ROPER WHITNEY.

MODEL 125B MANUAL

SHEAR

OPERATING INSTRUCTIONS AND PARTS IDENTIFICATION

3 YEAR LIMITED WARRANTY

Roper Whitney ("Manufacturer") warrants, commencing with the date of shipment to first end-user ("Customer") and for a period of thirty-six (36) months thereafter, all machinery and parts manufactured by Manufacturer to be free of defects in workmanship and material. This warranty remains in force for the above time period only if all of Manufacturer's operational procedures are followed and recommended maintenance is performed. If, within such warranty period, any machinery or parts manufactured by Manufacturer shall be proved to Manufacturer's satisfaction to be defective, such machinery or parts shall be repaired or replaced, at Manufacturer's option. All warranty claims are made F.O.B Manufacturer's plant, providing such machinery or parts are returned freight prepaid to Manufacturer's plant or designated service center for Manufacturer's inspection. All failed parts or components must be returned to Manufacturer prepaid for inspection before credit will be issued for new parts or components. Manufacturer's obligation hereunder shall be confined to such repair or replacement and does not include any charges, direct or indirect, for removing or replacing defective machinery or parts. No warranty shall apply to machinery, or parts or accessories, which have been furnished, repaired, or altered by others so as, in Manufacturer's judgment, to affect the same adversely or which shall have been subject to negligence, accident or improper care, installation, maintenance, storage, or other than normal use or service, during or after shipment. No warranty shall apply to the cost of repairs made or attempted outside of Manufacturer's plant or designated service center without Manufacturer's authorization.

No warranty shall apply with respect to machinery or part not manufactured by Manufacturer, including but not limited to motors, accessories, electrical and hydraulic components, if such machinery or part is subject to warranty by the manufacturer of such machinery or part. No warranty claims by Customer will be honored with respect to any machinery or part from which the name and date plate has been removed or is otherwise no longer located or exhibited on such machinery or part.

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY AND IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. MANUFACTURER SHALL NOT BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES WHATSOEVER WITH RESPECT TO MACHINERY, PARTS, ACCESSORIES, OR SERVICES MANUFACTURED OR FURNISHED BY IT OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATING THERETO. UNDER NO CIRCUMSTANCES SHALL MANUFACTURER BE LIABLE FOR ANY CONSEQUENTIAL OR OTHER DAMAGES, EXPENSES, LOSSES, OR DELAYS HOW SO EVER CAUSED.THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

Note: Consumable tooling is not covered under the 3 year manufacturer's warranty.

RETURN OF THE PRODUCT REGISTRATION CARD FURNISHED WITH THE PRODUCT IS NECESSARY TO OBTAIN WARRANTY COVERAGE THEREON. CARD MUST BE FULLY COMPLETED, SIGNED BY THE PURCHASER, AND IF APPLICABLE, SIGNED BY THE DISTRIBUTOR. RETURN REGISTRATION CARD TO:

ROPER WHITNEY®
CHANGING THE SHAPE OF METAL

PRODUCT DESCRIPTION

THE NO. 125B MANUAL SHEAR IS PRECISION MADE, OF THE HIGHEST QUALITY, ENGINEERED TO PROVIDE PRECISE SHEARING, LONG LIFE DEPENDABILITY AND THE UTMOST IN SERVICEABILITY. IT FEATURES TOP AND BOTTOM BLADES THAT ARE INTERCHANGEABLE, AUTOMATIC MATERIAL HOLD-DOWN, LARGE WORK SURFACE, FINGER SAFETY GUARD, AND EASY TO REACH STEEL FRONT GAUGE.

BENCH SHEAR SPECIFICATIONS	NO. 125B
MAXIMUM SHEARING CAPACITY, MILD STEEL	18 GA. 1.25MM
MAXIMUM SHEARING CAPACITY, STAINLESS STEEL	22 GA. 0.76MM
MAXIMUM SHEARING CAPACITY, LEADED BRASS	16 GA. 1.6MM
MAXIMUM SHEARING CAPACITY, ALUMINUM	14 GA. 2.0MM
MAXIMUM SHEARING CAPACITY, FLEXIBLE PLASTIC	1/8 IN. 3.18MM
MAXIMUM CUTTING LENGTH	25 IN. 635MM
BACK GAUGE RANGE	12.5 IN. 317.5MM
FRONT GAUGE RANGE	12 IN. 305MM
SHIPPING WEIGHT	230 LBS. 105 KG.

BEFORE INSTALLING THIS SHEAR, READ AND UNDERSTAND THIS MANUAL AND “SAFETY REQUIREMENTS FOR THE CONSTRUCTION, AND CARE OF USE OF SHEARS”.

INSTALLATION

RECEIVING:

Immediately upon receiving the shear, check it very carefully for damage or loss of parts in transit. Since all equipment is sold F.O.B., the Manufacturer’s facility, our responsibility for transit damage ceases when the transportation company signs the bill of lading indicating that it has received all of the items listed on the bill of lading in good condition. Report any loss or damage to the delivering carrier promptly to insure proper handling of your claim. Shortages not appearing on the bill of lading or discrepancies between equipment received and the order should be reported to your distributor immediately.

