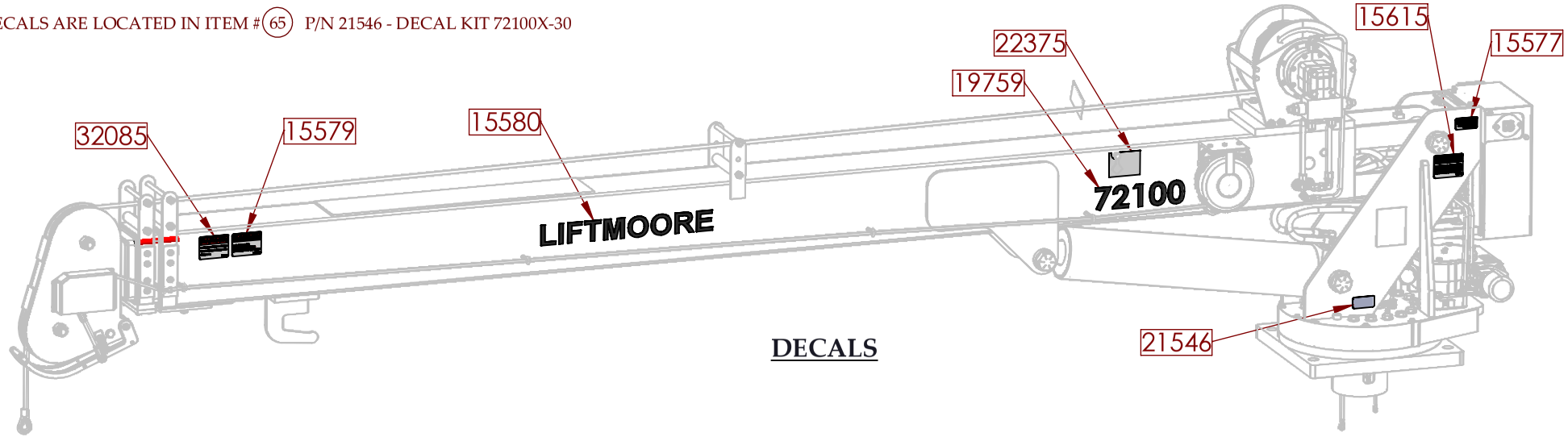
CHECKED	JE	05/26/2021
ENG APPR.	DP	05/26/2021

LIFTMOORE INC.

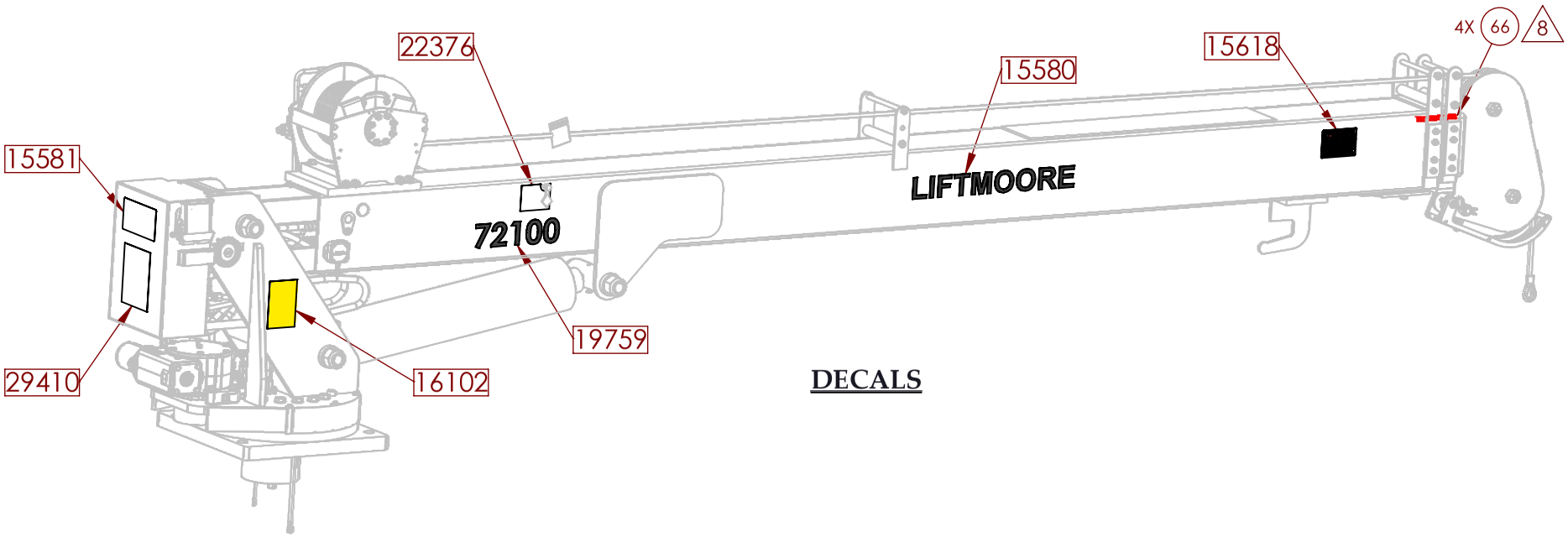
CRANE ASSY 72100DXP-30 WP
DINAMIC OIL, PERFEC-GEAR, ZECA

DRAWN	NA	05/26/2021	DWG. NO.	REV
MTRL:		SHEET 6 - 8	29703	B
WEIGHT: 3075.000 Lbs				

DECALS ARE LOCATED IN ITEM # 65 P/N 21546 - DECAL KIT 72100X-30



DECALS



DECALS

DESC: Corrected wiring schematic wiring, winch & elevation.	BY	NA	05/26/2021	REV B			

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

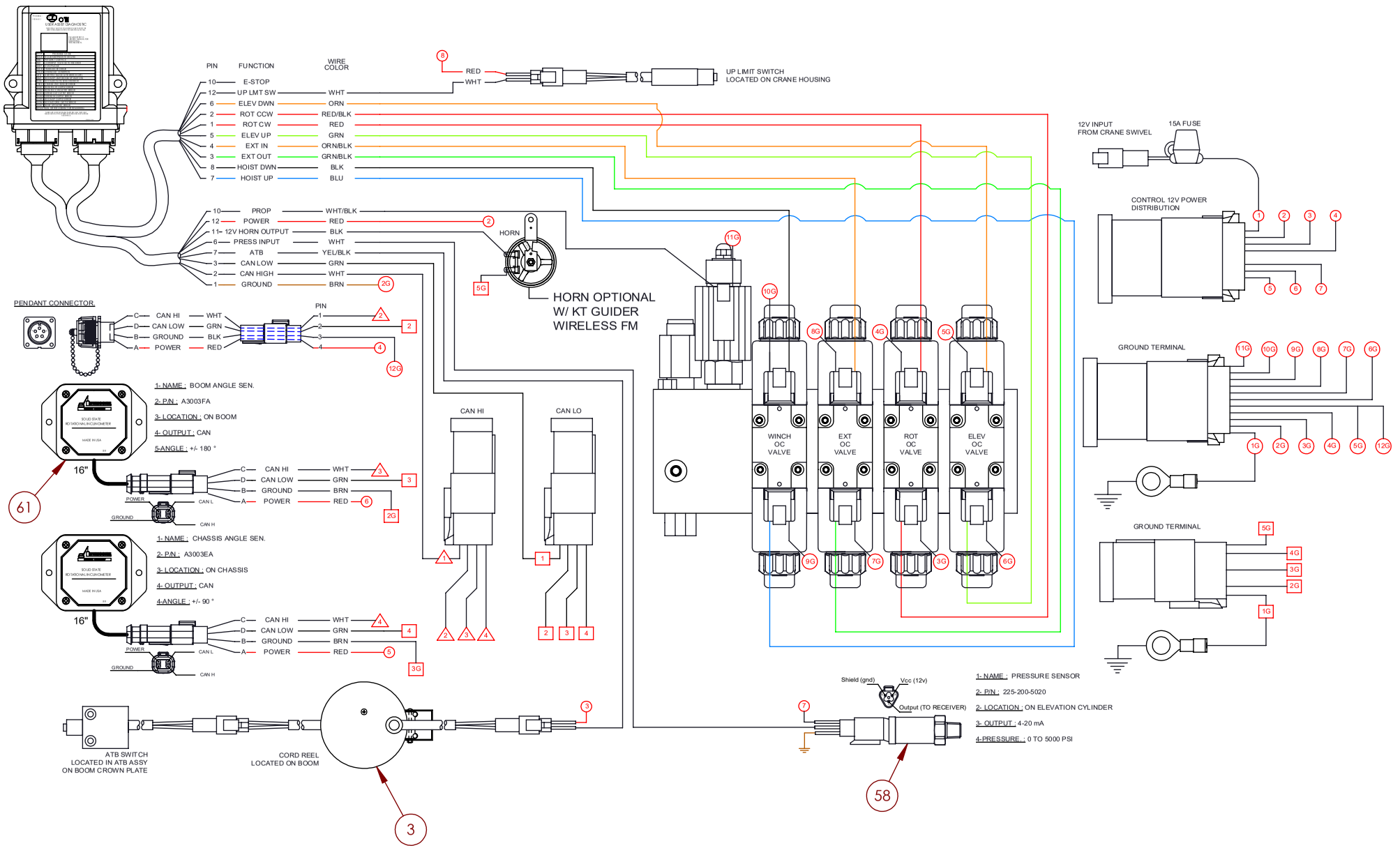
THIRD ANGLE PROJECTION

CHECKED	JE	05/26/2021
ENG APPR.	DP	05/26/2021

LIFTMOORE INC.

CRANE ASSY 72100DXP-30 WP
DINAMIC OIL, PERFEC-GEAR, ZECA

DRAWN	NA	05/26/2021	DWG. NO. 29703	REV B
MTRL:		SHEET 7 - 8		
WEIGHT: 3075.000 Lbs				



UNLESS SPECIFIED	PROPRIETARY & CONFIDENTIAL	LIFTMOORE INC.			
MACHINED PART MINIMUM 250 RMS ALL WELDS TO BE MINIMUM 1/4" DIM. TOLERANCES .XXX ± .005 .XX ± .030 .X ± .100 FRAC. ± 1/16 XX° ± .5°	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF LIFTMOORE INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF LIFTMOORE INC. IS PROHIBITED. THIRD ANGLE PROJECTION	CRANE ASSY 72100DXP-30 WP DINAMIC OIL, PERFEC-GEAR, ZECA			
		DRAWN NA 05/26/2021	DWG. NO. 29703	REV B	
		CHECKED JE 05/26/2021	MTRL:	SHEET 8 - 8	
		ENG APPR. DP 05/26/2021	WEIGHT: 3075.000 Lbs		

DESC: Corrected wiring schematic wiring, winch & elevation.	BY	NA	05/26/2021	REV B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	29699	BOOM ASSEMBLY 72100DXP-30	1
2	29701	BODY ASSEMBLY 72100/60100 DXP	1
3	19802	CYLINDER ASSY 72100 ELEV DTCH	1
4	19775	SCREW, HHC 1.50-6 X 12.00 GR8	3
5	31293	NUT, HEX NYLOC 1.50-6 GRADE 8	3
6	23051	HORN, 108 DB	1
7	29405	WASHER, FLAT 0.25 SS 316	1
8	28690	WASHER, LOCK 0.25 316 SS	1
9	34069	SCREW, HHC 0.25-20 X 0.50 SS	1
10	19822	COVER, BACK 72100 METAL	1
11	PFORM16	CHECKLIST FORM	1

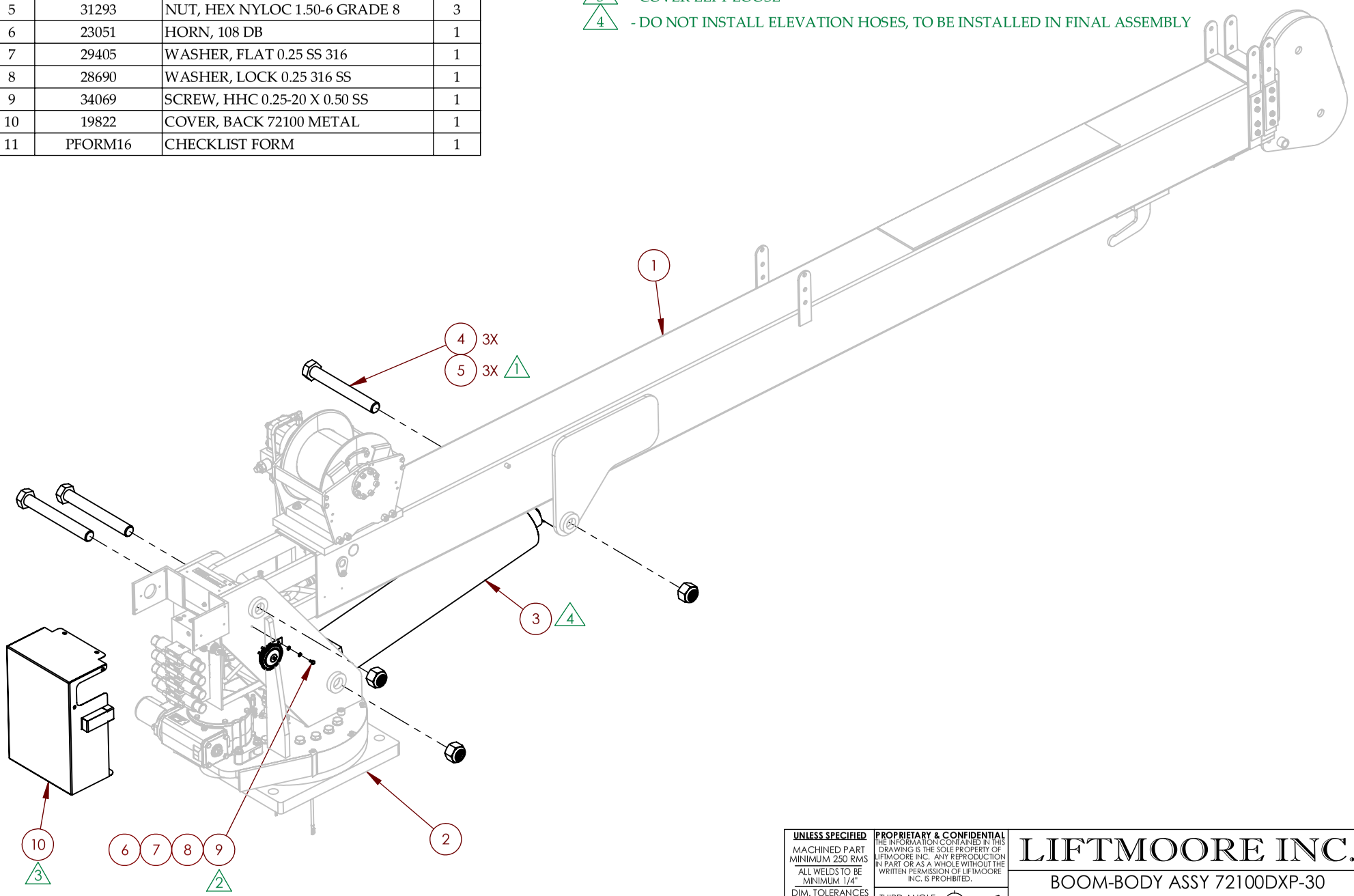
NOTES

△1 - USE IMPACT GUN SET ON SETTING 2 W/115 PSI TO TIGHTEN, CHECK TO MAKE SURE SCREWS CAN BE TURNED WITH A WRENCH AFTER TIGHTENING TO AVOID OVER TIGHTENING.

△2 - TORQUE TO 5 FT-LBS.

△3 - COVER LEFT LOOSE

△4 - DO NOT INSTALL ELEVATION HOSES, TO BE INSTALLED IN FINAL ASSEMBLY



DESC: CORRECTED HOIST HOSES LAYOUT | BY | NA | 04/30/2021 | REV B

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

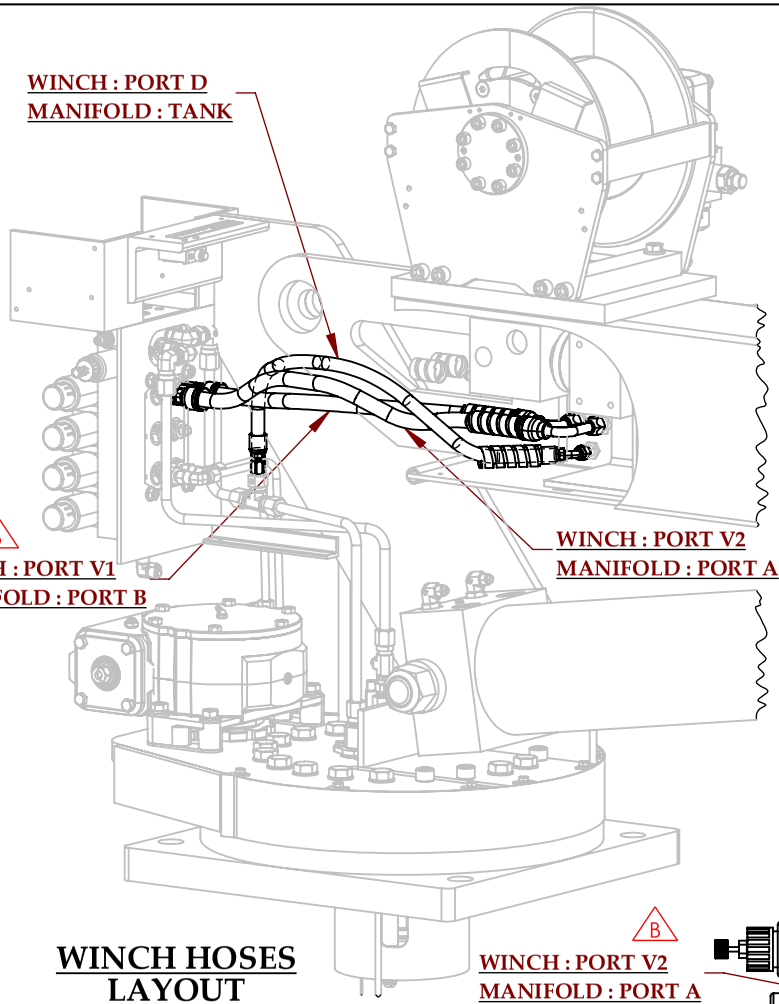
THIRD ANGLE PROJECTION

CHECKED	JE	04/30/2021
ENG APPR.	DP	05/03/2021

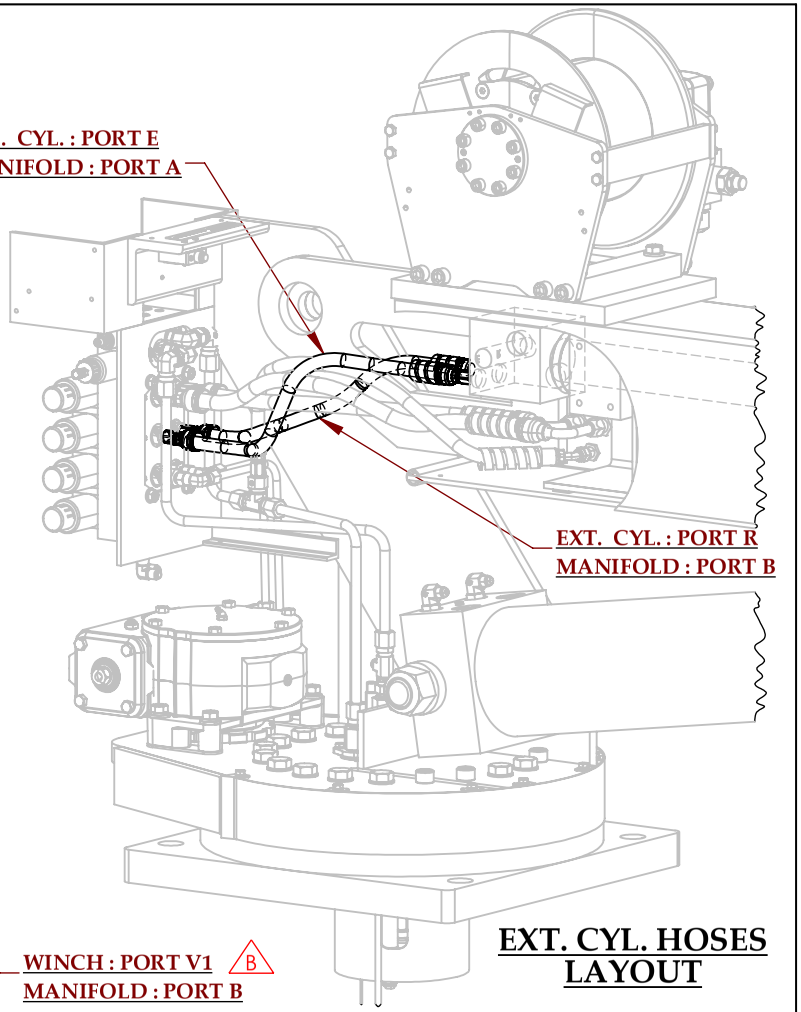
LIFTMOORE INC.

