



IOWA MOLD TOOLING CO., INC.

**P.O. Box 189
Garner, IA 50438
Tel: 641.923.3711
Fax: 641.923.2424
www.imt.com**

Manual # 99905539

TH5K115 PARTS & SPECIFICATIONS

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WARNING

Operating, servicing and maintaining this vehicle or equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle or equipment in a well-ventilated area and wear gloves or wash your hands frequently when servicing. For more information go to www.P65Warnings.ca.gov.

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Introduction

Section - 1

Introduction

This manual includes operation, safety, and maintenance instructions and replacement parts for your IMT Tirehand.

In addition to reading the manual, it is your responsibility to become familiar with government regulations, hazards, and the specific operation of your equipment. Use caution and common sense while operating and maintaining the equipment and follow all safety procedures and regulations. Treat this equipment with respect and service it regularly.

MODIFICATIONS

Modifications to your equipment must be performed with IMT approved accessories, parts and optional equipment. If in doubt, contact IMT prior to making any modifications. DO NOT alter or modify any safety device! All safety devices must be inspected, tested and maintained in proper working condition.

Decals regarding safety and operation are considered safety equipment, and must be kept clean and legible.

The equipment owner and/or designated employee is responsible for informing all operators, maintenance personnel, and others involved in equipment operation about the safe operation and maintenance of the equipment. If questions arise concerning safe operation, contact IMT or your IMT distributor for clarification.

WARRANTY

Warranty of this unit will be void on any part of the unit subjected to misuse due to overloading, abuse, lack of maintenance and unauthorized modifications. No warranty - verbal, written or implied - other than the official, published IMT new machinery and equipment warranty will be valid with this unit.

NOTICE TO THE OWNER / USER

If your equipment is involved in a property damage accident, contact your IMT distributor immediately and provide them with the details of the accident and the serial number of the equipment. If an accident involves personal injury, immediately notify your distributor and IMT Technical Support at:

IOWA MOLD TOOLING CO., INC.
500 HWY 18 WEST
GARNER, IA 50438
641-923-3711

INTRODUCTION, CONTINUED

RESPONSIBILITY

It is the user's responsibility to maintain and operate this unit in a manner that will result in the safest working conditions possible. In addition, it is the user's responsibility to be aware of existing Federal, State, and Local codes and regulations governing the safe use and maintenance of this equipment.

MANUAL STRUCTURE

Throughout this manual, four means are used to draw the attention of personnel. They are NOTE, CAUTION and WARNING and DANGER and are defined as follows:

NOTE

A NOTE is used to either convey additional information or to provide further emphasis for a previous point.

CAUTION

A CAUTION is used when there is the very strong possibility of damage to the equipment or premature equipment failure.

WARNING

A WARNING is used when there is the potential for personal injury or death.

DANGER

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Danger is used in the extreme situations.

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Specifications

Section - 2

TH5K115 - Specifications

GENERAL SPECIFICATIONS	
Tirehand maximum capacity	5500 lb (2495 kg)
Body rotation	350°
Pad rotation system	120°
Tirehand weight (forklift mounted)	2510 lb (1138 kg)
Clamping span	28" to 115" (71.1 - 292.1 cm)
Center of gravity-forklift-mounted Tirehand with 5500 lb (2495 kg) tire & rim assembly at 106" (269.2 cm) clamp opening	64" (163 cm)
Method of clamping	Parallelogram
Clamping load holding valves	Counterbalance valve
Hydraulic control valve	Located on base assembly
Hydraulic controls	5-Function remote control (radio or cab-mounted)
Optimum pump capacity (supplied from carrier vehicle)	5 U.S. GPM @ 3000 PSI (18.9 liters/min @ 207 Bar)
Counterweight needed	As required for stabilization

STANDARD FEATURES:

1. Hydraulic fallback protection
2. Rim flange hardware on pads
3. Forklift or loader mounting

OPTIONAL FEATURES:

1. Electric controls
2. Lateral shifting capabilities

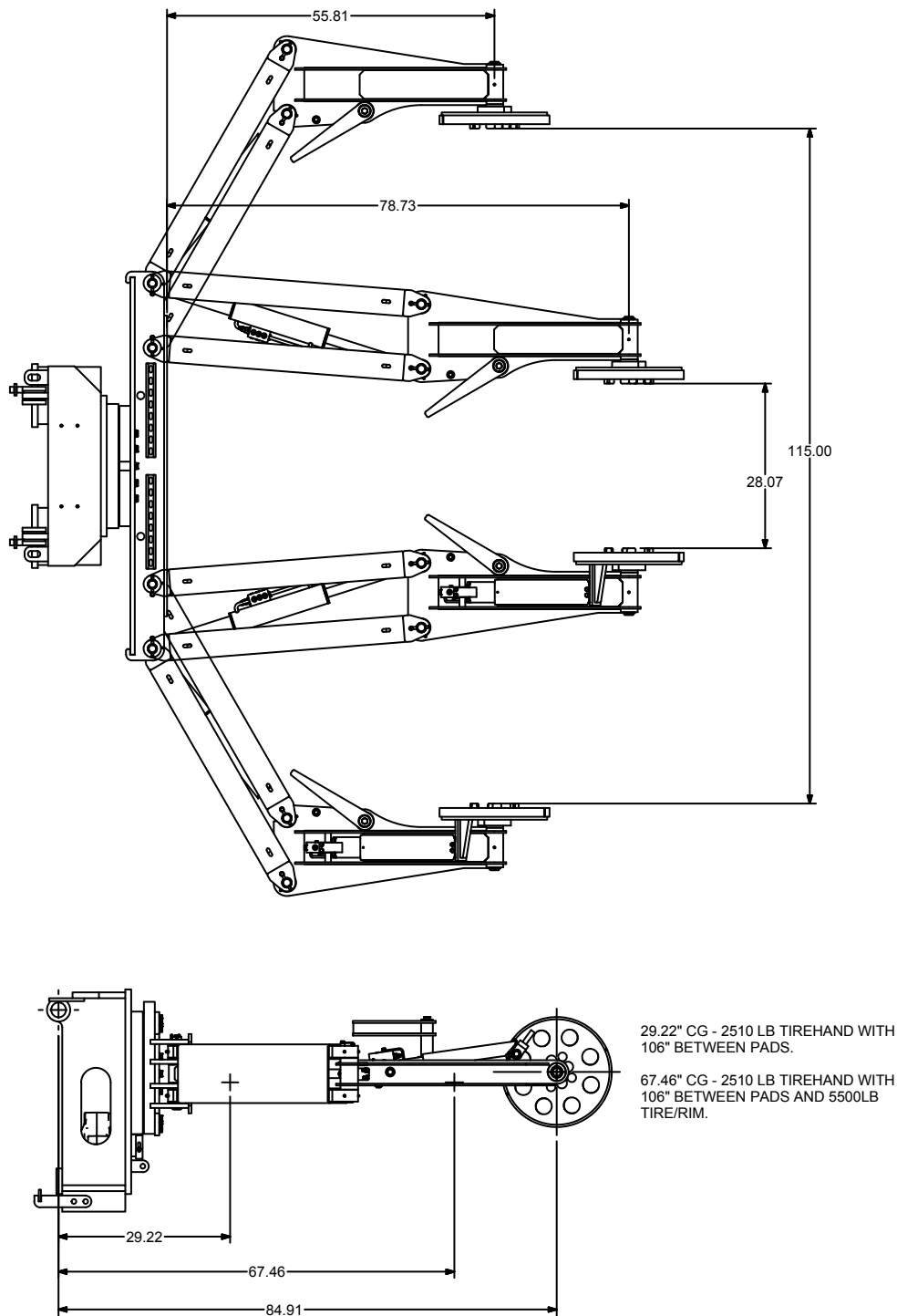
VEHICLE COMPATIBILITY

The Tirehand will permanently adapt to either a forklift truck or a front-end loader. When mounting to a forklift truck, it is recommended that the truck be equipped with a side-shifter. If adapted to a front-end loader, quick couplers are available which enable the disconnection of the Tirehand so that the original bucket can be quickly coupled to the machine for normal operations.

IMT reserves the right to change specifications and design without notice. Where applicable, specifications are in accordance with SAE standard

IOWA MOLD TOOLING CO., INC.
BOX 189, GARNER, IA 50438-0189
TEL: 652-923-3711 FAX: 641-923-2424

TH5K115 - Dimensional Drawing



TH5K115 - Recommended Spare Parts

PART NO.	TH5K115 DESCRIPTION	QTY.
60030128	SLIDE PAD-UHMW 2.00X4.00X30.00	2
60030129	WEAR PAD-RC UHMW 1.69X 2.00X 4.00	4
60020206	WASHER-THRUST 1.50X3.00X .38	2
60030497	SPACER-1.56 ID 3.00 OD .19 THICK	16
73540601	VALVE-CBAL 15 GPM 3.0:1 T11-A @4000 PSI	10
73540606	VALVE CART-CBAL 15 GPM 5:1 T-11A@2600PSI	2
73051001	MOTOR-HYD C101-1018	1
73054681	VALVE-CHECK PILOT/OPEN NONVENT	2
71415014	KEEPER-PIN .38	8
71056627	GEAR-TRNTBL BRG 44905183-2 INDU HARDENED	1
70571005	GEAR BOX-5K BODY ROTATION	1
70055174	BEARING-GAR DX 1.50X1.67X1.50	12
70055333	BEARING-GAR DX 1.50X1.67X2.00	16
94399967	SEAL KIT - JARP 432126B	3
94990066	SEAL KIT FOR 51726982	2
94990067	SEAL KIT FOR 51726990	1

TH5K115 - Capacity Chart

	Tirehand TH5K115 CAPACITY CHART
MAXIMUM CAPACITY	
5,500 LB (2495 KG)	
CLAMPING SPAN	
MIN: 28" (71 cm)	
MAX: 115" (292 cm)	
70399030	

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Assemblies & Installations

Section - 3

TH5K115 - Installation Introduction

VEHICLE COMPATIBILITY

The Tirehand will permanently adapt to either a forklift truck or a front-end loader which has sufficient capacity and stability, per the Tirehand specifications. When mounting to a forklift truck, it is recommended that the truck be equipped with a side shift. If adapted to a front-end loader, quick couplers are available which enable the disconnection of the Tirehand so that the original bucket can be quickly coupled to the machine for normal operations.

Typical Tirehand hydraulic installations include:

1. Bulkhead plate hydraulic installation - all of the Tirehand hydraulics hoses connect together in a bulkhead plate, which then connects hydraulically to the loader or forklift. With a bulkhead plate installation, the valve bank is part of the forklift or loader rather than the Tirehand. In many cases, bulkhead installations are used on forklifts.
2. Valve bank hydraulic installation - when the valve bank is part of the Tirehand, rather than the loader or forklift. The forklift or loader must be equipped with a pressure line and a return line which connects the forklift or loader hydraulic system to the valve bank in the Tirehand. In many cases, valve bank hydraulic installations are used on loaders.

Typical Tirehand controls include:

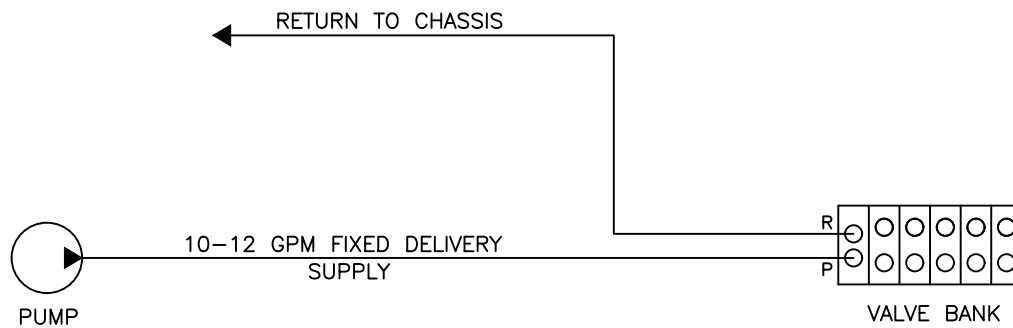
1. Hydraulic cab controls, where additional functions in forklift or loader control valves are hydraulically connected to the Tirehand.
2. Electric cab controls, which includes a control box with toggles used to control the Tirehand.
3. Radio remote controls.

For all installations, the Tirehand requires 5 U.S. GPM (18.9 L/min) of hydraulic fluid at 3000 psi (207 bar). A flow divider may be required if the forklift or loader pump provides excess flow. Contact IMT for specific installation instructions on any type of installation.

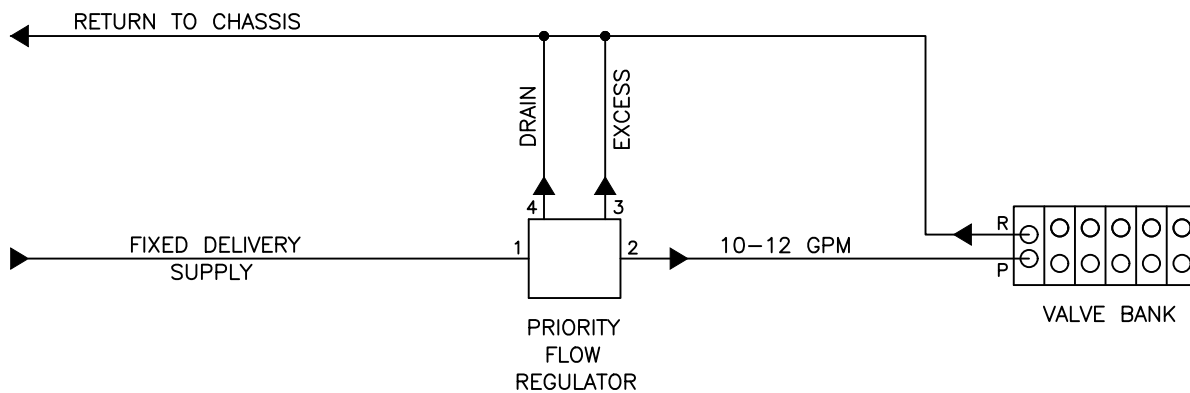
Prior to connecting any electrical connections between the Tirehand and the loader or forklift, check the Tirehand voltage. IMT Tirehand may be 12V or 24V.

TH5K115 - Hydraulic Installation

PREFERRED INSTALLATION:



ALTERNATE INSTALLATION:



TH5K115 - Lift Truck Installation

NOTE: Tirehand installations vary based on the carrier vehicle. Contact IMT for specific installation assistance.

1. Mount the Tirehand to loader arms using the original loader pins.
2. Splice the flow control divider into the existing pressure line. Continue the original line to its original destination (bucket, etc.), and route the controlled line with 5 (18.9 L/min) 3000 psi (207 Bar) to the Tirehand valve bank.
3. Route the hoses as shown in figure below.
4. Locate the control handle inside the cab where convenient to operate.
5. Connect the 3-wire power cable to 12-volt power. The green wire connects to 12V positive, the black wire to the coil on the flow divider, and the white wire to ground.
6. Route the control cable to the Tirehand and connect.
7. Check all hoses and cables for clearances. Make sure that steering or moving the arms will not pinch or over-stress the hoses or cables.
8. Fill the reservoir. Start the loader's engine and operate all controls to purge air from the system.
9. With the loader running, check for leaks and repair if necessary.
10. Recheck all hoses and cables for clearance.
11. Check the reservoir oil level and fill if necessary.
12. Test operate the Tirehand

TH5K115 - Bulkhead Installation

If the forklift on which the Tirehand is installed includes control valves, all of the hydraulic lines from the forklift control valves must culminate at the front of the carriage. The forklift will connect to the Tirehand using a bulkhead plate. The forklift manufacturer must furnish oil for all hydraulic functions. Install the Tirehand with a bulkhead plate as follows:

1. Install the Tirehand on the forklift, using the bulkhead plate for hydraulic connections. Use the required hydraulic fluid flow at the correct pressure per the Tirehand specifications.
2. Check lubrication points for adequate lubrication.
3. Operate the forklift to check for vertical obstructions.

TESTING

1. Raise the Tirehand to provide adequate clearance for operating all Tirehand functions. Operate all Tirehand functions and check for leaks.

WARNING

AVOID SERIOUS INJURY! KEEP CLEAR OF ALL PINCH POINTS WHILE OPERATING THIS UNIT.

NOTE

IF THE TIREHAND OPERATION IS ERRATIC, PURGE AIR FROM THE HYDRAULIC SYSTEM.

2. Test the unit at rated capacity. Note any points of instability. Add counterweights if needed

If the carrier vehicle is articulating, make certain that steering of the vehicle is not hindered by the routing of the hydraulic hoses. Check for wear points and re-route if needed.

TH5K115 - Valve Bank Installation

When the Tirehand has a valve bank, connect the valve bank to the forklift or loader hydraulic system using the hydraulic pressure and return line from the forklift or loader

1. Install the Tirehand on the loader or forklift, connecting the suction and return lines from the forklift or loader to the Tirehand valve bank. See the hydraulic layout drawing in the parts manual for hydraulic information for a valve bank installation.
2. Check lubrication points for adequate lubrication.
3. Operate the forklift or loader to check for vertical obstructions. Add stop blocks, if needed, to prevent the Tirehand from contacting the carrier vehicle.

TESTING

1. Raise the Tirehand to provide adequate clearance for operating all Tirehand functions. Operate all Tirehand functions and check for leaks.

WARNING

AVOID SERIOUS INJURY! KEEP CLEAR
OF ALL PINCH POINTS WHILE OPERATING
THIS UNIT.

NOTE

IF THE TIREHAND OPERATION IS
ERRATIC, PURGE AIR FROM THE
HYDRAULIC SYSTEM.

2. Test the unit at rated capacity. Note any points of instability. Add counterweights if needed. If the carrier vehicle is articulating, make certain that steering of the vehicle is not hindered by the routing of the hydraulic hoses. Check for wear points and re-route if needed.

TH5K115 - Operator Training



Prior to operating the Tirehand, read and follow the manual and all warning and safety decals. The Tirehand is designed for operator simplicity. Prior to operating this unit, the operator should become thoroughly familiar with the controls, operating procedures, and safety precautions.

