



# 10006H SERIES OWNERS MANUAL

Manual No. 460099

Rev. 07/26/2004

Serial No. \_\_\_\_\_

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# Auto Crane Warranty Registration

Fax Transmission

To: Warranty Department Fax: (918) 834-5979  
 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: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Contact: \_\_\_\_\_ E-mail Address: \_\_\_\_\_

**Product Information:** (Required for Warranty Activation)

Model No.: \_\_\_\_\_ Serial No.: \_\_\_\_\_  
 Date Product Delivered: \_\_\_\_\_ Date Processed:\* \_\_\_\_\_  
 VIN # \_\_\_\_\_ \* For Auto Crane 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  
 Auto Crane Company  
 P.O. Box 581510  
 Tulsa, OK 74158-0697

**10006H SERIES**  
**OWNER'S MANUAL – REVISION RECORD**

<b>Manual Revision Date</b>	<b>Section(s) Or Page(s)</b>	<b>Description of Change</b>
12/11/03	Initial Release	New Manual
01/12/04	Table Of Contents	Updated
01/12/04	FM Control Operation	Changed Section Title
01/12/04	Mounting & Installation	Incorporated Hard Wire Version Information (ECN 603), Changed Pendant Cable Part Number (ECN 617)
01/12/04	General Assembly	Incorporated Hard Wire Version and Added Caps
01/12/04	Pedestal Assembly	Miscellaneous Hardware Changes, Moved Rotation and Boom Limit Switches to Sub-assemblies (ECN 617)
01/12/04	Electrical Section	Corrected Electrical Schematic, Added Note to Main Wire Harness, Added Pages for Main Wire Harness Modifications (ECN 617)
01/12/04	Hard Wired Crane	Added Hard Wired Crane Section (ECN 603)
01/12/04	Rotation Gearbox	Added Parts Breakdown
04/23/04	Pages 3-7, 5-1, & 9-13	Updated receiver & transmitter to 2 <sup>nd</sup> generation
07/26/04	Pages 9-2.0.0, 9-3.0.0, 9-3.2.0, 12-1.0.0, 12-2.0.0 & 12-3.0.0	Added unique wiring harness for 10006H crane & added voltage drop circuit

# WARNINGS

**WARNING!** Federal law (49 cfr part 571) requires that the Final Stage Manufacturer of a vehicle certify that the vehicle complies with all applicable federal regulations. Any modifications performed on the vehicle prior to the final state are also considered intermediate stage manufacturing and must be certified as to compliance. The installer of this crane and body is considered on of the manufacturers of the vehicle. As such a manufacturer, the installer is responsible for compliance with all applicable federal and state regulations, and is required to certify that the vehicle is in compliance.

**WARNING!** It is the further responsibility of the installer to comply with the OSHA Truck Crane Stability Requirements as specified by 29 CFR part 1910.180 (C) (1).

**WARNING! NEVER OPERATE THE CRANE NEAR ELECTRICAL POWER LINES!**

**Death** or serious injury will result from boom, line, or load contacting electric lines. Do not use crane within 10 feet (3.05m) of electric power lines carrying up to 50,000 volts. One foot additional clearance is required for every additional 30,000 volts or less. **SEE DANGER DECAL (P/N 040529)** in this Owner's Manual.

**WARNING! NEVER.....**

- ◆ **EXCEED** load chart capacities (centerline of rotation to hoist hook).
- ◆ Un-reel last 5 wraps of cable from drum!
- ◆ Wrap cable around load!
- ◆ Attempt to lift or drag a load from the side! The boom can fail far below its rated capacity.
- ◆ Weld, modify, or use unauthorized components on any Auto Crane unit! This will void any warranty or liability. Also failure of the crane may result.
- ◆ Place a chain link on the tip of the hook and try to lift a load!
- ◆ Use a sling bar or anything larger than the hook throat that could prevent the hook latch from closing, thus negating the safety feature!
- ◆ Hold on any pendant Select Switch that will cause unsafe operating conditions!

**WARNING!** In using a hook with latch, **ALWAYS** make sure that the hook throat is closed before lifting a load! Proper attention and common sense applied to the use of the hoist hook and various slings will prevent possible damage to material being hoisted and may prevent injury to personnel.

**WARNING!** Failure to correctly plumb and wire crane can cause inadvertent operation and damage to crane and/or personnel!

**WARNING!** Auto Crane Company remote controlled cranes are not designed or intended to be used for any applications involving the lifting or moving of personnel.

**WARNING! ALWAYS** operate the crane in compliance with the load capacity chart. **DO NOT USE** the overload shutdown device to determine maximum rated loads, if the crane is equipped with this type of device.

**READ THIS PAGE**

# ***TABLE OF CONTENTS***

## ***10006H SERIES***

INTRODUCTION	1-1
GENERAL SPECIFICATIONS	1-2
SAFETY TIPS AND PRECAUTIONS	2-1
OPERATING PRACTICES & WARNINGS	2-3
OPERATION OF UNIT / OUTRIGGERS	2-4
QUALIFICATIONS FOR OPERATORS	2-5
INSPECTION, TESTING, AND MAINTENANCE	2-8
SAFETY DECAL SECTION	3-1
GENERAL DIMENSIONS	3-6
MOUNTING AND INSTALLATION	3-7
LUBRICATION AND MAINTENANCE SCHEDULE	3-9
GENERAL ASSEMBLY	4-1
PEDESTAL ASSEMBLY, FM	5-1
BOOM ASSEMBLY	6-1
ROTATION GEARBOX	7-1
HOIST ASSEMBLY	7-3
TRAVELING BLOCK ASSEMBLY	8-1
ELECTRICAL SCHEMATIC, FM	9-1
DIAGNOSTICS/TROUBLESHOOTING	9-4
HYDRAULICS	10-1
PEDESTAL ASSEMBLY, HARD WIRED	11-1
ELECTRICAL SECTION, HARD WIRED	12-1
LOAD CHART	13-1
WARRANTY	LAST PAGE

# **INTRODUCTION**

## **10006H SERIES**

Auto Crane products are designed to provide many years of safe, trouble-free, dependable service when properly used and maintained.

To assist you in obtaining the best service from your crane and to avoid untimely crane and/or vehicle failure, this manual provides the following operating and service instructions. It is **specifically recommended** that all operating and service personnel consider this manual as mandatory material for reading and study before operating or servicing Auto Crane products. It is **highly recommended** that crane owners, equipment managers and supervisors also read this manual.

Auto Crane has incorporated several safety features in the 10006H crane for your protection.

For your convenience the overall dimensions of the 10006H crane are included on the General Dimension Drawing. Rotation and turning radius are also listed on that drawing.

Remember, the crane adds weight to the vehicle. Adding weight may change the driving and riding characteristics of the vehicle unless the appropriate overload spring(s) are installed on the truck. The payload of the vehicle is reduced by the weight of the crane. The operator should exercise care when loading the vehicle. Distributing the payload on the vehicle evenly will greatly improve the driving and riding characteristics of the vehicle.

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### **Auto Crane Company issues a limited warranty certificate with each unit sold. See last page for warranty**

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The 10006H cranes are attached to your 12 volt truck electrical system through the relay provided. The 10006H is another highly efficient Auto Crane product. The use of a maintenance-free battery is not recommended for use on any Auto Crane product. The recommended alternator and battery that will give the longest life with the most useful duty cycle is a 60 amp alternator with a 500 cold cranking amp battery. These specifications should be considered minimum.

It has always been Auto Crane Company policy to handle all warranty claims we receive as promptly as possible. If a warranty claim involves discrepant material or workmanship, Auto Crane will take immediate corrective action. It is understandable that Auto Crane Company cannot assume responsibility of liability when it is obvious that our products

have been abused, misused, overloaded or otherwise damaged by inexperienced persons trying to operate the equipment without reading the manual.

**Auto Crane will not assume responsibility or liability for any modifications or changes made to unit, or installation of component parts done without authorization.**

Auto Crane maintains a strong distributor network and a knowledgeable Customer Service Department. In most cases, an equipment problem is solved via phone conversation with our customer service department. The customer service department also has the ability to bring a local distributor, a regional sales manager, or a factory serviceman into the solution of an equipment problem. If, through no fault of Auto Crane Company, it is necessary to send an experienced factory serviceman on a field service call, the rates stated in the Auto Crane Distributor's Flat Rate Manual will apply.

Auto Crane Company's extensive Research and Development Program allow our customers to use the best equipment on the market. Our Engineering Staff and our knowledgeable sales people, are always available to our customers in solving crane and winch-type application problems. When in doubt, call the Auto Crane factory.

### **DISTRIBUTOR ASSISTANCE:**

Should you require any assistance not given in this manual, we recommend that you consult your nearest Auto Crane Distributor. Our distributors sell authorized parts and have service departments that can solve almost any needed repair.

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***NOTE: THIS MANUAL SHOULD REMAIN WITH THE CRANE AT ALL TIMES.***

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This manual does not cover all maintenance, operating, or repair instructions pertinent to all possible situations. If you require additional information, please contact the **Auto Crane Company** at the following telephone number: **(918) 836-0463**. The information contained in the manual is in effect at the time of this printing. Auto Crane Company reserves the right to update this material without notice or obligation.

# ***GENERAL SPECIFICATIONS***

## ***10006H***

### **DIMENSIONS**

**Width:** 24.5 in (0.62 m)  
**Height:** 36.0 in (0.91 m)  
**Length:** 14 ft 8 in (4.47 m)  
 [boom(s) stored]  
**Weight:**  
 2,330 lbs (1057 kg)

### **CAPACITY**

60,000 ft-lbs (8.30 ton-m)  
 [ft-lbs = horizontal distance from centerline of rotation to free hanging weight (feet) x amount of weight (pounds)]

<b>LIFTING CAPACITIES</b>			
ft	lbs	ft	lbs
3	10,000	15	4,000
4	10,000	16	3,750
5	10,000	17	3,529
6	10,000	18	3,333
7	8,571	19	3,158
8	7,500	20	3,000
9	6,667	21	2,857
10	6,000	22	2,727
11	5,455	23	2,609
12	5,000	24	2,500
13	4,615	25	2,400
14	4,286		

### **REACH**

Second boom will reach from 12 feet 4 inches to 20 feet 4 inches.  
 Third boom will reach from 20 feet 4 inches to 25 feet 4 inches.

### **CABLE**

120 ft (36.6 m) of 7/16 in (11.1 mm) diameter aircraft quality cable. This cable has a single line breaking strength of 20,400 lbs (9,253 kg).

### **CHASSIS REQUIREMENTS**

26,000 lbs (11,793 kg) GVWR minimum  
 900,000 in-lbs RBM

### **ELECTRICAL SYSTEM REQUIREMENTS**

**Voltage:** 12 VDC  
**Alternator:** 60 amp (minimum)  
**Battery:** 100 minute reserve capacity (minimum)  
 Maintenance type

### **ROTATION**

370° Rotation with electric stop.

**--- IMPORTANT ---**  
**SAFETY TIPS AND PRECAUTIONS**

1. No unqualified or unauthorized person shall be allowed to operate the crane.
2. **WARNING:** Never weld, modify, or use unauthorized components / parts on any Auto Crane unit. This will void any warranty or liability. Also, failure of the crane may result.
3. Make certain the vehicle meets minimum chassis requirements. (These requirements do not guarantee unit stability.)
4. Make certain the crane is installed per factory specifications. Contact your local distributor or the Auto Crane factory if any questions arise.
5. Visual inspections and tests should be conducted at the beginning of each shift each day to ensure that the crane and all its operating systems are in good condition and working order before it is used.
6. Inspect hydraulic hoses frequently for signs of deterioration, and replace them as required.
7. If a hydraulic break occurs, leave the area of the break and do not attempt to stop the break by hand as the hydraulic oil may be hot and under high pressure which can cause serious injury. Shut the system down as soon as possible.
8. Check the hook at least every thirty days for distortions or cracks and replace it as required.
9. Oil gears as required.
10. Stop all operations when cleaning, adjusting or lubricating the machine.
11. Keep dirt and grit out of moving parts by keeping a crane clean. Make sure machine is free of excess oil, grease, mud and rubbish, thus reducing accidents and fire hazards.
12. When a new cable is installed, operate first with a light load to let the cable adjust itself.
13. Locate the vehicle at the work site for the best stability possible.
14. Keep the vehicle in a level position while loading or unloading.
15. Observe operating area for obstructions and/or power lines that might be a hazard
16. **WARNING: NEVER OPERATE THE CRANE NEAR ELECTRICAL POWER LINES.** Auto Crane Company recommends that the crane never be any closer to a power line (including telephone lines) than 10 feet at any point.
17. Allow the vehicle engine to warm up before operating crane.
18. Know the weight of your rigging and load to avoid overloading the crane.
19. Deduct the weight of the load handling equipment from the load rating to determine how much weight can be lifted.
20. All load ratings are based on crane capacity, NOT the vehicle stability. Remember in lifting a heavy load, the weight can create enough tipping moment to overturn the vehicle
21. Always comply with load chart capacities, (centerline of rotation to hook).
22. Secure all loads before lifting.
23. Always set the emergency brake before beginning operation.
24. Keep objects and personnel clear of crane path during operation.
25. Operate control levers slowly and smoothly in order to meter oil flow for safe operation.
26. Always use outriggers from vehicle to the ground during crane operation. Ensure that they are firmly positioned on solid footings. Stand clear of outriggers while they are being extended.
27. If any outrigger, when extended, rests on a curb or other object that prevents it from extending to its maximum distance, shorten bearing or fulcrum point and reduce the maximum load accordingly.
28. When an outrigger will not reach the ground due to holes or grades, it shall be blocked up to provide level and firm support for the truck.
29. When working in soft earth, use wide pads under outrigger feet to prevent sinking.
30. Always store outriggers before transportation.

## **WARNING!**

Auto Crane Company cranes are not designed or intended for use in lifting or moving persons. Any such use shall be considered to be improper and the seller shall not be responsible for any claims arising there from. This sale is made with the express understanding that there is no warranty that the goods shall be fit for the purpose of lifting or moving persons or other improper use and there is no implied warranty or responsibility for such purposes.



## **--- IMPORTANT ---**

# ***SAFETY TIPS AND PRECAUTIONS***

31. Always store the crane in its stowed position for transportation.
32. Remember the overall height of the entire unit for garage door clearance or when moving under objects with low overhead clearance
33. Disengage power takeoff (PTO) before moving the vehicle.
34. Always walk around the vehicle before moving.
35. Never drive with a load suspended from crane.
36. Do not take your eyes off a moving load. Look in the direction you are moving.
37. Never swing a load over people.
38. Do not stop the load sharply in midair so that it swings like a pendulum. Meter the control levers to avoid this situation.
39. Crane boom length should be kept as short as possible for maximum lifting capacity and greater safety. Longer booms require additional care in accelerating and decelerating the swing motion, and thus slow down the working cycle and reduce productivity.
40. Keep the load directly and vertically under the boom point at all times. Crane booms are designed primarily to handle vertical loads, not side lifts.  
**WARNING:** Never attempt to lift, drag, tow or pull a load from the side. The boom can fail far below its rated capacity.
41. Do not push down on anything with boom extensions, lift or outer boom function.
42. Do not lift personnel with any wire rope attachment or hook. There is no implied warranty or responsibility for such purposes.
43. **WARNING:** In using a safety hook, ALWAYS close the hook throat before lifting a load. Proper attention and common sense applied to the use of the hook and various slings will prevent possible damage to material being hoisted and may prevent injury to personnel.
44. **WARNING:** Never place a chain link on the tip of the hook and try to lift a load with the hoist.
45. **WARNING:** Never use a sling bar or anything larger than the hook throat which could prevent the safety latch from closing, thus negating the safety feature.
46. If the crane is equipped with an optional winch:
  - do NOT allow personnel to ride on loadline, hook, load, or any other device attached to winch line.
  - do NOT extend boom without reeling off line at the same time when using winch.
  - do pull load-block up against the boom tip.
47. Do not wrap the wire rope around sharp objects when using winch.
48. **WARNING:** Never unreel last 5 wraps of cable from drum.

# **--- IMPORTANT ---**

## **OPERATING PRACTICES AND WARNINGS**

1. Make certain the vehicle meets minimum chassis requirements. (These requirements do not guarantee unit stability)
2. Make certain the crane is installed per factory specifications. Contact your local Distributor or the Auto Crane factory if any questions arise.
3. Keep the vehicle in as level a position as possible while loading or unloading.
4. **ALWAYS** set the vehicle emergency brake before beginning crane operations.
5. **ALWAYS** use outriggers from vehicle to the ground during crane operation. Make sure they are firmly positioned on solid footings.
6. All load ratings are based on crane capacity, **NOT** truck/crane stability.
7. Keep objects and personnel clear of crane path during operation.
8. Keep hoist cable pulled tight at all times.
9. **REMEMBER**, in lifting a heavy load, the weight can create enough tipping momentum to overturn the vehicle.
10. **ALWAYS** keep load as close to ground as possible.
11. Hydraulic hoses need to be inspected frequently for signs of deterioration, and be replaced as required.
12. The hoist hook is an important item that an operator should consider and use properly. It should be checked on a daily basis for distortion or cracks.
13. **ALWAYS** store outriggers before road travel.
14. **WARNING! NEVER OPERATE THE CRANE NEAR ELECTRICAL POWER LINES!** Death or serious injury will result from boom, line, or load contacting electric lines. Do not use crane within 10 feet (3.05m) of electric power lines carrying up to 50,000 volts. One foot additional clearance is required for every additional 30,000 volts or less.
15. **WARNING! NEVER EXCEED** load chart capacities (centerline of rotation to hoist hook).
16. **WARNING! NEVER** un-reel last 5 wraps of cable from drum!
17. **WARNING! NEVER** wrap cable around load!
18. **WARNING! NEVER** attempt to lift or drag a load from the side! The boom can fail far below its rated capacity.
19. **WARNING! NEVER** weld, modify, or use unauthorized components on any Auto Crane unit! This will void any warranty or liability. Also failure of the crane may result.
20. **WARNING! NEVER** place a chain link on the tip of the hook and try to lift a load!
21. **WARNING! NEVER** use a sling bar or anything larger than the hook throat that could prevent the hook latch from closing, thus negating the safety feature!
22. **WARNING!** In using a hook with latch, **ALWAYS** insure that the hook throat is closed before lifting a load! Proper attention and common sense applied to the use of the hoist hook and various slings will prevent possible damage to material being hoisted and may prevent injury to personnel. Switch on that will cause unsafe operating conditions!  
**WARNING! NEVER** hold any Control Select Switch on that will cause unsafe operating conditions!

## **WARNING!**

**Auto Crane Company remote controlled, stiff boom cranes are not designed or intended to be used for any applications involving the lifting or moving of personnel.**

## **--- IMPORTANT ---**

# **OPERATION OF UNIT**

1. Make sure this manual has been thoroughly read by all crane operating personnel and supervisors.
2. A routine inspection of the crane should be mandatory before each operating day. Any defects should be corrected immediately.
3. At a job site the vehicle should be positioned so that the crane can adequately reach the load within the rated capacity (centerline of rotation to hoist hook).
4. Keep the vehicle as level as possible during operation.
5. For electric cranes, **engage emergency brake** and leave ignition on with transmission in neutral (or in park for automatic transmissions). Activate any crane power switches. For Auto Crane units requiring battery and hydraulic operation, **engage emergency brake**, place gear selector in neutral, press clutch, activate PTO, release clutch and after hydraulic fluid is warm, set throttle control to proper engine speed.
6. Always use outriggers from the truck to the ground. Be sure these are firm and adequately positioned. When rotating, **keep load as low to the ground as possible**.
7. Remove the transmitter from cab or storage area. Power transmitter on. Detach hook from dead man. Crane is now ready for operation.
8. Always boom up before rotating so the boom will clear the required boom support.
9. When extending the boom, always maintain clearance between the boom crown and the traveling block or hoist hook.
10. Always observe safe and practical operation to avoid possible accidents. Refer to Safety Tips and Precautions.
11. After completing lifting operations, return the boom to stowed position on the boom support. Avoid unneeded pressure on the boom support.
12. Store transmitter in proper location (in cab or storage area).
13. Return outriggers to stowed position. Make sure they are pinned in place or jacklegs are returned to compartment.
14. Check work area for any tools or equipment not stored.
15. Release throttle control, depress clutch and disengage PTO. Deactivate any crane power switches.
16. Report any unusual occurrence during crane operation that may indicate required maintenance or repair.
17. **NEVER** use two cranes to support a load too large for either crane.

## **OPERATION OF**

# **OUTRIGGERS**

For hydraulic outriggers:

1. Shift crane/outrigger control valve to "outrigger" position.
2. Operate the outrigger control valves to position the outriggers.
3. After outriggers are positioned, return crane/outrigger selector to "crane" position.
4. Crane is now ready to operate.

For manual outriggers:

1. Pull lock pins to release jack leg or drop down outrigger and move to outermost lock position.
2. Make sure lock pins are reinstalled properly.
3. Lower outrigger pad to firm ground and adjust foot to take out slack.
4. Crane is now ready to operate.

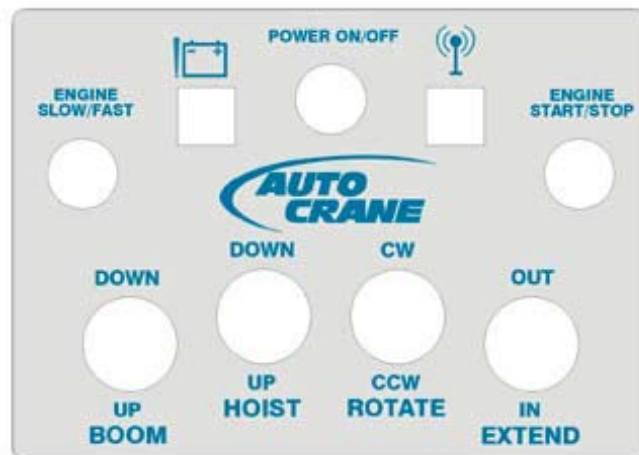
# ***FM CONTROL SYSTEM OPERATION***

## **Transmitter Layout:**

The red light to the left of the Power On/Off button indicates low transmitter battery. As the battery runs down, the light will begin to flash. It will flash increasingly faster as the battery power decreases. (see "Charging the Transmitter")

The green light to the right of the Power On/Off button indicates that the unit is transmitting. This light will flash when a function is activated. The rate at which it flashes depends on the mode of transmission. When transmitting using the pendant cable, the green light will flash noticeably faster than when unplugged.

In addition to the two lights mentioned above there are four function toggle switches. These functions from left to right are used to raise and lower the boom, raise and lower the hoist cable, rotate the crane and extend and retract the boom. There are also buttons for auxiliary functions such as Engine Start/Stop and Engine Fast Idle.



## **Power On/Off Button:**

To turn the transmitter on, press and hold the Power On/Off button, release once the transmit light becomes solid. To turn the unit off, press and hold the power button, release once the transmit light stops flashing. When this button is pressed both the red battery low and the green transmit light will flash alternately and stop flashing once the unit is either on or off.

## **Function Switches:**

To operate a function, toggle one of the function switches with either the thumb of the hand holding the unit or the thumb or fingers of the opposite hand. Using the forefinger of the hand holding the unit, slowly pull the trigger back to start the function. The speed of the function increases as the trigger is pulled. More than one function can be activated at one time.

**NOTE: A FUNCTION SWITCH MUST BE ACTIVATED BEFORE THE TRIGGER IS PULLED OR THE CRANE WILL NOT OPERATE.**

# ***FM CONTROL SYSTEM OPERATION***

## **Auxiliary Buttons:**

Functions described in this paragraph will not work if not properly connected to the vehicle at the time of installation. Press the Engine Slow/Fast button to provide a maintained voltage to a throttle control. To stop the engine, press the Engine Start/Stop button. To start the engine, press the Engine Start/Stop button a second time within five (5) seconds of releasing it. To activate the auxiliary function, press the Engine Slow/Fast and the Engine Start/Stop buttons simultaneously.

## **Safety Features:**

For safety reasons the speed of the rotation function is reduced when the lift cylinder pressure exceeds a set pressure. This will occur under load or under boom down operation. To limit slow operation of an unloaded crane, activate boom up momentarily after booming down to relieve cylinder pressure created by the counterbalance valve.

The crane is also equipped with an anti-bridging feature. The logic in the receiver will not allow the operator to rest the boom of the crane on a load supporting structure and lift a load. Doing so is dangerous and could damage the crane. When the crane is bridged, the receiver will display 'RSBM' which requires the boom to be raised. This feature is disabled when the crane is in the 'HOME' position to allow for stowing.

## **Operation Failure:**

If the crane does not operate as expected, observe the readout through the window on the receiver and refer to the front panel for explanation. The codes are further explained in the Diagnostics section of this manual. Please note that 'NRML' is displayed when the crane is operating normally, 'HOME' is displayed when the crane is forward and in a position to be stowed and 'SLOW' is displayed when functions are slowed due to load. 'EC01' will be displayed if no function is activated on the transmitter.

## **Charging the Transmitter:**

The transmitter can be charged using one of three methods. It can be charged with the cigarette lighter charger, the pendant cable or the optional AC adapter (P/N 366505000). To charge the transmitter with the pendant cable, the crane must have electrical power. The crane can be operated by pendant or by FM remote therefore the battery can be charged without suspending operation of the crane.