WARRANTY:

Refer to Terms and Conditions at the time of sale

WARNING - SAFETY INSTRUCTIONS

The following Safety Rules are applicable:

1. Mechanical Danger - Mechanical movement of the blade crosshead also actuates the holddown and backgauge assemblies. Be aware of their movement by staying away from the points of operation; specifically -- never place any part of the body under the crosshead or within the blade area. Failure to comply may lead to bodily injury.

2. Safety guards must not be removed that guard the metal cutting blade, holddown. Any removal of a guard may lead to bodily injury.

3. Do not operate shear without reading Operator's Manual and without proper supervisory instructions.

4. Machine to be operated by authorized personnel who have been trained by their supervisor with the working and safety features of the machine, and by reading and understanding the Operator's Manual.

5. Perform all installation and set-up operations before operating shear.

6. Never operate machine with any guard removed; all required guarding to be installed and effective.

7. Never adjust machine without removal of the actuating lever.

8. Do not use machine if servicing is required.

9. Use safety glasses and required protective tools.

10. Keep work areas clean and in proper order.

11. Be alert to all potential hazards

CAUTION

1. INSTALL GUARDS AFTER SERVICING MACHINE.

2. GUARDS MUST BE IN POSITION AND EFFECTIVE PRIOR TO RUNNING MACHINE.

NOTE: ALL GUARDS MUST BE IN POSITION AND EFFECTIVE BEFORE OPERATING THE POWER SHEAR.

SAFETY RECOMMENDATIONS

IF THIS MACHINE IS NOT IN PROPER WORKING CONDITION, DO NOT OPERATE BUT REPORT IMMEDIATELY TO YOUR SUPERVISOR.

TO PROVIDE GREATER SAFETY FOR BOTH THE OPERATOR AND MACHINE, WE RECOMMEND EQUIPPING THIS MACHINE WITH SUITABLE SAFETY GUARDS.

KEEP ALL PARTS OF THE BODY CLEAR OF IMPACT OF WORKING AREA OF THE MACHINE

MOUNTING THE SHEAR TO BENCH

CAUTION!

The shear must be mounted on Bench and Bench bolted to floor.

Use screws supplied with shear. Wood screws for wooden bench and machine screws for steel bench.

Use required screws from mounting screw kit #240940010.

Lag screws for wooden bench.

Machine screw and nuts for steel bench.

CAUTION!

Installer or operator should be cautioned not to operate the shear until it has been thoroughly checked, cleaned, leveled, and lubricated.

INITIAL STARTING PROCEDURE:

1. Lubricate gibs.

2. Remove shipping blocks from blade.

3. Check Blade clearance with feeler gage. (See Blade Clearance).

4. Pull actuating Handle to down position, return actuating Handle to up position to stroke shear.

LEVELING:

Be sure machine is solid and reasonably level on all four points so there is no camber or twist to the machine.

If machine is shipped on a pallet, be sure to remove from pallet and place directly on stand.

CAUTION: The shear must be anchored to stand and stand anchored to floor prior to operation.

CLEANING

In spite of precautions taken in preparing the shear for shipment, dirt and foreign material may find their way into the ways and other parts during transit, and can cause considerable damage unless thoroughly cleaned. It is extremely important to inspect ways, etc., and thoroughly clean off dirt and foreign material that may have accumulated. DO NOT attempt to blow dirt out with an air hose as this may force some foreign material into undesirable areas. Remove rust proofing compound with an acceptable solvent.

