Summit Truck Bodies Warranty Registration
Fax Transmission

To: Warranty Department Fax: (785) 989-3563
From: __________________________ Date: __________________
Re: Product Registration Pages: __________________
End user information: (Required for Warranty Activation)
Name: __________________________ Phone: __________________
Address: _________________________
City: ___________________________ State: __________ Zip: __________
Contact: _________________________ E-mail Address: ____________

Distributor Information (Required for Warranty Activation)
Name: __________________________ Phone: __________________
Address: _________________________
City: ___________________________ State: __________ Zip: __________
Contact: _________________________ E-mail Address: ____________

Product Information (Required for Warranty Activation)
Model Number: _________________ Serial Number: ____________
Date Product Delivered: _________ Date Processed:* _________
VIN Number of Truck: ________________ *For Summit Use Only

ONE REGISTRATION FORM PER UNIT (CRANE OR BODY)
Registration form must be mailed or faxed within 15 days of customer installation.

Mail to:
Warranty Department
Summit Truck Bodies
990 Vernon Road
Wathena, KS 66090
### Summit Truck Bodies

**Crane Owner’s Manual - Revision Record**

<table>
<thead>
<tr>
<th>Date</th>
<th>Section(s) or Page(s) Revised</th>
<th>Description of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/15/09</td>
<td>Full Manual Rewrite</td>
<td>Added Warranty, Safety, Part information</td>
</tr>
<tr>
<td>05/01/09</td>
<td>Section 5</td>
<td>Brought parts and pictorial up to date</td>
</tr>
<tr>
<td>03/01/10</td>
<td>1,3,13,15,17,18,21,23,26,27,28,52</td>
<td>Updated Logo and various pictorials</td>
</tr>
<tr>
<td>07/15/10</td>
<td>1,8,9-12,17,20-22,29-31,34-39,44</td>
<td>Reworded the verbiage for clarification</td>
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<tr>
<td>07/26/10</td>
<td>11-14,22-24,26-42</td>
<td>Reworded verbiage for clarification</td>
</tr>
<tr>
<td>08/03/10</td>
<td>Full Manual</td>
<td>Edited typographical errors</td>
</tr>
<tr>
<td>09/21/12</td>
<td>Full Manual</td>
<td>Update for new crane design</td>
</tr>
</tbody>
</table>

**Notes:**

1. The information contained in this manual is in effect at the time of this printing. It does not cover all instructions, configurations, accessories, etc. If you require additional information, please contact **Summit Truck Bodies** at (866) 985-3100.

2. **Summit Truck Bodies** reserves the right to update this material without notice or obligation.
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Congratulations on your purchase. You are the owner of what we consider to be one of the leading cranes in the service body field. This crane will provide you with both quality and safety if you follow the guidelines of working with a well-maintained piece of equipment in a safe manner using the correct personal protective equipment (“PPE”) for your work environment. Your crane carries a five(5) year warranty on all parts, weldments, and a three year warranty on the remote system.

For continued quality service, carefully read the information contained in this manual before operating the equipment. This manual provides basic guidelines for the safe and proper operation of the crane. After you have read and understood the material in this manual, work with your crane by learning basic operations, safely.

To prevent injury to yourself or others, maintain your crane, and operate it safely by knowing your surroundings. Look out for such things as overhead wiring, overloading of the crane, side loading of the crane and wearing of the prescribed PPE.

The users must have a working knowledge of existing Federal, State and Local codes and regulations governing the safe use and maintenance of this crane.

This crane was tested to conform to the following code:

\[\text{ANSI – ASME B30.5a – 2002} \]
\[\text{MOBILE AND LOCOMOTIVE CRANES}\]
\[\text{The American Society of Mechanical Engineers}\]

This crane carries a five (5) year warranty, but the warranty will be null and void if the crane is misused or abused by overloading, side loading, pulling a load through open terrain, lack of maintenance as directed in this manual, or making modifications to the crane without the express permission of Summit Truck Bodies.

Treat the equipment with respect and service it regularly. These two things can add up to a safer working environment, longer equipment life, and prevention of loss of life and limb.

Summit Truck Bodies issues a limited warranty certificate with each unit sold. See last page for warranty.

**Distributor Assistance:**
Should you require any assistance not given in this manual, we recommend that you consult your nearest Summit Truck Bodies Distributor. Our distributors sell authorized parts and have service departments that can solve almost any needed repair. This manual does not cover all maintenance, operating, or repair instructions pertinent to all possible situations. **If you require additional information, please contact Summit Truck Bodies at the following telephone number: (866) 985-3100.** The information contained in this manual is in effect at the time of this printing. Summit Truck Bodies reserves the right to update this material without notice or obligation.
SAFETY

Of all the pages within this manual pay particular attention to this chapter. It could prevent serious injury, or worse, loss of life, to you or the people with whom you are working. After reading this chapter, put safety into practice on the job while operating your equipment or any other piece of machinery.

The first priority of any job must always be a safe working environment. You will eliminate personal pain and suffering to yourself and to others on the job site. Know your surroundings, power lines, loose soil not allowing for solid footing and lack of PPE, and maintain a mindset of working safely, from the beginning to the end of each job. This is not an all inclusive list, so the owner of the machinery may want to supply its own list of safety precautions as well. However, follow the safety requirements listed and you will have the basic knowledge of safety on the job.

To qualify as a safe operator you should first know and understand your equipment, knowing its limitations and strengths. Maintenance of the equipment is second priority; as with any piece of machinery, if not kept clean and in working order, the equipment will likely malfunction. Follow a preventive maintenance schedule with your machine and a routine visual inspection of the equipment before you start any job.

The operator must have a working knowledge of all safety and government regulations. You can refer to any OSHA manual for guidance. Summit Truck Bodies is not liable for accidents caused by the operation of the crane.

You may want to follow a couple of safety tips. Equipment on your truck should include a fire extinguisher and a first aid kit. Use best practices of PPE and avoid any type of body jewelry that might get caught on moving objects.

The truck is equipped with a working surface on the bumper. Avoid using moving parts of the truck as a foothold or handhold; use the grab bars and steps designed for this purpose. Avoid walking under a load, and never use the crane as a mode of transportation from the ground level to an elevated surface.

General

Being the owner of the equipment, it is your responsibility to establish a training process for your operators by qualified people before starting the job. As with any equipment, be it a motor vehicle or machinery, this equipment cannot be operated by anyone under the influence of alcohol, drugs, or prescription medication that impairs the operator physically, mentally or physiologically.
Personal Safety

The use of personal protective equipment (“PPE”) is critical to the safety of the operation and the wellbeing of the people operating the equipment. The use of the following (but not all inclusive) PPE in the safe operation should be worn by the operator:

- Protective helmets
- Safety shoes (preferably steel toed)
- Cut proof gloves, preferably snug fitting
- Ear plugs or any form of hearing protection
- Safety glasses or shields
- Reflective vests

Follow your established safety rules and regulations. If you do not have those, consult your OSHA manual. Routine inspection of the safety decals is a must for the safety of the operator; be sure all decals are legible and in good condition. Replace any and all decals that are missing from your truck body or in need of repair.

For the safety of the operators, follow these safety guidelines:

- Disengage the power source before working on the equipment.
- Remember there is stored hydraulic pressure in the hydraulic lines of the truck; this must be released prior to working on the crane components or any part of the hydraulic system.
- Stay clear of all moving parts of the equipment; your body could be crushed or severely pinched.
- Routine maintenance should be recorded and maintained by only trained and competent personnel.
- Bypassing parts of the wiring and/or plumbing can cause the crane serious damage and injury to the operator.

Stability

The service truck should be parked on solid level ground. If unable to park on such a surface, outrigger pads may need to be used to level and support the truck and its load.

Never exceed the crane capacity chart nor the stability chart for the service truck. These ratings are based on tested capacities of the service truck and the structural design and mechanical abilities of the components on the crane.

Be aware of the abilities and limitations of your crane. Improper use of the crane could damage the crane, service truck, lifted load, surroundings or even cause injury or death.

Park the vehicle on as level ground as possible. Use outrigger pads if needed, and always extend the outriggers fully out and then down.
Be aware of your surroundings when lowering outrigger jacks. Keep feet and legs out from under jacks.

Never operate the crane before the service truck is positioned on stable, level ground.

Put the vehicle in park or neutral (for manual transmissions) and set the parking brake before attempting a lift.

**Load Safety**

Before lifting a load know the weight you are preparing to lift. Also, consult your capacity chart located on the rear of the truck, comparing the two to ensure the crane will safely handle the job.

The crane has a safety built into the remote and receiver to prevent an overload, but like any mechanical device, it can be overridden by an operator. Please be advised that if this happens, your warranty is null and void. Consult with our service department to return the crane safety features back to the required setting established at the plant.

