Service and Installation Manual

VST-9000I-E100

Aerial Device

NG150001

SERIAL NUMBER

39092-00

MANUAL PART NUMBER

PLEASE NOTE THE ANSI A92.2-2009 STANDARD AND THE MANUAL OF RESPONSIBILITIES CONTAINS RECENTLY UPDATED INFORMATION. DEALERS, OWNERS, USERS, OPERATORS, LESSORS AND LESSEES MUST ADHERE TO THESE UPDATED STANDARDS.

ATTENTION:

DO NOT ATTEMPT TO OPERATE THIS VERSALIFT UNTIL YOU HAVE READ AND UNDERSTOOD ALL INFORMATION IN BOTH OPERATOR'S AND SERVICE MANUALS, PROVIDED WITH EACH VERSALIFT.

Time Manufacturing Co. 7601 Imperial Drive P.O. Box 20368 Waco, Texas 76702 Phone: 254-399-2100 Fax: 254-751-0775

MANUFACTURING COMPANY

OWNER'S WARRANTY

The **Versalift** Aerial Platform Lift is engineered and designed to perform as stated on published specifications. Only quality material and workmanship are used in the manufacture of this product. With proper installation, regular maintenance, and periodic repair service, the equipment will provide excellent service.

Those parts of the **Versalift** that are manufactured by **Time Manufacturing Company** are warranted for one full year from date of purchase. Structural components will carry a lifetime warranty for defects in material and workmanship which existed at the time of initial delivery, wear components are not covered by this statement. This warranty is issued only to the original purchaser and promises that **Time Manufacturing Company** manufactured products are free from defects in material and factory workmanship when properly installed, serviced, and operated under normal conditions, according to the manufacturer's instructions.

Manufacturer's obligation under this warranty is limited to correcting without charge at its factory any part or parts thereof which shall be returned to its factory or one of its Authorized Service Stations, transportation charges prepaid, within one year after being put into service by the original user, and which upon examination shall disclose to the Manufacturer's satisfaction to have been originally defective. Correction of such defects by repair to, or supplying of replacements for defective parts, shall constitute fulfillment of all obligations to original user.

This warranty shall not apply to any of the Manufacturer's products which must be replaced because of normal wear, which have been subject to misuses, negligence or accident, or which shall have been repaired or altered outside of the Manufacturer's factory (unless authorized by the Manufacturer in writing), products which have not been maintained and operated in accordance with Time Manufacturing Company's operators, maintenance manuals and bulletins, products which are repaired without using original Time Manufacturing Company parts. This limited warranty does not cover transportation fees and/or consumables used for the repair.

Manufacturer shall not be liable for loss, damage, or expense directly or indirectly from the use of its product or from any cause.

The above warranty supersedes and is in lieu of all other warranties, expressed or implied, and of all other liabilities or obligations on part of Manufacturer. No person, agent, or dealer is authorized to give any warranties on behalf of the Manufacturer or to assume for the Manufacturer any other liability in connection with any of its products unless made in writing and signed by an officer of the Manufacturer.

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SECTION 100
INTRODUCTION

INTRODUCTION

NOTE: As the aerial device users, you must read, understand, and follow the instructions in this manual and other manuals supplied with this aerial lift unit.

This manual is furnished with your Versalift aerial lift to provide practical and essential information required maintaining the performance and life of the Versalift. The scope of this manual includes maintenance inspection, service and installation information. Personnel responsible for maintaining, inspecting and servicing the aerial lift must be familiar with this manual and the operator's manual. A working knowledge of all the information included in both manuals is required.

In addition to, dealers, owners, operators, renters, lessors and lessees are required to comply with the requirements of the applicable section or sections found in ANSI A92.2.

NOTE: For additional safety information and required responsibilities refer to the accompanying EMI Safety Manual and Manual of Responsibilities.

Detailed information for the efficient operation of the **Versalift** aerial device can be found in the accompanying Operator's Manual.

DANGER: ***THIS EQUIPMENT SHOULD BE OPERATED AND SERVICED ONLY BY COMPETENT PERSONNEL FAMILIAR WITH GOOD SAFETY PRACTICES. THIS INSTRUCTION IS WRITTEN FOR SUCH PERSONNEL AND IS NOT INTENDED AS A SUBSTITUTE FOR ADEQUATE TRAINING AND EXPERIENCE IN SAFE PROCEDURES FOR THIS TYPE OF EQUIPMENT.***

DANGER: ***READ AND UNDERSTAND THIS MANUAL BEFORE ATTEMPTING TO SERVICE THIS AERIAL DEVICE.***

DANGER: ***THIS IS NOT MAINTENANCE FREE EQUIPMENT.***

NOTICE: ***THIS MANUAL IS A PERMANENT PART OF THE VERSALIFT AERIAL DEVICE AND MUST REMAIN WITH THE UNIT ALWAYS.***

Time Manufacturing Company reserves the right to improve the design or specifications at any time without any obligation to incorporate new features into products previously sold.

To better understand this manual, it is important that the associated personnel be thoroughly familiar with the aerial lift. The following illustration identifies the major components of the aerial lift. These terms are used throughout the manual.

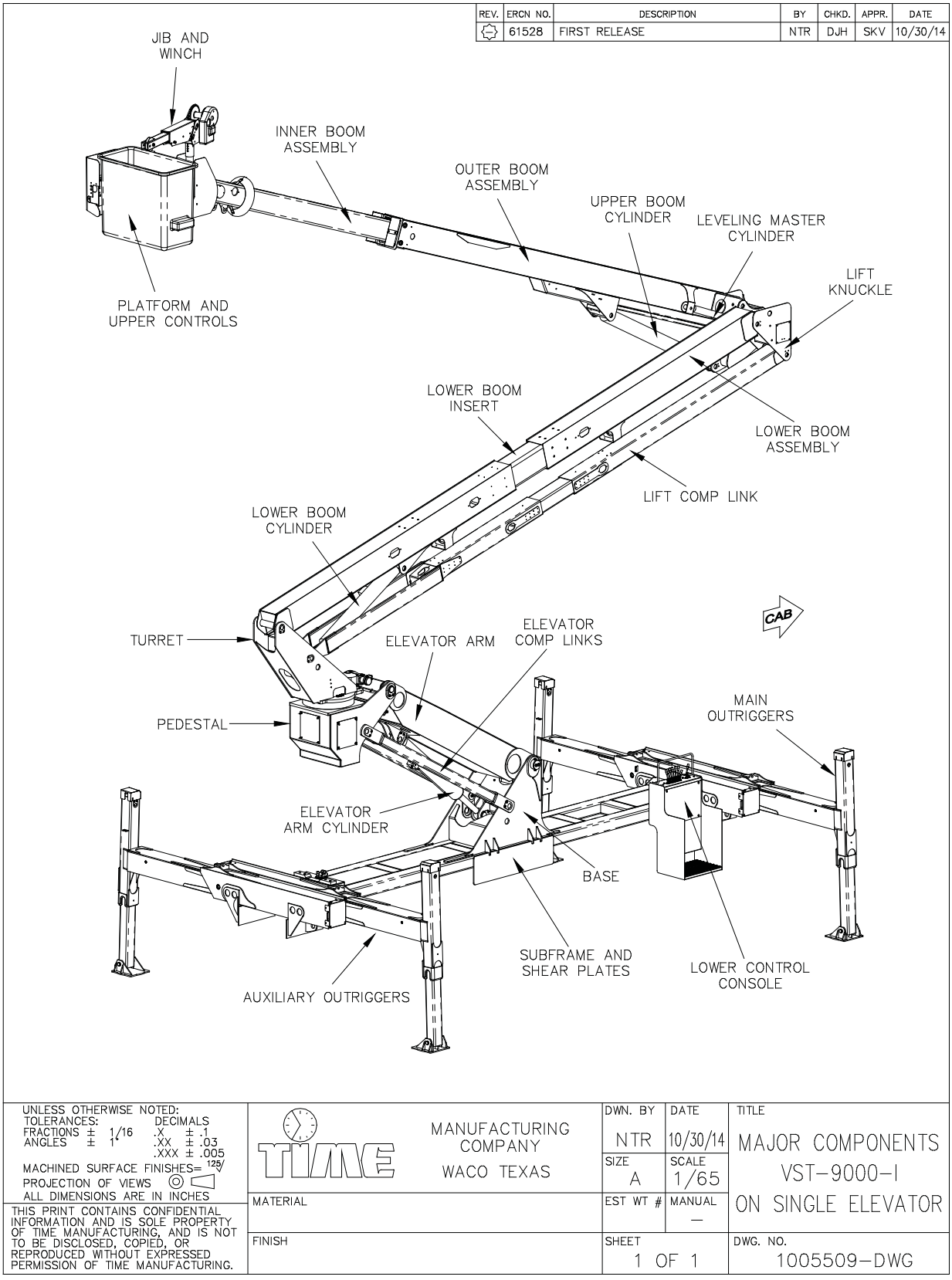


Figure 1.1 Model VST-9000-I-E Nomenclature

SECTION 101
SAFETY

SAFETY

Throughout this manual there are danger and caution notes to warn of safety hazards while installing, maintaining, or servicing the **Versalift**. Any personnel performing these procedures should be aware of these concerns and responsibilities.

One hazard associated with installing or servicing this machine is lifting heavy objects. This is true whether the lifting is being done manually or mechanically. The weight, length, and other characteristics of the booms, pedestal, turret, and outriggers make it imperative that care be taken to balance and support them adequately when they are lifted. Care must be taken to balance these items and to keep personnel clear when lifting.

Never clean, oil, or adjust a machine while it is in motion. Special care must be used while the guards or protective covers are removed. The moving parts of the lift will cause crushing injuries if precautions are not taken. The guards and protective covers must be replaced as soon as the service work is complete.

Hydraulic oil is flammable so contact between hydraulic oil and sources of high heat or open flames must be avoided. Contact with hot hydraulic oil may cause serious burns which require immediate medical attention.

Failure to relieve pressure before disconnecting of the hydraulic hoses or fittings may result in a high pressure hydraulic oil spray. This spray or mist can puncture and become embedded beneath the skin or contaminate the eyes. Relieve pressure by activating the control valve while the hydraulic power source is off or disengaged. Loosen connections slowly to make certain pressure is relieved.

A stability test, per current ANSI A92.2 requirements, must be performed on the unit after it is mounted. This must be done before anyone operates the lift from the platform.

After servicing any portion of the hydraulic system, extend and retract all of the hydraulic cylinders several times to force any trapped air from the system. Never operate the lift from the platform until this has been accomplished.

Warning and instructional decals are installed at numerous locations on the aerial lift to warn personnel of the potential hazards during the use and operation of the **Versalift** aerial lift. If any decals are defaced, illegible, or lost they must be replaced immediately.

No manual can address every conceivable hazard while installing, maintaining, or servicing an aerial lift. The prevention of accidents is dependent on good judgement and common sense on the part of the service personnel.

SECTION 102
THEORY OF OPERATION

THEORY OF OPERATION

MECHANICAL SYSTEM

Several mechanical systems are utilized in the operation of the Versalift aerial lift. They are described in detail below.

OUT AND DOWN OUTRIGGERS - The outriggers consist of an outrigger frame attached to the subframe with two rectangular inner and outer tubes. A leveling jack leg with a pivot foot pad is attached to one end of the outrigger inner tube. The jacks are used to level and stabilize the lift during operation. A double acting hydraulic cylinder is housed within the outriggers and jack legs frames which is attached to the larger tube near the top and to the smaller tube near the bottom.

As the outrigger hydraulic cylinder is extended the inner tube telescopes out and away from the center of the aerial lift chassis. As the jack leg hydraulic cylinder is extended, it lowers the leg inner tube to contact the ground. Sufficient extension is provided to allow the outrigger legs to contact the ground and elevate the chassis slightly. The out and down outriggers greatly increase the vehicles resistance to overturning since the tipping point is moved further away from the center of gravity.

ROTATION - The turret, lower boom, upper boom, and platform of the aerial lift, supported by a shear-ball bearing, rotate about a vertical centerline of the pedestal. This bearing consists of two concentric rings. The inner ring is attached to the turret and has a groove around the outer diameter. The outer ring is attached to the pedestal and has a groove around the inner diameter. Spherical rollers or balls are trapped between the two rings in the grooves. The balls allow rotation of the inner ring and the attachment components relative to the stationary outer ring. This motion is controlled by a gear train that is driven by a hydraulic motor. Gear teeth on the outside diameter of the outer bearing ring engage a worm supported on the turret. As the worm rotates, the turret rotates relative to the outer bearing ring. The hydraulic motor actuates the worm. Smooth and controlled rotational movements of the turret, lower boom, upper boom, and platform are provided.

LOWER BOOM - The lower boom pivots about a horizontal centerline on the turret. A double-acting hydraulic cylinder attached to the turret and lower boom actuates the lower boom. With the cylinder fully retracted, the lower boom is horizontal. As the cylinder extends; the lower boom raises a compensation link maintains the upper boom at a constant angle, relative to the ground as the lower boom raises or lowers, and allows smooth and direct platform movements as the lower boom is being raised.

UPPER BOOM - The upper boom pivots about a horizontal centerline at the knuckle. The telescoping upper boom articulates, from 25° below horizontal to 75° above horizontal.

ELEVATOR ARM - The lift elevator arm is actuated by a double acting cylinder. With the cylinder retracted, the arm is horizontal. As the cylinder extends, the arm rotates to its raised position. Relief valves on the cylinders prevent excessive forces on the arm when stowed. Compensating links keep the lift rotation bearing level throughout the full range of elevator motion.

HYDRAULIC SYSTEM

The hydraulic schematics will aid in understanding the hydraulic system. Refer to “Hydraulic Schematics” section. Descriptions of the major components in the hydraulic system are given below.

PUMP - The PTO driven pump delivers about 10 gpm (37.85 lpm). When trouble-shooting a hydraulic circuit it is helpful to remember that a pump does not produce pressure. It only produces fluid flow; resistance to fluid flow produces pressure.

OIL RESERVOIR - The bulkhead hydraulic oil reservoir holds 50 gallons (227 l). Oil is drawn out from and returned to the bottom of the reservoir. This prevents entrainment of air in the hydraulic oil and allows the return filter to be changed without draining the reservoir. The reservoir also includes a baffle to minimize the entrainment of air in the oil.

FILTRATION - The return line filter is located on the top of the oil reservoir and the suction strainer is located in the reservoir, attached to the bottom of tank. The return line filter has a 10 micron rating. The suction screen has a 100 mesh (149-micron) rating, and can be removed and cleaned. Oil leaves the tank, passing through the suction strainer on the way to the hydraulic pump. All of the oil passes through the return line filter on its way to the tank.

GROUND CONTROLS - The ground controls consist of a selector valve, four-way control valves, and optional controls for a ground-level tool circuit.

The selector valve consists of a two-position spool valve that directs hydraulic oil flow either to the lift or to the other ground controls.

The outrigger controls consist of two, four-way control valves connected in series. A relief valve is integral to these control valves. Hydraulic oil is directed to either end of a double-acting hydraulic cylinder, which extends or retracts the outriggers.

A lock valve or double pilot operated check valve is mounted on each outrigger cylinder, blocking undesired flow out of each end. When the four-way control valve is actuated, pressure is applied to one end of the cylinder and to a pilot piston that opens the check valve allowing flow out of the other end. Flow now extends or retracts the outrigger cylinder as desired. A thermal relief valve is incorporated into the lock valve that allows excessive pressure created by thermal expansion to bypass the check valve.

The optional tool circuit control includes a two-position selector valve. Ground-level hydraulic tools can be operated when the ground controls are engaged and the tool selector is actuated.

When the ground controls are selected, oil will circulate through the control valves and back to the reservoir because they are open center valves. Open-Center valves help warm-up the hydraulic oil in cold weather.

ROTARY JOINT - A rotary joint is mounted between the turret and pedestal, To provide hydraulic flow to the lift and allows continuous rotation of the lift. The rotary joint consists of a cylindrical case, which houses a spool. The case is bolted to the pedestal and the spool is fastened to the turret.

Oil from the pump enters port 2 of the spool, flows up a drilled passage in the spool, and into a groove which encircles the surface of the spool. Oil flows along the groove until it comes to the outlet port 2 in the case, wherever it is at that particular time. Because the case outlet moves along the groove as the lift rotates, oil flows uninterrupted out of the case port. Return oil flows through port 1 and 3 of the case, along the groove in contact with respective port and then out each respective port of the spool on its way back to the oil reservoir. Since all of the relative motion takes place between the spool and the case, continuous rotation is possible.

LOWER CONTROLS - The lower controls are located on the console at the deck. The platform override control is the first section of the control valve. When this control is selected oil is diverted either to the upper controls or allowed to flow to the second, third, fourth, fifth, sixth and seventh sections which control the lower boom, upper boom, rotation, winch, platform leveling, lower arm elevator and upper arm elevator functions respectively. Oil is available to these sections only when the lower controls are selected.

UPPER CONTROLS - The single stick upper control consists of a seven-section control valve, selector valve, and a tool/accessory valve. A single selector valve diverts oil from the control valve to the reservoir. This valve is used as the emergency stop valve.

The seven-section control valve is used to operate unit functions. The first spool of this valve is used for platform leveling. The second spool is used for platform rotation. The third spool is used for the lower boom function. A simple lever starts these three functions. The fifth, sixth and seventh spools operate the boom functions through a specially developed single stick package.

The fourth spool diverts the flow of oil, to the fifth, sixth, and seventh boom function spools, or to the tool circuit. With the safety trigger released, oil flows to the tool/accessory valve. With the safety trigger activated, oil flows to the boom functions spools. The tool/accessory valve operates jib extend, jib tilt, winch, and tools. When the tool power lever is “ON” oil flows to the tool, otherwise the oil returns to tank.

BOOM AND ARM CYLINDERS AND HOLDING VALVES - When the valve controlling the oil flow to the cylinders is actuated, the oil leaves the control valve assembly and flows to the holding valve. Where it enters three passages. A piston, spring-loaded against its seat blocks one passage. The incoming oil is on the same side as the spring. This causes the piston to be pressed even tighter against the seat, effectively blocking the passage. The oil then flows through the other passage, which has a spring-loaded check valve in it. The oil pushes the check valve off its seat, flows out of the holding valve, and into the hydraulic cylinder.

The hydraulic cylinders are double acting, meaning both ends of the cylinder can be pressurized. In order for the incoming oil to move the cylinder piston, oil on the other side of the cylinder piston must be able to escape from the hydraulic cylinder. The oil cannot escape because the other holding valve is blocking it. The passages in this holding valve are identical to the ones described above, however, the oil is trying to flow through the passages in the opposite direction. The oil meets the piston and the check valve again, both identical to those in the holding valve. However, the oil is on the backside

of them now. It is on the same side of the check valve as it's spring.

The combination of the oil and the spring holds the check valve firmly on its seat, blocking this passage. The oil also pushes against the backside of the piston, the side opposite the spring. The oil tries to push the piston off its seat by compressing the spring. Normally, the load-induced pressure of the trapped oil is not sufficient to overpower the spring and push the piston off its seat. Thus, the oil remains trapped. This is what produces the holding action, which prevents the booms from creeping down or free falling should hydraulic lines be damaged.

To release this trapped oil, hydraulic oil pressure must be applied to the pilot piston to push it off its seat. This pilot pressure is obtained from the third passage for incoming oil. The combination of the pilot pressure and the trapped oil pressure overpowers the spring, pushes the piston off its seat, and allows a controlled flow of oil out of the cylinder returning to the control valve and back into the reservoir.

As mentioned before, normal load induced pressures are not adequate to overpower the spring that acts on the piston. However, excessively high pressures such as those generated from the thermal expansion of the oil will open the piston sufficiently to relieve this pressure.

The retract pressure of the upper and lower boom cylinder is limited to 1000 psi, by an integral relief valve, to minimize forces if the booms are over-stowed.

HYDRAULIC PLATFORM LEVELING - The hydraulic platform leveling system consists of a master/slave cylinder combination with connecting hoses. As the outer/inner boom is raised or lowered hydraulic oil is forced from the master cylinder through the hydraulic lines to actuate the slave cylinder. Counterbalance valves on the slave cylinder prevent platform movement in the event of hydraulic leveling hose failure. Leveling controls are included at the upper and lower controls for leveling adjustment.

ELECTRICAL SYSTEM

The electrical schematics will aid in understanding the electrical system. Refer to the specific option schematics. Descriptions of the major components in the electrical system are given below.

TRUCK IGNITION SWITCH - The current used when operating the start/stop control comes from the truck ignition system. The key must be in the ignition and turned to the "Run" position before current is available to operate the electrical system.

TOGGLE SWITCH - The single-pole, two-position toggle switch is mounted on the truck dash board.

RED DASH LIGHT - The red 12 volt dash light indicates when the master control system is activated.

OPERATION THEORY OF THE MASTER CONTROL

The master control provides a toggle switch on the truck dash to energize and de-energize the start/stop system.

With the master control toggle switch activated and the ignition switch in the "Run" position, current flows from the ignition switch through a 20 amp fuse to terminal 2 on the toggle switch. Through the toggle switch current flows from terminal 2 to terminal 3; from there current flows to terminal 7 on the terminal block, located in the ELECTRICAL BOX ASSEMBLY. In addition, current flows from terminal 3 on the toggle switch to the dash light. The dash light will illuminate as current flows through it to a ground.

With the master control toggle switch deactivated, there is no electrical current flow to the dash light or terminal 7, on the terminal block. The truck ignition system will function normally.

START/STOP CONTROL COMPONENTS

Dash Push-button Control - This is a spring-loaded, push-button control that can be used by ground personnel to start or stop the truck engine when the master control system is activated.

Start Relay - The 12 volt, single-pole, start relay is mounted in the electrical box and is normally in the open position. When activated, the start relay connects the truck battery to the truck starter solenoid.

Stop Relay - The single-pole stop relay is mounted in the truck engine compartment and is normally in the closed position. When the stop relay is activated the ignition circuit and the start relay control circuit are broken and the engine stops.

Ignition Relay - The 12 volt, double-pole, double-throw, latching ignition relay is mounted in the electrical box. One set of points is in the start circuit and the other set of points is in the ignition circuit.

Pressure Switch and Air Cylinder - The pressure switch is mounted on the turret wing and connected, by an air line, to an air cylinder mounted on the platform control panel. When the air cylinder is operated, air pressure is produced and the electrical contacts in the pressure switch close. The truck engine is started or stopped depending on the position of the ignition relay contacts.

Toggle Switch (Lower Controls) - A single-pole, three position, momentary toggle switch is mounted on the lower control cover. The truck engine is started or stopped depending on the position of the toggle switch.

OPERATION THEORY OF START/STOP CIRCUITS

Start/Stop Circuit - When the master control toggle switch is activated and the ignition switch is in the "on" position, current flows to terminal 7 on the terminal block. Current from terminal 7 flows to the ignition relay. The ignition relay supplies current to the start or stop relay depending upon the latching position. The latching position is toggled between the start and stop position each time one of the start/stop switches is operated.

In order for the start system to operate, the ignition relay must be latched in the start position and one of the start/stop switches must be held in the start position. With the start relay energized, current from the battery flows to the starter solenoid.

To activate the stop system, the ignition relay must be latched in its stop position and one of the start/stop switches must be held in the stop position. With the stop relay energized, the ignition circuit and the start relay control circuit are broken and the engine stops.

MANUAL ENGINE THROTTLE CONTROL

The throttle control electrical schematics will aid in understanding the electrical system. The manual throttle control components and their function are described in detail below.

Truck Ignition Switch - All current used for operating the throttle control system comes from the truck ignition switch.

Throttle-control Relay - This relay is a 12-volt, double pole, double-throw, latching relay mounted in the electrical box.

Pressure Switch And Air Cylinder - The pressure switch is mounted on the turret wing and the air cylinder is mounted on the platform control panel. A small air line connects the two components together. When the air cylinder is operated, air in the line is compressed. When adequate air pressure is produced, the electrical contacts in the pressure switch close and the electrical solenoid on the engine is activated or deactivated, depending on the position of the latching relay.

Throttle Actuator - The throttle actuator is mounted in the engine compartment. It is activated by an electrical signal from the throttle control latching relay. Gas and diesel engine models use an electrical solenoid actuator.

Toggle Switch (Lower Controls) - The toggle switch is a two-position, maintained switch mounted on the lower control cover. The throttle control relay is energized when the toggle switch is operated.

OPTIONS

EMERGENCY POWER

The emergency power option wiring schematic will aid in understanding the emergency power system. Refer to the specific option schematics. The electrical components and their functions are described in detail below.

Motor - The motor is a 12 volt DC motor that can operate an auxiliary hydraulic pump in the event that the main pump cannot be used. Power to operate the motor is obtained from the truck battery.

Solenoid - The power solenoid is mounted on the motor and is used to complete the circuit between the truck battery and the motor. The control coil of the solenoid does not have an internal ground for completion of the control circuit. Ground connection is controlled by a control in the platform.

Pressure Switch And Air Cylinder - The air cylinder and pressure switch are identical to the ones used for the start/stop system. Refer to the start/stop system theory for a description of how they work. Operation of these two components completes the solenoid control circuit.

Toggle Switch (Lower Controls) - The single-pole,

two-position, maintained, toggle switch is mounted on the turret control valve cover. The emergency power solenoid is energized or de-energized depending on the position of the toggle switch.

OPERATION

Control Circuit **-** Power for the control circuit comes from the “on” terminal of the ignition switch. This means that the key must be in the ignition and turned on before the system will operate. Current flow is from the “on” terminal of the ignition switch, through the solenoid coil, and through pressure switch to ground.

OUTRIGGER/BOOM INTERLOCK

The outrigger/boom interlock option is a safety feature designed to prevent the lift from being operated until the outriggers are properly extended. The interlock also prevents the outriggers from being retracted before the lift is properly stored. Refer to the “Outrigger/Boom Interlock Installation” in “Parts & Assemblies” Section. for installation drawing. The outrigger/boom interlock components and their functions are described below.

Outrigger Limit Switch **-** One switch is mounted at each outrigger upper cylinder pin. When the outrigger contacts the ground, the upper pin moves upward actuating the switch.

Toggle Switch **-** This switch is located near the outrigger control valves. It is used to select between lift controls and outrigger controls, provided the interlock requirements are met.

Boom Limit Switch **-** This switch is mounted at the boom rest to indicate the position of the lower boom. The switch is open when the boom is stored.

Solenoid Valve **-** This valve directs the hydraulic flow from the pump to either the lift controls or the outrigger controls. When the solenoid is energized, hydraulic flow is directed to the lift controls.

Override Switch (Not Included) **-** If required, this switch may be installed as shown in the schematic. It allows the interlock to be temporarily defeated. Continuous actuation is required to accomplish this.

OPERATION THEORY OF OUTRIGGER/BOOM INTERLOCK

The outrigger/boom interlock system operates by energizing or de-energizing the solenoid valve.

There are two circuits that can energize the solenoid. One circuit is through the lower boom-limit switch and the other circuit is through the outrigger limit-switches and toggle switch.

With the boom stored and the outriggers retracted, the boom limit switch is open and both outrigger limit switches are open. Therefore, both circuits to the solenoid are open and the solenoid is de-energized, hydraulic flow is directed to the outrigger controls. Note that under these conditions, the toggle switch has no effect on the solenoid which prevents operating the lift without extending the outriggers. When the outriggers are extended to ground, the outrigger limit switches close, completing the circuit to the toggle switch.

If the toggle switch is open, the solenoid remains de-energized. Closing the toggle switch energizes the solenoid, thereby directing hydraulic flow to the lift controls.

Raising the lower boom off the boom rest closes the boom limit switch. This completes a second circuit to the solenoid.

If the toggle switch is now opened or if one outrigger raises off the ground, the solenoid valve remains energized through the boom limit switch and hydraulic flow remains directed to the lift controls.

If the optional override switch is installed, the solenoid can be de-energized by opening the switch. This directs hydraulic flow to the outrigger controls regardless of the other system conditions.

SECTION 103
SERVICE PROCEDURES

MAINTENANCE AND INSPECTION

The maintenance and inspection of certain items are the responsibility of a competent operator. Being alert for evidence of a problem is essential in providing satisfactory service. The items deserving daily attention are given in the operator's manual. Included are general visual inspection guidelines, lubrication instructions, hydraulic oil and filter maintenance, and field adjustments. Any failure or malfunction should be reported to authorized service personnel for corrective action.

Reliable and economical service will be achieved if a rigid preventive maintenance and inspection schedule is performed by authorized service personnel. Follow the preventive maintenance and inspection schedule provided in this manual. The time intervals given are those recommended for anticipated operating conditions. These time intervals must be adjusted to specific user conditions. When a malfunction or abuse of an aerial lift has occurred, service and maintenance of the lift must be administered before further use.

If a defect is found during scheduled inspections or routine operation, repair or adjust the unit before operation. Injury to personnel and further deterioration of the aerial lift may result if the aerial lift is operated while a defect exists.

The Maintenance and Inspection Checklist/Record is provided at the end of this section for the items listed below.

Access covers and protective guards must be removed from the aerial lift before the inspection procedure. Once the procedure is complete, install all covers and guards, replacing any that are damaged beyond repair. Covers and guards are designed to protect personnel and prevent foreign material from corrupting components.

PRIOR TO PLACING UNIT INTO SERVICE.

1. MAINTENANCE

A. Perform the Daily Visual Maintenance and Inspection Checks (refer to Operator's Manual).

B. Rotation bearing deflection check (new bearing initial tilt measurement).

The rotation bearing is designed and manufactured with tightly controlled internal clearance to provide smooth rotation at low torque requirement without excessive looseness between the inner and outer rings. The bearing clearance will increase slightly during the initial run-in period, but should then remain essentially constant for many years. If the bearing raceway starts to wear out, the clearance will begin to increase, steadily at first and accelerating toward the end of the bearing life. This may be noticed as a marked increase in the tilting or rocking of the turret with respect to the pedestal top plate during load reversals. Other factors will be present in a bearing that is wearing excessively i.e. roughness or noise in the rotation bearing.

Measurement of the turret tilt under load reversal using a magnetic base dial indicator is a good means of determining the bearing condition.

Perform this initial tilt measurement check when the unit is delivered. This will provide a baseline for future bearing tilt measurements. Future bearing tilt measurements will be compared to this baseline to determine how much the bearing tilt has increased since the initial (new bearing) measurement.

Rotation Bearing Deflection Check

1. With rated load in the platform, position the unit on a level suitable working area. Apply the parking brakes and chock the wheels, engage the PTO and properly set the outrigger/stabilizers if equipped.

DANGER: NEVER OPERATE WITHOUT EXTENDING THE OUTRIGGERS (IF EQUIPPED). WITHOUT PROPER OUTRIGGER EXTENSION, THE UNIT MAY TIP RESULTING IN DEATH OR SERIOUS INJURY.

2. Rotate the turret to the position to be used for the tilt measurement. Position the aerial device over the working side of the vehicle. For consistent measurement, always use the same rotational position each time the tilt measurement is done. Record the rotational position in the maintenance log.

3. Position the booms in Position A as shown on "Boom Position Diagram" Figure 1.

4. Attach the magnetic base of the dial indicator to the pedestal and the pointer of the indicator positioned against the under side of the turret base plate as close as possible to the bearing gear cover. Figure 2 shows the recommend positions for the dial indicator pointer. Once

the correct indicator pointer position is chosen, it is very important that the same pointer position is used for each subsequent tilt measurement. Therefore record the pointer position in the maintenance or log where the tilt measurements are recorded. Some inspectors prefer to permanently mark the location where the dial indicator pointer contacts the bearing base plate to ensure that subsequent measurements are made in the exactly the same spot.

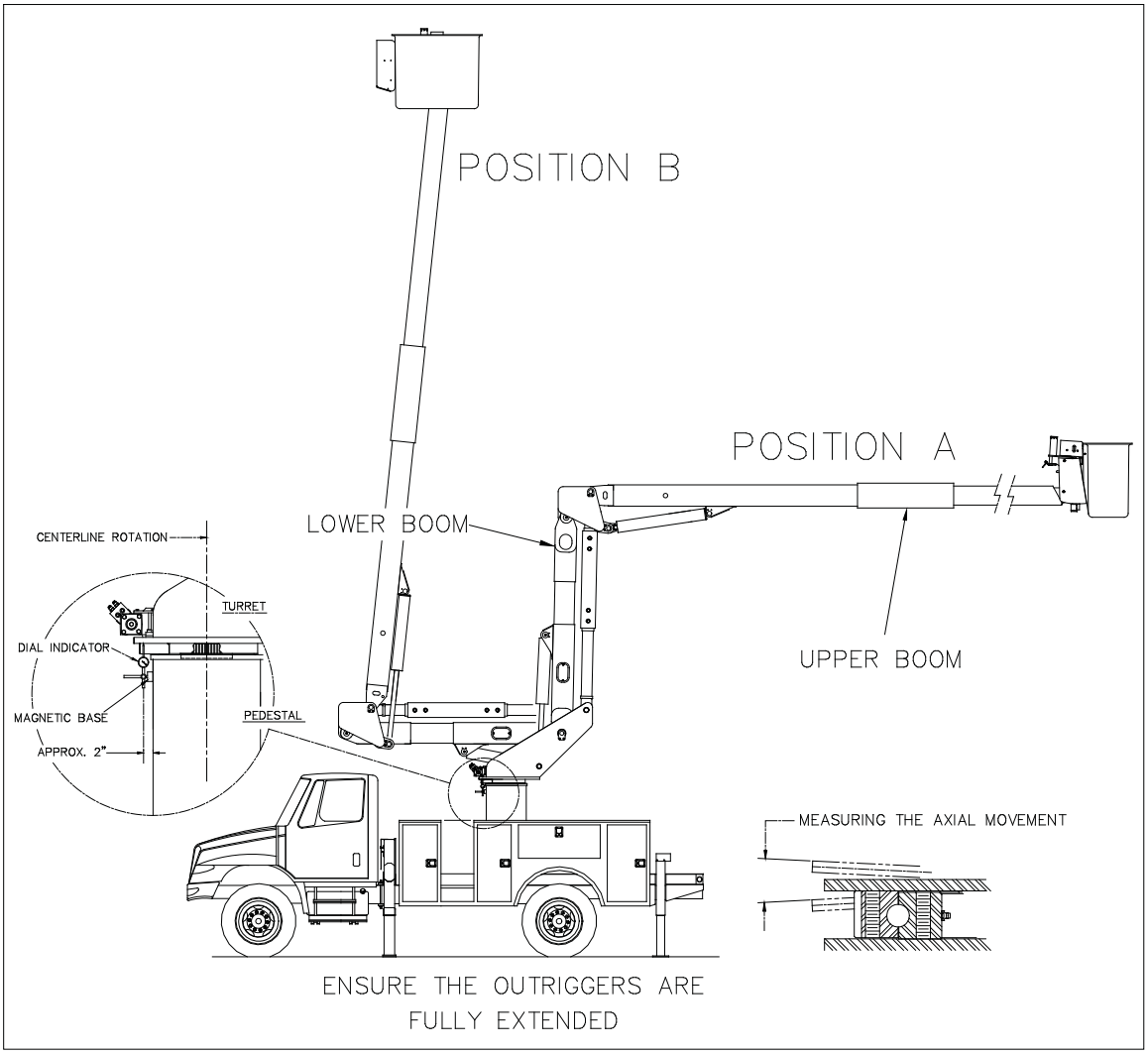
5. Set the dial indicator at zero with booms in Position A.

6. Slowly position the booms to Position B. Do not rotate the turret. Record the indicator reading.

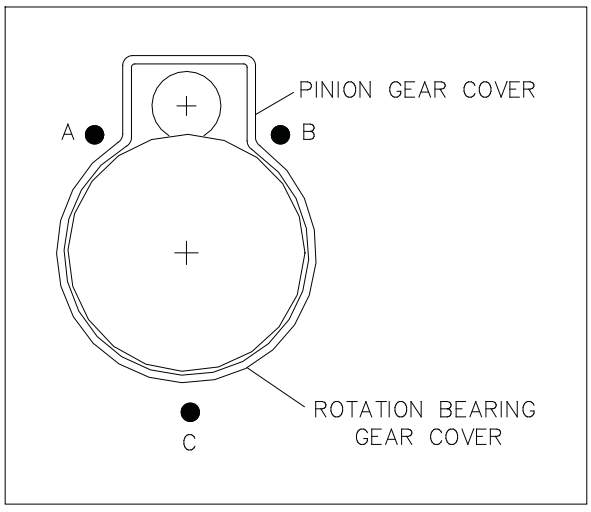
7. Repeat steps 5 and 6 to obtain an accurate reading.

8. When an increase in turret tilt of 0.065" (1.65 mm) above the initial tilt measurement or a total axial movement exceeding .125" (3.17 mm), it is generally an indication ball and ball path deterioration is occurring. It is recommended the **bearing be replaced at this time**. Refer to "Rotation Bearing Replacement Criteria" in this section for other factors related to the conditions of the rotation bearing.

NOTE: *The axial movement can be monitored and if no increase in axial movement occurs the rotation bearing can be left in service.*



Boom Position Diagram
Figure 1



Dial Indicator Position
Figure 2

30 DAYS OR 85 PTO HOURS AFTER "IN SERVICE" DATE (ONE-TIME SERVICE).

1. MAINTENANCE

A. Any hydraulic system must be maintained to provide reliable performance. The return flow filter should be replaced after the first 30 days of operation and every 6 months thereafter. Whenever the filter is changed, the oil should be examined for foreign particles or water. If contamination is found, the oil should be changed or reclaimed.

3 MONTHS OR 250 PTO HOURS MAINTENANCE AND INSPECTION

1. GENERAL INSPECTION

A. Remove any accumulated trash or debris from inside booms, around turret and pedestal, and in area of the controls.

Inspect the unit for physical wear or damage including the following items.

B. Check control handles and actuators for binding. Two way controls valves should return to center position. Use spray lubricant to free sticky valves.

C. Check for interference between moving components, particularly around the turret and knuckle area. Evidence of interference may appear as bent or scratched components. Replace or repair any damaged components.

D. Hydraulic hoses should be inspected for separated or frayed jackets, especially at the turret, knuckle and from the boom tip to the platform. If the protective sleeve has been damaged, examine the hoses closely in that area. Replace the hoses if damaged and sleeves that are damaged and do not protect the hoses.

E. Inspect the electrical system for damaged components. Check for bare electrical wires and remove any trash or debris from around the electrical components. Repair all damaged wires and secure any loose electrical components or wires.

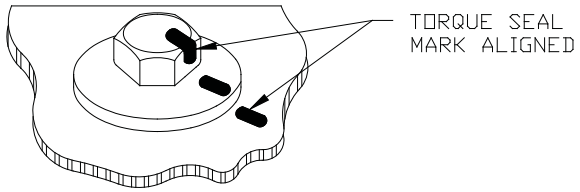
F. Inspect and replace any warning identification, operational, or instructional decals that are lost, damaged, or illegible.

G. Verify that the upper boom tie down strap and padded support are in place and adjusted properly. Failure to use tie down strap can damage the boom structurally.

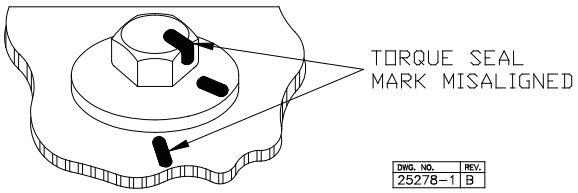
2. STRUCTURAL INSPECTION

Verify structural integrity of the aerial lift. Certain structural components of the aerial lift are deemed critical. These items must be inspected for any signs of degradation or impending failure. Any suspect item should be further inspected using an acceptable non-destructive test procedure such as magnetic particle or dye penetrant.

A. Any fastener that is structural or retains a structural member is considered critical and is shown in the "Critical Fasteners" drawing included in this section. These fasteners must be visually checked for rotation and signs of failure. Do not use the lift if a torque-seal mark is not aligned. If any loose fasteners are found, both the nut and bolt **must be replaced and tightened to the proper torque.** Nuts and bolts, must never be reused. A new torque-seal mark must be installed. Refer to "Maintenance & Inspection Schedule" in this section.



Torque Seal Mark In Acceptable Condition



Torque Seal Mark In Misalignment Condition

B. Critical welds are shown on the "Critical Welds" drawing included in this section. Any defective structural welds must be repaired in accordance with ANSI A92.2 requirements. Consult factory for material specifications and proper welding specifications.

C. Inspect all structural components for excessive corrosion or deformation and repair or replace as required.

All fiberglass components and the fiberglass to steel epoxy bonded joint are considered critical. These components and joints must be repaired or replaced before further use.

D. Inspect the insulating fiberglass upper and lower boom insert for cracks, nicks, or evidence of fatigue. Damage to fiberglass components not only affects the structural integrity but also degrades the insulating property. For additional information refer "Care of Fiberglass Booms" in this section. Inspect the fiberglass to steel epoxy bonded joints located at both ends of the lower boom insert and at the knuckle end of the fiberglass boom.

E. Inspect the platform for cracks, in the mounting ribs, floor, and the flange around the top. Repair any cracks or replace the platform if required. The first step in successful platform repair is to analyze the damage and determine the cause. Cracks in the gelcoat or outer surface of the platform are easily repaired. Damage to the fiberglass structure can be more serious and should be carefully evaluated before attempting to repair the platform. If the top lip, mounting flange or the bottom of the platform is damaged, repair should not be attempted.

F. Check winch line for any signs of damage, deterioration, wear and dirt contamination. Avoid using rope that shows signs of aging and wear. If in doubt, destroy the used rope. No type of visual inspection can be guaranteed to accurately and precisely determine actual residual strength. When the fibers show wear in any given area, the rope should be replaced. Continued use and normal wear in the line gradually diminishes the ultimate breaking strength and lowers the factor of safety.

3. OPERATIONAL CHECKS

Perform operational checks on the following items.

A. If so equipped, verify proper engagement of the PTO without excessive noise or vibration during operation. Refer to the PTO manufacturer installation manual if adjustment is necessary.

Verify the hydraulic pump is functioning properly without excessive noise, vibration, or overheating. Noise in a hydraulic pump can indicate cavitation or the intake of air into the suction line. This could result from a low level of oil, loose suction line fitting or operating in temperatures too cold for the type of oil used. If overheating occurs, check the main system relief pressure as described in "Adjustments" in this section.

B. Verify that the lift functions according to the control instructions. Consider all hydraulic and electrical control systems including optional equipment and audible or visual warning systems. Refer to "Boom Actuation Speeds" in this section, to verify the boom function speeds. Adjust the pump flow by varying engine speed as required.

C. Verify the holding valves are functioning properly, per instructions in "Adjustments" section.

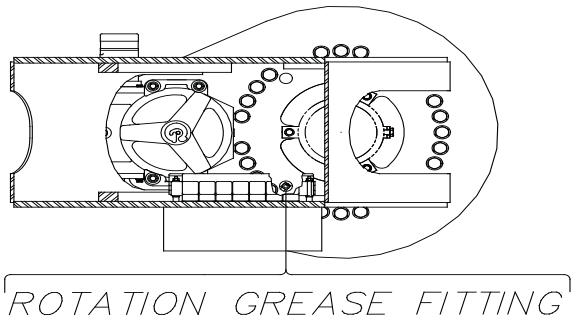
D. Check the clearance between moving parts during operation. Observe the knuckle and turret areas through the complete range of motion with a load in the platform. In particular, observe the pivot link, main links, and upper and lower booms at the knuckle. Repair, replace, or adjust components to maintain clearance.

E. Inspect unit for hydraulic system leakage including all hydraulic components, hoses, and fittings. Replace leaking hoses or fittings with parts meeting or exceeding manufacturer specifications.

F. With the hydraulic cylinders fully extended, inspect cylinders for rough or nicked cylinder rods. Refer to this section for cylinder inspection procedures.

4. MAINTENANCE

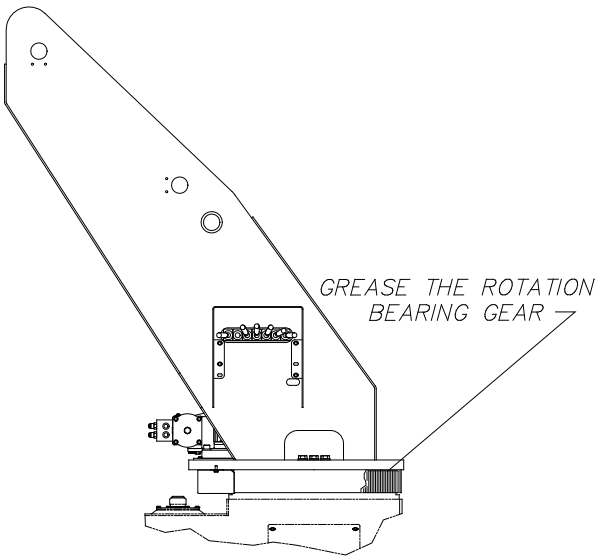
A. Rotation Bearing - To lubricate the rotation bearing the lift must be rotated 360° stopping at 90° intervals and applying grease through the zerk at the top of the turret plate. This procedure will evenly distribute the grease on the inner ring.



Rotation Bearing Grease Fittings
Figure 3

B. Rotation Bearing Teeth - Unscrew the gear cover mounting bolts and remove the gear cover. Then apply a waterproof gear grease such as Lubriplate's "Gear Shield Heavy" to the rotation bearing gear teeth, as shown in Figure 4. Rotate the aerial lift through 360° stopping at 90° intervals to apply grease to the teeth of the rotation. The lubrication required done simultaneously.

WARNING: ***KEEP CLEAR OF THE GEARS WHILE ROTATING THE AERIAL LIFT AND ALWAYS REINSTALL THE COVERS AFTER COMPLETING THE LUBRICATION. ANYTHING CAUGHT BETWEEN THE GEARS WILL BE CRUSHED.***



Rotation Bearing Teeth Lubrication
Figure 4

C. Purge any moisture accumulation from air lines. Disconnect both ends of air line and force dry air through them until no moisture is discharged. If unused air lines are present, purge them as well.

6 MONTH OR 500 PTO HOURS MAINTENANCE AND INSPECTION

1. INSPECTION

A. Inspect hydraulic oil for contamination. If the hydraulic oil is cloudy or dirty, drain and replace it. Refer to "Hydraulic Oil Recommendation" information in this section to determine which type of hydraulic oil to use.

B. Inspect slope indicators for true adjustments.

2. MAINTENANCE

A. Change the hydraulic system return line filter.

B. Clean any accumulation of foreign material from the suction strainer and the magnetic drain plug if oil shows signs of contamination.

Suction Strainer - The 100 mesh (149 micron) suction strainer must be removed and cleaned periodically. To remove, drain the reservoir, unscrew the suction strainer at the bottom of the tank. Remove, clean, and reinstall the suction strainer. Pump cavitation is often caused by a dirty or clogged suction strainer. Operating in conditions too cold for the type of oil is another common cause for pump cavitation. Noisy pump operation is a strong indicator of pump cavitation.

When the **return line filter** and **suction strainer** are changed or cleaned the oil should be examined for foreign particles and water. If contamination is found, the oil must be changed or reclaimed by adequate filtering.

C. Verify settings of system operating pressure and main system relief pressure. Refer to next paragraph for adjustment procedures if necessary.

System Relief Pressure - The system pressure relief valve is located in the pressure line between the pump and the lift/ ground control selector valve. The relief valve prevents the hydraulic system from developing excessive pressure.

To adjust the system relief valve, first relieve the pressure and then screw in a T-fitting into the pressure side of the relief valve and insert a pressure gage into the T-fitting. Start the engine and retract the inner boom until it reaches the end of its travel. The hydraulic pressure measured by the pressure gage should be 3000 PSI (210 kg/cm^2) and no higher while the control valve is being held open. If it is necessary to adjust the valve, remove the valve cap and loosen the locknut. Use a screwdriver to adjust the setscrew, clockwise to increase the pressure or counter-clockwise to reduce the pressure. When the adjustment is complete tighten the locknut and replace the protective cap.

CAUTION: ***NEVER SET SYSTEM OPERATING PRESSURE ABOVE THE RECOMMENDED SETTING OF 3000 PSI (210 kg/***

cm²). EXCESSIVE OPERATING PRESSURE WILL STRESS THE HYDRAULIC SYSTEM AND MAY LEAD TO COMPONENT FAILURE.

D. If unit is equipped with "TruGuard" system, remove covers and inspect the isolation system for any accumulation of dirt that can impair the insulating value of the system. If cleaning is required soap and water is recommend, avoid any harsh chemicals such as acetone or paint thinners.

3. TESTING

A. Perform dielectric test per ANSI A92.2 paragraph 8.2.4 item 16.

If unit is equipped with the "TruGuard" system refer to the "TruGuard" dielectric test setup drawing included in your specific upper control option in this manual.

EVERY YEAR OR 1500 PTO HOURS
MAINTENANCE AND INSPECTION

1. MAINTENANCE

A. An application of light oil is recommended to maintain the smooth operation of control handles and actuators.

B. If the control levers become "sticky" or do not return to the center properly, lubricate the lever boxes. Remove the socket head cap screws that mount the lever boxes to the valve. Remove the lever boxes. Liberally apply grease inside the box and to the spool end. Replace the lever box and tighten the screws.

C. Drain the oil from the hydraulic winch gearbox annually. Replace oil with an all-purpose E.P. 140 gear oil. The oil should be even with the level plug.

D. Physically re-torque all load supporting bolts (rotation bearing bolts, pedestal/subframe mounting bolts, and platform rotator mounting bolts) to the specifications included on the torque chart in this section. All other critical fasteners must be visually inspected for rotation and signs of failure. If any loose fasteners are found both the nut and bolt **must be replaced and tightened to the proper torque.** Nuts and bolts, must never be reused. A new torque-seal mark must be installed.

Prevailing torque nuts are used in structural applications to prevent loosening from vibration. To be effective, 2 threads must protrude beyond the locknut once tightened. Only install unused locknuts and bolts.

WARNING: ***IMPROPERLY TORQUED OR IMPROPER BEARING BOLTS CAN CAUSE DEATH OR SERIOUS INJURY.***

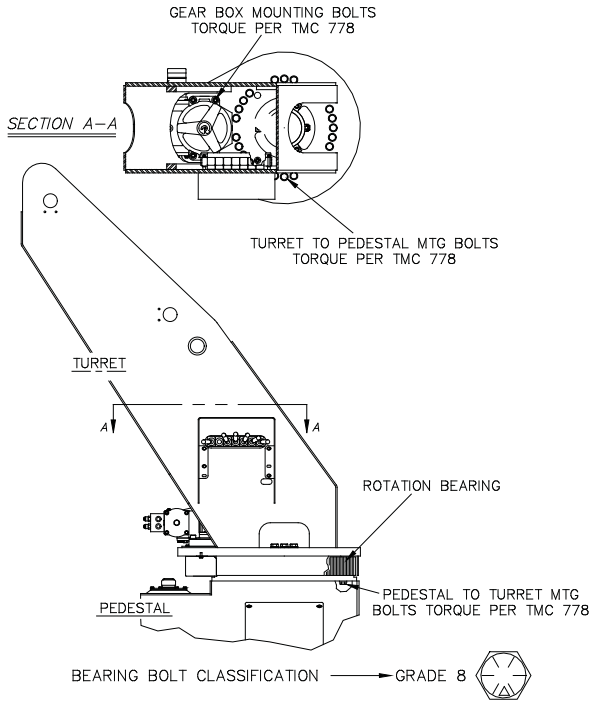
Rotation Bearing Bolt Inspection - The bolts fastening the rotation bearing to the turret and pedestal of the Versalift aerial device are one of the load supporting components and because of their location could be overlooked. Remove pedestal covers to allow access to the pedestal to turret mounting bolts. Refer to Figure 5.

If one or more bolts loosen or stretches, the loading is transferred to the properly torqued bolts making them support more than their share of load. Should the unit be allowed to operate in this manner the properly torqued bolts will eventually fatigue and failure may occur.

All load supporting bolts should be inspected visually each day, and checked for proper torque every year at minimum, and more frequently if the unit is subjected to severe use.

NOTE: ***Torque values are based on torquing the bolt head in all applications.***

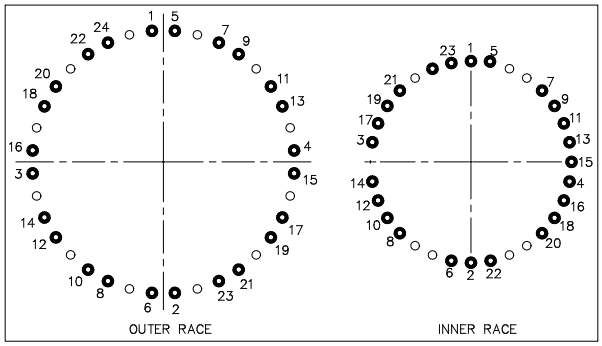
NOTE: ***If the rotation bearing is removed, ensure the mounting surfaces are smooth and clean to endure full contact between the bearing and mounting surface.***



Rotation Bearing Bolts Inspection
Figure 5

Retorquing Procedure **-** Retorque the rotation bearing bolts to the specifications included on the torque chart in this section and also according to the appropriate pattern shown on Figure 6. Understand the entire procedure before starting the torque inspection.

Select the torque wrench that is verified to the correct value for the bolt in use. Torque the bolts in a diametrically opposed pattern (bolts directly across the diameter, move 90 degrees, and then tighten bolts directly across the diameter). Repeat until all bolts are torqued to the specified value.



Rotation Bearing Bolts Torque Pattern
Figure 6

E. Adjust the gearbox pinion clearance per "Gearbox Pinion Clearance Adjustment" instructions on turret assembly drawing in "Parts and Assemblies Section" in this manual.

EVERY 2 YEARS OR 3000 PTO HOURS MAINTENANCE AND INSPECTION

1. MAINTENANCE

A. The rotation bearing must be Inspected and evaluated. Refer to Maintenance and Inspection in this section for recommended bearing inspection procedures.

Rotation Bearing Replacement Criteria- The rotation bearing must be inspected and evaluated. The recommended bearing inspection procedure includes the following.

1. Monitoring the trend of turret tilt measurements. Bearing inspections and turret tilt measurements can be used to determine when a bearing should be replaced. Generally, an increase in turret tilt of 0.065" (1.65 mm) above the initial tilt measurement or a total axial movement exceeding .125" (3.17 mm) indicates that the bearing may be reaching the end of its useful life. Other factors related to the condition of the bearing must be considered. Determine if the increase in the turret tilt measurements has been steady (which is normal) or if it shows a trend of accelerated wear which would indicate bearing replacement may be necessary.

2. Evaluating the "feel" of the unit. If there is no trend toward accelerated wear, consider the "feel" of the unit during load reversals. Operators may notice an increase in the tilting or rocking of the turret with respect to the pedestal top plate during load reversals.

3. Checking for rotation bearing noise and roughness. Determine whether there is any presence of roughness or noise in the rotation bearing during rotation. Severely worn bearings commonly exhibit grinding, snapping, and popping noises during rotation.

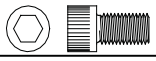
4. Inspecting the condition of the purged bearing grease. Grease from a well worn, poorly maintained, or damaged bearing will typically contain fairly large rust or metal particles, instead of metal dust specks which might be found in any bearing. Fairly large rust or metal particles indicate the bearing has reached an accelerated wear condition

and immediate bearing replacement is required. Rust is commonly indicated by extremely dirty grease. This situation must be corrected to optimize the performance of the bearing. Always check the purged bearing grease at each inspection and turret tilt measurement procedure even if there is no presence of roughness, noise in the bearing, or significant change in the turret tilt measurement.

One or more of these evaluation criteria should detect the need for rotation bearing replacement long before there is a threat of failure. By maintaining proper rotation bearing lubrication and avoiding overload conditions, the replacement bearing should provide many years of service.

BOLT MARKINGS & TORQUE CHART

Bolts With Nuts

	Grade 5 Bolt	Grade 8 Bolt	Socket Head
Bolt Head Markings	 Highland Infasco Nucor	 Highland Infasco Nucor	SPS SHCS & SHFH 
Nut Markings	Grade B PTLN  Gripco Aztec	Grade C PTLN  Gripco Aztec	Grade C PTLN  Gripco Aztec
Bolt Thread & Size	Torque ft-lb (N-m)	Torque ft-lb (N-m)	Torque ft-lb (N-m)
1/4 - 20	74 in-lb (8)	N/A	150 in-lb (17)
5/16 - 18	150 in-lb (17)	N/A	21 (29)
3/8 - 16	15 (20)	21 (29)	32 (44)
7/16 - 14	28 (38)	N/A	N/A
1/2 - 13	43 (58)	55 (75)	55 (75)
5/8 - 11	75 (102)	98 (133)	160 (218)
3/4 - 10	125 (170)	160 (218)	N/A
7/8 - 9	178 (242)	N/A	N/A
1 - 8	378 (514)	450 (610)	N/A

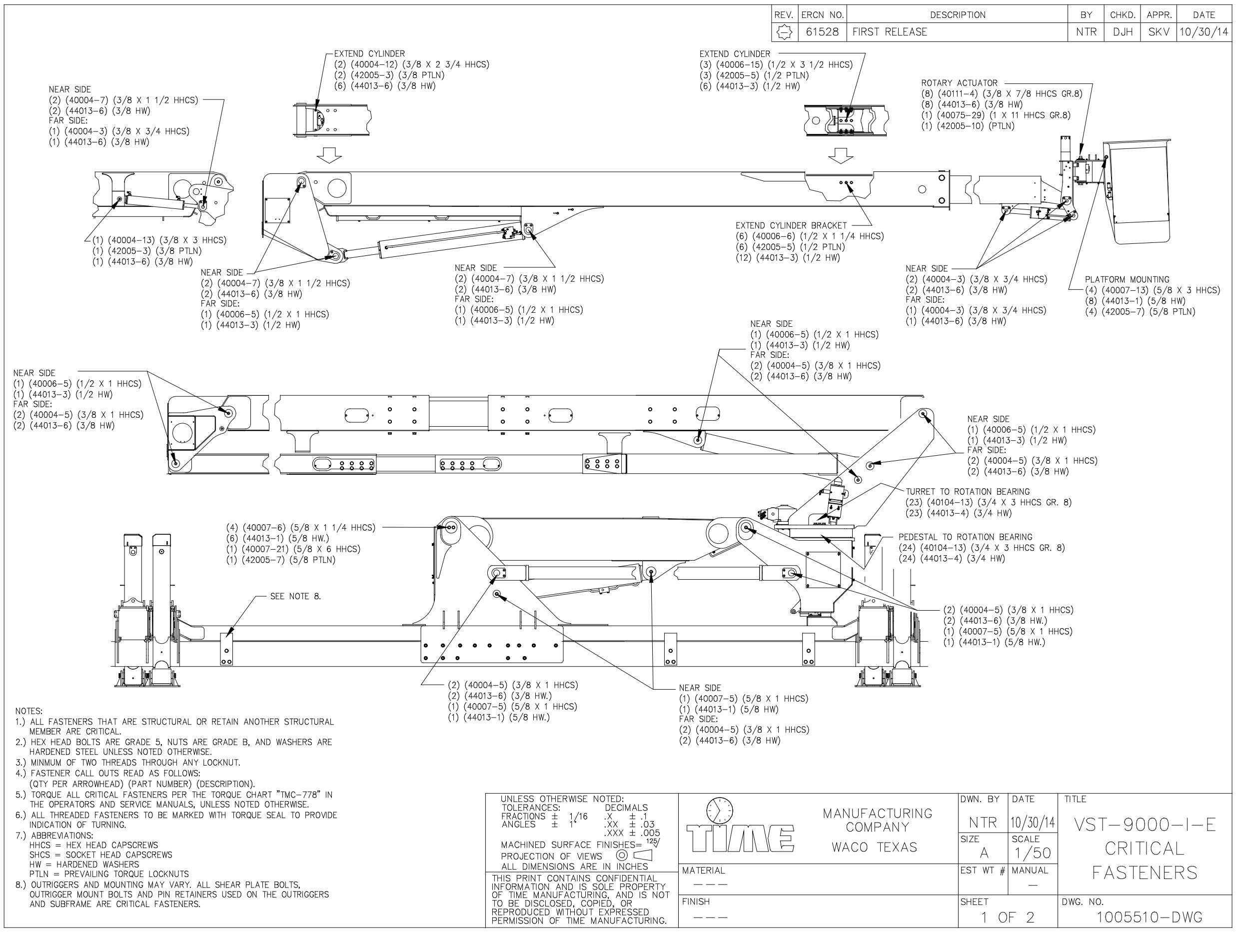
Special Threaded Fastener Applications

Bolt Thread Size & Type	Lubricant	Tapped Material	Torque ft-lb (N-m)
1/4 - 20 Grade 5 HHCS	Loctite 262	Steel	15(20)
3/8 - 16 Grade 5 HHCS	Loctite 262	Steel	28 (38)
3/8 - 16 SHCS & SHFH	Loctite 262	Aluminum	15 (20)
3/8 - 16 Grade 8 HHCS	Loctite 262	Steel	37 (50)
1/2 - 13 SHCS	Loctite 262	Steel	89 (121)
5/8 - 11 SHCS	30W Motor Oil	Rotation Bearing	160 (218)
5/8 - 11 Grade 8 HHCS	30W Motor Oil	Rotation Bearing	160 (218)
3/4 - 10 Grade 5 Threaded Rod	Loctite 262	Grade B Nut	145 (197)
3/4 - 10 Grade 8 HHCS	30W Motor Oil	Rotation Bearing	315 (428)
3/4 - 10 Grade 8 HHCS	Loctite 262	A572-50 Steel	210 (286)
7/8 - 9 Grade 8 HHCS	30W Motor Oil	Rotation Bearing	475 (644)

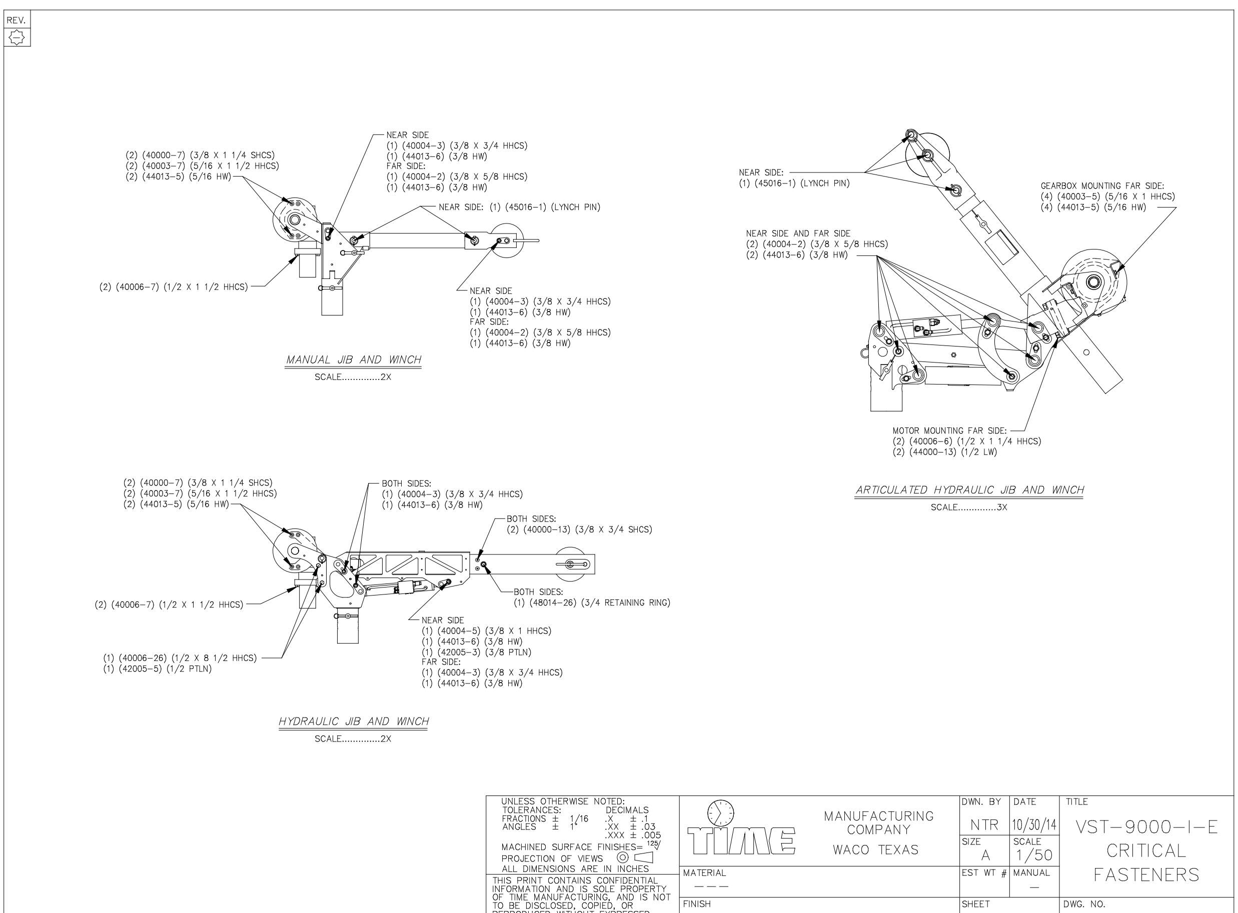
NOTES:

1. Lubricate bolt threads liberally with 30W motor oil, unless fastener application is to be used on tapped material. Then use Loctite 262 on these fasteners with exception of rotation bearing.
2. Apply torque to nut unless bolt is used in a tapped hole.
3. All torque values are "running" torques (for initial and replacement installation only); the nut (bolt head) must turn. Use of an impact wrench is permissible only for run-up, not for tightening. During confirmation of previously torqued fasteners, the nut (bolt head) should not turn if proper torque is maintained.
4. A minimum of two threads must protrude beyond the nut after tightening.
5. The marks shown on this chart are for our current fastener suppliers.
6. Refer to the critical fastener drawings for each Versalift for identification of specific fasteners.
7. HHCS = Hex Head Cap Screw; HW = Hardened Washers; PTLN = Prevailing Torque Lock Nut; SHCS = Socket Head Cap Screw; SHFH = Socket Head Flat Head.

March 8, 2012 / TMC-778

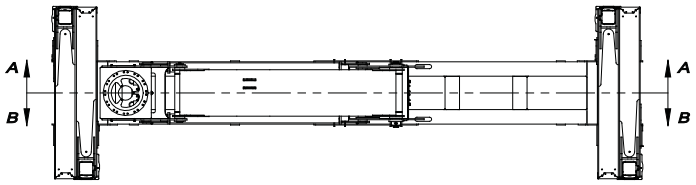


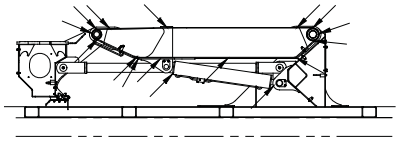
REV. | ERCN NO. | DESCRIPTION | BY | CHKD. | APPR. | DATE
61528 | FIRST RELEASE | NTR | DJH | SKV | 10/30/14
EXTEND CYLINDER
(2) (40004-12) (3/8 X 2 3/4 HHCS)
(2) (42005-3) (3/8 PTLN)
(6) (44013-6) (3/8 HW)
EXTEND CYLINDER
(3) (40006-15) (1/2 X 3 1/2 HHCS)
(3) (42005-5) (1/2 PTLN)
(6) (44013-3) (1/2 HW)
ROTARY ACTUATOR
(8) (40111-4) (3/8 X 7/8 HHCS GR.8)
(8) (44013-6) (3/8 HW)
(1) (40075-29) (1 X 11 HHCS GR.8)
(1) (42005-10) (PTLN)
NEAR SIDE
(2) (40004-7) (3/8 X 1 1/2 HHCS)
(2) (44013-6) (3/8 HW)
FAR SIDE:
(1) (40004-3) (3/8 X 3/4 HHCS)
(1) (44013-6) (3/8 HW)
(1) (40004-13) (3/8 X 3 HHCS)
(1) (42005-3) (3/8 PTLN)
(1) (44013-6) (3/8 HW)
NEAR SIDE
(2) (40004-7) (3/8 X 1 1/2 HHCS)
(2) (44013-6) (3/8 HW)
FAR SIDE:
(1) (40006-5) (1/2 X 1 HHCS)
(1) (44013-3) (1/2 HW)
NEAR SIDE
(2) (40004-7) (3/8 X 1 1/2 HHCS)
(2) (44013-6) (3/8 HW)
FAR SIDE:
(1) (40006-5) (1/2 X 1 HHCS)
(1) (44013-3) (1/2 HW)
EXTEND CYLINDER BRACKET
(6) (40006-6) (1/2 X 1 1/4 HHCS)
(6) (42005-5) (1/2 PTLN)
(12) (44013-3) (1/2 HW)
NEAR SIDE
(2) (40004-3) (3/8 X 3/4 HHCS)
(2) (44013-6) (3/8 HW)
FAR SIDE:
(1) (40004-3) (3/8 X 3/4 HHCS)
(1) (44013-6) (3/8 HW)
PLATFORM MOUNTING
(4) (40007-13) (5/8 X 3 HHCS)
(8) (44013-1) (5/8 HW)
(4) (42005-7) (5/8 PTLN)
NEAR SIDE
(1) (40006-5) (1/2 X 1 HHCS)
(1) (44013-3) (1/2 HW)
FAR SIDE:
(2) (40004-5) (3/8 X 1 HHCS)
(2) (44013-6) (3/8 HW)
NEAR SIDE
(1) (40006-5) (1/2 X 1 HHCS)
(1) (44013-3) (1/2 HW)
FAR SIDE:
(2) (40004-5) (3/8 X 1 HHCS)
(2) (44013-6) (3/8 HW)
NEAR SIDE
(1) (40006-5) (1/2 X 1 HHCS)
(1) (44013-3) (1/2 HW)
FAR SIDE:
(2) (40004-5) (3/8 X 1 HHCS)
(2) (44013-6) (3/8 HW)
TURRET TO ROTATION BEARING
(23) (40104-13) (3/4 X 3 HHCS GR. 8)
(23) (44013-4) (3/4 HW)
(4) (40007-6) (5/8 X 1 1/4 HHCS)
(6) (44013-1) (5/8 HW.)
(1) (40007-21) (5/8 X 6 HHCS)
(1) (42005-7) (5/8 PTLN)
PEDESTAL TO ROTATION BEARING
(24) (40104-13) (3/4 X 3 HHCS GR. 8)
(24) (44013-4) (3/4 HW)
SEE NOTE 8.
(2) (40004-5) (3/8 X 1 HHCS)
(2) (44013-6) (3/8 HW.)
(1) (40007-5) (5/8 X 1 HHCS)
(1) (44013-1) (5/8 HW.)
(2) (40004-5) (3/8 X 1 HHCS)
(2) (44013-6) (3/8 HW.)
(1) (40007-5) (5/8 X 1 HHCS)
(1) (44013-1) (5/8 HW.)
NEAR SIDE
(1) (40007-5) (5/8 X 1 HHCS)
(1) (44013-1) (5/8 HW)
FAR SIDE:
(2) (40004-5) (3/8 X 1 HHCS)
(2) (44013-6) (3/8 HW)
NOTES:
1.) ALL FASTENERS THAT ARE STRUCTURAL OR RETAIN ANOTHER STRUCTURAL MEMBER ARE CRITICAL.
2.) HEX HEAD BOLTS ARE GRADE 5, NUTS ARE GRADE B, AND WASHERS ARE HARDENED STEEL UNLESS NOTED OTHERWISE.
3.) MINMUM OF TWO THREADS THROUGH ANY LOCKNUT.
4.) FASTENER CALL OUTS READ AS FOLLOWS: (QTY PER ARROWHEAD) (PART NUMBER) (DESCRIPTION).
5.) TORQUE ALL CRITICAL FASTENERS PER THE TORQUE CHART "TMC-778" IN THE OPERATORS AND SERVICE MANUALS, UNLESS NOTED OTHERWISE.
6.) ALL THREADED FASTENERS TO BE MARKED WITH TORQUE SEAL TO PROVIDE INDICATION OF TURNING.
7.) ABBREVIATIONS:
HHCS = HEX HEAD CAPSCREWS
SHCS = SOCKET HEAD CAPSCREWS
HW = HARDENED WASHERS
PTLN = PREVAILING TORQUE LOCKNUTS
8.) OUTRIGGERS AND MOUNTING MAY VARY. ALL SHEAR PLATE BOLTS, OUTRIGGER MOUNT BOLTS AND PIN RETAINERS USED ON THE OUTRIGGERS AND SUBFRAME ARE CRITICAL FASTENERS.
UNLESS OTHERWISE NOTED:
TOLERANCES: FRACTIONS ± 1/16 ANGLES ± 1° DECIMALS .X ± .1 .XX ± .03 .XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.
TIME MANUFACTURING COMPANY WACO TEXAS
MATERIAL ---
FINISH ---
DWN. BY NTR
DATE 10/30/14
SIZE A
SCALE 1/50
EST WT #
MANUAL -
SHEET 1 OF 2
TITLE VST-9000-I-E CRITICAL FASTENERS
DWG. NO. 1005510-DWG



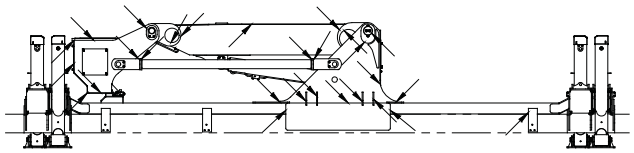
REV.
(2) (40000-7) (3/8 X 1 1/4 SHCS)
(2) (40003-7) (5/16 X 1 1/2 HHCS)
(2) (44013-5) (5/16 HW)
NEAR SIDE
(1) (40004-3) (3/8 X 3/4 HHCS)
(1) (44013-6) (3/8 HW)
FAR SIDE:
(1) (40004-2) (3/8 X 5/8 HHCS)
(1) (44013-6) (3/8 HW)
NEAR SIDE: (1) (45016-1) (LYNCH PIN)
(2) (40006-7) (1/2 X 1 1/2 HHCS)
NEAR SIDE
(1) (40004-3) (3/8 X 3/4 HHCS)
(1) (44013-6) (3/8 HW)
FAR SIDE:
(1) (40004-2) (3/8 X 5/8 HHCS)
(1) (44013-6) (3/8 HW)
MANUAL JIB AND WINCH
SCALE..............2X
NEAR SIDE:
(1) (45016-1) (LYNCH PIN)
GEARBOX MOUNTING FAR SIDE:
(4) (40003-5) (5/16 X 1 HHCS)
(4) (44013-5) (5/16 HW)
NEAR SIDE AND FAR SIDE
(2) (40004-2) (3/8 X 5/8 HHCS)
(2) (44013-6) (3/8 HW)
MOTOR MOUNTING FAR SIDE:
(2) (40006-6) (1/2 X 1 1/4 HHCS)
(2) (44000-13) (1/2 LW)
ARTICULATED HYDRAULIC JIB AND WINCH
SCALE..............3X
(2) (40000-7) (3/8 X 1 1/4 SHCS)
(2) (40003-7) (5/16 X 1 1/2 HHCS)
(2) (44013-5) (5/16 HW)
BOTH SIDES:
(1) (40004-3) (3/8 X 3/4 HHCS)
(1) (44013-6) (3/8 HW)
BOTH SIDES:
(2) (40000-13) (3/8 X 3/4 SHCS)
BOTH SIDES:
(1) (48014-26) (3/4 RETAINING RING)
(2) (40006-7) (1/2 X 1 1/2 HHCS)
NEAR SIDE
(1) (40004-5) (3/8 X 1 HHCS)
(1) (44013-6) (3/8 HW)
(1) (42005-3) (3/8 PTLN)
FAR SIDE:
(1) (40004-3) (3/8 X 3/4 HHCS)
(1) (44013-6) (3/8 HW)
(1) (40006-26) (1/2 X 8 1/2 HHCS)
(1) (42005-5) (1/2 PTLN)
HYDRAULIC JIB AND WINCH
SCALE..............2X
UNLESS OTHERWISE NOTED:
TOLERANCES: FRACTIONS ± 1/16 ANGLES ± 1° DECIMALS .X ± .1 .XX ± .03 .XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.
TIME MANUFACTURING COMPANY WACO TEXAS
MATERIAL ---
FINISH ---
DWN. BY NTR
DATE 10/30/14
SIZE A
SCALE 1/50
EST WT #
MANUAL -
SHEET 2 OF 2
TITLE VST-9000-I-E CRITICAL FASTENERS
DWG. NO. 1005510-DWG

REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
B	61528	FIRST RELEASE	NTR	DJH	SKV	10/30/14



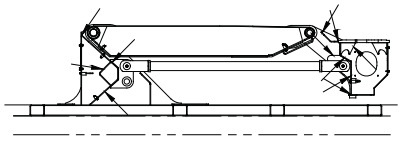


SECTION A-A



CRITICAL WELDS DIAGRAM - ELEVATOR

SEE SHEET 2 FOR LIFT

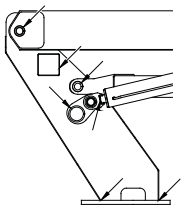


SECTION B-B

NOTES:
1.) CRITICAL WELDED JOINTS TO BE INSPECTED ARE INDICATED BY ARROWS. THE JOINTS MAY INCLUDE WELDS ON BOTH SIDES OR INSIDE AND OUTSIDE AS APPLICABLE.
2.) THERE ARE ADDITIONAL CRITICAL WELDS ON THE MOUNTING HARDWARE AND OUTRIGGERS.
3.) ALL WELDED PIN RETAINERS ARE CRITICAL WELDS.
4.) ANY STRUCTURE WELD FOUND DEFFECTIVE SHOULD BE CORRECTED AND NEVER IGNORED. WELDS MUST BE REPAIRED IN ACCORDANCE WITH ANSI A92.2-1990 REQUIREMENTS. CONSULT FACTORY FOR MATERIAL SPECIFICATIONS AND PROPER WELDING SPECIFICATIONS.

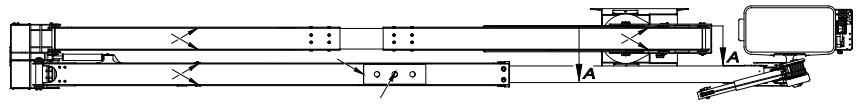
UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16, DECIMALS .XX ± .03, .XXX ± .005, ANGLES ± 1°; MACHINED SURFACE FINISH 125; PROJECTION OF VIEWS; ALL DIMENSIONS ARE IN INCHES	MANUFACTURING COMPANY WACO TEXAS	DWN. BY NTR	DATE 10/30/14	TITLE VST-9000-I-E CRITICAL WELDS
		SIZE B	SCALE 1/45	
MATERIAL		EST WT #	MANUAL —	
FINISH		SHEET 1 OF 2		DWG. NO. 1005511-DWG

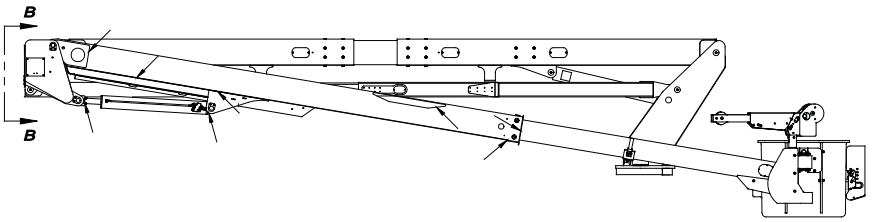
REV.

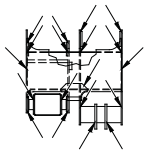


SECTION A-A

SCALE.....1.5X

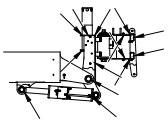






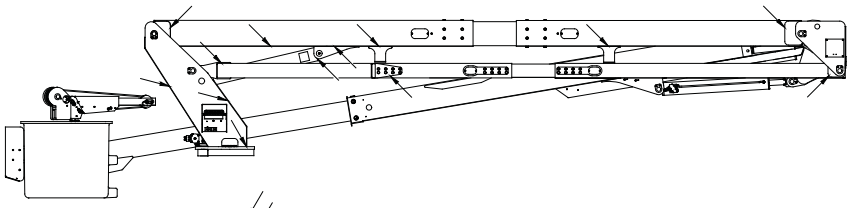
SECTION B-B

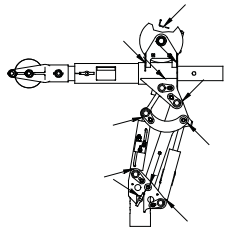
SCALE.....1.5X



PLATFORM SUPPORT

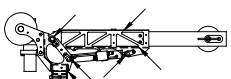
SCALE.....1.5X





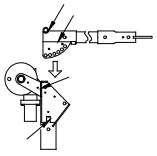
ARTICULATED HYD. JIB & WINCH

SCALE.....2.67X



HYD. JIB & WINCH

SCALE.....2X

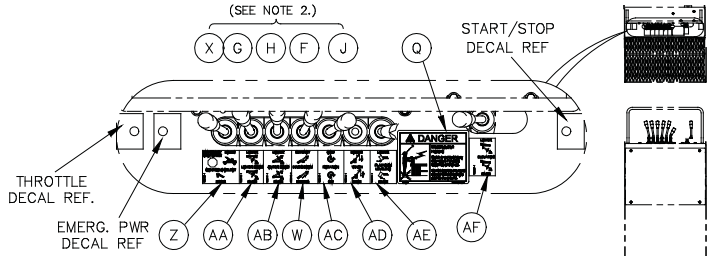


MANUAL JIB & WINCH

SCALE.....2X

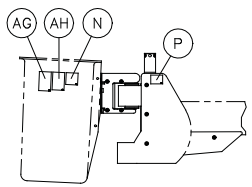
UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16, DECIMALS .XX ± .03, .XXX ± .005, ANGLES ± 1°; MACHINED SURFACE FINISH 125; PROJECTION OF VIEWS; ALL DIMENSIONS ARE IN INCHES	MANUFACTURING COMPANY WACO TEXAS	DWN. BY NTR	DATE 10/30/14	TITLE VST-9000-I-E CRITICAL WELDS
		SIZE B	SCALE 1/45	
MATERIAL		EST WT #	MANUAL —	
FINISH		SHEET 2 OF 2		DWG. NO. 1005511-DWG

REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
6	61515	FIRST RELEASE	NTR	DJH	SKV	10/9/14



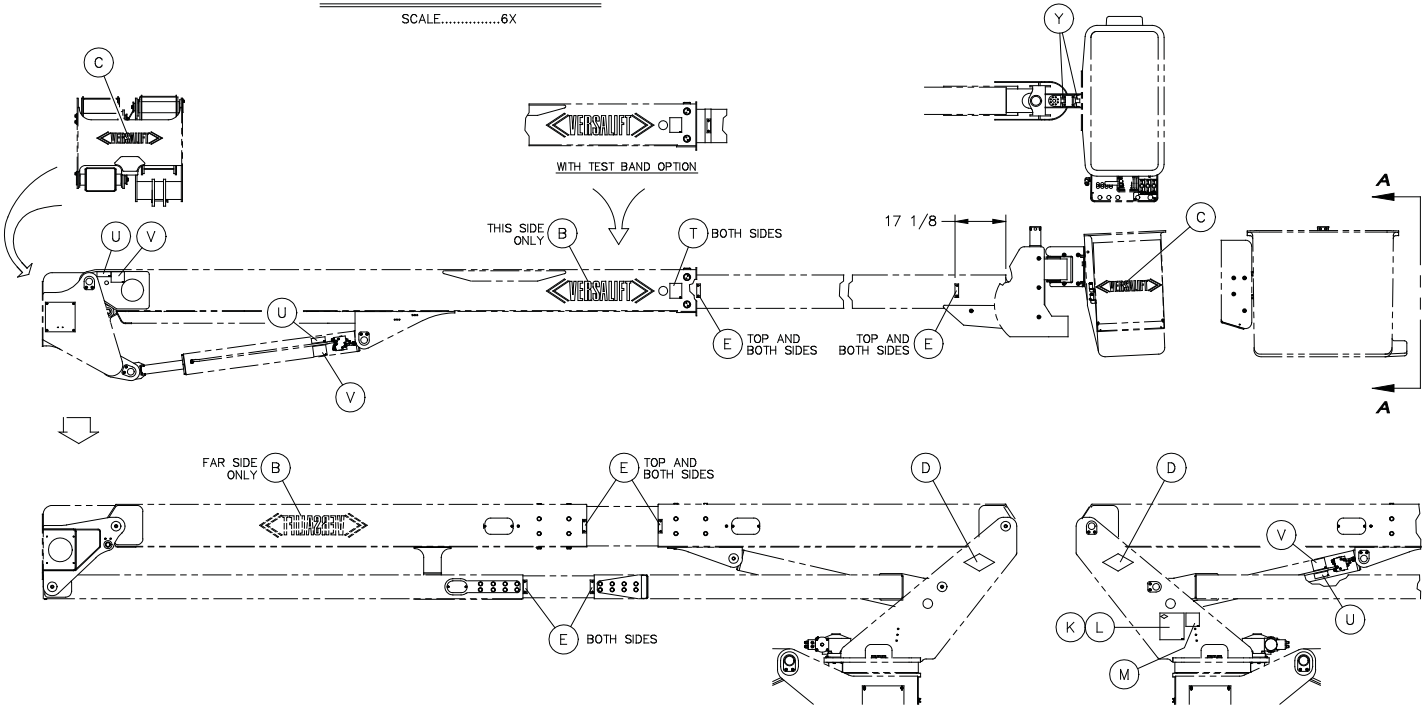
LOWER CONTROL CONSOLE

SCALE.....6X



VIEW A-A

NOTES:
1.) ∗ INDICATES PART IS SHIPPED LOOSE.
2.) ITEMS "X", "G", "H", "F" AND "J" (OR REQ'D) ARE TO BE LOCATED BY INSTALLER NEAR LOWER CONTROLS AND VISIBLE BY OPERATOR.
3.) ITEM "S" TO BE LOCATED BY INSTALLER AT EACH CORNER OF TRUCK.
4.) ITEM "R" IS TO BE LOCATED BY INSTALLER NEAR RELIEF VALVE.



	-1			
	1	AH	4542–5	DECAL – CAUTION OPERATION
	1	AG	4542–12	DECAL – DANGER QUALIFIED OPERATOR
∗	1	AF	1005502–1	DECAL – LWR AND RAISE ELEV
∗	1	AE	1000474–1	DECAL – LWR AND RAISE PLATFORM
∗	1	AD	1000473–1	DECAL –LWR AND RAISE WINCH
∗	1	AC	1000472–1	DECAL – CCW AND CW ROTATION
∗	1	AB	1000147–1	DECAL – LWR AND RAISE OUTER BM
∗	1	AA	1000470–1	DECAL – LWR AND RAISE LWR BM
∗	1	Z	1000469–1	DECAL – UPPER AND LOWER CNTRLS
	2	Y	30593–1	DECAL – LANYARD ATTACHMENT
	REF	X	33565–1	DECAL – DANGER ELECTROCUTION
∗	1	W	1000146–1	DECAL – RET AND EXT INNER BOOM
	3	V	7500–1	DECAL – HOLDING VALVE
	3	U	15732–1	DECAL – CAUTION EMGY LOWERING
	2	T	16837–1	DECAL – DANGER INSPECTION HOLE
∗	4	S	4542–2	DECAL – ELECTROCUTION
∗	1	R	7584–1	DECAL – RELIEF ADJUSTMENT
∗	1	Q	35409–1	DECAL – DANGER ELECTROCUTION
	1	P	14014–1	DECAL – PLATFORM INSTRUCTION
	1	N	14110–1	DECAL – ELECTROCUTION HAZARD
∗	1	M	12337–1	DECAL – OWNER TRANFER
∗	1	L	11099–1	DATA PLATE BACKING
∗	1	K	8928–1	DATA PLATE
∗	1	J	13144–1	DECAL – CAUTION LOWER BOOM
∗	1	H	4542–4	DECAL – DANGER ELECTROCUTION
∗	1	G	4542–5	DECAL – CAUTION OPERATION
∗	1	F	4542–12	DECAL – DANGER QUALIFIED OPERATOR
	16	E	5098–1	DECAL – INSULATED SECTION
	2	D	426–011	VERSALIFT NAME PLATE
	2	C	4541–1	DECAL – "VERSALIFT" (SMALL)
	2	B	4541–2	DECAL – "VERSALIFT" (LARGE)
	2	A	1005500–DWG	DECAL PLACEMENT DRAWING
QTY.	ITEM	PART NO.	DESCRIPTION	

LIST OF MATERIAL

DASH NO.	DESCRIPTION	CODE
–1	DECAL PLACEMENT – WITH JIB AND WINCH – LIFT ON SINGLE ARM LIFT ELEVATOR	DE–1280–29

UNLESS OTHERWISE NOTED:
TOLERANCES: FRACTIONS ± 1/16 ANGLES ± 1° DECIMALS .X ± .1 .XX ± .03 .XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

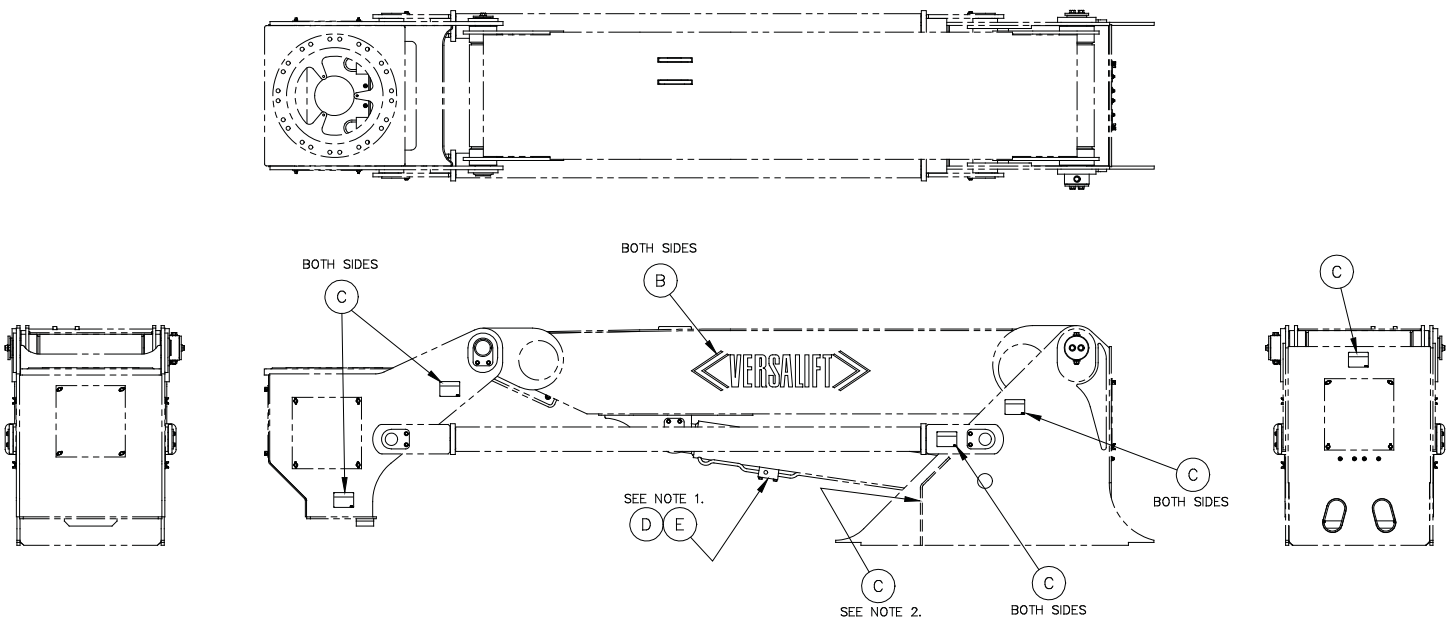
TIME MANUFACTURING COMPANY WACO TEXAS

MATERIAL

FINISH

DWN. BY	DATE	TITLE
NTR	10/9/14	DECAL PLACEMENT LIFT FOR SINGLE ARM LIFT ELEVATOR
SIZE B	SCALE 1/40	
EST WT #	MANUAL –	
SHEET 1 OF 1		DWG. NO. 1005500–DWG

REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
⟲	61515	FIRST RELEASE	NTR	DJH	SKV	10/9/14



DASH NO.	DESCRIPTION	CODE
–1	DECAL PLACEMENT FOR SINGLE ARM LIFT ELEVATOR	DE–1341–5

–1

	QTY.	ITEM	PART NO.	DESCRIPTION
SEE NOTE 1.	1	E	15732–1	EMERGENCY LOWERING
SEE NOTE 1.	1	D	7500–1	DECAL – HOLDING VALVE
	10	C	34005–1	DECAL – PINCH POINT
	2	B	4541–2	DECAL – VERSALIFT LARGE
	1	A	1005501–DWG	DECAL PLACEMENT – SINGLE ELEV

LIST OF MATERIAL

NOTES:
1.) ITEMS "D" AND "E" ARE TO BE LOCATED NEAR ARM CYLINDER HOLDING VALVE.
2.) ITEM PLACE PINCH POINT DECAL (ITEM "C") ON PLATE BELOW ARM CYLINDER CUTOUT.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL
FINISH

DWN. BY	DATE	TITLE
NTR	10/9/14	DECAL PLCMNT FOR SINGLE ARM LIFT ELEVATOR
SIZE B	SCALE 1/24	
EST WT #	MANUAL –	
SHEET 1 OF 1	DWG. NO. 1005501–DWG	

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MAINTENANCE AND INSPECTION CHECKLIST AND RECORD
VERSALIFT VST-9000-I-E SERIAL NO._____ VEHICLE NO._____

Fill in date and initial boxes when each check is made. All inspections, adjustments, repairs, and lubrication must be made according to the Service and Installation Manual. Additional copies of this form can be obtained from Time Manufacturing Company. Refer to preceding pages for instructions.

PERFORM DAILY CHECKS LISTED IN OPERATOR'S MANUAL EVERY DAY

PRIOR TO PLACING UNIT IN SERVICE	DATE:
1. MAINTENANCE	
A. Perform the Daily Visual Maintenance and Inspection Checks (refer to Operator's Manual)	
B. Check Rotation Bearing Deflection (new bearing initial tile measurement)[1]	

30 DAYS OR 85 PTO HRS AFTER "IN SERVICE" DATE (ONE-TIME SERVICE)	DATE:
1. MAINTENANCE	
A. Replace Return Line Filter	

EVERY 3 MONTHS OR 250 PTO HRS	DATE:			
Perform the Daily Visual Maintenance and Inspection Checks (Refer to Operator's Manual)				
1. GENERAL INSPECTION				
A. Remove Trash/Debris				
B. Inspect Controls (Damage, Wear)				
C. Check For Interference				
D. Inspect Hoses (Damage, Wear)				
E. Wires/Electrical (Damage, Wear)				
F. Inspect Decals				
G. Inspect Boom Rests/Tie Down Strap				
2. STRUCTURAL INSPECTION				
A. Inspect Critical Fasteners				
B. Inspect Welds				
C. Inspect Structural Components (Deformation, Corrosion)				
D. Inspect Fiberglass Components (Damage)				
E. Inspect Platform (Cracks, Damage)				
F. Inspect Winch (Damage)				
3. OPERATIONAL CHECKS				
A. Check PTO/Pump				
B. Check Control Operation				
C. Holding Valves				
D. Check Clearances During Operation				
E. Check For Hydraulic Oil Leaks				
F. Check For Cylinder Rod Damage				
4. MAINTENANCE				
A. Lube Rotation Bearings				
B. Lube Pinion				
C. Purge Air Lines				

MAINTENANCE AND INSPECTION CHECKLIST AND RECORD
VERSALIFT VST-9000-I-E SERIAL NO._____ VEHICLE NO._____

Fill in date and initial boxes when each check is made. All inspections, adjustments, repairs, and lubrication must be made according to the Service and Installation Manual. Additional copies of this form can be obtained from Time Manufacturing Company. Refer to preceding pages for instructions.

PERFORM DAILY CHECKS LISTED IN OPERATOR'S MANUAL EVERY DAY

EVERY 6 MONTHS OR 500 PTO HRS	DATE:				
Perform the 3 Months / 250 Hours Maintenance and Inspection					
1. INSPECTION					
A. Check Hydraulic Oil (Contamination, Water)					
B. Check Slope Indicators (Adjustments)					
2. MAINTENANCE					
A. Replace Return Filter					
B. Clean Suction Strainer					
C. Adjust Relief Valve					
D. Inspect and Clean the "TruGuard" System (If Equipped)					
3. TESTING					
A. Dielectric Test Per ANSI A92.2					

EVERY YEAR OR 1500 PTO HRS	DATE:				
Perform the 6 Months / 500 Hours Maintenance and Inspection					
1. MAINTENANCE					
A. Lube Control Handles					
B. Lube Control Levers					
C. Lube Winch Gearbox					
D. Retorque Load Supporting Bolts / Visually Inspect Critical Fasteners					
E. Adjust Pinion Backlash					

TWO YEARS OR 3000 PTO HRS	DATE:				
Perform the 1 Year / 1500 Hours Maintenance and Inspection					
1. MAINTENANCE					
A. Rotation Bearing Inspection and Measurement[1]					

1. Initially measure turret tilt as a baseline. Check rotation bearing every 2 years until it measures 0.050" increased wear from initial measurement. After reaching 0.05" increased wear, measure every 6 months. Refer to the Maintenance and Inspection section for proper procedures.

ADJUSTMENTS

CARTRIDGE HOLDING VALVES - Cartridge type, holding valves are integral components in the outer boom, extension, and leveling slave cylinders. Holding valves provide two important safety features. First, holding valves make smooth operation of the booms and platform possible. Secondly, in the event of a hydraulic line failure the holding valves prevent the booms or platform from dropping.

WARNING: ***FAILURE TO RELIEVE CYLINDER PRESSURE BEFORE THE HOLDING VALVES ARE REMOVED MAY RESULT IN DAMAGE TO THE HOLDING VALVE SEALS OR A HIGH PRESSURE HYDRAULIC OIL SPRAY. THE SPRAY OR MIST CAN PUNCTURE OR BECOME EMBEDDED BENEATH THE SKIN OR CONTAMINATE THE EYES. THESE CONDITIONS REQUIRE IMMEDIATE MEDICAL ATTENTION.***

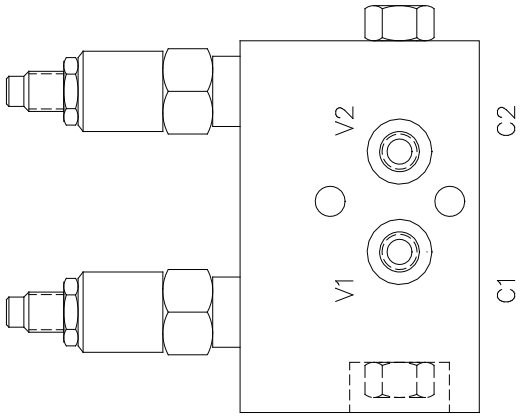
Remove pressure inside the cylinder before the holding valves are removed. The best procedure for relieving pressure is to stow the booms, turn off the pump, and open the bleeder ports briefly. Be prepared for a flow of hot oil coming from the bleeder ports.

These holding valves are factory set and no field adjustments are permitted. To determine if a holding valve is functioning properly follow the procedure below.

To check the base-end holding valve for the slave cylinder, Rotate the platform to the end position. Place a load into the platform. Raise the platform 12 inches off the ground. Loosen the hoses at the “C1” & “C2” ports on the leveling circuit relief valve (See Figure 7) until oil flows from the hoses. ***WARNING: The oil may be hot and under pressure.*** Tighten the hose fittings. The platform should not have moved during this procedure. To purge the air from the system raise and lower the slave cylinder several times. In addition raise the upper boom several times to purge air from the master cylinder.

To check the rod-end holding valve for the slave cylinder, Rotate the platform to the side position. Position the upper boom at an angle no lower than -20°. Loosen the hoses at the “C1” & “C2” ports on the leveling circuit relief valve (See Figure 8) until oil flows from the hoses.

WARNING: The oil may be hot and under pressure. Apply a 100 lb minimum force at the top of the platform in a direction tipping the platform toward the turret. The platform should not move. Tighten the hose fittings and purge the system of air.



Leveling Circuit Relief Valve
Figure 7

To check the rod end holding valve for the outer/inner boom assembly cylinder, raise the outer/inner boom assembly a few inches with the lower boom stowed. With the hydraulic pump off and a load in the platform, slowly operate the outer/inner boom assembly lower function. The outer/inner boom assembly should not move.

To check the base end holding valve for the outer/inner boom assembly cylinder, follow the procedure below. First make sure the outer/inner boom assembly is either supported or fully stowed to prevent the boom assembly from dropping. This is critical because the cylinder will not hold a load with either holding valve removed. Open the related bleeder ports briefly to relieve any pressure. Be prepared for a flow of hot oil coming from the bleeder.

DANGER: ***AVOID ANY CONTACT BETWEEN HYDRAULIC OIL AND SOURCES OF HIGH HEAT OR OPEN FLAMES. DEATH OR SERIOUS INJURY MAY RESULT FROM A FIRE.***

WARNING: ***CONTACT WITH HOT HYDRAULIC OIL CAN CAUSE SERIOUS BURNS WHICH REQUIRE IMMEDIATE MEDICAL ATTENTION.***

Remove both the rod-end and base-end holding valves from the cylinder. Switch the holding valves (From base end to rod end and rod end to base end) and reinstall in the cylinder. It is certain that air has

been trapped during the exchange of holding valves. To purge the air out of the hydraulic system, slowly extend and retract the hydraulic cylinders several times.

To check the base end holding valve for the lift elevator arm cylinder, raise the elevator a few inches out of the stowed position. With the hydraulic pump off and a load in the platform, slowly operate the elevator lower function. The lift elevator arm should not move.

CAUTION: ***DO NOT ALLOW ANYONE IN THE PLATFORM UNTIL THE AIR HAS BEEN PURGED FROM THE HYDRAULIC SYSTEM. AIR IN THE HYDRAULIC SYSTEM MAY CAUSE UNCONTROLLED OR ERRATIC BOOM MOVEMENT.***

Now the base end holding valve is located where it can be tested. Raise the outer/inner boom assembly a few inches with the lower boom stowed. Then with the hydraulic pump off and a load in the platform, slowly operate the outer/inner boom assembly "lower" function. The boom assembly should not move.

To check the base-end holding valve for the extension inner boom cylinder, fully raise the outer/inner boom assembly and partially extend the telescoping inner boom. With the hydraulic pump off and full load in the platform, slowly operate the inner boom "retract" function. The inner boom should not retract.

To check the rod-end holding valve for the extension boom cylinder, position the outer/inner boom assembly at 25° below horizontal. With the hydraulic pump off and full load in the platform, slowly operate the inner boom "extend" function. The inner boom should not extend.

If either holding valve does not hold the load during these tests described, the holding valve must be removed from the cylinder. To identify the proper holding valve use the following procedure. Note both the rod and base end of the outer/inner boom assembly cylinder holding valves are located at the base end of the cylinder and are identified by the labels "rod" and "base".

Before removing the holding valves open the related bleeder ports to relieve any trapped pressure in the cylinders. Be prepared for a flow of hot oil coming from the bleeder ports. The cylinders will not hold a load when either holding valve (cartridge) is removed. Consequently the booms must either be supported or be at the end of their travel to prevent the booms from dropping. All holding valve cartridges are accessible with both booms stowed and without disconnecting the ends of the cylinder.

DANGER: ***NEVER REMOVE HOLDING VALVES WITHOUT SUPPORTING THE BOOMS. FALLING BOOMS MAY CAUSE DAMAGE TO THE UNIT OR RESULT IN DEATH OR SERIOUS INJURY.***

Having removed a defective holding valve, check for visible contamination or defective external O-ring seals. If neither is the cause of the problem replace the entire cartridge. Do not attempt to disassemble and reuse a defective cartridge.

LEVELING SYSTEM PRESSURE - The leveling relief valve is located inside the turret.

Install pressure gages (capable of measuring over 2000) with 1/4-in. diameter hoses that connect to the leveling relief valve ports labeled "C1" and "C2".

Operating from the lower controls, raise the outer/inner boom assembly until horizontal and tip the platform completely toward the upper boom. Then lower the outer/inner boom assembly, observing the pressure level indicated by the gage at the platform raise port (stamped "C1"), on the leveling relief valve. The maximum pressure generated, as the outer/inner boom assembly is lowered, should be 2000 (141 kg/cm^2). If not, adjust the relief valve directly opposite the "C1" port, to the correct pressure. To adjust the relief valve, remove the hex plug on the end of the cartridge, to access the adjustment screw inside the cartridge body. Turn the adjustment screw clockwise to increase the pressure or counterclockwise to lower the pressure.

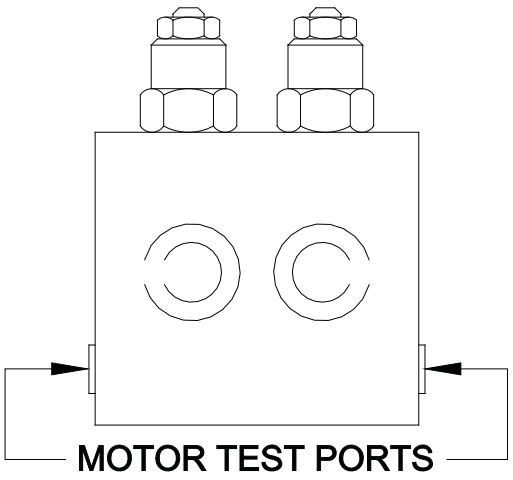
Having set the first relief valve, lower the outer/inner boom assembly and dump the platform completely. Raise the outer/inner boom assembly observing the pressure reading indicated at the platform lower port (stamped "C2") on the leveling relief valve. This relief valve should read a maximum pressure of 2000 (141 kg/cm^2).

After disconnecting the hoses, cycle the platform leveling system several times from the upper controls with the outer/inner boom assembly fully lowered and fully raised to purge any air from the system.

ROTATION MOTOR COUNTERBALANCE VALVES - The rotation motor counterbalance valves are located in a manifold mounted to the motor.

1. Unbolt the rotation motor and disengage it from the rotation gearbox.

2. Tee 3000-psi (minimum) pressure gauges into each of the two motor ports, as shown on diagram.



3. It is necessary to set the holding-valve pilot-pressure to obtain smooth rotation while maintaining adequate rotation speed. The higher the pressure setting, the more restrictive the valves are, providing smoothest operation. However, as the pressure is increased, a reduction in rotation speed may occur. The suggested pressure range is 1100 psi plus or minus 200 psi. Adjustments can be made on the pressure setting to obtain smooth operation on a slope and adequate rotation speed on level ground. Do not exceed 1300 psi. Excessive backpressure can adversely affect the life of the motor shaft seal.

4. Start the unit and, from the lower controls, fully actuate the rotation control for clockwise (CW) rotation. Read the pressure gauge opposite the clockwise (CW) port and set the pressure to 1100 psi. To adjust the pressure setting, loosen the lock nut on the top of the cartridge opposite the clockwise (CW) port, and with a 1/8 inch allen wrench turn the set screw counter-clockwise (CCW) to increase the pressure setting, and clockwise (CW) to decrease. Return the control to neutral and actuate again to verify pressure setting. Next fully actuate the rotation control for counter-clockwise (CCW) rotation and adjust the cartridge opposite the counter-clockwise (CCW) port to 1100 psi, in the same manner as before. Tighten the lock nuts after adjusting.

5. Remove the pressure gauge and reconnect the hoses to the motor. Install and bolt the motor to the gearbox.

6. Start the unit and verify that the direction of rotation is correct. Reverse hose connections at the rotation motor if required. Verify smooth operation on a slope and adequate rotation speed on level ground.

BOOM ACTUATION SPEED - The boom actuation speed is controlled by the system operating pressure and the pump or engine speed. Refer to “System Operating Pressure” in this section for the proper adjustment procedure of this function. A flow meter can be installed in the tool circuit to measure the flow rate. If the proper PTO has been installed, the maximum flow rate of 10 gpm (38 lpm) can be provided by adjusting the engine speed. Another method of verifying proper boom actuation speeds is to time one cycle with an operator in the platform. The recommended range for each boom actuation for the unit is given below. These times are approximate and may vary with platform load, boom position, and other factors.

Rotation	(CW or CCW)	90-105 Seconds
Outer Boom	(Raise)	40-50 Seconds
	(Lower)	30-40 Seconds
Lower Boom	(Raise)	50-60 Seconds
	(Lower)	35-45 Seconds
Inner Boom	(Extend)	40-50 Seconds
	(Retract)	30-40 Seconds

Exercise care when timing boom functions, to avoid reaching the end of boom travel while at full operating speed.

To accurately test the flow rate or lift actuation speeds, it is critical for the hydraulic oil to be warmed to operating temperatures between 70°F and 90°F (21°C and 32°C). Cold hydraulic oil will result in slow operation with increased engine speed having no affect. The engine speed, whether controlled by a manual throttle or an optional two speed throttle control, should be regulated to provide speeds within the specific ranges given for each function. To aid in warming the hydraulic oil, select the warm up mode to allow oil to circulate.

HYDRAULIC OIL RECOMMENDATIONS

Selection of suitable hydraulic oil is very important to ensure efficient operation and long life of hydraulic components. Suitable hydraulic oil for the aerial lift must meet the criteria listed below.

1. A petroleum (or vegetable) based oil.
2. A maximum viscosity of 1000 cSt at the minimum start-up temperature and a viscosity range of 10 to 40 cSt at the anticipated operating temperatures.
3. Anti-wear additives to ensure long life of the hydraulic components.
4. Anti-foam additives to minimize air entrapment.
5. Good chemical stability at anticipated operating temperatures.
6. A flash point that is above anticipated operating temperatures.
7. Good demulsibility or water separation characteristics.
8. Dielectric properties compatible with current leakage limitations for aerial lifts (Insulated aerials only).

Based on the requirements for a particular aerial lift application, one hydraulic oil can generally provide year round service. If a wide variation in start-up and operating temperatures is expected, hydraulic oil with a high viscosity index is recommended. Start-up at extremely cold temperatures will require oil with a low pour point. Therefore make certain the viscosity range requirements are still met when oil with a low pour point is needed.

The oil recommendations below are based on typical operating conditions. Certain operating conditions, additions or changes to the standard hydraulic system may require different oil grades. Time Manufacturing does not guarantee the use of any brand or grade of hydraulic oil. A reputable oil supplier should be consulted in any hydraulic oil application.

Recommended Hydraulic Oil

Operating Conditions	ISO Viscosity Grade	Ambient Temperature Range	
		Fahrenheit	Celsius
Standard - Recommended for most applications	22	0°F to 110°F	-18°C to 43°C
Severe Cold	15*	-20°F to 95°F	-29°C to 35°C
Extreme Heat	32	32°F to 120°F	0°C to 49°C

* Oil to meet or approach MIL-H-5606A

A list of some suitable hydraulic oils is given below with their respective properties. This information will be helpful in the selection of hydraulic oil or equivalent oil for a particular application.

Hydraulic Oil Specifications

Brand Name	ISO Grade	Viscosity cSt		Viscosity Index	Pour Point		Flash Point	
		AT 40°C	AT 100°C		°F	°C	°F	°C
Exxon Univis N 32	32	32	6.6	172	-54	-48	399	204
Mobil DTE 13M	32	32	6.1	141	-49	-45	410	210
Mobil Multipurpose ATF/Dextron III	32	36	7.5	184	-45	-43	370	188
Mobil EAL 224H	32	36	8.3	212	-29	-34	561	294
Shell Tellus T 32	32	32.4	6.4	155	-49	-45	320	160
Texaco Rando HDZ 32	32	32	6.4	155	-58	-50	428	220
Exxon Univis N 22	22	22	5	175	-62	-54	313	156
Mobil DTE 12M	22	22	4.9	149	-54	-48	370	188
Shell Tellus T 22	22	22	4.9	150	-44	-42	349	176
Texaco Rando HDZ 22	22	23.1	5.1	155	-63	-53	370	188
Exxon Univis HVI 13	15*	13.5	5.3	404	-76	-60	214	101
Mobil Aero HFA	15*	13.9	5.1	370	-76	-60	199	93
Shell AeroShell Fluid 4	15*	15	5	-	-75	-60	215	102
Texaco 5606H	15*	13.8	5.1	300	-107	-77	205	96
Kendall Hyken Glacial Blu	15*	14.9	4.4	233	-76	-60	340	171

* Meets or approaches MIL-H-5606A

CARE OF FIBERGLASS BOOMS

BOOM CLEANING RECOMMENDATIONS

Fiberglass booms and inserts must be kept clean and in good condition to preserve their dielectric properties and appearance.

1. The fiberglass outer surface of the boom should be cleaned daily with a lint free cloth.

2. **DO NOT** Steam Clean Any Fiberglass or Insulated Components.

3. When the boom is dirty, raise the boom slightly, so it will drain, and wash the boom with a mild dish-washing detergent, using a cloth or sponge. Once the boom is washed inside and out, wipe the outer boom clean and dry with a lint-free cloth and allow the inner boom to air-dry completely.

4. In extremely difficult cleaning situations, pressure washing (using a garden hose and nozzle) can be used to clean the fiberglass boom. CAUTION: If the water pressure is too high, the boom, hoses, and fittings could be damaged.

5. If the boom has creosote, grease or other deposits that cannot be removed as suggested above, stronger cleaners may be used. However, be sure that these cleaners are not either 1) abrasive because they may damage the boom surface or 2) some other type that may leave a conductive residue on the boom. Time Manufacturing suggests Donar Chemicals "Electra Clean" and Costa Chemicals "Formula Five" as an acceptable product for the cleaning of these fiberglass booms. When heavily soiled booms are cleaned, make sure they are thoroughly rinsed and allowed to air dry as described in Item 3.

6. Once the fiberglass boom is clean, it should be coated with a product designed to protect its surface. A good wax designed for use on fiberglass not only protects the boom's glossy surface, but also provides a barrier against dirt, creosote, etc. Hasting Fiberglass Product, Inc., Costa Chemicals and Kearney offer a waxes designed for use on fiberglass. Donar Chemicals also offer a product called "Electra Guard", for use on fiberglass. For best results, fiberglass booms should be polished by hand.

7. After a boom is cleaned and dried, it should be dielectrically tested in accordance with ANSI Standards (Section 5.4.3) to verify its dielectric integrity and to detect conductivity changes in its insulating section.

8. Fiberglass booms and inserts should always be cleaned before any dielectric test. Remember that cleaning and testing is required after repair or modification of any component that crosses the insulating system(s) or the repair or replacement of an insulating component(s).

9. If fiberglass accessories such as line-hose boxes or saw scabbards are attached to the boom, they should be removed during dielectric testing of the unit. They should also be washed and cleaned on a regular basis because they could reduce the dielectric integrity of the boom. Care should be exercised in the selection and placement of such accessories to ensure that the insulation is not compromised.

10. If, while inspecting or cleaning the boom, you discover chips, scrapes or abrasions that would allow moisture to get into the fiberglass boom, it should be recoated or sealed in accordance with manufacturer's recommendations. Any time there is a doubt regarding damage to the fiberglass booms or inserts, contact **Time Manufacturing Company** before any repairs are done.

TROUBLE SHOOTING

The following is a list of problem conditions which may occur during operation of the **Versalift**, along with some possible causes.

NO RESPONSE TO EITHER UPPER OR LOWER CONTROLS

1. Truck engine not running
2. PTO not engaged
3. Low hydraulic fluid supply
4. Relief valve set too low
5. Pinched pressure or return line
6. Defective hydraulic pump
7. Lift controls not selected

NO RESPONSE TO LOWER CONTROLS, UPPER CONTROLS O.K.

1. Platform override valve in wrong position
2. Plugged or defective control valve

NO RESPONSE TO UPPER CONTROLS, LOWER CONTROLS O.K.

1. Platform override valve in wrong position
2. Safety trigger not actuated or adjusted

properly
3. Plugged or defective control valve
4. Pinched or kinked pressure or return hose in boom
5. Emergency stop valve is activated

SLOW OPERATION, ALL FUNCTIONS

1. Valve spools not fully open
2. Oil too heavy or cold
3. Low hydraulic fluid supply
4. System operating pressure or main system relief set too low
5. Dirt or foreign matter in hydraulic system, filters valves etc.
6. Pinched or kinked hydraulic lines
7. Engine speed too low
8. Excessive leakage in pump or control valve due to wear
9. Safety trigger not adjusted properly

SLOW HYDRAULIC CYLINDERS OPERATION, ROTATION O.K.

