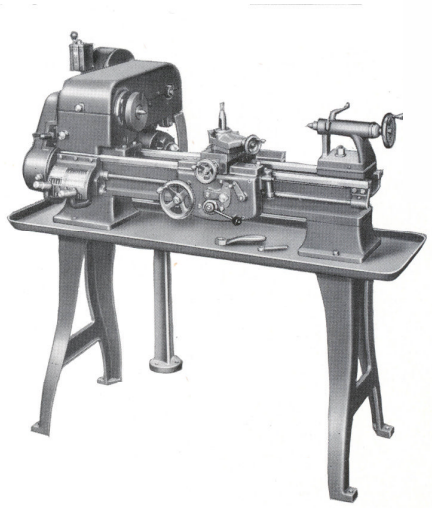
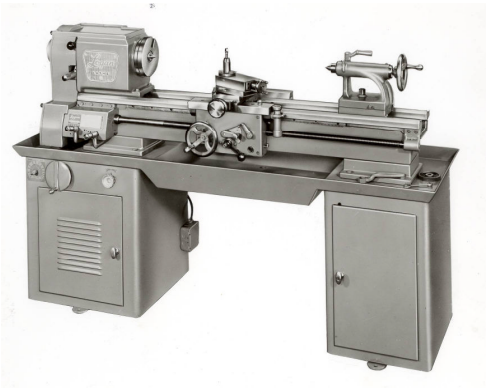
Logan Lathe



OPERATORS INSTRUCTIONS
PARTS LIST



LOGAN ACTUATOR CO.

550 CHIPPEWA RD
HARVARD, IL 60033-2372
U.S.A.
TEL (815) 943-9500 • FAX (815) 943-6755
WEB: http://www.loganact.com
E-Mail: sales@loganact.com

MODEL: 830 • 840 • 850

LOGAN ACTUATOR CO
550 Chippewa Rd
Harvard IL 60033-2372
(815) 943-9500
Fax (815) 943-6755
http://www.loganact.com
sales@loganact.com

Thank you for purchasing this manual.

We have composed this manual from documentation that sometimes dates back to the beginning of production of Logan Lathes, in 1940. Any prices shown in this manual are included only for historical curiosity, and have no relation to current prices.

During the production of the Lathes, many parts were changed, and as a result, some assembly diagrams may have more than one version in this manual. Where possible, we have made note of the Serial Number break point. Compare this to the Serial Number of your Lathe, and also compare the appearance of the parts to determine which is appropriate for your Lathe. If all else fails and you need a replacement part, contact us with dimensional data from your old part. The Serial Number is stamped on top of the Bed, near the right hand end of the Lathe, in the trough between the front "V" and Flat ways.

Some diagrams included in this manual may refer to parts or accessories that were optional and may not be included in your Lathe.

Not all parts shown in these diagrams are still manufactured. Virtually all parts that would normally wear or require replacement are still manufactured. If a part is no longer manufactured, we will make an effort to find you a used replacement or find some sort of alternative to allow you to continue to use this machine.

Some replacement parts may require fitting upon receipt. While not usually required, some parts should be ordered as a set, with their mating part. Examples would be Crossfeed Screws and Nuts; Compound Screws and Nuts; Variable Speed Pulley Assemblies and others. If these parts are ordered as a set, it can be assured that they will fit with each other. If, for instance, a Crossfeed Nut is ordered, but not the corresponding Crossfeed Screw, we can not insure that the replacement Nut will properly fit your Screw. If you have any questions about this, please contact our office.

Some replacement parts may not be identical to the original. Where parts have been redesigned, every effort has been made to insure that the replacement is functionally equivalent to the original, if not aesthetically.

Operating a Lathe or any other machine tool can be dangerous. The user should understand the potential danger and take all appropriate precautions. It can not be stressed enough that high quality safety glasses should be worn at all times while operating any machine tool, and anywhere in the vicinity of operating machine tools.

Logan Actuator Co. is a family run company, founded in 1971 and still managed by the same family that started Logan Engineering Co. in 1935. We welcome your calls, letters, and emails with questions, comments, suggestions, complaints and praise.

Logan Lathe

INSTRUCTIONS

LOGAN ENGINEERING COMPANY • Chicago, Ill.

830 840 850

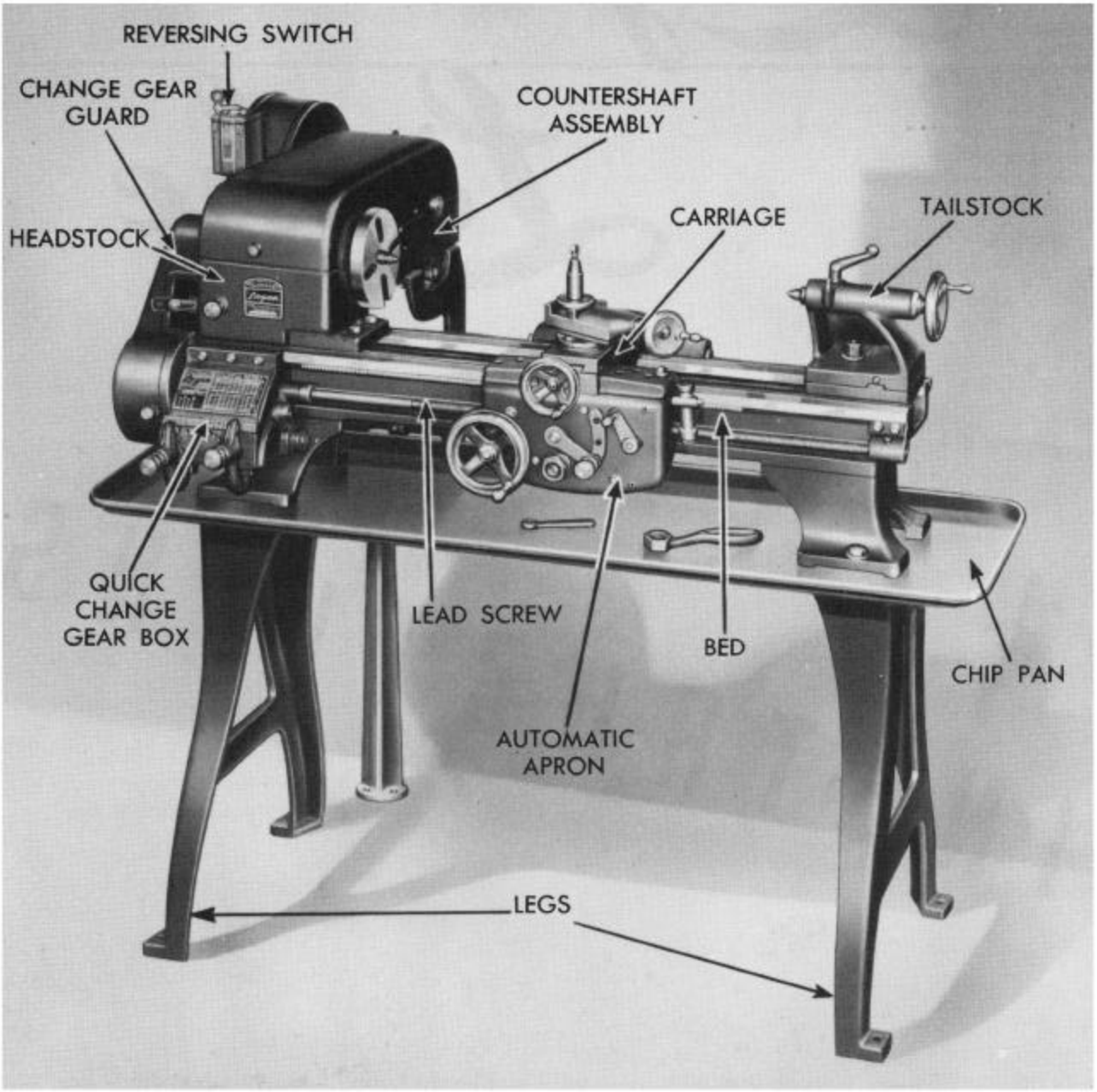


FIGURE 1 - LOGAN NO. 820 FLOOR MODEL QUICK CHANGE GEAR LATHE

LOGAN LATHES

The cases in which your Logan Quick Change Gear Floor Model Lathe is delivered contain the following:

- 1 Logan Lathe with headstock, tailstock, and carriage mounted on the lathe bed
- 1 2-step V type motor pulley (screwed to base of lathe crate)
- 1 Bag (attached to countershaft assembly) containing
  - 1 tool post
  - 1 tool post ring
  - 1 tool post screw
  - 1 tool post wedge
  - 1 tool post block
  - 1 tool post wrench
  - 1 tailstock wrench
  - 2 60° centers
  - 1 Morse Taper Adapter #3—#2
  - 1 knob and quill
- 1 Countershaft assembly—floor type
- 1 V Belt (attached to countershaft)
- 1 Six conductor cable (in bag attached to headstock)
- 1 Instruction book (inside the change gear guard)
- 1 Parts List (inside the change gear guard)
- 1 Chip pan
- 1 Set of floor legs

For the Bench Model Lathe the chip pan and floor legs are omitted and the countershaft assembly will be the bench type instead of the floor type.

Unpack carefully and check to be certain that you have removed all the pieces. After removing the lathe from its shipping case, clean it thoroughly with a stiff brush and kerosene. Then cover all the unpainted surfaces with a film of good machine oil to prevent rusting. These surfaces should be covered with a film of oil at all times and the lathe should be covered with canvas when not in use.

Setting Up the Lathe

FLOOR MODEL. Mount the lathe on the chip pan and the floor legs, using the bolts furnished, and attach the countershaft assembly to the rear of the headstock as shown in Fig. 2. When mounting the lathe on the pan and legs, notice that the holes in the pan are not drilled an equal distance from the sides of the pan. The short side is to be mounted towards the back of the lathe to keep the pan from interfering with the motor. Locate the lathe on a **solid level floor,** preferably concrete, in a dry well lighted location, using lag screws or bolts to fasten the legs to the floor. If the lathe is set on a concrete floor, mark the location of the bolt holes and drill in the concrete with a star drill setting the lag screws or bolts in expansion shields or in melted lead.

It is of the greatest importance that the lathe be level; if it is not, its weight will cause the lathe bed to be twisted, throwing the lathe out of true. It is impossible to do accurate work on a lathe that is not level and the lathe will be damaged beyond repair.

When the lathe is in position, place a sensitive machinist's level on top of the lathe bed and adjust any variation from level by placing thin shims under the feet. Be certain the lathe is level across the ways and parallel to them, both at the headstock and tailstock ends. When the lathe is level bolt down tightly and check the leveling. It may be necessary to loosen the bolts and add more shims. Remember the lathe **must be level** if it is to perform accurately.

BENCH MODEL. Attach the countershaft assembly and place the lathe in position on the bench. The bench for the lathe should be 31 to 33 inches high of heavy construction and suitably reinforced for steadiness and should have a top of seasoned wood at least two inches thick. We suggest that the top either be doweled or that 4 or 5 steel rods with end nuts be run crosswise through the top and the nuts turned tight, pulling the boards together. Plane the bench top level and place the lathe upon it. Mark and drill four ⅜-inch holes under the corresponding holes in the legs at each end of the lathe. Through these holes place four machine bolts to fasten the lathe to the bench and to aid in leveling. Then proceed to level the lathe bed with shims as described above for the floor model.

Mounting the Motor

The Logan Lathe is designed to be powered by a 1750 RPM motor of ½ H.P. When the lathe is in place mount the motor on the motor bracket beneath the countershaft. Do not tighten bolts until the motor position has been adjusted.

To adjust the motor position, align motor pulley and the 10-inch pulley on the countershaft by moving the motor until the two are in line. Tighten the base bolts, but do not place the belt on the pulley until the motor wires have been connected and the motor pulley tested for direction of rotation.

Connect the drum reversing switch mounted on the countershaft with the motor, using rubber covered 6 conductor cable in accordance with the wiring diagram pasted on the inside of the switch cover. Motors furnished by Logan have a wiring diagram packed with the motor to assist in making the proper connections. Connect the

motor to the current source. The motor pulley should then rotate clockwise, viewed from the motor pulley end, when the switch is in the forward position. Combined switch and motor wiring diagrams are shown on the last page of this booklet for use with the motors we furnish. We recommend the use of a good three phase motor that is electrically balanced and will not transmit vibration through the belts to the headstock, causing chatter. Split phase motors are not recommended, especially where fine work is required.

Adjusting the Belts

The belt from the motor to the countershaft and the one from the countershaft to the lathe are easily adjusted for tension. Neither of these belts should be too tight, the tension depending on the load. Excessive belt pressure will shorten the life of the belt, place a strain on the bearings and cause a loss of power through excessive friction. When adjusted for normal work a moderate pressure on the middle of either belt should depress it about 1½ inches.

The motor bracket is hinged at one side with a bolt and nut adjustment that raises or lowers it, thereby decreasing or increasing the tension on the V belt. The V belt rides in a V groove of the two step motor pulley and on a flat face of the two step countershaft pulley.

When the cone pulley guard is raised, the countershaft automatically moves toward the headstock, thereby releasing the tension on the flat belt. With the tension released, the belt may be easily changed from one step to another. When the cone pulley guard is closed the belt is automatically brought into tension again, the amount of tension being regulated by a slotted head screw located at the rear of the cone pulley guard. Turning the screw to the right increases the belt tension; to the left decreases it.

The Countershaft

The countershaft assembly of the Logan Lathe is a patented development that is a distinct improvement over previous design. This special unit assembly is carried by two hinged pins attached to a bracket in the headstock and by a pedestal rod to the floor or the bench giving three point suspension. To prevent vibration being transmitted to the lathe, the entire assembly is insulated by rubber at all points of contact. The pedestal rod rests on a rubber foot, the two hinge pins are rubber cushioned and the cone pulley guard rests on rubber buttons. Provision is made to adjust belt tension

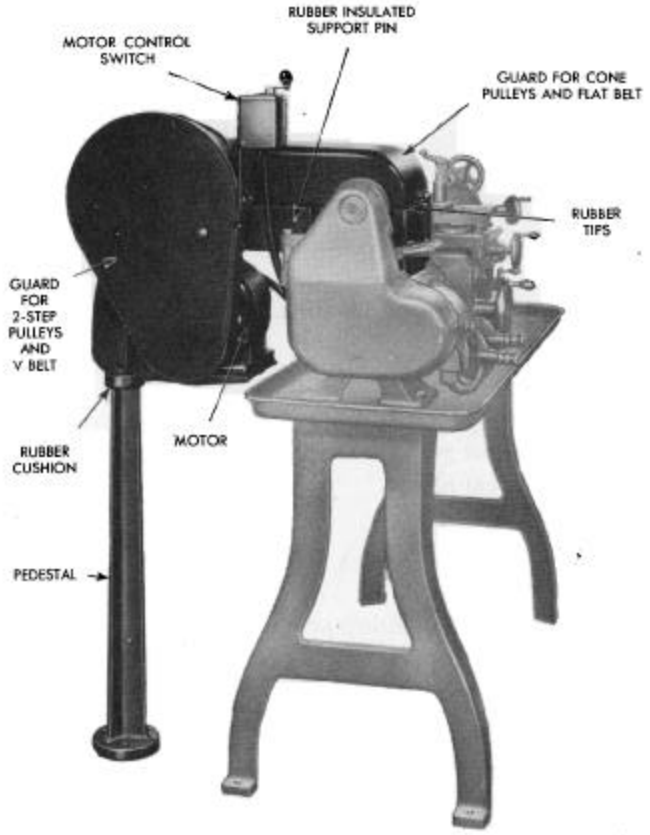


FIGURE 2—END VIEW OF COUNTERSHAFT ASSEMBLY

easily. An adjustable motor mounting bracket is included in the assembly. All pulleys and belts are completely guarded, yet easily accessible. A patented tension release operates automatically when the cover for the cone pulleys is raised to permit quickly changing the flat belt from one step to another. And finally, the entire assembly is designed to appear as a streamlined part of the lathe.

Fig. 2 above illustrates the floor model lathe and countershaft assembly in position. The bench model uses the same countershaft design adapted for bench use.

The Headstock

The headstock of the Logan Lathe is made of high grade gray iron and is totally enclosed. It contains the headstock spindle and bearings, the bull gear, the cone pulley and the back gears. The cone pulley is turned by the belt from the countershaft, and thereby turns the bull gear, or transmits its power through the back gears to the bull gear if lower speed or greater power are desired.

Alloy steel has been used in making the spindle, which has been machined and ground to a fine finish. The nose is 1½-in. diam. with 8-pitch National Form threads and has been turned internally to a No. 3 Morse Taper.

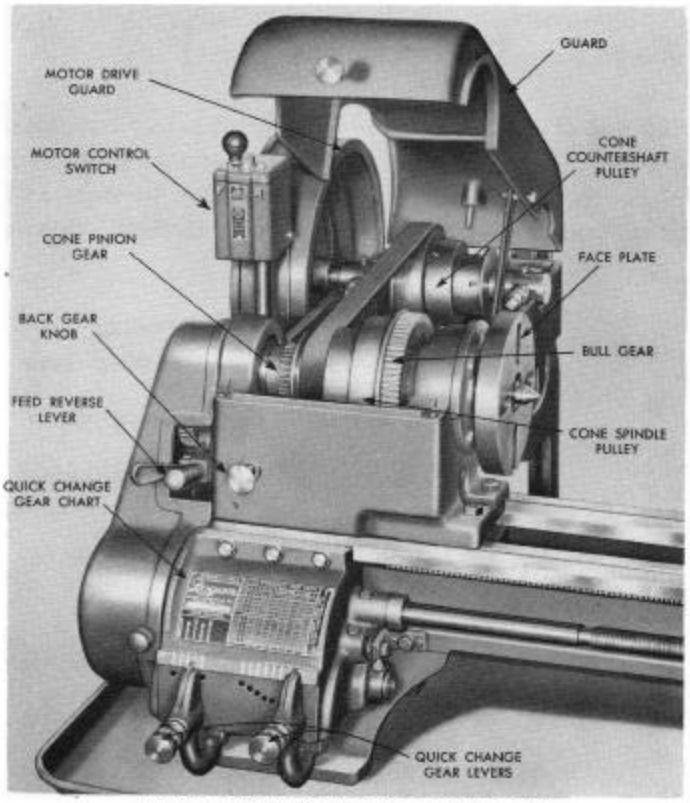


FIGURE 3—HEADSTOCK AND COUNTERSHAFT

A reducing sleeve permits the use of a No. 2 Morse Taper Center. The 25/32-in. hole permits work as large as ¾-in. to be fed through the spindle. A draw-in collet attachment taking collets up to ½-inch capacity can be used through the hollow spindle. With push type collet attachment the capacity is ⅝-in.

The spindle is mounted on three rows of New Departure pre-loaded precision ball bearings which are sealed in grease. The use of ball bearings in the headstock to mount the spindle is advanced design that, although more expensive, gives finer results. Ball bearings are the ideal friction reducing bearings—"nothing rolls like a ball." Technical advances in ball bearing manufacture make it possible now to obtain special pre-loaded ball bearings of extreme precision that will carry the loads for which they are designed with less wear, greater accuracy and with no adjustment required.

The three-step cone pulley and the cone pinion gear are fastened together rigidly and revolve freely on the spindle. For direct drive, the pulley is locked to the large bull gear which is keyed to the spindle. This is accomplished by means of a plunger-type lock located on the side of the bull gear. When this lock is "in" the pulley turns the bull gear with it; when "out" the pulley and the cone pinion gear turn free of the bull gear.

Should it ever be necessary to remove the headstock spindle the following procedure should be followed.

First. remove the take-up nut, the spindle gear, Woodruff key, collar, and bearing grease seal in the order named from the left hand end of the spindle.

Second, remove the four fillister head screws from the bearing cap, then the bearing cap and next the grease seal from the right hand end of the spindle.

Third, loosen the set screws in the bull gear and carefully drive the spindle with a wooden mallet toward the tailstock end of the lathe, being careful to hold the bull gear and cone pulley parts as the spindle is removed so they will not drop.

Important

Ball bearings can be ruined by improper handling. When pressing a bearing into or out of the seat, pressure should be applied to the outer race only, but when pressed on to or off of shaft, pressure should be applied on the inner race only. Bearings should be carefully kept **free of dirt and grit** and except in extreme cases should not be tapped into place with a hammer.

The Back Gears

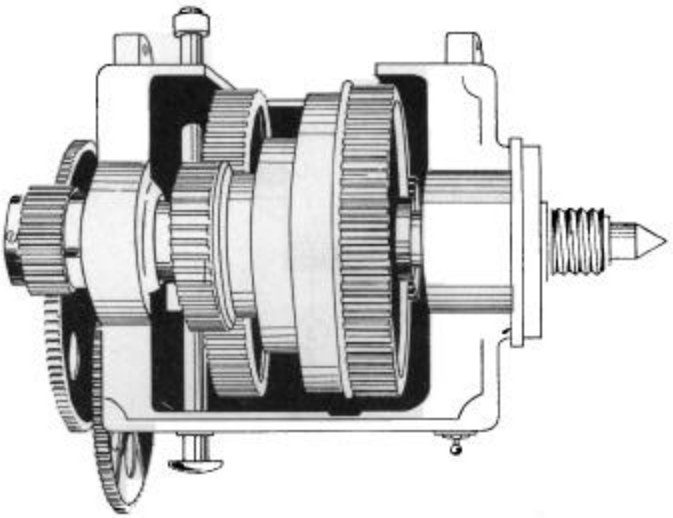


FIGURE 4—BACK GEAR DRIVE

The back gear mechanism on the Logan Lathe is enclosed in the headstock instead of being located in an exposed position as in the usual construction. Also, instead of having to reach over the top of the headstock to throw a back gear lever, the Logan design permits controlling the back gear by a knob on the front of the headstock. The back gear is mounted on a quill which turns on self-lubricating bronze bearings on an eccentric shaft. The knob operates a rack engaging a pinion which rotates the eccentric shaft, thereby swinging the back gears into mesh. When the knob is pulled out, the back gears are engaged and are locked in posi-

tion by a pawl just back of the knob. The lock is released by pressing the pawl with the finger.

The cone pulley and small gear turn freely on the spindle and are locked to the bull gear for direct drive by a lock pin located in the side of the bull gear. When slower turning speed or greater power than could be obtained from a direct drive is required, the back gears are used. To engage the back gear drive first pull out the direct drive lock pin so that the cone pulley and small gear turn free of the bull gear. Then engage the back gears so that the power is transmitted through the cone pulley and small spindle gear to the large back gear, and from the small back gear to the bull gear. The bull gear, being keyed to the lathe spindle, turns the spindle.

Spindle Speeds

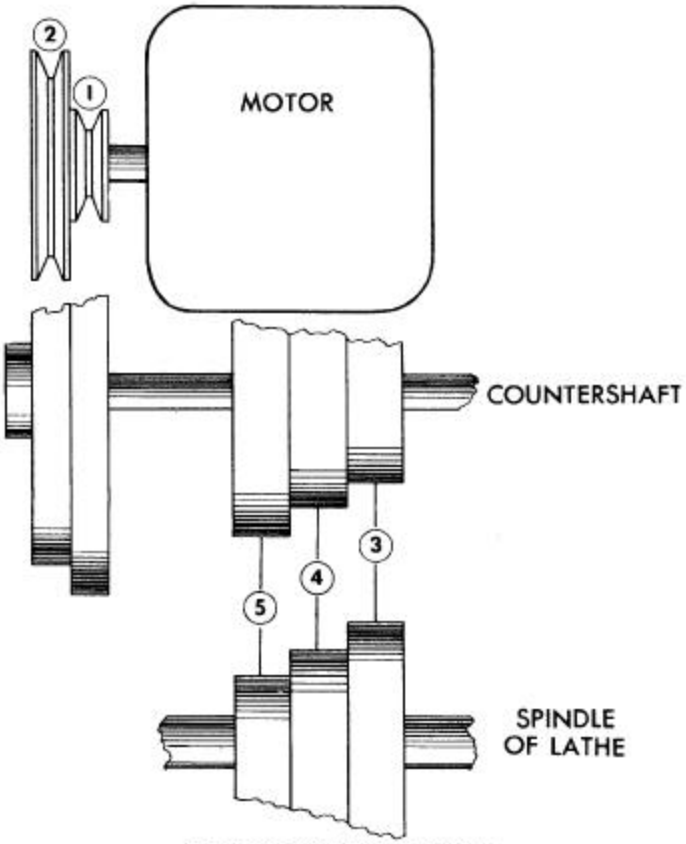


FIGURE 5—BELT DRIVE DIAGRAM

The following table shows the spindle speeds which can be obtained using the various belt positions shown in Fig. 5, both with direct drive and with the back gear drive.

Motor Belt Position	Spindle Belt Position					
	Back Gear Drive			Direct Belt Drive		
	3	4	5	3	4	5
1	30	56	104	179	334	620
2	70	130	244	420	780	1450

The Lathe Bed

The bed of the Logan Lathe is an extra heavy one-piece casting of hard iron containing the correct proportion of steel and alloys to give the maximum in wear and to withstand all strains. Extra width (6-15/16" across the ways) extra heavy walls, heavier and closer spaced box type cross ribs combine to give greater strength and a more solid foundation for the lathe mechanisms. The accuracy of the lathe bed and the ways on which the carriage and the tailstock are mounted is of primary importance. To insure extreme accuracy in the bed two prismatic V-ways and two flat ways are employed. They have been planed, milled and precision ground, giving an accurate, heavy, well ribbed bed of the type found on large engine lathes. In order to retain this accuracy, the instructions for setting up the lathe emphasize the necessity for carefully levelling the bed both across and parallel to the ways.

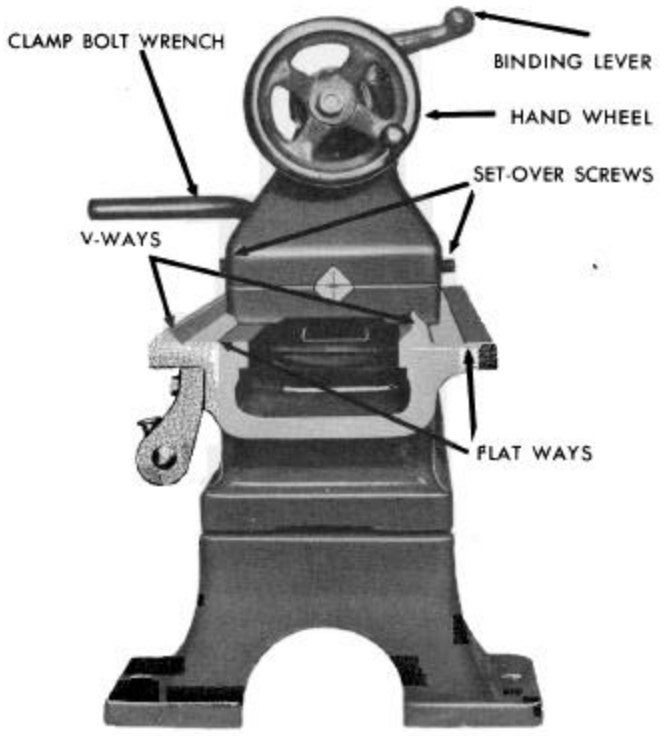


FIGURE 6—LATHE BED AND TAILSTOCK

With proper care and normal use there will be no appreciable wear on the bed or ways of a level lathe, but the surface may be damaged by a lack of oil or by abrasion. Be careful not to drop tools or work on the ways. Keep them well oiled when not in use, wiping them off and re-oiling before continuing work and, if possible, keeping them covered during filing or grinding operations.

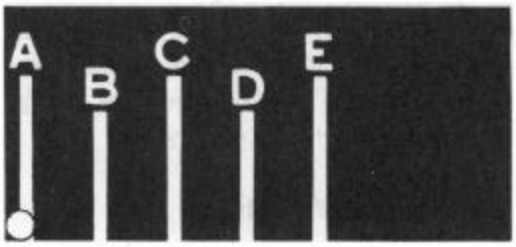
SCREW CUTTING AND TURRET LATHES

Logan

LOGAN ENGINEERING CO.
CHICAGO, ILL. U. S. A.

MODEL NO.

LEVER POSITIONS



STUD GEAR	LEFT HAND LEVER	THREADS PER INCH							
48	A	4	4½	5	5½	5¾	6	6½	7
24	A	8	9	10	11	11½	12	13	14
24	B	16	18	20	22	23	24	26	28
24	C	32	36	40	44	46	48	52	56
24	D	64	72	80	88	92	96	104	112
24	E	128	144	160	176	184	192	208	224
LONGITUDINAL TURNING FEEDS									
48	A	.1000	.0888	.0800	.0728	.0696	.0666	.0616	.0572
24	A	.0500	.0444	.0400	.0364	.0348	.0333	.0308	.0286
24	B	.0250	.0222	.0200	.0182	.0174	.0166	.0154	.0143
24	C	.0125	.0111	.0100	.0091	.0087	.0083	.0077	.0072
24	D	.0062	.0055	.0050	.0045	.0043	.0041	.0038	.0036
24	E	.0031	.0027	.0025	.0023	.0021	.0020	.0019	.0018

AUTOMATIC CROSS FEED .25 TIMES LONGITUDINAL FEEDS

FIGURE 7—THREAD AND FEED CHART ON LOGAN QUICK CHANGE GEAR LATHES

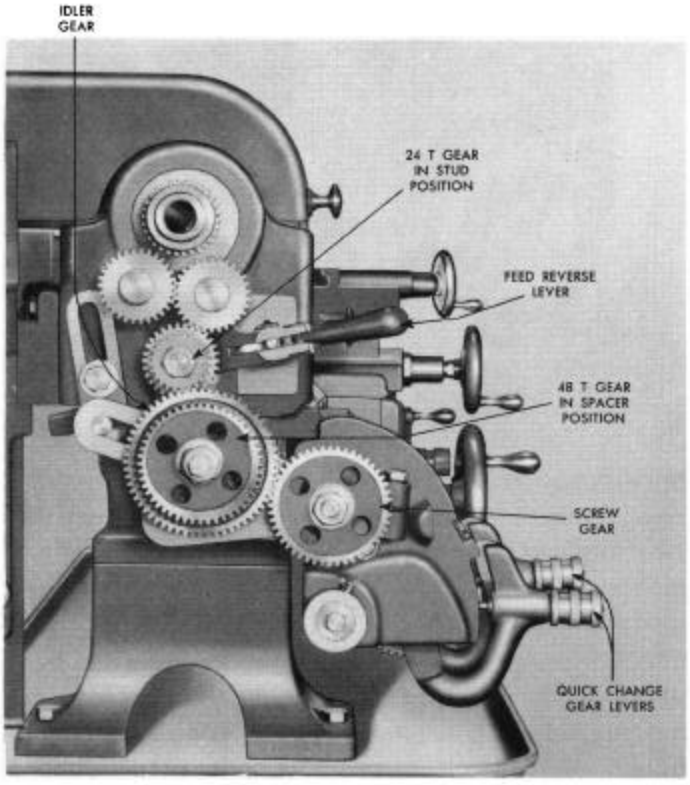


FIGURE 8—CHANGE GEAR TRAIN ON LOGAN QUICK CHANGE GEAR LATHE

Power Feeds

The left end of the headstock spindle is fitted with a gear for the transmission of spindle power through a gear train and through the quick change gear box to the lead screw along the front of the lathe which is used in power feeding. The rate of feed is dependent upon the speed of the lead screw.

It is necessary in operations such as thread cutting to set the rate of feed in a definite relationship to the speed of the spindle. This is done by the selection of gear sizes in the gear train together with the setting of the levers on the quick change gear box.

It is possible to obtain 48 different threads or feeds in either direction on the Logan Quick Change Gear Lathe. For threads from 8 to 224 per inch, inclusive, the change gear train is set up as in Fig. 8, using the 24 tooth stud gear. A 48 tooth gear is mounted as a spacer on the idler gear but serves no active purpose. For threads from 4 to 7 per inch the 48 tooth gear is mounted in the stud gear position and the 24 tooth gear is mounted as a spacer on the idler gear.

All other adjustment for the various thread or feed requirements is made by the two levers on the quick change gear box. Fig. 7 shows a reproduction of the thread and feed chart mounted on the gear box. As an example, assume that the 24 tooth stud gear is engaged in the change gear train (with the 48 tooth stud gear being used as a spacer) and that it is required to cut 18 threads per inch. Locate 18 on the gear chart. Set the left hand lever in position "B" as indicated and set the right hand lever directly under the column in which 18 appears. Similarly, if a longitudinal feed of .0045 inches per revolution of the spindle is required, set the left hand lever in position "D" and the right hand lever under the column in which .0045 appears.

Power cross feeds are .25 times the chart figures shown for power longitudinal feed.

The feed reversing lever, which extends from the gear train housing has three positions—Up, Down, and Center.

When in the center position the two gears on the end of the lever, which turn on bronze bearings, are free of the gear train and all power feeds are disconnected.

When "Up," the lead screw turns to move the longitudinal and cross feeds in one direction. When "Down," the longitudinal and cross feeds are in the opposite direction.

The alloy steel lead screw which runs along the front of the lathe bed has an Acme thread accurately cut with a pitch of ⅛ inch (8 threads to an inch) and is mounted at each end in a bearing. Clean and oil the lead screw frequently to maintain its accuracy.

The Tailstock

The tailstock slides on a V and flat way of the bed as illustrated in Fig. 6. It is locked in position along the bed by tightening the clamp bolt with the clamp bolt wrench furnished with the lathe.

The tailstock spindle is controlled by the tailstock hand wheel. Turning the wheel in a clockwise direction brings the spindle out of the tailstock. The spindle is of special steel with a ground finish and has been reamed for a No. 2 Morse Taper Center, which may be ejected by turning the tailstock wheel in a counter clockwise direction until the spindle reaches the end of its travel.

The spindle is graduated up to 2½ inches in sixteenth inch graduations for accuracy in boring and drilling. Lock spindle in place by turning the binding lever to the right. A cup and quill are mounted on the top of the tailstock. Fill with a heavy grease or a mixture of white lead and machine oil to be used to lubricate the centers when work is mounted between them.

The tailstock may be set-over 11/16 inch for turning tapers by loosening the tailstock clamp nut and adjusting the headless set screws located on either side. To align the tailstock again the index line on the tail stock and tailstock base will indicate the approximate position. To obtain the exact position it is necessary to place a 12 or 15 inch check bar between centers. Take a light cut, then check the diameter at each end of the bar with a micrometer. If there is a variation adjust the set-over screws until the diameters at each end are the same after a cut.

Lathe Centers

The headstock spindle is machined to take a No. 3 Morse Taper and is furnished with an adapter for a No. 2 Morse Taper Center. The tailstock is fitted for a No. 2 Morse Taper Center.

FIGURE 9—60 DEGREE CENTER

While the tailstock spindle should be kept oiled on the outside, the interior should be dry and clean. Before placing either of the centers in the lathe, they and the tapers into which they fit should be wiped free of oil and dirt, for the presence of a bit of dirt or a slight film of oil will interfere with the accuracy.

The Carriage

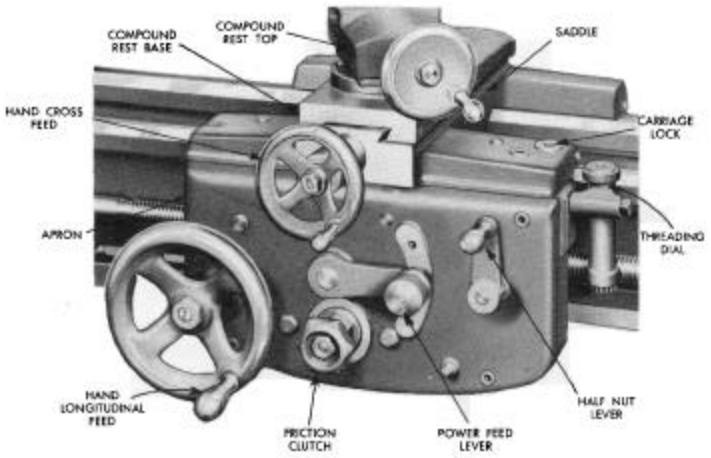


FIGURE 10—CARRIAGE

The carriage of the lathe is made up of four parts, the apron assembly, the saddle assembly, the compound rest assembly and the tool post assembly. Since the carriage supports the cutting tool and controls its action it is an important unit.

APRON. The apron which is suspended from the front of the saddle contains the power feed mechanism and the longitudinal hand feed together with the threading dial.

The large hand feed wheel on the front of the apron moves the carriage along the ways by means of gears which engage a rack on the underside of the front way.

The power feed lever is located in the center of the apron and can be set in three positions. When "Up," the apron mechanism is set for power longitudinal feed; when "Down," for power cross feed, and when in the central

position, is in neutral. To engage the power after having set the power feed lever in the required position, the friction clutch knob located immediately below is turned to the right. Similarly, it is turned to the left to disengage. The feed reverse lever on the headstock controls left or right longitudinal feed, and forward and backward movement of cross feed.

In thread cutting, the half nuts are used for longitudinal feed. The half nut lever is located at the right side of the apron. The half nuts can only be engaged when the power feed lever is in the neutral position, and also the power feed lever cannot be engaged while the half nuts are engaged.

Power is fed through the friction drive from the spline in the lead screw, whereas the half nuts drive from the lead screw thread. To minimize wear and thereby retain the accuracy of the half nuts and lead screw, they should only be used for thread cutting.

The threading dial on the right end of the apron indicates the proper position in which to engage the half-nut lever during threading operations so that the tool will enter the same groove for each cut, thereby eliminating the need for reversing the drive at the end of each cut. (Fig. 11 Threading Dial.)

When cutting even numbered threads, the half nuts may be engaged at any point on the threading dial.

When cutting odd-numbered threads (5, 7, 9, 11, etc. per inch), engage the half-nut lever when the outer mark is in line with either the mark numbered "1" or that numbered "2."

When cutting half-numbered threads (4½, 5½, 6½, 11½, etc.), engage the half-nut lever at the same point on the dial for each cut.

The saddle, which moves longitudinally on the front V-way and the back flat way, has been machined from a semi-steel casting, and is held down on the bed by gibs which bear on the underside of the front and back ways. These gibs are adjustable and should be set just tight enough to give a firm sliding fit between the carriage and the bed.

The compound rest base moves across the top of the saddle on dovetailed ways to form the cross slide. The hand cross feed is operated by a hand wheel at the end of the cross feed slide. This slide is equipped with a gib which may be tightened by adjustment of the set screws on the outside of the slide. The cross feed gib should fit snugly and should be adjusted whenever play develops. The cross slide is moved by an Acme threaded screw mounted in self lubricating bronze bearings. The hand wheel of the cross feed is of polished steel and is calibrated in thousandths of an inch for measurement of feed when a definite cut is to be taken.

The compound rest is mounted on top of the cross-slide on a base calibrated in degrees from 0° to 90° in both directions. Two bolts, one on each side of the rest, hold the base in position, and by loosening these bolts the rest may be swivelled to the desired angle. Two self-lubricating bronze bearings are mounted in the bushings of the rest which is moved over the slides by an Acme threaded screw. The slide is dovetailed with gib take-up for wear.

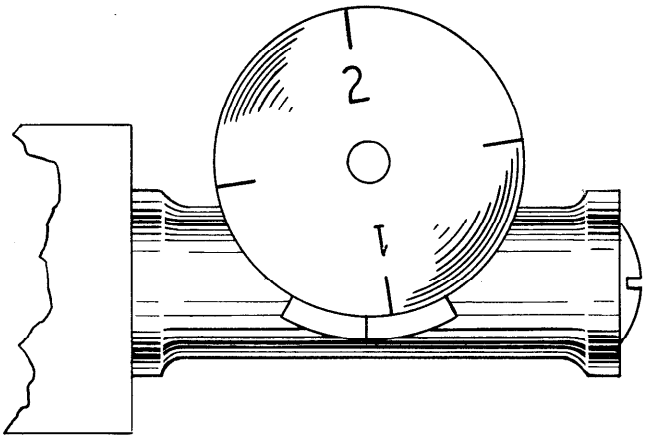


FIGURE 11—THREADING DIAL

The compound rest motion is controlled from a hand wheel by which the tool may be moved into the work for short tapers. The compound rest handle is calibrated for measurement in thousandths of an inch.

The tool post fits into a T slot in the compound rest and holds the tool holder by means of a square head screw.

Oiling the Lathe

The design of the Logan Lathe provides for correct lubrication with a minimum of attention. The ball bearings in the headstock are sealed in grease and require no further lubrication for the life of the bearing. At 36 separate points there are self-lubricating bronze bearings, where in ordinary construction plain bearings with oil holes are used. The bronze in these bearings is of an absorbent texture and has been thoroughly impregnated with lubricant. The correct film of lubricant is constantly maintained at the bearing surface without the necessity of frequent renewal.

Those points in the lathe requiring regular lubrication should be gone over every time the lathe is used and in a definite order so that no parts will be missed. Use a good machine oil no heavier than SAE No. 10, wiping away excess oil that would cause dirt to adhere to the lathe. Do not attempt to oil the lathe while it is running.

