Rockwell
MANUFACTURING COMPANY
The Rockwell Building • Pittsburgh, Pa.

PM- 414-01-651-5002

DATED IM 3-15-68

# ROCKWELL
# 11" METAL CUTTING LATHE

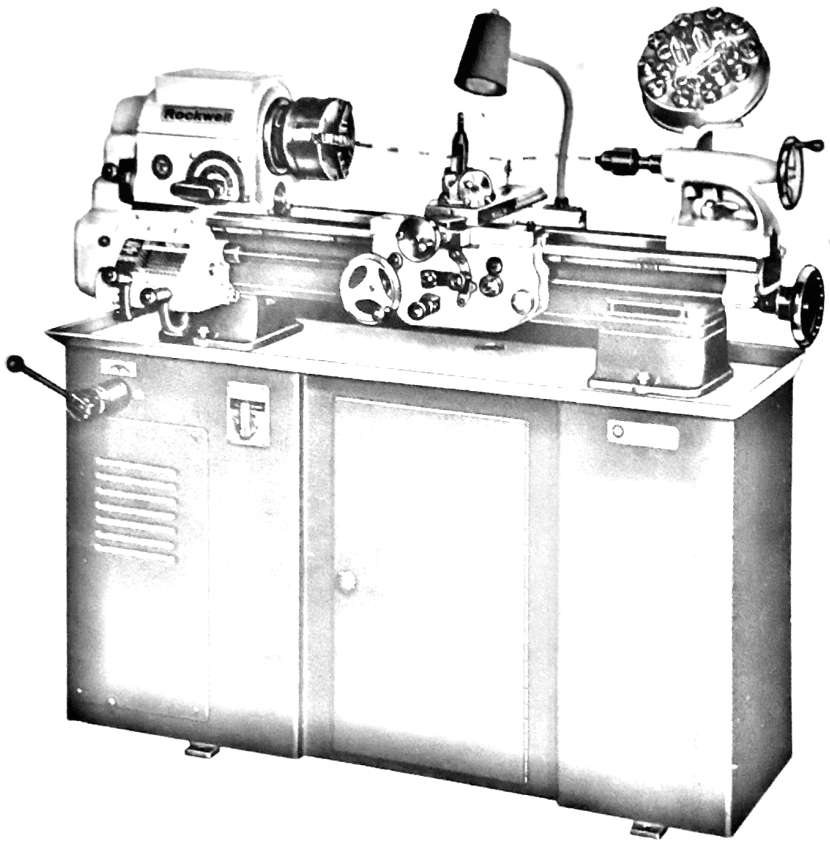


Fig. 1

## INTRODUCTION

The Rockwell Metal Cutting Lathe you have just purchased is a PRECISION MACHINE TOOL, built to the same high standards that have made the name Rockwell the byword for quality built, industrial power tools for over a quarter of a century.

Treat it as such by taking the time and care to see that it is properly installed and conscienciously maintained. You will find such time to be well spent and gain the benefits derived from keeping your lathe in perfect working condition for its entire life.

Before leaving our factory, the complete machine was thoroughly aligned, tested and inspected and the results of the more important tests are shown on the QUALITY CONTROL CERTIFICATE packed with it. However, rough handling in shipment could throw the machine out of alignment and before being placed in operation it should be thoroughly checked and readjusted where necessary.

It is of the utmost importance therefore, that you review this entire manual before installing or operating your lathe so that you may become thoroughly familiar with the adjustments and functions of its various components.





Printed in U.S.A.

# INDEX

# INSTALLATION

## SELECTING FLOOR SPACE

Vibration transmitted through inadquately constructed floors by adjacent machinery or other sources can impair the accuracy of your lathe. Therefore, it is of utmost importance that the lathe be mounted to a solid, level foundation, preferably concrete.

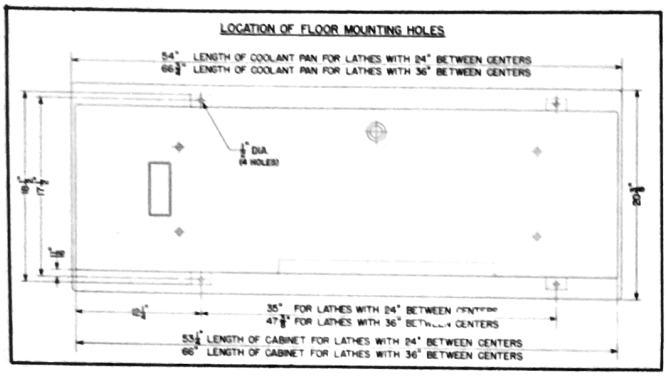



**Fig. 2.**

Unless substantially constructed, a wood floor should be braced against sagging and transmission of vibration. Refer to Fig. 2 for floor plan dimensions for 11" Metal Cutting Lathe.

## CLEANING THE LATHE

The bed ways and all other machined and unpainted surfaces of the lathe are protected with a coating of rust preventive. This coating may be removed with a soft cloth moistened with kerosene (do not use acetone, gasoline or lacquer thinner for this purpose.) After cleaning, cover all unpainted surfaces with a light film of good machine oil.

## INSTALLING THE MOTOR

If your lathe was purchased complete with a Rockwell motor you may disregard these instructions because the motor has been mounted and the motor pulley adjusted to give correct alignment of the lower variable speed belt.

For easier wiring, the motor junction box should be toward the front of the lathe.

1. Place the pulley on motor shaft with key in place. Do not tighten set screw at this time, as the motor pulley will be adjusted to give correct alignment of the lower variable speed belt.

2. Remove nut, washer, and rubber bumper from the motor mounting plate.

3. Place motor on motor plate, install motor mounting bolts, and tighten nuts finger tight. A block of wood placed under the hinged motor plate will facilitate insertion of the four bolts for mounting the motor.

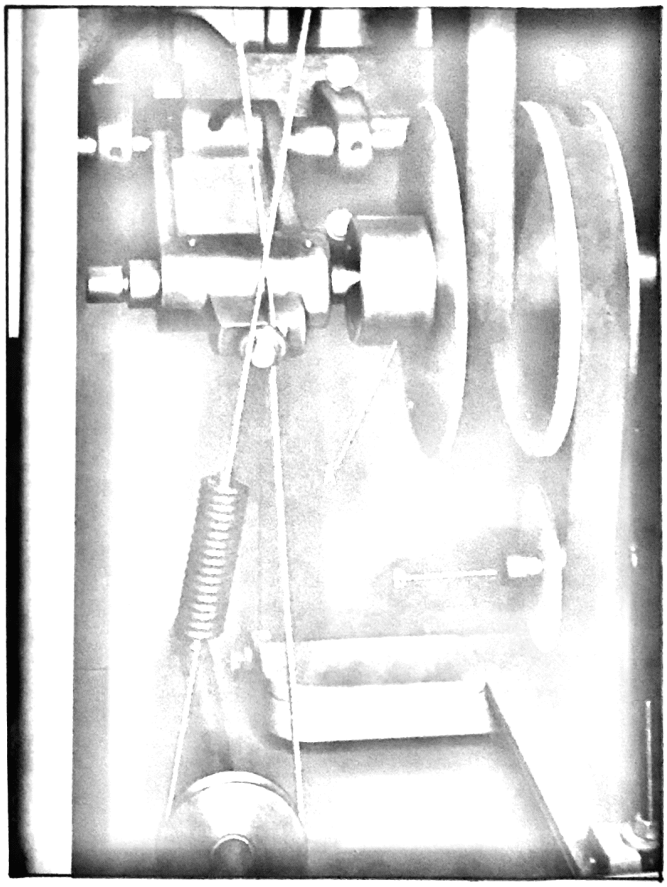


**Fig. 3.**

4. Turn the variable speed control lever counterclockwise until the variable speed pulley (A) Fig. 3, is completely lowered.

5. Adjust motor shaft to be parallel with variable speed pulley shaft.

6. Tighten motor mounting nuts.

7. Fig. 3-A shows the correct position of the speed control regulating pulley and cable when the variable speed control lever is in the straight up position.

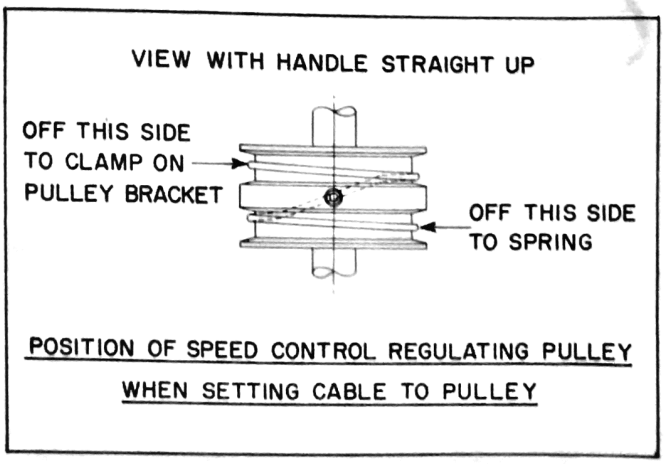



**Fig. 3-A**

## INSTALLING VARIABLE SPEED BELTS

1. Turn the variable speed control lever clockwise and raise the variable speed pulley to maximum height.

2. Remove the two spindle V-belts (A) Fig. 4, from the jackshaft pulley (B). Place the upper variable speed belt (C) on jackshaft pulley (B) and variable speed pulley (D), as shown in Fig. 4. Then reassemble the two spindle V-belts to the jackshaft pulley as shown.

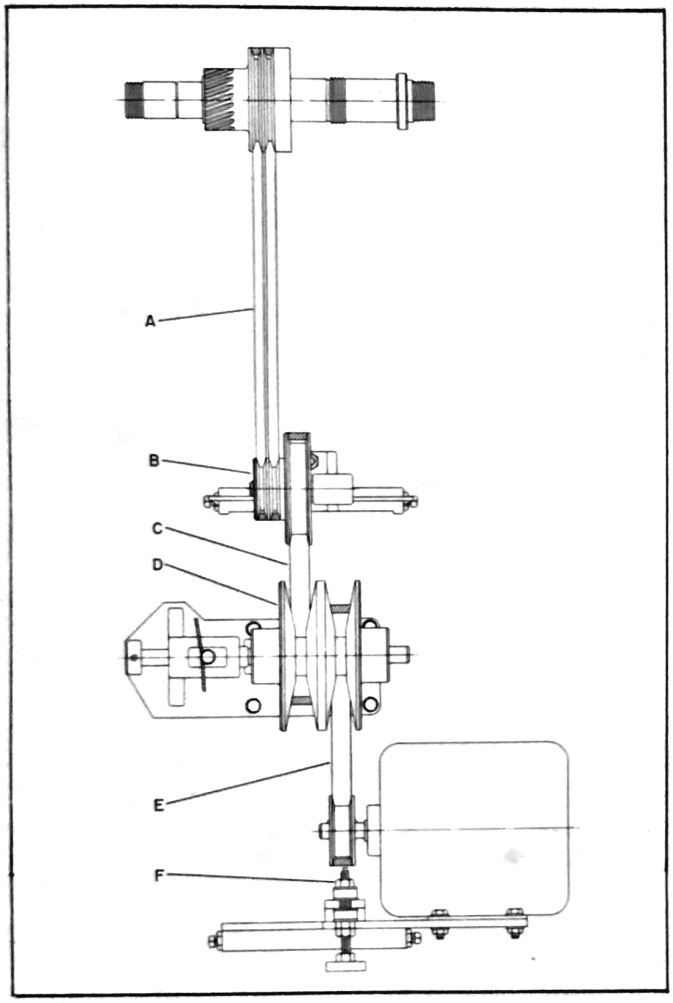



Fig. 4.

3. Place lower variable speed belt (E) Fig. 4, on the variable speed pulley (D). Remove nut, washer, and rubber bumper (F) from the motor mounting plate to allow belt to be placed on motor pulley. Lower variable speed pulley to assist in this operation. Replace nut, washer, and rubber bumper (F) Fig. 4.

4. With a straight edge held on either outside edge of the variable speed pulley and extending down past the motor pulley, adjust the motor pulley (by sliding the pulley in or out on the motor shaft) until the lower variable speed belt is parallel with the straight edge.

5. Then tighten the set screw in the motor pulley.

## LEVELING THE LATHE

1. Place the cabinet on a level floor. If rocking occurs place metal shims between the bolt pads of the cabinet and floor.

2. Place a precision spirit **level** (A) Fig. 5, squarely across the V-ways at the headstock end of the bed.

3. Adjust shims under the headstock end of the cabinet until the bubble in the level is approximately centered. Carefully note the exact position of the bubble in relation to the graduations on the level.

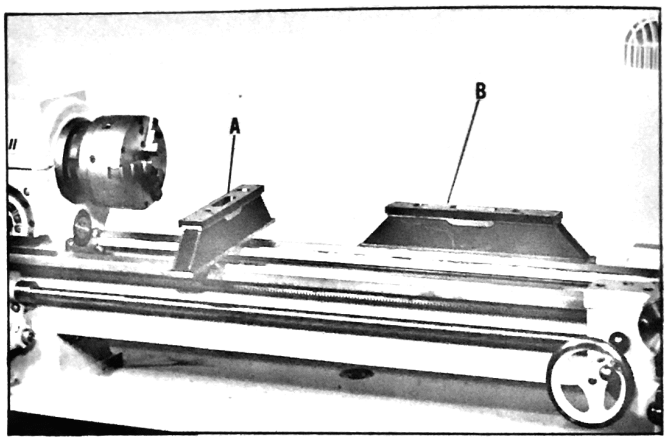



Fig. 5.

4. Without turning the level end for end, move it to the tailstock end of the bed, and place it squarely across the V-ways.

5. Adjust shims under the tailstock end of the cabinet until the bubble comes to rest at the same position as when the level was at the headstock end of the bed.

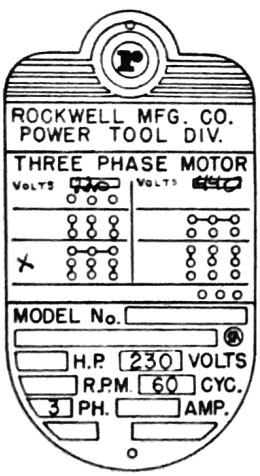
6. Place the level (B) Fig. 5, lengthwise on the center of the bed and shim until bubble is approximately centered.

7. Repeat Steps 3, 4, 5, and 6 until readings are approximately the same.

8. Fasten the cabinet to the floor.

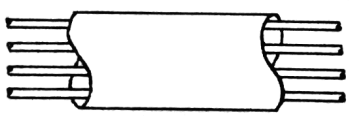
# ELECTRICAL RECOMMENDATIONS

A constant speed high starting torque, 1 hp, 1725 rpm motor is recommended. The motor pulley supplied with the lathe is designed to fit a motor shaft 3/4" in diameter. However, these motor pulleys are also available with 5/8", 7/8", 1" and 1 1/8" bore. The motor mounting plate of the lathe is designed to accommodate most motors made in Rockwell No. 8 1/2 and NEMA 143-143T-145-145T-182-182T frames. Wiring diagrams are included with the Rockwell Switch kits made available for use with this lathe.




Nameplate on motor.

Make sure electrical characteristics are the same.



To connect to power source use heavy enough wire.

| 3 PHASE |
|---|
| 230 VOLT |
| 60 CYCLE |
| POWER SOURCE |

Your power source.

| H. P. | 1 Phase | 3 Phase |
|---|---|---|
| 1 | #12 | |
| 1 & 1 1/2 | | #14 |

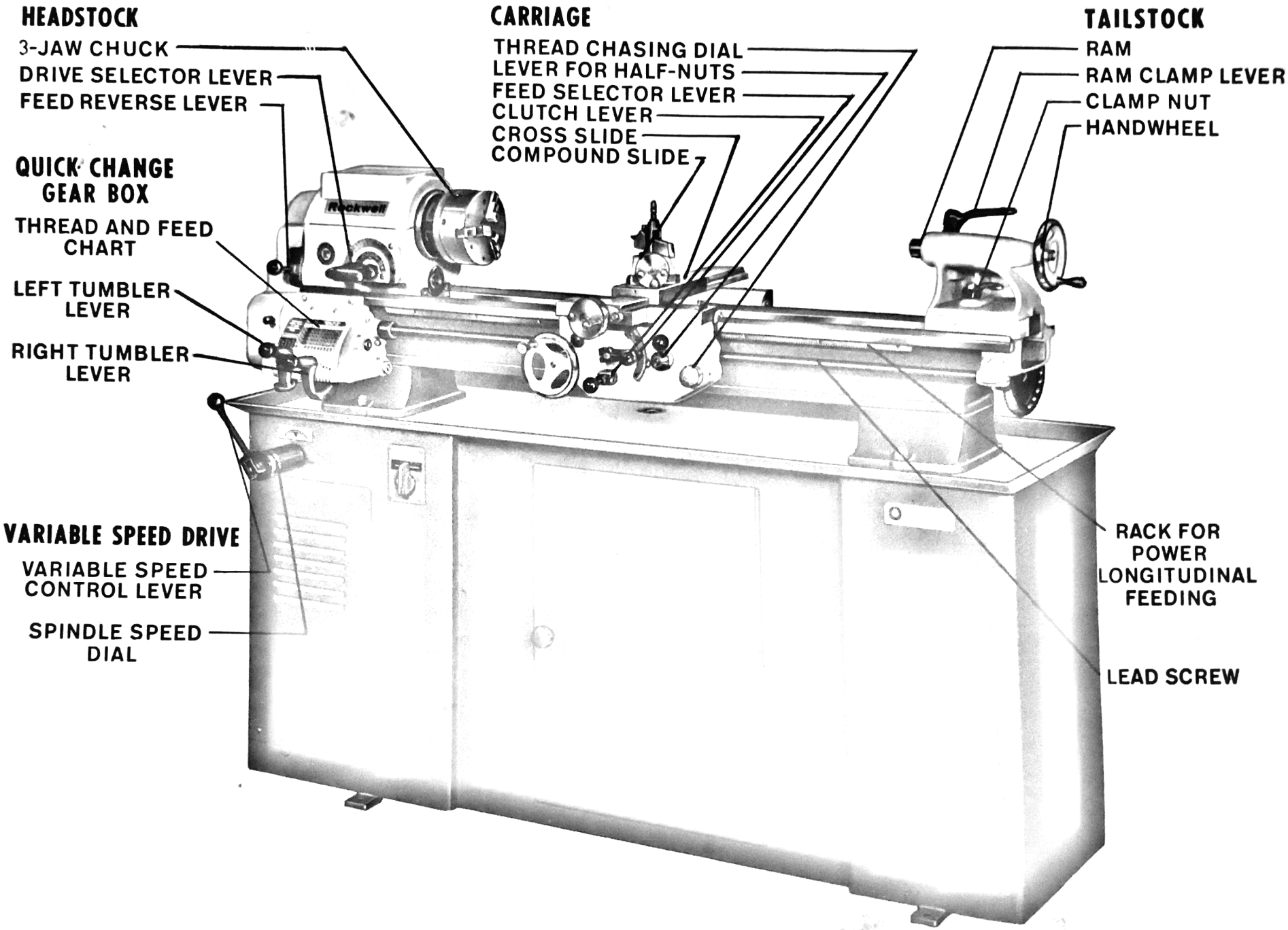

HEADSTOCK
3-JAW CHUCK
DRIVE SELECTOR LEVER
FEED REVERSE LEVER
QUICK CHANGE GEAR BOX
THREAD AND FEED CHART
LEFT TUMBLER LEVER
RIGHT TUMBLER LEVER
VARIABLE SPEED DRIVE
VARIABLE SPEED CONTROL LEVER
SPINDLE SPEED DIAL
CARRIAGE
THREAD CHASING DIAL
LEVER FOR HALF-NUTS
FEED SELECTOR LEVER
CLUTCH LEVER
CROSS SLIDE
COMPOUND SLIDE
TAILSTOCK
RAM
RAM CLAMP LEVER
CLAMP NUT
HANDWHEEL
RACK FOR POWER LONGITUDINAL FEEDING
LEAD SCREW
Rockwell

Fig. 6.

# OPERATION AND CONTROLS

The following is an explanation of the operating controls of the Rockwell 11" Metal Lathe. An experienced lathe operator knows that there is always some difference between the location and type of control between different lathe models, even though the purpose of the controls is similar between one lathe and another. The novice should study these explanations carefully before turning on the power, to avoid damage to the lathe or injury to himself.

**All operators will profit by a knowledge of how the controls operate and how they are to be set for standard lathe operations like turning, boring, facing, and thread cutting, or special lathe operations like milling, drilling, reaming, knurling, and others.**

CAUTION: Before turning on the motor for the first time, be sure that the Feed Reverse Lever of the Outboard Gear Train is set in the **neutral** position. Do not turn the Control Lever for the Variable Speed Drive until the motor is running. Then immediately rotate this control lever in a counter-clockwise direction to cause the lathe to run in a slow range before other controls are manipulated. Until you are familiar with the controls, it is better to manipulate them with the lathe running slowly.

# HEADSTOCK CONTROLS

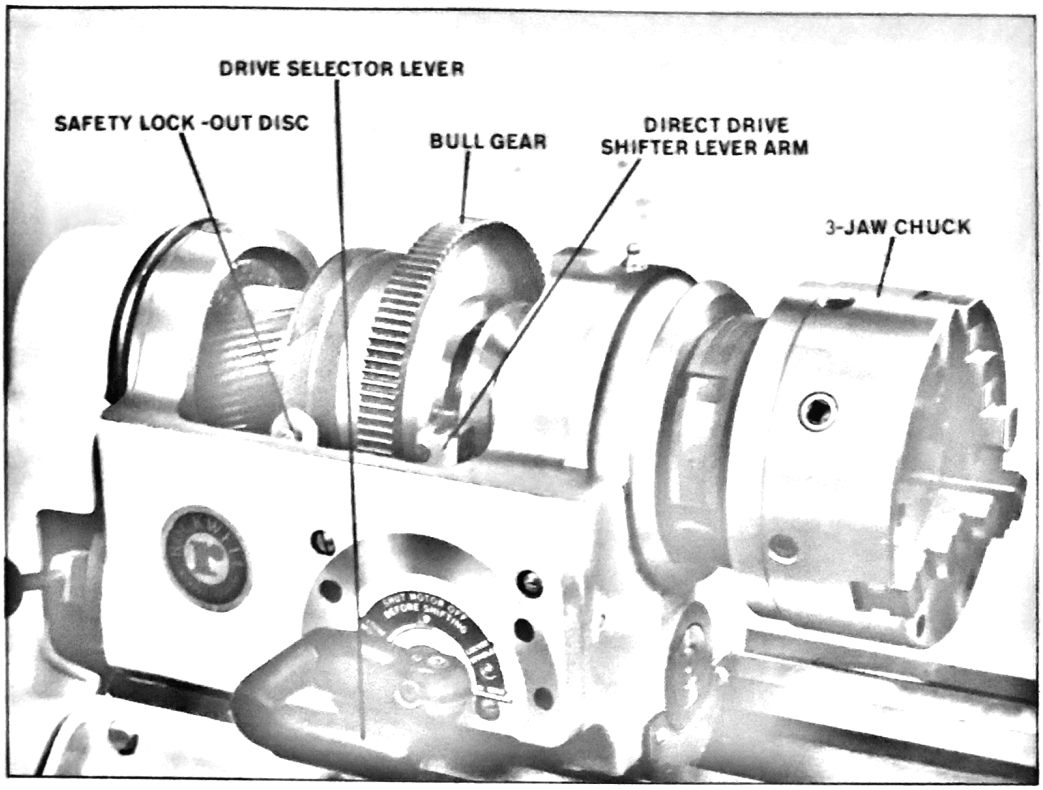



Fig. 7.

Drive Selector Lever – Direct drive, loose spindle, locked spindle, and back gear drive are obtained by simply shifting the single drive selector lever to the desired position. SHIFTING FROM ONE POSITION TO ANOTHER MUST BE DONE ONLY WHEN THE MOTOR IS OFF AND THE SPINDLE IS AT REST. THE MOTOR SHOULD NEVER BE STARTED WITH THE LEVER IN LOCKED SPINDLE. Always check the position of the lever before starting the motor.

Direct Drive – In direct drive the shifter lever arm rides in the groove ring of the bull gear and pushes the bull gear to the left engaging the dog clutch halves.

Loose Spindle – In loose spindle neither the dog clutch nor the back gears is engaged. The spindle is free to be rotated by hand. This facilitates the location of work in chucks, inspection of work, or the physical checking of work with indicators or micrometers.

Locked Spindle – When both the dog clutch and back gears are engaged the spindle is in locked position. In this position, the spindle cannot be rotated.