The transmitter should be fully charged after approximately 6 to 8 hours of charging. It is not recommended to leave the transmitter charging for extended periods of time (3 or 4 days). Doing so will eventually degrade the battery and it will not keep a good charge.

# ***QUALIFICATIONS FOR AND CONDUCT OF OPERATORS AND OPERATING PRACTICES***

## **OPERATORS**

1. **Crane operation shall be limited to personnel with the following minimum qualifications:**
  - A. Designated persons.
  - B. Trainees under the direct supervision of a designated person.
  - C. Maintenance and test personnel (when it is necessary in the performance of their duties).
  - D. Inspectors (crane).
2. **No one other than the personnel specified above shall enter the operating area of a crane with the exception of persons such as oilers, supervisors, and those specified persons authorized by supervisors whose duties require them to do so and then only in the performance of their duties and with the knowledge of the operator or other persons.**

## **QUALIFICATIONS FOR OPERATORS**

3. **Operators shall be required by the employer to pass a practical operating examination. Qualifications shall be limited to the specific type of equipment for which examined.**
4. **Operators and operator trainees shall meet the following physical qualifications:**
  - A. Vision of at least 20/30 Snellen in one eye and 20/50 in the other, with or without corrective lenses.
  - B. Ability to distinguish colors, regardless of position, if colors differentiation is required for operation.
  - C. Adequate hearing with or without hearing aid for the specific operation.
5. **Evidence of physical defects or emotional instability which render a hazard to operator or others, which in the opinion of the examiner could interfere with the operator's performance may be sufficient cause for disqualification. In such cases, specialized clinical or medical judgment and tests may be required.**
6. **Evidence that the operator is subject to seizures or loss of physical control shall be sufficient reason for disqualification. Specialized medical tests may be required to determine these conditions.**
7. **Operators and operator trainees should have normal depth perception, coordination, and no**

tendencies to dizziness or similar undesirable characteristics.

8. **In addition to the above listed requirements, the operator shall:**
  - A. Demonstrate the ability to comprehend and interpret all labels, operator's manuals, safety codes and other information pertinent to correct crane operations.
  - B. Possess knowledge of emergency procedures and implementation of same.
  - C. Demonstrate to the employer the ability to operate the specific type of equipment.
  - D. Be familiar with the applicable safety regulations.
  - E. Understand responsibility for maintenance requirements of crane.
  - F. Be thoroughly familiar with the crane and its control functions.
  - G. Understand the operating procedures as outlined by the manufacturer.

## **CONDUCT OF OPERATORS**

9. **The operator shall not engage in any practice, which will divert his attention while actually operating the crane.**
10. **Each operator shall be responsible for those operations under the operator's direct control. Whenever there is any doubt as to safety, the operator shall consult with the supervisor before handling the loads.**
11. **The operator should not leave a suspended load unattended unless specific precautions have been instituted and are in place.**
12. **If there is a warning sign on the switch or engine starting controls, the operator shall not close the switch or start the engine until the warning sign has been removed by the appointed person.**
13. **Before closing the switch or starting the engine, the operator shall see that all controls are in the "OFF" or neutral position and all personnel are in the clear.**
14. **If power fails during operation, the operator shall:**
  - A. move power controls to the "OFF" or neutral position.
  - B. land the suspended load and boom, if practical.

# ***QUALIFICATIONS FOR AND CONDUCT OF OPERATORS AND OPERATING PRACTICES***

15. The operator shall be familiar with the equipment and its proper care. If adjustments or repairs are necessary, the operator shall report the same promptly to the appointed person, and shall also notify the next operator.
16. All controls shall be tested by the operator at the start of each shift. If any controls do not operate properly, they shall be adjusted or repaired before operations are begun
17. Stabilizers shall be visible to the operator while extending or setting unless operator is assisted by a signal person.

## **OPERATING PRACTICES**

### **HANDLING THE LOAD**

#### **18. Size of load**

- A. No crane shall be loaded beyond the rated load except for test purposes.
- B. The load to be lifted is to be within the rated load of the crane and its existing configuration.
- C. When loads which are not accurately known are to be lifted, the person responsible for the job shall ascertain that the weight of the load does not exceed the crane rated load at the radius at which the load is to be lifted.

#### **19. Attaching the load**

- A. The load shall be attached to the hook by means of slings or other devices of sufficient capacity.
- B. Hoist rope shall not be wrapped around the load.

#### **20. Moving the load**

- A. The operator shall determine that:
- B. The crane is level and, where necessary, the vehicle/carrier is blocked properly.
- C. The load is well secured and balanced in the sling or lifting device before it is lifted more than a few inches.
- D. Means are provided to hold the vehicle stationary while operating the crane.
- E. Before starting to lift, the hook shall be brought over the load in such a manner as to minimize swinging.
- F. During lifting care shall be taken that:

1. There is no sudden acceleration or deceleration of the moving load.
2. Load, boom or other parts of the crane do not contact any obstruction.

G. Cranes shall not be used for dragging loads sideways.

H. This standard recognizes that articulating boom cranes are designed and intended for handling materials. They do not meet personnel lift or elevator requirements. Therefore, no lifting, lowering, swinging or traveling shall be done while a person is on the hook or load. Hook attached suspended work platforms (baskets) shall not be used with cranes covered by this standard. Work platforms attached to the boom must be approved by crane manufacturer.

I. The operator should avoid carrying loads over people.

J. When the crane is so equipped, the stabilizers shall be fully extended and set. Blocking under stabilizers shall meet the requirements as follows:

1. Strong enough to prevent crushing.
2. Of such thickness, width and length as to completely support the stabilizer pad.

K. Firm footing under all tires, or individual stabilizer pads should be level. Where such a footing is not otherwise supplied, it should be provided by timbers, cribbing, or other structural members to distribute the load so as to not exceed allowable bearing capacity or the underlying material.

L. In transit, the boom shall be carried in stowed position.

M. When rotating the crane, sudden starts and stops shall be avoided. rotational speed shall be such that the load does not swing out beyond the radius at which it can be controlled.

N. The crane shall not be transported with a load on the hook unless recommended by the manufacturer.

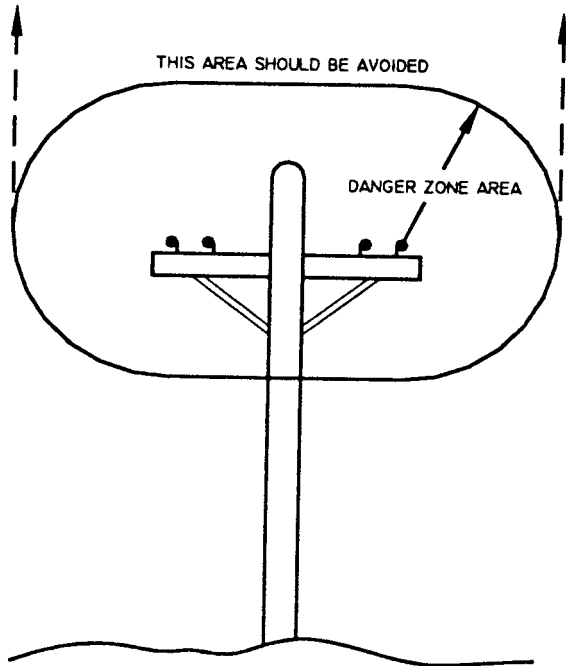
O. No person should be permitted to stand or pass under a suspended load.

**21. Stowing procedure. Follow the manufacturer's procedure and sequence when stowing and unstowing the crane**

# **QUALIFICATIONS FOR AND CONDUCT OF OPERATORS AND OPERATING PRACTICES**

## MISCELLANEOUS

### OPERATING NEAR ELECTRICAL POWER LINES



22. Cranes shall be operated so that no part of the crane or load enters into the danger zone shown above.

### EXCEPTIONS

- A. The danger zone may be entered after confirmation by an appointed person that the electrical distribution and transmission lines have been de-energized and visibly grounded at the point of work; or
- B. The danger zone may be entered if insulating barriers (not a part of nor an attachment to the crane) have been erected to prevent physical contact with the lines.
23. For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load (including handling appendages) shall be 10-ft. (3m). For higher voltages, see Table 1.
24. Caution shall be exercised when working near overhead lines, because they can move horizontally or vertically due to wind, moving the danger zone to new positions.

25. In transit with no load and boom lowered the clearance shall be specified in Table 1.
26. A qualified signalperson shall be assigned to observe the clearance and give warning before approaching the above limits.
- A. Any overhead wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities verify that it is not an energized line.
- B. Exceptions to this procedure, if approved by the administrative or regulatory authority if the alternate procedure provides equivalent protection and set forth in writing.
- C. Durable signs shall be installed at the operator's station and on the outside of the crane, warning that electrocution or serious bodily injury may occur unless a minimum clearance of 10 ft. (3.0m) between the crane or the load being handled and energized power lines. Greater clearances are required because of higher voltage as stated above. These signs shall be revised but not removed when local jurisdiction requires greater clearances.

**TABLE 1**

normal voltage, kV (phase to phase)		minimum required clearance	
		ft	(m)
<u>when operating near high voltage power lines</u>			
over	to 50	10	(3.50)
over	50 to 200	15	(4.6)
over	200 to 350	20	(6.1)
over	350 to 500	25	(7.62)
over	500 to 750	35	(10.67)
over	750 to 1000	45	(13.72)
<u>while in transit with no load and boom lowered</u>			
over	to 0.75	4	(1.22)
over	0.75 to 50	6	(1.83)
over	50 to 345	10	(3.83)
over	345 to 750	16	(4.87)
over	750 to 1000	20	(6.1)



# ***INSPECTION, TESTING AND MAINTENANCE GENERAL***

## **INSPECTION CLASSIFICATION**

1. **Initial inspection. Prior to initial use, all new, altered, modified or extensively repaired cranes shall be inspected by a designated person to insure compliance with provisions of this standard.**
2. **Regular inspection. Inspection procedure for cranes in regular service is divided into two general classifications based upon the intervals at which inspection should be performed. The intervals in turn are dependent upon the nature of the components of the crane and the degree of their exposure to wear, deterioration, or malfunction. The two general classifications are herein designated as "frequent" and "periodic" with respective intervals between inspections as defined below.**
  - A. frequent inspection - daily to monthly intervals
  - B. periodic inspection - one to twelve intervals or as specifically recommended by the manufacturer

## **FREQUENT INSPECTION**

3. **Inspection shall be performed by designated personnel.**
  - A. control mechanisms for maladjustment interfering with proper operation - daily, when used
  - B. control mechanisms for excessive wear of components and contamination by lubricants or other foreign matter
  - C. safety devices for malfunction
  - D. all hydraulic hoses, particularly those which flex in normal operation of crane functions, should be visually inspected once every working day, when used
  - E. hooks and latches for deformation, chemical damage, cracks, and wear. Refer to ANSI/ASME B30.10
  - F. rope reeving for compliance with crane manufacturer's specifications, if optional winch is used

- G. electrical apparatus for malfunctioning, signs of excessive deterioration, dirt and moisture accumulation
- H. hydraulic system for proper oil level and leaks daily
- I. tires for recommended inflation pressure, cuts and loose wheel nuts
- J. connecting pins and locking device for wear, damage and loose retaining bolts

## **PERIODIC INSPECTION**

4. **Deformed, cracked or corroded members in the crane structure and carrier**
5. **Loose bolts, particularly mounting bolts.**
6. **Cracked or worn sheaves and drums.**
7. **Worn, cracked, or distorted parts such as pins, bearings, shafts, gears, rollers and devices.**
8. **Excessive wear on brake and clutch system parts and lining.**
9. **Crane hooks inspected for cracks.**
10. **Travel steering, braking, and locking devices, for malfunction.**
11. **Excessively worn or damaged tires.**
12. **Hydraulic and pneumatic hose, fittings, and tubing inspection.**
  - A. evidence of leakage at the surface of the flexible hose or its junction with metal and coupling
  - B. A. blistering, or abnormal deformation to the outer covering of the hydraulic or pneumatic hose
  - C. A. leakage at threaded or clamped joints that cannot be eliminated by normal tightening or recommended procedures
  - D. A. evidence or excessive abrasion or scrubbing on the outer surface of a hose, rigid tube, or fitting. Means shall be taken to eliminate the interference of elements in contact or otherwise protect the components

# ***INSPECTION, TESTING AND MAINTENANCE GENERAL***

## **13. Hydraulic and pneumatic pumps and motors inspection.**

- A. loose bolts or fasteners
- B. leaks at joints between sections
- C. shaft seal leaks
- D. unusual noises or vibrations
- E. loss of operating speed
- F. excessive heating of the fluid
- G. loss of pressure

## **14. Hydraulic and pneumatic valves inspection**

- A. cracks in valve housing
- B. improper return of spool to neutral position
- C. leaks at spools or joints
- D. sticking spools
- E. failure of relief valves to attain or maintain correct pressure setting
- F. relief valve pressure shall be checked as specified by the manufacturers

## **15. Hydraulic and pneumatic cylinders inspection.**

- A. drifting caused by fluid leaking across piston
- B. rod seals leaking
- C. leaks at welding joints
- D. scored, nicked, or dented cylinder rods
- E. damaged case (barrel)
- F. loose or deformed rod eyes or connecting joints

## **16. Hydraulic filters. Evidence of rubber particles on the filter elements may indicate hose, "O" ring, or other rubber component deterioration. Metal chips or pieces on the filter may denote failure in pumps, motors, or cylinders. Further checking will be necessary to determine origin of the problem before corrective action can be taken.**

## **17. Labels are to be in place and legible.**

## **CRANES NOT IN REGULAR USE**

## **18. A crane which has been idle for a period of over one month or more, but not less than six months, shall be given an inspection conforming with the initial-regular- frequent inspections**

## **19. A crane which has been idle for a period of over six months shall be given a complete inspection conforming with the initial-regular-frequent inspection requirements.**

## **INSPECTION RECORDS**

## **20. Dated records for periodic inspection should be made on critical items such as brakes, crane hooks, rope, hydraulic and pneumatic cylinders, and hydraulic and pneumatic relief pressure valves. Records should be kept available to an appointed person.**

## **OPERATIONAL TESTS**

## **21. Prior to initial use, all new, altered, modified, or extensively repaired cranes shall be tested for compliance with the operational requirements of this section, including functions such as the following:**

- A. load lifting and lowering mechanisms
- B. boom lifting and lowering mechanisms
- C. boom extension and retraction mechanisms
- D. swing mechanisms
- E. safety devices
- F. operating controls comply with appropriate function labels

## ***Operational crane test results shall be made available to an appointed person.***

## **RATED TEST LOAD**

## ***Prior to initial use, altered, modified, or extensively repaired cranes shall be load tested by or under the direction of an appointed person.***

# ***INSPECTION, TESTING AND MAINTENANCE GENERAL***

22. Test loads shall not exceed 110% of the manufacturer's load ratings.
23. Written reports shall be maintained showing test procedures and confirming the adequacy of repairs.

## **MAINTENANCE**

### **PREVENTIVE MAINTENANCE**

24. Before adjustment and repairs are started on a crane, the following precautions shall be taken as applicable:
- A. crane placed where it will cause the least interference with other equipment or operations
  - B. all controls at the "off" position
  - C. starting means rendered inoperative
  - D. boom lowered to the ground if possible or otherwise secured against dropping
  - E. relieve hydraulic oil pressure from all hydraulic circuits before loosening or removing hydraulic components
25. Warning or "OUT OF ORDER" signs shall be placed on the crane controls.
26. After adjustments and repairs have been made, the crane shall not be returned to service until all guards have been reinstalled, trapped air removed from hydraulic system (if required), safety devices reactivated, and maintenance equipment removed.

### **ADJUSTMENTS AND REPAIRS**

27. Any hazardous conditions disclosed by the inspection requirements shall be corrected before operation of crane is resumed, Adjustments and repairs shall be done only by designated personnel.
28. Adjustments shall be maintained to assure correct functioning of components, The following are examples:
- A. functional operating mechanism
  - B. safety devices
  - C. control systems

29. Repairs or replacements shall be provided as needed for operation.

#### ***The following are examples:***

- A. critical parts of functional operating mechanisms which are cracked, broken, corroded, bent, or excessively worn
  - B. critical parts of the crane structure which are cracked, bent, broken, or excessively corroded
  - C. crane hooks showing cracks, damage, or corrosion shall be taken out of service. Repairs by welding are not recommended
30. Instructions shall be provided by the manufacturer for the removal of air from hydraulic circuits.

### **LUBRICATION**

***All moving parts of the crane, for which lubrication is specified, should be regularly lubricated per the manufacturer's recommendations and procedures.***

### **ROPE INSPECTION**

31. Frequent Inspection
- A. All running ropes in service should be visually inspected once each working day. A visual inspection shall consist of observation of all rope which can be in use during the days operations. These visual observations should be considered with discovering gross damage such as listed below, which may be an immediate hazard.
    - 1. distortion of the rope such as kinking, crushing, un-stranding, birdcaging, main strand displacement, or core protrusion. Loss of rope diameter in a short length or unevenness of outer strands should be replaced
    - 2. general corrosion
    - 3. broken or cut strands;
    - 4. number, distribution and type of visible broken wires. When such damage is discovered, the rope shall either be removed from service or given as inspection.

# ***INSPECTION, TESTING AND MAINTENANCE GENERAL***

- B. Care shall be taken when inspecting sections of rapid deterioration such as flange points, crossover points, and repetitive pickup points on drums.

## **32. Periodic inspection**

- A. The inspection frequency shall be determined by a qualified person and shall be based on such factors as
  1. expected rope life as determined by experience on the particular installation or similar installations
  2. severity of environment
  3. percentage of capacity lifts
  4. frequency rates of operation
  5. exposure to shock loads

***Inspection need not be at equal calendar intervals and should be more frequent as the rope approaches the end of it's service life. This inspection shall be made at least annually.***

- B. Periodic inspection shall be performed by a designated person. This inspection shall cover the entire length of the rope. Only the surface wires need be inspected. No attempt should be made to open the rope. Any deterioration results in appreciable loss of original strength, such as described below, shall be noted and determination made as to whether use of the rope would constitute a hazard: points listed above reduction of rope diameter below nominal diameter due to loss of core support, internal or external corrosion, or wear of outside wires; severely corroded, cracked, bent, worn or improperly applied connections;
- C. Care shall be taken when inspecting sections subject to rapid deterioration such as the following:
  1. sections in contact with saddles, equalizer sheaves, or other sheaves where rope travel is limited
  2. sections of the rope at or near terminal ends where corroded or broken wires may protrude

## **ROPE REPLACEMENT**

- 33. No precise rules can be given for determination of the exact time for replacement of rope, since many variable factors are involved.**

***Continued use in this respect depends upon good judgement by a designated person in evaluating remaining strength in a used rope after allowance for deterioration disclosed by inspection. Continued rope operation depends upon this remaining strength.***

- 34. Conditions such as the following shall be reason for questioning continued use of the rope or increasing the frequency of inspection:**

- A. in running ropes, six randomly distributed broken wires in one lay or three broken wires in one strand in one lay
- B. one outer wire broken at the contact point with the core of the rope structure and protrudes or loops out of the rope structure. Additional inspection of this section is required
- C. wear of one third of the original diameter of the outside individual wire
- D. kinking, crushing, birdcaging, or any other damage resulting in distortion of the rope structure
- E. evidence of any heat damage from any cause
- F. reduction from nominal diameter of more than 1/64 in. (0.4mm) for diameters up to and including 5/16 in. (8 mm), 1/32 in. (0.8 mm) for diameter 3/8 in. (9.5 mm) to and including 1/2 in. (13 mm), 3/64 in. (1.2 mm) for diameter 9/16 in. (14.5 mm) to and including 3/4 in. (19 mm), 1/16 in. (1.6 mm) for diameter 7/8 in. (22 mm) to and including 1 1/8 in. (29 mm), 3/32 in. (2.4 mm) for diameters 1 1/4 in. (32 mm) to and including 1 1/2 in. (38 mm)
- G. In standing ropes, more than two broken wires in one lay in sections beyond end connections or more than one broken wire at an end connection.

# ***INSPECTION, TESTING AND MAINTENANCE GENERAL***

- H. Replacement rope shall have a strength rating at least as great as the original rope furnished or recommended by the crane manufacturer. Any deviation from the original size, grade, or construction shall be specified by a rope manufacturer, or a qualified person.
35. **Rope not in regular use:** all rope which has been idle for a period of a month or more due to shutdown or storage of a crane on which it is installed, shall be given an inspection in accordance with above information before it is placed in service. This inspection shall be for all types of deterioration and shall be performed by a qualified person.
36. **Inspection records**
- A. A. frequent inspection- no records required
  - B. A. periodic inspections- in order to establish data as a basis for judging the proper time for replacement, a dated report condition at each periodic inspection should be kept on file. This report shall cover points of deterioration listed above.
- ROPE MAINTENANCE**
37. Rope should be stored to prevent damage or deterioration.
38. Unreeling or uncoiling of rope shall be done as recommended by the rope manufacturer and with care to avoid kinking or inducing twist.
39. Before cutting a rope, seizing shall be placed on each side of the place where the rope is to be cut to prevent unlaying of the strands. On pre-formed rope, one seizing on each side of the cut is required. On non-preformed ropes of 7/8 in. (22 mm) diameter or smaller, two seizings on each side of the cut are required, and for non-preformed rope 1 in. (25 mm) diameter or larger, three seizings on each side of the cut are required.
40. During installation care should be exercised to avoid dragging of the rope in the dirt or around objects which will scrape, nick crush or induce sharp bends in it.
41. Rope should be maintained in a well-lubricated condition. It is important that lubricant applied as a part of a maintenance program shall be compatible with the original lubricant and to this end the rope manufacturer should be consulted. Lubricant applied shall be the type which does not hinder visual inspection. Those sections of rope which are located over sheaves or otherwise hidden during inspection and maintenance procedures require special attention when lubricating rope. The object of rope lubrication is to reduce internal friction and to prevent corrosion.
42. When an operating rope shows greater wear or well defined localized areas than on the remainder of the rope, rope life can be extended in cases where a section at the worn end, and thus shifting the wear to different areas of the rope.

# SAFETY DECAL SECTION

## 10006H SERIES

PART NO.: 040579000  
 DECAL: OPERATING INSTRUCTIONS  
 FUNCTION: To inform the operator of the proper procedure to follow for safe operation of the crane.  
 USED ON: All Cranes  
 QUANTITY: 1  
 PLACEMENT: Right side plate

**⚠ CAUTION**

1. INSPECT VEHICLE AND CRANE INCLUDING OPERATION, PRIOR TO USE DAILY.
2. DO NOT USE THIS EQUIPMENT EXCEPT ON SOLID, LEVEL SURFACE WITH OUTRIGGERS PROPERLY EXTENDED AND CRANE MOUNTED ON FACTORY-RECOMMENDED TRUCK.
3. BEFORE OPERATING THE CRANE, REFER TO MAXIMUM LOAD (CAPACITY) CHART ON CRANE FOR OPERATING (LOAD) LIMITATIONS.
4. OPERATE ALL CONTROLS SLOWLY AND SMOOTHLY.
5. KEEP LOAD UNDER BOOM TIP. DO NOT SIDE LOAD BOOM OR DRAG LOADS. AVOID FREE SWINGING LOADS.
6. DO NOT OPERATE, WALK OR STAND BENEATH BOOM OR A SUSPENDED LOAD.
7. KEEP AT LEAST 5 WRAPS OF LOADLINE ON HOIST DRUM.
8. FOR TRAVELING, BOOM AND OUTRIGGERS MUST BE IN THE STOWED POSITION.
9. ALL REMOVABLE PENDANTS MUST BE STORED IN CAB OR TOOL COMPARTMENT WHEN CRANE IS NOT IN USE.

P/N 040579

PART NO.: 040580000  
 DECAL: OPERATING TRAINING  
 FUNCTION: To inform the operator of the need to receive proper training before using the crane.  
 USED ON: All Cranes  
 QUANTITY: 1  
 PLACEMENT: Right side plate

**⚠ DANGER**

AN UNTRAINED OPERATOR  
SUBJECTS HIMSELF AND  
OTHERS TO

**DEATH OR SERIOUS INJURY**

- 1.) YOU MUST HAVE BEEN TRAINED IN THE OPERATION OF THIS CRANE, AND
- 2.) YOU MUST KNOW AND FOLLOW THE SAFETY AND OPERATING RECOMMENDATIONS CONTAINED IN THE MANUFACTURER'S MANUAL, YOUR EMPLOYER'S WORK RULES AND APPLICABLE GOVERNMENT REGULATIONS.

P/N 040580

PART NO.: 040632000  
 DECAL: TAMPERING WITH OVERLOAD DEVICE  
 FUNCTION: To inform the operator that tampering with the overload device may cause a unit failure or possible personal injury.  
 USED ON: All Cranes equipped with a load sensor  
 QUANTITY: 1  
 PLACEMENT: Right side of valve sensor.

**⚠ WARNING**

TAMPERING WITH OVERLOAD DEVICE VOIDS WARRANTY. OVERLOADED CRANE MAY HYDRAULICALLY RELEASE AND LET LOAD DOWN TO GROUND.