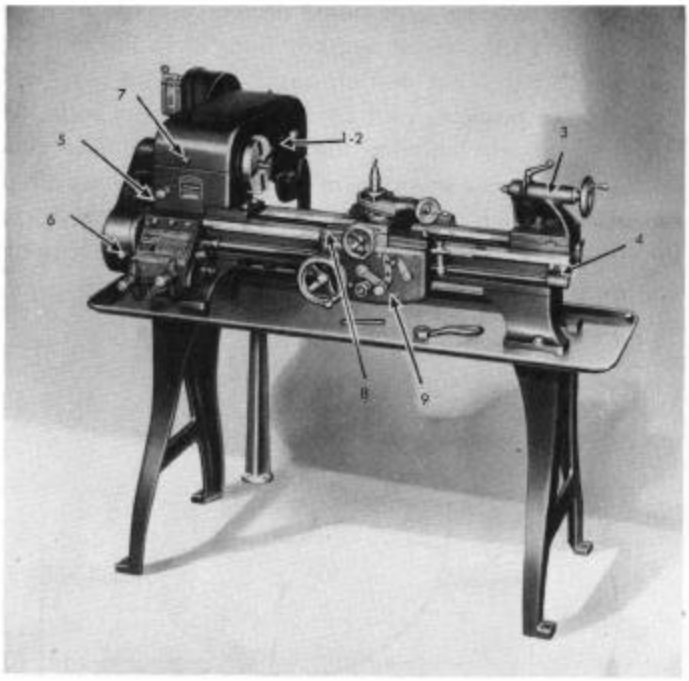


FIGURE 12—OILING DIAGRAM

Using a long-spouted can, oil the following points each time the lathe is used:

1.-2. Two oil cups on top of the countershaft bearings.
3. The spring well on top of the tailstock.
4. One oil cup on top of the bearing at right end of the lead screw.
5. The feed reverse lever. (A hole has been drilled in the base of the lever to receive oil.)
6. The bearings on each of the change gears.
7. The spindle pulley. (Remove the headless set screw on the second step of the pulley and oil freely before using the back gears.)
8. Remove set screw and fill this oil well so that when petcock set screw (9) is removed, oil just drips out.

Keep the following surfaces clean, free of chips and covered with a film of oil:

The lead screw.
The cross slide.
The compound slide.
The lathe bed ways, both V and flat.
The outside of the tailstock ram.
Spindle taper area.

A small amount of graphite grease should be kept on the teeth of all gears in the headstock, the apron and on the teeth of the rack on the underside of the front way.

Lathe Belts

The Logan Lathe is delivered equipped with a flat belt of web and rubber composition connecting the cone pulley on the lathe with the countershaft. A V Belt is also furnished to connect the 2 step V groove motor pulley with the 2 step flat face pulley on the countershaft. The life and efficiency of both these belts will be increased by keeping them clean and free from oil and by slipping them off the pulleys to release the tension, if the lathe is to be unused for any considerable length of time.

The use of a flat belt makes removal of the spindle unnecessary when replacing or changing the belt providing an endless belt is not required. This arrangement has two distinct advantages. First, the belt may be changed quickly and easily with a minimum of effort, for it may be laced, glued or hooked on the spindle, a simple procedure when compared with the task of removing the spindle and slipping an endless belt over it. Second, there is no risk of losing the alignment that has been accurately achieved at the factory through the use of precision gauges. Because of the high grade materials used and the accurate workmanship in assembling the headstock, under ordinary circumstances it need not be taken apart during the life of the lathe. However, should you desire to remove the spindle, you may do so, as was explained in the spindle description.

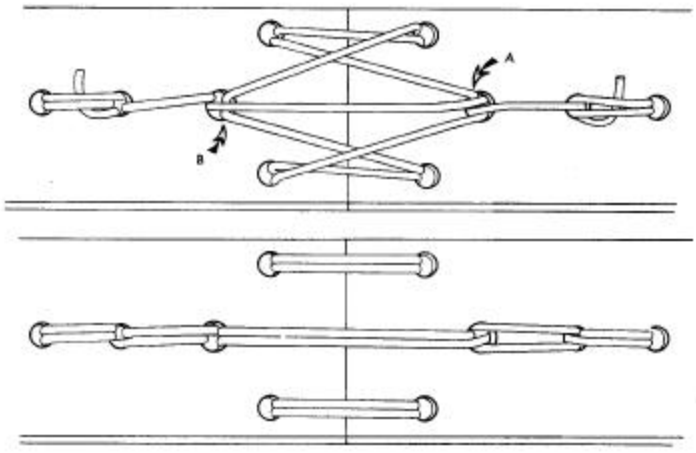


FIGURE 13—LACED BELT

Fastening the flat belt over the spindle pulley is a simple matter and may be done in any one of the following ways.

The belt, if laced, may be joined by either gut or rawhide throngs as follows. When the belting has been cut to the desired length, square the ends and punch ten holes as shown in Figure 13. Start the lace through holes A and B, pulling both ends through, working one to the right and one to the left, as shown. Do not cross one layer of lacing over another on the pulley side and do not allow it to kink or turn or the belt will not run smoothly. Fasten the ends as shown. If round gut is used cut shallow trenches between the holes on the pulley side and sink the gut in them.

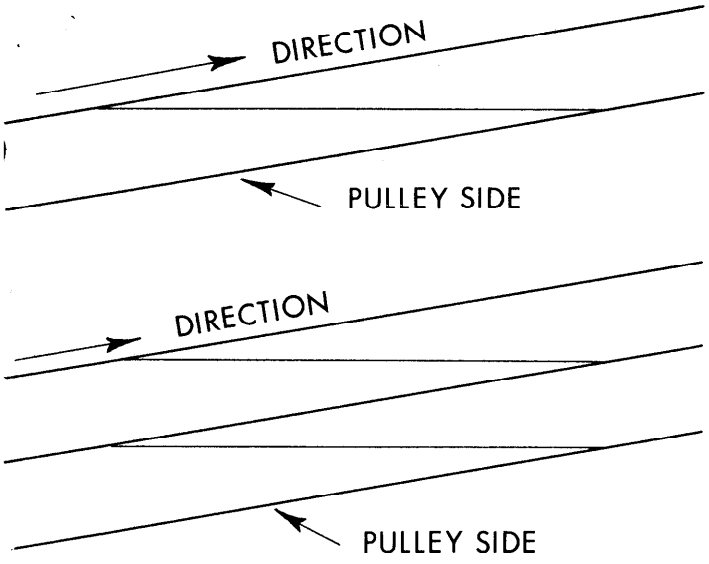


FIGURE 13A—GLUED BELT

If the belt is to be glued, make allowance for overlap and taper the overlap at each end so that ends will join as shown. See Figure 13A. Double belts should be split and each part tapered. Full directions are usually supplied with the glue; follow carefully.

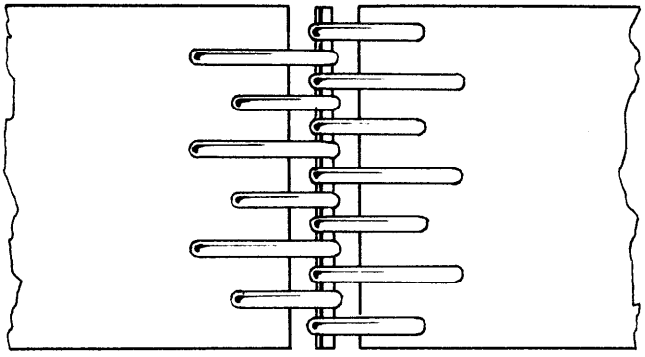


FIGURE 13B—BELT HOOK

The simplest and quickest method of fastening belt ends is by means of wire hooks, as shown in Figure 13B above. A number of different types are available which are easily attached by forcing the ends of the hooks through the belting and folding them over.

The V Belt supplied is a standard ½ inch endless belt which is easily slipped into place over both the two step V motor pulley and the 2 step flat face countershaft pulley.

Cutting Tools

There are a great variety of cutting tools used on a lathe; each shape being adapted to the work to be done and the finish to be left on the metal. Basically, however, all employ the same principle for all operate with a tearing action. The cutting edge of the tool tears a chip from the work and breaks it into separate sections as shown in Picture 14.

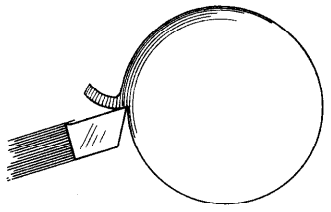


FIGURE 14—CUTTING ACTION OF TOOL BIT

Because of this the cutting edge of the tool must be sharp enough to separate the chip from the work with a minimum of power, but must also be large enough to support the cutting surface and to carry the heat of friction away from the point. These two opposing requirements can be accomplished by carefully working out the angle at which the tool will enter the work and the angles of clearance between the tool and the work.

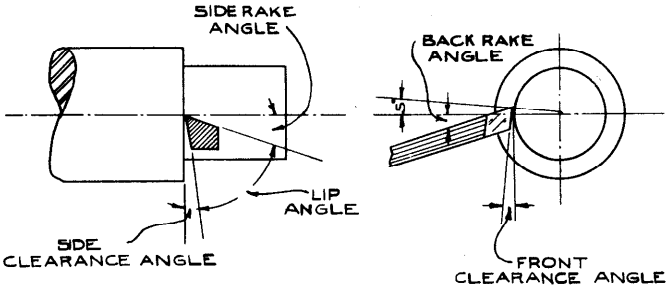


FIGURE 15—CUTTING ANGLES

Figure 15 above illustrates a cross-section and a side view of a tool bit in working position showing the names of the various angles for grinding and setting the bit.

For efficient performance, each of the angles and settings shown should be specially determined for the particular kind of material being worked on, the material the tool bit is made from, the cutting speed, the kind of coolant being used, if any, and whether roughing, finishing, parting or forming work is being done. Figure 17 illustrates the seven bit shapes commonly used and the working position of each with the correct angles for an average cut in mild steel at a cutting speed of 80 feet per minute using high speed tool steel bits and machining without coolant.

In shaping the bits use a good medium grit grinding wheel being careful not to burn the edges. Cool the bit in water to prevent drawing the temper.

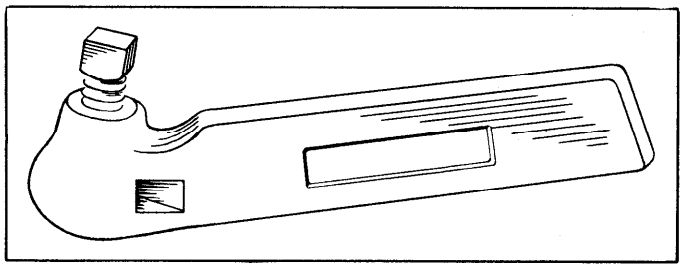


FIGURE 16—TOOL HOLDER

A tool bit holder for holding ¼- by ¼-inch tool bits eliminates the use of large and more expensive tools of high speed steel and also holds the bit at an angle. This angle directs a large portion of the cutting pressure directly toward the base of the tool post.

LATHE TOOL BIT SHAPES

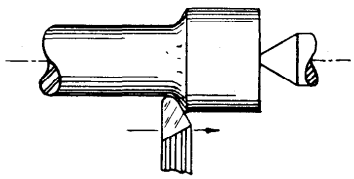
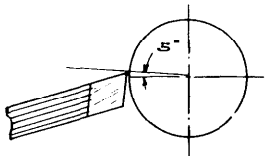
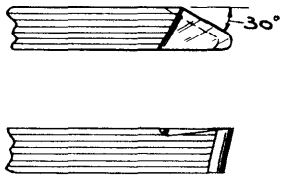
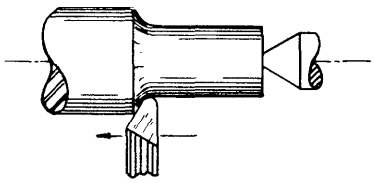
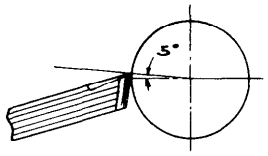
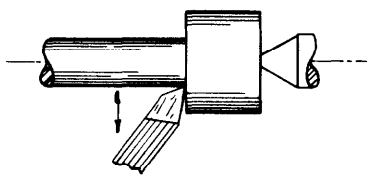
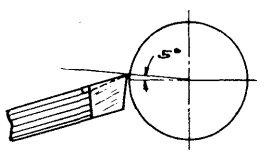
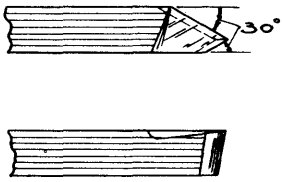
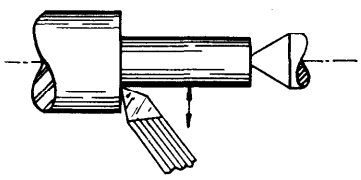
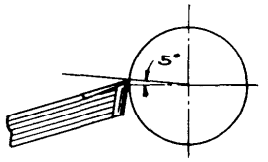
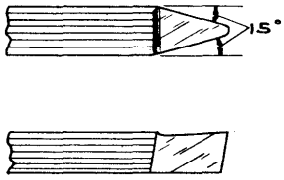
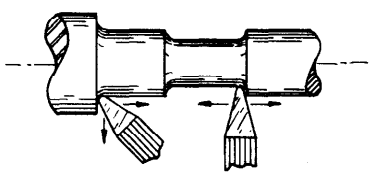
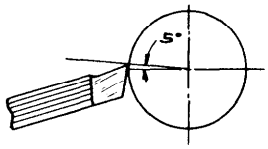
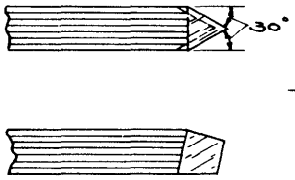
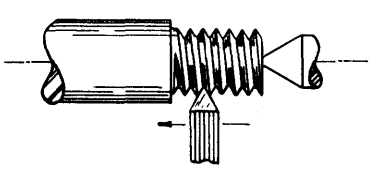
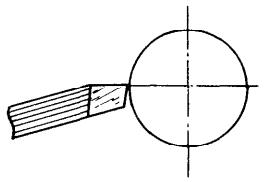
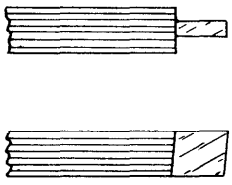
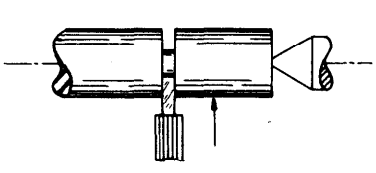
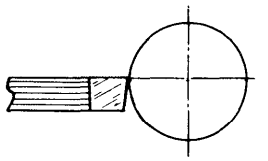
	Top and Side View	Top View Working Position	Side View Working Position	Grinding Angles
Left Hand Turning Tool				Back Rake Angle .....16½° Front Clearance Angle.. 7° Side Rake Angle .....18° Side Clearance Angle.... 8° Lip Angle .....64°
Right Hand Turning Tool				Back Rake Angle .....16½° Front Clearance Angle.. 7° Side Rake Angle .....18° Side Clearance Angle.... 8° Lip Angle .....64°
Left Hand Facing Tool				Back Rake Angle .....16½° Front Clearance Angle.. 7° Side Rake Angle .....18° Side Clearance Angle.... 8° Lip Angle .....64°
Right Hand Facing Tool				Back Rake Angle .....16½° Front Clearance Angle.. 7° Side Rake Angle .....18° Side Clearance Angle.... 8° Lip Angle .....64°
Round Nose Turning Tool				Back Rake Angle .....16½° Front Clearance Angle.. 7° Side Rake Angle ..... 0° Side Clearance Angle.... 8° Lipe Angle ..... 82°
Threading Tool				Back Rake Angle..... 0° Front Clearance Angle.. 5° Side Rake Angle ..... 0° Side Clearance Angle ...10° Lip Angle ..... 80°
Cut-Off Tool.				Back Rake Angle ..... 0° Front Clearance Angle.. 5° Side Rake Angle ..... 0° Side Clearance Angle.... 3°

FIGURE 17

When using the tool holder, the cutting end of the bit should be clamped as close to the end of the holder as possible and the bit holding end of the holder should be as close to the tool post as possible. This will give the cutting edge rigid support so that the action of the work will not force it downward, causing chatter and possibly breaking off the bit.

Holding the Work

There are five common methods of holding work in a lathe; between centers, in a chuck, on the face plate, in a collet, and on a mandrel.

MOUNTING BETWEEN CENTERS

Whenever possible the work is turned between centers as this method is most accurate and permits removing the work from the lathe and replacing it without affecting the accuracy.

The first step in turning between centers is to find the center of the ends of the work and drill center holes. This operation is important and should be done with care.

If square, hexagonal, or any other regular sided stock is used lines may be scribed across the ends from corner to corner, the point of intersection being the center.

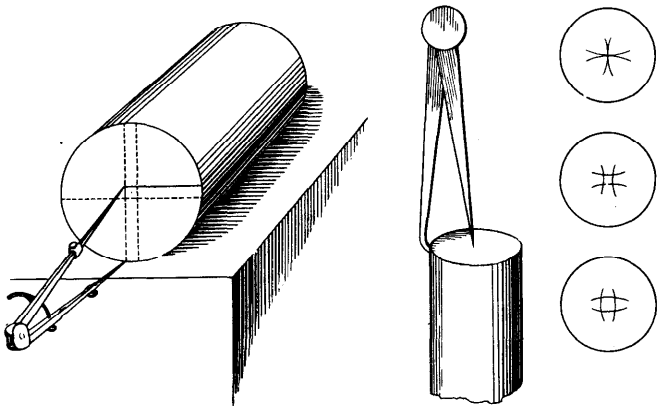


FIGURE 18—FINDING CENTERS

If round stock is used the center may be found either with dividers or with hermaphrodite calipers. When using dividers open them to approximately half the diameter, and laying the stock on a flat surface place one point on the work, the other on the flat surface, and scribe a line along the end as shown in Fig. 18. Turn the stock a quarter turn and scribe another line and so on until the four lines are drawn as shown. If the dividers are held at the same angle each time, the center of the small square formed will be the center of the stock.

If hermaphrodite calipers are used open them to approximately half the diameter of the stock and holding the bent leg on four quarter points of the circumference, scribe four arcs across the end, forming a four-sided central figure. The center of this figure will be the center of the stock. Rubbing chalk on the ends will make the scribing more easily seen.

When the center of the stock has been found, place a center punch vertically on the center mark and strike with a hammer, making an indentation sufficiently deep so that the work will revolve on the center points of the lathe.

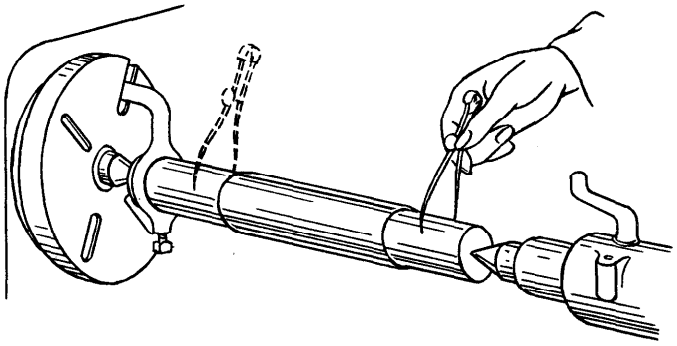


FIGURE 19—TESTING CENTERS

The stock, especially if close to finish size, should be placed in the lathe and the center tested before countersinking. This is done by revolving the stock by hand while it is held between the centers and holding a piece of chalk so that it will touch any high spots on the work as shown in Fig. 19.

If the chalk encounters high spots move the center holes toward these high spots by placing the work in a vise and driving the center punch toward them at an angle, then bringing it back to a vertical position.

The countersink drill is usually used in drilling center holes since it both drills the hole to the proper depth and countersinks at the proper angle.

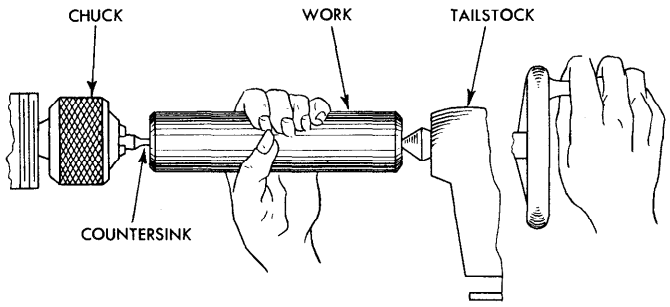


FIGURE 20—COUNTERSINKING CENTERS

The countersink drill is mounted in a chuck in the headstock spindle and the work held with the tailstock center in one center hole, the drill in the other. With the spindle turning at about 600 R.P.M. the tailstock ram is then advanced moving the work into the drill as shown in Figure 20.

If this method is not used the center holes may be drilled by placing the work in a drill press, or the work may be held in a universal three-jaw scroll chuck and the countersink drill held in the tailstock in a drill chuck. When this method is used the end of the shaft should be faced smooth before drilling the center hole.

When drilled and countersunk the holes should be deep

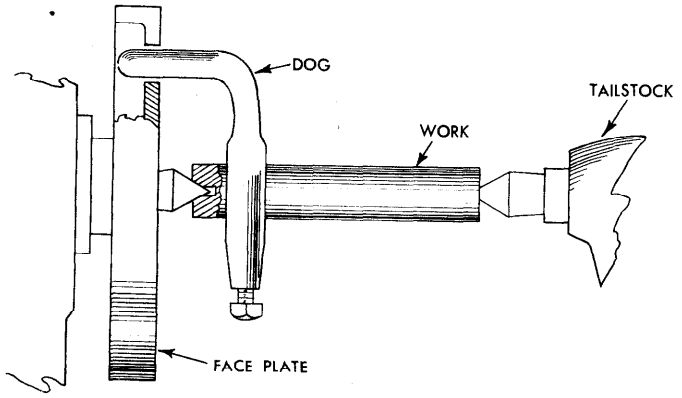


FIGURE 21—MOUNTING BETWEEN CENTERS

enough to prevent the points of the lathe center touching the bottom, and the tapered sides should exactly fit the 60° angle of the centers. If they do not the work will not turn evenly or smooth and will be inaccurate. A correctly drilled and countersunk hole is shown in Figure 21.

Lubricate the end centers by filling with heavy grease or with white lead thinned with machine oil or light cylinder oil.

Place the end of the work in a lathe dog so that the tail of the dog extends beyond the end of the work and into the slot of the face plate, without interfering with the headstock center. The work should now rest firmly on both centers but should not bind. To test the mounting, place a finger on the tail of the dog and move it back and forth within the face plate slot. You should be able to move it easily, but not too easily. When the pressure on the ends has been adjusted lock the tailpost ram by turning the binding lever to the right.

CHUCKS

Two types of chuck commonly used are the 3-JAW UNIVERSAL CHUCK and the 4-JAW INDEPENDENT CHUCK. These are used in turning the work that can not be readily turned between centers. See Figure 22.

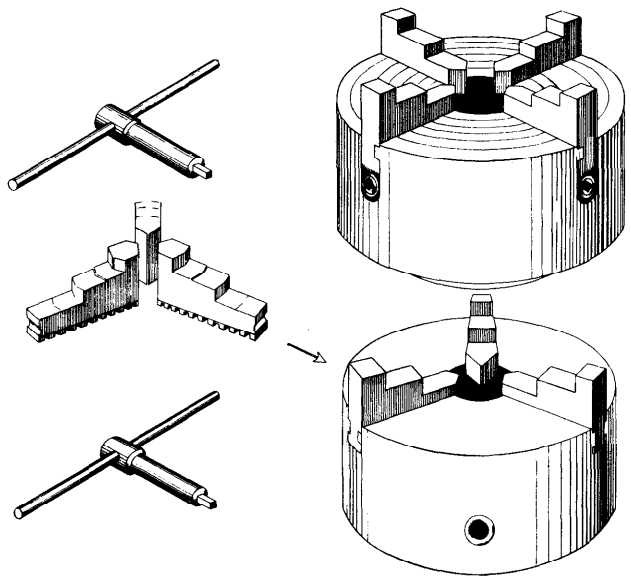


FIGURE 22—3 AND 4 JAW CHUCKS

Some chucks mount directly on to the spindle nose, while others are bolted to an adapter plate which fits on to the spindle.

Before mounting a chuck or face plate clean the spindle shoulder and chuck back and oil the threads of the spindle head and chuck thoroughly. Turn the chuck on by hand, being careful not to spin it up to the shoulder as it may jam. Never use lathe power to screw a chuck on or off of the spindle.

The chuck can be loosened for removal by (1) Engaging the back gears while the bull gear is connected to the spindle pulley, so that the spindle will not turn, and turning the chuck by placing the chuck wrench in its hole and pulling on it. (2) Placing a block of wood between the chuck jaw and the lathe bed, engaging the back gears, and turning the spindle by pulling by hand on the belt. Take care in removing the chuck. You may damage the spindle threads or you may damage the bed ways if the chuck falls on them.

The 4-jaw independent chuck is recommended if the lathe is to have only one chuck as it will hold square, round or irregular shaped work in either a concentric or eccentric position. Each jaw is controlled by a head screw, a number of concentric circles scribed on the face permitting the approximate centering of the work by moving all jaws to the same line or to the same distance from the same line.

The work is then revolved by hand and a piece of chalk held lightly against the work to mark the high spots. The jaw opposite the high point is loosened and that behind it tightened until the work is centered.

The 3-jaw universal chuck is self-centering, all jaws working from one screw which saves time and trouble in centering round or hexagonal work but it can not be used for square or irregular shapes.

The 4-jaw chuck can be adjusted to any degree of accuracy required. 3-jaw chucks are usually accurate to .003 when new. If greater accuracy than this is required, the jaws may be shimmed as needed.

The jaws of the 4-jaw chuck are reversible, while an additional set of jaws are supplied with the 3-jaw chuck for internal chucking in which case the jaws are placed inside the work and the outside turned.

THE HEADSTOCK SPINDLE CHUCK (Fig. 23A) is used for small diameter work that may be passed through the headstock spindle. It is similar to a drill chuck in operation except that it screws on to the spindle and is hollow. Since it holds much the same type of work as the collet chuck and is less expensive, it is advisable at times to use in place of the collet.

DRILL CHUCKS (Fig. 23B) are used both on the tailstock of a lathe with the work turning and on the headstock of the lathe with the work held. Although for production drilling, a drill press is generally used, there are many small jobs of drilling, reaming, tapping, etc., that are conveniently handled by means of a lathe drill chuck.

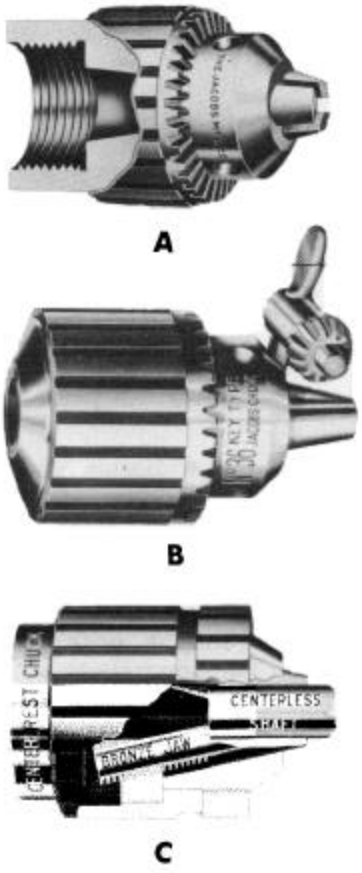


FIGURE 23—LATHE CHUCKS

THE CENTER REST CHUCK (Fig. 23C) is mounted in the tailstock by means of a solid tapered arbor which replaces the center. The stationary bronze jaws provide an accurate support for turning round work where a center cannot be used.

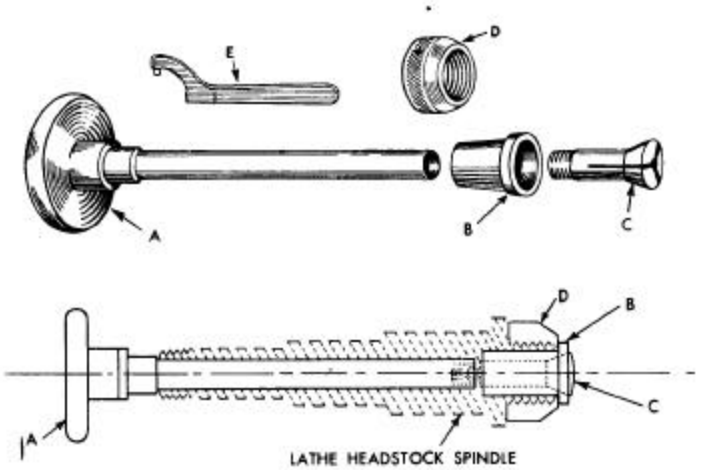


FIGURE 24—DRAW-IN COLLET ATTACHMENT

DRAW-IN COLLET CHUCK. Small work that must be very accurate is mounted in a draw-in collet placed within the headstock spindle.

The assembly consists of a draw-in spindle (A in Fig. 24) threaded at the right end to receive the collet; a tapered closing sleeve (B); a split holding collet (C); spindle nose cap (D); and spindle nose cap wrench (E). The tapered closing sleeve fits into the headstock spindle and adapts it to the collet. The work is placed in the split end of the collet and the collet closed by pressure as it is drawn into the taper by the draw-in spindle which enters the headstock spindle from the other end.

Never use a collet for work more than .005 inch larger or smaller than its rated diameter. Before mounting work in a collet, all parts—work, collet, spindle, and taper—must be wiped clean and dry.

When removing the collet assembly unscrew the draw-in spindle a couple of turns and press the collet loose. To remove the tapered closing sleeve, unscrew the spindle nose cap with spanner wrench which forces the sleeve out of the lathe spindle.

Draw-in collet chucks for production are also available that are lever operated instead of the hand wheel operated as described above. Lever operated draw-in collet chucks can be opened and closed while the lathe spindle is in motion.

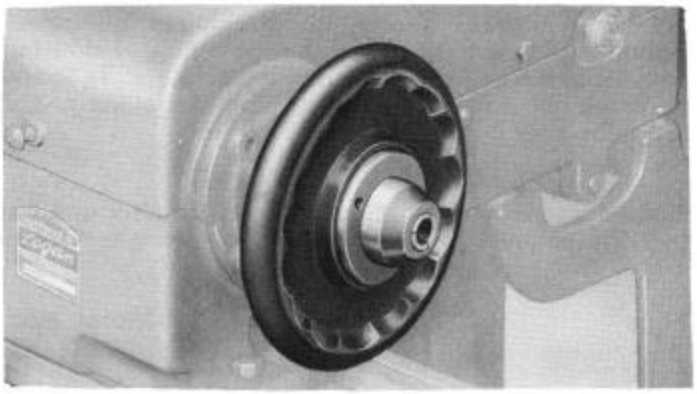


FIGURE 25—HAND WHEEL COLLET CHUCK

FIGURE 26—PUSH TYPE COLLET

THE HAND WHEEL COLLET CHUCK shown in Fig. 25, uses push type collets as shown in Fig. 26. This chuck is fitted to the spindle nose by means of a back plate and is opened and closed by turning the hand wheel while the spindle is held. The positive squeeze grip closes concentrically on the work without longitudinal movement of the collet.

A lever type collet attachment fitting on the spindle nose and using push type collets is also available. These production attachments can be opened or closed while the lathe spindle is in motion.

Push type collet chucks have greater capacity, have greater holding power and do not pull the work away from a stop in closing the collet. However, draw-in collets having very little over-hang are slightly more accurate.

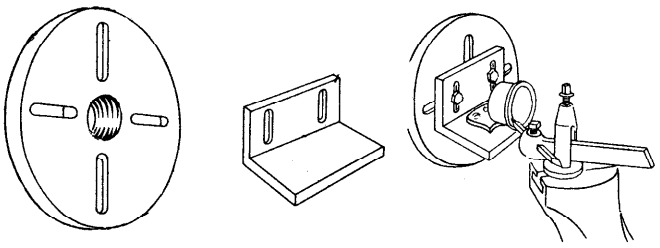


FIGURE 27—FACE PLATE

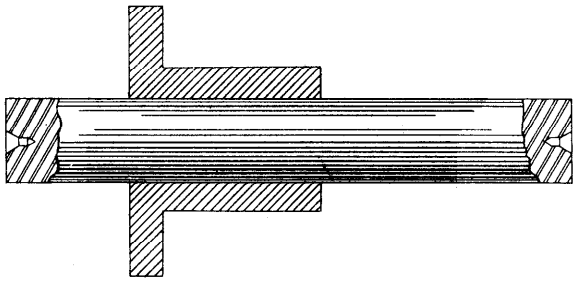


FIGURE 28—MANDREL

FACE PLATE MOUNTING

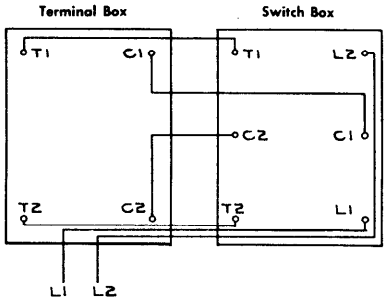
Many irregular shapes are best mounted for turning by clamping to the face plate directly or by fastening to an angle plate which in turn is mounted on the face plate. (Fig. 27) Be careful in bolting down not to spring the work on the plate and use the same care in screwing the face plate on the lathe spindle as described for mounting chucks. Heavy work mounted off center should be counterbalanced by attaching balancing weights to the opposite edge of the face plate. To locate the work accurately on the face plate use either a dial indicator or a center indicator.

MANDREL MOUNTING

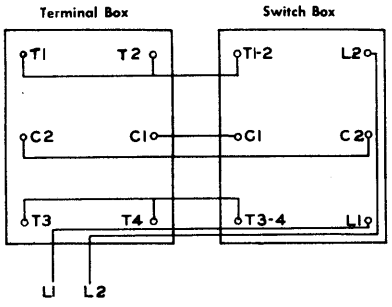
Hollow pieces may be mounted on a mandrel and the mandrel mounted between centers, allowing the entire outer surface to be turned instead of the limited surface that would be available if the piece were held in a chuck.

Although mandrels are available which may be expanded to fit the hole by forcing out grips on the sides, a mandrel is usually a piece of steel with a slight taper (.006 inches per foot) the ends flattened for the lathe dog and the piece held to the mandrel by friction. When mounting the work it is advisable to oil both the mandrel and the hole to prevent the work "freezing" on the mandrel. In driving the mandrel out of the work do not use a steel hammer without protecting the end of the mandrel from damage. Make sure that mandrel is driven off in the opposite direction than that from which it entered the work.

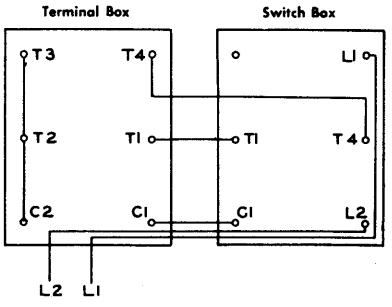
Fig. 29 Motor and Switch Wiring Diagram



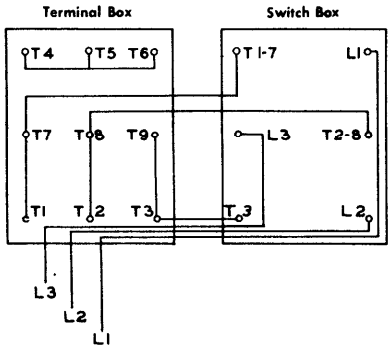
No. 1100 Motor
(Capacitor type)
⅓ H.P. 110 volt,
60 cycle, single
phase
No. 0639 Switch
(R-1144)



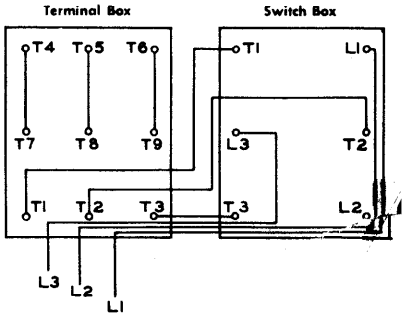
No. 1105 Motor
(Capacitor type)
½ H.P. 115 volt,
60 cycle, single
phase
No. 0639 Switch
(R-1144)



No. 1105 Motor
(Capacitor type)
½ H.P. 230 volt,
60 cycle, single
phase
No. 0639 Switch
(R-1144)



No. 1110 Motor
½ H.P. 220 volt,
60 cycle, three
phase
No. 0636 Switch
(R-1143)



No. 1110 Motor
½ H.P. 440 volt,
60 cycle, three
phase
No. 0636 Switch
(R-1143)

POWER FEEDS PLAIN CHANGE LATHES

The tail end of the headstock spindle has a gear for transmission of spindle power through a gear train to the lead screw along the front of the lathe which is used in power feeding. The rate of feed is dependent upon the speed of the lead screw.

It is necessary in operations such as thread cutting to set the rate of feed in a definite relationship with the speed of the spindle; this is accomplished by arrangement of the gears and the gear sizes in the gear train. The gears may be arranged on the gear bracket to drive from three positions, the sizes of the gears in these three positions determining the ratio of spindle speed to lead screw speed. The three positions are shown in the threading chart in Fig. 6; by referring to the table for threads per inch or feeds per inch wanted and to the diagram, the correct gear sizes and their positions may be found.

Raise or lower the bracket to accommodate the different sizes of gears by loosening the nut just behind the lead screw bearing. The gears are attached to the gear bracket so that when the bolt holding them is loosened they may be moved along the bracket slot. Each bolt holds two gears, both of which must be mounted, whether they mesh in the train or not. If one meshes with two others it is called an "idler" and the unused one a "spacer." If both mesh in the train they form a "compound gear."

The gears which are used in the gear train are machined to insure perfect teeth which will mesh evenly and smoothly with the others in the train. Each gear fits over a steel sleeve which accommodates two gears and is keyed to fit the keyway of the gears. The sleeves fit over the bracket bolt, a washer serving as a spacer between the assembly and the nut.

When assembling a gear train care must be taken to allow sufficient clearance between two meshing gears in order to prevent binding. A small amount of graphite grease applied to the teeth will make them run quietly and smoothly.

Threads Per Inch	Stud Gear	Diagram	Idler Gear	Screw Gears	Feeds Per Inch
4	64	Fig. I	72	32	
4½	64	Fig. I	72	36	
5	64	Fig. I	72	40	
5½	64	Fig. I	72	44	
6	64	Fig. I	72	48	
6½	64	Fig. I	72	52	
7	64	Fig. I	72	56	
7½	64	Fig. I	72	60	
8	32	Fig. I	72	32	
9	32	Fig. I	72	36	
10	32	Fig. I	72	40	
11	32	Fig. I	72	44	
11½	32	Fig. I	72	46	
12	32	Fig. I	72	48	
13	32	Fig. I	72	52	
14	32	Fig. I	72	56	
16	32	Fig. I	72	64	
18	16	Fig. I	72	36	
20	16	Fig. I	72	40	
22	16	Fig. I	72	44	
24	16	Fig. I	72	48	
26	16	Fig. I	72	52	
27	16	Fig. I	72	54	
28	16	Fig. I	72	56	
30	16	Fig. I	72	60	
32	16	Fig. I	72	64	
36	24	Fig. II	72	36	
40	24	Fig. II	72	40	
44	24	Fig. II	72	44	
48	24	Fig. II	72	48	
52	24	Fig. II	72	52	
54	16	Fig. II	72	36	
60	16	Fig. II	72	40	
64	24	Fig. II	60	64	0.0156
	16	Fig. II	60	44	0.0152
	16	Fig. II	60	46	0.0145
	16	Fig. II	60	48	0.0139
	16	Fig. II	60	52	0.0128
	16	Fig. II	60	56	0.0119
	16	Fig. II	64	60	0.011[illegible]
	32	Fig. III		64	0.0104
	32	Fig. III		72	0.0092
	24	Fig. III		64	0.0078
	24	Fig. III		72	0.0069
	16	Fig. III		64	0.0052
	16	Fig. III		72	0.0046

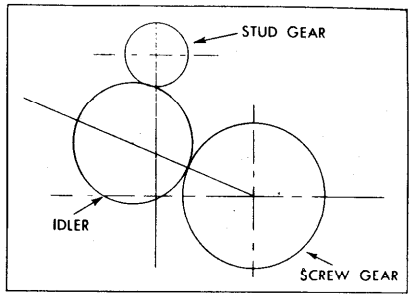


FIGURE I

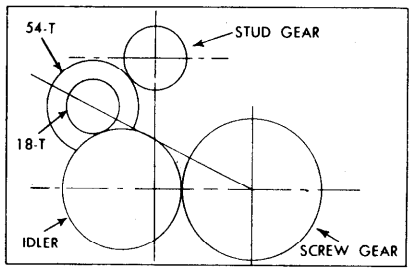


FIGURE II

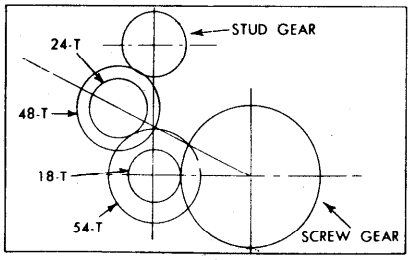


FIGURE III

FIGURE 6—CHART OF THREAD AND FEEDS

Logan Lathe

PARTS LIST

LOGAN ENGINEERING COMPANY • Chicago, Ill.