BOOM-BODY ASSY 72100DXP-30

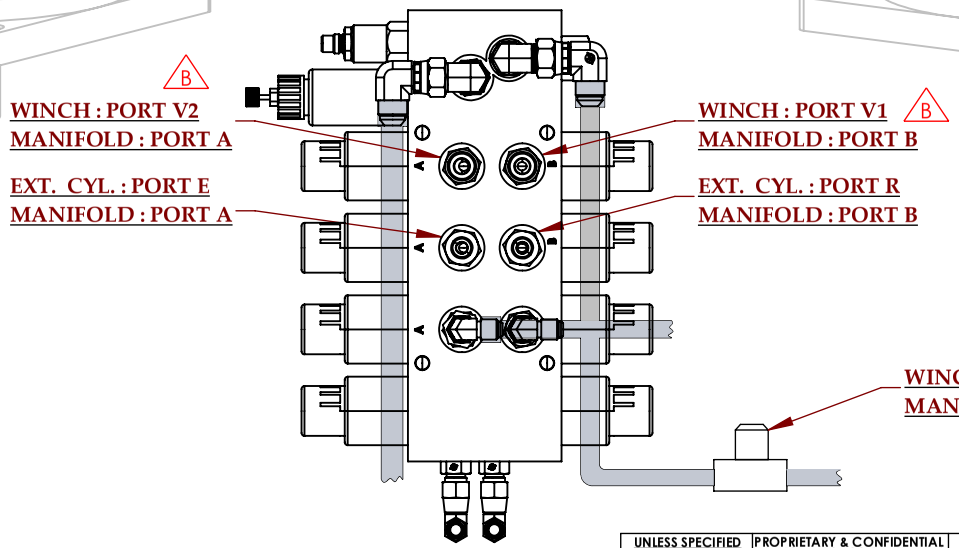
DRAWN	NA	04/30/2021	DWG. NO. 29702	REV B
MTRL:		SHEET 1 - 2		
WEIGHT: 2955.387 Lbs				



WINCH HOSES LAYOUT



EXT. CYL. HOSES LAYOUT



MANIFOLD - HOSES LAYOUT INSIDE BODY VIEW

DESC: CORRECTED HOIST HOSES LAYOUT	BY	NA	04/30/2021	REV	B	

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

THIRD ANGLE PROJECTION

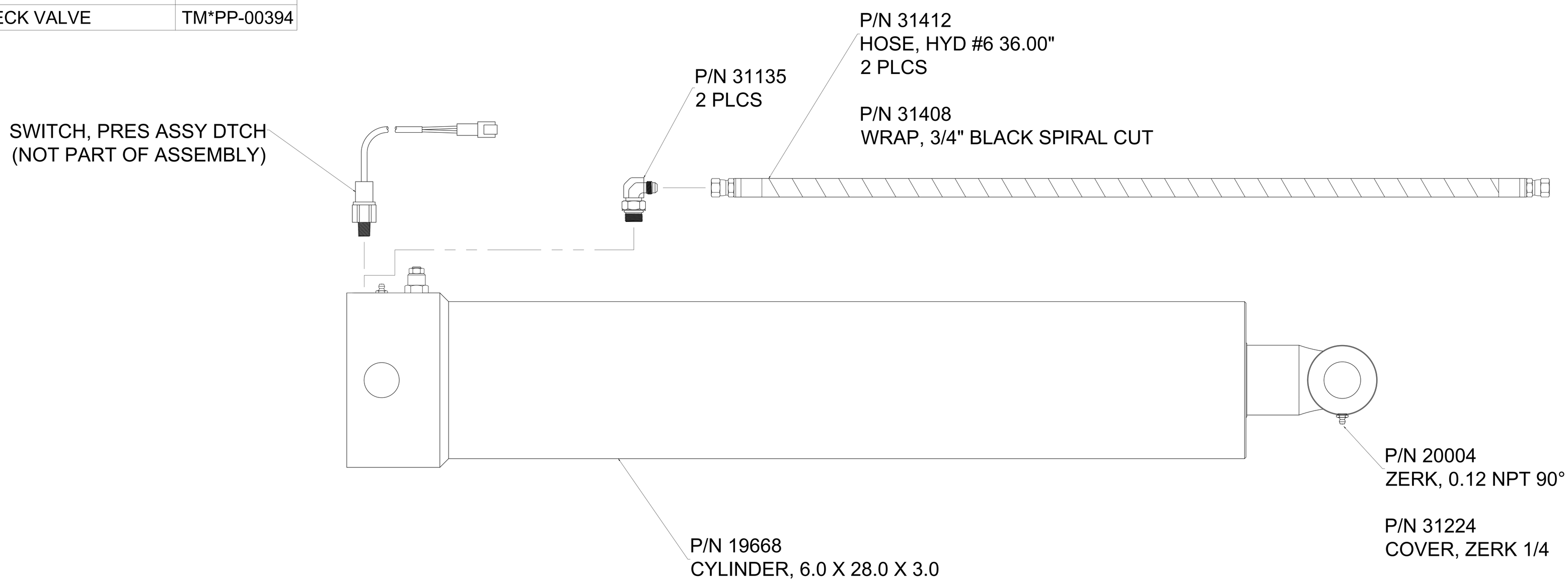
CHECKED	JE	04/30/2021	
ENG APPR.	DP	05/03/2021	

LIFTMOORE INC.

BOOM-BODY ASSY 72100DXP-30

DRAWN	NA	04/30/2021	DWG. NO.		REV
MTRL:		SHEET 2 - 2	29702		B
WEIGHT: 2955.387 Lbs					

REPLACEMENT PARTS FOR CYLINDER	
DESCRIPTION	PART NUMBER
SEAL KIT	TM*SK-00934
COUNTERBALANCE VALVE	TM*PP-00184
P.O. CHECK VALVE	TM*PP-00394



LIFTMOORE TRUCK CRANES
Houston TX
(713)-688-5533
www.liftmoore.com

DRWN BY: JC

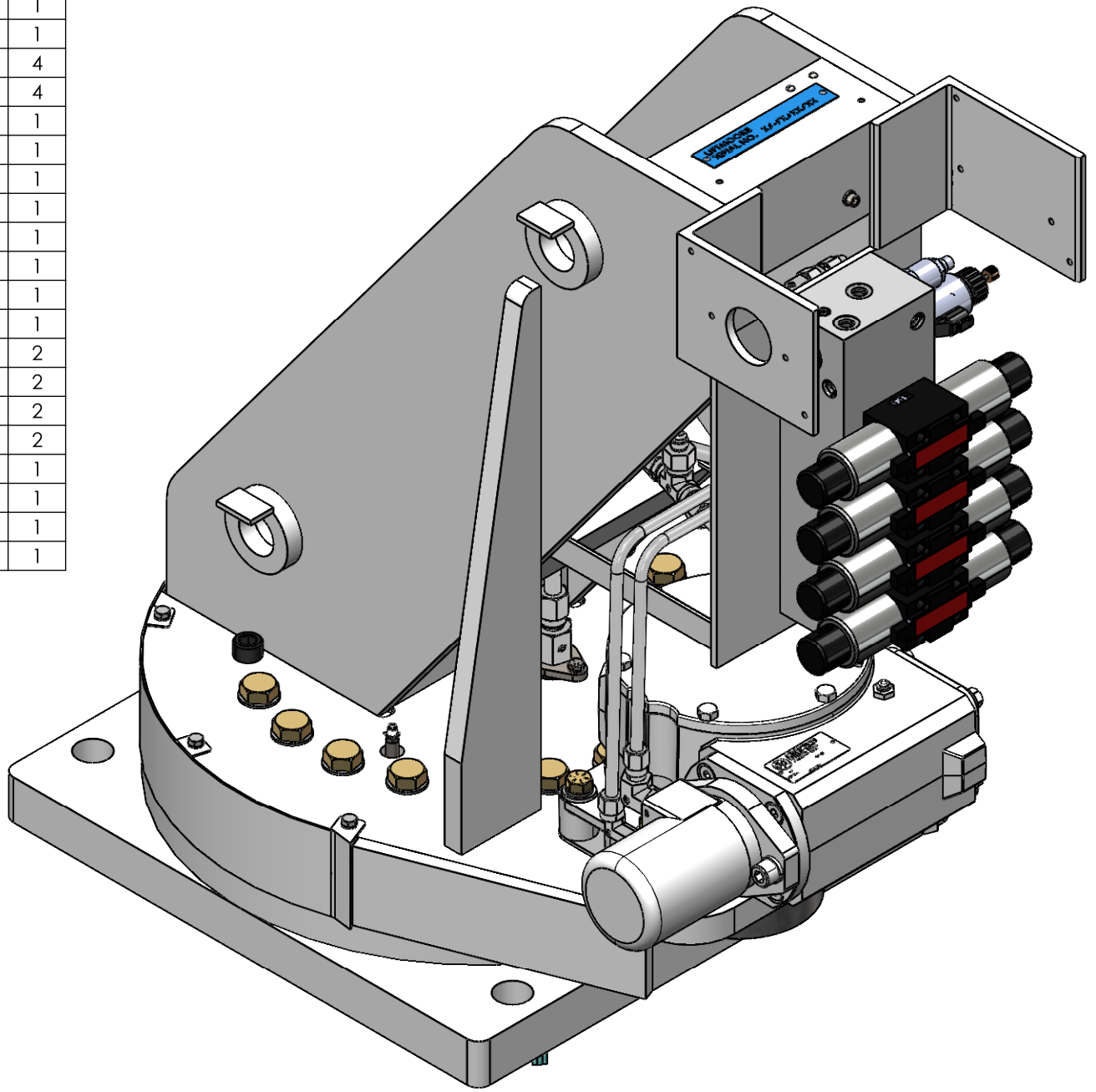
DATE: 01/03/08

CYLINDER ASSY 72100 ELEV LS

DRAWING NO.

19802-D

ITEM	PART NUMBER	DESCRIPTION	QTY
1	29700	BASE-HOUSING ASSY 72100DXP	1
2	29725	MANIFOLD ASSY 72/60100 DTCH	1
3	30473	WASHER, LOCK 0.37 GR5 PLATED	4
4	30813	SCREW, HHC 0.37-16 X 1.00 GR8	4
5	29720	TUBE, HYD ROT 72100/60100 (A)	1
6	29721	TUBE, HYD ROT 72100/60100 (B)	1
7	△B 25788	TUBE, HYD 72100 TANK UPPER	1
8	△B 25787	TUBE, HYD 72100 TANK LOWER	1
9	△B 25786	TUBE, HYD 72100/60100 PRESSURE	1
10	20863	ADAPTER, TEE 8MJ-8MJ-8MJ	1
11	20864	ADAPTER, 6MJ-8FJ	1
12	20413	SWITCH, LIMIT UP 2WNC-22 DTCH	1
13	33126	SCREW, MH RD 6-32 X 1.25	2
14	31124	WASHER, LOCK #6 GR2 PLATED	2
15	33606	WASHER, FLAT #6 GR2 PLATED	2
16	31123	NUT, HEX 6-32 GR2 PLATED	2
17	19916	CONNECTOR, DTCH 1P PLUG	1
18	29407	SCREW, SOC HD 0.25-20 X 0.63SS	1
19	28690	WASHER, LOCK 0.25 316 SS	1
20	24923	ADAPTER, TEE 8MJ-6MJ-8FJX	1



NOTES:

△1 - TORQUE TO 20 FT-LBS.
△2 - HAND TIGHT WITH FLAT SCREW DRIVER
△3 - TORQUE TO 5 FT-LBS.

DESC: Corrected pressure and tank part numbers | BY | NA | 07/07/2021 | REV B

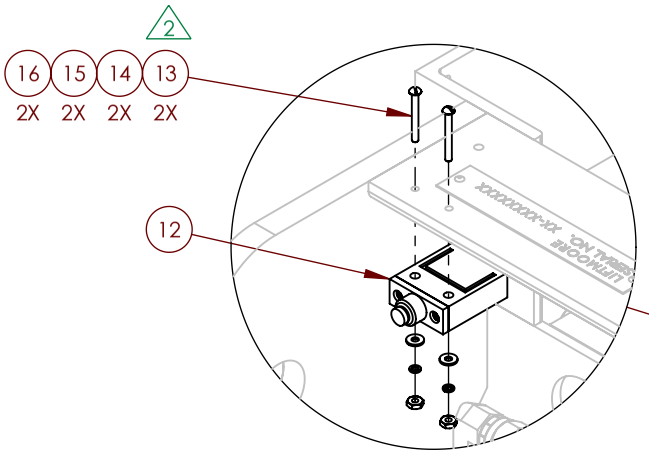
UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

THIRD ANGLE PROJECTION

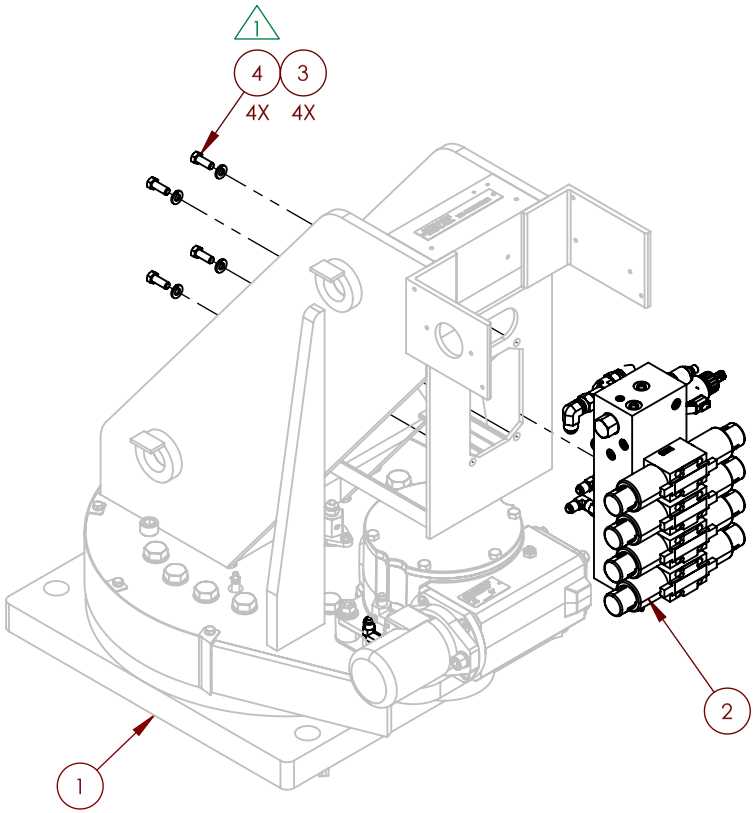
LIFTMOORE INC.

BODY ASSEMBLY 72100/60100 DXP

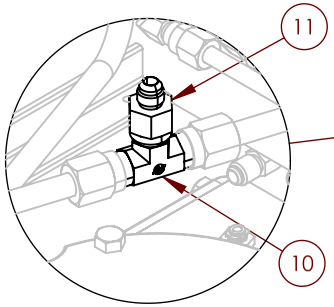
DRAWN	NA	07/07/2021	DWG. NO. 29701
CHECKED	JE	07/07/2021	REV B
ENG APPR.	DP	07/07/2021	
MTRL:		SHEET 1 - 2	
WEIGHT: 764.176 Lbs			



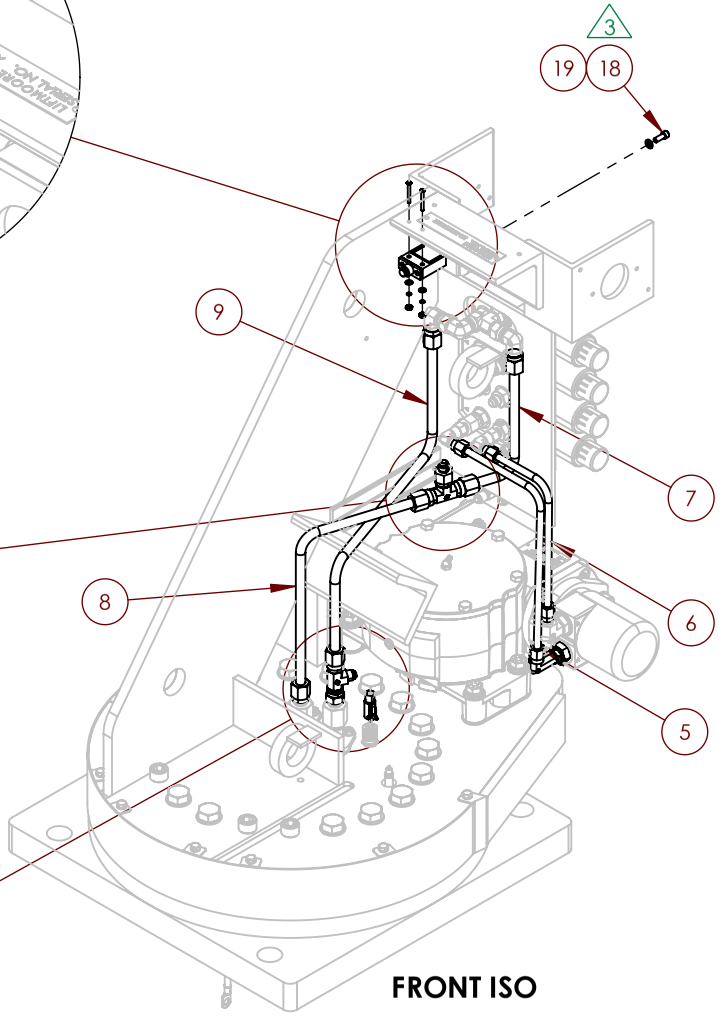
DETAIL A
SCALE 1 : 4



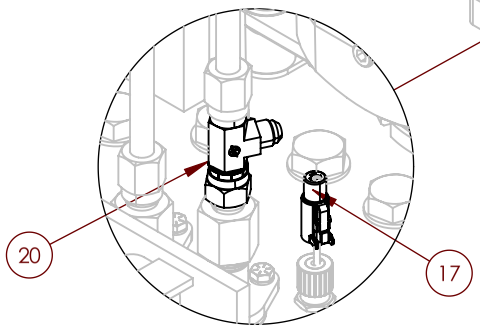
BACK TOP ISO
SCALE 1 : 10



DETAIL B
SCALE 1 : 4



FRONT ISO
SCALE 1 : 10
(SIDE PLATE HIDDEN)



DETAIL C
SCALE 1 : 4

NOTES:

1. - TORQUE TO 20 FT-LBS.
2. - HAND TIGHT WITH FLAT SCREW DRIVER
3. - TORQUE TO 5 FT-LBS.

DESC: Corrected pressure and tank part numbers	BY	JE	07/07/2021	REV B

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

THIRD ANGLE PROJECTION

DRAWN	NA	07/07/2021
CHECKED	JE	07/07/2021
ENG APPR.	DP	07/07/2021
MTRL:		
WEIGHT: 764.176 Lbs		
SHEET 2 - 2		

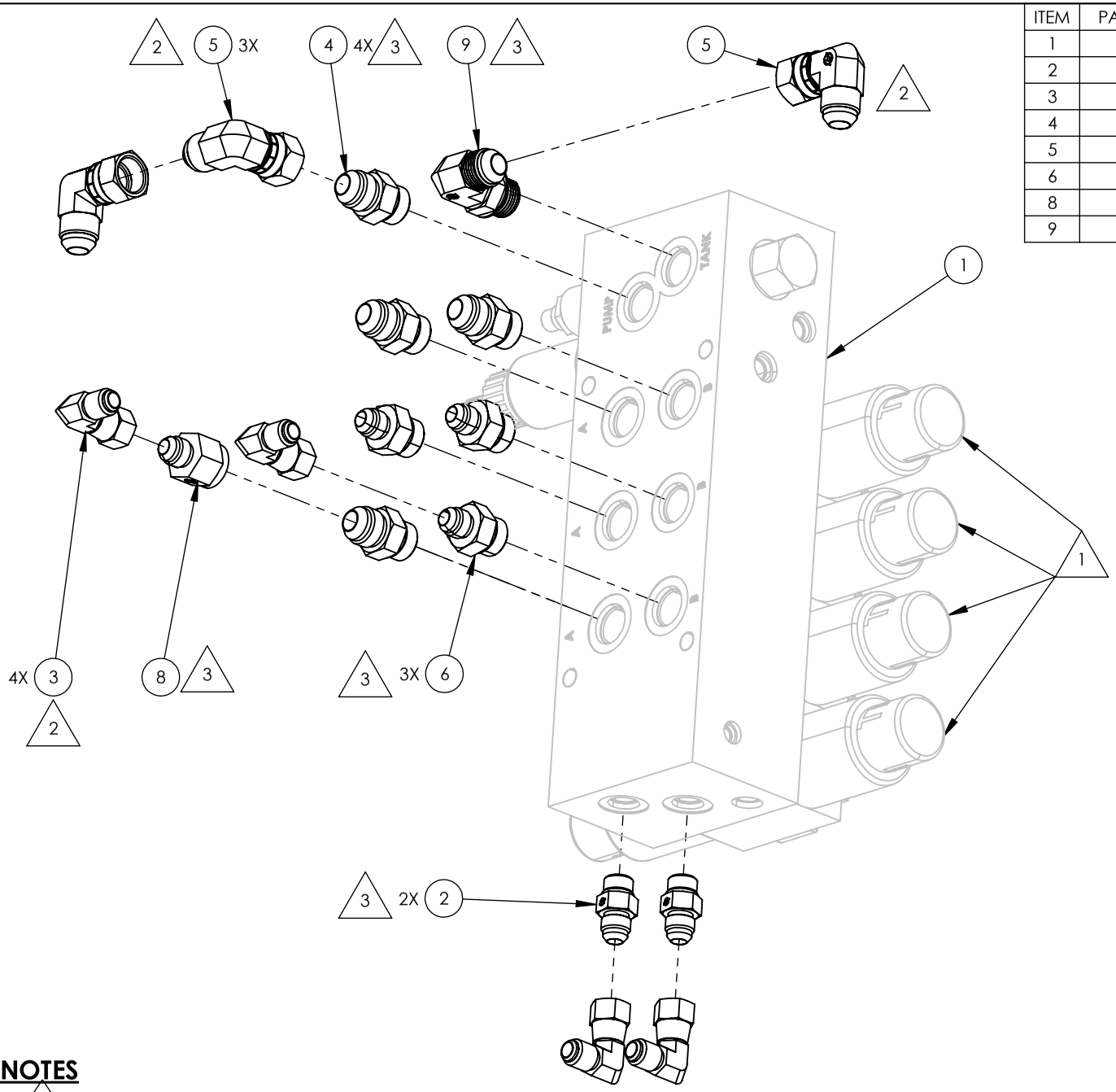
LIFTMOORE INC.

