

INSTALL INSTRUCTIONS

LEAF SPRING TRAILER AIR RIDE



KLM16718

kelderman**KELDERMAN MANUFACTURING****2686 HIGHWAY 92 EAST OSKALOOSA, IOWA 52577****INFO@KELDERMAN.COM 1-800-334-6150**

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Kit Numbers

- THIS INSTALLATION MANUAL COVERS THE FOLLOWING AIR RIDE KITS.

Kit Number	Description
KLM16718	Kit - Trailer - Custom Leaf Spring Trailer



INTRODUCTION

IMPORTANT

- ♦ IT IS IMPORTANT THAT THE ENTIRE INSTALLATION INSTRUCTIONS BE READ THOROUGHLY BEFORE PROCEEDING WITH INSTALLATION.
- ♦ IF YOUR KIT WAS ORDERED RAW, OPEN EVERY BOX AND LOCATE ALL PARTS. THERE ARE SEVERAL SMALLER BUSHING PIECES AND BOLTS THAT ARE PACKAGED SEPARATELY INSIDE THE MAIN BOX.

PRODUCT INSTALLER RESPONSIBILITIES

- ♦ INSTALLER IS RESPONSIBLE FOR INSTALLING THIS PRODUCT IN ACCORDANCE WITH KELDERMAN MFG. INC. SPECIFICATIONS AND INSTALLATION INSTRUCTIONS.
- ♦ INSTALLER IS RESPONSIBLE FOR PROVIDING PROPER INSTALLATION OF VEHICLE COMPONENTS AND ATTACHMENTS AS WELL AS REQUIRED OR NECESSARY CLEARANCE FOR SUSPENSION COMPONENTS, AXLES, WHEELS, TIRES, AND OTHER VEHICLE COMPONENTS TO ENSURE A SAFE AND SOUND INSTALLATION AND OPERATION OF THIS PRODUCT.

DEFINITION OF TERMS

- ♦ **WARNING:** INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.
- ♦ **CAUTION:** A POTENTIAL HAZARDOUS SITUATION MAY RESULT IN PROPERTY DAMAGE.
- ♦ **NOTE:** PROVIDE INFORMATION OR SUGGESTIONS THAT HELP CORRECTLY PERFORM A TASK.
- ♦ **TORQUE:** WHEN ITALICIZED “TORQUE” ALERTS THE INSTALLER TO TIGHTEN FASTENERS TO A SPECIFIED VALUE.

BOLT TORQUE CHART

BOLT SIZE	GRADE 5 TORQUE	GRADE 8 TORQUE
1/4"-20	<i>8 FT-LB</i>	<i>12 FT-LB</i>
3/8"-16	<i>19 FT-LB</i>	<i>26 FT-LB</i>
3/8"-24	<i>21 FT-LB</i>	<i>30 FT-LB</i>
1/2"-13	<i>45 FT-LB</i>	<i>64 FT-LB</i>
1/2"-20	<i>50 FT-LB</i>	<i>70 FT-LB</i>
9/16"-18	<i>70 FT-LB</i>	<i>100 FT-LB</i>
5/8"-11	<i>90 FT-LB</i>	<i>125 FT-LB</i>
5/8"-18	<i>100 FT-LB</i>	<i>150 FT-LB</i>
3/4"-16	<i>175 FT-LB</i>	<i>250 FT-LB</i>
7/8"-14	<i>275 FT-LB</i>	<i>400 FT-LB</i>

SAFETY

YOUR SAFETY AND THE SAFETY OF OTHERS IS VERY IMPORTANT.

- ◆ READ AND UNDERSTAND ALL SAFETY PRECAUTIONS AND INSTRUCTIONS BEFORE INSTALLING THIS PRODUCT.

CAUTION: TRUCKS EQUIPPED WITH PARKING SENSORS OR OTHER LIKE DEVICES.

- ◆ RELOCATION OF THESE DEVICES WILL ALTER THE FIELD OF VIEW. IT IS THE RESPONSIBILITY OF THE OWNER TO UNDERSTAND HOW THESE CHANGES AFFECT THE OPERATION OF THESE SYSTEMS.

WARNING: COMPONENTS UNDER PRESSURE.

