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USERS MANUAL P/N 34920  
6040DX-22 WP  
22 FT BOOMS

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F2803-0  
11/9/22

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## MODEL 6040/8045 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 6-1 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 maximum load of the crane listed below:

6040 CRANE	40,000 Ft.-Lbs.	6,000 Lbs.
8045 CRANE	45,000 Ft.-Lbs.	8,000 Lbs.

2. Layout the mounting holes for the crane as shown in the drawing No. 50653. Cut the center hole for the crane swivel as shown on this drawing. Mount the crane with four 7/8-14" 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 electric power disconnect for the crane. Removing power from the crane during periods of non-use will 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 into the crane's main power cable. Drawing No. 50948 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. 50948.

5. Run the 10 Ga. battery cables (red and black wires) along the inside of the chassis frame to the battery. Connect the (+ red wire) battery cable to the in-line fuse and the (- black wire) to the negative terminal with the terminals provided. 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 with the wires and connect the cables to the mating terminal underneath the crane located between the pipe nipples in the center of the swivel. See dwg No. 50948.

6. A good tight ground connection to the negative terminal power source must exist for the crane to work.

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.

The Liftmoore WP crane transmitter has two switches designated engine start and stop, engaging high idle, and additional control of auxiliary equipment. An optional receiver is required that will enable these functions. Please see the Liftmoore Product List at [www.liftmoore.com](http://www.liftmoore.com) for additional information.

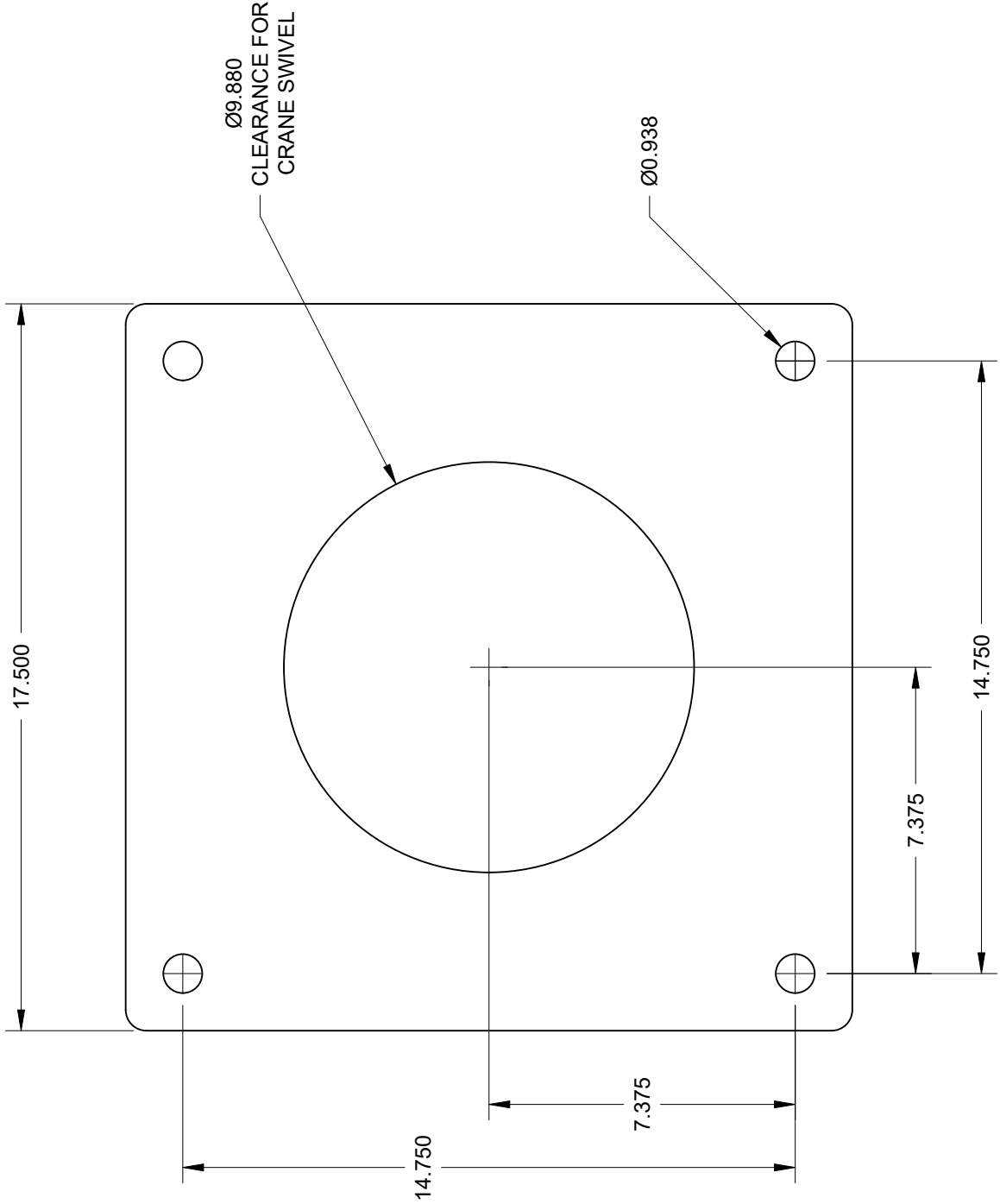
A reservoir capacity 12 gallon minimum is recommended. The reservoir capacity will need to be enlarged for increased running time. For run times of 15 minutes or less the 12 gallon capacity is adequate. For longer duty cycles the reservoir size should be increased and an oil cooler should be considered.



**MODEL 6040/8045 INSTALLATION INSTRUCTIONS, Cont.**

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.





DRAWING NO.  
**50653-C**

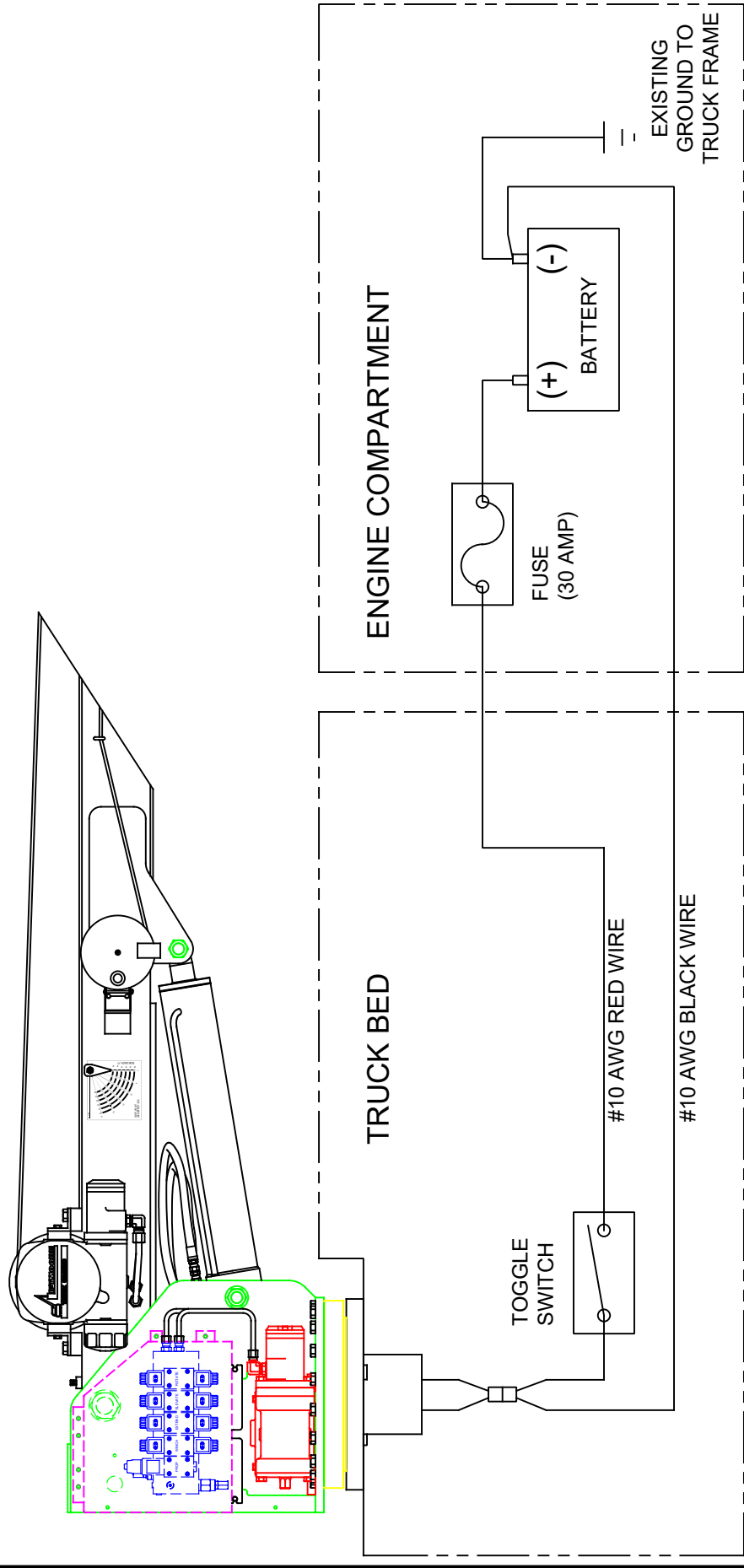
**BASE PLATE 4064/6040/8045**  
FOR INSTALLATION MANUAL

DRWN BY: JC  
DATE: 3/29/07

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SUGGESTED WIRING SCHEMATIC FOR LIFTMOORE HYDRAULIC CRANE INSTALLATION



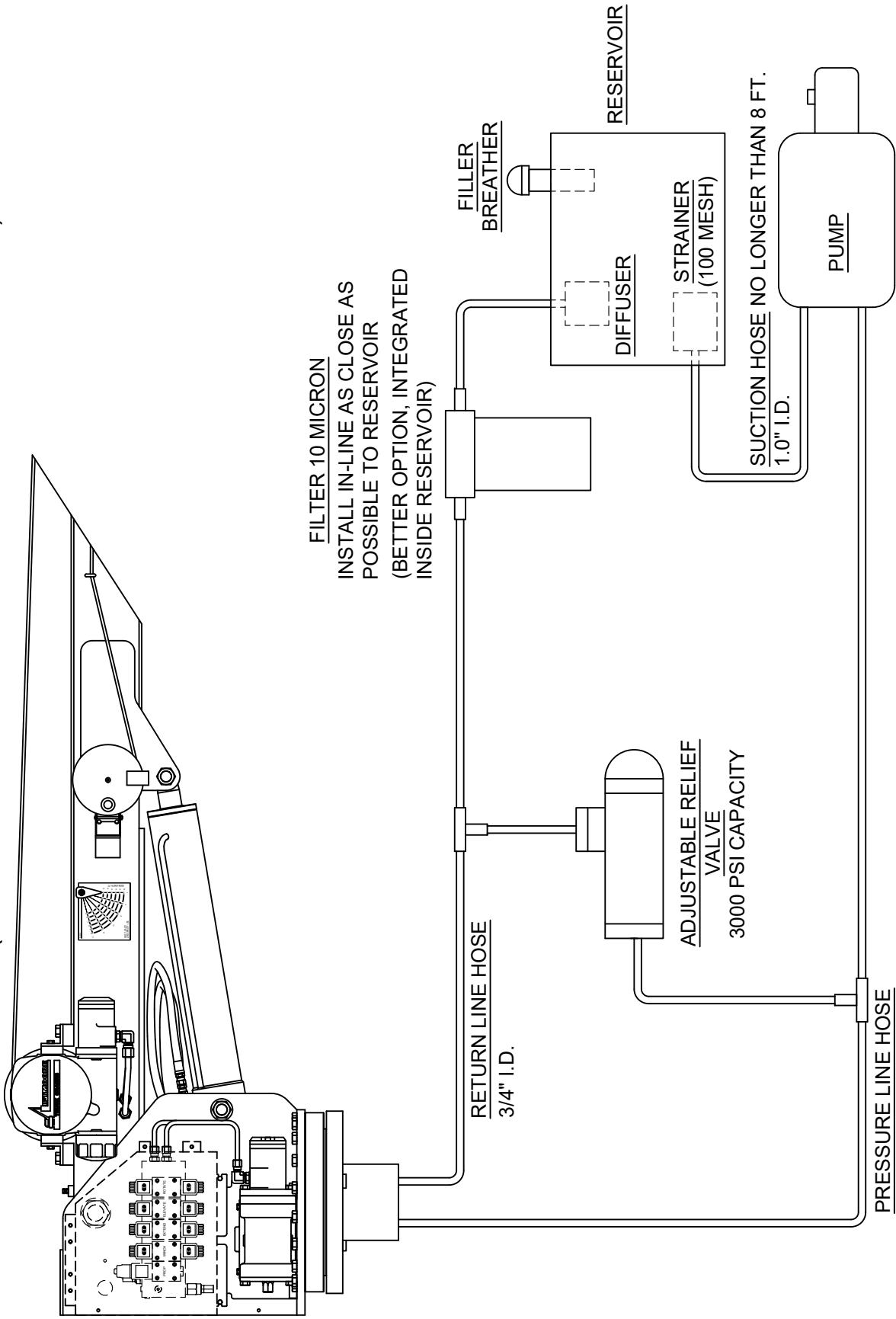
Houston TX  
 (713)-688-5533  
 www.liftmoore.com

DRWN BY: JE  
 DATE: 7/16/21

SCHEM, CRANE ELEC. INSTAL-HYDR  
 HYDRAULIC CRANES, DUAL SWIVEL

DRAWING NO.  
**50948-0**

SUGGESTED HYDRAULIC DIAGRAM FOR LIFTMOORE HYDRAULIC CRANE INSTALLATION  
(OTHER EQUIPMENT MAY REQUIRE LARGER HOSES)

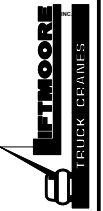


DRAWING NO. 50026-C

DIAGRAM, CRANE HYD. INSTALL-HYD

DRWN BY: TV  
DATE: 03/02/06

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



## 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 through 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
GM Upfitter Integration	1.800.875.4742
Peterbilt	1.940.591.4000
Caterpillar	1.800.847.4986
Cummins	1.800.343.7357
RAM	
Navistar	1.800.365.0088

[fordbbas.com/home](http://fordbbas.com/home)  
[gmupfitter.com/body-builder-manuals](http://gmupfitter.com/body-builder-manuals)

[ramtrucks.com/ram-commercial/body-builders-guide](http://ramtrucks.com/ram-commercial/body-builders-guide)  
[bodybuilder.navistar.com](http://bodybuilder.navistar.com)

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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**

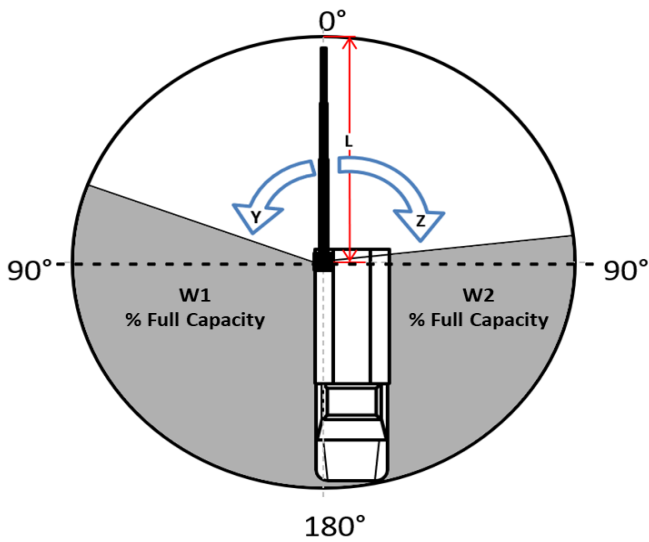
## STABILITY TEST FORM

Operational limits of this vehicle

VEHICLE INFORMATION	CRANE INFORMATION
Year _____	Model _____
Make _____	Serial Number _____
Model _____	Moment Rating (ft-lbs.) _____
VIN _____	

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 TIP MUST BE DIRECTLY OVER THE LOAD BEFORE ANY LIFTING IS STARTED. DO NOT DRAG LOADS WITH THIS CRANE.
9. BOOM MUST BE IN ITS BOOM REST BEFORE MOVING THE VEHICLE.
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 LINES.



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F1122-B  
05/12/08

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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.



## OPERATING RESTRICTIONS

### DUTY CYCLE

For Electric Cranes the duty cycle time should be 5 minutes for every 30 minutes use cycle. This is recommended to increase lifespan of motors. 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.**

## OPERATING PRACTICES

### 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.



**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.



## 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.





## 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.



- 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.



## 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.



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*

**2-12**

*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* \_\_\_\_\_

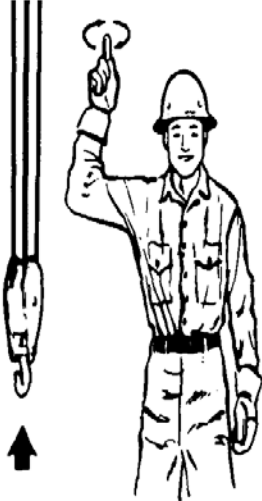
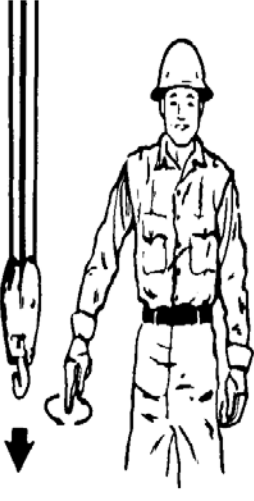


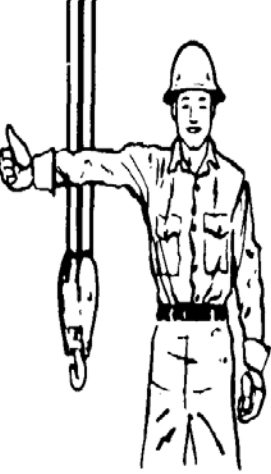
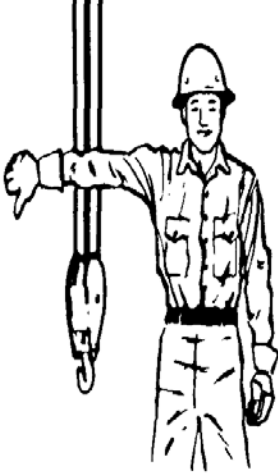
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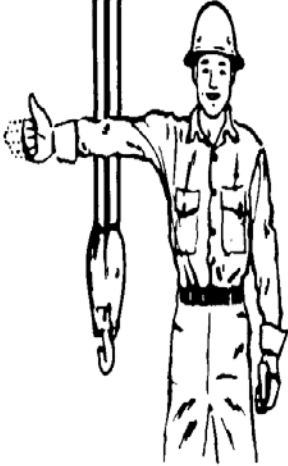
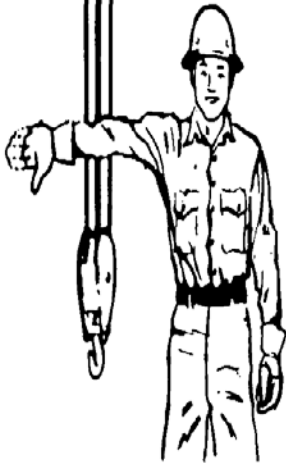
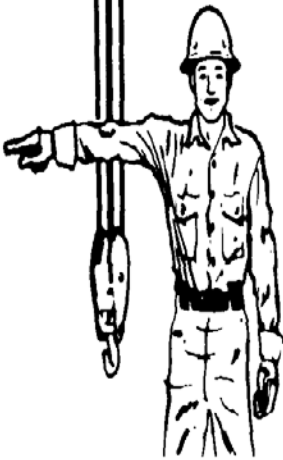
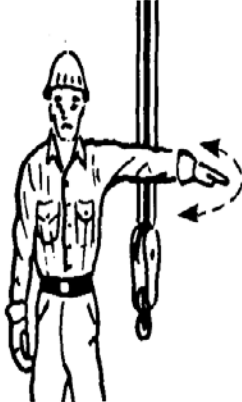
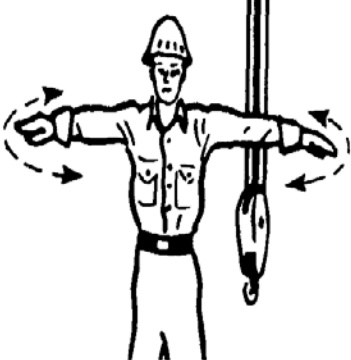
*Company* \_\_\_\_\_

*Address* \_\_\_\_\_

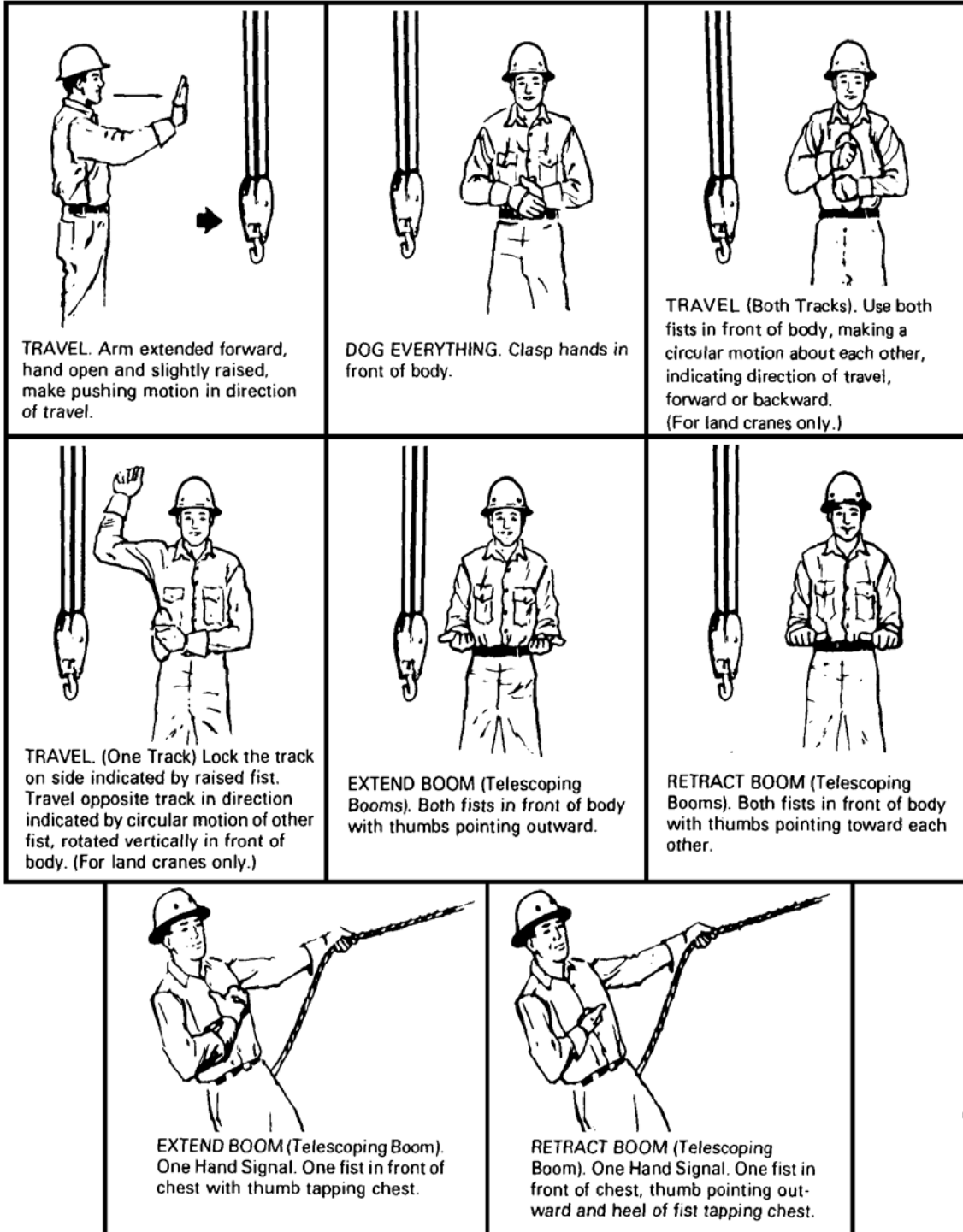
*City* \_\_\_\_\_ *State* \_\_\_\_\_

**STANDARD HAND SIGNALS FOR CONTROLLING CRANE OPERATIONS**

 <p><b>HOIST.</b> With forearm vertical, forefinger pointing up, move hand in small horizontal circle.</p>	 <p><b>LOWER.</b> With arm extended downward, forefinger pointing down, move hand in small horizontal circle.</p>	 <p><b>USE MAIN HOIST.</b> Tap fist on head; then use regular signals.</p>
 <p><b>USE WHIPLINE (Auxiliary Hoist).</b> Tap elbow with one hand; then use regular signals.</p>	 <p><b>RAISE BOOM.</b> Arm extended, fingers closed, thumb pointing upward.</p>	 <p><b>LOWER BOOM.</b> Arm extended, fingers closed, thumb pointing downward.</p>

 <p data-bbox="256 751 594 926"><b>MOVE SLOWLY.</b> 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.)</p>	 <p data-bbox="630 751 964 894"><b>RAISE THE BOOM AND LOWER THE LOAD.</b> With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.</p>	 <p data-bbox="1003 751 1338 926"><b>LOWER THE BOOM AND RAISE THE LOAD.</b> With arm extended, thumb pointing down, flex fingers in and out as long as load movement is desired.</p>
 <p data-bbox="267 1497 597 1566"><b>SWING.</b> Arm extended, point with finger in direction of swing of boom.</p>	 <p data-bbox="638 1497 954 1602"><b>STOP.</b> Arm extended, palm down, move arm back and forth horizontally.</p>	 <p data-bbox="995 1497 1328 1602"><b>EMERGENCY STOP.</b> Both arms extended, palms down, move arms back and forth horizontally.</p>





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# **GUIDER**

RADIO/CAN REMOTE CONTROL SYSTEM

## **INSTALLATION AND OPERATION MANUAL**

LIFTMOORE  
3B278DAJ.doc  
December 12, 2019  
BK

# GUIDER REMOTE

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## GUIDER REMOTE

### 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](http://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<sup>1</sup>. 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

---

<sup>1</sup> The CAN control will only work with the CRANE module. The ENGINE module only works on RF

## GUIDER REMOTE

(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

## **GUIDER REMOTE**

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.



## GUIDER REMOTE

### 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

## GUIDER REMOTE

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

## GUIDER REMOTE

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

## GUIDER REMOTE

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.

## GUIDER REMOTE

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

## GUIDER REMOTE

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

- Read the rest of this manual.

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.

## GUIDER REMOTE

### SYSTEM TROUBLESHOOTING USING ON BOARD GATE:

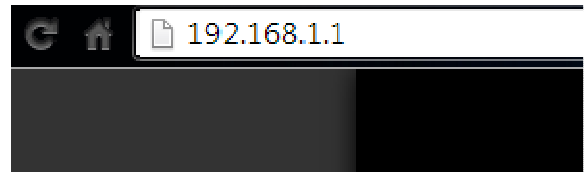
The GATE creates a Wi-Fi access point which allows you to connect to any device with Wi-Fi and web browser such as smart phones, pads or personal computers. It supports Google Chrome, Internet Explorer, Firefox and IOS Safari and allows user to configure, diagnose and troubleshoot the system.

#### 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.

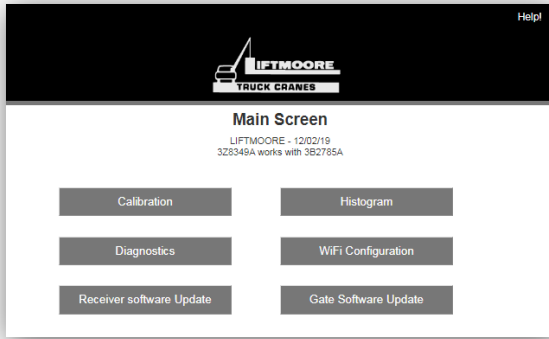
3. Once the connection is established, open a web browser on your device. The Chrome browser is recommended.
4. Enter the address `http://192.168.1.1` in the address bar



*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.

# GUIDER REMOTE

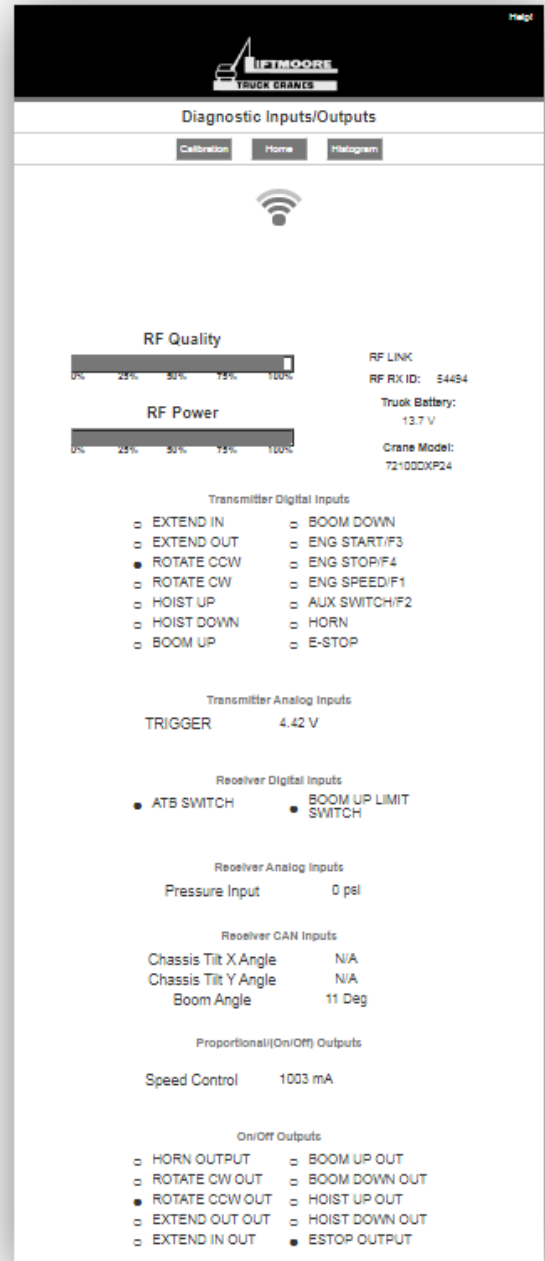


*Main Screen*

## DIAGNOSTICS

Tap the `Diagnostics` 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.



