



BUSHING TYPE ELEVATOR

OPERATING PROCEDURE MANUAL

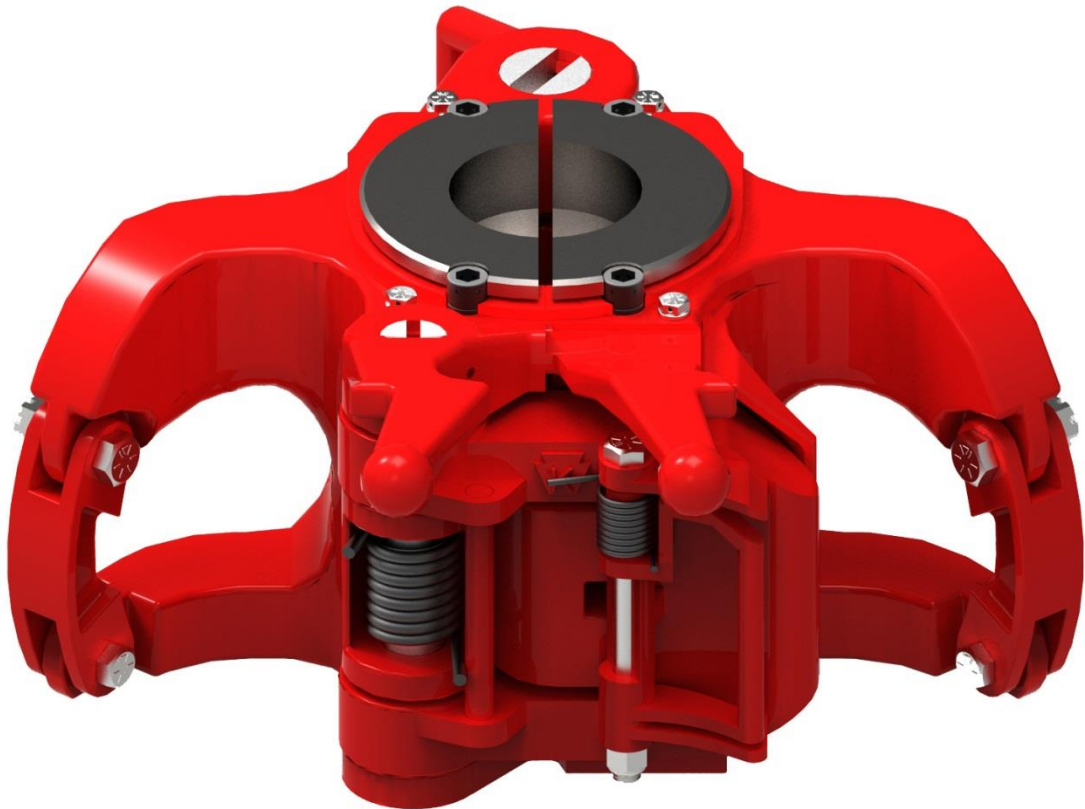


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"G" SERIES ELEVATOR

SAFETY INSTRUCTIONS

The most important safety device for this tool is **YOU**. Your good judgment is the best protection against injury.

⚠ WARNING



To reduce the risk of injury, everyone using, installing, performing maintenance, changing accessories on, or working near this tool must read and understand these instructions before performing any such task.

Operating Hazards

⚠WARNING: Do not overload the elevator. Overloading the recommended rating could cause series injury or death.

⚠WARNING: Check the latch for proper engagement. A malfunctioning latch could cause the elevator to unexpectedly unlatch or not latch at all resulting in injury or death.

⚠WARNING: Always ensure that the elevator and bore code are correct for the tubular it is to be used on. Failure to use the proper elevator and bore code could result in injury or death.

⚠WARNING: To prevent injury or elevator malfunction, inspect the elevator bore, latch, hinge pin, and latch pin regularly for wear. Failure to inspect these parts could cause injury or death.

⚠WARNING: Do not use oversized pipe. Using oversized pipe could make it difficult or impossible to properly latch the elevator.

⚠WARNING: Do not use undersized pipe. Using undersized pipe could cause an inadequate load bearing area and uneven stress distribution. Both of which may result in injury or death.

⚠WARNING: Do not use the elevator if the latch or latch lock is malfunctioning. Latch or latch lock failure, may result in injury or death.

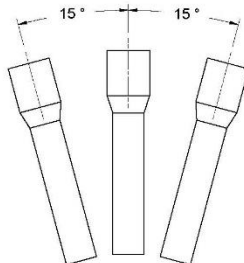
⚠WARNING: All warning labels attached to the equipment must be observed. The warning labels must be present on the tool. Do not remove the labels. If they are missing, replacing is mandatory.

⚠WARNING: The company operating the tool is responsible for issuing work instructions for safe and proper use of the equipment.

⚠WARNING: The operating company is responsible for verifying that any personnel operating, servicing, inspecting, or otherwise involved with the use of the tool must be properly trained correctly.

⚠WARNING: The lifting of vertical pipe is to be performed carefully and must be monitored. The picking up of non-horizontal pipe is dangerous and not permitted.

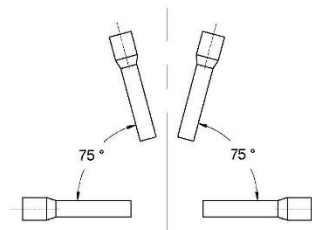
Vertical / Non-vertical Lifting



Vertical lifting is considered vertical $\pm 15^\circ$



Non-vertical lifting is considered $\leq 75^\circ$ as max. from horizon.



DO NOT DISCARD – GIVE TO USER

Keystone ENERGY TOOLS

"G" SERIES ELEVATOR

SAFETY INSTRUCTIONS

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Workplace Hazards

⚠WARNING: keep hands fingers clear of the elevator bore when installing the elevator around the pipe.

⚠WARNING: Always use the proper tools and wear eye, head, hand, and foot protection when servicing this elevator.

⚠WARNING: Maintain a balanced body position and secure footing.

⚠WARNING: For professional use only.



Read Operation manual before use.



Pay attention: do not place your hands between moving parts.



DO NOT lift from this area.



Be careful when lifting from these areas.

Maintenance Hazards

⚠WARNING: Use only Keystone Energy Tool components on equipment. Failure to do so may affect the correct functioning of the tool and may cause injury or death.

⚠WARNING: KET equipment is made of cast alloy heat treated steel and should never be welded on in the field. Improper welding can cause cracks or brittleness in the castings which could result in drastic weakening or failure of the equipment. Any welding or machining must be performed by an authorized KET or API certified repair center.

⚠WARNING: Improper welding and/or re-machining of cast alloy heat treated steel can cause personnel injury, property damage, or death.



DO NOT DISCARD – GIVE TO USER **Keystone** ENERGY TOOLS

1.0 Introduction

This manual contains operation and maintenance instructions for the Keystone Energy Tools (KET) "G" series Bushing type center latch elevators for handling 18 degree external upset drill pipe with assembly drawings and complete parts breakdown. It provides a guide for proper field use, disassembling and repair.

(KET)"G" series Bushing type elevators are similar in design and construction to normal "G" series, except they are bored to receive a hardened bushing, which will fit the contour of 18 degree type drill pipe. They are constructed in two halves of practically the same weight, resulting in a better balance, making them easy to handle as well as easy to latch on or take off at any point below the upset of the pipe. "G" series elevators are made of high alloy-heat treated steel and are designed to meet or exceed API specifications.

The "G" series bushing type elevators include safety features such as guarded operating handles to help prevent injury to operators and an extra handle at the rear of the elevator for easier, safer operation. All "G" series bushing type elevators incorporate a latch land safety latch lock combination. The size range of the "G" series bushing type elevator is as illustrated in the table provided.

(See Figure 1)

The GG elevator is only intended for lifting of vertical pipe and not intended for use on horizontal pipe. (See diagram on page 4). Lifting of horizontal pipe is **NOT PERMITTED** by the manufacturer.

If the operator considers to use the elevator for other operations other than the intended use (for example: lifting of horizontal pipe), it is mandatory to make an additional risk analysis.

The GG series elevators incorporate a latch land safety latch lock combination. The size range of the GG elevator is as illustrated in the table provided.

(See Figure 1)

Model	Tons	Range
GG	350	2-3/8" – 5-1/2"
MGG	250	2-3/8" – 5"

Figure 1

NOTE: **⚠WARNING:** labels have been installed at critical areas on the tool. Familiarize yourself with their message and locations before proceeding to operate equipment.

See safety instructions page 4

⚠WARNING: During use, the elevator should never be run into the tool joints or couplings inducing any type of shock load into the equipment. Shock loads are an impact-type force applied over a short instant of time. In shock loading, the energy of the applied force is ultimately absorbed, or transferred, to the elevator designed to resist the force. The application of shock loads to an elevator can cause shock/fatigue stress loading potentially resulting in premature stress/fatigue failure.



CE Marking

The tool complies with the Machinery Directive 98/37/EC and 2006/42/EC

This operating manual is a part of the technical documentation for the product.

The EC Declaration of Conformity is delivered together with the product. Keep these instructions and the associated documents for later use.

2.0 Operation

As with any manual operated elevator, the GG series is easily installed by the user. Perform the actions described below after the elevator is hoisted to the rig floor and properly positioned.

- Before installing ensure the correct bushings are being used and that retaining bolts are tight and retained with lock wire.
- Remove cotter pins and nuts from the link block bolts and then remove the bolts from the elevator.
- Lift the bottom of the link blocks and hook the small end of the links through the link blocks and link arms. (See figure 3)
- Lower the link blocks and re-install the link block bolts, nuts and cotter pins.