- ◆ BLEED ALL PRESSURE FROM THE AIR SYSTEM BEFORE PERFORMING ANY MAINTENANCE OR SERVICE. SERIOUS INJURY COULD OCCUR IF COMPONENTS ARE REMOVED WHILE SYSTEM IS PRESSURIZED.

WARNING: CARELESS INSTALLATION CAN RESULT IN SERIOUS INJURY OR PROPERTY DAMAGE

- ◆ WEAR EYE PROTECTION.
- ◆ DISCONNECT THE BATTERY BEFORE DOING ANY WORK ON THE VEHICLE.
- ◆ WORK ON FLAT LEVEL GROUND.
- ◆ ENSURE TRUCK IS PROPERLY SUPPORTED BY JACK STANDS. NEVER WORK UNDER A VEHICLE SUPPORTED ONLY BY HYDRAULIC JACKS.
- ◆ TAKE PRECAUTIONS WHEN LIFTING PRODUCT. DUE TO THE SIZE AND WEIGHT OF THIS PRODUCT TWO PEOPLE ARE RECOMMENDED FOR INSTALLATION.
- ◆ NEVER WORK DIRECTLY UNDER THE PRODUCT UNTIL IT HAS BEEN SECURELY FASTENED TO THE VEHICLE.
- ◆ AVOID SHARP, HOT, AND MOVING COMPONENTS WHEN ROUTING ELECTRICAL CABLES AND AIR LINES.
- ◆ IF DRILLING, INSPECT BOTH SIDES OF THE SURFACE AND REMOVE/RELOCATE ANY OBJECTS LOCATED IN THE WAY.
- ◆ ENSURE ALL BOLTS ARE PROPERLY TIGHTENED BEFORE DRIVING.

PRODUCT OWNER RESPONSIBILITIES

- ♦ PRODUCT OWNER IS SOLELY RESPONSIBLE FOR PRE-OPERATION INSPECTION, PERIODIC INSPECTIONS, MAINTENANCE, AND USE OF THE PRODUCT AS SPECIFIED BY KELDERMAN MFG. INC. OF PARTICULAR IMPORTANCE IS THE RE-TORQUE OF FASTENERS.
- ♦ THIS RE-TORQUE MUST BE PERFORMED WITHIN 2500 MILES OF THIS PRODUCT BEING PUT INTO SERVICE.
- ♦ THE KELDERMAN AIR SUSPENSION IS FULLY AUTOMATIC IN CONTROLLING THE HEIGHT OF THE CHASSIS WHEN PROPERLY INSTALLED.
- ♦ NO MANUAL INTERVENTION TO CONTROL AIR PRESSURE OR RIDE HEIGHT IS NEEDED DURING THE COURSE OF NORMAL OPERATION.
- ♦ PRODUCT OWNER IS RESPONSIBLE FOR “*DOWN TIME*” EXPENSES, CARGO DAMAGE, AND ALL BUSINESS COSTS AND LOSSES RESULTING FROM A WARRANTABLE FAILURE.

SERVICE INTERVALS

FIRST 2,500 MILES

- ♦ CHECK RIDE HEIGHT $\pm 1/4$ ”
- ♦ CHECK FOR AIR LEAKS AROUND FITTINGS.
- ♦ CHECK FOR ANY LOOSE OR RUBBING HOSES AND WIRES.
- ♦ RE-TORQUE ALL HARDWARE.

EVERY 30,000 MILES

- ♦ CHECK RIDE HEIGHT $\pm 1/4$ ”
- ♦ CHECK FOR AIR LEAKS AROUND FITTINGS.

TOOLS REQUIRED FOR INSTALLATION

CUTTING TORCH, OR GRINDER (ONLY NEEDED FOR 2" DROP MODEL)

(4) JACKS

(4) JACK STANDS

WHEEL CHOCKS

COMBINATION WRENCH SET (UP TO 1-5/16")

SOCKET SET (1-5/16" TORQUE WRENCH)

HAMMER

SIDE CUTTERS

6MM ALLEN WRENCH



****WHEN RAISING OR LOWERING THE TRAILER, KEEP JACK STANDS IN PLACE TO PREVENT THE TRAILER FROM FALLING, WHICH COULD CAUSE SEVERE PERSONAL INJURY OR DEATH****