1. Holding valves defective
2. Main relief valve set too low or open due to contamination
3. Excessive pump leakage
4. Internal cylinder leakage
5. System operating pressure set too low

SLOW OPERATION OF ROTATION SYSTEM, BOOM MOTION O.K.

1. Rotation motor defective

EXCESSIVE SLACK OR ERRATIC MOVEMENT IN ROTATION SYSTEM

1. Gearbox mounting bolts loose
2. Rotation bearing needs greasing
3. Excessive clearance between pinion and turntable bearing
4. Turntable bearing or pinion teeth damaged
5. Gearbox worn or defective
6. Rotation motor mounting bolts loose

EXCESSIVE VIBRATION OR NOISE

1. Pressure relief valve set too low
2. Holding valve defective
3. Air in hydraulic system due to low oil supply
4. Pump cavitating due to dirty suction strainer

PLATFORM LEVELING SLOPPY, OUT OF LEVEL, OR ERRATIC

1. Holding valve is defective.
2. Leveling relief valve setting is too low.

BOOM DRIFTS DOWN WHEN CONTROLS ARE IN NEUTRAL

1. Holding valve defective
2. Leakage past seals in hydraulic cylinder

REMOTE ENGINE START/STOP INOPERATIVE

1. Engine start/stop system not engaged
2. Pressure switch defective.
3. Airline pinched or leaking
4. Electrical box not grounded
5. Air cylinder defective

TRUCK ENGINE PULLS DOWN OR STALLS WHEN CONTROLS ARE OPERATED

1. Idle speed too slow
2. Engine still cold
3. Engine needs tune-up

OVERHEATING OF HYDRAULIC SYSTEM

1. Main system relief valve set too low or open due to contamination
2. System operating pressure too high
3. Excessive hydraulic oil flow due to improper PTO ratio or overspeeding of truck engine

PLATFORM TIP DURING PLATFORM ROTATION

1. Spring return selector valve sticking.

PLATFORM ROTATION SLOW

1. Flow restrictors may be blocked.

HYDRAULIC CYLINDER REPAIR

WARNING: ***HYDRAULIC CYLINDERS ARE CRITICAL LOAD HOLDING COMPONENTS AND MUST ONLY BE SERVICED BY QUALIFIED PERSONNEL. IMPROPER SERVICE MAY CAUSE A FALL RESULTING IN DEATH OR SERIOUS INJURY.***

Shut down the hydraulic system before removing any cylinder. Remove lines to cylinder and plug or cap them to prevent loss of fluid. Also plug cylinder ports to prevent loss of fluid. Tag or mark lines to prevent reversing connection when reassembling.

Outrigger cylinders should be repaired when they tend to drift down during road travel or up when extended in working position and the lock valves are not at fault. This downward drift indicates leaking cylinder seals. Immediate attention should be given to any outrigger cylinder that drifts. Damage could result if an outrigger should drift down during road travel.

Refer to the example of typical cylinder drawing in this section for part identification in the following procedures.

REPAIR PROCEDURES

WARNING: ***CARE SHOULD BE EXERCISED WHEN REMOVING CYLINDERS, AS THEY ARE HEAVY. CYLINDERS SHOULD BE REMOVED BY MEANS OF A HOIST, IF AVAILABLE.***

1. Position the cylinder on a rail (if available) or a work bench and place the open port over a container in order to catch the hydraulic fluid. Extend the piston to the end of its stroke to purge the hydraulic fluid into the container. This can be done by using the rail (if available) or by manually pulling out the piston rod. Next, push the piston rod approximately one-half way back in.

WARNING: ***DO NOT USE AIR PRESSURE TO DISASSEMBLE HYDRAULIC CYLINDERS. AIR IS VERY COMPRESSIVE AND SERIOUS INJURY COULD RESULT.***

2. Remove gland nut or thread ring and plate on end of cylinder. Remove entire internal assembly from cylinder case by pulling on the piston rod. Pull out carefully to avoid scratching the inner finish. Inspect the inside of the case for gouges that would make an overhaul useless.

3. Remove all components from rod. Examine all components for wear, rust or other signs of deterioration. Clean all components of rust, especially inside the cylinder case. Make sure that all components are free of dirt or other contamination. After cleaning, coat all components with light grease before installing new seals and other parts.

4. Install new seals, wear rings and other parts as needed. Reassemble the cylinder assembly. Torque piston retaining nut (Refer to “Cylinders” section of this manual for cylinder and its piston nut torque values). Line inside of cylinder case, seals and threads with light grease. Insert the assembly into the cylinder case, making sure that cylinder wall is not scratched. Also, make sure that no dirt is introduced into the cylinder tube.

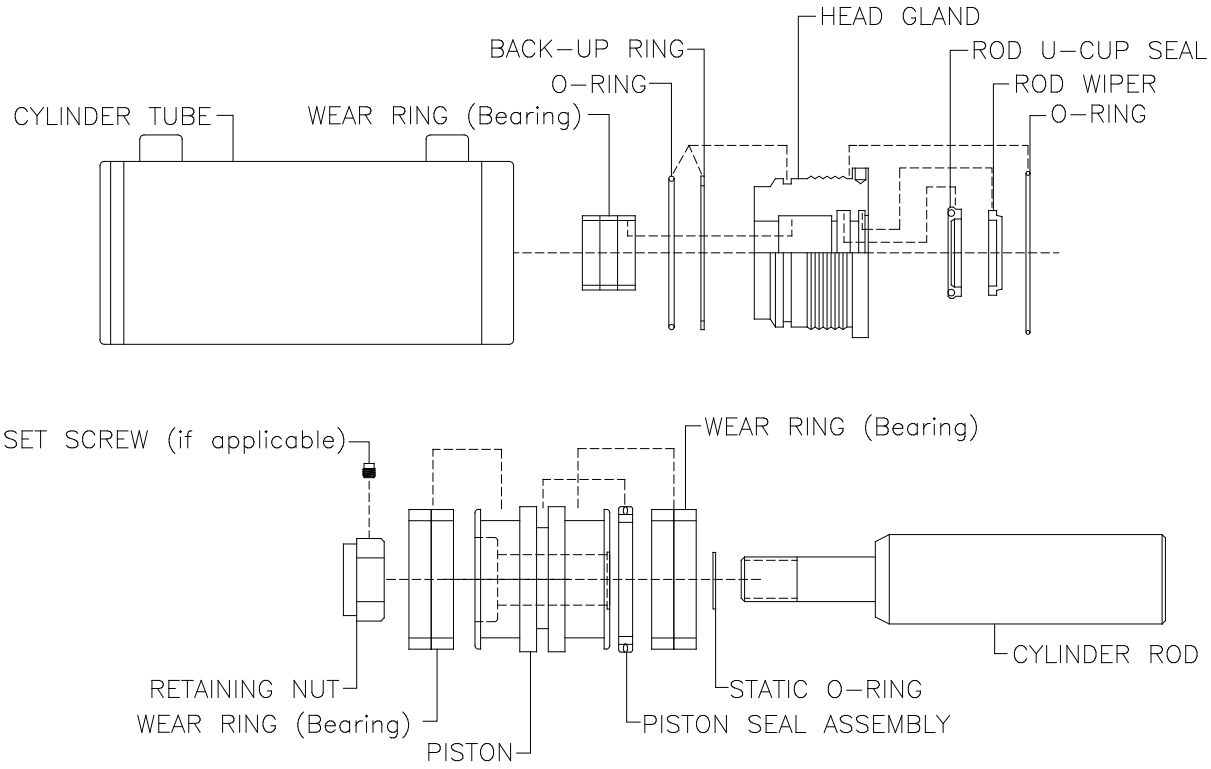
5. Use unit system pressure to cycle cylinder on work bench or on a test stand to purge air from cylinder and test for possible leakage.

DANGER: ***THE CYLINDER WILL BE EMPTY OF OIL AND FULL OF AIR AFTER REPAIR WHICH MAY MAKE INITIAL OPERATION DANGEROUS. THUS, THE CYLINDER SHOULD BE PURGED OF AIR. AFTER PURGING, FILL THE HYDRAULIC RESERVOIR TO THE FULL LEVEL, IF NEEDED, WITH ALL CYLINDERS RETRACTED. DO NOT RIDE THE PLATFORM WHILE AIR IS BEING PURGED. SERIOUS INJURY OR DEATH COULD RESULT.***

6. Install cylinder on unit. Perform the holding valve checks as described in section to determine if a holding valve is functioning properly and to verify there is no internal leakage. Re-check for any leaks.

EXPLODED VIEW OF TIME MANUFACTURING CYLINDER (TYPICAL)

Note: To order replacement parts, refer to cylinders drawings in "Cylinders Option" section of this manual.



SECTION 104
INSTALLATION

INSTALLATION

INTRODUCTION

Versalifts are designed to provide a safe and efficient method of placing workers at elevated work stations; however, the Versalift must be installed, tested, inspected, and maintained according to the manufacturer's instructions. Care and attention to detail will result in a properly installed unit which functions as it was designed.

NOTE: On some Assembly and Installation drawings, there are some components that are marked as shipped loose items. These items will require installation during the Versalift installation procedure. Refer to any component identification instructions in the ship loose box. Also refer to Parts & Assemblies Section and this section in this manual for any additional information.

This installation section includes pertinent information about the following:

- Planning the installation,
- Actual hardware considerations,
- Mounting location considerations,
- Hydraulic and electrical schematics and supplementary information,
- Test and inspection requirements for a newly installed unit, and pre-delivery inspection check list.

As with the installation of any heavy equipment, there will be many hazards that can occur. No manual can adequately warn against all potential hazards. Only by the attitude of the worker, being constantly aware of the possibility of danger, can most hazards be avoided. Warnings are provided throughout this section of this manual; they should be read, studied, and understood before any installation is started.

Failure to follow the steps in the appropriate section will result in:

- An unsafe installation; either the installation will not be complete or the lift will be inappropriately mounted on the chassis.
- An inappropriately tested lift and therefore a possible hazard to the user.
- lift incorrectly connected (electrically or hydraulically) to the chassis.
- A worker being injured during the installation process.

If you have questions during an installation, please call our Customer Service Department Toll Free number at (866) 543-8887. By successfully completing the installation, testing the stability and dielectric strength (if insulated) of the installed unit, and performing the items listed on the pre-delivery checklist, we can be certain that our customer is receiving the quality they expect from their new Versalift.

The instructions of the following pages describe the recommended installation procedures. This information includes the tests and inspections necessary to determine that the unit has been correctly installed and is ready for use. Consult the illustrations provided to help clarify the text.

These instructions are written for competent service personnel and are not intended as a substitute for adequate training and experience. All the details and variations involved in an installation cannot be adequately covered by instructions. If further information is required contact your local **Versalift** dealer or **Time Manufacturing Company**.

SHIPPING AND HANDLING - A skid has been included with the **Versalift** to provide a means of handling the unit during shipment without damaging it.

DANGER: ***NEVER CONNECT HYDRAULIC POWER AND OPERATE THE VERSALIFT WHILE IT IS ON THE SKID. FAILURE OF THE SKID MAY RESULT CAUSING DEATH OR SERIOUS INJURY TO PERSONNEL OR DAMAGE TO THE EQUIPMENT.***

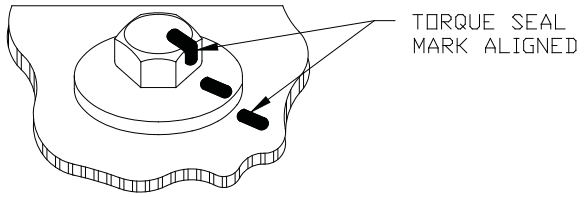
The shipping skid is designed for lifting the unit at its center of gravity with a forklift. When lifting the unit with a hoist, determine that the unit is balanced by initially lifting it a short distance off the ground. If the load is not balanced return it to the ground and make the proper adjustments. Remove the skid before lifting the unit into position for mounting. Stand clear of the unit while it is suspended.

DANGER: ***ALWAYS DETERMINE THAT A FORKLIFT OR HOIST IS CAPABLE OF SUPPORTING THE LOAD AT THE REQUIRED HEIGHT. NEVER ATTEMPT TO ADJUST THE BALANCE OF A LOAD WHILE IT IS SUSPENDED. LIFTING WITH INADEQUATE EQUIPMENT OR IMPROPER HANDLING MAY CAUSE THE LOAD TO DROP RESULTING IN DEATH OR SERIOUS INJURY OR DAMAGE OF THE LOAD.***

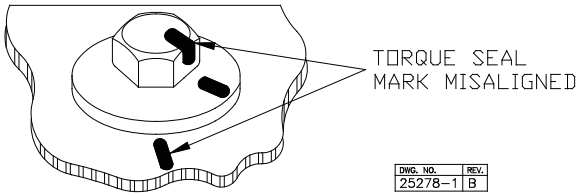
FASTENERS - Numerous fasteners are used throughout the installation process. There are minimum specifications required to securely attach the aerial lift components. Torque values are listed on the torque chart for the various sizes and grades of fasteners used on the **Versalift** aerial lift.

Prevailing torque nuts are used in structural applications to prevent loosening from vibration. To be effective, 2 threads must protrude beyond the locknut once tightened. Only install unused locknuts and bolts.

Torque seal marks are used on critical fasteners. This procedure provides a means for quick visual inspection of fastener condition. Do not use the lift if the Torque-Seal mark between the bolt head and mounting surface, are not in alignment. Refer to Figure 1 for Torque-Seal mark conditions.



Torque Seal Mark In Acceptable Condition



Torque Seal Mark In Misalignment Condition
Figure 1

WELDING SPECIFICATIONS - Some mounting configurations require welding at installation. Welders must be AWS certified in accordance with ANSI A92.2 requirements. A general purpose welding rod or wire should be used. **Time Manufacturing Company** uses AWS ER70S-6 welding wire or a AWS E7018 welding rod [60,000 PSI (4218 Kg/cm^2) yield and 25% elongation minimum]. Always position the components to provide proper access for welding. Make certain the weld size is according to engineering specifications. Repair welds must be repaired in accordance with ANSI A92.2 requirements. Consult factory for material specifications and proper welding specifications.

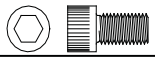
VEHICLE AND MOUNTING SPECIFICATIONS - All proposed aerial lift installations must be thoroughly reviewed. The chassis must meet or exceed the dimensional, structural and aesthetic requirements. Dimensional specifications are important. Overall height, length, overhang, and clearances around the turret or under the booms are specific concerns. The position of the cross members of the chassis frame may affect mounting location. Varying the location of the aerial lift slightly may simplify the mounting procedure.

Before mounting the aerial lift, a weight distribution study is required to determine if the configuration is acceptable for the vehicle specified. Front and rear axle curb weight must be within the vehicle manufacturer's ratings. Minimum and recommended vehicle specifications are given for the aerial lift. When this information is verified, the installation can proceed.

Properly planning for an aerial lift installation will help guarantee proper performance and reliability of the **Versalift** aerial device.

BOLT MARKINGS & TORQUE CHART

Bolts With Nuts

	Grade 5 Bolt	Grade 8 Bolt	Socket Head
Bolt Head Markings	 Highland  Infasco  Nucor	 Highland  Infasco  Nucor	SPS SHCS & SHFH 
Nut Markings	Grade B PTLN  Gripco  Aztec	Grade C PTLN  Gripco  Aztec	Grade C PTLN  Gripco  Aztec
Bolt Thread & Size	Torque ft-lb (N-m)	Torque ft-lb (N-m)	Torque ft-lb (N-m)
1/4 - 20	74 in-lb (8)	N/A	150 in-lb (17)
5/16 - 18	150 in-lb (17)	N/A	21 (29)
3/8 - 16	15 (20)	21 (29)	32 (44)
7/16 - 14	28 (38)	N/A	N/A
1/2 - 13	43 (58)	55 (75)	55 (75)
5/8 - 11	75 (102)	98 (133)	160 (218)
3/4 - 10	125 (170)	160 (218)	N/A
7/8 - 9	178 (242)	N/A	N/A
1 - 8	378 (514)	450 (610)	N/A

Special Threaded Fastener Applications

Bolt Thread Size & Type	Lubricant	Tapped Material	Torque ft-lb (N-m)
1/4 - 20 Grade 5 HHCS	Loctite 262	Steel	15(20)
3/8 - 16 Grade 5 HHCS	Loctite 262	Steel	28 (38)
3/8 - 16 SHCS & SHFH	Loctite 262	Aluminum	15 (20)
3/8 - 16 Grade 8 HHCS	Loctite 262	Steel	37 (50)
1/2 - 13 SHCS	Loctite 262	Steel	89 (121)
5/8 - 11 SHCS	30W Motor Oil	Rotation Bearing	160 (218)
5/8 - 11 Grade 8 HHCS	30W Motor Oil	Rotation Bearing	160 (218)
3/4 - 10 Grade 5 Threaded Rod	Loctite 262	Grade B Nut	145 (197)
3/4 - 10 Grade 8 HHCS	30W Motor Oil	Rotation Bearing	315 (428)
3/4 - 10 Grade 8 HHCS	Loctite 262	A572-50 Steel	210 (286)
7/8 - 9 Grade 8 HHCS	30W Motor Oil	Rotation Bearing	475 (644)

NOTES:

1. Lubricate bolt threads liberally with 30W motor oil, unless fastener application is to be used on tapped material. Then use Loctite 262 on these fasteners with exception of rotation bearing.
2. Apply torque to nut unless bolt is used in a tapped hole.
3. All torque values are "running" torques (for initial and replacement installation only); the nut (bolt head) must turn. Use of an impact wrench is permissible only for run-up, not for tightening. During confirmation of previously torqued fasteners, the nut (bolt head) should not turn if proper torque is maintained.
4. A minimum of two threads must protrude beyond the nut after tightening.
5. The marks shown on this chart are for our current fastener suppliers.
6. Refer to the critical fastener drawings for each Versalift for identification of specific fasteners.
7. HHCS = Hex Head Cap Screw; HW = Hardened Washers; PTLN = Prevailing Torque Lock Nut; SHCS = Socket Head Cap Screw; SHFH = Socket Head Flat Head.

March 8, 2012 / TMC-778

INSTALLATION AND PRE-DELIVERY

MOUNTING INSTRUCTIONS

Refer to the specific mounting hardware options in Parts and Assemblies Section in this manual for lift installation drawings.

1. ***Determine Lift Location -*** See installation drawings for suggested mounting location. Locate mounting hardware on the chassis to determine if there is any interference with truck frame mounted components. It may be possible to vary the lift location slightly to avoid any interference. Check weight distribution, and swing clearances, before finalizing a mounting position.

2. ***Install Subframe/Outriggers/Pedestal –*** The unit is mounted on a full-length subframe. The subframe functions as the main structural connection between the pedestal, the outriggers, and the chassis. The subframe is shipped as a kit, and will require welding at installation.

   Place the subframe and outriggers on the chassis frame. It may be necessary to trim the ends of the subframe to obtain the desired mounting location. Weld the outriggers, subframe, and shear plates as indicated on the subframe and outrigger installation drawings. Fasten the outrigger/subframe assembly to the chassis using the hardware provided. Torque the nuts as specified on the torque chart in this section. Adding a hole in the rear of the cab or front bulkhead of the body may be required to access the outrigger pins.

   To install the pedestal, weld in place according to the installation drawing.

DANGER: ***NEVER REUSE SHIPPING BOLTS WHEN MOUNTING THE VERSALIFT TO THE PEDESTAL. USED BOLTS MAY FAIL RESULTING IN DEATH OR SERIOUS INJURY.***

3. ***Cut Body Floor -*** Make the required cutouts in the service body for the pedestal, outriggers and subframe as shown on the installation drawings.

CAUTION: ***NEVER REMOVE CROSSMEMBERS FROM A BODY WITHOUT REPLACING THEM. STRUCTURAL FAILURE OF THE BODY MAY RESULT CONSULT THE BODY MANUFACTURER IF ALTERATIONS ARE REQUIRED.***

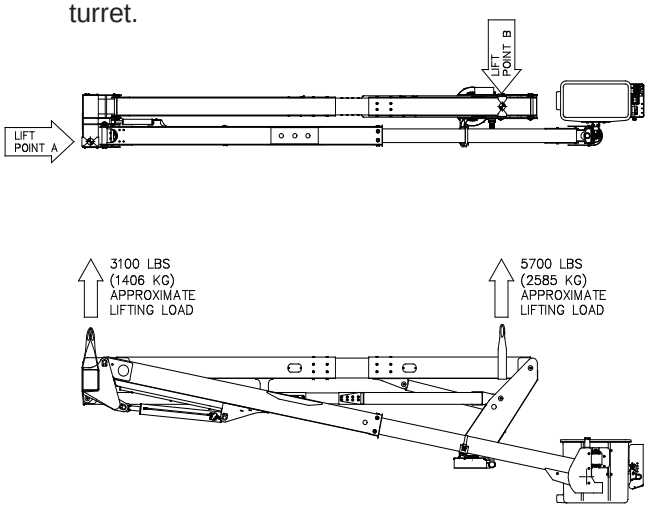
4. ***Install Body -*** With the subframe, outriggers, and pedestal in place, mount body on the chassis per the service body manufacturer's specifications.

5. ***Mount Lift -*** Be sure the **Versalift** is well balanced before lifting it clear of the shipping skid, ground, truck, etc. Refer to "Lifting a Skid Mounted Aerial Lift" below. Lift the **Versalift** carefully and set in on top of the pedestal. Install the twenty-four 3/4" grade 8 fasteners from inside the pedestal top plate to join the lift to the pedestal. Torque the bolts as specified per torque chart in this section. Refer to the "Pedestal Assembly" drawing in parts and assemblies section for more details.

   Remove all paint and grease from the rotation bearing mounting surface. Mount the Versalift using the supplied fasteners. Apply a torque dot to bolt heads after torquing the bolts as specified on the torque chart.

NOTICE: ***A TORQUE DOT IS APPLIED TO ALL ROTATION BEARING BOLTS AND PEDESTAL/SUBFRAME MOUNTING BOLTS TO INDICATE THESE BOLTS HAVE BEEN TORQUED PRIOR TO UNIT BEING STABILITY TESTED.***

Lifting a Skid Mounted Aerial Lift - The aerial lift weighs approximately 9400 lbs (4270 kg) as it sits on the shipping skid. All lifting devices and hoists must be rated accordingly. We recommend that the aerial be lifted using two hoists one at the knuckle end and one near the turret.



Lifting Points Diagram
Figure 2

Lift Point A - Place a lifting strap around the knuckle box. The strap should be as far away from the lift centerline as possible, on the upper boom side. This strap must be rated for at least 5000 lbs (2270 kg).

Lift Point B - Place a lifting strap around the lower boom near the turret. This strap must be rated for at least 6000 lbs (2585 kg).

CAUTION: ***LIFT THE LOAD SLOWLY TO VERIFY THAT THE LOAD IS BALANCED.***

6. ***Install Hydraulics -*** Install hydraulic hoses and ground controls (when applicable) as shown on the hydraulic schematic section. If the unit is equipped with outriggers or tool power at the body, the relief valve should be removed from the pedestal and mounted to the chassis frame, between the pump and the outrigger control valves.

   If the unit is equipped with lower controls below rotation, install the lower controls and ground controls in an accessible location in accordance with ANSI A92.2.

DANGER: ***THE LOWER CONTROLS MUST BE INSTALLED IN SUCH A MANNER THAT THE OPERATOR IS NOT PLACED IN THE ELECTRICAL PATH BETWEEN THE AERIAL DEVICE AND THE GROUND.***

7. ***Pto & Pump Installation -*** The PTO and pump selection will determine the hydraulic pump flow that will be produced and the speed at which the engine must operate for proper aerial lift performance. Insufficient hydraulic oil flow will result in unsatisfactory speeds of operation. Excessive hydraulic oil flow will reduce the ability to control movement of the aerial lift, generate dynamic loads, and cause elevated hydraulic system operating temperatures. The rated hydraulic oil flow to an aerial lift should never be exceeded. The selection of a PTO depends primarily on the transmission make and model. Refer to the PTO manufacturer's application for the best results.

   Engine operating speed must allow the PTO to provide adequate pump flow. The open center, fixed displacement, hydraulic vane pump provided has a straight keyed shaft with a SAE A flange. This standard pump has a volumetric efficiency of 92 percent and pump displacement is 2.0 in.^{3} (33 cm^3) per revolution.

   For most chassis an engine speed of 1000-1100 RPM is recommended. To calculate the engine speed required for proper operation use the following formulas.

$$\text{Engine Speed (Rpm)} = \frac{231\ (\text{In}^3/\text{Gal}) \times \text{Pump Flow (Gpm)} \times 10{,}000}{\text{Displacement (in}^3\text{/Rev)} \times \text{Pump Efficiency (\%)} \times \text{Pto (\%)}}$$

   Use the information given above to find the desired engine rpm. If the PTO has a 0.9:1 ratio (90% volumetrically efficient) and the standard open center pump the equation would be as follows:

$$\text{Engine Speed (Rpm)} = \frac{231\ (\text{In}^3/\text{Gal}) \times 6\ (\text{Gpm}) \times 10{,}000}{2.0\ (\text{In}^3/\text{Rev}) \times 92\ (\%) \times 90\ (\%)} = 1046\ \text{Rpm}$$

   In some cases, hydraulic tool operation may require a flow less than 10 GPM (38 lpm). An effective means of lowering the flow is to select a PTO that will provide the desired flow at idle. Using the throttle control to provide proper for the tools flow at idle and increasing the engine speed to allow faster boom movements when operating the lift.

   Mount the PTO according to the manufacturer installation instructions. Refill the transmission with appropriate oil. Install the hydraulic pump to the PTO using two 1/2 in. Grade 5 fasteners. Tighten bolts as specified.

   Before connecting the suction line to the oil reservoir, fill the hose with hydraulic oil. On initial start up, the pump case should be filled with oil and the air bled from the pump outlet to permit priming.

   If an installation hose kit option was ordered, use the hoses provided. The pump pressure line is 1/2 in. hose and the suction line is a 1-1/4 in. hose. Fill the reservoir with hydraulic oil and select Ground Controls (when applicable) during initial pump operation. This allows pump start-up at minimal pressure.

CAUTION: ***PUMP DAMAGE WILL OCCUR IF THE PUMP IS RUN WITHOUT HYDRAULIC OIL.***

   Check the following items prior to operating the hydraulic pump.

1. Transmission is full of fluid.
2. Pump case is full of oil.
3. Suction hose is full of oil.
4. Ground controls have been selected.
5. Oil reservoir is full.
6. Pump hoses are clear of drive line and exhaust system.
7. Shutoff valve in suction line is open.

Start the engine and release the clutch gradually to rotate the pump as slow as possible. The pump and PTO should operate quietly. If excessive noise occurs check for these problems.

1. Improper backlash of PTO.
2. Hydraulic pump is not primed.
3. Air leak in the suction line.
4. Shutoff valve in the suction line is not open.

Once the hydraulic pump is operable, the ground controls can be operated.

CAUTION: ***REMOVE TOOLS, SLINGS, HARDWARE, AND ANY OTHER LOOSE OBJECTS BEFORE OPERATING THE MACHINE. FALLING TOOLS MAY CAUSE SERIOUS INJURY TO PERSONNEL.***

CAUTION: ***OPERATE THE LIFT FROM THE LOWER CONTROLS FOR SEVERAL CYCLES TO PURGE THE AIR FROM THE HYDRAULIC SYSTEM.***

8. ***Upper Boom Rest, Lower Boom Rest and Platform Support*** **-** The weight of the stored upper boom should be supported by the boom rest, not the hydraulic cylinder. A lower boom rest is also required. The platform should also be supported when stowed. Detailed instructions on the installation are included on the "Boom Rest and the Platform Support" and "Lower Boom Rest Installation" drawing in Parts & Assemblies Section.

CAUTION: ***TO AVOID STRESS OR DAMAGE TO THE UNIT THE WEIGHT OF A STORED BOOM SHOULD BE SUPPORTED BY THE BOOM REST AND NOT BY THE HYDRAULIC CYLINDER.***

9. ***Engine Start/Stop Control*** **-** Mount the engine start/stop control box inside the cab to protect it from water. Wire the start/stop system according to schematic in the Parts & Assemblies Section.

10. ***Manual Throttle Control (Optional)*** **-** If the engine start/stop control has been installed, locate the electrical box adjacent to the start/stop electrical box. Electrical power for the throttle control can be taken from terminal six in the start/stop control electrical box. Wire according to the wiring schematic in the Parts & Assemblies Section.

    Mount the throttle-actuator solenoid in the engine compartment. Refer to the "Throttle Control Solenoid Mounting" illustration in Parts & Assemblies Section for mounting instructions. Adjustment of the engine speed will be discussed later.

11. ***Emergency Hydraulic Power (Optional)*** **-** Connect the hydraulic lines as shown on the hydraulic schematic section. The check valve shown with the emergency power must be installed as shown on the schematic to prevent leakage back through the primary pump.

    Wire the motor as illustrated on the electrical schematic.

CAUTION: ***FAILURE TO PRIME THE PUMP BEFORE INITIAL OPERATION MAY CAUSE PUMP DAMAGE.***

If the emergency power motor fails to respond, make certain the truck ignition switch is on. If the motor still does not operate, it may be insulated from the mounting by paint. The motor must be grounded directly to the truck body or frame.

PREDELIVERY TESTING AND INSPECTION

The American National Standards Institute Standard A92.2 entitled "American National Standard for Vehicle-Mounted Elevating and Rotating Aerial Devices" requires that each aerial device be tested to ensure compliance with the prescribed requirements. Such predelivery testing and inspection are the responsibility of the final installer. All paragraphs identified by number are part of ANSI A92.2.

Section **7.5 Installations** reads in part as follows,

"The installer of an aerial device shall, before the mobile unit is placed in operation, perform stability tests in accordance with requirements of 4.5.1 and 4.5.2, and the operational and visual tests in

accordance with requirements of 6.6.1 and 6.6.2, and the appropriate electrical tests required in 5.4.3 of this standard."

Section **6.6 Mechanical Tests and Inspection** reads as follows:

"6.6.1 Operational Tests - In addition to the manufacturer's prototype tests and quality assurance measures, each aerial device, including mechanisms, shall be tested by the manufacturer to the extent necessary to ensure compliance with the operational requirements of this section.

Some examples are:

1) Boom(s) elevating and lowering mechanism
2) Boom extension mechanism
3) Rotating mechanism
4) Stability tests
5) Safety devices. Each aerial device shall be operated to verify the function of all safety devices.

When the mobile unit is not completed by the manufacturer, such tests, which can be performed only after complete assembly and installation, shall be the responsibility of the final installer."

Section **4.5 Stability** reads as follows:

"4.5.1 Stability On Level Surfaces - Each aerial device, when mounted on a vehicle meeting the manufacturer's minimum vehicle specifications, without readily removable tools and material and used in a specific configuration, shall comprise a mobile unit capable of sustaining a static load one and one-half times its rated load capacity, in every position in which the load can be placed within the definition of the specific configuration, when the vehicle is on a firm and level surface.

The load shall be applied at one and one-half times the platform(s) capacity at the center of the platform simultaneously with one and one-half times the lifting attachment supplemental capacity in its position of maximum overturning moment when so equipped.

Simultaneous application of platform capacity and supplemental capacity shall be performed only on the aerial devices that are designed for use with both types of load applied simultaneously.

If having outriggers or other stabilizing components utilized is part of the definition of the configuration, they shall be so utilized according to the manufacturer's instructions for the purposes of determining whether the mobile unit meets the stability requirements."

With the truck on firm level ground, the lower boom fully raised, the upper boom horizontal, and the inner boom extended rotate to the front or rear and suspend the appropriate weight from the platform. Rotate the lift to the side, add ballast to the truck frame if required to achieve stability. The placement of any ballast will affect the stability and the final weight distribution and must be evaluated.

"4.5.2 Stability On Slopes - Each aerial device, when mounted on a vehicle meeting the manufacturer's minimum vehicle specifications without readily removable tools and material and used in a specific configuration shall comprise a mobile unit capable of sustaining a static load one and one-third times its rated load capacity in every position in which the load can be placed within the definition of the specific configuration when the vehicle is on a slope of 5 degrees in the direction of least stability.

The load shall be applied at one and one-third times the platform capacity at the center of the platform, simultaneously with one and one-third times the lifting attachment supplemental capacity in its position of maximum overturning moment when so equipped. If having outriggers or other stabilizing components utilized is part of the definition of the configuration, they shall be utilized according to the manufacturer's instructions for the purposes of determining whether the mobile unit meets the stability requirements.

Simultaneous application of platform capacity and supplemental capacity shall be performed only on the aerial devices that are designed for use with both types of load applied simultaneously."

With the lower boom fully raised, the upper boom horizontal, and the inner boom extended rotate the lift to the front or rear and suspend the appropriate weight from the platform. Rotate the lift to the downhill side of the vehicle, add ballast to the truck frame, if required to achieve stability. The placement of any ballast will affect the stability as well as the final weight distribution and must be evaluated in these respects.

"4.5.3 Effects of Stability Test - None of the stability tests described in 4.5.1 and 4.5.2 shall produce instability of the mobile unit or cause permanent deformation of any component.

Note: During the stability test, the lifting of a

tire(s) or outrigger(s) on the opposite side of the load does not necessarily indicate a condition of instability."

It is recommended that any weight applied to an aerial lift during a stability test be suspended near the ground. This will prevent overturning in the event an unstable condition is encountered.

CAUTION: ***EXERCISE CARE WHEN PERFORMING STABILITY TESTS. KEEP PEOPLE CLEAR AND OBSERVE WHAT IS HAPPENING. HANDLE THE WEIGHT CAREFULLY AND APPLY THE LOAD SLOWLY.***

During a stability test either on a level surface or on a 5° slope extend the outriggers as far as practical to adequately support the aerial lift. Each unit is to be tested in as a man handler and if applicable as a material handler.

As a man handler test the unit with 1-1/2 times the rated platform capacity on a flat surface and 1 times the rated platform capacity on a 5° slope. Remove the jib and winch assembly if so equipped.

If the material handling option is to be used test the unit with 1-1/2 times the rated jib capacity and 1-1/2 times the platform capacity on a flat surface. On a 5° slope use 1 times the rated jib capacity and 1 times platform capacity.

The platform can have up to two different ratings:

1. Platform capacity with jib and winch assembly removed.

2. Platform capacity with jib and winch installed but no material load.

3. Platform capacity with the rated load on the jib.

Please refer to the platform capacity decal for capacities.

The material handling option includes multiple capacity charts that provide additional jib capacity as the upper boom is raised. These additional capacities are based on boom and jib strength and not on stability. Therefore, the position of worst stability may occur at an elevated upper boom angle. There can be multiple rated material handling capacities dependent on the upper boom angle and the inner boom extension. The unit must be stable for each of these capacities at the position of worst stability for each jib capacity. Refer to Section 4 of the Operators Manual information on jib capacities.

Add ballast to the chassis frame if required to achieve stability. The placement of any ballast will affect the stability as well as the weight distribution of the competed unit.

Repeat the above tests on a level surface at 1 1/2 times the rated capacity.

NOTICE: ***AFTER ALL REQUIRED STABILITY TESTS HAVE BEEN COMPLETED; RE-TORQUE ALL ROTATION BEARING MOUNTING BOLTS AND THE PEDESTAL/SUBFRAME MOUNTING BOLTS PER TORQUE CHART TMC-778 IN THIS SECTION. MARK BOLTS WITH NEW BLUE TORQUE SEAL.***

Having met the stability requirements, the data plate provided must be completed with the empty curb weight of the completed vehicle. It must then be installed on the aerial lift, as shown on the decal placement drawing. The data plate certifies that the completed installation meets the stability requirements of the Occupational Safety and Health Act and American National Standard Institute.

Stability Test Capacity Options

Time Manufacturing Company has prepared a stability test capacity option drawing to identify the appropriate capacity options that are currently available for this model. This drawing also will identify the different boom positions, in which the static load can be placed during stability testing when the vehicle is on a level surface or a 5° slope. Refer to the options section of this manual for the specific capacity option drawing.

Section **6.6 Mechanical Test and Inspection** reads as follows:

Inspection - "6.6.2 Visual Inspection - After testing, a visual inspection of all components shall be made for evidence of defects; such as deformation of any component, loose connections, damaged wire rope, hydraulic leaks, and other items critical to the safe operation of the aerial device."

The required operational tests include verifying that all aerial lift functions, controls, and safety devices work. Included as an operational requirement is the speed at which boom actuations are accomplished. Slow operation is impractical for the user and excessively fast operation can create unsafe conditions. It is recommended that the hydraulic

oil flow-rate and the system operating pressure be measured to ensure proper boom actuation speeds. The correct flow rate is 10 gpm (38 lpm). The correct system operating pressure is 3000 psi (210 kg/cm^2). Alternative means of verifying proper boom actuation speeds is to time one cycle with an operator in the platform.

The recommended range for each boom actuation for the unit is given below. These times are approximate and may vary with platform load, boom position and other factors.

Rotation	(CW or CCW)	90-105 Seconds
Outer Boom	(Raise)	40-50 Seconds
	(Lower)	30-40 Seconds
Lower Boom	(Raise)	50-60 Seconds
	(Lower)	35-45 Seconds
Inner Boom	(Extend)	40-50 Seconds
	(Retract)	30-40 Seconds

To accurately test the boom actuation speeds, the hydraulic oil must be first warmed to operating temperatures between 70°F and 90°F (21°C and 32°C). Cold hydraulic oil produces slower boom operation and increasing the engine speed will have no effect on the boom speed.

DECALS - Caution and operational decals or placards provided with this **Versalift** must be in place and clearly legible. As specified in ANSI A92.2 paragraph 6.5. Refer to the "Decal Placement" illustration in this section for the location and description of each decal. Any decal or data plate damaged or removed during shipment or installation must be replaced. Four decals are included for placement on the chassis or body to warn of electrocution hazards. One is to be placed on each side, one on the front and one on the rear of the completed unit.

ELECTRICAL TESTS - The purpose of dielectric or electrical certification tests is to verify the protective level of insulation (fiberglass) on an insulated aerial lift.

CAUTION: ***THE PLATFORM IS NOT INTENDED TO PROVIDE ANY INSULATION FROM ELECTRICAL SOURCES. FOR THE PLATFORM TO BE CONSIDERED INSULATED THE ADDITION OF AN ELECTRICALLY CERTIFIED PLATFORM LINER IS REQUIRED.***

Time Manufacturing Company performs a dielectric test on each insulating Versalift aerial device to the qualification voltage ratings as shown on Table 1 of ANSI A92.2 in accompanying Manual of Responsibilities.

The following excerpts from ANSI A92.2, Responsibilities of Dealers and Installers reads as follows:

7.5 Installations - "For insulating aerial devices, the installer shall assure conformance to the Qualification test requirements of 5.3.2 by either obtaining certification of the test and performing a periodic test after installation, or by performing the Qualification test."

After Versalift is in service, Time Manufacturing Company recommends dielectric testing be arranged every six months on a regular basis, and after every major inspection, or whenever the insulation value is suspect. Only certified technicians are qualified to conduct these tests. Consult ANSI A92.2 paragraph 8.2.2 for further testing frequency guidelines.

Prior to testing, the Versalift should be inspected for dirt, water, or any other contamination that might bridge the insulated sections. Make the necessary corrections to prevent bridging before proceeding to the dielectric tests.

WARRANTY REGISTRATION - The Warranty Registration Card is an important part of your **Versalift** package. Fill in the requested information and return the card to **Time Manufacturing Company**. Of particular importance is the date your **Versalift** is put in service thus initiating the proper warranty period. This information also helps **Time Manufacturing Company** send important correspondence to you concerning your specific **Versalift**.

PREDELIVERY CHECKLIST - After the mounting of the **Versalift** is complete, check the following items.

( ) All bolts are torqued properly.

( ) Mounting hardware is installed properly and bolts torqued.

( ) All hoses and electrical wires are secured.

( ) Hoses and wires are properly protected.

( ) All welding has been completed.

( ) The outriggers, when applicable, are securely mounted and works properly.

( ) The platform mounting bolts are tight.

( ) All decals are positioned on the lift and truck and are legible.

( ) Tire pressure is correct.

( ) There are no visible defects or loose objects on the **Versalift** or the truck.

( ) There are no hoses near the exhaust system or the drive line.

( ) Stability test performed.

( ) Throttle control (optional) is operational and properly adjusted.

( ) All boom actuation speeds are within the specified time ranges.

( ) Engine start/stop is operational and properly adjusted.

( ) Hydraulic system has no leaks.

( ) System relief valve is set properly and system operating pressure is set per unit specifications.

( ) Platform levels properly.

( ) Platform override control selector switch operates properly.

( ) Emergency power (optional) operates properly.

( ) Continuous rotation (optional) operates properly.

( ) Hydraulic hoses are not stretched too tight or kinked as the booms are actuated.

( ) All controls operate smoothly and perform the functions indicated on the decal.

( ) Tool power circuit operates properly.

( ) Hydraulic oil reservoir is full.

( ) All boom movements are smooth and quiet.

( ) All optional equipment operates properly.

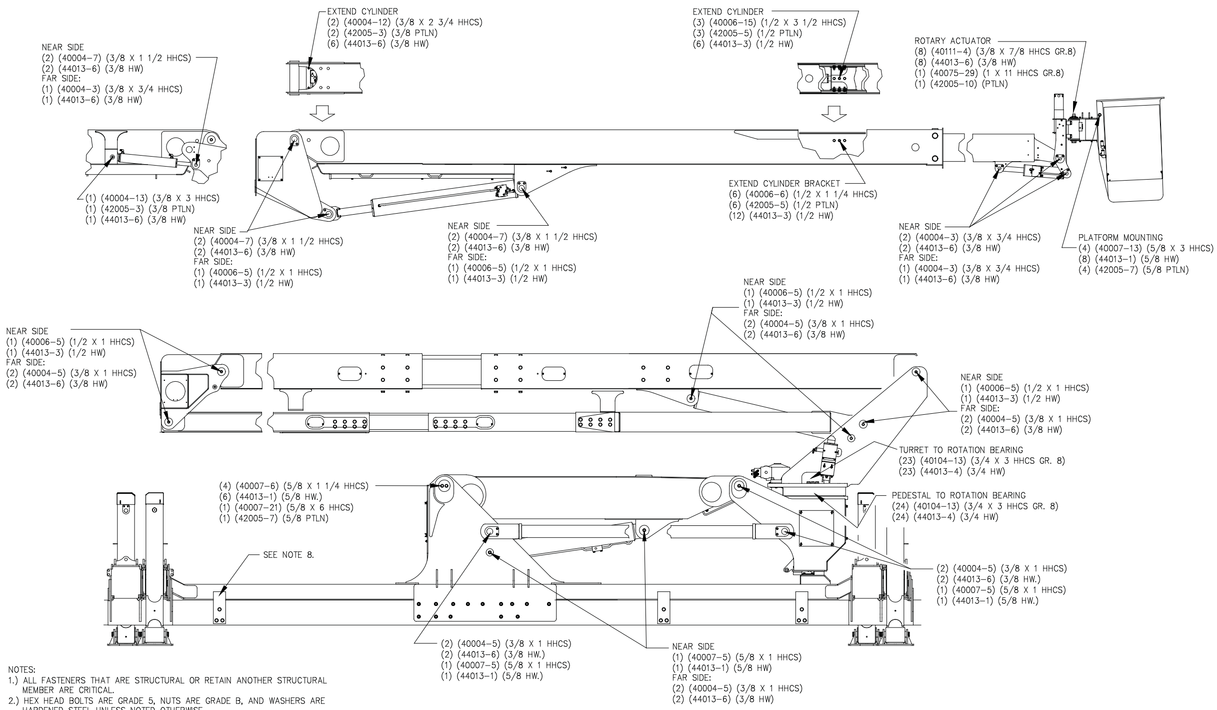
( ) Warranty Registration properly completed and mailed.

( ) Qualification electrical test has been performed.

By: _____

Date: _____

REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
	61528	FIRST RELEASE	NTR	DJH	SKV	10/30/14



NOTES:
1.) ALL FASTENERS THAT ARE STRUCTURAL OR RETAIN ANOTHER STRUCTURAL MEMBER ARE CRITICAL.
2.) HEX HEAD BOLTS ARE GRADE 5, NUTS ARE GRADE B, AND WASHERS ARE HARDENED STEEL UNLESS NOTED OTHERWISE.
3.) MINMUM OF TWO THREADS THROUGH ANY LOCKNUT.
4.) FASTENER CALL OUTS READ AS FOLLOWS: (QTY PER ARROWHEAD) (PART NUMBER) (DESCRIPTION).
5.) TORQUE ALL CRITICAL FASTENERS PER THE TORQUE CHART "TMC-778" IN THE OPERATORS AND SERVICE MANUALS, UNLESS NOTED OTHERWISE.
6.) ALL THREADED FASTENERS TO BE MARKED WITH TORQUE SEAL TO PROVIDE INDICATION OF TURNING.
7.) ABBREVIATIONS:
HHCS = HEX HEAD CAPSCREWS
SHCS = SOCKET HEAD CAPSCREWS
HW = HARDENED WASHERS
PTLN = PREVAILING TORQUE LOCKNUTS
8.) OUTRIGGERS AND MOUNTING MAY VARY. ALL SHEAR PLATE BOLTS, OUTRIGGER MOUNT BOLTS AND PIN RETAINERS USED ON THE OUTRIGGERS AND SUBFRAME ARE CRITICAL FASTENERS.

UNLESS OTHERWISE NOTED:
TOLERANCES: FRACTIONS ± 1/16, ANGLES ± 1°; DECIMALS .X ± .1, .XX ± .03, .XXX ± .005
MACHINED SURFACE FINISHES= 125/
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

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TIME MANUFACTURING COMPANY, WACO TEXAS

DWN. BY	DATE	TITLE
NTR	10/30/14	VST-9000-I-E CRITICAL FASTENERS
SIZE: A	SCALE: 1/50	
EST WT #:	MANUAL: –	
SHEET: 1 OF 2		DWG. NO.: 1005510-DWG

MATERIAL: ---
FINISH: ---

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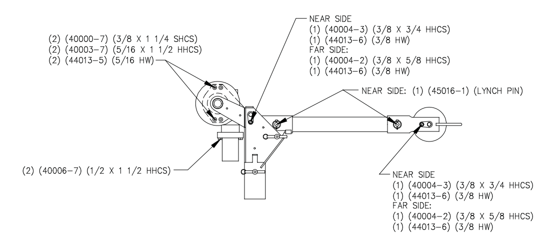

MANUAL JIB AND WINCH
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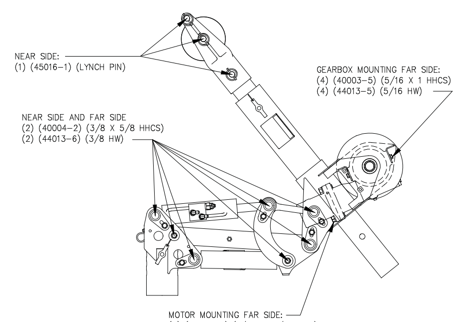

ARTICULATED HYDRAULIC JIB AND WINCH
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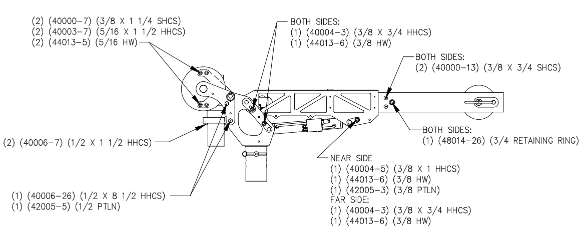

HYDRAULIC JIB AND WINCH
SCALE..............2X

UNLESS OTHERWISE NOTED:
TOLERANCES: FRACTIONS ± 1/16, ANGLES ± 1°; DECIMALS .X ± .1, .XX ± .03, .XXX ± .005
MACHINED SURFACE FINISHES= 125/
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

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TIME MANUFACTURING COMPANY, WACO TEXAS

DWN. BY	DATE	TITLE
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SIZE: A	SCALE: 1/50	
EST WT #:	MANUAL: –	
SHEET: 2 OF 2		DWG. NO.: 1005510-DWG

MATERIAL: ---
FINISH: ---

REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
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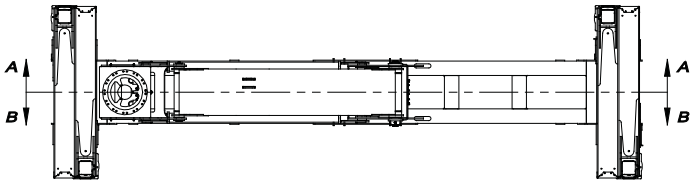
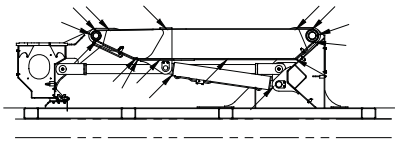
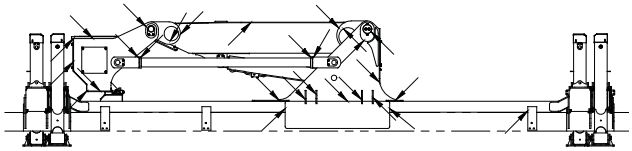
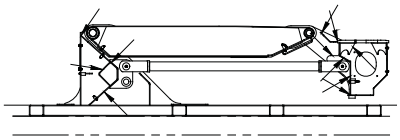




SECTION A-A





SECTION B-B

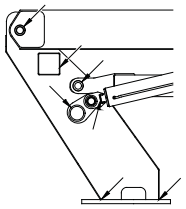
CRITICAL WELDS DIAGRAM - ELEVATOR

SEE SHEET 2 FOR LIFT

NOTES:
1.) CRITICAL WELDED JOINTS TO BE INSPECTED ARE INDICATED BY ARROWS. THE JOINTS MAY INCLUDE WELDS ON BOTH SIDES OR INSIDE AND OUTSIDE AS APPLICABLE.
2.) THERE ARE ADDITIONAL CRITICAL WELDS ON THE MOUNTING HARDWARE AND OUTRIGGERS.
3.) ALL WELDED PIN RETAINERS ARE CRITICAL WELDS.
4.) ANY STRUCTURE WELD FOUND DEFFECTIVE SHOULD BE CORRECTED AND NEVER IGNORED. WELDS MUST BE REPAIRED IN ACCORDANCE WITH ANSI A92.2–1990 REQUIREMENTS. CONSULT FACTORY FOR MATERIAL SPECIFICATIONS AND PROPER WELDING SPECIFICATIONS.

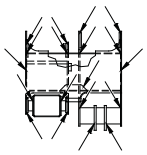
UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS .XX ± .03 .XXX ± .005 ANGLES ± 1/2° MACHINED SURFACE FINISH= PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY: NTR	DATE: 10/30/14
		SIZE: B	SCALE: 1/45
MATERIAL		EST WT #: —	MANUAL: —
FINISH		SHEET: 1 OF 2	DWG. NO.: 1005511–DWG
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.		TITLE: VST–9000–I–E CRITICAL WELDS	

REV.



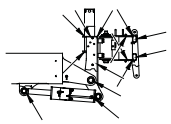
SECTION A-A

SCALE.....1.5X



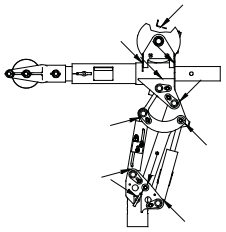
SECTION B-B

SCALE.....1.5X



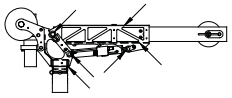
PLATFORM SUPPORT

SCALE.....1.5X



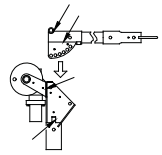
ARTICULATED HYD. JIB & WINCH

SCALE.....2.67X



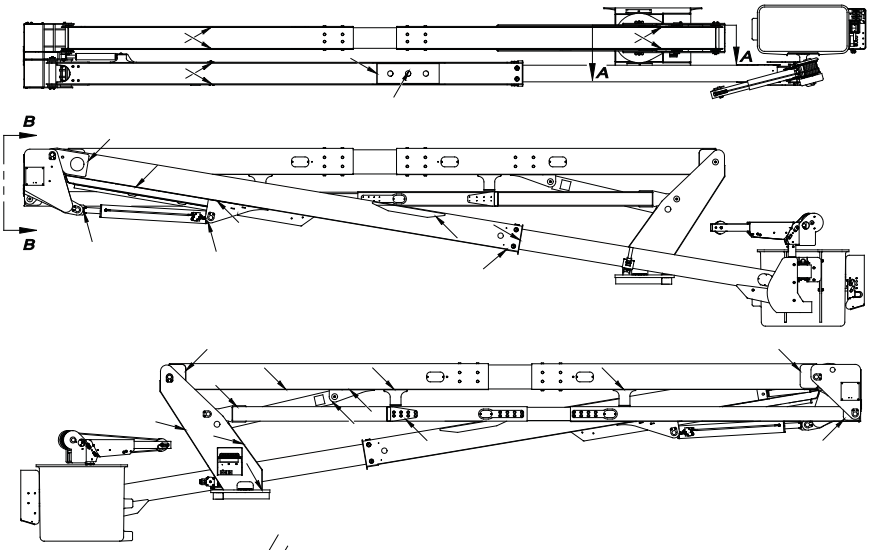
HYD. JIB & WINCH

SCALE.....2X



MANUAL JIB & WINCH

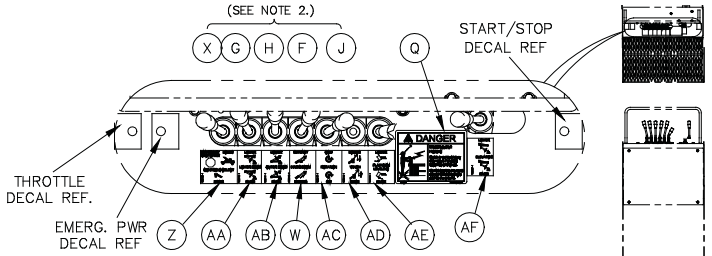
SCALE.....2X



UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS .XX ± .03 .XXX ± .005 ANGLES ± 1/2° MACHINED SURFACE FINISH= PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY: NTR	DATE: 10/30/14
		SIZE: B	SCALE: 1/45
MATERIAL		EST WT #: —	MANUAL: —
FINISH		SHEET: 2 OF 2	DWG. NO.: 1005511–DWG
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.		TITLE: VST–9000–I–E CRITICAL WELDS	

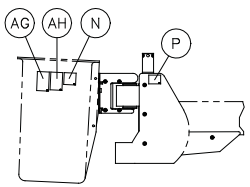
INSTALLATION

REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
6	61515	FIRST RELEASE	NTR	DJH	SKV	10/9/14



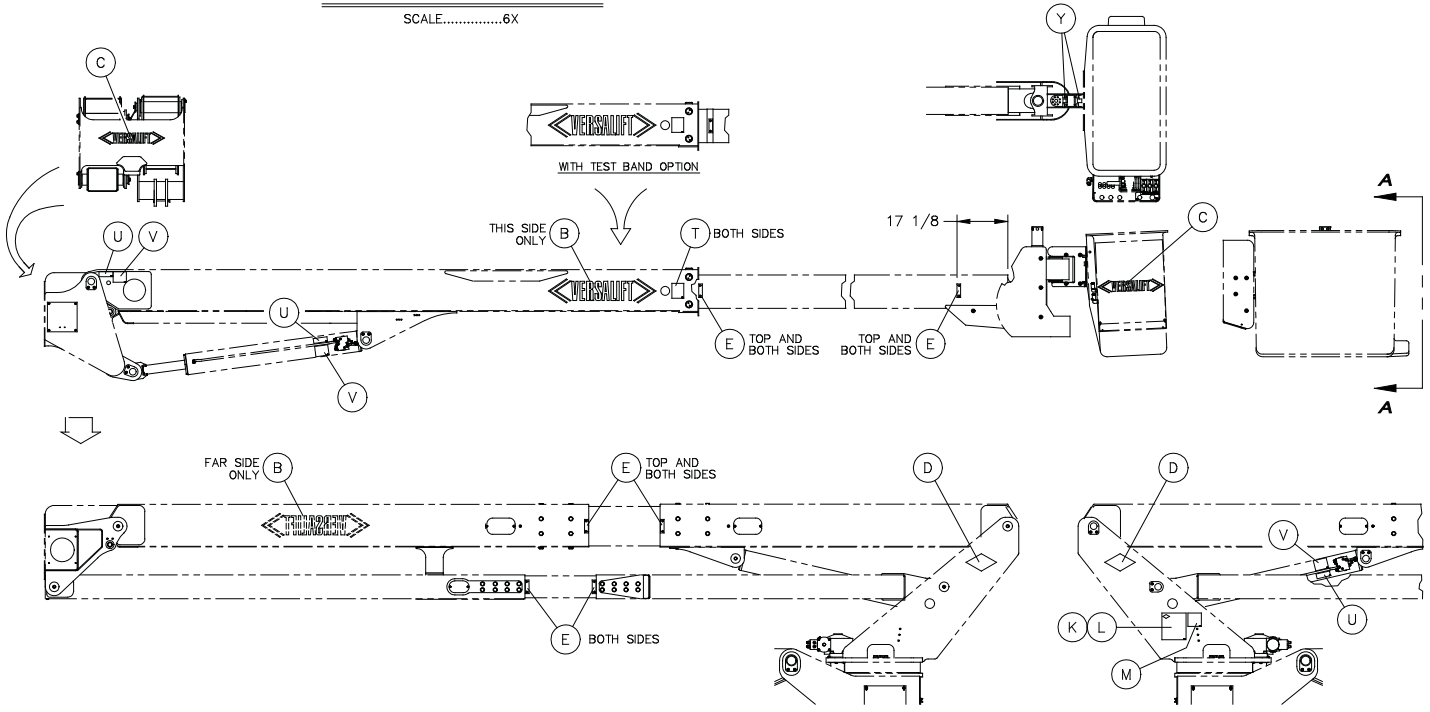
LOWER CONTROL CONSOLE

SCALE.....6X



VIEW A-A

NOTES:
1.) ∗ INDICATES PART IS SHIPPED LOOSE.
2.) ITEMS "X", "G", "H", "F" AND "J" (OR REQ'D) ARE TO BE LOCATED BY INSTALLER NEAR LOWER CONTROLS AND VISIBLE BY OPERATOR.
3.) ITEM "S" TO BE LOCATED BY INSTALLER AT EACH CORNER OF TRUCK.
4.) ITEM "R" IS TO BE LOCATED BY INSTALLER NEAR RELIEF VALVE.



-1			
1	AH	4542–5	DECAL – CAUTION OPERATION
1	AG	4542–12	DECAL – DANGER QUALIFIED OPERATOR
∗ 1	AF	1005502–1	DECAL – LWR AND RAISE ELEV
∗ 1	AE	1000474–1	DECAL – LWR AND RAISE PLATFORM
∗ 1	AD	1000473–1	DECAL –LWR AND RAISE WINCH
∗ 1	AC	1000472–1	DECAL – CCW AND CW ROTATION
∗ 1	AB	1000147–1	DECAL – LWR AND RAISE OUTER BM
∗ 1	AA	1000470–1	DECAL – LWR AND RAISE LWR BM
∗ 1	Z	1000469–1	DECAL – UPPER AND LOWER CNTRLS
2	Y	30593–1	DECAL – LANYARD ATTACHMENT
REF	X	33565–1	DECAL – DANGER ELECTROCUTION
∗ 1	W	1000146–1	DECAL – RET AND EXT INNER BOOM
3	V	7500–1	DECAL – HOLDING VALVE
3	U	15732–1	DECAL – CAUTION EMGY LOWERING
2	T	16837–1	DECAL – DANGER INSPECTION HOLE
∗ 4	S	4542–2	DECAL – ELECTROCUTION
∗ 1	R	7584–1	DECAL – RELIEF ADJUSTMENT
∗ 1	Q	35409–1	DECAL – DANGER ELECTROCUTION
1	P	14014–1	DECAL – PLATFORM INSTRUCTION
1	N	14110–1	DECAL – ELECTROCUTION HAZARD
∗ 1	M	12337–1	DECAL – OWNER TRANFER
∗ 1	L	11099–1	DATA PLATE BACKING
∗ 1	K	8928–1	DATA PLATE
∗ 1	J	13144–1	DECAL – CAUTION LOWER BOOM
∗ 1	H	4542–4	DECAL – DANGER ELECTROCUTION
∗ 1	G	4542–5	DECAL – CAUTION OPERATION
∗ 1	F	4542–12	DECAL – DANGER QUALIFIED OPERATOR
16	E	5098–1	DECAL – INSULATED SECTION
2	D	426–011	VERSALIFT NAME PLATE
2	C	4541–1	DECAL – "VERSALIFT" (SMALL)
2	B	4541–2	DECAL – "VERSALIFT" (LARGE)
2	A	1005500–DWG	DECAL PLACEMENT DRAWING
QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

DASH NO.	DESCRIPTION	CODE
–1	DECAL PLACEMENT – WITH JIB AND WINCH – LIFT ON SINGLE ARM LIFT ELEVATOR	DE–1280–29

UNLESS OTHERWISE NOTED:
TOLERANCES: FRACTIONS ± 1/16, ANGLES ± 1°, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

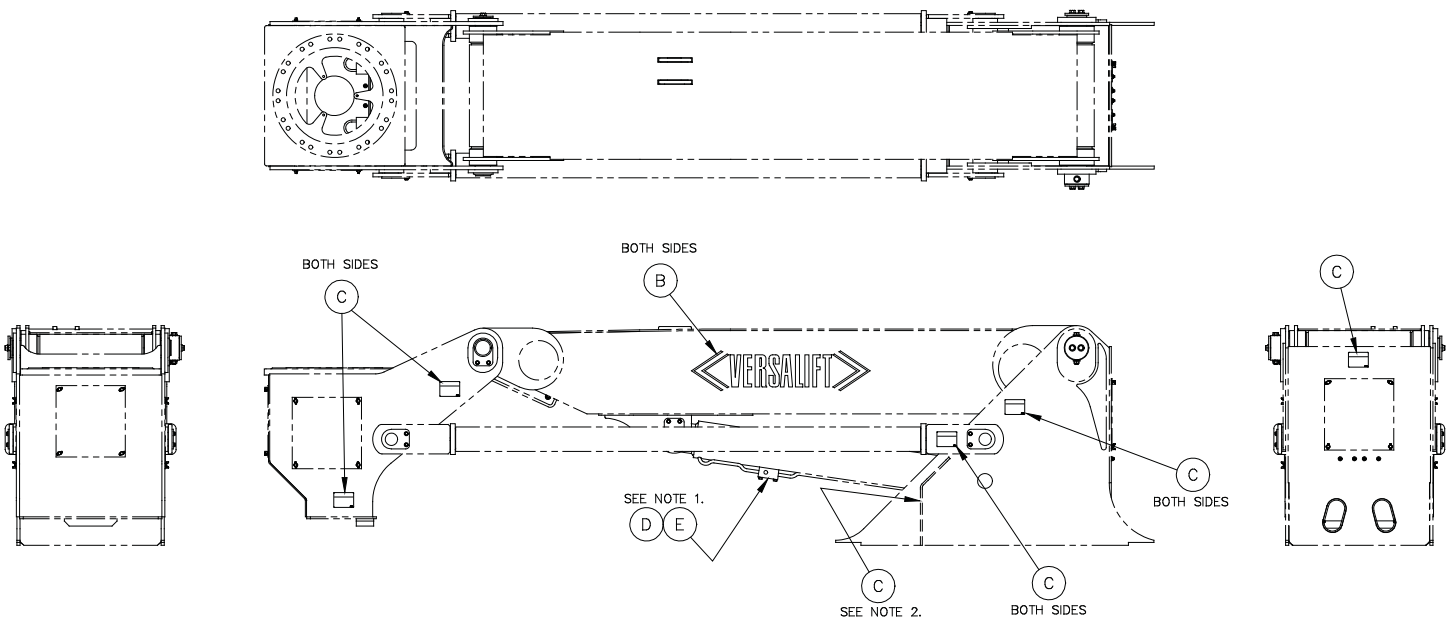
TIME MANUFACTURING COMPANY WACO TEXAS

MATERIAL

FINISH

DWN. BY	DATE	TITLE
NTR	10/9/14	DECAL PLACEMENT LIFT FOR SINGLE ARM LIFT ELEVATOR
SIZE B	SCALE 1/40	
EST WT #	MANUAL –	
SHEET 1 OF 1		DWG. NO. 1005500–DWG

REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
	61515	FIRST RELEASE	NTR	DJH	SKV	10/9/14



DASH NO.	DESCRIPTION	CODE
–1	DECAL PLACEMENT FOR SINGLE ARM LIFT ELEVATOR	DE–1341–5

–1

	QTY.	ITEM	PART NO.	DESCRIPTION
SEE NOTE 1.	1	E	15732–1	EMERGENCY LOWERING
SEE NOTE 1.	1	D	7500–1	DECAL – HOLDING VALVE
	10	C	34005–1	DECAL – PINCH POINT
	2	B	4541–2	DECAL – VERSALIFT LARGE
	1	A	1005501–DWG	DECAL PLACEMENT – SINGLE ELEV

LIST OF MATERIAL

NOTES:
1.) ITEMS "D" AND "E" ARE TO BE LOCATED NEAR ARM CYLINDER HOLDING VALVE.
2.) ITEM PLACE PINCH POINT DECAL (ITEM "C") ON PLATE BELOW ARM CYLINDER CUTOUT.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

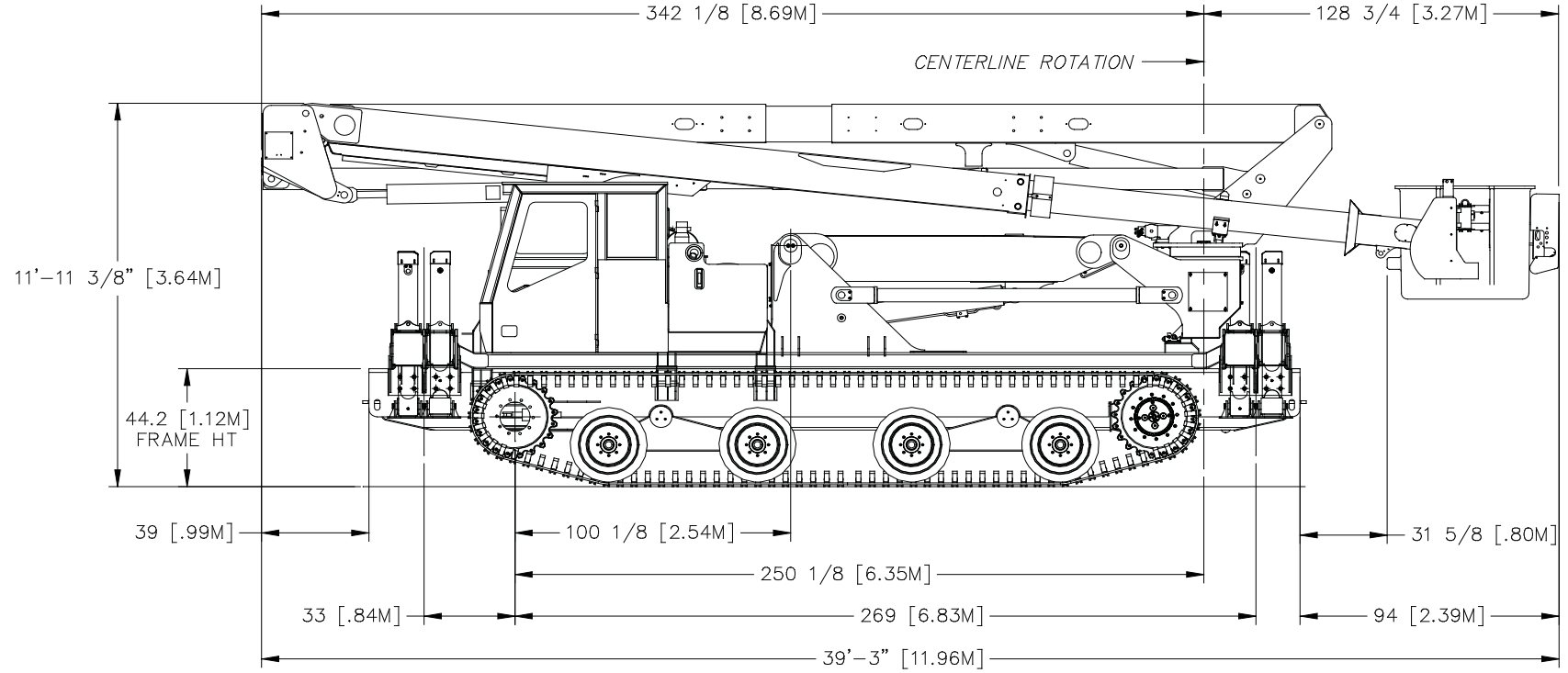
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL
FINISH

DWN. BY	DATE	TITLE
NTR	10/9/14	DECAL PLCMNT FOR SINGLE ARM LIFT ELEVATOR
SIZE B	SCALE 1/24	
EST WT #	MANUAL –	
SHEET 1 OF 1	DWG. NO. 1005501–DWG	

INSTALLATION

REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
⬡	61528	FIRST RELEASE	NTR	DJH	SKV	10/30/14



FOR REFERENCE ONLY

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

FINISH

DWN. BY	DATE
NTR	10/30/14
SIZE	SCALE
A	1/60
EST WT #	MANUAL
	–
SHEET	
1 OF 1	

TITLE: INSTALL OUTLINE VST–9000–I ON 10 FT. ELEVATOR

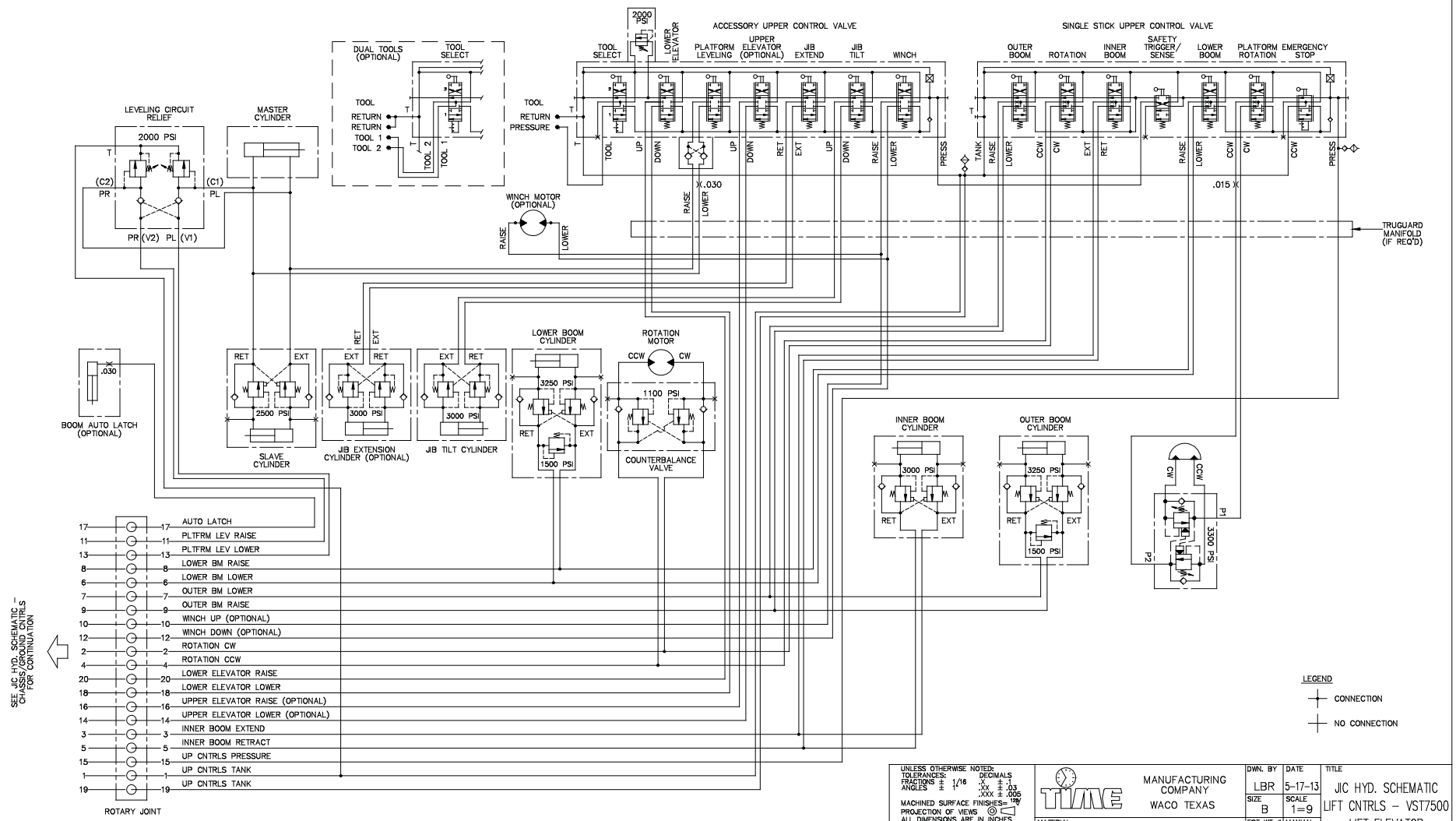
DWG. NO. 1005512–DWG

SECTION 105
HYDRAULIC / ELECTRICAL SCHEMATICS

Wiring Schematics are for reference only. Optional equipment may vary, refer to specific options for detailed information.

HYDRAULIC SCHEMATICS

REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
A	60753	ACCESSORY UPPER CONTROL VALVE WAS SHOWN AS CLOSED CENTER.	LBR	DJH	SRS	7-18-13



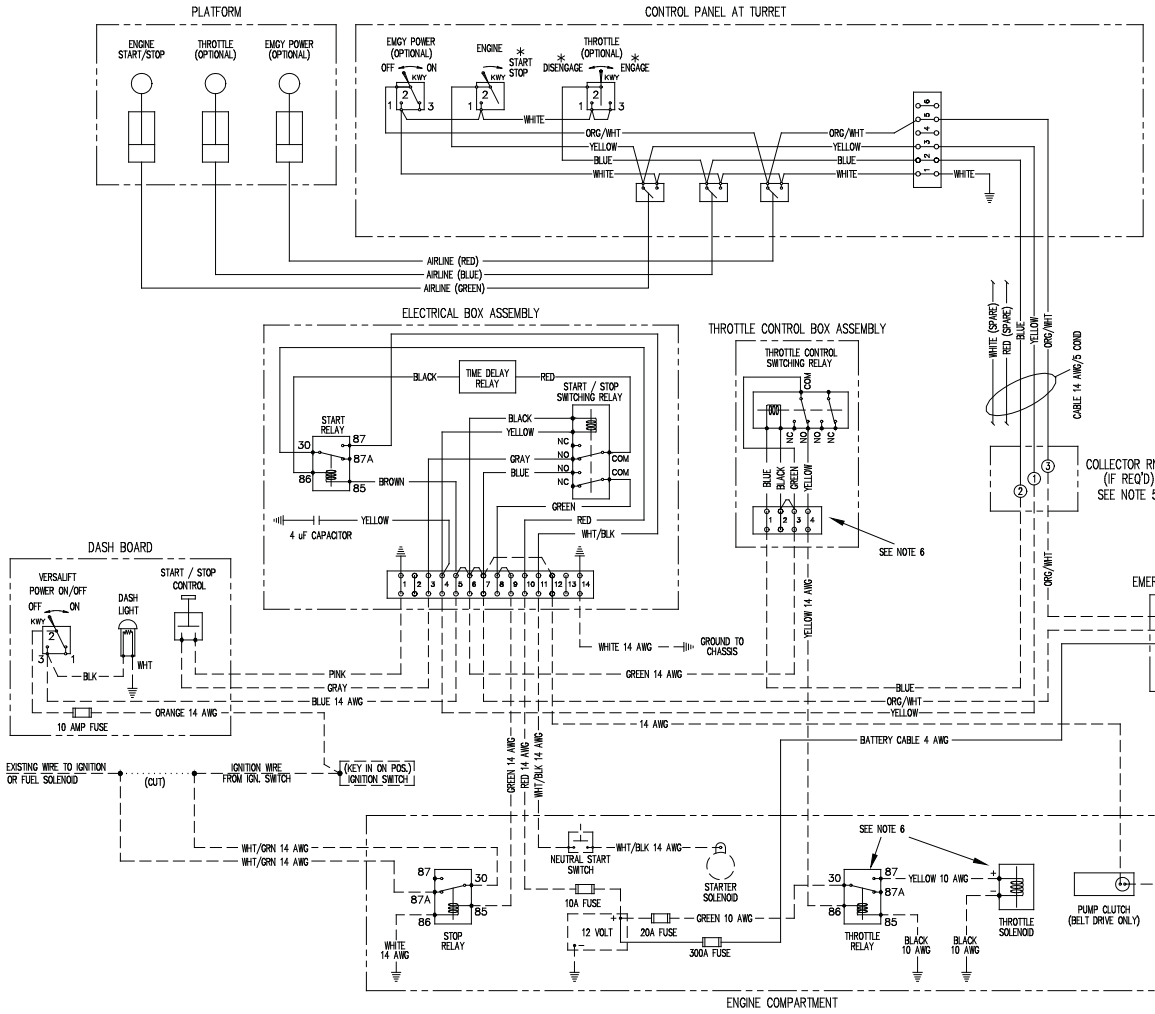
UNLESS OTHERWISE NOTED:
TOLERANCES: FRACTIONS ± 1/16, ANGLES ± 1°, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL
FINISH

DWN. BY	DATE	TITLE
LBR	5-17-13	JIC HYD. SCHEMATIC LIFT CNTRLS – VST7500 LIFT ELEVATOR
SIZE B	SCALE 1=9	
EST WT #	MANUAL –	
SHEET 1 OF 1		DWG. NO. 1001351–DWG

REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
F	61511	ADDED VST-9500OI TO USAGE CHART.	SPM	DJH	SKV	10/17/14



COLLECTOR RING CIRCUIT USAGE CHART							
TERM. NO.	OPTION COMBINATIONS						
1	SS	SS	SS	SS	THROT	THROT	EP
2		THROT	THROT	EP		EP	
3			EP				

MODEL USAGE CHART
SST-37-EIH
SST-40-EIH
VO-40-MHI
VO-43-I
VST-5000-I-01
VST-5500-I
VST-6000-I
VST-7500-I
VST-8000-I
VST-8500-I
VST-9000-I
VST-9500-I

NOTES:
1.) ALL WIRING IS 18 AWG UNLESS NOTED
2.) RELAYS ARE SHOWN IN THE NON-ENERGIZED POSITION
3.) DASHED WIRING RUNS INDICATE INSTALLER SUPPLIED OR EXISTING CHASSIS WIRING.
4.) * INDICATES MOMENTARY POSITION OF TOGGLE SWITCH.
5.) WIRE NUMBERS SHOWN AT COLLECTOR RINGS ARE EXAMPLES ONLY. REFER TO "COLLECTOR RING CIRCUIT USAGE CHART". FOR ACTUAL WIRE NUMBERS BASED ON OPTION COMBINATIONS.
6.) THROTTLE WIRING SHOWN IS FOR EXAMPLE ONLY. SEE SPECIFIC CHASSIS THROTTLE OPTION FOR ACTUAL WIRING DIAGRAM.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

FINISH

DWN. BY	DATE
LBR	7-13-00
SIZE	SCALE
B	1/3.25
EST WT #	MANUAL
	—
SHEET	
1 OF 1	

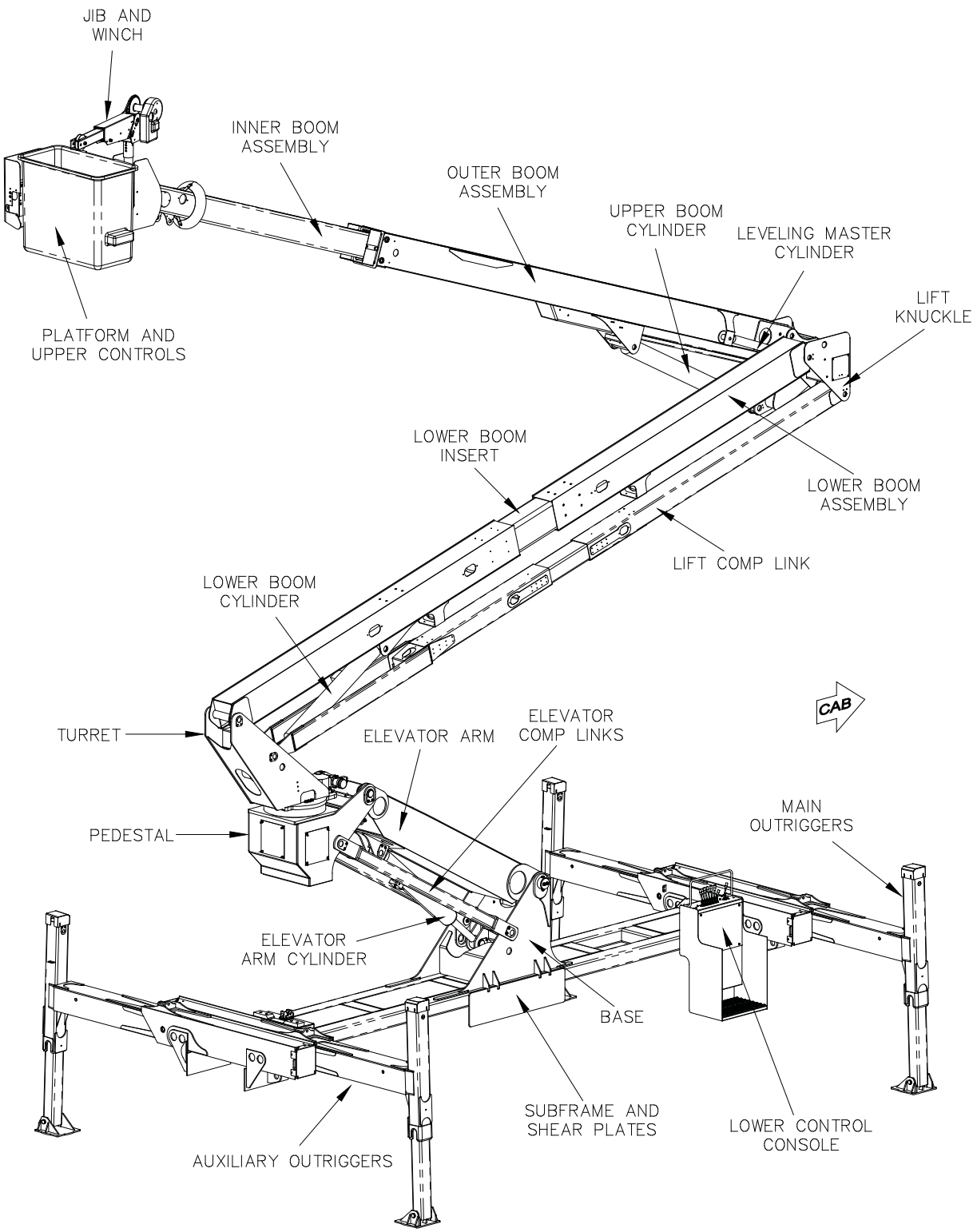
TITLE: WIRING DIAGRAM INSULATED LIFTS

DWG. NO. 28172-DWG

SECTION 106
PARTS AND ASSEMBLIES
(Parts Location and Ordering)

Confirm part numbers in “As Built Section” located in the back of this manual.

PARTS LOCATION DETAIL



PART ORDERING AND PRODUCT SUPPORT INFORMATION

The following sections contains replacement parts information for the **VERSALIFT** Aerial Device, including normal available options.

Your cooperation in furnishing as much information as possible will assist us in filling your orders correctly and in the shortest possible time.

When ordering parts always furnish:

1. **Identification of the Lift** - Model and serial number of the lift are located on the data plate. The serial number can also be found stamped on the turret base plate and/or pedestal top plate.

2. **Part Numbers and Description** - Each part ordered needs to have correct part number and description. The part numbers and descriptions can be found on following pages in this section.

   An Itemized parts list with illustration is included for each assembly, hydraulic circuit, control system and electrical circuit. All parts are identified by a reference letter corresponding to a like letter in the parts list (see assembly identification example 1 on the following page).

   An itemized service parts list with illustration is included for each major component. All parts are identified by a reference number corresponding to a like number in the service parts list (see component identification example 2 on the following page). The quantities listed are the amount required for one complete assembly or subassembly.

   If there is any doubt as to the correct part numbers, please contact your local distributor or the customer service department at Time Manufacturing Company.

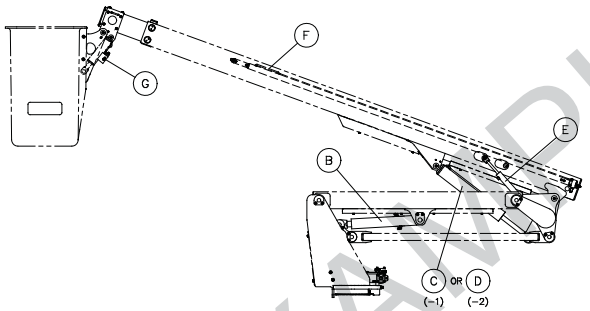
3. **Shipping Method** - Unless otherwise instructed, all shipments will be made via motor freight collect or UPS prepaid and charged on our invoice.

4. **Returns** - Any parts that may need to be returned must have a return goods authorization number on the outside of the box, and the correct paperwork including the invoice number or purchase order number accompanying the part.

Replacement Parts - All parts are original VERSALIFT replacement component. Authorized VERSALIFT dealers are assured of being furnished with authentic parts when purchased from Time Manufacturing Company. Dealers and customers not using original replacement parts from VERSALIFT may experience operational and safety related premature fatigue, wear, and/or failure of components.

NOTE: On some Assembly and Installation drawings included in the following sections, some components are marked as shipped loose items. These items will require installation during the Versalift installation procedure. Refer to any component identification instructions in the ship loose box. Also refer to the Part Details and Installation drawings in this manual for any additional information needed.

REV. — REVISION LEVEL



REFERENCE LETTER

PART NUMBERS

PARTS LIST

EACH DASH NUMBER INDICIATES A DIFFERENT ASSEMBLY OR MODEL

–2	–1	ITEM	PART NO.	DESCRIPTION
1	1	G	53038–1	SLAVE CYLINDER
1	1	F	12166–13	EXTENSION CYLINDER ASSEMBLY
1	1	E	10460–1	MASTER LEVELING CYLINDER
1	–	D	29675–2	OUTER BOOM CYL. W/ VEL. FUSE
–	1	C	29675–1	OUTER BOOM CYL.
1	1	B	53053–1	LOWER BOOM CYLINDER
1	1	A	20846–DWG	CYLINDER ASSEMBLY SST36–01

LIST OF MATERIAL

ITEM C IS USED ON DASH 1 ONLY.
ITEM D IS USED ON DASH 2 ONLY.
ITEMS B, E, F, AND G ARE USED ON BOTH DASH 1 AND 2.

QUANTITIES REQUIRED ARE LISTED IN THE COLUMNS UNDER SPECIFIC DASH NUMBER.

OPTION CHART TO SHOW OPTION THAT YOUR UNIT MAY HAVE AND DASH NUMBER TO THE OPTION FOR PARTS LOOK UP.

DASH NO.	DESCRIPTION	CODE
–1	CYLINDER ASSEMBLY SST36NE–01	HYD–1230–65
–2	CYLINDER ASSEMBLY SST36NE–01 WITH EMERGENCY LOWERING	HYD–1230–66

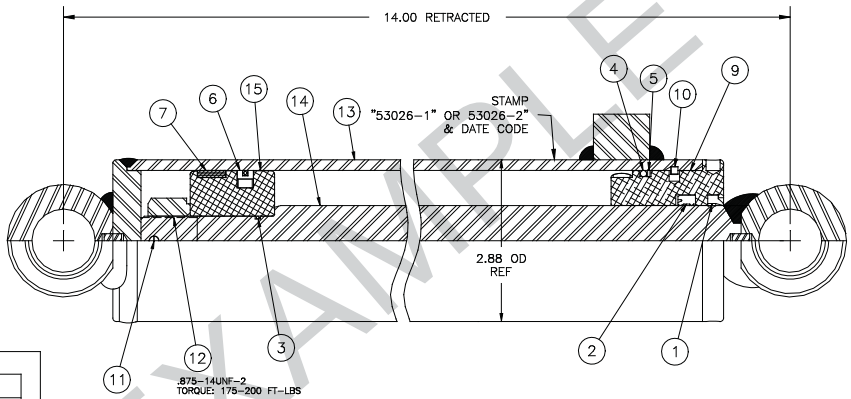
UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005, ANGLES ± 1°. MACHINED SURFACE FINISHES: 125. PROJECTION OF VIEWS. ALL DIMENSIONS ARE IN INCHES. THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.

TIME MANUFACTURING COMPANY WACO TEXAS

DWN. BY	DATE	TITLE
LBR	2–24–11	CYLINDER ASSEMBLY SST36NE–01
SIZE: B	SCALE: 1=30	
MATERIAL:	EST WT #: –	MANUAL: –
FINISH:	SHEET: 1 OF 1	DWG. NO.: 20846–DWG

ASSEMBLY IDENTIFICATION EXAMPLE 1

REV. — REVISION LEVEL



SERVICE PARTS

	ITEM	PART DESCRIPTION	TIME PART NO	QTY
*	1	WIPER	NSS	1
*	2	SEAL	NSS	1
*	3	O–RING	NSS	1
*	4	O–RING	NSS	1
*	5	BACK–UP	NSS	1
*	6	SEAL	NSS	1
*	7	WEAR RING	NSS	1
*	8	SEAL KIT	Y1695	1
	9	HEAD	Y2548	1
	10	RETAINING RING	X527–99	1
	11	O–RING	X527–179	2
	12	LOCKNUT	Y2549	1
	13	TUBE ASS'Y	Y2551	1
	14	ROD ASSY	Y2550	1
	15	PISTON	Y1697	1
	16	NYLON PLUG	Y1813	1
	17	SETSCREW	Y1812	1

SERVICE PARTS LIST

NOTES:
1) * SEAL KIT CONTAINS ITEMS 1 THRU 8.
2) NSS (NOT SOLD SEPARATELY)

YOU MAY RECEIVE A SHEET 2 IN THE MANUAL AND NOT SHEET 1. SHEET 1 HAS ENGINEERING INFORMATION THAT IS NOT NEEDED FOR SERVICE.

UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005, ANGLES ± 1°. MACHINED SURFACE FINISHES: 125. PROJECTION OF VIEWS. ALL DIMENSIONS ARE IN INCHES. THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.

TIME MANUFACTURING COMPANY WACO TEXAS

DWN. BY	DATE	TITLE
RAL	3/13/07	SLAVE LEVELING CYLINDER
SIZE: B	SCALE: 1/1.5	
MATERIAL: ----	EST WT #: --	MANUAL: –
FINISH: SEE NOTE	SHEET: 2 OF 2	DWG. NO.: 53026–SEE ABOVE

COMPONENT IDENTIFICATION EXAMPLE 2

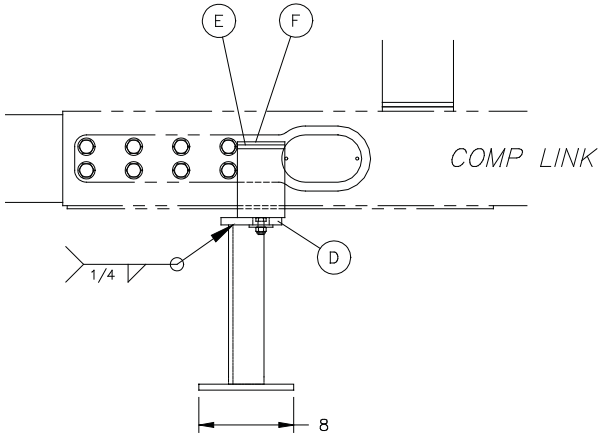
SECTION 107

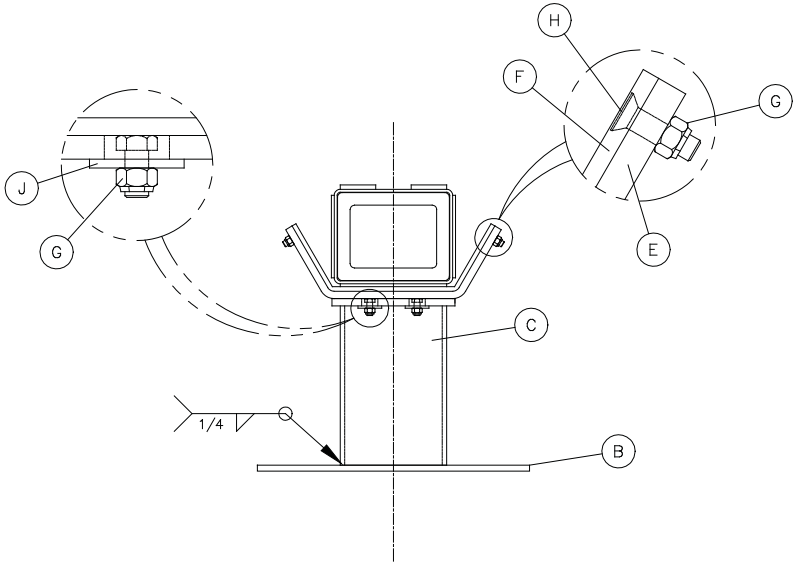
Lower Boom Rest
(Option BC-1280-2)

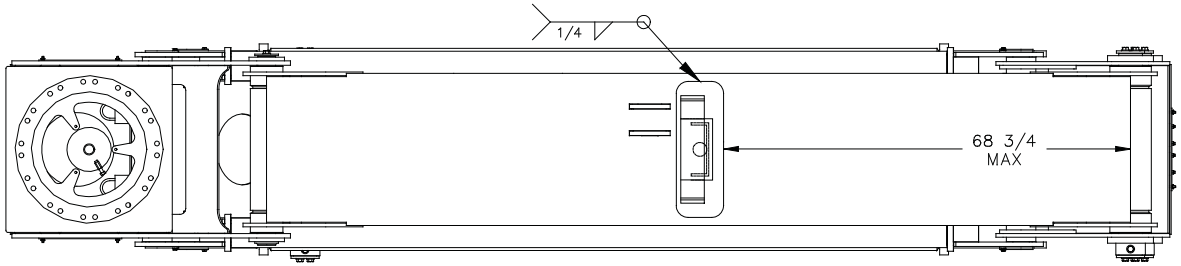
When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

REV.

DASH NO.	DESCRIPTION	CODE
–1	LOWER BOOM REST	BC–1280–2







TOP VIEW

SCALE.....N/A

–1			
* 2	J	411	PIN CAP 2"
* 4	H	40000–10	1/2–13NC x 1 3/4 SHFH
* 6	G	42005–5	1/2–NC LOCKNUT
* 1	F	8719–2	BOOM REST PAD
* 1	E	33998–1	BOOM REST SADDLE W/A
* 1	D	29242–1	PLATE, BOOM REST
* 1	C	29781–1	RISER, BOOM REST
* 1	B	1001593–1	LOWER BOOM REST PLATE
* 1	A	1001596–DWG	LOWER BOOM REST INSTALLATION
QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH:

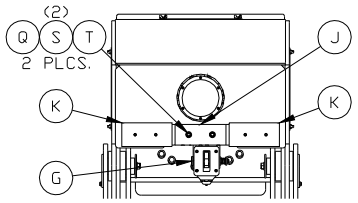
DWN. BY	DATE	TITLE
DEF	09/24/13	LOWER BOOM REST INSTALLATION
SIZE: B	SCALE: 1=10	
EST WT #:	MANUAL: –	
SHEET: 1 OF 1		DWG. NO.: 1001596–DWG

SECTION 108

10 Ft Elevator Auto Latch Installation (Option BC-1341-6)

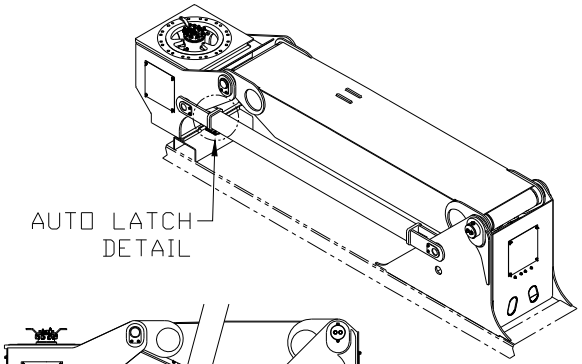
When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

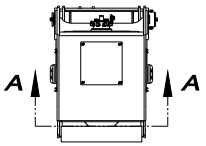
DASH NO.	DESCRIPTION	CODE
-1	10 FT ELEVATOR AUTO LATCH INSTALLATION	BC-1341-6

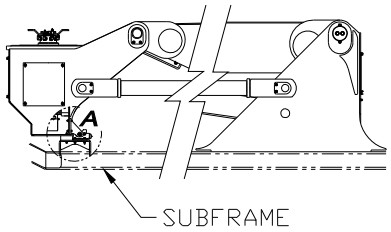


VIEW A-A

SCALE.....2X







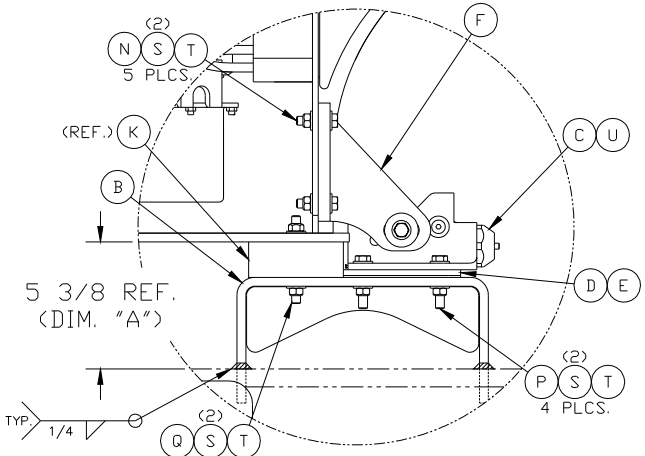
INSTALLATION INSTRUCTIONS:

WELDING INSTRUCTIONS:

1. WITH ELEVATOR FULLY LOWERED, RECORD DISTANCE FROM BOTTOM OF ELEVATOR PEDESTAL (DIM "A").
2. CUT LEGS ON ELEVATOR SUPPORT WELDMENT (ITEM "B") TO HEIGHT WHICH IS 1/4" MORE THAN MEASURED GAP WHEN LANDING PADS ARE INSTALLED (ITEM "K").
3. AFTER INSTALLING HYDRAULIC LATCH, POSITION SUPPORT WELDMENT (ITEM "C"), CENTERING LATCH AND CATCH WELDMENT (ITEM "F").
4. WELD SUPPORT WELDMENT AS SHOWN & INSTALL ITEMS "K", "Q", "S", & "T".

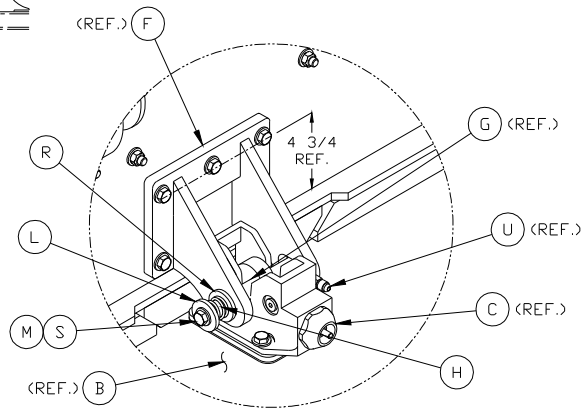
AUTO LATCH INSTALLATION:

1. INSTALL CATCH PIN (ITEM "G") AS SHOWN IN DETAIL, CENTERING PIN IN SLOT.
2. USING AT LEAST ONE EACH OF ITEM "D" AND "E" ALIGN HYD. LATCH (ITEM "C") CENTERED ON TOP OF THE ELEVATOR SUPPORT WELDMENT (ITEM "B") SUCH THAT WHEN THE PEDESTAL IS LOWERED THE PIN FALLS WITHIN THE LATCH.
3. USING ITEMS "D" & "E" AS NEEDED AND ITEMS "P", "S", & "T", MOUNT AUTO LATCH.
4. WHEN PROPERLY INSTALLED, ELEVATOR STOWED, AND LIFT POWERED OFF, THE LATCH SHOULD FULLY ENGAGE THE CATCH PIN. THE PIN SHOULD NOT BOTTOM OUT IN THE LATCH SLOT.
5. INSTALLER TO PROVIDE 1/4" HOSE ASS'Y WITH 1/4" (#4) FJIC SWIVEL FITTINGS FOR CONNECTING LATCH TO A PRESSURE SOURCE.



DETAIL A

SCALE.....8X



AUTO LATCH DETAIL

SCALE.....8X

-1			* ALL ITEMS TO BE SHIPPED LOOSE.
6	Q	40004-10	3/8-NC X 2 1/4 LG HHCS
4	P	40004-9	3/8-NC X 2 LG HHCS
5	N	40004-7	3/8-NC X 1 1/2 LG HHCS
1	M	40004-3	3/8-NC X 3/4 LG HHCS
1	L	44016-1	SPECIAL FLAT WASHER
2	K	1005270-1	CHAMFERED LANDING PAD
1	J	1005270-2	CHAMFERED LANDING PAD
1	H	88019-1	STEEL COMPRESSION SPRING
1	G	1005269-1	CATCH PIN WELDMENT
1	F	1005268-1	SLOTTED CATCH WELDMENT
2	E	31824-2	LATCH SHIM 1/4"
4	D	31824-1	LATCH SHIM 14GA
1	C	58086-1	HYDRAULIC LATCH LH-5000
1	B	1005452-1	ELEVATOR SUPPORT WELDMENT
1	A	1005453-DWG	ELEV. SUPRT. AUTO LATCH INSTAL.
QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

-1			
1	U	50011-1	#4 SAE O-RING TO MALE JIC 90°
15	T	42005-3	3/8-NC LOCKNUT
31	S	44013-6	3/8" HARDENED WASHER
1	R	44013-4	3/4" HARDENED WASHER
QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH:

DWN. BY	DATE	TITLE
SPM	9/29/14	ELEVATOR SUPRT. AUTO LATCH INSTALLATION
SIZE: B	SCALE: 1/40	
EST WT #:	MANUAL: –	
SHEET: 1 OF 1		DWG. NO.: 1005453-DWG

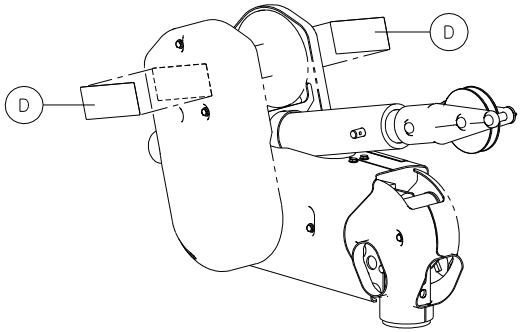
SECTION 109

Capacity Option 1000 lb Jib & Winch w/ Lift Elevator (Option CA-1280-23)

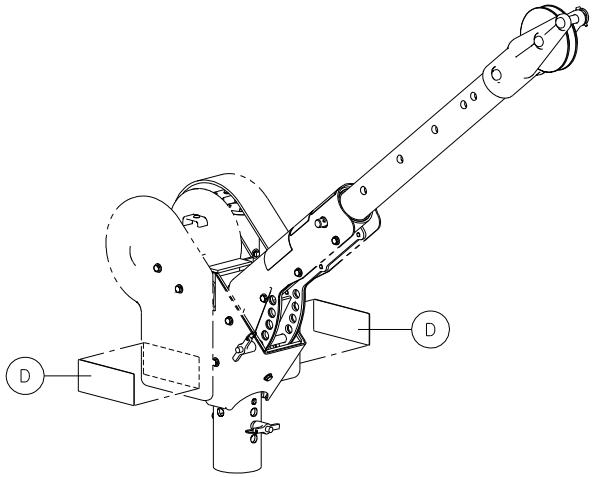
When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

REV.

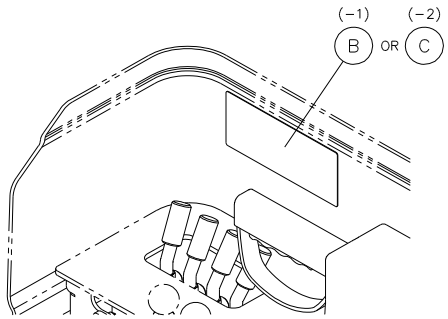
DASH NO.	DESCRIPTION	CODE
-1	CAPACITY OPTION - WITHOUT JIB AND WINCH VST-9000 WITH LIFT ELEVATOR	CA-1280-22
-2	CAPACITY OPTION - 1000 LB JIB AND WINCH VST-9000 WITH LIFT ELEVATOR	CA-1280-23



HYDRAULIC JIB



MANUAL JIB



UPPER CONTROL COVER

NOTE:
* INDICATES PART IS SHIPPED LOOSE.

	-2	-1	ITEM	PART NO.	DESCRIPTION
NOT SHOWN	1	-	G	35073-1	INDICATOR INSTALLATION VST-9000
*	1	-	F	1005410-DWG	STABILITY TEST
*	-	1	E	1005408-DWG	STABILITY TEST
	2	-	D	32341-1	DECAL JIB CAPACITY 1000 LBS
	1	-	C	29818-3	DECAL PLAT CAPACITY 700/800 LBS
	-	1	B	14015-18	DECAL PLAT CAPACITY 800 LBS
	2	2	A	1005407-DWG	CAPACITY OPTIONS VST

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

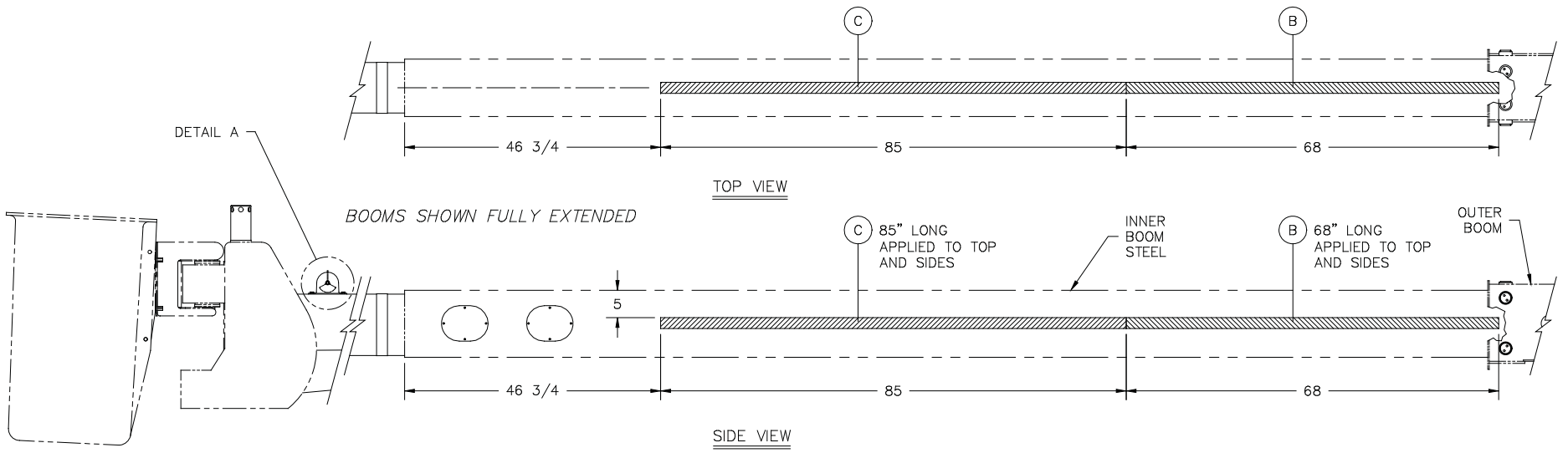
TIME MANUFACTURING COMPANY
WACO TEXAS

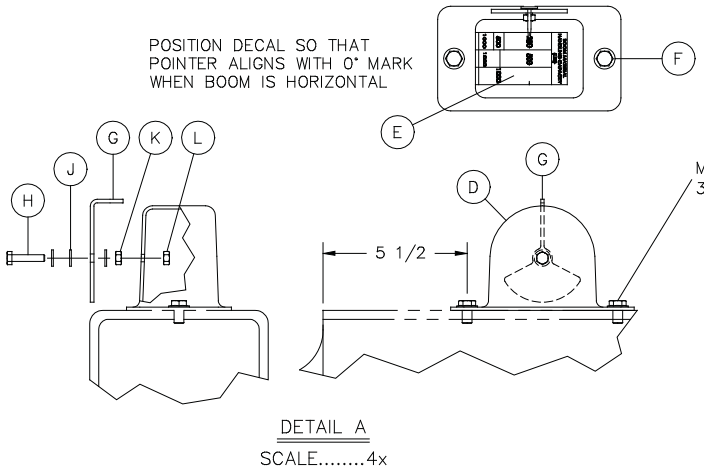
MATERIAL

FINISH

DWN. BY	DATE	TITLE
MAS	09/24/14	CAPACITY OPTIONS VST LIFT ELEVATOR
SIZE: A	SCALE: 1=16	
EST WT #	MANUAL: -	
SHEET: 1 OF 1	DWG. NO.: 1005407-DWG	

REV. B





NOTES:
1.) INSTALL THREE 68" LONG PIECES OF RED TAPE (ITEM B) AS SHOWN TO TOP AND BOTH SIDES.
2.) INSTALL THREE 85" LONG PIECES OF GREEN TAPE (ITEM C) AS SHOWN TO TOP AND BOTH SIDES.

-1

QTY.	ITEM	PART NO.	DESCRIPTION
1	L	42005-1	1/4-NC HEX LOCKNUT
1	K	42000-1	1/4-NC HEX NUT
3	J	44013-7	1/4 HARDENED WASHER
1	H	40002-6	1/4-NC x 1 1/4 HHCS
1	G	21859-1	POINTER
2	F	40171-10	3/8-NC FIBER FLANGED HHCS
1	E	35015-1	DECAL, BOOM MATERIAL HANDLING
1	D	21858-1	ANGLE INDICATOR
22.5'	C	33604-1	TAPE, BOOM MARKING (GREEN)
17.5'	B	89187-2	TAPE, RED ADHESIVE
1	A	35073-DWG	INDICATOR INSTALLATION DRAWING

LIST OF MATERIAL

UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16, ANGLES ± 1°, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005. MACHINED SURFACE FINISHES= 125. PROJECTION OF VIEWS. ALL DIMENSIONS ARE IN INCHES.

TIME MANUFACTURING COMPANY WACO TEXAS

DWN. BY	DATE	TITLE
DF	11/30/09	INDICATOR INSTALLATION VST-9000
SIZE B	SCALE 1/18	
MATERIAL –	EST WT #	MANUAL –
FINISH –	SHEET 1 OF 1	DWG. NO. 35073-DWG

REV.

CAPACITY OPTION CODE CA-1280-23		USED ON THE VST-9000 WITH LIFT ELEVATOR. 700 LBS PLATFORM CAPACITY AND 1000 LBS JIB CAPACITY.		
TEST NUMBER	TEST LOAD ON PLATFORM	TEST LOAD ON JIB	GROUND	NOTES
1	1050	375	LEVEL	INNER BOOM FULLY EXTENDED
2	1050	750	LEVEL	INNER BOOM EXTENDED TO RED BEGINNING
3	1050	1500	LEVEL	INNER BOOM EXTENDED TO GREEN BEGINNING
4	933	333	5° SLOPE	INNER BOOM FULLY EXTENDED
5	933	666	5° SLOPE	INNER BOOM EXTENDED TO RED BEGINNING
6	933	1333	5° SLOPE	INNER BOOM EXTENDED TO GREEN BEGINNING

NOTES:
1. REFER TO THE SERVICE AND INSTALLATION MANUAL FOR SAFE PRACTICES AND MORE INFORMATION ON STABILITY TESTING.
2. KEEP THE TEST LOAD WITHIN 12 INCHES OF THE GROUND
3. ROTATE THE PLATFORM TO GIVE MAXIMUM SIDE REACH.
4. FOR EACH TEST, ROTATE THE BOOMS 360°.
5. ALL LOADS ARE IN POUNDS.
6. THE TEST LOADS ARE BASED ON ANSI A92.2 (1.33 X CAPACITY ON 5° SLOPE, 1.5 X CAPACITY ON LEVEL GROUND).

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125/
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

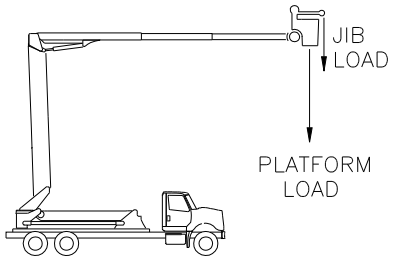
MATERIAL

FINISH

DWN. BY	DATE	TITLE
MAS	09/24/14	STABILITY TEST VST-9000 W/ LIFT ELEV.
SIZE: A	SCALE: 1/7	
EST WT #	MANUAL: —	
SHEET: 1 OF 3		DWG. NO.: 1005410-DWG

REV.

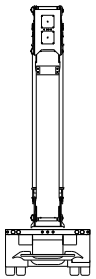
POSITION 1



ELEVATOR LOWER ARM: HORIZONTAL
LIFT LOWER BOOM: VERTICAL
LIFT UPPER BOOM: HORIZONTAL,
PER CHART EXTENDED
JIB: FULLY RETRACTED, HORIZONTAL

TEST 1, 2, 3

LEVEL GROUND



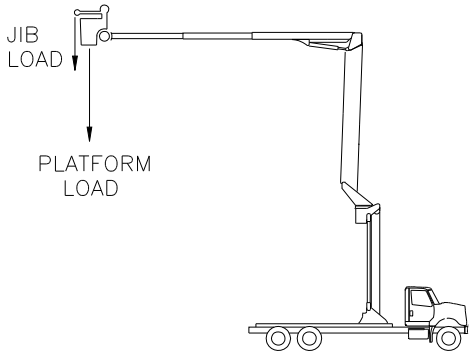
TEST 4, 5, 6

5° SLOPING GROUND

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125/ PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY: MAS	DATE: 09/24/14	TITLE: STABILITY TEST VST-9000 W/ LIFT ELEV.
	MATERIAL	SIZE: A	SCALE: 1/7	
		EST WT #	MANUAL: –	
	FINISH	SHEET: 2 OF 3		DWG. NO.: 1005410-DWG

REV.

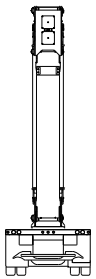
POSITION 2



ELEVATOR LOWER ARM: VERTICAL
LIFT LOWER BOOM: VERTICAL
LIFT UPPER BOOM: HORIZONTAL,
PER CHART EXTENDED
JIB: FULLY RETRACTED, HORIZONTAL

TEST 1, 2, 3

LEVEL GROUND



TEST 4, 5, 6

5° SLOPING GROUND

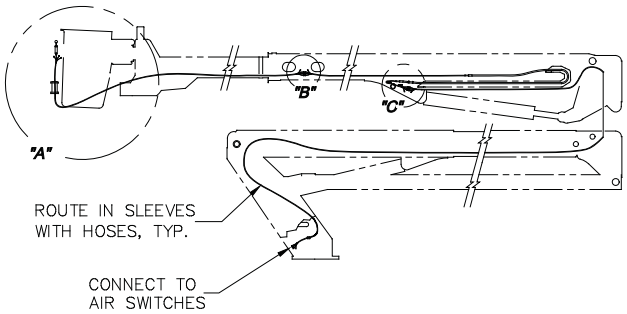
UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125√ PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY: MAS	DATE: 09/24/14	TITLE: STABILITY TEST VST-9000 W/ LIFT ELEV.
		SIZE: A	SCALE: 1/7	
	MATERIAL	EST WT #	MANUAL: —	
	FINISH	SHEET: 3 OF 3		DWG. NO.: 1005410-DWG

SECTION 110

Airline Installation Truguard on Lift Elevator (Option CC-1280-11)

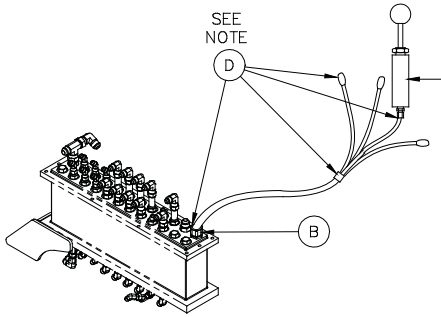
When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

REV. A



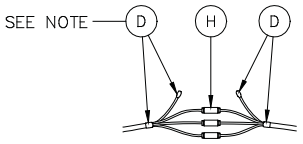
AIRLINE ROUTING

SCALE.....0.25X



DETAIL "A"

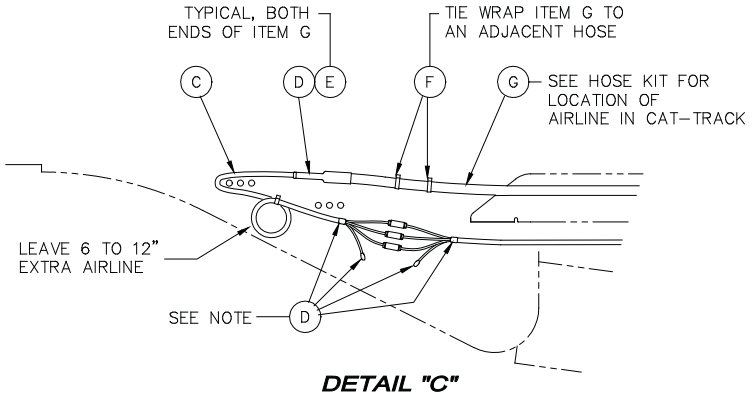
SCALE.....2X



DETAIL "B"

DASH NO.	DESCRIPTION	CODE
–1	AIRLINE INSTALLATION – TRUGUARD – VST–7500 – ON LIFT ELEVATOR	CC–1280–9
–2	AIRLINE INSTALLATION – TRUGUARD – VST–9000 – ON LIFT ELEVATOR	CC–1280–11

NOTE:
APPLY SILICONE SEALANT TO ALL UNUSED AIRLINES AND TO END OF AIRLINE JACKET AS SHOWN.



