

**TECHNICAL MANUAL**

**OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT**

**AND GENERAL SUPPORT MAINTENANCE**

**MANUAL INCLUDING REPAIR PARTS LIST**

**FOR**

**LATHE, ENGINE  
MODEL 1754  
(NSN) 3416-00-250-6550)**

**STANDARD-MODERN TOOL COMPANY, LIMITED**

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**HEADQUARTERS, DEPARTMENT OF THE ARMY**

**JANUARY 1983**

Technical Manual  
No. 9-3416-236-14&P,



HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC, 7 January 1983

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INCLUDING REPAIR PARTS LIST  
FOR  
LATHE, ENGINE  
MODEL 1754  
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**REPORTING OF ERRORS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, IL 61299. A Reply will be furnished directly to you.

**NOTE**

**This manual is published for the purpose of identifying an authorized commercial manual for the use of the personnel to whom this equipment is issued.**

Manufactured By: Standard-Modern Tool Company, Limited  
69 Montcalm Avenue  
Toronto, Canada M6E4N9

Procured under Contract No. DAAA09-77-C-6014

This technical manual is an authentication of the manufacturers' commercial literature and does not conform with the format and content specified in AR 310-3, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

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# **INSTRUCTIONS FOR REQUISITIONING PARTS NOT IDENTIFIED BY NSN**

When requisitioning parts not identified by National Stock Number, it is mandatory that the following information be furnished the supply officer.

1. Manufacturer's Federal Supply Code Number. 36195
2. Manufacturer's Part Number exactly as listed herein.
3. Nomenclature exactly as listed herein, including dimensions, if necessary
4. Manufacturer's Model Number. 1754
5. Manufacturer's Serial Number (End Item).
6. Any other information such as Type, Frame Number, and Electrical Characteristics, if applicable.
7. If DD Form 1348 is used, fill in all blocks, except 4, 5, 6, and Remarks field in accordance with AR 725-50.

Complete Form as Follows:

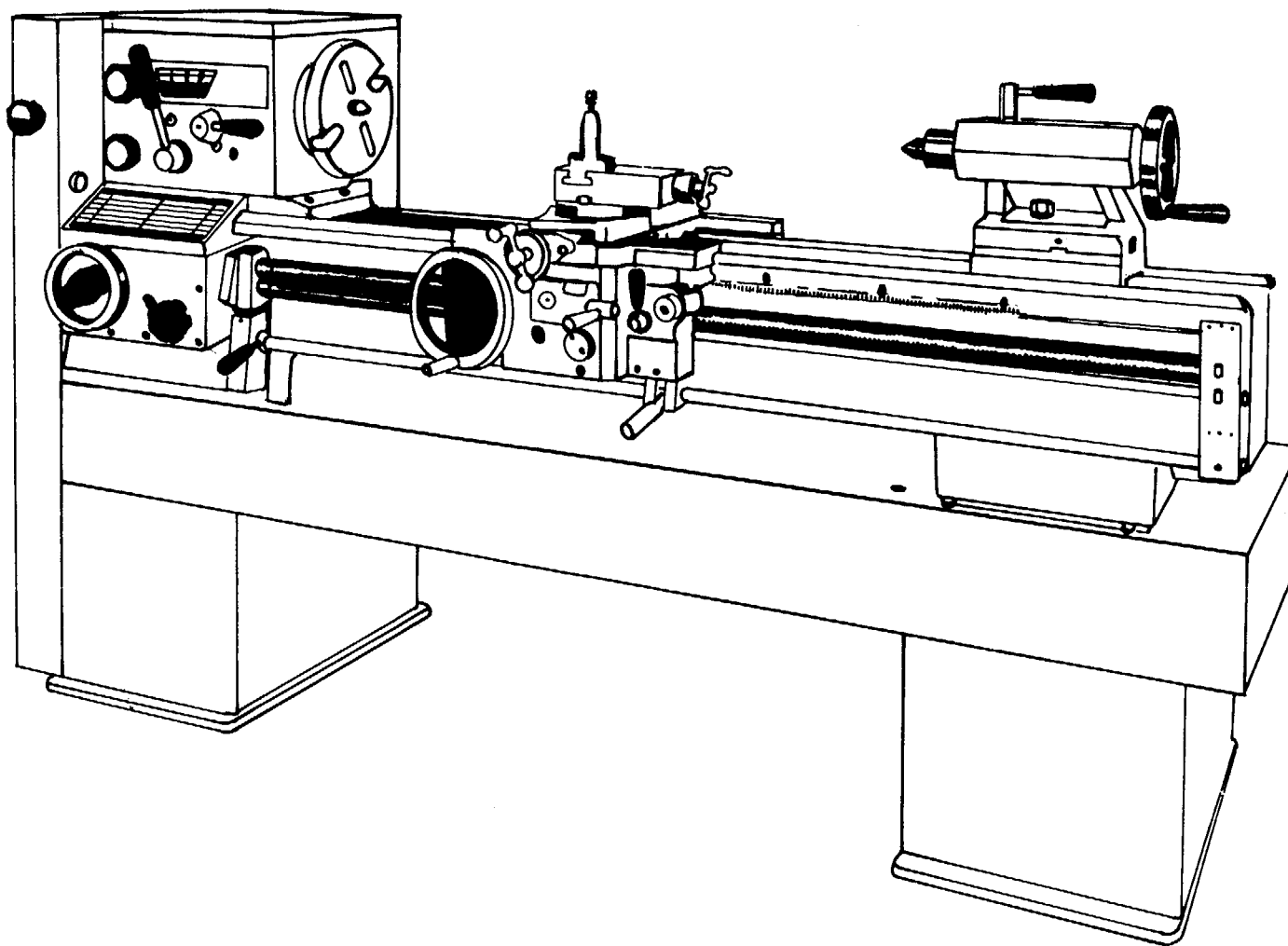
(a) In blocks 4, 5, 6, list manufacturer's Federal Supply Code Number - 36195 followed by a colon and manufacturer's Part Number for the repair part.

(b) Complete Remarks field as follows:

Noun: (nomenclature or repair part)  
For: NSN: 3416-00-250-6550.  
Manufacturer: Standard-Modern Tool Company, Limited  
69 Montcalm Avenue, Toronto, Ontario M6E4N9

Model: 36195  
Serial: (of end item)

Any other pertinent information such as Frame Number, Type, Dimensions, etc.



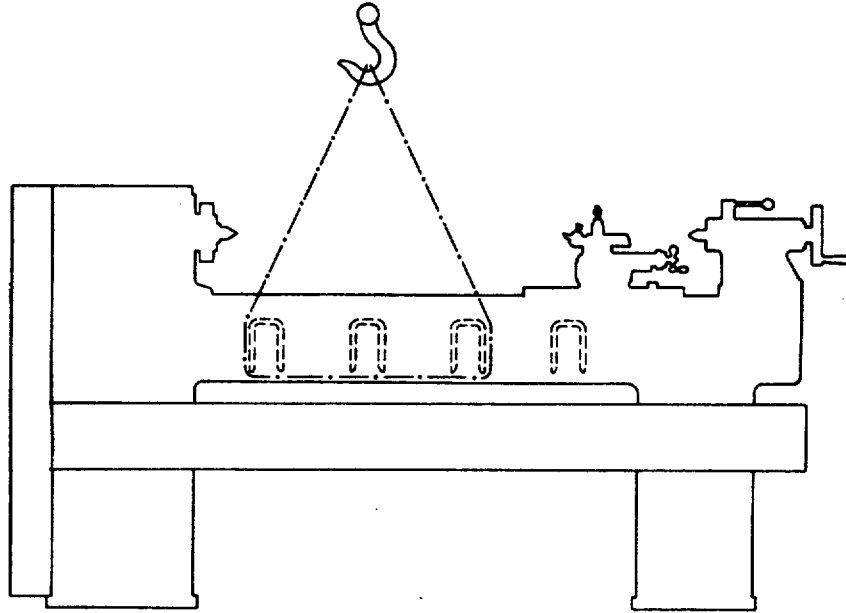
GENERAL VIEW

## SECTION I. LIFTING AND INSTALLATION INSTRUCTIONS

### 1.1 Lifting the Machine

To lift the machine by the use of chain slings, run the carriage down to the tailstock and place the slings around the center bed cross ribs. Protect painted

surfaces with thick pads. Lifting equipment should have the capacity of approximately 4000 lbs. Do not remove skids from the machine until it is brought to its final position.



*Lifting the Machine*

### 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 immediately, giving the serial number of the machine which is stamped on 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 on their respective slides. To remove the anti-rust compound use a wiper dipped in Kerosene. All unpainted surfaces should immediately be coated with a film of light machine oil to prevent rust. If the finished surfaces are kept clean and well coated with oil, the lathe will retain its new appearance indefinitely.

### 1.4 Installation

a. For proper operation, the machine should be set on a substantial floor capable of supporting the weight safely. To secure the machine on its foundation use

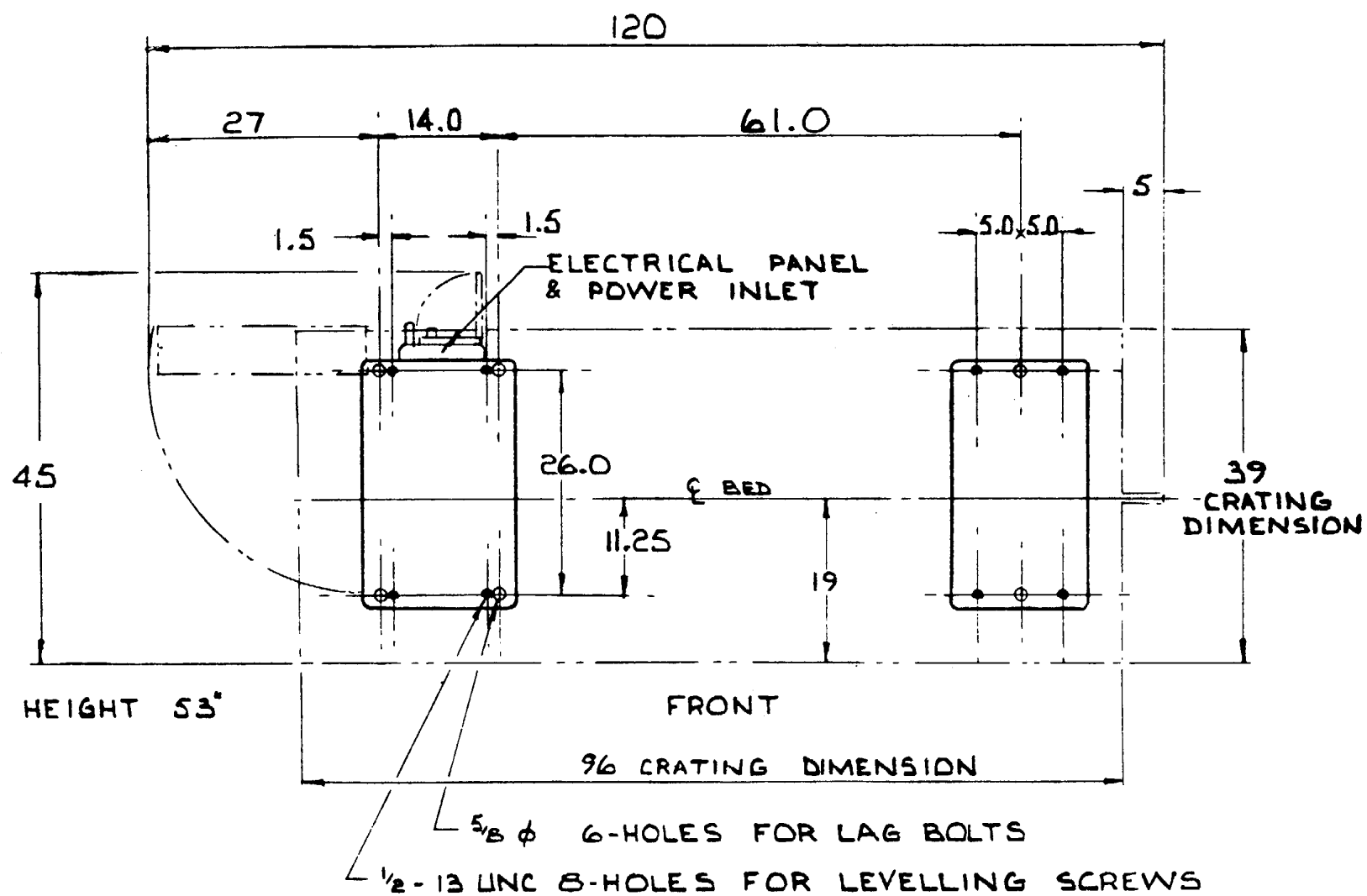
anchor bolts or lag screws. For the size of the lathe and the location of the bolt holes see the floor plan.

b. After the machine is in position, it must be leveled by the use of the square head set screws provided before tightening the lag screws. It will be necessary to use 4 inch square steel plates, about 3/8 thick, under the leveling screws to prevent the ends of the screws from sinking into the floor.

c. It is important that the lathe be level in order to produce accurate work.

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

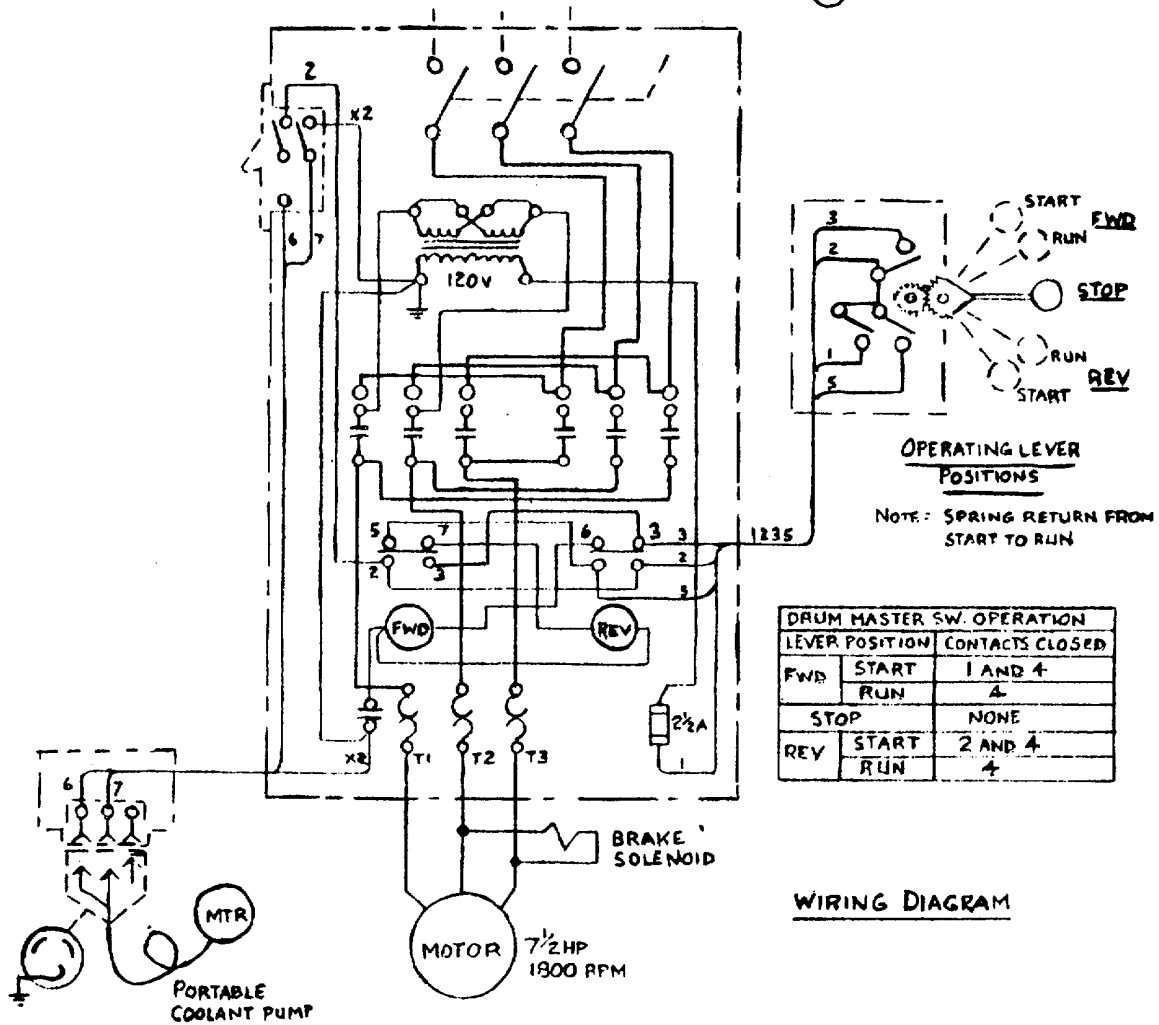
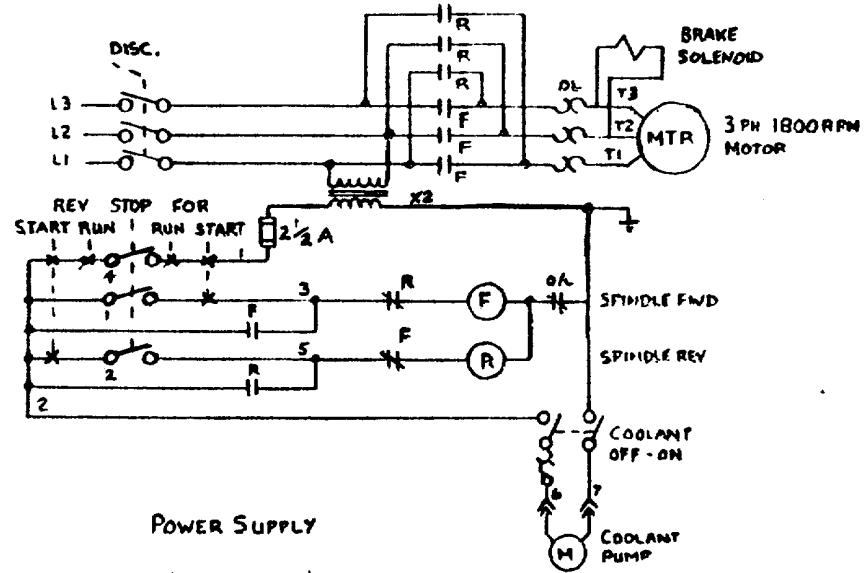
e. After all the strain and twist has been removed from the lathe bed, and it checks perfectly level, the pedestals should be lagged to the floor, and the leveling rechecked. Re-check the level of the machine at regular intervals.



