OPERATORS HANDBOOK

INDEX

ASSEMBLY DRAWINGS AND PARTS LISTS

WARRANTY/GUARANTEE INFORMATION

The engine lathe covered by this technical manual is Warranted against defective workmanship and material for a period of 2 years after delivery. The above warranty does not include defective items resulting from inadequate maintenance or improper usage.

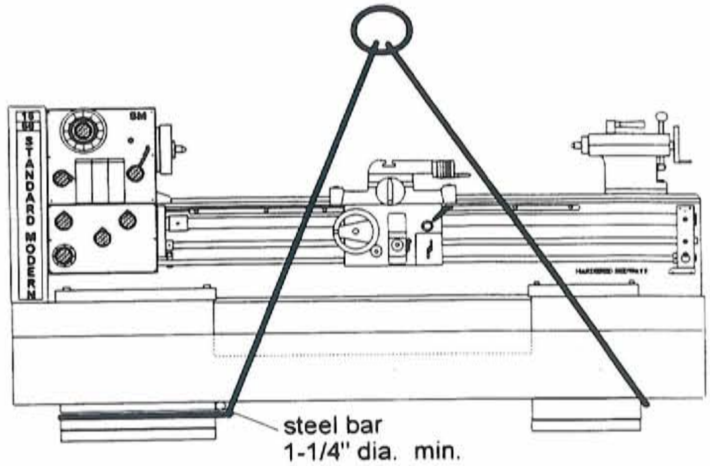
SPECIFICATIONS

MACHINE	Swing over Bed and Saddle	16 in. (400mm)
	Swing over Cross Slide	10 in. (250mm)
	Distance between Centers	60 in. (1500mm)
	Main Drive Motor	10H.P. (7.5kw)
	Bar Capacity	2.00 in. (50.8mm)
HEADSTOCK	Spindle Speeds	18
	Speed Range	40 - 2000 RPM
	Spindle Nose - Camlock	D1-6 in
	Spindle Hole	2.06 in (52.32mm)
	Spindle Center	#4 MT
FEEDBOX	Number of Feed Changes	(66 inch & 66 metric)
	Number of Thread Changes	(66 inch & 66 metric)
	Inch Feed Range Longitudinal	.0015 - .108 in/rev
	Inch Thread Range	2 - 127 T.P.I.
	Metric Feed Range Longitudinal	.04 - 2.75mm/rev
	Metric Thread Range	.2 - 14 mm pitch
APRON	Handwheel - one revolution	1.000 in (25.4mm)
	Half-nuts	Double
	High speed threading to	800 RPM
	Repeatability of auto carriage stop	$\pm$.005 in ($\pm$.13mm)
	Feed torque control	Variable
CARRIAGE CROSS SLIDE	Carriage length on bed	18.25 in (465mm)
	Carriage bridge width	8.5 in. (215mm)
	Cross slide length	20 in. (508mm)
	Cross slide travel	8.5 in. (215mm)
	Compound Travel	3.8 in. (96mm)
	Dial graduations	.001 in. and .02 mm
TAILSTOCK	Spindle diameter	2.44 in. (67mm)
	Spindle travel	5 in. (153mm)
	Morse Taper with tang drive	#4 MT
	Offset	± .75 in.

1. LIFTING AND INSTALLATION INSTRUCTIONS

1.1 Lifting the Machine

The machine should be lifted using rope slings as shown with the rear splash guard removed and with the carriage and tailstock assemblies placed (as shown) to give an equilibrium condition under the lifting hook. Protect painted surfaces with thick pads and wood blocks.



Do not attempt to lift this machine with a hoist having less than two ton capacity. The shipping weight of the machine is 3200 lb.

Do not remove skids from the machine until it is brought to its final position, especially if the machine is to be moved on rollers.

1.2 Inspection

Check your delivery slip against the accessories that were ordered with the machine. If there is a shortage or error, report it to ***ORIGINAL MACHINE TOOLS INC.*** immediately, giving the serial number of the machine which is stamped in the recessed face on top of the bed at the tailstock end of the machine.

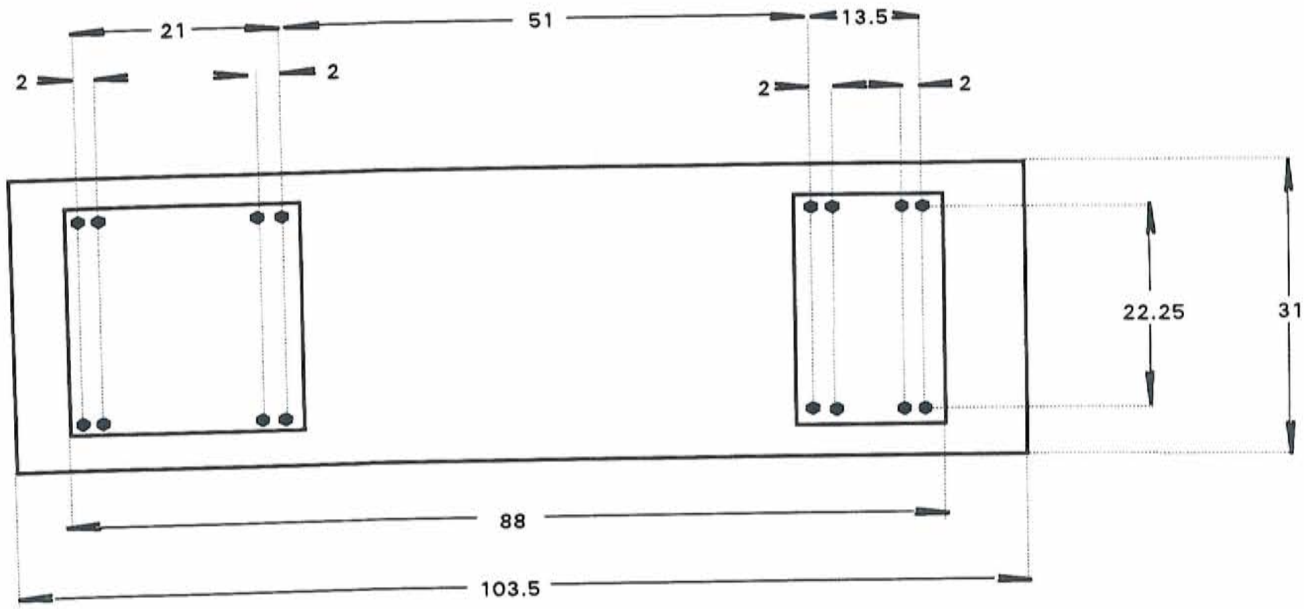
1.3 Cleaning

All unpainted parts of the machine have been coated with an anti-rust compound. This should be thoroughly removed after the machine is installed and before moving the carriage, compound rest or tailstock.

To remove anti-rust compound, wipe with a clean cloth.

All unpainted surfaces should be coated immediately with a film of light machine oil to prevent rust

1. LIFTING AND INSTALLATION INSTRUCTIONS cont'd



FLOOR PLAN

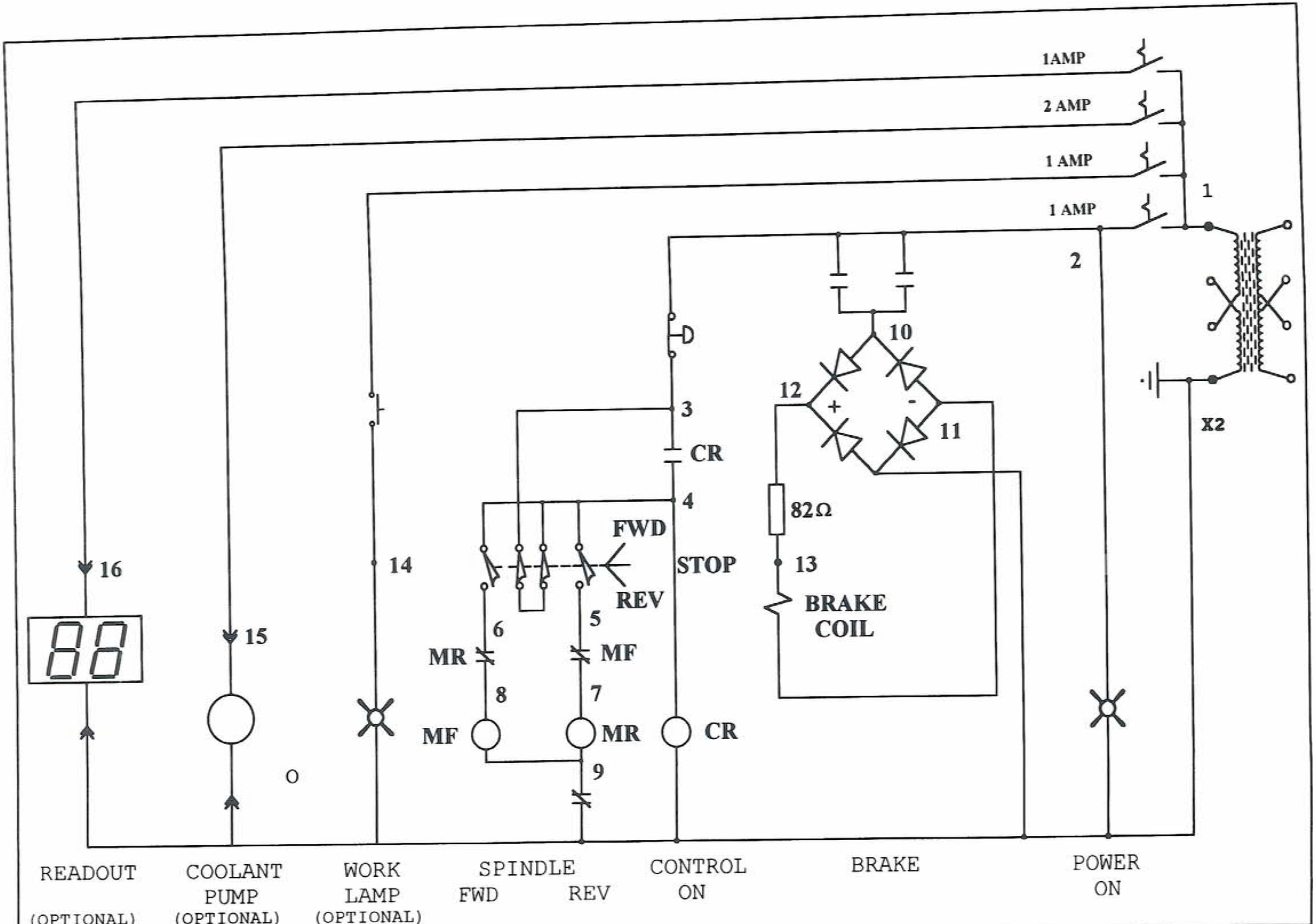
1.4 Installation

For proper operation, the machine should be set on a substantial floor capable of supporting a uniform pressure of 50 P.S.I. To secure the machine on its foundation use anchor bolts or lag screws as shown on Floor Plan.

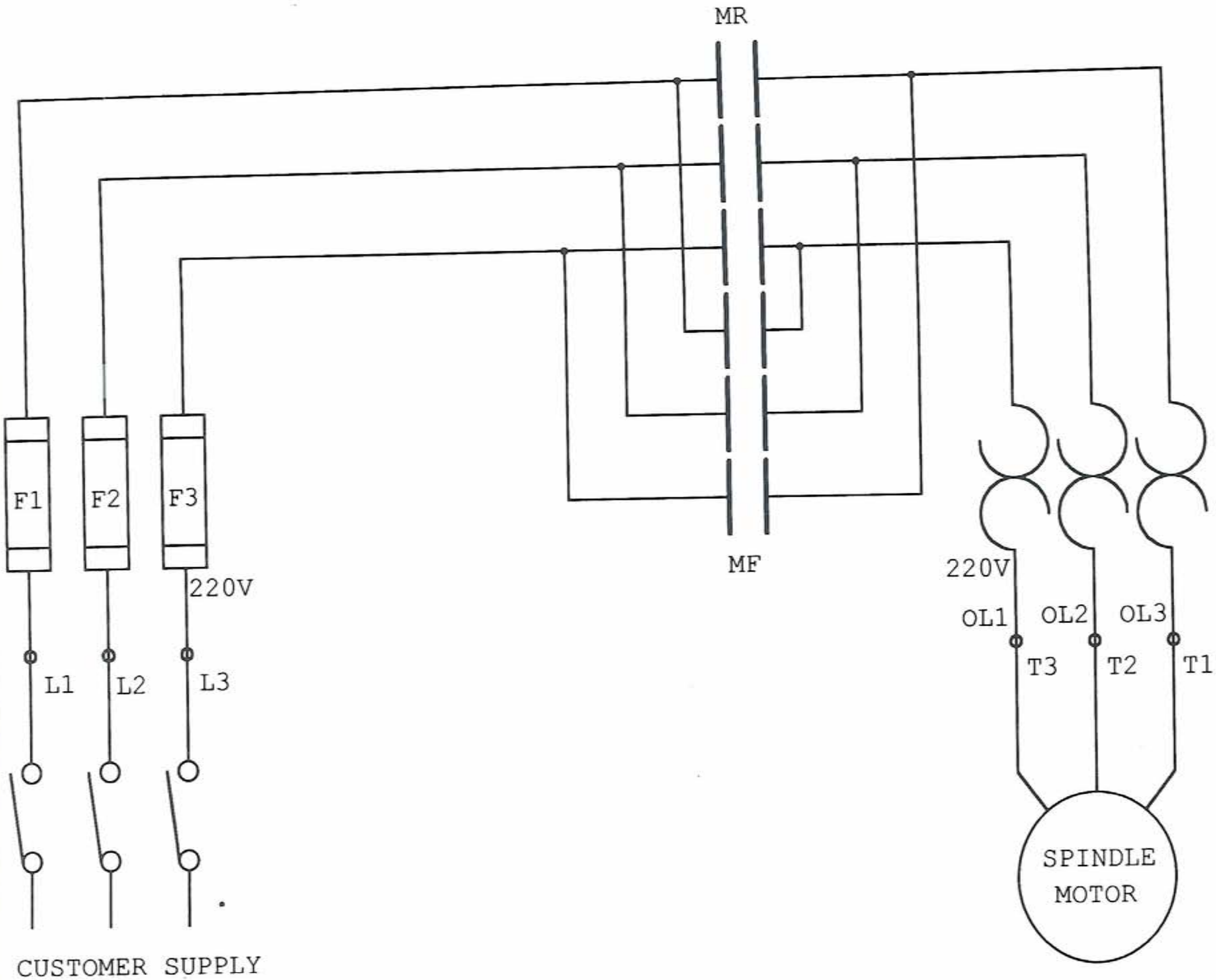
After the machine is in position, it must be leveled by use of the four square head set screws provided, before tightening the lag screws. It will be necessary to use 4-inch square steel plates, about 3/4" thick, under the leveling bushings to prevent the ends of the bushings from sinking into the floor.

Use a precision level placed lengthwise and crosswise on the bed. To take a reading of the level for the crosswise leveling of the bed, use parallel bars placed on the flats of the bed.

After leveling within 0.0005 in/ft, the pedestals should be lagged to the floor and the leveling rechecked. Re-check the level of the machine at regular intervals.