DETAIL "C"

–2 QTY	–1 QTY	ITEM	PART NO.	DESCRIPTION
6	6	H	50147–1	AIRLINE UNION
15'	12'	G	55531–4	HOSE COVER, NON–COND
A/R	A/R	F	48013–5	TIE–WRAP
0.5'	0.5'	E	68106–4	HEAT SHRINK TUBING
A/R	A/R	D	15348–1	SILICONE SEALANT
111'	96'	C	58036–1	4–IN–1 AIRLINE
1	1	B	68135–1	LIQUID TIGHT STRAIN RELIEF
1	1	A	1000144–DWG	AIRLINE INSTALL TRUGUARD

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

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TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

FINISH

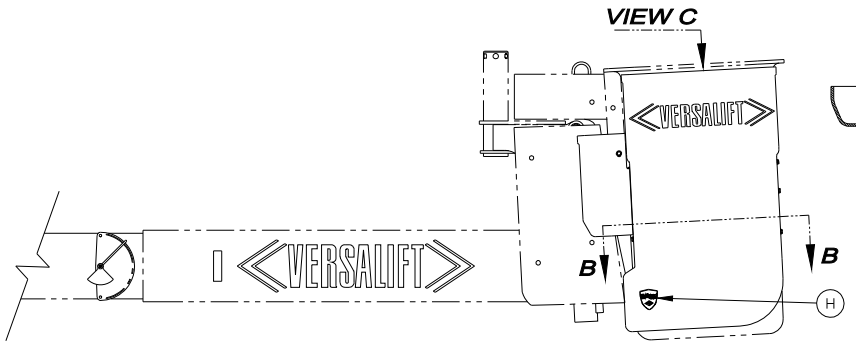
DWN. BY	DATE	TITLE
LBR	4–16–13	AIRLINE INSTALLATION TRUGUARD
SIZE B	SCALE 1/16	
EST WT #	MANUAL –	
SHEET 1 OF 1		DWG. NO. 1000144–DWG

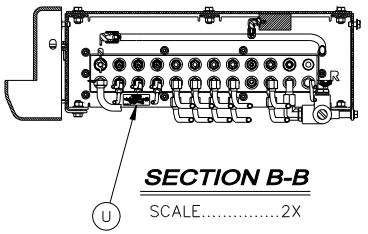
SECTION 111

Decal Kit 4-Axis Upr Ctrls Truguard Single Tool w/Jib & Winch on Single Lift Elevator (Option DE-1280-28)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

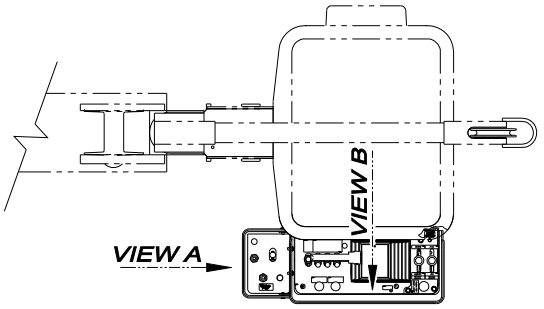
REV.





SECTION B-B

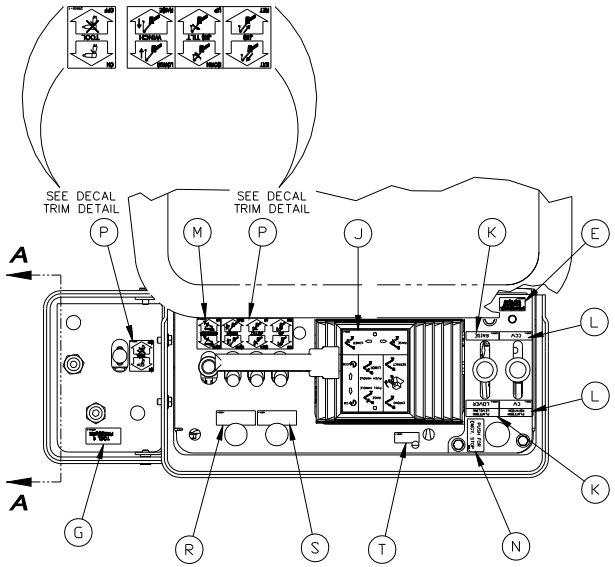
SCALE.....2X



DASH NO.	DESCRIPTION	OPTION
-1	DECAL KIT, 4-AXIS UPR CTRLS, TRUGUARD, SINGLE TOOL, W/JIB & WINCH ON SINGLE LIFT ELEVATOR	DE-1280-28

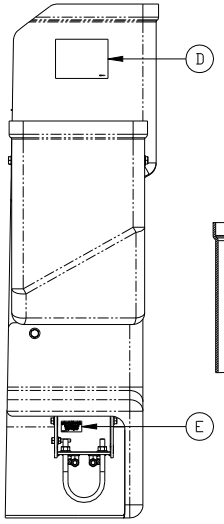
DECAL TRIM DETAIL

SCALE.....5X



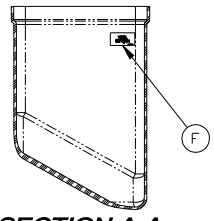
VIEW C

SCALE.....2.5X
R.H. SHOWN



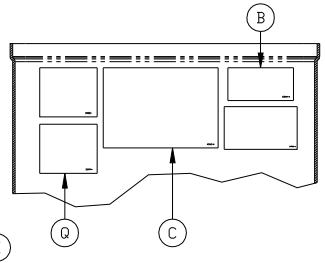
VIEW A

SCALE.....2X



SECTION A-A

SCALE.....2X



VIEW B

SCALE.....2X

QTY.	ITEM	PART NO.	DESCRIPTION
			LIST OF MATERIAL
-1			
1	U	1001485-3	DECAL, TRUGUARD FITTINGS
REF	T	10272-1	DECAL, ENGINE
REF	S	10274-1	DECAL, EMERGENCY POWER
REF	R	10273-1	DECAL, THROTTLE
1	Q	33974-1	DECAL, DANGER
1	P	29806-1	DECAL, ACCESSORY VALVE (RH)
1	N	8285-1	DECAL, EMERGENCY STOP
1	M	1001344-8	DECAL, UPPER CONTROLS
1	L	32851-1	DECAL, PLATFORM ROTATION
1	K	32855-1	DECAL, PLATFORM LEVELING
1	J	33363-1	DECAL, 4-AXIS SS CONTROL RH
1	H	1001298-1	DECAL, TRUGUARD
1	G	1000682-2	DECAL - TOOLS
1	F	1000682-1	DECAL - TOOLS
2	E	1000679-1	DECAL, DIELECTRIC TEST POINT
1	D	12340-1	DECAL, CONDUCTIVE HOSES
1	C	4542-4	DECAL, DANGER ELECTROCUTION, INSUL.
1	B	13144-1	DECAL, CAUTION LOWERING LOWER BOOM
1	A	1000658-DWG	DWG, 4-AXIS DECAL KIT TRUGUARD

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ----

DWN. BY	DATE
SPM	9/24/14
SIZE: B	SCALE: 1/18
LOCATION	MANUAL
-	
SHEET: 1 OF 1	

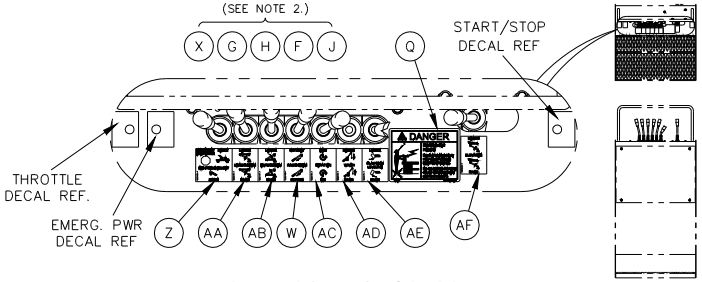
TITLE: 4-AXIS DECAL KIT TRUGUARD

DWG. NO. 1000658-DWG

SECTION 112

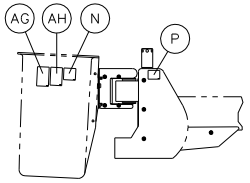
Decal Placement w/Jib & Winch on Single Arm Lift Elevator (Option DE-1280-29)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.



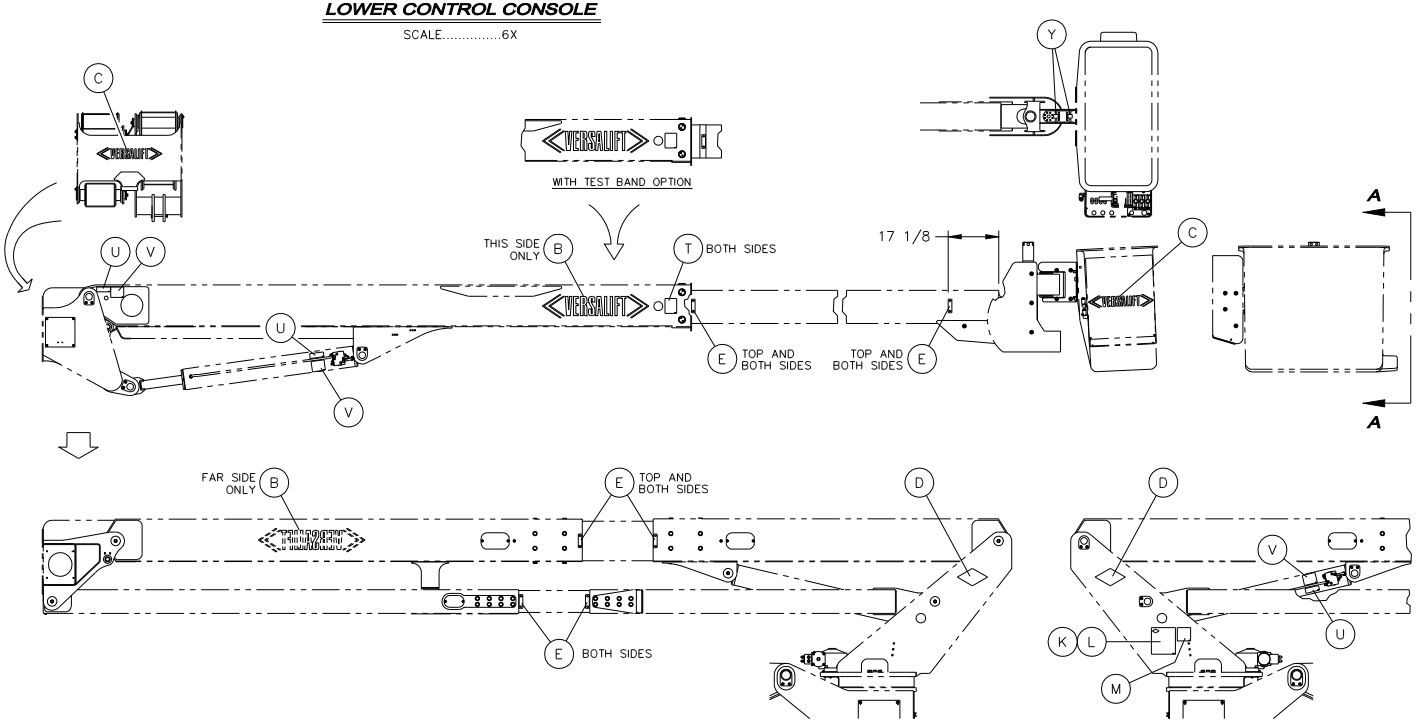
LOWER CONTROL CONSOLE

SCALE.....6X



VIEW A-A

NOTES:
1.) * INDICATES PART IS SHIPPED LOOSE.
2.) ITEMS "X", "G", "H", "F" AND "J" (OR REQ'D) ARE TO BE LOCATED BY INSTALLER NEAR LOWER CONTROLS AND VISIBLE BY OPERATOR.
3.) ITEM "S" TO BE LOCATED BY INSTALLER AT EACH CORNER OF TRUCK.
4.) ITEM "R" IS TO BE LOCATED BY INSTALLER NEAR RELIEF VALVE.



-1			
1	AH	4542-5	DECAL - CAUTION OPERATION
1	AG	4542-12	DECAL - DANGER QUALIFIED OPERATOR
* 1	AF	1005502-1	DECAL - LWR AND RAISE ELEV
* 1	AE	1000474-1	DECAL - LWR AND RAISE PLATFORM
* 1	AD	1000473-1	DECAL -LWR AND RAISE WINCH
* 1	AC	1000472-1	DECAL - CCW AND CW ROTATION
* 1	AB	1000147-1	DECAL - LWR AND RAISE OUTER BM
* 1	AA	1000470-1	DECAL - LWR AND RAISE LWR BM
* 1	Z	1000469-1	DECAL - UPPER AND LOWER CNTRLS
2	Y	30593-1	DECAL - LANYARD ATTACHMENT
REF	X	33565-1	DECAL - DANGER ELECTROCUTION
* 1	W	1000146-1	DECAL - RET AND EXT INNER BOOM
3	V	7500-1	DECAL - HOLDING VALVE
3	U	15732-1	DECAL - CAUTION EMGY LOWERING
2	T	16837-1	DECAL - DANGER INSPECTION HOLE
* 4	S	4542-2	DECAL - ELECTROCUTION
* 1	R	7584-1	DECAL - RELIEF ADJUSTMENT
* 1	Q	35409-1	DECAL - DANGER ELECTROCUTION
1	P	14014-1	DECAL - PLATFORM INSTRUCTION
1	N	14110-1	DECAL - ELECTROCUTION HAZARD
* 1	M	12337-1	DECAL - OWNER TRANFER
* 1	L	11099-1	DATA PLATE BACKING
* 1	K	8928-1	DATA PLATE
* 1	J	13144-1	DECAL - CAUTION LOWER BOOM
* 1	H	4542-4	DECAL - DANGER ELECTROCUTION
* 1	G	4542-5	DECAL - CAUTION OPERATION
* 1	F	4542-12	DECAL - DANGER QUALIFIED OPERATOR
16	E	5098-1	DECAL - INSULATED SECTION
2	D	426-011	VERSALIFT NAME PLATE
2	C	4541-1	DECAL - "VERSALIFT" (SMALL)
2	B	4541-2	DECAL - "VERSALIFT" (LARGE)
2	A	1005500-DWG	DECAL PLACEMENT DRAWING
QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

DASH NO.	DESCRIPTION	CODE
-1	DECAL PLACEMENT - WITH JIB AND WINCH - LIFT ON SINGLE ARM LIFT ELEVATOR	DE-1280-29

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 X ± .1
ANGLES ± 1° XX ± .03
XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL
FINISH

DWN. BY	DATE
NTR	10/9/14
SIZE	SCALE
B	1/40
EST WT #	MANUAL
	-
SHEET	DWG. NO.
1 OF 1	1005500-DWG

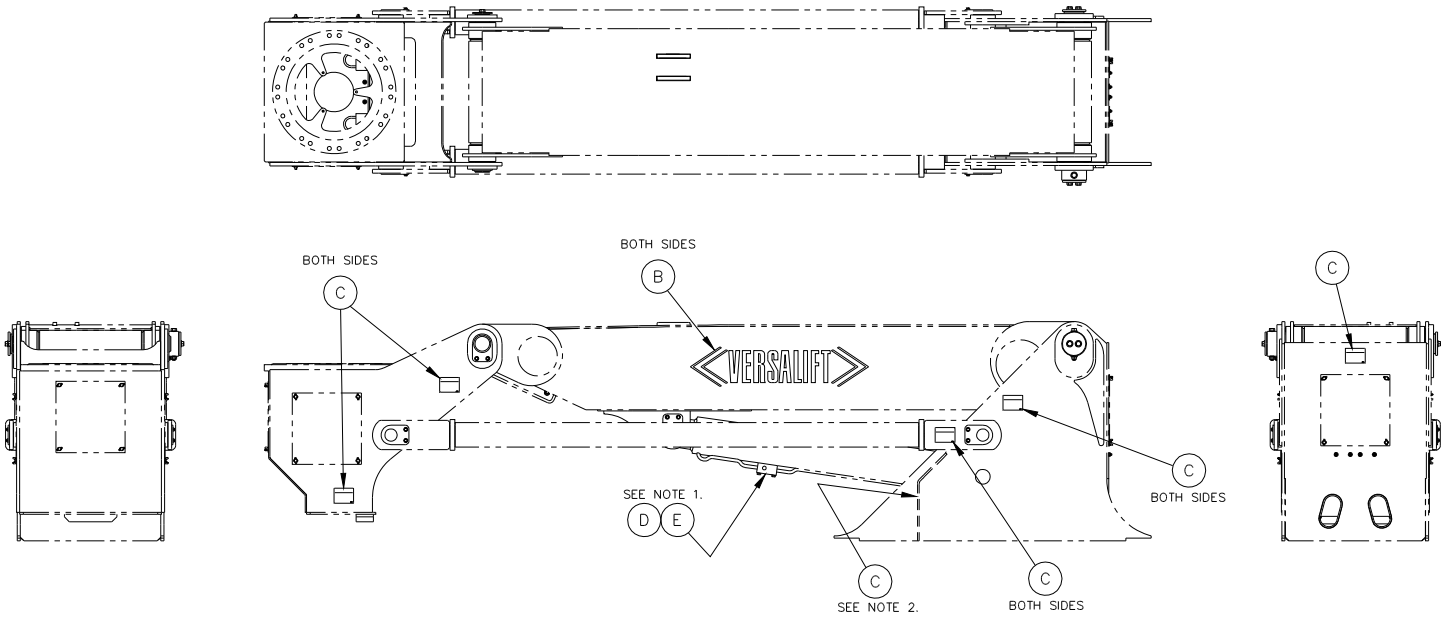
TITLE: DECAL PLACEMENT LIFT FOR SINGLE ARM LIFT ELEVATOR

SECTION 113

Decal Placement for Single Arm Lift Elevator (Option DE-1341-5)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

REV.



DASH NO.	DESCRIPTION	CODE
-1	DECAL PLACEMENT FOR SINGLE ARM LIFT ELEVATOR	DE-1341-5

-1

	QTY.	ITEM	PART NO.	DESCRIPTION
SEE NOTE 1.	1	E	15732-1	EMERGENCY LOWERING
SEE NOTE 1.	1	D	7500-1	DECAL - HOLDING VALVE
	10	C	34005-1	DECAL - PINCH POINT
	2	B	4541-2	DECAL - VERSALIFT LARGE
	1	A	1005501-DWG	DECAL PLACEMENT - SINGLE ELEV

LIST OF MATERIAL

NOTES:
1.) ITEMS "D" AND "E" ARE TO BE LOCATED NEAR ARM CYLINDER HOLDING VALVE.
2.) ITEM PLACE PINCH POINT DECAL (ITEM "C") ON PLATE BELOW ARM CYLINDER CUTOUT.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

FINISH

DWN. BY	DATE
NTR	10/9/14
SIZE	SCALE
B	1/24
EST WT #	MANUAL
	-
SHEET	
1 OF 1	

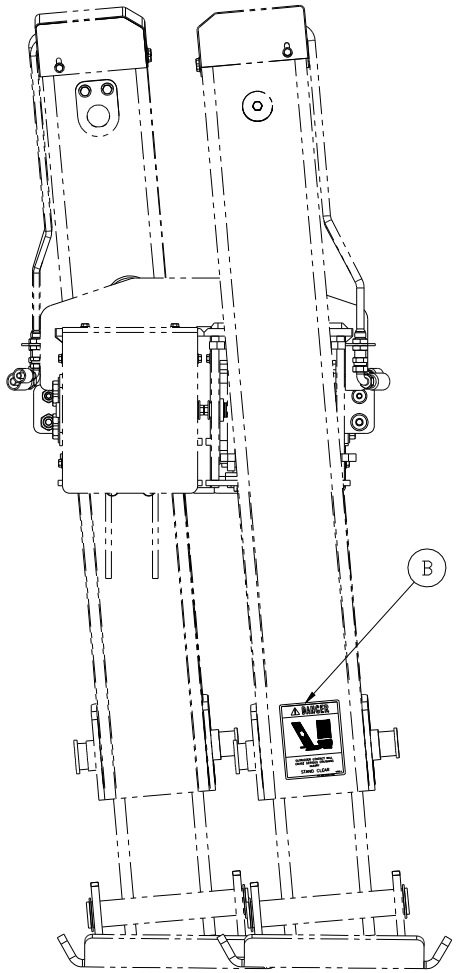
TITLE: DECAL PLCMNT FOR SINGLE ARM LIFT ELEVATOR

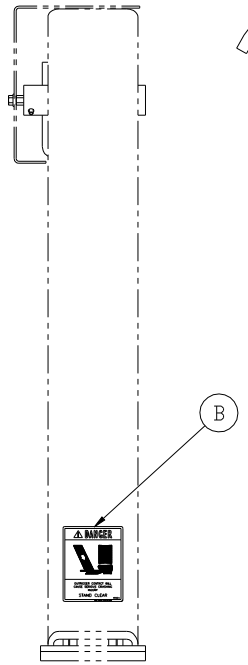
DWG. NO. 1005501-DWG

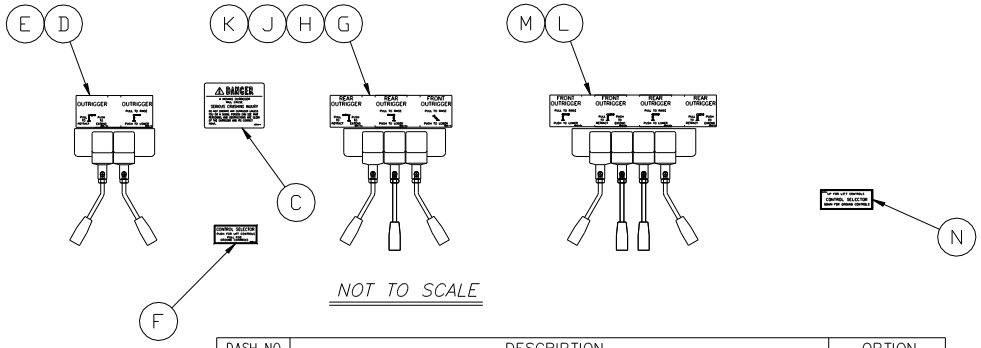
SECTION 114

Decal Kit 1 Set Out & Down 2 Spool w/Interlock (Option DE-1400-15)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.







NOT TO SCALE

DASH NO.	DESCRIPTION	OPTION
-1	DECAL KIT, 1 SET OUT & DOWN (2 SPOOL)	DE-1400-14
-2	DECAL KIT, 1 SET OUT & DOWN (2 SPOOL W/INTERLOCK)	DE-1400-15
-3	DECAL KIT, 1 SET OUT & DOWN, 1 SET STANDARD (3 SPOOL)	DE-1400-16
-4	DECAL KIT, 1 SET OUT & DOWN, 1 SET STANDARD (3 SPOOL W/INTERLOCK)	DE-1400-17
-5	DECAL KIT, 2 SETS OUT & DOWN (4 SPOOL)	DE-1400-18
-6	DECAL KIT, 2 SETS OUT & DOWN (4 SPOOL W/INTERLOCK)	DE-1400-19

* THESE ITEMS ARE TO BE SHIPPED LOOSE.

	-6	-5	-4	-3	-2	-1	ITEM	PART NO.	DESCRIPTION
*	1	-	1	-	1	-	N	8773-1	DECAL, LIFT/GROUND CONTROL
*	1	1	-	-	-	-	M	8845-12	DECAL, OUTRIGGER CONTROL
*	1	1	-	-	-	-	L	8845-11	DECAL, OUTRIGGER CONTROL
*	-	-	1	1	-	-	K	8845-10	DECAL, OUTRIGGER CONTROL
*	-	-	1	1	-	-	J	8845-9	DECAL, OUTRIGGER CONTROL
*	-	-	1	1	-	-	H	8845-8	DECAL, OUTRIGGER CONTROL
*	-	-	1	1	-	-	G	8845-7	DECAL, OUTRIGGER CONTROL
*	-	1	-	1	-	1	F	8400-3	DECAL, CONTROL SELECTOR
*	-	-	-	-	1	1	E	8845-14	DECAL, OUTRIGGER CONTROL
*	-	-	-	-	1	1	D	8845-13	DECAL, OUTRIGGER CONTROL
*	2	2	2	2	2	2	C	12341-1	DECAL, OUTRIGGER OPERATION
	4	4	4	4	2	2	B	4992-1	DECAL, CAUTION OUTRIGGERS
	2	2	2	2	2	2	A	39439-DWG	DWG, OUT & DOWN O/R DECAL KIT
	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ----

DWN. BY	DATE
KCM	12/21/11
SIZE: B	SCALE: 1/8
EST WT #:	MANUAL: -
SHEET: 1 OF 1	

TITLE: OUT AND DOWN OUTRIGGER DECAL KIT

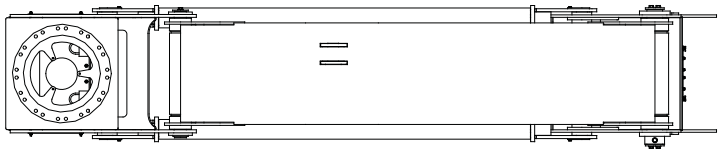
DWG. NO. 39439-DWG

SECTION 115

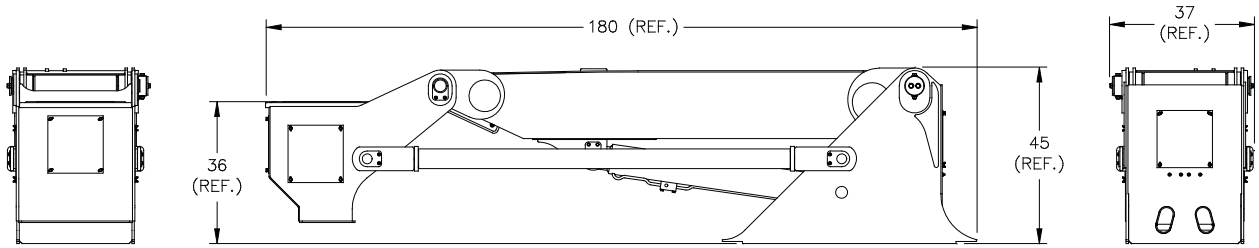
10 Ft Single Arm Lift Elevator Assembly (Option E-1341-5)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

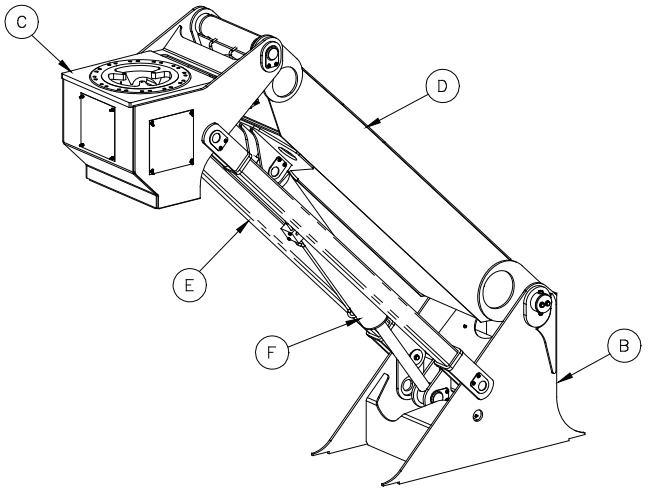
REV.



DASH NO.	DESCRIPTION	CODE
–1	10 FT. SINGLE ARM LIFT ELEVATOR ASSY	E–1341–5



STOWED VIEW



DIMETRIC VIEW

NOTES:
1.) * INDICATES PART IS SHIPPED LOOSE.
2.) ITEMS "G" AND "H" ARE USED TO SECURE ROTATION BEARING TO PEDESTAL TOP PLATE. TORQUE FASTENERS (ITEM "G") PER TMC778 AND APPLY TORQUE SEAL (ITEM "J").

	–1			
(NOT SHOWN SEE NOTE 2)	A/R	J	84006–2	TORQUE SEAL
(NOT SHOWN SEE NOTE 2) *	24	H	44013–4	3/4 HARDENED WASHER
(NOT SHOWN SEE NOTE 2) *	24	G	40104–12	3/4–NC X 2 3/4 LG. HHCS GR.8
	1	F	53067–1	CYLINDER ASSEMBLY, ELEV. ARM
	2	E	1000194–3	UPPER COMP LINK ASSEMBLY
	1	D	1000213–3	UPPER ARM ASSEMBLY
	1	C	1005446–1	PEDESTAL ASSEMBLY
	1	B	1005433–1	ELEVATOR BASE ASSEMBLY
	2	A	1005457–DWG	10 FT. LIFT ELEVATOR ASSEMBLY
	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

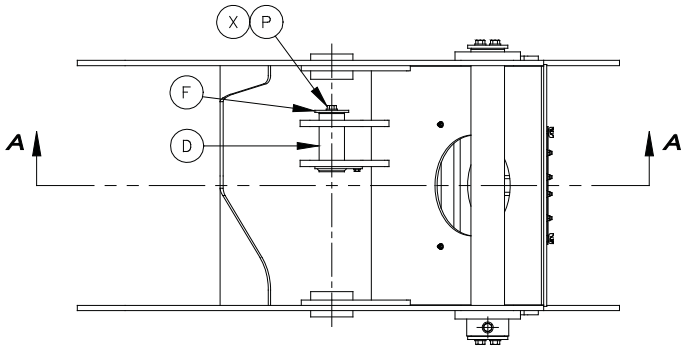
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125/
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

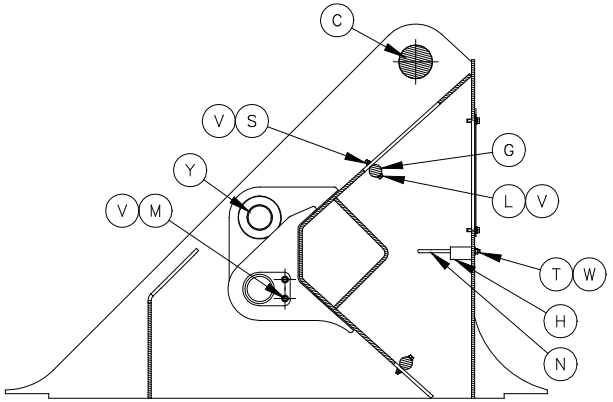
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL
FINISH

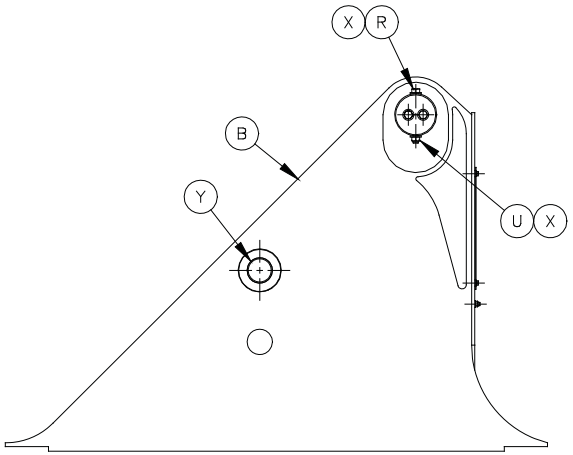
DWN. BY	DATE
NTR	10/1/14
SIZE	SCALE
B	1/30
EST WT #	MANUAL
	–
SHEET	
1 OF 1	

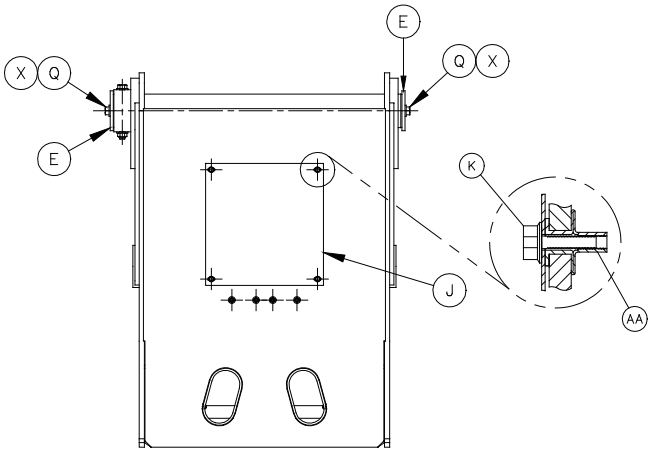
TITLE: 10 FT. LIFT ELEVATOR ASSEMBLY
DWG. NO. 1005457–DWG





SECTION A-A





NOTES:
1.) TORQUE FASTENERS (ITEMS "M","P","Q" AND "R") PER TMC778 AND APPLY TORQUE SEAL (ITEM "Z").

QTY.	ITEM	PART NO.	DESCRIPTION
		–1	
4	AA	48068–2	SLOTTED RIVET NUT
A/R	Z	84006–2	TORQUE SEAL
REF	Y	8441–8	BEARING
5	X	44013–1	5/8 HARDENED WASHER
4	W	44013–6	3/8 HARDENED WASHER
10	V	44013–5	5/16 HARDENED WASHER
1	U	42005–7	5/8–NC LOCKNUT
4	T	42005–3	3/8–NC LOCKNUT
4	S	42005–2	5/16–NC LOCKNUT
1	R	40007–21	5/8–NC X 6 LG HHCS
4	Q	40007–6	5/8–NC X 1 1/4 LG HHCS
1	P	40007–5	5/8–NC X 1 LG HHCS
2	N	8783–1	3/8–NC U–BOLT
2	M	40004–5	3/8–NC X 1 LG HHCS
4	L	40003–11	5/16–NC X 2 1/2 LG HHCS
4	K	40003–5	5/16–NC X 1 LG HHCS
1	J	1000897–1	PEDESTAL COVER
2	H	8712–4	HOSE SPACER
2	G	1000173–1	HOSE GUIDE
1	F	8065–1	WASHER
2	E	31705–1	PIN CAP
1	D	22184–2	PIN 3 DIA.
1	C	1000162–1	PIN 4 DIA.
1	B	1005434–1	BASE WELDMENT WITH BEARINGS
1	A	1005433–DWG	ELEVATOR BASE ASSEMBLY, DWG

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

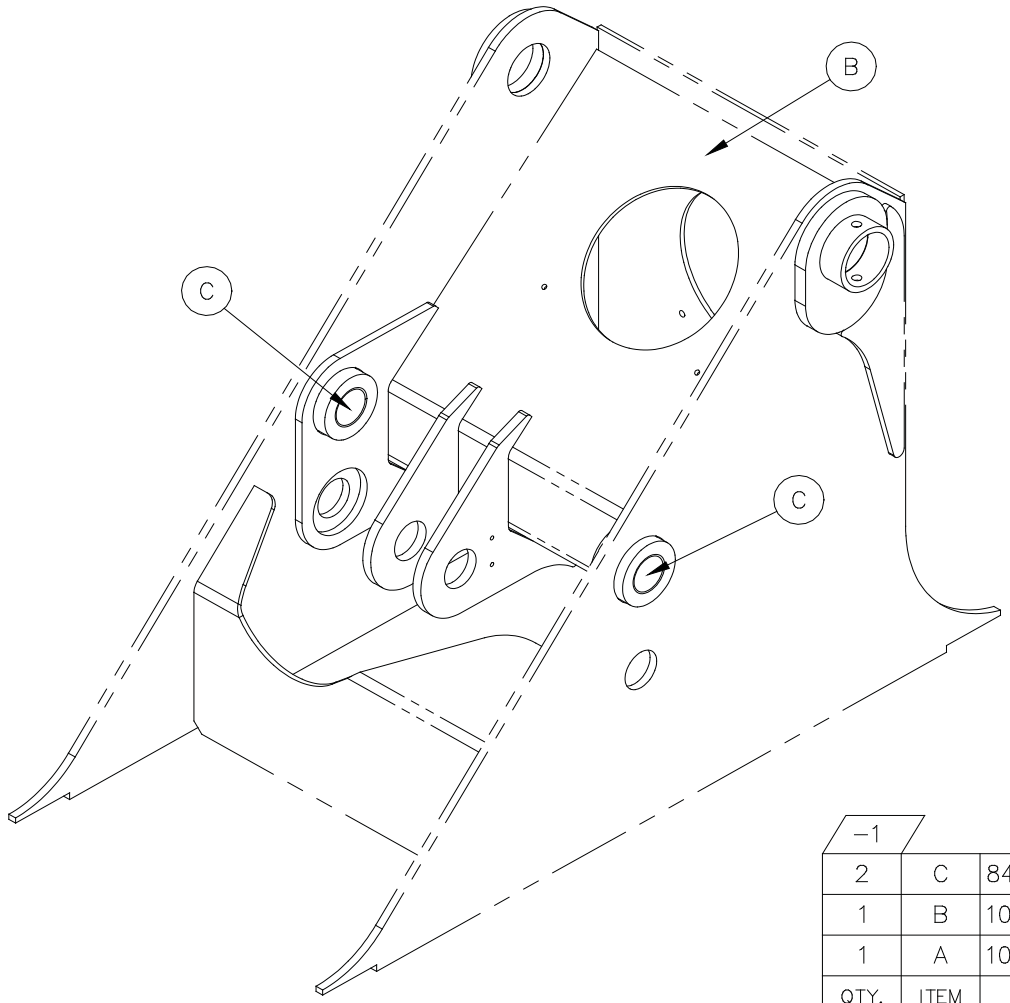
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ---

DWN. BY	DATE
NTR	10/1/14
SIZE	SCALE
B	1/14
EST WT #	MANUAL
	–
SHEET	
1 OF 1	

TITLE: ELEVATOR BASE ASSEMBLY
DWG. NO. 1005433–DWG

REV.



–1

QTY.	ITEM	PART NO.	DESCRIPTION
2	C	8441–8	BEARING
1	B	1005435–1	BASE WELDMENT
1	A	1005434–DWG	BASE WELDMENT WITH BEARINGS

LIST OF MATERIAL

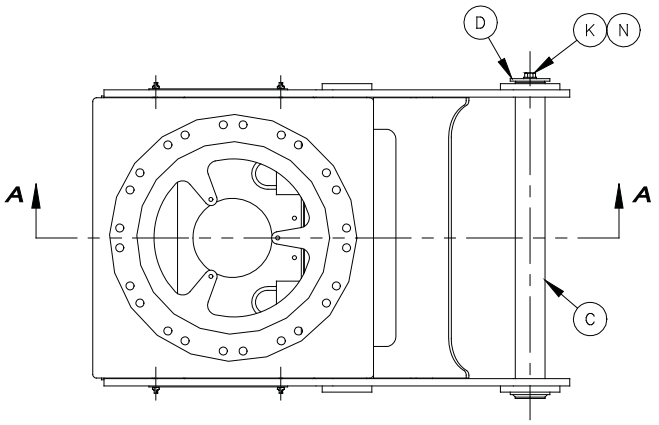
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

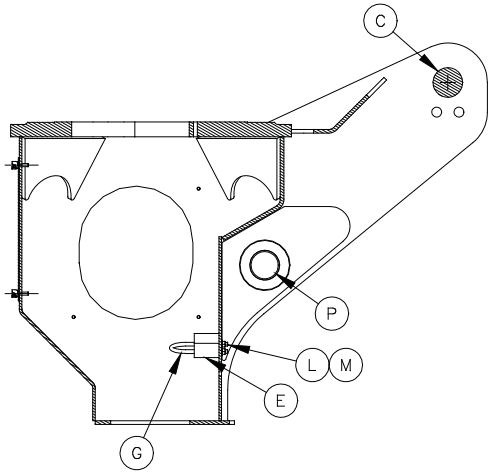
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ---

DWN. BY	DATE
NTR	10/1/14
SIZE	SCALE
A	1/12
EST WT #	MANUAL
1000	–
SHEET	
1 OF 1	

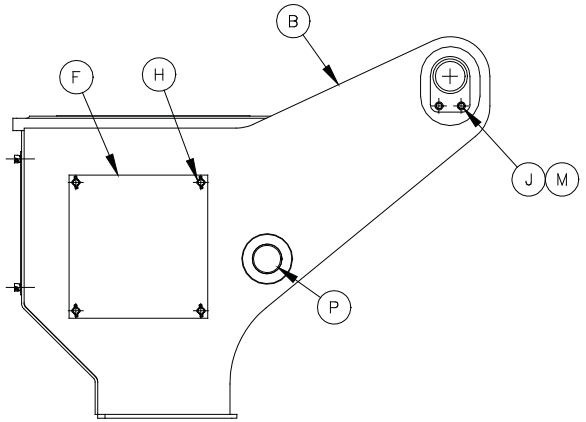
TITLE: BASE WELDMENT WITH BEARINGS
DWG. NO. 1005434–DWG

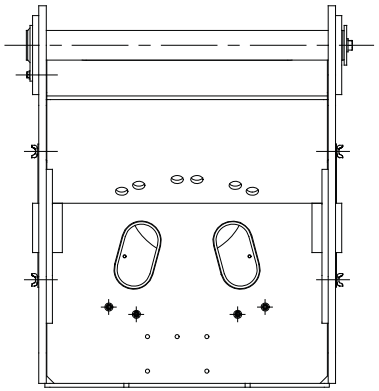




SECTION A-A

NOTES:
1.) TORQUE FASTENERS (ITEMS "J" AND "K") PER TMC778 AND APPLY TORQUE SEAL (ITEM "Q").





-1

QTY.	ITEM	PART NO.	DESCRIPTION
A/R	Q	84006-2	TORQUE SEAL
REF	P	8441-8	BEARING
1	N	44013-1	5/8 HARDENED WASHER
6	M	44013-6	3/8 HARDENED WASHER
4	L	42005-3	3/8-NC LOCKNUT
1	K	40007-5	5/8-NC X 1 LG HHCS
2	J	40004-5	3/8-NC X 1 LG HHCS
12	H	40177-1	WING SCREW, 5/16-18NC X 1/2L
2	G	8783-2	3/8-NC U-BOLT
3	F	1000897-1	PEDESTAL COVER
2	E	8712-1	HOSE SPACER
1	D	8065-1	WASHER
1	C	22184-8	PIN 3 DIA.
1	B	1005447-1	PEDESTAL WELDMENT WITH BEARINGS
1	A	1005446-DWG	PEDESTAL ASSEMBLY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

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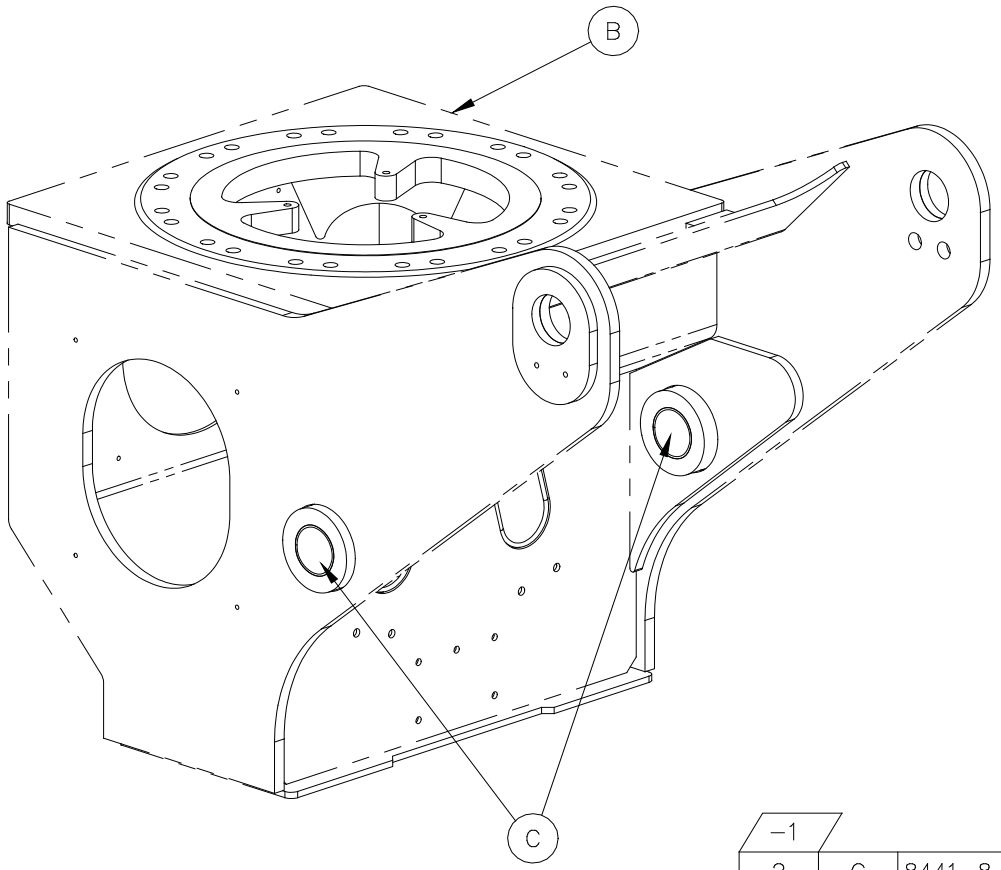
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ---

DWN. BY	DATE	TITLE
NTR	10/1/14	PEDESTAL ASSEMBLY
SIZE: B	SCALE: 1/12	
EST WT #:	MANUAL: –	
SHEET: 1 OF 1	DWG. NO.: 1005446-DWG	

REV.



-1

QTY.	ITEM	PART NO.	DESCRIPTION
2	C	8441-8	BEARING
1	B	1005448-1	PEDESTAL WELDMENT
1	A	1005447-DWG	PEDESTAL WELDMENT W/ BEARINGS

LIST OF MATERIAL

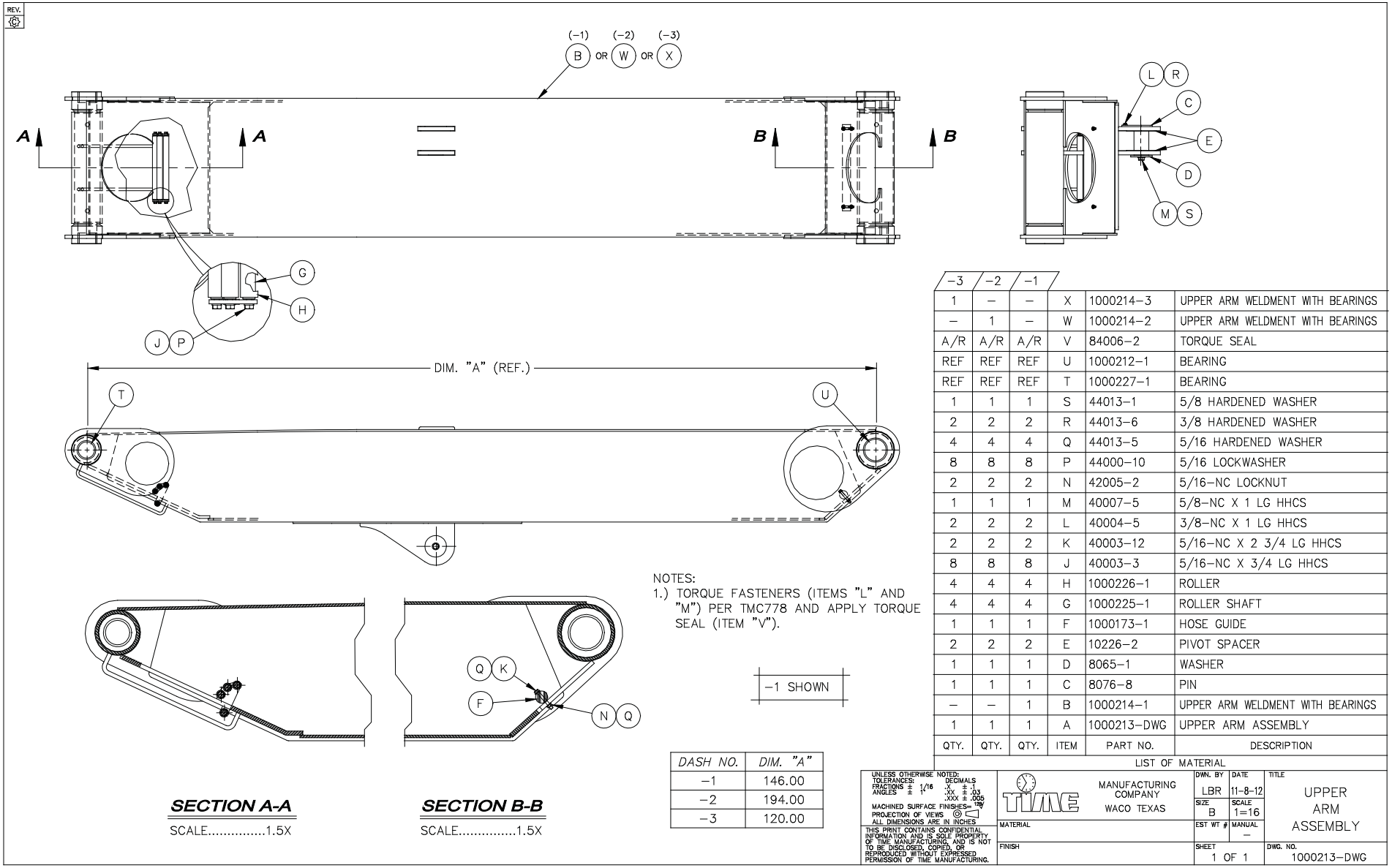
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ---

DWN. BY: NTR
DATE: 10/1/14
SIZE: A
SCALE: 1/10
EST WT #: 887
MANUAL: –
SHEET: 1 OF 1

TITLE: PEDESTAL WELDMENT WITH BEARINGS
DWG. NO.: 1005447-DWG



NOTES:
1.) TORQUE FASTENERS (ITEMS "L" AND "M") PER TMC778 AND APPLY TORQUE SEAL (ITEM "V").

-1 SHOWN

-3	-2	-1	ITEM	PART NO.	DESCRIPTION
1	–	–	X	1000214-3	UPPER ARM WELDMENT WITH BEARINGS
–	1	–	W	1000214-2	UPPER ARM WELDMENT WITH BEARINGS
A/R	A/R	A/R	V	84006-2	TORQUE SEAL
REF	REF	REF	U	1000212-1	BEARING
REF	REF	REF	T	1000227-1	BEARING
1	1	1	S	44013-1	5/8 HARDENED WASHER
2	2	2	R	44013-6	3/8 HARDENED WASHER
4	4	4	Q	44013-5	5/16 HARDENED WASHER
8	8	8	P	44000-10	5/16 LOCKWASHER
2	2	2	N	42005-2	5/16-NC LOCKNUT
1	1	1	M	40007-5	5/8-NC X 1 LG HHCS
2	2	2	L	40004-5	3/8-NC X 1 LG HHCS
2	2	2	K	40003-12	5/16-NC X 2 3/4 LG HHCS
8	8	8	J	40003-3	5/16-NC X 3/4 LG HHCS
4	4	4	H	1000226-1	ROLLER
4	4	4	G	1000225-1	ROLLER SHAFT
1	1	1	F	1000173-1	HOSE GUIDE
2	2	2	E	10226-2	PIVOT SPACER
1	1	1	D	8065-1	WASHER
1	1	1	C	8076-8	PIN
–	–	1	B	1000214-1	UPPER ARM WELDMENT WITH BEARINGS
1	1	1	A	1000213-DWG	UPPER ARM ASSEMBLY

LIST OF MATERIAL

DASH NO.	DIM. "A"
-1	146.00
-2	194.00
-3	120.00

SECTION A-A
SCALE.....1.5X

SECTION B-B
SCALE.....1.5X

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

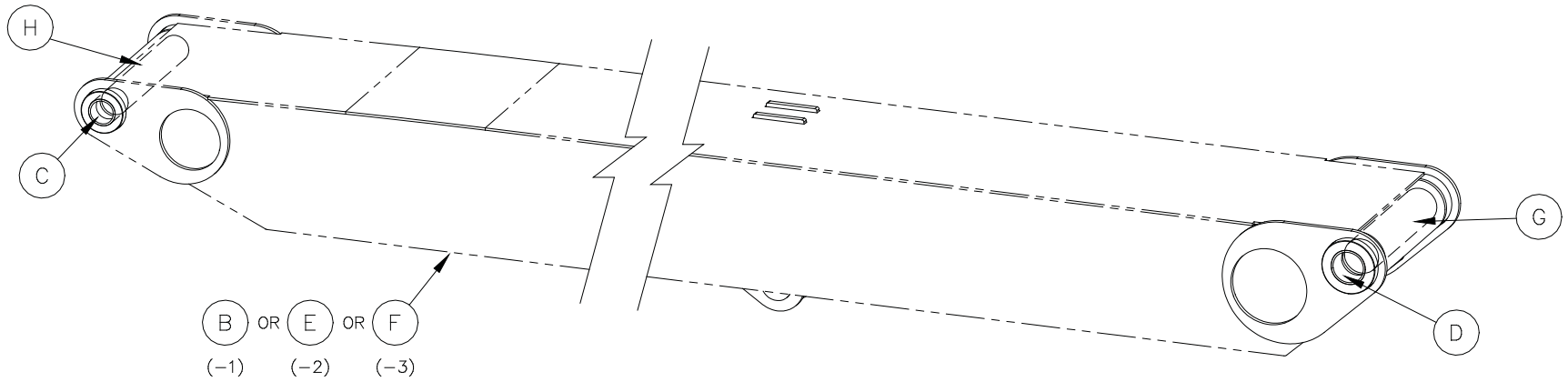
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL
FINISH

DWN. BY	DATE
LBR	11-8-12
SIZE	SCALE
B	1=16
EST WT #	MANUAL
–	
SHEET	DWG. NO.
1 OF 1	1000213-DWG

TITLE: UPPER ARM ASSEMBLY

REV. B



–3	–2	–1	ITEM	PART NO.	DESCRIPTION
1	1	1	H	1005456–1	PVC TUBE SDR 21
1	1	1	G	1005455–1	PVC TUBE 4.215 x 4.056
1	–	–	F	1000215–3	UPPER ARM WELDMENT
–	1	–	E	1000215–2	UPPER ARM WELDMENT
2	2	2	D	1000212–1	BEARING
2	2	2	C	1000227–1	BEARING
–	–	1	B	1000215–1	UPPER ARM WELDMENT
1	1	1	A	1000214–DWG	UPPER ARM WELDMENT WITH BEARINGS
QTY.	QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

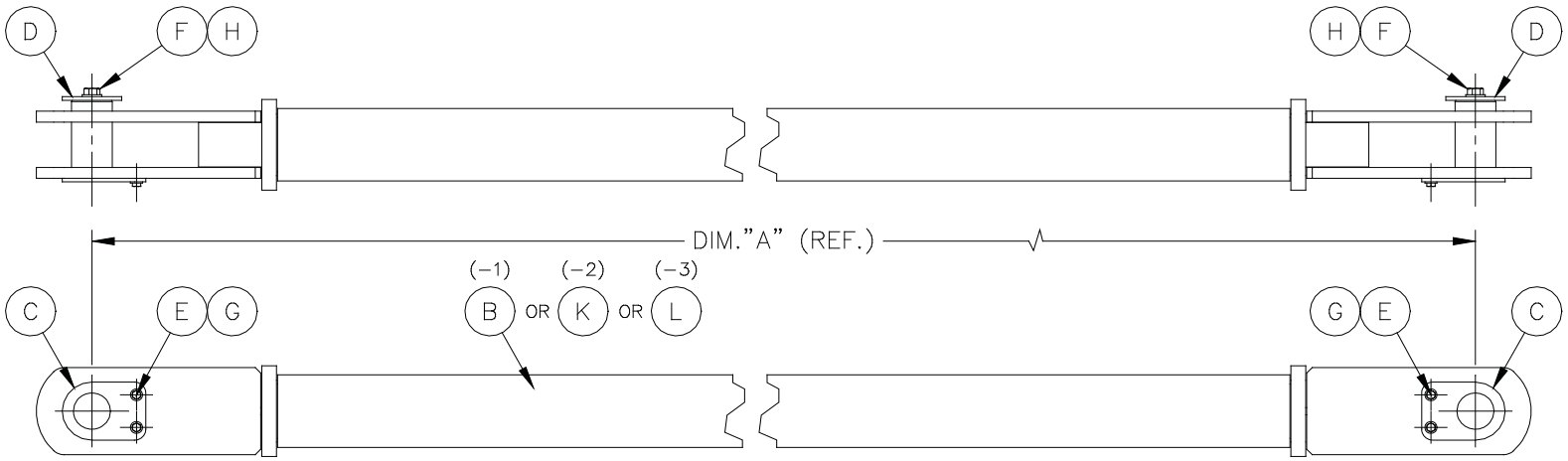
FINISH

DWN. BY	DATE
LBR	11-8-12
SIZE	SCALE
A	1=20
EST WT #	MANUAL
	–
SHEET	
1 OF 1	

TITLE: UPPER ARM WELDMENT WITH BEARINGS

DWG. NO. 1000214–DWG

REV. B



DASH NO.	DIM. "A"
-1	146
-2	194
-3	120

NOTES:
1.) TORQUE FASTENERS (ITEMS "E" AND "F") PER TMC778 AND APPLY TORQUE SEAL (ITEM "J").

LIST OF MATERIAL

-3 QTY.	-2 QTY.	-1 QTY.	ITEM	PART NO.	DESCRIPTION
1	–	–	L	1000195-3	UPPER COMP LINK WELDMENT
–	1	–	K	1000195-2	UPPER COMP LINK WELDMENT
A/R	A/R	A/R	J	84006-2	TORQUE SEAL
2	2	2	H	44013-1	5/8 HARDENED WASHER
4	4	4	G	44013-6	3/8 HARDENED WASHER
2	2	2	F	40007-5	5/8-NC X 1 LG HHCS
4	4	4	E	40004-5	3/8-NC X 1 LG HHCS
2	2	2	D	8065-1	WASHER
2	2	2	C	8076-8	PIN
–	–	1	B	1000195-1	UPPER COMP LINK WELDMENT
1	1	1	A	1000194-DWG	UPPER COMP LINK ASSEMBLY

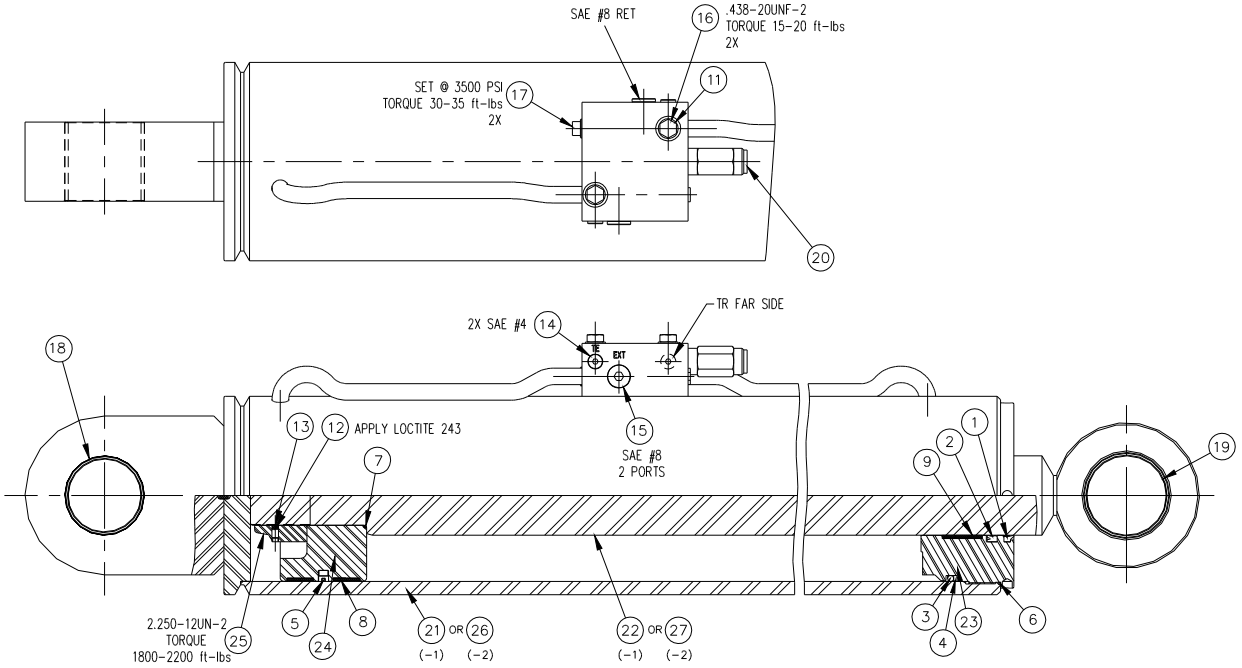
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

DWN. BY	DATE	TITLE
LBR	11-8-12	UPPER COMP LINK ASSEMBLY
SIZE: A	SCALE: 1=12	
MATERIAL	EST WT #	MANUAL: –
FINISH	SHEET: 1 OF 1	DWG. NO.: 1000194-DWG

REV. A

ELEVATOR ARM CYLINDER



NOTE:
1.) * INDICATES PARTS INCLUDED IN SEAL KIT.
2.) NSS (NOT SOLD SEPARATELY)

SERVICE PARTS

	ITEM	DESCRIPTION	TIME PART NO.	QTY
*	1	WIPER	NSS	1
*	2	SEAL	NSS	1
*	3	O-RING	NSS	1
*	4	BACK-UP	NSS	1
*	5	SEAL	NSS	1
*	6	O-RING	NSS	1
*	7	O-RING	NSS	1
*	8	WEAR RING	NSS	4
*	9	WEAR RING	NSS	3
	10	SEAL KIT	Y3558	1
	11	WASHER SEAL	Y1811	1
	12	SETSCREW	Y3561	1
	13	NYLON PLUG	Y1813	1
	14	PORT PLUG	Y2325	2
	15	PORT PLUG	Y2846	2
	16	BLEEDER PLUG	Y1816	2
	17	COUNTERBALANCE VALVE	Y2851	2
	18	BUSHING	8441-8	1
	19	BUSHING	22163-1	1
	20	RELIEF VALVE	Y3559	1
	21	TUBE ASSEMBLY	----	1
	22	ROD ASSEMBLY	----	1
	23	HEAD	Y1332	1
	24	PISTON	Y3560	1
	25	LOCKNUT (NYLON INSERT)	Y3481	1
	26	TUBE ASSEMBLY	----	1
	27	ROD ASSEMBLY	----	1

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

FINISH

DWN. BY	DATE
LBR	12-5-12
SIZE	SCALE
B	1=4.5
EST WT #	MANUAL
	-
SHEET	
2 OF 2	

TITLE: CYLINDER ASSEMBLY ELEVATOR ARM

DWG. NO. 53067-SEE ABOVE

REV. (A)

-39	-38	-37	-36	-35	-34	-33	-32	-31	-30	-29	-28	-27 (ET29LE-07)	-26 (ET21LEMS-07)	ITEM	PART NO.	DESCRIPTION
1	–	–	–	–	–	–	–	–	–	–	–	–	–	AH	11710-17	EXTENSION CYLINDER
–	1	–	–	–	–	–	–	–	–	–	–	–	–	AG	11710-16	EXTENSION CYLINDER
–	–	1	–	–	–	–	–	–	–	–	–	–	–	AF	11710-15	EXTENSION CYLINDER
–	–	–	1	–	–	–	–	–	–	–	–	–	–	AE	11710-14	EXTENSION CYLINDER
–	–	–	–	–	–	–	–	–	–	1	–	–	–	AD	11710-13	EXTENSION CYLINDER
–	–	–	–	1	1	1	1	1	1	–	1	–	–	AC	11710-12	EXTENSION CYLINDER
–	–	–	–	–	–	–	–	–	–	–	–	–	–	AB	54328-1	HOLDING VALVE
–	–	–	–	–	–	–	–	–	–	–	–	–	1	AA	11710-11	EXTENSION CYLINDER
–	–	–	–	–	–	–	–	–	–	–	–	1	–	Z	11710-10	EXTENSION CYLINDER
–	–	–	–	–	–	–	–	–	–	–	–	–	–	Y	11710-9	EXTENSION CYLINDER
–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	11710-8	EXTENSION CYLINDER
–	–	–	–	–	–	–	–	–	–	–	–	–	–	W	11710-7	EXTENSION CYLINDER
–	–	–	–	–	–	–	–	–	–	–	–	–	–	V	11710-6	EXTENSION CYLINDER
–	–	–	–	–	2	–	–	–	–	–	–	–	–	U	40003-12	5/16-18NC X 2-3/4 HHCS
–	–	–	–	–	1	–	–	–	–	–	–	–	–	T	54255-1	HOLDING VALVE WITH REGEN
2	2	2	2	2	–	–	–	–	–	–	–	–	–	S	50011-25	#4 M.SAE TO 3/8 M.JIC 90°
–	–	–	–	–	–	–	–	–	–	–	–	–	–	R	11710-5	EXTENSION CYLINDER
–	–	–	–	–	–	–	–	–	–	–	–	–	–	Q	11710-4	EXTENSION CYLINDER
–	–	–	–	–	–	2	2	–	–	–	–	–	–	P	50009-1	#4 M.SAE TO 1/4 M.JIC ADAPTER
2	2	2	2	2	–	2	2	–	–	–	–	–	–	O	40003-9	5/16-18NC X 2 HHCS
1	1	1	1	1	–	1	1	–	–	–	–	–	–	N	54112-3	COUNTER BALANCE VALVE
–	–	–	–	–	–	–	–	1	–	–	–	–	–	M	14278-1	CYLINDER SPACER
–	–	–	–	1	1	–	1	–	1	–	–	–	–	L	14025-1	CYLINDER ROD BRACKET
–	–	–	–	–	–	–	–	2	2	2	2	2	2	K	50009-3	#6 M.SAE TO 3/8 M.JIC ADAPTER
–	–	–	–	–	–	–	–	1	1	1	1	1	1	J	54123-1	HOLDING VALVE WITH REGEN
1	1	1	1	1	1	1	1	1	1	1	1	1	1	H	42005-8	3/4-10NC HEX LOCKNUT
2	2	2	2	2	2	2	2	2	2	2	2	2	2	G	44013-4	3/4 HARDENED WASHER
1	1	1	1	–	–	1	–	1	–	1	1	1	1	F	11712-1	CYLINDER ROD BRACKET
2	2	2	2	2	2	2	2	2	2	2	2	2	2	E	44013-5	5/16 HARDENED WASHER
–	–	–	–	–	–	–	–	2	2	2	2	2	2	D	40003-13	5/16-18NC X 3 HHCS
–	–	–	–	–	–	–	–	–	–	–	–	–	–	C	11710-3	EXTENSION CYLINDER
–	–	–	–	–	–	–	–	–	–	–	–	–	–	B	11710-2	EXTENSION CYLINDER
–	–	–	–	–	–	–	–	–	–	–	–	–	–	A	11710-1	EXTENSION CYLINDER
QUANTITY														ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

NOTES:
1. TORQUE BOLTS (ITEMS "D", "O" OR "U") TO 14 FT-LBS.
2. 12166-1XP REQUIRES SPECIAL PROCESSING TO PROVIDE DEFECT-FREE WELDS EXCEEDING AWS D1.1 REQUIREMENTS (SUITABLE FOR RADIOGRAPHIC INSPECTION). ALL DASH NUMBERS CAN BE CONVERTED TO -XP NUMBERS, RESPECTIVELY.
3. 12166-1SH REQUIRES SPECIAL HANDLING TO PROVIDE ADDITIONAL MANUFACTURING LEAD TIME FOR VISUAL INSPECTION. ALL DASH NUMBERS CAN BE CONVERTED TO -SH NUMBERS, RESPECTIVELY.
4. SEE CHARTS ON SHEET 3.
5. TORQUE ALL OTHER FASTENERS PER TORQUE CHART (TMC-778).

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

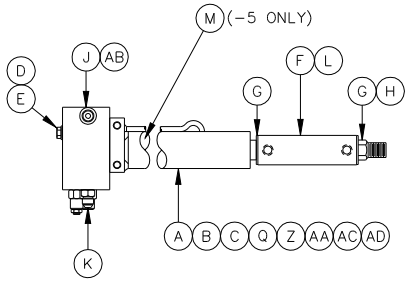
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.

TIME MANUFACTURING COMPANY WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: - - - - -

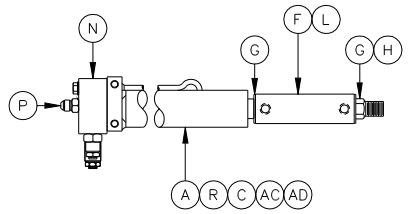
DWN. BY	DATE	TITLE
PD	12/30/92	EXTENSION CYLINDER ASSEMBLY
SIZE: B	SCALE: 1/6	
EST WT #:	MANUAL: -	
SHEET: 2 OF 3	DWG. NO.: 12166-SEE ABOVE	

REV. AB

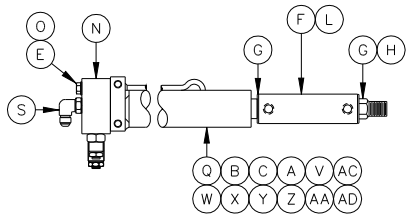


-1, -2, -3, -4, -5, -8, -26, -27
-28, -29, -30 & -31

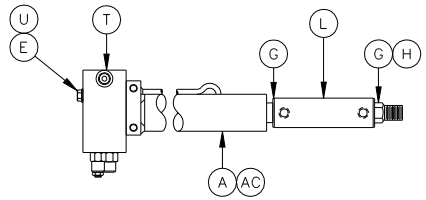
-24 & -25 SIMILAR TO -1 & -2



-6, -7, -9, -17, -32 & -33



-10, -11, -12, -13, -15, -18,
-19, -20, -21, -22, -23, -35
-36, -37, -38 & -39



-14 & -34

DASH NO.	APPROVED VENDOR	VENDOR PART NO.	APPROVED VENDOR	VENDOR PART NO.
-1	TEXAS HYDRAULICS	S14116016FFAZ	TEMPLE MACHINE SHOP	SPI5116016S-A
-2	TEXAS HYDRAULICS	S14092016FFCZ	- - - -	- - - -
-3	TEXAS HYDRAULICS	S14104016FFBZ	TEMPLE MACHINE SHOP	
-4	TEXAS HYDRAULICS	S14116016FFCZ	TEMPLE MACHINE SHOP	
-5	TEXAS HYDRAULICS	S14107416FFAZ	TEMPLE MACHINE SHOP	
-6	TEXAS HYDRAULICS	S14116016FFHZ	TEMPLE MACHINE SHOP	
-7	TEXAS HYDRAULICS	S14116016FFFZ	TEMPLE MACHINE SHOP	
-8	TEXAS HYDRAULICS	S14068016FFAZ	- - - -	- - - -
-9	TEXAS HYDRAULICS	S14092016FFAZ	- - - -	- - - -
-10	TEXAS HYDRAULICS	S14068016FFBZ	- - - -	- - - -
-11	TEXAS HYDRAULICS	S14092016FFBZ	- - - -	- - - -
-12	TEXAS HYDRAULICS	S14104016FFAZ	- - - -	- - - -
-13	TEXAS HYDRAULICS	S14116016FFEZ	- - - -	- - - -
-14	TEXAS HYDRAULICS	S14116016FFBZ	TEMPLE MACHINE SHOP	
-15	TEXAS HYDRAULICS	S14116016FFGZ	TEMPLE MACHINE SHOP	SP15116016S-D
OBSOLETE -16	TEXAS HYDRAULICS	S14116016FFEZ	- - - -	- - - -
-17	TEXAS HYDRAULICS	S14104016FFCZ	- - - -	- - - -
-18	TEXAS HYDRAULICS	S14092016FHDZ	- - - -	- - - -
-19	TEXAS HYDRAULICS	S14104016FFDZ	- - - -	- - - -
-20	TEXAS HYDRAULICS	S14085016FHAZ	- - - -	- - - -
-21	TEXAS HYDRAULICS	S14097016FHAZ	- - - -	- - - -
-22	TEXAS HYDRAULICS	S14109016FHAZ	- - - -	- - - -
-23	TEXAS HYDRAULICS	S14061016FHAZ	- - - -	- - - -
-24	TEXAS HYDRAULICS	S14116016FFJZ	- - - -	- - - -
-25	TEXAS HYDRAULICS	S14092016FHGZ	- - - -	- - - -

DASH NO.	APPROVED VENDOR	VENDOR PART NO.	APPROVED VENDOR	VENDOR PART NO.
-26	TEXAS HYDRAULICS	S14061016FHBZ	- - - -	- - - -
-27	TEXAS HYDRAULICS	S14109016FHBZ	- - - -	- - - -
-28	TEXAS HYDRAULICS	S14116016FFAZ	- - - -	- - - -
-29	TEXAS HYDRAULICS	S14104016FFBZ	- - - -	- - - -
-30	TEXAS HYDRAULICS	S14116016FFCZ	- - - -	- - - -
-31	TEXAS HYDRAULICS	S14107416FFAZ	- - - -	- - - -
-32	TEXAS HYDRAULICS	S14116016FFHZ	- - - -	- - - -
-33	TEXAS HYDRAULICS	S14116016FFFZ	- - - -	- - - -
-34	TEXAS HYDRAULICS	S14116016FFBZ	- - - -	- - - -
-35	TEXAS HYDRAULICS	S14116016FFGZ	- - - -	- - - -
-36	TEXAS HYDRAULICS	.	- - - -	- - - -
-37	TEXAS HYDRAULICS	.	- - - -	- - - -
-38	TEXAS HYDRAULICS	.	- - - -	- - - -
-39	TEXAS HYDRAULICS	.	- - - -	- - - -

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS:
ALL DIMENSIONS ARE IN INCHES

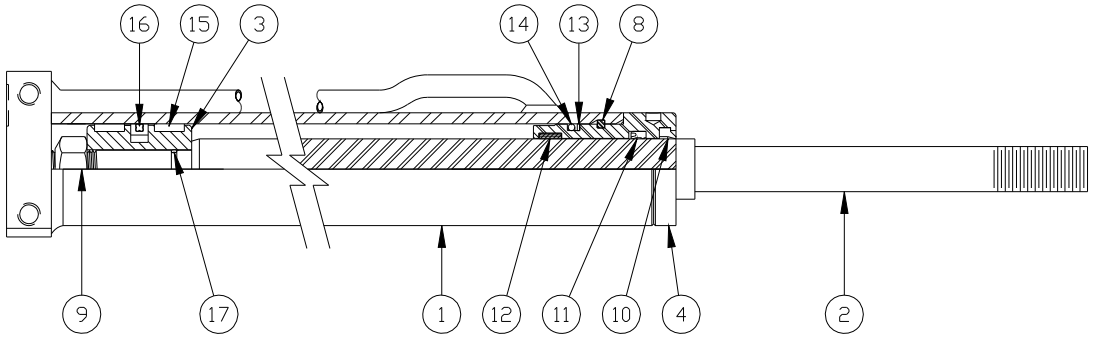
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE SHEET 1
FINISH: - - - - -

DWN. BY	DATE
PD	12/30/92
SIZE	SCALE
B	1/6
EST WT #	MANUAL
-	-
SHEET	
3 OF 3	

TITLE: EXTENSION CYLINDER ASSEMBLY
DWG. NO.: 12166-SEE ABOVE

REV.



SERVICE PARTS				
	ITEM	PART DESCRIPTION	TIME PART NO	QTY
	1	TUBE ASSEMBLY	–	1
	2	ROD	–	1
	3	PISTON	X527–346	1
	4	HEAD	X527–345	1
	5			
	6			
	7			
	8	RETAINING RING	X527–194	1
	9	LOCK–NUT	X527–344	1
*	10	WIPER	NSS	1
*	11	U–CUP	NSS	1
*	12	WEAR RING	NSS	2
*	13	BACK–UP	NSS	1
*	14	O–RING	NSS	1
*	15	WEAR RING	NSS	1
*	16	AQ SEAL ASSY	NSS	1
*	17	O–RING	NSS	1
	18	SEAL KIT	X527–351	

*NSS (Not Sold Separately)

TEXAS HYDRAULICS

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS; FRACTIONS ± 1/16 .X ± .1; ANGLES ± 1° .XX ± .03; .XXX ± .005; MACHINED SURFACE FINISHES= 125; PROJECTION OF VIEWS; ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY JBS	DATE 10/5/92	TITLE EXTENSION CYLINDER ASSEMBLY
		SIZE B	SCALE 1/2	
	MATERIAL N/A	EST WT #	MANUAL –	
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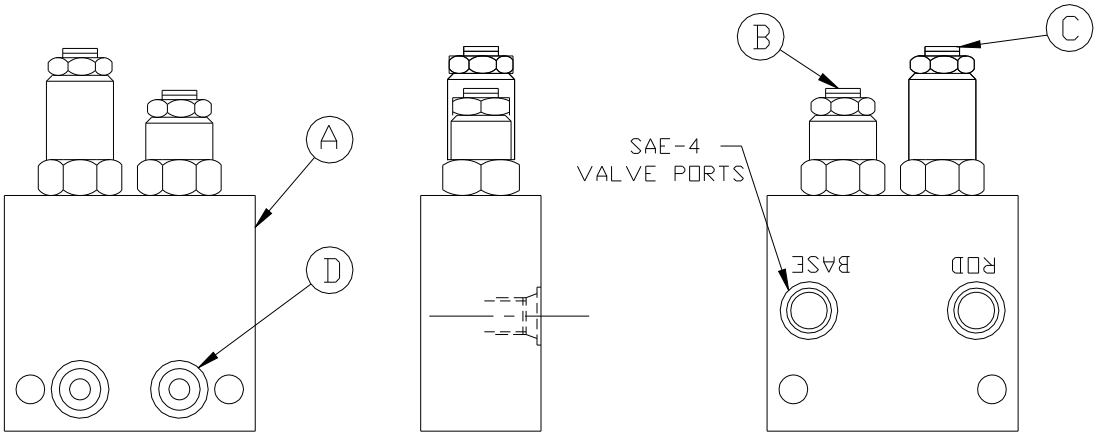
REV. B



-3 QTY.	-1 QTY.	ITEM	PART NO.	DESCRIPTION
2	2	D	58021-112	O-RING
2	1	C	54118-3	COUNTERBALANCE VALVE
-	1	B	54118-2	COUNTERBALANCE VALVE
1	1	A	54112-2	HOLDING VALVE BODY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

FINISH

DWN. BY	DATE
PD	10-13-92
SIZE	SCALE
A	1/2
LOCATION	MANUAL
V	–
SHEET	
2 OF 2	

TITLE: DOUBLE COUNTERBALANCE VALVE ASSEMBLY

DWG. NO. 54112-DWG

CYLINDERS

SECTION 116

Emergency Power Insulated 12 VDC (Option EP-1340-4)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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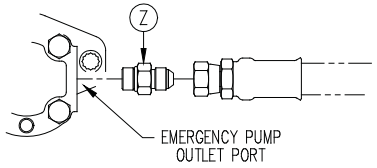
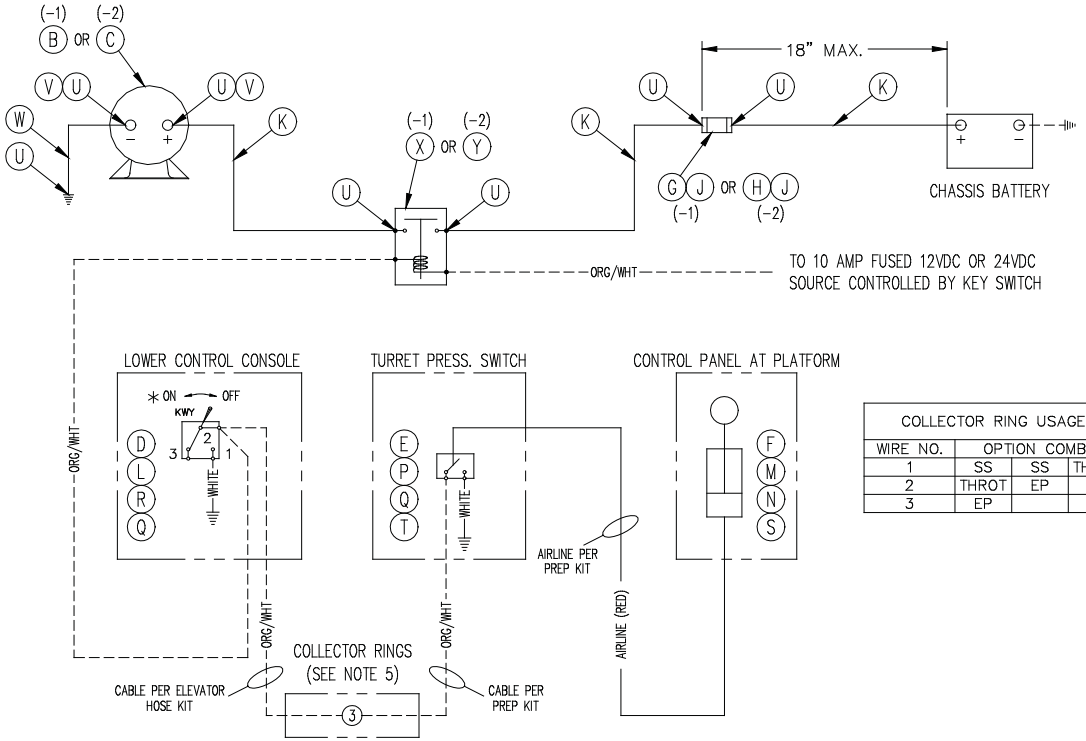
REV. B

NOTES:
1.) ALL WIRING 18 AWG MINIMUM UNLESS NOTED.
2.) RELAYS ARE SHOWN IN THE NON-ENERGIZED POSITION.
3.) DASHED WIRING RUNS INDICATE INSTALLER SUPPLIED OR EXISTING CHASSIS OR UNIT WIRING.
4.) * INDICATES MOMENTARY POSITION OF TOGGLE SWITCH.
5.) WIRE NUMBERS SHOWN AT COLLECTOR RINGS ARE EXAMPLES ONLY. REFER TO "COLLECTOR RING USAGE CHART" FOR ACTUAL WIRE NUMBERS BASED ON OPTION COMBINATIONS.
6.) ** INDICATES ITEMS TO BE SHIPPED LOOSE.
7.) ALL HOSE AND FITTING TO INSTALL ITEMS "B" AND "C" TO BE SUPPLIED BY INSTALLER. REFER TO "JIC SCHEMATIC" FOR ADDITIONAL INFORMATION.

DASH NO.	DESCRIPTION	CODE
-1	EMERGENCY POWER INSULATED 12VDC	EP-1340-4
-2	EMERGENCY POWER INSULATED 24VDC	EP-1340-5





COLLECTOR RING USAGE CHART				
WIRE NO.	OPTION COMBINATIONS			
1	SS	SS	THROT	EP
2	THROT	EP	EP	
3	EP			

	-2	-1	ITEM	PART NO.	DESCRIPTION
**	1	1	Z	54268-6	CHECK VALVE IN-LINE
**	1	–	Y	68034-10	SOLENOID SWITCH (24VDC)
**	–	1	X	68034-11	SOLENOID SWITCH (12VDC)
**	2 FT.	2 FT.	W	61007-2-BLK	00 AWG WELDING CABLE (BLK)
**	2	2	V	68176-3	TERMINAL INSULATOR
**	7	7	U	68046-5	00 AWG RING TERM 3/8 STUD
	1	1	T	50065-1	1/8 NPT MALE 90° ELBOW - BRASS
	1	1	S	50105-1	1/8 NPT MALE CONN - BRASS
**	1	1	R	3051-2	SWITCH GUARD
	2 FT.	2 FT.	Q	61003-11-WHT	14 AWG WIRE - WHITE
	1	1	P	12596-1	AIR SWITCH BOOT
	1	1	N	80000-3	KNOB
	1	1	M	10274-1	DECAL, EMERGENCY POWER
**	1	1	L	10310-1	DECAL, EMERGENCY POWER
**	10 FT.	10 FT.	K	61007-2-RED	00 AWG WELDING CABLE (RED)
**	1	1	J	68144-2	FUSE HOLDER
**	1	–	H	68144-5	150 AMP FUSE
**	–	1	G	68144-3	300 AMP FUSE
	1	1	F	4383-1	AIR CYLINDER
	1	1	E	60015-1	LO-PRESSURE SWITCH
**	1	1	D	60002-8	TOGGLE SWITCH
**	1	–	C	56005-1	MOTOR-PUMP (24VDC)
**	–	1	B	28889-1	MOTOR-PUMP (12VDC)
	2	2	A	1000926-DWG	EMERGENCY PWR INSTALLATION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16 DECIMALS .X ± .1 .XX ± .03 .XXX ± .005 ANGLES ± 1° MACHINED SURFACE FINISHES 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY WACO TEXAS

MATERIAL

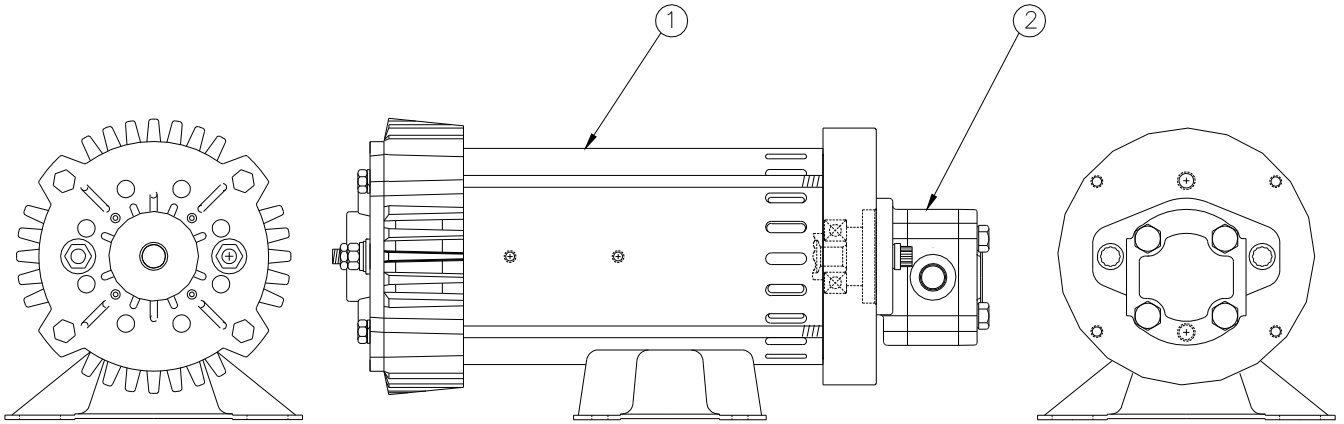
FINISH

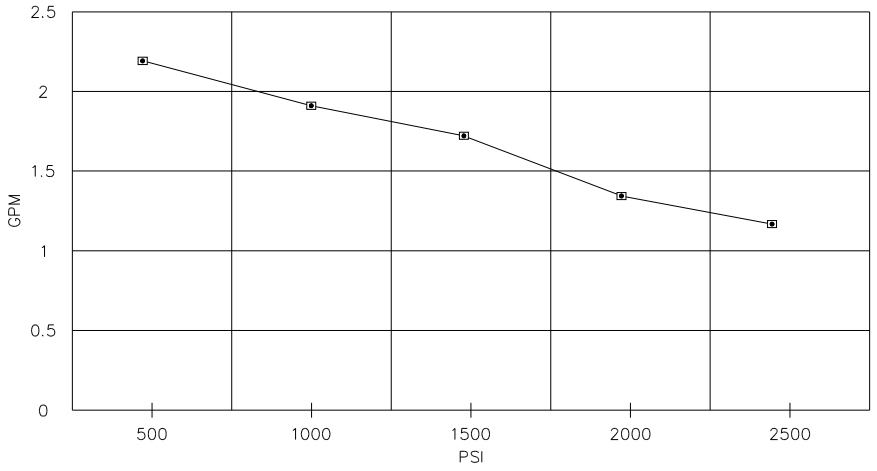
DWN. BY: LBR | DATE: 11-30-12 | SIZE: B | SCALE: 1=3 | EST WT #: | MANUAL: – | SHEET: 1 OF 1

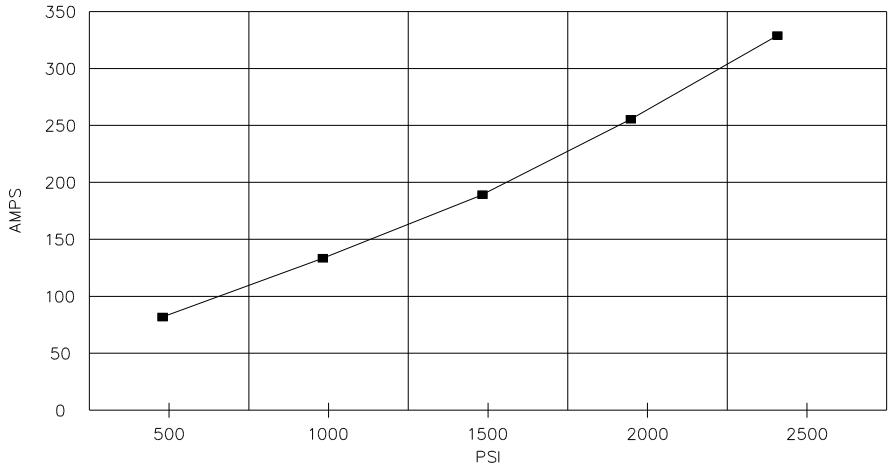
TITLE: EMERGENCY PWR INSTALLATION (INSULATED)

DWG. NO. 1000926-DWG

REV.







SCOTT DC POWER PRODUCTS

SERVICE PARTS			
ITEM SEE SHT.2	PART DESCRIPTION	TIME PART NO.	QTY.
1	MOTOR, COMPLETE	Y1872	1
2	PUMP, COMPLETE	Y1873	1
3	BRUSH SERVICE KIT	Y1874	1

BUCHER HYDRAULICS

SERVICE PARTS			
ITEM SEE SHT.2	PART DESCRIPTION	TIME PART NO.	QTY.
1	MOTOR, COMPLETE	–	–
2	PUMP, COMPLETE	Y3444	1
3	BRUSH SERVICE KIT	–	–

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: – – – – –

DWN. BY: BFC
DATE: 12/12/01
SIZE: B
SCALE: 1/3
EST WT #:
MANUAL: –
SHEET: 2 OF 2

TITLE: MOTOR / PUMP ASSY 12V DC
DWG. NO.: 28889–1

SECTION 117

Electrical Test Bands
(Option ET-1280-1)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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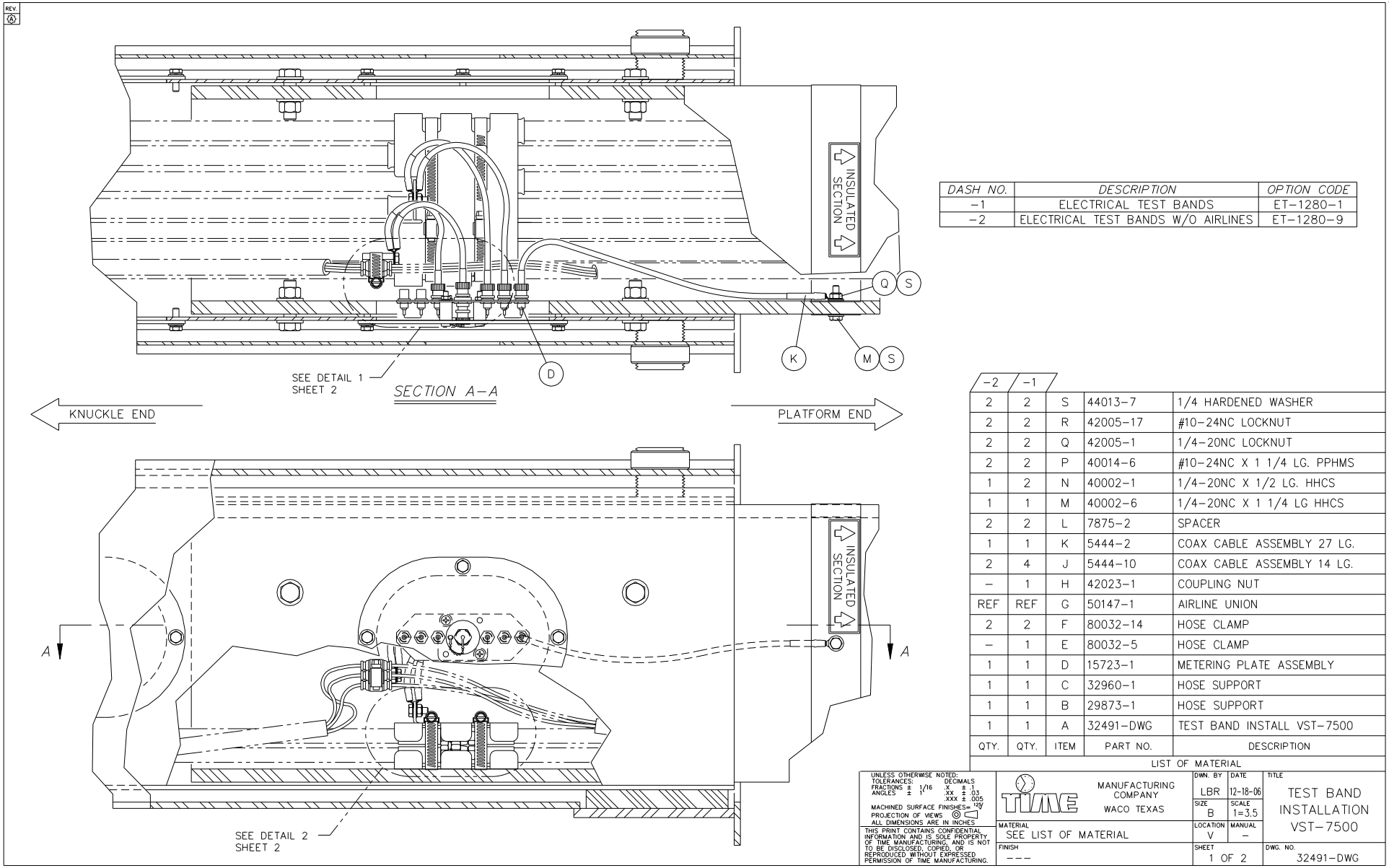


DASH NO.	DESCRIPTION	OPTION CODE
–1	ELECTRICAL TEST BANDS	ET–1280–1
–2	ELECTRICAL TEST BANDS W/O AIRLINES	ET–1280–9

–2	–1	ITEM	PART NO.	DESCRIPTION
2	2	S	44013–7	1/4 HARDENED WASHER
2	2	R	42005–17	#10–24NC LOCKNUT
2	2	Q	42005–1	1/4–20NC LOCKNUT
2	2	P	40014–6	#10–24NC X 1 1/4 LG. PPHMS
1	2	N	40002–1	1/4–20NC X 1/2 LG. HHCS
1	1	M	40002–6	1/4–20NC X 1 1/4 LG HHCS
2	2	L	7875–2	SPACER
1	1	K	5444–2	COAX CABLE ASSEMBLY 27 LG.
2	4	J	5444–10	COAX CABLE ASSEMBLY 14 LG.
–	1	H	42023–1	COUPLING NUT
REF	REF	G	50147–1	AIRLINE UNION
2	2	F	80032–14	HOSE CLAMP
–	1	E	80032–5	HOSE CLAMP
1	1	D	15723–1	METERING PLATE ASSEMBLY
1	1	C	32960–1	HOSE SUPPORT
1	1	B	29873–1	HOSE SUPPORT
1	1	A	32491–DWG	TEST BAND INSTALL VST–7500

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

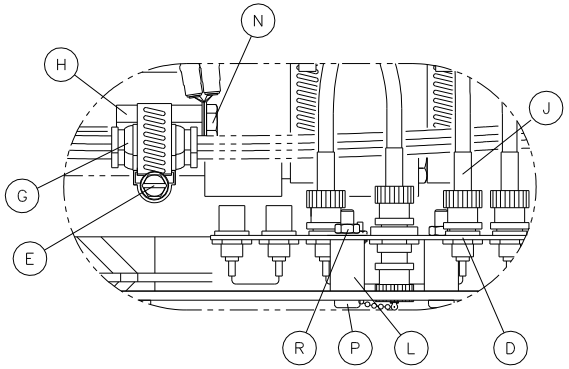
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ---

DWN. BY	DATE
LBR	12-18-06
SIZE: B	SCALE: 1=3.5
LOCATION: V	MANUAL: –
SHEET: 1 OF 2	

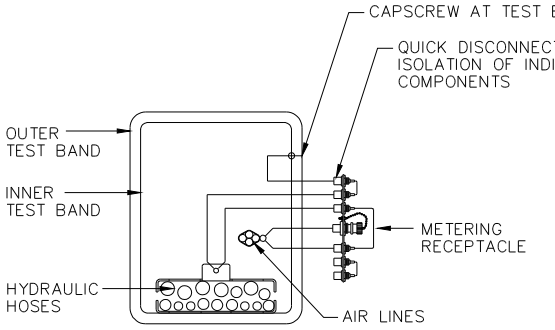
TITLE: TEST BAND INSTALLATION VST–7500
DWG. NO.: 32491–DWG

REV. 0



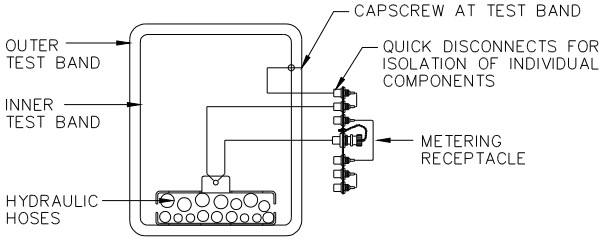
DETAIL 1

SCALE.....2X



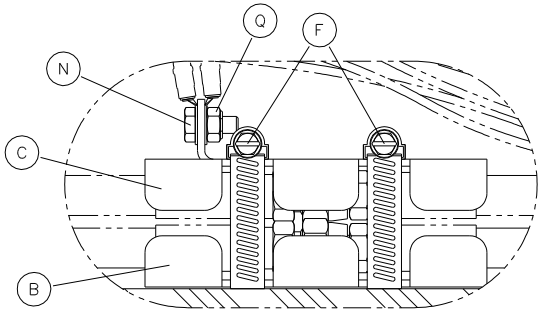
-1 ELECTRICAL DIAGRAM

SCALE.....NONE



-2 WITHOUT AIRLINES

SCALE.....NONE



DETAIL 2

SCALE.....2X

NOTES:
1.) COMPONENTS SHOWN ARE INSTALLED IN INNER BOOM ASSEMBLY.
2.) SHOWN WITH BOOMS IN STOWED POSITION.
3.) HOSE UNIONS MUST NOT TOUCH STEEL BOOM SECTION OR MONITORING BANDS.
4.) INSTALL AIRLINE UNIONS (ITEM "G"). BUNDLE AIRLINE UNIONS TOGETHER USING HOSE CLAMP (ITEM "E") AND COUPLING NUT (ITEM "H")
5.) CHECK ASSEMBLY FOR CONTINUITY BY PLACING ONE TEST PROBE ON CAPSCREW AT TEST BAND AND THE OTHER PROBE IN THE CENTER RECEPTACLE OF THE METERING PLATE ASSEMBLY (ITEM "D").

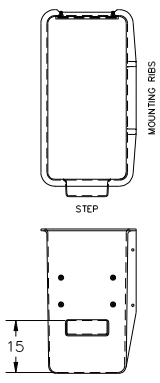
UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS; FRACTIONS ± 1/16 .X ± .1; ANGLES ± 1° .XX ± .03; .XXX ± .005; MACHINED SURFACE FINISHES= 125; PROJECTION OF VIEWS ⊙; ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY LBR	DATE 12-18-06	TITLE TEST BAND INSTALLATION VST-7500
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	MATERIAL SEE LIST OF MATERIAL	SIZE B	SCALE 1=3.5	
	FINISH ---	LOCATION V	MANUAL –	
		SHEET 2 OF 2		DWG. NO. 32491-DWG

SECTION 118

Platforms
(Option FB-1500-6)

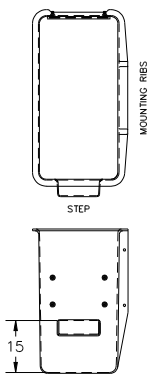
When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

REV. E



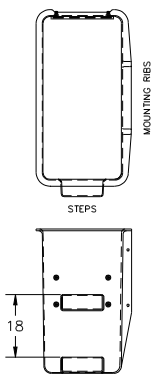
FB–1500–6

24 IN. X 48 IN. X 42 IN. TALL
8649–33 DRILL PLATFORM
32200–1 PLATFORM



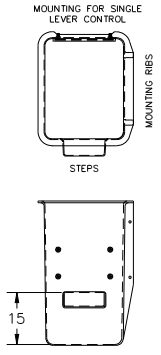
FB–1500–6R

24 IN. X 48 IN. X 42 IN. TALL
8649R–33 DRILL PLATFORM
32200R–1 PLATFORM



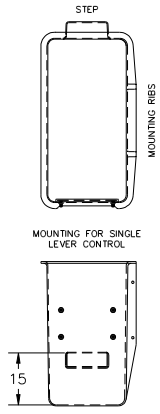
FB–1500–7

24 IN. X 48 IN. X 42 IN. TALL
8649–34 DRILL PLATFORM
32200–2 PLATFORM



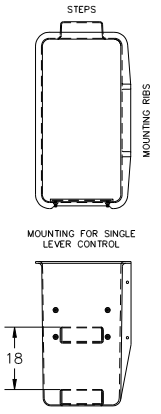
FB–1500–16

24 IN. X 30 IN. X 42 IN. TALL
8649–40 DRILL PLATFORM
34165–1 PLATFORM



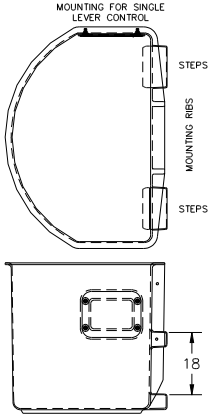
FB–1500–8

24 IN. X 48 IN. X 42 IN. TALL
8649–35 DRILL PLATFORM
32200–3 PLATFORM



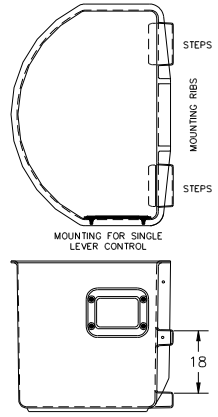
FB–1500–9

24 IN. X 48 IN. X 42 IN. TALL
8649–36 DRILL PLATFORM
32200–4 PLATFORM



FB–1500–19

40 IN. X 60 IN. X 42 IN. TALL
8649–42 DRILL PLATFORM
31126–1 PLATFORM



FB–1500–20

40 IN. X 60 IN. X 42 IN. TALL
8649–43 DRILL PLATFORM
31126–2 PLATFORM

NOTE:
1. SUFFIX "R" AFTER PART NUMBER (AS FB–1500–6R) INDICATES PLATFORM HAS A FIRE RETARDANT RESIN.

DASH NO.	DESCRIPTION	OPTION
–1	CLOSED PLTFM 24 X 48 X 42, R.H. CNTRL, 1–STEP, VST–7500	FB–1500–6
–2	CLOSED PLTFM 24 X 48 X 42, R.H. CNTRL, 2–STEP, VST–7500	FB–1500–7
–3	CLOSED PLTFM 24 X 48 X 42, L.H. CNTRL, 1–STEP, VST–7500	FB–1500–8
–4	CLOSED PLTFM 24 X 48 X 42, L.H. CNTRL, 2–STEP, VST–7500	FB–1500–9
–5	CLOSED PLTFM 24 X 30 X 42, R.H. CNTRL, 1–STEP VST–7500	FB–1500–16
–6	CLOSED PLTFM (D–BUCKET) 40 X 60 X 42, R.H. CNTRL, VST–7500	FB–1500–19
–7	CLOSED PLTFM (D–BUCKET) 40 X 60 X 42, L.H. CNTRL, VST–7500	FB–1500–20
–8	CLOSED PLTFM 24 X 48 X 42, R.H. CNTRL, 1–STEP, VST–7500 WITH FIRE RETARDANT FIBERGLASS RESIN	FB–1500–6R

LIST OF MATERIAL

QUANTITY								ITEM	PART NO.	DESCRIPTION
–8	–7	–6	–5	–4	–3	–2	–1			
1	–	–	–	–	–	–	–	P	8649R–33	FIBERGLASS PLATFORM DRILLING (32200R–1)
–	1	–	–	–	–	–	–	N	8649–43	FIBERGLASS PLATFORM DRILLING (31126–2)
–	–	1	–	–	–	–	–	M	8649–42	FIBERGLASS PLATFORM DRILLING (31126–1)
–	–	–	1	–	–	–	–	L	8649–40	FIBERGLASS PLATFORM DRILLING (34164–1)
1	1	1	1	1	1	1	1	K	32399–DWG	PLATFORM SELECTION CHART DWG
8	8	8	8	8	8	8	8	J	44013–1	5/8 HARDENED WASHER
4	4	4	4	4	4	4	4	H	42005–7	5/8–NC HEX NYLON LOCKNUT GRADE B
4	4	4	4	4	4	4	4	G	40007–13	5/8–13 x 3 HHCS
8	8	8	8	8	8	8	8	F	25515–1	SHIM (2x4)
–	–	–	–	1	–	–	–	E	8649–36	FIBERGLASS PLATFORM DRILLING (32200–4)
–	–	–	–	–	1	–	–	D	8649–35	FIBERGLASS PLATFORM DRILLING (32200–3)
–	–	–	–	–	–	1	–	C	8649–34	FIBERGLASS PLATFORM DRILLING (32200–2)
–	–	–	–	–	–	–	1	B	8649–33	FIBERGLASS PLATFORM DRILLING (32200–1)
1	1	1	1	1	1	1	1	A	20528–DWG	DWG, CLOSED PLATFORMS

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: – – – – –

DWN. BY	DATE
REW	03/13/08
SIZE: B	SCALE: 1/32
EST WT #:	MANUAL: –
SHEET: 1 OF 1	

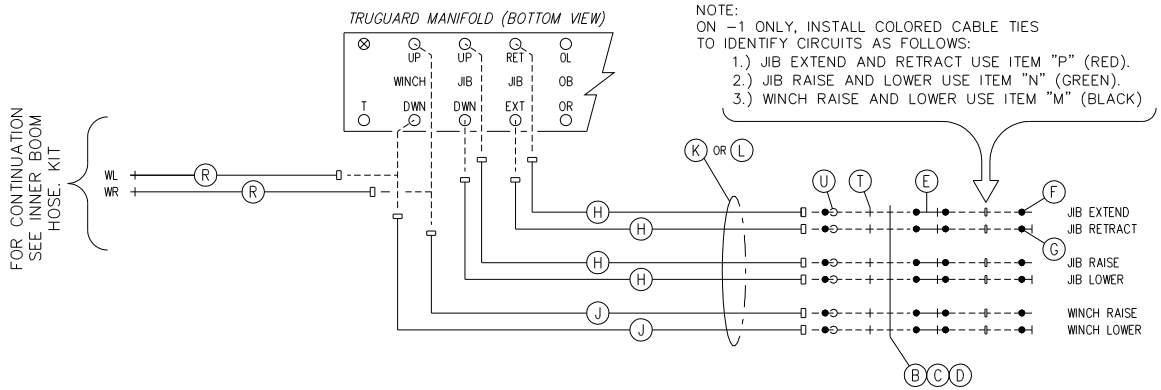
TITLE: CLOSED PLATFORMS
DWG. NO.: 20528–DWG

SECTION 119

Hydraulic Jib Truguard Hose Kit (Option HK-1280-49)

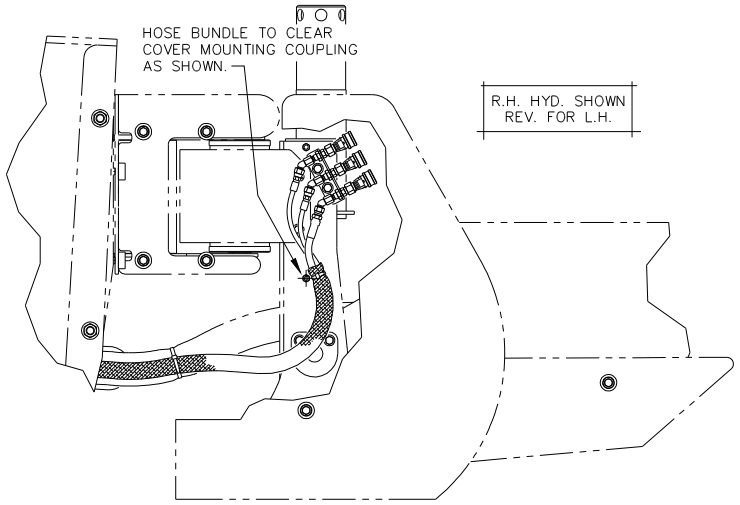
When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

REV. B



HYDRAULIC SCHEMATIC

DASH NO.	DESCRIPTION	OPTION
-1	HYD JIB TRUGUARD HOSE KIT	HK-1280-49
-2	MAN. JIB TRUGUARD HOSE KIT	HK-1280-50



-2 QTY.	-1 QTY.	ITEM	PART NO.	DESCRIPTION
2	6	U	50078-1	#4 JIC S.N. 45° ELBOW
2	6	T	50056-1	#4 BULKHEAD NUT
AR	AR	S	48013-5	CABLE TIE
2	2	R	10905-15	1/4 I.D. HOSE ASSY (221 LG.)
-	-	Q	-	-
-	2	P	48013-8	CABLE TIE (RED)
-	2	N	48013-9	CABLE TIE (GREEN)
-	2	M	48013-2	CABLE TIE (BLACK)
1	-	L	89088-10	HOSE SLEEVE X 56 LG
-	1	K	89201-12	HOSE SLEEVE X 56 LG
2	2	J	10238-102	1/4 I.D. HOSE ASSY (73 LG.)
-	4	H	26306-26	1/8 I.D. HOSE ASSY (77 LG.)
1	3	G	50090-3	FEMALE QUICK DISCONNECT
1	3	F	50159-4	MALE QUICK DISCONNECT
2	6	E	50220-1	#4 JIC TO 1/4 NPT BULKHEAD ADAPTER
2	2	D	44013-6	3/8 HARDENED WASHER
2	2	C	40004-2	3/8-16NC X 5/8 LG HHCS
1	1	B	29833-1	BRACKET, BULKHEAD
1	1	A	1000865-DWG	HOSE KIT, JIB

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ---

DWN. BY	DATE
KCM	11/16/12
SIZE	SCALE
B	1/9
EST WT #	MANUAL
	-
SHEET	
1 OF 1	

TITLE: HOSE KIT JIB
DWG. NO. 1000865-DWG

SECTION 120

Lower Boom Hose Kit w/ Jib Winch on Single Lift Elevator (Option HK-1280-69)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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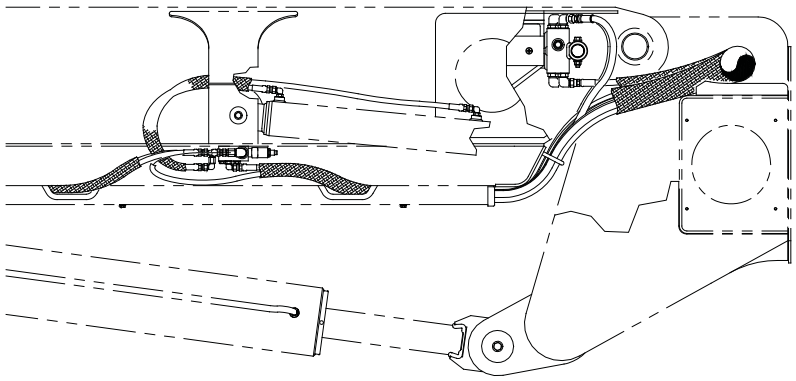
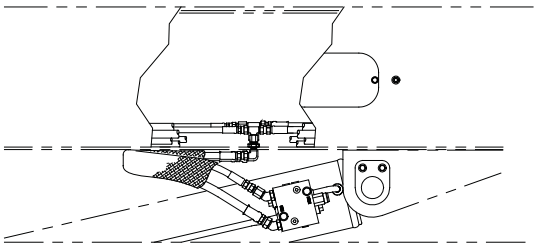
REV.