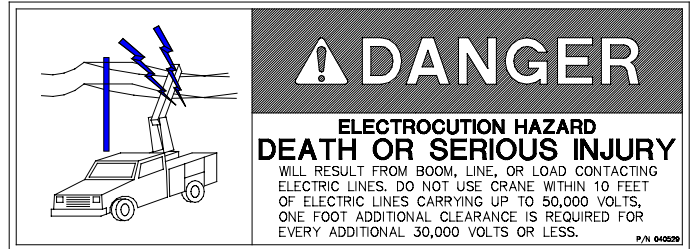
OVERLOAD PROTECTION DEVICE CANNOT FUNCTION WITH BOOM BELOW HORIZONTAL (0°). HOIST UP, BOOM DOWN, AND EXTEND OUT WILL BE INOPERATIVE WHEN CRANE IS IN OVERLOAD CONDITION.

P/N 040632

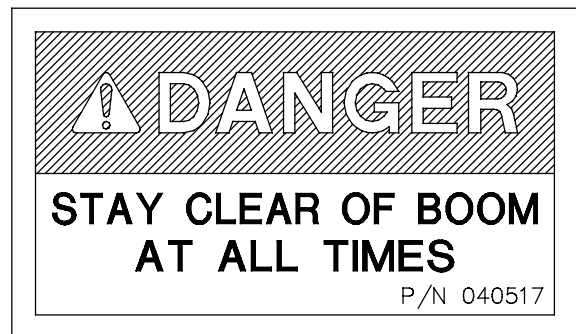
# ***SAFETY DECAL SECTION***

## ***10006H SERIES***

PART NO.: 040529000  
 DECAL: ELECTROCUTION HAZARD  
 FUNCTION: To inform the operator of the hazard involved with contacting electrical power lines with crane boom.  
 USED ON: Articulated & Stiff Boom Cranes  
 QUANTITY: 2  
 PLACEMENT: Both sides of end of lower boom



PART NO.: 040517000  
 DECAL: STAY CLEAR OF BOOM  
 FUNCTION: To inform the operator of the hazard of proximity or contact with the crane boom during operation.  
 USED ON: All Cranes  
 QUANTITY: 2  
 PLACEMENT: Both sides of crown



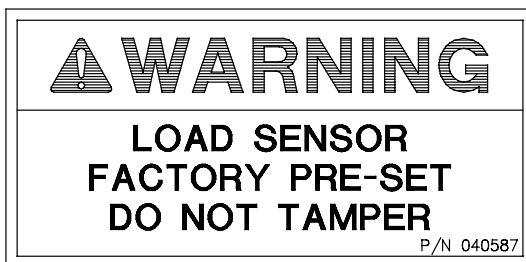
PART NO.: 040518000  
 DECAL: STAY CLEAR OF LOAD  
 FUNCTION: To inform the operator of the hazard of proximity or contact with the crane load during operation.  
 USED ON: All Cranes  
 QUANTITY: 2  
 PLACEMENT: Both sides of traveling block



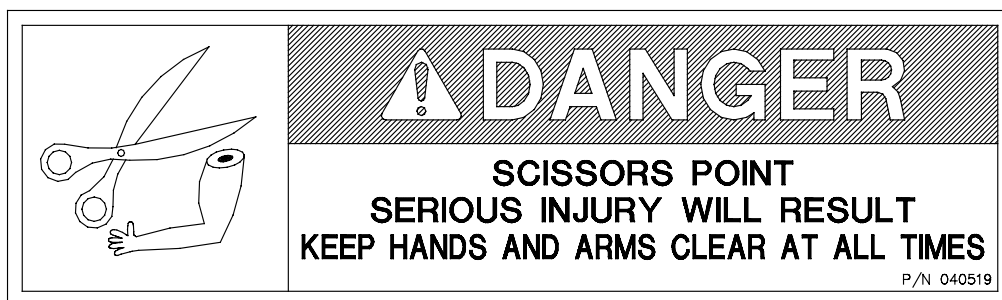
# ***SAFETY DECAL SECTION***

## ***10006H SERIES***

<p>PART NO.: 040587000</p> <p>DECAL: LOAD SENSOR, DON'T TAMPER</p> <p>FUNCTION: To inform the operator that the load sensor is pre-set and that tampering with the sensor may cause potentially hazardous situation.</p>	<p>USED ON: All cranes equipped with a load sensor.</p> <p>QUANTITY: 2</p> <p>PLACEMENT: Both sides of the lift cylinder near the load sensor</p>
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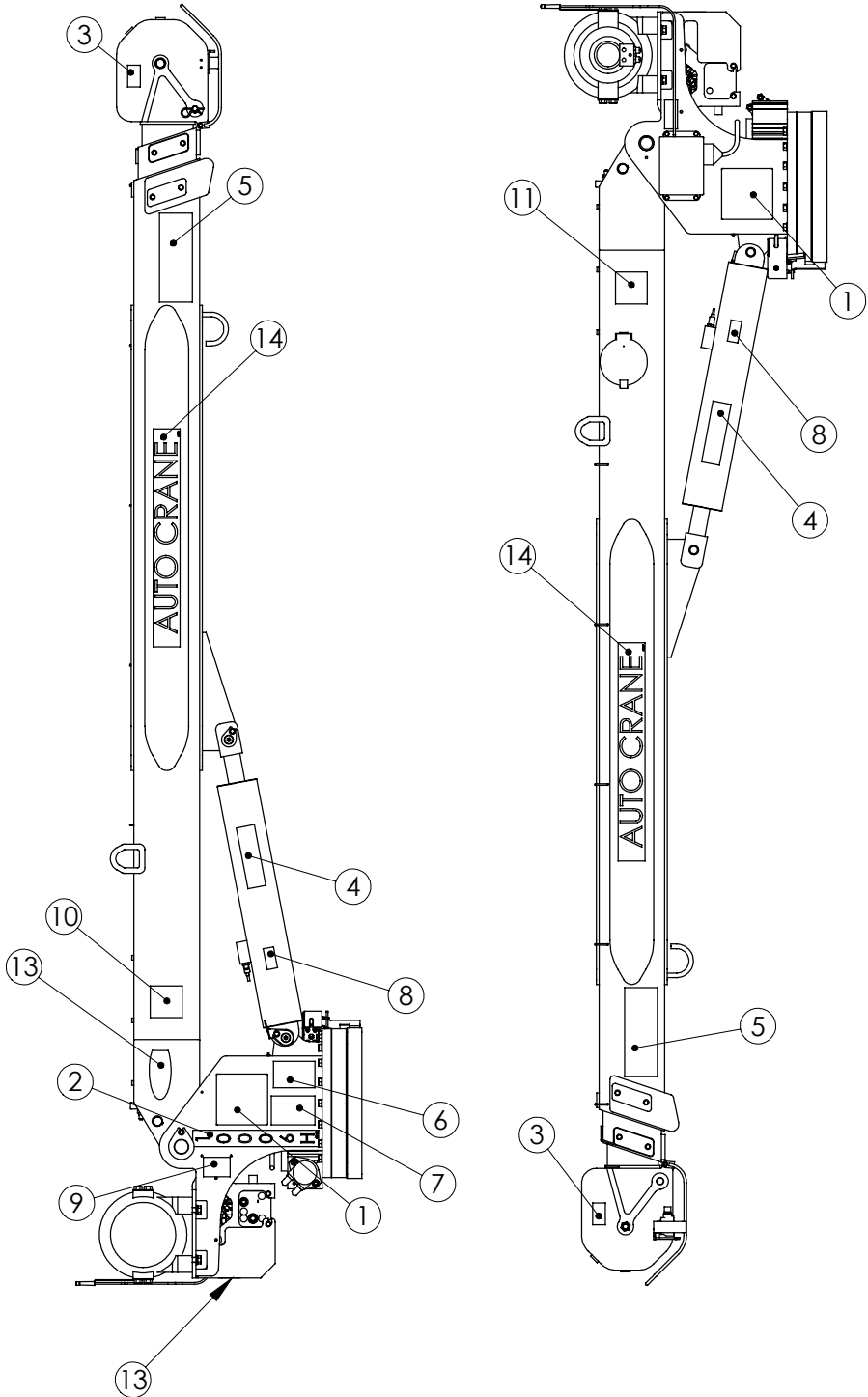
<p>PART NO.: 040519000</p> <p>DECAL: SCISSORS POINT</p> <p>FUNCTION: To inform the operator of possible danger at scissors point on crane.</p>	<p>USED ON: All cranes.</p> <p>QUANTITY: 2</p> <p>PLACEMENT: Both sides of the lift cylinder</p>
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# DECAL LAYOUT

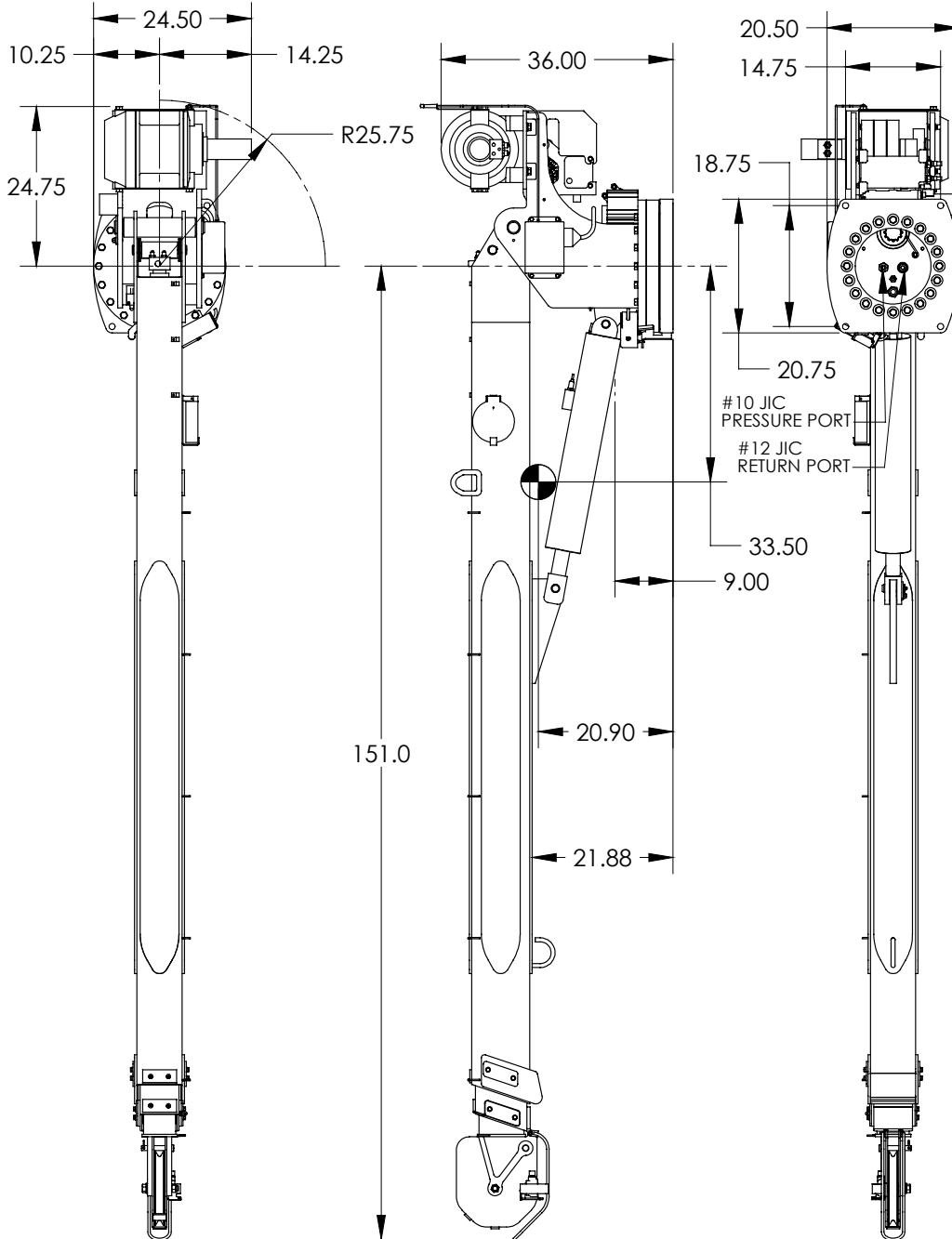
10006H (P/N:460087000)



***DECAL LAYOUT***  
***10006H (P/N:460087000)***

<b>ITEM NO.</b>	<b>QTY.</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>
1	2	460075000	DECAL, LOAD CHART 10006H
2	1	460088000	DECAL 10006H
3	2	040517	DECAL STAY CLEAR OF BOOM
4	2	040519	DECAL DANGER SCISSOR POINT
5	2	040529	DECAL POWER LINE HAZARD
6	1	040579	DECAL OPERATION INSTRUCTIONS
7	1	040580	DECAL TRAINED OPERATOR
8	2	040587	DECAL WARNING LOAD SENSOR
9	1	040632	DECAL WARNING - OVERLOAD
10	1	320318	DECAL ANGLE IND RIGHT
11	1	320318001	DECAL ANGLE IND RIGHT
12	1	330622	DECAL SERIAL NO
13	2	360034	DECAL AUTO CRANE LOGO
14	2	366389	DECAL AUTO CRANE

# GENERAL DIMENSIONS 10006H SERIES



NOTE: CG IS APPROXIMATED WITHOUT INCLUDING THE TRAVELING BLOCK

# ***MOUNTING AND INSTALLATION***

## ***10006H SERIES***

1. Check to make sure the following items are with your crane. Please note the different, model specific, quantities.

ITEM	QTY FM	QTY HW	PART NO.	DESCRIPTION
1	1	1	480689	FUSE 15 AMP TIME-DELAY
2	1	1	480688	FUSE HOLDER IN-LINE WATERPROOF
3	120"	120"	800596	WIRE 16G 600V 1C YEL
4	6	6	634401	TIE CABLE - MEDIUM
5	6	6	750738	STICK-ON
6	5	5	320357	TERMINAL NON-INS S/O W/L
7	1	1	320363	PLUG TERMINAL CONNECTOR
8	1	1	340638	CONDUCTOR POWER
9	1	1	320355	POWER RELAY
10	4	4	018900	NUT HX 7/8 NF GR8
11	4	4	022200	WASHER SP LK 7/8
12	1		460100002	TRANSMITTER KAR-TECH
13	1		366500008	CABLE PENDANT/CHARGE KAR-TECH
14	1		366504000	BATTERY CHARGER CIGARETTE LIGHTER
15	4	4	015104	7/8-14 X 5 HH GR8
16	1	1	460075000	DECAL LOAD CHART 10006H
17	1	1	460099000	MANUAL 10006H
18	1		360708000	BRACKET PENDANT PLUG
19	4		725321	NUT NYLON LOCK 8-32
20	4		001302	SCREW 8-32 X .5
21		1	366520000	JUNCTION BOX ASSY
22		1	366466000	WIRE HARNESS, TRUCK FUNCTIONS
23		1	680040	PENDANT ASSEMBLY

2. Pressure and return hoses are not furnished with this crane. The hoses must be provided by the installer and the lengths determined at installation.

**REQUIREMENTS FOR INSTALLATION USING 23 GALLON RESERVOIR**

- A. RETURN LINE FROM CRANE TO RESERVOIR (IN COMPARTMENT): -12 SAE 100R2 (OR EQUIVALENT). HOSE LENGTH IS DETERMINED BY INSTALLER. RETURN LINES LONGER THAT 6 FEET SHOULD BE SIZE - 16. HOSE END FITTINGS ARE -12 JIC FEMALE SWIVEL (CRANE END) AND -12 JIC FEMALE SWIVEL (RESERVOIR END).
- B. **PRESSURE LINE** FROM PUMP TO CRANE: -10 SAE 100R12 (OR EQUIVALENT) WITH A **3,500 PSI MINIMUM WORKING PRESSURE**. HOSE LENGTHS IS DETERMINED BY INSTALLER. HOSE END FITTINGS ARE BOTH -10 JIC FEMALE SWIVEL.

**NOTE:**

REFER TO OWNERS MANUAL FOR ADDITIONAL INSTALLATION INFORMATION.

**CAUTION – FAILURE TO USE CLEAN HYDRAULIC HOSES AND COMPONENTS MAY CONTAMINATE THE CRANE AND HYDRAULIC SYSTEM AND VOID WARRANTY**

- Crane must be provided with a flow of 15 gallons per minute and a pressure of 3,400 PSI. Excess flow will cause erratic operation, and too little flow will cause poor crane operation.
- Vehicle should meet minimum GVW rating of 26,000 pounds.
- The vehicle **MUST** be equipped with an engine speed control and tachometer.
- Make sure mounting surface is properly reinforced to withstand 60,000 ft-lb capacity loading of crane and that outriggers are used to provide total stability for the truck.
- A 12"-dia. hole should be cut out of mounting location (centered with mounting blots) for access to hydraulic connections.

# ***MOUNTING AND INSTALLATION***

## ***10006H SERIES***

8. Make sure the mounting blots are 7/8" dia, grade 8. Torque bolts to 501 ft-lbs.
9. When crane is not in operation, a boom support should always be used. Traveling block should be connected to hook loop.
10. Electrical hookup:  
Wiring (FM – cable from base of crane, HW – cable from junction box):
  - A. CONNECT THE BLACK WIRE TO THE BATTERY NEGATIVE (GROUND).
  - B. CONNECT THE RED WIRE TO FUSED 12VDC POWER. 12VDC POWER SHOULD BE SUPPLIED THROUGH A DEDICATED SWITCH THAT IS POWERED ONLY WHEN THE IGNITION SWITCH IS ON.
  - C. OPTIONALLY, USE THE WHITE WIRE FOR ENGINE FAST/SLOW. (12VDC MAINTAINED)
  - D. OPTIONALLY, USE THE BLUE WIRE FOR ENGINE START.
  - E. OPTIONALLY, USE THE ORANGE WIRE FOR ENGINE STOP.
  - F. OPTIONALLY, USE THE GREEN WIRE FOR AUXILIARY. (12VDC MAINTAINED)

**NOTE: ALL ELECTRICAL CONNECTIONS BETWEEN THE CRANE AND THE VEHICLE SHOULD BE MADE USING RELAYS TO ISOLATE THE ELECTRICAL SYSTEMS OF EACH AS MUCH AS POSSIBLE.**

**WARNING! FAILURE TO CORRECTLY PLUMB AND WIRE CRANE CAN CAUSE INADVERTENT OPERATION AND DAMAGE TO CRANE AND/OR PERSONEL!**

11. Once crane and plumbing are installed on the truck, fill the reservoir to top of sight glass (mobile DTE 13 or equal). Before operating crane, connect together the pressure and return hoses going to base of crane using 10-12 JIC union and engage PTO with engine running. Allow oil to circulate for 15 to 20 minutes. This will flush contaminants from the system back to the return line filter. Operate all cylinders to full extension and retraction a minimum of six times, to bleed air from system. Return all cylinders to the stored position and disengage PTO. Refill reservoir to top sight glass. To ensure 15 gallons per minute (GPM), install an in-line flow meter between the crane and the reservoir in the return hose.
12. Load test the crane to ensure proper functioning and truck stability
13. Make certain the owner's manual is delivered to the customer.
14. For additional help: call the service department at the Auto Crane Company. (918) 836-0463 (Tulsa, Oklahoma)

## **WARNING**

**FEDERAL LAW** (49 CFR PART 571) REQUIRES THAT THE FINAL STAGE MANUFACTURER OF A VEHICLE CERTIFY THAT HE VEHICLE COMPLIES WITH ALL APPLICABLE FEDERAL REGULATIONS. ANY MODIFICATIONS PERFORMED ON THE VEHICLE PRIOR TO THE FINAL STAGE ARE ALSO CONSIDERED INTERMEDIATE STAGE MANUFACTURING AND MUST BE CERTIFIED AS TO COMPLIANCE. THE INSTALLER OF THIS CRANE AND BODY IS CONSIDERED ONE OF THE MANUFACTURERS OF THE VEHICLE. AS SUCH A MANUFACTURER, THE INSTALLER IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE FEDERAL AND STATE REGULATIONS, AND IS REQUIRED TO CERTIFY THAT THE VEHICLE IS IN COMPLIANCE.

**IT IS THE FURTHER RESPONSIBILITY** OF THE INSTALLER OF THE CRANE TO COMPLY WITH THE **OSHA** TRUCK CRANE STABILITY REQUIREMENTS AS SPECIFIED BY 29 CFR PART 1910.180 (C) (1).

# **LUBRICATION & MAINTENANCE SCHEDULE**

## **10006H SERIES**

SERVICE PERFORMED	DAY	WKLY	3 MOS	6 MOS	YEAR	NOTES
LOAD HOOK	X					INSPECT HOOK & LATCH FOR DEFORMATION, CRACKS, & CORROSION
CABLE DRUM	X					MAKE SURE CABLE IS WOUND EVENLY ON DRUM
HOIST / BOOM CABLE	X					CHECK FOR FLATTENING, KINKS, & BROKEN STRANDS, SEE MANUAL
HYD. HOSES	X					VISUAL INSPECTION
HYD. FLUID	X					CHECK FLUID LEVEL
PIN RETAINING BOLTS	X					CHECK-TORQUE TO 23 FT-LBS (GRADE 5), 35 FT-LBS (GRADE 8) AS REQUIRED
MOUNTING BOLTS		X				CHECK-TORQUE TO 501 FT-LBS AS REQUIRED
ROTATION RING GEAR		X				LUBE WITH MOBILETAC LL, OR LUBRIPLATE P/N 15263, OR EQUAL
SHEAVE BEARINGS		X				SEALED BEARING, REPLACE IF ROUGH OR LOOSE
ALL OTHER BOLTS		X				CHECK-TIGHTEN AS REQUIRED
LIFT CYLINDER BEARINGS			X			GREASE WITH MOBILEPLEX EP-2 OR EQUIVALENT @ ZERKS
ROTATION BEARING			X			GREASE WITH MOBILEPLEX EP-2 OR EQUIVALENT @ ZERKS
ROTATION BEARING BOLTS			X			CHECK TORQUE TO 170 FT-LBS (HEX HEAD) 180 FT-LBS (SOCKET HEAD) AS REQUIRED
ROTATION GEAR BOX			X			CHECK TORQUE TO 80 FT-LBS AS REQUIRED
ROTATION GEAR BOX				X		EP GEAR LUBE SAE 80-90
HYDRAULIC FLUID					X	DRAIN, FLUSH, AND REFILL WITH SUN 2105 HYD. OIL, SAE 5W-20
BOOM SLIDE PADS	PADS GREASED WHEN REPLACED					
FOR ADDITIONAL INFORMATION SEE:	1) OWNER'S MANUAL 2) OSHA SECTION 1910.180 3) ANSI B30.5-1989					

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

# ***LUBRICATION & MAINTENANCE SCHEDULE***

## ***10006H SERIES***

### **NOTES:**

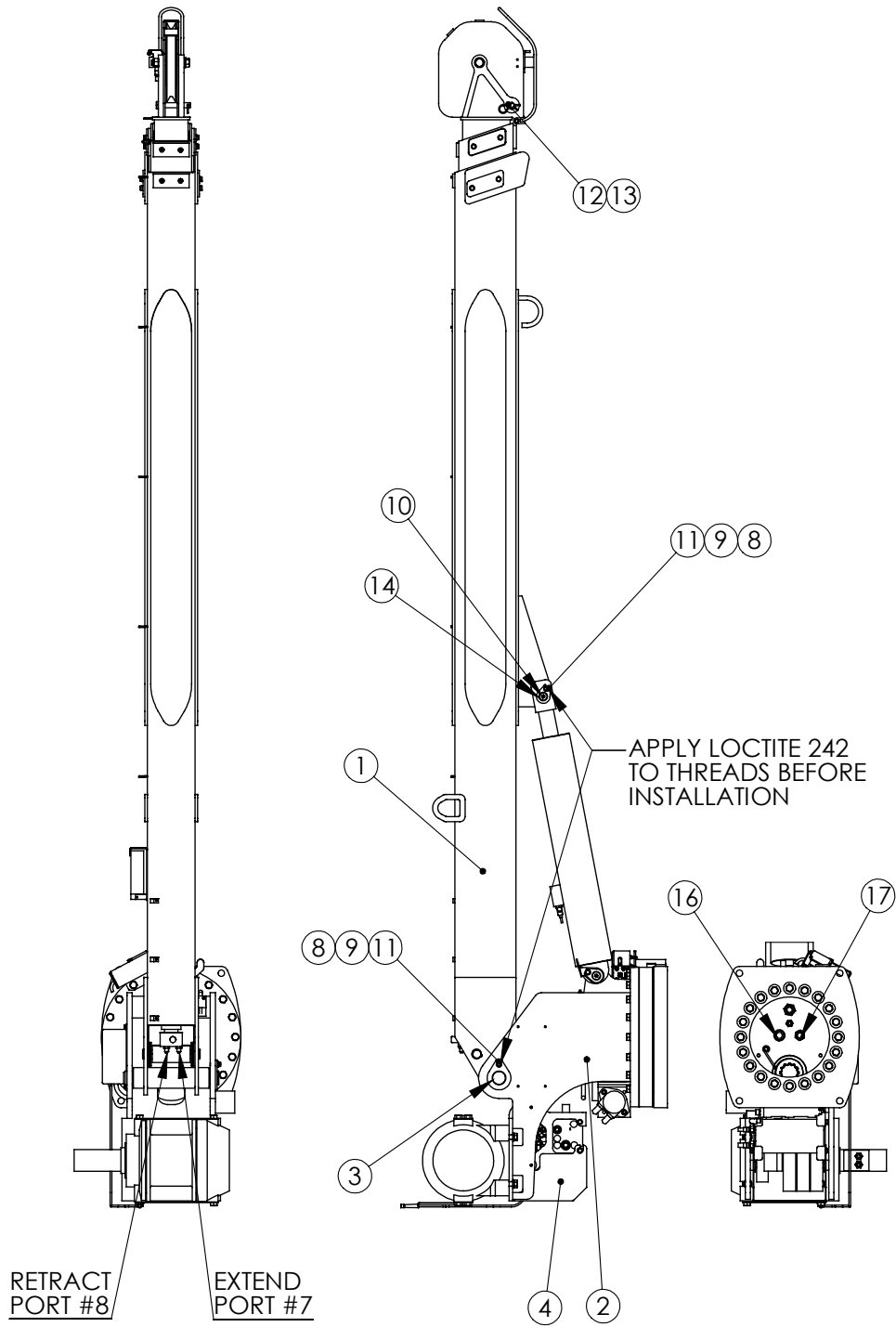
1. Use only authorized parts. Any damage or malfunction caused by the use of unauthorized parts is not covered by Warranty or Product Liability
2. Once a bolt has been torqued to its rated capacity and then removed; the bolt should be replaced with a new one.
3. Auto Crane Company recommends that this crane be serviced per "Crane Inspection Log" P/N 999978. These logs should be filled in at the intervals noted and kept as a permanent record. Additional copies are available from your local distributor.