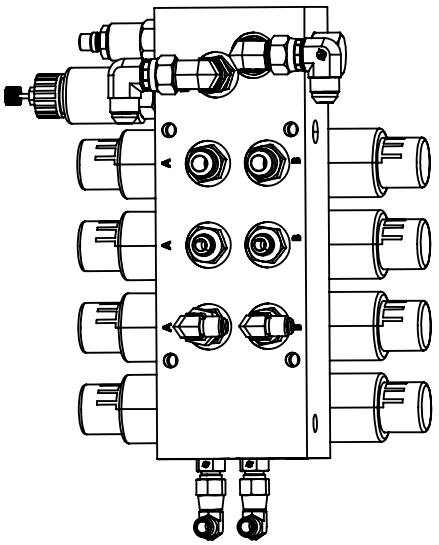
BODY ASSEMBLY 72100/60100 DXP

DWG. NO. 29701

REV B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	24993	MANIFOLD PRE-ASSY XP DTCH	1
2	31063	ADAPTER, 6MJ-6MO	2
3	31513	ADAPTER, 90° 6MJ-6FJX	4
4	31908	ADAPTER, 8MJ-8MO X 1.48	4
5	32547	ADAPTER, 90° 8FJX-8MJ	3
6	30898	ADAPTER, 6MJ-8MO	3
8	20864	ADAPTER, 6MJ-8FJ	1
9	32204	ADAPTER, 90° 8MJ-8MO	1





NOTES

1. - 4X P/N 24432 VALVE, 4W/3P/12V/OC DTCH - **OPEN CENTER VALVES**
   (12X P/N 30956 SCREW, SOC HD 10-24 X 2.00 GR5)
2. - HAND TIGHT (LEAVE LOOSE TO BE ADJUSTED IN FUTURE ASSEMBLIES)
3. - TIGHTEN

DESC:	BY	NA	04/14/2021 REV A

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

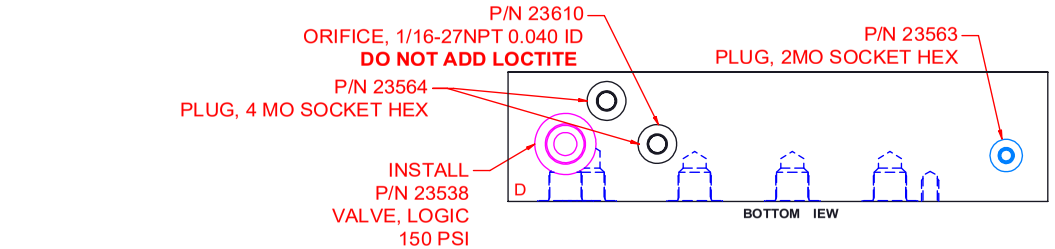
THIRD ANGLE PROJECTION

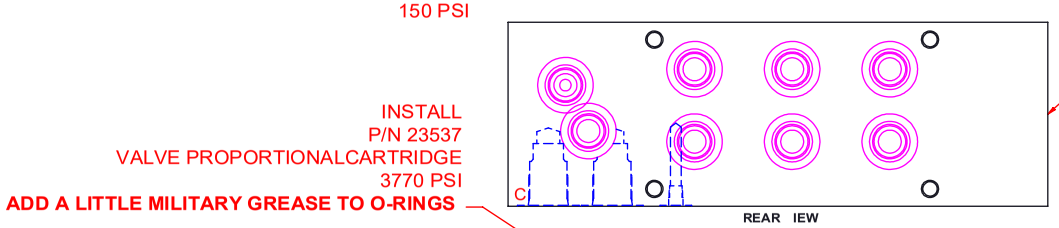
CHECKED	JE	04/14/2021
ENG APPR.	DP	04/14/2021

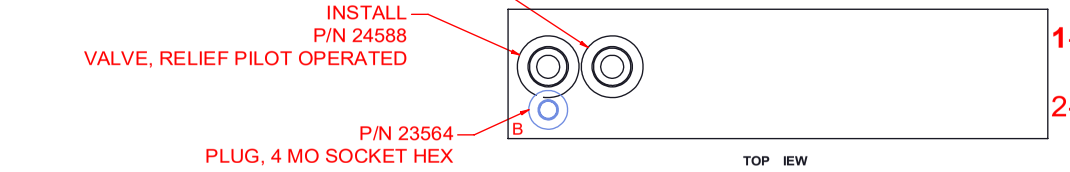
LIFTMOORE INC.

MANIFOLD ASSY 72/60100 DTCH
W/DEUSTCH VALVES.

DRAWN	NA	04/14/2021	DWG. NO.	REV
MTRL:		SHEET 1 - 1	29725	A
WEIGHT: 32.672 Lbs				



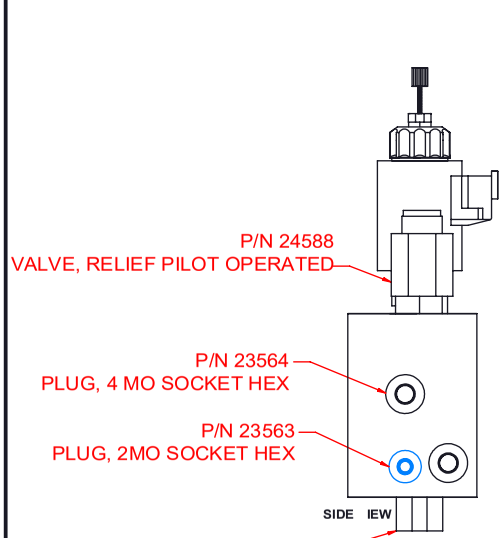


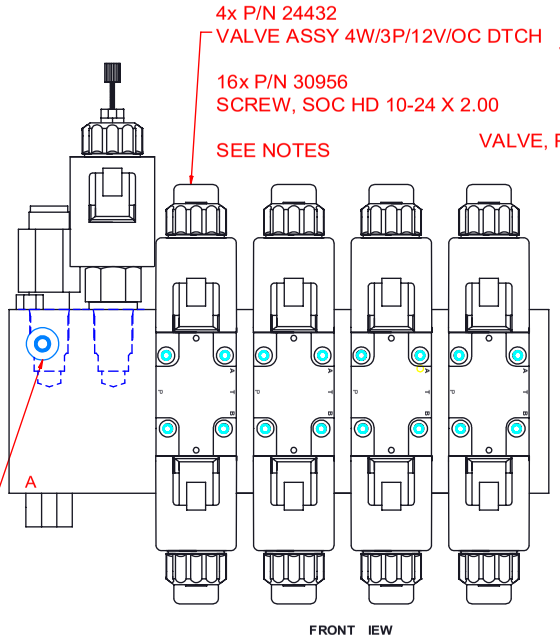


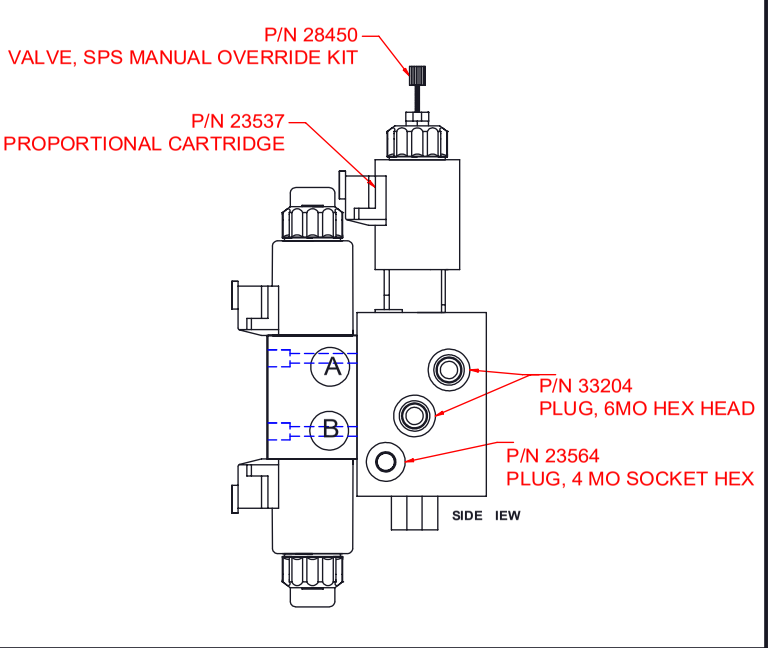
NOTES

1- ON THE SIDE OF THE VALVE MAKE SURE **A** IS ON TOP & **B** ON THE BOTTOM.

2- INSTALL 4 VALVES P/N 24432 4W/3P/12V/OC DTCH



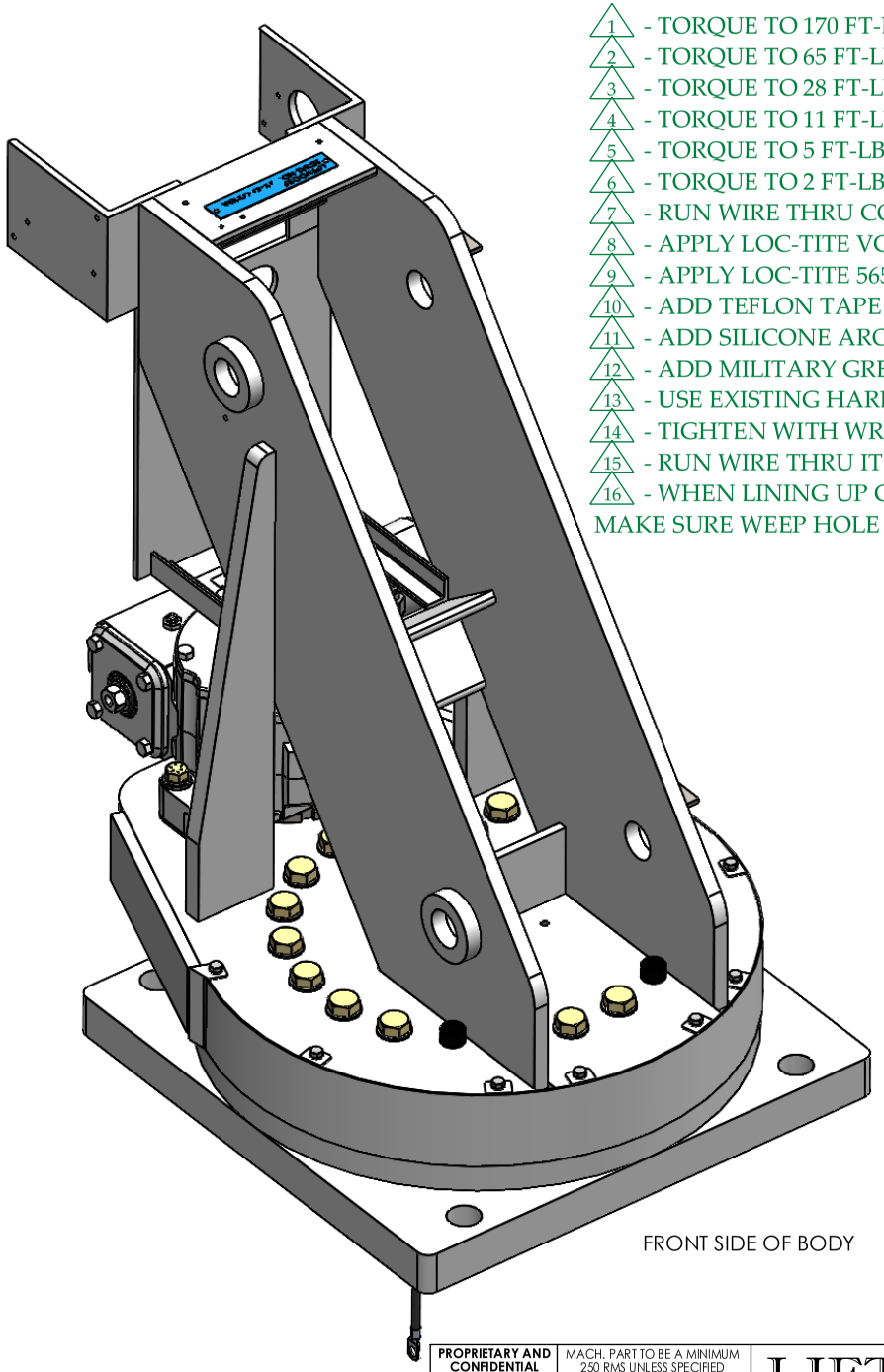




LIFTMOORE TRUCK CRANES	Houston TX (713)-688-5533 www.liftmoore.com	DRWN BY: JE DATE: 6/4/12	MANIFOLD PRE-ASSY XP DTCH	DRAWING NO. 24993-C

ITEM	PART NUMBER	DESCRIPTION	QTY
1	19638	PLATE, BASE 72100	1
2	21178	HOUSING WELDMENT 72100	1
3	19687	BEARING, GEAR 72100 GP	1
4	31100	SCREW, HHC 0.62-11 X 2.25 GR8	16
5	31054	WASHER, FLAT 0.62 SAE GR8	36
6	30867	SCREW, SOC HD 0.62-11 X 2.25	4
7	19766	SCREW, HHC 0.62-11 X 3.50 GR8	20
8	29116	REDUCER, SPEED P GEAR 14 TOOTH	1
9	27332	RING, ECCENTRIC PERFECTION GEA	1
10	17473	O-RING, 155 BUNA 70 DUROMETER	1
11	17472	O-RING, 158 BUNA 70 DUROMETER	1
12	29282	SPACER, SPEED REDUCER 4075/4064	2
13	19323	WASHER, FLAT 0.50 SAE GR8	4
14	30474	WASHER, LOCK 0.50 GR5 PLATED	4
15	30455	SCREW, HHC 0.50-13 X 2.75 GR8	4
16	27858	GROMMET, RUBBER 0.875" I.D.	2
17	27990	PLATE, GROMMET HOLDER - MACH	2
18	30889	WASHER, LOCK 0.25 GR5 PLATED	16
19	30457	SCREW, HHC 0.25-20 X 0.75 GR5	4
20	19719	COVER, GEAR 72100	1
21	30809	SCREW, HHC 0.25-20 X 0.50 GR5	12
22	19720	COVER, GEAR PINION 72100	1
23	23389	PLATE, SERIAL NO. MACHINING	1
24	22406	SCREW, DRIVE	2
25	18263	PROTECTOR, SWIVEL SLOTTED WELD	1
26	30888	WASHER, FLAT 0.31 GR5 PLATED	7
27	30458	SCREW, HHC 0.31-18 X 0.75 GR5	3
28	28145	SWIVEL, HYD/ELEC ASSY 4064	1
29	31713	SPACER, HYD SWIVEL SUPPORT	2
30	26163	PLATE, SWIVEL MOUNT SLIDE MACH	1
31	30890	WASHER, LOCK 0.31 GR5 PLATED	2
32	31096	SCREW, HHC 0.31-18 X 1.25 GR5	2
33	18714	CONNECTOR, CGB 0.25NPT 0.20	1
34	20877	ADAPTER, 90° 2FP-2MP	1
35	19824	ZERK, 0.12 NPT STRAIGHT X 2.62	1
36	31224	COVER, ZERK 1/4	1
37	28835	WIRE, GROUND #6 X 96" W/TRM	1
38	30459	SCREW, HHC 0.37-16 X 0.75 GR8	1
39	30473	WASHER, LOCK 0.37 GR5 PLATED	1
40	31500	ADAPTER, 90° 6MJ-10MO	1
41	27344	ADAPTER, 6FO-10MO	1
42	33506	ADAPTER, 90° LL 6MJ-6MOL	1

NOTES:



FRONT SIDE OF BODY

1. - TORQUE TO 170 FT-LBS.
2. - TORQUE TO 65 FT-LBS.
3. - TORQUE TO 28 FT-LBS.
4. - TORQUE TO 11 FT-LBS.
5. - TORQUE TO 5 FT-LBS.
6. - TORQUE TO 2 FT-LBS. & DO NOT OVERTIGHTEN
7. - RUN WIRE THRU CONNECTOR.
8. - APPLY LOC-TITE VC-3 TO THREADS.
9. - APPLY LOC-TITE 565 TO THREADS
10. - ADD TEFLON TAPE
11. - ADD SILICONE AROUND ITEM # (36)
12. - ADD MILITARY GREASE TO GEAR TEETH
13. - USE EXISTING HARDWARE
14. - TIGHTEN WITH WRENCH
15. - RUN WIRE THRU ITEM# (34)
16. - WHEN LINING UP GREASE ZERK TO HOUSING MAKE SURE WEEP HOLE IS FACING THE FRONT OF BODY.

MACH. PART TO BE A MINIMUM 250 RMS UNLESS SPECIFIED

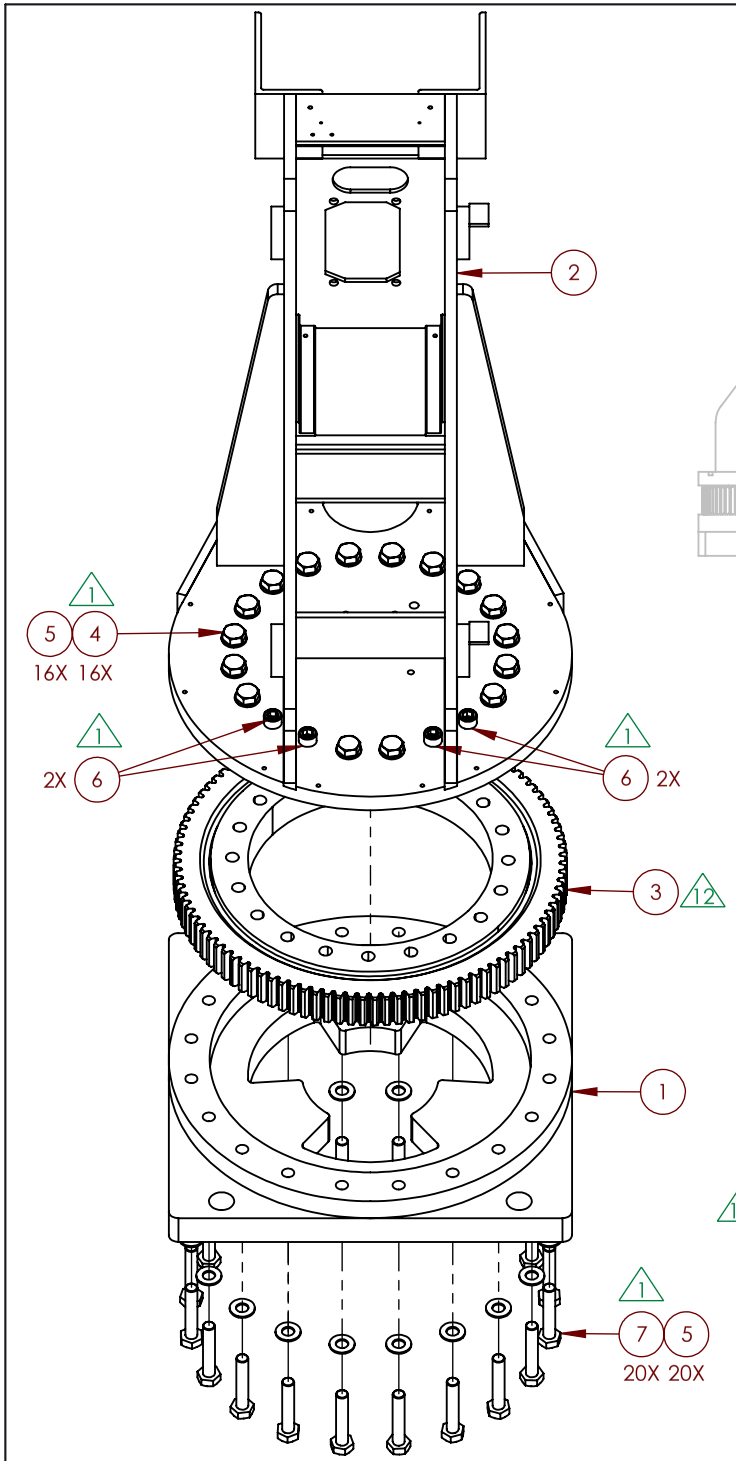
DEFAULT TOLERANCES UNLESS SPECIFIED:
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

LIFTMOORE INC.

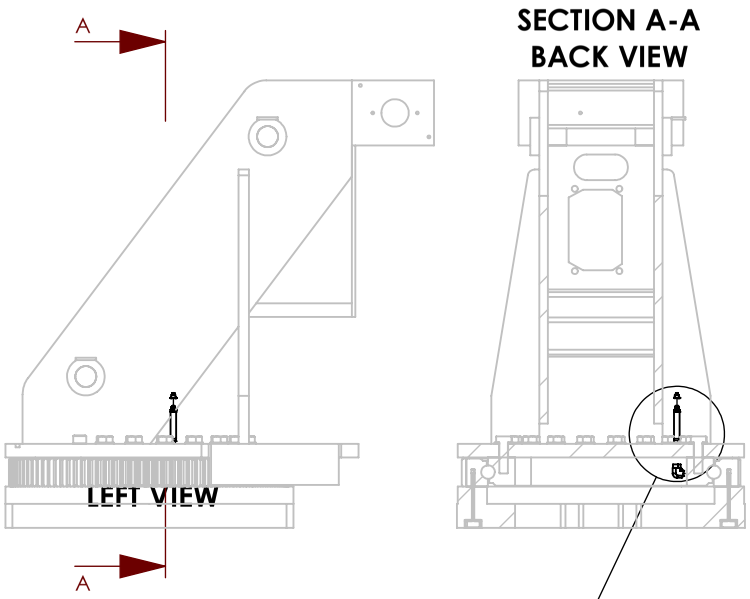
BASE-HOUSING ASSY 72100DXP
PERFECTION GEAR SPEED REDUCER

DRAWN	NA	04/27/2021	DWG. NO. 29700	REV B
CHECKED	JE	04/27/2021	MTRL:	SHEET 1 - 4
ENG APPR.	DP	04/27/2021	WEIGHT: 726.186 Lbs	

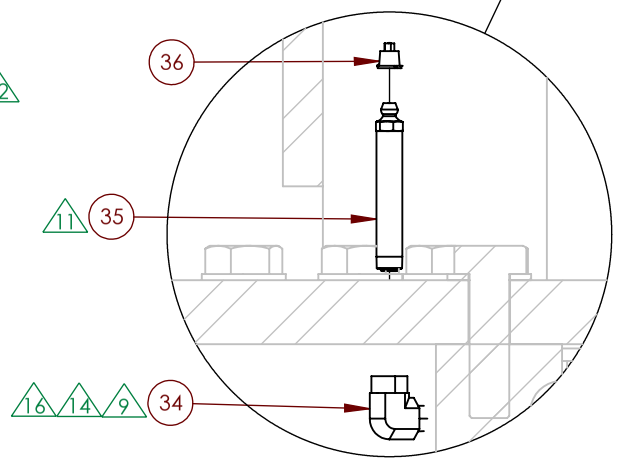
DESC: | BY | NA | 04/27/2021 | REV B



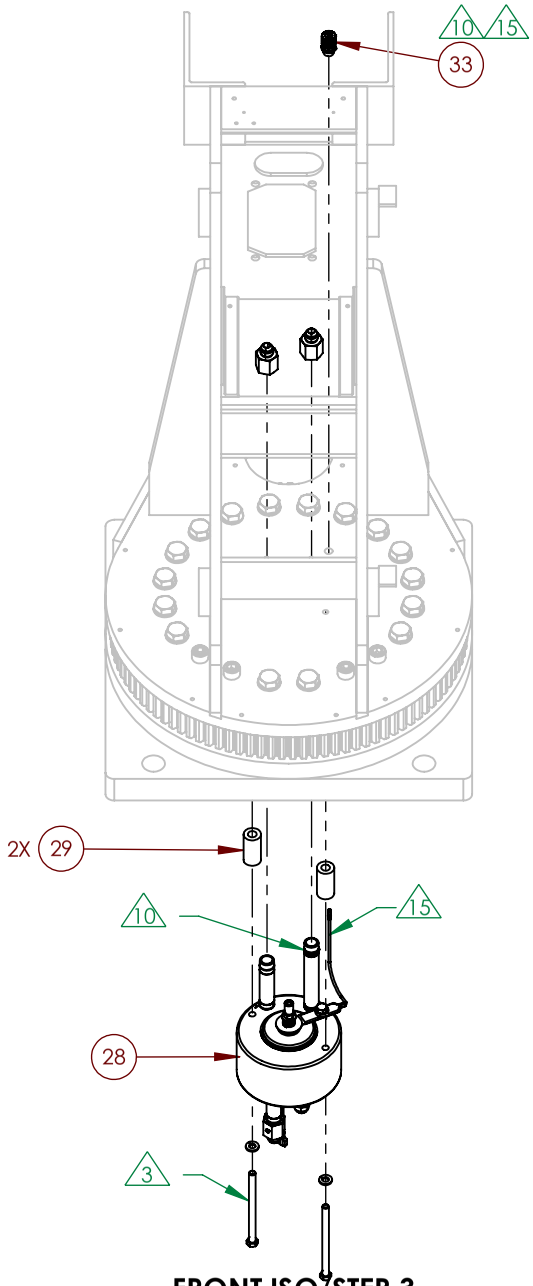
FRONT ISO/STEP 1



SECTION A-A
BACK VIEW



DETAIL A/STEP 2



FRONT ISO/STEP 3

DESC:		BY	NA	04/27/2021	REV	B

PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF LIFTMOORE INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF LIFTMOORE INC. IS PROHIBITED.