PARTS LIST

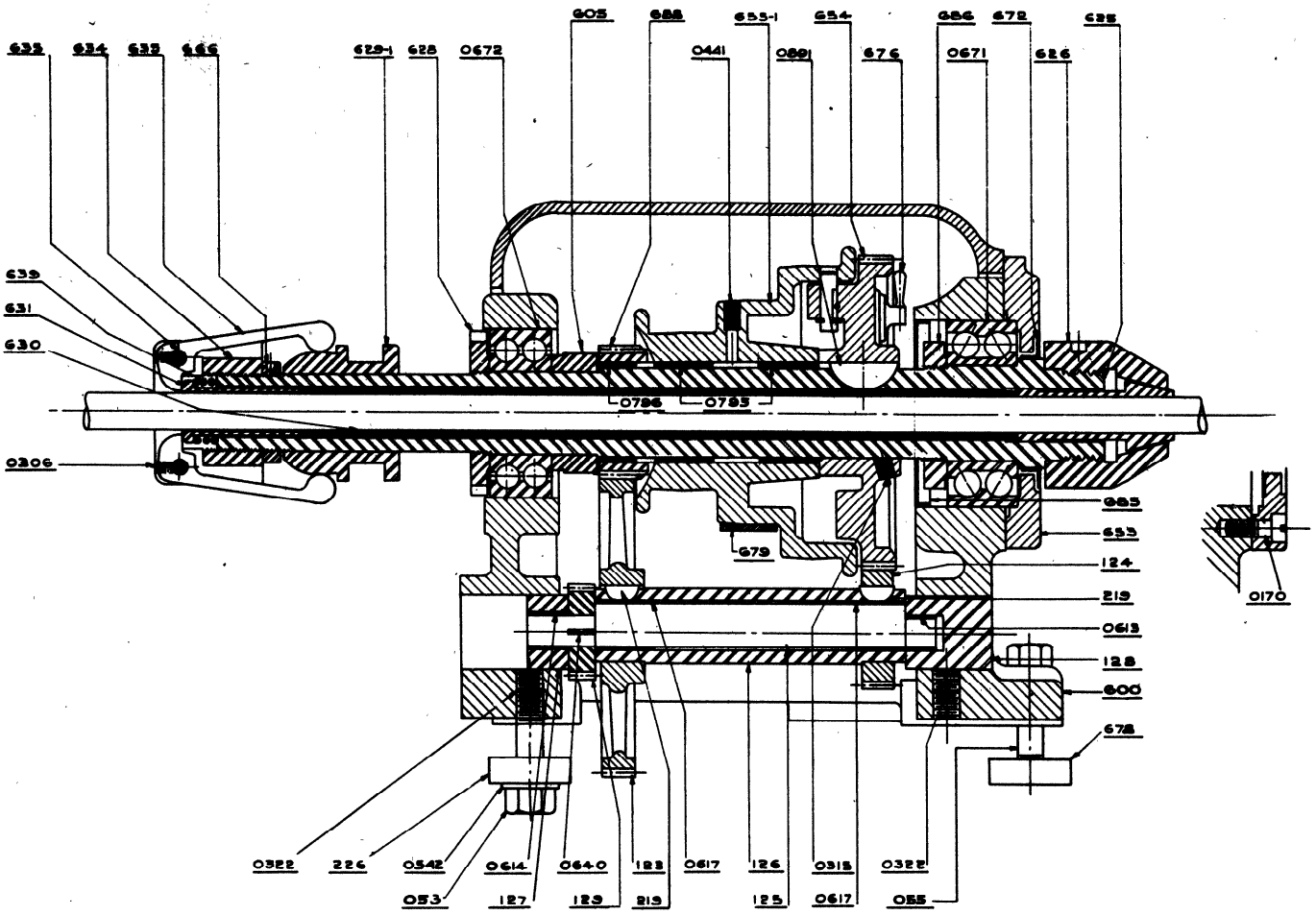
HOW TO ORDER REPAIR PARTS

Should you need repair parts for your lathe the following information is necessary to fill your order promptly and correctly.

1. Complete name and number of the part as listed in the parts list.
2. Model and serial number of your lathe. Serial number is stamped on top of the front way at the right end of the lathe.
3. Correct priority must accompany order.

Please place your order through the Logan dealer from whom you obtained the lathe.

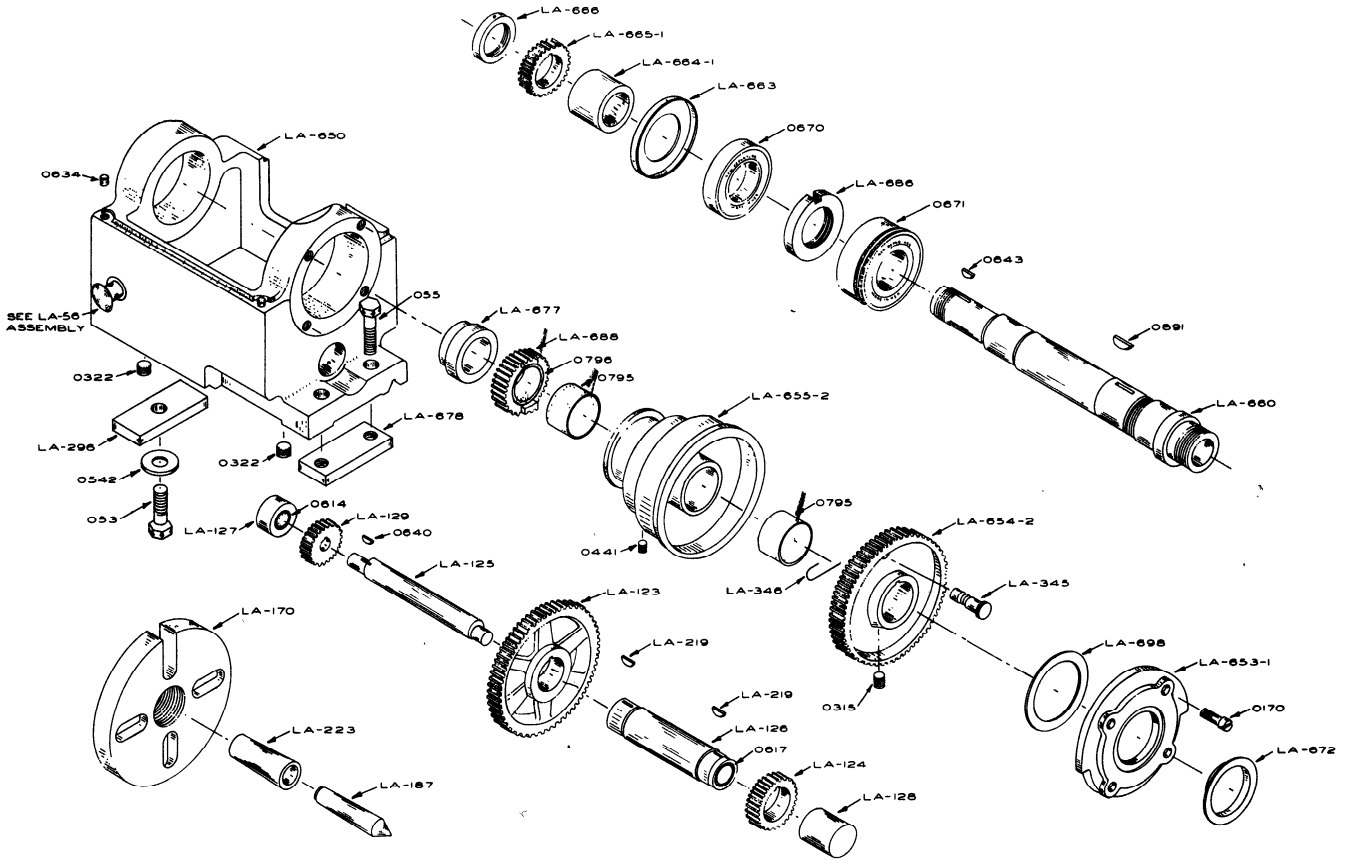
PLEASE NOTE: The model and serial number of your lathe must appear on your order to insure prompt shipment.



PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
LA-123	1	70T Back Gear	3	8	$2.10
LA-124	1	28T Back Gear		8	1.50
LA-125	1	Eccentric Shaft	1	12	1.70
LA-126	1	Quill Sleeve with 2 of 0617	1	14	2.00
LA-127	1	Bushing with 0614		8	.40
LA-128	1	Bushing with 0613		12	.40
LA-129	1	Shifter Gear		10	.50
LA-219	2	Woodruff Key		3	.05
LA-226	1	Rear Clamp	1	14	.55
LA-600	1	Headstock	27	12	21.00
LA-605	1	Spacer		3	.75
LA-625	1	Spindle	6		27.50
LA-626	1	Collet Nut	2		12.50
LA-628	1	Take-Up Nut		8	2.65
LA-629-1	1	Cone	2		9.80
LA-630	1	Feed Tube	1		4.95
LA-631	1	Sleeve		8	1.95
LA-633	2	Finger	1		5.90
LA-634	1	Finger Holder	3		7.40
LA-635	2	Pin		3	.20
LA-639	1	Spring		3	.10
LA-653	1	End Bearing Cap	3		2.65
LA-654-A		Bull Gear (See Bull Gear Assembly)			
LA-655-1	1	Cone Pulley with 2 of 0795 & 0441	7		12.25
LA-666	1	Take-Up, Rear		8	.50
LA-672	1	Grease Seal		3	.20
LA-676		Handle ((See Bull Gear Assembly)			

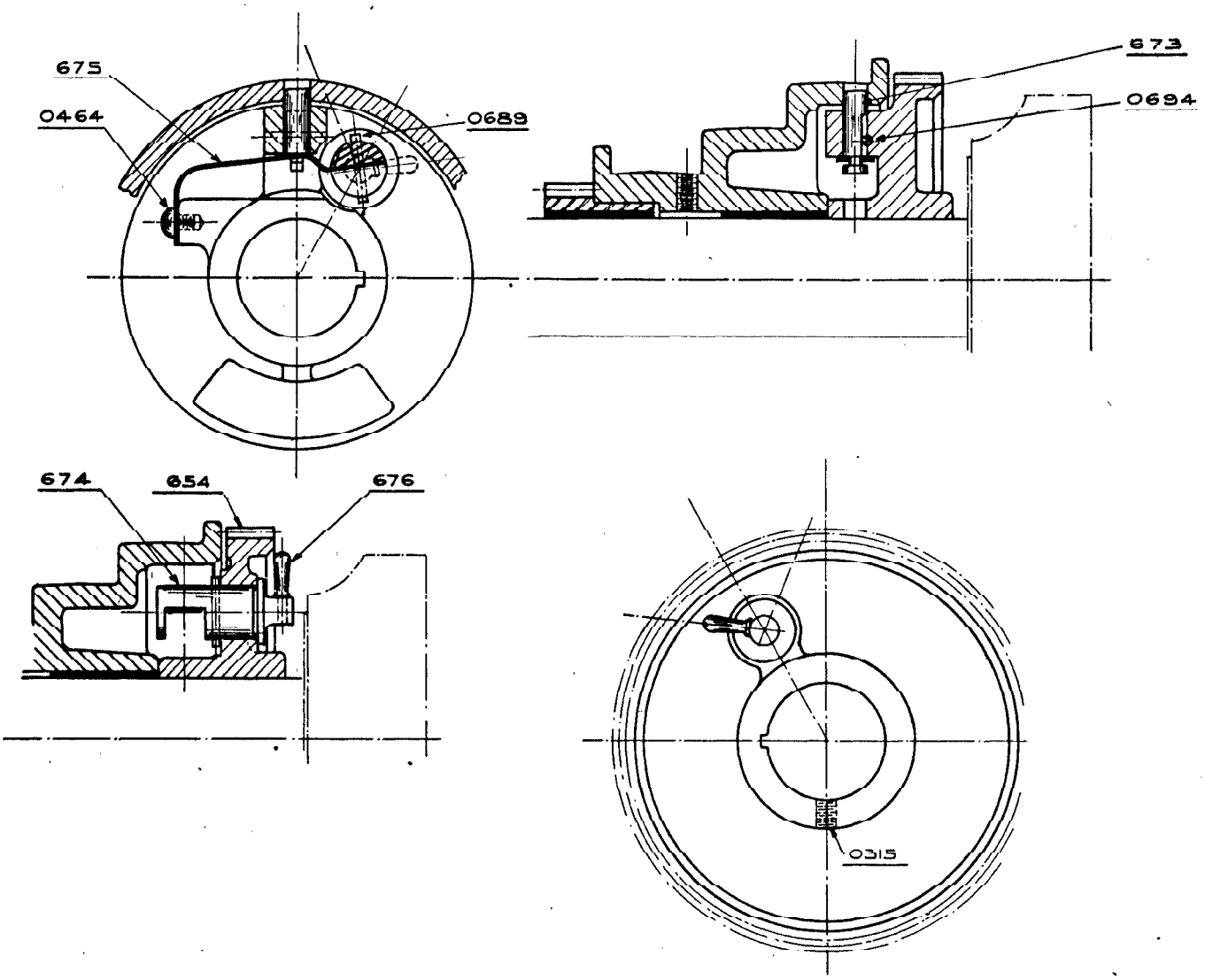
PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
LA-678	1	Clamp	1		$ .90
LA-685	1	Bearing Cover		3	.25
LA-686	1	Take-Up Nut		14	.80
LA-688	1	Cone Pinion with 0796	1		3.30
053	1	Hex. Hd. Cap Screw 7/16-14 x 1-1/2		3	.05
055	2	Hex. Hd. Cap Screw 7/16-14 x 2		3	.05
0170	3	Fil. Hd. Cap Screw 5/16-18 x 7/8		3	.05
0306	2	Socket Set Screw 10/32 x 1/4		3	.10
0310	1	Socket Set Screw 1/4-20 x 3/8		3	.10
0315	1	Socket Set Screw 5/16-18 x 3/8		3	.10
0322	2	Socket Set Screw 7/16-14 x 5/16		3	.10
0441	1	Headless Set Screw 1/4-20 x 3/8		3	.05
0613	1	Oilless Bearing		3	.15
0614	1	Oilless Bearing		3	.20
0617	2	Oilless Bearing		4	.25
0640	1	Woodruff Key 1/8 x 1/2		3	.05
0671	1	Ball Bearing #45508	2		8.95
0672	1	Ball Bearing #65507	2		6.50
0795	1	Oilless Bearing		4	.40
0796	2	Oilless Bearing		8	.60
0891	1	Woodruff Key		3	.05

LA-27-3 HEADSTOCK ASSEMBLY



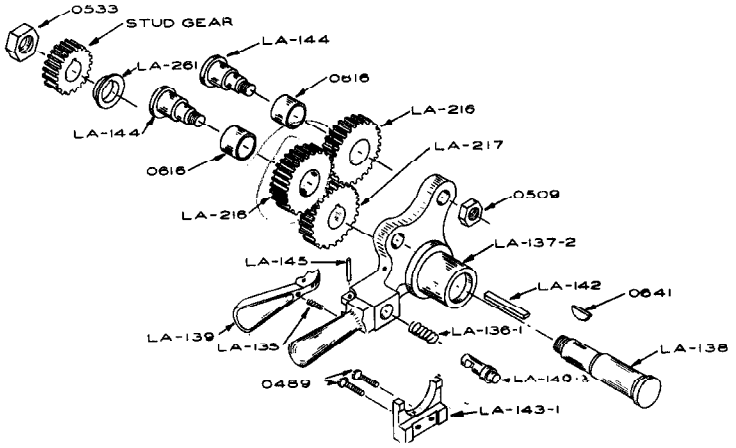
PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
LA-123	1	70T Back Gear	3	8	$3.75
LA-124	1	28T Back Gear		8	2.75
LA-125	1	Eccentric Shaft	1	12	1.95
LA-126-A	1	Quill Sleeve w/2 of 0617	1	14	3.50
LA-127-A	1	Bushing w/0614		8	.45
LA-128-A	1	Bushing w/0613		12	.55
LA-129	1	Shifter Gear		10	.75
LA-149-A	2	2 Stop Pin w/1 of 0305 & 0307		15	.35
LA-170	1	6" Face Plate	4	4	3.50
LA-187	1	Center		10	1.95
LA-219	2	Key		3	.05
LA-223	1	Sleeve		12	2.35
LA-296	1	Clamp	1		.65
LA-345	1	Bull Gear Plunger		6	.40
LA-346	1	Spring		4	.10
LA-650-1	1	Headstock Casting	27	12	23.50
LA-653-1	1	End Bearing Cap	3		3.60
LA-654	1	Bull Gear (See LA-654-2-A)			
LA-654-2-A	1	Bull Gear Assembly:-consists of 345, 346, & 0315	4		8.50
LA-655-2-A	1	Cone Pulley w/2 0795 & 0441	7		16.50
LA-660	1	Spindle	5	10	18.00
LA-663	2	Bearing Cover		3	.20
LA-664-1	1	Retaining Collar		12	1.95
LA-665-1	1	Spindle Gear		5	1.95
LA-666	1	Rear Take-Up Nut		8	.60
LA-672	1	Grease Seal		3	.20
LA-677	1	Spacer		8	.90
LA-678	1	Headstock Clamp-front	1		.90

PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
LA-679	1	Flat Belt		8	$2.90
LA-686	1	Take-Up Nut		14	1.35
LA-688	1	Cone Pinion w/0796	1		3.95
LA-698	1	Spring Washer		5	.20
053	1	Hex. Hd. Cap Screw 7/16-14 x 1-1/2		3	.05
055	2	Hex. Hd. Cap Screw 7/16-14 x 2		3	.05
0170	4	Fil. Hd. Cap Screw 5/16-18 x 7/8		3	.05
0305	2	Socket Set Screw 10-32 x 3/16		3	.10
0307	2	Socket Set Screw 10-32 x 3/8		3	.10
0315	1	Socket Set Screw 5/16-18 x 3/8		3	.10
0322	2	Socket Set Screw 7/16-14 x 5/16		3	.15
0441	1	Headless Set Screw 1/4-20 x 3/8		3	.05
0542	1	Washer $\frac{1}{2}$ x $1\frac{1}{4}$ x 5/14		3	.05
0613	1	Oilless Bearing		3	.15
0614	1	Oilless Bearing		3	.20
0617	2	Oilless Bearing		4	.25
0634	2	Rubber Bumpers		3	.05
0640	1	Woodruff Key 1/8 x 1/2		3	.05
0670	1	Ball Bearing #77507	1	8	4.15
0671	1	Ball Bearing #45508	2		10.20
0795	2	Oilless Bearing		8	.40
0796	1	Oilless Bearing		4	.60
0891	1	Key		3	.06



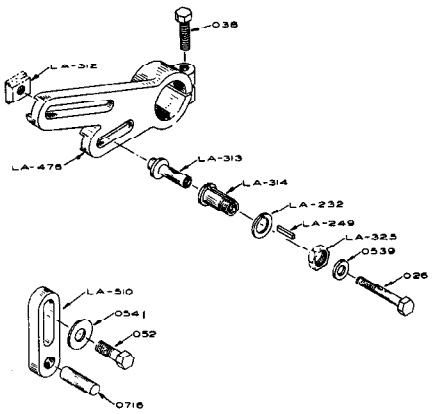
PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT LBS.	SHIPPING WEIGHT OZ.	PRICE EACH
LA-28	1	Bull Gear Assembly Complete	4		$7.10
LA-673	1	Plunger		3	.35
LA-674	1	Cam		4	.95
LA-675	1	Spring.		3	.10
LA-676	1	Handle.		3	.15
0315	1	Socket Set Screw 5/16-18 x 3/8. . . .		3	.10
0464	1	Round Head Screw 10-32 x 1/4.		3	.05
0689	1	Pin 3/32 x 3/4.		3	.05
0694	1	Pin 1/8 x 3/4		3	.05

LA-4-2 REVERSE GEAR ASSEMBLY



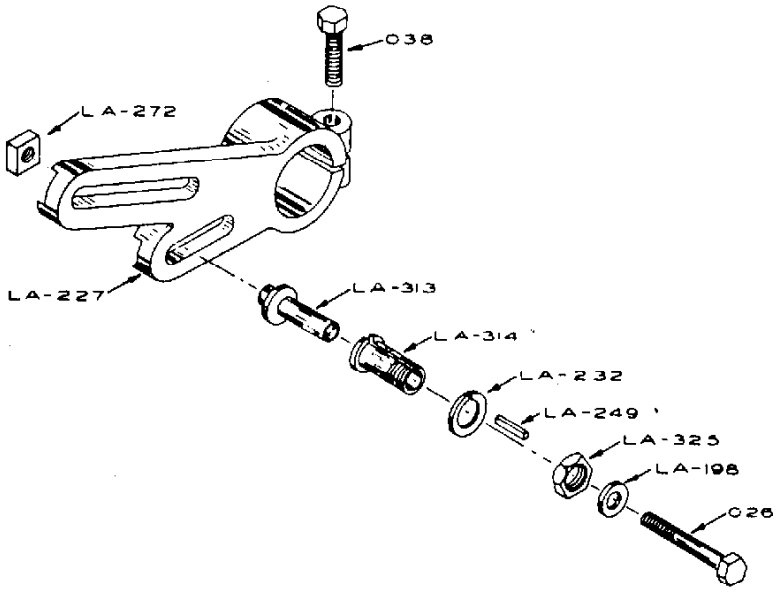
PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT LBS.	SHIPPING WEIGHT OZ.	PRICE EACH
LA-135	1	Handle Spring.		3	$ .05
LA-136-1	1	Plunger Spring		4	.05
LA-137-2	1	Reverse Gear Bracket	3	6	6.00
LA-137-2-A		Reverse Gear Bracket Assembly consists of LA-135, LA-136-1, LA-137-2, LA-139, LA-140-2, and LA-145.			7.25
LA-138	1	Reverse Gear Shaft		14	.95
LA-139	1	Plunger Lever.		6	.75
LA-140-2	1	Plunger.		3	.40
LA-142	1	Oiler.		3	.10
LA-143-1	1	Lock		4	.50
LA-144	2	Pinion Stud.		8	.35
LA-145	1	Handle Pin		3	.05
LA-216-A	2	Idler Gears with 0616.		12	1.00
LA-217	1	Reverse Gear		12	1.00
LA-261	1	Spacer	1		.30
0489	2	Rd. Hd. Screw 10-24 x 3/4.		3	.05
0509	2	Hex Nut 5/16-18.		3	.05
0533	1	Jam Nut 1/2-20		3	.05
0616	2	Bearing Oilless.		4	.20
0641	1	Woodruff Key 5/32 x 7/8.		3	.05

LA-9 CHANGE GEAR ASSEMBLY



PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
LA-232	1	Washer.....		3	$ .05
LA-249	1	Key.....		2	.15
LA-312	1	Nut.....		6	1.00
LA-313	1	Sleeve.....		8	.90
LA-313-A	1	Change Gear Stud Assembly.. Consists of: LA232, 249, 312, 313, 314, 325, 026, 0539.	2		3.95
LA-314	1	Bushing.....		8	1.75
LA-325	1	Nut.....		3	.35
LA-476	1	Change Gear Bracket.....	3		2.80
LA-510	1	Stop Bracket.....		10	1.15
LA-510-A	1	Stop Bracket with Pin 0716.		12	1.30
026	1	Hex.Hd. Cap Screw 5/16-18x2½		3	.05
038	1	Hex.Hd. Cap Screw 3/8-16x1½		3	.05
052	1	Hex.Hd. Cap Screw 7/16-14x1¼		3	.05
0539	1	Washer 5/16x3/4x1/16.....		3	.05
0541	1	Washer 7/16xlx5/64.....		3	.05
0716	1	Pin.....			.10

LA-10 CHANGE GEAR ASSEMBLY



PART NO	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.
LA-227	1	Change Gear Bracket . . .	3	12
LA-232	2	Washer.		3
LA-249	2	Key		2
LA-300	2	Nut		6
LA-313	2	Sleeve.		8
LA-314	2	Bushing		8
LA-325	2	Nut		3
026	2	Hex. Head Cap Screw 5/16"-18 x 2-1/2" . . .		3
038	1	Hex. Head Cap Screw 3/8"-16 x 1-1/2". . . .		3
0539	2	Washer 5/16" x 3/4" x 1/16". .		3

SUB-ASSEMBLY

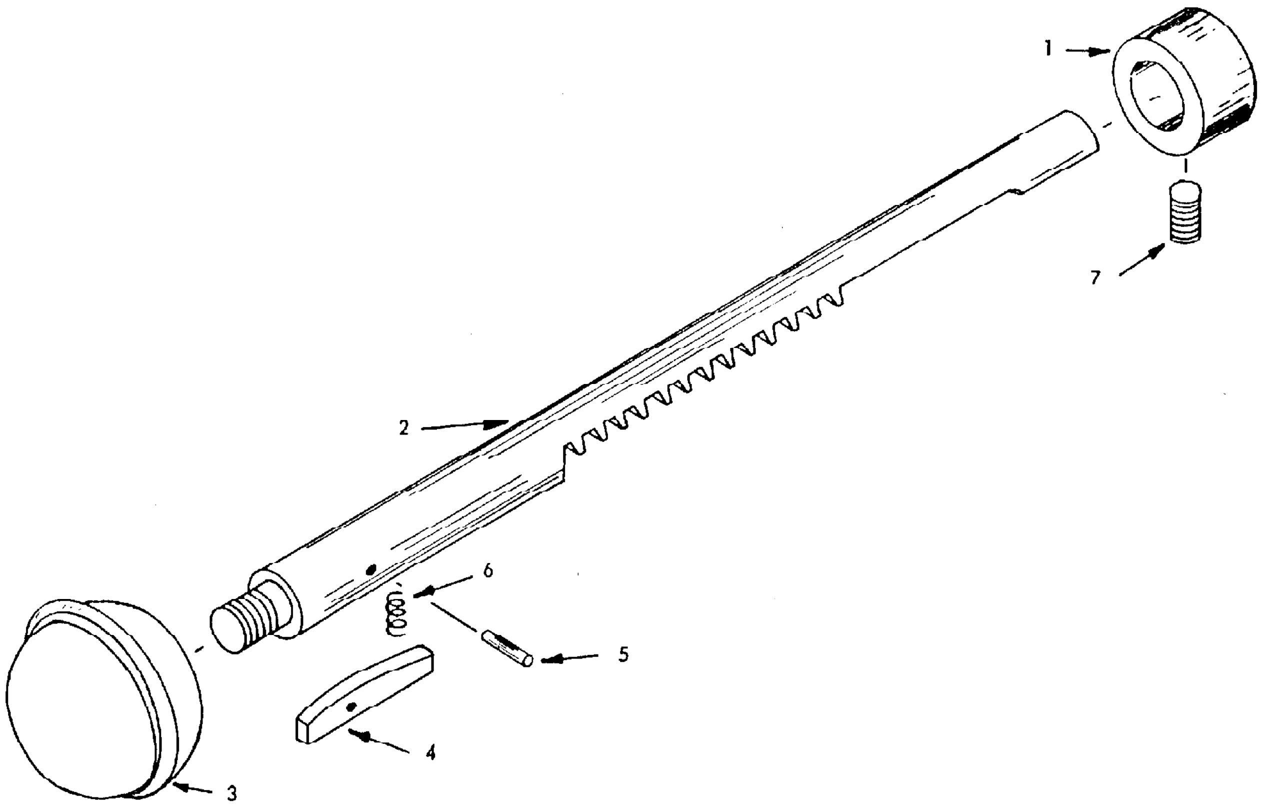
PART NO	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.
LA-313-A	1	Change Gear Stud Assembly Consists of: 232, 249, 312, 313, 314, 325, 026, 0539	2	

CHANGE GEARS (Not shown)

PART NO	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.
LA-200	1	16T. Change Gear.		4
LA-201	1	18T. Change Gear.		4
LA-202	2	24T. Change Gear.		4
LA-203	2	32T. Change Gear.	1	
LA-204	1	36T. Change Gear.	1	
LA-205	1	40T. Change Gear.	1	
LA-206	1	44T. Change Gear.	1	
LA-207	1	46T. Change Gear.	1	
LA-208	1	48T. Change Gear.	1	
LA-209	1	52T. Change Gear.	1	
LA-210	1	54T. Change Gear.	1	2
LA-211	1	56T. Change Gear.	1	4
LA-212	1	60T. Change Gear.	1	6
LA-213	1	64T. Change Gear.	1	8
LA-214	1	72T. Change Gear.	1	12

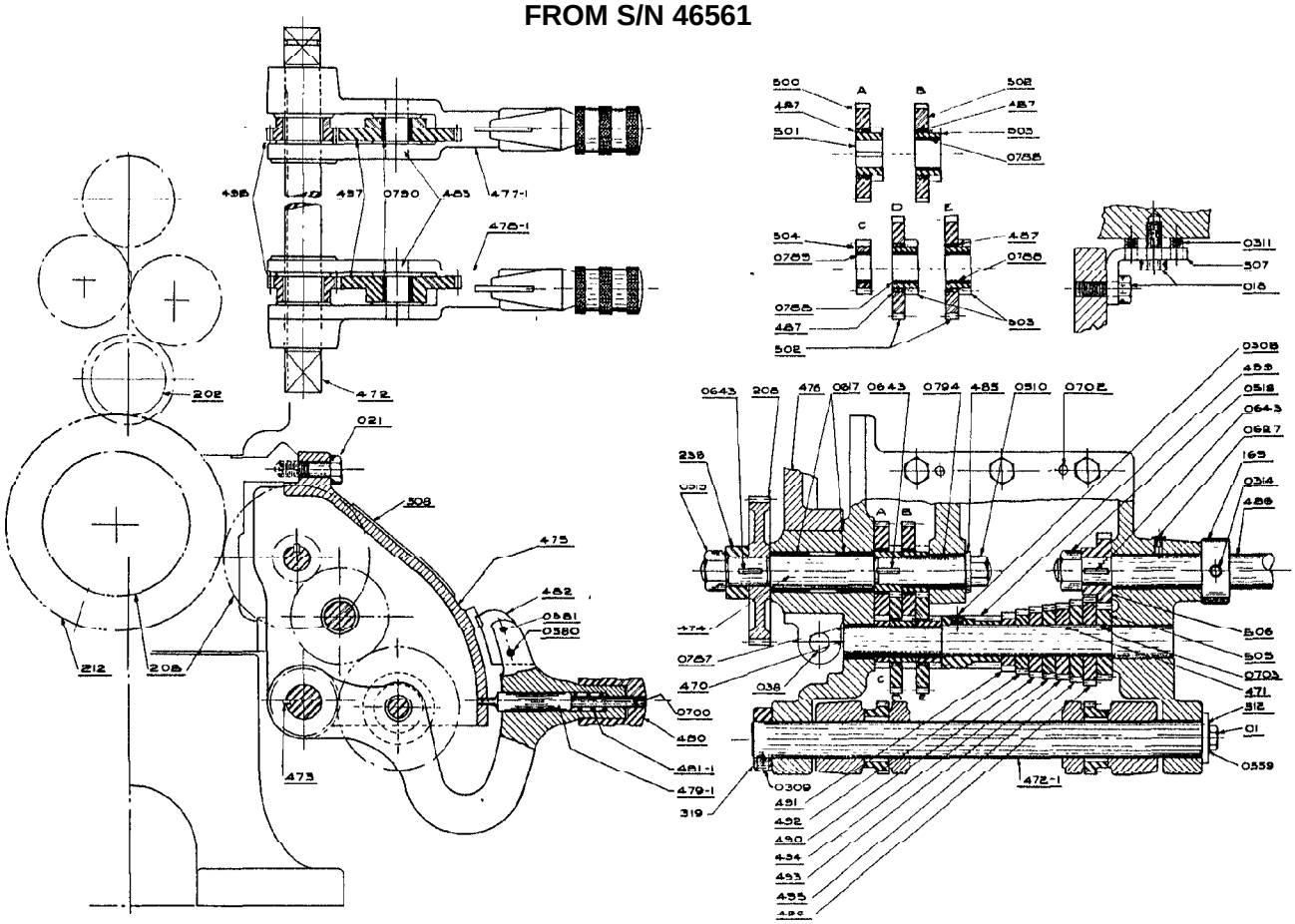
SHIFTER RACK ASSEMBLY

LA-56



ITEM	PART NUMBER	DESCRIPTION	I.B.M. NUMBER	QUANTITY	SHIPPING WEIGHT (Drwg. No. 1A-30056)	
					LBS.	OZS.
1	LA-243	Collar w/0310	24A-30243	1		4
2	LA-241	Shifter Rack	18A-30241	1	1	
3	0922	Knob	Q21-00922	1		4
4	LA-264	Latch Key	15A-30264	1		3
5	LA-275	Pin	37A-30275	1		3
6	LA-238	Spring	36A-30238	1		3
7	0310	Socket Set Screw 1/4"-20x3/8"	Q06-00310	1		3

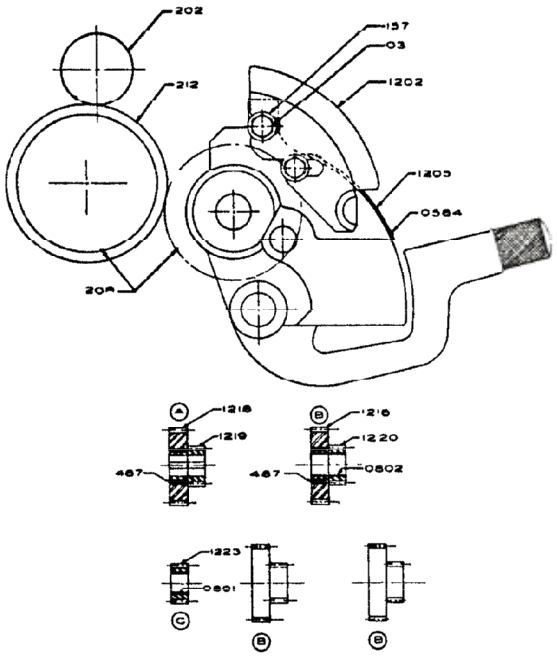
FROM S/N 46561

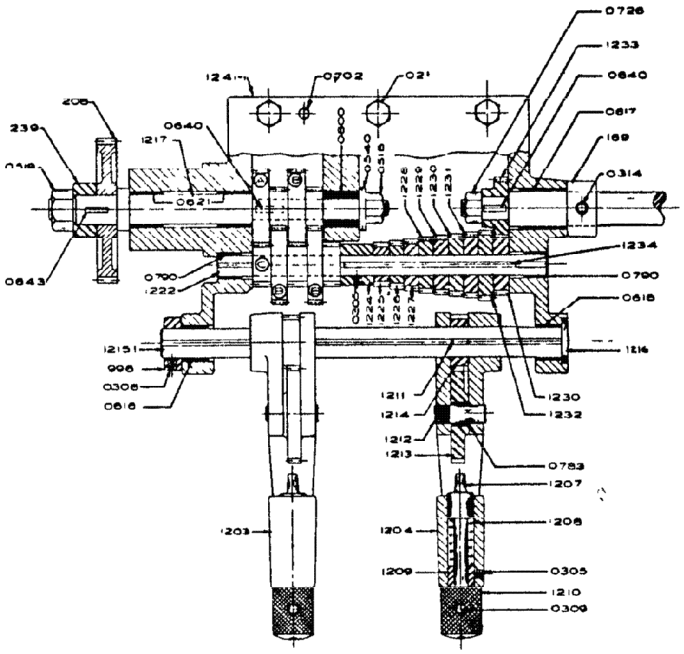


PART NO.	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.	PRICE EACH
LA-169	1	Collar See Bed Assb.			
LA-202	1	24T Change Gear		4	
LA-208	2	48T Change Gear	1		
LA-212	1	60T Change Gear	1	6	
LA-239	1	Collar		4	
LA-319	1	Collar		4	
LA-470	1	Shaft	1		
LA-471	1	Key		3	
LA-472	1	Shaft		3	
LA-473	1	Key (See 498)			
LA-474	1	Shaft	1		
LA-475-A	1	Gear Box Assembly Consists of: LA-475, LA-508, 4-0584, 4-0627, 2-0702, 0617, 0787 & 0794	10		
LA-477-1-A	1	Shift Arm, Right, Assembly Consists of: LA-477, LA-481, LA-479, LA-480, 0700, 0580, 0581 & LA-482	4		
LA-478-1A	1	Shift Arm, Left, Assembly Consists of: LA-478, LA-481, LA-479, LA-480, 0700, 0580, 0581, LA-482	4		
LA-479-1	2	Plunger		4	
LA-480	2	Plunger Knob		6	
LA-481-1	2	Spring		3	
LA-482	2	Guide		3	
LA-483	2	Pin		4	
LA-485	1	Washer		3	
LA-486	1	Lead Screw See Bed Assb.			
LA-487	8	Pin		3	
LA-490	1	Gear		3	
LA-491	1	Gear		3	
LA-492	1	Gear		3	
LA-493	1	Gear		3	
LA-494	1	Gear		3	
LA-495	1	Gear		3	
LA-496	1	Gear		4	
LA-497	2	Gear with 0790	1		

PART NO.	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.	PRICE EACH
LA-498	2	Gear with 473		4	
LA-499	1	Gear		5	
LA-500-A	1	Gear Assembly "A"		12	
LA-501	1	Gear (See 500-A)			
LA-502-A	3	Gear Assembly "B", "D" & "E"	1		
LA-503	3	Gear (See 502-A)			
LA-504-A	1	Gear Assembly "C"		6	
LA-505	1	Gear		3	
LA-506	1	Gear		6	
LA-507	1	Bracket		3	
LA-508	1	Thread Chart		4	
LA-512	1	Washer		3	
01	1	Hex.Hd. Cap Screw 1/4-20x3/8		3	
018		Hex.Hd. Cap Screw 5/16-18-3/4		3	
021	3	Hex. Hd. Cap Screw 5/16-18 x 1 1/2		3	
0308	1	Socket Set Screw 1/4-20x3/16		3	
0309	1	Set Screw 1/2-20-1/4		3	
0311	2	Socket Set Screw 1/4-20x1/2		3	
0314	1	Socket Set Screw 5/16-18x5/16		3	
0510	1	Hex. Nut 3/8-16		3	
0519	2	Hex. Nut 1/8-20		3	
0559	1	Washer 1/4x15/32		3	
0580	2	Rivet 1/8x3/4		3	
0581	2	Rivet 1/8x5/8		3	
0584	4	Drive Screw #2 x 3/16		3	
0617	2	Oilless Bearing		4	
0627	4	Oil Cup		3	
0643	3	Woodruff Key 5/32x5/8		3	
0702	2	Pin 1/4x1		3	
0703	1	Pin 1/16x1/4		3	
0787	1	Oilless Bearing		3	
0788	3	Oilless Bearing		3	
0789	1	Oilless Bearing		3	
0790	2	Oilless Bearing		3	
0794	1	Oilless Bearing		3	