The traveling block is equipped with a safety hook at the point of attachment to a load. Always make sure the load is secured to the hook with the safety latch in the closed position on the hook prior to lifting the load. You can find directions in any OSHA manual.

- The gear rotation mechanism is equipped with a ring and pinion gear; these are not designed for side loading of the crane, and side loading will result in failure of the gears.
- A load suspended overhead should be avoided; never walk under one.
- When you leave the truck for a break or lunch, lower the load to the ground, as it can result in injury if the load were to become unstable in your absence.
- Keep all people away from the suspended load; never position the load over a person.
- Dragging the load with either the winch or the boom will result in damage to the equipment and could cause injury to the people around the load.
- The crane boom is designed to lift; it is not intended to be used to force a downward pressure on any type of operation.

**Environment**

The equipment you have purchased operates at maximum performance if you have a good preventive maintenance program in place. The work site is generally full of contaminants, so weekly washing of the truck and or crane is a good prevention tool. The use of lubricants on mechanical parts on the equipment should be followed on a weekly, monthly and quarterly basis. Prevention of the general wear and tear due to corrosives is insurance that your machine will last a long time, affording you a good investment of your time and capital.
Good common sense goes a long way in safety. Steel and electricity do not mix well, so avoid using the crane at the highest point on many job sites during a storm. Maintain the prescribed clearance from all power lines with your crane.

If you are operating the truck in extreme cold, follow these guidelines to prevent equipment failure or damage to the components of the hydraulic system of the truck:

- Start the truck and let it run for 15 minutes before engaging the PTO.
- With the PTO engaged, wait an additional 15 minutes prior to starting the air compressor or crane; this allows the systems to warm up before putting them under pressure.
- Revving the truck engine with the PTO engaged will damage your hydraulic pump and parts of the hydraulic system.
- There are specific guidelines attached in the owner’s manual for extreme cold conditions; read and follow to allow maximum performance of your truck.

**Maintenance Safety**

Your Summit truck or crane is designed to give you years of use. Do not modify the components or the systems of the truck, as this will cause damage to the equipment and impede the functions of the truck.

**Electrocution**

Use extra personnel to signal when operating near electrical.

Keep at least ten feet between any portion of the crane and an electrical line. Add an additional 12” for every additional 30,000 volts or less.

Allow extra space during windy conditions for swaying power lines.

Death or serious injury can occur when working during electrical storms or near power lines.
**Safety Decals**

**Decal Number:** 700-30347  
**Title:** Danger, Two Blocking the Crane  
**Description:** To inform operator to not allow hook block to come in contact with boom tip by hoisting up, extending or lowering the boom.  
**Location:** Boom Tip

---

**Decal Number:** 700-30340  
**Title:** Notice, Lubricate Worm Gear  
**Description:** Lubricate Worm Gear, Do Not run gear dry.  
**Location:** Rotation Gear For Crane

---

**Decal Number:** 700-30339  
**Title:** Caution, Do not use stow hook for lifting  
**Description:** Informs operator to not use hook stow eye to lift load.  
**Location:** Lower boom section new stow hook.

---

**Decal Number:** 700-30373  
**Title:** White Outline Logo  
**Description:** Identifies Summit Truck Bodies as the manufacturer of the crane.  
**Location:** Lower boom section on the middle both sides.
Decal Number: 700-30149
Description: Identifies Size and Reach of the Crane.
Location: Lower boom section on the base both sides.

Decal Number: 700-30131
Description: Notifies Operator of a Potential Scissor Point.
Location: Both sides of Lift Cylinder.

Decal Number: 700-30025
Description: Notifies Operator not to Tamper with Overload Device.
Location: Both Sides of Lift Cylinder.

Decal Number: 700-30342
Description: Notifies Operator that this Crane has been Designed and Manufactured to ASME/ANSI Specifications.
Location: Pedestal of Crane.

Decal Number: 700-30353
Description: Informs Operator of the Boom Angle.
Location: Left Side of Lower Boom.

Decal Number: 700-30018
Description: Informs Operator of the Boom Angle.
Location: Right Side of Lower Boom.
Decal Number: 700–30385
Title: Capacity Chart, 10620
Description: informs Operator of the lifting Capacity of the Crane.
Location: Cover Panel for Valve Assy.

Decal Number: 700–30411
Title: Crane Control Pedestal lever.
Description: informs Operator how to override Crane Valve for Manual Operation.
Location: Cover Panel for Valve Assy.

Decal Number: 700–30404
Title: Serial Number, Model 10620
Description: informs Operator of the Model and Serial Number of the Crane.
Location: Cover Panel for Valve Assy.

Decal Number: 700–30364
Title: Crane Color Zone
Description: Helps to identify possible dangers in load capacities zones.
Location: Rotation gear for Crane.

Decal Number: 700–30589
Title: Certification Statement
Description: informs Operator that the crane Capacity of the Crane.
Location: Pedestal Side Plate.
Safety Decal Location

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>1</td>
<td>700-30589</td>
<td>DECAL, CERTIFICATION DISCLAIMER</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>700-30404</td>
<td>PLATE, BLACK SERIAL NUMBER MODEL 10620</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>700-30385</td>
<td>CAPACITY CHART, 10620</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>700-30373</td>
<td>DECAL, WHITE OUTLINE LOGO</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>700-30364-90.19</td>
<td>DECAL, CRANE COLOR ZONE</td>
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<td>10</td>
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<td>700-30353</td>
<td>DECAL, ANGLE INDICATOR LH</td>
</tr>
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<td>9</td>
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<td>700-30347</td>
<td>DECAL, DANGER, TWO BLOCKING THE CRANE</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>700-30344</td>
<td>DECAL, CRANE CONTROL PEDESTAL LEVER</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>700-30342</td>
<td>DECAL, NOTICE, CRANE DESIGNED AND MANUFACTURED</td>
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<tr>
<td>6</td>
<td>1</td>
<td>700-30341</td>
<td>DECAL, NOTICE, LUBRICATE WORM GEAR</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>700-30339</td>
<td>DECAL, CAUTION, DO NOT USE STOW HOOK FOR LIFTING</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>700-30149</td>
<td>DECAL, SIZE AND REACH OF CRANE ID</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>700-30131</td>
<td>DECAL, LARGE DANGER SISOR POINT</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>700-30025</td>
<td>DECAL, WARNING, OVERLOAD HAZARD</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>700-30018</td>
<td>DECAL, ANGLE INDICATOR RH</td>
</tr>
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</table>

17
Specifications Model 10620 Crane
SPECIFICATION SHEET

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td><strong>Crane Rating:</strong></td>
<td>55,000 ft-lbs (7.60 ton-meters)</td>
</tr>
<tr>
<td><strong>Standard Boom Length:</strong></td>
<td>11’ 0&quot;(3.35 m) from CL of Crane</td>
</tr>
<tr>
<td><strong>Boom Extension:</strong></td>
<td>1st stage: Hydraulic 60&quot;(152.4 cm)</td>
</tr>
<tr>
<td></td>
<td>2nd stage: Hydraulic 60&quot;(152.4 cm)</td>
</tr>
<tr>
<td><strong>Maximum Horizontal Reach:</strong></td>
<td>20’-9&quot;(6.32 m) from CL of Crane</td>
</tr>
<tr>
<td><strong>Maximum Vertical Lift:</strong></td>
<td>22’(6.71 m) (from crane base)</td>
</tr>
<tr>
<td><strong>Boom Elevation:</strong></td>
<td>-5 to +80 degrees</td>
</tr>
<tr>
<td><strong>Stowed Height (crane only):</strong></td>
<td>39 7/8&quot; (101 cm)</td>
</tr>
<tr>
<td><strong>Mounting Space Required:</strong></td>
<td>21 x 25 inches (53.3 x 63.5 cm)</td>
</tr>
<tr>
<td><strong>Approximate Shipping Weight:</strong></td>
<td>2373 lbs (1076 kg)</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td>Radio control standard for all functions.</td>
</tr>
<tr>
<td><strong>Winch Specification</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Rope Diameter:</strong></td>
<td>7/16&quot; (1.11 cm)</td>
</tr>
<tr>
<td><strong>Line pull speed:</strong></td>
<td>60 ft/min (18.29 m/min)</td>
</tr>
<tr>
<td><strong>Max. single part line:</strong></td>
<td>5000 lbs (2268 kg)</td>
</tr>
<tr>
<td><strong>Max. double part line:</strong></td>
<td>10000 lbs (4535 kg)</td>
</tr>
<tr>
<td><strong>Rotation: (worm gear)</strong></td>
<td>400 degree power</td>
</tr>
<tr>
<td><strong>Lifting Capacities</strong></td>
<td>10,000 lbs @ 5’0&quot;(4535 kg @ 1.52m)</td>
</tr>
<tr>
<td></td>
<td>5100 lbs @ 11’0&quot;(2315 kg @ 3.35m)</td>
</tr>
<tr>
<td></td>
<td>4285 lbs @ 13’6&quot;(1940 kg @ 4.11m)</td>
</tr>
<tr>
<td></td>
<td>3475 lbs @ 16’0&quot;(1575 kg @ 4.88m)</td>
</tr>
<tr>
<td></td>
<td>3060 lbs @ 18’6&quot;(1385 kg @ 5.64m)</td>
</tr>
<tr>
<td></td>
<td>2650 lbs @ 21’0&quot;(1200 kg @ 6.40m)</td>
</tr>
<tr>
<td><strong>Power Supply Required</strong></td>
<td>PTO &amp; Pump</td>
</tr>
<tr>
<td></td>
<td>(8 gpm @ 2800 psi)</td>
</tr>
</tbody>
</table>

*Subject to change without notification*
WEIGHT OF LOAD HANDLING DEVICES ARE PART OF THE LOAD LIFTED AND MUST BE DEDUCTED FROM THE CAPACITY.