MACH. PART TO BE A MINIMUM 250 RMS UNLESS SPECIFIED

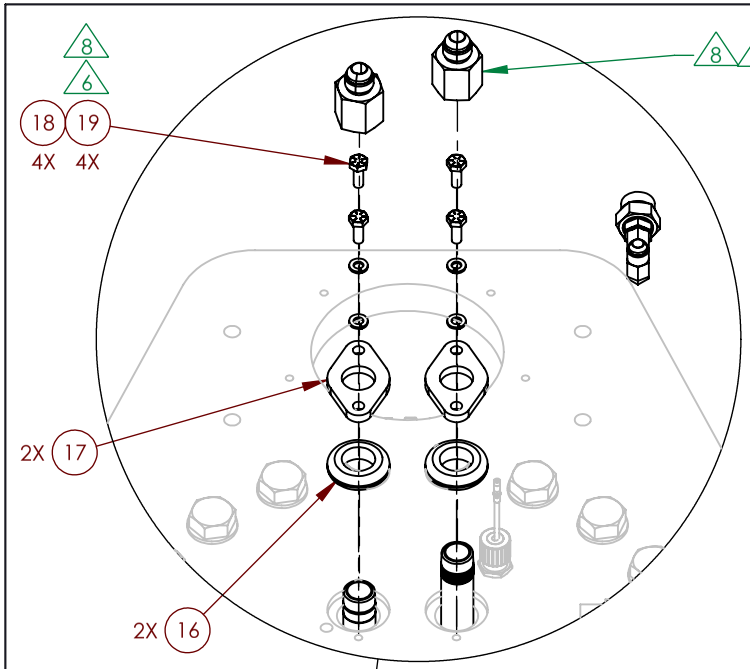
DEFAULT TOLERANCES UNLESS SPECIFIED:
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

CHECKED	JE	04/27/2021
ENG APPR.	DP	04/27/2021

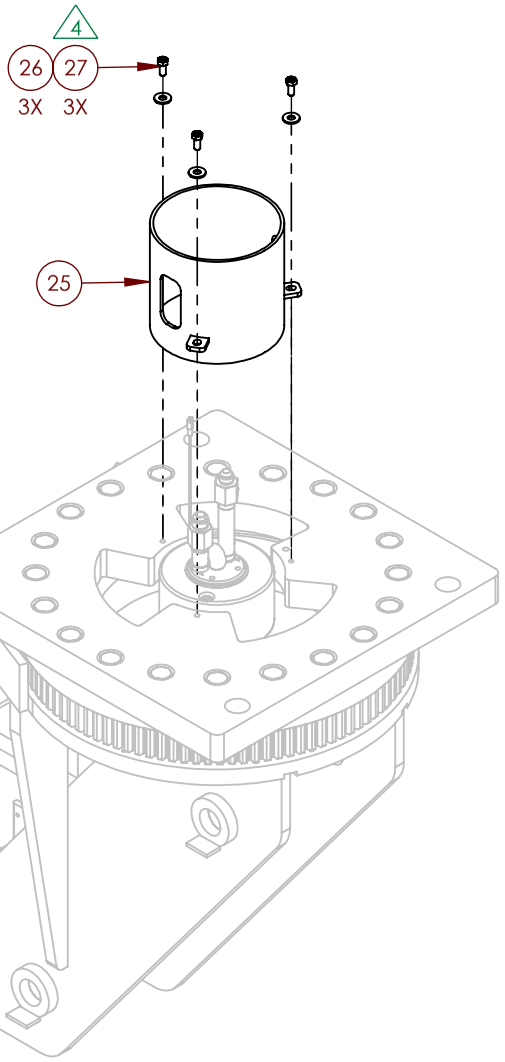
LIFTMOORE INC.

BASE-HOUSING ASSY 72100DXP
PERFECTION GEAR SPEED REDUCER

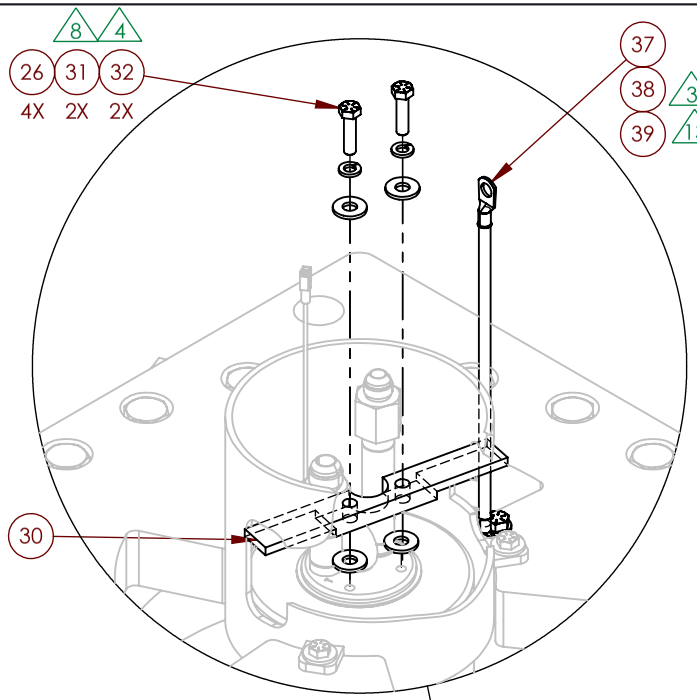
DRAWN	NA	04/27/2021	DWG. NO. 29700	REV B
MTRL:		SHEET 2 - 4		
WEIGHT: 726.186 Lbs				



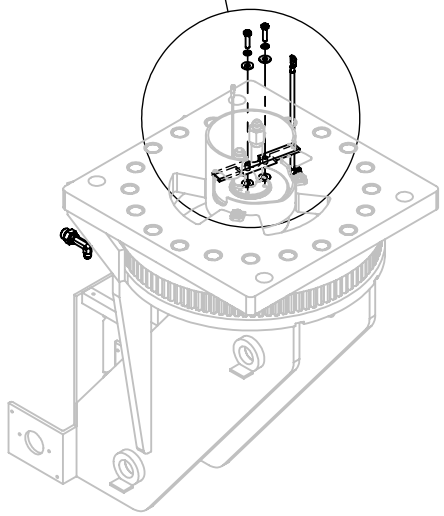
DETAIL B/STEP 4



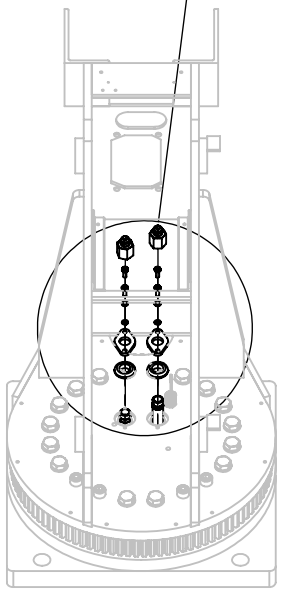
BOTTOM ISO/STEP 5



DETAIL C/STEP 6



BOTTOM ISO VIEW



FRONT ISO VIEW

MACH. PART TO BE A MINIMUM 250 RMS UNLESS SPECIFIED

DEFAULT TOLERANCES UNLESS SPECIFIED:
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

CHECKED	JE	04/27/2021
ENG APPR.	DP	04/27/2021

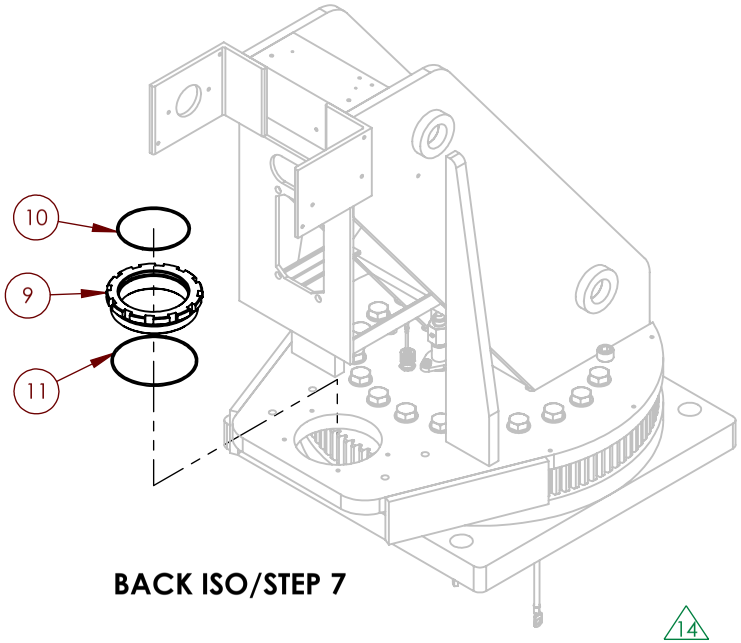
LIFTMOORE INC.

BASE-HOUSING ASSY 72100DXP

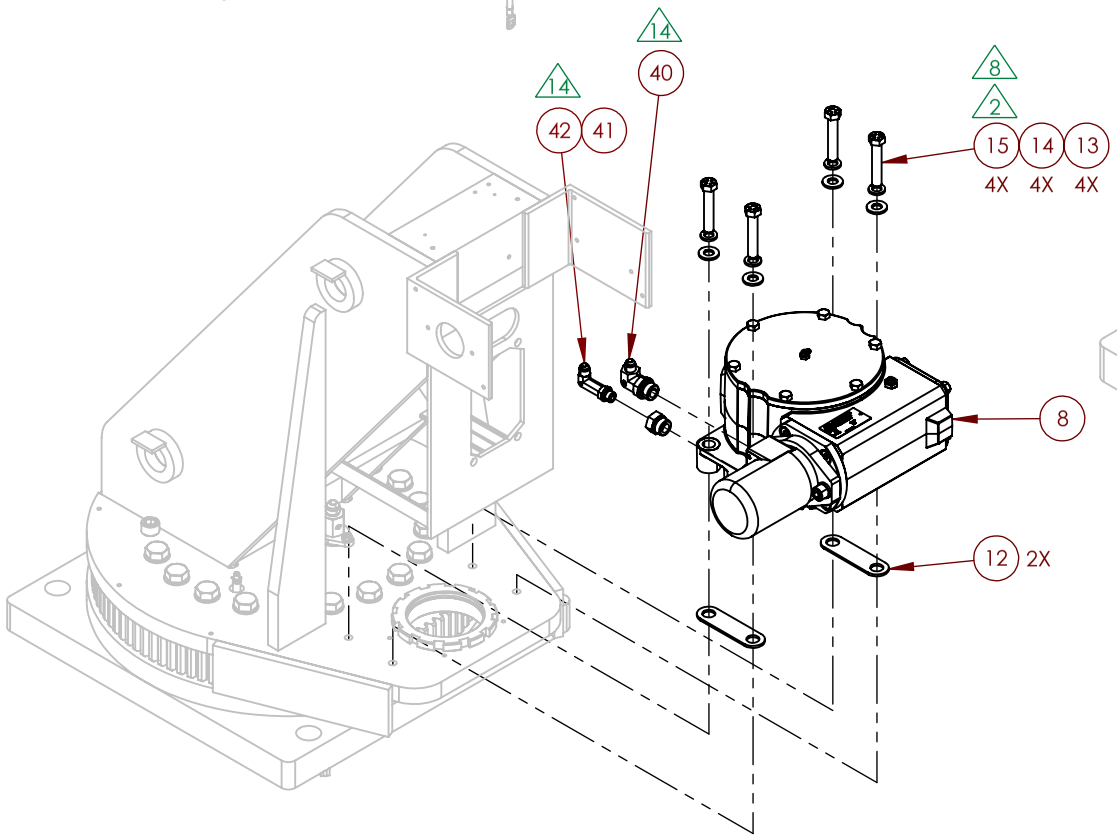
PERFECTION GEAR SPEED REDUCER

DRAWN	NA	04/27/2021	DWG. NO.	REV
MTRL:		SHEET 3 - 4	29700	B
WEIGHT: 726.186 Lbs				

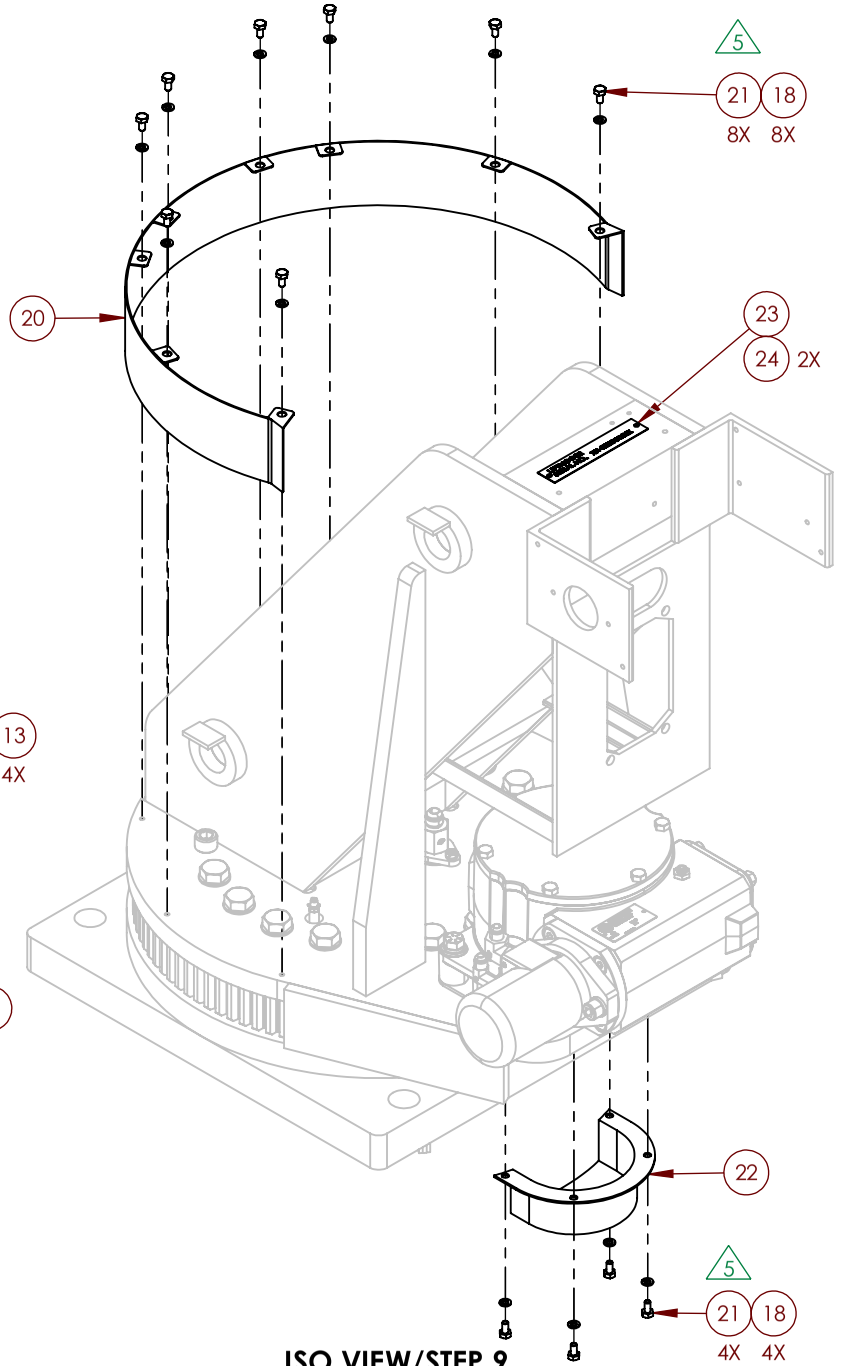
DESC: | BY | NA | 04/27/2021 | REV B



BACK ISO/STEP 7



ISO VIEW/STEP 8



ISO VIEW/STEP 9

MACH. PART TO BE A MINIMUM 250 RMS UNLESS SPECIFIED

DEFAULT TOLERANCES UNLESS SPECIFIED:
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

CHECKED	JE	04/27/2021
ENG APPR.	DP	04/27/2021

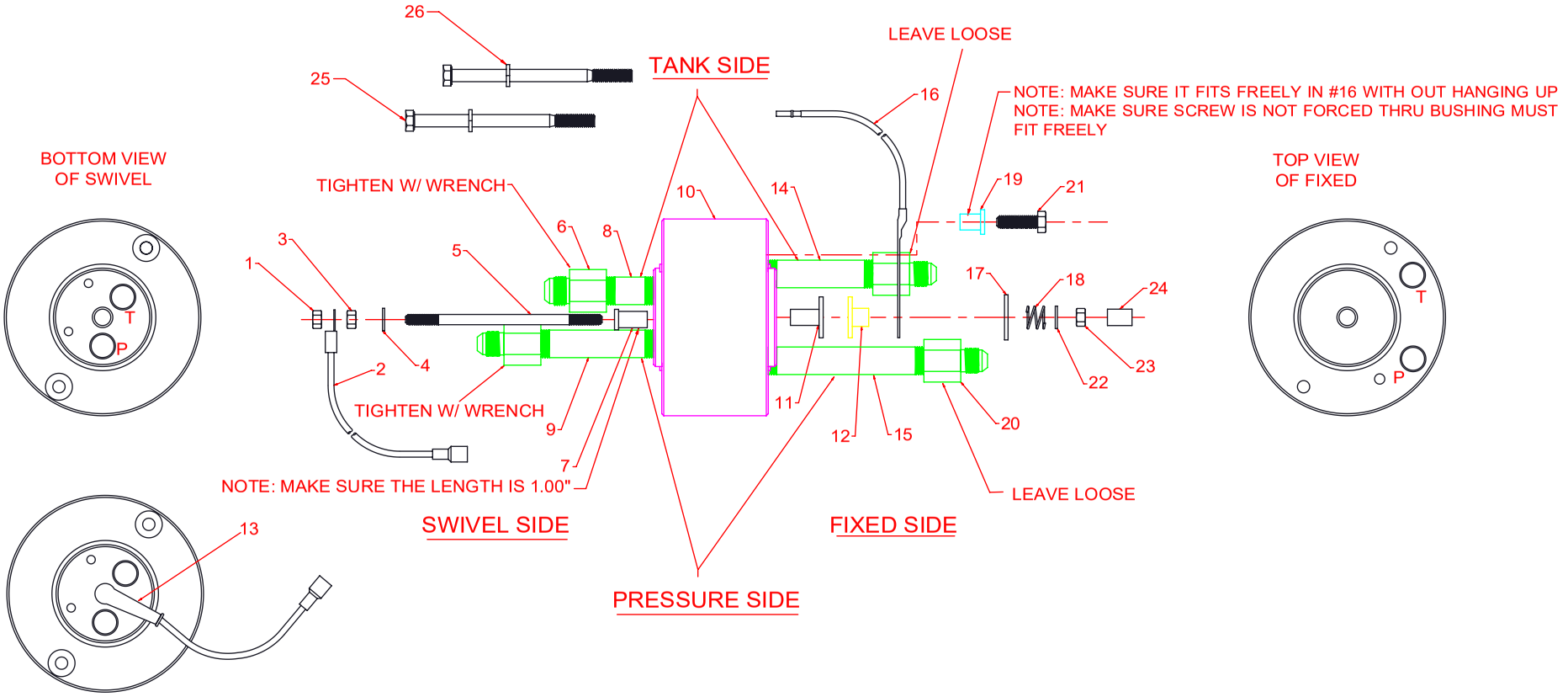
LIFTMOORE INC.

BASE-HOUSING ASSY 72100DXP
PERFECTION GEAR SPEED REDUCER

DRAWN	NA	04/27/2021	DWG. NO.	REV
MTRL:		SHEET 4 - 4	29700	B
WEIGHT: 726.186 Lbs				

DESC: | BY | NA | 04/27/2021 | REV B

NOTE: ATTACH MOUNTING BOLTS AND LOCK WASHER TO SWIVEL
WITH TAPE ITEM # 25 & 26.



