

SLIDING BED GAP, FLOOR MOUNTED ENGINE LATHE
20 INCH SWING (CLOSED GAP), 36 INCH SWING THROUGH GAP

NSN: 3416-00-725-3508

MODEL NO. 20/36 c 54

CATALOG NO: 52317

CONTRACT NO: DAAE20-02-C-0012

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OPERATORS HANDBOOK

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SPECIFICATIONS

MACHINE	Swing over Bed and Saddle	20 in.
	Swing through gap	36 in.
	Swing over Cross Slide	12 in.
	Distance between centers (closed)	31 in.
	Distance between centers (open)	54 in.
	Main drive motor	7-1/2 H.P.
	Bar capacity	2 in.

HEADSTOCK	Spindle speeds	18
	Speed range	17 - 1000 RPM
	Geared head	
	Spindle nose - camlock	D1-6 in.
	Spindle hole	2.06 in.
	Spindle center	#4 MT

FEEDBOX	Inch Feed range	.0015-.105 in/rev
	Inch thread range	2-127 T.P.I.
	Metric feed range	.04-2.67 mm/rev
	Metric thread range	.2-14mm lead

APRON	Double wall construction	
	Half-nuts	Double

CARRIAGE CROSS SLIDE	Carriage length on bed	21 in.
	Carriage bridge width	10 in.
	Cross slide length	30-1/2 in.
	Cross slide travel	15 in.
	Compound travel	5 in.
	Dial graduations	.001 in. & .02mm

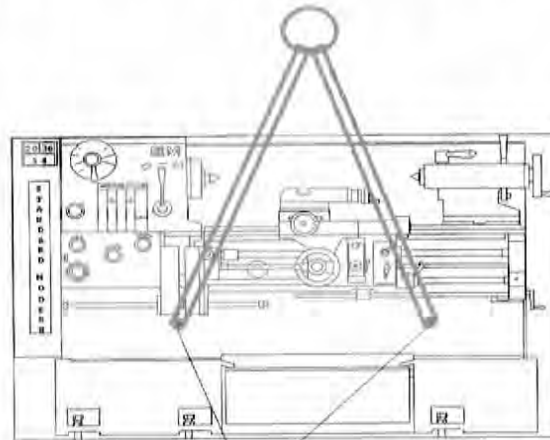
TAILSTOCK	Spindle diameter	2.937 in.
	Spindle travel	7 in.
	Morse taper with tang drive	#4 MT
	Setover	± .75 in.

OTHER	Steady rest capacity	1/2-6 in.
	Taper turning attachment	16" x ±10deg.

1. LIFTING AND INSTALLATION INSTRUCTIONS

1.1 Lifting the machine

To lift the machine using chain slings, put the slings around 1-1/2" Dia. lifting bars placed in the holes provided for that purpose in the fixed bed as shown below. Protect the painted surfaces with thick pads and wooden blocks.



1-1/2" Lifting bars

Do not attempt to lift this machine with a hoist having less than four tons capacity. The shipping weight of the machine is 6500 lbs.

Do not remove skids from the machine until it is brought to its final position.

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.

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 the 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

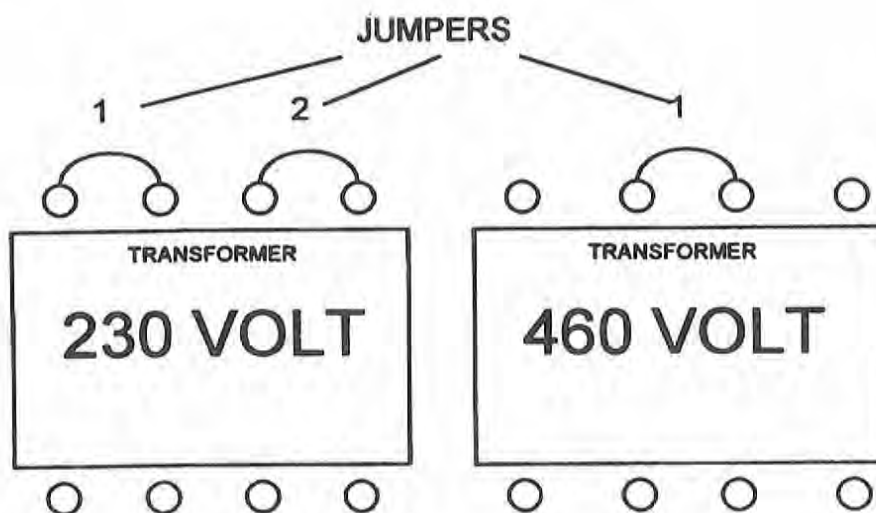
1.4 Installation

For proper operation, the machine should be set on a substantial floor capable of supporting a uniform pressure of 30 P.S.I.. To secure the machine on its foundation, use anchor bolts or lag screws as shown on floor plan. (see page 4)

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



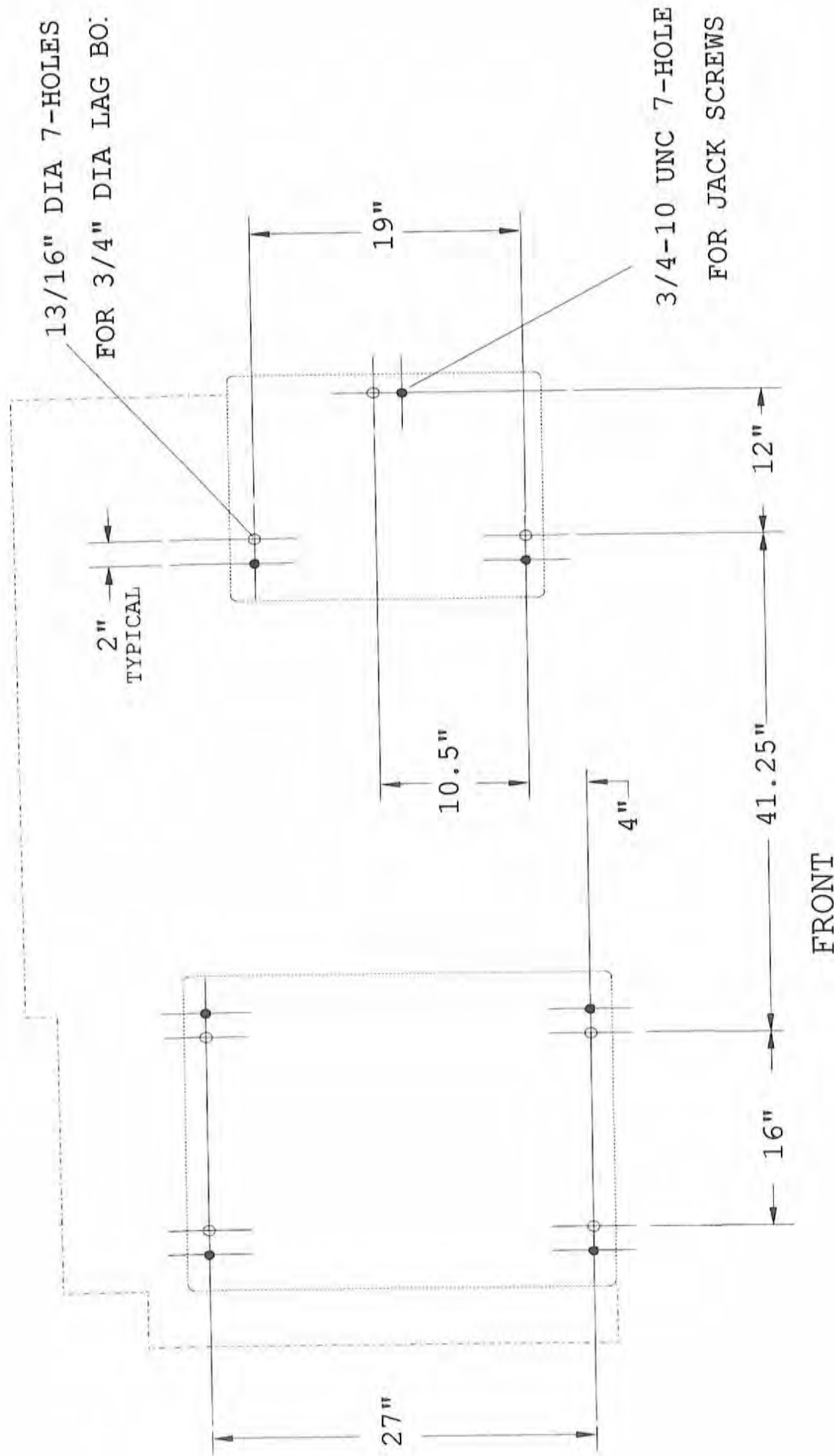
TO CHANGE OPERATING VOLTAGE FROM 230 VOLT TO 460 VOLT

1. Change motor leads as shown on motor nameplate.
2. Move jumper number 1 from 230 volts position to 460 volts position as shown on diagram above.
3. Remove jumper number 2 and set aside for future reconnection if required.
4. Replace overload relay block with alternative block supplied. 230V - T25DU25
460V – TA25DU11
5. Change nameplate to reflect correct voltage.
6. Change fuses. 30A for 230V
20A for 460V

LIST OF ITEMS SHOWN ON ELECTRICAL DRAWINGS

Page

I.D.NUMBER	MANUFACTURER	PART NUMBER	NOMENCLATURE	QTY
OT45E3	ABB	OT45E3	Disconnect	1
A40-30-10	ABB	A40-30-10	Contactor	2
4DC-1602	OMRON	4DC-1602	Interlock, belt guard	1
H162006	BEL	H162006	Enclosure 16 x 20 x 6	1
BSW-108HA	GRAYMILLS	BSW-108HA	Coolant pump	1
G2R-1-S	OMRON	G2R-1-S	V V R relay	1
P2RF-05-E	OMRON	P2RF-05-E	Socket	1
	BROOK-HANSEN		Motor. 7½ HP	1
MO500E	MARCUS	MO500E	Transformer 500va	1
CW10-82	OHMITE	CW10-82	Resistor	1
WK4/V/VO	WIELAND	WK4/V/VO	Terminal	17
VB 1HK 4M	WIELAND	VB 1HK 4M	Jumpers	5
1HK4	WIELAND	1HK4	End section	1
ZCKJ404H7	TELE.	ZCKJ404H7	Forward/reverse switch	1
ZCK-Y11	TELE.	ZCK-Y11	Actuator	1
FB650	WARNER	FB650	Fail safe brake	1
CBG-PMP40R	ABB	CBG-PMP40R	E-stop	1
CBK-CB01	ABB	CBK-CB01	NC contact block	1
CBK-2BMK10	ABB	CBK-2BMK10	2 position switch	1
S271-K1	ABB	S271-K1	1 amp breaker	2
S271-K3	ABB	S271-K3	3 amp breaker	1
S271-K0.5	ABB	S271-K0.5	.5 amp breaker	1
TA25DU25	ABB	TA25DU25	25A overload	1
TA25DU11	ABB	TA25DU11	11A overload	1
7594NP	BRYANT	7594NP	Locking receptacle	3
60306J	GOULD	60306J	30A Fuse block	3
AJT20	GOULD	AJT20	20A Fuse	3
AJT30	GOULD	AJT30	30A Fuse	3



FLOOR BOLT PLAN

2. LUBRICATION

OIL: SUNOCO Way Lube 80 or equivalent.
 GREASE: Lithium base with or without E.P. additives.

MIL - G - 10924C

MIL - G - 46006

EVERY SIX MONTHS - Change oil

Headstock	15 quarts
Feedbox	3 quarts
Apron	1 quart
Feed drive gearbox	1/8 pint

EVERY MONTH - Lightly oil

Lead screw reverse linkage pivot.

EVERY MONTH - Grease

Apron controls	2 Fittings
Lead screw reverse cam	1 Fitting

EVERY 8 WORKING HOURS - Top up with oil

Apron	Oil sump
Compound	1 pipe plug & 1 oiler
Cross slide nut & bearing	2 Oilers
Taper attachment	1 Cup & 4 Oilers
Tail stock	2 Oilers

EVERY 8 WORKING HOURS - Grease

End bracket	3 Fittings
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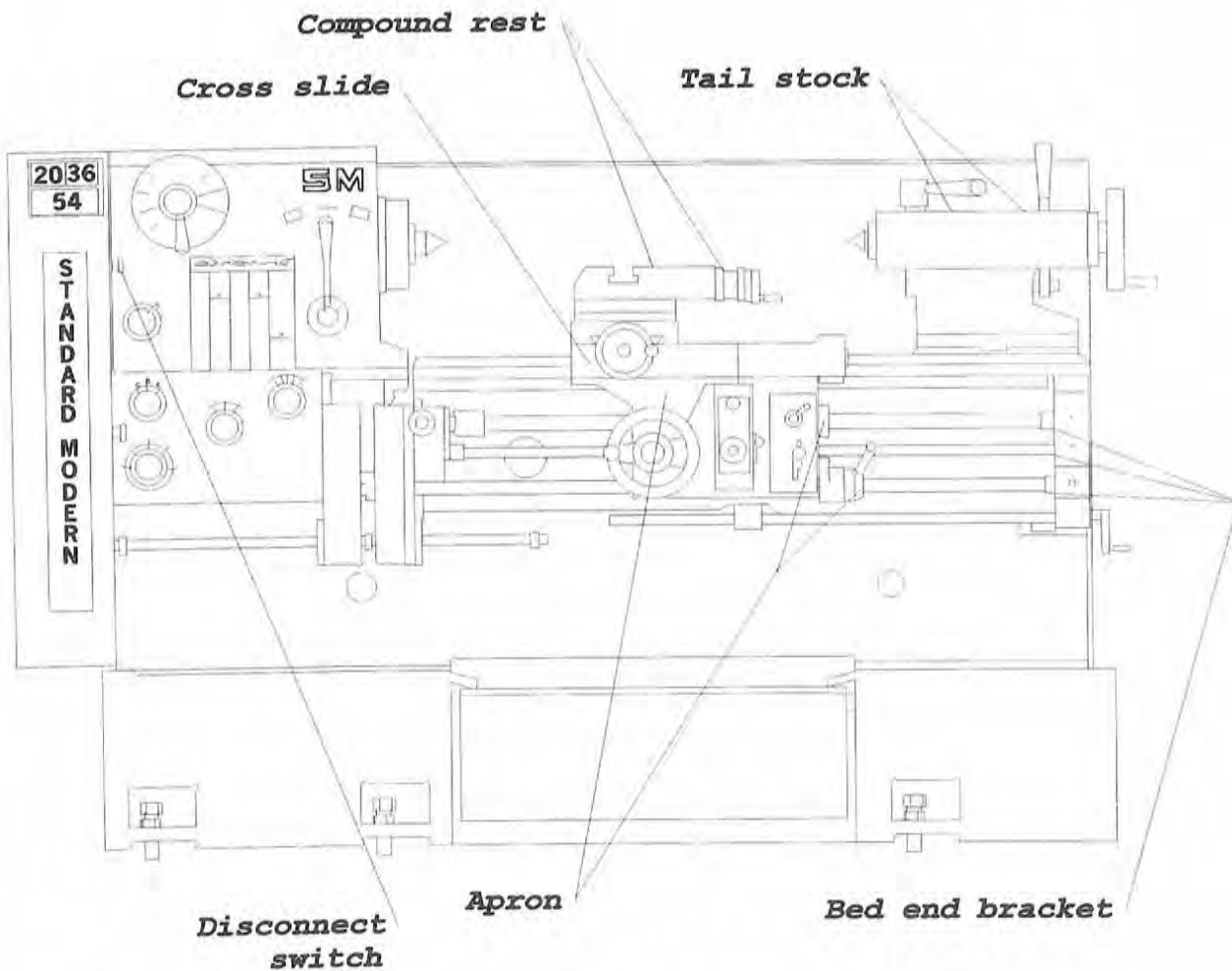
2.1 General

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. LUBRICATION cont'd



NOTE

Always turn the main disconnect switch OFF before opening the belt guard.

Access to the following require the belt guard to be opened.

Headstock filler.
Feedbox filler.
Leadscrew reverse cam.
Leadscrew reverse linkage pivot.

1-1/2" Pipe plug.
1/2" Pipe plug.
Grease fitting & track.
Oil.

2. LUBRICATION cont'd

2.2 End Gear Train

Oil idler gear teeth daily

2.3 Apron

The oil level should be checked and replenished daily as the automatic lubrication system draws its oil from this reservoir in order to lubricate the saddle and cross slide.

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

One grease nipple located on the right hand end face 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 two oilers located on top of the spindle housing. The bed ways on which the tailstock slides should be cleaned and oiled frequently.

2.5 Compound rest

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 automatic lubrication system 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 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 automatic 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.

LUBRICATION cont'd

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 and Leadscrew Reverse Shaft and Trip Cam.

Grease the ends of the Leadscrew and Feedshaft every 8 working hours. The ends of the Control Shaft and Leadscrew Reverse Shaft require grease once a month, as indicated on Lubrication Plate.

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

2.9 Leadscrew reverse linkage

The leadscrew reverse linkage and cam are serviced after turning the main disconnect switch OFF and opening 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.

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.

2.1 Machine use

- Ensure that the operator has had suitable training and possesses the required degree of skill and experience to undertake the work.
- Provide suitable work holding and/or supporting equipment i.e. chucks, revolving centers, steady rests etc.
- Ensure that suitable tooling is provided and correctly mounted.
- Ensure that suitable feeds and speeds are selected.
(if in doubt, select low)
- Provide and use suitable workplace guards.

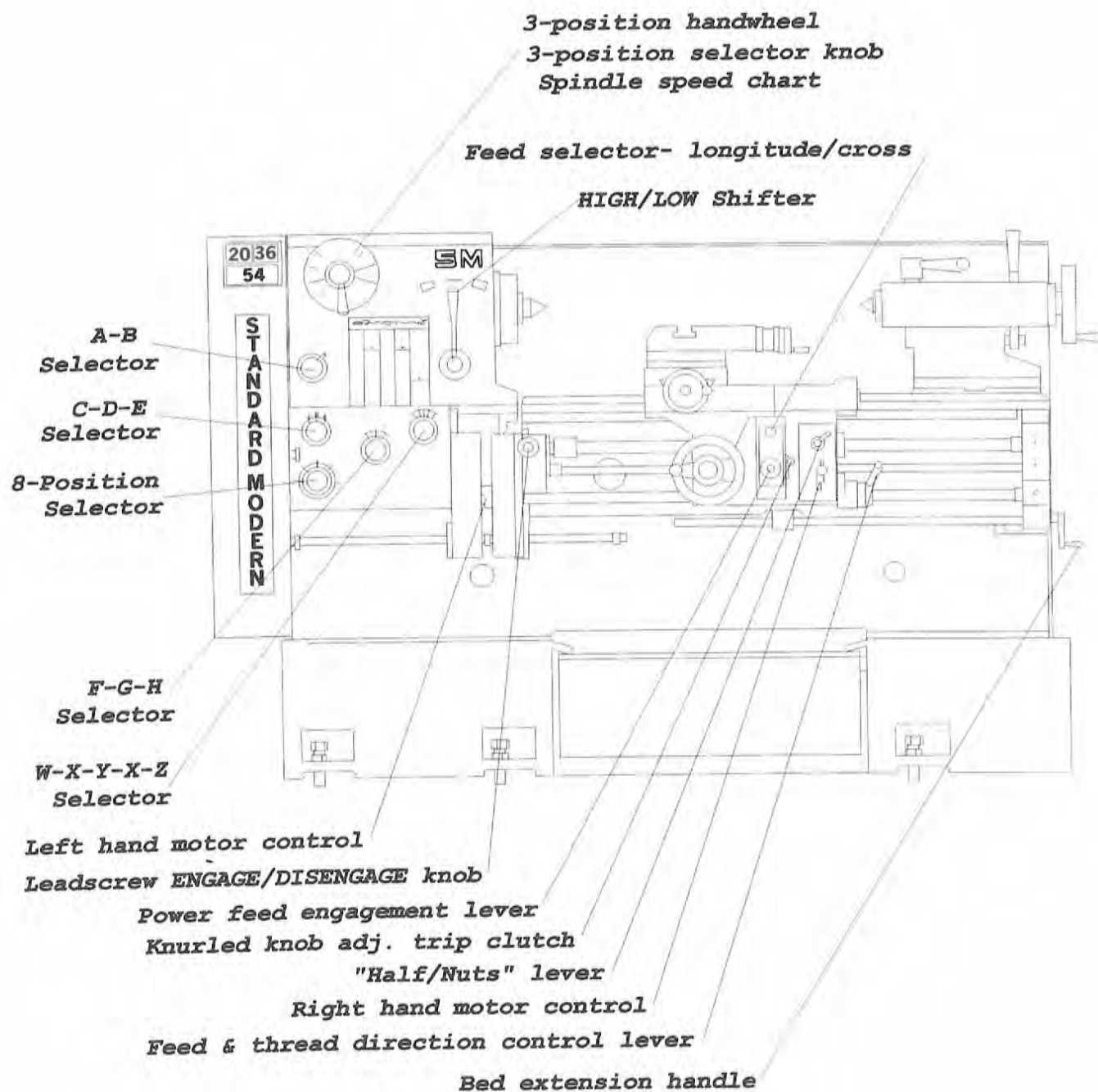
3.2 Lathe safety rules

- Read and understand operation notes before attempting to use machine.
- Keep lathe work areas clean.
- Keep area surrounding machine tidy.
- KNOW HOW TO STOP THE MACHINE BEFORE STARTING IT.
- Do not interchange chucks or other spindle mounted items between lathes without checking for correct locking.
- We recommend only high speed chucks.
- Before operating the lathe, not the maximum rated speed for chucks and face plates as supplied by the manufacturer.
- **REMOVE CHUCK KEY IMMEDIATELY AFTER USE.**
- Check load capacity of revolving centers.
- Ensure guards are in position before starting machine.
- DO NOT use cracked or chipped tools.
- Before starting, check:
 - Spindle speed and feed rate selected
 - Feed and thread cutting levers are disengaged
- STOP MACHINE IMMEDIATELY IF ANYTHING UNEXPECTED HAPPENS
- Do not use coarse feed range on high spindle speeds.
- Do not change spindle speeds when spindle is rotating.
- Do not touch revolving chuck, spindle or workpiece.
- Do not remove work from the machine without retracting the tool to a safe position.
- Stop motors and push in red safety stop switch when leaving machine unattended.

3.3 Personal Safety Rules

- Report any accident as soon as it happens.
- Wear safety glasses.
- Wear safety shoes.
- Use barrier creams provided.
- Wear your overalls buttoned up.
- Roll sleeves up or button the cuffs.
- Keep hair short or wear a cap.
- Use the correct size wrench at all times.
- Be careful of, and remove all burrs and sharp edges.
- When lifting a heavy workpiece, use the correct type of sling, ensuring that it is not worn or damaged and that it's safe working load is not exceeded.
- Stand clear when lifting workpieces or equipment by crane.
- Obtain assistance when mounting heavy or awkwardly shaped workpieces.
- Do not wear rings, watches, ties etc.
- Do not keep tools (scribers etc.) in overall pockets.
- Do not remove guards unless machine is stationary.
- Do not wash hands in coolant.
- Do not remove chips with bare hands. Use a rake or brush.
- Do not manually lift heavy equipment.
- Do not use files, scrapers, etc. on machine tools.
- Do not lean on machine.
- Do not tamper with electrical equipment.

BASIC OPERATING CONTROLS



4. OPERATING INSTRUCTIONS

4.1 Motor and Spindle Control

The spindle motor is controlled by means of the RIGHT HAND MOTOR CONTROL lever mounted on the apron. Lift up for FORWARD rotation, centralize for STOP and push down for REVERSE rotation.

4.2 Spindle Speed Selection

LOW RANGE:		17	22	28		35	45	60		75	93	120	
HIGH RANGE:		150	190	240		305	390	495		630	800	1000	

The desired spindle speed range is obtained by moving the HIGH/LOW SHIFTER. Refer to the direct reading SPINDLE SPEED CHART attached to the 3-POSITION HANDWHEEL. Any spindle speed may be selected using the 3-POSITION HANDWHEEL and the 3-POSITION SELECTOR KNOB.

For free hand rotation of the spindle, move the HIGH-LOW SHIFTER lever to its mid-position.

To assist speed changing, the LEFT HAND MOTOR CONTROL lever is provided. This lever is used to jog the spindle motor and can only cause the spindle to stop or run forwards.

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 faceplate above 390 rpm.

4.3 Power Feeds

The automatic trip clutch pre-load may be adjusted by means of the KNURLED KNOB located on the apron next to the POWER FEED ENGAGEMENT LEVER. Turn clockwise to increase feed torque.

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 the power longitudinal or power cross feed, arrange the A-B SELECTOR knob on the headstock and the C-D-E SELECTOR, F-G-H SELECTOR, W-X-Y-X-Z SELECTOR and 8-POSITION SELECTOR knobs on the feedbox to correspond with the desired feed rate required. Available feed rates and threads are shown on the front nameplate mounted on the headstock and on the auxiliary nameplate mounted on the belt guard.

(REFER TO PAGE 17 FOR LIST OF FEEDS)

(REFER TO PAGE 18 FOR LIST OF THREADS)

To select neutral, set W-X-Y-X-Z SELECTOR to X.