## FLOOR PLAN



SCHEMATIC  
DIAGRAM



ELECTRICAL DIAGRAM MODEL 1754 LATHE

## SECTION II. LUBRICATION

### 2.1 General

All machines are shipped with the lubricant oil drained from the oil sumps in the headstock, feedbox, and apron, and must be serviced before being put into use. A high grade S.A.E. No. 30, Mineral Oil should be used. (Viscosity 500-530 SUS at 100 Deg. F.)

#### (CAUTION)

**Do not mix detergent type, automotive oil or multipurpose oils with the type of oil specified.**

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.

### 2.2 Headstock

a. The lubrication of the headstock is automatic, so that an even distribution throughout the headstock is assured.

b. To service the headstock, fill the reservoir to the centre of the oil sight guage through the oil pipe at the left end of the headstock inside the end guard.

The reservoir capacity of the headstock is approximately 9 British Imperial Quarts or 11 U.S. Quarts.

c. Depending on operating conditions, usually about every six months, the headstock should be drained and thoroughly flushed out, before adding new oil. The drain pipe is located at rear bottom of headstock.

d. Because most solvents tend to soften paints, they are not recommended as flushing mediums. A light blending 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.

### 2.3 2-Speed Headstock Drive

a. Four grease fittings, located inside the end guard, lubricate the shaft bearings of the 2-Speed Drive.

b. On the 2-Speed Drive, between the large "Slow Range" Pulley and the smaller "Fast Range" Pulley, a CLUTCH BOBBIN slides on a multi-tooth sleeve which requires the application of grease at regular intervals, to assure free shifting.

c. In order to apply grease to the sleeve, move the bobbin first to the "Fast" position and then to the "Slow" position. (The "SLOW RANGE-FAST RANGE" SELECTOR KNOB actuates the Clutch Bobbin).

d. Use a small rod to insert the grease on either side of the bobbin.

e. Also apply grease to the groove in the clutch bobbin to prevent noise from the actuating pin.

### 2.4 Feedbox

a. The lubrication of the Totally Enclosed Feedbox is automatic so that an even distribution throughout is assured. To service the feedbox, fill reservoir to the centre of the oil sight guage through filler elbow at left end of feedbox. The reservoir capacity of the Feedbox is approximately 2 British Imperial Quarts or 2 1/2 U.S. Quarts.

b. Feedbox should be drained and flushed, using same procedure as outlined for headstock, approximately every 6 months. The drain hole is located on front face of Feedbox at left hand end.

### 2.5 Compound

On the compound rest, one oil hole lubricates both the ways and the screw, while an oiler lubricates the screw bearing.

### 2.6 Cross Slide

a. Off the three ball type oilers on top of the cross slide the two outer ones lubricate the cross slide dovetails and bearing surfaces on the saddle.

b. These two oilers are not used when the One-Shot Lubricator provides lubrication to the bearing surfaces through internal passages in the saddle. This lubricating system with One-Shot Lubricator, located on the apron, is option equipment.

c. 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.

d. The cross feed screw bearing is lubricated by an oiler behind the cross feed dial.

### 2.7 Saddle

a. On the right top side of the saddle wings two oilers lubricate the bearing surfaces of the saddle on bedways. These two oilers are not used when the oil is supplied by the One-Shot Lubricator.

b. The oil flows down through the oilers, or flows through the inside oil passages when using One-Shot Lubricating System, out onto the ways and along the length of the saddle through oil grooves.

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

### 2.8 Apron

a. The box construction of the apron completely encloses all moving parts. The lower half forms a large oil

reservoir in which all the gears run, so providing an even distribution of lubricant.

*b.* Service the apron reservoir through the oil cup at the back of the apron handwheel. Fill with oil to the centre of the oil sight guage. The reservoir capacity of the apron is approx. 1l British Imperial Quart or 1 ¼ U.S.

Quarts.

*c.* The apron oil reservoir should be drained, flushed and re-filled with fresh, clean oil at least once every 6 months.

*d.* Two oil cups, located on the right hand front of the apron, lubricate individually the half-nuts control shaft and the thread chasing dial shaft.

## **2.9 Tailstock**

*a.* The spindle and screw are lubricated by an oiler located on top of the spindle housing.

*b.* The bedways on which the tailstock slides should be cleaned and oiled frequently.

*c.* 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.

## **2.10 Bed End Bracket and Leadscrew**

*a.* Three grease fittings, located on the front face of the Bed End Bracket, lubricate individually the ends of the Leadscrew, Feed Shaft and Control Shaft.

*b.* Grease every 8 working hours the end of the Leadscrew and the end of the Feedshaft. The end of the Control Shaft requires grease once a month, as indicated on Lubrication Plate.

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

## **2.11 Taper Attachment**

*a.* Clean and oil the pivoted Slide Bar before using.

*b.* Three oilers lubricate the cross guide bar and two oilers provide lubrication to the slide plate dovetails.

### SECTION III. OPERATING INSTRUCTIONS

#### 3.1 Motor Drive and Belt Tension Control

a. The Electrical Motor, located in the pedestal below the headstock, drives the machine through a 2-Speed Drive Arrangement with Super H.C. V-Belts. All belts are the same length and are interchangeable with one another.

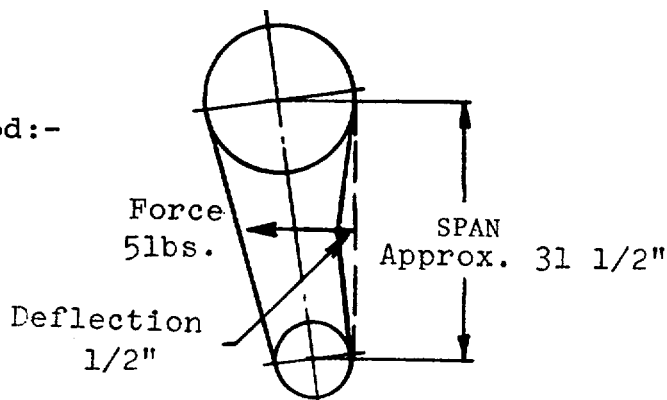
b. When replacing belts, loosen the motor plate clamps and lift the motor plate. The belts on the Slow Range Pulley can be readily removed, simply by rolling them off the pulley. However, replacement of the Fast

Range Belts, requires the removal of the Shifting Arm which drops down between the two pulleys.

c. When replacing the shifting arm, place the Clutch Bobbin in its central position between the pulleys and clamp the shifting arm by tightening the 3/8 Soc. Hd. Cap Screw. Be sure the clutch actuating pin does not touch the bottom of the Bobbin groove. Leave 1/32" clearance to prevent rubbing. With the shifting arm in position adjust the new belts for proper tension (see below) and tighten motor plate clamps.

For the correct belt tension,  
use the following simple method:-

At the centre of the span  
apply a force of 5 lbs.  
using a spring scale  
(at right angles to the span)  
to deflect the belt 1/2 inch.



*Motor Drive and Belt Tension Control*

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

#### 3.2 Motor Spindle and Rotation Control

a. Spindle rotation is controlled by means of the dual Control Levers mounted on a common Control Shaft. This control shaft in turn actuates a 3-position Rotary Pilot Switch which selects FORWARD, STOP and REVERSE rotation of the motor and spindle.

b. The switch box and the L.H. CONTROL LEVER are located just below the headstock at the right lower side of the feedbox.

c. The R.H. CONTROL LEVER is mounted at the right lower side of the apron and moves with the apron along the bed.

d. Lifting the levers up gives FORWARD rotation of spindle in the normal direction for turning, drilling, boring, etc. Pushing the levers down gives REVERSE spindle rotation. The central or STOP position stops the spindle.

#### 3.3 Spindle Speed Selection

a. The direct reading SPINDLE SPEED CHART is located on the upper front face of the Headstock. Immediately below are two speed selectors: THE 4-

POSITION SHIFTER and the "HIGH-LOW" SHIFTER. The third speed selector: The "FAST RANGE - SLOW RANGE" SELECTOR KNOB is located at the left hand end of headstock.

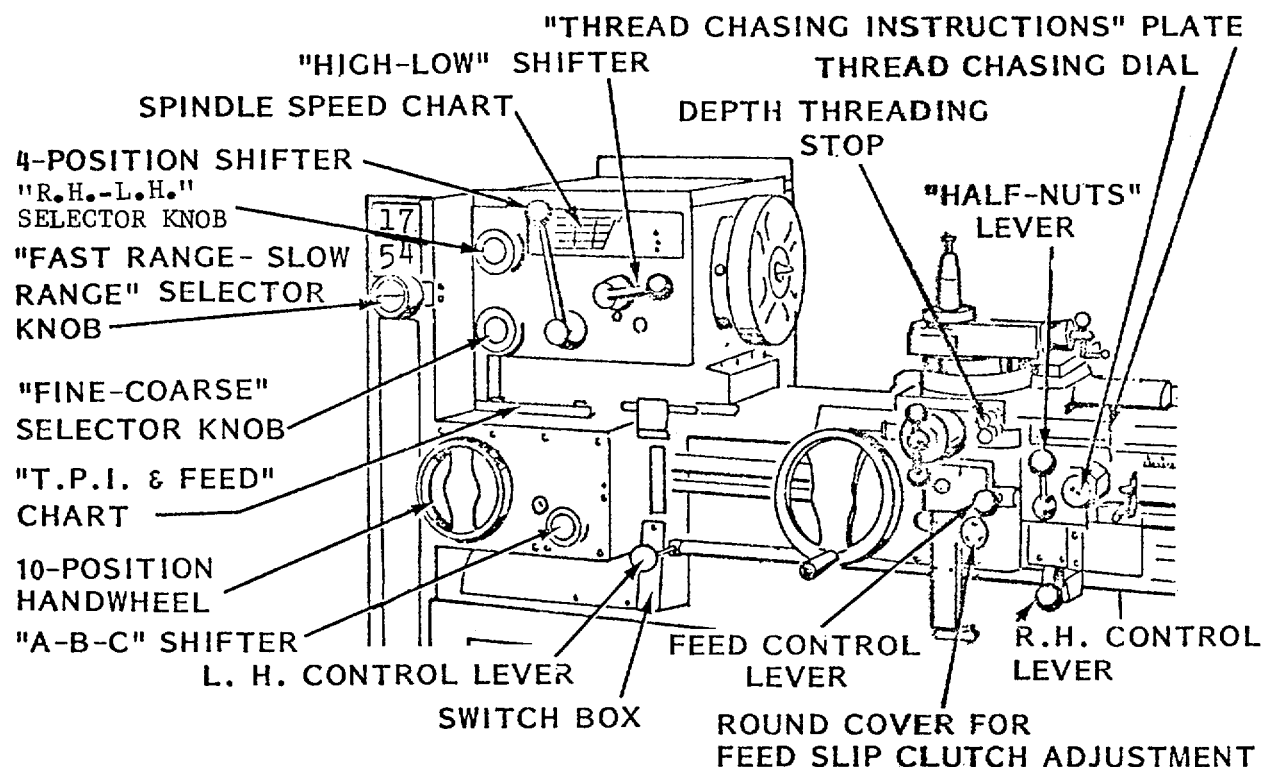
b. The desired spindle speed is obtained by placing the three Speed Selectors in positions corresponding to the selected spindle R.P.M. number noted directly on the SPINDLE SPEED CHART. For free hand rotation of the spindle move the "HIGH-LOW" SHIFTER to its NEUTRAL Position.

#### **CAUTION**

**Do not operate the speed selectors  
when the motor is running.**

#### 3.4 Power Feeds

a. To select the power longitudinal feed or the power cross feed arrange the "R.H. - L.H." and "FINE - COARSE" SELECTOR KNOBS on the headstock and also the "A-B-C" SHIFTER and the 10-POSITION HANDWHEEL on the feedbox, to correspond to the desired feed rate indicated on the "T.P.I. and FEED" CHART.



#### *Motor and Spindle Rotation Control*

b. As an added feature all feed rates are exactly as shown on the chart. This makes it possible to cut scrolls on faceplate work when using the power cross feed.

#### **(CAUTION)**

**Avoid the coarse range of feeds when spindle speeds are above 500 rpm.**

c. For longitudinal power feed move the FEED CONTROL LEVER up to the "LONG FEED" POSITION and the tool will move along the bed parallel to the spindle.

d. For cross power feed move the FEED CONTROL LEVER down to the "CROSS FEED" position, and the tool will move across the bed, at right angle to the spindle.

#### **NOTE**

**A short side shift is required before shifting from LONG FEED to CROSS FEED or vice-versa. This prevents accidental through-shifting.**

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

#### **3.5 Automatic Carriage Stop**

a. As an additional feature, lathes can be equipped with automatic feed trip to provide accurate carriage

stopping at any point on the bed and in either direction of longitudinal feed.

b. Simply clamp the moveable TRIP DOG to the rail at the desired stopping position.

#### **3.6 Thread Cutting and Thread Chasing Dial**

a. When cutting screw threads select the desired T.P.I. setting, and proceed in the normal manner.

b. To engage Apron for threading, the HALF-NUTS are brought into mesh with the Leadscrew by pushing the "HALF-NUTS" LEVER down.

c. To disengage, lift the same lever up.

d. The THREAD CHASING DIAL is conveniently located in relation to the lever and the "THREAD CHASING INSTRUCTIONS" PLATE is attached to the saddle wing just above it.

e. For cutting metric or special threads an ADJUSTABLE BRACKET with CHANGE GEARS for desired pitches is available as optional equipment together with a nameplate with TABLES of THREADS and PARTICULARS of CHANGE GEARS and FEEDBOX SETTINGS (as shown below).

(1) For cutting the METRIC PITCHES as per chart a set of seven change gears is required.

(2) Virtually ANY DESIRED PITCH can be cut via the use of special change gears. Consult manufacturer for particulars.