LUBRICATION

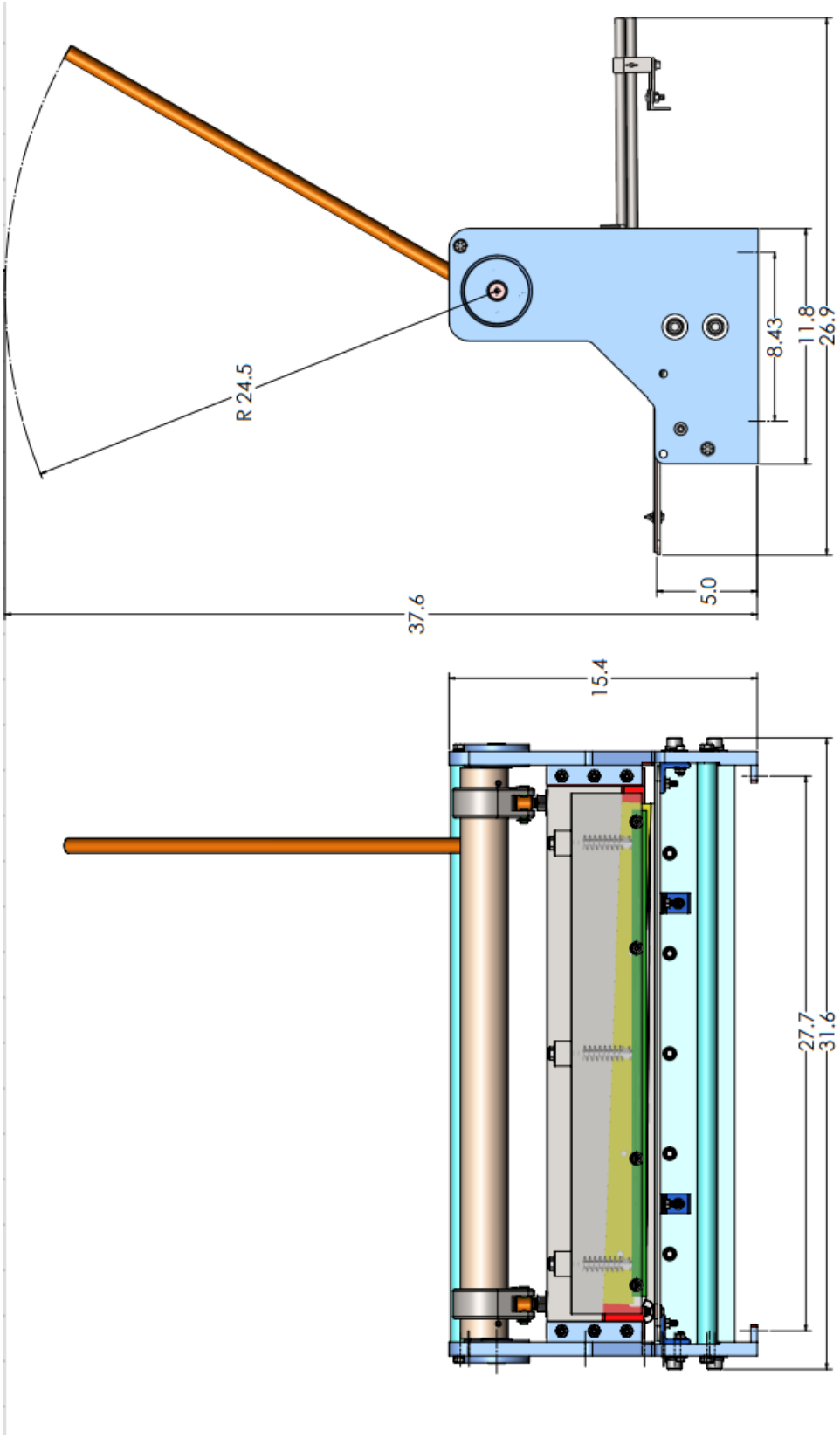
Use A Grade Lubricating oil for gibs

OPERATION

“SINGLE STROKE” - Pulling the Hand Lever to the down position, will cycle the holddown and ram through a single stroke. Should hand lever be returned to the up position on the down stroke, holddowns and ram will return to top.

HOLDDOWNS

The holddowns apply pressure when the hand lever is pulled down to the down position and return after the hand lever is returned to the up position after the cut is made. Holddown pressure compensates automatically for differences in thickness and hardness of material being cut.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UPPER BLADE PULL DOWN LEVER

1. Provisions have been incorporated to position the Pull down Lever either on the right hand or left hand side of shear.

2. See drilled and tapped holes in cam bar.

OPTIONAL BLADE FOR SHEARING PLASTICS

1. Plastic Blade Kit -- 240940009

2. Remove Upper Blade

3. Install Plastic Blade Kit -- 240940009

INSTALLATION AND SQUARING OF FRONT GAUGE

1. Front gauge must be square to blades.

2. With upper blade positioned at the “Highest - Up” position, move backgauge fully against blades and then tighten backgauge screws.

3. Place a carpenter’s square on the table and against the backgauge, and with the remaining squares’ edge locate the front gauge.

4. Tighten front gauge in position using wing nuts, making certain that washers are placed under wing nuts to prevent damage to scale.

5. In addition to location of front gauge being positioned at far left hand side of table, provisions have been incorporated to position front gauge in center and to the far right hand side of table.

Procedure for installation and squaring front gauge in the center and to the right hand side of table are same as mentioned above.

SETTING BLADES

Determining Blade Clearance:

Universal blade clearance is preferred by many shear users as it permits shearing of a wide range of thicknesses without having to change the blade clearance. For example: the shears are shipped from the factory with a blade clearance of 0.0015 at the ends and 0.001" at the center of the shear. With this setting, acceptable cuts may be obtained. (Note: this is an arbitrary setting for shipment as clearance may close during transit and installation. Once installed a closer universal blade clearance can be set; never any closer than 0.0005 at the center and 0.001 at the ends, so the blades do not rub.)

A good rule of thumb for universal blade clearance is to set the clearance as wide open as practical for the thinnest material to be sheared without an objectionable burr and then use this setting up through capacity thickness.

A word of caution on too large a blade clearance! Too great a clearance may cause the material to fold and wedge between the blades. This wedging action can damage the shear.

CLEARANCE SETTING: CAUTION! ADJUST ONE END AT A TIME

ESTABLISHING BLADE CLEARANCE

Blade clearance must be established using feeler gages for initial set-up or when blades are changed or reground.

Procedure to set Shear Blade Clearances:

1. Remove table by removing the 4 1/4”-20 flat head bolts on top of the table.

2. Check gib bolts to make certain that gibs are properly adjusted. Three 3/8” allen screws with jam nuts located on inside of each leg frame.

To properly adjust Gibs:

1. Place allen wrench in allen set screw.

2. Holding allen set screw with allen wrench, loosen jam nut with open end wrench about 2 counter-clockwise revolutions.

3. Turn all set screws clockwise until snug with a little pressure, back off about 1/8” turn.

4. Holding allen set screw in position, tighten hex nut.

5. After all gib screws have been adjusted, actuate hand lever up and down several times moving crosshead up and down making certain that crosshead moves freely and that the gibs have not been adjusted too tightly.