Back Gear Drive – In back gear the dog clutch halves are disengaged. The back gears drive the spindle at the lower spindle speeds because of the 6 to 1 reduction ratio of the gears.

Safety Lock-Out Disc – In addition to the convenience of the single drive selector lever for selecting any drive position, your lathe has a positive foolproof safety lock-out feature which makes damage to the drive impossible, even if a change in drive conditions is attempted with the motor running.

When the drive selector lever is engaged for back gear drive, loose spindle or direct drive, it is normally impossible for the operator to pull out of this drive position with the motor running. By a sudden jerk, the lever can sometimes be withdrawn from the locating hole while the motor is running, but no harm can be done, since this action automatically disengages the direct drive dog clutch in the headstock.

The spindle, of course, cannot rotate with the drive selector lever in the locked spindle position and the motor should not be turned on while in this position.

The drive selector lever can be disengaged from any position preliminary to selecting another position. If, however, the motor is turned on at this point, after pulling out from one position but before selecting the next position, the safety lock-out feature prevents the inexperienced operator from going into direct drive or locked spindle position by preventing the lever from entering the selected hole.

To restore the drive selector lever to normal operating condition after reaching the condition described in the above paragraph, the operator should first bring the spindle to a stop by shutting the motor off, and then drop into the back gear or the loose spindle position. The operator can then select whichever drive condition he desires in the normal way with the motor off and spindle stationary.

# OUTBOARD GEAR TRAIN

Feed Reverse Lever – This Lever has three positions and shifts gears in the Outboard Gear Train which transmits power from the spindle of the lathe to the Quick Change Gear Box. When the lever is in the up position the lead screw rotates in a direction opposite to that of the spindle and when the lever is in the down position the lead screw and spindle rotate in the same direction. When the lever is in the center (neutral) position the Quick Change Gear Box is disconnected and the lead screw does not rotate.

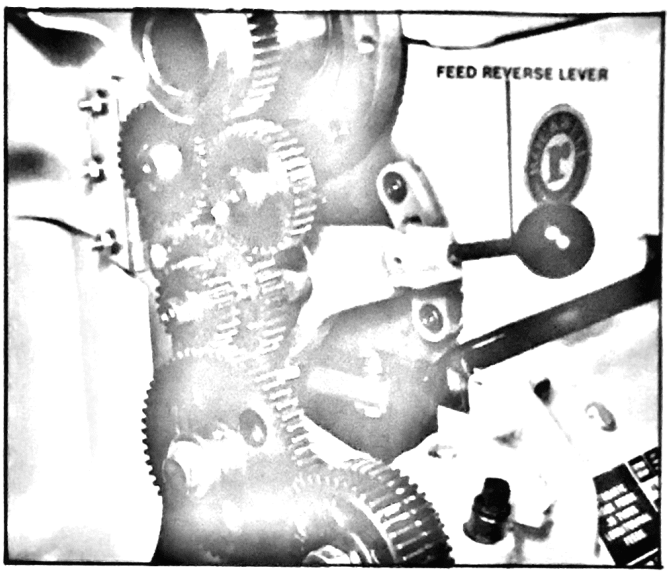



Fig. 8.

# VARIABLE SPEED DRIVE

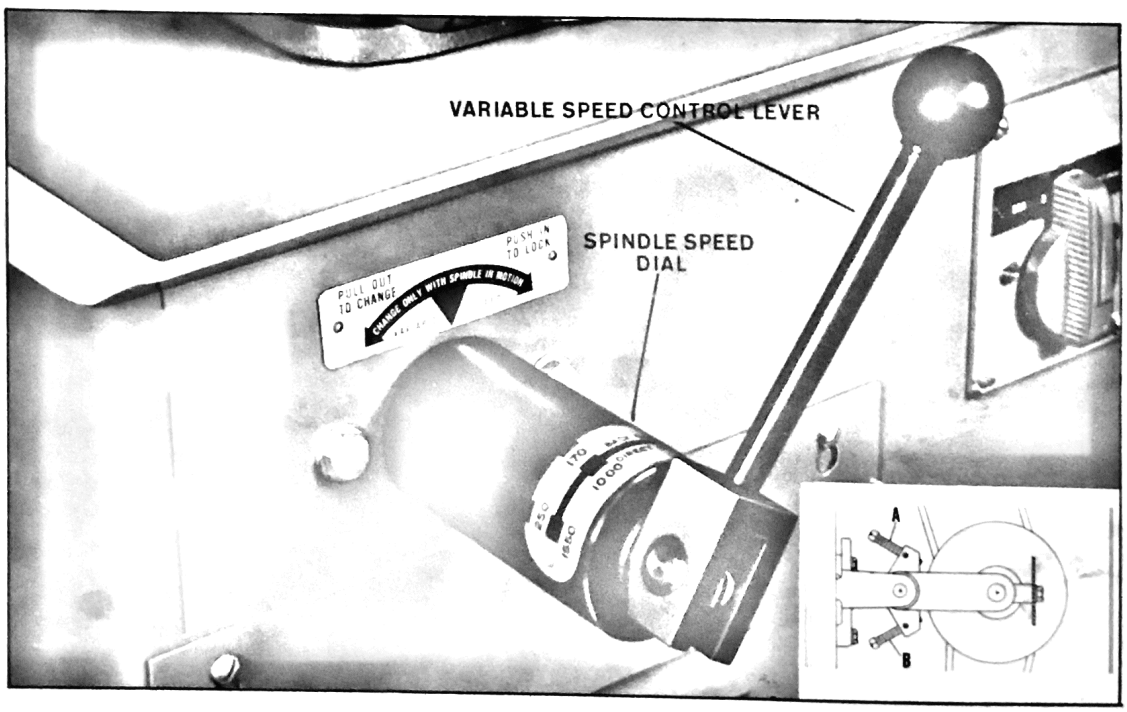



Fig. 9.

The variable speed control lever should not be moved except when the motor is running to avoid putting unnecessary strain on the variable speed drive pulley assembly. The control lever is turned clockwise to make the lathe run faster and counterclockwise to slow it down.

The infinite number of speed ranges between 45 and 1550 spindle rpm obtainable by the use of the variable speed drive makes it one of the most versatile means of power transmission available. The lower portion of the speed range is accomplished by the 6 ? 1 reduction through the back gears.

The spindle speeds in back gear are 45 to 250 rpm. The spindle speeds in direct drive are 220 to 1550 rpm.

Two square head screws (A and B) are provided on the variable speed pulley bracket. (See drawing in Fig. 9). These screws are set at the factory to allow the lathe to be operated through its full range.

For inexperienced student operators, for repetitive two diameter work, or for other reasons, it is sometimes desirable to adjust the lathe to other than factory-set maximum or minimum spindle speeds. This is done by adjusting the two square head screws.

Adjust screw (A) for high spindle speed and screw (B) for low spindle speed.

# CARRIAGE

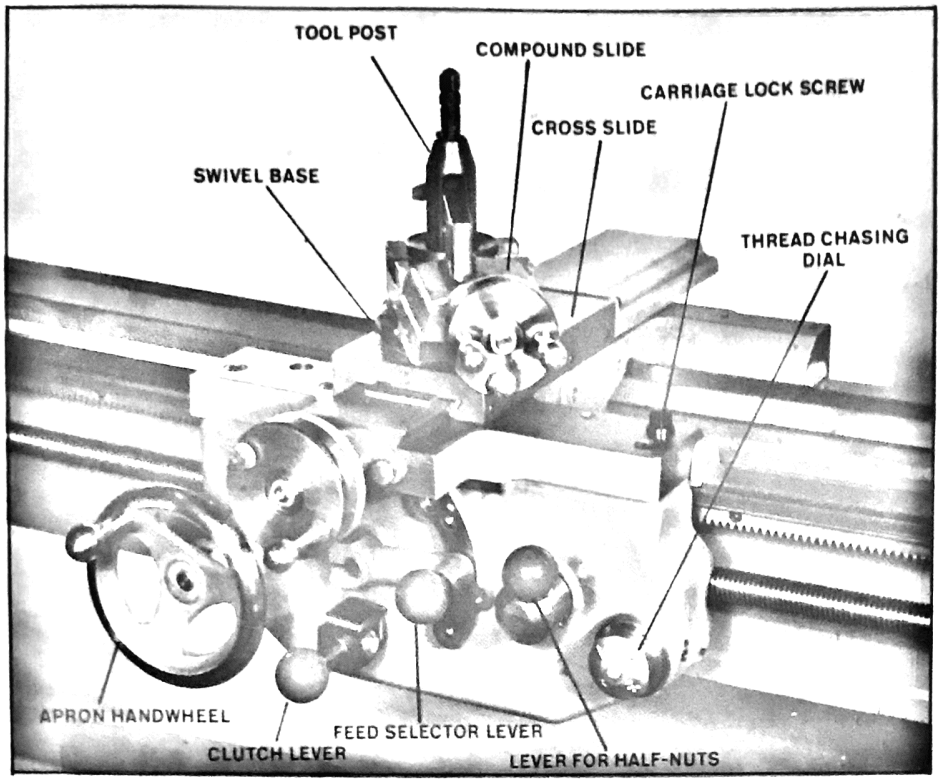



Fig. 10.

The lathe carriage includes the apron, saddle, cross slide, compound slide and tool post. The importance of the carriage cannot be overemphasized for it is the unit which supports and controls the motion of the tool.

The micrometer collars for the compound slide and cross slide are both of the "direct reading" type. For example if you advance the cross slide one mark on the collar, the diameter of the work piece will be reduced .002", although the tool will move in only .001". In other words, you "read" the diameter of the work piece "directly" from the collar.

One long and two short witness marks are found next to the micrometer collar for the compound slide, and the collar has a mark for each .001" movement. The two short witness marks form a vernier so that a movement of .0005" can be measured. When the compound slide is set at 90 degrees to the spindle, moving in one mark advances the tool .001", but takes .002" off the diameter. At all angle settings of the compound other than 90 degrees, the tool still moves .001" per mark, but the amount the diameter of the work is reduced is less than that "directly read" and it will be the product of the sine of the angle at which the compound is set.

The carriage lock screw must always be loosened before trying to feed the carriage along the bed. When firmly tightened, this screw will guard against possible movement of the carriage when facing, cutting off, and doing other operations where the cutting tool is moved only by feeding the cross slide or compound slide.

The apron handwheel is turned clockwise to move the carriage toward the tailstock, and counter-clockwise to move it toward the headstock. Before using this handwheel, be sure that the carriage lock screw is loose, the half-nuts are disengaged from the lead screw, and that the clutch for power feeding is disengaged.

The feed selector lever has three operating positions. The clutch lever and the lever for half-nuts must be set in the disengaged positions, and then the feed selector lever is shifted by pulling out on the handle ball to retract the plunger from any one of the three holes in the apron. A spring causes the plunger to enter the selected hole when the handle ball is released.

The upper hole is for longitudinal power feeding, the center hole for threading, and the lower hole for power cross feeding.

With the feed selector lever in the center hole and the half-nuts engaged for threading, the lever is locked, and cannot be shifted for power longitudinal or cross feeding until the half-nuts are disengaged.

The Thread Chasing dial speeds up the operation of cutting external or internal threads. The Carriage can be traveled back along the Bed rapidly by means of the Apron Handwheel with the half-nuts disengaged, instead of slowly by means of reversing the Lead Screw with the half-nuts engaged. The function of the Thread Chasing Dial is to tell you just when to drop the half-nuts onto the Lead Screw so that the tool will repeatedly follow the same groove as the thread is being formed.

The Thread Chasing Dial rotates whenever the Lead Screw is rotating (except with the half-nuts engaged) and is divided by the four numerals (1, 2, 3, and 4) one each quarter circle on the dial. Watching these numerals pass the single witness mark, tells you when to "drop" the half-nuts onto the Lead Screw according to the following system.

| Pitch or Threads per Inch | Example | Position for Subsequent Passes |
|---|---|---|
| ¼ Pitch | 5¾ Threads per inch | Same position only |
| ½ Pitch | 4½, 5½, 6½, 11½ | Opposite positions only — 2 Positions |
| Odd Pitch | 5, 7, 9, 11, 13, 23 | Any of 4 Positions |
| Even Pitch | 4, 6, 8, 10, 12, 14, 16, etc. through 224 | Any of 4 Positions |
| Pitches in Multiples of 8 | 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96, etc. | Drop in any position, Thread cutting dial need not be used. |

The thread dial is used and referred to when cutting threads. When 1/4 threads are being cut, (for example 5 3/4 threads) drop the half-nuts in on any one of the four numbers of the thread cutting dial.

However, you must drop the half-nuts on the lead screw, for subsequent passes across the stock, on the same number you started with. If you start with the No. 1 position on the dial, you must keep dropping the half-nuts when the thread cutting dial indicates the No. 1 position. If you start with No. 2, you must use No. 2 position etc. As stated above, any one of the four numbers can be used when starting to cut 1/4 threads.

When cutting 1/2 threads (for example 4 1/2 threads), you can start on any one of the four numbers. After you have once started, you must make subsequent passes by dropping the half-nuts on either the same number you started with or the number opposite it on the dial. For example, if you start with No. 1, subsequent passes can be made by dropping the half-nuts in either the No. 1, or No. 3 position, and if No. 2 is used, half-nuts can be dropped in the No. 2 or 4 positions. If you start with No. 4, the No. 4 and No. 2 position can be used, etc.

If the thread being cut is an odd number per inch, that is 5, 7, 9, 11 etc., you can start with any number on the dial and on subsequent passes, you can drop the half-nuts on any one of the four numbers, that is 1, 2, 3, and 4.

If the number of threads being cut is 8, or any multiple of 8, that is 8, 16, 24, 32, 40, 48, 56, etc., it is not necessary to read the thread cutting dial. Just drop the half-nuts on the lead screw anytime, which also applies to subsequent passes that might be made.

This does not mean that the thread cutting dial cannot be used with cutting these threads, the dial can be used if the operator so desires.

Rockwell 11" Lathes are equipped with a built in thread stop, as shown in Fig. 10-A. This photograph shows the bottom side view of the stop for clarity.

This exclusive built in thread stop enables you to cut threads faster and the chance of error is minimized.

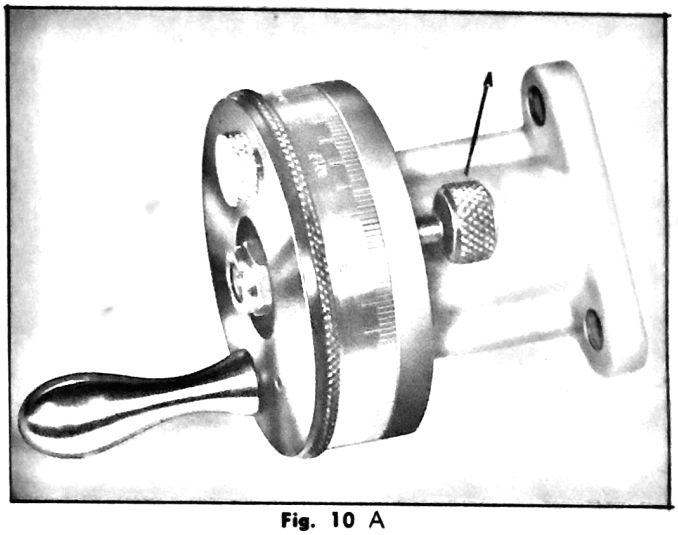


**Fig. 10 A**

When cutting threads the compound slide is usually set at 29°, and the proper tool holder and thread cutting tool is adjusted in relation to the stock. Push in the knurled knob (A) Fig. 10-A to engage the thread stop and turn the cross slide handwheel clockwise until it engages the stop. Move the compound slide in until the cutting tool just touches the work. Back out the cross slide and move the carriage until the tool is away from the work and clear of the end. Then move the cross slide in against the stop and proceed cutting by engaging the half-nuts.

When you are finished with the first cut, disengage the half-nuts, back out the cross slide, manually return the carriage to the starting position and move the cross slide in. The stop enables the cross slide to be in the same position for each successive cut and the tool is advanced by the compound slide for depth of cut.

To return the carriage to the starting position without this feature, you must reverse the rotation of the lead screw (which is a very slow procedure) or remember a mark on the micrometer collar of the cross slide when you originally position the cross slide. The latter method increases the possibility of error.

# QUICK CHANGE GEAR BOX

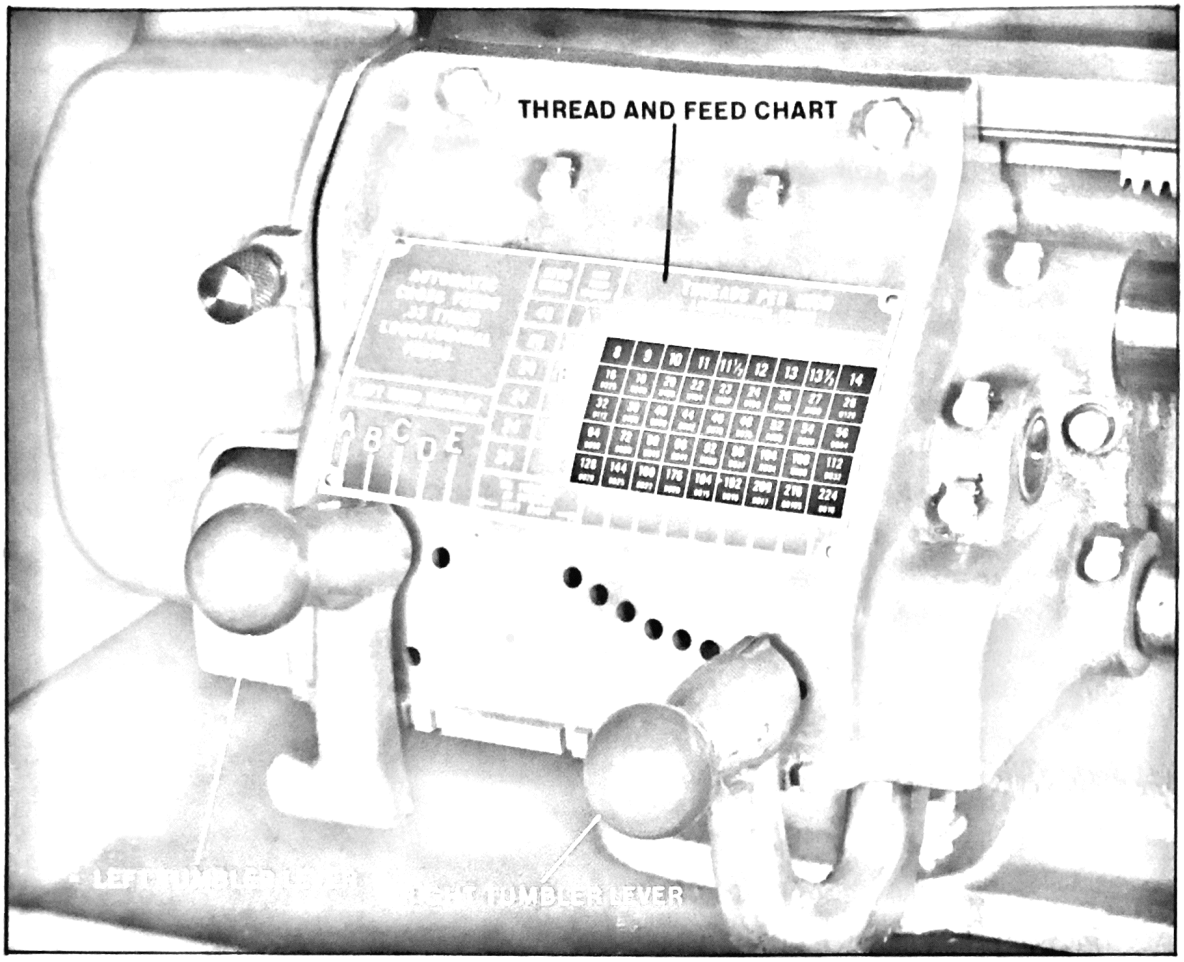



**Fig. 11.**

Fifty-four threads from 4 to 224 per inch can be cut by shifting the left and right tumbler levers and by changing one stud gear in the gear train. This is a gear type transmission which allows the operator to quickly select 54 different speeds of the Lead Screw. These speeds are really 54 different ratios relative to the speed of the spindle of the headstock.

There are two input speeds of the gear box, obtained by exchanging the 24 tooth and 48 tooth stud gears mentioned above. The 48 tooth stud gear should be used only for chasing threads 4 through 7 pitch. The 24 tooth stud gear should be used for all other threads and for all power feeding. If this rule is violated, the thread and feed chart on the Quick Change Gear Box will not give correct readings.

With the Quick Change Gear Box set for any of the eighteen (18) thread pitches from 4 through 14, the power feeds which could then theoretically be used, are too fast for all practical purposes. Therefore, in practice, the 48 tooth stud gear should not be used for power feeding, and the power feeds are not shown on the top two rows of the chart where threads 4 through 14 are indicated.

Some practice is required to get on to moving the tumbler levers smoothly from left to right or vice versa. Many operators extend the index finger of their right hand down along the lever, and exert a clockwise twisting pressure with their wrist when moving from right to left. A counterclockwise twisting pressure using either the left or right hand, is used to move either lever from left to right. When the tumbler lever cannot be lowered easily into the new position, the spindle should be turned slightly by hand, or jogged with the motor, to get the gears to mesh.

The left and right tumbler levers should be shifted only with the motor off, to avoid clashing the gear which might damage them, especially at high speeds. Both are shifted in the same fashion.

# TAILSTOCK

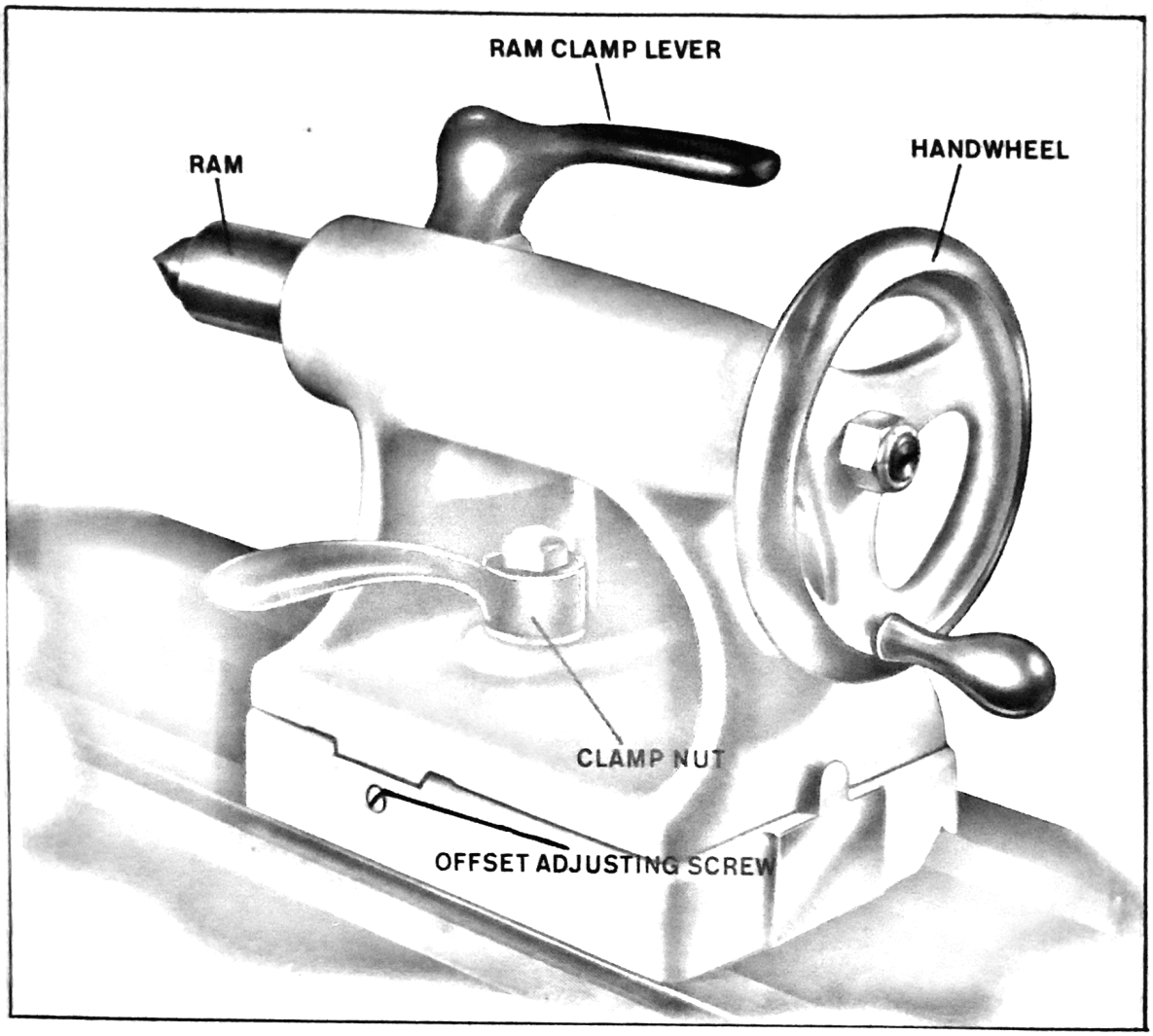



**Fig. 12.**

The box wrench which comes with the lathe is used to loosen or tighten the Clamp Nut that secures the Tailstock to the bed. With the Clamp Nut loose, the Tailstock can be moved by hand along the bed, or can be removed from the bed entirely by sliding it off the end.