END GEAR TRAIN TABLE OF METRIC PITCHES WITH PARTICULARS OF CHANGE GEARS AND FEEDBOX SETTINGS			
METRIC PITCHES			
PITCH IN MM	CHANGE GEAR A	CHANGE GEAR B	FEEDBOX SETTING T.P.I.
0.125	50	127	80
0.15	60	80	80
0.175	70	80	80
0.2	80	80	80
0.225	45	40	40
0.25	80	64	64
0.3	60	40	40
0.35	70	40	40
0.4	80	40	40
0.45	45	20	20
0.5	80	32	32
0.6	60	20	20
0.7	70	20	20
0.75	60	16	16
0.8	80	20	20
1.0	80	16	16
1.25	50	8	8
1.5	60	8	8
1.75	70	8	8
2.0	80	8	8
2.5	50	4	4
3.0	60	4	4
3.5	70	4	4
4.0	80	4	4
4.5	45	2	2
5.0	50	2	2
5.5	55	2	2
6.0	60	2	2
7.0	70	2	2
8.0	80	127	2

**NOTE:**  
WHEN CUTTING INCH THDS.  
REMOVE CHANGE GEARS  
A & B AND BRING 45 TOOTH  
GEARS AT REAR INTO MESH.

Table of Metric Pitches

f: The Thread Chasing Dial cannot be used when cutting metric threads. The half nuts must be closed during the entire threading operation. Use the reversing motor to return carriage at the end of each cut after retracting the cutting tool.

**NOTE**

It is not necessary to remove the **ADJUSTABLE BRACKET** when cutting Standard Inch Pitches. Simply remove the outer change gears and bring the 45T gears at rear into mesh.

**3.7 Taper Turning Attachment**

*Telescopic Type-Saddle Mounted*

*Taper: 4" per foot on dia. or 20 deg. included angle*

*Stroke: 12" - Standard, or 15" stroke - special*

**a. For Taper Turning:**

- (1) Loosen HEX HEAD LOCK SCREW on the bracket;
- (2) Locate saddle on bed in relation to work piece;
- (3) Tighten the two - HEAVY HEX NUTS on the bed clamp;
- (4) Adjust the PIVOTED SLIDE BAR to desired taper and lock securely.

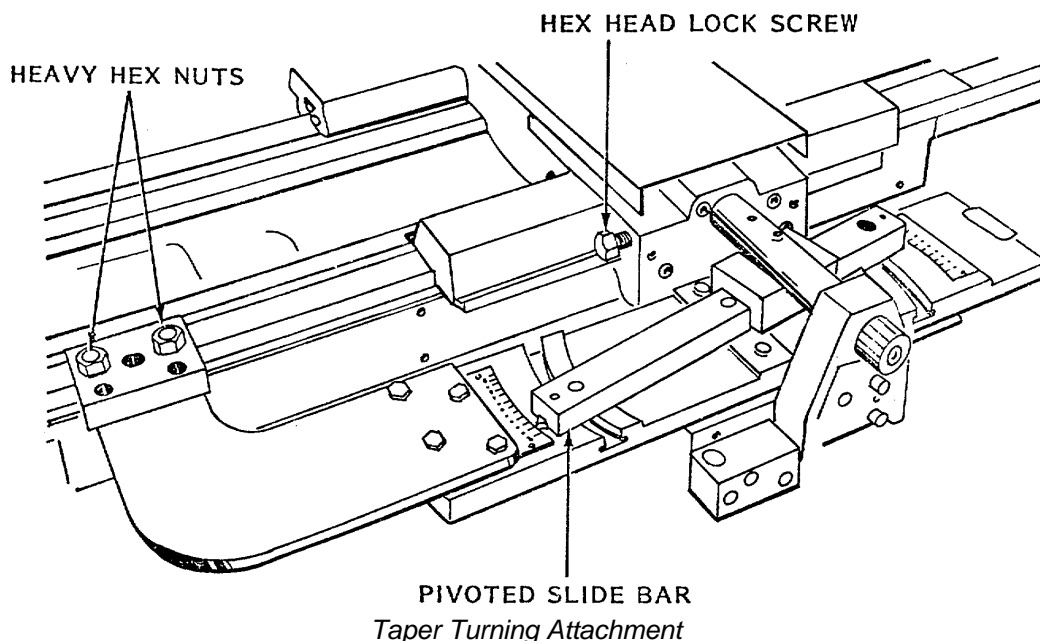
**b. For Straight Turning:**

- (1) Loosen HEAVY HEX NUTS on the bed clamp;
- (2) Tighten the HEX HEAD LOCK SCREW on bracket;
- (3) Leave the PIVOTED SLIDE BAR locked at its angular setting, so that taper attachment will move with the saddle. 4

**3.8 Lead Screw Shear Pin**

a. This brass shear pin is located at the left-hand end of the leadscrew (see below) and 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 longitudinally.

b. The shear pin can be readily replaced by first withdrawing the leadscrew from the coupling to remove the three portions of broken pin. It is then returned to the coupling and rotated by hand until the zero line on the screw coincides with that on the coupling. A new shear pin (4 spare are provided with the machine) is then driven into place.

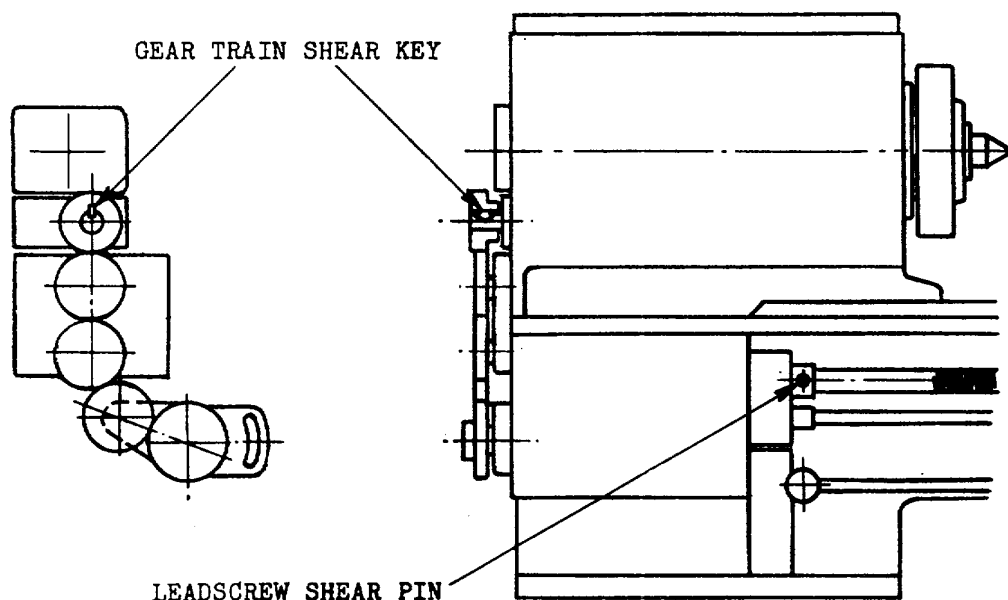


### 3.9 Gear Train Shear Key

a. This brass shear key, is located in the feed compound shaft and drives the top gear of the end gear train (see below). It is provided to prevent damage to the feed compound gears in the headstock due to a possible seizure in the feed box.

b. A Spare Shear Key, which is provided with the machine, can be readily fitted by first removing the gear

and knocking the broken portions of key out of the shaft with a small square nosed chisel. The new key is then fitted to the shaft and the gear assembled. It is important of course, to locate and remedy the cause of the seizure.



*Gear Train Shear Key and Leadscrew Shear Pin*

### 3.10 Feed Slip Clutch Adjustment

a. A feed slip clutch is provided in the apron to prevent damage to the feed mechanism in case of accidental overload. The clutch is pre-adjusted at the factory for all normal cutting loads.

b. If further adjustment is required, proceed as follows:

(1) Remove the round cover from the front of the apron just below and to the left of the feed control lever.

#### (NOTE)

**Oil will drain out through the screw holes and should be retained in a clean container for refilling the apron oil sump.**

(2) To adjust the feed slip clutch, simply tighten the socket set screw in the exposed end of the clutch shaft until the desired drive is obtained.

#### (CAUTION)

**Do not lock the screw up solid as this will make the slip clutch inoperative.**

(3) Test the drive via a very heavy cut or by grasping the apron handwheel with two hands while the

carriage is in motion. You should be able to make the clutch "click" otherwise it is too tight and could shear the brass key in the end gear train.

(4) Replace the round cover and the oil.

### 3.11 Coolant Attachment

a. Available with centrifugal pump unit, GRAYMILLS MODEL NO. X11-HR35-A which delivers a copious volume of liquid at relatively Low pressure.

b. The flow may be throttled or shut off completely without overloading the motor. The motor has permanently lubricated oilite bearings and no lubrication is required for either pump or motor. This unit has a 10 gal. tank supplied with removable chip and sludge collecting tray with a baffle and deflector for setting out sediment. Easily removed for cleaning. Coolant tank should be cleaned and re-filled every 6 months or more frequently depending on usage.

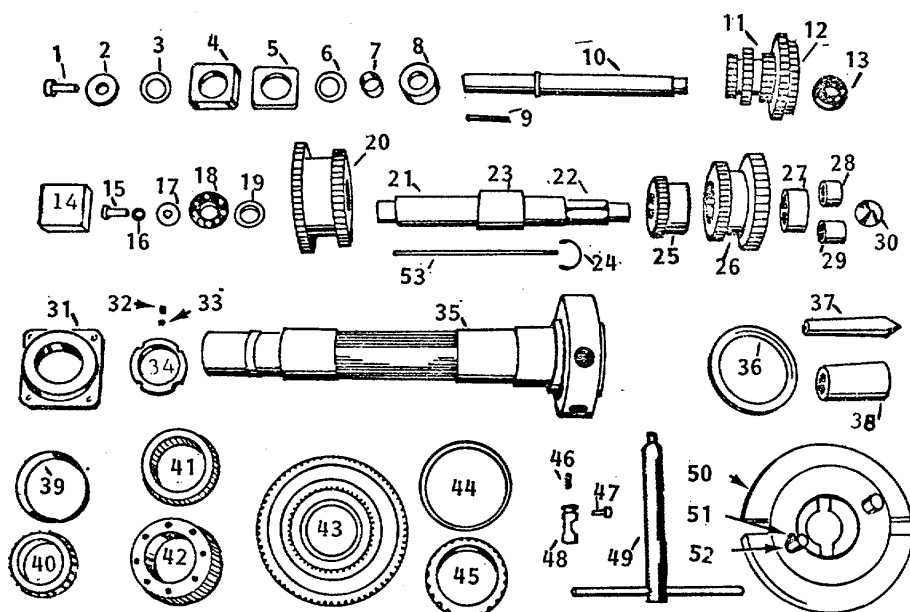
c. The pump motor as standard is supplied with a 6 feet cord complete with "U" ground plug for use with a 115 volt wall outlet.

d. On special applications the coolant pump is supplied with a twist-lock plug, and the lathe-mounted receptacle is connected to the Control Panel 115 Volt Supply via a coolant On-Off switch.



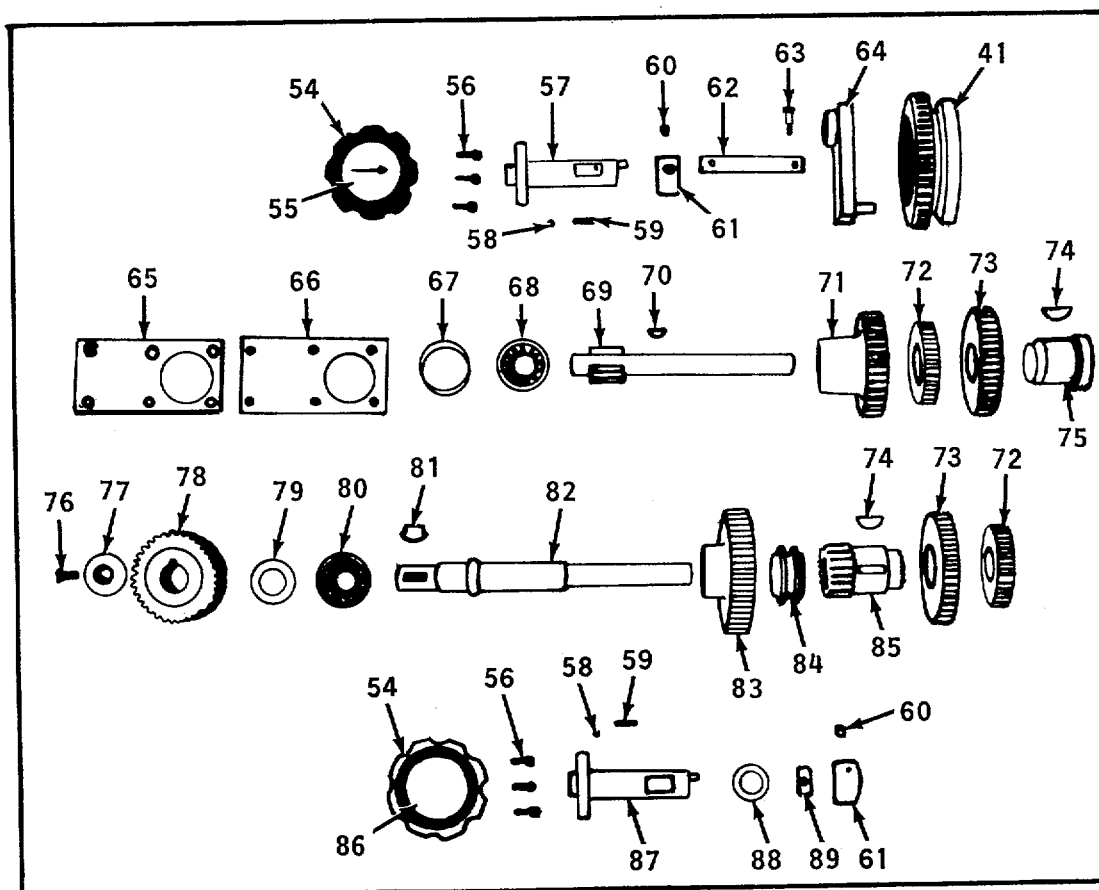
### Section IV. REPAIR PARTS LIST HEADSTOCK PARTS

ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
1	SOC. HD. CAP SCREW 1/2-13 x 1 1/4		31	REAR COVER	B833158
2	SPECIAL WASHER	A-33264	32	SOC. SET SCREW 1/4-28 x 1/4 LG.	
3	SPECIAL WASHER	A-33265	33	BRASS PAD	A-30564
4	REAR COVER	B-33159	34	LOCKNUT #N13	B-33155
5	GASKET	A-33218	35	D1-6" CAMLOCK SPINDLE	D-32888
6	OIL SEAL (1 3/8 I.D. x 2 O.D. x 21/64)		36	BEARING SHIELD	B-32891
7	CHICAGO RAWHIDE #13560		37	LATHE CENTER No. 4 MORSE: FOR ENGINE LATHE FOR TOOLROOM LATHE	A-22639 A-41591
8	INNER RACE-TORRINGTON #1R-1812		38	SLEEVE: FOR ENGINE LATHE FOR TOOLROOM LATHE	A-41064 A-41590
9	DOUBLE ROW BALL BEARING S.K.F. #3206/C4		39	CUP 429520	TIMKEN
10	KEY 1/4 x 1/4 x 2/4 SQUARE ENDS	C-33161	40	CONE -29588 ROLLER BEARING (No. 3 PRECISION FOR ENGINE LATHE) (No. 0 PRECISION FOR TOOLROOM LATHE)	
11	PULLEY SHAFT	C-33089	41	54T. FEED TAKE OFF GEAR	C-33173
12	TRIPLE SHIFTING GEAR	8-33090	42	HIGH-LOW SHIFTER GEAR	C-3318B
13	38 TOOTH SPLINED GEAR		43	69T. BULL GEAR	C-33172
14	BALL BEARING S.K.F. #6205		44	CUP #492A TIMKEN	
15	REAR COVER B-33157		45	CONE #497 ROLLER BEARING (No. 3 PRECISION FOR ENGINE LATHE) (No. 0 PRECISION FOR TOOLROOM LATHE)	
16	HEX. HD. CAP SCREW 1/2-13 x 1 1/4	A-33175	46	CAM SPRING (16 REQ'D.)	A-41131
17	SPLIT LOCKWASHER #5V		47	CAM SCREW (6 REQ'D.)	A-41123
18	WASHER	B-33167	48	CAM FOR D1-6" CAMLOCK 16 REQ'D.)	
19	BALL BEARING-S.K.F. #6206	B-33163	49	CAM WRENCH B.41210	
20	SPACER	C-33169	50	10" DIA. DOG PLATE #D-41216	
21	60T. & 52T. GEAR		51	SOC. HD. CAP SCREW 5/16-18 (4 REQ'D.)	#SUBASS'Y
22	INTERMEDIATE SHAFT		52	D1-6" CAMLOCK STUD "MAC-IT" (4 REQ'D.)	#51634
23	ROLL PIN 3/16 DIA. X 1/2 LG.	B-33156	53	KEY 1/4 X 1/16 2 1/4 SQUARE ENDS	
24	SPACER				
25	CRESCENT RETAINING RING- TRUARC #5103-175				
26	33T. GEAR	B-33166			
27	42T. & 53T. GEAR	B-33160			
28	RETAINER	B-33168			
29	NEEDLE BEARING TORRINGTON #JH-2016				
30	INNER RACE--TORRINGTON #IR-1616				
	FROST PLUG 2" DIA.				