Setting Shear Blade Clearances:

1. Lower crosshead and upper blade until upper and lower blades engage at cutting edge on right hand side; check with feeler gage the clearance, continue to lower crosshead until upper and lower blades engage at cutting edge far left hand side of shear. Check clearance with a feeler gauge. Do one side at a time for proper tolerance.

2. If adjustment to achieve proper clearances is required, adjust bed beam by tapping lightly with a soft hammer until proper clearance is obtained. After proper clearance is obtained, tighten the 4 1/2”-13 allen cap screws by turning clockwise with allen wrench.

3. CAUTION! After proper blade clearance has been set, replace table before operating shear

INSTALLATION OF OPTIONAL BLADE FOR SHEARING PLASTIC

1. Remove 4-sided upper blade.

2. Install Plastic Blade Kit on the crosshead in the pocket previously occupied by the 4-sided blade.

CAUTION: Shear blades can cause bodily injury. When handling blades, heavy gloves should be worn; exposed parts of the body such as arms should be adequately protected.

The kit contains one blade with a 28 degree rake angle on one side, and one sheet metal spacer. When installing the plastic blade, place the spacer between the crosshead and the blade; with the rake angle facing the crosshead, and pointing downward. Mounting screws should pass through clearance holes in the spacer and thread into the blade.

CAUTION: The blade must be fully seated against the crosshead.

3. Adjust blade clearance per the instructions on Pages 12 and 13.

SHEAR BLADE ROTATION OR REPLACEMENT

1. The 125 Shear blades have 4 cutting edges and may be rotated as the cutting edge becomes dull. After all 4 edges have been dulled, the blades may be reground giving you 4 new, sharp edges.

TO ROTATE OR REPLACE UPPER SHEAR BLADE

1. Remove table by removing the 4 1/4" x 20 flat head bolts on top of the table.

2. Return crosshead to uppermost position.

3. Block crosshead with wooden blocks by tying handle to support rod.

4. Remove socket head cap screws in upper blade.

5. Remove upper blade.

6. If rotating blades, after removal rotate 90 degrees from the dull edge and replace reversing the procedure for disassembly.

7. If replacing blades, after removal install new blade by reversing procedure above for disassembly.

TO ROTATE OR REPLACE LOWER SHEAR BLADE

1. Return crosshead to uppermost position and block crosshead handle by tying handle to support rod. 2. Remove socket head cap screws in lower blade.

3. Remove lower blades.

4. If rotating blade, after removal, rotate 90 degrees from the dull edge and replace reversing the procedure for disassembly.

5. If replacing blades, after removal install new blade by reversing the procedure for disassembly.

CHANGING BLADES

CAUTION: Shear blades can cause bodily injury. When handling blades, heavy gloves should be worn; exposed parts of the body such as arms should be adequately protected

MAINTENANCE OF SHEAR BLADES

STORAGE: When not in use, the blades should be stored, preferably in wood boxes, in a dry protected area. Do not store blades where heavy objects can drop or be thrown on them. Following regrinding and prior to storage, the blades should be recoated with heavy rust-inhibiting oil. This will prevent pits resulting from corrosion on the blade surfaces that become focal points for cracks.

HANDLING: Shear blades can resist considerable shock when well supported throughout their full length in the rigid knife seats of the shear. However, they can be severely chipped or broken if dropped while being moved between the storage area and the shear or the grinder.

GRINDING: Blades must be kept sharp to perform well on the shear. It is false economy to delay sharpening of dull blades. If the blades are used beyond the point when they should have been reground, an excessive amount of blade material will have to be removed to bring the edges to a proper cutting condition. Further damage which can result from using dull blades is broken or chipped blades. Heavy burrs on the stock being cut and excessive wear on the ram slides of the shear also are a result of using dull blades. Shearing with dull blades also may result in overloading the shear.

The accuracy and quality of a cut made by a blade are partially dependent on how the blade was ground. The thickness and width of the blade must be held parallel within very close limits throughout the length of the blade. Therefore, the grinding machine used must be in top condition. The type of abrasive used on your grinder will vary, depending on the grade and hardness of the blades being ground as well as the wheel speed and table speeds of the grinder. Since these conditions are so variable, we cannot be specific in regard to grinding wheel or segment specifications. However, as a general rule Aluminum Oxide grain and vitrified bond should be used. The grain size and wheel hardness should range from 46 grain “H” hardness for plate and bar shear blades to 60 grain “G” hardness for light gauge shear blades.

The structure should not be more dense than “8”. The wheel should be kept free cutting at all times by frequent dressing. The blade being ground must be flooded with coolant at the point of wheel contact. Do not attempt to remove material quickly. A feed of .001” per pass is sufficient. Under no circumstance should the grinding be so severe as to discolor the blade. The color is an indication of the high temperature to which the blade was subjected. Even if the discolored surface is ground off, the damage remains.

The least that would result would be a lowering of hardness in the overheated area. The most likely results, however, are grinding checks or areas of severe localized tensile stresses. Either will cause chipping of the cutting edges, and in extreme cases cracks through entire section.