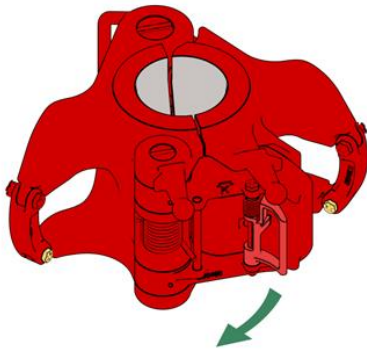


Figure 3

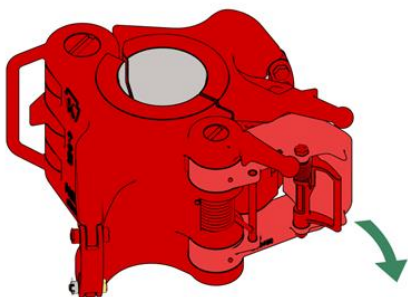


Figure 4

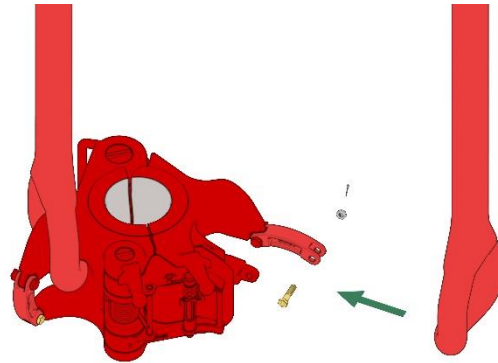
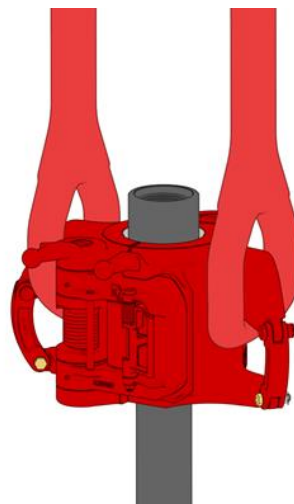


Figure 2

The operation of the GG series elevator is straightforward.

The door is opened by gripping the latch lock and pulling outward. This automatically releases the latch and latch lock assembly so the elevator can be positioned on the pipe. When the elevator is properly closed around the pipe, the latch locks automatically. (See Figure 4 & 5)



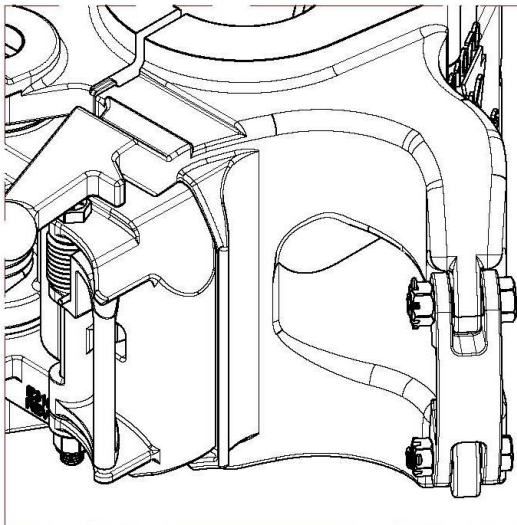
2.0 Operation

When installing the upper and lower link block bolt, castle nut, and cotter pin, the bolts must be inserted from the front of the elevator so that the head of the bolt is on the latching side of the elevator, and the castle nut and cotter are on the hinge side of the elevator.

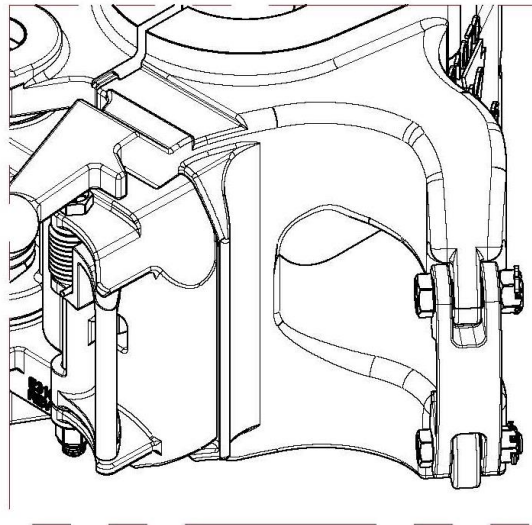
See the illustration below, showing the correct and incorrect method of installing the upper and lower link block bolts on the IB-G Series Elevators.

⚠WARNING : Failure to follow these installation requirements can cause severe bodily injury and/or death.

LINK BLOCK BOLT INSTALLATION



WRONG
WAY



RIGHT
WAY

3.0 Maintenance & Inspection

To ensure optimum performance, perform the below-listed daily checks.

- ▶ Visually inspects for cracks, loose fits or connections, elongation of parts, and other signs of wear, corrosion or overloading.
- ▶ Loose or missing components, deterioration, proper lubrication, and adjustment.
- ▶ Check for worn hinge pin, latch pin and latch lock pin. These may inhibit proper closing of the door and latch lock engagement.
- ▶ Check for proper operation of Latch Stop mechanism. Latch should not stop against the door when closed but have no more than 1/4" of standoff from the door.
- ▶ Check springs for damage, deformation and lack of tension.
- ▶ Check link block bolts for nuts and cotter pins.
- ▶ Check bushing retainer bolts and lock wire.
- ▶ Check locking blocks to make sure they are engaged with the bushing.

Every 6 months a full NDT inspection of all primary-load carrying components as defined by the manufacturer in addition to the daily checks specified above.

The owner/user of the equipment should develop schedules of inspection based upon experience, manufactures recommendations and one or more of the following factors:

- ▶ Environment
- ▶ Load Cycles
- ▶ Regulatory requirements
- ▶ Operating time
- ▶ Testing
- ▶ Repairs
- ▶ Remanufacture

Lubricate the elevator regularly during usage and storage to prevent corrosion. Use an extreme pressure, multi-purpose, lithium base grease of No. 1 or No. 2 consistency or a lubricant that meets MIL-SPEC-A907E.

When greasing of pins make sure the pump grease until it comes out of both ends.

Maintain elevator as prescribed in the below periodic Actions/Examinations.

(See Figure 2)

TOOL MAINTENANCE		
ACTION	FREQUENCY	FIG.
Grease Hinge Pin	Daily	4
Lubricate Latch Pin		4
Lubricate Latch Lock Bolt		4
Grease Underside of Lifting Eye		4
Grease Bore and Seating Surface		4
Brush Grease on Springs	Weekly	4
Grease Link Retainer Fasteners		4
Check Link Block Bolts For Nuts and Cotter Pins		4
Remove Bushings and Grease Bore and Seating Surface		4
Magnetic Particle Examination	Every 6 Months	

Figure 2

Locations of parts identified in Figure 2 have been illustrated on page 7 for reference.

(See Figure 3 & 4)

3.0 Maintenance Locations

Figure 3

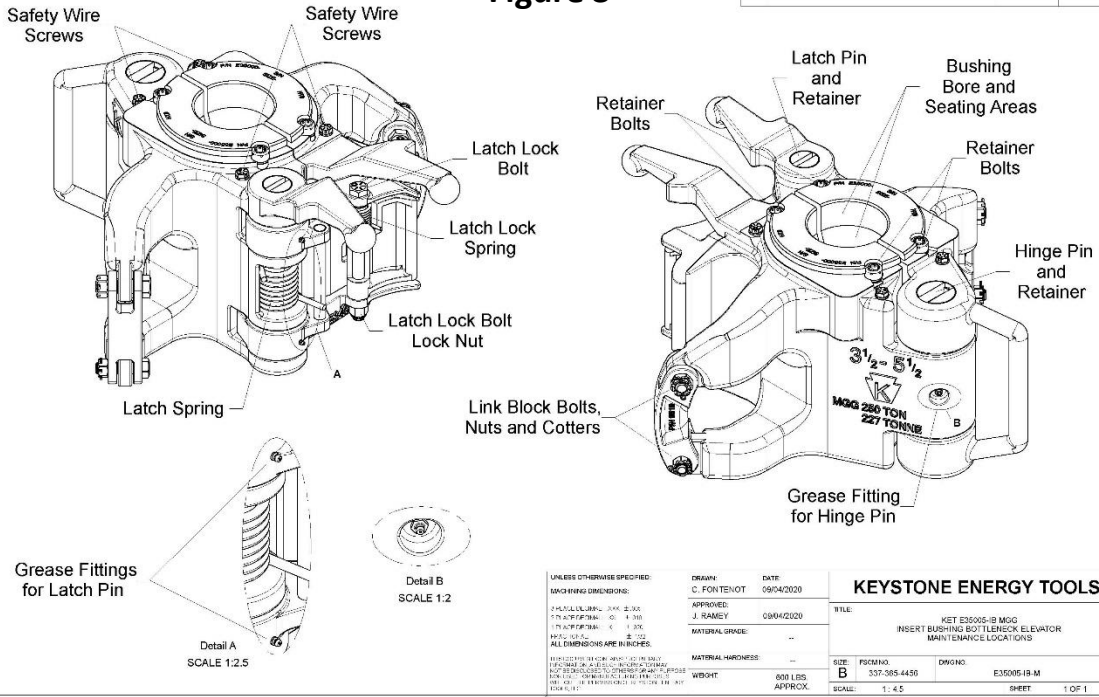
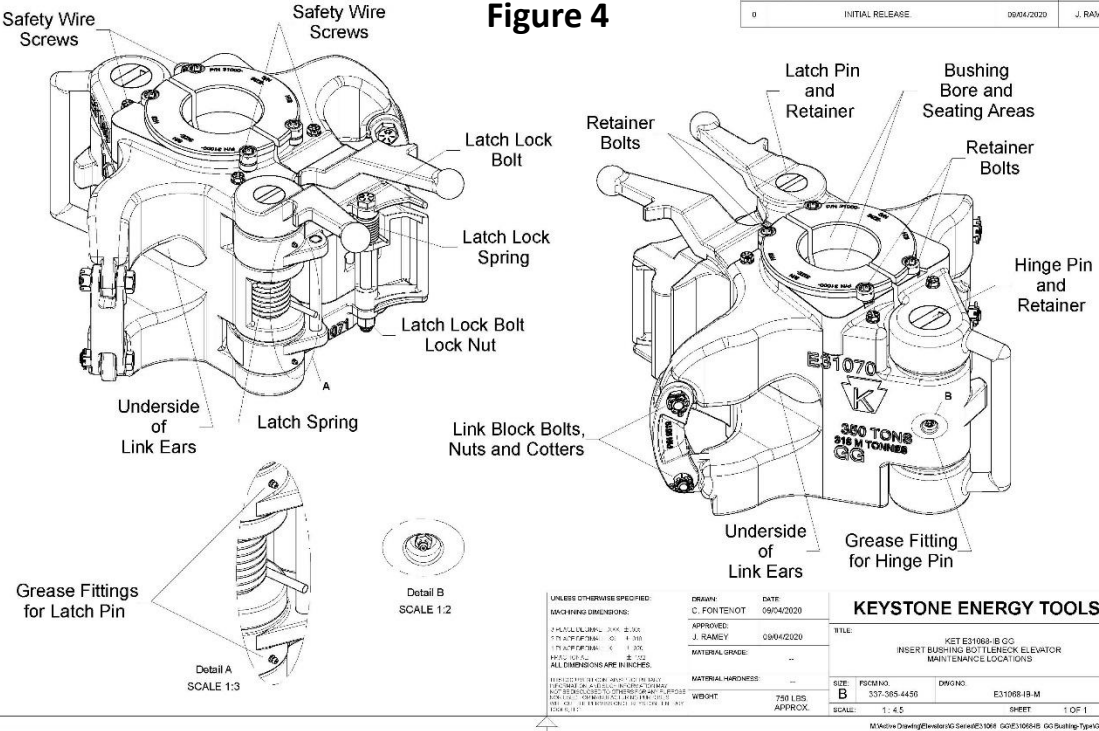