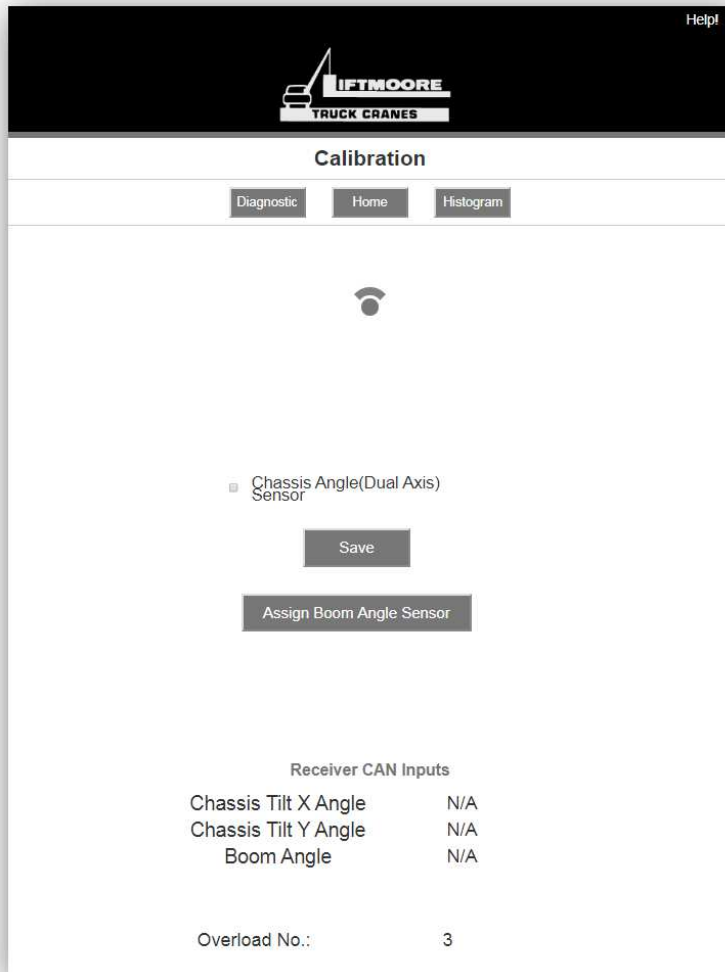
*Diagnostics*



# GUIDER REMOTE

## 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*

## GUIDER REMOTE

Help

**LIFTMOORE**  
TRUCK CRANES

Wi-Fi Configuration

Home

Wi-Fi Name (SSID) ▼

Current Value: LIFTMOORE3B2785  
New Value:   
Value:

Broadcast SSID  
 Not broadcast SSID

Enable Multiple Connections  
 Disable Multiple Connections

NOTE: 1. Wi-Fi Name limited to 20 characters  
2. Wi-Fi Name can only use numbers and letters  
3. Channel can be set from 1 to 11

Save Factory Settings Refresh

### *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 .

## GUIDER REMOTE

### 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

## GUIDER REMOTE

### 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

## **GUIDER REMOTE**

### **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.

## **GUIDER REMOTE**

### **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.

## GUIDER REMOTE

### TROUBLESHOOTING CHART

<b><i>PROBLEM</i></b>	<b><i>SOLUTION</i></b>
No functions work	<ol style="list-style-type: none"><li>1. Verify transmitter power source – battery, CAN cable, external supply, etc</li><li>2. Verify that receiver control module power source is present at its input connector</li><li>3. Check for proper system ground</li><li>4. Check the receiver or control module LED status display for functionality or errors</li><li>3. Check the hydraulic system</li><li>4. Check to see if the crane receiver has sufficient cooling.</li></ol>
Certain functions do not work	<ol style="list-style-type: none"><li>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</li><li>2. Check the receiver control module LED status display for possible fault or error indication</li><li>3. Check the hydraulic system</li><li>4. Check the electrical system</li><li>5. Check to see if the crane receiver has sufficient cooling.</li></ol>
Functions operate intermittently	<ol style="list-style-type: none"><li>1. Check for loose connections at the valve coil</li><li>2. Check the receiver control module LED status display for functionality or errors</li><li>3. Check the receiver antenna for damage</li></ol>



## GUIDER REMOTE

	<p>and possible obstructions</p> <ol style="list-style-type: none"><li>1. Check the hydraulic system</li><li>2. Check to see if the crane receiver has sufficient cooling.</li></ol>
--	--

## GUIDER REMOTE

### 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.**

## GUIDER REMOTE

### 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

## GUIDER REMOTE

### PARTS LIST

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

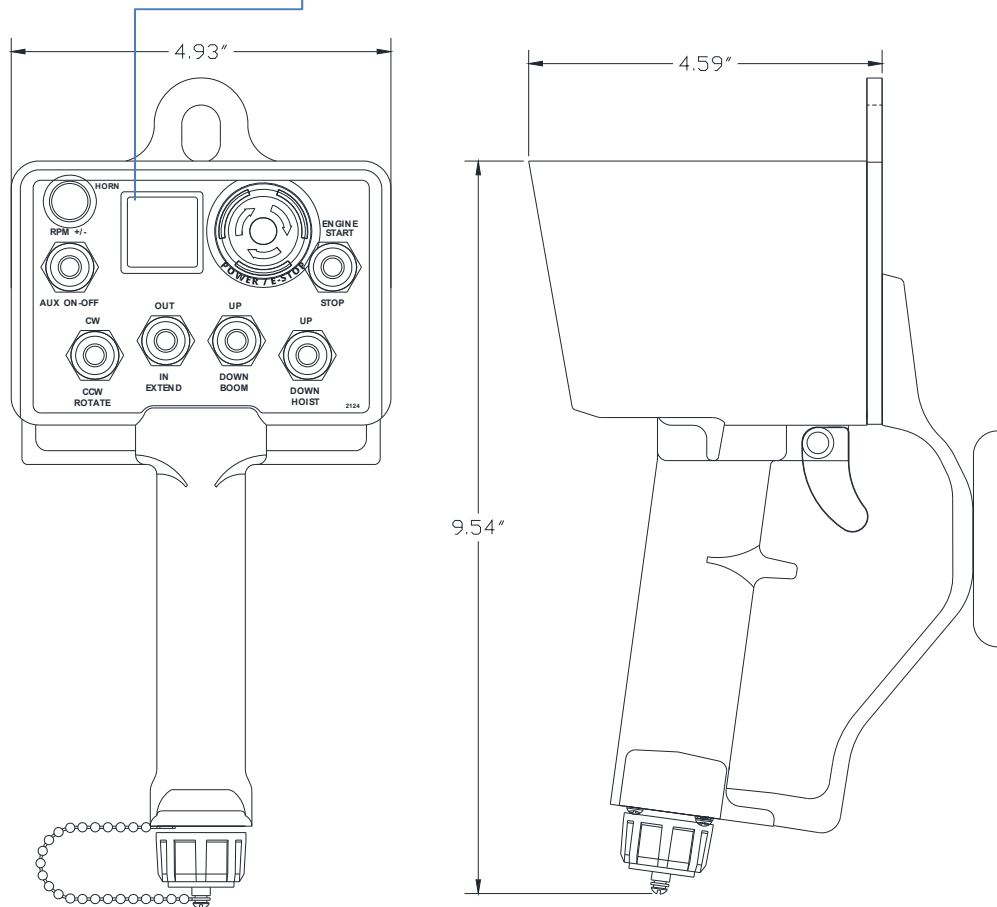
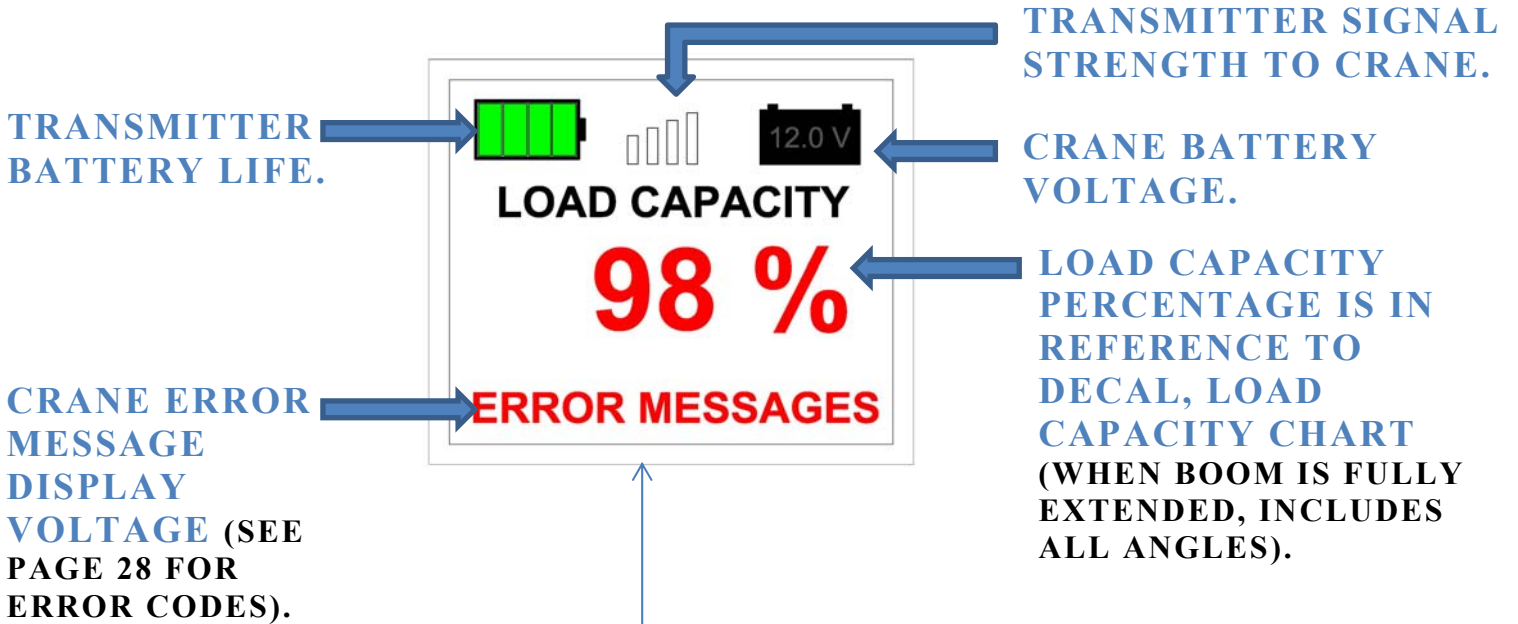
#### **WARNING:**

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.

The information, specifications, and illustrations in this manual are those in effect at the time of printing. We reserve the right to change specifications or design at any time without notice.

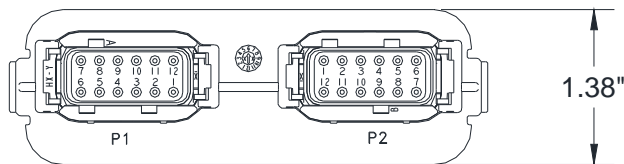
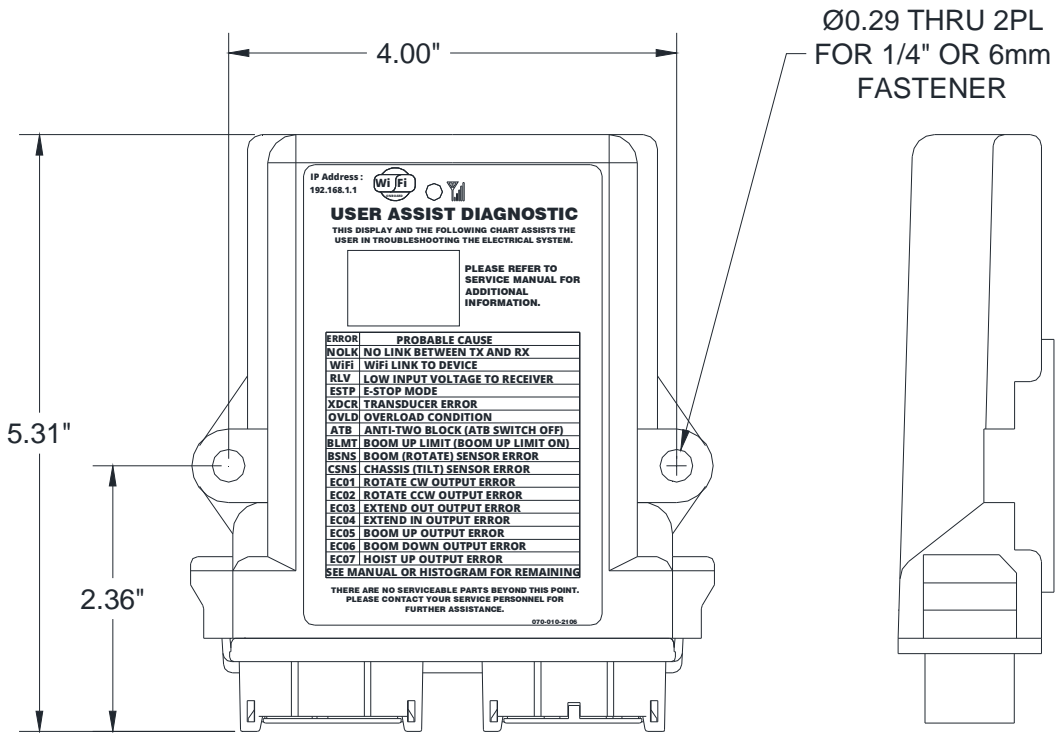
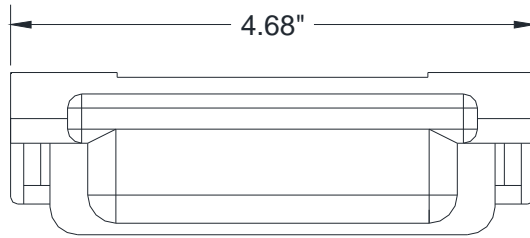
# GUIDER REMOTE

## TRANSMITTER PICTORIAL



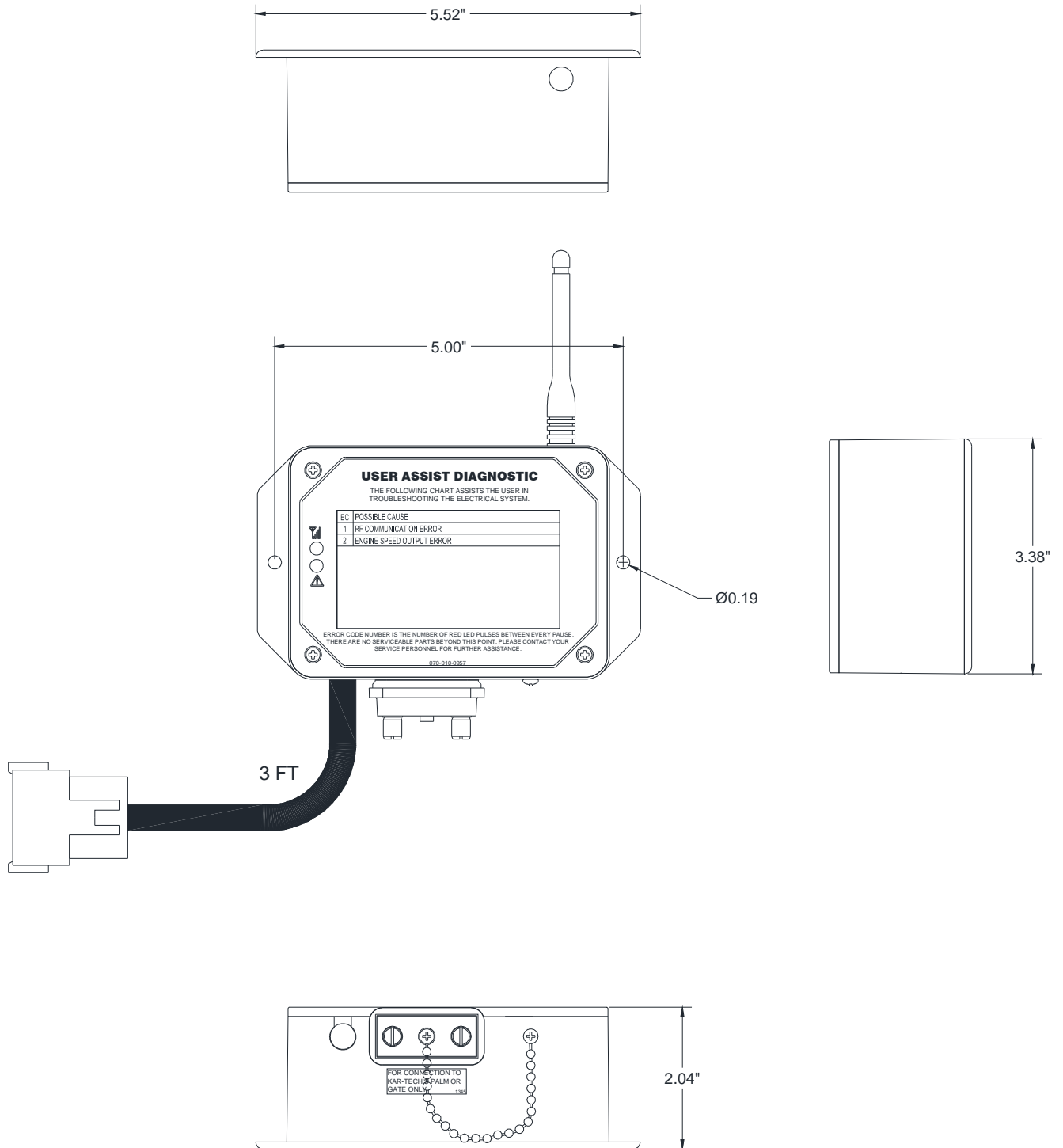
# GUIDER REMOTE

## CRANE RECEIVER PICTORIAL



# GUIDER REMOTE

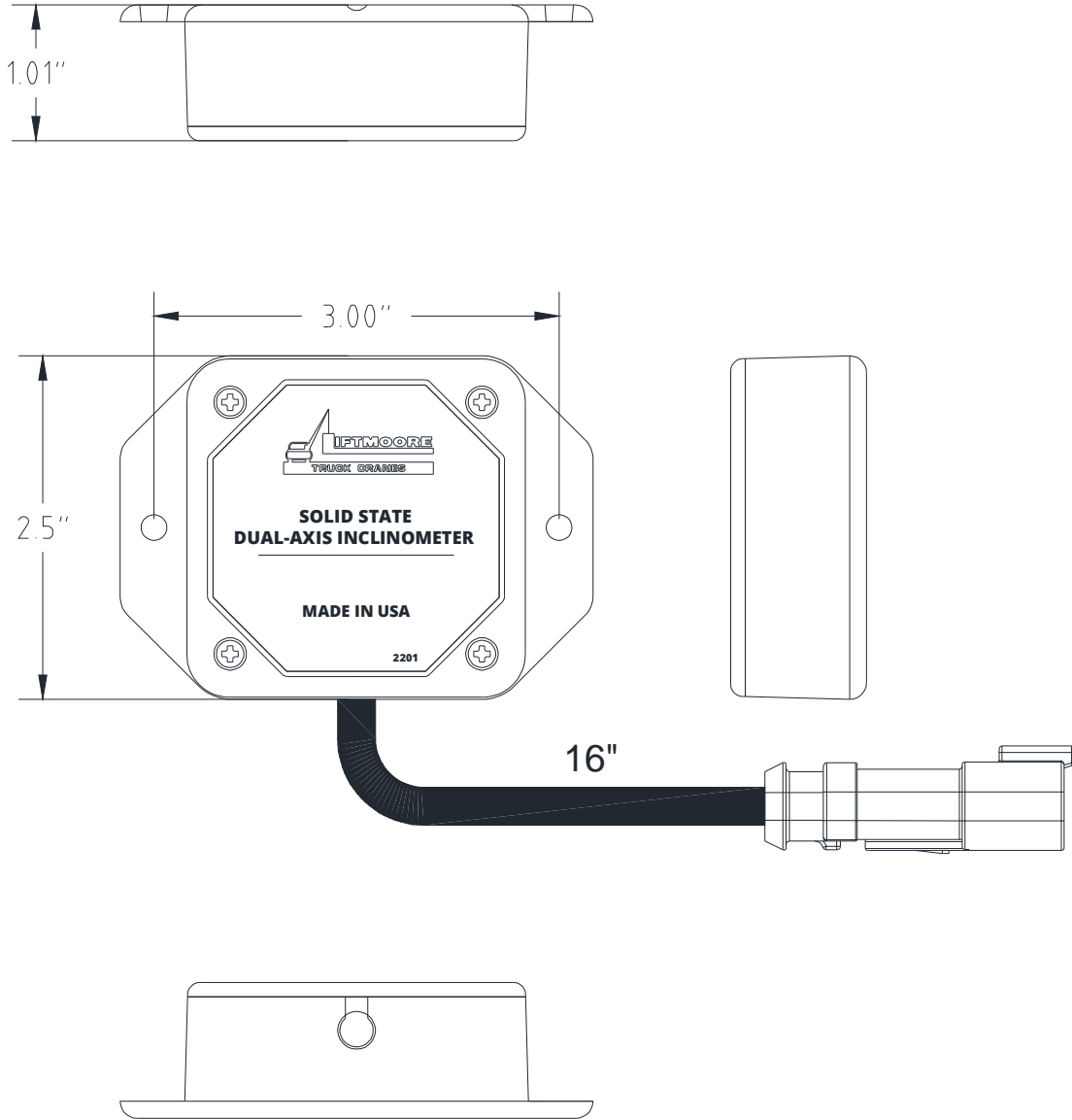
## ENGINE RECEIVER PICTORIAL





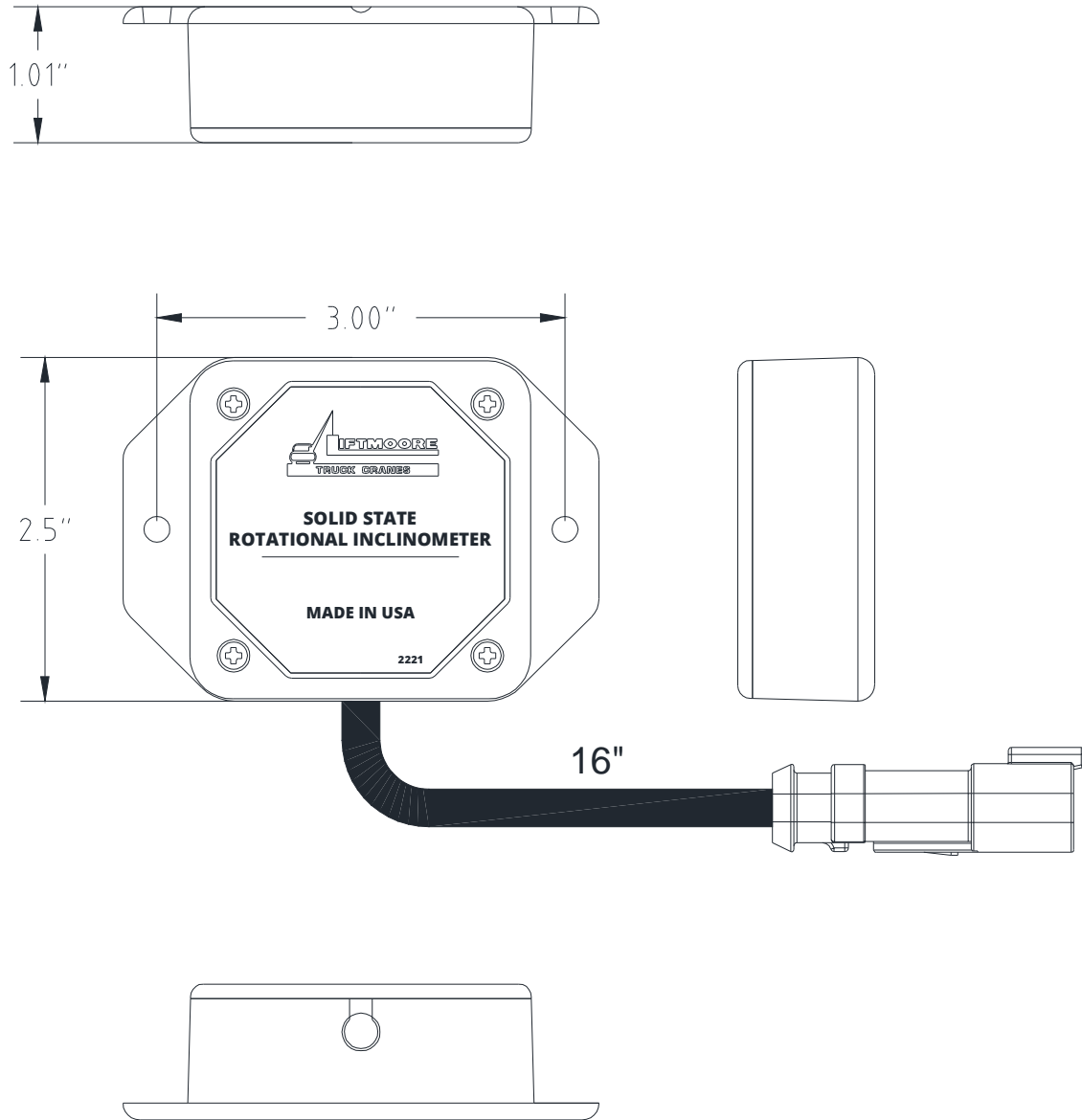
# GUIDER REMOTE

## TILT, CHASSIS SENSOR PICTORIAL



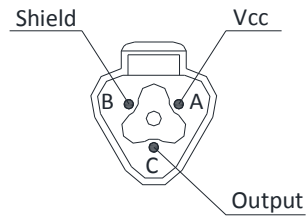
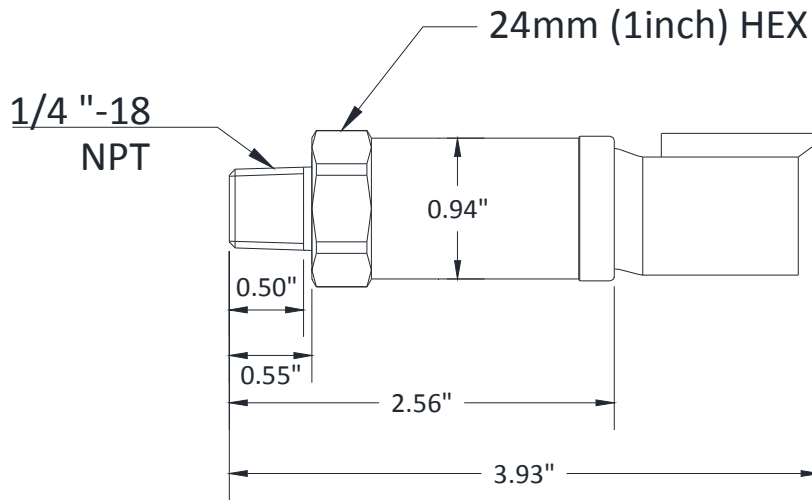
# GUIDER REMOTE

## ROTATIONAL, BOOM SENSOR PICTORIAL



# GUIDER REMOTE

## 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 <sup>8</sup>
Overload Pressure	2X
Burst Pressure	10X
Long-term stability	±0.25F.S/Year
Working Temperature	-40~125?
Ingress protection	IP65

## GUIDER REMOTE

### 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

## **GUIDER REMOTE**

### **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.

**WP RECEIVER LATEST SOFTWARE DATES CODES**

To make sure receiver has latest updates hook up to your crane WIFI. Once in the home page select "DIAGNOSTICS" and scroll down to the bottom of the screen and you should see the dates listed below. If you do not see these dates contact Liftmoore Cranes (see contact info below).

**Receiver Software: 3Z8349CX Date: 08/15/22**

**Gate Software: 3Z834ACX Date: 08/15/22**



F2795-A  
8/29/22

HOUSTON, TEXAS  
FAX: (800) 824-5559 (USA & Canada)  
FAX: (713) 688-6324  
PHONE: (713) 688-5533  
[www.liftmoore.com](http://www.liftmoore.com)

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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 overload or two-block condition, the limiting system will prevent activation of winch up, boom down, and extend out since these directions would cause damage. Winch 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.

## OVERLOAD PROTECTION

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 pickle weight or bail arms are attached to the lever

and holds the switch closed. If the pickle weight or the bail arms are 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

The limiting system control prevents output of winch up, boom down and extend out if it is not receiving a signal from either the ATB or load sensor.

The ATB does not trip boom down when winch is mounted on the boom.

There is a one second delay before 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 30 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.





## 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<sup>(1)</sup> 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.

(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

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.



## 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 may 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 down 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.



## BASIC TROUBLESHOOTING

The following chart gives a quick reference to help identify and correct problems. Refer to the following pages for more detailed information.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
NO FUNCTIONS WORK	<p>Not receiving electrical power</p>   <p>Not receiving hydraulic power</p>   <p>Control problem</p>	<p>Check all connections Check all fuses and circuit breakers Check for electrical power at first electrical connection and trace back to crane</p>   <p>Check flow from pump Deadhead cylinder and check pressure at pump</p>   <p>See control section</p>
<p style="text-align: center;">FUNCTION NOT WORKING</p>  <p style="text-align: center;">winch up, extension out not working</p>     <p style="text-align: center;">Boom down, winch down, extension in not working</p>     <p style="text-align: center;">Other function not working</p>	<p>No signal from ATB or Load sensor (switch tripped, bad switch, bad wiring or not receiving power)</p>   <p>Relay card malfunction</p>   <p>Not receiving enough pressure</p>     <p>Faulty wiring</p>   <p>Valve coils bad</p>	<p>Check input signal to relay board if no signal, trace back to switch</p>   <p>Check LEDs on board for error codes and outputs</p>   <p>Deadhead cylinder and check pressure at pump Check differential pressure valve for contamination Check relief valve for proper setting and possible contamination</p>   <p>Check all wiring for breaks or shorts Check all ground wires for good connection</p>   <p>Check coil resistance</p>
<p style="text-align: center;">ALL FUNCTIONS SLOW</p>   <p>* These items only apply to cranes with proportional control systems.</p>	<p>Not receiving enough flow</p>   <p>Low battery voltage Check with engine running</p>   <p>* Proportional valve problem</p>     <p>* Control problem</p>	<p>Check fluid levels Check all filters and any other restrictions</p>   <p>Charge battery (BATTERY MAY BE BAD)</p>   <p>Try manual operation of proportional valve</p>   <p>Check voltage at valve for approx. at min and max(see troubleshooting form for specific valves)</p>   <p>See control section</p>



## 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	3.66 $\Omega$

### 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.



## 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 RECPT 12PB



**P/N 19854**  
WEDGE DEUTSCH 12P 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 19853**  
DTCH 12P-B PLUG



**P/N 19846**  
WEDGE, DEUTSCH 2P PLUG

**P/N 19847**  
DTCH 2P PLUG

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



**P/N 19857**  
DTCH 6P RECPT BUSS



**P/N 19850**  
WEDGE DTCH 6P PLUG



**P/N 19845**  
DTCH 2P RECPT

**P/N 19848**  
WEDGE, DEUTSCH 2P RECPT



**P/N 19908**  
DTCH DTM 12P-B PLUG



**P/N 19907**  
DTCH DTM 12P-A PLUG



**P/N 19849**  
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



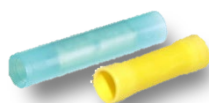
**BRAZED RING**  
**P/N 15837** 4GA 0.31  
**P/N 15563** 6GA 0.25  
**P/N 15148** 6GA 0.31  
**P/N 15737** 1/0GA 0.31



**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



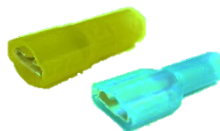
**QUICK SPLICE**  
**P/N 31407** 14-18GA (TAN)  
**P/N 32141** 18-22GA (RED)



**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)



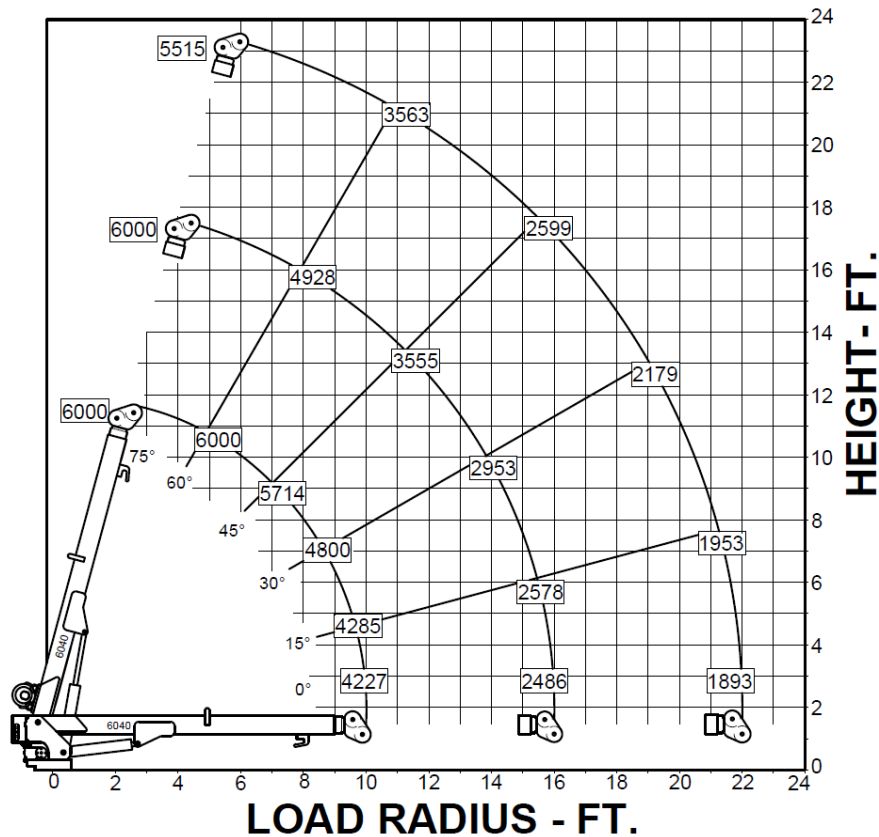
**MALE TERM**  
**P/N 15838** 10-12GA (YLW)  
**P/N 32118** 14-16GA (BLU)

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# SECTION V CRANE SPECIFICATIONS **MODEL 6040DX-22 CRANES**

MOMENT RATING                    40,000 FT-LBS  
 MAX SINGLE LINE LOAD        3,000 LBS  
 MAX DOUBLE LINE LOAD       6,000 LBS

LIFTING CAPACITIES AT VARIOUS LOAD RADII



POWERED FUNCTIONS AND EXPECTED TIMES

WINCH	UP: 3.3s	DOWN: 3.8s	1 REVOLUTION
BOOM ELEVATION	UP: 20s	DOWN: 20s	
BOOM EXTENSION	OUT: 41s	IN: 33s	
ROTATION	90° 15s		

HYDRAULIC REQUIREMENTS

PRESSURE	2800 PSI
FLOW	8 GPM

ELECTRICAL REQUIREMENTS

VOLTAGE	12 VDC
FUSE	15 AMP

NOTE: FUNCTION TIMES ARE BASED ON THESE INPUT VALUES



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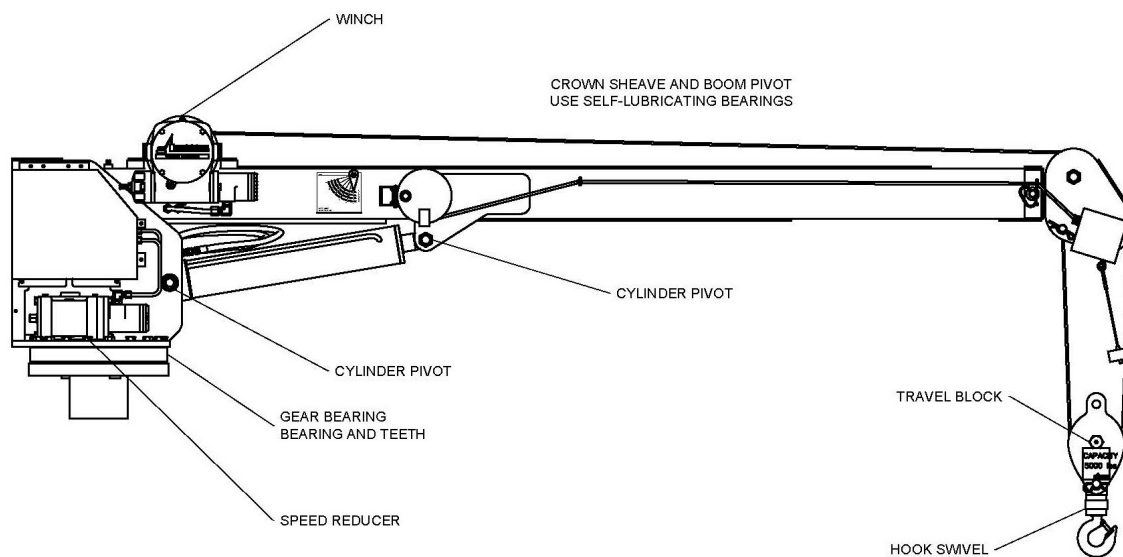
HOUSTON, TEXAS  
 FAX: (800) 824-5559 (USA & Canada)  
 FAX: (713) 688-6324  
 PHONE: (713) 688-5533  
 www.liftmoore.com

PERIODIC MAINTENANCE SCHEDULE MODEL 8045 CRANES		
<b>BOLTS</b>		
MOUNTING BOLTS	7/8-14 GRADE 8 TORQUE 600FT-LBS DRY	EVERY 4 MONTHS
BEARING BOLTS (REFER TO BASE-HOUSING ASSEMBLY)	5/8-11 GRADE 8 TORQUE 170FT-LBS DRY	EVERY 4 MONTHS
<b>LUBRICATION</b>		
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 GEARBOX (ROTZLER TI1)	The initial filling is SAE 80 API-GL 5. Alternate gear oils SAE 80W-90, SAE 75W or SAE 90. Different oils must not be mixed.	EVERY MONTH
ROTATION GEARBOX	EP 01 Grease	EVERY MONTH
BEARING (ZERK AND TEETH)	Oil Center Research PM 600 Military grease or equivalent Benton Based Grease NLGI Grade 2	EVERY 6 HOURS OF OPERATION





## CRANE LUBRICATION POINTS



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## LIST FOR BOX, CRANE PARTS 6040DX-22 WP

Items with \* have detailed DWG's.