SHEARING:

Never shear material thicker or of greater shearing strength than that for which the shear was designed. The indicated capacity of the shear is the maximum thickness to be sheared regardless of width or length being sheared. Do not attempt to shear hardened material.

After turning or changing blades, be certain to remove all tools from the shear table - otherwise they may be pushed between the blades accidentally.

If knives have been reground, shims of proper thickness should be used under lower knife to set cutting edge level with the table top.

ACCURATE SHEARING:

Keenness of the cutting edges, type and thickness of material, proper use of gages, and size of cut are some of the factors that affect accurate shearing.

Optimum shearing results cannot be expected with stress-filled stock. The release of these strains by cutting causes distortion of the sheared edges. Stress-filled stock always should be cut enough oversize to permit a second, narrow (trim) cut. This trim cut will improve the straightness of the sheared edge. Stretcher-leveled or stress relieved stock should be used if utmost shearing accuracy is required. Cold rolled anneal stock can usually be cut with greater accuracy than hot rolled.

For accurate shearing against the backgage, the operator should feed the sheet against the backgage, holding it there firmly, but not necessarily with excessive pressure, until the cut is in process.

WHERE TO CUT:

The principle of this shear will allow the operator to make cuts at any point along the bed. However, for accurate shearing without the use of backgage, a side gage should be used. Never exceed the capacity of the shear even in short widths as short widths are as difficult to cut as wider sheets.

Small pieces should be gripped with maximum holddown. Never attempt to shear material that is not securely gripped by a holddown or the material may tip and fold between the blades.

SHEARING OF NARROW STRIPS:

A certain amount of difficulty may be experienced in the accurate shearing of narrow strips. Narrow strip distortion usually begins to appear when the off-cut width of material is less than 10 to 20 times the material thickness, depending on material properties. The three major difficulties encountered in shearing of narrow strips are camber, curl and bow. The tendency for these conditions is usually greater in the softer and more ductile materials.

CAMBER is the tendency for a strip to distort in such a way that the edges are no longer straight but become bowed to form a long curve. Camber is influenced by the rake of the moving blade, the material being cut, and the width of the strip in proportion to its thickness. Stress-filled stock will camber to a greater degree than will stress-relieved stock. The narrower the strip in proportion to its thickness, the greater the camber.

CURL is the tendency of a narrow strip to twist around itself or to cork-screw. Curl is influenced by the slope of the moving blade, the width of the strip and the thickness and kind of material. The narrower and heavier the strip, the greater the amount of curl. Dull blades may increase the amount of curl.

BOW is the tendency of a strip to change from a flat condition. Bow usually accompanies camber and curl.

MAINTENANCE

With proper maintenance your Model 125B Shear will provide many years of trouble free service. Other benefits include safer operation, longer blade life and greater accuracy -- all of which contribute to producing a better product.

Shear cleanliness and general good housekeeping are important. A clean shear is easier and safer to operate and more conducive to better working conditions. When cleaning a shear, use an approved solvent and rags. Never use waste or an air hose.

Inspect your shear periodically. Know how it is supposed to operate so that faulty operation can be detected immediately. Replace any worn parts promptly and check fittings, nuts and bolts for looseness.

PREVENTATIVE MAINTENANCE CHECK LIST

A new shear should be thoroughly inspected at the end of the first month of operation and then every six months thereafter. Cover the following:

1. Check shear for levelness.

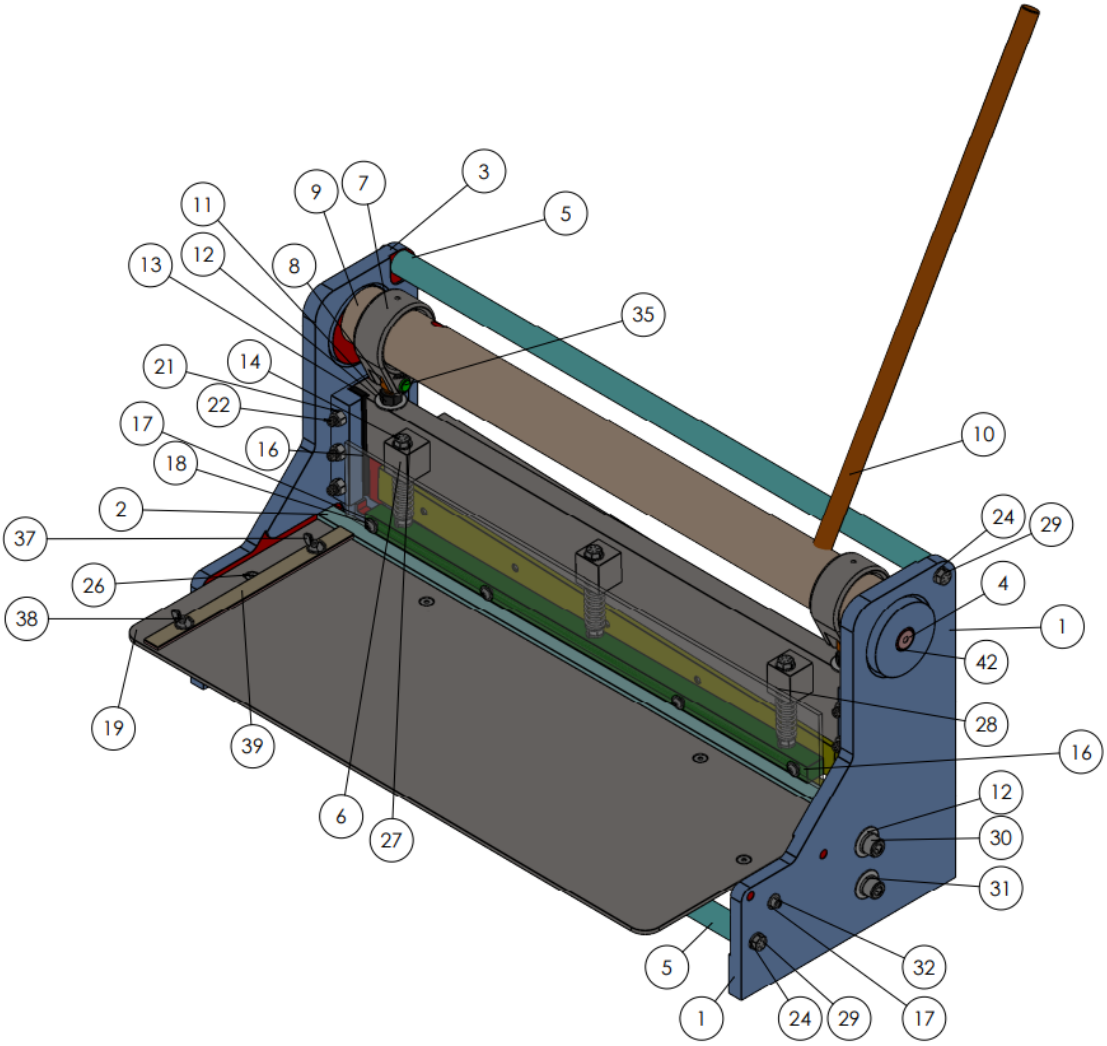
2. Check gib surfaces to make sure they are receiving adequate lubrication.