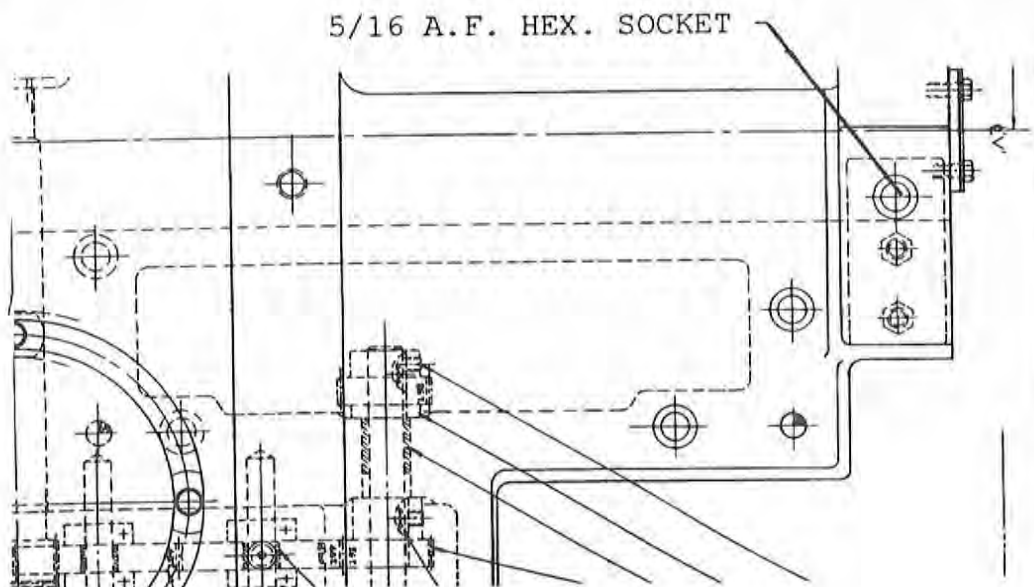
CAUTION: Do not use the coarse range of feeds when spindle speeds are above 495 R.P.M.

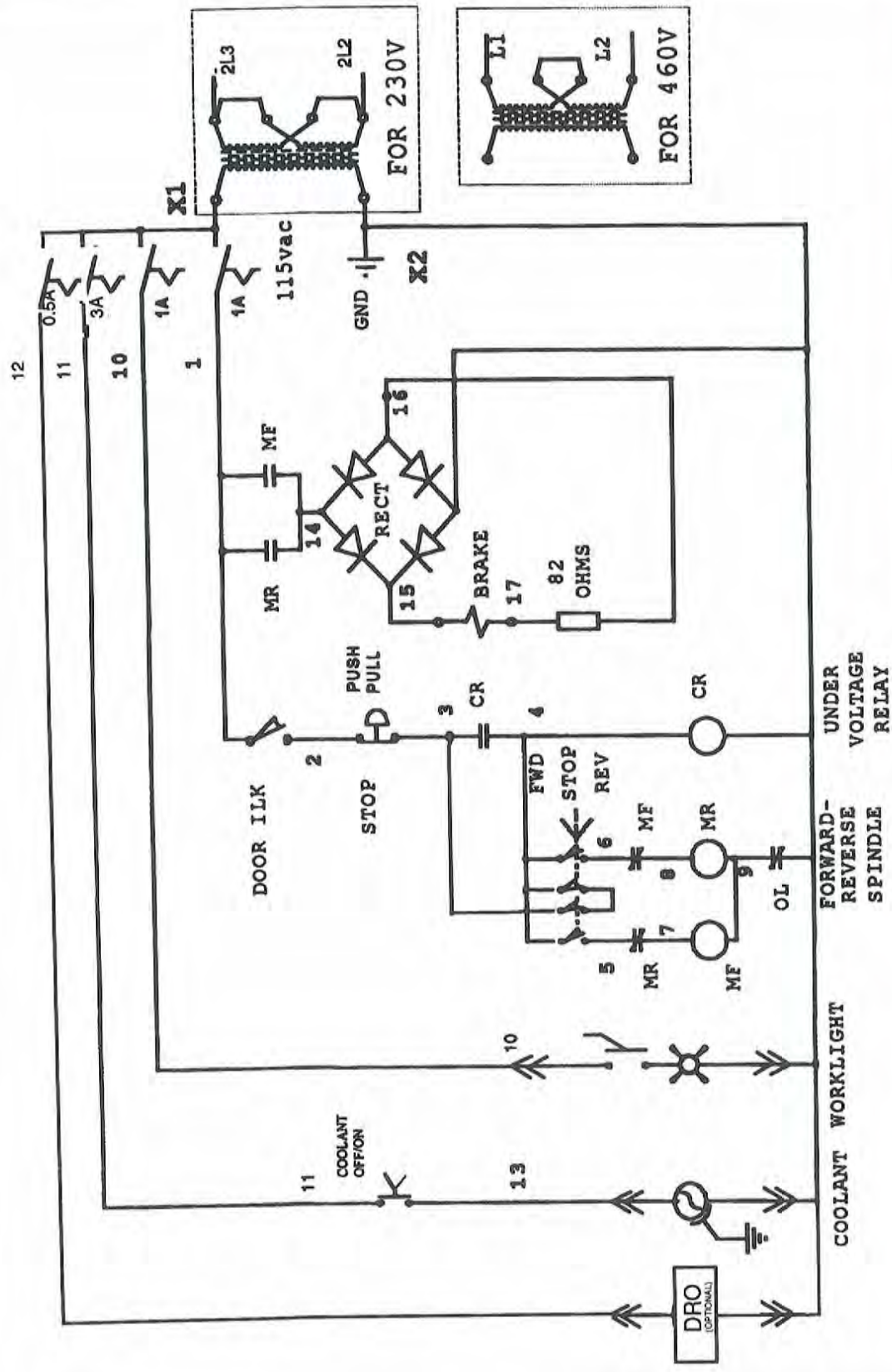
Push the FEED SELECTOR black ball handle (located on the front of the apron) in for longitudinal feeds or pull out for cross feeds.

Select "L.H." longitudinal feed and "OUT" cross feed or "R.H." longitudinal feed and "IN" cross feed using the FEED & THREAD DIRECTION CONTROL LEVER, situated on the right hand side of the apron.

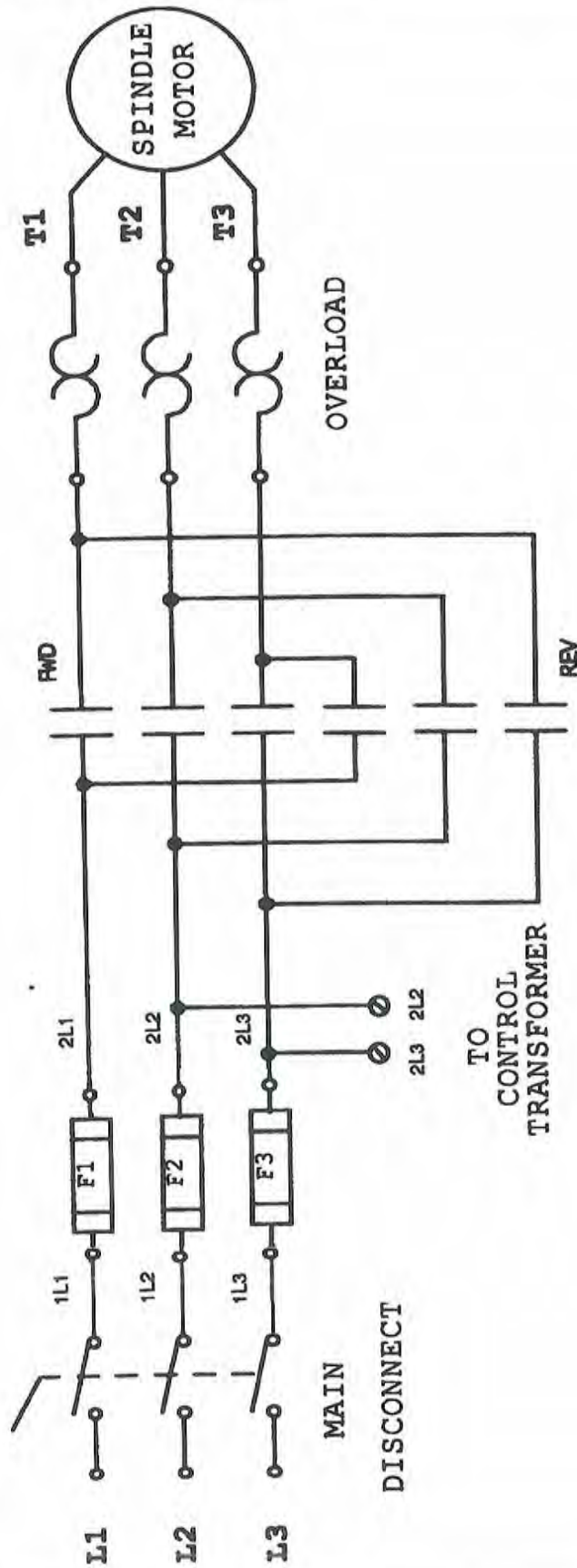
To engage power feed, lift the POWER FEED ENGAGEMENT LEVER. Power feed may be engaged when the spindle is running.

Provision is made for locking the saddle during facing as shown below :-





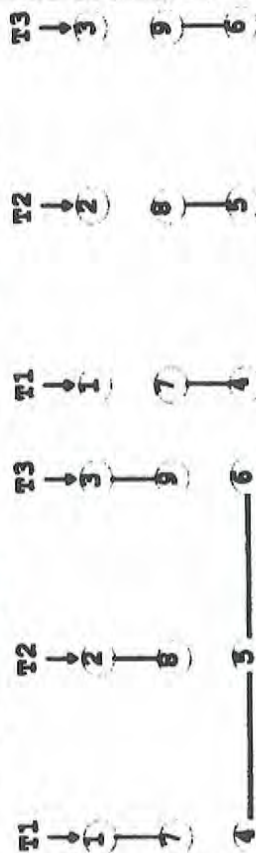
STANDARD-MODERN LATHES INC.		SLIDING BED GAP		BY PEM	SHT 1	4
		CONTROL CIRCUIT		DATE 7/93	NO. A-115850	



MOTOR WIRING

230 VOLT

460 VOLT



STANDARD-MODERN LATHES INC.

SLIDING BED GAP

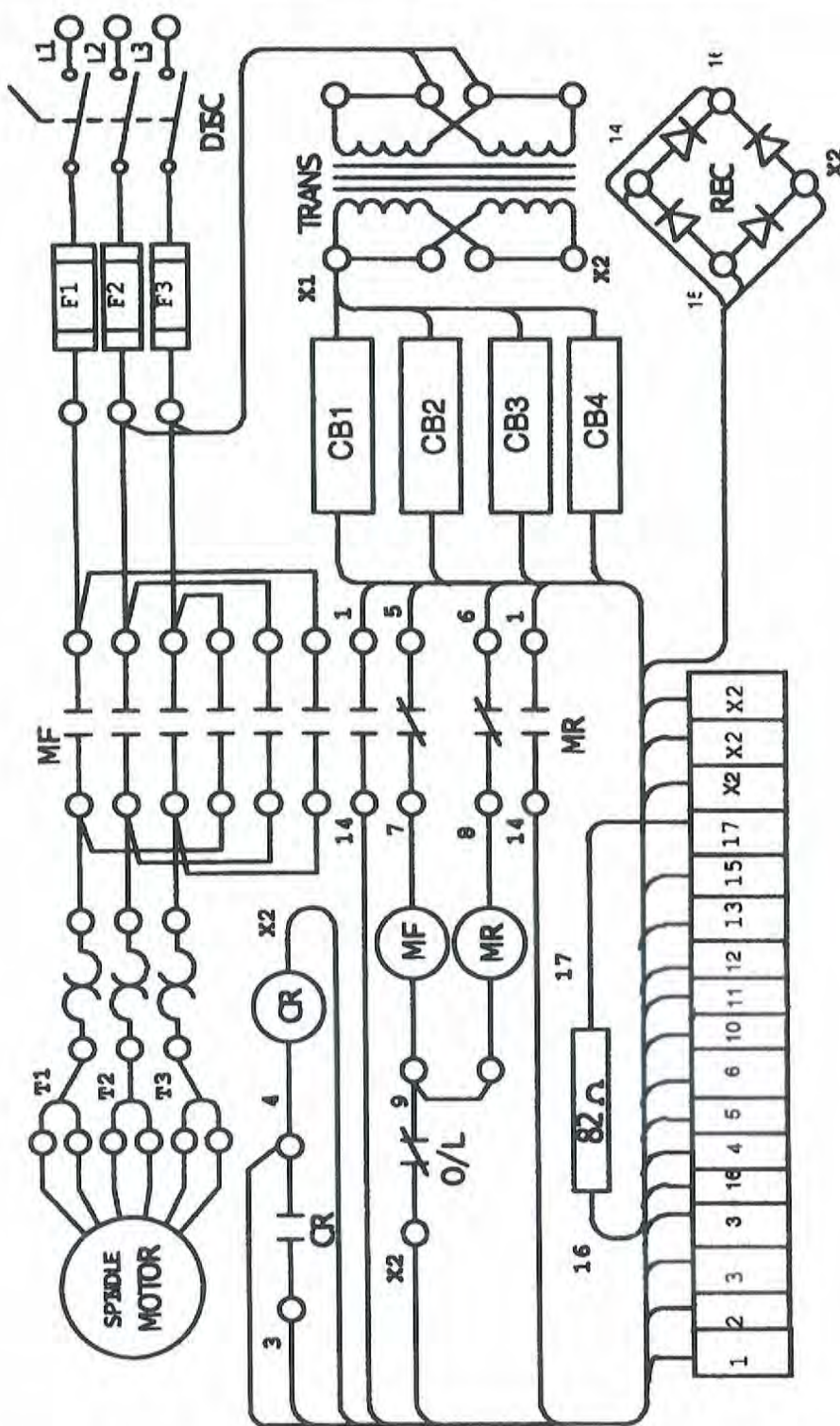
MOTOR WIRING

BY PEM

DATE 7/93

SHEET 2 4

NO. A-115850



STANDARD-MODERN LATHES INC.		SLIDING BED GAP		BY PEM	3	4
		CONTROL LAYOUT		DATE	7/93	NO. A-115850

THREADS PER INCH				mm PITCH			
A		B		A		B	
127	EH1W	7 1/2	CF3Z	.2	EH1W	4.0	DF1W
84	CG7Z	7 1/8	DH1Z	.225	EH2W	4.4	EG8W
78	CG6Z	7	CF7Y	.25	EH3W	4.5	DF2W
72	CG5Z	6 1/2	CF6Y	.275	EH8W	4.6	EG4W
69	CG4Z	6	CF5Y	.2875	EH4W	4.75	CG7W
66	CG8Z	5 3/4	CF4Y	.3	EH5W	4.8	EG5W
60	CG3Z	5 1/2	CF8Y	.325	EH6W	5.0	DF3W
56	CG7Y	5 1/4	CH7Z	.35	EH7W	5.5	DF8W
54	CG2Z	5	CF3Y	.4	EF1W	5.75	DF4W
52	CG6Y	4 3/4	DH1Y	.45	EF2W	6.0	DF5W
48	CG5Y	4 1/2	CF2Y	.5	EF3W	6.5	DF6W
46	CG4Y	4 1/8	CH8Z	.55	EF8W	7.0	DF7W
44	CG8Y	4	CF1Y	.575	EF4W	8.0	DG1W
42	CF7Z	3 3/4	CH3Z	.6	EF5W	9.0	DG2W
40	CG3Y	3 1/2	CH7Y	.625	DH3W	10.0	DG3W
39	CF6Z	3 3/8	CH2Z	.65	EF6W	11.0	DG8W
36	CG2Y	3 1/4	CH6Y	.6875	DH8W	11.5	DG4W
33	CF8Z	3	CH5Y	.7	EF7W	12.0	DG5W
32	CG1Y	2 7/8	CH4Y	.71875	DH4W	12.7	CH1Y
34 1/2	CF4Z	2 3/4	CH8Y	.75	DH5W	13.0	DG6W
30	CF3Z	2 1/2	CH3Y	.8	EG1W	14.0	DG7W
28	CF7Y	2 1/4	CH2Y	.8125	DH6W		
27	CF2Z	2	CH1Y	.875	DH7W		
26	CF6Y			.9	EG2W		
24	CF5Y			1.0	DF1W		
23	CF4Y			1.1	EG8W		
22	CF8Y			1.125	DF2W		
21	CH7Z			1.1875	CG7W		
20	CF3Y			1.2	EG5W		
19	DF8Y			1.25	DF3W		
18	CF2Y			1.3	EG6W		
16 1/2	CH8Z			1.375	DF8W		
16	CF1Y			1.4	EG7W		
15	CH3Z			1.4375	DF4W		
14	CH7Y			1.5	DF5W		
13 1/2	CH2Z			1.625	DF6W		
13	CH6Y			1.75	DF7W		
12	CH5Y			2.0	DG1W		
11 1/2	CH4Y			2.25	DG2W		
11	CH8Y			2.5	DG3W		
10	CH3Y			2.75	DG8W		
9	CH2Y			2.875	DG4W		
8	CH1Y			3.0	DG5W		
				3.25	DG6W		
				3.5	DG7W		

FEED PER REV.					
Inch mm			Inch mm		
A (Fine)			B (Coarse)		
.0015	EH1W	.04	.027	EG2W	.69
.0017	EH2W	.045	.030	DF1W	.76
.002	EH3W	.05	.033	EG8W	.84
.0021	EH8W	.053	.034	DF2W	.86
.0022	EH4W	.055	.035	EG4W	.89
.0023	EH5W	.058	.037	EG5W	.93
.0025	EH6W	.06	.038	DF3W	.97
.0027	EH7W	.07	.039	EG6W	1.00
.003	EF1W	.08	.042	DF8W	1.07
.0034	EF2W	.085	.043	EG7W	1.09
.0038	DH1W	.095	.044	DF4W	1.12
.004	EF3W	.10	.046	DF5W	1.15
.0041	EF8W	.104	.049	DF6W	1.24
.0042	DH2W	.107	.053	DF7W	1.35
.0044	EF4W	.110	.060	DG1W	1.55
.0046	EF5W	.115	.068	DG2W	1.73
.005	EF6W	.125	.076	DG3W	1.91
.0052	DH8W	.13	.083	DG8W	2.10
.0053	EF7W	.135	.087	DG4W	2.22
.0055	DH4W	.14	.091	DG5W	2.30
.0057	DH5W	.145	.098	DG6W	2.48
.006	EG1W	.15	.105	DG7W	2.67
.0062	DH6W	.155			
.007	EG2W	.17			
.0075	DF1W	.19			
.0084	EG8W	.20			
.0086	DF2W	.217			
.0088	EG4W	.222			
.009	EG5W	.23			
.0095	DF3W	.24			
.0099	EG6W	.25			
.0106	EG7W	.26			
.011	DF8W	.27			
.0114	DF5W	.29			
.0124	DF6W	.31			
.013	DF7W	.34			
.015	DG1W	.38			
.017	DG2W	.43			
.019	DG3W	.48			
.021	DG8W	.53			
.022	DG4W	.55			
.0228	DG5W	.57			
.025	DG6W	.63			
.027	DG7W	.67			

4. OPERATING INSTRUCTIONS cont'd

4.4 Thread cutting

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

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

Set the LEADSCREW ENGAGE/DISENGAGE KNOB (located at the left hand end of the sliding bed) to the "ENGAGED" position.

The FEED & THREAD DIRECTION CONTROL LEVER must be moved :-

- UP for R.H. threads,
- DOWN for L.H. threads,
- CENTRAL to disengage the entire feed train.

Engage the HALF-NUTS when ready.

It is not necessary to disengage the HALF-NUTS during the threading operation, use the FEED & THREAD DIRECTION CONTROL LEVER. This will cause the tool to cut its own relief.

If the trip dogs are used, only run the spindle in the forward direction during threading. Cut R.H. threads towards the headstock & L.H. threads towards the tailstock.

Use the depth threading stop on the cross slide hand wheel to control the cross slide position and set the compound rest to an angle to suit the thread. Control the cutting depth using the compound rest. The lock is situated behind the lower part of the cross slide dial and is moved towards the operator to engage.

If preferred, the automatic disengaging feature of the cross slide hand wheel can be overridden by mounting a 1/4-20 unc x 1-1/2" long screw through the hole in the center of the hand wheel assembly.

It is recommended that the LEADSCREW ENGAGE/DISENGAGE KNOB be set to the "DISENGAGED" position when the leadscrew is not in use.

4. OPERATING INSTRUCTIONS cont'd

4.4 cont'd.

CAUTION: THREADING SPINDLE SPEED LIMIT IS 800 RPM.
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:

$$1) \quad \text{T.P.I.} \times 25 = \text{SAFE R.P.M.}$$

$$\text{e.g. } 20 \text{ T.P.I.} \times 25 = 500 \text{ R.P.M.}$$

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

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

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

4. OPERATING INSTRUCTIONS cont'd.

4.5 Face Plate Attachment

NOTE :- Maximum safe operating speed
for large face plate is 390 RPM.

4.6 Extension Rest

The extension rest is for turning awkwardly shaped parts which cannot be machined in a conventional manner. It is capable of spanning the fully opened gap. It also has a standard tee slot for the mounting of tool posts.

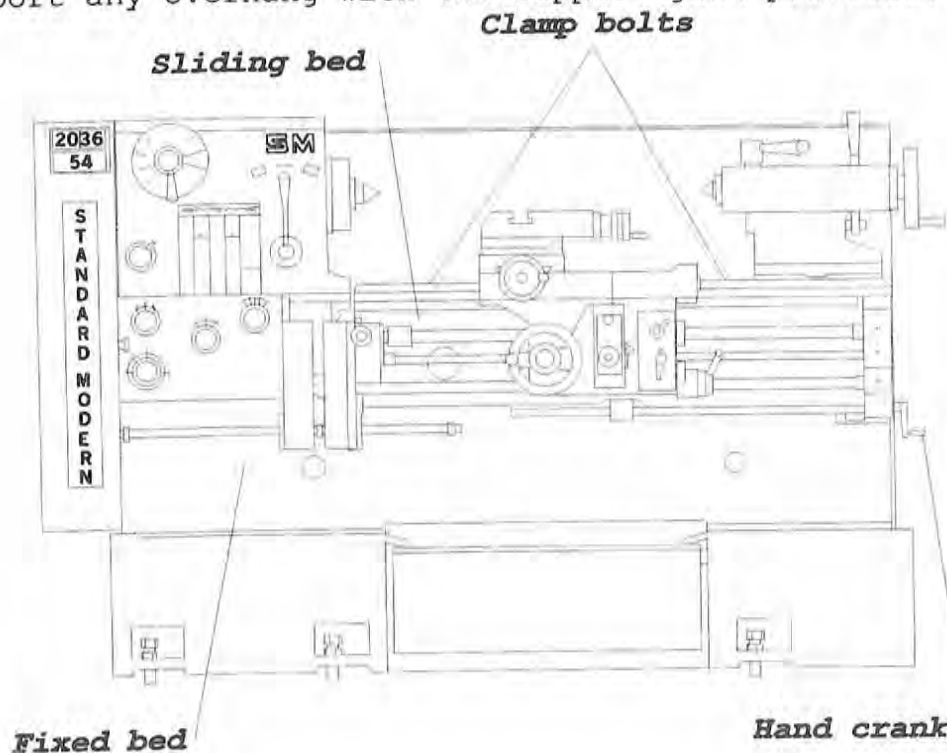
To use the extension rest, first remove the compound rest then mount the extension rest in its place.

4.7 Sliding Bed

The sliding bed of this lathe has a maximum travel of 23". In order to take full advantage of this feature, a distance of 23" must be made available at the tailstock end of the machine.

To set the gap, loosen the two clamp bolts inside the sliding bed, which are accessible from the top, then turn the handcrank, located at the right hand end of the sliding bed, until the desired gap is achieved. Tighten the two clamp bolts.

Support any overhang with the support jack provided.



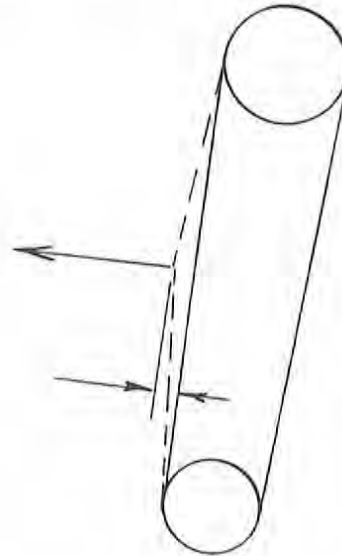
5. MAINTENANCE INSTRUCTIONS

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 5 lbs. with a spring scale to deflect the belt $1/2$ ".