### P/N 34919 - BOX, CRANE PARTS 6040DX-22

- 1) P/N 34920 - MANUAL, CRANE 6040DX-22 WP.....1pc
- 2) P/N 29884 – EWH, DUAL SWIVEL PWR WIRES.....1pc
- 3) P/N 16110 – TERMINAL, BUTT 10-12 GA.....1pc
- 4) P/N 15771 – TERMINAL, RING 10-12 GA 0.31.....2pcs
- 5) P/N 18457 – FUSE, HOLDER, ATO 12 GA SEALED.....1pc
- 6) P/N 21154 – FUSE, 30AMP BLADE.....1pc
- 7) P/N 32613 – ADAPTER, 8MJ-10MJ.....1pc
- 8) P/N 17012 – SWITCH, TOGGLE SPST MAINT. /S.....1pc
- 9) P/N 17011 – BRACKET, SWITCH MNT. HYD. GRN.....1pc
- 10) P/N 16781 – TERMINAL, RING 10-12 GA #8.....2pcs
- 11) P/N 17013 – PLATE, ON/OFF FOR TOGGLE SWCH.....1pc
- 12) P/N 18600 - PLATE, CRANE-TRUCK STABILITY CHART.....1pc
- 13) P/N 34915 – DECAL, LOAD CAPACITY 40,000.....1pc
- 14) P/N 23144 – LEVEL AND TAPE ASSEMBLY .....1pc
- 15) P/N 28836 – WIRE, GROUND #6 X 60” W/TRM.....1pc
- 16) P/N 30675 – COVER, TOGGLE SWITCH.....1pc
- 17) P/N 70053 – NUT, TOGGLE SWITCH.....1pc
- 18) P/N 70054 – WASHER, LOCK TOGGLE SWITCH.....1pc
- 19) P/N 70055 – SCREW, MH FH 6-32 X 0.25.....2pcs

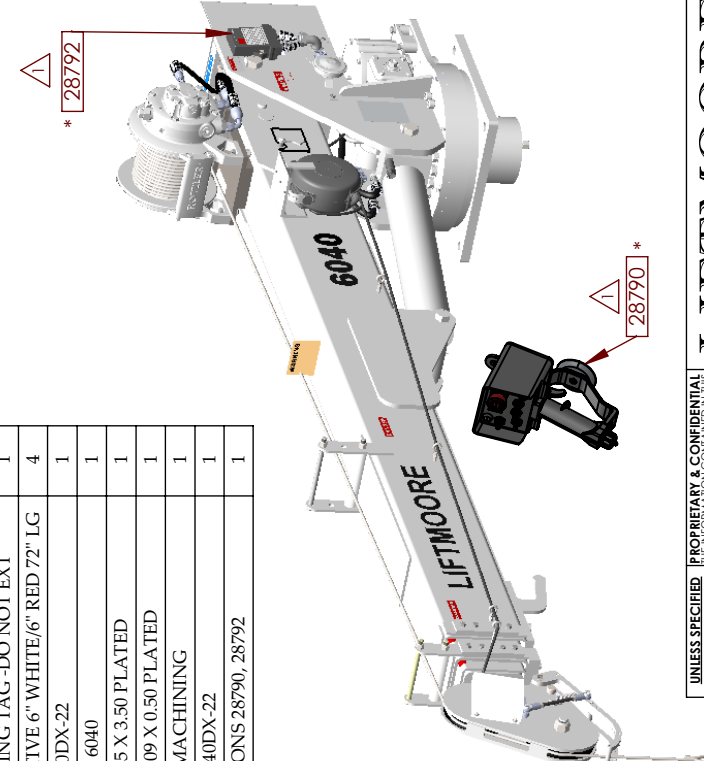


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ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
1	34909	BOOM-BODY ASSY 6040DX-22	1	52	25144	LEVER, ATB ANTI-TWO BLK MACH.	1
2	29547	EWB, DTCH HYD 4075DX WP	1	53	25128	ALL THREAD STUD 3/8-24 X 5.75"	1
3	29824	EWB, DUAL SWIVEL HYD/ELEC	1	54	25152	SCREW, SHOULDER 0.313 X 2.25	1
4	29405	WASHER, FLAT 0.25 SS 316	3	55	33353	WASHER, FLAT 0.31 SAE 5S304	1
5	28705	SCREW, FHC 0.25-20 X 1.00 SS	3	56	25151	SPRING, COMPRESSION, 76LBS.	1
6	31408	WRAP, 3/4" BLACK SPIRAL CUT 4"	2	57	25142	SPACER, LEVER	1
7	31017	SCREW, SHOULDER 0.31-18 X 0.75	2	58	26045	NUT, HEX 0.37-24 SS	2
8	22394	PENDULUM, LOAD RADIUS DIA. HD	2	59	22386	SPACER, ELEV SWITCH MACH	1
9	30989	SCREW, HWHMS #8 X 0.50	1	60	20413	SWITCH, LIMIT UP 2WNC-22 DTCH	1
10	32499	ADAPTER, CAPNUT #8	1	61	29415	NUT, HEX NYLOC 10-24 X 2.50 SS	2
11	32500	ADAPTER, CAPNUT #10	1	62	22392	SCREW, SOC HD 10-24 X 2.50 SS	2
12	24511	SCREW, SOC HD 10-32 X 3/8	2	63	28794	TRANSUDCER, PRESSURE 5000 PSI	1
13	20212	CLIP, MOUNTING DEUTSCH CONNECT	2	64	22390	NUT, HEX JAM 0.25-20 SS	1
14	29299	WASHER, LOCK 0.25 STAR SS	1	65	22391	SCREW, S.WALK 0.25-20 X 1.0 SS	1
15	28690	WASHER, LOCK 0.25 316 SS	5	66	23123	PRESSURE GAUGE, 0-3000 PSI	1
16	34069	SCREW, FHC 0.25-20 X 0.50 SS	3	67	23135	ADAPTER, 4FP-6FJ SWIVEL	1
17	28703	NUT, HEX NYLOC 0.25-20 SS	3	68	28126	SCREW, SOC HD 0.25-20 X 0.25SS	4
18	70052	BRACKET, CORD REEL ZECA	1	69	28853	INCLINOMETER, BOOM ANGLE CAN	1
19	25862	REEL, CORD 34 FT ASSY 4 WIRE	1	70	28963	SCREW, SOC HD 8-32 X 0.37 SS	2
20	19845	CONNECTOR, DTCH 2P RECPT	1	71	17882	WASHER, LOCK #8 GR2 PLATED	2
21	19848	WEDGE, DEUTSCH 2P RECPT	1	72	22986	ROPE, WIRE 0.31 X 90' W/THB&LP	1
22	24960	CLAMP, HOSE SUPPORT 0.25 ID	6	73	32589	SCREW, HWHMS 0.25-20 X 0.75	4
23	26582	SCREW, SOC HD 0.25-20 X 0.37SS	2	74	18310	DECAL, WARNING TAG-DO NOT EXT	1
24	19846	WEDGE, DEUTSCH 2P PLUG	1	75	25704	TAPE, REFLECTIVE 6" WHITE/6" RED 72" LG	4
25	19847	CONNECTOR, DTCH 2P PLUG	1	76	34914	DECAL KIT 6040DX-22	1
26	30835	NUT, HEX NYLOC 0.50-13 GRADE 8	4	77	34916	PLATE, SERIAL. 6040	1
27	21631	ROLLER, ROPE 4064 NYLON	1	78	34216	PIN, CLEVIS 0.25 X 3.50 PLATED	1
28	21634	SCREW, FHC 0.50-13 X 8.50 GR5	2	79	17974	PIN, COTTER 0.09 X 0.50 PLATED	1
29	30818	SCREW, FHC 0.50-13 X 7.50 GR8	2	80	34925	SPACER, ATB MACHINING	1
30	26668	ROLLER, ROPE 2550/4064 NYLON	1	81	PFORM91	TIME SHEET 6040DX-22	1
31	34468	SCREW, SHEAVE SINGLE 1-8 3.25	2	82	PFORM141	FM INSTRUCTIONS 28790, 28792	1
32	31258	WASHER, FLAT 1.00 SAE GRADE 8	2				
33	30838	NUT, HEX NYLOC 1.00-8 GRADE 5	2				
34	32658	PIN, CLEVIS 0.87 X 3.50 PLATED	1				
35	31948	CLIP, HAIRPIN 0.187 - 1.00	1				
36	22979	SHEAVE ASSY 6.58PD X 0.31 ROPE	2				
37	27132	SWITCH, LIMIT ATB ASSY 2W DTCH	1				
38	17164	SCREW, SOC HD 10-24 X 0.62 SS	10				
39	32639	WASHER, LOCK #10 GR2 PLATED	2				
40	27192	COVER, BAIL ATB	1				
41	26909	SCREW, SOC HD 10-24 X 0.37	4				
42	26910	WASHER, FLAT #10 316SS	4				
43	25138	SCREW, SHOULDER 0.375 X 3.25	1				
44	34256	NUT, HEX NYLOC 0.31-18 SS 304	1				
45	32368	WASHER, FLAT 0.37 SAE 304SS	4				
46	34922	LEVER, ATB BAIL 14.75" RT WT M	1				
47	34921	LEVER, ATB BAIL 14.75" LT WT MACH	1				
48	34923	LEVER, BAIL SUPPORT - PC	2				
49	33424	BUSHING, 0.37 X 0.50 X 0.50L N	5				
50	25130	SCREW, SHOULDER 0.375 X 0.625	3				
51	25129	BALL JOINT ROD END	2				

**FINAL CRANE ASSEMBLY VIEW**  
SCALE 1 : 20



**NOTES**

- 1 - ITEM WITH (\*) IS LOCATED IN PARTS BOX.
- 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 # (75) ON TOP CORNERS OF 1ST & 2ND INNER BOOMS ON BOTH SIDES 3.25" & 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(ALT COLOR: BLK 2) ↔ PIN1 BLUE (ALT COLOR: BLK 1) ↔ PIN2
- 12 - TERMINATE TO DESIGNATED GROUNDING SCREW ON CRANE BODY.
- 13 - TERMINATE TO WIRING HARNESS FUSE.

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

THIRD ANGLE PROJECTION

CHECKED AT 07/26/2022  
ENG APPR. DP

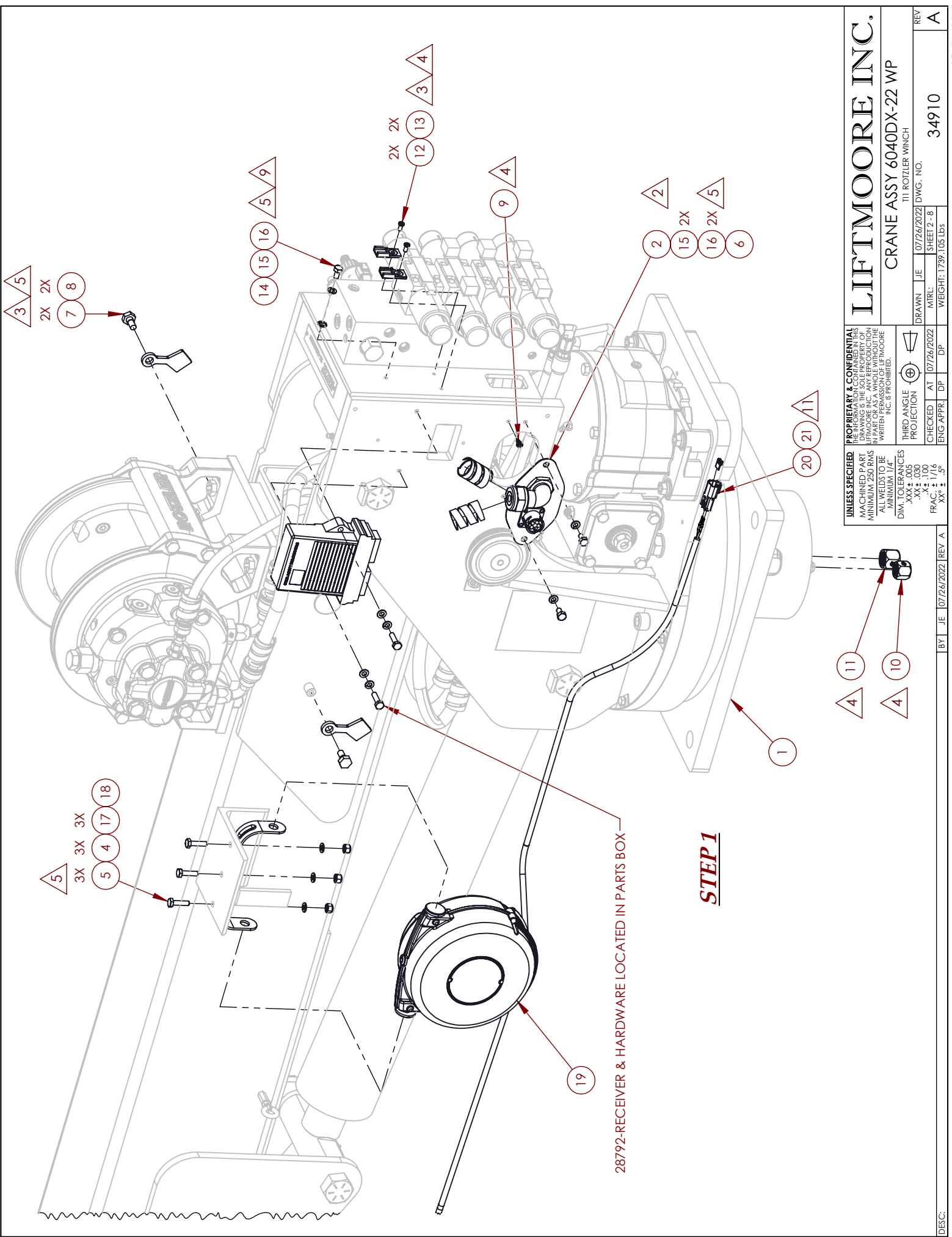
DRAWN JE 07/26/2022  
MRL: SHEET 1-8  
WEIGHT: 1739.105 lbs

**LIFTMOORE INC.**  
CRANE ASSY 6040DX-22 WP

THI ROTZLER WINCH

REV A

34910



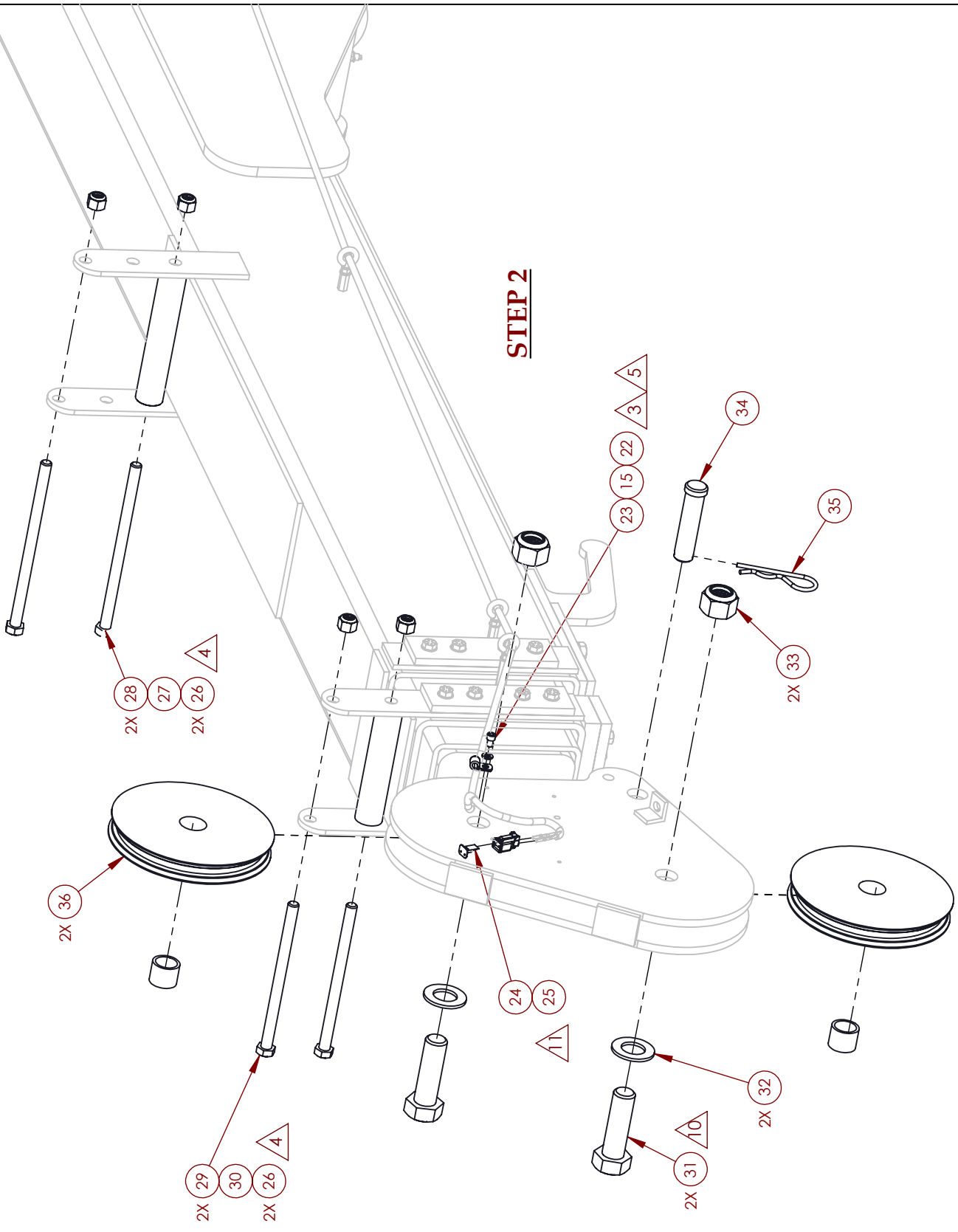
**UNLESS SPECIFIED**  
 MACHINED PART  
 MINIMUM 250 RMS  
 ALL WELDS TO BE  
 MINIMUM 1/4"  
 DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 .X ± .116  
 FRACTIONS ± .116  
 XX° ± .5°

**THIRD ANGLE  
 PROJECTION**

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<b>LIFTMOORE INC.</b>	
CRANE ASSY 6040DX-22 WP	
T.H. ROTZLER WINCH	
DRAWN: JE	07/26/2022 DWG. NO.
MIRL:	SHEET 2 - 8
CHECKED: AT	07/26/2022
ENG APPR: DF	DP
REV	A
34910	WEIGHT: 1739.105 Lbs.

**STEP 2**



**UNLESS SPECIFIED**  
 MACHINED PART  
 MINIMUM .250 RMS  
 ALL WELDS TO BE  
 MINIMUM 1/4"  
 DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 .X ± .116  
 FRACTIONS ± .116  
 XX° ± .5°

**THIRD ANGLE PROJECTION**

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THIRD ANGLE PROJECTION

CHECKED AT 07/26/2022 DWG. NO. 34910  
 ENG APPR. DF DP

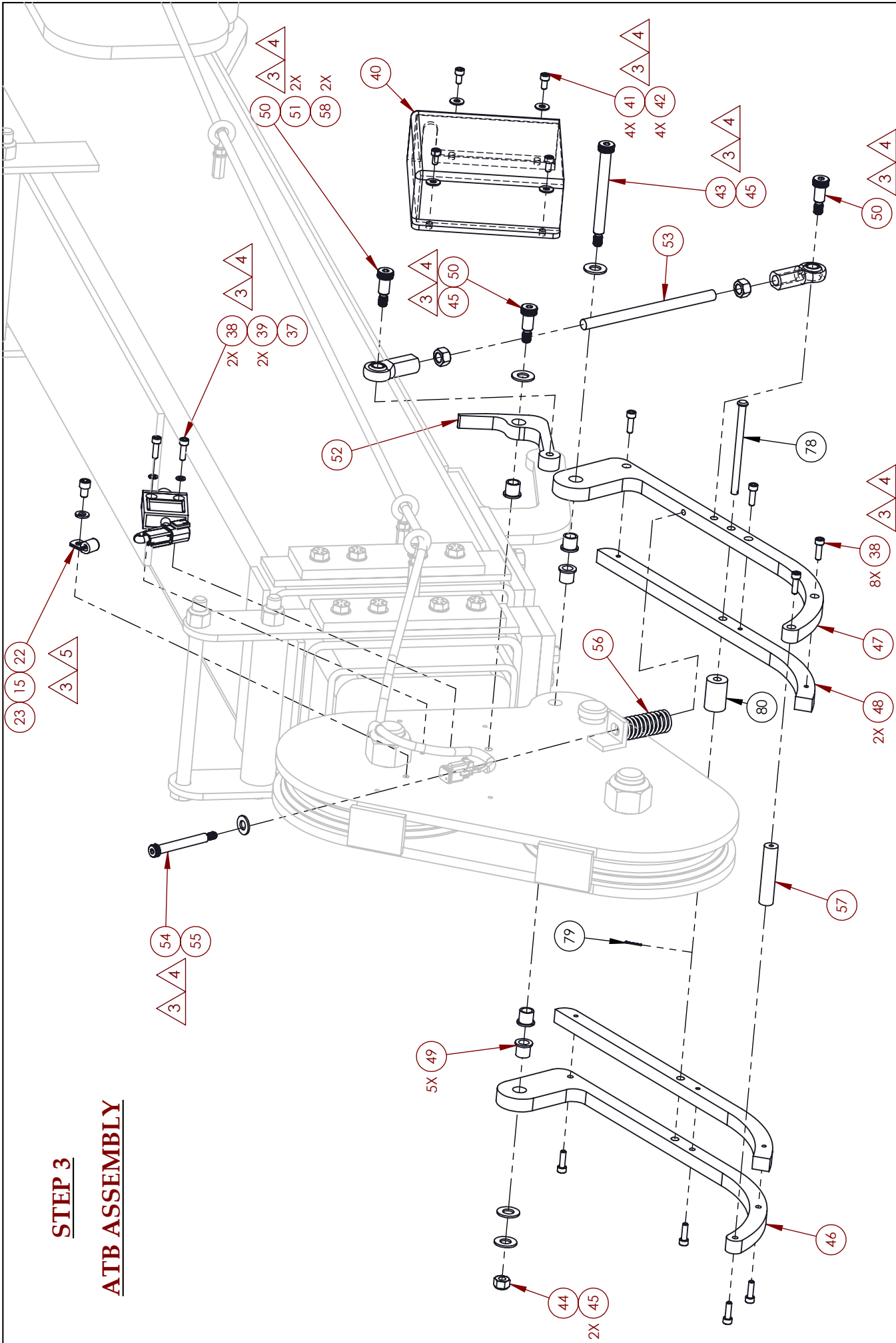
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CRANE ASSY 6040DX-22 WP

REV	JE	07/26/2022	DWG. NO.	34910
A	MIRL	SHEET 3 - 8	WEIGHT: 1739.105 Lbs.	

**STEP 3**

**ATB ASSEMBLY**



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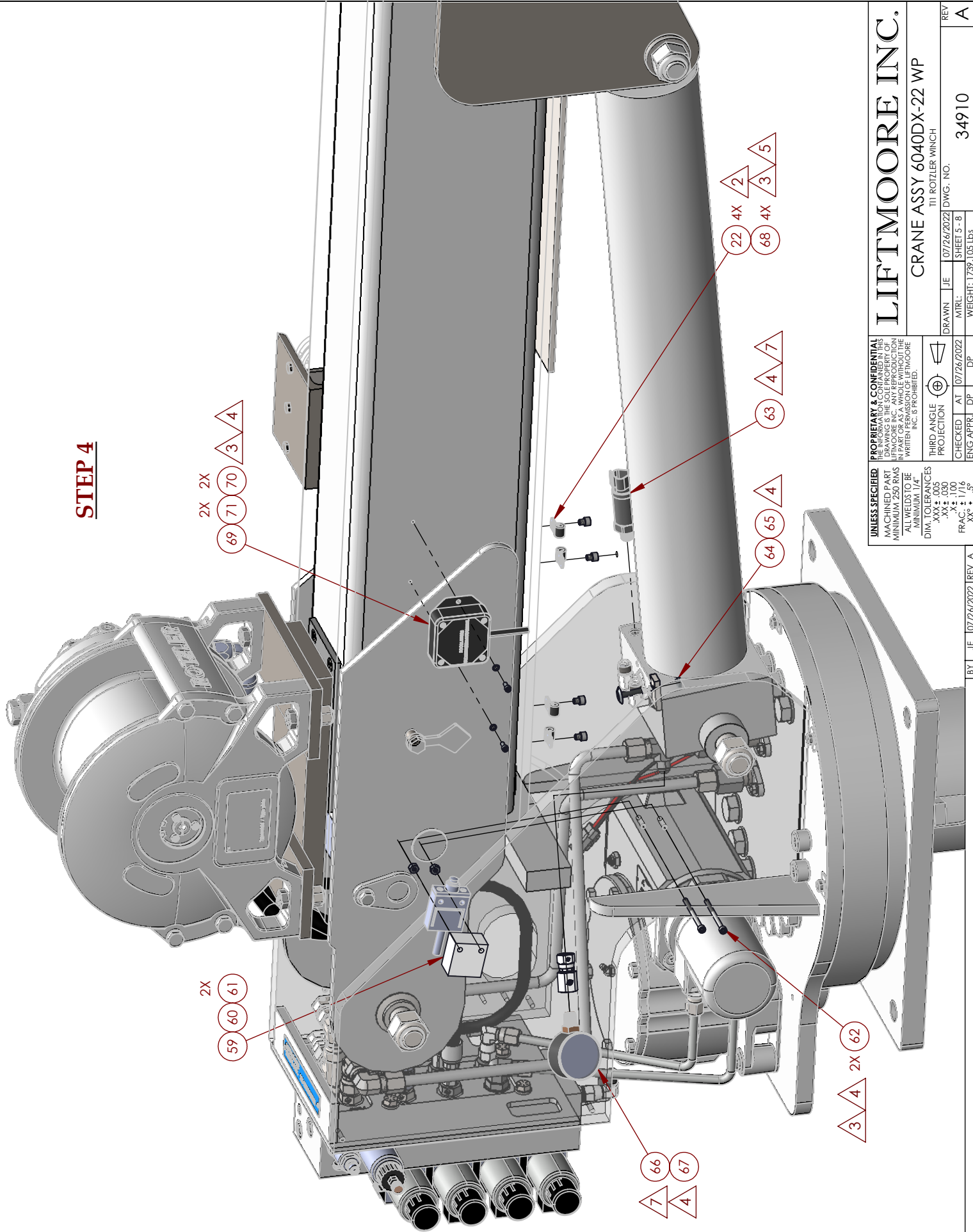
**LIFTMOORE INC.**  
 CRANE ASSY 6040DX-22 WP  
 T.H. ROTZLER WINCH

THIRD ANGLE  
 PROJECTION

DWG. NO. 34910  
 SHEET 4 - 8  
 WEIGHT: 1739.105 Lbs.

REV A  
 DATE: 07/26/2022  
 DRAWN: JE  
 MRL: SHEET 4 - 8  
 CHECKED: AT  
 DATE: 07/26/2022  
 ENG APPR: DP  
 DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 .X ± .116  
 FRACTIONS ± 1/16  
 ANGLES ± .5°

**STEP 4**



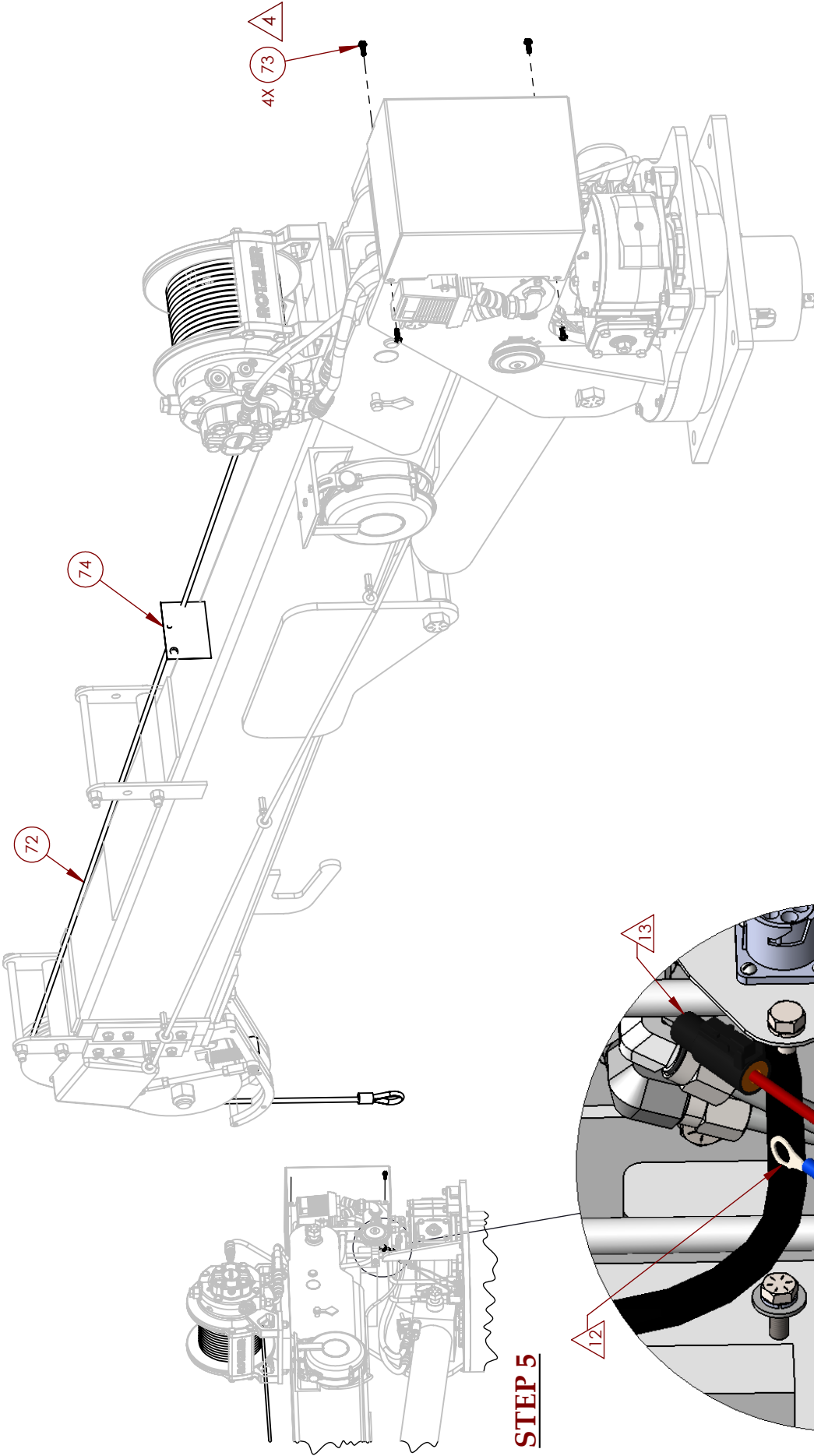
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MACHINED PART		THIRD ANGLE PROJECTION	
MINIMUM 250 RMS		CHECKED AT 07/26/2022	
ALL WELDS TO BE MINIMUM 1/4"		ENG APPR: DF DP	
DIM. TOLERANCES		DRAWN JE 07/26/2022	
.XXX ± .005		MIRL: SHEET 5 - 8	
.XX ± .030		DWG. NO. 34910	
FRAC. ± 1/16		REV A	
XX° ± .5°		WEIGHT: 1739.105 Lbs.	

