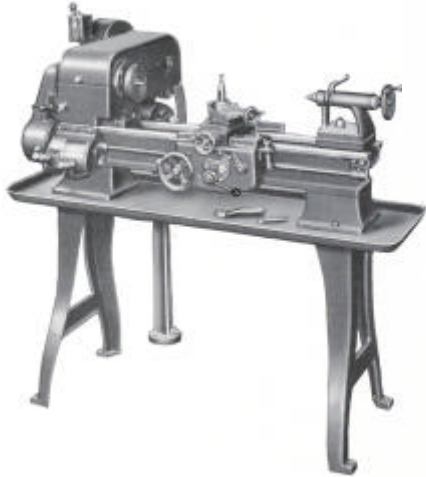
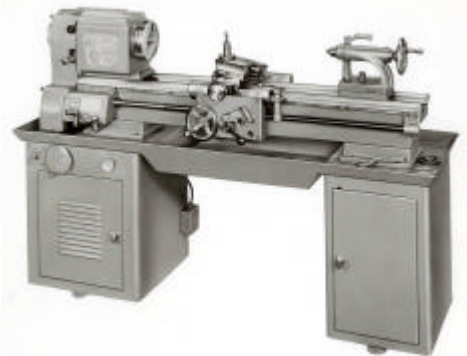


# Logan Lathe



## **OPERATORS INSTRUCTIONS PARTS LIST**



### **LOGAN ACTUATOR CO.**

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MODEL:

WARDS POWR-KRAFT -2130 • -2136

## LOGAN ACTUATOR CO



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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.

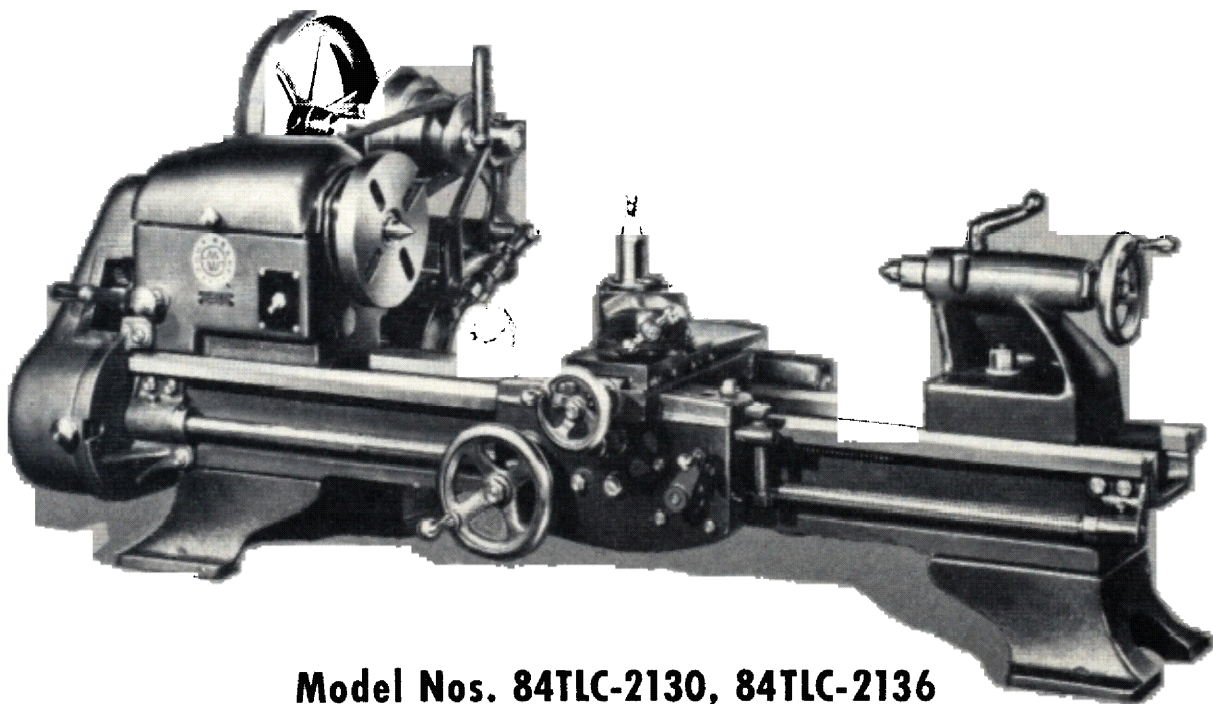
# *Owner's Guide*

INSTALLATION • OPERATION • MAINTENANCE • REPAIR PARTS LIST

WARDS

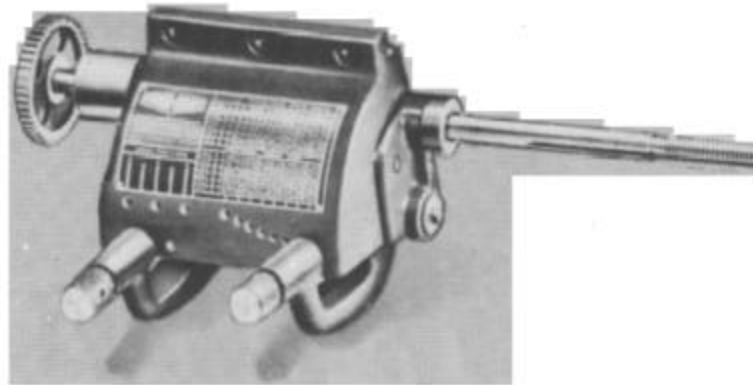
**POWER-KRAFT**

## BACK GEARED SCREW-CUTTING LATHE



Model Nos. 84TLC-2130, 84TLC-2136

M O N T G O M E R Y W A R D



## **POWR-KRAFT QUICK-CHANGE GEAR BOX**

Converts Models 2130 and 2136, as well as those in the older 700 Series of Powr-Kraft Lathes, to a modern quick-change lathe.

Holes for this attachment are drilled and tapped in lathes bearing Serial Numbers from 3543-A. Older models will require four holes to be drilled and tapped.

Box provides 48 threads and feeds in either direction. Screw threads 8 to 224 per inch are selected by adjusting the two levers. By substituting the 24-tooth stud gear for the 48-tooth gear, supplied with the lathe, 4 to 7 threads per inch can be cut.

The Quick-Change Gear Box is supplied with a corrected lead screw that corresponds to the model of your lathe. Accordingly, it is important that the serial number of the lathe, as stamped on the right hand corner of the front way be given when ordering.

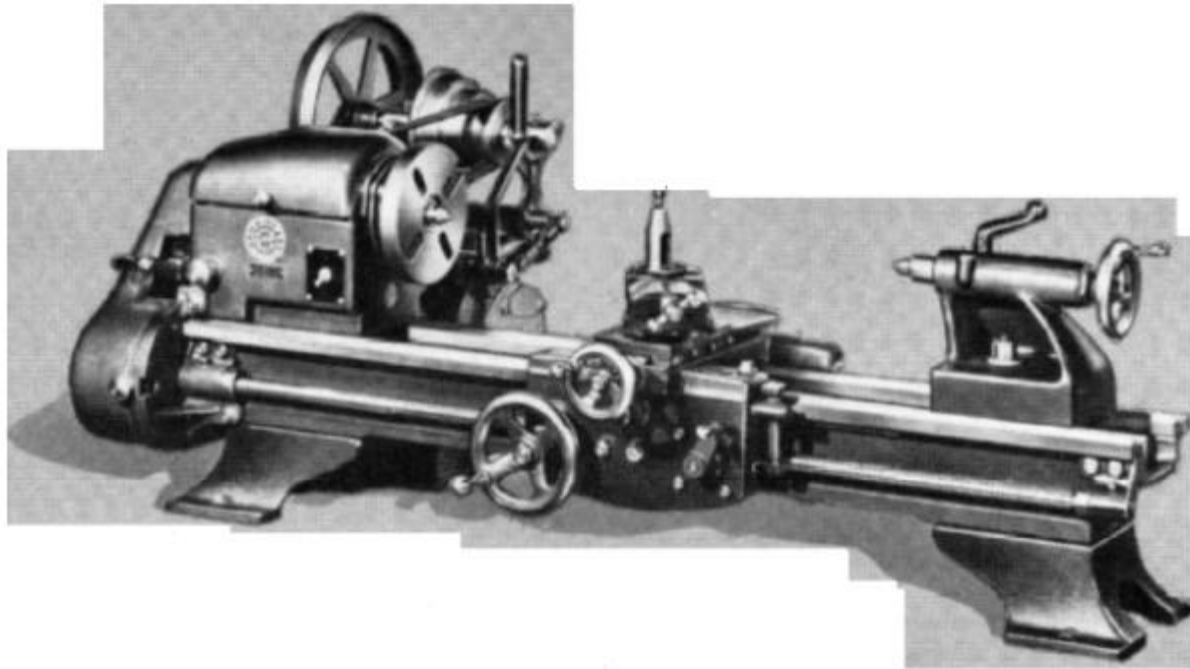


FIG. 1—WARDS POWR-KRAFT BACK GEARED, SCREW-CUTTING LATHE FOR BENCH MOUNTING

WARDS



## BACK GEARED, SCREW-CUTTING LATHE INSTALLATION

### PACKING LIST

The crate in which your Wards Powr-Kraft Back Geared, Screw-Cutting lathe (Fig. 1) is received contains the following items:

- (a) Lathe complete with Headstock, Tailstock and Carriage.
- (b) Countershaft.
- (c) Lot of 17 Change Gears for thread cutting (six of which are assembled as part of the lathe).
- (d) Bag containing one each—Toolpost, Toolpost Ring, Toolpost Screw, Toolpost Wedge, Toolpost Block, Toolpost Wrench, Tailstock Wrench, Sleeve, Knob and Quill; and two Centers.

Fastened to the base of the lathe crate is a two-step motor pulley, bored  $\frac{1}{2}$ ,  $\frac{3}{8}$  or  $\frac{3}{4}$ -in., as specified on your order. Unpack carefully and check to be certain you have removed all the pieces.

Before the lathe is crated for shipment at the factory, it is given an all-over coating of moisture and rust-resisting compound. This should be removed by a complete cleaning with a stiff brush and kerosene. Then cover all unpainted

surfaces with a light coat of good machine oil to prevent rusting. These surfaces should be kept lightly covered with oil at all times and the lathe should be provided with a canvas or similar cover. The latter is especially recommended when the machine is installed in basement shops.

### SETTING UP THE LATHE

Select a solid, level floor—preferably concrete—in a dry, well-lighted location, as a foundation for the lathe and mount it on a substantial work bench or upon floor legs, using a chip pan. Floor legs are usually preferable because they are compact, provide proper height while holding the machine rigid, and have been designed to hold the countershaft and motor bracket at their proper height.

If possible, arrange your lathe so light will fall over the operator's right shoulder. Allow at least 18-in. space at the back and both ends of the lathe and give the operator a minimum working space  $3\frac{1}{2}$ -ft. wide at the front.

If the lathe is to be bench-mounted, the bench should be 31 to 33-in. high, strongly built and suitably reinforced for steadiness. The top, of seasoned wood, should be at least two inches thick. The top should be doweled, or five steel rods

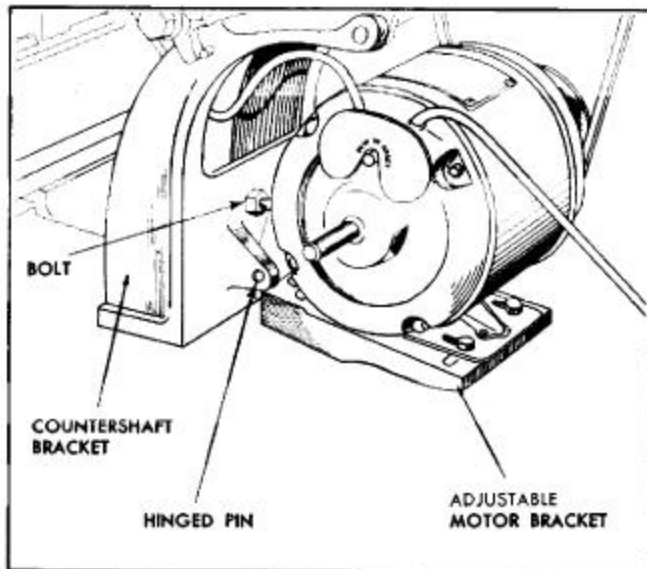


FIG. 2—MOTOR BRACKET

with ends nuts should be run crosswise through the top and the nuts turned tight, pulling the boards together. Countersink bolt holes on both edges. Plane the bench top level and set the lathe upon it. Locate and drill four  $\frac{3}{8}$ -in. holes for the feet. Use four machine bolts to fasten lathe to the bench and to aid in leveling.

### LEVELING THE LATHE

It is very important that the lathe be level; if it is not, its own weight will distort the lathe bed, throwing the headstock out of alignment with the ways, and cause the lathe to turn and bore to "taper." It is impossible to do accurate work on a lathe that is not level and the machine will likely be damaged beyond repair. Place an accurate and sensitive machinist's level (an ordinary level will not do) across the top of the lathe. Note any variations from the true level and adjust by placing thin shims of metal, wood or fiber under the feet. Be certain the lathe is level, both crosswise and longitudinally, at the both headstock and tailstock ends. When the lathe is level, bolt down tightly and check the leveling. It may be necessary to loosen bolts and add more shims. Remember, *the lathe must be level*, if it is to perform accurately. When using floor legs, use lag screws, bolts or expansion bolts to secure them to the floor. If the floor is wood, use lag screws; if concrete, drill holes with a star drill. If the bolts are to be set in melted lead or sulphur, bottoms of the holes should be enlarged slightly. If lead sleeve expansion bolts are used, the sleeves should be seated solidly before bolts are inserted. Shim up the legs as necessary and check the leveling after bolting legs down.

After the lathe is in operation, check it from time to time. If necessary, adjust the shims as a slight sagging of the floor or compression of the shims under pressure may change the level without your knowledge.

### MOUNTING THE MOTOR

Wards Powr-Kraft Back Geared, Screw-Cutting Lathe is designed to be driven by a 1750 R.P.M.  $\frac{1}{2}$  HP motor. For best results, use a Repulsion-Induction, Capacitor or three-

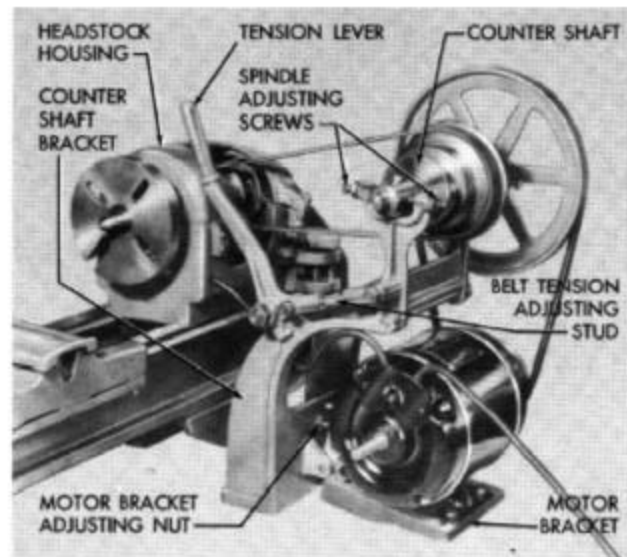


FIG. 3—HEADSTOCK AND COUNTERSHAFT BRACKET

phase type of motor. Split-phase motors are not recommended for this application. For industrial installations, three-phase motors are particularly recommended, if three-phase circuits are available as they usually are in industrial areas. Outside industrial areas, the user must depend on single-phase circuits and use Repulsion-Induction or Capacitor type motors. Most Repulsion-Induction motors and some Capacitor motors are wound so they can be used on either 110 or 220 volts; the latter is recommended wherever possible for steadiness. On the other hand, some Capacitor motors can be used only on voltages for which they are wound; that is, a motor wound only for 110 volts cannot be used on 220 volts and vice versa. Capacitor motors that can be used on either 110 or 220 volts are provided with a center tap.

Either before or after mounting motor to the Motor bracket, check it for proper rotation. Motor should run clockwise when viewed from the motor pulley end.

Correct rotation can be obtained by moving brush holders on Induction-Repulsion motors to one side or the other of witness mark on brush holder mounting. Capacitor type motors are given reverse rotation by removing cover from terminal box and reversing field-winding wires on binding posts. In the case of three-phase motors, any two leads can be reversed to change direction of rotation. If there is any doubt, consult wiring diagram of connections supplied with motor or information given on name plate.

When lathe is in place, mount motor to motor bracket (Fig. 2) beneath the countershaft, using four machine bolts. Do not tighten the bolts until position of motor has been adjusted.

### MOTOR BRACKET

The motor bracket is attached to the countershaft bracket by a hinged pin and may be raised and lowered by a bolt through the countershaft bracket as shown in Fig. 3. Attach motor pulley to motor shaft—large pulley away from motor. Align motor pulley with the 10-in. pulley on countershaft by moving motor until the two are in line.

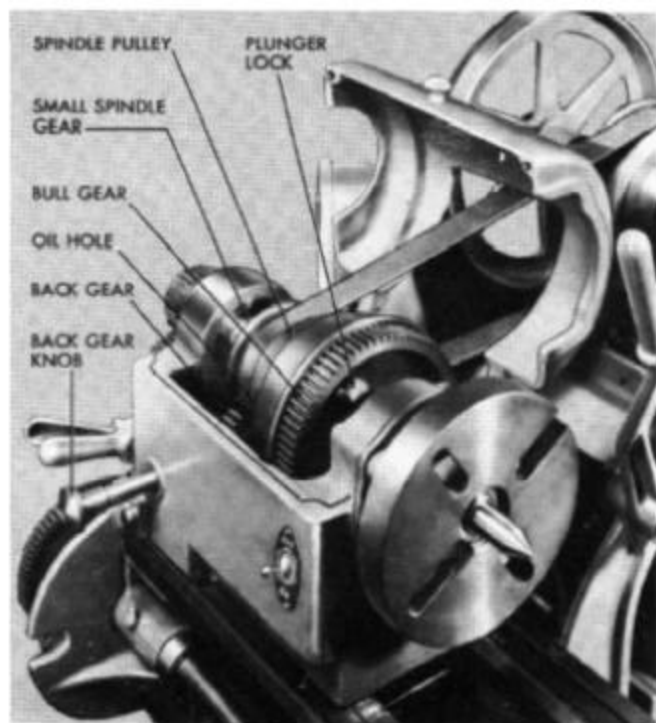


FIG. 4—HEADSTOCK WITH PULLEY ARRANGEMENT

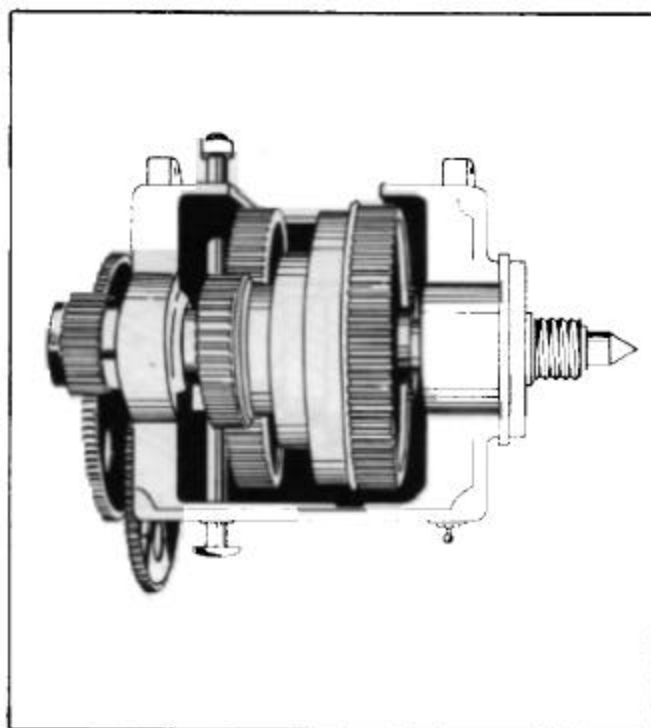


FIG. 5—BACK GEAR DRIVE

Tighten bolts holding motor to bracket, but do not apply belt to pulley until motor wires have been connected and the motor tested for correct rotation as described above.

Connect wires that come from the "On-Off" switch, in front of headstock housing, to motor and current source as shown in Figs. 2 and 3. With rotation of motor correct, apply V-belt.

The combination of flat and V-belt drive used between motor and countershaft has been found most successful in applications where the driven pulley is much larger than its driver, with a consequently large area on the former. The short, center distance between pulleys also makes its use preferable.

### ADJUSTING THE BELTS

The belts are adjusted easily and accurately by means of the four countershaft adjusting screws, the motor bracket adjusting screws, the stud connecting countershaft and the belt tension lever. Make all adjustments with the belt tension lever in its forward position, which will swing the countershaft into a position directly above the motor.

To move the countershaft forward or backward, thereby tightening or loosening the flat belt, turn the stud connecting the belt tension lever and the countershaft frame, and adjust the four countershaft adjusting screws. Tighten screws as much as possible with your fingers and then take an additional quarter turn on one side with the wrench. Neither belt should be too tight. Excessive belt tension not only shortens the life of the belt but places unnecessary strain on bearings so power is lost through excessive friction. When adjusted for normal work, a moderate pressure on either belt should depress it about  $1\frac{1}{2}$  inches. Be careful *not to get them too tight as excessive pressure can distort the bearings.*

## OPERATION COUNTERSHAFT

The countershaft (Fig. 3) is located directly above the motor and is controlled by the countershaft tension lever conveniently mounted in front of the operator. The countershaft spindle revolves on four self-lubricating bronze bearings fitted into rugged steel sleeves with oil wells. The type of self-lubricating bronze bearings used insures a smooth-running spindle at all times with a minimum of attention, for they actually absorb oil and give it up as required, rather than simply hold a film of oil between the bearing and spindle.

Bearings in their sleeves are held in the countershaft bracket by adjusting screws so the spindle can be moved back or forward for adjusting belt tension.

The countershaft may be swung forward to release tension on the belt, when lathe is not in operation or when speed is to be changed, by moving the countershaft tension lever backward. This lever is attached to the swinging countershaft bracket by two links connected to each other by a stud having right and left threads. By turning this belt tension adjusting stud, shown in Fig. 3, variations in belt tension can be adjusted. The two-step pulley on the end of the countershaft turns the three-step countershaft pulley which, in turn, drives the headstock spindle pulley through the flat belt.

### POWR-KRAFT HEADSTOCK

The headstock on the Powr-Kraft lathe is made of high grade semi-steel and fitted with a hinged cover that completely encloses the interior mechanism (Fig. 4). Cover swings back out of the way when belt is to be shifted.

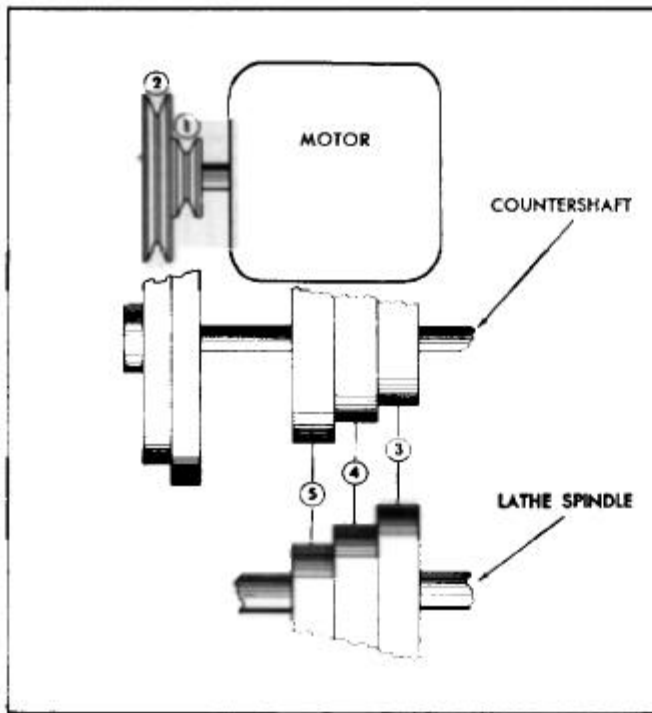


FIG. 6—BELT DRIVE ARRANGEMENT

When closed, the cover rests on rubber studs that absorb vibration and prevent noise.