ORIGINAL MACHINE TOOLS INC.	MODEL 1610 x 60 CAT. # 84300 25-M1196	BY PEM DATE 8/92	SHT. 1 OF 2 NO. A-115809



ORIGINAL MACHINE TOOLS INC.	MODEL 1610 x 60 CAT. # 84300 25-M1196	BY PEM DATE 8/92	SHT. 2 OF 2 NO. A-115809

ELECTRICAL PARTS LIST

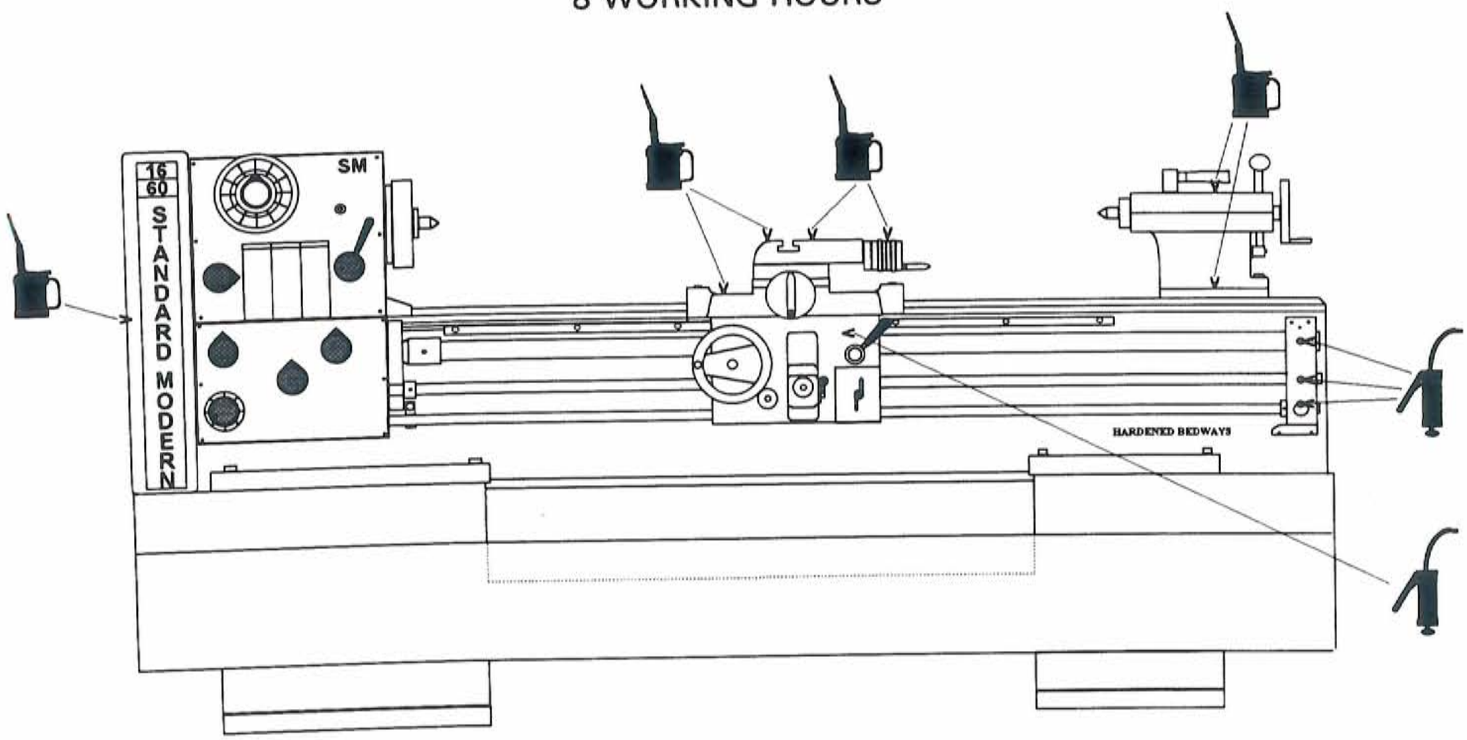
PART NUMBER	MANUFACTURER	FSCM	QTY.	NOMENCLATURE
B30SR-1S	ABB	96272	1	REVERSING STARTER 10HP STARTER
CBK-CB01	ABB	96272	1	CONTACT BLOCK NC
CBK-CB10	ABB	96272	2	CONTACT BLOCK NO
CBK-LB1	ABB	96272	1	PILOT LAMP 130V
CBK-LF1G	ABB	96272	1	POWER ON LAMP SWITCH BLOCK
CBK-LMF	ABB	96272	1	LAMP BLOCK
CBK-PM6R	ABB	96272	1	E-STOP SWITCH SWITCH BLOCK
CBK-S2MK	ABB	96272	1	COOLANT PUMP SWITCH SWITCH BLOCK
CBK-S2MK	ABB	96272	1	WORKLAMP SWITCH SWITCH BLOCK
OETLNF30S	ABB	96272	1	MAIN DISCONNECT 30A 600V
PS22	ABB	96272	1	NAME PLATE "COOLANT"
PS22	ABB	96272	1	NAME PLATE "WORKLAMP"
PS22-59	ABB	96272	1	NAME PLATE "POWER ON"
S271-K1	ABB	96272	1	BREAKER 1A BREAKER
	DANO LIGHT		1	WORKLAMP 110VAC
20A	GOULD	1P545	3	FUSE 460V 20A TIME DELAY
30A	GOULD	1P545	3	FUSE 230V 30A TIME DELAY
60328J	GOULD	1P545	2	FUSE BLOCK 30A HOLDER
R309	MAGNE TEK	63361	1	SPINDLE MOTOR 10HP 230-460/3/60
IBOR 040403	RALSTON		1	ENCLOSURE 3 1/4 x 2 3/4 x 3 1/2"
N1-20167	RALSTON		1	ENCLOSURE 20x16x7 NEMA 1
CS150XA	REX		1	CONTROL TRANSFORMER 230-460/120 150VA
ZCK-Y11	TELEMECHANIQUE	OCFV5	1	SWITCH ARM
ZCKJ404 H7	TELEMECHANIQUE	OCFV5	1	FWD/REV SWITCH SWITCH ASSEMBLY
FB-475	WARNER ELECTRIC	63810	1	SPINDLE BRAKE 100V DC
	COMMERCIAL		1	BRIDGE RECTIFIER 600 PIV 10A
	COMMERCIAL		10'	CABLE #16 3 CONDUCTOR SJ
	COMMERCIAL		16"	CONDUIT 1/2" LIQUID SEAL
	COMMERCIAL		1	CONNECTOR 1/2" LIQUID SEAL 90
	COMMERCIAL		1	CONNECTOR 1/2" LIQUID SEAL STRAIGHT
	COMMERCIAL		7	STRAIN RELIEF 1/4-3/8" CABTIRE
	COMMERCIAL		12'	WIRE #10 MTW BLACK
	COMMERCIAL		4'	WIRE #10 MTW GREEN
	COMMERCIAL		6'	WIRE #14 MTW BLACK
	COMMERCIAL		4'	WIRE #14 MTW GREEN
	COMMERCIAL		24'	WIRE #14 MTW RED
	COMMERCIAL		15'	WIRE #14 MTW WHITE

2. LUBRICATION

OIL SAE 30 Non-detergent Mineral Oil
Viscosity 500-550 SUS at 100°F
MIL-L 6082D GRADE 1100
NSN: 9150-21-888-7172

GREASE: Lithium base with or without E.P. additives.
MIL-G-1092C MIL-G-46006

THE FOLLOWING POINTS SHOULD BE LUBRICATED EVERY
8 WORKING HOURS



NOTE: Telescopic taper attachment not shown

EVERY SIX MONTHS CHANGE OIL	
Headstock	10 quarts
Feed box	3 quarts
Apron	1 quart

EVERY MONTH

Leadscrew reverse linkage pivot
Leadscrew reverse cam track

2. LUBRICATION

2.1 General

All machines are shipped with the lubricant oil drained frim the oil sumps in the Headstock, Feedbox and Apron and must be serviced before being put to use.

Before filling reservoirs or oil cups, always wipe off any accumulation of old oil, grease or dirt that might get into a part being lubricated.

Depending on operating conditions, usually about every six months, the Headstock, Feedbox and Apron should be drained and thoroughly flushed out , before adding new oil.

Because most solvents tend to soften paints, they are not recommended as flushing media. A light mineral oil, to which a small percentage of kerosene has been added, may be used to flush out any dirt or sediment. Run the machine for several minutes without load so that the flushing oil can circulate through the reservoir. The flushing oil should then be drained and new oil added.

2.2 END GEAR TRAIN

Oil idler gear teeth daily.

2.3 Apron

The oil level should be checked and replenished daily as the "one-shot" lubricating pump draws its oil from this reservoir in order to lubricate the saddle and cross slide ways.

The "one-shot" lubrication system plunger is located on the front face of the apron close to the hand wheel and should be used once every 2-6 working hours, depending on operating conditions.

The apron oil reservoir should be drained, flushed and refilled with fresh clean oil at least once every six months.

One grease nipple located on the right hand end of the apron lubricates the half-nut control shaft. A second grease nipple lubricates the leadscrew reverse control hub.

2.4 Tailstock

The spindle and screw are lubricated by an oiler located on top of the spindle housing. The bed ways on which the tailstock slides should be cleaned and oiled frequently.

Dry red lead mixed with machine oil to a creamy consistency is an excellent lubricant for the tailstock center when a revolving center is not available.

2.5 Compound

On the compound rest, remove the pipe plug in the top face to lubricate the ways and the screw. Replace the pipe plug after applying oil. A ball type oiler lubricates the screw bearing.

2.6 Cross Slide

The cross slide dovetails and bearing surfaces are lubricated by the "one-shot" lubricator pump located in the apron. One oiler, at the center on top of the cross slide lubricates the Cross Feed Nut and the threaded portion of the Cross Feed Screw. The cross feed screw bearing is lubricated through an oiler behind the cross feed dial.

2.7 Saddle

The saddle ways are lubricated by means of the "one-shot" lubrication system through oil passages and oil grooves.

The oil is retained at the bearing surfaces by felt seals located at either end of the saddle wings which also provide an even distribution of the lubricant over the ways.

2.8 Bed End Bracket and Leadscrew

Three grease fittings, located on the front face of the Bed End Bracket, lubricate the ends of the Leadscrew, Feed Shaft, Control Shaft, Leadscrew Reverse Shaft and Trip cam.

Before cutting a thread, clean and oil the Leadscrew thoroughly.

2.9 Leadscrew reverse linkage

The leadscrew reverse linkage and cam are serviced after opening/removal of the belt guard.

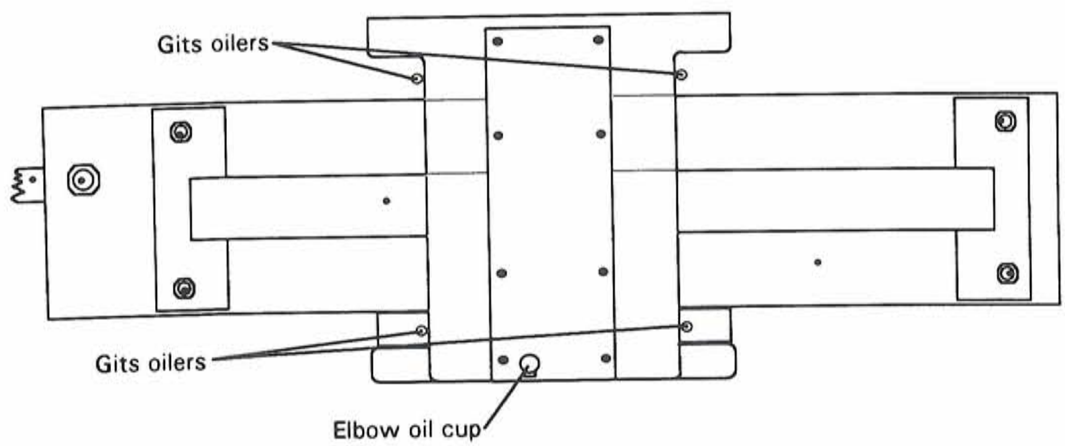
Once per month, grease should be applied to the top of the operating bar, the cam track and the grease nipple in the operating cam body. The pivot should also be lightly oiled at this time.

2.10 Taper Attachment

Clean and oil the pivoted slide bar before using.

Four oilers lubricate the slide plate and the thrust bearing.

Fill the elbow oil cup located at the back of the sliding block and pivot bolts.



3. LATHE SAFETY

Every effort has been made in the design and production of the lathe to comply with statutory safety requirements and to provide a fundamentally safe machine tool. In the further interests of safety, attention should be given to the following notes:

3.1 Machine Use

Responsibility for the following points with respect to machining a component must inevitably rest with the user.

(1) Ensure that the operator has had suitable training and possesses the required degree of skill and experience to undertake the work.
(2) Provide suitable work holding and/or supporting equipment : chucks, steadies, revolving centers, etc.
(3) Ensure that suitable tooling is provided and correctly mounted.
(4) Ensure that suitable feeds and speeds are selected. (If in doubt select low).
(5) Provide and use suitable workpiece guards.

3.2 Lathe Safety Rules

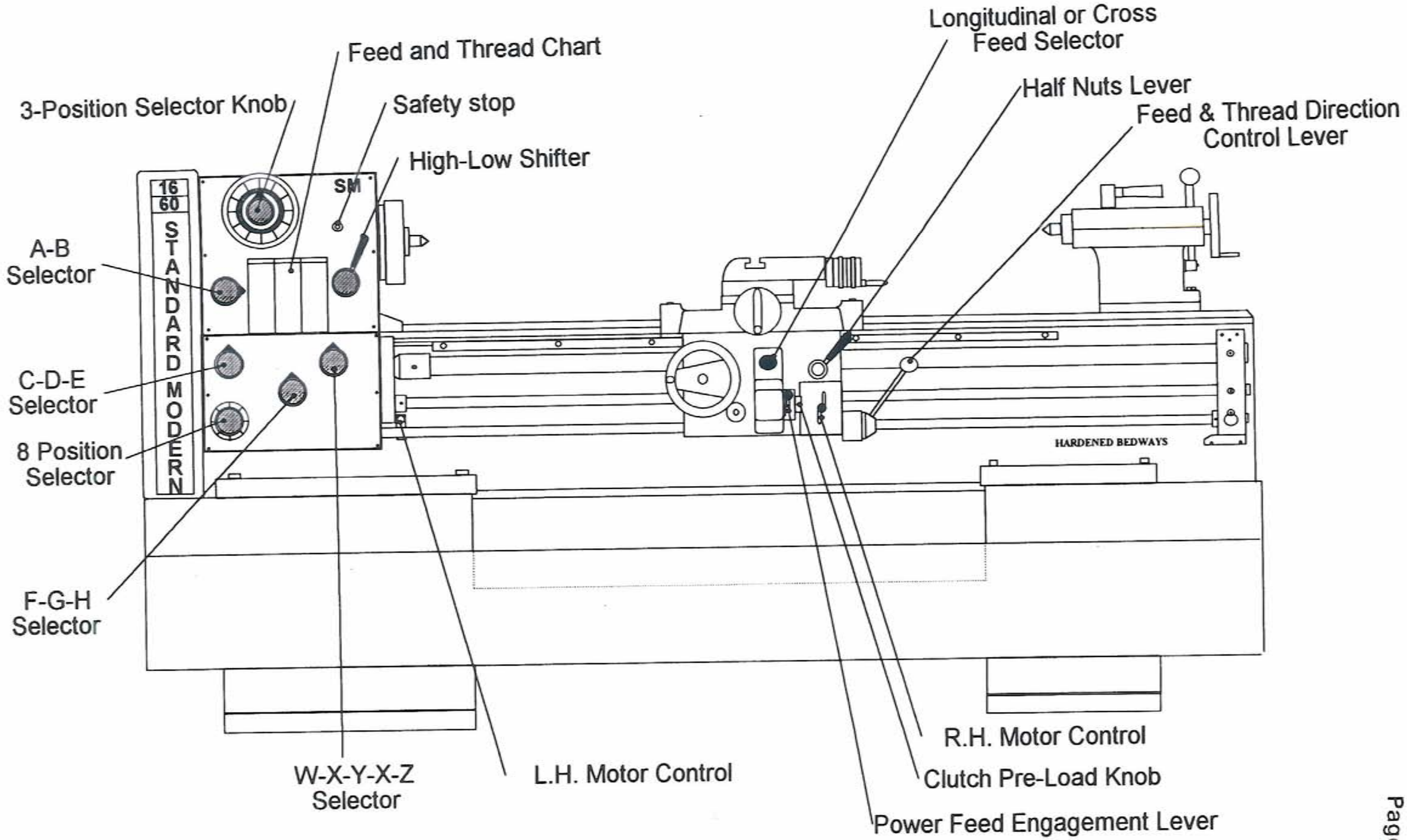
(1) Read and understand operation notes before attempting to use the machine.
(2) Keep lathe work areas clean.
(3) Keep area surrounding machine tidy.
(4) **KNOW HOW TO STOP THE MACHINE BEFORE STARTING IT.**
(5) DO NOT interchange chucks or other spindle mounted items between lathes without checking for correct locking.
(6) We recommend only high speed chucks.
(7) Before operating the lathe, note the maximum rated speed for chucks and face plates as supplied by the manufacturer.
(8) Remove chuck key immediately after use.
(9) Check load capacity of revolving centers.
(10) Ensure guards are in position before starting machine.
(11) DO NOT use cracked or chipped tools.
(12) CHECK before starting motor:
    - Spindle speed and feed rate selected.
    - Feed and thread cutting levers are disengaged.
(13) STOP MACHINE IMMEDIATELY IF ANYTHING UNEXPECTED HAPPENS.
(14) DO NOT use coarse feed range on high spindle speeds.
(15) DO NOT change spindle speeds when spindle is rotating.
(16) DO NOT touch revolving chuck, spindle or workpiece.

3. LATHE SAFETY cont'd.

(17) DO NOT remove work from the machine without retracting the tool to a safe position.
(18) Stop motors and push in red safety stop switch when leaving machine unattended.
(19) Use safety stop switch when changing workpiece, tightening or loosening chuck etc.

3.3 Personal Safety Rules

(1) Report any accident as soon as it happens.
(2) Wear safety glasses.
(3) Wear safety shoes.
(4) Use barrier creams provided.
(5) Wear your overalls buttoned up.
(6) Roll sleeves up or button the cuffs.
(7) Keep hair short or wear a cap.
(8) Use the correct size wrench at all times.
(9) Be careful of, and remove, all burrs and sharp edges.
(10) When lifting a heavy workpiece, use the correct type of sling, ensuring that it is not worn or damaged and that its safe working load is not exceeded.
(11) Stand clear when lifting workpieces or equipment by crane.
(12) Obtain assistance when mounting heavy or awkwardly shaped workpieces.
(13) DO NOT wear rings, watches, ties, etc.
(14) DO NOT keep tools (scribers, etc.) in overall pockets.
(15) DO NOT remove guards unless machine is stationary.
(16) DO NOT wash hands in coolant.
(17) DO NOT remove chips with bare hands; use a rake or brush.
(18) DO NOT manually lift heavy equipment.
(19) DO NOT use files, scrapers, etc., on machine tools.
(20) DO NOT lean on the machine.
(21) DO NOT tamper with electrical equipment.



Operating Controls Diagram

4. OPERATING INSTRUCTIONS

4.1 Motor and Spindle Control

The spindle motor is controlled by means of a two control levers. The L.H. motor control causes forward rotation and stop. It is intended primarily for jogging when changing gear.

The R.H. motor control, mounted on the apron, is Lifted up for FORWARD rotation, centralize for STOP and push down for REVERSE rotation. In the central or stop position, a fail safe brake is engaged.

4.2 Spindle Speed Selection

Slow Range	40	50	63	80	100	125	160	200	250
High Range	320	400	500	640	800	1000	1280	1600	2000

The desired spindle speed range is obtained by moving the 3-Position Handwheel. Any spindle speed within that range can be obtained by moving the 3-Position Selector Knob and the High-Low Shifter.

For free hand rotation of the spindle, move the High-Low Shifter lever to its vertical position.

WARNING - STOP the motor before operating any speed selectors.
- DO NOT exceed spindle speed recommended by chuck manufacturer.
- DO NOT operate the machine with the large face plate above 500 rpm.

4.3 Power Feeds

The automatic trip clutch pre-load is factory set and should not require adjustment.

A safety interlock is fitted so that it is impossible to engage the POWER FEED ENGAGEMENT LEVER and the HALF-NUTS LEVER at the same time.

4. OPERATING INSTRUCTIONS cont'd

4.3 cont'd

To select power longitudinal feed or power cross feed, arrange the A-B selector knob on the headstock and the C-D-E , F-G-H, W-X-Y-X-Z and 8-Position knob on the feedbox to correspond with the desired feed rate indicated on the "Feeds and Threads" chart on page 16.