DASH NO.	DESCRIPTION	CODE
–1	LOWER BOOM HOSE KIT – WITHOUT JIB WINCH – ON SINGLE LIFT ELEVATOR – VST–9000	HK–1280–68
–2	LOWER BOOM HOSE KIT – WITH JIB WINCH – ON SINGLE LIFT ELEVATOR – VST–9000	HK–1280–69



DETAIL 1

SCALE.....1.5X



DETAIL 2

SCALE.....1.5X

–2	–1	ITEM	PART NO.	DESCRIPTION
1	1	AV	89201–9	HOSE SLEEVE 1.75 X 48 LG
1	1	AU	89201–5	HOSE SLEEVE 1.75 X 72 LG
1	1	AT	89106–2	HOSE SLEEVE 2.38 X 90 LG
1	1	AS	89106–10	HOSE SLEEVE 2.38 X 26 LG
2	2	AR	89088–25	HOSE SLEEVE 1.25 X 16 1/2 LG
2	2	AQ	89237–4	HOSE SLEEVE 5.76 X 96 LG
1	1	AP	89088–3	HOSE SLEEVE 1.25 X 33 LG
2	2	AN	50077–3	3/8 JIC UNION TEE
2	2	AM	50004–3	3/8 JIC 90° S.N. ELBOW
1	1	AL	50009–4	#8 O–RING TO 1/2 JIC STR CONN
QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

–2	–1	ITEM	PART NO.	DESCRIPTION
1	1	AK	50009–14	#8 O–RING TO 3/8 JIC STR CONN
1	1	AJ	50075–4	1/2 JIC S.N. BRANCH TEE
1	1	AH	50075–3	3/8 JIC S.N. BRANCH TEE
1	1	AG	50056–4	BULKHEAD NUT FOR 1/2 JIC
1	1	AF	50056–3	BULKHEAD NUT FOR 3/8 JIC
1	1	AE	50057–4	1/2 JIC 90° BULKHEAD ELBOW
1	1	AD	50057–3	3/8 JIC 90° BULKHEAD ELBOW
3	3	AC	50114–3	1/2 TO 3/8 JIC TUBE END RED
2	2	AB	50074–4	#8 O–RING TO 1/2 JIC 45° ELBOW
4	4	AA	50011–14	#8 O–RING TO 3/8 JIC 90° ELBOW
1	1	Z	6580–132	5/16 I.D. N.C. HOSE ASSY (624 1/2 LG)
2	2	Y	55664–8	1/4 I.D. N.C. HOSE ASSY (102 1/2 LG)
1	1	X	11450–21	1/4 I.D. N.C. HOSE ASSY (24 LG)
1	1	W	11450–15	1/4 I.D. N.C. HOSE ASSY (46 LG)
1	1	V	3864–186	3/8 I.D. N.C. HOSE ASSY (93 1/2 LG)
1	1	U	3864–171	3/8 I.D. N.C. HOSE ASSY (90 1/2 LG)
1	1	T	8798–84	3/8 I.D. N.C. HOSE ASSY (151 1/2 LG)
1	1	S	8798–90	3/8 I.D. N.C. HOSE ASSY (472 1/2 LG)
1	1	R	8798–142	3/8 I.D. N.C. HOSE ASSY (478 1/2 LG)
1	1	Q	8798–83	3/8 I.D. N.C. HOSE ASSY (158 1/2 LG)
1	1	P	4532–94	1/2 I.D. N.C. HOSE ASSY (38 LG)
2	2	N	6580–129	5/16 I.D. N.C. HOSE ASSY (161 LG)
2	2	M	6580–104	5/16 I.D. N.C. HOSE ASSY (490 LG)
2	2	L	10238–80	1/4 I.D. N.C. HOSE ASSY (526 LG)
2	–	K	10905–62	1/4 I.D. N.C. HOSE ASSY (624 1/2 LG)
1	1	J	8799–64	1/2 I.D. N.C. HOSE ASSY (620 1/2 LG)
2	2	H	8799–67	1/2 I.D. N.C. HOSE ASSY (624 1/2 LG)
1	1	G	6580–131	5/16 I.D. N.C. HOSE ASSY (620 1/2 LG)
2	2	F	8798–141	3/8 I.D. N.C. HOSE ASSY (660 1/2 LG)
1	1	E	10238–77	1/4 I.D. N.C. HOSE ASSY (549 LG)
2	2	D	55689–1	3/8 I.D. HOSE ASSY (41 LG)
1	1	C	3864–51	3/8 I.D. N.C. HOSE ASSY (35 1/4 LG)
2	2	B	8798–140	3/8 I.D. N.C. HOSE ASSY (620 1/2 LG)
1	1	A	1005404–DWG	LOWER BOOM HOSE KIT INSTALL
QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

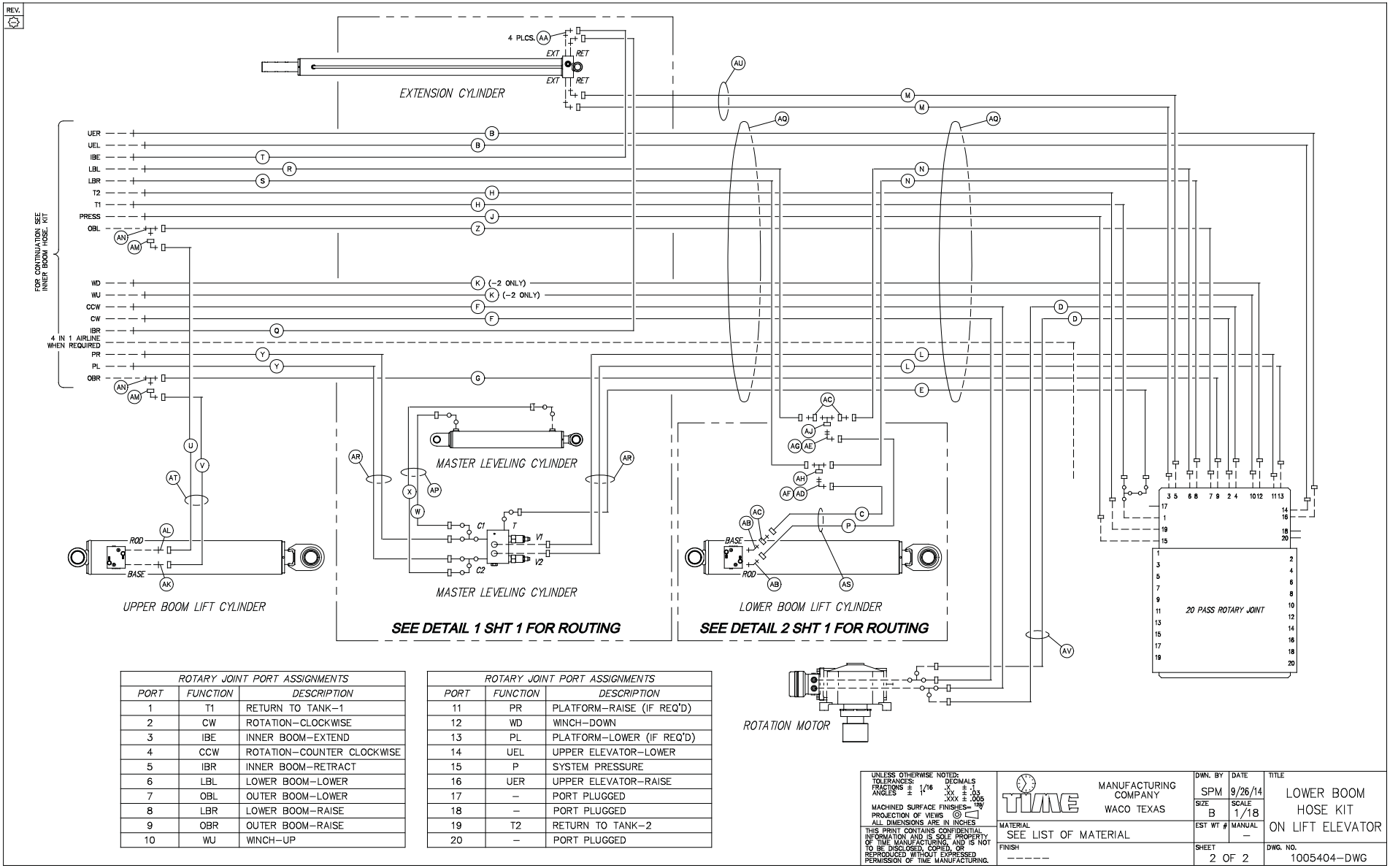
LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ------

DWN. BY	DATE	TITLE
SPM	9/26/14	LOWER BOOM HOSE KIT ON LIFT ELEVATOR
SIZE: B	SCALE: 1/18	
EST WT #:	MANUAL: –	
SHEET: 1 OF 2		DWG. NO.: 1005404–DWG



ROTARY JOINT PORT ASSIGNMENTS		
PORT	FUNCTION	DESCRIPTION
1	T1	RETURN TO TANK–1
2	CW	ROTATION–CLOCKWISE
3	IBE	INNER BOOM–EXTEND
4	CCW	ROTATION–COUNTER CLOCKWISE
5	IBR	INNER BOOM–RETRACT
6	LBL	LOWER BOOM–LOWER
7	OBL	OUTER BOOM–LOWER
8	LBR	LOWER BOOM–RAISE
9	OBR	OUTER BOOM–RAISE
10	WU	WINCH–UP

ROTARY JOINT PORT ASSIGNMENTS		
PORT	FUNCTION	DESCRIPTION
11	PR	PLATFORM–RAISE (IF REQ'D)
12	WD	WINCH–DOWN
13	PL	PLATFORM–LOWER (IF REQ'D)
14	UEL	UPPER ELEVATOR–LOWER
15	P	SYSTEM PRESSURE
16	UER	UPPER ELEVATOR–RAISE
17	–	PORT PLUGGED
18	–	PORT PLUGGED
19	T2	RETURN TO TANK–2
20	–	PORT PLUGGED

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ———

DWN. BY	DATE
SPM	9/26/14
SIZE	SCALE
B	1/18
EST WT #	MANUAL
	–
SHEET	
2 OF 2	

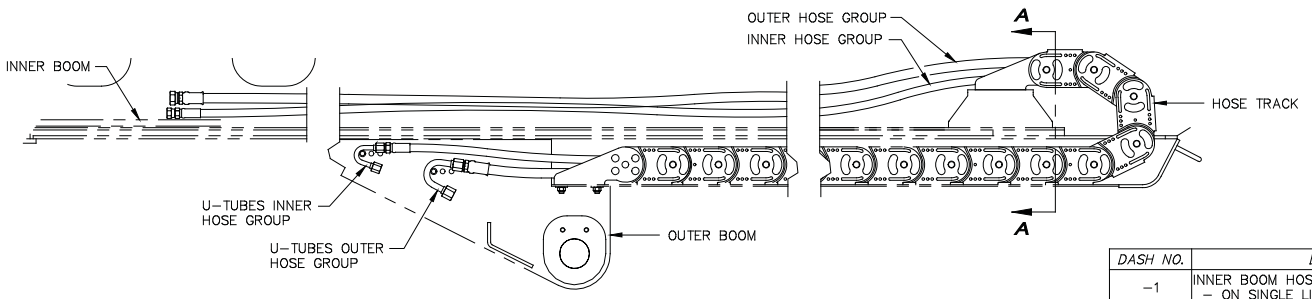
TITLE: LOWER BOOM HOSE KIT ON LIFT ELEVATOR

DWG. NO. 1005404–DWG

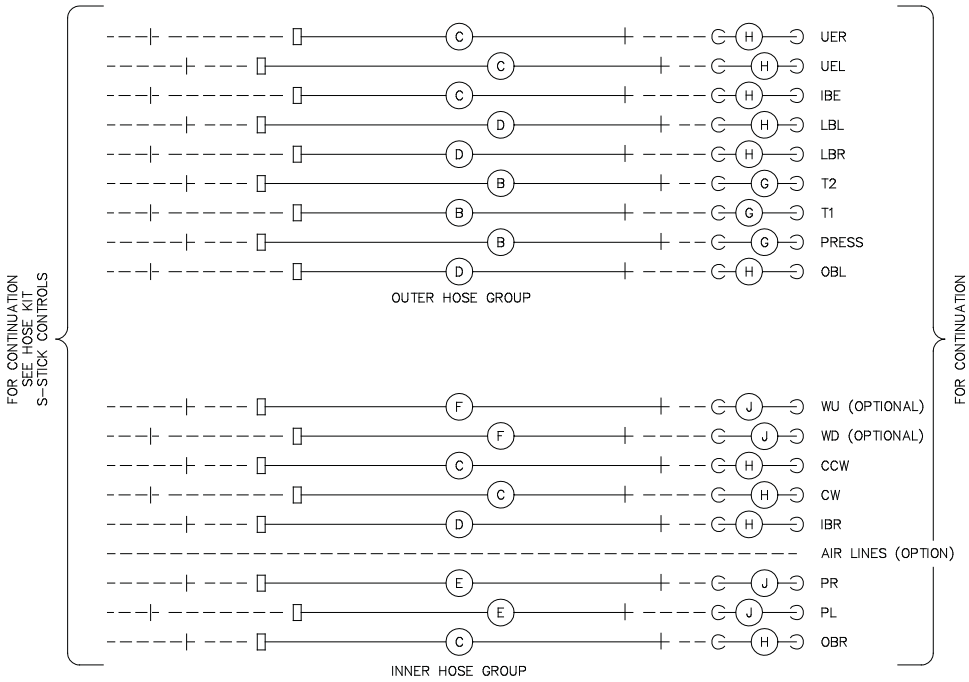
SECTION 121

Inner Boom Hose Kit w/ Jib Winch on Single Lift Elevator (Option HK-1280-71)

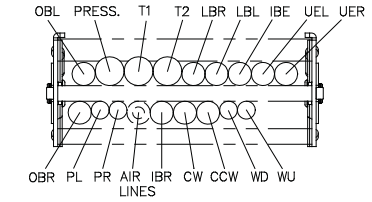
When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

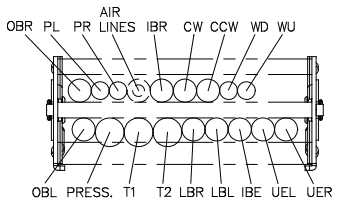


DASH NO.	DESCRIPTION	CODE
-1	INNER BOOM HOSE KIT - WITHOUT JIB WINCH - ON SINGLE LIFT ELEVATOR - VST-9000	HK-1280-70
-2	INNER BOOM HOSE KIT - WITH JIB WINCH - ON SINGLE LIFT ELEVATOR - VST-9000	HK-1280-71



SCHEMATIC





SECTION A-A

SCALE.....3X

-2 QTY.	-1 QTY.	ITEM	PART NO.	DESCRIPTION
				LIST OF MATERIAL
4	2	J	15048-2	U-TUBE 1/4 I.D.
10	10	H	15049-2	U-TUBE 3/8 O.D.
3	3	G	32334-1	U-TUBE 1/2 O.D.
2	-	F	10905-45	1/4 I.D. N.C. HOSE ASSY (371 1/2 LG.)
2	2	E	55664-7	1/4 I.D. N.C. HOSE ASSY (371 1/2 LG.)
4	4	D	8798-82	3/8 I.D. N.C. HOSE ASSY (368 1/2 LG.)
6	6	C	8798-102	3/8 I.D. N.C. HOSE ASSY (371 1/2 LG.)
3	3	B	8799-61	1/2 I.D. N.C. HOSE ASSY (367 1/2 LG.)
1	1	A	1005405-DWG	HOSE KIT, INNER BOOM

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± .5° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ---

DWN. BY: SPM
DATE: 9/26/14
SIZE: B
SCALE: 1/10
LOCATION: MANUAL: -
SHEET: 1 OF 1

TITLE: HOSE KIT INNER BOOM ON LIFT ELEVATOR
DWG. NO.: 1005405-DWG

SECTION 122

Upper Control Hose Kit Truguard on Single Lift Elevator (Option HK-1280-72)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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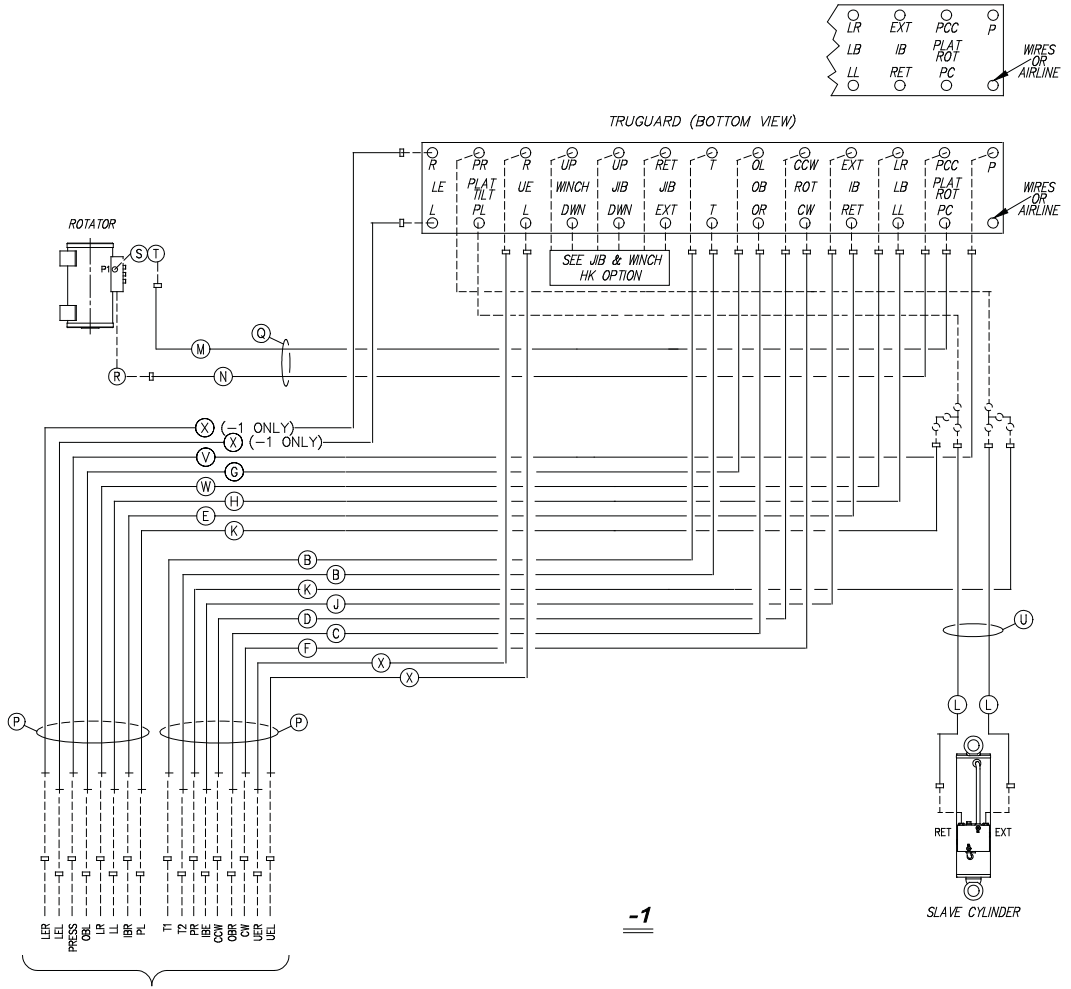


-2	-1			
2	4	X	8798-98	3/8 HYD HOSE ASSEMBLY (225)
1	1	W	8798-67	3/8 HYD HOSE ASSEMBLY (231)
1	1	V	55665-4	1/2 HYD HOSE ASSEMBLY (239)
1	1	U	89088-22	HOSE PROT. COVER (1-1/4 x 65)
1	1	T	50078-1	1/4 JIC 45° ELBOW
1	1	S	50074-1	#4 SAE TO 1/4 JIC 45° ADAPTER
1	1	R	50011-1	#4 SAE TO 1/4 JIC 90° ADAPTER
1	1	Q	89088-7	HOSE PROT. COVER (1-1/4 x 91)
2	2	P	89164-3	HOSE PROT. COVER (2.96 x 105)
1	1	N	26306-15	1/8 HYD HOSE ASSEMBLY (112)
1	1	M	26306-14	1/8 HYD HOSE ASSEMBLY (100)
2	2	L	11450-7	1/4 HYD HOSE ASSEMBLY (77)
2	2	K	55664-4	1/4 HYD HOSE ASSEMBLY (231)
1	1	J	8798-91	3/8 HYD HOSE ASSEMBLY (237)
1	1	H	8798-59	3/8 HYD HOSE ASSEMBLY (240)
1	1	G	8798-56	3/8 HYD HOSE ASSEMBLY (229)
1	1	F	8798-124	3/8 HYD HOSE ASSEMBLY (227)
1	1	E	8798-60	3/8 HYD HOSE ASSEMBLY (246)
1	1	D	8798-10	3/8 HYD HOSE ASSEMBLY (236)
1	1	C	8798-106	3/8 HYD HOSE ASSEMBLY (234)
2	2	B	55665-3	1/2 HYD HOSE ASSEMBLY (236)
1	1	A	1000143-DWG	HOSE KIT, UPPER CTRLS TRUGUARD
QTY	QTY	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

DASH NO.	DESCRIPTION	CODE
-1	UPPER CNTRL HOSE KIT - TRUGUARD - ON LIFT ELEVATOR	HK-1280-57
-2	UPPER CNTRL HOSE KIT - TRUGUARD - ON SINGLE LIFT ELEVATOR	HK-1280-72

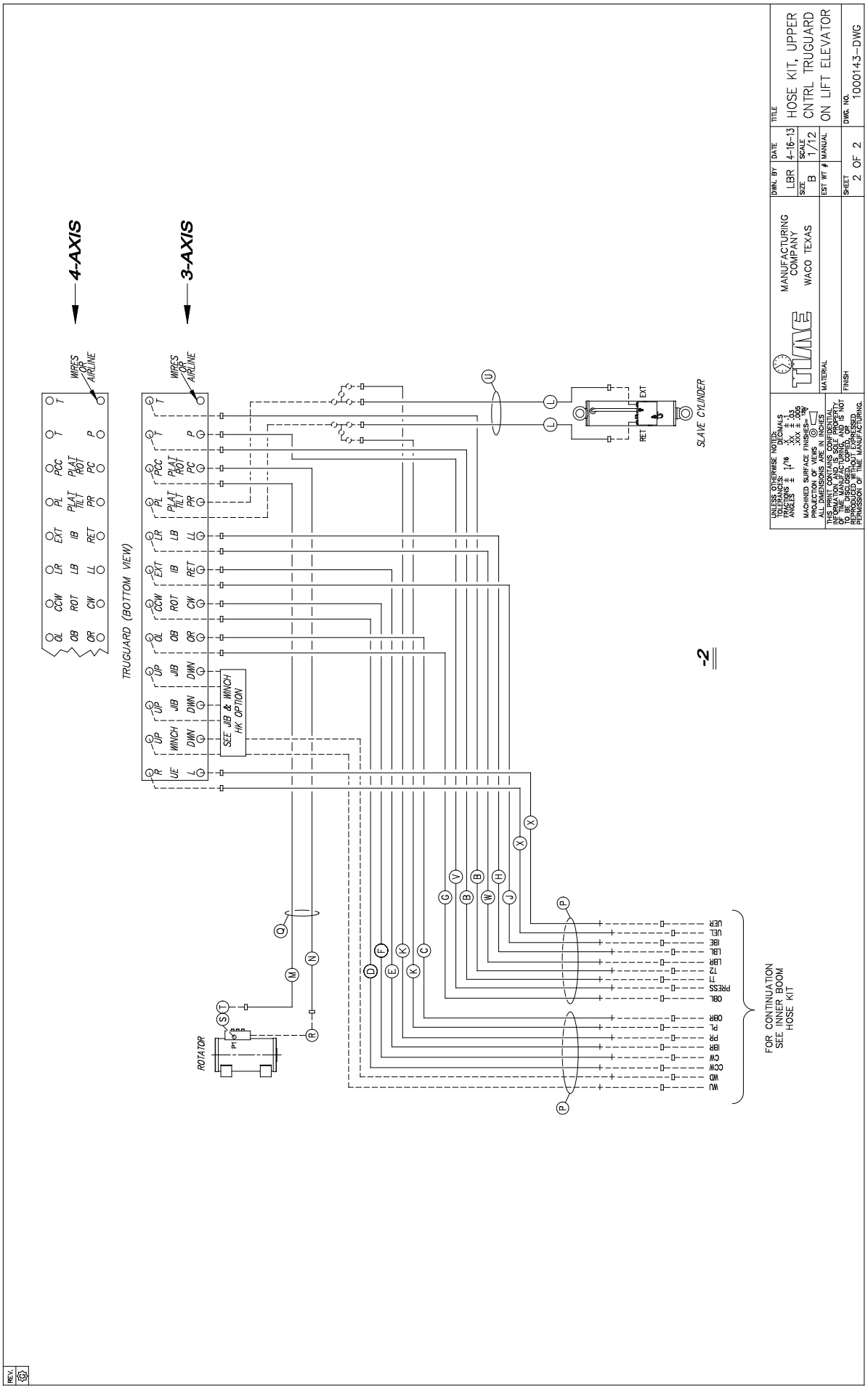
UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY WACO TEXAS

MATERIAL

FINISH

DWN. BY	DATE	TITLE
LBR	4-16-13	HOSE KIT, UPPER CNTRL TRUGUARD ON LIFT ELEVATOR
SIZE B	SCALE 1/12	
EST WT #	MANUAL	
SHEET 1 OF 2	DWG. NO. 1000143-DWG	


4-AXIS
3-AXIS
WIRES OR AIRLINE
TRUGUARD (BOTTOM VIEW)
SEE JIB & WINCH HK OPTION
SLAVE CYLINDER
EXT
RET
ROTATOR
FOR CONTINUATION SEE INNER BOOM HOSE KIT
-2
MANUFACTURING COMPANY
WACO TEXAS
HOSE KIT, UPPER CNTRL TRUGUARD ON LIFT ELEVATOR
DWG. NO. 1000143-DWG
SHEET 2 OF 2
DATE 4-16-13
SCALE 1/12
SIZE B
DWN. BY LBR
EST WT # MANUAL
MATERIAL
FINISH
REV.

SECTION 123

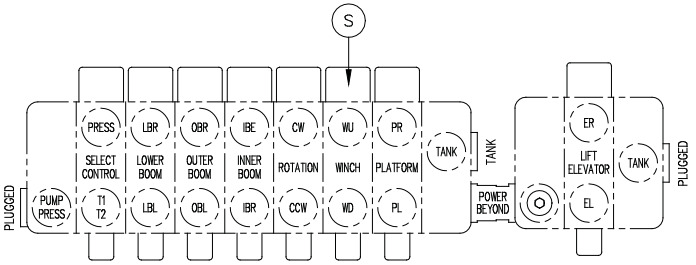
Single Arm Lift Elevator Hose Kit 10 Ft Elevator w/ Jib & Winch (Option HK-1280-77)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

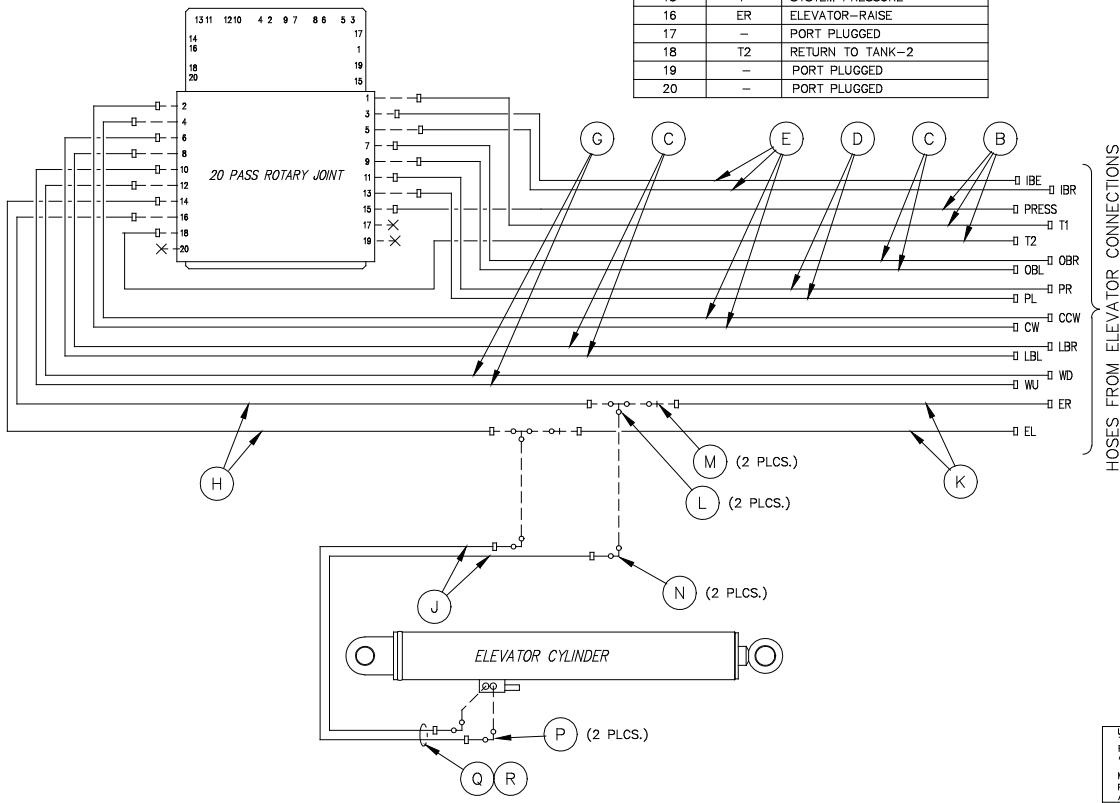
DASH NO.	DESCRIPTION	CODE
–1	SINGLE ARM LIFT ELEVATOR HOSE KIT – 10 FT ELEVATOR WITH JIB & WINCH	HK–1280–77

ROTARY JOINT PORT ASSIGNMENTS		
PORT	FUNCTION	DESCRIPTION
1	T1	RETURN TO TANK–1
2	CW	ROTATION–CLOCKWISE
3	IBE	INNER BOOM–EXTEND
4	CCW	ROTATION–COUNTER CLOCKWISE
5	IBR	INNER BOOM–RETRACT
6	LBL	LOWER BOOM–LOWER
7	OBL	OUTER BOOM–LOWER
8	LBR	LOWER BOOM–RAISE
9	OBR	OUTER BOOM–RAISE
10	WU	WINCH–UP
11	PR	PLATFORM–RAISE (IF REQ'D)
12	WD	WINCH–DOWN
13	PL	PLATFORM–LOWER (IF REQ'D)
14	EL	ELEVATOR–LOWER
15	P	SYSTEM PRESSURE
16	ER	ELEVATOR–RAISE
17	–	PORT PLUGGED
18	T2	RETURN TO TANK–2
19	–	PORT PLUGGED
20	–	PORT PLUGGED

NOTES:
1.) ITEM "F" IS TO BE ROUTED WITH HOSES AND USED TO WIRE COLLECTOR RINGS AT BOTTOM OF ROTARY JOINT. (NOT SHOWN)



PORT ASSIGNMENTS AT LOWER CONTROL CONSOLE



–1			
1	S	10424–2	CONTROL VALVE HANDLE 10mm
1	R	48013–5	CABLE TIE
1	Q	89201–9	1.75 DIA. HOSE SLEEVE (48 LG.)
2	P	50011–4	#8 O–RING TO #8 JIC ELBOW
2	N	50004–4	#8 JIC S.N. ELBOW
2	M	50114–3	#8 TO #6 JIC TUBE END REDUCER
2	L	50077–4	#8 JIC UNION TEE
2	K	55700–16	3/8 I.D. HOSE ASSY (35 LG.)
2	J	17656–13	1/2 I.D. HOSE ASSY (136 LG.)
2	H	17656–41	1/2 I.D. HOSE ASSY (179 LG.)
2	G	55676–10	1/4 I.D. HOSE ASSY (220 LG.)
SEE NOTE 1. 26 FT.	F	61025–1	CABLE 14 GA – 5 CONDUCTOR
4	E	55700–12	3/8 I.D. HOSE ASSY (232 LG.)
2	D	55670–17	3/16 I.D HOSE ASSY (216 LG.)
4	C	55700–11	3/8 I.D. HOSE ASSY (226 LG.)
3	B	55701–3	5/8 I.D. HOSE ASSY (232 LG.)
1	A	1005492–DWG	DWG., SINGLE LIFT ELEV HOSE KIT
QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY WACO TEXAS

MATERIAL

FINISH

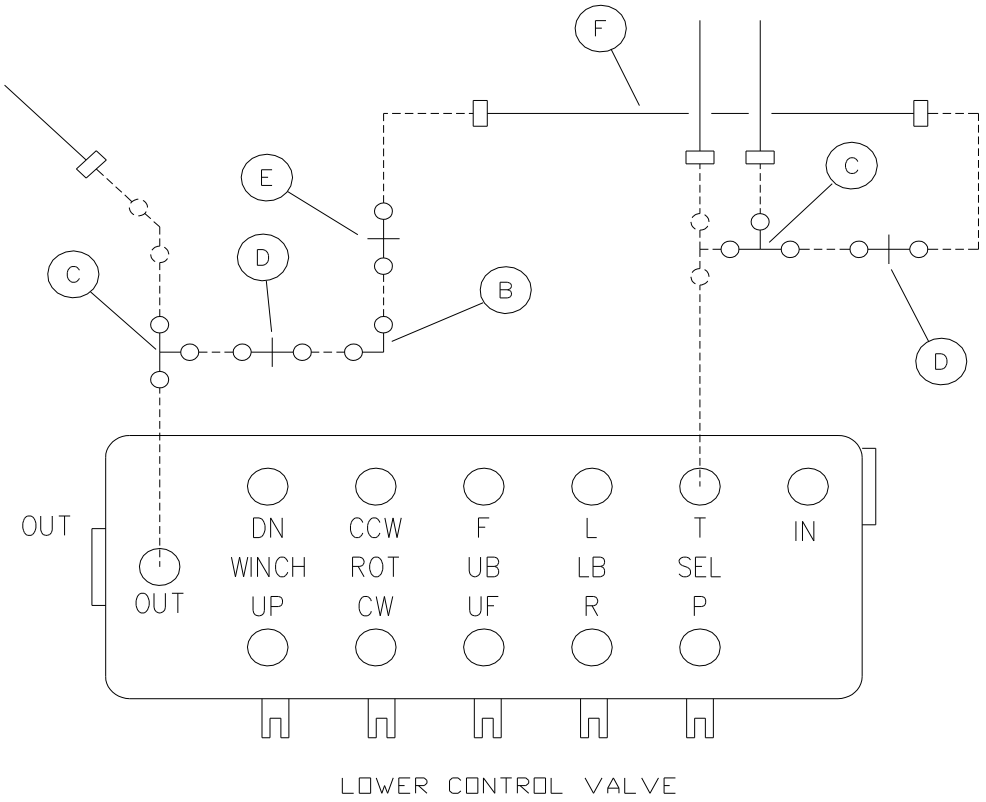
DWN. BY	DATE	TITLE
NTR	10/9/14	SINGLE ARM LIFT ELEVATOR HOSE KIT
SIZE B	SCALE 1/14	
EST WT #	MANUAL –	
SHEET 1 OF 1		DWG. NO. 1005492–DWG

SECTION 124

Tank Line Relief Installation (Option HYD-1280-12)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

REV.



LOWER CONTROL VALVE

RETURN BLEED

DASH NO.	DESCRIPTION	CODE
–1	TANK LINE RELIEF INSTALLATION	HYD–1280–12

–1

QTY.	ITEM	PART NO.	DESCRIPTION
1	F	26306–4	1/8 I.D. HOSE ASSY (20 LG.)
1	E	50157–1	ORIFICE FITTING .030 DIA.
2	D	50114–2	#8 TO #4 JIC TUBE END REDUCER
2	C	50048–1	#4 JIC S.N. RUN TEE
1	B	50004–1	#4 JIC S.N 90° ELBOW
1	A	1001392–DWG	TANK LINE RELIEF INSTALLATION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125/
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: – – – – –
FINISH: – – – – –

DWN. BY	DATE
NTR	5/22/13
SIZE	SCALE
A	1:2
EST WT #	MANUAL
	–
SHEET	
1 OF 1	

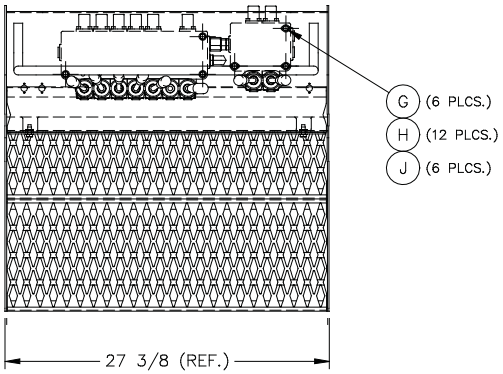
TITLE: TANK LINE RELIEF INSTALLATION

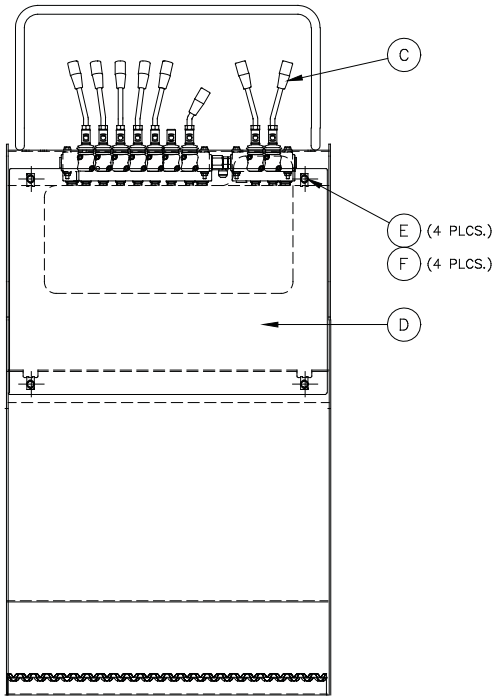
DWG. NO. 1001392–DWG

SECTION 125

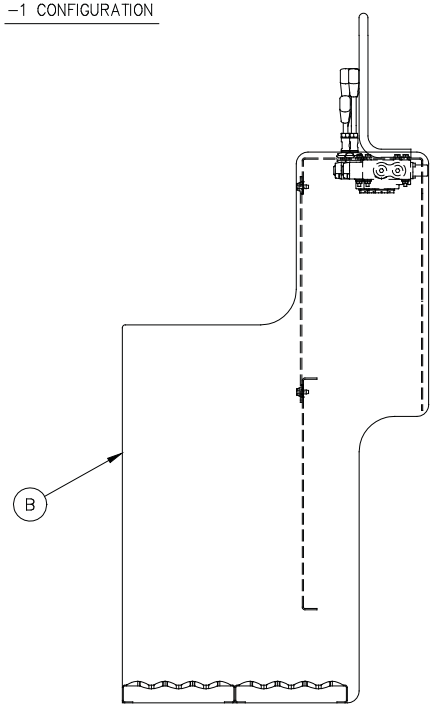
Lower Control Console
(Option HYD-1280-14)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.





–1 CONFIGURATION



DASH NO.	*DESCRIPTION*	*CODE*	
–1	LOWER CONTROL CONSOLE	HYD–1280–11	
~~–2~~	~~LOWER CONTROL CONSOLE (SEALED BOOM)~~	~~HYD–1280–13~~	OBS
–3	LOWER CONTROL CONSOLE	HYD–1280–14	

* THESE ITEMS TO BE SHIPPED LOOSE.

QTY.	ITEM	DESCRIPTION/LOCATION
3	J	1/4–NC LOCKNUT
6	H	1/4 HARDENED WASHER
3	G	1/4–NC X 2 1/2 LG HHCS

OBS

	–3	–2	–1	ITEM	PART NO.	DESCRIPTION
	1	–	–	Q	1000139–2	CONSOLE VALVE ASSEMBLY
	1	1	1	P	1001769–1	LOWER CONTROL VALVE BRACKET
	2	2	2	N	42005–3	3/8–NC LOCKNUT
	4	4	4	M	44013–6	3/8 HARDENED WASHER
	2	2	2	L	40004–7	3/8–NC X 1 1/2 LG HHCS
	–	–	–	K	–	–
*	6	6	6	J	42005–1	1/4–NC LOCKNUT
*	12	12	12	H	44013–7	1/4 HARDENED WASHER
*	6	6	6	G	40002–11	1/4–NC X 2 1/2 LG HHCS
*	4	4	4	F	40076–12	5/16–NC X 3/4 LG HHTFS
*	4	4	4	E	42032–1	U TYPE SPEED NUT 5/16–NC
*	1	1	1	D	1000240–1	CONSOLE COVER
	–	1	1	C	1000139–1	CONSOLE VALVE ASSEMBLY
*	1	1	1	B	1000235–1	CONTROL CONSOLE WELDMENT
*	2	2	2	A	1000140–DWG	LOWER CONTROL CONSOLE ASSY
	QTY.	QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

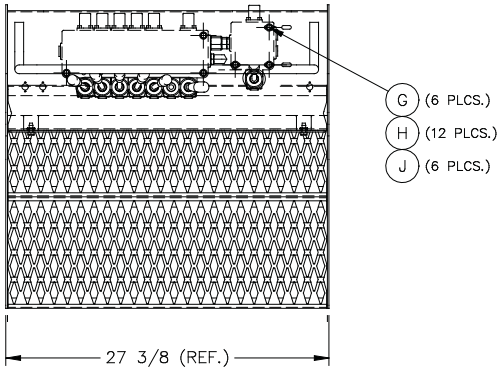
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS .X ± .1, .XX ± .03, .XXX ± .005
FRACTIONS ± 1/16
ANGLES ± 1°
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

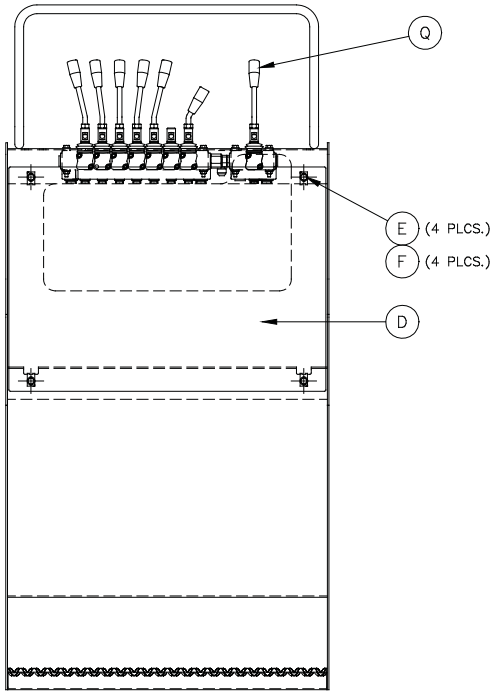
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL
FINISH ---

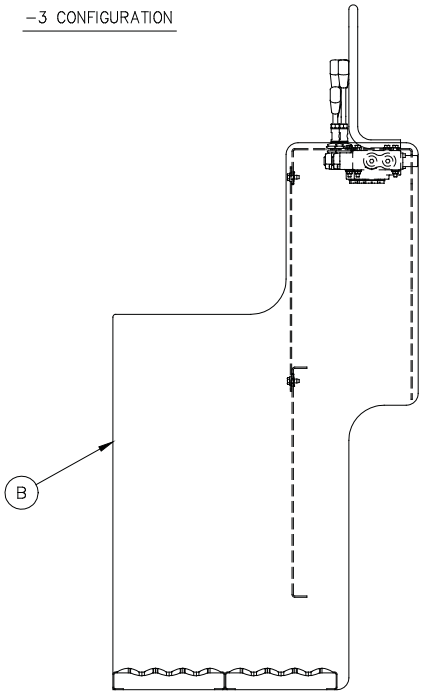
DWN. BY	DATE	TITLE
LBR	4–2–13	LOWER CONTROL CONSOLE ASSEMBLY
SIZE B	SCALE 1=10	
EST WT #	MANUAL –	
SHEET 1 OF 3	DWG. NO. 1000140–DWG	

REV.





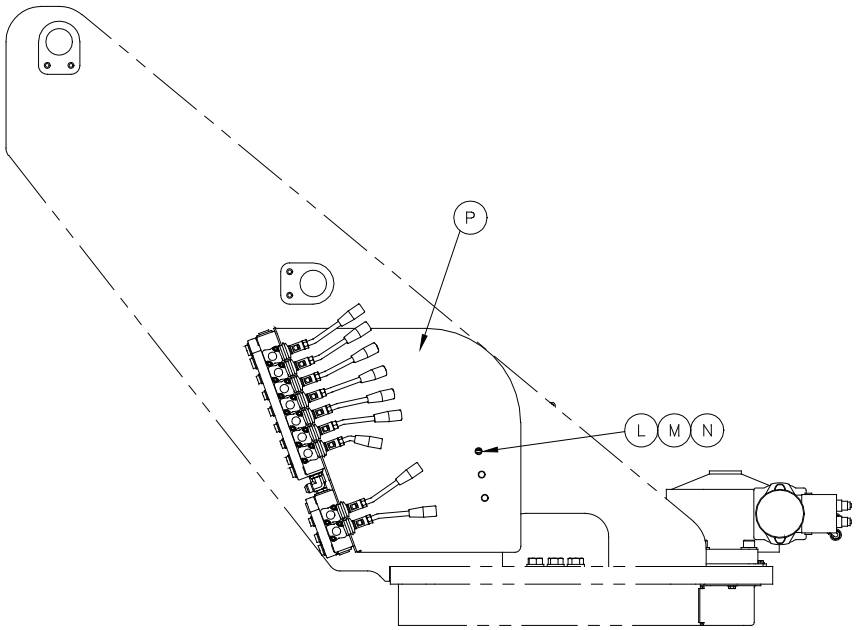
-3 CONFIGURATION



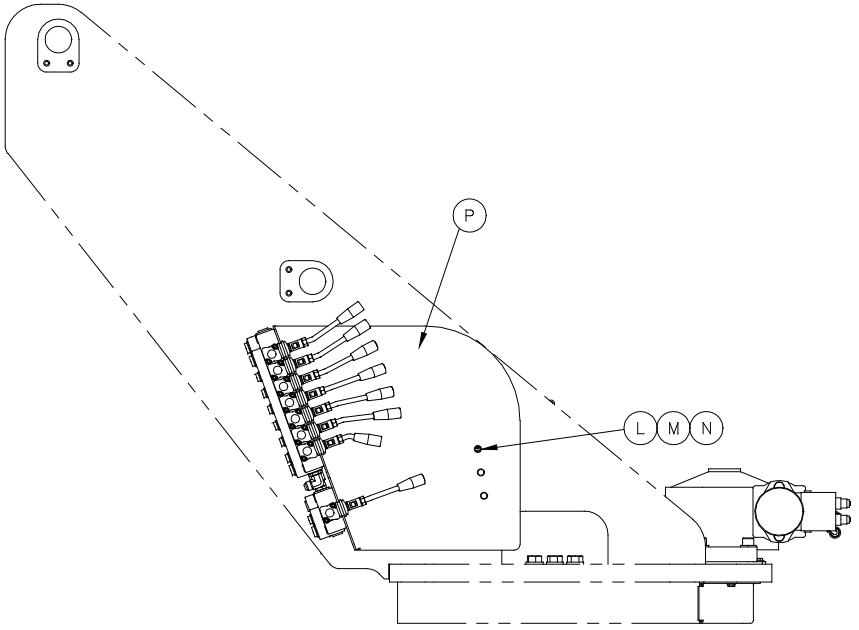
UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY LBR	DATE 4-2-13	TITLE LOWER CONTROL CONSOLE ASSEMBLY
		SIZE B	SCALE 1=10	
	MATERIAL	EST WT #	MANUAL —	
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	FINISH ---	SHEET 2 OF 3		DWG. NO. 1000140-DWG

REV.

SHIPPING / TESTING CONFIGURATION



−1 CONFIGURATION

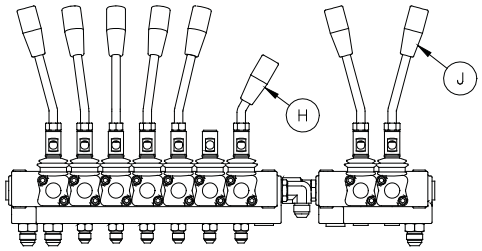


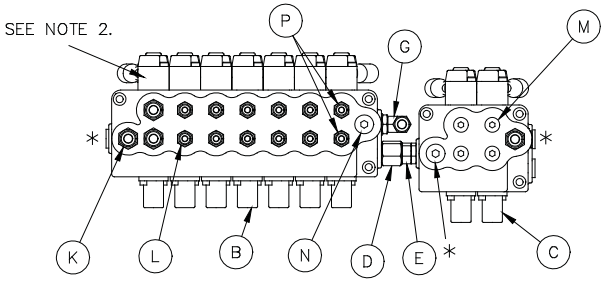
−3 CONFIGURATION

NOTE:
1.) USE ITEMS "G", "H", AND "J" TO MOUNT CONTROL VALVE TO ITEM "P" FOR TESTING AND SHIPPING. REMOVE AND REUSE THESE ITEMS TO MOUNT VALVE TO CONSOLE FOR FINAL INSTALLATION.
2.) USE ITEMS "L", "M", AND "N" TO MOUNT ITEM "P" TO TURRET.

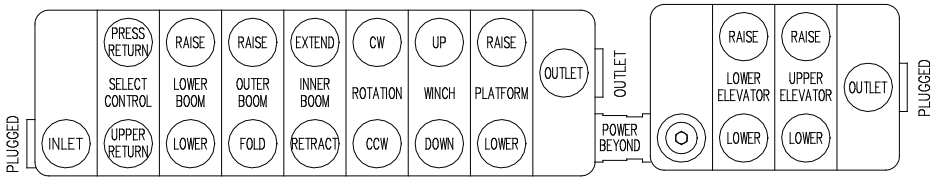
UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY LBR	DATE 4-2-13	TITLE LOWER CONTROL CONSOLE ASSEMBLY
		SIZE B	SCALE 1=10	
	MATERIAL	EST WT #	MANUAL –	
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	FINISH ---	SHEET 3 OF 3		DWG. NO. 1000140−DWG

REV. D





-1 CONFIGURATION



PORT ASSIGNMENTS

NOTES:
1.) * INDICATES LOCATION OF EXISTING OR RELOCATED EXISTING STEEL PLUGS.
2.) RE-ORIENT CONTROL HANDLES TO POSITIONS SHOWN.
3.) ALL UNUSED PORTS TO BE PLUGGED WITH EXISTING PLASTIC PLUGS.

-2	-1	ITEM	PART NO.	DESCRIPTION
1	–	Q	54422-1	LWR CNTRL VALVE (1 SPOOL)
2	2	P	50009-15	#4-6 O-RING TO STR CONN.
1	1	N	50081-4	#8 O-RING PLUG
2	4	M	50081-3	#6 O-RING PLUG
10	10	L	50009-3	#6 O-RING TO 3/8 STR CONN.
4	4	K	50009-4	#8 O-RING TO 1/2 STR CONN.
6	7	J	10424-2	CONTROL VALVE HANDLE 10mm
1	1	H	10424-11	CONTROL VALVE HANDLE 10mm
1	1	G	50011-4	#8 O-RING TO JIC 90° ELBOW
		F		
1	1	E	50180-3	#8 O-RING TO O-RING ADAPTER
1	1	D	50155-1	POWER BEYOND ADAPTER
–	1	C	54362-1	LWR CNTRL VALVE (2 SPOOL)
1	1	B	54176-4	LWR CNTRL VALVE
1	1	A	1000139-DWG	LWR CNTRL CONSOLE VALVE ASSY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

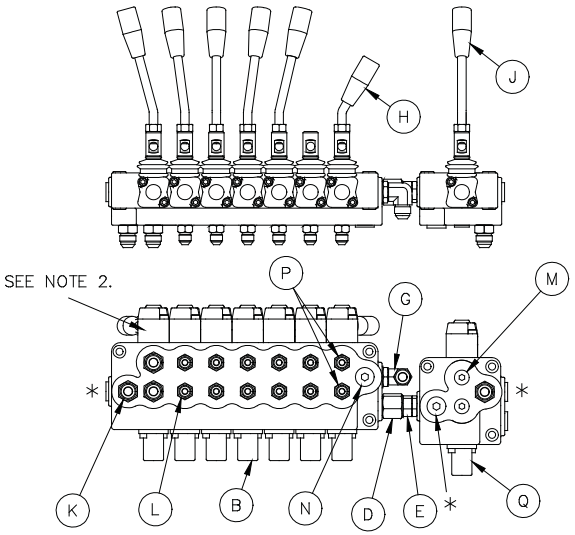
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL
FINISH

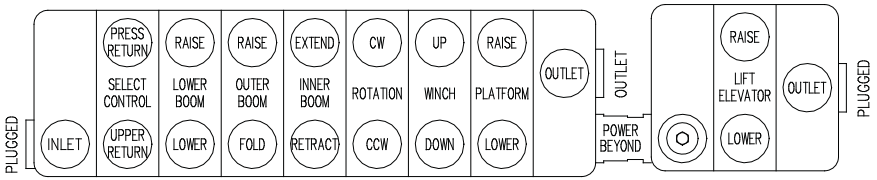
DWN. BY: LBR
DATE: 4-2-13
SIZE: B
SCALE: 1=5.5
EST WT #
MANUAL: –
SHEET: 1 OF 2

TITLE: LOWER CONTROL CONSOLE VALVE ASSY
DWG. NO.: 1000139-DWG

REV.



-2 CONFIGURATION

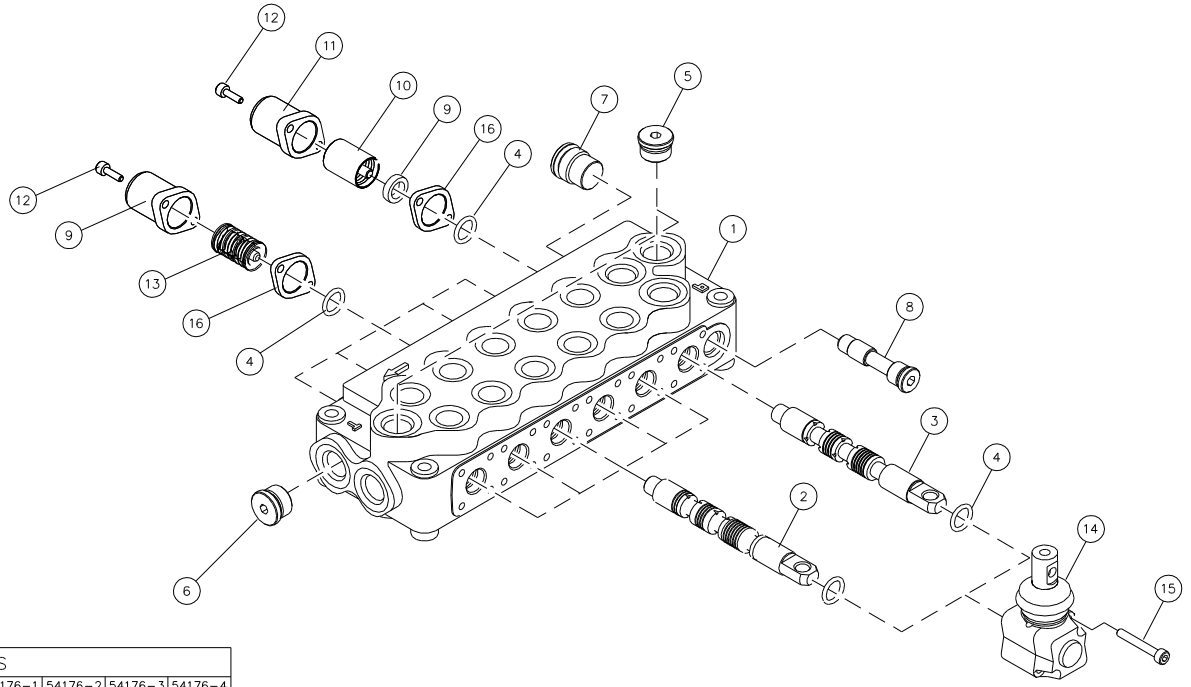


PORT ASSIGNMENTS

NOTES:
1.) * INDICATES LOCATION OF EXISTING OR RELOCATED EXISTING STEEL PLUGS.
2.) RE-ORIENT CONTROL HANDLES TO POSITIONS SHOWN.
3.) ALL UNUSED PORTS TO BE PLUGGED WITH EXISTING PLASTIC PLUGS.

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 .XX ± .03 .XXX ± .005 ANGLES ± 1° MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY LBR	DATE 4-2-13	TITLE LOWER CONTROL CONSOLE VALVE ASSY
		SIZE B	SCALE 1=5.5	
	MATERIAL	EST WT #	MANUAL –	
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	FINISH	SHEET 2 OF 2		DWG. NO. 1000139-DWG

REV. E



SERVICE PARTS

ITEM SEE SHEET 2	PART DESCRIPTION	TIME PART NO	54176-1 QTY	54176-2 QTY	54176-3 QTY	54176-4 QTY
1	4 SPOOL BODY	X989-67	1	–	–	–
1	5 SPOOL BODY	X989-106	–	1	–	–
1	6 SPOOL BODY	Y1670	–	–	1	–
1	7 SPOOL BODY	Y2182	–	–	–	1
2	SPOOL	X989-115	3	4	5	6
3	SPOOL	X989-116	1	1	1	1
* 4	O-RING	X989-15	8	10	12	14
5	SAE 8 PLUG	X989-17	2	2	2	2
6	AET PLUG	50190-1	1	1	1	1
7	PLUG	Y1639	1	1	1	1
8	VR5 KIT	X989-73	1	1	1	1
9	RING	X989-69	1	1	1	1
10	CONTROL KIT	X989-75	1	1	1	1
11	END CAP	X989-3	4	5	6	7
12	SCREW	X989-30	8	10	12	14
13	MD CONTROL KIT	Y1640	3	4	5	6
14	CONPLETE LEVER	X989-71	4	5	6	7
15	SCREW	X989-32	8	10	12	14
16	SPACER	Y1671	4	5	6	7
17	SEAL KIT	X989-61	1	1	1	1

* SEAL KIT CONTAINS THESE ITEMS.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY WACO TEXAS

MATERIAL: – – –

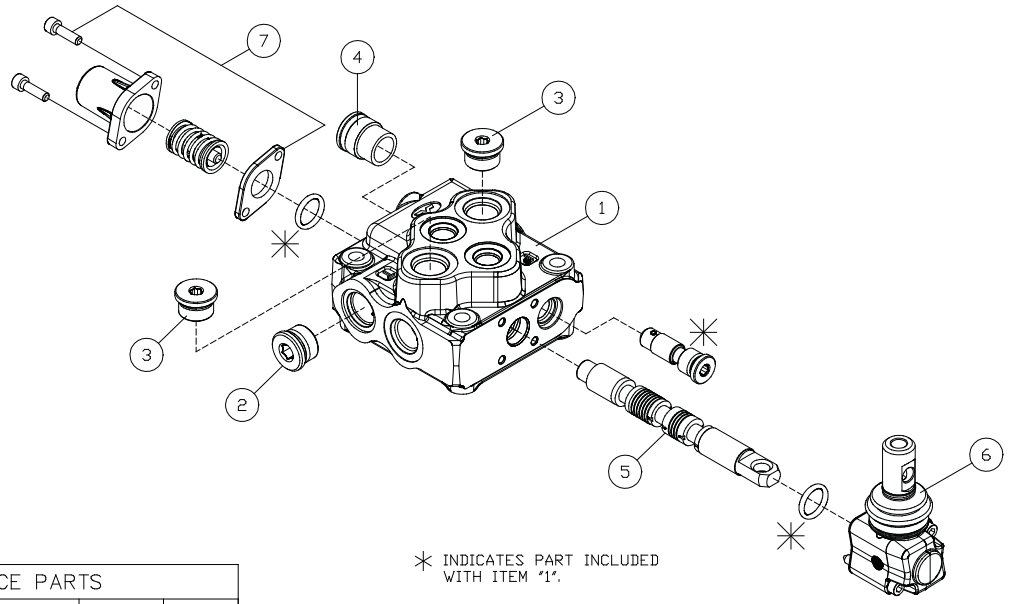
FINISH: PAINT SEMI GLOSS BLACK

DWN. BY	DATE
PE	6-20-95
SIZE	SCALE
B	1=9
LOCATION	MANUAL
V	–
SHEET	
1 OF 2	

TITLE: LOWER CONTROL VALVE (OPEN CENTER)

DWG. NO.: 54176-SEE ABOVE

REV.



✳ INDICATES PART INCLUDED WITH ITEM "1".

SERVICE PARTS			
ITEM SEE SHEET 2	PART DESCRIPTION	TIME PART NO	QTY
1	VALVE BODY PARTS GROUP	–	1
2	AET/SD5 PLUG	Y3260	1
3	SAE8 PLUG	Y3261	2
4	SV/VMP5 PLUG	Y1639	1
5	1EDY/SD5 SPOOL	Y3417	1
6	LSG/S5-M10 LEVER KIT W/SCREWS	Y3418	1
7	SPOOL POSITIONER PARTS GROUP	Y3268	1

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: ___

FINISH: PAINT SEMI GLOSS BLACK

DWN. BY	DATE
MAS	10/1/14
SIZE	SCALE
B	1=6
LOCATION	MANUAL
SHEET	
2 OF 2	

TITLE: CONTROL VALVE (SINGLE SPOOL)

DWG. NO. 54422-1

SECTION 126

Cylinders
(Option HYD-1280-2)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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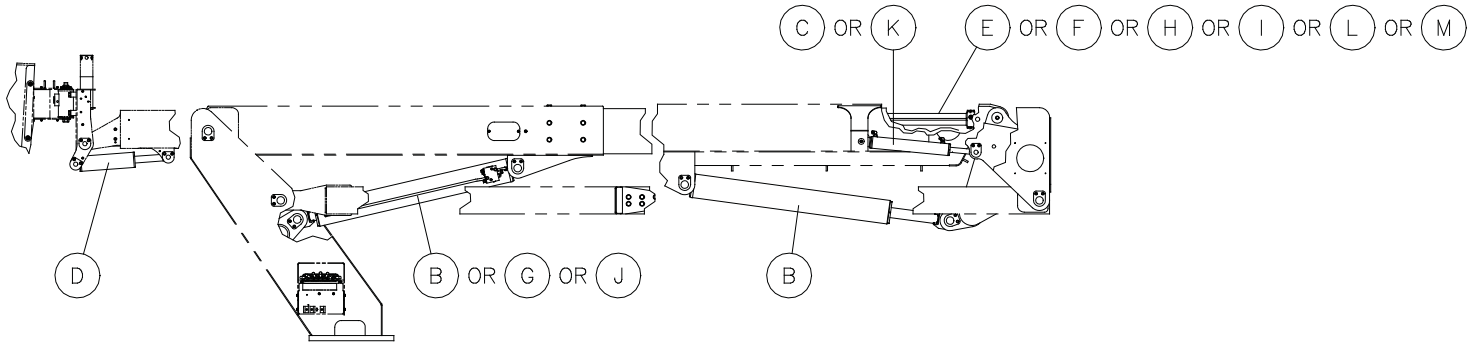
REV.



DASH NO.	DESCRIPTION	OPTION CODE
−1	CYLINDERS VST−7500	HYD−1280−1
−2	CYLINDERS VST−9000	HYD−1280−2
−3	CYLINDERS VST−7500 SPECIAL (EXTENSION CYLINDER WITH 12" LESS STROKE)	HYD−1280−3
−4	CYLINDERS VST−9000 SPECIAL (EXTENSION CYLINDER WITH 12" LESS STROKE)	HYD−1280−4
−5	CYLINDERS VST−7500 TEXAS HYDRAULICS	HYD−1280−5
−6	CYLINDERS VST−9000 TEXAS HYDRAULICS	HYD−1280−6
−7	CYLINDERS VST−7500 SPECIAL TEXAS HYDRAULICS (EXTENSION CYLINDER WITH 12" LESS STROKE)	HYD−1280−7
−8	CYLINDERS VST−8000	HYD−1280−8
−9	CYLINDERS VST−9500 SPECIAL (EXTENSION CYLINDER WITH 58" MORE STROKE)	HYD−1280−9

−9	−8	−7	−6	−5	−4	−3	−2	−1	ITEM	PART NO.	DESCRIPTION
QUANTITY											
1	–	–	–	–	–	–	–	–	M	53084−1	CYLINDER, EXTENSION
–	1	–	–	–	–	–	–	–	L	53066−1	CYLINDER, BOOM EXTEND
–	–	1	1	1	–	–	–	–	K	53011−2	CYLINDER, MASTER LEVELING
–	–	2	1	2	–	–	–	–	J	53010−2	CYLINDER, BOOM LIFT
–	–	–	–	–	1	–	–	–	I	53036−2	CYLINDER, EXTENSION
–	–	1	–	–	–	1	–	–	H	53009−2	CYLINDER, EXTENSION
1	–	–	1	–	1	–	1	–	G	53045−1	CYLINDER, BOOM LIFT
–	–	–	1	–	–	–	1	–	F	53036−1	CYLINDER, EXTENSION
–	–	–	–	1	–	–	–	1	E	53009−1	CYLINDER, EXTENSION
1	1	1	1	1	1	1	1	1	D	53007−1	CYLINDER, SLAVE LEVELING
1	1	–	–	–	1	1	1	1	C	53011−1	CYLINDER, MASTER LEVELING
1	2	–	–	–	1	2	1	2	B	53010−1	CYLINDER, BOOM LIFT
1	1	1	1	1	1	1	1	1	A	32378−DWG	CYLINDER ASSEMBLY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES

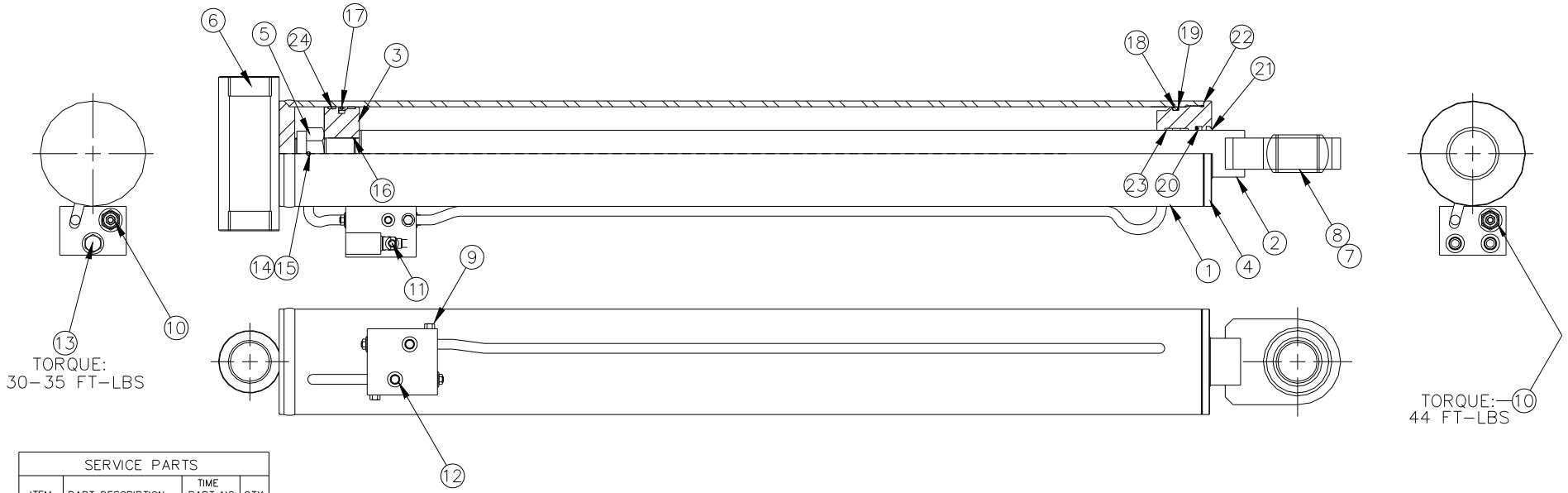
TIME MANUFACTURING COMPANY WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL

FINISH: ----

DWN. BY	DATE	TITLE
LBR	10-5-05	CYLINDERS ASSEMBLY
SIZE: B	SCALE: 1=35	
EST WT #	MANUAL: –	
SHEET: 1 OF 1	DWG. NO.: 32378−DWG	

BOOM LIFT CYLINDER ASSEMBLY



SERVICE PARTS			
ITEM	PART DESCRIPTION	TIME PART NO	QTY
1	TUBE ASSEMBLY	–	1
2	ROD ASSEMBLY	–	1
3	PISTON	Y3002	1
4	HEAD	Y3003	1
5	LOCKNUT, 2"–12	Y3004	1
6	BUSHING	8526–9	1
7	BUSHING	8526–2	2
8	SPHERICAL BUSHING	Y2791	1
9	BLEEDER PLUG	Y2682	3
10	COUNTER BALANCE VALVE	Y3005	1
11	PLUG, SAE #4	Y2484	4
12	PLUG, SAE #6	Y2826	2
13	RELIEF VALVE	Y3006	1
14	SETSCREW	Y2523	1
15	NYLON PLUG	Y2260	1
* 16	O–RING	NSS	1
* 17	AQ SEAL	NSS	1
* 18	O–RING	NSS	1
* 19	BACK–UP RING	NSS	1
* 20	U–CUP	NSS	1
* 21	WIPER	NSS	1
* 22	O–RING	NSS	1
* 23	WEAR RING	NSS	3
* 24	WEAR RING	NSS	2
–	SEAL KIT	Y3007	1

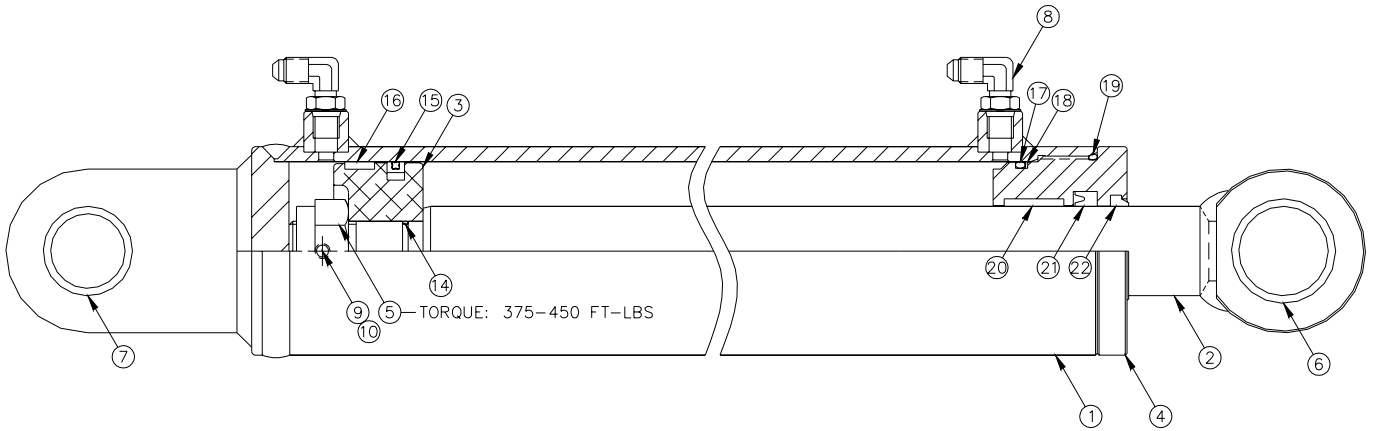
* SEAL KIT CONTAINS ITEMS 1 – 9.
* NSS (NOT SOLD SEPARATELY)

TEMPLE MACHINE SHOP

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS; FRACTIONS ± 1/16 .X ± 1; ANGLES ± 1° .XX ± .03; .XXX ± .005; MACHINED SURFACE FINISHES= 125; PROJECTION OF VIEWS; ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY LBR	DATE 7-6-05	TITLE CYLINDER ASSEMBLY, BOOM LIFT
		SIZE B	SCALE 1=4.25	
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	MATERIAL – – –	EST WT #	MANUAL	
	FINISH SEE ABOVE	SHEET 4 OF 4		DWG. NO. 53010–SEE ABOVE

REV. A

LEVELING MASTER CYLINDER ASSEMBLY



TMS

SERVICE PARTS				
	ITEM SEE SHT 2	PART DESCRIPTION	TIME PART NO	-1 QTY
	1	TUBE ASSEMBLY	Y2885	1
	2	ROD ASSEMBLY	Y2886	1
	3	PISTON	Y2786	1
	4	HEAD	Y2887	1
	5	LOCKNUT, 1"-14	Y2526	1
	6	BEARING	10025-6	1
	7	BEARING	10865-3	1
	8	FITTING	Y2503	1
	9	SET SCREW	Y2888	2
	10	NYLON PLUG	Y2260	2
*	14	O-RING	NSS	1
*	15	AQ SEAL	NSS	1
*	16	WEAR RING	NSS	1
*	17	O-RING	NSS	1
*	18	BACK-UP RING	NSS	1
*	19	O-RING	NSS	1
*	20	WEAR RING	NSS	1
*	21	U-CUP	NSS	1
*	22	WIPER	NSS	2
	-	SEAL KIT	Y2889	1

* THESE ITEMS ARE INCLUDED IN THE SEAL KIT. NSS (NOT SOLD SEPARATELY)

** THESE ITEMS ARE NOT INCLUDED IN THE SEAL KIT BUT MUST BE REPLACED WHEN REPLACING THE SEAL KIT AND MUST BE PURCHASED SEPERATLY.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY WACO TEXAS

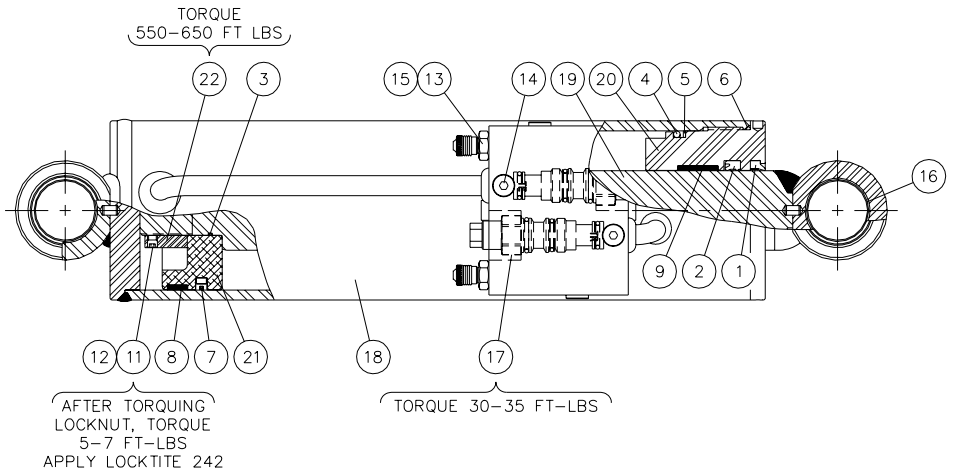
MATERIAL ---

FINISH ---

DWN. BY	DATE	TITLE
LBR	7-7-05	CYLINDER, LEVELING MASTER
SIZE B	SCALE 1=2	
LOCATION V	MANUAL -	
SHEET 4 OF 4	DWG. NO. 53011-1	

REV.

LEVELING SLAVE CYLINDER ASSEMBLY



	SERVICE PARTS			
	ITEM SEE SHT 2	PART DESCRIPTION	TIME PART NO	–1 QTY
*	1	WIPER	NSS	1
*	2	SEAL	NSS	1
*	3	O–RING	NSS	1
*	4	O–RING	NSS	1
*	5	BACK–UP	NSS	1
*	6	O–RING	NSS	1
*	7	SEAL	NSS	1
*	8	WEAR RING	NSS	1
*	9	WEAR RING	NSS	2
	10	SEAL KIT	Y2234	1
*	11	SET SCREW	Y1684	1
*	12	NYLON PLUG	Y1813	1
	13	TUBE FITTING SAE #4	50009–1	2
	14	PORT PLUG	Y2325	4
	15	CAP	Y1936	2
	16	BUSHING	10025–1	4
	17	COUNTERBALANCE VALVE	Y2242	2
	18	TUBE ASSEMBLY	Y2360	1
	19	ROD ASSEMBLY	Y2361	1
	20	HEAD	Y1869	1
	21	PISTON	Y1870	1
*	22	LOCKNUT	Y1871	1

* SEAL KIT CONTAINS ITEMS 1 THRU 9, 11,12,22.
NSS (NOT SOLD SEPARATELY)

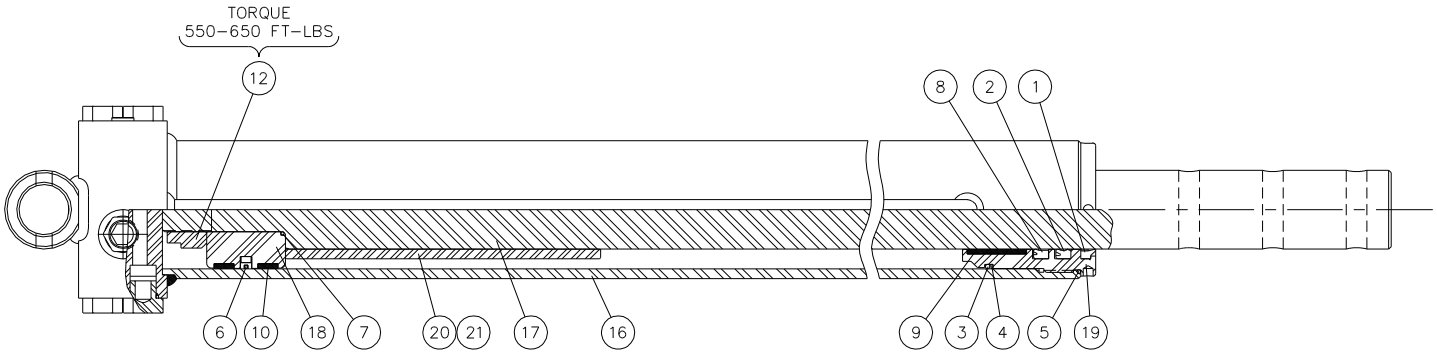
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

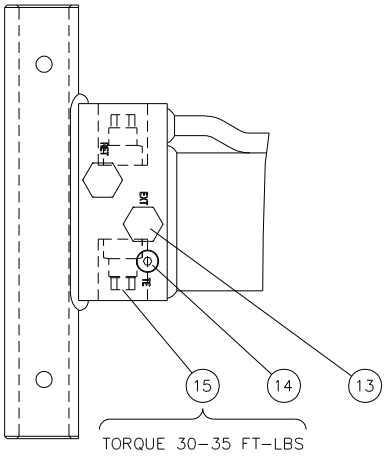
TIME MANUFACTURING COMPANY
WACO TEXAS

DWN. BY	DATE	TITLE	
LBR	7–8–05	CYLINDER, SLAVE LEVELING	
SIZE	SCALE		
B	1=3		
MATERIAL	LOCATION	MANUAL	
---	V	–	
FINISH	SHEET	DWG. NO.	
---	2 OF 2	53007–1	

REV.

BOOM EXTEND CYLINDER ASSEMBLY





SERVICE PARTS

	ITEM	PART DESCRIPTION	TIME PART NO	–1 QTY	–2 QTY
*	1	WIPER	NSS	1	1
*	2	SEAL	NSS	1	1
*	3	O–RING	NSS	1	1
*	4	BACK–UP	NSS	1	1
*	5	O–RING	NSS	1	1
*	6	SEAL	NSS	1	1
*	7	O–RING	NSS	1	1
*	8	SEAL	NSS	1	1
*	9	WEAR RING	NSS	3	3
*	10	WEAR RING	NSS	2	2
*	11	SEAL KIT	Y2362	1	1
	12	LOCKNUT	Y1341	1	1
	13	PORT PLUG (SAE #8)	Y2363	4	4
	14	PORT PLUG (SAE #4)	Y2325	2	2
	15	COUNTERBALANCE VALVE	54118–6	2	2
	16	TUBE ASSEMBLY	Y2744	1	1
	17	ROD	Y2745	1	1
	18	PISTON	Y2367	1	1
	19	HEAD	Y2368	1	1
	20	SPACER (8.00 LONG)	Y2746	1	–
	21	SPACER (20.00 LONG)	–	–	1

* SEAL KIT CONTAINS ITEMS 1 – 10.
* NSS (NOT SOLD SEPARATELY)

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

DWN. BY	DATE	TITLE	
RAL	2/19/09	CYLINDER, BOOM EXTENSION	
SIZE	SCALE		
B	1/3		
MATERIAL	EST WT #	MANUAL	
– – –	–	–	
FINISH	SHEET	DWG. NO.	
SEE NOTE 5	2 OF 2	53036–SEE ABOVE	

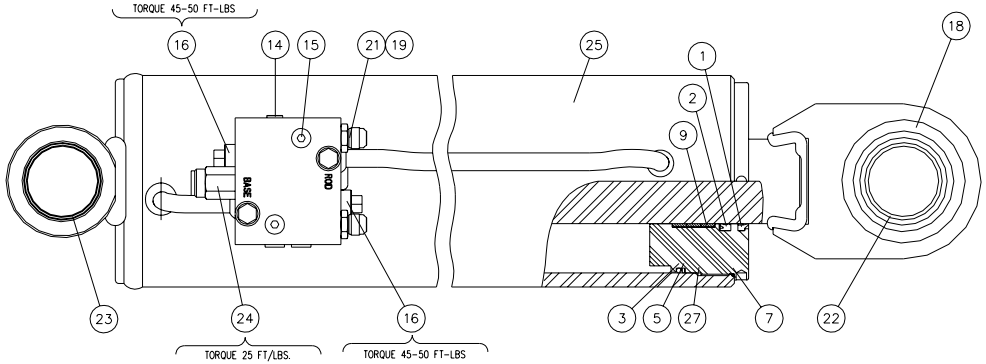
Lot No. (527-100082859-53036-1)

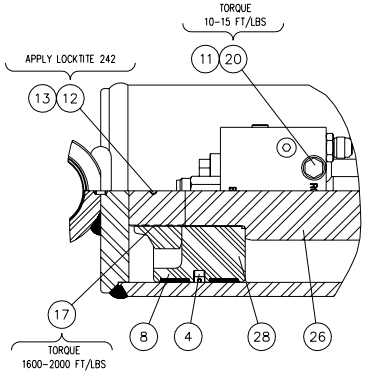
REV. A

BOOM LIFT CYLINDER ASSEMBLY

	SERVICE PARTS			
	ITEM SEE SHT 2	PART DESCRIPTION	TIME PART NO	-1 QTY
*	1	WIPER	NSS	1
*	2	SEAL	NSS	1
*	3	O-RING	NSS	1
*	4	SEAL	NSS	1
*	5	BACK-UP	NSS	1
*	6	O-RING	NSS	1
*	7	O-RING	NSS	1
*	8	WEAR RING	NSS	4
*	9	WEAR RING	NSS	3
	10	SEAL KIT	Y2828	1
	11	WASHER SEAL	Y1811	2
	12	SETSCREW	Y1812	1
	13	NYLON PLUG	Y1813	1
	14	PORT PLUG	Y2325	1
	15	PORT PLUG	Y2022	4
	16	CARTRIDGE VALVE	Y2346	2
	17	LOCKNUT	Y2354	1
	18	SPHERICAL BUSHING	Y2348	1
	19	CAP	Y2349	2
	20	BLEEDER PLUG	Y1816	2
	21	TUBE ADAPTER SAE #8	50009-4	2
	22	BUSHING	8526-9	1
	23	BUSHING	8526-2	2
	24	RELIEF VALVE	Y2350	1
	25	TUBE ASSEMBLY	Y2829	1
	26	ROD ASSEMBLY	Y2352	1
	27	HEAD	Y2830	1
	28	PISTON	Y2831	1

* SEAL KIT CONTAINS ITEMS 1 – 9.
* NSS (NOT SOLD SEPARATELY)





BASE END INTERNAL DETAIL

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY DF	DATE 6/9/09	TITLE CYLINDER ASSEMBLY, BOOM LIFT
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	MATERIAL ---	SIZE B	SCALE 1=4.25	
	FINISH -------	EST WT #	MANUAL –	
		SHEET 2 OF 2		DWG. NO. 53045-1

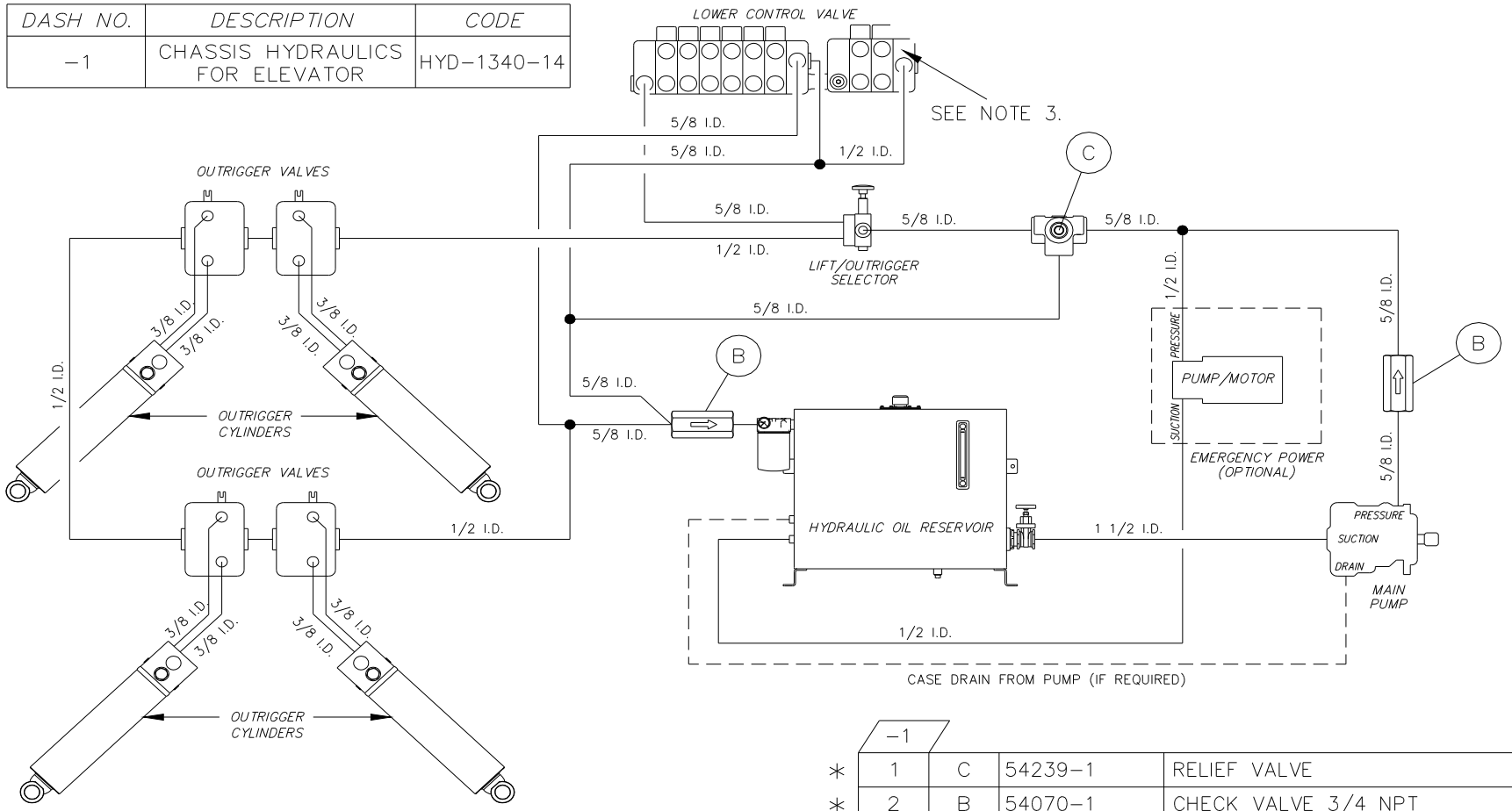
SECTION 127

Chassis Hydraulics for Elevator (Option HYD-1340-14)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

REV.

DASH NO.	DESCRIPTION	CODE
–1	CHASSIS HYDRAULICS FOR ELEVATOR	HYD–1340–14



NOTES:
1.) ∗ INDICATES PART IS SHIPPED LOOSE.
2.) ITEM "C" SYSTEM RELIEF VALVE IS NOT PRE–SET AND MUST BE ADJUSTED TO THE PROPER RELIEF PRESSURE AFTER INSTALLATION OF THE LIFT IS COMPLETE. SEE JIC HYDRAULIC SCHEMATIC FOR THE PRESSURE SETTING.
3.) LIFT FUNCTION LINES FROM ELEVATOR TO HAVE THE SAME HOSE I.D. AS THOSE SUPPLIED WITH THE ELEVATOR. (SEE ELEVATOR HOSE KIT)

–1

	QTY.	ITEM	PART NO.	DESCRIPTION
∗	1	C	54239–1	RELIEF VALVE
∗	2	B	54070–1	CHECK VALVE 3/4 NPT
	1	A	1000727–DWG	CHASSIS HYDRAULICS

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125/
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

FINISH

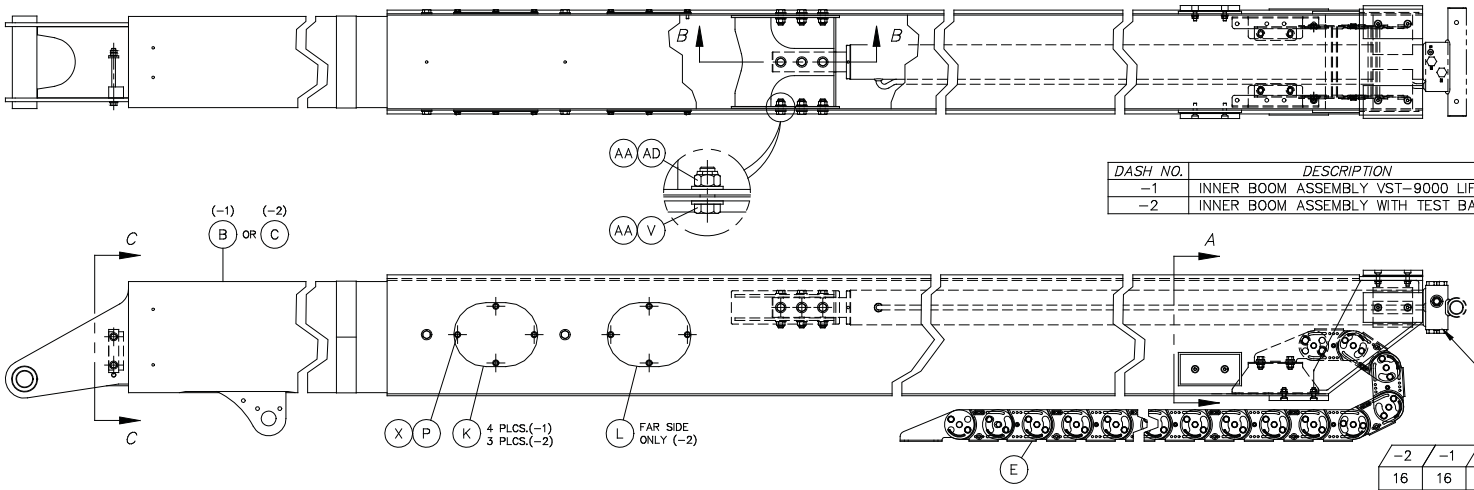
DWN. BY	DATE
LBR	10-9-12
SIZE	SCALE
A	1=2
EST WT #	MANUAL
	–
SHEET	DWG. NO.
1 OF 1	1000727–DWG

TITLE: CHASSIS HYDRAULICS WITH ELEVATOR V0350/450

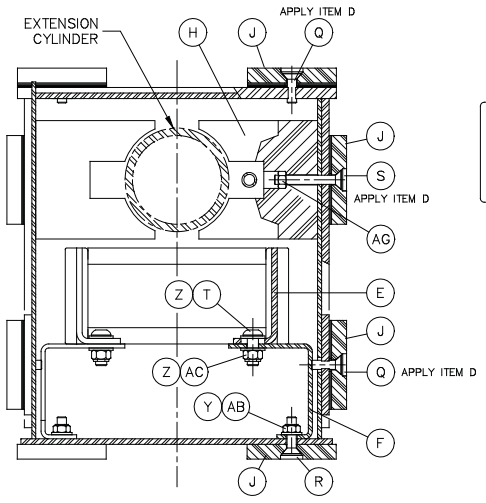
SECTION 128

Inner Boom Assembly w/ Test Band
Lift Elevator
(Option IB-1280-32)

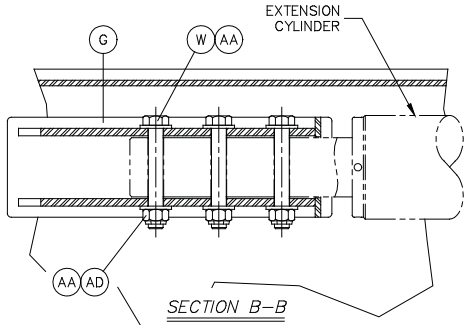
When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.



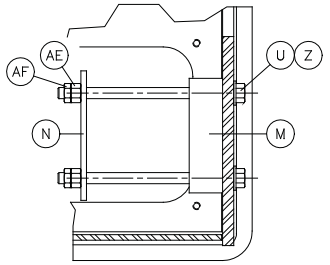
DASH NO.	DESCRIPTION	CODE
-1	INNER BOOM ASSEMBLY VST-9000 LIFT ELEVATOR	IB-1280-31
-2	INNER BOOM ASSEMBLY WITH TEST BAND VST-9000 LIFT ELEVATOR	IB-1280-32



SECTION A-A
SCALE.....3X



SECTION B-B
SCALE.....3X



SECTION C-C
SCALE.....3X

-2	-1	ITEM	PART NO.	DESCRIPTION
			(CONTINUED BELOW)	
16	16	X	44013-7	1/4 HARDENED WASHER
3	3	W	40006-15	1/2 -13NC X 3 1/2 LG. HHCS
6	6	V	40006-6	1/2-13NC X 1 1/4 LG. HHCS
2	2	U	40004-21	3/8-16NC X 6 LG. HHCS
4	4	T	40083-1	3/8-16NC X 1 LG. BUTTON HD CS
4	4	S	40000-37	5/16-18NC X 2 1/4 LG. FSHCS
4	4	R	40000-27	5/16-18NC X 1 1/4 LG. FSHCS
8	8	Q	40000-3	5/16-18NC X 1 LG. FSHCS
16	16	P	40002-1	1/4-20NC X 1/2 LG HHCS
1	1	N	26009-1	U-BOLT SPACER
1	1	M	8712-3	SPACER, HOSE
1	–	L	32252-2	COVER, INSPECTION W/TEST BAND
3	4	K	32252-1	COVER, INSPECTION
8	8	J	32352-1	WEAR PAD 1/2 THK
2	2	H	32244-1	WEAR PAD, EXTENSION CYLINDER
1	1	G	32253-1	MOUNTING BRKT, CYLINDER ROD
2	2	F	1001191-1	MOUNTING BRKT, HOSE TRACK
1	1	E	1001190-2	HOSE TRACK
AR	AR	D	06-046	BLUE THREADLOCK
1	–	C	34188-2	GLUE ASS'Y, INNER BM W/TST BND
–	1	B	34188-1	GLUE ASS'Y, INNER BOOM
1	1	A	1005400-DWG	INNER BOOM ASSEMBLY
QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

-2	-1	ITEM	PART NO.	DESCRIPTION
			(CONTINUED FROM ABOVE)	
4	4	AG	42000-2	5/16-18NC HEX NUT
2	2	AF	42002-3	3/8-16NC JAM NUT
2	2	AE	42000-3	3/8-16NC HEX NUT
9	9	AD	42005-5	1/2-13NC LOCKNUT
4	4	AC	42005-3	3/8-16NC LOCKNUT
4	4	AB	42005-2	5/16-18NC LOCKNUT
18	18	AA	44013-3	1/2 HARDENED WASHER
10	10	Z	44013-6	3/8 HARDENED WASHER
4	4	Y	44013-5	5/16 HARDENED WASHER
QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL (CONTINUED)

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: –

DWN. BY	DATE
AMB	9/10/14
SIZE	SCALE
B	1/12
EST WT #	MANUAL
–	
SHEET	
1 OF 1	

TITLE: INNER BOOM ASSEMBLY
DWG. NO. 1005400-DWG

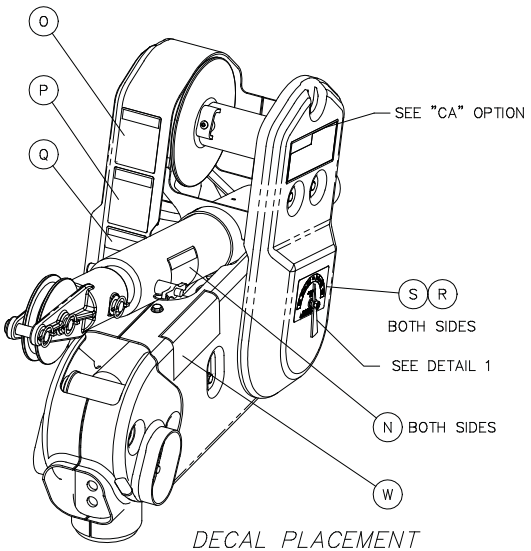
SECTION 129

Jib & Winch
(Option JW-1270-15)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

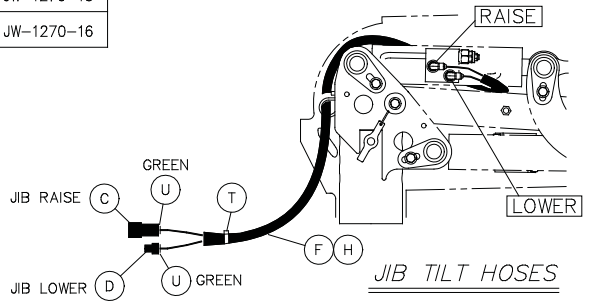
REV.

DASH NO.	DESCRIPTION	OPTION
–1	ARTICULATED JIB AND WINCH, VST, 1000 LB MAX	JW–1270–15
–2	ARTICULATED JIB AND WINCH, VST, 450 KG MAX	JW–1270–16

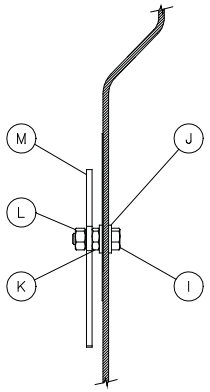


DECAL PLACEMENT

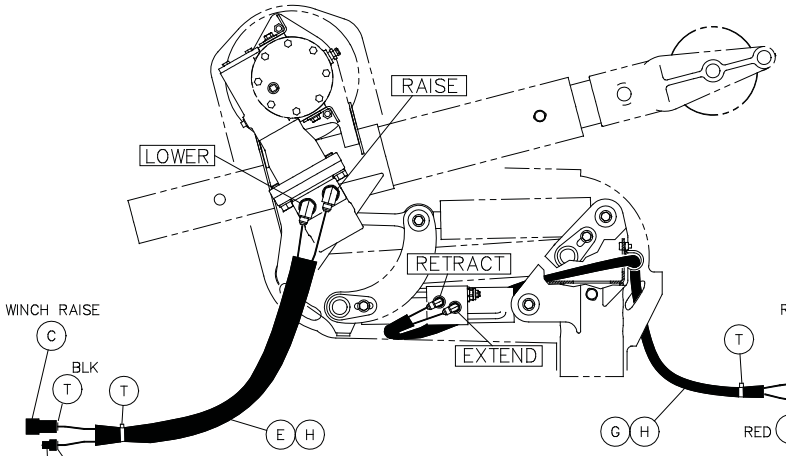
NOTE:
INSTALL COLORED CABLE TIES BETWEEN QUICK CONNECT AND HOSE END TO IDENTIFY CIRCUITS AS FOLLOWS:
1.) JIB EXTEND AND RETRACT USE ITEM "V" (RED).
2.) JIB RAISE AND LOWER USE ITEM "U" (GREEN).
3.) WINCH RAISE AND LOWER USE ITEM "T" (BLACK)



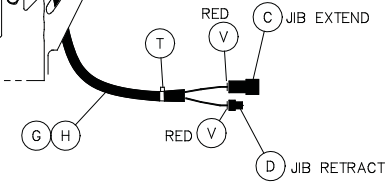
JIB TILT HOSES



DETAIL 1
TYP BOTH SIDES
SCALE = 3X



WINCH HOSES



JIB EXTENSION HOSES

–2	–1	ITEM	PART NO.	DESCRIPTION
1	1	W	11446–1	DECAL, DANGER JIB & WINCH PRPR USE
2	2	V	48013–8	CABLE TIE (RED)
2	2	U	48013–9	CABLE TIE (GREEN)
5	5	T	48013–2	CABLE TIE (BLACK)
2	–	S	35153–2	DECAL, JIB CAPACITY (KG)
–	2	R	35153–1	DECAL, JIB CAPACITY (LBS)
1	1	Q	35155–1	DECAL, CAUTION JIB STOW
1	1	P	35154–1	DECAL, DANGER MOVING JIB
1	1	O	35156–1	DECAL, DANGER JIB PINS
2	2	N	35378–1	DECAL, DANGER ENTANGLEMENT
2	2	M	34736–1	POINTER
2	2	L	42005–1	1/4–20NC LOCK NUT
2	2	K	42002–1	1/4–20NC JAM NUT
4	4	J	44013–7	1/4 HARDENED WASHER
2	2	I	40002–4	1/4–20NC X .875 LG HHCS
3	3	H	89088–13	HOSE SLEEVE (51 LG)
2	2	G	55651–5	1/8 ID HOSE ASSY (60 LG)
2	2	F	55651–4	1/8 ID HOSE ASSY (53 LG)
2	2	E	55652–3	1/4 ID HOSE ASSY (50 LG)
3	3	D	50159–4	MALE QUICK DISCONNECT
3	3	C	50090–3	FEMALE QUICK DISCONNECT
1	1	B	35157–1	JIB ASSEMBLY, ARTICULATED
1	1	A	35158–DWG	DRAWING, ARTICULATED JIB & WINCH

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

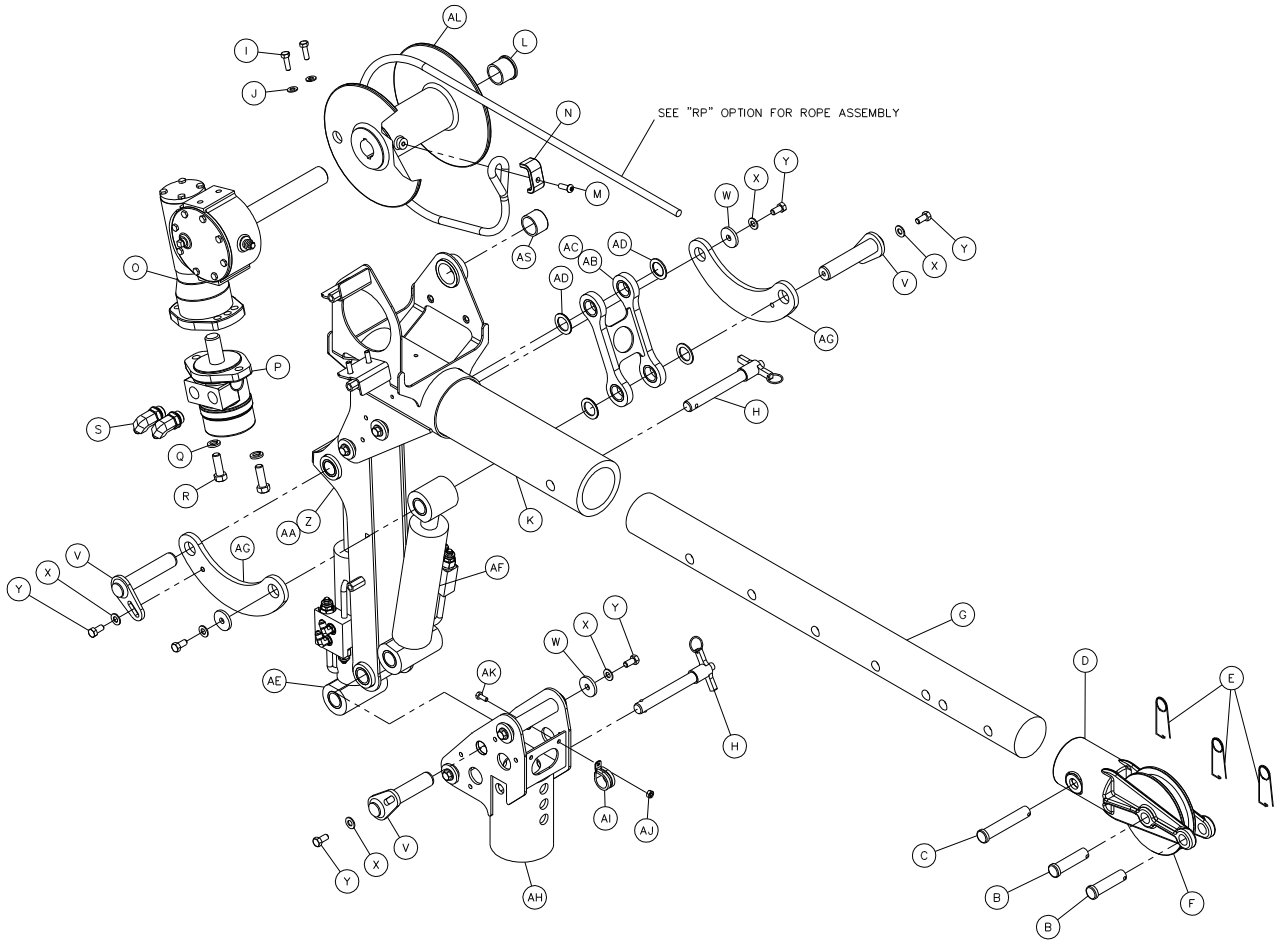
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH:

DWN. BY	DATE
SRS	03/15/10
SIZE	SCALE
B	1/8
EST WT #	MANUAL
–	
SHEET	
1 OF 1	

TITLE: ARTICULATED JIB AND WINCH, VST

DWG. NO. 35158–DWG



-1			
A/R	AT	06-046	SENTRY SEAL BLUE
1	AS	72007-16	BUSHING, BRONZE SLEEVE 1.5 OD
1	AR	35140-1	COVER, WINCH
1	AQ	35140-2	COVER, WINCH
1	AP	35141-1	COVER, ARM
1	AO	35141-2	COVER, ARM
1	AN	35142-1	COVER, JIB TURRET RH
1	AM	35143-1	COVER, JIB TURRET LH
1	AL	10788-1	DRUM
2	AK	40002-2	1/4NC X 5/8 LG HHCS
2	AJ	42005-1	1/4NC LOCK NUT
2	AI	87000-16	LINE SUPPORT CLAMP
1	AH	35146-1	JIB TURRET WELDMENT
2	AG	35139-1	LOWER LINK
1	AF	53046-1	CYLINDER, JIB TILT
1	AE	53047-1	CYLINDER, JIB EXTEND
4	AD	72022-4	MACHINERY BUSHING
4	AC	10024-2	BEARING, NONLUBE 1.25 OD X .5 LG
1	AB	35136-1	UPPER LINK WELDMENT
6	AA	10024-3	BEARING, NONLUBE 1.25 OD X 1 LG
1	Z	35145-1	JIB ARM WELDMENT
14	Y	40004-2	3/8NC X 5/8 HHCS
14	X	44013-6	3/8 HARDENED WASHER
7	W	44016-1	PIN CAP
7	V	11753-7	PIN ASSY, 1 DIA X 4.63 LG
3	U	42043-1	3/8NC WELD NUT, DUAL TAPPED
16	T	40171-10	3/8NC X 5/8 LG FIBER SCREW
2	S	50011-26	ELBOW, #10 O-RING TO #6 JIC 90°
2	R	40006-6	1/2NC X 1.25LG HHCS
2	Q	44000-13	1/2 LOCK WASHER
1	P	56000-12	HYDRAULIC MOTOR
1	O	10866-1	WINCH GEARBOX
1	N	87013-1	ROPE CLIP
1	M	40083-7	5/16NC X 1LG BUTTON HEAD
1	L	72011-12	BUSHING, BRONZE FLANGE
1	K	35126-1	JIB WINCH GLUE ASSEMBLY
4	J	44013-5	5/16 HARDENED WASHER
4	I	40003-5	5/16NC X 1LG HHCS
2	H	45013-3	PIN, BALL LOCK .75 DIA 4.5 GRIP
1	G	34087-1	JIB EXTENSION
1	F	71020-1	SHEAVE
3	E	1000500-1	SAFETY PIN
1	D	35120-1	SHEAVE ADAPTER
1	C	45002-30	CLEVIS PIN
2	B	45002-46	CLEVIS PIN
1	A	35157-DWG	DRAWING, JIB ASSEMBLY ARTICULATED
QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

NOTES:
1. LUBRICATE WINCH SHAFT WITH CHAIN LUBE
2. TORQUE PIN RETAINER FASTENERS PER TMC-778 AND APPLY TORQUE SEAL ITEM AT
3. SEE RP OPTIONS FOR ROPE ASSEMBLY

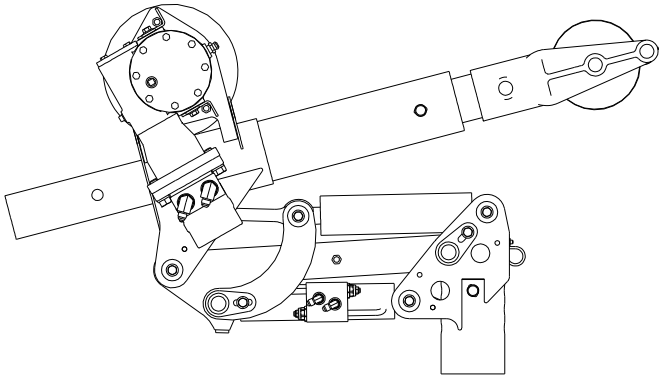
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

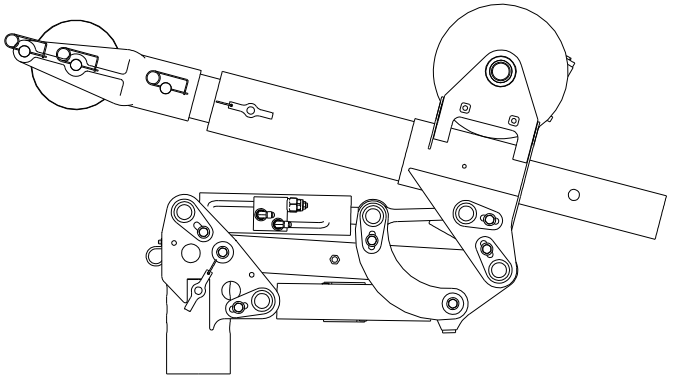
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH:

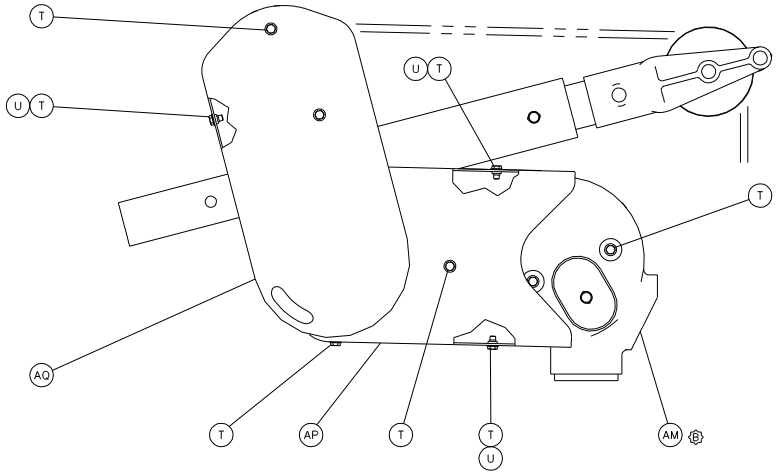
DWN. BY	DATE	TITLE
SRS	03/15/10	JIB ASSEMBLY, ARTICULATED
SIZE: B	SCALE: 1/8	
EST WT #:	MANUAL: —	
SHEET: 1 OF 2	DWG. NO.: 35157-DWG	

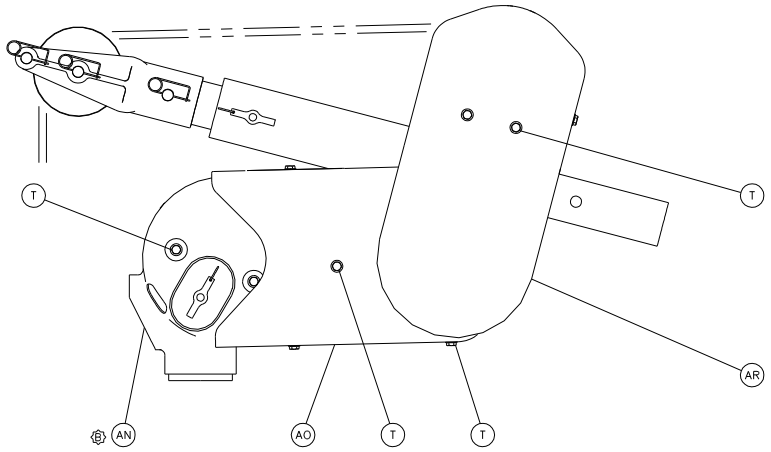
REV.





ASSEMBLED VIEWS BEFORE COVERS



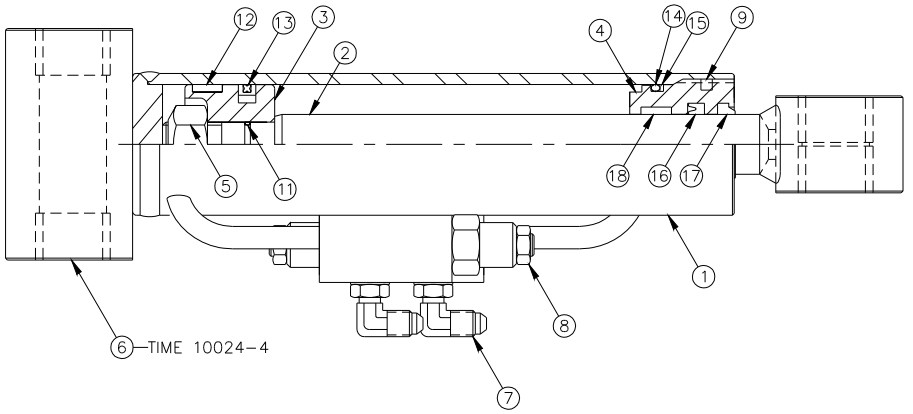


COMPLETE ASSEMBLY WITH COVERS

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY: SRS	DATE: 03/15/10	TITLE: JIB ASSEMBLY, ARTICULATED
		SIZE: B	SCALE: 1/8	
	MATERIAL: SEE ABOVE	EST WT #:	MANUAL: –	
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	FINISH	SHEET: 2 OF 2		DWG. NO.: 35157-DWG

REV. A

JIB EXTEND CYLINDER ASSEMBLY



	ITEM	PART DESCRIPTION	−1 QTY.	TIME PART NO.
	1	TUBE ASSEMBLY	1	Y3077
	2	ROD	1	Y3078
	3	PISTON	1	Y3079
	4	HEAD	1	Y3080
**	5	LOCKNUT, 3/4"−16	1	Y2532
	6	BEARING	4	10024−4
	7	FITTING	2	Y2503
**	8	C'BALANCE VALVE	2	Y3075
**	9	NYLON PLUG	1	Y2507
*	11	O−RING	1	NSS
*	12	WEAR RING	1	NSS
*	13	AQ−SEAL	1	NSS
*	14	O−RING	1	NSS
*	15	BACK−UP RING	1	NSS
*	16	U−CUP	1	NSS
*	17	WIPER	1	NSS
*	18	WEAR RING	1	NSS
	−	SEAL KIT	1	Y3081

* THESE ITEMS ARE INCLUDED IN SEAL KIT.
NSS (NOT SOLD SEPARATELY)

** THESE ITEMS ARE NOT INCLUDED IN SEAL KIT BUT MUST BE REPLACED WHEN REPLACING SEAL KIT AND MUST BE PURCHACED SEPARATELY.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: SEE ABOVE

DWN. BY	DATE
KCM	03/15/10
SIZE	SCALE
B	1/2
EST WT #	MANUAL
	−
SHEET	
2 OF 2	

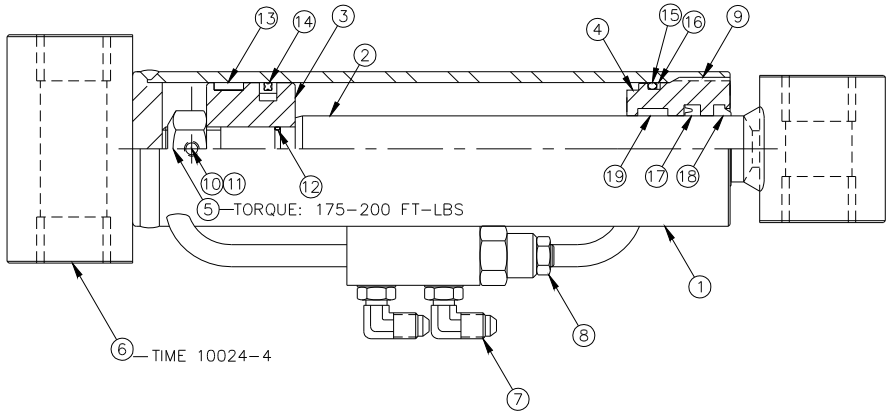
TITLE: CYLINDER, JIB EXTEND

DWG. NO. 53047−1

REV. B

JIB TILT CYLINDER SERVICE PARTS

	ITEM	PART DESCRIPTION	−1 QTY.	TIME PART NO.
	1	TUBE ASSEMBLY	1	Y3071
	2	ROD ASSEMBLY	1	Y3072
	3	PISTON	1	Y3073
	4	HEAD	1	Y3074
**	5	LOCKNUT, 3/4"−16	1	Y2861
**	6	BEARING	4	10024−4
	7	FITTING	2	Y2503
	8	C'BALANCE VALVE	1	Y3075
	9	NYLON PLUG	1	Y2507
	10	SET SCREW	1	Y2523
	11	NYLON PLUG	1	Y2260
*	12	O−RING	1	NSS
*	13	WEAR RING	1	NSS
*	14	AQ−SEAL	1	NSS
*	15	O−RING	1	NSS
*	16	BACK−UP RING	1	NSS
*	17	U−CUP	1	NSS
*	18	WIPER	1	NSS
*	19	WEAR RING	1	NSS
	−	SEAL KIT	1	Y3076



* THESE ITEMS ARE INCLUDED IN SEAL KIT. NSS (NOT SOLD SEPARATELY)

** THESE ITEMS ARE NOT INCLUDED IN SEAL KIT BUT MUST BE REPLACED WHEN REPLACING SEAL KIT AND MUST BE PURCHACED SEPARATELY.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: SEE ABOVE

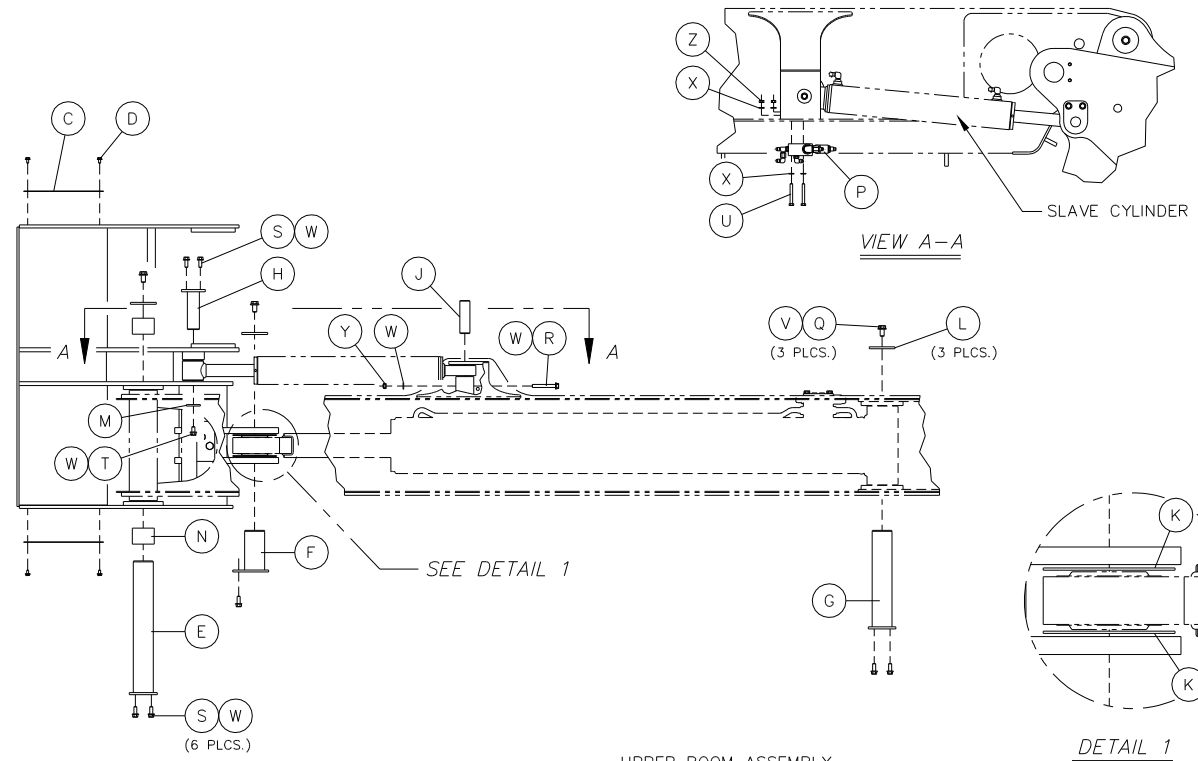
DWN. BY	DATE	TITLE
KCM	03/15/10	CYLINDER, JIB TILT
SIZE: B	SCALE: 1/2	
EST WT #:	MANUAL: −	
SHEET: 2 OF 2		DWG. NO.: 53046−1

Lot No. (1134-100086804-53046-1)

SECTION 130

Knuckle Assembly
(Option KN-1280-1)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.