The Tailstock can also be moved or "offset" for taper turning by means of the two Offset Adjusting Screws. First loosen either screw, and then tighten the other to "offset" the tailstock. The amount of movement is measured by the witness marks on the outboard end of the tailstock. The Clamp Nut must be loose before this adjustment is made. After the desired "offset" is obtained, tighten previously loosened Screw, and check again to be sure the setting has not shifted. For straight turning and most every job except taper turning, the witness marks must be in line with each other.

The Ram Clamp Lever is loosened to release the Ram for feeding in or out.

The Handwheel is rotated in a clockwise direction to cause the Ram to feed out, and counterclockwise to retract the Ram. Turning the Handwheel counterclockwise will also eject or free from the Morse taper hole of the Ram a center, a taper shank drill, etc., after the ram has been retracted to a certain point.

The top of the Ram is graduated in one sixteenth inch (1/16") divisions, which can be used for reading the amount the Ram is fed out, for drilling, etc. It has a tang slot for positive drive of twist drills and other tools with a tang-type No. 3 M.T. shank. Complete retraction of ram automatically ejects center. CAUTION: A drift pin should never be used in the tang slot to remove twist drills and other tools. The Ram has a witness mark at center height for easy positioning of cutting tool.

# SERVICE ADJUSTMENTS

## HEADSTOCK

### ALIGNING BED WAYS PARALLEL TO SPINDLE

1. Mount a 4 jaw chuck on the spindle and insert a ground and polished test bar, approximately 1 1/2" to 2" in diameter and about 16" long.

2. True up the test bar by indicating 1 1/2" and 13 1/2" from the chuck. Rotate the test bar against an indicator at these positions, see Fig. 13. The total indicator reading should not exceed .0005 at either spot.

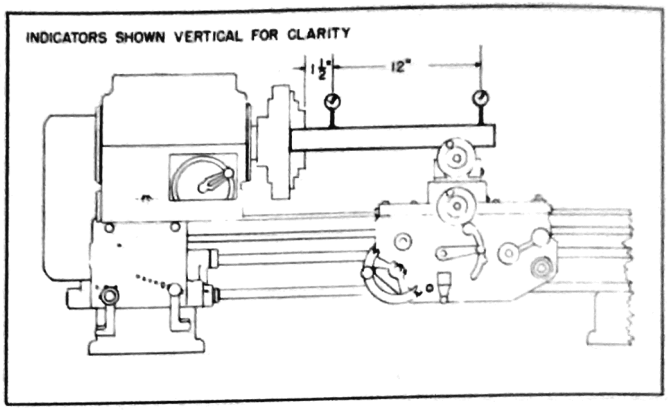



Fig. 13.

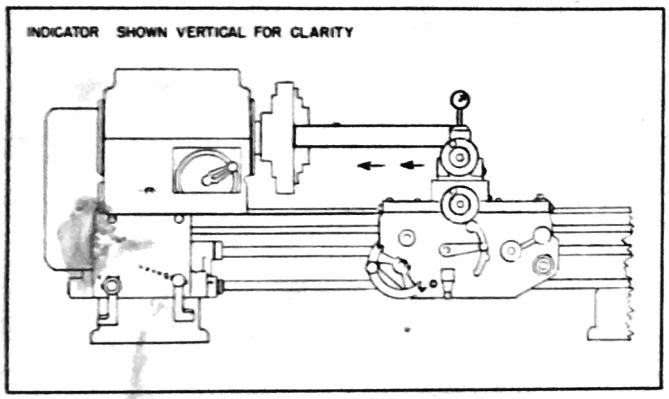



Fig. 14.

3. Mount the indicator on the tool post in a horizontal position, as shown in Fig. 14, and move the indicator 12" along the test bar by feeding the carriage. The total indicator reading should not exceed .0005.

4. If an adjustment is necessary, loosen two bolts (A) Fig. 15, located at the front and rear of the right hand riser block under the tailstock, adjust bushings (B) and retighten bolts (A). Repeat Step 3 and adjust further if necessary.

5. Occasionally the lathe should be rechecked and alignment adjustments made if necessary. If the lathe turns or bores a taper, it is an indication the machine is no longer in alignment.

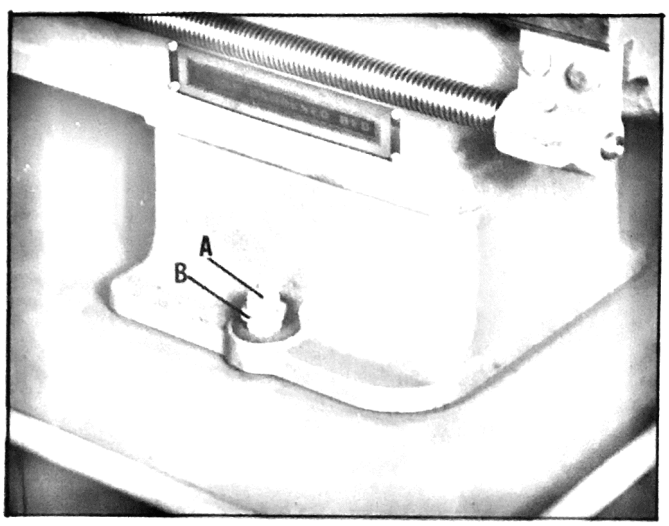



Fig. 15.

## ADJUSTMENT OF SPINDLE BEARINGS

1. If the spindle should develop end play or spin too freely, loosen two set screws (A) Fig. 16, and tighten thrust nut (B) until the end play is removed and the spindle turns with a slight drag. THEN BACK OFF THRUST NUT (B) FIG. 16, 10 DEGREES TO PROVIDE PROPER PRELOAD OF THE BEARINGS. Retighten set screws (A).

2. Should you find the bearings running above 145 degrees farenheit the following procedure should be used to loosen the preload on the roller bearings of the lathe spindle. Loosen two set screws (A) Fig. 16, and loosen thrust nut (B) 180 degrees. Using a wooden mallet, strike the chuck end of the spindle, (be sure to protect the threads on the spindle). This impact will move the bearings apart. Now adjust bearings as described in Step 1.

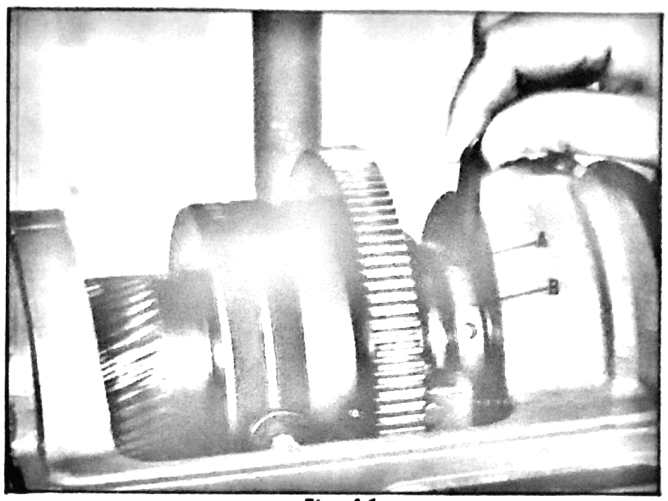


Fig. 16.

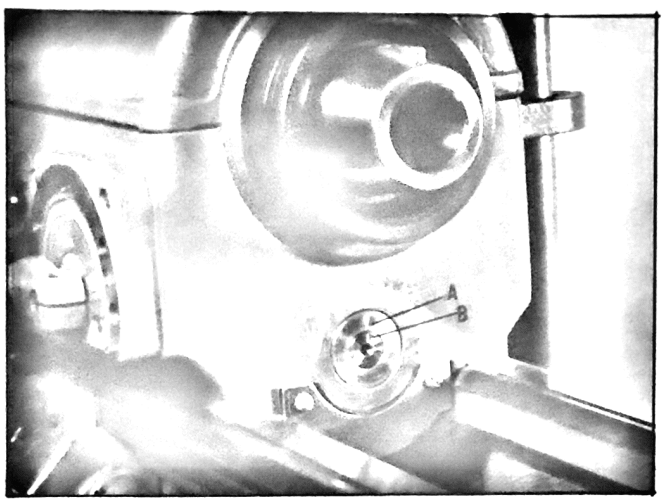


Fig. 17.

## ADJUSTMENT OF BACK GEARS

1. No adjustment of the back gears is necessary, since all the parts are factory fitted and the teeth meshed with proper back lash and the whole assembly dowelled. If, however, the back gears have been disassembled, realign the witness marks (A and B) Fig. 17, as described in Step #6 on Page 25 under Removing and Replacing Outboard Spindle Bearing, Spindle V-Belts, and Back Gears.

## ADJUSTMENT OF DIRECT DRIVE DOG CLUTCH

If the dog clutch will not entirely disengage for loose spindle, or back gear settings, make the following adjustments:

1. Place lever (A) Fig. 18, in a vertical position as shown.

2. Remove two screws (B) Fig. 18.

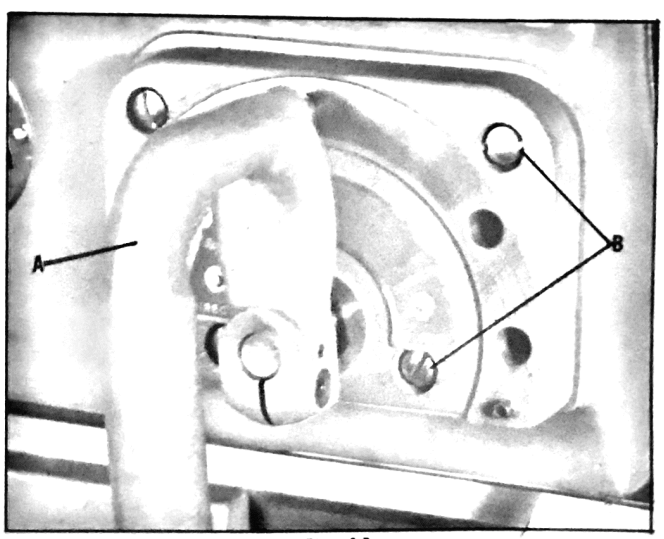


Fig. 18.

3. Place lever in loose spindle position as shown in Fig. 19, and remove screw (A) and pin (B). Then remove lever (C) from shaft.

4. Carefully remove cover (D) Fig. 19, after first removing remaining screws. Care should be taken to hold shaft (E) in place so that it will not withdraw with cover plate.

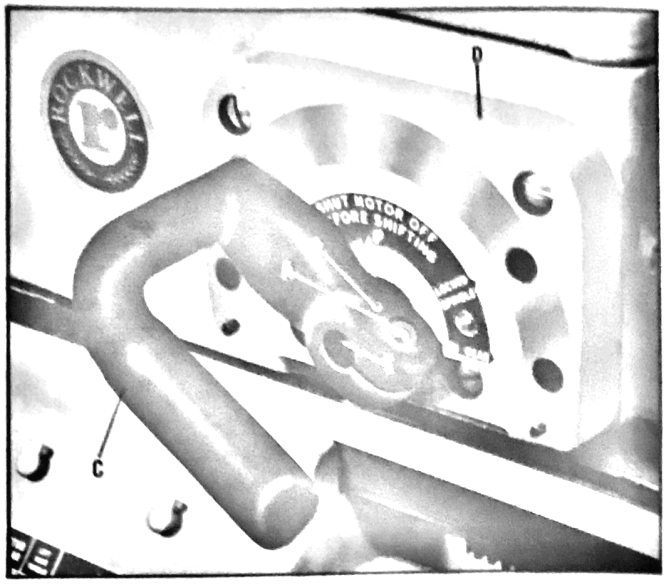



Fig. 19.

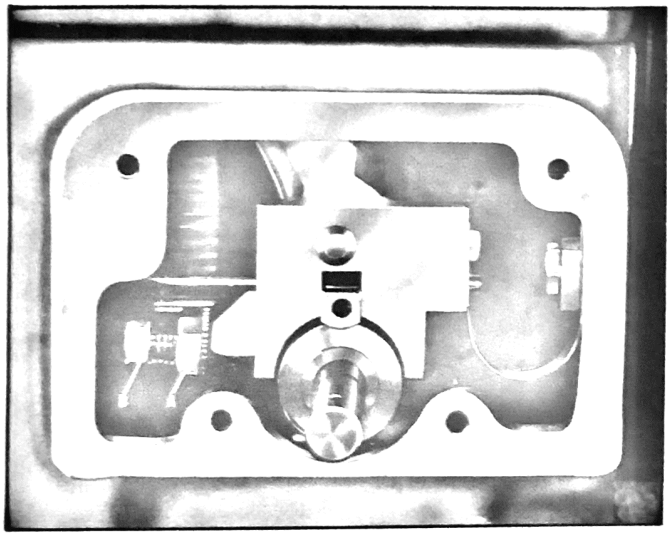


Fig. 20.

5. Make clutch adjustment by loosening lock nut (A) and turning screw (B) Fig. 20.

6. Check clearance by rotating spindle. Clutch should be completely disengaged when the lever is in the loose spindle position.

7. Tighten lock nut (A) Fig. 20, and reassemble handle and cover.

## ADJUSTING SAFETY LOCK-OUT FEATURE

The safety lock-out disc (A) Fig. 21, must be adjusted so it is not in contact with the belts and not more than 1/16" away from the belts, when the motor is turned off and the drive selector lever engaged in any of the four positions.

This adjustment should be visually inspected periodically or checked immediately if it is possible to disengage the drive selector lever from the hole with the motor running.

To adjust, remove headstock cover, loosen nut (B) and turn safety lock-out disc (A) Fig. 21 in or out so that it is not in contact with the belts and not more than 1/16" away from the belts. Then lock nut (B) Fig. 21. This adjustment should be made with the drive selector engaged.

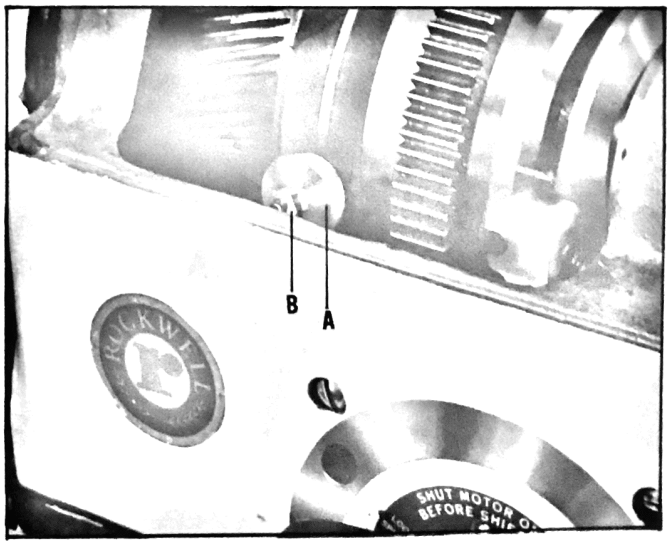



Fig. 21.

### ADJUSTING DRIVE SELECTOR LEVER

If it ever becomes impossible to pull the drive selector lever out of whichever drive position in which it is being used, even with the spindle stationary, the following adjustment should be made:

1. Remove the drive selector lever and cover plate by following Steps 1, 2, 3, and 4 under ADJUSTMENT OF DIRECT DRIVE DOG CLUTCH.

2. Move the flat spring (A) Fig. 22, up or down until there is equal clearance between the dog plate (B) and the cam (D). The spring is moved up or down by loosening screw (C) which holds one end of the spring against the headstock body casting.

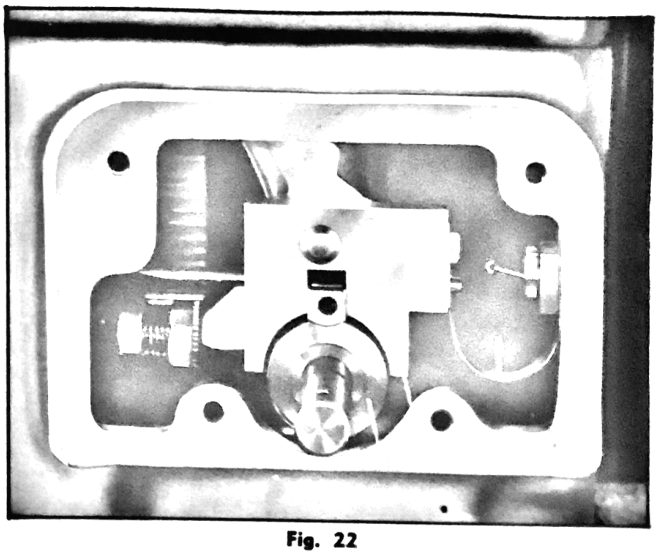


Fig. 22

## OUTBOARD GEAR TRAIN

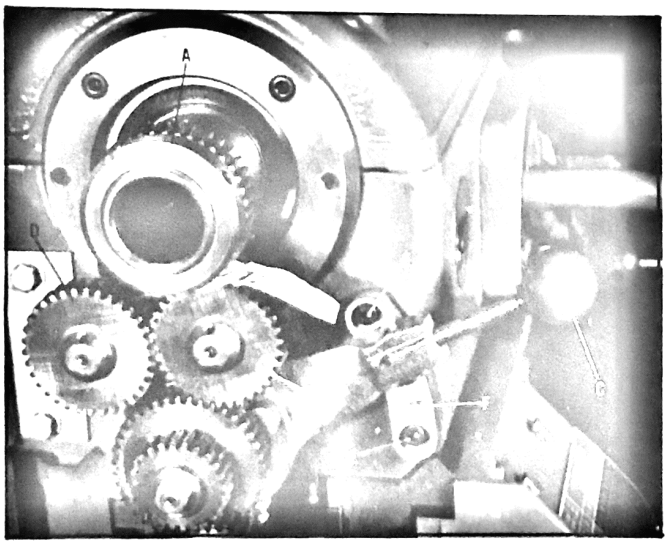



Fig. 23.

### ADJUSTING BACK LASH

Proper back-lash of the gears of your lathe has been set at the factory, however, after considerable use, adjustments may be necessary.

To establish back-lash between gears (A) and (B) Fig. 23, when the feed reverse lever (C) is in the up position, and between gears (A) and (D) when the feed reverse lever is in the down position, proceed as follows:

1. Place a strip of wrapping paper between gears (A) and (B) Fig. 23, and place the feed reverse lever in the up position.

2. Rotate the gears expelling paper and continue through one full revolution of larger gear to make certain no binding occurs at any point. In other words there should be some back-lash between any given point of the gears' mating circumference.

3. If an adjustment is necessary, loosen two screws (E) Fig. 23, and move the bracket (F) until the desired back-lash is obtained. Then tighten two screws (E).

4. When proper back-lash between gears (A) and (B) Fig. 23 is obtained, proper back-lash will automatically be obtained between gears (A) and (D).

# CARRIAGE

## GIB ADJUSTMENT FOR COMPOUND SLIDE

1. A gib is provided to take up all play between the mating dove tailed ways of the compound slide and swivel base. Should the compound slide move too freely or bind, it is necessary to readjust the gib (A) Fig. 24.

2. To make this adjustment, first be sure that the mating surfaces are clean and coated with a thin film of light machine oil. Then adjust the three hexagon socket cone pointed set screws (A) Fig. 25.

3. Each set screw should be loosened or tightened approximately the same amount until a good, snug, sliding fit is obtained.

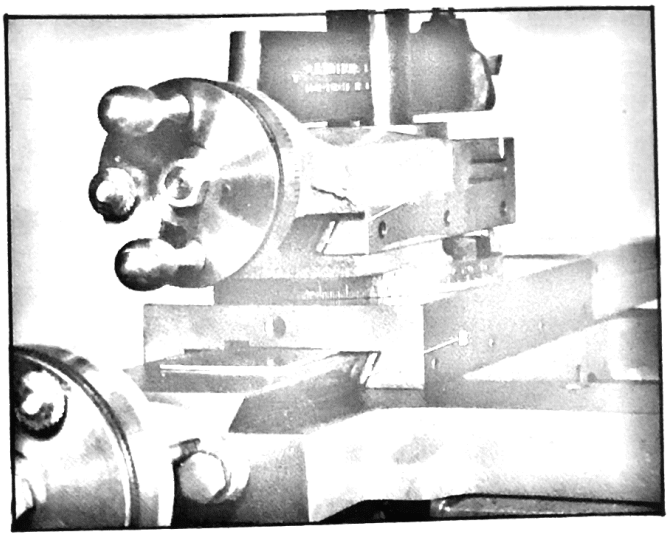


Fig. 24.

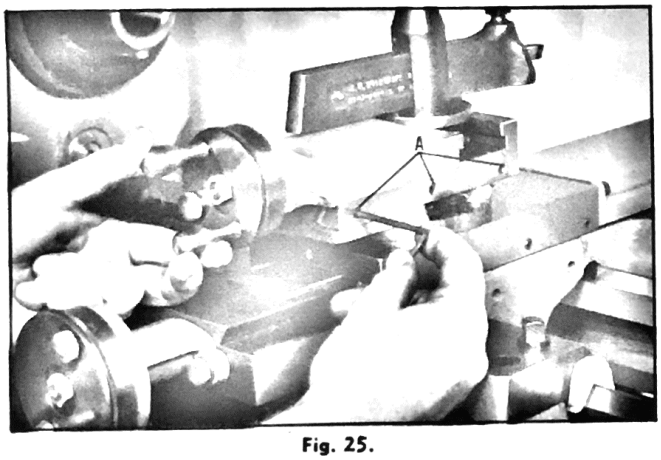



Fig. 25.

## GIB ADJUSTMENT FOR CROSS SLIDE

1. Follow the same procedure for adjusting the cross slide gib (B) Fig. 24, as for gib adjustment for the compound slide.

## COMPOUND SLIDE FEED SCREW END PLAY ADJUSTMENT

1. To remove end play of the compound slide feed screw, tighten nut (A) Fig. 26.

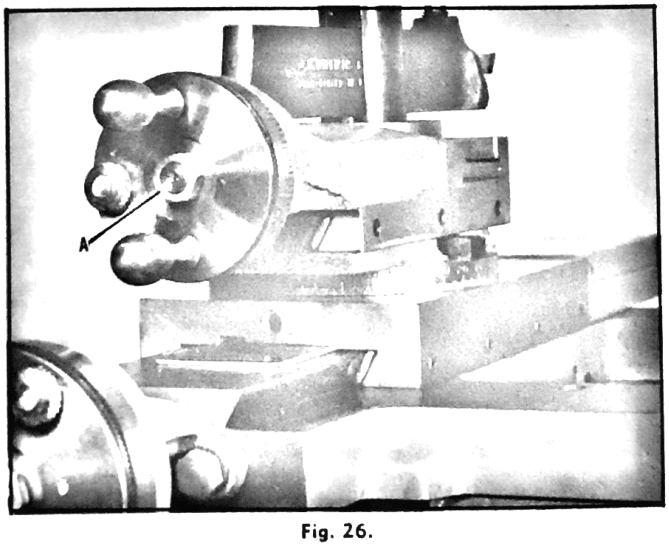



Fig. 26.

## CROSS SLIDE FEED SCREW END PLAY ADJUSTMENT

1. To remove end play of the cross slide feed screw, loosen lock nut (A) Fig. 27, make the adjustment by tightening nut (B). When correct adjustment is obtained tighten lock-nut (A) Fig. 27.

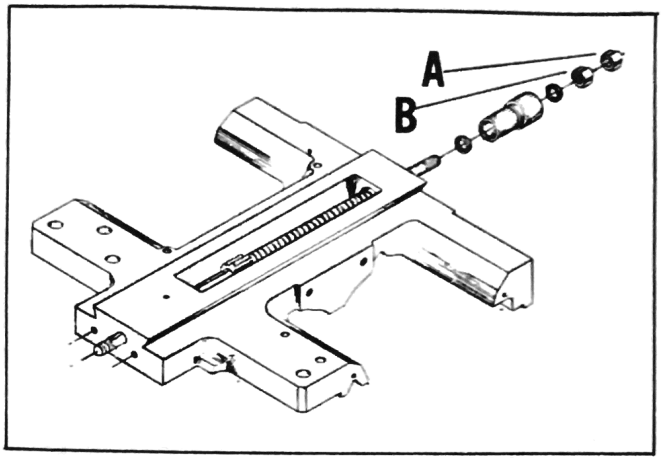



Fig. 27.