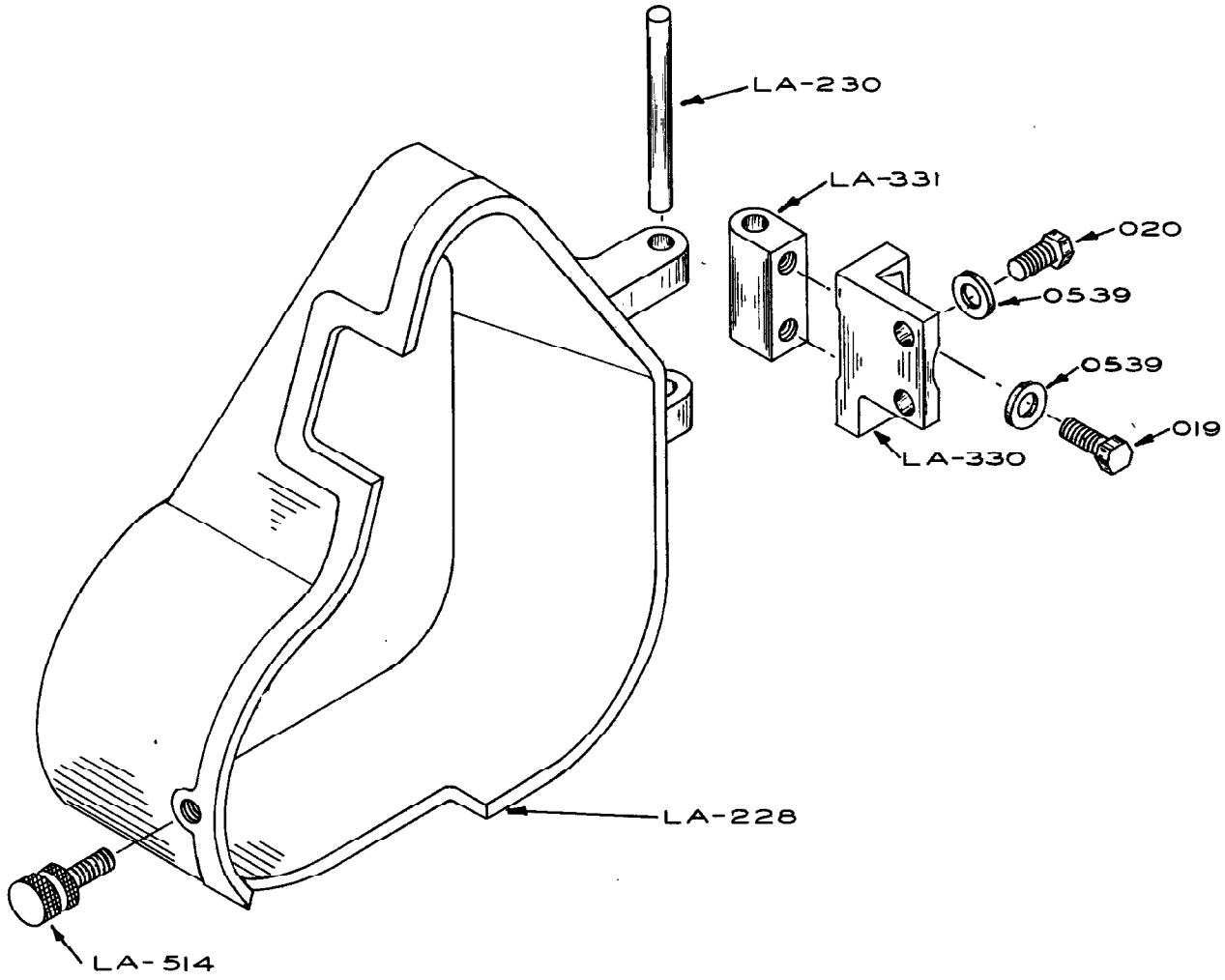
LA-1240-1 GEAR BOX ASSEMBLY





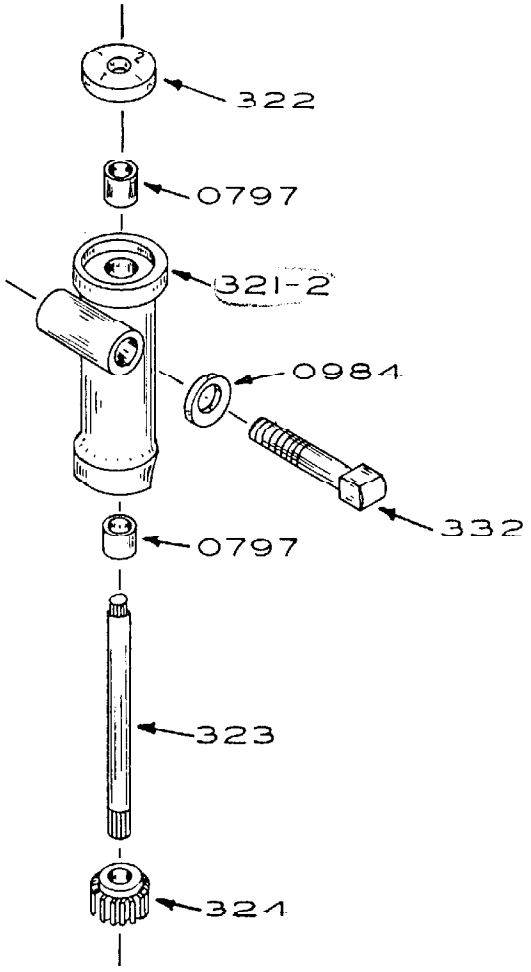
PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
LA-157-1	2	Washers . . .		4	$
LA-169-A	1	Collar w/#0314.		6	
LA-202	1	Change Gear 24T		4	
LA-208	2	Change Gear 48T	1		
LA-212	1	Change Gear 60T	1	6	
LA-239	1	Collar.		4	
LA-487	8	Pin		3	
LA-996-A	1	Collar w/2-0309		5	
LA-1202	1	End Guard	3		
LA-1203-A	1	Gear Box Lever Left-Assembly consists of LA-1203, LA-1207, LA-1208, LA-1209, LA-1210, LA-1212, 0305,0309,0616,0620	3		
LA-1204-A	1	Gear Box Lever Right-Assembly consists of LA-1204, LA-1207, LA-1208, LA-1209, LA-1210, LA-1212, 0305,0309,0616,0620	3		
LA-1205	1	Thread Chart.		3	
LA-1207	2	Plunger		3	
LA-1208	2	Spring.		3	
LA-1209	2	Bushing		3	
LA-1210	2	Knob.		4	
LA-1211	2	Key-See LA-1214		3	
LA-1212	2	Pin		3	
LA-1213-A	2	40T Gear with 0783.		8	
LA-1214-A	2	22T Gear with LA-1211		6	
LA-1215-1	1	Shaft		14	
LA-1216	1	Washer.		3	
LA-1217	1	Shaft	1		
LA-1218	4	See 1219-A & 1220-A			
LA-1219-A	1	Gear Assembly-A		8	
LA-1220-A	3	Gear Assembly-B		8	
LA-1222	1	Shaft	1		
LA-1223	1	16T Gear.		4	
LA-1224	1	Spacer.		3	

PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
LA-1225	1	16T Gear.		4	$
LA-1226	1	18T Gear.		6	
LA-1227	1	20T Gear.		6	
LA-1228	1	22T Gear.		6	
LA-1229	1	23T Gear.		6	
LA-1230	2	24T Gear.		6	
LA-1231	1	26T Gear.		6	
LA-1232	1	28T Gear.		6	
LA-1233	1	24T Gear.		6	
LA-1234	1	Key		3	
LA-1241-A	1	Gear Box Assembly consists of LA-1241, LA-1206,2-03,4-0584, 0617,2-0621,2-0790, 0968, & 0800.	12		
03	2	Hex.Hd. Cap Screw 1/4-20 x 7/8"		3	
021	3	Hex.Hd. Cap Screw 5/16-18 x 1-1/4"		3	
0305	3	Set Screw 10-32 x 3/16"		3	
0308	2	Set Screw 1/4 x 3/16"		3	
0309	2	Set Screw 1/4-20 x 1/4"		3	
0314	1	Set Screw 5/16-18x5/16"		3	
0518	1	Hex. Nut 3/8-24		3	
0519	1	Hex.Nut 1/2-20.		3	
0540	1	Washer 3/8 x 7/8 x 1/16		3	
0584	4	Drive Screws 2 x 3/16".		3	
0616	2	Oilless Bearing		3	
0617	1	Oilless Bearing		3	
0621	2	Oilless Bearing		3	
0640	2	Woodruff Key 1/8 x 1/2"		3	
0643	1	Woodruff Key 5/32 x 5/8		3	
0726	1	Hex. Nut 7/16-14.		3	
0702	1	Dowel Pin		3	
0783	2	Oilless Bearing		3	
0790	2	Oilless Bearing		3	
0800	1	Oilless Bearing		3	
0801	1	Oilless Bearing		4	
0802	3	Oilless Bearing		4	
0968	2	Washer.		3	

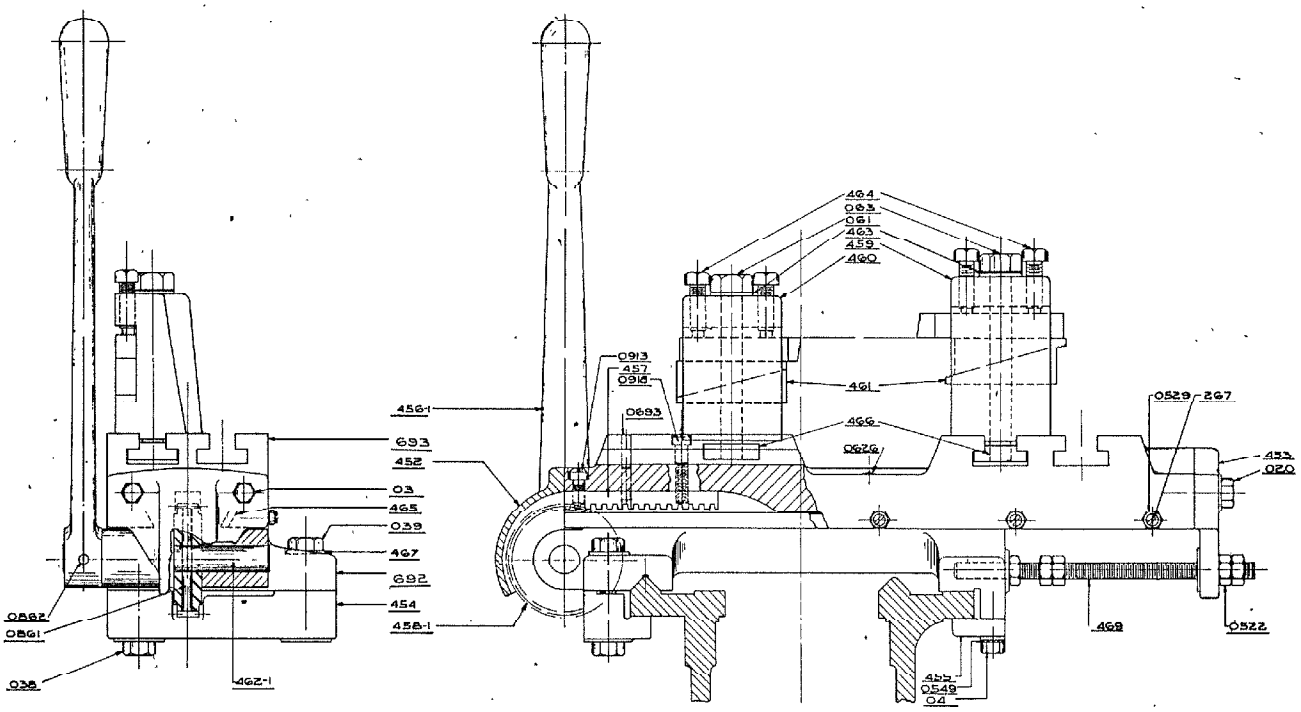


PART No.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT LBS.	SHIPPING WEIGHT OZ.	PRICE EACH
LA-228	1	Change Gear Guard	15	4	$6.50
LA-230	1	Hinge Pin		6	.10
LA-330	1	Hinge Bracket (See LA-330-A)	1	8	.95
LA-330-A	1	Hinge Bracket Assembly, consists of LA-330, LA-331, & 2 of 018, 2 of 019	2		2.35
LA-331	1	Hinge Block	1	8	1.15
LA-514	1	Knob		3	.45
019	2	Hex. Hd. Cap Screw 5/16-18x7/8		3	.05
020	2	Hex. Hd. Cap Screw 5/16-18x1		3	.05
0539	4	Washer 11/32 x 3/4		3	.05

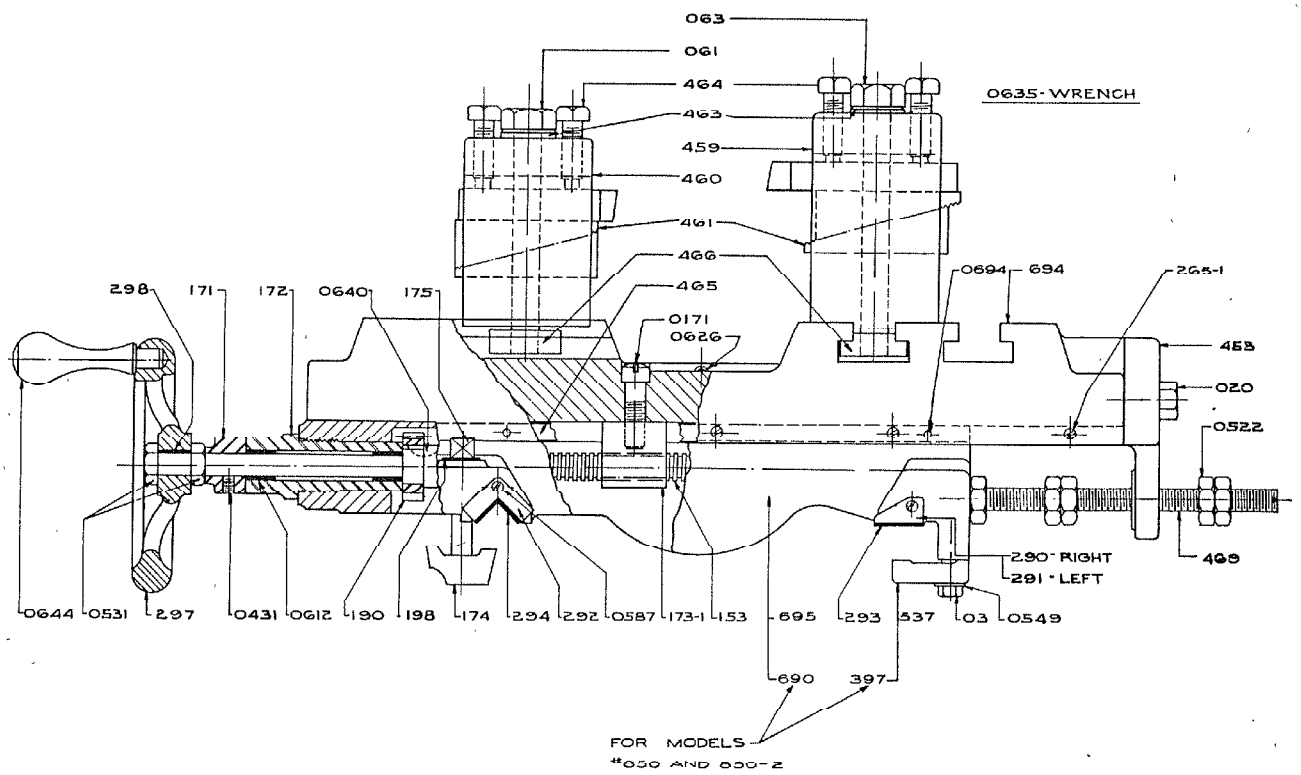
LA-12-2 THREADING DIAL ASSEMBLY



PART NO.	NO. REQ'D	DESCRIPTION	SHIP LBS.	WT. OZ.
LA-321-2	1	Housing with 2-#0797		14
LA-322	1	Dial		3
LA-323	1	Shaft		6
LA-324	1	Gear		3
LA-332	1	Screw.		4
0797	2	Oilless Bearing		3
0984	1	Washer		2

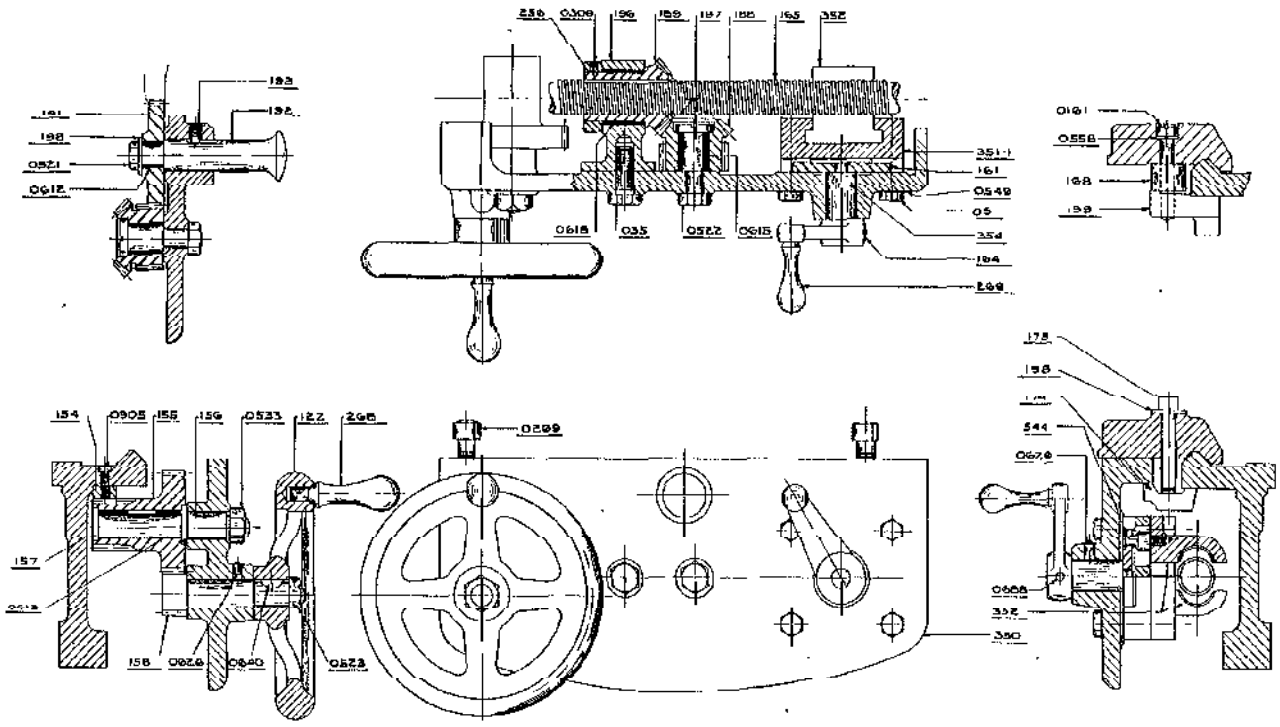


PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT LBS.	SHIPPING WEIGHT OZ.	PRICE EACH
LA-267	5	Gib Screws		3	$ .05
LA-452	1	Guard	2		.80
LA-453	1	Stop Bracket	2		.75
LA-454	1	Front Gib	2		1.25
LA-455	1	Rear Gib	2		.80
LA-456-1	1	Handle	3		2.00
LA-457	1	Feed Rack		8	.75
LA-458-1	1	Gear	1		2.45
LA-459-A	1	Rear Tool Post Complete	4		4.35
LA-459		Rear Tool Post	3		2.35
LA-460-A	1	Front Tool Post Complete	4		4.20
LA-460	1	Front Tool Post	3		2.25
LA-461	4	Wedge	1		.70
LA-462-1	1	Shaft	1		1.25
LA-463	2	Washer		3	.10
LA-464	4	Square Head Screw		4	.20
LA-465	1	Gib	1		.65
LA-466	2	Nut		8	.80
LA-467	1	Washer		3	.05
LA-469	1	Adjusting Screw		8	.45
LA-692	1	Base	10		9.80
LA-693	1	Slide	15		19.00
03	2	Hex. Hd. Cap Screw 1/4-20x3/4		3	.05
04	2	Hex. Hd. Cap Screw 1/4-20x7/8		3	.05
020	2	Hex. Hd. Cap Screw 5/16-18x1		3	.05
038	1	Hex. Hd. Cap Screw 3/8-16x1½		3	.05
039	1	Hex. Hd. Cap Screw 3/8-16x1-3/4		3	.05
061	1	Hex. Hd. Cap Screw 7/16-14x3½		6	.10
063	1	Hex. Hd. Cap Screw 7/16-14x4		6	.10
0522	5	Jam Nut 3/8-16		3	.05
0529	5	Jam Nut		3	.05
0549	2	Lock Washer 1/4x7/16		3	.05
0626	2	Oil Cup		3	.05
0693	2	Pin		3	.05
0861	1	Pin		2	.10
0862	1	Pin		2	.10
0913	1	Fillister Head Screw 1/4-20x1/2		3	.05
0918	1	Fillister Head Screw 1/4-20x1-1/8		3	.05



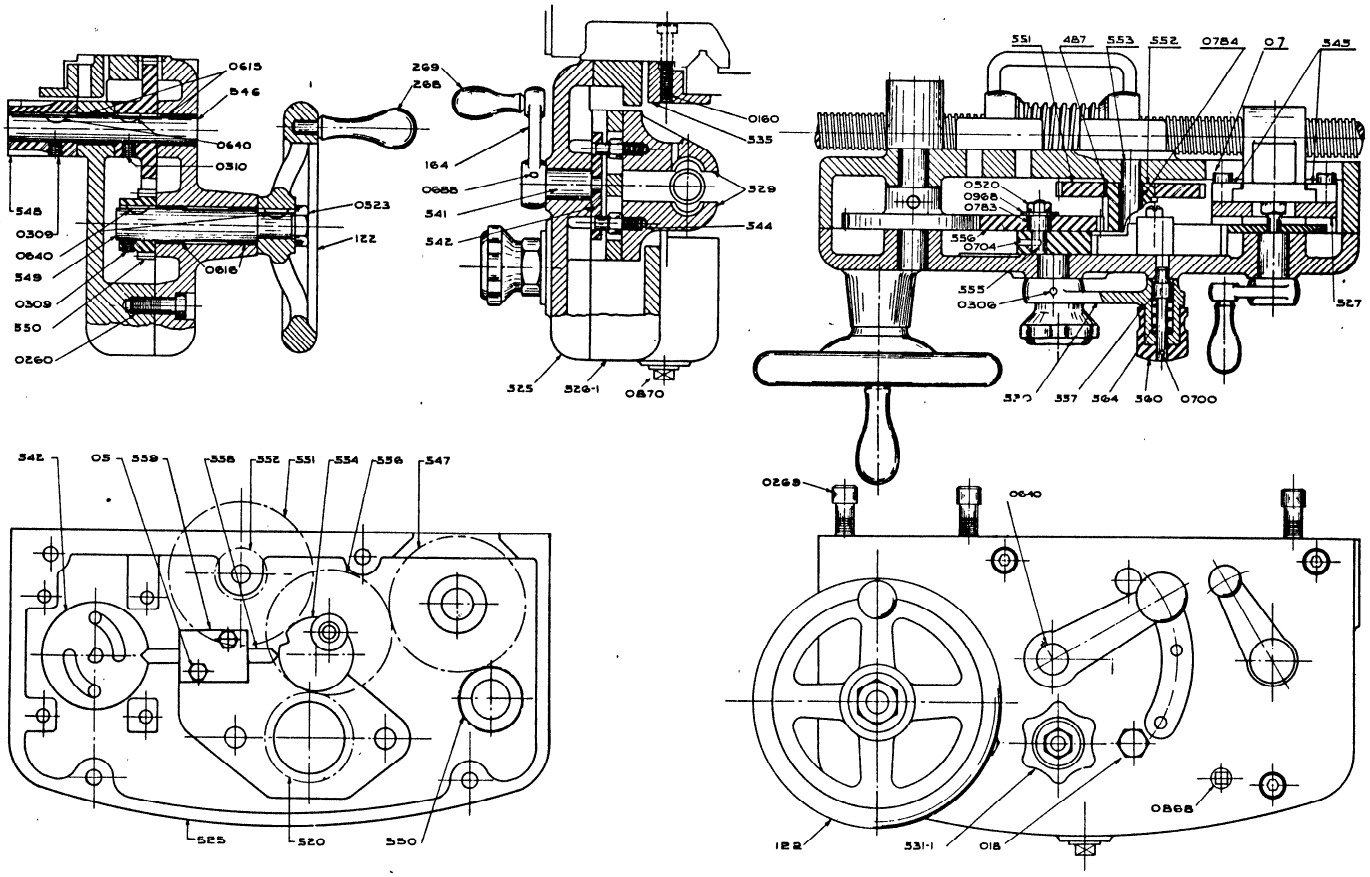
PART NO.	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.	PRICE EACH
LA-153	1	Cross Feed Screw..	1		$2.75
LA-171-A	1	Graduated Collar..		8	.95
LA-172-A	1	Bushing with 2 of 0612.....	1		1.25
LA-173-1	1	Cross Feed Nut....		6	.65
LA-174	1	Saddle Lock Nut...		5	.15
LA-175	1	Saddle Lock Bolt..		3	.20
LA-190	1	Cross Feed Idler..		4	.50
LA-198	1	Washer.....		3	.05
LA-265	5	Gib Screws.....		3	.05
LA-290	1	Wiper-Rear right..		2	.15
LA-291	1	Wiper-Rear Left...		2	.15
LA-292	2	Wiper-Front.....		2	.15
LA-293	2	Felt-Rear.....		2	.10
LA-294	2	Felt-Front.....		2	.10
LA-297	1	Handwheel.....	3		2.20
LA-298	1	Key.....		3	.05
LA-397	1	Saddle Gib.....	1	8	.65
LA-453	1	Stop Bracket.....	2		.75
LA-459-A	1	Rear Tool Post Complete.....	4		4.35
LA-459	1	Rear Tool Post....	3		2.35
LA-460-A	1	Front Tool Post Complete.....	4		4.20
LA-460	1	Front Tool Post,,,	3		2.25
LA-461	4	Wedge.....	1		.70

PART NO.	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.	PRICE EACH
LA-463	2	Washer.....		3	$ .10
LA-464	4	Sq. Hd. Screw.....		4	.20
LA-465	1	Gib.....	1		.65
LA-466	2	Nuts.....		8	.80
LA-469	1	Screw.....		8	.45
LA-537	1	Saddle Gib.....	3		.60
LA-690	1	Saddle.....			16.35
LA-694	1	Slide.....			21.20
LA-695	1	Saddle.....			19.90
03	4	Hex. Hd. Cap Screw		3	.05
020	2	Hex. Hd. Cap Screw		3	.05
061	1	Hex. Hd. Cap Screw		6	.10
063	1	Hex. Hd. Cap Screw		6	.10
0171	1	Fill. Hd. Cap Screw.....		3	.05
0431	1	Hdless St. Scr....		3	.05
0522	5	Jam Nuts.....		3	.05
0531	2	Jam Nuts.....		3	.05
0549	4	Lock Washers.....		3	.05
0587	4	Rd. Hd. Screw.....		3	.05
0612	2	Oilless Bearings..		3	.15
0626	2	Oil Cups.....		3	.05
0635	1	Wrench.....		8	.50
0640	1	Woodruff Key.....		3	.05
0644	1	Machine Handle....		8	1.95
0694	2	Groov-pin.....		3	.05



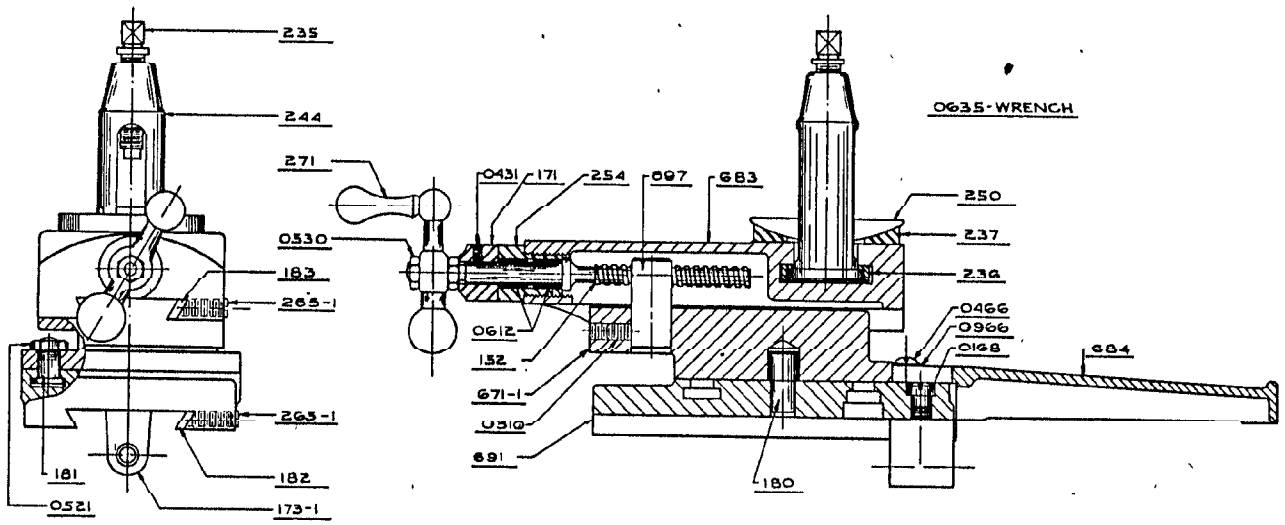
PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
LA-122-A	1	Apron Handwheel with 268	3		
LA-154	1	Rack (See Lathe Bed)....			
LA-155-A	1	Rack Pinion Gear Assembly Consists of: LA-155, LA-156, LA-157	1	11	
LA-156	1	Rack Pinion Stud (See 155-A).....			
LA-157	1	Washer (See 155-A).....			
LA-158	1	Handwheel Pinion.....	1		
LA-161	1	Cam (See 354-A).....			
LA-164	1	Cam Shaft Lever.....		8	
LA-165	1	Lead Screw (See Lathe Bed).....			
LA-168	1	Gib Spacer.....		8	
LA-174	1	Saddle Lock Nut (See Saddle).....			
LA-175	1	Saddle Lock Screw (See Saddle).....			
LA-189-A	1	Miter Gear with 0612....		14	
LA-189	1	Miter Gear with Key.....		8	
LA-191-A	1	Idler Shift Gear with 0612.....	1		
LA-192	1	Idler Shifter Shaft.....		8	
LA-193	1	Lock Screw.....		3	
LA-196-A	1	Bearing with 0678.....	1		
LA-197	1	Stud.....		6	
LA-198	2	Washer (See Saddle).....			
LA-199	1	Front Gib.....	1	4	
LA-256	1	Collar with 2 of 0309...		5	
LA-268	1	Handle.....		6	
LA-269	1	Handle.....		4	

PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
LA-350	1	Apron.....	8		
LA-351-1	1	Half Nut Plate.....	1		
LA-352	1	Half Nut with 2 of 544..	1	8	
LA-354-A	1	Cam Shaft & Cam 161....	1		
LA-544	2	Half Nut Pin.....		3	
05	4	Hex. Hd. Cap Screw 1/4-20 x 1.....		3	
035	1	Hex. Hd. Cap Screw 3/8-16 x 7/8.....		3	
0161	2	Fil. Hd. Cap Screw 1/4-20 x 1-3/4.....		3	
0269	2	Socket Hd. Cap Screw 5/8-18 x 1.....		5	
0309	1	Socket Set Screw 1/4-20 x 1/4.....		3	
0561	1	Jam Nut 5/16-18.....		5	
0622	1	Jam Nut 3/8-16.....		3	
0623	1	Jam Nut 7/16-14.....		3	
0633	1	Jam Nut 1/2 20.....		3	
0549	4	Lock Washer 1/4 x 7/16..		3	
0558	2	Lock Washer 1/4.....		3	
0612	1	Oilless Bearing.....		3	
0613	2	Oilless Bearing.....		3	
0615	1	Oilless Bearing.....		4	
0619	1	Oilless Bearing.....		6	
0626	2	Oil Cup.....		3	
0640	1	Woodruff Key 1/8 x 1/2..		3	
0688	1	Pin 1/8 x 1.....		3	
0905	1	Fil. Hd. Screw (See Lathe Bed).....			



PART NO.	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.	PRICE EACH
LA-122-A	1	Apron Handwheel with 268....	3		$2.50
LA-164	1	Cam Shaft Lever.....		8	.40
LA-268	1	Handle.....		6	.40
LA-269	1	Handle.....		4	.30
LA-487	2	Pin.....		3	.10
LA-520	1	Sleeve Gear with 0708 (See Clutch Assembly)			
LA-525-A	1	Apron-Front and Back Assembly Consists of; LA-525, LA-526-1, 2-0615, 2-0616, 4-0261, 0868 & 0870	15		22.65
LA-526-1	1	Apron-Back (See 525-A).....			
LA-527	1	Half Nut Plate.....	1		.60
LA-529	1	Half Nut with 544.....	1		2.40
LA-530	1	Shift Lever.....	1		1.30
LA-535	1	Front Gib.....	2		1.15
LA-541-A	1	Cam Shaft & Cam.....		4	1.20
LA-542	1	Half Nut Cam (See 541-A)....			
LA-544	2	Half Nut Pin.....		3	.20
LA-545	2	Gib.....		4	1.00
LA-546	1	Shaft.....		8	1.70
LA-547	1	Gear.....	1		4.15
LA-548	1	Gear.....	1		2.50
LA-549	1	Shaft.....	1		.30
LA-550	1	Gear.....		8	2.15
LA-551-A	1	Idler Gear Assembly Consists of; LA-552, 2 LA-487 & 0784.	1		2.50
LA-552	1	Gear (See 551-A).....			
LA-553	1	Shaft.....		3	.10
LA-554-A	1	Eccentric Assembly with 555.	1		1.40
LA-555	1	Pin (See 554-A).....			
LA-556	1	Gear with 0783.....		8	1.65
LA-557	1	Plunger.....		3	.20

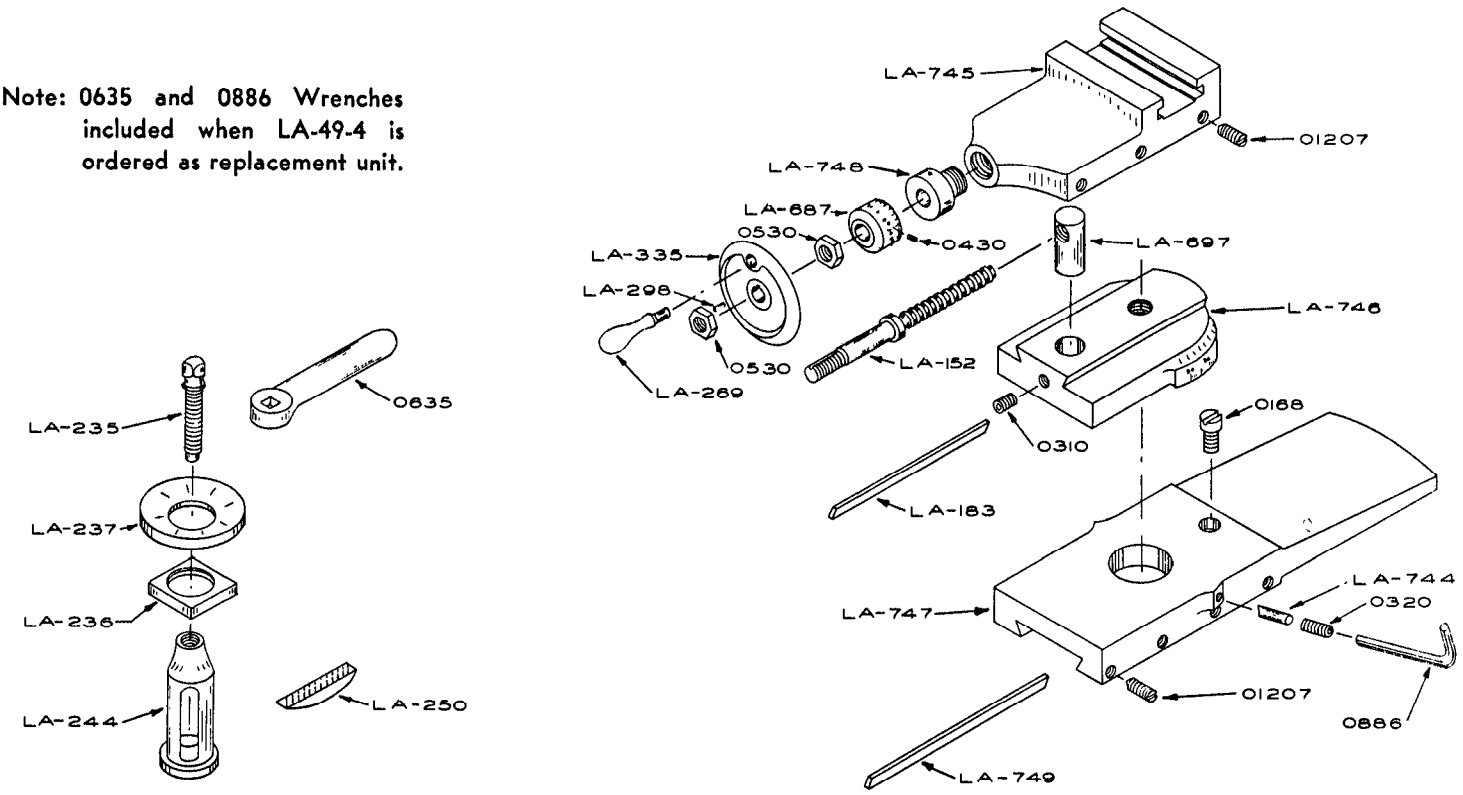
PART NO.	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.	PRICE EACH
LA-558	1	Lock.....		6	$ .85
LA-559	1	Lock Guide.....		3	1.05
LA-560	1	Knob.....		4	.45
LA-564	1	Spring.....		3	.05
05	2	Hex. Hd. Cap Screw 1/4-20x1.....		3	.05
07	4	Hex. Hd. Cap Screw 1/4-20x1-1/2.....		3	.05
018	2	Hex. Hd. Cap Screw 5/16-18x3/4.....		3	.05
0160	2	Fil. Hd. Cap Screw 1/4-20x1-1/2.....		3	.05
0261	4	Socket Hd. Cap Screw 5/16-18x7/8.....		3	.10
0269	3	Socket Hd. Cap Screw 3/8-16x1.....		3	.10
0306	1	Socket Set Screw 10-32x1/4..		3	.10
0309	2	Socket Set Screw 1/4-20x1/4.		3	.10
0310	2	Socket Set Screw 1/4-20x3/8.		3	.10
0520	1	Jam Nut 1/4-20.....		3	.05
0523	1	Jam Nut 7/16-14.....		3	.05
0558	2	Lock Washer.....		3	.05
0615	2	Oilless Bearing.....		4	.20
0616	2	Oilless Bearing.....		4	.20
0640	4	Woodruff Key 1/8x1/2.....		3	.05
0688	1	Pin 1/8x1.....		3	.05
0700	1	Pin 3/32x1.....		3	.05
0704	1	Pin 3/32x1/2.....		3	.05
0783	1	Oilless Bearing.....		3	.10
0784	1	Oilless Bearing.....		3	.10
0868	1	Pipe Plug 1/8.....		3	.05
0870	1	Pipe Plug 3/8.....		3	.05
0968	1	Washer.....		3	.05



PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT LBS.	SHIPPING WEIGHT OZ.	PRICE EACH
LA-152	1	Compound Rest Screw		6	$1.35
LA-171	1	Graduated Collar with 0431.		8	.95
LA-173-1	1	Cross Feed Nut.		6	.65
LA-180	1	Swivel Pin.		3	.20
LA-181	2	Swivel Lock Bolt.		2	.15
LA-182	1	Compound Gib (Base)		4	.35
LA-183	1	Compound Gib (Top).		4	.35
LA-235	1	Tool Post Screw		4	.45
LA-236-1	1	Tool Post Block		3	.65
LA-237	1	Tool Post Ring.		4	.75
LA-244	1	Tool Post		12	1.70
LA-244-A	1	Tool Post Complete.	1	6	4.15
LA-250	1	Wedge		4	.60
LA-254	1	Bushing with 0612		10	1.00
LA-265-1	7	Gib Screw		8	.05
LA-271	1	Ball Crank with 273		9	2.00
LA-273	1	Pin		3	.05
LA-671-1	1	Swivel.	4		5.90
LA-683	1	Compound Rest Top with 254, 183 & 2 of 0694	4		6.75
LA-684	1	Chip Guard.	2		1.00
LA-691	1	Compound Base with 180, 182 & 2 of 0694	4		7.50
LA-697	1	Compound Rest Nut		8	.75
0168	1	Fillister Hd. Cap Screw 5/16-18x5/8		3	.05
0310	1	Socket Set Screw 1/4-20x3/8			
0431	1	Headless Set Screw 8-32x1/4		3	.05
0466	2	Rd. Hd. Screw 10-32x1/2		3	.05
0521	2	Jam Nut 5/16-18		3	.05
0530	2	Jam Nut 5/16-24		3	.05
0612	2	Oilless Bearing		3	.15
0635	1	Tool Post Wrench.		8	.50
0694	4	Pin		2	.05
0966	2	Washer.		3	.05

LA-49-4 COMPOUND REST ASSEMBLY

Note: 0635 and 0886 Wrenches included when LA-49-4 is ordered as replacement unit.