MAXIMUM 1-PART LINE CAPACITY IS 5000lbs (2270kg), FOR GREATER LOADS, USE 2-PART LINE.
General Dimensions for a 10620 Crane:

Note: All dimensions are in inches
SECTION 1 –INSTALLATION

Your crane may have been purchased separately, and if you intend to mount it to your truck body, please follow the instructions to avoid accidents and/or injury to yourself and others. If you have a manual for your particular truck body, it likely has an instruction guide to help you in the mounting of the crane. Knowing your truck’s capacity will allow you to make the best installation possible for your application. Pay particular attention to the following:

- Chassis capacity
- Total GVW after the crane is installed
- Whether your truck body has a crane mounted to it, and what weight it will hold
- Your crane weight depends upon which size crane you purchased, so the truck body will have requirements as well; find out what the body manufacturer recommends before mounting your crane.
- Disregarding these issues can result in serious injury or death to yourself or your operator

Before installing the crane to your truck body read and understand the guidelines established under federal law (Title 49 cfr part 568.6). Pay particular attention to Sec. 567.5 of the law. As the end user and installer of the crane to your truck body, you are required to certify the vehicle in compliance with Federal Motor Vehicle Safety Standards and other regulations issued under the National Traffic and Motor Vehicle Safety Act. You can go online at http://www.gpoaccess.gov/nara/index.html for further information. You are responsible for the truck to comply with all applicable federal and state regulations.

There are many PTO and Pump combinations available throughout the system; all vary depending upon the chassis, transmission, and the flow requirements of the crane, air compressor or combination of the two components. Please contact Summit Truck Bodies Customer Service for your individual truck requirements.

A. The weights of the truck must coincide with the chassis requirements of the crane to be installed. For the 10620 crane the following chassis requirements must be met: Minimum Chassis GVW: 26,000 lbs; Minimum Cab to Axle: 84”; Body Length Nominal: 134”; Body Width: 94”; Compartment Depth: 22”; Floor Width: 50”.

B. Any modifications made to the truck body must be approved by the body manufacturer and will properly and safely support the weight of the crane you have chosen to install.

C. Any components used to modify the crane and/or Summit Body will void the warranty and liability of the manufacturer.

D. The crane boom must be supported during transportation; thus, a boom cradle is required on the body.

E. To avoid injury, use a lifting device designed to bear the weight of the crane. Hydraulic hoses and control wires are to pass through the 7.00” diameter clearance hole.

F. Lower the crane into place with the boom facing the rear. Make sure the crane is resting properly on its base. Apply Loctite Thread locker #277 to the mounting bolts and install them from the underside of the mounting plate. Torque the eight bolts to 680 ft lbs.
G. The six strand power/auxiliary control cord on the hydraulic valve provides power to the crane and feedback to auxiliary functions. It is accessible from the underside of the base plate and should be connected.

H. Connect the hydraulic hoses to the crane. Two hydraulic connections are extended through the crane base and are accessible from the underside of the base plate. Pressure connections are “06 JIC” and Tank connections are “08 JIC” fittings. The factory set Pressure Relief Valve is included in the crane valve. Recommended operating pressure between crack pressure and full flow is 2800PSI.

**NOTE:** It is recommended that the return line be no less than 1/2”. Do not use the hose on the hydraulic system of less than 100R1 rating.

I. After the crane has been installed, check all hydraulic lines for:
   - Free movement through 400 degrees of crane rotation
   - Sharp corners (which may cut into hose) and kinks
   - Abrasions and chafing
   - Tightness of fittings
   - Leaks
   - Check all bolts and pins
   - Visually inspect all welds for cracks, holes, etc.
   - Engage Power Take-Off
   - Slowly operate crane through all functions. Inspect all hoses, cylinders and structural members for proper operation
   - Return crane boom to its support, and the unit is ready for operation

---

**TESTING SHALL BE PERFORMED BY DESIGNATED PERSONNEL ONLY.**

J. Prior to initial use, all new, altered, modified, or extensively repaired cranes shall be tested for compliance with the operational requirements of this crane.

1. Test all functions to verify speed and operation.
2. Check that all safety devices are working properly.
3. Confirm operating controls comply with appropriate function labels.
4. Test loads shall not exceed 110% of the manufacturer’s load rating.
5. Written reports shall be maintained showing test procedures and confirming the adequacy of repairs.

**NOTE:** Under federal law, all crane mountings must be tested for stability. Every truck loaded or unloaded will have a different weight, thus affecting the stability of the truck when put under load. Once you have your truck loaded to your approximate hauling capacity, you must comply with the stability test for your truck weight.

To be in compliance, your truck must lift the weight designated on your capacity chart supplied with the crane, until such time the load cannot be lifted or the truck is in danger of tipping over. Record the actual test data on the stability chart, which must be stored in the truck by the operator for future reference to ensure a safe lift by the operator in the various positions of the crane boom.
The Stability Capacity Chart must be completed by the crane installation personnel. Summit Truck Bodies takes no liability for the placement of a crane by an outside source. If you install a crane not designed for the body or chassis, your crane and the stability of it will fail. Summit Truck Bodies has completed an extensive testing of the crane and has formulated the Stability Chart to cover the truck body and chassis on which it is mounted.

The following Stability Capacity Chart is to be used by the installer of the crane, who may be unaware of the stability of Summit Truck Bodies cranes being mounted on unknown bodies and chassis.

Zone 1, if the boom reaches full extension without becoming unstable, the crane is stable for this zone and 100% can be written in the Zone 1 data box.

If the truck becomes unstable prior to the crane achieving full extension, then retract the boom until the truck becomes stable. Then measure the horizontal reach in this position (center of rotation to end of boom). This is the stable horizontal location in this zone (stable horizontal location divided by maximum horizontal location multiplied by 100 equates to the percentage of rated capacity for this zone). Record this number in the data box for Zone 1 (this is the revised load capacity for this zone due to stability of the service truck).

Repeat for each zone until the worksheet is completely filled out (this is the revised capacity based on stability for this crane and service truck).

After the test has been completed, return the boom to the normal transport position.

K. Install all safety decals supplied with the crane in a visible area as close to the crane as possible.
STABILITY CAPACITY CHART

LIFTING CAPACITY IS DETERMINED BY BOTH CRANE CAPACITY AND TRUCK CONFIGURATION AND THEREFORE VARIES WITH CRANE ROTATION. USE THE DIAGRAM BELOW ALONG WITH THE CRANE CAPACITY CHART TO DETERMINE LIFTING CAPACITY FOR VARIOUS CRANE ROTATIONS.

WARNING:
LIFTING LOADS GREATER THAN THIS CAPACITY CHART MAY CAUSE SERIOUS INJURY OR DEATH.

ZONE 1
PERCENTAGE OF MAX LOAD

ZONE 2
PERCENTAGE OF MAX LOAD

ZONE 3
PERCENTAGE OF MAX LOAD

ZONE 4
PERCENTAGE OF MAX LOAD

ZONE 5
PERCENTAGE OF MAX LOAD

ZONE 6
PERCENTAGE OF MAX LOAD

CAPACITIES RATED UTILIZING AN UNLOADED CHASSIS.
ADJUSTING, MOVING OR REMOVING WEIGHT FROM THE TESTED VEHICLE WILL EFFECT STABILITY RATINGS.

BOXES TO BE FILLED IN WITH RATED CAPACITY ALLOWED IN THE APPROPRIATE REGION.

700-30460
SECTION 2 - OPERATION

2.1 GENERAL

For ease of operation, become familiar with your crane and truck combination. Practice lifting without a load, and then graduate to a small load, gradually becoming larger in load size. Do this prior to actually going to the job site to perform the job task. As with all jobs, there is an element of risk, so prepare the operator for emergency situations and, much like testing for a fire drill, they will master the situation with each practice.

2.2 LOAD LIMITS

Know your lifting limits before you start. Study the charts supplied with your crane, the Load Chart and the Angle Indicator Plate. Exceeding the limits within the radius of operation can result in tipping of the truck and/or structure failure, **voiding the warranty**.