CAUTION: DO NOT USE THE COARSE RANGE OF FEEDS WHEN SPINDLE SPEEDS ARE ABOVE 500 RPM.

(REFER TO PAGE 16 FOR LIST OF FEEDS)

Push in the black ball handle located on front of apron for longitudinal feed or pull out for crossfeed.

Select L.H. longitudinal feed and Out cross feed or R.H. longitudinal feed and In cross feed using the feed and thread direction control lever, situated at the right hand side of the apron.

To engage power, lift the power feed engagement lever. Power feed may be engaged when the spindle is running.

For automatic feed kickout in power feed longitudinal operations, set the Trip Dogs as required.

CAUTION Trip dogs must not be used when spindle is operated in the reverse direction.

CAUTION Do not use this procedure for spindle speeds above 800 rpm.

FEED RATES

A			B		
INCH	(FINE)	MM	INCH	(COARSE)	MM
.0015	EH1X	.040	.027	EG2X	0.69
.0017	EH2X	.045	.030	DF1X	0.76
.0020	EH3X	.050	.033	EG8X	0.84
.0021	EH8X	.053	.034	DF2X	0.86
.0022	EH4X	.055	.035	EG4X	0.89
.0023	EH5X	.058	.037	EG5X	0.93
.0025	EH6X	.060	.038	DF3X	0.97
.0027	EH7X	.070	.039	EG6X	1.00
.0030	EF1X	.080	.042	DF8X	1.07
.0034	EF2X	.085	.043	EG7X	1.09
.0038	DH1X	.095	.044	DF4X	1.12
.0040	EF3X	.100	.046	DF5X	1.15
.0041	EF8X	.104	.049	DF6X	1.24
.0042	DH2X	.107	.053	DF7X	1.35
.0044	EF4X	.110	.060	DG1X	1.55
.0046	EF5X	.115	.068	DG2X	1.73
.0050	EF6X	.125	.076	DG3X	1.91
.0052	DH8X	.130	.083	DG8X	2.10
.0053	EF7X	.135	.087	DG4X	2.22
.0055	DH4X	.140	.091	DG5X	2.30
.0057	DH5X	.145	.098	DG6X	2.48
.0060	EG1X	.150	.105	DG7X	2.67
.0062	DH6X	.155			
.0070	EG2X	.170			
.0075	DF1X	.190			
.0084	EG8X	.200			
.0086	DF2X	.217			
.0088	EG4X	.222			
.0090	EG5X	.230			
.0095	DF3X	.240			
.0099	EG6X	.250			
.0106	EG7X	.260			
.0110	DF8X	.270			
.0114	DF5X	.290			
.0124	DF6X	.310			
.0130	DF7X	.340			
.0150	DG1X	.380			
.0170	DG2X	.430			
.0190	DG3X	.480			
.0210	DG8X	.530			
.0220	DG4X	.550			
.0228	DG5X	.570			
.0250	DG6X	.630			
.0270	DG7X	.670			

THREADS

Threads per inch

A		B	
127	EH1W	7-1/2	CF3Z
84	CG7Z	7-1/8	DH1Z
78	CG6Z	7	CF7Y
72	CG5Z	6-1/2	CF6Y
69	CG4Z	6	CF5Y
64	EF1W	5-3/4	CF4Y
60	CG3Z	5-1/2	CF8Y
56	CG7Y	5-1/4	CH7Z
54	CG2Z	5	CF3Y
52	CG6Y	4-3/4	DH1Y
48	CG5Y	4-1/2	CF2Y
46	CG4Y	4-1/8	CH8Z
44	CG8Y	4	CF1Y
42	CF7Z	3-3/4	CH3Z
40	CG3Y	3-1/2	CH7Y
39	CF6Z	3-3/8	CH2Z
36	CG2Y	3-1/4	CH6Y
33	CF8Z	3	CH5Y
32	CG1Y	2-7/8	CH4Y
34	CF4Z	2-3/4	CH8Y
30	CF3Z	2-1/2	CH3Y
28	CF7Y	2-1/4	CH2Y
27	CF2Z	2	CH1Y
26	CF6Y		
24	CF5Y		
23	CF4Y		
22	CF8Y		
21	CH7Z		
20	CF3Y		
19	DF8Y		
18	CF2Y		
16-1/2	CH8Z		
16	CF1Y		
15	CH3Z		
14	CH7Y		
13-1/2	CH2Z		
13	CH6Y		
12	CH5Y		
11-1/2	CH4Y		
11	CH8Y		
10	CH3Y		
9	CH2Y		
8	CH1Y		

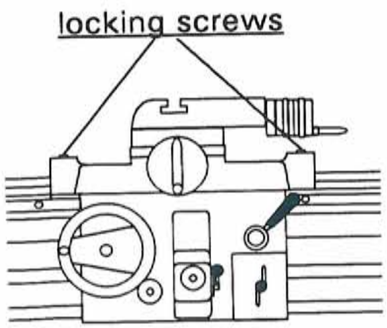
mm Pitch

A		B	
.200	EH1W	4.0	DF1W
.225	EH2W	4.4	EG8W
.25	EH3W	4.5	DF2W
.275	EH8W	4.6	EG4W
.2875	EH4W	4.75	CG7W
.3	EH5W	4.8	EG5W
.325	EH6W	5.0	DF3W
.35	EH7W	5.5	DF8W
.4	EF1W	5.75	DF4W
.45	EF2W	6.0	DF5W
.5	EF3W	6.5	DF6W
.55	EF8W	7.0	DF7W
.575	EF4W	8.0	DG1W
.6	EF5W	9.0	DG2W
.625	DH3W	10.0	DG3W
.65	EF6W	11.0	DG8W
.6875	DH8W	11.5	DG4W
.7	EF7W	12.0	DG5W
.71875	DH4W	12.7	CH1Y
.75	DH5W	13.0	DG6W
.8	EG1W	14.0	DG7W
.8125	DH6W		
.875	DH7W		
.9	EG2W		
1.0	DF1W		
1.1	EG8W		
1.125	DF2W		
1.1875	CG7W		
1.2	EG5W		
1.25	DF3W		
1.3	EG6W		
1.375	DF8W		
1.4	EG7W		
1.4375	DF4W		
1.5	DF5W		
1.625	DF6W		
1.75	DF7W		
2.0	DG1W		
2.25	DG2W		
2.5	DG3W		
2.75	DG8W		
2.875	DG4W		
3.0	DG5W		
3.25	DG6W		
3.5	DG7W		

4. OPERATING INSTRUCTIONS.

4.4 Saddle

Provision is made for locking the saddle when facing by tightening the two 1/2" socket head cap screws shown below.



4.5

When cutting screw threads, begin by selecting the desired mm pitch or T.P.I., in a manner similar to feed selection (4.3)

The "Feed and Direction Control Lever" mounted on the extreme right-hand side of the Apron must be moved:

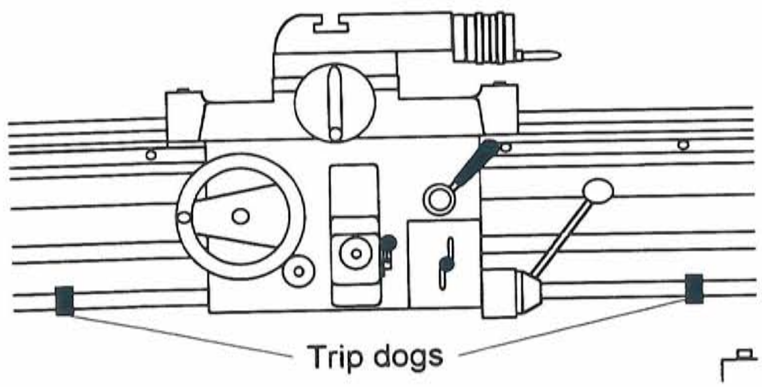
UP for R.H. threads
DOWN for L.H. threads
In the CENTRAL position the entire feed and thread gear train is disengaged.

This lathe is equipped with a leadscrew reversing mechanism which allows half-nuts to remain engaged during the entire threading operation.

4.5 OPERATING INSTRUCTIONS

For automatic thread kickout, set the "Trip Dogs" as required.

CAUTION Trip dogs must not be used when spindle is operated in the reverse direction.



CAUTION: THREADING SPINDLE SPEED LIMIT IS 800 RPM. THE TRIP DOGS OR THE FEED AND THREAD DIRECTION CONTROL LEVER MUST NOT BE ENGAGED ABOVE THIS SPEED.

Approximate safe thread cutting speeds can be determined by using the following formulae:

1) T.P.I. x 25 = SAFE R.P.M.

e.g. 20 T.P.I. x 25 = 500 R.P.M.

2) $\frac{625}{\text{mm pitch}}$ = SAFE R.P.M.

e.g. $\frac{625}{.9 \text{ mm pitch}}$ = 695 R.P.M.

CAUTION: DO NOT USE ANY SPINDLE SPEED ABOVE 800 R.P.M. FOR CUTTING THREADS.

4. OPERATING INSTRUCTIONS

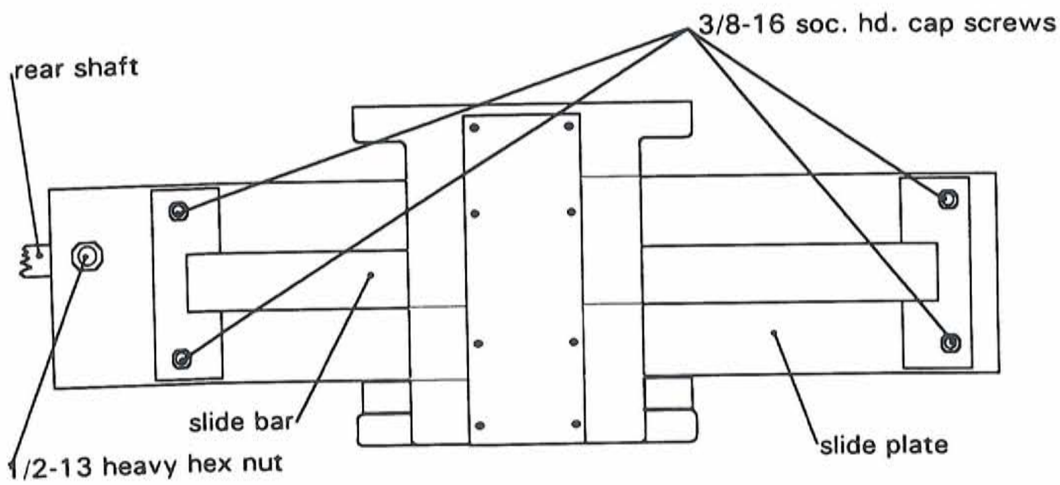
4.6 Telescopic Taper Turning Attachment

For Taper Turning:

(i) Loosen the heavy hex nut on the rear shaft.
(ii) Locate the saddle on the bed in relation to the workpiece.
(iii) Locate the slide plate in relation to the workpiece.
(iv) Tighten the heavy hex nut on the rear shaft.
(v) Adjust the slide bar to the desired taper and lock securely by means of the four 3/8-socket head cap screws located towards each end.

For Straight Turning

(i) Loosen the heavy hex nut on the rear shaft.



4.7 Coolant attachment

This unit has a 10 gal. tank. The flow from the tank may be shut off completely without overloading the motor. This unit also includes a removable chip and sludge collecting tray with a baffle and deflector. The coolant tank should be cleaned and refilled once every six months depending on usage.

The pump motor is supplied with a 6' long cord and plug for use with the 115v receptacle mounted at the back of the lathe.

4.8 Face plate attachment

The face plate as shipped from the factory is rough turned on the part mounting surface and should be machined using a skim cut prior to first usage.

NOTE: Maximum safe operating speed for large face plates is 500 RPM.

5. MAINTENANCE INSTRUCTIONS

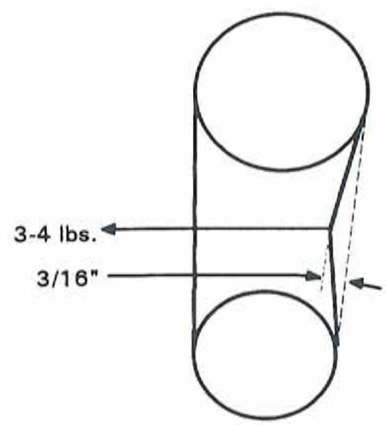
5.1 Drive Belts Tension Control

When changing pulleys and/or belts, loosen the motor plate. With the new pulleys and/or belts in position, adjust for correct belt tension (see below) and tighten the motor plate.

For correct belt tension, use the following method:

At the center of the span, apply a force of 3-4 lbs. with a spring scale to deflect the belt 3/16".

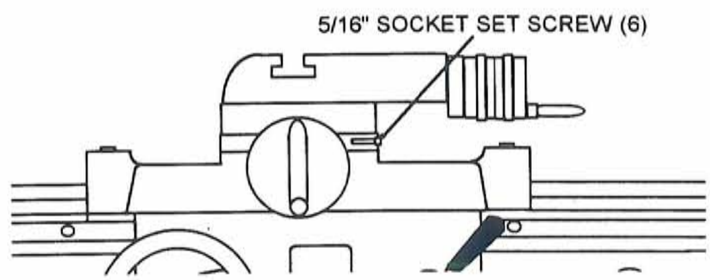
Check the tension frequently during the first day of operation and periodically thereafter. Keep pulleys and belts clean and free of any foreign material to ensure long life and better traction.



5.2 Cross slide ways

Wear in the Cross Slide Ways may be adjusted as follows:

Turn all six 5/16 socket set screws located on the right hand side of the Cross Slide in a clockwise direction to tighten the Gib.



5. MAINTENANCE INSTRUCTIONS cont'd

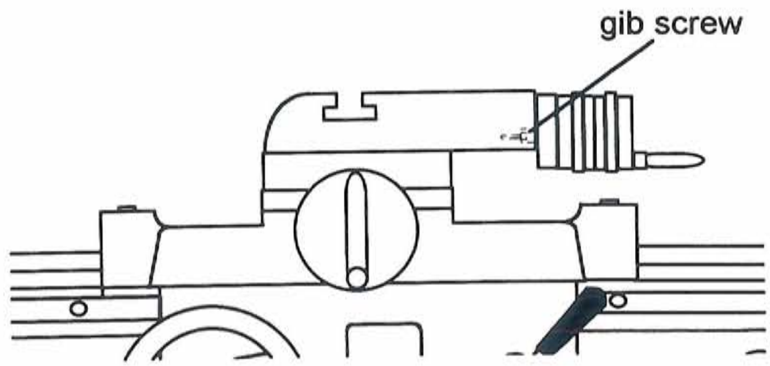
5.3 Cross Slide Screw

Provision is made for the elimination of backlash in the Cross Slide Nut as follows.

1. Position the cross slide close to the center line of the lathe.
2. Slacken only the two 5/16" socket head cap screws shown. The captive spring will take up the backlash automatically.
3. Move the cross slide over full travel to be sure of an even action.
4. Tighten the two 5/16" socket head cap screws.

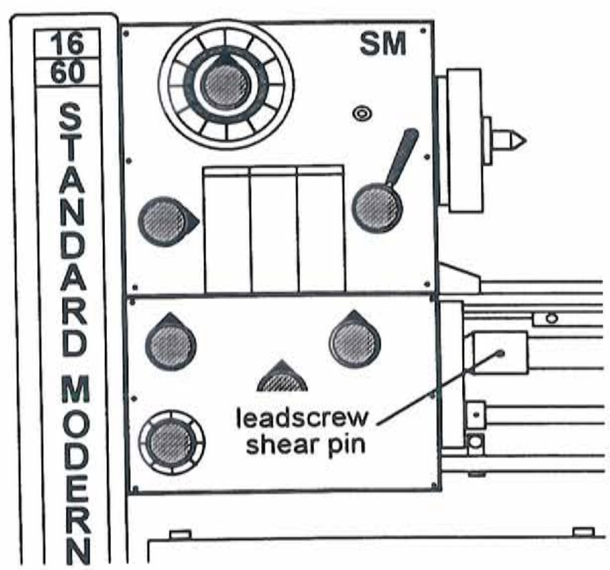
5.4 Compound Slide Ways

Wear in the Compound Slide Ways may be adjusted by means of the Tapered Gib as follows:-



Turn the slotted head Gib Screw at the handle end in a clockwise direction to tighten.

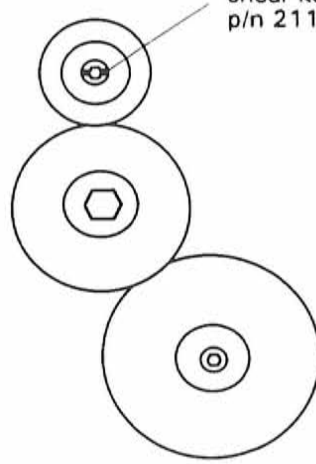
5.5 Leadscrew Shear Pin



This brass shear pin (PN/ 41192) is provided to prevent damage to the leadscrew should the carriage be allowed to come in contact with the headstock or some other obstruction which acts as a positive stop. When the stoppage takes place, the leadscrew continues to turn in the half nuts and will begin to move endwise thus shearing the pin.
The shear pin can be readily replaced by first withdrawing the leadscrew from the coupling to remove the three pieces of broken pin. It is then returned to the coupling and rotated by hand until the zero line on the screw Leadscrew Shear Pin coincides with that on the coupling. A new shear pin (4 spare pins are provided with the machine) is then driven into place.

5. MAINTENANCE INSTRUCTIONS cont'd

5.6 End Gear Train Shear Key



This brass shear key (PN/ 21180) drives the top gear of the end gear train. It is provided to prevent damage to the feed gears if abnormally excessive loads are encountered.

Spare shear keys provided with the machine, are readily fitted. First remove the 48T gear, then remove the broken portions of the key from the shaft with a small square nose chisel. It is important, of course, to locate and remedy the cause of the excessive load.

6.0 PARTS ORDERING PROCEDURE

1. Always quote the machine serial number.
   This is found stamped in the recessed face on top of the bed at the tailstock end.
2. Refer to the appropriate assembly and individual part numbers taken directly from the illustrations.