TH5K115 - Intended Use and Identification

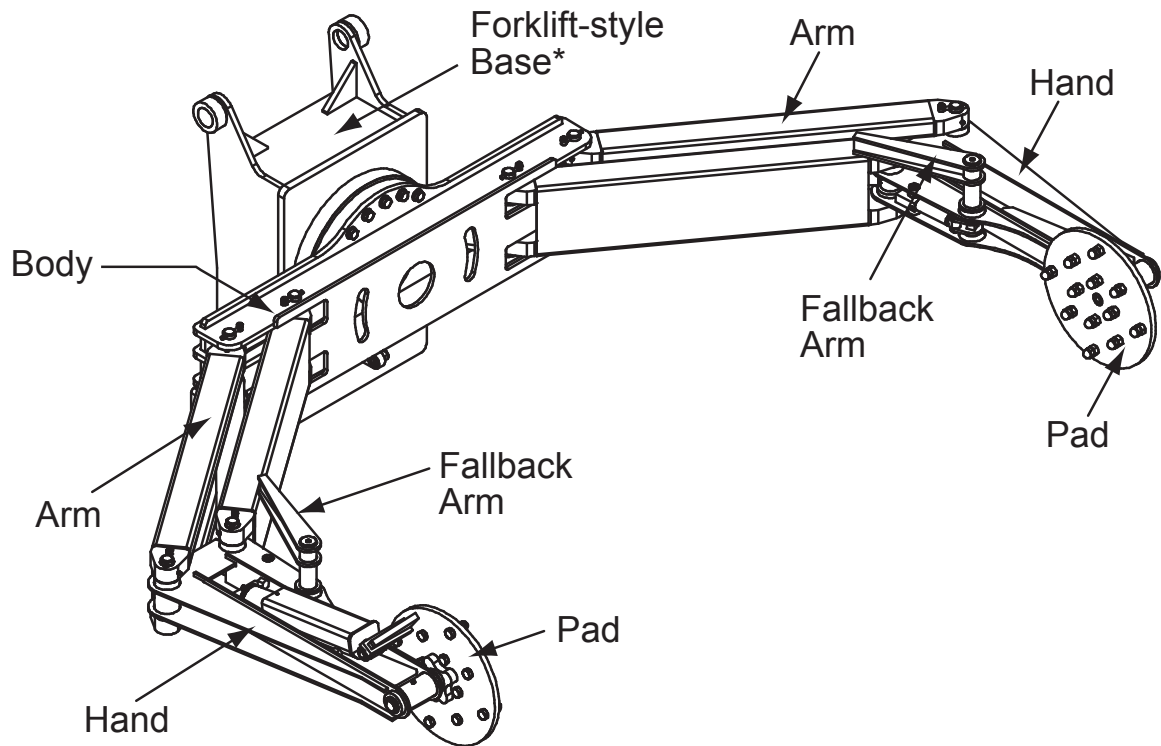
This Tirehand is a tire lifting and positioning device. It should be used to remove, transport, replace, and storage stack tires. It is designed only as a tire handling device and should not be used for any other purposes. It is intended to permanently attach to either a forklift truck or a front-end loader.

This Tirehand has an identification placard, as shown below, fastened to the body assembly. When ordering parts, communicating warranty information, or referring to the unit in any way, always include the assigned model and serial numbers. All inquiries should be directed to Iowa Mold Tooling Co., Inc., 500 Highway 18 West, Garner, Iowa 50438, U.S.A.

IOWA MOLD TOOLING CO., INC. BOX 189, GARNER, IA 50438-0189	
MODEL NUMBER	<input type="text"/>
SERIAL NUMBER	<input type="text"/>
MFG DATE	<input type="text"/>

70029119

TH5K115 - Component Identification



NOTE: * Forklift-style base shown. see parts section for all base options.

TH5K115 - Equipment Inspection

Before using, the operator should inspect as listed:

ITEM	DESCRIPTION	FREQUENCY	
		DAILY	WEEKLY
WALK-AROUND INSPECTION	Inspect for hydraulic leaks, loose parts and obvious structural member damage.		
ROTATION SYSTEM	Check for excessive backlash (play) between pinion gear and turntable gear-bearing. If there is excess play, use a feeler gauge to measure the play and service the Tirehand if needed.		
ELECTRICAL	Check remote controls, auxiliary lighting, etc. for proper function.		
	Check for deterioration, dirt and moisture.		
HYDRAULIC HOSE	Check for leaks on surface and at ends.		
	Check for blistering, deformation and abrasion.		
CONTROL VALVES	Check for leaks, cracks and slow return to neutral		
CARRIER VEHICLE	Follow all inspection procedures provided by the carrier vehicle manufacturer.		

TH5K115 - Work Station Positioning

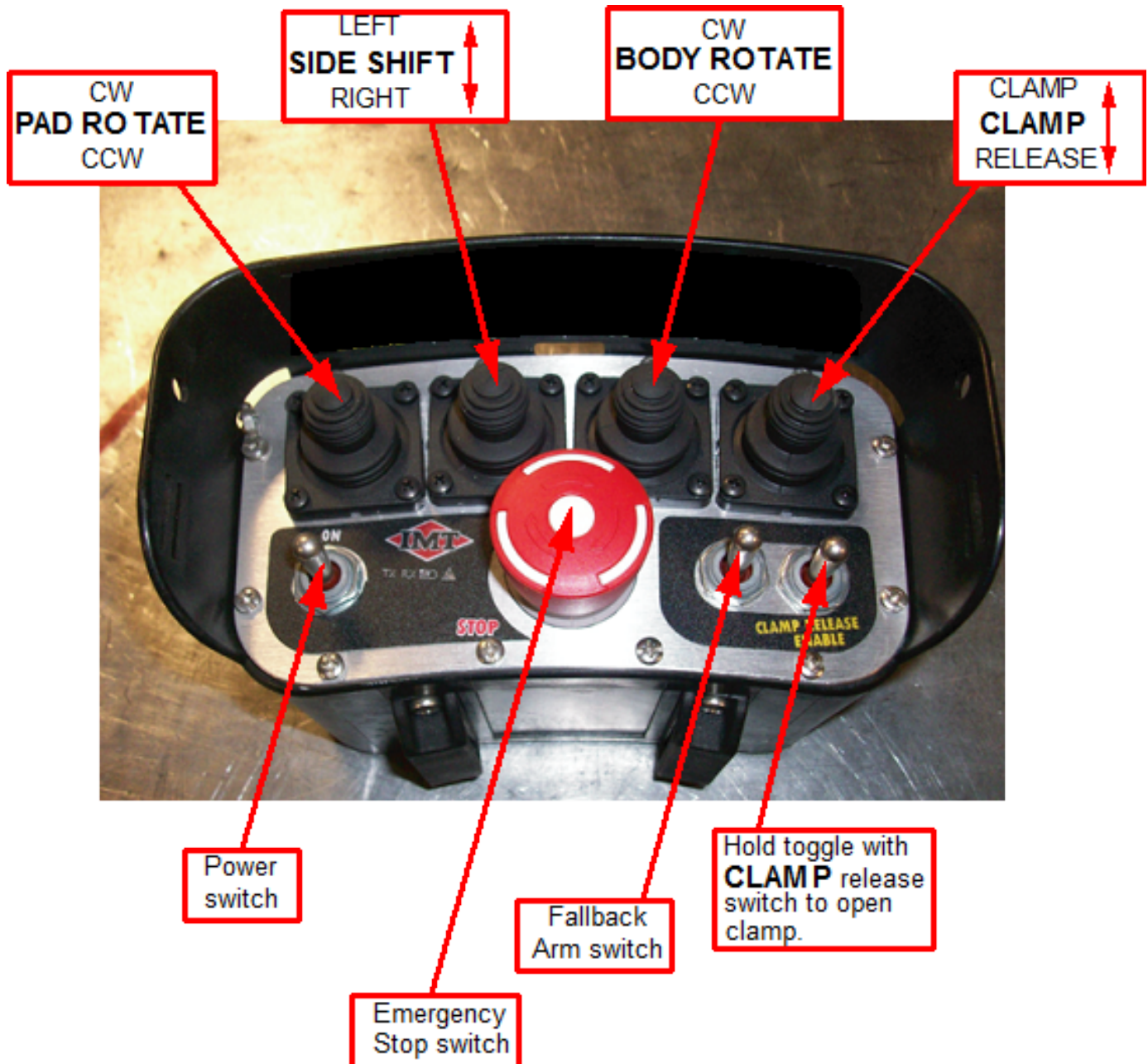
Before using the Tirehand, set the work area up correctly.

- Operate this equipment on a firm, level, and dry surface.
- Avoid overhead obstructions.
- Keep unauthorized personnel clear of the work area before beginning work.
- When the job site terrain is graded or soft, exercise extra caution.

WARNING

Avoid injury! The operator is responsible for being aware of unauthorized personnel in the work area. Suspend operations until the work area is cleared.

TH5K115 - Controls



NOTES: See the Tirehandler, *Radio Remote System*, IMT manual #99905678, for complete radio remote control system instructions. The Tirehand radio remote control is a cab-mounted or tethered remote with a radio option.

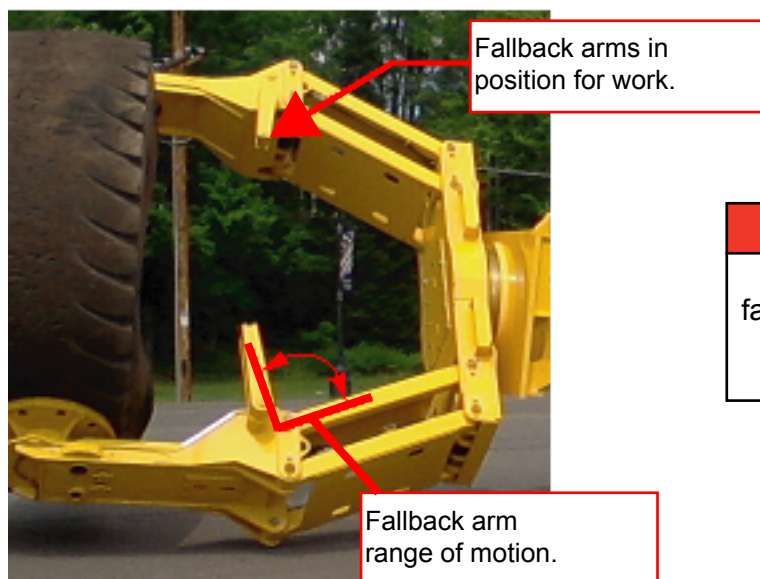
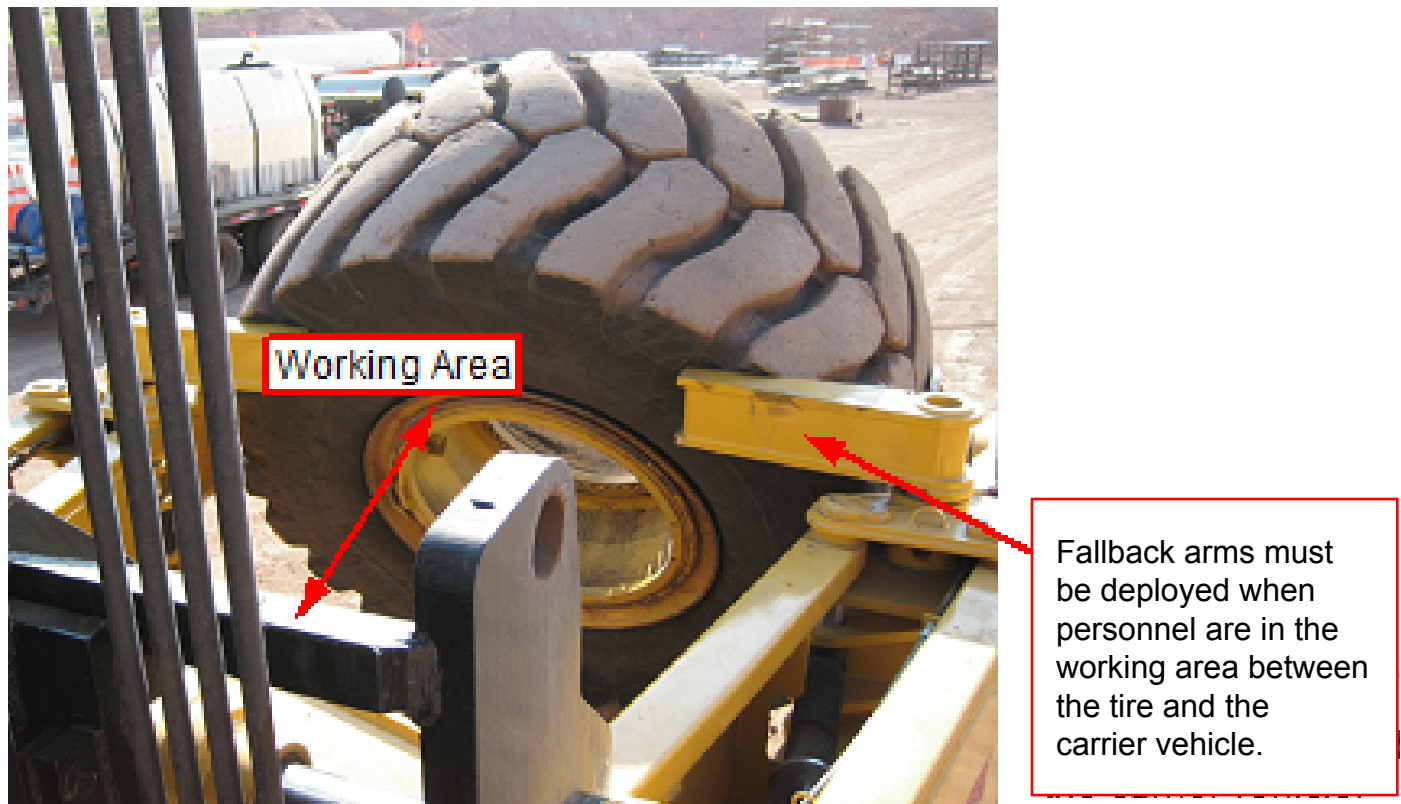
TO OPERATE:

- Power up the remote using the power switch.
- Use the fallback arm switch to activate the fallback arms prior to lifting a tire.
- Use the desired function to manipulate the tire.
- To release a clamped tire, hold the clamp toggle switch while operating the clamp release joystick. This prevents tires from being inadvertently released.

TIREHAND CONTROLS, CONTINUED

The Tirehand is equipped with fallback arms to prevent tire movement toward the working area between the tire and the back of the Tirehand. When deployed, the fallback arms are positioned perpendicular to the arm assembly to prevent the tire from falling into the work area. They need to be positioned in-line with the arm assembly when rotating the tire.

The hydraulic assembly for the fallback arms includes a holding valve to prevent the fallback arm from being forced open in case of an unexpected force from the tire or another object.








DANGER

DO NOT enter the work area unless the fallback arms are deployed! Use the fallback arms when people are in the work area to create a safe work environment.

TH5K115 - Task Performance

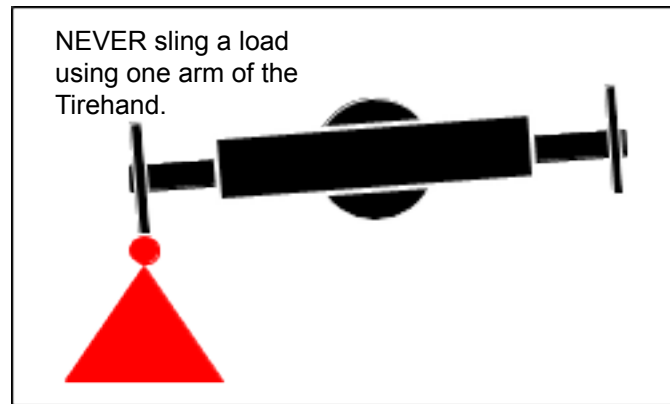
To begin operation:

ITEM NO.	OPERATION / DESCRIPTION
1.	Open Tirehand clamps.
2.	<p>Maneuver the vehicle into a position so that the Tirehand can be used to clamp the center of the tire with the Tirehand body parallel to the ground.</p> <div data-bbox="534 449 1138 575"> <p>⚠ WARNING</p> <p>Make certain personnel are clear before continuing the operation.</p> </div>
3.	<p>Advance the carrier vehicle and center the clamp pads on the tire. Clamp tire securely.</p> 
4.	<p>Remove tire and rim hardware, if needed. Following tire and rim manufacturer instructions, carefully remove the tire and / or rim from the vehicle.</p>
5.	<p>To transport tire, rotate so that tire is in horizontal position and close to the ground. If possible, keep the lowest part of the tire approximately 12" (305 mm) from the ground.</p>  <div data-bbox="477 1482 698 1562"> <p>Tire is positioned parallel and low to the ground for transport.</p> </div> <div data-bbox="548 1570 1078 1864"> <p>⚠ WARNING</p> <p>If the tire is in a vertical position, the tire blocks operator visibility during transport. DO NOT transport tire in this position! Rotate the pads so that the tire is in a horizontal position, parallel to the ground, before transporting. It is the operator's responsibility to position the tire and tirehand for maximum visibility when transporting the tire.</p> </div>

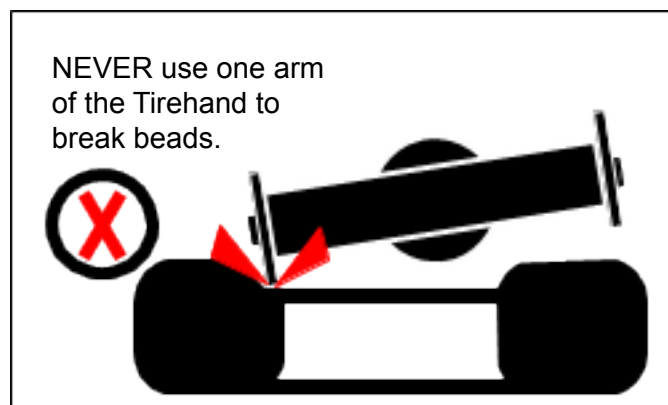
ITEM NO.	OPERATION / DESCRIPTION
6.	<p>Place tire-per tire manufacturer recommendations.</p> <div data-bbox="589 226 1195 394" style="border: 1px solid black; padding: 5px; text-align: center;"> <p>⚠ CAUTION</p> <p>Avoid equipment damage! Never drag or push tire. Make sure the tire is lifted off the ground before moving it.</p> </div>
7.	<p>To reinstall tire, rotate pads so the tire is in a vertical position, perpendicular to the ground and rotate the body so it is parallel to the ground.</p> <div data-bbox="589 495 1195 684" style="border: 1px solid black; padding: 5px; text-align: center;"> <p>⚠ CAUTION</p> <p>Clamp pressure can change as the tire rotates and the weight shifts on the clamps. Observe clamp pressure and adjust if needed.</p> </div> <div data-bbox="651 705 1094 978" style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Watch clamp pressure when body is rotated.</p>  <p>As tirehand body rotates, the tire weight will shift to the lower clamp pad.</p> </div> <div data-bbox="646 978 1057 1188" style="text-align: center;">  <p>Vertical tire Tirehand body in horizontal position</p> </div> <p style="text-align: center;">Tire and tirehand in correct position for tire installation</p>
8.	<p>Clamp the tire securely. Remember, clamp pressure changes as the weight shifts between the clamps. When the tire is vertical, the fallback arms, a safety device in case of operator error, will prevent the tire from falling into the space between the clamp and the body. Make sure the fallback arms are engaged when the tire is in the vertical position.</p> <div data-bbox="477 1381 1219 1751" style="text-align: center;">  <p>Fallback arms prevent tire slippage toward tirehand body.</p> <p>Clamp arms hold tire in vertical position.</p> </div>
9.	<p>To reinstall a tire, maneuver the forklift or loader so that the Tirehand can be used to position the tire back onto the carrier vehicle. Raise the loader or forklift so the tire is elevated correctly. When the tire is in position and secured properly per the tire, rim, and vehicle manufacturer recommendations, release the Tirehand clamps.</p>

TH5K115 - Operating Restrictions

The Tirehand is intended to be a tire lifting and positioning device. There are possible misapplications of this machine that can cause serious damage to the Tirehand rotation gears. It is possible to break the teeth on the Tirehand rotation bearing by applying forces while attempting to break tire beads with one arm of the Tirehand, or by slinging a load under one arm of the Tirehand. Use of a single Tirehand arm for lifting or carrying a load will void the tire hand warranty.



