Millport®

TM

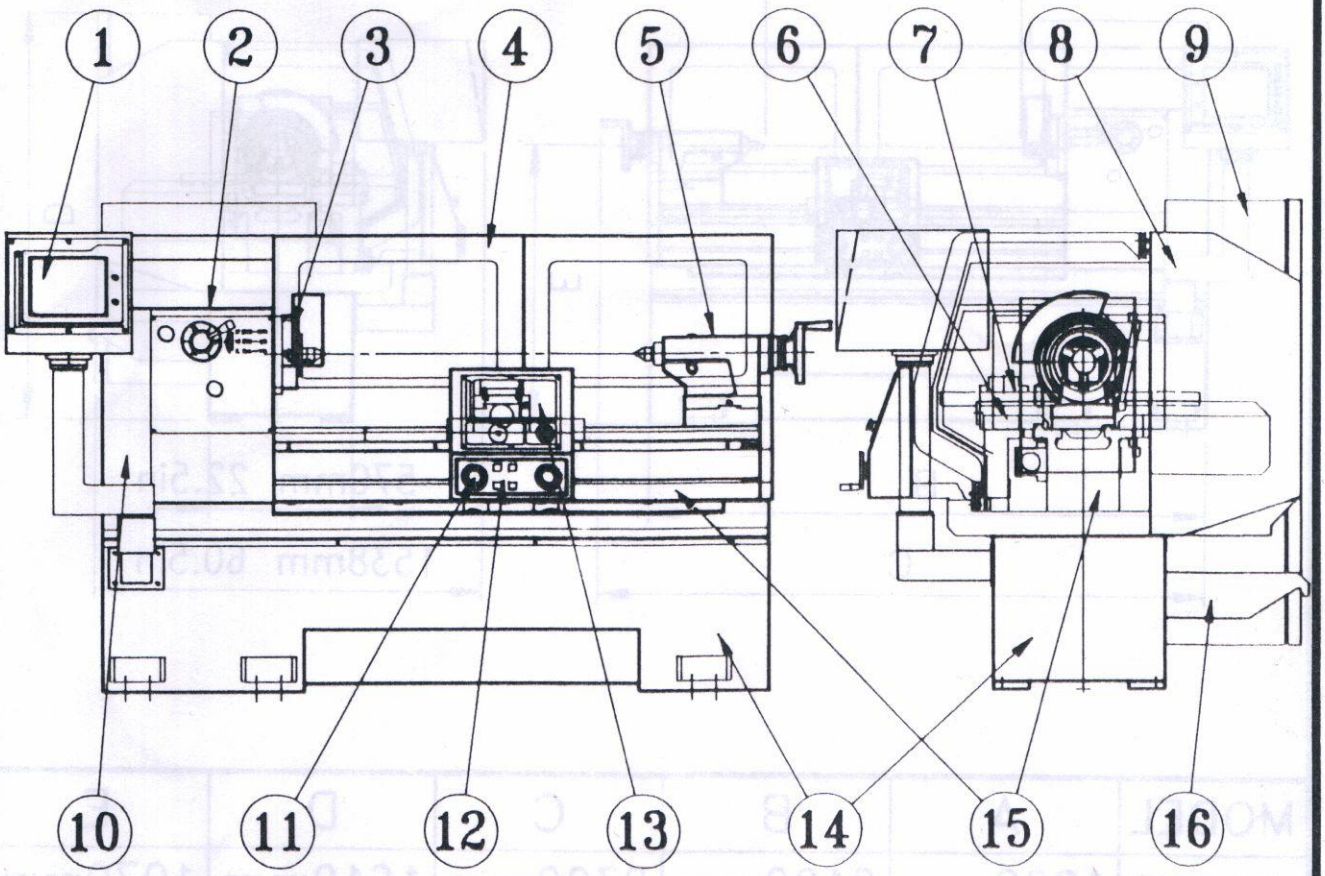
SMARTLATHEZ

INSTRUCTION MANUAL AND PARTS LIST

MODEL: 1740, 1760, 1780,
2040, 2060, 2080

SPECIFICATION AND ACCESSORIES

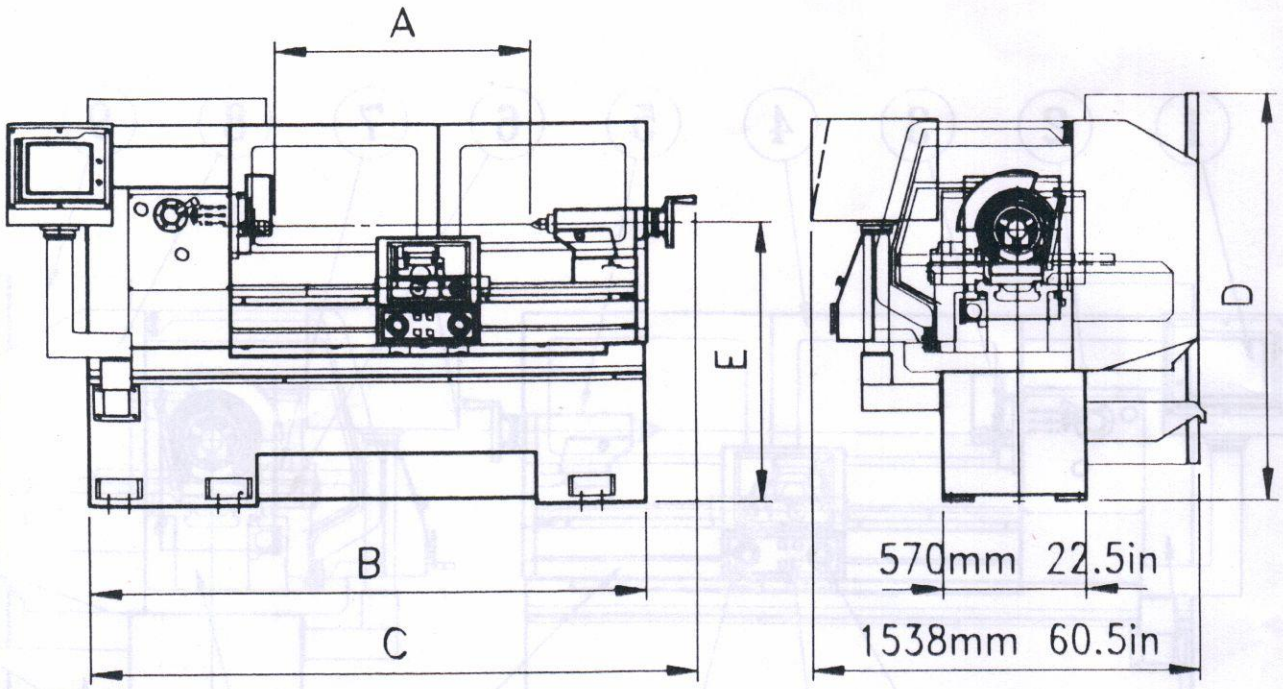
GENERAL LAYOUT OF LATHE



1. Monitor
2. Headstock
3. Spindle
4. Sliding door
5. Tailstock
6. Saddle
7. Cross-slide
8. Rear splash guard
9. Electrical box
10. Endcover
11. Electronic handwheel
12. Control panel
13. Function key
14. Stand
15. Bedway
16. Chip pan

SPECIFICATION AND ACCESSORIES

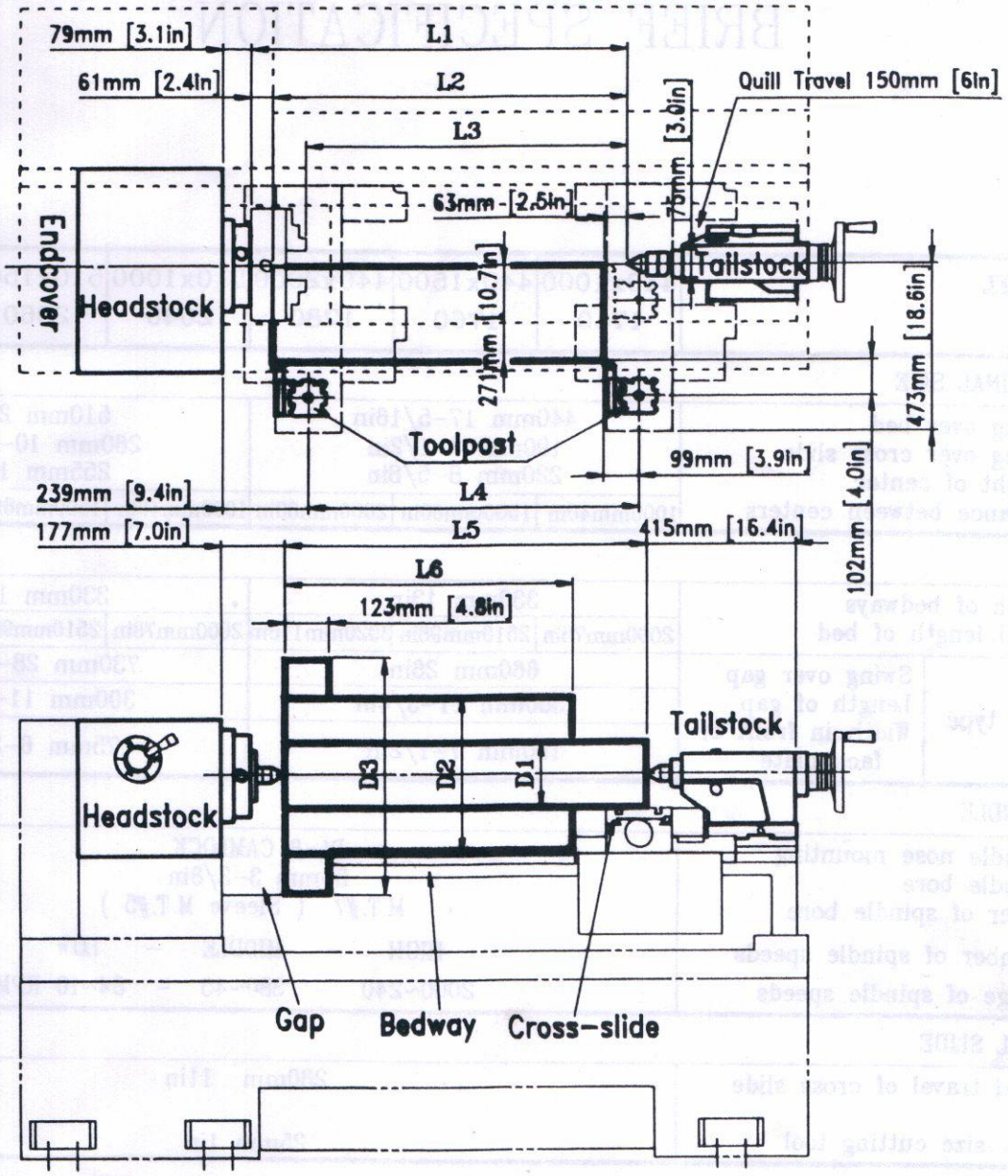
MEASUREMENT



MODEL	A	B	C	D	E
440x1000 1740	1000mm 40in	2190mm 86in	2390mm 94in	1610mm 63in	1070mm 42in
440x1500 1760	1500mm 60in	2700mm 106in	2900mm 114in	1610mm 63in	1070mm 42in
440x2000 1780	2000mm 80in	3210mm 126in	3410mm 134in	1610mm 63in	1070mm 42in
510x1000 2040	1000mm 40in	2190mm 86in	2390mm 94in	1610mm 63in	1105mm 44in
510x1500 2060	1500mm 60in	2700mm 106in	2900mm 114in	1610mm 63in	1105mm 44in
510x2000 2080	2000mm 80in	3210mm 126in	3410mm 134in	1610mm 63in	1105mm 44in