Figure 4



4.0 Repair & Critical Areas

All G series elevators are designed and manufactured similarly. Both elevators incorporate lock bars to retain the hinge & latch pins. Both latch springs operate off the spring stop pin.

DISASSEMBLY PROCEDURE

- ▶ Remove the latch lock assembly and latch spring by driving or pressing out the lock bar and driving out the latch pin from the bottom of the elevator.
- ▶ Remove the latch lock from the latch by removing the Teflon nut and drive or press out the bolt.
- ▶ Remove the hinge pin by driving it out from the bottom of the elevator, shearing the lock bar in the process and remove the latch pin in the same manner. As an alternative method, the lock bar can be drilled in the center, then split by using a chisel and removed. In either case the lock bar must be discarded.
- ▶ If either link block is to be replaced, remove the link block bolt and cotter pins.
- ▶ If the door lug pin is damaged, drive or press it out from the bottom of the lug.
- ▶ Reassemble by reversing the above steps.
- ▶ Install new lock bars on hinge and latch pins.
- ▶ After assembly, ensure that full spring tension is available to close the latch & lock. The latch spring should contact the spring stop pin which in turn transmits the spring force to the latch.
- ▶ Check the latch for proper engagement with the door lug pin by holding the body and door apart (such that the latch contacts the lug on the door) and attempt to pry the latch open. After minimal of the latch the hook on the latch should engage with the door lug pin stopping the travel of the latch.
- ▶ Check link block bolts, nuts, and cotter pins.

We have identified those areas considered critical to tool performance and functionality. These should be examined for repair or replacement.

(See Figure 5-8)

NOTE 1: Bodies and doors are specifically matched by trained Keystone Energy Tools professionals. For this reason, a body or door from one elevator should never be exchanged with a body or door from another elevator.

Illustrated on page 10 & 11 are the critical and non-critical areas associated with the subject tool. Critical areas are identified by the shaded areas. All non-shaded areas are considered to be non-critical.

(See Figure 5)

BUSHING REMOVAL AND ASSEMBLY

- ▶ Cut the safety wire from the retainer bolts and remove the bolts. (See figure 9)
- ▶ Move the two locking blocks in the elevator by using the special lock block removal tool (P/N E35002-T) to lift the locking pin and rotate it in the up position (See figures 11 & 12).
- ▶ Slide the lock blocks away from the center of the elevator bore so that the tabs clear the bore of the elevator. Remove the bushings from the elevator by pulling straight out. (See figure 10)
- ▶ To re-assemble, slide the proper size bushings in place, rotate the lock bushing pins in the down position (See fig. 11 & 12), then slide the lock blocks towards the inside of the elevator bore until the pins set into place.
- ▶ Replace the retainer bolts with spacers and safety wire them back to the tie wire bolt in a figure 8 pattern. Twist the wire ends together to prevent the retainers from backing out. (See figure 9)

*****IMPORTANT** – torque retainer bolts to a max of 280 FT-LBS, over torque of retainer bolts could cause the bolt to shear and may result in injury or death***

Always check to make sure the bushing size and pipe size match.

4.0 Repair & Critical Areas

Worn or damaged elevators are returned to like new condition with factory repair procedures based upon API 8B Specification. When tools are received for repair, they are disassembled, dimensionally checked and undergo a magnetic particle inspection. Worn areas are repaired by welding or replacing with new parts, and then heat-treated to original hardness specifications. They are proof load tested and undergo another magnetic particle inspection 24 hours after load test. They are then reassembled, functionally tested and re-certified.

Caution:

- ▶ Do not use any elevator if the latch and latch lock do not function properly.
- ▶ Use only parts manufactured and sold by Keystone Energy Tools or one of KET's authorized distributors.

- ▶ Re-machining and re-heat treating should be performed only by KET or at a KET approved repair facility. Improper machining could result in increased stress or improper alignment of the component parts. Either condition could be hazardous to personnel and equipment.

- ▶ Due to the complex metallurgy used in KET elevators, welding should be done only at KET or a KET approved repair facility.

- ▶ Bodies, doors, and latches are specifically matched by KET professionals. For this reason, a body, door and or latch from one elevator should never be exchanged with parts from another elevator.

- ▶ Always wear eye protection and the proper clothing when grinding, striking, or handling parts.

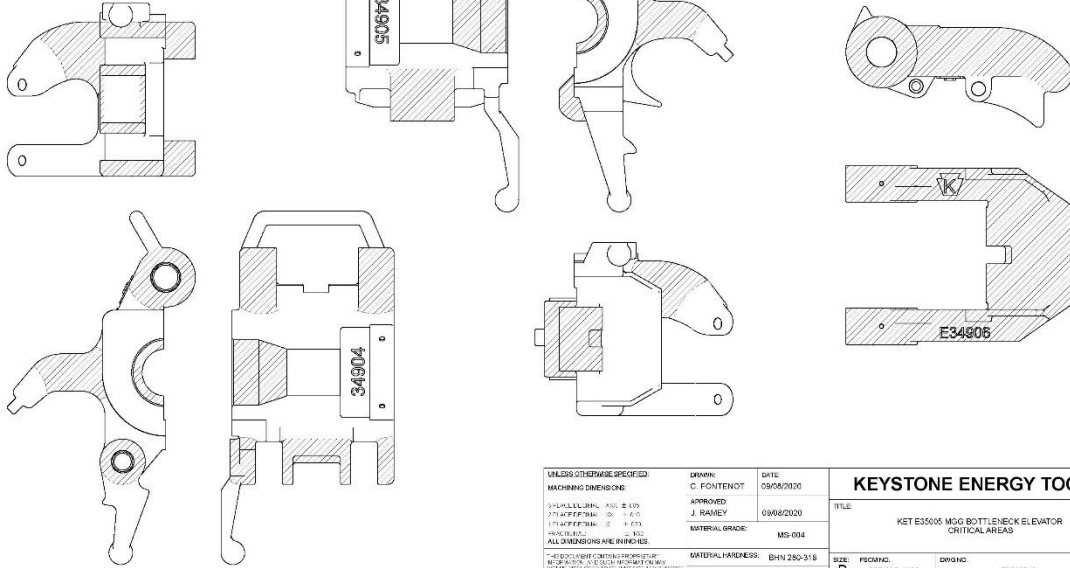
- ▶ Make sure link block bolts have nuts and cotter pins.

- ▶ If the load rating of the elevator is ever exceeded for any reason the elevator should immediately be removed from service and returned to the manufacturer for evaluation.

4.0 Critical Areas & Critical Areas

AREAS HATCHED ARE CONSIDERED CRITICAL AREAS.
AREAS NOT HATCHED ARE CONSIDERED NON-CRITICAL AREAS.