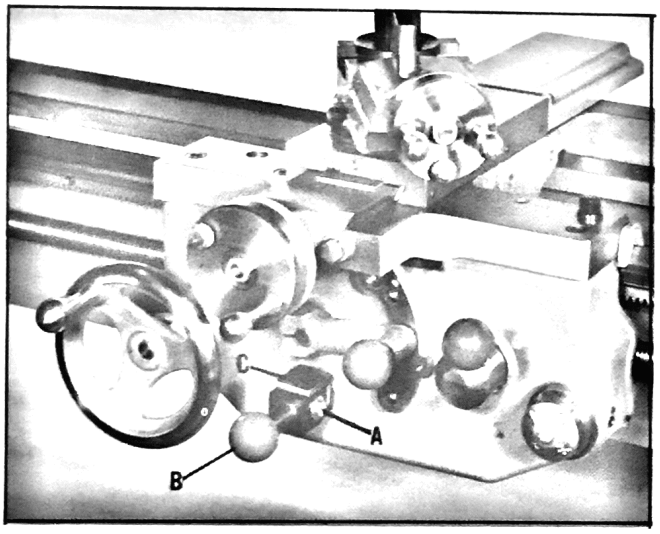



Fig. 28.

## POWER FEED CLUTCH ADJUSTMENT

Loosen set screw located on left end of shaft (A) Fig. 28, and rotate lever (B) clockwise full turns, not half turns, until proper tension is obtained, and retighten set screw. If, however, this adjustment is too tight and one full turn counterclockwise proves to be too loose, a half turn is necessary. This means that the stop bracket (C) Fig. 28, must be rotated so as to have the stop part on top for proper operation of the clutch lever. To do this, loosen set screw,rotate lever (B) and stop (C) together until disengaged from clutch shaft. Do not lose the relative position of the stop to the lever when disengaged, but carefully rotate the stop (C) 1/2 turn and reassemble to clutch shaft.

## ADJUSTING HALF-NUTS

The half-nuts can be adjusted for wear by closing them in further on the threads of the lead screw, as follows:

1. Close the half-nuts by turning lever (A) Fig. 29, clockwise as far as it will go.

2. Loosen two set screws (B) Fig. 29, allowing hub (C) to turn freely on shaft. CAUTION: To retain the stop parts of the hub in their proper place, always keep the hub (C) against the apron.

3. With the half-nuts closed, move lever (A) Fig. 29, counterclockwise a few degrees and retighten set screws (B).

4. Check to make sure lead screw does not bind when half-nuts are closed.

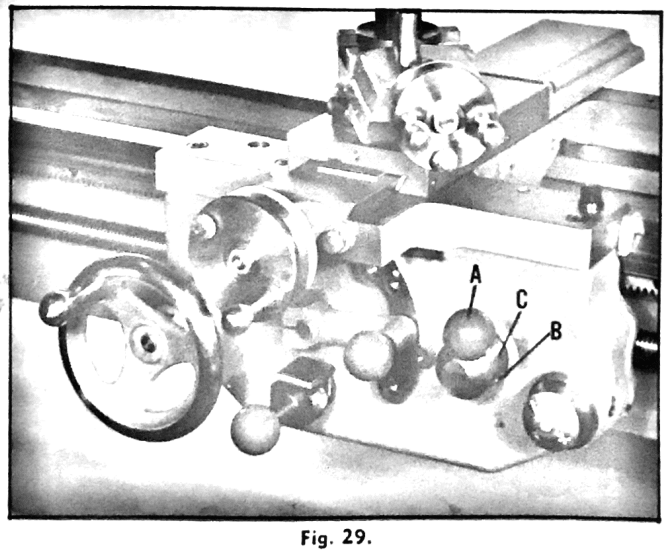



Fig. 29.

### REMOVING END PLAY FROM LEAD SCREW

1. Place feed selector lever (A) Fig. 30, in the middle notch.

2. Move lever for half-nuts (B) Fig. 30, down to thread cutting position.

3. Loosen set screw (C) and move collar (D) Fig. 30, against boss of casting (E).

4. Turn apron handwheel (F) clockwise applying light pressure. After clockwise rotation of apron handwheel has stopped, tighten set screw (C) in collar (D), keeping collar against the end of casting boss (E), Fig. 30.

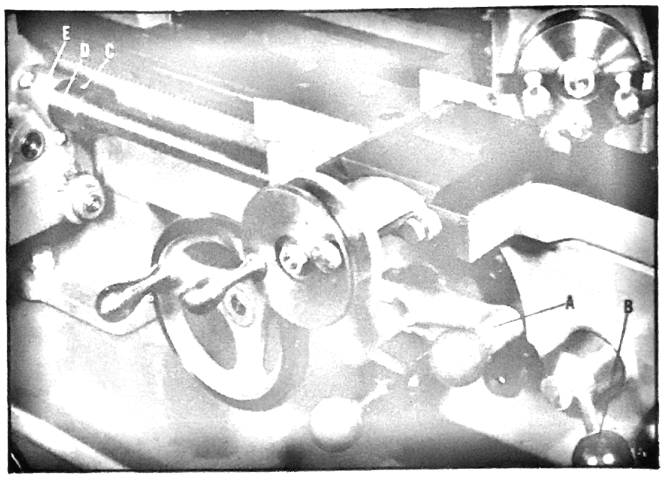



Fig. 30.

## BELT TENSION

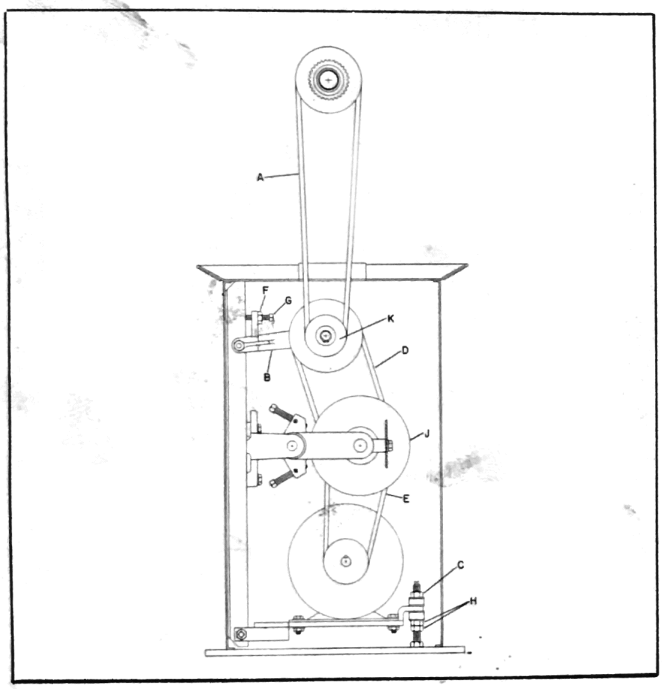



Fig. 31.

### BELT TENSION FOR SPINDLE V-BELTS

To increase tension on the spindle V-Belts (A) the jackshaft mounting bracket (B) Fig. 31, must be shifted down. This may be done as follows:

1. Loosen nut (C) Fig. 31, on the motor mounting plate so the variable speed drive belts (D) and (E) have considerable play.

2. Loosen nut (F) Fig. 31, and tighten screw (G) until the spindle belts (A) have the desired tension. Then tighten nut (F).

### BELT TENSION FOR VARIABLE SPEED BELTS

Tension adjustment for the variable speed belts (D) and (E) Fig. 31, is made by tightening or loosening the nuts (C) and (H) on the motor mounting plate.

## TAILSTOCK

### REMOVING EXCESS PLAY IN TAILSTOCK HANDWHEEL

1. To remove excess play in the tailstock handwheel, tighten the self locking nut (A) Fig. 32.

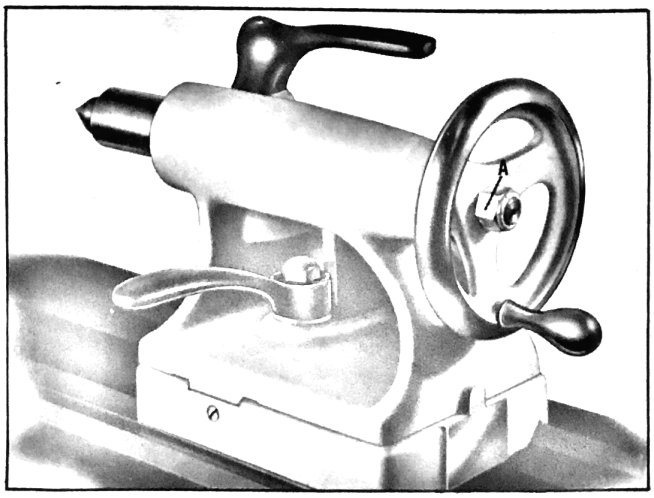
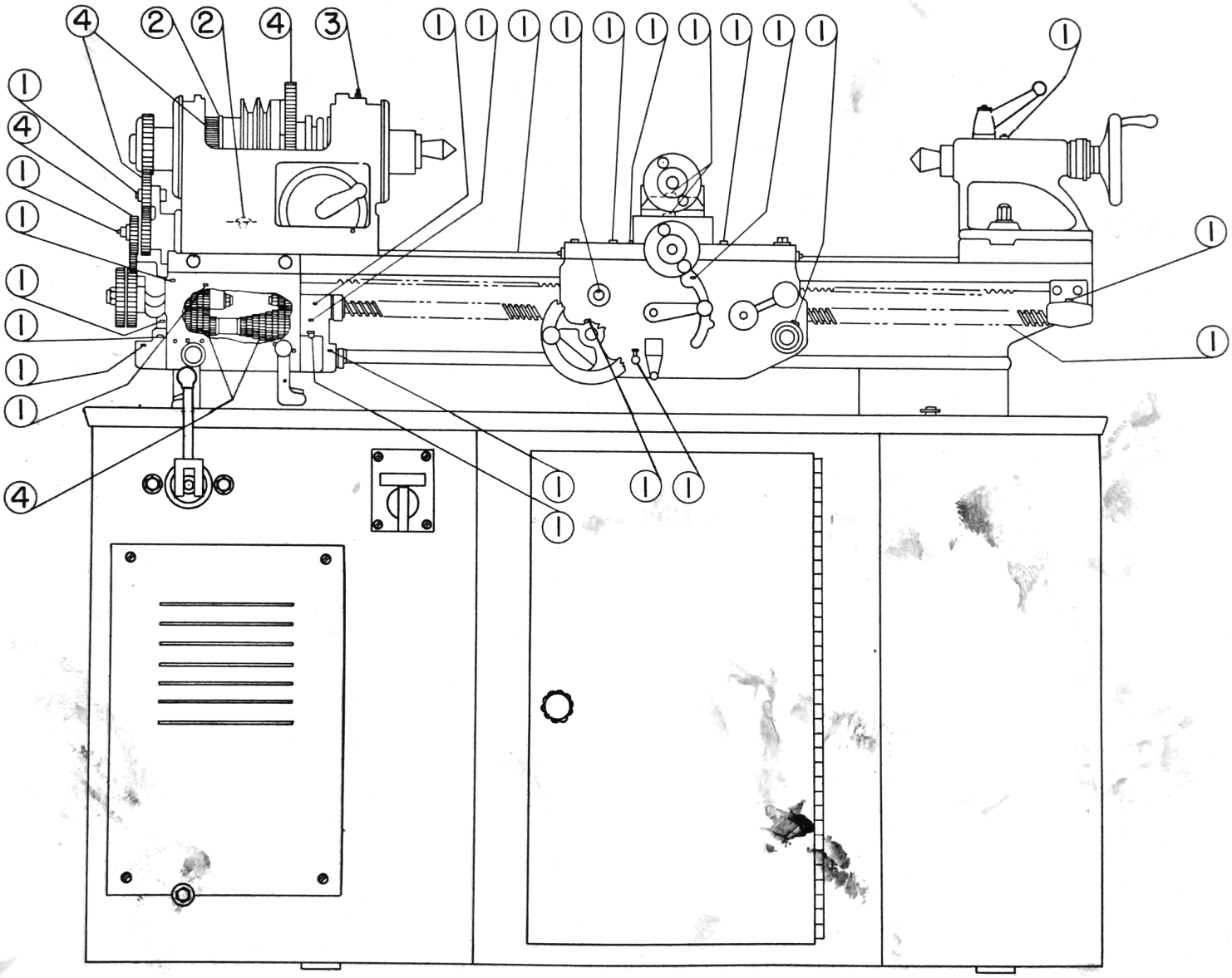



Fig. 32.

# LUBRICATION

## LUBRICATION CHART FOR 11" METAL CUTTING LATHE



① OIL DAILY
② OIL EVERY 50 HOURS
③ GREASE EVERY 200 HOURS
④ GREASE AS REQUIRED

POINTS #1 & #2 REQUIRE TEXACO REGAL OIL - BR & O
POINTS #3 REQUIRE TEXACO REGAL STARFAK #2 GREASE OR EQUIVALENT
POINTS #4 REQUIRE TEXACO MARFAK #0 GREASE OR EQUIVALENT

# MAINTENANCE AND REPAIRS

## HEADSTOCK

### REPLACEMENT OF SPINDLE AND TAPERED ROLLER SPINDLE BEARINGS

The spindle and the tapered roller spindle bearings are precision made and precision mounted and if it should ever be necessary to replace them, we suggest that the entire headstock be returned to the factory where this precision work can be performed to restore new machine accuracy. Charges for the work will be based on current parts prices for each part replaced, plus a labor charge. Send the entire headstock assembly prepaid and insured to:

Rockwell Manufacturing Company
Bellefontaine Division
Bellefontaine, Ohio
ATTENTION: Service Department

### REMOVING AND REPLACING VARIABLE SPEED BELTS, FEED REVERSING GEAR BRACKET, OUTBOARD SPINDLE BEARING, SPINDLE V-BELTS, AND BACK GEARS

DISASSEMBLY

1. Set drive selector lever to direct drive position.

2. Unscrew nut (C) Fig. 33, on the motor mounting plate.

3. Raise the motor and remove lower variable speed belt (E) Fig. 33.

4. Raise the variable speed pulley (J) Fig. 33, by moving the variable speed control lever. Release tension on spindle belts (A) by loosening nut (F) and screw (G) Fig. 33. Remove spindle belts ((A) from jackshaft pulley (K). Then remove the upper variable speed belt (D).

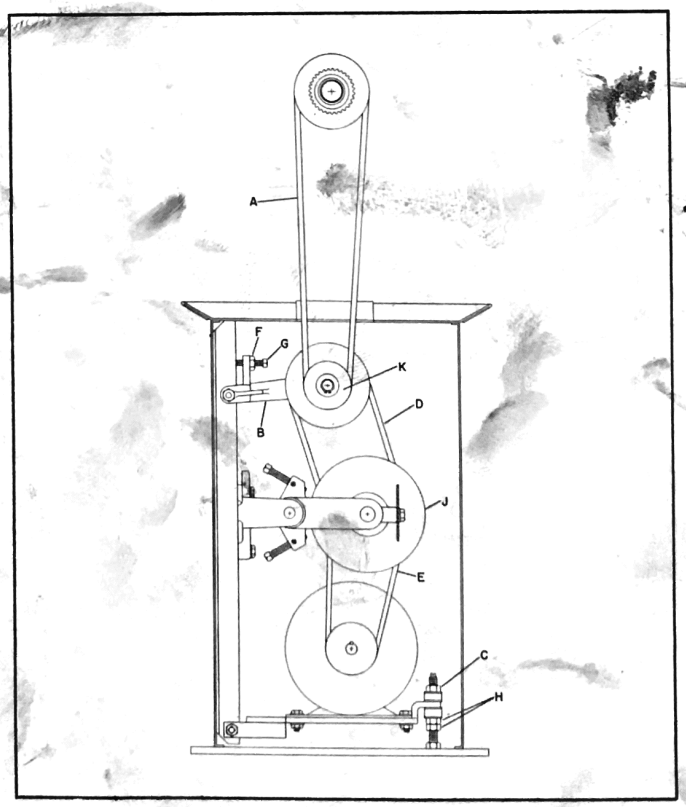



Fig. 33.

5. Remove outboard gear cover and headstock cover.

6. Loosen bolt (A) Fig. 34, of the gear train. Rotate the gear bracket (B) counterclockwise disengaging the gear train.

7. Remove nut (C) Fig. 34, washer (D), and reversing gear bracket (E).

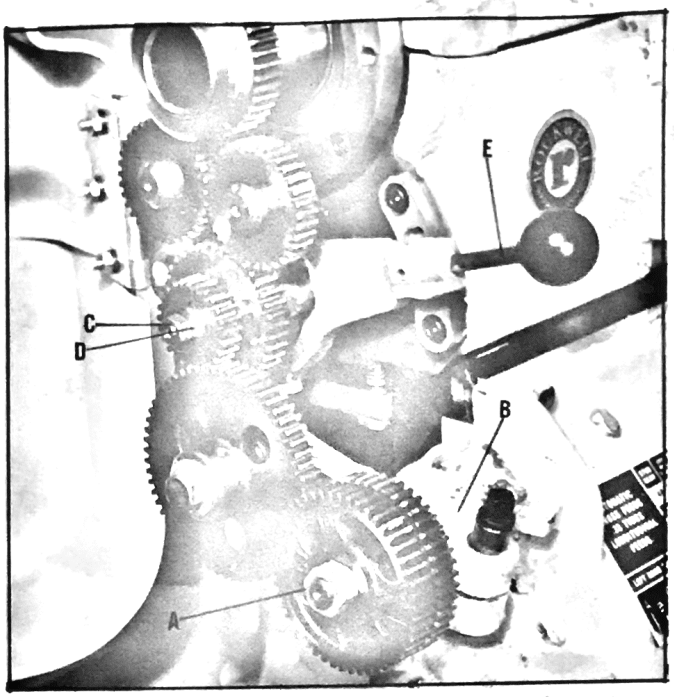



Fig. 34.

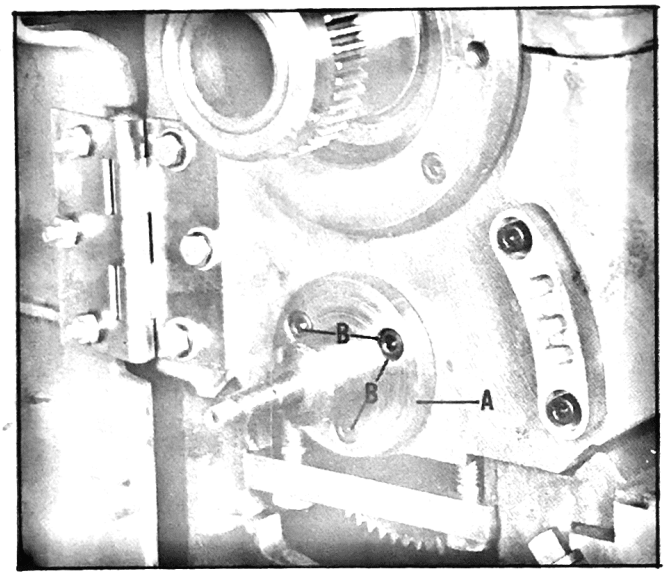



Fig. 35.

8. Remove shoulder bushing (A) Fig. 35, by removing three screws (B).

9. Loosen set screw (A) Fig. 36, and remove spindle nut (B). CAUTION: Care should be taken not to lose brass plug below set screw (A). Remove gear (C), key (D), and spacer (E) Fig. 36.

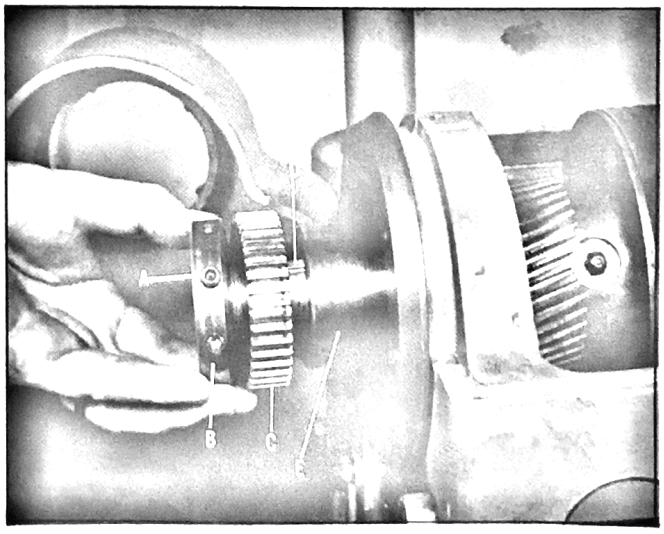



Fig. 36.

10. Remove four cap screws from outboard bearing retainer.

11. Remove outboard bearing retainer (A) Fig. 37, by screwing two 3/8-16 x 2" screws into the tapped holes as shown. Tighten the two screws evenly until the outboard bearing retainer pulls free. The outboard bearing is removed with the outboard bearing retainer.

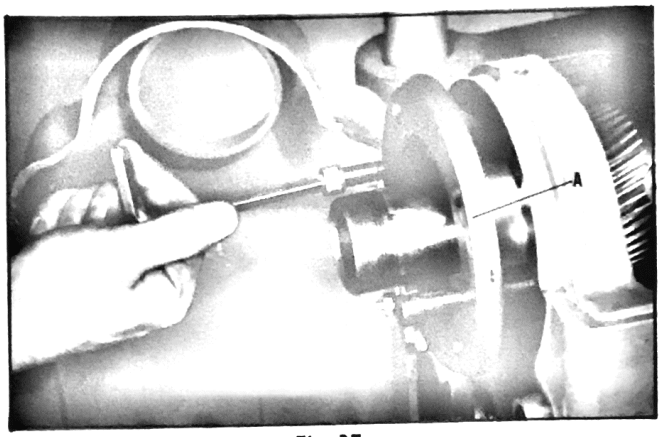



Fig. 37.

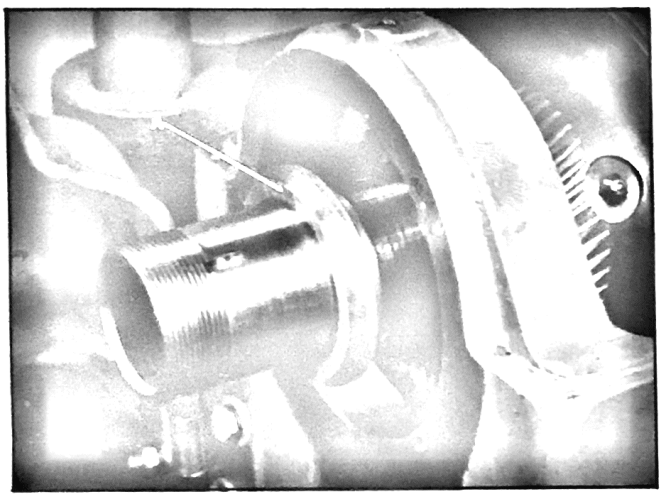


Fig. 38.

12. Remove spindle spacer (A) Fig. 38.

13. Remove the four mounting bolts and the two mounting plates that hold the headstock to the lathe bed.

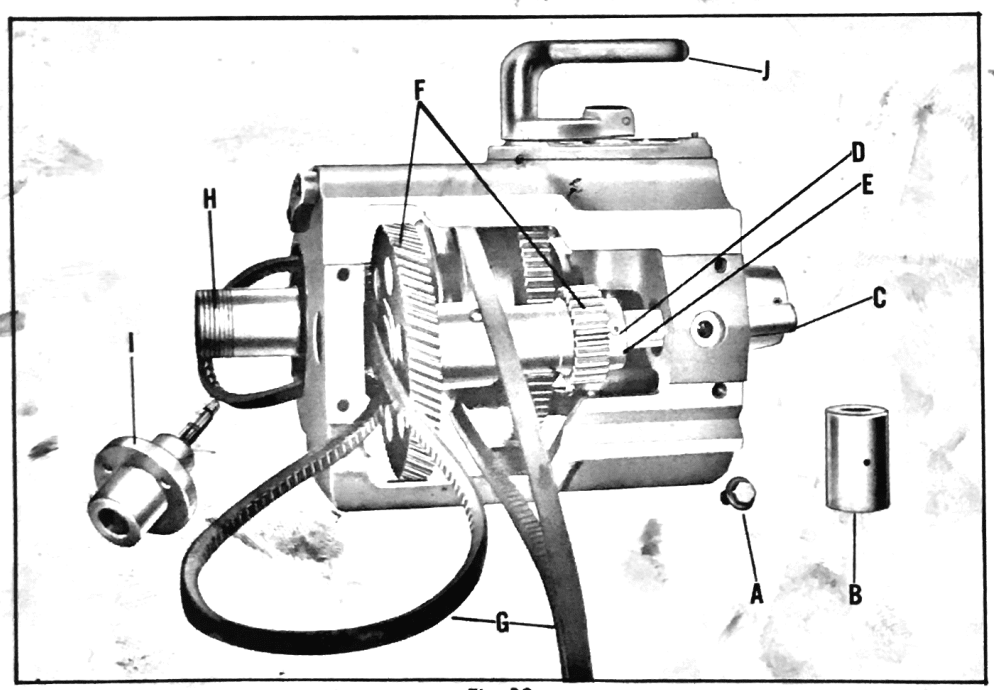



Fig. 39.