SPECIFICATION AND ACCESSORIES

TRAVEL & CAPACITY



MODEL	L1	L2	L3	L4	L5	L6	D1	D2	D3
440x1000 1740	1045mm 41.13in	984mm 38.72in	893mm 35.14in	920mm 36.22in	1006mm 40in	800mm 31.50in	190mm 7.48in	440mm 17.32in	660mm 25.98in
440x1500 1760	1555mm 61.20in	1494mm 58.80in	1403mm 55.22in	1430mm 56.30in	1516mm 60in	1310mm 51.57in	190mm 7.48in	440mm 17.32in	660mm 25.98in
440x2000 1780	2065mm 81.28in	2004mm 78.88in	1913mm 75.30in	1940mm 76.38in	2026mm 80in	1820mm 71.65in	190mm 7.48in	440mm 17.32in	660mm 25.98in
510x1000 2040	1045mm 41.13in	984mm 38.72in	893mm 35.14in	920mm 36.22in	1006mm 40in	800mm 31.50in	260mm 10.24in	510mm 20.08in	730mm 28.74in
510x1500 2060	1555mm 61.20in	1494mm 58.80in	1403mm 55.22in	1430mm 56.30in	1516mm 60in	1310mm 51.57in	260mm 10.24in	510mm 20.08in	730mm 28.74in
510x2000 2080	2065mm 81.28in	2004mm 78.88in	1913mm 75.30in	1940mm 76.38in	2026mm 80in	1820mm 71.65in	260mm 10.24in	510mm 20.08in	730mm 28.74in

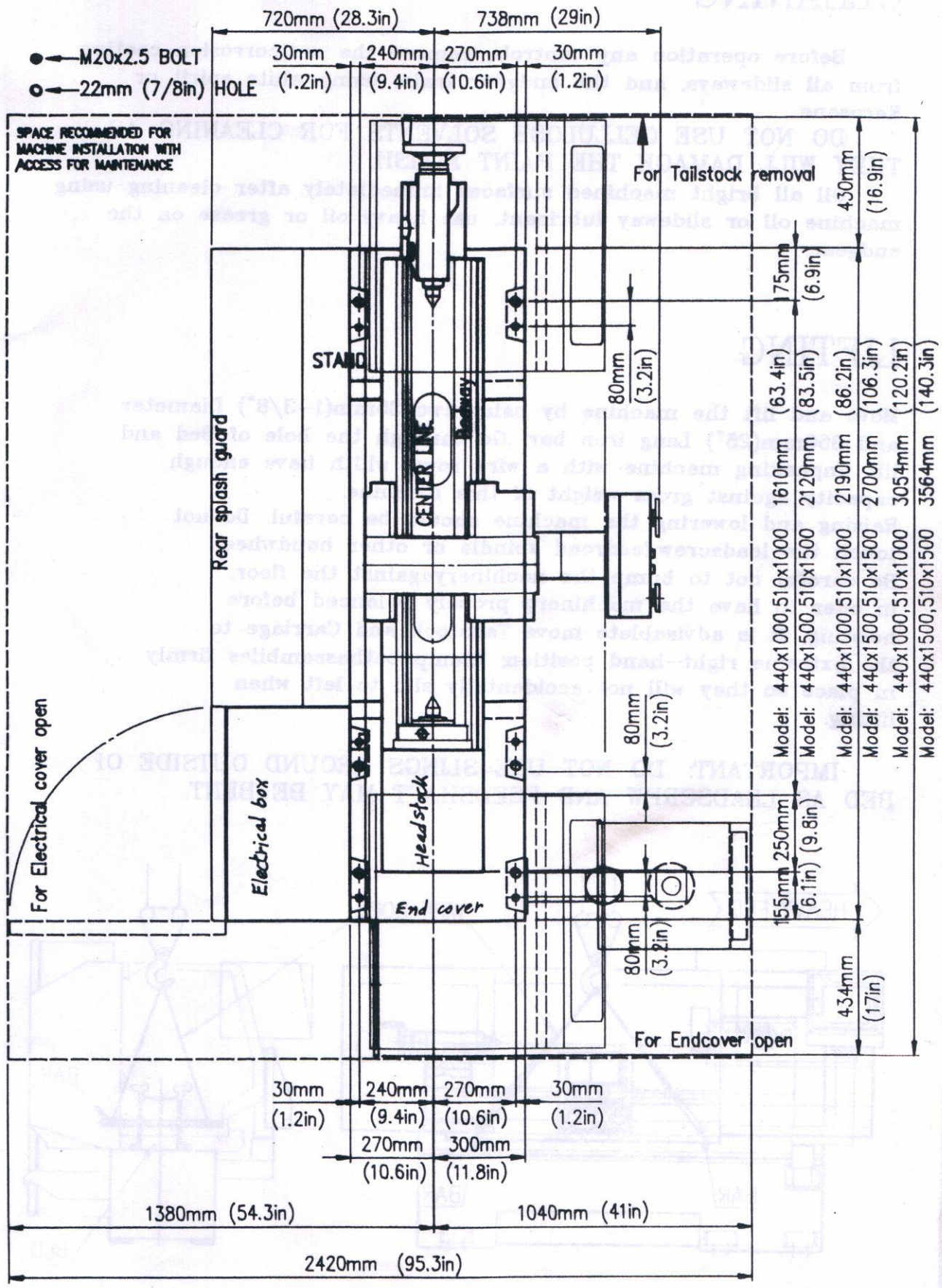
BRIEF SPECIFICATION

MODEL	440x1000 1740	440x1500 1760	440x2000 1780	510x1000 2040	510x1500 2060	510x2000 2080
NOMINAL SIZE						
Swing over bed	440mm 17-5/16in			510mm 20in		
Swing over cross slide	190mm 7-1/2in			260mm 10-1/4in		
Height of center	220mm 8-5/8in			255mm 10in		
Distance between centers	1000mm40in	1500mm60in	2000mm80in	1000mm40in	1500mm60in	2000mm80in
BED						
Width of bedways	330mm 13in			330mm 13in		
Total length of bed	2000mm78in	2510mm98in	3020mm118in	2000mm78in	2510mm98in	3020mm118in
Gap type — Swing over gap	660mm 26in			730mm 28-3/4in		
Gap type — Length of gap	300mm 11-3/4in			300mm 11-3/4in		
Gap type — Width in front of face plate	190mm 7-1/2in			175mm 6-3/4in		
SPINDLE						
Spindle nose mounting	D1-8 CAMLOCK					
Spindle bore	86mm 3-3/8in					
Taper of spindle bore	M.T.#7 (Sleeve M.T.#5)					
Number of spindle speeds	HIGH - MIDDLE - LOW					
Range of spindle speeds	2000~240 - 380~45 - 84~10 RPM					
TOOL SLIDE						
Total travel of cross slide	280mm 11in					
Max. size cutting tool	25mm 1in					
TAIL STOCK						
Total travel of barrel	160mm 6-5/16in					
Taper in barrel	M.T.#5					
Diameter of barrel	75mm 3in					
MOTOR						
Main spindle motor	10 HP. 7.4kw			10 HP. 7.4kw		

We reserve the right to modify and improve our products.

SPECIFICATION AND ACCESSORIES

FOUNDATION PLAN



INSTALLATION

CLEANING

Before operation any controls, remove the anticorrosion coating from all slideways, and the endgear train, using white spirit or Kerosene.

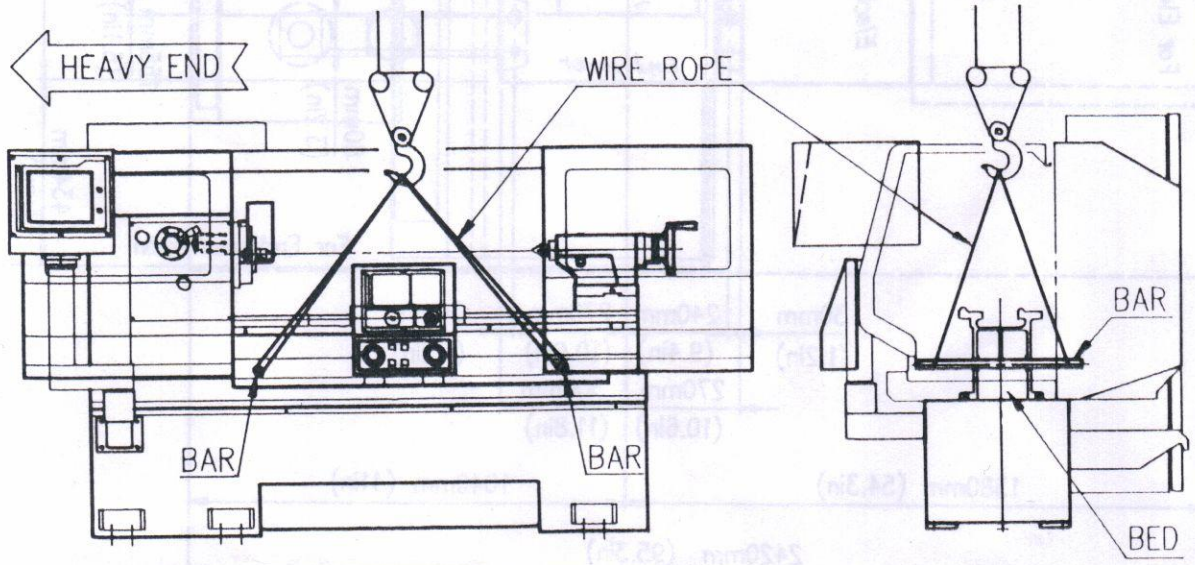
DO NOT USE CELLULOSE SOLVENTS FOR CLEANING AS THEY WILL DAMAGE THE PAINT FINISH.

Oil all bright machined surfaces immediately after cleaning using machine oil or slideway lubricant, use heavy oil or grease on the endgear.

LIFTING

Move and lift the machine by using two 35mm(1-3/8") Diameter and 650mm(25") Long iron bar. Go through the hole of Bed and lift unpacking machine with a wire rope, whith have enough capacity against gross weight of this machine.
Raising and lowering the machine should be careful. Do not touch the leadscrew,feedroad spindle or other handwheel.
Be careful not to bump the nachineryagainst the floor.
In oder to have the machinery propely balanced before hoisting, it is advisableto move Tailstock and Carriage to the extreme right-hand position; clamp bothassembiles firmly in place so they will not accidentally slid to left when lifting.

IMPORTANT: DO NOT USE SLINGS AROUND OUTSIDE OF BED AS LEADSCREW AND FEEDSHAFT MAY BE BENT.