2.3 EQUIPMENT INSPECTION

OSHA Regulation 1910.180 calls for frequent and periodic inspections. The inspection record must include the following:

- Date of Inspection
- Signature of the person doing the inspection
- Serial number of the crane inspected
- The certification record must be available upon request

Safety checks must be current and made prior to the operation of the crane. Follow the guidelines listed above as well as the following:

1. Structural Soundness: Inspect the unit for damaged members and loose fasteners.
2. Hydraulic Oil Supply: With the crane in a stored position, and all cylinders retracted, check the oil level.
3. Leakage: Examine all of the visible hydraulic lines for damage or hydraulic leakage.
4. Controls: Test for proper control operation.
5. Wire rope: Inspect for damaged, kinked or frayed winch wire rope.
6. Repairs: Correct all observed defects and malfunctions before putting the unit into service.
2.4 OPERATING RESTRICTIONS

Guidelines for operating the equipment:

1. The truck must be level for all loading and unloading with the crane.
2. The emergency brake must be engaged prior to any crane operation.
3. The outriggers must be extended and setting on solid footings before operating the crane.
4. Engage the PTO while the truck is in a neutral position, and if the equipment is a manual, shift with the clutch pedal engaged.
5. The boom will drag the wire rope and break the stowing hook on the boom if you fail to extend the wire rope prior to extending the boom.
6. Never lift the load any further off the ground than necessary.
7. Keeping the load close to the ground will help prevent lifting the load over the top of a person or persons.
8. Rotating the load too quickly will result in an unstable load and could cause injury or damage to the crane rotate gears.
9. Avoid power lines when at all possible; if you must make a lift near a power line, do so with extreme caution, and make sure the boom at full extension clears the power line by at least 10 feet.
10. Lifting the rated load capacity should be the norm; over lifting will result in a safety failure or equipment breakage.
11. All loads must be setting on the ground before leaving the job site, even if it is just for a 5 minute break.
12. Side loading of the load using the winch will result in damage to the crane assembly.
13. The crane is designed to lift a material load and should never be used to move people.
14. Due to the height of the crane, avoid electrical storms and/or high winds.
15. Do not attempt to make repairs to a crane while it is in operation.
16. Operate the crane rotate slowly, as the weight of the load will cause undue stress on both the crane rotate and the load if you have to stop quickly. This could also cause injury or death.
17. The crane will rotate up to 400 degrees; do not attempt a full speed stop with the rotation gear and a full load, as undue stress will break the gears in the rotate.

2.5 LOAD LIFTING

85% of tipping is the normal computation for all load ratings. To ensure a safe lift, the crane must meet all manufacturer’s required mounting procedures. All lifts are to be completed with full extension of the outriggers, with the truck setting on a flat level surface. Follow your stability chart for all lifting ratings.

2.6 OPERATION OF OUTRIGGERS

HYDRAULIC OUTRIGGERS:
A. Shift Crane/Outrigger Switch to “outrigger” position.
B. Operate the outrigger position switch to position the outrigger.
C. After outriggers are positioned, return crane/outrigger switch to “crane” position.
D. Crane is now ready to operate.

MANUAL OUTRIGGERS:
A. Rotate locking pin to release outrigger leg.
B. Pull out outrigger leg and rotate locking pin to lock outrigger leg in position.
C. Lower outrigger leg until it has firm contact with the ground.
D. Crane is now ready to operate.

2.7 REMOTE CONTROL OPERATION – Proportional Control and Tether Cord

The crane comes standard with a Kar-Tec remote system. This system is both wireless or can be tethered. The trigger at the upper portion of the pistol grip controls the speed of the crane functions. The wireless functions allow the operator to control the crane operation at a range of 0-200 ft, allowing for obstruction within the line of the remote to the receiver mounted on the truck body.

As stated before, the trigger is proportional and allows the operator to control the speeds of the selected operation by pulling back on the trigger, allowing for a gentle touch or a faster pace depending on the needs of the operator. For best performance choose the function desired and pull down on the toggle switch under that function. Then pull back on the trigger to allow for a smooth operation of the function desired. If you do the process in reverse, the crane will not operate, as this is a safety feature built into the remote.

CRANE WIRELESS REMOTE CONTROL INSTRUCTIONS

The truck must be in a neutral gear with the emergency brake engaged before any of the functions will work. There is a power box located in the P-4 or P-5 compartment of your truck. The crane remote and receiver are located there as well. To operate your truck equipment, follow the processes listed below.

Put the truck into neutral or park, set the emergency brake and engage the PTO.

To set up the remote power:

A. Open the Door on the crane compartment and press the toggle switch up to the crane position; this is the red switch on the electrical panel.
B. Hold the remote in your hand and make sure the Emergency switch on the remote is up.
C. Activate any toggle switch; active LED will flash.
D. The green “RADIO ON” button on the indicator bank should illuminate and the LED light on the receiver, indicating that communication between the transmitter and the receiver is occurring normally.
E. The transmitter is ready to use.
To shut down the remote:

Emergency/Manual Shutoff:

A. Pressing the power button will immediately break all communications between the transmitter and receiver and will stop electrical functions on the crane.
B. The power button will not disable the vehicle power to the crane.

Automatic Shutoff:

The transmitter will automatically power down after a programmable time of non-use.

A tether cord is supplied with the crane that can directly tie the transmitter to the receiver. The cord attaches to the handle end of the hand held transmitter, and the other end attaches to the receiver. There is a small black hook-up point for the cord in the crane compartment.

You may want to use the tether cord on job sites that do not allow radio signals, or when your remote battery signal is low and requires a recharge. The battery can be recharged in approximately 15 minutes, and this allows for approximately four hours of remote use without the cord. A full charge takes approximately 1.5 hours and will give your remote a life of 40 continuous man hours of operation.

**NOTE:** In order for the tether cord to work properly, the remote must be powered down and re-powered up following tether installation. If tether is installed properly, the red battery light on the remote will illuminate. This is located on the bottom left side of the remote.
Study your remote and know your control panel and what functions each corresponds within the operation of the crane.

If your remote panel decal becomes damaged, send for a replacement.

Keeping the remote decal clean will ensure a safe operation of the remote.

Practice using the remote before lifting a load; know what you are doing before attempting a lift.

Plan your lift, ensure the outriggers are down, and the crane is clear of outside obstructions.

Keep your fire extinguisher and first aid kit within reach before lifting the load.

Follow a regular preventive maintenance schedule with your crane and truck to ensure maximum performance of your equipment.

Prior to lift, give the crane one last visual inspection for leaks and clearance of outside obstructions, and ensure that you have engaged the outriggers and that they are down. Do not skip this step, as it could save you serious injury.
2.8 INDICATOR BANK

This crane is equipped with an indicator bank that provides direct feedback on the status of crane operation to the operator. The bank consists of 2 indicator lights, indicator light test button, and the receiver to transmitter connection plug. From left to right the lights are as follows:

- Green – This light will illuminate any time the transmitter and receiver are properly linked up and communicating.
- Red & Green – The lights will blink when an overload condition is sensed. In an overload condition, the crane will only operate in directions to eliminate the overload condition: winch down, boom retract, boom lift and both directions of rotation.

NOTICE: The overload sensor on this crane cannot be disabled. If the sensor on the crane is disabled the entire crane will not function.

2.9 MANUAL OPERATION

To override the remote, go to a manual operation of your crane. To do so, follow the guideline below:

- To activate the flow control using a small screw driver, insert tip into the hole of the manual override on the end of the solenoid matching the direction you want to go and press in.
- Take the truck in for service as soon as possible to prevent future damage to equipment or yourself.

2.10 TASK PERFORMANCE

Before using the crane it must be tested for the operational requirements of this crane.

1. Testing of all functions of the crane.
2. All safety devices must be operational.
3. All functional labels of the crane must match the operations of the crane.
4. When testing the load capacity, the load shall not exceed 110% of the recommended load ratings for the manufacturer.
5. Written reports for maintenance and repairs must be kept for future reference.

Think about the lift prior to making the actual lift with the crane:

Get your truck and crane into a position as near to the job site as possible. Choose a solid level surface, and set your outriggers. In a more sandy soil you may want to use additional support under the outrigger legs, such as wooden cribbing. Know your surroundings; look for overhead power lines, tree limbs and/or any solid surface with which you may come into contact in the performance of the lift. To keep you and your equipment out of danger, give yourself a minimum clearance of the crane fully extended and a clearance of the obstructions at the job site.

Note: Power lines with the capacity of 50,000 volts or more require ten additional feet of clearance for any part of the crane body. With each additional 30,000 volts or less, an additional one foot of clearance is required. When working near power lines, give them wide berth and make use of a secondary signal man at the job site if you do not have a clear field of vision.