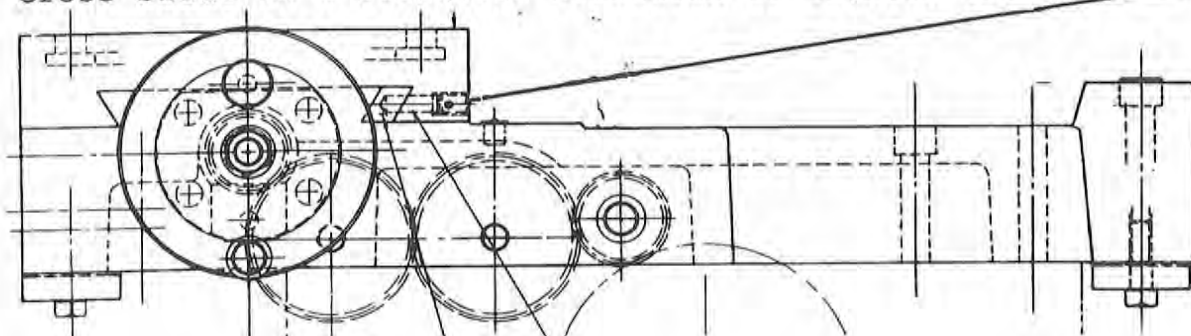
Check the tension frequently during the first day of operation and periodically thereafter. Keep pulleys and belts clean and free of any foreign material to ensure long life and better traction.

5. MAINTENANCE INSTRUCTIONS cont'd

5.2 Cross Slide Ways

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

Turn 5/16 - 18 Socket Set Screws located on R.H. side of the Cross Slide in a clockwise direction to tighten the Gib.



5.3 Cross Slide Nut

Provision is made for the elimination of backlash in the Cross Slide Nut follows:-

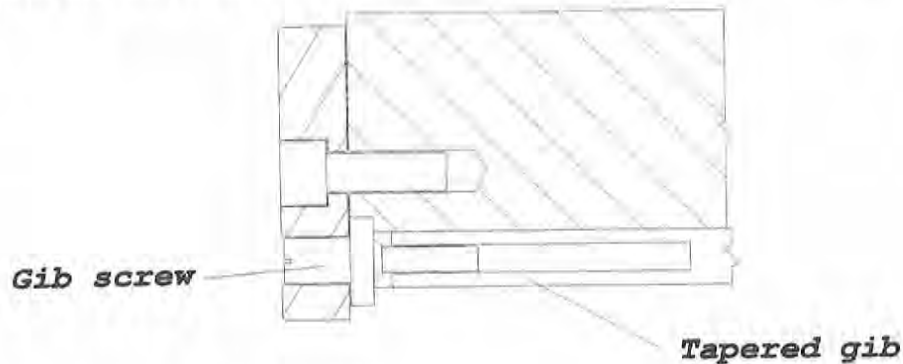
- (i) Move the CROSS SLIDE close to the center line of the lathe.
- (ii) Slacken ONLY the two 3/8 - 16 SOC. HD. CAP SCREWS shown. The CAPTIVE SPRINGS will take up the backlash automatically.
- (iii) Move the CROSS SLIDE back and forth over the full travel to be sure of an even action.
- (iv) Tighten the two 3/8 - 16 SOC. HD. CAP SCREWS.

5. MAINTENANCE INSTRUCTIONS cont'd

5.4 Compound Slide Ways

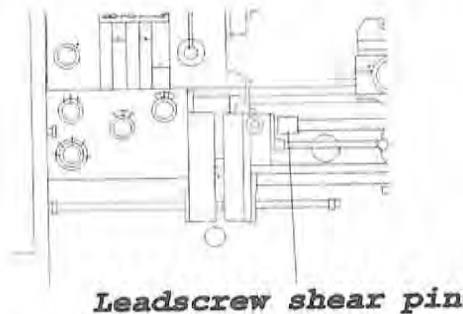
Wear in the Compound Slide Ways may be adjusted by means of the TAPERED GIB as follows:-

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 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

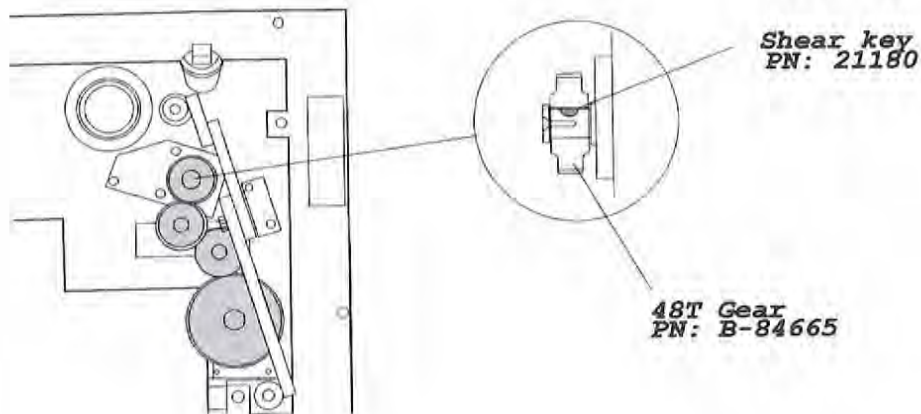


acts as a positive stop. When the stoppage takes place, the leadscrew continues to turn in the half nuts and will begin to move endwise thus shearing the pin.

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 #21180 drives the top gear of the end gear train (see below). It is provided to prevent damage to the feed gears if abnormally excessive loads are encountered.



A spare SHEAR KEY, provided with the machine, is readily fitted. First, remove the 48T gear, then remove the broken portion of the key using a small square nose chisel. Fit the new brass SHEAR KEY to the shaft and re-assemble the 48T gear. It is important, of course, to locate and remedy the cause of the excessive load.

5. MAINTENANCE INSTRUCTIONS cont'd.5.7 Trouble Shooting Chart

TROUBLE	PROBABLE CAUSE	CORRECTION
Vibration	Loose levelling screws	Set all screws so that they bear evenly on levelling plates.
	Torn or mismatched vee belts.	Replace vee 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. (See Page 28A)
	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.

TROUBLE	PROBABLE CAUSE	CORRECTION
Work not turned straight	Headstock and tailstock not aligned. Work improperly supported. Bed not level.	Align tailstock center Use steady rest or follow rest. Reduce overhang from chuck. Re-level bed using precision level.
Work out of round.	Work loose between centers. Centers excessively worn. Work centers out of round Loose headstock spindle bearings.	Adjust tailstock center. Regrind centers. Lap work centers. Adjust headstock spindle bearings. (See Page 27)
Cross slide or compound rest movement does not coincide with dial	Gib setting too tight or too loose. Work is too long and slender.	Adjust gibs. Use steady rest or follow rest.

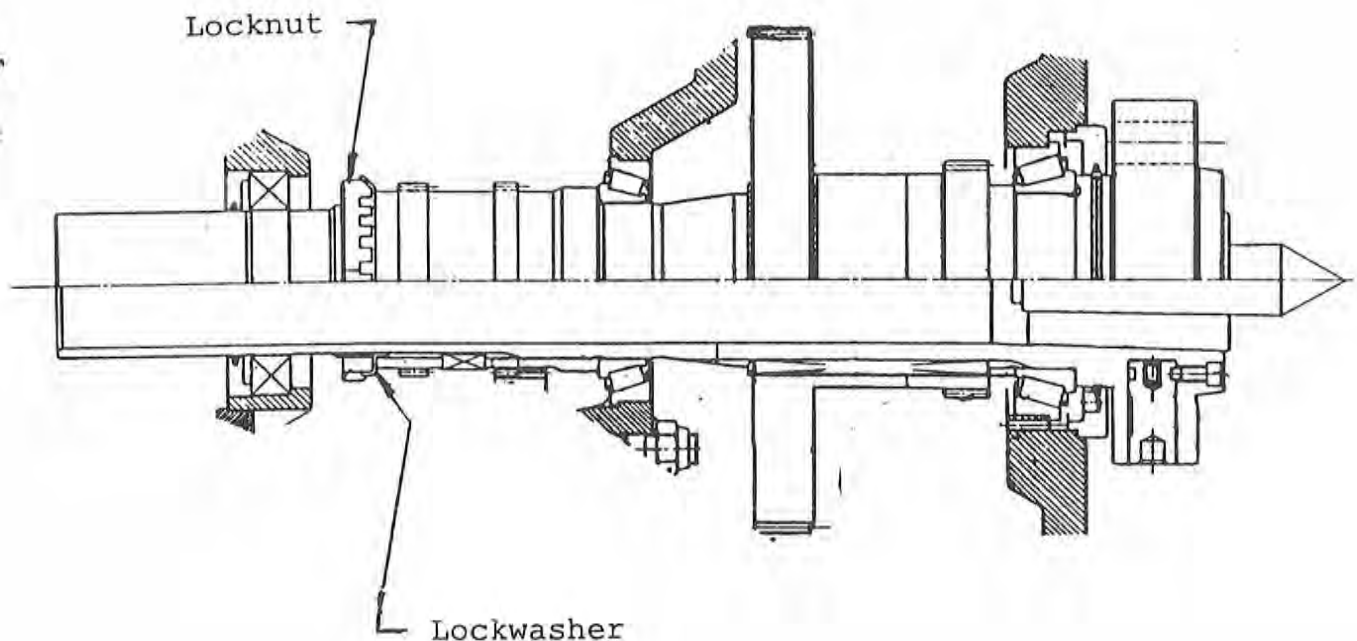
HEADSTOCK BEARING PRELOAD ADJUSTMENT

The correct preload is determined by the actual force required to turn the spindle in its' bearings when the spindle is in its' neutral position, i.e. with the HIGH-LOW shifter and LEADSCREW REVERSE in their respective neutral positions.

Preload torque :- 2 lbf/ft.

If an adjustment is required:-

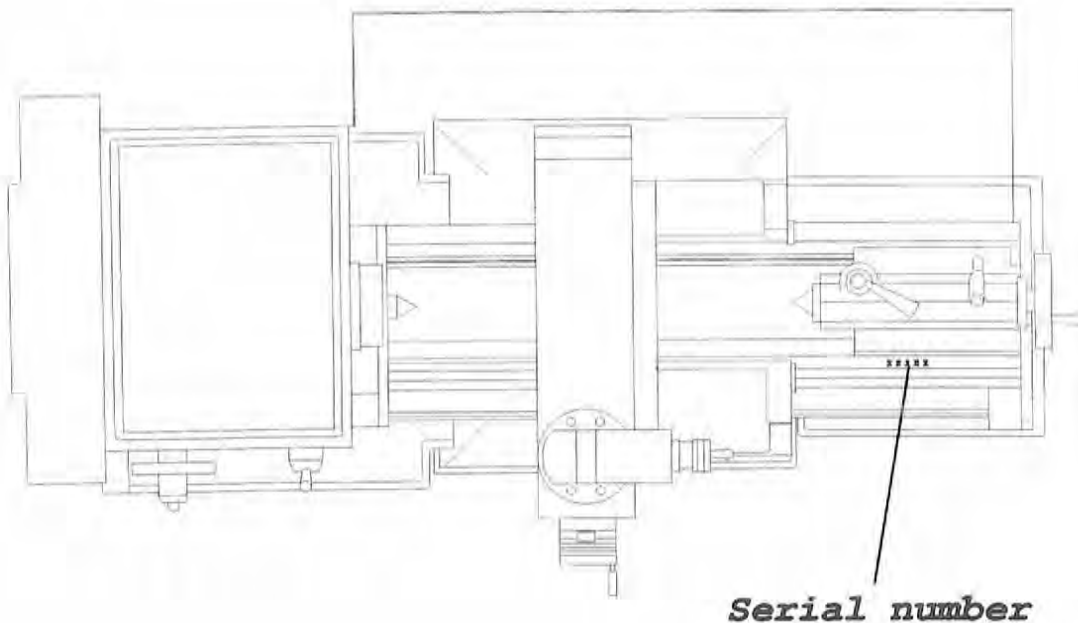
1. Turn the disconnect switch off.
2. Remove the headstock cover.
3. Straighten the lockwasher tab out of engagement with the locknut.
4. Turn adjusting nut clockwise to increase preload or vice-versa to decrease preload.
5. Bend a lockwasher tab into one of the slots in the locknut. (Probably only one will line up.)
6. Replace the headstock cover.



PARTS ORDERING PROCEDURE

- (1) ALWAYS QUOTE THE MACHINE SERIAL NUMBER
which will be 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.

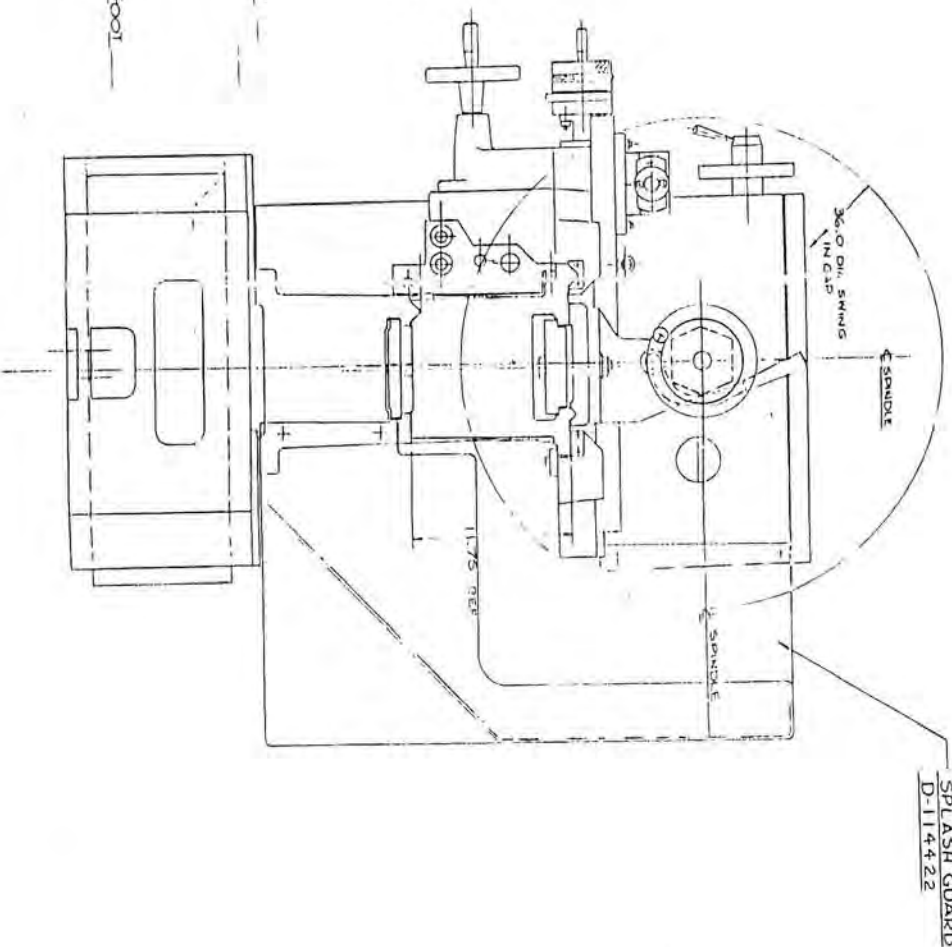
NOTE: Quantity required
(when other than one)
is given following the
Part Number itself.



LIST OF ITEMS SHOWN ON GENERAL ASSEMBLY

SHEET 1 of 1

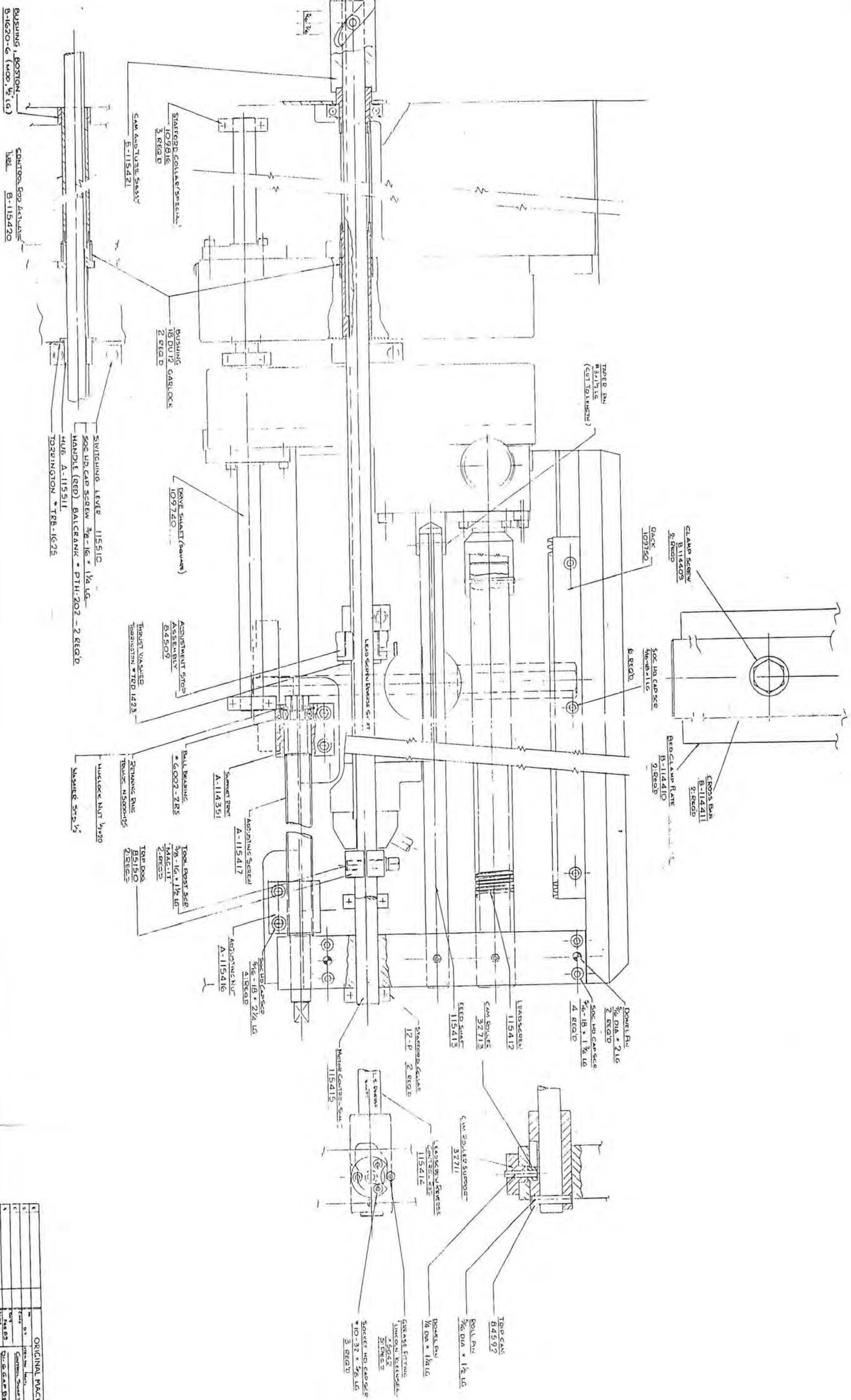
I.D NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
41413	SML	3AA35	41413	Vertical nameplate.	1
109752	SML	3AA35	109752	Feed drive assembly.	1
109817	SML	3AA35	109817	Model nameplate.	1
114094	SML	3AA35	114094	Fixed bed.	1
114292	SML	3AA35	114292	Headstock pedestal.	1
114293	SML	3AA35	114293	Tailstock pedestal.	1
114349	SML	3AA35	114349	Adjusting screw assembly.	1
114364	SML	3AA35	114364	Coolant tank assembly.	1
114365	SML	3AA35	114365	Chip tray.	1
114367	SML	3AA35	114367	Belt guard.	1
114422	SML	3AA35	114422	Splash guard.	1
114938	SML	3AA35	114938	Compound slide assembly.	1
115409	SML	3AA35	115409	Sliding bed.	1
115502	SML	3AA35	115502	Feedbox assembly.	1
115503	SML	3AA35	115503	Apron assembly.	1
115504	SML	3AA35	115504	Saddle and crossslide assembly.	1
115505	SML	3AA35	115505	Headstock assembly.	1
115506	SML	3AA35	115506	Tailstock assembly	1
115537	SML	3AA35	115537	Support post.	1
115544	SML	3AA35	115544	Identification plate.	1
115545	SML	3AA35	115545	Lubrication plate.	1
CL-10-SLF	CARR LANE	99862	CL-10-SLF	Adjustable foot.	1
	COMMERCIAL			3/8-16 x 1-1/2 Milled stud.	1
	COMMERCIAL			3/8-16 Hex nut.	1
	COMMERCIAL			3/8 Flat Washer.	1
	COMMERCIAL			3/4-10 Hex nut.	7
	COMMERCIAL			3/4-10 Levelling screw.	7



LIST OF ITEMS SHOWN ON CONTROLS ASSEMBLY

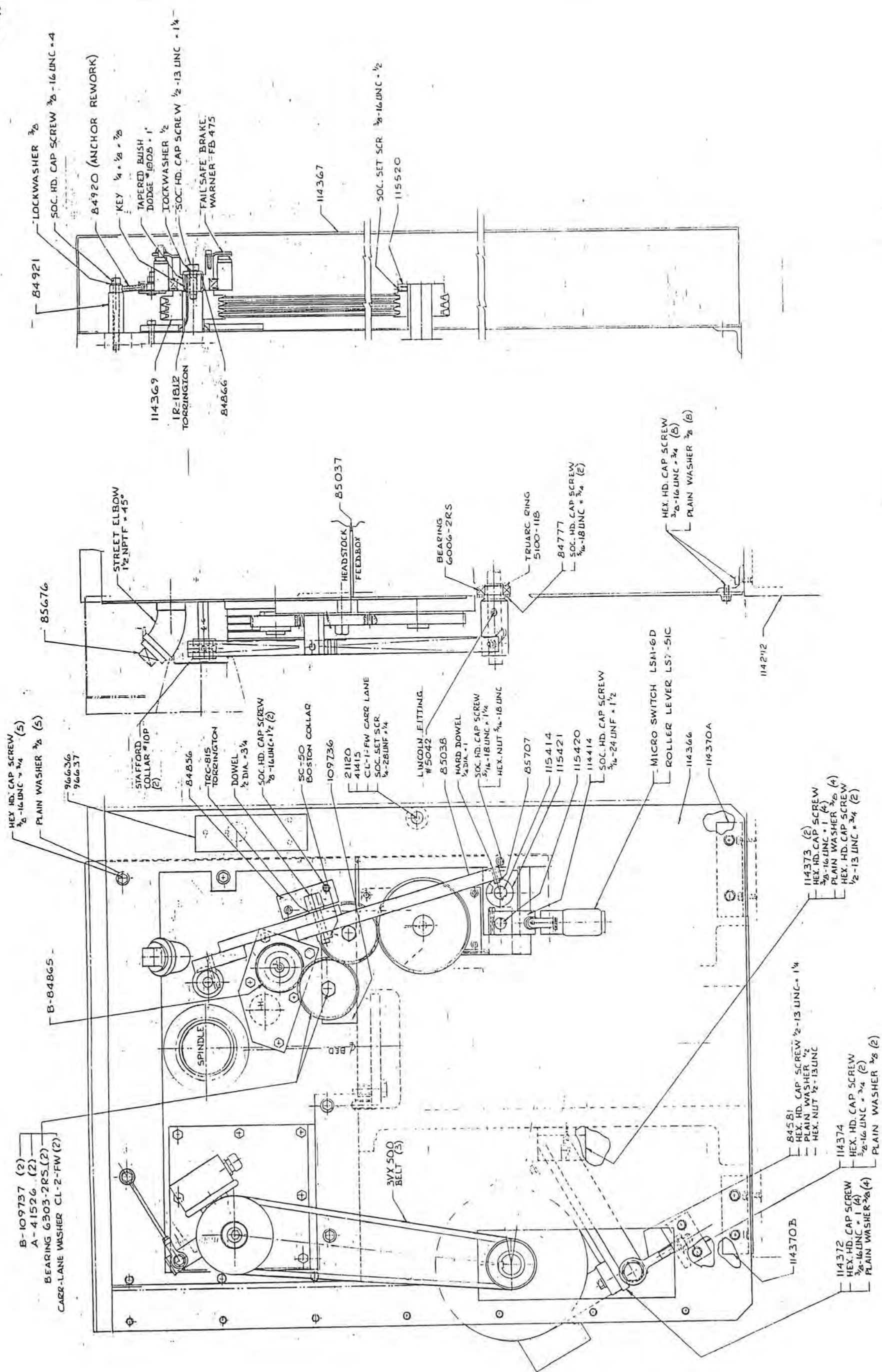
Sheet 1 of 1

I.D NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
32711	SML	3AA35	32711	Cam roller support.	1
32713	SML	3AA35	32713	Cam roller.	1
84509	SML	3AA35	84509	Adjustment stop assembly.	1
84592	SML	3AA35	84592	Trip cam.	1
85150	SML	3AA35	85150	Trip dog.	2
109750	SML	3AA35	109750	Rack.	1
109816	SML	3AA35	109816	Collar (special)	3
114351	SML	3AA35	114351	Support bracket.	1
114409	SML	3AA35	114409	Clamp screw.	2
114410	SML	3AA35	114410	Bed clamp plate.	2
114411	SML	3AA35	114411	Cross bar.	2
115412	SML	3AA35	115412	Leadscrew.	1
115413	SML	3AA35	115413	Feed shaft	1
115414	SML	3AA35	115414	Leadscrew reverse control rod.	1
115415	SML	3AA35	115415	Motor control shaft.	1
115416	SML	3AA35	115416	Adjusting nut.	1
115417	SML	3AA35	115417	Adjusting screw.	1
115420	SML	3AA35	115420	Control rod actuator tube.	1
115421	SML	3AA35	115421	Cam and tube sub assembly.	1
115510	SML	3AA35	115510	Switching lever.	1
115510	SML	3AA35	115510	Switching lever.	1
115511	SML	3AA35	115511	Hub.	1
114348	SML	3AA35	114348	BED END BRACKET	2
PTH 202	BALCRANK	1JZ80	PTH 202	Red handle.	1
B1620-6	BOSTON	OACA6	B16220-6	Bushing.	1
6002-2RS	FAG	36069	6002-2RS	Ball bearing.	1
18 DU 12	GARLOCK	08479	18 DU 12	Bushing.	2
5042	LINC. KLEENSEAL	36251	5042	Grease fitting.	5
	MAC-IT	76068	3/8-16 x 1-1/2	Toolpost screw.	2
12-P	STAFFORD	65646	12-P	Collar.	2
TRD-1423	TORRINGTON	60380	TRD-1423	Thrust washer.	1
TRB-1625	TORRINGTON	60380	TRB-1625	Thrust race/	1
N5000-125	WALDES TRUARC	79136	N5000-125	Retaining ring.	1
	COMMERCIAL			5/16-18 x 2-1/4"lg. soc. hd. cap scrw.	4
	COMMERCIAL			1/2-20 Huglock nut.	1
	COMMERCIAL			5/16-18 x 1-3/4 Lg. soc. hd. cap scrw.	4
	COMMERCIAL			5/16-18 x 1 Lg. soc. hd. cap scrw.	6
	COMMERCIAL			3/8-16 x 1-1/4 Lg. soc. hd. cap scrw.	1
	COMMERCIAL			5/16 x 1-1/2 Lg. Roll pin	1
	COMMERCIAL			1/4 Dia. x 1-1/4 Lg. Hard dowel	1
	COMMERCIAL			5/16 x 2 Lg. Dowel pin.	2
	COMMERCIAL			1/2 Washer.	1
	COMMERCIAL			#3 x 1-1/2 Lg. taper pin.	1
	COMMERCIAL			#10-32 x 5/8 Lg. Soc hd cap screw	3