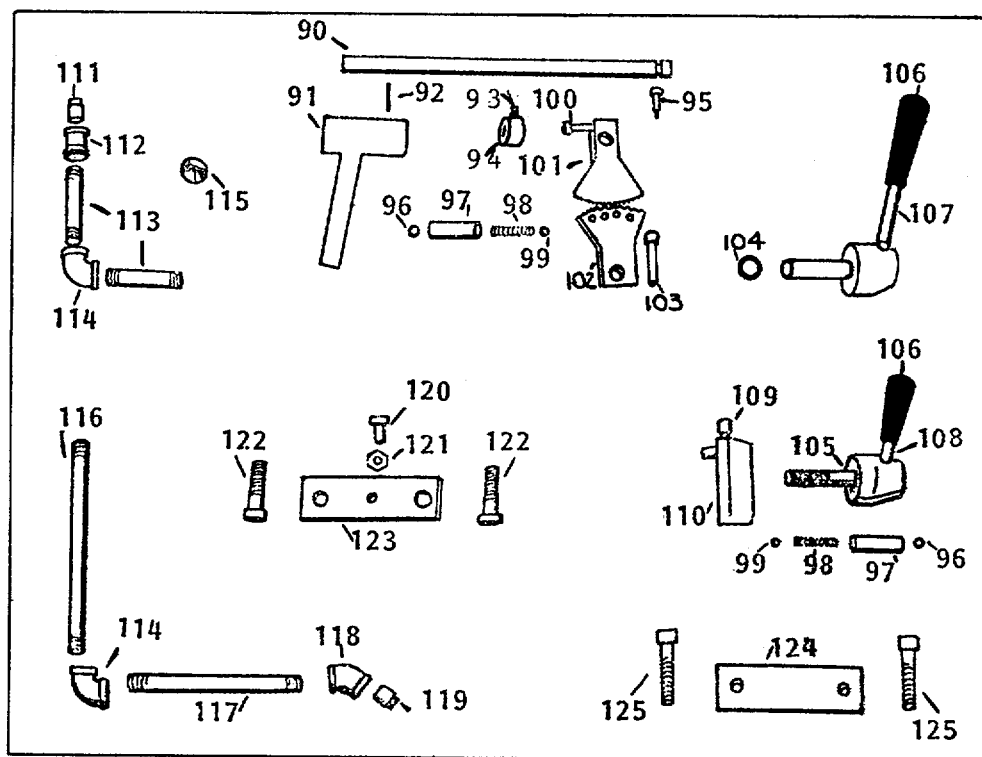
## HEADSTOCK PARTS

ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
41	54 T. FEED TAKE-OFF GEAR	C-33173	73	42 T. FEED IDLER	A-41093
54	KNOB	A-41016	74	WOODRUFF KEY # 15 (4 x 1" DIA.)	
55	R.H. & L.H. CHART	A-41026	75	IDLER SLEEVE	A-41091
56	SOC. HD. CAP SCREW #10-32 x 5/8		76	FLAT HEAD SOCKET CAP SCREW	
57	UPPER ECCENTRIC SHAFT	B-33139		5/16-18 x 3/4 LG.	
58	STEEL BALL .250 DIA.		77	WASHER	A-41480
59	COMPRESSION SPRING	A-30454	78	35 T. FEED GEAR	B-41394
60	SOC SET SCREW 3/8-24 x 3/8 LG.		79	OIL SEAL 121/32 .D. x 1 3/4 O.D. x 5/16)	
61	COLLAR	A-33220		CHICAGO RAWHIDE #9667	
62	GEAR SHIFT LINK	B-33151	80	BALL BEARING-S.K.F. #6205	
63	SHOULDER SCREW 1/4 DIA. x 1/2 LG.		81	SHEAR KEY FOR FEED TRAIN	A-21180
64	FWD.-REV. GEAR SHIFTER	B-33142	82	FEED COMPOUND SHAFT	8-21429
65	COVER PLATE	B-33154	83	48 T. FEED CLUTCH GEAR	8-41096
66	GASKET	A-33217	84	FEED CLUTCH BOBBIN	A-41092
67	SPACER	A-41090	85	20 T. FEED CLUTCH IDLER	B-41095
68	BALL BEARING -S.K.F. #6304		86	COARSE & FINE CHART	A-41027
69	PINION SHAFT	8-41089	87	LOWER ECCENTRIC SHAFT	B 33138
70	WOODRUFF KEY #8 15/32 x 3/4 DIA.)		88	OIL SEAL (7/8 I. D. x 1 3/8 O.D. x 1/4	
71	40 T. FEED COMPOUND GEAR	8-21422		CHICAGO RAWHIDE #8677	
72	30 T. FEED IDLER	A-41094	89	SHIFTER SHOE	A-30468



## HEADSTOCK PARTS

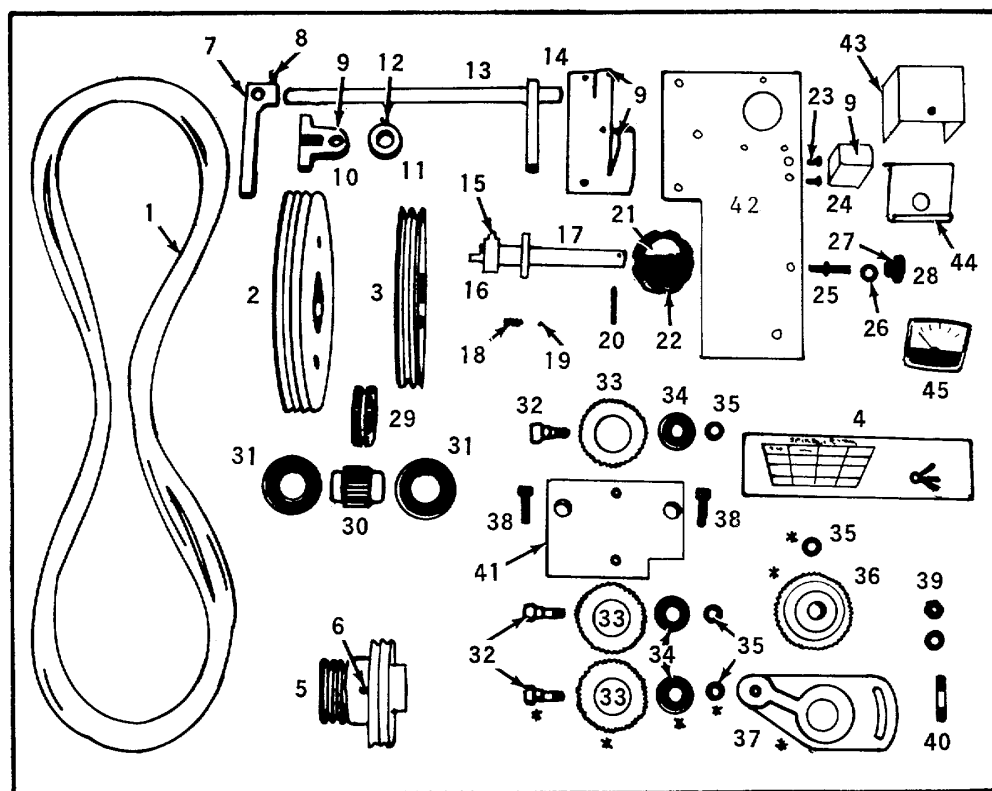
ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
90	CROSS SHAFT	A-33181	112	GALVANIZED PIPE COUPLING 1/2 NPTF	
91	4-POSITION GEAR SHIFT SUB-ASSY.	B-33182	113	STANDARD GALVANIZED LONG NIPPLE	
92	ROLL PIN 1/4 DIA. x 1/2 LG.			72 NPTF x 3/2" LG.	
93	SOC. SET SCREW 1/4 -20 x 1/3 LG.		114	GALVANIZED 90° ELBOW 1/2 NPTF	
94	COLLAR	A-33185	115	OIL WINDOW-BIJUR #B-5093	
95	RETAINING SCREW	A-33291	116	STANDARD GALVANIZED LONG NIPPLE	
96	SOC. SET SCREW 1/32-13 x 1/3 LG.			1/2 NPTF x 12" LG. or	
97	INDENT POSITIONER	A-33184		OIL DRAIN PIPE—13 1/2" LG.	B-329B7
98	SPRING-WALLACE BARNES #1			(FOR LATHE WITH COMBINATION STARTER)	
99	STEEL BALL .4375 DIA.		117	STANDARD GALVANIZED LONG NIPPLE	
100	SOC. HD. CAP SCREW 3/8 x-16 x 1/4 LG.			1/2 NPTF x 8" LG.	
101	GEAR SHIFTER SECTOR	8-33144	118	GALVANIZED 45° ELBOW 1/2 NPTF	
102	GEAR SHIFTER SECTOR	C-33145	119	SQUARE HD. PIPE PLUG 1/2 NPTF	
103	SOC. HD. CAP SCREW 3/8-16 x 2 1/4 LG.		120	HEX. HD. CAP SCREW 1/213 x 13 LG.	
104	OIL SEAL (3/4, I.D. x 1 1/8 O.D. x 3/16)-		121	HEX. JAM NUT 1/27-13	
	CHICAGO RAWHIDE #7414		122	HEX. HD. CAP SCREW 5/8 x 11 x 2 1/4 LG.	
105	2 & 4-POSITION SHIFTER SUB-ASSY.	B-33176	123	HEADSTOCK CLAMP REAR	A-33203
106	BLACK PLASTIC TAPERED HANDLE--		124	HEADSTOCK CLAMP	A-21447
	BALCRANK #PTH-202		125	SOC. HD. CAP SCREW 5/8-11 x 4" LG.	
	107 HAND LEVER A-33975				
108	HAND LEVER A-33976			NOT SHOWN	
109	SOC. HD. CAP SCREW 3/8-16 x 2 1/2 LG.				
110	HI-LO GEAR SHIFTER SUB-ASS'Y.	8-33143		HEADSTOCK CASTING	E-33123
111	FILLER BREATHER PLUG	A-41712		HEADSTOCK COVER	C-33134
				MAT FOR HEADSTOCK COVER	B-33133



## 2-SPEED HEADSTOCK DRIVE AND END GEAR TRAIN PARTS

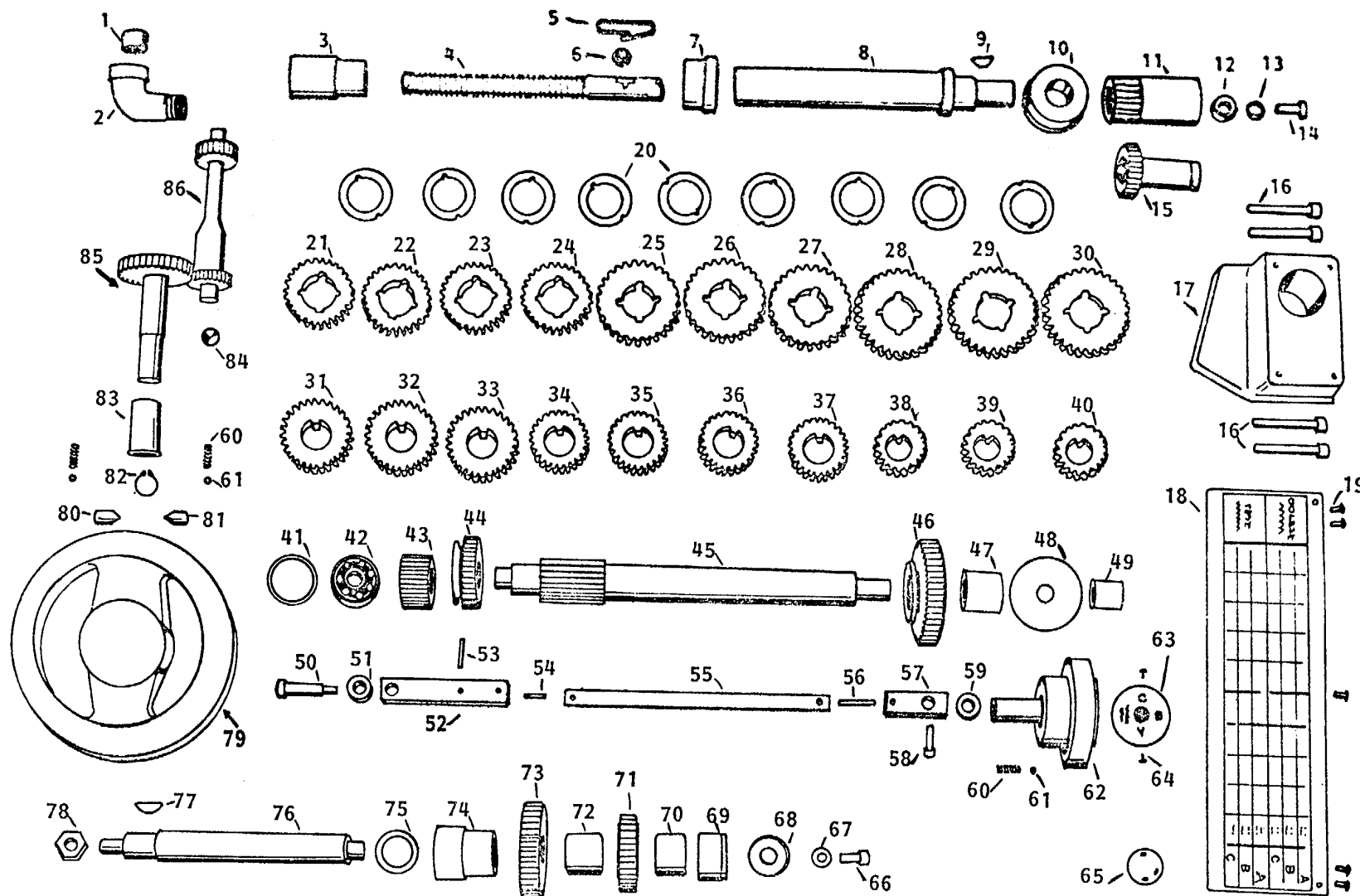
ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
1	V-BELTS 85" LG. GATES SUPER H.C. #3V850		25	BELT GUARD LATCH SPINDLE	A-41415
2	LOW SPEED PULLEY	C-33081	26	WASHER-WESPO #6001	
3	HIGH SPEED PULLEY	C-33080	27	SOC. SET SCREW 1/4-28 x 1/4 LG.	
4	SPEED CHART (26-1600 R.P.M.)	8-33987	28	KNOB FOR GUARD	A-21120
5	MOTOR PULLEY	C-33014	29	SPLINED CLUTCH	8-33110
6	SOC. SET SCREW 3/8-16 x 3/4 LG.		30	SPLINED SLEEVE	B-33266
7	OFFSET LEVER	B-33259	31	BALL BEARING-S.K.F. #6208-2RS	
8	SOC. HD. CAP SCREW 3/8 16 x 1 1/4 LG.		32	IDLER BOLT	A-41526
9	GREASE FITTING-"KLEENSEAL"		33	42 T. IDLER GEAR	A-41363
10	LINCOLN #5042 STRAIGHT THREAD		34	BALL BEARING- S.K.F. #6303-2RS	
11	PIVOT	B-33255	35	WASHER-WESPO #6009	
12	COLLAR	A-33185	36	45 T. FEED GEAR	8-41364
13	SOC SET SCREW 1/4-20 x 1/4 LG.		37	ADJUSTABLE IDLER BRACKET	8-33038
14	SHAFT & LEVER	8-33256	38	SOC. HD. CAP SCREW 1/2-13 x 1 1/2 LG.	
15	MOUNTING CASTING	C-33084	39	HEAVY HEX. NUT 1/2-13	
16	SOC. SET SCREW 3/8-24 x 1/2 LG.		40	MILLED STUD 1/2-13 x 2 1/4 LG.	
17	COLLAR	A-41018	41	FIXED IDLER BRACKET	8-32950
18	ECCENTRIC SHAFT SUB-ASS'Y.	B-33974	42	FRONT END PLATE	8-32946
19	COMPRESSION SPRING	A-30454	43	AMMETER COVER	C-32947
20	STEEL BALL .250 DIA.		44	SWITCH COVER BRACKET	8-41437
21	ROLL PIN 1/4 DIA. x 2" LG.		45	AMMETER 25 AMPS.--"CANEX" CR-52	
22	"SLOW RANGE-FAST RANGE" PLATE	A-33263			
23	KNOB	A-33092			
24	BUTTON HD. SOC. CAP SCREW 5/16-18 x 5/8 LG.				
25	SHAFT SUPPORT BLOC	A-33019			