You are now ready to put your truck/crane into action:

A. Engage the PTO.
B. Extend and lower the outriggers until firm ground contact is made. On soft ground, use bearing pads to prevent sinking. Use extreme caution when setting up near overhanging banks or excavations. The outriggers must be extended to stabilize the truck before beginning operation.
C. Before extending the boom, always pay out the winch cable. Failure to do so may result in damaging the cable and cable failure. Summit Truck Bodies cranes are equipped with counter balance valves located in the manifold block welded on the lift cylinder. This valve functions as a deceleration control and serves as a safety device locking the load in case of a hydraulic line breakage or in the event of accidental or unauthorized operation of the directional valve when the pump is not operating. The valve is equipped with a manual load release, which is to be used only in case of an emergency.

2.11 SHUTDOWN

A. Retract the boom and cable, making sure cable is properly wrapped on winch spool.
B. Secure the Snatch Block and Hook to the hook attachment loop on the boom.
C. Stow the boom into the boom cradle.
D. Retract the outriggers.
E. Disengage the PTO.
2.12 OPERATOR REQUIREMENTS

The crane should not be operated by just anyone on the job site. For your safety and liability prevention, you should limit the operation to people meeting the following scope of operation:

- The person operating the crane must be trained and certified as an operator.
- If the person is a trainee, he or she must be accompanied by a certified trained operator.
- A crane inspector on the job site may have a need to inspect and operate your crane; he or she should have credentials establishing that he or she is qualified to do the inspection.
- To perform the preventative maintenance on your equipment, your maintenance crew will have to be certified and trained on the proper operations of the crane.
- The operator must be competent and have a working knowledge of the crane, the safe operation of the crane and the owner’s manual.
- The operator should know your safety policy as well as the policies dictated by state or federal regulations, (ANSI B30.5), as well as job site guidelines for safety.
- The operator must be able to perform all controls of the crane in a safe manner, realizing how to implement an emergency procedure if needed.
- A good PM starts with the use of the crane and the competency of the operator in the use and maintenance of his or her equipment.
- The operator must read and understand all guidelines.

2.13 OPERATOR CONDUCT

As outlined above, the operator is responsible for the safety and welfare of themselves and others at the job site. They should follow the rules of conduct listed below:

- A suspended load must never be left unattended.
- When lifting a load the operator must give his or her full attention to the lifting of the load.
- All operations of the crane are directly in the control of the operator at the time of the lift.
- A good PM policy must be followed by the operator for the safety and maintenance of the crane.

2.14 HANDLING THE LOAD

- Know your crane and the lifting capacity of the equipment you are using.
- Measure the load you are going to lift and ensure the load weight and the crane capacity match so that you can perform the lift without damaging the equipment or injuring personnel.
- When lifting the load use only approved lifting straps or lifting devices, secured to the crane hook.
- The crane is equipped with wire rope intended to do a lift and rotate on the sheave of the
travel block; never use this device to wrap around the load.

- Before lifting the load, set the outriggers of the truck and stabilize the truck base.
- Balance the load evenly with the hoist rope directed to the center of the load.
- Lift slightly insuring the load is both stable and centered.
- Do not attempt to drag the load sideways; this is side loading and will result in damage to the rotation gear of the crane.
- Keep the load stable and avoid swinging the load, as this produces an unsafe lift that could result in injury.
- A suspended load must be clear; never pass a suspended load over a person or persons.
- Smooth, gentle operation of the controls allows for a safe lift and movement; do not use sharp, jerking motions with a load.

### 2.15 CRANE PRECAUTIONS

To avoid an accident or injury, avoid the following situations:

- Be sure your equipment is neat, clean and clearly marked; if any thing is damaged, have it replaced.
- Look at your capacity and stability charts before making a lift of the load, use a minimum lifting height and understand the load is moving, which can alter your stability and capacity.
- Know your load and the crane tip locations at all times during the lift.
- Center the load directly under the crane tip to give you a safe, smooth lift.
- Do not allow the lift to swing from side to side, which causes an unsafe and uncontrolled load to shift.
- As with any piece of equipment, your crane has limits; do not attempt to over lift the capacity, and never try to lift a stationary or fixed object.
- Side loading of the crane will result in damage and/or failure of your crane rotation system.
- Keep the lifted load away from people; never suspend the load over a person.
- Make use of your PPE.

### 2.16 HOOK PRECAUTIONS

Each crane hook is rated with a specific load rating. Do not exceed the rated capacity of the hook with any lift and/or load attempted lift.

Avoid side loading of the crane or lifting with only the crane tip, as this will result in damage to the equipment. The tip is designed to do a straight direct upward lift only.

Look at your equipment and know the rating of the hook with which you are lifting. Ensure that it matches your load weight. If it does not, do not attempt to perform the lift.

Part of your PM for the hook should include visual inspection of the hook for stress wear, a worn safety latch. Do not attempt to repair a hook by welding; the heat from the weld will compromise the integrity of the hook material, causing it to fail and resulting in an injury or accident.

**SECTION 3 – MAINTENANCE**
**WARNING:** Read the Following before maintaining any part of the crane. Only authorized and trained service personnel are to perform maintenance on the crane.

### 3.1 GENERAL

To prevent damage to the equipment, a daily, weekly, monthly, and quarterly PM should be established within your company to keep the equipment operating at maximum levels. Follow all safety practices before undergoing maintenance on your equipment.

- Set the emergency brake, and lower the crane to a resting position, keeping it supported by the crane cradle on the truck or a stationary support on the ground level. Remember your crane goes to -5 degrees.
- Disable the PTO by shutting it off or pulling the handle out of gear to disengage.
- Manually attempt to override the remote, allowing for all reserve hydraulic pressure to be released.
- Perform your company’s designated PM on the equipment.
- Replacement parts are available through Summit Truck Bodies.
- Any worn or broken parts should be replaced at this time.

**Service**

To better service your crane, you may find it helpful to follow these guidelines:

- Identify (knowing what the problem is generally helps you find the solution).
- Troubleshoot (identify multiple causes and use Form 1-10 to determine the cause of the problem).
- Repair or replace the worn items depending on which solution is the most cost effective for your repair.
- Do (make the necessary repairs and or adjustments).
- Check (function all operations of the equipment to ensure that all components are working properly).
- Put the crane back into service.
3.2 LUBRICATION

Follow the guidelines established in the manual for all lubrication requirements. Extreme heat or cold can adversely affect the life of the lubricant. Pay special attention to periods of heavy use of the equipment, as this will also shorten lubricant life.

3.3 HYDRAULIC FLUID SPECIFICATION

Minimum viscosity specifications for hydraulic oil to be used in the crane should be Conoco Super Hydraulic Oil 46 or equivalent to eliminate the necessity of seasonal oil changes under normal temperature conditions. For operations in extremely cold temperature, use a hydraulic fluid having a viscosity of 3000 SSU’s at the lowest temperature encountered. Operating temperature of the hydraulic fluid should be within the range of 120° to 160° F(49° to 82° C).

In addition to conforming to the viscosity requirements, hydraulic fluid used in the system should contain the following additives: Anti-foam, Anti-oxidant inhibitors Rust resistant, Anti-wear additives.

Summit Truck Bodies recommends the first filter change to occur after the first 25 hours of service.* The second, and every subsequent change, should occur after every 500 hours of service. By following these guidelines, the hydraulic oil should last up to 3,000 hours.

*NOTE: These recommendations are based on normal working parameters. If operating in less than favorable conditions (excessive dust, moisture, etc.), be sure to check the filter gauge often for filter change notice.

3.4 HYDRAULIC OIL DETERIORATION

Hydraulic oil can and will break down over time and/or excessive use. To avoid contamination of the oil and possible damage to your hydraulic components, take a sample of the suspected oil and check for the following:

- Using a clean glass jar, put in a sample of the suspected oil.
- The oil may smell burnt or have a foul odor.
- If the oil is not clear and clean, it may be contaminated; contaminated oil generally has a cloudy appearance or is very dark.
- If after a few minutes you find water at the bottom of the glass jar, it is time to change the oil.

Any of the above-listed issues will be cause for oil replacement.
3.5 HYDRAULIC SYSTEM PURGING

The oil should be changed after 3,000 hours of operation or every year, whichever occurs first. Follow these guidelines to purge the hydraulic system:

1. Put the truck into an area that allows for the full rotation of the crane.
2. The PTO should be disengaged, and the reservoir should then be drained.
3. The bottom of the tank contains two wire mesh strainers; remove both and clean them.
4. After cleaning the filters and reassembling them to the reservoir, reinstall the hoses.
5. Reinstall the drain plug and fill with new fluid.
6. Engage the PTO after starting the truck engine.
7. Top off the reservoir after the system has cycled for 5 to 10 minutes. Fill to the full mark.