The rotation system on the Tirehand is designed to allow the user to manipulate large tires. It is a precision function that was not designed to apply high loads. However, the load holding valves that are built into this system to help control the tire during handling will also prevent the body of the Tirehand from rotating freely when loads are applied to a single Tirehand arm. When one arm is used for bead breaking, these forces can translate into torques that attempt to rotate the body of the Tirehand. The load holding valves will not allow this to occur. In this situation, the forces that are created in the Tirehand rotation turntable are well in excess of what the gear teeth can tolerate. Using one arm of the Tirehand for bead breaking will void the warranty of the Tirehand.



A bead breaker must be used to separate the tire from the rim. It is acceptable to use the Tirehand for holding the sidewall and flange away from the bead while o-rings and locking rings are being installed.

TH5K115 - Electrical Safety

Keep away from power lines! If you must operate the Tirehand near powerlines:




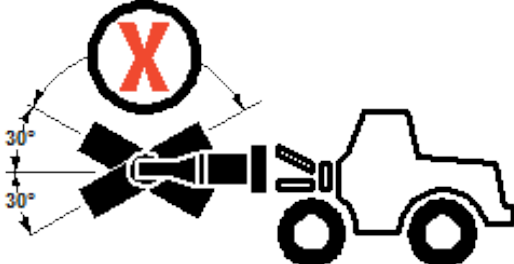
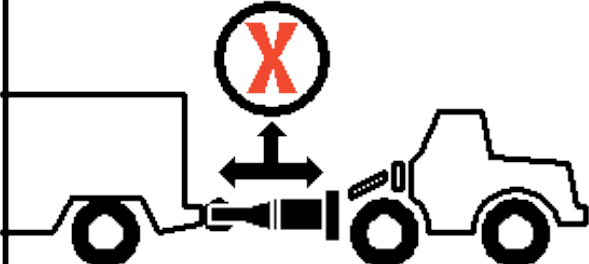






1. For lines rated 350kV or below, keep a minimum clearance of 20' (6.1 m) between the lines and any part of the Tirehand or load.
2. For lines rated over 350kV, keep a minimum clearance between 50' (15.25 m)
3. In transit, keep a minimum clearance of 4' (1.22 m)
4. Use a signal person to observe the clearance and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.

TH5K115 - Warnings

Warning decals are installed on the Tirehand, as well as on the loader or forklift, to give information about possible hazards. All decals must be installed and legible. If decals are damaged, they must be replaced. Refer to the parts section for the decal part numbers and locations on the Tirehand.



TIREHAND WARNINGS, CONTINUED

 DANGER	FAILURE TO OBEY THE FOLLOWING WILL RESULT IN DEATH, SERIOUS INJURY, INSTABILITY OR EQUIPMENT DAMAGE
<p>NEVER attempt to handle tires filled with ballast. Stability or structural failure may result if load limit is exceeded.</p> 	<p>NEVER drag the tire - the unit is designed to lift and carry.</p> 
<p>NEVER transport a tire rotated more than 30° off the horizontal plane. FOR EXAMPLE: Do not transport in a vertical plane.</p> 	<p>NEVER use the unit for any jacking, pulling or dragging operation involving an object or another vehicle.</p> 
<p>NEVER impact-load or hammer-push with the unit.</p> 	<p>NEVER operate hand below ground level.</p> 
<p>NEVER operate the unit while persons not required for operation are in the work area.</p> 	<p>NEVER clamp an uninflated tire and then inflate. Damage or injury WILL result.</p> 
<p>NEVER sling a load using one arm of the Tirehand.</p> 	<p>NEVER use one arm of the Tirehand to break beads.</p> 

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Maintenance

Section - 4

TH5K115 - Maintenance Introduction

Proper, regularly scheduled maintenance is essential in keeping your Tirehand at peak operating efficiency. This section outlines maintenance information and service intervals. Personnel responsible for Tirehand maintenance should familiarize themselves with the service intervals and maintenance operations described.

Following the designated lubrication procedures is important in providing maximum Tirehand life. The procedures and lubrication charts in this section include information on the types of lubricants used, location of lubrication points and frequency of lubrication. Information concerning the lubrication requirements of the truck chassis is not included. Refer to the appropriate truck manufacturer's manuals for chassis lubrication requirements.

The service intervals specified are for normal operation where moderate temperatures, humidity and atmospheric conditions prevail. In areas of extreme conditions, the service periods and lubrication specifications should be altered to meet those conditions. For information concerning extreme condition lubrication, contact your local service representative.

Note: The service schedule in this manual pertains only to the IMT Tirehand. In addition to Tirehand maintenance, it is your responsibility to follow all inspection and maintenance procedures for the forklift or loader, as defined in the forklift or loader maintenance manual.

TH5K115 - Lubrication Points

LUBRICATION CHART			
APPLICATION POINT	LUBRICATION	APPLICATION	INTERVAL
Side Shift Pins (if applicable)	Shell Alvania 2EP or Shell Retinax "A" or Equivalent	Hand Grease Gun or Pneumatic Pressure Gun	Weekly
Body - Arm Link Pins (Top & Bottom, both sides)			
Arm / Hand Link Pins (Top & Bottom, both sides)			
Pad Rotation Gear			
Pad Pinion Gear			
Body Rotation Turntable Gear			
Body Drive Gear			
Body Pinion Gear			

TH5K115 - Hydraulic System

Whenever disconnecting a hydraulic component:

1. **ALWAYS** relieve internal hydraulic pressure before proceeding with the repair.
2. **NEVER** allow foreign matter - dirt, water, metal particles, etc. - to enter the hydraulic system through the open connection. Seal the connection as tightly as possible. If dirt does get in, a filter change is required after about 50 hours of operation.
3. **ALWAYS** cycle all of the controls after completing a repair. This will eliminate trapped air and prevent bumpy, erratic behavior during actual working conditions.
4. **ALWAYS** check for hydraulic leaks after a repair. A high pressure leak is hazardous and must be repaired before putting the unit to work.

TH5K115 - Purging Trapped Air

Air can be introduced into the system from a leak or when a hydraulic component is disconnected for servicing. Air in the system will cause erratic operation and must be corrected.

To purge air from the system, extend and retract the affected cylinder several times. At the end of the stroke, hold the valve open for a few seconds. Repeat this procedure until operation is smooth and continuous.

TH5K115 - Preventative Maintenance

The Tirehand Inspection Checklist is designed to assist in keeping the Tirehand in peak operating condition. The information in this section refers to the Tirehand only. Items which apply to your Tirehand should be checked before it is put into operation. Inspect to the frequency indicated in the chart. Consult the manufacturer's service guide for information on the carrier vehicle.

REGULAR INSPECTION

Every three months, or more often when the equipment is subjected to heavy use, complete the following inspections in addition to the preventative maintenance checklist.

TIREHAND ARM ASSEMBLIES

1. Check for structural defects such as weld cracks, dents, or bends.
2. Check cylinder holding valves.
3. Check cylinders for leaks.
4. Check both internal and external clamping arm bearings for wear and lubrication.
5. Check operating timing. Both clamping arms should function together at the same rate of motion.

AXIAL PAD ROTATION

1. Check for structural defects.
2. Check motors for leaks.
3. Check disc bearings located on support shafts.
4. Check all pins, and their retainers.

CYLINDERS

1. Check rods for damage such as scarring. Check for rust on out of service units.
2. Check for weld joint and seal leaks.
3. Check for drift, indicating possible leakage around the piston.
4. Check cylinder case for cracks and dents.

HYDRAULIC PUMP

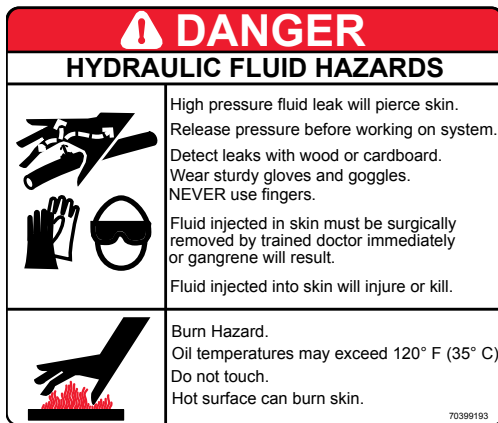
1. Check for leaks at shaft seal and section joints.
2. Check for drop in operating speed.
3. Check hydraulic oil for excessive heating.
4. Check bolts and fasteners for tightness and note unusual vibration or noise.

HYDRAULIC CONTROL VALVES

1. Check spools for sticking and failure to return to neutral position. Inspect for leaks at joints and spools.
2. Inspect valve housing for cracks.
3. Make certain relief valve reaches the proper relief setting.

HYDRAULIC OIL RESERVOIR AND HOSES

1. Check filters for clogged elements.
2. Check oil level in the reservoir.
3. Check all hoses for damage.



CARRIER BOOM AND CYLINDERS

1. Check for structural defects, such as dents, bends, and weld cracks.
2. Check all pins and their retainers.
3. Check cylinder rods for damage, and check for leaks.

SIDE SHIFT ASSEMBLY

1. Check cylinder for leaks and damage.
2. Check linear bushings for damage and lubrication.
3. Check for structural defects.
4. Check cylinder retaining pins.

ROTATION ASSEMBLY

1. Check gear box for proper anchoring and bolt torque.
2. Check gear-bearing bolt torque.
3. Check pinion gear/gear-bearing backlash.

TH5K115 - Inspection Chart

ITEM	DESCRIPTION	FREQUENCY		
		DAILY	WEEKLY	MONTHLY
WALK-AROUND INSPECTION	Inspect for hydraulic leaks, loose parts and obvious structural member damage.			
*MOUNTING BOLTS	Check torque (power-wrench tight).			
ROTATION SYSTEM	Check for excessive backlash (play) between pinion gear and turntable gear-bearing. If there is excess play, use a feeler gauge to measure the play and adjust the backlash if needed. See the parts manual for clamp and body backlash specifications.			
*STRUCTURAL DAMAGE	Check for broken welds, fatigue cracks, structural defects, bends and dents.			
CONTROLS	Check for excessive wear and cleanliness.			
LEAKAGE	Check for hydraulic fluid leaks.			
*ROTATION SYSTEM MOUNTING BOLTS	Check torque of top and bottom gear-bearing bolts. (See Torque Data Chart)			
ELECTRICAL	Check remote controls, auxiliary lighting, etc. for proper function.			
	Check for deterioration, dirt and moisture.			
HYDRAULIC FLUID RESERVOIR	Check for proper oil level. (Carrier Vehicle)			
HYDRAULIC OIL	Check oil quality. (Carrier Vehicle)			
HYDRAULIC HOSE	Check for leakage on surface and at ends.			
	Check for blistering, deformation and abrasion.			
PUMP AND MOTOR	Check for loose bolts, leaks, unusual noises, vibration, reduced operating speed and excessive oil heating.			
HYDRAULIC FILTER	Check vacuum reading with engine running and PTO engaged. A vacuum of 8" of mercury or higher indicates an obstructed filter. (Carrier Vehicle)			
CONTROL VALVES	Check for leaks, cracks and slow return to neutral.			
*CYLINDERS	Check for leaks, scores, nicked or dented rods, dented cases, deformed pin bosses, rust on rod.			
CARRIER VEHICLE	Follow all inspection and maintenance procedures provided by the carrier vehicle manufacturer.			
* INDICATES A CRITICAL ITEM				

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Parts

Section - 5

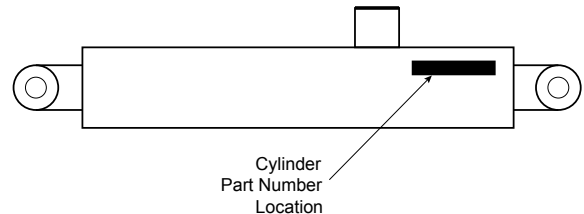
TH5K115 - Parts Ordering Information

GENERAL

This section contains the exploded parts drawings, with accompanying parts lists, for the assemblies used on the Tirehand. These drawings are intended to be used for ordering parts only.

CYLINDER IDENTIFICATION

To ensure proper replacement parts are received, it is necessary to specify the complete number/letter sequence for any part request. You must include the part number stamped on the cylinder case when ordering parts



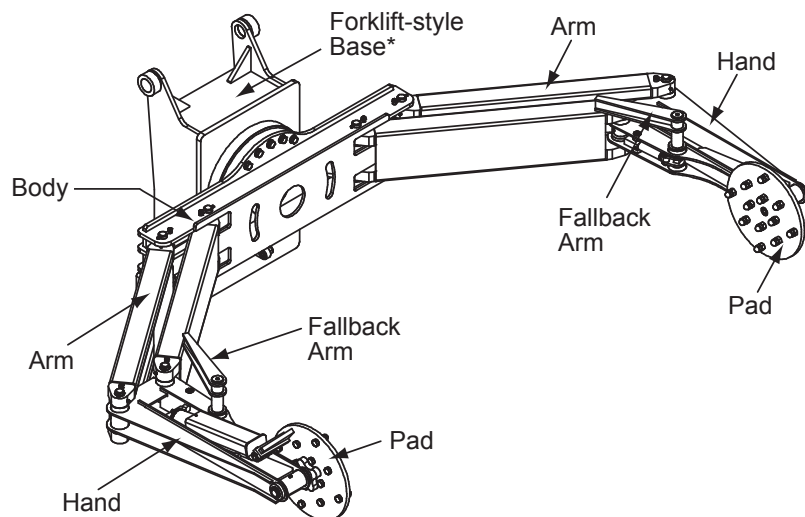
WELDMENT IDENTIFICATION

Each of the major weldments on the Tirehand bears a stamped part number. Any time a major weldment is replaced, you must specify the complete part number as stamped on the weldment. The locations of the part numbers are as shown below.

ORDERING REPAIR PARTS

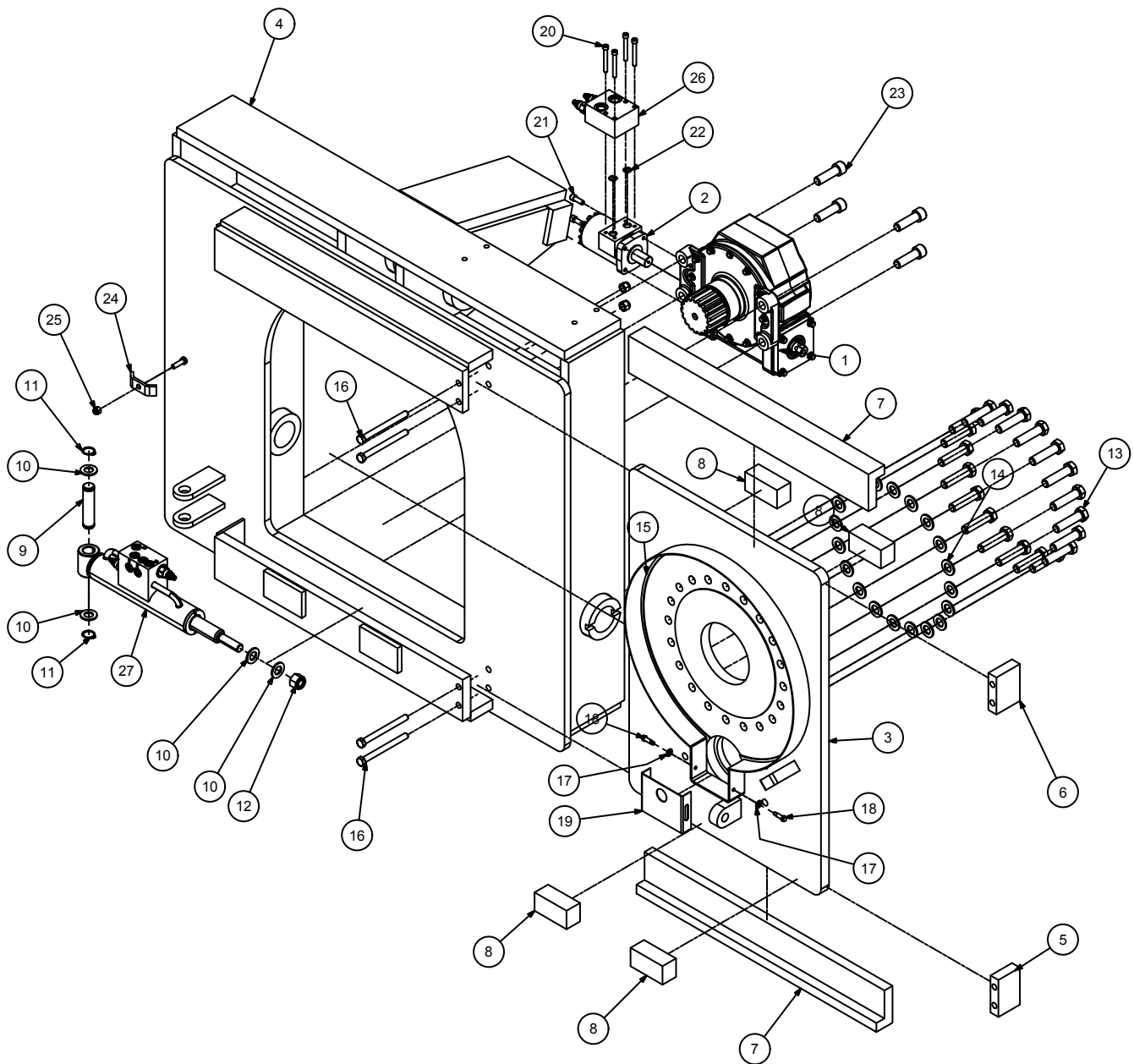
1. When ordering replacement parts:
2. Give the model number of the unit.
3. Give the serial number of the unit.
4. Specify the complete part number. When ordering cylinder parts, or one of the main weldments, always give the stamped part number.
5. Give a complete description of the part.
6. Specify the quantity required.