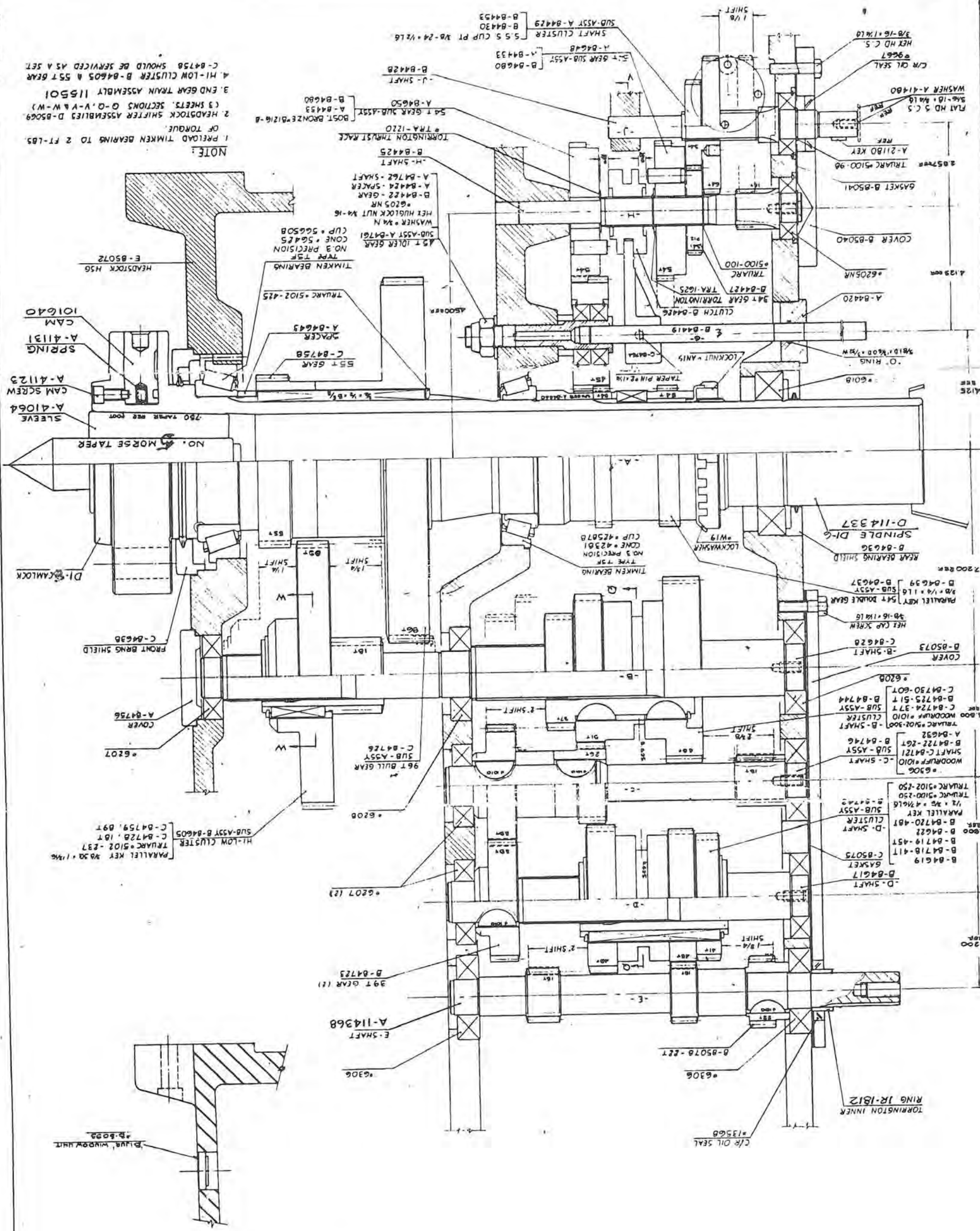
ORIGINAL MACHINE TOOLS Inc. Toronto			
#	QTY	ITEM NAME	QTY
1	1	CONTROL PANEL 15 AMP	1
2	1	WIRING	1
3	1	DI-C-6000	1
4	1	DI-C-6000	1
5	1	DI-C-6000	1
6	1	DI-C-6000	1
7	1	DI-C-6000	1
8	1	DI-C-6000	1
9	1	DI-C-6000	1
10	1	DI-C-6000	1
11	1	DI-C-6000	1
12	1	DI-C-6000	1
13	1	DI-C-6000	1
14	1	DI-C-6000	1
15	1	DI-C-6000	1
16	1	DI-C-6000	1
17	1	DI-C-6000	1
18	1	DI-C-6000	1
19	1	DI-C-6000	1
20	1	DI-C-6000	1
21	1	DI-C-6000	1
22	1	DI-C-6000	1
23	1	DI-C-6000	1
24	1	DI-C-6000	1
25	1	DI-C-6000	1
26	1	DI-C-6000	1
27	1	DI-C-6000	1
28	1	DI-C-6000	1
29	1	DI-C-6000	1
30	1	DI-C-6000	1
31	1	DI-C-6000	1
32	1	DI-C-6000	1
33	1	DI-C-6000	1
34	1	DI-C-6000	1
35	1	DI-C-6000	1
36	1	DI-C-6000	1
37	1	DI-C-6000	1
38	1	DI-C-6000	1
39	1	DI-C-6000	1
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95	1	DI-C-6000	1
96	1	DI-C-6000	1
97	1	DI-C-6000	1
98	1	DI-C-6000	1
99	1	DI-C-6000	1
100	1	DI-C-6000	1

I.D.NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
21120	SML	3AA35	21120	Guard knob.	1
41415	SML	3AA35	41415	Splindle latch.	1
84581	SML	3AA35	84581	1/2" rod end nut.	2
84777	SML	3AA35	84777	Bearing retainer.	1
84856	SML	3AA35	84856	Leadscrew reverse arm.	1
84866	SML	3AA35	84866	Washer.	1
84920	SML	3AA35	84920	Anchor rod.	1
84921	SML	3AA35	84921	Anchor post.	1
85038	SML	3AA35	85038	Leadscrew reverse operating bar.	1
85676	SML	3AA35	85676	Ventilator plug.	1
85676	SML	3AA35	85676	Ventilator plug.	1
85707	SML	3AA35	85707	Cam roller.	1
96636	SML	3AA35	96636	Enclosure.	1
96637	SML	3AA35	96637	Gasket.	1
114292	SML	3AA35	114292	Headstock pedestal	1
114366	SML	3AA35	114366	End plate.	1
114367	SML	3AA35	114367	Belt guard.	1
114369	SML	3AA35	114369	Headstock pulley.	1
114370A	SML	3AA35	114370A	Bracket for end plate.	1
114370B	SML	3AA35	114370B	Bracket for end plate.	1
114372	SML	3AA35	114372	Motor plate.	1
114373	SML	3AA35	114373	Angle bracket (for motor plate.)	2
114374	SML	3AA35	114374	Angle bracket (for eye bolt)	1
114414	SML	3AA35	114414	Limit switch actuator.	1
115414	SML	3AA35	115414	Lead screw reverse control shaft.	1
115420	SML	3AA35	115420	Motor control shaft	1
115421	SML	3AA35	115421	Lead screw reverse cam;	1
115520	SML	3AA35	115520	Motor pulley.	1
109736	SML	3AA35	109736	Idle A BRAC-67	1
SC50	BOSTON GEAR	OACA6	SC50	Set screw collar.	1
CL-1-FW	CARR LANE	99862	CL-1-FW	Washer	1
CL-2-FW	CARR LANE	99862	CL-2-FW	Washer	2
1008 x 1	DODGE	9G100	1008x1	Tapered bushing.	1
6006-2RS	FAG	36069	6006-2RS	Ball bearing.	1
6303-2RS	FAG	36069	6303-2RS	Ball bearing.	2
3VX500	GATES	14003	3VX500	V-belt.	1
5042	LINC. KLEENSEAL	36251	5042	Grease fitting.	1
LSM-6D	MICRO SWITCH	OE957	LSM-6D	Limit switch.	1
LSZ-51C	MICRO-SWITCH	OE957	LSZ-51C	Roller lever.	1
10P	STAFFORD	65646	10P	Collar.	2
IR-1812	TORRINGTON	60380	IR-1812	Bearing.	1
TRC-815	TORRINGTON	60380	TRC-815	Thrust race.	1
5100-118	WALDES TRUARC	79136	5100-118	Retaining ring.	1
FB 475	WARNER ELECTRIC	63810	FB 475	Fail safe brake.	1
	COMMERCIAL			1/2 Dia. x 3-1/4 Lg Hard Dowel	1
	COMMERCIAL			1/4 Dia x 1 Lg Hardened Dowel.	1
	COMMERCIAL			1/2-13 x 3/4 Hex. hd. cap screw.	2
	COMMERCIAL			3/8-16 x 1 Hex hd. cap screw.	8
	COMMERCIAL			3/8-16 x 3/4 Hex hd. cap screw.	15
	COMMERCIAL			5/16-18 Hex nut.	1
	COMMERCIAL			1/2-13 x 1-1/4 Hex hd. screw.	1
	COMMERCIAL			1/4 x 1/8 x 7/8 key.	1
	COMMERCIAL			3/8 Lockwasher.	1
	COMMERCIAL			1/2 Lockwasher.	1
	COMMERCIAL			1/2-13 Nut.	1
	COMMERCIAL			3/8 Plain washer.	23
	COMMERCIAL			1/2 Plain washer.	1



1	ORIGINAL MACHINE TOOLS INC.				TORONTO, CANADA	
2	NAME	MAIL	PHONE	CAT. E-115499		
3	MR. RAY			END GEAR TRAIN		
4	UNIT			ASSEMBLY		
5	DATE	APR 92		DRAWING		
6	NAME	MALE		GAP BED LATHE		
7				E-115501		

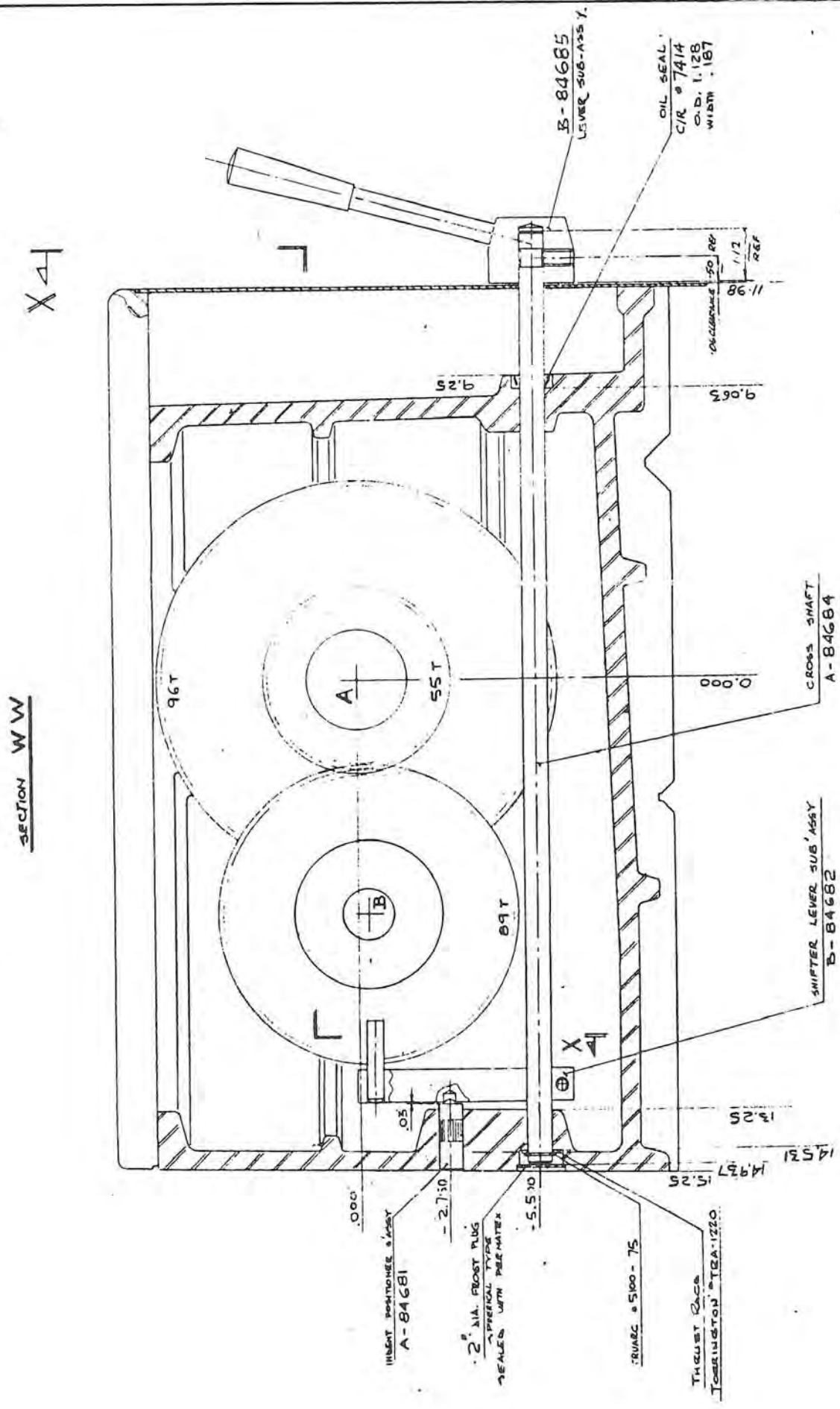
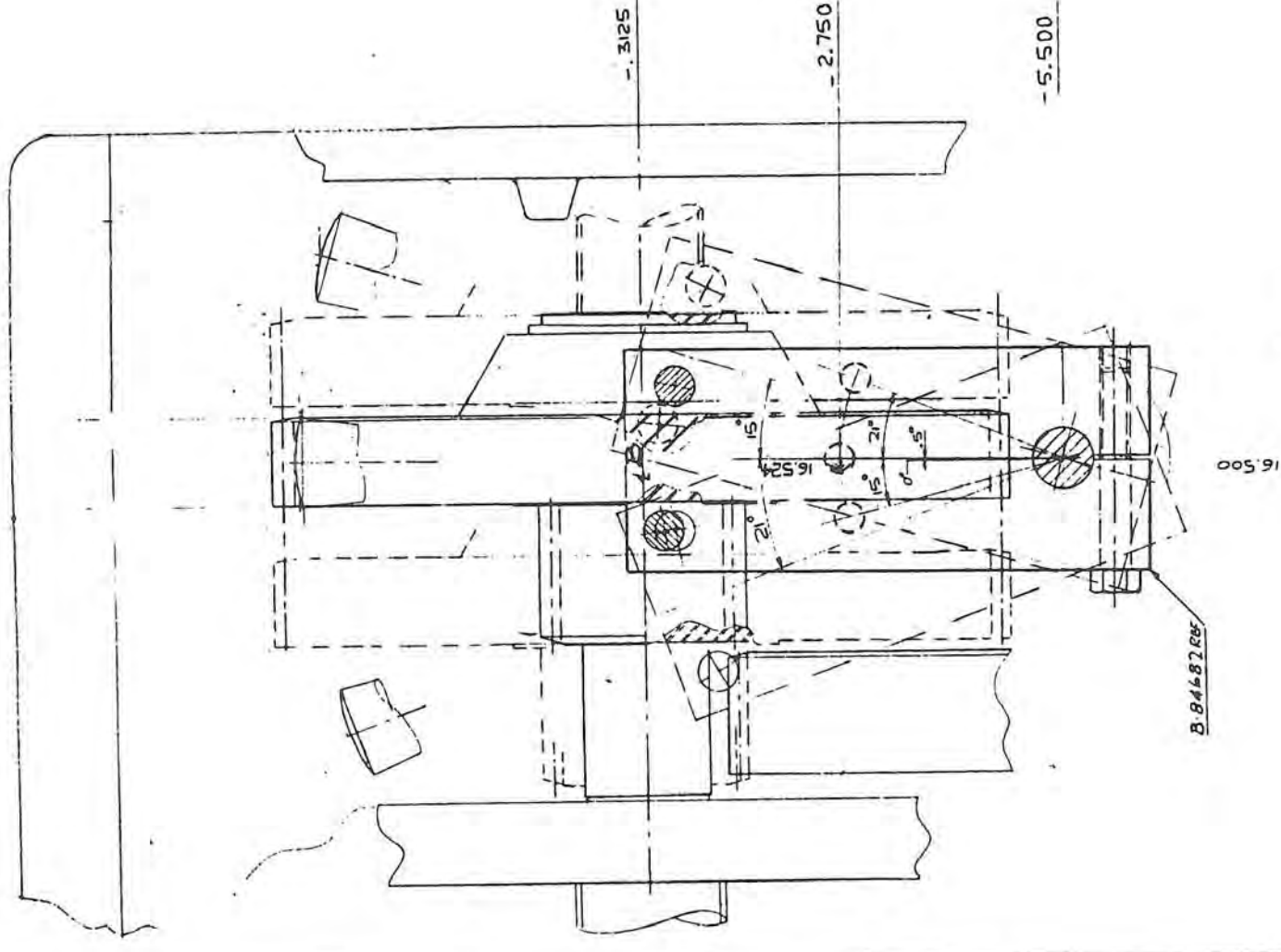
I.D.NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
	COMMERCIAL			3/8-16 x 1-1/2 Soc. hd. cap screw.	2
	COMMERCIAL			5/16-18 x 1-1/4 Soc. hd. cap screw.	1
	COMMERCIAL			1/2-13 x 1-1/4 Soc. hd. cap screw.	1
	COMMERCIAL			5/16-18 x 3/4 Soc. hd. cap screw.	2
	COMMERCIAL			3/8-16 x 1/2 Soc. set screw.	1
	COMMERCIAL			5/16-24 x 1-1/2 Soc. hd. cap screw.	1
	COMMERCIAL			3/8-16 x 4 Soc. hd. cap screw.	1
	COMMERCIAL			1/4-28 x 1/4 Soc. hd. cap screw.	1
	COMMERCIAL			1-1/2 x 45° Street elbow.	1



LIST OF ITEMS SHOWN ON: HEADSTOCK ASSEMBLY

Sheet 1 of 2

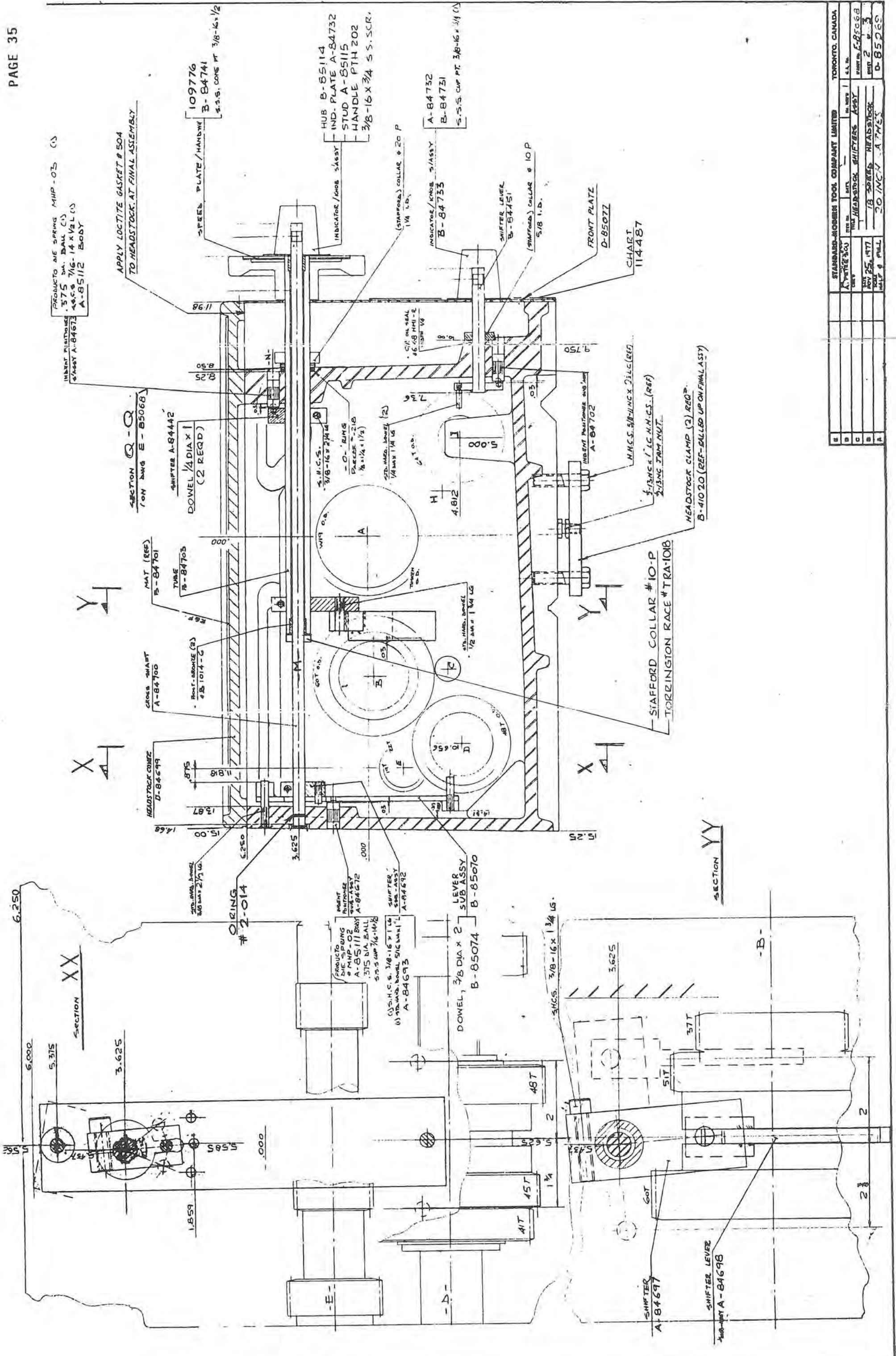
I.D. NUMBER	MANUFACTURER	NSCM	PART NUMBER	NOMENCLATURE	QTY.
21180	SML	3AA35	21180	Shear Key	1
41123	SML	3AA35	41123	Cam screw.	6
41131	SML	3AA35	41131	Cam spring	1
41474	SML	3AA35	41474	Washer	1
41480	SML	3AA35	41480	Washer	1
84420	SML	3AA35	84420	Shaft cover	1
84422	SML	3AA35	84422	45t Gear.	1
84424	SML	3AA35	84424	Spacer.	1
84425	SML	3AA35	84425	"H" shaft	1
84426	SML	3AA35	84426	Clutch	1
84427	SML	3AA35	84427	34T Gear	1
84428	SML	3AA35	84428	"J" shaft	1
84429	SML	3AA35	84429	J-Shaft cluster sub-assy.	1
84430	SML	3AA35	84430	34t Gear.	1
84433	SML	3AA35	84433	Clutch pin.	1
84433	SML	3AA35	84433	Clutch pin.	1
84453	SML	3AA35	84453	64t Gear.	1
84605	SML	3AA35	84605	Hi-Lo cluster sub-assy.	1
84617	SML	3AA35	84617	"D" shaft	1
84619	SML	3AA35	84619	D-Shaft	1
84622	SML	3AA35	84622	Spacer.	1
84628	SML	3AA35	84628	"B" shaft	1
84632	SML	3AA35	84632	Spacer.	1
84636	SML	3AA35	84636	Rear bearing shield	1
84637	SML	3AA35	84637	54T Double gear sub-assy.	1
84638	SML	3AA35	84638	Front bearing shield	1
84639	SML	3AA35	84639	54t Double gear.	1
84640	SML	3AA35	84640	Spacer	1
84643	SML	3AA35	84643	Spacer	1
84648	SML	3AA35	84648	54T Gear sub-assy.	1
84650	SML	3AA35	84650	54T Gear sub-assy.	1
84680	SML	3AA35	84680	54t Gear/	1
84718	SML	3AA35	84718	41t gear.	1
84719	SML	3AA35	84719	45t gear.	1
84720	SML	3AA35	84720	48t gear.	1
84721	SML	3AA35	84721	C-Shaft.	1
84722	SML	3AA35	84722	26t. gear.	1
84723	SML	3AA35	84723	39T Gear	1
84724	SML	3AA35	84724	37t gear.	1
84725	SML	3AA35	84725	51t gear.	1
84726	SML	3AA35	84726	89T Bull gear sub-assy.	1
84728	SML	3AA35	84728	18t gear.	1
84730	SML	3AA35	84730	60t gear.	1
84742	SML	3AA35	84742	"D" Shaft cluster assy.	1
84744	SML	3AA35	84744	"B" Shaft cluster sub-assy.	1
84746	SML	3AA35	84746	"C" Shaft sub-assy.	1
84758	SML	3AA35	84758	55T Gear	1
84759	SML	3AA35	84759	89t gear.	1
84761	SML	3AA35	84761	45T Idler gear sub-assy.	1
84762	SML	3AA35	84762	G-Shaft	1
84764	SML	3AA35	84764	Yoke, shifter	1
85072	SML	3AA35	85072	Headstock housing.	1
84633	SML	3AA35	84633	D1-Ø Camlock spindle.	1
114368	SML	3AA35	114368	E-Shaft.	1