MEASUREMENTS

BEFORE INSTALLATION OF THE AIR RIDE UNIT, PREPARE A SMOOTH, FLAT, HARD SURFACE AND HAVE ALL TOOLS AND EQUIPMENT NEEDED FOR THE JOB. WHILE THERE IS STILL WEIGHT ON THE AXLE, IT IS CRITICAL TO MEASURE 2" BEHIND THE FRONT AXLE AND PLACE A MARK ON THE BOTTOM FRAME RAIL OF THE TRAILER. NEXT, MEASURE THE DISTANCE BETWEEN THE MARK AND THE FRONT LEAF SPRING EAR. KEEP THIS MEASUREMENT FOR FUTURE REFERENCE. THE ORIGINAL MARK WILL BE THE LOCATION OF THE PIVOT POINT WHEN INSTALLING THE AIR RIDE.



DISASSEMBLY

1. ONCE THE TIRES ARE REMOVED, YOU MUST PLACE A JACK UNDER EACH AXLE. THIS WILL PREVENT THE AXLES FROM FALLING ONCE THE EQUALIZER HANGER IS REMOVED.

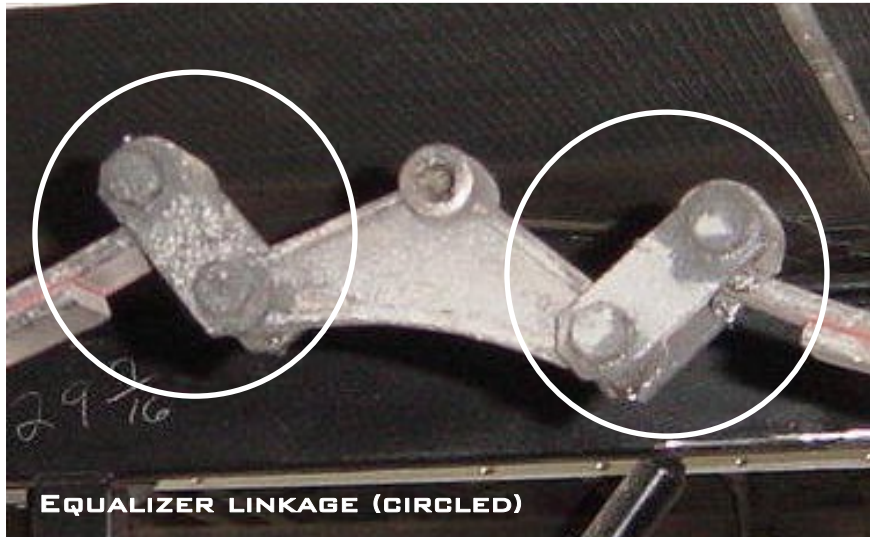
****NOTE: JACK UP THE TRAILER HIGH ENOUGH SO YOU ARE ABLE TO REMOVE THE TIRES. MAKE SURE TO USE JACK STANDS FOR SAFETY, BECAUSE IT IS REQUIRED TO BE UNDER THE TRAILER DURING THIS INSTALLATION.***

****NOTE: BEFORE CUTTING HANGERS, MEASURE FROM CENTER TO CENTER OF BOLTS.***

2. TAKE A TORCH OR GRINDER AND CUT THE EQUALIZER HANGER OFF FLUSH WITH THE FRAME.



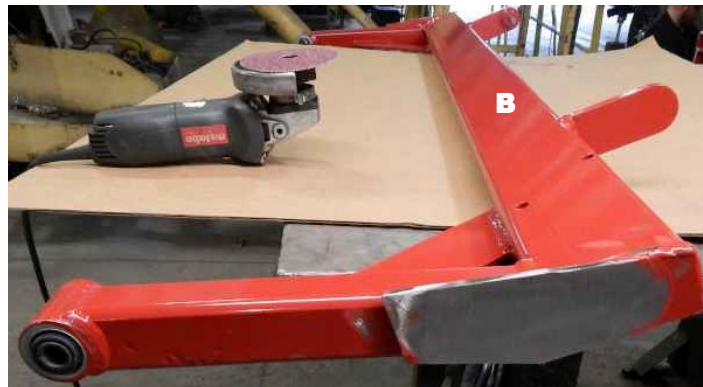
NOTE: THE LEAF SPRING EQUALIZER LINKAGE SHOULD REMAIN IN THE "UP" POSITION. IT IS IMPORTANT TO DOES THIS IN ORDER FOR THE AIR RIDE ASSEMBLY TO LINE UP CORRECTLY.