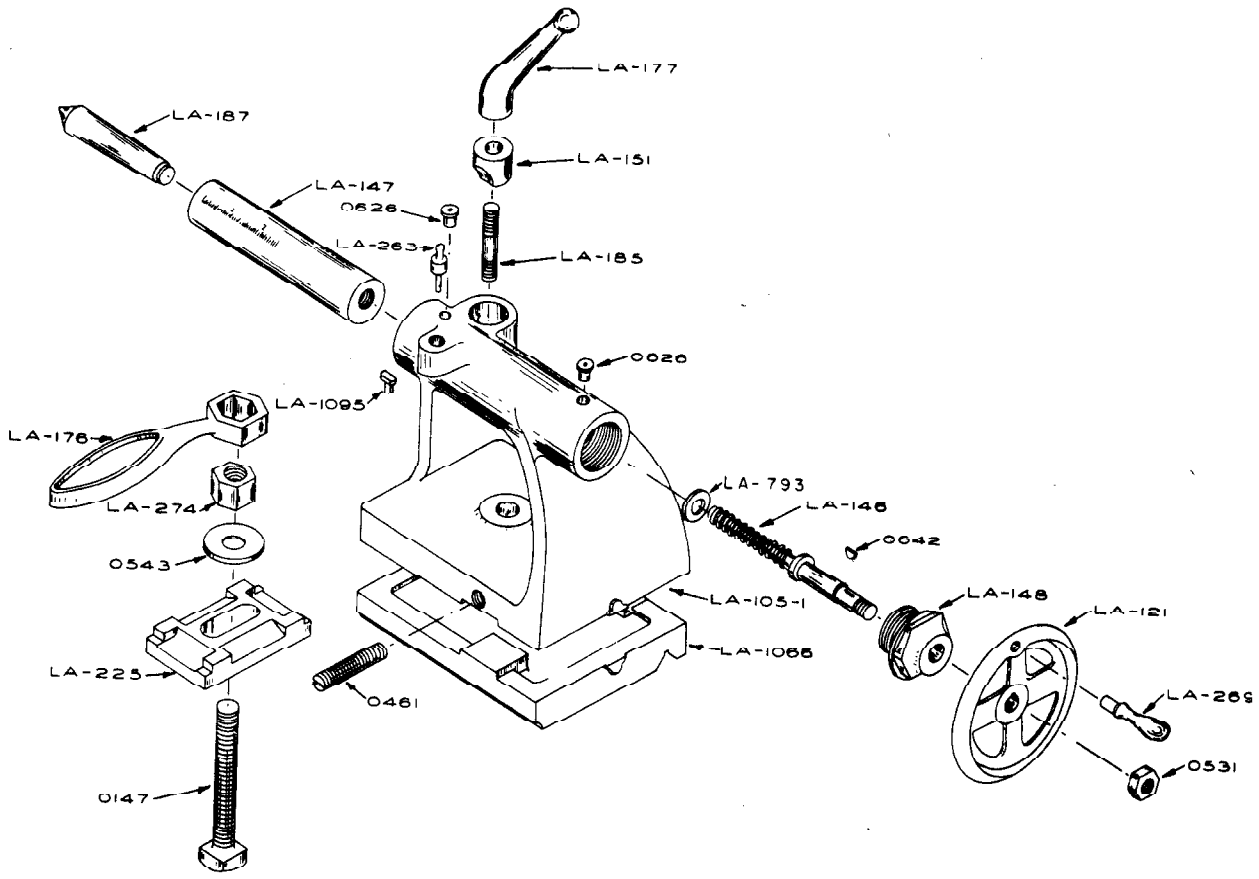


PART NUMBER	NO. REQ'D.	DESCRIPTION	SHIPPING WEIGHT LBS.	SHIPPING WEIGHT OZS.
LA-152	1	Compound Rest Screw		6
LA-183	1	Top Compound Gib.		4
LA-235	1	Tool Post Screw		4
LA-236	1	Tool Post Block		3
LA-237	1	Tool Post Ring.		4
LA-244	1	Tool Post		12
LA-250	1	Wedge		4
LA-269	1	Handle		4
LA-298	1	Key		3
LA-~~355~~ 335	1	Handwheel w/LA-269.	1	8
LA-687	1	Graduated Collar w/0430.		8
LA-697	1	Compound Rest Nut.		8
LA-744	2	Locking Plug		3
LA-745	1	Compound Rest Top w/LA-183 & 3 of 01207	5	
LA-746	1	Swivel w/0310	4	
LA-747	1	Compound Rest Base w/LA-749, 2-LA-744 & 2-0320.	6	
LA-748	1	Bushing	1	
LA-749	1	Compound Base Gib.		8
0168	1	Fillister Hd. Cap Screw 5/16"-18 x 5/8"		3
0310	1	Socket Set Screw 1/4"-20 x 3/8"		3
0320	2	Socket Set Screw 3/8"-16 x 5/8"		3
0430	1	Socket Set Screw		3
0530	2	Jam Nut 5/16"-24.		3
0635	1	Tool Post Wrench.		8
0886	1	Socket Screw Wrench 3/16".		3
01207	7	Gib Screw		4

		SUB-ASSEMBLY FOR ORDERING CONVENIENCE		
LA-244-A		Tool Post Assembly Complete, consists of: LA-235, LA-236, LA-237, LA-244, LA-250	1	6

10" and 11" Lathes below Serial No. 71060

LA-3-1 TAILSTOCK ASSEMBLY

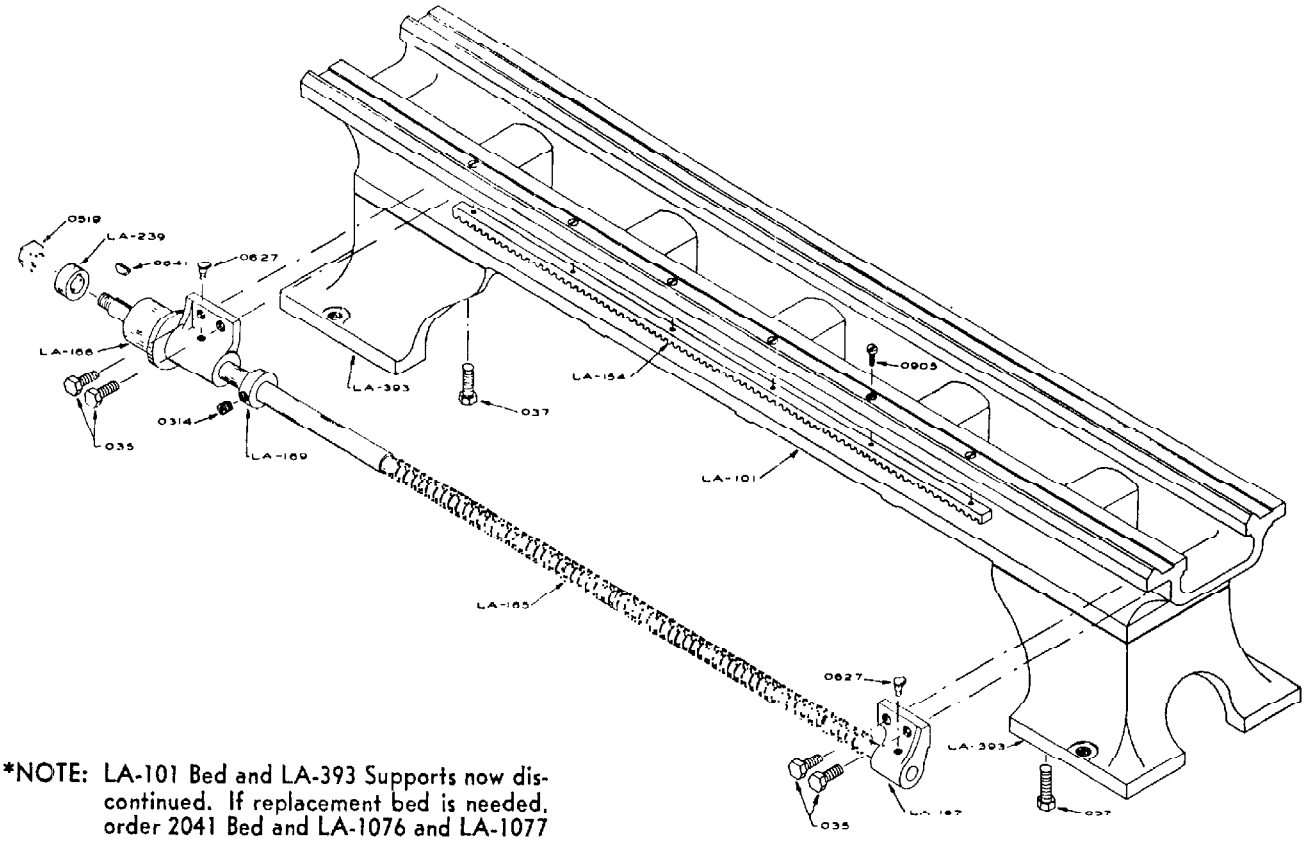


PART NUMBER	NO. REQ'D.	DESCRIPTION	SHIPPING WEIGHT LBS.	SHIPPING WEIGHT OZS.
LA-105-1	1	Tailstock (SEE NOTE)	12	
LA-121	1	Handwheel with LA-269 Handle	2	7
LA-146	1	Tailstock Screw		8
LA-147	1	Tailstock Spindle	1	8
LA-148	1	Screw Retainer		12
LA-151	1	Binding Plug		6
LA-176	1	Tailstock Wrench	1	
LA-177	1	Binding Lever		12
LA-185	1	Tailstock Stud		3
* LA-187	1	Center		8
LA-225	1	Tailstock Clamp	1	8
LA-263	1	Knob		3
LA-269	1	Handle		4
LA-274	1	Hex. Nut		3
LA-793	1	Rubber Washer		3
LA-1066	1	Tailstock Base (SEE NOTE)	5	
LA-1095	1	Spindle Key		2
0147	1	Sq. Hd. Machine Bolt 1/2"-13 x 4"		12
0461	2	Headless Set Screw 3/8"-16 x 2"		4
0531	1	Jam Nut 3/8"-24		3
0543	1	Washer		3
0626	2	Oil Cup		3
0642	1	Woodruff Key		3

NOTE: Tailstock and Base are matched and machined as a unit and should be ordered complete!

(*) Not included on replacement tailstock assembly order.

LA-42 BED ASSEMBLY

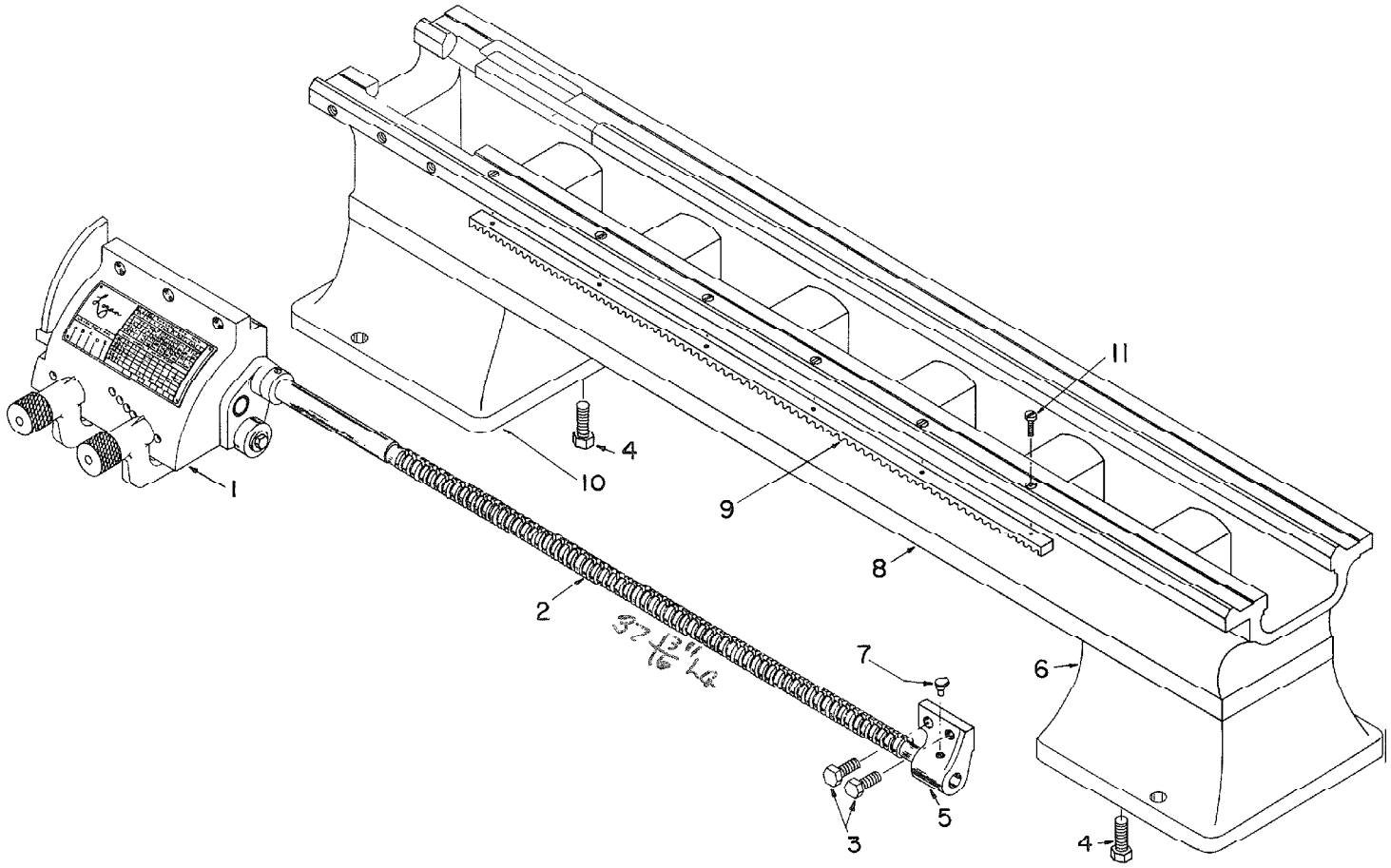


*NOTE: LA-101 Bed and LA-393 Supports now discontinued. If replacement bed is needed, order 2041 Bed and LA-1076 and LA-1077 supports.

For floor model lathes it will be necessary to drill additional holes in the chip pan to accomodate the new bed supports.

PART NUMBER	NO. REQ'D.	DESCRIPTION	SHIPPING WEIGHT LBS.	SHIPPING WEIGHT OZS.
*LA-101	1	Bed	115	
LA-154	1	Rack	3	
LA-165	1	Lead Screw 46-5/8"	8	
LA-166	1	Bracket-Left with 0627	3	
LA-167	1	Bracket-Right with 0627	1	
LA-169	1	Collar with 0314		6
LA-239	1	Collar		4
*LA-393	2	Bed Support	20	
035	4	Hex. Hd. Cap Screw 3/8-16 x 7/8		3
037	4	Hex. Hd. Cap Screw 3/8-16 x 1-1/4		3
0314	1	Socket Set Screw 5/16-18 x 5/16		3
0519	1	Hex. Nut 1/2-20		3
0627	2	Oil Cup		3
0641	1	Woodruff Key		3
0905	6	Fil. Hd. Mach. Screw 10-32 x 9/16		3

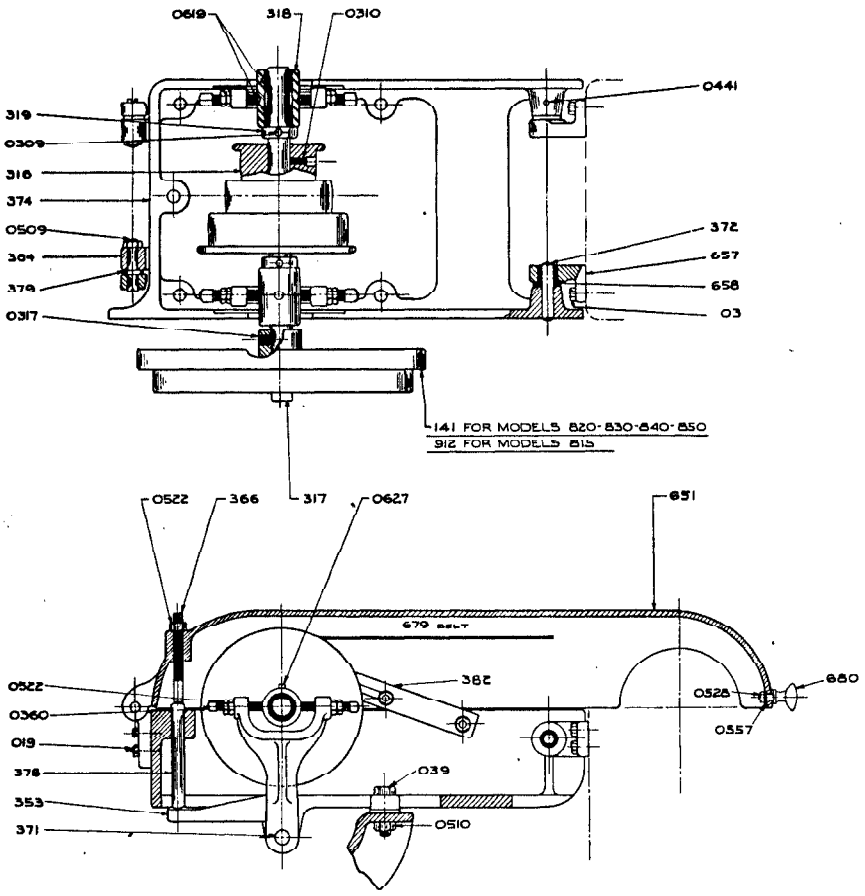
LA 1075-1 BED ASSEMBLY

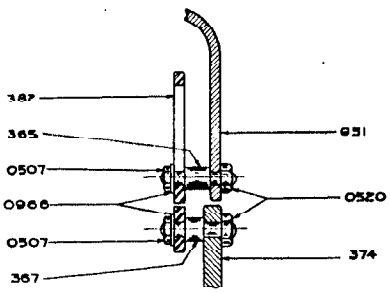


B.M. K-1333 B.M. K-1603 (1830-2)			DRWG. 1D-31075-1		
No.	Description	Part No.	Qty.	Weight	
				Lbs.	Ozs.
1	Gear Box Assembly	See Gear Box Sheet	1		
2	Lead Screw	16C-31235	1	5	
3	Hex Hd. Cap Screw	Q01-00035	2		3
4	Hex Hd. Cap Screw	Q01-00037	8		3
5	Right Bracket . . .	23A-30484	1	2	
6	Bed Support	05D-31077	1	12	
7	Oil Cup Cover . . .	Q19-00627	1		3
*8	Bed 43" Long . . .	02D-32041	1	125	
9	Rack	18A-30154	1	3	
10	Bed Support	05D-31076	1	12	
11	Fill Hd. Mach. Screw	Q03-00905	6		3
*8	Bed Flame Hardened	02D-32061	1		

‡ Note: Items 5-7-9-11 not required for 1830-2 Lathe.

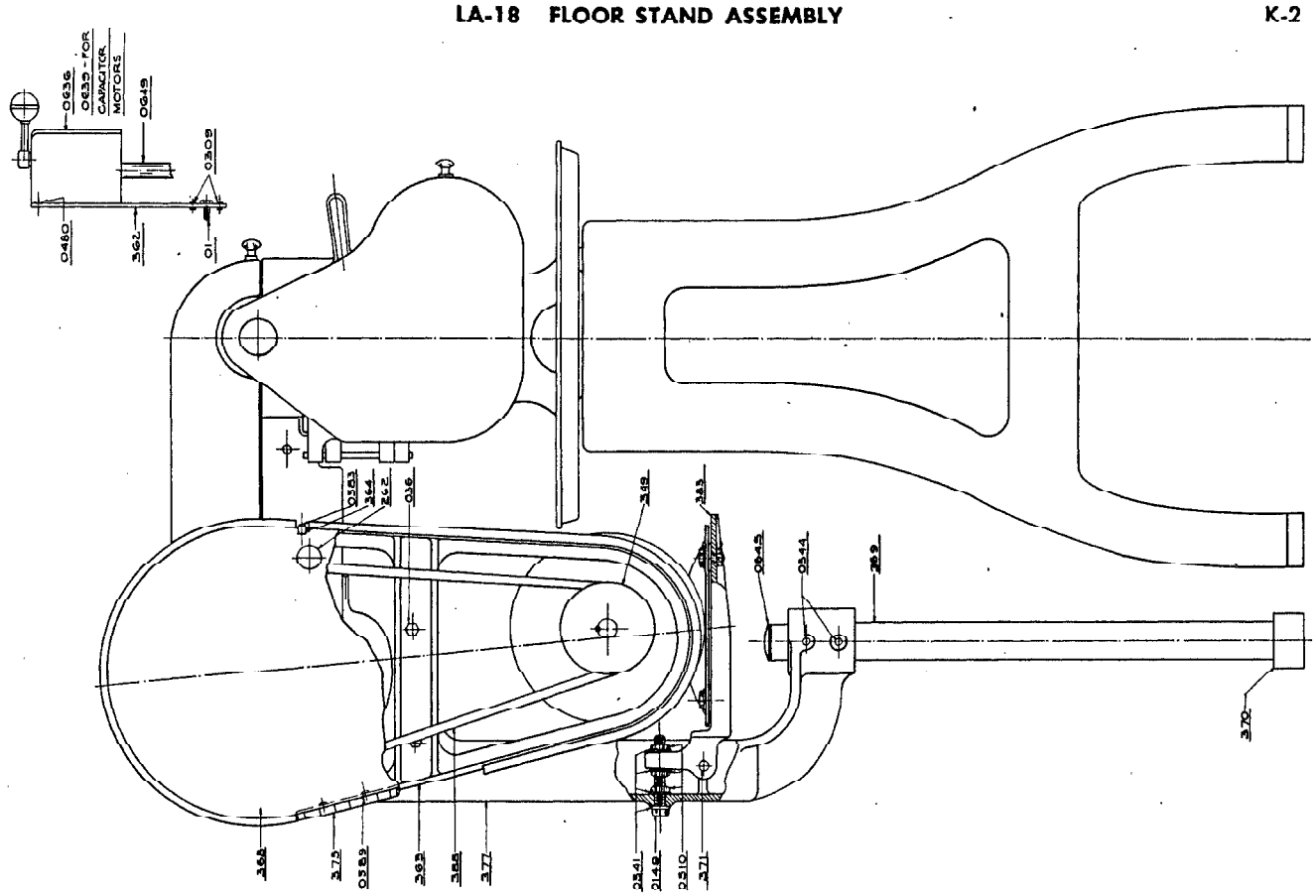
LA-52 DRIVE BOX ASSEMBLY



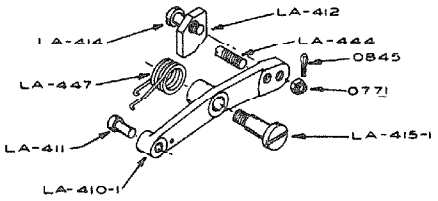


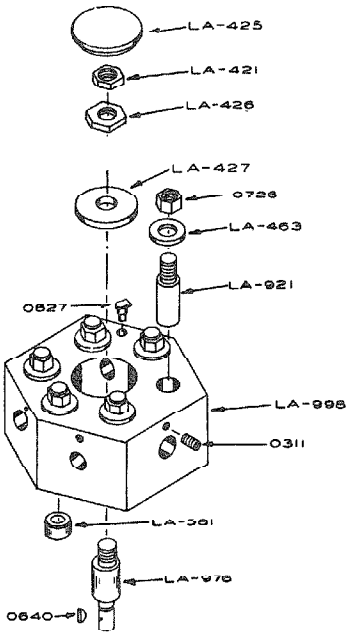
PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
LA-141	1	Pulley with 0317..	7		$6.00
LA-316	1	Cone Pulley with 2 of 0310.....	7		6.75
LA-317	1	Shaft.....	2	3	.65
LA-318	2	Bearing with 0627 and 2 of 0619.....	1	4	2.75
LA-319	2	Collar.....		5	.25
LA-353	1	Counter Shaft Bracket.....	5		2.05
LA-365	1	Shoulder Pin.....		3	.15
LA-366	1	Adjusting Screw...		3	.25
LA-367	1	Shoulder Pin		2	.15
LA-371	1	Shaft.....	1		.25
LA-372	2	Pin.....		6	.05
LA-374	1	Drive-Box.....	19	8	6.80
LA-378	1	Plunger.....		5	.15
LA-379	2	Hinge Pin.....		4	.15
LA-382	1	Stay Bar.....		6	2.25
LA-384	2	Hinge Bracket.....		6	.30
LA-651	1	Drive Box Cover...	26		9.40
LA-657	2	Hinge Bracket.....	1	3	.80
LA-658	2	Bushing.....		3	.10
LA-679	1	Flat Belt (See Headstock Assembly			
LA-680	1	Knob.....		3	.40
LA-912	1	Pulley with 0317..	7	2	6.00

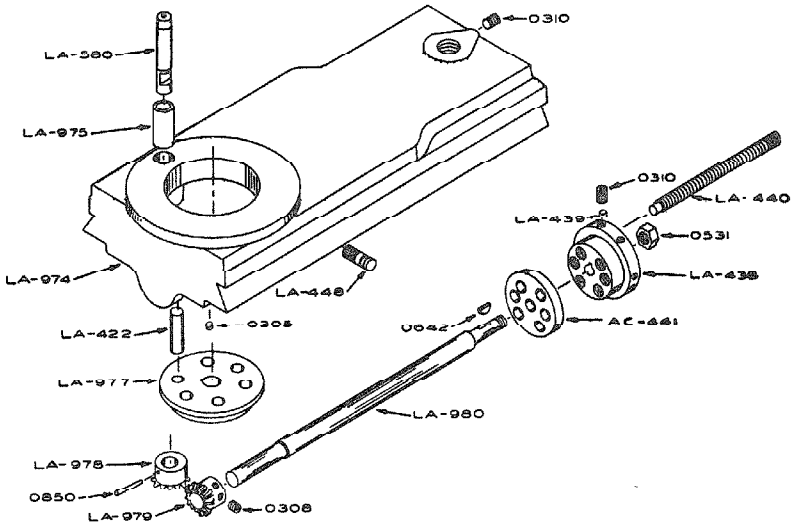
PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.	PRICE EACH
03	4	Hex. Hd. Cap Screw 1/4-20x3/4.....		3	$ .05
019	4	Hex. Hd. Cap Screw 5/16-18x7/8.....		3	.05
039	4	Hex. Hd. Cap Screw 3/8-16x1-3/4.....		3	.05
0309	2	Socket Set Screw 1/4-20x1/4.....		3	.10
0310	2	Socket Set Screw 1/4-20-3/8.....		3	.10
0317	1	Socket Set Screw 3/8-16x3/8.....		3	.10
0360	4	Sq. Hd. Set Screw 3/8-16x1-1/2.....		4	.05
0441	2	Headless Set Screw 1/4-20x3/8.....		3	.05
0507	2	Hex. Nut 10-32....		1	.05
0509	2	Hex. Nut 5/16-18..		3	.05
0510	4	Hex. Nut 3/8-16...		3	.05
0520	3	Jam Nut 1/4-20....		3	.05
0522	5	Jam Nut 3/8-16....		3	.05
0528	1	Jam Nut 12-24-3/8x 1/8.....		3	.05
0557	1	Washer 7/32x13/32.		3	.05
0619	4	Oilless Bearing...		6	.15
0627	2	Oil Cup.....		3	.05
0966	2	Washer.....		3	.05



PART NO.	NO. REQ'D.	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.	PRICE EACH
LA-262	1	Knob.		2	$ .40
La-349	1	Motor Pulley, Bore 1/2", 5/8", 3/4", W/0310.	3		4.95
LA-362	1	Switch Bracket.	2		.55
LA-363	1	Guard Frame	17		6.50
LA-364	1	Spring.		3	.10
LA-368	1	Guard Door (with 375 hinge)	5		4.10
LA-369	1	Support Tube.	8		2.25
LA-370	1	Shoe.		3	.25
LA-371	1	Shaft	1		.25
LA-375	1	Hinge (Included with 368-A)			
LA-377	1	Floor Stand	45		13.95
LA-383	1	Motor Brake.	10		2.40
LA-388	1	V Belt.	1		1.25
01	1	Hex. Hd. Cap Screw 1/4-20x1/2		3	.05
036	2	Hex. Hd. Cap Screw 3/8-16x1		3	.05
0149	1	Sq. Hd. Mach. Bolt 3/8-16x3-1/2		3	.05
0309	4	Socket Set Screw 1/4-20x1/4		3	.10
0310		Socket Set Screw 3/4-20x3/8		3	.10
0344	2	Sq. Hd. Set Screw 5/8-18x7/8.		4	.05
0480	2	Rd. Hd. Screw 1/4-20x3/8.		3	.05
0510	3	Hex. Nuts 3/8-16.		3	.05
0541	4	Steel Washers		3	.05
0583	2	Rivets 1/8x5/16		3	.05
0589	4	Rd. Hd. Screws 10-32x5/16		3	.05
0636	1	Drum Switch	2		5.00
0639	1	Drum Switch for Capacitor Motor	2		5.00
0645	1	Cap		3	.45
0649	1	Cable 29"	1		1.75



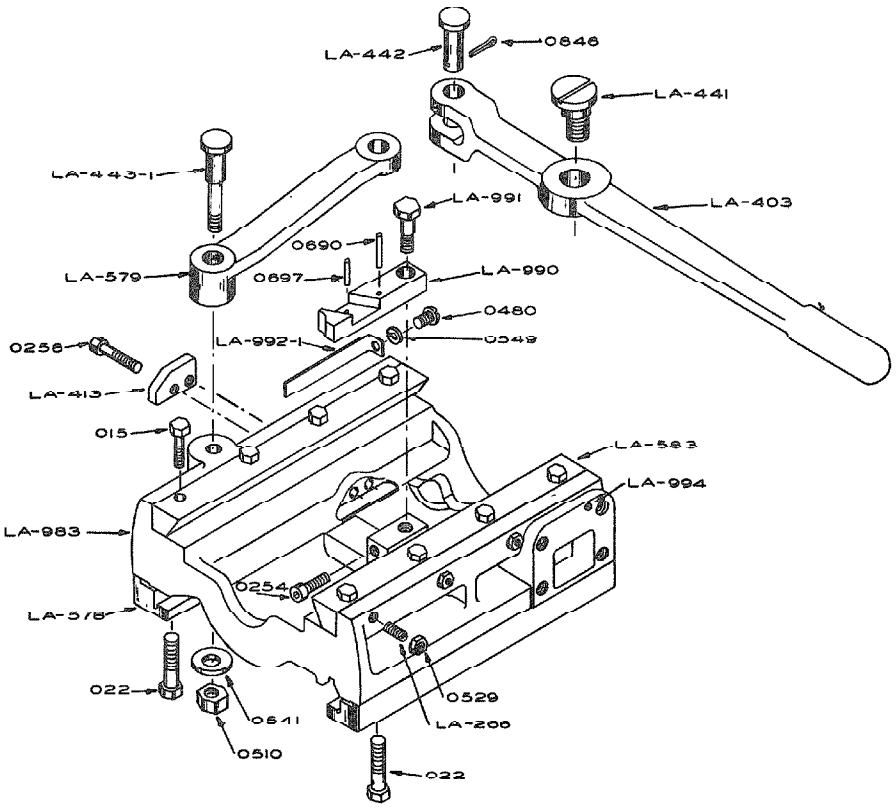




PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.
LA-410-1	1	Trim Arm w/411...	1	
LA-411		Trip Pin.....		6
LA-412	1	Cam.....		6
LA-414-1	1	Cam Pin.....		3
LA-415-1	1	Shoulder Pin.....		3
LA-421	1	Nut.....		3
LA-422		Disc. Pin.....		3
LA-425	1	Cover.....		8
LA-426	1	Nut.....		3
LA-427	1	Washer.....		4
AC-441	1	Thrust Plate.....	1	
LA-438	1	Screw Plate.....	1	
LA-439	6	Slug.....		3
LA-440	6	Stop Screw.....		3
LA-444	1	Stop Pin.....		3
LA-447	1	Spring.....		3
LA-448	1	Spring Pin.....		6
LA-463		Washers.....		3
LA-580	1	Plunger.....		3
LA-581		Bushings.....		3
LA-921-A	6	Tool Clamps with LA-463, 0726.....		
LA-974	1	Slide.....	18	
LA-975	1	Bushing		3
LA-976	1	King Pin.....	3	

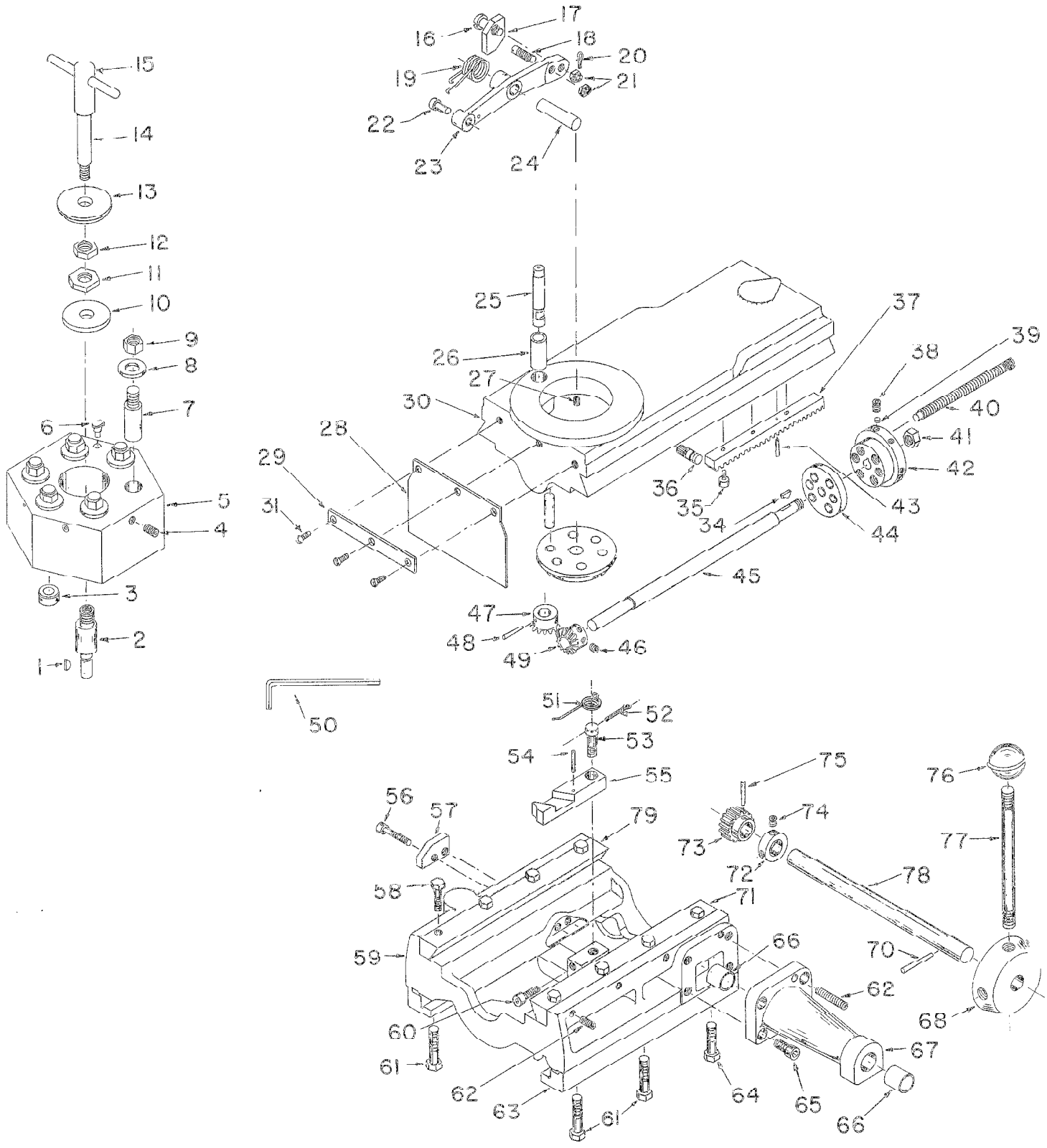
PART NO.	NO. REQ'D	NAME OF PART	SHIP.WT. LBS.	SHIP.WT. OZ.
LA-977	1	Disc w/(6) LA-422	2	
LA-978	1	Gear w/0850.....		8
LA-979	1	Gear w/0308.....		8
LA-980	1	Shaft.....		8
LA-998	1	Turret Block with LA-581.....		
0305	2	Socket Set Screw 10-32 x 3/16"....		3
0308	2	Socket Set Screw 14-20 x 3/16"....		3
0310	7	Socket Set Screw 1/4-20 x 3/8"....		3
0311	6	Socket Set Screw 1/4-20 x 1/2"....		3
0531	1	Jam Nut 3/8-24...		3
0627	1	Oil Cup.....		3
0640	1	Woodruff Key 1/8 x 1/2".....		3
0642	1	Woodruff Key 5/32 x 1/2".....		3
0726		Hex Nut 7/16-20..		3
0771	2	Cast. Nut 1/4-28.		3
0845	2	Cotter Pin.....		3
0850	1	Taper Pin #0X1"..		3

LA-65-B HANDLEVER TURRET BASE ASSEMBLY



PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT LBS.	SHIPPING WEIGHT OZ.
LA-266	3	Gib Screw (Short)		3
LA-403	1	Handle	5	
LA-413	1	Cam		3
LA-441	1	Screw		6
LA-442	1	Pin		3
LA-443-1	1	Shoulder Pin		4
LA-578	2	Base Gib	6	
LA-579	1	Link	2	
LA-583		Slide Gib	3	
LA-983	1	Base w/2 of 583, 8 of 015	27	
LA-990	1	Stop Arm		6
LA-991	1	Shoulder Pin		5
LA-992-1	1	Spring		3
LA-994	1	Gib Screw (1/4-28 x 5/16)		3
015		Hex. Hd. Cap Screw 1/4-20 x 1-1/4"		3
022	6	Hex. Hd. Cap Screw 5/16-18 x 1-1/2"		3
0254	1	Socket Hd. Cap Screw 1/4-20 x 7/8"		3
0256	2	Socket Hd. Cap Screw 1/4-20 x 1-1/4		3
0480	1	Rd. Hd. Screw 1/4-20 x 3/8"		3
0510	1	Hex. Nut 3/8-16		3
0529	4	Jam Nut 1/4-28		3
0541	1	Washer 7/16 x 1 x 5/64"		3
0549	1	Lockwasher 1/4 x 7/16"		3
0690	1	Pin 3/16 x ~~1"~~		3
0697	1	Pin 3/16 x 3/4"		3
0846	1	Cotter Pin		3

LA 70 PILOT WHEEL TURRET ASM.

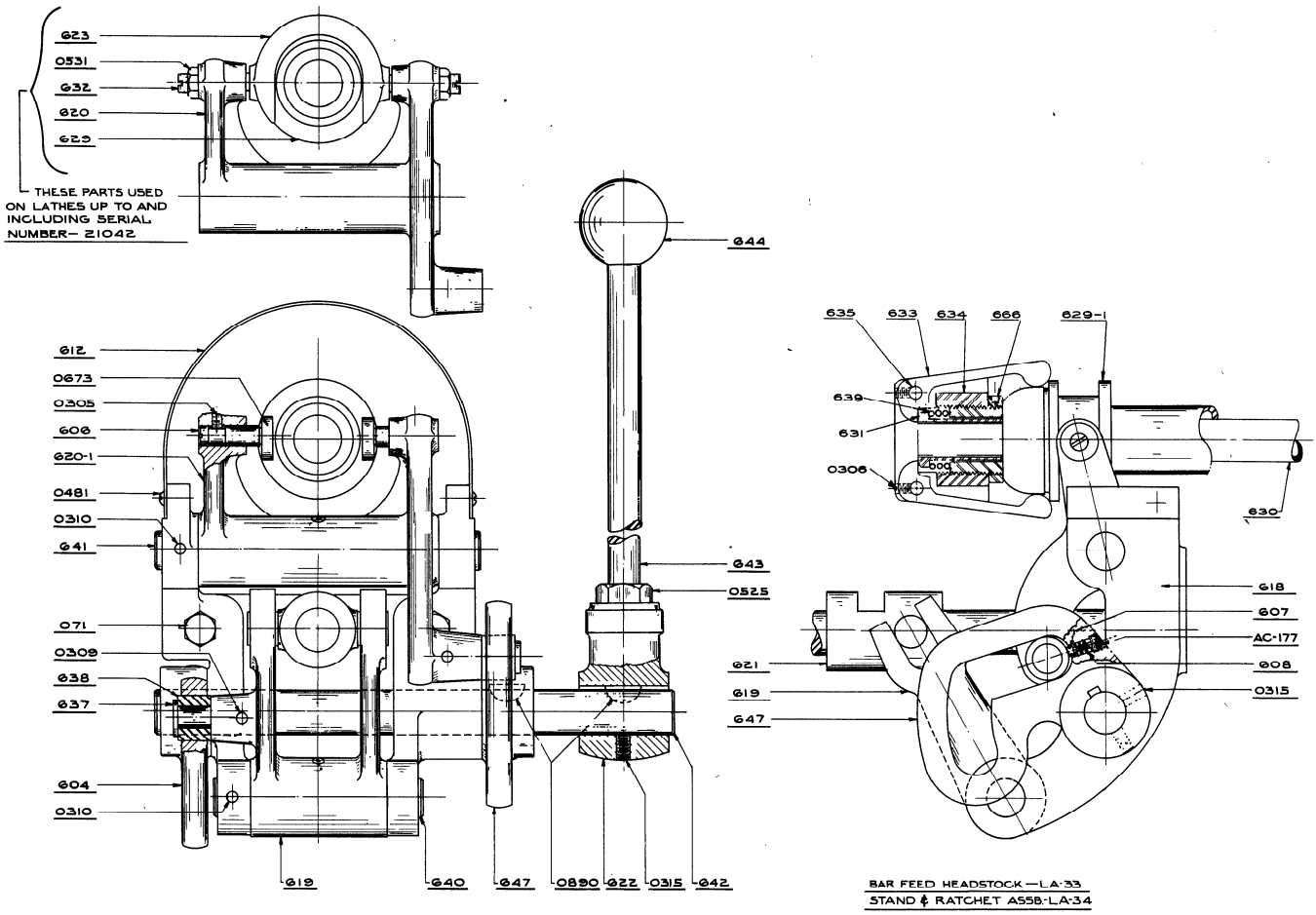


LA70 PILOT WHEEL TURRET ASM.

