OPERATION MANUAL & PARTS LIST

Machine Model No.: CTL-618EVS

Machine S/N.: _____

Kent USA

SERVICE MANUAL

MANUFACTURER:

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MODEL: CTL-618EVS

CONTENTS

PURPOSE OF THIS MANUAL

The model CTL-618EVS series machine is built for easy and safe operation and excellent manufacturing of work in process. The machine is built with high quality material, and carefully to exacting standards that guarantee the life, economical use, accuracy, and minimum maintenance of the machine.

This manual is an introduction to the Kent USA model CTL-618EVS HIGH ACCURACY TOOL ROOM LATHE. It is used for installation, operation and maintenance of the CTL-618EVS Kent USA MACHINES.

Also, for fast reference, because it is necessary to make minor adjustments or do preventive maintenance. (For personnel and operators who deal with the CTL-618EVS machine.)

FOR MODEL CTL-618EVS EQUIPPED WITH ELECTRONIC VARI-SPEED SYSTEM

Place one spirit level in Z direction and one in X direction on slide way

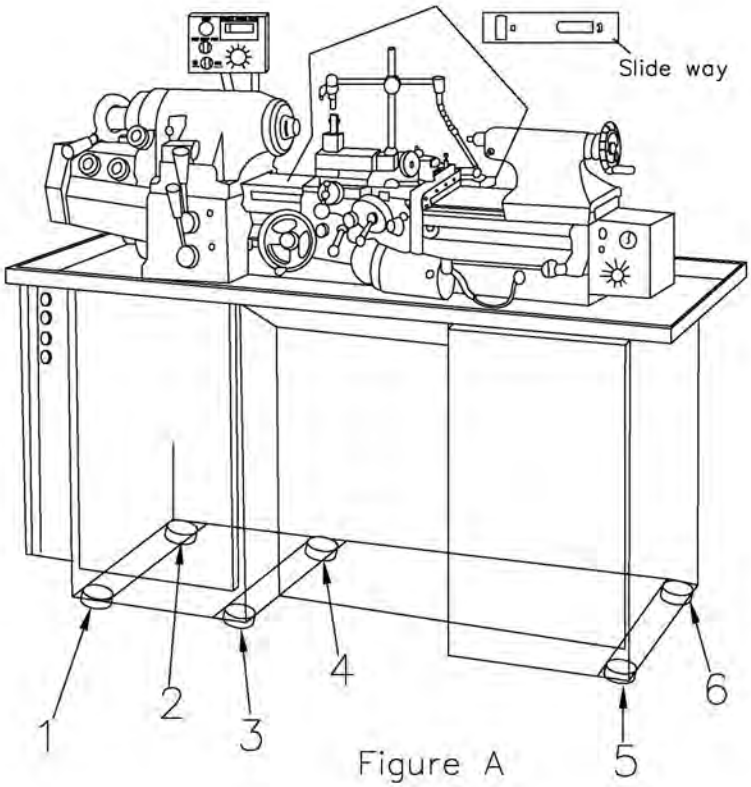


Figure A

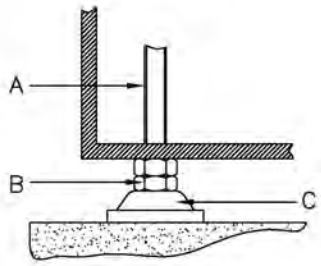


Figure B

CTL-618EVS

Level adjustment process

1. Put pads C (Figure B) under each of six points.
2. Insert the pillar A into the pedestal hole and adjust the nut B to the location according to machine level need.
3. Make sure every point is touching the ground to support the machine.

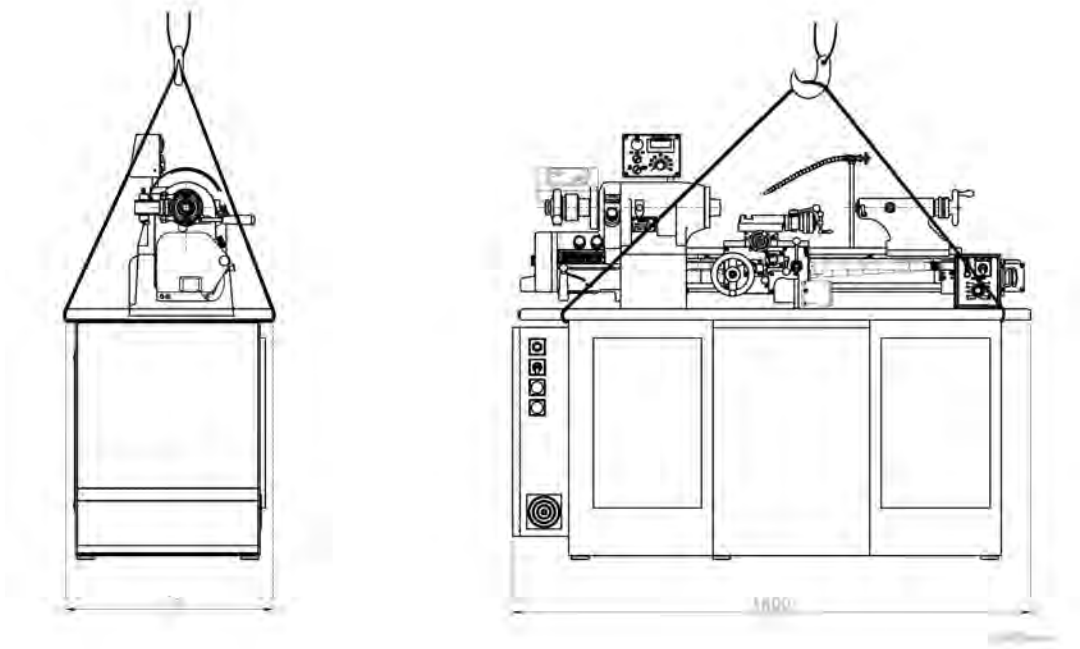


Figure 1 – Lifting machine

Lifting machine, arrange rope or cable as shown in figure 1, and check to see if the correct balance has been obtained. Then insert pads of soft cloth between the edges of the rope and machine. The net weight of this machine is approx 1050kgs (2300 lbs). So the rope or cable must be rated at 3000 lbs capacity.

A.) INSPECTION AND CLEANING OF MACHINE

An inspection should be made after arrival of the machine in your plant. Look for possible damage caused by shock or vibration during transportation, also check for any missing parts, standard tools or other equipment.

In shipment, all exposed surfaces of the machine are coated with a antirust liquid. Before moving carriage and cross-slide, leadscrew tailstock…etc, these surfaces should be thoroughly cleaned to remove all antirust liquid use a soft brush and solvent. This is very important because it can prevent any dirt or grit which may have accumulated on the antirust liquid from working under the sliding members and causing undue wear.

※CAUTION：DO NOT USE COMPRESSED AIR TO CLEAN, WHICH WILL REDUCE THE MACHINES LIFE.

B.) FOUNDATION, INSTALLATION, AND LEVELING

A fairly flat foundation and proper installation will provide the machine long-term high accuracy, so supplying a good solid foundation of proper thickness is important. (Generally , a thickness of 300mm (12″) is considered to be enough.) The machine has six adjustable feet on the coners of the pedestal base, used for leveling the machine. Place the pads under the feet of pedestal. To adjust, loosen the set screw and raise or lower the foot with a pin wrench so that all six feet rest firmly on the floor. When the adjustment is done, tighten set screws.

C.) ELECTRICAL CONNECTIONS

The CTL-618EVS TOOLROOM LATHE is shipped completely wired and assembled, Turn Cam Switch “A” (Figure 2) to the “OFF” position, then check motor voltage. Loosen screws “B” (Figure 2), and open the switch case cover, connect the wires from the power source to the terminals (R.S.T), and ground connection is made at the “G” (Figure 3) which is the electric switch case. Pull out Spindle locking Pin “E” (Figure 4), turn “C” (Figure 5) in forward position. The spindle should rotate counterclockwise when viewed from the tailstock end of the machine. If the spindle dose not turn in the correct direction, turn Cam Switch “A” (Figure 2) to “OFF” position. Disconnect electric power source, and interchanges any two leads until the turning direction is correct. When the spindle is rotation correctly, secure switch case cover, turn Cam Switch “A” (Figure 2) to “ON” position.

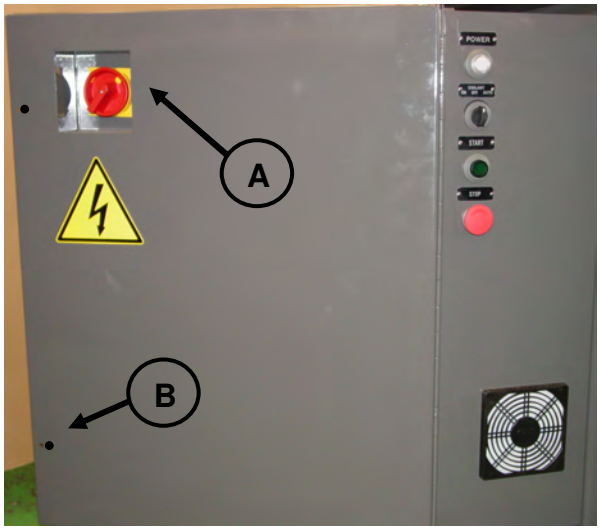


Figure 2-Control Unit Door

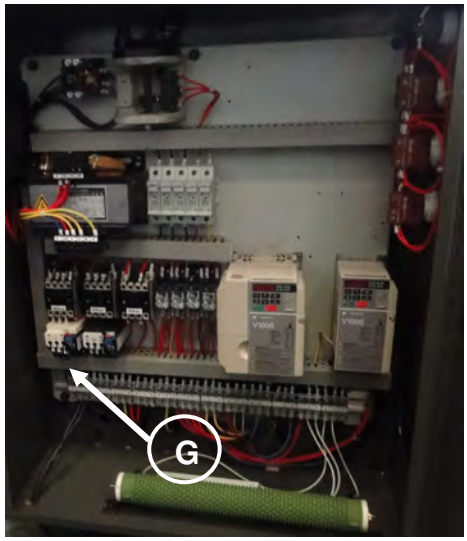


Figure 3-Control Unit

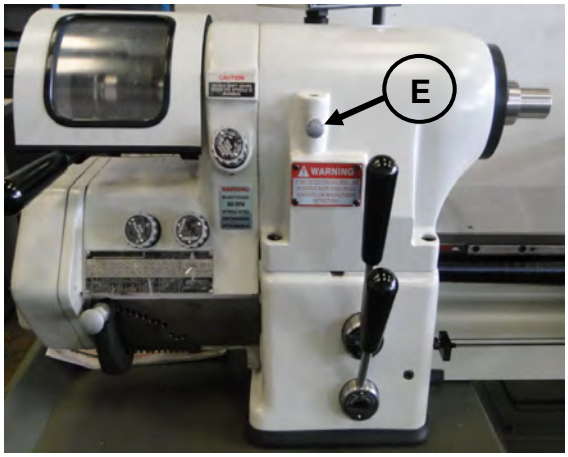


Figure 4-Control Speed and Direction

Figure 5-Speed Control Box

※CAUTION：RUNNING THE MACHINE IN THE WRONG DIRECTION WILL RESULT IN DAMAGE TO THE SPINDLE SPEED CHANGE

D.) LUBRICATION

Proper lubrication supplied carefully, will maintain the life and performance of the machine for a long period. Therefore, lubricate the machine with a high quality lubricant, and check periodically to assure that the lubricant in the oil sight gage is filled to the proper level.

1. CARRIAGE LUBRICATION

Fill with Mobil Vactra Oil No.2 or equivalent in oil reservoir. Lift plunger on reservoir “R” (Figure 6) hold briefly and release to keep bed ways lubricated.

Figure 6-Speed Change Unit

2. GEAR BOX AND CLUTCH LUBRICATION

Maintain oil level in sight windows “W” (Figure 8). To fill gearbox, remove plug “C”(Figure 8) use Automatic Transmission Fluid Mobil 200 (Esso ATF or equivalent Change oil every 500 hours.)

To drain oil, remove the Drain Plug “M” located under the oil gear box (Figure 8).

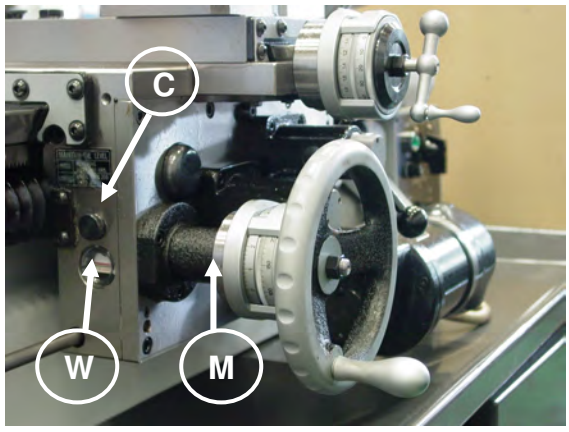


Figure 8-Gear Box Lubrication

※CAUTION：USE OF ANY OTHER TYPE OF OIL IN THE GEARBOX MAY RESULT IN DAMAGE TO THE CLUTCH SURFACES.

3. HEADSTOCK LUBRICATION

The headstock spindle is mounted on precision preloaded ball, bearings. The ball bearings are grease packed for life and require no further lubrication.

E.) SPINDLE CONTROL LEVERS

To change spindle speeds. Push start button “D” (Figure 9). Turn cam switch “C” (Figure 11) to the forward or reverse position and move lever “G” (Figure 10) to the start position. Turn cam switch “I” (Figure 11) to the right to increase speed and to the left to decrease speed.

When use “collet”, speed of spindle can reach max. 4000 R.P.M.; when use “chuck”, speed can reach max. 3000 R.P.M.

Please stop running main spindle before change function. To change function, turn cam switch “Z” to right side to activate function of COLLET. Turn cam switch “Z” (Figure 11) to left side to activate function of CHUCK.

*** Note:** Please do not change function when spindle is running. The function will not be successfully changed if disobey and may cause heavy vibration.

Figure 9-Control Unit Door

Figure 10-Control Speed and Direction

Figure 11-Speed Control Box

F.) QUICK CHANGE GEAR BOX

The Quick Change Gear Box Unit see (Figure 12 & 14), feed or thread change knob “T”, shifted to left is threading, shifted to right is feed only. The range of threads, their selection and the position of the knobs for each thread are shown on the chart “C” (Figure 13). Pull out the ball of gear change arm “A” (Figure 13). Then move arm to left or right, insert in correct position, and change the selector knob “S” (Figure 13) to 1,2 or 3 position until desired thread cutting is acquired see (Figure 13). The standard threads and pipe threads are immediately available through the gear box by the use of outside change gears (five change gear assembly), pitches of threads can be cut to 250 threads per inch.

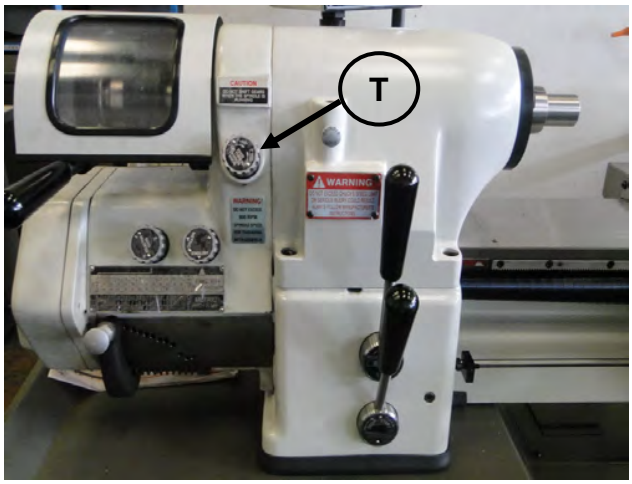


Figure 12-Feed of Thread Change

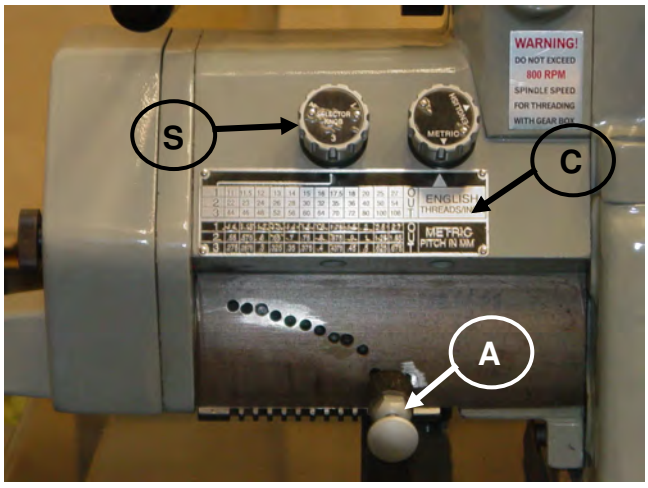


Figure 13-Thread Chart

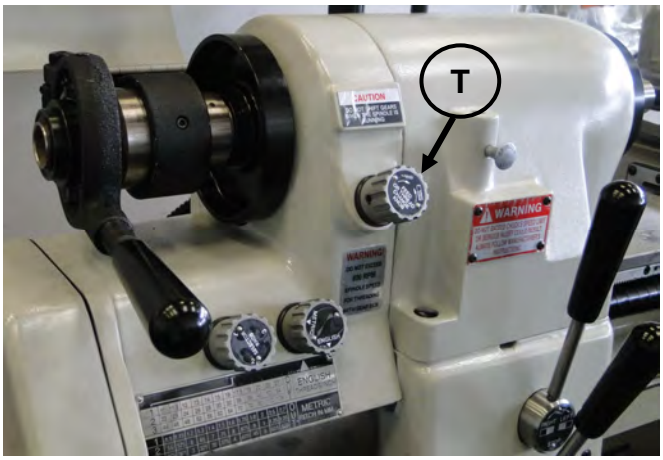


Figure 14-Feed of Thread Change

※CAUTION：DO NOT SHIFT GEARS KNOB “T” WHEN THE SPINDLE IS RUNNING.

G.) AUTOMATIC THREAD LENGTH CONTROL

When threading into a blind hole or to a shoulder without a thread relief. The lead screw half nut if engaged at the start of the threading work is completed. Left or right hand threads are controlled by Control lever “D” (Figure 15), the lever is joined with the control bar “B” (Figure 16). When the carriage touches the adjusting screw “S” (Figure 16) of the length control bar, it will push the lever “D” (Figure 15) to “STOP” position, and make the lead screw stop. For method of threading cut, please see Page 10, QUICK ACTING.

Figure 15-Control speed and Direction

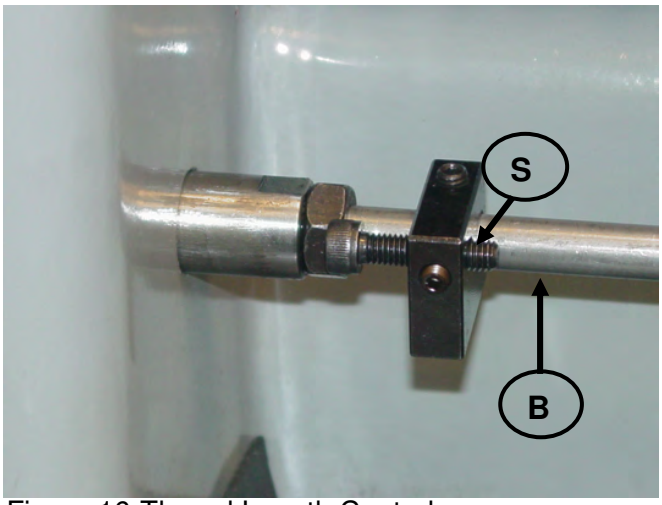


Figure 16-Thread Length Control

H.) SPINDLE BRAKE

Inverter unit “E” is used to perform dynamic braking. In addition, discharge resistor “C” shortens braking time (Figure 17).

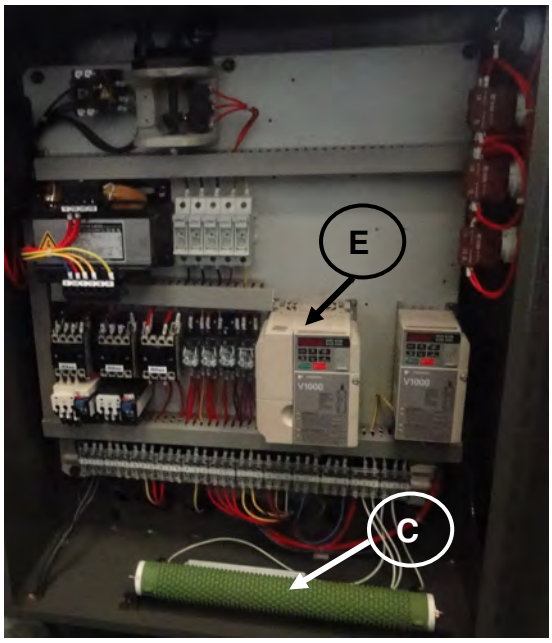


Figure 17-Control Unit

I.) BELT ADJUSTMENT

Run spindle at approximately 1000 rpm. Move lever “G” (Figure 18) to center “STOP” position and let the spindle coast to a stop. This is done to equalize belt tension. Loosen lock nut “N” (Figure 19) 19mm wrench. Turn adjusting screw “P” (Figure19) 6mm socket head wrench clockwise to tighten belts. Stop machine and check belt tension, there should be approx. 25.4mm (1″) of play in belt.

Figure 18-Control Speed and Direction

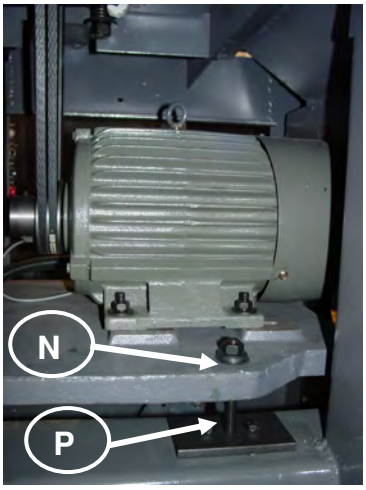


Figure 19-Belt Adjustment

J.) COLLET CLOSER REMOVAL

Running the machine with the collet closer and not having a collet locked in place will damage the collet closer. Remove the collet closer when using chucks, face plates, or spindle nose type fixtures. The collect closer should be removed often for cleaning to prevent loading of chips between collet closer tube and inside of spindle at rear and collet threads. Removal method is：Pull out pin”L” (Figure 20). Slide draw tube out of the spindle. Do not turn the adjusting nut “N” (Figure 20). It is keyed to the spindle. To remove slide it off the end of the spindle. Do not remove collet closer by removing screw “S” (Figure 20), this screw has been adjusted at the factory for proper operation of the collet closer.

K.) COLLET CLOSER REPLACEMENT

Before replacement of the closer, clean inside of the headstock spindle and outside diameter at rear of spindle where Adjusting Nut “N” (Figure 20) is located. Apply a film of light oil on rear of spindle Do not force Adjusting Nut “N” (Figure 20) on spindle. If Adjusting Nut “N” (Figure 20) fits to tight, remove and check for burrs or scratches, then replace. Clean collet closer tube inside and out apply a film of light oil on slip surface “T” (Figure 20) of the collet closer tube, replace collet loser and insert Link Pin “L” (Figure 20).

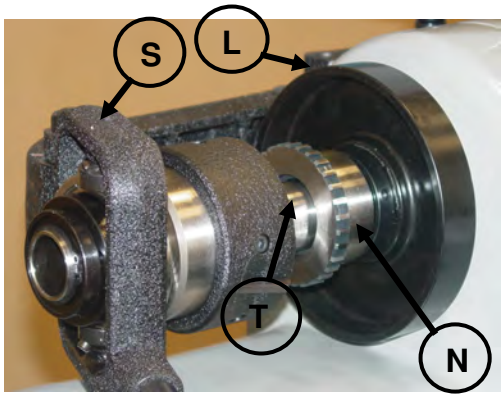


Figure 20-Collet Closer Removal

L.) COLLET CLOSER ADJUSTMENT

1. Before using collet closer, and any collet or step chuck to be used should be thoroughly cleaned.
2. Push the lock Pin “E” (Figure 21). To engage lock pin, turn spindle by hand till lock pin enters notch to lock.
3. Press the Closer Adjusting Finger “F” (Figure22) down to the point “P” (Figure 22).
4. Guard “G” (Figure 22) forward with the left hand, and hold the collet or stop chuck with the right hand at the same time.
5. Place a work piece in collet or step chuck.
6. Place lever “L” (Figure 22) to the extreme left fixed position. Turn the Shell Guard “G” (Figure 22) toward operator until the work piece is clamped by the collet.
7. Place lever “L” (Figure 22) to the right, the released position. Turn Shell Guard “G” (Figure 22) toward operator, move the Adjusting Finger “F” (Figure 22).
8. Test collet closer’s tension on work piece. If the work piece needs additional gripping pressure, press down on the adjusting finger “F” (Figure 22) and turn Shell Guard “G” (Figure 22) forward and lock. (see Figure 22).