EQUALIZER LINKAGE (CIRCLED)

ASSEMBLY

NOTE: THE AIR RIDE ASSEMBLY CONSISTS OF TWO FRAMEWORKS. THE TOP FRAMEWORK, (A) AND THE BOTTOM FRAMEWORK, (B) AS SHOWN.



1. MOUNT THE TOP AIR RIDE FRAMEWORK (A). THE FRONT OF THE FRAMEWORK HAS EARS THAT COME DOWN FOR THE BOTTOM FRAMEWORK TO CONNECT TO. THE REAR OF THE FRAMEWORK HAS THE 8" CHANNEL. LOCATE THE TOP FRAMEWORK SO THAT IT IS CENTERED UNDER THE TRAILER (SIDE TO SIDE). LOCATE THE FRONT EARS SO THAT THEY ARE TWO INCHES AWAY FROM THE FRONT AXLE. IF THE FRAME IS LOCATED ANY CLOSER, YOU WILL RUN THE RISK OF THE FRONT AXLE HITTING THE AIR RIDE FRAMEWORK WHEN THE SUSPENSION BOTTOMS OUT. PUT A COUPLE OF TACK WELDS ON THE FRAME SO THAT IT WILL STAY IN PLACE WHILE YOU HOOK UP THE BOTTOM FRAME.



2. MOUNT THE BOTTOM AIR RIDE FRAMEWORK (B). FRAMEWORK (B) IS WHAT THE SHACKLE HANGER IS WELDED TO. THIS IS ALSO REFERRED TO AS THE SWING ARM. SLIDE THE SWING ARM UP INTO PLACE AND FASTEN IT WITH THE 5/8"-18 X 4-1/2" BOLTS. NEXT, FASTEN THE TOP OF THE AIRBAGS TO FRAMEWORK (A). (IT IS EASIER TO PUT THE AIR FITTING IN THE TOP OF THE BAG BEFORE YOU ATTACH THE TOP FRAMEWORK.) AFTER THE AIR BAGS ARE FASTENED IN PLACE AT THE TOP, FASTEN THE BOTTOM OF THE BAGS WITH THE PROVIDED 3/8"-16 X 2-3/4" BOLTS.

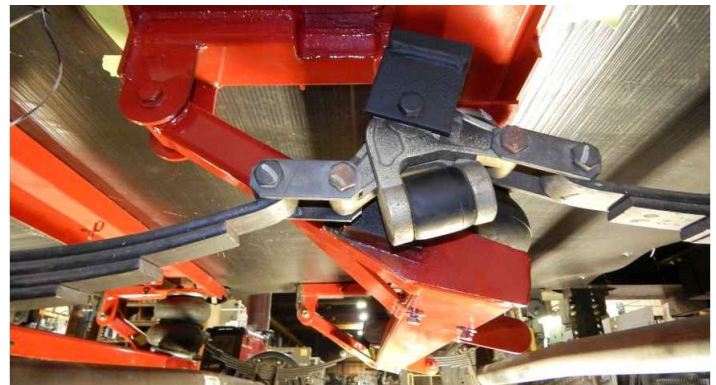


3. NEXT, SQUEEZE THE TOP FRAMES TOGETHER SO THAT THE AIR BAGS ARE BOTTOMED OUT (LARGE SLIDE-CLAMP WORKS BEST.) WE ARE DOING THIS IN ORDER TO DETERMINE WHERE THE EQUALIZER HANGER WILL BE LOCATED AND WELDED TO THE BOTTOM SWING ARM. (EACH AIR BAG HAS A RUBBER BUMPER INSIDE IT SO IF IT WOULD EVER LOSE AIR, THE BAG WILL NOT BE DAMAGED.) THE HANGER IS WELDED TO THE SWING ARM SO WHEN THE AIR BAG IS BOTTOMED OUT, THE EQUALIZER BAR HAS 7/8" TO THE BOTTOM OF THE FRAME. THIS WILL KEEP THE RIDE HEIGHT AROUND THE SAME AS IT PREVIOUSLY WAS. IF THE RIDE HEIGHT NEEDS TO BE RAISED, MOVE THE HANGER DOWN THE DESIRED AMOUNT.