#	PN	DESCRIPTION	QTY
1	34256	NUT, HEX NYLOC 0.31-18 SS 304	1
2	32278	WIRE, SWIVEL SUPPLY W/TERMINAL	1
3	34255	NUT, HEX 0.31-18 SS 304	1
4	33353	WASHER, FLAT 0.31 SAE SS304	1
5	32277	STUD, 5/16-18 X 6 DOUBLE END	1
6	32468	ADAPTER, 8FP-10MJ	1
7	31383	SPACER, SWIVEL STUD INSULATOR	1
8	31996	ADAPTER, NIPPLE 2.50" LG #8	1
9	32321	ADAPTER, NIPPLE 4.00" LG #8	1

#	PN	DESCRIPTION	QTY
10	28144	SWIVEL, HYDRAULIC 1/2" PORTS CTB	1
11	31382	SPACER, SWIVEL STUD INSULATOR	1
12	31381	SPACER, SWIVEL UPPER - BRONZE	1
13	30674	BOOT, RUBBER 1 & 1/0	1
14	22238	ADAPTER, NIPPLE 4.50" LG #8	1
15	32112	ADAPTER, NIPPLE 6.00" LG #8	1
16	20500	WIRE, SWIVEL HOT PLATE ASSY D	1
17	32562	WASHER, FLAT 0.50 SS GRADE 304	1
18	31452	SPRING, SWIVEL	1

#	PN	DESCRIPTION	QTY
19	31451	INSULATOR, BOLT ELECTRIC	1
20	31995	ADAPTER, 8FP-8MJ	3
21	23063	SCREW, HHC 0.37-16 X 1.25 GR8	1
22	32368	WASHER, FLAT 0.37 SAE SS GR304	1
23	34256	NUT, HEX NYLOC 0.31-18 SS 304	1
24	32279	SLEEVE, SWIVEL SCREW INSULATOR	1
25	28146	SCREW, HHC 0.37-16 X 5.50 GR8	2
26	30473	WASHER, LOCK 0.37 GR5 PLATED	2

LIFTMOORE TRUCK CRANES
Houston TX
(713)-688-5533
www.liftmoore.com

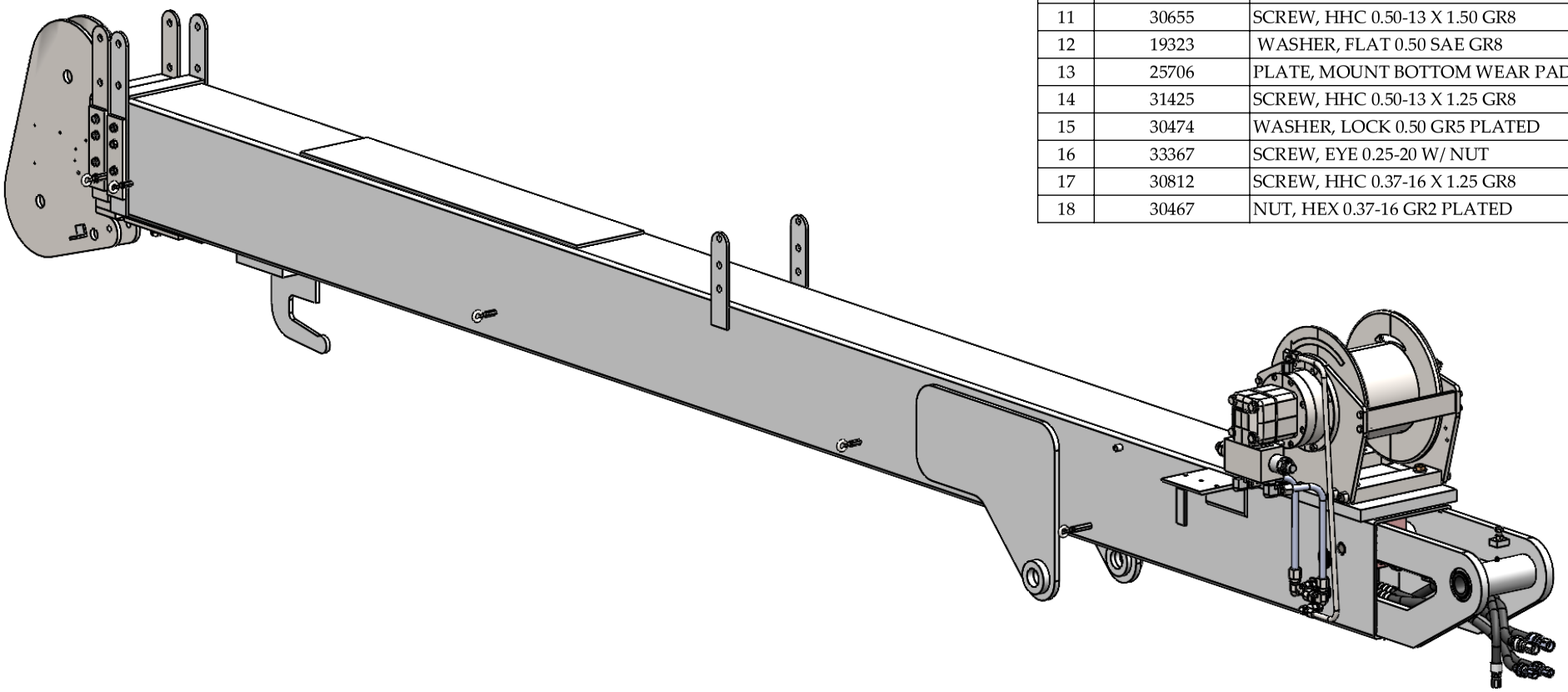
DRWN BY: JE
DATE: 8/11/16

SWIVEL, HYD/ELEC ASSY SHORT CTB

COUNTER BORE MOUNTING HOLES

DRAWING NO. 28145-0

ITEM	PART NUMBER	DESCRIPTION	QTY
1	29698	BOOM, OUTER ASSY 72100DXP-30	1
2	29737	BOOM, INNER ASSY 72100DXP-30	1
3	19833	PIN, TEARDROP 1.00 X 8.00	1
4	30459	SCREW, HHC 0.37-16 X 0.75 GR8	1
5	30473	WASHER, LOCK 0.37 GR5 PLATED	1
6	25693	PLATE, MOUNT SIDE WEAR PAD	2
7	30813	SCREW, HHC 0.37-16 X 1.00 GR8	8
8	33436	WASHER, LOCK 0.37 GR5 PLT I.T.	8
9	25691	PAD, NYLON 0.750 X 1 X 4 TAP	2
10	25692	PAD, NYLON 1" X 4" X 4" TAP	1
11	30655	SCREW, HHC 0.50-13 X 1.50 GR8	2
12	19323	WASHER, FLAT 0.50 SAE GR8	2
13	25706	PLATE, MOUNT BOTTOM WEAR PAD	1
14	31425	SCREW, HHC 0.50-13 X 1.25 GR8	4
15	30474	WASHER, LOCK 0.50 GR5 PLATED	6
16	33367	SCREW, EYE 0.25-20 W/ NUT	5
17	30812	SCREW, HHC 0.37-16 X 1.25 GR8	1
18	30467	NUT, HEX 0.37-16 GR2 PLATED	1



ISO VIEW

NOTES

1. - ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 10 FT-LBS.
2. - ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 30 FT-LBS.
3. - ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 70 FT-LBS.
4. - HAND TIGHT.

DESC: | BY | NA | 04/14/2021 | REV A

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

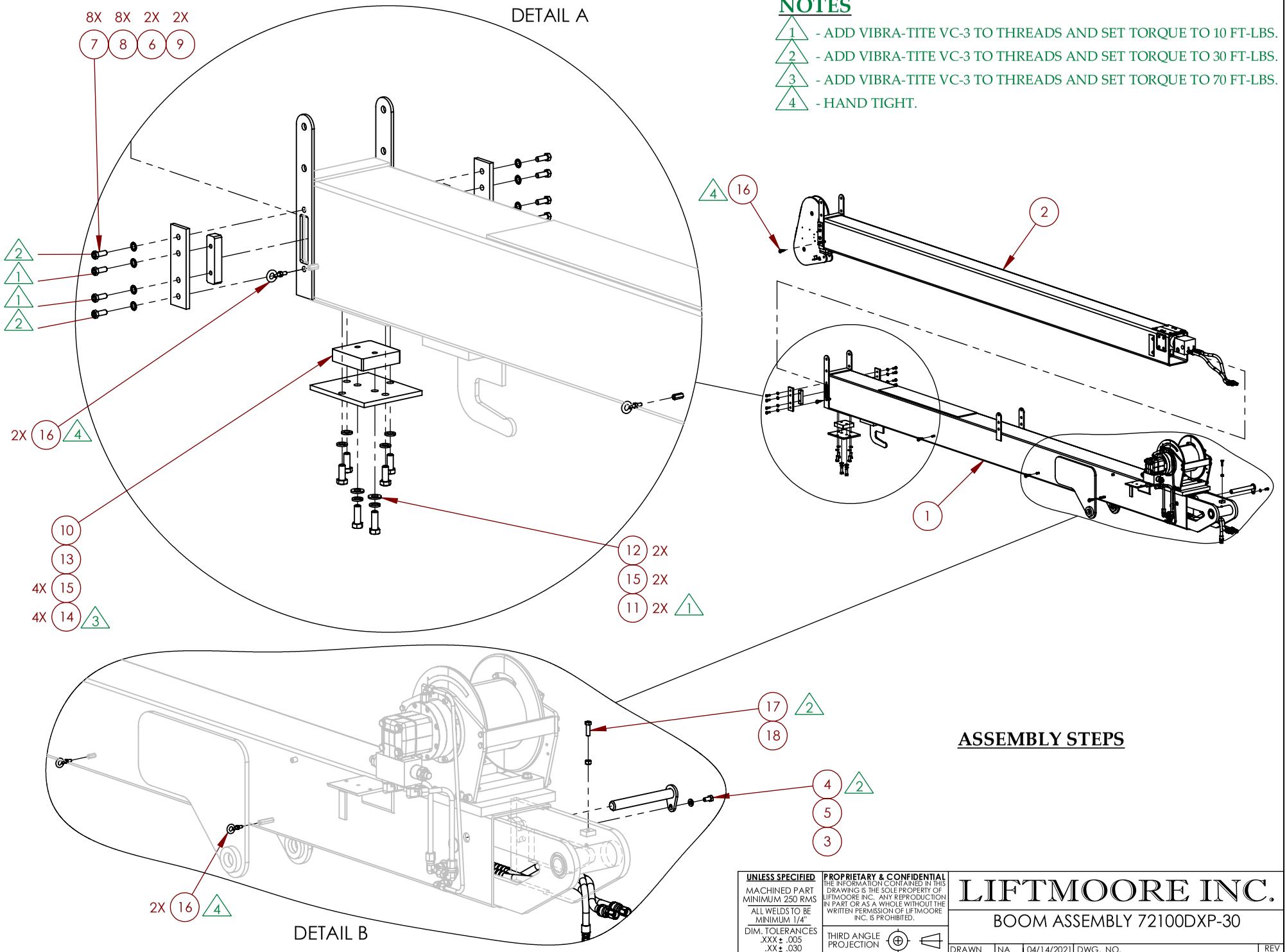
THIRD ANGLE PROJECTION

CHECKED	JE	04/14/2021
ENG APPR.	DP	04/14/2021

LIFTMOORE INC.

BOOM ASSEMBLY 72100DXP-30

DRAWN	NA	04/14/2021	DWG. NO. 29699	REV A
MTRL:		SHEET 1 - 2		
WEIGHT: 1916.328 Lbs				



NOTES

1. - ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 10 FT-LBS.
2. - ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 30 FT-LBS.
3. - ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 70 FT-LBS.
4. - HAND TIGHT.

ASSEMBLY STEPS

DESC:	BY	NA	04/14/2021 REV A

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

THIRD ANGLE PROJECTION

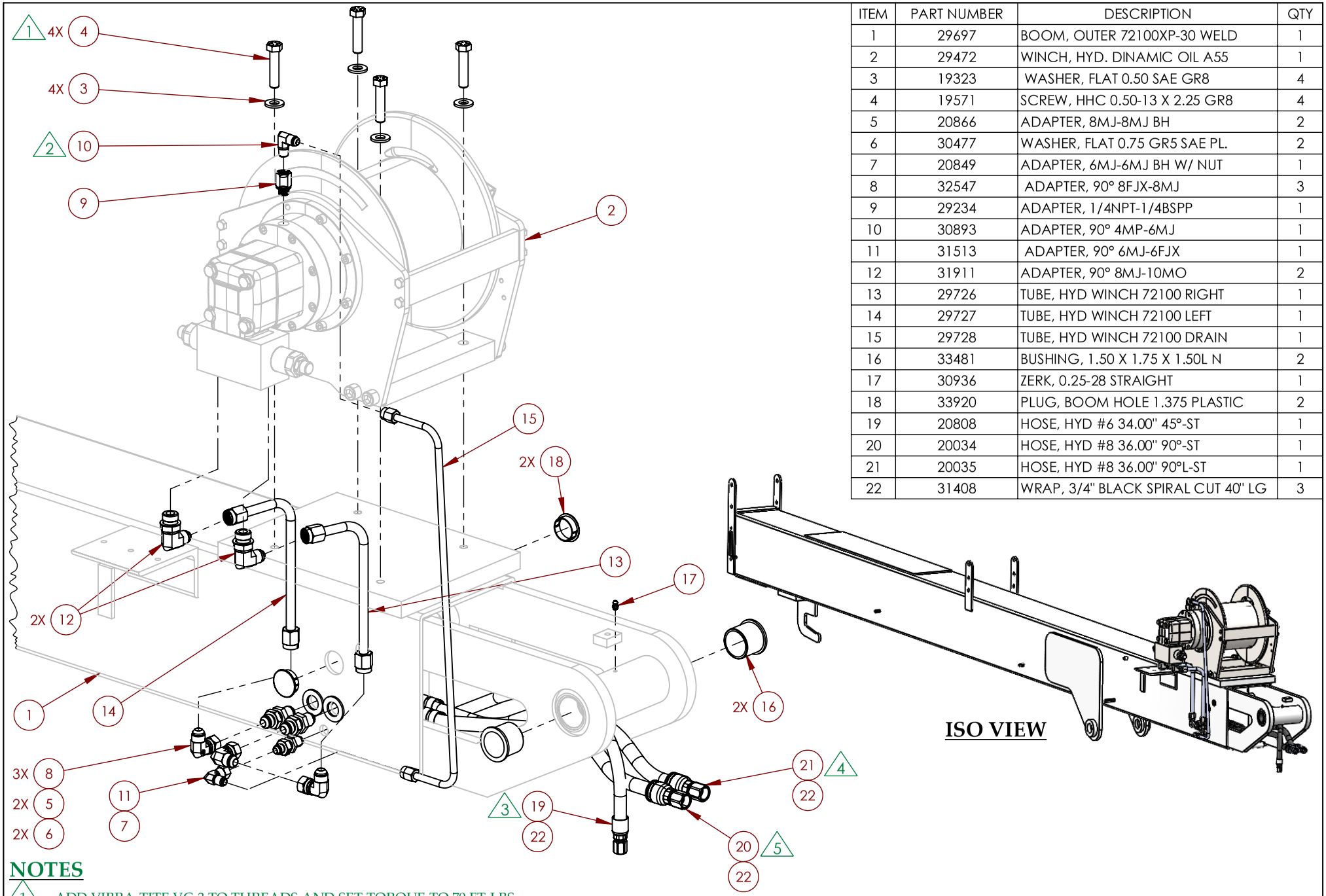
DRAWN	NA	04/14/2021
CHECKED	JE	04/14/2021
ENG APPR.	DP	04/14/2021

LIFTMOORE INC.

BOOM ASSEMBLY 72100DXP-30

MTRL: | SHEET 2 - 2 | DWG. NO. 29699 | REV A

WEIGHT: 1916.328 Lbs



ITEM	PART NUMBER	DESCRIPTION	QTY
1	29697	BOOM, OUTER 72100XP-30 WELD	1
2	29472	WINCH, HYD. DINAMIC OIL A55	1
3	19323	WASHER, FLAT 0.50 SAE GR8	4
4	19571	SCREW, HHC 0.50-13 X 2.25 GR8	4
5	20866	ADAPTER, 8MJ-8MJ BH	2
6	30477	WASHER, FLAT 0.75 GR5 SAE PL.	2
7	20849	ADAPTER, 6MJ-6MJ BH W/ NUT	1
8	32547	ADAPTER, 90° 8FJX-8MJ	3
9	29234	ADAPTER, 1/4NPT-1/4BSPP	1
10	30893	ADAPTER, 90° 4MP-6MJ	1
11	31513	ADAPTER, 90° 6MJ-6FJX	1
12	31911	ADAPTER, 90° 8MJ-10MO	2
13	29726	TUBE, HYD WINCH 72100 RIGHT	1
14	29727	TUBE, HYD WINCH 72100 LEFT	1
15	29728	TUBE, HYD WINCH 72100 DRAIN	1
16	33481	BUSHING, 1.50 X 1.75 X 1.50L N	2
17	30936	ZERK, 0.25-28 STRAIGHT	1
18	33920	PLUG, BOOM HOLE 1.375 PLASTIC	2
19	20808	HOSE, HYD #6 34.00" 45°-ST	1
20	20034	HOSE, HYD #8 36.00" 90°-ST	1
21	20035	HOSE, HYD #8 36.00" 90°L-ST	1
22	31408	WRAP, 3/4" BLACK SPIRAL CUT 40" LG	3

ISO VIEW

NOTES

1. - ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 70 FT-LBS.
2. - ADD TEFLON TAPE TO BOTTOM THREADS
3. - CONNECT HOSE (ITEM# 19) FROM BOTTOM FITTING (DRAIN) TO THE TEE FITTING
4. - CONNECT HOSE (ITEM# 20) TO TOP FRONT FITTING (PORT V2 ON THE WINCH)
5. - CONNECT HOSE (ITEM# 21) TO TOP BACK FITTING (PORT V1 ON THE WINCH)

DESC: CHANGED NOTES 4 & 5 | BY | NA | 04/30/2021 | REV B

UNLESS SPECIFIED
MACHINED PART MINIMUM 250 RMS
ALL WELDS TO BE MINIMUM 1/4"
DIM. TOLERANCES
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

THIRD ANGLE PROJECTION

CHECKED	JE	04/30/2021
ENG APPR.	DP	05/03/2021

LIFTMOORE INC.

BOOM, OUTER ASSY 72100DXP-30
DINAMIC OIL A55

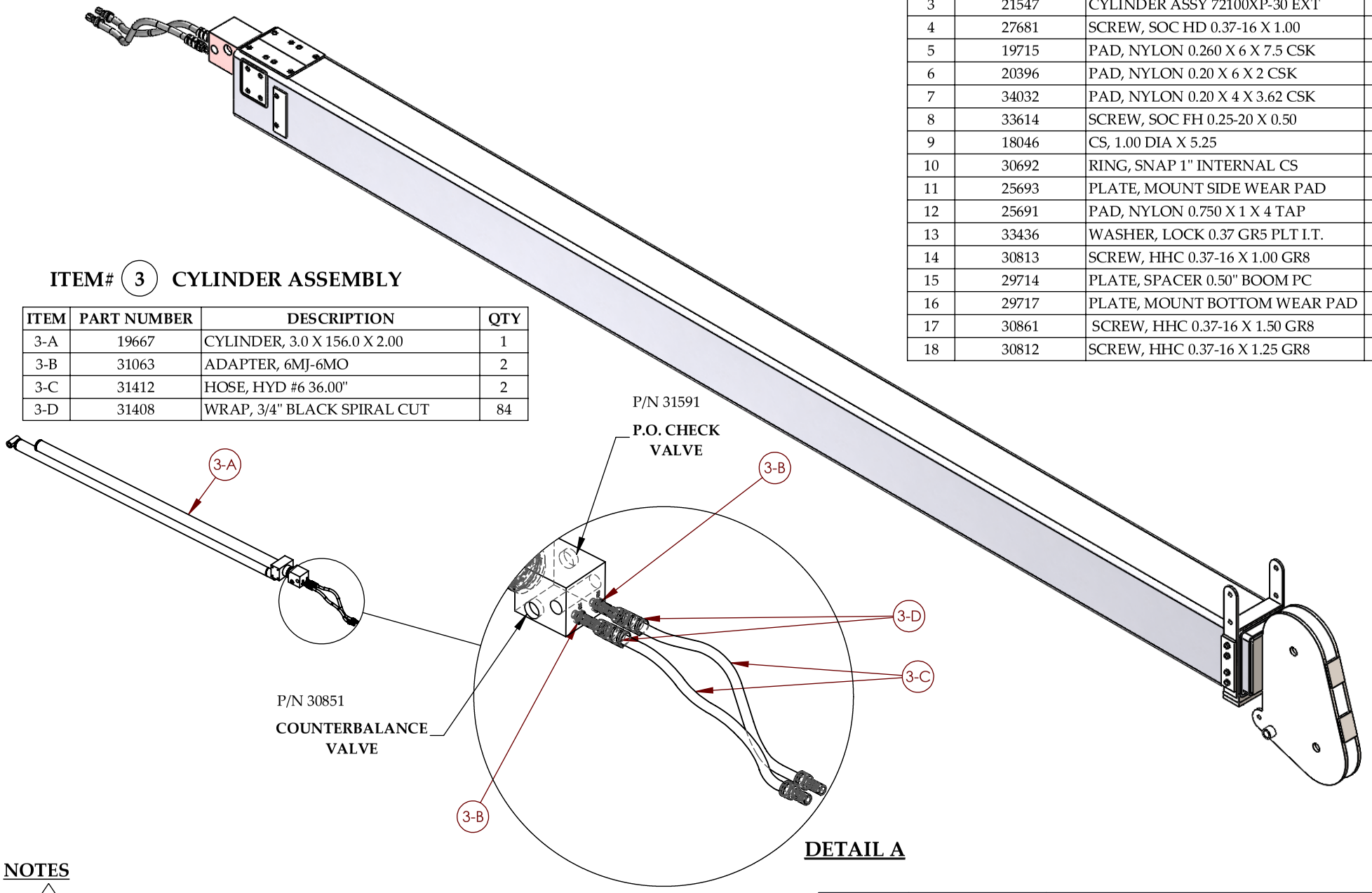
DRAWN	NA	04/30/2021	DWG. NO.	REV
MTRL:		SHEET 1 - 1	29698	B

WEIGHT: 782.176 Lbs

ITEM	PART NUMBER	DESCRIPTION	QTY
1	29736	BOOM, INNER 1ST 72100XP-30 WLD	1
2	29065	BOOM, INNER 2ND 72100XP-30 WLD	1
3	21547	CYLINDER ASSY 72100XP-30 EXT	1
4	27681	SCREW, SOC HD 0.37-16 X 1.00	8
5	19715	PAD, NYLON 0.260 X 6 X 7.5 CSK	1
6	20396	PAD, NYLON 0.20 X 6 X 2 CSK	2
7	34032	PAD, NYLON 0.20 X 4 X 3.62 CSK	2
8	33614	SCREW, SOC FH 0.25-20 X 0.50	20
9	18046	CS, 1.00 DIA X 5.25	1
10	30692	RING, SNAP 1" INTERNAL CS	2
11	25693	PLATE, MOUNT SIDE WEAR PAD	2
12	25691	PAD, NYLON 0.750 X 1 X 4 TAP	3
13	33436	WASHER, LOCK 0.37 GR5 PLT I.T.	14
14	30813	SCREW, HHC 0.37-16 X 1.00 GR8	8
15	29714	PLATE, SPACER 0.50" BOOM PC	1
16	29717	PLATE, MOUNT BOTTOM WEAR PAD	1
17	30861	SCREW, HHC 0.37-16 X 1.50 GR8	2
18	30812	SCREW, HHC 0.37-16 X 1.25 GR8	4

ITEM# (3) CYLINDER ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
3-A	19667	CYLINDER, 3.0 X 156.0 X 2.00	1
3-B	31063	ADAPTER, 6MJ-6MO	2
3-C	31412	HOSE, HYD #6 36.00"	2
3-D	31408	WRAP, 3/4" BLACK SPIRAL CUT	84



DETAIL A

NOTES

1. -ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 12 FT-LBS.
2. -ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 40 FT-LBS.
3. -ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 10 FT-LBS.
4. -ADD VIBRA-TITE VC-3 TO THREADS AND SET TORQUE TO 30 FT-LBS.