-1			
2	Z	42005–2	5/16–18NC HEX LOCKNUT
4	Y	42005–3	3/8–16NC HEX LOCKNUT
4	X	44013–5	5/16 HARDENED WASHER
11	W	44013–6	3/8 HARDENED WASHER
3	V	44013–3	1/2 HARDENED WASHER
2	U	40003–11	5/16–18NC X 2 1/2 LG. HHCS
1	T	40004–3	3/8–16NC X 3/4 LG. HHCS
8	S	40004–7	3/8–16NC X 1 1/2 LG. HHCS
1	R	40004–13	3/8–16NC X 3 LG. HHCS
3	Q	40006–5	1/2–13NC X 1 LG HHCS
1	P	32349–1	LEVELING VALVE ASSEMBLY
REF	N	8526–6	BEARING 2 3/4 OD X 2 LG.
1	M	44016–4	PIN CAP
3	L	5531–1	PIN CAP
2	K	10226–1	PIVOT SPACER 5 1/2 OD X .094 THK
1	J	32350–1	PIN 1 1/4 X 4 1/4 LG.
1	H	11724–5	PIN 1 1/2 X 4 3/4 LG.
1	G	8546–15	PIN 2 1/2 X 12 1/8 LG.
1	F	8546–9	PIN 2 1/2 X 5 LG.
1	E	8546–2	PIN 2 1/2 X 16 1/2 LG.
8	D	40002–1	1/4–20NC X 1/2 LG. HHCS
2	C	11821–1	COVER
1	B	32272–1	KNUCKLE WELDMENT
1	A	32347–DWG	KNUCKLE ASSEMBLY
QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

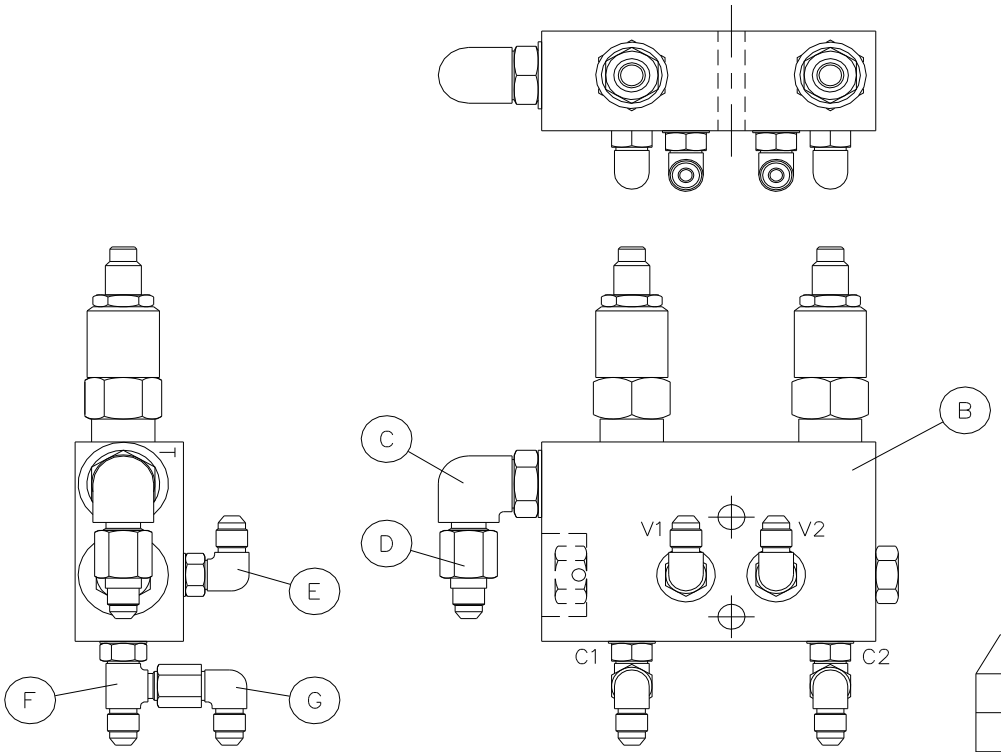
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ---

DWN. BY	DATE
LBR	7-5-05
SIZE: B	SCALE: 1=15
LOCATION: V	MANUAL: –
SHEET: 1 OF 1	

TITLE: KNUCKLE ASSEMBLY
DWG. NO.: 32347–DWG

REV.



–1

QTY.	ITEM	PART NO.	DESCRIPTION
2	G	50004–1	1/4 JIC 90° S.N. ELBOW
2	F	50163–1	#4 O/R TO 1/4 JIC RUN TEE
2	E	50011–1	#4 O/R TO 1/4 JIC 90° ELBOW
1	D	50114–1	3/8 JIC TO 1/4 JIC TUBE END RED.
1	C	50011–14	#8 O/R TO 3/8 JIC 90° ELBOW
1	B	10035–1	LEVELING RELIEF VALVE
1	A	32349–DWG	LEVELING RELIEF ASSEMBLY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH:

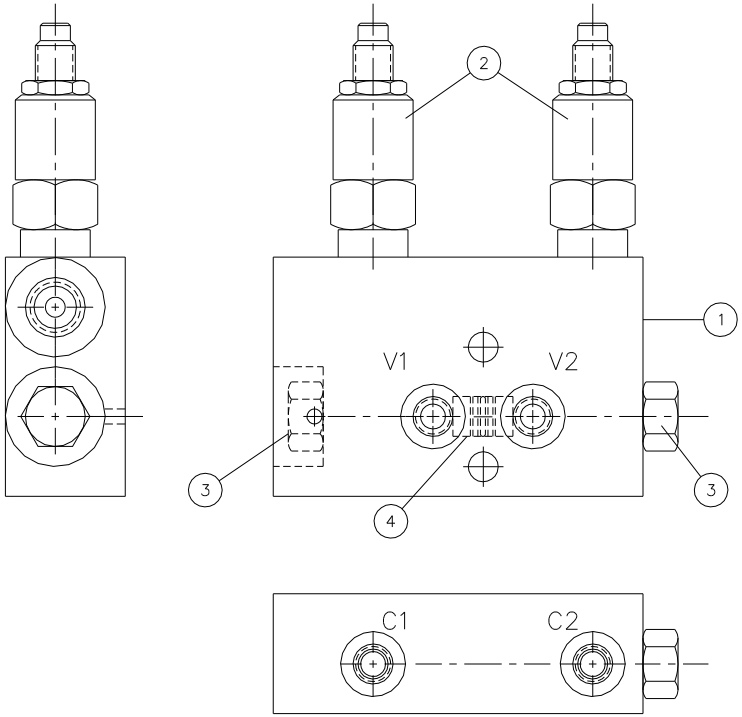
DWN. BY	DATE
LBR	7-27-05
SIZE	SCALE
A	1=2.5
LOCATION	MANUAL
V	–
SHEET	
1 OF 1	

TITLE: LEVELING RELIEF VALVE ASSEMBLY

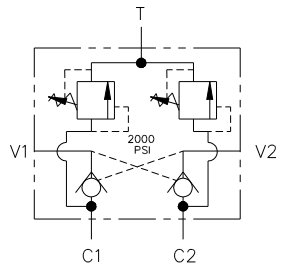
DWG. NO. 32349–DWG

REV.

LEVELING RELIEF VALVE



SERVICE PARTS			
ITEM	PART DESCRIPTION	TIME PART NO	−1 QTY
1	VALVE BLOCK	Y2413	1
2	RELIEF VALVE	Y2414	2
3	CHECK VALVE	Y2415	2
4	PISTON W/ SEAL	Y2416	1



SCHEMATIC

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: 6061−T6
FINISH: CLEAR ANODIZED ALUM.

DWN. BY	DATE
REF	6-22-89
SIZE	SCALE
B	1=1.5
LOCATION	MANUAL
V	–
SHEET	
2 OF 2	

TITLE: LEVELING RELIEF

DWG. NO. 10035−1

SECTION 131

Lower Boom Assembly
(Option LB-1280-4)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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REV.

DASH NO.	DESCRIPTION	OPTION CODE
-1	LOWER BOOM AND COMP LINK ASSEMBLY VST-8000I	LB-1280-2
-2	LOWER BOOM AND COMP LINK ASSEMBLY VST-8500I	LB-1280-3
-3	LOWER BOOM AND COMP LINK ASSEMBLY VST-9000I	LB-1280-4

-3	-2	-1	ITEM	PART NO.	DESCRIPTION
1	1	1	AK	40000-16	1/2-13NC X 1" SHFHCS
1	1	1	AJ	11904-1	PIN CAP W/COUNTERSINK
16	8	8	AH	44013-5	5/16 HARDENED WASHER
16	8	8	AG	42005-2	5/16-18NC LOCKNUT
16	8	8	AF	40000-3	5/16-18NC X 1 LG. SHFHCS
8	8	8	AE	40002-1	1/4-20NC X 1/2 LG. HHCS
14	14	14	AD	40076-8	5/16-18NC X 1/2 LG. THD FORM SCR
4	4	4	AC	40003-3	5/16-18NC X 3/4 LG HHCS
4	4	4	AB	42003-3	3/8-16NC HEX NUT
2	2	2	AA	44000-11	3/8 HELICAL SPRING WASHER

LIST OF MATERIAL

(CONTINUED BELOW)

-3	-2	-1	ITEM	PART NO.	DESCRIPTION
2	2	2	Z	40109-7	3/8-16NC X 1 1/2 LG. SS HHCS
12	12	12	Y	40004-5	3/8-16NC X 1 LG HHCS
16	16	16	X	44013-6	3/8 HARDENED WASHER
5	5	5	W	40006-5	1/2-13NC X 1 LG. HHCS
5	5	5	V	44013-3	1/2 HARDENED WASHER
4	4	4	U	42032-1	NUT, U-TYPE
2	–	–	T	19195-1	WEAR PAD
6	4	4	S	19194-1	WEAR PAD
1	1	1	R	32308-1	COVER, BOOM END
4	4	4	Q	15698-1	COVER, INSPECTION
7	7	7	P	8698-1	COVER, INSPECTION
REF.	REF.	REF.	N	8526-6	BEARING 2 3/4 OD X 2 LG.
5	5	5	M	5531-1	PIN CAP
1	1	1	L	8546-15	PIN 2 1/2 X 12 1/8 LG.
1	1	1	K	8546-9	PIN 2 1/2 X 5 LG.
4	4	4	J	8546-2	PIN 2 1/2 X 16 1/2 LG.
2	2	2	H	10226-1	PIVOT SPACER 5 1/2 OD X .094 THK
1	–	–	G	32291-4	COMP LINK ASSY W/ BEARINGS
–	1	–	F	32291-3	COMP LINK ASSY W/ BEARINGS
–	–	1	E	32291-2	COMP LINK ASSY W/ BEARINGS
1	–	–	D	32273-4	LOWER BOOM ASSY W/ BEARINGS
–	1	–	C	32273-3	LOWER BOOM ASSY W/ BEARINGS
–	–	1	B	32273-2	LOWER BOOM ASSY W/ BEARINGS
1	1	1	A	34427-DWG	LOWER BOOM AND COMP LINK ASSY

LIST OF MATERIAL

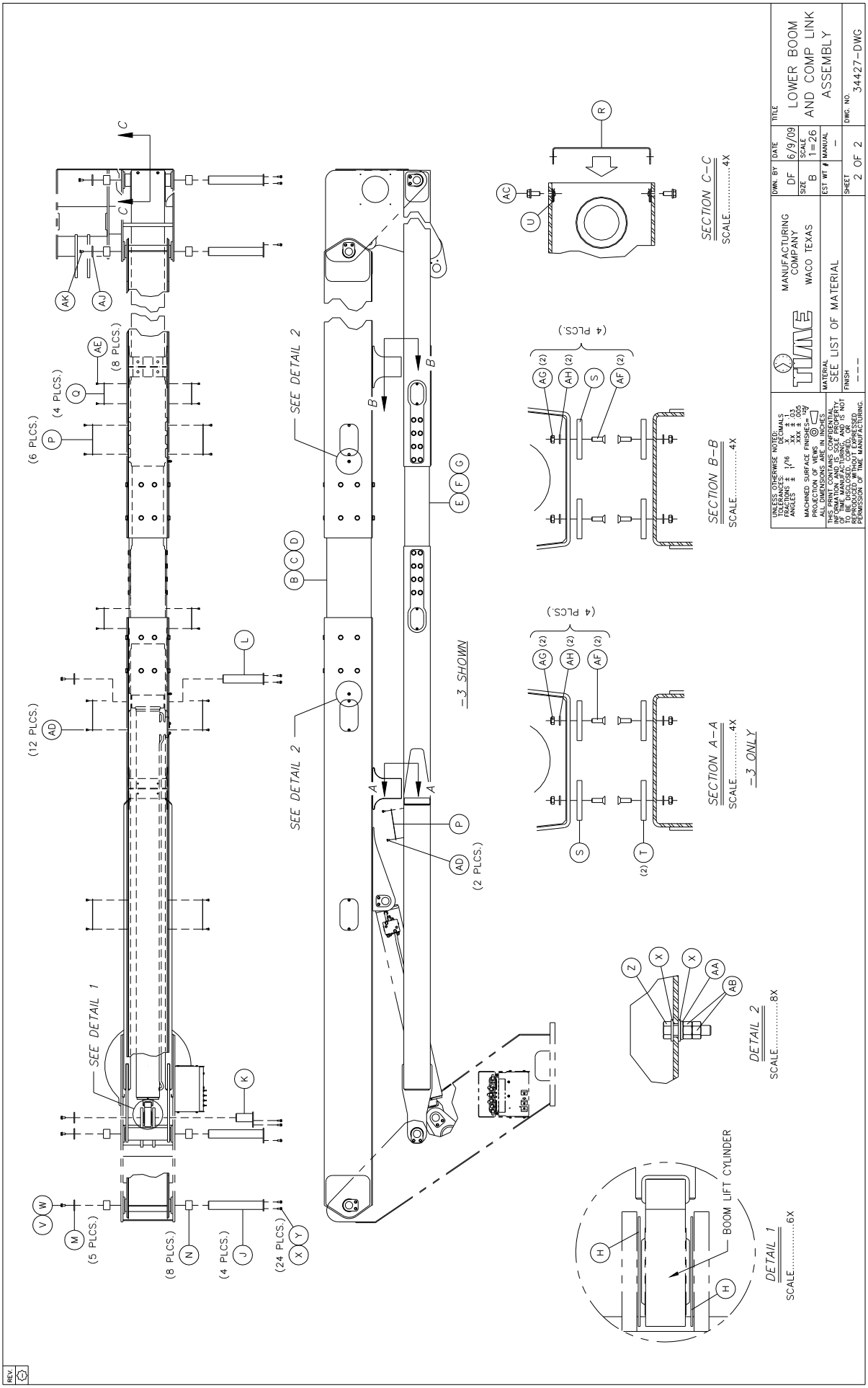
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: – – –

DWN. BY	DATE
DF	6/9/09
SIZE	SCALE
B	1=26
EST WT #	MANUAL
	–
SHEET	
1 OF 2	

TITLE: LOWER BOOM AND COMP LINK ASSEMBLY
DWG. NO. 34427-DWG


SEE DETAIL 1
SEE DETAIL 2
SEE DETAIL 2
-3 SHOWN
-3 ONLY
(6 PLCS.)
(4 PLCS.)
(8 PLCS.)
(12 PLCS.)
(5 PLCS.)
(8 PLCS.)
(4 PLCS.)
(24 PLCS.)
(2 PLCS.)
(4 PLCS.)
(4 PLCS.)
(2)
SECTION A-A
SCALE.....4X
SECTION B-B
SCALE.....4X
SECTION C-C
SCALE.....4X
DETAIL 1
SCALE.....6X
BOOM LIFT CYLINDER
DETAIL 2
SCALE.....8X
UNLESS OTHERWISE NOTED:
DECIMALS
TOLERANCES:
FRACTIONS ± 1/16
XX ± .03
ANGLES ±
XXX ± .005
MACHINED SURFACE FINISHES 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES
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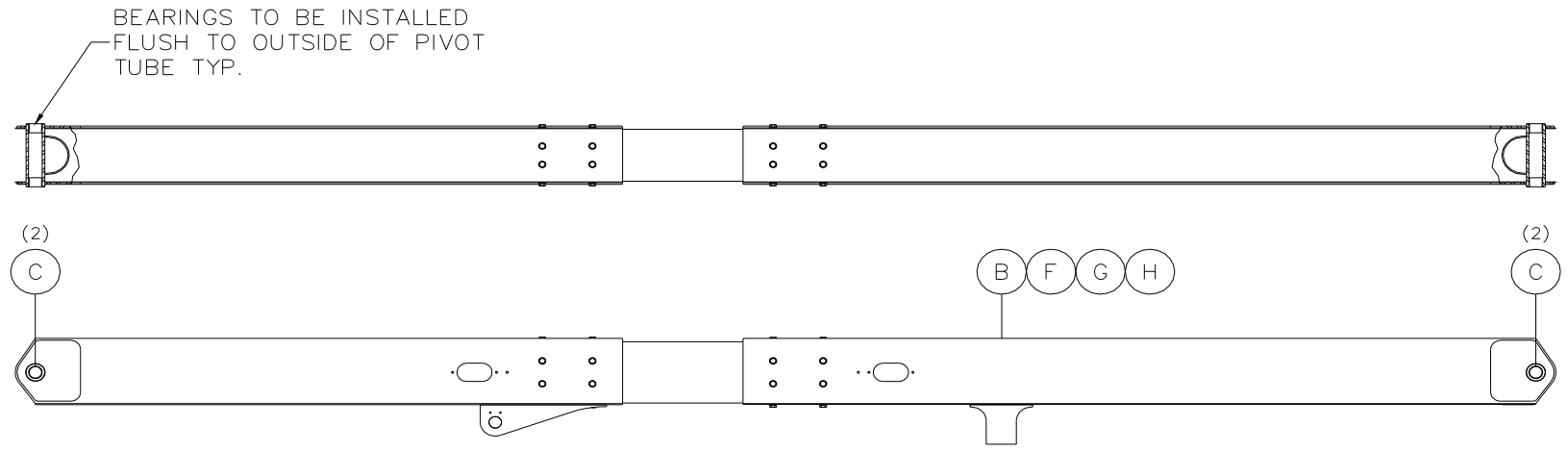
TIME
MANUFACTURING COMPANY
WACO TEXAS
MATERIAL
SEE LIST OF MATERIAL
FINISH

DWN. BY
DF
DATE
6/9/09
SIZE
B
SCALE
1=26
EST. WT. #
MANUAL
—
SHEET
2 OF 2
TITLE
LOWER BOOM AND COMP LINK ASSEMBLY
DWG. NO.
34427-DWG
REV.

REV. B



–1 SHOWN

BEARING BONDING NOTES:

1.) THOROUGHLY CLEAN ANY OVER SPRAY OR GREASE FROM SURFACES TO BE BONDED.
2.) SPRAY OR BRUSH ON PRIMER (ITEM "D") ON BOTH SURFACES TO BE BONDED.
3.) ALLOW PRIMER TIME TO EVAPORATE UNTIL THE SURFACES ARE COMPLETELY DRY.
4.) APPLY RETAINING COMPOUND (ITEM "E") TO BOTH SURFACES AND ASSEMBLE PARTS IMMEDIATELY.
5.) ALLOW APPROX. 3 HOURS FOR COMPOUND TO CURE.

–4	–3	–2	–1	ITEM	PART NO.	DESCRIPTION
1	–	–	–	H	32274–4	GLUE ASSEMBLY, LOWER BOOM
–	1	–	–	G	32274–3	GLUE ASSEMBLY, LOWER BOOM
–	–	1	–	F	32274–2	GLUE ASSEMBLY, LOWER BOOM
AR	AR	AR	AR	E	84019–1	LOCTITE #609 RETAINING COMPOUND
AR	AR	AR	AR	D	84018–1	LOCTITE #7471 PRIMER
4	4	4	4	C	8526–6	BEARING 2 3/4 OD X 2 LG.
–	–	–	1	B	32274–1	GLUE ASSEMBLY, LOWER BOOM
1	1	1	1	A	32273–DWG	LOWER BOOM ASSY W/ BEARINGS
QUANTITY				ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

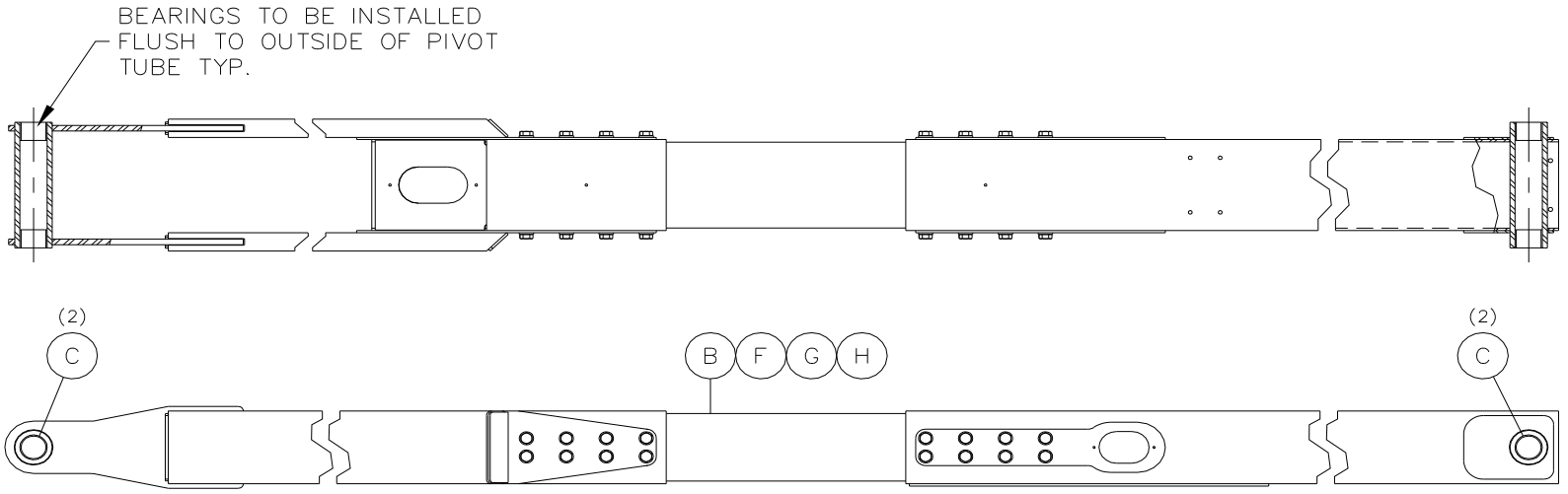
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: – – –

DWN. BY	DATE	TITLE
LBR	7-14-05	LOWER BOOM ASSEMBLY WITH BEARINGS
SIZE: A	SCALE: 1=35	
EST WT #	MANUAL: –	
SHEET: 1 OF 1		DWG. NO.: 32273–DWG

REV. A



BEARING BONDING NOTES:

1.) THOROUGHLY CLEAN ANY OVER SPRAY OR GREASE FROM SURFACES TO BE BONDED.
2.) SPRAY OR BRUSH ON PRIMER (ITEM "D") ON BOTH SURFACES TO BE BONDED.
3.) ALLOW PRIMER TIME TO EVAPORATE UNTIL THE SURFACES ARE COMPLETELY DRY.
4.) APPLY RETAINING COMPOUND (ITEM "E") TO BOTH SURFACES AND ASSEMBLE PARTS IMMEDIATELY.
5.) ALLOW APPROX. 3 HOURS FOR COMPOUND TO CURE.

QUANTITY				ITEM	PART NO.	DESCRIPTION
-4	-3	-2	-1			
1	–	–	–	H	32292-4	GLUE ASSY, COMP LINK
–	1	–	–	G	32292-3	GLUE ASSY, COMP LINK
–	–	1	–	F	32292-2	GLUE ASSY, COMP LINK
AR	AR	AR	AR	E	84019-1	LOCTITE #609 RETAINING COMPOUND
AR	AR	AR	AR	D	84018-1	LOCTITE #7471 PRIMER
4	4	4	4	C	8526-6	BEARING 2 3/4 OD X 2 LG.
–	–	–	1	B	32292-1	GLUE ASSY, COMP LINK
1	1	1	1	A	32291-DWG	COMP LINK ASSY W/ BRNGS

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ---

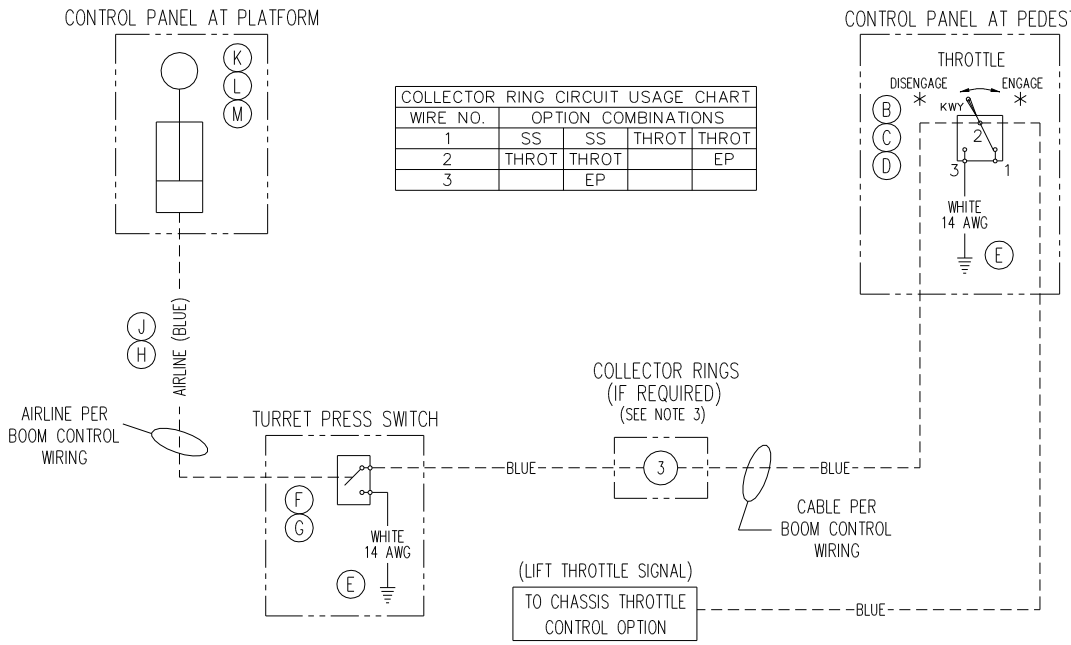
DWN. BY	DATE	TITLE
LBR	7-14-05	COMP LINK ASSEMBLY WITH BEARINGS
SIZE: A	SCALE: 1=18	
EST WT #	MANUAL: –	
SHEET: 1 OF 1	DWG. NO.: 32291-DWG	

SECTION 132

Lift Throttle Insulated
(Option LT-1260-4)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

REV. A



COLLECTOR RING CIRCUIT USAGE CHART				
WIRE NO.	OPTION COMBINATIONS			
1	SS	SS	THROT	THROT
2	THROT	THROT		EP
3		EP		

DASH NO.	*DESCRIPTION*	*CODE*
–1	LIFT THROTTLE (INSULATED)	LT–1260–4

NOTES:
1.) ALL WIRING IS 18 AWG UNLESS NOTED.
2.) ∗ INDICATES MOMENTARY POSITION OF TOGGLE SWITCH.
3.) WIRE NUMBERS SHOWN AT COLLECTOR RINGS ARE EXAMPLES ONLY. REFER TO "COLLECTOR RING CIRCUIT USAGE CHART" FOR ACTUAL WIRE NUMBERS BASED ON OPTION COMBINATIONS.
4.) DASHED WIRING RUNS INDICATE INSTALLER SUPPLIED OR EXISTING CHASSIS OR UNIT WIRING.

–1

QTY.	ITEM	PART NO.	DESCRIPTION
1	M	10273–1	DECAL, THROTTLE
1	L	80000–3	KNOB
1	K	4383–1	AIR CYLINDER
1	J	50105–1	1/8 NPT MALE CONN. – BRASS
1	H	50065–1	1/8 NPT MALE 90° ELBOW – BRASS
1	G	12596–1	AIR SWITCH BOOT
1	F	60015–1	LO–PRESSURE SWITCH
1'	E	61003–11–WHT	14 GA WIRE–WHITE
1	D	3051–2	SWITCH GUARD
1	C	10308–1	DECAL, THROTTLE CONTROL
1	B	60002–7	TOGGLE SWITCH
1	A	21880–DWG	LIFT THROTTLE (INSULATED)

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: – – –

DWN. BY: LBR
DATE: 8-13-07
SIZE: B
SCALE: 1=2
EST WT #:
MANUAL: –
SHEET: 1 OF 1

TITLE: LIFT THROTTLE (INSULATED)
DWG. NO.: 21880–DWG

SECTION 133

Upper Boom Tip Rest
(Option MH-1280-19)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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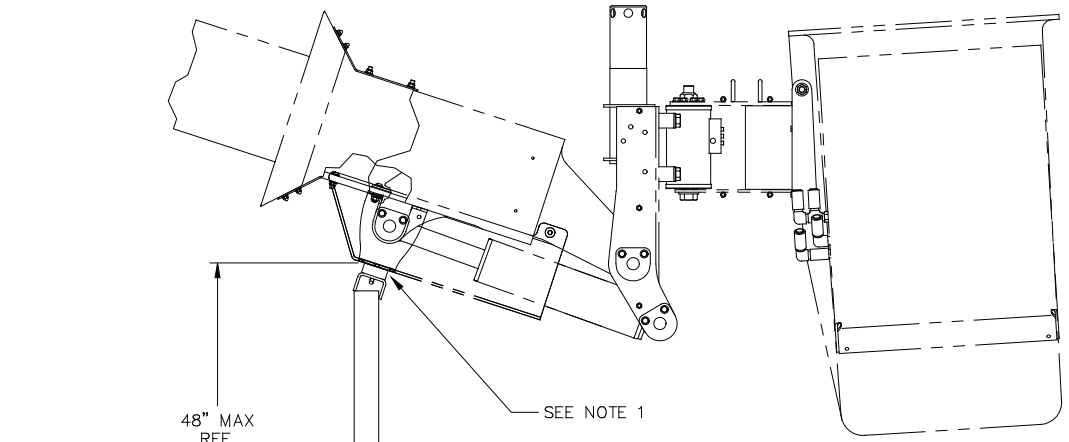
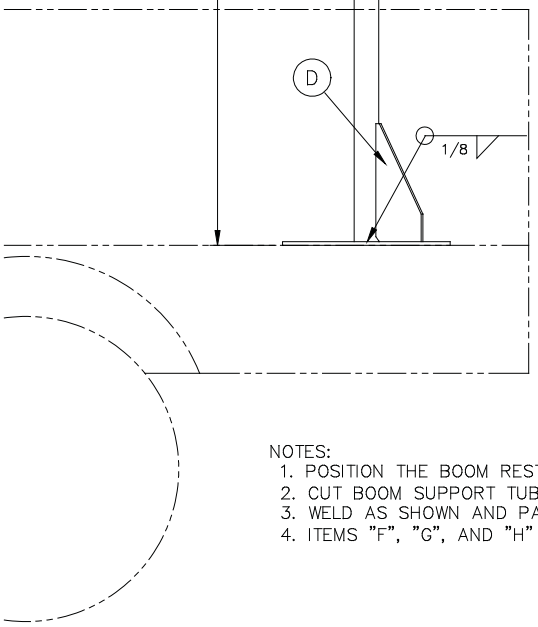
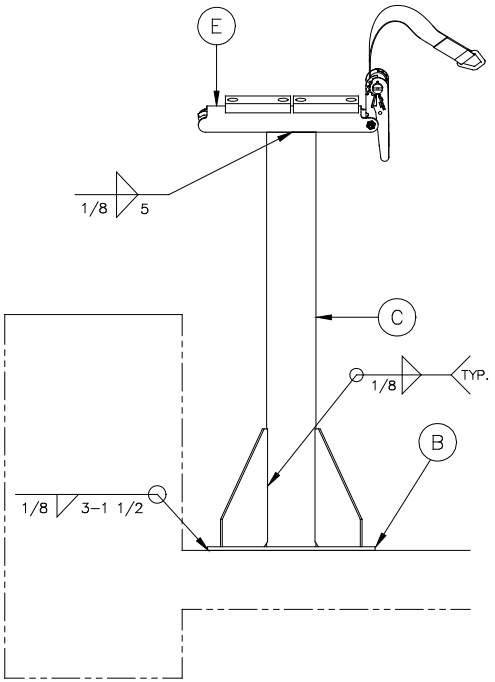
REV.







DASH NO.	DESCRIPTION	OPTION
-1	UPPER BOOM TIP REST (48" MAX)	MH-1280-19

NOTES:
1. POSITION THE BOOM REST AT THE PAD SUPPORT LOCATED ON THE BOOM TIP COVER.
2. CUT BOOM SUPPORT TUBE (ITEM "C") TO THE DESIRED LENGTH.
3. WELD AS SHOWN AND PAINT.
4. ITEMS "F", "G", AND "H" ARE USED ON THE SHIPPING SKID.

* THESE ITEMS ARE SHIPPED LOOSE.

-1

	QTY.	ITEM	PART NO.	DESCRIPTION
SEE NOTE 4	1	H	12865-1	FLAT
SEE NOTE 4	1	G	8993-3	BOOM TIE DOWN STRAP ASSEMBLY
SEE NOTE 4	1	F	22342-1	BOOM REST
*	1	E	1005462-1	H.D. BOOM REST ASSEMBLY
*	2	D	1001536-1	BOOM REST GUSSET PLATE
*	1	C	10271-3	BOOM SUPPORT TUBE (45" LG)
*	1	B	1005461-1	BOOM REST SUPPORT PLATE
	2	A	1005460-DWG	DWG., UPPER BOOM TIP REST INSTALL

LIST OF MATERIAL

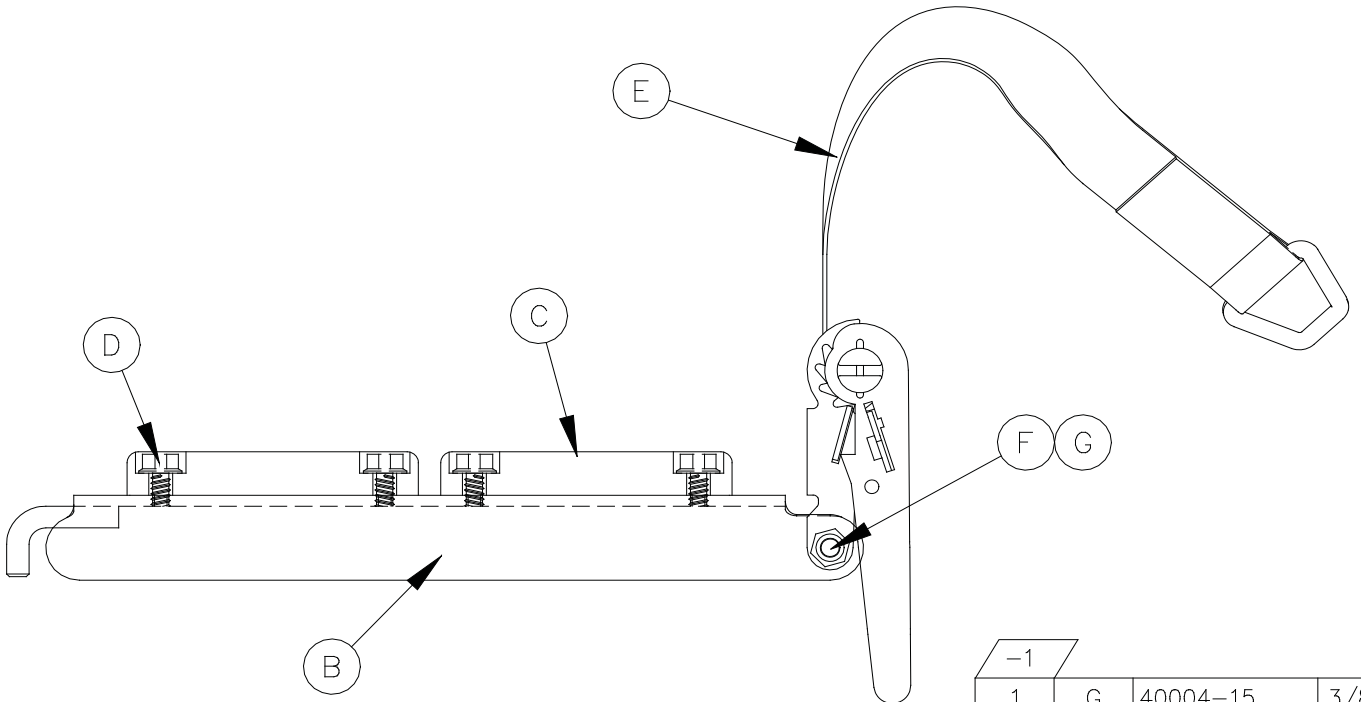
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ---

DWN. BY	DATE	TITLE
NTR	10/2/14	UPPER BOOM TIP REST INSTALLATION
SIZE: B	SCALE: 1/12	
EST WT #	MANUAL: -	
SHEET: 1 OF 1	DWG. NO.: 1005460-DWG	

REV.



-1

QTY.	ITEM	PART NO.	DESCRIPTION
1	G	40004–15	3/8–NC X 3 1/2 HHCS
1	F	42005–3	3/8 LOCKNUT
1	E	1005463–1	H.D. BOOM TIE–DOWN STRAP ASSY
4	D	40076–12	5/16–18 HEX HD THRD FRM SCREW
2	C	434–2	BOTTOM BOOM PAD
1	B	34328–1	BOOM SUPPORT WELDMENT
1	A	1005462–DWG	DWG., HEAVY DUTY BOOM REST ASSY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ---

DWN. BY	DATE
NTR	10/2/14
SIZE	SCALE
A	1/4
EST WT #	MANUAL
	–
SHEET	
1 OF 1	

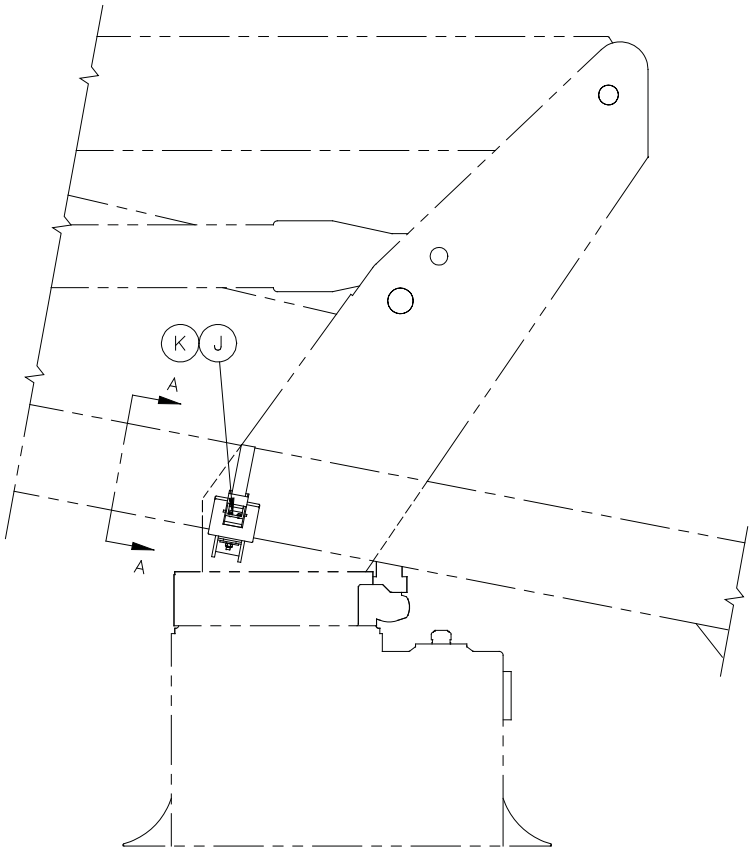
TITLE: HEAVY DUTY BOOM REST ASSEMBLY

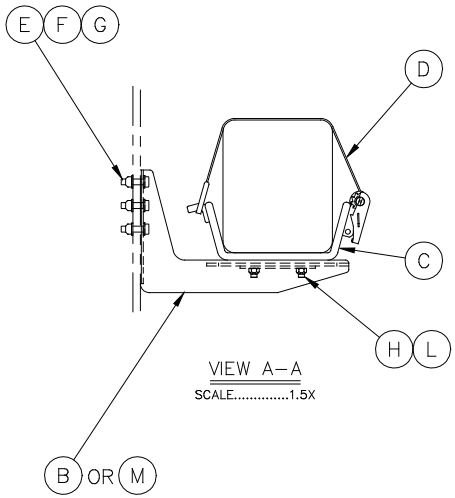
DWG. NO. 1005462–DWG

SECTION 134

Upper Boom Rest Install - Turret Mounted (Option MH-1280-5)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.





VIEW A–A
SCALE.....1.5X

INSTALLATION INSTRUCTIONS

1. SET THE UPPER BOOM IN THE DESIRED STOW POSITION.
2. POSITION BOOM REST WELDMENT AND BOOM REST ALONG UPPER BOOM.
3. MARK HOLE LOCATIONS OF BOOM REST WELDMENT ON TURRET WING.
4. DRILL THREE 17/32 DIA HOLES.
5. INSTALL BOOM REST WELDMENT, BOOM REST, AND TIEDOWN STRAP USING HARDWARE SHOWN.

NOTE:
∗ INDICATES PART IS SHIPPED LOOSE.

LIST OF MATERIAL

	-2	-1	ITEM	PART NO.	DESCRIPTION
∗	1	–	M	32338–2	BOOM REST WELDMENT
	2	2	L	42005–5	1/2–NC HEX LOCKNUT
	1	1	K	12865–1	FLAT
	2	2	J	42005–2	5/16–NC HEX LOCKNUT
∗	1	1	H	1005499–1	BOOM REST BACKUP PLATE
∗	6	6	G	44013–3	1/2 WASHER
∗	3	3	F	42005–5	1/2–NC HEX LOCKNUT
∗	3	3	E	40006–9	1/2–NC x 2 HHCS
	1	1	D	8993–3	BOOM TIE–DOWN STRAP
	1	1	C	22342–1	BOOM REST
∗	–	1	B	32338–1	BOOM REST WELDMENT
	2	2	A	32871–DWG	UPPER BOOM REST INSTALL VST–7500

DASH NO.	DESCRIPTION	OPTION
–1	UPPER BOOM REST INSTALL (TURRET MOUNTED)	MH–1280–5
–2	UPPER BOOM REST INSTALL (FOR OFFSET TURRET)	MH–1280–15

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: –

DWN. BY	DATE
KCM	10/04/05
SIZE	SCALE
B	1/15
LOCATION	MANUAL
V	–
SHEET	
1 OF 1	

TITLE: UPPER BOOM REST INSTALL VST–7500

DWG. NO. 32871–DWG

SECTION 135

Upper Boom Rest Installation (Option MH-1280-7)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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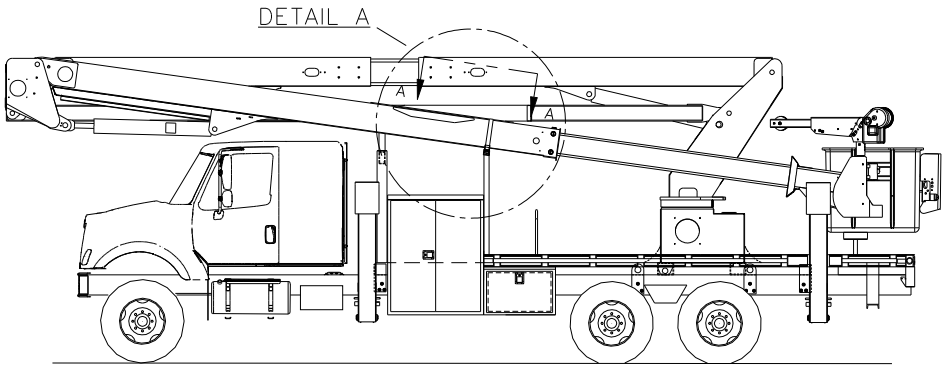
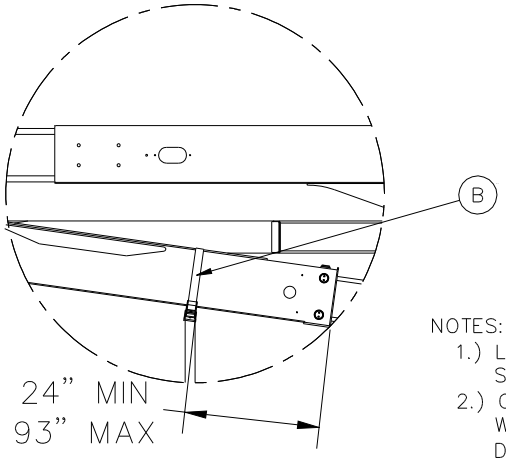
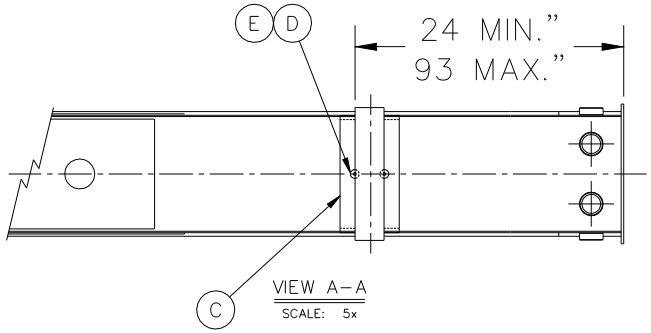
REV.



DASH NO.	DESCRIPTION	OPTION
-1	UPPER BOOM REST (OUTER UPPER)	MH-1280-7



DETAIL A
SCALE: 2x



VIEW A-A
SCALE: 5x

NOTES:
1.) LOCATE BOOM REST ON OUTER BOOM STRAP REST TO BOOM
2.) CENTER UPPER BOOM TIE DOWN PAD WITH TIE DOWN STRAP AND MATCH DRILL .201 TAP 1/4-20 NC.
3.) INSTALLER TO SUPPLY MATERIAL TO ATTACH BOOM REST TO CHASSIS.

-1

* = ITEMS TO BE SHIPPED LOOSE.

	QTY.	ITEM	PART NO.	DESCRIPTION
*	2	E	44013-7	1/4 HARDENED WASHER
*	2	D	40002-5	1/4-20 NC X 1 LG. HHCS
*	1	C	20907-1	UPPER BOOM TIE DOWN PAD
*	1	B	34327-1	BOOM REST ASSEMBLY
*	1	A	34330-DWG	UPPER BOOM REST INSTALL

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY WACO TEXAS

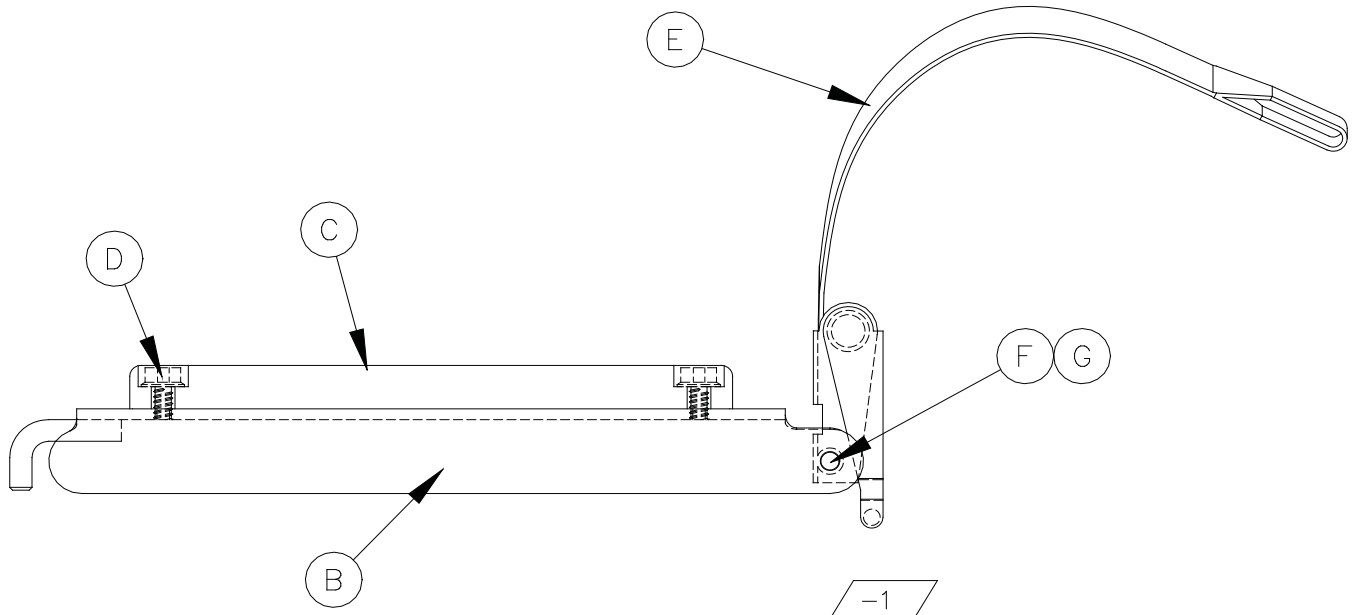
MATERIAL: SEE LIST OF MATERIAL
FINISH: -----

DWN. BY	DATE
ARH	04/08/09
SIZE: B	SCALE: 1/60
EST WT #: N/A	MANUAL: -
SHEET: 1 OF 1	

TITLE: UPPER BOOM REST INSTALLATION

DWG. NO. 34330-DWG

REV. C



-1

QTY.	ITEM	PART NO.	DESCRIPTION
1	G	40003-15	5/16-NC X 3 1/2 HHCS
1	F	42005-2	5/16 LOCKNUT
1	E	8993-4	BOOM TIE-DOWN STRAP ASSY
2	D	40076-12	5/16-18 HEX HD THRD FRM SCREW
1	C	434-4	BOTTOM BOOM PAD
1	B	34328-1	BOOM SUPPORT WELDMENT
1	A	34327-DWG	BOOM REST ASSEMBLY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIALS
FINISH: – – – – –

DWN. BY	DATE
ARH	4/8/09
SIZE: A	SCALE: 1/4
EST WT #: N/A	MANUAL: –
SHEET: 1 OF 1	

TITLE: BOOM REST ASSEMBLY
DWG. NO.: 34327-DWG

SECTION 137

Out and Down Outrigger Mounting Hardware (Option MH-1400-23)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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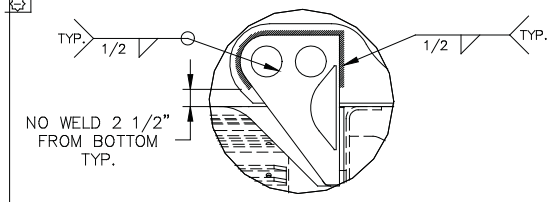
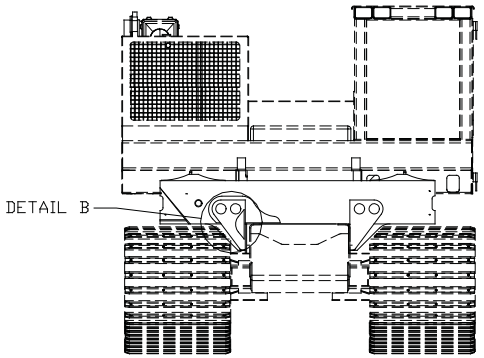
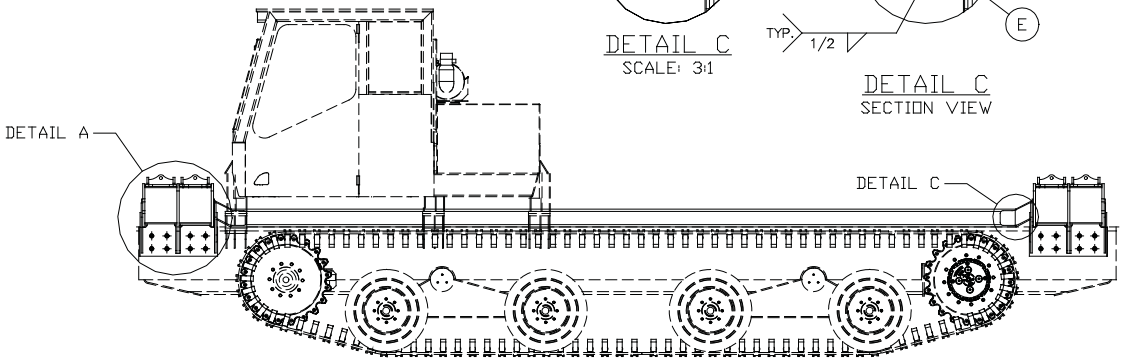
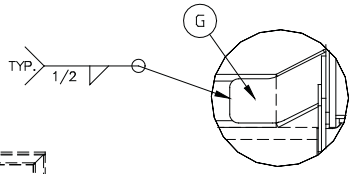
DASH NO.	DESCRIPTION	OPTION
–1	OUT AND DOWN OUTRIGGER MOUNTING HARDWARE	MH–1400–23



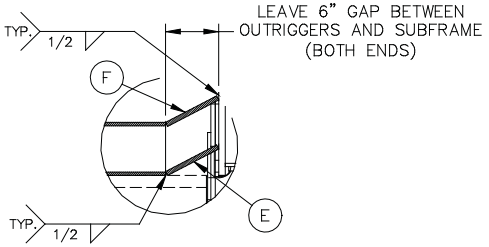
DETAIL B
SCALE: 3:1





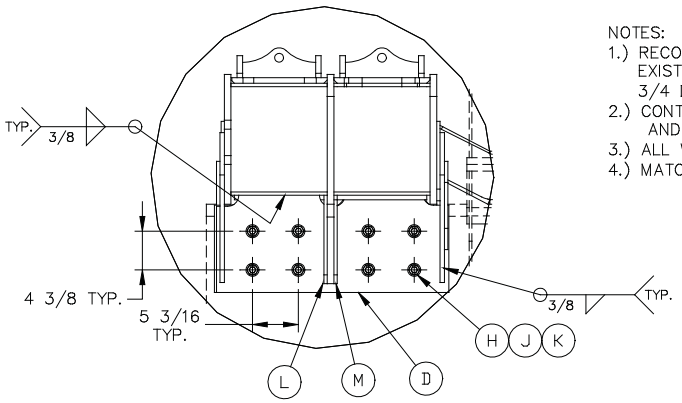


DETAIL C
SCALE: 3:1



DETAIL C
SECTION VIEW

DETAIL A
SCALE: 3:1



* THESE ITEMS TO BE SHIPPED LOOSE.

NOTES:
1.) RECOMMENDED HOLE LOCATIONS ARE SHOWN. IF CHASSIS HAS EXISTING HOLES THAT INTERFERE WITH SHEAR PLATES, MATCH DRILL 3/4 DIA. HOLES IN SHEAR PLATES (ITEM "D").
2.) CONTACT ENGINEERING TO VERIFY SHEAR PLATE LOCATIONS AND FINAL SUBFRAME LENGTH PRIOR TO INSTALLATION.
3.) ALL WELD TO BE 100K YIELD. TIME MFG. PART NO. 89176–1
4.) MATCH DRILL 3/4 DIA. HOLES IN FRAME.

LIST OF MATERIAL

	–1 QTY.	ITEM	PART NO.	DESCRIPTION
*	2	M	31278–2	PLATE, CENTER SHEAR
*	2	L	31278–1	PLATE, CENTER SHEAR
*	16	K	42027–8	3/4–10NC HEX LOCKNUT GR. 8
*	32	J	44013–4	3/4 HARDENED WASHER
*	16	H	40104–11	3/4–10NC X 2–1/2 HHCS GR. 8
*	2	G	1005296–1	SUBFRAME EXTENSION SIDE
*	1	F	1005297–2	SUBFRAME EXTENSION PLATE
*	1	E	1005297–1	SUBFRAME EXTENSION PLATE
*	2	D	1005295–1	SHEAR PLATE
*	2	C	1005292–1	OUTRIGGER SHEAR PLATE
*	2	B	1005294–1	SHEAR PLATE WELDMENT
*	1	A	1005298–DWG	OUTRIGGER MOUNTING HARDWARE

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES– 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

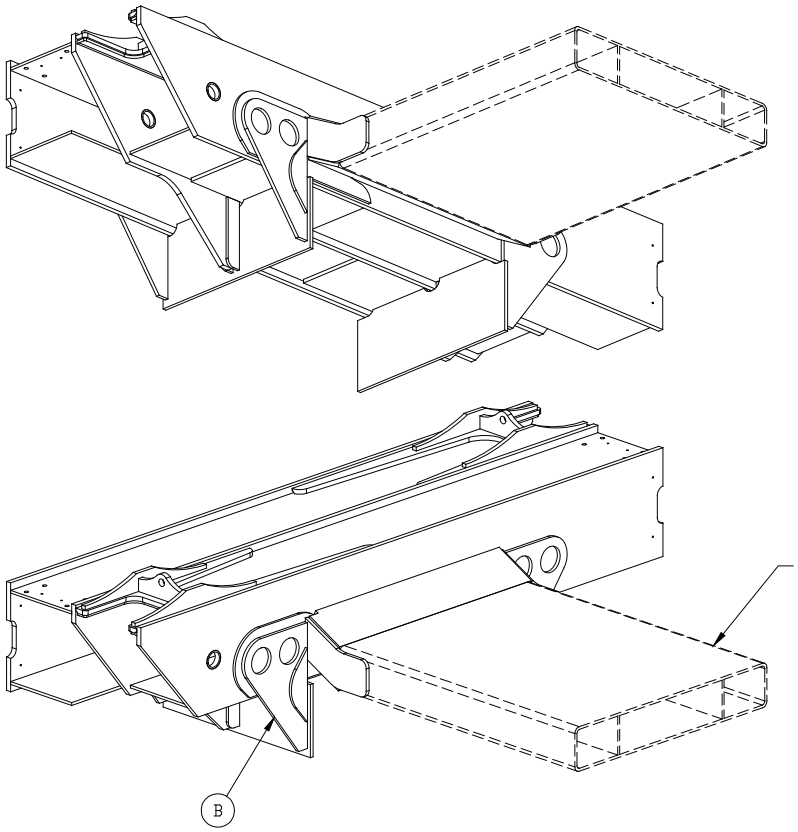
TIME MANUFACTURING COMPANY
WACO TEXAS

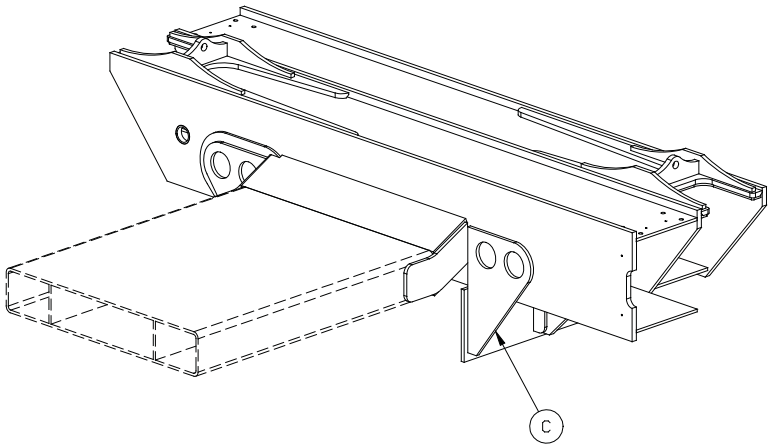
MATERIAL –
FINISH –

DWN. BY SKV | DATE 07/03/14
SIZE B | SCALE 1/40
EST WT # – | MANUAL –
SHEET 1 OF 2

TITLE: OUTRIGGER MOUNTING HARDWARE
DWG. NO. 1005298–DWG

REV.





AUX. VIEWS
SCALE: 4:1

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY: SKV	DATE: 07/03/14	TITLE: OUTRIGGER MOUNTING HARDWARE
		SIZE: B	SCALE: 1/40	
	MATERIAL: –	EST WT #: –	MANUAL: –	
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	FINISH: –	SHEET: 2 OF 2		DWG. NO.: 1005298–DWG

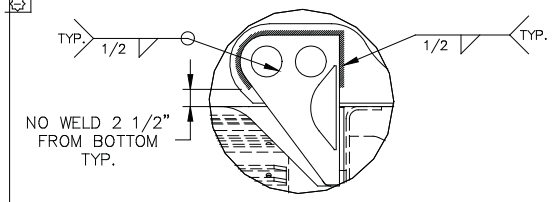
SECTION 137

Out and Down Outrigger Mounting Hardware (Option MH-1400-23)

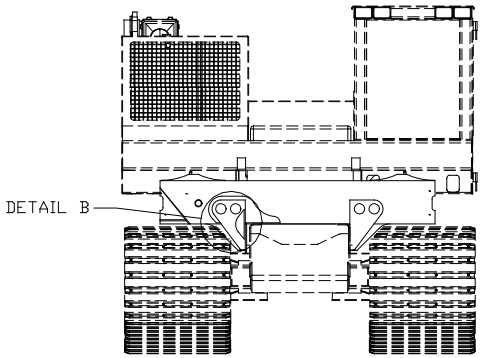
When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

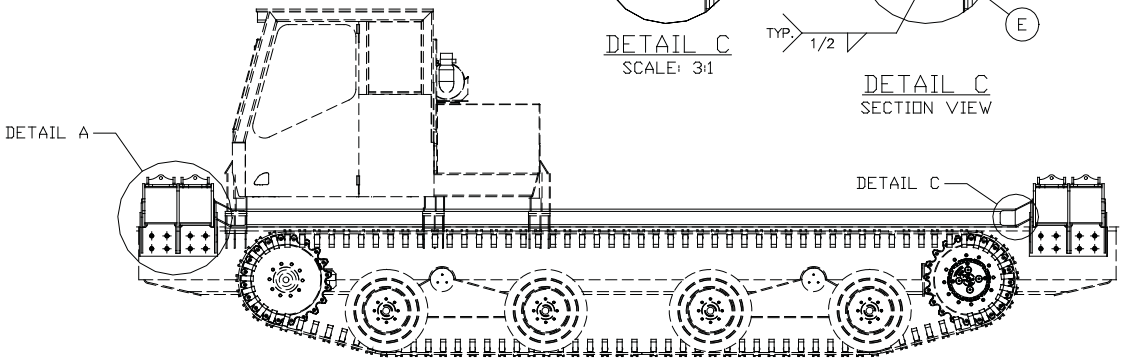
PAGE INTENTIONALLY LEFT BLANK

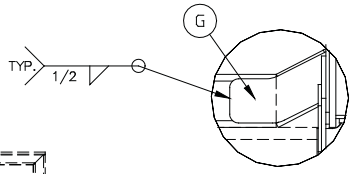
DASH NO.	DESCRIPTION	OPTION
–1	OUT AND DOWN OUTRIGGER MOUNTING HARDWARE	MH–1400–23



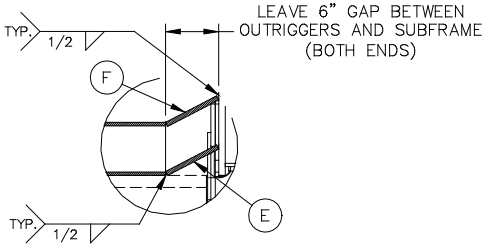
DETAIL B
SCALE: 3:1





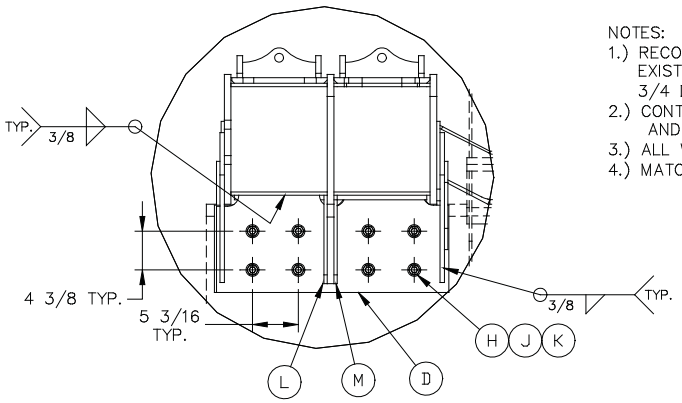


DETAIL C
SCALE: 3:1



DETAIL C
SECTION VIEW

DETAIL A
SCALE: 3:1



* THESE ITEMS TO BE SHIPPED LOOSE.

NOTES:
1.) RECOMMENDED HOLE LOCATIONS ARE SHOWN. IF CHASSIS HAS EXISTING HOLES THAT INTERFERE WITH SHEAR PLATES, MATCH DRILL 3/4 DIA. HOLES IN SHEAR PLATES (ITEM "D").
2.) CONTACT ENGINEERING TO VERIFY SHEAR PLATE LOCATIONS AND FINAL SUBFRAME LENGTH PRIOR TO INSTALLATION.
3.) ALL WELD TO BE 100K YIELD. TIME MFG. PART NO. 89176–1
4.) MATCH DRILL 3/4 DIA. HOLES IN FRAME.

LIST OF MATERIAL

	–1 QTY.	ITEM	PART NO.	DESCRIPTION
*	2	M	31278–2	PLATE, CENTER SHEAR
*	2	L	31278–1	PLATE, CENTER SHEAR
*	16	K	42027–8	3/4–10NC HEX LOCKNUT GR. 8
*	32	J	44013–4	3/4 HARDENED WASHER
*	16	H	40104–11	3/4–10NC X 2–1/2 HHCS GR. 8
*	2	G	1005296–1	SUBFRAME EXTENSION SIDE
*	1	F	1005297–2	SUBFRAME EXTENSION PLATE
*	1	E	1005297–1	SUBFRAME EXTENSION PLATE
*	2	D	1005295–1	SHEAR PLATE
*	2	C	1005292–1	OUTRIGGER SHEAR PLATE
*	2	B	1005294–1	SHEAR PLATE WELDMENT
*	1	A	1005298–DWG	OUTRIGGER MOUNTING HARDWARE

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES– 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

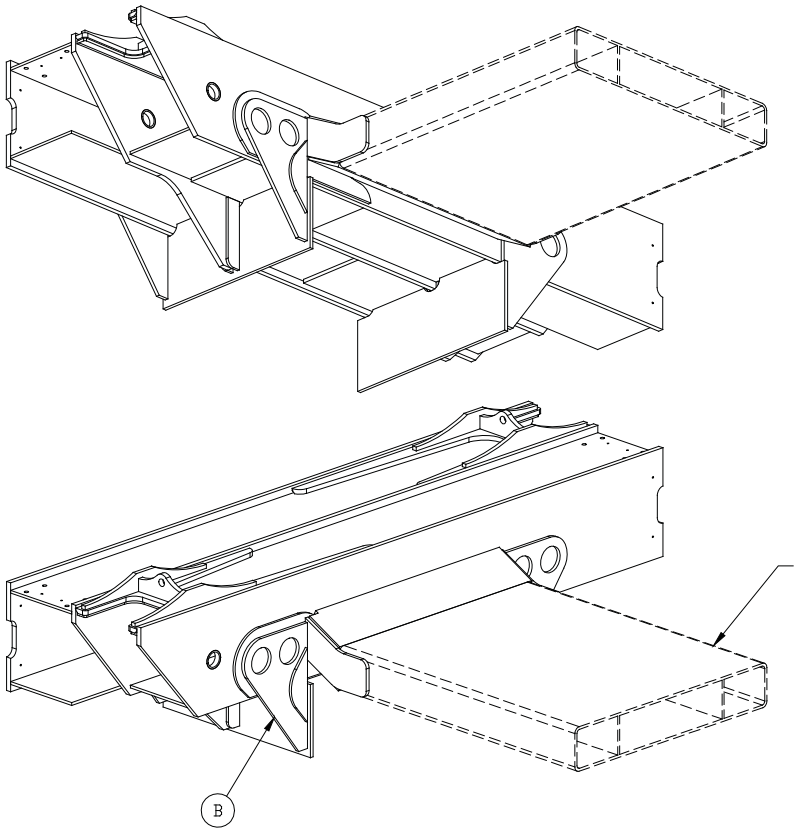
TIME MANUFACTURING COMPANY
WACO TEXAS

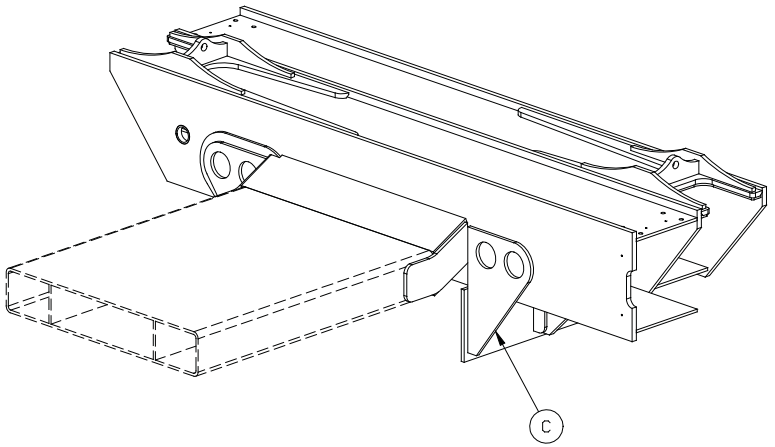
MATERIAL –
FINISH –

DWN. BY SKV | DATE 07/03/14
SIZE B | SCALE 1/40
EST WT # – | MANUAL –
SHEET 1 OF 2

TITLE: OUTRIGGER MOUNTING HARDWARE
DWG. NO. 1005298–DWG

REV.





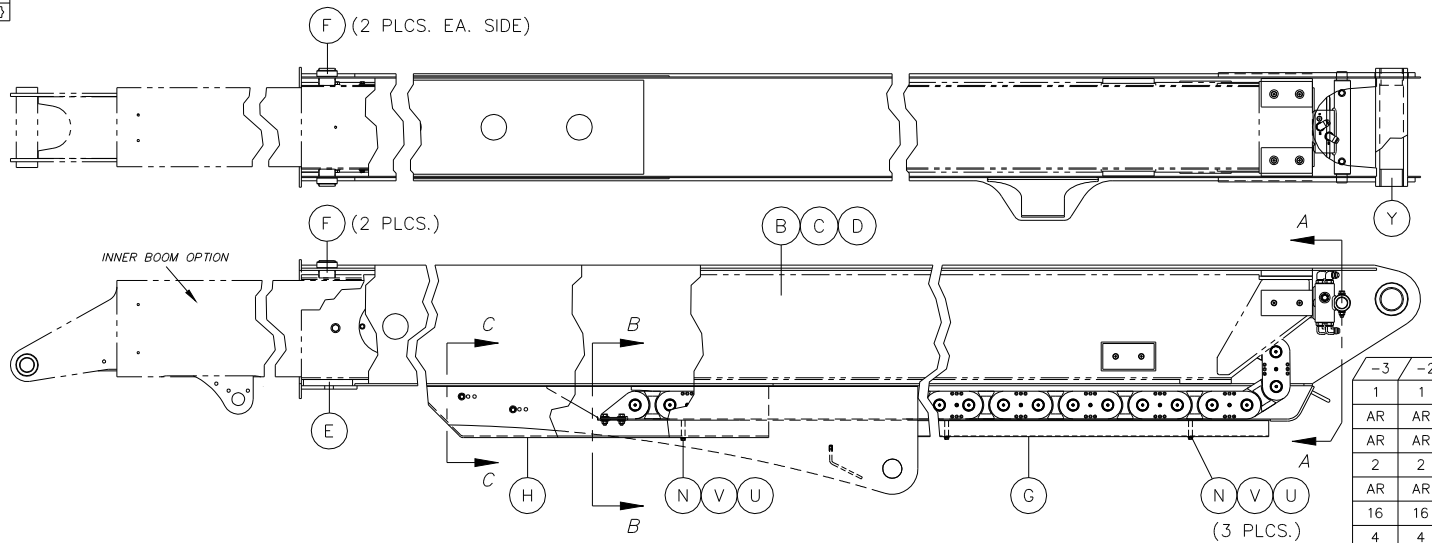
AUX. VIEWS
SCALE: 4:1

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY: SKV	DATE: 07/03/14	TITLE: OUTRIGGER MOUNTING HARDWARE
		SIZE: B	SCALE: 1/40	
	MATERIAL: –	EST WT #: –	MANUAL: –	
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	FINISH: –	SHEET: 2 OF 2		DWG. NO.: 1005298–DWG

SECTION 138

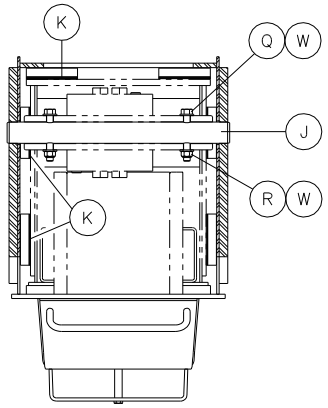
Outer Boom
(Option OB-1280-4)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

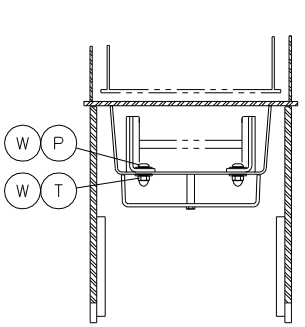


BEARING BONDING NOTES:
1.) THOROUGHLY CLEAN ANY OVER SPRAY OR GREASE FROM SURFACES TO BE BONDED.
2.) SPRAY OR BRUSH ON PRIMER (ITEM "Z") ON BOTH SURFACES TO BE BONDED.
3.) ALLOW PRIMER TIME TO EVAPORATE UNTIL THE SURFACES ARE COMPLETELY DRY.
4.) APPLY RETAINING COMPOUND (ITEM "AA") TO BOTH SURFACES AND ASSEMBLE PARTS IMMEDIATELY.
5.) ALLOW APPROX. 3 HOURS FOR COMPOUND TO CURE.

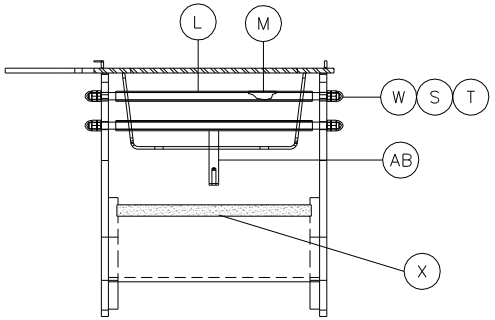
DASH NO.	DESCRIPTION	CODE
-1	OUTER BOOM ASSEMBLY VST-8000	OB-1280-2
-2	OUTER BOOM ASSEMBLY VST-8500	OB-1280-3
-3	OUTER BOOM ASSEMBLY VST-9000	OB-1280-4



SECTION A-A
SCALE.....2X



SECTION B-B
SCALE.....2X



SECTION C-C
SCALE.....2X

-3	-2	-1	ITEM	PART NO.	DESCRIPTION
1	1	1	AB	20976-1	COVER, MOUNTING BRACKET
AR	AR	AR	AA	84019-1	LOCTITE #609 RETAINING COMPOUND
AR	AR	AR	Z	84018-1	LOCTITE #7471 PRIMER
2	2	2	Y	8526-6	BEARING 2 3/4 OD X 2 LG.
AR	AR	AR	X	89003-1	VINYL TRIM 1/16
16	16	16	W	44013-6	3/8 HARDENED WASHER
4	4	4	V	44000-9	1/4 LOCKWASHER
4	4	4	U	44013-7	1/4 HARDENED WASHER
8	8	8	T	42025-3	3/8-16NC ACORN NUT
4	4	4	S	42002-3	3/8-16NC JAM NUT
2	2	2	R	42005-3	3/8-16NC LOCKNUT
2	2	2	Q	40004-12	3/8-16NC X 2 3/4 LG. HHCS
4	4	4	P	40083-11	3/8-16NC X 7/8 LG. BUT HD CS
4	4	4	N	40002-1	1/4-20NC X 1/2 LG HHCS
2	2	2	M	8264-7	3/8-16NC X 13 LG. ALL THRD
1	1	1	L	4536-4	SPACER
26	26	26	K	32357-1	SHIM, SLIDE PAD
1	1	1	J	32306-1	PIN. EXTENSION CYLINDER
1	1	1	H	34430-1	OUTER BOOM FRONT HOSE COVER
1	1	1	G	34347-1	LOWER HOSE COVER, OUTER BOOM
6	6	6	F	11695-2	SLIDE PAD, ADJUSTABLE
1	1	1	E	32251-1	WEAR PAD, OUTER BOOM
1	–	–	D	34425-3	OUTER BOOM WELDMENT
–	1	–	C	34425-2	OUTER BOOM WELDMENT
–	–	1	B	34425-1	OUTER BOOM WELDMENT
1	1	1	A	34426-DWG	OUTER BOOM ASSEMBLY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ---

DWN. BY: DF
DATE: 6/9/09
SIZE: B
SCALE: 1=14
EST WT #:
MANUAL: –
SHEET: 1 OF 1

TITLE: OUTER BOOM ASSEMBLY
DWG. NO.: 34426-DWG

SECTION 140

Out and Down Outrigger Assembly
Track Vehicle
(Option OR-1400-60)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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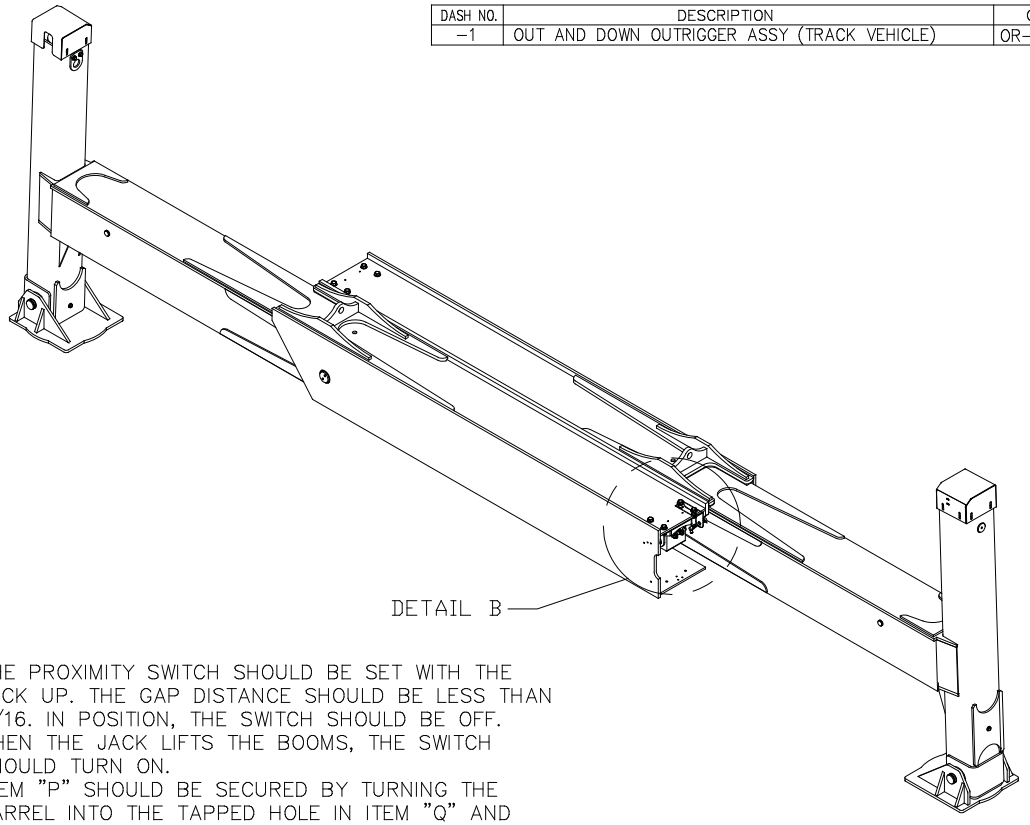
REV.

DASH NO.	DESCRIPTION	OPTION
–1	OUT AND DOWN OUTRIGGER ASSY (TRACK VEHICLE)	OR–1400–60



NOTES:

1.) THE PROXIMITY SWITCH SHOULD BE SET WITH THE JACK UP. THE GAP DISTANCE SHOULD BE LESS THAN 3/16. IN POSITION, THE SWITCH SHOULD BE OFF. WHEN THE JACK LIFTS THE BOOMS, THE SWITCH SHOULD TURN ON.

2.) ITEM "P" SHOULD BE SECURED BY TURNING THE BARREL INTO THE TAPPED HOLE IN ITEM "Q" AND USING ONE OF THE SUPPLIED JAM NUTS AND LOCTITE TO KEEP IT IN PLACE.

3.) POSITION OF SENSOR SHOULD BE LINED UP WITH THE ACTUATION MAGNET WHEN BOOM IS FULLY EXTENDED.

4.) ADJUST WEAR PADS WHILE BOOM IS RETRACTED TO CENTER THE DOWN TUBE.

5.) INSTALL ITEMS "B" APPROXIMATELY HALF WAY IN BEFORE INSTALLING ITEM "V".

6.) TOTAL WEIGHT WITHOUT OIL OR MOUNTING HARDWARE 3700 LB..

* = ITEM TO SHIP LOOSE

	–1			
*	4	AF	19833–5	TURCK 4–PIN CABLE CONNECTOR
	16	AE	44013–3	WASHER, HARDENED 1/2
	8	AD	40006–9	1/2–13 NC HHCS X 2 LG.
	8	AC	42005–5	1/2–13 NC LOCKNUT
	2	AB	40003–3	5/16–18 NC HHCS X 3/4 LG
	26	AA	44013–7	WASHER, HARDENED 1/4
	6	Z	40002–2	1/4–20 NC X 5/8 LG.
	20	Y	40002–1	1/4–20 NC HHCS X 1/2 LG.
	2	X	40050–6	#4 –40 NC RPHS X 1 LG.
	2	W	44013–5	WASHER, HARDENED 5/16
	2	V	31270–1	WEAR PAD
	2	U	26665–3	SLIDE PAD, ADJUSTABLE
	2	T	26665–1	SLIDE PAD, ADJUSTABLE
	2	S	30913–1	POLYETHYLENE MAGNET COVER
	2	R	30810–1	COVER W/A PROX. SENSOR
	2	Q	30799–1	PROXIMITY BRACKET 18MM
	2	P	68245–1	PROXIMITY SENSOR 5MM
	2	N	1005287–1	OUTRIGGER END COVER
	2	M	102421–1	WELDMENT, DOWN TUBE COVER
	2	L	101845–1	BRACKET, MAGNETIC PROXIMITY
	2	K	19834–1	TURCK ACTUATION MAGNET
	2	J	19831–1	TURCK POSITION SENSOR
	2	H	19784–4	PIN, OUTRIGGER EXTENSION
	2	G	102422–1	JACK SWITCH BRACKET
	4	F	48000–12	1 DIA HEAVY DUTY SNAP RING
	2	E	31299–1	CYLINDER MOUNT WELDMENT
	A/R	D	05–129	THREADLOK BLUE
	1	C	1005286–1	OUTER BOOM WELDMENT
	2	B	101835–1	OUTRIGGER INNER BOOM ASSY
	2	A	1005285–DWG	DWG, ASSY, OUT AND DOWN OUTRIGGER
	QTY.	ITEM	PART NO.	DESCRIPTION

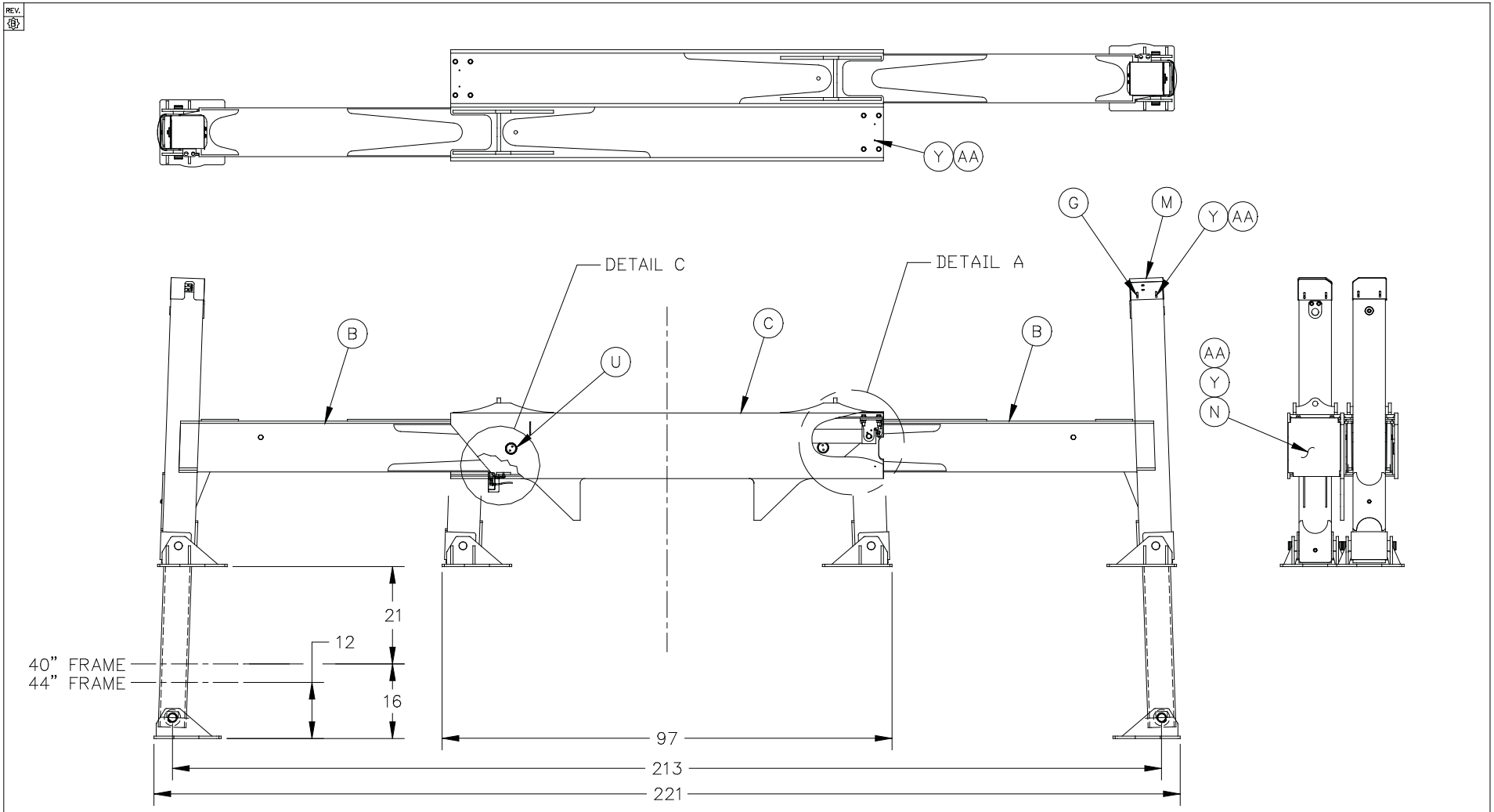
LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

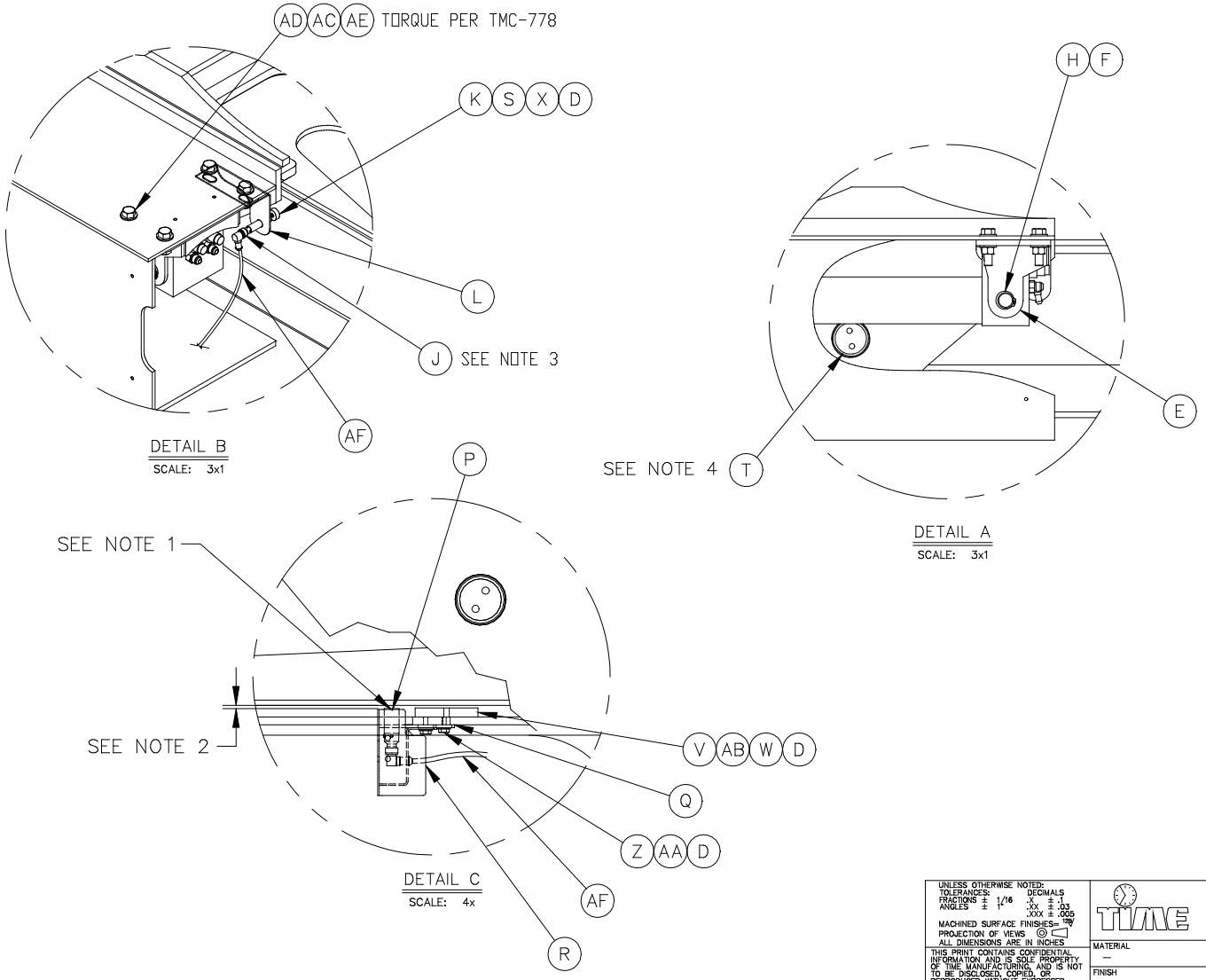
MATERIAL –
FINISH –

DWN. BY	DATE	TITLE
SKV	07/03/14	OUT AND DOWN OUTRIGGER ASSY (TRACK VEHICLE)
SIZE B	SCALE 1/20	
EST WT #	MANUAL –	
SHEET 1 OF 3		DWG. NO. 1005285–DWG



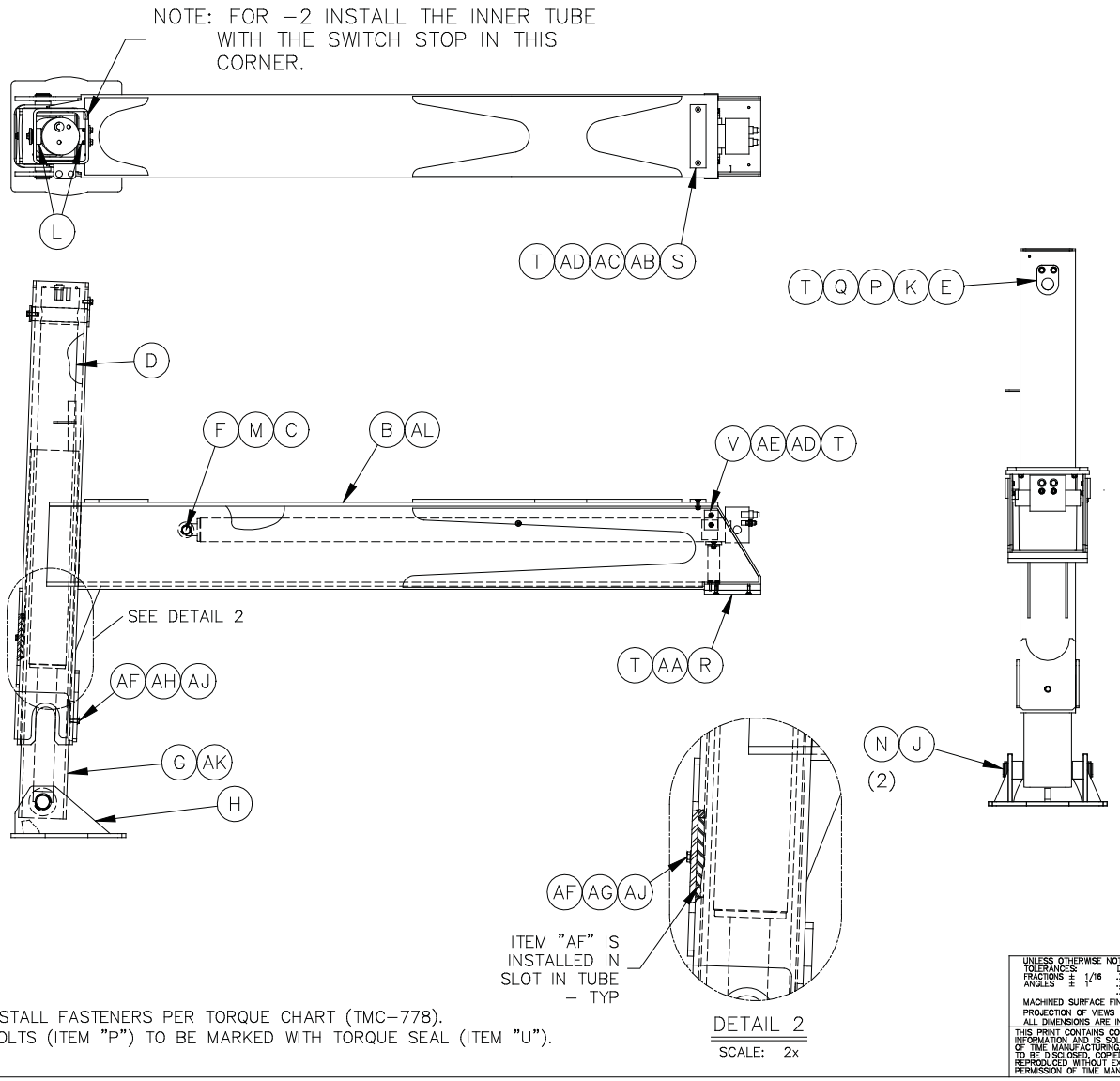
UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY SKV	DATE 07/03/14	TITLE OUT AND DOWN OUTRIGGER ASSY (TRACK VEHICLE)
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	MATERIAL –	SIZE B	SCALE 1/20	
	FINISH –	EST WT #	MANUAL –	
		SHEET 2 OF 3		DWG. NO. 1005285–DWG

REV. B



UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005, ANGLES ± 1°. MACHINED SURFACE FINISHES= 125, PROJECTION OF VIEWS, ALL DIMENSIONS ARE IN INCHES. THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY SKV	DATE 07/03/14	TITLE OUT AND DOWN OUTRIGGER ASSY (TRACK VEHICLE)
		SIZE B	SCALE 1/20	
	MATERIAL –	EST WT #	MANUAL –	
	FINISH –	SHEET 3 OF 3		DWG. NO. 1005285-DWG

REV. B



NOTES:
1.) INSTALL FASTENERS PER TORQUE CHART (TMC–778).
2.) BOLTS (ITEM "P") TO BE MARKED WITH TORQUE SEAL (ITEM "U").

–2	–1	ITEM	PART NO.	DESCRIPTION
1	–	AL	101791–2	WELDMENT, INNER BOOM
1	–	AK	102417–1	WELDMENT, INNER TUBE
A/R	A/R	AJ	84027–1	LOCTITE #454 ADHESIVE
1	1	AH	40171–16	3/8–NC FIBER FLANGED CAPSCREW
1	1	AG	40171–12	3/8–NC FIBER FLANGED CAPSCREW
2	2	AF	102352–1	OUTRIGGER WEAR PAD
4	4	AE	40003–4	5/16–NC x 7/8 HHCS
6	6	AD	44013–5	5/16 HARDENED WASHER
2	2	AC	42005–2	5/16 HEX LOCKNUT
2	2	AB	40000–27	5/16–18NC X 1–1/4 SHFS
4	4	AA	40000–3	5/16–18NC X 1 SHFS
–	–	Z	–	–
–	–	Y	–	–
–	–	X	–	–
–	–	W	–	–
2	2	V	31260–1	WEAR PAD
A/R	A/R	U	84006–2	SENTRY SEAL
A/R	A/R	T	06–046	THREADLOCK BLUE
1	1	S	31268–1	WEAR PAD
1	1	R	31267–1	WEAR PAD
2	2	Q	44013–6	3/8 HARDENED WASHER
3	3	P	40004–5	3/8–16NC HHCS X 1 GR. 5
4	4	N	48000–24	1–3/4 DIA. PIN HEAVY DUTY SNAP RING
2	2	M	48000–12	1 DIA. PIN HEAVY DUTY SNAP RING
2	2	L	19781–2	DOWN OUTRIGGER PIN SPACER
1	1	K	44016–2	2 DIA. SPECIAL FLAT WASHER
1	1	J	101739–1	OUTRIGGER FOOT PIVOT PIN
1	1	H	31256–1	OUTRIGGER FOOT WELDMENT
–	1	G	31271–1	INNER TUBE DOWN CYLINDER
1	1	F	19784–3	PIN, OUTRIGGER EXTENSION
1	1	E	19846–1	OUTRIGGER PIN WELDMENT
1	1	D	19743–2	OUTRIGGER DOWN CYLINDER
1	1	C	19742–2	OUTRIGGER EXT. CYLINDER
–	1	B	101791–1	WELDMENT, INNER BOOM
1	1	A	101835–DWG	OUTRIGGER INNER BOOM ASSEMBLY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES

TIME Ltd. MANUFACTURING COMPANY WACO TEXAS

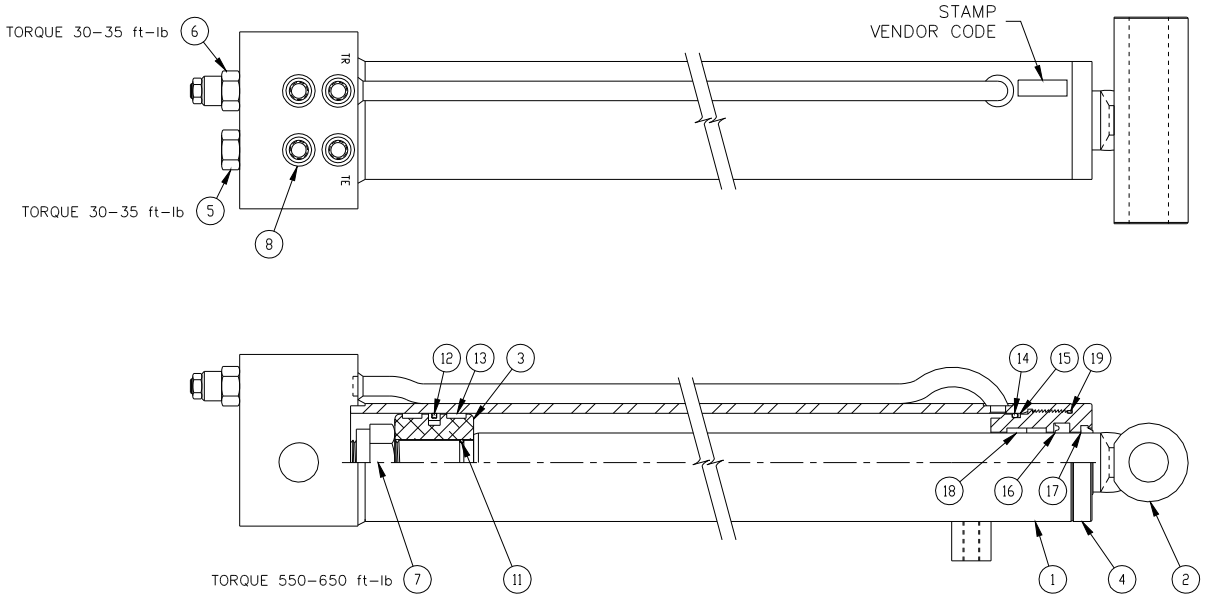
MATERIAL: SEE ABOVE

FINISH: ------

DWN. BY	DATE	TITLE
REW	07/22/10	OUTRIGGER INNER BOOM ASSEMBLY
SIZE: B	SCALE: 1/14	
EST WT #:	MANUAL: –	
SHEET: 1 OF 1	DWG. NO.: 101835–DWG	

REV. D

OUTRIGGER EXTENSION CYLINDER



–1 SHOWN

	TMS SERVICE PARTS				
	ITEM	PART DESCRIPTION	TIME PART NO	–1 QTY	–2 QTY
	1	TUBE ASSEMBLY	–	1	–
	2	ROD ASSEMBLY	–	1	–
	1	TUBE ASSEMBLY	–	–	1
	2	ROD ASSEMBLY	–	–	1
	3	PISTON	Y3136	1	1
	4	HEAD	Y3137	1	1
	5	P.O. CHECK VALVE	Y3138	1	1
	6	COUNTER BALANCE	Y3139	1	1
**	7	LOCK NUT, 1 1/8	Y2262	1	1
	8	PLUG, SAE #4	Y2484	4	4
	9	DRILL PLUG	Y3140	6	6
*	11	O–RING	NSS	1	1
*	12	AQ SEAL	NSS	1	1
*	13	WEAR RING	NSS	2	2
*	14	O–RING	NSS	1	1
*	15	BACK–UP RING	NSS	1	1
*	16	POLYPAK	NSS	1	1
*	17	WIPER	NSS	1	1
*	18	WEAR RING	NSS	2	2
*	19	O–RING	NSS	1	1
	––	SEAL KIT	Y3141	1	1

* THESE ITEMS ARE INCLUDED IN SEAL KIT. NSS (NOT SOLD SEPARATELY)

** THESE ITEMS ARE NOT INCLUDED IN SEAL KIT BUT MUST BE REPLACED WHEN REPLACING SEAL KIT AND MUST BE PURCHASED SEPARATELY.

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS: ALL DIMENSIONS ARE IN INCHES

THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.

TIME MANUFACTURING COMPANY WACO TEXAS

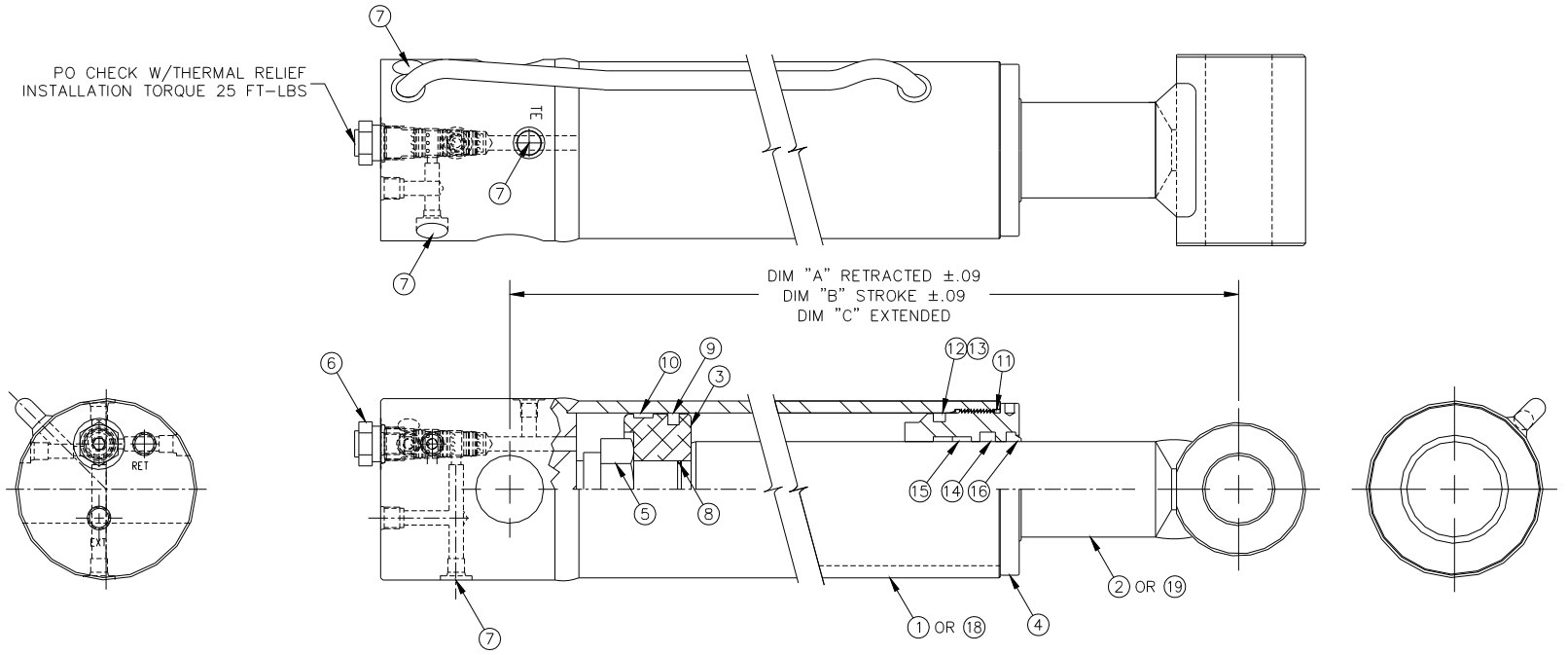
MATERIAL ––––

FINISH NOTED

DWN. BY	DATE	TITLE
MAS	8/21/03	OUTRIGGER EXTENSION CYLINDER
SIZE B	SCALE 1/3	
EST WT #	MANUAL –	
SHEET 2 OF 3	DWG. NO. 19742–SEE ABOVE	

OUTRIGGER DOWN CYLINDER SERVICE PARTS

REV. D



* SEAL KIT CONTAINS ITEMS "8–16"
(NSS – NOT SOLD SEPARATELY)

TMS SERVICE PARTS				
ITEM	PART DESCRIPTION	TIME PART NO	-1 QTY	-2 QTY
1	TUBE ASSEMBLY	–	1	–
2	ROD ASSEMBLY	–	1	–
3	PISTON	Y3032	1	1
4	HEAD	Y3033	1	1
5	LOCKNUT, 1 1/2"–12	Y3034	1	1
6	PO CHECK	Y3035	1	1
7	PLUG, SAE #4	Y2484	4	4
* 8	O–RING	NSS	1	1
* 9	AQ SEAL	NSS	1	1
* 10	WEAR RING	NSS	1	1
* 11	O–RING	NSS	1	1
* 12	O–RING	NSS	1	1

TMS SERVICE PARTS				
ITEM	PART DESCRIPTION	TIME PART NO	-1 QTY	-2 QTY
* 13	BACK–UP RING	NSS	1	1
* 14	U–CUP	NSS	1	1
* 15	WEAR RING	NSS	2	2
* 16	WIPER	NSS	1	1
17	SEAL KIT	Y3036	1	1
18	TUBE ASSEMBLY	–	–	1
19	ROD ASSEMBLY	–	–	1

NOTE:
1. TORQUE LOCKNUT (ITEM #5) TO 1020–1250 FT–LBS

DASH NO.	DIM "A"	DIM "B"	DIM "C"
-1	42.00	28.50	70.50
-2	50.38	36.88	87.25

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: SEE ABOVE

DWN. BY	DATE	TITLE
MAS	08/25/03	OUTRIGGER DOWN CYLINDER
SIZE: B	SCALE: 1/3	
EST WT #: –	MANUAL: X	
SHEET: 4 OF 4	DWG. NO.: 19743–SEE ABOVE	

SECTION 140

Out and Down Outrigger Assembly
Track Vehicle
(Option OR-1400-60)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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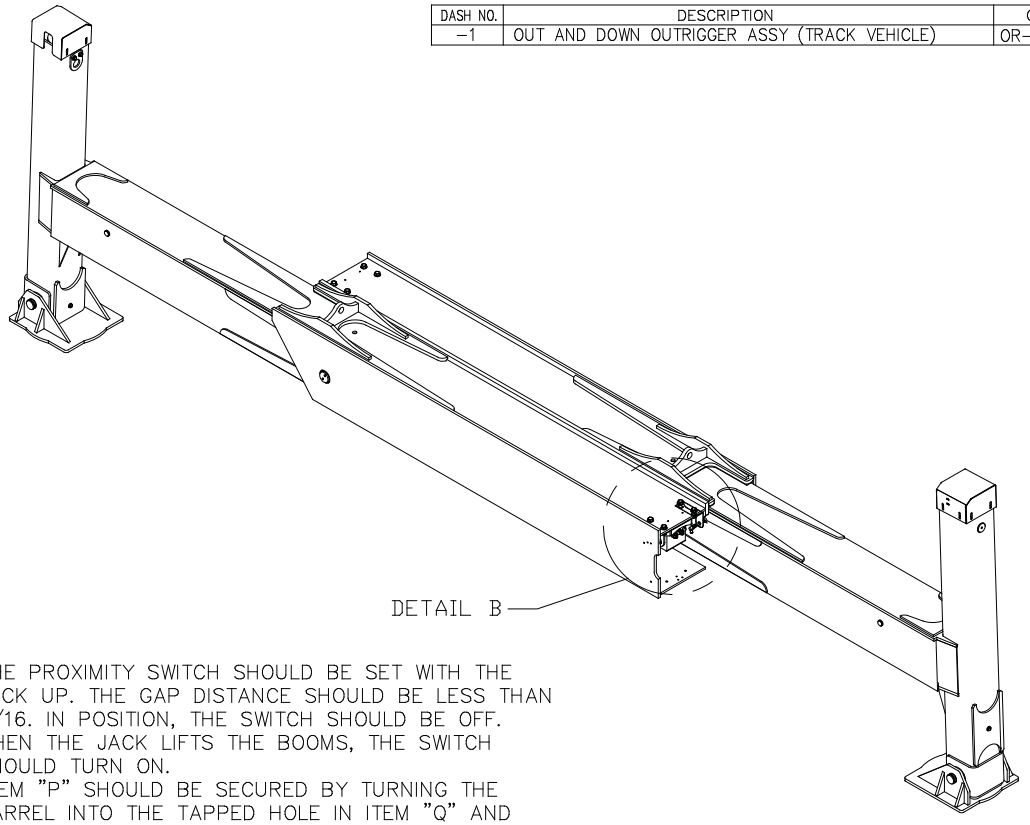
REV.

DASH NO.	DESCRIPTION	OPTION
–1	OUT AND DOWN OUTRIGGER ASSY (TRACK VEHICLE)	OR–1400–60



NOTES:

1.) THE PROXIMITY SWITCH SHOULD BE SET WITH THE JACK UP. THE GAP DISTANCE SHOULD BE LESS THAN 3/16. IN POSITION, THE SWITCH SHOULD BE OFF. WHEN THE JACK LIFTS THE BOOMS, THE SWITCH SHOULD TURN ON.

2.) ITEM "P" SHOULD BE SECURED BY TURNING THE BARREL INTO THE TAPPED HOLE IN ITEM "Q" AND USING ONE OF THE SUPPLIED JAM NUTS AND LOCTITE TO KEEP IT IN PLACE.

3.) POSITION OF SENSOR SHOULD BE LINED UP WITH THE ACTUATION MAGNET WHEN BOOM IS FULLY EXTENDED.

4.) ADJUST WEAR PADS WHILE BOOM IS RETRACTED TO CENTER THE DOWN TUBE.

5.) INSTALL ITEMS "B" APPROXIMATELY HALF WAY IN BEFORE INSTALLING ITEM "V".

6.) TOTAL WEIGHT WITHOUT OIL OR MOUNTING HARDWARE 3700 LB..