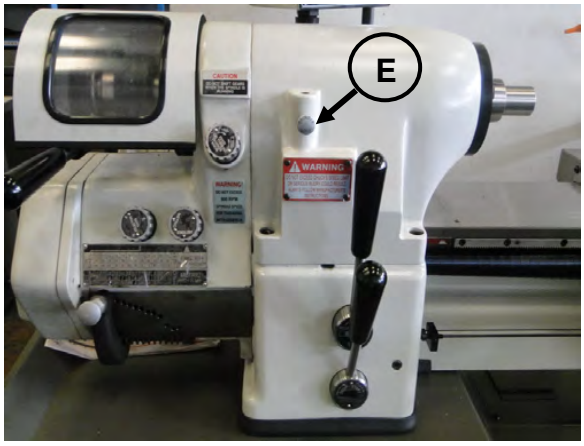


Figure 21-Control Speed and Direction

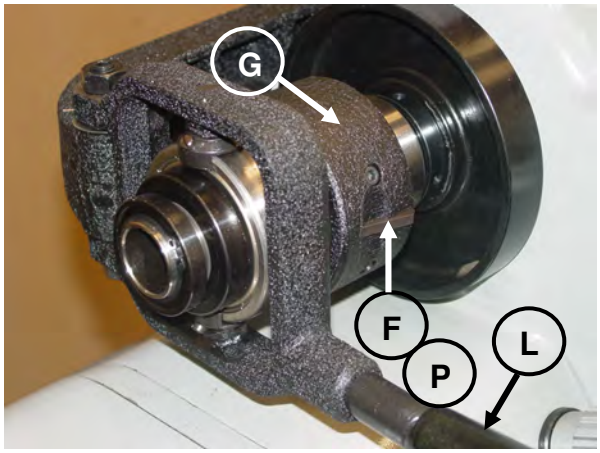


Figure 22-Collet Closer Adjustment

M.) CARRIAGE INDICATING RING

Dual dials with Inch and Metric Handwheel dial “W” (Figure 23) graduations are in 0.01″ 0.2mm. It is built for the operator’s convenience of operation. (Figure 22) Spring loaded indicating ring, just turn to required location by loosening lock screw “L” (Figure 23) Sliding cover cage exposes only the dial in use.

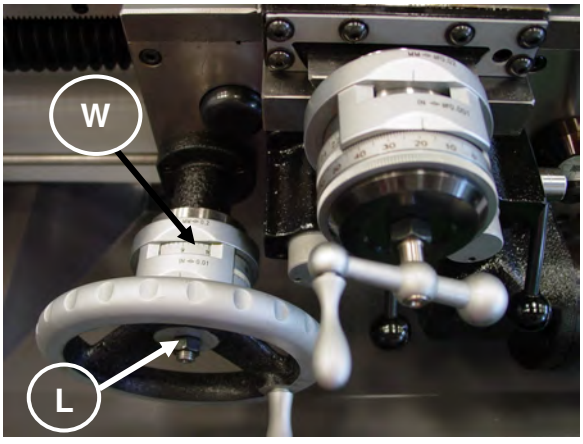


Figure 23-Carriage Indicating

N.) CARRIAGE LOCK

To hold the carriage in a fixed position on the bed use the Carriage Lock Handle “H” (Figure 24). Move the lock handle “H” (Figure 24) clockwise toward the operator, lock the carriage in position. Move the lock handle “H” (Figure 24) counterclockwise away from the operator. To unlock the carriage.

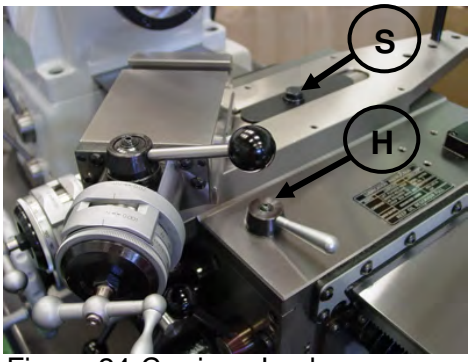


Figure 24-Carriage Look

O.) CARRIAGE CLUTCHES

The carriage clutches are made of a friction type material, designed to slip when slide or carriage engages a feed stop. The clutches are a spring-loaded arrangement and can not be adjusted for more pulling power. If clutch slips under a cut, it is a sign of improper tool grinding, dull tool or excessive feed. The friction clutches have sufficient power to handle all work. When the machine contacts a feed “stop”, it is intended for the clutch to slip, To operate clutches as shown in (Figure 25), raise handle “H” (Figure 25) is approx. 20degress above horizontal, the clutch will engage, Push down the handle “H” (Figure 25), the clutch will release. When the carriage lead screw is engaged for threading the carriage feed clutch is mechanically interlocked (can not be engaged). This is to prevent machine damage. Adjust clutches as shown in Figure 25.

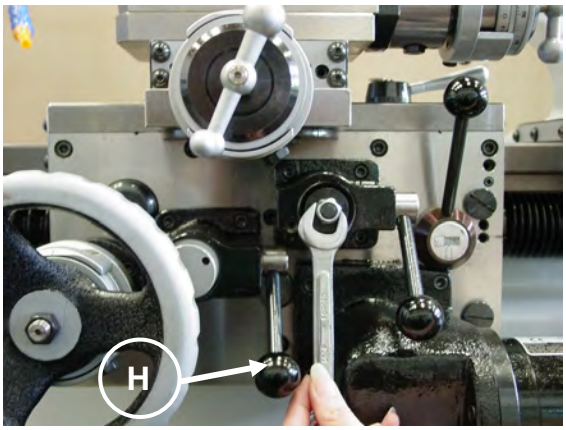


Figure 25-Carriage Clutches

P.) CROSS SLIDE INDICATING RING

Dualdials with inch and metric handwheel dial. Each graduation of the Indicating Ring “C” (Figure 26) is 0.02mm (0.001″) on the diameter. It is provided for operator’s convenience. The Indicating Ring is spring loaded, so a lock screw is not needed. To use it, just turn the Indicating Ring to required location by hand. Cross Slide operation of freed and adjustment of clutches are identical with the operation and adjustment of carriage clutches. If CTL-618EVS TOOLROOM LATHE needs to be used with the taper turning attachment, loosen the screw “S” (Figure 26) with a spanner wrench.

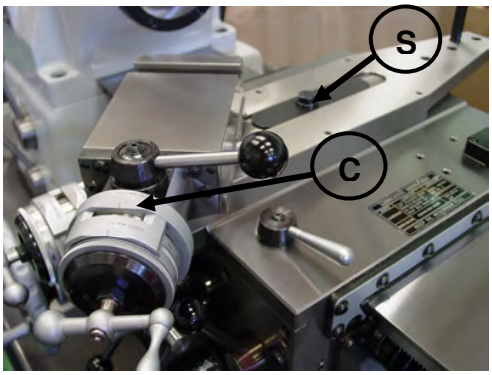


Figure 26-Carriage Look

Q.) QUICK-ACTING TOOL POST COMPOUND SLIDE ASSEMBLY

The compound slide has a quick-acting tool post, at the start of threading cut, place the ball-handle “H” (Figure 27) of the quick-acting tool post toward the workpiece, at the end of the threading cut, the threading tool is instantly cleared from the work by hand operated, handle “H”, for the return of the carriage to the next cut, the ball-handle lever actuating the tool post slide feed screw. Operate above procedure repeatedly until the threaded work piece is completed. Each graduation of the indicated ring “C” (Figure 27) is 0.02mm (0.001″) on diameter.

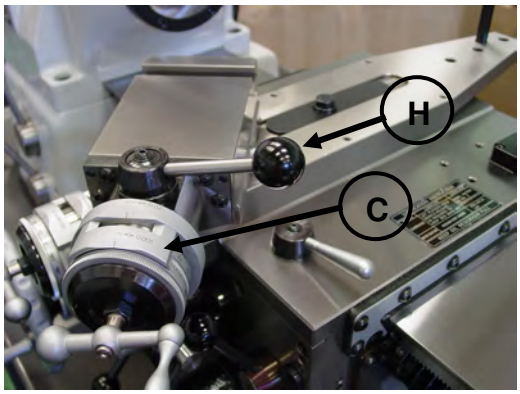


Figure 27-Cross Slide Indicated Ring and Quick Acting

※CAUTION：THE BALL-HANDLE LEVER OF THE QUICK-ACTING TOOL POST MUST BE MOVED TOWARD OPERATOR AT THE END OF THE THREADING CUT.

R.) POWER FEED UNIT

The carriage Power Feed unit is mounted on the carriage.

It is powered by a AC motor “M” (Figure 28).

1. The power feed can be operated only when the machine is running. Start the power feed by turning Cam Switch “S” (Figure 29).
2. The Cam Switch “S” (Figure 29) controls the direction of the power feed.
3. The carriage Feed Control “N” (Figure 29) controls the rate of feed. When Cam Switch “S” (Figure 29) is placed in “RIGHT” position, the carriage will feed toward the right, the cross slide will feed away from the operator.
4. When Cam Switch “S” (Figure 29) is placed in “LEFT” position, the carriage will feed toward the left, the cross slide will feed toward operator.
5. Turn Cam Switch “S” (Figure 29) to “STOP” position, power feed motor is turned off.
6. The rate of the carriage feed should be pre-selected to suit each particular job, which depend on material, diameter, type of cut, and tooling used.
7. The numbers on the carriage feed control panel, do not represent either thousandths per revolution or inches per minute. So the operator must test sample pieces for determining the spindle speed and rate of feed which can best suit to the requested surface finish and production rate, then record the proper settings after testing.

NOTE：WHEN STARTING INTO PRODUCTION. AN OPERATOR CAN SET THE FEED CONTROL “N” TO THE RECORDED REFERENCE SETTING, THEN THE SAME TESTED RESULTS WILL BE OBTAINED.

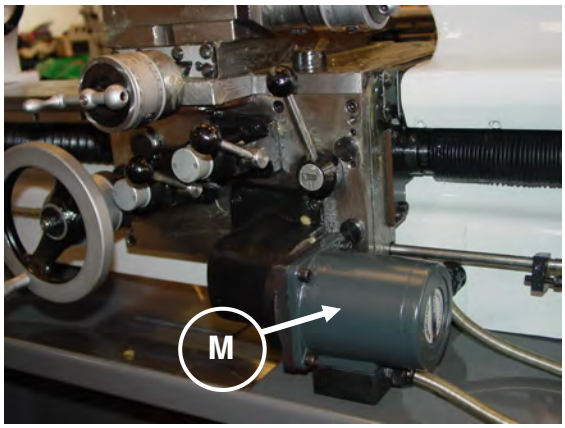


Figure 28-AC Motor

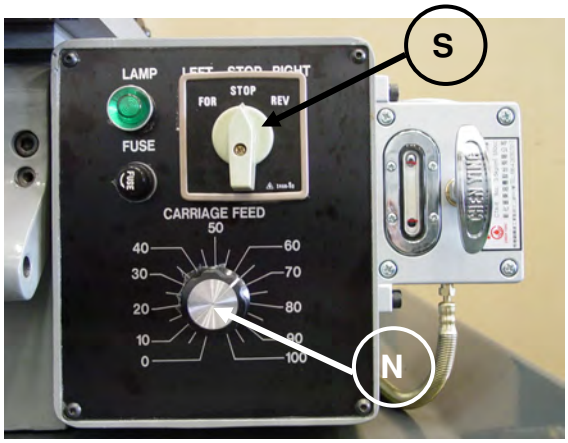


Figure 29-Power Feed Unit

S.) COOLANT FACILITIES

The coolant pump is controlled by Switch “C” (Figure 30). Turn Switch “C” (Figure 30) to “ON” position, the pump will run continuously, turn to “AUTO” position, the pump will run only when the machine is running. If pump switch is set at “OFF” position, the coolant pump is off. Sump should be cleaned periodically, depending on the type of material being machined.

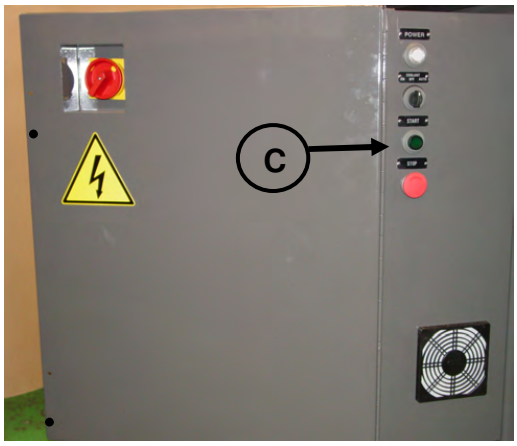


Figure 30-Control Unit Door

T.) TAILSTOCK

The tailstock is mounted on preloaded ball bearings and can support any load to the spindle. It is provided with a fine “feed” for accurate work. The spindle of the tailstock is graduated in eighths of an inch, and 1mm and has a travel of 3 95mm (3-3/4″) The handwheel is dual dial Inch and Metric. Graduations are 0.02mm (0.001″). It is built for the operator’s convenience of operation just turn the dial ring “D” (Figure 32) to the required location. It is unnecessary to tighten the dial rings. They are spring loaded, so a lock screw is not needed. Sliding cover cage exposes only the dial in use.

Figure 31-Tailstock Spindle Travel

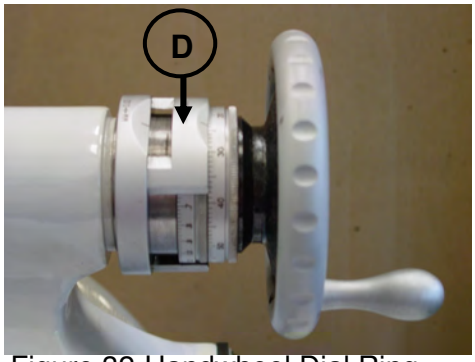


Figure 32-Handwheel Dial Ring

U.) TAILSTOCK SPINDLE LOCK

The tailstock spindle lock holds the spindle securely in any travel position. Move lever “L” (Figure 33) toward the headstock lock position and backward to the released position.

V.) TAILSTOCK BODY LOCK

The tailstock can be clamped in any position along the bed way by operating Lever ”M” (Figure 33). The Lever “M” (Figure 33) should be adjusted to a clamp position between the two stop pins “A” (Figure 33) and “B” (Figure 33). When tailstock is fully clamped, lever “M” (Figure 33) should not contact stop pin “A” (Figure 33).

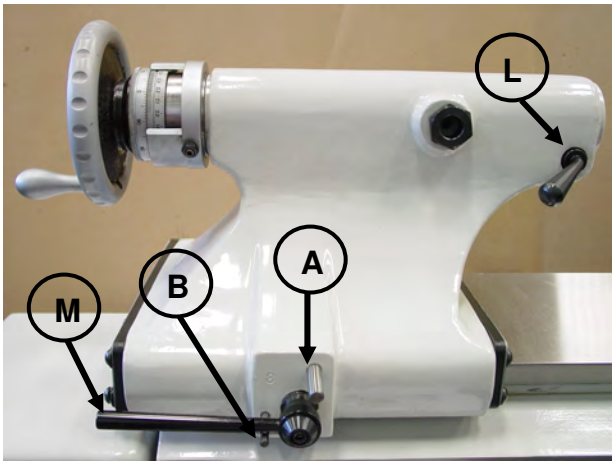


Figure 33-Tailstock Spindle and Body Lock

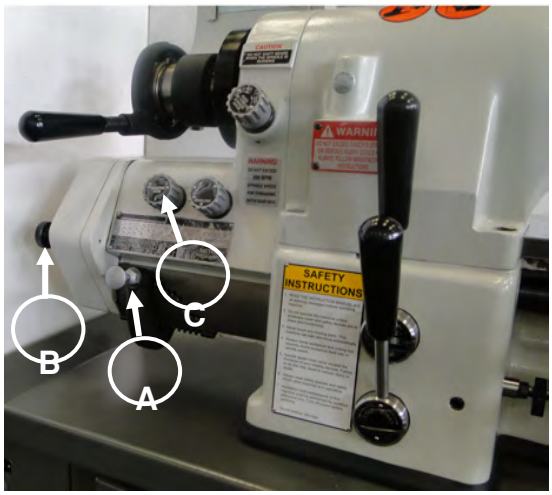


Figure 34-Headstock and Gearbox

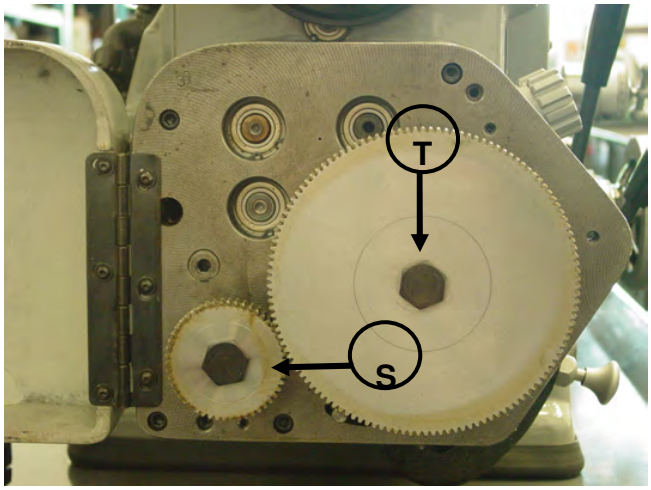


Figure 35-Thread Gearbox

THREAD CUTTING

CAUTION：DO NOT RUN SPINDLE IN REVERSE WHEN THREADING.

The Kent USA CTL-618EVS is designed for rapid and accurate thread cutting. The quick-change gearbox permits instant selection of 36 different inch and metric threads. Threads can be cut to a shoulder without running into the shoulder since the automatic stop will limit carriage travel at a predetermined point in either direction. Before staring to cut a thread, select the proper cutting speed for the size of thread to be cut and to give the best finish for the particular material being used. Maximum recommended threading speed is 800R.P.M.

Set the quick-change gearbox for desired pitch. To make a selection on the gearbox thread chart, pull the spring-pressured knob “A” (Figure 34), out as far as it will go and lower it until it will move sideways to the desired notch directly under the thread required. Raise the handle and let plunger drop into hole. If tumbler handle will not raise far enough to position plunger into hole, loosen knob “S” (Figure 35), open gear box door and rotate gear “T” (Figure 35), until gears mesh and handle raises, permitting plunger to seat.

DO NOT SHIFT GEARS OR OPEN GEARBOX DOOR WHILE MACHINE IS RUNNING.

Set selector knob “C” (Figure 34), for number corresponding to left side of gearbox thread chart. Set knob “C” (Figure 34) so desired number is in bottom position in line with arrow. If the sliding gear cluster dose not engage the other gears in gearbox properly to bring the desired number on selector knob “C” (Figure 34) in line with arrow, loosen knob “B” (Figure 34) open gearbox door and rotate gear “T” (Figure 35), until gear mesh.

Set Inch/Metric knob “D” (Figure 36), so thread system to be cut reads at top of knob, If the sliding gear does not engage properly to bring desired system to read at top, loosen knob “B” (Figure 36), OPEN GEARBOX DOOR AND ROATE GEAR “T” (Figure 37), until gears mesh and knob is felt to engage detent.

Engage gearbox by turning knob “E” (Figure 36), counterclockwise in the direction of arrow marked “THREAD” When turning knob “E” (Figure 36) ＜THE TEETH OF THE SLIDING GEAR WITHIN THE GEARBOX.＞ May not mesh with the headstock spindle gear teeth. If this is the case, turn headstock spindle with handwheel “F” (Figure 36) while turning knob “E” (Figure 36) to left until definite click is heard.

Set compound slide at 61° and position cutting tool in compound slide tool post. Position carriage with handwheel so threading tool is in the center of the part to be threaded.

Carriage control lever “G” (Figure 36), when moved to the left, will cause carriage to move to the left. When the carriage control level is moved to the right, the carriage will move to the right. Carriage travel can be stopped at any time by placing control lever “G” (Figure 36) in center position.

NOTE：Carriage power feed unit is not used during threading operation.

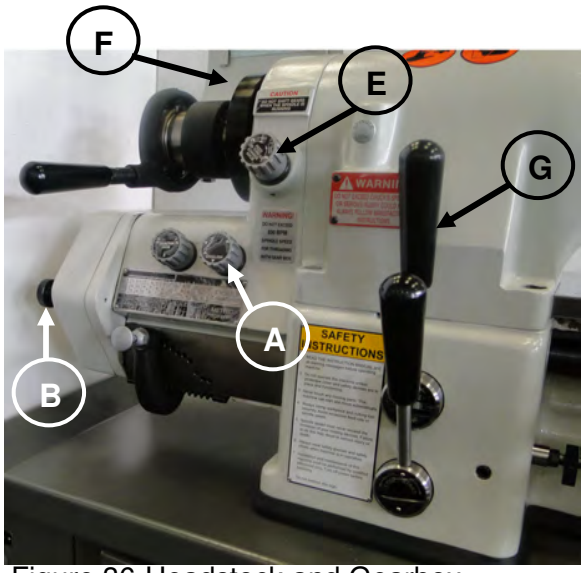


Figure 36-Headstock and Gearbox

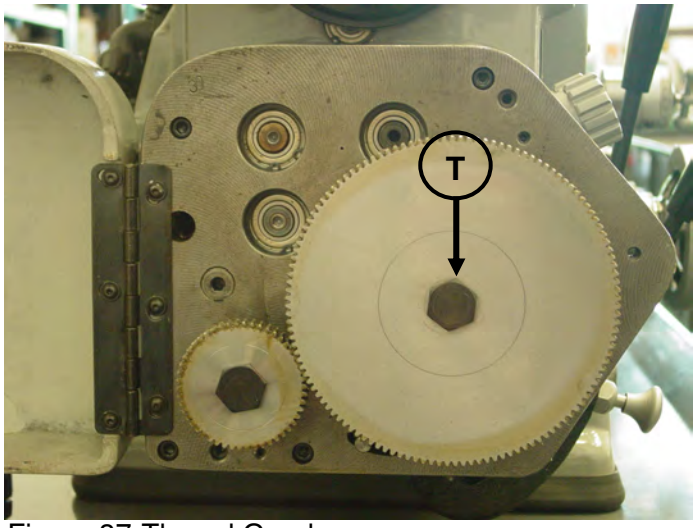


Figure 37-Thread Gearbox

Place lever “G” (Figure 38) in center position and engage lead screw nut “J” (Figure 40), by moving ball handled lever “H” (Figure 40) clockwise. Set two carriage stops “M” (Figure 39) approximately 1/2″ from both ends of carriage. Loosen screw “K” (Figure 39) to make area location of stops. Loosen lock screw ”N” (Figure 39) and turn stop screw “L” (Figure 39) to make fine adjustment. With threading tool away from work toward operator, make a trial run with the carriage. Pick up the exact relation between the tool and the shoulder or end of the thread by using the tool post slide. Run carriage to the right, checking the stop. Make adjustments so tool will clear end of work by 1/4″.