ITEMS REQUIRED BUT NOT SHOWN				STANDARD-MORRIS TOOL COMPANY LIMITED				TORONTO, CANADA	
QTY	UNIT	ITEM NO.	DESCRIPTION	QTY	UNIT	ITEM NO.	DESCRIPTION	QTY	UNIT
3			BUTTON HEAD SOCKET CAP SCREW 5/16-18 x 3/4	4			ASD PART NO D-84734		
2			OIL SWAPLY TRAY	1			DWC # C-84713		
1			NER. CAP SCREW 5/16-18 x 3/4 LG	2			ASD PART NO C-84713		
1			DESCRIPTION	QTY			REMARKS		
DATE				DATE				DATE	
MAY 26-55				MAY 26-55				MAY 26-55	
HALF & FULL				HALF & FULL				HALF & FULL	

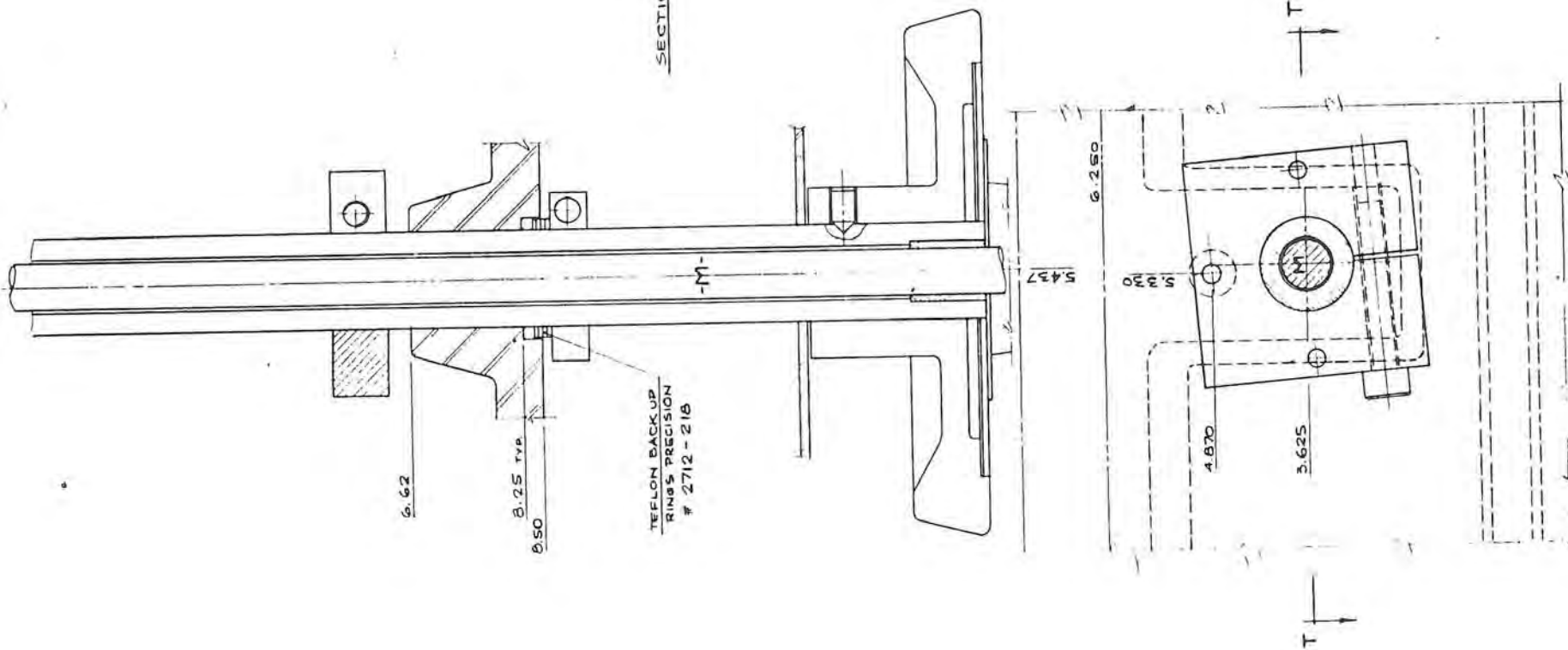
I.D. NUMBER	MANUFACTURER	NSCM	PART NUMBER	NOMENCLATURE	QTY
85040	SML	3AA35	85040	Cover	1
85041	SML	3AA35	85041	Gasket	1
85073	SML	3AA35	85073	Cover	1
85075	SML	3AA35	85075	Gasket	1
85078	SML	3AA35	85078	22T Gear	1
B-3093	BIJUR	70924	B-3093	Window unit	1
B-1216-8	BOSTON	OACA6	B-1216-8	Bronze bearing	1
13568	CHIC. RAWHD.	11678	13568	Oil seal	1
9667	CHIC. RAWHD.	11678	9667	Oil seal	1
6018	FAG	36069	6018	Bearing, ball	1
6205-NR	FAG	36069	6205NR	Bearing, ball	1
6207	FAG	36069	6207	Bearing, ball	1
6208	FAG	36069	6208	Bearing, ball	1
6306	FAG	36069	6306	Bearing, ball	1
	MAC-IT	76068		Cam, D1-8"	1
42381	TIMKEN	60038	42381	Bearing Cone #3 Precision	1
42587B	TIMKEN	60038	42587B	Bearing Cup #3 Precision	1
56425	TIMKEN	60038	56425	Bearing Cone #3 Precision	1
56650B	TIMKEN	60038	56650B	Bearing Cup #3 Precision	1
TIR-1820	TORRINGTON	60380	TIR-1820	Inner-ring	1
TRA-1220	TORRINGTON	60380	TRA-1220	Thrust race.	1
TRA-1625	TORRINGTON	60380	TRA-1625	Thrust race.	1
5100-100	TRUARC	79136	5100-100	Retaining ring	1
5100-250	TRUARC	79136	5100-250	Retaining ring.	1
5102-237	TRUARC	79136	5102-237	Retaining ring.	1
5102-250	TRUARC	79136	5102-250	Retaining ring.	1
5102-300	TRUARC	79136	5102-300	Retaining ring.	1
5102-425	TRUARC	79136	5102-425	Retaining ring	1
5100-08	TRUARC	79136	5100-08	Retaining ring	1
AN 19	SKF	36121	AN 19	Lock nut.	1
W 19	SKF	36121	W 19	Lock washer.	1
	COMMERCIAL			# 114 O' ring 5/8 ID X 13/16 OD	1
	COMMERCIAL			Fl. Hd. Cap Screw 5/16-18 X 3/4	1
	COMMERCIAL			Hex. Hd. Cap Screw 3/8-16 X 1-1/4	1
	COMMERCIAL			Hug lock nut 3/4-16.	1
	COMMERCIAL			Lockwasher (medium) 1/2".	1
	COMMERCIAL			Parallel key 1/2x3/8x4-7/16.	1
	COMMERCIAL			Parallel key 3/8 x 1/4 x1lg.	1
	COMMERCIAL			Parallel key 3/8sq. x 1-13/16.	1
	COMMERCIAL			Soc set screw 3/8-24x1/2.	2
	COMMERCIAL			Soc. Hd. Cap Screw 1/2-13 X 1-1/4	1
	COMMERCIAL			Washer 3/4".	1
	COMMERCIAL			Woodruff key #1010	4

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
84681	SML	3AA35	84681	Indent positioner sub assy.	1
84682	SML	3AA35	84682	Shifter lever sub assy.	1
84684	SML	3AA35	84684	Cross shaft.	1
84685	SML	3AA35	84685	Lever sub assy.	1
5100-75	TRUARC	79136	5100-75	Retaining ring.	1
TRA-1220	TORRINGTON	60380	TRA-1220	Thrust race.	1
7414	CHICAGO RAWHIDE	11678	7414	Oil seal.	1
	COMMERCIAL			Frost plug 2" Dia.	1

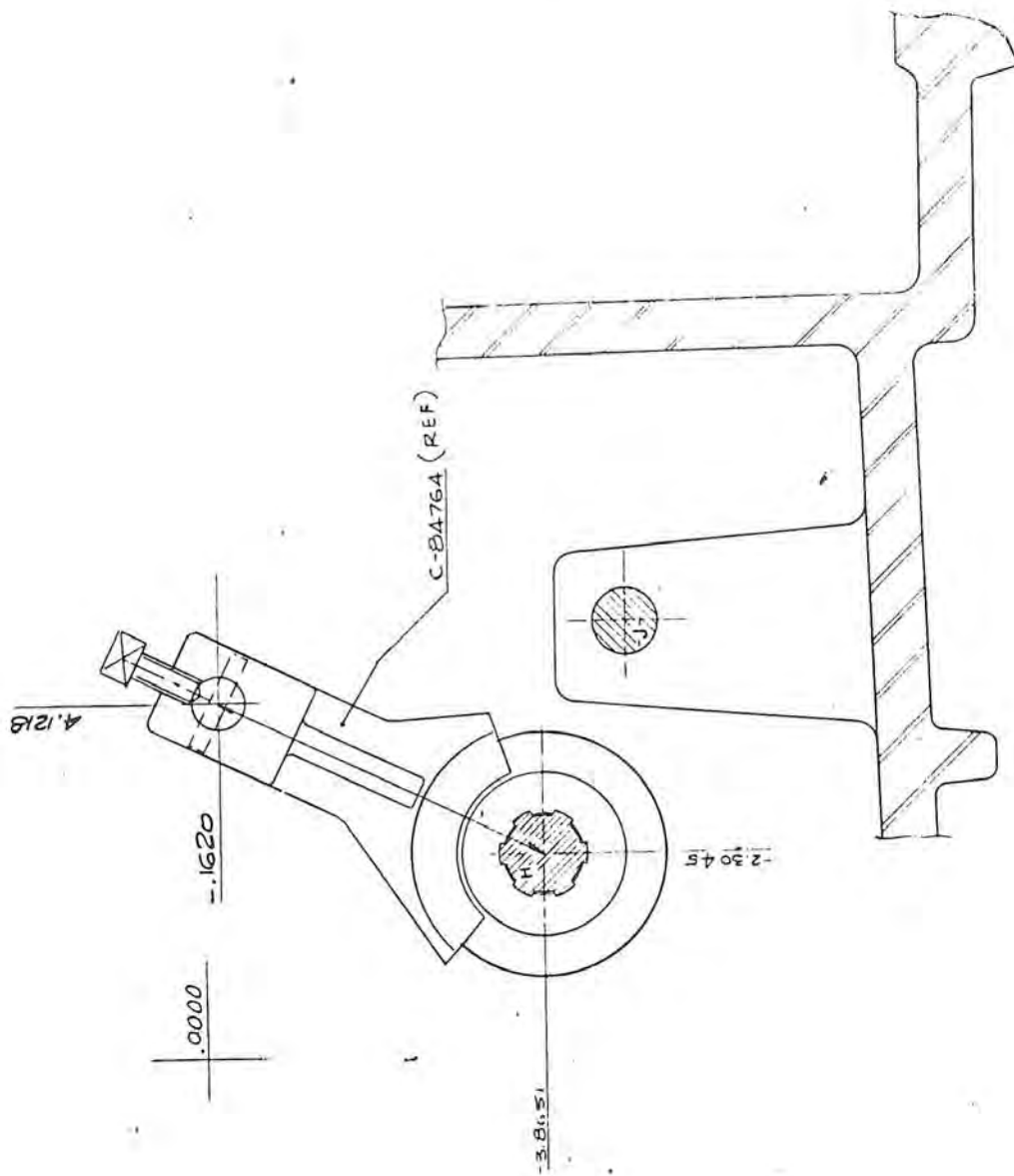


STANDARD-HOBSON TOOL COMPANY LIMITED	TOYOKO, CANADA
1. PARTS 300	4.1. 10.
2. HEADSTOCK	5. PART NO. 6-85268
3. SHIFTERS	6. PART 2
4. 18 SPEED HEADSTOCK	7. 3
5. 20 INCH APMS	8. 85268
6. 1/2" x 8" FULL	

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
84442	SML	3AA35	84442	SHIFTER	1
84451	SML	3AA35	84451	SHIFTER LEVER	1
84672	SML	3AA35	84672	POSITIONER SUB-ASSY.	1
84673	SML	3AA35	84673	INDENT POSITIONER	1
84692	SML	3AA35	84692	SHIFTER SUB-ASSY.	1
84693	SML	3AA35	84693	SHIFTER	1
84695	SML	3AA35	84695	SHIFTER LEVER SUB-ASSY.	1
84697	SML	3AA35	84697	SHIFTER	1
84698	SML	3AA35	84698	SHIFTER LEVER	1
84699	SML	3AA35	84699	HEADSTOCK COVER	1
84700	SML	3AA35	84700	CROSS SHAFT	1
84701	SML	3AA35	84701	MAT	1
84702	SML	3AA35	84702	INDENT POSITIONER SUB-ASSY.	1
84703	SML	3AA35	84703	TUBE	1
84731	SML	3AA35	84731	HEADSTOCK KNOB	1
84732	SML	3AA35	84732	NAMEPLATE, DIAL INDICATOR	1
84733	SML	3AA35	84733	INDICATOR KNOB SUB-ASSY.	1
84741	SML	3AA35	84741	HANDWHEEL	1
85070	SML	3AA35	85070	SHIFTER LEVER SUB-ASSY.	1
85079	SML	3AA35	85079	SPEED PLATE/HANDWHEEL ASSY.	1
85113	SML	3AA35	85113	INDICATOR KNOB SUB-ASSY.	1
85114	SML	3AA35	85114	HUB	1
85115	SML	3AA35	85115	STUD	1
115394	SML	3AA35	115394	NAMEPLATE, SPEED	1
115395	SML	3AA35	115395	FRONT PLATE	1
PTH-202	BALCRANK	1JZ80	PTH 202	TAPERED HANDLE	1
B-1014-6	BOSTON GEAR	OACA6	B-1014-6	BUSHING	1
6148-HM1-R	CHIC. RWHD.	11678	6148 HM1-R	OIL SEAL	1
218	PARKER		218	'O' RING	1
MHP-02	PRODUCTO	20467	MHP-02	DIE SPRING	1
MHP-03	PRODUCTO	20467	MHP-03	DIE SPRING	1
10P	STAFFORD	65646	10P	COLLAR	1
20P	STAFFORD	65646	20P 1 1/4 ID	COLLAR	1
TRA-1018	TORRINGTON	60380	TRA-1018	THRUST RACE	1
	COMMERCIAL			'O' RING	1
	COMMERCIAL			DOWEL PIN 3/8" DIA X 2-1/2" LG.	1
	COMMERCIAL			DOWEL PIN 5/16" DIA X 1" LG.	1
	COMMERCIAL			DOWEL PIN 3/8" DIA X 2" LG.	1
	COMMERCIAL			DOWEL PIN 1/2" DIA X 1-3/4" LG.	1
	COMMERCIAL			DOWEL PIN 1/4" DIA X 1-1/4" LG.	1
	COMMERCIAL			DOWEL PIN 1/4" DIA X 1" LG.	2
	COMMERCIAL			SOC. HD. CAP SCRW 3/8-16 X 1" LG.	1
	COMMERCIAL			SOC. HD. CAP SCRW 3/8-16 X 1-1/4"	1
	COMMERCIAL			SOC. HD. CAP SCRW 3/8-16 X 2-1/2"	1
	COMMERCIAL			SOC. SET SCRW 7/16-14 X 1/2" CUP	1
	COMMERCIAL			SOC. SET SCRW 3/8-16 X 3/4" CUP	1
	COMMERCIAL			SOC. SET SCRW 3/8-16 X 1/2" CONE	1
	COMMERCIAL			STEEL BALL .375 DIA.	1



SECTION T-T



SECTION V-V
ON DWG. E-85068

STANDARD-MODERN TOOL COMPANY LIMITED						TORONTO, CANADA		
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LIST OF PARTS SHOWN ON FEED BOX ASSEMBLY

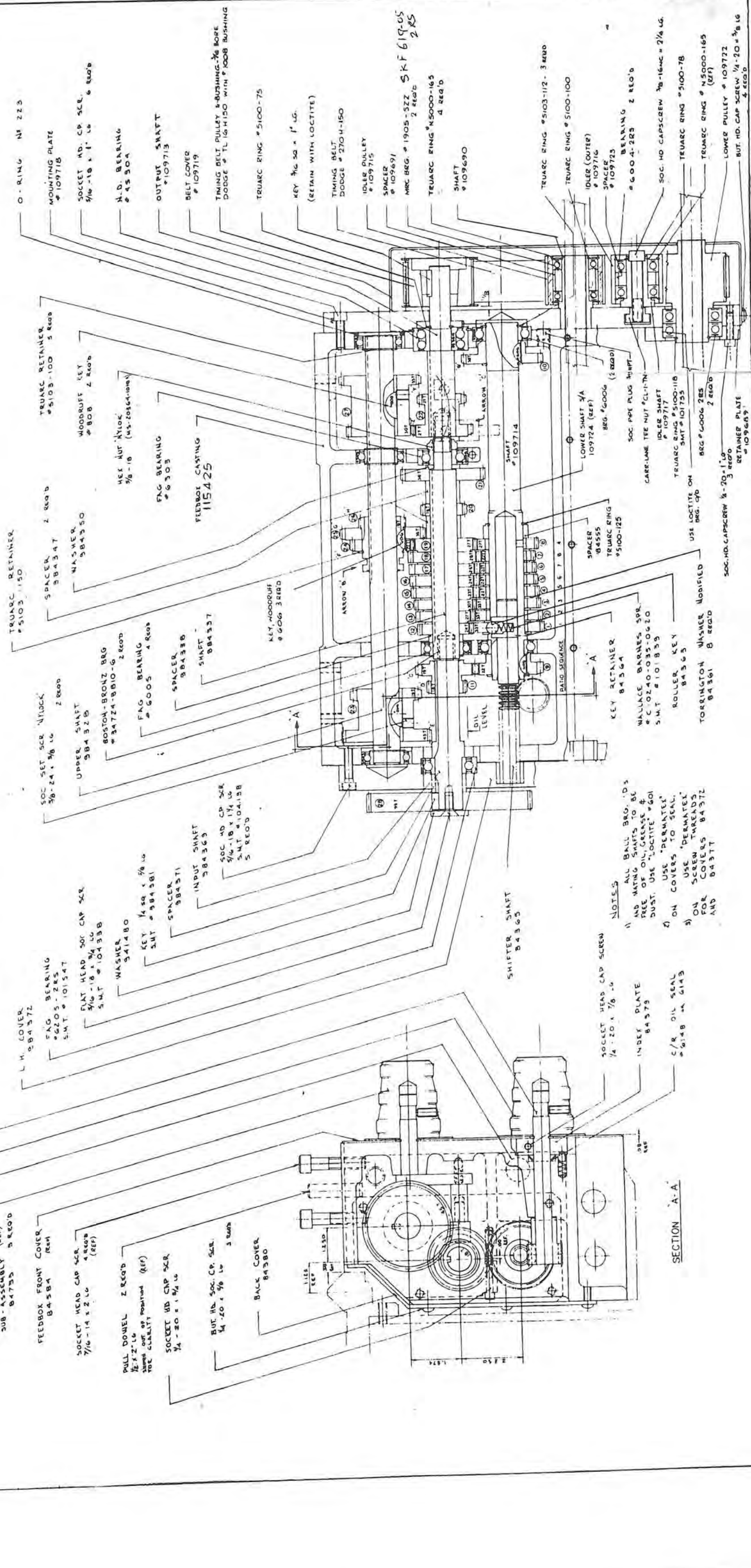
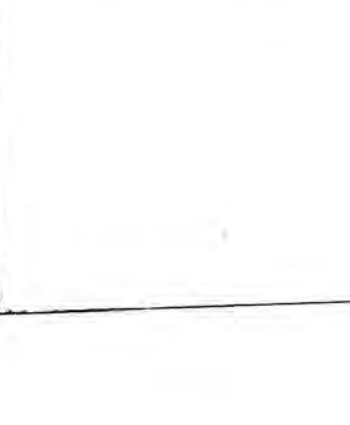
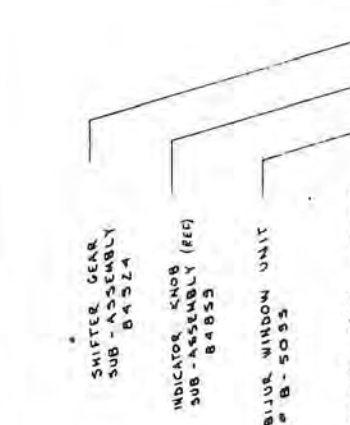
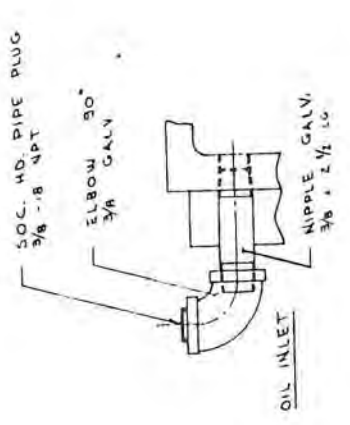
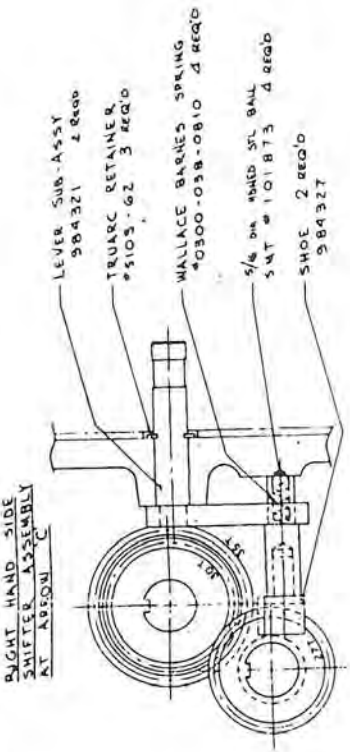
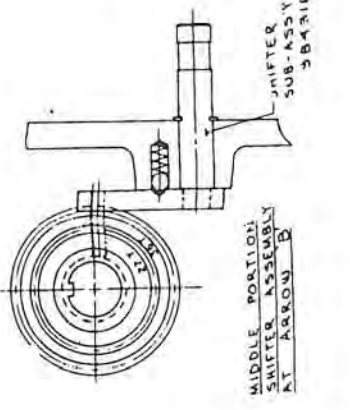
Sheet 2 of 2