* = ITEM TO SHIP LOOSE

	–1			
*	4	AF	19833–5	TURCK 4–PIN CABLE CONNECTOR
	16	AE	44013–3	WASHER, HARDENED 1/2
	8	AD	40006–9	1/2–13 NC HHCS X 2 LG.
	8	AC	42005–5	1/2–13 NC LOCKNUT
	2	AB	40003–3	5/16–18 NC HHCS X 3/4 LG
	26	AA	44013–7	WASHER, HARDENED 1/4
	6	Z	40002–2	1/4–20 NC X 5/8 LG.
	20	Y	40002–1	1/4–20 NC HHCS X 1/2 LG.
	2	X	40050–6	#4 –40 NC RPHS X 1 LG.
	2	W	44013–5	WASHER, HARDENED 5/16
	2	V	31270–1	WEAR PAD
	2	U	26665–3	SLIDE PAD, ADJUSTABLE
	2	T	26665–1	SLIDE PAD, ADJUSTABLE
	2	S	30913–1	POLYETHYLENE MAGNET COVER
	2	R	30810–1	COVER W/A PROX. SENSOR
	2	Q	30799–1	PROXIMITY BRACKET 18MM
	2	P	68245–1	PROXIMITY SENSOR 5MM
	2	N	1005287–1	OUTRIGGER END COVER
	2	M	102421–1	WELDMENT, DOWN TUBE COVER
	2	L	101845–1	BRACKET, MAGNETIC PROXIMITY
	2	K	19834–1	TURCK ACTUATION MAGNET
	2	J	19831–1	TURCK POSITION SENSOR
	2	H	19784–4	PIN, OUTRIGGER EXTENSION
	2	G	102422–1	JACK SWITCH BRACKET
	4	F	48000–12	1 DIA HEAVY DUTY SNAP RING
	2	E	31299–1	CYLINDER MOUNT WELDMENT
	A/R	D	05–129	THREADLOK BLUE
	1	C	1005286–1	OUTER BOOM WELDMENT
	2	B	101835–1	OUTRIGGER INNER BOOM ASSY
	2	A	1005285–DWG	DWG, ASSY, OUT AND DOWN OUTRIGGER
	QTY.	ITEM	PART NO.	DESCRIPTION

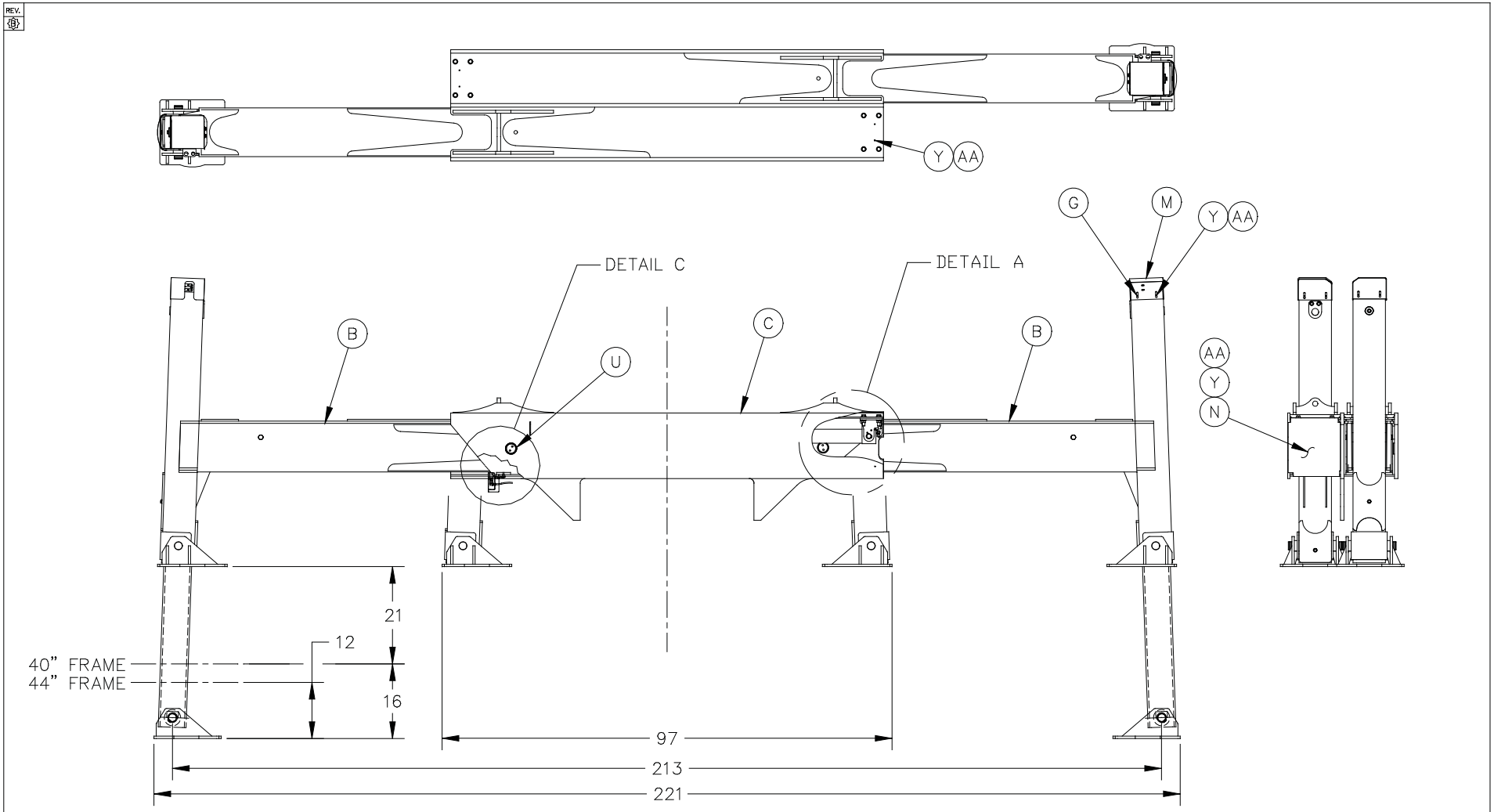
LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

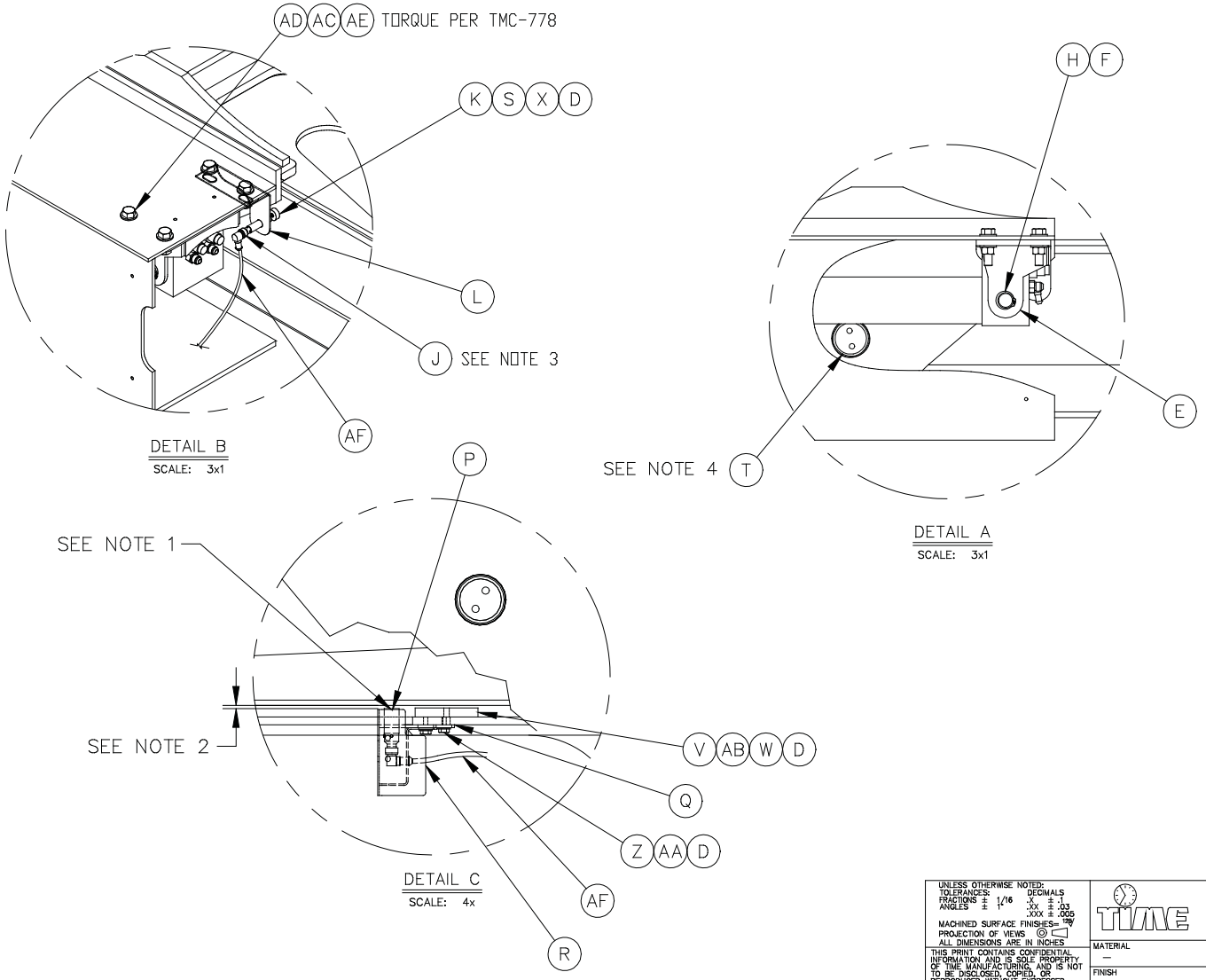
MATERIAL –
FINISH –

DWN. BY	DATE	TITLE
SKV	07/03/14	OUT AND DOWN OUTRIGGER ASSY (TRACK VEHICLE)
SIZE B	SCALE 1/20	
EST WT #	MANUAL –	
SHEET 1 OF 3		DWG. NO. 1005285–DWG



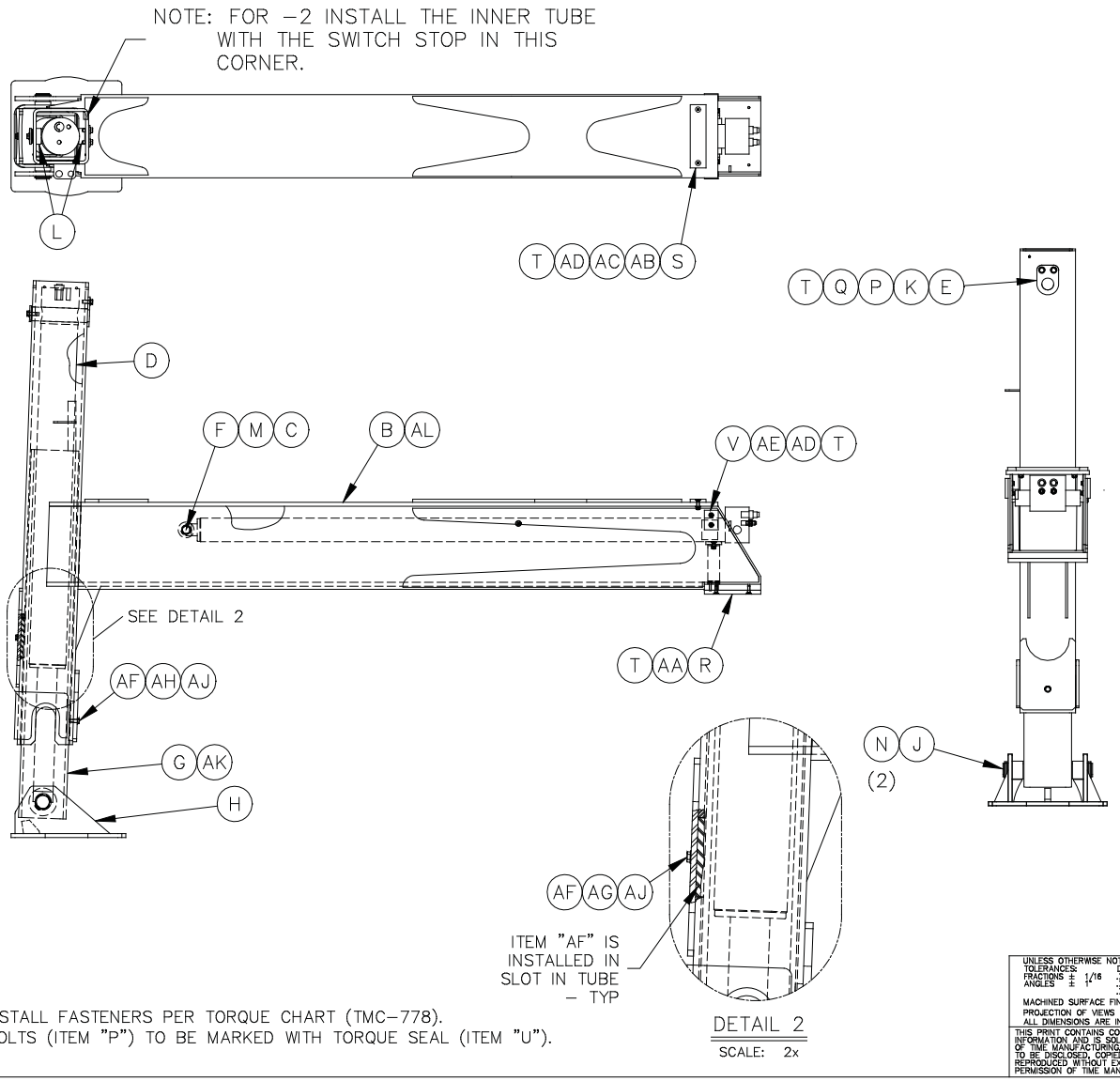
UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY SKV	DATE 07/03/14	TITLE OUT AND DOWN OUTRIGGER ASSY (TRACK VEHICLE)
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	MATERIAL –	SIZE B	SCALE 1/20	
	FINISH –	EST WT #	MANUAL –	
		SHEET 2 OF 3		DWG. NO. 1005285–DWG

REV. B



UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005, ANGLES ± 1°. MACHINED SURFACE FINISHES= 125, PROJECTION OF VIEWS, ALL DIMENSIONS ARE IN INCHES. THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY SKV	DATE 07/03/14	TITLE OUT AND DOWN OUTRIGGER ASSY (TRACK VEHICLE)
		SIZE B	SCALE 1/20	
	MATERIAL –	EST WT #	MANUAL –	
	FINISH –	SHEET 3 OF 3		DWG. NO. 1005285-DWG

REV. B



NOTES:
1.) INSTALL FASTENERS PER TORQUE CHART (TMC–778).
2.) BOLTS (ITEM "P") TO BE MARKED WITH TORQUE SEAL (ITEM "U").

–2	–1	ITEM	PART NO.	DESCRIPTION
1	–	AL	101791–2	WELDMENT, INNER BOOM
1	–	AK	102417–1	WELDMENT, INNER TUBE
A/R	A/R	AJ	84027–1	LOCTITE #454 ADHESIVE
1	1	AH	40171–16	3/8–NC FIBER FLANGED CAPSCREW
1	1	AG	40171–12	3/8–NC FIBER FLANGED CAPSCREW
2	2	AF	102352–1	OUTRIGGER WEAR PAD
4	4	AE	40003–4	5/16–NC x 7/8 HHCS
6	6	AD	44013–5	5/16 HARDENED WASHER
2	2	AC	42005–2	5/16 HEX LOCKNUT
2	2	AB	40000–27	5/16–18NC X 1–1/4 SHFS
4	4	AA	40000–3	5/16–18NC X 1 SHFS
–	–	Z	–	–
–	–	Y	–	–
–	–	X	–	–
–	–	W	–	–
2	2	V	31260–1	WEAR PAD
A/R	A/R	U	84006–2	SENTRY SEAL
A/R	A/R	T	06–046	THREADLOCK BLUE
1	1	S	31268–1	WEAR PAD
1	1	R	31267–1	WEAR PAD
2	2	Q	44013–6	3/8 HARDENED WASHER
3	3	P	40004–5	3/8–16NC HHCS X 1 GR. 5
4	4	N	48000–24	1–3/4 DIA. PIN HEAVY DUTY SNAP RING
2	2	M	48000–12	1 DIA. PIN HEAVY DUTY SNAP RING
2	2	L	19781–2	DOWN OUTRIGGER PIN SPACER
1	1	K	44016–2	2 DIA. SPECIAL FLAT WASHER
1	1	J	101739–1	OUTRIGGER FOOT PIVOT PIN
1	1	H	31256–1	OUTRIGGER FOOT WELDMENT
–	1	G	31271–1	INNER TUBE DOWN CYLINDER
1	1	F	19784–3	PIN, OUTRIGGER EXTENSION
1	1	E	19846–1	OUTRIGGER PIN WELDMENT
1	1	D	19743–2	OUTRIGGER DOWN CYLINDER
1	1	C	19742–2	OUTRIGGER EXT. CYLINDER
–	1	B	101791–1	WELDMENT, INNER BOOM
1	1	A	101835–DWG	OUTRIGGER INNER BOOM ASSEMBLY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES

TIME Ltd. MANUFACTURING COMPANY WACO TEXAS

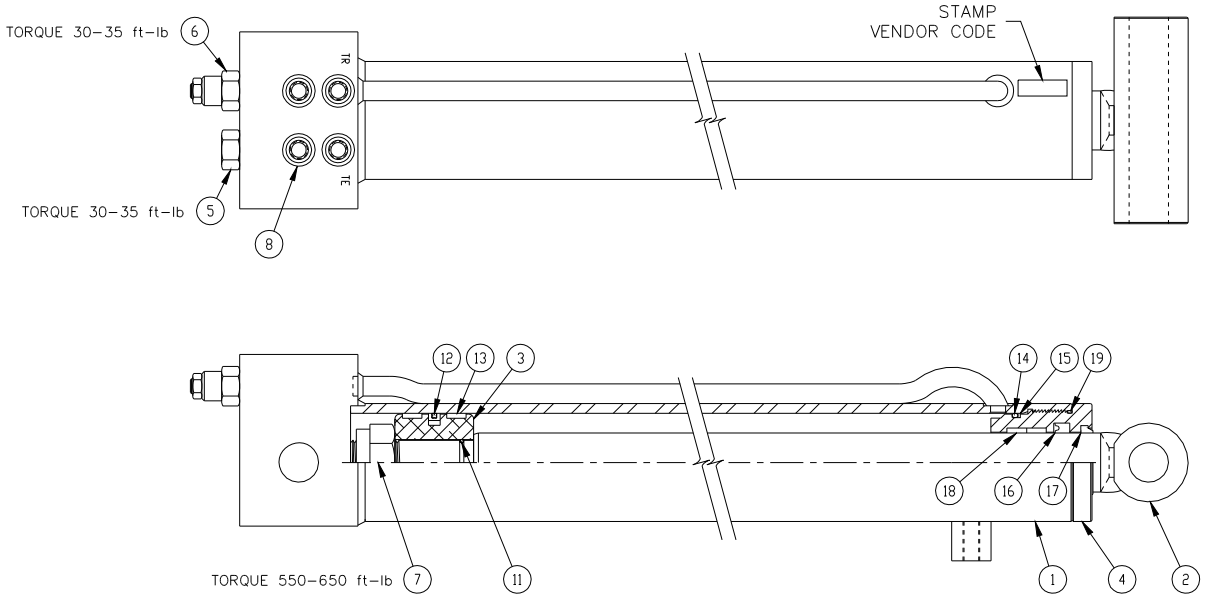
MATERIAL: SEE ABOVE

FINISH: ------

DWN. BY	DATE	TITLE
REW	07/22/10	OUTRIGGER INNER BOOM ASSEMBLY
SIZE: B	SCALE: 1/14	
EST WT #:	MANUAL: –	
SHEET: 1 OF 1	DWG. NO.: 101835–DWG	

REV. D

OUTRIGGER EXTENSION CYLINDER



–1 SHOWN

	TMS SERVICE PARTS				
	ITEM	PART DESCRIPTION	TIME PART NO	–1 QTY	–2 QTY
	1	TUBE ASSEMBLY	–	1	–
	2	ROD ASSEMBLY	–	1	–
	1	TUBE ASSEMBLY	–	–	1
	2	ROD ASSEMBLY	–	–	1
	3	PISTON	Y3136	1	1
	4	HEAD	Y3137	1	1
	5	P.O. CHECK VALVE	Y3138	1	1
	6	COUNTER BALANCE	Y3139	1	1
**	7	LOCK NUT, 1 1/8	Y2262	1	1
	8	PLUG, SAE #4	Y2484	4	4
	9	DRILL PLUG	Y3140	6	6
*	11	O–RING	NSS	1	1
*	12	AQ SEAL	NSS	1	1
*	13	WEAR RING	NSS	2	2
*	14	O–RING	NSS	1	1
*	15	BACK–UP RING	NSS	1	1
*	16	POLYPAK	NSS	1	1
*	17	WIPER	NSS	1	1
*	18	WEAR RING	NSS	2	2
*	19	O–RING	NSS	1	1
	––	SEAL KIT	Y3141	1	1

* THESE ITEMS ARE INCLUDED IN SEAL KIT. NSS (NOT SOLD SEPARATELY)

** THESE ITEMS ARE NOT INCLUDED IN SEAL KIT BUT MUST BE REPLACED WHEN REPLACING SEAL KIT AND MUST BE PURCHASED SEPARATELY.

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS: ALL DIMENSIONS ARE IN INCHES

THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.

TIME MANUFACTURING COMPANY WACO TEXAS

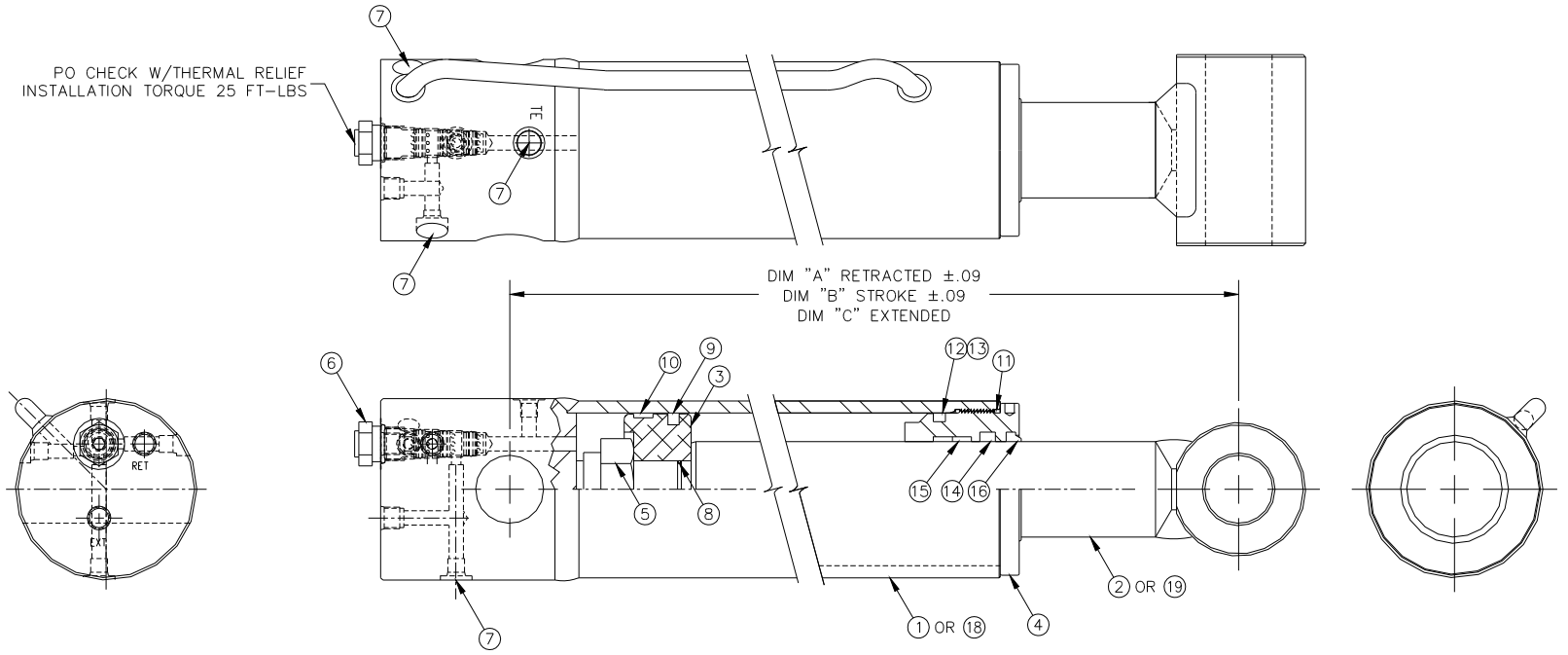
MATERIAL ––––

FINISH NOTED

DWN. BY	DATE	TITLE
MAS	8/21/03	OUTRIGGER EXTENSION CYLINDER
SIZE B	SCALE 1/3	
EST WT #	MANUAL –	
SHEET 2 OF 3	DWG. NO. 19742–SEE ABOVE	

OUTRIGGER DOWN CYLINDER SERVICE PARTS

REV. D



* SEAL KIT CONTAINS ITEMS "8–16"
(NSS – NOT SOLD SEPARATELY)

TMS SERVICE PARTS				
ITEM	PART DESCRIPTION	TIME PART NO	-1 QTY	-2 QTY
1	TUBE ASSEMBLY	–	1	–
2	ROD ASSEMBLY	–	1	–
3	PISTON	Y3032	1	1
4	HEAD	Y3033	1	1
5	LOCKNUT, 1 1/2"–12	Y3034	1	1
6	PO CHECK	Y3035	1	1
7	PLUG, SAE #4	Y2484	4	4
* 8	O–RING	NSS	1	1
* 9	AQ SEAL	NSS	1	1
* 10	WEAR RING	NSS	1	1
* 11	O–RING	NSS	1	1
* 12	O–RING	NSS	1	1

TMS SERVICE PARTS				
ITEM	PART DESCRIPTION	TIME PART NO	-1 QTY	-2 QTY
* 13	BACK–UP RING	NSS	1	1
* 14	U–CUP	NSS	1	1
* 15	WEAR RING	NSS	2	2
* 16	WIPER	NSS	1	1
17	SEAL KIT	Y3036	1	1
18	TUBE ASSEMBLY	–	–	1
19	ROD ASSEMBLY	–	–	1

NOTE:
1. TORQUE LOCKNUT (ITEM #5) TO 1020–1250 FT–LBS

DASH NO.	DIM "A"	DIM "B"	DIM "C"
-1	42.00	28.50	70.50
-2	50.38	36.88	87.25

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

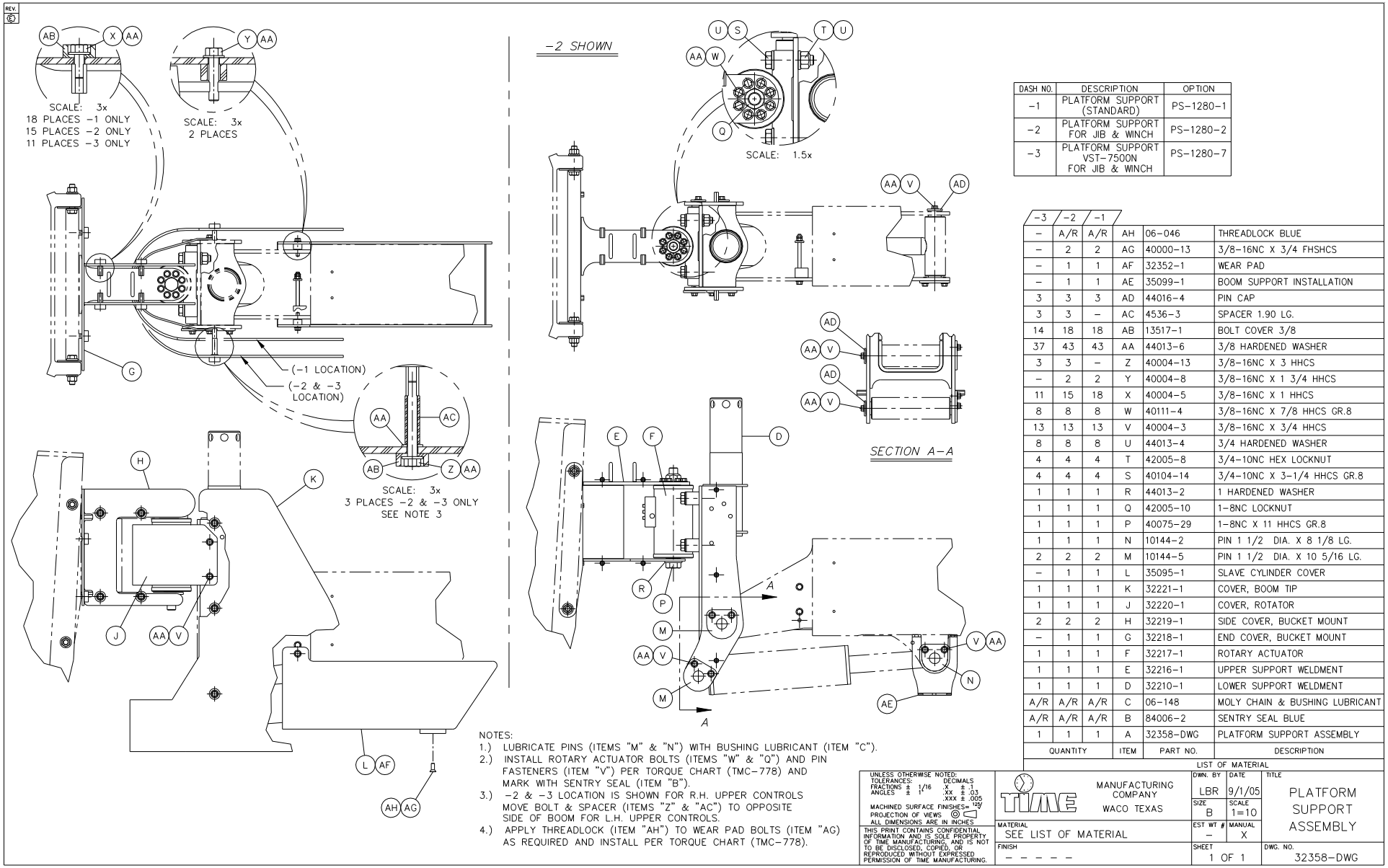
MATERIAL: SEE ABOVE
FINISH: SEE ABOVE

DWN. BY	DATE	TITLE
MAS	08/25/03	OUTRIGGER DOWN CYLINDER
SIZE: B	SCALE: 1/3	
EST WT #: –	MANUAL: X	
SHEET: 4 OF 4	DWG. NO.: 19743–SEE ABOVE	

SECTION 141

Platform Support Assembly For Jib And Winch (Option PS-1280-2)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.



DASH NO.	DESCRIPTION	OPTION
-1	PLATFORM SUPPORT (STANDARD)	PS-1280-1
-2	PLATFORM SUPPORT FOR JIB & WINCH	PS-1280-2
-3	PLATFORM SUPPORT VST-7500N FOR JIB & WINCH	PS-1280-7

-3	-2	-1	ITEM	PART NO.	DESCRIPTION
–	A/R	A/R	AH	06-046	THREADLOCK BLUE
–	2	2	AG	40000-13	3/8-16NC X 3/4 FHSHCS
–	1	1	AF	32352-1	WEAR PAD
–	1	1	AE	35099-1	BOOM SUPPORT INSTALLATION
3	3	3	AD	44016-4	PIN CAP
3	3	–	AC	4536-3	SPACER 1.90 LG.
14	18	18	AB	13517-1	BOLT COVER 3/8
37	43	43	AA	44013-6	3/8 HARDENED WASHER
3	3	–	Z	40004-13	3/8-16NC X 3 HHCS
–	2	2	Y	40004-8	3/8-16NC X 1 3/4 HHCS
11	15	18	X	40004-5	3/8-16NC X 1 HHCS
8	8	8	W	40111-4	3/8-16NC X 7/8 HHCS GR.8
13	13	13	V	40004-3	3/8-16NC X 3/4 HHCS
8	8	8	U	44013-4	3/4 HARDENED WASHER
4	4	4	T	42005-8	3/4-10NC HEX LOCKNUT
4	4	4	S	40104-14	3/4-10NC X 3-1/4 HHCS GR.8
1	1	1	R	44013-2	1 HARDENED WASHER
1	1	1	Q	42005-10	1-8NC LOCKNUT
1	1	1	P	40075-29	1-8NC X 11 HHCS GR.8
1	1	1	N	10144-2	PIN 1 1/2 DIA. X 8 1/8 LG.
2	2	2	M	10144-5	PIN 1 1/2 DIA. X 10 5/16 LG.
–	1	1	L	35095-1	SLAVE CYLINDER COVER
1	1	1	K	32221-1	COVER, BOOM TIP
1	1	1	J	32220-1	COVER, ROTATOR
2	2	2	H	32219-1	SIDE COVER, BUCKET MOUNT
–	1	1	G	32218-1	END COVER, BUCKET MOUNT
1	1	1	F	32217-1	ROTARY ACTUATOR
1	1	1	E	32216-1	UPPER SUPPORT WELDMENT
1	1	1	D	32210-1	LOWER SUPPORT WELDMENT
A/R	A/R	A/R	C	06-148	MOLY CHAIN & BUSHING LUBRICANT
A/R	A/R	A/R	B	84006-2	SENTRY SEAL BLUE
1	1	1	A	32358-DWG	PLATFORM SUPPORT ASSEMBLY

LIST OF MATERIAL

NOTES:
1.) LUBRICATE PINS (ITEMS "M" & "N") WITH BUSHING LUBRICANT (ITEM "C").
2.) INSTALL ROTARY ACTUATOR BOLTS (ITEMS "W" & "Q") AND PIN FASTENERS (ITEM "V") PER TORQUE CHART (TMC-778) AND MARK WITH SENTRY SEAL (ITEM "B").
3.) -2 & -3 LOCATION IS SHOWN FOR R.H. UPPER CONTROLS MOVE BOLT & SPACER (ITEMS "Z" & "AC") TO OPPOSITE SIDE OF BOOM FOR L.H. UPPER CONTROLS.
4.) APPLY THREADLOCK (ITEM "AH") TO WEAR PAD BOLTS (ITEM "AG) AS REQUIRED AND INSTALL PER TORQUE CHART (TMC-778).

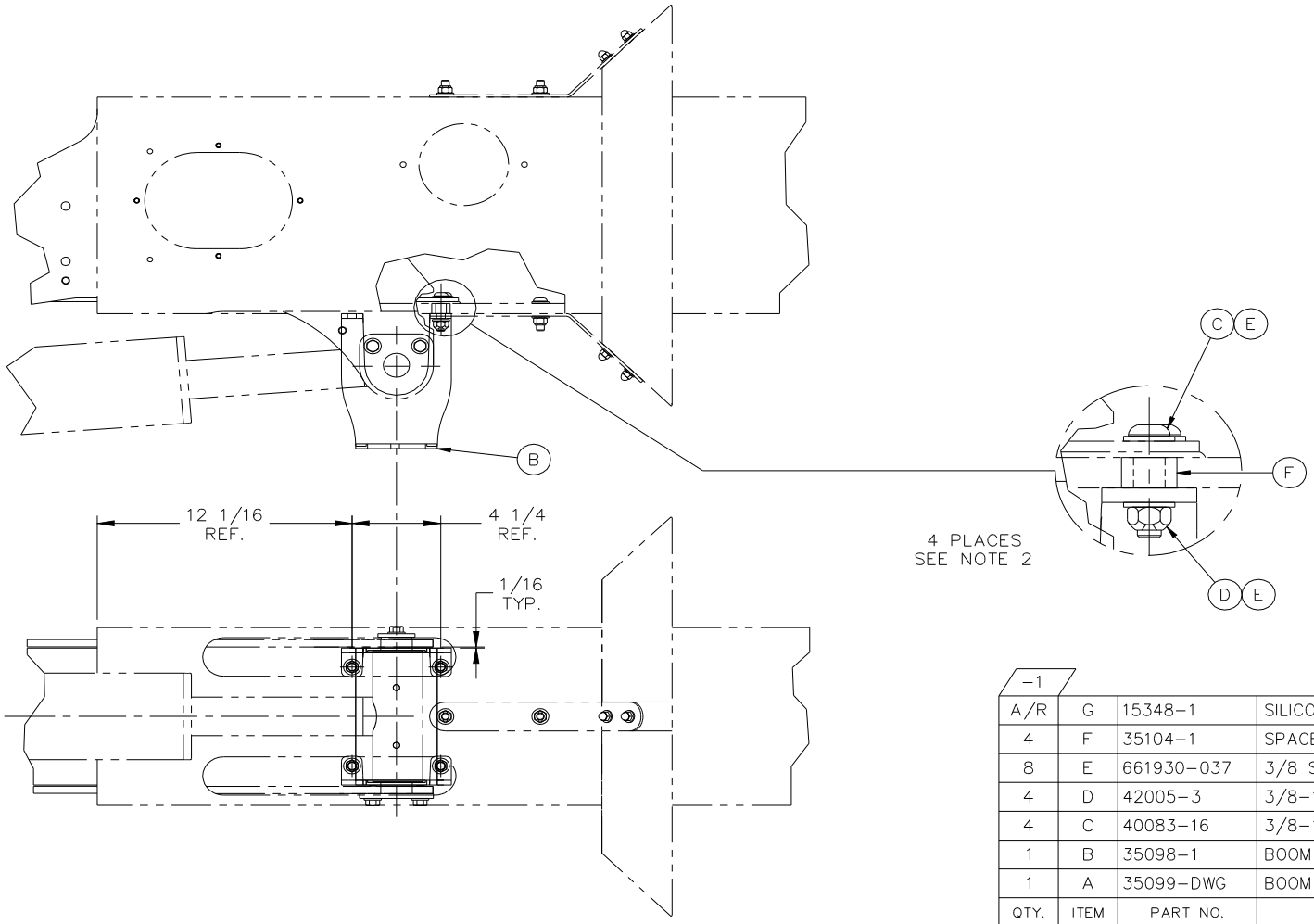
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 X ± .1
ANGLES ± 1° XX ± .03
XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: - - - - -

DWN. BY	DATE	TITLE
LBR	9/1/05	PLATFORM SUPPORT ASSEMBLY
SIZE: B	SCALE: 1=10	
EST WT #: -	MANUAL: X	
SHEET: 1 OF 1	DWG. NO.: 32358-DWG	

REV. A



-1

QTY.	ITEM	PART NO.	DESCRIPTION
A/R	G	15348-1	SILICONE SEALANT
4	F	35104-1	SPACER
8	E	661930-037	3/8 STAT-O-SEAL WASHER
4	D	42005-3	3/8-16NC HEX LOCKNUT
4	C	40083-16	3/8-16NC X 1-3/4 BHCS
1	B	35098-1	BOOM SUPPORT
1	A	35099-DWG	BOOM SUPPORT INSTALLATION

LIST OF MATERIAL

NOTES:
1.) POSITION BOOM SUPPORT (ITEM "B") AS SHOWN AND MATCH DRILL HOLES AS REQUIRED.
2.) APPLY SILICONE SEALANT (ITEM "G") TO MATCH DRILLED HOLES BEFORE INSTALLING HARDWARE (ITEMS "C", "D", "E" & "F").

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

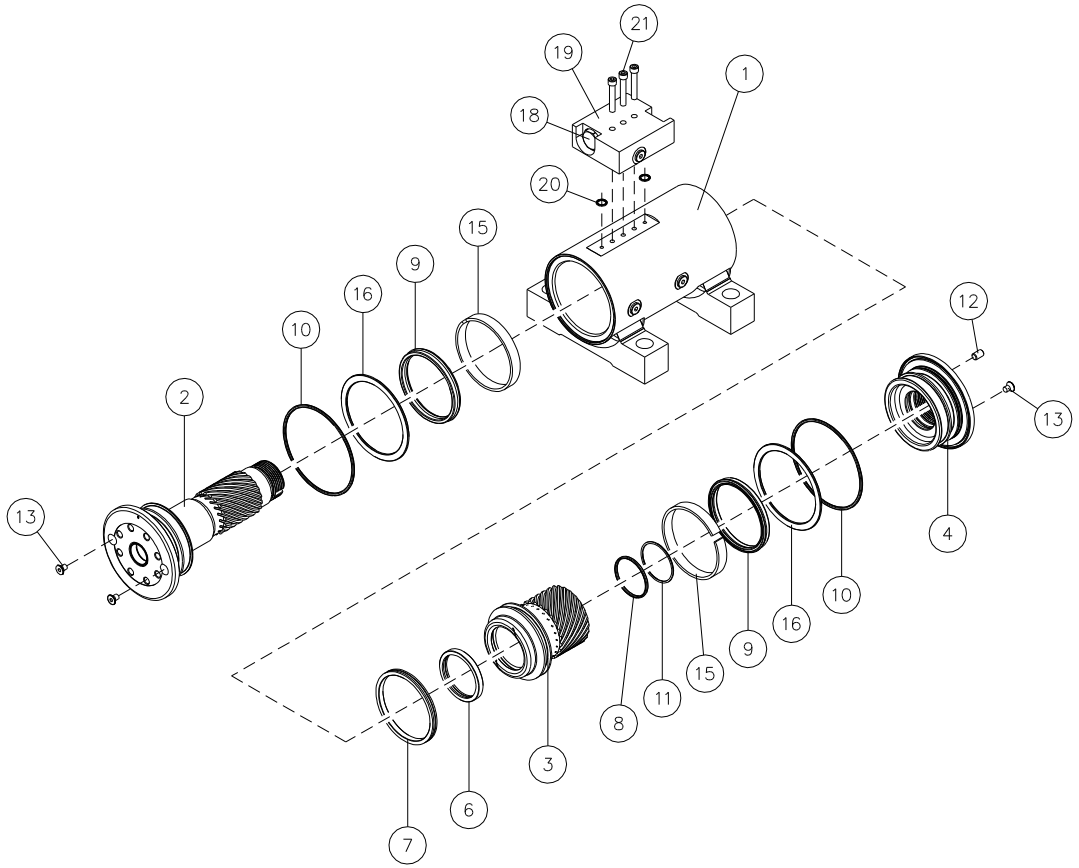
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: – – – – –

DWN. BY	DATE	TITLE
JBN	12/9/09	BOOM SUPPORT INSTALLATION
SIZE: A	SCALE: 1/8	
EST WT #: –	MANUAL: –	
SHEET: 1 OF 1		DWG. NO.: 35099-DWG

REV.

ROTARY ACTUATOR



	SERVICE PARTS			
	ITEM	PART DESCRIPTION	TIME PART NO	−1 QTY
	1	HOUSING	Y2406	1
	2	SHAFT	Y2407	1
	3	PISTON	Y2408	1
	4	END CAP	Y2709	1
	5	SEAL KIT	Y2410	1
INCLUDED IN ITEM 5	6	SEAL, T SEAL	N.S.S.	1
INCLUDED IN ITEM 5	7	SEAL, T SEAL	N.S.S.	1
INCLUDED IN ITEM 5	8	O−RING	N.S.S.	1
INCLUDED IN ITEM 5	9	SEAL, CUP	N.S.S.	2
INCLUDED IN ITEM 5	10	WIPER SEAL	N.S.S.	2
INCLUDED IN ITEM 5	11	BACK UP RING	N.S.S.	1
INCLUDED IN ITEM 5	12	DOWEL PIN	N.S.S.	2
INCLUDED IN ITEM 5	13	SCREW	N.S.S.	6
	14	BEARING KIT	Y2411	1
INCLUDED IN ITEM 14	15	BEARING − WEAR GUIDE	N.S.S.	2
INCLUDED IN ITEM 14	16	THRUST WASHER	N.S.S.	2
	17	COUNTERBALANCE VALVE ASSEMBLY	Y2412	1
INCLUDED IN ITEM 17	18	C'BALANCE CARTRIDGE	N.S.S	2
INCLUDED IN ITEM 17	19	CARTRIDGE BLOCK	N.S.S.	1
INCLUDED IN ITEM 17	20	O−RING	N.S.S.	2
INCLUDED IN ITEM 17	21	CAPSCREW	N.S.S.	3

N.S.S. INDICATES NOT SOLD SEPARATELY.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: PAINT PER WORK ORDER

DWN. BY	DATE
MAS	10/8/04
SIZE	SCALE
B	1/2.25
EST WT #	MANUAL
−	
SHEET	
2 OF 2	

TITLE: ROTARY ACTUATOR L20−8.2
DWG. NO.: 32217−1

SECTION 142

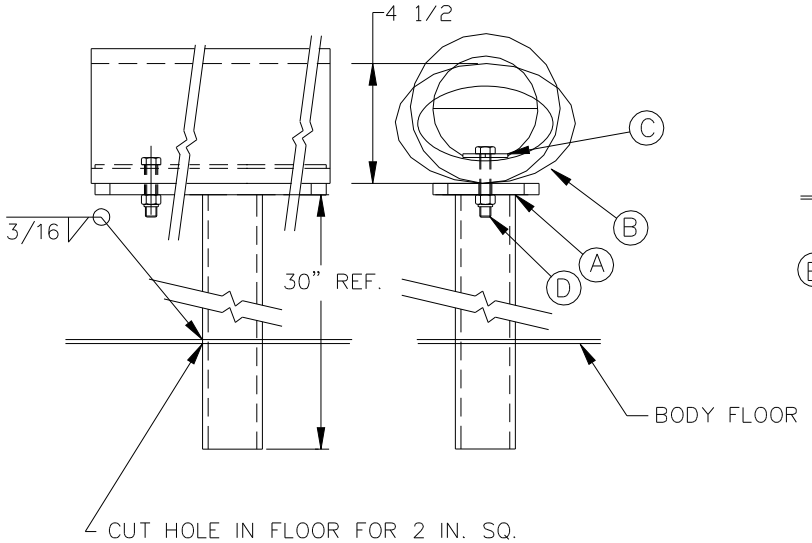
Platform Support
(Option PS-922)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

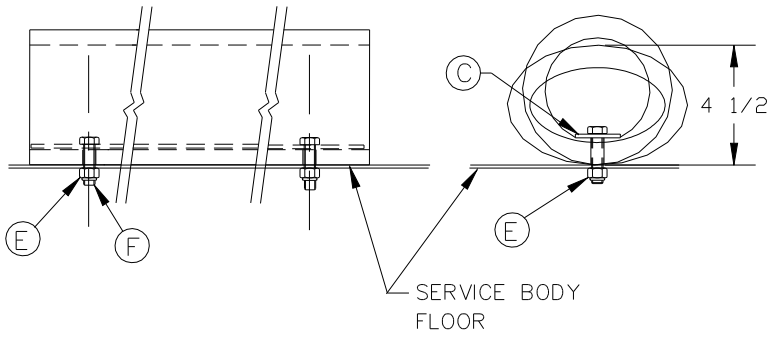
REV. 0

1. LOWER BOOMS TO STOWED POSITION.
2. LEVEL PLATFORM IF NECESSARY.
3. POSITION AND MARK PLATFORM SUPPORT LOCATION. LOCATE PLATFORM SUPPORT UNDER PLATFORM CENTERED FRONT TO REAR WITHIN 2 IN. AND CENTERED SIDE TO SIDE WITHIN 3 IN.
4. PLATFORM SHOULD COMPRESS RUBBER TUBE TO DIMENSION SHOWN.
5. MOUNT TUBE OR SUPPORT AS SHOWN.

DASH NO.	DESCRIPTION	OPTION
-1	PLATFORM SUPPORT INSTALLATION (APPROX. 5" HI MAX.)	PS-922
-2	PLATFORM SUPPORT INSTALLATION (APPROX. 23" HI MAX.)	PS-11



PS-11 INSTALLATION



PS-922 INSTALLATION

* = ITEMS TO BE SHIPPED LOOSE.

	QTY.	QTY.	ITEM	PART NO.	DESCRIPTION
*	1	1	G	14172-DWG	PLATFORM SUPPORT INSTALL. DWG.
*	–	2	F	40004-7	3/8-NC x 1 1/2 HHCS
*	2	2	E	42005-3	3/8-NC LOCKNUT
*	2	–	D	40004-8	3/8-NC x 1 3/4 HHCS
*	1	1	C	12873-1	STRAP
*	1	1	B	12872-1	TUBE
*	1	–	A	13101-2	SUPPORT ASSEMBLY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: -----

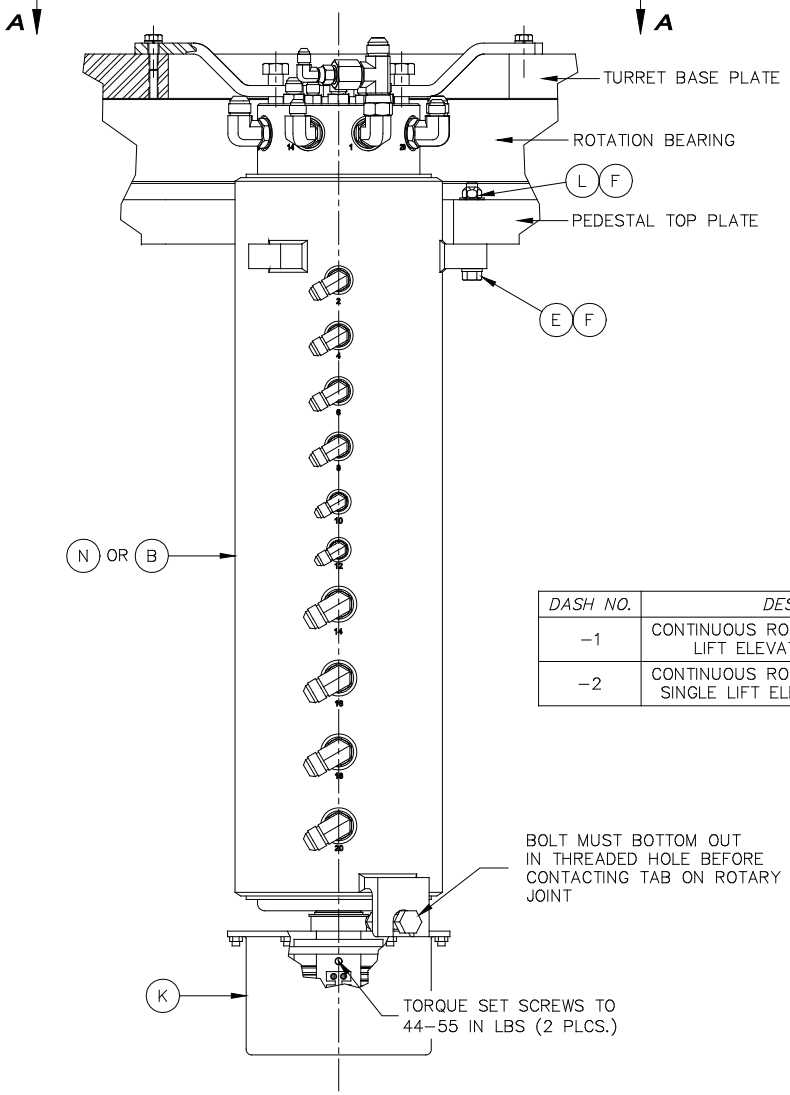
DWN. BY	DATE
DLB	10/03/94
SIZE: B	SCALE: 1/4
EST WT #	MANUAL: –
SHEET: 1 OF 1	DWG. NO.: 14172-DWG

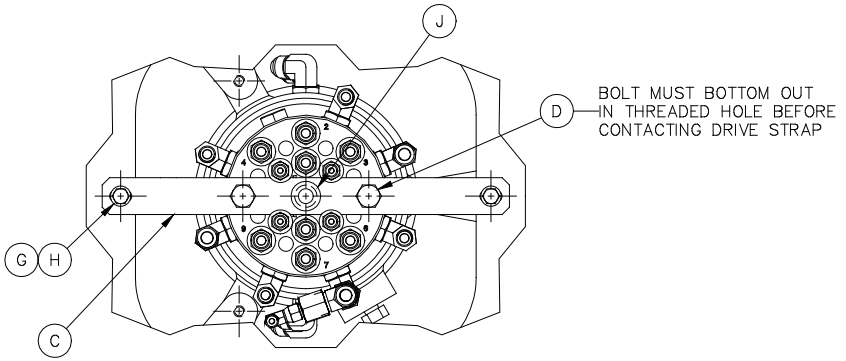
TITLE: PLATFORM SUPPORT INSTALLATION

SECTION 143

Continuous Rotation 20 Pass Single Lift Elevator (Option RO-1280-3)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.





VIEW A-A

NOTE:
1) ∗ INDICATES PART IS SHIPPED LOOSE.
2) APPLY ITEM M TO ITEM E AS NEEDED

DASH NO.	DESCRIPTION	CODE
–1	CONTINUOUS ROTATION – 20 PASS – LIFT ELEVATOR – VST 7500	RO–1280–2
–2	CONTINUOUS ROTATION – 20 PASS – SINGLE LIFT ELEVATOR – VST 9000	RO–1280–3

LIST OF MATERIAL

	QTY. –2	QTY. –1	ITEM	PART NO.	DESCRIPTION
	1	–	N	1005411–1	ROTARY JOINT ASSEMBLY–20 PASS
	AR	AR	M	06–046	THREAD LOCK
	3	3	L	42005–3	3/8 HEX LOCK NUT
	REF	REF	K	28457–X	COLLECTOR RING ASSEMBLY
∗	1	1	J	80001–6	GROMMET 1/2 I.D.
∗	2	2	H	44000–10	5/16 LOCKWASHER
∗	2	2	G	40003–5	5/16–NC X 1 LG HHCS
	3	3	F	44013–6	3/8 HARDENED WASHER
	3	3	E	40004–13	3/8–NC X 3 LG HHCS
∗	2	2	D	40006–11	1/2–NC X 2 1/2 LG HHCS
∗	1	1	C	1000232–1	DRIVE STRAP
	–	1	B	1000137–1	ROTARY JOINT ASSY – 20 PASS
	2	2	A	1000136–DWG	ROTARY JOINT INSTALL. – 20 PASS

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

MANUFACTURING COMPANY
WACO TEXAS

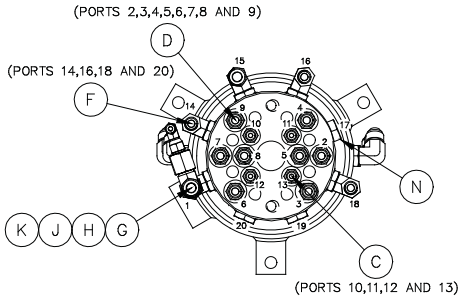
MATERIAL

FINISH

DWN. BY	DATE
LBR	4–1–13
SIZE	SCALE
B	1=4
EST WT #	MANUAL
	–
SHEET	
1 OF 1	

TITLE: ROTARY JOINT INSTALLATION 20 PASS

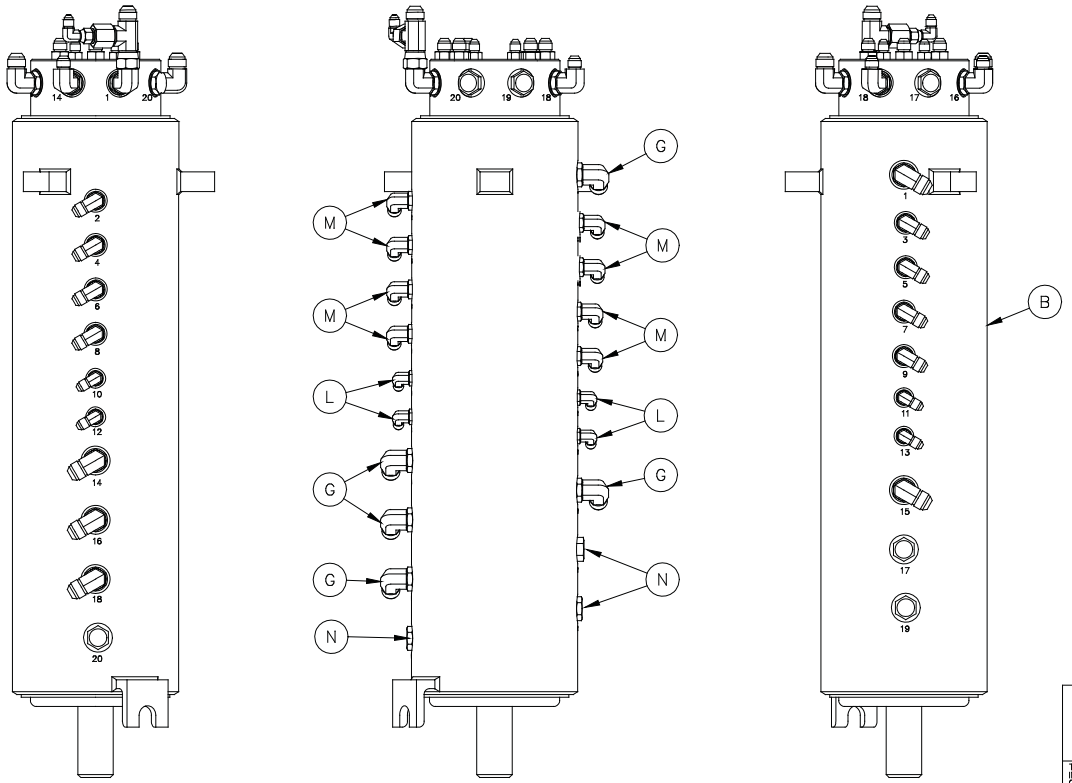
DWG. NO. 1000136–DWG



NOTES:
1.) CAPS (ITEMS "E", "P" AND "Q") ARE NOT SHOWN AND ARE TO BE INSTALLED ON EACH OPEN FITTING WHERE NEEDED.

ROTARY JOINT PORT ASSIGNMENTS			
PORT	*FUNCTION*	*PORT*	*FUNCTION*
1	RETURN TO TANK–1	11	PLATFORM–RAISE (IF REQ'D)
2	ROTATION–CLOCKWISE	12	WINCH–DOWN
3	INNER BOOM – EXTEND	13	PLATFORM–LOWER (IF REQ'D)
4	ROTATION–COUNTER CLOCKWISE	14	ELEVATOR–LOWER
5	INNER BOOM–RETRACT	15	SYSTEM PRESSURE
6	LOWER BOOM–LOWER	16	ELEVATOR–RAISE
7	OUTER BOOM–LOWER	17	PORT PLUGGED
8	LOWER BOOM–RAISE	18	RETURN TO TANK–2
9	OUTER BOOM–RAISE	19	PORT PLUGGED
10	WINCH–UP	20	PORT PLUGGED

(PORTS 15 AND 19)



	–1			
SEE NOTE 1.	20	Q	50045–3	#6 JIC CAP
SEE NOTE 1.	9	P	50045–1	#4 JIC CAP
	6	N	50081–4	#8 O–RING PLUG
	8	M	50011–3	#6 O–RING TO #6 JIC 90° ELBOW
	4	L	50011–1	#4 O–RING TO #4 JIC 90° ELBOW
	1	K	50004–1	#4 JIC S.N. 90° ELBOW
	1	J	50114–2	#8 TO #4 JIC TUBE END REDUCER
	1	H	50048–3	#8 JIC S.N. RUN TEE
	6	G	50011–4	#8 O–RING TO #8 JIC 90° ELBOW
	4	F	50011–14	#8 O–RING TO #6 JIC 90° ELBOW
SEE NOTE 1.	10	E	50045–4	#8 JIC CAP
	8	D	50009–3	#6 O–RING TO #6 JIC STR ADAPT
	4	C	50009–1	#4 O–RING TO #4 JIC STR ADAPT
	1	B	1000116–1	ROTARY JOINT – 20 PASS
	1	A	1005411–DWG	ROTARY JOINT ASSY – 20 PASS
	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ±.1
ANGLES ± 1° .XX ±.03
.XXX ±.005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

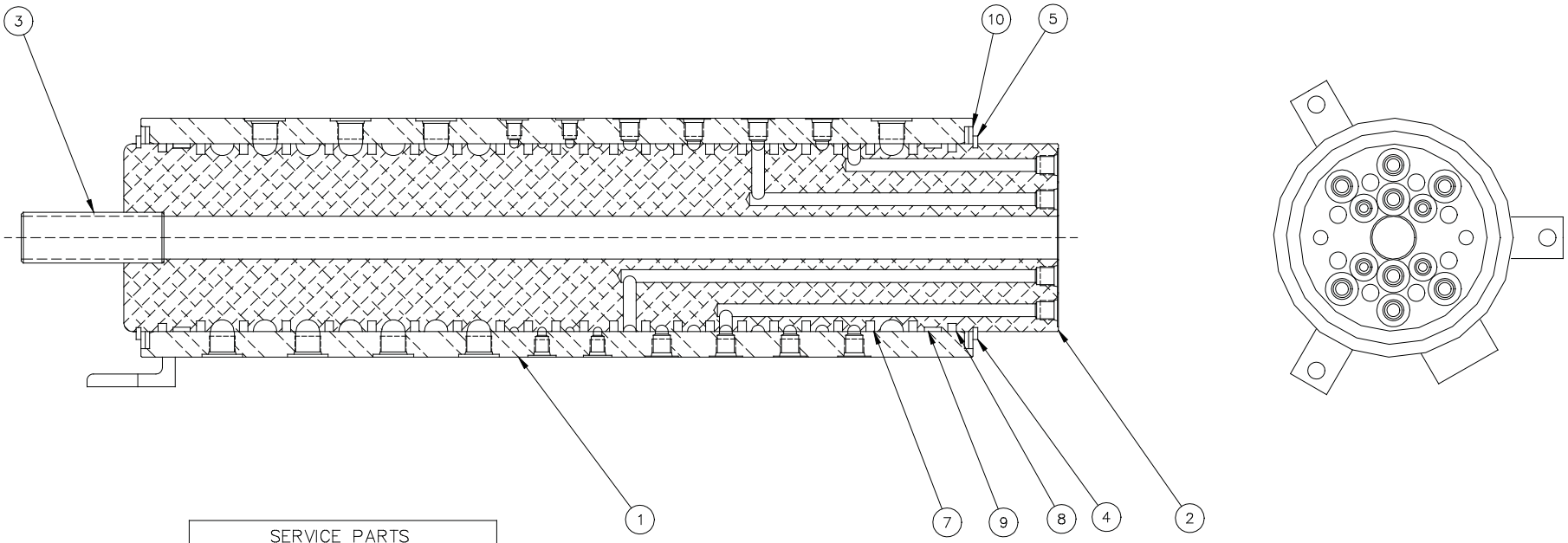
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL
FINISH

DWN. BY	DATE
MAS	09/15/14
SIZE	SCALE
B	1=5
EST WT #	MANUAL
	–
SHEET	
1 OF 1	

TITLE: ROTARY JOINT ASSEMBLY 20 PASS
DWG. NO. 1005411–DWG

REV.



SERVICE PARTS				
	ITEM	PART DESCRIPTION	TIME PART NO	QTY
	1	TUBE ASSEMBLY	Y3515	1
	2	HUB	Y3516	1
	3	TUBE	Y3431	1
	4	RETAINING RING	Y2908	2
	5	WASHER	Y3517	2
	6	DRILL PLUG	Y3518	16
*	7	ROTARY GLYD RING	–	21
*	8	QUAD RING	–	2
*	9	WEAR RING	–	2
*	10	BEARING	–	2
	11	SEAL KIT	Y3519	1

NOTE:
* INDICATES PART IS INCLUDED IN SEAL KIT.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

FINISH: SEE NOTES 5 AND 6

DWN. BY	DATE
LBR	10-8-12
SIZE	SCALE
B	1=3
EST WT #	MANUAL
	–
SHEET	DWG. NO.
2 OF 2	1000116-1

TITLE: ROTARY JOINT 20 PASS

SECTION 144

Rope Assembly
(Option RP-1200-4)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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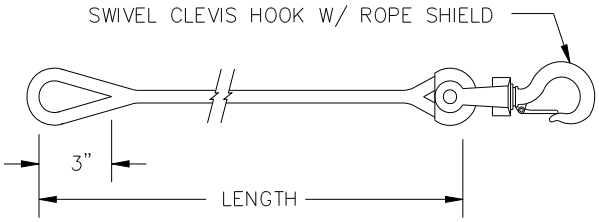
REV. X



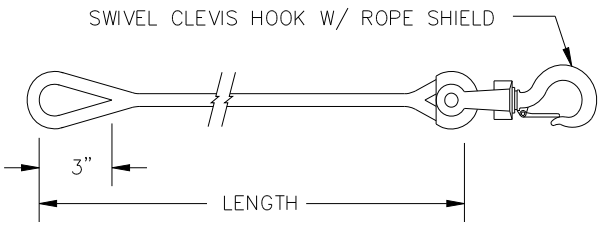
DASH NO.	LENGTH	ROPE MATERIAL	OPTION CODE
-1	80 FT.	1/2 DIA. WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	RP-1
-2	82 FT.	7/16 DIA. WHITE SPECTRA FIBER AND POLYESTER ROPE WITH DOUBLE RED MARKER STRANDS AND YELLOW POLYVINYL COATING	
-3	75 FT.	9/16 DIA. WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	RP-2
-4	100 FT.	1/2 DIA. WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	RP-3
-5	70 FT.	7/16 DIA. WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	RP-1200-3
-6	120 FT.	1/2 DIA. WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	
-7	100 FT.	7/16 DIA. WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	RP-1200-1
-8	100 FT.	9/16 DIA. WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	RP-1200-2
-9	115 FT.	7/16 DIA. SAMSON 2 IN 1 STABLE BRAID WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	RP-1200-4
-10	110 FT.	7/16 DIA. SAMSON 2 IN 1 STABLE BRAID WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	RP-1200-5
-11	105 FT.	7/16 DIA. SAMSON 2 IN 1 STABLE BRAID WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	RP-1200-6

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

DWN. BY	DATE	TITLE
BP	3/14/91	ROPE ASSEMBLY
SIZE: A	SCALE: 1/7	
MATERIAL: NOTED	EST WT #	MANUAL: —
FINISH: NOTED	SHEET: 3 OF 4	DWG. NO.: 89105-SEE ABOVE

REV.



DASH NO.	LENGTH	ROPE MATERIAL	OPTION CODE
-12	146 FT.	1/2 DIA. WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	
-13	130 FT.	7/16 DIA. WHITE SPECTRA FIBER AND POLYESTER ROPE WITH DOUBLE RED MARKER STRANDS AND YELLOW POLYVINYL COATING	RP-1200-7
-14	200 FT.	5/16 DIA. WHITE SPECTRA FIBER AND POLYESTER ROPE WITH DOUBLE RED MARKER STRANDS AND YELLOW POLYVINYL COATING	RP-1200-8
-15	70 FT.	3/8 DIA. SAMSON 2 IN 1 STABLE BRAID WHITE POLYESTER ROPE WITH BLUE MARKER STRAND AND YELLOW POLYVINYL COATING	RP-1200-9

SERVICE PARTS			
ITEM	PART DESCRIPTION	TIME PART NO	QTY
1	SWIVEL CLEVIS HOOK W/ROPE SHIELD	Y3588	1

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

DWN. BY: BP	DATE: 3/14/91	TITLE: ROPE ASSEMBLY	
SIZE: A	SCALE: 1/7		
MATERIAL: NOTED	EST WT #:	MANUAL: —	
FINISH: NOTED	SHEET: 4 OF 4	DWG. NO.: 89105-SEE ABOVE	

SECTION 145

4-Axis RH Truguard Ipper Controls w/ Hydraulic Jib & Winch Single Tool on Single Lift Elevator (Option SC-1280-50)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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DASH NO.	DESCRIPTION	CODE
–1	4–AXIS R.H. TRUGUARD UPPER CONTROLS W/ HYD JIB & WINCH, SINGLE TOOL ON SINGLE LIFT ELEVATOR	SC–1280–50

REV.

–1			
2	CP	88002–1	2" COMPRESSION SPRING
2	CN	45008–1	ROLL PIN 1/8 X 1/2
2	CM	44010–1	3/8 NYLON FLATWASHER
2	CL	53504–1	SHAFT SEAL
18	CK	44013–7	1/4 HARDENED WASHER
19	CJ	44013–6	3/8 HARDENED WASHER
11	CH	44013–5	5/16 HARDENED WASHER
5	CG	44000–11	3/8 HELICAL SPRING LOCKWASHER
1	CF	42025–2	1/4–20NC ACORN NUT
2	CE	42014–1	10MM–1.5MM HEX NUT
5	CD	42005–3	3/8–16NC HEX LOCKNUT
9	CC	42005–2	5/16–18NC HEX LOCKNUT
14	CB	42005–1	1/4–20NC HEX LOCKNUT
10	CA	42000–3	3/8–16NC HEX NUT
10	BZ	40171–10	3/8 NC X 5/8 FIBER FLANGED HHCS
10	BY	40070–7	1/4–20NC X 1 1/2 SHCS
1	BX	1001094–1	3/8–16NC U–BOLT
3	BW	40004–23	3/8–16NC 6–1/2 HHCS
4	BV	40004–6	3/8–16NC X 1–1/4 HHCS
5	BU	40004–5	3/8–16NC X 1 HHCS
3	BT	40003–18	5/16–18NC X 4–1/2 HHCS
3	BS	40003–13	5/16–18NC X 3 HHCS
3	BR	40003–11	5/16–18NC X 2 1/2 HHCS
QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

–1			
2	BQ	40003–2	5/16–18NC X 5/8 HHCS
2	BP	40002–9	1/4–20NC X 2 HHCS
1	BN	40002–6	1/4–20NC X 1 1/4 HHCS
1	BM	40002–3	1/4–20NC X 3/4 HHCS
6	BL	40002–2	1/4–20NC X 5/8 HHCS
2	BK	50220–4	1/2 NPT TO 1/2 JIC BLKHD ADAPTER
1	BJ	50189–3	VACUUM BREAKER
1	BH	50148–8	HOLLOW HEX O–RING PLUG
2	BG	50113–4	1/2 NPT FEMALE COUPLING
1	BF	50078–4	#8 45° JIC SWIVEL ELBOW
2	BE	50056–4	1/2 JIC BULKHEAD NUT
3	BD	50048–3	1/2 JIC RUN TEE
2	BC	50042–4	1/2 NPT STEEL PLUG SOCKETHEAD
1	BB	50004–4	#8 JIC SWIVEL 90° ELBOW
1	BA	1000781–1	TOOL POWER COVER
1	AZ	1000263–1	CONTROL VALVE COVER
1	AY	1000479–1	TOOL COVER BRACKET (LOWER)
1	AX	1000782–1	TOOL POWER MOUNTING PLATE
1	AW	1000803–1	TOOL COVER BRACKET (TOP)
3	AV	7442–9	SPACER (4–15/16)
3	AU	7442–5	SPACER (1–5/8)
3	AT	7442–1	SPACER (1/2)
1	AS	88000–3	KNOB (RED)
2	AR	11032–1	KNOB, CONTROL HANDLE
2	AQ	12301–2	LOCKING KNOB
1	AP	16681–1	CONTROL HANDLE
1	AN	13152–1	CONTROL HANDLE
1	AM	13109–3	SELECTOR VALVE HANDLE (14–5/8)
1	AL	1000277–1	GASKET
1	AK	1001093–1	HOSE GUIDE WELDMENT
1	AJ	1000497–1	1/4 TUBE ASSY LOCK VLV (OUTER)
1	AH	1000496–1	1/4 TUBE ASSY LOCK VLV (INNER)
3	AG	1000492–1	1/4 TUBE ASSY AUX VLV (OUTER)
3	AF	1000491–1	1/4 TUBE ASSY AUX VLV (INNER)
QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

–1			
1	AE	1000490–1	1/4 TUBE ASSY LOCK VLV (UPPER)
1	AD	1000489–1	1/4 TUBE ASSY LOCK VLV (LOWER)
1	AC	1001327–2	3/8 TUBE ASSY ACCY VALVE OUTER
1	AB	1001326–2	3/8 TUBE ASSY ACCY VALVE INNER
5	AA	1000493–1	3/8 TUBE ASSY MAIN VLV (INNER)
5	Z	1000494–1	3/8 TUBE ASSY MAIN VLV (OUTER)
1	Y	17656–26	1/2 HYD. HOSE W/ 1/2 FJIC SWIV.
1	X	1000792–1	1/2 TUBE ASSY TOOL PRESSURE
1	W	1000791–1	1/2 TUBE ASSY TOOL RETURN
1	V	1000790–1	1/2 TUBE ASSY POWER BEYOND
1	U	1000789–1	1/2 TUBE ASSY TOOL RETURN
1	T	1000785–1	1/2 TUBE ASSY ACCY VLV R.H.
1	S	33396–5	1/2 TUBE ASSY ACCY VLV 8 1/4 LG
1	R	13159–6	1/2 HYD TUBE ASSY (0°)
1	Q	55731–9	1/2 HYD HOSE ASSEMBLY (21 LG)
1	P	55731–7	1/2 HYD HOSE ASSEMBLY (13 LG)
1	N	55731–3	1/2 HYD HOSE ASSEMBLY (15 5/8 LG)
1	M	1000654–1	TRUGUARD MOUNTING PLATE
1	L	20903–1	ALUMINUM 4–AXIS ASSEMBLY
1	K	33371–2	LOCKING HANDLE CONTROL BRACKET
1	J	1000702–1	CONTROL PANEL WELDMENT
1	H	29805–7	SELECTOR VALVE ASSEMBLY (R.H.)
1	G	26398–12	CHECK VALVE ASSEMBLY
1	F	1000672–8	TRUGUARD ASSEMBLY
1	E	1000656–8	UPPER ACCY VLV ASSY (4 SPOOL)
1	D	29796–38	UPPER ACCY VLV ASSY (1 SPOOL)
1	C	1000706–3	4–AXIS CTRL VLV ASSY TRUGUARD
1	B	1000691–DWG	TRUGUARD DIELECTRIC SETUP
1	A	1005406–DWG	4–AXIS R.H. TRUGUARD UPR CTRLS
QTY.	ITEM	PART NO.	DESCRIPTION

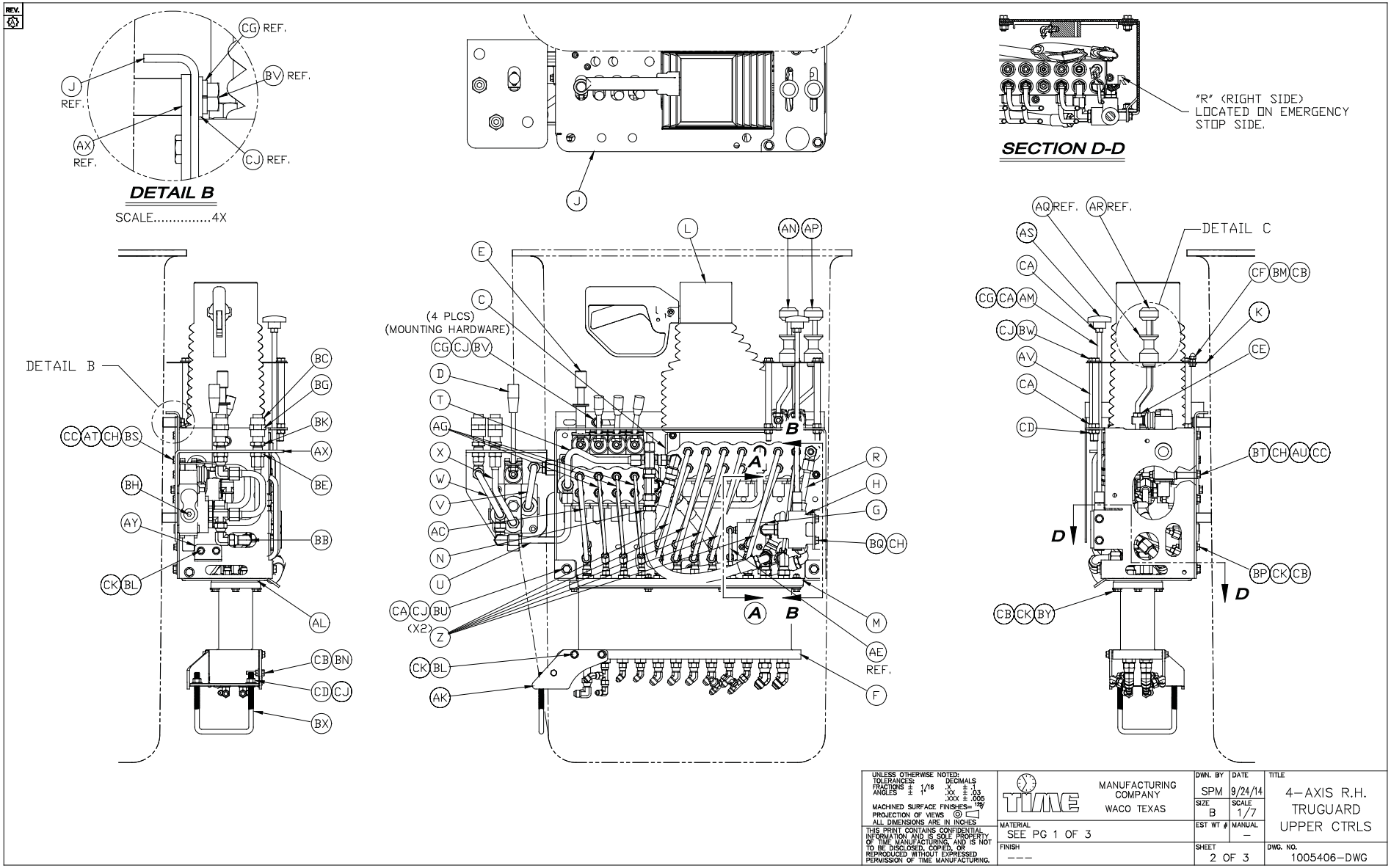
LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

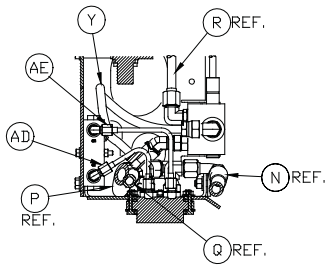
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ------

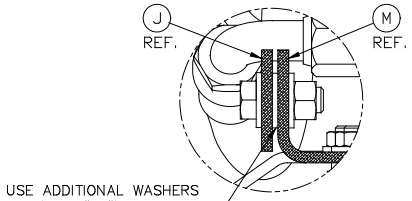
DWN. BY	DATE	TITLE
SPM	9/24/14	4–AXIS R.H. TRUGUARD UPPER CTRLS
SIZE: B	SCALE: 1/7	
EST WT #:	MANUAL: –	
SHEET: 1 OF 3		DWG. NO.: 1005406–DWG



UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005, ANGLES ± 1°, MACHINED SURFACE FINISHES 125, PROJECTION OF VIEWS, ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY: SPM	DATE: 9/24/14	TITLE: 4–AXIS R.H. TRUGUARD UPPER CTRLS
		SIZE: B	SCALE: 1/7	
	MATERIAL: SEE PG 1 OF 3	EST WT #:	MANUAL: –	
	FINISH: ---	SHEET: 2 OF 3		DWG. NO.: 1005406–DWG

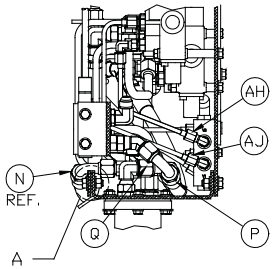


SECTION A-A

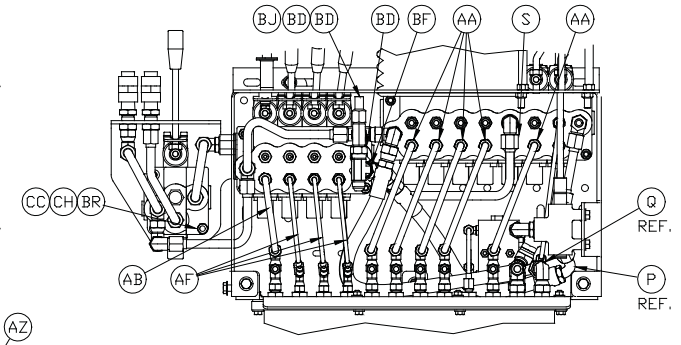


DETAIL A

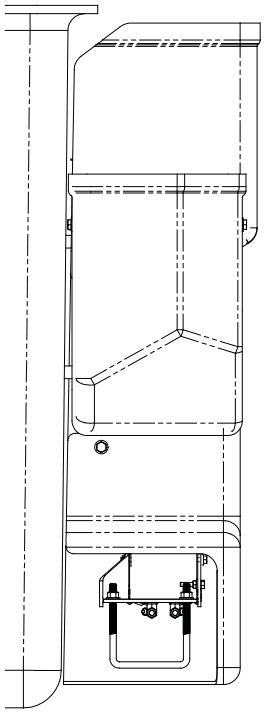
SCALE.....4X

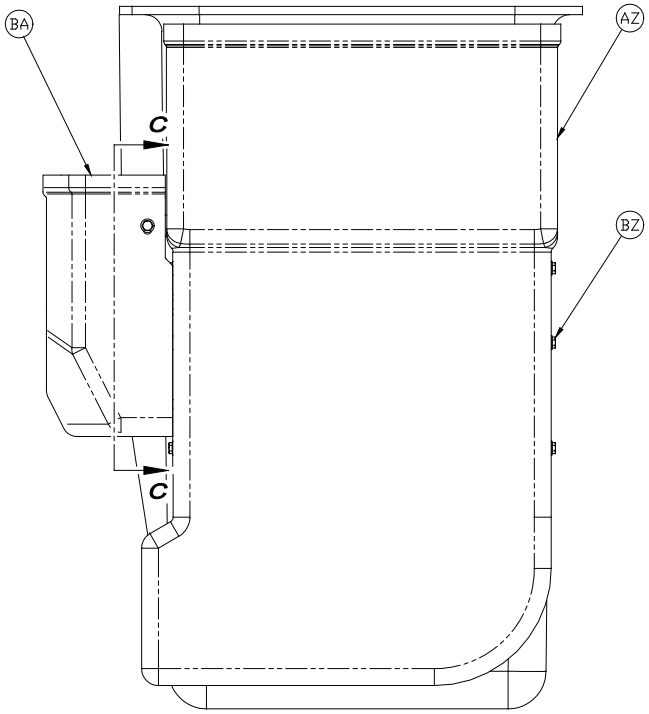


SECTION B-B

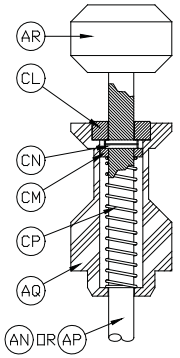


SHOWN WITH INNER ROW OF TUBES ONLY



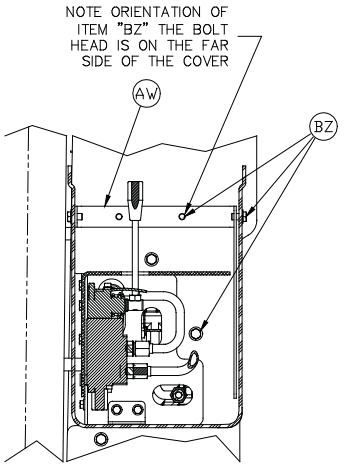


COVER DETAIL



DETAIL C

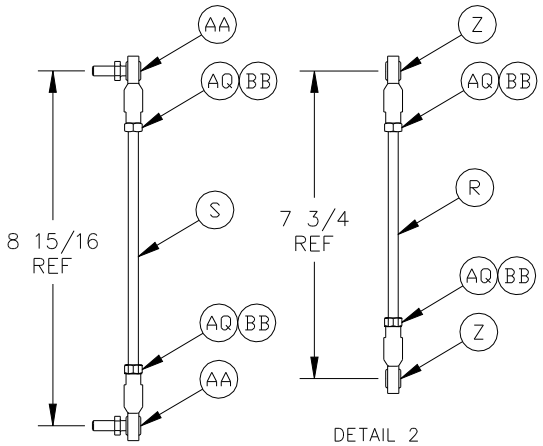
SCALE.....4X

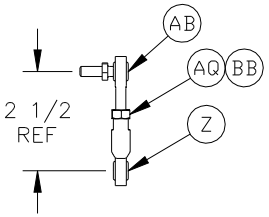


SECTION C-C

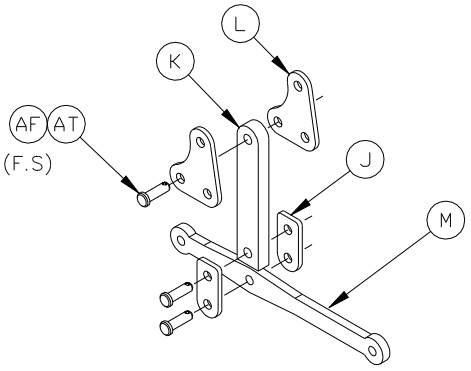
UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY SPM	DATE 9/24/14	TITLE 4–AXIS R.H. TRUGUARD UPPER CTRLS
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	MATERIAL SEE PG 1 OF 3	SIZE B	SCALE 1/7	
	FINISH -----	EST WT #	MANUAL –	
		SHEET 3 OF 3		DWG. NO. 1005406–DWG

REV. E





NOTE: APPLY LOCK-TITE TO ALL THREADS UNLESS SECURED BY LOCK NUTS



TRIGGER LINK SUB-ASSY

EXPORT ONLY

-2	-1	ITEM	PART NO.	DESCRIPTION
1	1	BK	42008-2	5/16-NF THIN LOCKNUT
1	1	BJ	40070-8	1/4-20NC X 1 3/4 SHCS
2	2	BH	44037-2	UHMW POLYETHYLENE WASHER
1	1	BG	40070-6	1/4-20NC X 1 1/4 SHCS
1	–	BF	34958-1	HANDLE ROTATION WLDMT
1	–	BE	33389-1	4-AXIS CONTROL HANDLE BODY
1	–	BD	20912-1	4-AXIS TRIGGER
1	–	BC	34949-1	4-AXIS CONTROL HANDLE
A/R	A/R	BB	06-046	THREADLOCK BLUE
A/R	A/R	BA	05-094	LUBRIPLATE CHAIN LUBRICANT
1	1	AZ	42001-2	5/16-24NF HEX NUT
1	1	AY	44013-5	5/16 HARDENED WASHER
2	2	AX	44000-10	5/16 LOCK WASHER
2	2	AW	40125-5	5/16-24NF X 1 SHCS
8	8	AV	12735-1	SPACER
1	1	AU	45008-28	1/4 X 1 ROLL PIN
6	6	AT	45002-31	1/4 X 51/64 CLEVIS PIN
2	2	AS	42007-1	1/4-20NC NYLON THIN HEX LOCKNUT
1	1	AR	42008-1	1/4-28NF THIN LOCK NUT
9	9	AQ	42001-1	1/4-28NF HEX NUT
7	7	AP	42000-1	1/4-20NC HEX NUT
2	2	AN	40083-4	1/4-20NC X 3/8 BSCS
2	2	AM	40031-1	1/4-20NC X 1/2 FPHS
1	1	AL	40002-10	1/4-20NC X 2 1/4 HHCS GR. 5
3	3	AK	40070-7	1/4-20NC X 1 1/2 SHCS
1	1	AJ	40116-2	5/16 DIA SHOULDER BOLT (5/8 LG)
2	2	AH	40116-1	5/16 DIA SHOULDER BOLT (3/8 LG)
5	5	AG	40201-1	METRIC BHSC M5 X 0.8mm

LIST OF MATERIAL

EXPORT ONLY

-2	-1	ITEM	PART NO.	DESCRIPTION
6	6	AF	45003-2	1/16 X 3/4 COTTER PIN
2	2	AE	89061-1	YOKE END 1/4-28NF
2	2	AD	72030-2	ROD END BALL JOINT 5/16-24NF
2	2	AC	72046-1	ROD END BALL JOINT 1/4-28NF
2	2	AB	72038-1	ROD END BALL JOINT 1/4-28NF
2	2	AA	72030-1	ROD END BALL JOINT 1/4-28NF
3	3	Z	72028-2	ROD END BALL JOINT 1/4-28NF
1	1	Y	72007-35	SINTERED BRONZE BEARING
2	2	X	72011-14	FLANGED BEARING (BRONZE)
2	2	W	72001-4	NYLON BUSHING
–	1	V	10024-7	BEARING
1	1	U	26777-1	ROLLER THRUST BEARING WASHER
1	1	T	72062-1	ROLLER THRUST BEARING
1	1	S	7255-6	1/4-28NF ALL THREAD (7 1/4 LG)
1	1	R	7255-4	1/4-28NF ALL THREAD (6 3/8 LG)
1	1	Q	33362-1	BOOT, 4-AXIS SINGLE STICK
1	1	P	33391-1	PLASTIC BOOT BACKING PLATE
1	1	N	33382-1	TRIGGER PUSH ROD
1	1	M	33380-1	VALVE ACTUATION BAR
2	2	L	33383-1	TRIGGER LINK CAM
1	1	K	33373-1	TRIGGER LINK
2	2	J	33367-1	TRIGGER LINK PLATE
1	1	H	33378-2	ROTATION ARM LINK
–	1	G	34958-1	HANDLE ROTATION WLDMT
1	1	F	33390-1	4-AXIS BASE PLATE WLDMT
1	1	E	34945-1	4-AXIS HANDLE BODY
–	1	D	34946-1	4-AXIS CONTROL BODY
–	1	C	34948-1	4-AXIS TRIGGER
–	1	B	34947-1	4-AXIS CONTROL HANDLE
1	1	A	20903-DWG	DWG, ALUMINUM 4-AXIS R.H. ASSY
QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

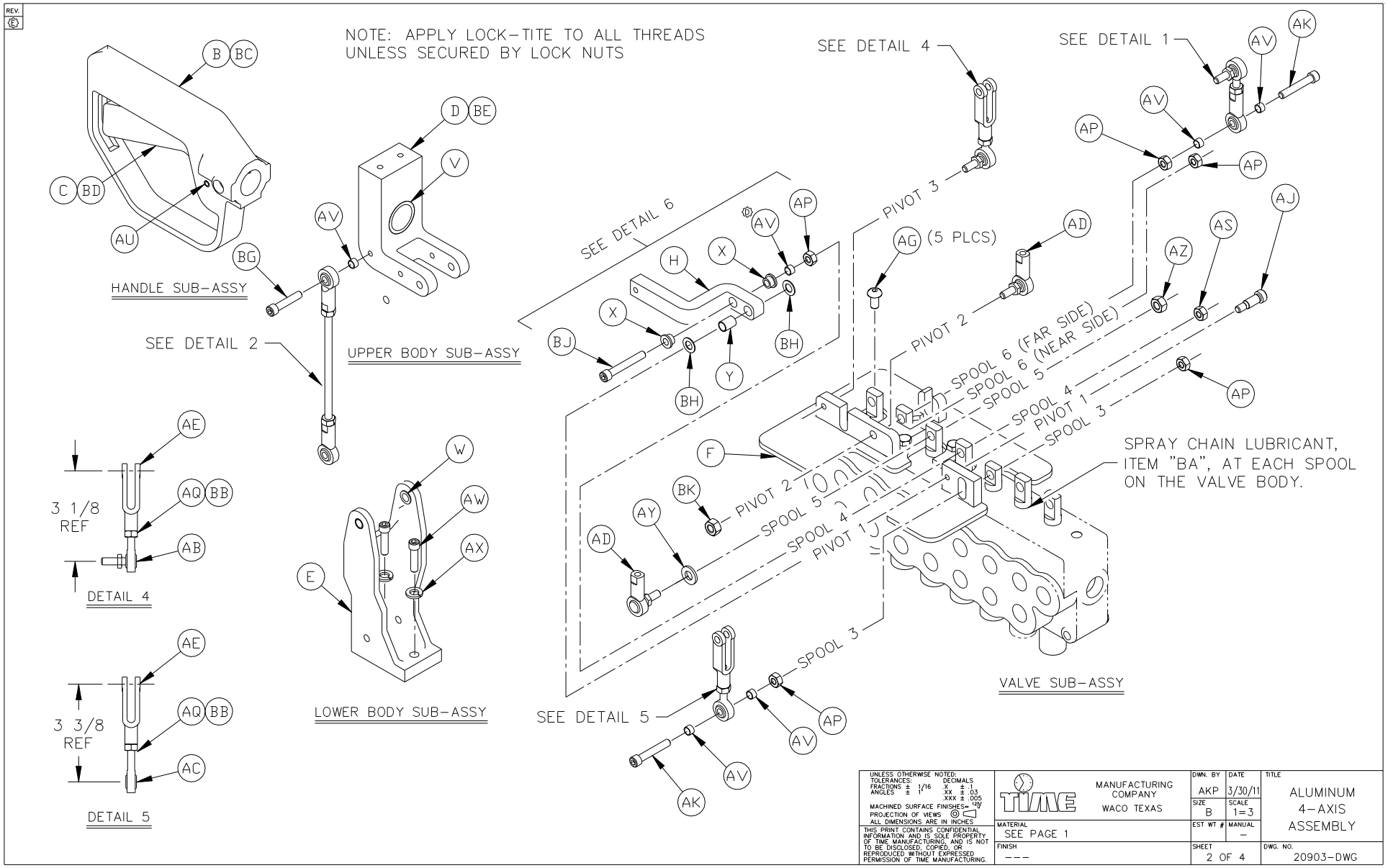
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: – – –

DWN. BY	DATE
AKP	3/30/11
SIZE	SCALE
B	1=3
EST WT #	MANUAL
	–
SHEET	
1 OF 4	

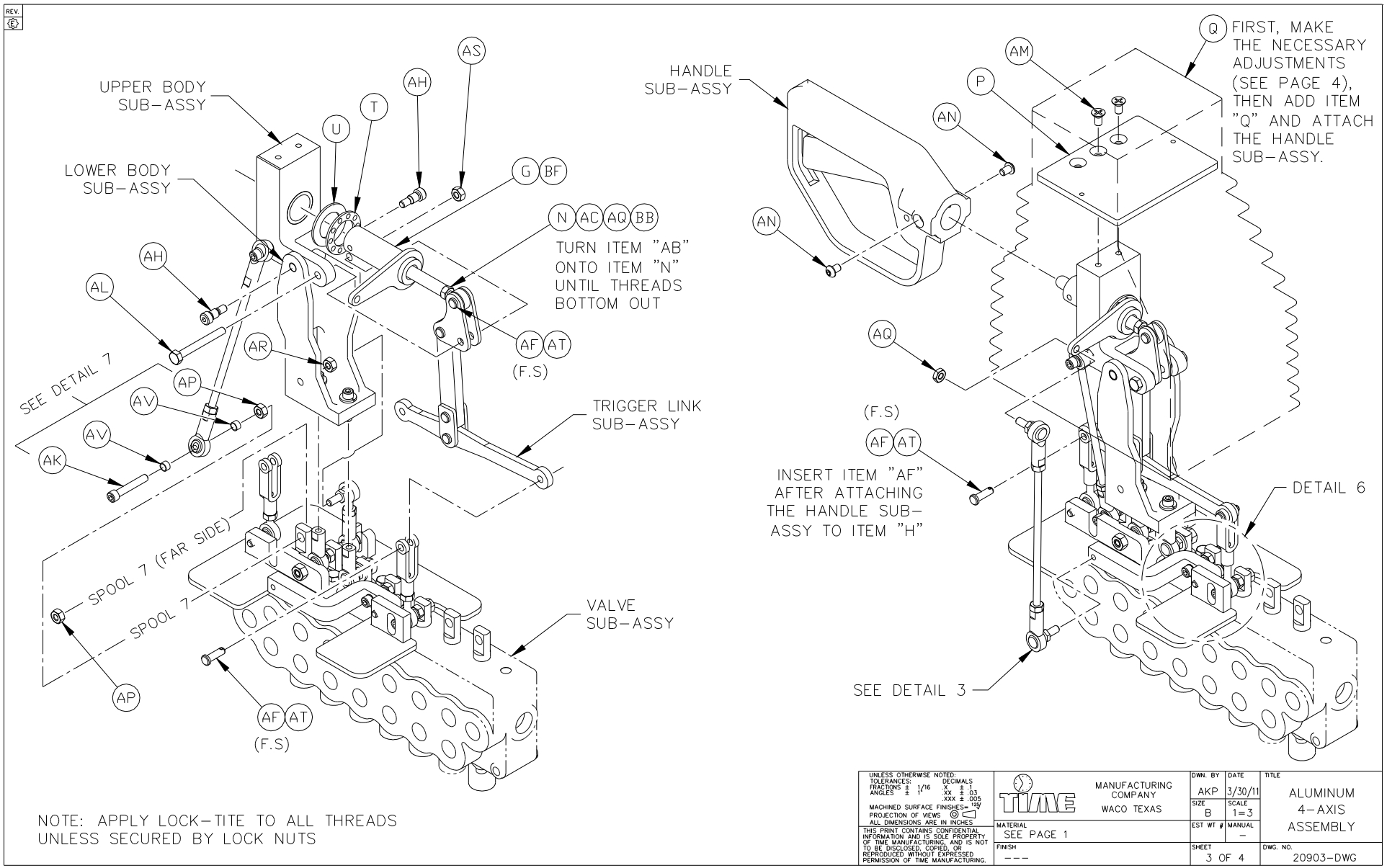
TITLE: ALUMINUM 4-AXIS ASSEMBLY

DWG. NO. 20903-DWG

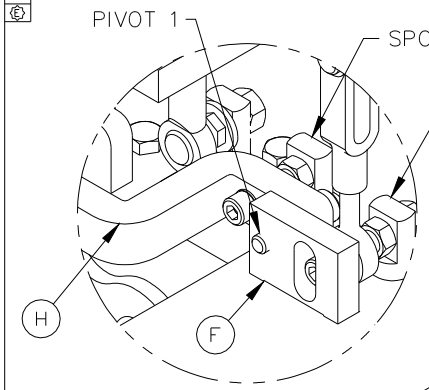


UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS; FRACTIONS ± 1/16 .X ± .1; ANGLES ± 1° .XX ± .03; .XXX ± .005; MACHINED SURFACE FINISHES= 125; PROJECTION OF VIEWS; ALL DIMENSIONS ARE IN INCHES	MANUFACTURING COMPANY WACO TEXAS	DWN. BY AKP	DATE 3/30/11
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	MATERIAL SEE PAGE 1	SIZE B	SCALE 1=3
	FINISH ---	EST WT #	MANUAL –
		SHEET 2 OF 4	DWG. NO. 20903-DWG

TITLE: ALUMINUM 4-AXIS ASSEMBLY

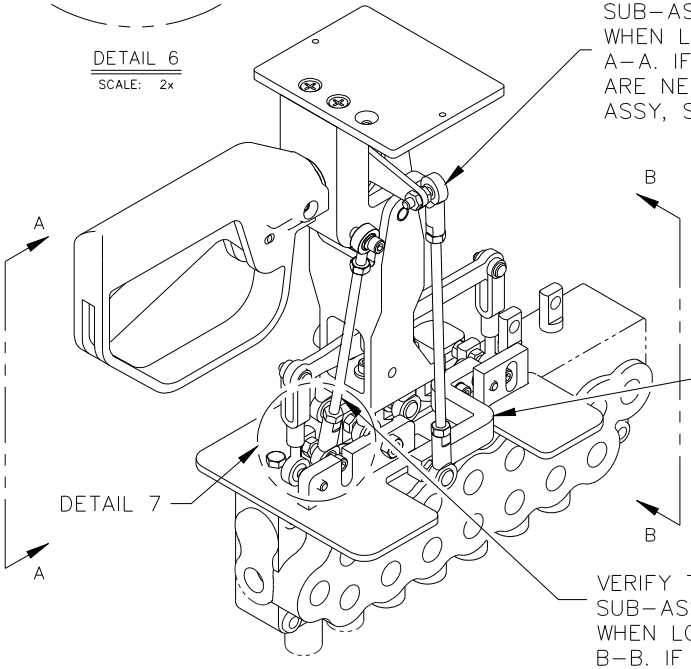

REV. E
UPPER BODY SUB-ASSY
LOWER BODY SUB-ASSY
U
T
AH
AS
G
BF
N
AC
AQ
BB
TURN ITEM "AB" ONTO ITEM "N" UNTIL THREADS BOTTOM OUT
AF
AT
(F.S)
AH
AL
AR
AP
AV
AV
AK
SEE DETAIL 7
TRIGGER LINK SUB-ASSY
SPOOL 7 (FAR SIDE)
SPOOL 7
AP
VALVE SUB-ASSY
AF
AT
(F.S)
HANDLE SUB-ASSY
Q
FIRST, MAKE THE NECESSARY ADJUSTMENTS (SEE PAGE 4), THEN ADD ITEM "Q" AND ATTACH THE HANDLE SUB-ASSY.
AM
P
AN
AN
AQ
(F.S)
AF
AT
INSERT ITEM "AF" AFTER ATTACHING THE HANDLE SUB-ASSY TO ITEM "H"
DETAIL 6
SEE DETAIL 3
NOTE: APPLY LOCK-TITE TO ALL THREADS UNLESS SECURED BY LOCK NUTS
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.
TIME MANUFACTURING COMPANY WACO TEXAS
MATERIAL SEE PAGE 1
FINISH ---
DWN. BY AKP
DATE 3/30/11
SIZE B
SCALE 1=3
EST WT #
MANUAL -
SHEET 3 OF 4
TITLE ALUMINUM 4-AXIS ASSEMBLY
DWG. NO. 20903-DWG

REV. E



DETAIL 6
SCALE: 2x

VERIFY THE HANDLE SUB–ASSY IS VERTICAL WHEN LOOKING FROM VIEW A–A. IF ADJUSTMENTS ARE NEEDED FOR THIS LINK ASSY, SEE NOTE 1.

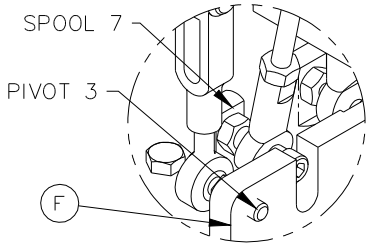


ITEM "H" SHOULD BE ABLE TO OPERATE IN BOTH DIRECTIONS FREELY. IF IT BINDS IN EITHER DIRECTION, ITEM "AJ" MAY BE DRAWN IN TOO FAR.

VERIFY THE UPPER BODY SUB–ASSY IS HORIZONTAL WHEN LOOKING FROM VIEW B–B. IF ADJUSTMENTS ARE NEEDED FOR THIS LINK ASSY, SEE NOTE 1.

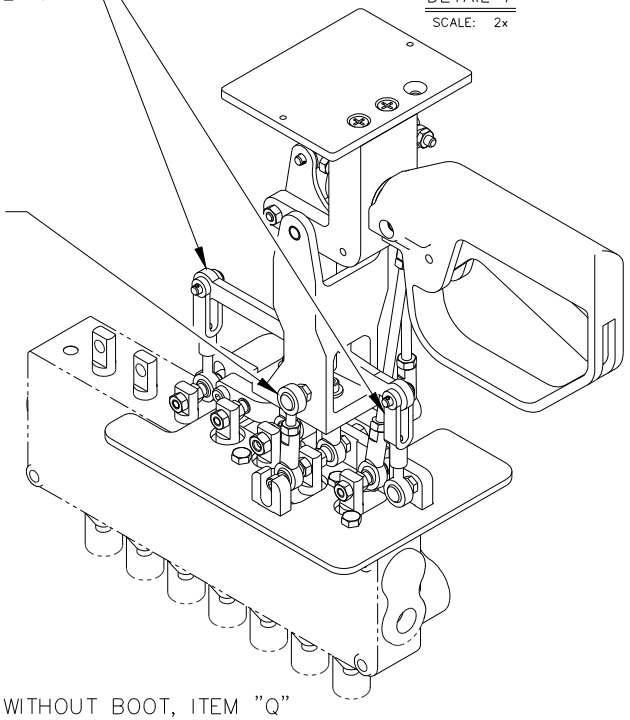
NOTE 1: ADJUST BALL JOINTS AND ROD TO PROPERLY ORIENT THE SUB–ASSY. APPLY THREADLOCK AND DO NOT OVER TIGHTEN JAM NUTS.

VERIFY THAT SPOOL 3 FULLY ACTUATES BEFORE THE TRIGGER, ITEM "C", REACHES ITS MAXIMUM TRAVEL. IF ADJUSTMENTS ARE NEEDED FOR THESE LINKS, SEE NOTE 1.



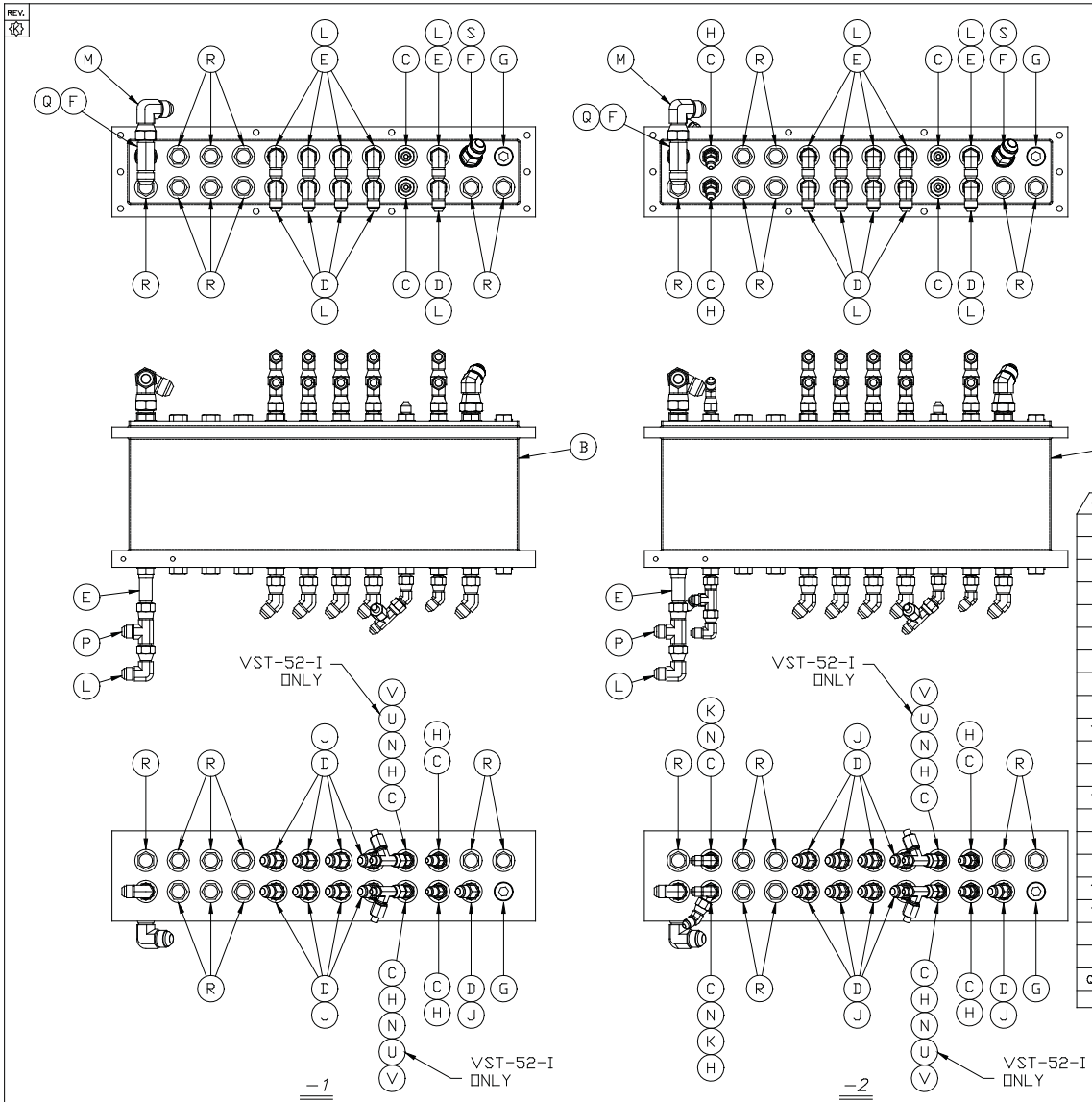
DETAIL 7
SCALE: 2x

VERIFY THE UPPER AND LOWER BODY SUB–ASSYs ARE VERTICAL WHEN LOOKING FROM VIEW A–A. IF ADJUSTMENTS ARE NEEDED FOR THIS LINK ASSY, SEE NOTE 1.



SHOWN WITHOUT BOOT, ITEM "Q"

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS; FRACTIONS ± 1/16 X ± .1; ANGLES ± 1° .XX ± .03; .XXX ± .005; MACHINED SURFACE FINISHES= 125; PROJECTION OF VIEWS; ALL DIMENSIONS ARE IN INCHES. THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY AKP	DATE 3/30/11	TITLE ALUMINUM 4–AXIS ASSEMBLY
		SIZE B	SCALE 1=3	
	MATERIAL SEE PAGE 1	EST WT #	MANUAL –	
	FINISH – – –	SHEET 4 OF 4		DWG. NO. 20903–DWG



NOTES:
1.) TORQUE ITEMS "C", "D", "E", AND "F" TO 30 FT LBS.
2.) HAND TIGHTEN ITEM "R" PLUGS UNTIL SNUG.

–8	–7	–6	–5	–4	–3	–2	–1	ITEM	PART NO.	DESCRIPTION
2	–	–	–	–	2	2	2	V	50189–2	#4 VACUUM BREAKER
–	–	–	–	–	2	2	2	U	50075–1	#4 SWIVEL BRANCH TEE
–	1	1	1	1	–	–	–	T	50075–3	#6 SWIVEL BRANCH TEE
4	1	1	1	1	1	1	1	S	50078–4	#8 45° JIC SWIVEL ELBOW
–	30	30	26	26	6	14	18	R	50430–1	NYLON O–RING PLUG 3/4–16NCx1/2L
–	1	–	–	1	1	1	1	Q	50075–4	#8 SWIVEL BRANCH TEE
–	–	–	–	–	1	1	1	P	50048–2	#6 SWIVEL TEE W/ NUT ON RUN
6	–	–	–	–	4	4	2	N	50048–1	#4 SWIVEL TEE W/ NUT ON RUN
2	1	1	1	1	1	1	1	M	50004–4	#8 90° JIC SWIVEL ELBOW
14	8	8	10	10	11	11	11	L	50004–3	#6 90° JIC SWIVEL ELBOW
4	–	–	–	–	2	2	–	K	50004–1	#4 90° JIC SWIVEL ELBOW
8	7	7	7	7	9	9	9	J	50078–3	#6 45° JIC SWIVEL ELBOW
16	–	–	2	2	15	7	4	H	50078–1	#4 45° JIC SWIVEL ELBOW
2	2	2	2	2	2	2	2	G	50135–4	1/2 NPT SOCKET HEAD PIPE PLUG
6	2	2	2	2	2	2	2	F	1000671–8	CUSTOM SAE STRAIGHT THREAD, 8
8	4	4	5	5	6	6	6	E	1000671–7	CUSTOM SAE STRAIGHT THREAD, 8–6 LONG
14	10	10	11	11	14	14	14	D	1000671–6	CUSTOM SAE STRAIGHT THREAD, 8–6
18	–	–	2	2	18	10	6	C	1000671–5	CUSTOM SAE STRAIGHT THREAD, 8–4
1	1	1	1	1	1	1	1	B	1001603–1	TRUGUARD MANIFOLD
1	1	1	1	1	1	1	1	A	1000672–DWG	DRAWING, TRUGUARD ASSEMBLY
QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

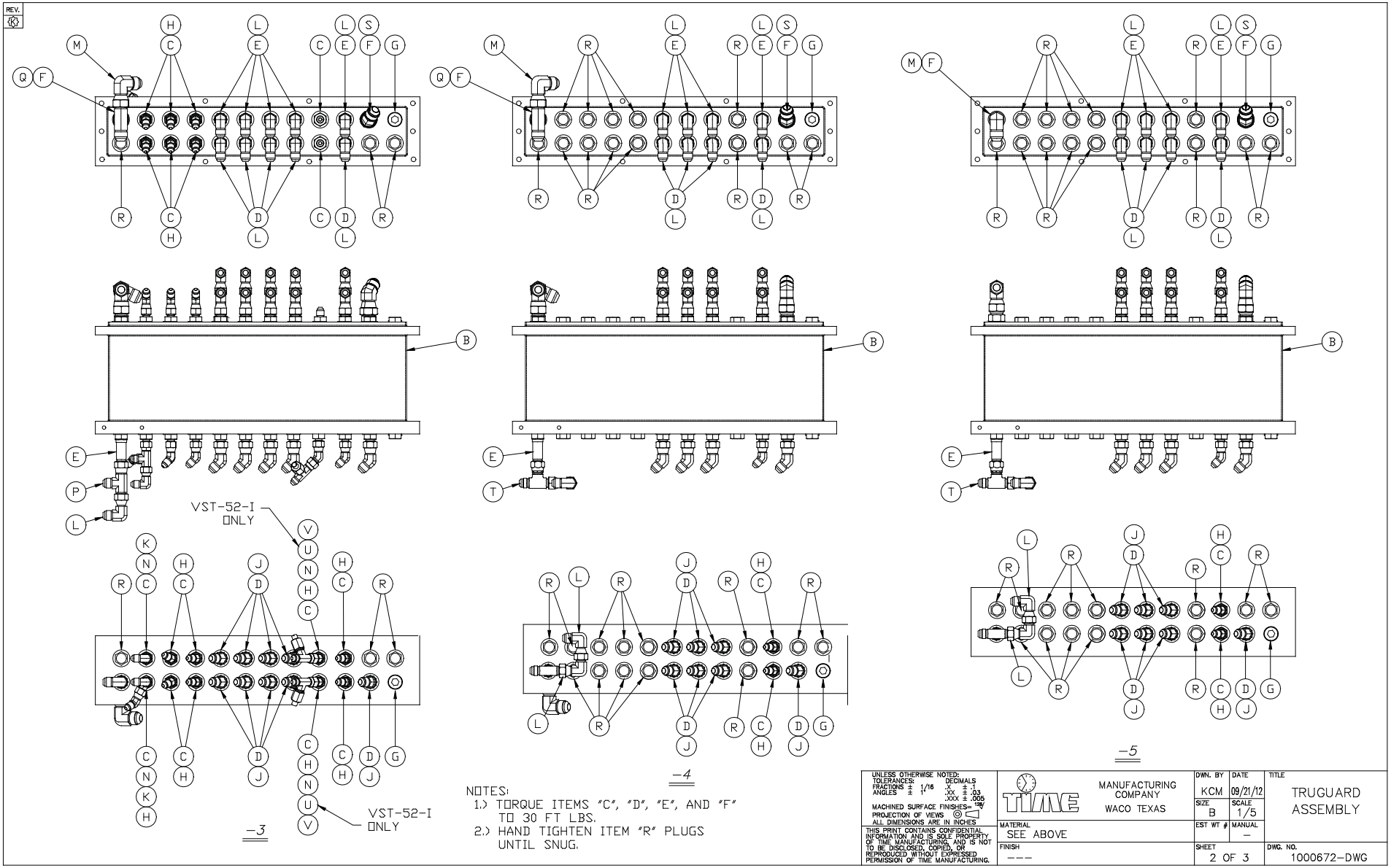
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

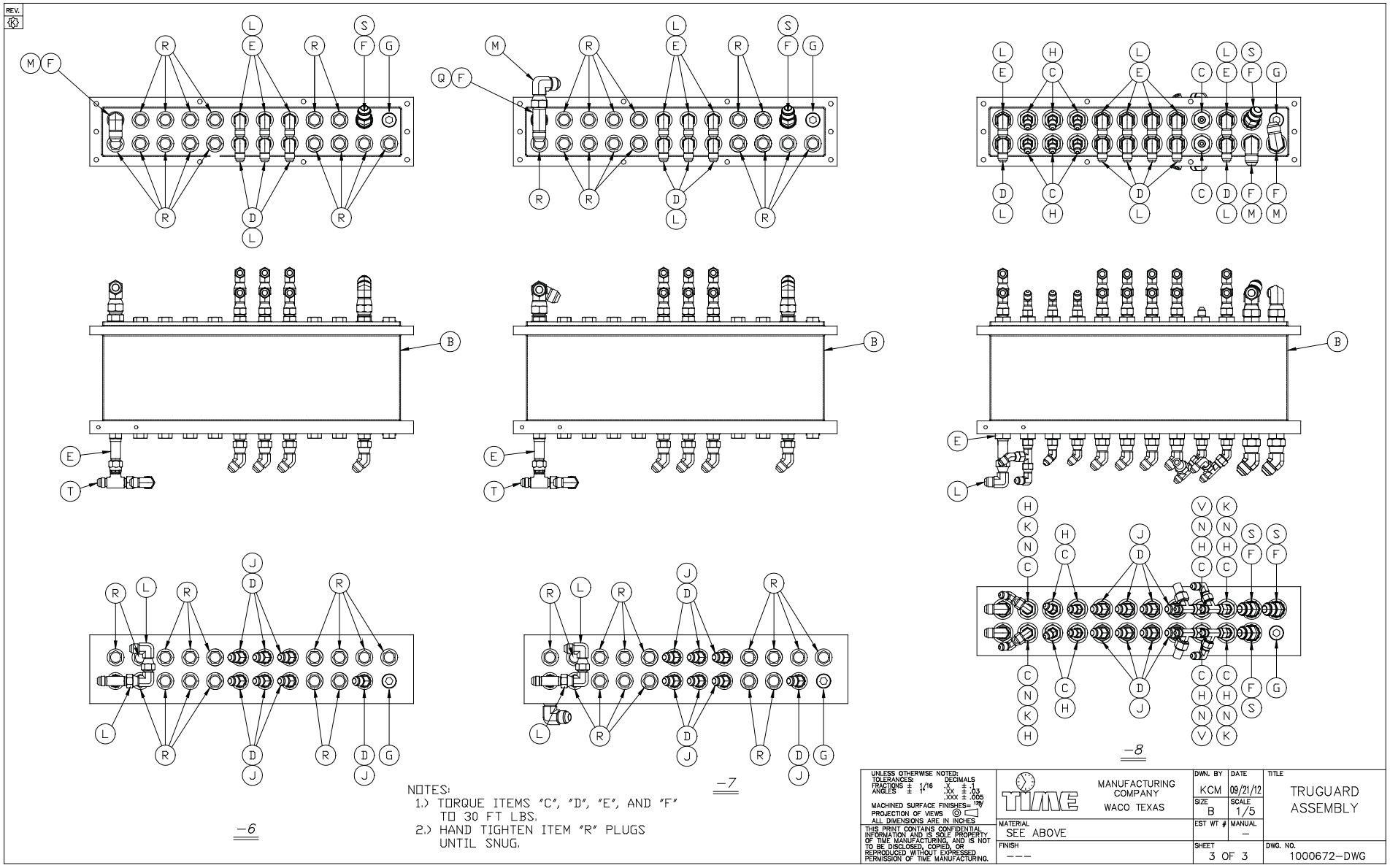
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ---

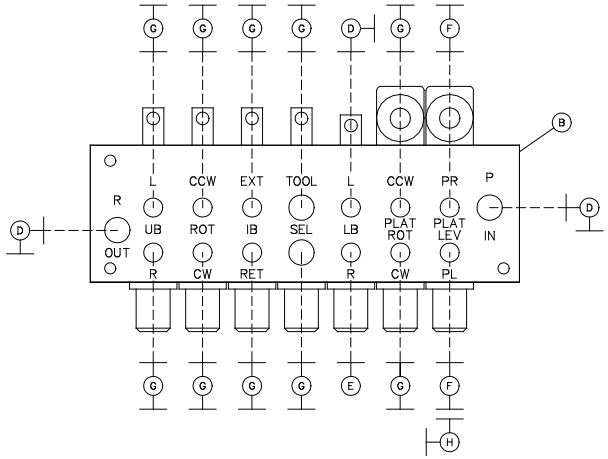
DWN. BY: KCM
DATE: 09/21/12
SIZE: B
SCALE: 1/5
EST WT #:
MANUAL: –
SHEET: 1 OF 3

TITLE: TRUGUARD ASSEMBLY
DWG. NO.: 1000672–DWG

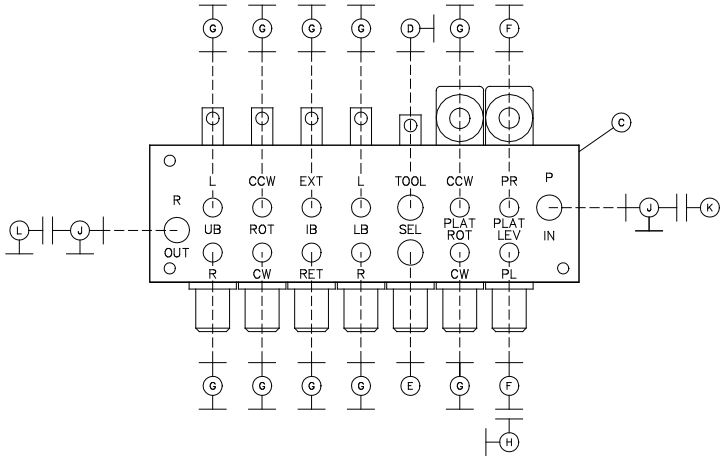

REV.
VST-52-I ONLY
VST-52-I ONLY
-3
-4
-5
NOTES:
1.) TORQUE ITEMS "C", "D", "E", AND "F" TO 30 FT LBS.
2.) HAND TIGHTEN ITEM "R" PLUGS UNTIL SNUG.
UNLESS OTHERWISE NOTED:
TOLERANCES:
FRACTIONS ± 1/16
ANGLES ± 1°
DECIMALS
.X ± .1
.XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125/
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.
TIME MANUFACTURING COMPANY WACO TEXAS
MATERIAL SEE ABOVE
FINISH ---
DWN. BY KCM
DATE 09/21/12
SIZE B
SCALE 1/5
EST WT #
MANUAL --
SHEET 2 OF 3
TITLE TRUGUARD ASSEMBLY
DWG. NO. 1000672-DWG


REV.
-6
-7
-8
NOTES:
1.) TORQUE ITEMS "C", "D", "E", AND "F" TO 30 FT LBS.
2.) HAND TIGHTEN ITEM "R" PLUGS UNTIL SNUG.
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.
TIME
MANUFACTURING COMPANY
WACO TEXAS
DWN. BY KCM
DATE 09/21/12
SIZE B
SCALE 1/5
MATERIAL SEE ABOVE
EST WT # —
MANUAL —
FINISH ---
SHEET 3 OF 3
TITLE TRUGUARD ASSEMBLY
DWG. NO. 1000672-DWG

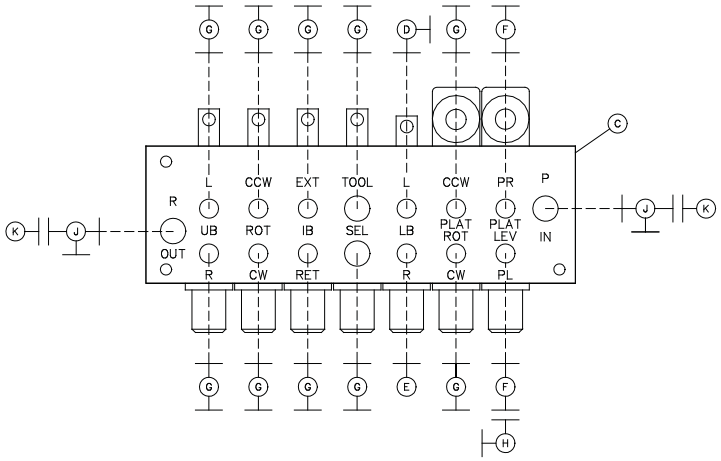
REV.