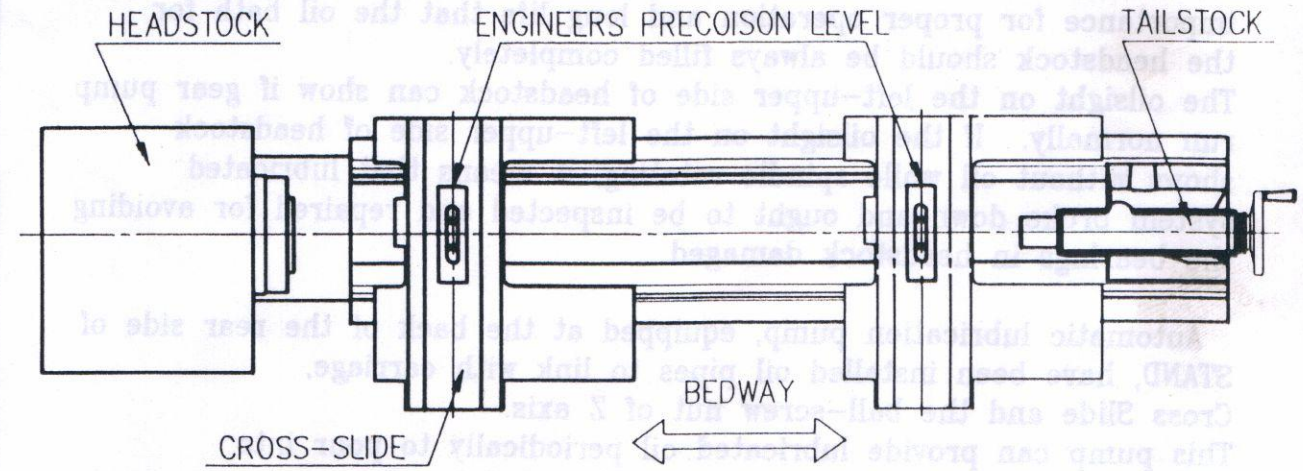


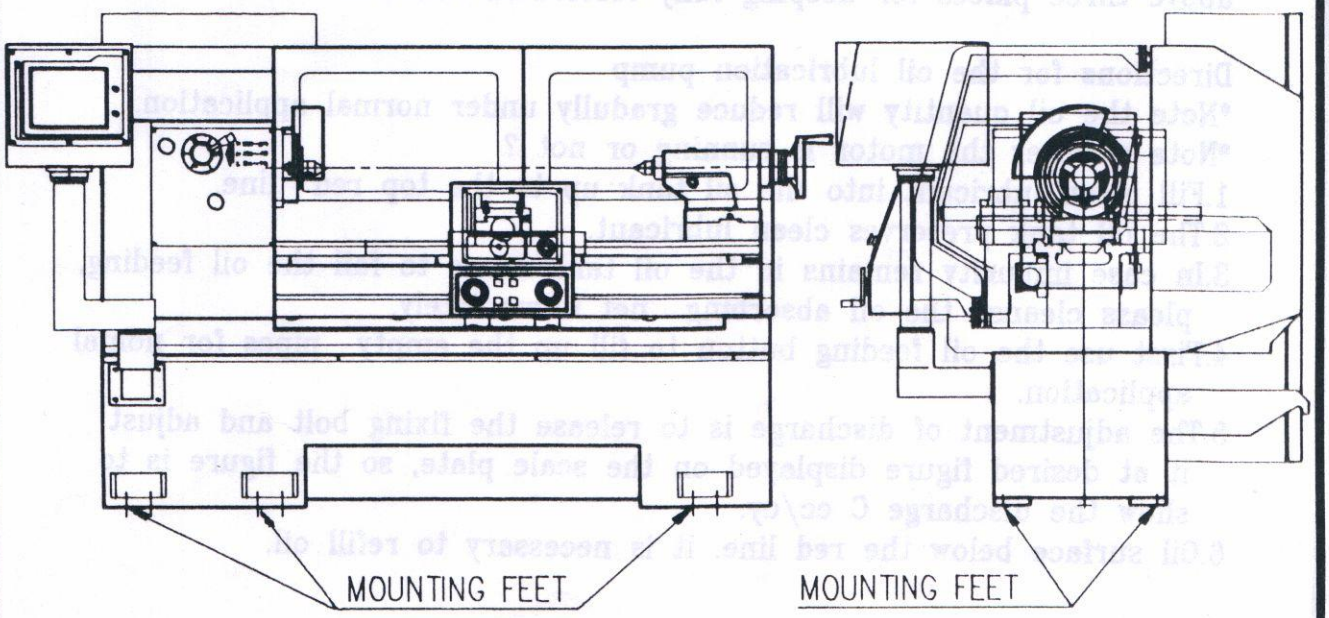
INSTALLING

Located the machine on a solid foundation, allowing sufficient area all round for easy working and maintenance (see Foundation plan). The lathe may be used free-standing or bolted to the foundation.

Free-standing: Position lathe on foundation and adjust each of the six mounting feet to take equal share of the load. Then using an engineers precision lever on the Bedways adjust the feet to level up machine. Periodically check bed level to ensure continued lathe accuracy.

Fixed installation: Position lathe over six bolts (20 mm. diam.) set into the foundation to correspond with holes in the mounting feet. Accurately level the machine, then tighten hold-down blots. Re-check bed level.





LUBRICATION

It is most important to lubricat lathe before operating!

The operator should be responsible for the proper lubrication of the lathe. The grade and quality of lubrication are given in the following OIL LUBRICATION CHART. The instructions on this chart are essential to the proper oiling of the internal of the lathe. Oil levels should be strictly observed, for it is of primary importance for proper operation and long life that the oil bath for the headstock which always be completely filled.

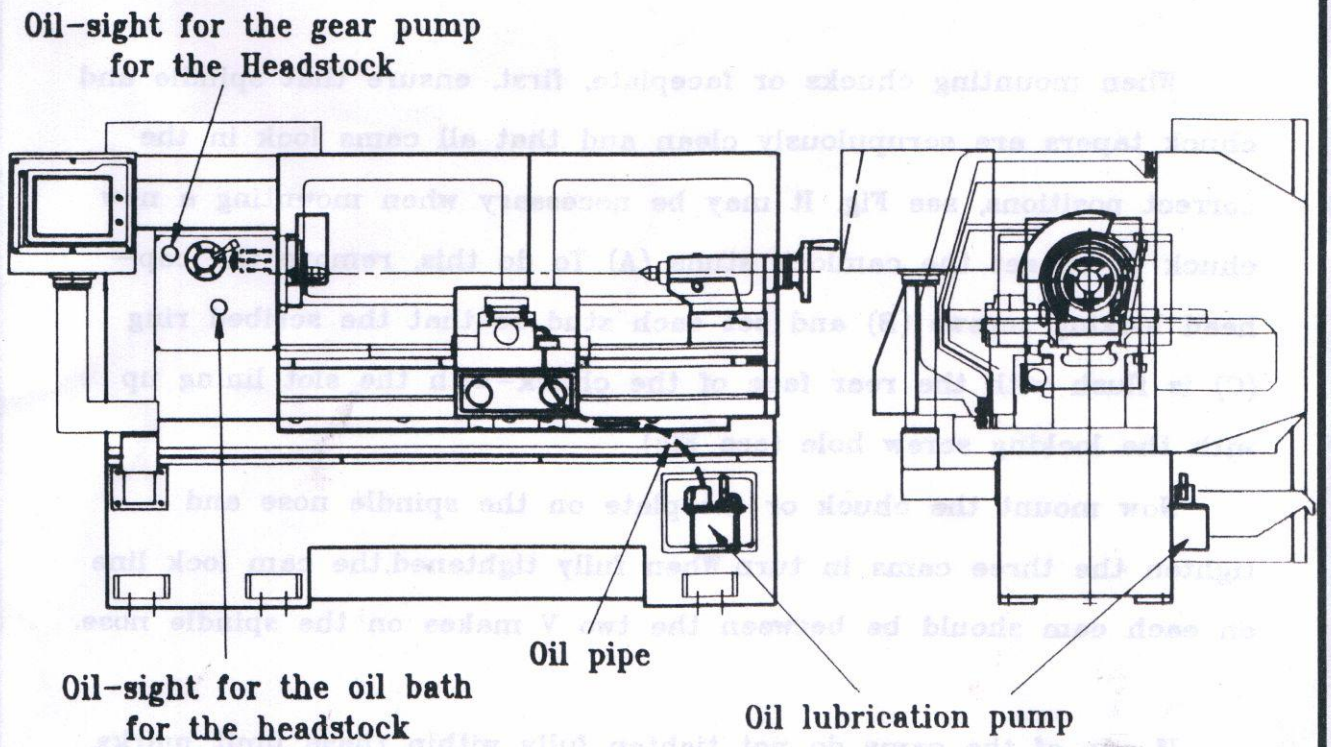
Gear pump equipped in the Headstock can be run to pour lubricated oil into every place of bearings through pipe while spindle rotating.
The oilsight on the middle-lower side of headstock is oil gauge.
Oil levels should be strictly observed, for it is of primary importance for proper operation and long life that the oil bath for the headstock should be always filled completely.
The oilsight on the left-upper side of headstock can show if gear pump run normally. If the oilsight on the left-upper side of headstock shows without oil while spindle rotating, it means that lubricated system broke down and ought to be inspected and repaired for avoiding the bearings in headstock damaged.

Automatic lubrication pump, equipped at the back of the rear side of STAND, have been installed oil pipes to link with carriage,
Cross Slide and the ball-screw nut of Z axis.
This pump can provide lubricated oil periodically to pour into above three places for keeping fully lubricated function.

Directions for the oil lubrication pump
*Note the oil quantity will reduce gradully under normal application.
*Note whether the motor is running or not ?
1.Fill clean lubricant into the oil tank up to the top red line.
2.The oil tank preserves clean lubricant.
3.In case impurity remains in the oil tank so as to fail the oil feeding, pleass cleanse the oil absorbing net immediately.
4.First use the oil feeding button to fill up the empty pipes for nomal application.
5.The adjustment of discharge is to release the fixing bolt and adjust it at desired figure displayed on the scale plate, so the figure is to show the discharge C cc/cy.
6.Oil surface below the red line. it is necessary to refill oil.

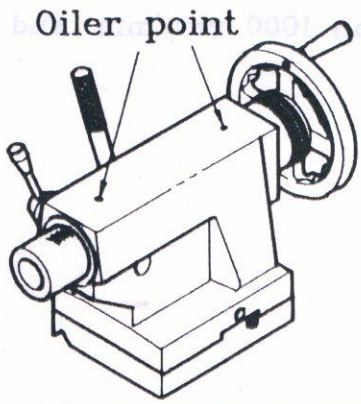
INSTALLATION

OIL LUBRICATION CHART



No.	LUBRICATION POINT	VISCOSITY S.U.S. 100F	OIL RECOMMENDED	OIL EXCHANGE / OR REPLENISHMENT
1	Headstock	160	SHELL(TELLUS)25	Three time a year Keep the oil up to the oil window
2	Carriage & Cross-slide & Ball screw nut	320	SHELL(TONNA)33	Keep the oil up to the oil window
3	Tailstock	320	SHELL(TONNA)33	Once a day

On the tailstock, top of casting and tail end of leadscrew oiler points are provide for daily attention from a standard oil can.



CHUCKS AND CHUCK MOUNTING

When mounting chucks or faceplate, first, ensure that spindle and chuck tapers are scrupulously clean and that all cams lock in the correct positions, see Fig. It may be necessary when mounting a new chuck to re-set the camlock studs (A) To do this, remove the cap-head locking screws (B) and set each stud so that the scribed ring (C) is flush with the rear face of the chuck-with the slot lining up with the locking screw hole (see Fig).

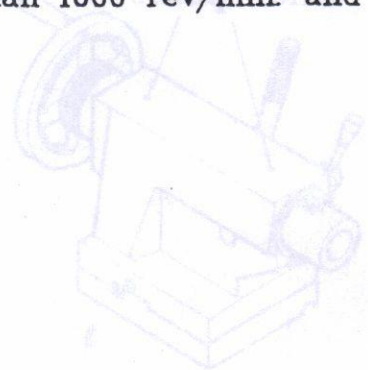
Now mount the chuck or faceplate on the spindle nose and tighten the three cams in turn. When fully tightened, the cam lock line on each cam should be between the two V makes on the spindle nose.

If any of the cams do not tighten fully within these limit marks, remove the chuck or faceplate and re-adjust the stud as indicated in the illustration. Fit and tighten the locking screw (B) at each stud before remounting the chuck for work.

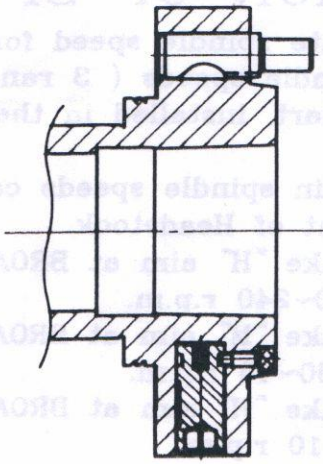
This will assist subsequent remounting.