B.M.K-1428

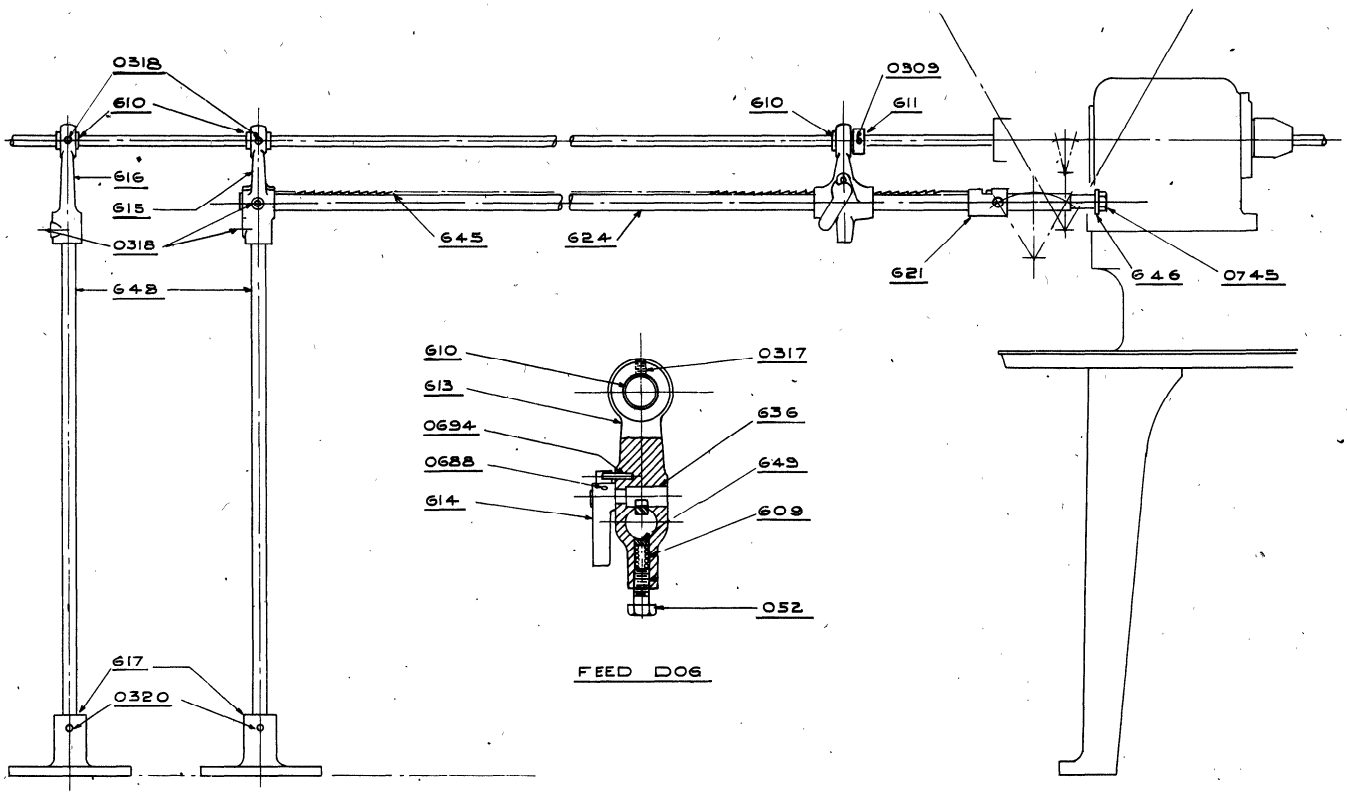
DRWG. 1E-30070

No.	Description	Part No.	Qty.	Weight Lbs.	Weight Ozs.
1	Woodruff Key	Q12-00640	1		3
2	King Pin	37A-30976	1		8
3	Bushing	19A-30581	6		3
4	Soc. Set Screw	Q06-00311	6		3
5	Turret Block	14C-30998	1		23
6	Oil Cup	Q19-00627	1		3
7	Tool Clamp	35A-30921	1		4
8	Washer	24A-30463	1		3
9	Hex Nut	Q09-00726	1		3
10	Washer	24A-30427	1		4
11	Nut	16A-30426	1		3
12	Nut	16A-30421	1		3
13	Cover	08A-30924	1		3
14	Locking Post	17A-30922	1		6
15	Handle	33A-30923	1		8
16	Cam Pin	37A-31320	1		6
17	Cam	21A-30412	1		6
18	Stop Pin	37A-30444	1		5
19	Spring	36A-30447	1		6
20	Cotter Pin	Q11-00845	2		3
21	Castellated Nut	Q09-00771	2		3
22	Trip Pin	37A-30411	1		6
23	Trip Arm	22A-31319	1		12
24	Trip Arm Pin	37A-30587	1		3
25	Plunger	36A-30580	1		3
26	Bushing	19A-30975	1		3
27	Soc. Set Screw	Q06-00305	1		3
28	Guard	08A-38442	1		10
29	Retainer	35A-38441	1		6
30	Turret Slide	13E-30926	1	18	
31	Self Tapping Screw	Q07-00588	3		3
32	Dowel Pin	Q11-01616	6		3
33	Disc	24A-30977	1	2	
34	Woodruff Key	Q12-00642	1		3
35	Soc. Cap Screw	Q02-00242	3		3
36	Spring Pin	37A-30448	1		6
37	Rack	18A-30927	1		12
38	Soc. Set Screw	Q06-00310	6		3
39	Slug	37A-30439	6		3
40	Stop Screw	16A-30929	6		3
41	Jam Nut	16A-30964	1		3
42	Screw Plate	31A-31340	1	1	
43	Grooved Pin	Q11-00697	1		3
44	Thrust Plate	31A-30995	1	1	
45	Shaft	17A-30928	1		8
46	Soc. Set Screw	Q06-00308	2		3
47	Gear	18A-30978	1		8
48	Taper Pin	Q11-00850	1		3
49	Gear	18A-30979	1		8
50	Soc. Screw Key	Q23-00881	1		3
51	Spring	36A-31307	1		6
52	Cotter Pin	Q11-00848	1		3
53	Pin	37A-31306	1		3
54	Drive Pin	Q11-00701	1		3
55	Stop Arm	22A-30990	1		6
56	Soc. Hd. Cap Screw	Q02-00256	2		3
57	Cam	21A-30413	1		3
58	Hex. Hd. Cap Screw	Q01-00015	8		3
59	Turret Base	11D-30983	1	27	
60	Soc. Hd. Cap Screw	Q02-00254	1		3
61	Hex. Hd. Screw	Q01-00022	5		3
62	Nylock Set Screw	Q06-01209	4		3
63	Turret Base Gib	15A-30578	2	6	
64	Hex. Hd. Screw	Q01-00021	1		3
65	Soc. Hd. Cap Screw	Q02-00259	4		3
66	Oilless Bushing	Q14-00621	2		3
67	Bracket	23C-30989	1	3	
68	Hub	24A-30982	1	2	
70	Taper Pin	Q11-00854	1		3
71	Gib	15A-30583	1	3	
72	Collar	24A-30996	1		5
73	Gear	18A-30984	1		6
74	Soc. Set Screw	Q06-00308	2		3
75	Taper Pin	Q11-00853	1		3
76	Plastic Knob	Q21-00922	4		3
77	Spoke	17A-30925	4		5
78	Shaft	17A-30985	1		15
79	Gib	15A-30598	1	3	



PART NO.	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.	PRICE EACH
AC-177	1	Screw (See 607-A).			
LA-604	1	Cam-Left with 2 of 0315.....	3		$3.95
LA-606	2	Bearing Pins.....		3	.40
LA-607-A	1	Plunger Assm. AC-177 & LA-608		3	.25
LA-608	1	Spring (See LA-607-A).....			
LA-612	1	Hood.....	2		1.00
LA-618	1	Bracket	10		11.00
LA-619	2	Feed Arm.....	5		5.10
LA-620	1	Bell Crank.....	5		5.10
LA-620-1	1	Bell Crank with 2 of 0305.....	5		5.10
LA-620-1-A	1	Bell Crank Assembly.....	6		9.10
LA-621	1	Trunion.....	2		3.30
LA-622	1	Hub with 2 of 0315.....	2		2.70
LA-623	1	Cone Shoe.....	1		3.30
LA-629	1	Cone.....	2		9.80
LA-629-1	1	Cone.....	2		9.80
LA-630	1	Feed Tube.....	1		4.95
LA-631	1	Sleeve.....		8	1.95
LA-632	2	Screw.....		3	.20
LA-633	2	Fingers.....	1		9.50pr
LA-634	1	Finger Holder....	3		7.40
LA-635	2	Pins.....		3	.20
LA-637	2	Roller Pins.....		6	.30

PART NO.	NO. REQ'D	NAME OF PART	SHIP. WT. LBS.	SHIP. WT. OZ.	PRICE EACH
LA-638	2	Roller.....		6	.30
LA-639	1	Spring.....		3	.10
LA-640	1	Shaft for 619....	1		.50
LA-641	1	Shaft for 620-1..	1		.50
LA-642	1	Shaft for 618....	2		1.00
LA-643	1	Lever.....	2		1.20
LA-644	1	Knob.....		6	.45
LA-647	1	Cam with 2 of 0315.....	3		3.95
LA-666	1	Take-Up, Rear....		8	.50
071	2	Hex. Hd. Cap Screw $\frac{1}{2}$-13 x $2\frac{1}{4}$		3	.05
0305	2	Socket Set Screw 10-32 x 3/16...		3	.10
0306	2	Socket Set Screw 10/32 x 1/4....		3	.10
0309	2	Socket Set Screw 1/4-20 x 1/4...		3	.10
0310	2	Socket Set Screw 1/4-20 x 3/8...		3	.10
0315	2	Socket Set Screw 5/16-18 x 3/8..		3	.10
0481	2	Round Head Screw 1/4-20 x 1/2...		3	.05
0525	1	Jam Nut 5/8-18...		3	.05
0531	2	Jam Nut 3/8-24...		3	.05
0673	2	Ball Bearing #77036.....		4	1.50
0890	2	Woodruff Key 7/8d x 1/4.....		3	.05



CAM ARRANGEMENT—LA-32

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT LBS.	SHIPPING WEIGHT OZ.	PRICE EACH
LA-609	1	Spring.		2	$ .05
LA-610*	3	Sleeve.			
LA-611*	1	Collar.			
LA-613	1	Feed Dog with 0317 & 0694	4		5.15
LA-614	1	Pawl Lever.		6	.30
LA-615	1	Right Stand Head with 3 of 0318 . .	3		4.00
LA-616	1	Left Stand Head with 2 of 0318. . .	3		2.60
LA-617	2	Stand Base with 0320.	16		2.00
LA-621	1	Trunion (See Bar Feed Assembly) . .			
LA-624	1	Ratchet Bar Feed.	10		6.45
LA-636	1	Ratchet Pawl.		4	.60
LA-645	1	Ratchet	4		5.80
LA-646	1	Washer.		3	.20
LA-648	2	Head Support.	10		2.75
LA-649	1	Slug.		3	.15
052	1	Cap Screw 7/16-14x1½.		3	.05
0309	1	Socket Set Screw 10-32x3/16		3	.10
0317	1	Socket Set Screw 3/8-16x3/8		3	.10
0318	5	Socket Set Screws 3/8-16x7/16 . . .		3	.10
0320	2	Socket Set Screws 3/8-16x5/8. . . .		3	.10
0688	1	Pin A 1/8x1		3	.05
0694	1	Pin A 1/8x3/4		3	.05
0745	1	Jam Nut 9/16-18		3	.05

* No. 610 sleeve & No. 611 collar are not available. These should be made up to size, governed by the size of stock being used.

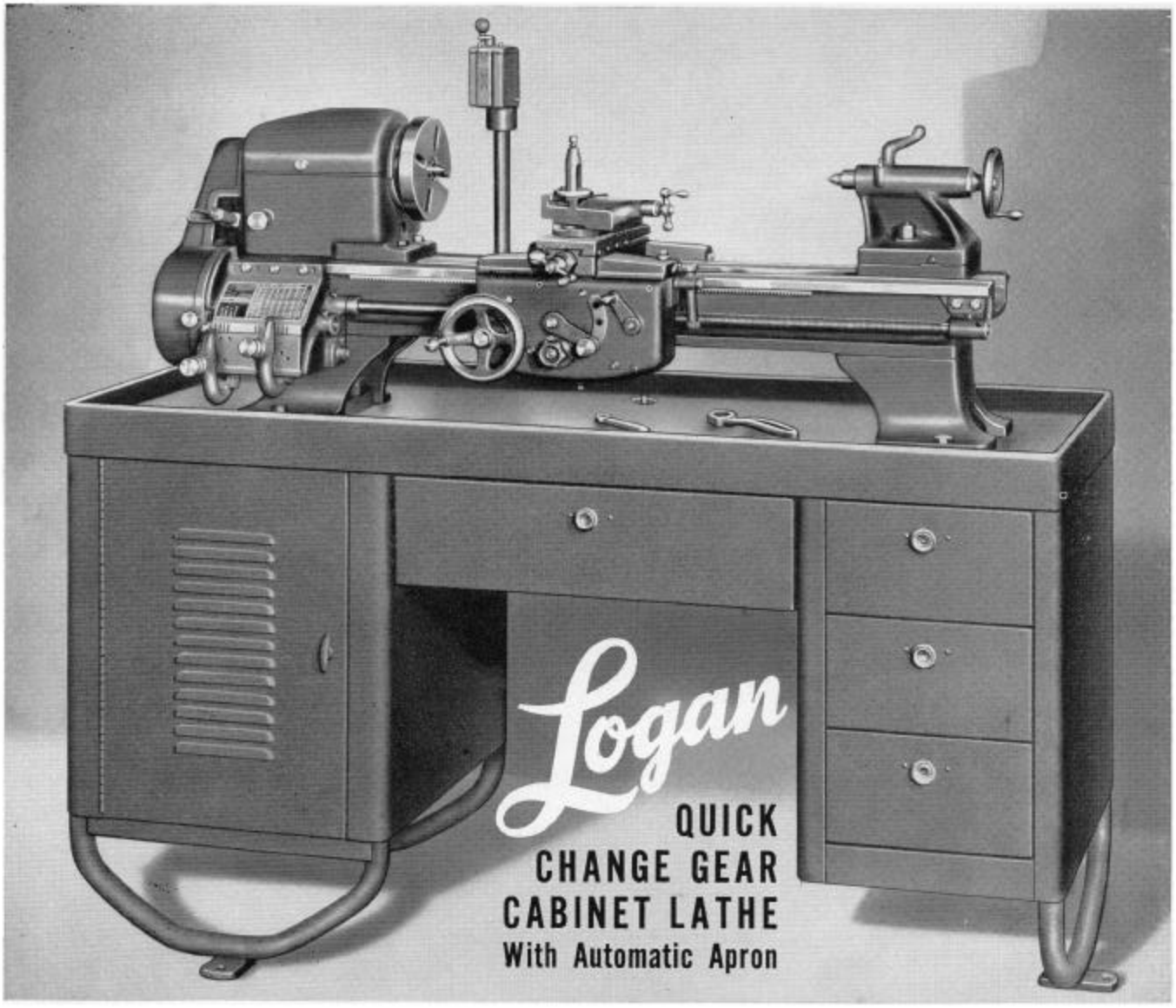
Logan

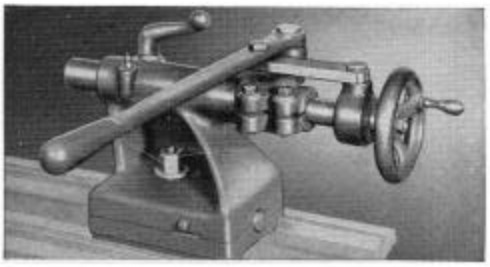
LOGAN ENGINEERING CO.

Lawrence and Lamon Avenues, Chicago 30, Illinois

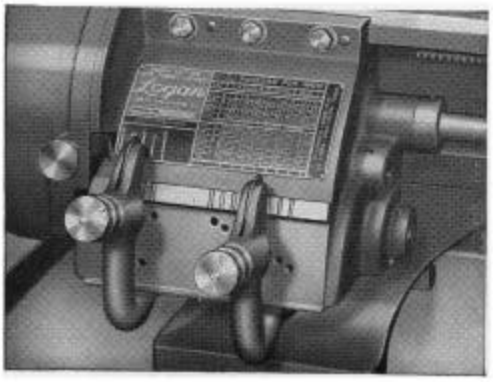
Logan Lathes

LOGAN ENGINEERING COMPANY • Chicago, Ill.
4901 W. LAWRENCE AVE.





AC-241 LEVER TAILSTOCK ASSEMBLY
Can be furnished with the Quick Change Gear Lathe in place of tailstock shown in above illustration of the lathe if specified in your order. Lever stroke, 2¾". Hand wheel spindle travel, 2⅜". Fitted for No. 2 Morse Taper Shank.

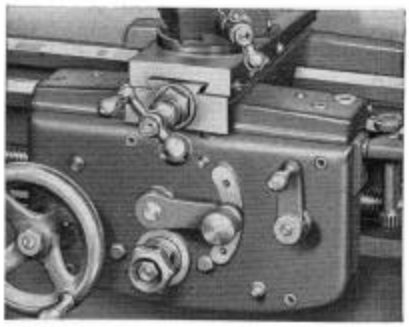


No. 825 Complete as shown, less motor, F.O.B. Chicago. . $495.00
No. 825-1 Complete with No. AC-241 Lever Tailstock Assembly replacing regular tailstock, less motor F.O.B. Chicago **$512.50**

The Logan Cabinet Lathe is particularly adaptable to tool room work, for maintenance, for training, or for production. The friction-feed automatic apron travels over a rugged, warp-free bed that is ground to within .0005" of absolute accuracy. The total run-out of its headstock spindle 12 inches from the bearing is less than .001". The lead screw is held to within .002" in 12 inches. The spindle turns on a double row of preloaded, grease sealed ball bearings, and at 40 other vital points throughout the lathe friction is minimized by self lubricating bronze bearings. Four large drawers in the strong tubular steel cabinet may be used for tool storage. Each drawer has an individual lock. Left hand compartment contains underneath motor drive and countershaft. The entire cabinet stands on a 3-point base, assuring a steady installation on any floor. All moving belts and gears are completely enclosed.

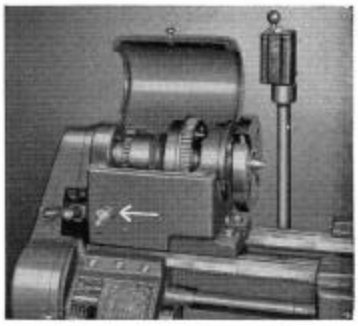
QUICK CHANGE GEAR BOX
The Logan Quick Change Gear Box provides 48 threads and feeds in either direction to the carriage of the lathe. By adjusting the two levers, screw threads from 8 to 224 per inch are quickly available and by changing the 24-tooth stud gear for the 48-tooth stud gear furnished with the lathe, additional threads from 4 to 7 per inch are available. Similarly, longitudinal power feeds from .0015" to .1000" per revolution of the spindle may be obtained. Power cross feeds are .25 times longitudinal feeds. Entire assembly is sturdy and accurate with precision cut steel gears and self-lubricating bearings.

LOGAN ENGINEERING CO. • CHICAGO 30, ILL.



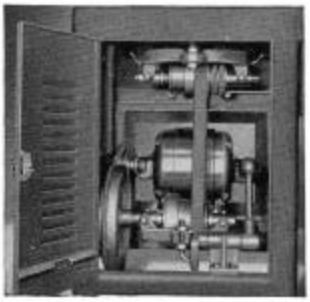
AUTOMATIC APRON

Operates from a spline in the lead screw through a worm drive and friction clutch for both longitudinal and cross feeds. For cutting threads an additional longitudinal drive operating from half nuts on the lead screw is used. It is impossible to engage both drives at the same time. Worm and gear operate in a bath of oil, assuring long life. Steel cut gears, sturdy construction and precision machining combine to make a rugged and accurate assembly.



UNDERNEATH DRIVE

The motor drive assembly of the Logan No. 825 Lathe is completely self contained and is enclosed in the left hand compartment of the cabinet. For easy, safe belt changing, the handy lever at the right of the drive compartment is pulled outward to release flat belt tension. Mechanisms for adjusting drive belt tension and flat belt tension are easily accessible. A Multiple V-Belt Drive transmits power from cone pulley to lathe spindle. All moving parts of the underneath drive are completely enclosed, yet easily reached. We recommend ordering electric motor with the lathe which permits us to ship with motor mounted and adjusted in position.



BALL BEARING HEADSTOCK

To assure sustained spindle accuracy, the Logan headstock is equipped with precision, "pre-loaded" New Departure Ball Bearings. The spindle turns with maximum freedom, with less friction, less wear, permits higher operating lathe speed and enables the user to take every advantage of modern high speed cutting methods. No lubrication of these bearings is ever needed. Fast, safe, easy back gear shifting is assured by placing control knob of patented Logan Back Gear Shifter Rack at operator's finger tips. (See arrow in illustration.)

Collet capacity 5/8" with push type collets used in Logan No. AC-210 Production Collet Chuck or No. AC-201 Speed Collet Chuck.

Collet capacity 1/2" with draw-in collets used in Logan AC-166 Production Collet Chuck or Logan No. AC-151 Draw-in Collet Chuck.

NOTE: Push type collets give greater capacity, have greater holding power and close concentrically on the work without pulling it away from the stop.

SPECIFICATIONS

CAPACITY OF LATHE
- Swing over bed and saddle wings ..... 10 1/2"
- Swing over saddle cross slide ... 6 1/8"
- Distance between centers ..... 24"
- Collet capacity with push type collets ..... 5/8"
- Collet capacity with draw-in collets ..... 1/2"

THREADS AND FEEDS
- Quick change gear box and automatic apron.
- Worm drive from lead screw spline for power feeds.
- Friction clutch on power feeds.
- Longitudinal feed .0015" to .1000" per spindle revolution.
- Cross feed .25 times longitudinal feed.
- Half nut drive from lead screw thread for thread cutting.
- Threads—48 selections RH or LH 4 to 224 per inch.
- Lead screw diameter and threads per inch ..... 3/4"-8

BED
- Width of bed across ways ..... 6 1/16"
- Bed length ..... 43 1/8"
- Precision ground ways; 2 prismatic "V" ways and 2 flat ways.

HEADSTOCK AND SPINDLE
- Front bearing—double row ball bearing
- Rear bearing—single row ball bearing
- Note: Sealed, pre-loaded New Departure Ball Bearings of the highest precision type are used
- Back gear shaft bearings—self lubricating bronze bearings
- Hole through spindle ..... 25/32"
- Morse Taper with adaptor No. 3-No. 2
- Size of centers used, Morse Taper No. 2
- Spindle nose diameter and threads per inch ..... 1 1/2"-8
- Width of cone pulley steps for belt. 1"
- Width of face of bull gear and back gears ..... 5/8"
- Multiple V-Belt Drive carries power from cone pulley to lathe spindle.
- Face plate diameter ..... 6"
- Number of spindle speeds 12
- Spindle speeds, back gears engaged 30, 56, 70, 104, 131, 244
- Spindle speeds, direct belt driven. 179, 334, 420, 620, 780, 1450

CROSS SLIDE AND COMPOUND REST
- Cross slide graduated in thousandths. Travel ..... 6 1/4"
- Cross feed screw mounted on self lubricating bronze bearings
- Compound rest top slide graduated in thousandths. Travel ..... 2 1/4"
- Top slide screw mounted on self-lubricating bronze bearings
- Compound rest swivel—graduated 90° in both directions
- Tool post opening for tool holder shank ..... 3/8" x 3/4"
- Size of cutter bits used ..... 1/4" sq.

TAILSTOCK
- Spindle travel ..... 2 3/8"
- Spindle graduations ..... 1/16"
- Morse Taper center ..... No. 2
- Tailstock top will set over for taper turning ..... 11/16"

UNDERNEATH DRIVE
- 2 Speed "V" Motor Pulley 5/8" Bore ..... 2 3/8"-4"
- 2 Speed countershaft flat pulley ..... 8 5/8"-9 7/8"
- 40" x 1/2" V Belt used on flat of 2 step countershaft pulley and in V of motor pulley
- 3 Step flat belt cone pulley mounted on countershaft. Width of step face ..... 1"
- Countershaft mounted on self-lubricating bronze bearings.
- Adjustable motor mounting bracket.
- Lever operated belt tension release for changing belt steps.

CABINET STAND
- Tubular steel construction
- Left hand compartment contains underneath motor drive and countershaft
- Four drawers provided for tool storage
- Lugs provided for bolting to floor
- Oil pan has drain in center rear

LATHE EQUIPMENT (Included in Price of Lathe)
- 1 6" Face Plate
- 2 60° Centers
- 1 Threading Dial
- 1 Threading Chart
- 1 No. 3-No. 2 Morse Taper Adaptor
- 1 Tool Post Holder and Wrench
- 1 Tailstock Wrench
- Parts List and Instruction Book

SELF LUBRICATING BRONZE BEARINGS
- at 40 separate points in lathe where plain bearings are ordinarily furnished.

OVERALL DIMENSIONS (Including Countershaft Assembly)
- Length ..... 55 1/2"
- Width ..... 20 1/2"
- Height ..... 52"

MOTOR
- Use 1/3 or 1/2 H.P. 1750 R.P.M. Motor
- If lathe is ordered without motor specify:
  1. Bore of motor pulley to be furnished with lathe.
  2. State whether 0636 or 0639 Drum Switch should be supplied. (See Accessory Circular for description of drum switch.)

SHIPPING WEIGHT
- No. 825 Cabinet Model Logan Lathe less motor ..... 625 lbs.

81544-15M

PRINTED IN U.S.A.

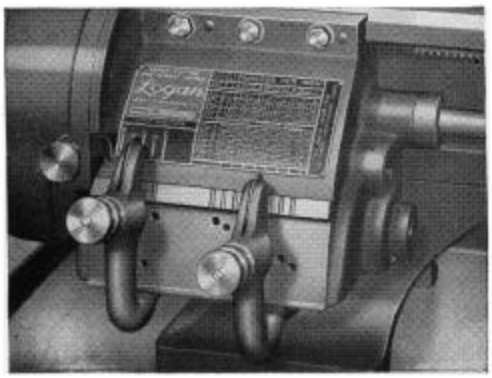
Logan

QUICK CHANGE GEAR LATHE

With Automatic Apron

AC-241 LEVER TAILSTOCK ASSEMBLY

Can be furnished with the Quick Change Gear Lathe in place of tailstock shown in above illustration of the lathe if specified in your order. Lever stroke, 2¾". Hand wheel spindle travel, 2⅜". Fitted for No. 2 Morse Taper Shank.



No. 820 Complete As Shown, Less Motor, F.O.B. Chicago.....$325.00

No. 820-1 Complete with No. AC-241 Lever Tailstock Assembly Replacing Regular Tailstock, Less Motor, F.O.B. Chicago.....$342.50

No. 815 Bench Model, same as No. 820, less pan and legs. F.O.B. Chicago....$300.00

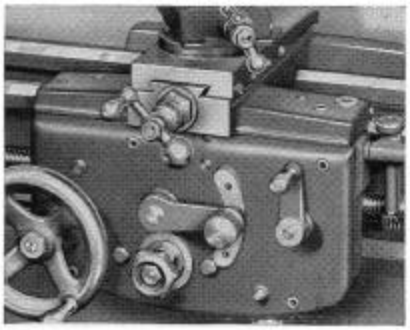
No. 815-1 Bench Model, same as No. 820-1, less pan and legs. F.O.B. Chicago..$317.50

The Logan No. 820 Quick Change Gear Lathe with friction feed automatic apron has been built to more exacting requirements than heretofore has been considered possible in this field. Typical of the high standard of quality and accuracy are construction specifications such as—bed ways ground to within .001" of complete accuracy—total run out of headstock spindle 12 inches from the bearing less than .001"—lead screw held to within .002" in 12 inches—all moving parts protected by ball bearings or self-lubricating bronze bearings. Similar fine construction throughout the lathe assures a durable, dependable machine of exceptional performance.

QUICK CHANGE GEAR BOX

The Logan Quick Change Gear Box provides 48 threads and feeds in either direction to the carriage of the lathe. By adjusting the two levers, screw threads from 8 to 224 per inch are quickly available and by changing the 24 tooth stud gear for the 48 tooth stud gear furnished with the lathe, additional threads from 4 to 7 per inch are available. Similarly, longitudinal power feeds from .0015" to .1000" per revolution of the spindle may be obtained. Power cross feeds are .25 times longitudinal feeds. Entire assembly is sturdy and accurate with precision cut steel gears and self-lubricating bearings.

LOGAN ENGINEERING CO. • CHICAGO 30, ILL.



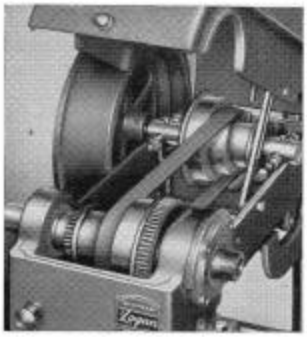
AUTOMATIC APRON

The Logan Automatic Apron operates from a spline in the lead screw through a worm drive and friction clutch for both longitudinal and cross feeds. For cutting threads an additional longitudinal drive operating from half nuts on the lead screw thread is used. A safety feature of design makes it impossible to engage both drives at the same time. The worm and gear operate in a bath of oil, assuring long life. Steel cut gears, sturdy construction and precision machining combine to make a rugged and accurate assembly.

COUNTERSHAFT ASSEMBLY

The patented countershaft assembly used in the No. 820 Logan Quick Change Gear Lathe is carried on a three point suspension and is completely insulated by rubber at all points of contact to prevent vibration being transmitted to the lathe.

All pulleys and belts are completely guarded yet readily accessible. When guard is raised belt tension is automatically released. The entire unit is designed to appear as a streamlined part of the lathe.



BALL BEARING HEADSTOCK

When the cone pulley guard is raised as shown at left, belt tension is automatically released for quick belt change.

The ball bearing spindle mounting is advanced design. It is more expensive but produces finer results. Special New Departure precision bearings, grease sealed and pre-loaded give greater accuracy, less friction, and less wear. They require no adjustment or lubrication during their entire life.

Collet capacity 5/8" with push type collets used in Logan No. AC-210 Production Collet Chuck or No. AC-201 Speed Collet Chuck.

Collet capacity 1/2" with draw-in collets used in Logan AC-166 Production Collet Chuck or Logan No. AC-151 Draw-in Collet Chuck.

NOTE: Push type collets give greater capacity, have greater holding power and close concentrically on the work without pulling it away from the stop.

SPECIFICATIONS

CAPACITY OF LATHE

- Swing over bed and saddle wings ..... 10½"
- Swing over saddle cross slide.. 6⅛"
- Distance between centers..... 24"

THREADS AND FEEDS

- Quick change gear box and automatic apron.
- Worm drive from lead screw spline for power feeds.
- Friction clutch on power feeds.
- Longitudinal feed .0015" to .1000" per spindle revolution.
- Cross feed .25 times longitudinal feed.
- Half nut drive from lead screw thread for thread cutting.
- Threads—48 selections RH or LH—4 to 224 per inch.
- Lead screw diameter and threads per inch, ¾"-8.

BED

- Width of bed across ways... 6 15/16"
- Bed length ..... 43⅛"
- Precision ground ways; 2 prismatic "V" ways and 2 flat ways.

HEADSTOCK AND SPINDLE

- Front bearing — double row ball bearing.
- Rear bearing—single row ball bearing.
- Note: Sealed, pre-loaded New Departure Ball Bearings of the highest precision type are used.
- Back gear shaft bearings — self lubricating bronze bearings.
- Hole through spindle..... 25/32"
- Morse Taper with adaptor. No. 3-No. 2
- Size of centers used, Morse Taper ..... No. 2
- Spindle nose diameter and threads per inch ..... 1½"-8
- Width of cone pulley steps for belt. 1"
- Width of face of bull gear and back gears ..... ⅝"
- Face plate diameter..... 6"
- Number of spindle speeds..... 12
- Spindle speeds, back gears engaged... 30, 56, 70, 104, 131, 244
- Spindle speeds, direct belt driven. 179, 334, 420 620, 780, 1450

CROSS SLIDE AND COMPOUND REST

- Cross slide graduated in thousandths. Travel ..... 6¼"
- Cross feed screw mounted on self-lubricating bronze bearings.
- Compound rest top slide graduated in thousandths. Travel..... 2¼"
- Top slide screw mounted on self-lubricating bronze bearings.
- Compound rest swivel—graduated 90° in both directions.
- Tool post opening for tool holder shank ..... ⅜x¾"
- Size of cutter bits used..... ¼" sq.

TAILSTOCK

- Spindle travel ..... 2⅜"
- Spindle graduations ..... 1/16"
- Morse Taper center ..... No. 2
- Tailstock top will set over for taper turning ..... 1 1/16"

COUNTERSHAFT ASSEMBLY (Incl. in Price of Lathe)

- 2 Speed "V" Motor Pulley ⅝" Bore ..... 2⅜-4"
- 2 Speed countershaft flat pulley ..... 8⅝"x10"
- 51"x½" V Belt used on flat of 2 step countershaft pulley and in V of motor pulley.
- 3 Step flat belt cone pulley mounted on countershaft. Width of step face ..... 1"
- Countershaft mounted on self-lubricating bronze bearings.
- Adjustable motor mounting bracket furnished with countershaft assembly.
- Countershaft assembly independently supported on patented 3 point suspension.
- Countershaft assembly completely insulated with rubber to prevent vibration being transmitted to lathe.
- Countershaft and all pulleys completely enclosed and guarded.
- Automatic belt tension release when guard for cone pulleys is raised to change belt steps.

LATHE EQUIPMENT (Included in Price of Lathe)

- 1 6" Face Plate
- 2 60° Centers
- 1 Threading Dial
- 1 Threading Chart
- 1 No. 3-No. 2 Morse Taper Adaptor
- 1 Tool Post Holder and Wrench
- 1 Tailstock Wrench
- Parts List and Instruction Book

OVERALL DIMENSIONS (Including Countershaft Assembly)

- Length ..... 54"
- Width ..... 30"
- Height ..... 48½"

SELF LUBRICATING BRONZE BEARINGS

at 36 separate points in lathe where plain bearings are ordinarily furnished.

MOTOR

Use ⅓ or ½ H.P. 1750 R.P.M. Motor

If lathe is ordered without motor specify:

1. Bore of motor pulley to be furnished with lathe.
2. State whether 0636 or 0639 Drum Switch should be supplied. (See Accessory Circular for description of drum switch.)

SHIPPING WEIGHT

- No. 820 Logan Lathe with legs, chip pan, and countershaft assembly, less motor ..... 560 lbs.

7544 15M

PRINTED IN U.S.A.

No. 830—Complete As Shown, Less Motor—F.O.B. Chicago $425.00

The Logan No. 830 Hand Screw Machine fills the specific need of industry for a small turret lathe to eliminate the necessity of tying up heavy equipment for turning out small parts. It is an accurate and durable tool designed for the severe requirements of present day, continuous production. The turret holes are bored from the headstock. The bed is precision ground and the precision pre-loaded ball bearing spindle mounting is the latest engineering development in design. Turret and cross slide are provided with adjustable gibs, to compensate for wear. The machine is built throughout to rigid and exacting specifications to give accurate results and trouble-free service.

COUNTERSHAFT ASSEMBLY

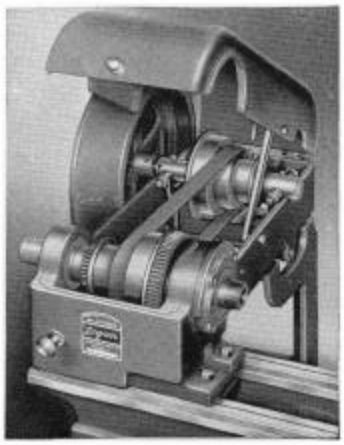
The patented countershaft assembly used in this machine is carried on a three point suspension and is completely insulated by rubber at all points of contact to prevent vibration being transmitted to the lathe.

All pulleys and belts are completely guarded yet readily accessible. The entire unit is designed to appear as a streamlined part of the lathe.

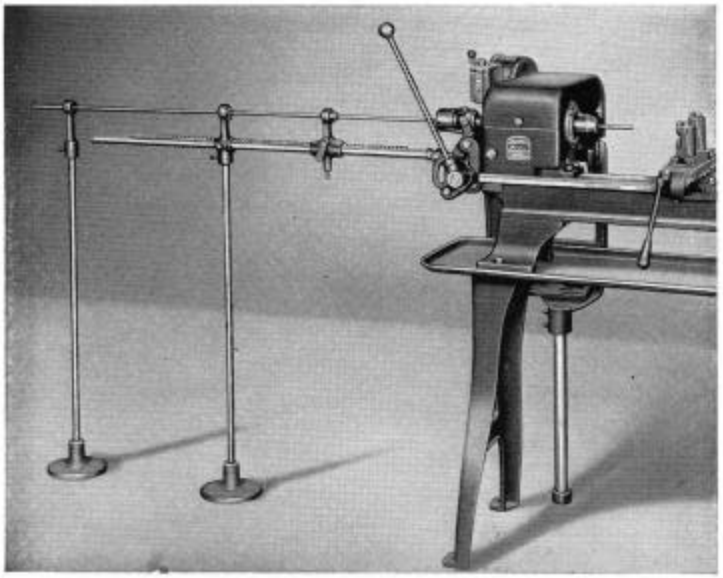
BALL BEARING HEADSTOCK

When the cone pulley guard is raised as shown at right, belt tension is automatically released for quick belt change.

The ball bearing spindle mounting is advanced design that is more expensive and produces finer results. New Departure grease sealed preloaded precision bearings give greater accuracy, less friction, less wear and require no adjustment or lubrication.



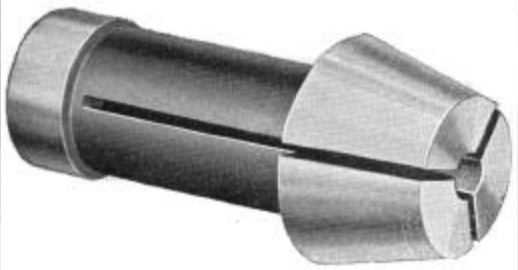
LOGAN ENGINEERING CO. • CHICAGO 30, ILL.



LOGAN BAR FEED

The Logan Bar Feed, with a maximum capacity of ⅝" round stock, is offered for use with the No. 830 Hand Screw Machine. It does not fit other models. No. AC-50 push type collets are used in sizes from 1/16" to ⅝" by 32nds. Maximum feed per stroke, 2". The patented cam action, which locks the collet and operates the bar feed, is so designed that there is no feed while bar is being locked and no locking action while bar is being fed. Feed and locking mechanism is protected by a shield, not shown in illustration. Easily attached or detached.

No. LA-32-34 Bar Feed—Shipping weight 45 lbs. $95.00



PUSH TYPE COLLET

Used with the Logan LA 32-34 Bar Feed shown at left. Also with Logan Collet Closers AC 210 and AC 201. A superior collet, made of alloy tool steel, correctly heat treated for maximum wear, precision ground inside and out. Sizes 1/16" to ⅝" round by 32nds. Work must be within .005" of collet size. Shipping weight, 6 oz. each.

No. AC 50—Push Type Collet **$4.50**

SPECIFICATIONS

CAPACITY OF LATHE

Swing over bed ..... 10½"
Swing over cross slide ..... 4½"

BED

Width of bed across ways ..... $6\frac{15}{16}$"
Bed length ..... 43⅛"
Precision ground ways — 2 prismatic "V" ways and 2 flat ways.