Figure 5



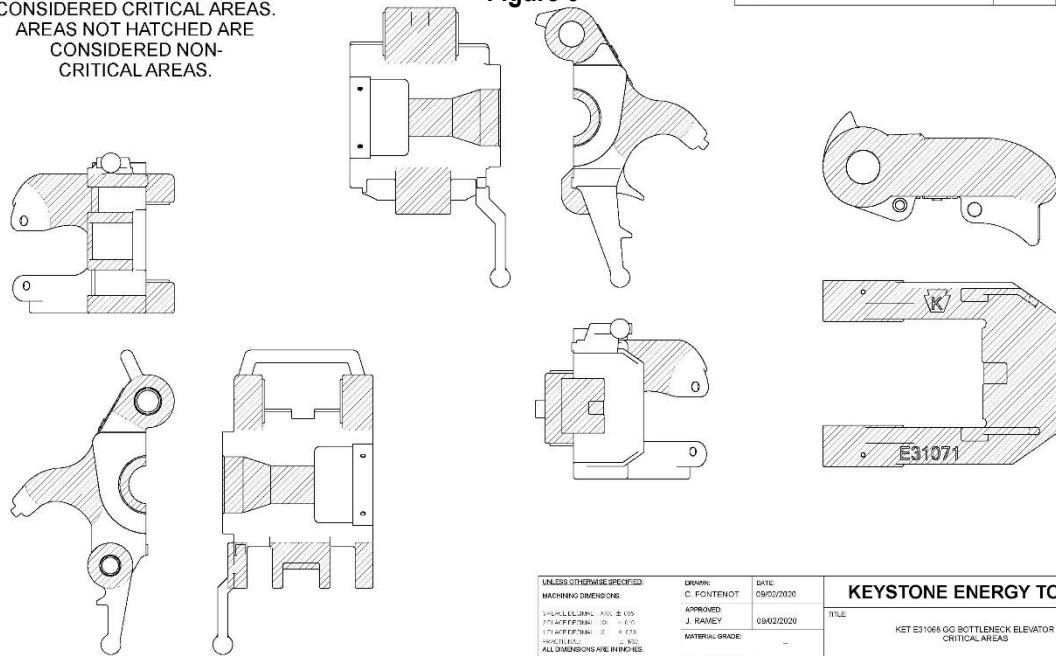
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FRACTIONAL: XX.XX ± .015		APPROVED:	
DECIMALS: .XX ± .015		J. RAMEY	09/06/2020
TOLERANCES: ± .015		MATERIAL GRADE:	MS-004
HATCHES: 1:2		MATERIAL FINISH:	BHN 250-318
ALL DIMENSIONS ARE IN INCHES		WEIGHT:	--

KEYSTONE ENERGY TOOLS			
TITLE			
KET E35005 MSG BOTTLENECK ELEVATOR CRITICAL AREAS			
SIZE:	FIG. NO.:	DWG. NO.:	REV.:
B	337-365-4155	E3505-C	0
SCALE:	SHEET:		1 OF 1

AREAS HATCHED ARE CONSIDERED CRITICAL AREAS.
AREAS NOT HATCHED ARE CONSIDERED NON-CRITICAL AREAS.

Figure 6



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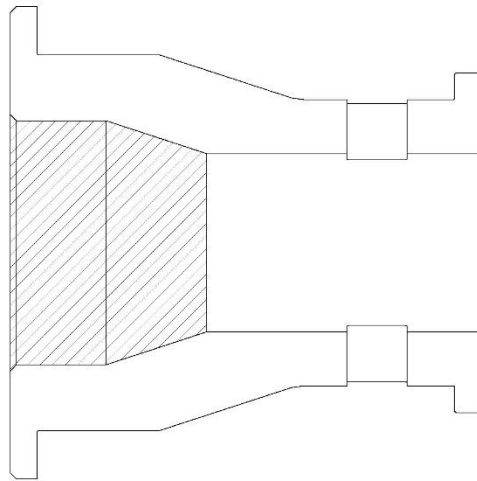
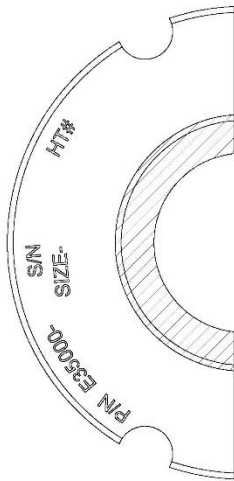
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DECIMALS: .XX ± .015		J. RAMEY	09/02/2020
TOLERANCES: ± .015		MATERIAL GRADE:	--
HATCHES: 1:2		MATERIAL FINISH:	--
ALL DIMENSIONS ARE IN INCHES		WEIGHT:	--

KEYSTONE ENERGY TOOLS			
TITLE			
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SIZE:	FIG. NO.:	DWG. NO.:	REV.:
B	337-365-4155	E3108-C	0
SCALE:	SHEET:		1 OF 1

4.0 Repair & Critical Areas

Figure 7

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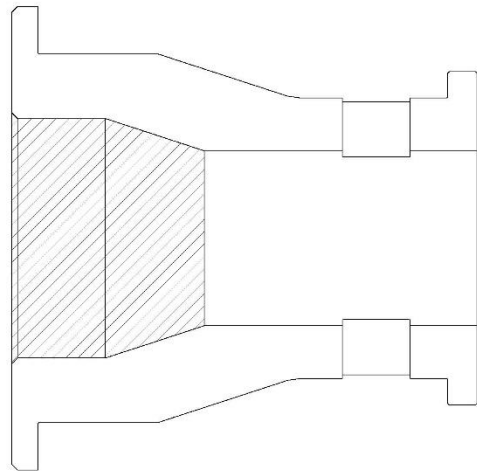
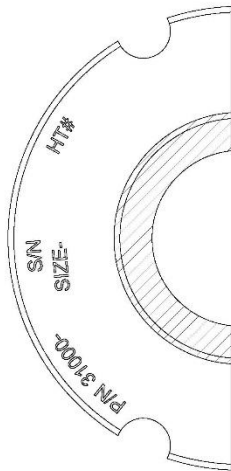


AREAS HATCHED ARE CONSIDERED CRITICAL AREAS.
AREAS NOT HATCHED ARE CONSIDERED NON-CRITICAL AREAS.

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Figure 8

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AREAS HATCHED ARE CONSIDERED CRITICAL AREAS.
AREAS NOT HATCHED ARE CONSIDERED NON-CRITICAL AREAS.

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5.0 Assembly/Disassembly Illustrations

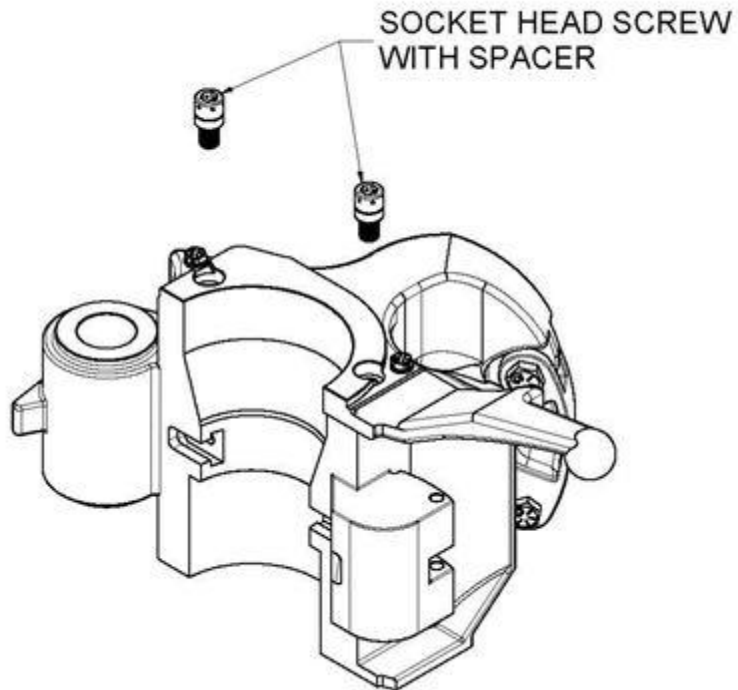


FIGURE 9

Remove retainer bolts and spacers from top of elevator.

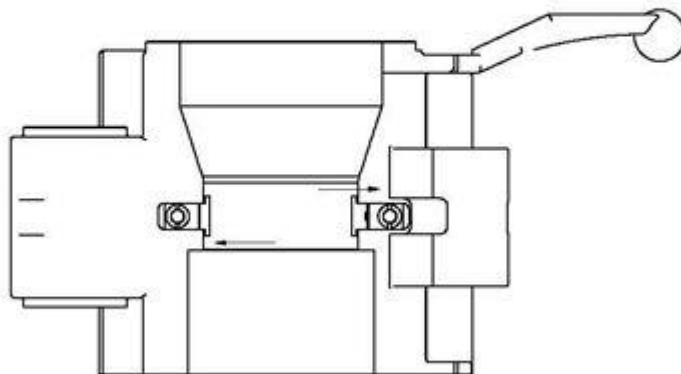


FIGURE 10

Insert bushing locks as shown, sliding them all the way to the end of slot.

5.0 Assembly/Disassembly Illustrations

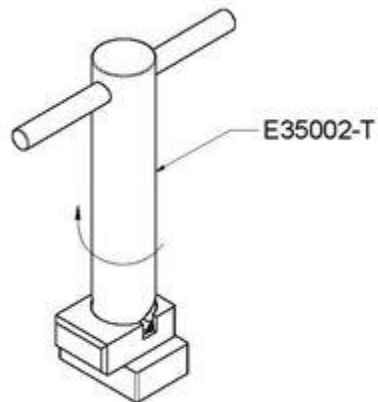


FIGURE 11

Insert the tool (E35002-T) into the lock-block as shown and turn clockwise until roll-pin is in the up position. To remove tool, rotate back counter-clockwise one half turn and pull up. To lock pin back in down position, insert tool as before and continue to turn in a clockwise direction until roll-pin is in the down position.