DO NOT INTERCHANGE CHUCKS OR FACEPLATES BETWEEN LATHES WITHOUT CHECKING FOR CORRECT CAM LOCKING BEFOREHAND.

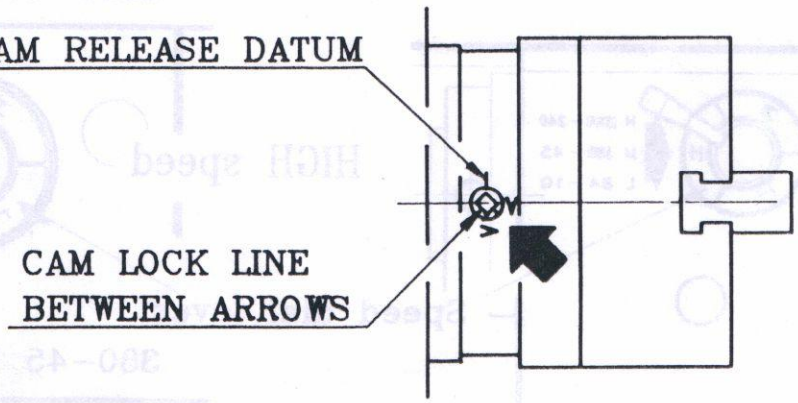
IMPORTANT: Take careful note of speed limitation when using faceplate; 10 inch faceplates should not be run at speeds greater than 1000 rev/min. and 12" faceplate at not more than 770 rev/min.



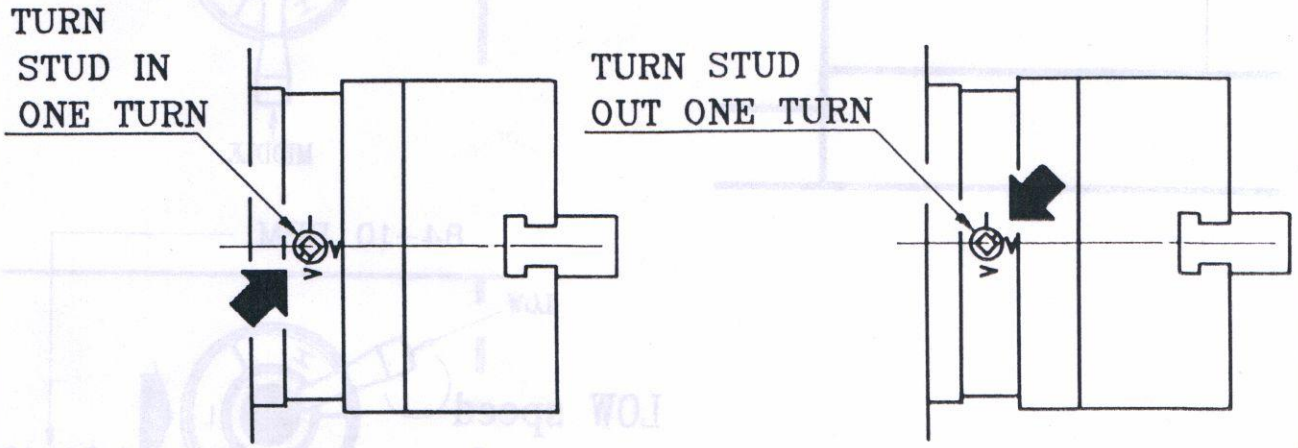
INSTALLATION



CORRECT



WRONG



OPERATION

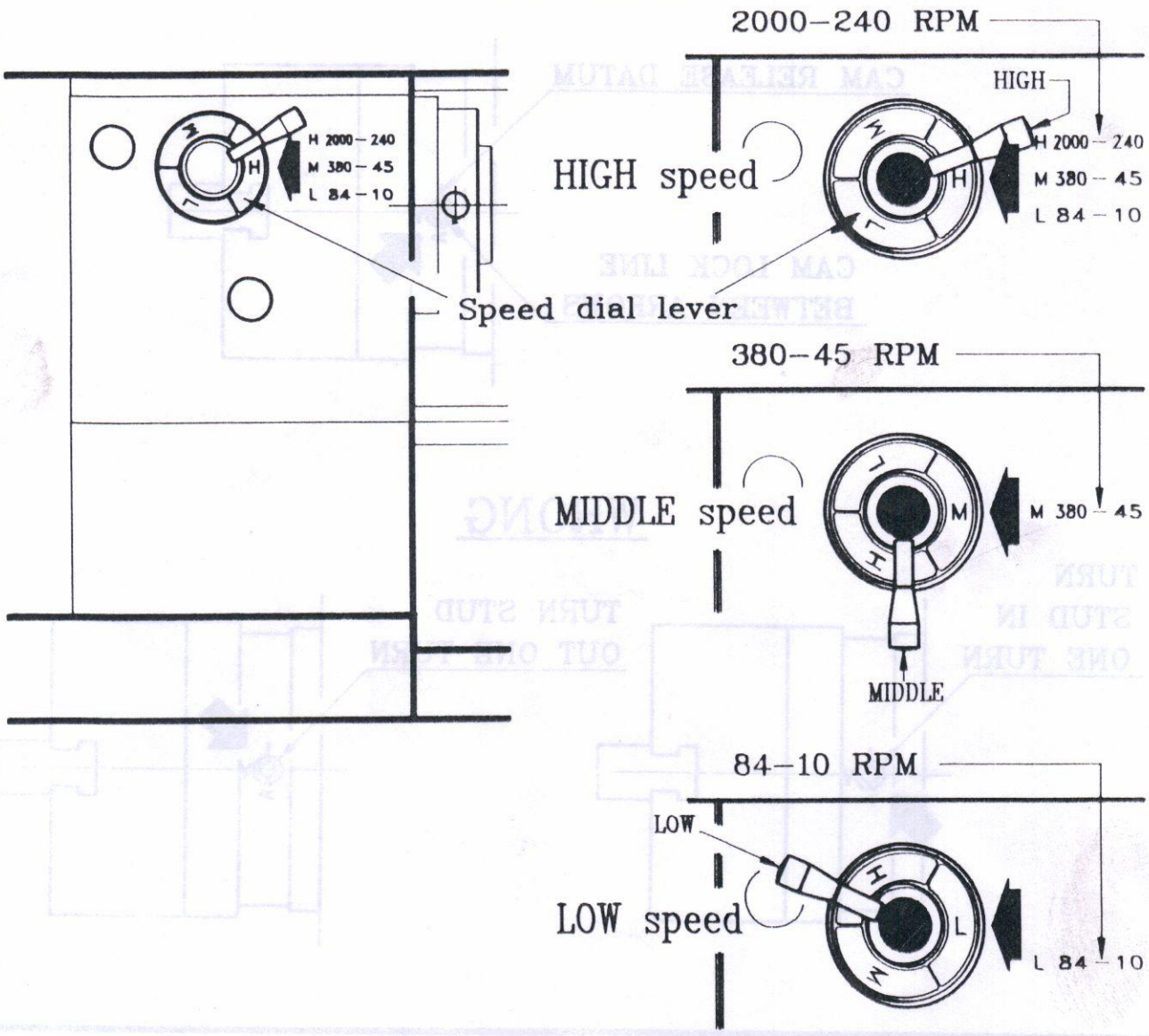
SELECTION OF SPINDLE SPEEDS

Select a appropriate spindle speed for working:
There are three spindle speeds (3 range), from 10 – 2000 rpm, as showed on speed chart, installed in the front of Headstock.

The change of main spindle speeds can be reached by the dial lever, installed in the front of Headstock.

1. Turn lever to make "H" aim at BROAD ARROW, then lathe speed is in HIGH range, 2000~240 r.p.m.
2. Turn lever to make "M" aim at BROAD ARROW, then lathe speed is in MIDDLE range, 380~45 r.p.m.
3. Turn lever to make "H" aim at BROAD ARROW, then lathe speed is in LOW range, 84~10 r.p.m.

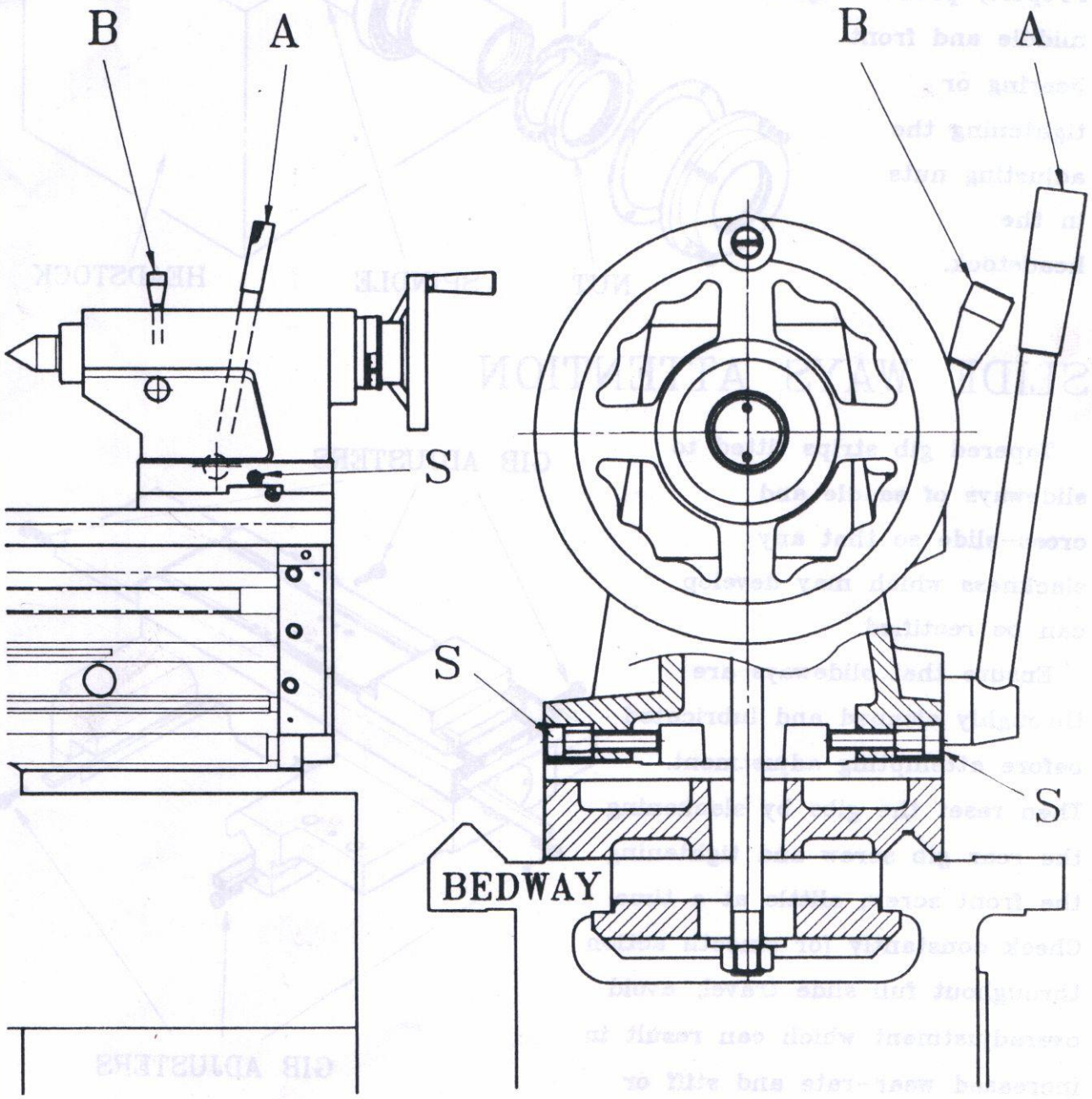
In order to obtain the desired spindle speeds, place the lever at the proper position and be sure not to shift the levers when the spindle is running.



