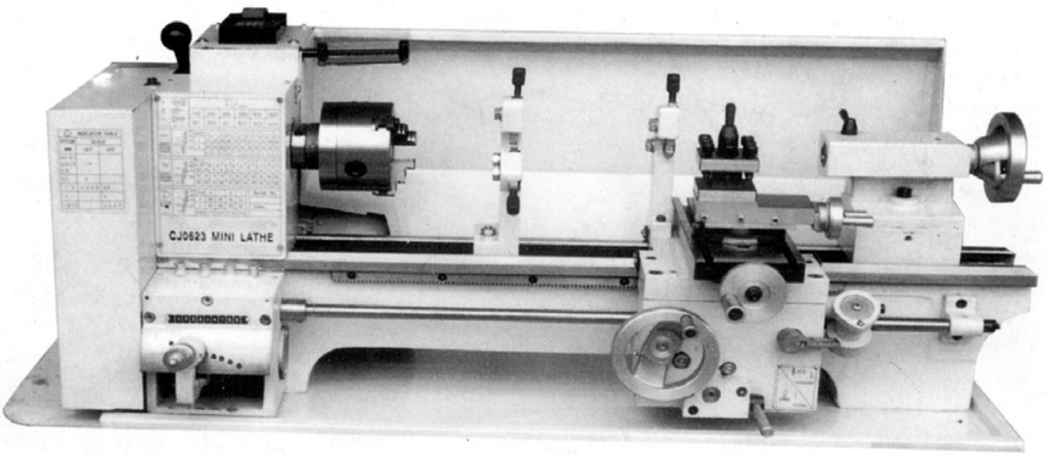
OPERATOR'S MANUAL

MINI Lathe CJ0623



WARNIGN

1. Read and understand the entire instruction manual before operating machine .
2. Always wear approved safety glasses/face shields while using this machine .
3. Make certain the machine is properly grounded .
4. Before operating the machine , remove tie ，rings , watches , other jewelry , and roll up sleeves above the elbows . Remove all loose clothing and confine long hair . Do NOT wear gloves .
5. Keep the floor around the machine clean and free of scrap material , oil and grease .
6. Keep machine guards in place at all times when the machine is in use . If removed for maintenance purposes , use extreme caution and replace the guards immediately .
7. Do NOT over reach. Maintain a balanced stance at all tines so that you do not fall or lean against blades or other moving parts .
8. Make all machine adjustments or maintenance with the machine un plugged from the power source .
9. Use the right tool . Don't force a tool or attachment to do a job which it was not designed for .
10. Replace warning labels if they become obscured or removed .
11. Make certain the motor switch is in the OFF position before connecting the machine to the power supply .
12. Give your work undivided attention . Looking around, carrying on a conversation ,and "horse-play" are careless acts that can result in serious injury.
13. Keep visitors a safe distance from the work area .
14. Use recommended accessories , improper accessories may be hazardous .
15. Make a habit of checking to see if keys and adjusting wrenches are removed before turning on the machine .
16. Never attempt any operation or adjustment if the procedure is not understood .
17. Keep fingers away from revolving parts and cutting tools while in operation .
18. Keep belt guard in place and in working order .
19. Never force the cutting action.
20. Do not attempt to adjust or remove tools during operation .
21. Aways keep cutters sharp .
22. Aways use identical replacement parts when servicing .
23. Failure to comply with all of these warnings may cause serious injury .

Table of Contents

Specifications:

Capacities:

Swing Over Bed	9 "	230mm
Swing Over Cross Slide	5-5/16 "	135mm
Distance Between Centers	20”	500/750mm
Headstock:		
Hole Through Spindle	7/8 "	22mm
Spindle Nose	1-1/2"×8T.P.1	39×4mm
Taper in Spindle Nose	MT-3	
Spindle Bearing Type	Tapered Roller	
Number of spindle Speeds	6	
Range of Spindle Speeds	120-2160RPM/60HZ	100-1800RPM/50HZ
Gear Box:		
Number of longitudinal Feeds	18	
Range of longitudinal Feeds	0.005"-0.011"	0.12-0.33MM
Number of inch Threads	27	
Range of inch Threads	8-56T.P.1	
Number of Metric Threads	11	
Range of Metric Threads	0.5-3.0mm	
Lead screw	9/16"×16 T.P.1	1.5×15MM
Compound and carriage		
Tool post Type	Single and 4-Way	
Maximum Tool Size	1/2"×1/2"	13mm×13mm
Maximum Compound Side	1-7/8"	48mm
Travel	5"	125mm
Maximum Cross Slide Travel	16"	405mm
Maximum Carriage Travel		
Tailstock:		
Tailstock Spindle Travel	1-9/16"	40mm
Diameter of Tailstock Spindle	1-1/16"	26mm
Taper in Tailstock Spindle	MT-2	
Miscellaneous:		
Steady Rest Capacity	1/4"-1-7/8"	6mm-48mm
Follow Rest Capacity	1/4"-1-7/8"	6mm-48mm
Length of Bed	34"	860mm
Width of Bed	4-1/2"	114mm
Height of Bed	6-3/8"	161mm
Overall Dimensions	37-1/2"L×19-3/4"W×15-3/4"H	953 ×502× 400mm
Packing Dimensions	41-3/8"L×22-1/2"W×20"H	1055× 565 ×575mm
Main Motor	3/4HP.	550W、750W
Net Weight(approx)	235 lbs	105kg
Shipping Weight(approx)	300lbs	135kg

Contents of the Shipping Container

1 Lathe
1 4"(100mm)Three-Jaw Universal Chuck
1 Four Way Tool Post
1 Operator’s Manual

Toolbox Contents:

1 Single Tool Holder
1 4pc.Hex Wrench Set
1 #1 Cross Point Screwdriver
3 Chuck jaws
1 8/10mm Open End Wrench
1 MT-2Center
1 MT-3Center
1 28T Gear
1 30T Gear
1 36T Gear
1 42T Gear
1 45T Gear
1 80T Gear
1 Chuck Key

WARNING
Read and understand the entire contents of manual before attempting set-up or operation ! Failure to comply may cause serious injury!

Set Up Preparations for Operation
To avoid twisting the bed ,make sure the location to which the bolted is absolutely flat and level. Place a machinist’s level on the bed ways and check for level side to side and front to rear. If stand mounted, the stand must be fastened to the floor.

Remove rust protectant from all surfaces with kerosene, diesel oil, or a mild solvent .Do not use gasoline , paint thinner , or lacquer thinner .These will damage painted surfaces. After cleaning, wipe with a clean ,dry cloth and cover all machined surfaces with a light film or machine oil .

General Description

Lathe Bed

The lathe bed is high grade iron. By combining high cheeks with strong cross ribs, a bed of low vibration and rigidity is produced . (Fig.1)The two precision-ground V-slideways, re-enforced by heat hardening and grinding, are the accurate guide for the carriage and tailstock. The main motor is mounted to the rear of the bed.
(Fig.2)

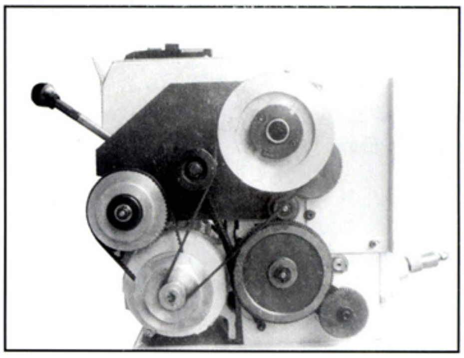


Fig.1

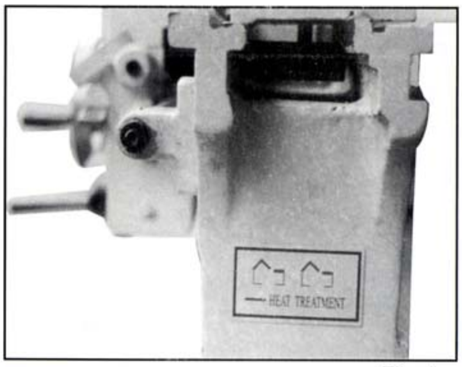


Fig.2

Headstock

The headstock is cast from high grade ,low vibration cast iron. It is bolted to the bed with screws and uses four adjusting screws for alignment. In the head ,the large main spindle is mounted on two precision taper roller bearings. The hollow spindle is a Morse taper NO.3 with a 7/8" bore.(Fig3)

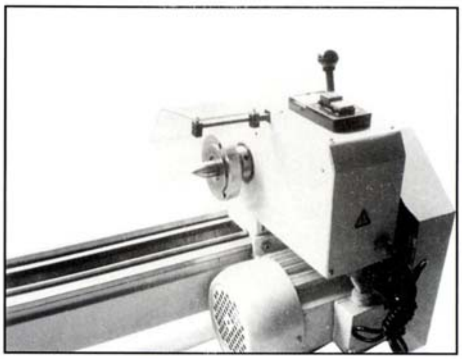


Fig.3

A quick change of the belt can be accomplished by easing the tension on the idler.(Fig.4)

To protect the machine against accident damage, a clutch is fitted to the reduction pulley at the speed of 130R.P.M.for 50HZ, respectively.

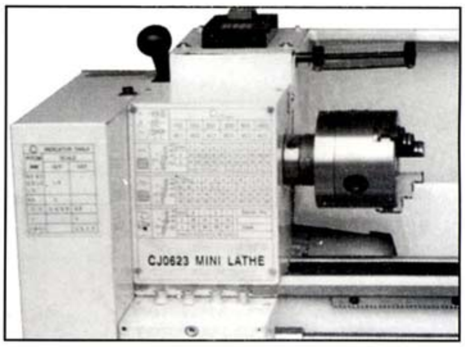


Fig.4

Carriage

The carriage is made from high quality cast iron. The sliding parts are smoothly ground. (Fig.5) They fit the V on the bed without play. The lower sliding parts can be easily and simply adjust. The cross slide is mounted on the carriage and moves on a dove tailed slide .Play in the cross slide may be adjusted with the gibs .

Move the cross slide with it's conveniently positioned handwheel. There is a graduated collar on the handwheel. One graduated mark equals 0.0254 millimeter or 0.001 inches.(Fig.6)

The top slide mounted on the cross slide ,can be rotated 360°. The top slide and the cross slide travel in dove tailed slide and have gibs, adjust nuts ,and graduated collars.

A four way tool post is fitted on the top side. The four way tool post can be converted to a single tool holder with pasts enclosed in the tool box.

For accurate facing operations, the carriage can be locked by tightening the hex socket cap screw.(Fig.7)

Apron

The apron is mounted on the bed. A half is fitted to the apron. The half nut gibs can be adjusted from the outside.

The half nut is engaged by the half nut lever. A rack, mounted on the bed, and a pinion operated by handwheel on the carriage allow for quick travel of the apron.(Fig.8)

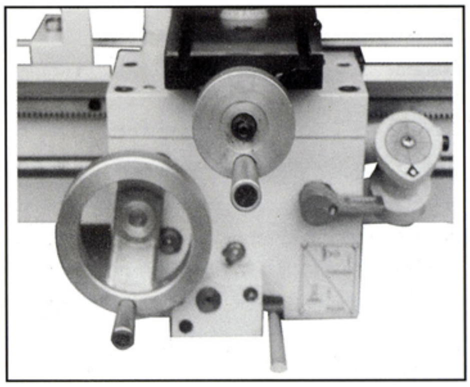


Fig.5

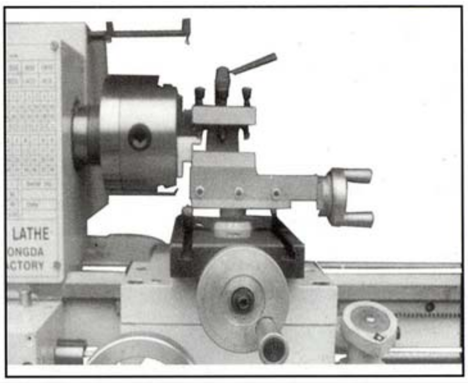


Fig.6

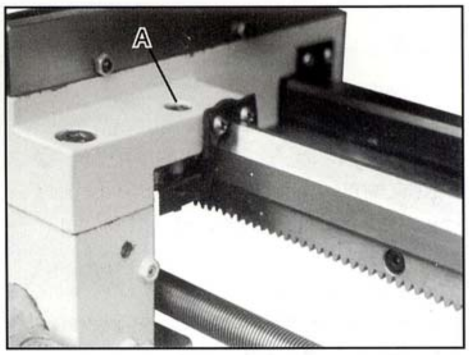


Fig.7

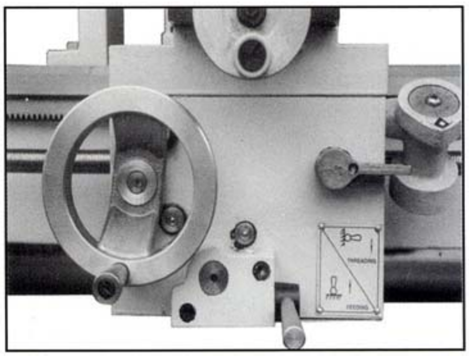


Fig.8

Tailstock

The tailstock slides on a V way and can be clamped at spindle with a Morse taper NO.2 socket and a graduated scale. The spindle can be clamped at any locations with a clamping lever. The spindle is moved with a handwheel at the end of the tailstock.