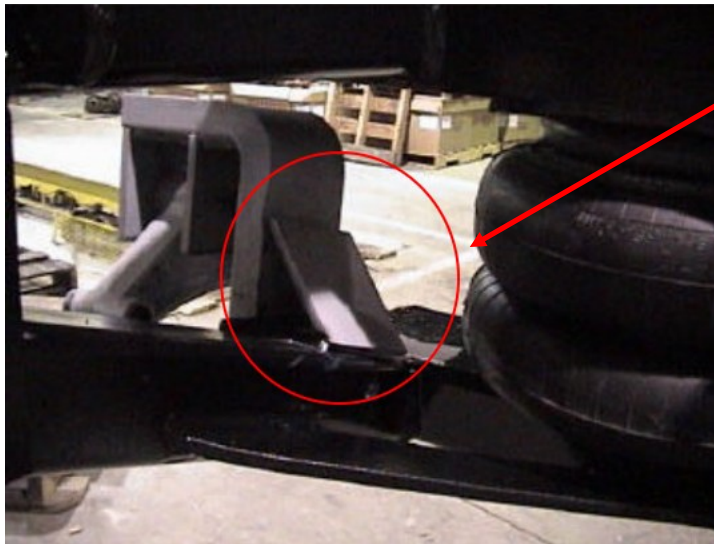
7/8" IN COLLAPSED POSITION AT
CLOSEST POINT (+ OR - 1/8")