Figure 38-Headstock and Gearbox

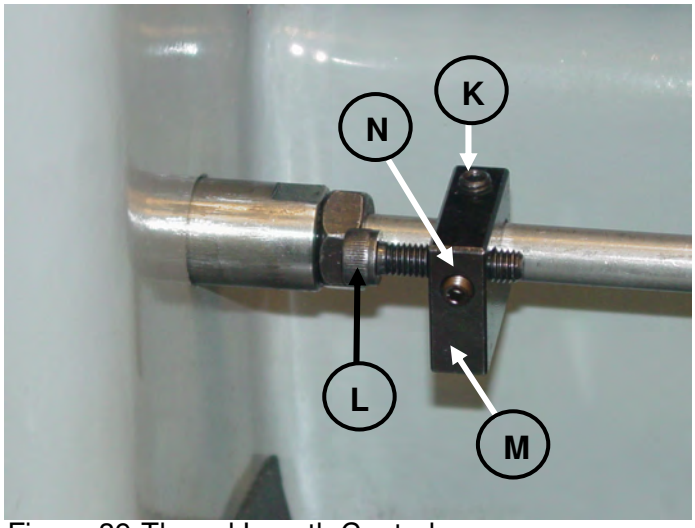


Figure 39-Thread Length Control

※ CAUTION : LOCK CARRIAGE STOPS SECURELY BEFORE STARTING TO CUT THE THREADS. DO NOT RELEASE CARRIAGE NUT “J” UNTIL THREADING OPERATION IS COMPLETED.

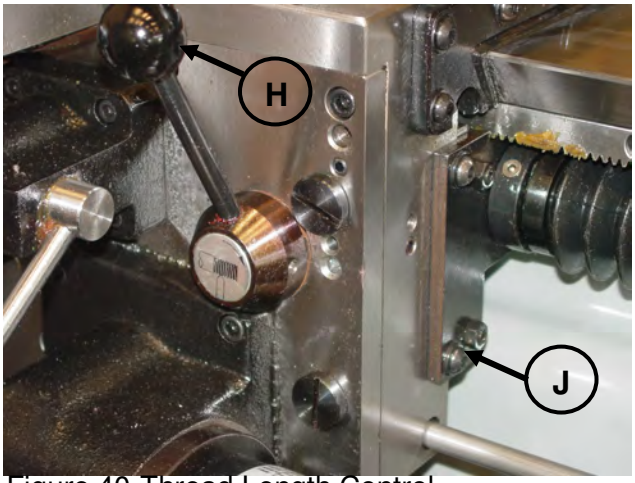


Figure 40-Thread Length Control

With carriage at rest and quick-acting handle “P” (Figure 42), forward in cutting position, feed the desired amount for each threading pass using cross slide handwheel “R” (Figure 42).

Moe lever “G” (Figure 41), to the left and carriage will travel until it contacts stop at headstock end of machine. The headstock spindle will continue to run. Carriage stops cause only the gearbox, lead screw and carriage to stop.

After each pass, withdraw threading tool from work with quick-acting handle “P” (Figure 42), and return carriage to starting position by moving carriage control lever “G” (Figure 41), to the right.

LEFT-HAND THREADS can be cut the same as right-hand with the spindle running “FORWARD” except that cutting pass is made from the headstock toward the tailstock. Carriage control stops are used for left-hand threads as well as right-hand threads.

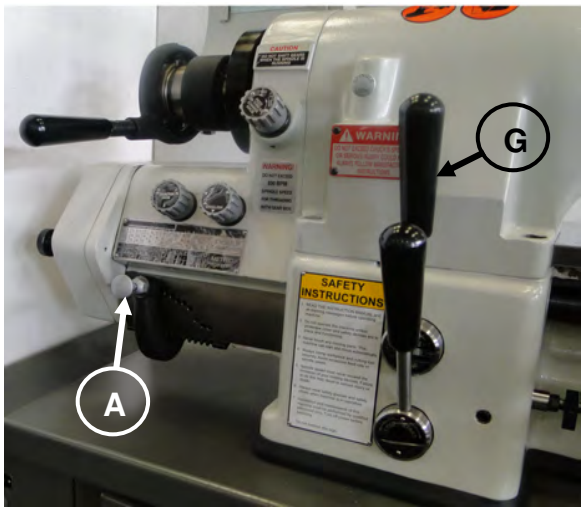


Figure 41-Headstock and Gearbox

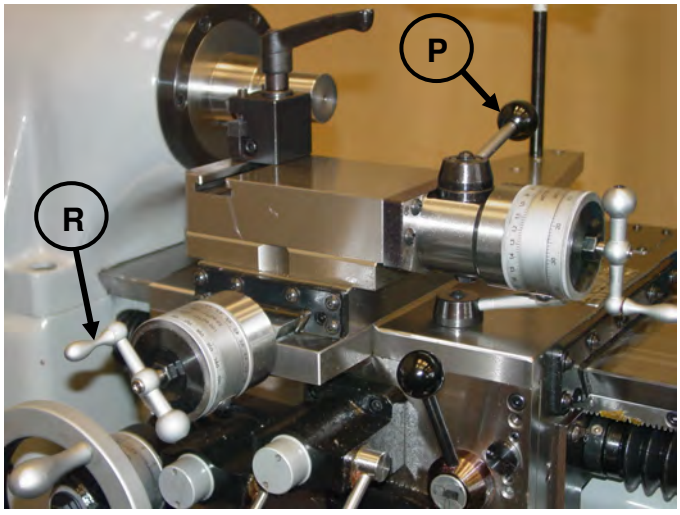


Figure 42-Carriage and Compound Slide

OUTSIDE CHANGE GEARS

The outside change gears are used to cut threads not provided in the quick-change gearbox. A set of five gears and a bracket are supplied as optional equipment. These gears, when set up to the gear chart, Figure 45 will cut 10 threads per inch or 0.25mm pitch according to set up. If ordered, three of the gears are shipped on the bracket and the other two are in place on the shafts as shown at “U” (Figure 44) and “W” (Figure 44).

BEFORE SETTING UP CHANGE GEARS, PLACE KNOB “A” (FIGURE 43), IN THE “OUT” POSITION.

Fastened to the tumbler handle bracket within the gear box is round safety bar “X” (Figure 44), that extends out through a slot in the gearbox plate. This bar is to prevent applying change gears outside the gearbox until the tumbler handle is placed in the “OUT” position.

Additional gears are available to cut other threads which are not available through gearbox.

Lubricate bushings and shafts on change gear bracket with spindle oil each time a setup is made. If long run threading is involved, lubricate daily.

Figure 43-Headstock and Gearbox

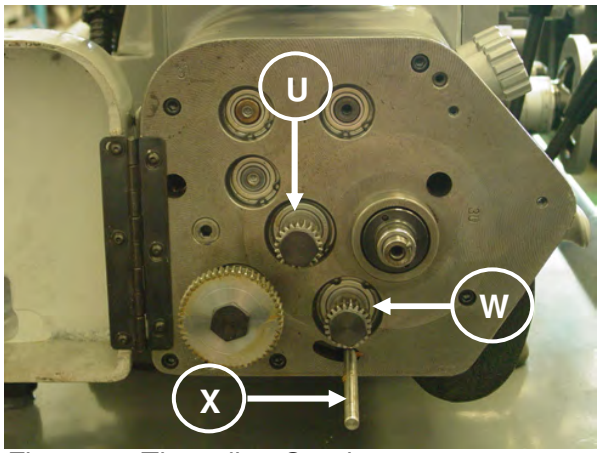


Figure 44-Threading Gearbox

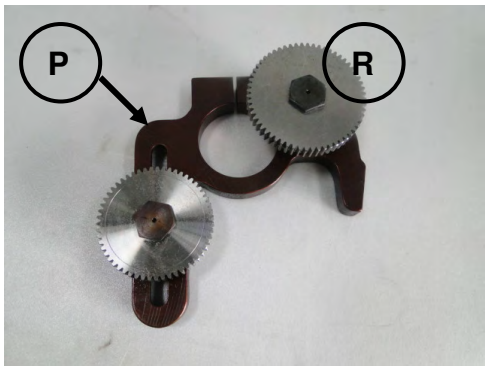


Figure 45-Change Gear Bracket “Optional”

Inch Threads Using Outside Chang Gear

1. Turn disconnect switch “OFF”.
2. On inch side of change gear bracket “D” (Figure 50), mount “First Gear on Stud” “C” (Figure 50) with spacer between gears. Do not tighten bolt “A” (Figure 50) fully.
3. Mount “Idler Gear” “Y” (Figure 50) but do not mesh with “First Gear on Stud” “C” (Figure 50), or tighten bolt “Z” (Figure 50) fully.
4. Loosen knob “S” (Figure 48), open gearbox door and remove 50 tooth gear “S” (Figure 48), and 127 tooth gear “T” (Figure 48). Do not misplace key under 50 tooth gear.
5. If thread chart specifies number of teeth in “First Gear” to be other than 22 teeth, remove gear “U” (Figure 49), and replace with specified gear.
6. Remove tumbler gear “W” (Figure 49).
7. Mount Change gear bracket assembly, Figure 48, on pivot post “V” (Figure 49). Do not tighten bracket bolt “H” (Figure 51), fully.
8. Make certain key is in place and mount “Screw Gear” “J” (Figure 51). Replace bolts “K” (Figure 51) and “M” (Figure 51).
9. Adjust “Second Gear on Stud” “G” (Figure 51), with 0.08″-0.010″ backlash between it and “Screw Gear” “J” (Figure 51). Use plastic shim stock to help determine backlash. Tighten bolt “F” (Figure 51).
10. Adjust “Idler Gear” “E” (Figure 51) with 0.003″-0.004″ backlash between it and “First Gear on Stud” (behind “Second Gear on Stud” in picture). Tighten bolt “N” (Figure 51).
11. Pivot bracket to obtain 0.003″-0.004″ backlash between “First Gear” “L” (Figure 51) and “Idler Gear” “E” (Figure 51). tighter bracket bolt “H” (Figure 51).
12. Make certain all gears are properly meshed and all bolts tightened.
13. Close gearbox door, tighten knob “B” (Figure 46), and turn selector knob “C” (Figure 46) to position specified on chart.
14. Turn Inch/Metric knob “D” (Figure 46) to Inch.
15. Turn Feed/Thread knob “E” (Figure 46) to “Thread”.
16. Follow same procedures for setting carriage stops lead screw nut and compound slide as when cutting threads form the gearbox. Use of carriage control level “G” (Figure 46), and quick-acting handle “P” (Figure 47), will also be the same as when cutting threads from the gearbox.

NOTE：(a) 50 tooth gear “S” (Figure 48), and 127 tooth gear “T” (Figure 48) must be remounted (without bracket) to obtain metric thread pitches through gearbox.

(b) When disassembling setup, remount 22 tooth gears “U” (Figure 49) and “W” (Figure 49).

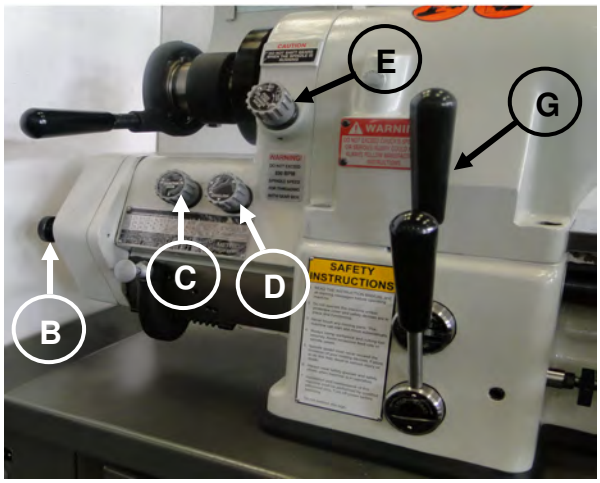


Figure 46-Headstock and Gearbox

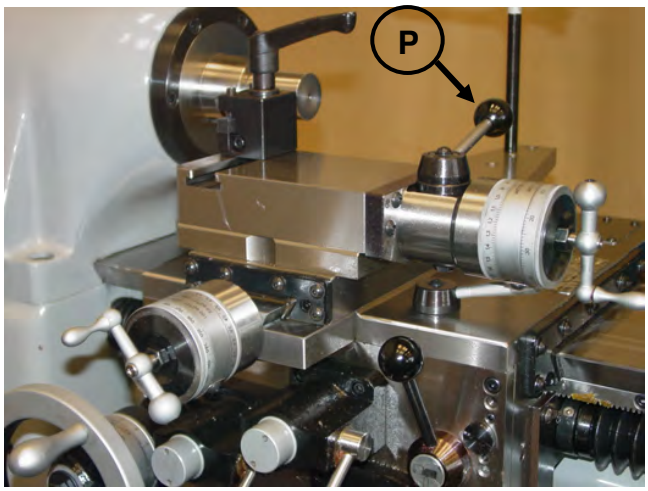


Figure 47-Carriage and Compound Slide

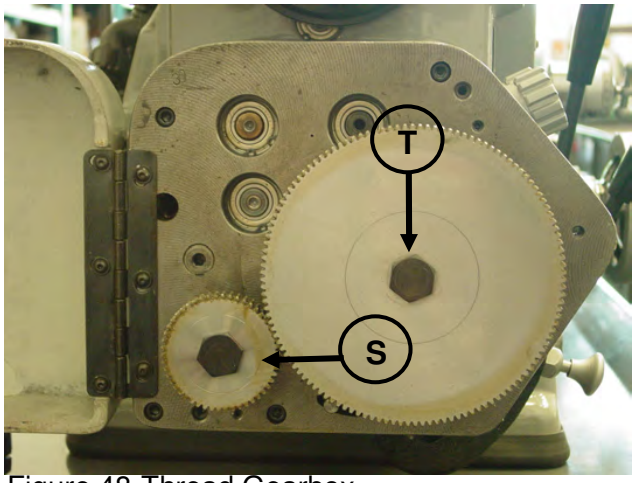


Figure 48-Thread Gearbox

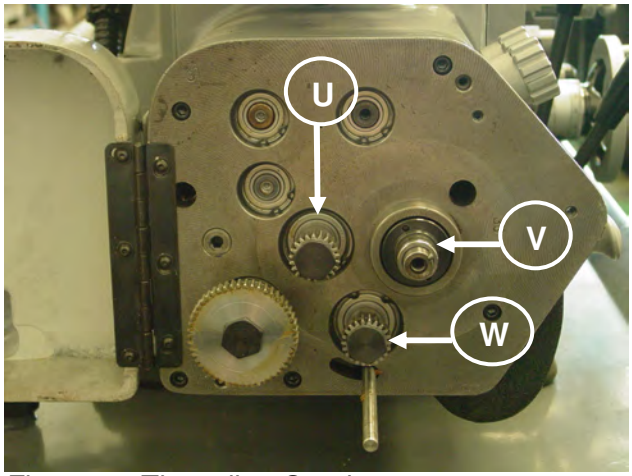


Figure 49-Threading Gearbox

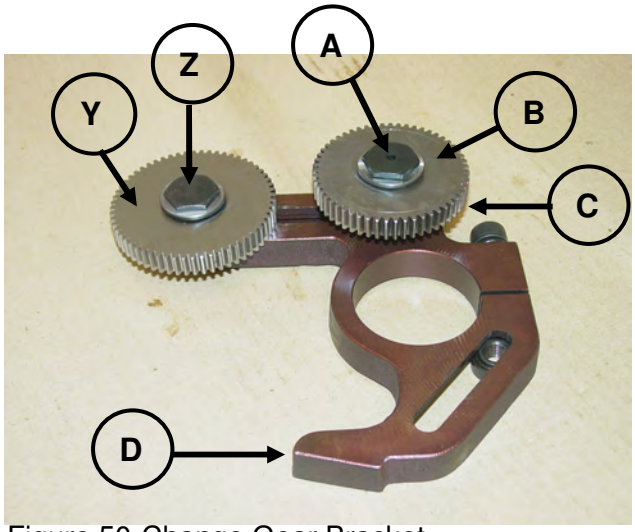


Figure 50-Change Gear Bracket

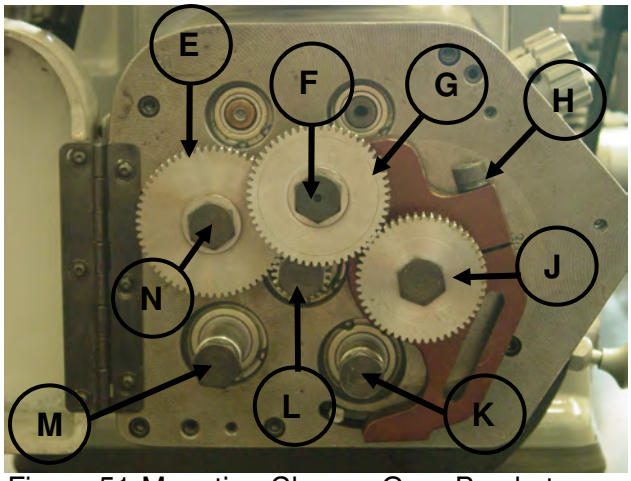


Figure 51-Mounting Change Gear Bracket

Metric Threads Using Outside Chang Gears

1. Turn disconnect switch “OFF”.
2. On metric side of change gear bracket “P” (Figure 56) mount “Idler Gear” “R” (Figure 56). Do not tighten bolt “S” fully.
3. Loosen knob “B” (Figure 52), open gearbox door and remove 127 tooth gear “T” (Figure 54).
4. Mount change gear bracket assembly, Figure 56, on pivot post “V” (Figure 57), Do not tighten bracket bolt “U” (Figure 55) fully.
5. Remove “First Gear” “U” (Figure 55), and replace bolt. Do not misplace key.
6. Mount “First Gear on Screw” “T” (Figure 57).
7. If thread chart specifies number of teeth in “Tumbler Gear” to be other than 22 teeth, remove gear “Y” (Figure 57) and replace with specified gear.
8. Adjust “Idler Gear” “X” (Figure 57) with 0.003″-0.004″ backlash between it and “First Gear on Screw” “T” (Figure 57). Use plastic shim stock to help determine backlash. Tighten bolt “W” (Figure 57).
9. Pivot bracket to obtain 0.003″-0.004″ backlash between “Idler gear” “X” (Figure 57) and “Tumbler Gear” “Y” (Figure 57). Tighten bracket bolt “J” (Figure 57).
10. Make certain key is in place and remount 127 tooth gear “A” (Figure 58). Tighten bolt “Z” (Figure 58).
11. Make certain all gears are properly meshed and all bolts tightened.
12. Close gearbox door, tighten knob “B” (Figure 52), and turn selector knob “C” (Figure 52) to position specified on chart.
13. Turn Inch/Metric knob “D” (Figure 52) to “Metric”.
14. Turn Feed/Thread knob “E” (Figure 52) to “Thread”.
15. Follow same procedures for setting carriage stop, lead screw nut and compound slide as when cutting threads from the gearbox. Use of carriage control lever “G” (Figure 52), and quick-acting handle “P” (Figure 53), will also be the same as when cutting threads from the gearbox.
16. Observe same operational cautions as when cutting threads from gearbox.

NOTE：(a) 50 tooth gear “S” (Figure 54), and 127 tooth gear “T” (Figure 54) must be remounted without bracket to obtain metric thread pitches through gearbox.

(b) When disassembling setup, remount 22 tooth “Tumbler Gear” “W” (Figure 55), and 22 tooth “First Gear” “U” (Figure55).

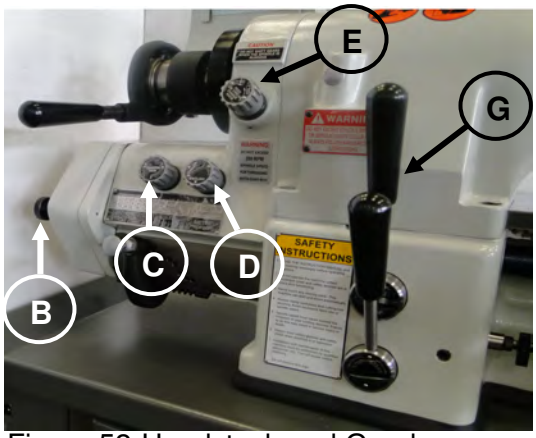


Figure 52-Headstock and Gearbox

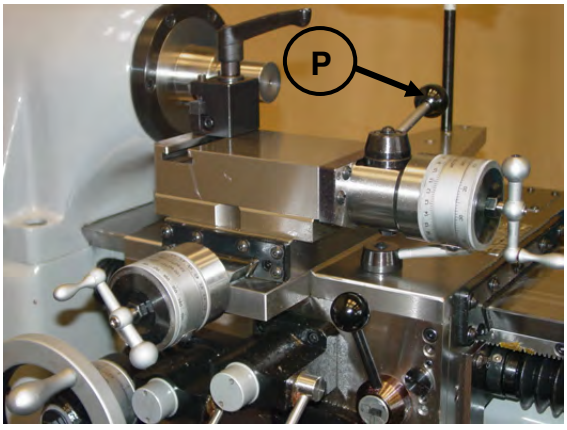


Figure 53-Carriage and Compound Slide

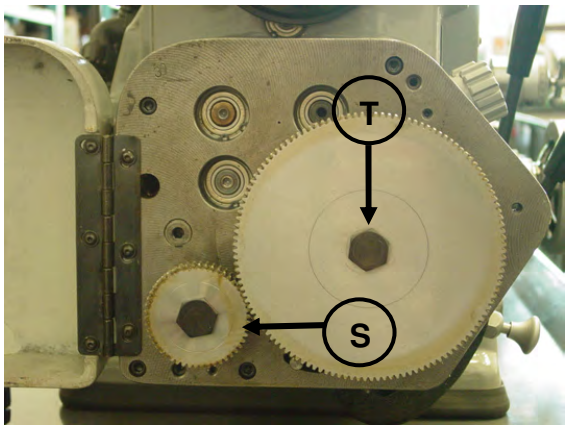


Figure 54-Thread Gearbox

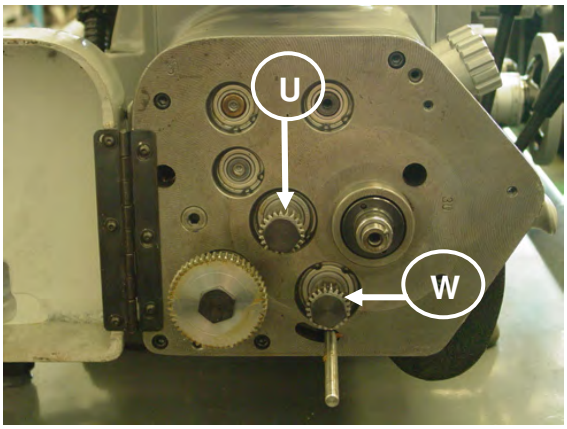


Figure 55-Threading Gearbox

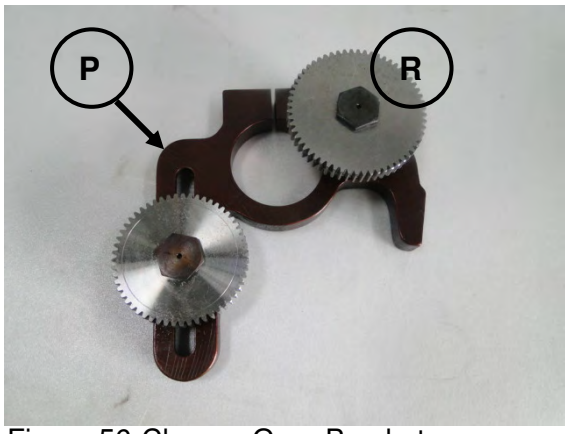


Figure 56-Change Gear Bracket

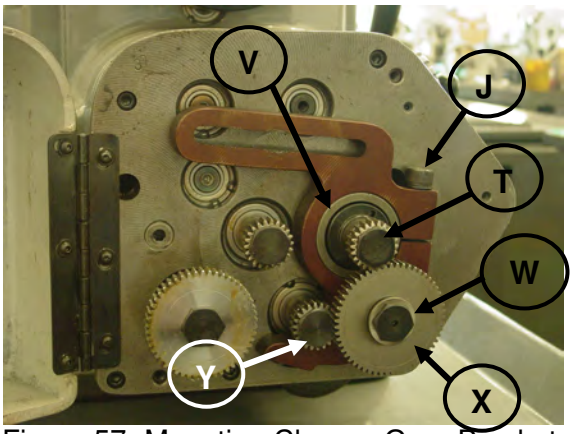


Figure 57- Mounting Change Gear Bracket

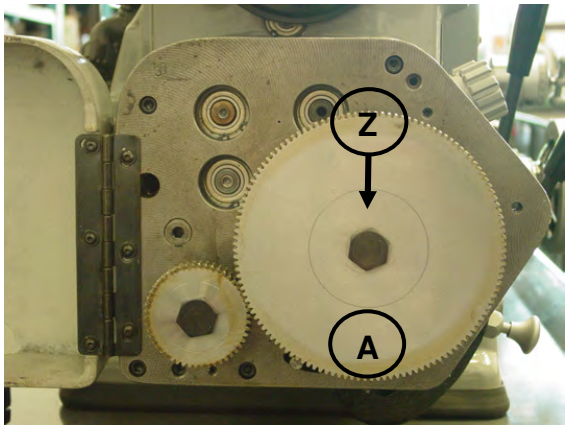
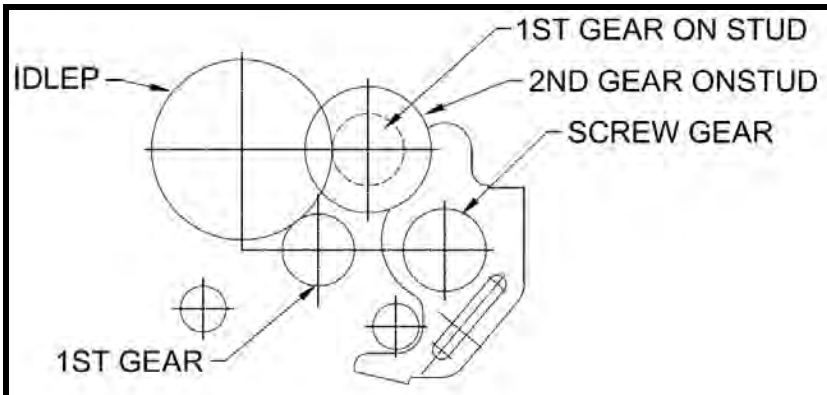