HEADSTOCK AND SPINDLE

Spindle mounted on matched, grease-sealed, pre-loaded New Departure Ball Bearings of highest precision type.
Back gear shaft bearings — self lubricating bronze bearings.
Hole through spindle ..... $\frac{25}{32}$"
Maximum collet capacity ..... ⅝"
Spindle nose diameter and threads per in. ..... 1½"-8
Width of cone pulley steps for belt .. 1"
Width of face of bull gear and back gears ..... ⅝"
Number of spindle speeds 12
Spindle speeds, back gears engaged 30, 56, 70, 104, 131, 244
Spindle speeds, direct belt driven ... 179, 334, 420, 620, 780, 1450
Drum Type Motor Reversing Switch and Cord.

CROSS SLIDE

Maximum stroke of cross slide .... 3¼"
Adjustable double tool posts.
Tool posts equipped with adjustable wedges.
Tool post tool slots ..... $\frac{7}{16}$" x $1\frac{9}{16}$"

TURRET

Diameter of turret head ..... 5"
Six position with adjustable stops.
Turret holes, diameter ..... ⅝"
Turret holes bored from headstock of lathe.
Maximum stroke of turret ..... 4¼"

COUNTERSHAFT ASSEMBLY (Incl. in Price of Lathe)

2 Speed "V" Motor Pulley ⅝" Bore ..... 2⅜"-4"
2 Speed countershaft flat pulley ..... 8⅝"-10"
51" x ½" V Belt used on flat of 2 step countershaft pulley and in V of motor pulley.
3 Step flat belt cone pulley mounted on countershaft
Width of step face ..... 1"
Countershaft mounted on self-lubricating bronze bearings.
Adjustable motor mounting bracket furnished with countershaft assembly.
Countershaft assembly independently supported on patented 3 point suspension.
Countershaft assembly completely insulated with rubber to prevent vibration being transmitted to lathe.
Countershaft and all pulleys completely enclosed and guarded.
Automatic belt tension release when guard for cone pulleys is raised to change belt steps.

OVERALL DIMENSION (Including Countershaft Assembly)

Length ..... 54"
Width ..... 30"
Height ..... 50"

SELF LUBRICATING BRONZE BEARINGS

at 12 separate points in lathe where plain bearings are ordinarily furnished.

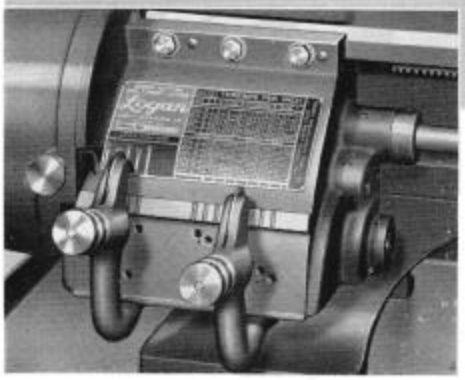
MOTOR

Use ⅓ or ½ H.P. 1750 R.P.M. Motor.
If lathe is ordered without motor specify:
1. Bore of motor pulley to be furnished with lathe.
2. State whether 0636 or 0639 Drum Switch should be supplied. (See Accessory Circular for description of drum switch.)

SHIPPING WEIGHT

No. 830 Hand Screw Machine, less motor ..... 485 lbs.

PRINTED IN U.S.A.



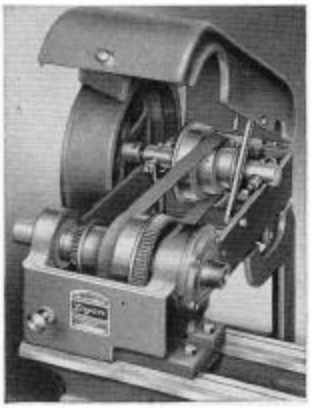
QUICK CHANGE GEAR BOX

The Logan Quick Change Gear Box provides 48 threads and feeds in either direction to the carriage of the lathe. By adjusting the two levers, screw threads from 8 to 224 per inch are quickly available and by changing the 24 tooth stud gear for the 48 tooth stud gear furnished with the lathe, additional threads from 4 to 7 per inch are available. Similarly, longitudinal power feeds from .0015" to .1000" per revolution of the spindle may be obtained. Power cross feeds are .25 times longitudinal feeds. Entire assembly is sturdy and accurate with precision cut steel gears and self-lubricating bearings.

No. 840 Complete as shown, less motor. F.O.B. Chicago $525

This lathe combines turret lathe production with the advantages of a quick change gear box and automatic apron. It is versatile, accurate and fast, resulting in efficient, low cost production. Typical of its advanced Logan design are such features as Precision Preloaded Ball Bearing Spindle Mounting; Adjustable Gibs to compensate for wear of turret and cross slide; and Self Lubricating Bronze Bearings protecting all vital points. Guaranteeing accuracy are such construction specifications as bed ways ground to within .001" of absolute accuracy; total run out of headstock spindle 12 inches from the bearing less than .001"; lead screw held to within .002" in 12 inches; and turret holes bored from the headstock. Even greater versatility is obtained by ordering with the lathe the compound rest assembly and tailstock assembly shown on the next page.

LOGAN ENGINEERING CO. • CHICAGO 30, ILL.



BALL BEARING HEADSTOCK

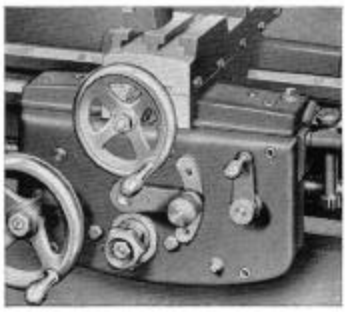
When the cone pulley guard is raised as shown at left, belt tension is automatically released for quick belt change.

The ball bearing spindle mounting is advanced design. Special New Departure precision bearings, grease sealed and pre-loaded give greater accuracy, less friction, and less wear. They require no adjustment or lubrication during their entire life.

LA-3 TAILSTOCK ASSEMBLY

The LA-3 Tailstock assembly is the same as furnished with the screw cutting lathes. This assembly when ordered with the No. 840 Lathe, will have the tailstock matched with headstock at factory. Furnished with wrench but less 60° center. When used with No. 840 Lathe, order LA-223 headstock adapter sleeve and 60° centers extra. Shipping weight, 24 lbs.

No. LA-3—Tailstock Assembly **$20.00**

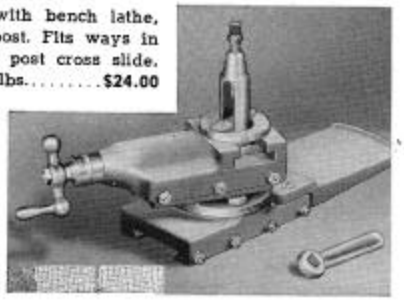


AUTOMATIC APRON

The Logan Automatic Apron operates from a spline in the lead screw through a worm drive and friction clutch for both longitudinal and cross feeds. For cutting threads an additional longitudinal drive operating from half nuts on the lead screw thread is used. It is impossible to engage both drives at the same time. Worm and gear operate in a bath of oil, assuring long life. Steel cut gears, sturdy construction and precision machining combine to make a rugged and accurate assembly.

LA-49-1 COMPOUND REST ASSEMBLY

Same as furnished with bench lathe, complete with tool post. Fits ways in place of double tool post cross slide. Shipping weight, 13 lbs.....**$24.00**



Collet capacity ⅜" with push type collets used in Logan No. AC-210 Production Collet Chuck or No. AC-201 Speed Collet Chuck.

Collet capacity ½" with draw-in collets used in Logan AC-166 Production Collet Chuck or Logan No. AC-151 Draw-in Collet Chuck.

NOTE: Push type collets give greater capacity, have greater holding power and close concentrically on the work without pulling it away from the stop.

SPECIFICATIONS

CAPACITY OF LATHE

Swing over bed and saddle wings .....10½"
Swing over saddle cross slide..4½"

THREADS AND FEEDS

Quick change gear box and automatic apron.
Worm drive from lead screw spline for power feeds.
Friction clutch on power feeds.
Longitudinal feed .0015" to .1000" per spindle revolution.
Cross feed .25 times longitudinal feed.
Half nut drive from lead screw thread for thread cutting.
Threads—48 selections RH or LH—4 to 224 per inch.
Lead screw diameter and threads per inch, ¾"-8.

BED

Width of bed across ways.....6 15/16"
Bed length .....43⅛"
Precision ground ways; 2 prismatic "V" ways and 2 flat ways.

HEADSTOCK AND SPINDLE

Front bearing — double row ball bearing.
Rear bearing—single row ball bearing.
Note: Sealed, pre-loaded New Departure Ball Bearings of the highest precision type are used.
Back gear shaft bearings — self lubricating bronze bearings.
Hole through spindle.....25/32"
Morse Taper with adaptor.No. 3-No. 2
Size of centers used, Morse Taper .....No. 2
Spindle nose diameter and threads per inch .....1½"-8
Width of cone pulley steps for belt.1"
Width of face of bull gear and back gears .....⅝"
Face plate diameter.....6"
Number of spindle speeds.....12
Spindle speeds, back gears engaged...30, 56, 70, 104, 131, 244
Spindle speeds, direct belt driven.179, 334, 420, 620, 780, 1450

CARRIAGE AND CROSS SLIDE

Cross slide graduated in thousandths. Travel .....6"
Cross feed screw mounted on self-lubricating bronze bearings.
Adjustable Double Tool Posts.
Tool Posts equipped with adjustable wedges.
Tool post tool slots.....7/16" x 1 9/16"

TURRET

Diameter of turret head.....5"
Six position, self indexing, with adjustable stops.
Turret holes, diameter.....⅝"
Turret holes bored from headstock of lathe.
Maximum stroke of turret.....4¼"

COUNTERSHAFT ASSEMBLY (Incl. in Price of Lathe)

2 Speed "V" Motor Pulley ⅝" Bore .....2⅜-4"
2 Speed countershaft flat pulley .....9"-10"
51"x½" V Belt used on flat of 2 step countershaft pulley and in V of motor pulley.
3 Step flat belt cone pulley mounted on countershaft. Width of step face .....1"
Countershaft mounted on self-lubricating bronze bearings.
Adjustable motor mounting bracket furnished with countershaft assembly.
Countershaft assembly independently supported on patented 3 point suspension.
Countershaft assembly completely insulated with rubber to prevent vibration being transmitted to lathe.
Countershaft and all pulleys completely enclosed and guarded.
Automatic belt tension release when guard for cone pulleys is raised to change belt steps.

SELF LUBRICATING BRONZE BEARINGS

at 35 points in lathe where plain bearings are ordinarily furnished.

OVERALL DIMENSIONS (Including Countershaft Assembly)

Length .....54"
Width .....30"
Height .....48½"

MOTOR

Use ⅓ or ½ H.P. 1750 R.P.M. Motor
If lathe is ordered without motor specify:

1. Bore of motor pulley to be furnished with lathe.
2. State whether 0636 or 0639 Drum Switch should be supplied. (See Accessory Circular for description of drum switch.)

SHIPPING WEIGHT

No. 840 Logan Lathe with legs, chip pan, and countershaft assembly, less motor.....595 lbs.

No. 850 Complete As Shown, Less Motor, F. O. B. Chicago $450.00

The Logan No. 850 Manufacturing Turret Lathe is an accurate, durable tool developed for continuous production of small parts. Within its capacity its output will equal in quality and quantity that of larger, costlier machines, thereby releasing them for heavier work. Thus it fills the urgent needs of today. Built to rigid and exacting specifications it can be depended upon for accurate work and long service life. Features of its design include: precision ground bed, precision pre-loaded ball bearing spindle mounting, adjustable gibs to compensate for wear of turret and cross slide. The turret holes are bored from the headstock. Added versatility is obtained by ordering the LA-49-1 Compound Rest Assembly and the LA-3 Tail Stock Assembly described in Logan Accessory catalog.

COUNTERSHAFT ASSEMBLY

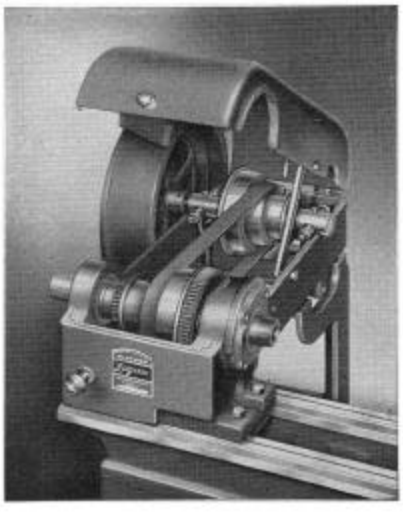
The patented countershaft assembly used in this machine is carried on a three point suspension and is completely insulated by rubber at all points of contact to prevent vibration being transmitted to the lathe.

All pulleys and belts are completely guarded yet readily accessible. The entire unit is designed to appear as a streamlined part of the lathe.

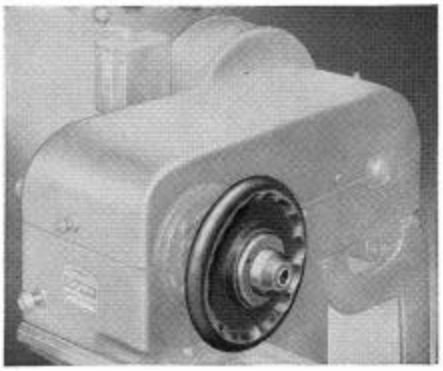
BALL BEARING HEADSTOCK

When the cone pulley guard is raised as shown at right, belt tension is automatically released for quick belt change.

The ball bearing spindle mounting is advanced design that is more expensive and produces finer results. New Departure grease sealed preloaded precision bearings give greater accuracy, less friction, less wear and require no adjustment or lubrication.



LOGAN ENGINEERING CO. • CHICAGO 30, ILL.



HAND WHEEL COLLET CHUCK

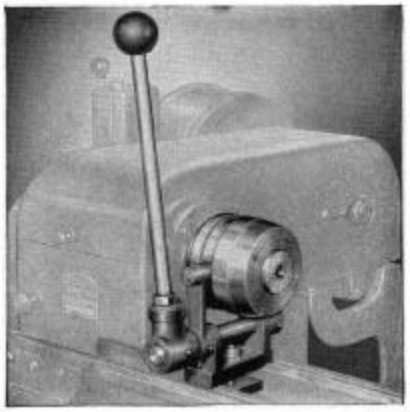
Fits No. 850 Manufacturing Lathe or others with 1½" x 8 thread spindle nose. Capacity: round work up to ⅝" diameter which may be fed through lathe spindle. Its positive grip closes concentrically on work without longitudinal movement of collet and with no slip or twist. Minimum overhang assures accuracy. Only three moving parts. No keys or wrenches. 7" diameter closing wheel, of specially processed plastic. Back plate included.

No. AC-201—Shipping wt., 6 lbs.....**$29.50**

PUSH TYPE COLLET

Used with Logan Collet Closers AC 210 and AC 201, and with the Logan LA 32-34 Bar Feed. A superior collet, alloy tool steel, heat treated for maximum wear, precision ground inside and out. Sizes 1/16" to ⅝" by 32nds.

No. AC-50—Shipping wt., 6 oz. each....**$4.50**



PRODUCTION COLLET ATTACHMENT

For Push Type Collets, ⅝" Capacity

Provides a quick acting collet closer which can be operated while lathe spindle is in motion. The control lever operates through two ball bearing rollers running in a groove on outside surface of the chuck body which actuates two hardened closing fingers, closing the collet concentrically. The work can be brought against a stop and locked in position without longitudinal movement. Chuck is attached to spindle by a back plate which must be fitted to the particular lathe on which the chuck is used, giving a high degree of accuracy. All parts of closing mechanism precision ground in place.

No. AC-210—Shipping wt., 25 lbs...**$49.50**

PRODUCTION COLLET ATTACHMENT

For Draw-In Collets Up to ½" Capacity

The Logan Production Collet Attachment for draw-in collets has ½" capacity and can be easily attached to Logan Lathes within a few minutes by any average mechanic. The attachment is lever operated, opens and closes while the lathe spindle is in motion. Easily adjustable to provide any desired collet tension. Order the No. AC 30 Draw-In Collet listed below for this attachment.

No. AC-166—For use with No. 815, 820, 825, 840 and 850 Logan Lathes **$39.50**

No. AC-165—For use with No. 200 and No. 210 Logan Lathes.....**$39.50**

DRAW-IN COLLET

Heat treated tool steel, ground inside and out to insure accuracy. One end of the collet is threaded for hollow draw bar and the other end fits taper in closing sleeve. Sizes for round work 1/16" to ½" diam. by 32nds.

No. AC-30—Shipping wt., ¼ lb. ea. **$3.75**

Collet capacity ⅝" with push type collets used in Logan No. AC-210 Production Collet Chuck or No. AC-201 Speed Collet Chuck.

Collet capacity ½" with draw-in collets used in Logan AC-166 Production Collet Chuck or Logan No. AC-151 Draw-in Collet Chuck.

NOTE: Push type collets give greater capacity, have greater holding power and close concentrically on the work without pulling it away from the stop.

SPECIFICATIONS

CAPACITY OF LATHE

Swing over bed and saddle wings .....10½"
Swing over cross slide.....4½"

THREADS AND FEEDS

Reversible power longitudinal feed.
Reversible power cross feed.
Lead Screw diameter and threads per in. .....¾"-8
Threads—46 selections RH or LH .....4-216 per in.
Independent change gears—17 furnished (6 on Lathe and 11 extra)
Width of face of change gears.. 7/16"

BED

Width of bed across ways....6 15/16"
Bed length .....43⅛"
Precision ground ways, 2 prismatic "V" ways and 2 flat ways.

HEADSTOCK AND SPINDLE

Spindle mounted on matched, grease-sealed, pre-loaded New Departure Ball Bearings of highest precision type.
Back gear shaft bearings — self lubricating bronze bearings.
Hole through spindle.....2 5/32"
Spindle nose diameter and threads per in. .....1½"-8
Width of cone pulley steps for belt..1"
Width of face of bull gear and back gears .....⅝"
Number of spindle speeds.....12
Spindle speeds, back gears engaged 30, 56, 70, 104, 131, 244
Spindle speeds, direct belt driven ..179, 334, 420, 620, 780, 1450
Drum Type Motor Reversing Switch and Cord

CARRIAGE AND CROSS SLIDE

Cross slide graduated in thousandths. Travel .....6"
Cross feed screw mounted on self-lubricating bronze bearings.
Adjustable Double Tool Posts.
Tool Posts equipped with adjustable wedges.
Tool post tool slots..... 7/16" x 1 9/16"

TURRET

Diameter of turret head.....5"
Six position with adjustable stops.
Turret holes, diameter .....⅝"
Turret holes bored from headstock of lathe.
Maximum stroke of turret.....4¼"

COUNTERSHAFT ASSEMBLY (Incl. in Price of Lathe)

2 Speed "V" Motor Pulley ⅝" Bore .....2 3/8"-4"
2 Speed countershaft flat pulley .....8 5/8"-10"
51"x½" V Belt used on flat of 2 step countershaft pulley and in V of motor pulley.
3 Step flat belt cone pulley mounted on countershaft. Width of step face .....1"
Countershaft mounted on self-lubricating bronze bearings.
Adjustable motor mounting bracket furnished with countershaft assembly.
Countershaft assembly independently supported on patented 3 point suspension.
Countershaft assembly completely insulated with rubber to prevent vibration being transmitted to lathe.
Countershaft and all pulleys completely enclosed and guarded.
Automatic belt tension release when guard for cone pulleys is raised to change belt steps.

OVERALL DIMENSION (Including Countershaft Assembly)

Length .....54"
Width .....30"
Height .....50"

SELF LUBRICATING BRONZE BEARINGS

at 19 separate points in lathe where plain bearings are ordinarily furnished.

MOTOR

Use ⅓ or ½ H.P. 1750 R.P.M. Motor. If lathe is ordered without motor specify:
1. Bore of motor pulley to be furnished with lathe.
2. State whether 0636 or 0639 Drum Switch should be supplied. (See Accessory Circular for description of drum switch.)

SHIPPING WEIGHT

No. 850 Logan Manufacturing Turret Lathe, less motor.....535 lbs.

PRINTED IN U.S.A.

AC-241 LEVER TAILSTOCK ASSEMBLY

Will be furnished with the Floor model Lathe in place of the regular tailstock when specified. Lever stroke, 2¾". Hand wheel spindle travel, 2⅜". Fitted for No. 2 Morse Taper Shank.

No. 200 Complete as Shown, Less Motor and Switch, F.O.B. Chicago **$225.00**

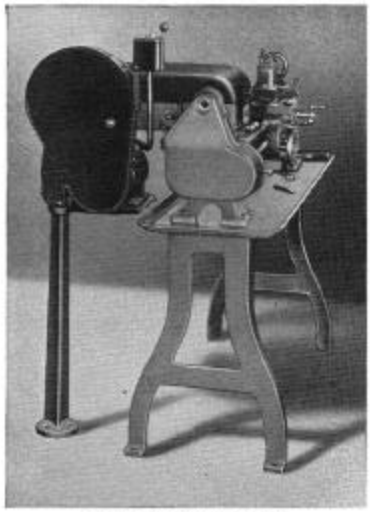
No. 200-1 Complete with No. AC-241 Lever Tailstock Assembly Replacing Regular Tailstock, Less Motor and Switch, F.O.B. Chicago **$242.50**

No. 0636 Drum Reversing Switch for 1 phase, 3 phase and DC Motors, (Not for capacitor types) **$5.00**

No. 0639 Drum Reversing Switch for capacitor type motors..... **$5.00**

The No. 200 Logan Back Geared Screw Cutting Lathe is a fine production tool developed for the shop requiring a high speed lathe of sustained accuracy. Advanced design, sound engineering, expert workmanship and rigid inspection all contribute to its excellence. Its specifications include many superior features including: Preloaded, grease-sealed precision ball bearing headstock spindle; patented countershaft assembly with three point suspension and rubber mountings; precision ground ways—2 prismatic V-ways and 2 flat ways. Also furnished as a bench type, Model 210.

LOGAN ENGINEERING CO. • CHICAGO 30, ILL.



END VIEW SHOWING COUNTERSHAFT ASSEMBLY

COUNTERSHAFT ASSEMBLY

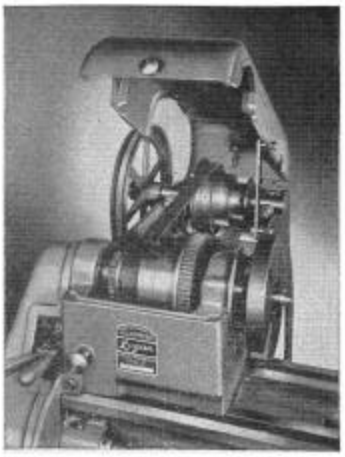
The patented countershaft assembly used in this machine is carried on a three point suspension and is completely insulated by rubber at all points of contact to prevent vibration being transmitted to the lathe.

All pulleys and belts are completely guarded yet readily accessible. The entire unit is designed to appear as a streamlined part of the lathe.

BALL BEARING HEADSTOCK

When the cone pulley guard is raised as shown at right, belt tension is automatically released for quick belt change.

The ball bearing spindle mounting is advanced design that is more expensive and produces finer results. New Departure grease sealed, preloaded bearings give greater accuracy, less friction, less wear and require no adjustment or lubrication.



HEADSTOCK AND COUNTERSHAFT WITH GUARD RAISED

Collet capacity ⅝" with push type collets used in Logan No. AC-210 Production Collet Chuck or No. AC-201 Speed Collet Chuck.

Collet capacity ½" with draw-in collets used in Logan AC-165 Production Collet Chuck or Logan No. AC-150 Draw-in Collet Chuck.

NOTE: Push type collets give greater capacity, have greater holding power and close concentrically on the work without pulling it away from the stop.

SPECIFICATIONS

CAPACITY OF LATHE

Swing over bed and saddle wings . . . 10½"
Swing over saddle cross slide . . . . . 6⅛"
Distance between centers . . . . . 24"

THREADS AND FEEDS

Reversible power longitudinal feed
Reversible power cross feed
Lead Screw diameter and threads per in. . . . . ¾"-8
Threads—46 selections RH or LH . . . . . 4-216 per in.
Independent change gears—17 furnished (6 on Lathe and 11 extra)
Width of face of change gears . . . . . $\frac{7}{16}$"

BED

Width of bed across ways . . . . . $6\frac{13}{16}$"
Bed length . . . . . 43⅛"
Precision ground ways; 2 prismatic "V" ways and 2 flat ways.

HEADSTOCK AND SPINDLE

Front bearing—double row ball bearing.
Rear bearing—single row ball bearing.
Note: Sealed, pre-loaded New Departure Ball Bearings of the highest precision type are used.
Back gear shaft bearings—self lubricating bronze bearings.
Hole through spindle . . . . . $\frac{25}{32}$"
Morse Taper with adaptor . . No. 3 - No. 2
Size of centers used, Morse Taper . No. 2
Spindle nose diameter and threads per in. . . . . 1½"-8
Width of cone pulley steps for belt . . . 1"
Width of face of bull gear and back gears . . . . . ⅝"
Face plate diameter . . . . . 6"
Number of spindle speeds 12
Spindle speeds, back gears engaged 30, 56, 70, 104, 131, 244
Spindle speeds, direct belt driven 179, 334, 420, 620, 780, 1450

CARRIAGE AND COMPOUND REST

Cross slide graduated in thousandths. Travel . . . . . 6¼"
Cross feed screw mounted on self-lubricating bronze bearings.
Compound rest top slide graduated in thousandths. Travel . . . . . 2¼"
Top slide screw mounted on self-lubricating bronze bearings.
Compound rest swivel—graduated 90° in both directions.
Tool post opening for tool holder shank . . . . . ⅜x¾"
Size of cutter bits used . . . . . ¼" sq.

TAILSTOCK

Spindle travel . . . . . 2⅜"
Spindle graduations . . . . . $\frac{1}{16}$"
Morse Taper center . . . . . No. 2
Tailstock top will set over for taper turning . . . . . $\frac{11}{16}$"

COUNTER SHAFT ASSEMBLY (Included in Price of Lathe)

2 Speed "V" Motor Pulley ⅝" Bore . . . . . 2⅜"-4"
2 Speed countershaft flat pulley . . . . . 8⅝"x9⅞"
40"x½" V Belt used on flat of 2 step countershaft pulley. Width of step face . . . . . 1"
3 Step flat belt cone pulley mounted on countershaft. Width of step face . . . . 1"
Countershaft mounted on self-lubricating bronze bearings.
Adjustable motor mounting bracket furnished with countershaft assembly.
Countershaft assembly independently supported on patented 3 point suspension.
Countershaft assembly completely insulated with rubber to prevent vibration being transmitted to lathe.
Countershaft and all pulleys completely enclosed and guarded.
Automatic belt tension release when guard for cone pulleys is raised to change belt steps.

LATHE EQUIPMENT (Included in Price of Lathe)

1	6" Face Plate	1	No. 3 - No. 2 Morse Taper Adaptor
2	60° Centers		
17	Change Gears	1	Tool Post Holder and Wrench
1	Threading Dial		
1	Threading Chart	1	Tailstock Wrench

Parts List and Instruction Book

SELF LUBRICATING BRONZE BEARINGS

at 22 separate points in lathe where plain bearings are ordinarily furnished.

OVERALL DIMENSION (Including Countershaft Assembly)

Length . . . . . 54"
Width . . . . . 30"
Height . . . . . 48½"

MOTOR

Use ⅓ or ½ H.P. 1750 R.P.M. Motor
If lathe is ordered without motor specify:
1. Bore of motor pulley to be furnished with lathe.
2. State whether 0636 or 0639 Drum Switch should be supplied. (See Accessory Circular for description of drum switch.)

SHIPPING WEIGHT

No. 200 Logan Lathe with legs, chip pan, and countershaft assembly, less motor . . . . . 520 lbs.

7844 15M

PRINTED IN U.S.A.

10" Swing; 24" Between Centers

No. 210 Complete As Shown, Less Motor and Switch, F.O.B. Chicago **$200.00**

No. 210-1 Complete with No. AC-241 Lever Tailstock Assembly Replacing Regular Tailstock, Less Motor and Switch, F.O.B. Chicago **$217.50**

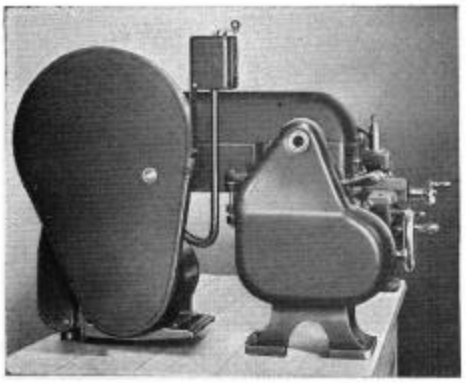
No. 0636 Drum Reversing Switch for 1 phase, 3 phase and DC Motors, (Not for capacitor types) **$5.00**

No. 0639 Drum Reversing Switch for capacitor type motors..... **$5.00**

AC-241 LEVER TAILSTOCK ASSEMBLY

Will be furnished with the bench lathe in place of the regular tailstock when specified. Lever stroke, 2¾". Hand wheel spindle travel, 2⅜". Fitted for No. 2 Morse Taper Shank.

The No. 210 Logan Back Geared Screw Cutting Lathe is a fine production tool developed for the machine shop requiring a high speed lathe of sustained accuracy. Advanced design, sound engineering, expert workmanship and rigid inspection all contribute to its excellence. Its specifications include many superior features including: Pre-loaded, grease-sealed precision ball bearing headstock spindle; patented countershaft assembly with three point suspension and rubber mountings; precision ground ways—2 prismatic V-ways and 2 flat ways. Also furnished as a floor type, Model 200.



END VIEW SHOWING COUNTERSHAFT ASSEMBLY

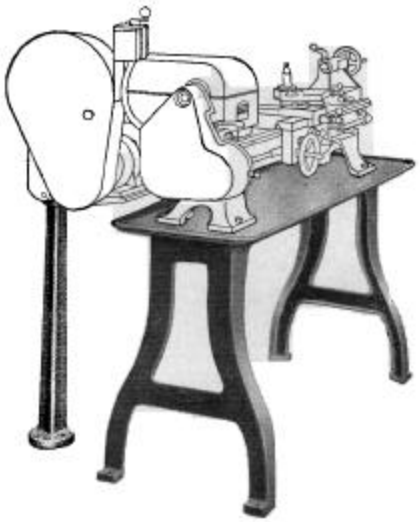
When cone pulley guard is raised, belt tension is automatically released for quick belt change.

COUNTERSHAFT ASSEMBLY

The patented countershaft assembly used in this machine is carried on a three point suspension and is completely insulated by rubber at all points of contact to prevent vibration being transmitted to the lathe.

All pulleys and belts are completely guarded yet readily accessible. The entire unit is designed to appear as a streamlined part of the lathe.

LOGAN ENGINEERING CO. • CHICAGO 30, ILL.



PAN, LEGS AND PEDESTAL

EASILY CONVERTED INTO FLOOR MODEL

The Logan No. 210 Bench Model Lathe is quickly and easily converted into a floor model by simply mounting the lathe on the legs, pan and countershaft pedestal as shown in the illustration at left.

No. 415 Set.....**$25.00**

Consists of legs, shallow chip pan, 1" deep, and countershaft pedestal leg.

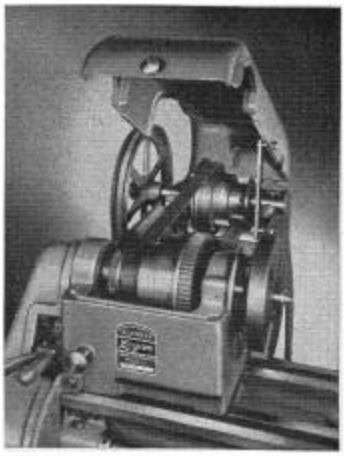
No. 418 Set.....**$28.00**

Consists of legs, drip pan 1½" deep, and countershaft pedestal leg.

BALL BEARING HEADSTOCK

When the cone pulley guard is raised as shown at right, belt tension is automatically released for quick belt change.

The ball bearing spindle mounting is advanced design that is more expensive and produces finer results. New Departure grease sealed, pre-loaded bearings give greater accuracy, less friction, less wear and require no adjustment or lubrication.



HEADSTOCK AND COUNTERSHAFT WITH GUARD RAISED

Collet capacity ⅝" with push type collets used in Logan No. AC-210 Production Collet Chuck or No. AC-201 Speed Collet Chuck.

Collet capacity ½" with draw-in collets used in Logan AC-165 Production Collet Chuck or Logan No. AC-150 Draw-in Collet Chuck.

NOTE: Push type collets give greater capacity, have greater holding power and close concentrically on the work without pulling it away from the stop.

SPECIFICATIONS

CAPACITY OF LATHE

Swing over bed and saddle wings.10½"
Swing over saddle cross slide.....6⅛"
Distance between centers.....24"

THREADS AND FEEDS

Reversible power longitudinal feed
Reversible power cross feed
Lead Screw diameter and threads per in. .....¾"-8
Threads—46 selections RH or LH.....4-216 per in.
Independent change gears—17 furnished (6 on Lathe and 11 extra)
Width of face of change gears.....$\frac{7}{16}$"

BED

Width of bed across ways.....6$\frac{5}{8}$"
Bed length .....43⅛"
Precision ground ways; 2 prismatic "V" ways and 2 flat ways.

HEADSTOCK AND SPINDLE

Front bearing—double row ball bearing.
Rear bearing—single row ball bearing.
Note: Sealed, pre-loaded New Departure Ball Bearings of the highest precision type are used.
Back gear shaft bearings—self lubricating bronze bearings.
Hole through spindle.....$\frac{3}{32}$"
Morse Taper with adaptor...No. 3-No. 2
Size of centers used, Morse Taper..No. 2
Spindle nose diameter and threads per in. .....1½"-8
Width of cone pulley steps for belt...1"
Width of face of bull gear and back gears .....⅝"
Face plate diameter.....6"
Number of spindle speeds.....12
Spindle speeds, back gears engaged.....30, 56, 70, 104, 131, 244
Spindle speeds, direct belt driven....179, 334, 420 620, 780, 1450

CARRIAGE AND COMPOUND REST

Cross slide graduated in thousandths. Travel .....6¼"
Cross feed screw mounted on self-lubricating bronze bearings.
Compound rest top slide graduated in thousandths. Travel .....2¼"
Top slide screw mounted on self-lubricating bronze bearings.
Compound rest swivel — graduated 90° in both directions.
Tool post opening for tool holder shank .....⅜x¾"
Size of cutter bits used.....¼" sq.

TAILSTOCK

Spindle travel .....2⅜"
Spindle graduations .....$\frac{1}{16}$"
Morse Taper center.....No. 2
Tailstock top will set over for taper turning .....$\frac{11}{16}$"

COUNTERSHAFT ASSEMBLY (Included in Price of Lathe)

2 Speed "V" Motor Pulley ⅝" Bore .....2⅜"-4"
2 Speed countershaft flat pulley .....8⅝"x9⅞"
40"x½" V Belt used on flat of 2 step countershaft pulley and in V of motor pulley.
3 Step flat belt cone pulley mounted on countershaft. Width of step face....1"
Countershaft mounted on self-lubricating bronze bearings.
Adjustable motor mounting bracket furnished with countershaft assembly.
Countershaft assembly independently supported on patented 3 point suspension.
Countershaft assembly completely insulated with rubber to prevent vibration being transmitted to lathe.
Countershaft and all pulleys completely enclosed and guarded.
Automatic belt tension release when guard for cone pulleys is raised to change belt steps.

LATHE EQUIPMENT (Included in Price of Lathe)

1	6" Face Plate	1	No. 3-No. 2 Morse Taper Adaptor
2	60° Centers		
17	Change Gears	1	Tool Post Holder and Wrench
1	Threading Dial		
1	Threading Chart	1	Tailstock Wrench

Parts List and Instruction Book

SELF LUBRICATING BRONZE BEARINGS

at 22 separate points in lathe where plain bearings are ordinarily furnished.

OVERALL DIMENSION (Including Countershaft Assembly)

Length .....54"
Width .....30"
Height .....21"

MOTOR

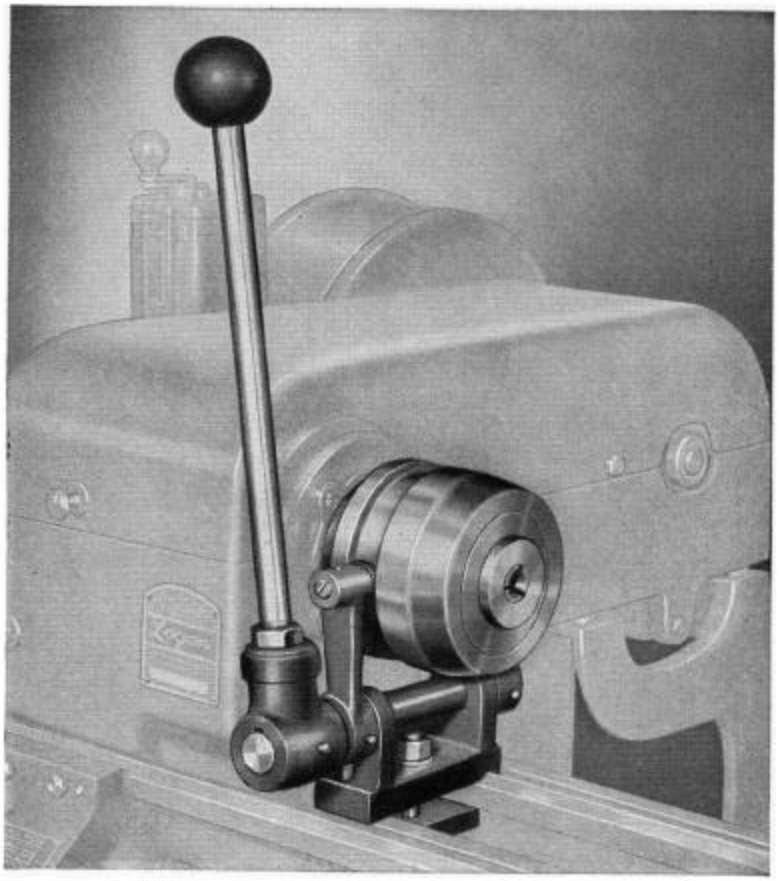
Use ⅓ or ½ H.P. 1750 R.P.M. Motor
If lathe is ordered without motor specify:
1. Bore of motor pulley to be furnished with lathe.
2. State whether 0636 or 0639 Drum Switch should be supplied. (See Accessory Circular for description of drum switch.)

SHIPPING WEIGHT

No. 210 Logan Lathe with countershaft assembly, less motor.....420 lbs.

PRINTED IN U.S.A.

ACCESSORIES FOR THE *Logan Lathe*



PRODUCTION COLLET ATTACHMENT

For Push Type Collets, ⅝" Capacity

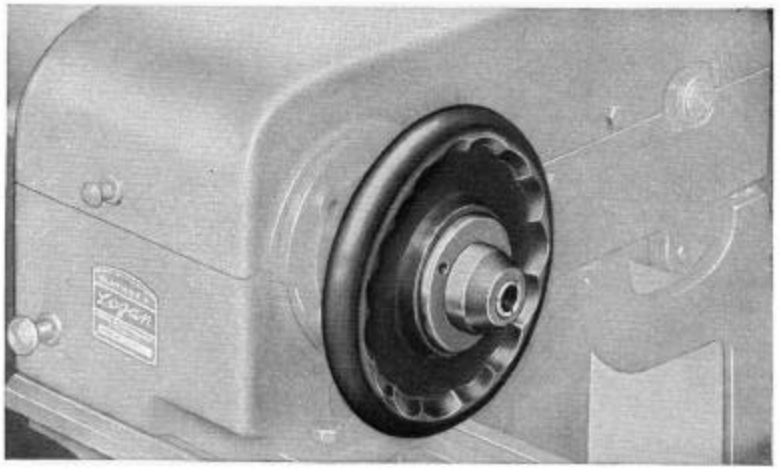
The Logan Production Collet Attachment shown at left provides a quick acting collet closer which can be operated while the lathe spindle is in motion. The control lever operates through two ball bearing rollers running in a groove on the outside surface of the chuck body which actuates two hardened closing fingers, closing the collet concentrically. The work can thus be brought against a stop and locked in position without longitudinal movement. The chuck is attached to the spindle by means of a back plate which must be fitted to the particular lathe on which the chuck is used, giving a high degree of accuracy. All parts of the closing mechanism are precision ground in place. The No. AC 50 Push Type Collet used is quickly and easily changed. Collets not furnished, but may be ordered in required size from 1/16" to ⅝" by 32nds, as listed below. Shipping weight, 25 lbs.

No. AC 210—Production Collet Attachment **$49.50**

PUSH TYPE COLLET

Used with Logan Collet Closers AC 210 (above) and AC 201 (at left). Also with the Logan LA 32-34 Bar Feed shown on page 3. A superior collet, made of alloy tool steel, correctly heat treated for maximum wear, precision ground inside and out. Sizes 1/16" to ⅝" round by 32nds. Work must be within .005" of collet size. Shipping weight, 6 oz. each.