The headstock contains the headstock spindle and bearings, the bull gear, spindle pulley and back gears. Power from the belt, through the spindle pulley, turns the bull gear or transmits 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 headstock spindle which has been machined and ground to a super finish. The nose, which has an 8-pitch, National form thread for attaching chucks and face plates, has been accurately finished internally to a No. 3 Morse Taper. A reducing sleeve, furnished with the lathe, permits use of the No. 2 Morse Taper headstock center. The 25/32-in. hole through the headstock spindle permits stock as large as 3/4-in. to be fed through the spindle, which will take a 1/2-in. draw collet attachment.

The headstock spindle of Wards Powr-Kraft Lathe turns on three rows of grease-sealed New Departure ball bearings that require no lubrication for the life of the machine. This eliminates daily care and guarantees smooth, trouble-free running with a minimum of friction.

The three-step spindle pulley and small spindle gear are attached to form a rigid unit and revolve freely on the spindle on self-lubricating bronze bearings. For direct drive, the pulley is locked to the bull gear which is keyed to the spindle. Connection between spindle pulley and bull gear is made through a plunger-type lock located on the side of the bull gear; when this lock is "in," pulley turns bull gear with it; when "out," pulley and small spindle gear run free. Should it ever be necessary to remove the headstock spindle, follow the procedure below:

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

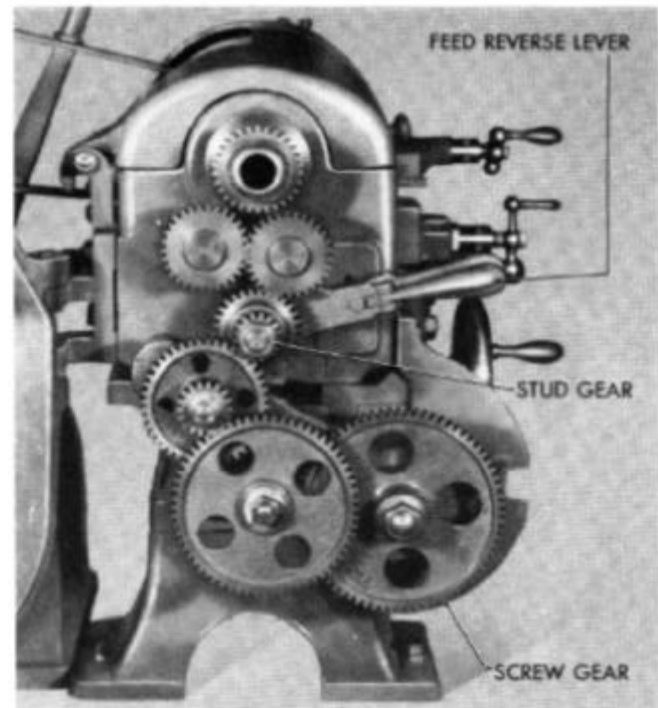


FIG. 7—GEAR TRAIN

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

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

**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 onto or off a 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, must not be tapped into place with a hammer.

## BACK GEAR DRIVE

When slower turning speed or greater power is required than could be obtained from a direct drive, the back gears are used. The back gear mechanism on Wards Powr-Kraft Lathe is totally enclosed within the headstock housing instead of exposed as in the usual construction. Also, instead of having to reach over the top of the headstock to throw a back gear lever, the Powr-Kraft design controls the back gear from a knob on front of the headstock housing as shown in Fig. 5.

The back gear is mounted on a quill which turns on self-lubricating bronze bearings on an eccentric shaft. Movement of the back gear knob is transmitted through a rack and pinion which rotates the eccentric shaft that swings the back gears into mesh. When the knob is pulled out, the back gears are engaged and automatically locked in position by a latch on the underside of the shaft where it enters the headstock housing. The lock is released by press-



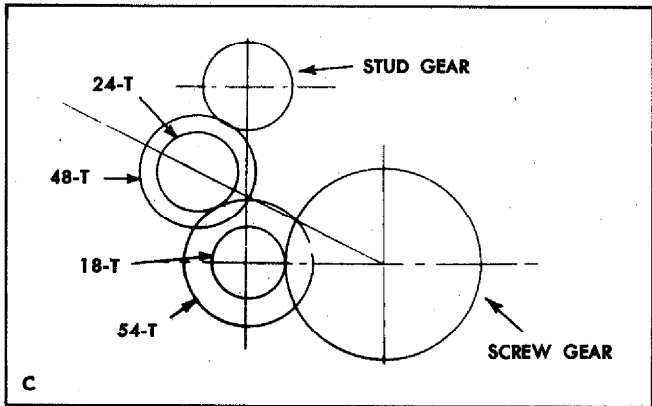
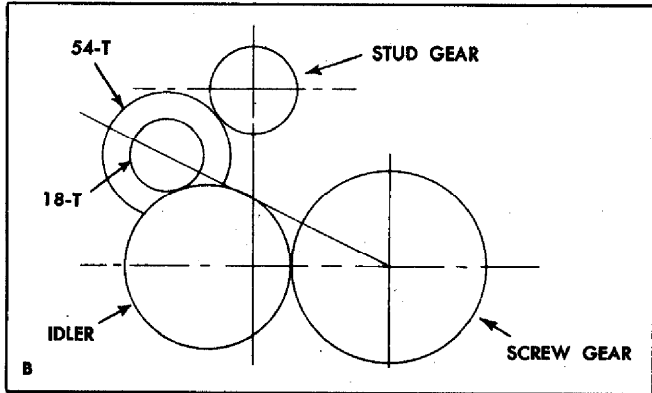
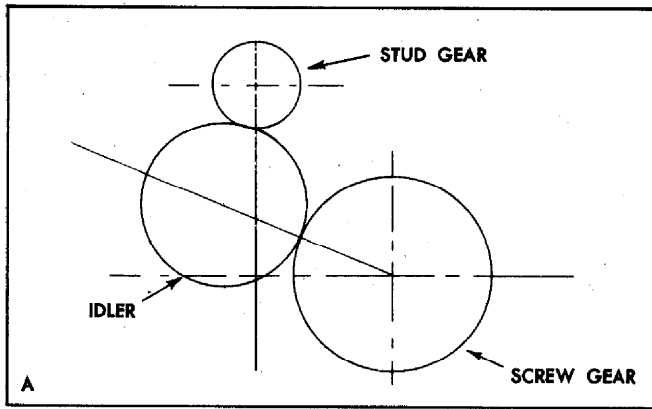


FIG. 8

ing up on the latch with the finger; this latch is on the underside of the shaft and cannot be seen and can only be located by "feel." The cone pulley and small gear turn freely on the headstock spindle and are locked to the bull gear, for direct drive, by a lock pin located on the side of the bull gear (see Fig. 4).

To engage the back gear drive, first pull out the direct drive pin on the bull gear so the cone pulley and small gear turn free of the bull gear. Then engage the back gears so 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 headstock spindle, transmits its power to the work on chuck, face-plate or center.

**Never throw the back gears in or out of mesh while lathe spindle is revolving.**

## POWER FEEDING SPEEDS

THREADS PER INCH	STUD GEAR	DIAGRAM	IDLER GEAR	SCREW GEARS	FEEDS PER INCH
4	64	A	72	32	
4½	64	A	72	36	
5	64	A	72	40	
5½	64	A	72	44	
6	64	A	72	48	
6½	64	A	72	52	
7	64	A	72	56	
7½	64	A	72	60	
8	32	A	72	32	
9	32	A	72	36	
10	32	A	72	40	
11	32	A	72	44	
11½	32	A	72	46	
12	32	A	72	48	
13	32	A	72	52	
14	32	A	72	56	
16	32	A	72	64	
18	16	A	72	36	
20	16	A	72	40	
22	16	A	72	44	
24	16	A	72	48	
26	16	A	72	52	
27	16	A	72	54	
28	16	A	72	56	
30	16	A	72	60	
32	16	A	72	64	
36	24	B	72	36	
40	24	B	72	40	
44	24	B	72	44	
48	24	B	72	48	
52	24	B	72	52	
54	16	B	72	36	
60	16	B	72	40	
64	24	B	60	64	0.0156
	16	B	60	44	0.0152
	16	B	60	46	0.0145
	16	B	60	48	0.0139
	16	B	60	52	0.0128
	16	B	60	56	0.0119
	16	B	64	60	0.0111
	32	C		64	0.0104
	32	C		72	0.0092
	24	C		64	0.0078
	24	C		72	0.0069
	16	C		64	0.0052
	16	C		72	0.0046

## SPINDLE SPEEDS

The following table gives the spindle speeds that can be obtained by using the various belt positions shown in Fig. 6 both with direct drive and with 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	131	244	420	780	1450

## POWER-FEED GEARS

The outboard end of the headstock spindle is provided with a gear (Fig. 7) which transmits power through a gear train to the lead screw for automatic feed and cutting

threads. As the rate of feed depends upon the lead screw, it is necessary to establish a definite ratio of the screw rotation to speed of the spindle; this is done by varying change gears in the gear train.

The gears may be arranged on the gear bracket to drive from three positions, the size (and number of teeth) of the gears in these three positions determining the ratio of spindle speed to lead-screw speed. The three positions are shown in diagrams A, B and C in Fig. 8. By referring to the table for the threads per inch or feed per inch wanted and to the diagrams, the correct gear sizes and their positions may be found. Raise or lower the gear bracket to accommodate the different size 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 an "idler" and the unused gear is a "spacer." If both mesh in the train, they form a "compound" gear.

The change gears are machined from semi-steel to insure perfect teeth that will mesh evenly and smoothly with other units of the train. Each gear has a machined keyway and fits over a keyed sleeve that accommodates two gears; the sleeves fit over the bracket bolt and a washer serves as a bearing between the assembly and nut.

When assembling a gear train, care must be taken to allow sufficient clearance between the two meshing gears so they will not bind. A small amount of graphite grease applied to the teeth will make them run smoothly and quietly.

### FEED-REVERSING LEVER

The feed-reversing lever which projects from the gear train housing is provided with a positive latch that locks it in each of its three positions: "Up," "Down" and "Center." When set on "Center" or neutral position, the two gears—attached to the end of the lever and which turn on bronze bearings—are free of the gear train, and all power feeds are disconnected.

When "Up," the lathe carriage is engaged to the lead screw and it will move from left to right, or the compound rest will move from front to back of the lathe bed.

When "Down," the carriage will move from right to left and the compound rest will move from back to front.

**Never change position of the reverse lever in either direction while lathe spindle is revolving.**

### THE LEAD SCREW

Because the thread-cutting accuracy of a lathe depends upon the precision of the lead screw, it naturally follows that it is one of the most important parts of the lathe and that no item of material or workmanship can be slighted. The lead screw in Wards Powr-Kraft Lathe is made from alloy steel with an Acme thread that is accurately cut to a pitch of  $\frac{1}{8}$ -in. (eight threads per inch); it is mounted at each end of the bed in a large, cast-iron bearing fitted with oil

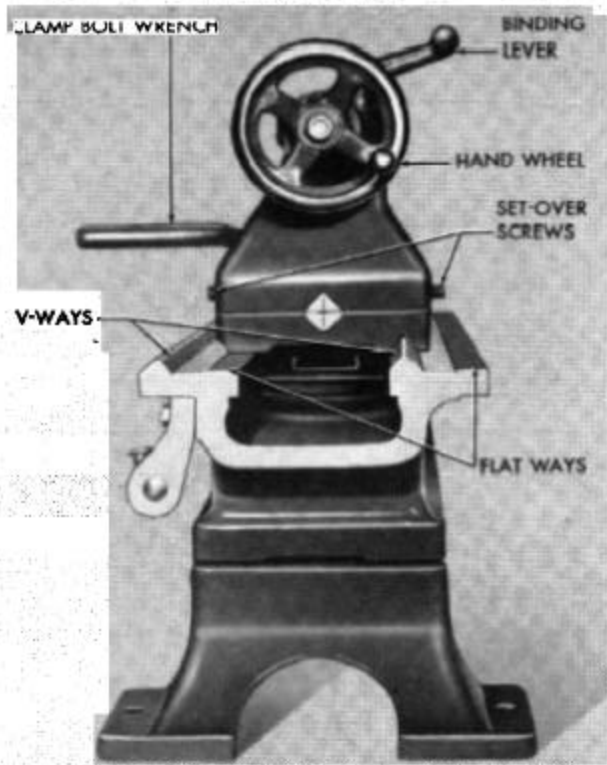


FIG. 9—TAILSTOCK AND PRISMATIC V AND FLAT WAYS

cup. The lead screw should be cleaned and oiled frequently to maintain its accuracy.

### LATHE BED AND TAILSTOCK

The tailstock slides on a V-way and a flat way of the bed, as shown in Fig. 9, and is locked in position at any point along the bed by tightening the clamp-bolt with the clamp bolt wrench furnished with the lathe.

The tailstock spindle is operated by the tailstock hand wheel. Turning the wheel clockwise runs the spindle out of the tailstock. The spindle is made of special steel, finish-ground, and has been reamed for a No. 2 Morse Taper center. Turning the handwheel counter-clockwise until the spindle reaches its limit of travel, automatically ejects the tail center. The spindle is graduated up to  $2\frac{1}{2}$ -in. in increments of  $\frac{1}{16}$ -in. for accuracy in boring and drilling. Tailstock spindle is locked in place by turning binding lever to the right. A small receptacle is provided on front of the tailstock casting for the white-lead and machine-oil mixture or heavy grease used to lubricate the tail center when work is mounted between centers. The tail center is "dead," that is, does not revolve with the work and lubricant must be applied to the center hole before setting up.

For turning tapers, the tailstock may be "set over" for a total of  $\frac{1}{16}$ -in. by loosening tailstock clamp and adjusting the set-over screws from each side. To align the tailstock again, the witness mark on the tailstock 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 and repeat until diameters at each end of the check

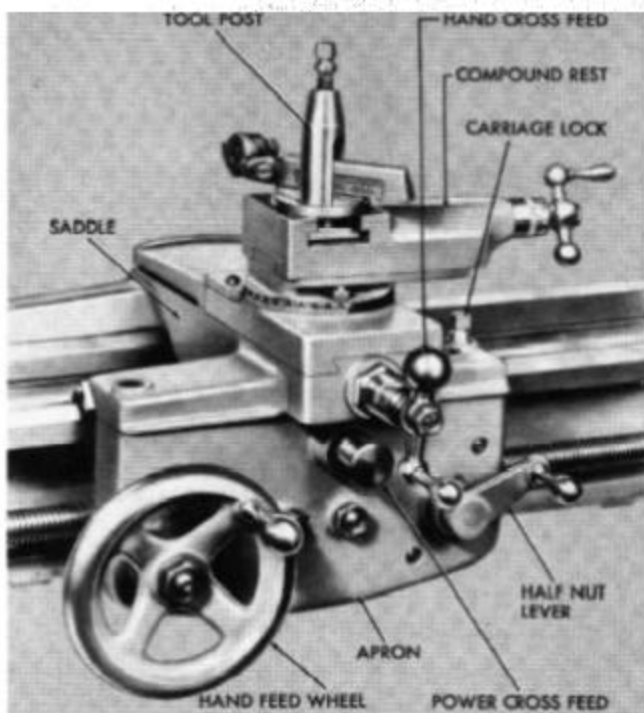


FIG. 10—LATHE CARRIAGE

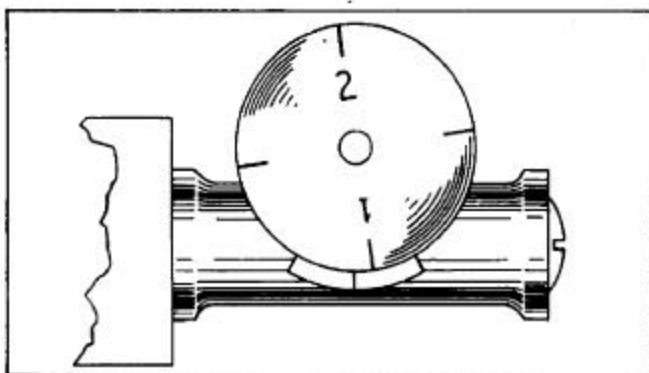


FIG. 11—THREADING DIAL

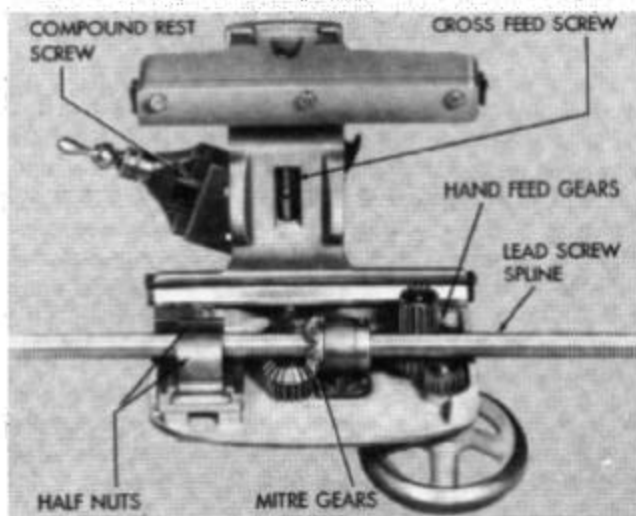


FIG. 12—UNDERSIDE OF COMPOUND REST

bar are the same. The Powr-Kraft lathe bed is an extra-heavy, one-piece hard-iron casting, alloyed to produce maximum wear and strength. Extra-wide ( $6 \frac{1}{16}$ -in. across the ways), extra-heavy walls, heavier and closer spaced, box-type cross ribs combine to give greatest strength and to make a most solid foundation for the units mounted on it.

The accuracy of the lathe bed and the ways on which the carriage and tailstock are mounted is of primary importance. To insure extreme accuracy in the bed, two prismatic V-ways and two flat ways are used. They have been planed, milled and precision ground to give the accuracy necessary for producing fine work. In order to retain this accuracy, the instructions for leveling the bed, as mentioned earlier in this book, should again be emphasized. 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 lack of oil or by abrasion. Be careful not to drop tools or work on the ways. Keep ways well oiled when not in use to prevent rusting, wiping them off and re-oiling before continuing work and, if possible, keeping them covered during filing or grinding operations.

### POWR-KRAFT LATHE CARRIAGE

The carriage of a screw-cutting lathe is divided into four parts, refer to Fig. 10: the tool post, compound rest, saddle and apron. Since the carriage supports the cutting tool and controls its action, it is a very important unit and care has been taken accordingly to make it both accurate and strong. The saddle, which moves longitudinally on the front V-way and back flat way, completely eliminating use of horizontal bearing plates, is machined from a semi-steel casting and is held in place vertically by "gibs" that bear on the underside of the front and back ways, the same as on larger and more expensive lathes.

The apron, which is suspended from the front of the saddle, contains the power mechanism for cross and longitudinal feeds, the longitudinal hand feed and threading dial. The large handwheel on the apron provides for manual, longitudinal movement of the carriage through an accurate rack and pinion. Pinion operated by the handwheel is supported on a bronze bearing and meshes with rack on underside of front ways.

### HALF-NUT LEVER

The carriage is moved along the ways for thread cutting and longitudinal power feeding by rotation of the feed screw within the apron. Two half nuts (also called split nuts) are operated by the half nut lever on the right end of the apron. When the half nut lever is in "down" position, the nuts are open and out of contact with the lead screw. When lever is in "up" position, the nuts are clamped on the thread of the lead screw, ready for thread cutting.

### THREADING DIAL

Located on the right end of the apron, the threading dial (Fig. 11) indicates the proper point at which to engage the half nut lever, when cutting threads, so the tool will enter the same groove for each cut. This eliminates the need for reversing the drive at the end of each cut and backing the tool out.

The face of the threading dial is divided into four quarters by markings on the face. When cutting threads of an even number (12, 16, 20, 32, etc., per inch), the half nut lever is engaged when the mark on the stationary part is in line with any of the four points on the dial.

In cutting odd-numbered threads (5, 7, 9, 11, etc. per inch), engage the half nuts when the stationary mark is in line with "1" or "2" on the dial. When cutting half-numbered threads ( $4\frac{1}{2}$ ,  $5\frac{1}{2}$ ,  $6\frac{1}{2}$ ,  $11\frac{1}{2}$ , etc. per inch) engage the half nuts at the same point on the dial for each cut.

## POWER CROSS FEED

The power cross feed on Powr-Kraft Lathes is driven by the spline in the lead screw and a set of spur and mitre gears controlled by a plunger-type handle on the apron. When the handle is "out," the cross feed screw and lead screw are engaged. Manual feed is obtained by turning the ball-crank handle at the end of the cross feed slide. This slide is equipped with a gib that may be tightened through three set screws on the outside of slide.

The cross feed gib should fit snugly and be adjusted whenever play develops. The Acme thread, cross feed screw is borne on two self-lubricating bronze bearings. The polished steel, ball crank handle of the cross feed is calibrated in .001-in. for measurement of feed when set to take a definite cut.

## COMPOUND REST

This is mounted on top of the cross slide, on a base graduated from 0 to 90 degrees as shown in Fig. 10. Two bolts, one on each side of rest, hold the base in position. By loosening these bolts, the rest may be moved through any desired angle. The acme-thread screw of the compound rest turns on two self-lubricating bronze bearings.

Movement of the compound rest is controlled by a polished steel, ball crank handle by which the cutting tool may be moved into the work for short tapers. Like the cross-feed handle, the compound-rest handle is graduated into .001-in. Fig. 12 shows arrangement of power feed mechanism.

## 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 to take a No. 2 Morse Taper center.

The tailstock center can be removed by turning the spindle back to its limit of travel which will automatically loosen the center. The headstock center and sleeve must be driven out through the outer end of the tailstock spindle. Use a  $\frac{1}{2}$ -in. rod for this and hold center with a piece of rag to prevent its falling and also to avoid injury from the sharp point.

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

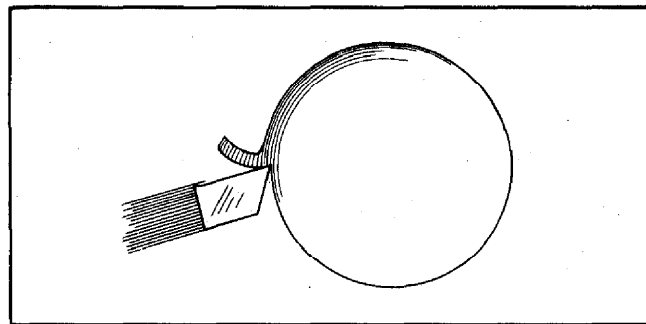


FIG. 13—CUTTING ACTION OF TOOL BIT

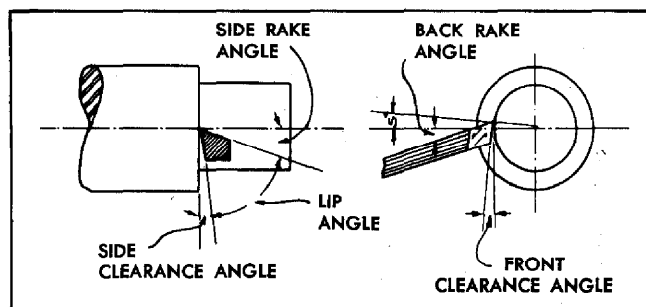


FIG. 14—CUTTING ANGLES

## LATHE CUTTING-TOOLS

There is a great variety of cutting tools used on a lathe, each shape being adapted to the work it is to do, the material to be cut and the finish it will leave. Basically, however, all use the same principle for all operate with a "tearing" rather than a true "cutting" action; the cutting edge of the tool tears a chip from the work and breaks it into separate sections as shown in Fig. 13.

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 it must also be large enough to support the cutting surface and carry the heat of friction away from the point. These 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 tool and work.

Fig. 14 illustrates a cross-sectional and side view of a tool bit in working position, showing names of the various angles used 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, material the tool bit is made from, the cutting speed, kind of lubricant or coolant used, if any, and whether roughing, finishing, parting or forming work is being done. Fig. 15 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 and be careful not to overheat and burn the thin edges. Cool the bit often to prevent drawing the temper.