TAIL STOCK

Can be freed for movement along the bed by unlocking the clamp lever (A). The tailstock barrel is locked by lever (B).

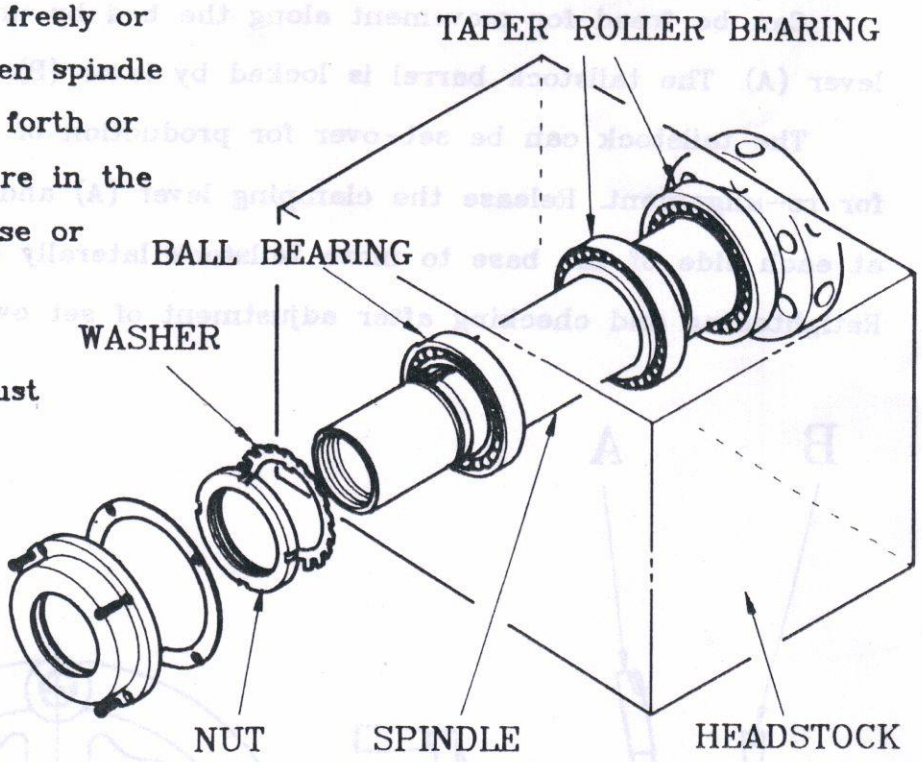
The tailstock can be set–over for production of shallow tapers or for re–alignment. Release the clamping lever (A) and adjust screws (S) at each side of the base to move tailstock laterally across the base. Retightening and checking after adjustment of set over.



MAINTENANCE

SPINDLE BEARING ADJUSTMENT

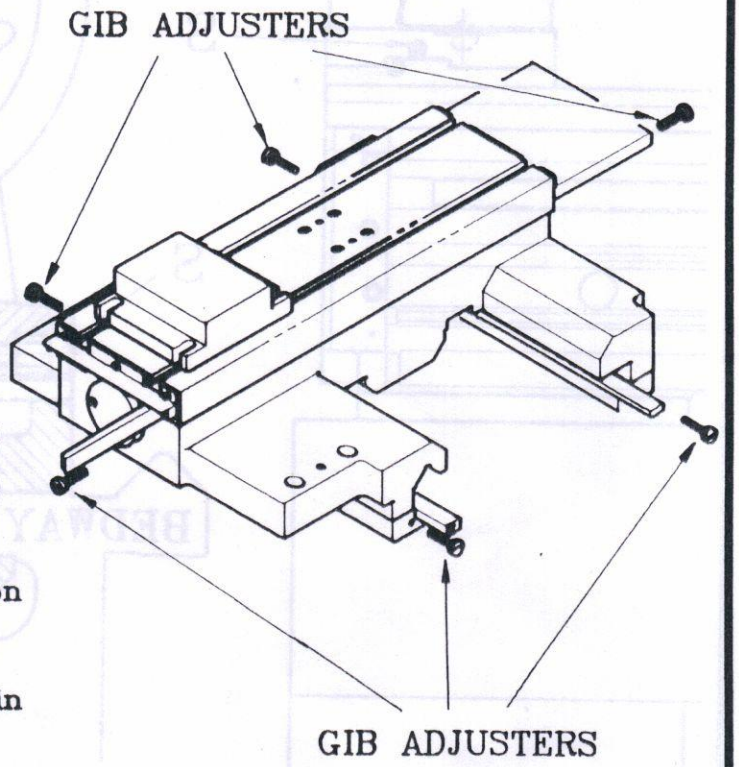
If spindle swing too freely or play is noticable when spindle is pushed back and forth or when the bearings are in the case of bearings noise or chattering or over temperature. Properly practic adjust middle and front bearing or tightening the adjusting nuts in the headstock.



SLIDE WAYS ATTENTION

Tapered gib strips fitted to slideways of saddle and cross-slide so that any slackness which may develop can be rectified.

Ensure that slideways are throughly cleaned and lubricated before attempting adjustment. Then reset the gibs by slackening the rear gib screw and tightening the front screw, alittle at a time. Check constantly for smooth action throughout full slide travel; avoid overadjustment which can result in increased wear-rate and stiff or jerky action.



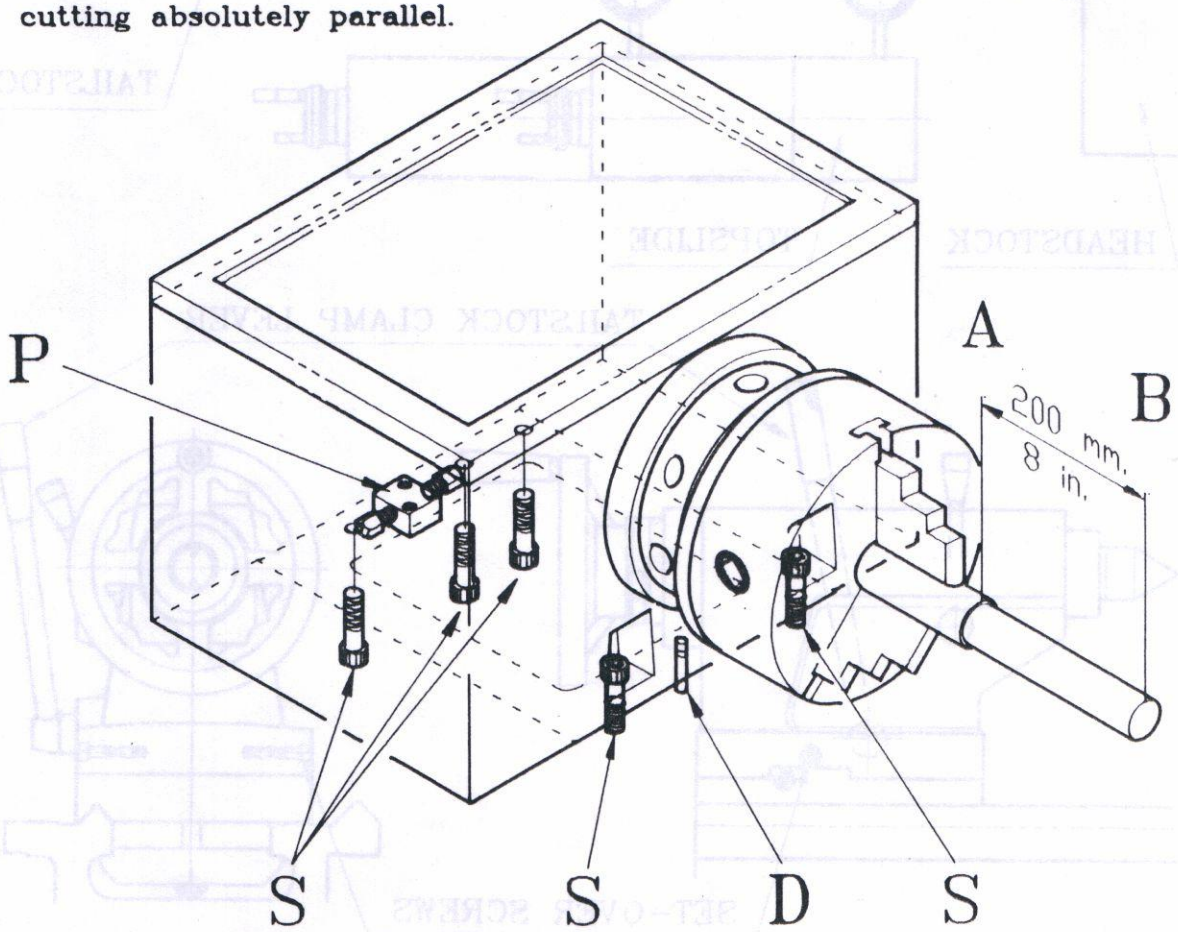
LATHE ALIGNMENT (Part 1)

With the lathe installed and running. We recommed a check on machine alignment before commencing work. Check levelling and machine alignment at regular periods to ensure continued lathe accuracy.

A. Headstock check

Take a light cut with a keen tool over a 8in. (200mm.) length of 2 in. dia. (50mm.) steel bar gripped in the chuck but not supported at the free end. Micrometer readings at each end of the turned length (at A and B) should be the same.

To correct a difference in readings, slacken the five headstock hole-down screws (S) and adjust the set-over pad (P) beneath the headstock, to pivot the headstock about the dowel (D).
Tighten all screw
after adjustment and repeat the test-cut/micrometer-reading, sequence until micrometer readings are indentical, so machine now cutting absolutely parallel.