**LIFTMOORE INC.**

CRANE ASSY 6040DX-22 WP

T.H. ROTZLER WINCH





**STEP 5**

**STEP 6**

**DETAIL A**

**LIFTMOORE INC.**

CRANE ASSY 6040DX-22 WP

T.H. ROTZLER WINCH

UNLESS SPECIFIED:  
 MACHINED PART  
 MINIMUM .250 RIMS  
 ALL WELDS TO BE  
 MINIMUM 1/4"

DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 .X ± .116  
 XX° ± .5°

THIRD ANGLE  
 PROJECTION

CHECKED AT 07/26/2022  
 ENG APPR: DF

DRAWN JE 07/26/2022  
 MRL: SHEET 6-8  
 WEIGHT: 1739.105 Lbs

REV A

34910

DWG. NO.

REV A

SHEET 6-8

WEIGHT: 1739.105 Lbs

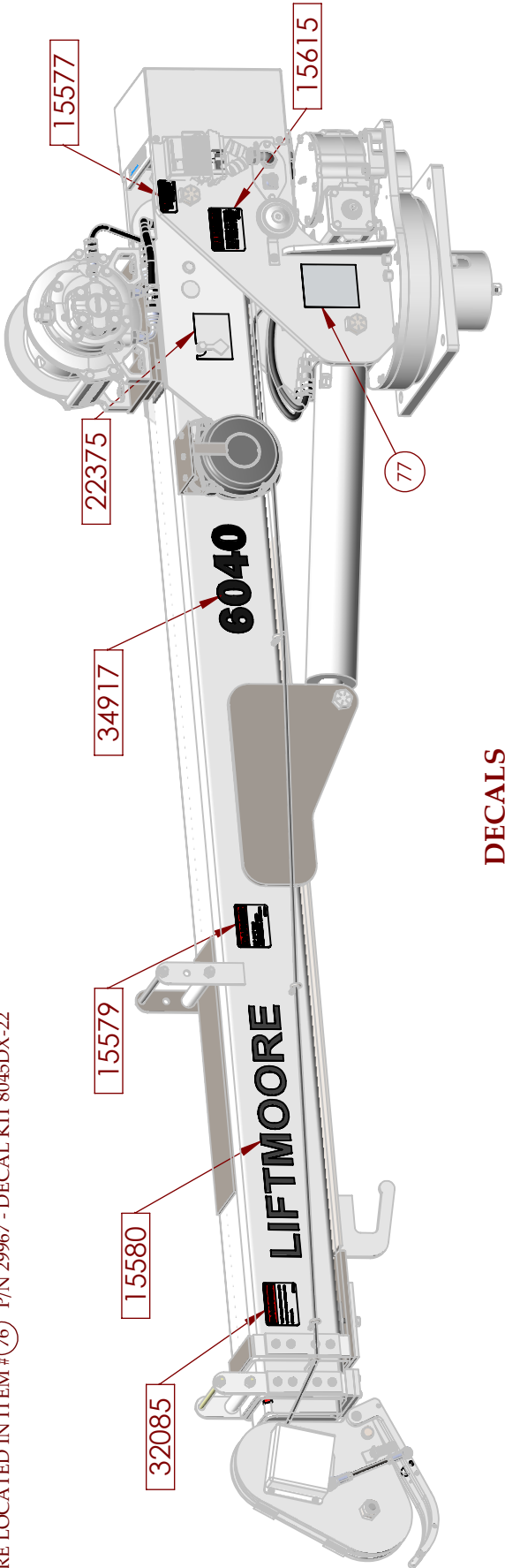
T.H. ROTZLER WINCH

CRANE ASSY 6040DX-22 WP

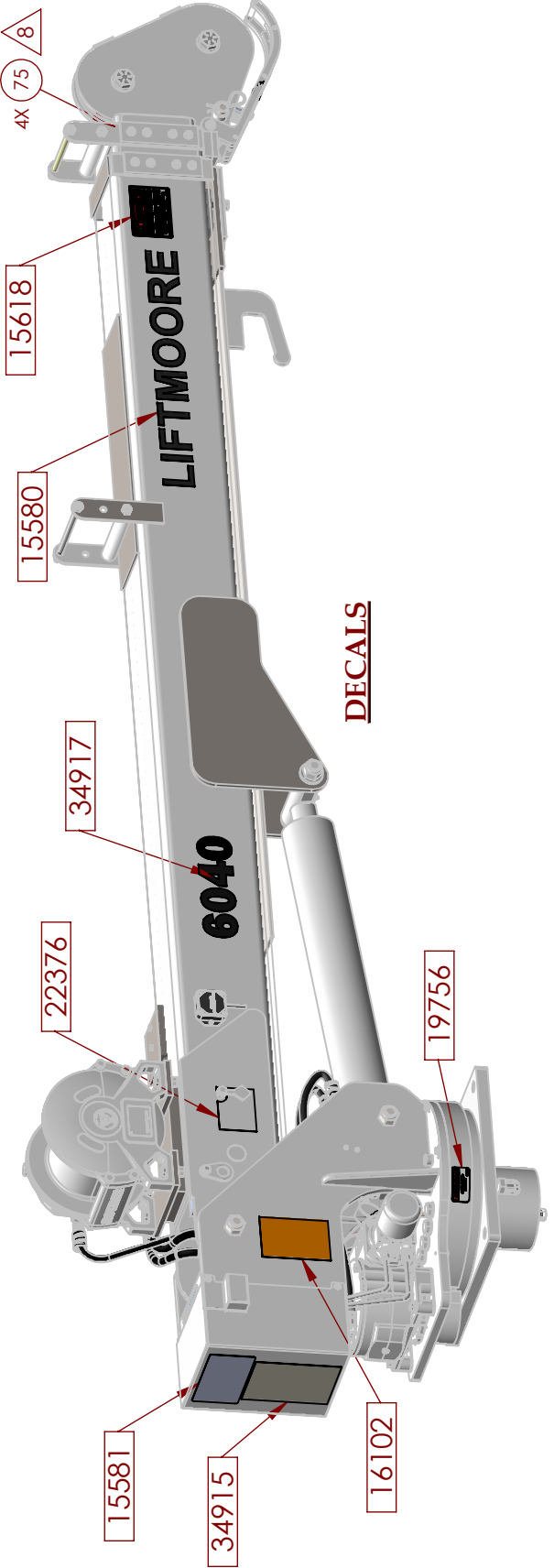
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DECALS ARE LOCATED IN ITEM # 76 P/N 29967 - DECAL KIT 8045DX-22



**DECALS**

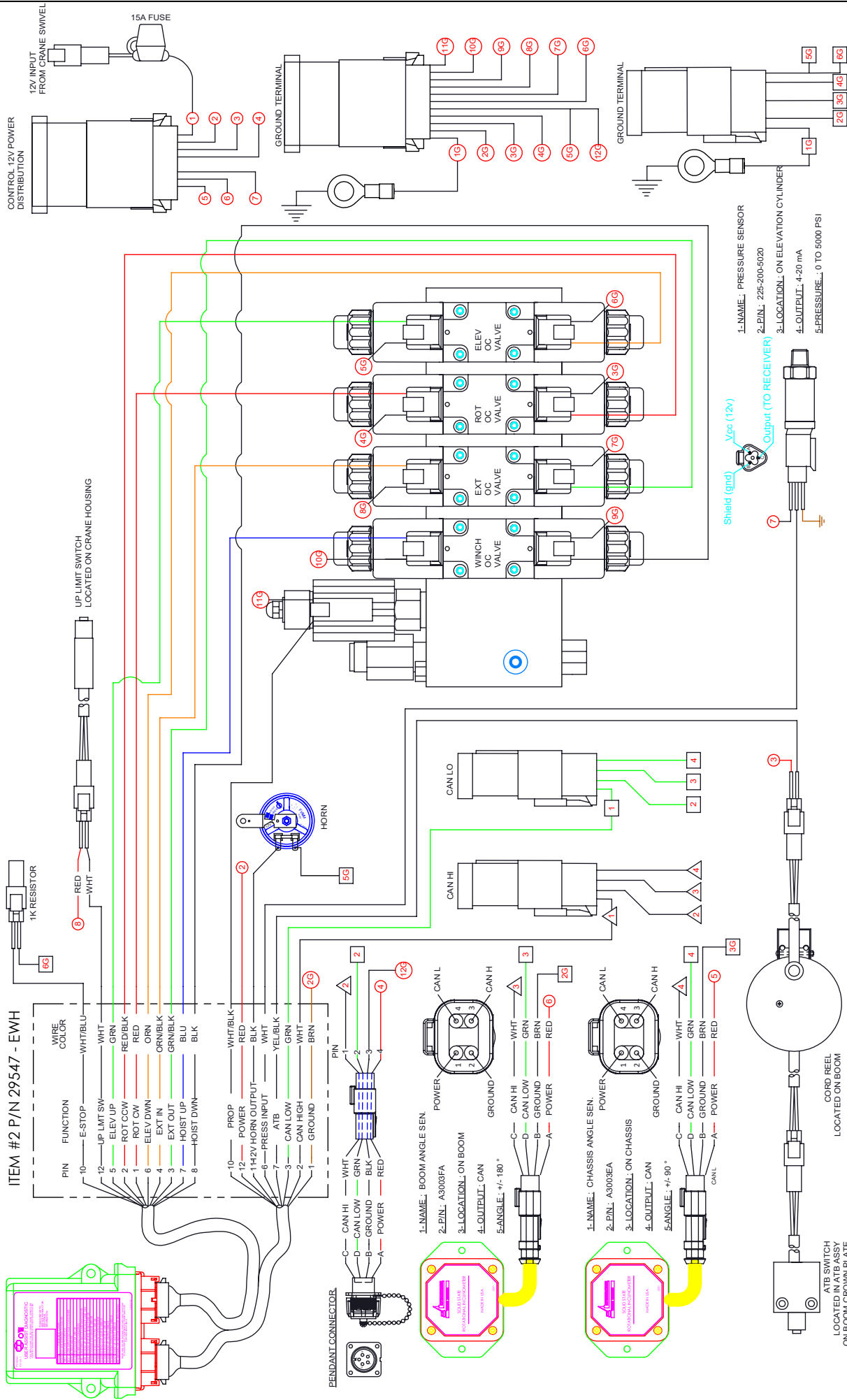


**DECALS**

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 THIRD ANGLE  
 PROJECTION  
 CHECKED AT 07/26/2022  
 ENG APPR: DF DP

LIFTMOORE INC.  
 CRANE ASSY 6040DX-22 WP  
 TTI ROTZLER WINCH  
 DWG. NO. 34910  
 SHEET 7 - 8  
 WEIGHT: 1739.105 Lbs.

BY	JE	07/26/2022	REV	A
DISC.				

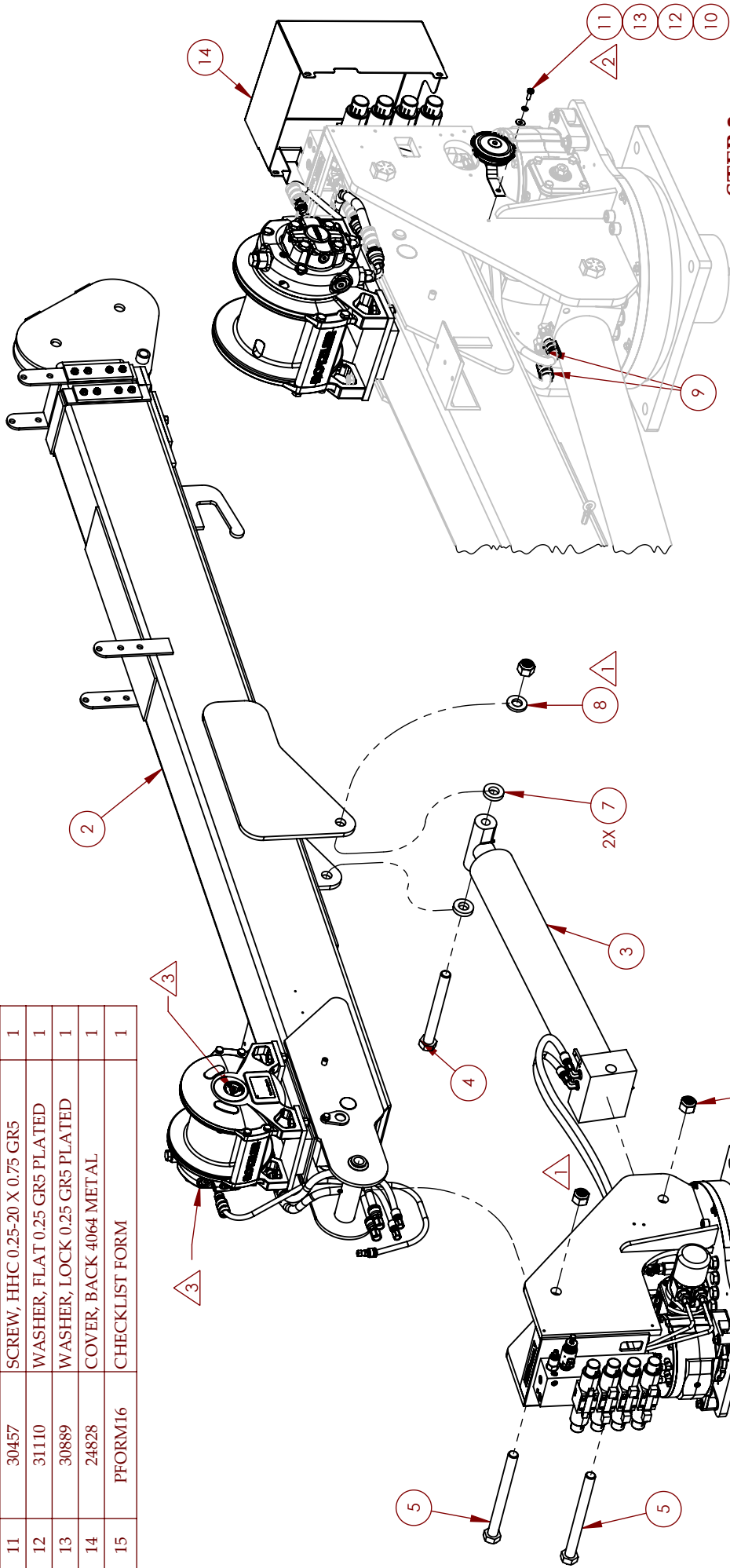


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CRANE ASSY 6040DX-22 WP  
T11 ROTZLER WINCHUNLESS SPECIFIED: PROPRIETARY & CONFIDENTIAL  
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THIRD ANGLE PROJECTION  
DIM. TOLERANCES  
XXX ± .005  
XX ± .030  
X ± .116  
FRAC. A ± 1/16  
XX° ± .5°  
ALL WELDS TO BE MINIMUM 1/4"

DISC: BY JE 07/24/2022 REV A  
ENG APPR: DF DP  
CHECKED: AT 07/26/2022  
MIRL: JE 07/26/2022  
DRAWN: JE 07/26/2022  
DWG. NO. 34910  
WEIGHT: 1739.105 Lbs  
SHEET 8 - 8  
REV A

NOTE	DESCRIPTION
1	TO AVOID OVER TIGHTENING, USE IMPACT GUN SET ON SETTING 2 W/115 PSI TO TIGHTEN & ENSURE SCREW CAN BE TURNED WITH A WRENCH AFTER TIGHTENING.
2	TORQUE TO 5 FT-LBS.
3	INSPECT WINCH HAS OIL.

ITEM	PART NUMBER	DESCRIPTION	QTY
1	34891	BODY ASSEMBLY 6040DX	1
2	34908	BOOM ASSEMBLY 6040DX-22	1
3	21521	CYLINDER ASSY 4064XP ELEV DTCH	1
4	21194	SCREW, HHC 1.00-8 X 9.50 GR8	1
5	21195	SCREW, HHC 1.00-8 X 11.25 GR8	2
6	30838	NUT, HEX NYLOC 1.00-8 GRADE 5	3
7	27692	SPACER, CYLINDER ELE. 6036	2
8	23712	SPACER, PIVOT 1.00 X 0.280	1
9	31408	WRAP, 3/4" BLACK SPIRAL CUT	90 IN
10	23051	HORN, 108 DB	1
11	30457	SCREW, HHC 0.25-20 X 0.75 GR5	1
12	31110	WASHER, FLAT 0.25 GR5 PLATED	1
13	30889	WASHER, LOCK 0.25 GR5 PLATED	1
14	24828	COVER, BACK 4064 METAL	1
15	PFORM16	CHECKLIST FORM	1



**STEP 2**

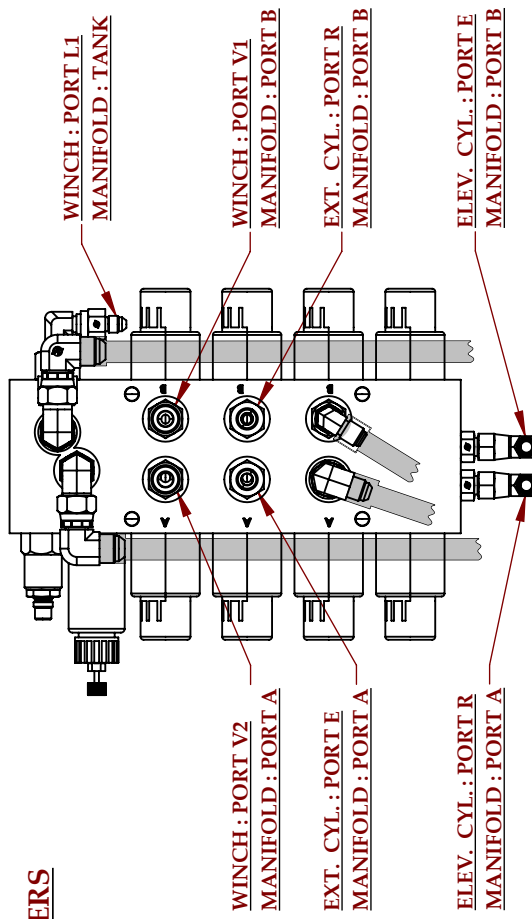
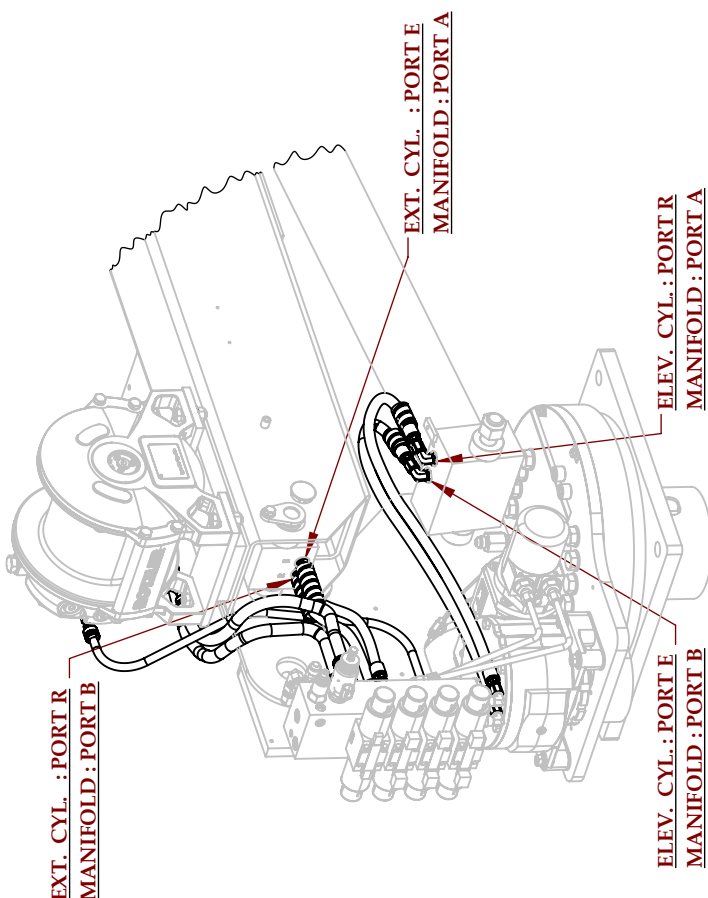
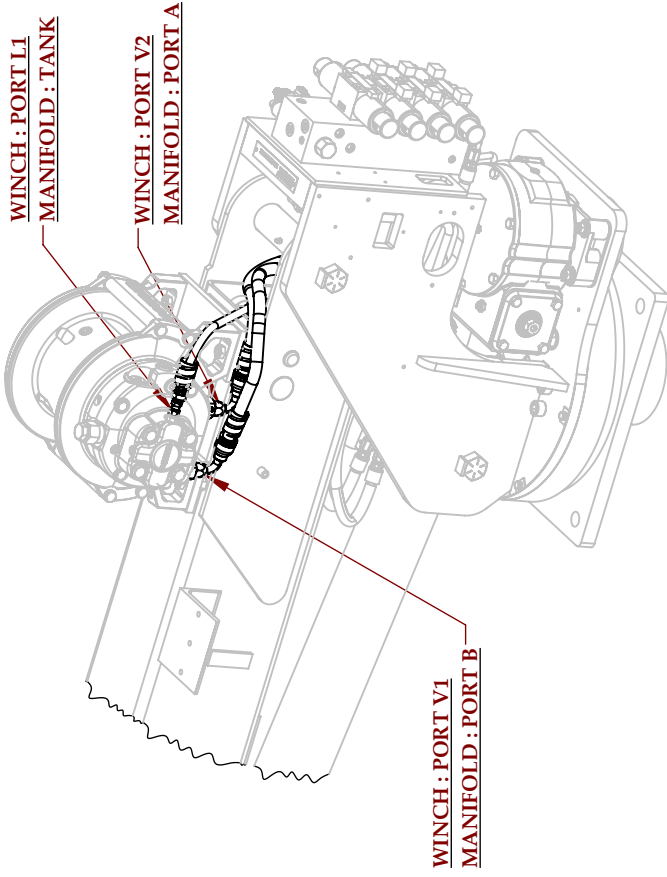
**STEP 1**

UNLESS SPECIFIED:  
 MACHINED PART  
 MINIMUM 250 RMS  
 ALL WELDS TO BE  
 MINIMUM 1/4"  
 DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 .X ± .116  
 XX° ± .5°

THIRD ANGLE PROJECTION

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 INC. IS PROHIBITED.

<b>LIFTMOORE INC.</b>	
BOOM-BODY ASSY 6040DX-22	
THI ROTZLER WINCH	
DRAWN: JE	07/29/2022
MIRL:	SHEET 1 - 2
ENG APPR: DF	07/29/2022
WEIGHT: 1,617.133 LBS.	
REV	B
34909	



**MANIFOLD - HOSES LAYOUT  
INSIDE BODY VIEW**

**EXTENSION & ELEVATION CYLINDERS  
HOSES LAYOUT**

**UNLESS SPECIFIED:**

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INC. IS PROHIBITED.

THIRD ANGLE  
PROJECTION

CHECKED AT 07/29/2022  
ENG APPR DF 07/29/2022

MINIMUM 250 RMS  
MINIMUM 1/4"  
DIM. TOLERANCES  
XXX ± .005  
XX ± .030  
X ± .116  
FRACTIONS  
XX" ± .5"

**LIFTMOORE INC.**

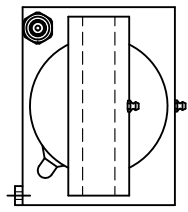
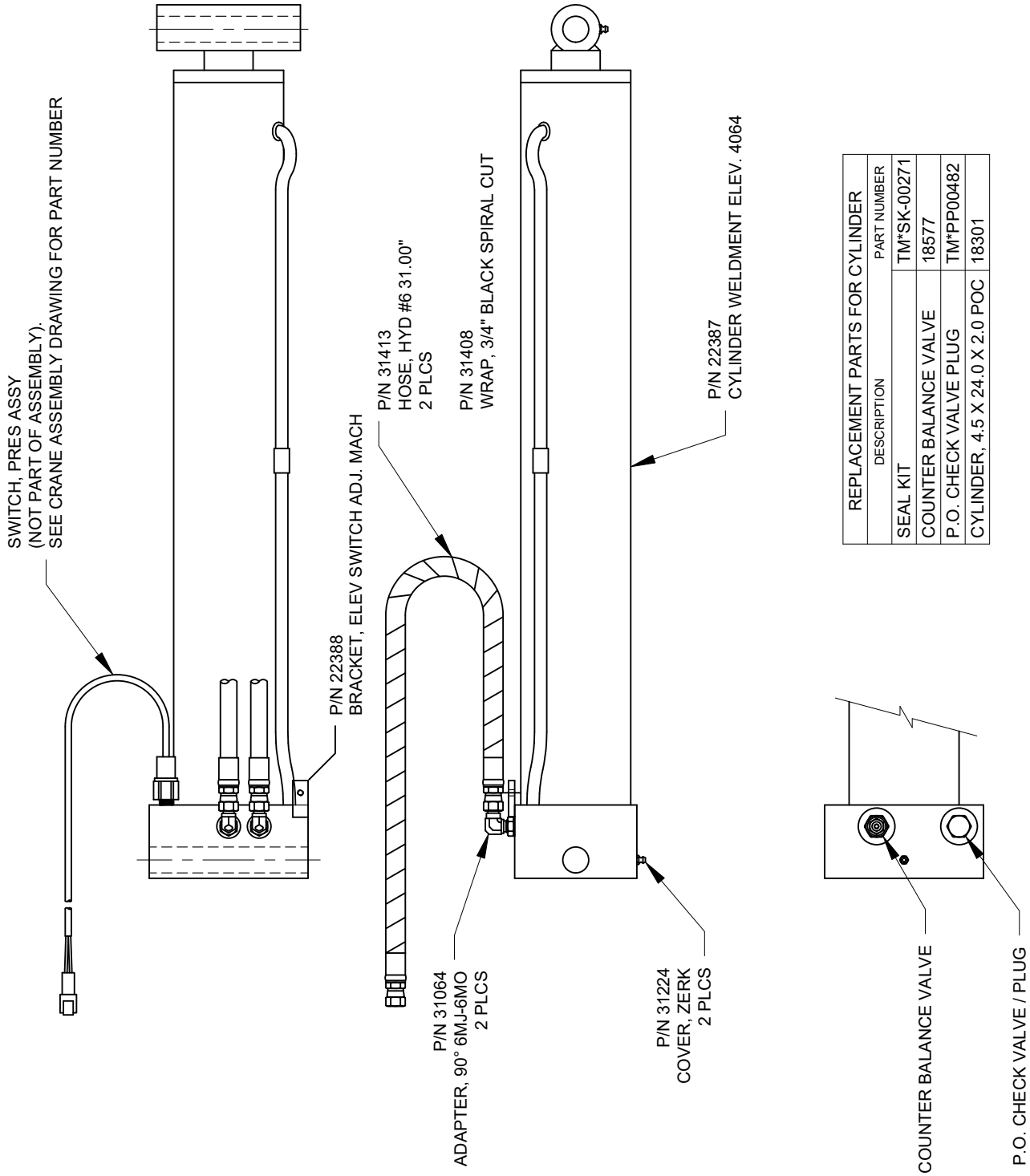
BOOM-BODY ASSY 6040DX-22

TII ROTZLER WINCH

DRAWN JE 07/29/2022 DWG. NO.  
MIRL SHEET 2 - 2  
REV B

34909

WEIGHT: 1.617.133 lbs.

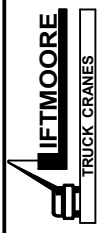


DRAWING NO.  
**21521-E**

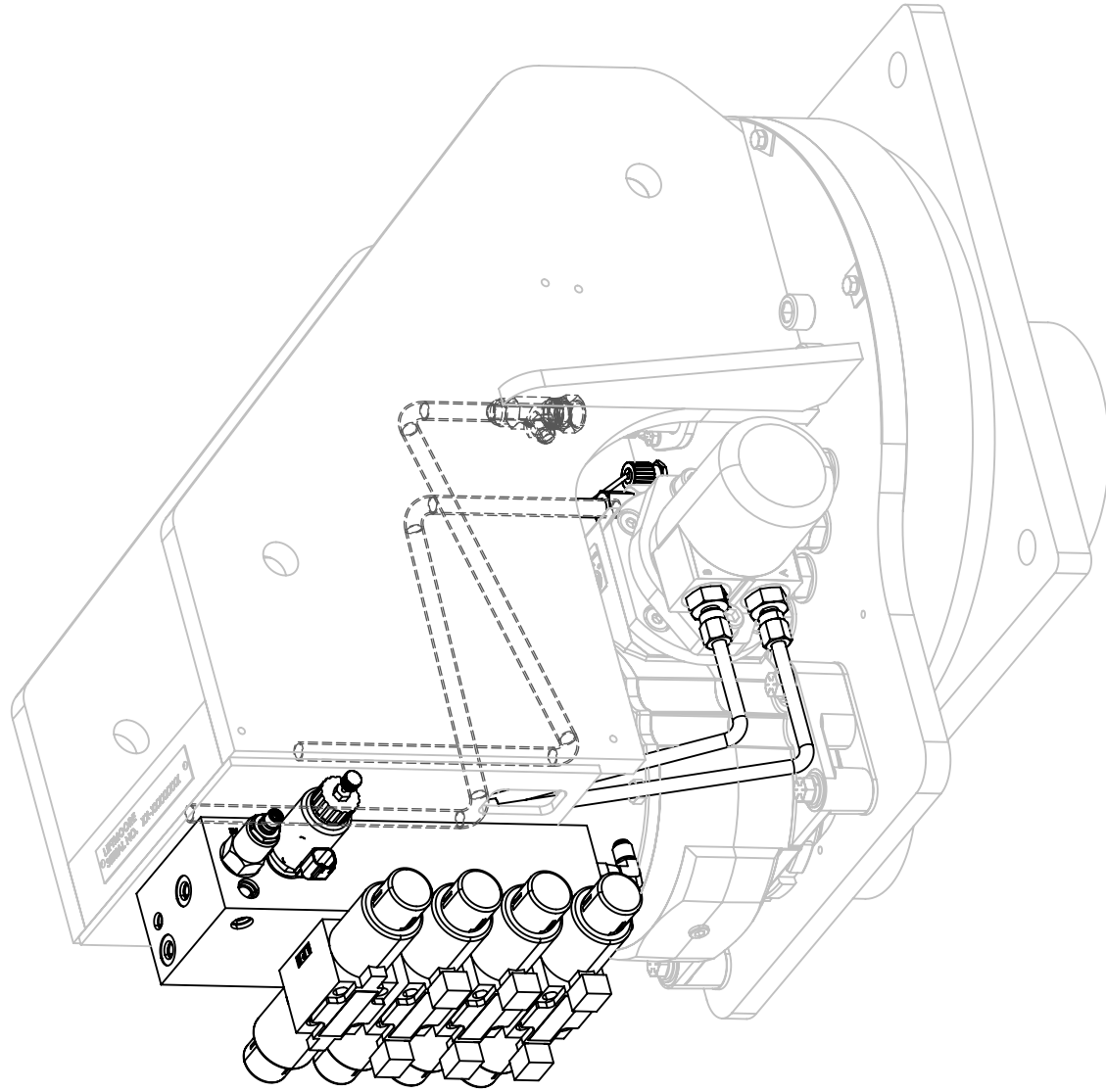
**CYLINDER ASSY 4064XP ELEV DTCH**  
CYL 18301, 35.50" HOSE, DTCH LS

DRWN BY: JC  
DATE: 09/30/09

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



ITEM	PART NUMBER	DESCRIPTION	QTY
1	29880	BASE-HOUSING ASSY 8045	1
2	34892	MANIFOLD ASSY 6040 DTCH	1
3	24817	TUBE, HYD 4064 PRESS	1
4	24818	TUBE, HYD 4064 TANK RZ	1
5	24923	ADAPTER, TEE 8MJ-6MJ-8F-JX	1
6	29543	TUBE, HYD ROT 8045 PORT B	1
7	29544	TUBE, HYD ROT 8045 PORT A	1
8	30459	SCREW, HHC 0.37-16 X 0.75 GR8	4
9	30473	WASHER, LOCK 0.37 GR5 PLATED	4
10	31527	ADAPTER, 6MJ-10MO	2



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

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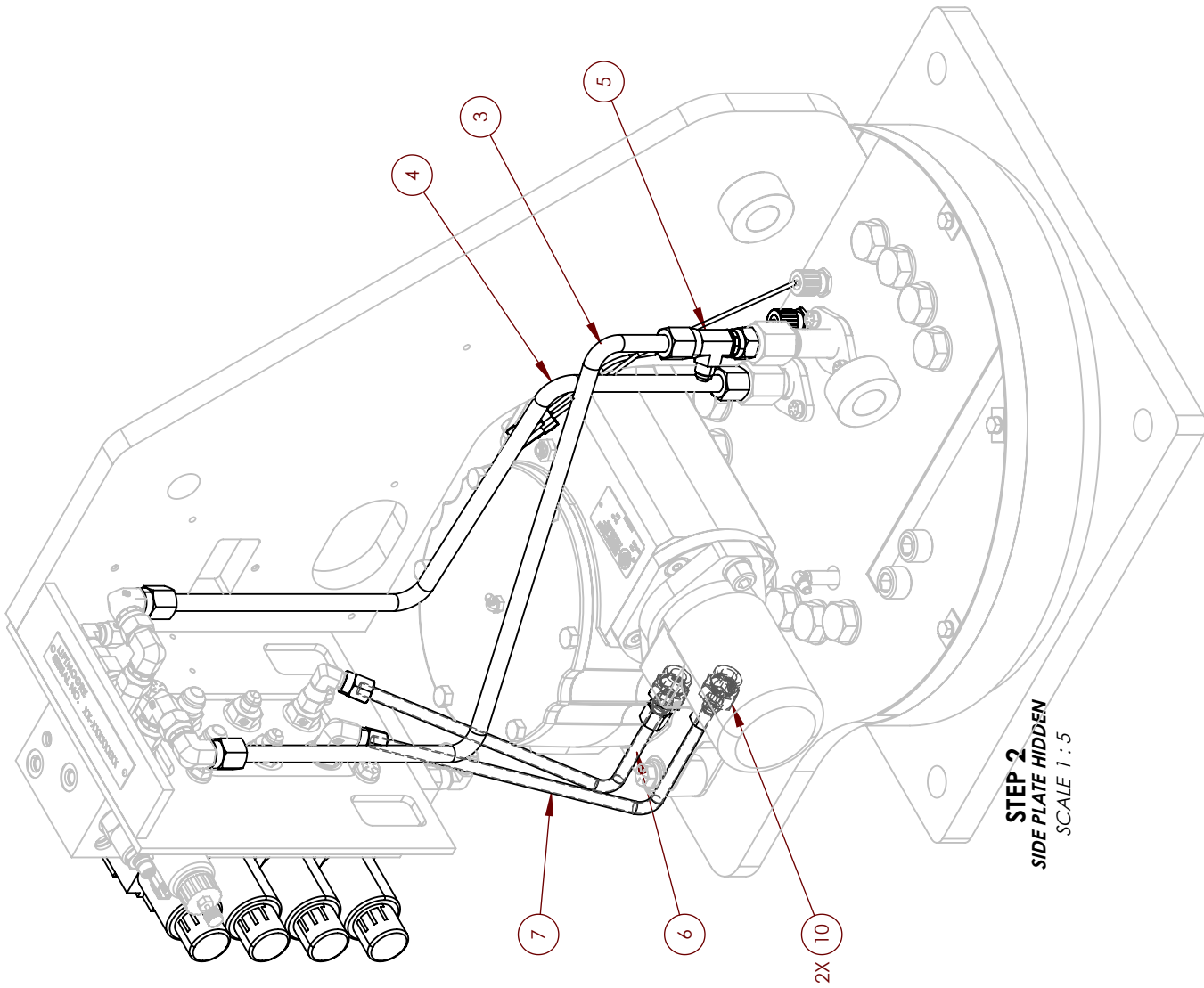
THIRD ANGLE  
 PROJECTION

CHECKED AT 07/25/2022  
 ENG APPR: Admin 07/25/2022

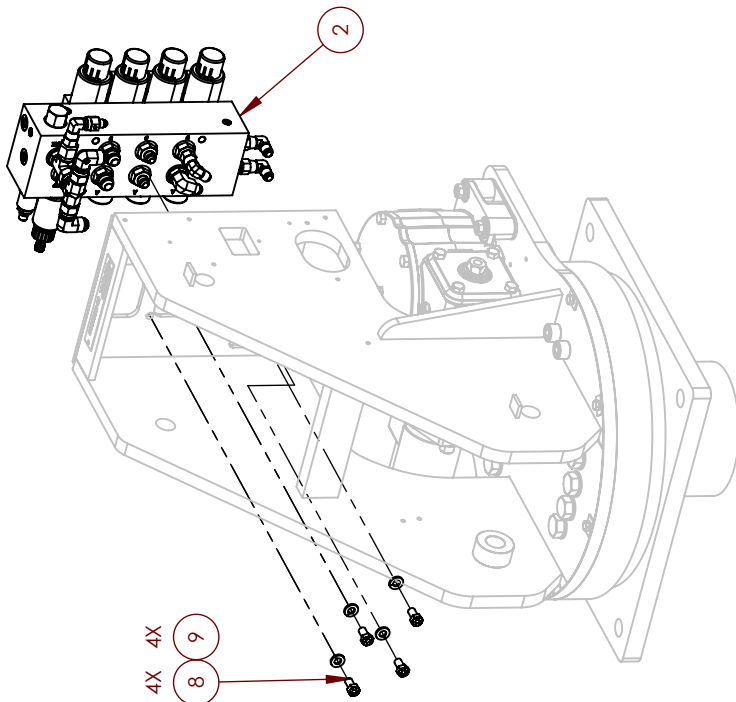
**LIFTMOORE INC.**  
**BODY ASSEMBLY 6040DX**

DRAWN JE 07/25/2022 DWG. NO. 34891  
 MTRL: SHEET 1 - 2  
 WEIGHT: 512.146 Lbs

REV A



**STEP 2**  
SIDE PLATE HIDDEN  
SCALE 1 : 5



**STEP 1**  
SCALE 1 : 10

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

THIRD ANGLE  
PROJECTION

CHECKED AT 07/25/2022  
ENG APPR: Admin 07/25/2022

DRAWN JE 07/25/2022 DWG. NO.  
MIRL SHEET 2 - 2  
WEIGHT: 512.146 Lbs.