5. MAINTENANCE INSTRUCTIONS cont'd.

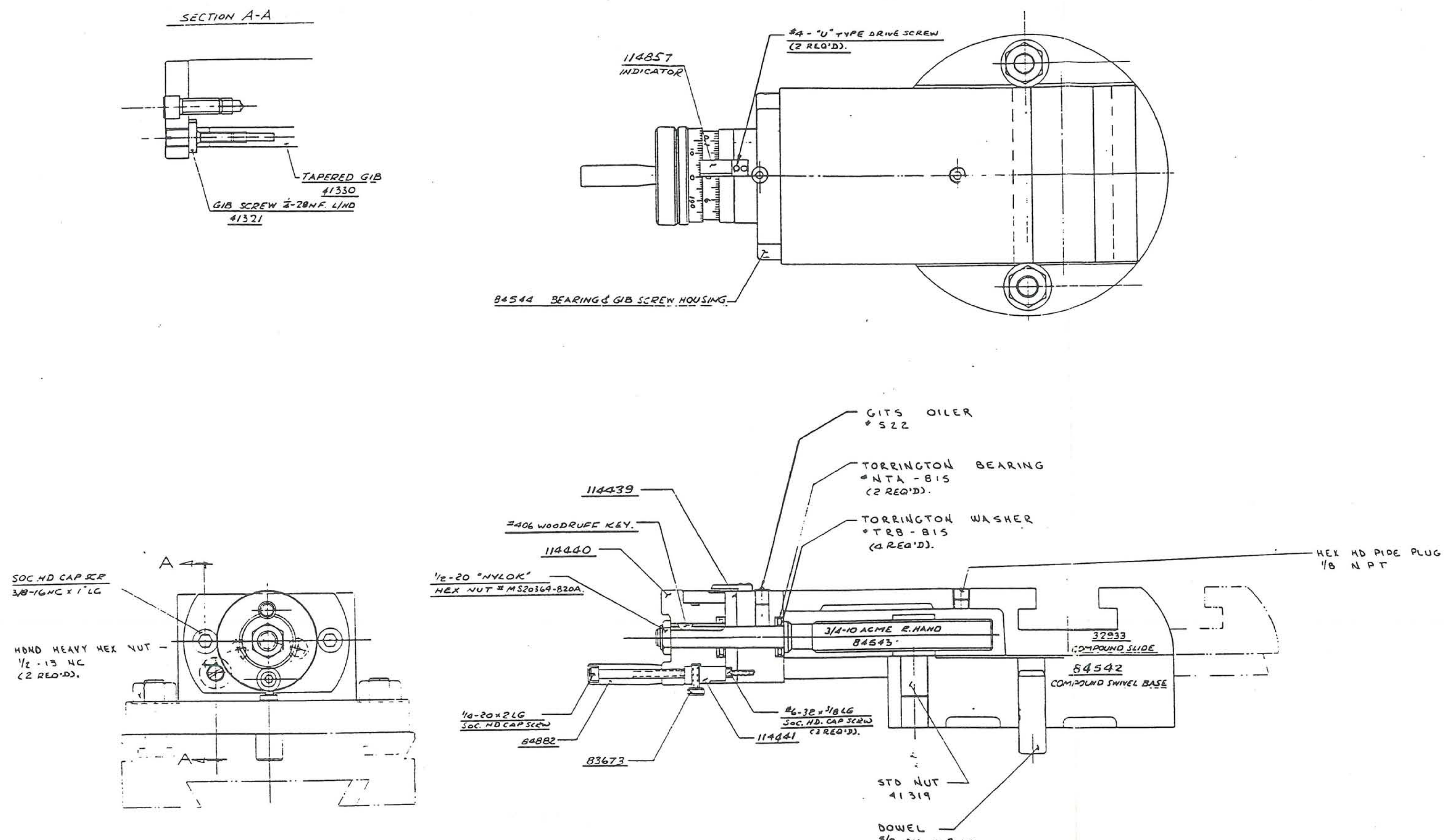
5.7 Trouble Shooting Chart

TROUBLE	PROBABLE CAUSE	CORRECTION
Vibration	Loose leveling screws	Set all screws so that they bear evenly on leveling plates.
	Torn or mismatched V-belts.	Replace V-belts with matched set.
	Work or chuck out of balance operating at high spindle speeds.	Balance chuck or reduce spindle speed.
	Motor out of balance.	Contact local representative of motor manufacturer.
Chatter	Tool bit improperly ground or not on center	Regrind tool bit or adjust tool holder so that area of contact between tool bit and work is decreased. Avoid extreme negative rake.
	Tool overhang too great	Keep point of tool bit as close as possible to tool holder.
	Using improper cutting speed.	Reduce or increase spindle speed.
	Feed rate too high or too low.	Reduce or increase feed.
	Gibs of cross slide or compound rest loose.	Adjust gibs.
	Spindle bearings worn or loose.	Adjust spindle bearings.
	Work improperly supported	Adjust tailstock center. Use steady rest or follow rest for long slender shafts. Minimize tailstock barrel extension.
	Vibration	See "Vibration" trouble above.

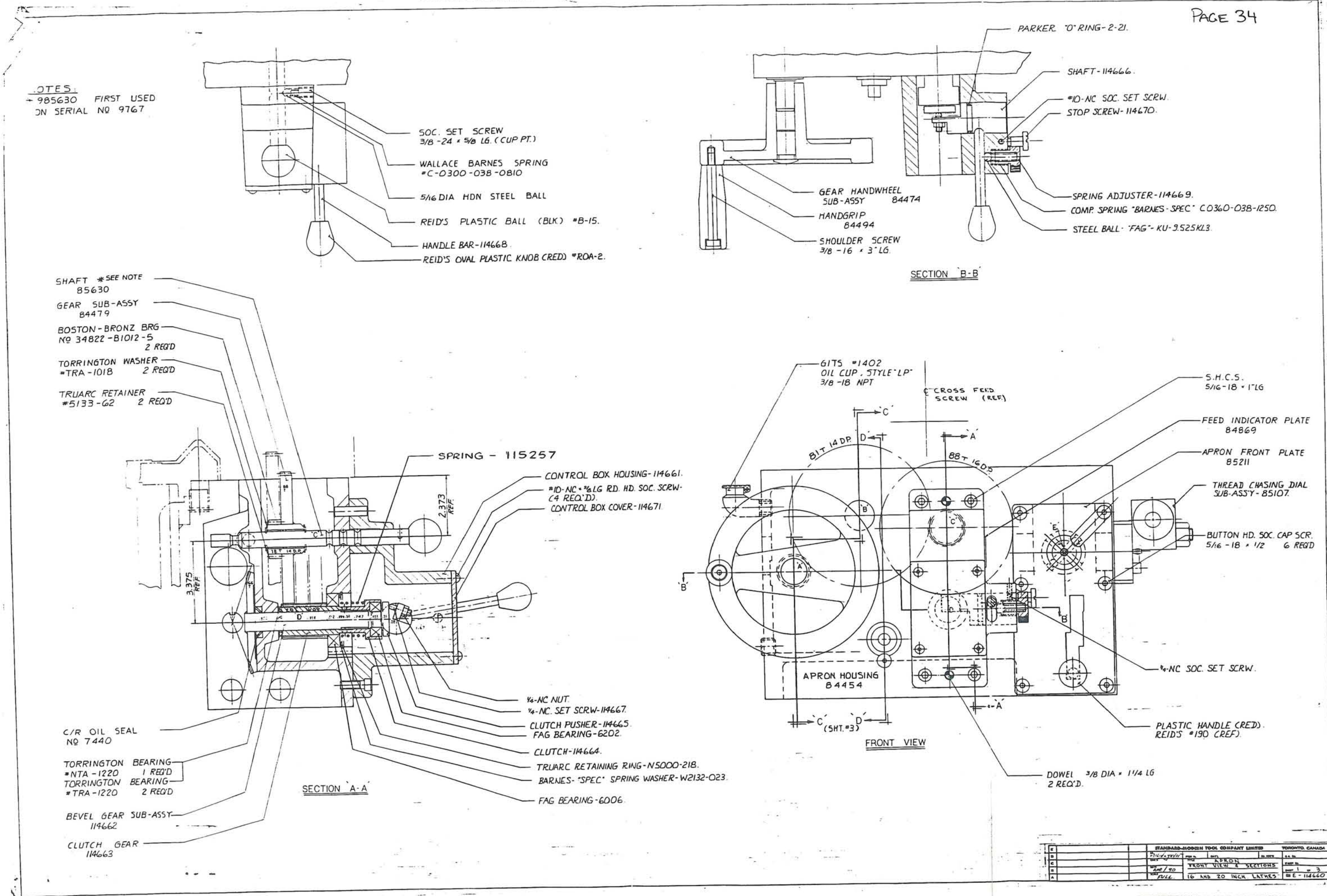
5. MAINTENANCE INSTRUCTIONS cont'd.

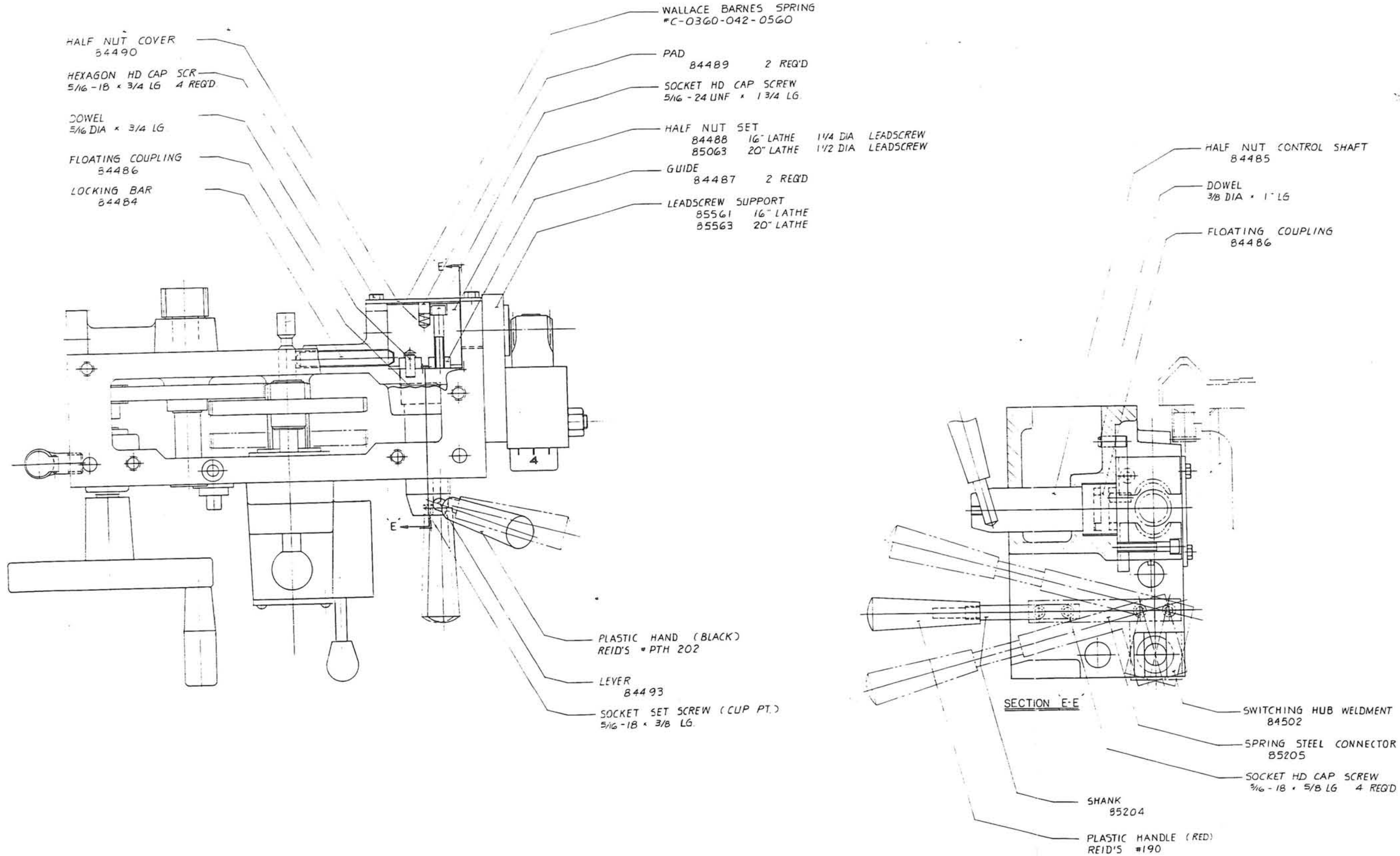
5.7 Trouble Shooting Chart

TROUBLE	PROBABLE CAUSE	CORRECTION
Work not turned straight	Headstock and tailstock not aligned.	Align tailstock center.
	Work improperly supported.	Use steady rest or follow rest. Reduce overhang from chuck.
	Bed not level.	Re-level bed using precision level.
Work out of round.	Work loose between centers.	Adjust tailstock center.
	Centers excessively worn. Work centers out of round.	Regrind centers. Lap work centers.
	Loose headstock spindle bearings.	Adjust headstock spindle bearings.
Cross slide or compound rest movement does not coincide with dial.	Gib setting too tight or too loose.	Adjust gibs.
	Work is too long and slender.	Use steady rest or follow rest for long slender shafts.

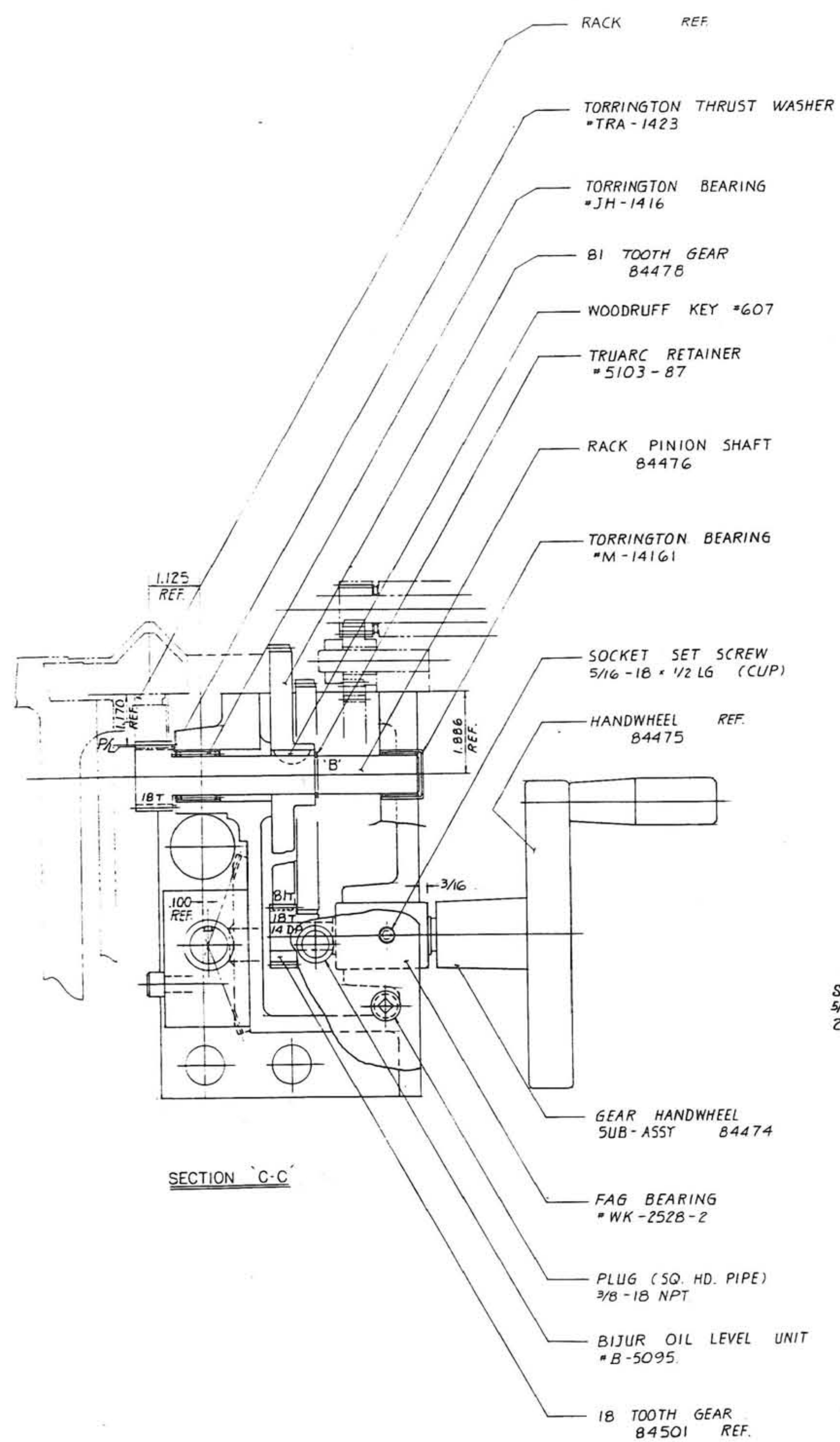


COMPOUND SLIDE ASSEMBLY.