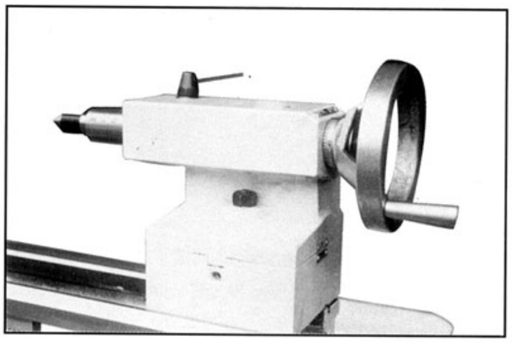


Fig.9

Leadscrew

The leadscrew is mounted on the front of the machine bed. It is connected to the gear box at the left for automatic feed and is supported by bearing on both ends. The nut and set screw on the right end are designed to take up play on the leadscrew.(Fig.10)

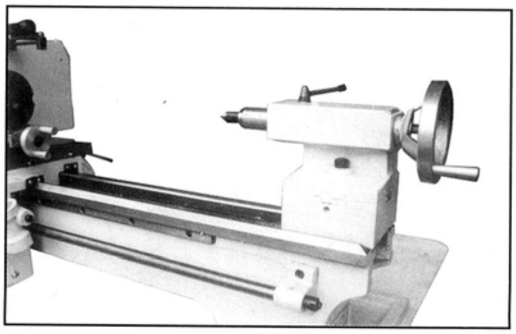


Fig.10

Gear Box

the gear box is made from high quality cast iron and is mounted on the left side of the machine bed.

(Fig.11) The motor drives through nine changeable speeds. Always raise idler to the disengaged position when changing speeds. (A,Fig.12)

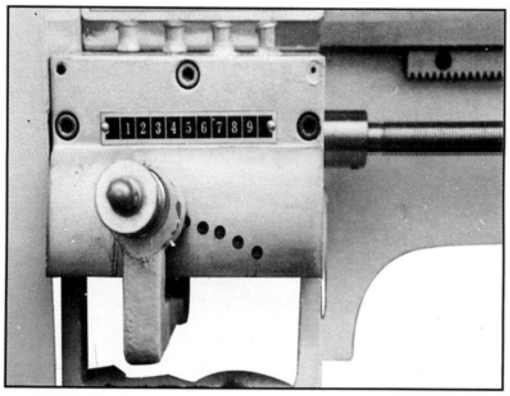


Fig.11

Drive and Electrical Equipment

The main drive is provided by a single phase, A.C. motor mounted on the rear of the lathe bed.(B,Fig.12)

The forward-reverse switch(C, Fig.12)is mounted on the top of the electric box. The motor condenser is also contained in this box.

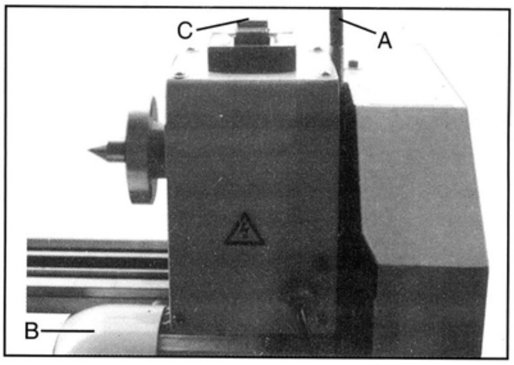
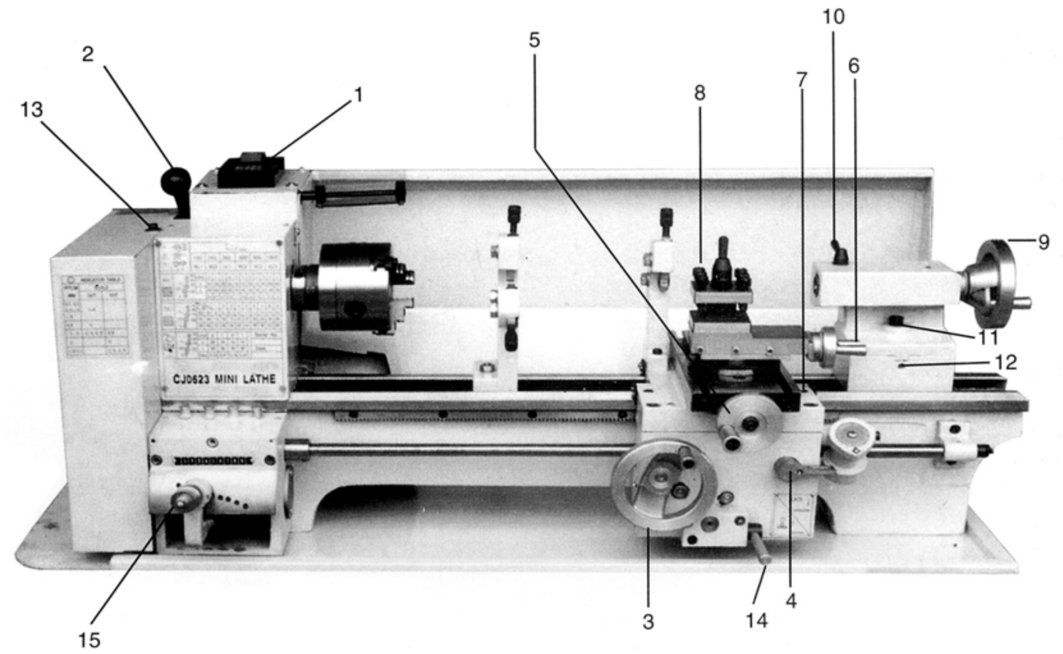


Fig.12

Controls



1. forward/reverse switch
2. V-Belt Tension Lever
3. Longitudinal Travel Handwheel
4. Half-Nut Lever
5. Cross Slide Handwheel
6. Top Slide Handwheel
7. Longitudinal Lock Screw
8. Tool Post
9. Tailstock Spindle Handwheel
10. Tailstock Spindle Clamping lever
11. Tailstock Locking Screw
12. Tailstock Off-Set Adjustment
13. End Gear Cover Lock Screw
14. Automatic Feed Lever
15. Gear Box Quick Change Lever

Operation

Tool Set-Up

The cutting angle is correct when the cutting edge is in line with the center axis of the work piece. The correct height of the tool can be achieved by comparing the tool point with the point of the center mounted in the tailstock. The correct tool height can be obtained by using shims under the tool.(Fig.13)
When turning ,the tool has a tendency to bend under pressure. For best results, tool overhang should be kept to a minimum of 3/8" or less.

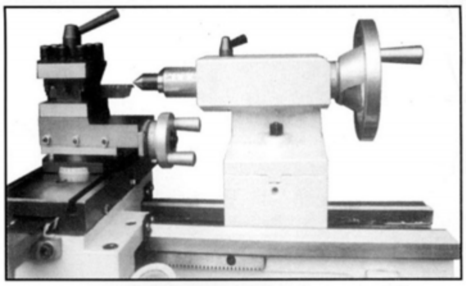


Fig.13

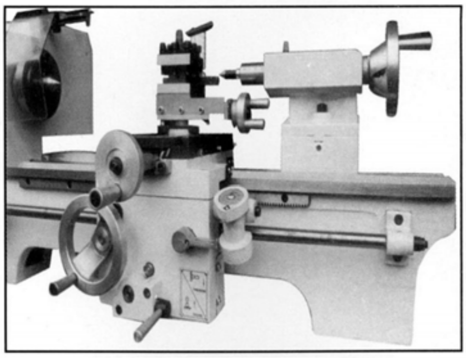
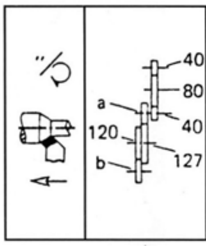


Fig.14

Manual turning

Apron travel, cross travel, and top slide handwheel can be operated for longitudinal or cross feeding. (Fig.14)



Lever	9	1	9	1
a	28	28	45	45
b	60	60	60	60
Feed	0. 12mm 0. 005"	0. 21mm 0. 008"	0. 19mm 0. 007"	0. 33mm 0. 011"

Fig.15

Longitudinal Turning with Auto-Feed

Three automatic feeds are available.(Fast=0.011"(0.33mm)/rev., medium=0.007"(0.19mm)/rev., slow =0.005"(0.12mm)/rev.)
These can be set by altering the gear wheel combinations. (See table –Fig.15)

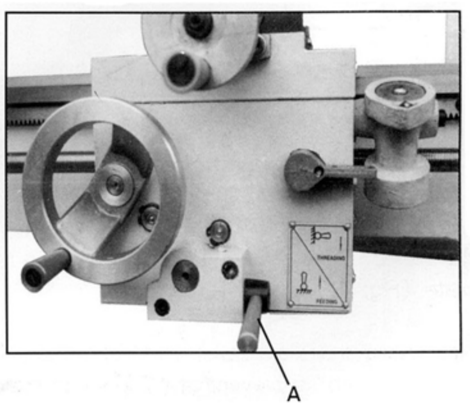


Fig.16

By moving lever (A.Fig.16) upwards, the automatic feed is engaged.

Taper turning using tailstock off-set

Work to a side angle of 5 can be turned by off-setting the tailstock. The angle depends on the length of the workpiece. (Fig.17)

To off-set the tailstock, loosen locking screw (1,Fig.17) Loosen the front adjusting screw (2) and take up the same amount by tightening the rear adjusting screw(3) until the desired taper has been reached. Tighten the front screw to lock the tailstock in position. The workpiece must be held between to centers and driven by a face plate and driver dog.

After taper turning, the tailstock should be returned to it's original position. The zero position of the tailstock is checked by turning a test piece with constant adjustment until the piece is absolutely true.

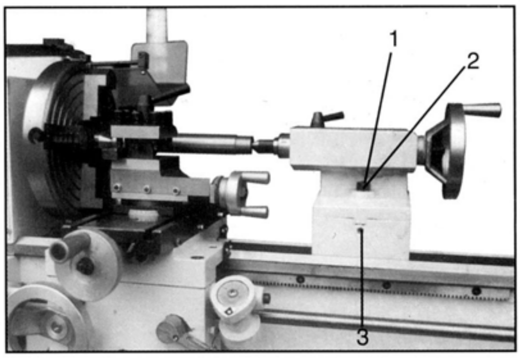


Fig.17

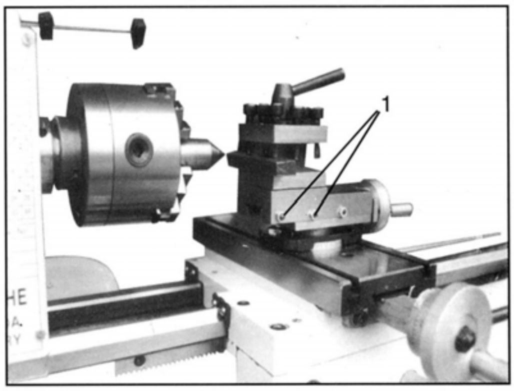


Fig.18

Taper Turing by Setting the top Slide

By angling the top slide, tapers may be turned.(Fig.18)

To rotate the top slide:

Loosen two screw (1,Fig.18), top slide can then be rotated. A graduated scale permits accurate adjustment of the top slide. This method can only be used for short tapers.

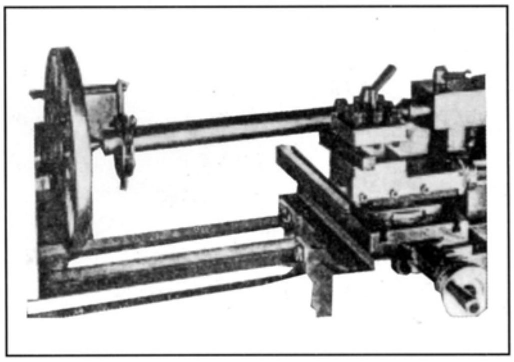


Fig.19

Turning Between Centers

For turning between centers, it is necessary to remove the chuck from the spindle. Fit the MT-3 center into the spindle nose and the MT-2center into the tailstock. Mount the workpiece fitted with the drive dog between the centers. The drive is driven by a catch plate or face plate.(Fig.19)

Note: always use a small amount of grease on the tailstock center to prevent center tip from overheating.

Inch Thread Cutting

As indicated on the threading charts can be cut using the proper combination of gears and settings. When cutting inch threads, the half nut and threading dial(figures 20 and 21)are used to thread in a conventional manner. The thread dial charts specifies at which point a thread can be entered using the threading dial.

Metric thread cutting

The only difference in metric thread cutting is the half nut must be engaged during the entire threading process. The thread dial cannot be utilized.

Set the machine up for the desired thread pitch (according to the metric threading chart below). Start the machine and engage the half nut. When the tool reaches the part, it will cut the initial threading pass. When the tool reaches the part, it will cut the initial threading pass. When the tool reaches the end of the cut, stop the machine by turning the motor off and at the same time back the tool out of the part so that it clears the thread. Do not disengage the half nut lever. Reverse the motor direction to allow the cutting tool to traverse back to the obtained the desired results.

Example of gear set-up to cut 10 T.P.1.(Fig.22)

1. Loose screw(1,Fig.22)
2. Loose bolt(2). Remove washers(3) and gear (6).
3. Loose bolts(7) to allow movement in the center gear position.
4. Loose nuts(5).Remove washer(4) and gear (8).

Reassemble as follows:

1. install 30 tooth gear in position(6) with bushings, washer, and blot.
2. install 60 tooth gear in position(8)
3. center 127 tooth gear remains in pace.
4. adjust gear to mesh with upper and lower gear and tighten bolts(7).

Slip clutch

To avoid overloading the drive, a safety slip clutch is fitted in the 130 RPM position. Overloading the drive (rattling noise) means the depth of cut is too deep and should be reduced.