**Note: PARTS MARKED THUS \* ARE NOT  
REQUIRED FOR CUTTING METRIC OR  
SPECIAL THREADS AND PITCHES-  
SEE PAGE 28 FOR REPLACEMENT  
PARTS**



TOTALLY ENCLOSED FEED BOX PARTS

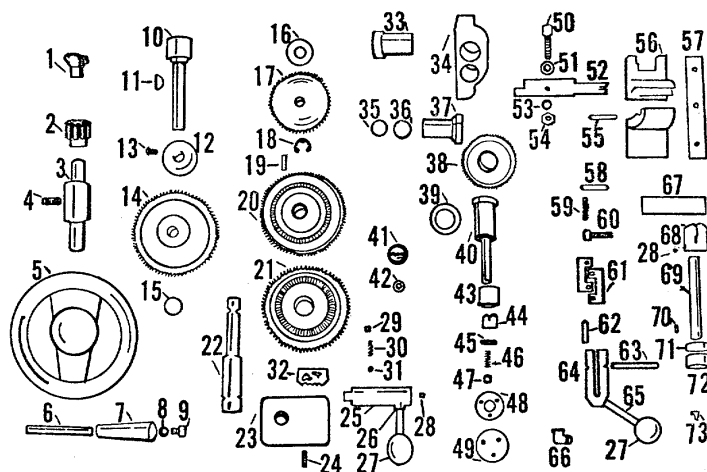
ITEM	NAME	PART NO.	ITEM	NAME	PART NO	ITEM	NAME	PART NO
1	SQ. HD. PIPE PLUG 1/2 NPTF		39	20 TOOTH GEAR	A-33450	76	POWER INPUT SHAFT	B-33470
2	STREET ELBOW )/, NPTF x 900		40	16 " "	A-33451	77	WOODRUFF KEY #11	
3	RACK COVER	A-33467	41	BEARING RETAINER	A-33475		(AMER. STD. #607) 3/16 x 7/8	
4	ROTATING RACK	C-33458	42	BALL BEARING-S.K.F. #6302		78	HEAVY HEX. NUT 1/2-13 NC	
5	LEAF SPRING	A-41156	43	24 TOOTH CLUTCH GEAR	A-33466	79	HANDWHEEL	C33459
6	ROLLER KEY	A-33469	44	36 TOOTH SLIDING GEAR	B-33474	80	SOC. SET SCREW FLAT POINT	
7	FLANGE BUSHING	A-33468	45	INTERMEDIATE SHAFT	B-33471		1/2-13 x 3/4 LG.	
8	ROLLER KEY SHAFT	8-33472	46	CLUTCH GEAR	B-33473	81	SOC. SET SCREW CONE POINT	
9	WOODRUFF KEY #9		47	BUSHING (1 x 1 1/4 x 1 X 1 1/4)--			1/2-13 x 3/4 LG.	
	(AMER. STD. #6061 3/16 x 3/4			OILITE #AA-1212-16		82	RETAINING RING-TRUARC #5100-75	
10	DOUBLE ROW BALL BEARING		43	WASHR-INTERMEDIATE SHAFT	A-33476	83	BEAR-N-BRONZ BEARING-	
	NEW DEPARTURE #45205		49	BUSHING (5/8 x 7/8 x 1)--			BOSTON CAT. NO. M1216-14	
11	LEADSCREW COUPLING GEAR	8-33985		OILITE #AA.832-1		84	FROST PLUG 5/8 DIA.	
12	WASHER 3/ I.D.-WESPO #6008		50	SHOULDER SCREW 3/8 x 1 1/4 LG.		85	HANDWHEEL GEAR & SHAFT SUB-ASS'Y.	A-33452
13	SPLIT LOCKWASHER #3/8		51	SPACER	A-33428	86	RACK PINION SHAFT	B-33455
14	HEX. HD. CAP SCREW 3/8-24 x 7/8 LG.		52	SHIFTER BLOCK	8-33427			
15	FEED SHAFT COUPLING GEAR	B-33071	53	H'DN. DOWEL PIN 3/16 DIA. x 1" LG.				
16	SOC HD. CAP SCREW 5/16-18 x 2 1/4LG.		54	H'DN. DOWEL PIN 3/16 DIA. x 3/4 LG.				
17	END CASTING	C-33423	55	SHIFTER LINK	B-33426			
18	T.P.I. & FEEDS NAMEPLATE	B-33456	56	H'DN. DOWEL PIN 3/16 DIA. x 1 1/4 LG.				
19	BUTTON HD. SOC. CAP SCREW		57	SHIFTER BLOCK	A-33425			
	#10-24 x 3/8 LG.		58	SOC. HD. CAP SCREW 1/4-28 x 3/4 LG .				
20	THRUST RACE-TORRINGTON #TRB-2031		59	OIL SEAL (7/8 O.D. x 1/2.D. X 1/4				
21	27 TOOTH FEED DRIVE GEAR	A-33432		CHICAGO RAWHIDE #4938				
22	27 " " " "	A-33433	60	COMPRESSION SPRING	A-30454		NOT SHOWN	
23	30 " " " "	A-33434	61	STEEL BALL.250 DIA.				
24	33 " " " "	A-33435	62	A.B-C SHIFTER KNOB SUB-ASS'Y.	8-33429		GASKET	C33424
25	23 " " " "	A-33437	63	A-B-C NAMEPLATE	A-33457		FEEDBOX CASTING	E-33421
26	" " " "		64	DRIVE SCREW TYPE "U" #4 x 1/4 LG.				
27	39 " " " "	A-33438	65	OIL WINDOW-BIJUR #B5093			WITH: (2) PULL DOWEL	
28	27 " " " "	A-33439	66	SOC. HD. CAP SCREW 5/16.24 x 5/8 LG.			5/16 DIA. x 112 LG.	
29	35 " " " "	A-33440	67	FLAT WASHER-S.A.E. #5/16			1(2) HEX. HD. CAP SCREW	
30	30 " " " "	A-33441	68	BALL BEARING-S.K.F. #6202	A-3346		3 13 LG.	
31	27 TOOTH GEAR	A-33442	69	24 TOOTH GEAR	A33465		(2) SOC. HD. CAP SCREW	
32	24 " " " "	A-33443	70	SPACER	A-33462		3/8.16 x 2" LG.	
33	24 " " " "	A-33444	71	36 TOOTH GEAR	A-33464		FRONT COVER	C33422
34	24 " " " "	A-33445	72	SPACER	A-33461		WITH: (2) DOWEL PIN 1/, DIA. x % LG.	
35	16 " " " "	A-33446	73	48 TOOTH GEAR	A-33460		(10) SOC. HD. CAP SCREW	
36	18 " " " "	A-33447	74	BEARING BUSH			5/16-18 x 11/4 LG.	
37	24 " " " "	A-33448	75	OIL SEAL (1 1/2 O.D. x 1" I.D. x 5/16)			DRAIN PLUG-HEX. SOC PIPE PLUG	
38	16 " " " "	A-33449		CHICAGO RAWHIDE #9840			1/4 NPTF	



FEEDBOX PARTS

## APRON PARTS

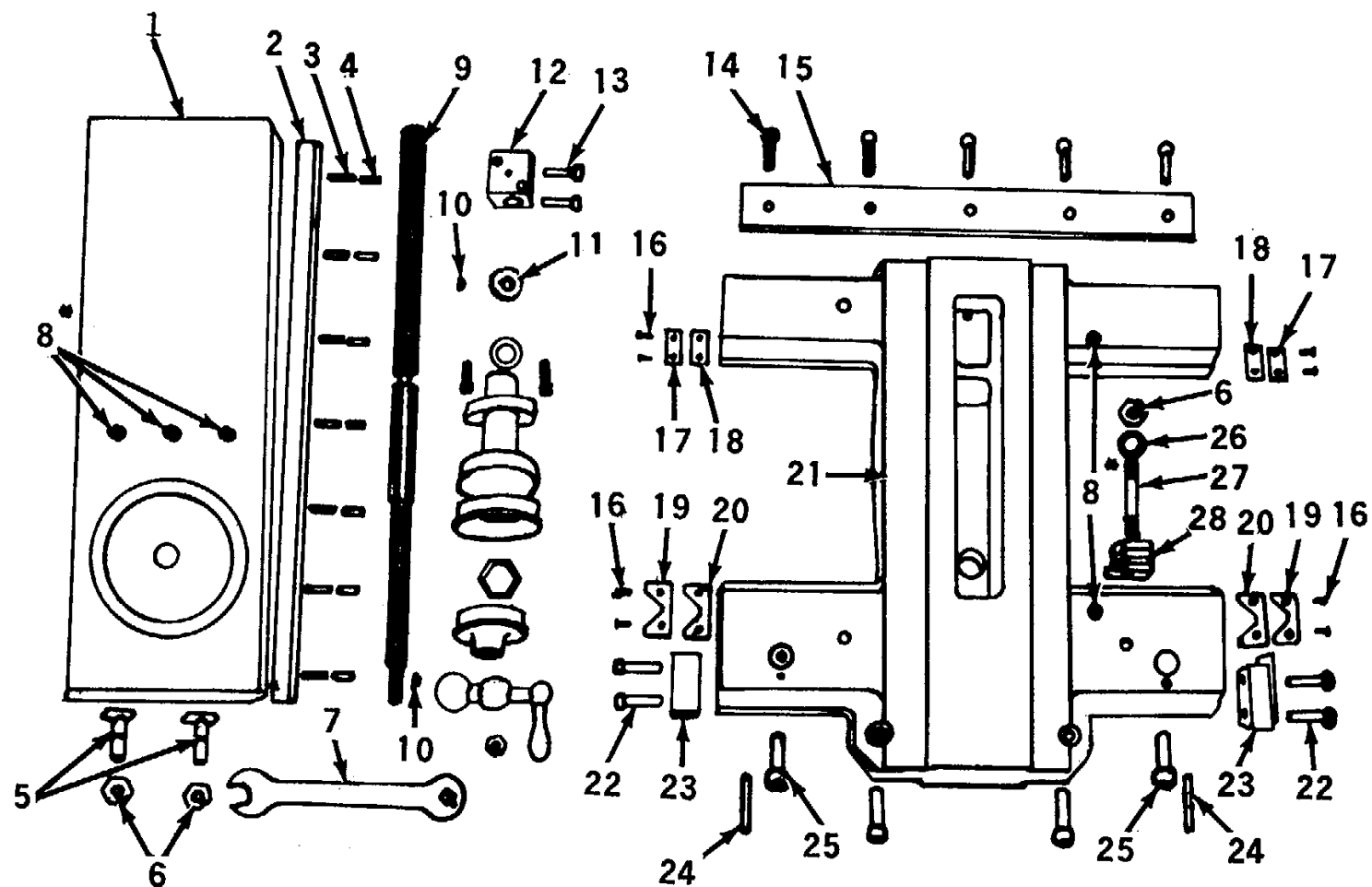
ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
1	OILER-GITS #307		35	RETAINING RING-TRUARC #5100-100	
2	16 TOOTH GEAR	B-33059	36	THRUST WASHER	A-21250
3	FAN & PUMP BEARING-POLLARD #FPS 137		37	BEVEL PINION	B-21245
4	SOC. SET SCREW 3/8-16 x 1" LG.		38	66 T. BEVEL GEAR	B-21756
5	HANDWHEEL	C-33060	39	OIL SEAL (13/8 x 2 x 21/64)	
6	SHAFT	A-41245	40	CHICAGO RAWHIDE #13560	
7	HANDLE	B-41244	41	SHAFT FOR BEVEL GEAR 8-21757	
8	WASHER 1/2, O.D. x 17/64 I.D. x .062		42	OIL WINDOW-BIJUR #B-5093	
9	STAINLESS STEEL-H. M. HARPER CO.		43	HEX. SOC. PIPE PLUG 2/-18 NPTF	
10	SOC. HD. CAP SCREW 1/4-28 x 1/2		44	18 T. SLIP CLUTCH PINION	A-21246
11	RACK PINION SHAFT	B-21238	45	FEED SLIP CLUTCH	A-21247
12	WOODRUFF KEY # 11 (3/16 x 7/8 DIA.)		46	PIN	A-50507
13	BALL BEARING-S.K.F. #6304-2RS-NR		47	COMPRESSION SPRING	A-21267
14	BUTTON HD. SOC. CAP SCREW		48	SOC. SET SCREW 1/2-13 x 1/2 NYLOK"	
15	1/4-20 x 1/2 LG.		49	GASKET	A-20985
16	67 TOOTH GEAR 8	B-33053	50	COVER	A-21249
17	CLOSED END NEEDLE BEARING-		51	SOC. HD. CAP SCREW 3/8-16 x 1 3/4,	
18	TORRINGTON #M-12121		52	WASHER-WESPO #6001	
19	SPACER	A-41285	53	FEED INTERLOCK BAR B-33054	
20	16 T. CLUTCH GEAR	B-41266	54	SPLIT LOCKWASHER #3/8	
21	RETAINING RING-TRUARC #5133-75		55	HEX. NUT 3/8-16	
22	SPACER PIN	A-41263	56	DOWEL 5/16 DIA. x 1 3/4 LG.	
23	90 T. DOUBLE CLUTCH GEAR	C-33051	57	HALF NUTS	C-33056
24	90 T. SINGLE CLUTCH GEAR	B-33052	58	GIB	B-33057
25	CLUTCH SHAFT:		59	DOWEL 5/16 DIA. x 1 1/2 LG.	
26	-STANDARD	B-41262	60	TENSION SPRING	A-21257
27	-FOR AUTO. CARRIAGE STOP	C-41669	61	SOC. HD. CAP SCREW 1/4-20 x 1 1/4 LG.	
28	FEED CONTROL BOX:		62	HALF NUT LINK	A-33068
29	-STANDARD	C-41259	63	LINK PIN	A-21252
30	-FOR AUTO. CARRIAGE STOP	C-41668	64	RETAINER PIN	A-21258
31	SOC. SET SCREW 3/4-16 x 3/4 LG.		65	CONTROL SHAFT	A-33058
32	"NYLOK" FULL DOG POINT		66	HALF NUTS LEVER	A-33979
33	CLUTCH CONTROL SHAFT	B-41260	67	ELBOW OILER-GITS #1207	
34	FEED CONTROL LEVER	A-41337	68	THREAD CHASING INSTRUCTIONS	
35	BLACK PLASTIC TAPERED HANDLE-		69	CHART	A-41203
36	BALCRANK #PTH-202		70	16 T. WORM GEAR	A-33077
37	SOC. SET SCREW 5/16-18 x 3/4 LG.		71	DIAL SHAFT	A-21265
38	SOC. SET SCREW 5/16-18 x 1/4 LG.		72	DOWEL 1/8 DIA. x 1/2 LG.	
39	COMPRESSION SPRING	A-21268	73	ZERO WASHER	A-41276
40	STEEL BALL .250 DIA.		74	THREAD CHASING DIAL	A-21263
41	FEED INDICATING CHART	A-41202	75	OILER-GITS #521	
42	BUSH FOR BEVEL BRACKET	A-33076	76	NOT SHOWN	
43	BEVEL GEAR BRACKET	B-21235	77	APRON HOUSING	E-33989