# *NOTES*



# GENERAL ASSEMBLY 10006H SERIES

(FM P/N:460000000, HW P/N:460000001)

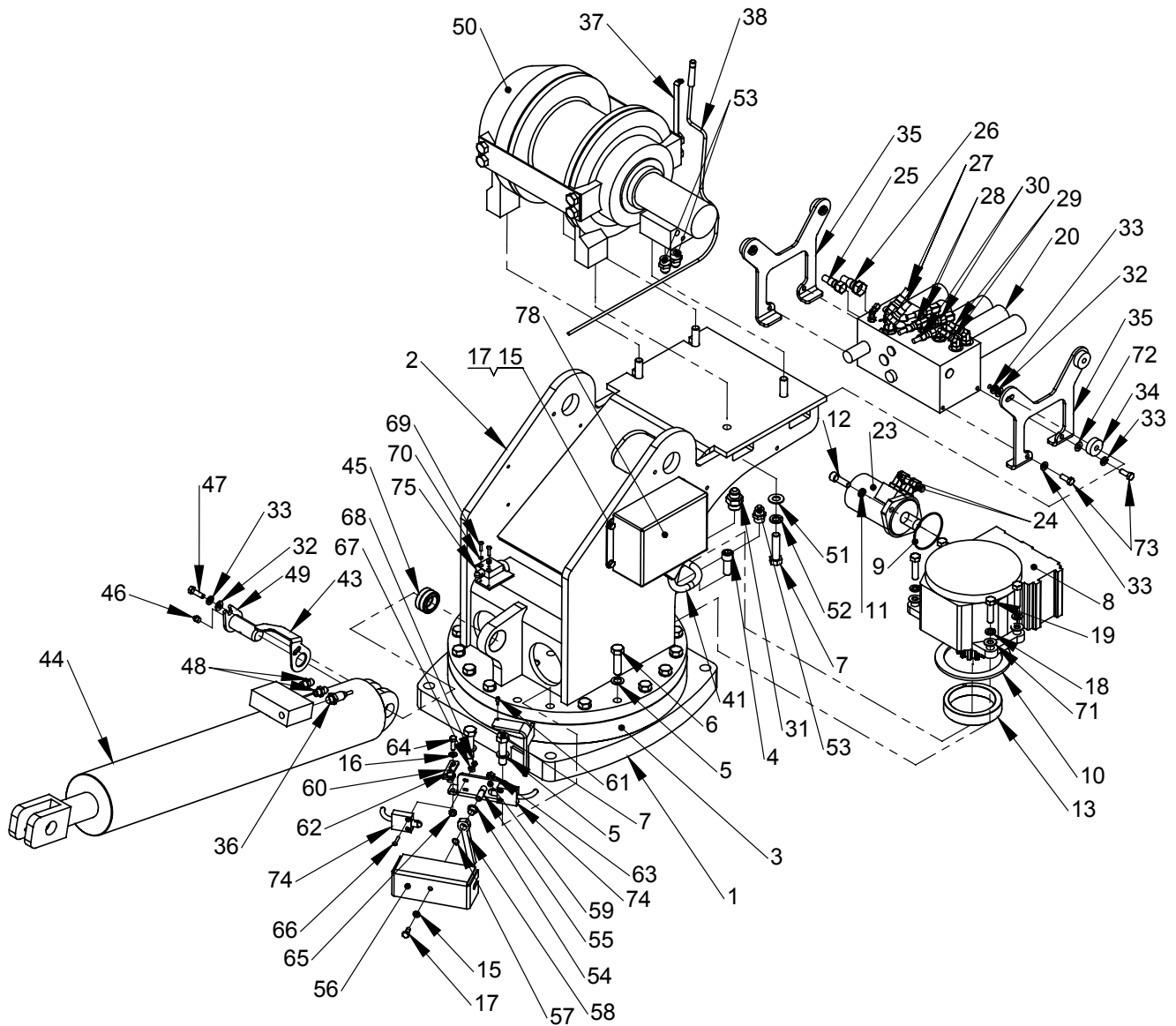


**GENERAL ASSEMBLY 10006H SERIES**  
**(FM P/N:460000000, HW P/N:460000001)**

ITEM NO.	QTY FM	QTY HW	PART NUMBER	DESCRIPTION
1	1	1	460030000	BOOM ASSEMBLY
2	1		460040000	PEDESTAL ASSY
		1	460040001	PEDESTAL ASSY HARDWIRE
3	1	1	460062000	PIN, PIVOT
4	1	1	460073000	COVER, REAR
5	1	1	460087000	DECAL LAYOUT
6	1		460089000	SHIP KIT 10006H FM
		1	460095000	SHIP KIT 10006H HARDWIRE
7	1	1	460090000	WIRE ROPE ASSY
8	2	2	008702000	SCW HX 3/8-16 X 1 1/4 GR5
9	2	2	021100	WASHER SPLK 3/8
10	1	1	239300	ZERK, GREASE
11	2	2	320976000	WASHER, FLAT, 3/8 SAE HARDENED
12	1	1	360124	PIN HITCH
13	1	1	360125	PIN, BLOCK
14	1	1	366492	PIN 1.25 DIA X 3.00 LG
15	1	1	466230	TRAVELING BLOCK 11006H
16	1	1	750419	CAP, 12 JIC
17	1	1	367238	CAP, 10 JIC

# ***PEDESTAL ASSEMBLY***

## ***10006H-FM (P/N: 460040000)***



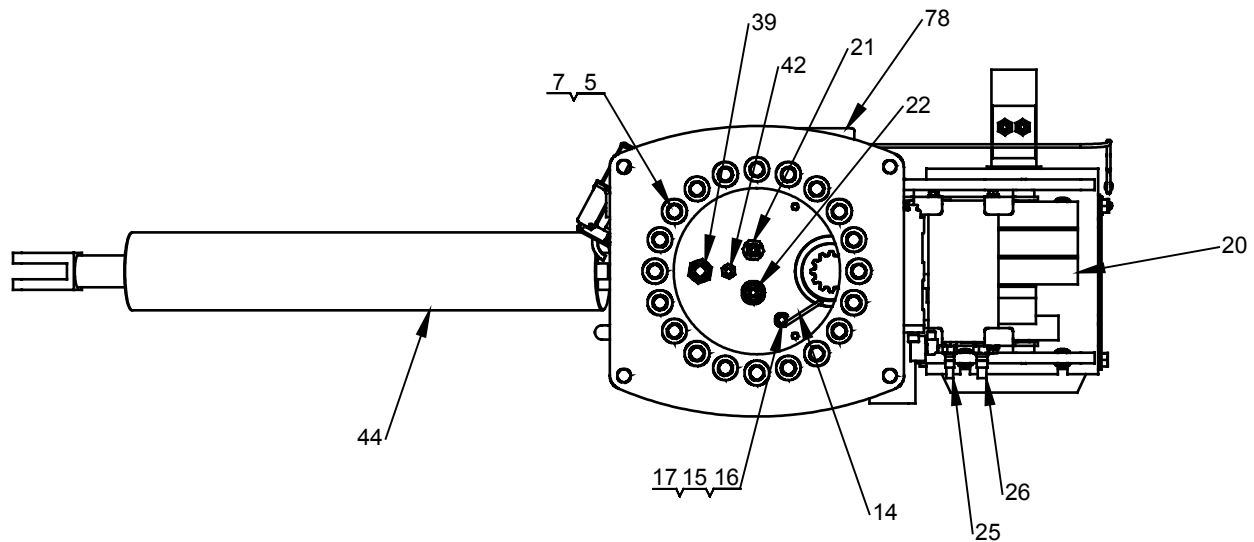
**HYDRAULICS:**

- PORT #1: HOIST DOWN (REAR MOTOR PORT)
- PORT #2: HOIST UP (FRONT MOTOR PORT)
- PORT #3: ROTATION CCW (LOWER MOTOR PORT)
- PORT #4: ROTATION CW (UPPER MOTOR PORT)
- PORT #5: LIFT CYL EXTEND
- PORT #6: LIFT CYL RETRACT
- PORT #7: EXT CYL EXTEND
- PORT #8: EXT CYL RETRACT

CYLINDER SEAL KIT: 460051001  
 C'BAL. CARTRIDGE: 360153001

# *PEDESTAL ASSEMBLY*

## *10006H - FM (P/N: 460040000)*



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	460046000	BASE PLATE WELD
2	1	460041000	PEDESTAL WELD
3	1	372064	ROTATION BEARING
4	3	460076000	SCW SOC HD 5/8-11 X 1 5/8
5	37	023902	WASHER, 5/8 FLAT HARDENED
6	15	490171	CAPSCREW 5/8-11 X 2.25 GR8
7	26	366393	HEX HEAD 5/8-11 X 2.5 GR8
8	1	460060000	ROTATION GEARBOX
9	1	460085000	SEAL, O-RING
10	1	460092000	SEAL, ROTATION GEARBOX
11	2	021502	WASHER SP/LK 1/2 HI COLLAR
12	2	012197	SOC HD 1/2-13
13	1	360162	RING, ECCENTRIC
14	1	360207	RETAINER ECCENTRIC RING
15	6	020601	WASHER 5/16 LOCK
16	2	020901	WASHER FL 5/16
17	6	007807	SCW HEX 5/16-18 3/4LG GR5
18	4	021500	WASHER SP LK 1/2
19	4	011608	SCW, 1/2-13 X 2 ZP
20	1	480878000	VALVE BANK ASSY - DEUTSCH
21	1	366358	FITTING 10SAE/JIC SWIVEL PS810503-10-10
22	1	460086000	FITTING 12 SAE/JIC SWIVEL
23	1	460078000	MOTOR, ROTATION
24	2	490198	FITTING 10SAE(M)/6JIC ELBOW 90
25	1	812309-024	HOSE ASSY 8 STR/90
26	1	812409-024	HOSE ASSY 10 STR/90
27	2	480203	HOSE ASSY 8 STR X 24.75
28	2	480205	HOSE ASSY 6 STR X 19.25
29	2	812203024	HOSE ASSY 6 STR
30	2	812203038	HOSE ASSY 6 STR

# *NOTES*

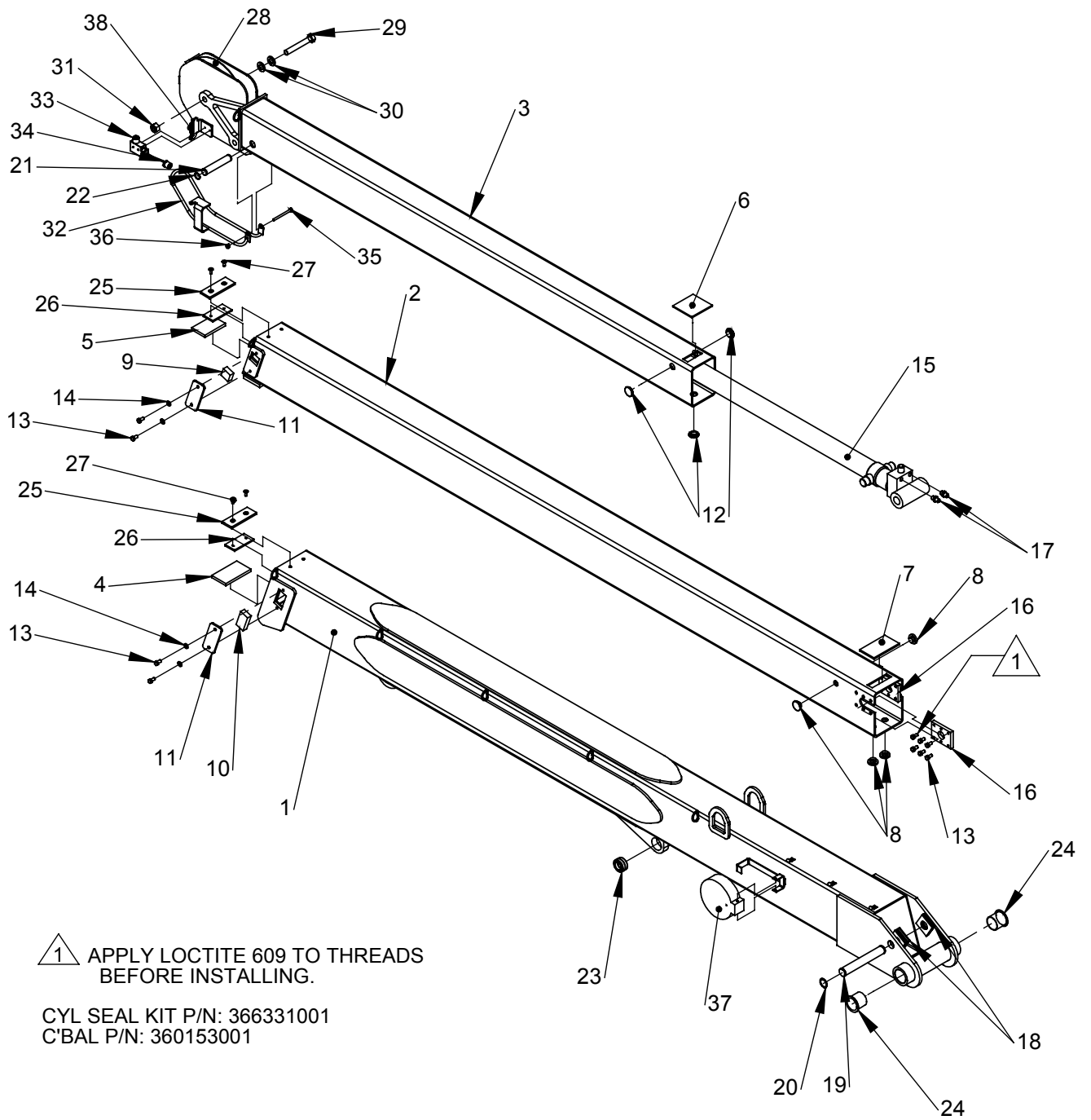
# **PEDESTAL ASSEMBLY**

## **10006H - FM (P/N: 460040000)**

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
31	1	372260	FITTING, 10-12 JIC/SAE STR
32	5	320976000	WASHER, FLAT, 3/8 SAE HARDENED
33	9	021100	WASHER SPLK 3/8
34	4	460074000	SPACER, VALVE
35	2	366364	PLATE, VALVE MOUNTING
36	1	366478000	PRESSURE TRANSDUCER 4000 PSI
37	1	460091000	BRACKET, ANTENNA MOUNT
38	1	366500006	CABLE, ANTENNA EXTENSION
39	1	366508000	CORD GRIP HUBBLE F-3 SHC 1036
40	1	480875000	BOOT DEUTSCH 40-PIN CONNECTOR
41	1	480883000	MAIN WIRE HARNESS - DEUTSCH
42	1	642908	CORD CONNECTOR
43	1	460072000	ACTUATOR, BOOM LIMIT
44	1	460051000	CYLINDER, LIFT
45	1	366333	BEARING, SPHERICAL 1.25 ID
46	1	239300	ZERK, GREASE
47	1	008702000	SCW HX 3/8-16 X 1 1/4 GR5
48	2	200876	FITTING 6 SAE/6 JIC STRAIGHT
49	1	366492	PIN 1.25 DIA X 3.00 LG
50	1	123406	WINCH, RAMSEY RPH-5000
51	4	407314000	WASHER FL 5/8 X 1 5/16 OD HARDENED
52	4	023800	WASHER SP LK 5/8
53	3	372041	FITTING 8JIC/10SAE STRAIGHT 8-10 F5OX
54	1	460079000	BEARING, ROTATION STOP
55	1	460064000	PIN, ROTATION STOP
56	1	460065000	COVER, ROTATION STOP
57	1	560148000	RING RETAINING 1/2 ID
58	1	460067000	ARM, ROTATION STOP
59	1	460068000	BRACKET, ROTATION STOP
60	1	460070000	BRACKET, PROXIMITY SWITCH
61	1	366423	MAGNET, PROX PICKUP
62	1	360703000	HOME SWITCH HARNESS
63	1	017301	NUT HX NYLON LOCK 3/8 NCCP
64	1	007400	SCW HEX 5/16-18 X 1
65	1	016801	NUT HEX-LOCK 5/16 NC
66	4	460093000	SCW #10-24 X 1 ZP
67	4	020000	10 SAE FLAT WASHER
68	4	015801	NUT, #10-24 NYLON LOCK ZP
69	2	002607	SCW, #10-24 X 3/4 ZP
70	2	019800	10 SPLIT LOCK
71	4	320588	WASHER FL 1/2
72	2	021200	WASHER FL 3/8
73	4	330371	SCW HX 3/8 UNC X 1 GR8
74	1	460110000	ROTATION STOP SWITCH ASSEMBLY
75	1	460111000	BOOM LIMIT SWITCH ASSEMBLY
76	1	374086	NYLON HOSE SLEEVE
77	4	460113000	SCW, HEX 3/8-16 X 1-3/4 GR8
78	1	460100006	RECEIVER 2ND GENERATION W/10006H PROGRAM

# BOOM ASSEMBLY

## 10006H (P/N: 460030000)



1
 APPLY LOCTITE 609 TO THREADS  
 BEFORE INSTALLING.

CYL SEAL KIT P/N: 366331001  
 C'BAL P/N: 360153001

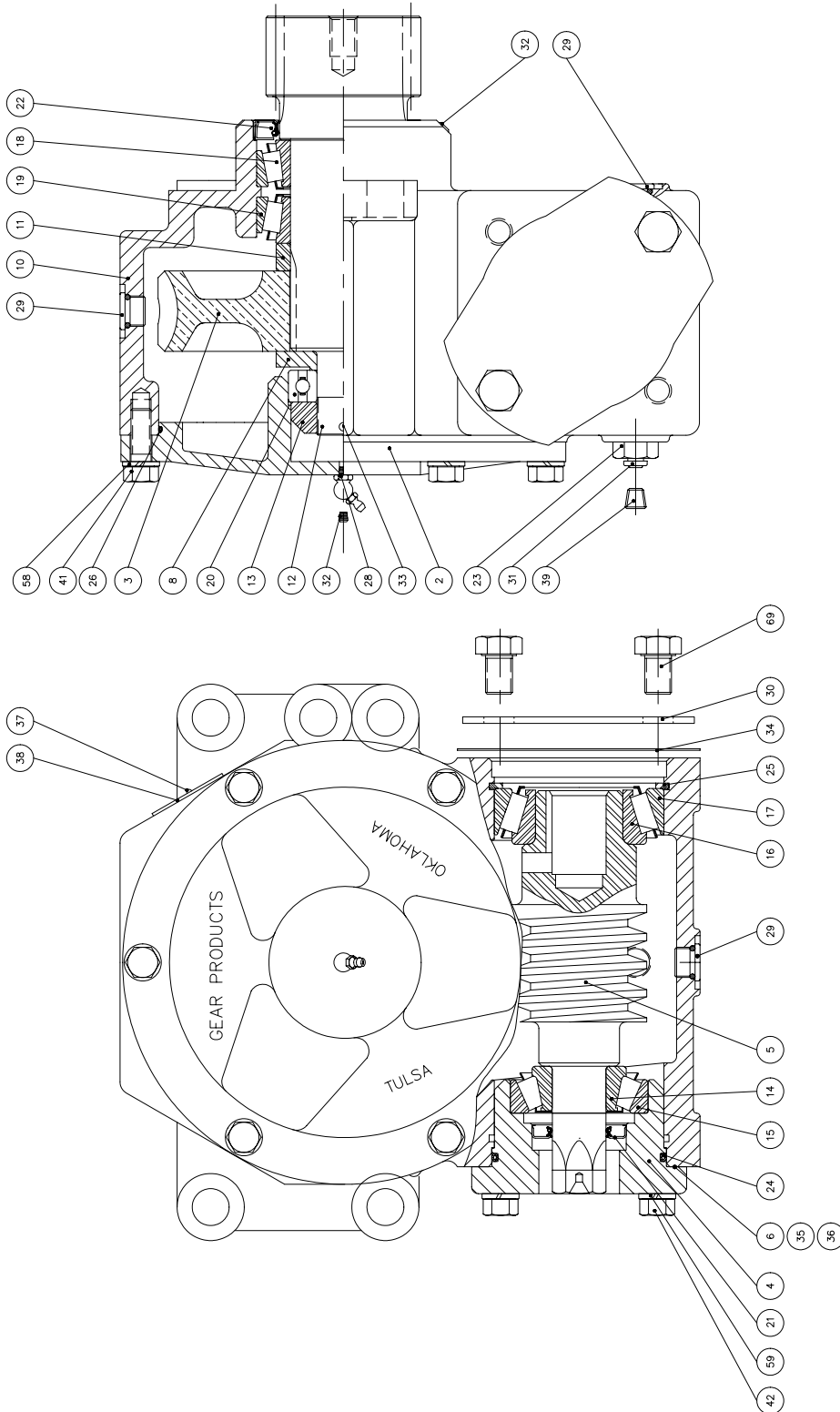
# **BOOM ASSEMBLY**

## **10006H (P/N: 460030000)**

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	460031000	BOOM WELDMENT, LOWER
2	1	460033000	BOOM WELDMENT, MID
3	1	460035000	BOOM WELDMENT, UPPER
4	1	460052000	WEAR PAD, BOTTOM MID
5	1	460053000	WEAR PAD, BOTTOM UPPER
6	1	460054000	WEAR PAD, TOP UPPER
7	1	460055000	WEAR PAD, TOP MID
8	4	360767000	PAD BOOM 1.5 O.D.
9	2	366351	PAD, WEAR 1 1/2 X 1 1/2 X 3/4
10	2	366354	WEAR PAD
11	4	366385	PLATE, LOWER BOOM PAD COVER
12	3	407277000	PAD BOOM 1.5 O.D.
13	20	008400	SCW HEX HD 3/8-16 UNC X 3/4 GR 5
14	8	021100	WASHER SPLK 3/8
15	1	460050000	CYLINDER, EXTENSION
16	2	366184	RETAINER EXTENSION CYLINDER
17	2	200876	FITTING 6 SAE/6 JIC STRAIGHT 6F5OX
18	6	480121	SPACER
19	1	366400	PIN 1.25 DIA X 8.063
20	2	480029	RING RETAINING
21	1	366493	PIN 1 DIA X 5.03 LG
22	2	360122	RING RETAINING 5100-98
23	1	366333	BEARING, SPHERICAL 1.25 ID
24	2	366394	BEARING, PIVOT
25	2	460081000	WEAR PAD, CABLE
26	2	460082000	PLATE, WEAR PAD RETAINER
27	4	460083000	SCW, CTRSNK SOC HD 5/16-24 X 3/4
28	1	466130	SHEAVE ASSY 3/8
29	1	014400	CAPSCREW, .75-16 NF X 5
30	2	022102	WASHER FL 3/4
31	1	018600	NUT, NYLON LOCK .75-16 NF
32	1	360718000	BAIL WELDMENT
33	1	646900	SWITCH, LIMIT ANTI-TWO BLOCK
34	1	642918	CORD CONNECTOR
35	1	007803	SCW 5/16 NC 3 1/2 LG
36	1	016801	NUT HEX-LOCK 5/16 NC
37	1	360759000	CORD REEL ASSY
38	1	320554	SPRING RETURN