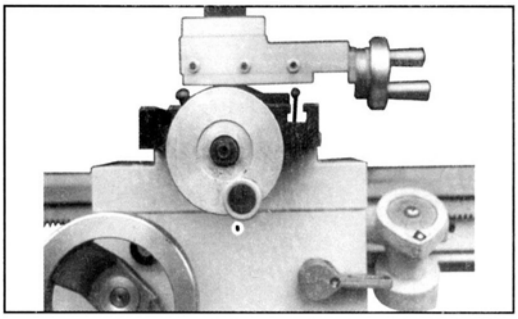


Fig.20

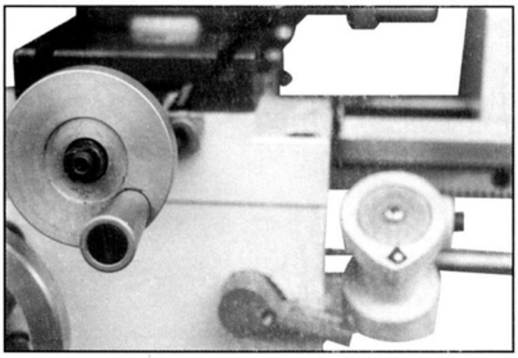


Fig.21

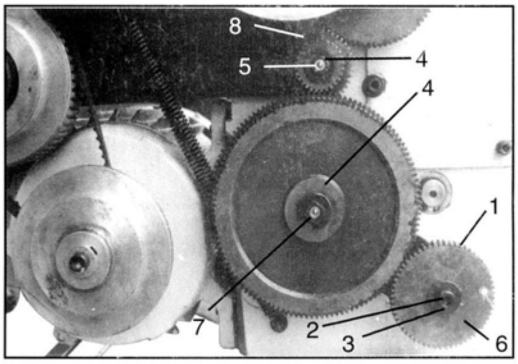


Fig.22

Lathe accessories

Three jaw universal lathe chuck

Using this universal chuck, round, triangular, square, hexagonal, octagonal, and twelve-cornered stock may be clamped.(Fig.23)

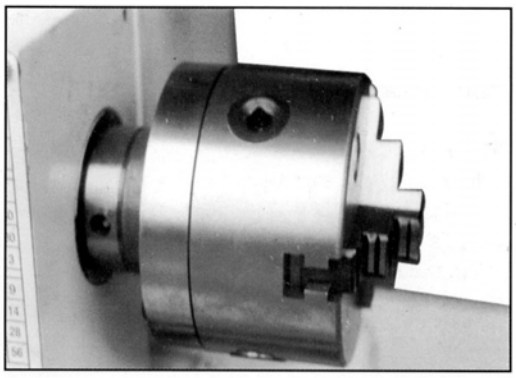


Fig.23

Note: new lathe have very tight fitting jaws. This is necessary to ensure accurate clamping and long service life. With replaced opening and closing, the jaws adjust automatically and their operation becomes progressively soother.

Four jaw independent lathe chuck

This special chuck has four independently adjustable chuck jaws. These permit the holding of asymmetrical pieces and enable the accurate set-up of cylindrical pieces.(Fig.24)

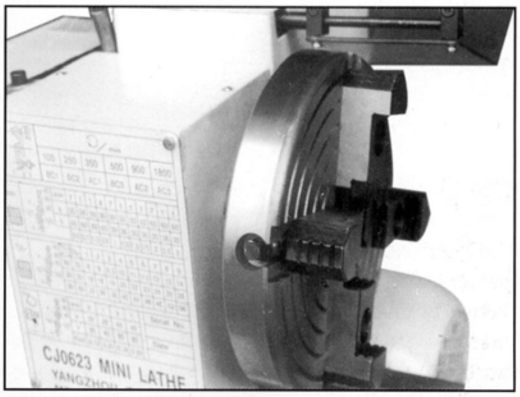


Fig.24

Drill chuck(optional)

Use the drill chuck to hold centering drill and twist drills in the tailstock.(Fig.25)

Morse taper arbor(optional)

An arbor is necessary for mounting the drill chuck in the tailstock. It has a NO.2 Morse taper.(Fig.25)

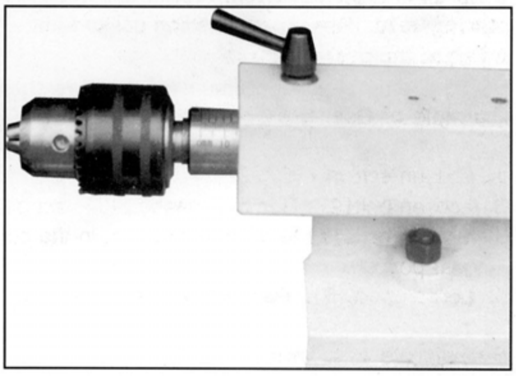


Fig.25

Live center(optional)

The live center is mounted in ball bearings. Its use is highly recommended for turning at speeding in excess of 600 RPM.(Fig.26)

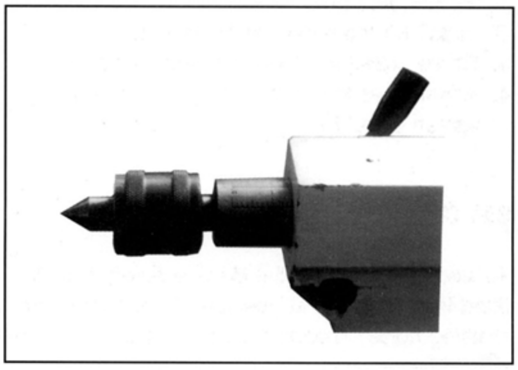


Fig.26

Steady Rest

The steady rest serves as a support for shafts on the free tailstock end. For many operations the tailstock can not be used as it obstructs the turning tool, and therefore, must be removed from the machine. The steady rest, which functions has an end support, ensure chatter-free operation. The steady rest is mounted on the bedways and is secured from blow with a locking plate. The sliding fingers require continuous lubrication at the contact points to prevent premature wear.(Fig.27)

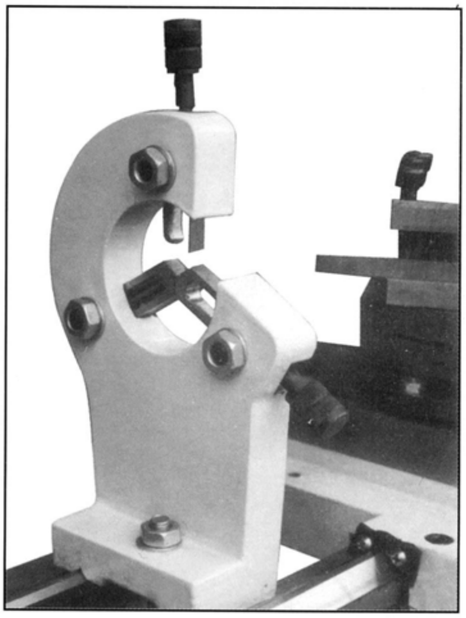


Fig.27

Setting the Steady Rest

1. Loosen three hex nuts(1,Fig.28)
2. Loosen knurled screw(3,Fig.28) and open the sliding fingers(2,Fig.28) until the steady rest can be moved with its fingers around the workpiece. Secure the steady rest in position.
3. Tighten knurled screws so that fingers are sung but not tight against the workpiece. Tighten three nuts(1,Fig.28). lubricate the sliding points with machine oil.
4.when,after prolonged operation, the jaws show wear, the tips of the fingers may be filed or remilled.

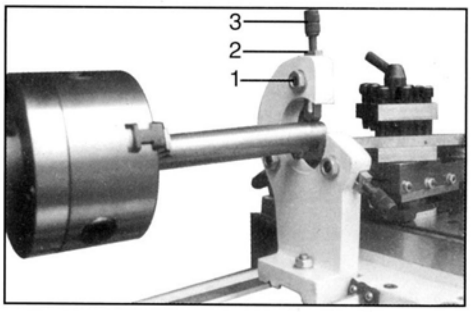


Fig.28

Follow Rest

The follow rest is mounted on the saddle and follows the movement of the turning tool. Only two sliding fingers is taken by the turning tool. The follow rest is mounted rest is used for turning operations on long, slender workpieces. It prevents flexing of the workpiece under pressure from the turning tool. (Fig.29)

Set the fingers snug to the workpiece but not overly tight. Lubricate the fingers during operation to prevent premature wear.

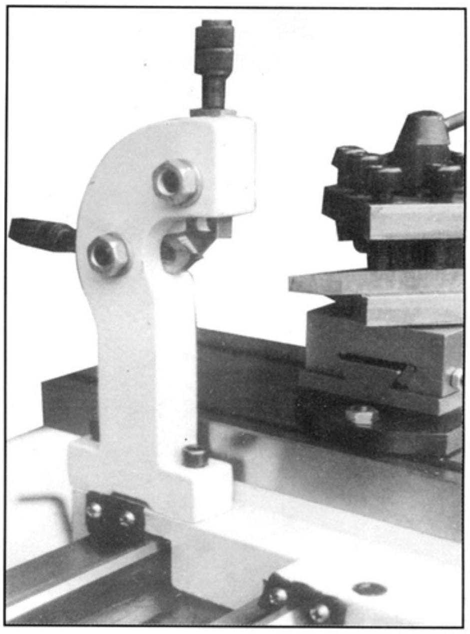


Fig.29

Four way tool post

The four way tool is mounted on the top slide and allows four tools to be clamp handle to rotate any of the four tools to be clamp handle to rotate any of the four tools into position. (Fig.30)
Use a minimum of two clamping screws when installing a cutting tool.

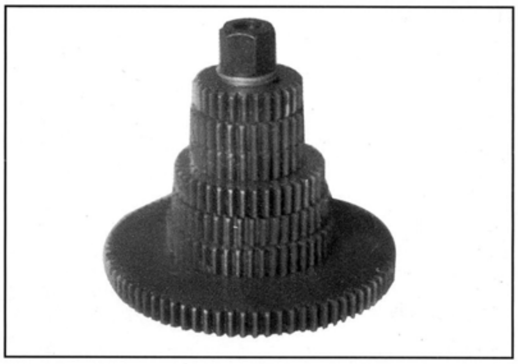


Fig.30

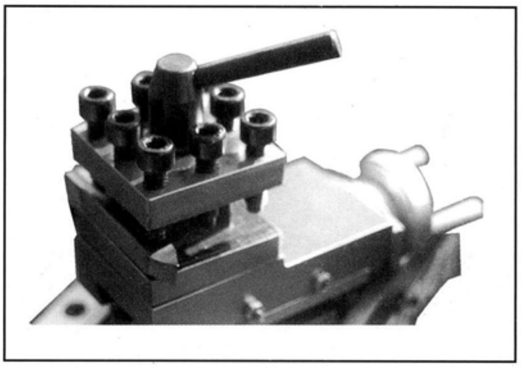


Fig.31

Change gear

There are six gears with different number of teeth (28,30,36,42,45,and 80). They can be combined for different speeds and required. See chart on headstock.(Fig.31)

Note: The 80 tooth plastic gear is fitted to the machine as a safety gear. Replace with a new one if damaged.

Bearing and slide adjustment

Adjusting of the Main spindle bearings

The main spindle bearings are adjusted at the factory. If end play becomes evident after considerable use, the bearings may be adjusted.

Loosen set screw(1,Fig.32) in the slotted nut (2,Fig.32) on the back of the spindle. Tighten slotted nut until all end play is taken up. The spindle should still revolve freely. Caution: excessive tightening or preloading will damage the bearings. Tighten set screw(1,Fig.32)

Adjustment of cross and top slide

Each slide is fitted with a job strip and can be adjusted with screw(1,Fig.33) fitted with lock nuts(2,Fig.33) loose the lock nuts and tighten the set screw until slide moves freely without play. Tighten lock nuts to a retain adjustment.

Adjustment of Compound Feed Screw End Float

To adjust the slide on the saddle :

loosen screw (1,Fig.34)and lock nut(2,Fig.34)

Adjusted the nut until all play has been taken up. Lock the nut(2)with the screw(1)

Cross slide screw

Remove the compound slide (Fig.35) and adjust screw (1,Fig.35) until the backlash between the spindle and the nut is eliminated.

For operator convenience, the compound may be located in two positions on the cross slide.

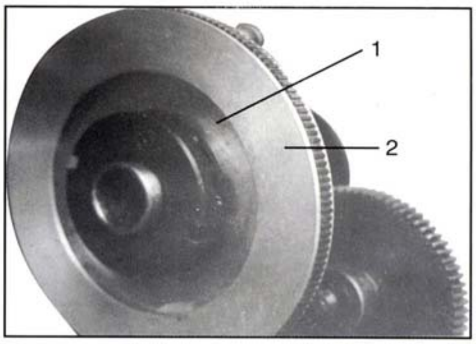


Fig.32

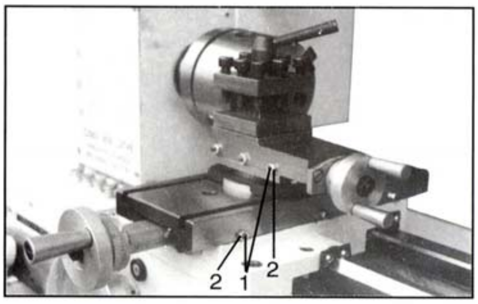


Fig.33

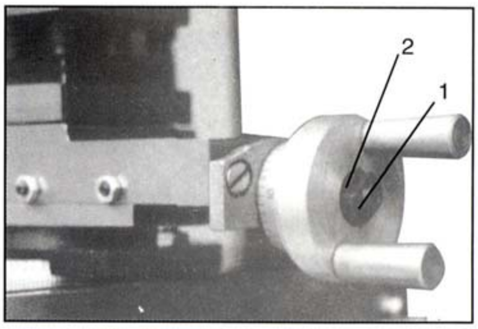


Fig.34

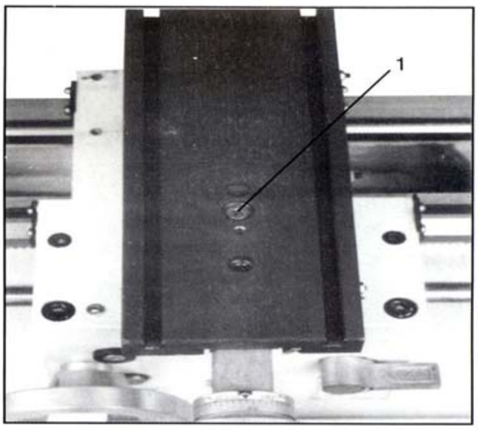


Fig.35

Compound slide spindle backlash adjustment

Remove two screw holding the spindle bracket in position and unscrew the spindle. Adjust the screw ring(1,Fig.36) until all backlash has been eliminated.