3.6 PURGING AIR FROM THE SYSTEM

If you have air in your system, you will detect a choppy, erratic condition within the system. If the condition is only prevalent on one system, then hold the operation of that system open until the cycle is complete. Move the operation in the opposite direction, holding the control in the open position. This should eliminate the air. Operate the crane to check the performance. If the system operates smoothly, then it is purged. If the system does not operate smoothly, follow the process again.

If air is trapped in the cylinder, it will cause an erratic “bumpy” condition. To remove the air, hold the affected control open after the function has “bottomed out”. Move the function in the opposite direction and again hold the control open. Operate the crane in a normal manner to determine if the air has been purged. If not, repeat procedure.

3.7 SYSTEM RELIEF PRESSURE

If you want to ensure that the relief pressure setting is correct, there is a pressure gauge in the -4 O-ring near the front bottom side of valve manifold. The test can be performed by utilizing the extend cylinder. Fully retract either cylinder and hold in while observing pressure reading on gauge.

A. Start the truck engine, engage the PTO and allow the system to idle until it reaches operating temperature.
B. Extend the boom until the cylinder is fully extended. Continue to hold the valve open and read the pressure on a pressure gauge. A reading of less than normal should be corrected by increasing the pressure. If the pressure reading is too high or too low, it will be necessary to adjust the relief valve set screw.
C. Adjustments are made by unlocking the jam nut and turning set screw clockwise to increase pressure and counterclockwise to decrease pressure. Recommended pressure is 2800 PSI.
3.8 COUNTER BALANCE VALVE

Your crane is equipped with hydraulic cylinders that have counter balance valves. These prevent the failure of the cylinder rods in a downward motion in the event there is a component failure within the hydraulic system.

Find the cylinder you suspect to be the problem. Now define the two valves; one is for retraction and one is for extension. Test the cylinder with the crane intact. Safely lift a lighter load than the crane has capacity for, and then disengage the hydraulic system. If the cylinder fails and allows the load to lower, it is time to replace the counter balance valve. If the cylinder does not lower, then the counter balance valve is operational and you have another issue that must be identified.

3.9 ROTATION GEAR

All Summit Cranes are equipped with a gear products rotation gear. Gear products have a very good reputation in the industry, and it is recommend that no adjustments be made to the rotation system without prior approval. The suggested gear lube of choice is Castrol Molub-Alloy, 936 SF Heavy Lubricant or equivalent to grease the worm and/or ring gear.

3.10 PLANETARY WINCH

No adjustments are to be made to the planetary winch without prior consultation with the factory. The planetary winch is only to be serviced by a trained technician, through the service department.

3.11 WIRE ROPE

The entire safety of the crane and the lifting of loads will be determined by one item on your crane, namely, the condition of the wire rope. To do a thorough visual inspection goes without saying. This should be completed daily, as it requires very little time and could prevent injury.

Look at the entire rope as it is unwound from the winch, looking for worn or frayed cables within the rope. Check each end of the rope at the attachment points. Pay close attention to the ends for breakage and/or rust.

While the rope is unwound, check the winch drum for wear, as well as the sheaves for any unusual wear that may result in wire damage.

Good PM is required with the wire, as it is all important to the safety of the operator and the equipment.

A daily inspection of the wire rope should include a visual inspection for rust, frayed wire strands, a twist in the wire rope, and form of weakness that may have been the result of the wire rubbing on a porous surface.
Quarterly inspections are suggested for the safety of the personnel working on the job site. This inspection involves more than the suggested visual inspection done daily. The quarterly inspector can be the operator if you deem him to be a competent person with knowledge of the equipment and its features and functions.

- The wire rope should be inspected for defects from start to finish of the rope. The wire rope should be replaced if there is evidence of wear, rust, and/or defects of any nature, such as twisted rope, frayed cables or broken wires. Making use of a micrometer is necessary when judging the diameter of the wire rope to determine the life expectancy of the rope.

- The rope has weight associated with it so be cautious when near the ends of the rope.

When you have any, or a combination of, the following defects, the wire rope should be replaced:

- Broken or frayed wires within the rope or at the ends of the rope
- If upon micrometer inspection you determine the wear pattern of the wire diameters to be more than 1/32 inches
- If the wire has been exposed to an extreme heat, it needs replacement
- A distorted twist in the rope
- If you detect any stretching of the wire rope compromising the diameter of the original wire diameter

In order to properly maintain your wire rope, always keep it stored in the winch off the crane body, and a monthly lubrication with WD-40 will extend the rope life. Avoid using the rope over sharp objects that may cause it to be scraped, or situations where the rope can become caught crushed.
3.12 **GEAR-BEARING BOLTS**

Do not reuse any of the gear bearing bolts. These must be replaced using a bolt of identical specifications for size and grade. Reuse of the old bolt will result in a compromise of bolt integrity and could lead to a severe accident, causing loss of life and/or limb.

<table>
<thead>
<tr>
<th>Torque in pounds-foot</th>
<th>Socket head cap screw</th>
<th>Socket head cap screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolt Dia.</td>
<td>Thread per inch</td>
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</tr>
<tr>
<td>1/4</td>
<td>20</td>
<td>8</td>
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<td>1470</td>
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<tr>
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<td>1950</td>
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**BOLT TORQUE FACTORS**

<table>
<thead>
<tr>
<th>LUBRICANT OR PLATING</th>
<th>TORQUE CHANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>Reduce torque 15% to 25%</td>
</tr>
<tr>
<td>Dry Film (Teflon or moly based)</td>
<td>Reduce torque 50%</td>
</tr>
<tr>
<td>Chrome plating</td>
<td>No change</td>
</tr>
<tr>
<td>Cadmium plating</td>
<td>Reduce torque 25%</td>
</tr>
<tr>
<td>Zinc plating</td>
<td>Reduce torque 15%</td>
</tr>
</tbody>
</table>

The use of Loctite does not affect the torque values listed above.
3.13 INSPECTIONS

Daily Inspection

Before going to the job site each day, a visual inspection of the following will help prevent unnecessary maintenance:

- All fluid levels are within the tolerances set by the manufacturers, such as air compressor, crane and engine
- Evidence of broken structural components such as welds and loose fasteners
- Leaking cylinder seals
- Oil leaks at the engine, transmission, PTO and pump, power steering and hydraulic reservoir
- Wire rope inspection for excessive wear patterns
- Excessive wear to the counter balance valves to ensure the crane load will not be compromised
- Outriggers operate as specified
- All safety devices are in place, in good working order and legible

Weekly Inspection

This inspection should be a routine and often easy inspection if daily inspections are being completed by competent personnel.

- General inspection of lubrication capacities and levels
- General inspection of all crane components for wear and tear

Monthly Inspection

Establish a set time every month within which the monthly inspections will occur. The inspection should occur at the same time every month.

- Check the entire truck for leaks, engine, transmission, crane, outriggers, hydraulic reservoir and all cylinders on the truck components
- Lubrication levels are within specifications set by the manufacturer
- Inspection of the crane hook and safety latch for wear and tear
- Check entire structure of the truck and components for broken welds, worn fasteners and missing fasteners
- All safety devices are in good working condition and legible
- Inspect all wiring and lights on the truck for correct operations and functions
- Replacement of any non-conforming issues
Quarterly Inspection

This inspection should include, but not be limited to, the following:

- Any loose bolts on the crane body
- Any bolts mounting the crane to the main body of the truck pedestal
- The hydraulic system pressures to the cylinders, main block assembly, and cartridges
- Lubrication of the pivot points of the crane such as the bearings, cylinders, and shafts
- Wear and tear of the hydraulic hoses such as fraying, crushing and leaks
- Undue wear of the PTO; follow the manufacturer’s maintenance manual
- Both the lift cylinder and the extend cylinder for leaks, drifting of the cylinders, and any damage external of the cylinders

<table>
<thead>
<tr>
<th>SERVICE PERFORMED</th>
<th>DAY</th>
<th>WEEKLY</th>
<th>3 MONTH</th>
<th>6 MONTH</th>
<th>YEAR</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Fluid</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Check Fluid Level</td>
</tr>
<tr>
<td>Hydraulic Hoses</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Visual inspection for leaks, cracks, wear</td>
</tr>
<tr>
<td>Load Hook</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inspect Hook &amp; Latch for Deformation</td>
</tr>
<tr>
<td>Winch Cable</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Check for Broken Strands, Flattening, Deformation</td>
</tr>
<tr>
<td>Cable Drum</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Make sure cable is wound evenly on drum</td>
</tr>
<tr>
<td>Pin Retaining Bolts</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Check bolts for Proper Torque</td>
</tr>
<tr>
<td>Rotation Ring Gear</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Lube with Castrol Molub – Alloy, 936 SF Heavy Lubricant or Equivalent</td>
</tr>
<tr>
<td>Sheaves</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inspect for wear and bearing fatigue</td>
</tr>
<tr>
<td>Mounting Bolts</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Check torque to 680 ft lbs</td>
</tr>
<tr>
<td>All other Bolts</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Check and Tighten as required</td>
</tr>
<tr>
<td>Rotation Gear Box</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Grease zerks with multipurpose grease</td>
</tr>
<tr>
<td>Hydraulic Fluid</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Drain, Flush and Refill with ISO 46 Hydraulic Oil</td>
</tr>
</tbody>
</table>

**Caution:** Routine maintenance insures trouble-free operation and protects your investment. All warranties are void if maintenance is neglected.