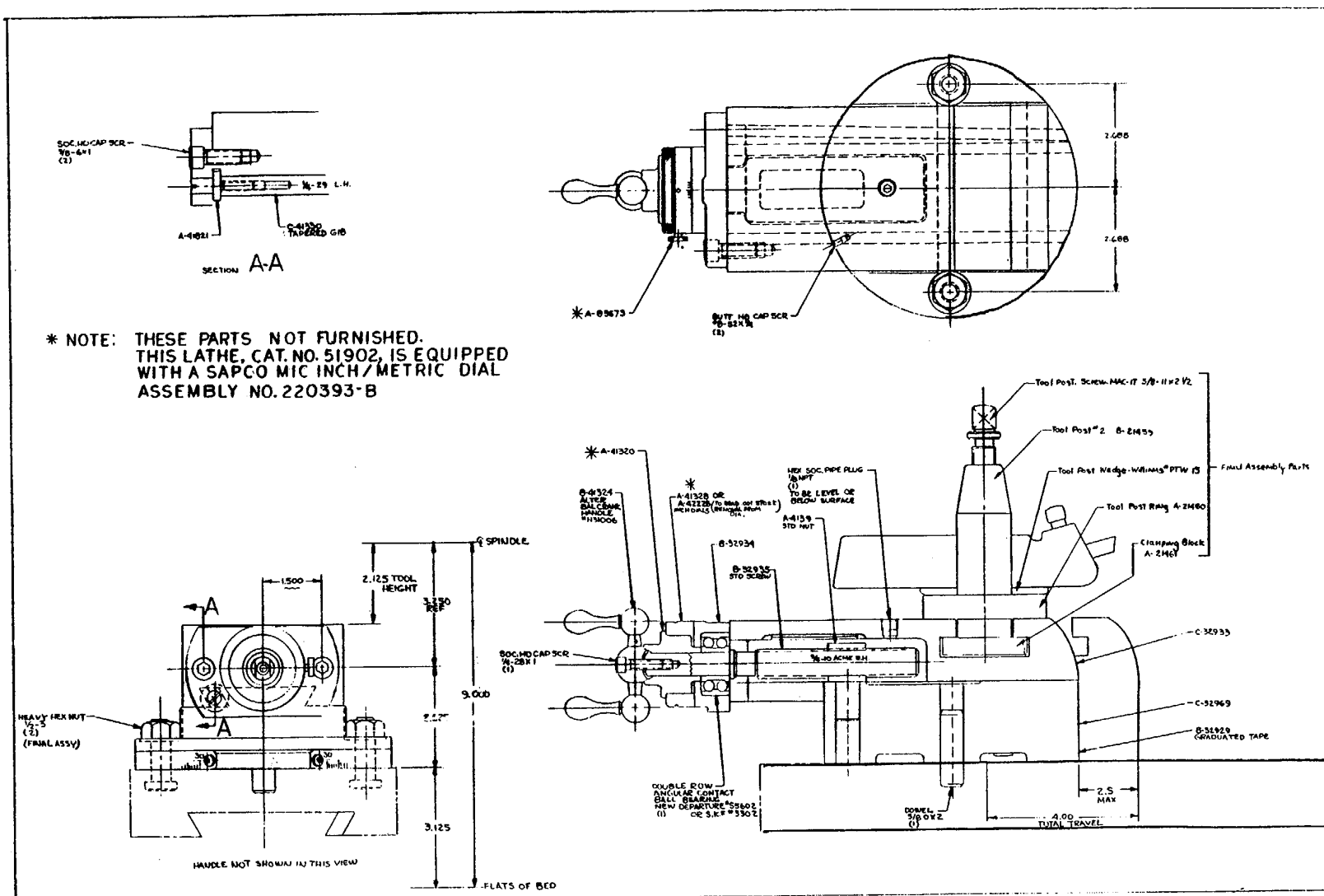
## CROSS SLIDE AND SADDLE PARTS

ITEM	NAME	PART NO	ITEM	NAME	PART NO.
1	EXTENDED CROSS SLIDE:		16	ROUND HD. MACHINE SCREW	
	-STANDARD	D-32925		# 10-32 x 1/2 LG.	
	-FOR DEPTH THREADING STOP		17	REAR SADDLE WIPER PLATE	A-21186
	AND ONE-SHOT LUBRICATION	D-32936	18	REAR SADDLE WIPER	A-21186
	-FOR DEPTH THREADING STOP		19	FRONT SADDLE WIPER PLATE	A-21185
	ONLY	D32965	20	FRONT SADDLE WIPER	A-21187
	-FOR ONE-SHOT LUBRICATION		21	SADDLE CASTING:	
	ONLY	D-32966		- STANDARD	E-33086
2	GIB FOR EXTENDED CROSS SLIDE	B-33480		-STANDARD	E-33086
3	HARDENED DOWEL 1/4 DIA x 1"LG			FOR ONE-SHOT LUBRICATION	E-33087
4	"NYLOK" SOC. SET SCREW		22	HEX. HD. CAP SCREW	
	5/16-24 x 1/2" LG			3/8-16 x 1 1/2 LG.	
5	TEE-HEAD BOLT A-2 1462		23	FRONT SADDLE WIPER A-21219	
6	HEAVY HEX. NUT 1/2-13 UNC		24	PULL DOWEL 5/16 DIA. x	
7	TOOL POST WRENCH-			2" LG.	
	ARMSTRONG #563D OR		25	SOC. HD. CAP SCREW	
	WILLIAMS #563D			1/2-13 x 1 1/2 LG.	
8	OILER-GITS #523		26	WASHER-WESPO #6002	
	(4 OILERS MARKED THUS * IN		27	MILLED STUD 1/2-13 x 2 3/4 LG.	
	PICTURE ARE NOT REQUIRED FOR		28	SADDLE CLAMP BLOCK	A-21218
	ONE-SHOT LUBRICATION)			<b>NOTES:</b>	
*9	CROSS FEED SCREW B-21202			<b>-ITEM 8 WHERE MARKED THUS *</b>	
*10	WOODRUFF KEY #6 (5/32 x			<b>IN PICTURE BELOW IS</b>	
	5/8 DIA.)			<b>NOT REQ'D. WITH ONE-</b>	
*11	GEAR FOR CROSS FEED SCREW	A-21203		<b>SHOT LUBRICATION.</b>	
12	NUT FOR CROSS FEED SCREW	A-32926		<b>-ITEMS 9, 10, and 11</b>	
13	SOC. HD. CAP SCREW			<b>MARKED THUS * ARE NOT</b>	
	5/16-24 x 1 1/4LG			<b>REQ'D. WITH TELESCOPIC</b>	
14	"LOCK-WELL" SOC HD CAP SCREW			<b>TAPER ATTACHMENT; FOR RE-</b>	
	3/8-16 x 1/4 LG			<b>PLACEMENT PARTS SEE PAGE 29.</b>	
15	REAR SADDLE GIB B-33126				



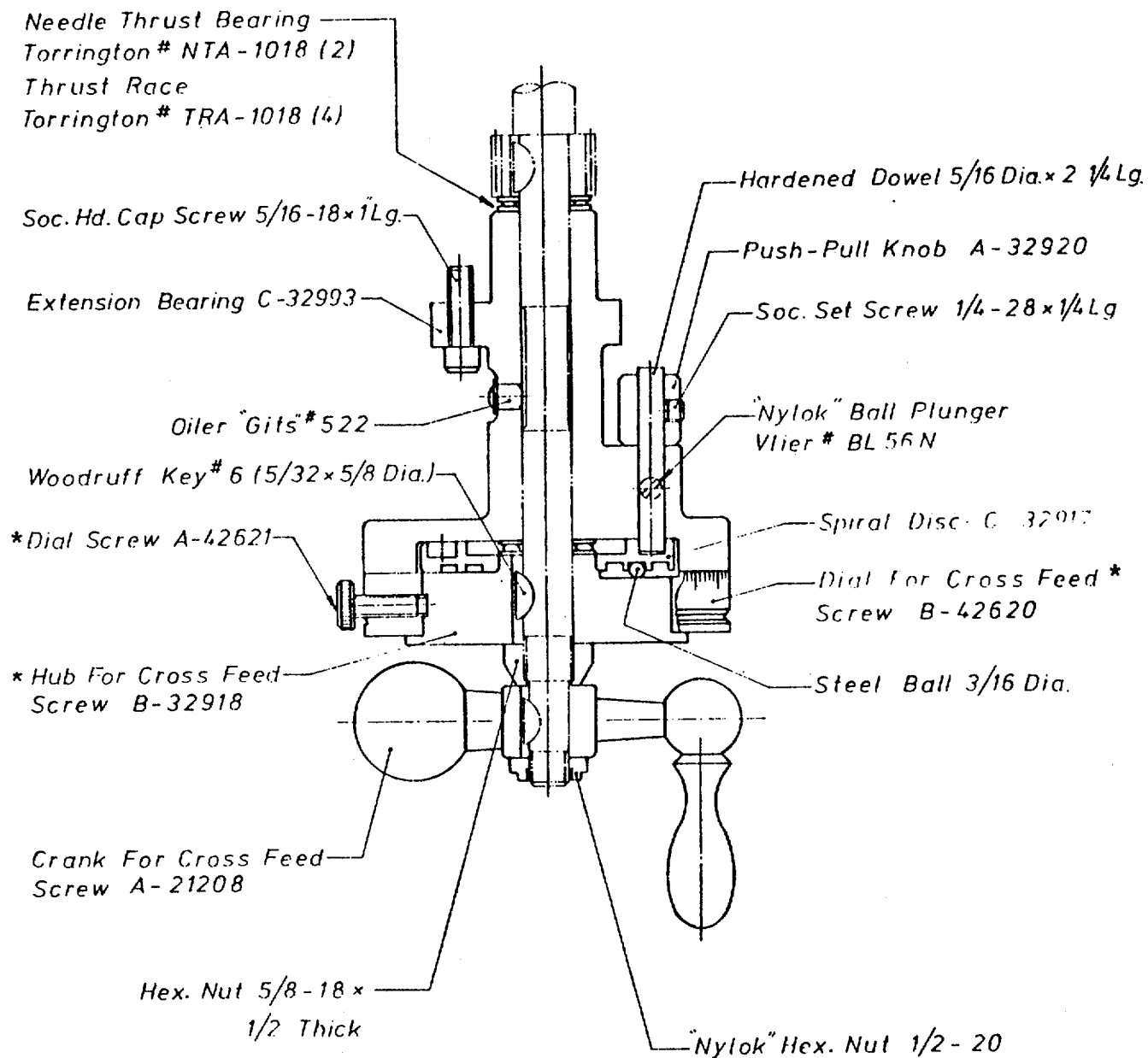


CROSS SLIDE AND SADDLE PARTS



### Cross-Section for Parts Not Furnished

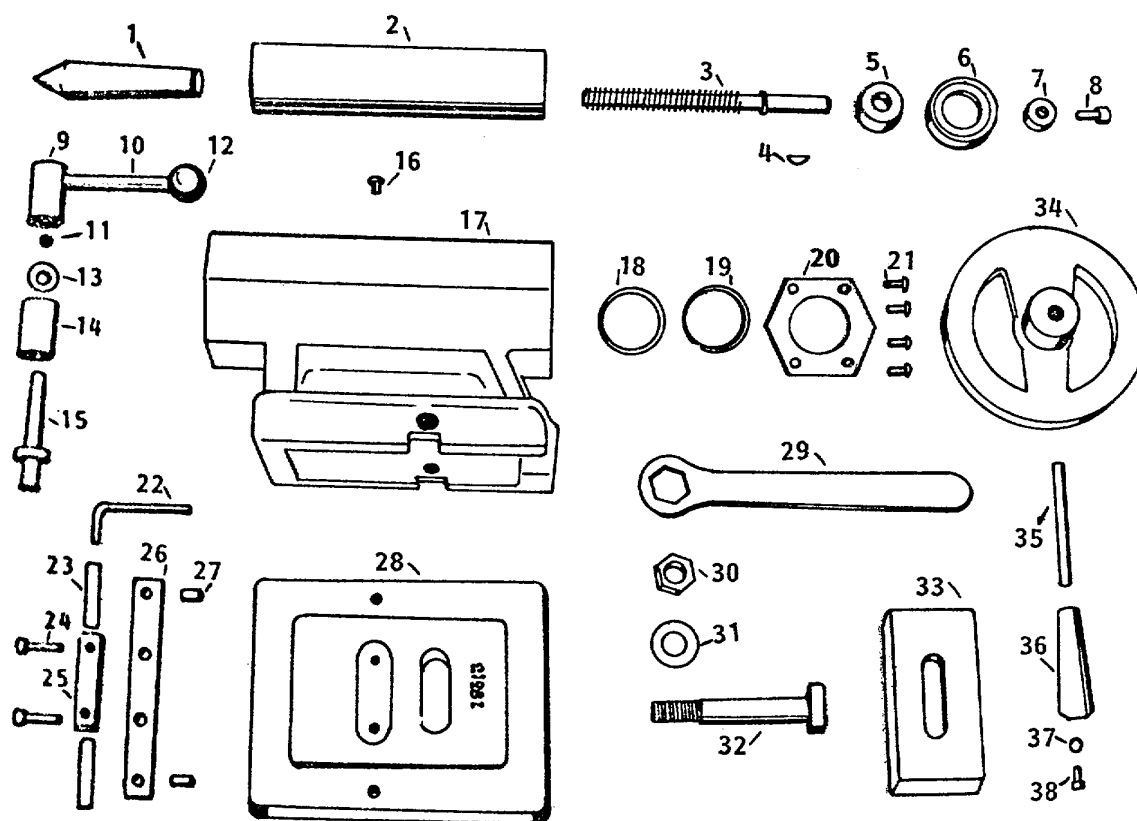
**\*NOTE:** THESE PARTS NOT FURNISHED.  
THIS LATHE, CAT. No. 51902, IS EQUIPPED  
WITH A 'SIPCO MIC' INCH/METRIC DIAL  
ASSEMBLY No. 220392 - B