A tool bit holder for holding  $\frac{1}{4}$  by  $\frac{1}{4}$ -in. tool bits (Fig. 16) eliminates the use of large and more expensive high-

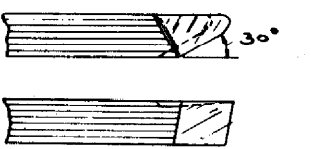
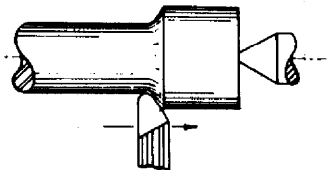
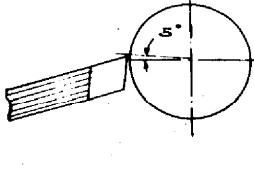
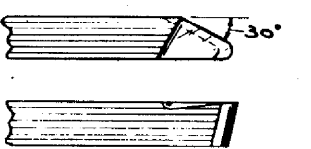
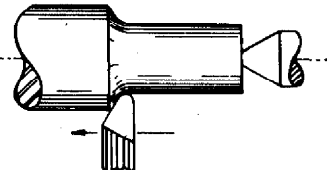
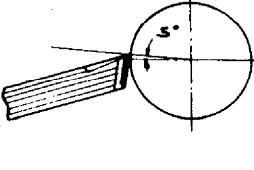

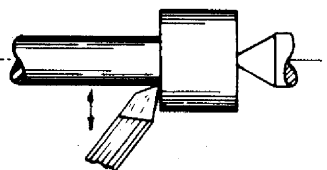
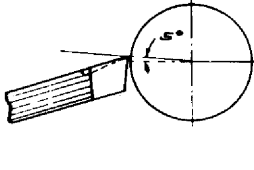

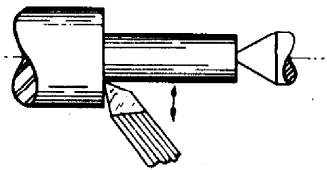
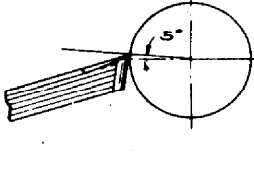
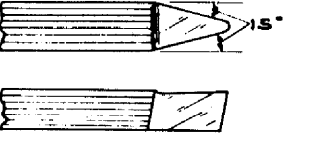
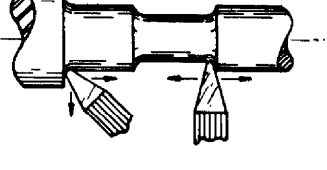
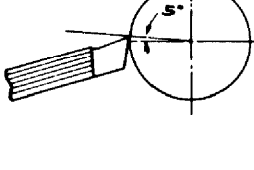
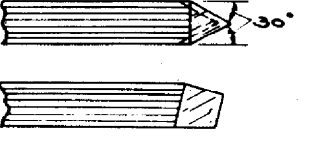
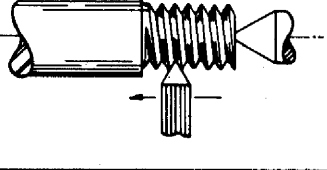
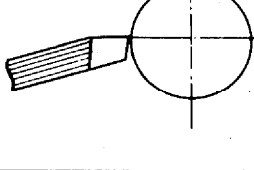
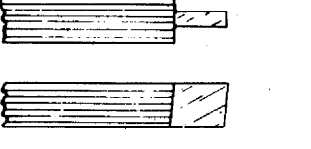
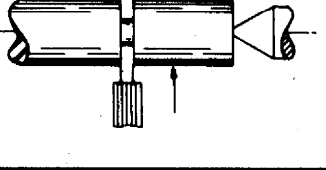
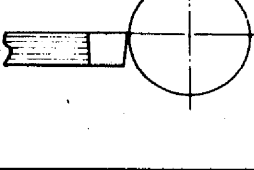
TOP AND SIDE VIEW	TOP VIEW WORKING POSITION	SIDE VIEW WORKING POSITION	GRINDING ANGLES
<p><b>Left Hand Turning Tool</b></p> 			<p>Back Rake Angle ..... <math>16\frac{1}{2}^\circ</math>            Front Clearance Angle ... <math>7^\circ</math>            Side Rake Angle ..... <math>18^\circ</math>            Side Clearance Angle ... <math>8^\circ</math>            Lip Angle ..... <math>64^\circ</math></p>
<p><b>Right Hand Turning Tool</b></p> 			<p>Back Rake Angle ..... <math>16\frac{1}{2}^\circ</math>            Front Clearance Angle ... <math>7^\circ</math>            Side Rake Angle ..... <math>18^\circ</math>            Side Clearance Angle ... <math>8^\circ</math>            Lip Angle ..... <math>64^\circ</math></p>
<p><b>Left Hand Facing Tool</b></p> 			<p>Back Rake Angle ..... <math>16\frac{1}{2}^\circ</math>            Front Clearance Angle ... <math>7^\circ</math>            Side Rake Angle ..... <math>18^\circ</math>            Side Clearance Angle ... <math>8^\circ</math>            Lip Angle ..... <math>64^\circ</math></p>
<p><b>Right Hand Facing Tool</b></p> 			<p>Back Rake Angle ..... <math>16\frac{1}{2}^\circ</math>            Front Clearance Angle ... <math>7^\circ</math>            Side Rake Angle ..... <math>18^\circ</math>            Side Clearance Angle ... <math>8^\circ</math>            Lip Angle ..... <math>64^\circ</math></p>
<p><b>Round Nose Turning Tool</b></p> 			<p>Back Rake Angle ..... <math>16\frac{1}{2}^\circ</math>            Front Clearance Angle ... <math>7^\circ</math>            Side Rake Angle ..... <math>0^\circ</math>            Side Clearance Angle ... <math>8^\circ</math>            Lip Angle ..... <math>82^\circ</math></p>
<p><b>Threading Tool</b></p> 			<p>Back Rake Angle ..... <math>0^\circ</math>            Front Clearance Angle ... <math>5^\circ</math>            Side Rake Angle ..... <math>0^\circ</math>            Side Clearance Angle ... <math>10^\circ</math>            Lip Angle ..... <math>80^\circ</math></p>
<p><b>Cut-Off Tool</b></p> 			<p>Back Rake Angle ..... <math>0^\circ</math>            Front Clearance Angle ... <math>5^\circ</math>            Side Rake Angle ..... <math>0^\circ</math>            Side Clearance Angle ... <math>3^\circ</math></p>

FIG. 15

speed steel tools and also holds the bit at an angle that directs a large portion of the cutting pressure directly toward the base of the tool post. 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 rigid support to the cutting edge so that action of the work will not force it downward to cause chattering and possibly breaking 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.

**Centering and Mounting the Work**—Wherever possible, the work is turned between centers as this method is the most accurate and allows removing work from the lathe and replacing it without affecting accuracy.

The first step in turning between centers is to locate the center of the ends of the work, drill and countersink center-holes. This operation is important and should be done carefully. If square or hexagonal stock is used, lines may be scribed across the ends from corner to corner, the point of intersection being the center.

If round stock is used, the center may be found either with regular or hermaphrodite dividers as shown in Fig. 17. When using dividers, open them to approximately half the diameter and, laying the stock on a flat surface, place one point on the work; with the other point of dividers bearing on the flat surface, scribe a line across the end as shown. Give the stock a quarter turn and scribe another line, and continue until the four lines are drawn as shown in the picture. If the dividers are held at the same angle each time, the center of the small square will be the center of the stock.

If hermaphrodite dividers 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 which will be the center of the stock. Chalk rubbed on the ends of the stock, a thin copper deposit made by applying a solution of copper sulphate in water, and various lay-out compounds are often used to make the scribing more easily visible. When the center of the work has been located, place the point of a center punch vertically on the center mark, striking it with a hammer to make an indentation deep enough for the work to revolve on the center points of the lathe.

The stock, especially if close to finish size, should be tested between centers before drilling and countersinking the center holes. This is done as shown in Fig. 18, by turning the stock, mounted between centers, by hand and holding a piece of chalk so it will touch any high spots on the work. If the chalk shows a "high" side, move the center marks toward the high side by placing the work in a properly padded vise. Then, holding the center punch at an angle, drive it toward the high side, bringing it to a vertical position for marking the final center location.

**Drilling and Countersinking Center Holes.** When centers

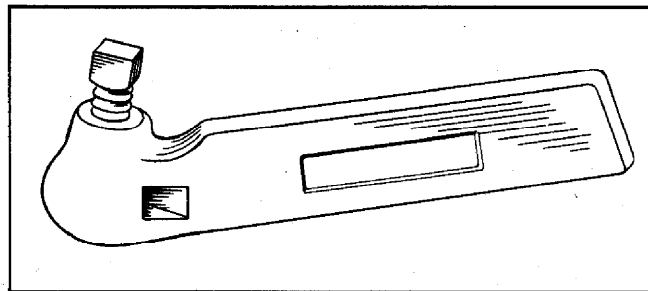


FIG. 16—TOOL HOLDER

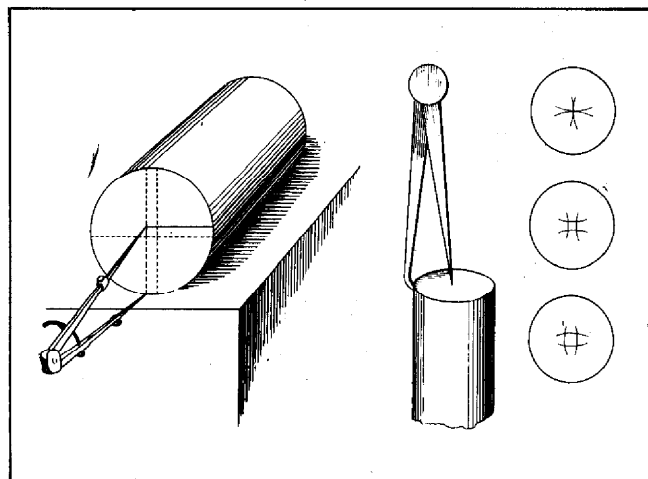


FIG. 17—LOCATING CENTERS

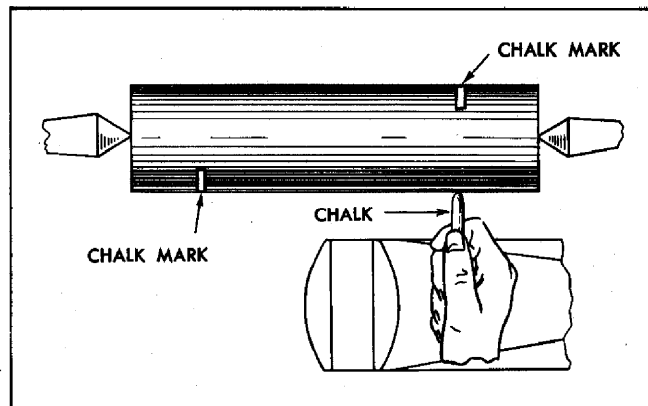


FIG. 18—TESTING CENTERS

have been accurately located, a countersink drill is generally used to drill the center hole to proper depth and countersinking it to the 60 degree center angle in a single operation. These drills are made in various sizes proportional to the diameter of the work. No. 1 drill is used on small work to  $\frac{5}{16}$ -in. diameter; No. 2 on work to 1-in.; No. 3 on work  $1\frac{1}{4}$  to 2-in.; and No. 4 on work to 4-in. If center drills are not available, the holes can be drilled and countersunk in separate operations. The countersunk portion of the hole provides a solid seat on the centers and the drilled hole provides clearance for the sharp point of the centers which should never be used to support work. If the countersunk portion is too deep, only the outer edge of the work will rest on the center and accurate work cannot be produced. The same thing will be true if the countersink is not deep enough or at an improper angle; the work will then very likely rest on the point of the center and quickly destroy the

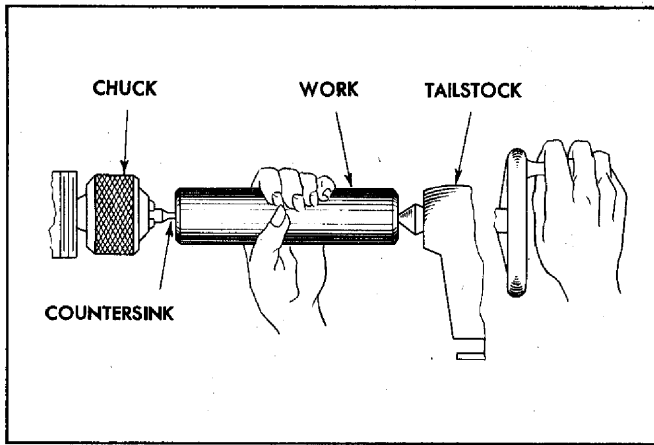


FIG. 19—DRILLING AND COUNTERSINKING CENTERS

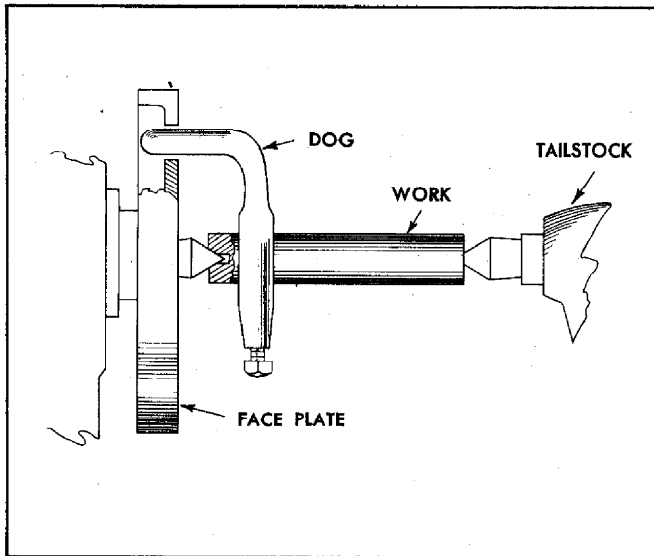


FIG. 20—MOUNTING WORK BETWEEN CENTERS

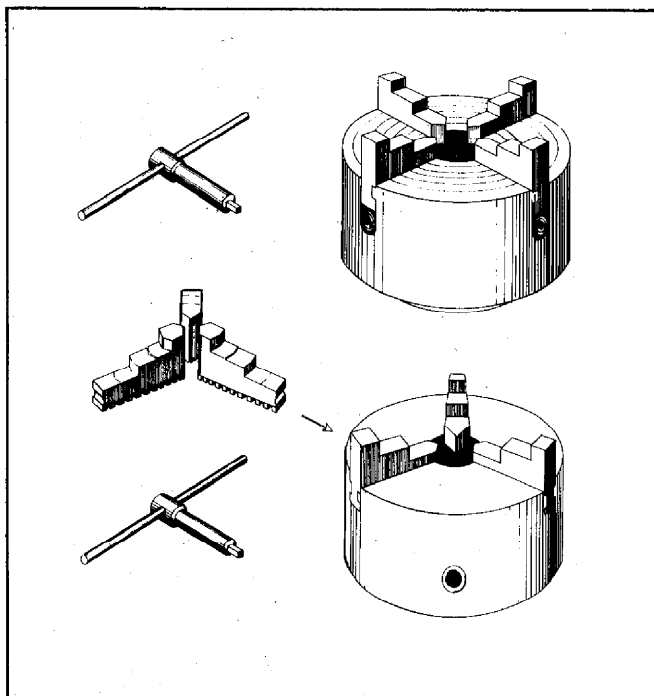


FIG. 21—3 AND 4-JAW LATHE CHUCKS

end and make accurate work impossible. The center drill is mounted in a chuck on the headstock spindle with the work held on the tailstock center. With the spindle turning at about 600 R.P.M., the tailstock ram is then turned out, feeding the work into the drill as shown in Fig. 19. A correctly drilled and countersunk center hole is shown in Fig. 20.

Before placing work between centers for turning, fill the tailstock center hole with heavy grease or white lead thinned with machine oil. No lubricant is needed for the head center because it is "live" and turns with the work. Place end of the work in a lathe dog so the tail extends beyond the end of the work and into a slot on 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 in the face plate slot. You should be able to do this easily but not too easily. Also check to see that the tail of the dog does not bear against the bottom of the slot. When the pressure on both ends has been adjusted, lock the tailpost ram by pulling forward on the binding lever.

### MOUNTING WORK IN CHUCKS

Two types of lathe chucks are commonly used—the three-jaw, universal or "scroll" chuck and the four-jaw, independent chuck pictured in Fig. 21. These are used for turning work that cannot be readily turned between centers. In some cases, the chucks are threaded onto the spindle nose while others are bolted to an adapter plate that fits on the spindle. Before mounting a chuck or face plate, clean the spindle shoulder and back of the chuck, and thoroughly oil threads on spindle head and chuck. **Turn the chuck on by hand**, being careful not to spin it up to the shoulder with a jolt as it may jam, and never use lathe power to screw a chuck on or off the spindle. A "sticky" chuck can be loosened by one of the following methods. (1) Engaging the back gears while the bull gear is connected to the spindle pulley so 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 lathe bed, engaging the back gears, and turning the spindle by pulling the belt by hand. Be careful when removing the chuck; you can damage the spindle threads or the bed ways, if you let it drop. If you must limit your equipment to a single chuck, the four-jaw independent is recommended as it will hold square, round or irregular-shaped work in either concentric or eccentric position. Each jaw is controlled by a head-screw, and the series of concentric circles scribed on the face permit approximate centering 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 high spots. The jaw opposite the high spot is backed off and the opposite one tightened until the work is centered. The three-jaw universal chuck is self-centering (all jaws working from a single screw) which saves time and trouble when centering round or hexagonal work but which cannot be used for square or irregular shapes.

### HEADSTOCK SPINDLE CHUCK

Fig. 22A is used for small-diameter work that may be passed through the headstock spindle. It is similar to a drill chuck in



FIG. 22

operation except that it screws onto the spindle nose and is hollow. Since it holds much the same type of work as the collet chuck and is less expensive, it is often used in preference to the collet.

**Drill Chucks** (Fig. 22B) are used both on the tailstock of the lathe with the work turning, and on the headstock with the work stationary. Although a drill press is preferred for production drilling and is generally used, there are many small jobs of drilling, reaming and tapping that can be conveniently done with a lathe drill chuck.

**Center Rest Chuck** (Fig. 22C) is mounted in the tailstock by means of a solid tapered shank that replaces the tailstock center. The stationary bronze jaws provide an accurate support for turning round work where a center cannot be used.

### MOUNTING WORK TO A FACE PLATE

Many irregular shapes are mounted for turning by bolting directly to the face plate or by fastening to an angle plate which, in turn, is mounted on the face plate (Fig. 23). Be careful when 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 with weights on the opposite side of the face plate. To locate work accurately on the face plate, use either a dial indicator or center indicator.

### DRAW-IN COLLET CHUCKS

Small work that must be very accurate is mounted in a draw-in collet placed inside the headstock spindle as pictured in Fig. 24.

The assembly consists of a draw-in spindle (A) that is threaded to 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 is closed by pressure applied to the handwheel on the outboard end of the draw-in spindle. Headstock-center and taper sleeve must be removed to install the collet chuck. Drive them out separately through the

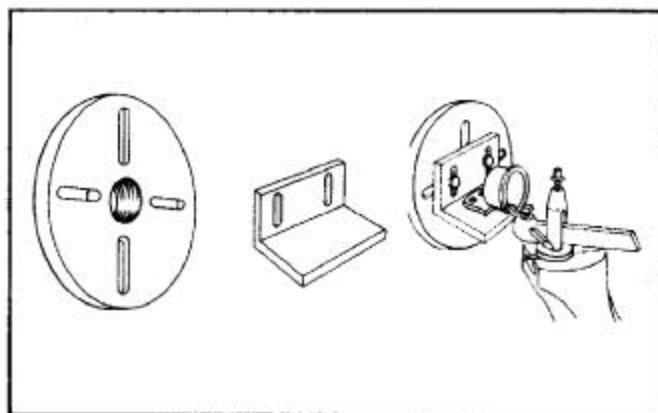


FIG. 23—FACE PLATE

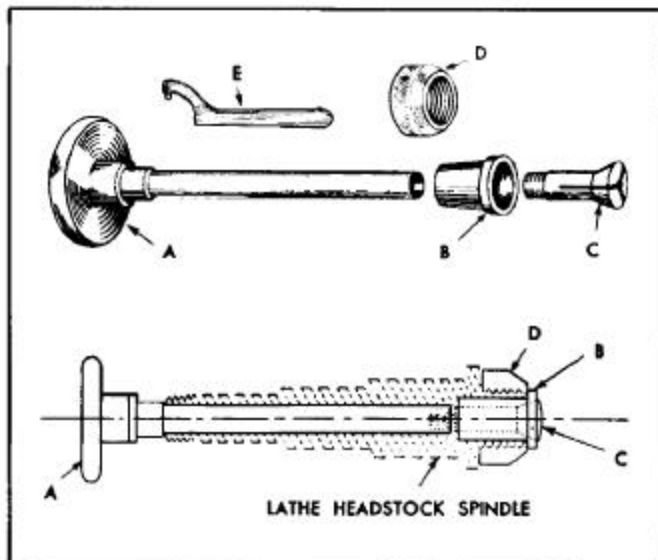


FIG. 24—DRAW-IN COLLET ATTACHMENT

spindle. Never use a collet for work more than .005 in. larger or smaller than its rated diameter. A separate collet chuck is required for each size of stock used. 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 headstock spindle.



## MAINTENANCE

### LUBRICATION OF THE LATHE

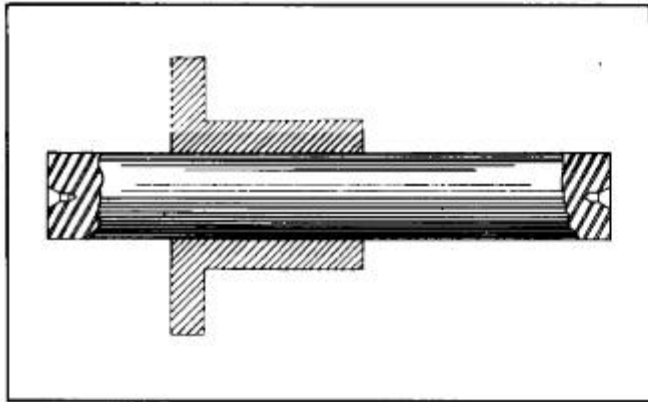


FIG. 25—MANDREL

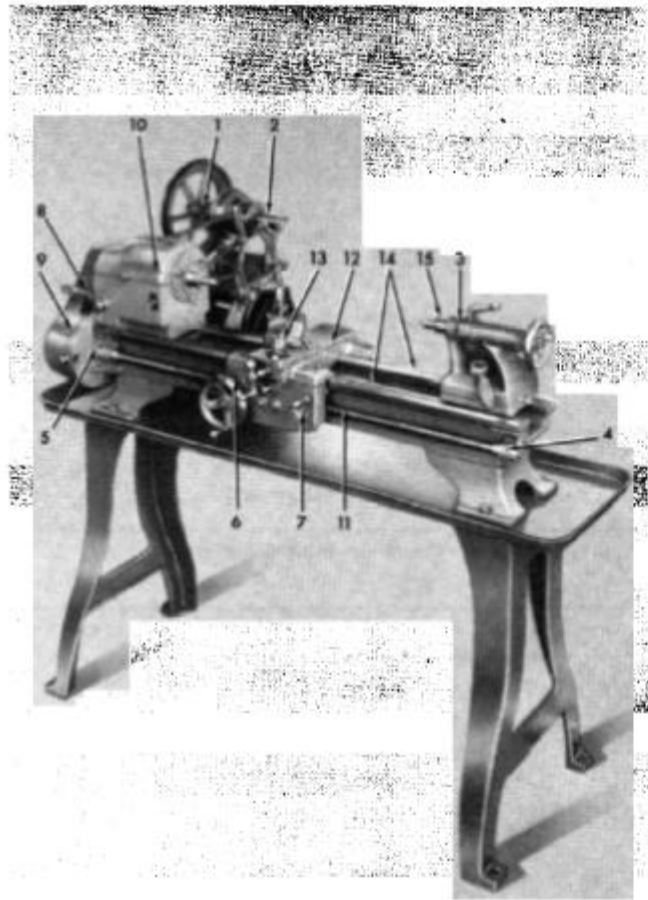


FIG. 26—OILING DIAGRAM

### MANDRELS

Hollow pieces, the outside of which are to be turned, may be mounted on a mandrel (Fig. 25) and the mandrel mounted between centers, allowing the entire outer surface to be machined instead of the limited surface that would be available if the piece were held in a chuck.