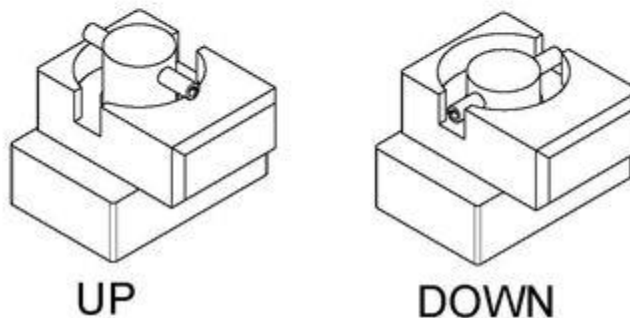
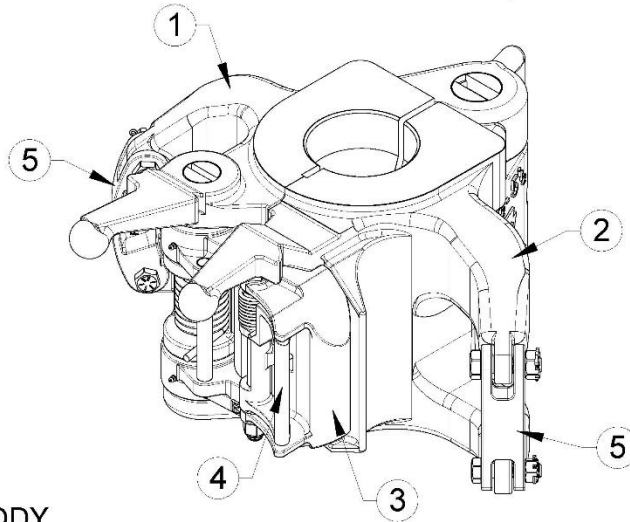


FIGURE 12

Make sure the pin is in the up position when initially inserting in the elevator, and in the down position for locking.

6.0 MGG-IB Technical Drawings

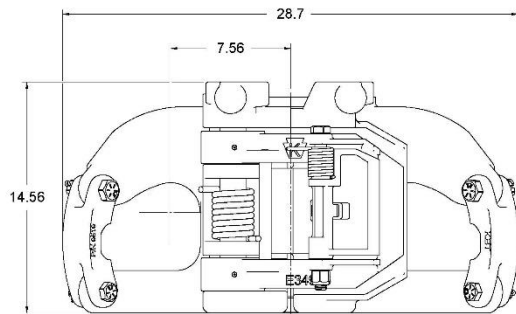
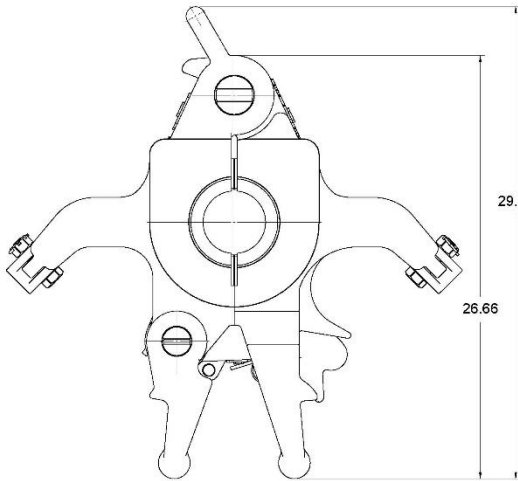
*NOTE – PAINT CAN NOT EXCEED A THICKNESS OF 25 MILS



- 1. ELEVATOR BODY
- 2. ELEVATOR DOOR
- 3. LATCH
- 4. LATCH LOCK
- 5. LINK BLOCKS

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UNLESS OTHERWISE SPECIFIED: MACHINING DIMENSIONS: 2 PLACE DECIMAL .XX ± .005 3 PLACE DECIMAL .XXX ± .003 1 PLACE DECIMAL .X ± .030 FRACTIONAL .1/32 ± .002 ALL DIMENSIONS ARE IN INCHES.	DRAWN: C. FONTENOT	DATE: 09/04/2020	KEYSTONE ENERGY TOOLS	
THIS DRAWING IS THE PROPERTY OF KEYS-ONE ENERGY TOOLS. IT IS TO BE USED ONLY FOR THE PROJECT AND FOR THE QUANTITY OF PARTS SPECIFIED IN THE ORDER. IT IS NOT TO BE REPRODUCED OR USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF KEYS-ONE ENERGY TOOLS.	APPROVED: J. RAMEY	DATE: 09/04/2020	TITLE: KET E53009 MGG BOTTLENECK ELEVATOR MAIN COMPONENTS	
MATERIAL GRADE: ---	MATERIAL FINISH: ---	SIZE: B	PSCM NO. 337-385-4458	DWG NO. E35005-A
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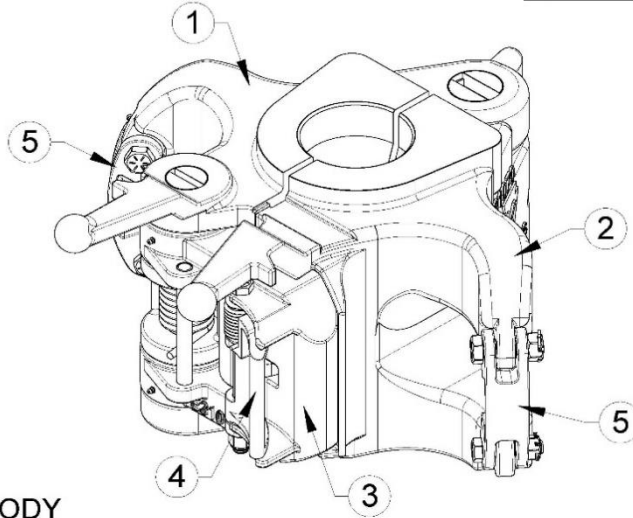
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
0	INITIAL RELEASE	06/04/2020	J. RAMEY

UNLESS OTHERWISE SPECIFIED: MACHINING DIMENSIONS: 2 PLACE DECIMAL .XX ± .005 3 PLACE DECIMAL .XXX ± .003 1 PLACE DECIMAL .X ± .030 FRACTIONAL .1/32 ± .002 ALL DIMENSIONS ARE IN INCHES.	DRAWN: C. FONTENOT	DATE: 09/04/2020	KEYSTONE ENERGY TOOLS	
THIS DRAWING IS THE PROPERTY OF KEYS-ONE ENERGY TOOLS. IT IS TO BE USED ONLY FOR THE PROJECT AND FOR THE QUANTITY OF PARTS SPECIFIED IN THE ORDER. IT IS NOT TO BE REPRODUCED OR USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF KEYS-ONE ENERGY TOOLS.	APPROVED: J. RAMEY	DATE: 09/04/2020	TITLE: KET E53005 MGG BOTTLENECK ELEVATOR APPROXIMATE SIZE DIMENSIONS	
MATERIAL GRADE: ---	MATERIAL FINISH: ---	SIZE: B	PSCM NO. 337-385-4458	DWG NO. E35005-D
WEIGHT: 800 LBS. APPROX.	SCALE: 1 : 4.5	REV. 0	SHEET 1 OF 1	

7.0 GG-IB Technical Drawings

*NOTE – PAINT CAN NOT EXCEED A THICKNESS OF 25 MILS

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
0	INITIAL RELEASE	09/01/2020	J. RAMEY

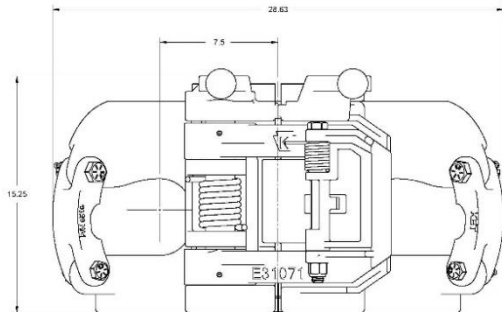
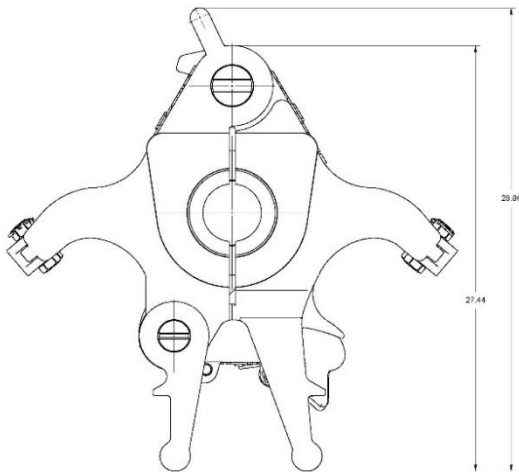


- 1. ELEVATOR BODY
- 2. ELEVATOR DOOR
- 3. LATCH
- 4. LATCH LOCK
- 5. LINK BLOCKS

UNLESS OTHERWISE SPECIFIED				KEYSTONE ENERGY TOOLS			
MACHINED DIMENSIONS:				DRAWN:	C. FORTENOT	DATE:	09/01/2020
FINISHES:				APPROVED:	J. RAMEY	DATE:	09/01/2020
TOLERANCES:				MATERIAL GRADE:	--		
MATERIAL HARDNESS:				--			
WEIGHT:				700 LBS	APPROX.	SIZE:	FSCM NO. 337-365-4456
SCALE:				1:3.5			
TITLE:				KET E31068 GG BOTTLENECK ELEVATOR MAIN COMPONENTS			
REV:				0			
DWG NO.:				E31068-A			
SHEET:				1 OF 1			

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
0	INITIAL RELEASE	09/01/2020	J. RAMEY