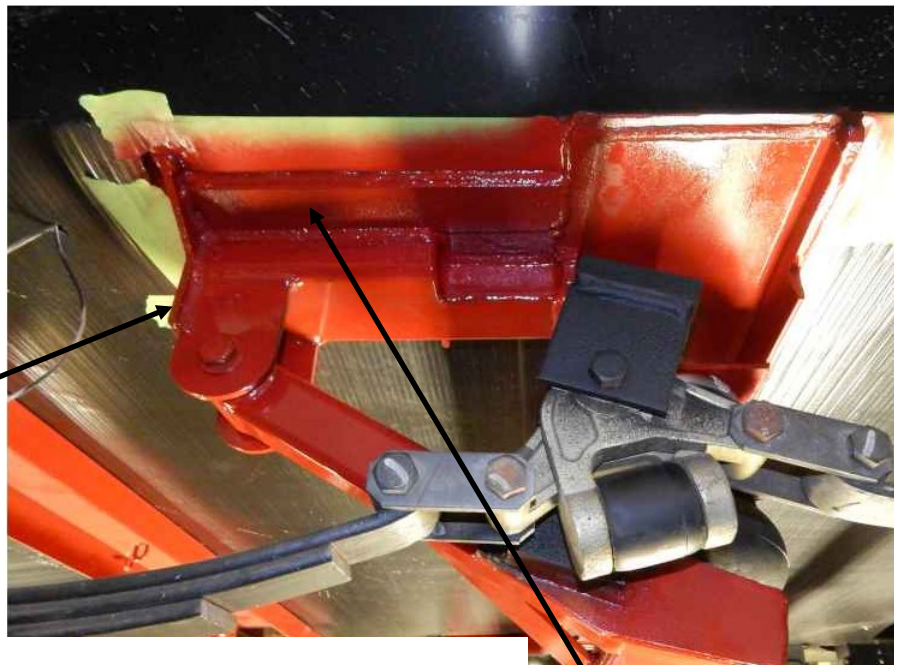
SHOULD BE PARALLEL WITH SWING ARM IN
COLLAPSED POSITION



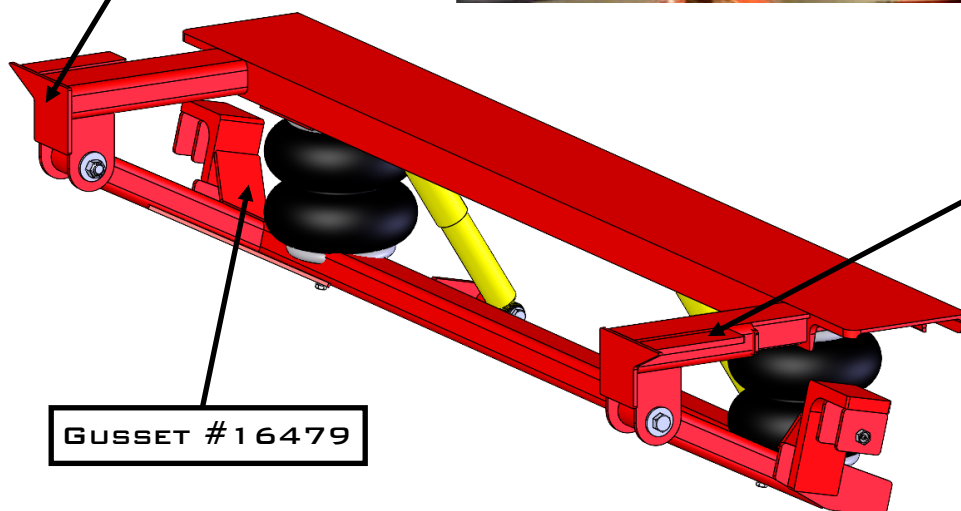
4. ONCE THE EQUALIZER BAR IS WELDED INTO PLACE IT IS REQUIRED TO WELD A GUSSET (#16479) IN PLACE BEHIND THE EQUALIZER BAR. YOU WILL WELD IN A GUSSET (#16966) ON EACH SIDE OF UPPER FRAME TUBE AND A GUSSET (#11006) BETWEEN THE SWING ARM MOUNTING EARS.