Although mandrels are available that may be expanded to fit any size hole by forcing out grips on the sides, a mandrel is usually a simple piece of steel that is turned to a slight taper, the ends flattened for the lathe dog, and the work held to the mandrel by friction alone.

The Powr-Kraft Lathe design 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 bearings. At 21 separate points in the Powr-Kraft Lathe, there are self-lubricating bronze bearings; in ordinary construction, these would be plain bearings with oil holes. The self-lubricating bearings used have a dense but absorbent texture that 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 on the lathe requiring *regular* lubrication (Fig. 26) should be gone over every day the lathe is in use. Cultivate a definite routine—oiling the parts in a definite, regular order so no parts will be missed. Use a good machine oil no heavier than SAE No. 10, wiping away excess oil that would cause dust and dirt to accumulate. And always follow the basic rule of safety—**Do not attempt to oil the lathe (or any other machine) while it is running.**

**Use a long-spouted can and oil the following points each time the lathe is used:**

- 1-2—Two oil cups on top of countershaft bearings.
- 3—The spring ball well on top of tailstock.
- 4-5—Two oil cups on lead screw bearing brackets.
- 6—Hand-feed wheel. (A spring ball well is located in the apron, behind the wheel, to receive oil for the hand-feed shaft bearings.)
- 7—The half-nut lever. (A spring ball well in the apron, behind the lever, supplies oil to the half nuts.)
- 8—The feed reverse lever. (A hole has been drilled in base of the lever to receive oil.)
- 9—Bearings on each of the change gears.
- 10—The spindle pulley. (Remove headless set screw on the second step of pulley and oil freely before using the back gears.)

**Keep the following surfaces clean, free of chips, and covered with a film of oil at all times.**

- 11—The lead screw.
- 12—The cross slide.
- 13—The compound slide.
- 14—The lathe bed ways (both V and flat).
- 15—The outside of the tailstock ram.

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

## LATHE BELTS

The Powr-Kraft Lathe comes equipped with an endless flat belt of cotton web and rubber composition. To get maximum belt life, relax tension on it when the lathe is not in use and keep it free of oil; oil not only causes deterioration of the rubber but slippage and power loss as well.

Using a flat belt on the lathe makes it unnecessary to remove the spindle when changing the belt. This arrangement has two distinct advantages: First, the belt may be changed quickly and easily with a minimum of effort; it may be laced, glued or hooked on the spindle, a simple procedure when compared to removing the spindle to install an endless belt over it. Second, there is no risk of losing the alignment that has been so painstakingly and 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, it need not be taken apart, under ordinary circumstances, during the life of the lathe. However, should it be necessary, for any reason, to remove the spindle, it may be done as explained in the spindle description. Fastening the belting over the spindle pulley is a simple matter and may be done in either of the following ways:

1—The belt, if laced, may be joined by either gut or rawhide laces as follows: Cut belting to length, square ends and punch 10 holes as shown in Fig. 27. Start the laces through holes A and B, pulling both ends through, and working one to the right and one to the left as shown. Do not cross one layer of lacing over another on **pulley side** and do not allow laces to kink or twist, or belt will not run smoothly. Fasten ends as shown. If round gut is used, cut shallow grooves between holes on pulley side.

2—If belt is to be glued, make allowance for overlap and taper or "skive" the overlap at each end so ends will join as shown in Fig. 26A. Two-ply belts should be split and each ply tapered. Full directions are usually furnished with the belt cement; follow them carefully.

3—Simplest and quickest method, and the one now most commonly used, is by means of wire hooks—(Fig. 28). A number of different types are available (see Wards latest General Catalog) which are easily attached by forcing sharpened ends of the hooks through the belting, bending them over and cutting the rawhide pin to length.

It should be kept in mind that the smooth or "grain" side of leather belting should run next to the pulley because the smooth surface of the belt eliminates air pockets between the belt and pulley, and slippage is reduced to a minimum.

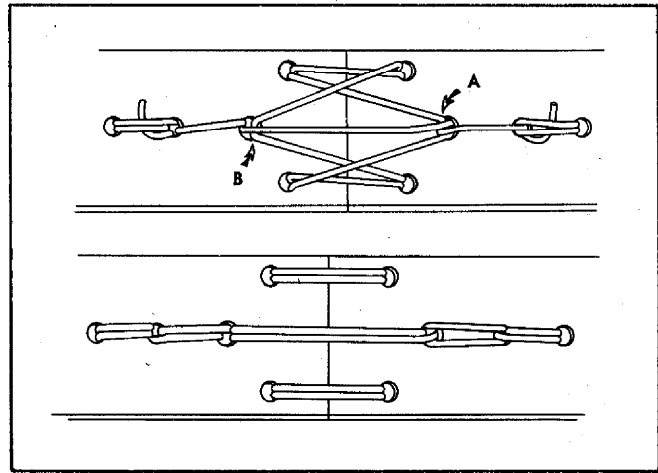


FIG. 27—LACING BELT

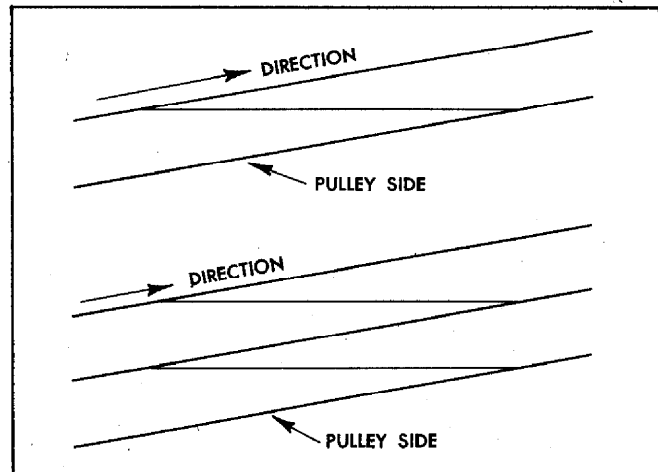


FIG. 27A—GLUING BELT

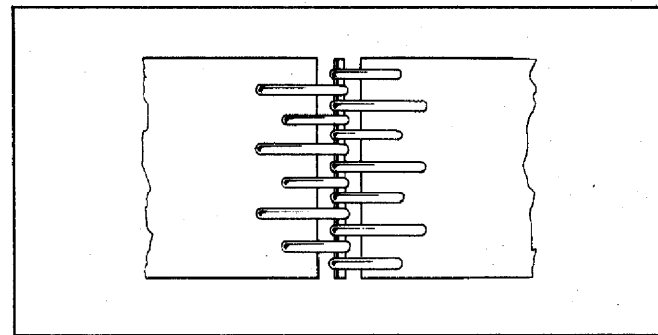


FIG. 28

**NOTICE TO CUSTOMERS:** We reserve the right at any time to increase any price, if merchandise costs make an increase expedient. Prices are subject to an additional charge to cover any applicable sales tax, use tax, occupation tax or other tax affecting our purchase or sale of merchandise.

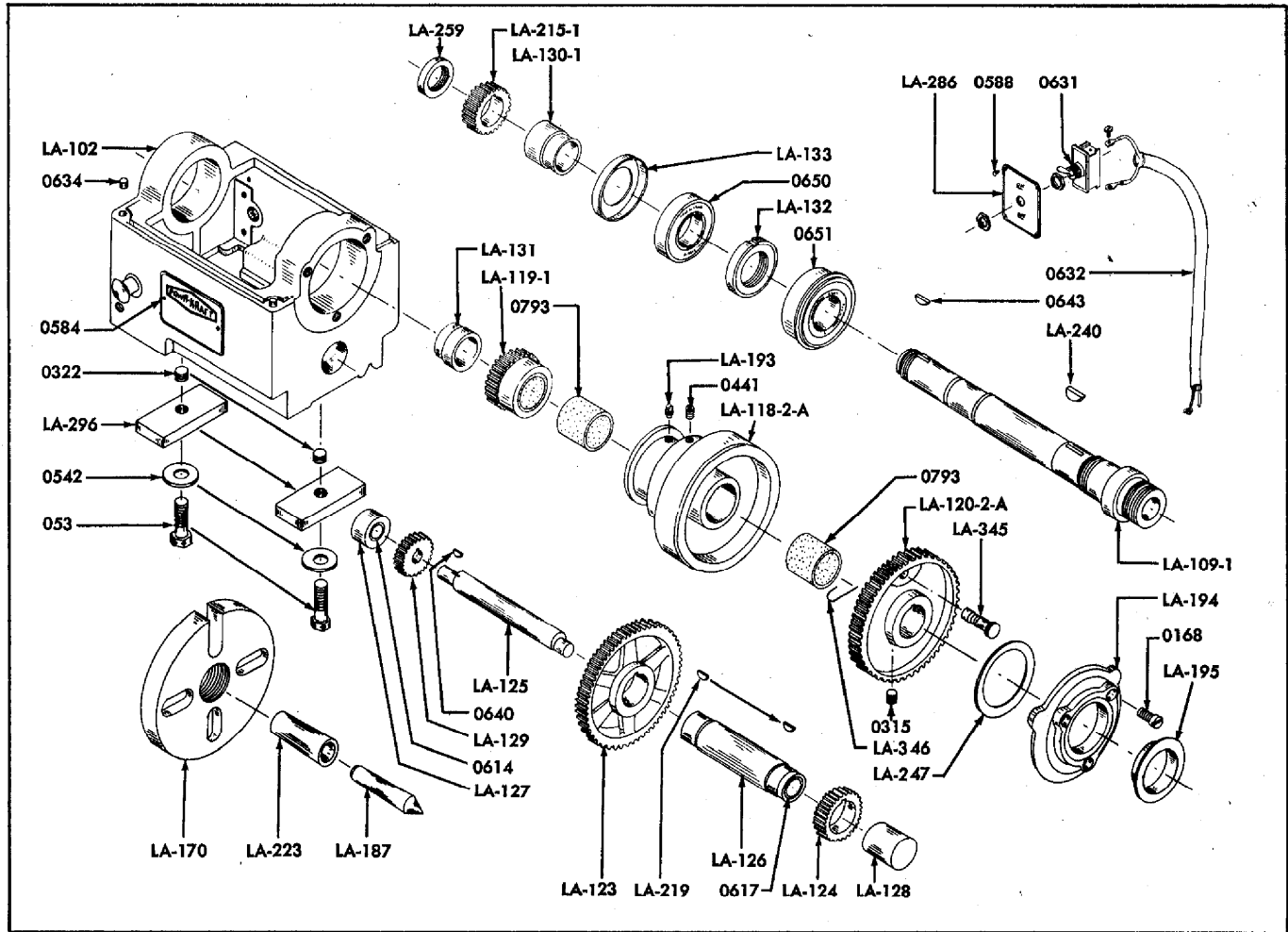
# HOW TO ORDER REPAIR PARTS

Should you need repair parts for your Lathe we must have all of the following information to fill your order correctly: **Complete Name** and **Number of Part** as listed in the parts list, **Complete Name** and **Model Number** of your lathe as shown on name plate attached to the headstock.

**Complete Serial Number** as stamped on top of Lathe Bed at right end.

Wards do not pay transportation charges. You pay shipping charges from Chicago.

When ordering parts for parcel post shipment be sure to include enough extra to cover postage. Any excess over actual charges will be refunded. If there is no agent at your station, do not send money for charges if shipment is to be made by express or freight. Pay agent when goods arrive.



## LA-11-2 HEADSTOCK ASSEMBLY

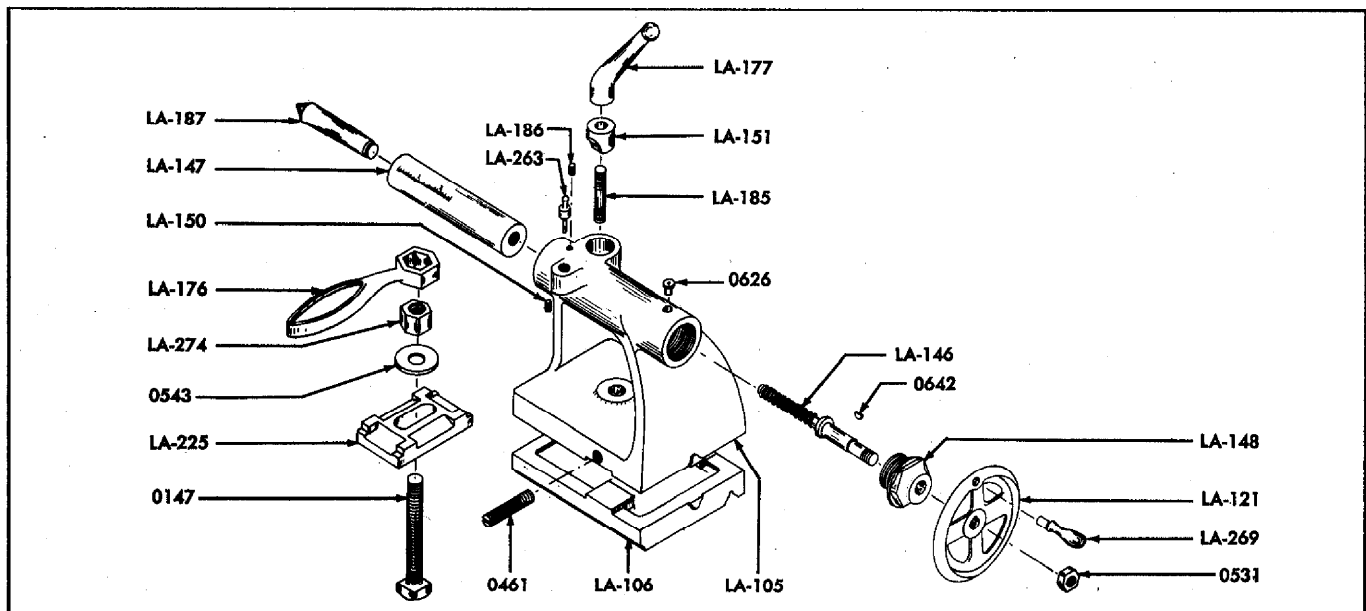
PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-102	1	Headstock.....	20	14	\$15.00
LA-109-1	1	Spindle.....	3	12	13.95
LA-118-2-A	1	Cone Pulley & Cone Pinion Assembly, consists of:— LA-118-2, 119-1, 193, 0441, & 2 of 0793.....	9		11.45
LA-119-1	1	Cone Pinion Gear w/0793.....	1		3.15
LA-120-2-A	1	Bull Gear Assembly, consists of:— LA-120-2, 345, 346, & 0315....	3	8	5.45

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-123	1	Back Gear 70T....	3	8	\$2.50
LA-124	1	Back Gear 28T....		8	1.80
LA-125	1	Eccentric Shaft....	1	12	1.80
LA-126	1	Quill Sleeve w/2 of 0617.....	1	14	2.40
LA-127	1	Bushing w/0614....		8	.45
LA-128	1	Bushing w/0613....		12	.45
LA-129	1	Shifter Gear.....		10	.60
LA-130-1	1	Retaining Collar....		12	.85
LA-131	1	Retaining Collar....		8	.65
LA-132	1	Take-Up Nut.....		14	.95
LA-133	2	Bearing Covers....		4	.20
LA-170	1	Face Plate 6" (Not Shown).....		4	2.50

### LA-11-2 HEADSTOCK ASSEMBLY (Cont.)

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-187	1	Center.....		10	\$2.25
LA-193	1	Lock Screw.....		3	.05
LA-194	1	End Bearing Cap...	2	4	2.50
LA-195	1	Grease Seal Cap...		4	.25
LA-215-1	1	Spindle Gear.....		8	.80
LA-219	2	Key.....		3	.05
LA-223	1	Sleeve.....		12	2.25
LA-240	1	Key.....		3	.05
LA-247	1	Bellville Washer...		4	.05
LA-259	1	Take-Up Nut.....		4	.40
LA-286	1	Switch Plate.....		3	.20
LA-296	2	Front Clamp.....	1		.65
LA-345	1	Plunger.....		2	.40
LA-346	1	Spring.....		2	.10
LA-679	1	Flat Belt.....		8	2.75
053	2	Hex. Hd. Cap Screw 7/16-14 x 1 1/2 ...		3	.05
0168	3	Fil. Head Cap Screw 3/16-18 x 3/8 .....		3	.05

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
0315	1	Socket Set Screw 3/16-18 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	2	Washer.....		3	.05
0584	2	Self-Tapping Screws		3	.05
0588	4	Self-Tapping Screws		3	.05
0613	1	Oilless Bushing.....		3	.15
0614	1	Oilless Bushing.....		3	.20
0617	2	Oilless Bushing.....		4	.25
0631	1	Switch.....	1		1.75
0632	1	Cable.....		8	.35
0640	1	W'dr'f. Key 1/8 x 1/2		3	.05
0643	1	Key.....		3	.05
0650	1	Ball Bearing #77506		14	3.25
0651	1	Ball Bearing #45507	1	12	7.60
0793	2	Oilless Bushing.....		5	.40

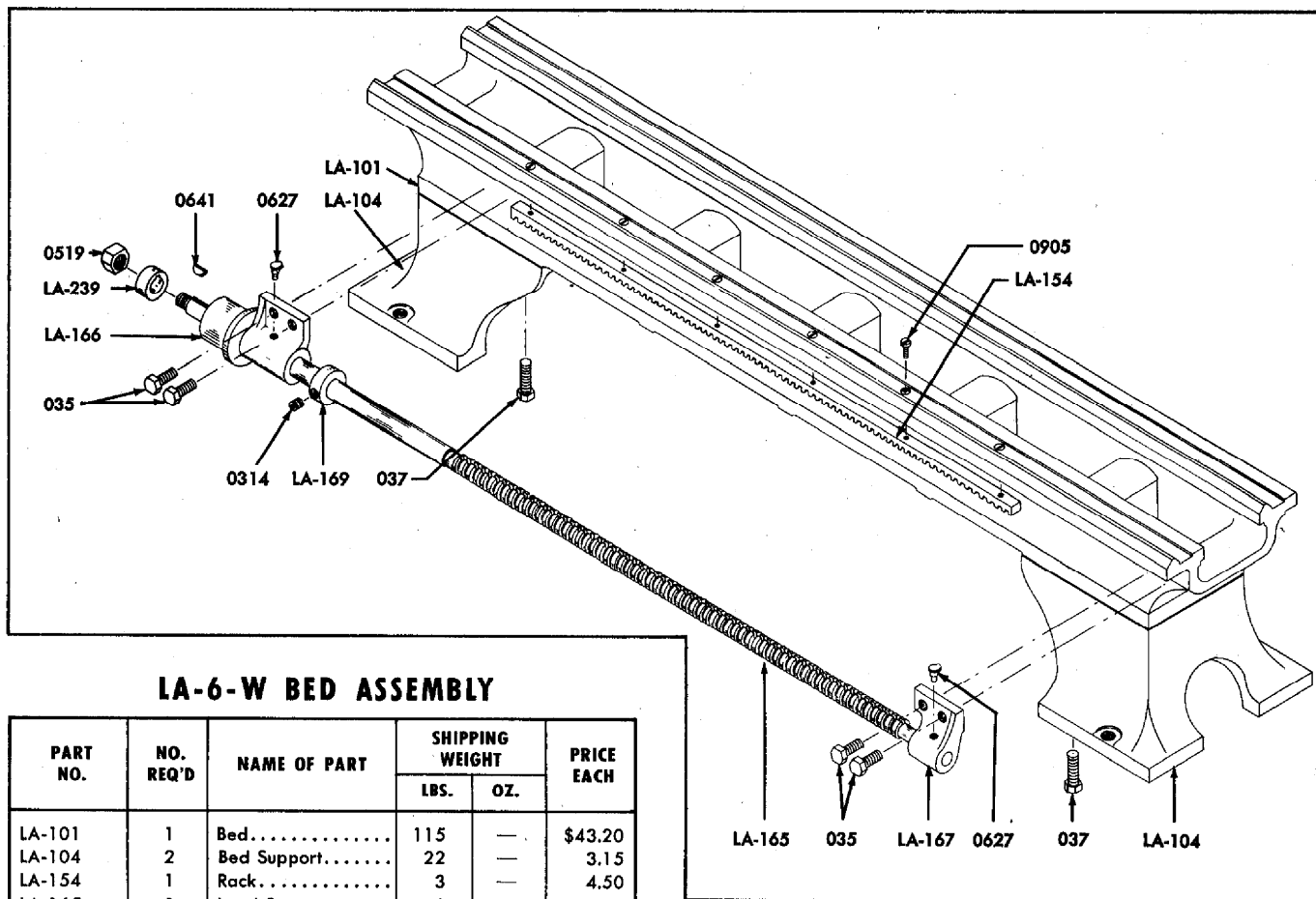


### LA-3 TAILSTOCK ASSEMBLY

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-105	1	Tailstock (See Note).	12	—	\$12.00
LA-106	1	Tailstock Base (See Note).....	5	—	2.40
LA-121	1	Handwheel with 269	2	7	2.50
LA-146	1	Tailstock Screw.....	—	8	1.40
LA-147	1	Tailstock Spindle....	1	8	4.30
LA-148	1	Screw Retainer.....	—	12	1.35
LA-150	1	Spindle Key.....	—	2	.05
LA-151	1	Binding Plug.....	—	6	.30
LA-176	1	Tailstock Wrench...	1		.45
LA-177	1	Binding Lever.....	—	12	.75
LA-185	1	Tailstock Stud.....	—	3	.15
LA-186	1	Tailstock Plug.....	—	2	.05
LA-187	1	Center.....	—	10	2.25

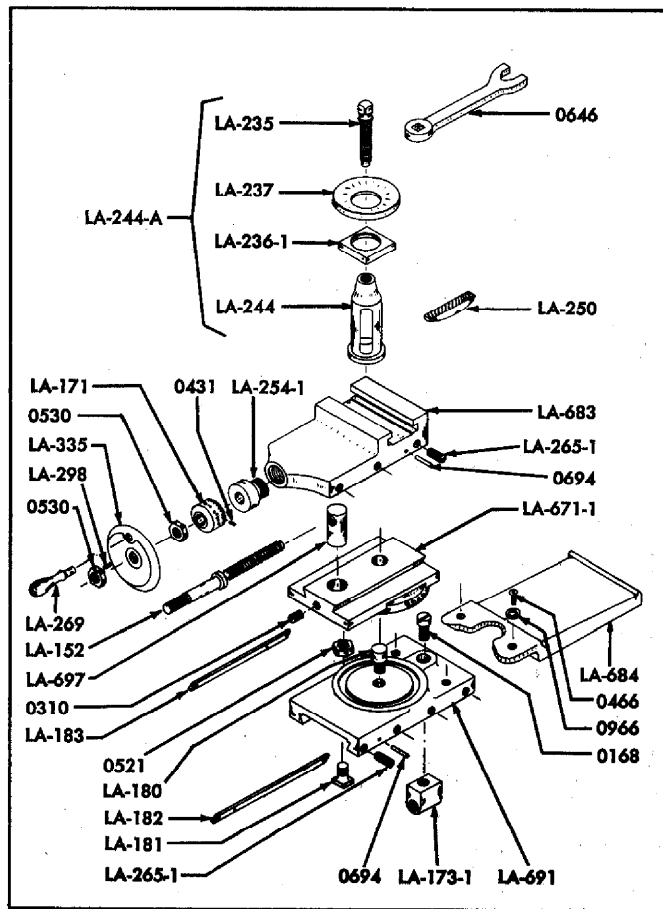
PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-225	1	Tailstock Clamp...	1	8	\$.45
LA-263	1	Knob with 0694....	—	3	.15
LA-269	1	Handle.....	—	4	.35
LA-274	1	1/2-13 Hex. Nut...	—	3	.10
0147	1	Sq. Hd. Machine Bolt 1/2-13 x 4...	—	12	.10
0461	2	Headless Set Screw 3/8-16 x 2.....	—	3	.10
0531	1	Jam Nut 3/8-24...	—	3	.05
0543	1	Washer.....	—	3	.05
0626	1	Oil Cup.....	—	3	.05
0642	1	Woodruff Key 3/2 x 1/2.....	—	3	.05

Note! — Tailstock and base are matched and machined as a unit.