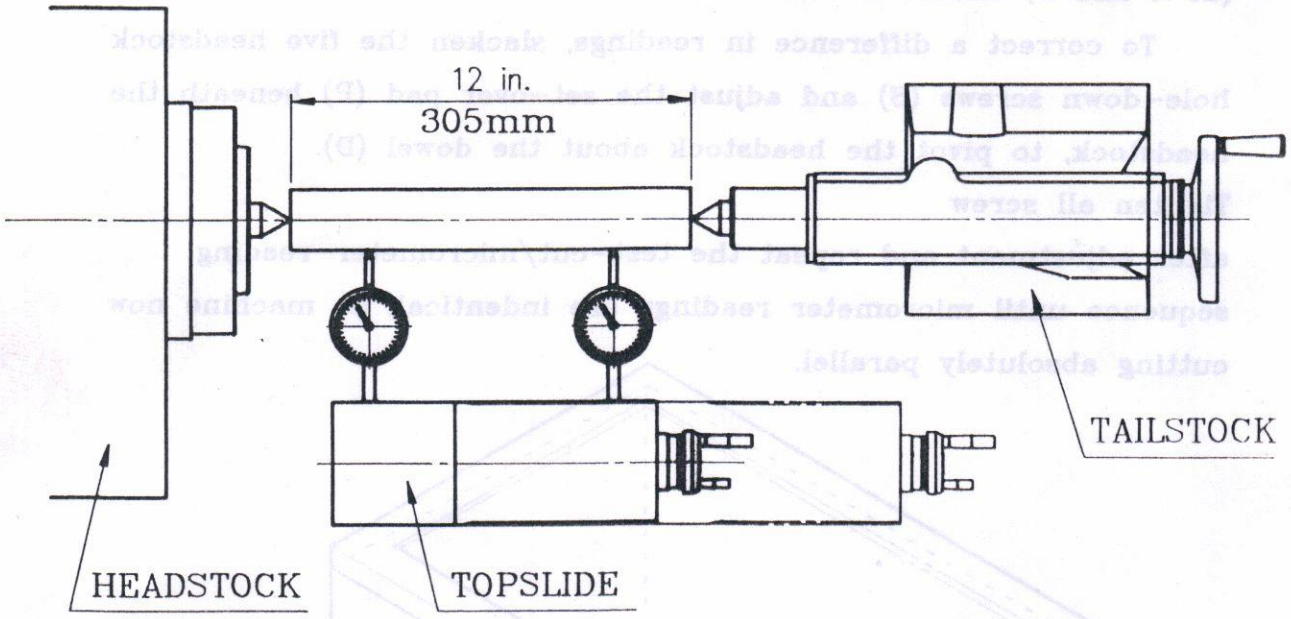


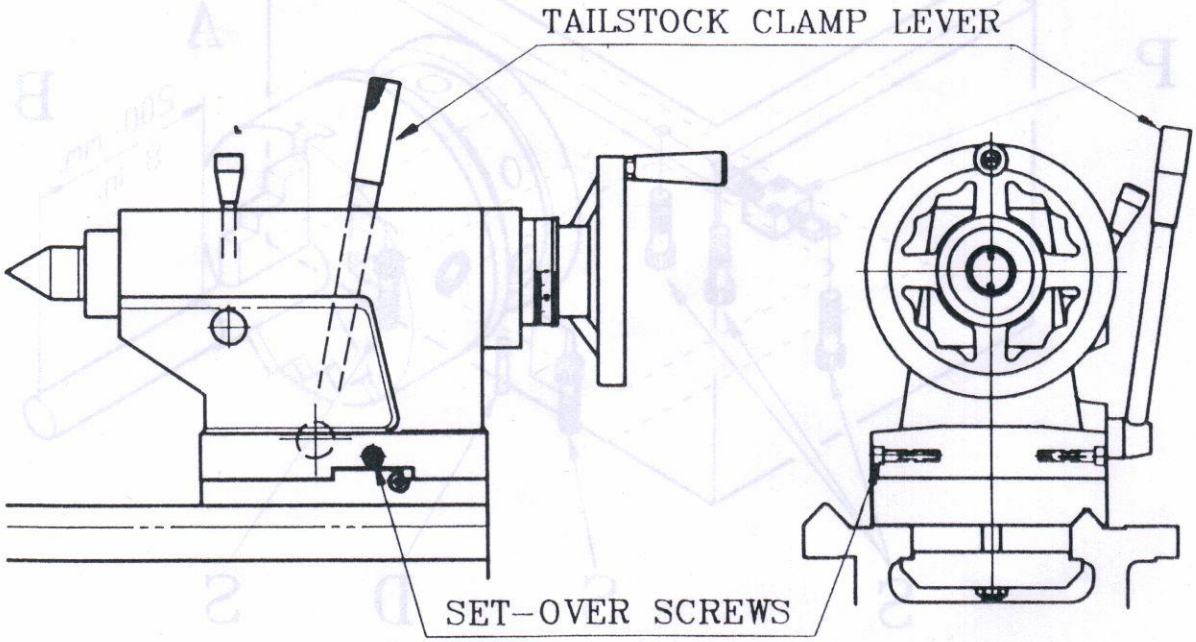
LATHE ALIGNMENT (Part 2)

B. Tailstock check

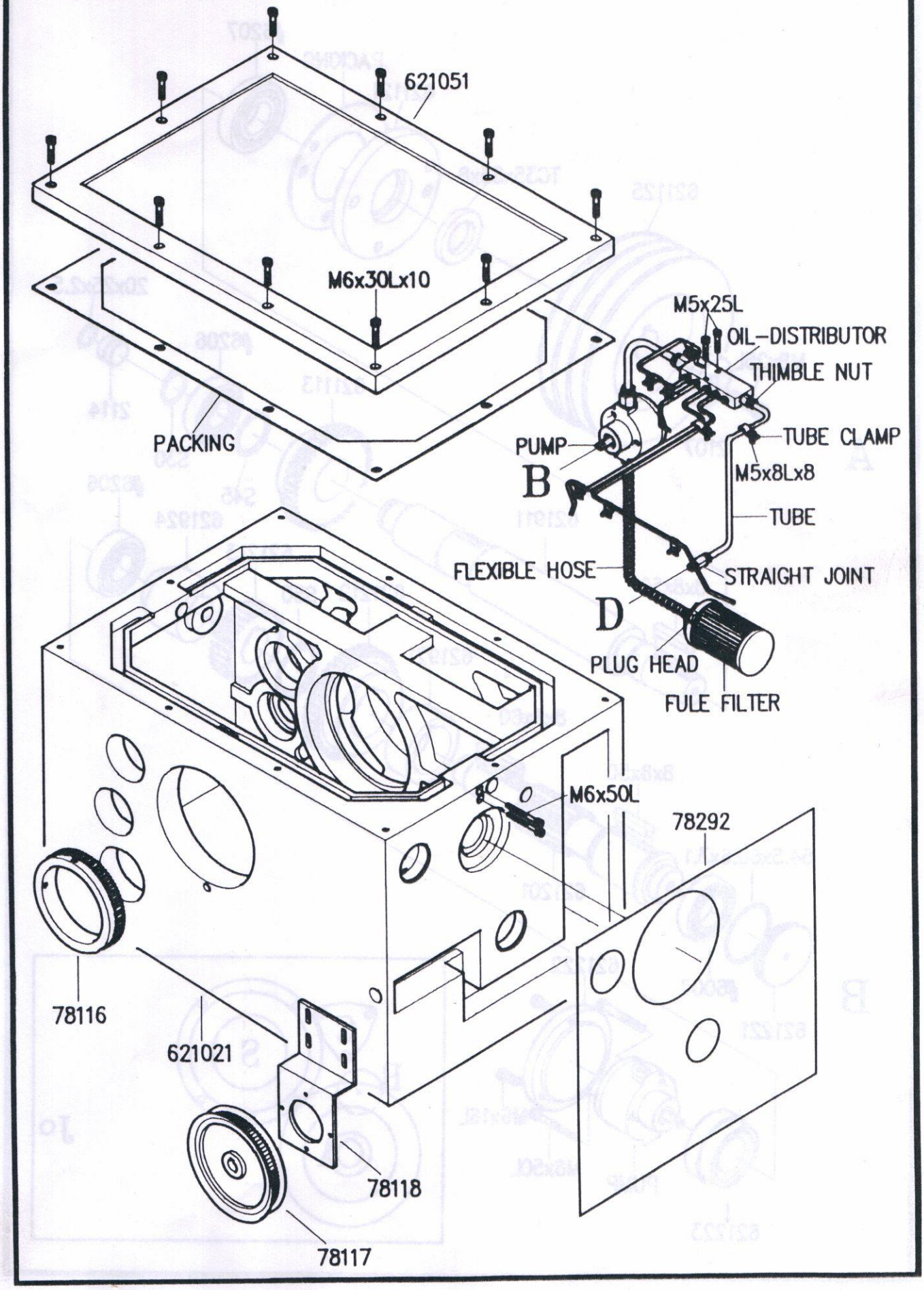
Using a 12in. (305mm.) ground steel bar fitted between headstock and tailstock centers, check the alignment by fitting a dail-test indicator to the topslide and traversing the center line of the bar.

To correct error release the tailstock clamp lever and adjust the two set-over screws provided continue with checking and correction until the alignment is perfect.