* Forklift style base shown in picture.



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TH5K115 - Sub Base Assembly (40724893)

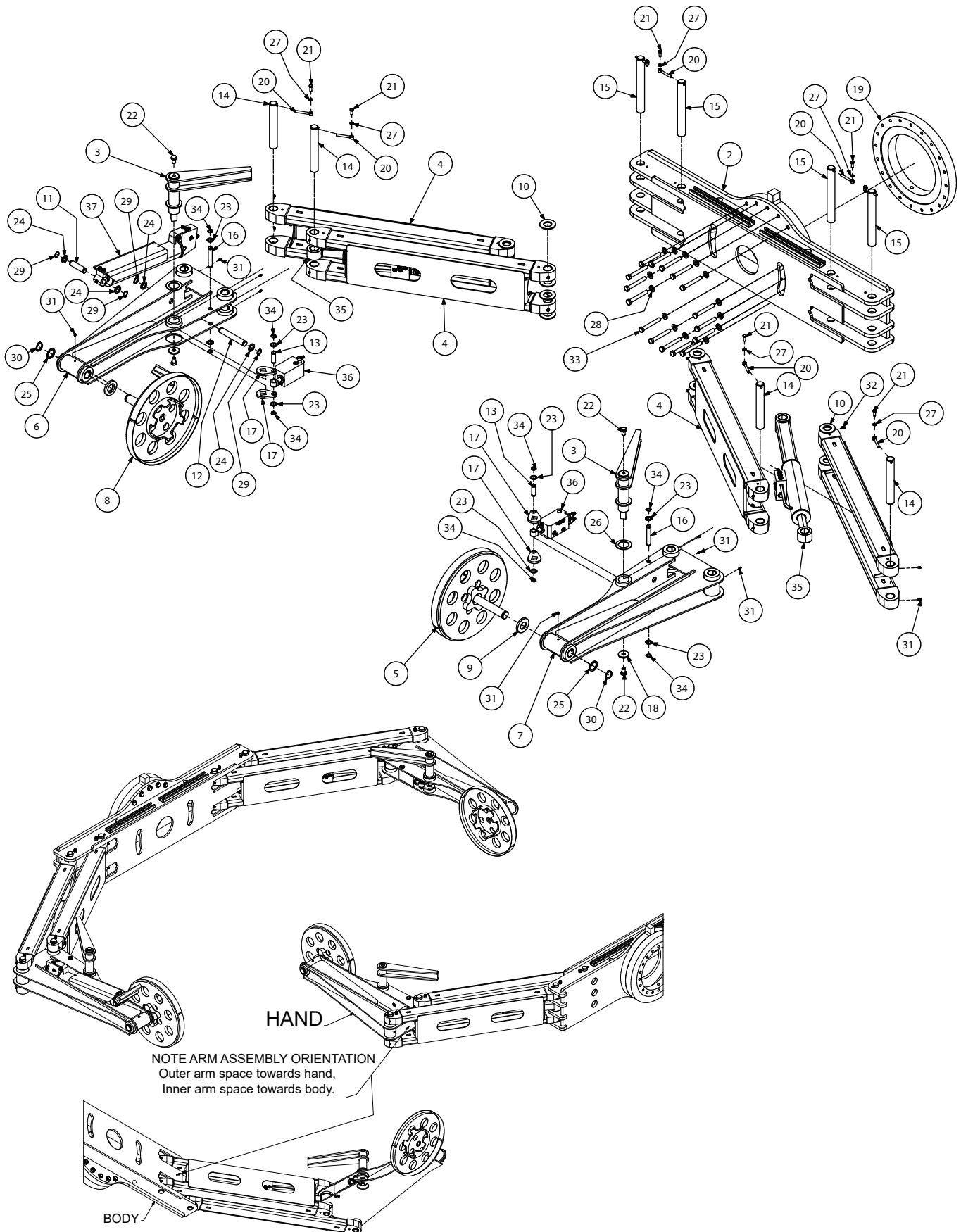


NOTE: Hardware is contained in kit no. 91724895.

40724893 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	70571005	GEAR BOX-5K BODY ROTATION	1
2.	73051001	MOTOR-HYD C103-1527/D151-2479	1
3.	52724668	SUB BASE-WLDMT 2ND STG 1449	1
4.	—	BASE WELDMENT	REF
5.	60110999	RETAINER PLT-BRG 1449 2.69in	1
6.	60111000	RETAINER PLT-BRG 1449 2.94in	1
7.	60030128	SLIDE PAD-UHMW 2.00X4.00X30.00	2
8.	60030129	WEAR PAD-RC UHMW 2.0X4.00X1.69	4
9.	60110998	PIN-TYPE A 1.00X 4.38 (3.81)	1
10.	72063008	WASHER .75 FLAT	4
11.	72066125	RETAINING RING-EXT 1.00 HD	2
12.	72062114	NUT .75-10 HEX NYLOCK	1
13.	72060207	CAP SCR .75-10X 3.00 HH GR8 Z	20
14.	72063116	WASHER .75 N FLAT H ASTM F436Z	20
15.	72062080	NUT .50-13 HEX NYLOCK	4
16.	72060102	CAP SCR .50-13X 5.50 HH GR5 Z	4
17.	72063002	WASHER .31 FLAT	2
18.	72060833	SCR-THRD.CUT .31-18X.75 HWH-1	2
19.	60010235	COVER-PINION GEAR	1
20.	72060738	CAP SCR .31-18 2.50 SH PLAIN	4
21.	72060753	CAP SCR .38-16X 1.00 SH PLAIN	4
22.	7Q072112	O RING .50X .69X .09 70	2
23.	72601488	CAP SCR .75-10X 2.50 SH Z	4
24.	60107648	CLAMP-HOSE SMALL	1
25.	72062103	NUT .38-16 HEX NYLOCK	1
26.	73540605	VALVE-CBAL 15 GPM 5:1 2600 PSI VENT DUAL	1
27.	51726990	CYL-2.0/1.2 7.13S 17.50CC S	1
REV. C CN429			

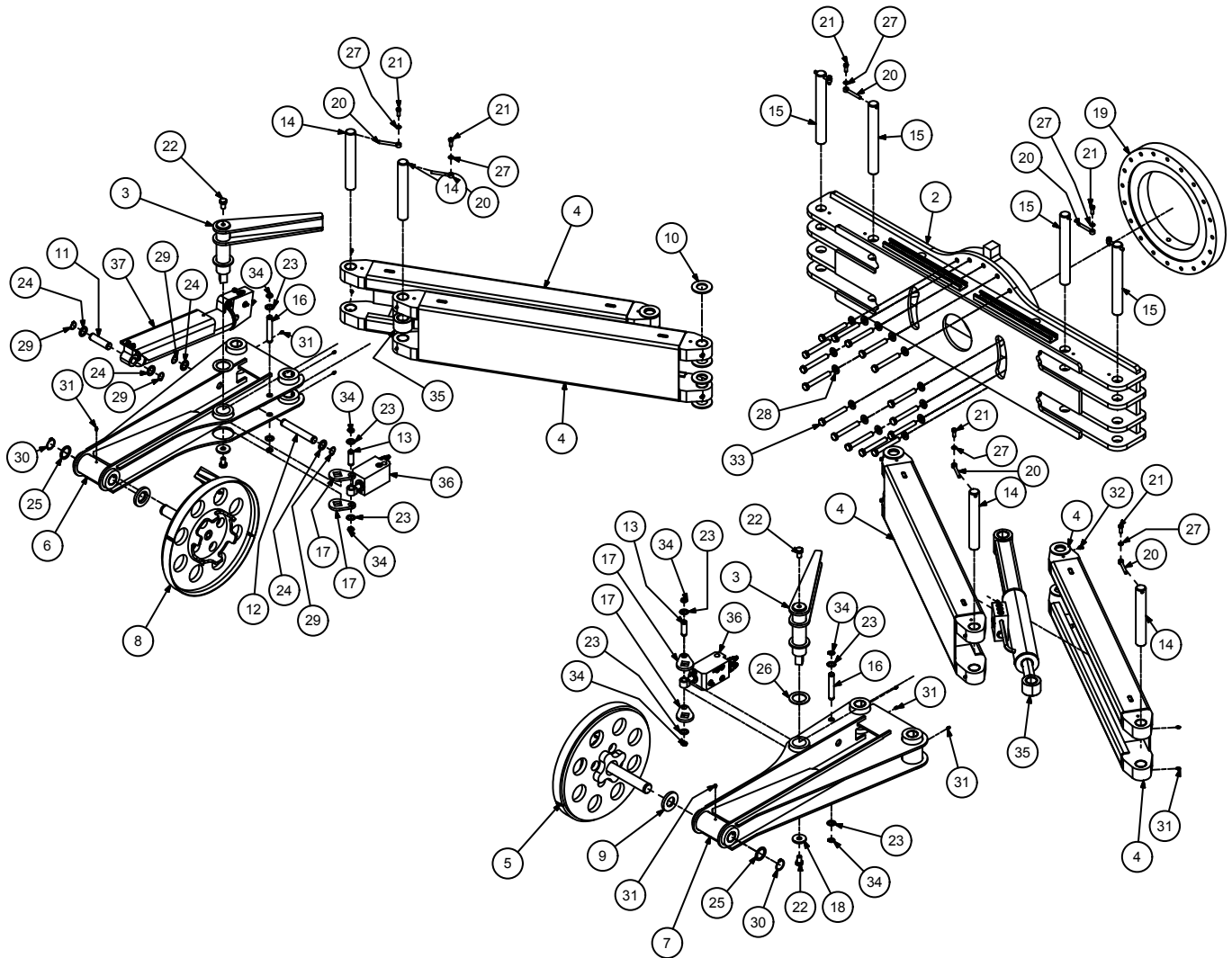
TH5K115 - Clamp Assembly (40724894)



40724894 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	KIT NO.	QTY.
1.	91724940	KIT-HRDW 5K CLAMP ASM		1
2.	52725692	WLDMT-BODY 5K		1
3.	52724662	WLDMT-FALLBACK ARM 5K		2
4.	52727805	WLDMT-ARM 5K TUBE CONSTR		4
5.	52724664	PAD WLDMT-LH 5K		1
6.	52724665	HAND WLDMT- 5K RH		1
7.	52724666	HAND WLDMT- 5K LH		1
8.	52724667	PAD WLDMT RH 5K		1
9.	60020206	WASHER-THRUST 1.50X3.00X .38		2
10.	60030497	SPACER- 1.56 ID 3.00 OD .19 THICK		16
11.	60104979	PIN-TYPE A 1.00X 3.75 (3.38)		1
12.	60106065	PIN-TYPE A 1.00X 6.62 (6.06)		1
13.	60141831	PIN-TYPE A .75X 2.41 (2.00)		2
14.	60139728	PIN-TYPE NN 1.50X 10.25		4
15.	60139729	PIN-TYPE NN 1.50X 12.50		4
16.	60139730	PIN-TYPE A .75X 4.50 (4.00)		2
17.	60140214	EAR-FALLBACK ARM TH5K		4
18.	60140215	RETAINER-FALLBACK ARM TH5K		2
19.	71056627	GEAR-TRNTBL BRG 44905183-2 INDU HARDENED		1
20.	71415014	KEEPER-PIN .38		8
21.	72060046	CAP SCR .38-16X 1.00 HH GR5 Z	1	8
22.	72060147	CAP SCR .62-11X 1.00 HH GR5 Z	1	4
23.	72063028	MACHY BUSHING .75X14 GA NR	1	8
24.	72063034	MACHY BUSHING 1.00X10 GA NR	1	4
25.	72063037	MACHY BUSHING 1.50X10 GA NR	1	2
26.	72063039	MACHY BUSHING 2.00X10 GA NR	1	2
27.	72063051	WASHER .38 LOCK	1	8
28.	72063119	WASHER .62 FLAT ASTM F436	1	16
29.	72066125	RETAINING RING-EXT 1.00 HD	1	4
30.	72066132	RETAINING RING-EXT 1.50 HD	1	2
31.	72533605	ZERK-STR THD .25-28	1	16
32.	72534873	ZERK-STR THD .25-28 TPR 90 DEG	1	8
33.	72602089	CAP SCR .62-11X 4.75 HH GR8 Z	1	16
34.	72661710	RETAINING RING-EXT .75 HD	1	8
35.	51726991	CYL-3.0/1.5 11.25S 36.88 CC C		2
36.	51726982	CYL-1.25/.75 2.0 STROKE 6.69 CC C		2
37.	51726987	CYL-3.0/1.5 13.00S 21.75CC		1
REV. F CN954				

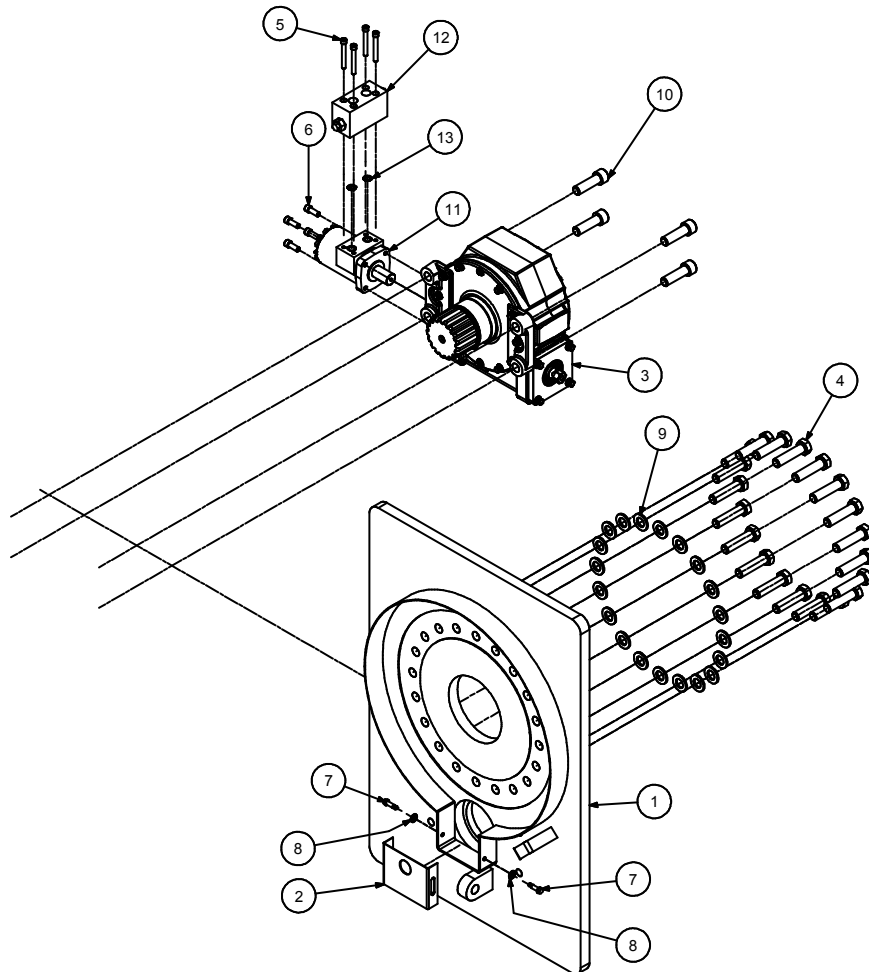
TH5K115 - Clamp Assembly (40724894) (EFFECTIVE THRU 08-19)



40724894 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	KIT NO.	QTY.
1.	91724940	KIT-HRDW 5K CLAMP ASM		1
2.	52725692	WLDMT-BODY 5K		1
3.	52724662	WLDMT-FALLBACK ARM 5K		2
4.	52724663	WLDMT- ARM 5K		4
5.	52724664	PAD WLDMT-LH 5K		1
6.	52724665	HAND WLDMT- 5K RH		1
7.	52724666	HAND WLDMT- 5K LH		1
8.	52724667	PAD WLDMT RH 5K		1
9.	60020206	WASHER-THRUST 1.50X3.00X .38		2
10.	60030497	SPACER- 1.56 ID 3.00 OD .19 THICK		16
11.	60104979	PIN-TYPE A 1.00X 3.75 (3.38)		1
12.	60106065	PIN-TYPE A 1.00X 6.62 (6.06)		1
13.	60141831	PIN-TYPE A .75X 2.41 (2.00)		2
14.	60139728	PIN-TYPE NN 1.50X 10.25		4
15.	60139729	PIN-TYPE NN 1.50X 12.50		4
16.	60139730	PIN-TYPE A .75X 4.50 (4.00)		2
17.	60140214	EAR-FALLBACK ARM TH5K		4
18.	60140215	RETAINER-FALLBACK ARM TH5K		2
19.	71056627	GEAR-TRNTBL BRG 44905183-2 INDU HARDENED		1
20.	71415014	KEEPER-PIN .38		8
21.	72060046	CAP SCR .38-16X 1.00 HH GR5 Z	1	8
22.	72060147	CAP SCR .62-11X 1.00 HH GR5 Z	1	4
23.	72063028	MACHY BUSHING .75X14 GA NR	1	8
24.	72063034	MACHY BUSHING 1.00X10 GA NR	1	4
25.	72063037	MACHY BUSHING 1.50X10 GA NR	1	2
26.	72063039	MACHY BUSHING 2.00X10 GA NR	1	2
27.	72063051	WASHER .38 LOCK	1	8
28.	72063119	WASHER .62 FLAT ASTM F436	1	16
29.	72066125	RETAINING RING-EXT 1.00 HD	1	4
30.	72066132	RETAINING RING-EXT 1.50 HD	1	2
31.	72533605	ZERK-STR THD .25-28	1	16
32.	72534873	ZERK-STR THD .25-28 TPR 90 DEG	1	8
33.	72602089	CAP SCR .62-11X 4.75 HH GR8 Z	1	16
34.	72661710	RETAINING RING-EXT .75 HD	1	8
35.	51726991	CYL-3.0/1.5 11.25S 36.88 CC C		2
36.	51726982	CYL-1.25/.75 2.0 STROKE 6.69 CC C		2
37.	51726987	CYL-3.0/1.5 13.00S 21.75CC		1
REV. E				