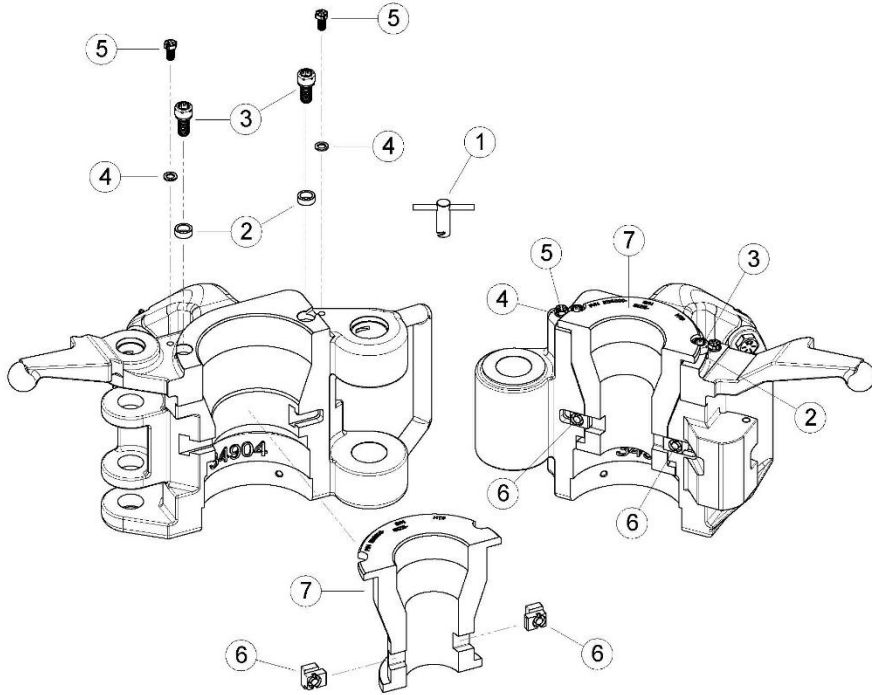
UNLESS OTHERWISE SPECIFIED				KEYSTONE ENERGY TOOLS			
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FINISHES:				APPROVED:	J. RAMEY	DATE:	09/01/2020
TOLERANCES:				MATERIAL GRADE:	--		
MATERIAL HARDNESS:				--			
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REV:				0			
DWG NO.:				E31068-D			
SHEET:				1 OF 1			

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Keystone ENERGY TOOLS

8.0 MGG-IB Bushing Replacement Parts

PART NUMBER	RANGE	SIZE OF LINKS	WEIGHT (LBS.)
E35005-IB (MGG)	2-7/8"-5"	2-1/4"-3-1/2"	600.00



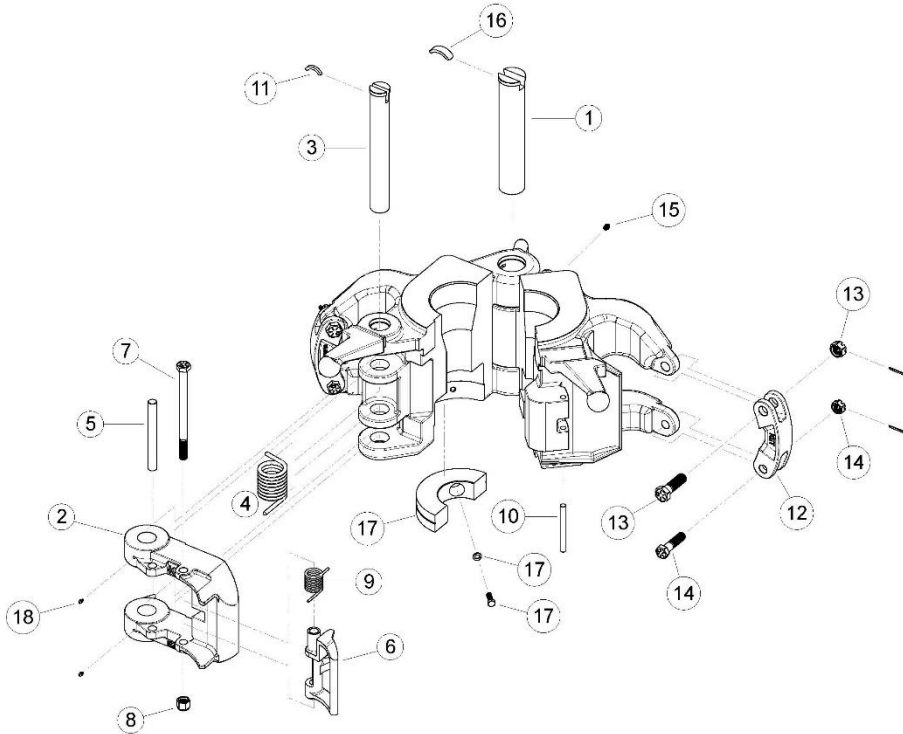
KET#	ITEM	DESCRIPTION	SPARES	REQUIRED	WEIGHT (LBS.)
E35002-T	1	LOCK-CLOCK TOOL	1	1	0.755
E35001-S	2	RETAINER BUSHING	-	4	0.065
E35001	3	RETAINER BOLT	-	4	0.300
E35007	4	SAFETY WIRE LOCK WASHER	-	4	0.015
E35006	5	SAFETY WIRE SCREW	-	4	0.075
E35002-ASSY	6	LOCK-BLOCK ASSEMBLY	1	4	0.335
E35000-	7	SEE BELOW CHART	1	1	SEE BELOW

1 YEAR SPARES. FOR 2 YEARS SPARES ADD 1 EA. OF * THESE ITEMS.

KET#	ITEM	DESCRIPTION	SPARES	REQUIRED	WEIGHT (LBS.)
E35000-118	7	2 7/8" BUSHING F/MGG	1	1	68.00
E35000-120	7	3 1/2" BUSHING F/MGG	1	1	66.00
E35000-121	7	4" FH BUSHING F/MGG	1	1	64.00
E35000-220	7	4" SH BUSHING F/MGG	1	1	65.00
E35000-122	7	4 1/2" BUSHING F/MGG	1	1	62.00
E35000-123	7	5" BUSHING F/MGG	1	1	59.00

8.0 MGG-IB Elevator Replacement Parts

PART NUMBER	RANGE	SIZE OF LINKS	WEIGHT (LBS.)
E35005-IB (MGG)	2-7/8"-5"	2-1/4"-3-1/2"	600.00



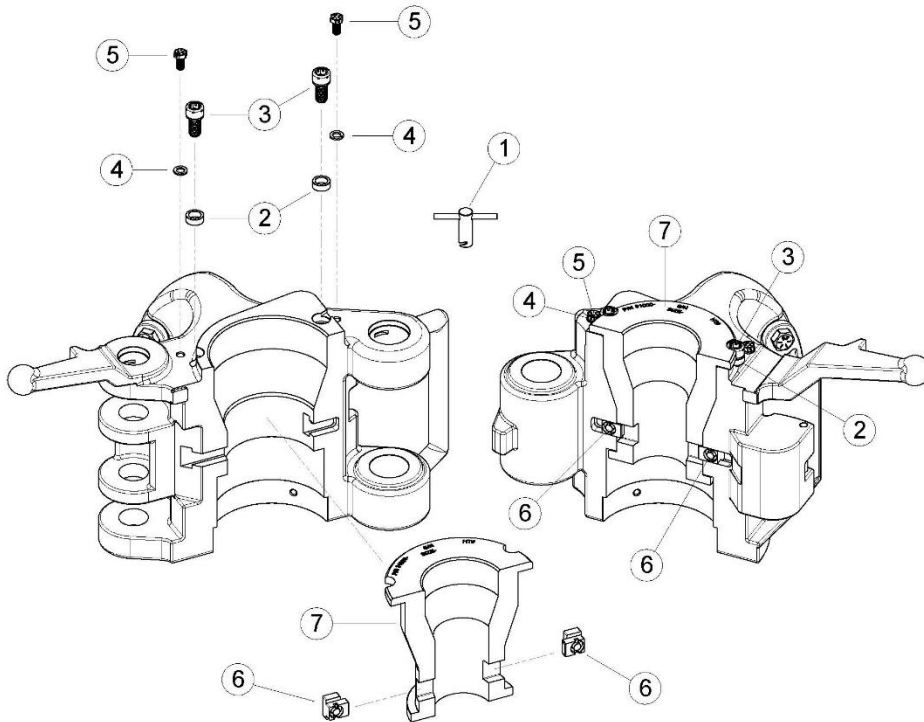
KET#	ITEM	DESCRIPTION	SPARES	REQUIRED
E34908	1	HINGE PIN	-	1
E34906	2	LATCH	-	1
E34907	3	LATCH PIN	-	1
E34909	4	LATCH SPRING	1	1
E13185	5	SPRING STOP PIN	-	1
E13152	6	LATCH LOCK	-	1
E15101	7	LATCH LOCK BOLT	1	1
E939484-8	8	LATCH LOCK NUT	1	1
E13188	9	LATCH LOCK SPRING	1	1
E13190	10	DOOR LUG PIN	-	1
E34911	11	LATCH PIN RETAINER	1	1
E9519	12	LINK BLOCK	-	2
E8145-1	13	UPPER LINK BLOCK BOLT, NUT, & COTTER	-	2
E8145-2	14	LOWER LINK BLOCK BOLT, NUT, & COTTER	1	2
E940308-1	15	GREASE FITTING	-	1
E34910	16	HINGE PIN RETAINER	1	1
-	17	WEAR BUSHING	-	-
E940308-1	18	GREASE FITTING	2	2

1 YEAR SPARES. FOR 2 YEARS SPARES ADD 1 EA. OF * THESE ITEMS.

Keystone ENERGY TOOLS

9.0 GG-IB Elevator Replacement Parts

PART NUMBER	RANGE	SIZE OF LINKS	WEIGHT (LBS.)
E31068-IB (GG)	2-7/8" - 5 1/2"	2-1/4" - 3-1/2"	750.00



KET#	ITEM	DESCRIPTION	SPARES	REQUIRED	WEIGHT (LBS.)
E35002-T	1	LOCK-CLOCK TOOL	1	1	0.755
E35001-S	2	RETAINER BUSHING	-	4	0.065
E35001	3	RETAINER BOLT	-	4	0.300
E35007	4	SAFETY WIRE LOCK WASHER	-	4	0.015
E35006	5	SAFETY WIRE SCREW	-	4	0.075
E35002-ASSY	6	LOCK-BLOCK ASSEMBLY	1	4	0.335
E35000-	7	SEE BELOW CHART	1	1	SEE BELOW