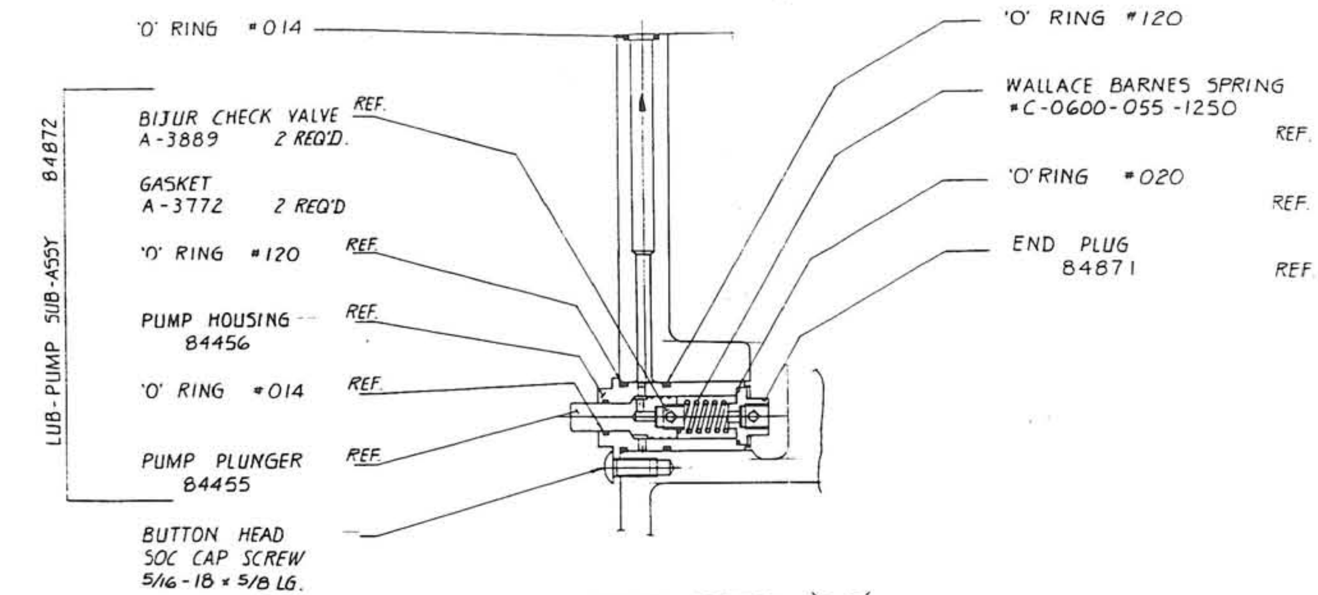

.OTES:
- 985630 FIRST USED
ON SERIAL NO 9767
SOC. SET SCREW
3/8 -24 × 5/8 LG. (CUP PT.)
WALLACE BARNES SPRING
#C-0300-038-0810
5/16 DIA HDN STEEL BALL
REID'S PLASTIC BALL (BLK) #B-15.
HANDLE BAR-114668.
REID'S OVAL PLASTIC KNOB (RED) #ROA-2.
PARKER "O" RING-2-21.
SHAFT-114666.
#10-NC SOC. SET SCRW.
STOP SCREW-114670.
GEAR HANDWHEEL
SUB-ASSY 84474
HANDGRIP
84494
SHOULDER SCREW
3/8 -16 × 3" LG.
SPRING ADJUSTER-114669.
COMP. SPRING "BARNES-SPEC" C0360-038-1250.
STEEL BALL - "FAG" - KU-9.525KL3.
SECTION 'B-B'
SHAFT * SEE NOTE
85630
GEAR SUB-ASSY
84479
BOSTON-BRONZ BRG
NO 34822-B1012-5
2 REQ'D
TORRINGTON WASHER
#TRA-1018 2 REQ'D
TRUARC RETAINER
#5133-62 2 REQ'D
SPRING - 115257
CONTROL BOX HOUSING-114661.
#10-NC × 5/8 LG RD. HD. SOC. SCRW-
(4 REQ'D).
CONTROL BOX COVER-114671.
2.373 REF.
3.375 REF
1/4-NC NUT.
1/4-NC. SET SCRW-114667.
CLUTCH PUSHER-114665.
FAG BEARING-6202.
CLUTCH-114664.
TRUARC RETAINING RING-N5000-218.
BARNES-"SPEC" SPRING WASHER-W2132-023.
FAG BEARING-6006.
C/R OIL SEAL
NO 7440
TORRINGTON BEARING
#NTA-1220 1 REQ'D
TORRINGTON BEARING
#TRA-1220 2 REQ'D
BEVEL GEAR SUB-ASSY
114662
CLUTCH GEAR
114663
SECTION 'A-A'
GITS #1402
OIL CUP, STYLE "LP"
3/8 -18 NPT
℄ CROSS FEED SCREW (REF)
81T 14DP.
88T 16DP.
S.H.C.S.
5/16-18 × 1" LG
FEED INDICATOR PLATE
84869
APRON FRONT PLATE
85211
THREAD CHASING DIAL
SUB-ASS'Y-85107.
BUTTON HD. SOC. CAP SCR.
5/16 -18 × 1/2 6 REQ'D
1/4-NC SOC. SET SCRW.
APRON HOUSING
84454
(SHT. #3)
PLASTIC HANDLE (RED).
REID'S #190 (REF).
DOWEL 3/8 DIA × 1 1/4 LG
2 REQ'D.
FRONT VIEW
STANDARD-MODERN TOOL COMPANY LIMITED
TORONTO, CANADA
APRON
FRONT VIEW & SECTIONS
16 AND 20 INCH LATHES
APR/90
FULL
SHEET 1 OF 3
E-114660



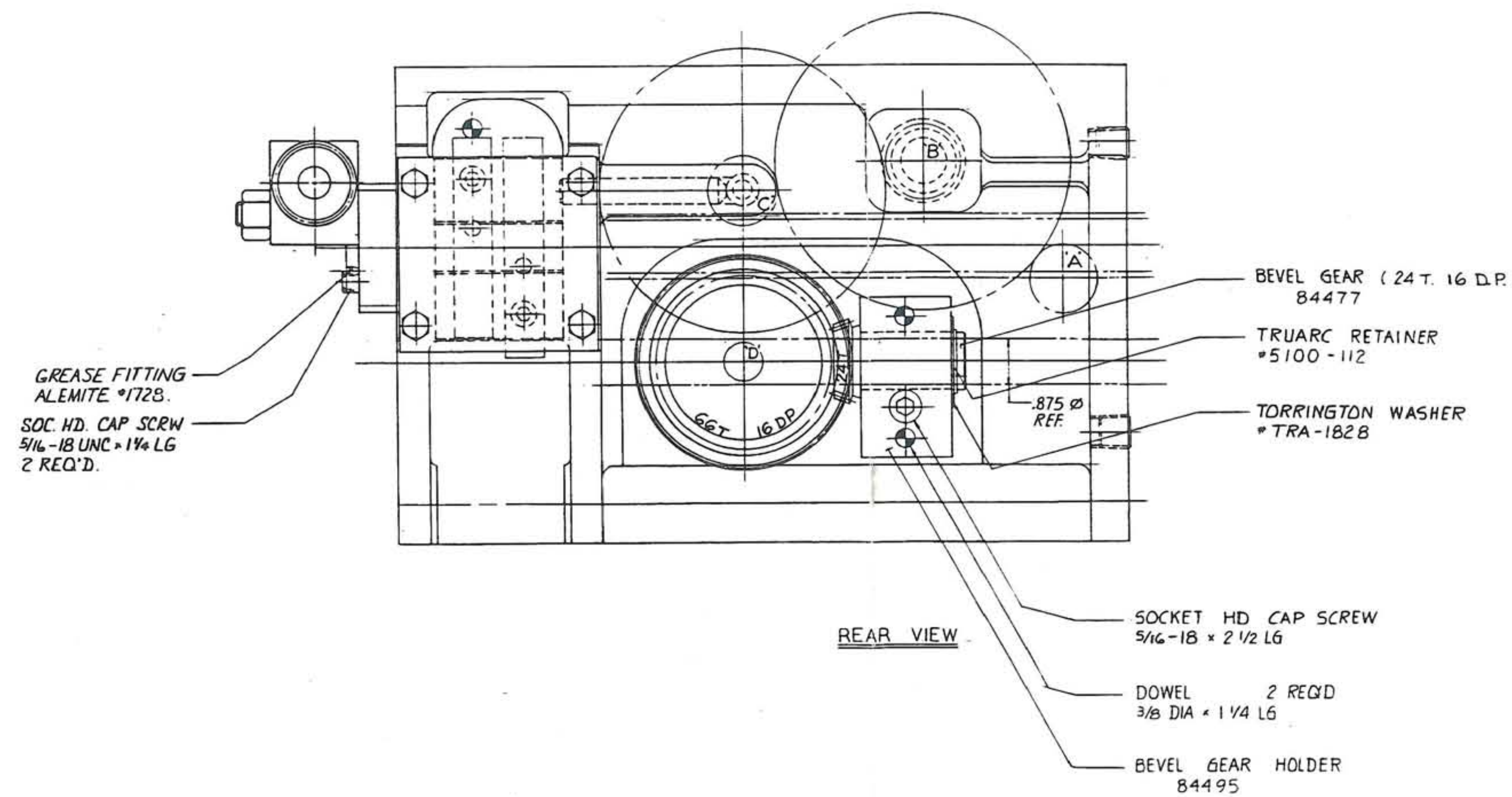
E			STANDARD-MODERN TOOL COMPANY LIMITED			TORONTO, CANADA
D			DR. [illegible]			
C				TITLE APRON		
B			DATE [illegible]/90.	TOP VIEW & SECTION		SHEET 2 OF 3
A			SCALE FULL.	16 AND 20 INCH LATHES		E-114660.



SECTION 'C-C'

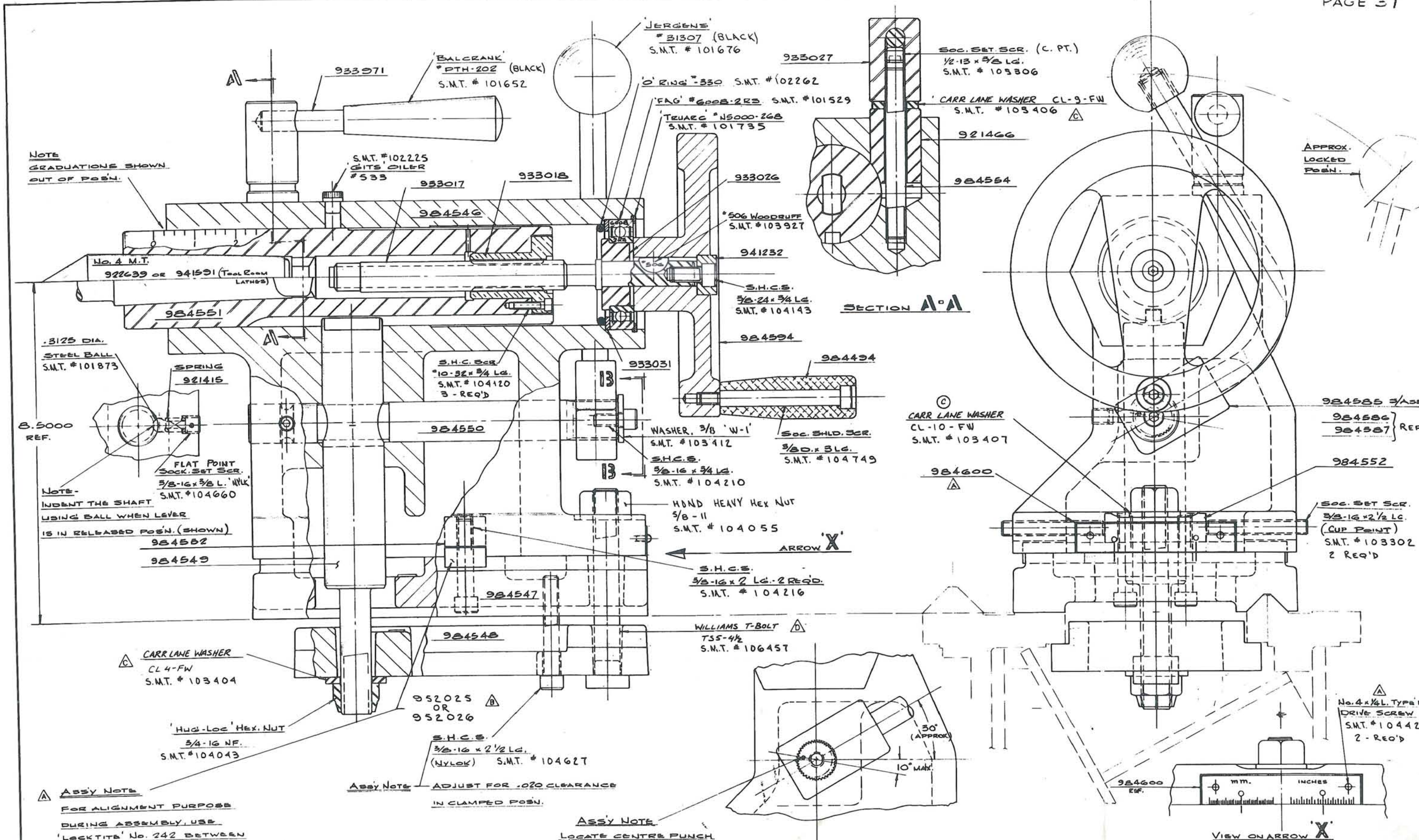


SCRAP SECTION 'D-D'
(SHEET #1) REF.



REAR VIEW

E			STANDARD-MODERN TOOL COMPANY LIMITED		TORONTO, CANADA
D			MIK		
C				TITLE APRON REAR VIEW & SECTIONS	
B			Apr/90.		SHEET 3 of 3
A			SCALE FULL	16 AND 20 INCH LATHES	E-114660.



F	ADDED PART NO'S TO ITEMS (J.M.)	JULY-02
E	WAS HEAVY HEX NUT	FEB 4.1982 M.G.
D	TSS-4½ WAS A-84448	21-1-81 W.S.
C	CL10-FW WAS WESPO 6010, CL4-FW WAS CL 4-FW " " 6004, WESPO 6009	21-1-81 W.S.
B	PART NO'S ADDED.	23 APR 79 W.S.
A	ITEMS A-84600 & A-84514 ADDED ASSY NOTE ADDED, DRIVE SCR. ADDED	MAY 1978

STANDARD-MODERN TOOL COMPANY LIMITED — TORONTO, CANADA

DR. DAMIANOFF — CHK'D — DATE JAN./78 — SCALE 1/1

TITLE: TAILSTOCK ASSY. No. 4 MORSE TAPER - TANG DRIVE

16 INCH LATHES

SHEET 1 OF 1

D-84306

WARNER FAIL-SAFE BRAKE # FB-475

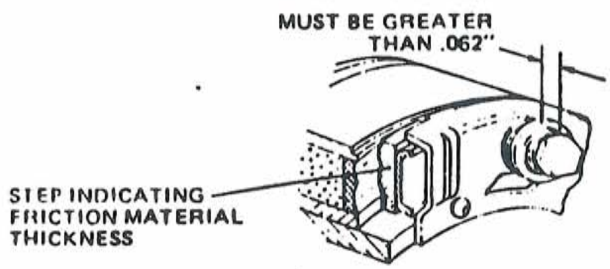
This Unit is a permanent "Ceramic-Magnet" type which is released (by reversing the direction of magnetic flux) when its electromagnet coil is energized.

It is imperative that the brake be inspected frequently for wear and to ensure that it engages and disengages properly. The frequency of inspections is dictated by usage; experience will determine proper inspection intervals.

Brake Wear Checks

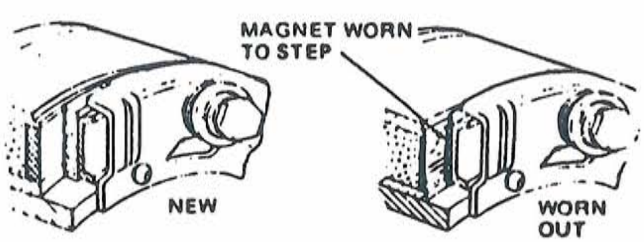
Check No: 1

Examine the three autogap drive springs to assure that none of them are approaching total compression. If any one of them is approaching total compression or if the distance from the underside of the drive pin head to the top of the detent cup washer is less than .062 inch, the brake should be replaced.