**LIFTMOORE INC.**

**BODY ASSEMBLY 6040DX**

REV	A
34891	

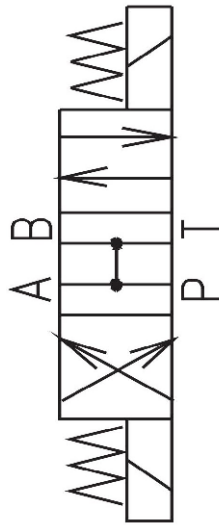
BY	JE	07/25/2022	REV	A
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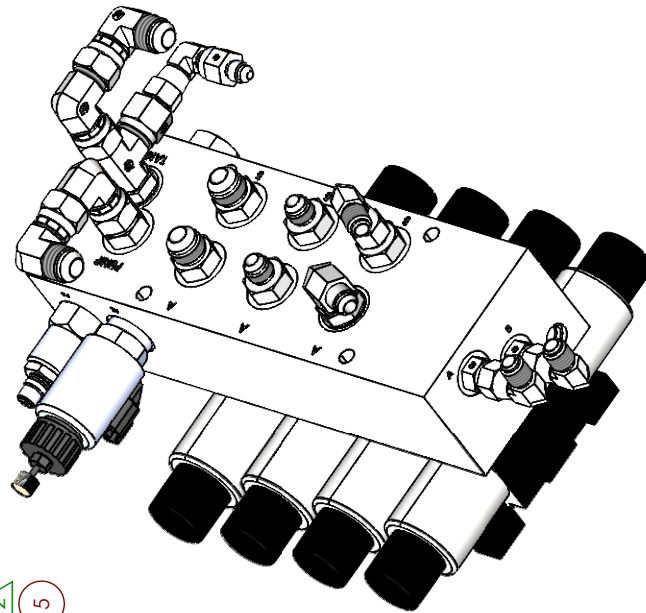
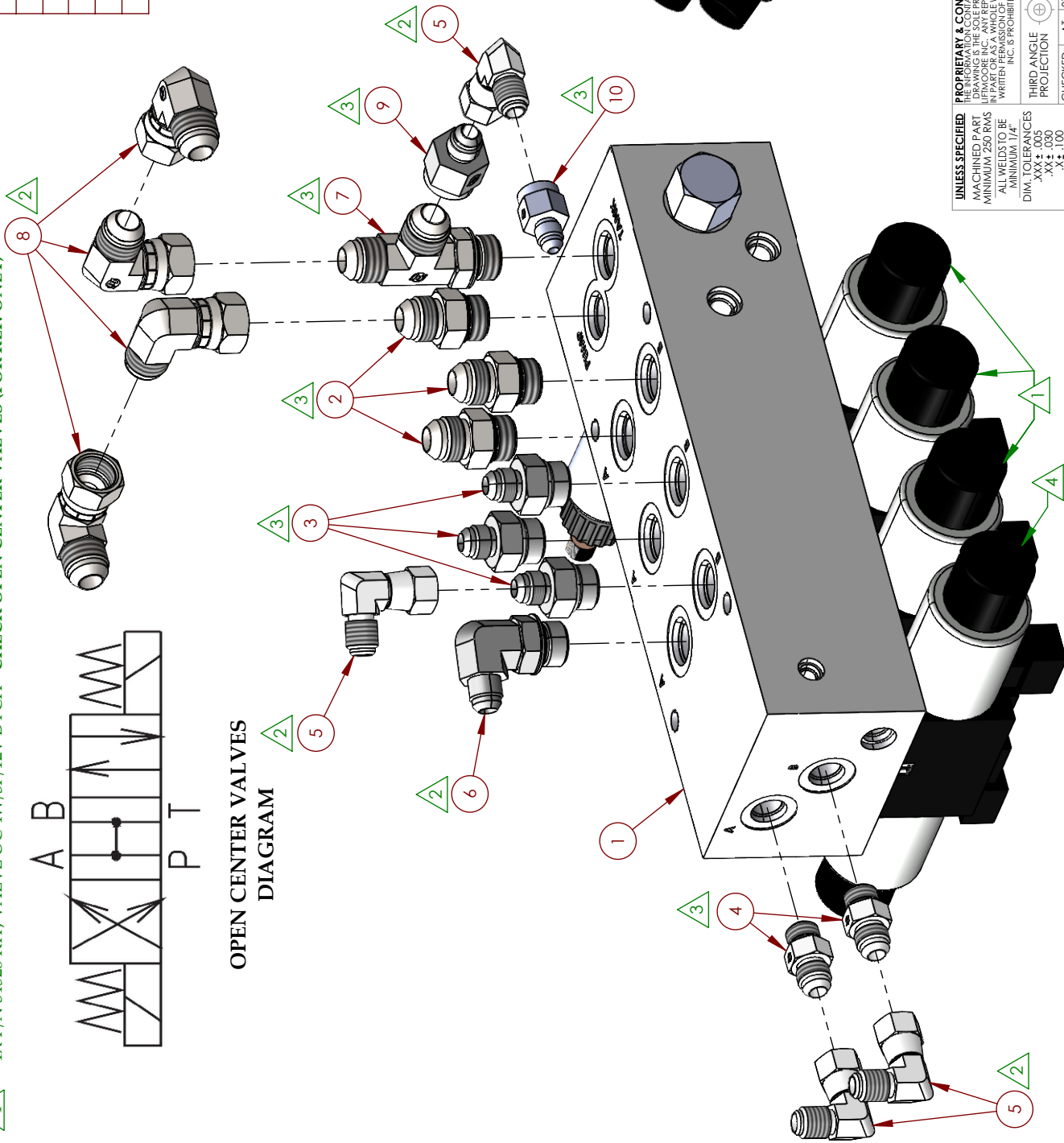
ITEM	PART NUMBER	DESCRIPTION	QTY
1	24822	MANIFOLD PRE-ASSY XP DTCH	1
2	31908	ADAPTER, 8MJ-8MO X 1.48	3
3	30898	ADAPTER, 6MJ-8MO	3
4	31063	ADAPTER, 6MJ-6MO	2
5	31513	ADAPTER, 90° 6MJ-6FJX	4
6	31135	ADAPTER, 90° 6MJ-8MO	1
7	32544	ADAPTER, TEE 8MJ-8MJ-8MO	1
8	32547	ADAPTER, 90° 8FJX-8MJ	4
9	20864	ADAPTER, 6MJ-8FJ	1
10	33166	ADAPTER, 6FJ-4MJ	1

**NOTES**

- 1 - 3X P/N 34528 KIT, VALVE OC 4W/3P/12V DTCH - CHECK OPEN CENTER VALVES (FOR REF. ONLY)
- 2 - HAND TIGHTEN ( LEAVE LOOSE, TO BE ADJUSTED IN FUTURE ASSEMBLIES )
- 3 - HAND TIGHTEN USING WRENCH
- 4 - 1X P/N 34528 KIT, VALVE OC 4W/3P/12V DTCH - CHECK OPEN CENTER VALVES (FOR REF. ONLY)



**OPEN CENTER VALVES  
DIAGRAM**



**UNLESS SPECIFIED**  
 MACHINED PART  
 MINIMUM 250 RMS  
 ALL WELDS TO BE  
 MINIMUM 1/4"  
 DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 .X ± .110  
 FRACTION ± .1/16  
 XX° ± .5°

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THIRD ANGLE  
 PROJECTION

CHECKED AT 07/25/2022  
 ENG APPR: Admin/07/25/2022

**LIFTMOORE INC.**

MANIFOLD ASSY 6040 DTCH  
 TANDEN VALVE ON WING

DRAWN JE 07/25/2022 DWG. NO. 34892  
 SHEET 1-1  
 WEIGHT: 33.43 L. LBS

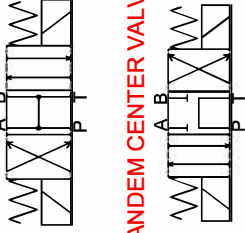
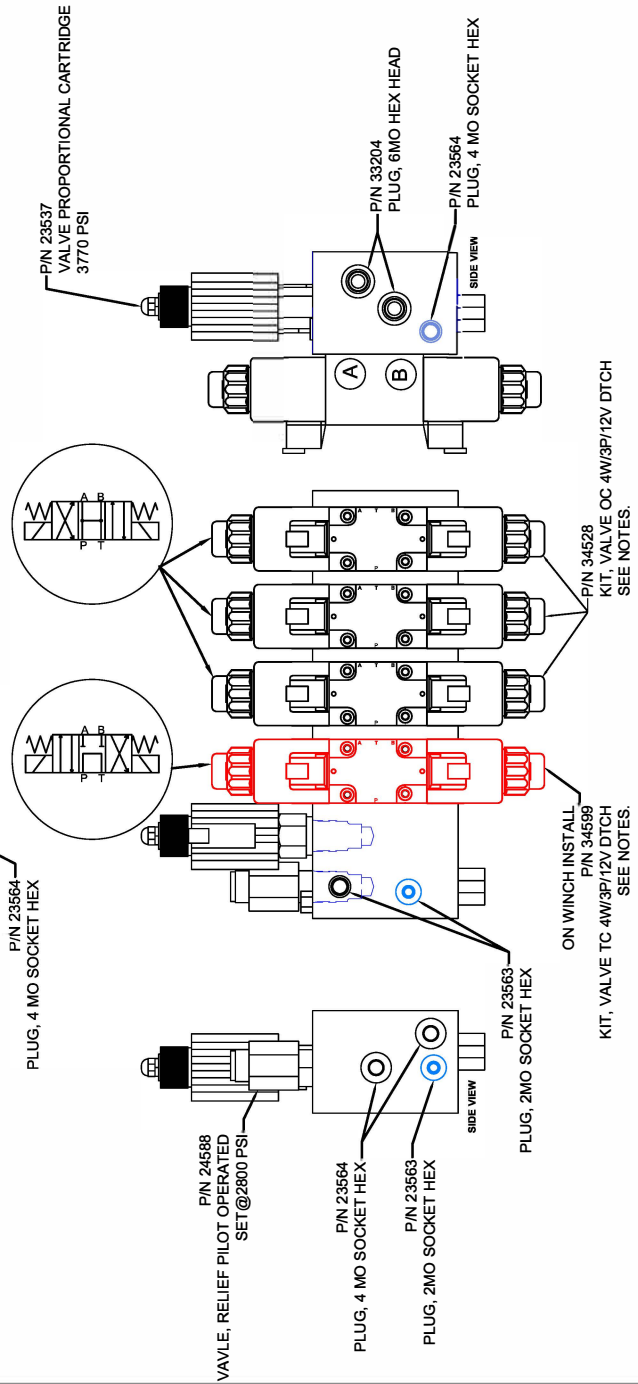
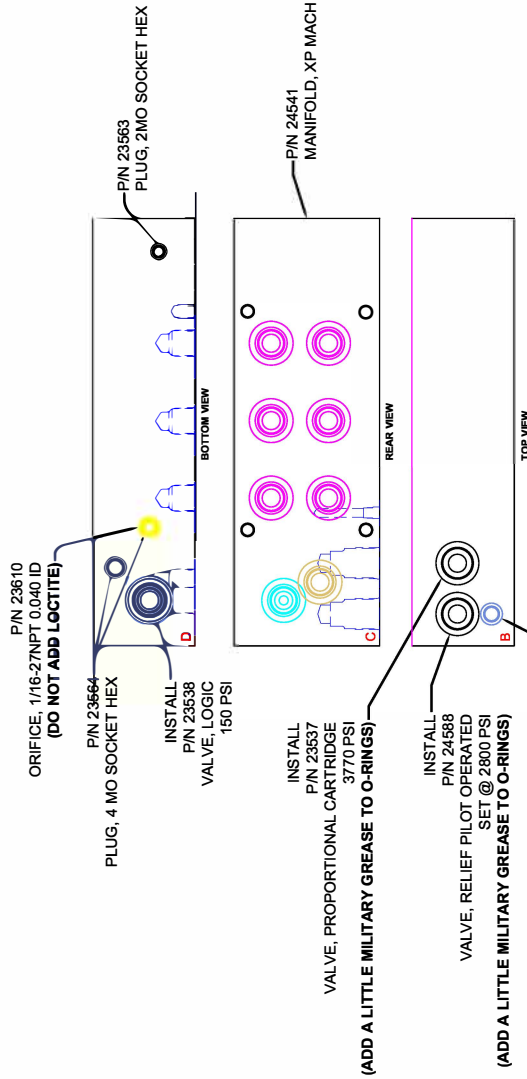
REV A

**NOTES**

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

2- INSTALL 3 OPEN CENTER VALVE KITS P/N 34528 ON THE RIGHT

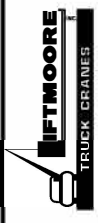
3- INSTALL 1 TANDEM CENTER VALVE KIT P/N 34599 ON THE LEFT

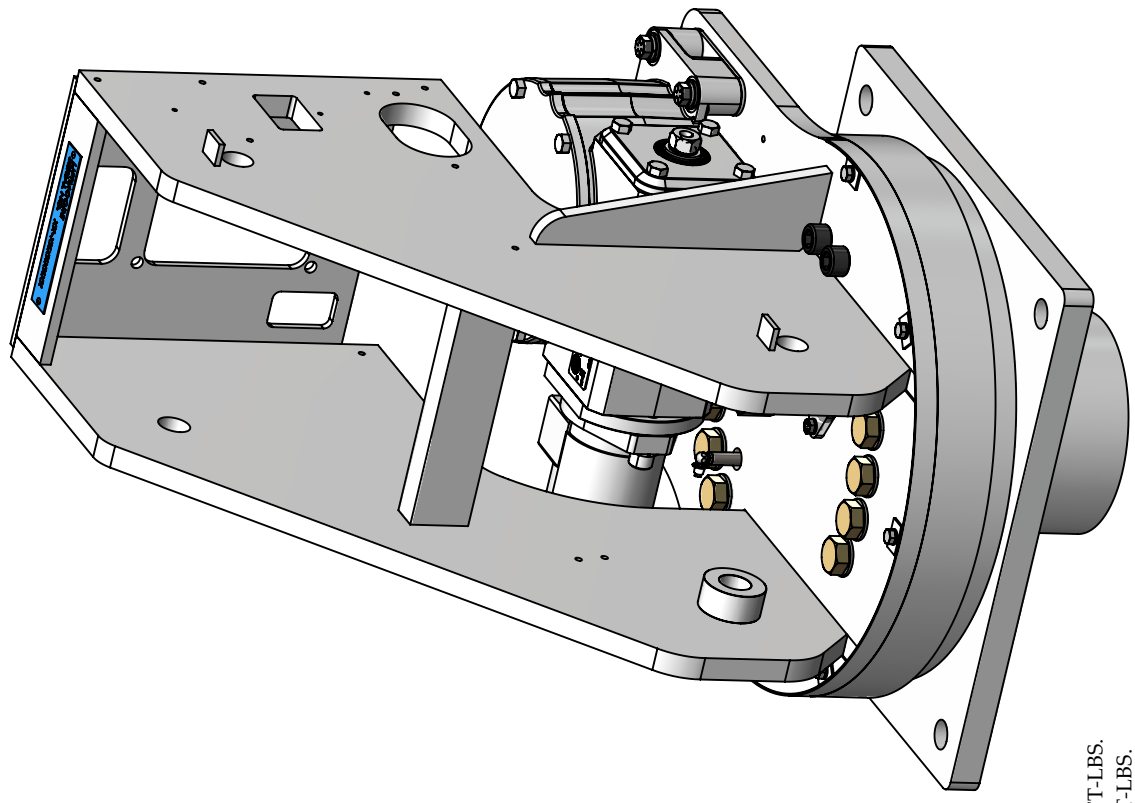


**MANIFOLD PRE ASSY XP DTCH**  
3 OPEN, 1 TANDEM CENTER VALVES

DRWN BY: JE  
DATE: 12/21/11

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





**ASSEMBLY FINAL VIEW**

**NOTES:**

- 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 - RUN WIRE THRU CONNECTOR.
- 7 - APPLY LOC-TITE VC-3 TO THREADS.
- 8 - APPLY LOC-TITE 565 TO THREADS
- 9 - ADD TEFLON TAPE
- 10 - ADD SILICONE AROUND ITEM # 27
- 11 - ADD MILITARY GREASE TO GEAR TEETH
- 12 - USE EXISTING HARDWARE
- 13 - PIN 1 TO RED WIRE, PIN 2 TO BLACK WIRE

ITEM	PART NUMBER	DESCRIPTION	QTY
1	29882	HOUSING WELDMENT 8045 DTCH	1
2	22916	BEARING, GEAR 4064	1
3	31054	WASHER, FLAT 0.62 SAE GR8	30
4	30867	SCREW, SOC HD 0.62-11 X 2.25	4
5	31100	SCREW, HHC 0.62-11 X 2.25 GR8	12
6	19824	ZERK. 0.12 NPT STRAIGHT X 2.62	1
7	29511	ZERK. M8-1.00 90°	1
8	31224	COVER, ZERK 1/4	1
9	23037	ADAPTER, ELBOW MALE X FEMALE	1
10	23389	PLATE, SERIAL NO. MACHINING	1
11	22406	SCREW, DRIVE	2
12	29116	REDUCER, SPEED P GEAR 14 TOOTH	1
13	27332	RING, ECCENTRIC PERFECTION GEA	1
14	17473	O-RING, 155 BUNA 70 DUROMETER	1
15	17472	O-RING, 158 BUNA 70 DUROMETER	1
16	31062	WASHER, FLAT 0.43 SAE GRADE 8	4
17	30972	WASHER, LOCK 0.43 GR5 PL	4
18	28429	SCREW, HHC 0.43-14 X 2.50 GR8	4
19	29282	SPACER, SPEED REDUCER 4075/4064	2
20	19720	COVER, GEAR PINION 72100	1
21	30889	WASHER, LOCK 0.25 GR5 PLATED	14
22	30457	SCREW, HHC 0.25-20 X 0.75 GR5	7
23	21183	COVER, GEAR 4064	1
24	30809	SCREW, HHC 0.25-20 X 0.50 GR5	7
25	29801	SWIVEL, HYD/ELEC ASSY 8045	1
26	31713	SPACER, HYD SWIVEL SUPPORT	2
27	18714	CONNECTOR, CGB 0.25NPT 0.20	2
28	27858	GROMMET, RUBBER 0.875" I.D.	2
29	27990	PLATE, GROMMET HOLDER - MACH	2
30	21112	PLATE, BASE 4064 MACH	1
31	31605	SCREW, HHC 0.62-11 X 3.00 GR8	18
32	18263	PROTECTOR, SWIVEL SLOTTED WELD	1
33	30890	WASHER, LOCK 0.31 GR5 PLATED	5
34	30458	SCREW, HHC 0.31-18 X 0.75 GR5	3
35	28147	PLATE, SWIVEL MOUNT SLIDE MACH	1
36	30888	WASHER, FLAT 0.31 GR5 PLATED	2
37	31096	SCREW, HHC 0.31-18 X 1.25 GR5	2
38	29765	CONNECTOR, DTCH 2P PLUG 12GA	1
39	29766	WEDGE, DEUTSCH 2P PLUG 12GA	1

**UNLESS SPECIFIED**  
 MACHINED PART  
 MINIMUM 250 RMS  
 ALL WELDS TO BE  
 MINIMUM 1/4"  
 DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 .X ± .116  
 FRACTION ± .116  
 XX° ± .5°

**THIRD ANGLE PROJECTION**

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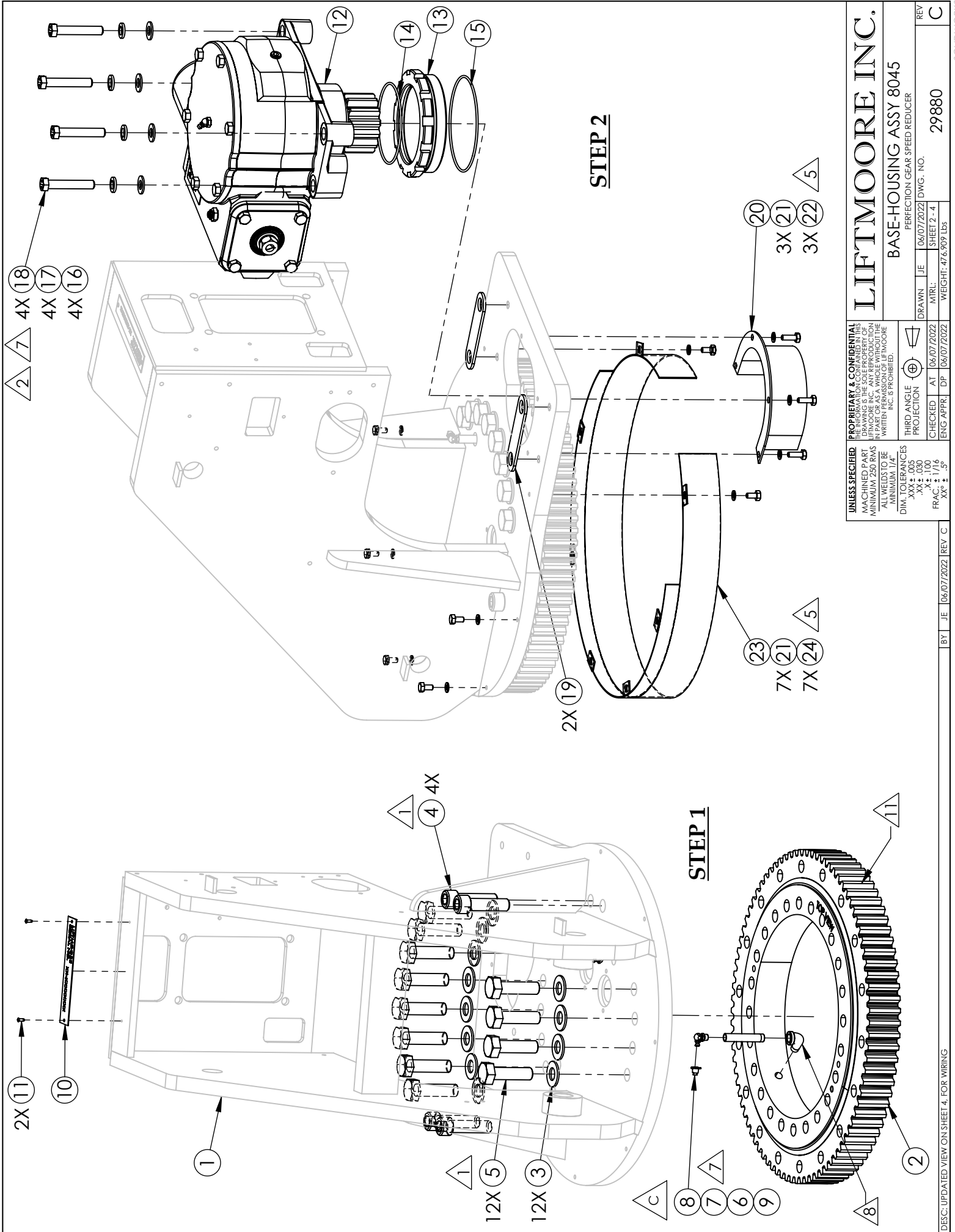
CHECKED AT 06/07/2022  
 ENG APPR DF 06/07/2022

DRAWN JE 06/07/2022 DWG. NO.  
 MRL SHEET 1 - 4  
 WEIGHT-47.6.909 Lbs

REV C  
 29880

PERFECTION GEAR SPEED REDUCER  
 BASE-HOUSING ASSY 8045

**LIFTMOORE INC.**



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 INC. IS PROHIBITED.

**THIRD ANGLE  
 PROJECTION**

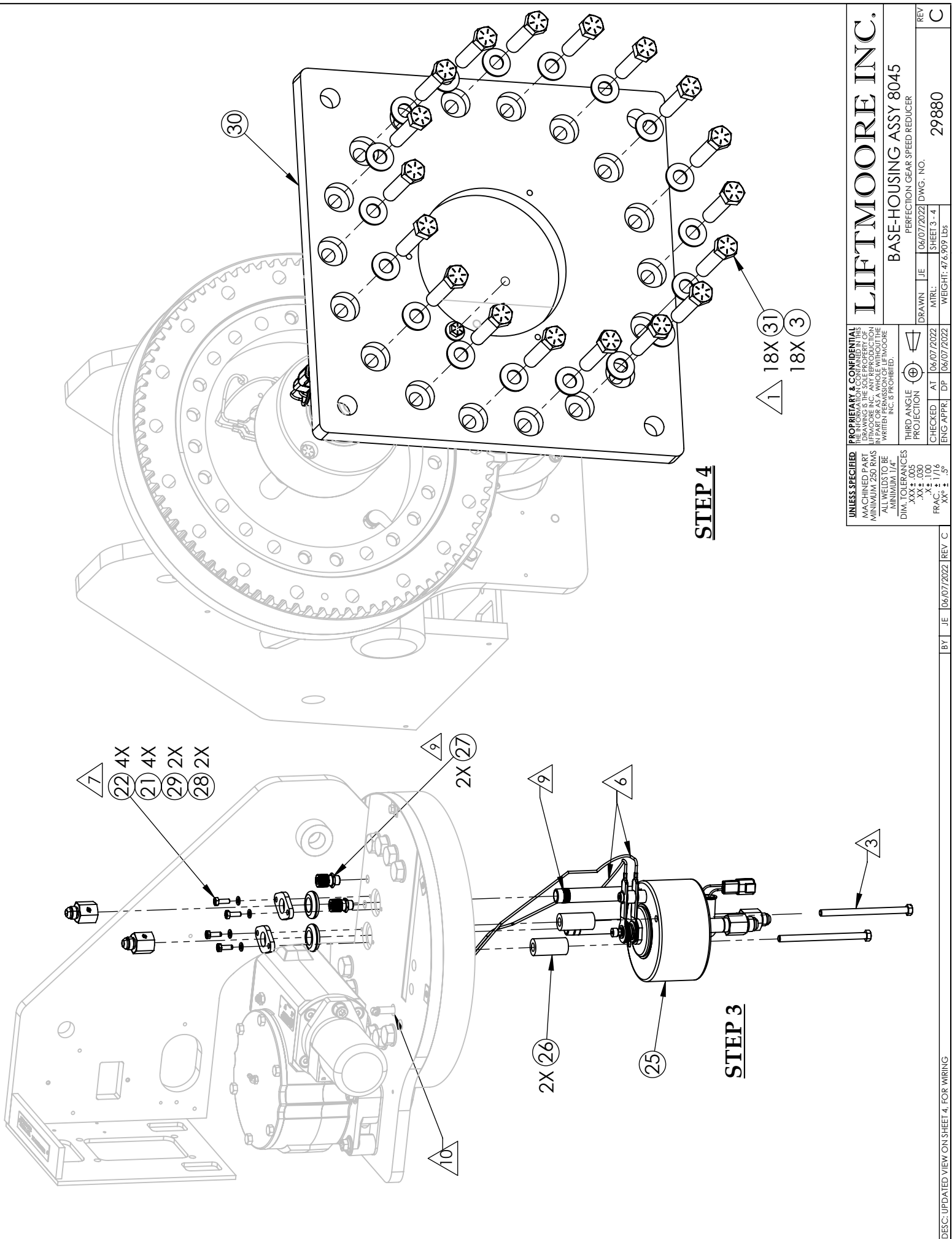
CHECKED: AT 06/07/2022  
 DRAWN: JE 06/07/2022  
 ENG APPR: DF 06/07/2022

DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 FRACTIONS ± 1/16  
 XX° ± .5°