Adjustment of half-nut guide

Loosen two nuts(1,Fig.37) on the right side of the apron and adjust the control screws(2,Fig.37) until both half nuts move freely without play. Tighten both nuts.

Replacing the shear pin in the leadscrew

If the shear pin breaks, it must be replaced.(Fig.38) to knock out the broken pin, the hex head screw must be loosened and the pinion removed. Take off the sleeve and remove the broken pin from the sleeve and the leadscrew. Replace the sleeve, line up the holes, fit the new pin, and assemble.

Fig.36

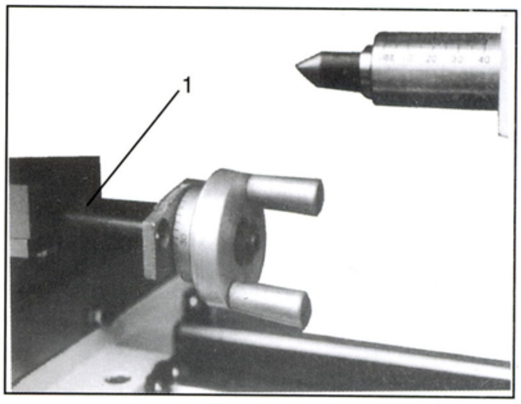


Fig.37

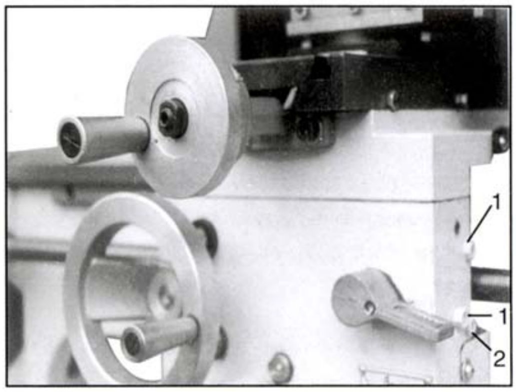


Fig.38

Replacing the V-Belt

Loosen the screw on the top of the headstock and open the cover.(Fig.39) Remove tension on the V-belt by puling handle toward front of the machine. (Fig.39) Remove belt from the pulleys and replace with new belt. Move lever toward motor to tension belt. (Fig.40) Close cover and secure with screw.

Caution: to avoid breaking the belt, move the tension lever towards the front of the machine before starting.(Fig.41)

Electrical connections

The CJ0623 MINI lathe is rated at 3/4HP, 1HP,60HZ,115V(or 550W、750W、50HZ、230V) only. Confirm the power at the location is the same as the rating of the late before plugging the lathe in. Do not attempt to turn this lathe on any other tape of power.

The lathe must be properly grounded. The lathe is designed to be used with an outlet as in Fig.42, if this type of outlet is not readily available, an adapter(as in Fig.43) may be used temporarily until a qualified electrician can install a grounded outlet. Make sure the grounding tab on the adapter is secured to the cover plate screw.

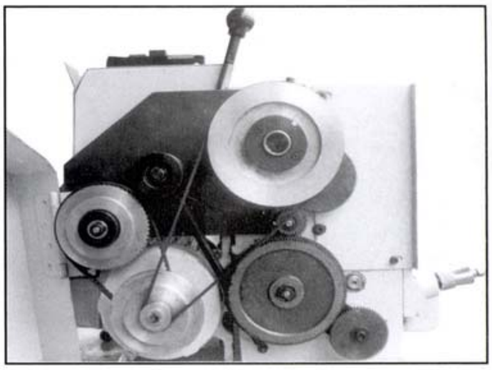


Fig.39

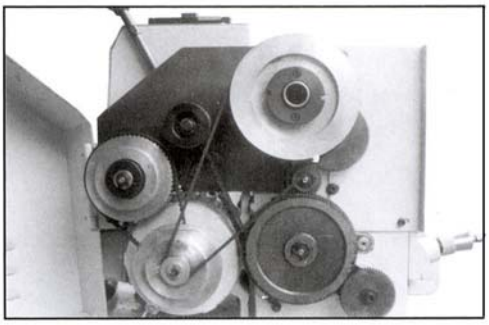


Fig..40

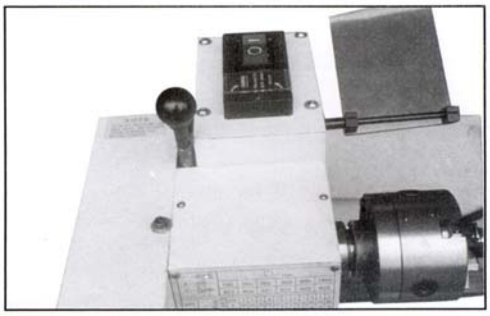


Fig.41

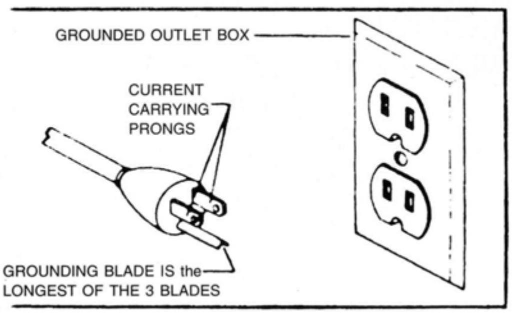


Fig.42

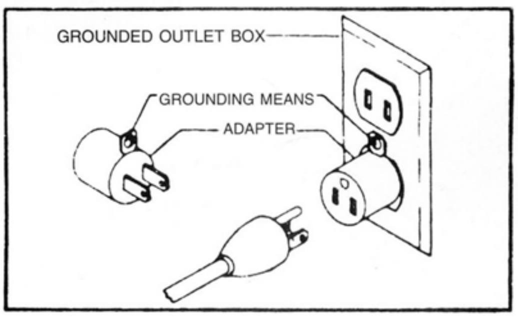


Fig.43

Lubrication schedule

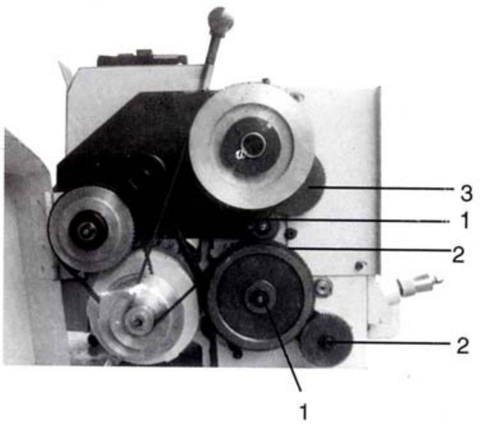
Note: lubricate all locations daily.

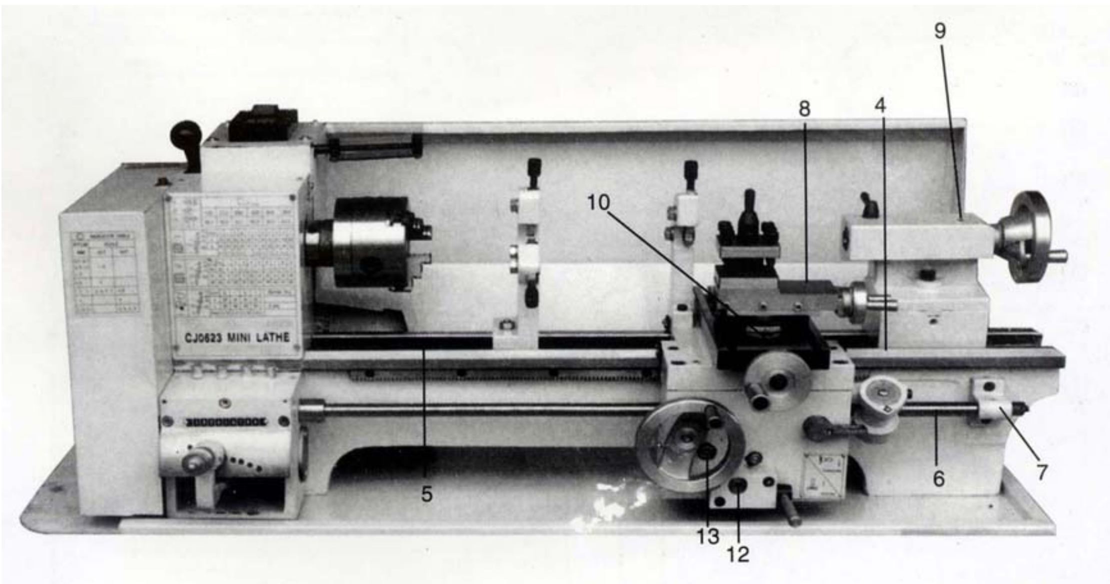
Grease refers to #2 tube grease.

Oil refers to 20W machine oil.

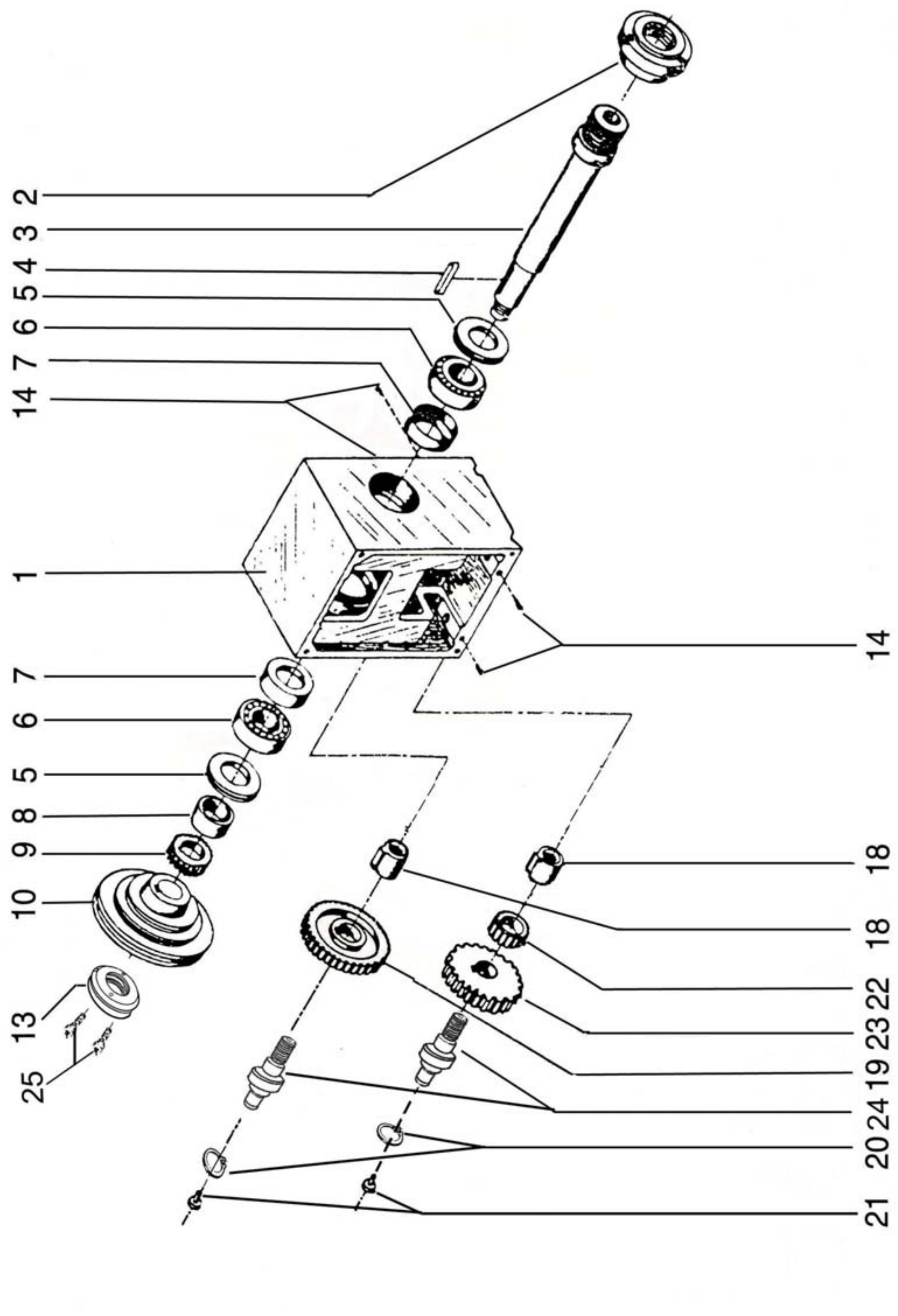
1.1-2 squirts oil into oil ball on gear hub.

2. Grease teeth of feed and change gears.
   1-2 squirts oil into oil ball on gear hub.
3. Lightly coat gear teeth with oil.
   1-2squirts oil into oil ball on gear hub.
4. Wipe bedways clean and coat lightly with oil.
5. Grease rack over complete length.
6. Clean and oil lead screw over complete length.
7. 1-2 squirts oil into oil ball on leadscrew bracket.
8. Lightly coat screw and guides of top slide with oil.
9. 1-2 squirts oil into oil ball on top of tailstock body.
10. 1-2 squirts oil into oil ball on top of carriage.
11. 1-2 squirts oil into four oil reservoirs on gear box.
12. 1-2 squirts oil into hub for feed lever.
13. 1-2 squirts oil into two oil balls on apron front.