# ROTATION GEARBOX 10006H (P/N: 460060000)

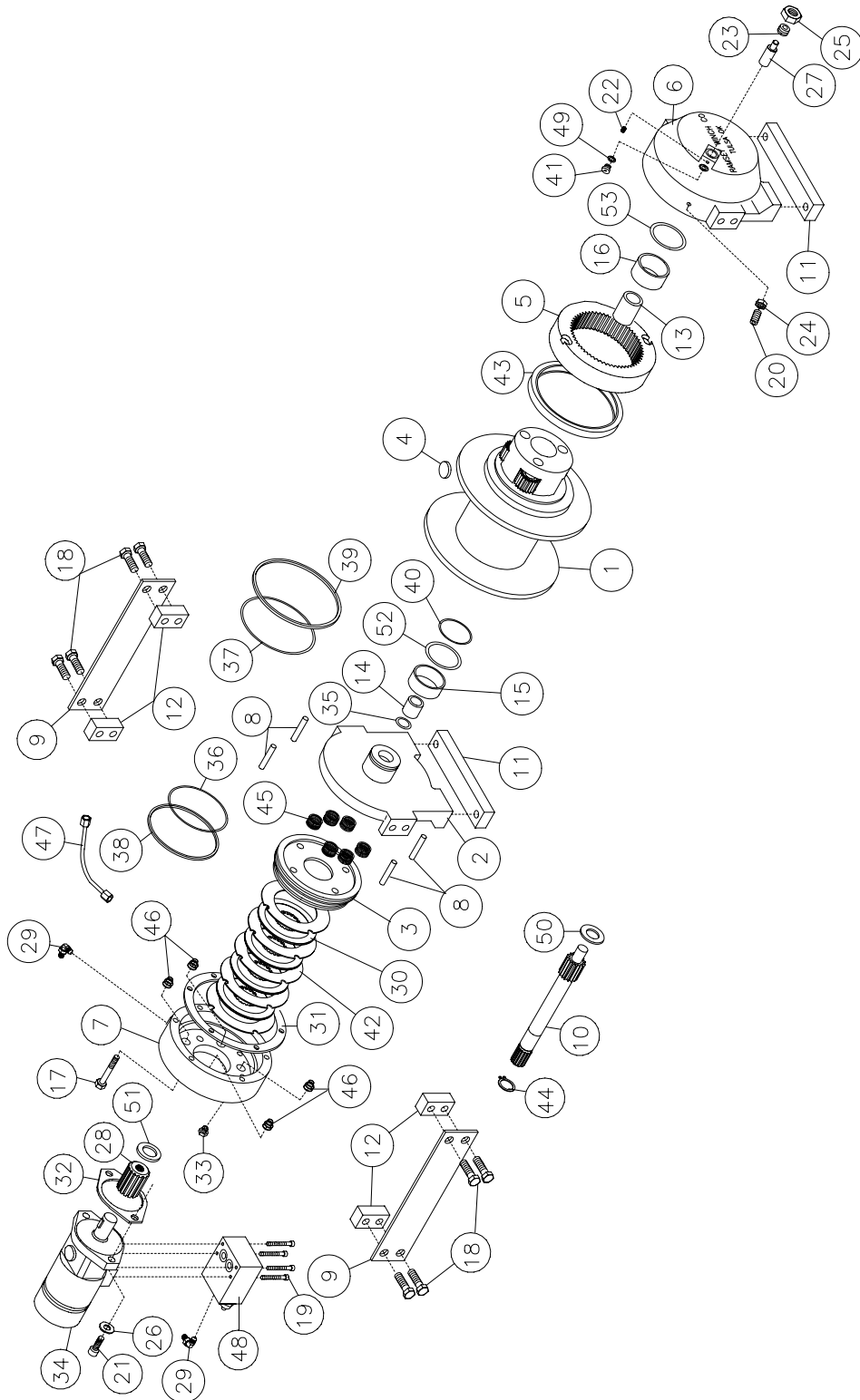


# **ROTATION GEARBOX**

## **10006H (P/N: 460060000)**

<b>ITEM</b>	<b>QTY</b>	<b>PART NUMBER</b>	<b>DESRPTION</b>
2	1	460060002	COVER
3	1	460060003	GEAR, WORM
4	1	460060004	RETAINER, BEARING
5	1	460060005	WORM, SK-RH-SI
6	1	460060006	SHIM, METAL (.005)
8	1	460060008	SPACER
10	1	460060010	HSG, 11/16, 5 MTG DOWN
11	1	460060011	SPACER
12	1	460060012	SHAFT, OUTPUT 12T 5/7 M
13	1	460060013	NUT, CASTELL, 1"-20 TPI
14	1	460060014	BRG., CONE #23100
15	1	460060015	BRG., CUP #23256
16	1	460060016	BEARING, CONE TIM 26882
17	1	460060017	BRG., CUP TIMKEN 26830
18	2	460060018	BRG., CONE #LM 104947A
19	2	460060019	BRG., CUP #JLM 104910
20	1	460060020	BRG., BALL NTN#6205
21	1	460060021	SEAL, NAT'L #471689
22	1	460060022	SEAL, NAT'L #412119
23	1	460060023	BUSHING, RED 9/16 STR-1/8
24	1	460060024	O'RING, PARKER #2-234
25	1	460060025	RING, SNAP SPRLX RRN-315
26	1	460060026	O'RING, PARKER #2-260
28	1	460060028	ZERK, 45D, 1/4-28 TPRD THD
29	3	460060029	PLUG, SAE #6 SKT HD
30	1	460060030	COVER, SHIP, STL, 2BLT A
31	1	460060031	VENT, 1/8 NPT, 1-5PSI
32	1	460060032	SETSCR, SKT 1/4 NF X 1/4
33	1	460060033	KEY, COTTER 1/8 X 1-1/2
34	1	460060034	GASKET, MTR, 2A, MAG
35	1	460060035	SHIM, METAL (1/64)
36	1	460060036	SHIM, METAL (1/32)
37	2	460060037	DRIVE SCREW
38	1	460060038	LABEL PLATE, 2 7/8 X 2
39	1	460060039	PLUG, PIPE 1/8 HEX SKT STL
41	6	460060041	CAPSCR, HXZD 3/8 NC X 1 GR5
42	4	460060042	CAPSCR, HXZD 1/2 NC X 1.25 GR5
58	6	460060058	WASHR, PLAIN HARD NDZD 3/8
59	4	460060059	1/2 FLAT WASHR HARDEN ZD
69	2	460060069	CAPSCR, HXZD 1/2NC X 1 GR5

# HOIST ASSEMBLY 10006H



# HOIST ASSEMBLY

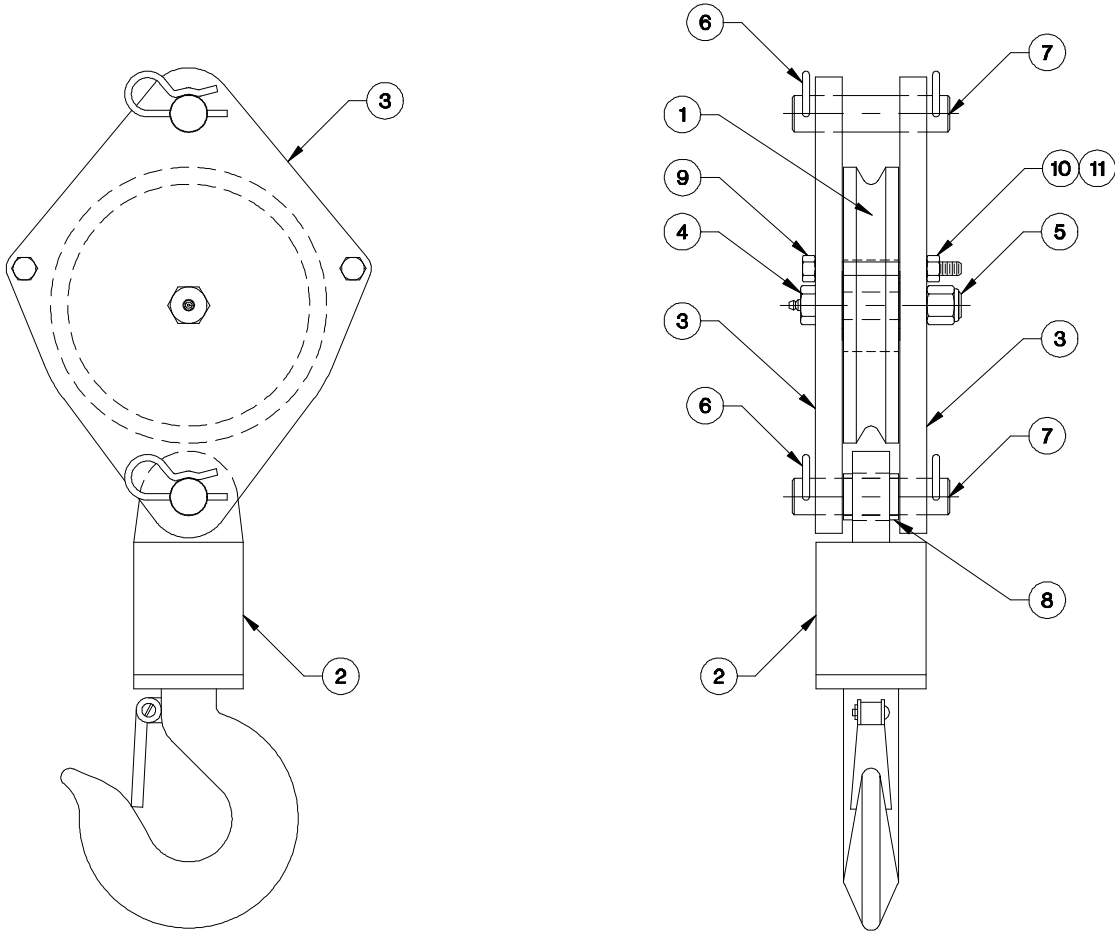
## 10006H

ITEM	QTY	P/N	DESCRIPTION
1	1	234195	DRUM ASSEMBLY
2	1	296611	END BEARING, MOTOR
3	1	306042	PISTON, BRAKE
4	1	315004	CABLE ANCHOR
5	1	334177	GEAR, RING
6	1	338297	END BEARING, GEAR HOUSING
7	1	338302	HOUSING, BRAKE
8	4	346045	PIN, BRAKE
9	2	350704	PLATE, TIE
10	1	357517	INPUT SHAFT, SUN GEAR
11	2	362287	SPACER, FOOT MOUNTING
12	4	362288	SPACER, TIE PLATE
13	1	402120	BEARING, GEAR HOUSING
14	1	402121	BEARING, MOTOR
15	1	412095	BUSHING, DRUM (MOTOR END)
16	1	412096	BUSHING, DRUM (GEAR HOUSING END)
17	6	414303	CAPSCREW, 3/8-16NC x 2 1/2 LG HX HD GR5 ZINC PLTD
18	8	414658	CAPSCREW, 5/8-11NC x 1 1/2 LG HX HD GR5 ZINC PLTD
19	4		CAPSCREW
20	1	414926	SETSCREW, 3/8-16NC x 1.0 LG SOCKET, NYLON
21	2	414952	CAPSCREW, 1/2-13NC x 1 1/4 LG SOCKET HD GR5 ZINC PLTD
22	1	416016	SETSCREW, 1/4-20NC x 1/4 LG HEX SOCKET HD CUP
23	1	416080	SETSCREW, 5/8-18NF x 1.0 LG HEX SOCKET HD CUP
24	1	418036	NUT, JAM 3/8-16NC HEX ZINC PLTD
25	1	418088	NUT, JAM 5/8-18NF HEX ZINC PLTD
26	2	418218	LOCKWASHER, 1/2 I.D. MEDIUM SECTION ZINC PLTD
27	1	426048	PLUNGER
28	1	431015	COUPLING, MOTOR
29	2	432018	FITTING, 7/16 ELBOW (90 DEGREE)
30	4	438022	DISC, BRAKE
31	1	442220	GASKET, BRAKE
32	1	442223	GASKET, MOTOR
33	1	456038	FITTING, VENT
34	1	458074	MOTOR, HYDRAULIC
35	1	462056	O-RING
36	1	462057	O-RING
37	1	462058	O-RING
38	1	462059	O-RING BACKUP
39	1	462060	O-RING BACKUP
40	1	462061	O-RING, DRUM
41	1	472052	PLUG
42	5	474111	PLATE, SEPERATOR
43	1	486081	SEAL, GEAR HOUSING
44	1	490037	SNAP RING
45	6	494110	SPRING, BRAKE
46	4	494112	SPRING
47	1		TUBE ASSEMBLY
48	1		VALVE, MOTOR CONTROL
49	1	518037	THRUST WASHER
50	1	518047	THRUST WASHER
51	1	518052	THRUST WASHER
52	1	518053	THRUST WASHER (MOTOR END)
53	1	518054	THRUST WASHER (GEAR HOUSING END)

# *NOTES*

# TRAVELING BLOCK ASSEMBLY

P/N 466230 - MODEL 11006

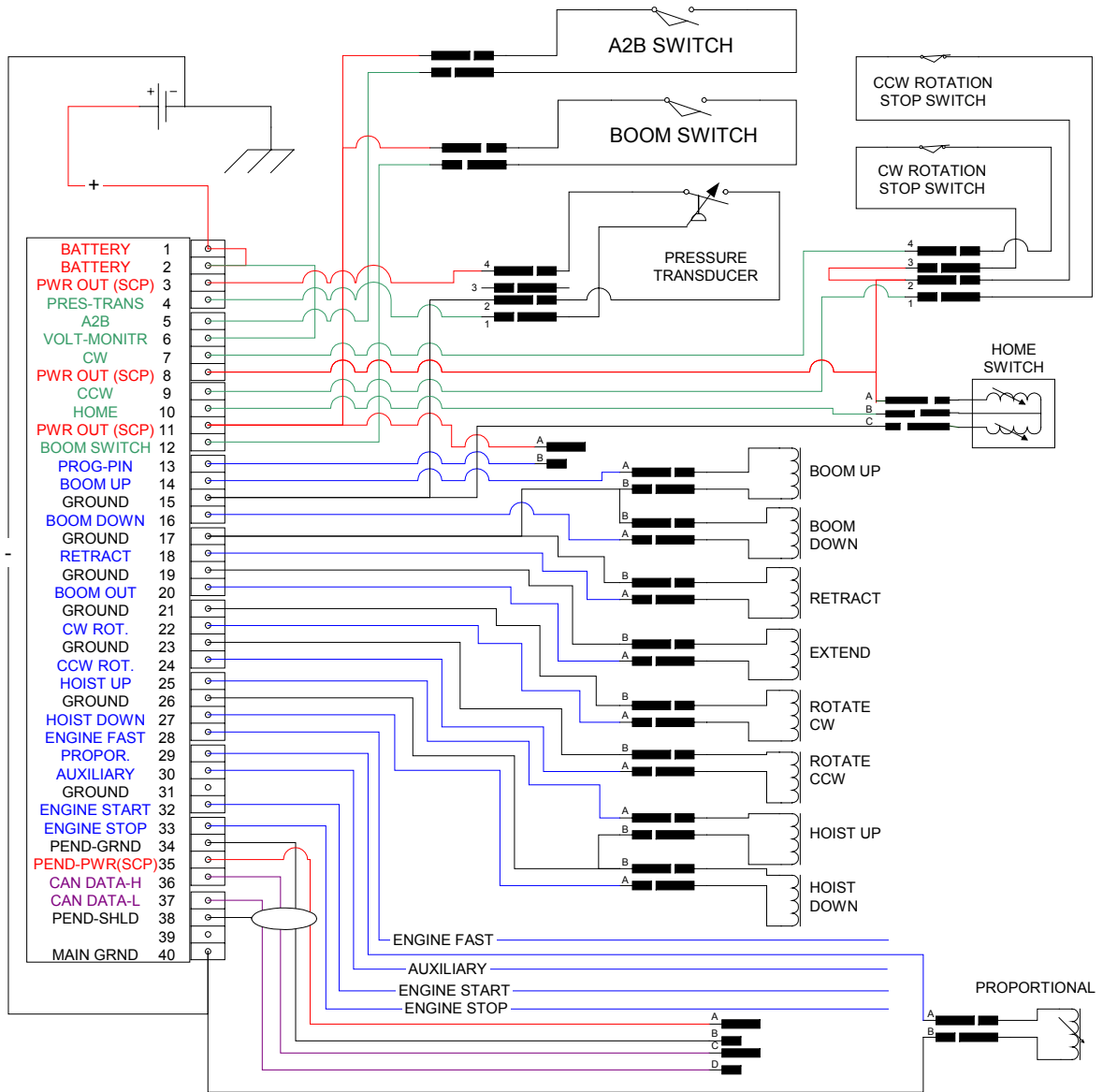


<u>ITEM</u>	<u>QTY</u>	<u>P/N</u>	<u>DESCRIPTION</u>
1	1	490256	SHEAVE BLOCK ASSEMBLY
2	1	480026	5 TON SWIVEL HOOK
3	2	466231	SIDE PLATE TRAVELING BLOCK
4	1	490313	SHEAVE BOLT w/ ZERK FITTING 3/4 NF x 4
5	1	018600	HEX LOCK NUT 3/4 NF
6	4	360124	HITCH PIN
7	2	466232	PIN BLOCK 1 DIA
8	1	466233	ROUND TUBING 1 1/4 x .120W x 1 1/2 L
9	2	811023	SCREW 3/8 NC x 4
10	2	017301	LOCK NUT 3/8 NC

# *NOTES*

# ELECTRICAL SCHEMATIC

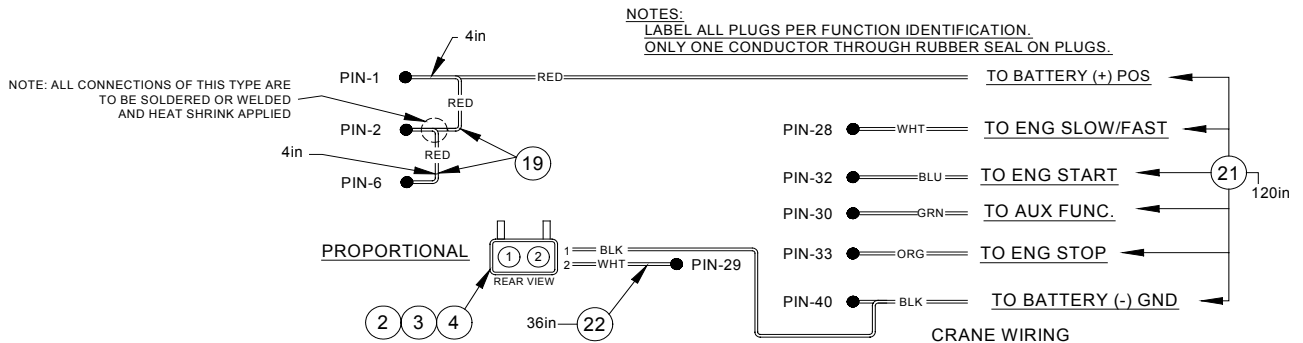
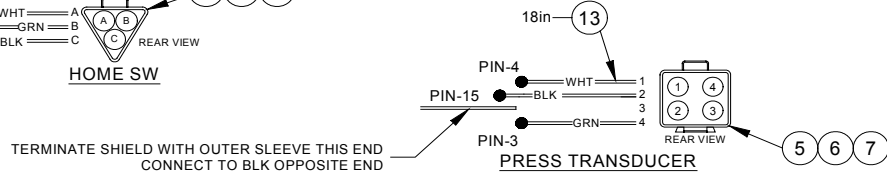
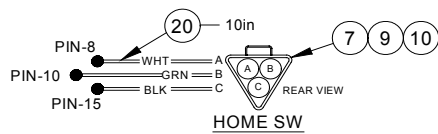
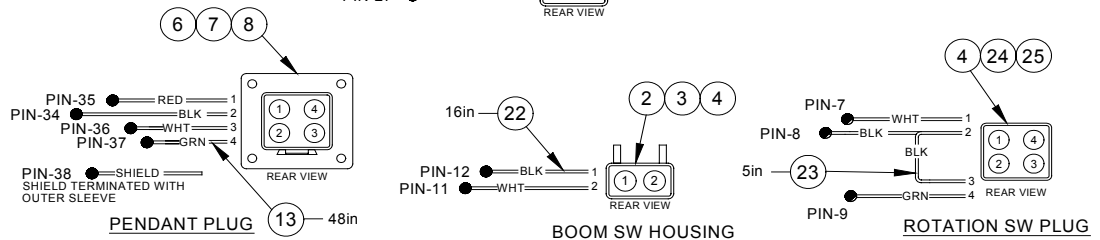
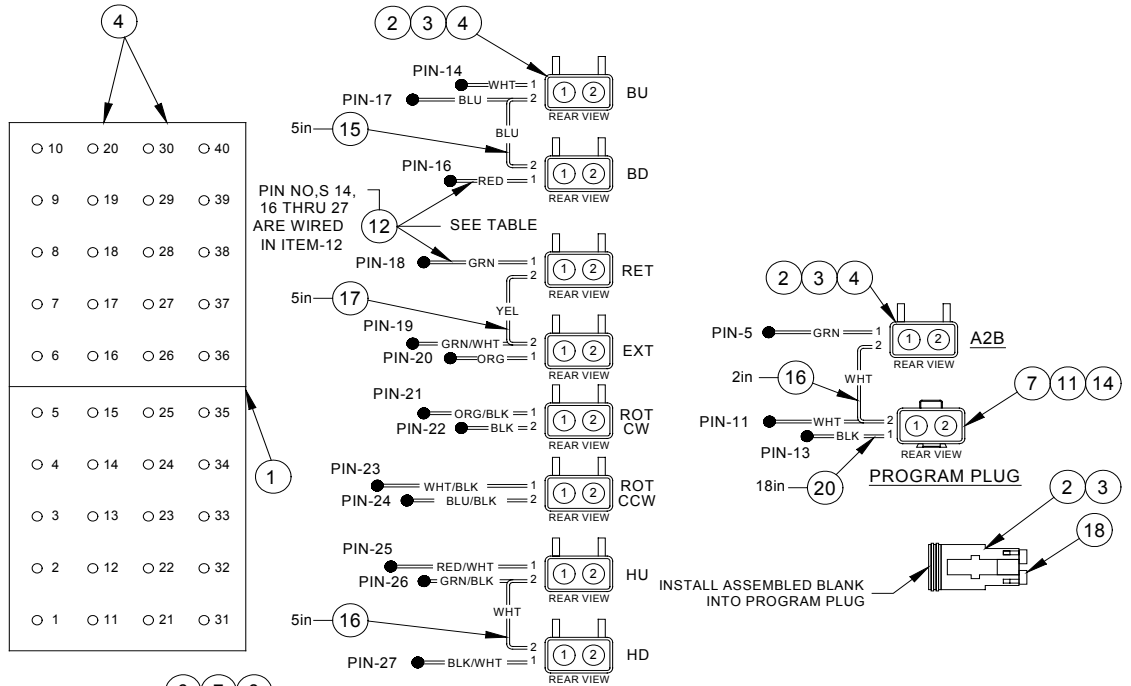
## 10006H-FM





# MAIN WIRE HARNESS

## 10006H FM (P/N: 480883000)



# ***MAIN WIRE HARNESS***

## ***10006H FM (P/N: 480883000)***

ITEM	QTY	D/S	PART No.	DESCRIPTION
1	1	A	366377001	HOUSING DEUTSCH 40-PIN
2	12	A	366367001	HOUSING DEUTSCH PLUG 2-PIN
3	12	A	366367002	WEDGE DEUTSCH PLUG 2-PIN
4	64	A	366367003	CONTACT DEUTSCH CONNECTOR (SOCKET)
5	1	A	366376001	HOUSING DEUTSCH RECEPTACLE 4-PIN
6	2	A	366376002	WEDGE DEUTSCH 4-PIN
7	14	A	366376003	CONTACT DEUTSCH CONNECTOR (PIN)
8	1	A	360768001	HOUSING DEUTSCH 4-PIN BULKHEAD RECEPTACLE
9	1	A	360764001	HOUSING DEUTSCH 3-PIN RECEPTACLE
10	1	A	360764002	WEDGE DEUTSCH 3-PIN
11	1	A	360769001	HOUSING DEUTSCH 2-PIN RECEPTACLE
12	36 in	A	800633	CABLE 16 GA 14 COND
13	66 in	A	750038	CABLE 18 GA 4 COND SHIELDED
14	1	A	360769002	WEDGE DEUTSCH 2-PIN
15	5 in	A	800594	WIRE 16 GA 1 COND BLU
16	7 in	A	800592	WIRE 16 GA 1 COND WHT
17	5 in	A	800596	WIRE 16 GA 1 COND YEL
18	2	A	360755000	CAVITY PLUG DEUTSCH
19	8 in	A	800593	WIRE 16 GA 1 COND RED
20	46 in	A	800628	CABLE 16 GA 3 COND
21	120 in	A	800629	CABLE 16 GA 6 COND
22	52 in	A	800626	CABLE 16 GA 2 COND
23	5 in	A	800590	WIRE 16 GA 1 COND BLK
24	1	A	320931002	WEDGE DEUTSCH PLUG 4-PIN
25	1	A	320931001	HOUSING DEUTSCH PLUG 4-PIN

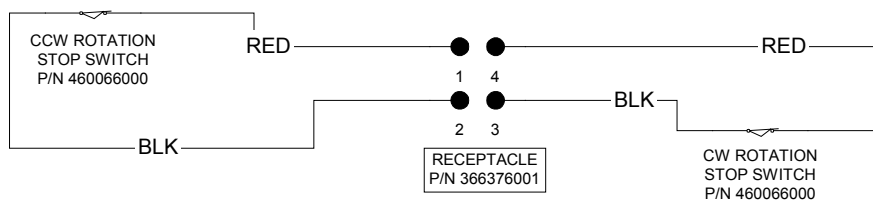
# ***ROTATION STOP & BOOM LIMT SWITCH WIRE HARNESS 10006H-FM***

QTY.	PART NO.	DESCRIPTION
1	460066000	SWITCH, LIMIT 914CE2-3
1	366376001	RECEPTICAL HOUSING 4-PIN
1	366376002	WEDGE, RECEPTACLE
1	366376003	CONTACT, PIN

## ROTATION STOP

1. CUT ROTATION SWITCH LEADS TO 24in.
2. STRIP BACK OUTER CASING.
3. STRIP RED AND BLACK WIRES,
4. CUT OFF UNUSED WIRES AT OUTER CASING.
5. INSTALL DEUTSCH PINS TO RED AND BLACK WIRES.
6. INSTALL WIRES IN 4 PIN PLUG PER ELECTRICAL SCHEMATIC.
7. INSTALL WEDGE IN RECEPTICAL.