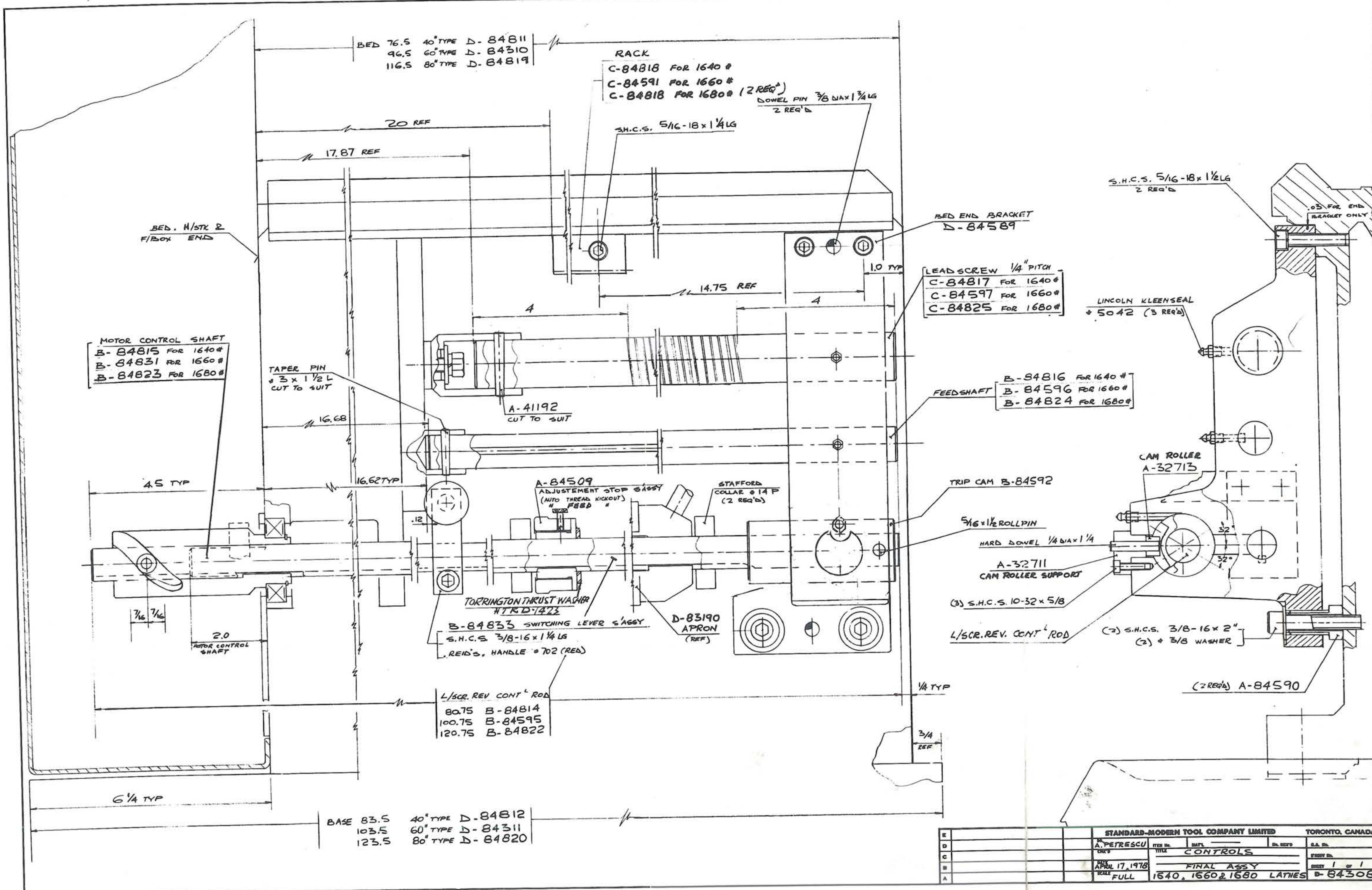


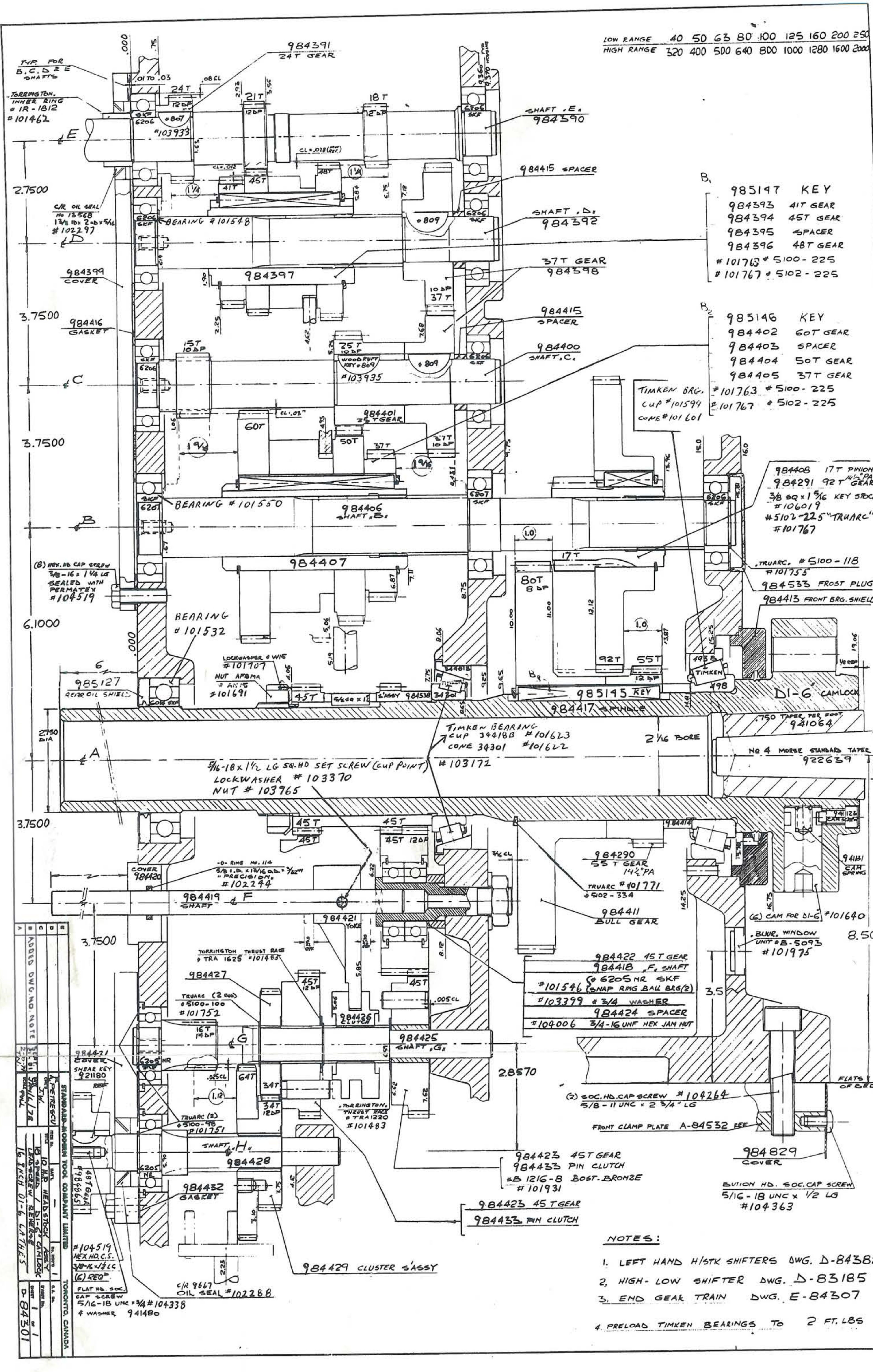
Check No: 2

A step is machined on the O.D. of the brake magnet where the armature and magnet meet. This step is equal to the friction material thickness. When this step is completely covered by the armature with the brake engaged, the brake is worn out and should be replaced.

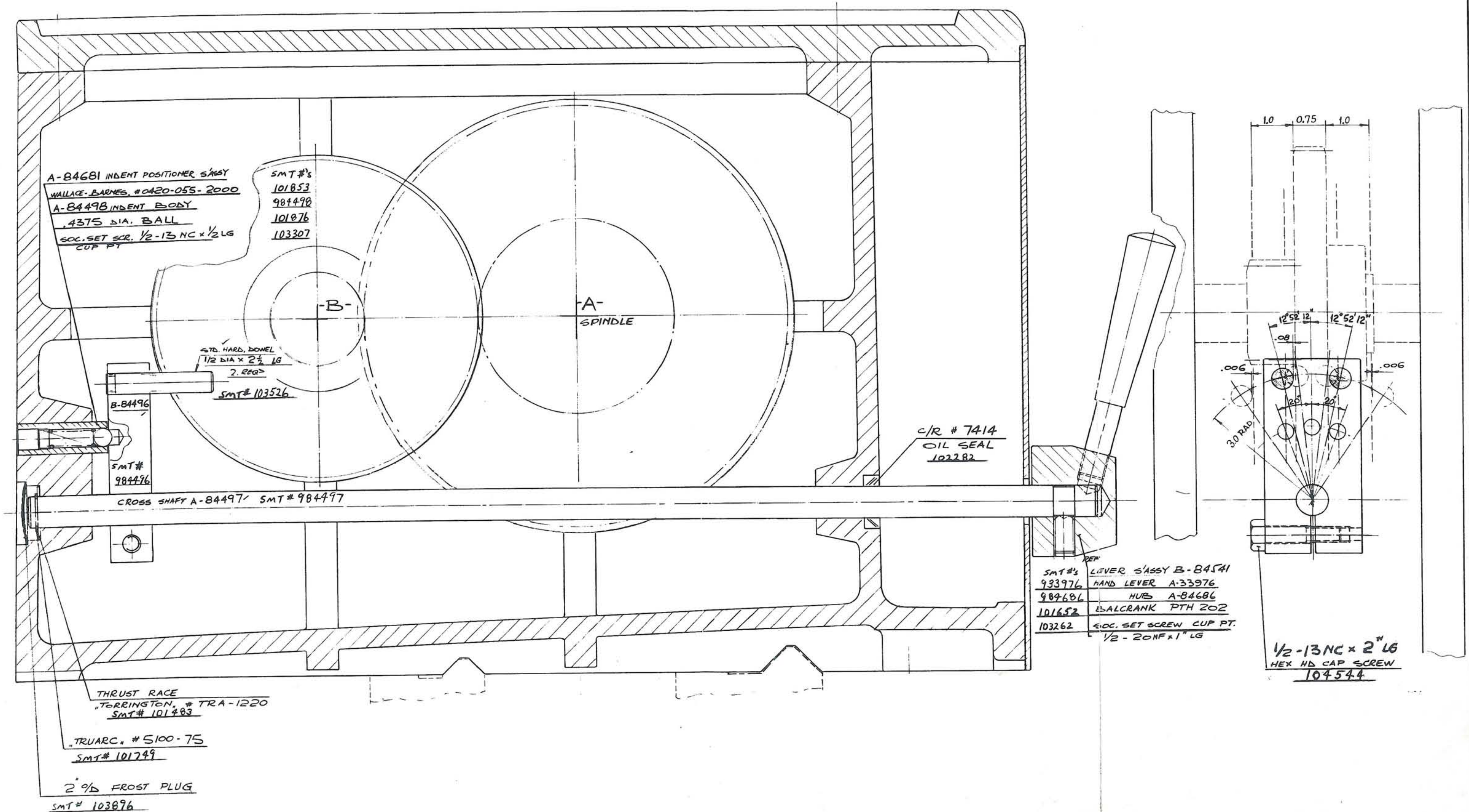


After completing an inspection with the machine turned off, cycle it several times. If the Fail Safe Brake stopping time has more than doubled since the original set-up, this also indicates the brake is worn out and should be replaced.

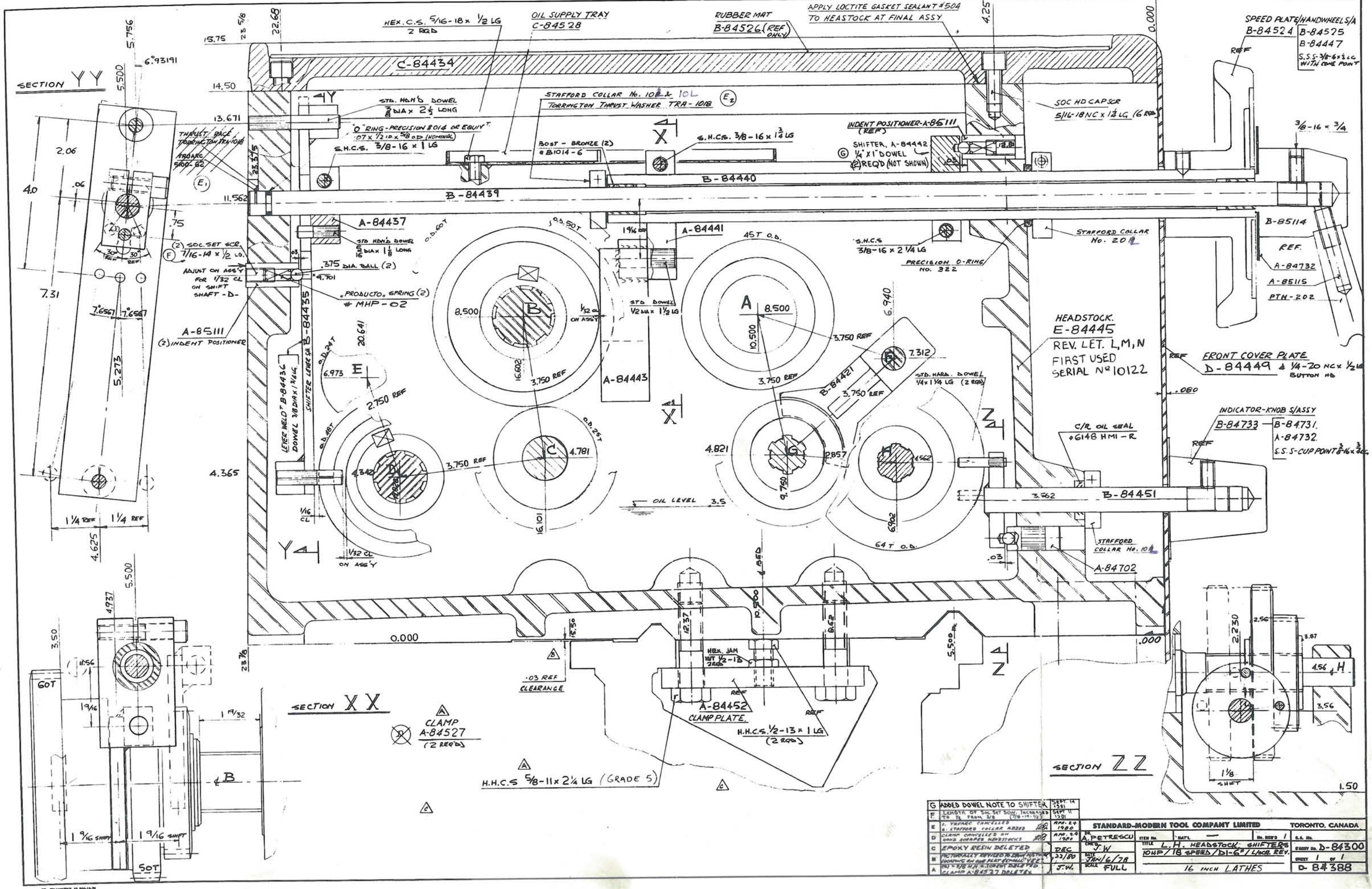

BED 76.5 40" TYPE D-84811
96.5 60" TYPE D-84310
116.5 80" TYPE D-84819
RACK
C-84818 FOR 1640 #
C-84591 FOR 1660 #
C-84818 FOR 1680 # (2 REQ'D)
DOWEL PIN 3/8 DIA x 1 3/4 LG
2 REQ'D
20 REF
S.H.C.S. 5/16-18 x 1 1/4 LG
17.87 REF
S.H.C.S. 5/16-18 x 1 1/2 LG
2 REQ'D
.03 FOR END BRACKET ONLY
BED. H/STK & F/BOX END
BED END BRACKET
D-84589
1.0 TYP
14.75 REF
LEAD SCREW 1/4" PITCH
C-84817 FOR 1640 #
C-84597 FOR 1660 #
C-84825 FOR 1680 #
4
4
LINCOLN KLEENSEAL
5042 (3 REQ'D)
MOTOR CONTROL SHAFT
B-84815 FOR 1640 #
B-84831 FOR 1660 #
B-84823 FOR 1680 #
TAPER PIN
3 x 1 1/2 L
CUT TO SUIT
A-41192
CUT TO SUIT
16.68
FEEDSHAFT
B-84816 FOR 1640 #
B-84596 FOR 1660 #
B-84824 FOR 1680 #
CAM ROLLER
A-32713
4.5 TYP
16.62 TYP
A-84509
ADJUSTEMENT STOP S'ASSY
(AUTO THREAD KICKOUT)
" FEED "
STAFFORD
COLLAR # 14 P
(2 REQ'D)
TRIP CAM B-84592
.12
5/16 x 1 1/2 ROLLPIN
HARD DOWEL 1/4 DIA x 1 1/4
32°
32°
A-32711
CAM ROLLER SUPPORT
7/16 7/16
TORRINGTON THRUST WASHER
TRD-1423
(3) S.H.C.S. 10-32 x 5/8
2.0
MOTOR CONTROL SHAFT
B-84833 SWITCHING LEVER S'ASSY
S.H.C.S. 3/8-16 x 1 1/4 LG
REID'S. HANDLE # 702 (RED)
D-83190
APRON
(REF)
L/SCR. REV. CONT'L ROD
(2) S.H.C.S. 3/8-16 x 2"
(2) # 3/8 WASHER
(2 REQ'D) A-84590
1/4 TYP
L/SCR. REV CONT'L ROD
80.75 B-84814
100.75 B-84595
120.75 B-84822
3/4
REF
6 1/4 TYP
BASE 83.5 40" TYPE D-84812
103.5 60" TYPE D-84311
123.5 80" TYPE D-84820
STANDARD-MODERN TOOL COMPANY LIMITED
TORONTO, CANADA
A. PETRESCU
CONTROLS
APRIL 17, 1978
FINAL ASSY
FULL
1640, 1660 & 1680 LATHES
1 of 1
D-84308