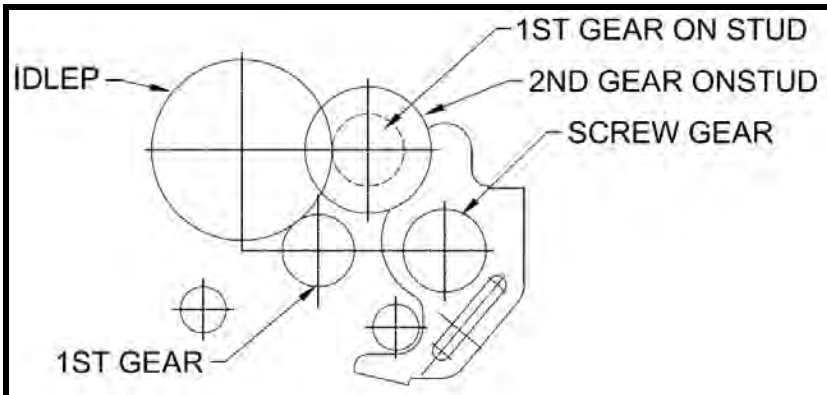
Figure 58-Mounting 127 Tooth Gear



INCH THREADS

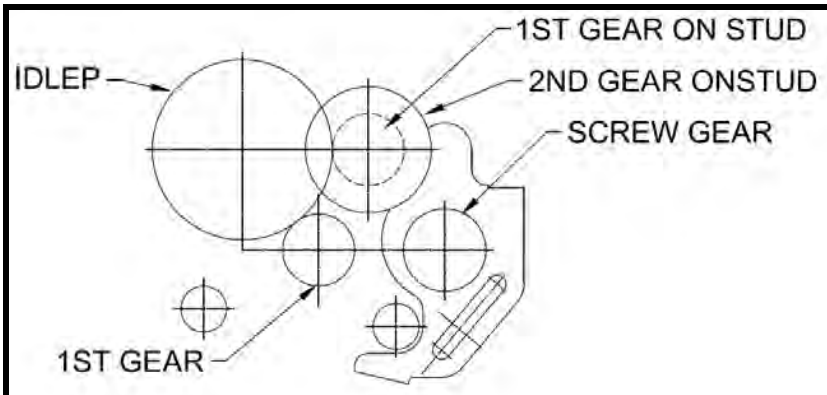
THERADS PER INCH	KNOB	FIRST GEAR	1ST GEAR ON STUD	2ND GEAR ON STUD	SCREW GEAR	1 DLER	THREADS PER INCH	KNOB	FIRST GEAR	1ST GEAR ON STUD	2ND GEAR ON STUD	SCREW GEAR	1 DLER
10	2	22*	22*	60*	30*	55*	33	1	30*	33	22*	66	44
11		GEARBOX					34	2	40	34	30*	60*	44
11.5		GEARBOX					35		GEARBOX				
12		GEARBOX					36		GEARBOX				
13		GEARBOX					37	1	30*	37	22*	66	44
14		GEARBOX					38	2	40	38	30*	60*	44
15		GEARBOX					39	1	30*	39	22*	66	44
16		GEARBOX					40		GEARBOX				
17	1	40	34	30*	60*	44	41	1	30*	41	22*	66	44
17.5		GEARBOX					42	2	40	42	30*	60*	44
18		GEARBOX					43	1	30*	43	22*	66	44
19	1	40	38	30*	60*	44	44		GEARBOX				
20		GEARBOX					45	1	30*	45	22*	66	44
21	1	40	42	30*	60*	44	46		GEARBOX				
22		GEARBOX					47	1	30*	47	22*	66	44
23		GEARBOX					48		GEARBOX				
24		GEARBOX					49	1	30*	49	22*	66	44
25		GEARBOX					50		GEARBOX				
26		GEARBOX					51	1	30*	51	22*	66	44
27		GEARBOX					52		GEARBOX				
28		GEARBOX					53	1	30*	53	22*	66	44
29	1	30*	29	22*	66	44	54		GEARBOX				
30		GEARBOX					55	1	30*	55*	22*	66	44
31	1	30*	31	22*	66	44	56		GEARBOX				
32		GEARBOX					57	1	30*	57	22*	66	4

Gear* means “Optional equipment (part no: LT-11-047T)” .



INCH THREADS

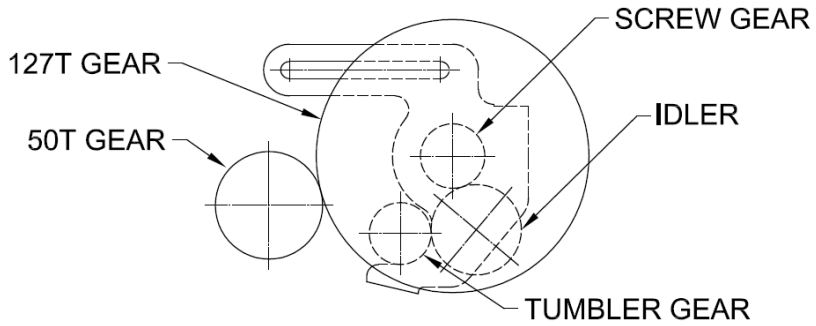
THERADS PER INCH	KNOB	FIRST GEAR	1ST GEAR ON STUD	2ND GEAR ON STUD	SCREW GEAR	1 DLER	THREADS PER INCH	KNOB	FIRST GEAR	1ST GEAR ON STUD	2ND GEAR ON STUD	SCREW GEAR	1 DLER
58	2	30*	29	22*	66	44	83	2	30*	33	22*	83	55*
59	1	30*	59	22*	66	44	84	3	40	42	30*	60*	44
60		GEARBOX					85	2	24	34	22*	66	44
61	1	30*	61	22*	66	44	86	2	30*	43	22*	66	44
62	2	30*	31	22*	66	44	87	3	40	29	22*	66	44
63	2	40	42	22*	66	44	88	2	30*	44	22*	66	44
64		GEARBOX					89	3	40	22	22*	89	44
65	2	48	52	22*	66	30	90	2	30*	45	22*	66	44
66	2	30*	33	22*	66	44	91	3	40	26	22*	77	44
67	2	30*	33	22*	67	44	92	2	30*	46	22*	66	44
68	3	40	34	30*	60*	44	93	3	40	31	22*	66	44
69	2	40	46	22*	66	44	94	2	30*	47	22*	66	44
70		GEARBOX					95	2	24	38	22*	66	44
71	2	30*	33	22*	71	44	96	2	30*	48	22*	66	44
72		GEARBOX					97	3	40	22*	22*	97	55*
73	2	30*	33	22*	73	44	98	2	30*	49	22*	66	44
74	2	30*	37	22*	66	44	99	3	40	33	22*	66	44
75	2	40	50	22*	66	44	100		GEARBOX				
76	3	40	38	30*	60*	44	102	2	30*	51	22*	66	44
77	2	30*	33	22*	77	44	104	2	30*	52	22*	66	44
78	2	30*	39	22*	66	44	105	2	24	42	22*	66	44
79	3	40	22*	22*	79	44	106	2	30	53	22*	66	44
80		GEARBOX					108		GEARBOX				
81	3	40	27	22*	66	44	110	2	30*	55*	22*	66	44
82	2	30*	41	22*	66	44	112	2	30*	56	22*	66	40

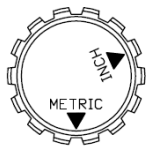


INCH THREADS

THERADS PER INCH	KNOB	FIRST GEAR	1ST GEAR ON STUD	2ND GEAR ON STUD	SCREW GEAR	1 DLER	THREADS PER INCH	KNOB	FIRST GEAR	1ST GEAR ON STUD	2ND GEAR ON STUD	SCREW GEAR	1 DLER
114	2	30*	57	22*	66	44	160	3	24	32	22*	66	44
115	2	24	46	22*	66	44	164	3	30*	41	22*	66	44
116	3	30*	29	22*	66	44	166	3	30*	33	22*	83	55*
118	2	30*	59	22*	66	44	170	3	24	34	22*	66	44
120	2	30*	60*	22*	66	40	172	3	30*	43	22*	66	44
122	2	30*	61	22*	66	44	176	3	30*	44	22*	66	44
124	3	30*	31	22*	66	44	180	3	30*	45	22*	66	44
125	2	24	50	22*	66	44	184	3	30*	46	22*	66	44
126	3	40	42	22*	66	44	188	3	30*	47	22*	66	44
128	3	30*	32	22*	66	44	190	3	24	38	22*	66	44
130	3	48	52	22*	66	30*	192	3	30*	48	22*	66	44
132	3	30*	33	22*	66	44	196	3	30*	49	22*	66	44
134	3	30*	33	22*	67	44	200	3	24	40	22*	66	44
135	3	40	45	22*	66	44	204	3	30*	51	22*	66	44
136	3	30*	34	22*	66	44	208	3	30*	52	22*	66	44
138	3	40	46	22*	66	44	210	3	24	42	22*	66	44
140	3	30*	35	22*	66	44	212	3	30*	53	22*	66	44
142	3	30*	33	22*	71	44	220	3	30*	55*	22*	66	44
144	3	40	48	22*	66	44	224	3	30*	56	22*	66	40
145	3	24	29	22*	66	44	228	3	30*	57	22*	66	44
146	3	30*	33	22*	73	44	230	3	24	46	22*	66	44
148	3	30*	37	22*	66	44	236	3	30*	59	22*	66	44
150	3	40	50	22*	66	44	240	3	30*	60*	22*	66	40
154	3	30*	33	22*	77	44	244	3	30*	61	22*	66	44
156	3	30*	39	22*	66	44	250	3	24	50	22*	66	44

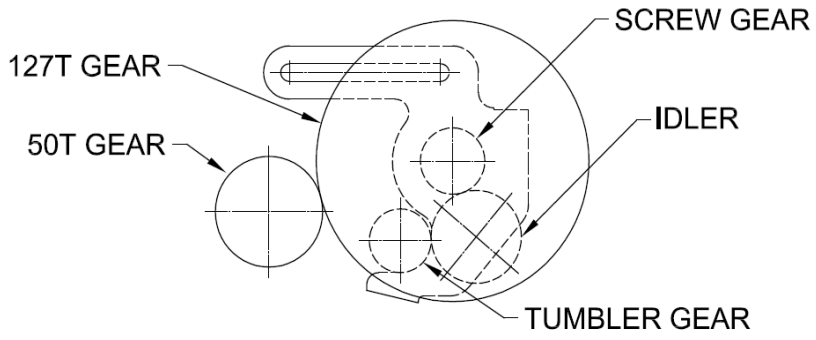
※ 50 TEETH AND 127 TEETH GEARS MUST BE REMOUNTED (WITHOUT BRACKET) TO OBTAIN METRIC THREAD PITCHES THROUGH THE GEARBOX.

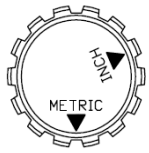




METRIC THREADS

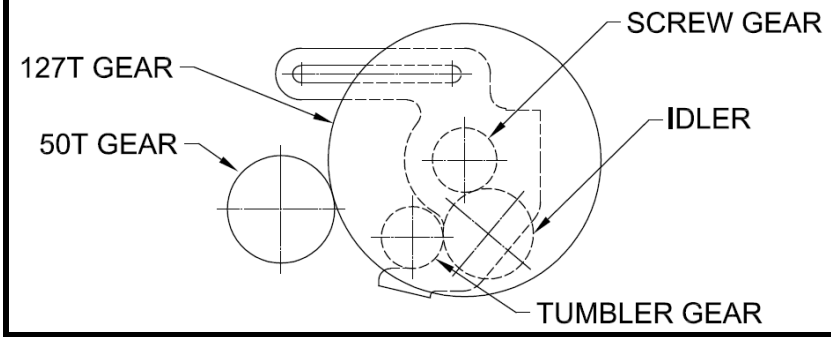
PITCH IN MM	KNOB	SCREW GEAR	TUMBLER GEAR	1 DLER	PITCH IN MM	KNOB	SCREW GEAR	TUMBLER GEAR	1 DLER
.10	3	22*	55*	44	.325		GEARBOX		
.11	3	22*	50	45	.33	3	33	25	50
.12	3	24	50	44	.34	2	34	50	40
.13	3	26	50	44	.35		GEARBOX		
.14	3	28	50	40	.36	2	36	50	33
.15	3	30*	50	42	.37	3	37	25	44
.16	3	32	50	40	.375		GEARBOX		
.17	3	34	50	40	.38	2	38	50	33
.18	3	36	50	33	.39	3	39	25	44
.19	3	38	50	33	.40		GEARBOX		
.20	2	22*	55*	44	.41	3	41	25	44
.21	3	21	25	55*	.42	2	21	25	55*
.22	2	22*	50	45	.425	3	51	30*	33
.23	3	23	25	55*	.43	3	43	25	44
.24	2	24	50	44	.4375		GEARBOX		
.25	3	22*	22*	55*	.44	3	44	25	44
.26	2	26	50	44	.44	1	22*	50	45
.27	3	27	25	50	.45		GEARBOX		
.275		GEARBOX			.46	2	23	25	55*
.28	2	28	50	40	.47	3	47	25	44
.2875		GEARBOX			.475	3	57	30*	33
.29	3	29	25	50	.48	1	24	50	44
.30		GEARBOX			.49	3	49	25	44
.31	3	31	25	50	.50		GEARBOX		
.32	2	32	50	40	.51	3	51	25	40

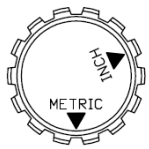




METRIC THREADS

PITCH IN MM	KNOB	SCREW GEAR	TUMBLER GEAR	1 DLER	PITCH IN MM	KNOB	SCREW GEAR	TUMBLER GEAR	1 DLER
.52	1	26	50	44	.76	1	38	50	33
.53	3	53	25	40	.78	2	39	25	44
.54	2	27	25	50	.80		GEARBOX		
.55		GEARBOX			.82	2	41	25	44
.56	1	28	50	40	.84	1	21	25	55*
.5625	3	54	24	33	.85	2	51	30*	33
.57	3	57	25	33	.86	2	43	25	44
.575		GEARBOX			.875		GEARBOX		
.58	2	29	25	50	.88	2	44	25	44
.59	3	59	25	33	.90		GEARBOX		
.60		GEARBOX			.92	1	23	25	55*
.61	3	61	25	33	.94	2	47	25	44
.62	2	31	25	50	.95	2	57	30*	33
.625		GEARBOX			.98	2	49	25	44
.63	3	63	25	33	1.0		GEARBOX		
.64	1	32	50	40	1.02	2	51	25	40
.65		GEARBOX			1.06	2	53	25	40
.66	2	33	25	50	1.08	1	27	25	50
.675		GEARBOX			1.1		GEARBOX		
.68	1	34	50	40	1.125	2	54	24	33
.6875	3	66	24	33	1.14	2	57	25	33
.70		GEARBOX			1.15		GEARBOX		
.72	1	36	50	33	1.16	1	29	25	50
.74	2	37	25	44	1.18	2	59	25	33
.75		GEARBOX			1.2		GEARBOX		





METRIC THREADS

PITCH IN MM	KNOB	SCREW GEAR	TUMBLER GEAR	1 DLER	PITCH IN MM	KNOB	SCREW GEAR	TUMBLER GEAR	1 DLER
1.22	2	61	25	33	2.2	1	55*	25	33
1.24	1	31	25	50	2.25	1	54	24	33
1.25		GEARBOX			2.28	1	57	25	33
1.26	2	63	25	33	2.36	1	59	25	33
1.3		GEARBOX			2.4	1	60*	25	33
1.32	1	33	25	50	2.44	1	61	25	33
1.35		GEARBOX			2.5		GEARBOX		
1.375	2	66	24	33	2.52	1	63	25	33
1.4		GEARBOX			2.6	1	65	25	33
1.48	1	37	25	44	2.7		GEARBOX		
1.5		GEARBOX			2.75	1	66	24	33
1.56	1	39	25	44	3.0	1	66	22*	33
1.6		GEARBOX							
1.64	1	41	25	44					
1.7	1	51	30*	33					
1.72	1	43	25	44					
1.75		GEARBOX							
1.76	1	44	25	44					
1.8		GEARBOX							
1.88	1	47	25	44					
1.9	1	57	30*	33					
1.96	1	49	25	44					
2.0		GEARBOX							
2.04	1	51	25	40					
2.12	1	53	25	40					

HEADSTOCK ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LT-01-101	1	HEADSTOCK	34	SN04008	4	SCREW
2	LB-01-102	1	SPINDLE NUT	35	L-1036	1	NAME PLATE
3	MC0001	2	BELT	36	LT-01-117	4	SCREW
4	LT-01-102F	1	SPINDLE PULLEY	37	SA12040	3	SCREW
5	KD02B042	1	KEY	38	LT-01-105	1	BEARING SPACER
6	BB7014CP4	2	BEARING	39	LB-01-101	1	NUT
7	LT-01-103	1	BEARING SPACER	40	KD02B14	1	KEY
8	PT5#50	1	TAPER PIN	41	LT-01-106	1	HANDWHELL
9	LB-01-113	6	SCREW	42A	LT-01-107A	1	DRIVER GEAR
10	LB-01-107	1	GASKET	42B	LT-01-107S	1	GEAR COVER
11	LB-01-108	1	FRONT CAP	43	SL08005	1	SCREW
12	SL06008	1	LOCK SCREW	44	LB-01-115	1	COOLANT SHIELD
13	LT-01-104	1	SPINDLE				
14	L-1014	1	LOCK SCREW				
15	SL06B08B	1	SCREW				
16	PD05B112B	2	PIN				
17	L-1017	1	COLLET CLOSER BRACKET				
18	SA08035	3	SCREW				
19	EB0028	1	CONNECTOR QUEKER				
20	EB0029	1	CONNECTOR STRAIGHT				
21	SL10006	1	LOCK SCREW				
22	SL10012	1	LOCK SCREW				
23	L-1023	1	LOCKING PLUG				
24	L-1024	1	SEAL				
25	SC04025	2	SCREW				
27	EB0073	1	MICRO SWITCH				
28	L-1029	1	SEAL				
29	L-1031	1	SPRING				
30	LT-01-116	1	PLUNGER				
31	L-1032	1	LOCK PIN				
32	L-1033	1	KEY SCREW				

HEADSTOCK ASSEMBLY

HEADSTOCK ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LT-01-101	1	HEADSTOCK	34	SN04008	4	SCREW
2	LB-01-102	1	SPINDLE NUT	35	L-1036	1	NAME PLATE
3	MC0001	2	BELT	36	LT-01-117	4	SCREW
4	LT-01-102F	1	SPINDLE PULLEY	37	SA12040	3	SCREW
5	KD02B042	1	KEY	38	LT-01-105	1	BEARING SPACER
6	BB7014CP4	2	BEARING	39	LB-01-101	1	NUT
7	LT-01-103	1	BEARING SPACER	40	KD02B14	1	KEY
8	PT5#50	1	TAPER PIN	41	LT-01-106	1	HANDWHELL
9	LB-01-113	6	SCREW	42A	LT-01-107A	1	DRIVER GEAR
10	LB-01-107	1	GASKET	42B	LT-01-107S	1	GEAR COVER
11	LB-01-108	1	FRONT CAP	43	SL08005	1	SCREW
12	SL06008	1	LOCK SCREW	44	LB-01-115	1	COOLANT SHIELD
13	LT-01-104	1	SPINDLE				
14	L-1014	1	LOCK SCREW				
15	SL06B08B	1	SCREW				
16	PD05B112B	2	PIN				
17	L-1017	1	COLLET CLOSER BRACKET				
18	SA08035	3	SCREW				
19	EB0028	1	CONNECTOR QUEKER				
20	EB0029	1	CONNECTOR STRAIGHT				
21	SL10006	1	LOCK SCREW				
22	SL10012	1	LOCK SCREW				
23	L-1023	1	LOCKING PLUG				
24	L-1024	1	SEAL				
25	SC04025	2	SCREW				
27	EB0073	1	MICRO SWITCH				
28	L-1029	1	SEAL				
29	L-1031	1	SPRING				
30	LT-01-116	1	PLUNGER				
31	L-1032	1	LOCK PIN				
32	L-1033	1	KEY SCREW				

THREADING GEAR BOX ASSEMBLY

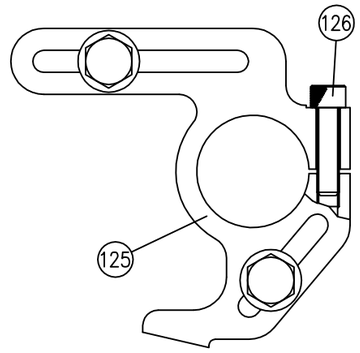
KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LT-11-001	1	GEAR BOX	35	BB6002ZZ	2	BEARING
2	LT-11-002	1	GEAR BOX COVER	36	LT-11-013	1	GEAR SHAFT
3	LT-01-206	1	GEAR	37	KD04094	1	KEY
4	KD04015	1	KEY	38	KD04100	1	KEY
5	LT-01-207	1	GEAR SHAFT	39	LT-11-014	1	E.M.CONVERSION FORK
6	LT-01-208	1	PLUNGER	40	BB61805	2	BEARING
7	SL06010	1	SET SCREW	41	LT-11-015	1	GEAR
8	BB6002ZZ	2	BEARING	42	RCS25	2	SNAP RING
9	RCR32	11	RETAINING RING	43	LT-11-016	1	GEAR
10	LT-01-209	1	STOP BLOCK	44	KD04014	1	KEY
11	SA05010	2	SCREW	45	LT-11-017	1	GEAR
12	LT-11-003	1	GEAR SHAFT	46	LT-11-018	1	GEAR
13	BB6002ZZ	2	BEARING	47	SA04010	2	SCREW
14	LT-11-004	1	GEAR SHAFT	48	BB6002ZZ	1	BEARING
15	BB5202ZZ	1	BEARING	49	BB6203ZZ	1	BEARING
16	LT-01-213	1	LOCK NUT	50	RCR40	5	RETAINING RING
17	LT-11-005	1	GEAR	51	LT-11-019	2	SLEEVE
18	KD03045	1	KEY	52	KD03025	2	KEY
19	LT-01-219	1	KEY BUSH	53	LT-01-266	2	GEAR
20	LT-01-218	1	CLUTCH	54	LT-01-267	4	BOLT
21	LT-11-006	1	GEAR	55	LT-11-020	1	GEAR SHAFT
22	BB5201ZZ	1	BEARING	56	KD0420	2	KEY
23	LT-01-217	1	LOCKNUT	57	LT-11-021	1	GEAR
24	LT-11-007	1	SLEEVE	58	BB6002ZZ	2	BEARING
25	LT-01-220	1	LOCK NUT	59	BB6203ZZ	1	BEARING
26	BB6002ZZ	2	BEARING	60	LT-11-022	1	SLEEVE
27	LT-11-008	1	GEAR SHAFT	61	KD03010	1	KEY
28	KD04065	1	KEY	62	LT-11-023	1	GEAR
30	LT-11-010	1	GEAR	63	LT-11-024	1	GEAR SHAFT
33	LT-11-012	1	GEAR	64	LT-11-025	1	GEAR
34	SA04005	2	SCREW	65	RCS15	2	SNAP RING