Headstock Assembly



Parts List For The CJ0623 MINI Lathe

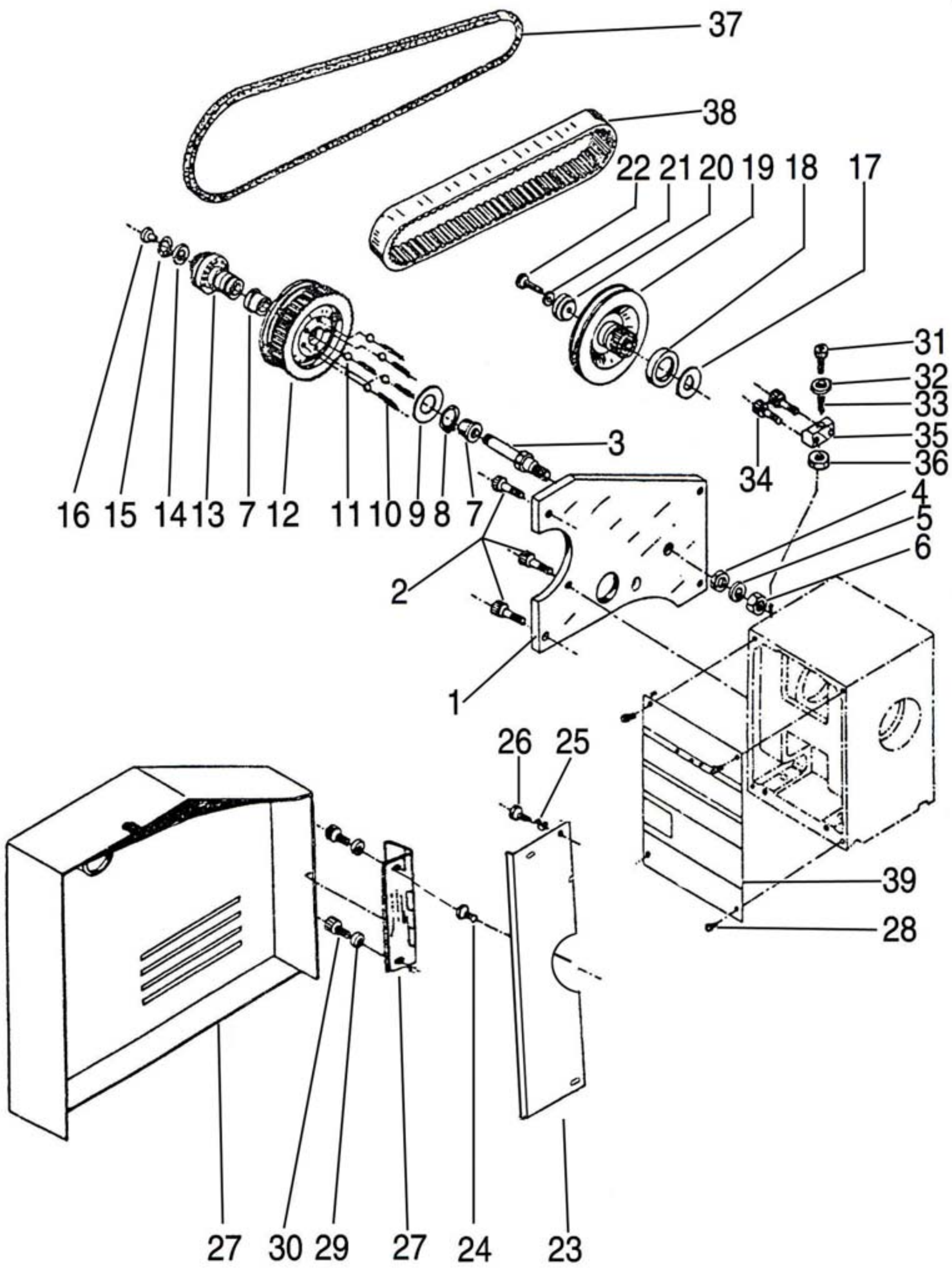
Pleases Order By Index Only

Headstock Assembly

Index

NO.	Description	Size	Qty.
1	Headstock Casting		1
2	Flange Joint		1
3	Spindle		1
4	Key		1
5	gasket		2
6	Ball Bearing		2
7	Cover		1
8	Spacing Ring		1
9	gear	40T	1
10	Pulley		1
11	Bushing		1
12	Set screw	M4X6	4
13	Nut	M28	1
14	Set screw	M4X10	4
15	Shaft		2
18	Bushing		2
19	Gear	80T	1
20	Washer		2
21	Oil Port		2
22	Gear	40T	1
23	Gear	28T	1
24	Shaft		2
25	Set screw	M4	2

Drive Assembly

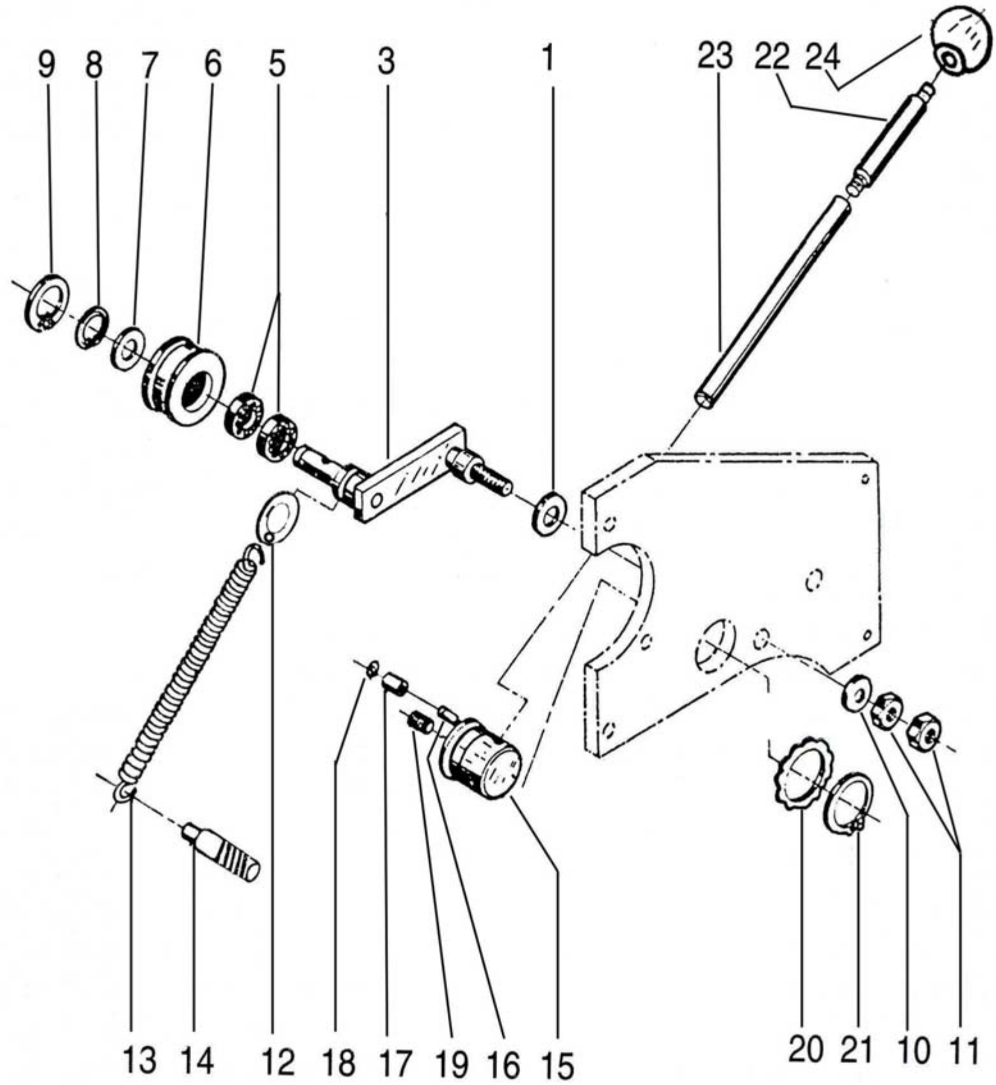


Drive Assembly

Index

NO.	Description	Size	Qty.
1	Brack Plate		1
2	Hex Socket Cap Screw	M8X20	3
3	Belt Pulley Shaft		1
4	Washer	M10	1
5	Lock Washer	M10	1
6	Hex Nut	M10	1
7	Bushing		2
8	Snap Ring	25	1
9	Washer		1
10	Spring		5
11	Ball	5	5
12	Pulley		1
13	Pulley		1
14	Washer		1
15	Snap Ring	12	1
16	Oil Port	6	1
18	Collar		1
19	Motor Pulley		1
20	Washer		1
21	Lock Washer	M6	1
22	Hex Socket Cap Screw	M6X25	1
23	Cover Plate		1
24	Hex Socket Cap Screw	M5X12	1
25	Washer	M5	1
26	Hex Socket Cap Screw	M5X8	1
27	Cover /hinge		1
28	Hex Socket Cap Screw	M4X10	4
29	Washer	M6	2
30	Hex Socket Cap Screw	M6X10	2
31	Hex Socket Cap Screw	M6X25	1
32	Washer	M6	1
33	Spring		1
34	Hex Socket Cap Screw	M6X20	2
35	Clamp Block		1
36	Hex Nut	M6	1
37	Belt		1
38	Cog Belt		1
39	plate		1

Tension Roller Assembly

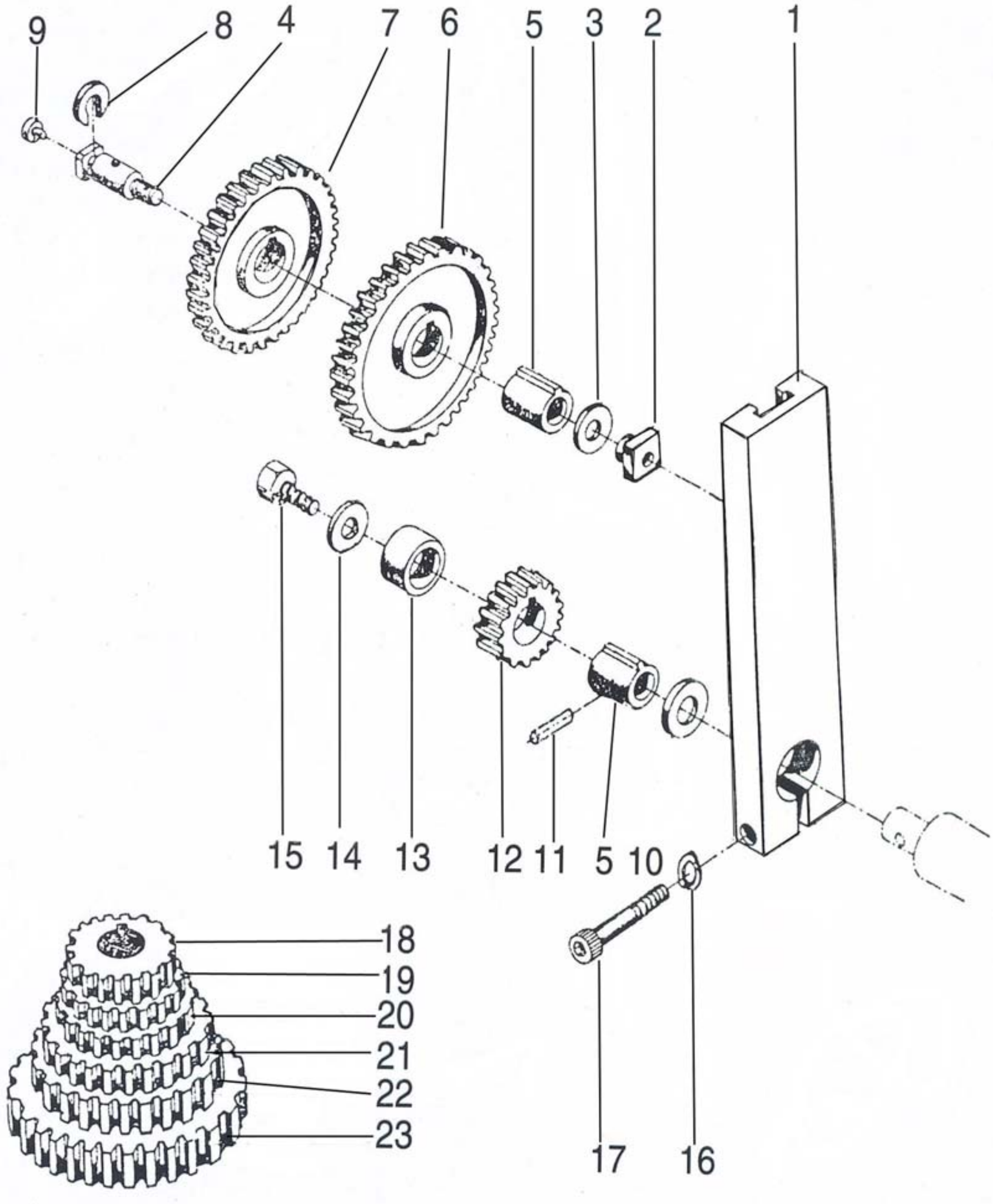


Tension Roller Assembly

Index

NO.	Description	Size	Qty.
1	Washer		1
3	lever bracket		1
5	Ball Bearing		2
6	Roller		1
7	Washer		1
8	Snap Ring	12	1
9	Snap Ring	28	1
10	Washer	M10	1
11	Nut	M10	2
12	Washer		1
13	Tension Spring		1
14	Stud Bolt		1
15	Toggle		1
16	Pin		1
17	Sleeve		1
18	Snap ring	6	1
19	SetScrew	32	1
20	Wave Washer		1
21	Snap Ring		1
22	Lever		1
23	Lever		1
24	Knob		1