14. Remove the headstock from the lathe bed and lay it on its side with the drive selector up, as shown in Fig. 39.

15. Remove bolt (A) Fig. 39, from the bottom of the headstock and remove bearing (B) which supports lower back gear shaft (C).

16. Loosen set screw (D) in collar (E) Fig. 39, slide back gears (F) to the right just far enough to remove belts. Do not remove shaft (C).

17. Remove belts (G) Fig. 39, by slipping them through the outboard spindle bearing hole, past the end of the spindle (H), back through the outboard spindle bearing hole, and down past the back gears (F).

## REASSEMBLY

1. Reverse Step 18 to assemble new spindle V-Belts around Spindle Pulleys.

2. Fasten shoulder bushing (I) Fig. 39, to headstock.

3. Put selector lever (J) Fig. 39, into direct drive position.

4. Push shaft (C) into shoulder bushing (I) Fig. 39.

5. Replace bearing (B) and bolt (A) Fig. 39. Care must be taken to see that witness mark on bearing (B) is toward the outside and pointing up toward the spindle.

6. Check to see if witness mark on shaft (C) Fig. 39 and bearing (B) coincide (with selector lever still in direct drive). If not, remove bolt (A) and bearing (B) and repeat Steps 4 and 5 rotating the shaft until gears mesh in the correct position so that the witness marks on bearing (B) and shaft (C) coincide. The gears referred to are the small gear on shaft (C) and the small gear on the inboard end of the shaft which is rotated by the drive selector. The proper engagement of these gears is necessary for the witness marks to coincide and for the proper backlash setting of the back gears.

7. Move back gears (F) to left side and fasten with collar (E) and set screw (D) Fig. 39.

8. Replace spacer (A) Fig. 38, with chamfered end toward the outside.

9. Insert extended loose ends of belts through bed and chip pan opening while placing headstock on lathe bed.

10. Reach through cabinet door and pull belts down.

11. Fasten the headstock to the lathe bed using the four mounting bolts and two mounting plates. End of headstock should be approximately flush with end of ways of bed before tightening bolts.

12. Reverse Steps 1 through 13 under REMOVING AND REPLACING VARIABLE SPEED BELTS, FEED REVERSING GEAR BRACKET, OUTBOARD SPINDLE BEARING, SPINDLE V-BELTS, AND BACK GEARS.

## QUICK CHANGE GEAR BOX

### *REPLACING LEFT AND RIGHT HAND TUMBLERS*

1. Disengage lead screw from gear box by loosening set screw (A) Fig. 40 and moving lead screw to the right a few inches.

2. Remove three screws (B) Fig. 40 and remove gear box from the lathe.

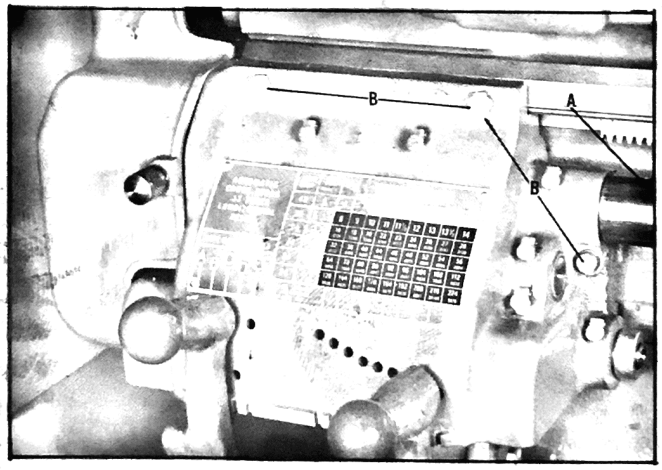



Fig. 40.

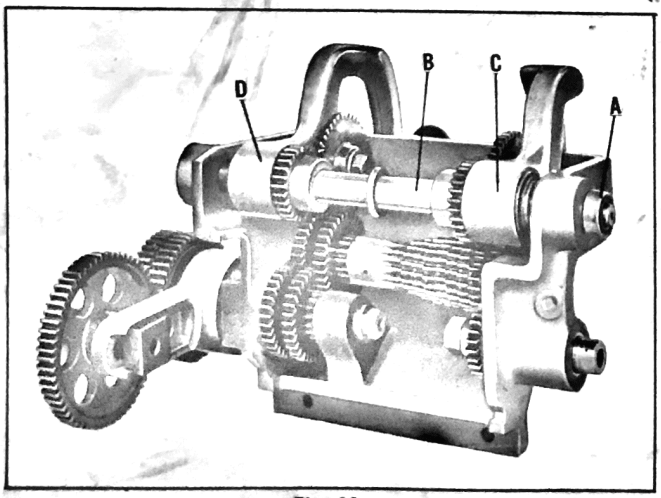



Fig. 41.

3. Loosen set screw in collar (A) Fig. 41, and remove the collar.

4. Slide the shaft (B) to the left as viewed in Fig. 41, and remove and replace the tumblers (C) and (D).

5. Reverse the above instructions when reassembling the gear box.

# CARRIAGE

## REPLACING CROSS SLIDE FEED SCREW AND NUT

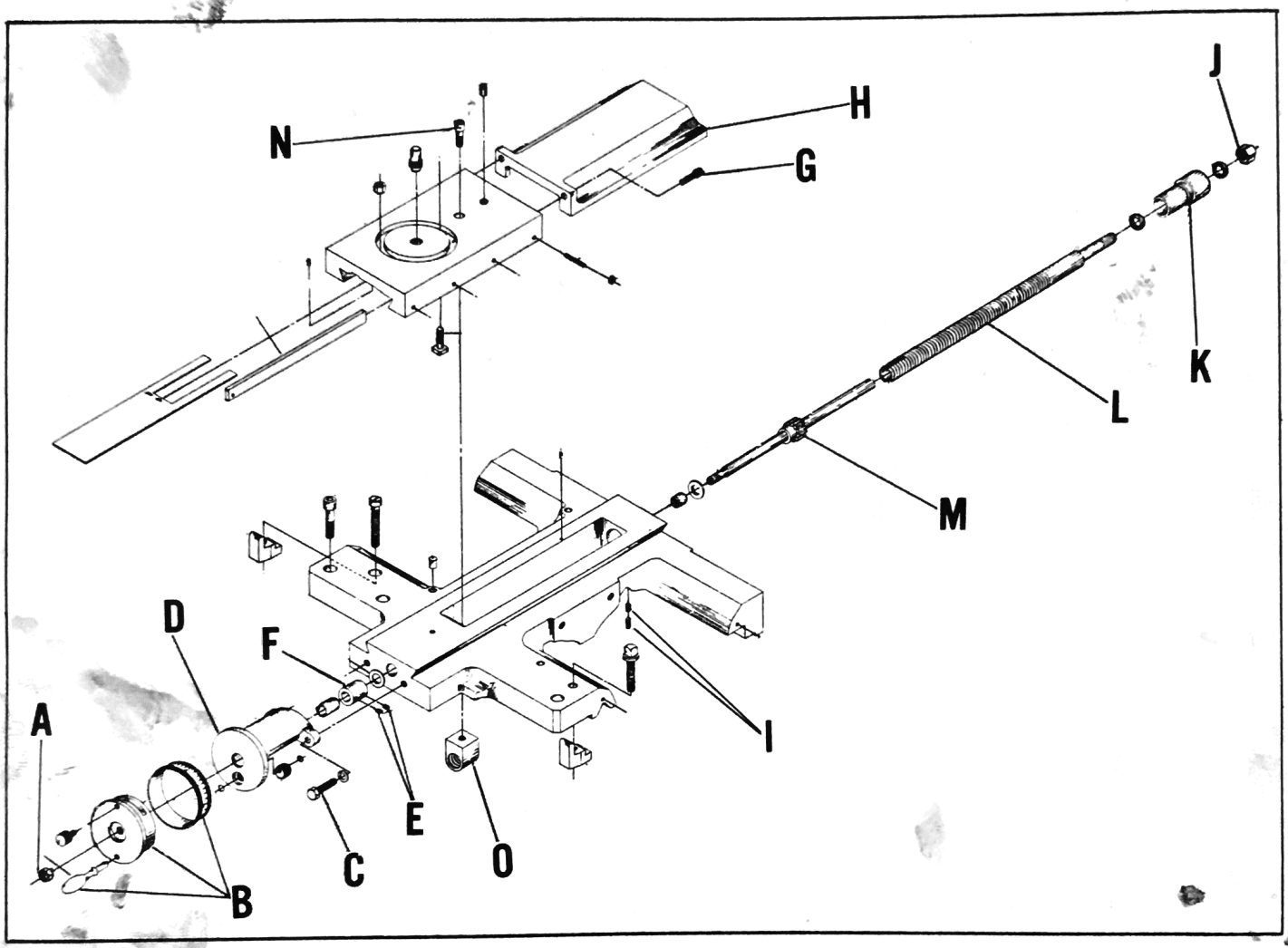



Fig. 42.

1. Remove nut (A) and handwheel assembly (B) Fig. 42.

2. Remove two screws (C) and flange (D) Fig. 42.

3. Loosen two set screws (E) and remove collar (F) Fig. 42.

4. Remove two screws (G) and remove cover (H) Fig. 42.

5. Remove two set screws (I) Fig. 42.

6. Remove nuts (J) and bushing (K) Fig. 42.

7. Remove the feed screw (L) and feed shaft (M) Fig. 42 by threading them out through the rear.

8. Remove screw (N) and feed nut (O) Fig. 42.

9. When reassembling make sure the feed screw (L) runs freely through the feed nut (O) before tightening screw (N) Fig. 42.

## REPLACING COMPOUND SLIDE FEED SCREW AND NUT

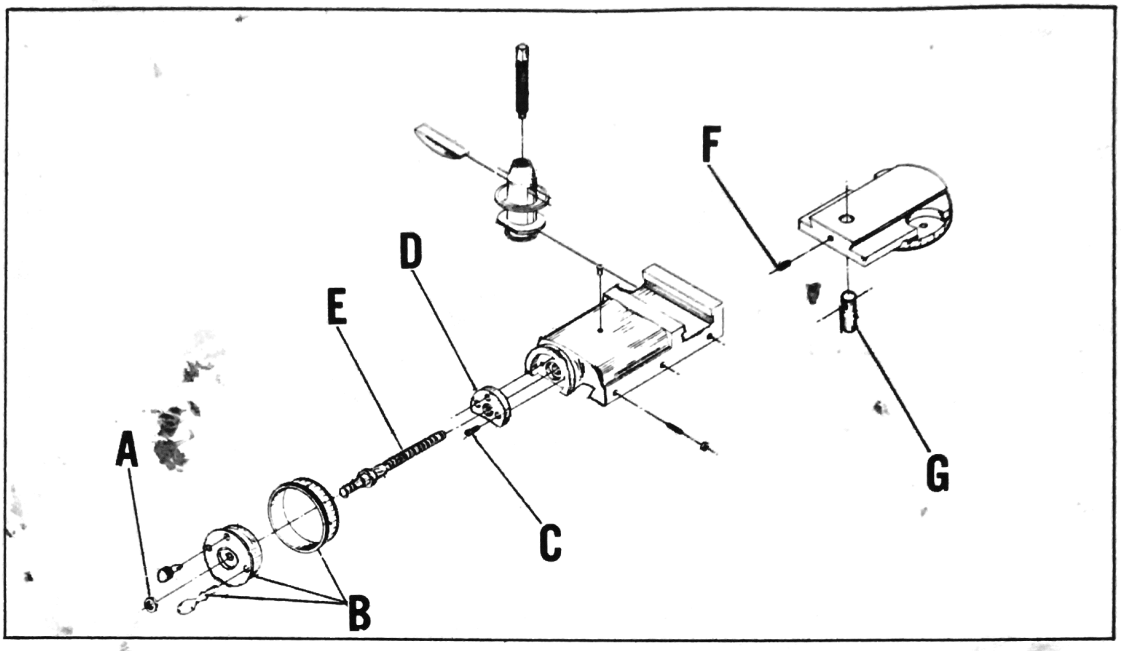



Fig. 43.

1. Remove nut (A) Fig. 43, and handwheel assembly (B).

2. Remove three screws (C) and thrust bushing (D) Fig. 43. Then remove the compound slide feed screw (E) by turning it counterclockwise.

3. Loosen set screw (F) and remove the feed nut (G) Fig. 43.

4. When reassembling make sure the compound feed screw (E) runs freely through the feed nut (G) before tightening set screw (F) Fig. 43.

## REPLACING HALF-NUTS, POWER FEED CLUTCH, AND WORM

To make repairs to the apron it is first advisable to remove the carriage from the bed, as follows:

1. Remove the tailstock from the lathe.

2. Remove the two screws on the lead screw bracket and remove this bracket from the right hand side of the bed.

3. Loosen the three cap screws (A) Fig. 44, enough so that the apron will drop about a quarter of an inch.

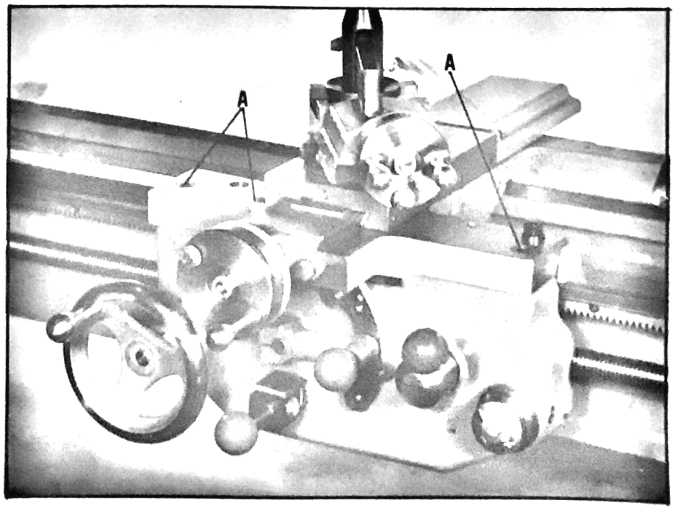



Fig. 44.

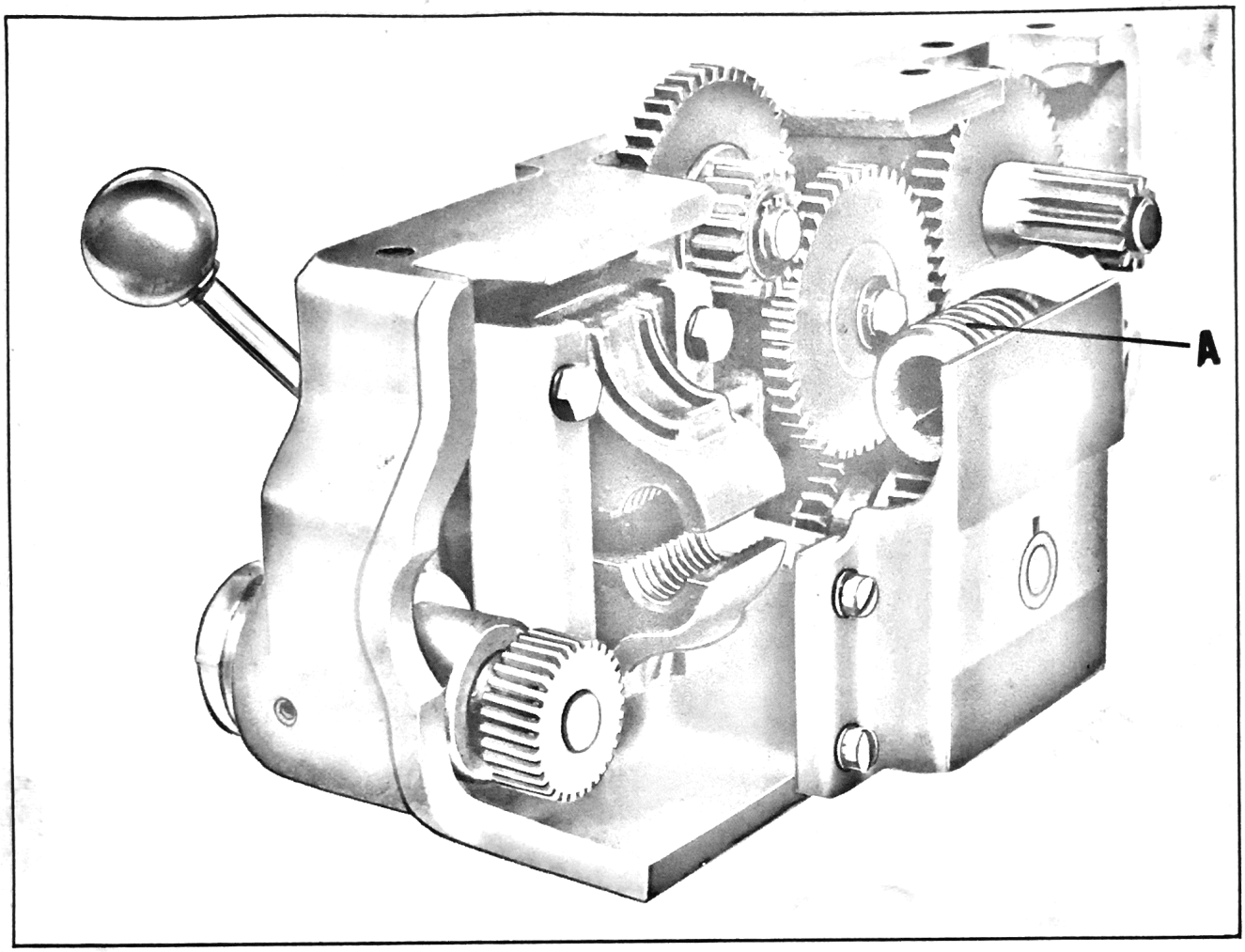



**Fig. 45.**

4. Move the carriage to the right and off the lathe bed.

5. The half-nuts, power feed clutch, and worm can now be replaced. Fig. 45 shows an interior view of the apron.

6. When reassembling the apron be sure to engage the key in the worm gear (A) Fig. 45, into the keyway in the lead screw and move the carriage onto the bed. When tightening the three screws (A) Fig. 44, move the apron handwheel back and forth to allow the lead screw and pinion in apron to mesh. Before tightening the two screws on the lead screw bracket, run the carriage the full length of the lathe to make sure no binding occurs.

QUALITY CONTROL CERTIFICATE

Rockwell MANUFACTURING COMPANY
POWER TOOL DIVISION

# ROCKWELL 11" METAL CUTTING LATHE

CATALOG NUMBER ..... INSPECTED BY .....

SERIAL NUMBER ..... DATE .....

This Rockwell 11" Metal Lathe is a precision machine tool, modern in design and built to highest quality standards. Before it left our factory it had to pass more than 50 tests for dynamic balance, accuracy, and ease of operation. Some of these test results are reported here to show you the quality built into your particular lathe.

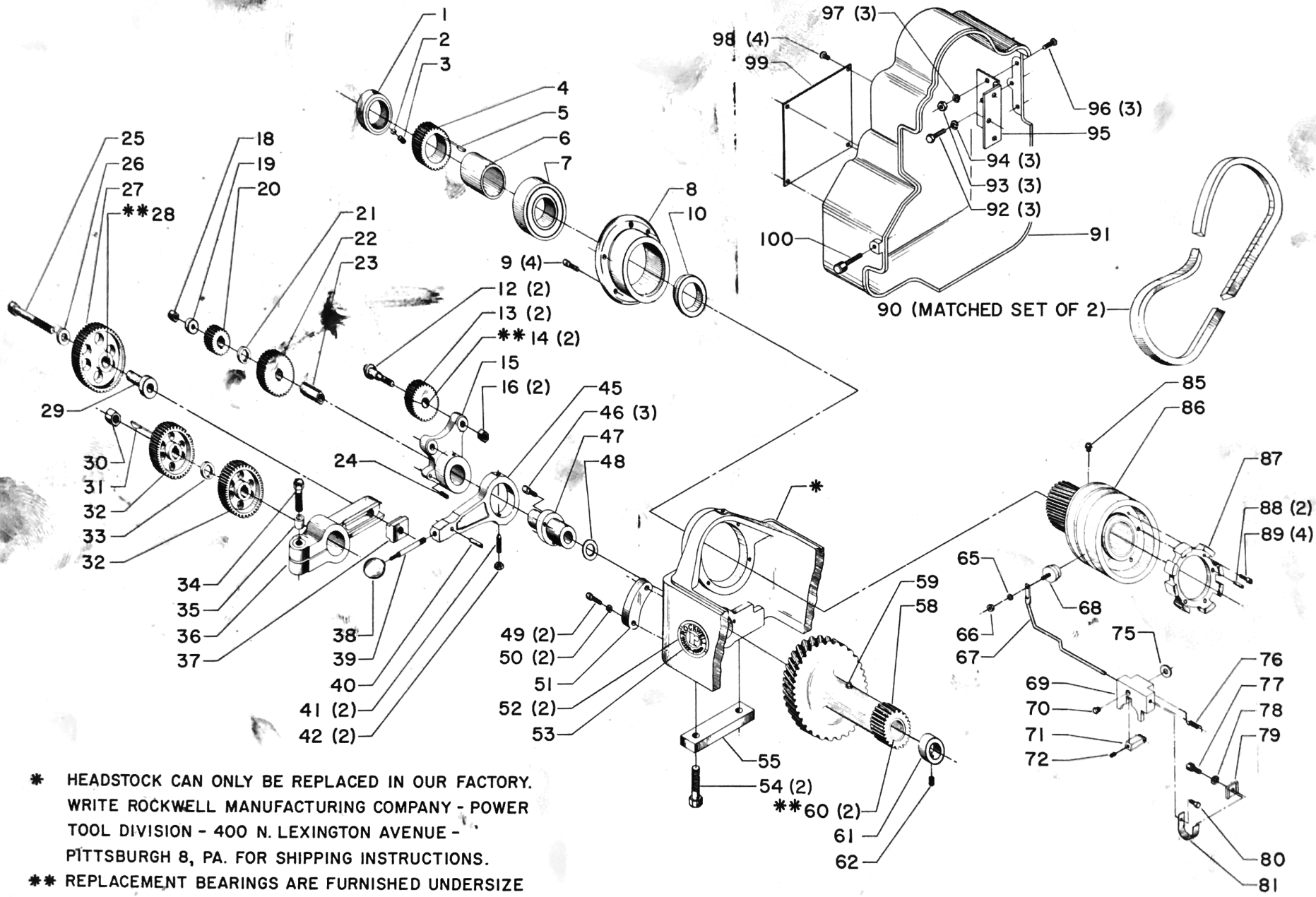
The Rockwell 11" Metal Lathe is built to give you many years of good service. PLEASE STUDY THE INSTRUCTION MANUAL CAREFULLY BEFORE OPERATING THE LATHE. Keep the lathe clean, well lubricated, and in proper adjustment. The accuracy of work it produces depends on you.