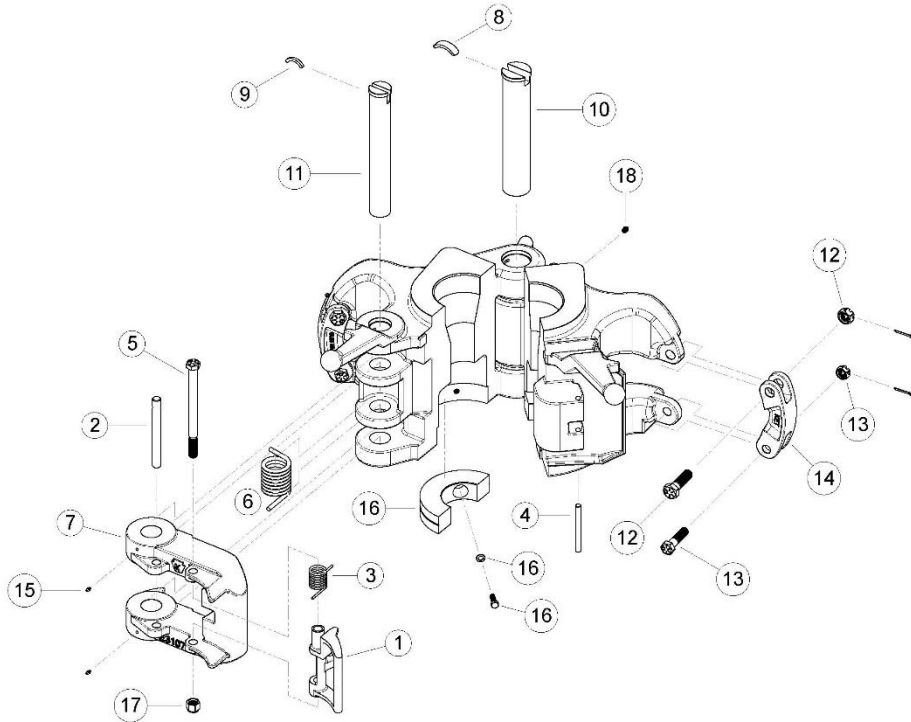
1 YEAR SPARES. FOR 2 YEARS SPARES ADD 1 EA. OF * THESE ITEMS.

KET#	ITEM	DESCRIPTION	SPARES	REQUIRED	WEIGHT (LBS.)
E31000-120	7	3 ½" BUSHING F/GG	1	1	70.00
E31000-121	7	4" FH BUSHING F/GG	1	1	68.00
E31000-220	7	4" SH BUSHING F/GG	1	1	69.00
E31000-122	7	4 ½" BUSHING F/GG	1	1	66.00
E31000-123	7	5" BUSHING F/GG	1	1	64.00
E31000-124	7	5 ½" BUSHING F/GG	1	1	62.00

Keystone ENERGY TOOLS

9.0 GG-IB Bushing Replacement Parts

PART NUMBER	RANGE	SIZE OF LINKS	WEIGHT (LBS.)
E31068-IB (GG)	2-7/8" - 5 1/2"	2-1/4"-3-1/2"	750.00



KET#	ITEM	DESCRIPTION	SPARES	REQUIRED
E13152	1	LATCH LOCK	-	1
E13185	2	SPRING STOP PIN	-	1
E13188	3	LATCH LOCK SPRING	1	1
E13190	4	DOOR LUG PIN	-	1
E939484-8	5	LATCH LOCK BOLT	1	1
E18416	6	LATCH SPRING	1	1
E31071	7	LATCH	-	1
E31074	8	HINGE PIN RETAINER	1	1
E32892	9	LATCH PIN RETAINER	1	1
E33998	10	HINGE PIN	1	1
E33999	11	LATCH PIN	1	1
E8145-1	12	UPPER LINK BLOCK BOLT, NUT, & COTTER	1	2
E8145-2	13	LOWER LINK BLOCK BOLT, NUT, & COTTER	1	2
E9519	14	LINK BLOCK	-	2
E940308-1	15	GREASE FITTING	1	1
-	16	WEAR BUSHING	-	-
E939484-8	17	LATCH LOCK BOLT NUT	1	1
E940308-1	18	GREASE FITTING	2	2

1 YEAR SPARES. FOR 2 YEARS SPARES ADD 1 EA. OF * THESE ITEMS.

Keystone ENERGY TOOLS

10.0 MGG-IB Elevator Wear Data

PART NUMBER	E35005
RATED CAPACITY	250 TON

STANDARD PINS

HINGE PIN PART #	E34908
TOTAL CLEARANCE(H)	.030
HINGE PIN MIN. DIA. NEW	2.300
BORE DIA.MAX. NEW	2.318
BORE DIA.MAX.WORN	2.336

LATCH PIN PART #	E34907
TOTAL CLEARANCE(L)	.030
LATCH PIN MIN. DIA. NEW	1.676
BORE DIA.MAX.NEW	1.693
BORE DIA.MAX.WORN	1.712

1/16" OVERSIZE PINS

HINGE PIN PART #	E34908-R
TOTAL CLEARANCE(H)	.030
HINGE PIN MIN. DIA.	2.363
BORE DIA.MAX. NEW	2.381
BORE DIA.MAX.WORN	2.399

LATCH PIN PART #	E34907-R
TOTAL CLEARANCE(L)	.030
LATCH PIN MIN. DIA.	1.745
BORE DIA.MAX.NEW	1.752
BORE DIA.MAX.WORN	1.770

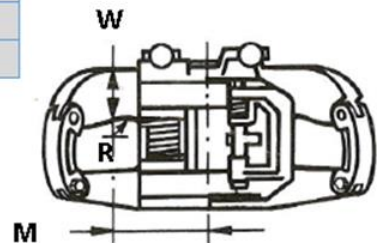
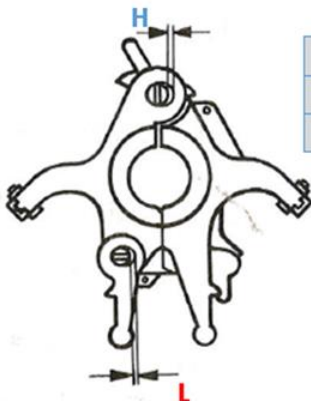
1/8" OVERSIZE PINS

HINGE PIN PART #	E34908-R
TOTAL CLEARANCE(H)	.030
HINGE PIN MIN. DIA. NEW	2.425
BORE DIA.MAX. NEW	2.443
BORE DIA.MAX.WORN	2.461

LATCH PIN PART #	E34907-R
TOTAL CLEARANCE(L)	.030
LATCH PIN MIN. DIA. NEW	1.807
BORE DIA.MAX.NEW	1.814
BORE DIA.MAX.WORN	1.832

LIFTING EARS

DIMENSION (W) MIN	4.250
RADIUS -R	1.875
DIMENSION (M)	6.813



11.0 GG-IB Elevator Bore Wear Data

PART NUMBER	E31068
RATED CAPACITY	350 TON

STANDARD PINS

HINGE PIN PART #	E33998	LATCH PIN PART #	E33999
TOTAL CLEARANCE(H)	0.045	TOTAL CLEARANCE(L)	0.035
HINGE PIN MIN. DIA. NEW	2.494	LATCH PIN MIN. DIA. NEW	1.870
BORE DIA. MAX. NEW	2.502	BORE DIA. MAX. NEW	1.877
BORE DIA. MAX. WORN	2.525	BORE DIA. MAX. WORN	1.895

1/16" OVERSIZE PINS

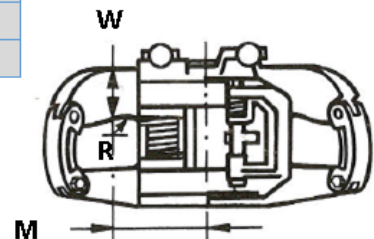
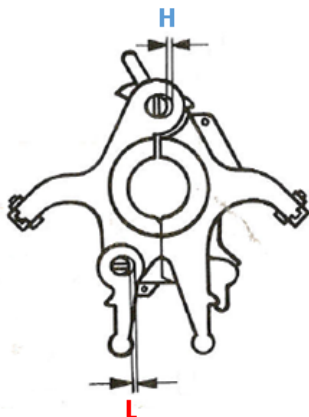
HINGE PIN PART #	E33998-R	LATCH PIN PART #	E33999-R
TOTAL CLEARANCE(H)	0.045	TOTAL CLEARANCE(L)	0.030
HINGE PIN MIN. DIA. NEW	2.557	LATCH PIN MIN. DIA. NEW	1.932
BORE DIA. MAX. NEW	2.565	BORE DIA. MAX. NEW	1.942
BORE DIA. MAX. WORN	2.588	BORE DIA. MAX. WORN	1.959

1/8" OVERSIZE PINS

HINGE PIN PART #	E33998-R	LATCH PIN PART #	E33999-R
TOTAL CLEARANCE(H)	0.045	TOTAL CLEARANCE(L)	0.030
HINGE PIN MIN. DIA. NEW	2.619	LATCH PIN MIN. DIA. NEW	1.995
BORE DIA. MAX. NEW	2.627	BORE DIA. MAX. NEW	1.205
BORE DIA. MAX. WORN	2.650	BORE DIA. MAX. WORN	1.222