### LA-6-W BED ASSEMBLY

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-101	1	Bed.....	115	—	\$43.20
LA-104	2	Bed Support.....	22	—	3.15
LA-154	1	Rack.....	3	—	4.50
LA-165	1	Lead Screw.....	8	—	7.20
LA-166	1	Bracket—Left with 0627.....	3	—	3.40
LA-167	1	Bracket—Right with 0627.....	1	—	1.60
LA-169	1	Collar with 0314...	—	6	.45
LA-239	1	Collar.....	—	4	.30
035	4	Cap Screws.....	—	3	.05
037	8	Cap Screws.....	—	3	.05
0314	1	Socket Set Screw...	—	3	.10
0519	1	Hex Nut.....	—	3	.05
0627	2	Oil Cups.....	—	3	.05
0641	1	Woodruff Key.....	—	3	.05
0905	6	Fillister Head Screw...	—	3	.05



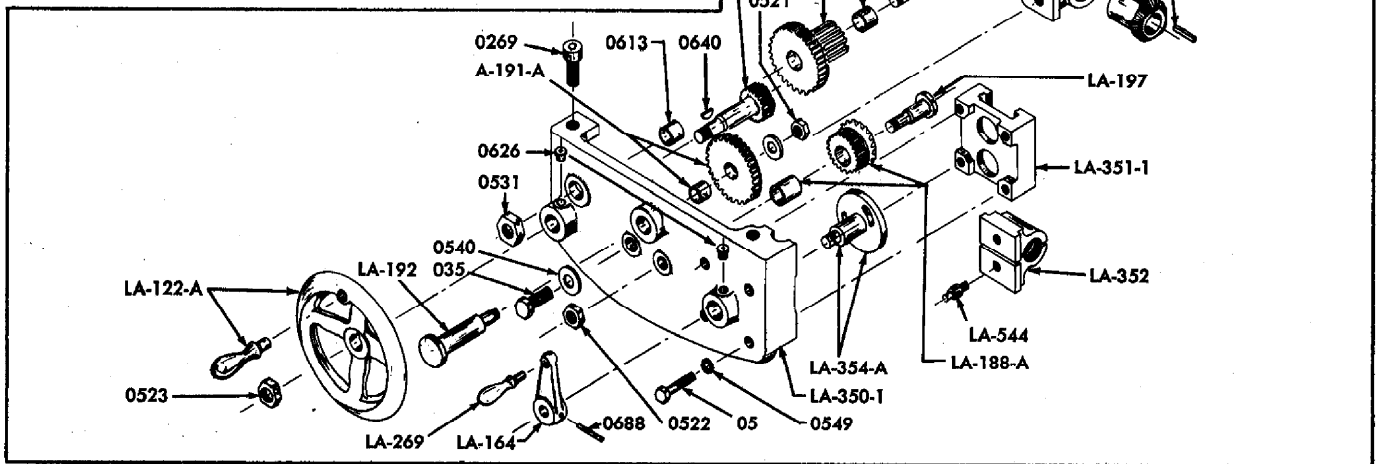
### LA-49-3 COMPOUND REST ASSEMBLY

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	.75
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	.50
LA-236-1	1	Tool Post Block.....	—	3	.55
LA-237	1	Tool Post Ring.....	—	4	.75
LA-244	1	Tool Post.....	—	12	1.90
LA-244-A	1	Tool Post Complete.....	1	6	4.40
LA-250	1	Wedge.....	—	4	.70
LA-254-1	1	Bushing.....	—	10	.50
LA-265-1	7	Gib Screw.....	—	8	.05
LA-269	1	Handle.....	—	4	.35
LA-298	1	Key.....	—	3	.05
LA-335	1	Handwheel w/269.....	—	1	2.75

### LA-49-3 COMPOUND REST ASSEMBLY (Cont.)

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-671-1	1	Swivel.....	4	—	\$5.90
LA-683	1	Compound Rest Top w/254, 183 & 2 of 0694.....	4	—	7.40
LA-684	1	Chip Guard.....	2	—	1.20
LA-691	1	Compound Base with 180, 182 & 2 of 0694.....	4	—	8.25
LA-697	1	Compound Rest Nut.	—	8	.85
0168	1	Fillister Hd. Cap Screw 3/16-18 x 3/8	—	3	.05
0310	1	Socket Set Screw 1/4-20 x 3/8.....	—	3	.05
0431	1	Headless Set Screw 8-32 x 1/4.....	—	3	.05

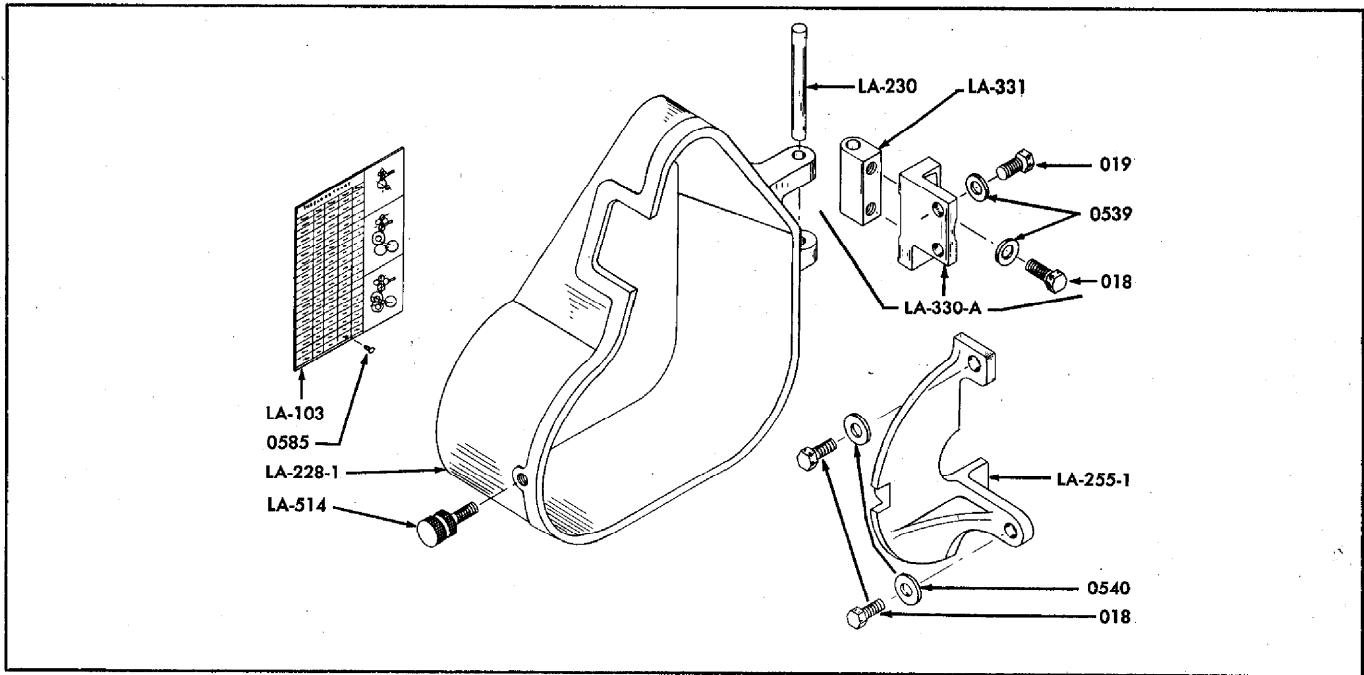
PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
0466	2	Rd. Hd. Screw 10- 32 x 1/2.....	—	3	\$.05
0521	2	Jam Nut 3/16 - 18...	—	3	.05
0530	2	Jam Nut 3/16 - 24 ...	—	3	.05
0646	1	Tool Post Wrench— Comb.....	—	8	.60
0694	2	Pin.....	—	2	.05
0966	2	Washer.....	—	3	.05



### LA-15-1 APRON ASSEMBLY

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-122-A	1	Apron Handwheel with 268.....	3	—	\$2.75
LA-154	1	Rack (see lathe bed)	—	—	—
LA-155	1	Rack Pinion Gear...	1	11	3.60
LA-156-1	1	Rack Pinion Stud ...	—	8	.65
LA-158	1	Handwheel Pinion ...	1	—	1.10
LA-161	1	Cam (See 354-A)	—	—	—
LA-164	1	Cam Shaft Lever ...	—	8	.45
LA-188-A	1	Miter Gear with 0615.....	—	14	3.00
LA-189	1	Miter Gear with Key	—	8	3.00
LA-191-A	1	Idler Shift Gear with 0612.....	1	—	1.50
LA-192	1	Idler Shifter Shaft...	—	8	.80
LA-196-A	1	Bearing with 0618..	1	—	1.50
LA-197	1	Stud.....	—	6	.50
LA-256	1	Collar with 2 of 0309.....	—	5	.70
LA-268	1	Handle.....	—	6	.40
LA-269	1	Handle.....	—	4	.35
LA-350-1	1	Apron.....	8	—	8.40
LA-351-1	1	Half Nut Plate.....	1	—	2.75
LA-352	1	Half Nut with 2 of 544.....	1	8	2.80
LA-354-A	1	Cam shaft & Cam 161.....	1	—	1.65

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-544	2	Half Nut Pin.....	—	3	\$.20
05	4	Hex. Hd. Cap Screw 1/4-20 x 1.....	—	3	.05
035	1	Hex. Hd. Cap Screw 3/8-16 x 3/8.....	—	3	.05
0269	2	Socket Hd. Cap Screw 3/8-16 x 1..	—	3	.10
0309	1	Socket Set Screw 1/4-20 x 1/4.....	—	3	.10
0521	1	Jam Nut 3/16-18.....	—	3	.05
0522	1	Jam Nut 3/8-16.....	—	3	.05
0523	1	Jam Nut 7/16-14.....	—	3	.05
0531	1	Jam Nut 3/8-24.....	—	3	.05
0540	1	Washer.....	—	3	.05
0549	4	Lockwasher 1/4 x 7/16.	—	3	.05
0612	1	Oilless Bearing....	—	3	.15
0613	2	Oilless Bearing....	—	3	.15
0615	1	Oilless Bearing....	—	4	.20
0618	1	Oilless Bearing....	—	6	.25
0626	2	Oil Cup.....	—	3	.05
0640	1	Woodruff Key 1/8 x 1/2.....	—	3	.05
0688	1	Pin 1/8 x 1.....	—	3	.05
0905	1	Fil. Head Screw (see lathe Bed).....	—	—	—



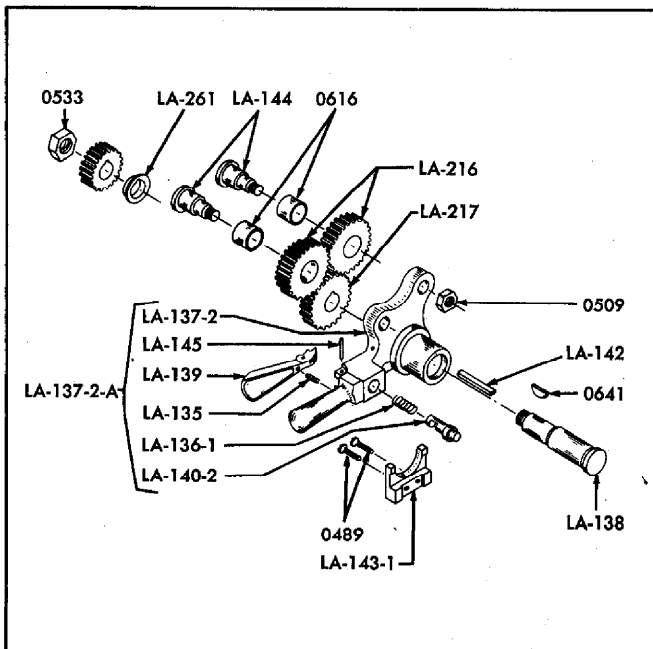
### LA-23-1 GUARD ASSEMBLY

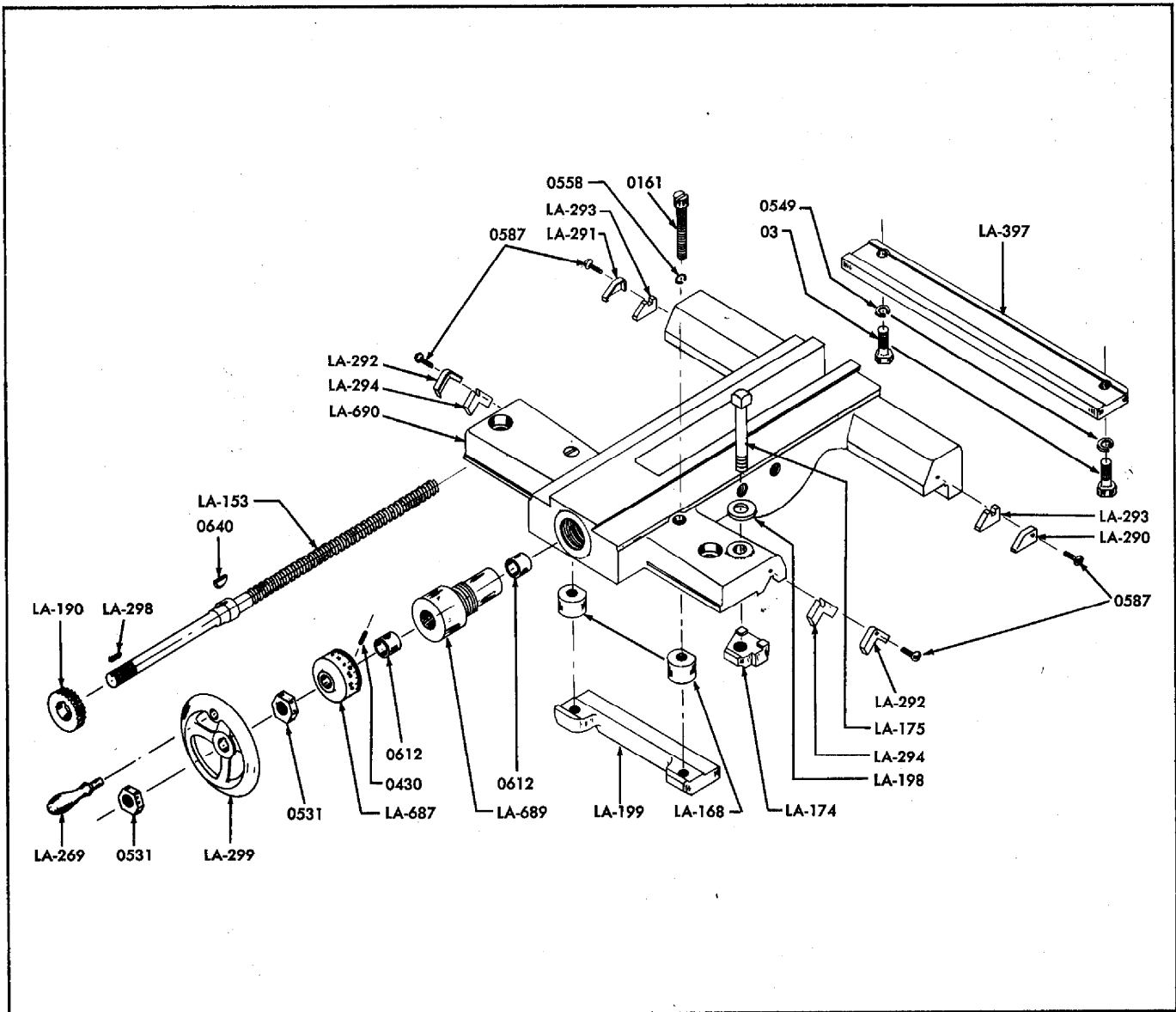
PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-103	1	Threading Chart....	—	6	\$ .50
LA-228-1	1	Guard.....	15	4	5.80
LA-230	1	Hinge Pin.....	—	3	.10
LA-255-1	1	End Guard.....	4	—	1.20
LA-330-A	1	Hinge Bracket Assembly.....	1	8	1.40
LA-331	1	Hinge Block.....	1	8	.80
LA-514	1	Knob.....	—	4	.45
018	4	Cap Screws 5/16-18 x 3/4.....	—	3	.05
019	2	Cap Screws 5/16-18 x 7/8.....	—	3	.05

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
0539	4	Washer.....	—	3	\$.05
0540	2	Washer.....	—	3	.05
0585	2	Drive Screw.....	—	3	.05

### LA-4-2 REVERSE GEAR ASSEMBLY

LA-135	1	Handle Spring.....	—	3	\$.05
LA-136-1	1	Plunger Spring.....	—	3	.05
LA-137-2	1	Reverse Gear Bracket.....	3	6	4.80
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.....	—	—	5.85
LA-138	1	Reverse Gear Shaft.....	—	14	.95
LA-139	1	Plunger Lever.....	—	6	.50
LA-140-2	1	Plunger.....	—	3	.40
LA-142	1	Oiler.....	—	3	.05
LA-143-1	1	Lock.....	—	4	.50
LA-144	2	Pinion Stud.....	—	8	.35
LA-145	1	Handle Pin.....	—	3	.05
LA-149	2	Stop Pin with one of 0305 and 0307.....	—	3	.35
LA-216	2	Idler Gears with 0616.....	—	12	.90
LA-217	1	Reverse Gear.....	—	12	.95
LA-261	1	Spacer.....	—	4	.30
0305	1	Socket Set Screw 10-32 x 3/16.....	—	3	.10
0307	1	Socket Set Screw 10-32 x 3/16.....	—	3	.10
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 3/8 x 3/8.....	—	3	.05



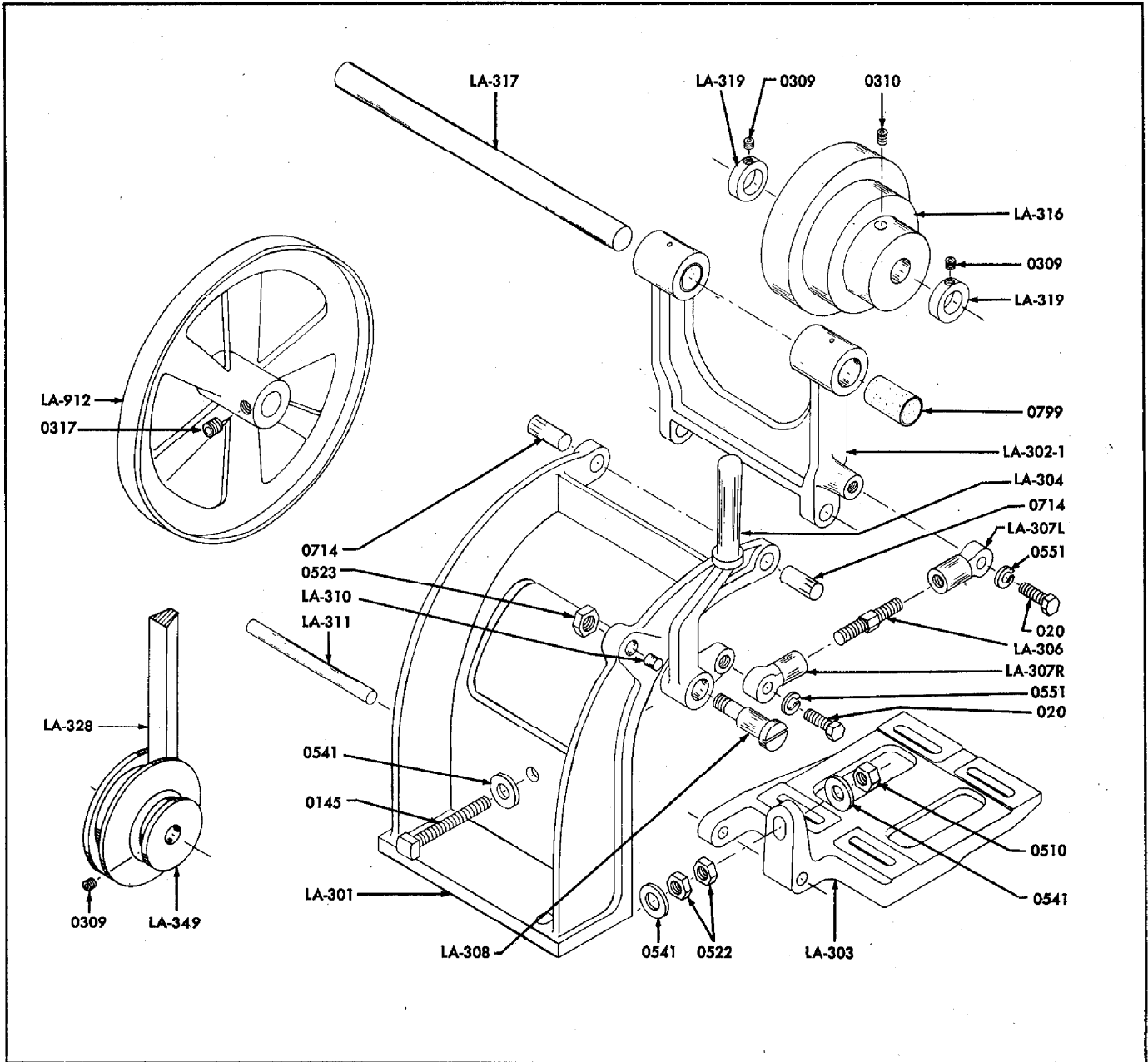


### LA-50-2 SADDLE ASSEMBLY

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-153	1	Cross Feed Screw with 0640 .....	1	—	\$3.30
LA-168	1	Gib Spacer .....	—	8	.15
LA-174	1	Saddle Lock Nut .....	—	5	.15
LA-175	1	Saddle Lock Screw ..	—	3	.20
LA-190	1	Cross Feed Idler Gear .....	—	4	.50
LA-198	1	Washer .....	—	3	.05
LA-199	1	Front Gib .....	1	4	.70
LA-269	1	Handle .....	—	4	.35
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-298	1	Key .....	—	3	.05
LA-299	1	Handwheel with 268	2	7	2.60
LA-397	1	Saddle Gib .....	1	8	.75
LA-687	1	Graduated Collar with 0430 .....	—	8	.80

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-689	1	Bushing with 2 of 0612 .....	1	—	\$ 1.20
LA-690	1	Saddle .....	19	—	19.60
03	3	Hex. Hd. Cap Screw ¼—20 x ¾ .....	—	3	.05
0161	2	Fill. Hd. Cap Screw ¼—20 x 1 ¼ .....	—	3	.05
0430	1	Headless Set Screw 8—32 x ¾ .....	—	3	.05
0531	2	Jam Nut ¾—24 .....	—	3	.05
0549	3	Lock Washer ¼ x ¾ .....	—	3	.05
0558	2	Lock Washer ¼ .....	—	3	.05
0587	4	Drive Screw 6—32 x ½ .....	—	3	.05
0612	2	Oilless Bearing .....	—	3	.15
0640	1	Woodruff Key ⅜ x ½ .....	—	3	.05





### LA-7-1-W DRIVE ASSEMBLY

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-301	1	Motor Bracket.....	13	8	\$5.60
LA-302-1	1	Countershaft Bracket.....	4	8	2.50
LA-303	1	Hinge Bracket.....	7	8	1.65
LA-304	1	Lever.....	2	14	.90
LA-306	1	Adjusting Bolt.....	—	4	.30
LA-307-R	1	Head, Right.....	—	6	.40
LA-307-L	1	Head, Left.....	—	6	.40
LA-308	1	Stud Pin.....	—	8	.55
LA-310	1	Stop Pin.....	—	3	.10
LA-311	1	Hinge Pin.....	—	8	.15
LA-316	1	Cone Pulley.....	7	—	8.10
LA-317	1	Shaft.....	2	3	.70
LA-319	1	Collar.....	—	5	.30
*LA-328	1	V-Belt.....	—	6	1.20

\* Not included in purchase of Drive Assembly only.