## Dial Indicator Inspection

| | TEST | Limit Allowed | This Lathe |
|---|---|---|---|
| 1. | Spindle Nose Runout (Indicator on Face and Pilot of Threaded Nose Models) | .0005 T.I.R. | |
| 2. | Spindle Taper Hole Runout — Test Bar in Spindle Hole — Indicate 1½" from Spindle Nose | .0005 T.I.R. | |
| 3. | Spindle Taper Runout—Test Bar in Spindle Hole—Indicate 12" from Spindle Nose | .001 T.I.R. | |
| 4. | Spindle Alignment with Bed ways—Vertical —along 12" of test bar | .001 | |
| 5. | Spindle Alignment with Bed ways—Horizontal—along 12" of test bar | .0005 | |
| 6. | Tailstock Ram Alignment with Bed ways—Vertical—along 3" Test Bar mounted in extended Ram—high at Headstock end | 0 to .0015 | |
| 7. | Tailstock Ram Alignment with Bed Ways—Horizontal—along 3" Test Bar mounted in extended Ram | .001 | |
| 8. | Vertical Alignment of Head and Tail Centers (High at Tailstock) | 0 to .003 | |
| 9. | Cross Slide Alignment—To Face Hollow or Concave only on 10" Diameter | .001 (5" Rad) | |
| 10. | Lead Screw Cam Action | .0005 | |
| 11. | Cross Feed Screw Backlash (8 marks on micrometer collar) | .004 | |
| 12. | Compound Feed Screw Backlash | .006 | |
| 13. | Tailstock Feed Screw Backlash | .010 | |

## Additional Inspection

| | TEST | Check If O.K. |
|---|---|---|
| 1. | Bed Level—using spirit level in transverse and longitudinal directions | |
| 2. | Travel of Carriage full length of bed, using handwheel | |
| 3. | Lead Screw Alignment with Bed Ways—Vertical and Horizontal—end to end | |
| 4. | Lead Screw — Lead per foot + or − .002; and Lead in any 4" + or − .00075 | |
| 5. | Lead Screw Control Lever (forward, neutral, reverse) | |
| 6. | Functioning of Half Nuts (lathe running) | |
| 7. | Lock out Device for Half Nuts | |
| 8. | Quick Change Gear Box—Check for noise or vibration with lathe running | |
| 9. | Graduations on three Micrometer Collars and Compound Swivel Saddle. Witness Marks for Tailstock Set-over, Swivel Saddle (2), Eccentric Shaft for Back Gears, Shear Pin and three Micrometer Collar | |
| 10. | Check Maximum and Minimum Spindle Speeds in Direct Drive (1550 and 220 rpm) using Stroboscopic Tachometer | |
| 11. | Vibration at 1220 rpm not to exceed .0005" amplitude on Bed and .0003" at the Spindle using Electronic Vibration Analyzer | |
| 12. | Vibration from 220 to 1550 rpm not to exceed .005" amplitude on Variable Speed Drive Bracket, using Electronic Vibration Analyzer | |
| 13. | Turn and Face Drive Plate and pack with same lathe | |
| 14. | Make light and heavy cuts 6" long, and check for taper—not to exceed .0005" | |
| 15. | Cut a coarse and a fine thread | |
| 16. | Tailstock ejects center | |



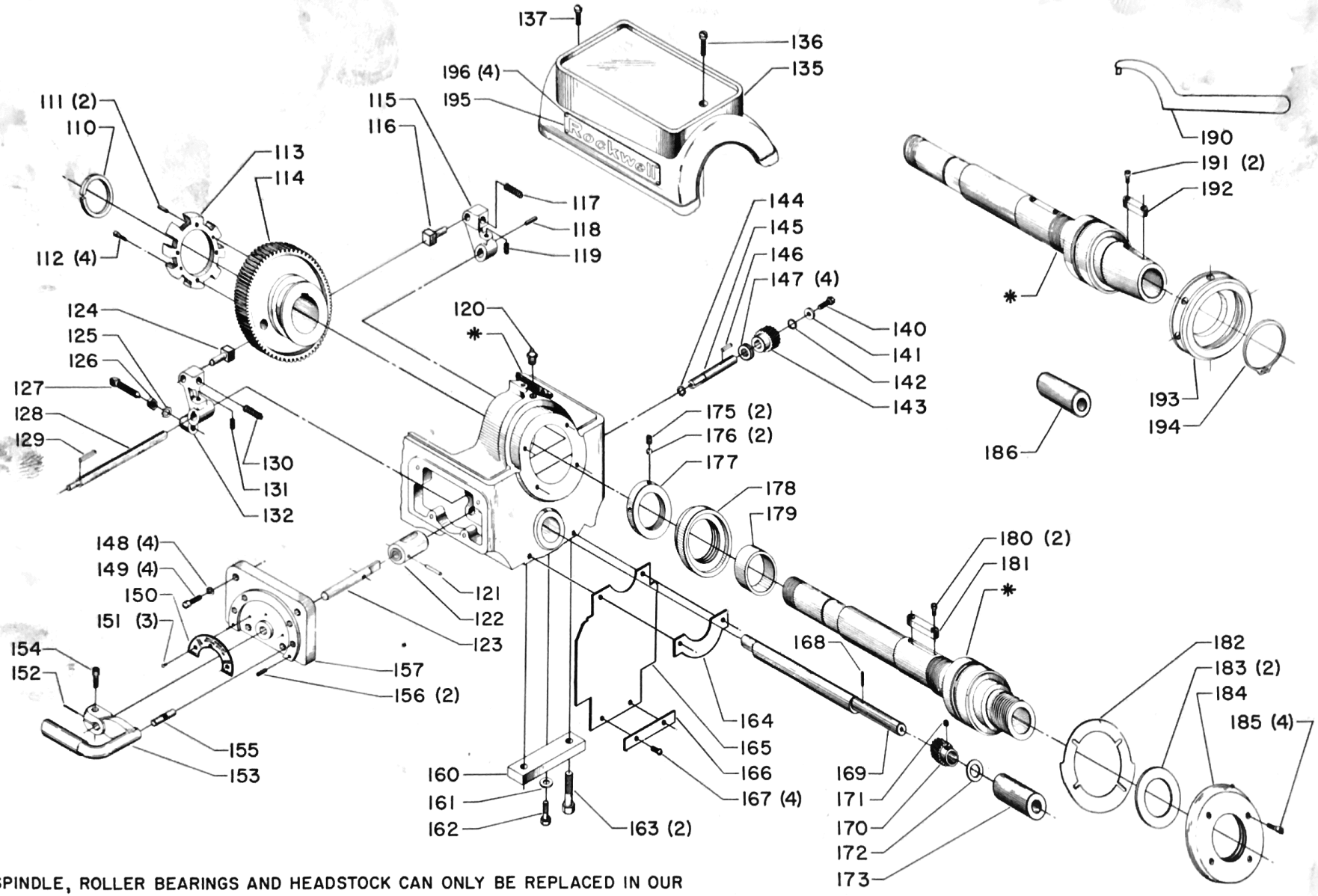

* HEADSTOCK CAN ONLY BE REPLACED IN OUR FACTORY. WRITE ROCKWELL MANUFACTURING COMPANY - POWER TOOL DIVISION - 400 N. LEXINGTON AVENUE - PITTSBURGH 8, PA. FOR SHIPPING INSTRUCTIONS.

** REPLACEMENT BEARINGS ARE FURNISHED UNDERSIZE AND MUST BE REAMED TO FIT AFTER INSTALLATION.

Figure A

# HEADSTOCK (Figure A)

| Ref. No. | Part No. | Description |
|---|---|---|
| 1 | MCL-233 | Rear Collar Retainer |
| 2 | SCG-88 | Plug |
| 3 | SP-225 | 5/16-18 x 1/4 Soc. Hd. Set Scr. |
| 4 | MCL-228 | Spindle Change Gear - 40 Teeth |
| 5 | SP-2619 | #404 Hi-Pro Key |
| 6 | MCL-234 | Spacer |
| 7 | SP-5349 | Bearing |
| 8 | MCL-243 | Rear Bearing Retainer |
| 9 | SP-3309 | 1/4-20 x 5/8 Soc. Hd. Cap Scr. |
| 10 | MCL-235 | Spacer |
| 12 | MCL-256 | Stud for Reversing Gear |
| 13 | MCL-231-S | Reversing Gear-34 Teeth, Including: |
| 14 | 920-75-511-8057 | Bearing |
| 15 | MCL-208 | Bracket |
| 16 | SP-1207 | 3/8-24 Hex. Nut |
| 18 | SP-1206 | 5/16-24 Hex. Nut |
| 19 | MCL-248 | Stud Gear Washer |
| 20 | MCL-230 | Gear - 24 Teeth |
| 21 | MCL-254 | Spacer |
| 22 | MCL-229 | Gear - 40 Teeth |
| 23 | MCL-255 | Bushing |
| 24 | DDL-123 | Spring |
| 25 | MCL-310 | Idler Bolt |
| 26 | DDL-174 | 29/64 x 1 x 1/8 Steel Washer |
| 27 | MCL-227-S | Intermediate Gear-60 Teeth, Including: |
| 28 | 920-75-011-7190 | Bearing |
| 29 | MCL-265 | Bearing |
| 30 | SP-1282 | 1/2-13 Hex. Nut |
| 31 | SP-2606 | 1/8 x 5/8 Hi-Pro Key |
| 32 | MCL-176 | Gear - 48 Teeth |
| 33 | MCL-254 | Spacer |
| 34 | SP-6053 | 3/8-16 x 2 1/4 Sq. Hd. Collar Cap Scr. |
| 35 | MCL-314 | Spacer |
| 36 | MCL-210 | Bracket |
| 37 | MCL-253 | "T" Nut |
| 38 | 931-01-022-0490 | Knob |
| 39 | MCL-151 | Handle Rod |
| 40 | SP-5075 | 1/4 x 3/4 Roll Pin |
| 41 | SP-133 | 1/4-20 x 1 Headless Set Screw |
| 42 | SP-1034 | 1/4-20 Hex. Jam Nut |
| 45 | MCL-209 | Lever |
| 46 | SP-3309 | 1/4-20 x 5/8 Soc. Hd. Cap Screw |
| 47 | MCL-743 | Shaft for Stud Gear |
| 48 | LTA-462 | 3/4 Fiber Washer |
| 49 | SP-3309 | 1/4-20 x 5/8 Soc. Hd. Cap Screw |
| 50 | SP-1702 | 1/4 Lockwasher |
| 51 | MCL-250 | Bracket |
| 52 | SP-2250 | Drive Screw |
| 53 | 960-02-012-0028 | Name Plate |
| 54 | SP-615 | 7/16-14 x 1 3/4 Hex. Hd. Cap Scr. |
| 55 | MCL-249 | Clamp Block |
| 58 | MCL-224-S | Back Gear, Including: |
| 59 | SP-7107 | Oiler |
| 60 | MCL-536 | Bearing |
| 61 | MCL-241-S | Collar, Including: |
| 62 | SP-225 | 5/16-18 x 1/4 Soc. Hd. Set Scr. |
| 65 | SP-1775 | #10 Int. Tooth Lockwasher |
| 66 | SP-1203 | #10-32 Hex. Nut |
| 67 | MCL-549-S | Rod |
| 68 | MCL-552-S | Retainer Pad |
| 69 | 414-01-390-5005 | Swivel Assembly, including: |
| 70 | MCL-551 | Stud |
| 71 | MCL-558 | Cam Follower |
| 72 | SP-258 | #8-32 x 5/16" Soc Hd. Set Scr. |
| 75 | MCL-578 | Shim Washer |
| 76 | MCL-543 | Torsion Spring |
| 77 | SP-626 | 1/4-20 x 3/4" Hex. Hd. Cap Scr. |
| 78 | SP-1764 | 1/4" Int. Tooth Lockwasher |
| 79 | MCL-553 | Clamp Plate |
| 80 | 901-02-181-6103 | #10-32 x 3/8" Hex. Hd. Mach. Scr. |
| 81 | MCL-544 | Return Spring |
| 85 | SP-7107 | Oiler |
| 86 | 414-01-351-5032 | Pulley with Gear-44 Teeth L. H. |
| 87 | MCL-430 | Clutch |
| 88 | SP-2729 | 3/16 x 1/2 Roll Pin |
| 89 | 901-03-111-9980 | #10-24 x 1/2 Soc. Hd. Cap Scr. -Nylon Insert |
| 90 | Cat. #25-502 | V-Belt ( Matched set of Two) |
| 91 | MCL-216 | Guard |
| 92 | SP-612 | 1/4-20 x 5/8 Hex. Hd. Cap Scr. |
| 93 | SP-1034 | 1/4-20 Hex. Jam Nut |
| 94 | SP-1702 | 1/4 Lockwasher |
| 95 | MCL-269 | Hinge |
| 96 | SP-7510 | 1/4-20 x 3/4 Truss Hd. Screw |
| 97 | SP-1702 | 1/4 Lockwasher |
| 98 | SP-2252 | #2 x 3/16 Drive Screw |
| 99 | 414-01-072-5009 | Lubrication Chart |
| 100 | MCL-252 | Knurled Knob |



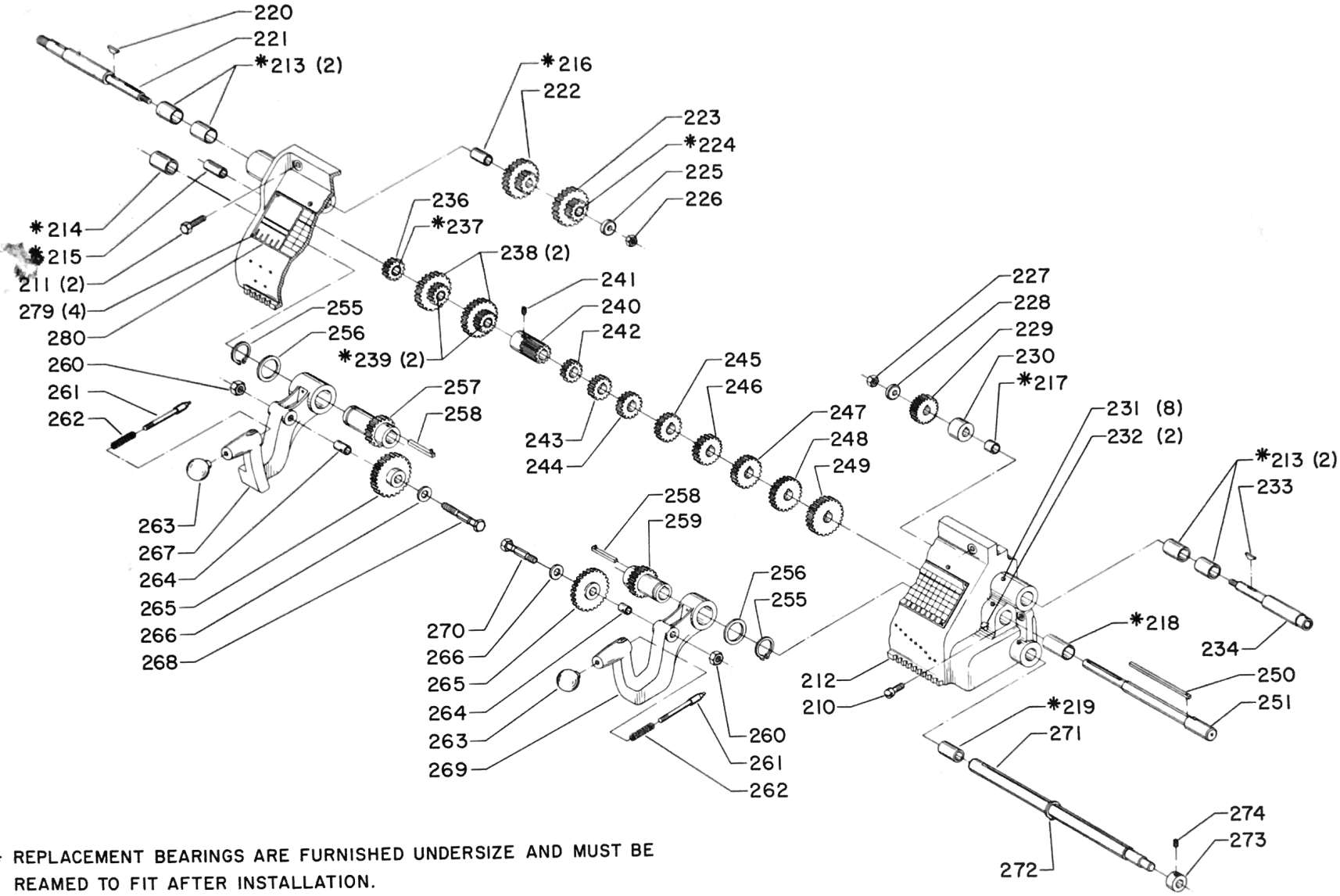

* SPINDLE, ROLLER BEARINGS AND HEADSTOCK CAN ONLY BE REPLACED IN OUR FACTORY. WRITE ROCKWELL MANUFACTURING COMPANY - POWER TOOL DIVISION - 400 N. LEXINGTON AVENUE - PITTSBURGH 8, PA. FOR SHIPPING INSTRUCTIONS.

# HEAD STOCK

Figure B

# HEADSTOCK (Figure B)

| Ref. No. | Part No. | Description |
|---|---|---|
| 110 | MCL-236 | Spacer |
| 111 | SP-2729 | 3/16 x 1/2 Roll Pin |
| 112 | 901-03-111-9980 | #10-24 x 1/2 Soc. Hd. Cap Scr. -Nylon Insert |
| 113 | MCL-430 | Clutch |
| 114 | MCL-223 | Spindle Gear - 104 Teeth |
| 115 | MCL-232 | Sliding Gear Arm |
| 116 | 414-03-047-5001 | Shifter Arm Shoe |
| 117 | MCL-408 | Clutch Spring |
| 118 | SP-2665 | 1/8 x 1/8 x 5/8 Key |
| 119 | SP-202 | 1/4-20 x 1/2 Soc. Hd. Set Scr. |
| 120 | SP-7114 | Grease Fitting |
| • | 414-01-406-5010 | Shaft Assembly, consisting of: |
| 121 | SP-2732 | 5/32 x 1" Roll Pin |
| 122 | 414-01-019-5010 | Cam |
| 123 | 414-01-106-5041 | Shaft |
| 124 | 414-03-047-5001 | Shifter Arm Shoe |
| 125 | SP-1756 | 3/8 Ext. Tooth Lockwasher |
| 126 | SP-1005 | 3/8-16 Hex. Jam Nut |
| 127 | MCL-573 | 3/8-16 Spec. Sq. Hd. Set Screw |
| 128 | MCL-263 | Shaft |
| 129 | MCL-317 | Key |
| 130 | MCL-408 | Clutch Spring |
| 131 | SP-202 | 1/4-20 x 1/2 Soc. Hd. Set Screw |
| 132 | MCL-214 | Sliding Gear Arm |
| 135 | MCL-77 | Headstock Cover |
| 136 | SP-725 | 1/4-20 x 1 Fil. Hd. Screw |
| 137 | SP-701 | 1/4-20 x 3/4 Fil. Hd. Screw |
| 140 | SP-612 | 1/4-20 x 5/8 Hex. Hd. Cap Scr. |
| 141 | DDL-256 | 17/64 x 11/16 x 5/64 Steel Washer |
| 142 | SP-7011 | Retaining Ring |
| 143 | MCL-261 | Upper Shifter Gear - 20 Teeth, R. H. |
| 144 | SP-7018 | Retaining Ring |
| 145 | MCL-559 | Shaft |
| 146 | SP-2665 | 1/8 x 1/8 x 5/8 Key |
| 147 | DDL-161 | 1/2 x 7/8 x 1/32 Fiber Washer |
| 148 | SP-1764 | 1/4 Int. Tooth Lockwasher |
| 149 | SP-701 | 1/4-20 x 3/4 Fil. Hd. Screw |
| 150 | 414-01-037-5005 | Instruction Plate |
| 151 | SP-2252 | #2 x 3/16 Drive Screw |
| 152 | SP-2719 | 1/8 x 1 Roll Pin |
| 153 | MCL-545-S | Handle, Including: |
| 154 | SP-755 | 1/4-20 x 3/4 Soc. Hd. Screw |
| 155 | MCL-547 | Pin |
| 156 | SP-2729 | 3/16 x 1/2 Roll Pin |
| 157 | MCL-546 | Plate |
| 160 | MCL-249 | Clamp Block |
| 161 | SP-1605 | 3/8 x 7/8 x 1/16 Washer |
| 162 | SP-607 | 5/16-18 x 3/4 Hex. Hd. Cap Scr. |
| 163 | SP-615 | 7/16-14 x 1 3/4 Hex. Hd. Cap Scr. |
| 164 | MCL-296 | Retainer Plate |
| 165 | MCL-297 | Splash Guard |
| 166 | MCL-277 | Lower Plate |
| 167 | SP-561 | #10-32 x 3/8 Rd. Hd. Mach. Scr. |
| 168 | SP-2706 | 3/16 x 1 Roll Pin |
| 169 | MCL-251 | Back Gear Shaft |
| 170 | MCL-260-R | Lower Shifter Gear-20 Teeth, R. H., Including: |
| 171 | DDL-253 | 1/4-28 x 3/16 Soc. Hd. Set Scr. |
| 172 | LTA-462 | 3/4 Fiber Washer |
| 173 | MCL-240 | Bushing |
| 175 | SP-201 | 5/16-18 x 5/16 Soc. Hd. Set Scr. |
| 176 | SCG-88 | Plug |
| 177 | MCL-247 | Collar Nut |
| 178 | MCL-244 | Rear Bearing Seal |
| 179 | MCL-237 | Spacer |
| 180 | SP-3306 | #8-32 x 3/8 Soc. Hd. Cap Scr. |
| 181 | MCL-267 | Key |
| 182 | MCL-202 | Front Bearing Gasket |
| 183 | MCL-238 | Grease Seal Washer |
| 184 | MCL-245 | Front Bearing Seal |
| 185 | SP-3309 | 1/4-20 x 5/8 Soc. Hd. Cap Scr. |
| 186 | MCL-424 | #2 M. T. Adapter |
| 186 | MCL-428 | #3 M. T. Adapter |
| 190 | 414-01-101-5003 | Wrench (For L-00 Tapered Spindle Nose) |
| 191 | SP-3306 | #8-32 x 3/8 Soc. Hd. Cap Scr. |
| 192 | MCL-434 | Key (For L-00 Tapered Spindle Nose) |
| 193 | 414-01-079-5001 | Nut (For L-00 Tapered Spindle Nose) |
| 194 | SP-7417 | Retaining Ring (For L-00 Tapered Spindle Nose) |
| 195 | 960-02-012-0050 | Nameplate |
| 196 | SP-2250 | Drive Screw |
| • | Cat. #25-542 | 60° Soft Center (#2 M. T.) |
| • | Cat. #25-640 | 7" Drive Plate (For 2 1/4-8 Threaded Spindle Nose |
| • | Cat. #25-642 | 7" Drive Plate (For L-00 Tapered Spindle Nose) |
| • | Not Shown | |




* REPLACEMENT BEARINGS ARE FURNISHED UNDERSIZE AND MUST BE REAMED TO FIT AFTER INSTALLATION.