MACH. PART TO BE A MINIMUM 250 RMS UNLESS SPECIFIED

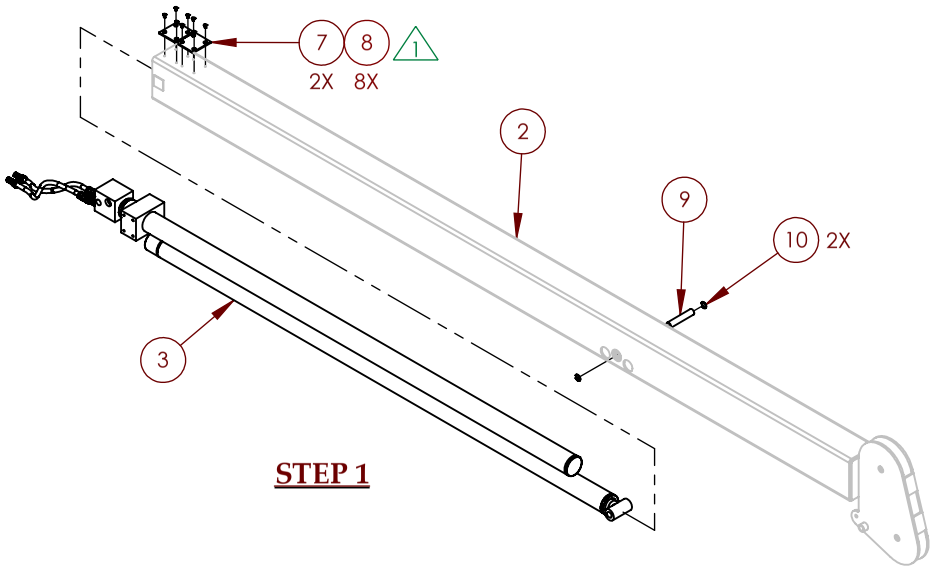
DEFAULT TOLERANCES UNLESS SPECIFIED:
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

DESC:	BY	NA 04/14/2021 REV A
CHECKED	JE	04/14/2021
ENG APPR.	DP	04/14/2021

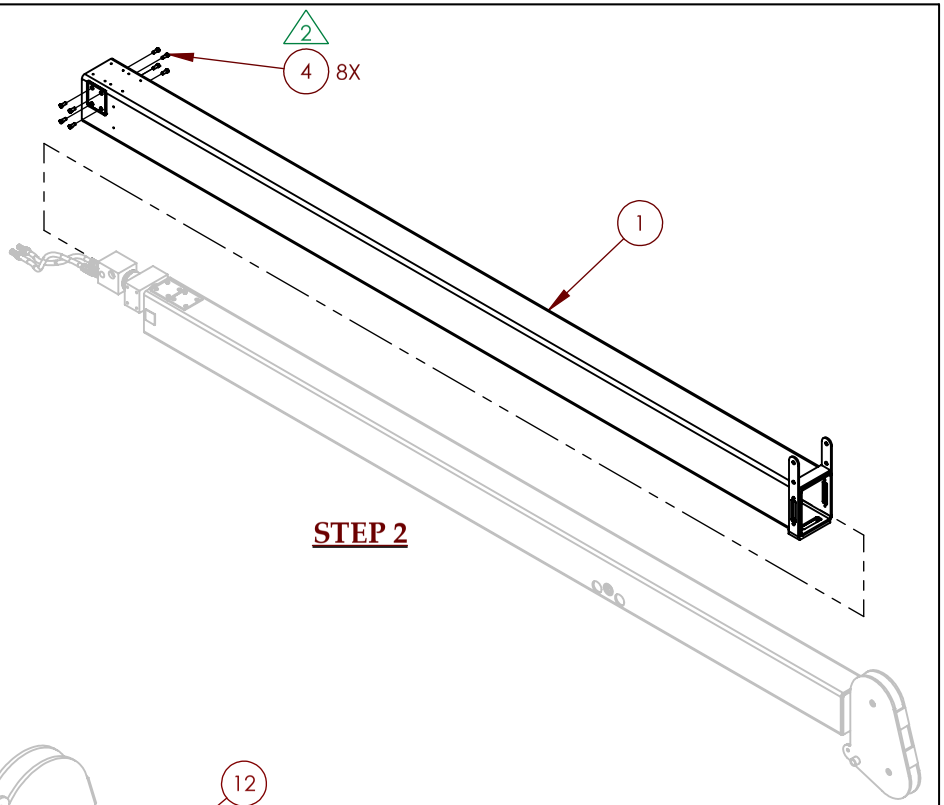
LIFTMOORE INC.

BOOM, INNER ASSY 72100DXP-30
WEAR PADS, EXT. CYL. SPACERS

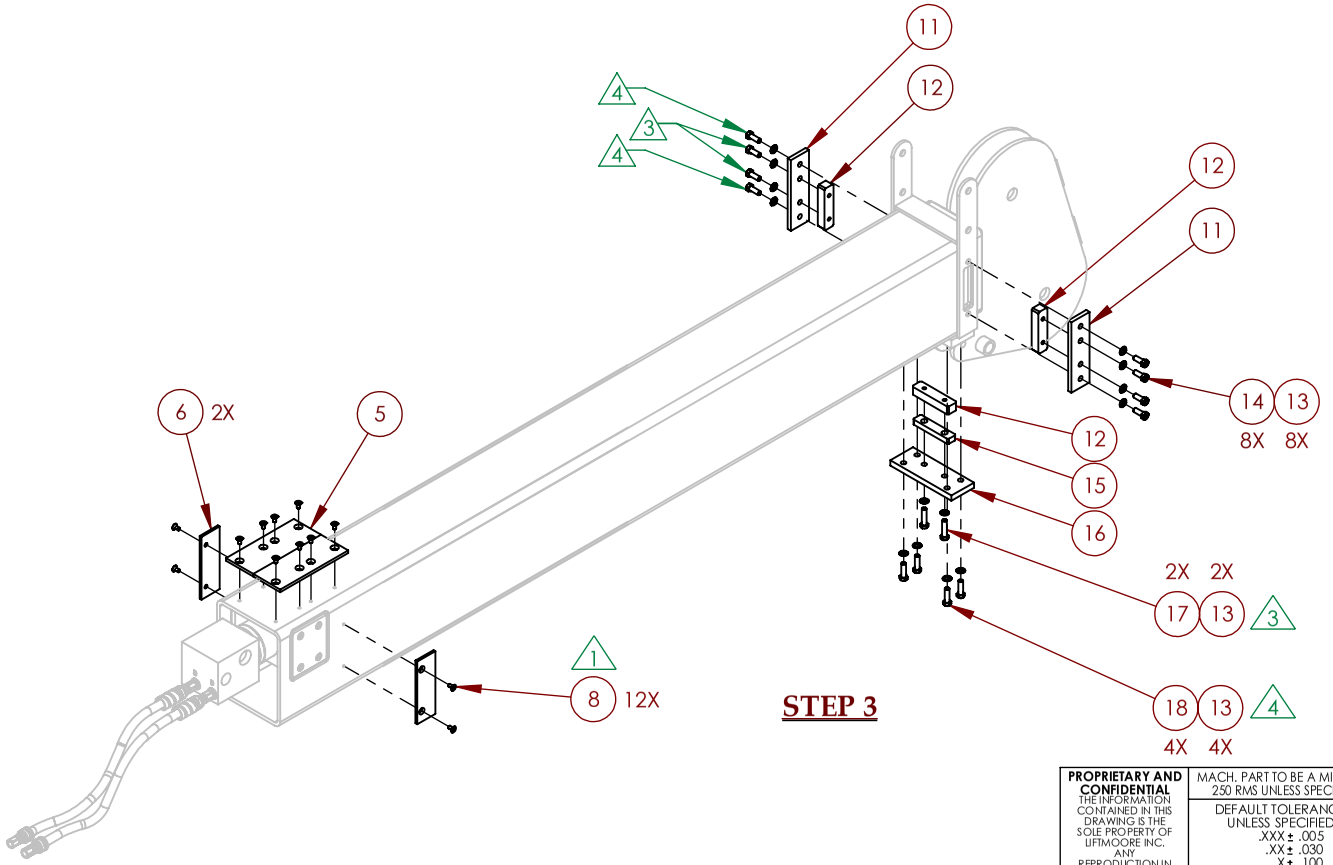
DRAWN	NA	04/14/2021	DWG. NO.	REV
MTRL:		SHEET 1 - 2	29737	A
WEIGHT: 1123.229 Lbs				



STEP 1



STEP 2



STEP 3

MACH. PART TO BE A MINIMUM 250 RMS UNLESS SPECIFIED

DEFAULT TOLERANCES UNLESS SPECIFIED:
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

CHECKED	JE	04/14/2021
ENG APPR.	DP	04/14/2021

LIFTMOORE INC.

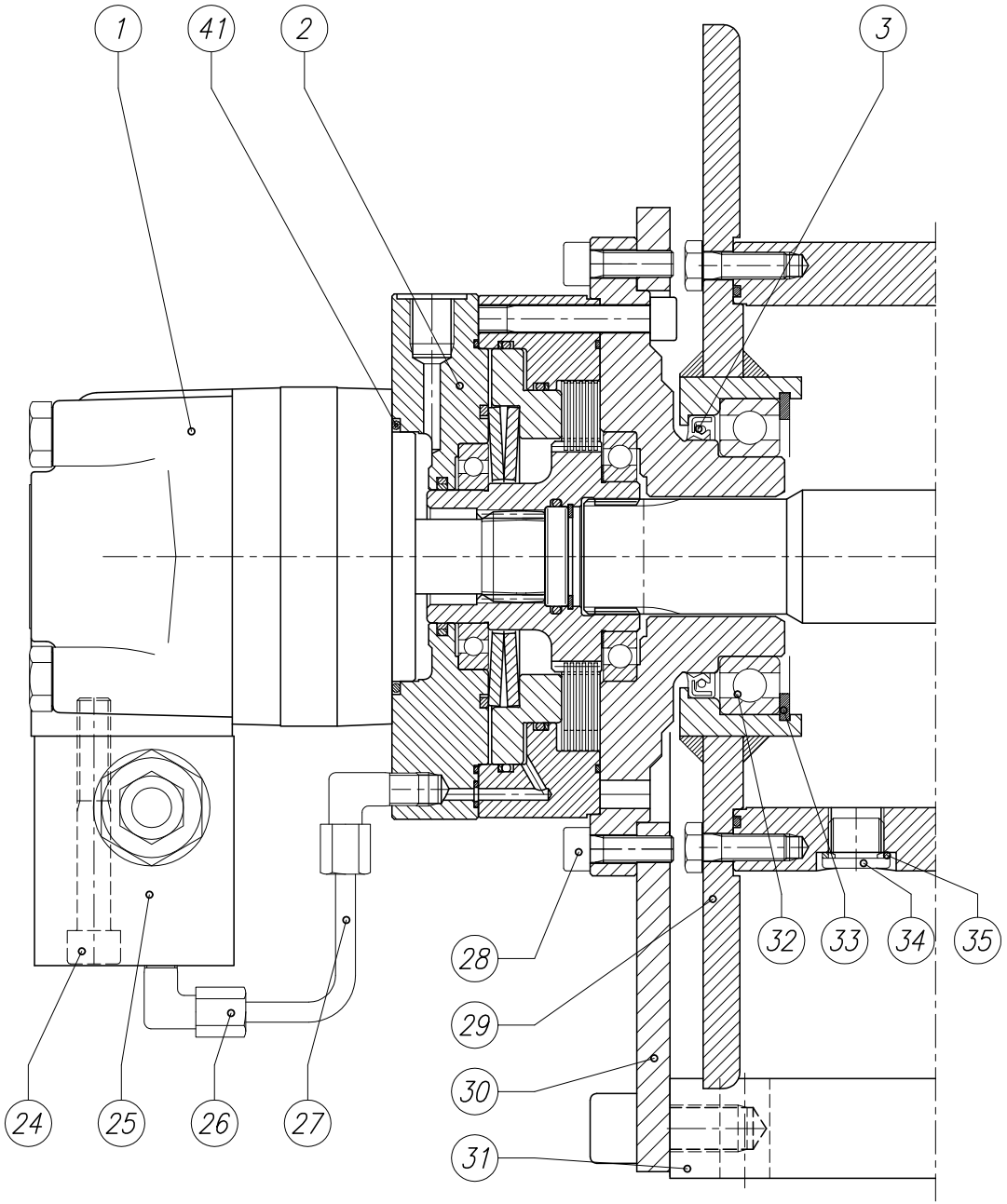
BOOM, INNER ASSY 72100DXP-30

WEAR PADS, EXT. CYL. SPACERS

DRAWN	NA	04/14/2021	DWG. NO. 29737	REV A
MTRL:		SHEET 2 - 2		
WEIGHT: 1123.229 Lbs				

DESC: | BY | NA | 04/14/2021 | REV A

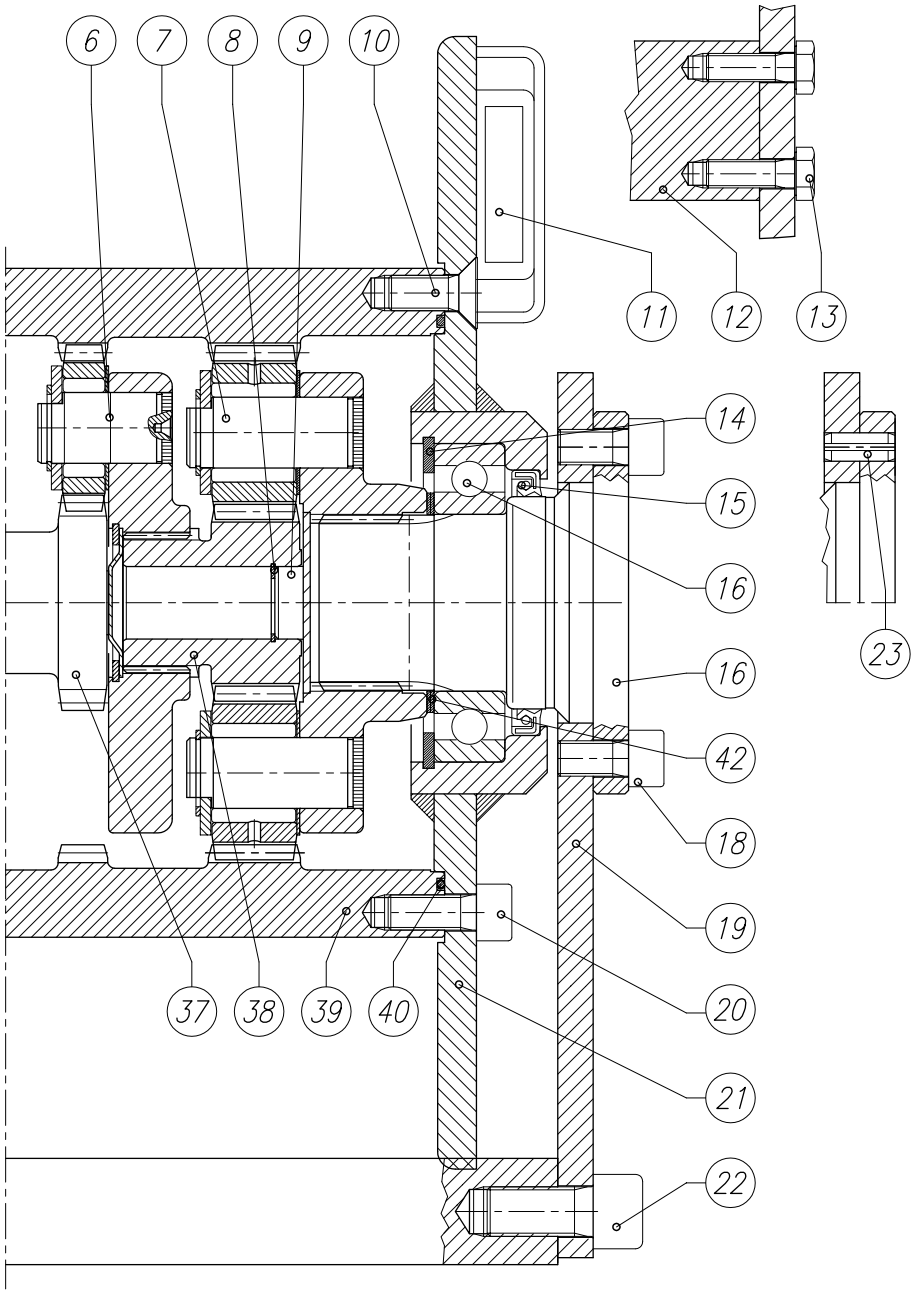
Winch	Variant	Machine	A55 EZ5 OWC DOPPIA	
		Machine	9205003401	1/1



Pos	Code	Q.ty	Description
1	425026100	1	Engine
2	02981085	1	Brake unit
3	415002200	1	Oil retainer seal
24	410001900	2	Hex socked head cap screw
25	438041600	1	Valve
26	440000100	2	90° Connection (Conical)
27	02671089	1	Brake pipe
28	410403000	8	Hex socked head cap screw
29	029911207	1	Side flange (motor side)
30	023410272	1	Motor side support
31	024510174	2	Fastening surface plate
32	400002600	1	Ball bearing
33	421102100	1	Retaining ring
34	419000700	1	Plug
35	423000600	1	Copper washer

29472 WINCH, HYD DINAMIC OIL A55

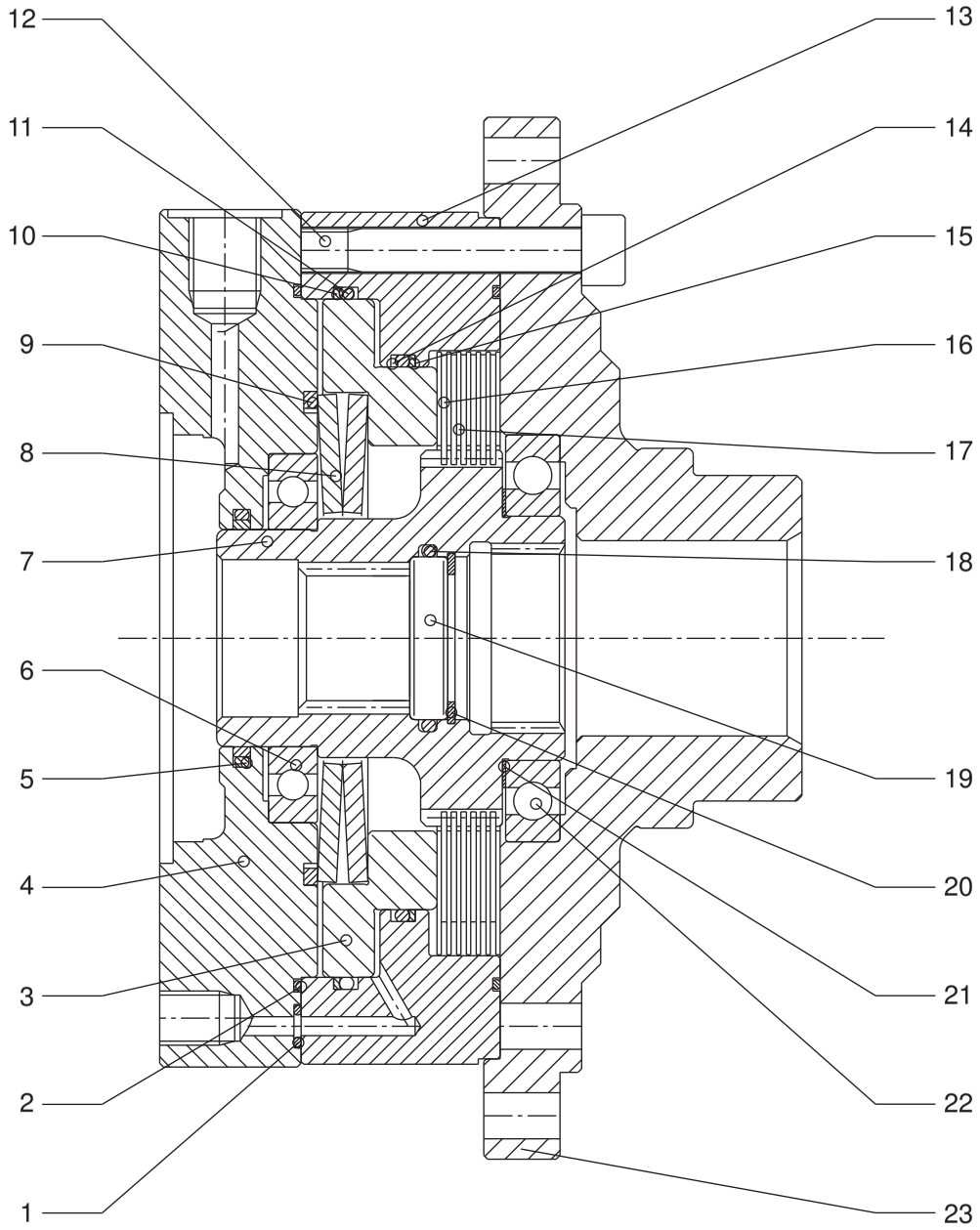
Winch	Variant	Machine	A55 EZ5 OWC DOPPIA	
		Machine	9205003401	1/1



Pos	Code	Q.ty	Description
6	99102500	1	Reduction gear unit (RE 110)
7	99143000	1	Reduction gear unit
8	421104000	1	Seeger
9	02741008	1	Insert
10	410101200	2	Hex socket countersunk head
11	241002000	1	Thimble
12	024510175	2	Cross member
13	410201100	16	Hexagon screw
14	421101700	1	Seeger
15	415006900	1	Oil retainer seal
16	400022100	1	Ball bearing
17	02371015	1	Antirotation flange
18	410022600	8	Hex socked head cap screw
19	023410273	1	Gear side support
20	410407000	4	Hex socked head cap screw
21	029912241	1	Side flange (gear side)
22	410409500	8	Hex socked head cap screw
23	434014700	2	Spring pin
37	02611366	1	Sun gear
38	02611070	1	Sun gear
39	023010141	1	Winch drum
40	406023600	2	O-ring joint
42	427006200	2	Shim ring