Notes:

1. Use only authorized parts. Any damage or malfunction caused by the use of unauthorized parts is not covered under Warranty or Product Liability.
2. Once a bolt has been torqued to its rated capacity and then removed, the bolt should be replaced with a new one.
SECTION 4 - TROUBLE-SHOOTING

The following is meant as a reference in diagnosing on-the-job-malfunctions.

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>PROBABLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crane will not operate</td>
<td>• Parking brake is not engaged</td>
</tr>
<tr>
<td></td>
<td>• PTO is not engaged</td>
</tr>
<tr>
<td></td>
<td>• Radio receiver does not have 12V power</td>
</tr>
<tr>
<td></td>
<td>• Transmitter not on</td>
</tr>
<tr>
<td></td>
<td>• Transmitter batteries have low voltage</td>
</tr>
<tr>
<td></td>
<td>• Hydraulic pump not operating at rated pressure</td>
</tr>
<tr>
<td>Crane will not rotate</td>
<td>• Hydraulic fluid level low</td>
</tr>
<tr>
<td></td>
<td>• Obstruction in control valve solenoid</td>
</tr>
<tr>
<td></td>
<td>• Adjustable speed set improperly</td>
</tr>
<tr>
<td></td>
<td>• Bad ground on the control valves</td>
</tr>
<tr>
<td></td>
<td>• Rotation direction slope is too extreme (not on level ground)</td>
</tr>
<tr>
<td>Crane will operate manually but will not operate electrically.</td>
<td>• Radio receiver does not have 12V power</td>
</tr>
<tr>
<td></td>
<td>• Transmitter not on</td>
</tr>
<tr>
<td></td>
<td>• Radio/Receiver not functioning properly</td>
</tr>
<tr>
<td></td>
<td>• Parking brake is not engaged</td>
</tr>
<tr>
<td></td>
<td>• Parking brake switch is not working properly</td>
</tr>
<tr>
<td>Function does not respond to controls</td>
<td>• The toggle switch is not working properly</td>
</tr>
<tr>
<td></td>
<td>• Hydraulic fluid low</td>
</tr>
<tr>
<td></td>
<td>• PTO not engaged</td>
</tr>
<tr>
<td></td>
<td>• Ruptured/obstructed pressure line</td>
</tr>
<tr>
<td></td>
<td>• Faulty hydraulic pump</td>
</tr>
<tr>
<td></td>
<td>• Short circuit in remote control</td>
</tr>
<tr>
<td></td>
<td>• Broken wire in remote control</td>
</tr>
<tr>
<td></td>
<td>• Crane is not grounded to truck</td>
</tr>
<tr>
<td></td>
<td>• Solenoid in control valve malfunctioning</td>
</tr>
<tr>
<td></td>
<td>• Bad ground on the control valve</td>
</tr>
<tr>
<td>Two functions operate at the same time while only toggling one function.</td>
<td>• An obstruction in the solenoid control valve</td>
</tr>
<tr>
<td></td>
<td>• The toggle switch has failed and is stuck in the “on” function</td>
</tr>
<tr>
<td>Slowdown of functions</td>
<td>• Hydraulic pump operating at reduced speed</td>
</tr>
<tr>
<td></td>
<td>• Relief valve set too low</td>
</tr>
<tr>
<td></td>
<td>• Flow control valve not functioning properly</td>
</tr>
<tr>
<td></td>
<td>• Proportional trigger on remote not functioning properly</td>
</tr>
<tr>
<td></td>
<td>• Low hydraulic fluid</td>
</tr>
<tr>
<td></td>
<td>• Dirty filter/strainer</td>
</tr>
<tr>
<td></td>
<td>• Obstruction in solenoid control valve</td>
</tr>
<tr>
<td>Unusual noise in operation</td>
<td>• Cavitation due to low hydraulic oil supply</td>
</tr>
<tr>
<td></td>
<td>• Excessive loading</td>
</tr>
<tr>
<td></td>
<td>• Restriction/collapse of suction line</td>
</tr>
<tr>
<td></td>
<td>• Flow control valve not functioning properly</td>
</tr>
<tr>
<td></td>
<td>• Suction line filter dirty</td>
</tr>
<tr>
<td></td>
<td>• Relief valve set too low</td>
</tr>
<tr>
<td></td>
<td>• Relief valve defective</td>
</tr>
<tr>
<td></td>
<td>• Air in the lines</td>
</tr>
<tr>
<td>Outriggers won’t react</td>
<td>• Adjustment speed set improperly</td>
</tr>
<tr>
<td></td>
<td>• Control valve defective</td>
</tr>
<tr>
<td></td>
<td>• Loss of power and/or ground to coils</td>
</tr>
</tbody>
</table>

42
<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>PROBABLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boom drifts under load</td>
<td>• Cylinder piston seals leaking</td>
</tr>
<tr>
<td></td>
<td>• Counterbalance valve defective</td>
</tr>
<tr>
<td>Boom or winch won’t lift</td>
<td>• Restriction in the line</td>
</tr>
<tr>
<td></td>
<td>• Relief valve is not set properly</td>
</tr>
<tr>
<td></td>
<td>• Overload condition</td>
</tr>
<tr>
<td></td>
<td>• Counterbalance valve is malfunctioning or defective</td>
</tr>
<tr>
<td>Rotation speed too fast or too slow</td>
<td>• Hydraulic lines restricted or ruptured</td>
</tr>
<tr>
<td></td>
<td>• Hydraulic motor defective</td>
</tr>
<tr>
<td>Winch brake will not hold</td>
<td>• The back pressure on the return line of the winch is greater than 50 psi</td>
</tr>
<tr>
<td></td>
<td>• Excessive loading</td>
</tr>
<tr>
<td></td>
<td>• The winch relief valve not set properly</td>
</tr>
<tr>
<td></td>
<td>• Counter balance valve not set properly</td>
</tr>
<tr>
<td>Crane operates slowly</td>
<td>• Air in the system</td>
</tr>
<tr>
<td></td>
<td>• Pump not delivering rated oil volume</td>
</tr>
<tr>
<td></td>
<td>• The holding valves are not operating</td>
</tr>
<tr>
<td></td>
<td>• Hydraulic fluid low</td>
</tr>
<tr>
<td></td>
<td>• Flow control valve restricted</td>
</tr>
<tr>
<td></td>
<td>• Pressure relieve valve sticking open</td>
</tr>
<tr>
<td></td>
<td>• Speed control option not engaged</td>
</tr>
</tbody>
</table>
### SECTION 5 – PARTS