3. Check blade clearance for evidence of rubbing. Adjust if necessary.

4. Clean backgage.

5. Check backgage.

6. Inspect blades for sharpness. Clean and oil. Rotate if blades are dull, following instructions on Page 15.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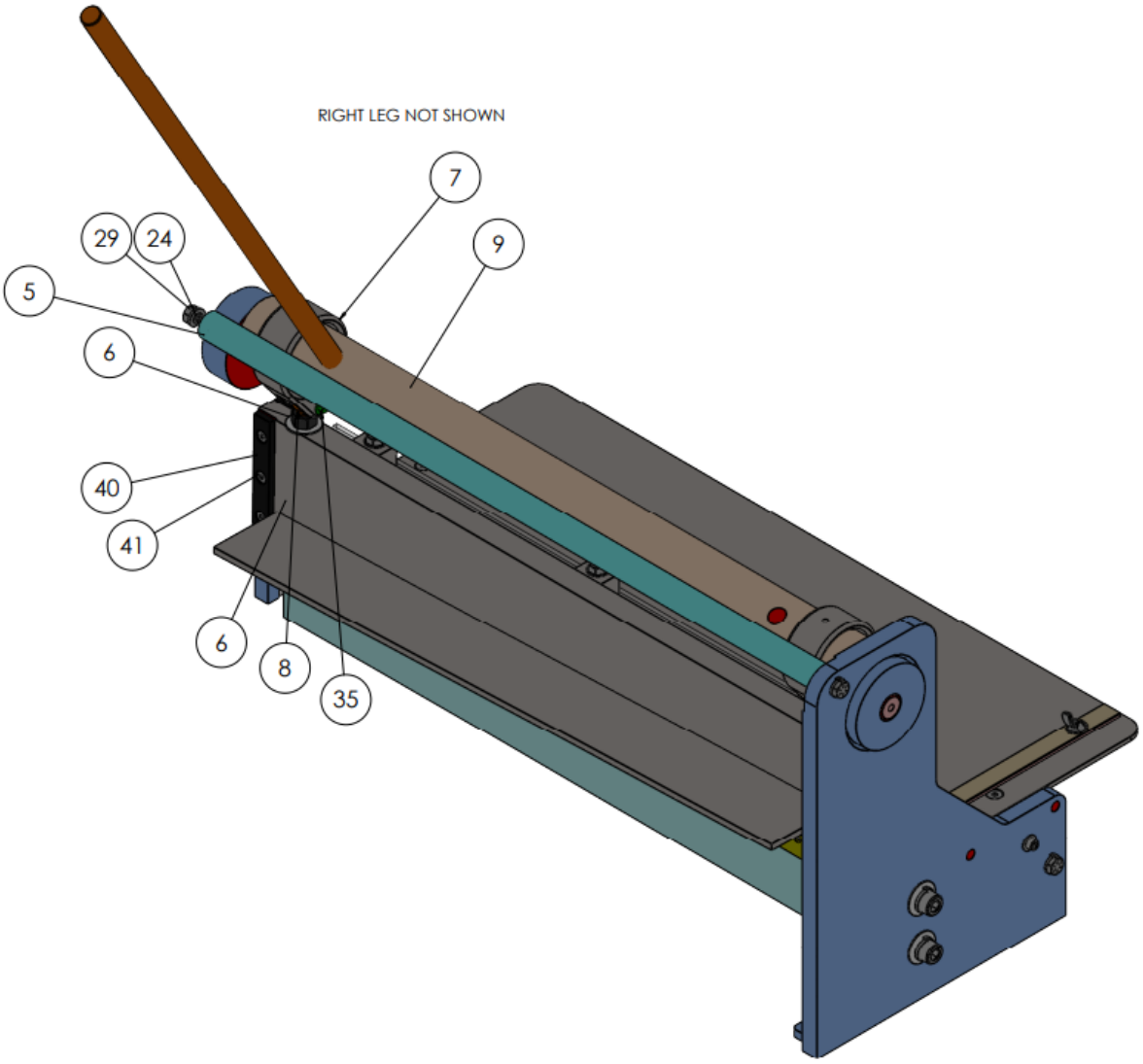
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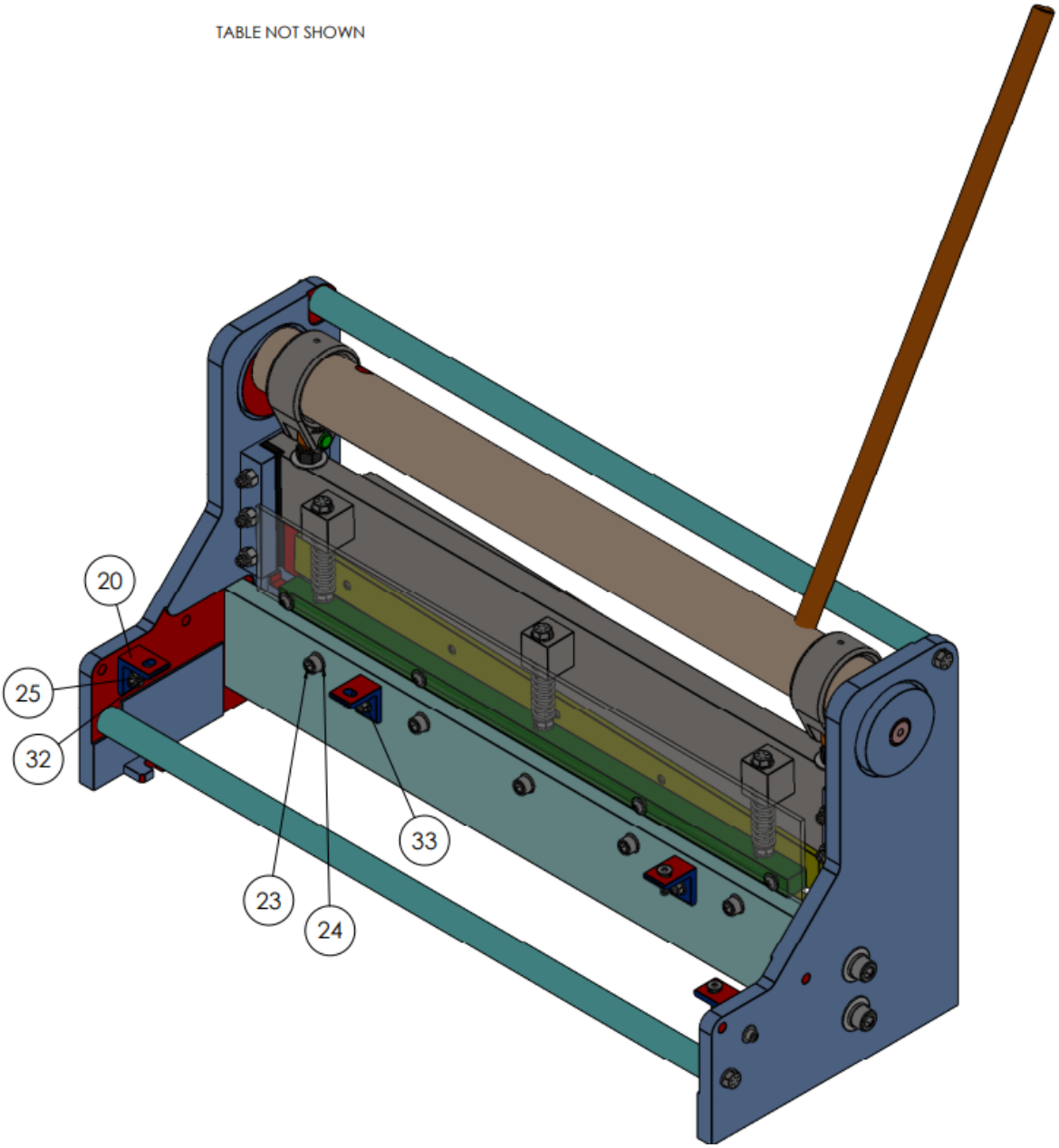
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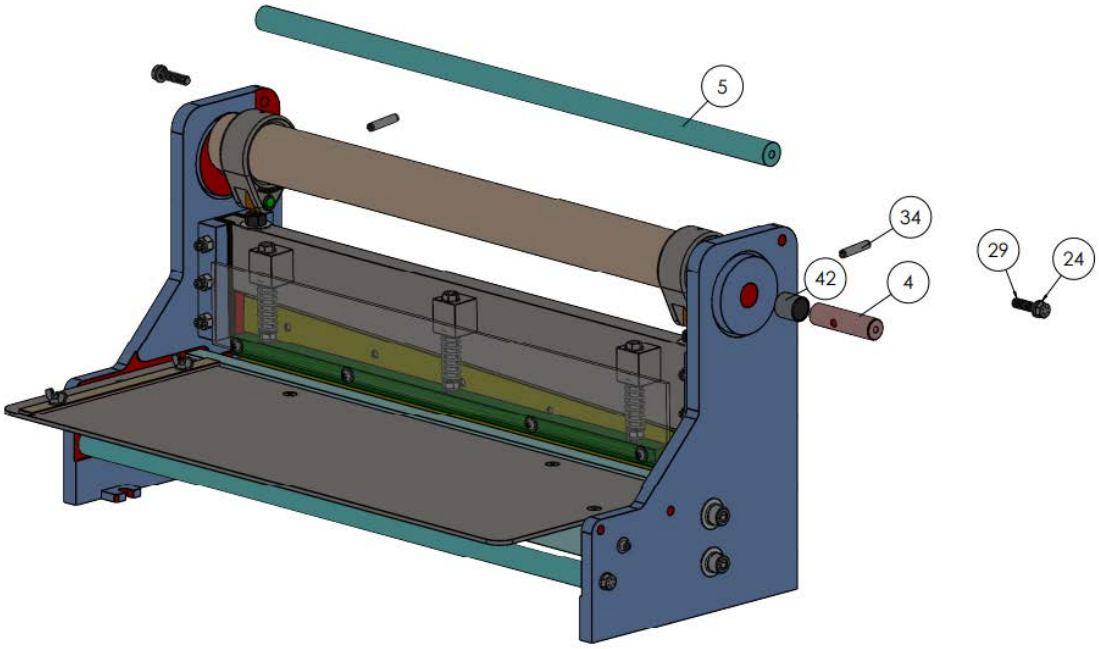