LOW RANGE 40 50 63 80 100 125 160 200 250
HIGH RANGE 320 400 500 640 800 1000 1280 1600 2000
984391 24T GEAR
TYP. FOR B.C.D & E SHAFTS
TORRINGTON. INNER RING # IR-1812 #101462
SHAFT .E. 984390
984415 SPACER
C/R OIL SEAL NO 13568 1 3/8 ID x 2 OD x 5/16 #102297
BEARING #101548
SHAFT .D. 984392
984397
37T GEAR 984398
984399 COVER
984416 GASKET
984415 SPACER
984400 SHAFT .C.
#103935
984401 35T GEAR
B1 985147 KEY
984393 41T GEAR
984394 45T GEAR
984395 SPACER
984396 48T GEAR
#101763 #5100-225
#101767 #5102-225
B2 985146 KEY
984402 60T GEAR
984403 SPACER
984404 50T GEAR
984405 37T GEAR
#101763 #5100-225
#101767 #5102-225
TIMKEN BRG. CUP #101599 CONE #101601
984408 17T PINION
984291 92T GEAR
3/8 SQ x 1 5/16 KEY STOCK #106019
#5102-225 "TRUARC" #101767
BEARING #101550
984406 SHAFT .B.
984407
(8) HEX. HD CAP SCREW 3/8-16 x 1 1/4 LG SEALED WITH PERMATEX #104519
TRUARC. #5100-118 #101755
984533 FROST PLUG
984413 FRONT BRG. SHIELD
BEARING #101532
LOCKWASHER #W15 #101707
NUT AF09A #101691
985127 REAR OIL SHIELD
985145 KEY
984417 SPINDLE
DI-6 CAMLOCK
.750 TAPER PER FOOT 941064
TIMKEN BEARING CUP 34418B #101623 CONE 34301 #101622
2 1/16 BORE
NO. 4 MORSE STANDARD TAPER 922639
5/16-18 x 1 1/2 LG SQ. HD SET SCREW (CUP POINT) #103172
LOCKWASHER #103370
NUT #103965
COVER 984420
O-RING NO. 114 5/8 I.D. x 13/16 O.D. x 3/32 "PRECISION" #102244
984419 SHAFT
984290 55T GEAR 14 1/2° PA
TRUARC #101771 #5102-334
984411 BULL GEAR
(6) CAM FOR DI-6 #101640
941131 CAM SPRING
BUHR. WINDOW UNIT #B-5093 #101975
984421 YOKE
TORRINGTON THRUST RACE # TRA 1625 #101483
984427
TRUARC (2 REQ) #5100-100 #101752
984422 45T GEAR
984418 .F. SHAFT
#101546 #6205NR SKF SNAP RING BALL BRG (2)
#103399 #3/4 WASHER
984424 SPACER
#104006 3/4-16 UNF HEX JAM NUT
984425 SHAFT .G.
984431 COVER
SHEAR KEY 921180
TRUARC (2) #5100-98 #101751
TORRINGTON. THRUST RACE # TRA1220 #101483
(2) SOC. HD. CAP SCREW #104264 5/8-11 UNC x 2 3/4 LG
FRONT CLAMP PLATE A-84532 REF
FLATS OF BED
SHAFT .H. 984428
984423 45T GEAR
984433 PIN CLUTCH
#B 1216-8 BOST. BRONZE #101931
984829 COVER
BUTTON HD. SOC. CAP SCREW 5/16-18 UNC x 1/2 LG #104363
984432 GASKET
984423 45T GEAR
984433 PIN CLUTCH
#104519 HEX HD. C.S. 3/8-16 x 1 LG (6) REQ
984429 CLUSTER S'ASSY
C/R 9667 OIL SEAL #102288
FLAT HD. SOC. CAP SCREW 5/16-18 UNC x 3/4 #104338
WASHER 941480
NOTES:
1. LEFT HAND H/STK SHIFTERS DWG. D-84388
2. HIGH-LOW SHIFTER DWG. D-83185
3. END GEAR TRAIN DWG. E-84307
4. PRELOAD TIMKEN BEARINGS TO 2 FT. LBS
B ADDED DWG. NO. NOTE
STANDARD-MODERN TOOL COMPANY LIMITED TORONTO, CANADA
10 H.P. HEADSTOCK ASSY 18 SPEED / DI-6 CAMLOCK LEADSCREW REVERSE 16 INCH DI-6 LATHES
A. PETRESCU
D-84301

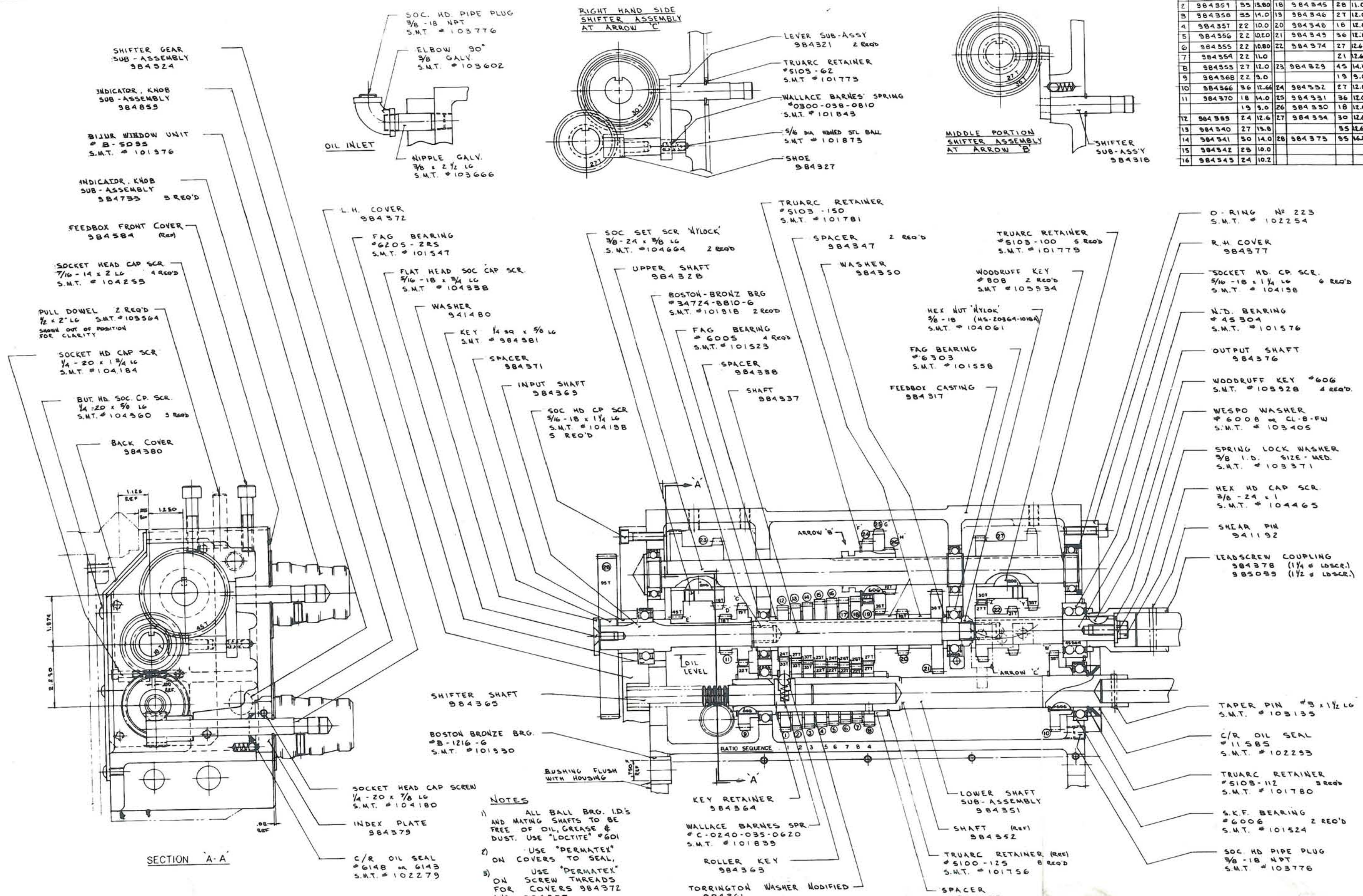
Page 28



STANDARD-MODERN TOOL COMPANY LIMITED		TORONTO, CANADA
DR. P. ORASEANU	ITEM No. —	No. REQ'D 1
CHK'D J.W.	TITLE HIGH-LOW SHIFTER DOWEL - TYPE - 18 SPEED HEADSTOCK - 1640, 1660 & 1680 LATHES	SHEET 1 OF 1
DATE JAN/6/1978		
SCALE FULL		D-83185


SECTION YY
SECTION XX
SECTION ZZ
HEX. C.S. 5/16-18 x 1/2 LG 2 RQD
OIL SUPPLY TRAY C-84528
RUBBER MAT B-84526 (REF ONLY)
APPLY LOCTITE GASKET SEALANT #504 TO HEASTOCK AT FINAL ASSY
SPEED PLATE/HANDWHEELS S/A B-84524 B-84525 B-84447
S.S.S-3/8-16 x 1/2 LG WITH CONE POINT
C-84434
STD. HDN'D DOWEL 3/8 DIA x 2 1/2 LONG
"O" RING-PRECISION #014 OR EQUIV. .07 x 1/2 I.D. x 5/8 O.D (NOMINAL)
S.H.C.S. 3/8-16 x 1 LG
STAFFORD COLLAR No. 10L
TORRINGTON THRUST WASHER TRA-1018
BOST - BRONZE (2) #B1014-6
S.H.C.S. 3/8-16 x 1 3/4 LG
SOC HD CAPSCR 5/16-18NC x 1 1/4 LG (6 RQD)
INDENT POSITIONER-A-85111 (REF)
SHIFTER, A-84442
1/4" x 1" DOWEL (2) REQ'D (NOT SHOWN)
THRUST RACE TORRINGTON TRA-1018
B-84440
B-84439
B-85114
A-84437
STD HDN'D DOWEL 5/16 DIA x 1 1/8 LONG
A-84441
S.H.C.S 3/8-16 x 2 1/4 LG
PRECISION O-RING NO. 322
STAFFORD COLLAR No. 20
REF.
A-84732
A-85115
PTH-202
(2) SOC. SET SCR. 7/16-14 x 1/2 LG.
ADJUST ON ASS'Y FOR 1/32 CL ON SHIFT SHAFT -D-
.375 DIA. BALL (2)
"PRODUCTO" SPRING (2) # MHP-02
A-85111 (2) INDENT POSITIONER
STD DOWEL 1/2 DIA x 1 1/2 LG
A-84443
HEADSTOCK E-84445 REV. LET. L,M,N FIRST USED SERIAL No 10122
FRONT COVER PLATE D-84449 & 1/4-20 NC x 1/2 LG BUTTON HD
STD. HARD. DOWEL 1/4 x 1 1/4 LG (2 RQD)
B-84421
SHIFTER LEVER S/A B-84435
LEVER WELD'T B-84436
DOWEL 3/8 DIA x 1 3/4 LG
INDICATOR-KNOB S/ASSY B-84733 B-84731 A-84732
S.S.S-CUP POINT 3/8-16 x 3/4 LG
C/R OIL SEAL #6148 HMI-R
B-84451
STAFFORD COLLAR No. 10
A-84702
OIL LEVEL 3.5
45T O.D.
64T O.D.
O.D. 50T
O.D. 60T
O.D. 25T
O.D. 24T
O.D. 48T
HEX. JAM NUT 1/2-13 2 REQ
A-84452 CLAMP PLATE
H.H.C.S. 1/2-13 x 1 LG (2 RQD)
.03 REF CLEARANCE
CLAMP A-84527 (2 REQ'D)
H.H.C.S 5/8-11 x 2 1/4 LG (GRADE 5)
60T
50T
1 9/16 SHAFT
1 1/8 SHAFT
G ADDED DOWEL NOTE TO SHIFTER SEPT. 14 1981
F LENGTH OF SOC. SET SCR. INCREASED TO 1/2 FROM 3/8 SEPT 11 1981
E 1. TRUARC CANCELLED 2. STAFFORD COLLAR ADDED APR. 24 1980
D CLAMP CANCELLED ON HAND SCRAPED HEADSTOCKS APR. 29 1980
C EPOXY RESIN DELETED DEC 22/80
B PICTORIALLY REVISED
A
STANDARD-MODERN TOOL COMPANY LIMITED
TORONTO, CANADA
A. PETRESCU
J.W.
JAN/6/78
FULL
L.H. HEADSTOCK SHIFTERS
10HP/18 SPEED/D1-6"/L&CR. REV.
16 INCH LATHES
D-84300
SHEET 1 OF 1
D-84388

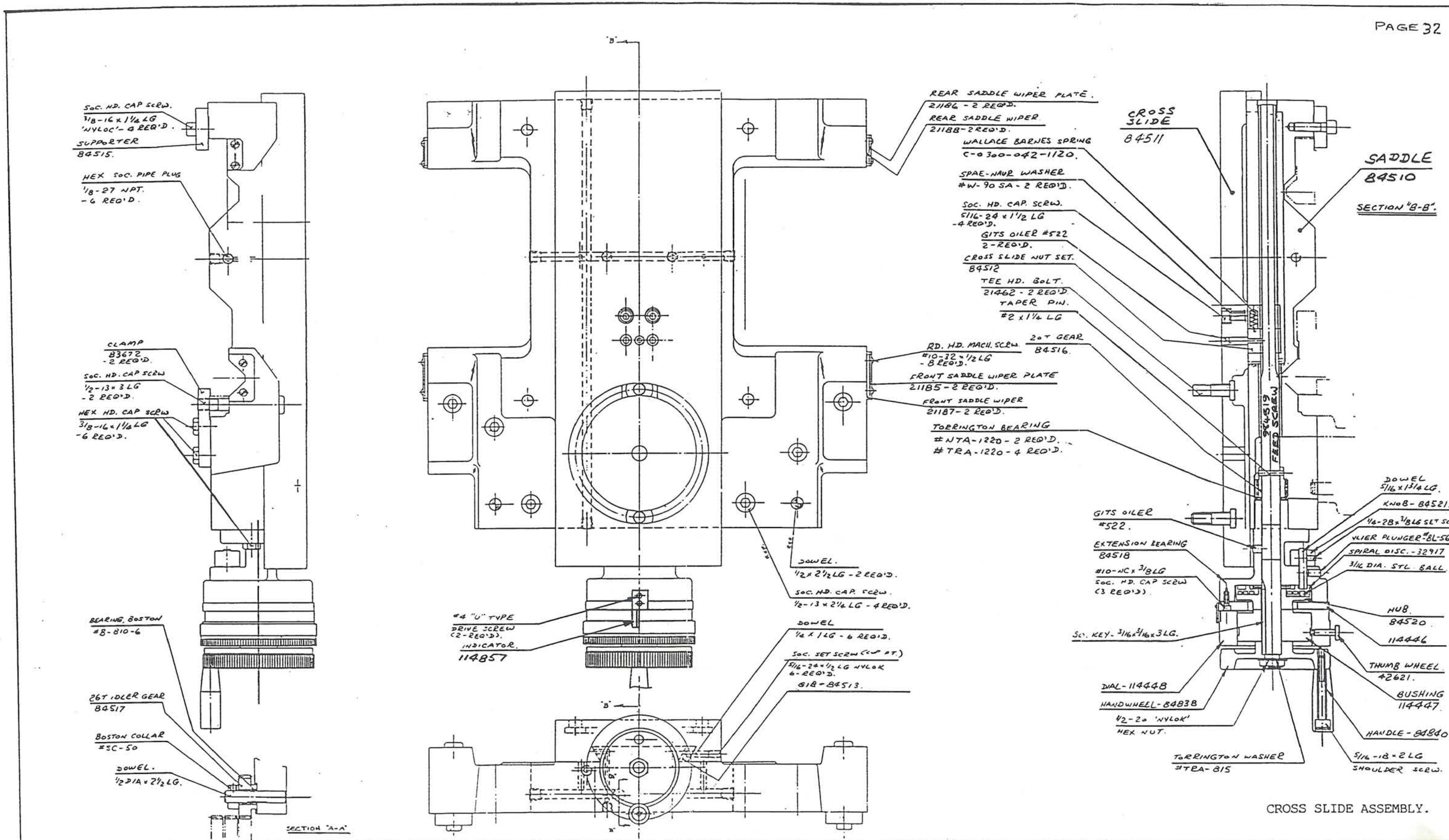
ITEM No	PART No	No TEETH	D.P.	ITEM No	PART No	No TEETH	D.P.
1	984360	33	12.60	17	984344	26	10.8
2	984359	35	13.80	18	984345	28	11.0
3	984358	33	14.0	19	984346	27	12.0
4	984357	22	10.0	20	984348	18	12.0
5	984356	22	10.20	21	984349	36	12.0
6	984355	22	10.80	22	984374	27	12.60
7	984354	22	11.0			21	12.66
8	984353	27	12.0	23	984329	45	14.0
9	984368	22	9.0			19	9.0
10	984366	36	12.66	24	984332	27	12.0
11	984370	18	14.0	25	984331	36	12.0
		19	9.0	26	984330	18	12.0
12	984339	24	12.6	27	984334	30	12.60
13	984340	27	13.8			35	12.66
14	984341	30	14.0	28	984373	35	16.0
15	984342	28	10.0				
16	984343	24	10.2				



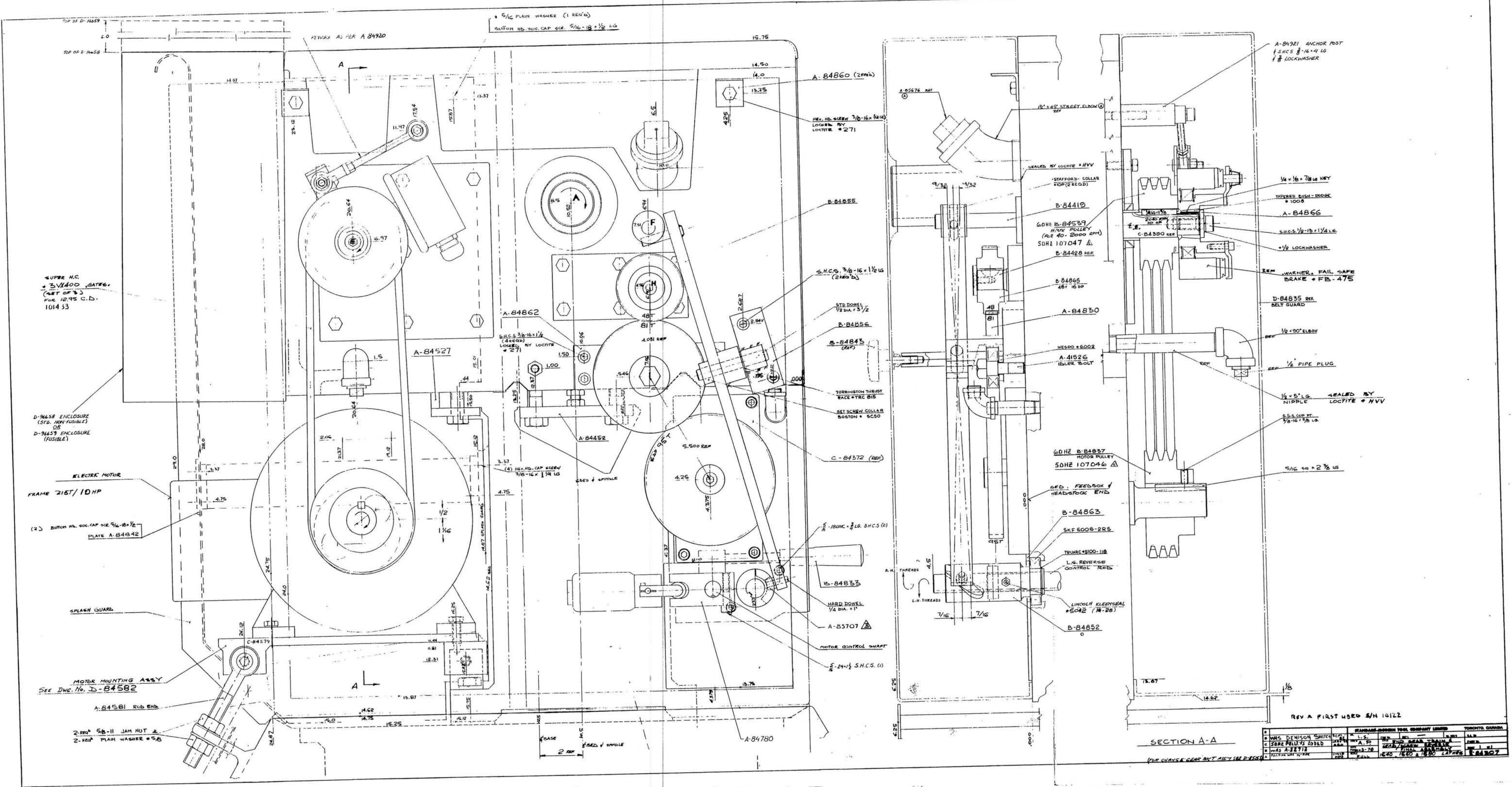
NOTES

1) ALL BALL BRG. I.D.'S AND MATING SHAFTS TO BE FREE OF OIL, GREASE & DUST. USE "LOCTITE" #601
2) USE "PERMATEX" ON COVERS TO SEAL.
3) USE "PERMATEX" ON SCREW THREADS FOR COVERS 984372 AND 984377