THREADING GEAR BOX ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
66	LT-11-026	1	THREAD CHANG ARM	97	LT-01-260	1	GEAR
67	BB61805	2	BEARING	98	LT-01-261	1	GEAR
68	SF02B05B	2	CROSS RECESSES SCREW	99	BB6203ZZ	1	BEARING
69	LT-11-027	1	GEAR	100	LT-11-035	1	LOCK NUT
70	BB608Z	2	BEARING	101	LT-11-036	1	SLEEVE
71	LT-11-028	1	SHAFT	102	LT-11-037	1	GEAR
72	SL05006	2	SET SCREW	103	LT-11-038	1	SHAFT
73	LT-11-029	1	STOP ROD	104	KD0445	1	KEY
74	LT-11-030	1	SPACE PLATE	105	LT-11-039	1	GEAR
75	SA04006	2	SCREW	106	BB63042RS	1	BEARING
76	PD05012	2	DOWEL PIN	107	LT-11-040	1	LOCK NUT
77	LT-01-246	1	SLEEVE	108	LT-11-041	1	SLEEVE
78	LT-01-247	1	NUT	109	LT-11-042	1	SHAFT
79	LT-01-248	1	LOCK PIN	110	LT-11-043	1	CLUTCH ARM
80	LT-01-250A	1	HANDLE HEAD	111	SL04B03B	2	SCREW
81	LT-01-250B	1	SPRING	112	SA05B100B	4	SCREW
82	BB6203ZZ	1	BEARING	113	LT-01-290	1	TAPER PIN
83	LT-11-031	1	GEAR SHAFT	114	NH06	1	NUT
84	BNTA1212	1	NEEDLE BEARING	115	SA04B100B	1	SCREW
85	BNTA3820	1	NEEDLE BEARING	116	SA04B103B	4	SCREW
86	KD04116	1	KEY	117	PD05B16B	2	DOWEL PIN
87	LT-01-253	1	GEAR	118	LT-11-044	1	BUSH
88	LT-11-032	1	GEAR	119	LT-11-045	2	BUSH
89	LT-01-254	1	GEAR	120	LT-11-046	3	KNOB
90	LT-01-255	1	GEAR	120A	LT-01-283	3	GEAR SHAFT
91	LT-11-033	1	GEAR	120B	RCS19	3	SNAP RING
92	LT-01-256	1	GEAR	121	L-2016	3	SPRING
93	LT-11-034	1	GEAR	122	LT-01-286	3	PIN
94	LT-01-257	1	GEAR	123	SL06B03B	3	SCREW
95	LT-01-258	1	GEAR	124	SL04B05B	3	SCREW
96	LT-01-259	1	GEAR	125	LT-11-047	1	GEAR BASE

THREADING GEAR BOX ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
126	SA05B109B	1	SCREW				
127	LT-01-276	2	NUT				
128	LT-01-273	1	KEY BUSH				
129	LT-01-274	1	SPACER				
130	LT-01-275	1	BOLT				
131	LT-01-278	1	SPACER				
132	LT-01-279	1	KEY BUSH				
133	LT-01-280	1	BUSH				
134	LT-01-281	1	BOLT				
135	LT-01-268	1	GEAR				
136	LT-01-277	1	GEAR				
137	LT-01-272	1	GEAR				
138	LT-11-048	1	SETDOOR LINK SET				
139	SN0205B	6	SCREW				
140	LT-11-049	1	LOCK BOLT				
141	SP02018	1	SPRING PIN				
142	SP02012	1	SPRING PIN				
143	LT-11-050	1	COVER				
144	LT-11-051	1	COVER				
145	LT-01-292	1	COVER				
146	SN03B08B	8	SCREW				
147	LT-01-294	1	INDICATED PLATE				
148	LT-11-052	1	INDICATED PLATE				
149	LT-01-295	1	INDICATED PLATE				
150	LT-01-293	1	WARNING PLATE				
151	LT-11-053	1	INDICATED PLATE				
152	MF1	8	RIVER				
154	KD03022	1	KEY				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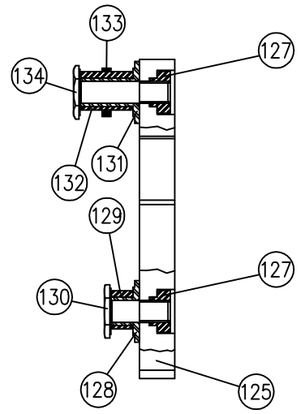
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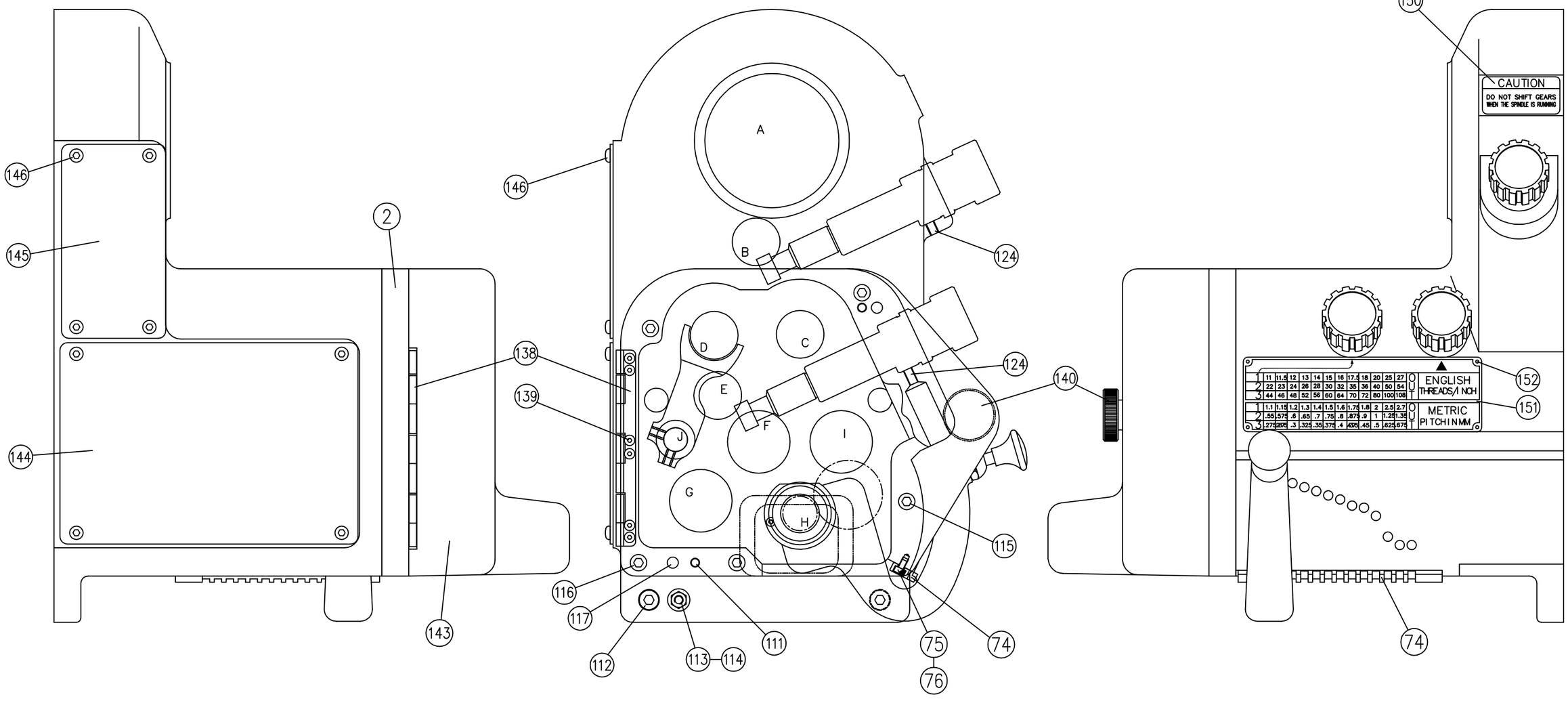
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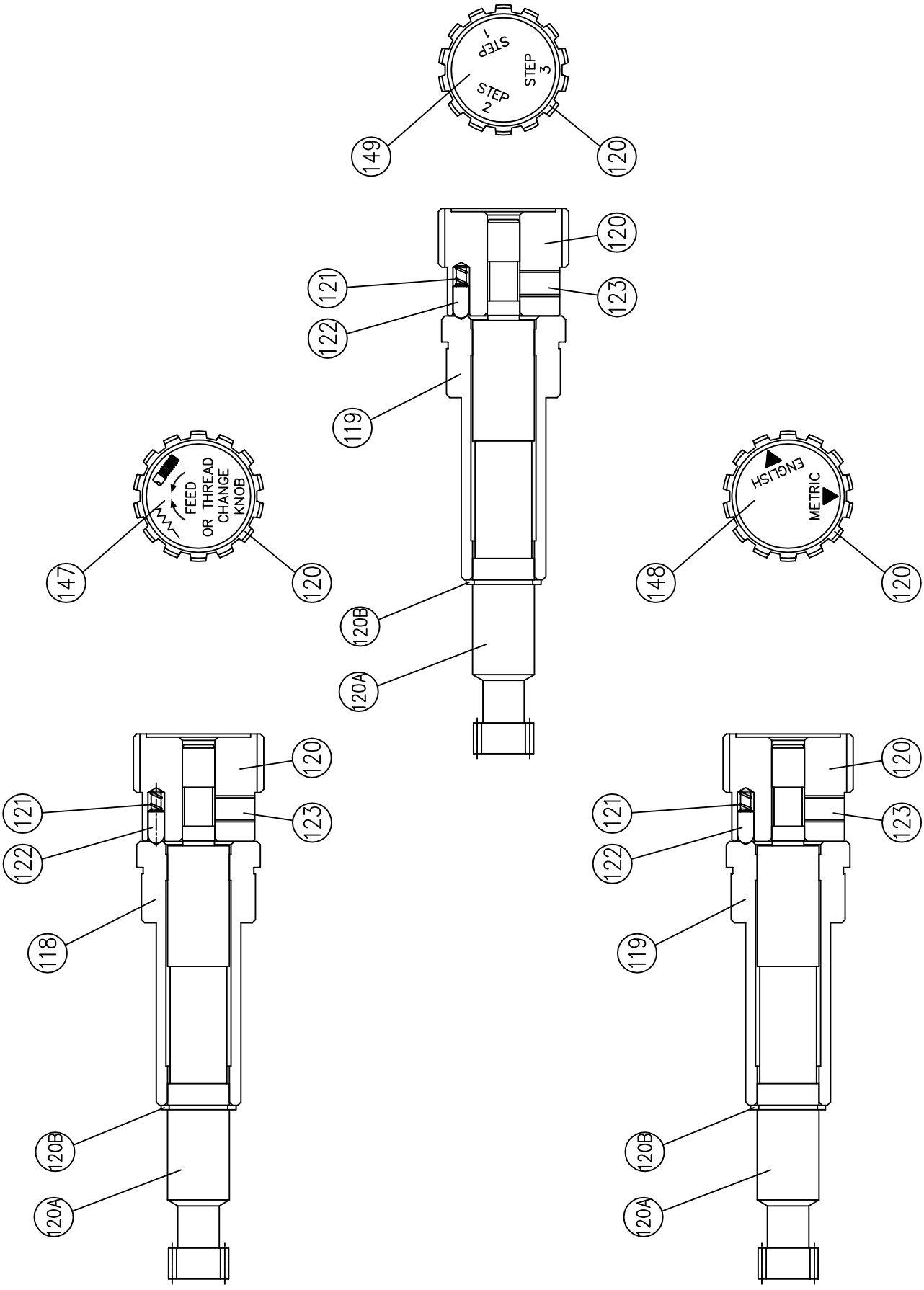
CAUTION
DO NOT SHIFT GEARS
WHEN THE SPINDLE IS RUNNING
152
151
74
ENGLISH
THREADS/INCH
METRIC
PITCH IN MM


STEP 1
STEP 2
STEP 3
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OR THREAD
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KNOB
147
ENGLISH
METRIC
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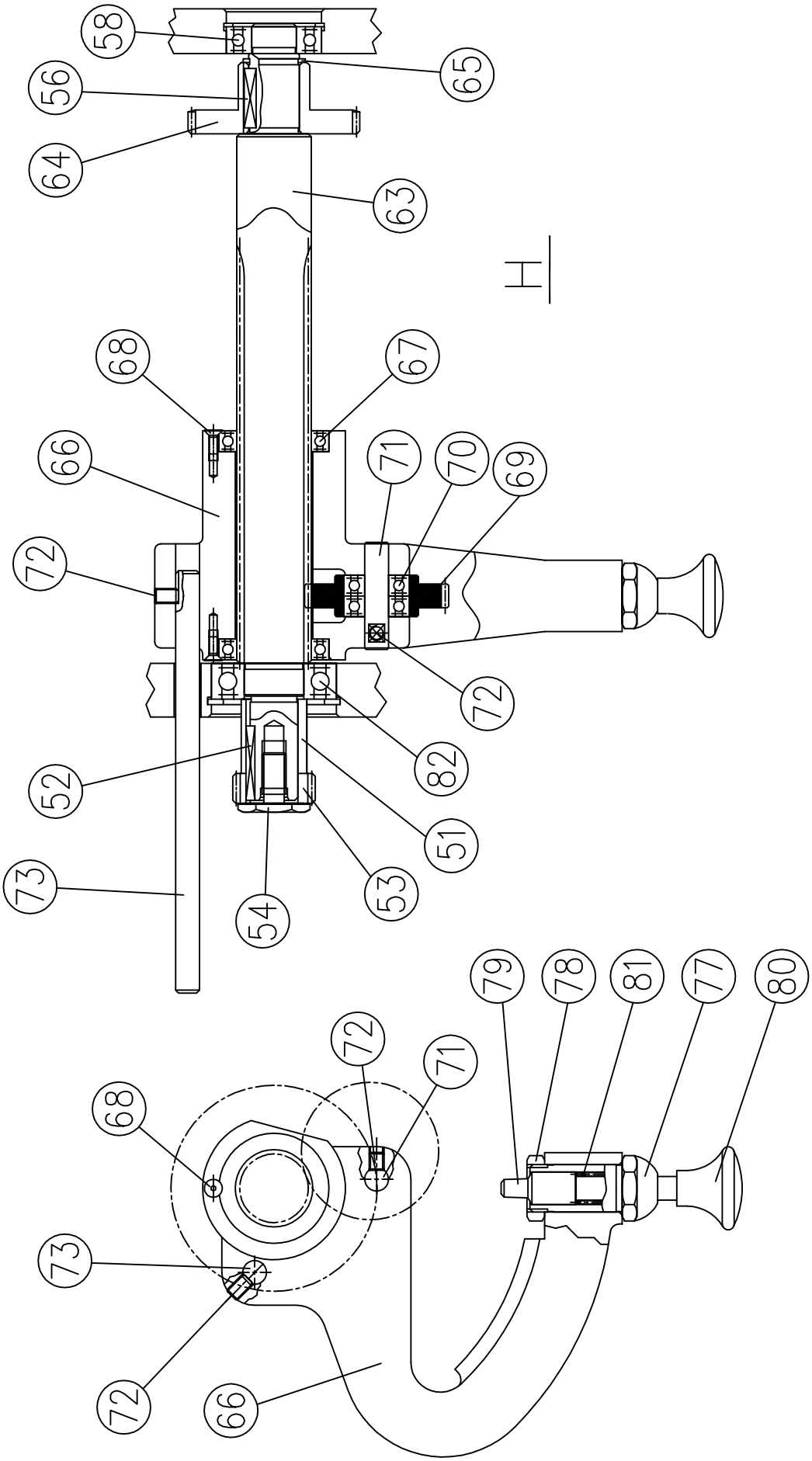
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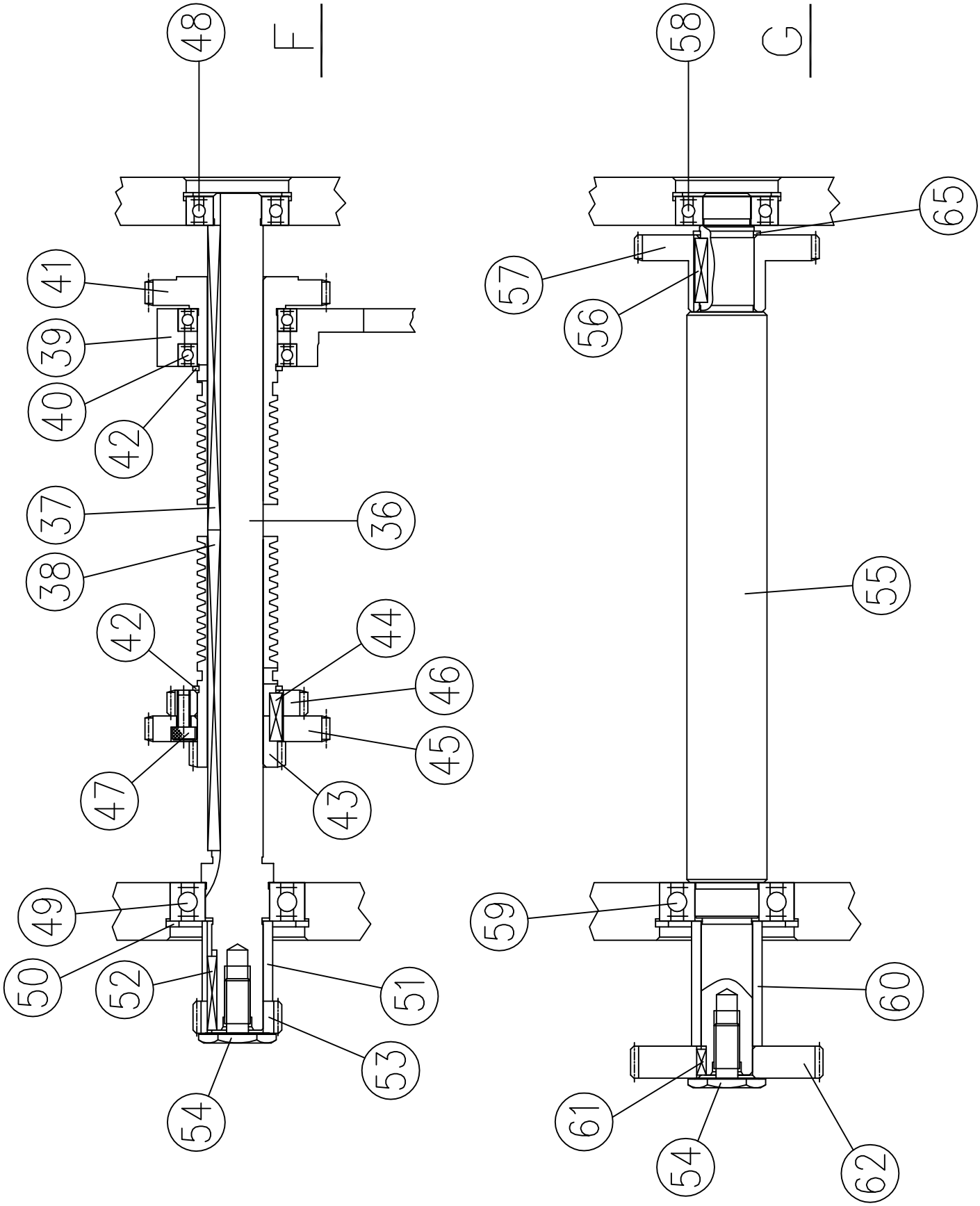
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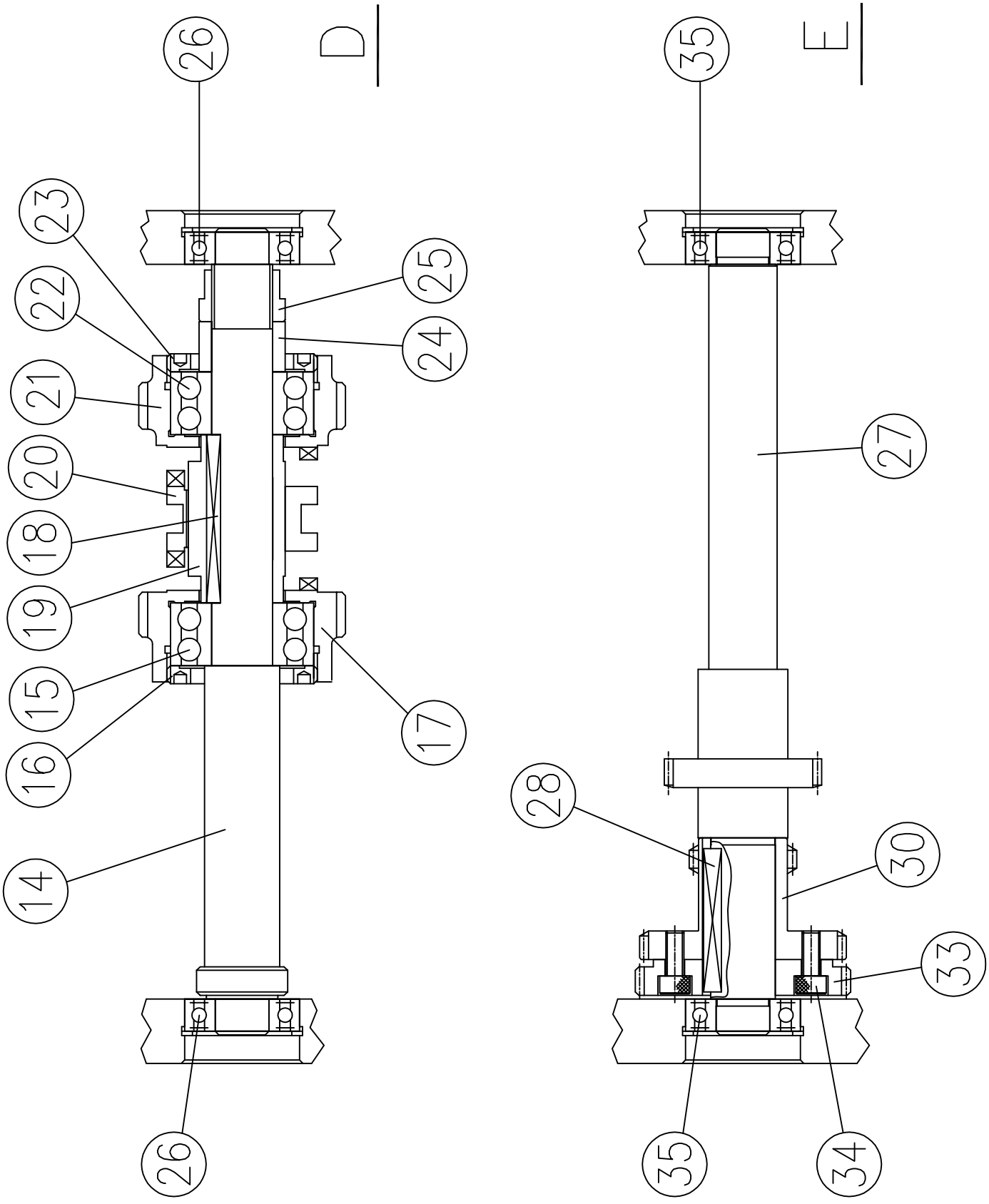
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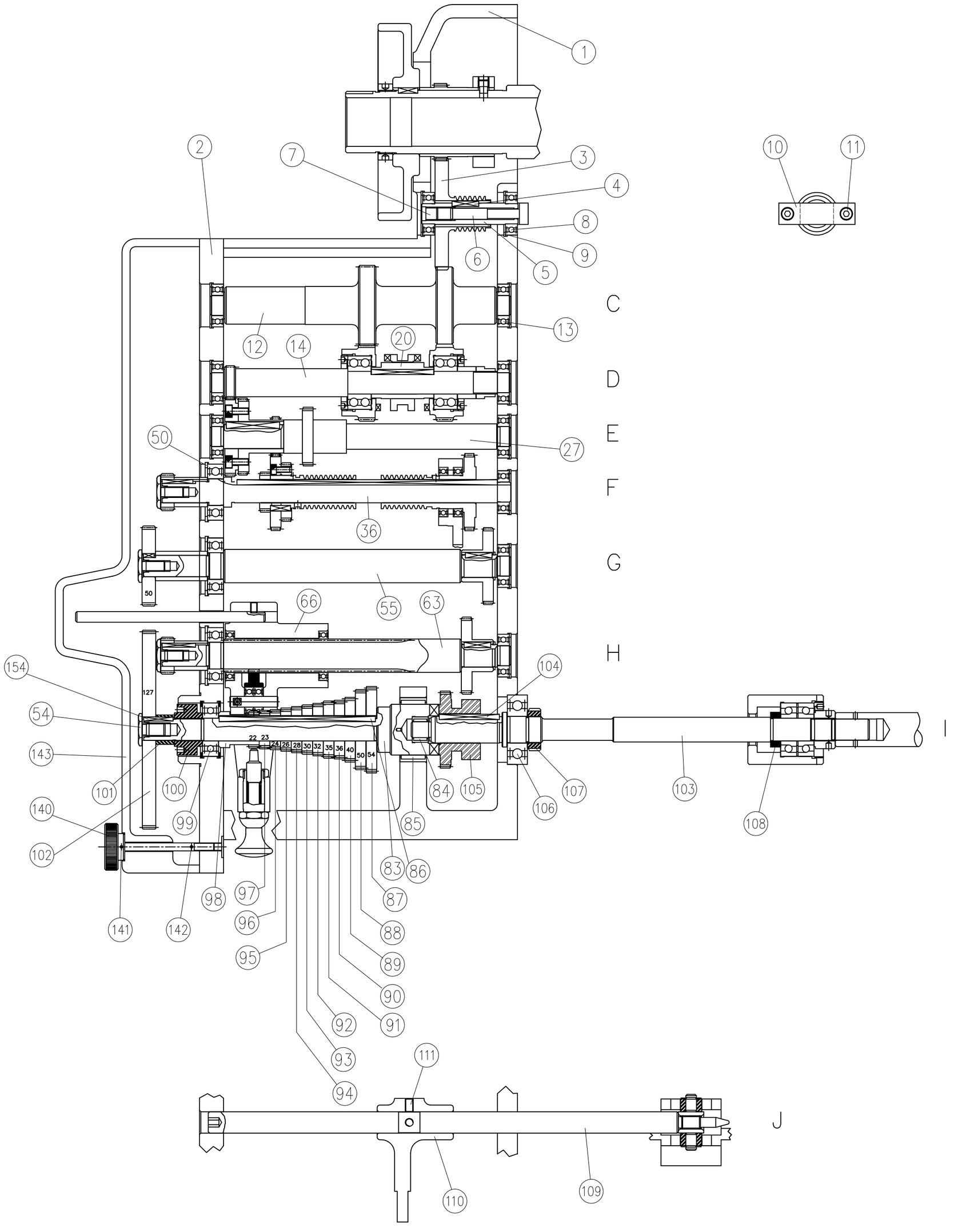
34