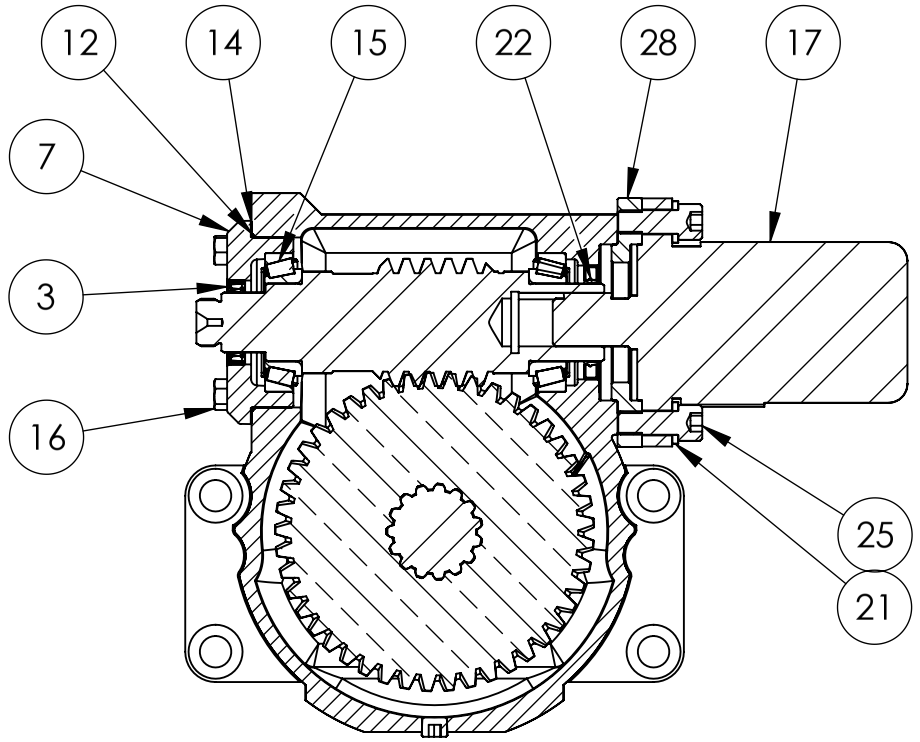
29472 WINCH, HYD DINAMIC OIL A55

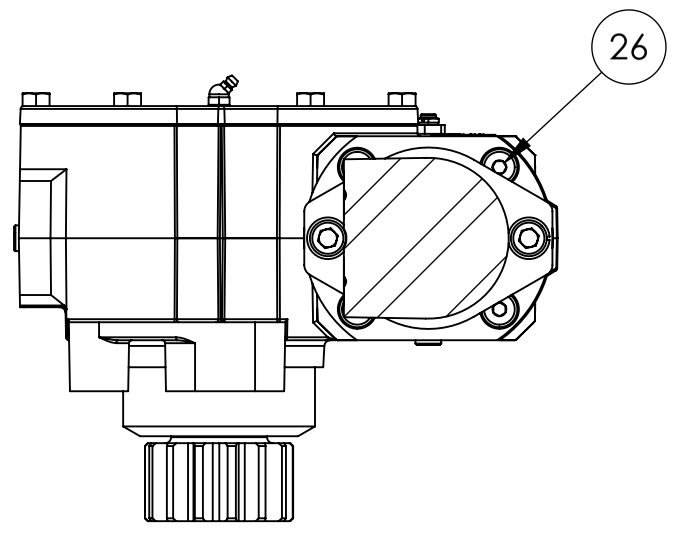
Brake unit	Variant	Machine	A55 EZ5 OWC DOPPIA	
		Machine	9205003401	1/1

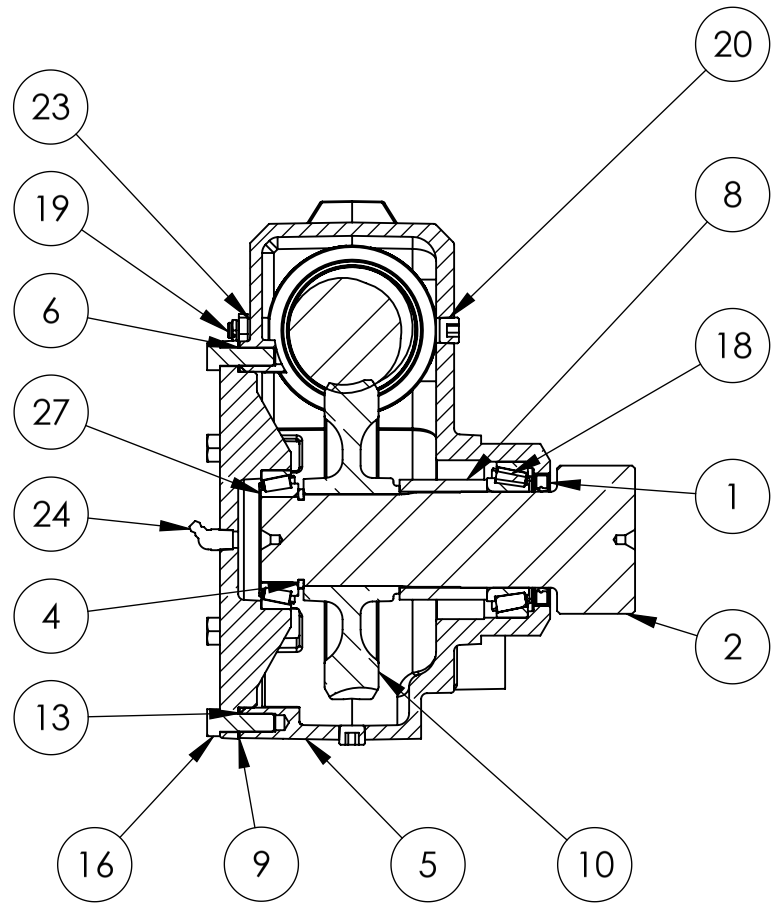


Pos	Code	Q.ty	Description
1	406001100	1	O-ring joint
2	406001200	2	O-ring joint
3	02271007	1	Piston
4	02461087	1	Flange
5	415061900	1	Seal
6	400003900	1	Ball bearing
7	02241087	1	Gear
8	416201400	2	Belleville washer
9	415021200	1	Shoulder ring
10	406016700	1	O-ring joint
11	415067500	1	Antiextrusion ring
12	410403800	8	Hex socked head cap screw
13	02431013	1	Brake body
14	406015900	1	O-ring joint
15	415069000	1	Antiextrusion ring
16	02941016	7	Disc
17	02941017	6	Disc
18	406005800	1	O-ring joint
19	02741005	1	Insert
20	421100400	1	Seeger
21	427004900	1	Shim ring
22	400003000	1	Ball bearing
23	02331058	1	Supporting flange

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	3309	SEAL, OIL #19831	1
2	AT14553P	OUTPUT PINION	1
3	AT3263	SEAL, OIL #12355PTC	1
4	AT3651	SNAP RING, INT SHR175STPA	1
5	AT4301LA-2	HOUSING	1
6	AT4306A-1	CAP, GEAR	1
7	AT4309	CAP, WORM	1
8	AT4327-2	SPACER, GEAR	1
9	AT4332-1SBP	SHIM, GEAR CAP .010 BROWN	1
9	AT4332-1SHP	SHIM, GEAR CAP .0075 NATURAL	1
9	AT4332-1SMP	SHIM, GEAR CAP .005 BLUE	1
9	AT4332-1SYP	SHIM, GEAR CAP .003 GREEN	1
10	AT4345G	GEAR, WORM 45:1	1
11	AT4345X6	WORM 45:1	1
12	AT4354	O-RING, PARKER 2-043	1
13	AT4354-2	O-RING, PARKER 2-165	1
14	AT4542SHP	SHIM, WORM .0075 NATURAL	1
14	AT4542SMP	SHIM, WORM .005 BLUE	1
14	AT4542SYP	SHIM, WORM .003 GREEN	1
15	AT4552C & AT4552R	BRG, ROLLER CUP NP761714 & CONE NP535811	2
16	HCA3223F	3/8-16 X 1 1/8" HHCS GRD 5	10
17	MA00149	MOTOR, HYD 4.7 CIPR	1
18	PT8061C & PT8061R	BRG, ROLLER CUP-LM104911 & CONE-LM104949	1
19	SB1889	VENT, PRESSURE 1-5 PSIG	1
20	SB2671A	1/4-18 NPT HEX SOC PLUG	2
21	SB4546	1/2" SPLIT LOCKWASHER	2
22	SB4563	OIL SEAL C/R 16084	1
23	SB4567	BUSHING, RED 1/8 X 1/4	1
24	SB4599A	GREASE FITTING 1/8 NPT 45°	1
25	SC4523ES	1/2-13 X 1 1/4" SHCS SS	2
26	SCL4523B	1/2-13 X 1" LSHCS	4
27	SH2161C & SH2161R	BRG, ROLLER CUP LM102910 & CONE LM102949	1
28	WT4356H-1	MOTOR ADAPTER	1







UNLESS OTHERWISE SPECIFIED, ALL DETAILS MUST BE FREE OF BURRS AND SHARP EDGES, WHICH MAY BE DETRIMENTAL TO SATISFACTORY ASSEMBLY, SAFE HANDLING, OR FUNCTION.

PART NO.	AT19549S
MATERIAL NO.	
MATERIAL TYPE	
SPEC.	
HEAT TREAT	

DRAWN BY:	DRAWN BY DATE: 10-29-19
CHKD. BY:	CHKD. BY DATE:

UNLESS OTHERWISE SPECIFIED
DIMS ARE IN INCHES
TOL ON ANGLE ±.5°
1 PL ±.050 2 PL ±.010 3 PL ±.005
SURFACE FINISH TO BE 125 µin
INTERPRET DIM AND TOL PER ASME Y14.5M - 1994

THIRD ANGLE PROJECTION

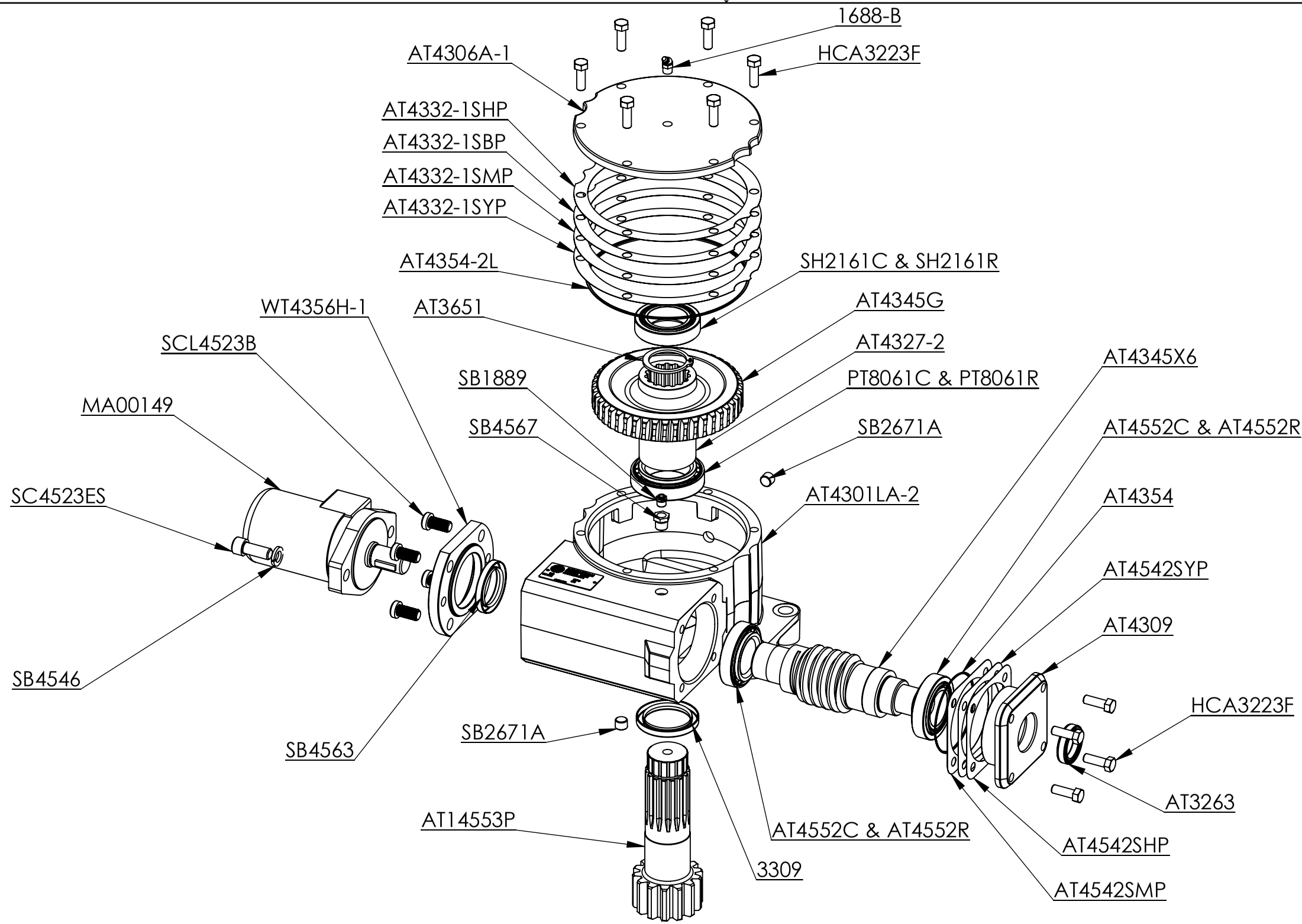
PG **LIFTMOORE CRANES**

NAME: PARTS PAGE

UNIT: REF LIFTMOORE #29116

SIZE	CAGE CODE	DWG NO.	REV
B		29116	B

SCALE	WEIGHT	Sheet
1:4	WEIGHT: 85.31 LBS	Sheet1 of 2



UNLESS OTHERWISE SPECIFIED, ALL DETAILS MUST BE FREE OF BURRS AND SHARP EDGES, WHICH MAY BE DETRIMENTAL TO SATISFACTORY ASSEMBLY, SAFE HANDLING, OR FUNCTION.	PART NO. AT19549S	DRAWN BY:	DRAWN BY DATE: 10-29-19
	MATERIAL NO.	CHKD. BY:	CHKD. BY DATE:
	MATERIAL TYPE	UNLESS OTHERWISE SPECIFIED DIMS ARE IN INCHES TOL ON ANGLE ±.5° 1 PL ±.050 2 PL ±.010 3 PL ±.005 SURFACE FINISH TO BE 125 µin INTERPRET DIM AND TOL PER ASME Y14.5M - 1994	
	SPEC.		
	HEAT TREAT	THIRD ANGLE PROJECTION	

LIFTMOORE CRANES

NAME: EXPLODED VIEW

UNIT: REF LIFTMOORE #29116

SIZE	CAGE CODE	DWG NO.	REV
B		29116	B

SCALE 1:5 | WEIGHT: 85.31 LBS | Sheet 2 of 2

CIRCUIT NUMBER AND DESCRIPTION

Color	Length	Connectors		Function
RED	30"	P12B.1	P2-R.1	ROT CW
RED/BLK	26"	P12B.2	P2-RA.1	ROT CCW
GRN	28"	P12B.5	P2-L.1	BOOM UP
ORN	24"	P12B.6	P2-LA.1	BOOM DWN
GRN/BLK	22"	P12B.3	P2-X.1	EXT OUT
ORN/BLK	26"	P12B.4	P2-XA.1	EXT IN
BLU	24"	P12B.7	P2-HA.1	HOIST UP
BLK	20"	P12B.8	P2-H.1	HOIST DWN
WHT	15"	P12B.12	P2-U.2	UP LIMIT SWITCH
RED	14"	P12D.8	P2-U.1	UP LIMIT SW. 12V
WHT/BLK	23"	P12A.10	P2-P.1	PROP
WHT	13"	P12A.2	P4-CH.1	CAN HI MAIN
GRN	13"	P12A.3	P4-CL.1	CAN LOW MAIN
YEL/BLK	13"	P12A.7	P2-ATB.2	ATB
RED	15"	P12A.12	P12D.2	REC. PWR 12V
RED	12"	P12D.3	P2-ATB.1	PWR, ATB 12V
RED	11"	P12D.4	P4-J.1	PWR, CAN 12V
GRN	9"	P4-CL.2	P4-J.3	CAN LOW
WHT	9"	P4-CH.2	P4-J.4	CAN HI
YEL	N/A	P12D.1	MAIN PWR	FUSE HOLDER
BLK	8"	P12A.11	BLU/FEM	HORN 12V

MAIN GROUND TERMINAL

BRN	7"	P12C.1	TR-1	MAIN GROUND
BRN	13"	P12C.2	P12A.1	RECEIVER GROUND
BRN	23"	P12C.3	P2-RA.2	ROT CCW VALVE GND
BRN	27"	P12C.4	P2-R.2	ROT CW VALVE GND
BRN	25"	P12C.5	P2-L.2	ELEV UP VALVE GND
BRN	21"	P12C.6	P2-LA.2	ELEV DWN VALVE GND
BRN	19"	P12C.7	P2-X.2	EXT OUT VALVE GND
BRN	23"	P12C.8	P2-XA.2	EXT IN VALVE GND
BRN	17"	P12C.9	P2-H.2	WINCH DN VALVE GND
BRN	21"	P12C.10	P2-HA.2	WINCH UP VALVE GND
BRN	20"	P12C.11	P2-P2	PROP. VALVE GND
BRN	9"	P12C.12	P4-J.2	CAN GND

P6-GND GROUND TERMINAL

BRN	7"	P6-GND.1	TR-1	MAIN GROUND
BRN	23"	P6-GND.5	BF-2	HORN GND

LIFTMOORE, INC
Houston TX
(713)-688-5533

EWH, DTCH HYD XP 60100/72100 WP
TRANSDUCER, INCLINOMETER

DRAWING NO. 29515-0

DATE: 3/31/21

DRWN BY: JE

CHK'D BY:

MATRL:

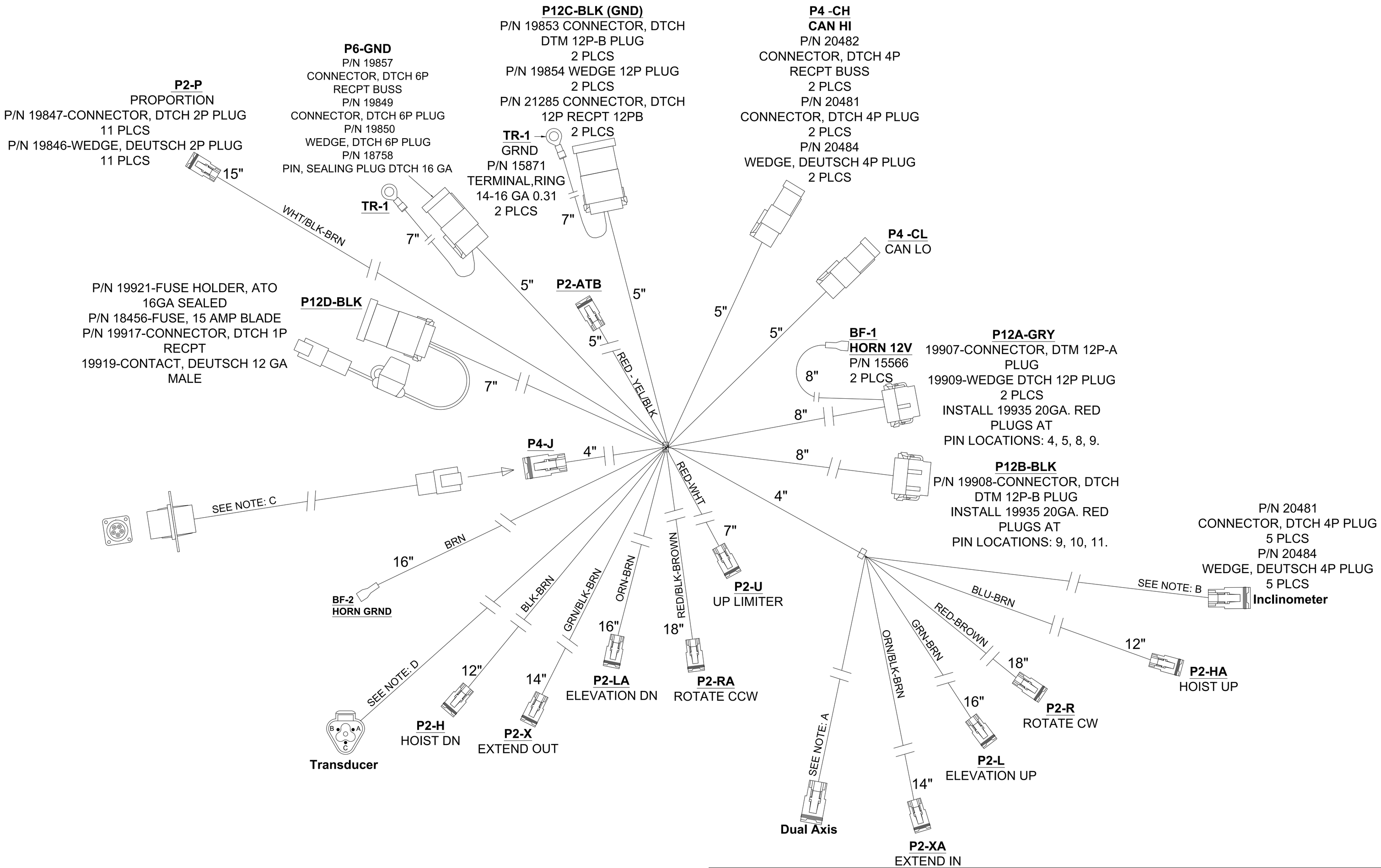
TYPICAL TOLERANCES
MACHINE ± .005
PLASMA ± 1/32
WELD ± 1/16

CAD DRAWING
DO NOT SCALE

PRE-BUILD

REPORT ERRORS OR CHANGES TO ENGINEERING IMMEDIATELY

REV.	DATE	BY	DESCRIPTION



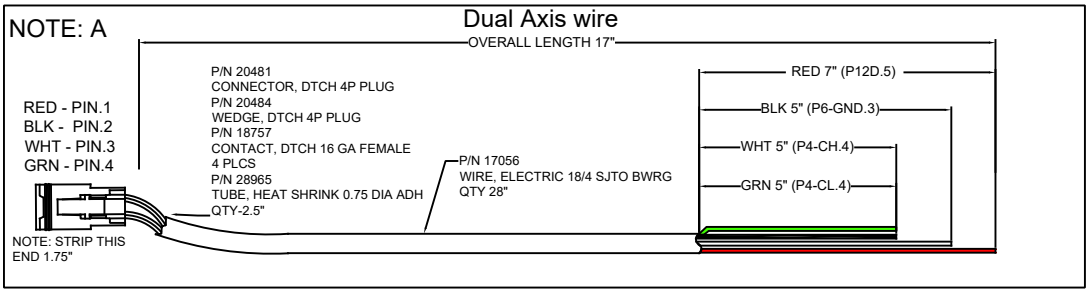
PRE-BUILD

REPORT ERRORS OR CHANGES TO
ENGINEERING IMMEDIATELY

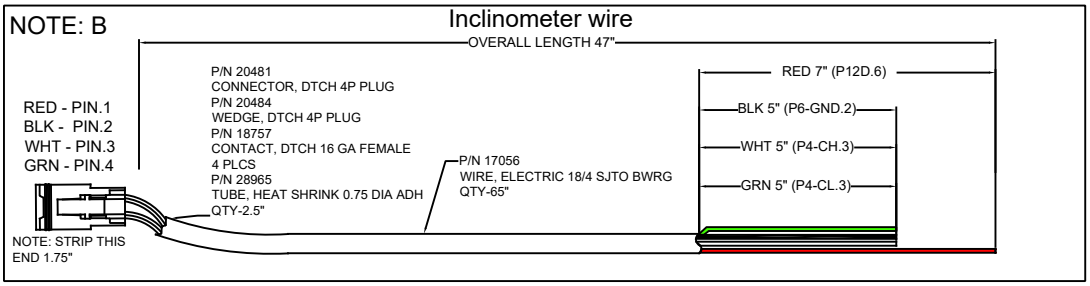
DESCRIPTION	BY	DATE	REV.