Ball Type Threading Stop

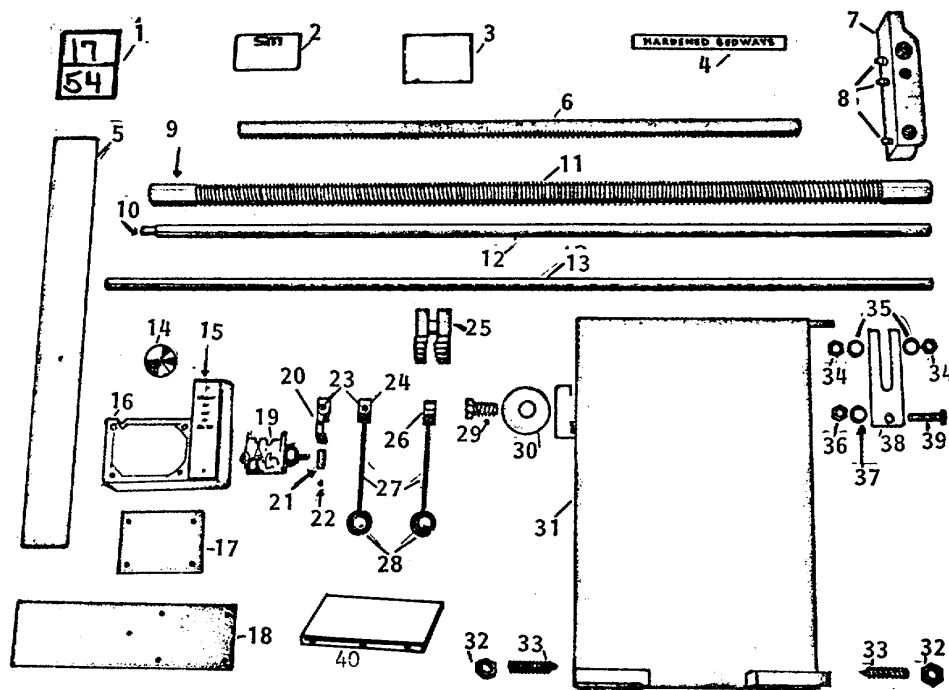
## TAILSTOCK PARTS

ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
1	LATHE CENTER NO. 4 MORSE: -FOR ENGINE LATHE	A-22639	21	BUTTON HD. SOC. CAP SCREW 5/16-18 x 3/4 LG. (4 REQ'D.)	
	FOR TOOLROOM LATHE	A-41591	22	ALLEN KEY # 1/	
2	SPINDLE	C-33016	23	SOC. SET SCREW, FLAT POINT 1/2-13 x 2 1/4 LG. (2 REQ'D.)	
	WITH SPINDLE NUT	A-33018	24	SOC. HD. CAP SCREW	
	AND SOC. HD. CAP SCREWS # 10-32 x 3/4				
3	SPINDLE SCREW	B-33017		5/16-18 x 1 1/4 LG. (2 REQ'D.)	
4	WOODRUFF KEY #8 15/32 x 3/4 DIA.)		25	THRUST BLOCK	A-33033
5	BEARING SEAT COLLAR	A-33026	26	TENON STRIP	A-33025
6	BALL BEARING-S.K.F. #6008-2RS		27	DOWEL 3/4 DIA. x 3/4 LG. (2 REQ'D.)	
7	HANDWHEEL RETAINER	A-41232			
8	SOC. HD. CAP SCREW 3/4.-24 x 3/4		28	BASE CASTING	C-33366
9	BOSS FOR HANDLE	A-33027	29	BOX WRENCH WILLIAMS #808 (1 1/4 ACROSS FLATS)	
10	CLAMP LEVER	A-33971	30	HARDENED HEAVY HEX NUT 3/4-10 11 / ACROSS FLATS)	
11	SOC SET SCREW 1/2-13 x 3/8 LG.		31	WASHER-WESPO #6011	
12	BLACK PLASTIC TAPERED HANDLE-- BALCRANK #PTH-202		32	CLAMP STUD	A-33363
13	WASHER-WESPO #6009		33	CLAMP PLATE	B-21098
14	CLAMP BUSHING	B-21466	34	HANDWHEEL	C-33023
15	SPINDLE CLAMPING STUD	A-22813	35	SHAFT	A-41245
16	OILER-GITS #533		36	HANDLE	8-41244
17	SPINDLE HOUSING	D-33012	37	WASHER 1/2 O.D. x 17/64 I.D. x .062	
18	O-RING #330 (21/8 x 21/2 x 3/16)		38	STAINLESS STEEL-H.M. HARPER CO. SOC. HD. CAP SCREW 1/4-28 x 1/2	
19	SPACER	A-33031			
20	RETAINING PLATE	A-33030			



## GENERAL ASSEMBLY PARTS

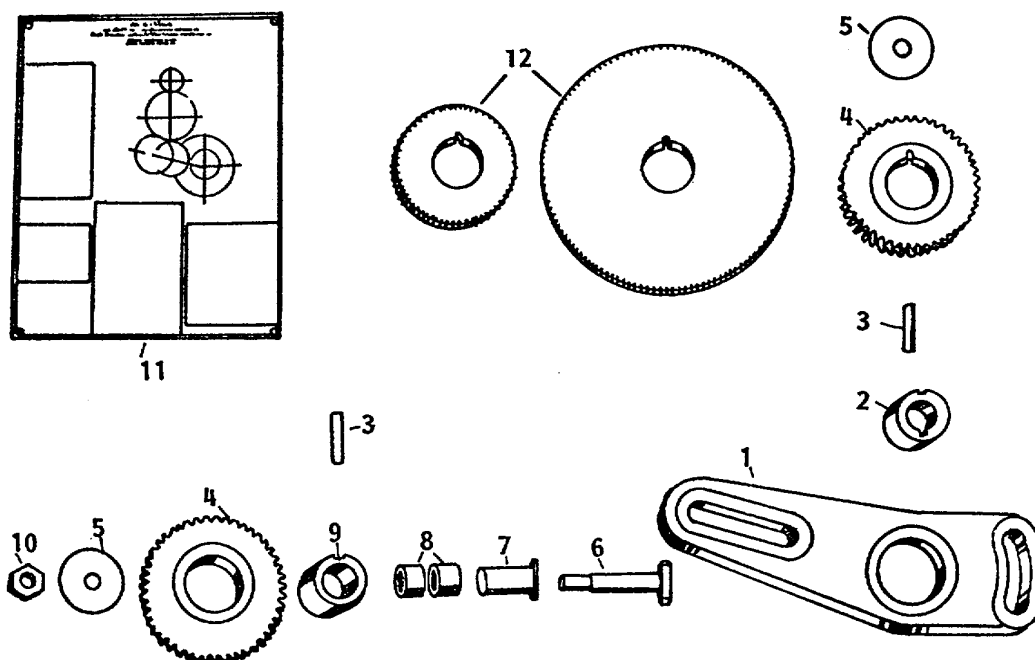
ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
1	MODEL SIZE NAMEPLATE	A-33993	25	CONTROL BRACKET	B-33067
2	SERIAL NAMEPLATE	B-60275	26	HUB	A-21092
3	LUBRICATION NAMEPLATE		27	HAND LEVER FOR CONTROL SHAFT	A-33977
	STANDARD LATHE	A-32923	28	BLACK PLASTIC TAPERED HANDLE	
	-WITH ONE-SHOT LUBRICATOR	A-32906		BALCRANK #PTH - 202	
4	"HARDENED BEDWAYS" NAMEPLATE	B-41519	29	HEX. HD. CAP SCREW $\frac{3}{4}$ - 10 X 1 $\frac{1}{2}$ " LG.	
5	VERTICAL NAMEPLATE	D-41413	30	WASHER	B-33252
6	RACK	B-21279	31	MOTOR PLATE	D-33124
7	BED END BRACKET	C-33984	32	HEX NUT 5 - 11	
8	GREASE FITTING-KLEENSEAL #5000		33	PIVOT SCREW	A-31231
9	LEADSCREW SHEARPIN	A-21142	34	HEX JAM NUT 1/2 - 13	
10	TAPER PIN #1 x 1" LG.		35	PLAIN WASHER #1/2	
11	LEADSCREW 1 3/16 DIA.	B-33983	36	HEX NUT 1/2 - 13	
12	FEEDSHAFT	B-33484	37	SPLIT LOCKWASHER #1/2	
13	CONTROL SHAFT	B-33486	38	ANCHOR FOR MOTOR PLATE	A-33221
14	FROST PLUG 2" DIA.		39	HEX HD. BOLT $\frac{1}{2}$ 13 X 2" LG.	
15	FWD-STOP-REV NAMEPLATE	B-33196	40	FEED BOX TOP COVER	D-33982
16	SWITCH BOX	D-33193			
17	GASKET FOR SWITCH BOX	B-33195		NOT SHOWN	
18	COVER PLATE FOR SWITCH BOX	B-33487			
19	ROTARY PILOT SWITCH-- ALLEN-BRADLEY #804-A3 (WITHOUT ENCLOSURE, HAND LEVER AND LEGEND PLATE)			BED CASTING CHIP TRAY HEADSTOCK PEDESTAL TAILSTOCK PEDESTAL	E-33119 D-33078 D-33116 D-33135
20	CONTROL SHAFT SECTOR	B-33197		END GUARD	E-33083
21	PINION	B-33199		HINGE END PLATE	D-33996
22	SOC. SET SCREW 5/16-24 x 5/16 LG.			CONTROL BOX MOUNTING PLATE:	
23	SOC. SET SCREW 3/8-24 x 3/8 LG.			-STANDARD LATHE	D-33998
24	HUB	A-33202		-FOR COMBINATION STARTER	D-33132



# **END GEAR TRAIN PARTS FOR CUTTING METRIC AND SPECIAL THREADS**

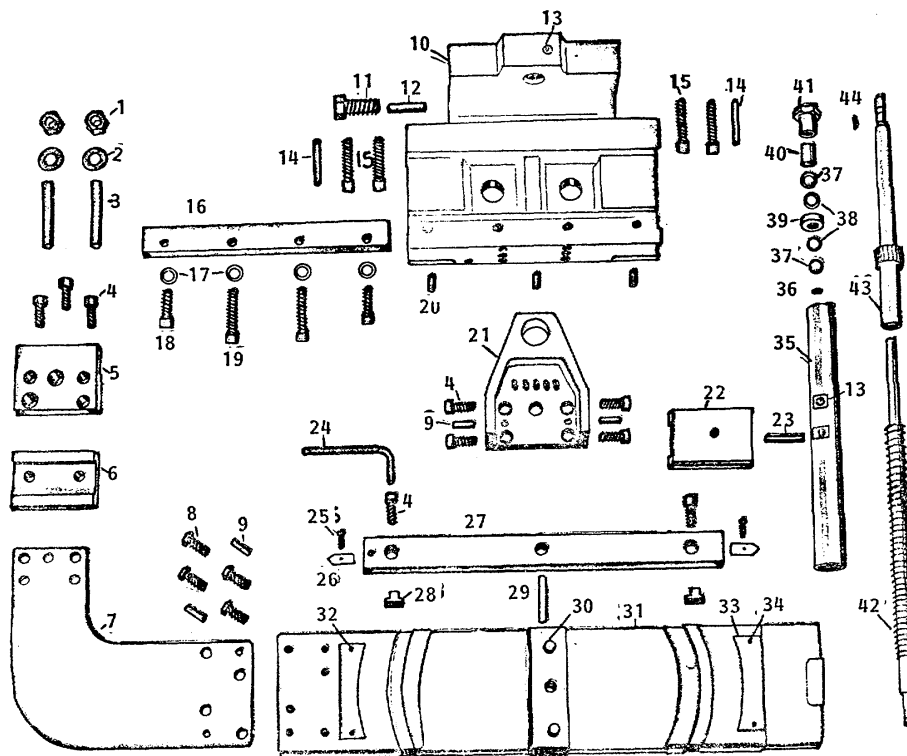
ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
1	ADJUSTABLE BRACKET	C-21353	12	70 T. CHANGE GEAR	22656
2	FIXED GEAR HUB	A-21361		74 T. " "	22657
3	KEY 1/4 x 1/4 x 3/8 LG.			75 T. " "	22658
4	45 TOOTH SPUR GEAR	B-41407		79 T. " "	22659
5	SPECIAL WASHER	A-21359		80 T. " "	22660
6	SPECIAL BOLT	A-21360		84 T. " "	22661
7	HARDENED SLEEVE	A-21358		85 T. " "	22662
8	BUSHING (.751 x .878 x 5/8 LG.)--			86 T. " "	22663
	OILITE #AA-83B-25			88 T. " "	22664
9	IDLER GEAR HUB	A-21357		89 T. " "	22665
10	HEAVY HEX NUT 1/2-13			91 T. " "	22666
11	NAMEPLATE:			92 T. " "	22667
	-METRIC THREADS ONLY	B-33990		93 T. " "	22668
	-METRIC, DIAMETRAL, MODULE AND			95 T. " "	22681
	SPECIAL THREADS	B-33039		97 T. " "	22669
12	CHANGE GEARS	C-21362		98 T. " "	22670
	(TWO ONLY SHOWN FOR				
	ILLUSTRATION)			100 T. " "	22682
	45 T. CHANGE GEAR	22650		107 T. " "	22671
	50 T. " "	22651		108 T. " "	22672
	55 T. " "	22652		110 T. " "	22673
	60 T. " "	22653		117 T. " "	22674
	64 T. " "	22677		124 T. " "	22675
	65 T. " "	22654		127 T. " "	22676
	67 T. " "	22655			

NOTE: CHANGE GEARS ARE SUPPLIED WHEN REQUIRED.



## TELESCOPIC TAPER ATTACHMENT PARTS

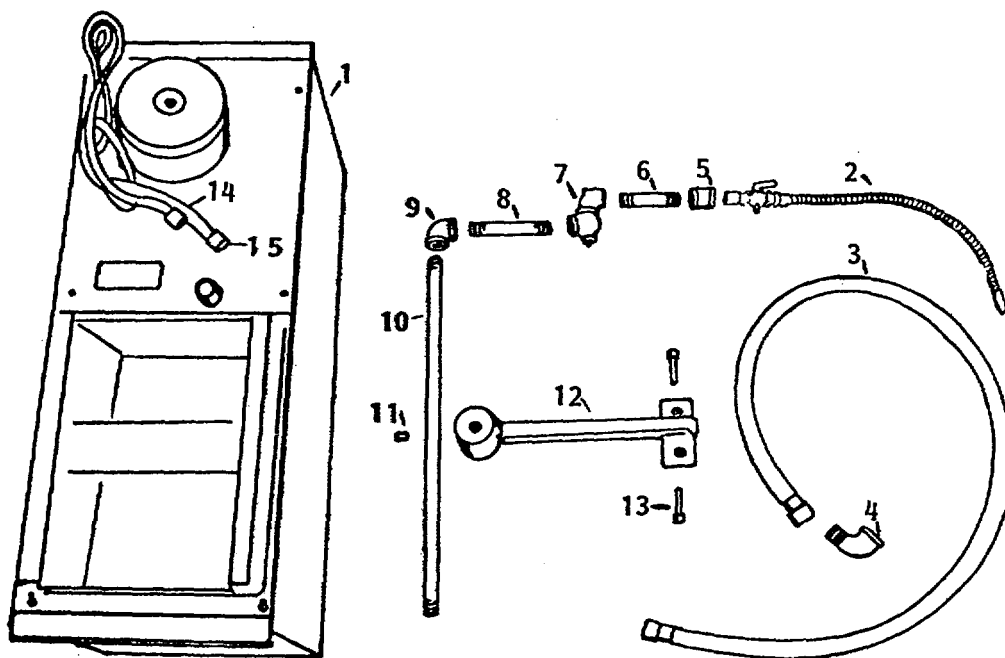
ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
1	HEAVY HEX NUT 1/2, - 13		27	SLIDE BAR: -FOR 12" STROKE	C-33306
2	WASHER - WESPO #6002			-FOR 15" STROKE	C-32911
3	MILLED STUD 1/2 - 13 x 3" LG.		28	T-SLOT NUT	A-41353
4	SOC. HD. CAP SCREW 3/8 - 16 x 1" LG.	A-33308	29	DOWEL 1/2 DIA. x 2" LG.	
5	BED CLAMP - UPPER	A-33309	30	OILER-GITS #533	
6	BED CLAMP - LOWER	C-33307	31	SLIDE PLATE: -FOR 12" STROKE	D-33302
7	BED ANCHOR ARM			-FOR 15" STROKE	D-32912
8	HEX HD. CAP SCREW 3/4 - 16 x 1" LG.		32	GRADUATED PLATE-DEGREES -FOR 12" STROKE	B-33318
9	DOWEL 5/16 DIA. x 1" LG.	D-33301		-FOR 15" STROKE	B-32910
10	MAIN BRACKET	A-33320	33	GRADUATED PLATE-TAPER/FOOT: -FOR 12" STROKE	B-33317
11	HEX. HEAD LOCK SCREW	A-33321		-FOR 15" STROKE	B-32909
12	LOCKING PIN		34	DRIVE SCREW "U" TYPE #4 x 1/4, LG.	
13	OILER - GITS #521		35	CROSS GUIDE BAR C-33310	
14	PULL DOWEL 3/8 DIA. x 2" LG.		36	HEAVY HUGLOCK NUT 3/8 - 24	
15	SOC. HD. CAP SCREW 3/8- 16 x 2" LG.	B-33305	37	THRUST RACE- TORRINGTON #TRC - 613	
16	GIB		38	NEEDLE THRUST BEARING- TORRINGTON #NTA - 613	
17	PLAIN WASHER - S.A.E. #3/8		39	BEARING RING A-33312	
18	SOC. HD. CAP SCREW 3/8-24 x 1 1/4" LG.		40	BOST-BRONZ BEARING #B911-6 (.565 I.D. x .691 O.D. x 3/4)	
19	SOC. HD. CAP SCREW 3/8-24 x 2" LG.		41	BEARING LOCKNUT	B-33311
20	SOC SET SCREW "NYLOK" 3/8 - 16 x 3/4 LG.		42	CROSS FEED SCREW	B-33313
21	OUTER SUPPORT	C-33303	43	CROSS FEED SHAFT	B-33314
22	SHOE	C-33304	44	WOODRUFF KEY #6 (5/32 x 3/8)	
23	PULL DOWEL 3/8 DIA. x 1 3/4 LG.				
24	ALLEN KEY #5/16				
25	SOC. HD. CAP SCREW #10 - 32 x 3/8 LG.	A-33319			
26	POINTER				



## COOLANT PARTS

ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
1	PUMP UNIT--GRAY MILLS #X11 - HR35 - A		9	ELBOW #3/8 x 90°	C-33360
2	NOZZLE WITH SHUT-OFF COCK & REDUCING BUSHING #3/8 x 1/4 (SUPPLIED WITH PUMP UNIT)		10	PIPE NIPPLE 3/8 x 18" LG.	
3	FLEXIBLE HOSE (SUPPLIED WITH PUMP UNIT)		11	SOC. SET SCREW 1/2 - 13 x 3/4 LG.	
4	STREET ELBOW #1/2 x 90°		12	PIPE SUPPORT BRACKET	
5	PIPE COUPLING #3/8		13	SOC. HD. CAP SCREW 3/8 - 16 x 1 1/4 LG.	
6	PIPE NIPPLE 3/8 x 3" LG.		14	SEALTITE RUBBER COVER- HUBBELL #7574 (WITH "TWIST-LOCK" PLUG ONLY)	
7	SWING JOINT #3/8--CRANE #300		15	"TWIST-LOCK" ARMORED CAP- HUBBELL #4726 WITH CORD GRIP FOR CORD DIA. .296 - 562 (SPECIAL APPLICATION ONLY)	
8	PIPE NIPPLE 3/8 x 4" LG.				