TH5K115 - Sub Base Assembly (40724912)

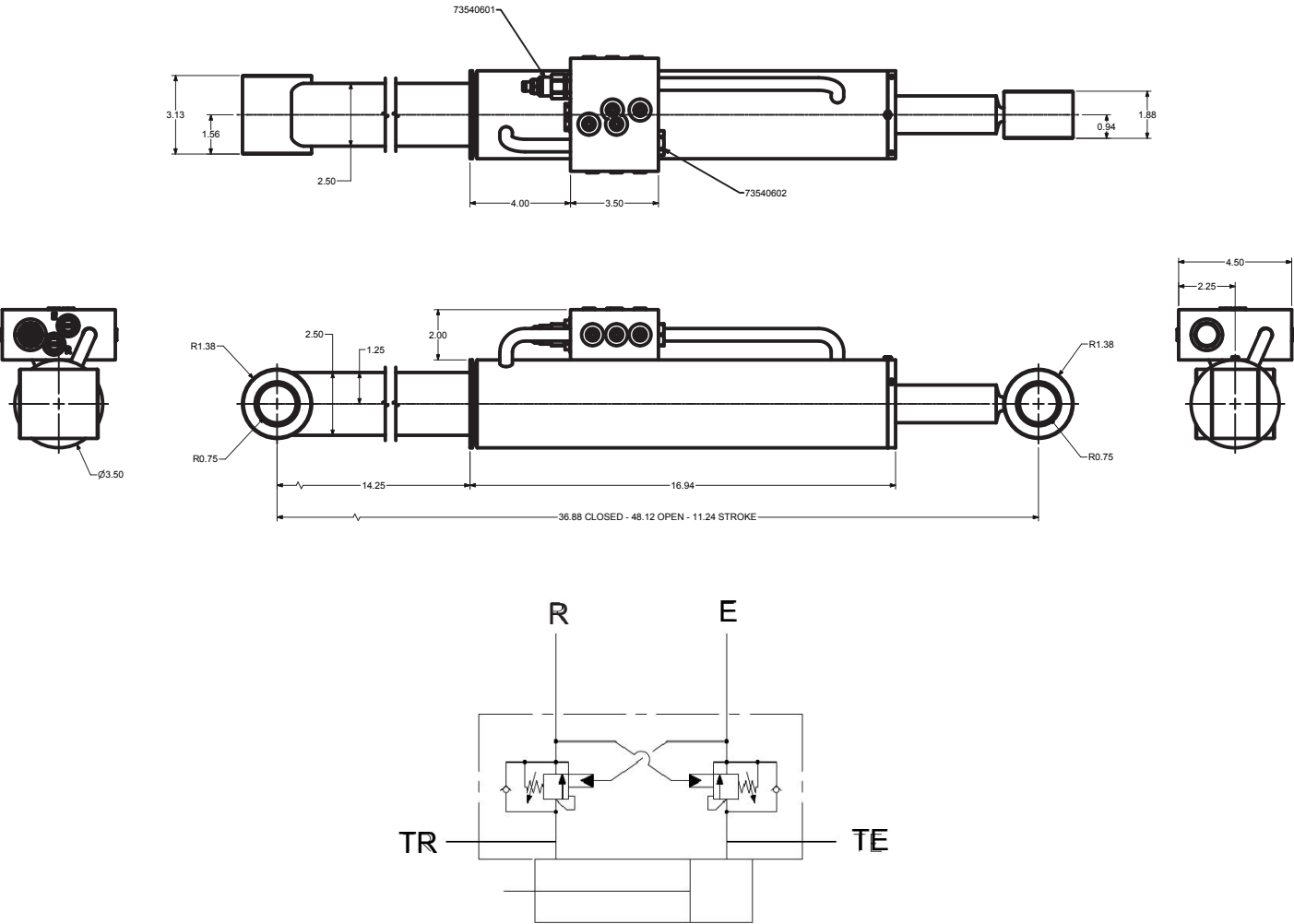


NOTE: Hardware is contained in kit no. 91724895.

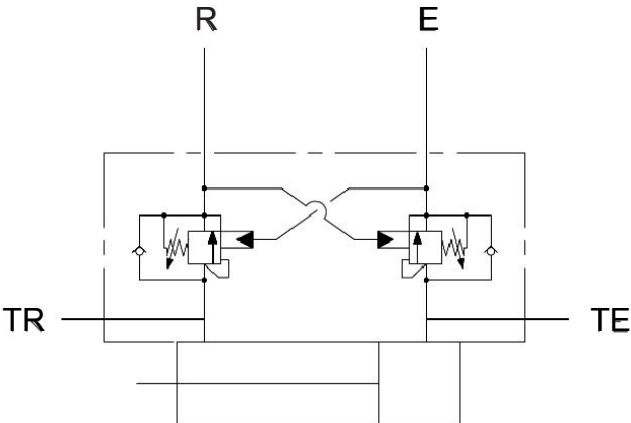
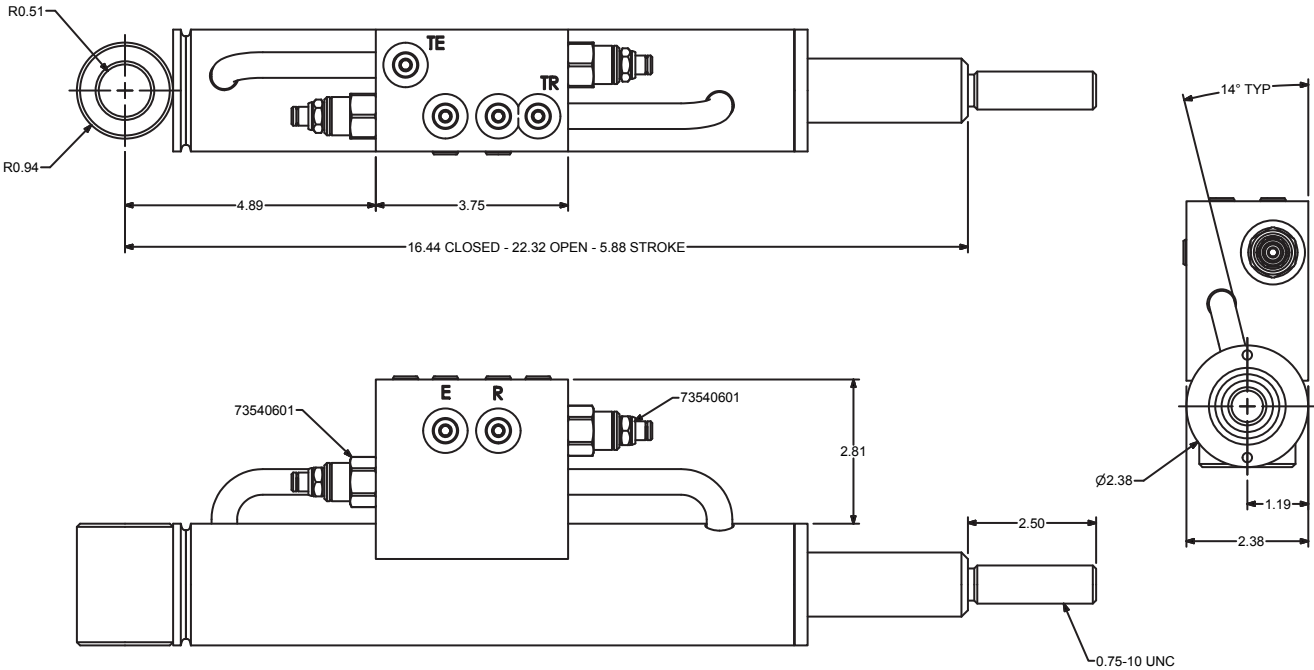
40724912 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.		BASE-WLDMT WO SIDE SHIFT	1
2.	60010235	COVER-PINION GEAR	1
3.	70571005	GEAR BOX-5K BODY ROTATION	1
4.	72060207	CAP SCR .75-10X 3.00 HH GR8 Z	20
5.	72060738	CAP SCR .31-18 2.50 SH PLAIN	4
6.	72060753	CAP SCR .38-16X 1.00 SH PLAIN	4
7.	72060833	SCR-THRD.CUT .31-18X.75 HWH-1	2
8.	72063002	WASHER .31 FLAT	2
9.	72063116	WASHER .75 N FLAT H ASTM F436Z	20
10.	72601488	CAP SCR .75-10X 2.50 SH Z	4
11.	73051001	MOTOR-HYD C103-1527/D151-2479	1
12.	73054015	VALVE-CUSHION 10-02	1
13.	7Q072112	O RING .50X .69X .09 70	2
REV. A			

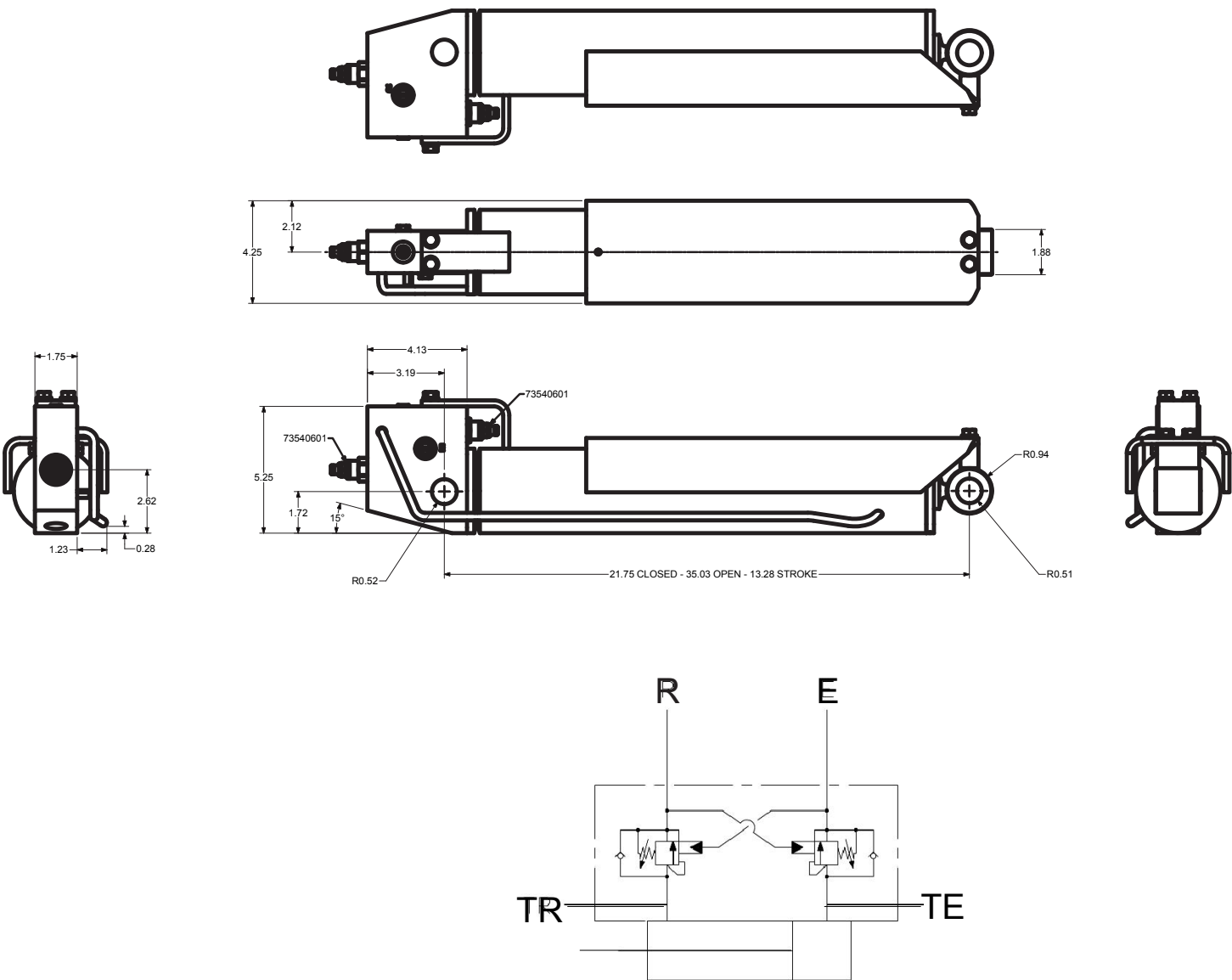
TH5K115 - Cylinder (51726991)



TH5K115 - Cylinder (51726990)

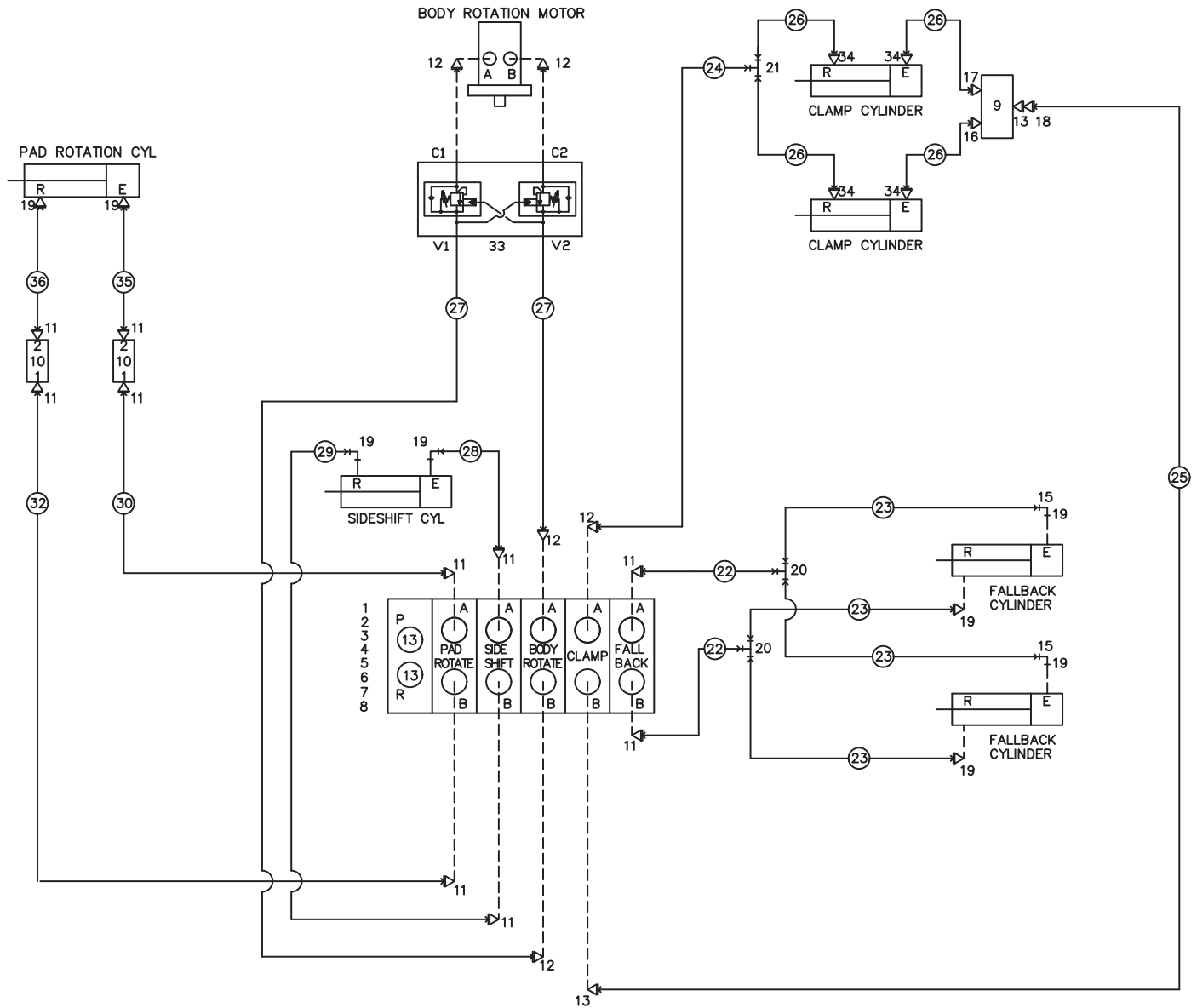


TH5K115 - Cylinder (51726987)



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TH5K115 - Hydraulic Kit With Valve Bank (91724909)



NOTES:

- Hose kit: 91725711
- Hoses without part numbers can vary by build due to valve bank mounting locations.
- Hardware kit: 91724977
- Side shift cylinder - extend equals hand left.
- Clamp cylinders - extend equals clamp.
- Fallback cylinders - extend equals deploy.