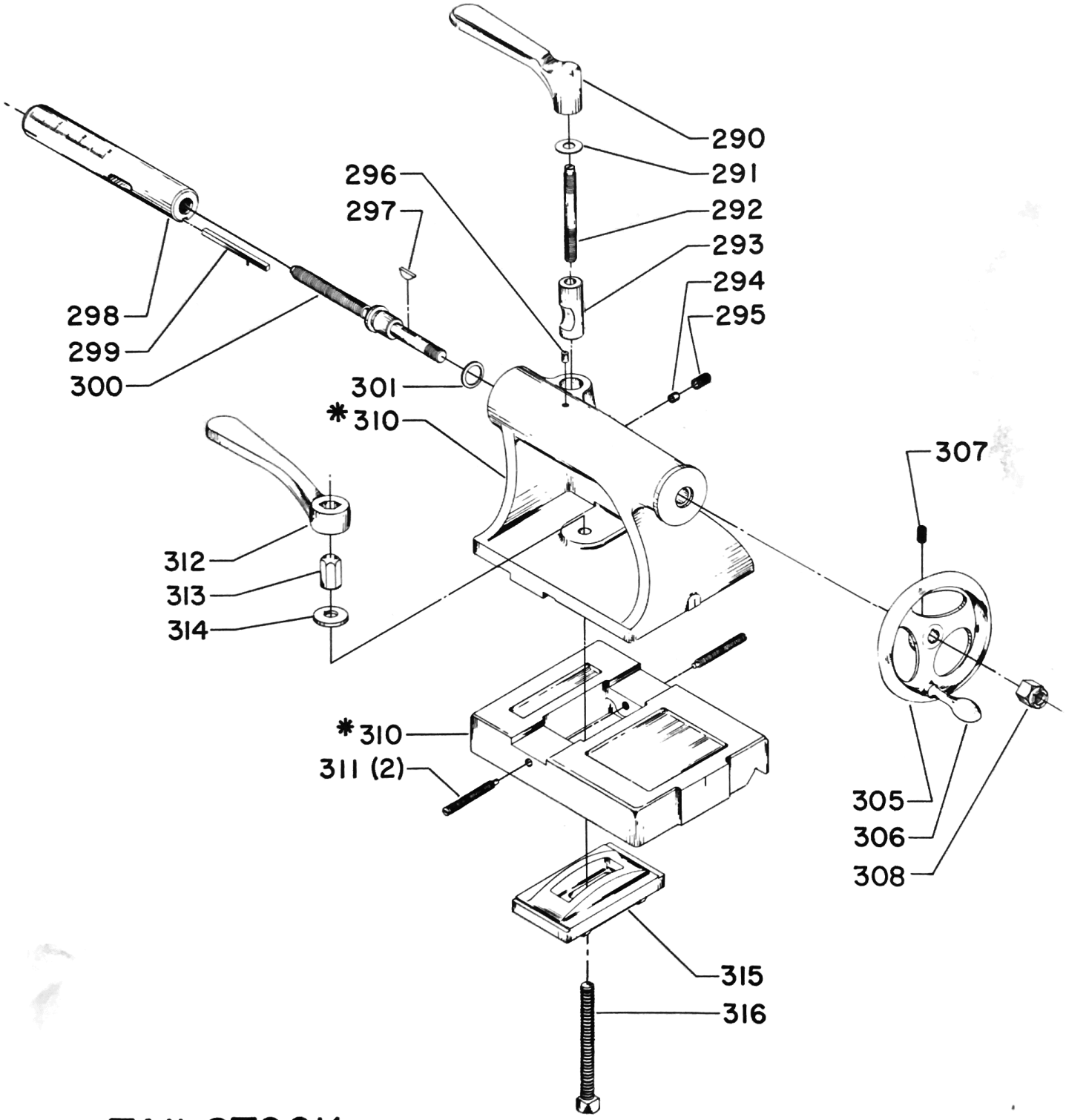
# QUICK CHANGE GEAR BOX

Figure C

# QUICK CHANGE GEAR BOX (Figure C)

| Ref. No. | Part No. | Description |
|---|---|---|
| 210 | SP-725 | 1/4-20 x 1 Fil. Hd. Cap Scr. |
| 211 | SP-649 | 5/16-18 x 1 Hex. Hd. Cap Scr. |
| * | MCL-704-S | Quick Change Gear Box Complete, consisting of: |
| 212 | MCL-704-A | Quick Change Gear Box, Including: |
| 213 | 414-01-017-5012 | Bearing |
| 214 | MCL-383 | Bearing |
| 215 | MCL-384 | Bearing |
| 216 | 414-01-017-5013 | Bearing |
| 217 | 414-01-017-5011 | Bearing |
| 218 | MCL-385 | Bearing |
| 219 | MCL-382 | Bearing |
| 220 | SP-2617 | Key |
| 221 | MCL-185 | Shaft |
| 222 | MCL-179-S | Compound Drive Gear |
| 223 | MCL-178-S | Compound Idler Gear, Including: |
| 224 | 920-75-511-8053 | Bearing |
| 225 | MCL-248 | Collar |
| 226 | SP-1300 | 5/16-18 Hex. Nut |
| 227 | SP-1300 | 5/16-18 Hex. Nut |
| 228 | MCL-248 | Collar |
| 229 | MCL-197 | Gear - 24 Teeth |
| 230 | MCL-414 | Spacer |
| 231 | SP-5099 | Oiler |
| 232 | SCG-74-S | Oiler |
| 233 | SP-2617 | Key |
| 234 | MCL-401 | Shaft |
| 236 | MCL-184-S | Gear - 16 Teeth, Including: |
| 237 | 920-75-511-7158 | Bearing |
| 238 | MCL-178-S | Compound Idler Gear, Including: |
| 239 | 920-75-511-8053 | Bearing |
| 240 | MCL-189-S | Gear - 16 Teeth, Including: |
| 241 | SP-208 | 1/4-20 x 1 1/4 Soc. Hd. Set Scr. |
| 242 | MCL-190 | Gear - 18 Teeth |
| 243 | MCL-191 | Gear - 20 Teeth |
| 244 | MCL-192 | Gear - 22 Teeth |
| 245 | MCL-193 | Gear - 23 Teeth |
| 246 | MCL-194 | Gear - 24 Teeth |
| 247 | MCL-195 | Gear - 26 Teeth |
| 248 | MCL-403 | Gear - 27 Teeth |
| 249 | MCL-196 | Gear - 28 Teeth |
| 250 | MCL-187-S | Key with Pin |
| 251 | MCL-186 | Shaft |
| 255 | SP-7017 | Retaining Ring |
| 256 | MCL-201 | Spacer |
| 257 | MCL-271 | Left Hand Shifter Gear - 26 Teeth |
| 258 | MCL-217-S | Key with Pin |
| 259 | MCL-404 | Right Hand Shifter Gear - 26 Teeth |
| 260 | SP-1005 | 3/8-16 Hex. Jam Nut |
| 261 | MCL-204 | Index Pin |
| 262 | MCL-205 | Spring |
| 263 | 931-01-022-0490 | Knob |
| 264 | MCL-311 | Bearing |
| 265 | MCL-200 | Idler Gear - 40 Teeth |
| 266 | 904-01-031-7706 | .380 x 1 x .0598 Steel Washer |
| 267 | MCL-207 | Left Hand Shifter Lever |
| 268 | MCL-199 | Left Hand Idler Screw |
| 269 | MCL-203 | Right Hand Shifter Lever |
| 270 | MCL-188 | Right Hand Idler Screw |
| 271 | MCL-270 | Shaft |
| 272 | SP-7008 | Retaining Ring |
| 273 | SDP-34-S | Set Collar, Including: |
| 274 | SP-208 | 1/4-20 x 1/4 Soc. Hd. Set Screw |
| 279 | SP-2252 | #2 x 3/16 Drive Screw |
| 280 | 414-01-072-5004 | Instruction Plate |

* Not Shown




# TAILSTOCK

* TAILSTOCK AND SUB-BASE MUST BE PURCHASED UNDER MCL-68-B AS A UNIT. WHEN REPLACING, ALIGN HEADSTOCK AND TAILSTOCK AND SCRIBE WITNESS MARKS.

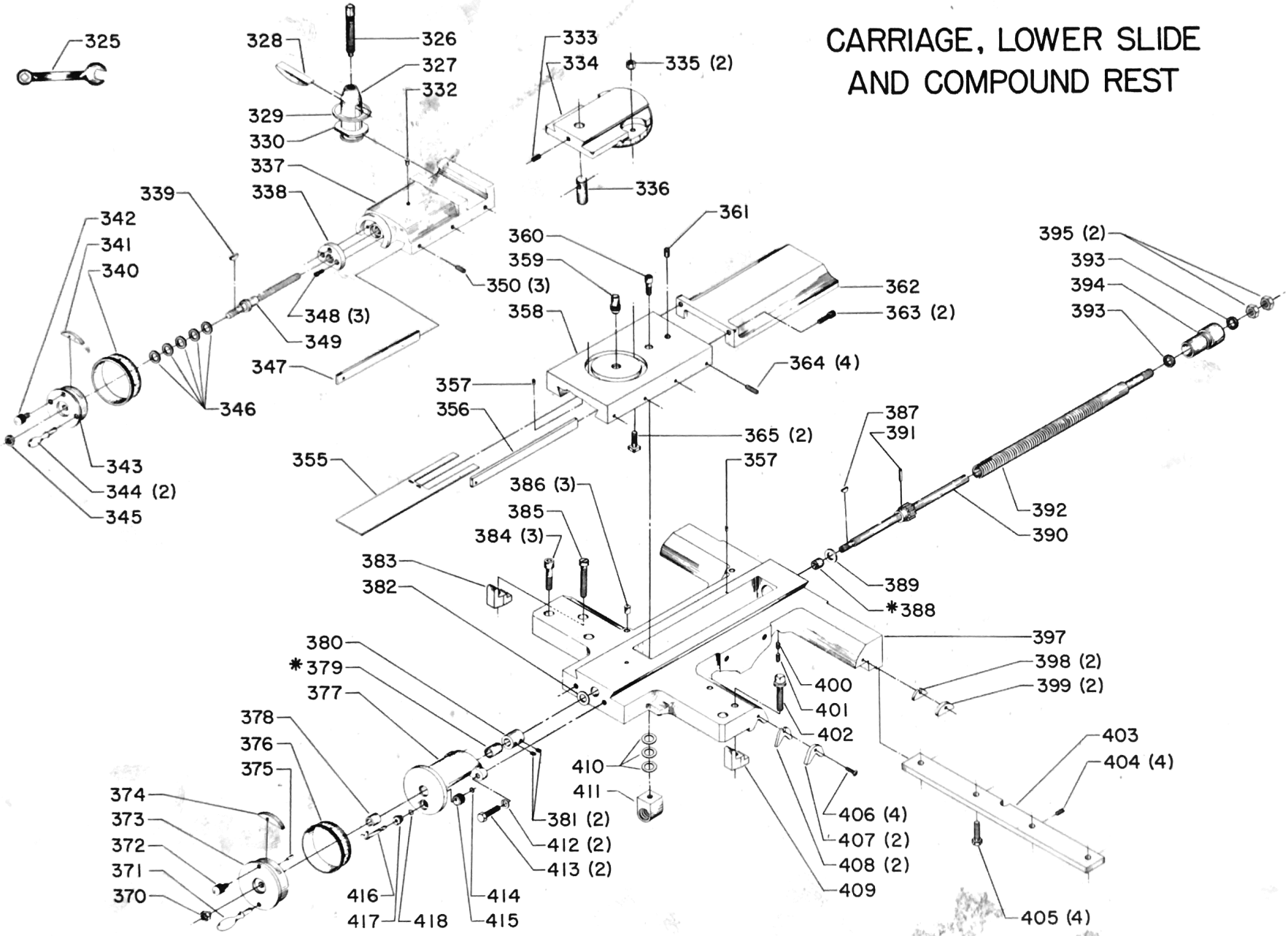
**Figure D**

# TAILSTOCK (Figure D)

| Ref. No. | Part No. | Description |
|---|---|---|
| 290 | MCL-108 | Handle Wrench |
| 291 | SP-1638 | 15/32 x 59/64 x .065" Steel Washer |
| 292 | MCL-116 | Stud |
| 293 | MCL-117 | Clamp Sleeve |
| 294 | SCG-246 | Plug |
| 295 | SP-242 | 3/8-16 x 1/2 Hex. Soc. Set Screw |
| 296 | SP-2486 | Oiler |
| 297 | SP-2617 | Key |
| 298 | 414-01-078-5005 | Ram |
| 299 | MCL-472-S | Tailstock Ram Key |
| 300 | 414-01-112-5026 | Adjusting Screw |
| 301 | MCL-113 | Thrust Washer |
| 305 | 930-01-991-6368 | Handwheel, Including: |
| 306 | SP-3601 | Handle |
| 307 | SP-231 | 5/16-18 x 3/8 Soc. Hd. Set Scr. |
| 308 | 902-01-211-7282 | 1/2-20 Stop Nut |
| 310 | MCL-68-B | Tailstock and Sub-Base, Including: |
| 311 | CBL-423 | 5/16-18 x 2 1/2 Adjusting Screw |
| 312 | Cat. #942 | 25/32 Hex. Box Wrench |
| 313 | CBL-422 | Spec. Acorn Nut |
| 314 | CBL-426 | Spec. Washer |
| 315 | MCL-70 | Clamp |
| 316 | SP-2374 | 1/2-13 x 4 Sq. Hd. Bolt |
| * | Cat. #25-541 | 60° Hard Center (3M. T.) |

* Not Shown

# CARRIAGE, LOWER SLIDE AND COMPOUND REST



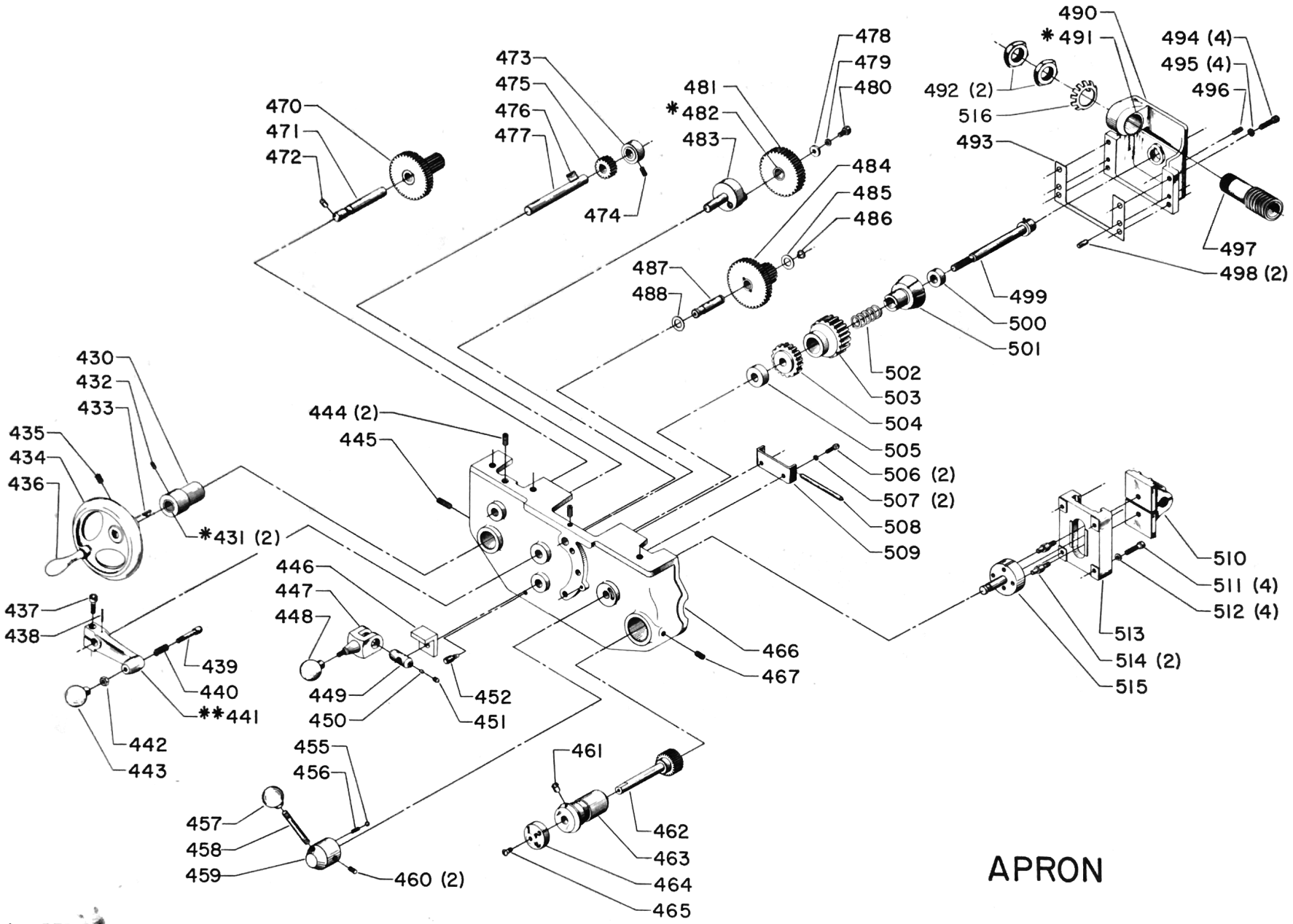

* REPLACEMENT BEARINGS ARE FURNISHED UNDERSIZE AND MUST BE REAMED TO FIT AFTER INSTALLATION.

Figure E

# CARRIAGE, LOWER SLIDE AND COMPOUND REST (Figure E)

| Ref. No. | Part No. | Description |
|---|---|---|
| 325 | MCL-309 | Wrench |
| 326 | DDL-236 | Tool Post Screw |
| 327 | MCL-591 | Tool Post |
| 328 | DDL-238 | Adjusting Gib |
| 329 | MCL-592 | Tool Post Washer |
| 330 | DDL-235 | Swivel Washer |
| 332 | SP-7103 | Oiler |
| 333 | SP-203 | 1/4-20 x 3/8 Soc. Hd. Set Scr. |
| 334 | MCL-63 | Swivel Saddle |
| 335 | DDL-255 | 5/16-18 Hex. Jam Nut |
| 336 | MCL-595 | Upper Slide Feed Nut |
| 337 | MCL-594 | Compound Slide |
| 338 | MCL-585 | Stop Collar |
| 339 | SP-2618 | Key |
| 340 | MCL-584 | Graduated Collar |
| 341 | MCL-582 | Locking Wedge |
| 342 | MCL-576 | Lock Screw |
| 343 | MCL-593-A | Handwheel, Including: |
| 344 | SP-3602 | Handle |
| 345 | SP-1081 | 3/8-24 Hex. Lock Nut |
| 346 | 414-01-629-5008 | Set of Shims (1/2 x 3/4 x . 001, . 002, . 003, . 004, and . 005 Thk.) |
| 347 | MCL-94 | Upper Slide Gib |
| 348 | SP-3306 | #8-32 x 3/8 Soc. Hd. Cap Scr. |
| 349 | MCL-596 | Upper Slide Feed Screw |
| 350 | 901-04-140-9445 | 1/4-20 x 1/2 Soc. Hd. Set Scr. |
| 355 | MCL-308 | Way Cover |
| 356 | MCL-88 | Lower Slide Gib |
| 357 | SP-2722 | 1/16 x 1/4 Roll Pin |
| 358 | MCL-61-S | Lower Slide, Including: |
| 359 | DDL-248 | Steel Pin |
| 360 | SP-3350 | 5/16-18 x 1/2 Soc. Hd. Cap Scr. |
| 361 | SP-5118 | Oiler |
| 362 | MCL-62 | Lower Slide Extension Cover |
| 363 | SP-3309 | 1/4-20 x 5/8 Soc. Hd. Cap Scr. |
| 364 | 901-04-140-9446 | 1/4-20 x 3/4 Soc. Hd. Set Scr. |
| 365 | MCL-561 | Swivel Saddle "T" Bolt |
| 370 | SP-1081 | 3/8-24 Hex. Lock Nut |
| 371 | SP-3603 | Handle |
| 372 | MCL-576 | Lock Screw |
| 373 | MCL-575 | Handwheel |
| 374 | MCL-577 | Locking Wedge |
| 375 | SP-6711 | 1/8 x 3/8 Roll Pin |
| 376 | MCL-80 | Micrometer Collar |
| 377 | MCL-65-A | Lower Feed Screw Flange, Including: |
| 378 | MCL-106 | Bushing |
| 379 | MCL-83 | Bearing |
| 380 | MCL-532-S | Set Collar, Including: |
| 381 | SP-246 | #10-32 x 3/16 Soc. Hd. Set Screw |
| 382 | MCL-533 | 33/64 x 7/8 x . 062 Steel Washer |
| 383 | MCL-98 | Clamp Block |
| 384 | SP-784 | 3/8-16 x 1 1/4 Soc. Hd. Cap Scr. |
| 385 | SP-739 | 3/8-16 x 1 3/4 Fil. Hd. Cap Scr. |
| 386 | SP-5118 | Oiler |
| 387 | SP-2618 | Key |
| 388 | MCL-538 | 1/2 x 5/8 x 23/64 Bushing |
| 389 | MCL-533 | 33/64 x 7/8 x . 062 Steel Washer |
| • | 414-01-412-5014 | Lower Feed Shaft Assembly, Consisting of: |
| 390 | MCL-446-S | Lower Feed Shaft |
| 391 | SP-2704 | 1/8 x 3/4 Roll Pin |
| 392 | MCL-794-S | Lower Feed Screw |
| 393 | MCL-328 | 29/64 x 47/64 x 3/32 Feed Screw Washer |
| 394 | MCL-583 | Bushing |
| 395 | SP-1233 | 7/16-20 Hex. Jam Nut |
| 397 | MCL-60 | Saddle |
| 398 | 414-03-113-5002 | Rear Wiper |
| 399 | MCL-101 | Rear Wiper Retainer |
| 400 | SP-1148 | 1/4-20 x 3/8 Soc. Hd. Set Scr. |
| 401 | SP-203 | 1/4-20 x 3/8 Soc. Hd. Set Scr. |
| 402 | SP-6053 | 3/8-16 x 2 1/4 Sq. Hd. Collar Cap Screw |
| 403 | MCL-90 | Clamp Plate |
| 404 | SP-154 | #10-32 x 3/8 Headless Set Scr. |
| 405 | SP-649 | 5/16-18 x 1 Hex. Hd. Cap Scr. |
| 406 | SP-3019 | #6-32 x 1/2 Rd. Hd. Self-Tapping Screw |
| 407 | MCL-99 | Front Wiper Retainer |
| 408 | 414-03-113-5001 | Front Wiper |
| 409 | MCL-98 | Clamp Block |
| 410 | 414-01-355-5001 | Feed Screw Nut Assembly with Set of shims (9/16 x 7/8 x . 002, . 003, and . 004 thk.), Including: |
| 411 | MCL-720 | Feed Screw Nut |
| 412 | SP-1703 | 5/16 Lockwasher |
| 413 | SP-608 | 5/16-18 x 7/8 Hex. Hd. Cap Scr. |
| 414 | SP-7043 | Retaining Ring |
| 415 | MCL-465 | Thumb Knob |
| 416 | MCL-461-S | Index Cam |
| 417 | MCL-464 | Nut for Index Cam |
| 418 | SP-3651 | "O" Ring |

• Not Shown



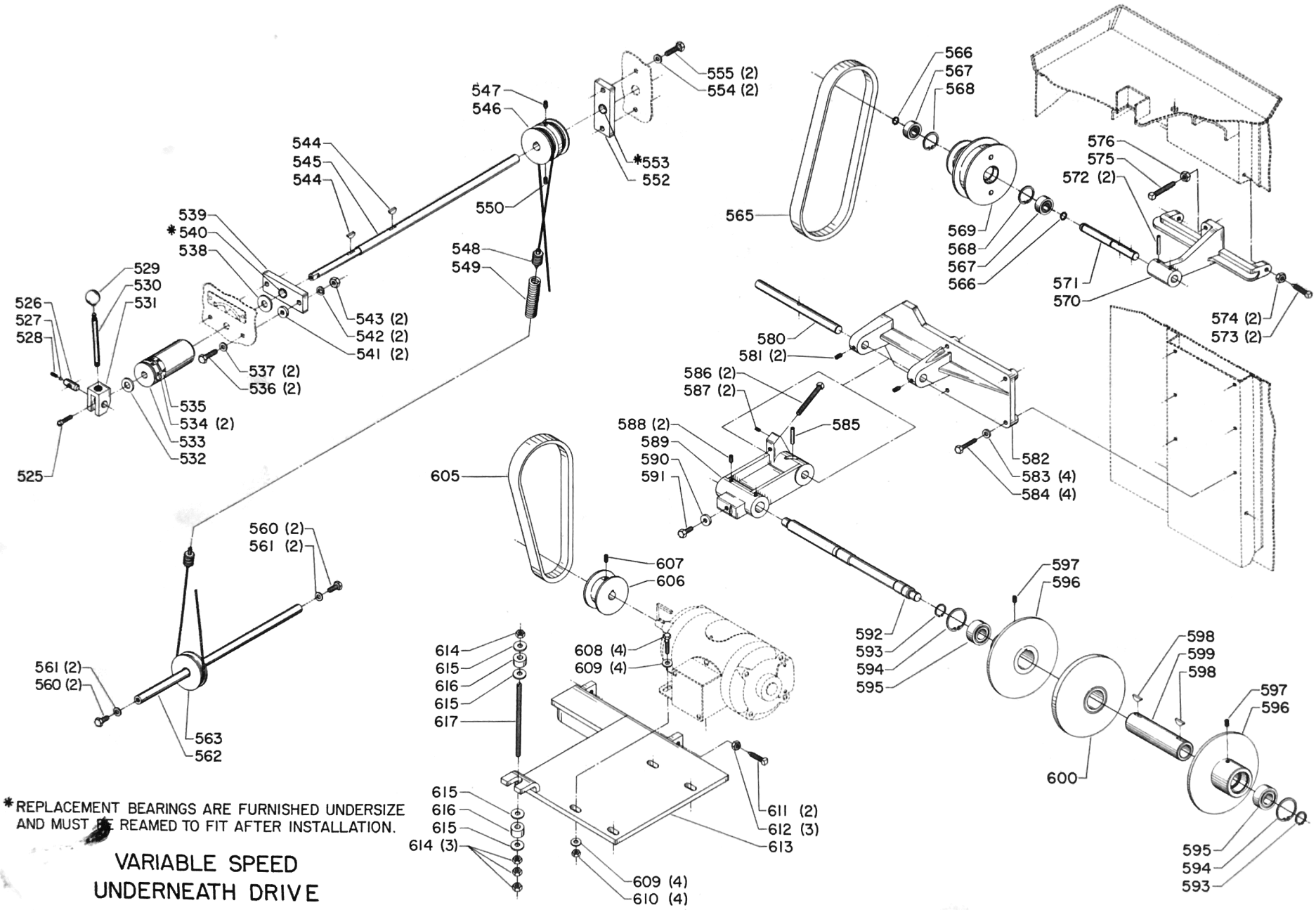

* REPLACEMENT BEARINGS ARE FURNISHED UNDERSIZE AND MUST BE REAMED TO FIT AFTER INSTALLATION.