LIFTING EARS

DIMENSION (W) MIN	4.500
RADIUS -R	1.875
DIMENSION (M)	7.375



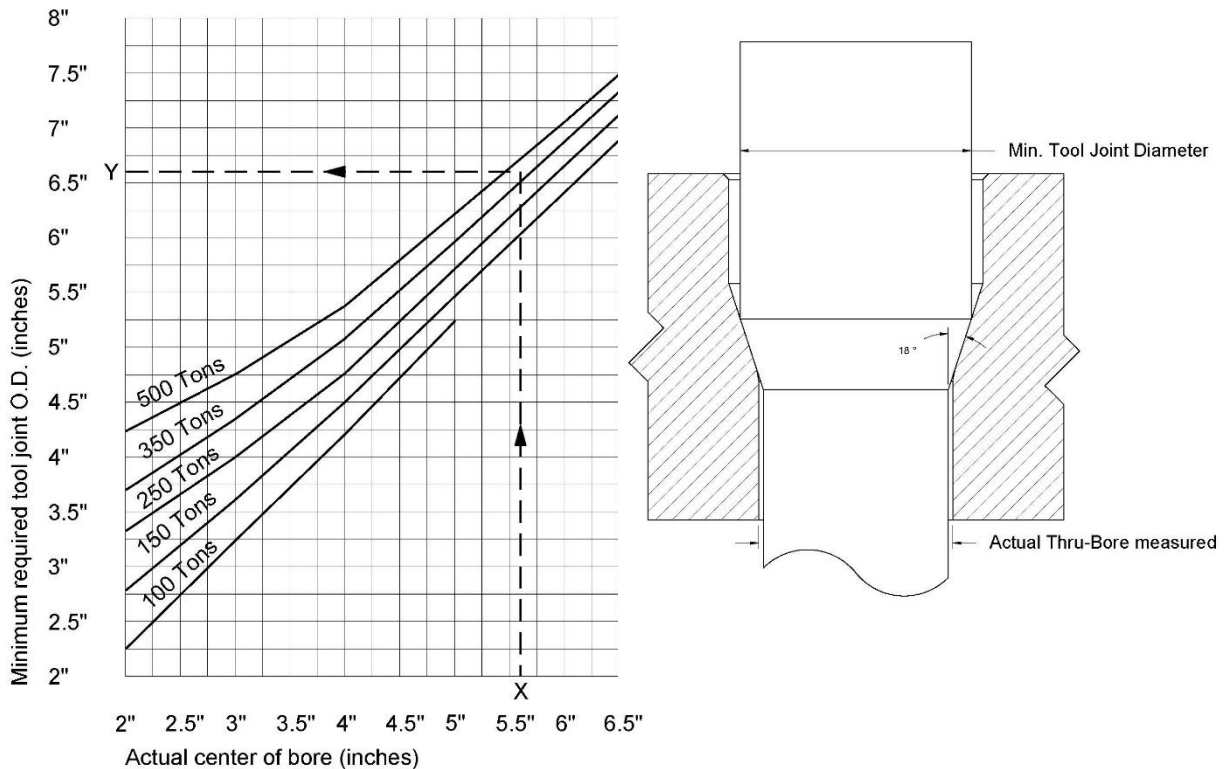
12.0 Wear Data for Bottleneck Elevators

TOOLJOINT /BORE WEAR TABLE BOTTLENECK ELEVATORS

How to check your center bore:

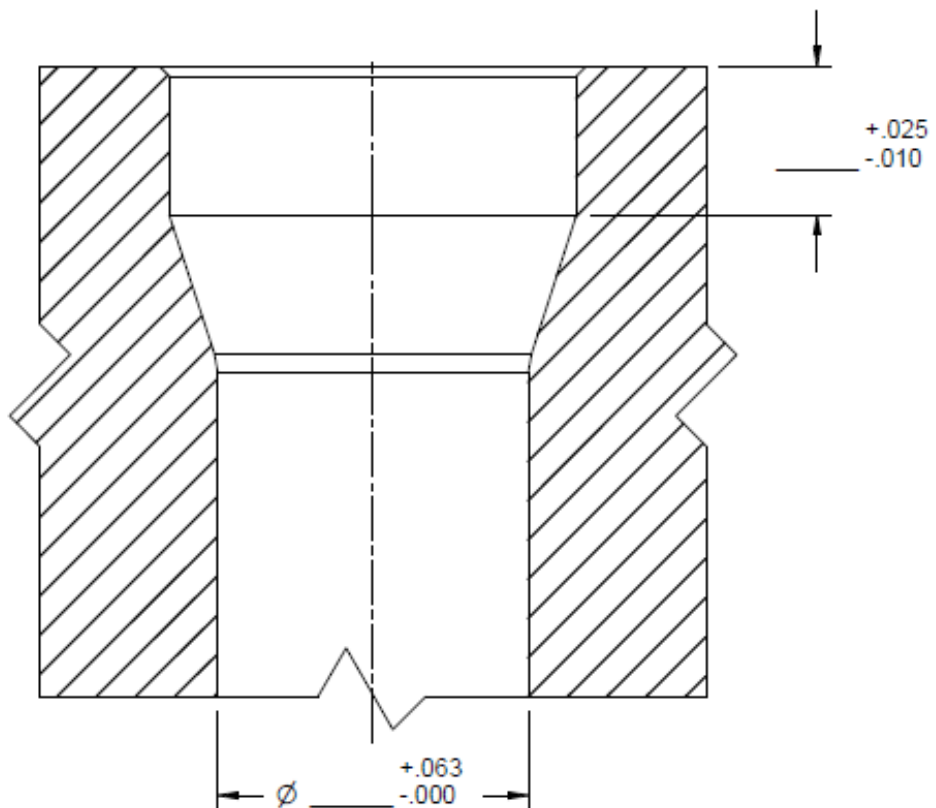
1. Determine your actual center bore diameter (largest) in inches (X).
2. Before using your elevator, always check the tooljoint /bore combination by means of the table on the left.
3. Follow the line up to the line corresponding with the rating of your elevator. (Rating in short tons.)
4. Read on the left the minimum required tooljoint diameter in inches that can safely be handled with your elevator (Y).

As soon as your tooljoint diameter falls below the corresponding rating line, you have to change either your elevator or your pipe.



12.0 Elevator Bore Wear Data

*Note – these bore tolerances only apply to the IB bore MGG & GG elevators.



13.0 Reception, Storage, Transport & Decommissioning

Reception

Check the tool immediately after reception and re-preserve the tool as required (try to have this completed within 1 month).

Any exposed or non painted metal surfaces should be coated with a rust preventative to prevent any corrosion build up.

Storage

The tool should be stored or palletized in a clean and dry place to avoid all environmental elements. It is recommended to store in an indoor environment of 60 – 70 Deg F with max humidity of 80%. If the tool is to be stored outdoor, then a cargo container would be appropriate to ensure the tool is not exposed to weather conditions.

Preserve the tool by greasing all areas defined in the maintenance requirements per the manual.

During storage, the tool shall still be inspected annually per inspection requirements in the user's manual.

Transport

When lifting the tool do so only by using its lifting ears only. The best way of transporting the tool is in its original palletized state. Ensure the tool is banded down accordingly to prevent the possibility of potential dropped objects and broken shipments.

Decommissioning

The tool may contain grease, steel, rubbers, plastic, stainless steel, mild steel and several assembled components with undefined consistency or mixtures. The tool can be contaminated with drilling fluids, hydraulic fluids and preservatives. After the tool is decommissioned, it is recommended to disassemble the tool in a place where waste fluids can be contained and properly disposed of.

⚠WARNING: any fluids, mud, or grease are potentially unsafe when in contact with the skin. Always wear gloves and safety goggles when disassembling the tool.

1. Clean the tool with a steam cleaner.
2. It is recommended to disassemble the tool in a place where drainage for waste fluids is possible.

CERTIFICATE OF WARRANTY AND GUARANTEE OF QUALITY

KET warrants all materials and products manufactured to be free from defects in material and workmanship, under normal use and service, when installed, used, and serviced in the manner provided and intended by the seller for a period of twelve (12) months after delivery. Seller's obligation under this warranty is expressly limited to repair or replacement, at its option, of any materials or products, returned to the seller's plant in New Iberia, Louisiana and which are determined by the seller to be defective. All freight charges for return and reshipment shall be paid by the customer. A new warranty period shall not be established for repaired or replaced material or products; such items shall remain under warranty only for the remainder of the warranty period on the original materials or products. This is the sole warranty of the seller and no other warranty is either expressed or implied, in fact or by law, including any warranty at to the merchantability or fitness for a particular use or purpose.

In case of goods or parts not wholly of seller's manufacture, seller shall make available to the customer whatever warranty or guarantee is extended to seller for such goods or parts by the supplier or manufacturer thereof.

Seller will not assume responsibility or liability for any repairs, rebuilding, welding or heat treating done to its material or products outside of seller's plant, such work shall void all warranties. All parts used in the manufacture and /or final assembly of seller's materials or products are necessary for both safety and operational performance. Omission of any part or failure to replace any worn part may result in the malfunction and a consequent safety hazard for which seller disclaims any responsibility or liability for injuries or damage as a result thereof.

Buyer's sole and only remedy in regard to any defective materials or products shall be the repair or replacement thereof as herein provided, and seller shall not be liable for any consequential, special, incidental or punitive damages resulting from or caused by any defective materials, products or supplies.



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Revision History

Revision	Date	Changes
05	05/26/2021	Updated format/added revision history
06	10/14/2021	Added page 6 link bolt proper installation
07	07/19/2022	Updated address
08	10/25/2023	Added bore wear data chart
09	04/03/2024	Added warning about shock loading