**ACIÓN DE LA BOLA, SUMMIT, 10620 HYDRAULIC**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>1</td>
<td>700-10315</td>
<td>38-16X1.25 NC GRADE BOLT</td>
</tr>
<tr>
<td>33</td>
<td>2</td>
<td>700-10287</td>
<td>38-16X.75 NC GRADE BOLT</td>
</tr>
<tr>
<td>32</td>
<td>1</td>
<td>700-10285</td>
<td>BOLT, FINE THREAD, 75-16 X 1.5 IN L.0. HCS,Y28</td>
</tr>
<tr>
<td>31</td>
<td>2</td>
<td>700-10169</td>
<td>25 LOCK WASHER</td>
</tr>
<tr>
<td>30</td>
<td>1</td>
<td>700-10164</td>
<td>3/8 SA FLAT WASHER</td>
</tr>
<tr>
<td>29</td>
<td>9</td>
<td>700-10162</td>
<td>5/8 HR FLAT WASHER</td>
</tr>
<tr>
<td>28</td>
<td>3</td>
<td>700-10160</td>
<td>3/8 HR SA FLAT WASHER</td>
</tr>
<tr>
<td>27</td>
<td>6</td>
<td>700-10158</td>
<td>25 HR SA FLAT WASHER</td>
</tr>
<tr>
<td>26</td>
<td>4</td>
<td>700-10156</td>
<td>#8 WASHER GR2</td>
</tr>
<tr>
<td>25</td>
<td>2</td>
<td>700-10126</td>
<td>8-32X.75 MAC SCREW HEX SLOTTED</td>
</tr>
<tr>
<td>24</td>
<td>4</td>
<td>700-10108</td>
<td>25 NYLON LOCK NUT</td>
</tr>
<tr>
<td>23</td>
<td>2</td>
<td>700-10109</td>
<td>8-32 KEP NUT</td>
</tr>
<tr>
<td>22</td>
<td>9</td>
<td>700-10046</td>
<td>5/16X1 NC GRADE BOLT</td>
</tr>
<tr>
<td>21</td>
<td>6</td>
<td>700-10019</td>
<td>25-20 XI NC GRADE BOLT</td>
</tr>
<tr>
<td>20</td>
<td>4</td>
<td>700-10016</td>
<td>18-8X8X8, 25-20X7, 75 SOCKFLY CAP</td>
</tr>
<tr>
<td>19</td>
<td>1</td>
<td>600-80103</td>
<td>CRANE INCLINATION SENSOR HARNESS</td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td>600-80102</td>
<td>HARTFEL CRANE INCLINATION SENSOR</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>400-61204</td>
<td>BRACKET, HARTFEL CRANE INCLINATION SENSOR</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>400-61175</td>
<td>CRANE, SUMMIT, STINGER BoOM ASSEMBLY 10620</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>400-61173</td>
<td>CRANE, SUMMIT, INTERMEDIATE BOOM ASSEMBLY 10620</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>400-61171</td>
<td>BOOM ASSY, BASE, 10620</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>400-61147</td>
<td>WASHER, SS RETAINER 1 1/4&quot;</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>400-61126</td>
<td>CRANE, SUMMIT, PEDESTAL ASSEMBLY 10K - 12K</td>
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<tr>
<td>11</td>
<td>1</td>
<td>400-60429</td>
<td>EXTENSION CYLINDER PIN</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>400-60418</td>
<td>PEDESTAL TO CYLINDER PIN 10/12K</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>400-60417</td>
<td>PEDESTAL TO BOOM PIN 10/12K</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>400-60416</td>
<td>BOOM TO CYLINDER PIN WELDMENT</td>
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<tr>
<td>7</td>
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<td>400-60414</td>
<td>EXTENSION CYLINDER SKID PADS 10K 90</td>
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<tr>
<td>6</td>
<td>1</td>
<td>400-60394</td>
<td>REEL CORD CONSTANT TENSION 150 1/2 1/2 WIRE</td>
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<tr>
<td>5</td>
<td>1</td>
<td>400-60346</td>
<td>CYLINDER, LIFT, 5.0 BORE, 22.5 STROKE - PURCHASED</td>
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<tr>
<td>4</td>
<td>1</td>
<td>400-60344</td>
<td>CYLINDER, EXTEND, 2.5 BORE 119.13 STROKE</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>400-60228</td>
<td>WINCH, CRANE, 10 AND 12K</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>400-60201</td>
<td>WASHER, RETAINER</td>
</tr>
</tbody>
</table>

**SUMMIT TRUCK BODIES**

WATERFORD, MO 64161
PHONE: (877) 555-1234
FAX: (800) 555-1234

PART NUMBER

400-61169
CRANE, SUMMIT, 10620 INTERMEDIATE BOOM ASSY

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>2</td>
<td>760-10291</td>
<td>SHCS 1/2-13 x 3/4&quot;</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>760-10288</td>
<td>COTTER PIN, 125 X .75, SS</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>760-10162</td>
<td>.50 HR FLAT WASHER</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>760-10046</td>
<td>50-13X NC GR8 BOLT</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>400-61172</td>
<td>BOOM WELDMENT, INTERMEDIATE</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>400-60413</td>
<td>THRUST BUSHING</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>400-60226</td>
<td>CABLE GUIDE</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>400-60199</td>
<td>PAD, WEAR</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>400-60198</td>
<td>BLOCK, INTERMEDIATE WEAR</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>400-60195</td>
<td>BLOCK, INTERMEDIATE RETAINER</td>
</tr>
</tbody>
</table>

PART NUMBER 400-61173
SECTION 6 – HYDRAULICS / CONTROLS

EXTERNAL SCHEMATIC SHOWN FOR REFERENCE ONLY!
SECTION 7 - WIRING HARNESS

Crane Wiring Harness
Summit Truck Bodies, LLC

Limited Warranty
Warranty Period: 60 Months

Summit Truck Bodies, LLC (hereinafter “Summit”) warrants each new crane of Summit’s manufacture to be free from defects in material and workmanship, under normal use and service for a period of five (5) years after initial purchase as derived from a completed warranty registration card. This Limited Warranty shall apply only to cranes of Summit’s manufacture. Parts are covered by a separate limited warranty. EQUIPMENT AND ACCESSORIES NOT OF SUMMIT’S MANUFACTURE ARE WARRANTED ONLY TO THE EXTENT OF THE ORIGINAL MANUFACTURER’S WARRANTY AND ARE SUBJECT TO THEIR ALLOWANCE TO SUMMIT ONLY IF FOUND TO BE DEFECTIVE BY SUCH MANUFACTURER.

Warranty Terms

During the Limited Warranty period specified above, any defect in material and workmanship in any warranted item of Summit bodies not excluded below shall be repaired or replaced at Summit’s option by a Summit representative or approved repair facility. Summit will pay for replacement parts and such approved repair shop’s labor in accordance with Summit’s labor reimbursement policy. Summit reserves the right to supply remanufactured replacement parts as it deems appropriate.

Retail Purchaser Responsibility

This Limited Warranty requires proper maintenance and periodic inspections of the crane as indicated in the Operator’s Manual furnished with each new Summit crane. The cost of routine maintenance and services is the responsibility of the retail purchaser. The retail purchaser is required to keep documented evidence that these services were performed.

The Summit Truck Bodies, LLC Limited Warranty may be subject to cancellation if the above requirements are not performed.

Summit cranes with known failed or defective parts must be immediately removed from service.
Exclusions and Limitations

The warranties contained herein shall **NOT APPLY TO:**

1. Any defect which was caused (in Summit’s sole judgment) by other than normal use and service of the crane or by any of the following: (i) accidents including but not limited to collision (ii) misuse or negligence (iii) overloading (iv) lack of reasonable and proper maintenance (v) improper repair or installation (vi) unsuitable storage (vii) non-Summit alteration or modification (viii) natural calamities (ix) vandalism

2. Any crane whose identification numbers or marks have been altered or removed.

3. Any crane which any of the required or recommended periodic inspection or services have been performed using parts not manufactured or supplied by Summit or meeting Summit specification.

4. New cranes delivered to the retail purchaser in which the warranty registration is not returned within fourteen (14) days from the date of delivery.

5. Any defect which was caused (in Summit’s sole judgment) by operation of the crane not abiding by standard operating procedures outlined in the Operator’s Manual.

6. Costs incurred by Summit for replacement parts for items not of Summit manufacture will be invoiced to the customer. To be considered for warranty, the failed part must be returned, at the discretion of Summit, to Summit or the manufacturer of the part within thirty (30) calendar days. The part will be evaluated and if warranty is approved by the manufacturer credit will be issued to the customer in the form of
   a. Credit to a Summit account if one exists or
   b. Credit back to a charge card or
   c. Check to the customer.

7. Transportation costs, if any, of transporting unit to an approved repair facility.

8. In no event shall Summit’s liability exceed the original purchase price of the product.

9. Summit shall not be liable to any person under any circumstances for any incidental or consequential damages (including but not limited to loss of profits and out of service time) occurring for any reason at any time.

10. Diagnostic and overtime premiums are not covered under this Limited Warranty Policy.

11. Depreciation caused by normal wear, lack of reasonable maintenance, failure to follow operating instructions, misuse, or lack of proper protection during storage.

12. Accessory systems and electronics not of Summit’s manufacture are warranted only to the extent of such manufacturer’s respective Limited Warranty, if any.

13. Any installation of a crane on chassis other than original factory installation.
Parts Warranty

Replacement parts after the original warranty period are warranted to be free from defects in material for ninety (90) days or the part will be repaired or replaced without labor coverage for removal or installation.

Summit Labor Reimbursement Policy

Summit will consider labor reimbursement during the defined warranty period provided that the repair is pre-approved. Contact the Service Department at Summit for details.

Shipping Costs

Summit will pay for shipping of warranty parts by ground carrier. Expedited freight delivery is available at the expense of the owner. Shipping for the return of parts for warranty consideration will be at the owners’ expense but will be reimbursed if the parts in question are deemed defective by Summit or by the manufacturer of the part and a legible copy of the invoice is provided.

Exclusion of Warranties

Except for the warranties expressly and specifically made herein, Summit makes no other warranties, and any possible liability of Summit hereunder is in lieu of all other warranties, expressed, implied, or statutory including but not limited to any warranties of merchantability or fitness for particular purpose. Summit reserves the right to modify, alter, and improve any product previously sold without incurring any obligation to replace any product previously sold without such modification. No person is authorized to give any other warranty or assume any additional obligation on Summit’s behalf.

SUMMIT TRUCK BODIES IS UNDER NO OBLIGATION TO EXTEND THIS WARRANTY TO ANY CUSTOMER FOR WHICH AN SUMMIT CRANE WARRANTY FORM HAS NOT BEEN COMPLETED AND ON FILE WITH SUMMIT TRUCK BODIES.