GUSSET #16479



GUSSET #11006



GUSSET #16479

GUSSET #16966

5. INSTALL SHOCKS (#80120) TO THE THREADED BOSSES WITH 1/2"-20 X 2-1/2" BOLTS.

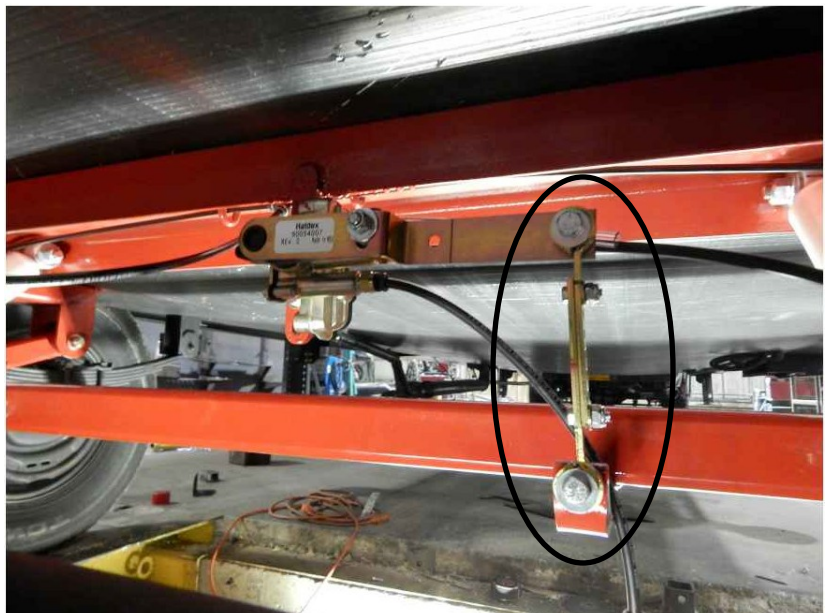


#80120 SHOCKS

PLUMBING AIR SUPPLY

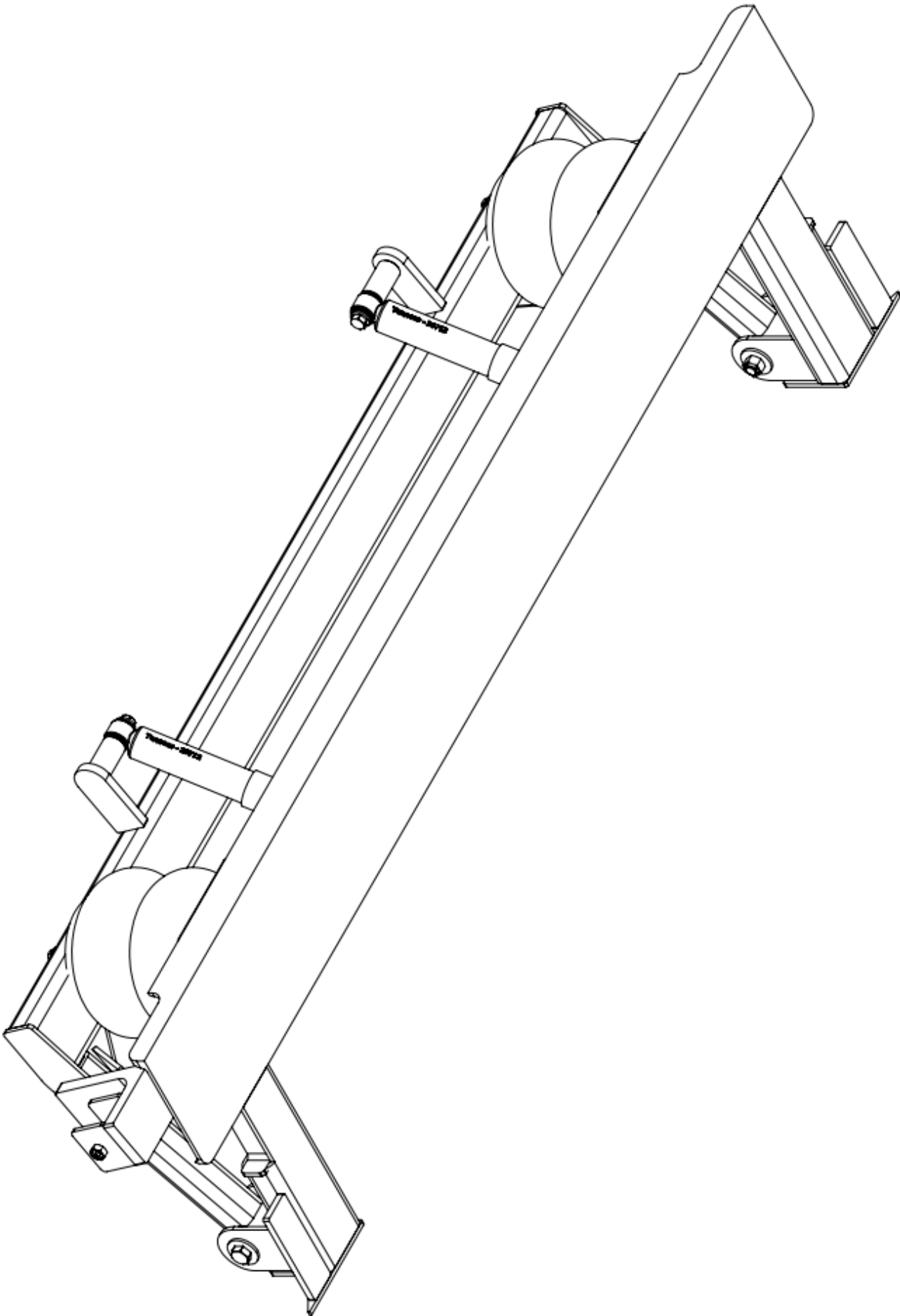
WHEN CUTTING THE AIR LINE MAKE SURE THE CUT IS CLEAN AND STRAIGHT. IF AIR LINE IS CUT AT AN ANGLE, IT WILL NOT SEAT AND MAY LEAK. WHEN PUSHING THE AIR LINE INTO THE FITTINGS, PUSH FIRMLY AND PULL BACK. THIS WILL SEAT THE O-RING INSIDE THE FITTING ON THE AIR LINE. USE TEFLON TAPE ON THE FITTINGS THAT THREAD INTO THE AIR BAGS.

ATTACH THE SENSOR ARM TO THE MOUNT ON THE TOP FRAME. THE LINKAGE ATTACHES TO THE SENSOR ARM AND MOUNT ON THE SWING ARM.



SEE NEXT PAGE FOR PLUMBING DIAGRAM.





NOTES

CONTACT INFORMATION

KELDERMAN MANUFACTURING APPRECIATES YOUR BUSINESS. WE STRIVE TO MEET THE NEEDS OF OUR CUSTOMERS BY PROVIDING THE HIGHEST QUALITY PRODUCTS. IF YOU HAVE ANY QUESTIONS CONCERNING OUR PRODUCTS PLEASE CALL OR EMAIL US AT THE FOLLOWING:

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