### SWITCH ELECTRICAL SCHEMATIC



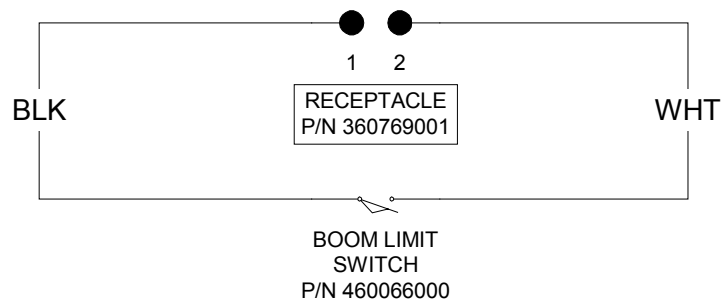
# **ROTATION STOP & BOOM LIMT SWITCH WIRE HARNESS 10006H-FM**

QTY.	PART NO.	DESCRIPTION
1	460066000	SWITCH, LIMIT 914CE2-3
1	360769001	RECEPTICAL HOUSING 2-PIN
1	360769002	WEDGE, RECEPTACLE
1	366376003	CONTACT, PIN

## BOOM LIMIT SWITCH

1. CUT BOOM LIMIT SWITCH LEAD TO 20in.
2. STRIP BACK OUTER CASING..
3. STRIP WHITE AND BLACK WIRES.
4. CUT OFF UNUSED WIRES AT OUTER CASING.
5. INSTALL DEUTSCH PINS TO WHITE AND BLACK WIRES.
6. INSTAL WIRES IN 2 PIN RECEPTACLE PER ELECTRICAL SCHEMATIC.
7. INSTALL WEDGE IN RECEPTACLE.

### SWITCH ELECTRICAL SCHEMATIC



# **DIAGNOSTICS**

<b>SITUATION</b>	<b>POSSIBLE SOLUTION</b>
FLOW PRESENT BUT FUNCTION WILL NOT WORK	Check receiver for error code, if error code is present while function is being activated, refer to the error code section on the following page. If “NRML” appears in the code display on the receiver while the function is being activated, operate the proportional override and push or pull the override on the directional control valve to operate the function. If the function still does not operate, see the “NO FLOW” paragraph in this section.
HYDRAULIC “CHATTER”	When a hydraulic function is engaged and causes the crane to “chatter”, check for error code on receiver display, low pump pressure or air in the system.
NO FLOW OR LIMITED FLOW TO CRANE	Check for error code on receiver display (see error code section). Check for adequate oil supply in reservoir. Check operation of bypass system by operating the override on the proportional valve while operating crane. If low flow condition continues to exist when the manual override is operated, remove relief valve cartridge and check for dirt. Other possible causes for a low flow condition are: <ol style="list-style-type: none"> <li>1. Engine speed is too slow.</li> <li>2. A blocked pressure hose from pump. This condition can be identified by excessive lugging of engine and rapid overheating of oil.</li> <li>3. Collapsed or blocked suction hose to pump. This condition is usually identified by pump cavitation noise.</li> <li>4. Bad pumps: a bad pump will usually have some flow but the flow will drop off rapidly as pressure increases. This condition will cause overheating of the system. A drop of four (4) or more GPM from Zero (0) PSI to Two Thousand (2000) PSI is cause for pump investigation</li> </ol>
NO PRESSURE OR TOO LOW PRESSURE	Check the sight gauge and maintain an adequate oil level in reservoir. Make sure pressure gauge is functioning correctly. Possible relief valve stuck open. Check for excessive leakage and correct.
TOO HIGH FLOW	Make sure pump size is correct and pump speed is not too fast (Consult manufacturer's data sheet). Check or replace flow control. Check components for flow displacements. High flow may cause erratic valve operation.
TOO HIGH PRESSURE	Make sure pressure relief valve is correctly set.

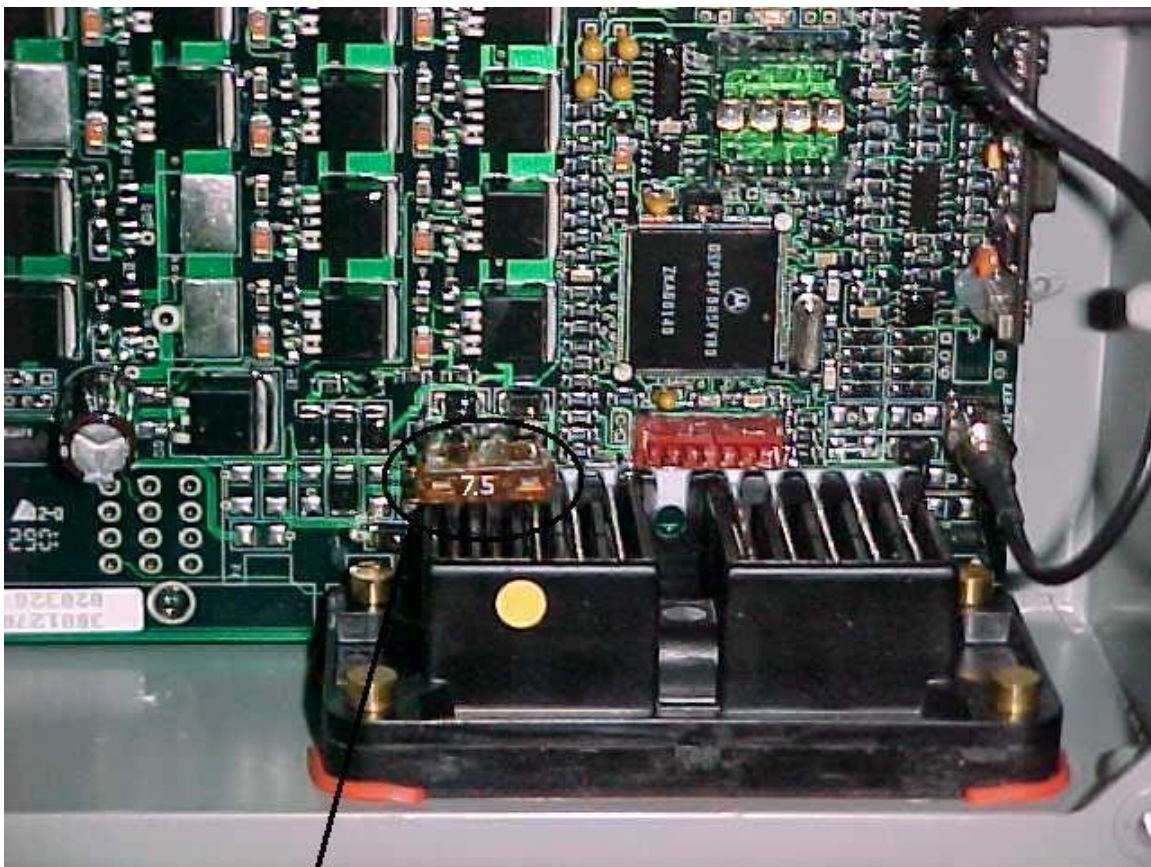
## **CAUTION**

**The Auto Crane 10006H series cranes are manufactured with a standard overload protection system to prevent structural damage to the crane. When the crane load rating is exceeded, main boom down, extend out, and hoist up will not function. These operations cannot be used again until the load on the crane is reduced. Also, the main boom elevation will be limited in its operation as the crane becomes overloaded. Attempting to raise the main boom with a load greatly exceeding the crane rating will open the main relief valve resulting in no boom movement. This problem can be resolved by moving the load closer to the crane pedestal, or reducing the load.**

## ***FUSE INFORMATION***

**NOTE:** Always turn the power to crane off before removing fuse.

Fuse is on the ground circuit. The fuse can be replaced with a 7.5 amp fuse.



**FUSE**

# ***CONTROLLER DIAGNOSTICS***

**CODE:** EC01

**DESCRIPTION:** Signal problem

**POSSIBLE CAUSE(S):** No signal from transmitter/pendant or transmitter power off.

**POSSIBLE SOLUTION(S):** Check green transmit light on transmitter, light should flash when function is activated. If light does not flash, make sure transmitter is on. If light flashes and red low battery light is flashes, charge unit. If transmitter is plugged in as a pendant and transmit light comes on but code remains, check cable connections and cable.

**CODE:** EC02

**DESCRIPTION:** Boom up

**POSSIBLE CAUSE(S):** Short or open connection on boom up output.

**POSSIBLE SOLUTION(S):** Check plug in boom up solenoid on hydraulic control valve. Check wires for damage that could cause break or short.

**CODE:** EC03

**DESCRIPTION:** Boom down

**POSSIBLE CAUSE(S):** Short or open connection on boom down output.

**POSSIBLE SOLUTION(S):** Check plug in boom down solenoid on hydraulic control valve. Check wires for damage that could cause break or short.

**CODE:** EC04

**DESCRIPTION:** Boom in (retract)

**POSSIBLE CAUSE(S):** Short or open connection on boom in output.

**POSSIBLE SOLUTION(S):** Check plug in boom in solenoid on hydraulic control valve. Check wires for damage that could cause break or short.

# ***CONTROLLER DIAGNOSTICS***

**CODE:** EC05

**DESCRIPTION:** Boom out (extend)

**POSSIBLE CAUSE(S):** Short or open connection on boom out output.

**POSSIBLE SOLUTION(S):** Check plug in boom out solenoid on hydraulic control valve. Check wires for damage that could cause break or short.

**CODE:** EC06

**DESCRIPTION:** Rotate CW

**POSSIBLE CAUSE(S):** Short or open connection on rotate CW output.

**POSSIBLE SOLUTION(S):** Check plug in rotate CW solenoid on hydraulic control valve. Check wire for damage that could cause break or short.

**CODE:** EC07

**DESCRIPTION:** Rotate CCW

**POSSIBLE CAUSE(S):** Short or open connection on rotate CCW output.

**POSSIBLE SOLUTION(S):** Check plug in rotate CCW solenoid on hydraulic control valve. Check wire for damage that could cause break or short.

**CODE:** EC08

**DESCRIPTION:** Hoist up

**POSSIBLE CAUSE(S):** Short or open connection on hoist up output.

**POSSIBLE SOLUTION(S):** Check plug in hoist up solenoid on hydraulic control valve. Check wire for damage that could cause break or short.

**CODE:** EC09

**DESCRIPTION:** Hoist down

**POSSIBLE CAUSE(S):** Short or open connection on hoist down output.

**POSSIBLE SOLUTION(S):** Check plug in hoist down solenoid on hydraulic control valve. Check wire for damage that could cause break or short.



# ***CONTROLLER DIAGNOSTICS***

**CODE:** EC10

**DESCRIPTION:** Incorrect ID

**POSSIBLE CAUSE(S):** Signal received from transmitter with incorrect ID code.

**POSSIBLE SOLUTION(S):** Confirm that transmitter being used is for use with this unit. Follow 'New Transmitter' procedure in the transmitter operation section of this manual.

**CODE:** EC11

**DESCRIPTION:** Ground missing

**POSSIBLE CAUSE(S):** Fuse in receiver may be blown.

**POSSIBLE SOLUTION(S):** Check the fuse in the receiver, fuse is on the ground circuit do not check for voltage.

**CODE:** EC12

**DESCRIPTION:** Short circuit in power circuit

**POSSIBLE CAUSE(S):** Power provided to the switches etc. is shorted to ground.

**POSSIBLE SOLUTION(S):** Check the wiring on the pendant cable, the anti-two block, the pressure sensor, the boom limit switch, the home switch and the rotation stop for a short to ground.

**CODE:** EC13

**DESCRIPTION:** Auxiliary not wired

**POSSIBLE CAUSE(S):** Short or open connection on auxiliary.

**POSSIBLE SOLUTION(S):** This error should only be seen on a Palm unit and should only occur when the auxiliary function is not connected.

**CODE:** EC15

**DESCRIPTION:** Pressure sensor

**POSSIBLE CAUSE(S):** Pressure sensor problem.

**POSSIBLE SOLUTION(S):** Check plugs and wires coming from pressure sensor mounted in the lift cylinder counterbalance valve.

## ***CONTROLLER DIAGNOSTICS***

- CODE:** EC16
- DESCRIPTION:** Trigger
- POSSIBLE CAUSE(S):** Transmitter trigger problem.
- POSSIBLE SOLUTION(S):** Check trigger for damage, contamination or incorrect adjustment.
- CODE:** EC17
- DESCRIPTION:** Trigger logic error
- POSSIBLE CAUSE(S):** Trigger was activated before function switch was activated.
- POSSIBLE SOLUTION(S):** Confirm that trigger is released and returned to full off position, activate function and reactivate trigger.
- CODE:** LBV
- DESCRIPTION:** Low battery
- POSSIBLE CAUSE(S):** Low battery power to to receiver.
- POSSIBLE SOLUTION(S):** Check connections to the battery. Charge battery. NOTE: It is recommended that the crane be powered off if battery is charged with battery charger.
- CODE:** OVL
- DESCRIPTION:** Overload
- POSSIBLE CAUSE(S):** Pressure overload.
- POSSIBLE SOLUTION(S):** Retract boom, hoist down or otherwise alleviate overload condition. Refer to load chart for rated load. If the error persists with seemingly light loads, install pressure gage in plugged port of lift cylinder counterbalance valve to confirm pressures in excess of 2,800 psi. Pressure sensor can give false readings if not properly grounded.

# ***CONTROLLER DIAGNOSTICS***

**CODE:** **RS1**

**DESCRIPTION:** Rotation switch tripped.

**POSSIBLE CAUSE(S):** Rotation stop reached in clockwise direction.

**POSSIBLE SOLUTION(S):** This is not an error. Rotate in opposite direction or check switch for interference.

**CODE:** **RS2**

**DESCRIPTION:** Rotation switch tripped.

**POSSIBLE CAUSE(S):** Rotation stop reached in counter-clockwise direction.

**POSSIBLE SOLUTION(S):** This is not an error. Rotate in opposite direction or check switch for interference.

**CODE:** **A2B**

**DESCRIPTION:** Anti-two block

**POSSIBLE CAUSE(S):** Anti-two block switch tripped.

**POSSIBLE SOLUTION(S):** Check switch, if not mechanically tripped, check continuity cross switch at plug. If switch has continuity check voltage across transmitter side of A2B plug. If low voltage is read, power to the A2B switch, the rotation switches or the pressure sensor may have a short.

**CODE:** **RSBM**

**DESCRIPTION:** Raise boom

**POSSIBLE CAUSE(S):** Pressure sensor is reading less than 80 psi.

**POSSIBLE SOLUTION(S):** Raise boom to ensure it is not resting on other structure and the lift cylinder is not bottomed out.

# ***CONTROLLER DIAGNOSTICS***

**CODE:** HOME

**DESCRIPTION:** Home position

**POSSIBLE CAUSE(S):** Crane is pointed forward ready to be stowed.

**POSSIBLE SOLUTION(S):** This is not an error. It is a built-in override of the above RSBM condition that will allow you to stow the crane on a boom support.

**CODE:** NRML

**DESCRIPTION:** Normal operating mode

**POSSIBLE CAUSE(S):** Crane is functioning properly.

**POSSIBLE SOLUTION(S):** This is not an error. It is a standard normal operation readout.

**CODE:** SLOW

**DESCRIPTION:** Slow operating mode

**POSSIBLE CAUSE(S):** Crane is functioning properly if loaded or boom down activated.

**POSSIBLE SOLUTION(S):** This is not an error. It is a standard slow operation readout. If the crane is not loaded booming up should clear this code.

**CODE:** BLMT

**DESCRIPTION:** Boom limit

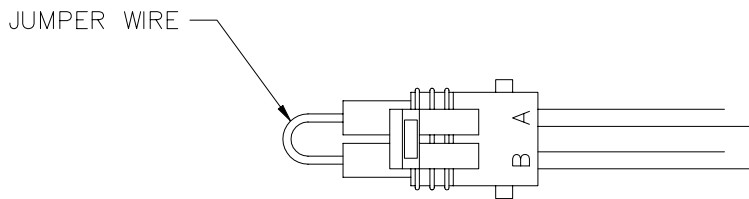
**POSSIBLE CAUSE(S):** Boom has reached maximum elevation.

**POSSIBLE SOLUTION(S):** This is not an error. It only indicates boom position. Lower the boom to deactivate the switch.

# *TRANSMITTER / RECEIVER SYNCHRONIZATION*

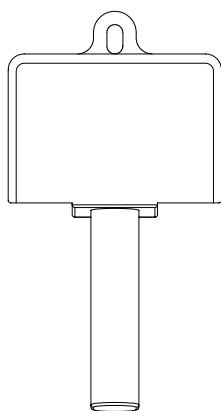
**NOTE: BEFORE PERFORMING THIS PROCEDURE, CONFIRM THAT NO OTHER CRANES OF THIS TYPE ARE OPERATING IN THE AREA.**

1. Power on the transmitter and receiver.
2. Locate the program plug on the crane. This will be the unused plug near where the cord reel plugs into the wire harness. There should be a blank plug installed and the plug should be labeled.
3. Using a jumper wire, as shown below, connect the two contacts in the plug.
4. While the jumper is installed and the transmitter is unplugged from the pendant cable, activate a function on the transmitter. **Note:** The crane must be electrically powered but it is not necessary to supply hydraulic power to complete synchronization.
5. Remove the jumper wire.  
**Important:** The jumper wire should not be left installed. Doing so could cause the crane to be operated by another transmitter.

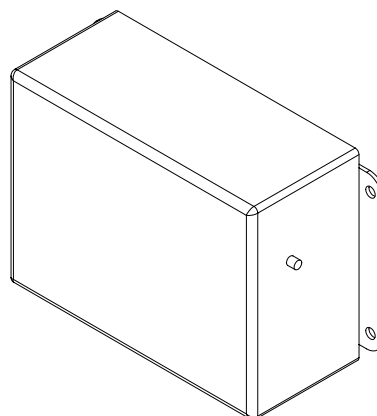
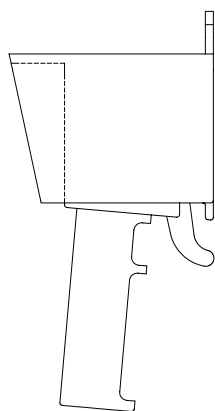


# ***REMOTE / PENDANT PARTS AND ACCESSORIES***

<b><u>Component</u></b>	<b><u>Part Number</u></b>
Receiver	460100006
Transmitter	460100002
Pendant Cable	366500008
Antenna	366500005
Antenna Extension Cable	366500006
Cigarette Lighter Charger	366504000
A/C Charger	366505000
Palm Diagnostic Unit	366510000
Replacement Toggle Switch (Transmitter)	366500010
Replacement Batteries (Transmitter)	366500007

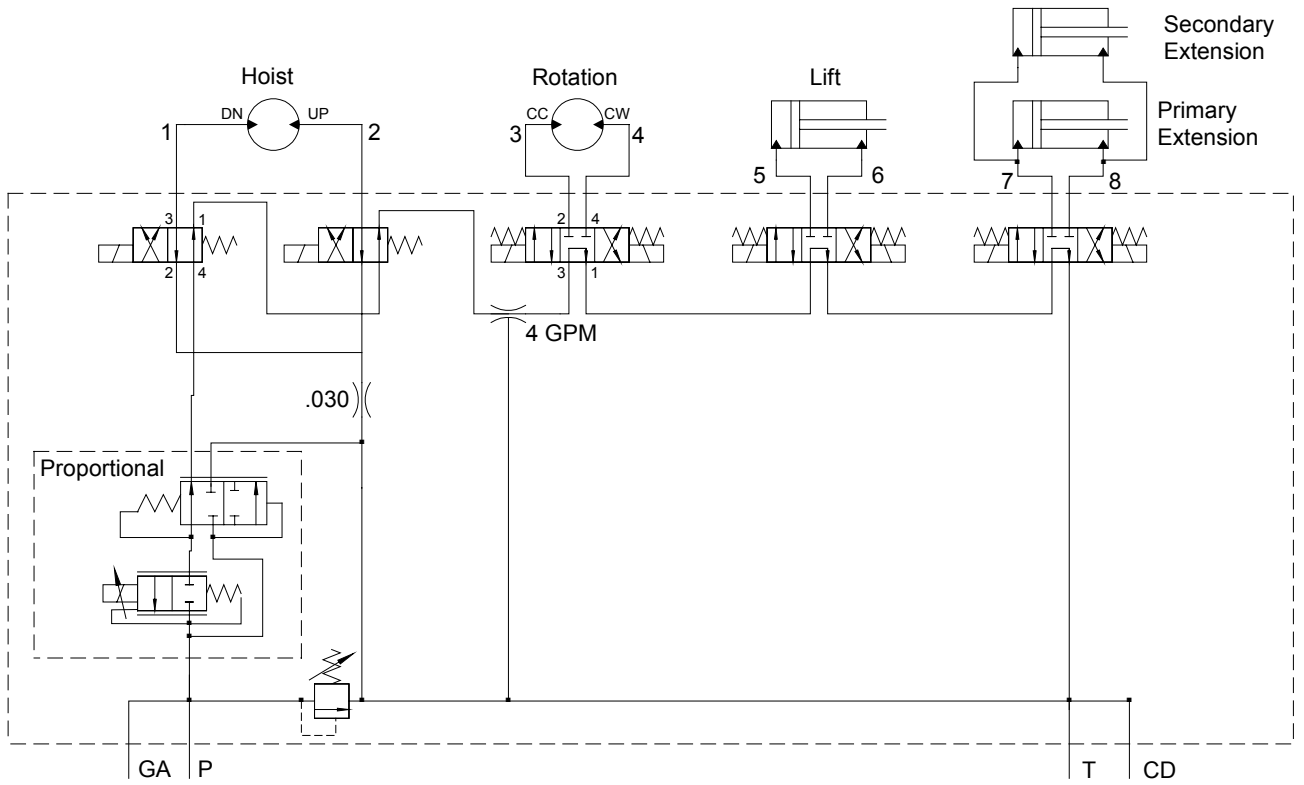


Transmitter



Receiver

# *HYDRAULIC SECTION SCHEMATIC*



# **HYDRAULIC SECTION**

## **COUNTERBALANCE VALVE ADJUSTMENT**

### **Counterbalance Valve Adjustment**

- ◆ With PTO disengaged and boom properly supported, remove the plug on the counterbalance valve. Install a pressure gauge (0-4000 PSI) into the port.
- ◆ Engage PTO and insure pump flow is 15 to 16 GPM. With no load on boom, boom up to an angle of 70 degrees. Boom down and note pressure. If pressure reading is not approximately 1000 PSI, the counterbalance valve requires adjustment.
  - To increase the CB valve setting, loosen nut and turn Allen head screw counter clockwise.
  - To reduce the CB valve setting, loosen nut and turn Allen head screw clockwise.
- ◆ Tighten nut on adjustment screw and repeat procedure if needed to obtain the proper pressure setting.
- ◆ Disengage PTO, remove the pressure gauge and install plug. Crane is now ready for operation.

### ***Notice:***

- ◆ In an EMERGENCY situation when it becomes necessary to lower the boom without flow present, the CB valve adjustment can be turned in until the boom begins to descend. Make sure the boom will lower onto a proper support. Loosen the lock nut and carefully turn adjustment screw clockwise! Count the number of turns. *Turn slowly until the boom just begins to lower, and remove hand/arm/fingers from cranes while boom is lowering.*
- ◆ Turning adjustment screw too far will cause valve to come apart on the inside. This condition is not repairable
- ◆ After boom is lowered, turn adjustment screw counter clockwise the approximate number of turns made during lowering procedure. After the problem is corrected, readjust the counterbalance valve using the procedure in this manual.