**LIFTMOORE INC.**  
 BASE-HOUSING ASSY 8045  
 PERFECTION GEAR SPEED REDUCER

WEIGHT: 47.6909 Lbs  
 SHEET 2 - 4  
 DWG. NO. 29880

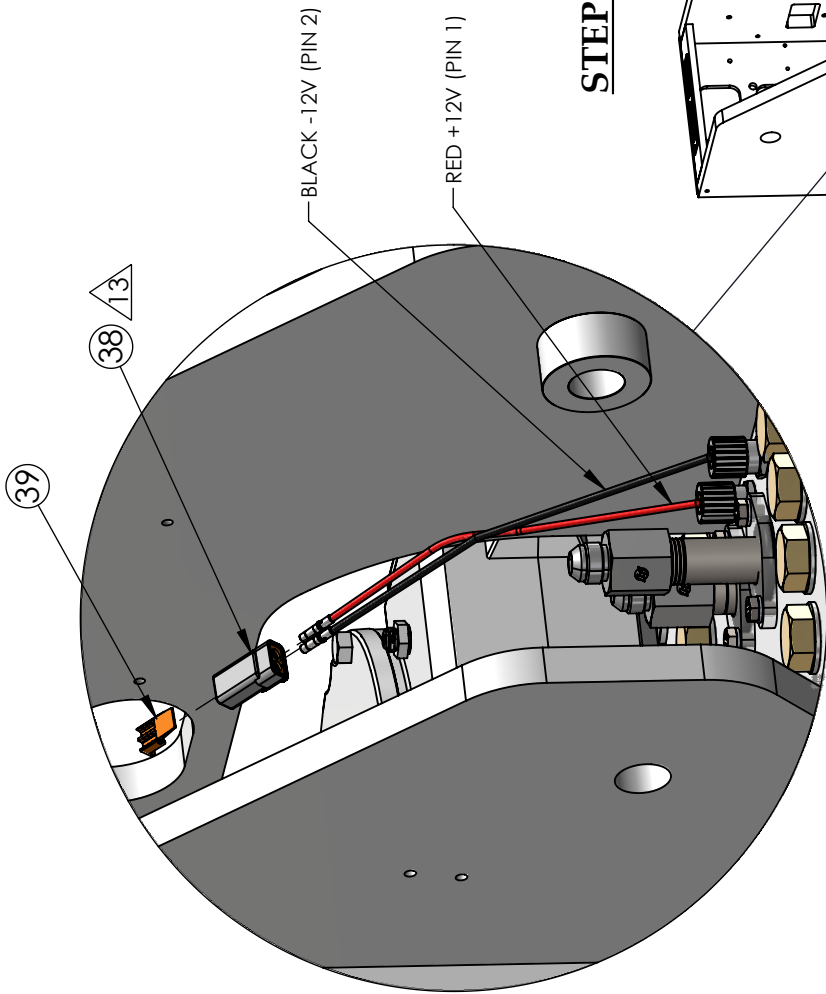
REV C



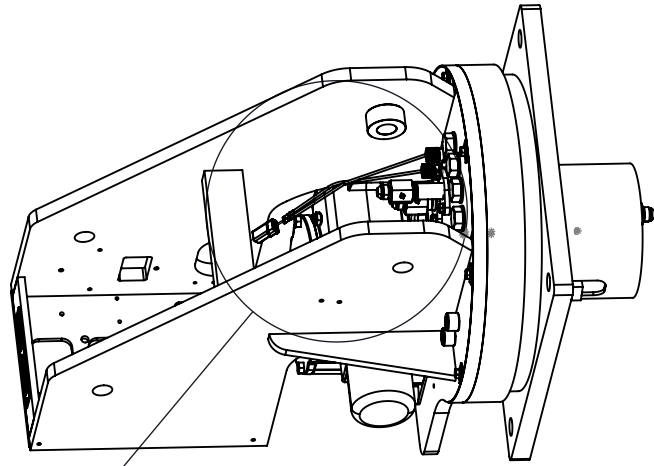
**STEP 4**

**STEP 3**

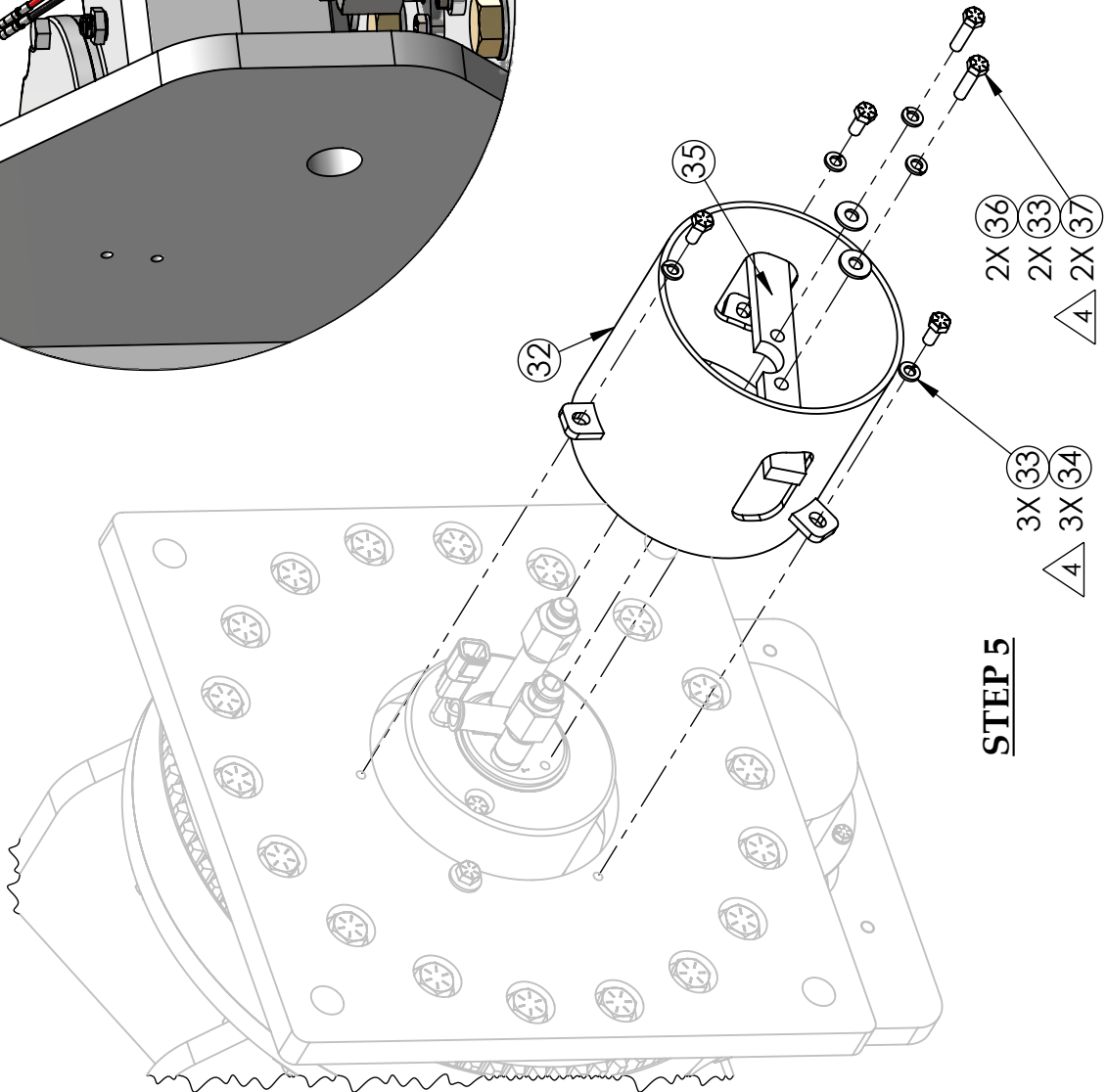
<b>UNLESS SPECIFIED:</b>		<b>PROPRIETARY &amp; CONFIDENTIAL</b>	
MACHINED PART		DRAWING IS THE SOLE PROPERTY OF	
MINIMUM .250 RMS		LIFTMOORE INC. AND REPRODUCTION	
ALL WELDS TO BE		WITHOUT WRITTEN PERMISSION OF LIFTMOORE	
MINIMUM 1/4"		INC. IS PROHIBITED.	
DIM. TOLERANCES		THIRD ANGLE	
.XXX ± .005		PROJECTION	
.XX ± .030		CHECKED AT 06/07/2022	
FRAC. ± 1/16		ENG APPR. DF 06/07/2022	
XX° ± .5°		DRAWN JE 06/07/2022	
		MTRL: SHEET 3 - 4	
		PERFECTION GEAR SPEED REDUCER	
		BASE-HOUSING ASSY 8045	
		DWG. NO. 29880	
		WEIGHT-47.6909 Lbs	
		REV C	



**STEP 6**



**STEP 5**



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

THIRD ANGLE  
 PROJECTION

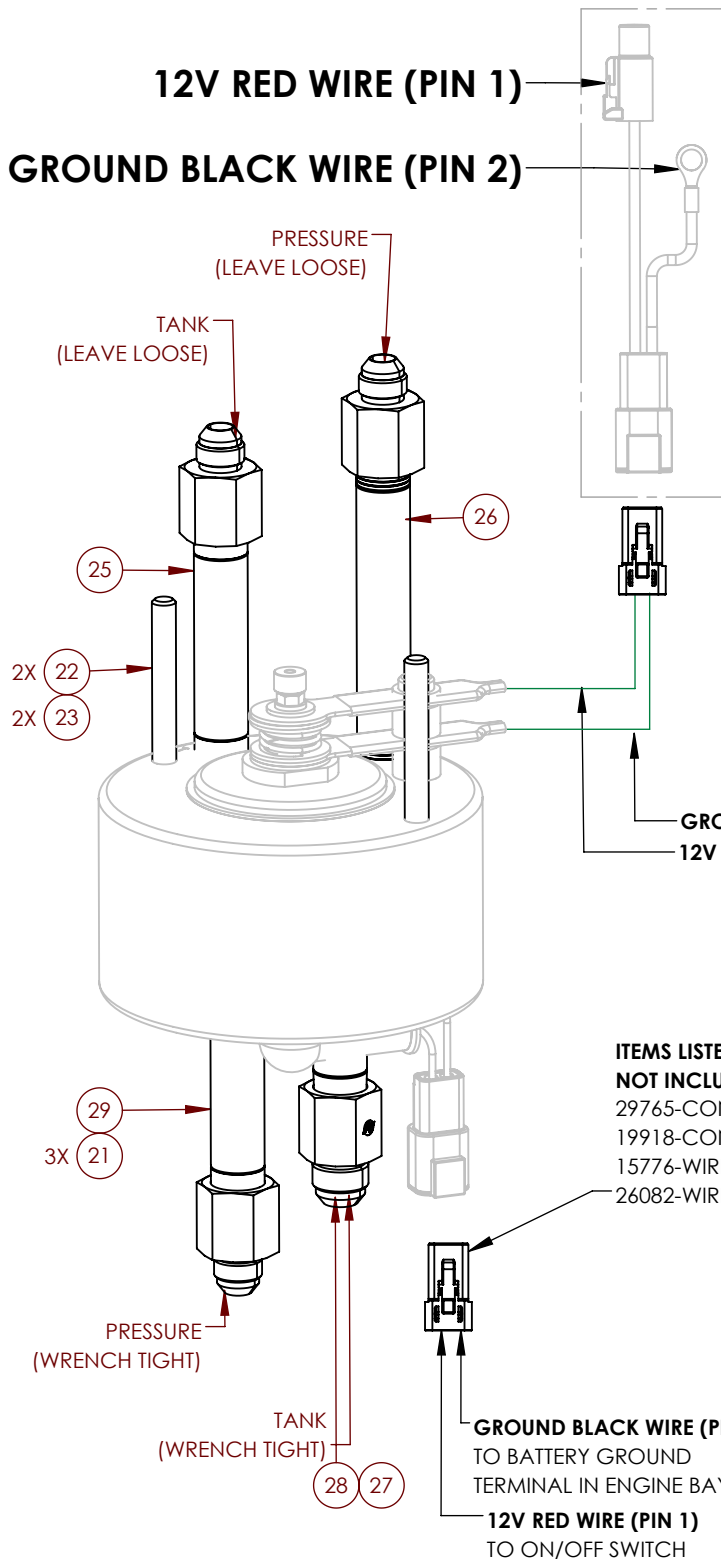
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 WITHOUT WRITTEN PERMISSION OF LIFTMOORE  
 INC. IS PROHIBITED.

**LIFTMOORE INC.**

BASE-HOUSING ASSY 8045  
 PERFECTION GEAR SPEED REDUCER

DRAWN	JE	06/07/2022	DWG. NO.	29880
CHECKED	AT	06/07/2022	SHEET 4 - 4	
ENG APPR	DF	06/07/2022	WEIGHT-47.6909 Lbs	
REV				C

**SEE DRAWING  
29824**



ITEM	PART NUMBER	DESCRIPTION	QTY
1	28144	SWIVEL, HYDRAULIC 0.50 NPT CTB	1
2	29775	WIRE, SWIVEL SUPPLY W/DTCH 2P	1
3	29779	WIRE, SWIVEL HOT PLATE 1P	1
4	29780	WIRE, SWIVEL GROUND PLATE 1P	1
5	29782	INSULATOR, BOLT ELEC.	1
6	29789	SPACER, SWIVEL NUT BRZ-MACH	1
7	29784	WASHER, FLAT 0.25 ID BRONZE	1
8	29785	SLEEVE, SWIVEL SCREW INSULATOR	1
9	31450	INSULATOR, SLEEVE ~	2
10	29761	NYLON, TUBE 0.25OD X 0.19ID	1
11	29759	BEARING, THRUST 0.75 ID BRONZE	2
12	29768	SCREW, MH PH 10-24 X 6.00 SS	1
13	26991	SCREW, SOC HD 0.37-16 X 1.75	1
14	29760	BEARING, THRUST 0.31 ID BRONZE	1
15	29758	SPRING, COMPRESSION 29.3LB	1
16	29773	WASHER, FLAT 0.25 X 0.07L PTFE	1
17	29790	SCREW, HHC 0.50-13 X 4.50SS MC	1
18	29299	WASHER, LOCK 0.25 STAR SS	1
19	29767	WASHER, LOCK 0.50 STAR SS	2
20	18177	BOOT, RUBBER 1/0 & 2/0	1
21	31995	ADAPTER, 8FP-8MJ	3
22	28146	SCREW, HHC 0.37-16 X 5.50 GR8	2
23	30473	WASHER, LOCK 0.37 GR5 PLATED	2
24	29762	NUT, HEX NYLOC 10-24 FLANGE SS	1
25	22238	ADAPTER, NIPPLE 4.50" LG #8	1
26	32112	ADAPTER, NIPPLE 5.688" LG #8	1
27	31996	ADAPTER, NIPPLE 2.50" LG #8	1
28	32468	ADAPTER, 8FP-10MJ	1
29	32321	ADAPTER, NIPPLE 4.00" LG #8	1
30	29800	NUT, HEX 10-24 PTFE	1

**ITEMS LISTED FOR REFERENCE USE ONLY**

**NOT INCLUDED IN BILL OF MATERIALS**

- 29765-CONNECTOR, DTCH 2P PLUG 12GA
- 19918-CONTACT, DEUTSCH 12 GA FEMALE
- 15776-WIRE, ELECTRIC 10GA BLK
- 26082-WIRE, ELECTRIC 10GA RED

**GROUND BLACK WIRE (PIN 2)**  
TO BATTERY GROUND  
TERMINAL IN ENGINE BAY

**12V RED WIRE (PIN 1)**  
TO ON/OFF SWITCH

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

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WRITTEN PERMISSION OF LIFTMOORE  
INC. IS PROHIBITED.

THIRD ANGLE  
PROJECTION

CHECKED JE 07/20/2022  
ENG APPR. AT 07/20/2022

**LIFTMOORE INC.**

**SWIVEL, HYD/ELEC ASSY 8045**

HOT/GROUND SUPPLY

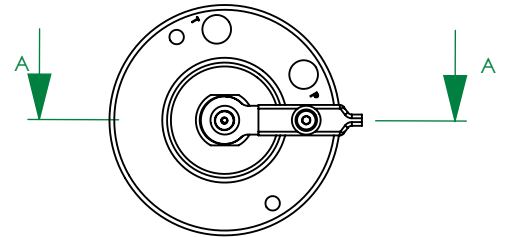
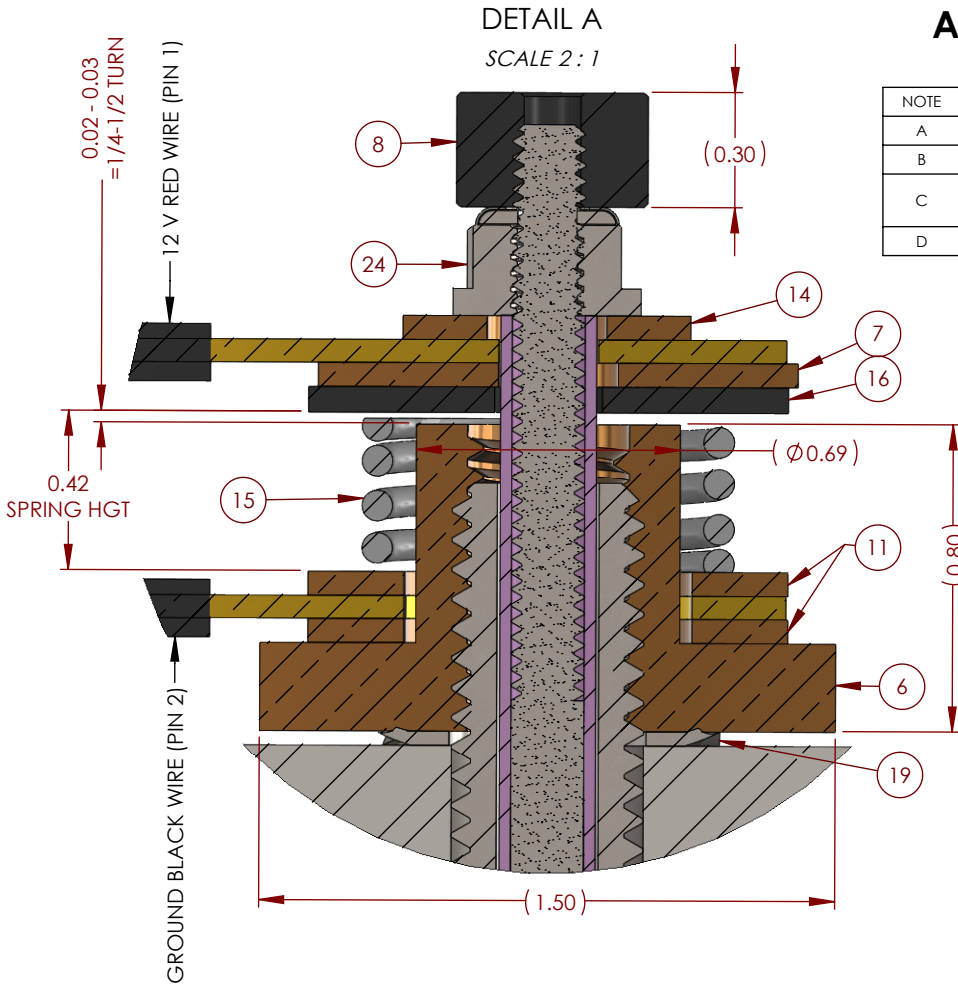
DRAWN AT 07/20/2022 DWG. NO. 29801  
MTRL: SHEET 1 - 2  
WEIGHT: Lbs

USING VOLT METER

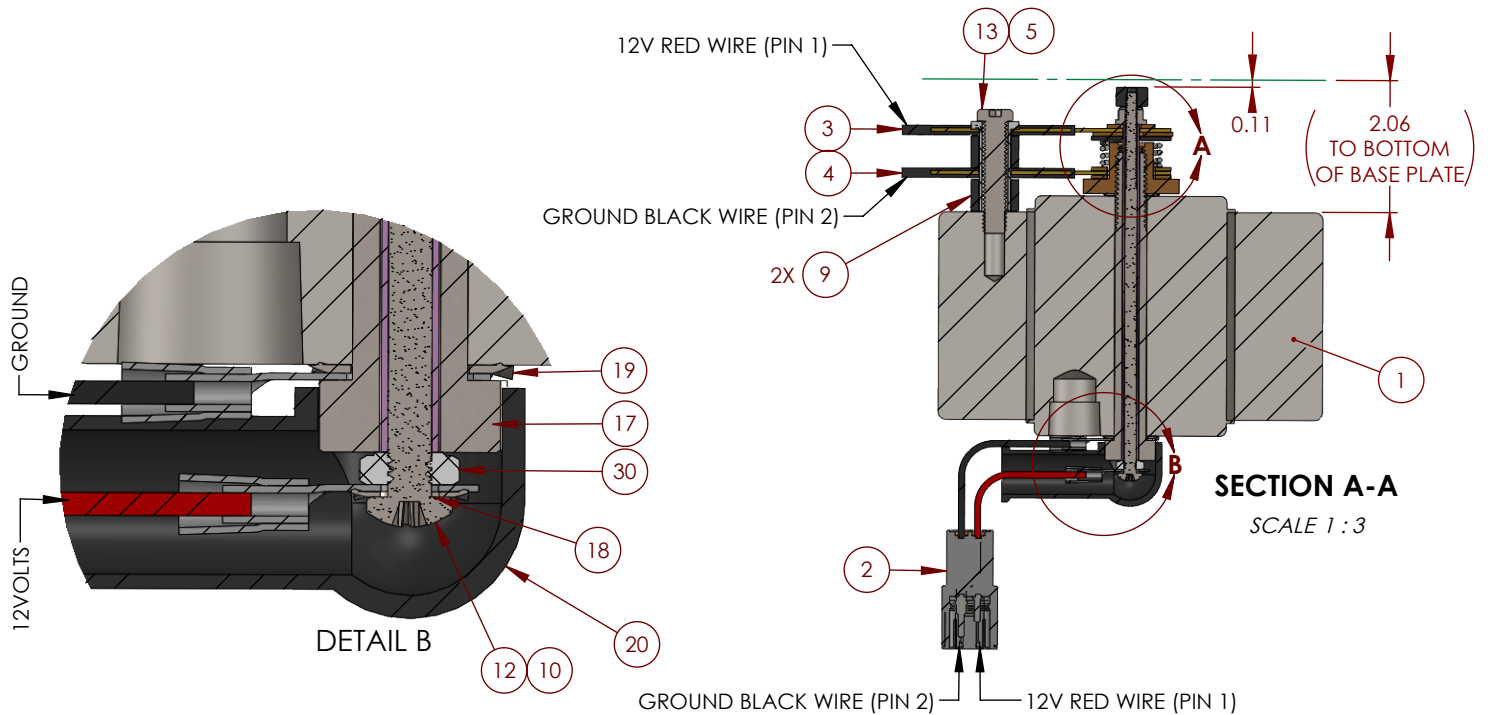
**ALWAYS TEST FOR CONTINUITY**

ROTATE SWIVEL SEVERAL TIMES

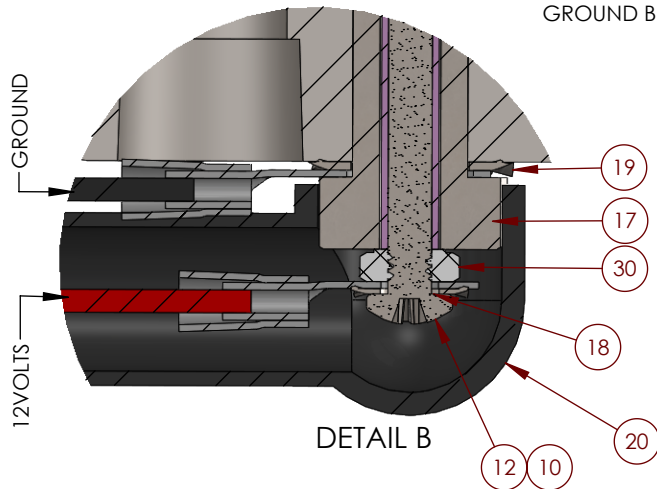
NOTE	DESCRIPTION
A	ITEM #17 GROUND PASS-THRU 0.50-13 BOLT
B	ITEM #12 VOLTS PASS-THRU 10-24 BOLT
C	ITEM #24 THREAD ALL THE WAY DOWN, BACK OUT 1/4 - 1/2 TURN MAX TO RELEASE TENSION
D	ITEM #8 HAND TIGHT ONLY (DO NOT OVERTIGHTEN)



TOP VIEW



SECTION A-A  
SCALE 1 : 3



DETAIL B

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

THIRD ANGLE  
PROJECTION

CHECKED JE 07/20/2022  
ENG APPR. AT 07/20/2022

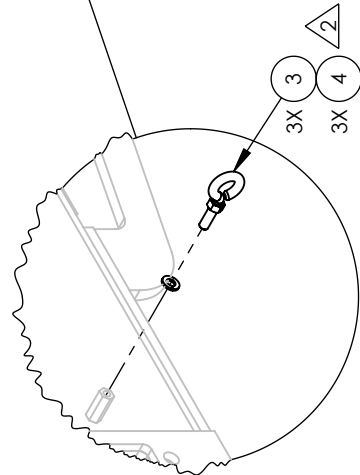
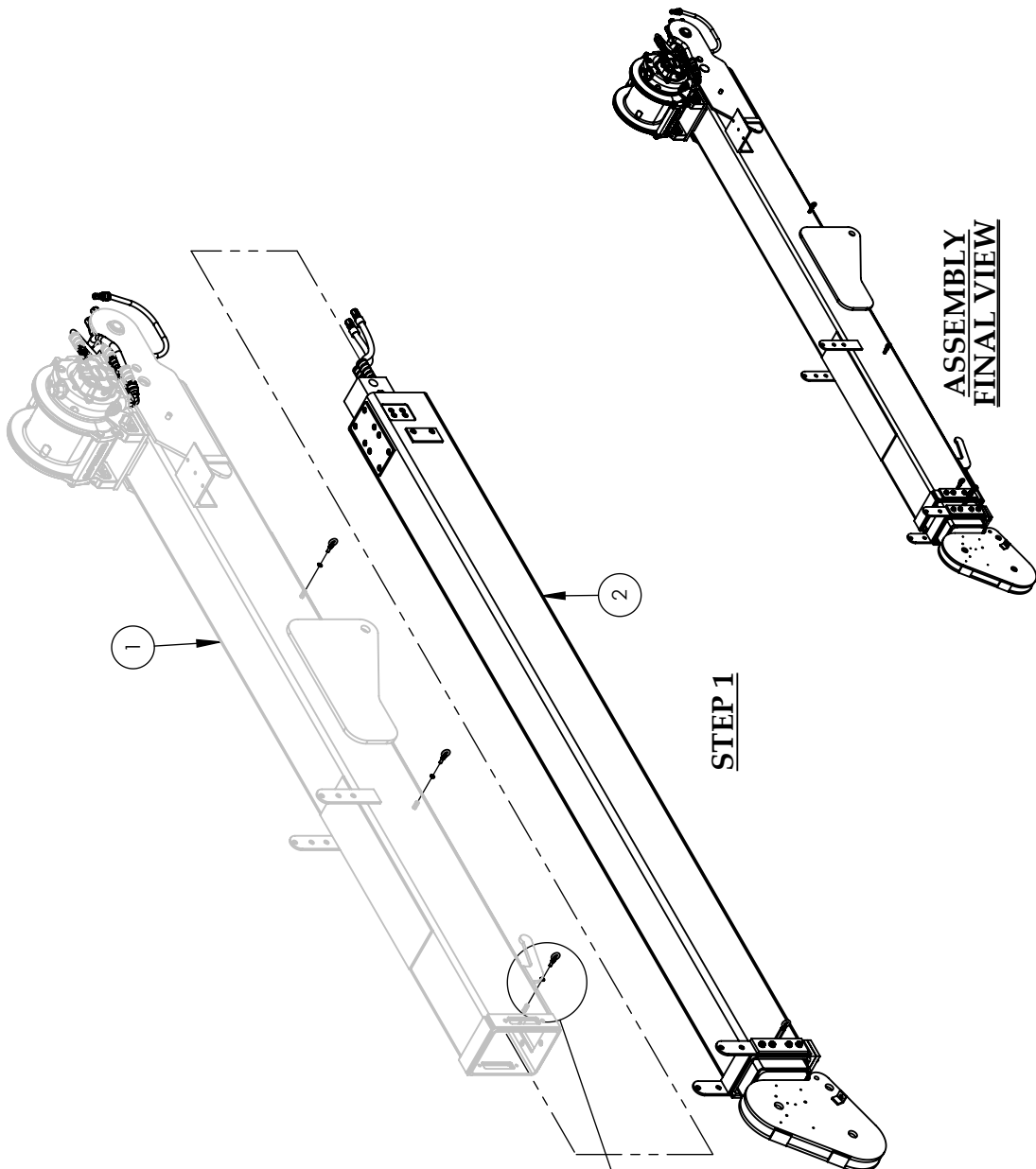
**LIFTMOORE INC.**  
SWIVEL, HYD/ELEC ASSY 8045  
HOT/GROUND SUPPLY

DRAWN AT 07/20/2022 DWG. NO.  
MTRL: SHEET 2 - 2  
WEIGHT: Lbs

REV D



ITEM	PART NUMBER	DESCRIPTION	QTY
1	34907	BOOM, OUTER ASSY 6040DX-22	1
2	29941	BOOM, INNER ASSY 8045DX-22	1
3	33367	SCREW, EYE 0.25-20 W/ NUT	3
4	30889	WASHER, LOCK 0.25 GR5 PLATED	3
5	19833	PIN, TEARDROP 1.00 X 8.00	1
6	26043	SPACER, PIVOT 1.00 X 0.562	2
7	33169	SCREW, HHC 0.37-16 X 0.62 GR8	1
8	30473	WASHER, LOCK 0.37 GR5 PLATED	1
9	33920	PLUG, BOOM HOLE 1.375 PLASTIC	2
10	25691	PAD, NYLON 0.750 X 1 X 4 TAP	2
11	25693	PLATE, MOUNT SIDE WEAR PAD	2
12	30813	SCREW, HHC 0.37-16 X 1.00 GR8	8
13	33436	WASHER, LOCK 0.37 GR5 PLT.I.T.	8
14	25692	PAD, NYLON 1" X 4" X 4" TAP	1
15	25706	PLATE, MOUNT BOTTOM WEAR PAD	1
16	31425	SCREW, HHC 0.50-13 X 1.25 GR8	4
17	30474	WASHER, LOCK 0.50 GR5 PLATED	6
18	19323	WASHER, FLAT 0.50 SAE GR8	2
19	30655	SCREW, HHC 0.50-13 X 1.50 GR8	2



**NOTES:**

- 1 -APPLY VIBRA-TITE VC-3 TO THREADS.
- 2 -HAND TIGHT.
- 3 -TORQUE TO 10 FT.-LBS.
- 4 -TORQUE TO 30 FT.-LBS.