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
109716	SML	3AA35	109716	Idler	1
109717	SML	3AA35	109717	Idler shaft.	1
109718	SML	3AA35	109718	Mounting plate.	1
109719	SML	3AA35	109719	Belt cover.	1
109722	SML	3AA35	109722	Lower pulley.	1
109723	SML	3AA35	109723	Spacer.	1
109724	SML	3AA35	109724	Lower shaft sub assy.	1
115425	SML	3AA35	115425	Feedbox casting.	1
CL-1-TN	CARR-LANE	99862	CL-1-TN	Tee nut.	1
271 H-150	DODGE	9G100	271 H-150	Timing belt.	1
TL16H150	DODGE	9G100	TL 16 H 150	Timing belt pulley, & bushing #1008	1
6004-2RS	FAG	36069	6004-2RS	Bearing.	2
6006-2RS	FAG	36069	6006-2RS	Bearing.	2
6005	FAG	36069	6005	Bearing.	4
6205-2RS	FAG	36069	6205-2RS	Bearing.	1
6303	FAG	36069	6303	Bearing.	1
45304	NEW DEPARTURE	43334	45304	Bearing.	1
1905-SZZ	MRD	38443	1905-SZZ	Bearing.	1
5000-165	TRUARC	79136	5000-165	Snap Ring.	8
5100-75	TRUARC	79136	5100-75	Snap Ring.	1
5100-100	TRUARC	79136	5100-100	Snap Ring.	1
5100-110	TRUARC	79136	5100-110	Snap Ring.	1
5103-62	TRUARC	79136	5103-62	Snap Ring.	1
5100-125	TRUARC	79136	5100-125	Snap Ring.	8
5103-62	TRUARC	79136	5103-62	Snap Ring.	1
5103-100	TRUARC	79136	5103-100	Snap Ring.	5
5103-112	TRUARC	79136	5103-112	Snap Ring.	3
5103-150	TRUARC	79136	5103-150	Snap Ring.	1
C0240-035	WALLACE	08337	C0240-035-0620	Spring.	1
C0300-038	BARNES				
	WALLACE	08337	C0300-038-0810	Spring.	1
	BARNES				
B810-6	BOSTON	OACA6	B810-6	Bearing.	2
B5095	BIJUR	70924	B5095	Window Unit.	1
6148	CHICAGO RAWHD	11678	6148	Oil seal.	1
6006	FAG	36069	6006	Bearing.	2
	COMMERCIAL			1/4-20 x 7/8 Lg. soc. hd. cap scrw.	1
	COMMERCIAL			1/4-20 x 5/8 Lg. But. hd. soc. scrw.	3
	COMMERCIAL			1/4-20 x 1-3/4 Lg. soc. hd. cap scrw.	1
	COMMERCIAL			1/2 Dia. x 2 Lg. Pull dowel.	2
	COMMERCIAL			7/16-14 x 2 Lg. soc. hd. cap scrw.	4
	COMMERCIAL			3/8 NPT 90 elbow (galv.)	1
	COMMERCIAL			3/8 NPT x 2-1/2 Lg. nipple (galv.)	1
	COMMERCIAL			5/16-18 x 3/4 Lg. flt. hd soc cap scrw	1
	COMMERCIAL			5/16-18 x 1-1/4 Lg. soc hd cap scrw.	5
	COMMERCIAL			3/8-24 x 3/8 Lg. "nylok" soc set scrw	2
	COMMERCIAL			5/16 Dia. hardened steel ball.	1
	COMMERCIAL			#808 Woodruff key.	2
	COMMERCIAL			5/8-18 "nylok" hex nut.	1
	COMMERCIAL			#606 Woodruff key.	4
	COMMERCIAL			1/4-20 x 1 Soc. hd. cap screw.	1
	COMMERCIAL			5/16 x 18 x 1 Soc. hd. cap screw.	1
	COMMERCIAL			3/8-16 x 2-1/4	1
	COMMERCIAL			3/16 sq. x 1Lg. Key.	1

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
41480	SML	3AA35	41480	Washer.	1
84318	SML	3AA35	84318	Shifter assembly.	1
84321	SML	3AA35	84321	Lever assembly.	2
84324	SML	3AA35	84324	Shifter gear assembly	1
84327	SML	3AA35	84327	Shoe.	1
84328	SML	3AA35	84328	Upper shaft.	1
84329	SML	3AA35	84329	45T/19T Feed gear.	1
84330	SML	3AA35	84330	18T Feed gear.	1
84331	SML	3AA35	84331	36T Feed gear.	1
84332	SML	3AA35	84332	27T Feed gear.	1
84334	SML	3AA35	84334	35T/30T Feed gear.	1
84337	SML	3AA35	84337	Shaft.	1
84338	SML	3AA35	84338	Spacer.	1
84339	SML	3AA35	84339	24T Feed gear.	1
84340	SML	3AA35	84340	27T Feed gear.	1
84341	SML	3AA35	84341	30T Feed gear.	1
84342	SML	3AA35	84342	23T Feed gear.	1
84343	SML	3AA35	84343	24T Feed gear.	1
84344	SML	3AA35	84344	26T Feed gear.	1
84345	SML	3AA35	84345	28T Feed gear.	1
84346	SML	3AA35	84346	27T Feed gear.	1
84347	SML	3AA35	84347	Spacer.	2
84348	SML	3AA35	84348	18T Feed gear.	1
84349	SML	3AA35	84349	36T Feed gear.	1
84350	SML	3AA35	84350	Washer.	1
84353	SML	3AA35	84353	27T Feed gear.	1
84354	SML	3AA35	84354	22T Feed gear.	1
84355	SML	3AA35	84355	22T Feed gear.	1
84356	SML	3AA35	84356	22T Feed gear.	1
84357	SML	3AA35	84357	22T Feed gear.	1
84358	SML	3AA35	84358	33T Feed gear.	1
84359	SML	3AA35	84359	33T Feed gear.	1
84360	SML	3AA35	84360	33T Feed gear.	1
84361	SML	3AA35	84361	Washer.	1
84363	SML	3AA35	84363	Roller key.	1
84364	SML	3AA35	84364	Key retainer.	1
84365	SML	3AA35	84365	Shifter shaft.	1
84366	SML	3AA35	84366	36T Feed gear.	1
84368	SML	3AA35	84368	22T Feed gear.	1
84369	SML	3AA35	84369	Input shaft.	1
84370	SML	3AA35	84370	18T/19T Feed gear.	1
84371	SML	3AA35	84371	Spacer.	1
84372	SML	3AA35	84372	L.H. cover.	1
84373	SML	3AA35	84373	95T Side gear.	1
84374	SML	3AA35	84374	27T/21T Feed gear.	1
84379	SML	3AA35	84379	Index plate.	1
84380	SML	3AA35	84380	Back cover.	1
84381	SML	3AA35	84381	Key.	1
84555	SML	3AA35	84555	Spacer.	1
84584	SML	3AA35	84584	Feedbox front cover.	1
84733	SML	3AA35	84733	Indicator knob assembly.	1
84859	SML	3AA35	84859	Indicator knob assembly.	1
109689	SML	3AA35	109698	Retainer plate.	1
109690	SML	3AA35	109690	Shaft.	1
109691	SML	3AA35	109691	Spacer	1
109713	SML	3AA35	109713	Output shaft.	1
109714	SML	3AA35	109714	Shaft.	1
109715	SML	3AA35	109715	Idler pulley.	1

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
84764	SML	3AA35	84764	Shifter yoke.	1

PART NO.	QTY	DESCRIPTION	QTY	DESCRIPTION	QTY	DESCRIPTION
1	1	84360	1	84364	2	84368
2	1	84351	1	84355	2	84359
3	1	84352	1	84356	2	84360
4	1	84353	1	84357	2	84361
5	1	84354	1	84358	2	84362
6	1	84355	1	84359	2	84363
7	1	84356	1	84360	2	84364
8	1	84357	1	84361	2	84365
9	1	84358	1	84362	2	84366
10	1	84359	1	84363	2	84367
11	1	84360	1	84364	2	84368
12	1	84361	1	84365	2	84369
13	1	84362	1	84366	2	84370
14	1	84363	1	84367	2	84371
15	1	84364	1	84368	2	84372
16	1	84365	1	84369	2	84373

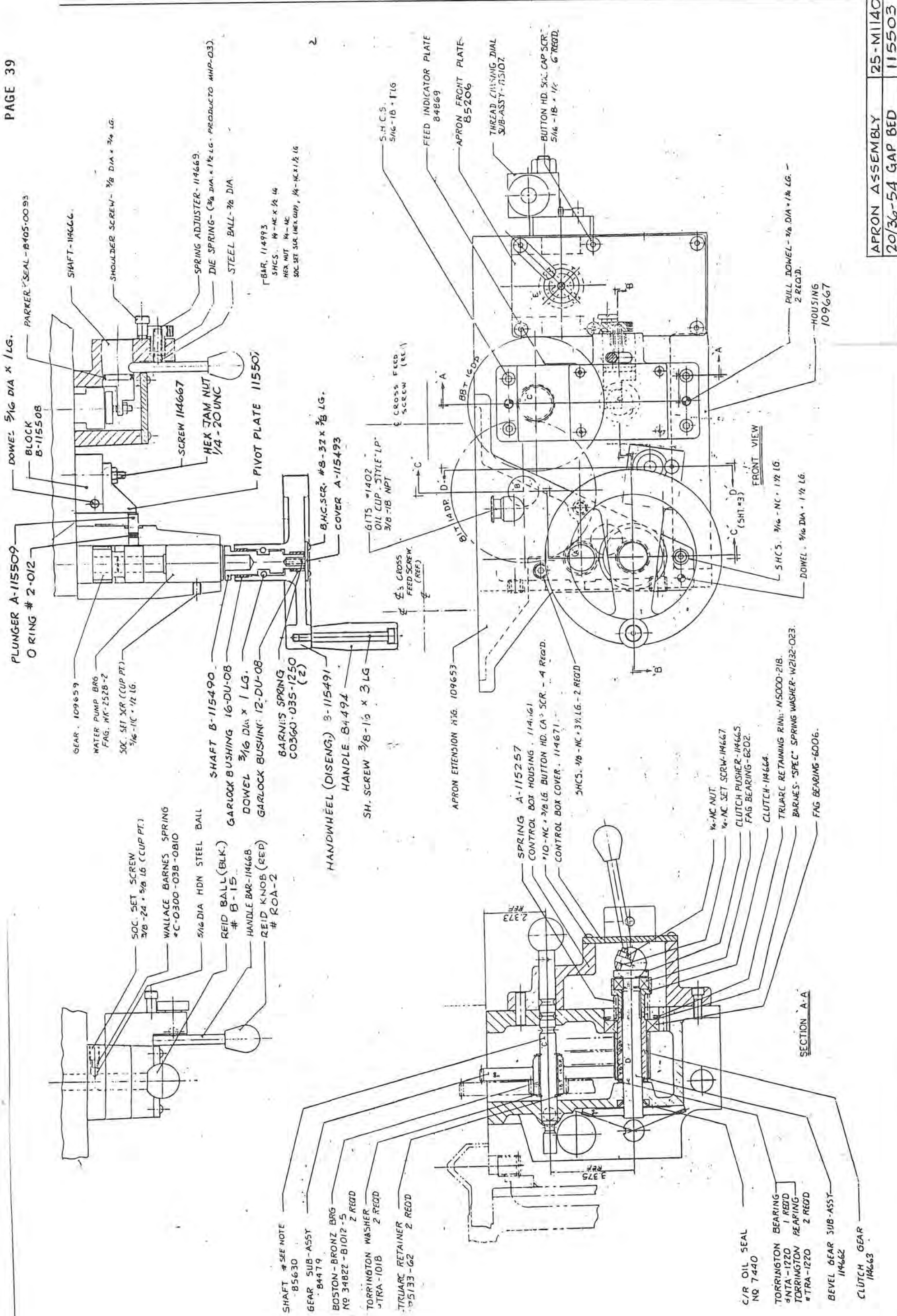


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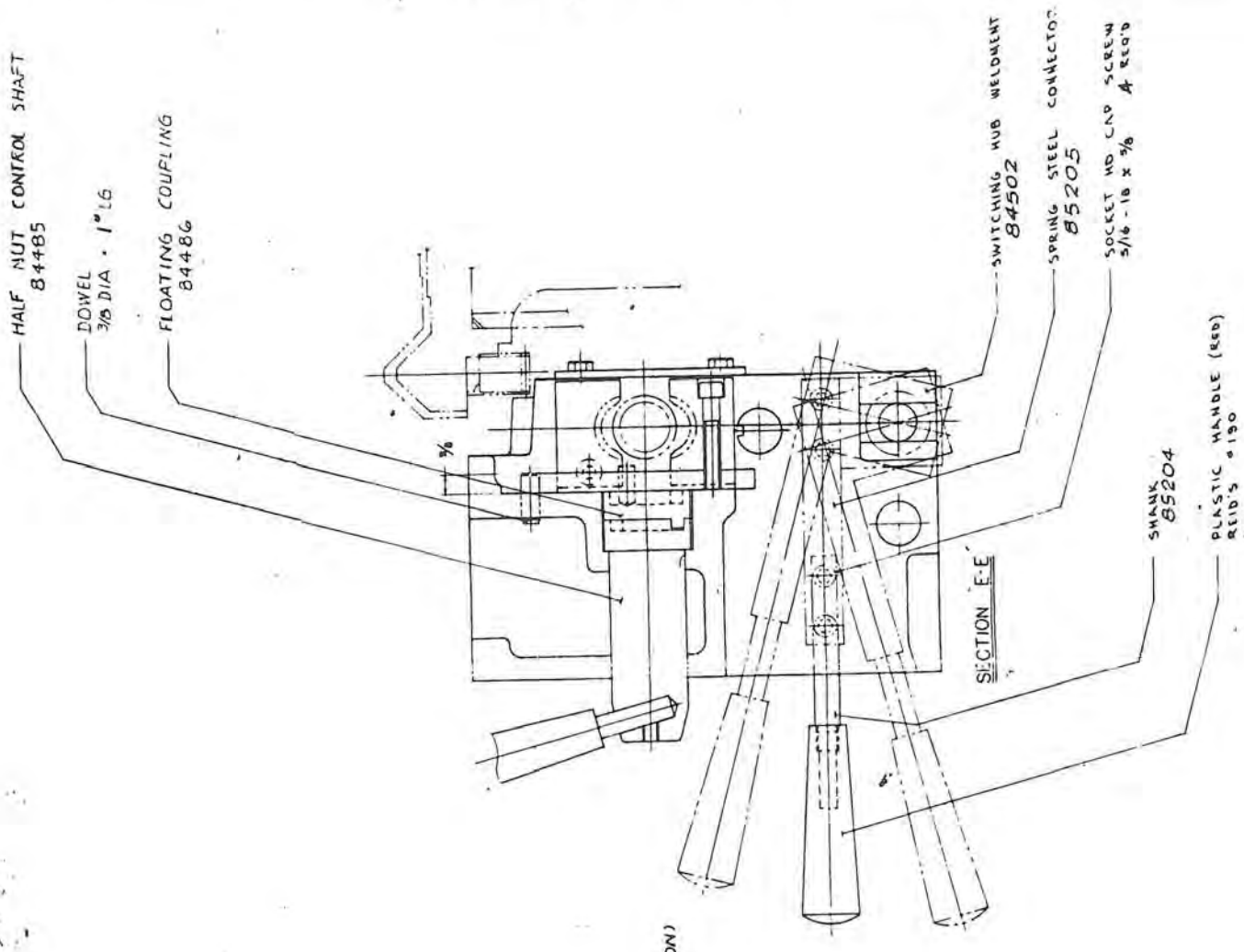
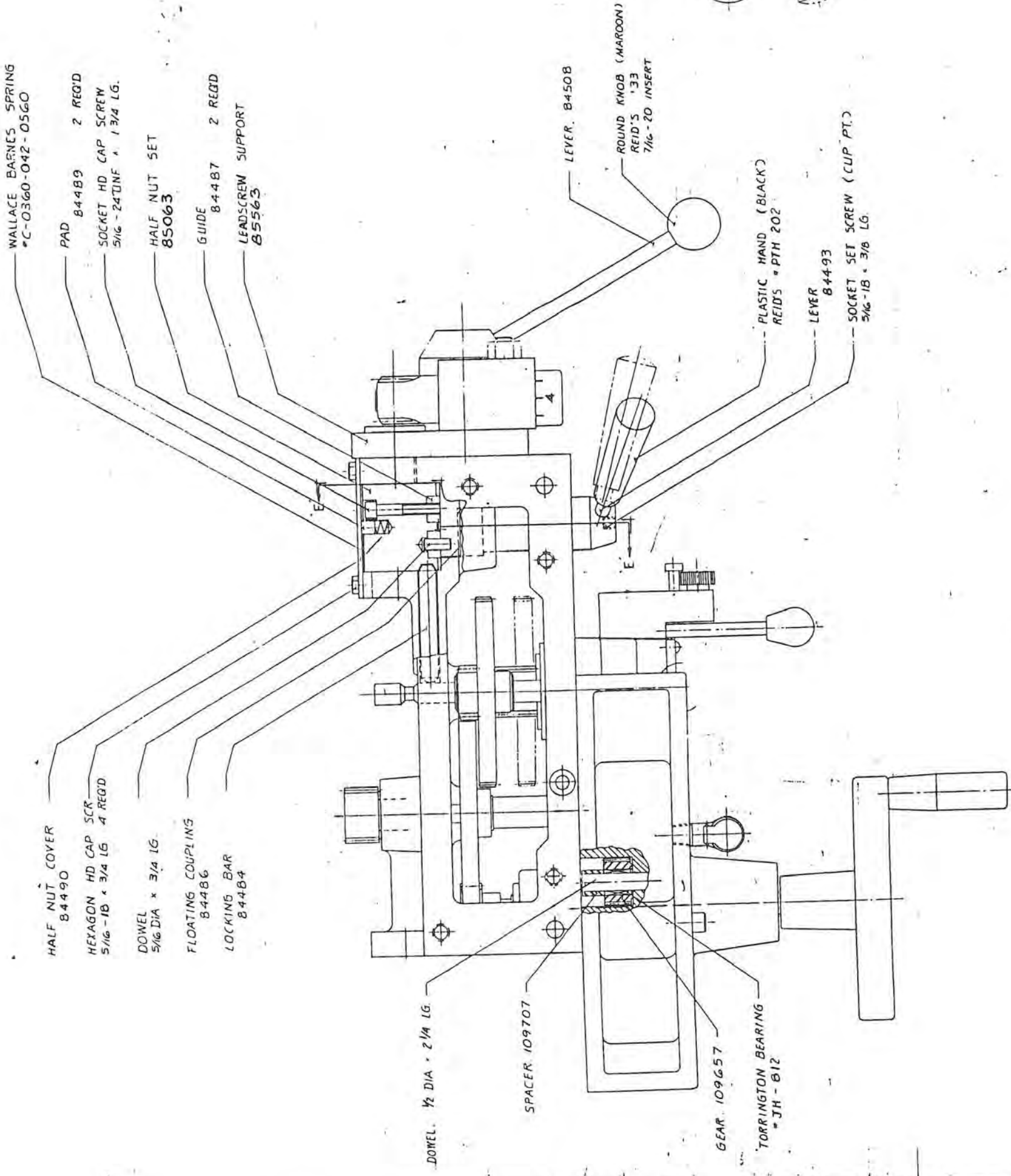
- ALL BALL BEARINGS AND MATING SHAFTS TO BE FREE OF OIL, GREASE & DUST. USE "LOCTITE" #601 ON COVERS TO SEAL. USE "PERMATEX" ON SCREW THREADS FOR COVERS 84372 AND 84371

I.D NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
85039	SML	3AA35	5039	Coupling.	1
106015	SML	3AA35	106015	3/16 sq. key.	1
109655	SML	3AA35	109655	Gearbox housing.	1
109679	SML	3AA35	109679	Shaft.	1
109680	SML	3AA35	109680	Shaft.	1
109681	SML	3AA35	109681	36t gear.	1
109682	SML	3AA35	109682	21t gear.	1
109683	SML	3AA35	109683	Spacer.	1
109684	SML	3AA35	109684	Cover.	1
109686	SML	3AA35	109686	Knob.	1
109687	SML	3AA35	109687	Nameplate.	1
109688	SML	3AA35	109688	Shifter shaft sub-assy.	1
109689	SML	3AA35	109689	Retainer plate.	1
109716	SML	3AA35	109716	Idler Plate.	1
109717	SML	3AA35	109717	Shaft.	1
109721	SML	3AA35	109721	Lower pulley (14t)	1
109723	SML	3AA35	109723	Spacer.	1
109748	SML	3AA35	109748	Mounting plate.	1
109757	SML	3AA35	109757	Spacer.	1
109760	SML	3AA35	109760	Cover.	1
110645	SML	3AA35	110645	Stop bushing.	1
B-5095	BIJUR	70925	B-5095	Window unit.	1
CL-1-TN	CARR LANE	9862	CL-1-TN	T-Nut.	1
CL-8-FW	CARR LANE	99862	CL-8-FW	Washer.	1
240 H150	DODGE	9G100	240H 150	Timing belt.	1
TL24H-150	DODGE	9G100	TL24H 150	Timing belt and Bushing #2012	1
45304	NEW DEPARTURE	43334	45304 (ABEC 3)	Bearing.	1
6004-2RS	SKF	36121	6004-2RS	Bearing.	2
6006-2RS	SKF	36121	6006-2RS	Bearing.	2
6005-2RS	SKF	36121	6005-2RS	Bearing.	1
6204-2RS	SKF	36121	6204-2RS	Bearing.	1
5100-87	WALDES TRUARC	79136	5100-87	Retaining ring.	1
5100-78	WALDES TRUARC	79136	5100-78	Retaining ring.	1
5000-165	WALDES TRUARC	79136	5000-165	Retaining ring.	2
5100-118	WALDES TRUARC	79136	5100-118	Retaining ring.	1
C0240038075	WALLACE BARNES	08337	0240-038-0750	Compression spring.	1
	COMMERCIAL			5/16-18 x 1/2 soc. set. screw, cup pt.	1
	COMMERCIAL			3/8 I.D. Spring washer.	1
	COMMERCIAL			1/4" Hardened steel ball.	1
	COMMERCIAL			1/4 x 1 Dowel.	2
	COMMERCIAL			5/16 x 1-1/2 Dowel.	1
	COMMERCIAL			1/4 NPT pipe plug.	2
	COMMERCIAL			#606 Woodruff key.	1
	COMMERCIAL			#807 Woodruff key.	1
	COMMERCIAL			3/16 x 1/2 Roll pin.	1
	COMMERCIAL			1/4-20 x 3/4 Soc. hd. cap screw.	5
	COMMERCIAL			1/4-20 x 1-1/4 Soc. hd. cap screw.	3
	COMMERCIAL			3/8-16 x 1/4 Soc. hd. cap screw.	1
	COMMERCIAL			3/8-16 x 3-1/4 Soc. hd. cap screw.	4
	COMMERCIAL			1/2-13 x 1-1/2 Soc. hd. cap screw.	6
	COMMERCIAL			1/4-20 x 1/2 Button hd. cap screw.	4
	COMMERCIAL			3/8-24 x 1 Hex hd. cap screw.	1

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
84479	SML	3AA35	84479	Gear assembly.	1
84494	SML	3AA35	84494	Handgrip.	1
84869	SML	3AA35	84869	Feed indicator plate.	1
85107	SML	3AA35	85107	Thread chasing dial.	1
85206	SML	3AA35	85206	Apron front plate.	1
85630	SML	3AA35	85630	Shaft.	1
109653	SML	3AA35	109653	Apron extension housing.	1
109659	SML	3AA35	109659	Gear.	1
109667	SML	3AA35	109667	Apron housing.	1
114661	SML	3AA35	114661	Control box housing.	1
114662	SML	3AA35	114662	Bevel gear assembly.	1
114663	SML	3AA35	114663	Clutch gear.	1
114664	SML	3AA35	114664	Clutch.	1
114665	SML	3AA35	114665	Clutch pusher.	1
114666	SML	3AA35	114666	Shaft.	1
114667	SML	3AA35	114667	1/4-NC Set screw.	1
114668	SML	3AA35	114668	Handle bar.	1
114669	SML	3AA35	114669	Spring adjuster.	1
114670	SML	3AA35	114670	Stop screw.	1
114671	SML	3AA35	114671	Control box cover.	1
114993	SML	3AA35	114993	Bar.	1
115257	SML	3AA35	115257	Spring.	1
115490	SML	3AA35	115490	Shaft.	1
115491	SML	3AA35	115491	Disengaging handwheel.	1
115493	SML	3AA35	115493	Cover.	1
115507	SML	3AA35	115507	Pivot plate.	1
115508	SML	3AA35	115508	Blcok.	1
115509	SML	3AA35	115509	Plunger.	1
NTA-1220	TORRINGTON	60380	NTA-1220	Bearing.	1
TRA-1018	TORRINGTON	60380	TRA-1018	Washer.	2
TRA-1220	TORRINGTON	60380	TRA-1220	Bearing.	2
6202	FAG	36069	6202	Bearing.	1
ROA-2	REID	01599	ROA-2	Oval plastic knob (red).	1
5133-62	TRUARC	79136	5133-62	Retainer.	2
MHP-03	PRODUCTO	20467	MHP-03	3/8 Dia. x 1-1/2 Lg. die spring.	1
C0300-038	BARNES	08337	C0300-038	Spring.	1
B1012-5	BOSTON	OACA6	B1012-5	Bearing.	2
7440	CHICAGO RAWHD	11678	7440	Oil seal.	1
N5000-218	TRUARC	79136	N5000-218	Retainer.	1
NPT-1402	GITS	OBT82	NPT-1402	Oil cup style "LP" 3/8-18	1
6006	FAG	36069	6006	Bearing.	1
8405-0093	PARKER	17506	8405-0093	Seal.	1
W2132-023	BARNES	08337	W2132-023	"Spec" spring washer.	1
B-15	REID	01599	B-15	Plastic ball (black).	1
WK-2528-2	FAG	36069	WK-2528-2	Bearing.	1
C0360035	WALLACE BARNES	08337	C0360035125	Spring.	1
12 DU 08	GARLOCK	08479	12 DU 08	Bushing.	1
16 DU 08	GARLOCK	08479	16 DU 08	Bushing.	1
	COMMERCIAL			1/4-NC nut.	1
	COMMERCIAL			#10-NC x 3/8 Lg. rd. hd. soc. scrw.	4
	COMMERCIAL			3/8-24 x 5/8 Lg. soc. set scrw. cup pt	1
	COMMERCIAL			5/16 Dia. Hdn. steel ball.	1
	COMMERCIAL			#10-NC x 1/4 Lg. soc. set screw.	1
	COMMERCIAL			3/8-16 x 3 Lg. shoulder screw.	1
	COMMERCIAL			5/16-18 x 1 Lg. soc. hd. cap screw.	1
	COMMERCIAL			5/16-18 x 1/2 Lg. butt hd soc cap scrw	6
	COMMERCIAL			1/4-NC x 1/4 Lg. soc. hd cap screw.	1
	COMMERCIAL			3/8 Dia. x 1-1/4 Lg. dowel.	2