### **WARNING:**

**DO NOT TRY TO ADJUST VALVES WHILE BOOM IS MOVING.  
Doing so may result in personal injury!**





# ***HYDRAULIC CONTROL VALVE 10006H SERIES***

<b>ITEM</b>	<b>A/C P/N</b>	<b>QTY</b>	<b>DESCRIPTION</b>
FR1	480839002	1	FLOW CONTROL
PV1	480839003	1	PROP VALVE
RV1	366365004	1	RELIEF VALVE
SV3,SV4,SV5	320725001	3	CART VALVE
SV1,SV2	480839004	2	CART VALVE
CL1	366370001	1	COIL
CL2	480839005	2	COIL
CL3	366365001	6	COIL

<b><i>FITTING TABLE</i></b>			
<b>PORT #'S</b>	<b>A/C P/N</b>	<b>QTY</b>	<b>DESCRIPTION</b>
1,2	374017000	2	FITTING 45 8-SAE/8-JIC
3,5	241175000	2	FITTING 90 6-SAE/6-JIC
4,6	330645000	2	FITTING 90 6-SAE/6-JIC LONG
P	369145000	1	FITTING STR 8-SAE/8-JIC
T	490199000	1	FITTING STR 10-SAE/10-JIC
7,8	480195000	2	FITTING 45 6-SAE/6-JIC
GA	369127	1	FITTING 90 4-SAE/4-JIC
GA	330348	1	FITTING CAP 4-JIC

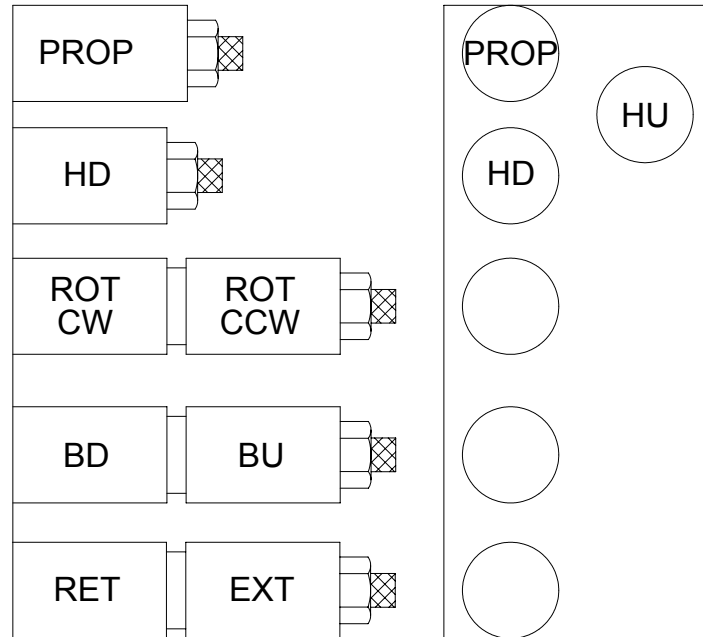
# *NOTES*

# *VALVE OVERRIDE OPERATION*

In the event that the electrical control system fails, the crane can be operated using the manual overrides on the hydraulic control valve.

The overrides operate as follows:

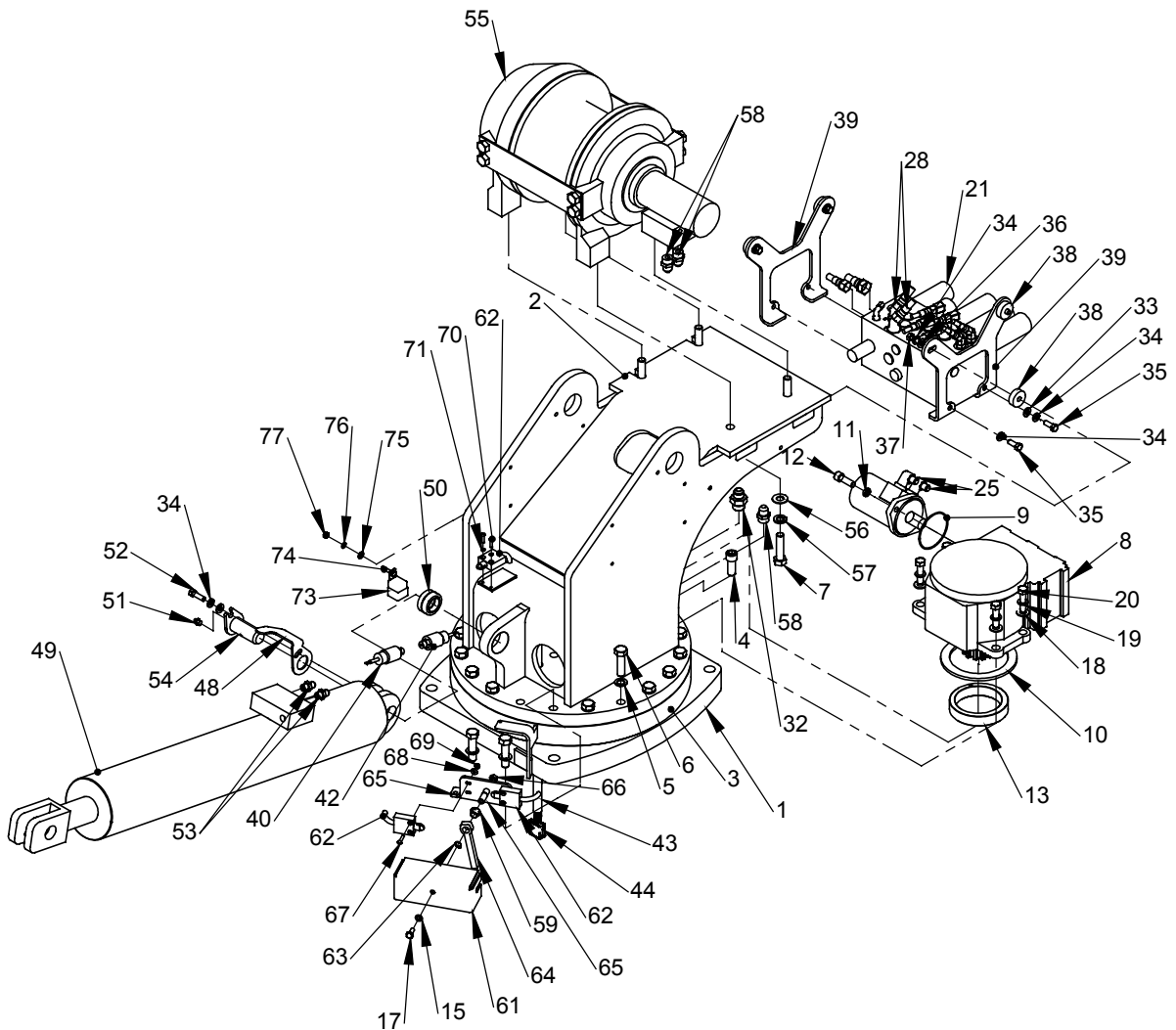
1. Proportional – increase flow by turning clockwise.
2. Extend/Retract, Boom Up/Down, Rotate CW/CCW – Push to operate boom down, pull to operate boom up etc. See graphics below.
3. Hoist Up/Down – Push in to operate.



## DIRECTIONAL CONTROL VALVE IDENTIFICATION

# ***PEDESTAL ASSEMBLY***

## ***10006H HW (P/N: 460040001)***



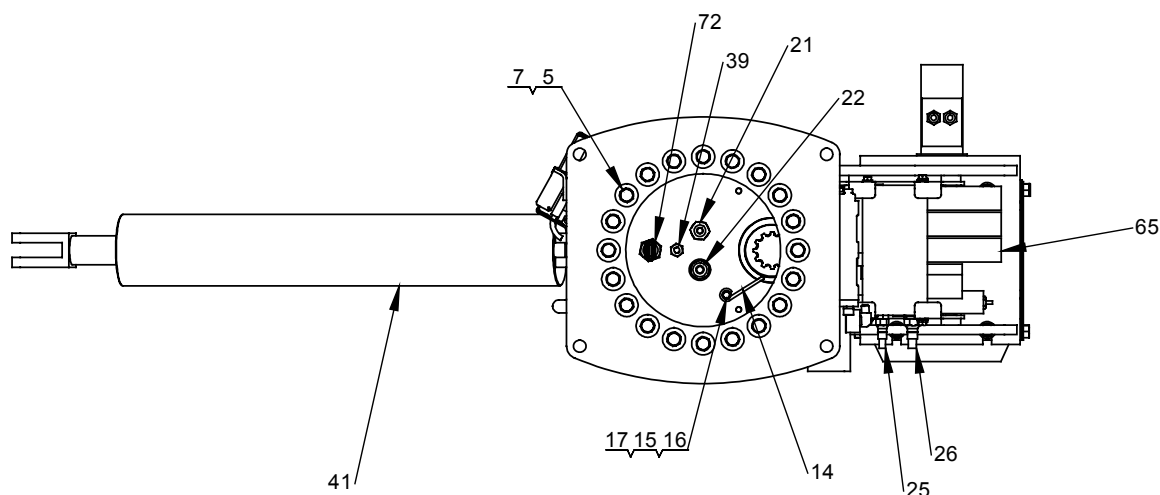
**HYDRAULICS:**

- PORT #: HOIST DOWN (REAR MOTOR PORT)
- PORT #2: HOIST UP (MOTOR PORT)
- PORT #3: ROTATION CCW (LOWER MOTOR PORT)
- PORT #4: ROTATION CW (UPPER MOTOR PORT)
- PORT #5: LIFT CYL EXTEND
- PORT #6: LIFT CYL RETRACT
- PORT #7: EXT CYL EXTEND
- PORT #8: EXT CYL RETRACT

CYLINDER SEAL KIT: 460051001  
 COUNTER BALANCE CARTRIDGE: 360153001

# **PEDESTAL ASSEMBLY**

## **10006H HW (P/N: 460040001)**



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	460046000	BASE PLATE WELD
2	1	460041000	PEDESTAL WELD
3	1	372064	ROTATION BEARING
4	3	460076000	SCW SOC HD 5/8-11 X 1 5/8
5	37	023902	WASHER, 5/8 FLAT HARDENED
6	15	490171	CAPSCREW 5/8-11 X 2.25 GR8
7	26	366393	HEX HEAD 5/8-11 X 2.5 GR8
8	1	460060000	ROTATION GEARBOX
9	1	460085000	SEAL, O-RING
10	1	460092000	SEAL, ROTATION GEARBOX
11	2	021502	WASHER SP/LK 1/2 HI COLLAR
12	2	012197	SOC HD 1/2-13
13	1	360162	RING, ECCENTRIC
14	1	360207	RETAINER ECCENTRIC RING
15	2	020601	WASHER 5/16 LOCK
16	1	020901	WASHER FL 5/16
17	2	007807	SCW HEX 5/16-18 3/4LG GR5
18	4	320588	WASHER FL 1/2
19	4	021500	WASHER SP LK 1/2
20	4	011608	SCW, 1/2-13 X 2 ZP
21	1	480839000	VALVE BANK ASSY
22	1	366358	FITTING 10SAE/JIC SWIVEL PS810503-10-10
23	1	460086000	FITTING 12 SAE/JIC SWIVEL
24	1	460078000	MOTOR, ROTATION
25	2	490198	FITTING 10SAE(M)/6JIC ELBOW 90

# **PEDESTAL ASSEMBLY**

## **10006H HW (P/N: 460040001)**

ITEM NO	QTY	PART NO	DESCRIPTION
25	2	490198	FITTING 10SAE(M)/6JIC ELBOW 90
26	1	812309-024	HOSE ASSY 8 STR/90
27	1	812409-024	HOSE ASSY 10 STR/90
28	2	480203	HOSE ASSY 8 STR X 24.75
29	2	812203024	HOSE ASSY 6 STR
30	2	812203038	HOSE ASSY 6 STR
31	2	480205	HOSE ASSY 6 STR X 19.25
32	1	372260	FITTING, 10-12 JIC/SAE STR
33	2	021200	WASHER FL 3/8
34	9	021100	WASHER SPLK 3/8
35	4	330371	SCW HX 3/8 UNC X 1 GR8
36	5	320976000	WASHER, FLAT, 3/8 SAE HARDENED
37	4	366159000	SCW HX 3/8-16 X 1 1/2 GR8
38	4	460074000	SPACER, VALVE
39	2	366364	PLATE, VALVE MOUNTING
40	1	460097000	LOAD SENSOR SWITCH, 3100 PSI
41	1	366363001	AMP MODIFICATION, CONNECTORS
42	1	460096000	LOAD SENSOR SWITCH, 2850 PSI
43	1	460120000	MAIN HARNESS ASSEMBLY, HARD WIRED
44	1	366522001	HOUSING, PLUG, DEUTSCH 12-PIN
45	1	366522002	WEDGE, DEUTSCH PLUG, 12 SOCKET
46	1	370433	CORD CONNECTOR HUBBLE F-3
47	1	642908	CORD CONNECTOR
48	1	460072000	ACTUATOR, BOOM LIMIT
49	1	460051000	CYLINDER, LIFT
50	1	366333	BEARING, SPHERICAL 1.25 ID
51	1	239300	ZERK, GREASE
52	1	008702000	SCW HX 3/8-16 X 1 1/4 GR5
53	2	200876	FITTING 6 SAE/6 JIC STRAIGHT
54	1	366492	PIN 1.25<MOD-DIAM> X 3.00 LG
55	1	123406	WINCH, RAMSEY RPH-5000
56	4	407314000	WASHER FL 5/8 X 1 5/16 OD HARDENED
57	4	023800	WASHER SP LK 5/8
58	3	372041	FITTING 8JIC/10SAE STRAIGHT 8-10 F5OX
59	1	460079000	BEARING, ROTATION STOP
60	1	460064000	PIN, ROTATION STOP
61	1	460065000	COVER, ROTATION STOP
62	3	460066000	SWITCH, LIMIT 914CE2-3

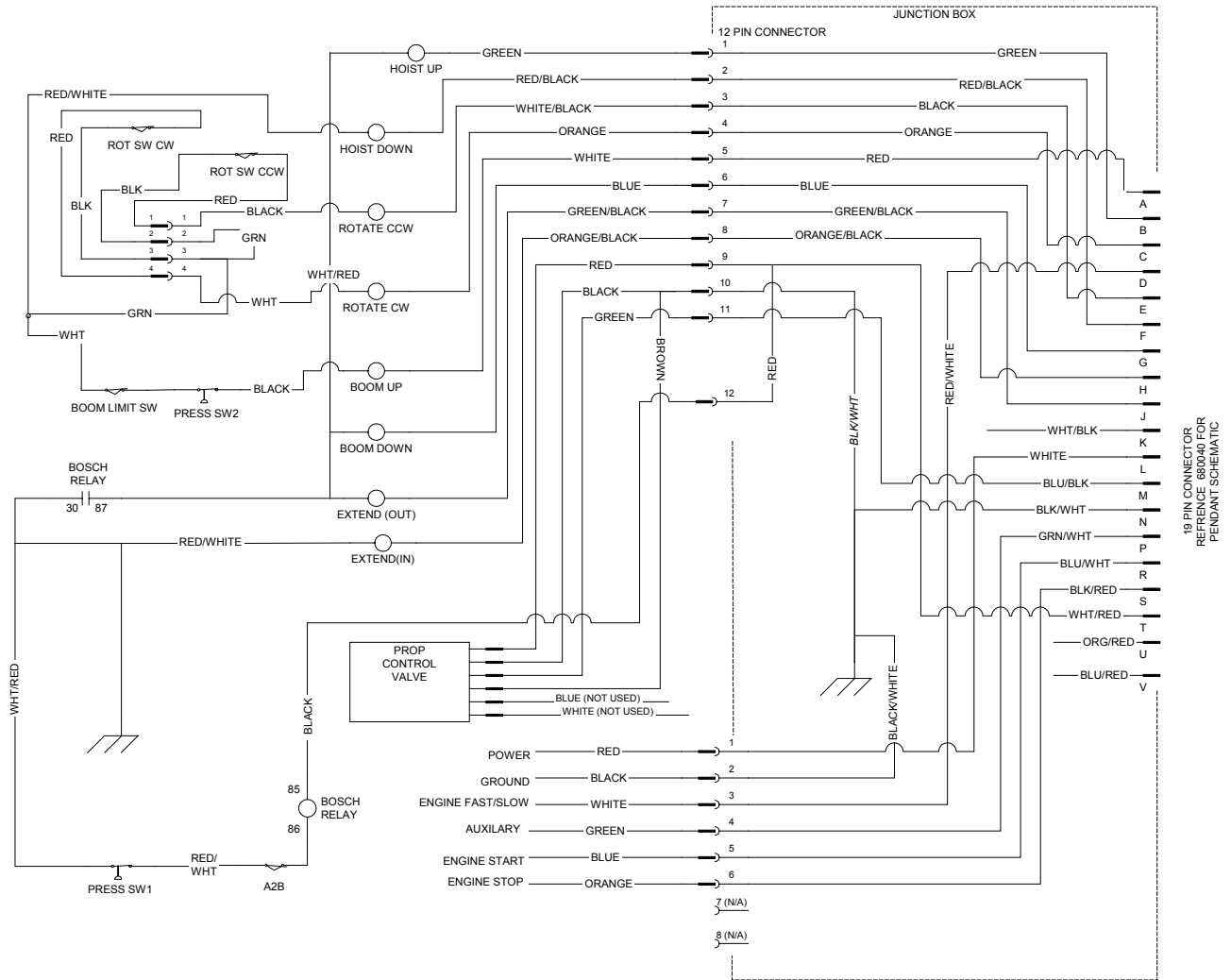
***PEDESTAL ASSEMBLY***  
***10006H HW (P/N: 460040001)***

ITEM NO	QTY	PART NO	DESCRIPTION
63	1	560148000	RING RETAINING 1/2 ID
64	1	460067000	ARM, ROTATION STOP
65	1	460068000	BRACKET, ROTATION STOP
66	1	017301	NUT HX NYLON LOCK 3/8 NCCP
67	4	460093000	SCW #10-24 X 1 ZP
68	4	020000	10 SAE FLAT WASHER
69	4	015801	NUT, #10-24 NYLON LOCK ZP
70	2	002607	SCW, #10-24 X 3/4 ZP
71	2	019800	10 SPLIT LOCK
72	1	374086	NYLON HOSE SLEEVE
73	1	320355	RELAY, BOSCH
74	1	006200	SCW HX HED 1/4-20 X 1-1/4
75	1	020300	WASHER FL SAE 1/4
76	1	020200	WASHER SPLIT LOCK 1/4
77	1	015900	NUT 1/4 NC

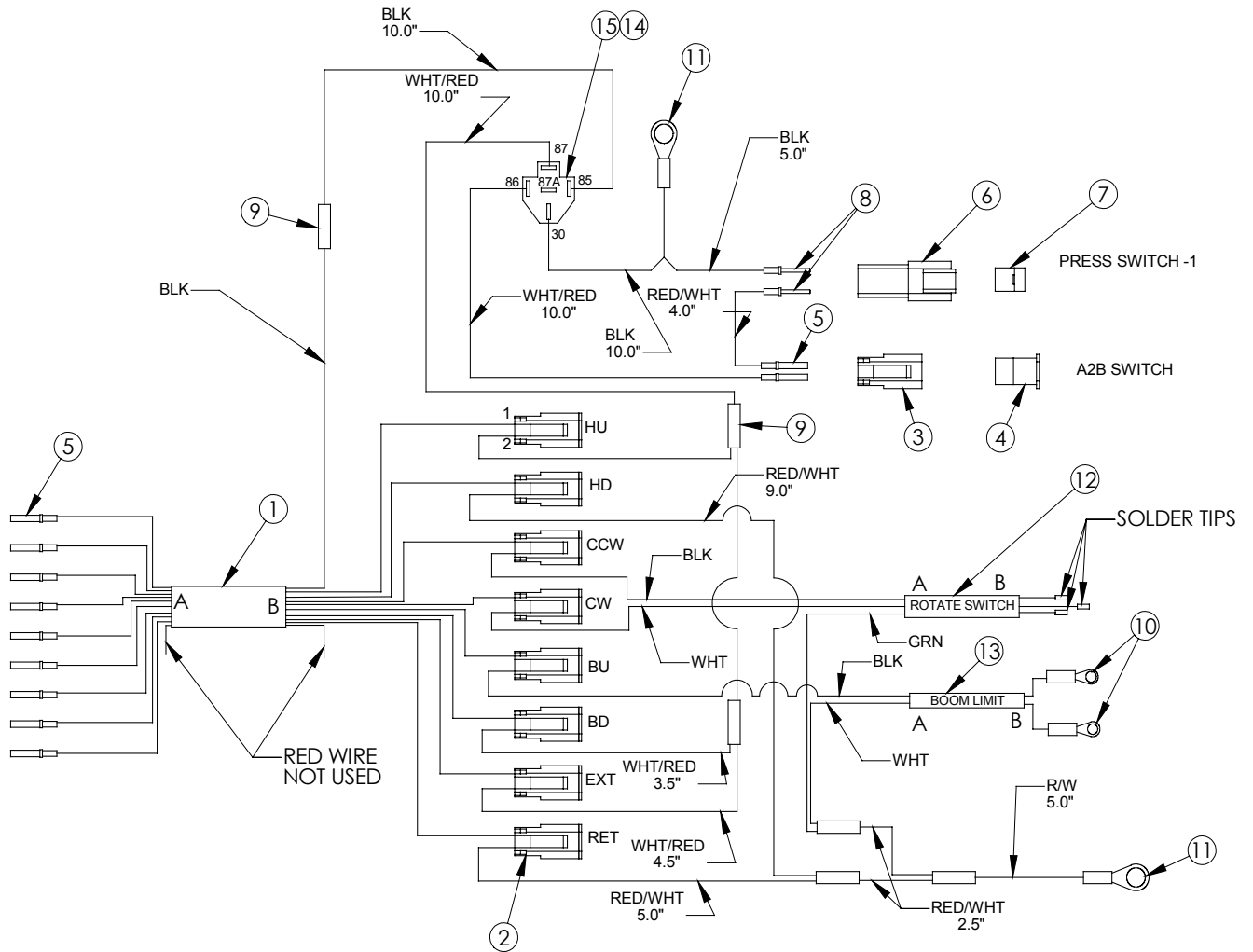


# ELECTRICAL SCHEMATIC

## 10006H HARD WIRED



# MAIN WIRING HARNESS

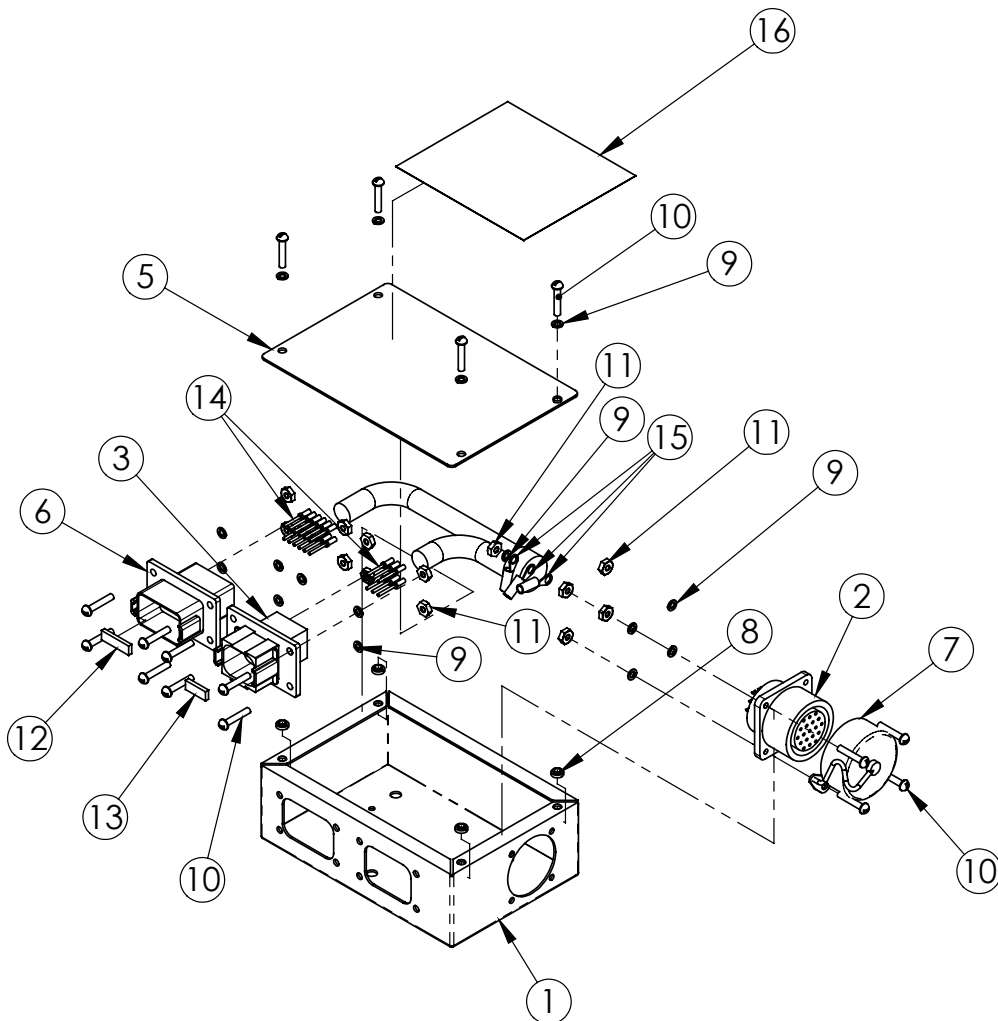


FUNCTION	PIN	WIRE COLOR	NOTES
HOIST UP	1	GREEN	POWER
	2	WHITE/RED	TO A2B GROUND
HOIST DN	1	RED/BLACK	POWER
	2	RED/WHITE	GROUND
ROTATE CCW	1	WHITE/BLACK	POWER
	2	WHITE	TO CCW SWITCH (3 COND CABLE)
ROTATE CW	1	ORANGE	POWER
	2	BLACK	TO CW SWITCH (3 COND CABLE)
BOOM UP	1	WHITE	POWER
	2	BLACK	BOOM SWITCH CABLE
BOOM DN	1	BLUE	POWER
	2	WHITE/RED	TO A2B GROUND
EXTEND	1	GREEN/BLACK	POWER
	2	WHITE/RED	TO A2B GROUND
RETRACT	1	ORANGE/BLACK	POWER
	2	RED/WHITE	GROUND
A2B SWITCH	1	WHITE/RED	TO PIN 1, PRESSURE SWITCH
	2	RED/WHITE	FROM HU, BD, EXT GND
PRESSURE SWITCH	1	RED/WHITE	GROUND
	2	WHITE/RED	FROM A2B PIN 2
ROTATE SWITCH 3 COND CABLE	**	WHITE	*PIN 2 ON ROTATE CCW PLUG
	**	BLACK	**PIN 2 ON ROTATE CW PLUG
	N/A	GREEN	GROUND
BOOM LIMIT 2 COND CABLE	***	WHITE	***PIN 2 ON BOOM UP PLUG
	N/A	BLACK	