**UNLESS SPECIFIED:**  
 MACHINED PART  
 MINIMUM 250 RMS  
 ALL WELDS TO BE  
 MINIMUM 1/4"

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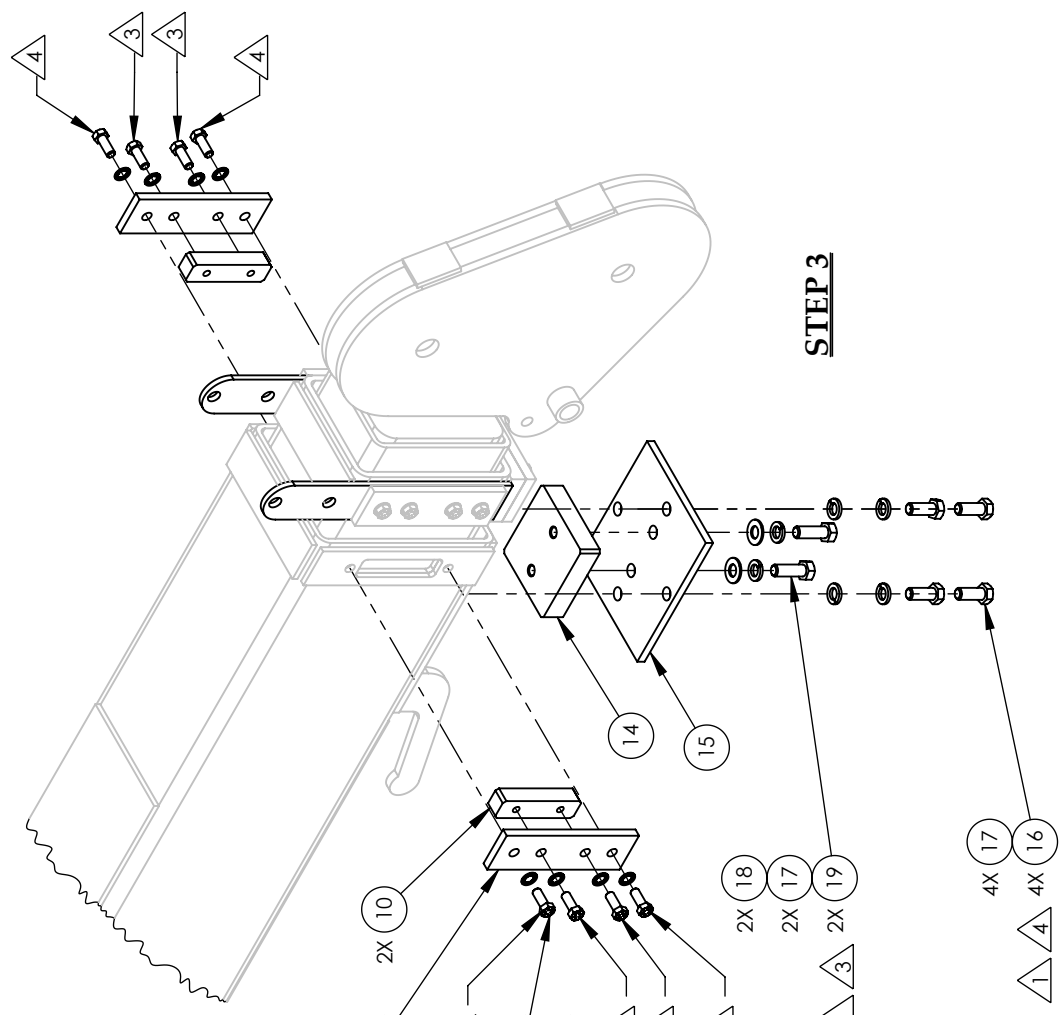
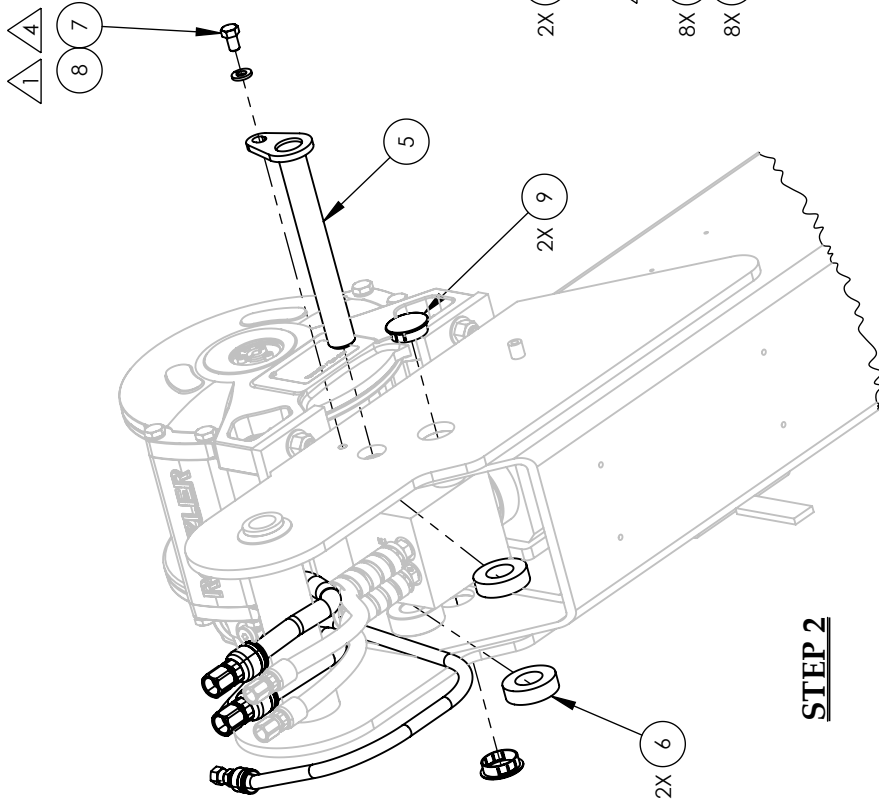
**THIRD ANGLE PROJECTION**

CHECKED: J admitt 07/25/2022  
 ENG APPR: AT 07/25/2022

DRAWN: AT 07/25/2022  
 MRL: SHEET 1 - 2  
 WEIGHT: 11 64.645 Lbs

**LIFTMOORE INC.**  
 BOOM ASSEMBLY 6040DX-22  
 TII ROTZLER WINCH

REV A  
 34908



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

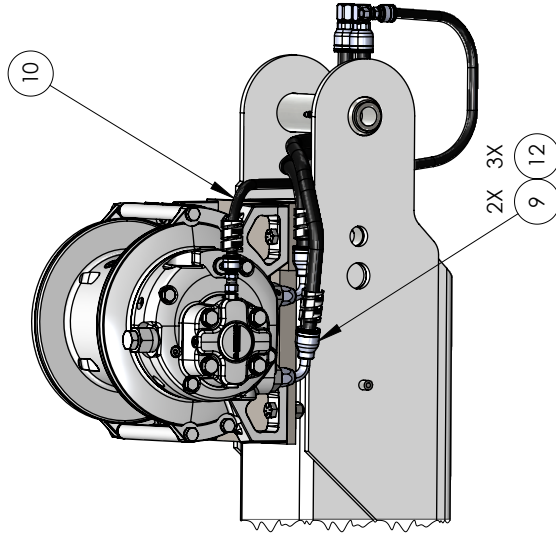
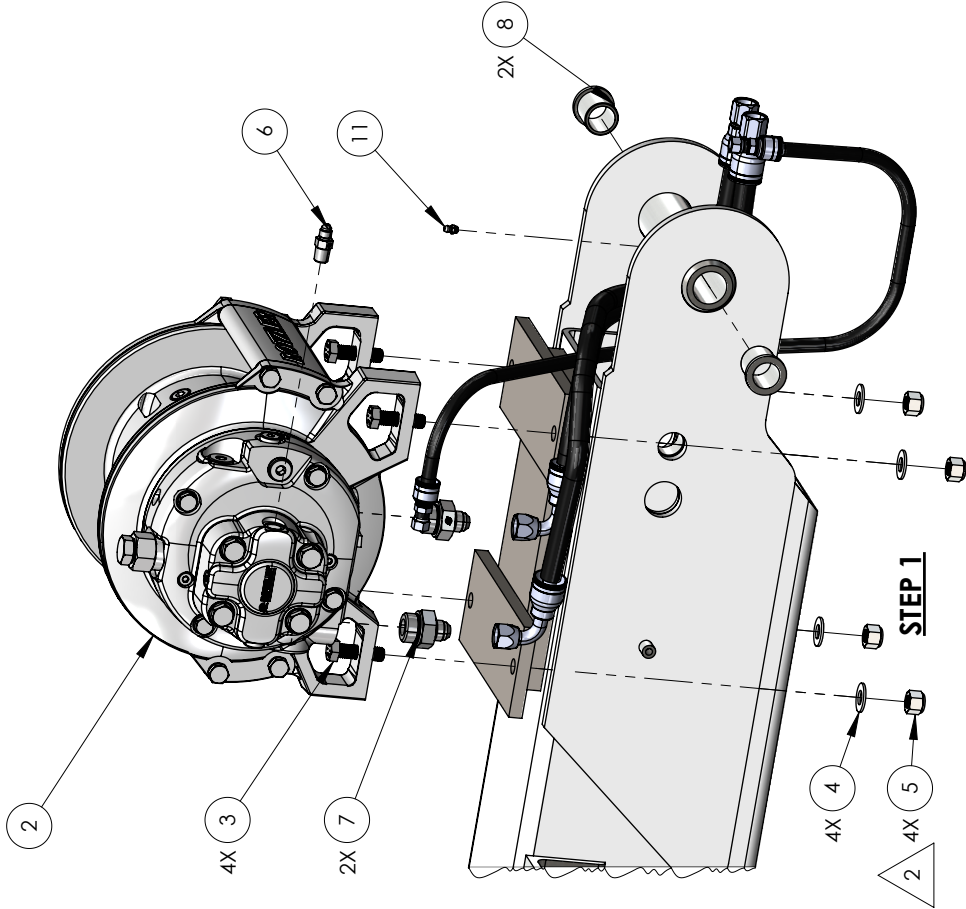
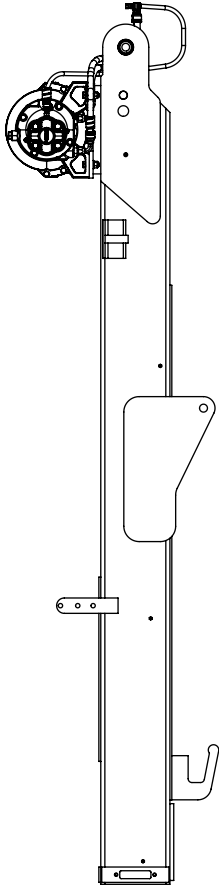
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 INC. IS PROHIBITED.

THIRD ANGLE  
 PROJECTION

CHECKED J admitt 07/25/2022  
 ENG APPR AT 07/25/2022

<b>LIFTMOORE INC.</b>	
BOOM ASSEMBLY 6040DX-22	
TII ROTZLER WINCH	
DRAWN AT 07/25/2022	DWG. NO. 34908
MIRL SHEET 2 - 2	REV A
WEIGHT: 11 64.645 Lbs.	

ITEM	PART NUMBER	DESCRIPTION	QTY
1	34906	BOOM, OUTER 6040DX-22 WELD	1
2	29275	WINCH, HYD. RZ T11	1
3	34882	SCREW, HHC 0.50-13 X 1.75 GR8	4
4	19323	WASHER, FLAT 0.50 SAE GR8	4
5	30835	NUT, HEX NYLOC 0.50-13 GRADE 8	4
6	29301	ADAPTER, 4MJ-1/4BSPP	1
7	29302	ADAPTER, 8MJ-3/4BSPP	2
8	32485	BUSHING, BOOM PIVOT 3200/4000	2
9	20034	HOSE, HYD #8 36.00" 90°-ST	2
10	32968	HOSE, HYD #4 37.50"	1
11	30936	ZERK, 0.25-28 STRAIGHT	1
12	31408	WRAP, 3/4" BLACK SPIRAL CUT	3



**NOTES**

1. INSPECT INTERNAL TUBE WALL WELD SEAM, MUST BE GRINDED FLUSH ALL THE WAY INSIDE TUBE.
2. TORQUE TO 70-100 FT.-LBS. (NYLOC NUT).

UNLESS SPECIFIED:  
 MACHINED PART  
 MINIMUM 250 RMS  
 1/4" MIN. WELDS  
 USE E70 ROD  
 DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 .X ± .116  
 FRACTION ± 1/16  
 XX° ± .5°

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THIRD ANGLE  
 PROJECTION

CHECKED | Admin | 07/25/2022  
 ENG APPR: | AT | 07/25/2022

**LIFTMOORE INC.**

BOOM, OUTER ASSY 6040DX-22

T11 ROTZLER WINCH

DRAWN | AT | 07/25/2022 DWG. NO.

MTRL: | SHEET 1 - 1

WEIGHT: 493.568 Lbs

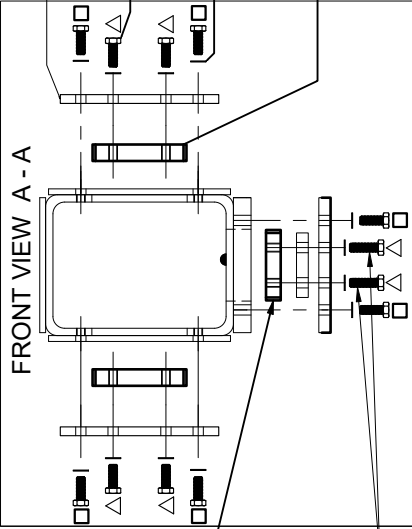
REV

34907

A

**NOTE: ADD VIBRA TITE TO ALL PADS**

**TORQUE VALUES**  
 △ = 10 FT-LBS  
 □ = 30 FT-LBS



P/N 23862  
SCREW, SOC HD 0.37-16 X 1.25  
8 PLCS  
**ADD VIBRA TITE TO SCREWS**

P/N 33955  
PAD, NYLON 0.26 X 4 X 7.5 CSK

P/N 33614  
SCREW, SOC FH 0.25-20 X 0.50  
8 PLCS

P/N 25683  
PLATE, MOUNT SIDE WEAR PAD  
2 PLCS

P/N 30813  
SCREW, HHC 0.37-16 X 1.00 GR8  
8 PLCS

P/N 33436  
WASHER, LOCK 0.37 GR5 PLT I.T.  
8 PLCS

P/N 25690  
PAD, NYLON 0.75 X 1.00 X 3.00 TAP

P/N 29619  
PLATE, SPACER 0.50" BOOM PC

P/N 29616  
PLATE, MOUNT BOTTOM WEAR PAD

6X P/N 33436  
WASHER, LOCK 0.37 GR5 PLT I.T.

4X P/N 30812  
SCREW, HHC 0.37-16 X 1.25 GR8

2X P/N 30861  
SCREW, HHC 0.37-16 X 1.50 GR8

P/N 25691  
PAD, NYLON 0.750 X 1.00 X 4.00 TAP  
2 PLCS

P/N 29937  
BOOM, INNER 1ST 8045DX-22 WELD

P/N 34033  
PAD, NYLON 0.20 X 4 X 2 CSK  
2 PLCS

P/N 33614  
SCREW, SOC FH 0.25-20 X 0.50  
4 PLCS

DESCRIPTION	PART NUMBER
CHECK VALVE	31591
COUNTERBALANCE VALVE	30851
HOSE, HYD #6 21.00"	32961
ADAPTER, 6MJ-6MO	31063
CYLINDER, 2.75 X 144.0 - 2CYLS	21556

P/N 33367  
SCREW, EYE 0.25-20 W/ NUT

P/N 30889  
WASHER, LOCK 0.25 GR5 PLATED

P/N 24924  
CYLINDER ASSY 4064X-22 EXT

ADAPTER, 6MJ-6MO  
2 PLCS

HOSE, HYD #6 21.00"  
2 PLCS

CHECK P.O. VALVE

P/N 29940  
BOOM, INNER 2ND 8045DX-22 WELD

P/N 34032  
PAD, NYLON 0.20 X 4 X 3.62 CSK  
2 PLCS

P/N 33614  
SCREW, SOC FH 0.25-20 X 0.50  
8 PLCS

P/N 21196  
CS, 1.00 DIA X 4.62

P/N 30692  
RING, SNAP 1" INTERNAL CS  
2 PLCS

P/N 21196  
CS, 1.00 DIA X 4.62

DRAWING NO.  
**29941-0**

**BOOM, INNER ASSY 4064XP-22**  
 BAIL, HYDRAQUIP, NEW PADS & WELDED PLATE

DRWN BY: JE  
 DATE: 10/7/15

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



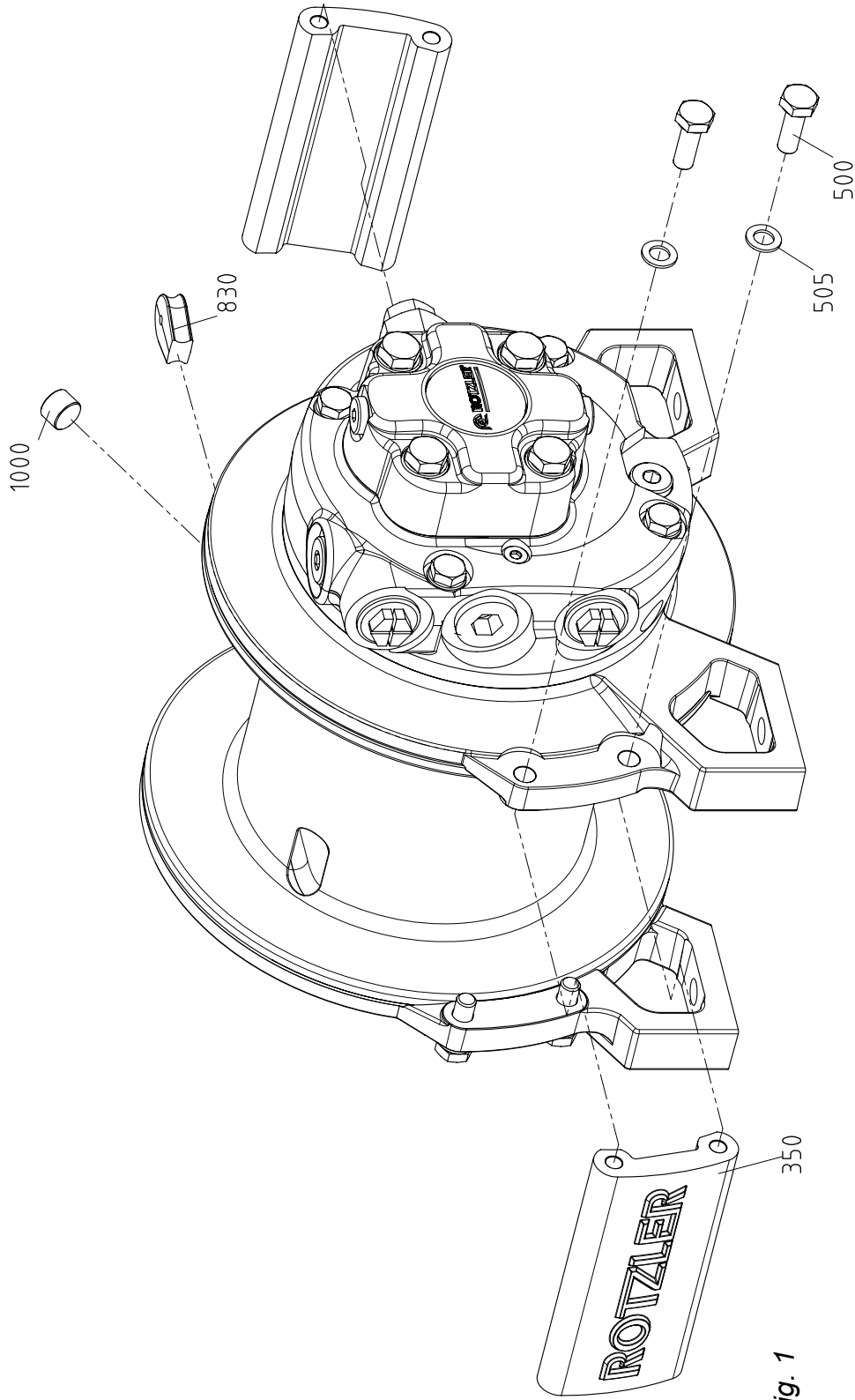


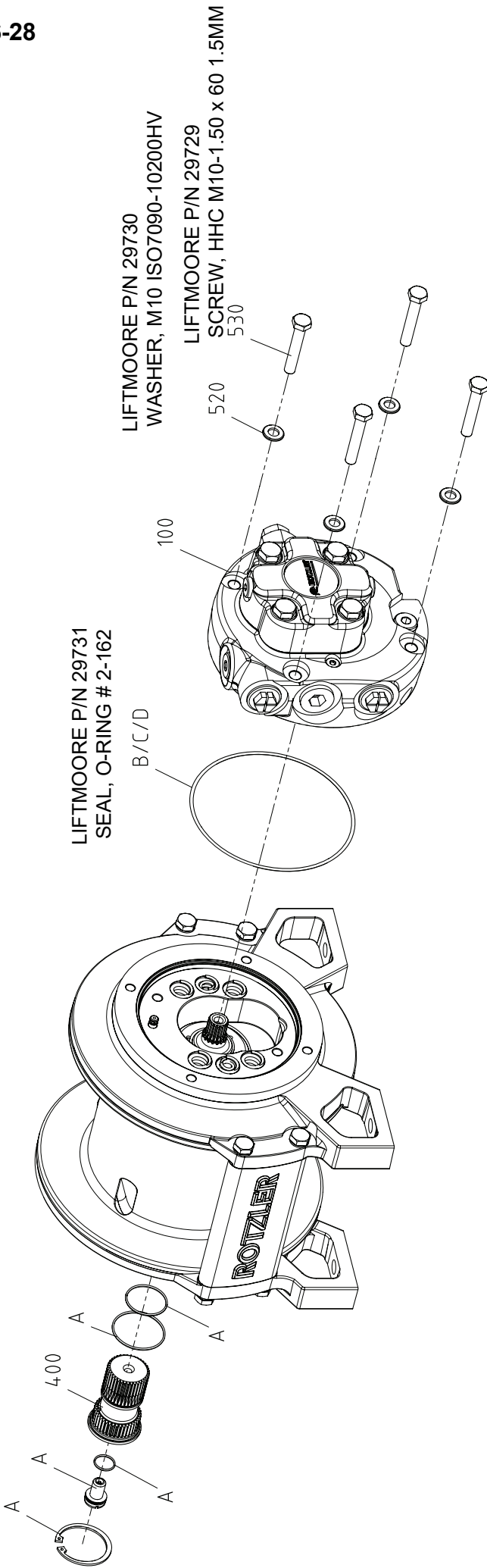
Fig. 1

Pos.	Part name	Part number	Qty.	Feature 1	Feature 2	Feature 3	Feature 4	Type
350	spacer bar L154,4	9261993000	2					Spare
500	hex screw ISO4017/M10x 30/8.8/STD	0015540000	8					Spare
505	washer ISO 7092 - 10 - 200HV - STD	400000707	8					Spare
830	rope wedge dS8-10 cast	9260624000	1					Spare
1000	screw plug 3/8-NPT stainless	9260644000	1					Spare

# WINCH BREAKDOWN

TI 1 P/N 29275-A

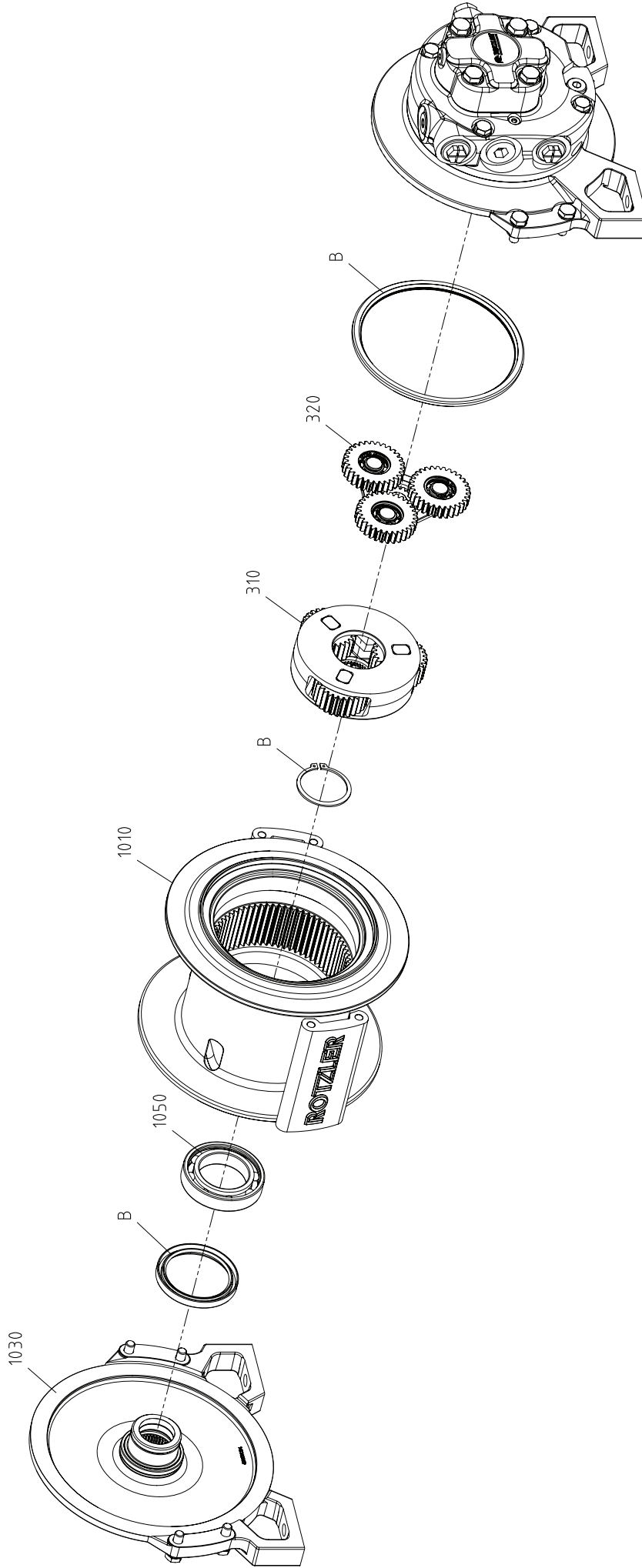
6-28



Pos.	Part name	Part number	Qty.	Feature 1	Feature 2	Feature 3	Feature 4	Type
100	motor 620 31ccm CC	4000017972	1					Spare/Structure
400	shaft dA74 for winches without MCD	4000021037	1					Spare
520	washer ISO 7090 - 10 - 200HV - STD	0017730000	4					Spare
530	hex screw ISO4014/M10x 60/8.8/STD	0016130000	4					Spare
A	seal set shaft TI 1	4000021457	1					Spare

# WINCH BREAKDOWN

# TI 1 P/N 29275-A

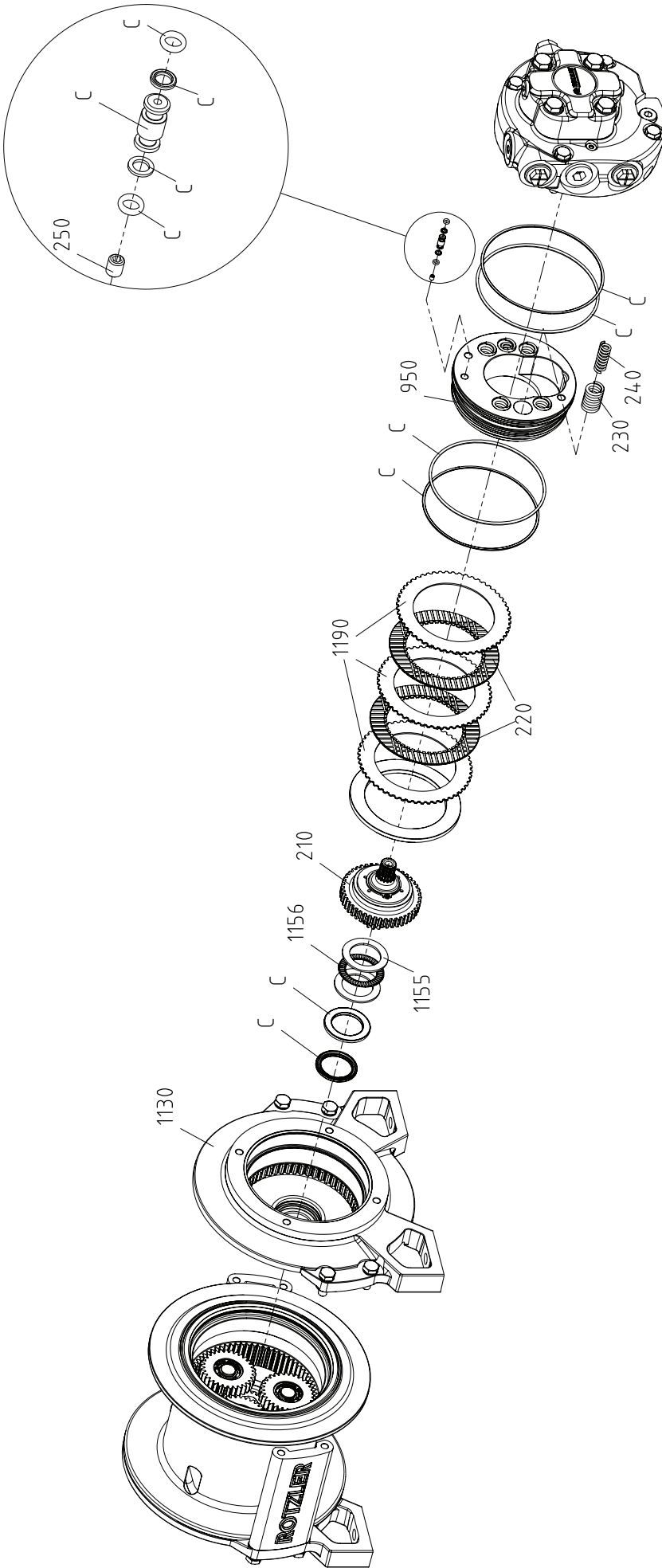


Pos.	Part name	Part number	Qty.	Feature 1	Feature 2	Feature 3	Feature 4	Type
310	carrier final TI1 assy	4000016796	1					Spare
320	planet kit P12; 3	9271434000	1					Spare
1010	rope drum noG; dG178xdA269xLW152	9261972701	1					Spare
1030	base final assembly TI 1	4000021451	1					Spare
1050	deep groove ball bearing 6011	0010640000	1					Spare
B	seal set winch TI 1	4000021458	1					Spare

# WINCH BREAKDOWN

## TI 1 P/N 29275-A

6-30

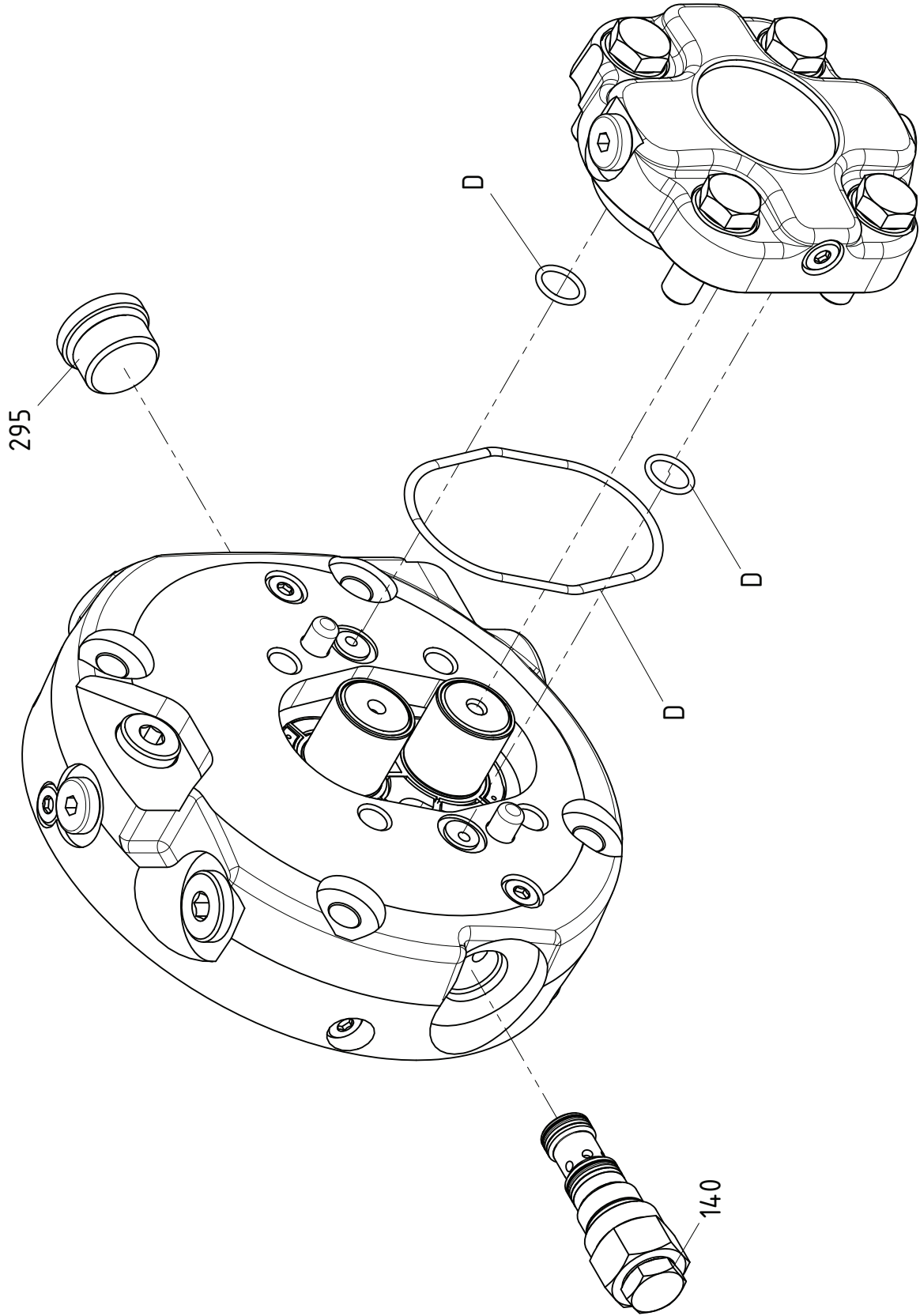


Pos.	Part name	Part number	Qty.	Feature 1	Feature 2	Feature 3	Feature 4	Type
210	freewheel assy TI1 CC	4000017573	1					Spare
220	Brake Disc	4000021094	2					Spare
230	comp. spring d3,43;dM18,49;L43,18	4000000108	6					Spare
240	comp. spring d2,34;dM11,71;L40,64	4000000110	2					Spare
250	set screw 10-32 UNFx1/4"	9271534000	1					Spare
950	piston for brake	4000001765	1					Spare
1130	base primary assembly TI 1	4000021450	1					Spare
1155	washer 38,1x55x55x2,36 TRC-2435	4000006221	2					Spare
1156	axial needle roller TC2435 INA	4000005929	1					Spare
1190	friction plate	9263814000	3					Spare
C	seal set brake TI 1/ TI 2	4000021440	1					Spare



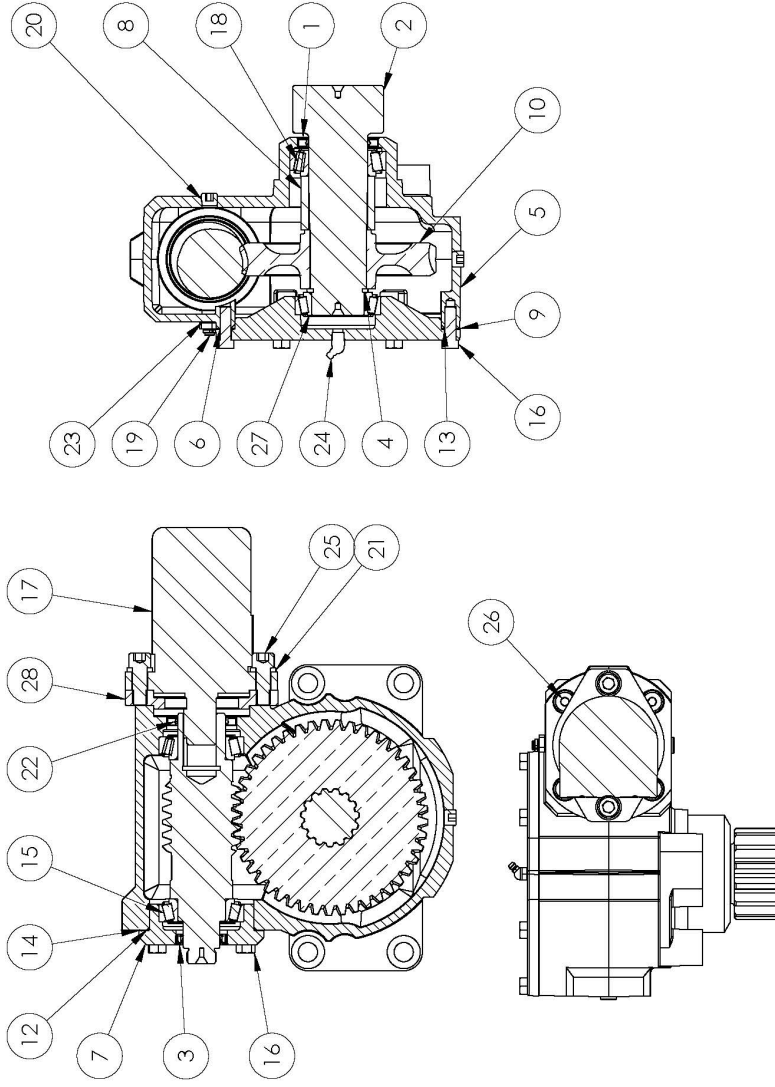
# WINCH BREAKDOWN

TI 1 P/N 29275-A



Pos.	Part Name	Part Number	Qty.	Feature 1	Feature 2	Feature 3	Feature 4	Type
140	counter balance valve VBSN-12A	4000018911	1					Spare
295	Fitting, Plug, SAE #12	400000778	1					Spare
D	seal set motor 620	4000021435	1					Spare