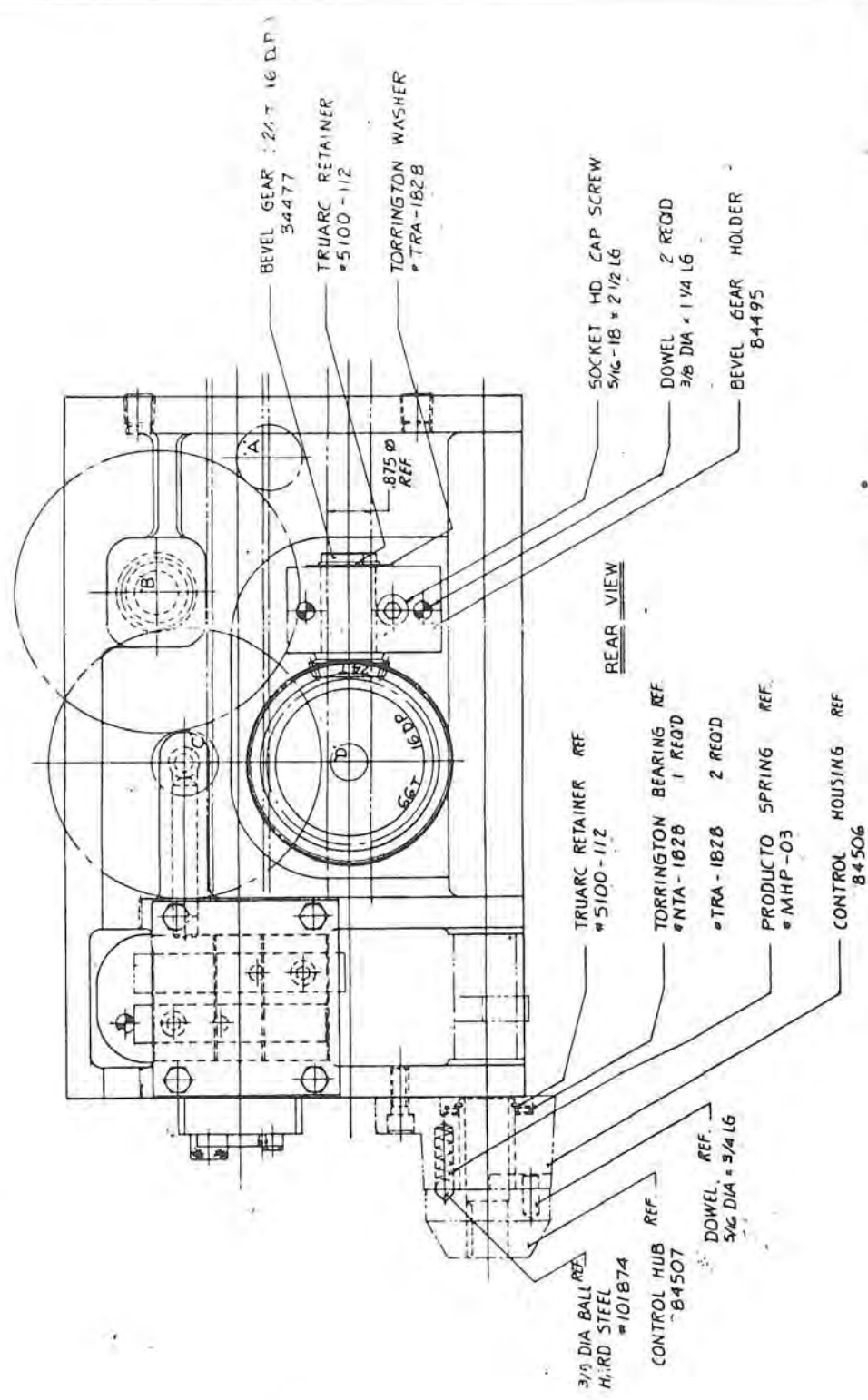
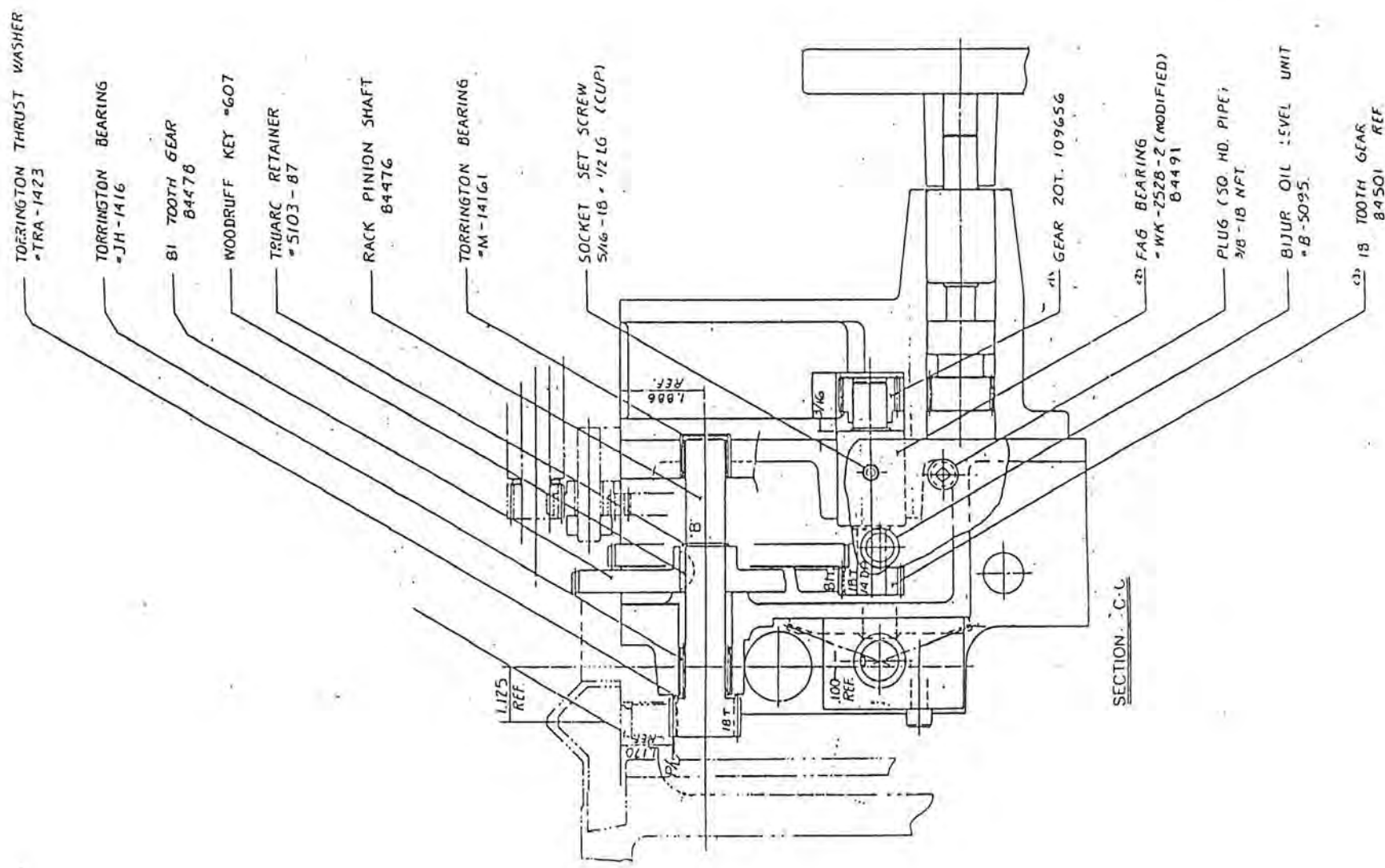
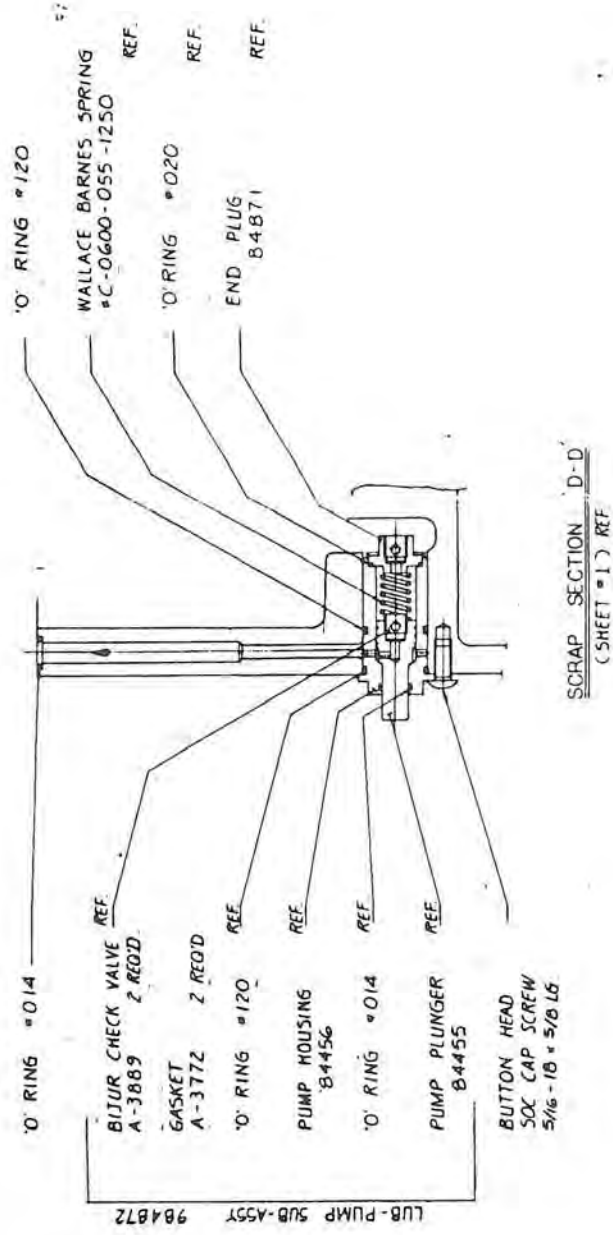
I.D. NUMBER	MANUFACTURE R	NSCM	PART NUMBER	NOMENCLATURE	QTY
84473	SML	3AA35	84473	Lever.	1
84484	SML	3AA35	84484	Locking bar.	1
84485	SML	3AA35	84485	Half nut control shaft.	1
84486	SML	3AA35	84486	Floating coupling.	1
84487	SML	3AA35	84487	Guide.	2
84489	SML	3AA35	84489	Pad.	2
84490	SML	3AA35	84490	Half nut cover.	1
84493	SML	3AA35	84493	Lever.	1
84502	SML	3AA35	84502	Switching hub weldment.	1
84508	SML	3AA35	84508	Lever.	1
85063	SML	3AA35	85063	Half nut set.	1
85204	SML	3AA35	85204	Shank.	1
85205	SML	3AA35	85205	Spring steel connector.	1
85563	SML	3AA35	85563	Leadscrew support.	1
109657	SML	3AA35	109657	20t gear.	1
109707	SML	3AA35	109707	Spacer.	1
1728	ALEMITE	95879	1728	Grease fitting.	1
C0360-042	BARNES	08337	C0360-042-0560	Spring.	1
PTH-202	REID TOOL	01599	PTH-202	Plastic handle (black).	1
190	REID TOOL	01599	190	Plastic handle (red).	1
33	REID TOOL	01599	33	Maroon round plastic knob, 7/16-20	1
JH-812	TORRINGTON	60380	JH-812	Bearing.	1
	COMMERCIAL			5/16 Dia. x 3/4 Lg. dowel.	1
	COMMERCIAL			5/16-18 x 3/4 Lg. hex hd cap screw.	4
	COMMERCIAL			5/16-24 x 1-3/4 Lg. soc. hd. cap screw	1
	COMMERCIAL			5/16-18 x 3/8 Lg. soc set scrw cup pt	1
	COMMERCIAL			3/8 Dia. x 1 Lg. dowel.	1
	COMMERCIAL			5/16-18 x 5/8 Lg. soc. hd. cap scrw	4
	COMMERCIAL			1/2 Dia. x 2-1/4 Dowel.	1
	COMMERCIAL			5/16-18 x 1-1/4 Soc hd. cap screw.	1
	COMMERCIAL			1/2-13 x 1-1/4 Soc. hd. cap screw.	1



REF 115503

4	REF 115503	FRICKER ADHESIVE TOOL COMPANY LIMITED	TOPPING, CANADA
5		100% COTTON	1 1/2 YD
6		100% COTTON	1 1/2 YD
7		100% COTTON	1 1/2 YD
8		100% COTTON	1 1/2 YD
9		100% COTTON	1 1/2 YD
10		100% COTTON	1 1/2 YD
11		100% COTTON	1 1/2 YD
12		100% COTTON	1 1/2 YD
13		100% COTTON	1 1/2 YD
14		100% COTTON	1 1/2 YD
15		100% COTTON	1 1/2 YD
16		100% COTTON	1 1/2 YD
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29		100% COTTON	1 1/2 YD
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31		100% COTTON	1 1/2 YD
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87		100% COTTON	1 1/2 YD
88		100% COTTON	1 1/2 YD
89		100% COTTON	1 1/2 YD
90		100% COTTON	1 1/2 YD
91		100% COTTON	1 1/2 YD
92		100% COTTON	1 1/2 YD

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
84455	SML	3AA35	84455	Pump plunger.	1
84456	SML	3AA35	84456	Pump housing.	1
84476	SML	3AA35	84476	Rack pinion shaft.	1
84477	SML	3AA35	84477	24T bevel gear.	1
84478	SML	3AA35	84478	81T gear.	1
84491	SML	3AA35	84491	Modified bearing.	1
84495	SML	3AA35	84495	Bevel gear holder.	1
84501	SML	3AA35	84501	18T gear.	1
84506	SML	3AA35	84506	Control Housing.	1
84507	SML	3AA35	84507	Control hub.	1
84871	SML	3AA35	84871	End plug.	1
84872	SML	3AA35	84872	Lube pump sub. assy.	1
109656	SML	3AA35	109656	20t gear.	1
109658	SML	3AA35	109658	Gear and bearing sub. assy.	1
C0600-055	BARNES	08337	C0600-055-1250	Spring.	1
A3889	BIJUR	70924	A3889	Check valve.	2
B5095	BIJUR	70924	B5095	Oil level unit.	1
A-3772	BIJUR	70924	A-3771	Gasket.	1
MHP-03	PRODUCTO	20467	MHP-03	Spring.	1
JH-1416	TORRINGTON	60380	JH-1416	Bearing.	1
M-14161	TORRINGTON	60380	M-14161	Bearing.	1
NTA-1828	TORRINGTON	60380	NTA-1828	Thrust Race.	1
TRA-1423	TORRINGTON	60380	TRA-1423	Thrust washer.	1
TRA-1828	TORRINGTON	60380	TRA-1828	Washer.	1
5100-112	TRUARC	79136	5100-112	Retainer.	1
5103-87	TRUARC	79136	5103-87	Retainer.	1
	COMMERCIAL			3/8-18 NPT plug (sq. hd. pipe.)	1
	COMMERCIAL			#607 Woodruff key.	1
	COMMERCIAL			5/16-18 x 1/2 Lg. soc. set scrw (cup)	1
	COMMERCIAL			5/16-18 x 1-1/4 Lg. soc. hd cap scrw	2
	COMMERCIAL			5/16-18 x 2-1/2 Lg. soc. hd. cap scrw	1
	COMMERCIAL			3/8 Dia. x 1-1/4 Lg. dowel.	2
	COMMERCIAL			3/16 Dia. X 3/4 Lg. dowel.	1
	COMMERCIAL			#014 "O" ring.	2
	COMMERCIAL			#120 "O" ring.	2
	COMMERCIAL			#020 "O" ring.	1
	COMMERCIAL			5/16-18 x 5/8 Lg. butt hd soc cap scrw	1
	COMMERCIAL			Ball, 3/8 Dia. Hardened steel.	1

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LIST OF ITEMS SHOWN ON: SADDLE AND CROSS SLIDE ASSEMBLY.

Sheet 1 of 2

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
21462	SML	3AA35	21462	Tee bolt.	4
32917	SML	3AA35	32917	Spiral disk.	1
41333	SML	3AA35	41333	Rear wiper.	2
41335	SML	3AA35	41335	Front wiper plate.	2
41336	SML	3AA35	41336	Front wiper felt.	2
42621	SML	3AA35	42621	Dial screw.	1
83672	SML	3AA35	83672	Saddle clamp.	1
84520	SML	3AA35	84520	Hub.	1
84521	SML	3AA35	84521	Push-pull knob.	1
84840	SML	3AA35	84840	Handle.	1
85056	SML	3AA35	85056	Cross feed gear.	1
85057	SML	3AA35	85057	Extension bearing.	1
85058	SML	3AA35	85058	Saddle gib (rear)	1
109647	SML	3AA35	109647	Cross slide.	1
109648	SML	3AA35	109648	Gib.	1
109648	SML	3AA35	109648	Gib.	1
109662	SML	3AA35	109662	Saddle casting.	1
109669	SML	3AA35	109669	26t gear.	1
109670	SML	3AA35	109670	26t idler gear.	1
109671	SML	3AA35	109671	Shaft.	1
109712	SML	3AA35	109712	48t idler gear.	2
109759	SML	3AA35	109759	Cross slide sub assy.	1
114446	SML	3AA35	114446	Mounting plate.	1
114448	SML	3AA35	114448	Inch metric dial.	1
114930	SML	3AA35	114930	Indicator.	1
114988	SML	3AA35	114988	Cross feed screw cover.	1
115428	SML	3AA35	115428	Cross feed screw.	1
115484	SML	3AA35	115484	Hub.	1
115485	SML	3AA35	115485	Handwheel.	1
115486	SML	3AA35	115486	Cover.	1
CL-5-RB	CARR LANE	99862	CL-5-RB	Rest button.	1
10 DU 12	GARLOCK	08479	10 DU 12	Bushing.	1
523	GITS	OBT82	523	Oiler.	3
SCH-1016	INA	58741	SCH-1016	Bearing.	1
BCH-10101	INA	58741	BCH-10101	Bearing.	1
8P	STAFFORD	65646	8P	Collar.	4
NTA-1220	TORRINGTON	60380	NTA-1220	Bearing.	2
NTA-1423	TORRINGTON	60380	NTA-1423	Bearing.	1
TRA-1018	TORRINGTON	60380	TRA-1018	Thrust race.	1
TRA-1220	TORRINGTON	60380	TRA-1220	Thrust race.	1
TRA-1423	TORRINGTON	60380	TRA-1423	Thrust race.	2
J-88	TORRINGTON	60380	J-88	Bearing.	2
BL56N	VLIER	01226	BL56N	Plunger.	1
5100-62	WALDES TRUARC	79136	5100-62	Retaining ring.	1
	WALLACE BARNES	08337	C-0800-038-1000	Spring.	2
	WALLACE BARNES	08337	C-0360-035-1250	Spring.	1
	COMMERCIAL			3/16 Dia. Steel ball.	1
	COMMERCIAL			1/4-28 x 1/4 Soc. hd. cap screw.	1
	COMMERCIAL			3/8 Flat washer.	2
	COMMERCIAL			1/4 x 1 dowel.	1
	COMMERCIAL			5/16 x 2-1/4 Dowel.	1
	COMMERCIAL			1/2 x 32 pull dowel.	1
	COMMERCIAL			1/8 hex soc. pipe plug.	1
	COMMERCIAL			#606 Woodruff key.	2
	COMMERCIAL			1/2-13 Hex nut.	1
	COMMERCIAL			3/4-16 Huglock nut.	1
	COMMERCIAL			5/16-18 x 1 Soc. hd. cap screw.	1

LIST OF ITEMS SHOWN ON: SADDLE AND CROSS SLIDE ASSEMBLY.

Sheet 2 of 2

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
	COMMERCIAL			3/8-16 x 1-1/4 Soc. hd. cap screw.	1
	COMMERCIAL			1/2-13 x 3-1/2 Soc. hd. cap screw.	1
	COMMERCIAL			1/4-28 x 3/4 Hex hd. cap screw/	1
	COMMERCIAL			3/8-16 x 3-1/4 Hex hd. cap screw/	1
	COMMERCIAL			1/2-13 x 1-1/2 Soc. hd. cap screw/	1
	COMMERCIAL			1/4-28 x 3/4 Soc. set screw.	1
	COMMERCIAL			5/16 -24 x 1/2 Soc. set screw.	1
	COMMERCIAL			3/8 x 2 Shoulder screw.	1
	COMMERCIAL			3/16 sq. x 1-1/4 key.	1
	COMMERCIAL			6-32 x 3/8 Flat hd. screw.	1
	COMMERCIAL			#2 x 1-1/4 taper pin.	1
	COMMERCIAL			#4 "U" type drive screw.	1
	COMMERCIAL			5/16 - 18 x 5/8 Soc. set screw.	1
	COMMERCIAL			8-32 x 3/8 Button hd. cap screw.	1

LIST OF ITEMS SHOWN ON COMPOUND ASSEMBLY

Sheet 1 of 1

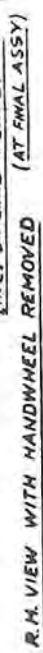
I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
41319	SML	3AA35	41319	Compound nut.	1
41307	SML	3AA35	41307	Compound slide.	1
41321	SML	3AA35	41321	Gib screw.	1
41330	SML	3AA35	41330	Tapered gib.	1
41498	SML	3AA35	41498	Swivel base.	1
83673	SML	3AA35	83673	Dial screw.	1
84882	SML	3AA35	84882	Handle.	1
85042	SML	3AA35	85042	Bearing and gib screw housing.	1
85043	SML	3AA35	85043	Compound screw.	1
114439	SML	3AA35	114439	Mounting plate.	1
114440	SML	3AA35	114440	Handwheel hub.	1
114441	SML	3AA35	114441	Inch metric dial.	1
114857	SML	3AA35	114857	Dial indicator.	1
NTA-815	TORRINGTON	60380	NTA-815	Bearing.	2
TRB-815	TORRINGTON	60380	TRB-815	Washer.	4
522	GITS	OBT82	522	Oiler.	1
	COMMERCIAL			1/2-20 "Nylok" hex nut.	1
	COMMERCIAL			3/8-16 x 1 Lg. soc. hd. cap scrw.	1
	COMMERCIAL			1/2-13 Hdnd. heavy hex nut.	2
	COMMERCIAL			1/4-20 x 2 Lg. soc. hd. cap scrw.	1
	COMMERCIAL			#406 Woodruff key.	1
	COMMERCIAL			#6-32 x 3/8 Lg. soc. hd. cap scrw.	3
	COMMERCIAL			5/8 Dia. x 2 Lg. dowel.	1
	COMMERCIAL			1/8 NPT hex hd. pipe plug.	1
	COMMERCIAL			#4 "U" type drive screw.	2