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
*LA-349	1	Motor Pulley 1/2, 3/4 or 5/8" bore...	3	—	\$4.95
LA-912	1	Pulley with 0317...	7	—	7.20
0145	1	Sq. Head Bolt.....	—	8	.05
0202	2	Hex. Hd. Cap Screw	—	3	.05
0309	2	Socket Setscrews ...	—	3	.10
0310	2	Socket Setscrews ...	—	3	.10
0317	1	Socket Setscrew ...	—	3	.10
0510	1	Hex Nut.....	—	3	.05
0522	2	Jam Nuts.....	—	3	.05
0523	1	Jam Nut.....	—	3	.05
0541	4	Washers.....	—	3	.05
0551	2	Lock Washer.....	—	3	.05
0714	2	Groove Pin.....	—	3	.10
0799	2	Oilless Bushing.....	—	3	.20

## LA-56 SHIFTER RACK ASSEMBLY

PART NO.	NO. REQ'D	NAME OF PART	SHIPPING WEIGHT		PRICE EACH
			LBS.	OZ.	
LA-238	1	Spring.....	—	6	\$ .05
LA-241-A	1	Shifter Rack complete.....	1	8	1.95
LA-242	1	Knob.....	—	4	.25
LA-243	1	Collar.....	—	3	.30
LA-264	1	Latch Key.....	—	3	.10
LA-275	1	Pin.....	—	1	.05
0310	1	Socket Set Screw 1/4-20 x 3/8....	—	3	.10

## LA-12-2 DIAL INDICATOR ASSEMBLY

LA-12-2	1	Dial Indicator Assembly Complete..	1	8	\$ 3.30
LA-321-2	1	Housing.....	1	—	2.10
LA-322	1	Dial.....	—	3	.20
LA-323-1	1	Shaft.....	—	6	.15
LA-324	1	Gear.....	—	3	.65
LA-332	1	Screw.....	—	4	.15
0797	2	Oilless Bearing.....	—	3	.10
0984	1	Washer.....	—	2	.05

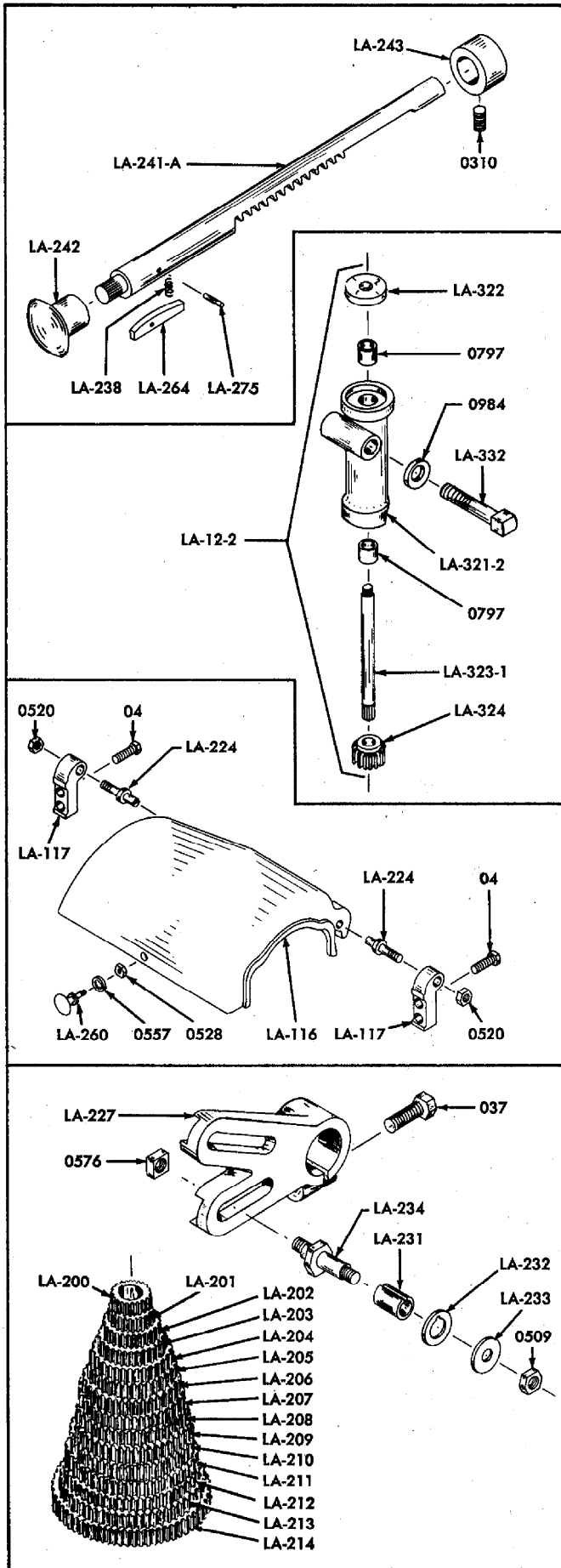
## LA-5-2 COVER ASSEMBLY

LA-116	1	Guard.....	6	—	\$ 1.90
LA-117	2	Hinge Brackets.....	—	3	.30
LA-224	2	Hinge Pins.....	—	3	.15
LA-260	1	Knob.....	—	2	.35
04	2	Hex Head Cap Screws 1/4-20 x 7/8.....	—	3	.05
0520	2	Jam Nuts.....	—	3	.05
0528	1	Jam Nut.....	—	3	.05
0557	1	Washer.....	—	3	.05

## LA-8 CHANGE GEAR ASSEMBLY

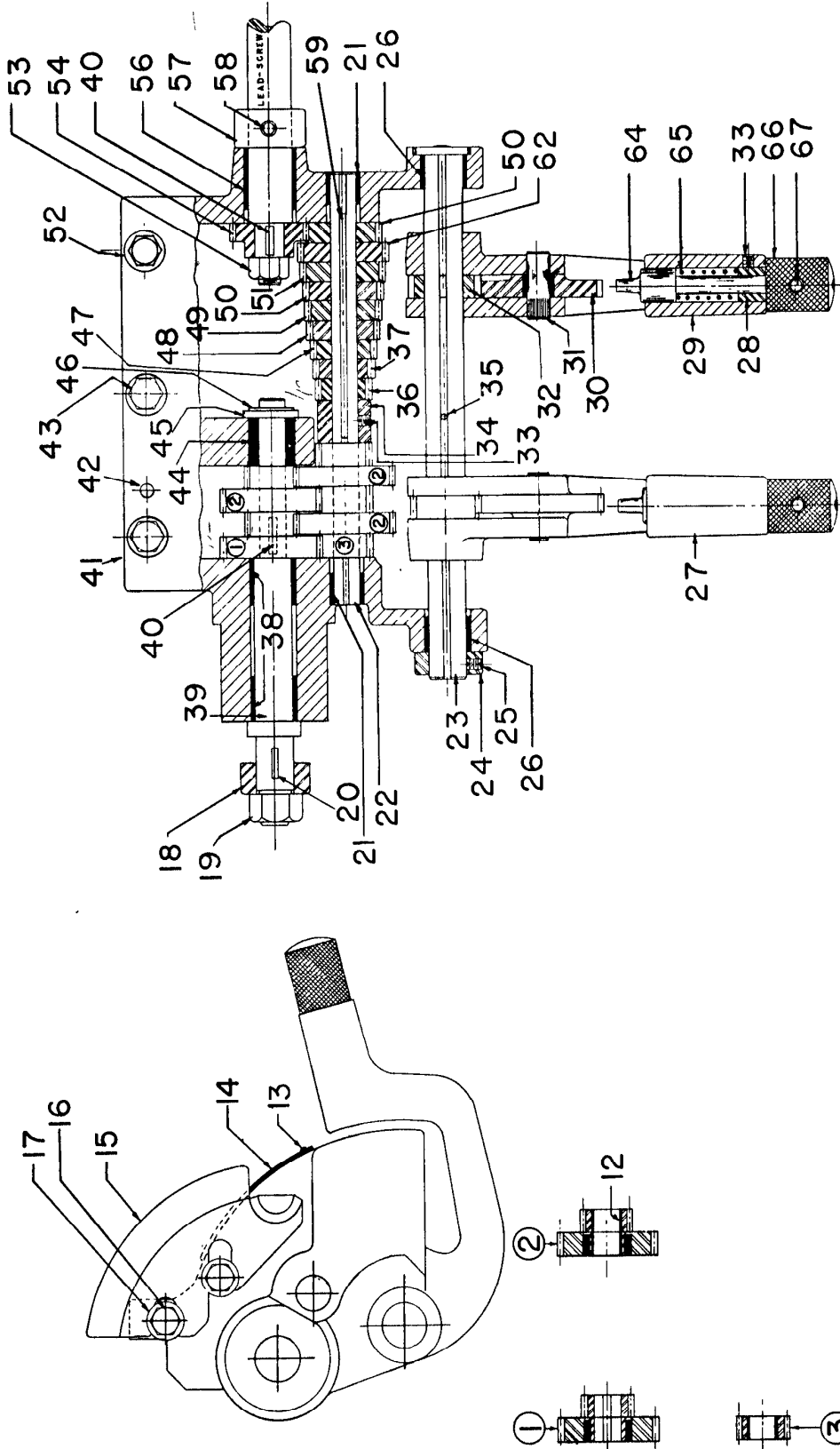
LA-227	1	Change Gear Bracket.....	3	12	\$ 2.25
LA-231	2	Compound Bushing..	—	5	.60
LA-232	2	Washer.....	—	3	.05
LA-233	2	Washer.....	—	3	.05
LA-234	2	Stud.....	—	12	.70
037	1	Cap Screw 3/8-16 x 1 1/4.....	—	3	.05
0509	2	Hex Nut 3/8-18...	—	3	.05
0576	2	Square Nut 3/8-16.	—	3	.05
<b>*CHANGE GEARS</b>					
LA-200	1	Change Gear 16 T..	—	4	.55
LA-201	1	Change Gear 18 T..	—	4	.60
LA-202	2	Change Gear 24 T..	—	4	.65
LA-203	2	Change Gear 32 T..	1	—	.70
LA-204	1	Change Gear 36 T..	1	—	.75
LA-205	1	Change Gear 40 T..	1	—	.80
LA-206	1	Change Gear 44 T..	1	—	.90
LA-207	1	Change Gear 46 T..	1	—	.95
LA-208	1	Change Gear 48 T..	1	—	1.00
LA-209	1	Change Gear 52 T..	1	—	1.05
LA-210	1	Change Gear 54 T..	1	2	1.10
LA-211	1	Change Gear 56 T..	1	4	1.20
LA-212	1	Change Gear 60 T..	1	6	1.30
LA-213	1	Change Gear 64 T..	1	8	1.40
LA-214	1	Change Gear 72 T..	1	12	1.55

\* Six Change Gears are installed on the lathe proper, the balance (11) are shipped as separate items with the lathe.





LA 1240-2 GEAR BOX ASSEMBLY  
(Page 1 of 2)



NOTE: Drawings are not actual size.

# LA-1240-2 GEAR BOX ASSEMBLY

(Page 2 of 2)

B.M. K-203 24" Centers Access.  
 B.M. K-205 36" Centers Access.  
 B.M. K-206 31" Centers Access.  
 B.M. K-1118 9" Q.C. Lathes  
 B.M. K-1278 10 & 11" Q.C. Lathes

Key No.	Description	Part No.	Qty.	Shipping Weight		Key No.	Description	Part No.	Qty.	Shipping Weight	
				Lbs.	Ozs.					Lbs.	Ozs.
1	Double Gear, 32/16T.	LP-1002	1		8	36	Gear, 16T.	LP-1005	1		4
2	Double Gear, 32/16T.	LP-1076	3		8	37	Gear, 18T.	LP-1006	1		6
	w/ Oilite					38	Oilite Bearing	Q14-00621	2		3
3	Gear, 16T., w/ Oilite	LP-1004	1		4	‡39	Drive Shaft	LP-1100	1	≈ 1	
12	Oilite Bearing	Q14-00802	3		4	40	Woodruff Key	Q12-00640	2		3
13	Drive Screw	Q07-00584	4		3	*‡41	Gear Box	10D-31347	1	11	
*‡14	Thread Chart	LP-1785	1		3	42	Grooved Pin	Q11-00702	2		1
‡15	End Guard	LP-1981	1	3		43	Hex Hd. Cap Screw	Q01-00021	3		3
16	Hex Head Cap Screw	Q01-00003	2		3	44	Oilite Bearing	Q14-00800	1		3
17	Washer	24A-30157	2		4	45	Washer	LP-1079	1		3
18	Collar	LP-1302	1		4	46	Retaining Ring	Q15-01199	1		3
	(Not Included on 10 & 11" QC Lathes)					47	Gear, 20T.	LP-1007	1		6
19	Hex Nut	Q09-00519	1		3	48	Gear, 22T.	LP-1008	1		6
20	Woodruff Key	Q12-00643	1		3	49	Gear, 23T.	LP-1009	1		6
21	Oilite Bearing	Q14-00790	2		3	50	Gear, 24T.	LP-1010	2		6
22	Stack Shaft	LP-1147	1	1		51	Gear, 26T.	LP-1011	1		6
23	Slider Shaft w/ LP-1145	LP-1146	1		14	52	Washer	24A-31272	3		3
24	Collar w/ Set Screws	LP-1264	1		5	53	Hex Nut	Q09-00726	1		3
25	Soc. Set Screw	Q06-00308	2		3	54	Gear, 24T.	LP-1013	1		6
26	Oilite Bearing	Q14-00616	2		3	56	Oilite Bearing	Q14-00617	1		3
27	Gear Box Lever, LH	LP-1340	1	1		57	Collar	LP-1471	1		6
28	Bushing	LP-1343	2		3	58	Soc. Set Screw	Q06-00314	1		3
29	Gear Box Lever, RH	LP-1341	1	1		59	Key	LP-1393	1		3
30	Handle Gear, 40T.	LP-1014	2		8	62	Gear, 28T.	LP-1012	1		6
31	Pin	LP-1193	2		3	64	Plunger	LP-1187	2		3
32	Slider Gear, 22T.	LP-1016	2		6	65	Spring	LP-1229	2		3
33	Soc. Set Screw	Q06-00305	3		3	66	Knob	LP-1331	2		4
34	Spacer	LP-1191	1		3	67	Soc. Set Screw	Q06-00309	2		3
35	Grooved Pin	Q11-00708	1		3						

Note:					
*For Accessory Gear Boxes (B.M.'s K203, K205, K206) Order					
14	Thread Chart	LP-1785	1		3
41	Gear Box	10D-12615	1	11	
‡For 9" Q.C. Lathes Order					
4	Thread Chart	LP-1785	1		3
15	End Guard	08A-20213	1	3	
39	Drive Shaft	17A-20285	1	1	
41	Gear Box	10D-20211	1	11	



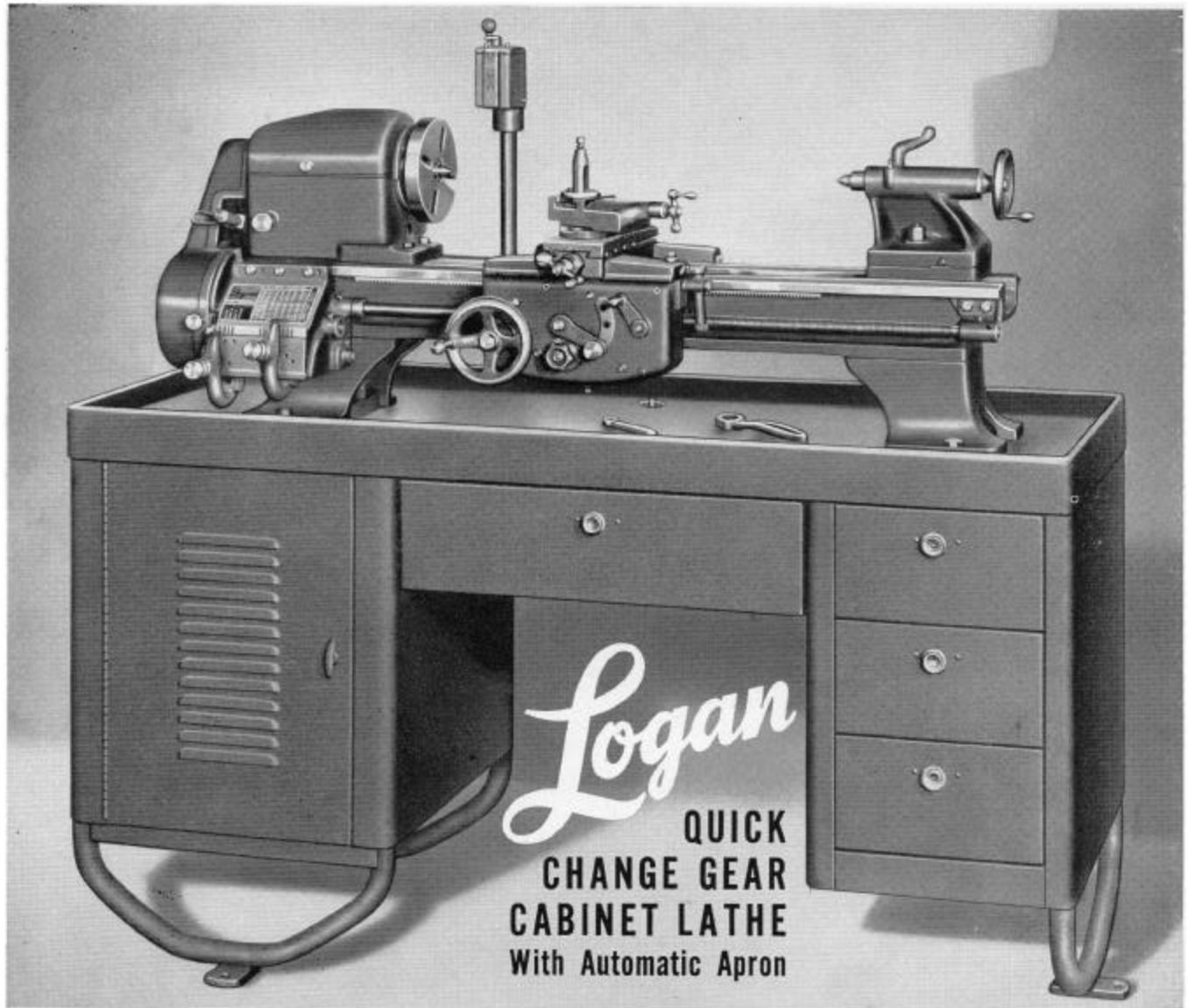
*Logan*

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*Lathes*

**LOGAN ENGINEERING COMPANY • Chicago, Ill.**

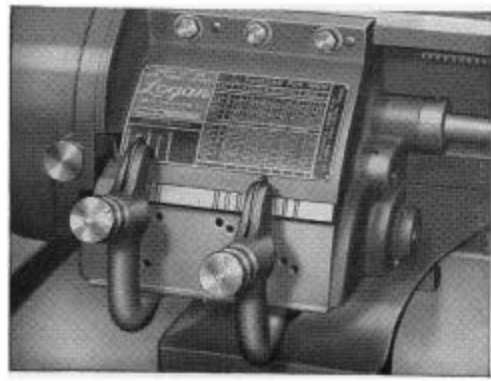
**4901 W. LAWRENCE AVE.**



**Logan**  
**QUICK  
 CHANGE GEAR  
 CABINET 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, 2 3/4". Hand wheel spindle travel, 2 3/8". Fitted for No. 2 Morse Taper Shank.



**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 lathes, 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. 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.





#### 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.

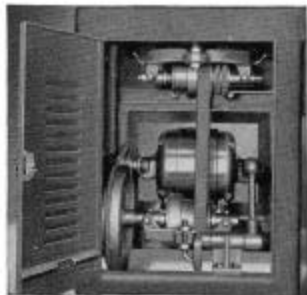


#### BALL BEARING HEADSTOCK

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.)

#### 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.



Collet capacity  $\frac{5}{8}$ " with push type collets used in Logan No. AC-210 Production Collet Chuck or No. AC-201 Speed Collet Chuck.

Collet capacity  $\frac{1}{2}$ " 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 .....  $10\frac{1}{2}$ "  
Swing over saddle cross slide .....  $6\frac{1}{8}$ "  
Distance between centers ..... 24"  
Collet capacity with push type collets .....  $\frac{5}{8}$ "  
Collet capacity with draw-in collets .....  $\frac{1}{2}$ "

#### 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 .....  $\frac{3}{4}$ "-8

#### BED

Width of bed across ways .....  $6\frac{1}{8}$ "  
Bed length .....  $43\frac{1}{8}$ "  
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 .....  $\frac{3}{8}$ "  
Morse Taper with adaptor No. 3-No. 2  
Size of centers used, Morse Taper No. 2  
Spindle nose diameter and threads per inch .....  $1\frac{1}{2}$ "-8  
Width of cone pulley steps for belt. 1"

Width of face of bull gear and back gears .....  $\frac{5}{8}$ "  
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 .....  $6\frac{1}{4}$ "  
Cross feed screw mounted on self lubricating bronze bearings  
Compound rest top slide graduated in thousandths. Travel .....  $2\frac{1}{4}$ "  
Top slide screw mounted on self-lubricating bronze bearings  
Compound rest swivel—graduated 90° in both directions  
Tool post opening for tool holder shank .....  $\frac{3}{8}$ " x  $\frac{3}{4}$ "  
Size of cutter bits used .....  $\frac{1}{4}$ " sq.

#### TAILSTOCK

Spindle travel .....  $2\frac{3}{8}$ "  
Spindle graduations .....  $\frac{1}{8}$ "  
Morse Taper center ..... No. 2  
Tailstock top will set over for taper turning .....  $\frac{1}{4}$ "

#### UNDERNEATH DRIVE

2 Speed "V" Motor Pulley  
 $\frac{3}{8}$ " Bore .....  $2\frac{3}{8}$ "-4"  
2 Speed countershaft flat pulley .....  $8\frac{5}{8}$ "- $9\frac{3}{8}$ "  
40"x $\frac{1}{2}$ " 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	1 No. 3-No. 2 Morse Taper Adaptor
2 60° Centers	1 Tool Post Holder and Wrench
1 Threading Dial	1 Tailstock Wrench
1 Threading Chart 1 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 .....  $55\frac{1}{2}$ "  
Width .....  $20\frac{1}{2}$ "  
Height ..... 52"

#### MOTOR

Use  $\frac{1}{2}$  or  $\frac{1}{2}$  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.



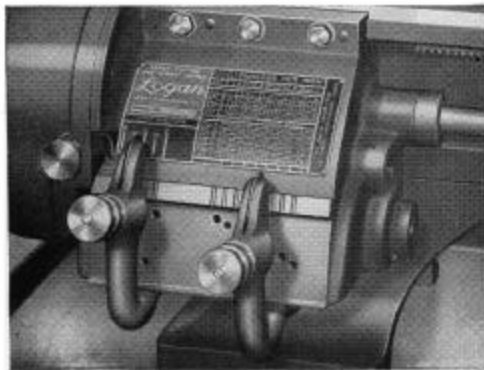
*Logan*

**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, 2 $\frac{3}{4}$ ". Hand wheel spindle travel, 2 $\frac{3}{8}$ ". Fitted for No. 2 Morse Taper Shank.



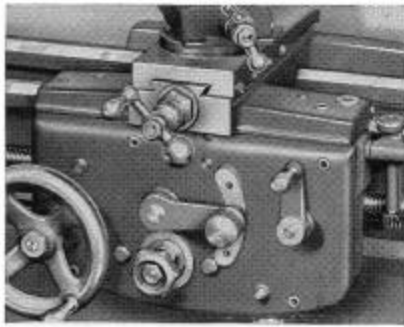
- No. 820 Complete As Shown, Less Motor, F.O.B. Chicago.....\$325.00
- No. 820-1 Complete with No. AC-241 Lever Tailstock Assembly Replacing Regular Tailstock, Less Motor, F.O.B. Chicago.....\$342.50
- No. 815 Bench Model, same as No. 820, less pan and legs. F.O.B. Chicago....\$300.00
- No. 815-1 Bench 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.**



#### 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.

#### 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.



#### 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  $\frac{3}{4}$ " with push type collets used in Logan No. AC-210 Production Collet Chuck or No. AC-201 Speed Collet Chuck.

Collet capacity  $\frac{1}{2}$ " 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.

### S P E C I F I C A T I O N S

#### CAPACITY OF LATHE

Swing over bed and saddle wings .....  $10\frac{1}{2}$ "  
Swing over saddle cross slide .....  $6\frac{1}{8}$ "  
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,  $\frac{3}{4}$ "-8.