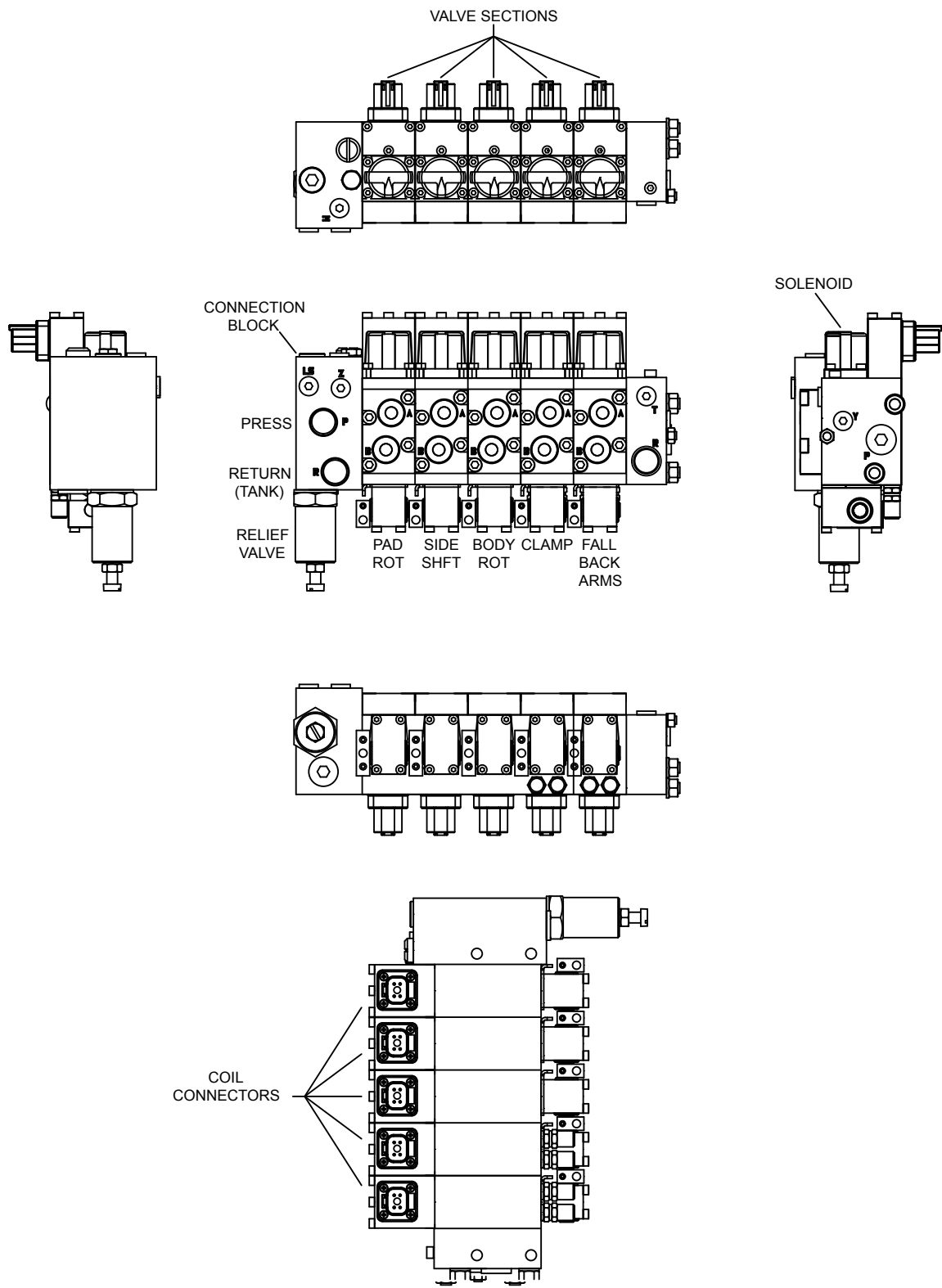
91724909 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	73734735	VALVE BANK	1
2.	60140348	MOUNTING BRACKET – VALVE	1
3.	72601278	CAP SCR M 8-1.25 X 20 HHZ	3
4.	72601797	LOCK WASHER 8 MM	3
5.	72601799	WASHER 8 MM	3
6.	72060047	CAP SCR .38-16 X 1.25 HH GR5 Z	4
7.	72063051	WASHER – LOCK .38 ZINC	4
8.	72063003	WASHER – FLAT .38 W ANSI B27.2 Z	4
9.	73054614	FLOW DIVIDER	1
10.	72534886	VALVE – FLOW CONTROL	2
11.	72532792	ADPTR – M STR / M JIC 8 4	10
12.	72532356	ADPTR – M STR M JIC 8 6	9
13.	72532358	ADPTR – M STR / M JIC 8 8	4
14.	72053758	ELBOW – M STR / 90 / M JIC 4 4	4
15.	72532770	ELBOW – M JIC / 45/ F JIC 4 4	2
16.	72053760	ELBOW – M STR / 90 / M JIC 6 6	1
17.	72532700	ELBOW – M STR / 90 / M JIC ELG 6 6	1
18.	72533980	SWIVEL – JIC / F JIC 8 8 IN – LINE	1
19.	72532351	ADPTR – M STR / M JIC 4 4	4
20.	72532768	TEE – UNION JIC 4	2
21.	72532769	TEE – UNION JIC 6	1
22.		HOSE -- .25 (4-4) 100R17 (VARIES BY BUILD)	2
23.	51490076	HOSE-FI .25 X 86.00 (4-4) 100R17	4
24.		HOSE – FF .38 X (6-6) 100R17 (VARIES BY BUILD)	1
25.		HOSE – FF .38 X (8-8) 100R17 (VARIES BY BUILD)	1
26.	51399536	HOSE-FF .38 X 48.00 (6-6) 100R17	4
27.		HOSE – FF .38 X (6-6) 100R17 (VARIES BY BUILD)	2
28.		HOSE – FF .25 X (4-4) 100R17 (VARIES BY BUILD)	1
29.		HOSE – FF .25 X (4-4) 100R17 (VARIES BY BUILD)	1
30.		HOSE -- .25 X 115.00 (4-4) 100R17	1
31.		HOSE -- .25 X (4-4) 100R17 (VARIES BY BUILD)	2
32.		HOSE – FF .25 X 132.00 (4-4) 100R17	1
33.	73540605	VALVE – CBAL 15GPM 5:1 2600 PSI VENT DUAL	1
34.	72532775	ADPTR-M STR/M JIC 4 6	4
35.	51397024	HOSE-FJ .25 X 84.00 (4-4) 100R17	1
36.	51490077	HOSE-FF .25 X 83.00 (4-4) 100R17	1
REV. E			

NOTE: Items shown are common service items, for part numbers not assigned contact:

IOWA MOLD TOOLING CO., INC.
TECHNICAL SUPPORT TEAM
TELEPHONE: 800-554-4421

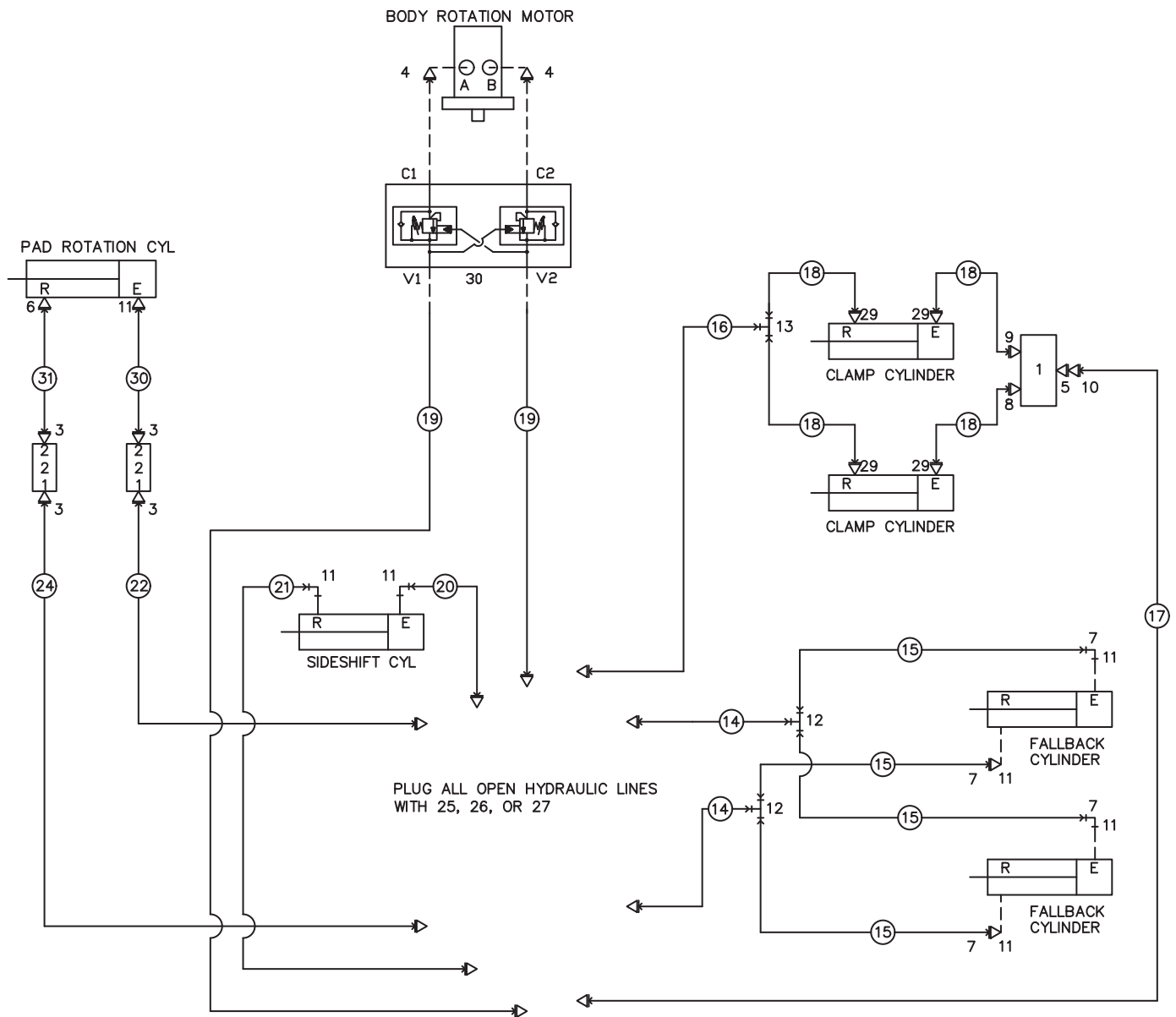
TH5K115 - Valve Bank (73734735)



73734735 PARTS LIST

PART NO.	DESCRIPTION	QTY.
94392213	SEAL KIT, CONNECTION BLOCK	1
94399214	SEAL KIT, SEALS BETWEEN SECTIONS	1
73734727	24V COIL FOR SOLENOID	5
REV. INITIAL RELEASE		

TH5K115 - Hydraulic Kit With Out Valve Bank (91724929)



Hoses without part numbers can vary by build due to valve bank mounting locations.

NOTES:

- Clamp cylinders - extend equals clamp.
- Fallback cylinders - extend equals deploy.
- Hoses without part numbers can vary by build due to valve bank mounting location.
- Hose kit no: 91725719

91724929 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	73054614	FLOW DIV-COMB-FD50-45-8DD-N-66	1
2	72534886	VALVE-FLOW CONTROL	2
3	72532792	ADPTR-M STR/M JIC 8 4	4
4	72532356	ADPTR-M STR/M JIC 8 6	2
5	72532358	ADPTR-M STR/M JIC 8 8	1
6	72053758	ELBOW-M STR/90/M JIC 4 4	1
7	72532770	ELBOW-M JIC/45/F JIC 4 4	4
8	72053760	ELBOW-M STR/90/M JIC 6 6	1
9	72532700	ELBOW-M STR/90/M JIC XLG 6 6	1
10	72532980	SWIVEL-M JIC/F JIC 8 8 IN-LINE	1
11	72532351	ADPTR-M STR/M JIC 4 4	7
12	72532768	TEE-UNION JIC 4	2
13	72532769	TEE-UNION JIC 6	1
14			2
15	51490076	HOSE-FI .25 X 86.00 (4-4) 100R17	4
16			1
17			1
18	51399536	HOSE-FF .38 X 48.00 (6-6) 100R17	4
19			2
20			1
21			1
22			1
23			2
24			1
25	72532679	PLUG-JIC HEX HD STL - 8	1
26	72534423	PLUG-JIC HEX HD STL - 6	3
27	72532678	PLUG-JIC HEX HD STL - 4	6
28	73540605	VALVE-CBAL 15 GPM 5:1 2600 PSI VENT DUAL	1
29	72532775	ADPTR-M STR/M JIC 4 6	4
30	51397024	HOSE-FJ .25 X 84.00 (4-4) 100R17	1
31	51490077	HOSE-FF .25 X 83.00 (4-4) 100R17	1
REV. E			

NOTE: Items shown are common service items, for part numbers not assigned contact:

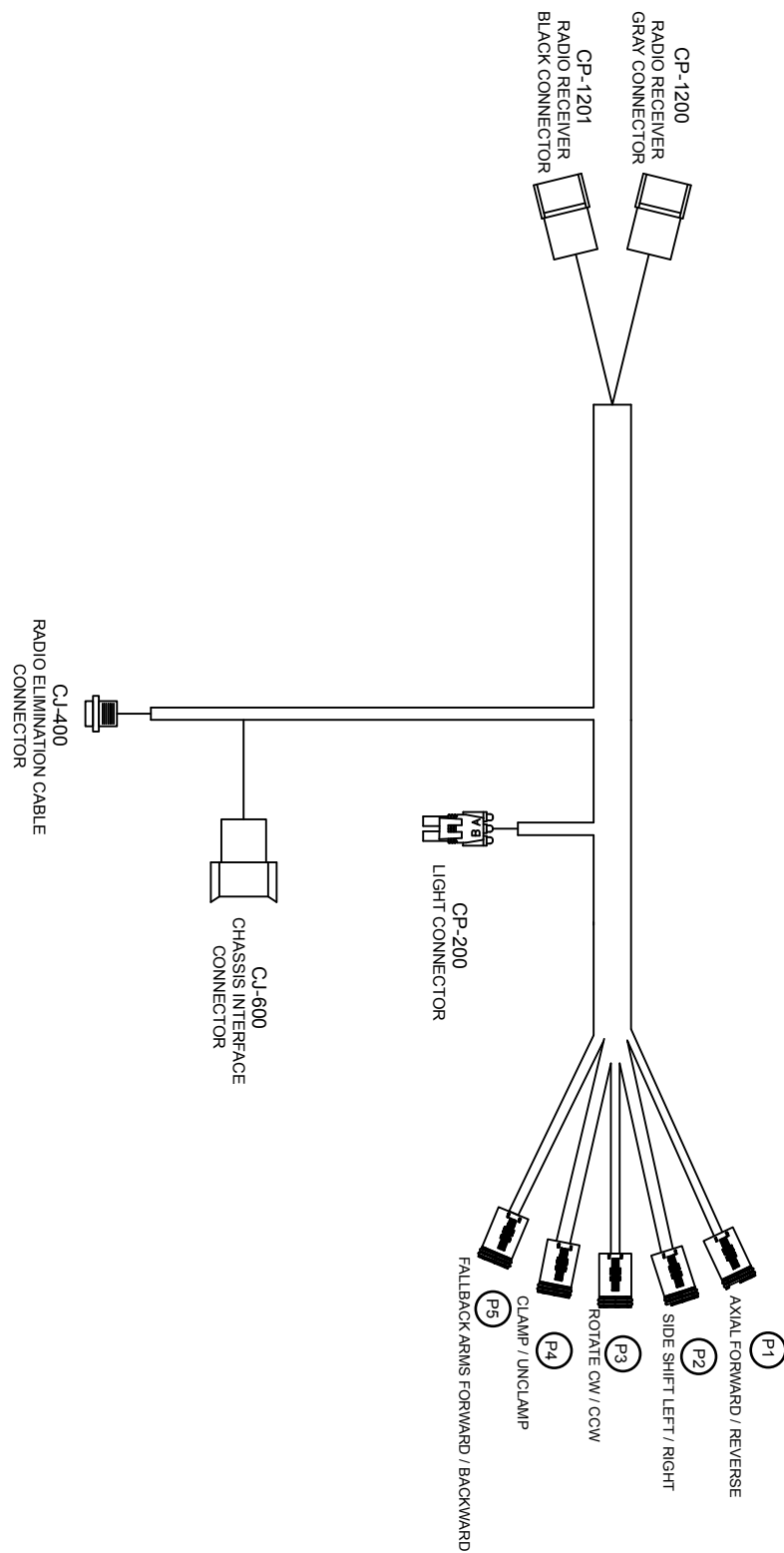
**IOWA MOLD TOOLING CO., INC.
TECHNICAL SUPPORT TEAM
TELEPHONE: 800-554-4421**

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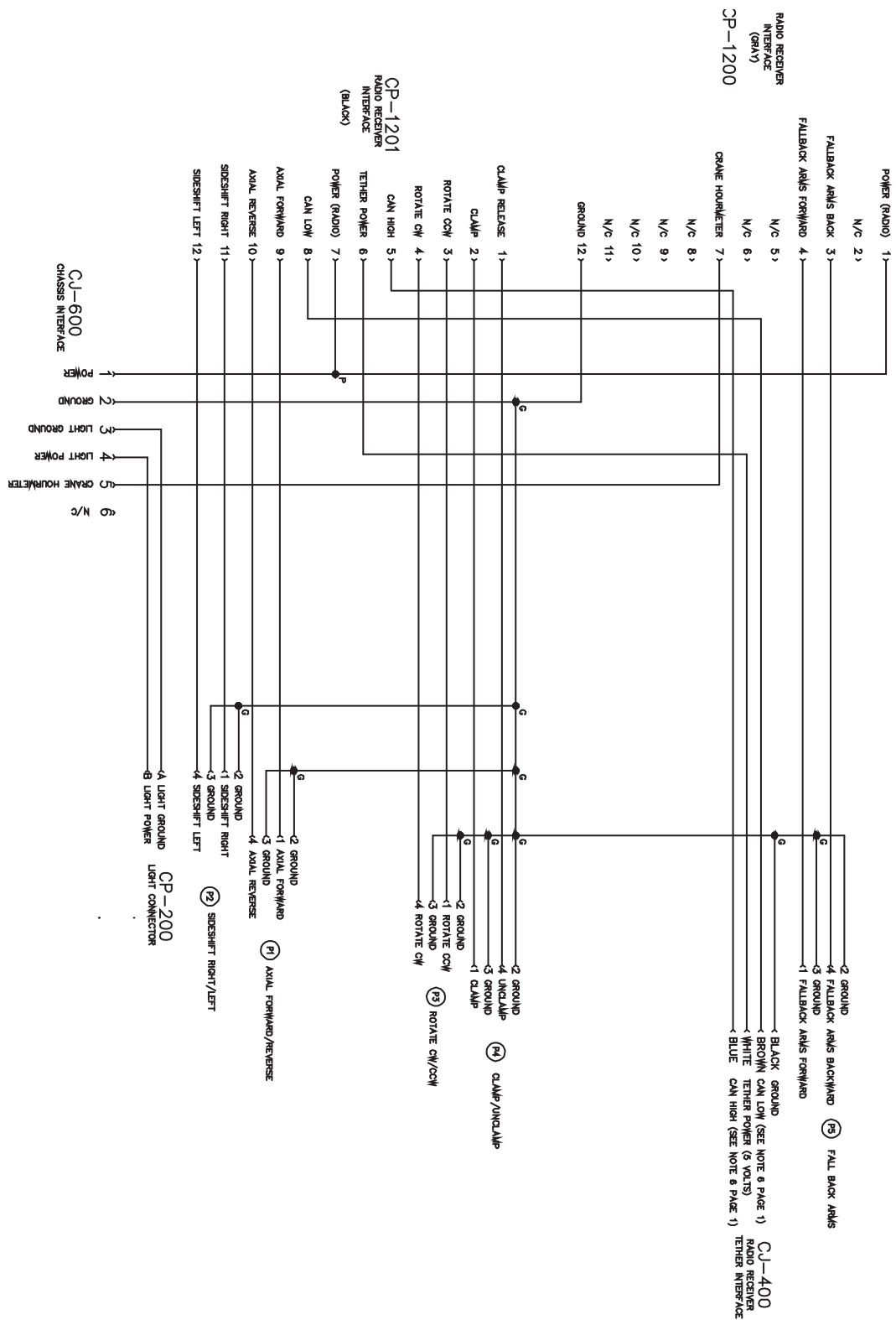
Electrical & Lighting