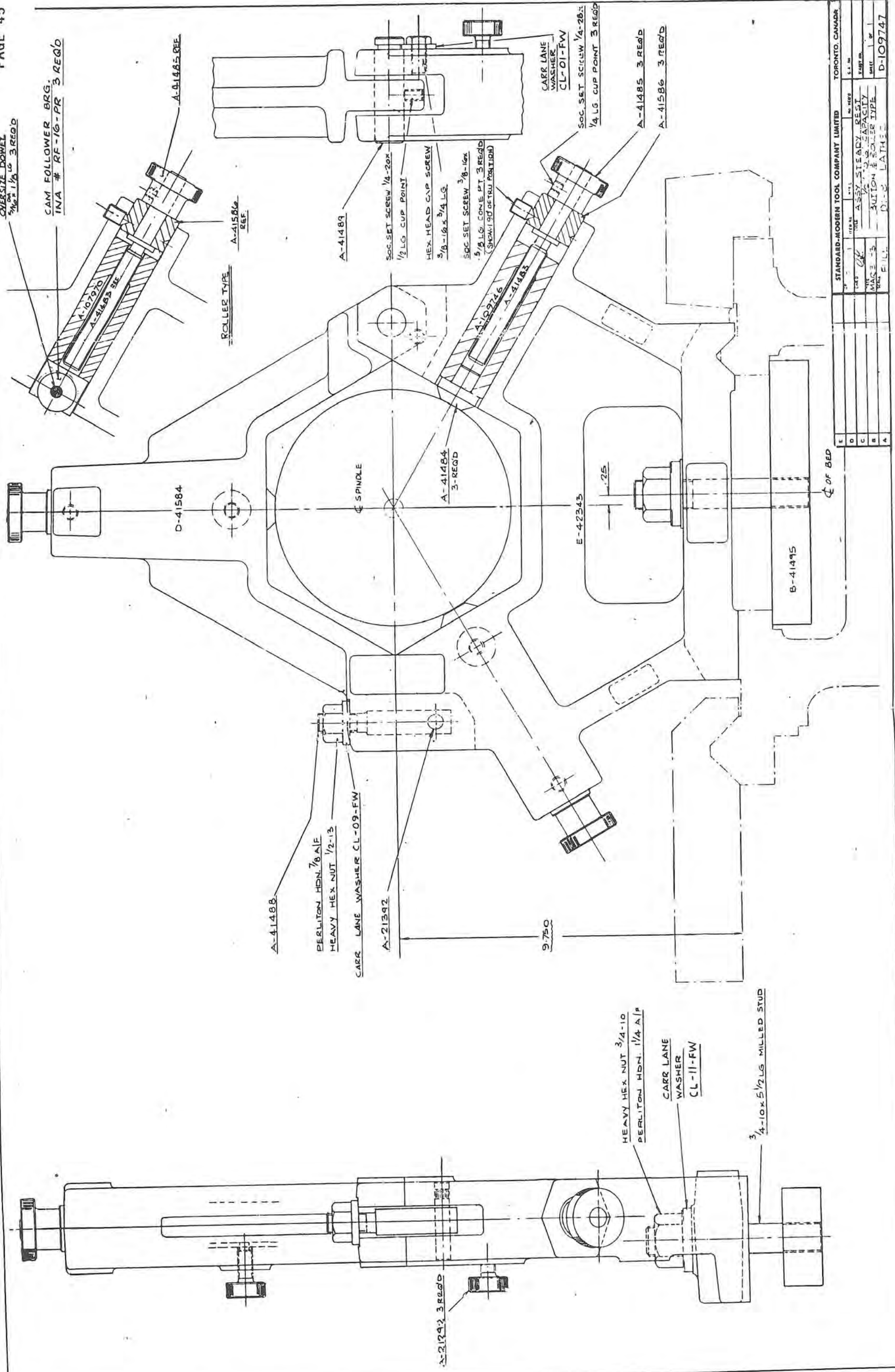
LIST OF ITEMS SHOWN ON TAILSTOCK ASSEMBLY

Sheet 1 of 1

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
21415	SML	3AA35	21415	Spring.	1
41079	SML	3AA35	41079	Lathe center	1
41223	SML	3AA35	41223	Tailstock base casting.	1
41224	SML	3AA35	41224	Clamp plate.	1
41232	SML	3AA35	41232	Retainer.	1
41235	SML	3AA35	41235	Clamp nut.	1
41236	SML	3AA35	41236	Clamp handle.	1
41238	SML	3AA35	41238	Clamp shaft.	1
41241	SML	3AA35	41241	Clamp bolt.	1
41242	SML	3AA35	41242	Adjusting screw.	1
41243	SML	3AA35	41243	Adjusting block.	1
41462	SML	3AA35	41462	Housing.	1
41464	SML	3AA35	41464	Replaceable nut.	1
41465	SML	3AA35	41465	Spindle screw.	1
41466	SML	3AA35	41466	Bearing seat collar.	1
41467	SML	3AA35	41467	Bearing spacer.	1
41468	SML	3AA35	41468	Bearing retainer.	1
41470	SML	3AA35	41470	Clamp lever.	1
41472	SML	3AA35	41472	Clamp bush.	1
41477	SML	3AA35	41477	Insert.	1
41518	SML	3AA35	41518	Modified button head screw	1
41819	SML	3AA35	41819	Clamp stud.	1
43281	SML	3AA35	43281	Handwheel.	1
84494	SML	3AA35	84494	Handle.	1
84600	SML	3AA35	84600	Graduated plate.	1
6208-2RS	FAG	36069	6208-2RS	Ball bearing.	1
533	GITS	OBT82	533	Oil hole cover.	1
CL 04 FW	CARR LANE	99862	CL 04 FW	Washer.	1
CL10-FW	CARR LANE	99862	CL10-FW	Washer.	1
CL 12 FW	CARR LANE	99862	CL 12 FW	Washer.	1
533	GITS	OBT82	533	Oiler	1
T35-6	WILLIAMS	65814	T35-6	T-bolt.	1
	COMMERCIAL			#334 "O" ring.	1
	COMMERCIAL			#4 x 1/4 Lg. type "U" drive screws.	2
	COMMERCIAL			#607 Woodruff key.	1
	COMMERCIAL			.3125 Dia. steel ball.	1
	COMMERCIAL			1/4 Dia x 1-1/2 Felt wick.	3
	COMMERCIAL			1/4-28 x 1 Soc. hd. cap screw.	1
	COMMERCIAL			3/4-10 Heavy hex nut.	1
	COMMERCIAL			3/8 Dia. washer "W-1".	1
	COMMERCIAL			3/8 Dia. x 2 Hard dowel.	1
	COMMERCIAL			3/8 Dia. x 3 Soc. hd shoulder screw.	1
	COMMERCIAL			3/8-16 x 1-1/2 Lg. soc. hd. cap scrw.	2
	COMMERCIAL			3/8-16 x 2-1/2 Lg. "nylok" soc set scw	1
	COMMERCIAL			3/8-16 x 3/8 Lg. soc. set scrw.	2
	COMMERCIAL			3/8-16 x 5/8 Hex hd. machine screw.	1
	COMMERCIAL			3/8-24 x 3/4 Lg. soc. hd. cap scrw.	1
	COMMERCIAL			5/16-18 x 1-1/4 Soc. hd. cap screw.	1
	COMMERCIAL			5/8 Dia. x 5 Milled stud.	1

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
21292	SML	3AA35	21292	Knob.	3
41488	SML	3AA35	41488	Eye bolt.	1
21392	SML	3AA35	21392	Pivot pin.	1
41495	SML	3AA35	41495	Clamping plate.	1
42343	SML	3AA35	42343	Lower casting.	1
41584	SML	3AA35	41584	Upper casting.	1
41585	SML	3AA35	41585	Sleeve for steady rest.	3
41586	SML	3AA35	41586	Bushing.	3
41483	SML	3AA35	41483	Adjusting screw.	3
109746	SML	3AA35	109746	Button sleeve.	3
41489	SML	3AA35	41489	Hinge pin.	1
41484	SML	3AA35	41484	Button.	3
107970	SML	3AA35	107970	Roller sleeve.	3
CL 11 FW	CARR LANE	99862	CL 11 FW	Washer.	1
CL 01 FW	CARR LANE	99862	CL 01 FW	Washer.	1
CL 09 FW	CARR LANE	99862	CL 09 FW	Washer.	1
RF-16-PR	INA	58741	RF-16-PR	Cam follower bearing.	3
	COMMERCIAL			3/4-10 Heavy hex nut - 1-1/4 A/F	1
	COMMERCIAL			1/2-13 Heavy hex nut - 7/8 A/F.	1
	COMMERCIAL			3/4-10 x 5-1/2Lg Milled stud.	1
	COMMERCIAL			5/16Dia. x 1-1/8"Lg. Oversize dowel.	3
	COMMERCIAL			1/4-20 X 1/2Lg. Cup pt. set screw.	1
	COMMERCIAL			3/8-16 x 3/4 Lg. Hex hd. cap screw.	1
	COMMERCIAL			3/8-16 X 5/8 Lg. Soc. set screw.	3
	COMMERCIAL			1/4-28 X 1/4"Lg. Cup pt. set screw.	3

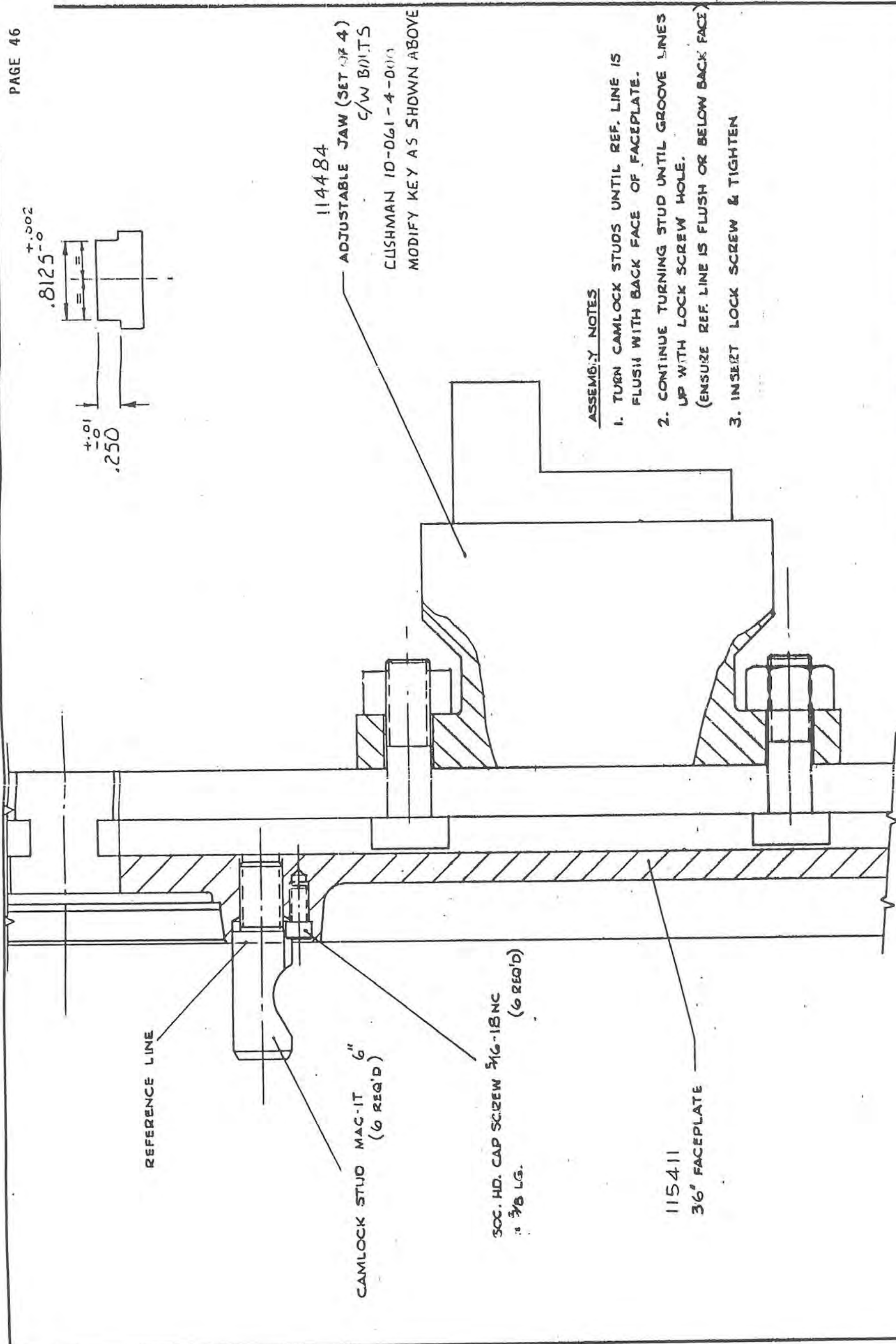
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LIST OF ITEMS SHOWN ON 36" DIAMETER FACEPLATE

Sheet 1 of 1

I.D. NUMBER	MANUFACTURE R	FSCM	PART NUMBER	NOMENCLATURE	QTY
115411	SML	3AA35	115411	36" Diameter faceplate	1
114484	SML	3AA35	114484	Adjustable jaws.	4
D1-6	MAC - IT	76068	D1-6	Cam lock stud.	6
	COMMERCIAL			5/16-18 Soc. hd cap screw.	6



ASSEMBLY NOTES

1. TURN CAMLOCK STUDS UNTIL REF. LINE IS FLUSH WITH BACK FACE OF FACEPLATE.
2. CONTINUE TURNING STUD UNTIL GROOVE LINES UP WITH LOCK SCREW HOLE.
(ENSURE REF. LINE IS FLUSH OR BELOW BACK FACE)
3. INSERT LOCK SCREW & TIGHTEN

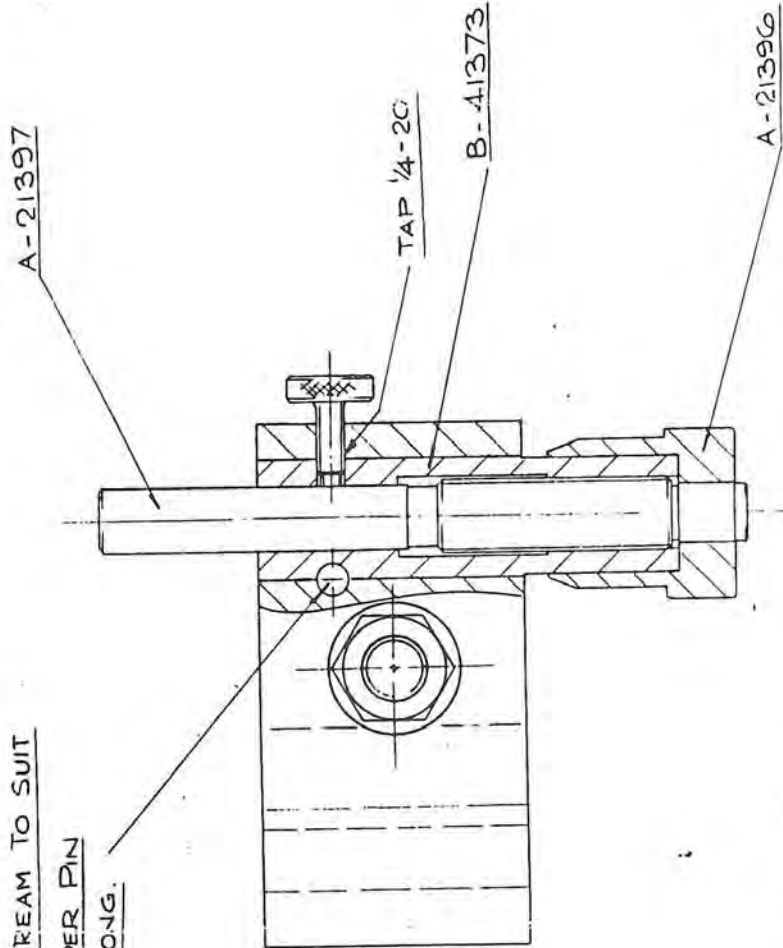
STANDARD-MORSE TOOL COMPANY LIMITED				TORONTO, CANADA			
G.L.		DATE		Q.L. NO.		Q.L. NO.	
36" FACEPLATE ASSY		WITH JAWS		20		20	
MAY 83		FULL		20		20	
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LIST OF ITEMS SHOWN ON: MICROMETER CARRIAGE STOP (INCH)

Sheet 1 of 1

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
21396	SML	3AA35	21396	Knob.	1
21397	SML	3AA35	21397	Threaded stem.	1
30586	SML	3AA35	30586	Clamp screw.	1
41372	SML	3AA35	41372	Clamp.	1
41373	SML	3AA35	41373	Graduated sleeve.	1
41374	SML	3AA35	41374	Carriage stop body.	1
41476	SML	3AA35	41476	Collar.	1
CL 2 FW	CARR LANE	99862	CL 2 FW	Washer.	1
	COMMERCIAL			1/4 Dia. x 3/4 Dowel.	1
	COMMERCIAL			1/2-13 x 7/8 Heavy hex nut.	1
	COMMERCIAL			1/2-13 x 4 Milled stud.	1
	COMMERCIAL			#4 x 1-1/2 Taper pin.	1

DRILL #4 (.209 DIA.) & REAM TO SUIT
#4 TAPER PIN
1 1/2 LONG.

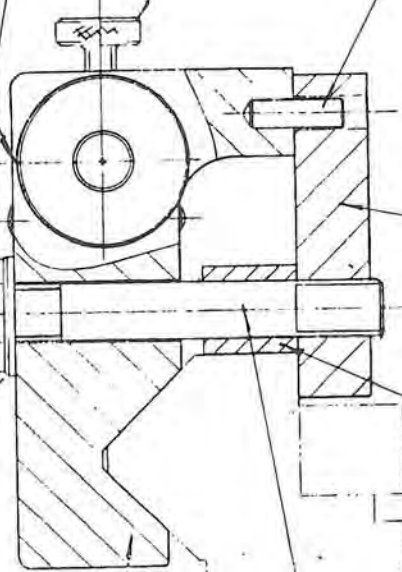


WASHER
CL-2-FW
CARR LANE

HEAVY HEX NUT
1/2-13 7/8 A/F

B-41374
(PATT. No. 41371)

B-41373 TO BE ASSEMBLED
WITH GRADUATIONS IN THIS POSN



MILLED STUD
1/2-13 x 4 LG.

A-30586

DOWEL 1/4 DIA x 3/4

A-41476

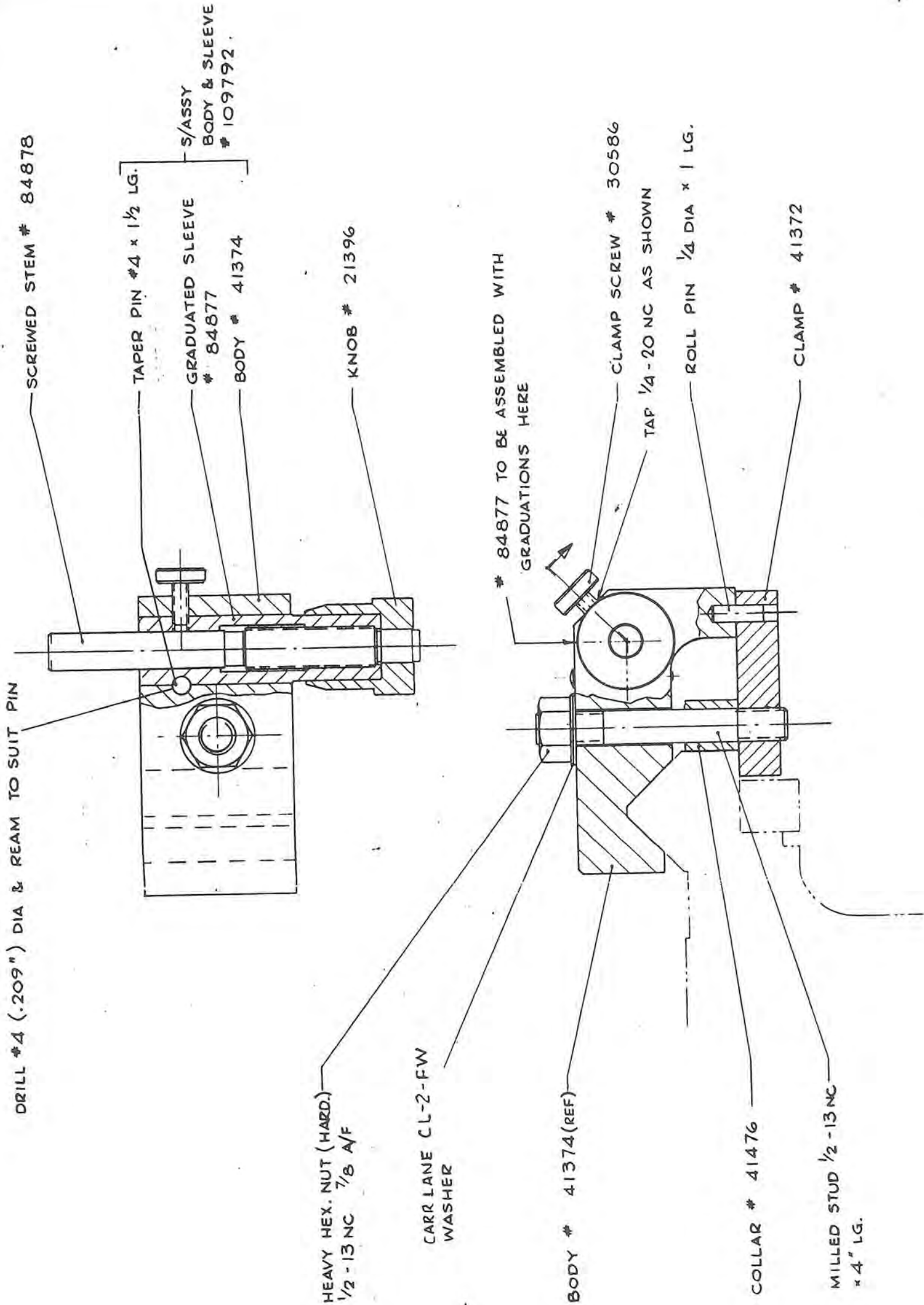
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LIST OF ITEMS SHOWN ON: MICROMETER CARRIAGE STOP (METRIC)

Sheet 1 of 1

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
21396	SML	3AA35	21396	Knob.	1
84878	SML	3AA35	84878	Threaded stem.	1
30586	SML	3AA35	30586	Clamp screw.	1
41372	SML	3AA35	41372	Clamp.	1
84877	SML	3AA35	84877	Graduated sleeve.	1
41374	SML	3AA35	41374	Carriage stop body.	1
41476	SML	3AA35	41476	Collar.	1
CL 2 FW	CARR LANE	99862	CL 2 FW	Washer.	1
	COMMERCIAL			1/4 Dia. x 3/4 Dowel.	1
	COMMERCIAL			1/2-13 x 7/8 Heavy hex nut.	1
	COMMERCIAL			1/2-13 x 4 Milled stud.	1
	COMMERCIAL			#4 x 1-1/2 Taper pin.	1



STANDARD-MODERN TOOL COMPANY LIMITED				TORONTO, CANADA			
E	REV.	DATE	BY	ITEM NO.	REV.	DATE	BY
D				1			
C				2			
B				3			
A				4			
				MICROMETER CARRIAGE			
				STOP ASSY - METRIC			
				DI-B LATHES			
				C-109791			

I.D. NUMBER	MANUFACTURER	FSCM	PART NUMBER	NOMENCLATURE	QTY
115600	SML	3AA35	115600	Side support (chuck guard)	2
115600	SML	3AA35	115600	Side support (chip guard)	2
115603	SML	3AA35	115603	Mounting block. (Chuck guard)	1
115603	SML	3AA35	115603	Mounting block. (Chip guard)	1
115604	SML	3AA35	115604	Clamping block.	1
115605	SML	3AA35	115605	Chip guard clamp	1
115607	SML	3AA35	115607	Support shaft	1
115613	SML	3AA35	115613	Chuck guard	1
115613	SML	3AA35	115613	Chip guard	1
115614	SML	3AA35	115614	Pivot shaft (Chuck guard)	1
115614	SML	3AA35	115614	Pivot shaft (Chip guard)	1
115615	SML	3AA35	115615	Support shaft	1
	COMMERCIAL			Stop pin ¼" dia.X1 ½" Lg. (chip guard)	2
	COMMERCIAL			Stop pin ¼" dia.X1 ½" Lg. (chuck guard)	1
	COMMERCIAL			Stop screw (chip guard)	2
	COMMERCIAL			Stop screw (chuck guard)	1

NIPPLE $\frac{1}{4}$ NPT \times 2 (2)
REDUCER $\frac{3}{8}$ - $\frac{1}{4}$ NPT (2)

SWIVEL ELBOW, PARKER # S2202-6-6
SHUT-OFF VALVE, PARKER # V500P-4
STREET ELBOW $\frac{3}{8}$ NPT

NOZZLE, FLEX. ANACONDA F2- $\frac{3}{8}$
#102057

CONNECTOR, PARKER
PUSH-LOK # 30282-6-6

NIPPLE $\frac{3}{8}$ NPT \times 20 LG
ELBOW $\frac{3}{8}$ NPT

MTG. BLOCK
83771

ELBOW $\frac{3}{8}$ NPT
(REF)
NIPPLE $\frac{3}{8}$ NPT
 \times 4 LG.

FLEX. HOSE
PARKER # 801-6

REDUCER $\frac{3}{4}$ - $\frac{1}{2}$ NPT
CONNECTOR, PARKER
PUSH-LOK # 30182-8-6

PUMP, GRAY MILLS
BSW-108H-A
PLUG $\frac{3}{4}$ NPT

COOLANT ASSEMBLY	25-M1140
20/36-54 GAP BED	115542

LIST OF ITEMS SHOWN ON COOLANT ASSEMBLY

Sheet 1 of 1

I.D. NUMBER	MANUFACTURE R	FSCM	PART NUMBER	NOMENCLATURE	QTY
83771	SML	3AA35	83771	Mounting block	1
102057	ANACONDA	3AA35	102057	Flexible nozzle.	1
BSW-108H	GRAY MILLS	26023	BSW-108H-A	Coolant pump.	1
S2202-6	PARKER	17506	S2202-6	Swivel elbow.	1
V500P-4	PARKER	17506	V500P-4	Shut off valve.	1
801-6	PARKER	17506	801-6	Flex Hose	1
30182-8-6	PARKER	17506	30182-8-6	Push lock connector	2
	COMMERCIAL			1/4NPT x 2Lg. Nipple	2
	COMMERCIAL			3/4 NPT Plug.	1
	COMMERCIAL			3/4-1/2 NPT Reducer.	1
	COMMERCIAL			3/8 NPT x 20"Lg. Nipple	2
	COMMERCIAL			3/8 NPT x 4"Lg. Nipple.	1
	COMMERCIAL			3/8-1/4 NPT Reducer.	2
	COMMERCIAL			3/8NPT Elbow.	2
	COMMERCIAL			3/8NPT Street elbow.	1