#### BED

Width of bed across ways...  $6\frac{15}{16}$ "  
Bed length .....  $43\frac{1}{8}$ "  
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 .....  $1\frac{1}{2}$ "-8  
Width of cone pulley steps for belt. 1"

Width of face of bull gear and back gears .....  $\frac{3}{8}$ "  
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 .....  $6\frac{1}{4}$ "  
Cross feed screw mounted on self-lubricating bronze bearings.  
Compound rest top slide graduated in thousandths. Travel .....  $2\frac{1}{4}$ "  
Top slide screw mounted on self-lubricating bronze bearings.  
Compound rest swivel—graduated  $90^\circ$  in both directions.  
Tool post opening for tool holder shank .....  $\frac{3}{8} \times \frac{3}{4}$ "  
Size of cutter bits used .....  $\frac{1}{4}$ " sq.

#### TAILSTOCK

Spindle travel .....  $2\frac{3}{8}$ "  
Spindle graduations .....  $\frac{1}{16}$ "  
Morse Taper center ..... No. 2  
Tailstock top will set over for taper turning .....  $1\frac{1}{16}$ "

#### COUNTERSHAFT ASSEMBLY (Incl. in Price of Lathe)

2 Speed "V" Motor Pulley  $\frac{3}{8}$ " Bore .....  $2\frac{3}{8} \times 4$ "  
2 Speed countershaft flat pulley .....  $6\frac{5}{8} \times 10$ "  
 $51 \times \frac{1}{2}$ " 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 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	1 Tool Post Holder and Wrench
1 Threading Dial	1 Tailstock Wrench
1 Threading Chart	1 Parts List and Instruction Book

#### OVERALL DIMENSIONS (Including Countershaft Assembly)

Length .....  $54$ "  
Width .....  $30$ "  
Height .....  $48\frac{1}{2}$ "

#### SELF LUBRICATING BRONZE BEARINGS

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

#### MOTOR

Use  $\frac{1}{2}$  or  $\frac{1}{4}$  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.



**5/8 INCH CAPACITY  
HAND SCREW MACHINE**

**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**

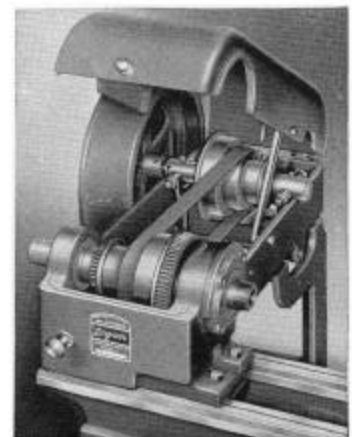
The patented countershaft assembly used in this machine is carried on a three point suspension and is completely insulated by rubber at all points of contact to prevent vibration being transmitted to the lathe.

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

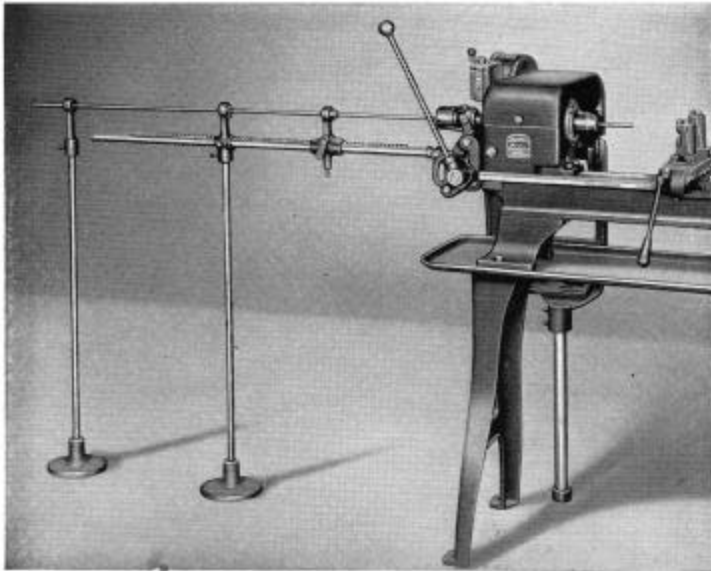
**BALL BEARING HEADSTOCK**

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.



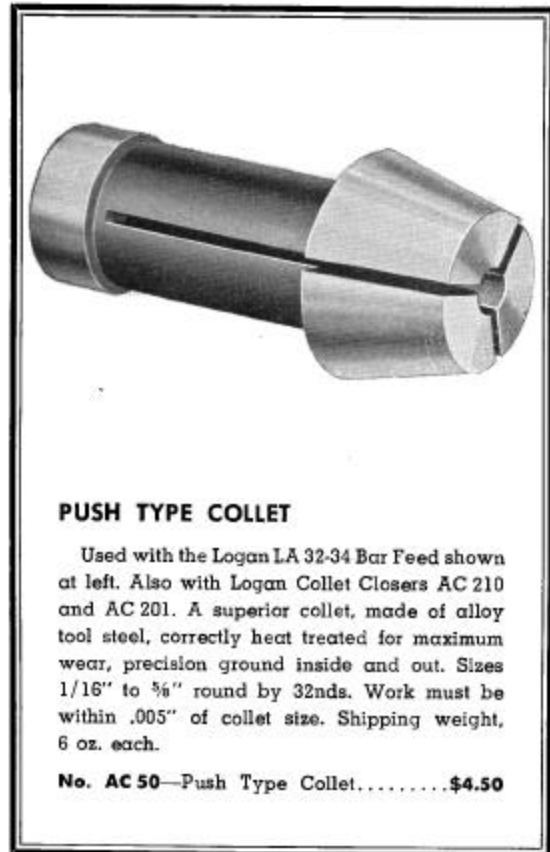
**LOGAN ENGINEERING CO. • CHICAGO 30, ILL.**



### LOGAN BAR FEED

The Logan Bar Feed, with a maximum capacity of  $\frac{3}{8}$ " 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  $\frac{1}{16}$ " to  $\frac{3}{8}$ " 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  $\frac{1}{16}$ " to  $\frac{3}{8}$ " round by 32nds. Work must be within .005" of collet size. Shipping weight, 6 oz. each.

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

## S P E C I F I C A T I O N S

### CAPACITY OF LATHE

Swing over bed. . . . . 10 $\frac{1}{2}$ "  
Swing over cross slide. . . . . 4 $\frac{1}{2}$ "

### BED

Width of bed across ways. . . . . 6 $\frac{15}{16}$ "  
Bed length . . . . . 43 $\frac{3}{8}$ "  
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 $\frac{5}{32}$ "  
Maximum collet capacity. . . . .  $\frac{5}{8}$ "  
Spindle nose diameter and threads per in. . . . . 1 $\frac{1}{2}$ "-8  
Width of cone pulley steps for belt. . 1"  
Width of face of bull gear and back gears . . . . .  $\frac{5}{8}$ "  
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. . . . 3 $\frac{1}{4}$ "  
Adjustable double tool posts.  
Tool posts equipped with adjustable wedges.  
Tool post tool slots. . . . . 7 $\frac{1}{16}$ " x 1 $\frac{9}{16}$ ,"

### TURRET

Diameter of turret head. . . . . 5"  
Six position with adjustable stops.  
Turret holes, diameter . . . . .  $\frac{5}{8}$ "  
Turret holes bored from headstock of lathe.  
Maximum stroke of turret. . . . . 4 $\frac{1}{4}$ "

### COUNTERSHAFT ASSEMBLY (Incl. in Price of Lathe)

2 Speed "V" Motor Pulley  $\frac{5}{8}$ "  
Bore . . . . . 2 $\frac{3}{8}$ "-4"  
2 Speed countershaft flat pulley . . . . . 8 $\frac{5}{8}$ "-10"  
51" x  $\frac{1}{2}$ " 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 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  $\frac{1}{2}$  or  $\frac{3}{4}$  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.



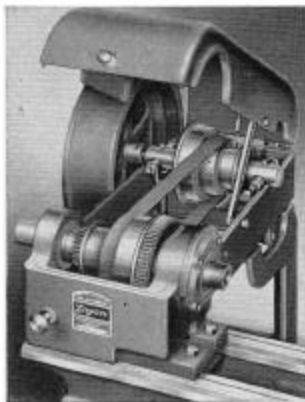
#### QUICK CHANGE GEAR BOX

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.

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### 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 lathe. 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

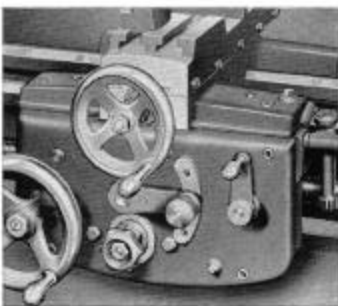


### AUTOMATIC APRON

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  $\frac{3}{8}$ " with push type collets used in Logan No. AC-210 Production Collet Chuck or No. AC-201 Speed Collet Chuck.

Collet capacity  $\frac{1}{2}$ " 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.

## S P E C I F I C A T I O N S

### CAPACITY OF LATHE

Swing over bed and saddle wings . . . . . 10 $\frac{1}{2}$ "  
Swing over saddle cross slide . . . 4 $\frac{1}{2}$ "

### 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,  $\frac{3}{4}$ "-8.

### BED

Width of bed across ways . . . . 6 $\frac{15}{16}$ "  
Bed length . . . . . 43 $\frac{1}{8}$ "  
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 $\frac{1}{2}$ "-8

Width of cone pulley steps for belt. 1"  
Width of face of bull gear and back gears . . . . .  $\frac{5}{8}$ "  
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 19/16"

### TURRET

Diameter of turret head . . . . . 5"  
Six position, self indexing, with adjustable stops.  
Turret holes, diameter . . . . .  $\frac{5}{8}$ "  
Turret holes bored from headstock of lathe.  
Maximum stroke of turret . . . . 4 $\frac{1}{4}$ "

### COUNTERSHAFT ASSEMBLY (Incl. in Price of Lathe)

2 Speed "V" Motor Pulley  
 $\frac{5}{8}$ " Bore . . . . . 2 $\frac{3}{8}$ "-4"  
2 Speed countershaft flat pulley . . . . . 9"-10"  
51"x $\frac{1}{2}$ " 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 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 . . . . . 48 $\frac{1}{2}$ "

### MOTOR

Use  $\frac{1}{3}$  or  $\frac{1}{2}$  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. 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**

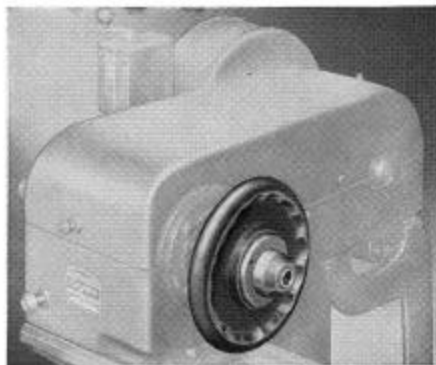
When the cone pulley guard is raised as shown at right, belt tension is automatically released for quick belt change.

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.



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### HAND WHEEL COLLET CHUCK

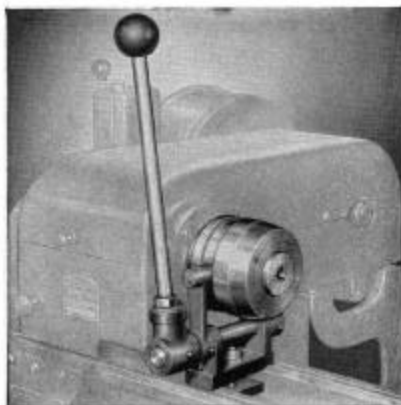
Fits No. 850 Manufacturing Lathe or others with 1½" x 8 thread spindle nose. Capacity: round work up to ¾" diameter which may be fed through lathe spindle. Its positive grip closes concentrically on work without longitudinal movement of collet and with no slip or twist. Minimum overhang assures accuracy. 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 ¾" by 32nds.

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

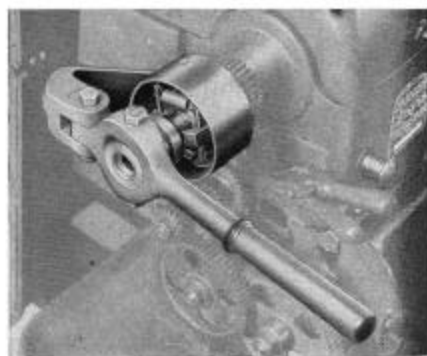


### PRODUCTION COLLET ATTACHMENT

For Push Type Collets, ¾" 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 ¾" 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.

## S P E C I F I C A T I O N S

### 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 . . . . . 43 1/8"  
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. . . . . 1 1/2"-8  
Width of cone pulley steps for belt. . 1"  
Width of face of bull gear and back gears . . . . . 5/8"  
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 . . . . . 5/8"  
Turret holes bored from headstock of lathe.  
Maximum stroke of turret. . . . . 4 1/4"

### COUNTERSHAFT ASSEMBLY (Incl. in Price of Lathe)

2 Speed "V" Motor Pulley 5/8"  
Bore . . . . . 2 3/8"-4"  
2 Speed countershaft flat pulley . . . . . 8 3/8"-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 1/5 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. 850 Logan Manufacturing Turret Lathe, less motor. . . . . 535 lbs.



*Logan*

**BACK GEARED  
SCREW CUTTING LATHE**

10" Swing; 24" Between Centers

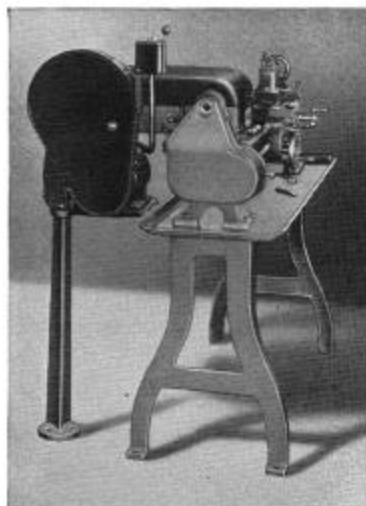


**AC-241 LEVER TAILSTOCK  
ASSEMBLY**

Will be furnished with the Floor model Lathe in place of the regular tailstock when specified. Lever stroke, 2 3/4". Hand wheel spindle travel, 2 3/8". 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: 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 bench type, Model 210.



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  $\frac{3}{8}$ " with push type collets used in Logan No. AC-210 Production Collet Chuck or No. AC-201 Speed Collet Chuck.

Collet capacity  $\frac{1}{2}$ " 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.  $10\frac{1}{2}$ "  
Swing over saddle cross slide.  $6\frac{1}{8}$ "  
Distance between centers.  $24$ "

### THREADS AND FEEDS

Reversible power longitudinal feed  
Reversible power cross feed  
Lead Screw diameter and threads  
per in.  $\frac{3}{4}$ "-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.  $\frac{7}{8}$ "

### BED

Width of bed across ways.  $6\frac{13}{16}$ "  
Bed length.  $43\frac{1}{8}$ "  
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.  $\frac{8}{16}$ "  
Morse Taper with adaptor. No. 3-No. 2  
Size of centers used, Morse Taper. No. 2  
Spindle nose diameter and threads  
per in.  $1\frac{1}{2}$ "-8  
Width of cone pulley steps for belt.  $1$ "  
Width of face of bull gear and back  
gears.  $\frac{5}{8}$ "  
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.  $6\frac{1}{4}$ "  
Cross feed screw mounted on self-lubricating  
bronze bearings.  
Compound rest top slide graduated in  
thousandths. Travel.  $2\frac{1}{4}$ "  
Top slide screw mounted on self-lubricating  
bronze bearings.  
Compound rest swivel—graduated  $90^\circ$   
in both directions.  
Tool post opening for tool holder  
shank.  $\frac{3}{8}$ "x $\frac{3}{4}$ "  
Size of cutter bits used.  $\frac{1}{4}$ " sq.

### TAILSTOCK

Spindle travel.  $2\frac{3}{8}$ "  
Spindle graduations.  $\frac{1}{8}$ "  
Morse Taper center. No. 2  
Tailstock top will set over for taper  
turning.  $1\frac{1}{8}$ "

### COUNTER SHAFT ASSEMBLY (Included in Price of Lathe)

2 Speed "V" Motor Pulley  $\frac{3}{8}$ " Bore  
.....  $2\frac{3}{8}$ "-4"  
2 Speed countershaft  
flat pulley.  $8\frac{5}{8}$ "x $9\frac{7}{8}$ "  
 $40$ "x $\frac{1}{2}$ " 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
1 Threading Dial	and Wrench
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.  $48\frac{1}{2}$ "

### MOTOR

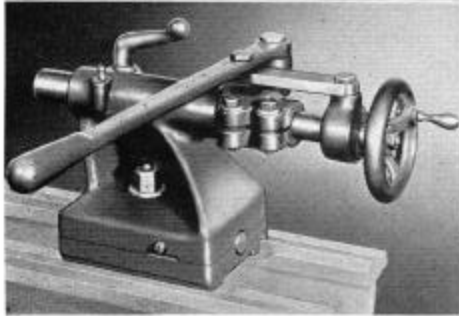
Use  $\frac{1}{3}$  or  $\frac{1}{2}$  H.P. 1750 R.P.M. Motor  
If lathe is ordered without motor specify:  
1. Bore of motor pulley to be furnished  
with lathe.  
2. State whether 0636 or 0639 Drum  
Switch should be supplied. (See  
Accessory Circular for description  
of drum switch.)

### SHIPPING WEIGHT

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

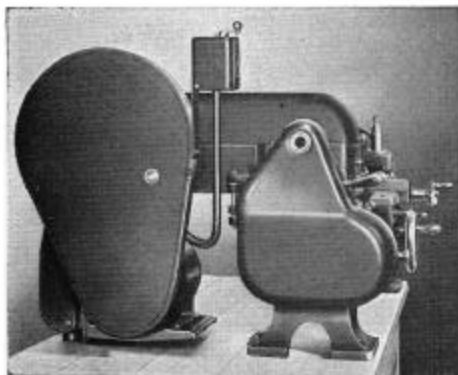
# Logan

## BACK GEARED SCREW CUTTING LATHE



**AC-241 LEVER TAILSTOCK  
ASSEMBLY**

Will be furnished with the bench lathe in place of the regular tailstock when specified. Lever stroke, 2 $\frac{3}{4}$ ". Hand wheel spindle travel, 2 $\frac{3}{8}$ ". Fitted for No. 2 Morse Taper Shank.



**END VIEW SHOWING COUNTERSHAFT ASSEMBLY**

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

**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**

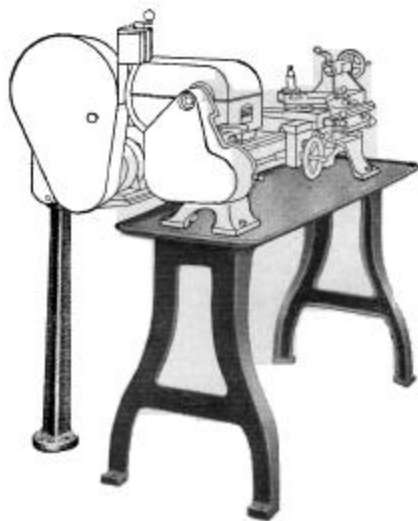
The No. 210 Logan Back Geared Screw Cutting Lathe is a fine production tool developed for the machine shop requiring a high speed lathe of sustained accuracy. Advanced design, sound engineering, expert workmanship and rigid inspection all contribute to its excellence. Its specifications include many 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.

### 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.

### CAPACITY OF LATHE

Swing over bed and saddle wings. 10½"  
Swing over saddle cross slide. . . . 6⅜"  
Distance between centers. . . . . 24"

### THREADS AND FEEDS

Reversible power longitudinal feed  
Reversible power cross feed  
Lead Screw diameter and threads per in. . . . . ⅜"-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. . . . ⅞"

### BED

Width of bed across ways. . . . . 6⅞"  
Bed length . . . . . 43⅜"  
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. . . . . ⅜"  
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

## SPECIFICATIONS

### 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 . . . . . ⅝x¾"  
Size of cutter bits used. . . . . ¼" sq.

### TAILSTOCK

Spindle travel . . . . . 2⅝"  
Spindle graduations . . . . . ⅛"  
Morse Taper center. . . . . No. 2  
Tailstock top will set over for taper turning . . . . . 11"

### COUNTERSHAFT ASSEMBLY (Included in Price of Lathe)

2 Speed "V" Motor Pulley  
⅝" Bore . . . . . 2⅝"-4"  
2 Speed countershaft  
flat pulley . . . . . 8⅝"x9⅝"  
40"x1½" 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     | 1 Tool Post Holder and Wrench     |
| 17 Change Gears   | 1 Tailstock Wrench                |
| 1 Threading Dial  |                                   |
| 1 Threading Chart |                                   |
- 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

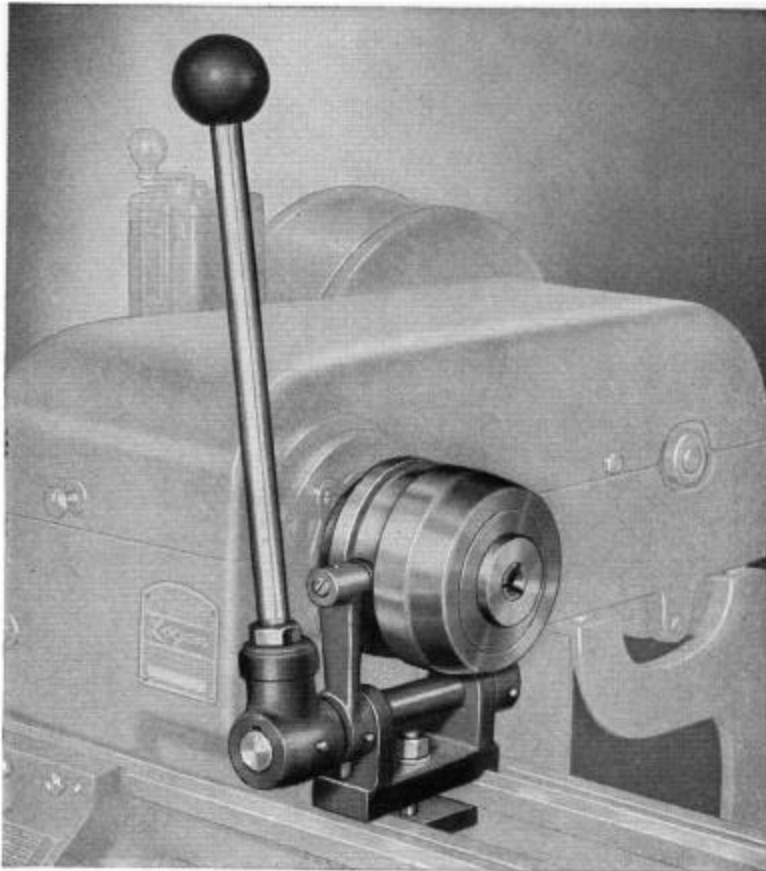
Use ⅓ or ½ H.P. 1750 R.P.M. Motor  
If lathe is ordered without motor specify:  
1. Bore of motor pulley to be furnished with lathe.  
2. State whether 0636 or 0639 Drum Switch should be supplied. (See Accessory Circular for description of drum switch.)

### SHIPPING WEIGHT

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



# ACCESSORIES FOR THE *Logan Lathe*



## ◀ PRODUCTION COLLET ATTACHMENT

For Push Type Collets,  $\frac{3}{8}$ " 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  $\frac{1}{16}$ " to  $\frac{5}{8}$ " by 32nds, as listed below. Shipping weight, 25 lbs.