No. AC 50—Push Type Collet..... **$4.50**



HAND WHEEL COLLET CHUCK

Fits Logan Lathe Spindles or other lathes with a 1½" x 8 thread spindle nose. Capacity: Round work up to ⅝" diameter which may be fed through lathe spindle. Its positive squeeze grip closes concentrically on work without longitudinal movement of collet and with no slip or twist. Minimum overhang assures accuracy. Only three moving parts. No keys or wrenches. Closing wheel is 7" in diameter of specially processed plastic and located within easy reach of operator. Uses No. AC 50 Push Type Collet shown at right above. Shipping weight, 6 lbs.

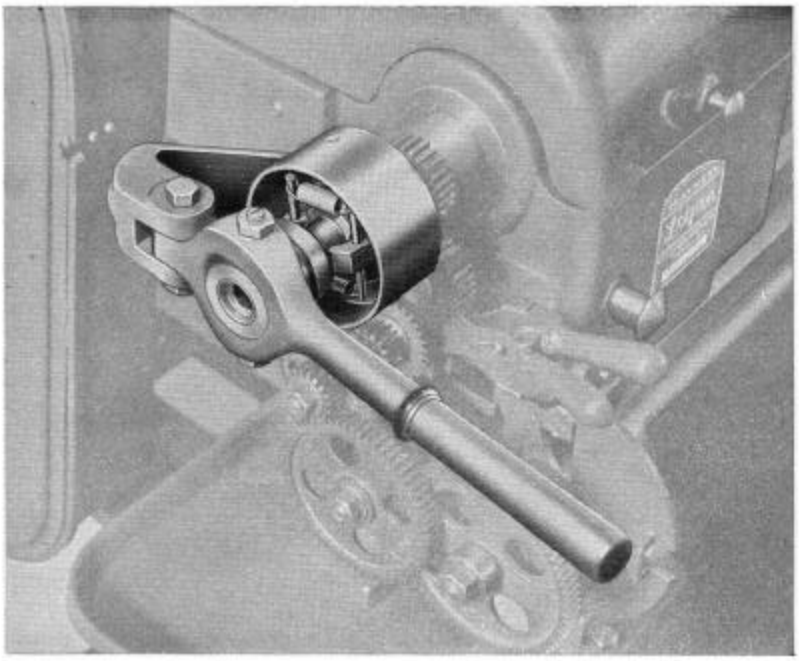
No. AC-201—Logan Speed Collet Chuck with back plate **$29.50**

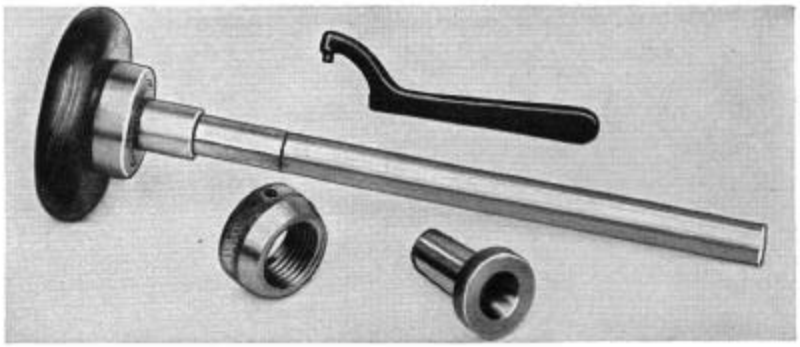
CHUCK BACK

For AC 201 and AC 210 Collet Chucks

Threaded to fit Logan 1½" 8-thread spindle. Face semi-finished. Same as furnished with AC 201 and AC 210 Chucks. To be fitted to chuck for use on one particular lathe, but cannot afterwards be used with accuracy on other lathes. Shipping weight, 4 lbs.

No. AC 221—Chuck Back **$3.25**





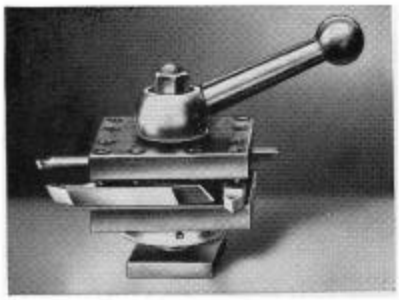
DRAW-IN COLLET CHUCK ATTACHMENT

Used to chuck work between $\frac{1}{16}$" and ½" diam. with extreme accuracy. Consists of hollow draw bar, tapered closing sleeve, spindle nose cap and spindle cap wrench. Draw bar extends through headstock spindle of lathe and is threaded at end to draw collet into accurately ground closing sleeve. The spindle nose cap, when unscrewed, withdraws closing sleeve. No. AC-30 collet listed at right. Shipping weight, 4 lbs.

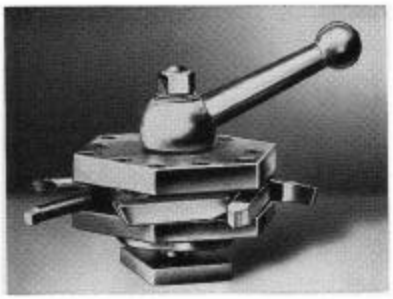
No. AC-150—Draw-in Collet Chuck Attachment for No. 200 and No. 210 Lathes up to Serial No. 24890 ..... **$21.00**

No. AC-150-1—For No. 200 and No. 210 Lathes, Serial No. 24891 and over... **$21.00**

No. AC-151—Draw-in Collet Chuck Attachment for No. 815, 820, 825, 840 and 850 Lathes **$21.00**



No. 513—FOUR TOOL, SQUARE



No. 515—SIX TOOL, HEX

TURRET TOOL POSTS

These versatile tool post turrets greatly speed up production and save time on runs of parts by eliminating many second operation jobs. Either turret mounts in the Tee slot of a compound rest. Both the square and hex turrets have twelve indexing positions available. Accommodates tools up to ⅜" and is easily set up. The self contained, indexing mechanism is accurate and positive. Case hardened construction insures long wear. Shipping weight, 4 lbs.

No. 513—Square Tool Post Turret (2½" square) for No. 200, No. 210, 815, 820 and 825 Lathes **$23.00**

No. 514—Same as No. 513 for No. 830, No. 840 or No. 850 Lathes..... **$23.00**

No. 515—Hexagon Tool Post Turret (3" hex.) for No. 200, No. 210, 815, No. 820 and 825 Lathes..... **$25.00**

No. 516—Same as No. 515 for No. 830, No. 840 or No. 850 Lathes..... **$25.00**

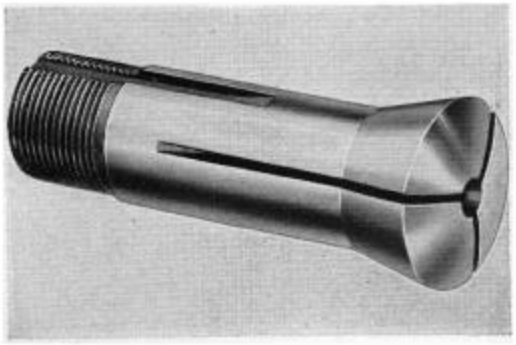
PRODUCTION COLLET ATTACHMENT

For Draw In Collets Up to ½" Capacity

The Logan Production Collet Attachment for draw-in collets has ½" capacity and can be easily attached to Logan Lathes within a few minutes by any average mechanic. The attachment is lever operated, opens and closes while lathe spindle is in motion. Easily adjustable to provide any desired collet tension. Order No. AC 30 Draw-In Collet shown below in required sizes. Shipping weight, 12 lbs.

No. AC 165—For Logan No. 200 and 210 Lathes **$39.50**

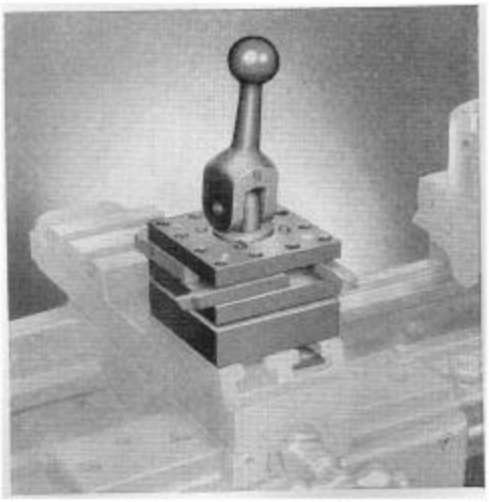
No. AC 166—For Logan No. 815, 820, 825, 840 and 850 Lathes..... **$39.50**



DRAW-IN COLLET

Heat-treated tool steel, ground inside and outside to insure accuracy. One end of the collet is threaded for hollow draw bar and the other end fits taper in closing sleeve. In sizes for round work $\frac{1}{16}$" to ½" diam. by 32nd's. For satisfactory results, stock should not be more than .005" larger or smaller than collet size. State size wanted. Shipping weight, ¼ lb. each.

No. AC-30—Split Holding Collet..... **$3.75**



TURRET TOOL POSTS

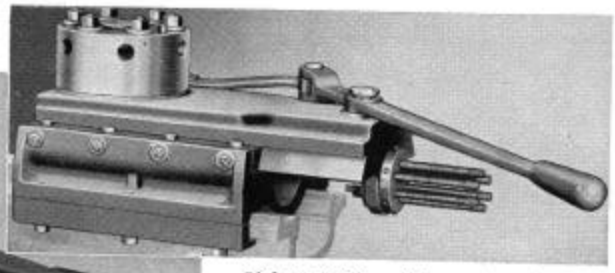
Automatically Indexed and Locked

Automatic, one-hand indexing and locking of these Turret Tool Posts leaves the other hand free for power cross slide movements or other simultaneous operations. 3½" square, they accommodate standard ⅜" tool bits. Fast acting, easily operated cam lever locks the turret in place for each of four positions, assuring accurate operation. Easily installed on the Logan No. 830 Hand Screw Machine and on the Logan No. 840 and No. 850 Turret Lathes. Simply mount solidly on the front of the cross slide and key in place. Shipping weight, 10 pounds.

No. 517 For Double Tool Post Cross Slide with *single* front slot..... **$57.50**

No. 518 For Double Tool Post Cross Slide with *double* front slot..... **$57.50**

TURRET ASSEMBLY



Right End View of Turret Assembly

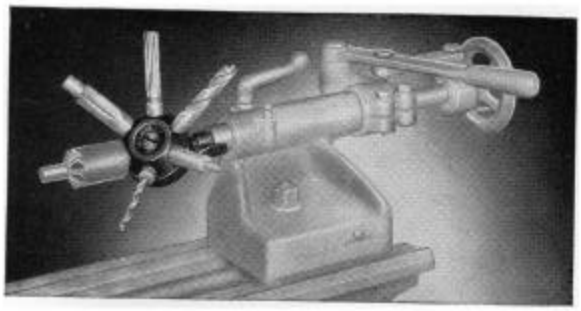
Six Position . . . Self Indexing . . . Improved Design . . . Accurate to Within .002" . . . Will Fit Bed of Any Logan Lathe

The Logan Turret Assembly is an improved design with heavy durable construction, fine materials and careful workmanship. Actual war production experience in hundreds of plants has proved its effectiveness in the machining of small parts. This Turret Assembly is identical to the turret furnished in Logan No. 830, 840 and 850 Turret Lathes. It can be fitted to the No. 200, 210, 815, 820 and 825 Logan Lathes; however, careful workmanship in fitting is required. When possible, we recommend purchasing a No. 830, 840 or 850 Turret Lathe as a complete unit to obtain maximum utility and accuracy.

BRIEF SPECIFICATIONS:

Diameter of turret head, 5". . . six positions with adjustable stops . . . self indexing . . . maximum stroke of turret, 4¼". . . furnished rough bored 9/16" and must be finished bored to ⅝" diameter by the purchaser while actually in position on the lathe on which it is to be used. Shipping weight, 75 lbs.

LA 40-51—Turret Assembly **$200.00**



TAILSTOCK TURRET

Finger tip control rotates tools in direct line with spindle. Compact, accurate, and durable. Body, which is 2½" in diameter, is made from close grained semi-steel castings. The six ⅝" bored holes are held to close tolerance. Operating lever has a positive, hardened taper pin which works in tapered index holes, thus preventing any side play. Tools shown are not included. Shipping weight 3 lbs.

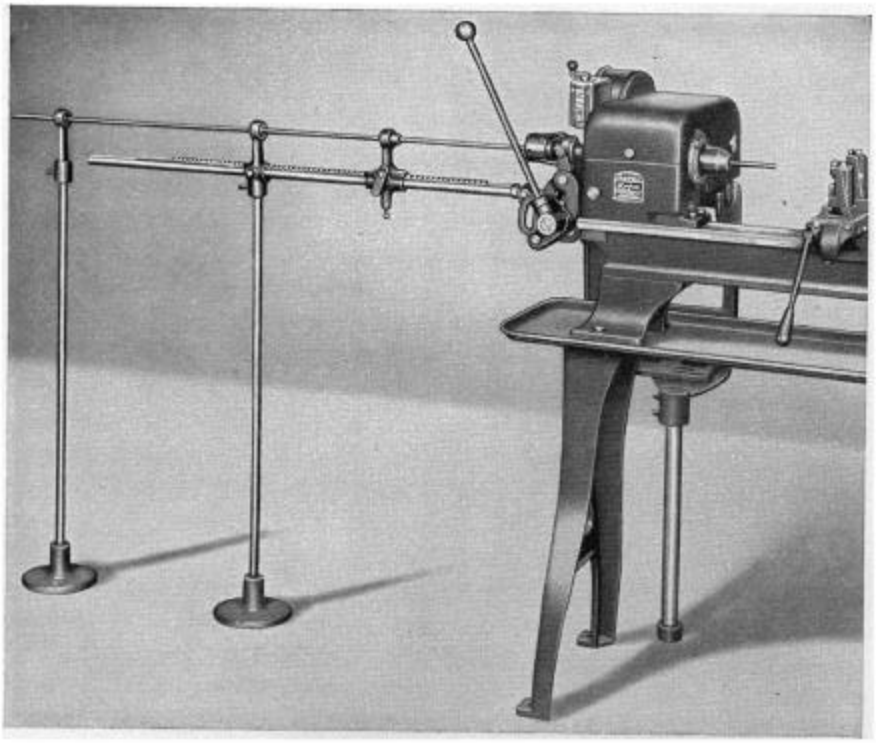
No. 519—Turret (No. 1 Morse Taper Shank)..... **$18.95**

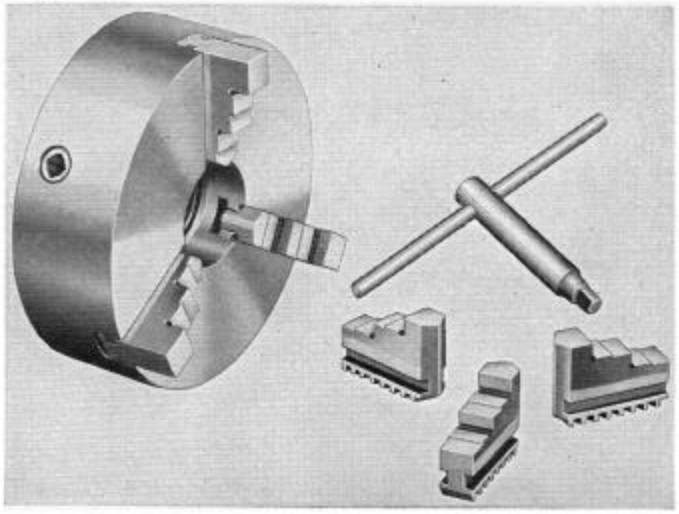
No. 521—Turret (No. 2 Morse Taper Shank)..... **18.95**

LOGAN BAR FEED

The Logan Bar Feed, with a maximum capacity of ⅝" round stock, is offered for use with the No. 830 Hand Screw Machine. It does not fit other models. When used in connection with No. 830, a highly efficient continuous production may be obtained. Maximum feed per stroke, 2". The patented cam action, which locks the collet and operates the bar feed, is so designed that there is no feed while bar is being locked and no locking action while bar is being fed. Feed and locking mechanism is protected by a shield, not shown in illustration. Easily attached or detached. Order No. AC-50 push type collets as shown on page one in sizes required. Shipping weight 45 lbs.

No. LA 32-34—Bar Feed..... **$95.00**





3-JAW, 5-INCH UNIVERSAL CHUCK

This new medium duty Universal Chuck is built on an entirely new principle, which makes it capable of heavier, better and more accurate work than heretofore obtainable in this price range. The main body of the chuck itself is threaded for 1½"-8 thread spindles, and requires no separate back plate. Due to its new and greatly improved design, it has less overhang, less vibration and gives heavier cut-off capacity without sacrifice of accuracy. It is precisely machined from highest quality materials. Complete with set of heat treated outside grip and inside grip jaws and wrench. Shipping weight, 12 lbs.

No. 439—5"—3-Jaw Universal Chuck.....**$24.50**

4-JAW INDEPENDENT CHUCK

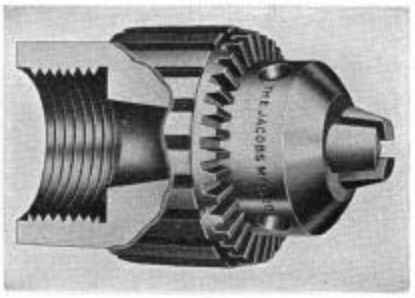
A strong and accurately built medium duty chuck. The body is a one-piece semi-steel casting with the outer edge and the entire face ground. Chuck has four reversible jaws with independent screw adjustments. For either round or irregular work. Jaws are heat-treated alloy steel with ground steps for firm inside or outside grip. Hardened alloy steel screws have socket head for wrench. Chuck body is fitted for 1½"—8-thread lathe spindle. Shipping weight, 13 lbs.

No. 444—6"—4-Jaw Independent Chuck with Wrench.....**$17.50**

COMMUTATOR KIT

A complete unit designed especially to hold armature shafts rigidly during reconditioning. It contains a Jacobs Armature Driving Chuck, ¼ to ¾" capacity, and a Center Rest Chuck also ¼ to ¾" capacity. Both chucks are equipped with No. 2 Morse Taper Arbors to fit the headstock and tailstock of the lathe respectively, replacing the centers. The kit is boxed complete as a set and includes mounting and operating instructions. Shipping weight, 9 lbs.

No. 459—Jacobs Commutator Kit.....**$18.00**

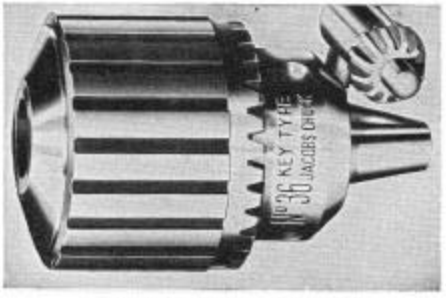


JACOBS HEADSTOCK CHUCK

Screws on to the 1½"—8-thread spindle of lathe. Has hollow body for holding small diameter work running through spindle. Shipping weights, 3½ and 4½ lbs.

No. 453—Headstock Chuck, ⅛ - ⅜"....**$13.50**

No. 454—Headstock Chuck, $\frac{3}{16}$ - ¾".... **16.25**

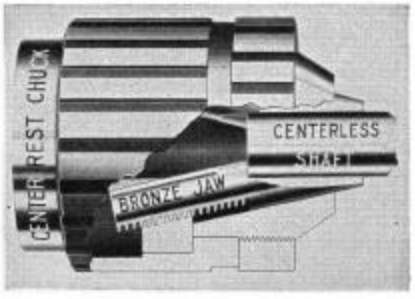


JACOBS DRILL CHUCK

A strong accurate drill chuck for either headstock or tailstock. Requires No. 2 M.T. Arbors shown below to mount in lathe. Shipping weights, 2½ and 3½ lbs.

No. 451—Drill Chuck, 0-½".....**$ 6.75**

No. 452—Drill Chuck, $\frac{3}{16}$-¾"..... **10.75**



JACOBS CENTER REST CHUCK

The Center Rest Chuck requires No. 2 Morse Taper Arbor below to mount in the tailstock of lathe for supporting centerless work such as armature shafts. Has three adjustable bronze jaws in which shaft rotates. Shipping weight, 3 lbs.

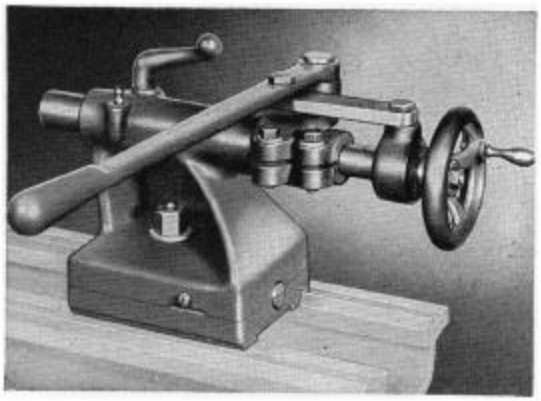
No. 455—Center Rest Chuck, ¼ - ¾"....**$9.00**

DRILL CHUCK ARBORS

Use to fit chucks to No. 2 Morse Taper in headstock or tailstock of lathe. Shipping weight, ¾ lbs.

No. 447—Arbor for 451 Chuck.....**$ .72**

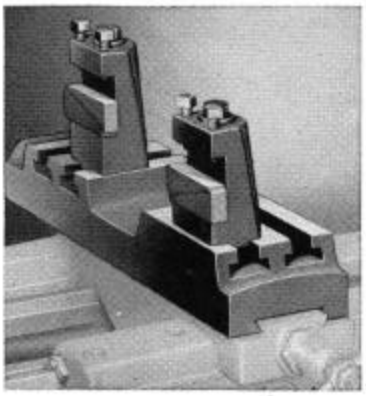
No. 448—Arbor for 452 and 455 Chuck.. **.72**



LEVER TAILSTOCK

Supplies the added advantages of a production tailstock and can be set to operate as a standard tailstock. Lever stroke, 2¾". Handwheel spindle travel 2⅜". Fitted for No. 2 Morse Taper. When ordered with lathe, it is factory fitted to lathe bed and matched to headstock. Furnished on lathe in place of LA-3 tailstock at extra charge of $17.50. Shipping weight, 30 lbs.

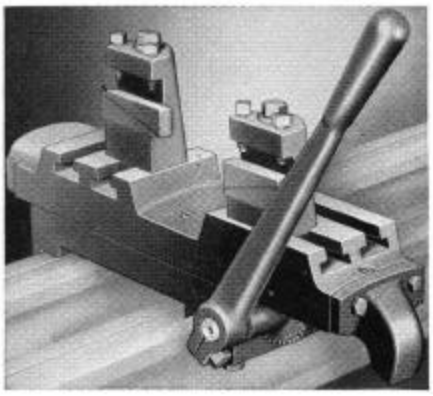
No. AC-241 ..... **$37.50**



DOUBLE TOOL POST CROSS SLIDE

Same as furnished with the No. 840 and No. 850 Turret Lathes. Fits cross slide on No. 200, 210, 815, 820 and 825 Lathes, replacing standard cross slide and compound rest. Manual feed by hand wheel or power cross feed. Adjustable tool post wedges included. Shipping weight, 18 lbs.

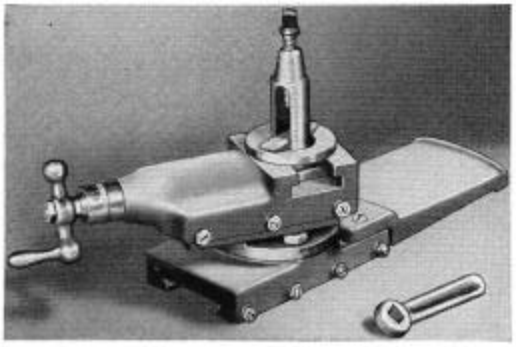
No. LA-29—Double Tool Post Cross Slide **$24.00**



DOUBLE TOOL POST CROSS SLIDE

Same as furnished with No. 830 Hand Screw Machine. Fits any Logan Lathe bed. Lever operated cross slide has adjustable stops with a maximum travel of 3". Adjustable wedges for tool holder slot included. Shipping weight, 30 lbs.

No. LA-25—Double Tool Post Cross Slide **$38.00**



COMPOUND REST ASSEMBLY

Same as furnished with No. 200, 210, 815, 820, and 825 Logan Lathes. Fits No. 840 or 850 Turret Lathes in place of double tool post cross slide. Complete with tool post and wrench, shipping wt., 13 lbs.

No. LA-49-1 ..... **$24.00**

TAILSTOCK ASSEMBLY

The LA-3 Tailstock assembly is the same as furnished with the screw cutting lathes. This assembly when ordered with the No. 840 or 850 Lathe, will have the tailstock matched with headstock at factory. Furnished with wrench but less 60° center. When used with No. 840 or 850 Lathe, order LA-223 headstock adapter sleeve and 60° centers extra. Shipping weight, 24 lbs.

No. LA-3—Tailstock Assembly **$20.00**

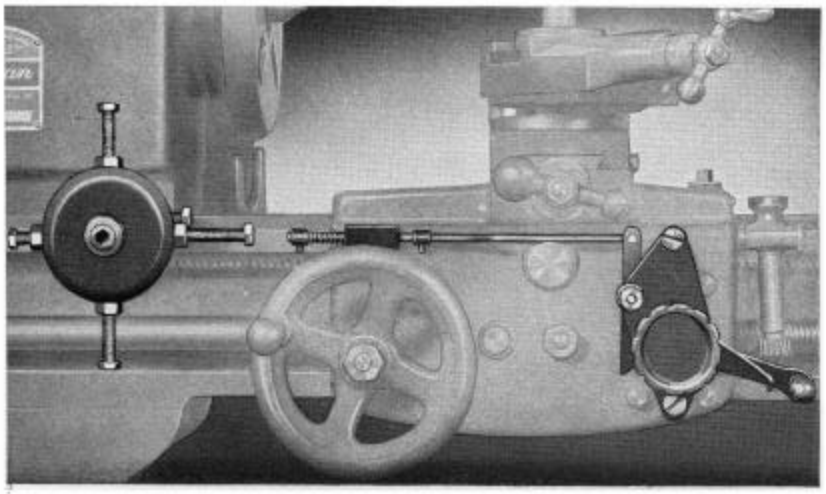
AUTOMATIC FEED CONTROL

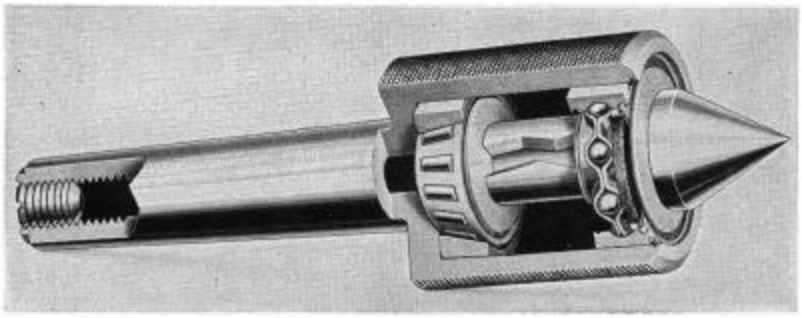
Easily Installed—Quickly Adjustable For Four Different Stop Settings

Fast and accurate in operation, this new Automatic Feed Control is easily installed on Logan No. 200 and No. 210 Back Geared Screw Cutting Lathes and on the No. 850 Manufacturing Turret Lathe. The device is quickly adjustable for four different stop settings, which stop the lathe carriage instantly at any pre-determined point by disengaging the half-nuts. The Automatic Feed Control does not interfere with other lathe controls, and, if desired, can be made inoperative in a minute or two. Pays for itself through speeded work, reduced spoilage, and conserved manpower. Shipping weight, 8 lbs.

No. 425—For lathes with serial numbers under 20324 ..... **$29.50**

No. 425-1—For lathes with serial numbers over 20324 ..... **29.50**

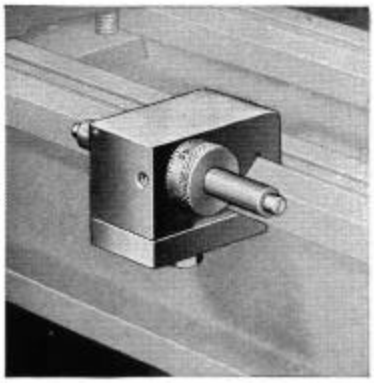




ANTI-FRICTION CENTER

The live center which turns with the work eliminates friction between work and centers, permitting faster turning, and deeper cuts on heavier work. Equipped with grease sealed, pre-loaded, precision bearings held in place by a one piece housing, hardened and ground to exacting tolerance. Thrust load is carried by a Timken Roller Bearing and the radial load by New Departure Ball Bearings. Bearing housing 1-11/16" diameter. No. 2 Morse Taper Shank. Centerpiece angle 60°. Shipping weight, 2 lbs.

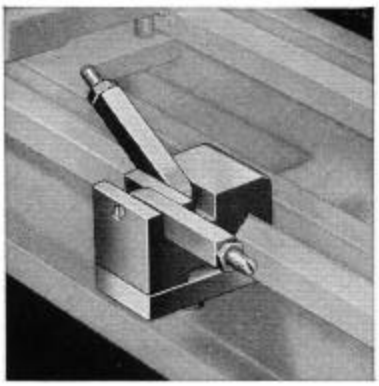
No. 595—Anti-Friction Center.....**$22.50**



MICROMETER CARRIAGE STOP

The Logan Micrometer Carriage Stop is used to locate the carriage position with accuracy on the lathe bed. The graduated micrometer collar is clearly marked in thousandths, easy to read. Setting may be locked for duplicate work. Shipping weight, 3 lbs.

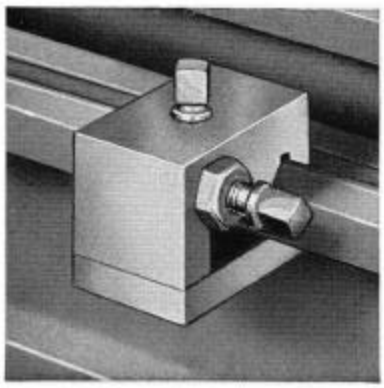
No. AC-234—Price.....**$11.50**



DOUBLE CARRIAGE STOP

With an adjustable screw in the end of each finger this Logan Double Carriage Stop can be accurately set for two desired positions. Either finger of stop can be quickly brought into position. The stop clamps to the lathe bed for use on either side of the carriage. Shipping weight, 3 lbs.

No. AC-226—Price **$5.50**



CARRIAGE STOP

Provides positive position stop for lathe carriage. May be used either to the right or left of carriage. Adjustment screw with locknut for accurate adjustment. Clamps, over front "V" Way on any Logan Lathe bed. Shipping weight, 2 lbs.

No. AC-225 .....**$3.00**

CENTER DRILL AND COUNTERSINK

Tool steel. Drills and countersinks proper bearing for lathe center.

No. 575—60° Countersink Drill, 1/16".**$ .30**

No. 575—60° Countersink Drill, 3/32". **.35**

No. 575—60° Countersink Drill, 1/8".. **.40**

60° CENTER

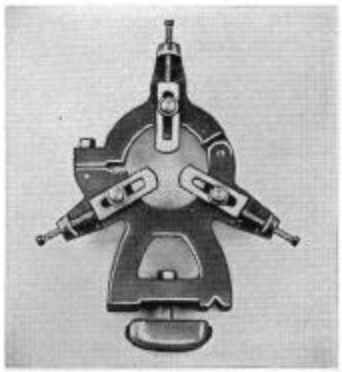
Hardened and ground tool steel No. 2 Morse Taper Shank. Shipping weight, ½ lb.

No. LA-187—60° Center.....**$2.00**

FOLLOWER REST

Mounts on carriage and follows cutting tool, supporting thin work. Adjustable machined jaws, cast-iron frame, with screws for attaching. Shipping weight, 5 lbs.

No. AC-196—Follower Rest.....**$4.25**



CENTER REST

Clamps to inner ways of lathe bed to support long pieces. Adjustable jaws. Top is hinged for easy inserting or removing of shafts. Cast-iron frame, machined cast-iron jaws. Shipping weight, 8 lbs.

No. AC-189—Center Rest.....**$6.25**

STRAIGHT TOOL HOLDER

RIGHT-HAND TOOL HOLDER

LEFT-HAND TOOL HOLDER

LATHE TOOL HOLDERS

Drop-forged, heat-treated and hardened steel tool holder. Heat-treated alloy steel set screw. Tool holder shank measures ⅜"x¾". Shipping weight, 1 lb.

No. 552—Tool Holder, Straight **$1.50**

No. 551—Tool Holder, Right-Hand ... **1.50**

No. 550—Tool Holder, Left-Hand **1.50**

BLANK CUTTER BITS

Unground blanks. Measures ¼"x¼"x2". High speed steel, heat-treated, ready to sharpen. Shipping weight, 1 lb.

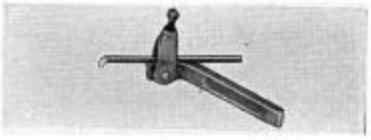
No. 560—Blank Cutter Bits, Set of 6...**$1.10**

KNURLING TOOL HOLDERS

Self-centering rollers form medium diamond knurl. Shipping weight, 1 lb.

No. 555—Knurling Tool **$3.50**

No. 565—Extra Knurls. Choice of fine, medium or coarse Diamond. Price per pair.....**$1.15**



BORING TOOL HOLDER

Reversible yoke for right- or left-hand work. Shipping weight, 1½ lbs.

No. 556—Boring Tool Holder, Complete **$3.50**

BORING BARS

High-speed steel tip welded on to carbon steel shank. Shipping weight, 2, 2, 3, 4 and 5 ounces.

No. 570-A—Boring Bar, ⅛x4" **40c**

No. 570-B—Boring Bar, $\frac{3}{16}$x4½" ...**55c**

No. 570-C—Boring Bar, ¼x5" **65c**

No. 570-D—Boring Bar, $\frac{5}{16}$x6" **75c**

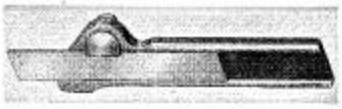
No. 570-E—Boring Bar, ⅜x7" **95c**

R.H. CUTTING-OFF TOOL

With ready ground high-speed steel blade. Hardened clamp locks blade rigidly. Shipping weight, 1 lb.

No. 554—Tool Holder, R.H. Cut-off **$1.85**

No. 564—Extra Cut-off Blade.... **.60**



STRAIGHT CUT-OFF TOOL HOLDER

With ready ground high-speed steel blade. Hardened clamp locks blade rigidly. Shipping weight, 1 lb.

No. 557 .....**$1.85**

THREADING TOOL HOLDERS

For cutting 60° V Threads. Resharpen by grinding top edge only. ⅜"x¾" shank. Shipping weight, 1 lb.

No. 553—Tool Holder, Threading.**$3.00**

No. 563—Extra Cutter only.....**$1.95**

STANDARD LATHE DOGS

Heavy drop-forged steel with square head alloy steel set screw.

No. 580—Lathe Dog, ½". Shipping weight, 4 oz...**60c**

No. 580—Lathe Dog, ¾". Shipping weight, 5 oz...**70c**

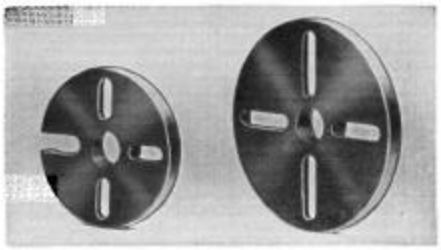
No. 580—Lathe Dog, 1". Shipping weight, 7 oz...**90c**

No. 580—Lathe Dog, 1½". Shipping weight, 10 oz..**1.00**

CLAMP TYPE LATHE DOG

Holds round, hexagonal or rectangular work. Made of heavy drop-forged steel machined and hardened. Shipping weight, ½ lb.

No. 585—Clamp Lathe Dog, 1¾" **$2.40**



FACE PLATES

Accurately machined gray iron face plates fitted for 1½" — 8-thread lathe spindle nose. Shipping weight, 4 and 6 lbs.

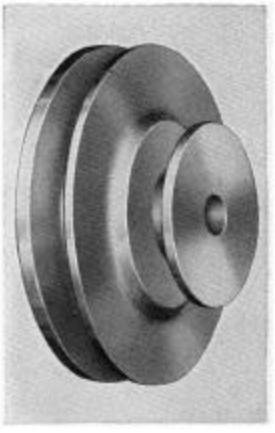
No. LA-170—6" Face Plate **$2.25**

No. LA-344—8" Face Plate **3.75**

2 Step, V-Groove MOTOR PULLEY

This motor pulley is available with three separate bores, made for ½", ⅝", and ¾" shafts. Specify the size of bore required when ordering. Shipping weight, 3 lbs.

No. LA-349...$4.95

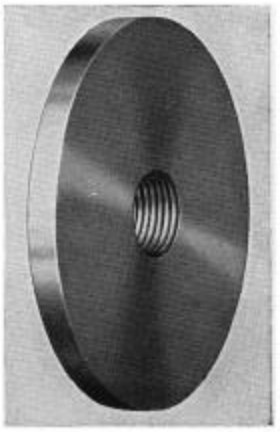


CHUCK BACK PLATE For 5" and 6" Chucks

Threaded for Logan 1½", 8-thread spindles. Unfinished face allows for machining to assure accurate fit on chuck. Made in two sizes. 5" chuck size shipping weight is 3½ lbs. 6" chuck size has shipping weight of 7 lbs.

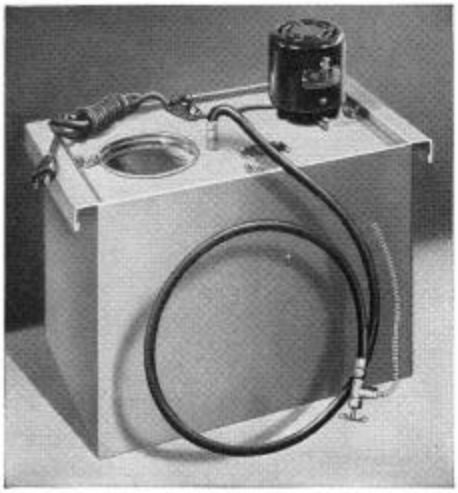
No. AC-101—For 5" Chuck **$3.00**

No. AC-104—For 6" Chuck **$4.50**



HEAVY DUTY COOLANT PUMP

High Pressure — Gear Type



Conserves the life of cutting tools and the time of the machine operator by automatically applying the coolant in the exact amount and to the exact spot needed. This light weight, portable coolant pump operates independently of the machine tool. Delivers coolant or cutting oil *to the cutting operation*—from a full stream to a few drops. Easy to install—easy to clean and maintain.

PUMP: Gear type, positive acting, precision-built. Hardened steel gears and pivot; high stress casting; replaceable OILITE bearing. Equipped with by-pass safety valve. All parts easily accessible.

MOTOR: 1/25 H.P. 115 V. AC 60 Cy. 1 phase; thrust protected type, with built-in fan. Equipped with 2 oil cups.

CONTAINER: 7½ gal. capacity; size 16"x9¼"x12" high. Equipped with 5" bowl screen strainer. Corrosion resistant finish.

EQUIPMENT: 4 ft. of ⅜" Neoprene hose with flow control pet cock and 12" of flexible feed spout. 5½ ft. of rubber-covered electric cord with plug and motor switch.

CAPACITY: 90 gallons per hour; pressure 20 lbs. (depending on the coolant viscosity).

SHIPPING WEIGHT: 38 lbs.

No. 525—Coolant Pump Complete.....**$57.00**

DRUM REVERSING SWITCH

Fits all Logan Lathes. Capacity, up to 1 HP and 550 Volts AC. May be used to replace toggle switch on Logan Lathes for heavier service. Shipping weight, 2 lbs.

No. 0636 — For use with 1 phase, 3 phase and DC motors. Not for capacitor types **$5.00**

No. 0639 — For use with capacitor type motors **$5.00**

ELECTRIC MOTORS

1/3 H.P. Single Phase 1750 RPM Capacitor Motor, 110 V 60 cycle, sleeve bearings, single end shaft. Shipping weight, 33 lbs.

No. 1100 Motor.**$20.95**

1/2 H.P. Single Phase 1750 RPM Capacitor Motor, 110-220V 60 cycle, sleeve bearings, single end shaft. Shipping weight, 49 lbs.

No. 1105—Motor **$26.95**

1/2 H.P. Three Phase 1750 RPM Motor, 220-440V 60 cycle, sleeve bearings, single end shaft. Shipping weight, 49 lbs.

No. 1110—Motor **$28.50**

All Prices F.O.B. Chicago

LOGAN ENGINEERING COMPANY

4901 LAWRENCE AVENUE, CHICAGO 30, ILLINOIS

Logan ***A NAME TO REMEMBER WHEN YOU THINK OF LATHES***

71044-15M

PRINTED IN U.S.A.