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	800632000	CABLE, 16/10 SO BLACK
2	8	366367000	DEUTSCH 2-PIN ASSEMBLY
3	1	366367001	HOUSING, DEUTSCH 2-PIN PLUG
4	1	366367002	WEDGE, DEUTSCH 2-PIN PLUG
5	11	366367003	CONTACT, DEUTSCH SOCKET
6	1	360769001	HOUSING, DEUTSCH 2-PIN RECEPTACLE
7	1	360769002	WEDGE, DEUTSCH 2-PIN RECEPTACLE
8	2	366376003	CONTACT, DEUTSCH
9	6	001104000	TERMINAL SPLICE, 14-16 GA
10	2	000101000	TERMINAL RING, 5/32, 14-16 GA
11	2	000501000	TERMINAL RING, 5/16, 14-16 GA
12	1	800628000	WIRE, 3 CONDUCTOR
13	1	800626000	WIRE, 2 CONDUCTOR
14	4	320357	FEMALE SPADE, NON-INSULATED
15	1	320363	PLUG SPADE, NOINSULATED
16	31in	800618000	WIRE, 16GA, WHITE/RED
17	26in	800617000	WIRE, 16GA, RED/WHITE

# JUNCTION BOX ASSEMBLY

## 10006H HW



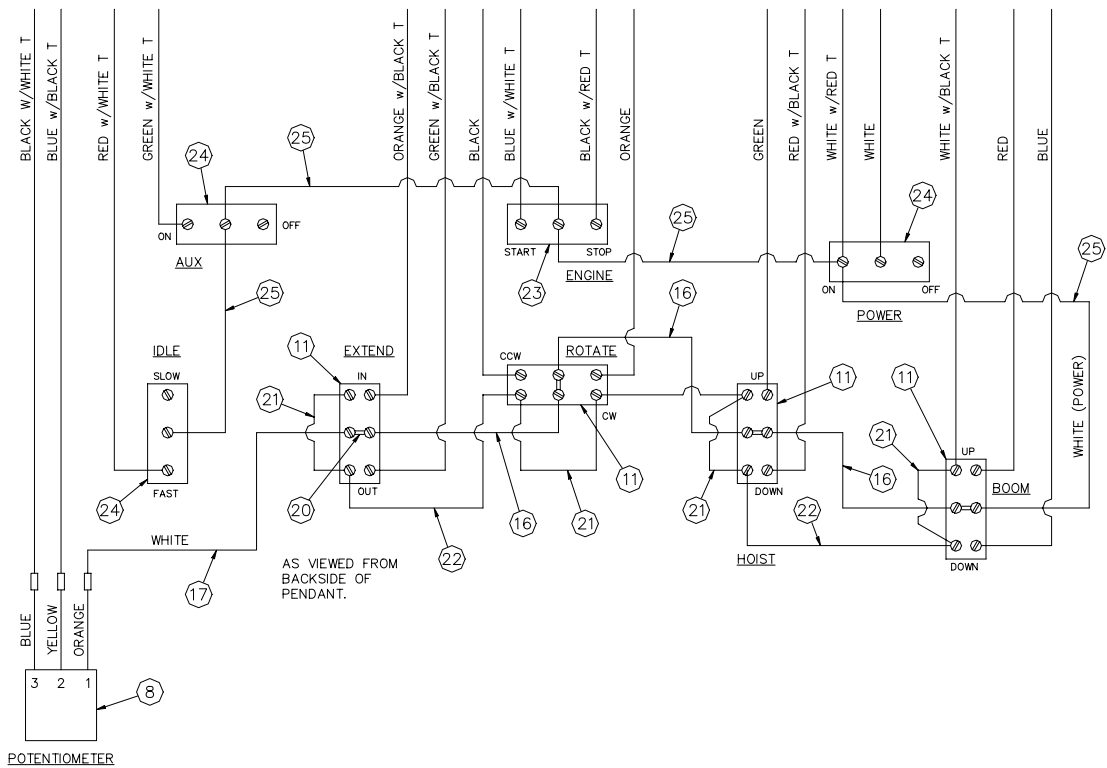
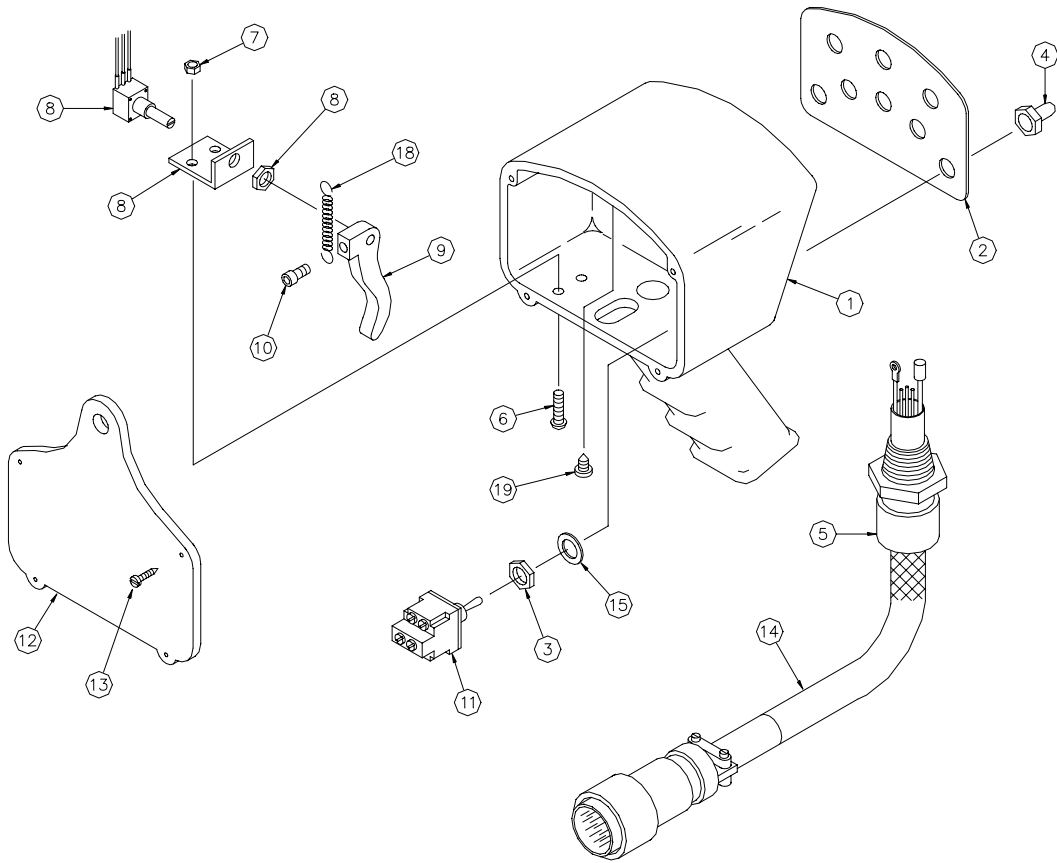
FUNCTION	19 PIN	8 PIN	12 PIN	GND	WIRE COLOR
BOOM UP	A		5		RED
HOIST UP	B		1		GREEN
ROTATE CW	C		4		ORANGE
ENGINE FAST	D	3			RED/WHITE
ROTATE CCW	E		3		BLACK
HOIST DN	F		2		RED/BLACK
BOOM DN	G		6		BLUE
RETRACT	H		8		ORANGE/BLACK
EXTEND	J		7		GREEN/BLACK
NOT USED	K	-	-		WHITE/BLACK
POWER	L	1			WHITE
PROP +0 TO 5V	M		11		BLUE/BLACK
GROUND	N			GND	BLACK/WHITE
AUXILARY	P	4			GREEN/WHITE
ENGINE START	R	5			BLUE/WHITE
ENGINE STOP	S	6			BLACK/RED
PROP POWER	T		9		WHITE/RED
NOT USED	U	-	-		ORANGE/RED
NOT USED	V	-	-		BLUE/RED
GROUND			10	GND	BLACK/WHITE
GROUND		2		GND	BLACK/WHITE
GROUND			12		RED

## ***JUNCTION BOX ASSEMBLY***

### ***10006H HW***

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	366470000	JUNCTION BOX
2	1	366095	RECEPTACLE, 19 PIN
3	1	366523001	HOUSING, DEUTSCH 8-PIN RECEPTACLE
4	1	480594001	CABLE, PENDANT, 16/10 SO BLACK
5	1	366471000	COVER, JUNCTION BOX
6	1	366524001	HOUSING, DEUTSCH 12-PIN RECEPTACLE
7	1	366097000	CAP W/CHAIN (FOR RECEPTACLE)
8	4	366519000	NUT, SELF CLINCHING
9	17	019600	WASHER SP LK #6
10	16	001004000	SCW PN HD #6 X 3/4 LG
11	13	015400	NUT HX #6-32
12	1	366524002	WEDGE, DEUTSCH RECEPTACLE, 12 PIN
13	1	366523002	WEDGE, DEUTSCH RECEPTACLE, 8 PIN
14	18	366376003	CONTACT, DEUTSCH
15	3	000101000	TERMINAL RING, 5/32, 14-16 GA
16	1	366469000	DECAL, JUNCTION BOX WIRING

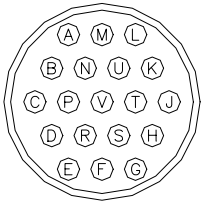
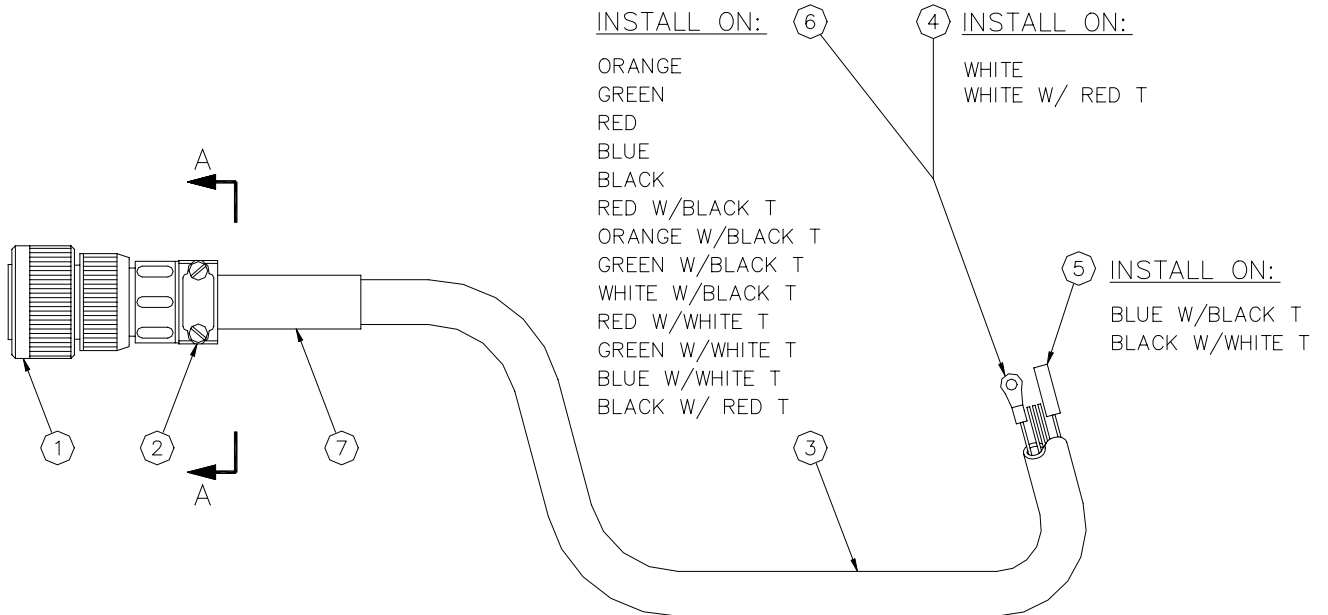
# PENDANT ASSEMBLY, 8 FUNCTION 10006H HW



***PENDANT ASSEMBLY, 8 FUNCTION  
10006H HW***

ITEM	QTY	PART NO.	DESCRIPTION
1	1	480501	HOUSING, PROP. PENDANT MACHINED
2	1	480518	DECAL/COVER PLATE
3	8	REF	NUT (INCLUDED WITH SWITCH)
4	8	640300	BOOT, TOGGLE
5	1	480567	CORD GRIP, HUBBELL CONNECTOR
6	2	002607	SCREW, HX HD #10-24 NC X 3/4 LG
7	2	015801	NUT, HEX, LOCKING, #10-24 NC
8	1	480507	POTENTIOMETER ASSEMBLY
9	1	480506	TRIGGER
10	1	480517	SCREW, SOC HD, #10-32 NF X 5/8 LG
11	4	634200	SWITCH, TOGGLE DPDT
12	1	480504	BACK PLATE, HOUSING
13	4	001004	SCREW, PAN HD, #6-32 X 3/4 LG
14	1	680113	CABLE ASSEMBLY, BAYONET
15	8	REF	WASHER, LOCK (INCLUDED WITH SWITCH)
16	3	660302	CONDUCTOR ASSEMBLY
17	1	480524	CONDUCTOR ASSEMBLY
18	1	480523	SPRING, TRIGGER RETURN
19	1	005003	SCREW, S.T. PAN HD, #6-32 X 3/8 LG
20	4	636600	JUMPER
21	4	622346	CONDUCTOR ASSEMBLY
22	3	622347	CONDUCTOR ASSEMBLY
23	1	622000	SWITCH, TOGGLE SPDT
24	3	750090	SWITCH, TOGGLE ON/OFF
25	1	480526	CONDUCTOR ASSEMBLY
26	2	750737	TIE, CABLE

# PENDANT CABLE ASSEMBLY 10006H HW



VIEW A-A

### WIRING GUIDE

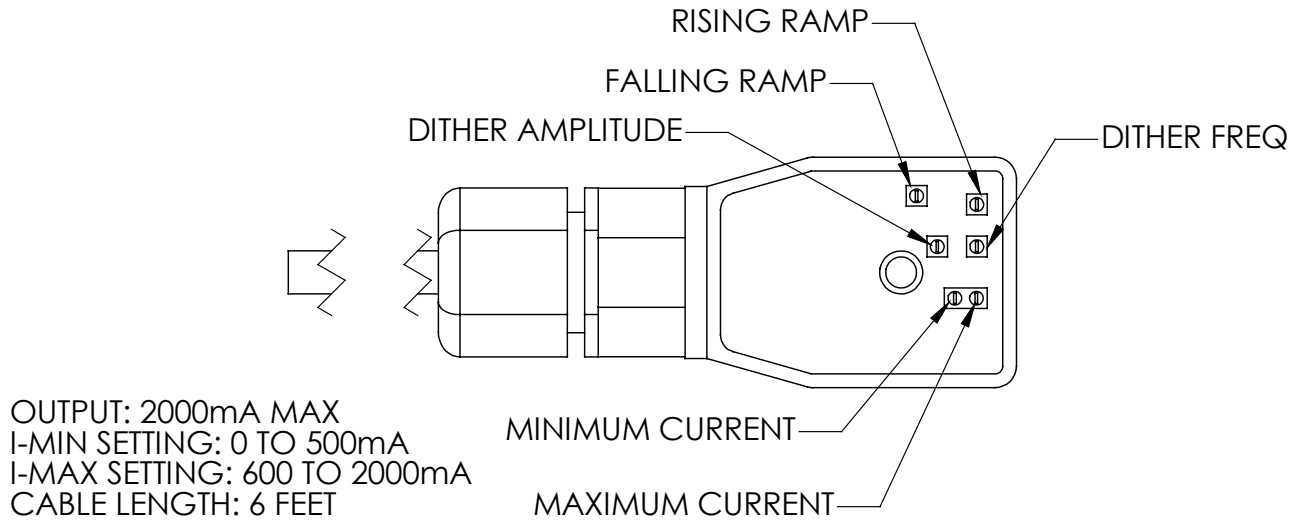
A-RED	L-WHITE
B-GREEN	M-BLUE W/BLACK T
C-ORANGE	N-BLACK W/WHITE T
D-RED W/WHITE T	P-GREEN W/WHITE T
E-BLACK	R-BLUE W/WHITE T
F-RED W/BLACK T	S-BLACK W/RED T
G-BLUE	T-WHITE W/RED T
H-ORANGE W/BLACK T	U-ORANGE W/RED T
J-GREEN W/BLACK T	V-BLUE W/RED T
K-WHITE W/BLACK T	

ITEM	QTY	PART NO.	DESCRIPTION
1	1	366098	PLUG, CONNECTOR
2	1	480515	CLAMP, CABLE
3	30'	480594	CABLE, CONDUCTOR (19 COND)
4	2	000101	TERMINAL RING #6 / 14-16 GA
5	2	480510	CONNECTOR, BULLET, FEMALE
6	13	002012	TERMINAL RING #6 / 18-22 GA
7	6"	490243	TUBING, HEAT SHRINK

# ***PROPORTIONAL AMP ADJUSTMENT***

## ***10006H HW***

REFERENCE AUTO CRANE P/N 366363001



### Minimum current adjustment:

Current is factory set at 150 mA, no adjustment required at installation. If adjustment is required, set the minimum current before setting the maximum current. Apply minimum input (0 VDC). If the desired minimum current is greater, adjust the trim pot CW until the desired current is achieved.

### Maximum current:

Current is factory set at 1600 mA, no adjustment required at installation. If adjustment is required, apply maximum control (5 VDC). Turn the trim pot CCW to adjust the current setting downwards to the desired minimum.

### Ramp and Dither

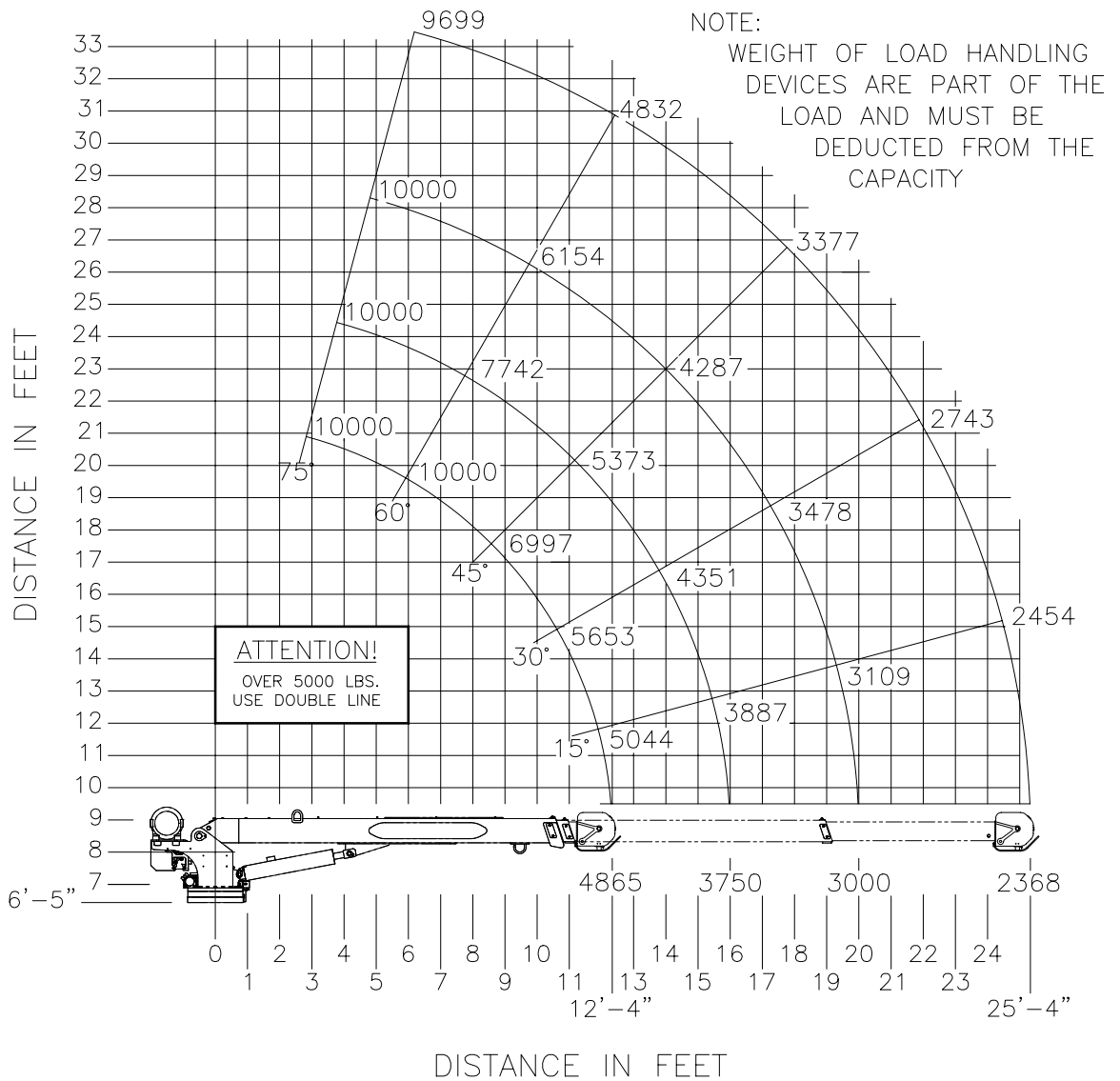
Ramp and dither is adjusted at the factory and does not require any further adjustment.



# *NOTES*

# LOAD CHART

## 10006H (P/N: 460075000)



P/N 460075000

# *NOTES*



P.O. Box 580697 \* Tulsa, OK 74158-0697  
4707 N. Mingo Rd. \* Phone (918) 836-0463

## LIMITED WARRANTY 2 YEAR PARTS AND LABOR

Auto Crane will warranty to the consumer for a period of (2) years parts and labor from the date of purchase. Each new Auto Crane unit they sell will be free under normal use and service from defects in material and workmanship. Date of purchase will be honored as the date indicated on the Bill of Sale, which must accompany the Warranty Registration and be on file with Auto Crane. Absent a valid Warranty Registration and appropriate documentation, the original date of manufacture, as indicated by the serial number on the product, will be used to determine the effective date of the 2 year warranty.

The obligation of Auto Crane under this warranty is limited to the replacement or repair of parts that appear to the manufacturer after review and/or inspection to be defective and paid flat rate labor for replacing defective parts. This warranty does not obligate Auto Crane to bear the travel time charges in connection with the replacement or repair of defective parts. Responsibility for customer's claims arising from misapplication, abuse, misuse or alteration of equipment or parts lies with the distributor or user and no warranty obligation is assumed in these circumstances by Auto Crane.

Auto Crane will in no event be liable for any consequential damages or contingent liabilities arising out of the failure of any Auto Crane Product or parts to operate properly.

Auto Crane makes no warranty in respect to component accessories, it being subject to the warranties of their respective manufacturers.

If field service, at the request of the distributor, is rendered and fault is found not to be with Auto Crane's product, the distributor shall pay the time and expense of the field representative.

Claims for service labor or other expenses that have incurred by the buyer without approval or authorization or Auto Crane will not be accepted.

When applying for warranty, claims may be handled by contacting your nearest authorized Auto Crane Distributor. All claims are to be filed in writing on an Auto Crane Warranty Claim Form.

**AUTO CRANE COMPANY IS UNDER NO OLIGATION TO EXTEND THIS WARRANTY TO ANY CUSTOMER FOR WHICH AN AUTO CRANE DELIVERY REPORT FORM HAS NOT BEEN COMPLETED AND ON FILE WITH AUTO CRANE COMPANY**