Quadrant Assembly

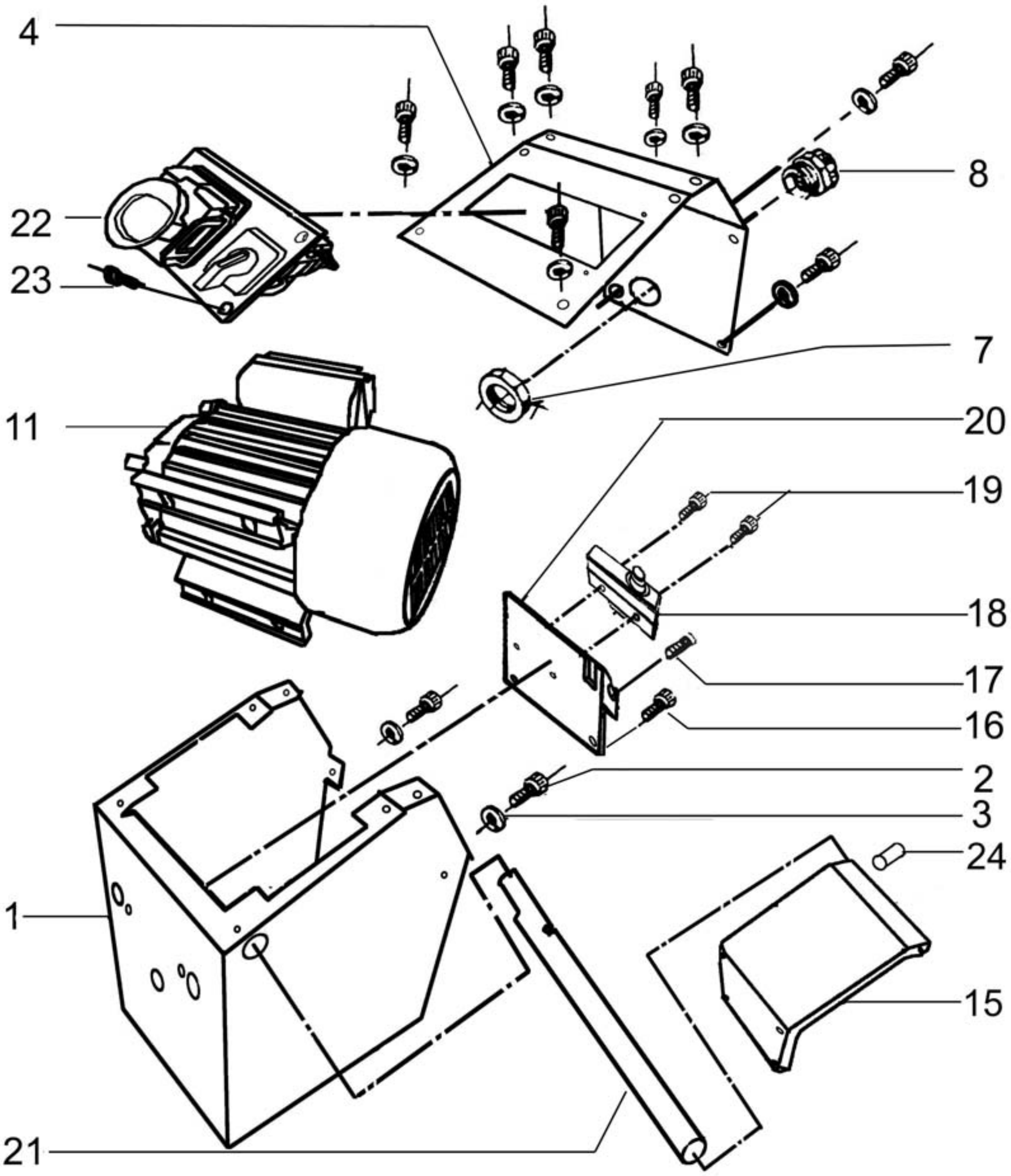


Quadrant Assembly

Index

NO.	Description	Size	Qty
1	Bracket		1
2	T-nut		1
3	Washer	M6	1
4	Shaft		1
5	Bushing		1
6	Gear	127T	1
7	Gear	120T	1
8	Washer		1
9	Oil port	6	1
10	washer	M10	1
11	pin	4X14	1
12	gear	30T	1
13	Spacing Ring		1
14	washer	M6	1
15	hex socket cap screw	M6X10	1
16	lock washer	M6	1
17	hex socket cap screw	M6X35	1
18	gear	28T	1
19	gear	36T	1
20	gear	42T	1
21	gear	45T	1
22	gear	60T	1
23	gear	80T	1

Electrical Assembly

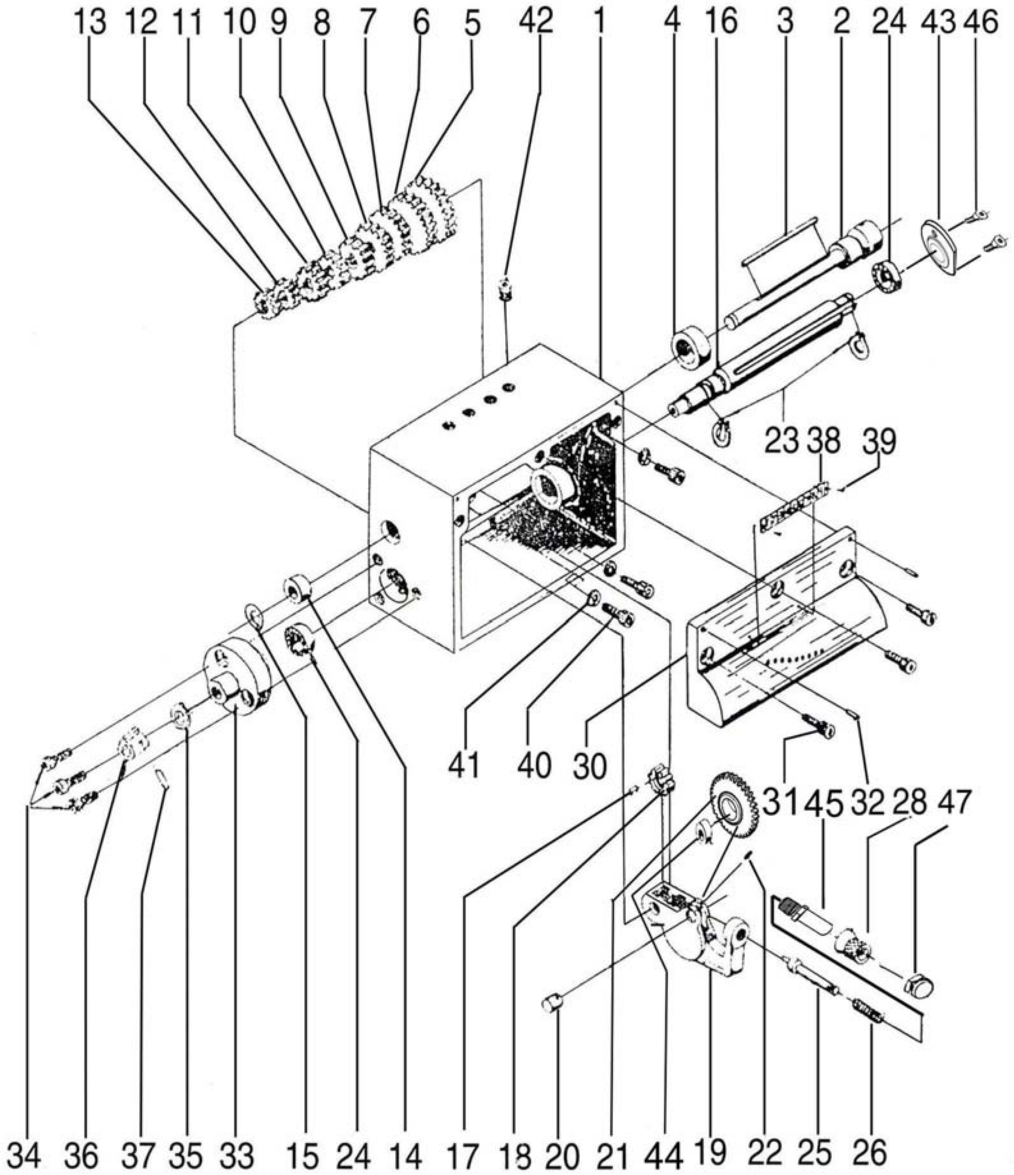


Electrical Assembly

Index

NO.	Description	Size	Qty.
1	Housing		1
2	Screw		10
3	Lock Washer		10
4	Cover		1
7	gear	120T	1
8	washer		1
11	Motor		1
15	卡盘护罩		1
16	Screw		2
17	Screw		1
18	开关		1
19	Screw		2
20	开关固定座		1
21	Bracket		1
22	Switch		1
23	Screw		3
24	Pin	3X8	2

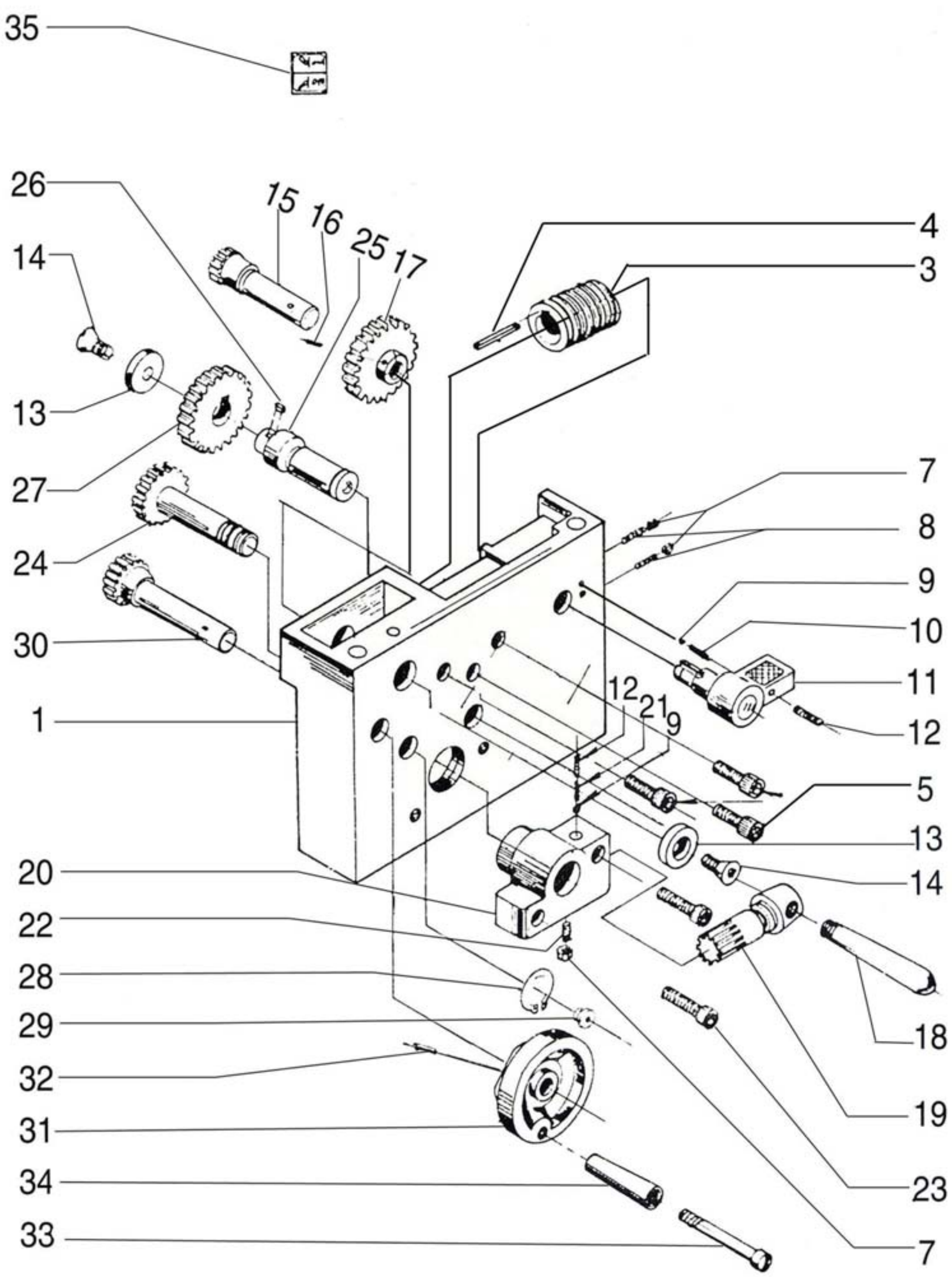
Gear Box Assembly



Gear box assembly

Index NO.	Description	Size	Qty.
1	Gear box Casting		1
2	Shaft		1
3	Key Bushing		1
4	Bushing		1
5	Gear	28T	1
6	Gear	26T	1
7	Gear	24T	1
8	Gear	23T	1
9	Gear	22T	1
10	Gear	20T	1
11	Gear	19T	1
12	Gear	18T	1
13	Gear	16T	1
14	Bushing		1
15	Snap Ring	16	1
16	Shaft		1
17	Key		1
18	Gear	16T	1
19	Shift Arm		1
20	Shaft		1
21	Gear	36T	1
22	Set Screw	M5X10	1
23	Snap Ring	15	2
24	Ball Bearing		2
25	Plunger		1
26	Spring		1
28	Handle		1
30	Front cover		1
31	Hex Socket Cap Screw	M6X16	3
32	Pin	6X22	2
33	Flange		1
34	Hex Socket Cap Screw	M6X10	3
35	Washer	M10	1
36	Bushing		1
37	Pin	4 X 14	1
38	Plate		1
39	Rivet		2
40	Hex Socket Cap Screw	M8X20	3
41	Lock Washer	M8	3
42	Oil cup	M8X1	4
43	gland bush		1
44	Bushing		1
45	Handle		1
46	Screw	M6X8	2