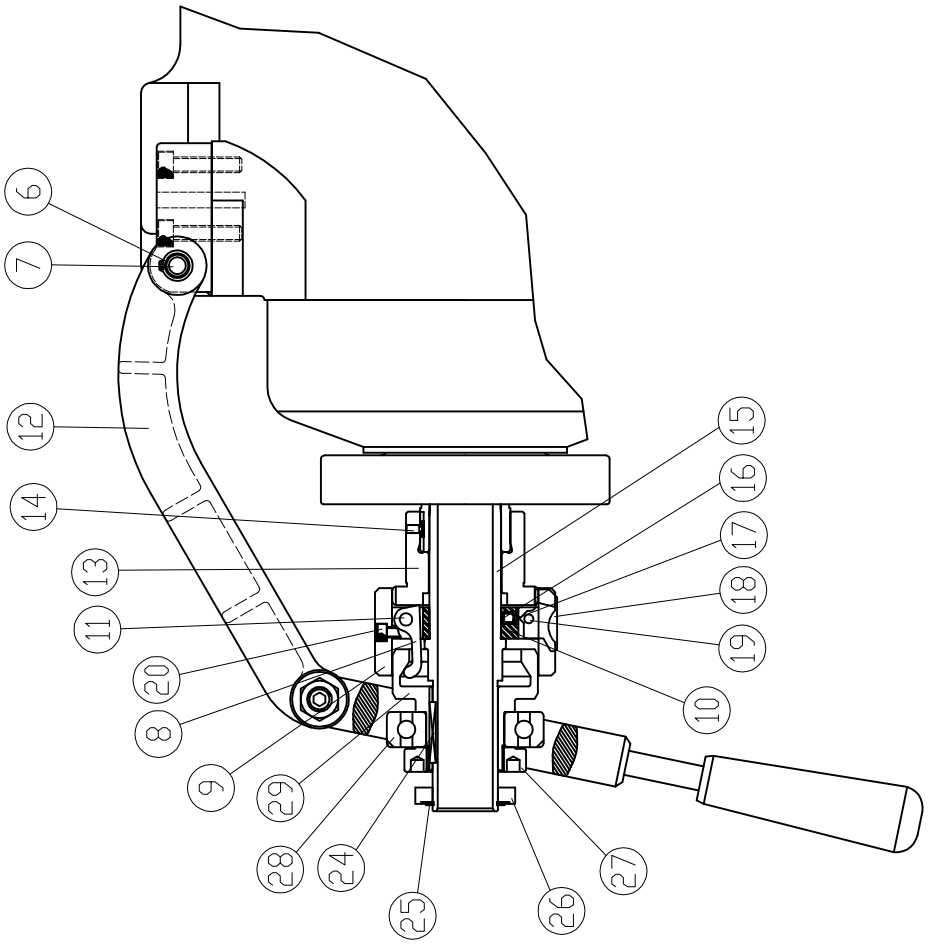
Threaing Gear Box Assyembly

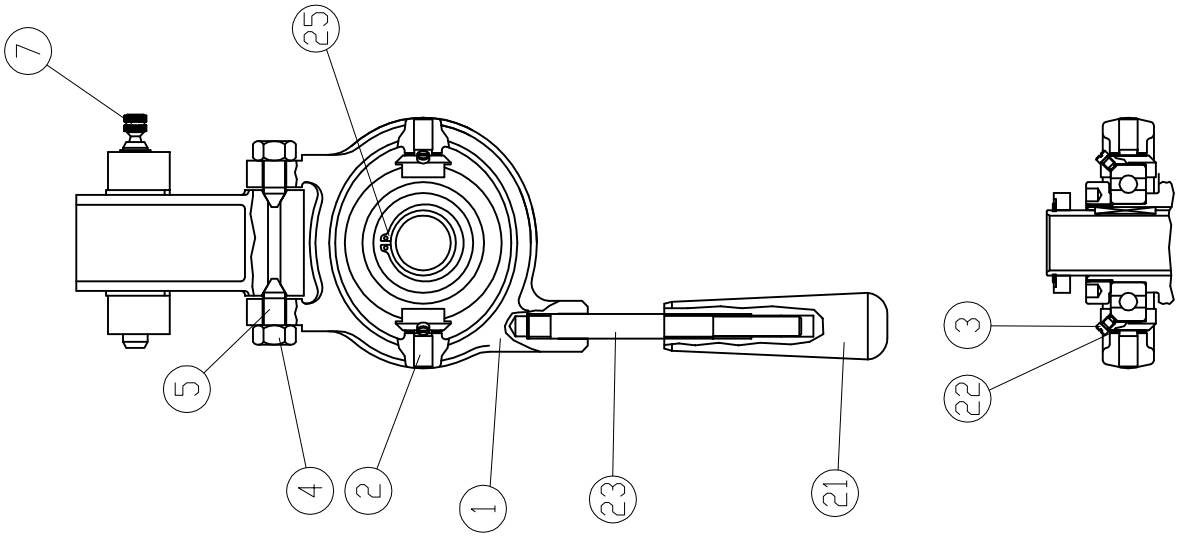


COLLET CLOSER ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	L-2001	1	LEVER YOKE				
2	L-2002	2	SWIVEL BLOCK				
3	L-2003	2	SCREW				
4	NH12F	2	NUT				
5	L-2005	2	PIVOT SCREW				
6	RCS13	1	SNAP RING				
7	L-2007	1	LINK PIN				
8	L-2008	3	CLUTCH FINGER				
9	L-2009	1	SHELL GUARD				
10	L-2010	1	BRACKET				
11	PD04B104B	3	PIN				
12	LT-02-001	1	CONNECTING LINK				
13	LT-02-002	1	ADJUSTING KEY				
14	L-2014	1	KEY				
15	LT-02-003	1	COLLET SPINDLE				
16	L-2016	1	SPRING				
17	L-2017	1	SPRING CAP				
18	L-2018	1	ADJUSTING FINGER				
19	PD03B14B	1	PIN				
20	SA05010	4	SCREW				
21	L-4001	1	LEVER HANDLE				
22	L-2022	2	SPRING				
23	L-2023	1	HANDLE				
24	KD02B104B	1	KEY				
25	RCS34	1	SNAP RING				
26	L-2026	1	STOP RING				
27	L-2027	1	NUT				
28	L-2028	1	BEARING				
29	L-2029	1	CLUTCH CONE				

COLLET CLOSER





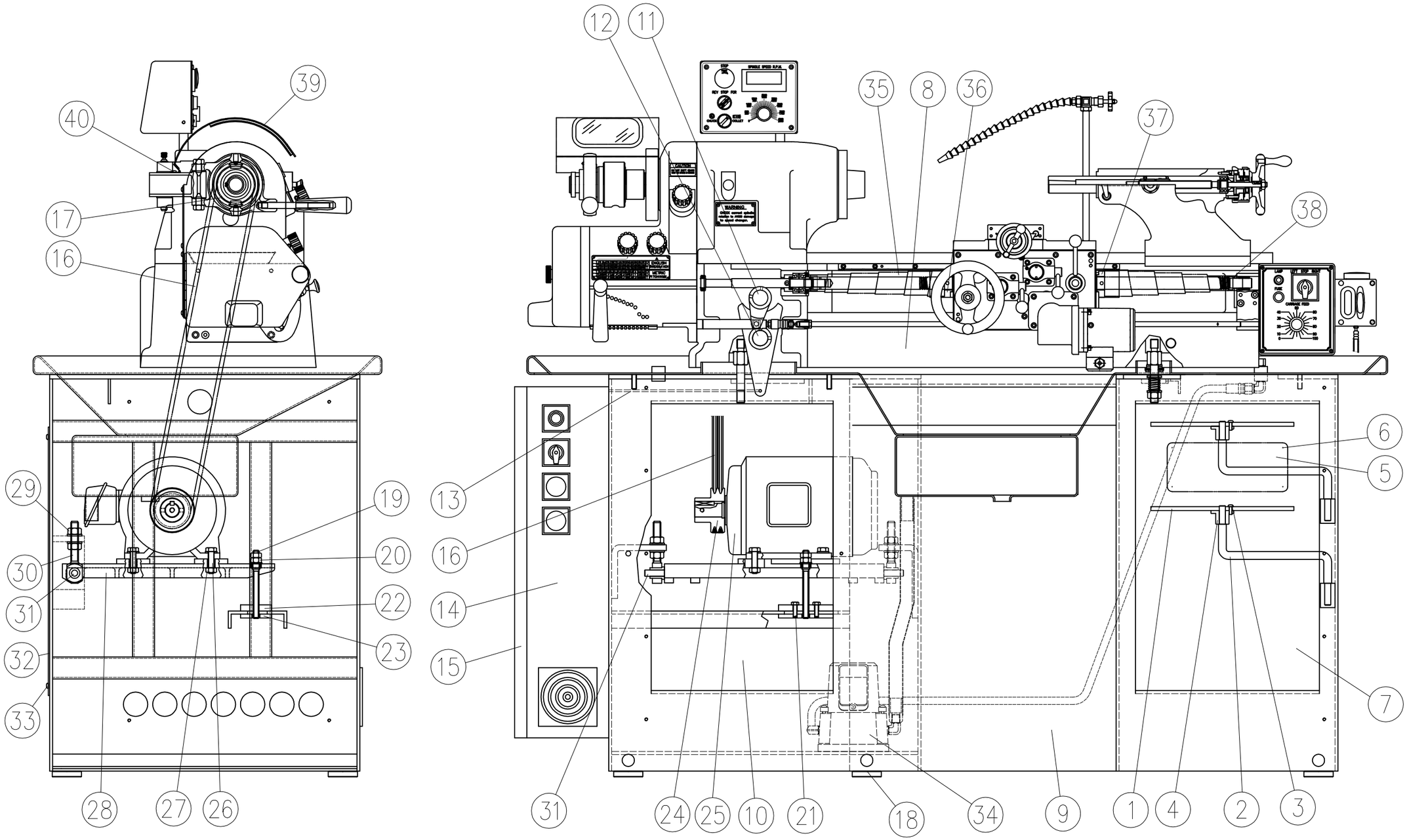
BED ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LT-03-101	1	BED BODY	31	PT03025	1	TAPER PIN
2	PD03B16B	2	PIN	32	LT-03-121	1	LENGTH CONTROL LEVER
3	SA05012	8	SCREW	33	LT-03-122	1	BEARING SPACER
4	LT-03-102	1	RACK	33A	LT-03-122A	1	BEARING SPACER
5	LT-03-103	1	LEAD SCREW	33B	LT-03-122B	1	BEARING SPACER
6	LT-03-104	1	LEAD SCREW SUPPORT	34	BB72032Z	2	BEARING
7	PT7#64	2	TAPER PIN	35	LT-03-123A	1	LOCK NUT
8	SA08045	2	SCREW	36	LT-03-124	1	LOCK NUT
9	RNA6902	1	NEDDLE BEARING	37	PT3#25	1	TAPER PIN
10	LT-03-105	1	SPEED LEVER	38	LB-03-013	1	BED PLATE
11	LT-03-106	1	SPEED ARM	39	SA08020	28	SCREW
12	LT-03-107	1	REVERSE ARM	39A	WS08B	17	LOCK WASHER
13	LT-03-108	2	FIXED BLOCK	40	SA08025	14	SCREW
14	LT-03-109	1	SWIVEL SHAFT	41	ORP25	4	O RING
15	RCS08	2	SNAP RING	42	L-5008	2	WASHER
16	PT03045	3	TAPER PIN	43	L-5010	2	SPRING WASHER
16A	LT-03-110	1	REVERSE ARM	44	NH08BF	2	NUT
17	LT-03-111	4	NUT	47	LB-03-021	3	HOLD DOWN STUD
18	LT-03-112	1	SCREW	48	LB-03-025	3	WASHER
19	LT-03-113	1	GUIDE BLOCK	48A	LB-03-026	3	SPACER
20	LT-03-114	1	GUIDE BAR	48B	LB-03-022	10	WASHER
21	LT-03-115	1	LOCATING LINK	48C	LB-03-027	3	WASHER
22	LT-03-116	1	DOWEL	49	WB10B	6	WASHER
23	LT-03-117	1	SPRING	50	LB-03-024	3	SPRING
24	SL12020	1	LOCK SCREW	51	NH10BF	3	NUT
25	LT-03-118	1	LENGTH CONTROL BAR	52	L-4001	2	BALL HANDLE
26	LT-03-119	2	DOMPER	53	L-5004A	2	LEVER
27	SL06006	2	LOCK SCREW	54	LT-03-126	1	SPEED PLATE
28	SL05006	2	LOCK SCREW	55	PD03B104B	1	PIN
29	SA06035	2	SCREW	56	L-5006	1	REVERSE FORWAR PLATE
30	LT-03-120	1	FIXED BLOCK				

BED ASSEMBLY

PADESTAL ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LB-04-009	1	COLET HOLDER PLATE	32	L-6165	1	REAR COVER
2	LB-04-006	1	PULL ROD	33	SH06012	4	SCREW
3	SN06015	3	SCREW	34	LB-08-006	1	PUMP
4	LB-04-008	1	BUSHING	35	118143	2	COVER
5		1	NAMEPLATE	36	LT-03-103A	1	SCREW
6	MP 02	4	NAMEPLATE PIN	37	LT-03-103B	1	SCREW
7		1	RIGHT SIDE DOOR	38	LT-03-103C	1	SCREW
8	LT-03-101	1	BED BODY	39	LT-04-004	1	COVER
9	LT-04-003	1	PEDESTAS	40	SN05008	2	SCREW
10		1	LEFT SIDE DOOR	41	CTA-8	1	MANUAL LUBRICATORS
11	LT-03-121	1	CONTROL LEVER	42	L-6604A	1	ELBOW SUPPORT
12	LT-03-105	1	HI-LOW CONTROL LEVER	43	S-5001	1	NEEDLE VALVE
13	LB-04-005	1	PULL ROD	44	1/4"×1'L	1	NOZZLE
14		1	PANEL				
15		1	PANEL COVER				
16	MC0019	2	DRIVE BELTS				
17	LT-01-102F	1	PULLEY				
18	LB-04-001A	6	ADJUSTING SCREW				
19	L-6143	1	SUPPORT STUD				
20	HN08BF	2	HEX NUT				
21	SH08025	2	HEX HEAD SCREW				
22	L-6145	1	UPPER SUPPORT PLATE				
23	L-6142	1	LOWER SUPPORT PLATE				
24	LT-04-012F	1	PULLEY				
25	EA0011	1	MOTOR				
26	SH12035	4	HEX HEAD SCREW				
27	HN012	4	HEX NUT				
28	LB-04-010	1	SHELF				
29	HN10BF	2	HEX NUT				
30	L-6164	2	HINGE EYE BOLT				
31	L-6146	2	ROD				

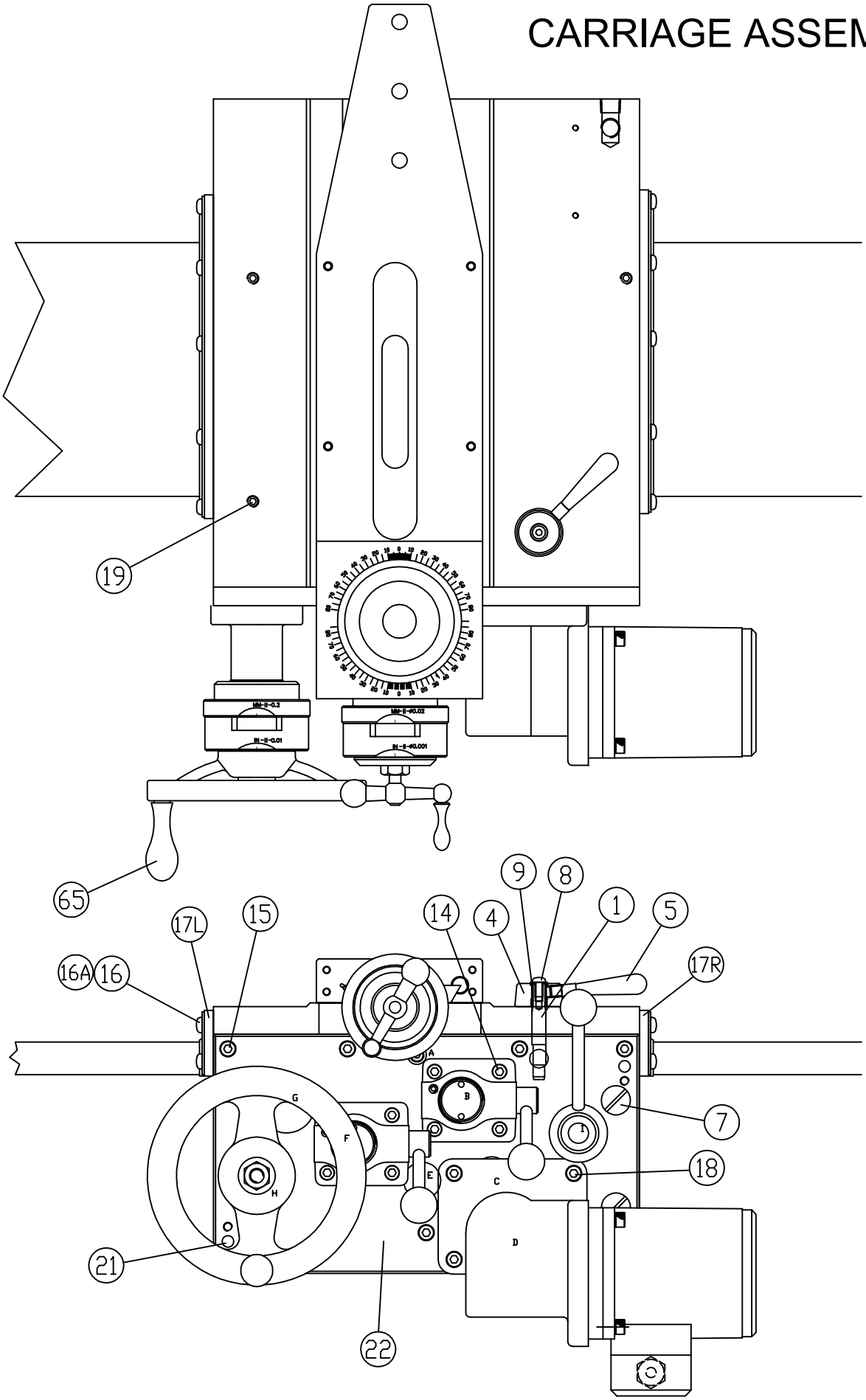


PADESTAL ASSEMBLY

CARRIAGE ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LT-05-104	1	ECCENTRIC ROD				
2	LT-05-105	1	TAPER PLUG				
3	LT-05-106	1	PLUG				
4	LT-05-107A	1	HUB BLOCK				
5	LT-05-108	2	NANDLE				
7	LT-05-321	2	PLUG COCK				
8	SN03B05B	2	SCREW				
9	L-4065A	2	WASHER				
14	SA03B12B	8	SCREW				
15	SA04B10B	7	SCREW				
16	SN06016	14	SCREW				
16A	WE04B	14	WASHER				
17L	LB-05-114A	1	LEFT WIPPER				
	LB-05-114C	1	LEFT COVER				
17R	LB-05-114B	1	RIGHT WIPPER				
	LB-05-114D	1	RIGHT COVER				
18	SA05B12B	3	SCREW				
19	SL05B05B	3	SCREW				
20	SA05B05B	3	SCREW				
21	PD05B16B	2	PIN				
22	LT-05-109	1	GEAR BOX COVER				