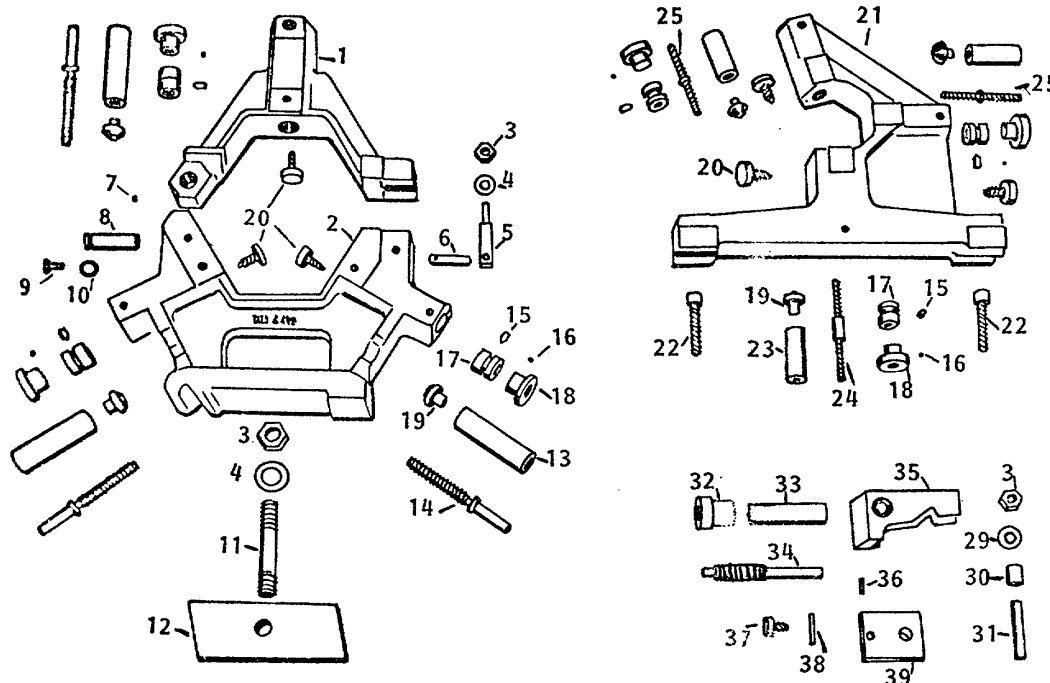
**NOTE: ITEM 12-PIPE SUPPORT BRACKET PART #C - 33360 NOT USED ON LATHE  
WITH TELESCOPIC TAPER ATTACHMENT.  
-USE PIPE SUPPORT BLOCK PART #B - 41475 INSTEAD.**





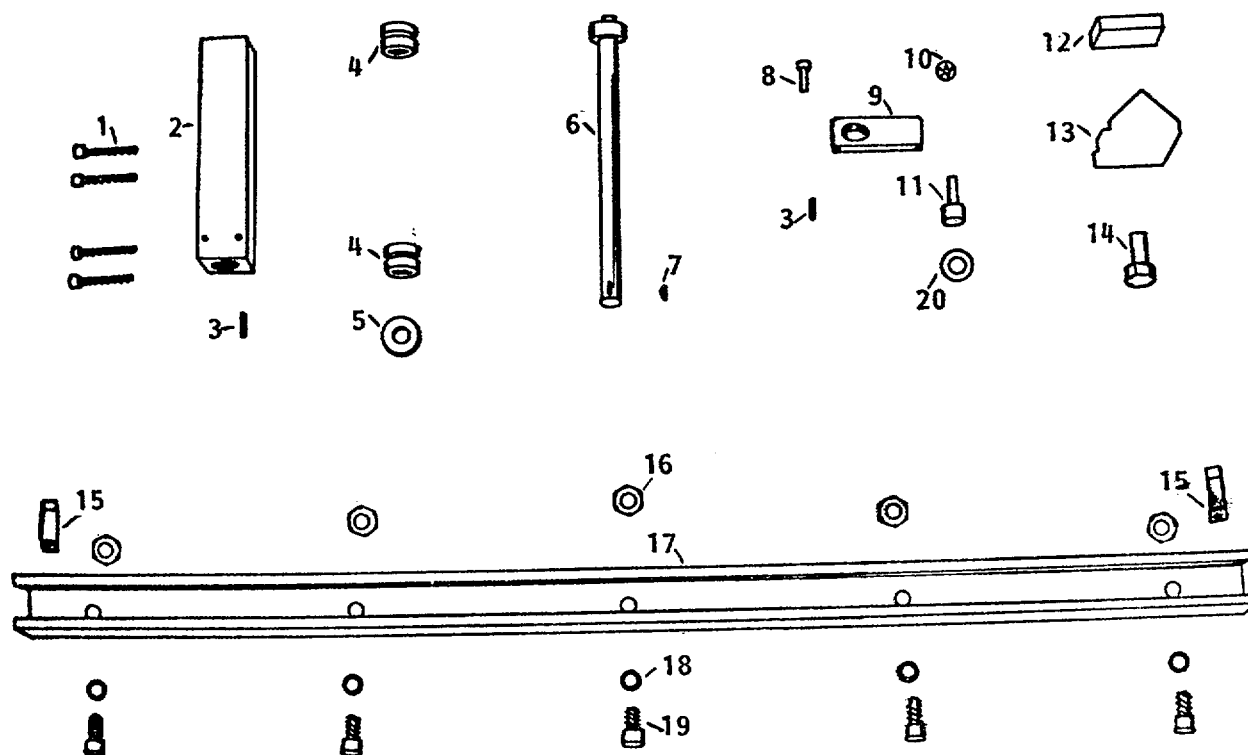
# **STEADY REST, FOLLOW REST AND MICROMETER CARRIAGE STOP PARTS**

STEADY REST-33125			FOLLOW REST-33325		
ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
1	UPPER CASTING -	D-41482	15	SOC. SET SCREW 3/8 - 16 x 5/8 LG.	
2	LOWER CASTING	E-33097	16	CONE POINT (6 REQ'D.)	
3	HARDENED HEAVY HEX. NUT 1/2 - 13,		17	SOC. SET SCREW 1/4 -28 x {3 REQ'D}	
4	7/8 ACROSS FLATS (2 REQ'D)		18	BUSHING (3 REQ'D.) A-33095	
5	WASHER-WESPO #6009 (2 REQ'D.		19	KNOB (3 REQ'D.)	A-21120
6	EYE BOLT	A-41488	20	BUTTON FOR SLEEVE (3 REQ'D.)	A-33096
7	PIVOT PIN	A-21392	21	CLAMP SCREW (3 REQ'D.)	A-21292
8	SOC. SET SCREW 1/4 - 20 x 3/8 LG.		22	FOLLOW REST CASTING	D-33326
9	HINGE PIN A-41489		23	SOC. HD. CAP SCREW 1/2 -13 x 3 1/4 LG.	
10	HEX. HD. CAP SCREW 3/8 -16 x 3/4 LG.		24	SLEEVE (3 REQ'D.)	A-21301
11	WASHER-WESPO #6001		25	ADJUSTING SCREW-LONG	A-33098
	MILLED STUD 1/2 -13 x 4 LG,			ADJUSTING SCREW (2 REQ'D.)	A-21302
			<b>MICROMETER CARRIAGE STOP-22187</b>		
12	CLAMP BAR	A-21288	3	HARDENED HEAVY HEX. NUT 1/2-13	
13	SLEEVE (3 REQ'D.)	A-41487	29	WASHER-WESPO #6002	
14	ADJUSTING SCREW	A-41483	30	COLLAR	A-22819
15	SOC. SET SCREW 3/8 - 16 x 5/8 LG		31	MILLED STUD 1/2 - 13 x 3 1/2 LG.	
	CONE POINT (3 REQ'D.)		32	KNOB	A-21396
16	SOC. SET SCREW 1/4 - 28 x 1/4 (3 REQ'D.)		33	GRADUATED SLEEVE	B-41373
17	BUSHING (3 REQ'D.)	A-41486	34	SCREWED STEM	A-21397
18	KNOB (3 REQ'D.)	A-41485	35	BODY	B-22818
19	BUTTON FOR SLEEVE 13 REQ'D.I	A-41484	36	DOWEL 1/4 DIA. x 3/4 LG.	
20	CLAMP SCREW {3 REQ'D.}	A-21292	37	CLAMP SCREW	A-30586
			38	TAPER PIN #4 1 1/2 LG	
			39	CLAMP	A-41372



## AUTOMATIC CARRIAGE STOP PARTS

ITEM	NAME	PART NO.	ITEM	NAME	PART NO.
1	SOC. HD. CAP SCREW 1/4 - 20 x 1 3/4 LG. (4 REQ'D.)	11CAM FOL	12	TORRINGTON #CRS- 12	A-33356
2	STOP CONTROL BLOCK	B-33351	13	CLAMP NUT	B-33354
3	HARDENED DOWEL 3/16 DIA. x 3/4LG. (2 REQ'D.)		14	TRIP DOG	A-21217
4	ROLLER BEARING-TORRINGTON #HJ - 101812 (2 REQ'D.)		15	HEAVY HEX BOLT	
5	OIL SEAL (5/8 I.D. x 1 1/8 O.D. x 1/4)		16	END CAP-CANTRUSS #RR2E (2 REQ'D.)	
6	CHICAGO RAWHIDE STOCK NO. 6225		17	HEX. NUT % -16 (5 REQ'D. FOR 30" BED-8 FOR 54")	
7	ECCENTRIC SHAFT B-33352		18	PAIL FOR 30" BED	C-33353
8	WOODRUFF KEY #3 (1/8 x 1/2 DIA.)		19	RAIL FOR 54" BED	C-33347
9	SOC. HD. CAP SCREW 1/4 - 20 x 1/4		20	SPLIT LOCK WASHER #3/8 (5 REQ'D. FOR 30" BED-8 FOR 54")	
10	TRIM ARM B-41672			SOC. HD. CAP SCREW 3/8 - 16 x 3/4 LG. (5 REQ'D. FOR 30" BED-8 FOR 54")	
	HUGLOCK NUT 3/8 - 24 15/16 THICK)			SLEEVE FOR CAM FOLLOWER	A-32949



**By Order of the Secretary of the Army:**

**E. C. MEYER**  
*General, United States Army*  
*Chief of Staff*

**Official:**

**ROBERT M. JOYCE**  
*Major General, United States Army*  
*The Adjutant General*

\* U.S. GOVERNMENT PRINTING OFFICE : 1991 0 - 281-486/42170

## THE METRIC SYSTEM AND EQUIVALENTS

### LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches  
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches  
 1 kilometer = 1000 Meters = 0.621 Miles

### WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces  
 1 Kilogram = 1000 Grams = 2.2 Lb.  
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

### LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces  
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

### SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches  
 1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet  
 1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

### CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches  
 1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

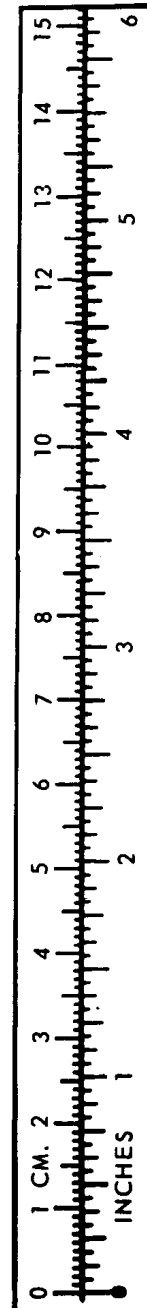
### TEMPERATURE

$5/9 (^{\circ}\text{F} - 32) = ^{\circ}\text{C}$   
 212° Fahrenheit is equivalent to 100° Celsius  
 90° Fahrenheit is equivalent to 32.2° Celsius  
 32° Fahrenheit is equivalent to 0° Celsius  
 $9/5 (^{\circ}\text{C} + 32) = ^{\circ}\text{F}$

### APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches.....	Centimeters.....	2.540
Feet.....	Meters.....	0.305
Yards.....	Meters.....	0.914
Miles.....	Kilometers.....	1.609
Square Inches.....	Square Centimeters.....	6.451
Square Feet.....	Square Meters.....	0.093
Square Yards.....	Square Meters.....	0.836
Square Miles.....	Square Kilometers.....	2.590
Acres.....	Square Hectometers.....	0.405
Cubic Feet.....	Cubic Meters.....	0.028
Cubic Yards.....	Cubic Meters.....	0.765
Fluid Ounces.....	Milliliters.....	29.573
Pints.....	Liters.....	0.473
Quarts.....	Liters.....	0.946
Gallons.....	Liters.....	3.785
Ounces.....	Grams.....	28.349
Pounds.....	Kilograms.....	0.454
Short Tons.....	Metric Tons.....	0.907
Pound-Feet.....	Newton-Meters.....	1.356
Pounds per Square Inch.....	Kilopascals.....	6.895
Miles per Gallon.....	Kilometers per Liter.....	0.425
Miles per Hour.....	Kilometers per Hour.....	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters.....	Inches.....	0.394
Meters.....	Feet.....	3.280
Meters.....	Yards.....	1.094
Kilometers.....	Miles.....	0.621
Square Centimeters.....	Square Inches.....	0.155
Square Meters.....	Square Feet.....	10.764
Square Meters.....	Square Yards.....	1.196
Square Kilometers.....	Square Miles.....	0.386
Square Hectometers.....	Acres.....	2.471
Cubic Meters.....	Cubic Feet.....	35.315
Cubic Meters.....	Cubic Yards.....	1.308
Milliliters.....	Fluid Ounces.....	0.034
Liters.....	Pints.....	2.113
Liters.....	Quarts.....	1.057
Liters.....	Gallons.....	0.264
Grams.....	Ounces.....	0.035
Kilograms.....	Pounds.....	2.205
Metric Tons.....	Short Tons.....	1.102
Newton-Meters.....	Pound-Feet.....	0.738
Kilopascals.....	Pounds per Square Inch.....	0.145
Kilometers per Liter.....	Miles per Gallon.....	2.354
Kilometers per Hour.....	Miles per Hour.....	0.621



**TM 9-3416-236-14&P LATHE ENGINE (NSN 3416-00-250-6550) 1982**

**PIN: 052317-000**

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