Apron Assembly

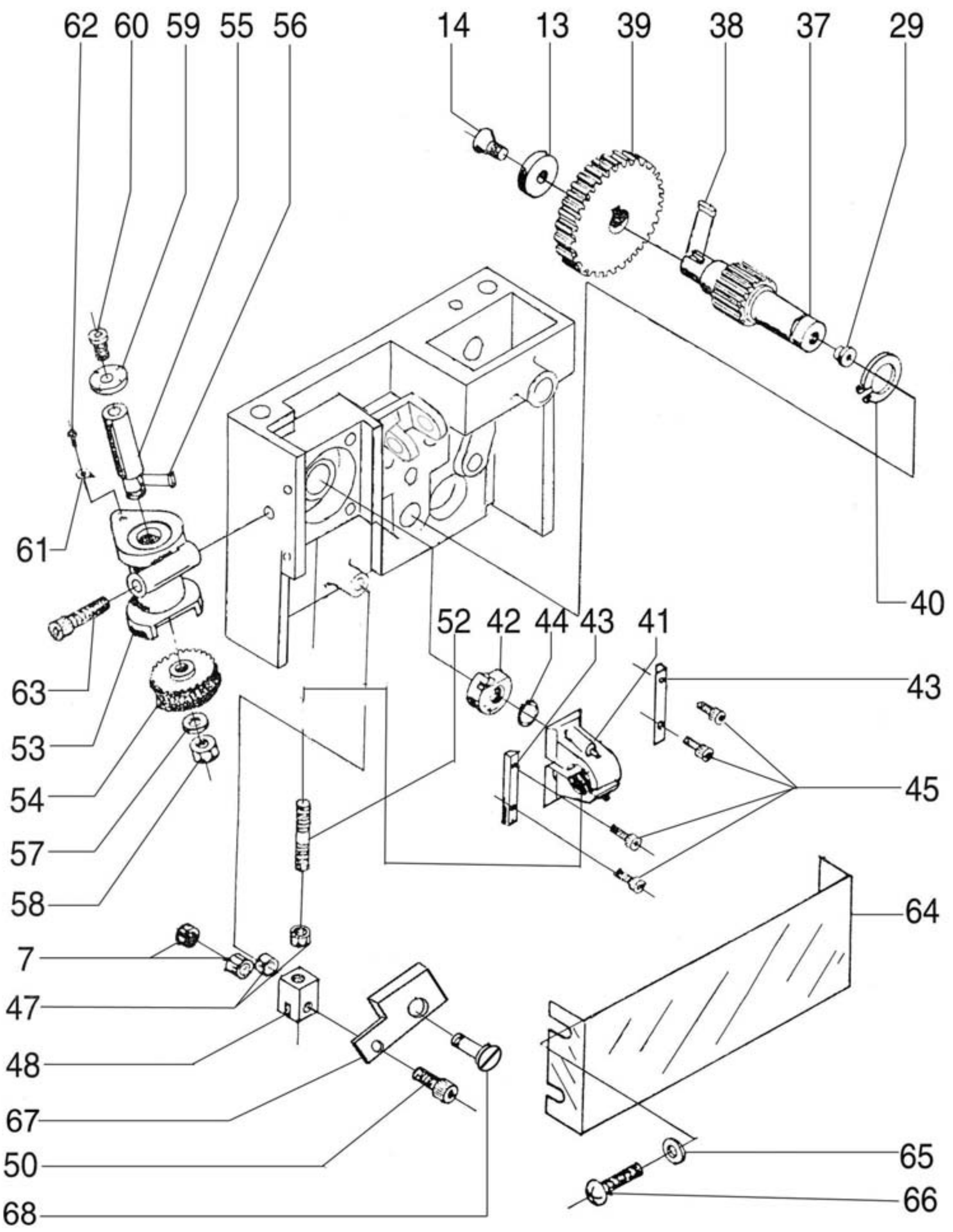


Apron Assembly

Index

NO.	Description	Size	Qty.
1	Apron Casting		1
3	Worm		1
4	Key		1
5	Hex Socket Cap Screw	M6X25	3
7	Nut		1
8	Set Screw	M4X12	2
9	Steel Ball		5
10	Spring		1
11	Handle		1
12	Set Screw	M6X6	2
13	Washer		3
14	Flat Head Screw	M6X8	3
15	Gear	12T	1
16	Spring Pin	4X30	1
17	Gear	43T	1
18	Handle		1
19	Gear	13T	1
20	bracket		1
21	Spring		1
22	Set Screw	M4X10	1
23	Hex Socket	M6X30	2
24	Gear	43T	1
25	Shaft		1
26	Key	4X5	1
27	Gear	41T	1
28	Ring	14	1
29	Oil Port	6	2
30	Gear	17T	1
31	Hand Wheel		1
32	Spring Pin	4X45	1
33	Screw		1
34	Handle		1
35	Label		1

Apron Assembly(cont'd)

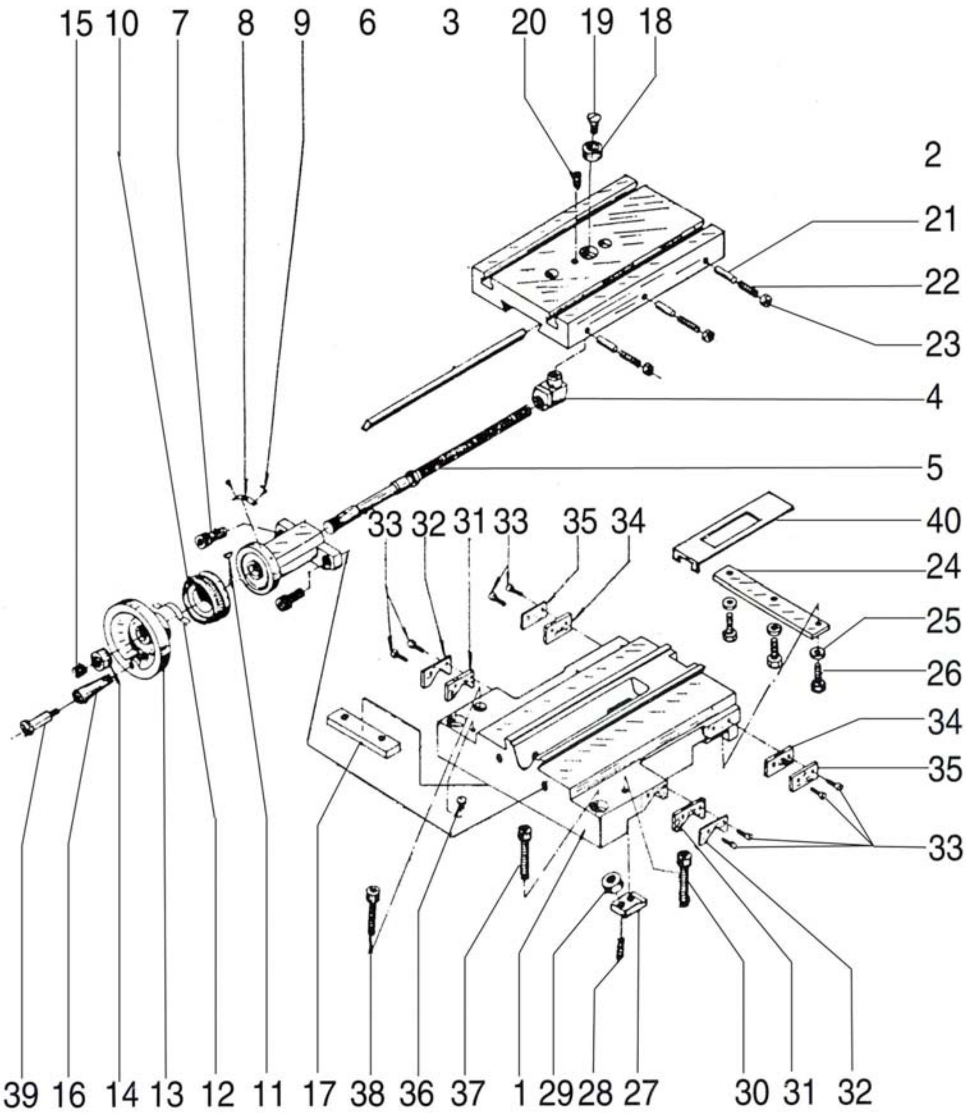


Apron Assembly(cont'd)

Index

NO.	Description	Size	Qty.
37	Gear	18T	1
38	Key	4X11	1
39	Worm Gear	42T	1
40	Ring	12	1
41	Half Nut		1
42	Locking Cam		1
43	Guide		1
44	Ring	8	1
45	Hex Socket Cap Screw	M4X16	4
47	Hex Nut	M5	2
48	Control Block		1
50	Hex Socket Cap Screw	M4X20	1
51	Hex Socket Cap Screw	M5X16	1
52	Screw		1
53	Thread Dial Body		1
54	Worm Gear	64T	1
55	Shaft		1
56	Key	3X10	1
57	Lock Washer	M8	1
58	Hex Nut	M8	1
59	Dial		1
60	Screw	M6X60	1
61	Pointer		1
62	Rivet	2X5	1
63	Hex Socket Cap Screw	M6X60	1
64	Apron Cover		1
65	Washer	M4	4
66	Pan Head Machine Screw	M4X8	4

Saddle and Cross Slide Assembly

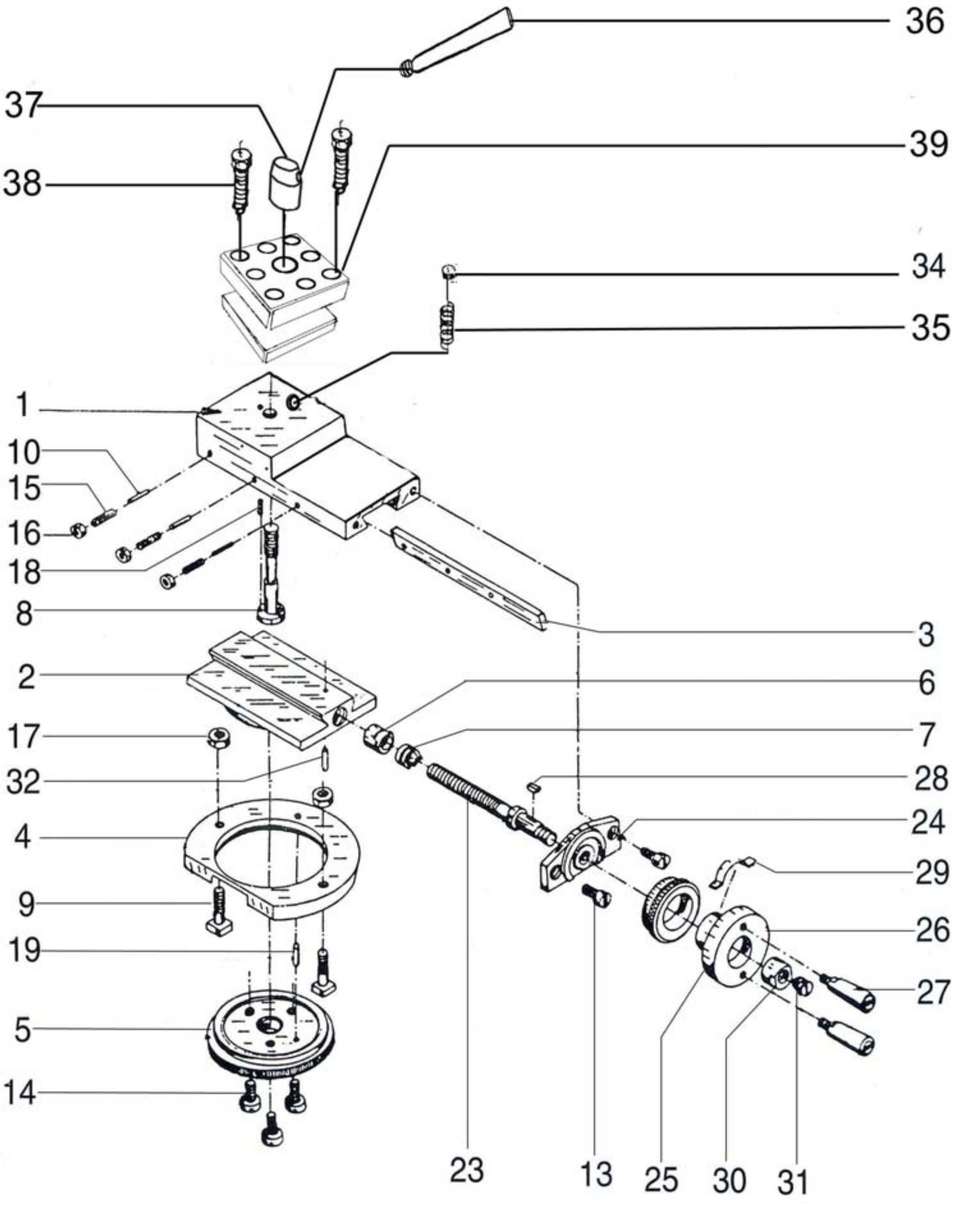


Saddle And Cross Slide Assembly

Index

NO.	Description	Size	Qty.
1	Saddle		1
2	Cross Slide		1
3	Gib		1
4	Nut		1
5	Lead Screw		1
6	Bracket		1
7	Hex Socket Cap Screw	M5X16	2
8	Plate		1
9	Rivet	2X5	2
10	Graduated Ring		1
11	Key	3X13	1
12	Spring		1
13	Hand Wheel		1
14	Hex Nut		1
15	Set Screw	M8X6	1
16	Handle		1
17	Slide Block		1
18	Bushing		1
19	Flat Head Screw	M6X12	1
20	Set Screw	M4X8	1
21	Pin		3
22	Set Screw	M4X12	3
23	Nut	M4	3
24	Slide Block		1
25	washer	M6	3
26	Hex Socket cap screw	M6X16	3
27	Clip		1
28	Set screw	M6X20	1
29	Nut	M6	1
30	Hex socket cap screw	M6X25	1
31	way cover		1
32	cover mount		1
33	pan head screw	M4X6	1
34	cover mount		2
35	cover mount		2
36	oil port	6	8
37	hex socket cap screw	M8X30	2
38	hex socket cap screw	M8X25	2
39	handle screw		1
40	cover mount		1