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	SC14523B	1/2-13 X 1" LSHCS	4
27	SH2161C & SH2161R	BRG, ROLLER CUP LM102910 & CONE LM102949	1
28	WT4356H-1	MOTOR ADAPTER	1



**UNLESS SPECIFIED**  
 MACHINED PART  
 MINIMUM 250 RMS  
 ALL WELDS TO BE  
 MINIMUM 1/16"  
 DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 .X ± .175  
 FRAC. ± .175  
 XX' ± .5°

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THIRD ANGLE  
 PROJECTION

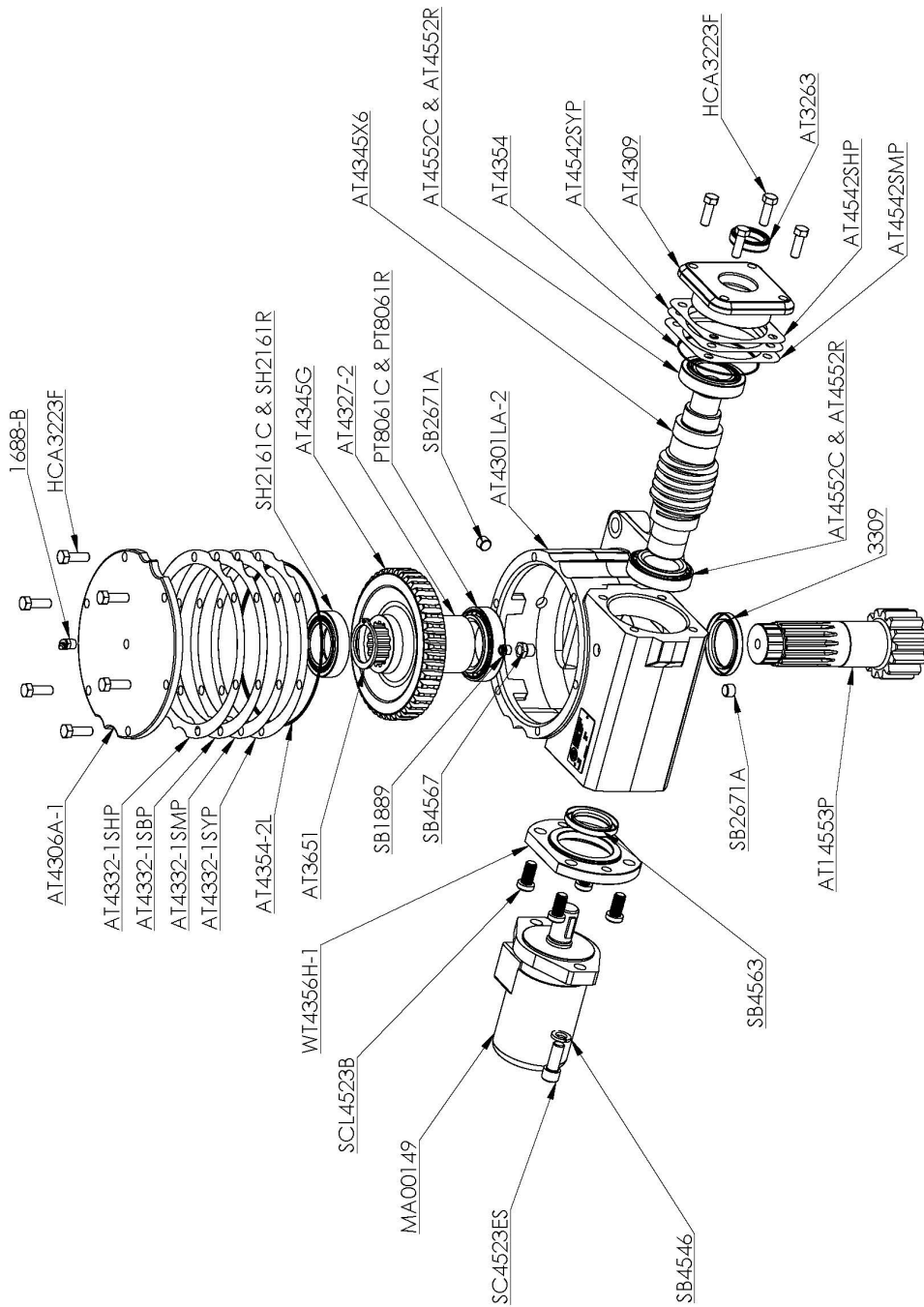
CHECKED DP 10/06/2020  
 ENG APPR DP DP

DRAWN INA 09/23/2020 DWG. NO.  
 MTRL SHEET 2 - 3  
 WEIGHT: 85.300 LBS

# LIFTMOORE INC.

REDUCER, SPEED P GEAR 14 TOOTH  
 PERFECTION GEAR

REV	B
29116	



**LIFTMOORE INC.**  
**REDUCER, SPEED P GEAR 14 TOOTH**  
 PERFECTION GEAR

UNLESS SPECIFIED	PROPRIETARY & CONFIDENTIAL
MACHINED PART	DRAWING IS THE SOLE PROPERTY OF
MINIMUM 250 RMS	LIFTMOORE INC. AND REPRODUCTION
ALL WELDS TO BE	WITHOUT WRITTEN PERMISSION OF LIFTMOORE
MINIMUM 1/4"	INC. IS PROHIBITED.
DIM. TOLERANCES	THIRD ANGLE
.XXX ± .005	PROJECTION
.XX ± .030	DP
.X ± .175	DP
FRAC. ± .175	DP
XX' ± .5°	DP

DRAWN	INA	09/23/2020	DWG. NO.
MIRL		SHEET 3 - 3	
ENG APPR	DP		
WEIGHT:	85.300 LBS		

BY	NA	09/22/20	REV	B
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DESC.

CIRCUIT NUMBER AND DESCRIPTION		
Color	Length	Connectors
RED	23"	P12B.1
RED/BLK	18"	P2-R.1
GRN	23"	P12B.2
ORN	18"	P2-RA.1
GRN/BLK	19"	P12B.5
ORN/BLK	25"	P2-L.1
BLU	27"	P2-LA.1
BLK	22"	P2-X.1
WHT/BLU	15"	P2-BA.1
WHT	15"	P2-HA.1
RED	19"	P2-H.1
WHT/BLK	26"	P2-RES.1
WHT	13"	P2-U.1
GRN	13"	P2-U.2
YEL/BLK	13"	P12D.8
RED	20"	P12A.10
RED	17"	P12A.12
RED	16"	P12D.3
GRN	9"	P2-ATB.1
WHT	9"	P12D.4
YEL	N/A	P4-CL.2
BLK	16"	P4-CH.2
		P4-J.4
		P12D.1
		P12A.11
		BLU/FEM
		HORN 12V

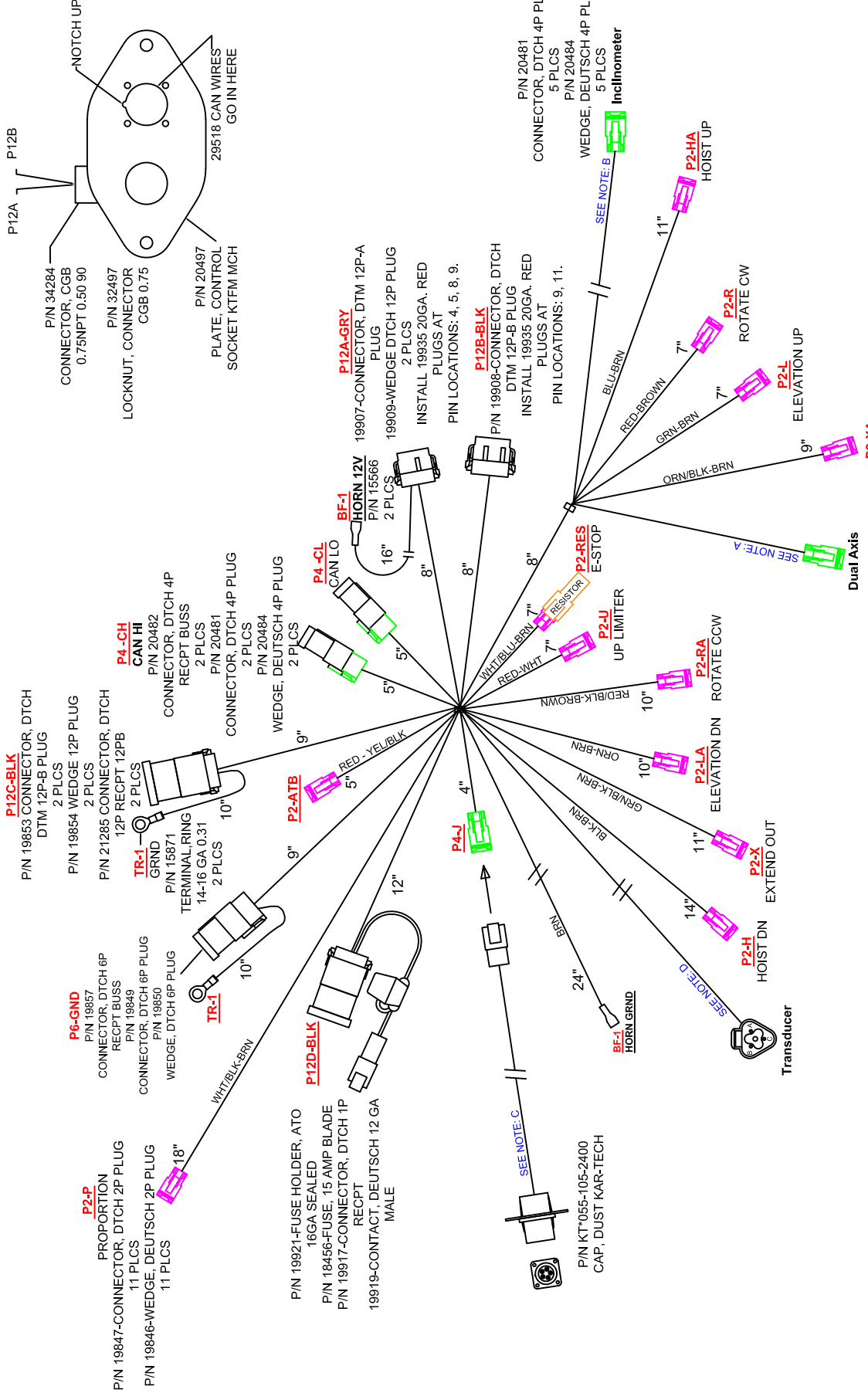
FUNCTION		
ROT CW	ROT CCW	BOOM UP
BOOM DWN	EXT OUT	EXT IN
HOIST UP	HOIST DWN	E-STOP
UP LIMIT SWITCH	UP LIMIT SW. 12V	PROP
CAN HI MAIN	CAN LOW MAIN	ATB
REC. PWR 12V	PWR, ATB 12V	PWR, CAN 12V
CAN LOW	CAN HI	MAIN PWR
FUSE HOLDER	HORN 12V	

# PRE-BUILD

REPORT ERRORS OR CHANGES TO  
ENGINEERING IMMEDIATELY

DESCRIPTION	BY	DATE	REV.
ADDED RESISTOR TO ESTOP OUTPUT FOR ERROR CODES	JE	5/25/22	E
CHANGED WIRE LENGTH FOR DUAL AXIS & INCLINOMETER	JE	5/11/22	D
CORRECTED WIRE LENGTH	JE	9/1/21	C
CORRECTED WIRE LENGTH	JE	7/30/21	B
DECREASED LENGTH ON TRANSDUCER & INCLINOMETER WIRES	JE	5/10/21	A

<b>LIFTMOORE, INC</b>	
Houston TX (713)-688-5533	
<b>EWI, DTCH HYD 8045DXP WP</b>	
HORN, SAUER DANFOSS VALVES	
DRWN BY: JE	DATE: 4/24/13
CHK'D BY:	MATRL:
<b>29547-E</b>	



<b>LIFTMOORE, INC</b> Houston TX (713)-688-5533	
<b>EPH, DTCH HYD 8045DXP WP</b> HORN, SAUER DANFOSS VALVES	
DRAWING NO.	29547-E
DATE: 4/24/21	DRAWING NO.
DRWN BY: JE	MATR.:
CHK'D BY:	

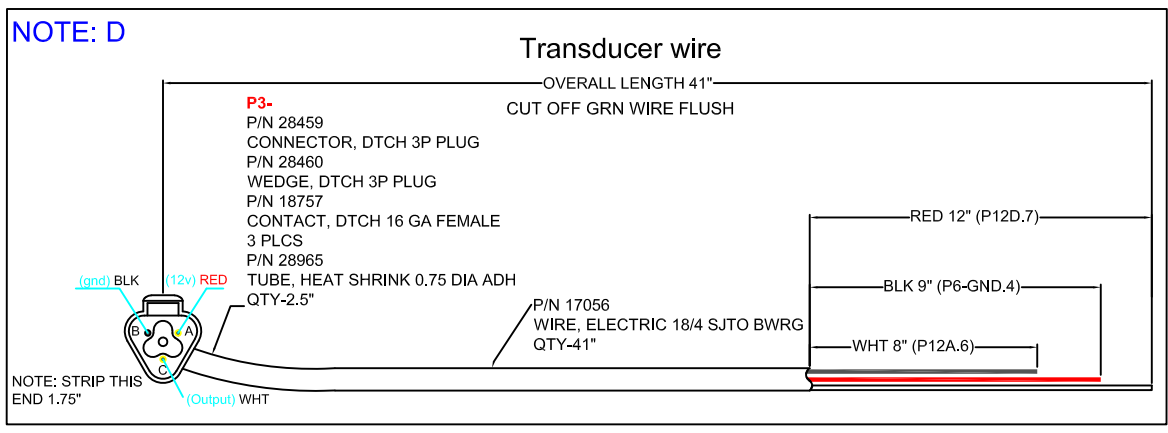
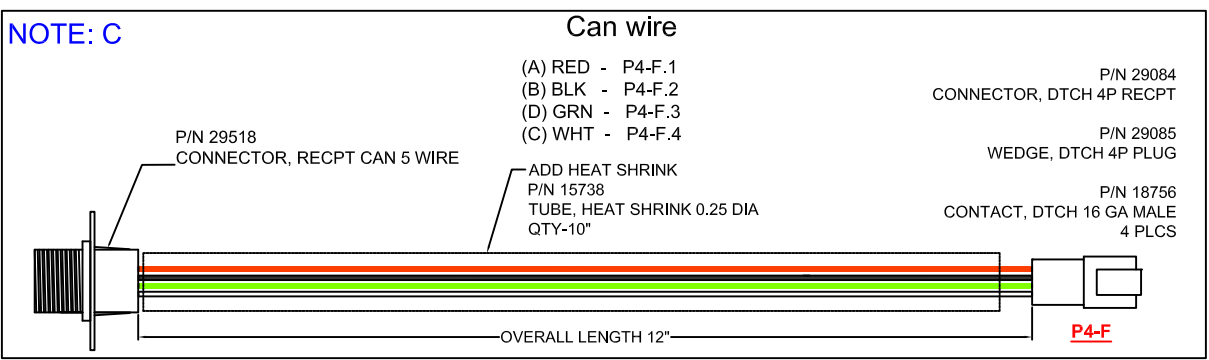
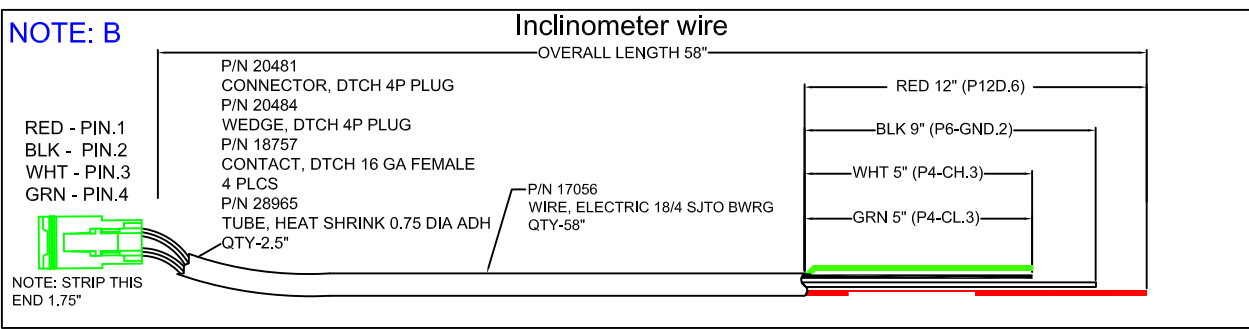
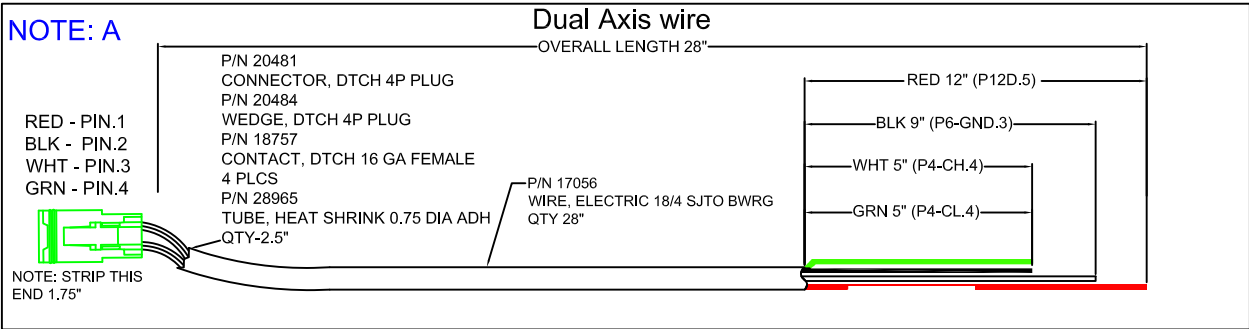
<b>TYPICAL TOLERANCES</b>	
MACHINE ± .005	
PLASMA ± 1/32	
WELD ± 1/16	
CAD DRAWING	
DO NOT SCALE	

DESCRIPTION	BY	DATE	REV.

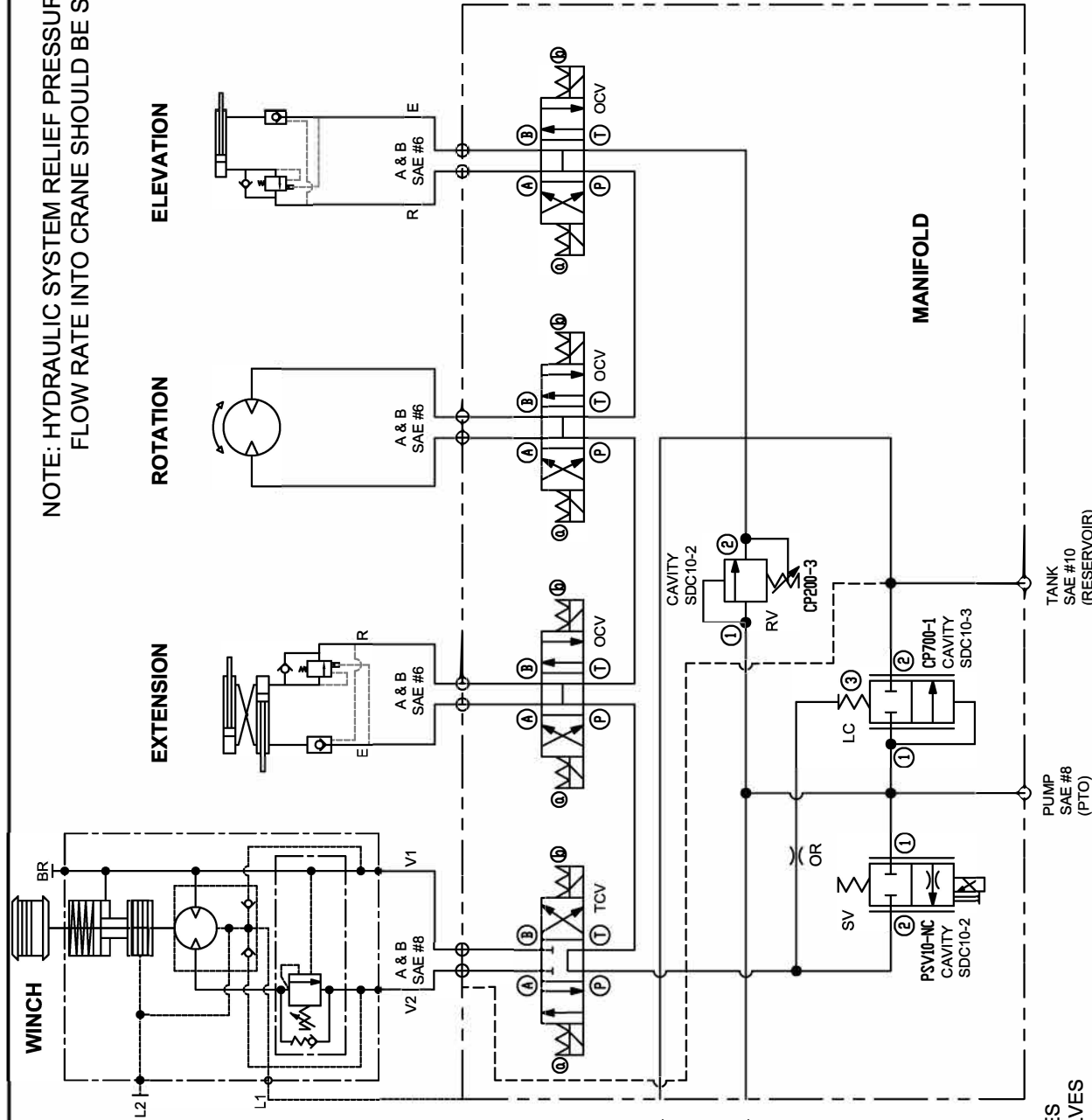
**PRE-BUILD**

REPORT ERRORS OR CHANGES TO ENGINEERING IMMEDIATELY

SEE NOTE A
SEE NOTE B
SEE NOTE C



NOTE: HYDRAULIC SYSTEM RELIEF PRESSURE SET AT 2850 PSI.  
FLOW RATE INTO CRANE SHOULD BE SET AT 8 GPM.



SV = PROPORTIONAL VALVE  
LC = LOGIC VALVE  
RV = RELIEF VALVE  
OCV = OPEN CENTER VALVES  
TCV = TANDEM CENTER VALVES

DRAWING NO.

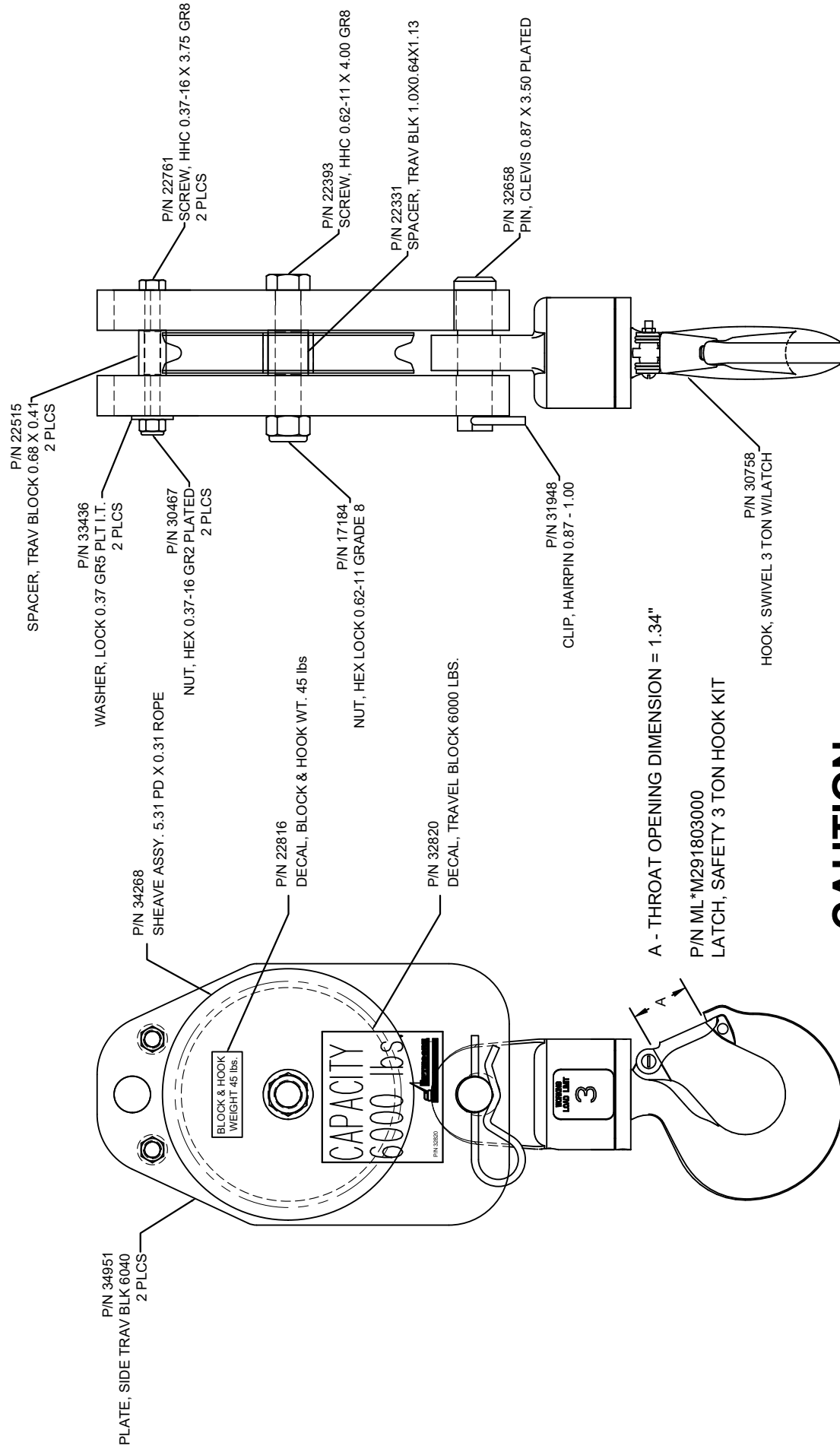
50963-0

SCHEM, HYD PROPORTIONAL 6040  
ROTZLER WINCH

DRWN BY: JE  
DATE: 8/11/22

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





**CAUTION:**

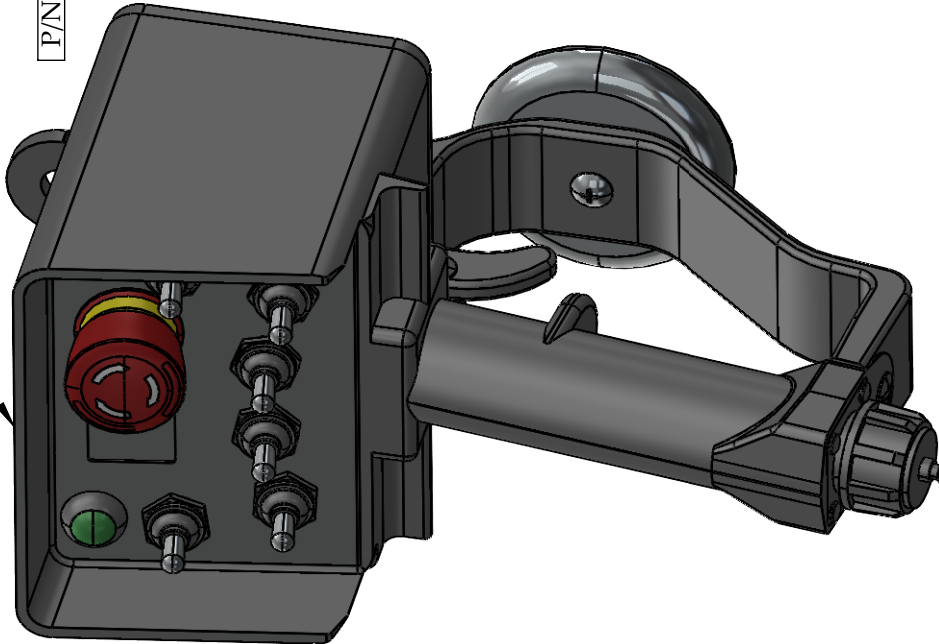
NEVER USE A HOOK WHOSE THROAT OPENING HAS BEEN INCREASED, OR WHOSE TIP HAS BEEN BENT MORE THAN 10 DEGREES OUT OF PLANE FROM THE HOOK BODY, OR IS IN ANY WAY DISTORTED OR BENT.

	Houston TX (713)-688-5533 www.liftmoore.com	DRWN BY: JE DATE: 8/24/22	BLOCK, TRAV ASSY 6.0K LBS/5.3D 5.31PD X 0.31 ROPE; 6K LBS	DRAWING NO. <b>34949-0</b>
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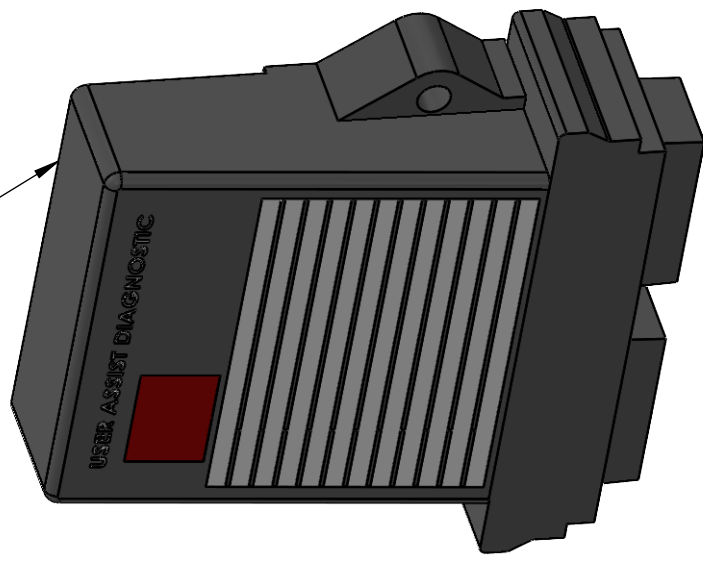


**TRANSMITTER AND RECEIVER ARE PROGRAMMED TO FORM A MATCHED SET SO THAT A TRANSMITTER ONLY OPERATES ONE CRANE. IF EITHER PART IS REPLACED, THE RECEIVER MUST BE PROGRAMMED TO THE TRANSMITTER USING A TEMPORARY WIRING HARNESS AVAILABLE FROM LIFTMOORE.**

P/N 28790 CONTROL, FM TRANS GUIDER



P/N 28792 CONTROL, FM REC VC-129



**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 SWTCH 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

**NOT SHOWN ITEMS:**

- P/N 28796 - WIRE, CTRL FM TETHER 25' CAN
- P/N 20186 - CHARGER, FM TRANS 12V LIGHTER
- P/N 28705 - SCREW, HHC 0.25-20 X 1.00 SS
- P/N 28690 - WASHER, LOCK 0.25 316 SS
- P/N 29405 - WASHER, FLAT 0.25 SS 316

**OPTIONAL:**

- P/N 24510 - CHARGER, FM TRANS AC GUIDER

**UNLESS SPECIFIED:**  
 MACHINED PART  
 MINIMUM 250 RMS  
 ALL WELDS TO BE  
 MINIMUM 1/4"  
 DIM. TOLERANCES  
 .XXX ± .005  
 .XX ± .030  
 .X ± .116  
 FRAC. ± 1/16  
 XX° ± .5°

**PROPRIETARY & CONFIDENTIAL**  
 DRAWING IS THE SOLE PROPERTY OF  
 LIFTMOORE INC. AND REPRODUCTION  
 WITHOUT WRITTEN PERMISSION OF LIFTMOORE  
 INC. IS PROHIBITED.

THIRD ANGLE  
 PROJECTION

CHECKED: JE 07/23/2021  
 ENG APPR: Admitt 07/23/2021

**LIFTMOORE INC.**  
 BOX, FM PARTS XP WP

DRAWN: JNA 07/23/2021 DWG. NO.  
 MTRL: SHEET 1 - 1  
 WEIGHT: Lbs

REV 29695 A

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HOUSTON, TEXAS  
FAX: (800) 824-5559 (USA & Canada)  
FAX: (713) 688-6324  
PHONE: (713) 688-5533  
[www.liftmoore.com](http://www.liftmoore.com)

## **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.