−1 CONFIG.



−3 CONFIG.



−2 CONFIG.

−3	−2	−1	ITEM	PART NO.	DESCRIPTION
1	–	–	L	50004−4	1/2 JIC S.N. 90° ELBOW
1	2	–	K	50189−3	VACUUM BREAKER
2	2	–	J	50048−3	1/2 JIC TEE W/SWIVEL NUT ON RUN
1	1	1	H	50004−3	3/8 JIC S.N. 90° ELBOW
10	10	10	G	50009−3	#6 O−RING TO 3/8 JIC STR CONN
2	2	2	F	50009−15	#6 O−RING TO 1/4 JIC STR CONN
1	1	1	E	50081−4	#8 O−RING PLUG
1	1	3	D	50011−4	#8 O−RING TO 1/2 JIC 90° ELBOW
1	1	–	C	54379−1	SINGLE STICK CONT VLV (7 SPOOL)
–	–	1	B	54307−1	SINGLE STICK CONT VLV (7 SPOOL)
1	1	1	A	1000706−DWG	SINGLE STICK CNTRL VALVE ASSY TRUGUARD

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: FRACTIONS ± 1/16, ANGLES ±, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

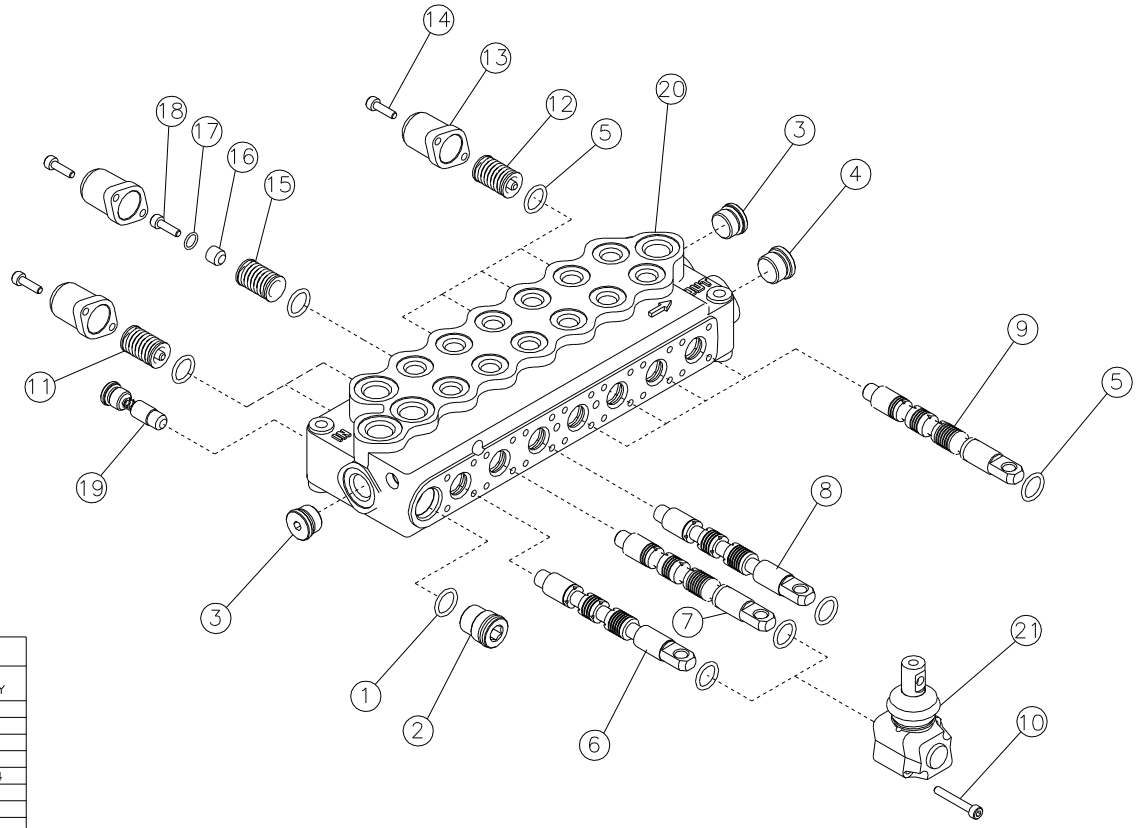
MATERIAL: SEE LIST OF MATERIAL
FINISH: −−−−−

DWN. BY	DATE
KCM	10/03/12
SIZE	SCALE
B	1/3.5
EST WT #	MANUAL
	–
SHEET	
1 OF 1	

TITLE: SNGL STICK CTRL VALVE ASSEMBLY TRUGUARD

DWG. NO. 1000706−DWG

REV. A



SERVICE PARTS			
ITEM	PART DESCRIPTION	TIME PART NO	QTY
1	SEAL	X989-19	1
2	PLUG	X989-21	1
3	SAE 8 PLUG	X989-17	2
4	AET PLUG	50190-1	1
* 5	O-RING	X989-15	14
6	SPOOL	X989-54	1
7	SPOOL	X989-86	1
8	SPOOL	X989-53	1
9	SPOOL	Y3307	4
10	SCREW	X989-32	4
11	SPRING KIT	X989-83	3
12	SPRING KIT	X989-113	3
13	END CAP	X989-3	7
14	SCREW	X989-43	14
15	SPRING	X989-88	1
16	BUSHING	X989-89	1
17	SEAL	X989-90	1
18	SCREW	X989-91	1
19	VR5 KIT	X989-73	1
20	7 SPOOL BODY		
21	CONPLETE LEVER	X989-71	2
22	SEAL KIT	X989-61	1

* SEAL KIT CONTAINS THESE ITEMS.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

FINISH

DWN. BY	DATE
KCM	10/03/12
SIZE	SCALE
B	1/6
EST WT #	MANUAL
	–
SHEET	
2 OF 2	

TITLE: SINGLE STICK CONTROL VALVE

DWG. NO. 54379-1

REV.

NOTES:
1.) −7, −8, −9 AND −10 ARE THE SAME CONFIGURATION AS −2, −3, −5 AND −6 BUT WITHOUT ITEM "M".
2.) −15, −16, −17 AND −18 ARE THE SAME CONFIGURATION AS −11, −12, −13 AND −14 BUT WITHOUT ITEM "M".
3.) −21, −22, AND −23 ARE THE SAME CONFIGURATION AS −1, −11, AND −12 BUT WITHOUT ITEMS "H" OR "G".
4.) −24 AND −25 ARE THE SAME CONFIGURATION AS −15 AND −16 BUT WITHOUT ITEM "H" AND ITEM "M".
5.) −30 IS THE SAME CONFIGURATION AS −3 BUT WITHOUT ITEM "M" AND ITEM "T".
6.) −32 IS THE SAME CONFIGURATION AS −6 BUT WITHOUT ITEM "M" AND ITEM "T".
7.) −37 IS THE SAME CONFIGURATION AS −12 BUT WITHOUT ITEMS "M" AND "T".
8.) −42 IS THE SAME CONFIGURATION AS −4 BUT WITH ITEM "X" ADDED.

BILL CONTINUED ON PAGE 2

−38	−37	−36	−35	−34	−33	−32	−31	−30	−29	−28	−27	−26	−25	−24	−23	−22	−21	−20	−19	−18	−17	−16	−15	−14	−13	−12	−11	−10	−9	−8	−7	−6	−5	−4	−3	−2	−1	ITEM	PART NO.	DESCRIPTION
1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	AC	10424−16	HANDLE UPPER CONT. SHORT (STR.)
1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	AB	50163−4	1/2 JIC TEE W/O−RING ON RUN
–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	AA	54280−4	UPPER CONT VALVE 3 SPOOL (L.H.)
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Z	50009−15	#6 O−RING TO 1/4 JIC STR CONN
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Y	50009−3	#6 O−RING TO 3/8 JIC STR CONN
1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	50004−4	1/2 JIC S.N. 90° ELBOW
–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	W	54147−2	UPPER CONT VALVE 3 SPOOL (R.H.)
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	V	50148−8	#8 HOLLOW O−RING PLUG
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	U	29796−DWG	UPPER ACCESSORY VALVE ASSEMBLY
–	–	1	1	1	–	–	–	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	T	50125−8−8	1/2 FEM PIPE TO #8 O−RING ADAPT
–	1	1	1	1	1	1	1	1	1	1	1	–	1	1	1	1	1	–	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	50011−4	#8 O−RING TO 1/2 JIC 90° ELBOW
2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	R	50009−4	#8 O−RING TO 1/2 JIC STR CONN
–	2	–	2	2	2	2	2	2	2	–	2	–	2	2	2	2	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	2	2	–	Q	50048−1	1/4 JIC S.N. RUN TEE
–	4	1	3	3	4	4	4	4	3	1	3	–	4	2	4	2	–	3	2	4	2	4	2	4	2	4	2	4	2	4	2	4	2	–	4	2	–	P	50114−1	3/8 JIC TO 1/4 JIC TUBE END RED.
–	2	–	2	2	2	2	2	2	2	–	2	–	2	2	2	2	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	2	2	–	N	50046−1	#6 O−RING TO 3/8 JIC LG. STR CONN
–	–	–	2	–	2	–	2	–	2	–	–	–	–	–	2	2	–	2	2	–	–	–	–	2	2	2	2	–	–	–	–	2	2	–	2	2	–	M	50004−1	1/4 JIC S.N. 90° ELBOW
–	2	1	1	1	2	2	2	2	1	1	1	–	2	–	2	–	–	2	1	2	–	2	–	2	–	2	–	2	–	2	–	2	–	–	2	–	–	L	50101−6	#6 O−RING TO 3/8 JIC 90° LG. ELBOW
–	2	1	1	1	2	2	2	2	1	1	1	–	2	–	2	–	–	2	1	2	–	2	–	2	–	2	–	2	–	2	–	2	–	–	2	–	–	K	50011−19	#6 O−RING TO 1/4 JIC 90° ELBOW
–	–	1	2	2	3	3	3	3	2	1	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	1	3	1	3	1	–	3	1	–	J	10424−2	HANDLE UPPER CONT. LONG (15")
–	4	1	1	1	1	1	1	1	1	1	1	1	–	–	–	–	–	4	3	4	2	4	2	4	2	4	2	1	1	1	1	1	1	–	1	1	–	H	10424−10	HANDLE UPPER CONT. SHORT (15")
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	G	10424−9	HANDLE UPPER CONT. SHORT (STR.)
–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	1	–	–	–	1	–	–	–	–	–	F	54280−3	UPPER CONT VALVE 4 SPOOL (L.H.)
–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	1	–	–	–	1	–	–	–	–	E	54280−2	UPPER CONT VALVE 2 SPOOL (L.H.)
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	D	54280−1	UPPER CONT VALVE 1 SPOOL (L.H.)
–	1	–	–	–	–	–	1	1	–	–	–	–	1	–	1	–	–	1	–	–	–	1	–	–	–	1	–	–	–	1	–	–	–	–	1	–	–	C	54147−5	UPPER CONT VALVE 4 SPOOL (R.H.)
–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	1	–	–	–	–	–	–	1	–	–	–	1	–	–	–	1	–	–	–	–	1	–	B	54147−7	UPPER CONT VALVE 2 SPOOL (R.H.)
1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	A	54147−8	UPPER CONT VALVE 1 SPOOL (R.H.)
QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: FRACTIONS ± 1/16, ANGLES ± 1°, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ------

DWN. BY	DATE
LBR	08/26/03
SIZE	SCALE
B	1/4.5
LOCATION	MANUAL
V	–
SHEET	
1 OF 5	

TITLE: UPPER ACCESSORY VALVE ASSEMBLY
DWG. NO. 29796−DWG

REV.

-43	-42	-41	-40	-39	ITEM	PART NO.	DESCRIPTION
–	–	–	–	–	AC	10424–16	HANDLE UPPER CONT. SHORT (STR.)
1	–	–	–	–	AB	50163–4	1/2 JIC TEE W/O–RING ON RUN
–	–	–	–	–	AA	54280–4	UPPER CONT VALVE 3 SPOOL (L.H.)
–	–	–	–	–	Z	50009–15	#6 O–RING TO 1/4 JIC STR CONN
1	–	–	–	–	Y	50009–3	#6 O–RING TO 3/8 JIC STR CONN
–	1	1	–	–	X	50004–4	1/2 JIC S.N. 90° ELBOW
–	–	–	1	–	W	54147–2	UPPER CONT VALVE 3 SPOOL (R.H.)
1	1	1	1	1	V	50148–8	#8 HOLLOW O–RING PLUG
1	1	1	1	1	U	29796–DWG	UPPER ACCESSORY VALVE ASSEMBLY
–	1	1	1	1	T	50125–8–8	1/2 FEM PIPE TO #8 O–RING ADAPT
–	1	–	1	1	S	50011–4	#8 O–RING TO 1/2 JIC 90° ELBOW
1	2	3	2	2	R	50009–4	#8 O–RING TO 1/2 JIC STR CONN
–	–	–	2	–	Q	50048–1	1/4 JIC S.N. RUN TEE
–	–	2	3	1	P	50114–1	3/8 JIC TO 1/4 JIC TUBE END RED.
–	–	–	2	–	N	50046–1	#6 O–RING TO 3/8 JIC LG. STR CONN
–	–	–	2	–	M	50004–1	1/4 JIC S.N. 90° ELBOW
–	–	4	1	1	L	50101–6	#6 O–RING TO 3/8 JIC 90° LG. ELBOW
–	–	2	1	1	K	50011–19	#6 O–RING TO 1/4 JIC 90° ELBOW
–	–	–	–	–	J	10424–2	HANDLE UPPER CONT. LONG (15°)
–	–	4	3	2	H	10424–10	HANDLE UPPER CONT. SHORT (15°)
1	1	–	–	–	G	10424–9	HANDLE UPPER CONT. SHORT (STR.)
–	–	–	–	–	F	54280–3	UPPER CONT VALVE 4 SPOOL (L.H.)
–	–	–	–	–	E	54280–2	UPPER CONT VALVE 2 SPOOL (L.H.)
1	1	–	–	–	D	54280–1	UPPER CONT VALVE 1 SPOOL (L.H.)
–	–	1	–	–	C	54147–5	UPPER CONT VALVE 4 SPOOL (R.H.)
–	–	–	–	1	B	54147–7	UPPER CONT VALVE 2 SPOOL (R.H.)
–	–	–	–	–	A	54147–8	UPPER CONT VALVE 1 SPOOL (R.H.)

LIST OF MATERIAL

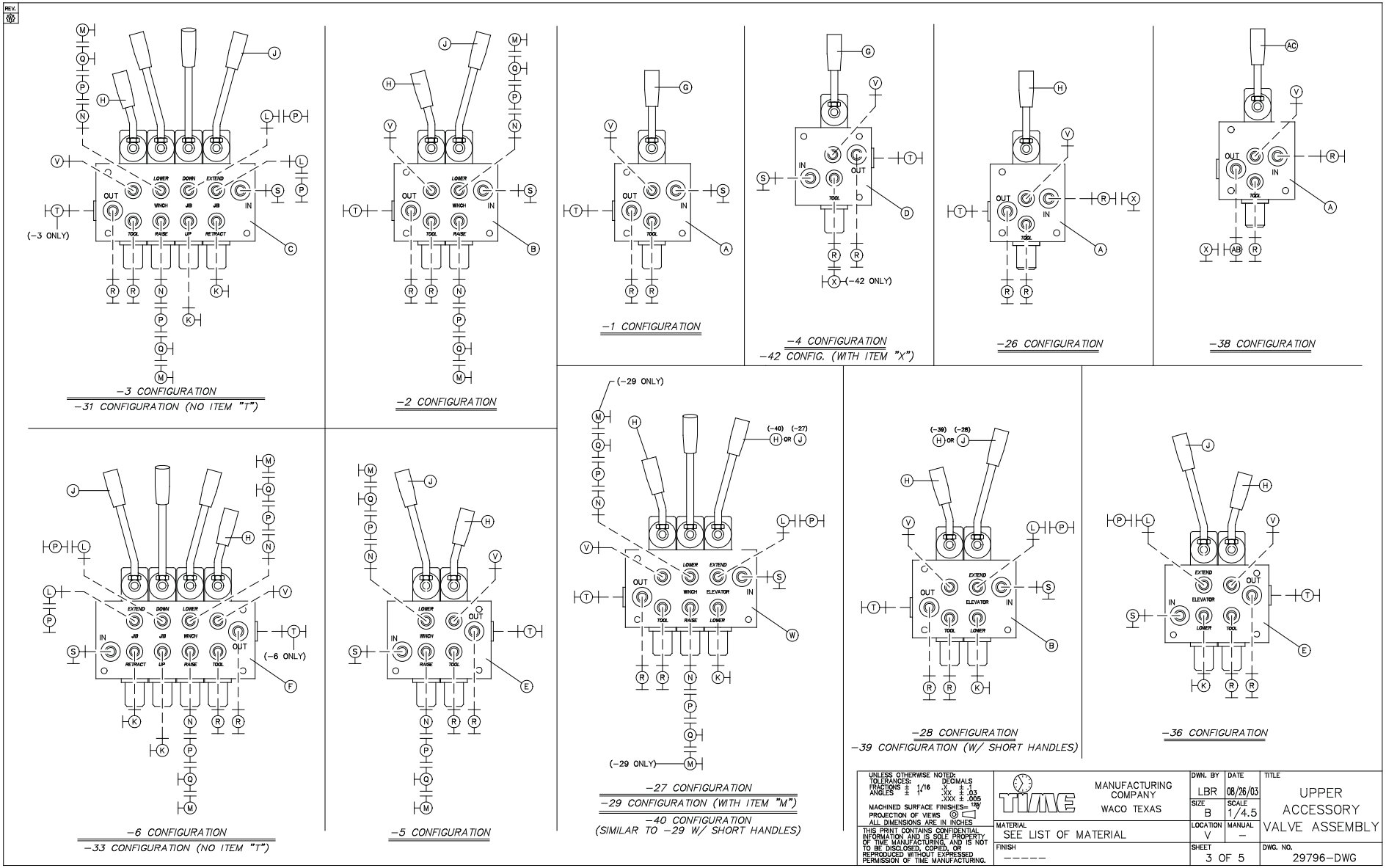
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

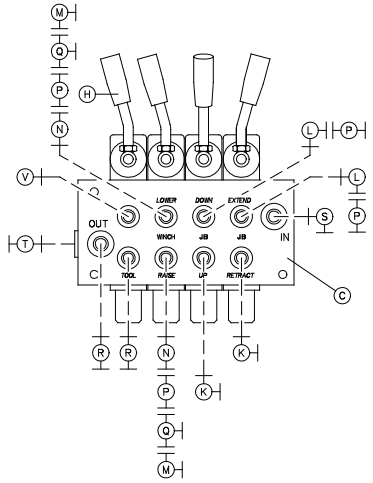
MATERIAL: SEE LIST OF MATERIAL
FINISH: ------

DWN. BY	DATE
LBR	08/26/03
SIZE	SCALE
B	1/4.5
LOCATION	MANUAL
V	–
SHEET	
2 OF 5	

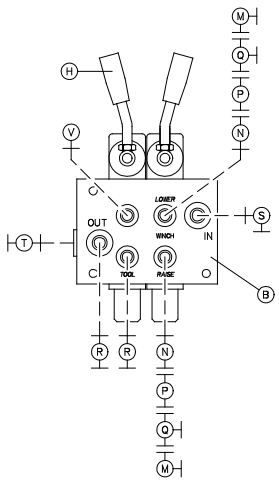
TITLE: UPPER ACCESSORY VALVE ASSEMBLY
DWG. NO. 29796–DWG


REV.
(-3 ONLY)
-3 CONFIGURATION
-31 CONFIGURATION (NO ITEM "T")
-2 CONFIGURATION
-1 CONFIGURATION
(-42 ONLY)
-4 CONFIGURATION
-42 CONFIG. (WITH ITEM "X")
-26 CONFIGURATION
-38 CONFIGURATION
(-6 ONLY)
-6 CONFIGURATION
-33 CONFIGURATION (NO ITEM "T")
-5 CONFIGURATION
(-29 ONLY)
(-40) (-27)
-27 CONFIGURATION
-29 CONFIGURATION (WITH ITEM "M")
-40 CONFIGURATION
(SIMILAR TO -29 W/ SHORT HANDLES)
(-39) (-28)
-28 CONFIGURATION
-39 CONFIGURATION (W/ SHORT HANDLES)
-36 CONFIGURATION
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16
ANGLES ± 1°
.XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.
TIME MANUFACTURING COMPANY WACO TEXAS
MATERIAL
SEE LIST OF MATERIAL
FINISH

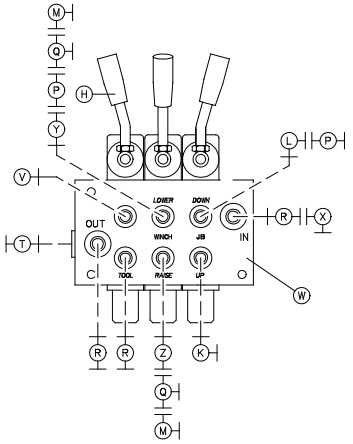
DWN. BY
LBR
DATE
08/26/03
SIZE
B
SCALE
1/4.5
LOCATION
V
MANUAL
–
SHEET
3 OF 5
TITLE
UPPER ACCESSORY VALVE ASSEMBLY
DWG. NO.
29796-DWG



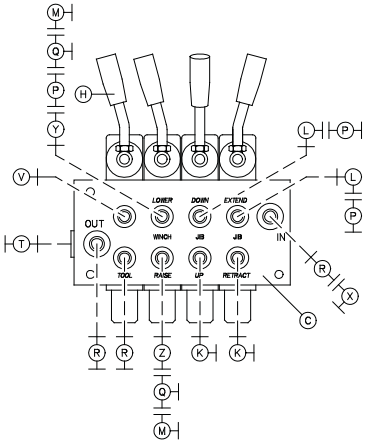
–12 CONFIGURATION



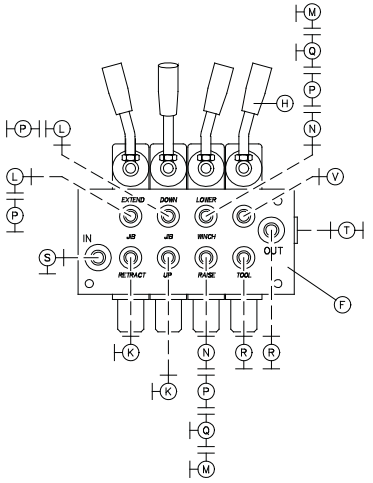
–11 CONFIGURATION



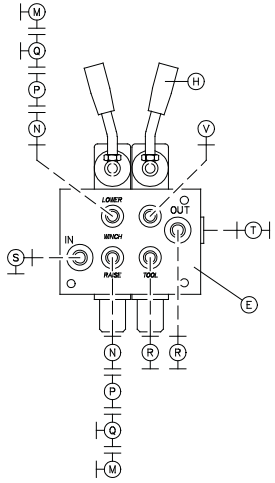
–19 CONFIGURATION



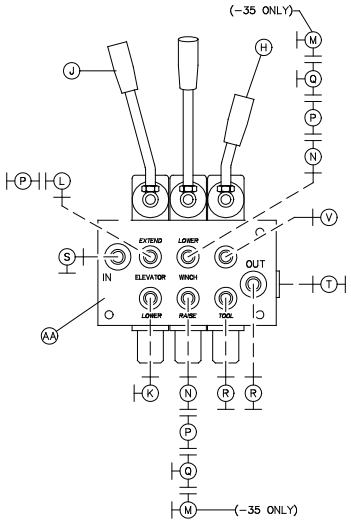
–20 CONFIGURATION



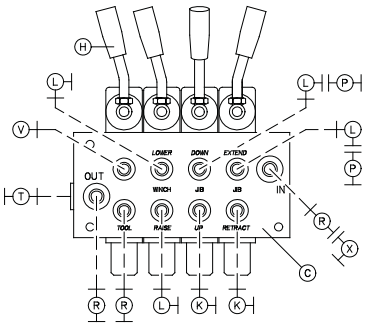
–14 CONFIGURATION



–13 CONFIGURATION



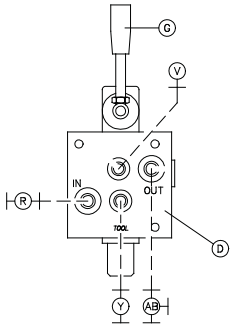
–34 CONFIGURATION
–35 CONFIGURATION (WITH ITEM "M")



–41 CONFIGURATION

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS .X ±.1, .XX ±.03, .XXX ±.005; FRACTIONS ± 1/16; ANGLES ± 1°; MACHINED SURFACE FINISHES= 125; PROJECTION OF VIEWS; ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY LBR	DATE 08/26/03	TITLE UPPER ACCESSORY VALVE ASSEMBLY
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	MATERIAL SEE LIST OF MATERIAL	SIZE B	SCALE 1/4.5	
	FINISH ------	LOCATION V	MANUAL –	
		SHEET 4 OF 5		DWG. NO. 29796–DWG

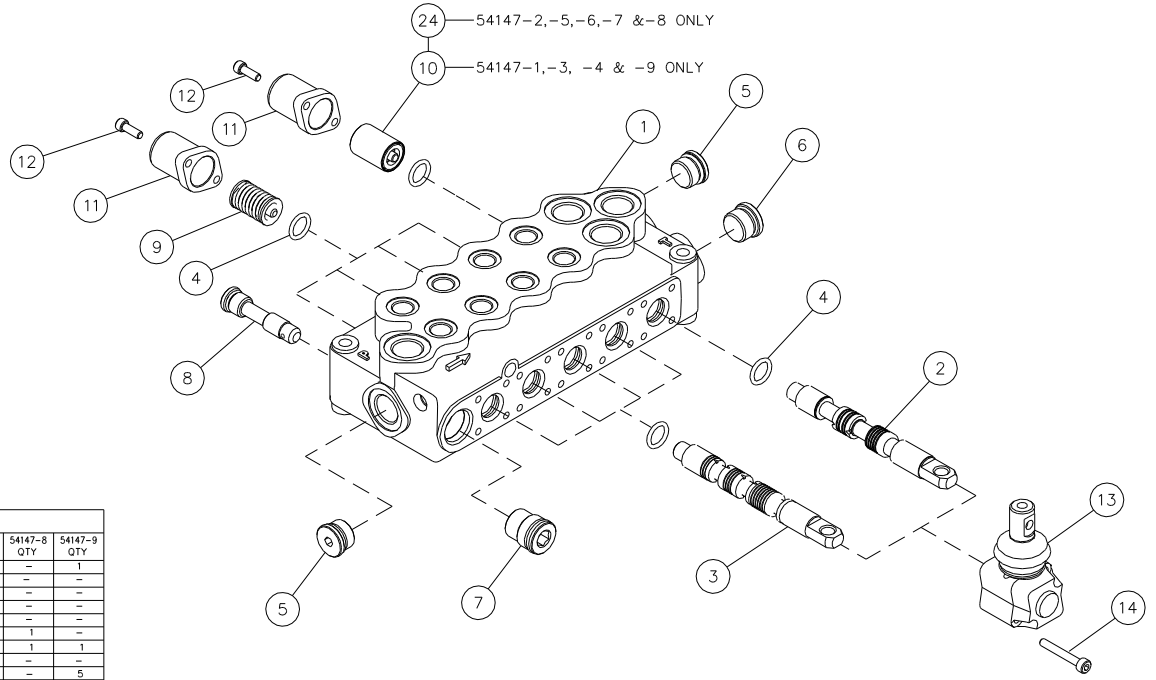
REV.



–43 CONFIGURATION

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY: LBR	DATE: 08/26/03	TITLE: UPPER ACCESSORY VALVE ASSEMBLY
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	MATERIAL: SEE LIST OF MATERIAL	SIZE: B	SCALE: 1/4.5	
	FINISH: -----	LOCATION: V	MANUAL: –	
		SHEET: 5 OF 5		DWG. NO.: 29796–DWG

REV. K



SERVICE PARTS

ITEM	PART DESCRIPTION	TIME PART NO	54147-1 QTY	54147-2 QTY	54147-3 QTY	54147-4 QTY	54147-5 QTY	54147-6 QTY	54147-7 QTY	54147-8 QTY	54147-9 QTY
1	6 SPOOL BODY		–	–	–	–	–	–	–	–	1
1	5 SPOOL BODY	Y1660	–	–	–	1	–	1	–	–	–
1	4 SPOOL BODY		–	–	1	–	1	–	–	–	–
1	3 SPOOL BODY	X989-105	1	1	–	–	–	–	–	–	–
1	2 SPOOL BODY		–	–	–	–	–	–	1	–	–
1	1 SPOOL BODY		–	–	–	–	–	–	–	1	–
2	SPOOL	X989-54	1	1	1	1	–	–	–	1	1
2	SPOOL	X989-41	–	–	–	–	1	1	1	–	–
3	SPOOL	X989-86	2	2	3	4	3	4	1	–	5
* 4	O-RING	X989-15	6	6	8	10	8	10	4	2	12
5	SAE 8 PLUG	X989-17	2	2	2	2	2	2	2	2	2
6	OPEN CENTER PLUG	50190-1	1	1	1	1	1	1	1	1	1
7	PLUG	X989-21	1	1	–	–	–	–	–	–	–
7	PLUG	Y1639	–	–	1	1	1	1	1	1	1
8	VR5 KIT	X989-73	1	1	1	1	1	1	1	1	1
9	MD CONTROL KIT	X989-83	2	2	3	4	3	4	1	–	5
9											
10	CONTROL KIT	X989-75	1	–	1	1	–	–	–	–	1
11	END CAP	X989-3	3	3	4	5	4	5	2	1	6
12	SCREW	X989-43	6	6	8	10	8	10	4	2	12
13	COMPLETE LEVER	X989-71	3	3	4	5	4	5	2	1	6
14	SCREW	X989-32	6	6	8	10	8	10	4	2	12
15											
16											
17											
18											
19											
20											
21											
22											
23	SEAL KIT	X989-61	1	1	1	1	1	1	1	1	1
24	CONTROL KIT	X989-110	–	1	–	–	1	1	1	1	–

* SEAL KIT CONTAINS THESE ITEMS.

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 X ± .1
ANGLES ± 1 .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

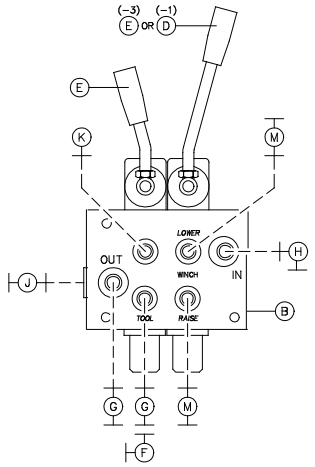
MATERIAL: SEE ABOVE
FINISH: PAINT SEMI GLOSS BLACK

DWN. BY	DATE
CKR	1-31-94
SIZE	SCALE
B	1=11
LOCATION	MANUAL
V	–
SHEET	
2 OF 2	

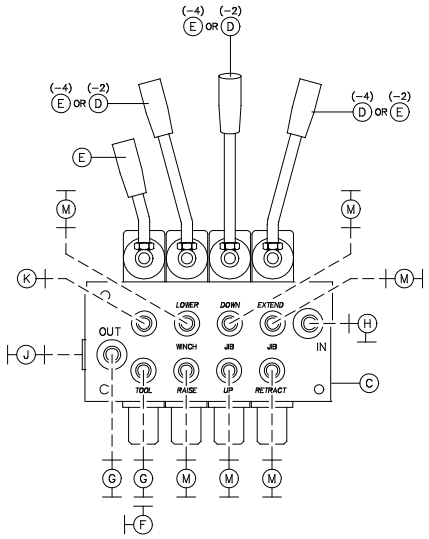
TITLE: UPPER CONTROL VALVE

DWG. NO. 54147-SEE ABOVE

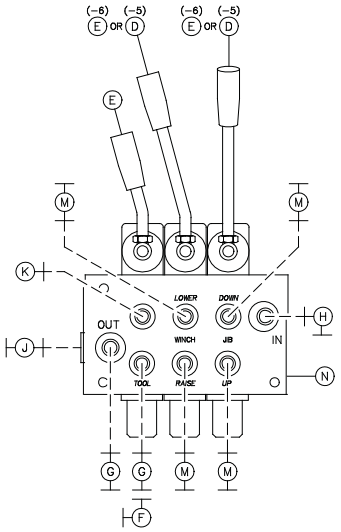
REV. D



-1 AND -3 CONFIGURATION

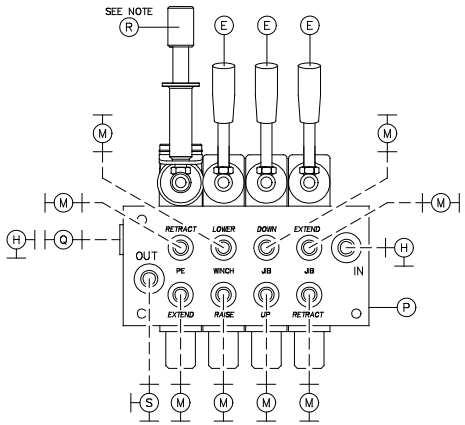


-2 AND -4 CONFIGURATION

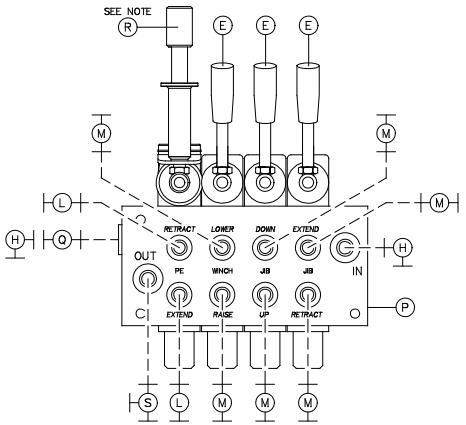


-5 AND -6 CONFIGURATION

NOTE:
REPLACE EXISTING COMPLETE LEVER WITH ITEM "R".
RESTOCK COMPLETE LEVER AS X989-71.



-7 CONFIGURATION



-8 CONFIGURATION

-8	-7	-6	-5	-4	-3	-2	-1	ITEM	PART NO.	DESCRIPTION
1	1	–	–	–	–	–	–	S	50163-4	#8 JIC TEE WITH O-RING ON RUN
1	1	–	–	–	–	–	–	R	34141-2	HR LOCKING LEVER ASSEMBLY
1	1	–	–	–	–	–	–	Q	50155-1	POWER BEYOND FITTING
1	1	–	–	–	–	–	–	P	54381-1	UPPER CONT VALVE 4 SPOOL (R.H.)
–	–	1	1	–	–	–	–	N	54372-2	UPPER CONT VALVE 3 SPOOL (R.H.)
6	8	4	4	6	2	6	2	M	50009-15	#6 O-RING TO 1/4 JIC STR CONN
2	–	–	–	–	–	–	–	L	50009-3	#6 O-RING TO 3/8 JIC STR CONN
–	–	1	1	1	1	1	1	K	50148-8	#8 HOLLOW O-RING PLUG
–	–	1	1	1	1	1	1	J	50125-8-8	1/2 FEM PIPE TO #8 O-RING ADAPT
2	2	1	1	1	1	1	1	H	50011-4	#8 O-RING TO 1/2 JIC 90° ELBOW
–	–	2	2	2	2	2	2	G	50009-4	#8 O-RING TO 1/2 JIC STR CONN
–	–	1	1	1	1	1	1	F	50004-4	1/2 JIC S.N. 90° ELBOW
3	3	3	1	4	2	1	1	E	10424-10	HANDLE UPPER CONT. SHORT (15")
–	–	–	2	–	–	3	1	D	10424-2	HANDLE UPPER CONT. LONG (15")
–	–	–	–	1	–	1	–	C	54372-3	UPPER CONT VALVE 4 SPOOL (R.H.)
–	–	–	–	–	1	–	1	B	54372-1	UPPER CONT VALVE 2 SPOOL (R.H.)
1	1	1	1	1	1	1	1	A	1000656-DWG	UPPER ACCESSORY VALVE ASSY TRUGUARD
QUANTITY										

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

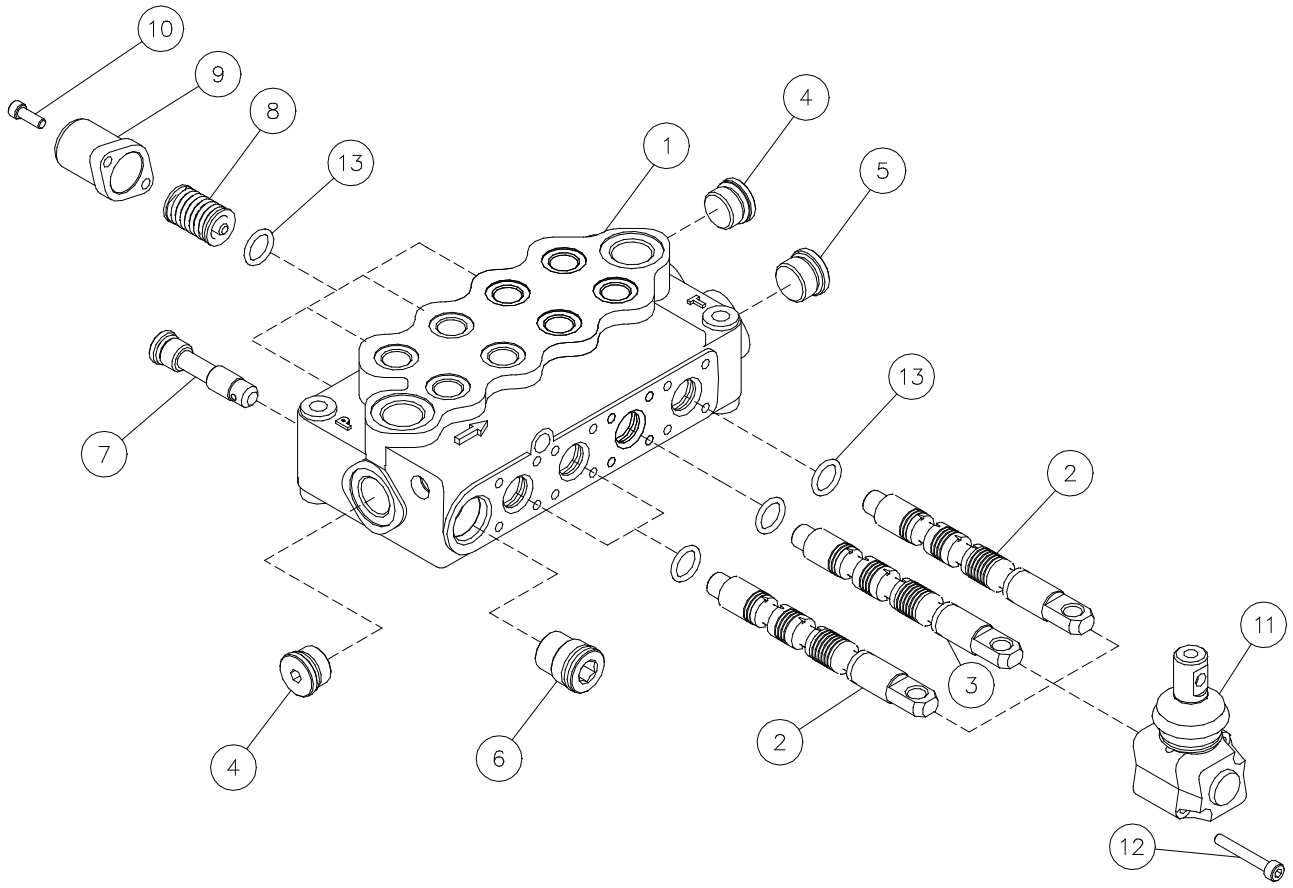
MATERIAL: SEE ABOVE
FINISH: ----

DWN. BY	DATE
KCM	09/21/12
SIZE	SCALE
B	1/4
LOCATION	MANUAL
–	
SHEET	
1 OF 1	

TITLE: UPR ACCESSORY VALVE ASSEMBLY TRUGUARD

DWG. NO. 1000656-DWG

REV.



SERVICE PARTS			
ITEM	PART DESCRIPTION	TIME PART NO	54381-1 QTY
1	4 SPOOL BODY		1
2	SPOOL	X989-86	3
3	SPOOL	Y3452	1
4	SAE 8 PLUG	X989-17	2
5	OPEN CENTER PLUG	50190-1	1
6	PLUG	Y1639	1
7	VR5 KIT	X989-73	1
8	MD CONTROL KIT	X989-83	4
9	END CAP	X989-3	4
10	SCREW	X989-43	8
11	COMPLETE LEVER	X989-71	4
12	SCREW	X989-32	8
*13	O-RING	X989-15	8
14	SEAL KIT	X989-61	1

* SEAL KIT CONTAINS THESE ITEMS.

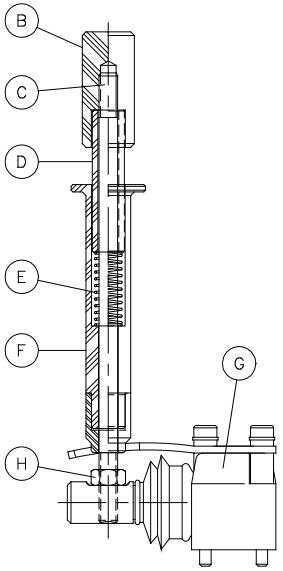
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

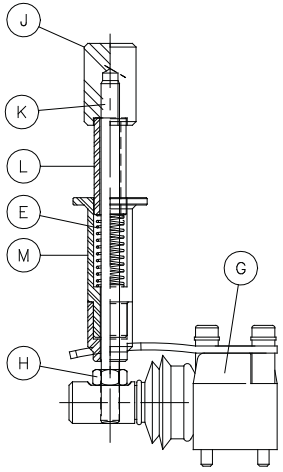
MATERIAL: SEE ABOVE		DWN. BY: KCM	DATE: 11/27/12
FINISH: PAINT SEMI GLOSS BLACK		SIZE: B	SCALE: 1/8
		LOCATION:	MANUAL: –
		SHEET: 1 OF 1	DWG. NO.: 54381-1

TITLE: UPPER CONTROL VALVE (RH)

REV. A



–1 CONFIGURATION



–2 CONFIGURATION

–2	–1			
1	–	M	34140–2	HR LEVER SUB–ASSEMBLY
1	–	L	34058–2	LOCKING HANDLE SLEEVE
1	–	K	34060–2	HANDLE ROD
1	–	J	34059–3	KNOB
1	1	H	42014–3	NUT M8 X 1.25
1	1	G	58082–1	LEVER CONTROL KIT
–	1	F	34140–1	HR LEVER SUB–ASSEMBLY
1	1	E	88002–1	COMPRESSION SPRING
–	1	D	34058–1	LOCKING HANDLE SLEEVE
–	1	C	34060–1	HANDLE ROD
–	1	B	34059–1	KNOB
1	1	A	34141–DWG	HR LOCKING LEVER ASSY
QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS .X ± .1, .XX ± .03, .XXX ± .005
FRACTIONS ± 1/16
ANGLES ± 1°
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

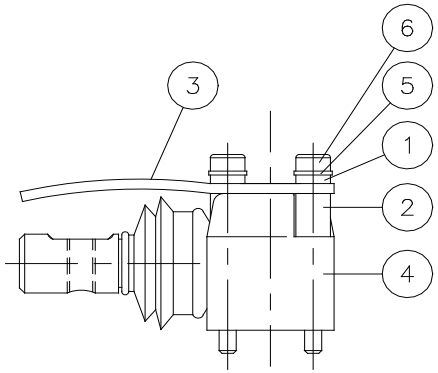
MATERIAL ----
FINISH ----

DWN. BY	DATE
LBR	11/06/08
SIZE	SCALE
B	1/2
EST WT #	MANUAL
	–
SHEET	
1 OF 1	

TITLE: HR LOCKING LEVER ASSEMBLY

DWG. NO. 34141–DWG

REV. A



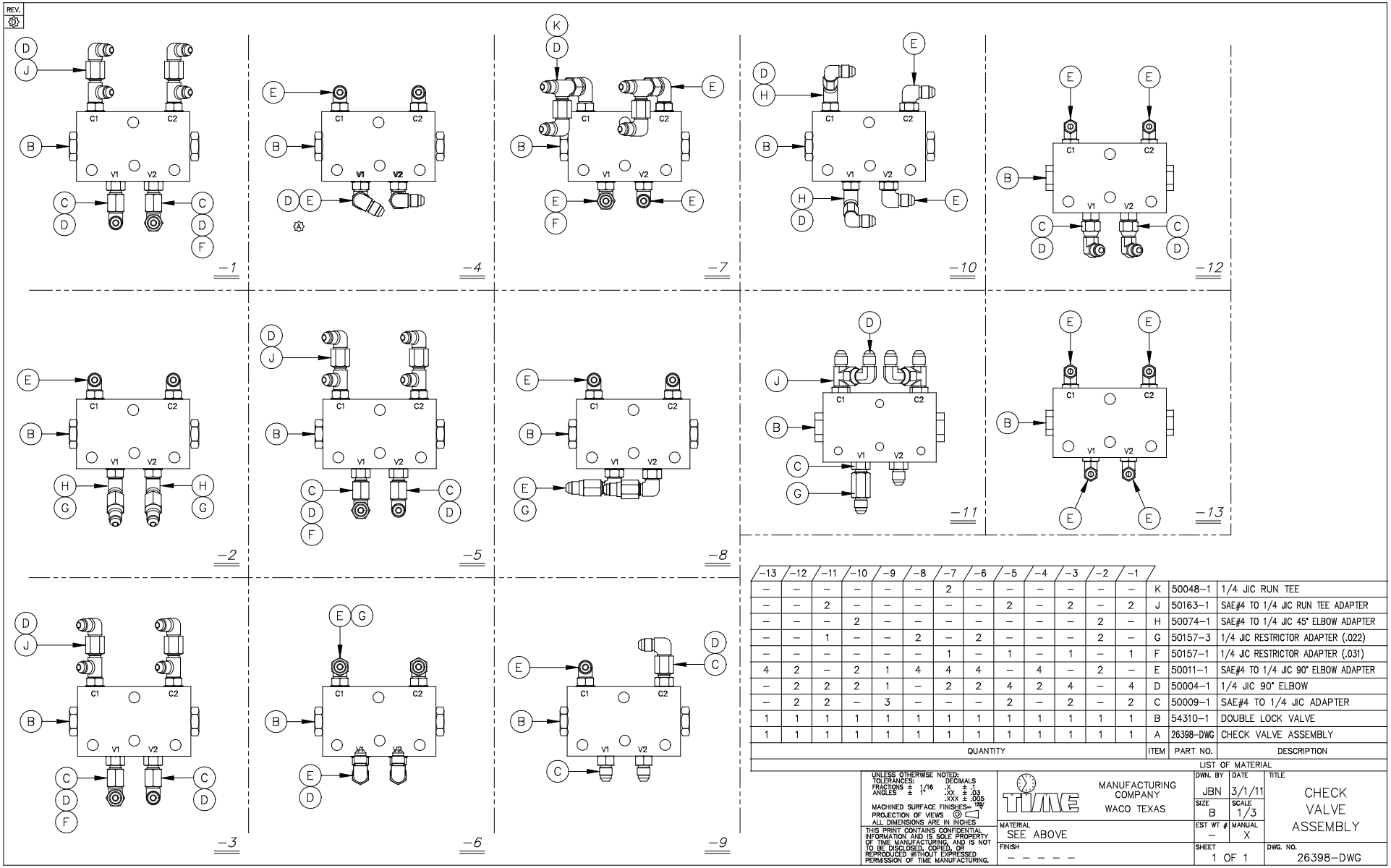
SERVICE PARTS			
ITEM	DESCRIPTION	TIME PART NO.	QTY
1	RING 5x9x2.5	Y2562	2
2	RING 6.3 x 9x13	Y2563	2
3	STIRRUP LE4 SD5	Y2564	1
4	LEVER L//S5	Y2565	1
5	LOCKWASHER	Y2567	2
6	SHCS M5x55–8.8	Y2568	2

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: ---
FINISH: ---

DWN. BY	DATE	TITLE
LBR	11-6-08	LEVER CONTROL KIT
SIZE: A	SCALE: 1=2	
EST WT #	MANUAL: —	
SHEET: 2 OF 2		DWG. NO.: 58082–1



–13	–12	–11	–10	–9	–8	–7	–6	–5	–4	–3	–2	–1	ITEM	PART NO.	DESCRIPTION
–	–	–	–	–	–	2	–	–	–	–	–	–	K	50048–1	1/4 JIC RUN TEE
–	–	2	–	–	–	–	–	2	–	2	–	2	J	50163–1	SAE#4 TO 1/4 JIC RUN TEE ADAPTER
–	–	–	2	–	–	–	–	–	–	–	2	–	H	50074–1	SAE#4 TO 1/4 JIC 45° ELBOW ADAPTER
–	–	1	–	–	2	–	2	–	–	–	2	–	G	50157–3	1/4 JIC RESTRICTOR ADAPTER (.022)
–	–	–	–	–	–	1	–	1	–	1	–	1	F	50157–1	1/4 JIC RESTRICTOR ADAPTER (.031)
4	2	–	2	1	4	4	4	–	4	–	2	–	E	50011–1	SAE#4 TO 1/4 JIC 90° ELBOW ADAPTER
–	2	2	2	1	–	2	2	4	2	4	–	4	D	50004–1	1/4 JIC 90° ELBOW
–	2	2	–	3	–	–	–	2	–	2	–	2	C	50009–1	SAE#4 TO 1/4 JIC ADAPTER
1	1	1	1	1	1	1	1	1	1	1	1	1	B	54310–1	DOUBLE LOCK VALVE
1	1	1	1	1	1	1	1	1	1	1	1	1	A	26398–DWG	CHECK VALVE ASSEMBLY

LIST OF MATERIAL

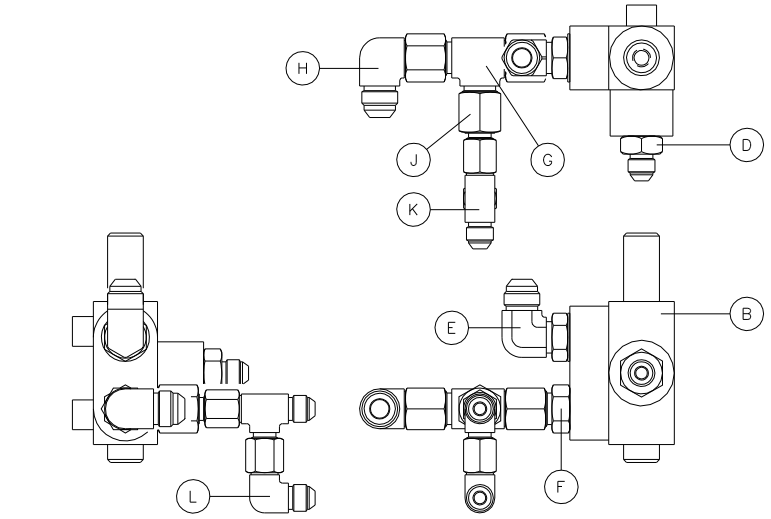
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS .X ± .1, .XX ± .03, .XXX ± .005
FRACTIONS ± 1/16
ANGLES ±
MACHINED SURFACE FINISHES 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

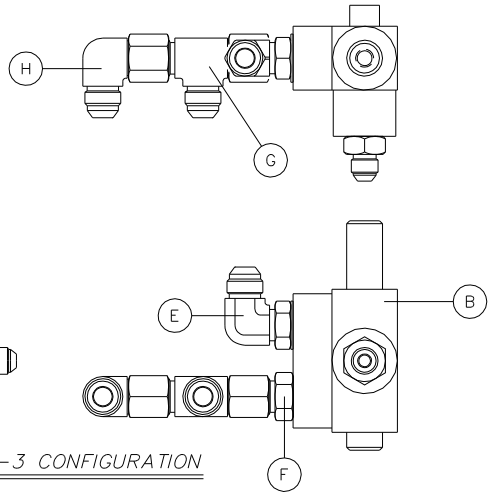
MATERIAL: SEE ABOVE
FINISH: – – – – –

DWN. BY	DATE	TITLE
JBN	3/1/11	CHECK VALVE ASSEMBLY
SIZE: B	SCALE: 1/3	
EST WT #: –	MANUAL: X	
SHEET: 1 OF 1	DWG. NO.: 26398–DWG	

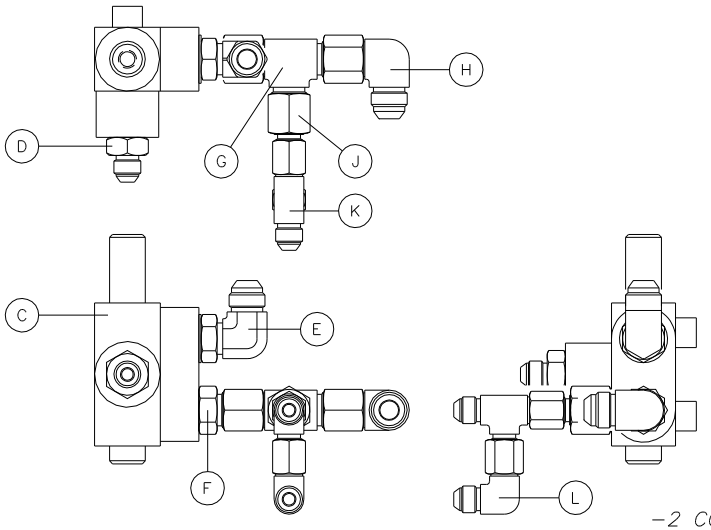
REV.



–1 CONFIGURATION



–3 CONFIGURATION



–2 CONFIGURATION

-8	-7	-6	-5	-4	-3	-2	-1	ITEM	PART NO.	DESCRIPTION
1	–	–	–	–	–	–	–	Q	50081–4	#8 O–RING PLUG
–	1	–	–	–	–	–	–	P	50078–4	1/2 MALE JIC TO FEMALE SWVL JIC 45° ELBOW
–	–	1	–	–	–	–	–	N	50189–3	VACUUM BREAKER
–	–	1	–	–	–	–	–	M	50163–4	TEE (JIC) WITH O–RING ON RUN
–	–	–	–	–	–	1	1	L	50004–3	3/8 JIC S.N. 90° ELBOW
–	–	–	–	–	–	1	1	K	50048–2	3/8 JIC S.N. RUN TEE
–	–	1	–	–	–	–	–	J	50114–3	1/2 JIC TO 3/8 JIC TUBE END RED.
–	–	1	1	1	1	1	1	H	50004–4	1/2 JIC S.N. 90° ELBOW
–	–	–	–	–	1	1	1	G	50048–3	1/2 JIC S.N. RUN TEE
–	1	1	1	1	1	1	1	F	50009–4	#8 O–RING TO 1/2 JIC STR CONN
2	2	1	1	1	1	1	1	E	50011–4	#8 O–RING TO 1/2 JIC 90° ELBOW
–	–	–	1	1	1	1	1	D	50009–14	#8 O–RING TO 3/8 JIC STR CONN
–	–	1	1	–	–	1	–	C	54027–4	SELECTOR VALVE
1	1	–	–	1	1	–	1	B	54027–6	SELECTOR VALVE
1	1	1	1	1	1	1	1	A	29805–DWG	SELECTOR VALVE ASSEMBLY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

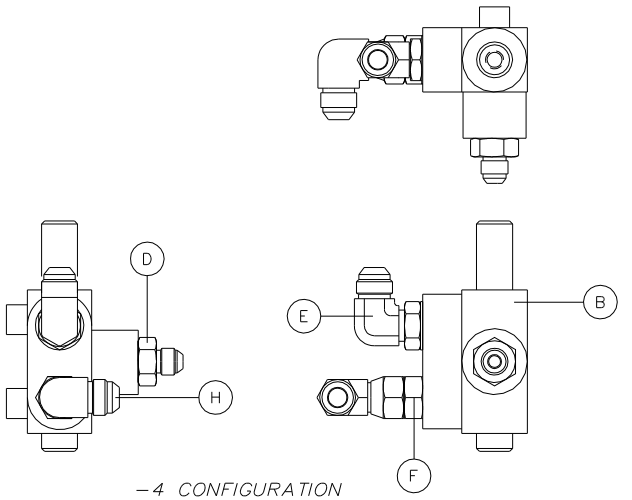
TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ---

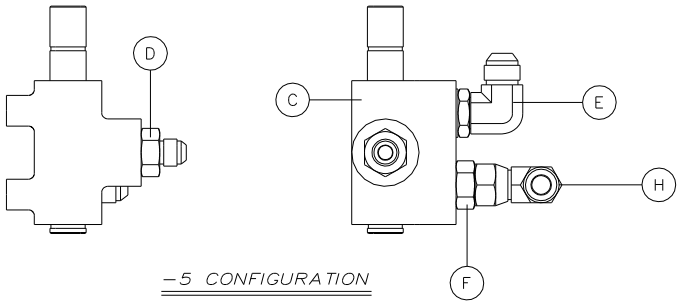
DWN. BY: LBR
DATE: 9-3-03
SIZE: B
SCALE: 1=2.5
EST WT #:
MANUAL: –
SHEET: 1 OF 3

TITLE: SELECTOR VALVE ASSEMBLY
DWG. NO.: 29805–DWG

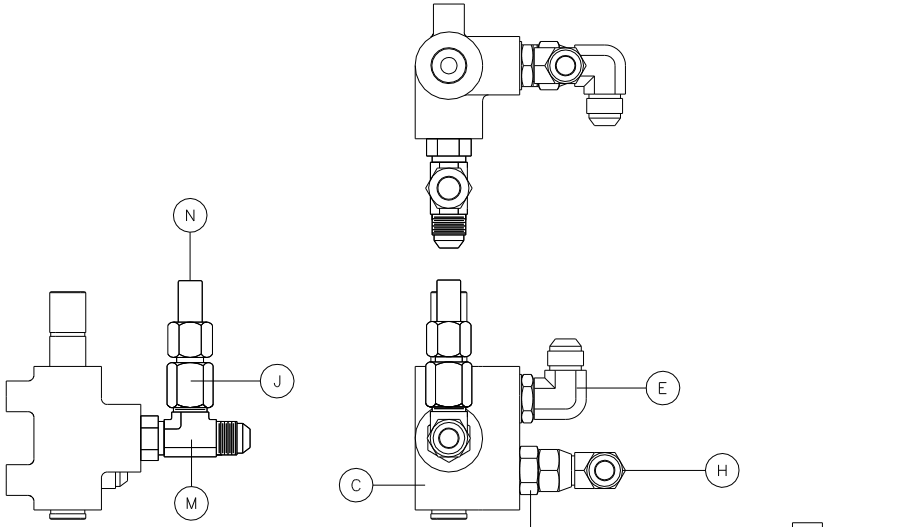
REV.



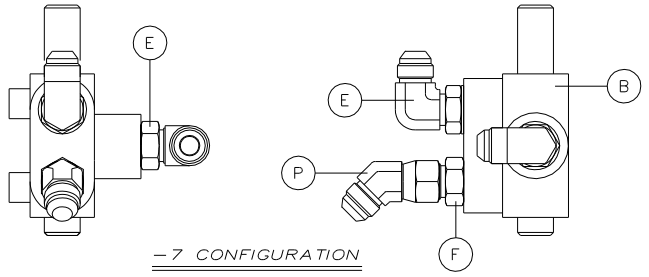
-4 CONFIGURATION



-5 CONFIGURATION



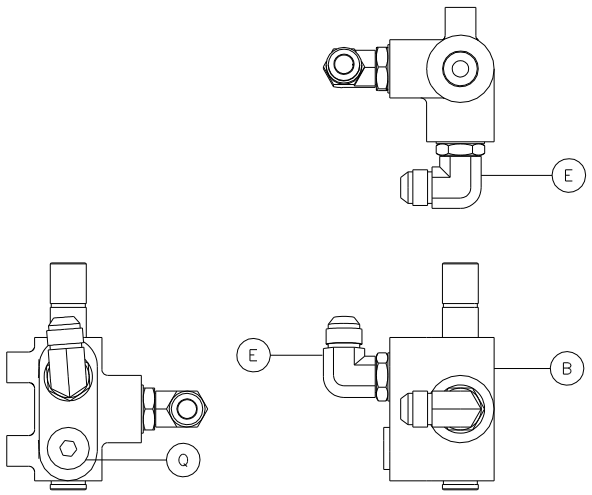
-6 CONFIGURATION



-7 CONFIGURATION

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	MANUFACTURING COMPANY WACO TEXAS	DWN. BY LBR / DATE 9-3-03	TITLE SELECTOR VALVE ASSEMBLY
		SIZE B / SCALE 1=2.5	
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	MATERIAL SEE LIST OF MATERIAL	EST WT # / MANUAL –	
	FINISH ---	SHEET 2 OF 3	DWG. NO. 29805-DWG

REV.



-8 CONFIGURATION

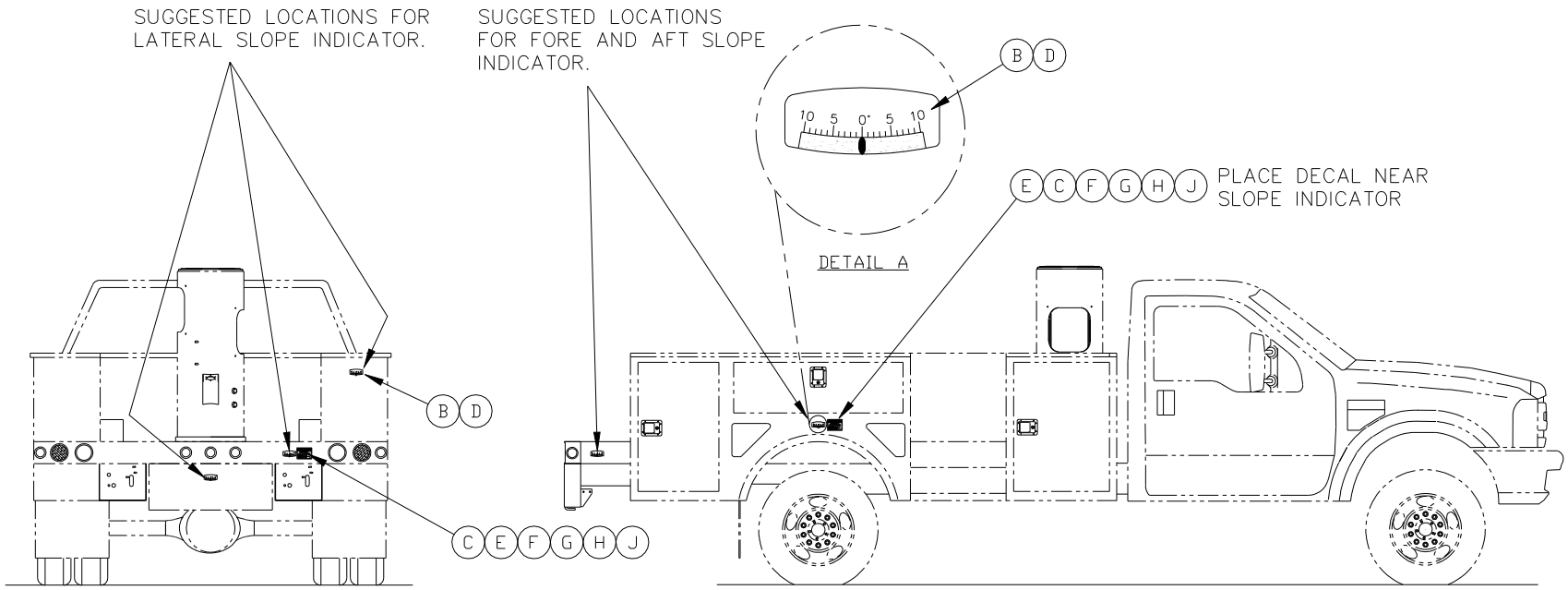
UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 .X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125/ PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY LBR	DATE 9-3-03	TITLE SELECTOR VALVE ASSEMBLY
		SIZE B	SCALE 1=2.5	
	MATERIAL SEE LIST OF MATERIAL	EST WT #	MANUAL –	
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	FINISH ---	SHEET 3 OF 3		DWG. NO. 29805-DWG

SECTION 146

Slope Indicator Installation (Option SD-1200-13)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

REV.



LATERAL SLOPE INDICATOR INSTALLATION

FORE AND AFT SLOPE INDICATOR INSTALLATION

NOTE:
SLOPE INDICATORS SHALL BE INSTALLED TO INDICATE THE LEVEL OF THE ROTATION BEARING RELATIVE TO THE GROUND.

DASH NO.	DESCRIPTION	OPTION
-1	SLOPE INDICATORS (W/O OUTRIGGERS) ENGLISH	SD-1200-8
-2	SLOPE INDICATORS (WITH OUTRIGGERS) ENGLISH	SD-1200-13
-3	SLOPE INDICATORS (W/O OUTRIGGERS) SPANISH	SD-1200-14
-4	SLOPE INDICATORS (WITH OUTRIGGERS) SPANISH	SD-1200-15
-5	SLOPE INDICATORS (W/O OUTRIGGERS) PORTUGUESE	SD-1200-8P
-6	SLOPE INDICATORS (WITH OUTRIGGERS) PORTUGUESE	SD-1200-13P

* THESE ITEMS TO BE SHIPPED LOOSE.

-6	-5	-4	-3	-2	-1	ITEM	PART NO.	DESCRIPTION
LIST OF MATERIAL								
* 2	–	–	–	–	–	J	33656-6	DECAL, SLOPE WARNING O/R (PORTUGUESE)
* –	2	–	–	–	–	H	33656-5	DECAL, SLOPE WARNING (PORTUGUESE)
* –	–	2	–	–	–	G	33656-4	DECAL, SLOPE WARNING O/R (SPAN)
* –	–	–	2	–	–	F	33656-2	DECAL, SLOPE WARNING (SPANISH)
* –	–	–	–	2	–	E	33656-3	DECAL, SLOPE WARNING O/R
* 2	–	2	–	2	–	D	33657-2	SLOPE INDICATOR (O/R)
* –	–	–	–	–	2	C	33656-1	DECAL, SLOPE WARNING
* –	2	–	2	–	2	B	33657-1	SLOPE INDICATOR
* 1	1	1	1	1	1	A	33658-DWG	SLOPE INDICATOR INSTALLATION

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: – – – – –

DWN. BY: ARH
DATE: 12/20/07
SIZE: B
SCALE: N/A
EST WT #: N/A
MANUAL: –
SHEET: 1 OF 1

TITLE: SLOPE INDICATOR INSTALLATION
DWG. NO.: 33658-DWG

SECTION 147

Master Switch & Start/Stop 12V (Option SS-60)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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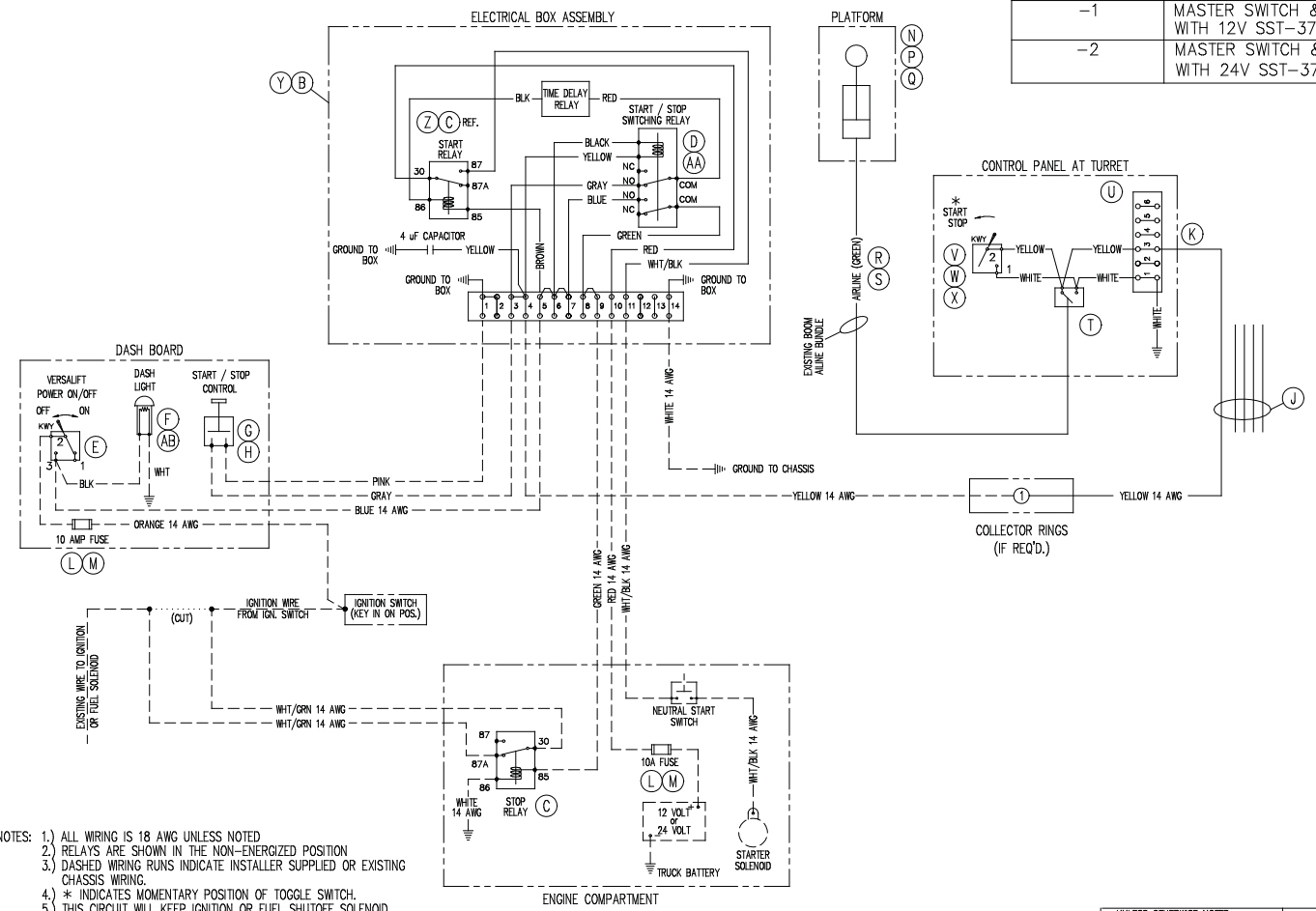
DASH NO.	DESCRIPTION	OPTION
–1	MASTER SWITCH & START/STOP (INS.) WITH 12V SST–37/40–EIH	SS–60
–2	MASTER SWITCH & START/STOP (INS.) WITH 24V SST–37/40–EIH	SS–1230–1



NOTES:
1.) ALL WIRING IS 18 AWG UNLESS NOTED
2.) RELAYS ARE SHOWN IN THE NON–ENERGIZED POSITION
3.) DASHED WIRING RUNS INDICATE INSTALLER SUPPLIED OR EXISTING CHASSIS WIRING.
4.) * INDICATES MOMENTARY POSITION OF TOGGLE SWITCH.
5.) THIS CIRCUIT WILL KEEP IGNITION OR FUEL SHUTOFF SOLENOID DE–ENERGIZED UNTIL TRUCK IS STARTED.
6.) 12 VDC OR 24VDC CAN COME OFF FUSE PANEL LOCATION THAT IS CONTROLLED BY VEHICLE IGNITION SWITCH IN RUN POSITION.
7.) ITEMS TO BE SHIPPED LOOSE.
8.) ITEM "AC" WIRE TO COLLECTOR RING FOR TESTING BUNDLE IN PEDESTAL FOR SHIPPING..

	–2	–1	ITEM	PART NO.	DESCRIPTION
SEE NOTE 8	8 FT	8 FT	AC	61025–1	CABLE 14 AWG – 5 COND.
SEE NOTE 7	1	–	AB	68039–2	DASH LIGHT
	REF	–	AA	68007–14	RELAY–24V
SEE NOTE 7	1	–	Z	68007–10	RELAY–24V.
SEE NOTE 7	1	–	Y	4630–6	ELECTRICAL BOX 24V
	1	1	X	3051–2	SWITCH GUARD
	1	1	W	11561–1	DECAL–ENGINE CONTROL
	1	1	V	60002–6	TOGGLE SWITCH
	REF	REF	U	68002–6	TERMINAL BLOCK
	1	1	T	60015–1	LO–PRESS. SWITCH
	2	2	S	50105–1	1/8 NPT MALE CONN. – BRASS
	REF.	REF.	R	58036–1	4 IN 1 TUBING RED/GRN/YEL/BLUE
	1	1	Q	10272–1	DECAL–ENGINE
	1	1	P	80000–3	KNOB
	1	1	N	4383–1	AIR CYLINDER
SEE NOTE 7	2	2	M	68004–1	10 AMP FUSE AND HOLDER
	REF.	REF.	L	68011–1	10 AMP FUSE
	1	1	K	68032–2	22/18 AWG – #6 STUD SPADE TERM.
	7 FT	7 FT	J	61025–1	CABLE 14 AWG – 5 COND.
SEE NOTE 7	1	1	H	4511–2	DECAL–DASH PUSH TO START–STOP
SEE NOTE 7	1	1	G	60012–1	PUSH BUTTON SWITCH
SEE NOTE 7	–	1	F	68039–1	DASH LIGHT
SEE NOTE 7	1	1	E	60002–3	TOGGLE SWITCH
	–	REF.	D	68007–11	RELAY–12VDC
SEE NOTE 7	–	1	C	68007–3	RELAY–12VDC
SEE NOTE 7	–	1	B	4630–5	ELECTRICAL BOX 12VDC
	1	1	A	28174–DWG	MASTER SW. & START/STOP SCHEM.

LIST OF MATERIAL

UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16, ANGLES ± 1°, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005, MACHINED SURFACE FINISHES 125, PROJECTION OF VIEWS, ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY WACO TEXAS

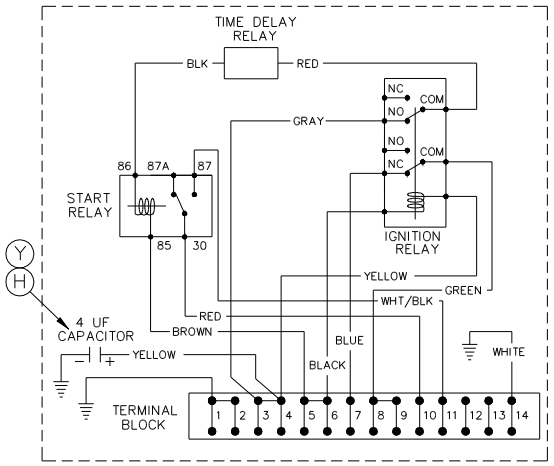
MATERIAL: SEE ABOVE

FINISH: – – –

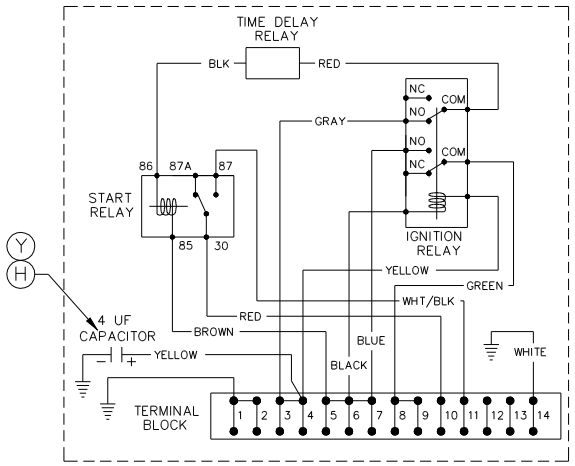
DWN. BY	DATE	TITLE
LBR	7/14/00	MASTER SWITCH & START/STOP SCHEM (INSULATED)
SIZE: B	SCALE: 1/3	
LOCATION: V	MANUAL: –	
SHEET: 1 OF 1	DWG. NO.: 28174–DWG	

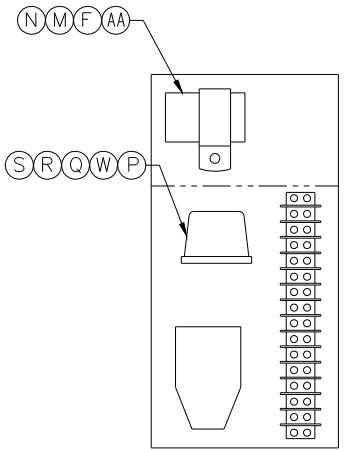
REV.

TERMINAL BOX (-3 & -4)

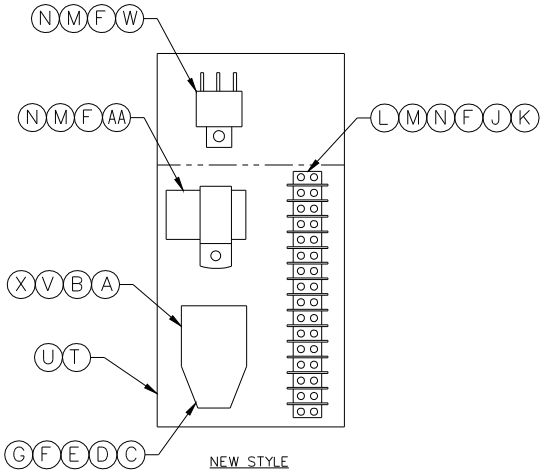


TERMINAL BOX (-5 & -6)





OLD STYLE



NEW STYLE

-6 (24V)	-5 (24V)	-4	-3	-2 (OBS.)	-1 (OBS.)	ITEM	PART NO.	DESCRIPTION
1	–	1	–	–	–	AA	68204-2	TIME DELAY RELAY 24V
–	1	–	1	–	–	Z	68204-1	TIME DELAY RELAY 12V
–	2 in.	–	–	–	–	Y	68084-1	PLASTIC TUBING
1	–	1	–	–	–	X	68007-14	RELAY, 24V
1	–	1	–	–	–	W	68007-10	RELAY, 24V
–	1	–	1	–	–	V	68007-11	RELAY, 12V
1	1	1	1	1	–	U	4870-2	MINI BOX
–	–	–	–	–	1	T	4870-1	MINI BOX
–	–	–	–	2	2	S	40002-1	1/4 -NC X 1/2 HEX HD BOLT
–	–	–	–	2	2	R	44000-9	1/4 LOCK WASHER
–	–	–	–	2	2	Q	42000-1	1/4 -NC HEX NUT
–	1	–	1	1	1	P	68007-3	RELAY
4	4	4	4	2	2	N	40039-3	NO.8 -NC X 3/4 RD HD SCREW
5	4	4	4	2	2	M	42000-23	NO.8 -NC HEX NUT
1	1	1	1	1	1	L	68002-14	TERMINAL STRIP
7	7	6	6	6	6	K	68053-1	JUMPER
1	1	1	1	1	1	J	68014-3	ROMEX CONNECTOR
1	1	1	1	1	1	H	68052-1	CAPACITOR
3	2	2	2	2	2	G	40039-15	NO.8 -NC X 1/4 RD HD SCREW
7	6	6	6	4	2	F	44005-2	NO.8 STAR WASHER
–	–	–	–	–	2	E	42000-24	NO.6 -NC HEX NUT
–	–	–	–	–	2	D	44005-1	NO.6 STAR WASHER
–	–	–	–	–	2	C	40011-7	NO.6 -NC X 1/2 RD HD SCREW
–	–	–	–	1	–	B	68007-7	RELAY
–	–	–	–	–	1	A	68007-6	RELAY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: – – –

DWN. BY: ELA
DATE: 2/20/79
SIZE: B
SCALE: N/A
LOCATION: V
MANUAL: –
SHEET: 1 OF 1

TITLE: ELCTRICAL BOX ASSEMBLY
DWG. NO.: 4630-SEE ABOVE

SECTION 148

Turret Assembly Lift Elevator (Option TT-1280-4)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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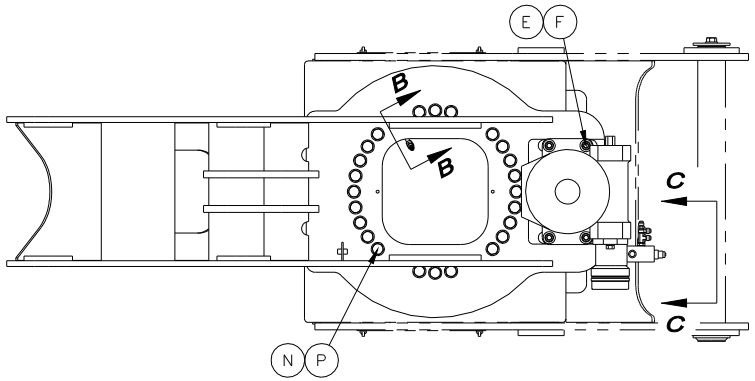
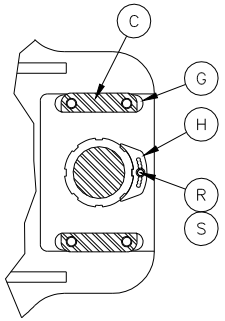
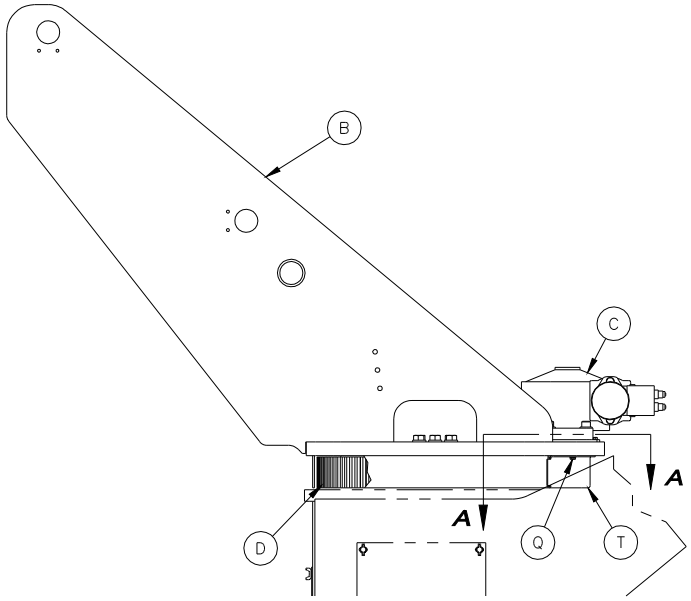
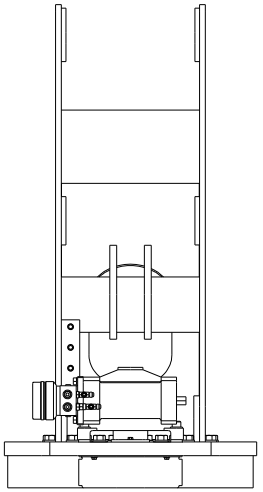


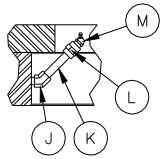


SECTION A-A

SCALE.....1.5X

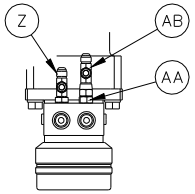






SECTION B-B

SCALE.....2X



VIEW C-C

SCALE.....2X

DASH NO.	DESCRIPTION	CODE
-1	TURRET ASSEMBLY - LIFT ELEVATOR - SINGLE PLATFORM - VST-7500	TT-1280-4

-1

QTY.	ITEM	PART NO.	DESCRIPTION
1	AB	50048-2	#6 JIC S.N. RUN TEE
1	AA	50009-3	#6 O-RING TO JIC CONNECTOR
1	Z	50163-3	#6 O-RING TO JIC RUN TEE
A/R	Y	05-030	ANTI-SEIZE
A/R	X	12739-1	PLASTIC SHIM
A/R	W	05-018	RONEX GREASE
A/R	V	05-003	GEAR SHIELD GREASE
A/R	U	84006-2	TORQUE SEAL
1	T	20971-1	PINION COVER PLASTIC
1	S	44013-7	1/4 HARDENED WASHER
1	R	40002-2	1/4-20NC X 5/8 LG HHCS
2	Q	40076-8	5/16-18NC X 1/2 LG THFMS
23	P	44013-4	3/4 HARDENED WASHER
23	N	40104-12	3/4-10NC X 2 3/4 LG HHCS GR 8
1	M	80008-10	GREASE ZERK
1	L	50113-1	1/8 NPT COUPLING
1	K	50000-3	1/8 NPT NIPPLE X 2 LG.
1	J	50116-1	1/8 NPT 45° ELBOW
1	H	32472-1	PLATE, ECCENTRIC LOCK
2	G	1000068-1	GEARBOX SHIM
4	F	44013-1	5/8 HARDENED WASHER
4	E	40077-11	5/8-11NC X 2 1/2 LG SHCS GR.8
1	D	72055-1	ROTATION BEARING
1	C	26346-3	ROTATION GEARBOX ASSEMBLY
1	B	1000135-1	TURRET WELDMENT
1	A	1000134-DWG	TURRET ASSEMBLY DRAWING

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

MANUFACTURING COMPANY
WACO TEXAS

MATERIAL

FINISH

DWN. BY	DATE
LBR	3-29-13
SIZE	SCALE
B	1=13
EST WT #	MANUAL
	-
SHEET	
1 OF 2	

TITLE: TURRET ASSEMBLY

DWG. NO. 1000134-DWG

REV.

LUBRICATION NOTES:

1) LUBRICATE THE PINION AND GEAR TEETH WITH GEARSHIELD (ITEM X).
2) LUBRICATE THE ROTATION BEARING THROUGH ZERK (ITEM M) WITH RONEX GREASE (ITEM W).
3) LUBRICATE ECCENTRIC RING ON GEARBOX WITH ANTI-SEIZE (ITEM Y). APPLY BETWEEN ECCENTRIC RING AND GEARBOX. ALSO APPLY BETWEEN ECCENTRIC RING AND TURRET BASE PLATE.
4) LUBRICATE HYDRAULIC MOTOR SHAFT WITH ANTI-SEIZE (ITEM Y)

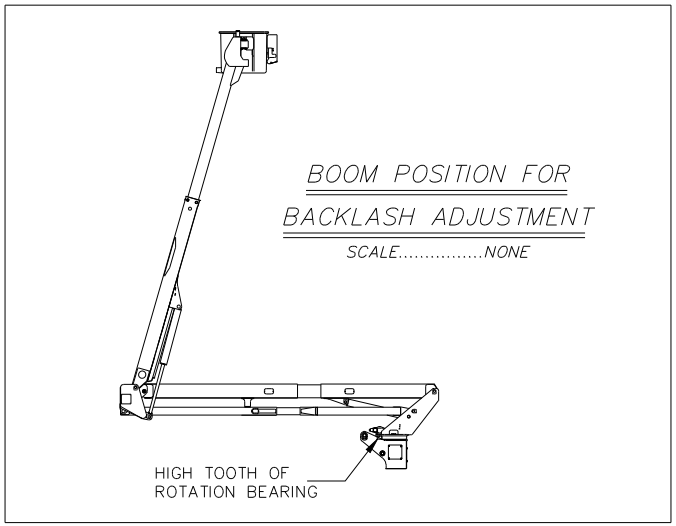
GEAR BACKLASH ADJUSTMENT NOTES:

1) SET BACKLASH AFTER INSTALLATION OF BOOMS ETC.
2) THE ROTATION BEARING SHOULD BE INSTALLED SO THAT THE HIGH TOOTH IS TOWARD THE FRONT OF THE CHASSIS.
3) LOOSEN FOUR BOLTS (ITEM E) LEAVING THEM LOOSE ENOUGH TO ALLOW THE FLATWASHER TO ROTATE.
4) POSITION THE TURRET SO THAT THE GEARBOX IS POSITIONED OVER THE HIGH TOOTH.
5) POSITION ECCENTRIC RING WITH THICKEST PORTION ADJACENT TO ROTATION BEARING.
6) ROTATE THE ECCENTRIC RING COUNTER-CLOCKWISE. THIS ROTATION WILL CAUSE THE GEARBOX TO KICK UP SLIGHTLY ONCE THE PINION GEAR FULLY ENGAGES THE ROTATION BEARING.
7) ROTATE THE ECCENTRIC RING IN THE OPPOSITE DIRECTION UNTIL THE GEARBOX DROPS BACK DOWN. MARK THIS POSITION. CONTINUE TO ROTATE THE ECCENTRIC RING IN THIS DIRECTION FOR APPROXIMATELY A 1/8 TURN OF THE RING AND THEN ROTATE THE RING BACK TO THE MARKED POSITION.
8) TIGHTEN THE BOLTS (ITEM E) AND TORQUE PER TMC-778.
9) FROM THE LOWER CONTROLS, ROTATE LIFT SO THAT THE PINION IS POSITIONED 2-3 IN. FROM THE HIGH TOOTH OF THE BULL GEAR. MOVE THE UPPER BOOM TO THE FULLY OPEN AND FULLY RETRACTED POSITION.
10) PLACE THE SHIM (ITEM X) AT THE HIGH TOOTH POSITION ON THE BULL GEAR AND CAREFULLY ROTATE THE LIFT SO THAT THE PINION ROTATES COMPLETELY OVER THE SHIM.
11) REMOVE THE SHIM. IF THE MINIMUM BACKLASH IS SET PROPERLY THE PINION SHOULD NOT CUT THIS SHIM INTO PIECES. IF IT DOES, LOOSEN THE GEARBOX BOLTS AND REPEAT STEPS 5 THROUGH 8. ALIGN AND TIGHTEN EVERYTHING AND RECHECK THE BACKLASH WITH ANOTHER SHIM. REPEAT AS OFTEN AS NECESSARY UNTIL THE PROPER CLEARANCE IS ACHIEVED.
12) INSTALL ECCENTRIC RING LOCK PLATE (ITEM M) AS SHOWN IN SECTION B-B

REMEMBER THAT THERE MUST ALWAYS BE A SLIGHT AMOUNT OF CLEARANCE BETWEEN THESE GEARS. DO NOT CONFUSE LOOSENESS OR WEAR IN THE GEARBOX WITH THE DESIRED CLEARANCE BETWEEN THE GEAR AND PINION..

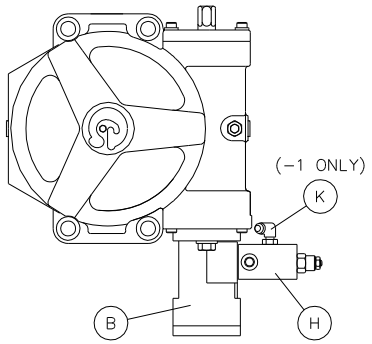
BOLT TORQUE NOTE:

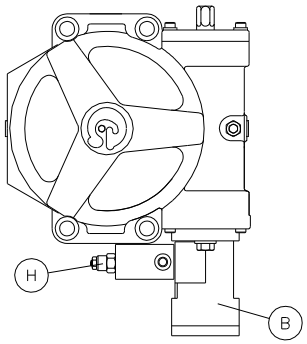
1) TORQUE ROTATION BEARING BOLTS AND GEARBOX MOUNTING BOLTS (ITEMS N & E) PER TMC-778 AND MARK WITH SENTRY-SEAL (ITEM U).

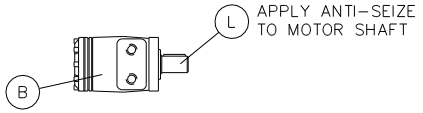


UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS FRACTIONS ± 1/16 X ± .1 ANGLES ± 1° .XX ± .03 .XXX ± .005 MACHINED SURFACE FINISHES= 125 PROJECTION OF VIEWS ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY LBR	DATE 3-29-13	TITLE TURRET ASSEMBLY 3-29-13
		SIZE B	SCALE 1=13	
	MATERIAL	EST WT #	MANUAL –	
THIS PRINT CONTAINS CONFIDENTIAL INFORMATION AND IS SOLE PROPERTY OF TIME MANUFACTURING, AND IS NOT TO BE DISCLOSED, COPIED, OR REPRODUCED WITHOUT EXPRESSED PERMISSION OF TIME MANUFACTURING.	FINISH	SHEET 2 OF 2		DWG. NO. 1000134-DWG

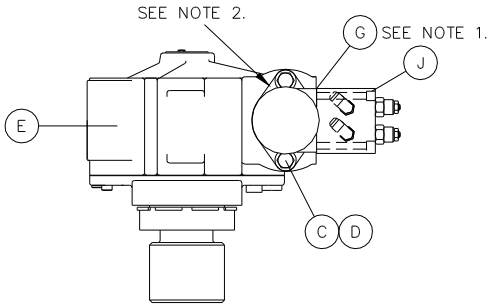
REV.



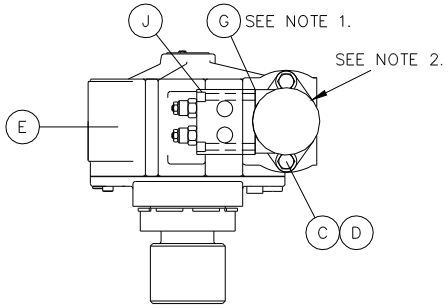




NOTES;
1.) ITEM "G" TO BE INSTALLED IF NOT SUPPLIED WITH ITEM "B".
2.) VERIFY THAT GASKET IS IN PLACE BEFORE INSTALLING MOTOR.



–1 AND –3 CONFIGURATION



–2 CONFIGURATION

–3	–2	–1	ITEM	PART NO.	DESCRIPTION
AR	AR	AR	L	05–030	ANTI–SEIZE LUBRICANT
–	–	2	K	50011–3	#6 O–RING TO 3/8 JIC 90° ELBOW
4	4	4	J	40033–13	5/16–NC X 3 LG SHCS
1	1	1	H	12593–1	DUAL C–BALANCE VALVE
2	2	2	G	58021–112	O–RING
–	–	–	F		
1	1	1	E	73009–1	ROTATION GEAR BOX
2	2	2	D	44000–13	1/2 LOCKWASHER
2	2	2	C	40006–7	1/2–NC X 1 1/2 HHCS
1	1	1	B	56000–14	HYDRAULIC MOTOR
1	1	1	A	26346–DWG	GEARBOX ASS'Y DWG

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

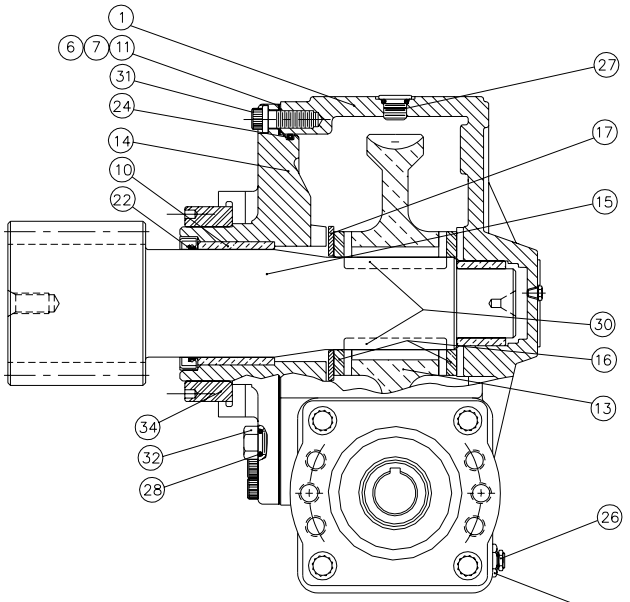
TIME MANUFACTURING COMPANY
WACO TEXAS

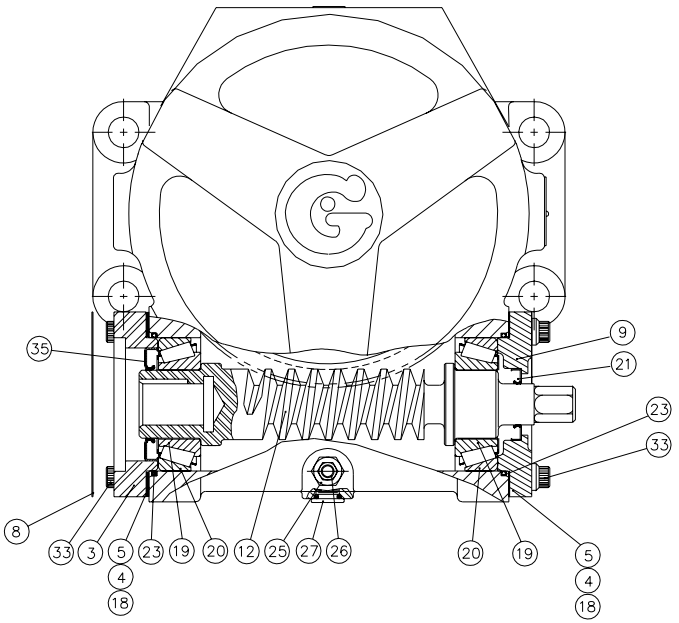
MATERIAL: SEE ABOVE
FINISH: PAINT PER W/O

DWN. BY: CKR
DATE: 12–1–96
SIZE: B
SCALE: 1=6
EST WT #:
MANUAL: –
SHEET: 1 OF 1

TITLE: ROTATION GEARBOX ASSEMBLY
DWG. NO.: 26346–DWG

REV. E





SERVICE PARTS			
ITEM SEE SHEET 2	PART DESCRIPTION	TIME PART NO	73009-1 QTY
1	HOUSING, MAIN W/BUSHING	Y1360	1
3	RETAINER, BEARING	Y1361	1
4	SHIM (.005)	Y1362	2
5	SHIM (.015)	Y1363	2
6	SHIM, COVER (.005 THICK)	Y1364	1
7	SHIM, COVER (.015 THICK)	Y1365	1
8	GASKET, HYD. MTR. (1/32)	X73000-1-17	1
9	RETAINER, BEARING	Y1366	1
10	BUSHING, BRONZE	Y1367	1
11	SHIM, COVER (1/32 THICK)	Y1368	1
12	WORM	Y1369	1
13	GEAR, WORM	Y1370	1
14	COVER, MAIN HOUSING	Y1371	1
15	SHAFT, OUTPUT PINION	Y2521	1
16	RING, THRUST	Y1373	2
17	SPACER	Y1374	1
18	SHIM (.030)	Y1375	2
19	BEARING, CONE	X73000-1-20	2
20	BEARING, CUP	X73000-1-19	2
21	SEAL	X73000-1-28	1
22	SEAL	Y1376	1
23	O-RING	X73000-1-24	2
24	O-RING	Y1377	1
25	BUSHING	Y1378	1
26	PLUG, VENT	Y1379	1
27	PLUG	Y1380	2
28	O-RING	Y1381	1
29			
30	KEY	Y1383	2
31	CAPSCREW 7/16NC X 1	Y1384	12
32	PLUG, MAGNETIC	Y1385	1
33	CAPSCREW 7/16NC X 1.25	Y1386	8
34	RING, ECCENTRIC	Y1387	1
–	LUBRICANT (EP-2 GREASE)	——	A/R
35	SEAL	Y2884	1

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: — — —
FINISH: PAINT FLAT BLACK

DWN. BY	DATE	TITLE
CKR	6-16-98	GEAR BOX
SIZE: B	SCALE: 1=4	
LOCATION: V	MANUAL: –	
SHEET: 2 OF 2	DWG. NO.: 73009-1	

SECTION 149

2 Sets Out & Down (4 Spool w/ Switch) (Option VK-1400-27)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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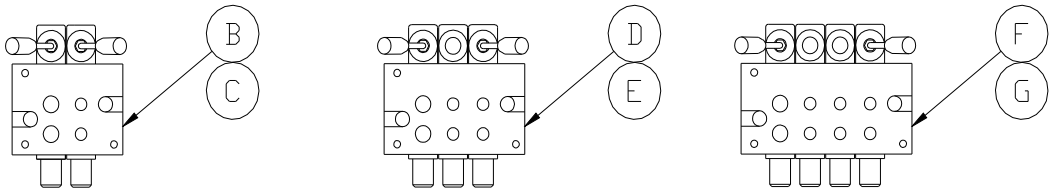
REV. A



DASH NO.	DESCRIPTION	OPTION
-1	VALVE KIT, 1 SET OUT & DOWN (2 SPOOL)	VK-1400-22
-2	VALVE KIT, 1 SET OUT & DOWN (2 SPOOL W/SWITCH)	VK-1400-23
-3	VALVE KIT, 1 SET OUT & DOWN, 1 SET STANDARD (3 SPOOL)	VK-1400-24
-4	VALVE KIT, 1 SET OUT & DOWN, 1 SET STANDARD (3 SPOOL W/SWITCH)	VK-1400-25
-5	VALVE KIT, 2 SETS OUT & DOWN (4 SPOOL)	VK-1400-26
-6	VALVE KIT, 2 SETS OUT & DOWN (4 SPOOL W/SWITCH)	VK-1400-27

* THESE ITEMS WILL BE SHIP LOOSE.

	-6	-5	-4	-3	-2	-1	ITEM	PART NO.	DESCRIPTION
*	2	-	-	-	-	-	G	39440-6	CONTROL VALVE ASSY
*	-	2	-	-	-	-	F	39440-5	CONTROL VALVE ASSY
*	-	-	2	-	-	-	E	39440-4	CONTROL VALVE ASSY
*	-	-	-	2	-	-	D	39440-3	CONTROL VALVE ASSY
*	-	-	-	-	2	-	C	39440-2	CONTROL VALVE ASSY
*	-	-	-	-	-	2	B	39440-1	CONTROL VALVE ASSY
	1	1	1	1	1	1	A	39441-DWG	OUT & DOWN OUTRIGGER VALVE KIT
	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	ITEM	PART NO.	DESCRIPTION

LIST OF MATERIAL

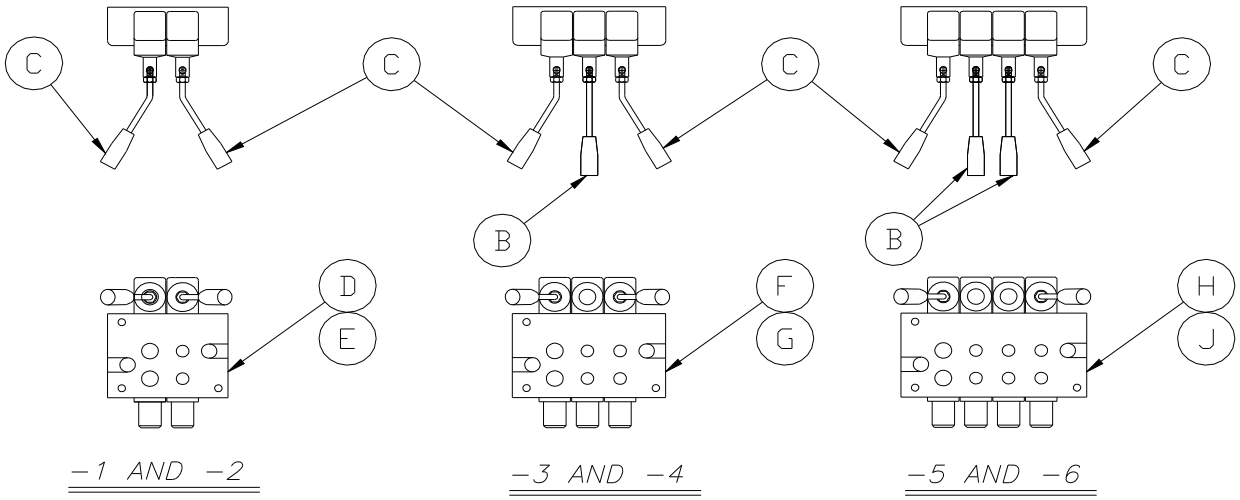
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ----

DWN. BY	DATE	TITLE
KCM	12/21/11	OUT & DOWN OUTRIGGER VALVE KIT
SIZE: A	SCALE: 1/8	
LOCATION	MANUAL: -	
SHEET: 1 OF 1	DWG. NO.: 39441-DWG	

REV. 1



–6	–5	–4	–3	–2	–1	ITEM	PART NO.	DESCRIPTION
1	–	–	–	–	–	J	54286-14	CONT'L VALVE W/ MICROSWITCH
–	1	–	–	–	–	H	54286-4	CONT'L VALVE
–	–	1	–	–	–	G	54286-13	CONT'L VALVE W/ MICROSWITCH
–	–	–	1	–	–	F	54286-3	CONT'L VALVE
–	–	–	–	1	–	E	54286-12	CONT'L VALVE W/ MICROSWITCH
–	–	–	–	–	1	D	54286-2	CONT'L VALVE
2	2	2	2	2	2	C	10212-2	HANDLE 15°
2	2	1	1	–	–	B	10212-1	HANDLE STRAIGHT
1	1	1	1	1	1	A	39440-DWG	DWG, CONTROL VALVE ASSEMBLY

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ----

DWN. BY: KCM
DATE: 12/21/11
SIZE: A
SCALE: 1/8
EST WT #:
MANUAL: –
SHEET: 1 OF 1

TITLE: CONTROL VALVE ASSEMBLY
DWG. NO.: 39440–DWG

SECTION 150

Dual Out and Down Interlock Kit (Option VK-1400-30)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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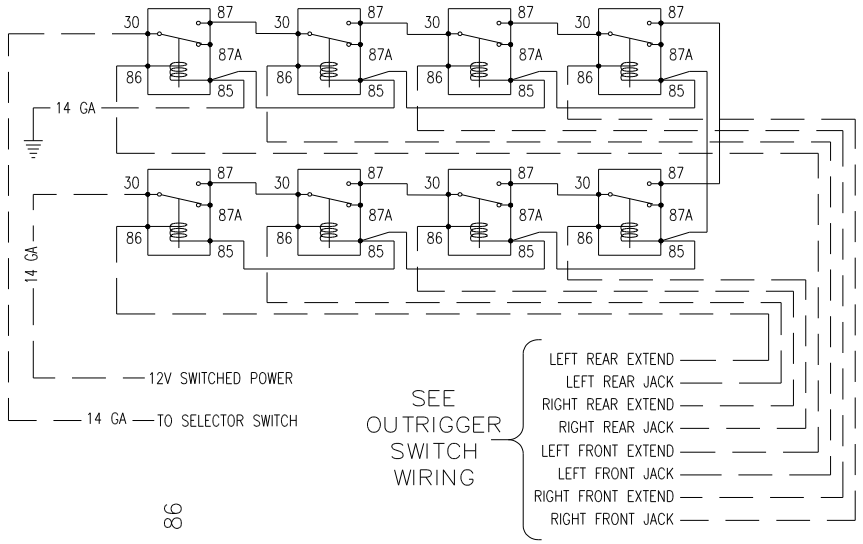
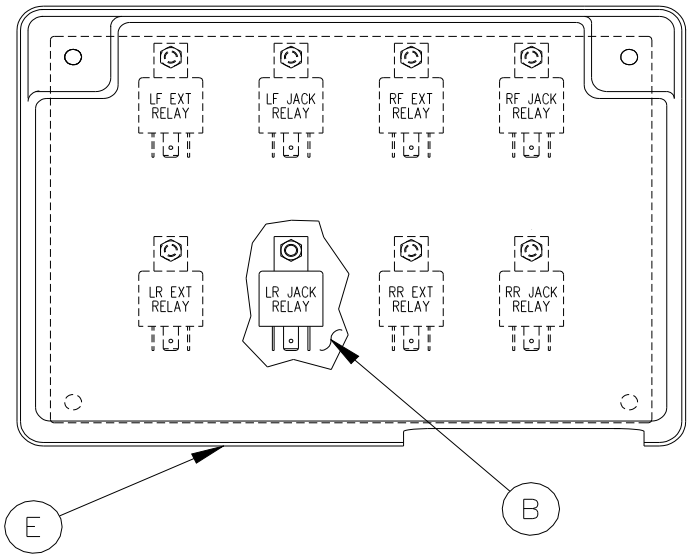
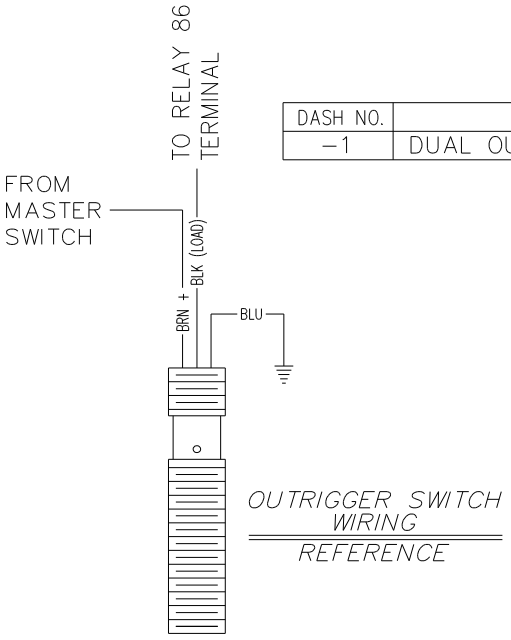
REV. B

WIRING DIAGRAM



* DASHED LINES UPFITTER INSTALLED





OUTRIGGER SWITCH WIRING
REFERENCE

DASH NO.	DESCRIPTION	OPTION
−1	DUAL OUT AND DOWN INTERLOCK KIT	VK−1400−30

* = ITEMS TO BE SHIPPED LOOSE
** = ITEMS NOT SHOWN

LIST OF MATERIAL

−1	QTY.	ITEM	PART NO.	DESCRIPTION
*	1	E	27677−1	START/STOP PANEL COVER
**	8	D	61020−6	FEMALE DISCONNECT 14−16 GA
**	3	C	61020−2	FEMALE DISCONNECT 18−22 GA
*	1	B	1000278−1	DUAL OUT & DOWN RELAY PANEL
*	1	A	1000279−DWG	INSTAL. DUAL OUT & DOWN INTERLOCK

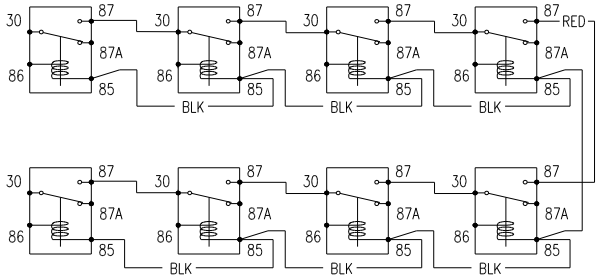
UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

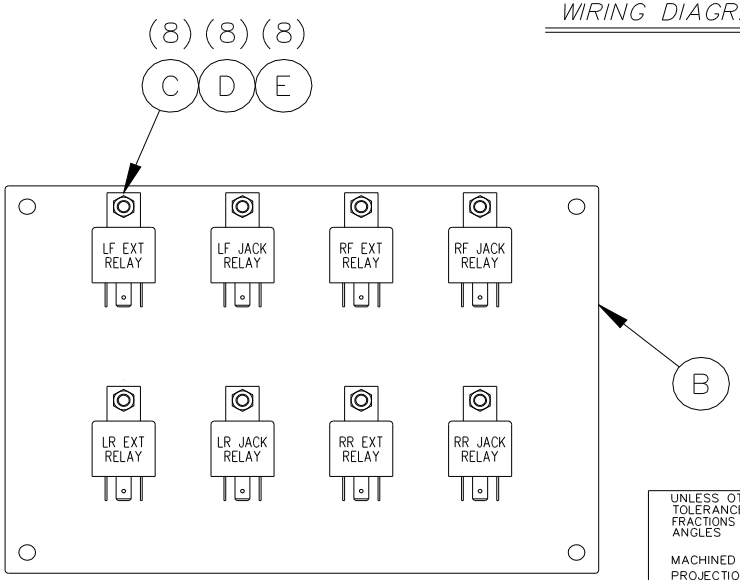
MATERIAL: SEE ABOVE		DWN. BY: REW	DATE: 04/05/12
FINISH: –––––		SIZE: A	SCALE: 1/3
		EST WT #:	MANUAL: –
		SHEET: 1 OF 1	DWG. NO.: 1000279−DWG

TITLE: INSTALLATION, DUAL OUT & DOWN INTERLOCK

REV. A



WIRING DIAGRAM



PANEL ASSEMBLY

∗ = ITEMS NOT SHOWN

-1

	QTY.	ITEM	PART NO.	DESCRIPTION
*	6	J	61020-4	FEMALE DISCONNECT (10-12 GA)
	2.5FT	H	61003-11-BLK	STANDARD COPPER WIRE (14 GA BLACK)
	2.5FT	G	61003-11-RED	STANDARD COPPER WIRE (14 GA RED)
*	16	F	61020-2	FEMALE DISCONNECT (14-16 GA)
	8	E	42005-17	LOCKNUT, 10-24NC HEX
	8	D	40014-3	SCREW, 10-24NC X 3/4 LG PPHMS
	8	C	68007-3	RELAY, SPDT 12VDC 15AMP
	1	B	1000275-1	PANEL
	1	A	1000278-DWG	DUAL OUT AND DOWN RELAY PANEL

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: -----

DWN. BY	DATE	TITLE
REW	04/05/12	DUAL OUT AND DOWN RELAY PANEL
SIZE: A	SCALE: 1/3	
EST WT #:	MANUAL: -	
SHEET: 1 OF 1		DWG. NO.: 1000278-DWG

SECTION 151

12V Outrigger/Lower Boom Interlock (Option VK-1400-32)

When ordering replacement parts, confirm the actual part number with the 'As Built Material List' located in the back of this manual. This list is arranged by option code to provide an easy method to locate part numbers.