No. AC 210—Production Collet

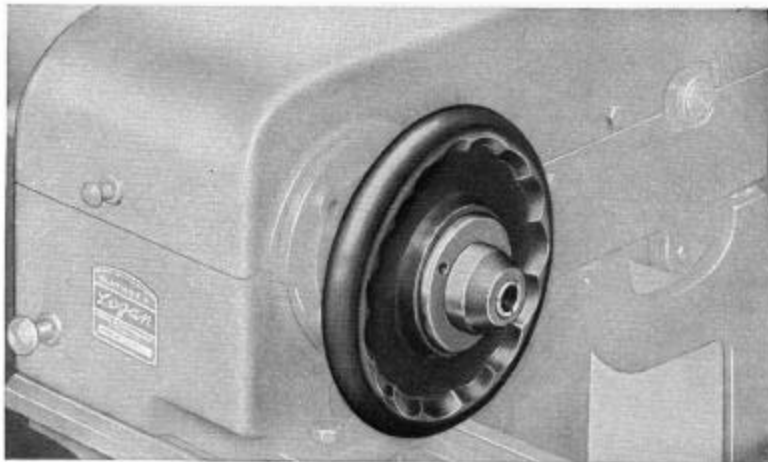
Attachment ..... \$49.50



## 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  $\frac{1}{16}$ " to  $\frac{5}{8}$ " 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  $1\frac{1}{2}$ " x 8 thread spindle nose. Capacity: Round work up to  $\frac{3}{8}$ " 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

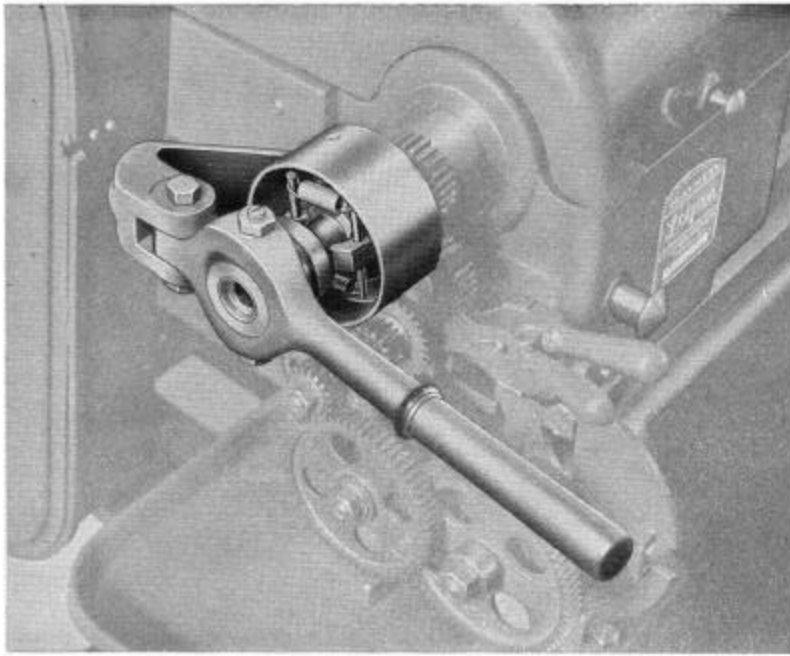
For AC 201 and AC 210 Collet Chucks

Threaded to fit Logan  $1\frac{1}{2}$ " 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





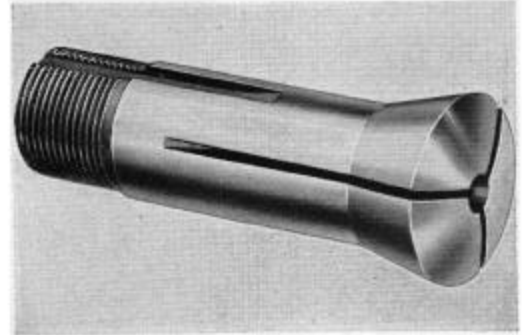
## PRODUCTION COLLET ATTACHMENT

For Draw In Collets Up to 1/2" Capacity

The Logan Production Collet Attachment for draw-in collets has 1/2" 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

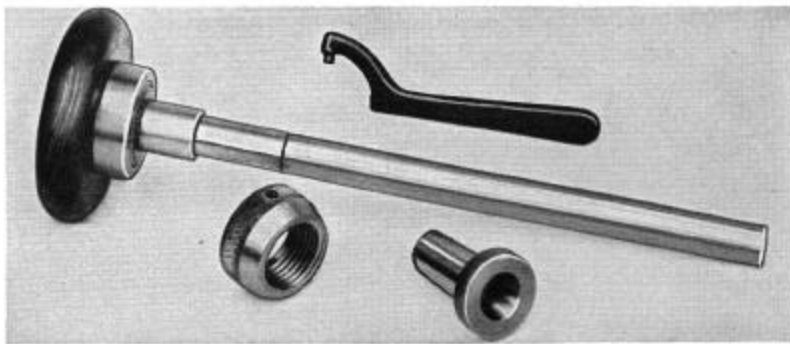
No. AC 166—For Logan No. 815, 820, 825, 840 and 850 Lathes ..... \$39.50



## 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 1/8" to 1/2" 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, 1/4 lb. each.

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



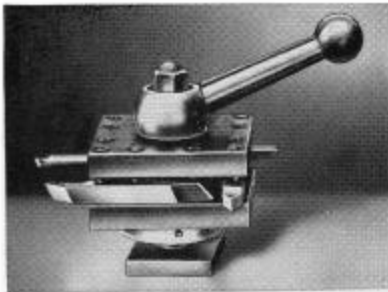
## DRAW-IN COLLET CHUCK ATTACHMENT

Used to chuck work between 1/8" and 1/2" 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.

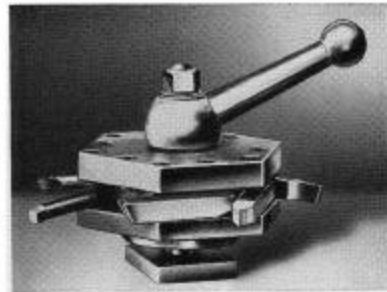
No. AC-150—Draw-in Collet Chuck Attachment for No. 200 and No. 210 Lathes up to Serial No. 24890.....\$21.00

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 3/8" 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 (2 1/2" 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



## TURRET TOOL POSTS

Automatically Indexed and Locked

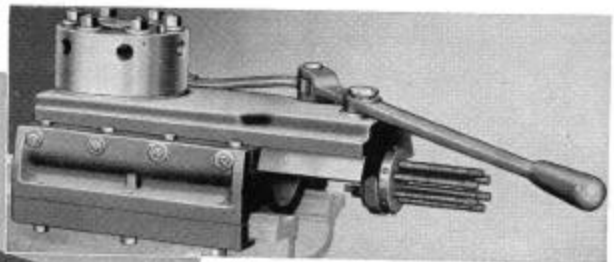
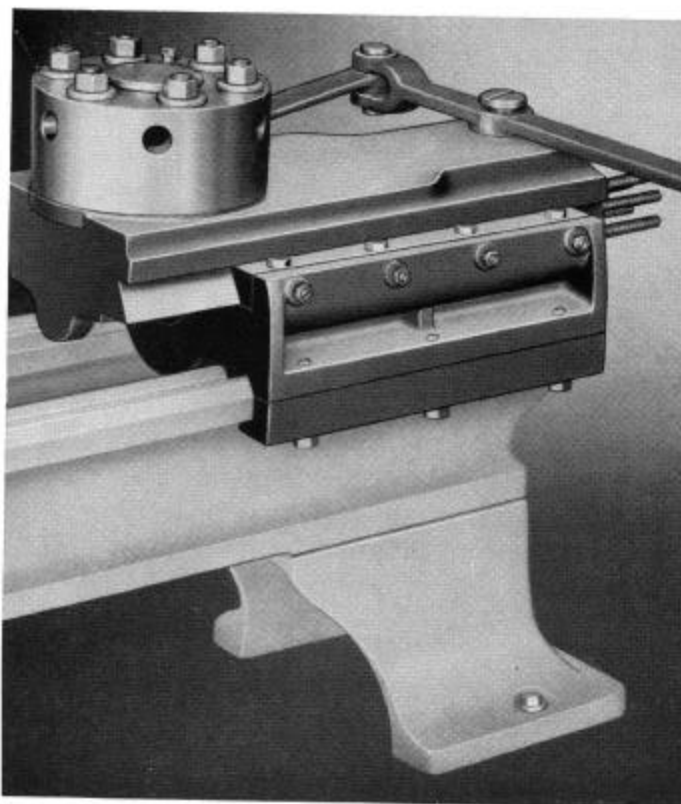
Automatic, one-hand indexing and locking of these Turret Tool Posts leaves the other hand free for power cross slide movements or other simultaneous operations. 3 1/2" square, they accommodate standard 3/8" tool bits. Fast acting, easily operated cam lever locks the turret in place for each of four positions, 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, 4 1/4" . . . furnished rough bored 9/16" and must be finished bored to 5/8" 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

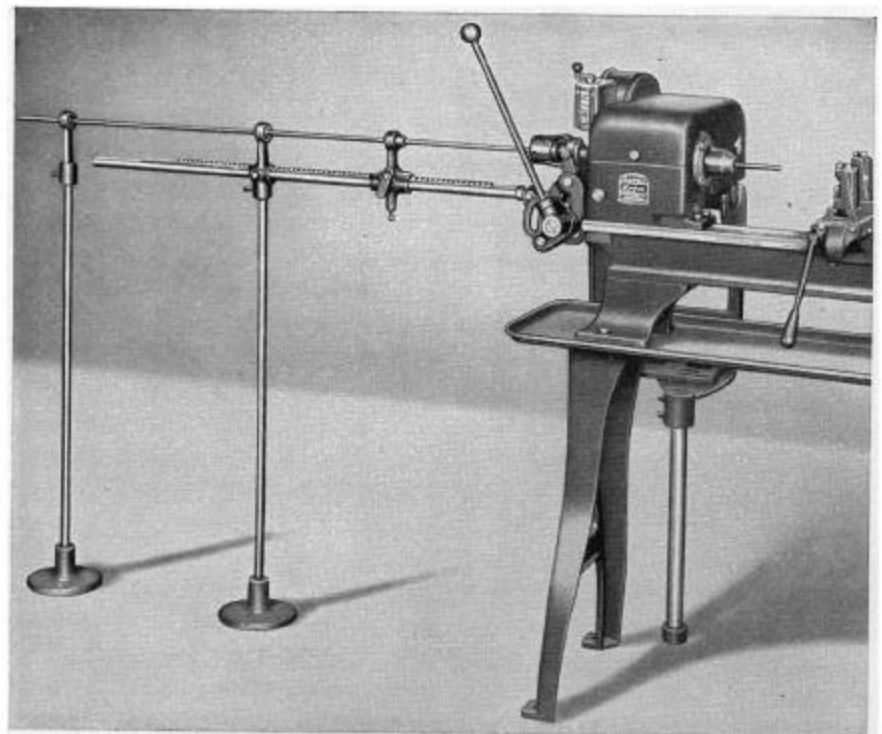
Finger tip control rotates tools in direct line with spindle. Compact, accurate, and durable. Body, which is 2 1/2" in diameter, is made from close grained semi-steel castings. The six 3/8" bored holes are held to close tolerance. Operating lever has a positive, hardened taper pin which works in tapered index holes, thus preventing any side play. Tools shown are not included. Shipping weight 3 lbs.

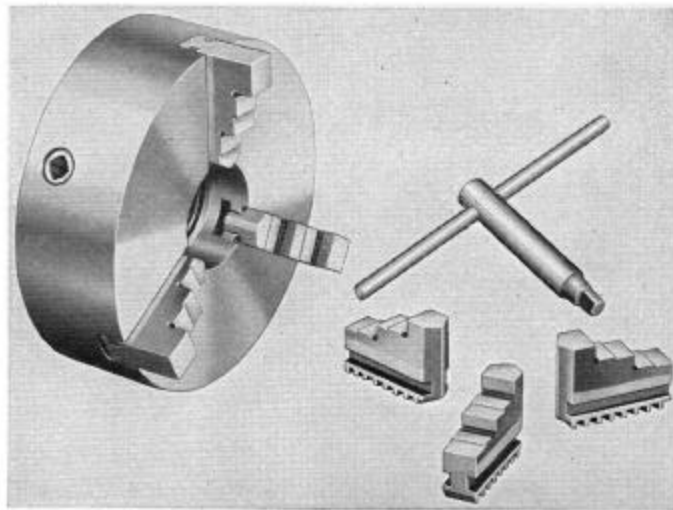
No. 519—Turret (No. 1 Morse Taper Shank) . . . . . \$18.95  
No. 521—Turret (No. 2 Morse Taper Shank) . . . . . 18.95

### LOGAN BAR FEED

The Logan Bar Feed, with a maximum capacity of 3/8" 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

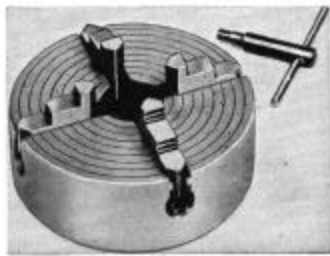




### 3-JAW, 5-INCH UNIVERSAL CHUCK

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.

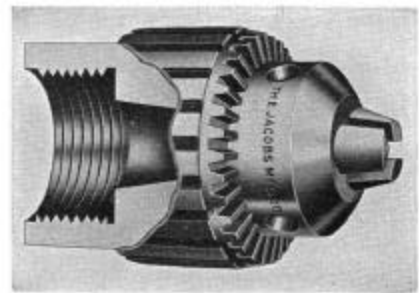
No. 444—6"—4-Jaw Independent Chuck with Wrench.....\$17.50



### 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

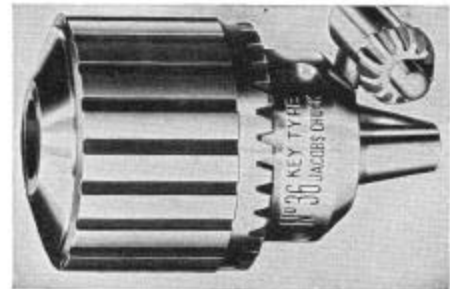


### JACOBS HEADSTOCK CHUCK

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, ⅜ - ¾".... 16.25

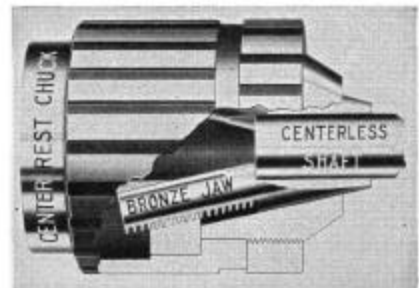


### JACOBS DRILL CHUCK

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, ⅜-¾"..... 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

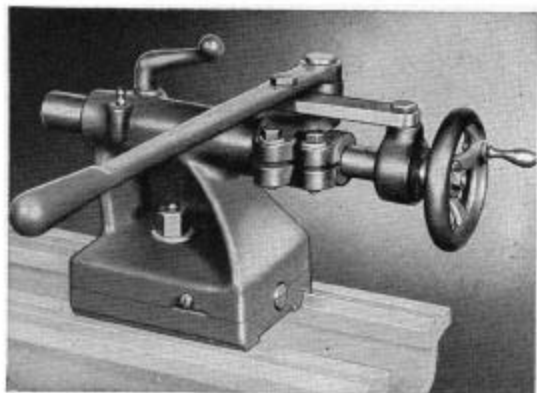


### DRILL CHUCK ARBORS

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

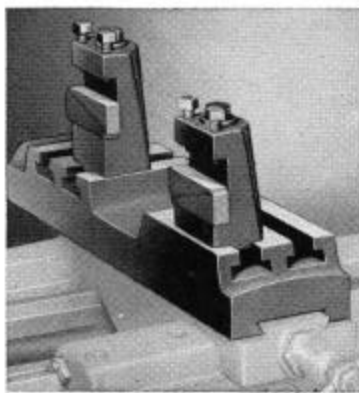
No. 448—Arbor for 452 and 455 Chuck.. .72



### LEVER TAILSTOCK

Supplies the added advantages of a production tailstock and can be set to operate as a standard tailstock. Lever stroke, 2 $\frac{3}{4}$ ". Handwheel spindle travel 2 $\frac{3}{8}$ ". 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.

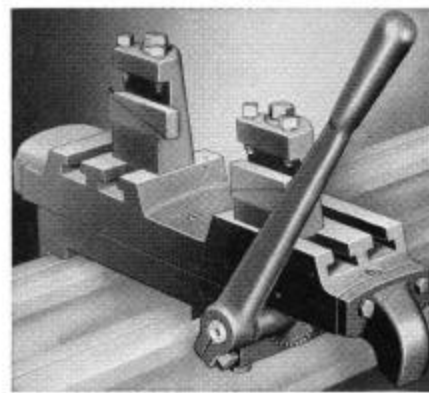
No. AC-241.....\$37.50



### 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.

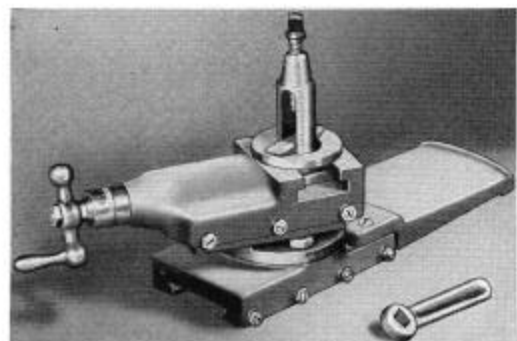
No. LA-29—Double Tool Post Cross Slide .....\$24.00



### 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



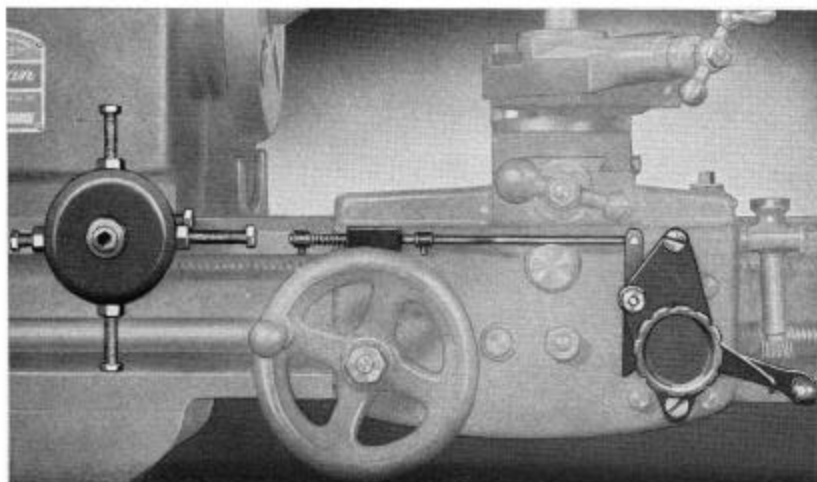
### AUTOMATIC FEED CONTROL

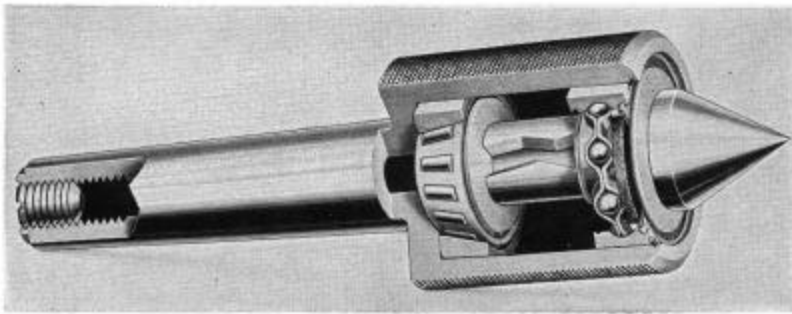
**Easily Installed—Quickly Adjustable  
For Four Different Stop Settings**

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 Lathes. 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



### 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

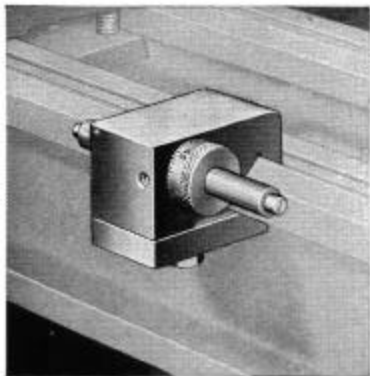
No. 575—60° Countersink Drill, 1/8" . .40



### 60° CENTER

Hardened and ground tool steel No. 2 Morse Taper Shank. Shipping weight, 1/2 lb.

No. LA-187—60° Center.....\$2.00



### 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.

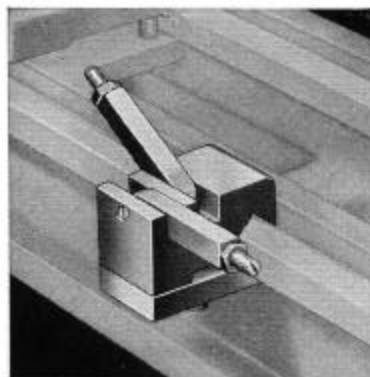
No. AC-234—Price.....\$11.50



### 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.

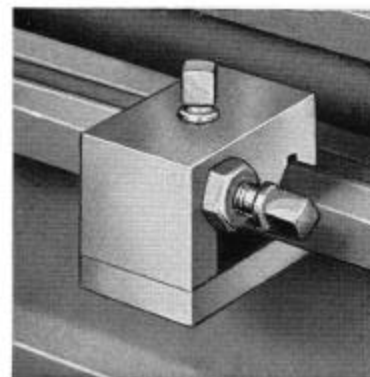
No. AC-196—Follower Rest.....\$4.25



### 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.

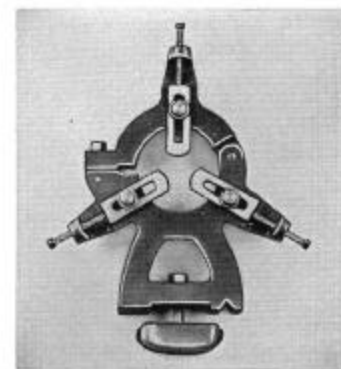
No. AC-226—Price.....\$5.50



### 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 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 3/8"x3/4". 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 1/4"x1/4"x2". High speed steel, heat-treated, ready to sharpen. Shipping weight, 1 lb.

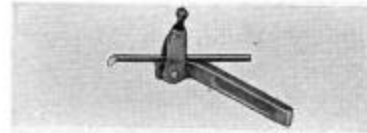
- No. 560—Blank Cutter Bits, Set of 6...\$1.10



### 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, 1 1/2 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.

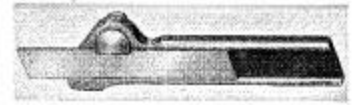
- No. 570-A—Boring Bar, 1/8x4" ... 40c
- No. 570-B—Boring Bar, 1/8x4 1/2" ... 55c
- No. 570-C—Boring Bar, 1/4x5" ... 65c
- No. 570-D—Boring Bar, 1/2x6" ..... 75c
- No. 570-E—Boring Bar, 3/8x7" ..... 95c



### 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. 3/8"x3/4" 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, 1/2". Shipping weight, 4 oz... .60c
- No. 580—Lathe Dog, 3/4". Shipping weight, 5 oz... .70c
- No. 580—Lathe Dog, 1". Shipping weight, 7 oz... .90c
- No. 580—Lathe Dog, 1 1/2". Shipping weight, 10 oz... 1.00



### CLAMP TYPE LATHE DOG

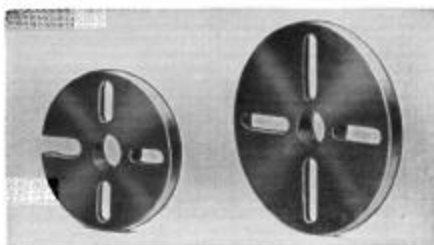
Holds round, hexagonal or rectangular work. Made of heavy drop-forged steel machined and hardened. Shipping weight, 1/2 lb.

- No. 585—Clamp Lathe Dog, 1 1/4" .....\$2.40

### FACE PLATES

Accurately machined gray iron face plates fitted for 1 1/2"—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 1/2", 5/8", and 3/4" 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

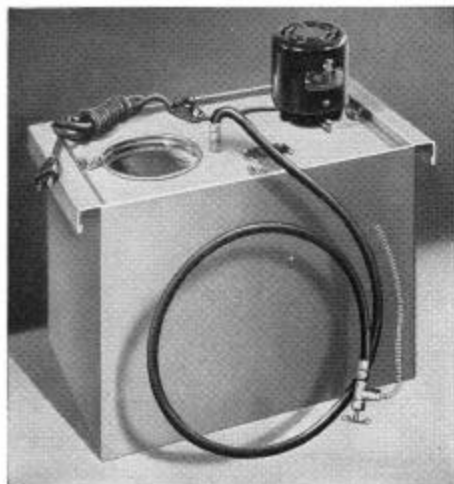
Threaded for Logan 1 1/2", 8-thread spindles. Unfinished face allows for machining to assure accurate fit on chuck. Made in two sizes. 5" chuck size shipping weight is 3 1/2 lbs. 6" chuck size has shipping weight of 7 lbs.

- 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 ¾" 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