TYPICAL TOLERANCES	LIFTMOORE, INC Houston TX (713)-688-5533		
MACHINE ± .005 PLASMA ± 1/32 WELD ± 1/16	EWH, DTCH HYD XP 60100/72100 WP TRANSDUCER, INCLINOMETER		
CAD DRAWING DO NOT SCALE	DRWN BY: JE	DATE: 3/31/21	DRAWING NO. 29515-0
	CHK'D BY:	MATRL:	

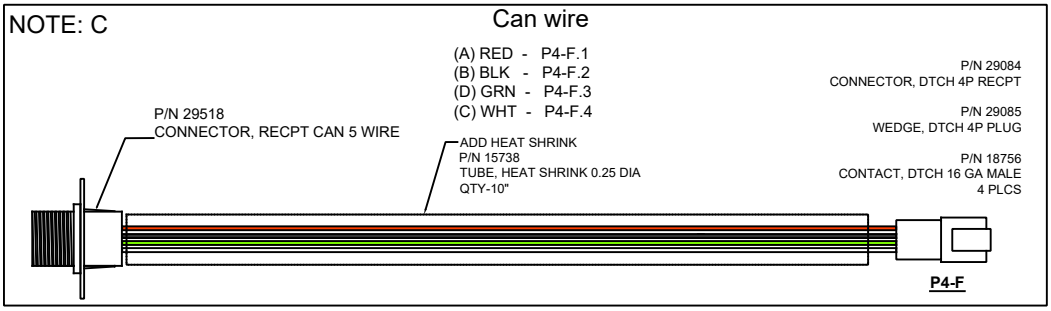
NOTE: A — Dual Axis wire



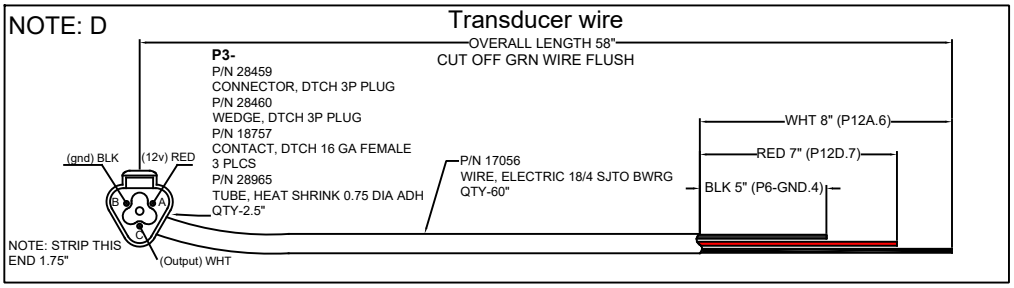
NOTE: B — Inclinometer wire



NOTE: C — Can wire



NOTE: D — Transducer wire



LIFTMOORE, INC
Houston TX
(713)-688-5533

EWH, DTCH HYD XP 60100/72100 WP
TRANSDUCER, INCLINOMETER

DRAWING NO. 29515-0

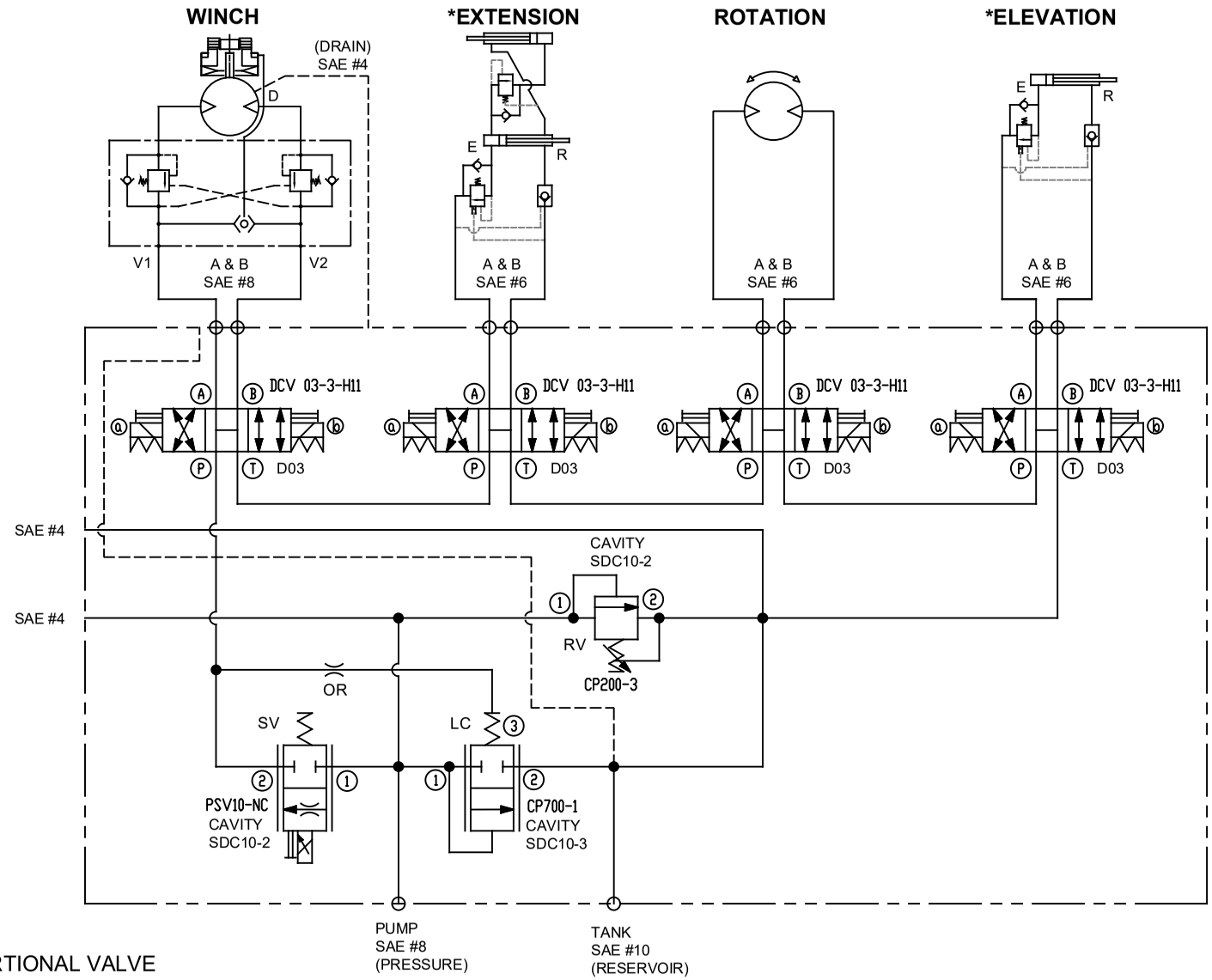
DRWN BY: JE | DATE: 3/31/21

CHK'D BY: | MATRL:

CAD DRAWING
DO NOT SCALE

TYPICAL TOLERANCES
MACHINE ± .005
PLASMA ± 1/32
WELD ± 1/16

REV.	DATE	BY	DESCRIPTION



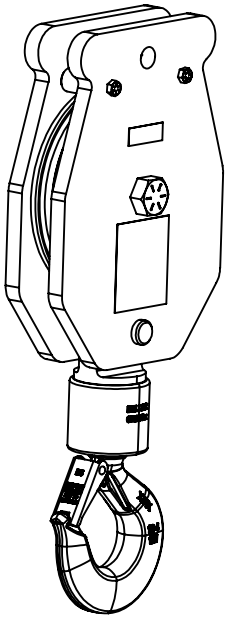
SV = PROPORTIONAL VALVE
LC = LOGIC VALVE
RV = RELIEF VALVE
DO3 = OPEN CENTER VALVES

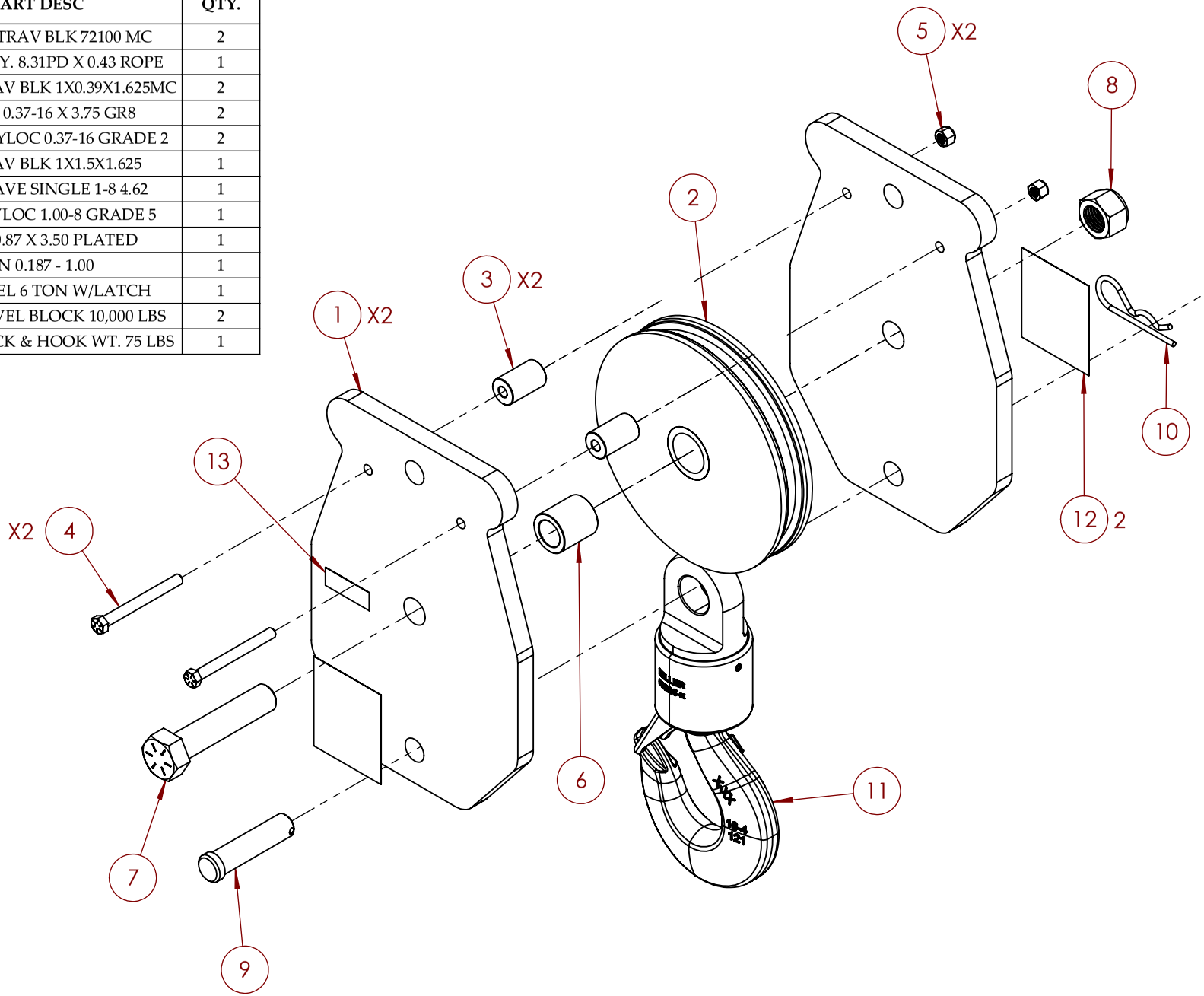
*NOTE: CYLINDER COUNTER BALANCE VALVE & PO CHECK VALVE ARE INTERNAL IN THE CYLINDER.

DESCRIPTION	BY	DATE	REV.

TYPICAL TOLERANCES	LIFTMOORE, INC Houston TX (713)-688-5533		
MACHINE ±.005 PLASMA ±1/32 WELD ±1/16	HYD. SCHEM. - PROP. CONTROL CRANES 72100 CRANES, DINAMIC OIL WINCH, CASE DRAIN WINCH		
CAD DRAWING DO NOT SCALE	DRWN BY: JE	DATE: 2/9/21	DRAWING NO. 50940-0
	CHK'D BY:	MATRL:	

ITEM NO.	PART NUMBER	PART DESC	QTY.
1	29148	PLATE, SIDE TRAV BLK 72100 MC	2
2	22621	SHEAVE ASSY. 8.31PD X 0.43 ROPE	1
3	22523	SPACER, TRAV BLK 1X0.39X1.625MC	2
4	22761	SCREW, HHC 0.37-16 X 3.75 GR8	2
5	30834	NUT, HEX NYLOC 0.37-16 GRADE 2	2
6	22578	SPACER, TRAV BLK 1X1.5X1.625	1
7	21322	SCREW, SHEAVE SINGLE 1-8 4.62	1
8	30838	NUT, HEX NYLOC 1.00-8 GRADE 5	1
9	32658	PIN, CLEVIS 0.87 X 3.50 PLATED	1
10	31948	CLIP, HAIRPIN 0.187 - 1.00	1
11	30759	HOOK, SWIVEL 6 TON W/LATCH	1
12	19769	DECAL, TRAVEL BLOCK 10,000 LBS	2
13	22818	DECAL, BLOCK & HOOK WT. 75 LBS	1





CAUTION:

NEVER USE A HOOK WHEN THROAT OPENING HAS BEEN INCREASED. ALSO INCLUDES, WHEN BENT MORE THAN 10 DEGREES OUT OF PLANE FROM THE HOOK BODY, OR IS DISTORTED.

MACH. PART TO BE A MINIMUM 250 RMS UNLESS SPECIFIED

DEFAULT TOLERANCES UNLESS SPECIFIED:
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

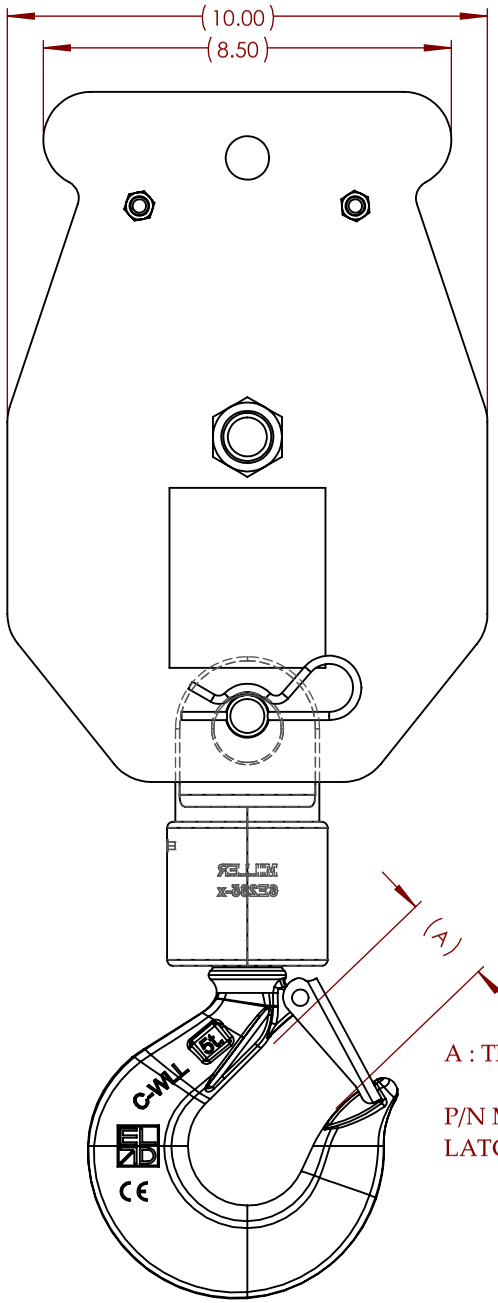
CHECKED	JE	05/07/2021
ENG APPR.	DP	05/07/2021

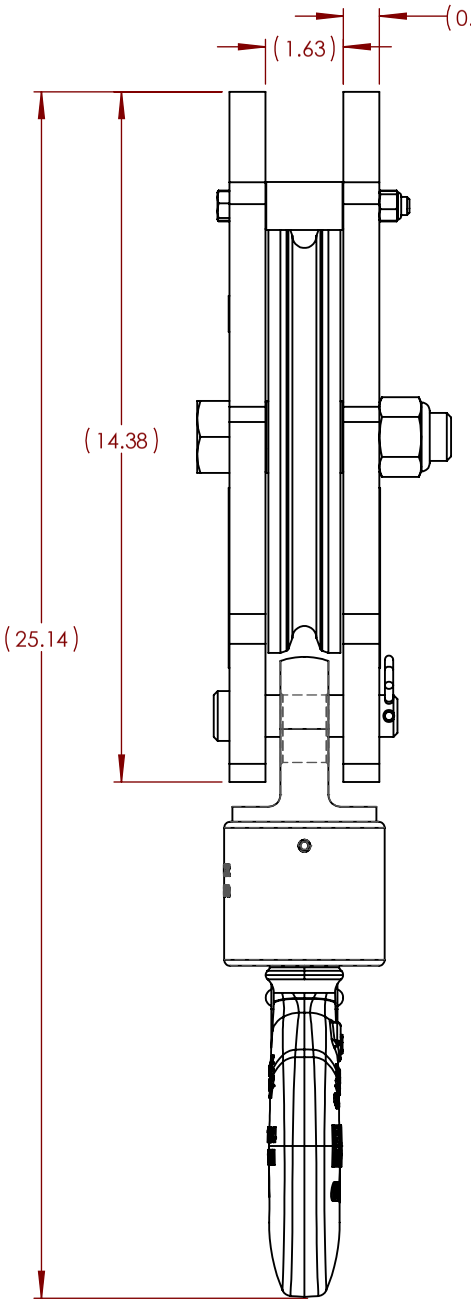
LIFTMOORE INC.

BLOCK, TRAV ASSY 10K lbs/9.0D
8.31PD X 0.43 ROPE: 10,000LBS

DRAWN	NA	05/07/202	DWG. NO.	REV
MTRL:		SHEET 1 - 1	29145	A
WEIGHT: 75.806 Lbs				

DESC: | BY | NA | 05/07/2021 | REV A





A : THROAT OPENING DIMENSION= 1.88"

P/N ML-M291804005
LATCH, SAFETY 5 TON HOOK KIT

MACH. PART TO BE A MINIMUM 250 RMS UNLESS SPECIFIED

DEFAULT TOLERANCES UNLESS SPECIFIED:
.XXX ± .005
.XX ± .030
.X ± .100
FRAC. ± 1/16
XX° ± .5°

CHECKED	JE	05/07/2021
ENG APPR.	DP	05/07/2021

LIFTMOORE INC.

BLOCK, TRAV ASSY 10K lbs/9.0D

8.31PD X 0.43 ROPE: 10,000LBS

DRAWN	NA	05/07/202	DWG. NO.	REV
MTRL:		SHEET 2 - 2	29145	A
WEIGHT: 75.806 Lbs				

DESC:

BY		
NA	05/07/2021	REV A

THIS DRAWING INTENTIONALLY LEFT BLANK

FOR FUTURE ADDITIONS
OR
A PART OR FEATURE IS NOT APPLICABLE TO THIS CRANE

LIFTMOORE LIMITED WARRANTY

Parts and Structural

Liftmoore, Inc. warrants each LIFTMOORE crane to be free from defects in materials and workmanship for twelve (12) months from the date of delivery to the original customer. Under the terms of this warranty the crane structural components manufactured by LIFTMOORE, Inc. are warranted for thirty-six (36) months from the date of delivery to the original customer. LIFTMOORE, Inc. will repair or replace, as its sole discretion, any equipment or part that is returned f.o.b. to LIFTMOORE, Inc.'s plant at 7810 Pinemont Drive, Houston, Texas 77040, or to one of its authorized dealers, and is found by LIFTMOORE, Inc. or its authorized dealer to have been defective at the time of original delivery.

The foregoing warranty is the exclusive warranty made by LIFTMOORE, Inc. with respect to its cranes and is in lieu of all other warranties. ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS OF ANY CRANE FOR A PARTICULAR PURPOSE OR OPERATION, ARE HERBY EXPRESSLY DISCLAIMED.

The foregoing warranty applies only to LIFTMOORE cranes under normal use and service and does not apply in the event of damage caused by repair or alteration or damage during shipment, accident, negligence, overloading, or misuse, including operator's failure to follow any of the instructions issued with the crane.

This warranty is limited to the original purchaser and is not assignable. In order to submit a claim, the original purchaser must provide a copy of the original invoice for the crane in question within twelve (12) months following the delivery date and within 30 days from the date of repair.

The warranty applies only when the LIFTMOORE crane is used for commercial purposes and does not cover any purchase for use for personal, family or household purposes.

LIMITATION OF LIABILITY: LIFTMOORE, Inc.'s liability for any losses or damages resulting from any cause whatsoever, including LIFTMOORE, Inc.'s NEGLIGENCE or from a defective crane irrespective of whether such defects are discoverable or latent, shall in no event exceed the purchase price of the crane to which losses or damages are claimed, or at the election of LIFTMOORE, Inc., the repair or replacement of the defective crane.

In no event shall LIFTMOORE, Inc. be liable for any special, incidental, or consequential damages, including commercial losses or costs of any kind sustained by purchaser or any other person or for any damages for which purchaser may be liable to other persons by reason of any defect in any LIFTMOORE crane or any part thereof.

LIFTMOORE, Inc. reserves the right to make changes in design or construction of its cranes at any time without obligating itself to make such changes on cranes previously manufactured.

No agent, employee, or representative of LIFTMOORE, Inc. has authority to amend or modify the foregoing warranty or to bind LIFTMOORE, Inc. by any other warranty, guaranty, or assumption of liability.

In the event any provision of this warranty is for any reason held ineffective, the remaining provisions shall remain in full force and effect.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other legal rights that vary from state to state.

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