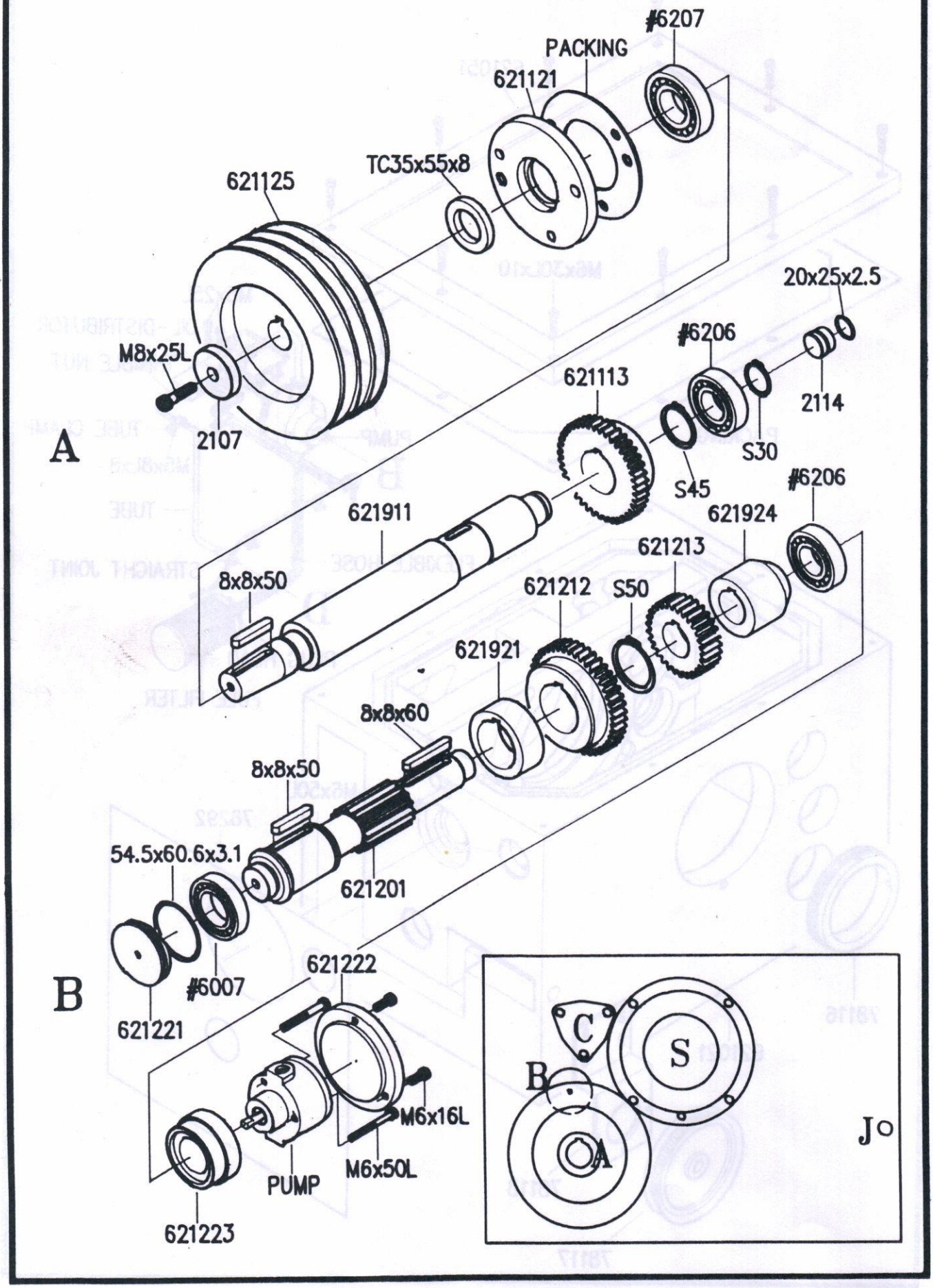




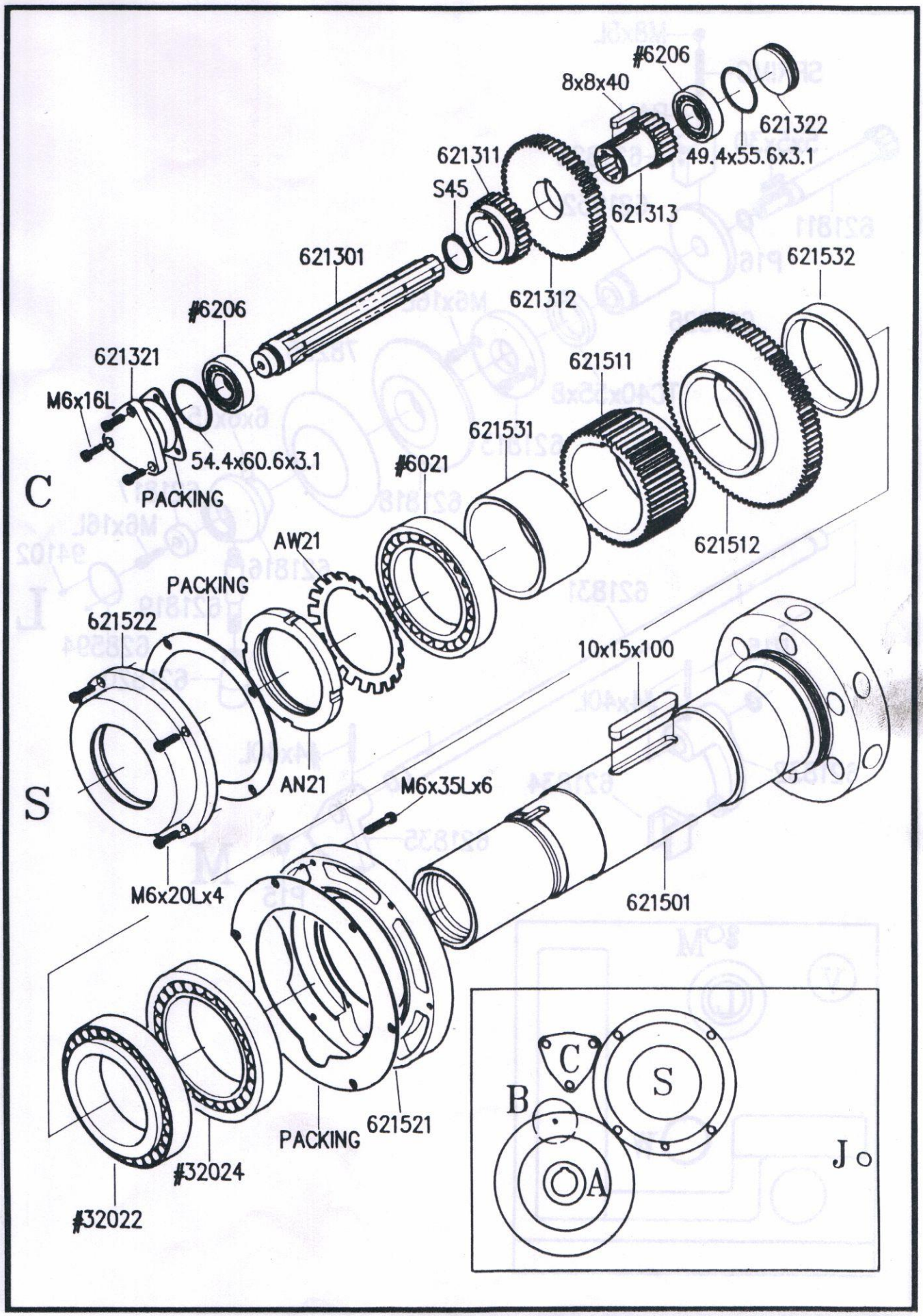
ASSEMBLY HEADSTOCK: CASTING & LUBRICATION SYS.



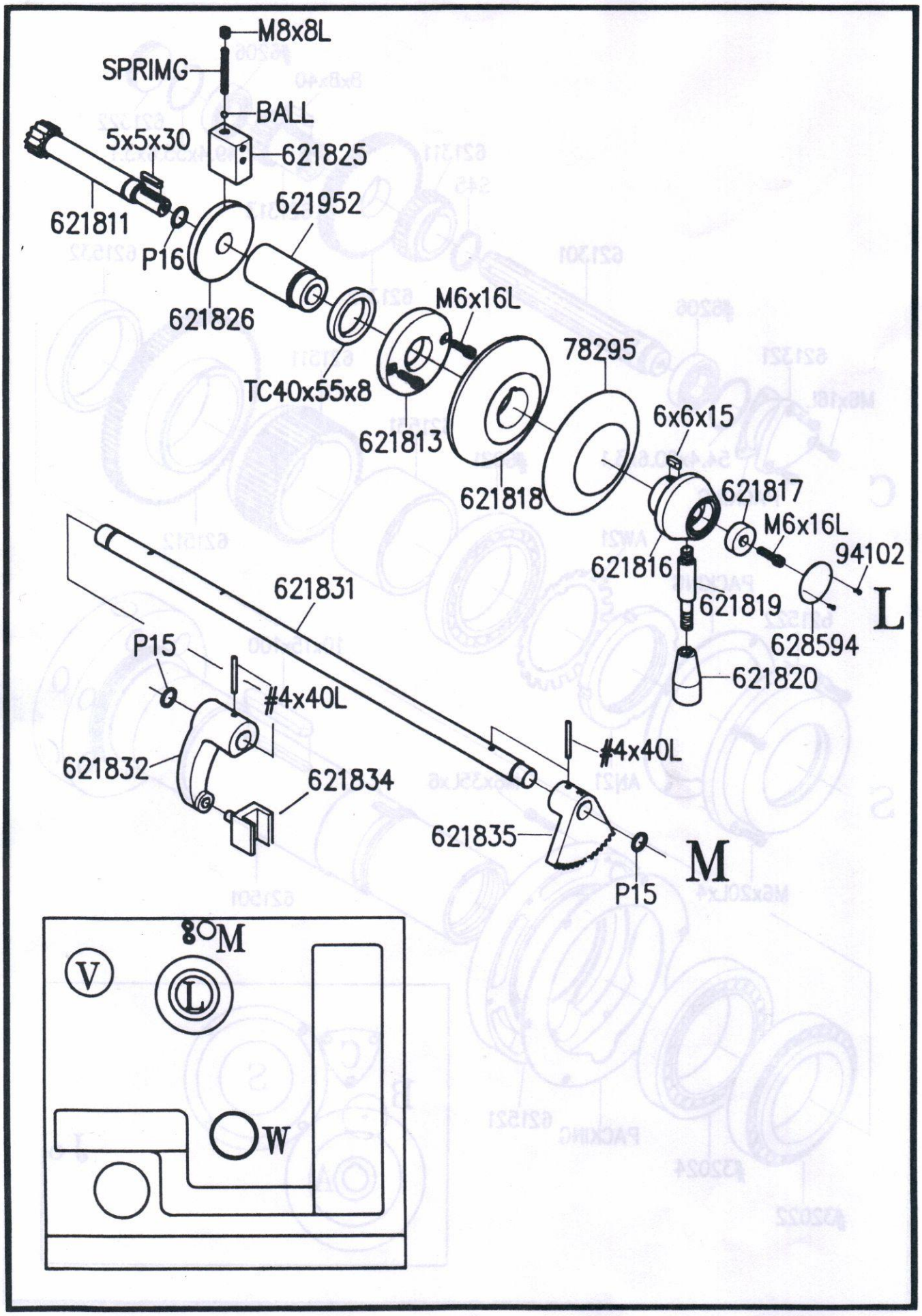
ASSEMBLY HEADSTOCK: SHAFT, GEAR, & PULLY