** HOLE FOR ROLL PIN IS PARTIALLY DRILLED IN HANDLE. FINISH DRILL WHEN REPLACING.

Figure F

# APRON (Figure F)

| Ref. No. | Part No. | Description |
|---|---|---|
| 430 | MCL-131-S | Sleeve, Including: |
| 431 | MCL-386 | Bearing |
| 432 | SP-7103 | Oiler |
| 433 | SP-2617 | Key |
| 434 | 931-01-991-6368 | Handwheel, Including: |
| 435 | SP-231 | 5/16-18 x 3/8 Soc. Hd. Set Scr. |
| 436 | SP-3601 | Handle |
| 437 | SP-769 | 1/4-28 x 3/4 Soc. Hd. Cap Scr. |
| 438 | SP-2719 | 1/8 x 1 Roll Pin |
| 439 | MCL-148 | Indexing Pin |
| 440 | MCL-406 | Spring for Eccentric |
| 441 | MCL-146 | Eccentric Handle |
| 442 | SP-9152 | 1/4-20 Hex. Jam Nut |
| 443 | 931-01-022-0490 | Knob |
| 444 | SP-217 | 5/16-18 x 1/2 Soc. Hd. Set Scr. |
| 445 | SP-225 | 5/16-18 x 1/4 Soc. Hd. Set Scr. |
| 446 | MCL-535 | Bracket |
| 447 | MCL-159 | Clutch Handle |
| 448 | 931-01-022-0490 | Knob |
| 449 | MCL-160 | Swivel Pin for Clutch |
| 450 | MCL-161 | 3/16 x 1/8 Brass Plug |
| 451 | SP-208 | 1/4-20 x 1/4 Soc. Hd. Set Scr. |
| 452 | SP-5214 | Oiler |
| 455 | SP-28 | 1/4 Dia. Steel Ball |
| 456 | DDL-123 | Coil Spring |
| 457 | 931-01-022-0490 | Knob |
| 458 | MCL-151 | Stud |
| 459 | MCL-152 | Hub |
| 460 | SP-254 | 5/16-24 x 3/8 Soc. Hd. Set Scr. |
| 461 | SP-7103 | Oiler |
| 462 | MCL-171-S | Shaft and Gear |
| 463 | MCL-173 | Timing Gear Sleeve |
| 464 | MCL-170 | Dial |
| 465 | SP-561 | #10-32 x 3/8 Rd. Hd. Scr. |
| 466 | MCL-72 | Apron |
| 467 | SP-231 | 5/16-18 x 3/8 Soc. Hd. Set Scr. |
| 470 | MCL-137-S | Compound Gear |
| 471 | MCL-135 | Rack Pinion Shaft |
| 472 | SP-7103 | Oiler |
| 473 | MCL-133 | Collar for Handwheel |
| 474 | 901-04-150-6215 | 1/4-20 x 3/8 Soc. Hd. Set Scr. |
| 475 | MCL-132 | Gear (18 Teeth) for Handwheel |
| 476 | SP-2617 | Key |
| 477 | MCL-130 | Shaft for Handwheel |
| 478 | DDL-256 | 17/64 x 11/16 x .078 Steel Washer |
| 479 | SP-1702 | 1/4 Lockwasher |
| 480 | SP-601 | 1/4-20 x 3/8 Hex. Hd. Cap Scr. |
| 481 | MCL-139-S | Eccentric Gear, Including: |
| 482 | MCL-405 | Bearing |
| 483 | MCL-140-S | Eccentric Assembly |
| 484 | MCL-144-S | Compound Gear |
| 485 | DDL-161 | 1/2 x 7/8 x 1/32 Fiber Washer |
| 486 | SP-7018 | Retaining Ring |
| 487 | MCL-142 | Shaft for Compound Gear |
| 488 | DDL-161 | 1/2 x 7/8 x 1/32 Fiber Washer |
| 490 | MCL-167-A | Worm Gear Cover, Including: |
| 491 | MCL-407 | Bushing |
| 492 | TCS-217 | 1 1/8-20 Hex. Lock Nut |
| 493 | MCL-747 | Gasket |
| 494 | SP-710 | 1/4-20 x 7/8 Fil. Hd. Screw |
| 495 | SP-1702 | 1/4 Lockwasher |
| 496 | SP-293 | 1/4-20 x 5/8 Soc. Hd. Set Scr. |
| 497 | MCL-168-S | Worm Gear |
| 498 | SP-2702 | 1/4 x 5/8 Roll Pin |
| 499 | MCL-163-S | Shaft |
| 500 | SP-5323 | Bearing |
| 501 | MCL-165 | Clutch |
| 502 | MCL-158 | Clutch Spring |
| 503 | MCL-166 | Worm Wheel - 36 Teeth |
| 504 | MCL-164 | Transmission Gear - 28 Teeth |
| 505 | SP-5322 | Bearing |
| 506 | SP-3322 | #10-24 x 1/4 Soc. Hd. Cap Scr. |
| 507 | SP-1775 | #10 Int. Tooth Lockwasher |
| 508 | MCL-150 | 1/4"Dia. Lock Pin |
| 509 | MCL-149 | Lock Pin Guide Plate |
| 510 | MCL-156 | Half-Nut (Furnished in Pairs) |
| 511 | SP-614 | 1/4-20 x 1 1/4 Hex. Hd. Cap Scr. |
| 512 | SP-1702 | 1/4 lockwasher |
| 513 | MCL-155 | Half-Nut Shoe |
| 514 | MCL-154 | Spec. Screw |
| 515 | MCL-153 | Cam for Half-Nut |
| 516 | 247-6 | Lockwasher |




*REPLACEMENT BEARINGS ARE FURNISHED UNDERSIZE AND MUST BE REAMED TO FIT AFTER INSTALLATION.

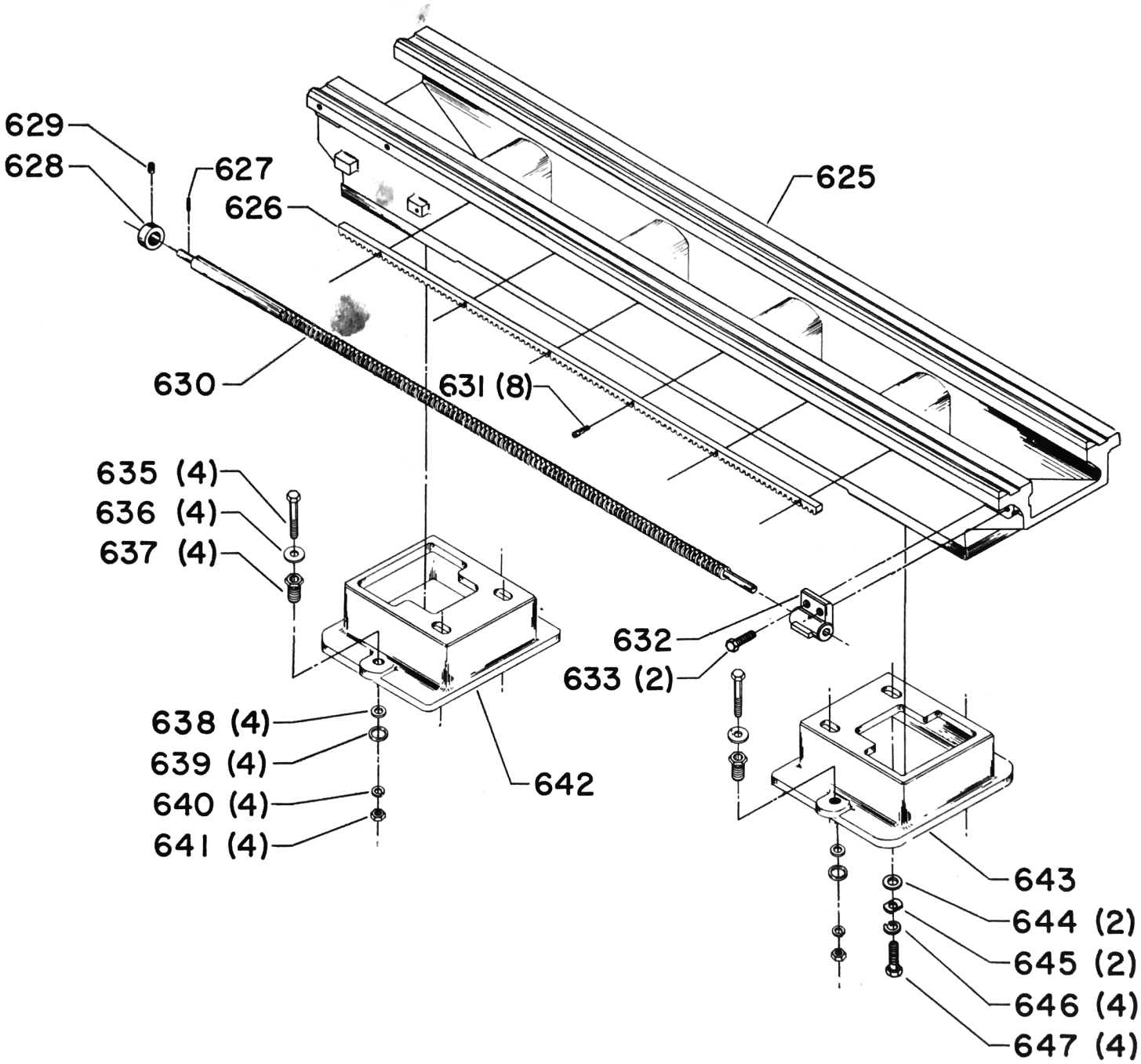
## VARIABLE SPEED UNDERNEATH DRIVE

Figure G

# VARIABLE SPEED DRIVE (Figure G)

| Ref. No. | Part No. | Description |
|---|---|---|
| 525 | 901-01-020-3803 | 5/16-18 x 1 Fil. Hd. Scr. |
| 526 | 414-02-071-5018 | Swivel Pin for Cam Block |
| 527 | MCL-161 | 3/16 dia. x 1/8 lg. Brass Plug |
| 528 | SP-202 | 1/4-20 x 1/2 Hex. Soc. Set Scr. |
| 529 | 931-01-022-0490 | Handle Ball |
| 530 | 434-04-111-5001 | Stud for Cam Lever (Threaded both ends) |
| 531 | 434-04-019-5001 | Cam Block |
| 532 | 414-02-068-5001 | Special Washer |
| 533 | 414-01-107-5003 | Hub for Speed Control Shaft |
| 534 | 901-06-110-3031 | #4-40 x 1/4 Rd. Hd. Self-Tapping Screw |
| 535 | 414-01-037-5010 | Speed Control Dial |
| 536 | SP-648 | 3/8-16 x 1 1/4 Hex. Hd. Cap Scr. |
| 537 | 240-117 | 3/8 x 3/4 x 1/32 Washer |
| 538 | SP-1608 | 5/8 x 1 1/2 x 3/32 Washer |
| 539 | 414-02-304-5001 | Bearing Block, Including: |
| 540 | MH-3023 | Sleeve Bearing |
| 541 | 240-104 | 3/8 x 1 x 3/16 Washer |
| 542 | SP-1704 | 3/8 Lockwasher |
| 543 | SP-5900 | 3/8-16 Hex. Nut |
| 544 | SP-2601 | 3/16 x 3/4 Woodruff Key |
| 545 | 414-01-106-5037 | Speed Control Shaft |
| 546 | 414-02-100-5001 | Speed Control Regulating Pulley |
| 547 | SP-213 | 5/16-18 x 1/2 Hex. Soc. Set Scr. |
| 548 | 414-01-381-5001 | Cable Assembly |
| 549 | 928-02-081-8876 | Tension Spring |
| 550 | SP-231 | 5/16-18 x 3/8 Hex. Soc. Set Scr. |
| 552 | 414-01-304-5003 | Bearing Block, Including: |
| 553 | MH-3023 | Sleeve Bearing |
| 554 | 240-117 | 3/8 x 3/4 x 1/32 Washer |
| 555 | SP-648 | 3/8-16 x 1 1/4 Hex. Hd. Cap Scr. |
| 560 | SP-640 | 3/8-16 x 3/4 Hex. Hd. Cap Scr. |
| 561 | 240-117 | 3/8 x 3/4 x 1/32 Washer |
| 562 | 414-02-106-5022 | Idler Pulley Shaft |
| 563 | 414-01-362-5001 | Idler Pulley W/Sleeve Bearing |
| 565 | Cat. #25-500 | Variable Speed Belt - Upper |
| • | 414-01-314-5006 | Jack Shaft Bracket Assy., Consisting of: |
| 566 | SP-7411 | Retaining Ring - External |
| 567 | SP-5335 | Ball Bearing |
| 568 | 904-15-101-7147 | Retaining Ring - Internal |
| 569 | 926-03-131-9352 | Jack Shaft Pulley |
| 570 | 414-01-314-5007 | Jack Shaft Bracket, Including: |
| 571 | 414-01-106-5038 | Jack Shaft |
| 572 | SP-5070 | 1/4 x 1 1/2 Roll Pin |
| 573 | SP-337 | 3/8-16 x 1 1/2 Sq. Hd. Set Scr. |
| 574 | SP-5433 | 3/8-16 Hex. Jam Nut |
| 575 | SP-324 | 3/8-16 x 2 Sq. Hd. Set Screw |
| 576 | SP-5433 | 3/8-16 Hex. Jam Nut |
| 580 | 414-02-106-5025 | Pivot Shaft |
| 581 | SP-217 | 5/16-18 x 1/2 Hex. Soc. Set Scr. |
| 582 | 414-01-014-5019 | Mounting Bracket |
| 583 | 240-64 | 3/8 x 3/4 x 3/32 Washer |
| 584 | SP-609 | 5/16-18 x 1 1/2 Hex. Hd. Cap Scr. |
| 585 | SP-5077 | 5/16 x 1 1/4 Roll Pin |
| 586 | SP-316 | 3/8-16 x 3 Sq. Hd. Set Scr. |
| 587 | SP-208 | 1/4-20 x 1/4 Hex. Soc. Set Scr. |
| 588 | SP-217 | 5/16-18 x 1/2 Hex. Soc. Set Scr. |
| 589 | 414-01-014-5021 | Variable Speed Pulley Bracket |
| 590 | 240-104 | .375 x 1 x 3/16 Washer |
| 591 | SP-640 | 3/8-16 x 3/4 Hex. Hd. Cap Scr. |
| • | 926-05-991-9359 | Variable Speed Pulley Complete, Consisting of: |
| 592 | 414-01-106-5036 | Variable Speed Pulley Shaft |
| 593 | SP-7025 | Retaining Ring - External |
| 594 | 904-15-100-7021 | Retaining Ring - Internal |
| 595 | SP-5360 | Ball Bearing |
| 596 | 926-05-061-9358 | Pulley |
| 597 | 901-04-150-6202 | 5/16-18 x 3/8 Hex. Soc. Set Scr. |
| 598 | SP-2604 | #606 Hi-Pro Key |
| 599 | 414-01-105-5015 | Sleeve |
| 600 | 926-05-991-9360 | Pulley with Bearing |
| 605 | Cat. #25-501 | Variable Speed Belt - Lower |
| 606 | Cat. #41-913 | Motor Pulley (5/8"Bore), Including: |
| 607 | SP-213 | 5/16-18 x 1/2 Hex. Soc. Set Scr. |
| 606 | Cat. #41-914 | Motor Pulley (3/4"Bore), Including: |
| 607 | SP-213 | 5/16-18 x 1/2 Hex. Soc. Set Scr. |
| 606 | Cat. #41-915 | Motor Pulley (7/8"Bore), Including: |
| 607 | SP-213 | 5/16-18 x 1/2 Hex. Soc. Set Scr. |
| 606 | Cat. #41-916 | Motor Pulley (1"Bore), Including: |
| 607 | SP-213 | 5/16-18 x 1/2 Hex. Soc. Set Scr. |
| 606 | Cat. #41-917 | Motor Pulley, (1 1/8" Bore), Incl. |
| 607 | SP-207 | 5/16-18 x 1/2" Hex. Soc. Set Scr. |
| 608 | SP-602 | 5/16-18 x 1 1/4 Hex. Hd. Scp Scr. |
| 609 | 240-99 | 21/64 x 7/8 x 1/16 Washer |
| 610 | SP-1300 | 5/16-18 Hex. Nut |
| 611 | SP-337 | 3/8-16 x 1 1/2 Sq. Hd. Set Scr. |
| 612 | SP-5433 | 3/8-16 Hex. Jam Nut |
| 613 | 414-01-372-5004 | Motor Plate |
| 614 | SP-5900 | 3/8-16 Hex. Nut |
| 615 | TAS-82 | 13/32 x 1 1/8 x 1/8 Washer |
| 616 | 932-01-011-5036 | 1/2 x 1 1/8 x 1/2 Rubber Bumper |
| 617 | MCL-7 | Motor Mount Support Screw |

• Not shown assembled.




# LATHE BED AND RISER BLOCKS

Figure H

# LATHE BED (Figure H)

| Ref. No. | Part Number | Description |
|---|---|---|
| 625 | MCL-305 | 4'Lathe Bed |
| 625 | MCL-305-H | 4' Flame Hardened Lathe Bed |
| 625 | MCL-306 | 5' Lathe Bed |
| 625 | MCL-306-H | 5' Flame Hardened Lathe Bed |
| 626 | MCL-390 | Gear Rack for 4' Lathe Bed |
| 626 | MCL-394 | Gear Rackfor 5' Lathe Bed |
| 627 | MCL-511 | Shear Pin |
| 628 | MCL-626-S | Collar, Including: |
| 629 | SP-225 | 5/16-18 x 1/4 Soc. Hd. Set Scr. |
| 630 | MCL-410 | 24" Lead Screw |
| 630 | MCL-412 | 36"Lead Screw |
| 631 | SP-3300 | #10-24 x 5/8 Soc. Hd. Cap Scr. |
| 632 | MCL-215 | Rear Bearing Support |
| 633 | SP-649 | 5/16-18 x 1 Hex. Hd. Cap Screw |
| 635 | SP-625 | 7/16-14 x 2 1/4 Hex. Hd. Cap Scr. |
| 636 | SP-1607 | 1/2 x 1 1/2 x .083 Steel Washer |
| 637 | CBS-84 | Spec. 3/4 - 16 Raising Screw |
| 638 | MCL-488 | 15/32 x 55/64 x. 080 Steel Washer |
| 639 | SP-9040 | 7/8 x 1 1/8 x 1/8 "O" Ring |
| 640 | SP-1705 | 1/2 Lockwasher |
| 641 | SP-5437 | 7/16-14 Hex. Nut |
| 642 | MCL-218 | Riser Block |
| 643 | MCL-487 | Riser Block |
| 644 | BS-257 | 29/64 x 1 1/4 x 7/32 Washer |
| 645 | MCL-312 | Spec. Washer |
| 646 | SP-1716 | 7/16 Lockwasher |
| 647 | SP-615 | 7/16-14 x 1 3/4 Hex. Hd. Cap Scr. |

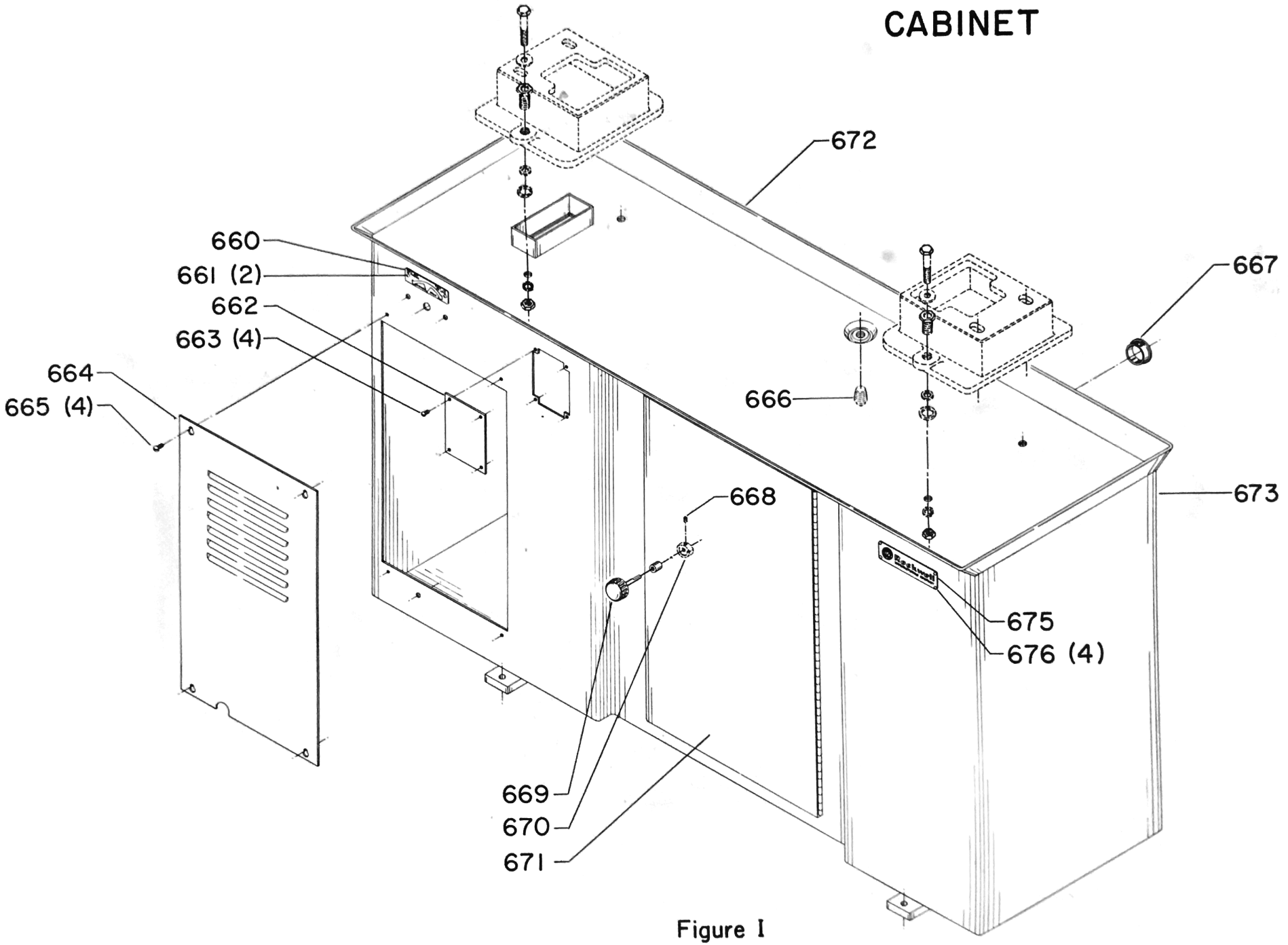

CABINET
672
660
661 (2)
662
663 (4)
664
665 (4)
666
667
668
669
670
671
673
675
676 (4)

Figure I

# CABINET (Figure 1)

| Ref. No. | Part No. | Description |
|---|---|---|
| 660 | 414-02-072-5008 | Instruction Plate |
| 661 | SP-2252 | #2 x 3/16 Drive Screw |
| 662 | 414-03-031-5013 | Switch Opening Cover |
| 663 | SP-561 | #10-32 x 3/8 Rd. Hd. Mach. Scr. |
| 664 | 414-01-031-5027 | Cover |
| 665 | 901-05-131-7351 | #12 x 1/2 Rd. Hd. Self-Tapping Screw |
| 666 | SP-3524 | 1/2"Sq. Hd. Pipe Plug |
| 667 | 438-01-011-0020 | Insulator |
| 668 | SP-208 | 1/4-20 x 1/4 Hex. Soc. Set Scr. |
| 669 | MCL-540-S | Door Knob |
| 670 | CBS-80 | Cam |
| * | 414-01-318-5009 | Cabinet Assembly (24"between centers), Consisting of: |
| 671 | 414-02-331-5003 | Cabinet Door |
| 672 | 414-01-369-5001 | Coolant Pan |
| 673 | 414-01-318-5010 | Cabinet Base |
| * | 414-01-318-5012 | Cabinet Assembly (36"between centers), Consisting of: |
| 671 | 414-02-331-5004 | Cabinet Door |
| 672 | 414-01-369-5002 | Coolant Pan |
| 673 | 414-01-318-5013 | Cabinet Base |
| 675 | 960-02-012-1401 | Nameplate |
| 676 | SP-2252 | #2 x 3/16 Drive Screw |

* Shown Assembled