Model 125B Manual Shear

Parts Identification List

ITEM	PART NO.	PART NAME	QTY.
1	740140241	RH LEG WELDMENT	1
2	740090214	BED-BEAM	1
3	740140242	LH LEG WELDMENT	1
4	740680223	SHAFT, IDLER	2
5	740030229	BAR, TIE	2
6	740610217	CROSSHEAD MACHINING	1
7	740240224	LINK, DRIVE	2
8	740160225	BOLT, EYE	2
9	740680259	SHAFT, ACTUATOR	1
10	740030220	LEVER, DRIVE	1
11	649023007	JAM NUT 1/2-13	2
12	678033107	FLAT WASHER 1/2	6
13	740400258	GIB, FLOATING	2
14	601012193	HHCS 3/8-16 X 4-1/2	3
15	740030226	BAR, HOLDDOWN	1
16	740440227	BLADE GUARD	1
17	678033103	FLAT WASHER 1/4	10
18	615012088	BHCS 1/4-20 X 5/8	4
19	740090240	TABLE TOP	1
20	740200243	TABLE BRACKET	4
21	649023005	JAM NUT 3/8-16	9
22	617012179	SCREW, SOCKET SET FLAT POINT 3/8-16 X 1-1/2”	6
23	611012177	SHCS 3/8-16 X 1-1/4	10
24	679033105	LOCK WASHER 3/8	17
25	640023157	JAM NUT SERRATED 1/4-20	6
26	613012091	FHS 1/4-20 X 1	4
27	678033105	FLAT WASHER 3/8	6
28	640184606	SPRING COMPRESSION	3
29	601012179	HHCS 3/8-16 X 1-1/2	4

Model 125B Manual Shear

Parts Identification List

ITEM	PART NO.	PART NAME	QTY.
30	611012275	SHCS 1/2-13 X 1-1/2	4
31	679033107	LOCK WASHER 1/2	4
32	611012093	SHCS 1/4-20 X 1-1/4	2
33	640013150	HHCS FLANGED SERRATED 1/4-20 X 1	2
34	600063479	PIN, ROLL 5/16 X 1-1/2	2
35	640083609	PIN, FIXTURE 3/8 X 1-1/2 W/ RING	2
36	740060219	PLATE, SCALE	1
37	673023003	NUT, WING 1/4-20	2
38	615012089	BHCS 1/4-20 X 3/4	2
39	640000344	SCALE	1
40	740400257	GIB, FIXED	2
41	613012051	FHS #10-24	6
42	684194913	BEARING, SLEEVE 7/8 I.D. X 1” O.D. X 1”	2
43	673245153	BEARING, THRUST Ø7/8 ID X Ø1-1/2 OD X .059	2
44	640346217*	LABEL, WARNING FRONT L.H.	1
45	640346218*	LABEL, WARNING FRONT R.H.	1
46	640346219*	LABEL, MTG. SCREW	2
47	640346224*	NAMEPLATE, MFG.	1
48	600113819*	SCREW, DRIVE #4 X 1/4 (FOR MTG. MFG. NAMEPLATE 640346224)	4
49	640346221*	LABEL, LUBE CHART	1
50	240940009**	BLADE SET, PLASTIC CUTTING	0

* LABELS ARE NOT SHOWN ON PARTS IDENTIFICATION CHART

** OPTIONS ARE NOT SHOWN ON PARTS IDENTIFICATION CHART