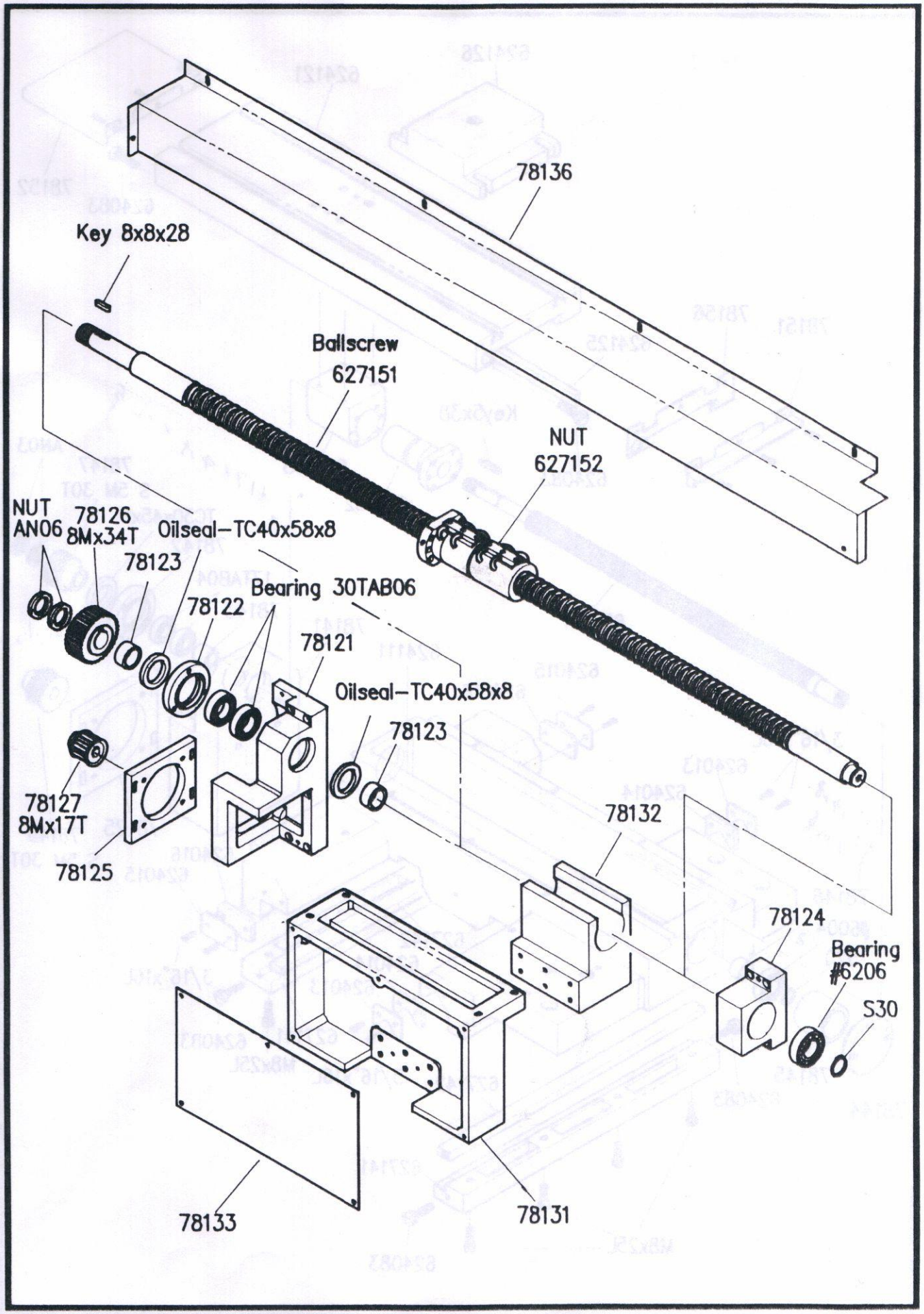
ASSEMBLY HEADSTOCK: SPINDLE SHAFT & GEARS



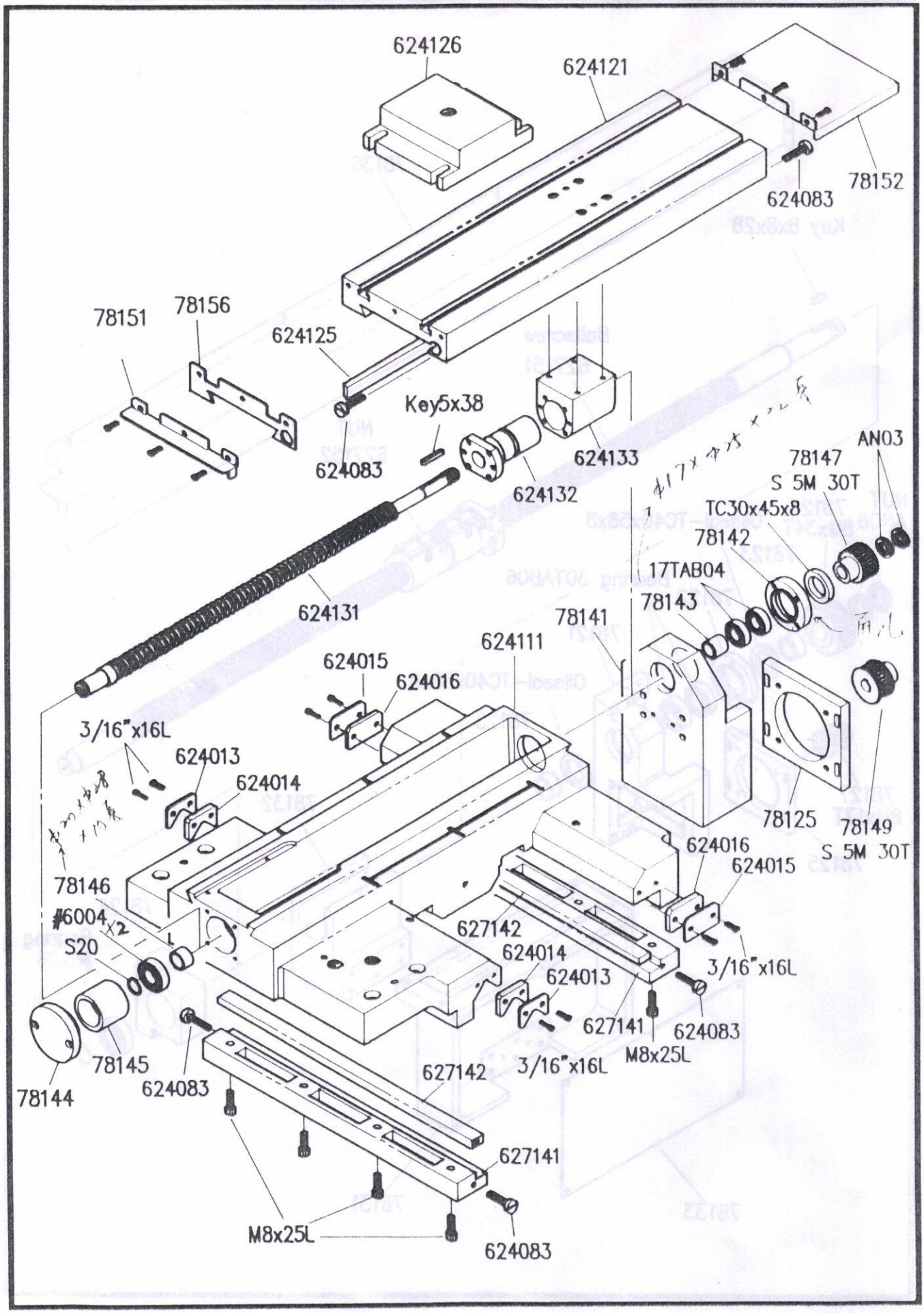
ASSEMBLY HEADSTOCK: CONTROLS



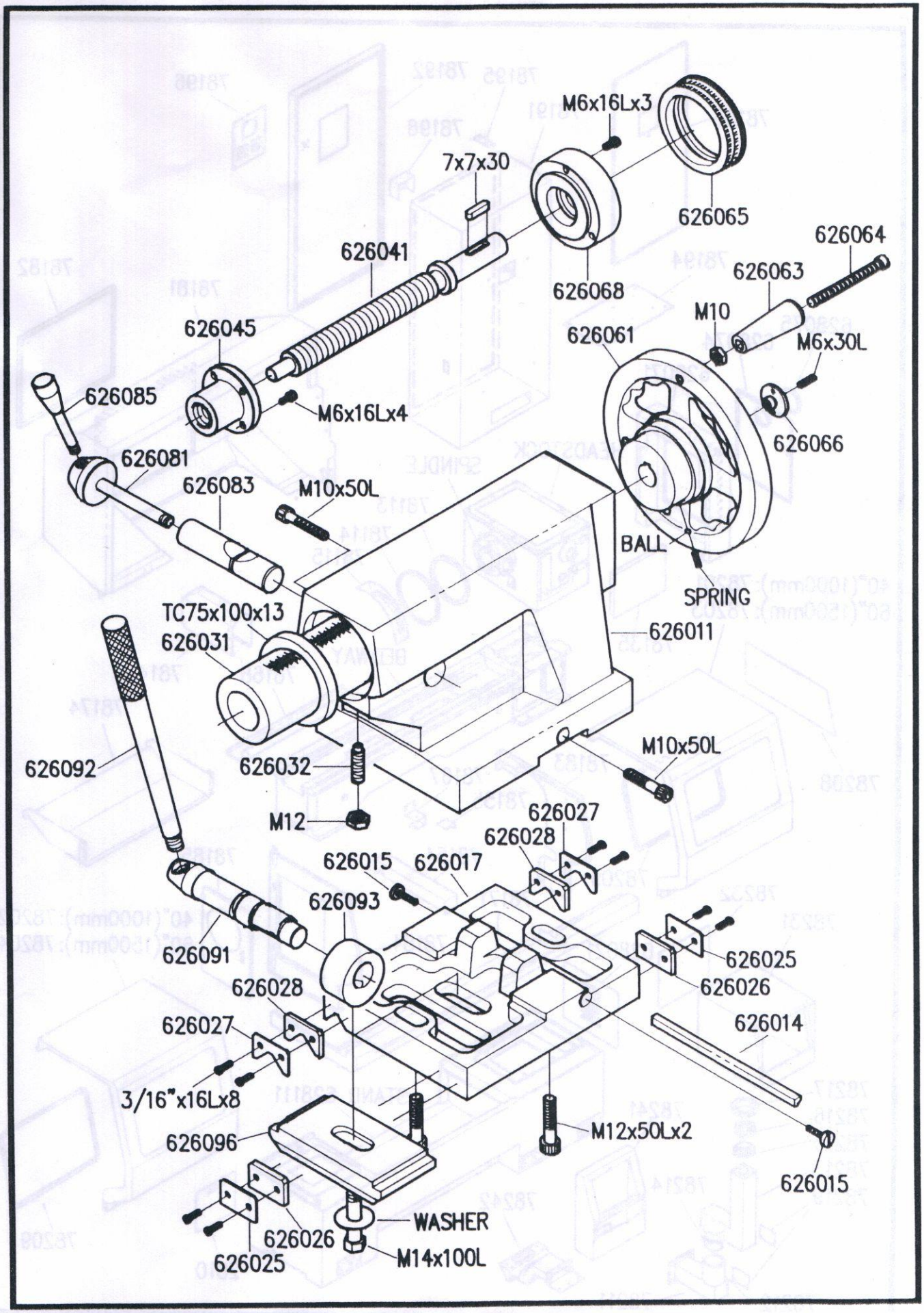
ASSEMBLY Z AXIS BALLSCREW

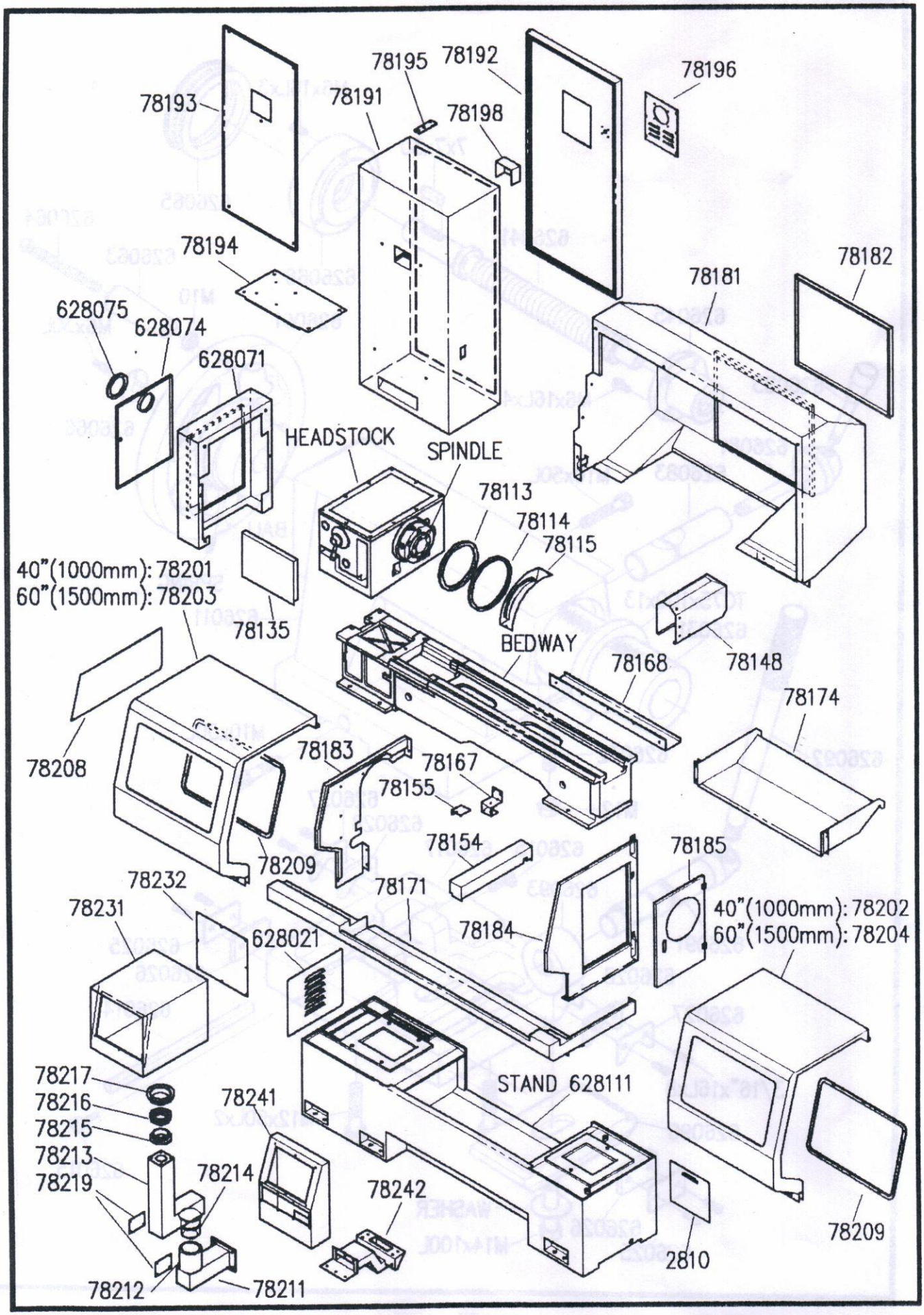


ASSEMBLY SADDLE & CROSS-SLIDE



ASSEMBLY TAILSTOCK

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78181
628075
628074
628071
HEADSTOCK
SPINDLE
78113
78114
78115
40"(1000mm): 78201
60"(1500mm): 78203
78135
BEDWAY
78168
78148
78174
78208
78183
78167
78155
78209
78154
78185
78232
78171
78231
628021
78184
40"(1000mm): 78202
60"(1500mm): 78204
78217
78216
78215
78213
78219
78241
78214
STAND 628111
78242
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2810
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