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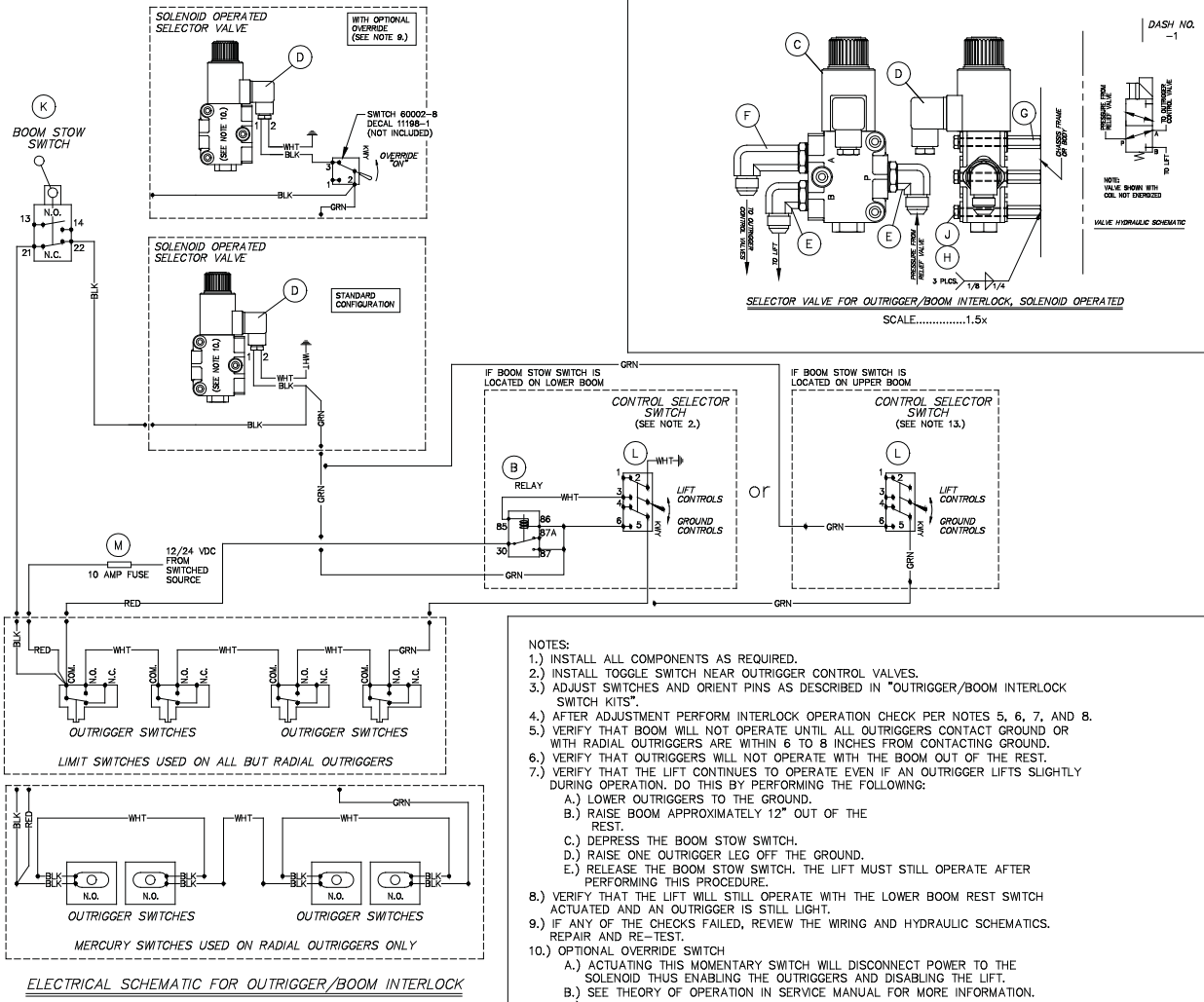


ELECTRICAL SCHEMATIC FOR OUTRIGGER/BOOM INTERLOCK

SELECTOR VALVE FOR OUTRIGGER/BOOM INTERLOCK, SOLENOID OPERATED

SCALE.....1.5x

DASH NO.	DESCRIPTION	CODE
-1	12V OUTRIGGER/LOWER BOOM INTERLOCK (SPECIAL)	VK-1400-32

NOTES:
1.) INSTALL ALL COMPONENTS AS REQUIRED.
2.) INSTALL TOGGLE SWITCH NEAR OUTRIGGER CONTROL VALVES.
3.) ADJUST SWITCHES AND ORIENT PINS AS DESCRIBED IN "OUTRIGGER/BOOM INTERLOCK SWITCH KITS".
4.) AFTER ADJUSTMENT PERFORM INTERLOCK OPERATION CHECK PER NOTES 5, 6, 7, AND 8.
5.) VERIFY THAT BOOM WILL NOT OPERATE UNTIL ALL OUTRIGGERS CONTACT GROUND OR WITH RADIAL OUTRIGGERS ARE WITHIN 6 TO 8 INCHES FROM CONTACTING GROUND.
6.) VERIFY THAT OUTRIGGERS WILL NOT OPERATE WITH THE BOOM OUT OF THE REST.
7.) VERIFY THAT THE LIFT CONTINUES TO OPERATE EVEN IF AN OUTRIGGER LIFTS SLIGHTLY DURING OPERATION. DO THIS BY PERFORMING THE FOLLOWING:
   A.) LOWER OUTRIGGERS TO THE GROUND.
   B.) RAISE BOOM APPROXIMATELY 12" OUT OF THE REST.
   C.) DEPRESS THE BOOM STOW SWITCH.
   D.) RAISE ONE OUTRIGGER LEG OFF THE GROUND.
   E.) RELEASE THE BOOM STOW SWITCH. THE LIFT MUST STILL OPERATE AFTER PERFORMING THIS PROCEDURE.
8.) VERIFY THAT THE LIFT WILL STILL OPERATE WITH THE LOWER BOOM REST SWITCH ACTUATED AND AN OUTRIGGER IS STILL LIGHT.
9.) IF ANY OF THE CHECKS FAILED, REVIEW THE WIRING AND HYDRAULIC SCHEMATICS. REPAIR AND RE-TEST.
10.) OPTIONAL OVERRIDE SWITCH
   A.) ACTUATING THIS MOMENTARY SWITCH WILL DISCONNECT POWER TO THE SOLENOID THUS ENABLING THE OUTRIGGERS AND DISABLING THE LIFT.
   B.) SEE THEORY OF OPERATION IN SERVICE MANUAL FOR MORE INFORMATION.
   C.) OVERRIDE PARTS ARE NOT INCLUDED.
11.) WHEN COIL IS DE-ENERGIZED HYDRAULIC FLOW IS TO OUTRIGGERS. WHEN COIL IS ENGERIZED HYDRAULIC FLOW IS TO THE LIFT.
12.) ALL WIRING IS 18GA. AND SUPPLIED BY INSTALLER.
13.) IF BOOM STOW IS LOCATED ON UPPER BOOM REST ITEM "B" IS NOT REQUIRED. GREEN WIRE FROM SOLENOID TO BE CONNECTED DIRECTLY TO TERMINAL TERMINAL 6 OF SELECTOR SWITCH AND RED WIRE TO TERMINAL 30 OF RELAY IS NOT REQUIRED.

*ITEMS TO SHIP LOOSE.

-1

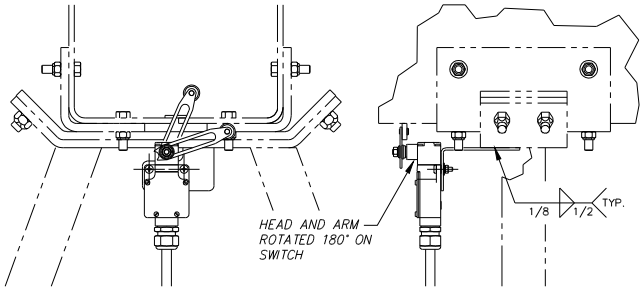
	QTY.	ITEM	PART NO.	DESCRIPTION
*	1	M	68004-1	FUSE AND HOLDER 10 AMP
*	1	L	60013-1	TOGGLE SWITCH (2 POS. MAINTAINED)
*	1	K	29997-1	BOOM LIMIT SWITCH INSTALLATION
*	3	J	44000-9	1/4 LOCK WASHER
*	3	H	40002-9	1/4-20NC X 2 LG HHCS
*	3	G	42021-8	COUPLING NUT 1/4 THD X 1 1/4
*	1	F	50101-8	SAE O-RING TO MALE JIC 90° ADJ. ELBOW
*	2	E	50011-4	#8 O-RING TO 1/2 JIC 90° ELBOW
*	1	D	62016-1	DIN 43650 FORM A UNWIRED CONN.
*	1	C	1001119-1	SOL. OPER. 3 WAY VALVE 12 VDC
*	1	B	68007-3	RELAY SPDT (12V)
*	1	A	1001547-DWG	DWG O/R SELECTOR VALVE KITS

LIST OF MATERIAL

UNLESS OTHERWISE NOTED: TOLERANCES: FRACTIONS ± 1/16, ANGLES ± 1°, DECIMALS .X ± .1, .XX ± .03, .XXX ± .005. MACHINED SURFACE FINISHES 125, PROJECTION OF VIEWS, ALL DIMENSIONS ARE IN INCHES.

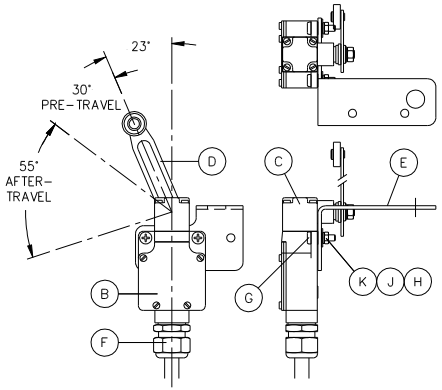
TIME MANUFACTURING COMPANY WACO TEXAS

MATERIAL: SEE ABOVE	DWN. BY: RPW	DATE: 8/26/13	TITLE: OUTRIGGER SELECTOR VALVE KITS
FINISH: -	SIZE: B	SCALE: 1/5.25	
	EST WT #: -	MANUAL: -	
	SHEET: 1 OF 1	DWG. NO.: 1001547-DWG	



SWITCH INSTALLATION

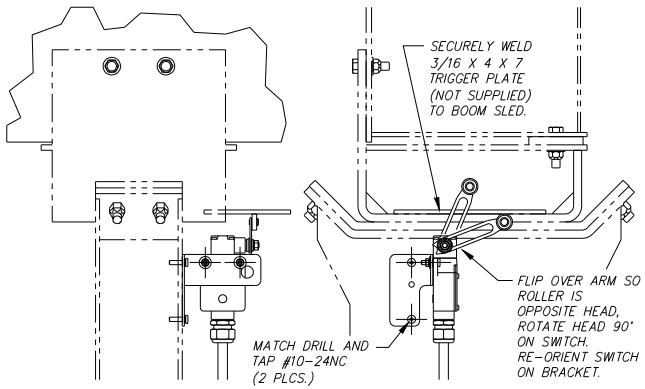
VO-42-MHI (SHOWN)
VN-55I (SIMILAR)



BASIC SWITCH ASSEMBLY

SCALE.....1.5X

NOTES:
1.) "BASIC SWITCH ASSEMBLY" IS PROVIDED AS A GENERAL ASSEMBLED CONFIGURATION. DEVIATIONS FROM THIS DETAIL ARE MENTIONED IN VARIOUS SWITCH INSTALLATIONS AS NEEDED.
2.) "SWITCH INSTALLATIONS" SHOW BOTH THE NON-ACTUATED AND ACTUATED SWITCH CONDITIONS. THE SWITCH IS TO BE MOUNTED SO THAT WHEN THE BOOM IS STOWED THE ADJUSTABLE ARM IS WELL INTO THE AFTER-TRAVEL RANGE.
3.) THE ADJUSTABLE ARM IS TO BE SET AT MAXIMUM REACH.
4.) SEE INTERLOCK INSTALLATION FOR WIRING SCHEMATIC.



SWITCH INSTALLATION

VO-255/260

* INDICATES PARTS TO BE SHIPPED LOOSE

-1

	QTY.	ITEM	PART NO.	DESCRIPTION
*	2	K	44002-3	#10 FLATWASHER
*	4	J	44000-7	#10 LOCKWASHER
*	2	H	42000-22	#10-24NC HEX NUT
*	4	G	40014-3	#10-24NC X 3/4 LG. PHMS
*	1	F	80031-7	STRAIN RELIEF 1/2 HUB (.375-.500)
*	1	E	29998-1	BRACKET, SWITCH MOUNTING
*	1	D	510390	ADJUSTABLE ARM - LONG
*	1	C	510370	OFFSET HEAD LIMIT SWITCH
*	1	B	510360	LIMIT SWITCH (BODY ONLY)
*	1	A	29997-DWG	BOOM LIMIT SWITCH INSTALLATION

LIST OF MATERIAL

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE LIST OF MATERIAL
FINISH: ---

DWN. BY	DATE
LBR	1-21-04

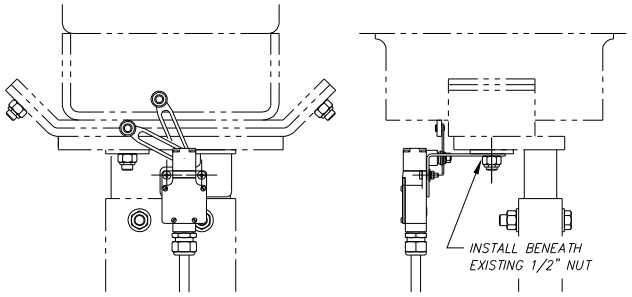
SIZE	SCALE
B	1=5.5

LOCATION	MANUAL
V	-

SHEET: 1 OF 2

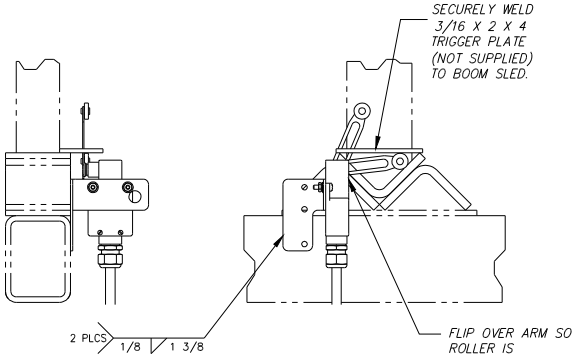
TITLE: BOOM LIMIT SWITCH INSTALLATION

DWG. NO.: 29997-DWG



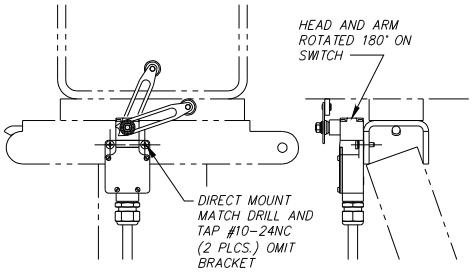
SWITCH INSTALLATION

VO-40-MHI, VO-43-I AND VST-7500I



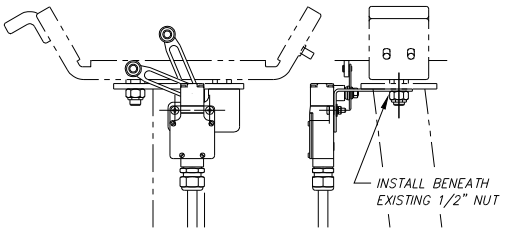
SWITCH INSTALLATION

TMD-2042/45/47/50-T/B



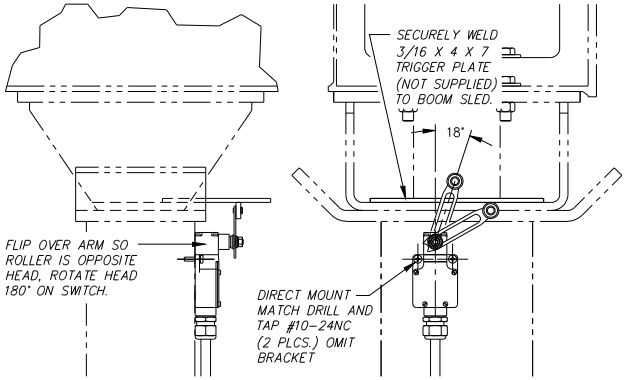
SWITCH INSTALLATION

VST-236/240/2900/3100
T-3100



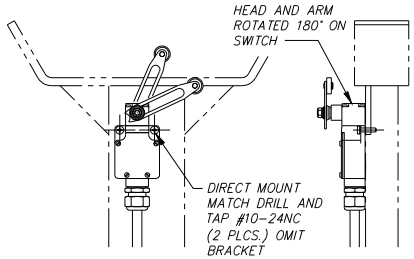
SWITCH INSTALLATION

SST-37/40, TEL,
VST-5000/5500/6000



SWITCH INSTALLATION

VO-350/355-MHI

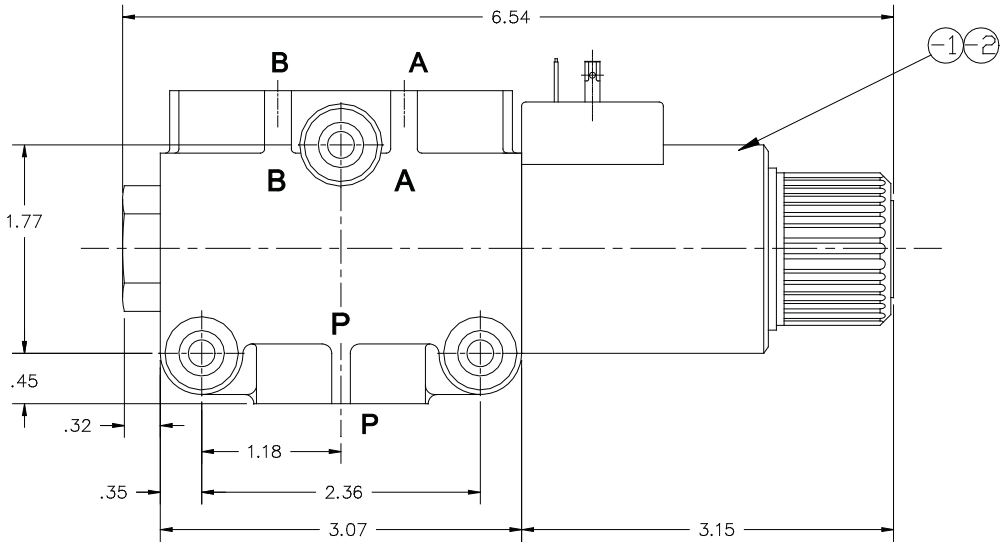


SWITCH INSTALLATION

VO-36-I/N

UNLESS OTHERWISE NOTED: TOLERANCES: DECIMALS; FRACTIONS ± 1/16 .X ± 1; ANGLES ± 1° .XX ± .03; .XXX ± .005; MACHINED SURFACE FINISHES= 125; PROJECTION OF VIEWS; ALL DIMENSIONS ARE IN INCHES	TIME MANUFACTURING COMPANY WACO TEXAS	DWN. BY LBR	DATE 1-21-04	TITLE BOOM LIMIT SWITCH INSTALLATION
		SIZE B	SCALE 1=5.5	
MATERIAL SEE PAGE 1		LOCATION V	MANUAL –	
FINISH ---		SHEET 2 OF 2		DWG. NO. 29997-DWG

REV. A



SERVICE PARTS				
ITEM	PART DESCRIPTION	SERVICE PART NO	-1 QTY	-1 QTY
1	12V COIL	Y3744	1	-
2	24V COIL	Y3745	-	1
3	SPOOL	Y3746	1	1

UNLESS OTHERWISE NOTED:
TOLERANCES: DECIMALS
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
.XXX ± .005
MACHINED SURFACE FINISHES= 125
PROJECTION OF VIEWS
ALL DIMENSIONS ARE IN INCHES

TIME MANUFACTURING COMPANY
WACO TEXAS

MATERIAL: SEE ABOVE
FINISH: ----

DWN. BY	DATE
KCM	03/01/13
SIZE	SCALE
B	1/1
EST WT #	MANUAL
	–
SHEET	
2 OF 2	

TITLE: SOLENOID OPERATED 3-WAY VALVE

DWG. NO. 1001119-SEE ABOVE

AS BUILT OPTIONS AND PARTS INDEX

This “As Built Options and Parts Index” includes a list of the components used in the production of this unit.

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As Built Option List

Assemblies:

Option	Description	Qty
BC-1280-2	Lower Boom Rest VST7500 w/Elevator	1.00
BC-1341-6	10 FT Elevator Auto Latch Installation	1.00
CA-1280-23	Capacity Option - with Jib and Winch VST-9000 with Lift Elevator	1.00
CB-6	Platform Cover 24"X48"	1.00
CC-1280-11	Airline Installation Truguard - VST9000 - on Lift Elevator VST9000	1.00
DE-1280-28	Decal Kit - 4 Axis Upr Ctrls - Truguard - Single Tool w/Jib & Winch on Single Lift Elevator VST7500/9000	1.00
DE-1280-29	Decal Placement - with Jib and Winch - Lift on Single Arm Lift Elevator - VST7500/9000 on Lift Elevator	1.00
DE-1341-5	Decal Placement - for Single Arm Lift Elevator - VST7500/9000E & VO350/450 on Lift Elevator	1.00
DE-1400-15	Decal Kit, 1 Set Out & Down (2 Spool w/Interlock)	1.00
E-1341-5	10 FT Single Arm Lift Elevator Assy VO350/450 VST7500/9000	1.00
EP-1340-4	Emergency Power Insulated 12VDC	1.00
ET-1280-1	Test Band Installation VST-7500	1.00
HK-1280-49	Hyd Jib Truguard Hose Kit VST-9000	1.00
HK-1280-69	Lower Boom Hose Kit - with Jib Winch - on Single Lift Elevator - VST9000	1.00
HK-1280-71	Inner Boom Hose Kit - with Jib Winch - on Single Lift Elevator - VST9000	1.00
HK-1280-72	Upper Cntrl Hose Kit - Truguard - on Single Lift Elevator - VST7500/9000	1.00
HK-1280-77	Single Arm Lift Elevator Hose Kit - 10FT Elevator with Jib and Winch VST7500/9000E & VO350/450E	1.00
HYD-1280-12	Tank Line Relief Installation VST7500I/SI VST9000I	1.00
HYD-1280-14	Lower Control Console - VST9000	1.00
HYD-1280-2	Cylinders VST-9000	1.00
HYD-1340-14	Chassis Hydraulics for Elevator VO350/450 Series	1.00
IB-1280-32	Inner Boom Assembly with Test Band VST-9000 Lift Elevator	1.00
JW-1270-15	Articulated Jib and Winch VST 1000 LB Max	1.00
KN-1280-1	Knuckle Assembly	1.00
LB-1280-4	Lower Boom Assembly VST-9000I	1.00
LT-1260-4	Lift Throttle Insulated	1.00
MH-1280-19	Upper Boom Tip Rest (48" Max)	1.00
MH-1280-5	Upper Boom Rest Installation VST-7500	1.00
MH-1280-7	Upper Boom Rest Install (Outer Upper)	1.00
MH-1400-23	Out and Down Outrigger Mounting Hardware VST7500I/9000I	1.00
MH-1400-23	Out and Down Outrigger Mounting Hardware VST7500I/9000I	1.00
OB-1280-4	Outer Boom Assembly VST-9000	1.00
PS-1280-2	Platform Support Assembly for Jib and Winch	1.00
PS-922	Platform Support (Approx 5 inch Max)	1.00
RO-1280-3	Continuous Rotation - 20 Pass - Single Lift Elevator - VST9000	1.00
RP-1200-4	7/16 Synthetic Rope X 115 FT Lg	1.00
SC-1280-50	4-Axis Truguard Upper Controls w/Hyd Jib & Winch - Single Tool on Single Lift Elevator - VST7500/9000	1.00
SD-1200-13	Slope Indicators (with Outriggers) English	1.00
SD-19	Body Harness X-Large and Lanyard +1	2.00
SK-1280-2	Lift Shipping Skid Assembly Standard	1.00
SK-1341-4	10FT Single Arm Lift Elevator Shipping Skid VST7500/9000E &VO350/450E	1.00
SS-60	Master Switch and Start/Stop (Ins) with 12V SST-37/40-EIH	1.00
TT-1280-4	Turret Assembly - Lift Elevator - Single Platform	1.00
VK-1400-27	Valve Kit 2 Sets Out & Down (4 Spool w/Switch)	1.00
VK-1400-30	Dual Out and Down Interlock Kit	1.00
VK-1400-32	12V Outrigger/Lower Boom Interlock (Special)	1.00

As Built Option List

VST-9000I	VST-9000I Base Bill	1.00

Materials:

Option	Description	Qty
34238-DWG	VST-8000/8500/9000-I	1.00
PAINT	STD Versalift White Paint	4.00
PRIMER-PAINT	PRIMER PAINT	4.00
22085-00	EMI Safety Manual	1.00
28093-01	Manual of Responsibility MRA92.2-2009	1.00
FB-1500-6	24X48X42 Right Hand Control 1 Step	1.00
OR-1400-60	Out and Down Outrigger Assy (Track Vehicle) VST7500I/9000I	1.00
OR-1400-60	Out and Down Outrigger Assy (Track Vehicle) VST7500I/9000I	1.00
28457-2	Collector Ring Assembly 3-Pass	1.00
39091-00	VST9000I/E Operator Manual	2.00
39092-00	VST9000I/E Custom Service Manual	2.00

As Built Material List

Option	Part	Description	Qty
BC-1280-2	1001593-1	Boom Rest Plate	1.00
BC-1280-2	1001596-DWG	Lower Boom Rest Installation	1.00
BC-1280-2	29242-1	Plate Boom Rest	1.00
BC-1280-2	29781-1	Riser Boom Rest	1.00
BC-1280-2	33998-1	Boom Rest Saddle B/W	1.00
BC-1280-2	40000-10	Socket Head Flat Head Screw	4.00
BC-1280-2	411	Pin Cap (Zinc Plated)	2.00
BC-1280-2	42005-5	NC Hex Locknut 1/2	6.00
BC-1280-2	8719-2	Pad Boom Rest	1.00
BC-1341-6	1005268-1	Slotted Latch (Batchweld) (Zinc Plated)	1.00
BC-1341-6	1005269-1	Pin Assembly 10901-2	1.00
BC-1341-6	1005270-1	Chamfered Landing Pad	2.00
BC-1341-6	1005270-2	Chamfered Landing Pad	1.00
BC-1341-6	1005452-1	Elevator Support (Batchweld)	1.00
BC-1341-6	1005453-DWG	Elevator Suprt Auto Latch Installation	1.00
BC-1341-6	31824-1	Latch Shim	4.00
BC-1341-6	31824-2	Latch Shim	2.00
BC-1341-6	40004-10	3/8 NC Hex Head Cap Screw	6.00
BC-1341-6	40004-3	3/8 NC Hex Head Cap Screw	1.00
BC-1341-6	40004-7	3/8 NC Hex Head Cap Screw	5.00
BC-1341-6	40004-9	3/8 NC Hex Head Cap Screw	4.00
BC-1341-6	42005-3	NC Hex Locknut 3/8	15.00
BC-1341-6	44013-4	Hardened Washer 3/4	1.00
BC-1341-6	44013-6	Hardened Washer 3/8	31.00
BC-1341-6	44016-1	Washer (Zinc Plated)	1.00
BC-1341-6	50011-1	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	1.00
BC-1341-6	58086-1	Hydraulic Latch LH-5000	1.00
BC-1341-6	88019-1	Steel Compression Spring	1.00
CA-1280-23	1005407-DWG	Capacity Options VST Lift Elevator	1.00
CA-1280-23	1005407-DWG	Capacity Options VST Lift Elevator	1.00
CA-1280-23	1005410-DWG	Stability Test VST-9000 w/Lift Elev	1.00
CA-1280-23	21858-1	Angle Indicator	1.00
CA-1280-23	21859-1	Pointer (Zinc Plated)	1.00
CA-1280-23	29818-3	Decal Platform Capacity (English)	1.00
CA-1280-23	32341-1	Decal Jib Cap Instruction	2.00
CA-1280-23	33604-1	Tape Boom Marking	23.00
CA-1280-23	35015-1	Decal Boom Material Handeling	1.00
CA-1280-23	35073-DWG	Indicator Installation VST-9000I	1.00
CA-1280-23	40002-6	1/4-NC Hex Head Cap Screws 1 1/4	1.00
CA-1280-23	40171-10	3/8-NC Fiber Flanged HD Cap Screw	2.00
CA-1280-23	42000-1	NC Hex Nuts	1.00
CA-1280-23	42005-1	NC Hex Locknut 1/4	1.00
CA-1280-23	44013-7	Hardened Washer 1/4	3.00
CA-1280-23	89187-2	Tape Reflective Red	17.50
CB-6	28662-4	Bucket Cover	1.00
CC-1280-11	1000144-DWG	Airline Installation Truguard	1.00
CC-1280-11	50147-1	1/8 Airline Union	6.00
CC-1280-11	55531-4	None Cond Hose Cover - Cover Only 4704NC-06	15.00
CC-1280-11	58036-1	1/8 Airline Bundle	111.00
CC-1280-11	68106-4	Heat Shrinkable Tubing	0.50
CC-1280-11	68135-1	Liquid Tight Strain Relief	1.00
CFG-VST9000E	22085-00	EMI Safety Manual	1.00
CFG-VST9000E	28093-01	Manual of Responsibility MRA92.2-2009	1.00

As Built Material List

Option	Part	Description	Qty
CFG-VST9000E	28457-2	Collector Ring Assembly 3-Pass	1.00
CFG-VST9000E	39091-00	VST9000I/E Operator Manual	2.00
CFG-VST9000E	39092-00	VST9000I/E Custom Service Manual	2.00
CFG-VST9000E	FB-1500-6	24X48X42 Right Hand Control 1 Step	1.00
CFG-VST9000E	OR-1400-60	Out and Down Outrigger Assy (Track Vehicle) VST7500I/9000I	1.00
CFG-VST9000E	OR-1400-60	Out and Down Outrigger Assy (Track Vehicle) VST7500I/9000I	1.00
DE-1280-28	1000658-DWG	4-Axis Decal Truguard	1.00
DE-1280-28	1000679-1	Decal Dielectric Test Point	2.00
DE-1280-28	1000682-1	Decal - Tools	1.00
DE-1280-28	1000682-2	Decal - Tools	1.00
DE-1280-28	1001298-1	Truguard Decal	1.00
DE-1280-28	1001344-8	Decal Upper Controls	1.00
DE-1280-28	1001485-3	Decal Truguard Fittings	1.00
DE-1280-28	12340-1	Decal Conductive Hoses	1.00
DE-1280-28	13144-1	Decal Caution Lowering Lower Boom	1.00
DE-1280-28	29806-1	Decal SS Upper Control RH	1.00
DE-1280-28	32851-1	Decal Platform Rotation	1.00
DE-1280-28	32855-1	Decal Platform Leveling	1.00
DE-1280-28	33363-1	Decal 4-Axis Single Stick Control	1.00
DE-1280-28	33974-1	Decal Danger	1.00
DE-1280-28	4542-4	Decal Danger	1.00
DE-1280-28	8285-1	Decal Emergency Stop	1.00
DE-1280-29	1000146-1	Decal Ret and Ext Inner Boom	1.00
DE-1280-29	1000147-1	Decal Lower and Raise Outer Boom	1.00
DE-1280-29	1000469-1	Decal - Upper and Lower Controls	1.00
DE-1280-29	1000470-1	Decal - Lower and Raise Lower Boom	1.00
DE-1280-29	1000472-1	Decal - CCW and CW Rotation	1.00
DE-1280-29	1000473-1	Decal - Lower and Raise Winch	1.00
DE-1280-29	1000474-1	Decal - Lower and Raise Platform Leveling	1.00
DE-1280-29	1005500-DWG	Decal Placement Lift for Single Arm Lift Elevator	1.00
DE-1280-29	1005500-DWG	Decal Placement Lift for Single Arm Lift Elevator	1.00
DE-1280-29	1005502-1	Decal - Lower and Raise Lift Elevator	1.00
DE-1280-29	11099-1	Data Plate Backing	1.00
DE-1280-29	12337-1	Decal Responsibilities	1.00
DE-1280-29	13144-1	Decal Caution Lowering Lower Boom	1.00
DE-1280-29	14014-1	Decal Platform Instruction	1.00
DE-1280-29	14110-1	Decal Electrocution Hazard	1.00
DE-1280-29	15732-1	Decal Emergency Lowering	3.00
DE-1280-29	16837-1	Decal Danger Inspection Holes	2.00
DE-1280-29	30593-1	Decal Lanyard Attachment	2.00
DE-1280-29	35409-1	Decal Danger Electrocution	1.00
DE-1280-29	426-011	Versalift Nameplate	2.00
DE-1280-29	4541-1	Decal Versalift (Small Black)	2.00
DE-1280-29	4541-2	Decal Versalift (Large Black)	2.00
DE-1280-29	4542-12	Decal Danger Qualified Operator	1.00
DE-1280-29	4542-12	Decal Danger Qualified Operator	1.00
DE-1280-29	4542-2	Danger Electro Decal	4.00
DE-1280-29	4542-4	Decal Danger	1.00
DE-1280-29	4542-5	Decal Caution	1.00
DE-1280-29	4542-5	Decal Caution	1.00
DE-1280-29	5098-1	Decal-Insulated Section	16.00
DE-1280-29	7500-1	Decal Holding Valve	3.00
DE-1280-29	7584-1	Decal Relief Adjustment	1.00
DE-1280-29	8928-1	Data Plate	1.00
DE-1341-5	1005501-DWG	Decal Plcmnt for Single Arm Lift Elevator	1.00

As Built Material List

Option	Part	Description	Qty
DE-1341-5	15732-1	Decal Emergency Lowering	1.00
DE-1341-5	34005-1	Decal Pinch Point	10.00
DE-1341-5	4541-2	Decal Versalift (Large Black)	2.00
DE-1341-5	7500-1	Decal Holding Valve	1.00
DE-1400-15	12341-1	Decal Outrigger Operation	2.00
DE-1400-15	39439-DWG	Out and Down Outrigger Decal Kit	1.00
DE-1400-15	39439-DWG	Out and Down Outrigger Decal Kit	1.00
DE-1400-15	4992-1	Decal Caution Outriggers	2.00
DE-1400-15	8773-1	Decal Ground Control Selector	1.00
DE-1400-15	8845-13	Decal- Outrigger Control	1.00
DE-1400-15	8845-14	Decal- Outrigger Control	1.00
E-1341-5	1000162-1	Pin 4 Dia (Chrome Plated)	1.00
E-1341-5	1000173-1	Hose Guide	1.00
E-1341-5	1000173-1	Hose Guide	2.00
E-1341-5	1000194-DWG	Upper Comp Link Assembly	2.00
E-1341-5	1000195-3	Upper Comp Link Weldment	2.00
E-1341-5	1000212-1	Bearing	2.00
E-1341-5	1000213-DWG	Upper Arm Assembly	1.00
E-1341-5	1000214-DWG	Upper Arm Weldment with Bearing	1.00
E-1341-5	1000215-3	Upper Arm Weldment	1.00
E-1341-5	1000225-1	Roller Shaft (Zinc Plated)	4.00
E-1341-5	1000226-1	Roller Tube	4.00
E-1341-5	1000227-1	Bearing	2.00
E-1341-5	1000897-1	Pedestal Cover - Plastic (Clear)	3.00
E-1341-5	1000897-1	Pedestal Cover - Plastic (Clear)	1.00
E-1341-5	1005433-DWG	Elevator Base Assembly	1.00
E-1341-5	1005434-DWG	Base Weldment with Bearings	1.00
E-1341-5	1005435-1	Elevator Base Weldment	1.00
E-1341-5	1005446-DWG	Pedestal Assembly	1.00
E-1341-5	1005447-DWG	Pedestal Weldment with Bearings	1.00
E-1341-5	1005448-1	Pedestal Weldment	1.00
E-1341-5	1005455-1	PVC Tube 4.215 X 4.056	1.00
E-1341-5	1005456-1	PVC Tube SDR 21	1.00
E-1341-5	1005457-DWG	10 FT Lift Elevator Assembly	1.00
E-1341-5	1005457-DWG	10 FT Lift Elevator Assembly	1.00
E-1341-5	10226-2	Pivot Spacer	2.00
E-1341-5	22184-2	Pin Assembly	1.00
E-1341-5	22184-8	Pin Assembly	1.00
E-1341-5	31705-1	Pin Cap (Zinc Plated)	2.00
E-1341-5	40003-11	5/16 NC Hex Head Cap Screw	4.00
E-1341-5	40003-12	5/16 NC Hex Head Cap Screw	2.00
E-1341-5	40003-3	5/16 NC Hex Head Cap Screw	8.00
E-1341-5	40004-5	3/8 NC Hex Head Cap Screw	8.00
E-1341-5	40004-5	3/8 NC Hex Head Cap Screw	2.00
E-1341-5	40004-5	3/8 NC Hex Head Cap Screw	2.00
E-1341-5	40004-5	3/8 NC Hex Head Cap Screw	2.00
E-1341-5	40007-21	5/8 NC Hex Head Cap Screws	1.00
E-1341-5	40007-5	5/8 NC Hex Head Cap Screws	4.00
E-1341-5	40007-5	5/8 NC Hex Head Cap Screws	1.00
E-1341-5	40007-5	5/8 NC Hex Head Cap Screws	1.00
E-1341-5	40007-5	5/8 NC Hex Head Cap Screws	1.00
E-1341-5	40007-6	5/8 NC Hex Head Cap Screws	4.00
E-1341-5	40076-12	5/16-18 Taptite Screw 3/4"	4.00
E-1341-5	40104-12	3/4 NC Hex HD Cap Screw Grade 8	24.00
E-1341-5	40177-1	Wing Screw 5/16-18NC	12.00

As Built Material List

Option	Part	Description	Qty
E-1341-5	42005-2	NC Hex Locknut 5/16	2.00
E-1341-5	42005-2	NC Hex Locknut 5/16	4.00
E-1341-5	42005-3	NC Hex Locknut 3/8	4.00
E-1341-5	42005-3	NC Hex Locknut 3/8	4.00
E-1341-5	42005-7	NC Hex Locknut 5/8	1.00
E-1341-5	44000-10	Helical Spring Lock Washers	8.00
E-1341-5	44013-1	Hardened Washer 5/8	4.00
E-1341-5	44013-1	Hardened Washer 5/8	1.00
E-1341-5	44013-1	Hardened Washer 5/8	1.00
E-1341-5	44013-1	Hardened Washer 5/8	5.00
E-1341-5	44013-4	Hardened Washer 3/4	24.00
E-1341-5	44013-5	Hardened Washer 5/16 (Plated)	4.00
E-1341-5	44013-5	Hardened Washer 5/16 (Plated)	10.00
E-1341-5	44013-6	Hardened Washer 3/8	8.00
E-1341-5	44013-6	Hardened Washer 3/8	2.00
E-1341-5	44013-6	Hardened Washer 3/8	6.00
E-1341-5	44013-6	Hardened Washer 3/8	4.00
E-1341-5	48068-1	Slotted Rivet Nut	4.00
E-1341-5	53067-1	Arm Cylinder - Upper Arm	1.00
	Lot No: 527-PRIOR		
E-1341-5	8065-1	Washer (Zinc Plated)	4.00
E-1341-5	8065-1	Washer (Zinc Plated)	1.00
E-1341-5	8065-1	Washer (Zinc Plated)	1.00
E-1341-5	8065-1	Washer (Zinc Plated)	1.00
E-1341-5	8076-8	Pin Assembly	4.00
E-1341-5	8076-8	Pin Assembly	1.00
E-1341-5	8441-8	Bearing	2.00
E-1341-5	8441-8	Bearing	2.00
E-1341-5	8712-1	Spacer Hose	2.00
E-1341-5	8712-4	Hose Spacer	2.00
E-1341-5	8783-1	Retainer Hose (Zinc Plated)	2.00
E-1341-5	8783-2	Retainer Hose (Zinc Plated)	2.00
EP-1340-4	1000926-DWG	Emergency Power Installation (Insulated)	1.00
EP-1340-4	1000926-DWG	Emergency Power Installation (Insulated)	1.00
EP-1340-4	10274-1	Decal Emergency Power	1.00
EP-1340-4	10310-1	Decal Emergency Power	1.00
EP-1340-4	12596-1	Air Switch Boot	1.00
EP-1340-4	28889-1	Motor Pump Assembly 12V DC	1.00
EP-1340-4	3051-2	Switch Guard	1.00
EP-1340-4	4383-1	Air Cylinder D-38606-A/1.06NSRWS01.5	1.00
EP-1340-4	50065-1	90 Tubing Connector	1.00
EP-1340-4	50105-1	Tubing Connector	1.00
EP-1340-4	54268-6	Check Valve In-Line 4 GPM	1.00
EP-1340-4	60002-8	One Pole Standard Toggle Switch	1.00
EP-1340-4	60015-1	Pressure Switch	1.00
EP-1340-4	61003-11-WHT	14GA Stranded Copper Wire (WHITE)	2.00
EP-1340-4	61007-2-BLK	Welding Cable (BLACK)	2.00
EP-1340-4	61007-2-RED	Welding Cable (RED)	10.00
EP-1340-4	68034-11	Solenoid	1.00
EP-1340-4	68046-5	Ring Terminal for Cable	7.00
EP-1340-4	68144-2	Fuse Holder with Clear Cover (DELTEC NFB)	1.00
EP-1340-4	68144-3	300 AMP Fuse (BUSS ANN300)	1.00
EP-1340-4	68176-3	Terminal Insulator	2.00
EP-1340-4	80000-3	Knob	1.00
ET-1280-1	15723-1	Metering Plate Assembly	1.00

As Built Material List

Option	Part	Description	Qty
ET-1280-1	29873-1	Hose Support (Zinch Plated)	1.00
ET-1280-1	32491-DWG	Test Band Installation VST-7500	1.00
ET-1280-1	32960-1	Hose Support (Zinc Plated)	1.00
ET-1280-1	40002-1	1/4-NC Hex Head Cap Screws 1/2	2.00
ET-1280-1	40002-6	1/4-NC Hex Head Cap Screws 1 1/4	1.00
ET-1280-1	40014-6	10-24NC Pan Phillips Head Machined Screw	2.00
ET-1280-1	42005-1	NC Hex Locknut 1/4	2.00
ET-1280-1	42005-17	NC Hex Locknut NO 10	2.00
ET-1280-1	42023-1	1/4-20 Coupling Nut 1-3/4"	1.00
ET-1280-1	44013-7	Hardened Washer 1/4	2.00
ET-1280-1	5444-10	Coaxial Cable Assy 14"	4.00
ET-1280-1	5444-2	COAXIAL CABLE ASSY. 27"	1.00
ET-1280-1	7875-2	Spacer	2.00
ET-1280-1	80032-14	Hose Clamp	2.00
ET-1280-1	80032-5	Hose Clamp 7/16 to 1	1.00
HK-1280-49	1000865-DWG	Hose Kit Jib	1.00
HK-1280-49	10238-102	1/4 Hose Assy W/Swivel Ends Non-Cond	2.00
HK-1280-49	10905-15	1/4" Hose Assembly w/1 Swivel End and 1 M Jic End	2.00
HK-1280-49	26306-26	1/8 Hose Assy W/1/4 FM SW Ends Non-Cond	4.00
HK-1280-49	29833-1	Bracket Bulkhead (Zinc Plated)	1.00
HK-1280-49	40004-2	3/8 NC Hex Head Cap Screw	2.00
HK-1280-49	44013-6	Hardened Washer 3/8	2.00
HK-1280-49	48013-2	Cable Ties	2.00
HK-1280-49	48013-8	Cable Tie	2.00
HK-1280-49	48013-9	Cable Tie	2.00
HK-1280-49	50056-1	Bulkhead Nut	6.00
HK-1280-49	50078-1	Male JIC to Female Swivel JIC 45 Deg Elbow	6.00
HK-1280-49	50090-3	Quick Disconnect 1/4-18 Female	3.00
HK-1280-49	50159-4	Quick Disconnect Nipple (Male)	3.00
HK-1280-49	50220-1	Male Bulkhead Connector (MPTF/UN/UNF-2A)	6.00
HK-1280-49	89201-12	Hose Protective Cover	1.00
HK-1280-69	1005404-DWG	Lower Boom Hose Kit - on Lift Elevator	1.00
HK-1280-69	10238-77	1/4 Hose Assy W/Swivel Ends Non-Cond	1.00
HK-1280-69	10238-80	1/4 Hose Assy W/Swivel Ends Non-Cond	2.00
HK-1280-69	10905-62	1/4 Hose Assy w/1 Swivel End and 1 M JIC End	2.00
HK-1280-69	11450-15	1/4 Hose Assembly with Swivel Ends	1.00
HK-1280-69	11450-21	1/4 Hose Assembly with Swivel Ends	1.00
HK-1280-69	3864-171	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-69	3864-186	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-69	3864-51	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-69	4532-94	1/2 Hydraulic Hose Assembly Non-Cond	1.00
HK-1280-69	50004-3	Jic Swivel 90 Elbow	2.00
HK-1280-69	50009-14	Male SAE O-Ring to Male JIC Adapter	1.00
HK-1280-69	50009-4	Male SAE O-Ring to Male JIC Adapter	1.00
HK-1280-69	50011-14	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	4.00
HK-1280-69	50056-3	Bulkhead Nut	1.00
HK-1280-69	50056-4	Bulkhead Nut	1.00
HK-1280-69	50057-3	Bulkhead Jic Union Elbow	1.00
HK-1280-69	50057-4	Bulkhead JIC Union Elbow	1.00
HK-1280-69	50074-4	Male SAE O-Ring to Male JIC 45 deg Elbow	2.00
HK-1280-69	50075-3	Branch Tee Female Swivel JIC	1.00
HK-1280-69	50075-4	Branch Tee Female Swivel JIC	1.00
HK-1280-69	50077-3	JIC Tee	2.00
HK-1280-69	50114-3	1/2 TO 3/8 JIC Reducer	3.00
HK-1280-69	55664-8	1/4 Hose Assy Male Jic to Female Jic	2.00

As Built Material List

Option	Part	Description	Qty
HK-1280-69	55689-1	3/8 ID Hose Assy	2.00
HK-1280-69	6580-104	5/16 Hose Assy w 3/8 Ends Non-Cond	2.00
HK-1280-69	6580-129	5/16 Hose Assy w 3/8 Ends Non-Cond	2.00
HK-1280-69	6580-131	5/16 Hose Assy w 3/8 Ends Non-Cond	1.00
HK-1280-69	6580-132	5/16 Hose Assy w 3/8 Ends Non-Cond	1.00
HK-1280-69	8798-140	3/8 Hose Assembly (Non-Cond)	2.00
HK-1280-69	8798-141	3/8 Hose Assembly (Non-Cond)	2.00
HK-1280-69	8798-142	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-69	8798-83	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-69	8798-84	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-69	8798-90	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-69	8799-64	1/2 Hose Assembly (Non-Cond)	1.00
HK-1280-69	8799-67	1/2 Hose Assembly (Non-Cond)	2.00
HK-1280-69	89088-25	Hose Protective Cover	2.00
HK-1280-69	89088-3	Hose Protective Cover	1.00
HK-1280-69	89106-10	Hose Protective Cover	1.00
HK-1280-69	89106-2	Hose Protective Cover	1.00
HK-1280-69	89201-5	Hose Protective Cover	1.00
HK-1280-69	89201-9	Hose Protective Cover	1.00
HK-1280-69	89237-4	Hose Protective Cover 8.02 ID	2.00
HK-1280-71	1005405-DWG	Hose Kit - Inner Boom on Lift Elevator	1.00
HK-1280-71	10905-45	1/4 Hose Assy w/1 Swivel End and 1 M JIC End	2.00
HK-1280-71	15048-2	1/4 Tube Assy (Inside)	2.00
HK-1280-71	15049-2	3/8 Tube Assy	10.00
HK-1280-71	32334-1	U-Tube 1/2 OD 170 DEG Bend	3.00
HK-1280-71	55664-7	1/4 Hose Assy Male Jic to Female Jic	2.00
HK-1280-71	8798-102	3/8 Hose Assembly (Non-Cond)	6.00
HK-1280-71	8798-82	3/8 Hose Assembly (Non-Cond)	4.00
HK-1280-71	8799-61	1/2 Hose Assembly (Non-Cond)	3.00
HK-1280-72	1000143-DWG	Hose Kit Upper Cntrl Truguard on Lift Elevator	1.00
HK-1280-72	11450-7	1/4 Hose Assembly with Swivel Ends	2.00
HK-1280-72	26306-14	1/8 Hose Assy w/1/4 FM SW End	1.00
HK-1280-72	26306-15	1/8 Hose Assy w/1/4 FM SW Ends	1.00
HK-1280-72	50011-1	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	1.00
HK-1280-72	50074-1	Male SAE O-Ring to Male JIC 45 deg Elbow	1.00
HK-1280-72	50078-1	Male JIC to Female Swivel JIC 45 Deg Elbow	1.00
HK-1280-72	55664-4	1/4 Hose Assy Male Jic to Female Jic	2.00
HK-1280-72	55665-3	1/2 Hose Assembly 1/2 M JIC to 3/8 F SN	2.00
HK-1280-72	55665-4	1/2 Hose Assembly 1/2 M JIC to 3/8 F SN	1.00
HK-1280-72	8798-10	3/8 Hose Assembly (Non Cond)	1.00
HK-1280-72	8798-106	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-72	8798-124	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-72	8798-56	3/8 Hose Assembly (Non Cond)	1.00
HK-1280-72	8798-59	3/8 Hose Assembly (Non Cond)	1.00
HK-1280-72	8798-60	3/8 Hose Assembly (Non Cond)	1.00
HK-1280-72	8798-67	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-72	8798-91	3/8 Hose Assembly (Non-Cond)	1.00
HK-1280-72	8798-98	3/8 Hose Assembly (Non-Cond)	2.00
HK-1280-72	89088-22	Hose Protective Cover	1.00
HK-1280-72	89088-7	Hose Protective Cover	1.00
HK-1280-72	89164-3	Hose Protective Cover (105)	2.00
HK-1280-77	1005492-DWG	Single Arm Lift Elevator Hose Kit	1.00
HK-1280-77	10424-2	Handle Upper Control Valve	1.00
HK-1280-77	17656-13	1/2" HOSE ASSY 136"	2.00

As Built Material List

Option	Part	Description	Qty
HK-1280-77	17656-39	1/2 Hyd Hose w 1/2 F JIC Swivel	2.00
HK-1280-77	48013-5	Cable Ties	1.00
HK-1280-77	50004-4	JIC Swivel 90 Deg Elbow	2.00
HK-1280-77	50011-4	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	2.00
HK-1280-77	50077-4	JIC Tee	2.00
HK-1280-77	50114-3	1/2 TO 3/8 JIC Reducer	2.00
HK-1280-77	55670-17	3/16 Hydraulic Hose Assy w/1/4 JIC Ends	2.00
HK-1280-77	55676-10	1/4 Hydraulic Hose Ass'y w/1/4 JIC Ends	2.00
HK-1280-77	55700-11	3/8 ID Hose Assembly	4.00
HK-1280-77	55700-12	3/8 ID Hose Assembly	4.00
HK-1280-77	55700-13	3/8 ID Hose Assembly	2.00
HK-1280-77	55701-3	5/8 ID Hose Assembly	3.00
HK-1280-77	61025-1	14/5 Electrical Wire	26.00
HK-1280-77	89201-9	Hose Protective Cover	1.00
HYD-1280-12	1001392-DWG	Tank Line Relief Installation	1.00
HYD-1280-12	26306-4	1/8 Hose Assy w/1/4 FM SW End	1.00
HYD-1280-12	50004-1	JIC Swivel 90 Elbow	1.00
HYD-1280-12	50048-1	JIC Tee w/Swivel Nut on Run	2.00
HYD-1280-12	50114-2	JIC to JIC Reducer	2.00
HYD-1280-12	50157-1	Restrictor Adapter	1.00
HYD-1280-14	1000139-DWG	Lower Control Console Valve Assy	1.00
HYD-1280-14	1000140-DWG	Lower Control Console Assembly	1.00
HYD-1280-14	1000140-DWG	Lower Control Console Assembly	1.00
HYD-1280-14	1000235-1	Control Console (Batchwleld)	1.00
HYD-1280-14	1000240-1	Console Cover (Plastic)	1.00
HYD-1280-14	1001769-1	Lower Control Valve Bracket	1.00
HYD-1280-14	10424-11	Handle Upper Control Valve	1.00
HYD-1280-14	10424-2	Handle Upper Control Valve	6.00
HYD-1280-14	40002-11	1/4-NC Hex Head Cap Screws 2 1/2"	6.00
HYD-1280-14	40004-7	3/8 NC Hex Head Cap Screw	2.00
HYD-1280-14	40076-12	5/16-18 Taptite Screw 3/4"	4.00
HYD-1280-14	42005-1	NC Hex Locknut 1/4	6.00
HYD-1280-14	42005-3	NC Hex Locknut 3/8	2.00
HYD-1280-14	42032-1	Nut U Type	4.00
HYD-1280-14	44013-6	Hardened Washer 3/8	4.00
HYD-1280-14	44013-7	Hardened Washer 1/4	12.00
HYD-1280-14	50009-15	Male SAE O-Ring to Male JIC Adapter	2.00
HYD-1280-14	50009-3	Male SAE O-Ring to Male JIC Adapter	10.00
HYD-1280-14	50009-4	Male SAE O-Ring to Male JIC Adapter	4.00
HYD-1280-14	50011-4	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	1.00
HYD-1280-14	50081-3	SAE O-Ring Plug	2.00
HYD-1280-14	50081-4	SAE O-Ring Plug	1.00
HYD-1280-14	50155-1	Adapter Valvoil	1.00
HYD-1280-14	50180-3	Straight Thrd O-Ring to Straight Thrd O-Ring	1.00
HYD-1280-14	54176-4	Lower Control Valve (Open Center)	1.00
HYD-1280-14	54422-1	Lower Control Valve (Single Spool)	1.00
HYD-1280-2	32378-DWG	Cylinder Assembly	1.00
HYD-1280-2	53007-1	Cylinder Slave Leveling (Red Primer)	1.00
	Lot No: 527-100080683-53007-1		
HYD-1280-2	53010-1	Cylinder Assembly Boom Lift	1.00
	Lot No: 1134-100087014-53010-1		
HYD-1280-2	53011-1	Cylinder Master Leveling	1.00
	Lot No: 1134-100087014-53035-1		
HYD-1280-2	53036-1	Cylinder Boom Extension	1.00
	Lot No: 527-100082859-53036-1		

As Built Material List

Option	Part	Description	Qty
HYD-1280-2	53045-1	Cylinder Assembly Boom Lift	1.00
	Lot No: 527-100083690-53045-1		
HYD-1340-14	1000727-DWG	Chassis Hydraulics with Elevator VO350/450	1.00
HYD-1340-14	54070-1	Check Valve	2.00
HYD-1340-14	54239-1	Relief Valve	1.00
IB-1280-32	1001190-2	Hose Track	1.00
IB-1280-32	1001191-1	Mounting Bracket Hose Trough (Zinc Plated)	2.00
IB-1280-32	1005400-DWG	Inner Boom Assembly	1.00
IB-1280-32	26009-1	U-Bolt Spacer (Zinc Plated)	1.00
IB-1280-32	32244-1	Extension Cylinder Wear Pad	2.00
IB-1280-32	32252-1	Cover Inspection	3.00
IB-1280-32	32252-2	Cover Inspection	1.00
IB-1280-32	32253-1	Mount Bracket Cylinder Rod (Zinc Plated)	1.00
IB-1280-32	32352-1	Wear Pad	8.00
IB-1280-32	34188-2	Inner Boom Fiberglass Glue Assembly	1.00
IB-1280-32	40000-27	Socket Head Flat Head Screw	4.00
IB-1280-32	40000-3	Socket Head Flat Head Screw	8.00
IB-1280-32	40000-37	Socket Head Flat Head Screw	4.00
IB-1280-32	40002-1	1/4-NC Hex Head Cap Screws 1/2	16.00
IB-1280-32	40004-21	3/8" NC HEX HEAD CS	2.00
IB-1280-32	40006-15	1/2 NC Hex Head Cap Screws	3.00
IB-1280-32	40006-6	1/2-NC Head Cap Screw	6.00
IB-1280-32	40083-1	Button HD Hex Socket Capscrew	4.00
IB-1280-32	42000-2	NC Hex Nuts	4.00
IB-1280-32	42000-3	NC Hex Nuts	2.00
IB-1280-32	42002-3	NC Hex Jam Nuts	2.00
IB-1280-32	42005-2	NC Hex Locknut 5/16	4.00
IB-1280-32	42005-3	NC Hex Locknut 3/8	4.00
IB-1280-32	42005-5	NC Hex Locknut 1/2	9.00
IB-1280-32	44013-3	Hardened Washer 1/2	18.00
IB-1280-32	44013-5	Hardened Washer 5/16 (Plated)	4.00
IB-1280-32	44013-6	Hardened Washer 3/8	10.00
IB-1280-32	44013-7	Hardened Washer 1/4	16.00
IB-1280-32	8712-3	Spacer Hose	1.00
JW-1270-15	1000500-1	Safety Pin	3.00
JW-1270-15	10024-2	Bearing	4.00
JW-1270-15	10024-3	Bearing	6.00
JW-1270-15	10788-1	Drum Winch	1.00
JW-1270-15	10866-1	Winch Hydraulic	1.00
JW-1270-15	11446-1	Decal Danger Jib and Winch Proper Use	1.00
JW-1270-15	11753-7	Pin Assembly 27666-7	7.00
JW-1270-15	34087-1	Jib Extension	1.00
JW-1270-15	34736-1	Pointer (Plastic)	2.00
JW-1270-15	35120-1	Sheave Adapter (Machined)	1.00
JW-1270-15	35126-1	Jib Winch Glue Assembly (Batch)	1.00
JW-1270-15	35136-1	Upper Link (Batchweld)	1.00
JW-1270-15	35139-1	Lower Link	2.00
JW-1270-15	35140-1	Cover Winch -	1.00
JW-1270-15	35140-2	Cover Winch -	1.00
JW-1270-15	35141-1	Cover Arm -	1.00
JW-1270-15	35141-2	Cover Arm -	1.00
JW-1270-15	35142-1	Cover Jib Turret (RH) -	1.00
JW-1270-15	35143-1	Cover Jib Turret (LH) -	1.00
JW-1270-15	35145-1	Jib Arm (Batchweld)	1.00

As Built Material List

Option	Part	Description	Qty
JW-1270-15	35146-1	Jib Turret (Batchweld)	1.00
JW-1270-15	35153-1	Decal Jib Capacity	2.00
JW-1270-15	35154-1	Decal Danger Moving Jib	1.00
JW-1270-15	35155-1	Decal Caution Jib Stow	1.00
JW-1270-15	35156-1	Decal Danger Jib Pins	1.00
JW-1270-15	35157-DWG	Jib Assembly Articulated	1.00
JW-1270-15	35158-DWG	Articulated Jib and Winch VST	1.00
JW-1270-15	35378-1	Decal Danger Entanglement	2.00
JW-1270-15	40002-2	1/4-NC Hex Head Cap Screws 5/8	2.00
JW-1270-15	40002-4	1/4-NC Hex Head Cap Screws 7/8"	2.00
JW-1270-15	40003-5	5/16 NC Hex Head Cap Screw	4.00
JW-1270-15	40004-2	3/8 NC Hex Head Cap Screw	14.00
JW-1270-15	40006-6	1/2-NC Head Cap Screw	2.00
JW-1270-15	40083-7	Button HD Hex Socket Capscrew	1.00
JW-1270-15	40171-10	3/8-NC Fiber Flanged HD Cap Screw	16.00
JW-1270-15	42002-1	NC Hex Jam Nuts	2.00
JW-1270-15	42005-1	NC Hex Locknut 1/4	2.00
JW-1270-15	42005-1	NC Hex Locknut 1/4	2.00
JW-1270-15	42043-1	Weld Nut Dual Tapped	3.00
JW-1270-15	44000-13	Helical Spring Lock Washers	2.00
JW-1270-15	44013-5	Hardened Washer 5/16 (Plated)	4.00
JW-1270-15	44013-6	Hardened Washer 3/8	14.00
JW-1270-15	44013-7	Hardened Washer 1/4	4.00
JW-1270-15	44016-1	Washer (Zinc Plated)	7.00
JW-1270-15	45002-30	Clevis Pin	1.00
JW-1270-15	45002-46	Clevis Pin	2.00
JW-1270-15	45013-3	Lock Pin (CL-12-BLPT-4.50)	2.00
JW-1270-15	48013-2	Cable Ties	5.00
JW-1270-15	48013-8	Cable Tie	2.00
JW-1270-15	48013-9	Cable Tie	2.00
JW-1270-15	50011-26	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	2.00
JW-1270-15	50090-3	Quick Disconnect 1/4-18 Female	3.00
JW-1270-15	50159-4	Quick Disconnect Nipple (Male)	3.00
JW-1270-15	53046-1	Cylinder Jib Tilt	1.00
	Lot No: 1134-100086804-53046-1		
JW-1270-15	53047-1	Cylinder Jib Extend	1.00
	Lot No: 1134-100087492-53047-1		
JW-1270-15	55651-4	1/8 Hose Assy w/ 1/4 SN and MP End Non Cond	2.00
JW-1270-15	55651-5	1/8 Hose Assy w/ 1/4 SN and MP End Non Cond	2.00
JW-1270-15	55652-3	1/4 Hose Assy 1/4 Male Pipe 3/8 Fem Swl End	2.00
JW-1270-15	56000-12	Hydraulic Motor	1.00
JW-1270-15	71020-1	Sheave	1.00
JW-1270-15	72007-16	Sintered Bronze Bearing	1.00
JW-1270-15	72011-12	Flange Bearing	1.00
JW-1270-15	72022-4	Machinery Bushing	4.00
JW-1270-15	87000-16	Line Support Clamp	2.00
JW-1270-15	87013-1	Jib Rope Retaining Clip	1.00
JW-1270-15	89088-13	Hose Protective Cover	3.00
KN-1280-1	10035-1	Leveling System Relief Valve	1.00
KN-1280-1	10226-1	Pivot Spacer	2.00
KN-1280-1	11724-5	Pin Assembly 12649-13	1.00
KN-1280-1	11821-1	Pedestal Cover	2.00
KN-1280-1	32272-1	Knuckle Weldment	1.00
KN-1280-1	32347-DWG	Knuckle Assembly	1.00
KN-1280-1	32349-DWG	LEVELING RELIEF VALVE ASSY	1.00

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Option	Part	Description	Qty
KN-1280-1	32350-1	Pin Leveling (Chrome Plated)	1.00
KN-1280-1	40002-1	1/4-NC Hex Head Cap Screws 1/2	8.00
KN-1280-1	40003-11	5/16 NC Hex Head Cap Screw	2.00
KN-1280-1	40004-13	3/8 NC Hex Head Cap Screw	1.00
KN-1280-1	40004-3	3/8 NC Hex Head Cap Screw	1.00
KN-1280-1	40004-7	3/8 NC Hex Head Cap Screw	8.00
KN-1280-1	40006-5	1/2-NC Head Cap Screw	3.00
KN-1280-1	42005-2	NC Hex Locknut 5/16	2.00
KN-1280-1	42005-3	NC Hex Locknut 3/8	4.00
KN-1280-1	44013-3	Hardened Washer 1/2	3.00
KN-1280-1	44013-5	Hardened Washer 5/16 (Plated)	4.00
KN-1280-1	44013-6	Hardened Washer 3/8	11.00
KN-1280-1	44016-4	Special Flat Washer (Zinc Plated)	1.00
KN-1280-1	50004-1	JIC Swivel 90 Elbow	2.00
KN-1280-1	50011-1	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	2.00
KN-1280-1	50011-14	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	1.00
KN-1280-1	50114-1	3/8"TO 1/4" JIC Reducer	1.00
KN-1280-1	50163-1	Tee (JIC) with O-Ring on Run	2.00
KN-1280-1	5531-1	Pin Washer (Zinc Plated)	3.00
KN-1280-1	8546-15	Pin Assembly 12616-9	1.00
KN-1280-1	8546-2	Pin Assembly 12616-1	1.00
KN-1280-1	8546-9	Pin Assembly 12616-5	1.00
LB-1280-4	10226-1	Pivot Spacer	2.00
LB-1280-4	11904-1	Pin Cap (Zinc Plated)	1.00
LB-1280-4	15698-1	Cover Boom	4.00
LB-1280-4	19194-1	Upper Boom Wear Pad	6.00
LB-1280-4	19195-1	5/16 Upper Boom Wear Pad	2.00
LB-1280-4	32273-DWG	Lower Boom Assembly with Bearings	1.00
LB-1280-4	32274-4	Glue Assembly Lower Boom	1.00
LB-1280-4	32291-DWG	Comp Link Assembly with Bearings	1.00
LB-1280-4	32292-4	Glue Assembly Comp Link	1.00
LB-1280-4	32308-1	Cover Boom End	1.00
LB-1280-4	34427-DWG	Lower Boom and Comp Link Assembly VST-8000I	1.00
LB-1280-4	40000-16	Socket Head Flat Head Screw	1.00
LB-1280-4	40000-3	Socket Head Flat Head Screw	16.00
LB-1280-4	40002-1	1/4-NC Hex Head Cap Screws 1/2	8.00
LB-1280-4	40003-3	5/16 NC Hex Head Cap Screw	4.00
LB-1280-4	40004-5	3/8 NC Hex Head Cap Screw	12.00
LB-1280-4	40006-5	1/2-NC Head Cap Screw	5.00
LB-1280-4	40076-8	5/16-18 Tapite Screw 1/2"	14.00
LB-1280-4	40109-7	3/8-16NC HHC (St Steel)	2.00
LB-1280-4	42003-3	Castle Nut 3/8"NF	4.00
LB-1280-4	42005-2	NC Hex Locknut 5/16	16.00
LB-1280-4	42032-1	Nut U Type	4.00
LB-1280-4	44000-11	Helical Spring Lock Washers	2.00
LB-1280-4	44013-3	Hardened Washer 1/2	5.00
LB-1280-4	44013-5	Hardened Washer 5/16 (Plated)	16.00
LB-1280-4	44013-6	Hardened Washer 3/8	16.00
LB-1280-4	5531-1	Pin Washer (Zinc Plated)	5.00
LB-1280-4	8526-6	Bearing	4.00
LB-1280-4	8526-6	Bearing	4.00
LB-1280-4	8546-15	Pin Assembly 12616-9	1.00
LB-1280-4	8546-2	Pin Assembly 12616-1	4.00
LB-1280-4	8546-9	Pin Assembly 12616-5	1.00
LB-1280-4	8698-1	Inspection Cover	7.00

As Built Material List

Option	Part	Description	Qty
LT-1260-4	10273-1	Decal Throttle	1.00
LT-1260-4	10308-1	Decal Throttle Control	1.00
LT-1260-4	12596-1	Air Switch Boot	1.00
LT-1260-4	21880-DWG	Lift Throttle Insulated Drawing	1.00
LT-1260-4	3051-2	Switch Guard	1.00
LT-1260-4	4383-1	Air Cylinder D-38606-A/1.06NSRWS01.5	1.00
LT-1260-4	50065-1	90 Tubing Connector	1.00
LT-1260-4	50105-1	Tubing Connector	1.00
LT-1260-4	60002-7	One Pole Standard Toggle Switch	1.00
LT-1260-4	60015-1	Pressure Switch	1.00
LT-1260-4	61003-11-WHT	14GA Stranded Copper Wire (WHITE)	1.00
LT-1260-4	80000-3	Knob	1.00
MH-1280-19	1001536-1	Century Link Boom Rest Gusset Plate	2.00
MH-1280-19	1005460-DWG	Upper Boom Tip Rest Installation	1.00
MH-1280-19	1005460-DWG	Upper Boom Tip Rest Installation	1.00
MH-1280-19	1005461-1	Boom Rest Support Plate	1.00
MH-1280-19	1005462-1	Heavy Duty Boom Rest Assembly	1.00
MH-1280-19	10271-3	Boom Support Tube	1.00
MH-1280-19	12865-1	Flat (Zinc Plated)	1.00
MH-1280-19	22342-1	Boom Rest	1.00
MH-1280-19	8993-3	Boom Tie Down Strap Assy	1.00
MH-1280-5	1005499-1	Boom Rest Back Plate (Zinc Plated)	1.00
MH-1280-5	12865-1	Flat (Zinc Plated)	1.00
MH-1280-5	22342-1	Boom Rest	1.00
MH-1280-5	32338-1	Boom Rest (Batchweld)	1.00
MH-1280-5	32871-DWG	Upper Boom Rest Installation VST-7500	1.00
MH-1280-5	32871-DWG	Upper Boom Rest Installation VST-7500	1.00
MH-1280-5	40006-9	1/2-NC Head Cap Screw	3.00
MH-1280-5	42005-2	NC Hex Locknut 5/16	2.00
MH-1280-5	42005-5	NC Hex Locknut 1/2	3.00
MH-1280-5	42005-5	NC Hex Locknut 1/2	2.00
MH-1280-5	44013-3	Hardened Washer 1/2	6.00
MH-1280-5	8993-3	Boom Tie Down Strap Assy	1.00
MH-1280-7	20907-1	Upper Boom Tie Down Pad	1.00
MH-1280-7	34327-1	Boom Rest Assembly	1.00
MH-1280-7	34330-DWG	Upper Boom Rest Installation	1.00
MH-1280-7	40002-5	1/4-NC Hex Head Cap Screws 1"	2.00
MH-1280-7	44013-7	Hardened Washer 1/4	2.00
MH-1400-23	1005292-1	Outrigger Shear Plate	2.00
MH-1400-23	1005292-1	Outrigger Shear Plate	2.00
MH-1400-23	1005294-1	Shear Plate (Batchweld)	2.00
MH-1400-23	1005294-1	Shear Plate (Batchweld)	2.00
MH-1400-23	1005295-1	Shear Plate	2.00
MH-1400-23	1005295-1	Shear Plate	2.00
MH-1400-23	1005296-1	Subframe Extension Side	2.00
MH-1400-23	1005296-1	Subframe Extension Side	2.00
MH-1400-23	1005297-1	Subframe Extension Plate	1.00
MH-1400-23	1005297-1	Subframe Extension Plate	1.00
MH-1400-23	1005297-2	Subframe Extension Plate	1.00
MH-1400-23	1005297-2	Subframe Extension Plate	1.00
MH-1400-23	1005298-DWG	Outrigger Mounting Hardware	1.00
MH-1400-23	1005298-DWG	Outrigger Mounting Hardware	1.00
MH-1400-23	31278-1	Plate Center Shear	2.00

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Option	Part	Description	Qty
MH-1400-23	31278-1	Plate Center Shear	2.00
MH-1400-23	31278-2	Plate Center Shear	2.00
MH-1400-23	31278-2	Plate Center Shear	2.00
MH-1400-23	40104-11	3/4 NC Hex HD Cap Screw Grade 8	16.00
MH-1400-23	40104-11	3/4 NC Hex HD Cap Screw Grade 8	16.00
MH-1400-23	42027-8	Prevailing Torque NC Hex Locknut Grd C	16.00
MH-1400-23	42027-8	Prevailing Torque NC Hex Locknut Grd C	16.00
MH-1400-23	44013-4	Hardened Washer 3/4	32.00
MH-1400-23	44013-4	Hardened Washer 3/4	32.00
OB-1280-4	11695-2	Slide Pad Assy	6.00
OB-1280-4	20976-1	Cover Mounting Bracket (Batchweld) (Zinc Plated)	1.00
OB-1280-4	32251-1	Wear Pad Outer Boom	1.00
OB-1280-4	32306-1	Pin Extension Cylinder 1 1/4 Dia (Chrome Plated)	1.00
OB-1280-4	32357-1	Shim Slide Pad (Galv)	26.00
OB-1280-4	34347-1	Lower Hose Cover Outer Boom	1.00
OB-1280-4	34425-3	Outer Boom Weldment	1.00
OB-1280-4	34426-DWG	Outer Boom Assembly	1.00
OB-1280-4	34430-1	Outer Boom Front Hose Cover -	1.00
OB-1280-4	40002-1	1/4-NC Hex Head Cap Screws 1/2	4.00
OB-1280-4	40004-12	3/8 NC Hex Head Cap Screw	2.00
OB-1280-4	40083-11	Button HD Hex Socket Capscrew	4.00
OB-1280-4	42002-3	NC Hex Jam Nuts	4.00
OB-1280-4	42005-3	NC Hex Locknut 3/8	2.00
OB-1280-4	42025-3	Acorn Nut	8.00
OB-1280-4	44000-9	Helical Spring Lock Washers	4.00
OB-1280-4	44013-6	Hardened Washer 3/8	16.00
OB-1280-4	44013-7	Hardened Washer 1/4	4.00
OB-1280-4	4536-4	Spacer (Zinc Plated)	1.00
OB-1280-4	8264-7	Bolt Outrigger Cover	2.00
OB-1280-4	8526-6	Bearing	2.00
PS-1280-2	10144-2	Pin Assembly 12649-2	1.00
PS-1280-2	10144-5	Pin Assembly 12649-15	2.00
PS-1280-2	13517-1	Polyethylene Bolt Cover	18.00
PS-1280-2	32210-1	Lower Support (Batch Weld)	1.00
PS-1280-2	32216-1	Upper Support (Batchweld)	1.00
PS-1280-2	32217-1	Rotary Actuator L20 -8.2	1.00
PS-1280-2	32218-1	End Cover Bucket Mount -	1.00
PS-1280-2	32219-1	Bucket Mount Side Cover -	2.00
PS-1280-2	32220-1	Cover Rotator -	1.00
PS-1280-2	32221-1	Cover Boom Tip -	1.00
PS-1280-2	32352-1	Wear Pad	1.00
PS-1280-2	32358-DWG	Platform Support Assembly	1.00
PS-1280-2	35095-1	Slave Cylinder Cover -	1.00
PS-1280-2	35098-1	Boom Support (Batchweld)	1.00
PS-1280-2	35099-DWG	Boom Support Installation	1.00
PS-1280-2	35104-1	Spacer (Zinc Plated)	4.00
PS-1280-2	40000-13	Socket Head Flat Head Screw	2.00
PS-1280-2	40004-13	3/8 NC Hex Head Cap Screw	3.00
PS-1280-2	40004-3	3/8 NC Hex Head Cap Screw	13.00
PS-1280-2	40004-5	3/8 NC Hex Head Cap Screw	15.00
PS-1280-2	40004-8	3/8 NC Hex Head Cap Screw	2.00
PS-1280-2	40075-29	1NC Hex Head Cap Screw	1.00
PS-1280-2	40083-16	Button HD Hex Socket Capscrew	4.00
PS-1280-2	40104-14	3/4 NC Hex HD Cap Screw Grade 8	4.00
PS-1280-2	40111-4	3/8-NC Hex Head Cap Screw GR 8	8.00

As Built Material List

Option	Part	Description	Qty
PS-1280-2	42005-10	NC Hex Locknut 1"	1.00
PS-1280-2	42005-3	NC Hex Locknut 3/8	4.00
PS-1280-2	42005-8	NC Hex Locknut 3/4	4.00
PS-1280-2	44013-2	Hardened Washer 1"	1.00
PS-1280-2	44013-4	Hardened Washer 3/4	8.00
PS-1280-2	44013-6	Hardened Washer 3/8	43.00
PS-1280-2	44016-4	Special Flat Washer (Zinc Plated)	3.00
PS-1280-2	4536-3	Spacer (Zinc Plated)	3.00
PS-1280-2	661930-037	Stat O Seal	8.00
PS-922	12872-1	Tube	1.00
PS-922	12873-1	Strap	1.00
PS-922	14172-DWG	Platform Support Installation	1.00
PS-922	40004-7	3/8 NC Hex Head Cap Screw	2.00
PS-922	42005-3	NC Hex Locknut 3/8	2.00
RO-1280-3	1000116-1	Rotary Joint 20 Pass	1.00
RO-1280-3	1000136-DWG	Rotary Joint Assembly 20 Pass	1.00
RO-1280-3	1000136-DWG	Rotary Joint Assembly 20 Pass	1.00
RO-1280-3	1000232-1	Drive Strap (Zinc Plated)	1.00
RO-1280-3	1005411-DWG	Rotary Joint Assembly 20Pass	1.00
RO-1280-3	40003-5	5/16 NC Hex Head Cap Screw	2.00
RO-1280-3	40004-13	3/8 NC Hex Head Cap Screw	3.00
RO-1280-3	40006-11	1/2-NC Head Cap Screw	2.00
RO-1280-3	42005-3	NC Hex Locknut 3/8	3.00
RO-1280-3	44000-10	Helical Spring Lock Washers	2.00
RO-1280-3	44013-6	Hardened Washer 3/8	3.00
RO-1280-3	50004-1	JIC Swivel 90 Elbow	1.00
RO-1280-3	50009-1	Male SAE O-Ring to Male JIC Adapter	4.00
RO-1280-3	50009-3	Male SAE O-Ring to Male JIC Adapter	8.00
RO-1280-3	50011-1	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	4.00
RO-1280-3	50011-14	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	4.00
RO-1280-3	50011-3	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	8.00
RO-1280-3	50011-4	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	6.00
RO-1280-3	50045-1	Jic Cap	9.00
RO-1280-3	50045-3	JIC Cap	20.00
RO-1280-3	50045-4	Jic Cap	10.00
RO-1280-3	50048-3	JIC Tee w/Swivel Nut on Run	1.00
RO-1280-3	50081-4	SAE O-Ring Plug	6.00
RO-1280-3	50114-2	JIC to JIC Reducer	1.00
RO-1280-3	80001-6	Grommet	1.00
RP-1200-4	89105-9	Rope Assembly	1.00
SC-1280-50	1000263-1	Control Valve Cover -	1.00
SC-1280-50	1000277-1	Truguard Gasket	1.00
SC-1280-50	1000479-1	Tool Power Cover Bracket (Lower) (Zinc Plated)	1.00
SC-1280-50	1000489-1	1/4 Tube Assy (Double Lock Lower)	1.00
SC-1280-50	1000490-1	1/4 Tube Assy (Double Lock Upper)	1.00
SC-1280-50	1000491-1	1/4 Tube Assy (Aux Valve Inner)	3.00
SC-1280-50	1000492-1	1/4 Tube Assy (Aux Valve Outer)	3.00
SC-1280-50	1000493-1	3/8 Tube Assy Main Control Valve Inner	5.00
SC-1280-50	1000494-1	3/8 Tube Assy Main Control Valve Outer	5.00
SC-1280-50	1000496-1	1/4 Tube Assy Dbl Lock to Ctrl Vlv Inner	1.00
SC-1280-50	1000497-1	1/4 Tube Assy Dbl Lock to Ctrl Vlv Outer	1.00
SC-1280-50	1000654-1	Truguard Mounting Plate (Aluminum)	1.00
SC-1280-50	1000656-DWG	Upr Accessory Valve Assembly Truguard	1.00
SC-1280-50	1000671-5	Custom SAE Straight Thread Fitting	18.00

As Built Material List

Option	Part	Description	Qty
SC-1280-50	1000671-6	Custom SAE Straight Thread Fitting	14.00
SC-1280-50	1000671-7	Custom SAE Straight Thread Fitting	8.00
SC-1280-50	1000671-8	Custom SAE Straight Thread Fitting	6.00
SC-1280-50	1000672-DWG	Truguard Assembly	1.00
SC-1280-50	1000691-DWG	Truguard Dielectric Test Setup	1.00
SC-1280-50	1000702-1	Control Panel (Batchweld) (Aluminum)	1.00
SC-1280-50	1000706-DWG	Sngl Stick Ctrl Valve Assembly Truguard	1.00
SC-1280-50	1000781-1	Tool Power Cover -	1.00
SC-1280-50	1000782-1	Tool Power Mouting Plate (Aluminum)	1.00
SC-1280-50	1000785-1	1/2 Tube Assembly Accessory Valve (RH)	1.00
SC-1280-50	1000789-1	1/2 Tube Assy Tool Return	1.00
SC-1280-50	1000790-1	1/2 Tube Assy Power Beyond	1.00
SC-1280-50	1000791-1	1/2 Tube Assy Tool Return	1.00
SC-1280-50	1000792-1	1/2 Tube Assy Tool Pressure	1.00
SC-1280-50	1000803-1	Tool Power Bracket (Top) (Zinc Plated	1.00
SC-1280-50	1001093-1	Hose Guide (Batchweld)	1.00
SC-1280-50	1001326-2	3/8 Tube Assy Accy Valve Inner	1.00
SC-1280-50	1001327-2	3/8 Tube Assy Accy Valve Outer	1.00
SC-1280-50	1001603-1	Truguard Manifold	1.00
SC-1280-50	10024-7	Bearing	1.00
SC-1280-50	1005406-DWG	4-Axis Truguard Upper Ctrls	1.00
SC-1280-50	10424-10	Handle Upper Control Valve	3.00
SC-1280-50	10424-16	Handle Upper Control Valve	1.00
SC-1280-50	11032-1	Knob Control Handle	2.00
SC-1280-50	12301-2	Knob Locking	2.00
SC-1280-50	12735-1	Spacer	8.00
SC-1280-50	13109-3	3/8-16NC Threaded Rod (40034-5)	1.00
SC-1280-50	13152-1	Handle Rotation	1.00
SC-1280-50	13159-6	1/2 Hydraulic Tube 0 Deg Assembly	1.00
SC-1280-50	16681-1	Handle (Rotation) Bent	1.00
SC-1280-50	17656-26	1/2 Hyd Hose w 1/2 F JIC Swivel	1.00
SC-1280-50	20903-DWG	Aluminum 4-Axis Assembly	1.00
SC-1280-50	26398-DWG	Check Valve Assembly	1.00
SC-1280-50	26777-1	Roller Thrust Bearing Washer (Stainless Steel)	1.00
SC-1280-50	29796-DWG	Upper Access Valve Assembly	1.00
SC-1280-50	29805-DWG	Selector Valve Assembly	1.00
SC-1280-50	33362-1	Boot 4 Axis Single Stick Control	1.00
SC-1280-50	33367-1	Trigger Link Plate (Zinc Plated)	2.00
SC-1280-50	33371-2	Lock Handle Ctrl Brkt (Zinc Plated)	1.00
SC-1280-50	33373-1	Trigger Link	1.00
SC-1280-50	33378-2	Rotation Arm Link (Zinc Plated)	1.00
SC-1280-50	33380-1	Valve Actuator Bar (Zinc Plated)	1.00
SC-1280-50	33382-1	Trigger Push Rod	1.00
SC-1280-50	33383-1	Trigger Link Cam (Zinc Plated)	2.00
SC-1280-50	33390-1	Four Axis Base Plate Batch Weld (Zinc Plated)	1.00
SC-1280-50	33391-1	Plastic Boot Backing Plate	1.00
SC-1280-50	33396-5	1/2 Tube Assy Accessory Valve (RH)	1.00
SC-1280-50	34053-2	Locking Knob Upper	1.00
SC-1280-50	34057-1	Locking Knob Tip (Zinc Plated)	1.00
SC-1280-50	34058-2	Locking Handle Sleeve	1.00
SC-1280-50	34059-3	Knob	1.00
SC-1280-50	34060-2	Handle Rod (Zinc Plated)	1.00
SC-1280-50	34140-DWG	Hr Locking Lever Sub Assembly Drawing	1.00
SC-1280-50	34141-DWG	Hr Locking Lever Assembly Drawing	1.00
SC-1280-50	34945-1	4-Axis Handle Body (Machined)	1.00
SC-1280-50	34946-1	4-Axis Control Body	1.00

As Built Material List

Option	Part	Description	Qty
SC-1280-50	34947-1	4-Axis Control Handle	1.00
SC-1280-50	34948-1	4-Axis Trigger (Machined)	1.00
SC-1280-50	34958-1	Handle Rotation (Batchweld)	1.00
SC-1280-50	40002-10	1/4-NC Hex Head Cap Screws 2 1/4	1.00
SC-1280-50	40002-2	1/4-NC Hex Head Cap Screws 5/8	6.00
SC-1280-50	40002-3	1/4-NC Hex Head Cap Screws 3/4	1.00
SC-1280-50	40002-6	1/4-NC Hex Head Cap Screws 1 1/4	1.00
SC-1280-50	40002-9	1/4-NC Hex Head Cap Screws 2	2.00
SC-1280-50	40003-11	5/16 NC Hex Head Cap Screw	3.00
SC-1280-50	40003-13	5/16 NC Hex Head Cap Screw	3.00
SC-1280-50	40003-18	5/16 NC Hex Head Cap Screw	3.00
SC-1280-50	40003-2	5/16 NC Hex Head Cap Screw	2.00
SC-1280-50	40004-23	3/8 NC Hex Head Cap Screw	3.00
SC-1280-50	40004-5	3/8 NC Hex Head Cap Screw	5.00
SC-1280-50	40004-6	3/8 NC Hex Head Cap Screw	4.00
SC-1280-50	40031-1	1/4-20NC Flat Philips Head Cap Screw -1/2	2.00
SC-1280-50	40041-2	3/8 U-Bolt	1.00
SC-1280-50	40070-6	1/4 - NC Socket Head Cap Screw 1 1/4	1.00
SC-1280-50	40070-7	1/4 - NC Socket Head Cap Screw 1 1/2	10.00
SC-1280-50	40070-7	1/4 - NC Socket Head Cap Screw 1 1/2	3.00
SC-1280-50	40070-8	1/4 - NC Socket Head Cap Screw 1 3/4	1.00
SC-1280-50	40083-4	Button HD Hex Socket Capscrew	2.00
SC-1280-50	40116-1	5/16 Dia Shoulder Bolt	2.00
SC-1280-50	40116-2	5/16 Dia Shoulder Bolt	1.00
SC-1280-50	40125-5	5/6NF Socket Head Cap Screw	2.00
SC-1280-50	40171-10	3/8-NC Fiber Flanged HD Cap Screw	10.00
SC-1280-50	40201-1	Metric Button HD Hex Socket Capscrew	5.00
SC-1280-50	42000-1	NC Hex Nuts	7.00
SC-1280-50	42000-3	NC Hex Nuts	10.00
SC-1280-50	42001-1	NF Hex Nuts	9.00
SC-1280-50	42001-2	NF Hex Nuts	1.00
SC-1280-50	42005-1	NC Hex Locknut 1/4	14.00
SC-1280-50	42005-2	NC Hex Locknut 5/16	9.00
SC-1280-50	42005-3	NC Hex Locknut 3/8	5.00
SC-1280-50	42007-1	Thin NC Hex Nylon Locknut	2.00
SC-1280-50	42008-1	Thin NF Hex Nylon Locknut	1.00
SC-1280-50	42008-2	Thin NF Hex Nylon Locknut	1.00
SC-1280-50	42014-1	Metric Hex Nut 10 mm - 1.50 mm	2.00
SC-1280-50	42014-3	Metric Hex Nut 8mm -1.25mm	1.00
SC-1280-50	42025-2	Acorn Nut	1.00
SC-1280-50	44000-10	Helical Spring Lock Washers	2.00
SC-1280-50	44000-11	Helical Spring Lock Washers	5.00
SC-1280-50	44010-1	Nylon Flatwasher	2.00
SC-1280-50	44013-5	Hardened Washer 5/16 (Plated)	11.00
SC-1280-50	44013-5	Hardened Washer 5/16 (Plated)	1.00
SC-1280-50	44013-6	Hardened Washer 3/8	19.00
SC-1280-50	44013-7	Hardened Washer 1/4	18.00
SC-1280-50	44037-2	UHMW Polyethyline Washer	2.00
SC-1280-50	45002-31	Clevis Pin	6.00
SC-1280-50	45003-2	Cotter Pins	6.00
SC-1280-50	45008-1	Roll Pin	2.00
SC-1280-50	45008-28	Roll Pin	1.00
SC-1280-50	50004-1	JIC Swivel 90 Elbow	2.00
SC-1280-50	50004-1	JIC Swivel 90 Elbow	4.00
SC-1280-50	50004-3	Jic Swivel 90 Elbow	14.00
SC-1280-50	50004-3	Jic Swivel 90 Elbow	1.00

As Built Material List

Option	Part	Description	Qty
SC-1280-50	50004-4	JIC Swivel 90 Deg Elbow	1.00
SC-1280-50	50004-4	JIC Swivel 90 Deg Elbow	2.00
SC-1280-50	50004-4	JIC Swivel 90 Deg Elbow	1.00
SC-1280-50	50004-4	JIC Swivel 90 Deg Elbow	1.00
SC-1280-50	50009-1	Male SAE O-Ring to Male JIC Adapter	2.00
SC-1280-50	50009-15	Male SAE O-Ring to Male JIC Adapter	6.00
SC-1280-50	50009-15	Male SAE O-Ring to Male JIC Adapter	2.00
SC-1280-50	50009-3	Male SAE O-Ring to Male JIC Adapter	2.00
SC-1280-50	50009-3	Male SAE O-Ring to Male JIC Adapter	10.00
SC-1280-50	50009-4	Male SAE O-Ring to Male JIC Adapter	1.00
SC-1280-50	50009-4	Male SAE O-Ring to Male JIC Adapter	2.00
SC-1280-50	50011-1	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	2.00
SC-1280-50	50011-4	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	2.00
SC-1280-50	50011-4	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	2.00
SC-1280-50	50011-4	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	1.00
SC-1280-50	50042-4	NPT Steel Plugs Socket Head	2.00
SC-1280-50	50048-1	JIC Tee w/Swivel Nut on Run	6.00
SC-1280-50	50048-3	JIC Tee w/Swivel Nut on Run	3.00
SC-1280-50	50048-3	JIC Tee w/Swivel Nut on Run	2.00
SC-1280-50	50056-4	Bulkhead Nut	2.00
SC-1280-50	50078-1	Male JIC to Female Swivel JIC 45 Deg Elbow	16.00
SC-1280-50	50078-3	Male JIC to Female Swivel JIC 45 Deg Elbow	8.00
SC-1280-50	50078-4	Male JIC to Female Swivel JIC 45 Deg Elbow	1.00
SC-1280-50	50078-4	Male JIC to Female Swivel JIC 45 Deg Elbow	1.00
SC-1280-50	50078-4	Male JIC to Female Swivel JIC 45 Deg Elbow	3.00
SC-1280-50	50081-4	SAE O-Ring Plug	1.00
SC-1280-50	50113-4	Steel Coupling	2.00
SC-1280-50	50135-4	Socket Head Pipe Plug	2.00
SC-1280-50	50148-8	Hollow Hex O Ring Plug	1.00
SC-1280-50	50148-8	Hollow Hex O Ring Plug	1.00
SC-1280-50	50155-1	Adapter Valvoil	1.00
SC-1280-50	50163-4	Tee (JIC) with O-Ring on Run	1.00
SC-1280-50	50163-4	Tee (JIC) with O-Ring on Run	1.00
SC-1280-50	50189-2	Vacuum Breaker	2.00
SC-1280-50	50189-3	Vacuum Breaker	1.00
SC-1280-50	50189-3	Vacuum Breaker	1.00
SC-1280-50	50220-4	Male Bulkhead Connectro (MPTF/UN/UNF-2A)	2.00
SC-1280-50	53504-1	Shaft Seal	2.00
SC-1280-50	54027-6	Single Selector Valve	1.00
SC-1280-50	54147-8	Upper Control Valve (RH)	1.00
SC-1280-50	54310-1	Double Lock Valve	1.00
SC-1280-50	54379-1	Single Stick Control Valve	1.00
SC-1280-50	54381-1	Upper Control Valve (RH)	1.00
SC-1280-50	55731-3	1/2 Hyd Hose Assy	1.00
SC-1280-50	55731-7	1/2 Hyd Hose Assy	1.00
SC-1280-50	55731-9	1/2 Hyd Hose Assy	1.00
SC-1280-50	58082-1	Lever Control Kit	1.00
SC-1280-50	72001-4	Nylon Bushing	2.00
SC-1280-50	72007-35	Sintered Bronze Bearing	1.00
SC-1280-50	72011-14	Flanged Bearing	2.00
SC-1280-50	72028-2	Uniball Rod End	3.00
SC-1280-50	72030-1	Rod End Ball Joint	2.00
SC-1280-50	72030-2	Rod End Ball Joint	2.00
SC-1280-50	72038-1	Rod End Ball Joint # SPM-4S	2.00
SC-1280-50	72046-1	Rod End Ball Joint	2.00
SC-1280-50	72062-1	Roller Thrust Bearing	1.00

As Built Material List

Option	Part	Description	Qty
SC-1280-50	7255-4	Rod (Allthread)	1.00
SC-1280-50	7255-6	Rod (Allthread)	1.00
SC-1280-50	7442-1	Spacer (Stainless Steel)	3.00
SC-1280-50	7442-5	Spacer (Stainless Steel)	3.00
SC-1280-50	7442-9	Spacer (Stainless Steel)	3.00
SC-1280-50	88000-3	Knob (Red)	1.00
SC-1280-50	88002-1	Compression Spring	2.00
SC-1280-50	88002-1	Compression Spring	1.00
SC-1280-50	89061-1	Adj Yoke End (Plated)	2.00
SD-1200-13	33656-3	Decal Slope Warning	2.00
SD-1200-13	33657-2	Slope Indicator 10 Degree	2.00
SD-1200-13	33658-DWG	Slope Indicator Installation	1.00
SD-19	89069-1	Lanyard	2.00
SD-19	89145-2	Full Body Harness X-Large	2.00
SK-1280-2	10226-24	Pivot Spacer	4.00
SK-1280-2	32392-DWG	Lift Shipping Skid Assembly	1.00
SK-1280-2	32401-1	Knuckle Shipping Skid Stand (Batch Weld)	2.00
SK-1280-2	32404-1	Turret Shipping Stand (Batch Weld)	1.00
SK-1280-2	40007-9	5/8 NC Hex Head Cap Screws	4.00
SK-1280-2	40008-9	3/4 NC Hex Head Cap Screw	2.00
SK-1280-2	42005-7	NC Hex Locknut 5/8	4.00
SK-1280-2	44000-17	Helical Spring Lock Washers	2.00
SK-1280-2	44013-1	Hardened Washer 5/8	8.00
SK-1341-4	1005493-DWG	Single Arm Lift Elevator Shipping Skid	1.00
SK-1341-4	1005495-1	Elevator Shipping Skid Tube	1.00
SK-1341-4	40004-6	3/8 NC Hex Head Cap Screw	2.00
SK-1341-4	44013-3	Hardened Washer 1/2	2.00
SK-1341-4	44013-6	Hardened Washer 3/8	2.00
SS-60	10272-1	Decal Engine	1.00
SS-60	11561-1	Decal Engine Control	1.00
SS-60	28174-DWG	Master Switch and Start and Stop Schem Insulated	1.00
SS-60	3051-2	Switch Guard	1.00
SS-60	4383-1	Air Cylinder D-38606-A/1.06NSRWS01.5	1.00
SS-60	4511-2	Truck Dashboard Decals	1.00
SS-60	4630-5	Electrical Box (12 VDC) for Diesel	1.00
SS-60	50105-1	Tubing Connector	2.00
SS-60	60002-3	One Pole Standard Toggle Switch	1.00
SS-60	60002-6	One Pole Standard Toggle Switch	1.00
SS-60	60012-1	Cole Hersee Switch (CH 9095)	1.00
SS-60	60015-1	Pressure Switch	1.00
SS-60	61025-1	14/5 Electrical Wire	7.00
SS-60	61025-1	14/5 Electrical Wire	8.00
SS-60	68004-1	10 AMP Fuse Holder 79905	2.00
SS-60	68007-3	Relays	1.00
SS-60	68032-2	22-18 Wire Ring Terminals	1.00
SS-60	68039-3	Dash Light - (Body)	1.00
SS-60	68039-4	Dash Light (Red Lens)	1.00
SS-60	68039-5	Dash Light - (Bulb 12 V)	1.00
SS-60	80000-3	Knob	1.00
TT-1280-4	1000068-1	Gearbox Shim (Zinc Plated)	2.00
TT-1280-4	1000134-DWG	Turret Assembly	1.00
TT-1280-4	1000135-1	Turret Weldment	1.00
TT-1280-4	12593-1	Dual C'Balance Valve Assy	1.00

As Built Material List

Option	Part	Description	Qty
TT-1280-4	20971-1	Pinion Cover Plastic -	1.00
TT-1280-4	26346-DWG	Rotation Gearbox Assembly	1.00
TT-1280-4	32472-1	Plate Eccentric Lock (Zinc Plated)	1.00
TT-1280-4	40002-2	1/4-NC Hex Head Cap Screws 5/8	1.00
TT-1280-4	40006-7	1/2-NC Head Cap Screw	2.00
TT-1280-4	40033-13	5/16 NC Socket Head Cap Screw	4.00
TT-1280-4	40076-8	5/16-18 Tapite Screw 1/2"	2.00
TT-1280-4	40077-11	5/8 NC Socket Head Cap Screw	4.00
TT-1280-4	40104-12	3/4 NC Hex HD Cap Screw Grade 8	23.00
TT-1280-4	44000-13	Helical Spring Lock Washers	2.00
TT-1280-4	44013-1	Hardened Washer 5/8	4.00
TT-1280-4	44013-4	Hardened Washer 3/4	23.00
TT-1280-4	44013-7	Hardened Washer 1/4	1.00
TT-1280-4	50000-3	1/8 Std Galv Steel Nipples	1.00
TT-1280-4	50009-3	Male SAE O-Ring to Male JIC Adapter	1.00
TT-1280-4	50048-2	JIC Tee w/Swivel Nut on Run	1.00
TT-1280-4	50113-1	Steel Coupling	1.00
TT-1280-4	50116-1	Npt Standard 45 Deg Str Elbow	1.00
TT-1280-4	50163-3	Tee (JIC) with O-Ring on Run	1.00
TT-1280-4	56000-14	Hydraulic Motor	1.00
TT-1280-4	58021-112	O-Ring	2.00
TT-1280-4	72055-1	Rotation Bearing	1.00
TT-1280-4	73009-1	Gear Box	1.00
	Lot No: 280-100086964		
TT-1280-4	80008-10	Greasfitting Lincoln 5200	1.00
VK-1400-27	10212-1	Handle Upper Control Valve	4.00
VK-1400-27	10212-2	Handle Upper Control Valve	4.00
VK-1400-27	39440-DWG	Control Valve Assembly	2.00
VK-1400-27	39441-DWG	Out and Down Outrigger Valve Kit	1.00
VK-1400-27	54286-14	OR Control Valve VXD	2.00
VK-1400-30	1000278-1	Dual Out and Down Relay Panel	1.00
VK-1400-30	1000279-DWG	Installation Dual Out and Down Interlock	1.00
VK-1400-30	27677-1	Start/Stop Panel Cover	1.00
VK-1400-30	61020-2	Quick Disconnectors	3.00
VK-1400-30	61020-6	Quick Disconnectors	8.00
VK-1400-32	1001119-1	C3-Way Valve - 12V	1.00
VK-1400-32	1001547-DWG	Outrigger Selector Valve Kit	1.00
VK-1400-32	29997-DWG	Boom Limit Switch Install	1.00
VK-1400-32	29998-1	Bracket Switch Mounting (Zinc Plated)	1.00
VK-1400-32	40002-9	1/4-NC Hex Head Cap Screws 2	3.00
VK-1400-32	40014-3	10-24NC Pan Phillips Head Machined Screw	4.00
VK-1400-32	42000-22	NC Hex Nuts	2.00
VK-1400-32	42021-8	Coupling Nut 1/4-20NC x 1-1/4"	3.00
VK-1400-32	44000-7	Helical Spring Lock Washers	4.00
VK-1400-32	44000-9	Helical Spring Lock Washers	3.00
VK-1400-32	44002-3	Standard Flat Washer	2.00
VK-1400-32	50011-4	SAE O-Ring to Male Jic 90 Deg Adjustable Elbow	2.00
VK-1400-32	50101-8	SAE O-Ring to Male JIC 90 Adjustable Elbow	1.00
VK-1400-32	510360	Switch Limit Body Only	1.00
VK-1400-32	510370	Offset Head Limit Switch	1.00
VK-1400-32	510390	Arm Adjustable Limit Switch	1.00
VK-1400-32	60013-1	Toggle Switch Micro # 2NT1-3	1.00
VK-1400-32	62016-1	DIN 43650 from a Unwired Connector	1.00
VK-1400-32	68004-1	10 AMP Fuse Holder 79905	1.00

As Built Material List

Option	Part	Description	Qty
VK-1400-32	68007-3	Relays	1.00
VK-1400-32	80031-7	Watertight Connectors	1.00
VST-9000I	34238-DWG	VST-8000/8500/9000-I	1.00
VST-9000I	PAINT	STD Versalift White Paint	4.00
VST-9000I	PRIMER-PAINT	PRIMER PAINT	4.00
Sub-Assembly Kits			
1005286-1	1005288-1	Outrigger Side Gusset	2.00
1005286-1	1005288-1	Outrigger Side Gusset	2.00
1005286-1	101772-1	Plate Outer Gusset	2.00
1005286-1	101772-1	Plate Outer Gusset	2.00
1005286-1	101774-1	Gusset	2.00
1005286-1	101774-1	Gusset	2.00
1005286-1	30518-9	Plate	2.00
1005286-1	30518-9	Plate	2.00
1005286-1	31252-1	Gusset Outer Boom	4.00
1005286-1	31252-1	Gusset Outer Boom	4.00
1005291-1	1005289-1	Plate Outrigger Outer Side	2.00
1005291-1	1005289-1	Plate Outrigger Outer Side	2.00
1005291-1	1005290-1	Plate Center Outrigger	1.00
1005291-1	1005290-1	Plate Center Outrigger	1.00
1005291-1	101769-1	Plate Outer Boom Top	2.00
1005291-1	101769-1	Plate Outer Boom Top	2.00
1005291-1	11694-2	Sleeve Threaded	4.00
1005291-1	11694-2	Sleeve Threaded	4.00
1005291-1	31250-1	Plate Outer Boom Bottom	2.00
1005291-1	31250-1	Plate Outer Boom Bottom	2.00
101776-1	31236-1	Plate Inner Boom Top	2.00
101776-1	31236-1	Plate Inner Boom Top	2.00
101776-1	31237-2	Plate Inner Boom Side	2.00
101776-1	31237-2	Plate Inner Boom Side	2.00
101776-1	31237-3	Plate Inner Boom Side	2.00
101776-1	31237-3	Plate Inner Boom Side	2.00
101776-1	31238-1	Plate Inner Boom Bottom	2.00
101776-1	31238-1	Plate Inner Boom Bottom	2.00
101791-1	101775-1	Gusset Inner Boom	2.00
101791-1	101775-1	Gusset Inner Boom	2.00
101791-1	101777-1	Plate Inner Boom Side Stiffener	4.00
101791-1	101777-1	Plate Inner Boom Side Stiffener	4.00
101791-1	102349-1	Outward Outrigger Doubler	2.00
101791-1	102349-1	Outward Outrigger Doubler	2.00
101791-1	102350-1	Inward Outrigger Doubler	2.00
101791-1	102350-1	Inward Outrigger Doubler	2.00
101791-1	31233-1	Gusset Outer Tube	2.00
101791-1	31233-1	Gusset Outer Tube	2.00
101791-1	31234-1	Outer Tube Down Cylinder	2.00
101791-1	31234-1	Outer Tube Down Cylinder	2.00
101791-1	31239-1	Plate Inner Boom Contact	2.00
101791-1	31239-1	Plate Inner Boom Contact	2.00
101791-1	31240-1	Gusset Outrigger Tube	4.00
101791-1	31240-1	Gusset Outrigger Tube	4.00
101791-1	31241-1	Plate	4.00
101791-1	31241-1	Plate	4.00
101791-1	31243-1	Plate Inner Boom Contact	2.00

As Built Material List

Option	Part	Description	Qty
101791-1	31243-1	Plate Inner Boom Contact	2.00
101791-1	31275-1	Bulkhead Down Cylinder	2.00
101791-1	31275-1	Bulkhead Down Cylinder	2.00
31256-1	101740-1	Outrigger Gusset	4.00
31256-1	101740-1	Outrigger Gusset	4.00
31256-1	102358-1	Wedge Stop	2.00
31256-1	102358-1	Wedge Stop	2.00
31256-1	31257-1	Outrigger Foot Base	2.00
31256-1	31257-1	Outrigger Foot Base	2.00
31256-1	31258-1	Outrigger Foot Side	4.00
31256-1	31258-1	Outrigger Foot Side	4.00
31256-1	31312-1	Tube	4.00
31256-1	31312-1	Tube	4.00
31256-1	31313-1	Gusset	8.00
31256-1	31313-1	Gusset	8.00
39092-00	89019-1	Vinyl Versalift Binders - 1/2	2.00
39092-00	PAPER	PAPER 8-1/2x11 FOR MANUALS	50.00
FB-1500-6	20528-DWG	Closed Platforms	1.00
FB-1500-6	25515-1	Shim	8.00
FB-1500-6	32200-1	Platform 24 X 48 X 42 Two Man	1.00
FB-1500-6	32399-DWG	Platform Selection Chart	1.00
FB-1500-6	40007-13	5/8 NC Hex Head Cap Screws	4.00
FB-1500-6	42005-7	NC Hex Locknut 5/8	4.00
FB-1500-6	44013-1	Hardened Washer 5/8	8.00
OR-1400-60	1005285-DWG	Out and Down Outrigger Assembly (Track Vehicle)	1.00
OR-1400-60	1005285-DWG	Out and Down Outrigger Assembly (Track Vehicle)	1.00
OR-1400-60	1005287-1	Cover Outrigger End	2.00
OR-1400-60	1005287-1	Cover Outrigger End	2.00
OR-1400-60	101739-1	Outrigger Foot Pivot Pin (Chrome Plated)	2.00
OR-1400-60	101739-1	Outrigger Foot Pivot Pin (Chrome Plated)	2.00
OR-1400-60	101835-DWG	Outrigger Inner Boom Assembly	2.00
OR-1400-60	101835-DWG	Outrigger Inner Boom Assembly	2.00
OR-1400-60	101845-1	Bracket Magnetic Prox	2.00
OR-1400-60	101845-1	Bracket Magnetic Prox	2.00
OR-1400-60	102352-1	Outrigger Wear Pad	4.00
OR-1400-60	102352-1	Outrigger Wear Pad	4.00
OR-1400-60	102421-1	Down Tube Cover (Batchweld)	2.00
OR-1400-60	102421-1	Down Tube Cover (Batchweld)	2.00
OR-1400-60	102422-1	Jack Switch Bracket	2.00
OR-1400-60	102422-1	Jack Switch Bracket	2.00
OR-1400-60	19742-2	Outrigger Extension Cylinder	2.00
	Lot No: 1134-100086950-19742-2		
OR-1400-60	19742-2	Outrigger Extension Cylinder	2.00
	Lot No: 1134-100086950-19742-2		
OR-1400-60	19743-2	Outrigger Down Cylinder	2.00
	Lot No: 1134-100081229-19743-2		
OR-1400-60	19743-2	Outrigger Down Cylinder	2.00
	Lot No: 1134-100081229-19743-2		
OR-1400-60	19781-2	Down Outrigger Pin Spacer Zinc Plated	4.00
OR-1400-60	19781-2	Down Outrigger Pin Spacer Zinc Plated	4.00
OR-1400-60	19784-3	Pin Outrigger Extension (Chrome Plated)	2.00
OR-1400-60	19784-3	Pin Outrigger Extension (Chrome Plated)	2.00
OR-1400-60	19784-4	Pin Outrigger Extension (Chrome Plated)	2.00
OR-1400-60	19784-4	Pin Outrigger Extension (Chrome Plated)	2.00

As Built Material List

Option	Part	Description	Qty
OR-1400-60	19831-1	Turck Position Sensor	2.00
OR-1400-60	19831-1	Turck Position Sensor	2.00
OR-1400-60	19834-1	Turck Actuation Magnet	2.00
OR-1400-60	19834-1	Turck Actuation Magnet	2.00
OR-1400-60	19846-1	Pin Assembly 19845-1	2.00
OR-1400-60	19846-1	Pin Assembly 19845-1	2.00
OR-1400-60	26665-1	Slide Pad Adjustable	2.00
OR-1400-60	26665-1	Slide Pad Adjustable	2.00
OR-1400-60	26665-3	Slide Pad Adjustable	2.00
OR-1400-60	26665-3	Slide Pad Adjustable	2.00
OR-1400-60	30799-1	Proximity Bracket 18 MM	2.00
OR-1400-60	30799-1	Proximity Bracket 18 MM	2.00
OR-1400-60	30810-1	Cover Prox Sensor	2.00
OR-1400-60	30810-1	Cover Prox Sensor	2.00
OR-1400-60	30913-1	Polythylene Magnet Cover	2.00
OR-1400-60	30913-1	Polythylene Magnet Cover	2.00
OR-1400-60	31260-1	Wear Pad	4.00
OR-1400-60	31260-1	Wear Pad	4.00
OR-1400-60	31267-1	Wear Pad	2.00
OR-1400-60	31267-1	Wear Pad	2.00
OR-1400-60	31268-1	Wear Pad	2.00
OR-1400-60	31268-1	Wear Pad	2.00
OR-1400-60	31270-1	Wear Pad	2.00
OR-1400-60	31270-1	Wear Pad	2.00
OR-1400-60	31271-1	Inner Tube	2.00
OR-1400-60	31271-1	Inner Tube	2.00
OR-1400-60	31299-1	Cylinder Mount (Batchweld)	2.00
OR-1400-60	31299-1	Cylinder Mount (Batchweld)	2.00
OR-1400-60	40000-27	Socket Head Flat Head Screw	4.00
OR-1400-60	40000-27	Socket Head Flat Head Screw	4.00
OR-1400-60	40000-3	Socket Head Flat Head Screw	8.00
OR-1400-60	40000-3	Socket Head Flat Head Screw	8.00
OR-1400-60	40002-1	1/4-NC Hex Head Cap Screws 1/2	20.00
OR-1400-60	40002-1	1/4-NC Hex Head Cap Screws 1/2	20.00
OR-1400-60	40002-2	1/4-NC Hex Head Cap Screws 5/8	6.00
OR-1400-60	40002-2	1/4-NC Hex Head Cap Screws 5/8	6.00
OR-1400-60	40003-3	5/16 NC Hex Head Cap Screw	2.00
OR-1400-60	40003-3	5/16 NC Hex Head Cap Screw	2.00
OR-1400-60	40003-4	5/16 NC Hex Head Cap Screw	8.00
OR-1400-60	40003-4	5/16 NC Hex Head Cap Screw	8.00
OR-1400-60	40004-5	3/8 NC Hex Head Cap Screw	6.00
OR-1400-60	40004-5	3/8 NC Hex Head Cap Screw	6.00
OR-1400-60	40006-9	1/2-NC Head Cap Screw	8.00
OR-1400-60	40006-9	1/2-NC Head Cap Screw	8.00
OR-1400-60	40050-6	N04-40 NC Round Phillips Head Machine Screw	2.00
OR-1400-60	40050-6	N04-40 NC Round Phillips Head Machine Screw	2.00
OR-1400-60	40171-12	3/8-NC Fiber Flanged HD Cap Screw	2.00
OR-1400-60	40171-12	3/8-NC Fiber Flanged HD Cap Screw	2.00
OR-1400-60	40171-16	3/8-NC Fiber Flanged HD Cap Screw	2.00
OR-1400-60	40171-16	3/8-NC Fiber Flanged HD Cap Screw	2.00
OR-1400-60	42005-2	NC Hex Locknut 5/16	4.00
OR-1400-60	42005-2	NC Hex Locknut 5/16	4.00
OR-1400-60	42005-5	NC Hex Locknut 1/2	8.00
OR-1400-60	42005-5	NC Hex Locknut 1/2	8.00
OR-1400-60	44013-3	Hardened Washer 1/2	16.00
OR-1400-60	44013-3	Hardened Washer 1/2	16.00

As Built Material List

Option	Part	Description	Qty
OR-1400-60	44013-5	Hardened Washer 5/16 (Plated)	2.00
OR-1400-60	44013-5	Hardened Washer 5/16 (Plated)	12.00
OR-1400-60	44013-5	Hardened Washer 5/16 (Plated)	2.00
OR-1400-60	44013-5	Hardened Washer 5/16 (Plated)	12.00
OR-1400-60	44013-6	Hardened Washer 3/8	4.00
OR-1400-60	44013-6	Hardened Washer 3/8	4.00
OR-1400-60	44013-7	Hardened Washer 1/4	26.00
OR-1400-60	44013-7	Hardened Washer 1/4	26.00
OR-1400-60	44016-2	Special Flat Washer (Zinc Plated)	2.00
OR-1400-60	44016-2	Special Flat Washer (Zinc Plated)	2.00
OR-1400-60	48000-12	Snap Ring Waldes	4.00
OR-1400-60	48000-12	Snap Ring Waldes	4.00
OR-1400-60	48000-12	Snap Ring Waldes	4.00
OR-1400-60	48000-12	Snap Ring Waldes	4.00
OR-1400-60	48000-24	Snap Ring	8.00
OR-1400-60	48000-24	Snap Ring	8.00
OR-1400-60	68245-1	Proximity Sensor 5MM	2.00
OR-1400-60	68245-1	Proximity Sensor 5MM	2.00