CARRIAGE ASSEMBLY



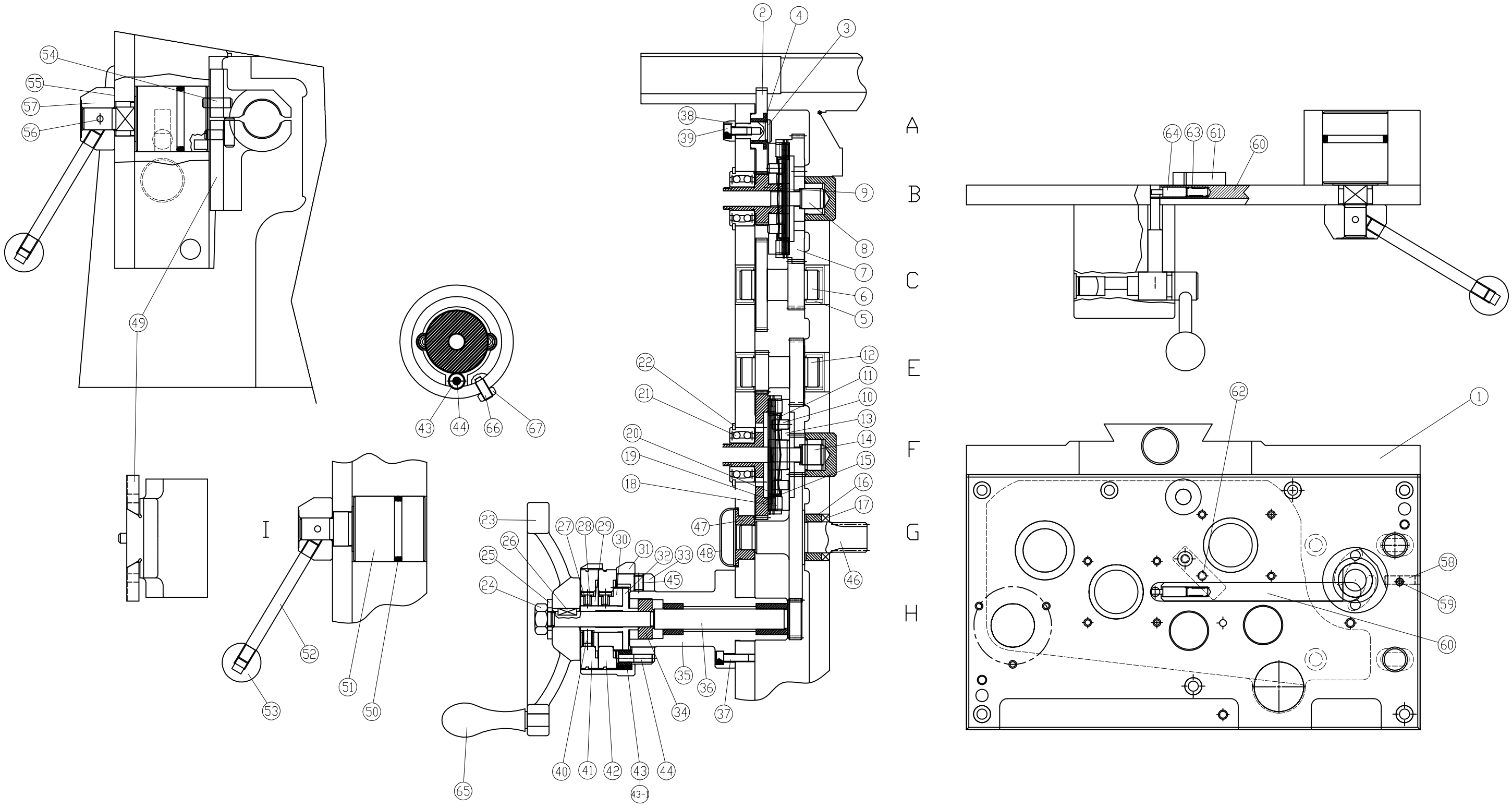
GEAR BOX OF CARRIAGE ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LT-05-301	1	CARRIAGE	32	LT-05-427	1	GEAR
2	LT-05-302A	1	GEAR	33	LT-05-307EM99	1	ZERO RING
3	LT-05-302B	1	OILY BEARING	34	LT-05-312EM	1	SLEEVE
4	LT-05-303	1	STUD	35	LT-05-311EM99	1	SUPPORT
5	BAM128	4	NEDDLE BEARING	36	LT-05-310EM	1	GEAR SHAFT
6	LT-05-304	1	GEAR	37	SA05016	3	SCREW
7	LB-05-306	1	CLUTCH BUSHING	38	LT-05-303A	1	BUSHING
8	LB-05-307	1	CLUTCH SHAFT	39	SA05010	1	SCREW
9	LB-05-308	1	PINION	40	SL06008	1	LOCK SCREW
10	LB-05-330	6	CLUTCH PIN	41	LT-05-206EB	1	DIAL RING
11	RCS06	6	SNAP RING	42	LT-05-206MB	1	DIAL RING
12	LT-05-305	1	GEAR	43	LT-05-430	1	GEAR
13	LB-05-308A	2	CLUTCH FIXED PLATE	43-1	LT-05-430-1	1	ANTI-CHIP SET
14	LB-05-328	1	CLUTCH SHAFT	44	LT-05-429	1	SHAFT
15	LB-05-329	1	CLUTCH BUSHING	45	SL06010	1	SCREW
16	LT-05-318	1	BEARING BRASS	46	LT-05-306	1	GEAR SHAFT
17	OS20305	1	SEAL	47	LT-05-320	1	BEARING BRASS
18	LB-05-305	4	BRAKE PLATE	48	LT-05-319	1	PLUG
19	LB-05-310	2	CLUTCH DISC	49	LT-05-308	2	GIB BLOCK
20	LB-05-301	2	BOWED WASHER	50	ORP36	1	O RING
21	5202NR	2	BEARING	51	LT-05-309	1	SHIFT SHAFT
22	RCS35	2	SNAP RING	52	L-7011	1	HANDLE LEVER
23	LT-05-322EM99	1	HANDWHEEL	53	LB-05-616	1	KNOB
24	NH10	1	NUT	54	PD06020	2	PIN
25	WB10	1	WASHER	55	LT-05-313	1	SHIM
26	KD04012	1	KEY	56	PT2#038	1	TAPER PIN
27	LT-09-121	2	SPRING	57	LT-05-314	1	HUB
28	LT-05-432	2	KEY	58	SL06020	1	LOCK SCREW
29	LT-05-431	1	COLLAR	59	SL05012	1	LOCK SCREW
30	LT-05-428	1	GEAR	60	LT-05-315	1	SLIDE BLOCK
31	LT-05-207EMC	1	ZERO RING	61	LT-05-317	1	FIXED BLOCK

GEAR BOX OF CARRIAGE ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
62	SA05012	1	SCREW				
63	LB-03-004	1	SPRING				
64	LT-05-316	1	PLUG				
65	LT-05-324	1	HANDLE				
66	LT-09-219	1	LOCK SCREW				
67	NH06	1	NUT				

GEAR BOX OF CARRIAGE ASSEMBLY

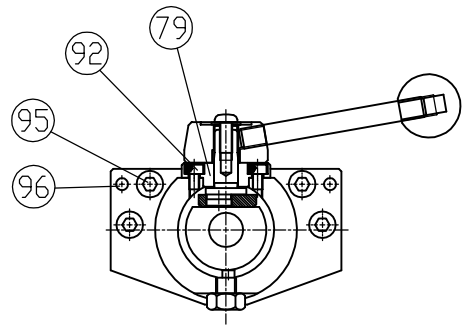


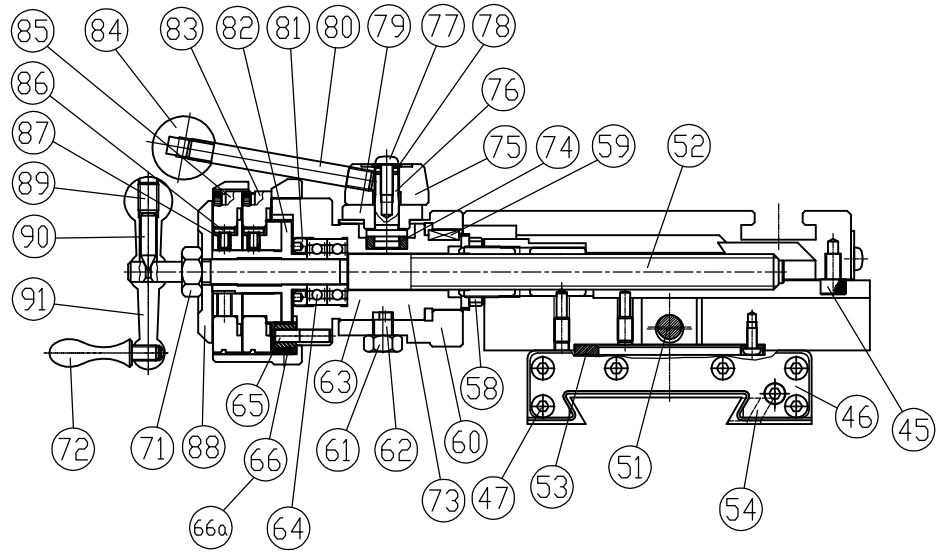
CROSS AND COMPOUND SLIDE ASSEMBLY

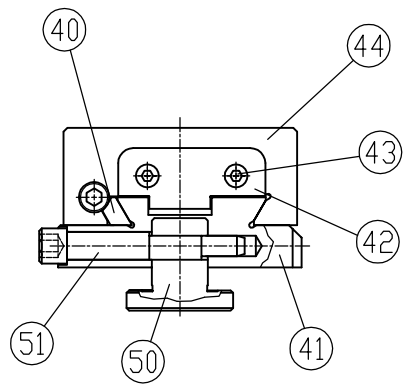
KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LT-05-206EA	1	DIAL RING	32	PD04B012B	2	PIN
2	LT-05-206MA	1	DIAL RING	33	LT-05-218	1	LEAD SCREW NUT
3	LT-05-207EMA	1	ZERO RING	34	LT-05-301	1	CARRIAGE
4	LT-05-205EM99	1	SUPPORT	35	SP06PT	1	OIL PLUG
5	LT-05-214EM99	1	CROSS-FEED SCREW	36	OW21	1	OIL WINDOW
6	LT-05-403	1	COVER	37	ORP8	1	O RING
7	LT-05-215	1	BRASS NUT	38	SP-02PT	1	OIL PLUG
8	SH10012	1	HEX SCREW	39	SN05025	4	SCREW
9	LT-05-217	1	LOCK SCREW	40	LT-05-414	1	COMPOUND SLIDE GIB
10	SA04008	1	SCREW	41	LT-05-410	1	COMPOUND SLIDE BASE
11	LT-05-216	1	SCREW PLUG	42	LT-05-412	1	WIPPER
12	LB-05-213	1	OIL TUBE	43	SN05008	2	SCREW
13	LB-05-212A	3	TUBING	44	LT-05-415	1	COMPOUND SLIDE
14	LT-05-401	1	CROSS SLIDE	45	SA06010	1	SCREW
15	LB-05-328	1	CLUTCH SHAFT	46	LT-05-112A	1	COVER
16	LB-05-329	1	CLUTCH BUSHING	47	SN05008	6	LOCK SCREW
17	LT-05-318	1	BEARING BRASS	48	SB04008	2	SCREW
18	OS20305	1	SEAL	49	LT-05-112N	1	WIPPER
19	LB-05-305	4	BRAKE PLATE	50	LT-05-406	1	LOCK BLOCK
20	LB-05-310	2	CLUTCH DISC	51	LT-05-407	1	ECCENTRIC SHAFT
21	LB-05-301	2	BOWED WASHER	52	LT-05-408	1	COMPOUND SLIDE SCREW
22	LB-05-201	1	O RING	53	LT-05-404	1	LOCATING RING
23	SN06012	2	SCREW	54	LT-05-402	1	CROSS SLIDE GIB
24	LT-05-210	1	CARRIAGE GIB	55	HE-PB4	3	COMPRESSION SLEEVE
25	LB-05-216	6	LOCK SCREW	56	LB-03-003	2	LOCK SCREW
26	NH06	2	NUT	57	LT-05-409	1	NUT
27	SL06020	2	LOCK SCREW	58	LT-05-411	1	LOCK SCREW
28	OC04B	1	OIL CUP	59	KD04012	1	KEY
29	LB-05-206	1	INSTRUCTION NAME PLATE	60	LT-05-416	1	QUICK-ACTING BASE
30	OW21	1	OIL WINDOW	61	NH08	1	NUT
31	PD04B008B	1	PIN	62	LT-05-413	1	ECCENTRIC SCREW

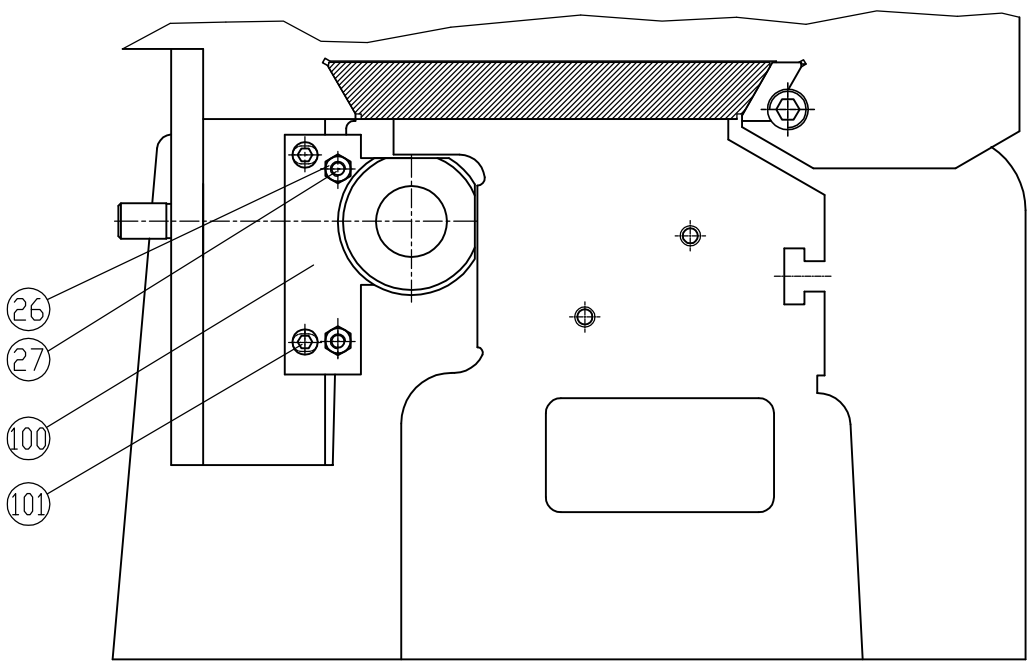
CROSS AND COMPOUND SLIDE ASSEMBLY

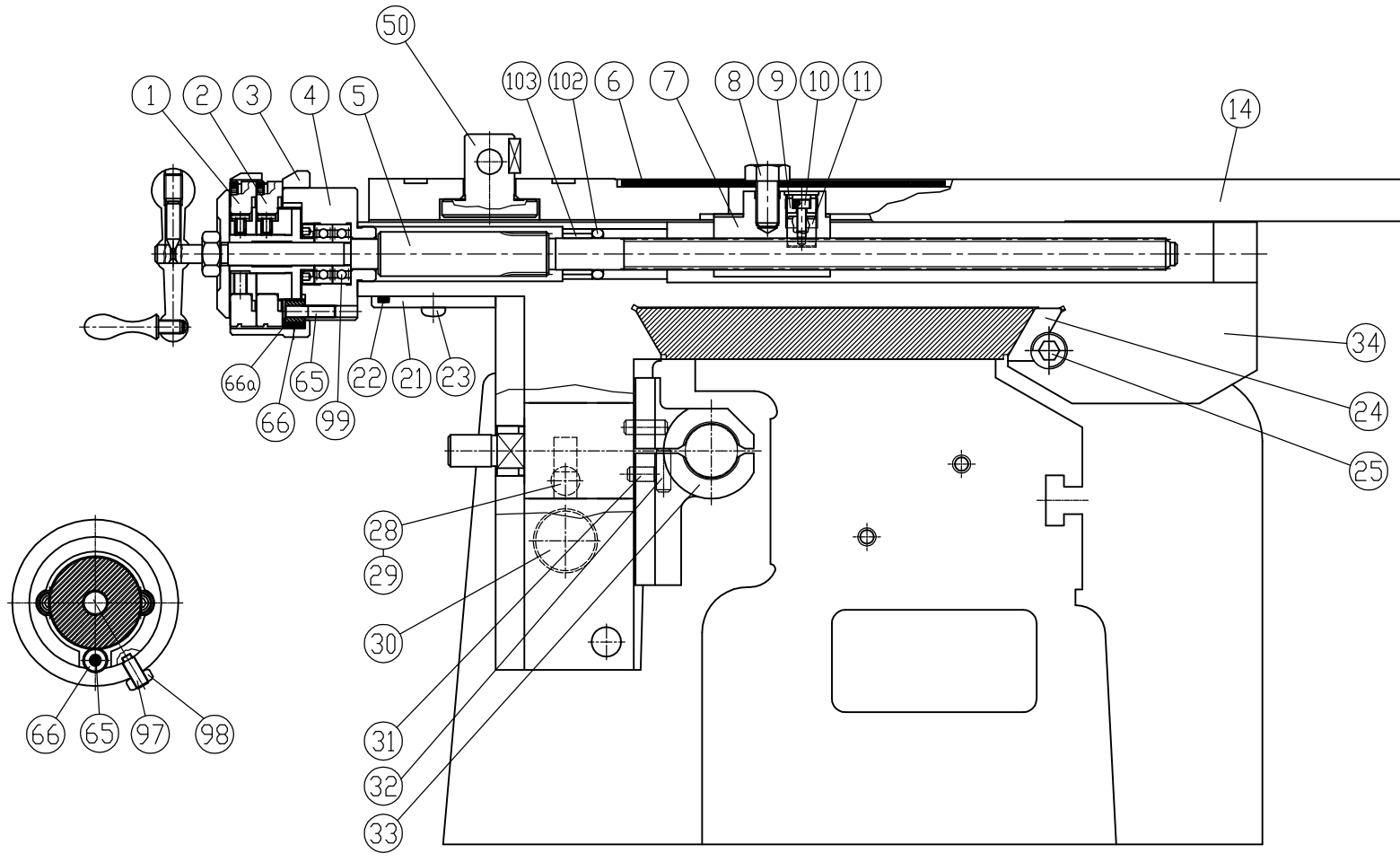
KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
63	LT-05-417EM99	1	QUICK-ACTING SHAFT	95	SN06020	4	SCREW
64	BB6000	2	BEARING	96	PD03016B	2	PIN
65	LT-05-429	2	SHAFT	97	LT-05-219	1	LOCK SCREW
66	LT-05-430	2	GEAR	98	NH06	1	NUT
66a	LT-05-430-1	2	COVER	99	BB6000Z	2	BEARING
67	LT-05-207BEM99	1	ZERO RING	100	LT-03-103B	1	COVER
68	LT-05-428	1	GEAR	101	SA06016	2	SCREW
69	LT-05-431	2	COLLAR	102	OS22147	1	OIL SEAL
70	SL06008	2	SCREW	103	4900UU	1	BEARING
71	LT-03-111	2	NUT				
72	LT-05-103	2	HANDLE				
73	LT-05-408EM99	1	COMPOUND SLIDE SCREW				
74	LT-05-419	1	GUIDE BLOCK				
75	LT-05-107	1	HUB BLOCK				
76	LT-05-418	1	ECCENTRIC ROD				
77	SN05012	1	SCREW				
78	L-4065A	1	WASHER				
79	LT-05-420	1	SUPPORT				
80	L-7011	1	LEVER				
81	LT-05-204	2	LOCK NUT				
82	LT-05-427	2	GEAR				
83	LT-05-206MC	1	DIAL RING				
84	LB-05-616	1	KNOB				
85	LT-05-206EC	1	DIAL RING				
86	LT-05-432	4	KEY				
87	LT-09-121	4	SPRING				
88	LT-05-203	2	COVER PLATE				
89	SL08012	2	SCREW				
90	LT-05-101	2	LOCK PIN				
91	LT-05-102	2	CRANK				
92	SA04006	2	SCREW				







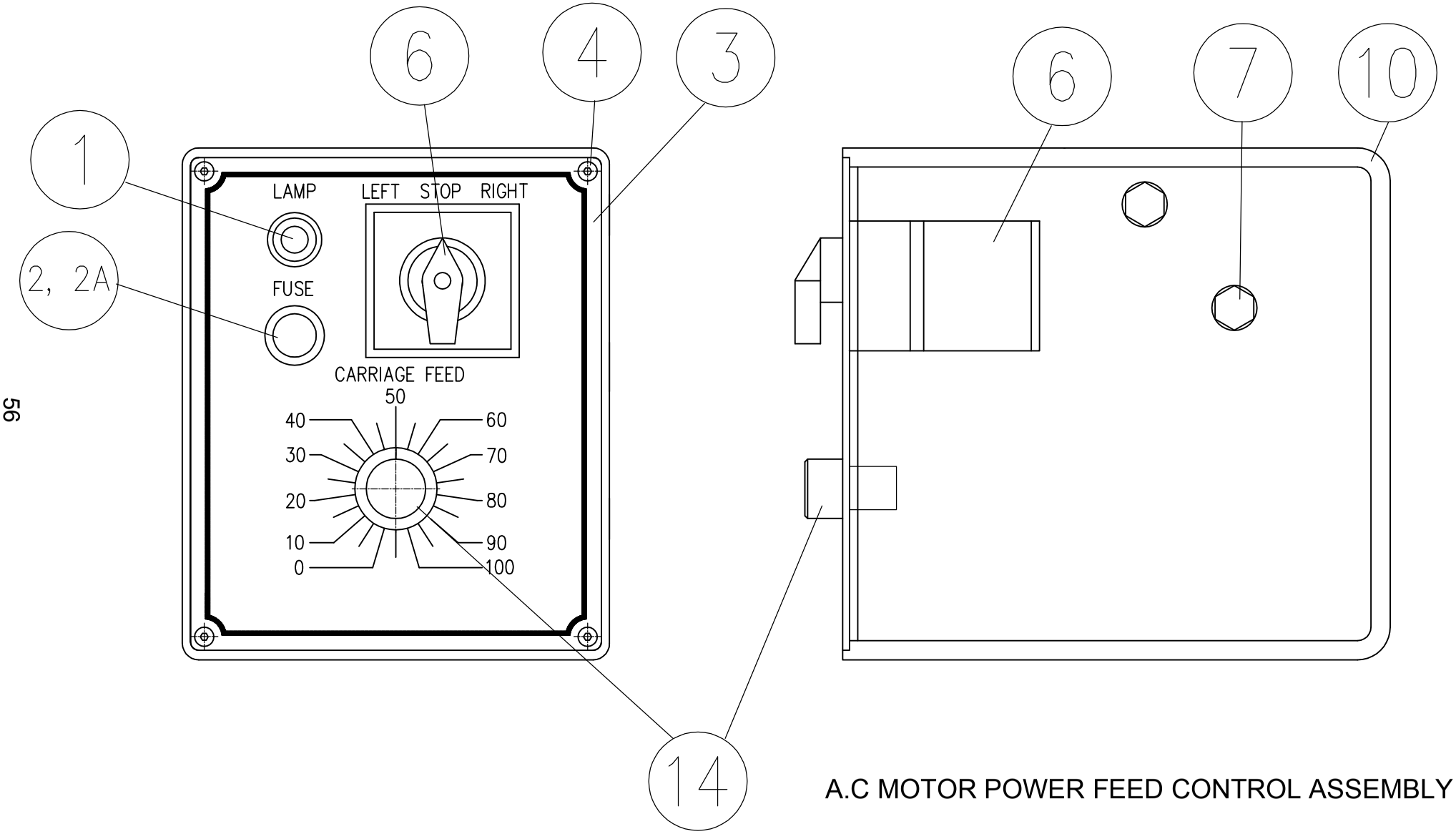




CROSS AND COMPOUND SLIDE ASSEMBLY

A.C MOTOR POWER FEED CONTROL ASSEMBLY

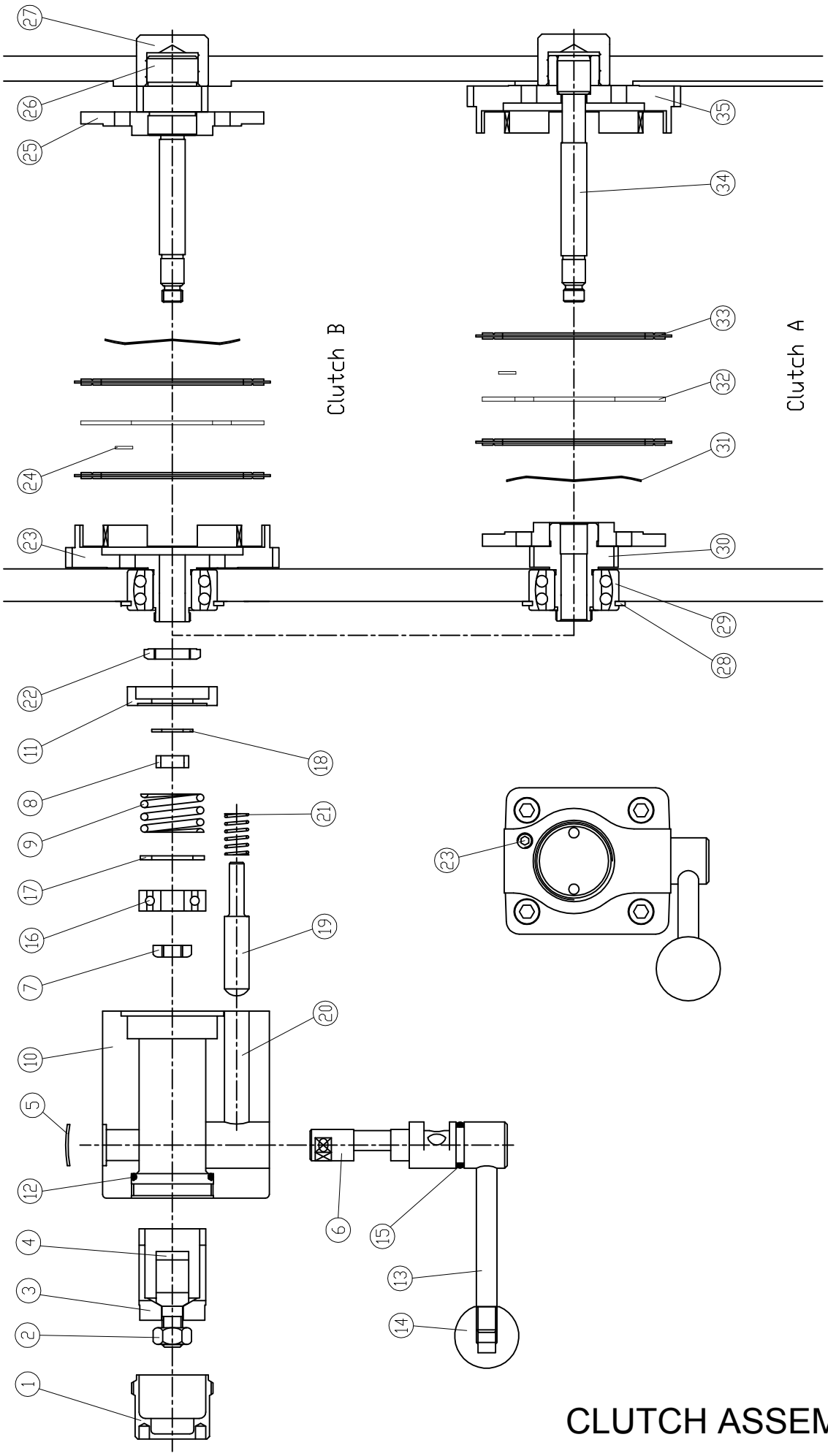
KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	EB0035	1	LAMP				
2	EB0037	1	FUSE BASE				
2A	EB0020	1	FUSE				
3	LB-05-503	1	INDICATOR PLATE				
4	SN04008	4	SCREW				
6	EB0036	1	SELECT SWITCH				
7	SA08020	2	SCREW				
10	LB-05-501	1	HOUSING				
14	EA0010	1	SELECT SWITCH				