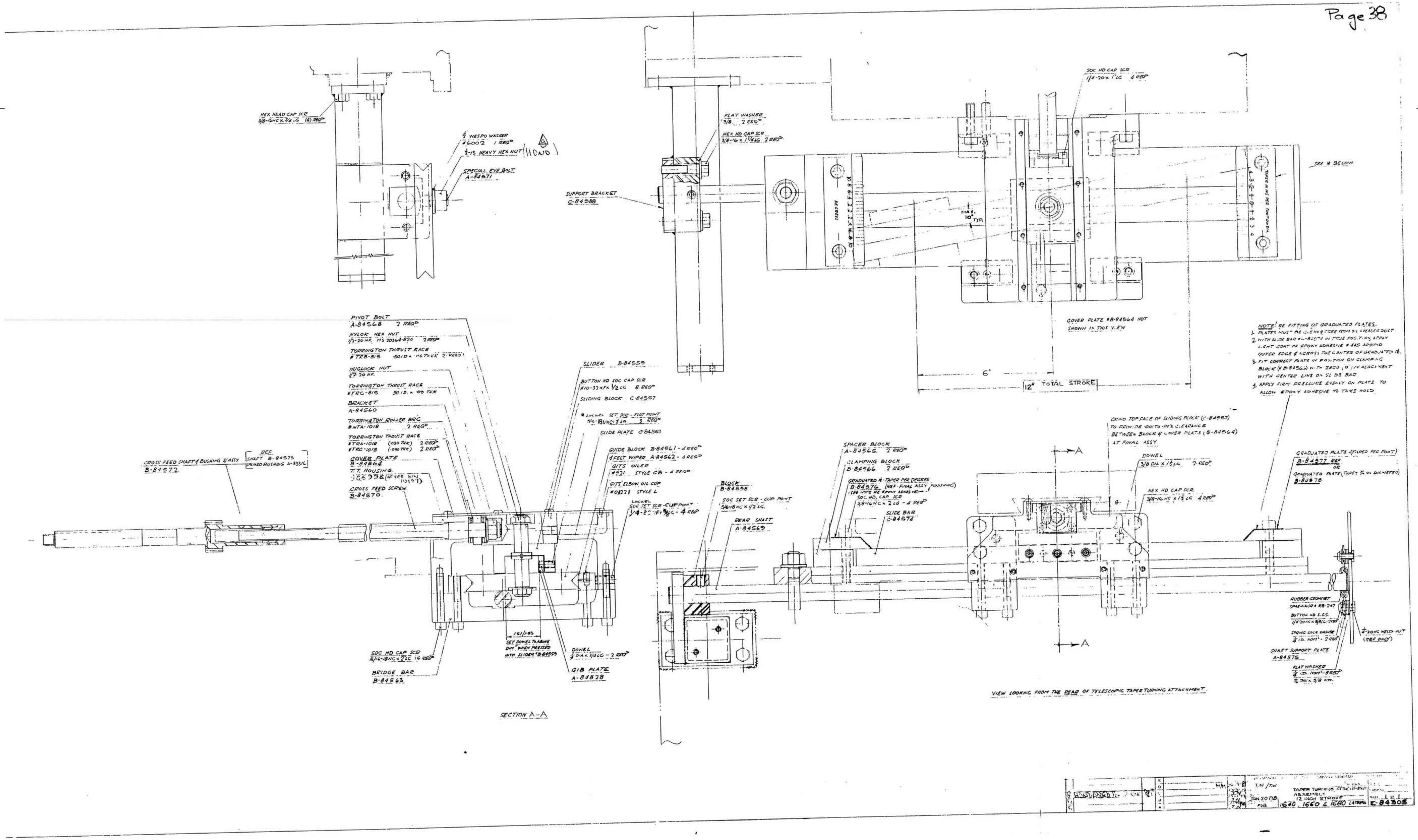
	TOOL COMPANY LIMITED			TORONTO, CANADA
JAM / T.H				
J.W.	FEED GEAR BOX ASSEMBLY			
JUNE 02 / 77	INCH AND METRIC			1 of 1
FULL	16 AND 20 INCH LATHES			E-84502

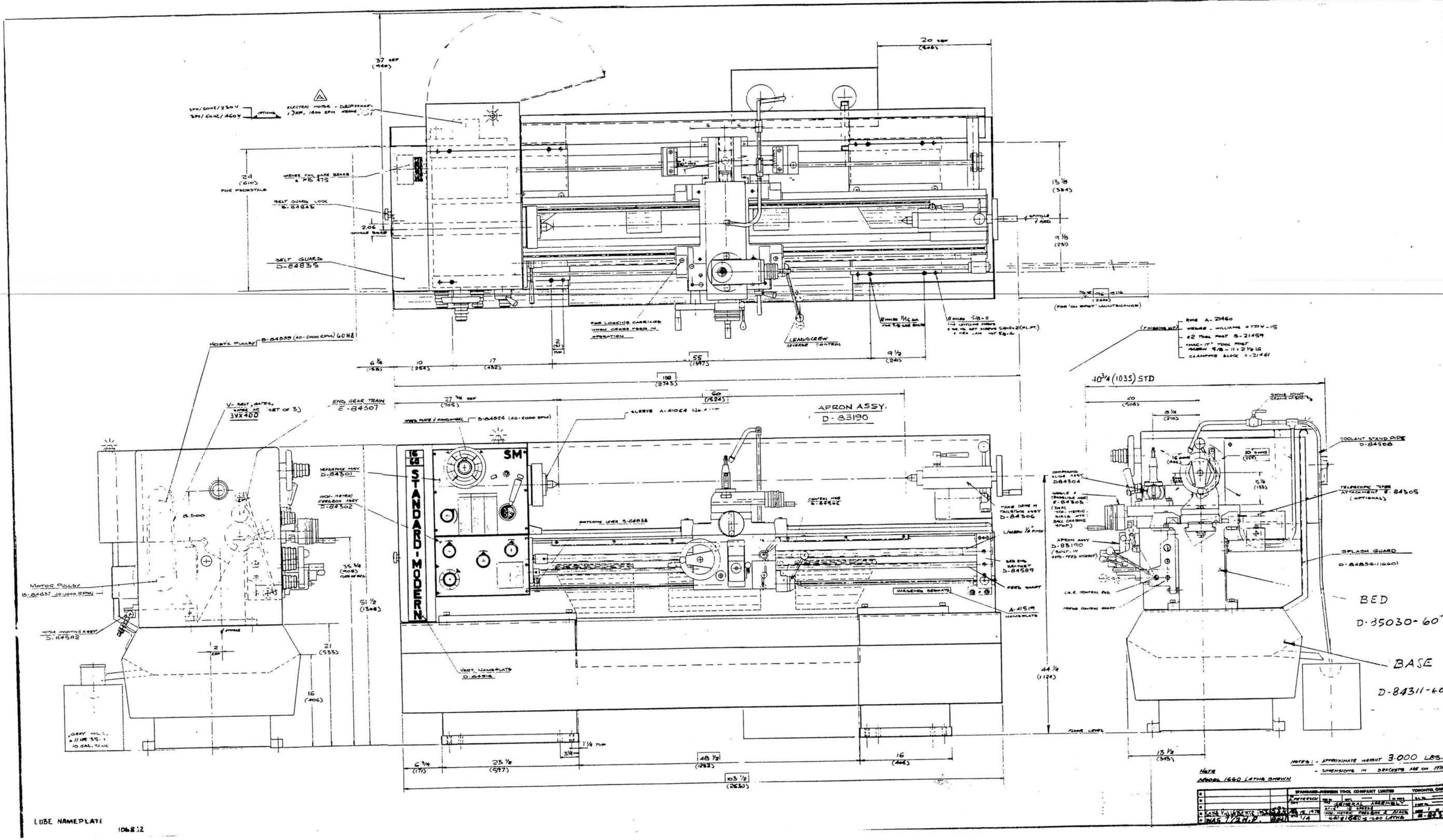


CROSS SLIDE ASSEMBLY.



5/16 PLAIN WASHER (1 REQ'D)
BUTTON HD. SOC. CAP SCR. 5/16-18 × 1/2 LG
KEYWAY AS PER A 84920
TOP OF D-14659
TOP OF D-14658
A-84860 (2REQ'D)
HEX. HD. SCREW 3/8-16 × 3/4 LG
LOCKED BY LOCTITE #271
B-84855
SUPER H.C. #3VX400 GATES (SET OF 3) FOR 12.95 C.D.
101453
S.H.C.S. 3/8-16 × 1 1/2 LG (2REQ'D)
STD DOWEL 1/2 DIA. × 3 1/2
B-84856
B-84843 (REF)
A-84862
S.H.C.S. 3/8-16 × 1 1/2 (4REQ'D) LOCKED BY LOCTITE #271
A-84527
TORRINGTON THRUST RACE #TRC 815
SET SCREW COLLAR BOSTON # SC50
A-84452
D-96658 ENCLOSURE (STD. NON-FUSIBLE) OR
D-96659 ENCLOSURE (FUSIBLE)
C-84372 (REF)
(4) HEX. HD. CAP SCREW 3/8-16 × 1 1/4 LG
ELECTRIC MOTOR
FRAME 215T / 10HP
(2) BUTTON HD. SOC. CAP SCR. 5/16-18 × 1/2
PLATE A-84842
5/16-18UNC × 5/8 LG. S.H.C.S (2)
B-84833
HARD DOWEL 1/4 DIA. × 1"
A-83707
SPLASH GUARD
MOTOR CONTROL SHAFT
MOTOR MOUNTING ASSY
SEE DWG. No. D-84582
5/16-24 × 1 1/2 S.H.C.S. (1)
A-84581 ROD END
2-REQ'D 5/8-11 JAM NUT
2-REQ'D PLAIN WASHER # 5/8
A-84780
A-85676 REF
1/2" × 45° STREET ELBOW
SEALED BY LOCTITE #HVV
"STAFFORD" COLLAR #10P (2 REQ'D)
B-84419
60HZ B-84539 H/STK PULLEY (FOR 40-2000 RPM)
50HZ 107047
B-84428 REF.
B-84865 48T 16 DP
A-84830
WESPO #6002
A-41526 IDLER BOLT
A-84921 ANCHOR POST
1/2 S.H.C.S. 1/2-16 × 4 LG
1/2 LOCKWASHER
1/4 × 1/8 × 7/8 LG KEY
TAPERED BUSH - DODGE #1008
A-84866
S.H.C.S. 1/2-13 × 1 1/4 LG.
C-84390 REF
#1/2 LOCKWASHER
WARNER FAIL SAFE BRAKE #FB-475
D-84835 REF. BELT GUARD
1/2 × 90° ELBOW
1/2" PIPE PLUG
1/2 × 5" LG. NIPPLE
SEALED BY LOCTITE #HVV
S.S.S. CUP PT. 3/8-16 × 3/8 LG.
5/16 SQ × 2 3/8 LG
60HZ B-84837 MOTOR PULLEY
50HZ 107046
BED, FEEDBOX & HEADSTOCK END
B-84863
SKF 6006-2RS
TRUARC #5100-118
L.S. REVERSE CONTROL ROD
R.H. THREADS
L.H. THREADS
LINCOLN KLEENSEAL #5042 (1/4-28)
B-84852
BED & SPINDLE
BASE
SECTION A-A
(FOR CHANGE GEAR BKT ASSY SEE D-85151)
REV A FIRST USED S/N 10122
WAS DENISON SWITCH
SOME PULLEYS ADDED
WAS A-32712
FILL PIPE WAS 1/2" PIPE
STANDARD-MODERN TOOL COMPANY LIMITED
TORONTO, CANADA
L.S.
A.P.
3-70
FULL
END GEAR TRAIN & LEAD/SCREW REVERSE FINAL ASSEMBLY
1640, 1660 & 1680 LATHES
E-84807


HEX HEAD CAP SCR 3/8-16NC x 3/4 LG (4) REQ'D
1/2 WESPO WASHER #6002 1 REQ'D
1/2-13 HEAVY HEX NUT
SPECIAL EYE BOLT A-84571
FLAT WASHER 3/8 2 REQ'D
HEX HD CAP SCR 3/8-16 x 1 1/4 LG 2 REQ'D
SUPPORT BRACKET C-84588
SOC HD CAP SCR 1/4-20 x 1" LG 4 REQ'D
SEE * BELOW
MAX. 10° TYP.
COVER PLATE #B-84564 NOT SHOWN IN THIS VIEW
6"
12" TOTAL STROKE
NOTE: RE FITTING OF GRADUATED PLATES.
PIVOT BOLT A-84568 2 REQ'D
NYLOK HEX NUT
TORRINGTON THRUST RACE
HUGLOCK NUT
TORRINGTON THRUST RACE
BRACKET A-84560
TORRINGTON ROLLER BRG #NTA-1018 2 REQ'D
TORRINGTON THRUST RACE
COVER PLATE B-84564
T.T. HOUSING
CROSS FEED SCREW B-84570
CROSS FEED SHAFT & BUSHING S/ASSY B-84572
REF SHAFT B-84573 SPLINED BUSHING A-33316
SLIDER B-84559
BUTTON HD SOC CAP SCR #10-32 NF x 1/2 LG 8 REQ'D
SLIDING BLOCK C-84557
SLIDE PLATE C-84561
GUIDE BLOCK B-84561 - 4 REQ'D
FELT WIPER A-84562 - 4 REQ'D
GITS OILER #521 STYLE GB - 4 REQ'D
GITS ELBOW OIL CUP #01221 STYLE L
SOC HD CAP SCR 5/16-18NC x 2 LG 16 REQ'D
BRIDGE BAR B-84563
SET DOWEL TO ABOVE DIM WHEN PRESSED INTO SLIDER B-84559
DOWEL 1/4 DIA x 3/4 LG - 2 REQ'D
GIB PLATE A-84828
SECTION A-A
BLOCK B-84558
SOC SET SCR - CUP POINT 5/16-18NC x 1/2 LG
REAR SHAFT A-84569
SPACER BLOCK A-84565 2 REQ'D
CLAMPING BLOCK B-84566 2 REQ'D
GRADUATED 4-TAPER PER DEGREE B-84576
SOC HD CAP SCR 3/8-16NC x 2 LG - 4 REQ'D
SLIDE BAR C-84574
DOWEL 3/8 DIA x 1 1/2 LG 2 REQ'D
HEX HD CAP SCR 3/8-16NC x 1 1/2 LG 4 REQ'D
GRADUATED PLATE (TAPER PER FOOT) B-84577 REF
GRADUATED PLATE B-84578
RUBBER GROMMET
BUTTON HD S.C.S.
SPRING LOCK WASHER
SHAFT SUPPORT PLATE A-84575
FLAT WASHER
A
VIEW LOOKING FROM THE REAR OF TELESCOPIC TAPER TURNING ATTACHMENT
TAPER TURNING ATTACHMENT ASSEMBLY 12 INCH STROKE
1640, 1660 & 1680 LATHES
FULL
E-84305


BELT GUARD
D-84835
BELT GUARD LOCK
B-84845
FOR PEDESTALS
FOR LOCKING CARRIAGE WHEN CROSS FEED IN OPERATION
LEADSCREW
REVERSE CONTROL
(FOR 'ON SPOT' MAINTENANCE)
40¾ (1035) STD
108
(2745)
55
(1397)
60
(1524)
APRON ASSY.
D-83190
END GEAR TRAIN
E-84507
V-BELT, GATES
3VX400
(SET OF 3)
HEADSTOCK ASSY
D-84301
INCH-METRIC FEEDBOX ASSY
D-84302
STANDARD-MODERN
SM
CONTROL HUB
HARDENED BEDWAYS
A-41519
NAMEPLATE
VERT. NAMEPLATE
FEED SHAFT
MOTOR PULLEY
MOTOR MOUNTING ASSY
D-84582
GRAY MILLS
10 GAL. TANK
COOLANT STAND PIPE
D-84508
TELESCOPIC TAPER ATTACHMENT E-84305
(OPTIONAL)
SPLASH GUARD
APRON ASSY
D-83190
L.&R. CONTROL ROD
MOTOR CONTROL SHAFT
BED
D-85030-60"
BASE
D-84311-60"
FLOOR LEVEL
51½
(1308)
44¼
(1124)
103½
(2630)
48½
(1232)
NOTES: - APPROXIMATE WEIGHT 3.000 LBS.
- DIMENSIONS IN BRACKETS ARE ON mm
Note
MODEL 1660 LATHE SHOWN
STANDARD-MODERN TOOL COMPANY LIMITED
TORONTO, CANADA
GENERAL ASSEMBLY
1660 LATHE
LUBE NAMEPLATE
106832