Section - 6

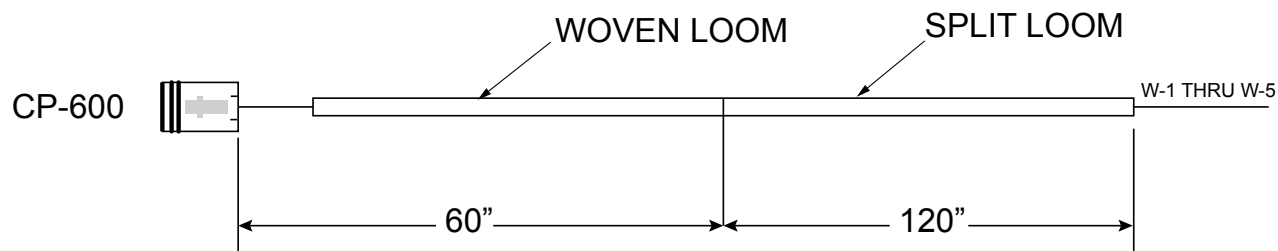
TH5K115 - Radio Remote Harness (77441524)



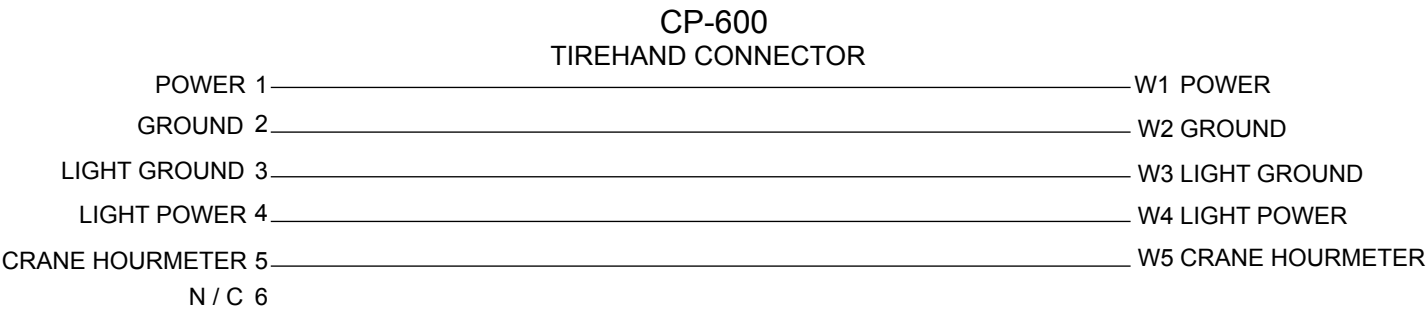
77441524-1



TH5K115 - Chassis Interface Harness (77441525)



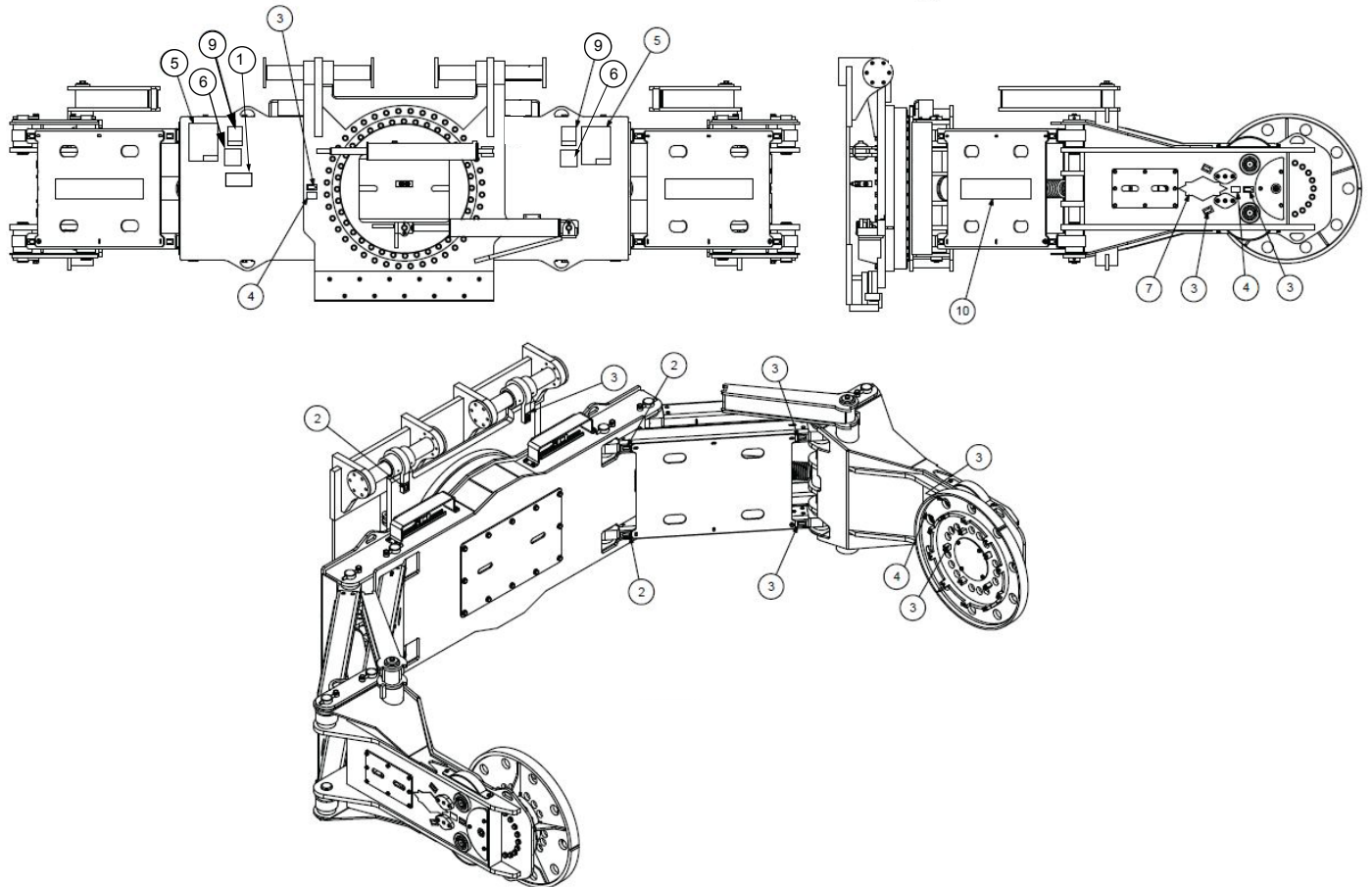
77441525-1 RADIO REMOTE HARNESS



General Information

Section - 7

TH5K115 - Decal Kit (95724921)



NOTE: This drawing denotes the location of the decals only. It does not identify the individual models. The appearance of the Tirehand may be different than shown.

95724921 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	70029119	PLACARD-SERIAL NUMBER	1
2.	70391612	DECAL-GREASE WEEKLY (LEFT)	14
3.	70391613	DECAL-GREASE WEEKLY (RIGHT)	15
4.	70392524	DECAL-ROTATE CRANE WHILE GREASE	5
5.	70393671	DECAL-TH OPERATION WARNINGS	2
6.	70393672	DECAL-DANGER TH OPERATION	2
7.	70399140	DECAL-DIAMOND IMT 6.75X13.50 REFL	2
8.	72661638	TACK-METAL	2
9.	70399030	CAPACITY CHART	2
10.	70399029	IDENTIFICATION DECAL	2
REV. A			

TH5K115 - Troubleshooting

SYMPTOM	PROBABLE CAUSE
Controls fail to respond	<ul style="list-style-type: none"> • E-stop on remote pressed in. • Remote not turned on. • Pump not engaged - if supplied with electric clutch • Hydraulic oil supply is low. • Hydraulic pressure line is ruptured. • Suction line shut-off valve is obstructed. • Faulty hydraulic pump. • Incorrectly set relief valve.
Operation slows down.	<ul style="list-style-type: none"> • Hydraulic oil supply is low. • Hydraulic pump is operating at a reduced speed. • Relief valve is set too low. • Pump or cylinder is worn. • Pump is slipping due to excessive oil temperature. (This is a factor which will increase with worn components.) • Dirty filter. • Inoperative valve spools. • Obstructed cylinder holding valve.
Rotation control slowed or erratic.	<ul style="list-style-type: none"> • Internal port orifices are clogged. • Rotation gears are locked or damaged.
Arms and pads drift when loaded and controls neutralized.	<ul style="list-style-type: none"> • Hydraulic oil is bypassing at piston rings. • Cylinder holding valves are defective or contaminated.
Unusual noise in operation.	<ul style="list-style-type: none"> • Pump cavitation due to low hydraulic oil supply. • Loading is excessive. • Restriction or collapse of suction line. • Bypass settings on relief valve are too low. • Relief valve is damaged. • Valve closure is obstructed due to particle accumulation.
Side step chatters or slows.	<ul style="list-style-type: none"> • Bearings need lubrication. • Mechanical damage to bracket • Lower cylinder damaged.
Arm chatter or noise.	<ul style="list-style-type: none"> • Arms need both internal and external lubrication. • Bearing damaged.

TH5K115 - Cylinders

The Tirehand uses similar cylinders in all functions. Common disassembly and repair instructions apply. Check the Parts section for specific information.

CLAMP CYLINDER REMOVAL & INSTALLATION

To remove the clamp cylinder:

1. Rotate the Tirehand until the clamp cylinder is in a horizontal position.
2. Extend the cylinder full stroke.
3. Shut off the carrier vehicle's engine. Relieve the internal hydraulic pressure by cycling the controls.
4. Remove the cover from the body (refer to the appropriate body drawing) and disconnect the hydraulic hoses at the cylinder port block. Cap the hydraulic hoses.
5. Support the hand assembly with a lifting device and straps capable of supporting the assembly. Take up slack in the lifting device.
6. Disconnect and cap any hydraulic lines leading to the pad rotation mechanism.
7. Remove the cylinder rod pin by removing the 3/4-10 cap screws and washer securing the pin. Drive out the pin.
8. Support the hand assembly. Remove the two smaller hand/arm pins by removing the 3/4-10 cap screws securing the pins. Drive out the pins.
9. Lift the hand assembly away and place on a clean surface. Keep dirt out of the bushing surfaces.
10. Support the clamp cylinder with a lifting device and straps capable of supporting the cylinder
11. Remove the cylinder base pin securing screw and washer. Drive the pin only far enough to release the cylinder.
12. Lift the cylinder away and repair as necessary.

To install the clamp cylinder:

1. Position the cylinder in the slings of the lifting device and line up the base end pin boss and pin. Seat the pin and secure using the 3/4-10 cap screw and washer. Torque to 265 FT-LB (36.6 KG-M).
2. Lift the hand assembly with the slings and position the pin bosses in line with the pins. Drive in the pins and secure using the 3/4-10 hardware. Torque to 265 FT-LB (36.6 KG-M).
3. Connect the hydraulic hoses to the clamp cylinder and axial rotation motor.
4. Start the engine. Cycle the CLAMP and PAD controls through at least five cycles to purge any air trapped in the system. Check for leaks.
5. Check the hydraulic fluid level with all cylinders retracted. Fill if necessary.
6. Test the unit with a simulated job operation before proceeding to the job site.

SIDE SHIFT CYLINDER REMOVAL AND INSTALLATION

To remove the side shift cylinder:

1. Rotate the Tirehand so that the side shift cylinder is in a horizontal position.
2. Disconnect the hydraulic hoses from the cylinder port. Cap the hoses.
3. Remove the retaining rings and bushings from the rod end and base end of the cylinder.
4. Drive out the pins.
5. Disassemble and repair the cylinder.

To install the cylinder:

1. Line up the cylinder base-end pin boss with the holes in the base. Drive in the pin and install the machinery bushing and retaining ring.
2. Connect the hydraulic hoses to the cylinder port.
3. Extend and retract the cylinder until the rod-end pin boss lines up with the holes in the sub- base. Drive in the pin and install the machinery bushing and retaining ring.
4. Extend and retract the cylinder until the rod-end pin boss lines up with the holes in the sub-base. Drive in the pin and install the machinery bushing and retaining ring.
5. Check the hydraulic reservoir fluid level with all cylinders retracted. Fill if necessary.
6. Conduct a simulated job operation before proceeding to the job site.

TH5K115 - Replacement Parts

COUNTER BALANCE VALVES

Counterbalance valves are considered non-repairable and must be replaced if defective.

HYDRAULIC PUMP

The installer or manufacturer of the carrier vehicle must supply 5 gpm (18.9 L/min) of hydraulic fluid at 3000 psi (207 Bar).

TH5K115 - Hydraulic Motors

One hydraulic motor is used on the Tirehand for rotation. This motor is not considered field repairable and should be replaced if defective.

HYDRAULIC MOTOR REMOVAL AND REPLACEMENT

To remove rotation motor:

1. Disconnect and cap the hydraulic hoses.
2. Remove the two motor mounting bolts.
3. Remove the counterbalance block and hose fittings from the old motor.

To install the new motor:

1. Install the counterbalance block and hose fittings from the old motor. Do not use the old o-rings, they should be replaced.
2. Position the motor on the base and install the two mounting bolts. Torque them to the proper value (See Torque Table).
3. Connect the hoses.
4. Start the engine, rotate the Tirehand five (5) times in both directions and check for leaks.
5. With all cylinders retracted, check the fluid level in the reservoir and fill if necessary.

TH5K115 - Relief Valve Adjustment

The hydraulic system is designed to operate at a pressure requirement of 3000 psi (207 Bar) with an optimum oil flow of 5 gpm (18.9 L/min). To adjust the relief valve:

1. Start the vehicle and engage the pump.
2. With the vehicle transmission in neutral, operate any function full stroke, and with function lever still engaged at end of stroke, read the pressure on the gauge at the control valve. It should read between 3000 psi (207 Bar).
3. If the pressure reading is low, shut off the engine and adjust the relief valve. Loosen the nut on the relief valve adjustment screw, then turn the screw to adjust the pressure. Check the pressure, and continue adjustment if needed.

TH5K115 - Bearings

This section includes instructions on the removal and installation of turntable gear-bearings and bushings.

TURNTABLE GEAR-BEARING

To remove the Tirehand rotation gear-bearing:

1. Disconnect and cap the hydraulic hoses from the valve bank.
2. Support the clamp arms with an overhead lifting device capable of supporting the weight of the unit. Take up the slack in the lifting device
3. Remove the cover, then remove the bolts that secure the body to the gear-bearing. Slowly work the hoses out of the rotation adapter while simultaneously withdrawing the body. Set the body carefully to one side.
4. Disconnect the grease fitting extension from the turntable gear-bearing.
5. Remove the gear-bearing mounting bolts and remove the gear bearing.

WARNING

The lifting device must be fastened to the tirehand in such a manner that will prevent shifting of the load due to slippage.

TO INSTALL THE GEAR-BEARING:

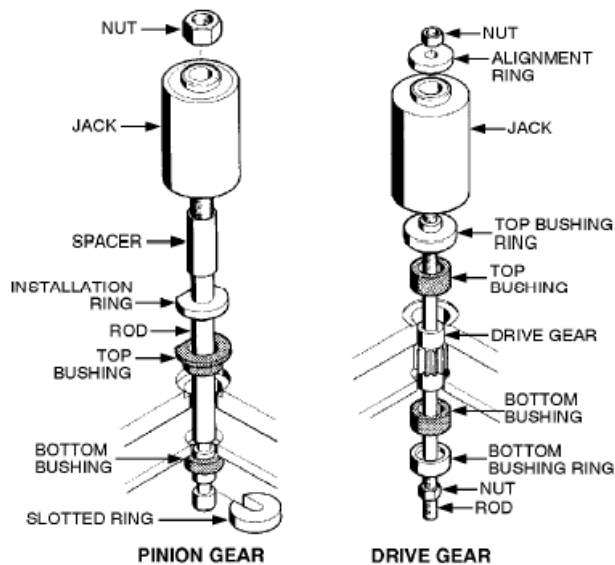
Position the gear-bearing and torque the mounting bolts (see Torque Table).