Top Slide Assembly

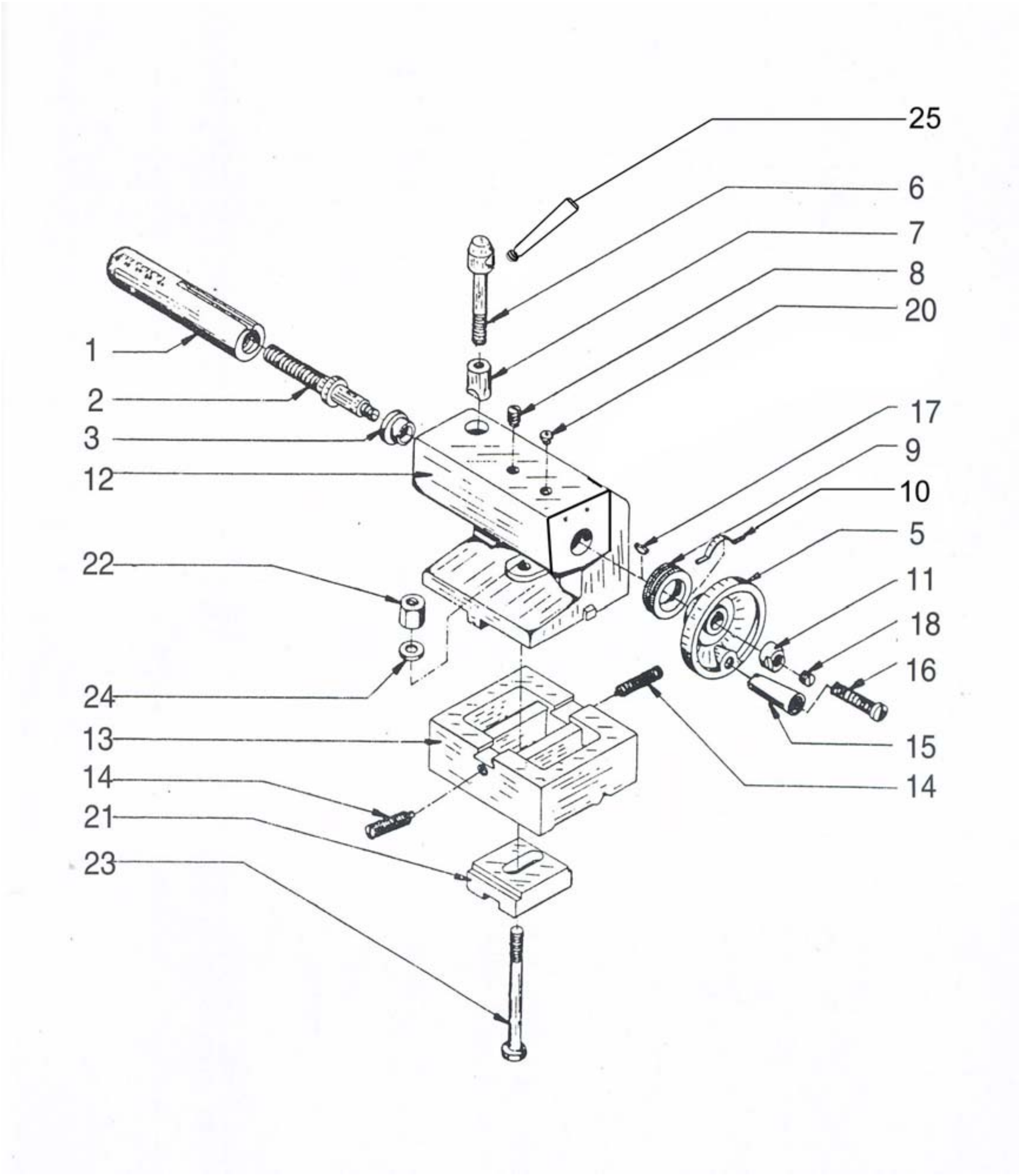


Top Slide Assembly

Index

NO.	Description	Size	Qty.
1	Longitudinal Slide		1
2	Swivel Base		1
3	Gib		1
4	lamping Ring		1
5	Micrometer Pan		1
6	Lead Screw Nut		1
7	Adjusting Screw		1
8	Screw		1
9	T-Screw		2
10	Pin		3
13	Hex Socket Cap Screw	M5X10	2
14	Flat Head Screw	M6X12	3
15	Set Screw	M4X10	3
16	Nut	M4	3
17	Nut	M6	2
18	Lock Pin	3X8	1
19	Lock Pin	3X14	1
24	Lead Screw Mount		1
25	Micrometer Collar		2
26	Handwheel		1
27	Handle		2
28	Key	3X13	1
29	Feed Spring		1
30	Nut		1
31	Set Screw	M8X6	1
32	Lock Pin	3X12	1
34	Positioning Pin		1
35	Spring		1
36	handle		1
37	Clamping Lever		1
38	Hex Socket Cap Screw		8
39	Tool Rest		1

Tailstock Assembly



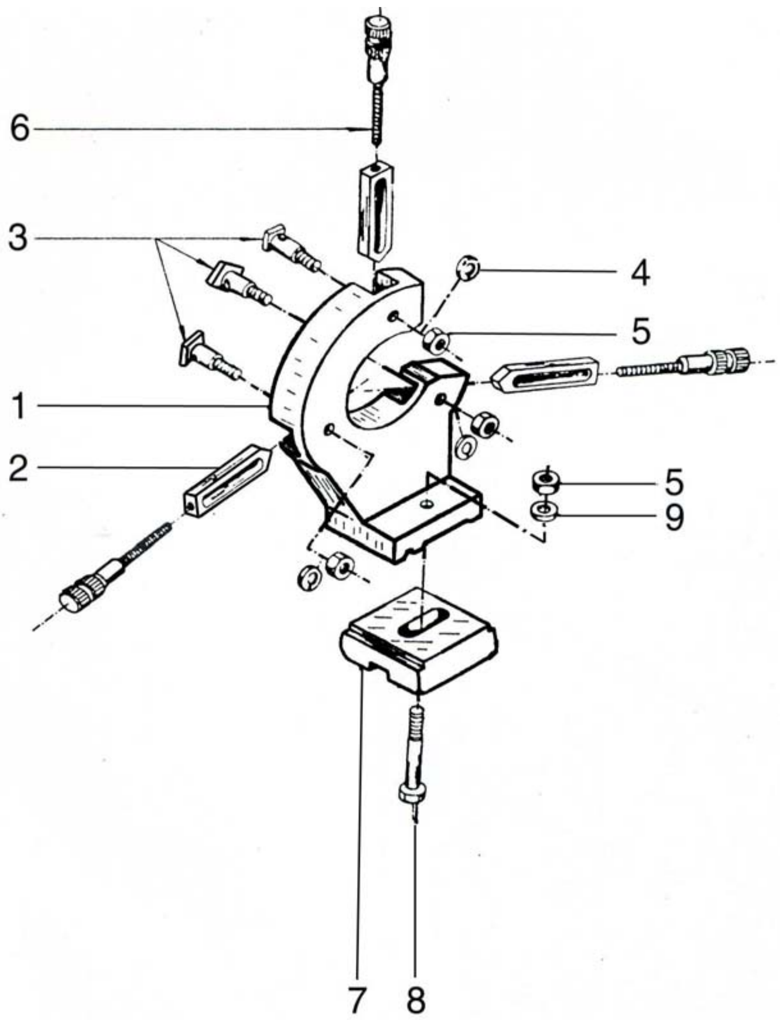
Tailstock Assembly

Index

NO.	Description	Size	Qty.
1	Tailstock Ram		1
2	Leadscrew		1
3	Bushing		1
5	Hand Wheel		1
6	Lever		1
7	Clamp		1
8	Guide Pin	M5X10	1
9	Micrometer Collar		1
10	Feed Spring		1
11	Nut		1
12	Tailstock Body		1
13	Tailstock Base		1
14	Set Screw	M8X25	2
15	Handle		1
16	Screw		1
17	Key	3X13	1
18	Set Screw	M8X8	1
20	Oil Port	6	1
21	Clamping Plate		2
22	Nut		1
23	Screw		1
24	Washer	M8	1
25	Handle		1

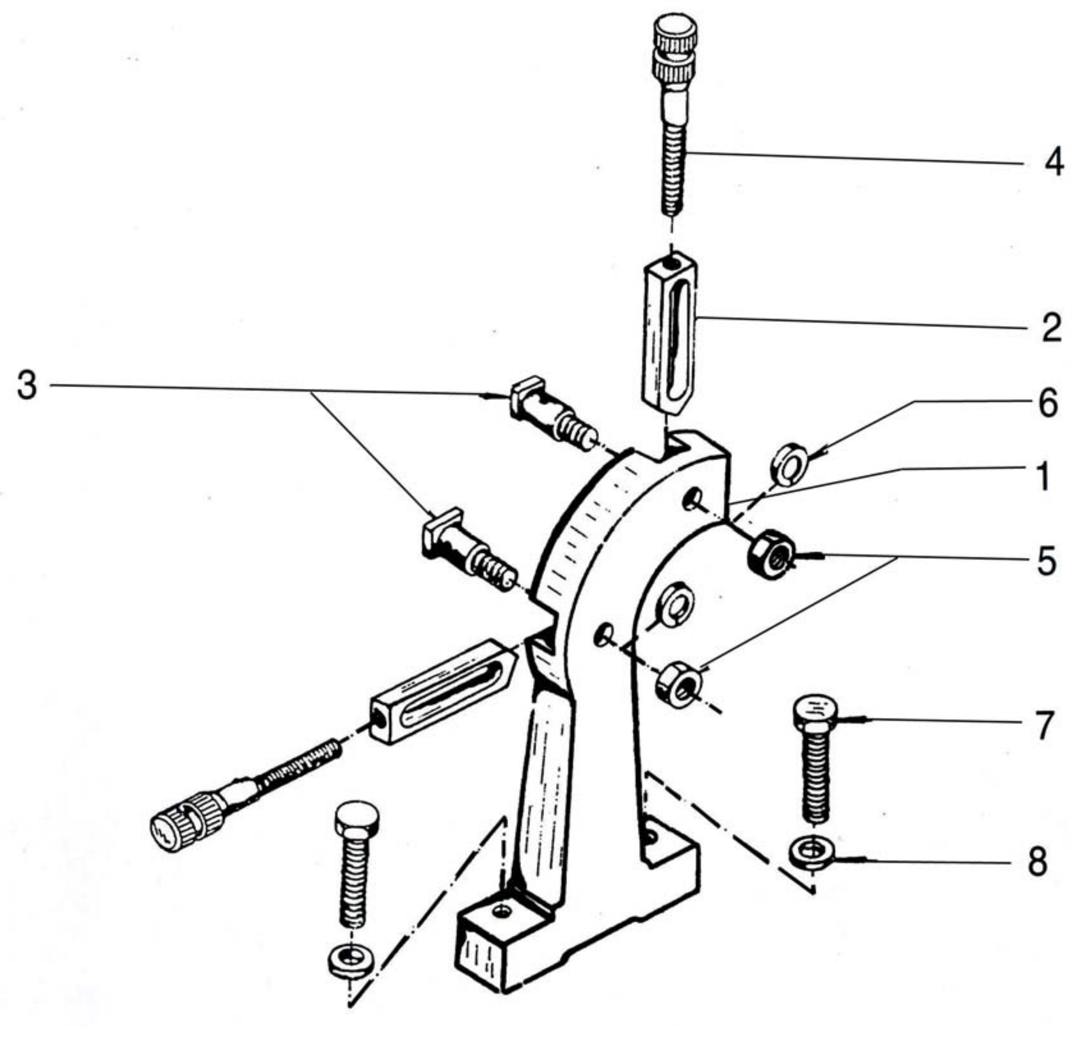
Center Rest Assembly

Index NO.	Description	Size	Qty.
1	Rest Casting		1
2	Jaw		3
3	Screw		3
4	Lock Washer	M8	3
5	Nut	M8	3
6	Adjusting Screw		3
7	Clamping Plate		1
8	Hex Cap Bolt	M8 × 60	1
9	Washer	M8	1



Travel Rest Assembly

Index NO.	Description	Size	Qty.
1	Rest Casting		1
2	Jaw		2
3	Screw		2
4	Adjusting Screw		2
5	Hex Nut	M8	2
6	Lock Washer	M8	2
7	Hex Socket Cap Screw	M6 × 30	2
8	Washer	M6	2



Lathe Bed Assembly

Index NO.	Description	Size	Qty.
1	Bed		1
2	Rack		1
3	Hex Socket Cap Screw	M4 × 8	6
4	Leadscrew		1
5	Bracket	M8	1
6	Oil Port	6	1
7	Hex Socket Cap Screw	M6 × 20	2
8	Nut		1
9	Set Screw	M8 × 6	1
10	Stud	M8 × 28	4
11	Hex Nut	M8	4
12	Set Screw	M6 × 25	4
13	Lock Washer	M6	4
14	Hex Nut	M6	4