A.C MOTOR POWER FEED CONTROL ASSEMBLY

CLUTCH ASSEMBLY

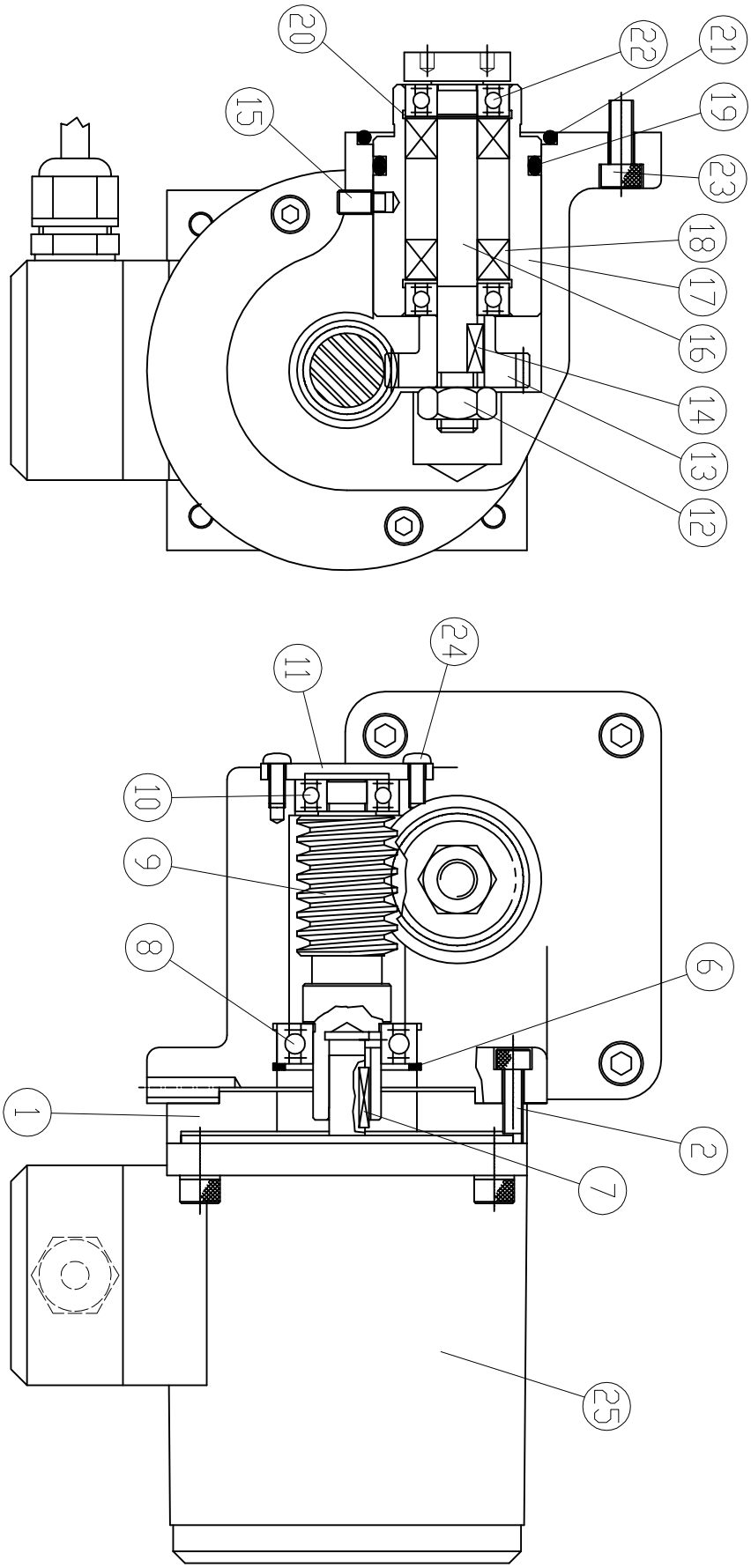
KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LB-05-613	2	COVER	32	LB-05-310	2	CLUTCH DISC
2	NH08NF	2	NUT	33	LB-05-305	4	BRAKE PLATE
3	LB-05-611	2	PRESSURE SLEEVE	34	LB-05-307	1	CLUTCH SHAFT
4	LB-05-612	2	ADJUSTING BOLT	35	LB-05-329	1	CLUTCH BUSHING
5	LB-05-610	2	PLUG				
6	LT-05-601	2	CLUTCH CAM				
7	NH08NF	2	NUT				
8	LB-05-609	2	BEARING SPACER				
9	LB-05-608	2	SPRING				
10	LB-05-602	1	CLUTCH BODY				
11	LB-05-605	2	SPRING SEAT				
12	ORP28	2	O RING				
13	LB-05-615	2	HANDLE				
14	LB-05-616	2	KNOB				
15	ORP14	2	O RING				
16	BB6292RS	2	BALL BEARING				
17	LB-05-607	2	WASHER				
18	RCS09	2	SNAP RING				
19	LB-05-603	1	PLUNGER				
20	LB-05-604	2	SPRING				
21	LB-05-606	2	NUT				
22	LB-05-614	2	STOP SCREW				
23	LB-05-306	1	CLUTCH BUSHING				
24	RCS06	6	SNAP RING				
25	LB-05-308A	2	CLUTCH FIXED PLATE				
26	LB-05-328	1	CLUTCH SHAFT				
27	LB-05-308B	2	OILITE BEARING				
28	RCS35	2	SNAP RING				
29	BP5202NR	2	BEARING				
30	LB-05-308	1	PINION				
31	LB-05-301	2	BOWED WASHER				



CLUTCH ASSEMBLY

A.C MOTOR ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LB-05-721-A	1	CONNECTING ADAPTER				
2	SH05015	2	SCREW				
3	SA06020	4	SCREW				
6	RCR35	1	RETAINING RING				
7	DRK03015	2	KEY				
8	BB6003ZZ	1	BEARING				
9	LT-05-708-1	1	WORM SHAFT				
10	BB6000ZZ	1	BEARING				
11	LT-05-710	1	BEARING CAP				
12	NH10NF	1	NUT				
13	LT-05-703-1	1	WORM GEAR				
14	KD04012	1	KEY				
15	L-8006	1	FIXED SCREW				
16	LT-05-704	1	MAIN GEEAR SHAFT				
17	LT-05-705	1	BEARING BRACKET				
18	OS102610	2	SEAL				
19	ORP042	1	O RING				
20	RCR35	1	RETAINING RING				
21	ORP45	1	O RING				
22	BB6000ZZ	2	BEARING				
23	SH05015	1	SCREW				
24	RHS04010	4	SCREW				
25	EA0013	1	A.C MOTOR				



A.C MOTOR ASSEMBLY

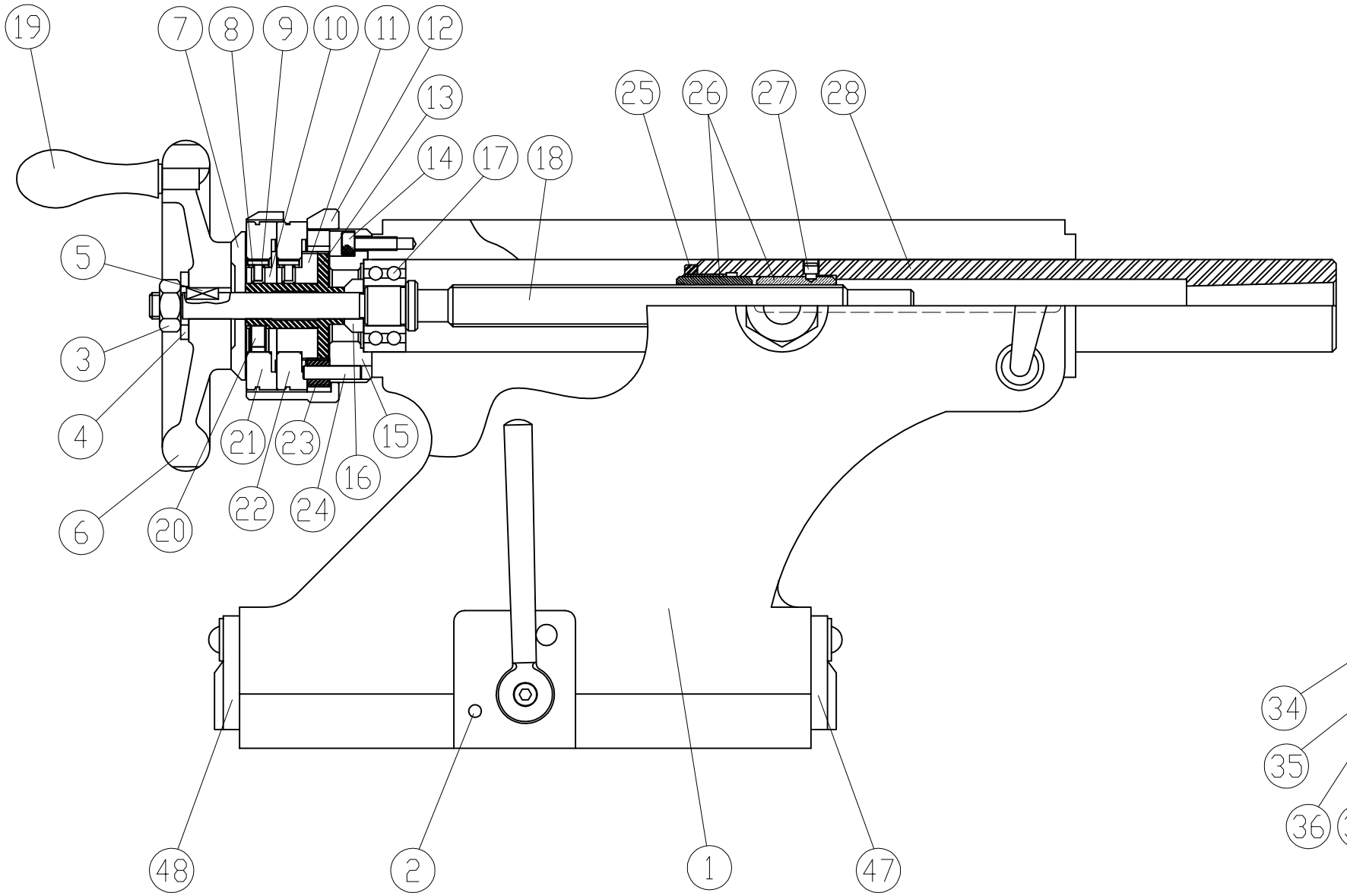
VARIABLE SPEED CONTROL BOX ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LB-06-303F	1	CONTROL BOX				
2	LT-06-301F	1	SPEED INDICATOR PLATE				
3	EB0024	1	TOGGLE SWITCH				
4	SN05008	4	SCREW				
5	L-6405F	1	SUPPORT POST				
6	SL06010	2	SCREW				
7	EB0029	1	CONNECTOR STRAIGHT				
8	EB0022	1	BUTTON				
9	EA0010	1	RPM SELECT KNOB				
10	EC0002	1	DIGITAL READOUT				
11	SL06006	1	SCREW				
12	SL06006	1	LOCK SCREW				
13	EB0027	1	SELECT SWITCH				

VARIABLE SPEED CONTROL BOX ASSEMBLY

TAILSTOCK ASSEMBLY

KEY	PARTS NUMBER	PCS	PARTS NAME	KEY	PARTS NUMBER	PCS	PARTS NAME
1	LT-09-101	1	TAILSTOCK BODY	34	PD05112B	1	PIN
2	PD03104B	1	PIN	35	SA05016	1	SCREW
3	NH10	1	NUT	36	LT-09-116	1	PLUG
4	WB10	1	WASHER	37	LT-09-115	1	HANDLE
5	KD04012	1	KEY	38	LT-09-117	1	BUSHING
6	LT-09-102EM99	1	HANDLE WHEEL	39	LT-09-109	1	LOCK BOLT
7	LT-05-203	1	COVER PLATE	40	LT-09-109A	1	LOCK BLOCK
8	LT-09-121	2	SPRING	41	LT-09-103	1	GIB
9	LT-05-432	2	KEY	42	SA06025	4	SCREW
10	LT-05-431	1	COLLAR	43	LT-05-219	1	SCREW
11	LT-05-428	1	GEAR	44	NH06	1	NUT
12	LT-05-207EMC99	1	ZERO RING	45	SL06010	1	SCREW
13	LT-05-427	1	GEAR	46	LT-09-123	2	WIPPER
14	SA05016	4	SCREW	47	LT-09-123A	1	LEFT WIPPER
15	LT-09-105EM99	1	BEARING SPACER	48	LT-09-123B	1	RIGHT WIPPE
16	LT-09-119	1	SPACER	49	WB06	7	WASHER
17	5202NR	1	BEARING	50	SN06014	7	SCREW
18	LT-09-107EM99	1	SCREW SHAFT				
19	LT-05-324	1	HANDLE WHEEL				
20	SL06008	1	SCREW				
21	LT-05-206EC	1	DIAL RING				
22	LT-05-206MC	1	DIAL RING				
23	LT-05-430	1	GEAR				
24	LT-05-429	1	SHAFT				
25	LT-09-110	1	LOCK NUT				
26	LT-09-108	1pr	NUT				
27	LB-05-442	1	LOCK SCREW				
29	LT-09-112	1	HANDLE				
31	LT-09-111	1	KEY				
32	LT-09-114	1	WASHER				
33	LT-09-113	1	LOCK PLUG				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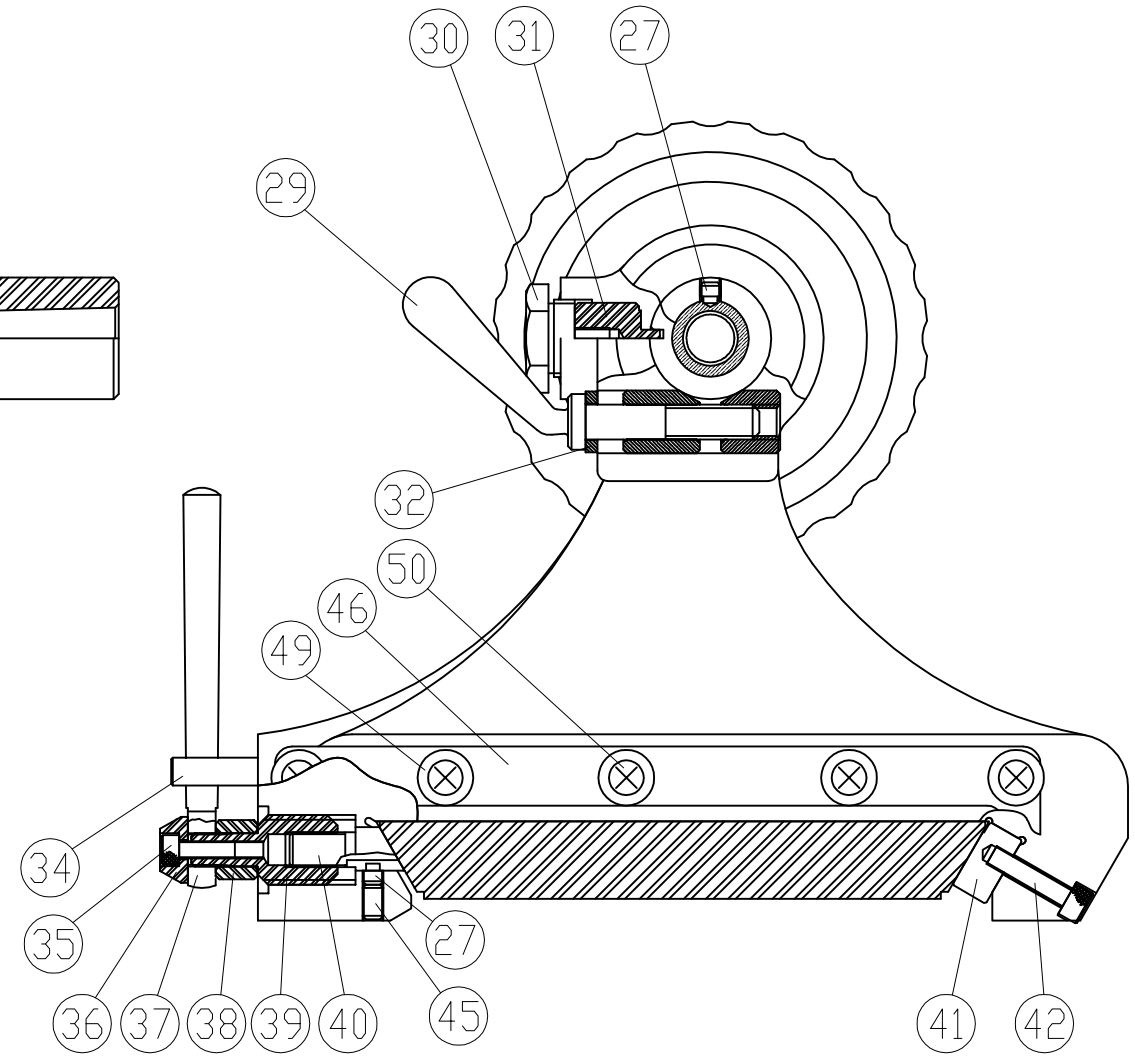
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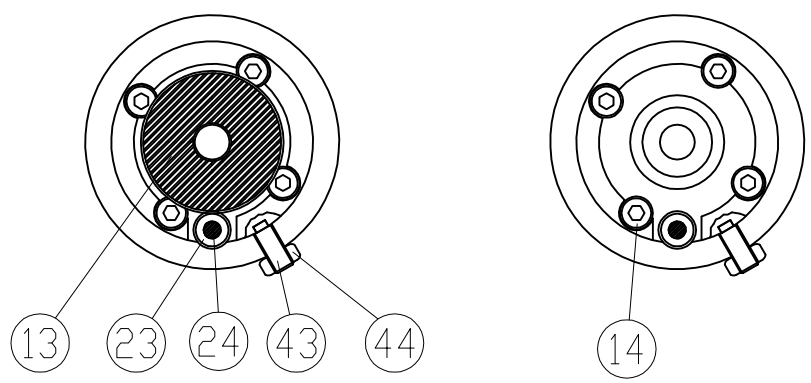
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TAILSTOCK

ELECTRIC CONTROL PANEL

KEY	PARTS NUMBER	PCS	PARTS NAME
1	EB0001	1	DISCONNECT SWITCH
2	EB0026	1	INDICATE LIGHT
3	EB0025	1	SELECT SWITCH
4	EB0021	1	PUSH BOTTON
5	EB0023	1	PUSH BOTTON
6	EB0011	1	FAN
7	ED0005	1	TRANSFOMER
8	EA0001	1	INVERTER
9	EB0017	5	FUSE BASE
10	EB0018	3	FUSE
11	EB0019	2	FUSE
12	EB0069	4	REALY BASE
13	EB0070	4	POWER REALY
14	EB0043	12	TERMINAL STRIP
15	EB0005	3	CONTACTOR
16	EB0066	1	OVERLOAD REALY
17	EB0098	1	OVERLOAD REALY
18	EA0009	1	BRAKE
19	EA0008	1	BRAKE
20	L-6701	1	SWITCH BASE
21	L-6710	2	BUSHING
22	EB0072	1	LIMITE SWITCH
23	L-6706	1	SLEEVE
24	L-6702N	1	SWIVEL ARM
25	L-6703	1	RETAINING BOLT
26	FHR-5	1	BEARING
27	SA10008	2	SCREW
28	L-6707	1	SPRING SEAT
29	LT-01-247	1	NUT
30	L-6708	1	SPRING
31	BD10	1	BALL
32	SA04012	2	SCREW
33	L-6704	4	GEAR SHAFT
34	L-6705	1	ECCENTRIC RING
35	EA0007	1	INVERTER


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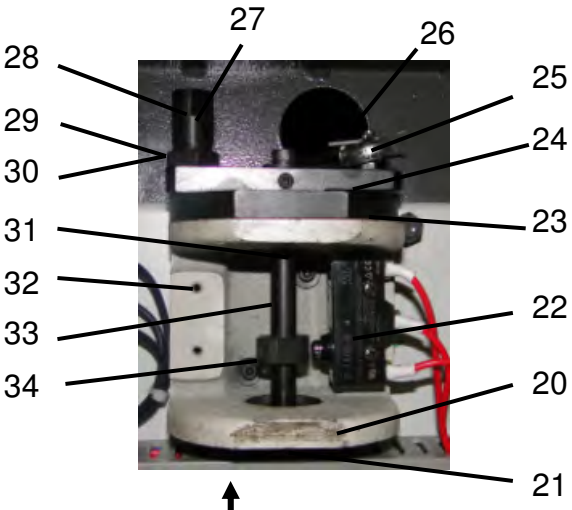
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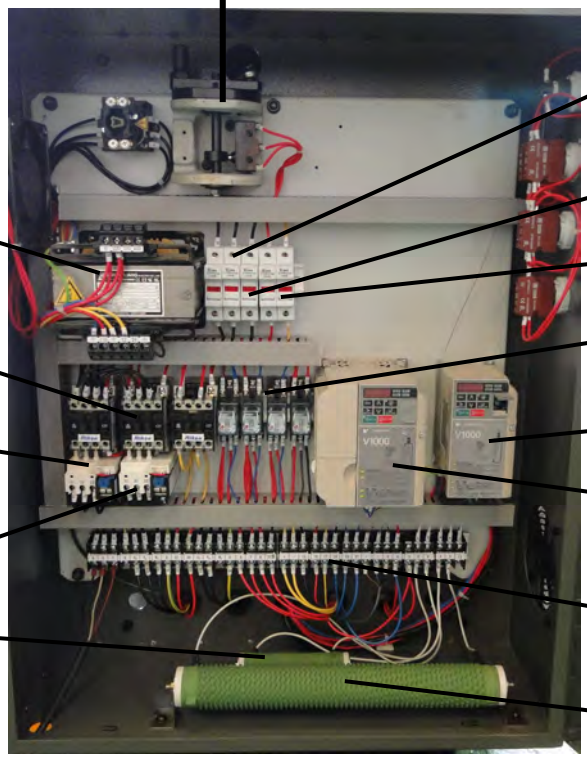
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