1. Install the grease fitting extension.
2. Carefully position the body and clamp arms until the holes in the body line up with the holes in the gear-bearing. Install the mounting bolts and torque to the proper value (see Torque Table).
3. Connect the hydraulic hoses to the valve bank.
4. Start the engine and cycle all of the Tirehand controls at least five (5) times in both directions to purge the air in the system.
5. Check the system for leaks and repair any that are found.
6. With all cylinders retracted, check the fluid level in the reservoir and fill if necessary.

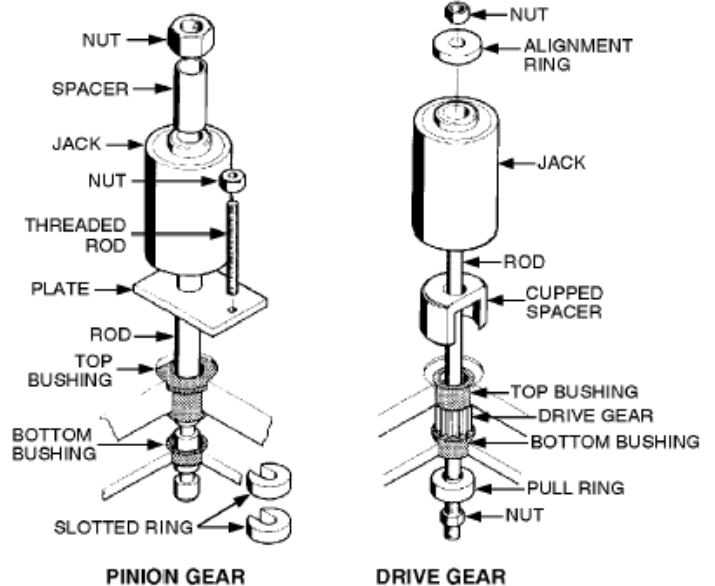
BUSHING REMOVAL AND INSTALLATION

To replace a bushing:

1. Remove the weldment containing the bushing.
2. Position the bushing removal tool as shown and extract the bushing.
3. To install the bushing, assemble the tool as shown and press the bushing in.



Bushing removal illustration



Bushing installation illustration

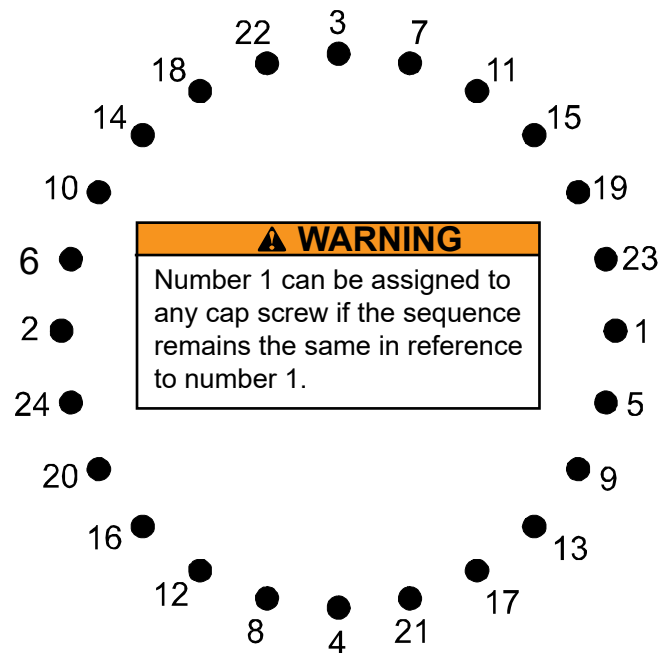
TH5K115 - Turntable Bearing Inspection

Turntable bearings may experience wear. One of the following conditions may indicate turntable bearing wear:

1. Metal particles present in the bearing lubricant.
2. Increased drive power required to rotate the crane.
3. Noise emitting from the bearing during rotation.
4. Rough rotation.
5. Uneven or excessive wear between the pinion gear and turntable gear.

If one or more of the above conditions exists, further inspection may be required. Contact IMT for assistance.

TH5K115 - Turntable Bearing Thread Tightening Sequence







NOTES:

Refer to the turntable bearing thread tightening diagram for proper tightening / torquing sequence of the turntable bearing to the crane base and crane mast. The total quantity of cap screws varies dependent on crane model.

TIGHTENING PROCEDURE

1. Refer to the torque data chart to determine the proper torque value to apply to the size of cap screw used.
2. Follow the tightening sequence shown in the diagram. Note the crisscross pattern as shown in the diagram.
3. Torque all cap screws to approximately 40% of the specified torque value, by following the sequence.
 - (Example: $.40 \times 265 \text{ ft-lb} = 106 \text{ ft-lb}$)
 - (Example-metric: $.40 \times 36 \text{ kg-m} = 14.4 \text{ kg-m}$)
4. Repeat step 3, but torquing all cap screws to 75% of the specified torque value. Continue to follow the tightening sequence.
 - (Example: $.75 \times 265 \text{ ft-lb} = 199 \text{ ft-lb}$)
 - (Example-metric: $.75 \times 36 \text{ kg-m} = 27 \text{ kg-m}$)
5. Using the proper sequence, torque all cap screws to the listed torque value as determined from the torque data chart.

TH5K115 - Thread Torque Chart (English)

FINE THREAD BOLTS (ENGLISH)						COARSE THREAD BOLTS (ENGLISH)					
SIZE	BOLT DIA.	GRADE 5  SAE J429 GRADE 5		GRADE 8  SAE J429 GRADE 8		SIZE	BOLT DIA.	GRADE 5  SAE J429 GRADE 5		GRADE 8  SAE J429 GRADE 8	
(DIA-TPI)	(INCHES)	PLAIN	PLATED	PLAIN	PLATED	(DIA-TPI)	(INCHES)	PLAIN	PLATED	PLAIN	PLATED
		(FT-LB)	(FT-LB)	(FT-LB)	(FT-LB)			(FT-LB)	(FT-LB)	(FT-LB)	(FT-LB)
5/16-24	0.3125	19	14	27	20	5/16-18	0.3125	17	13	25	18
3/8-24	0.375	35	26	49	35	3/8-16	0.375	31	23	44	33
7/16-20	0.4375	55	41	78	58	7/16-14	0.4375	49	37	70	52
1/2-20	0.5	90	64	120	90	1/2-13	0.5	75	57	105	80
9/16-18	0.5625	120	90	170	130	9/16-12	0.5625	110	82	155	115
5/8-18	0.625	170	130	240	180	5/8-11	0.625	150	115	220	160
3/4-16	0.75	300	225	420	315	3/4-10	0.75	265	200	375	280
7/8-11	0.875	445	325	670	500	7/8-9	0.875	395	295	605	455
1-12	1	645	485	995	745	1-8	1	590	445	910	680
1 1/8-12	1.125	890	670	1445	1085	1 1/8-7	1.125	795	595	1290	965
1 1/4-12	1.25	1240	930	2010	1510	1 1/4-7	1.25	1120	840	1815	1360
1 3/8-12	1.375	1675	1255	2710	2035	1 3/8-6	1.375	1470	1100	2380	1780
1 1/2-12	1.5	2195	1645	3560	2670	1 1/2-6	1.5	1950	1460	3160	2370

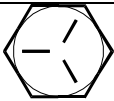
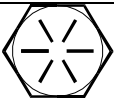
NOTES:

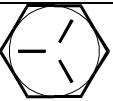
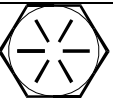
1. Tightening torques provided are midrange.
2. Consult bolt manufacturer's particular specifications, when provided.
3. Use flat washers of equal strength.
4. All torque measurements are given in foot-pounds.
5. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as never-seez compound graphite and oil, molybdenum disulfide, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of loctite does not affect the torque values listed above.

WARNING

Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torqueing. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing death or serious injury.

TH5K115 - Thread Torque Chart (Metric)

FINE THREAD TORQUE CHART (METRIC)					
TIGHTENING TORQUE					
SIZE (DIA- TPI)	BOLT DIA. (INCHES)	 SAE J429 GRADE 5		 SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-24	0.3125	3	2	4	3
3/8-24	0.375	5	4	7	5
7/16-20	0.4375	8	6	11	8
1/2-20	0.5	12	9	17	12
9/16-18	0.5625	17	12	24	18
5/8-18	0.625	24	18	33	25
3/4-16	0.75	41	31	58	44
7/8-11	0.875	62	45	93	69
1-12	1	89	67	138	103
1 1/8-12	1.125	123	93	200	150
1 1/4-12	1.25	171	129	278	209
1 3/8-12	1.375	232	174	375	281
1 1/2-12	1.5	304	228	492	369

COARSE THREAD TORQUE CHART (METRIC)					
TIGHTENING TORQUE					
SIZE (DIA- TPI)	BOLT DIA (INCHES)	 SAE J429 GRADE 5		 SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-18	0.3125	2	2	3	2
3/8-16	0.375	4	3	6	5
7/16-14	0.4375	7	5	10	7
1/2-13	0.5	10	8	15	11
9/16-12	0.5625	15	11	21	16
5/8-11	0.625	21	16	30	22
3/4-10	0.75	37	28	52	39
7/8-9	0.875	55	41	84	63
1-8	1	82	62	126	94
1 1/8-7	1.125	110	82	178	133
1 1/4-7	1.25	155	116	251	188
1 3/8-6	1.375	203	152	329	246
1 1/2-6	1.5	270	210	438	328

NOTES:

1. Tightening torques provided are mid-range.
2. Consult bolt manufacturer's particular specifications, when provided.
3. Use flat washers of equal strength.
4. All torque measurements are given in kilogram-meters.
5. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as never-seez compound graphite and oil, molybdenum disulfide, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of loctite does not affect the torque values listed above.

WARNING

Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torqueing. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing death or serious injury.

TH5K115 - Radio Remote

For Radio Remote operation instructions, features, specifications, and programming, see the TireHandler™ Radio Remote System manual P/N 99905678.

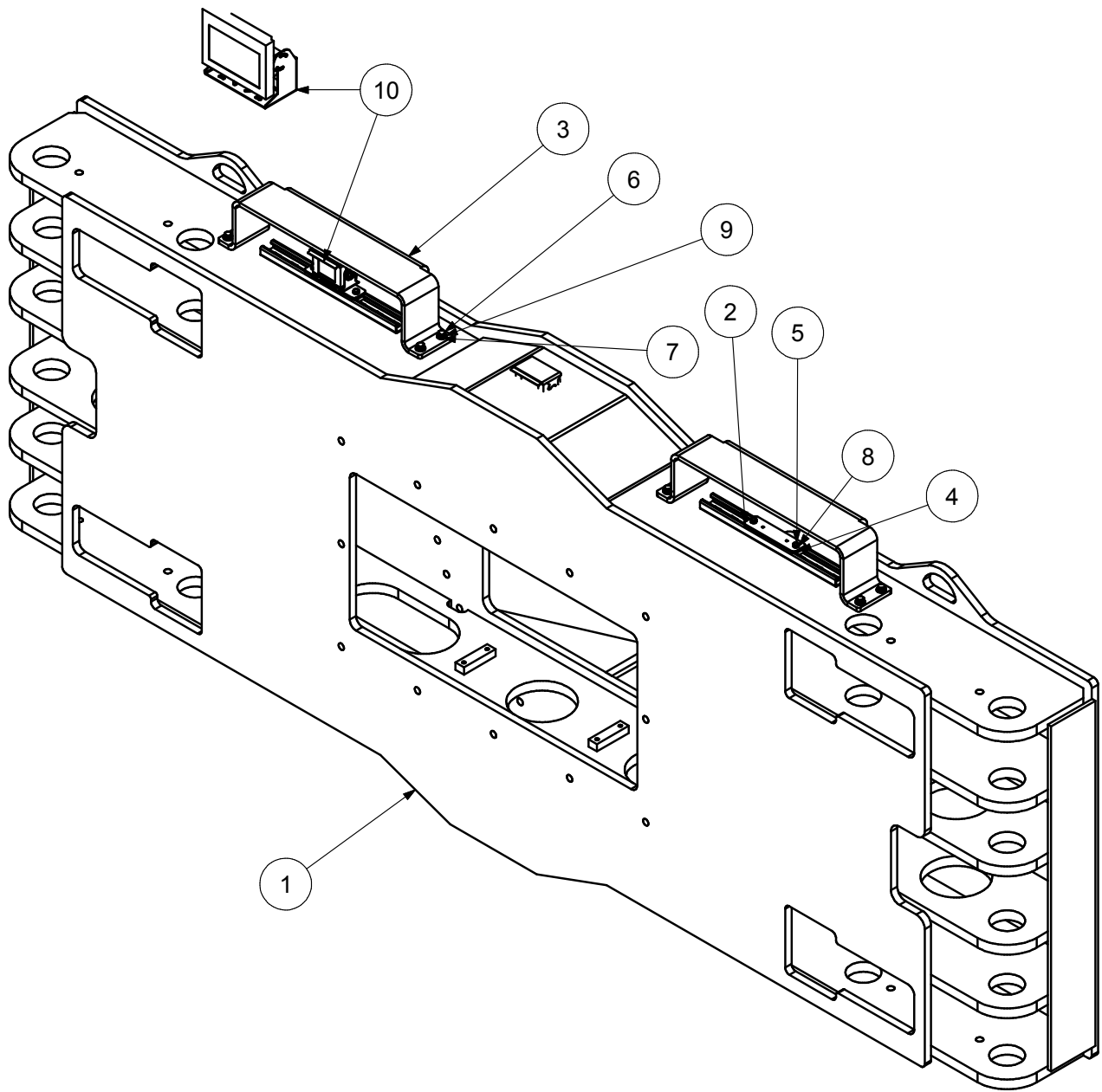


Transmitter P/N 70734590



Receiver P/N 70734591

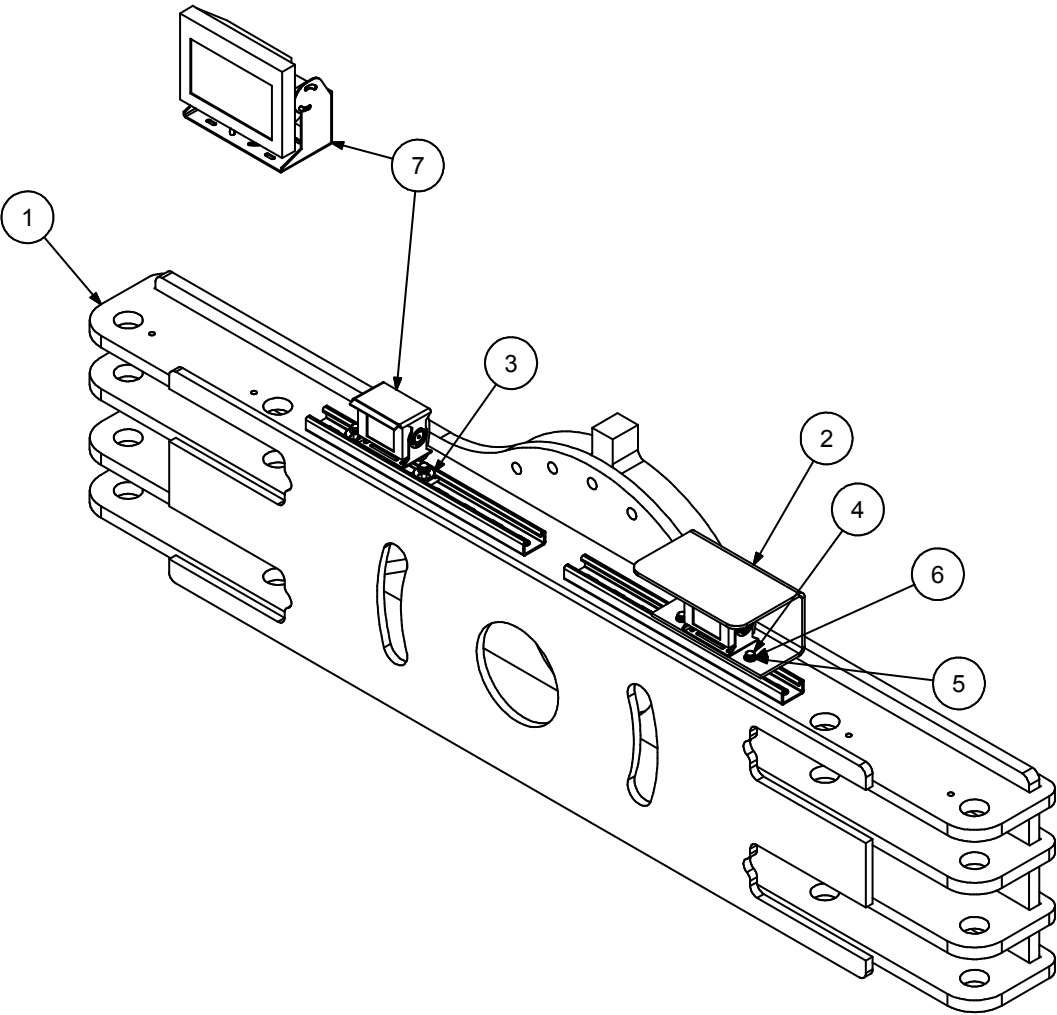
TH5K115 - Camera Kit, Dual (40724922)



40724922 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.		BODY-WLDMT	REF
2.	60136590	CAMERA MOUNT	2
3.	60139306	GUARD - CAMERA MNT	2
4.	71414717	NUT- .25-20 CHANNEL	4
5.	72060004	CAP SCR .25-20X 1.00 HH GR5 Z	4
6.	72060046	CAP SCR .38-16X 1.00 HH GR5 Z	8
7.	72063003	WASHER .38 FLAT	8
8.	72063049	WASHER .25 LOCK	4
9.	72063051	WASHER .38 LOCK	8
10.	77734564	CAMERA OPTION-DUAL	1
REV. INITIAL RELEASE			

TH5K115 - Camera Kit (40724928)



40724928 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY.
2.	60140425	CAMERA MOUNT	2
3.	71414717	NUT - .25-20 CHANNEL	4
4.	72060004	CAP SCR .25-20X 1.00 HH GR5 Z	4
5.	72063001	WASHER .25 FLAT	4
6.	72063049	WASHER .25 LOCK	4
7.	77734564	CAMERA OPTION-DUAL	1
REV. INITIAL RELEASE			

Revisions

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IOWA MOLD TOOLING CO., INC.

P.O. Box 189 Garner, IA 50438

Tel: 641.923.3711

Fax: 641.923.2424

www.imt.com

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