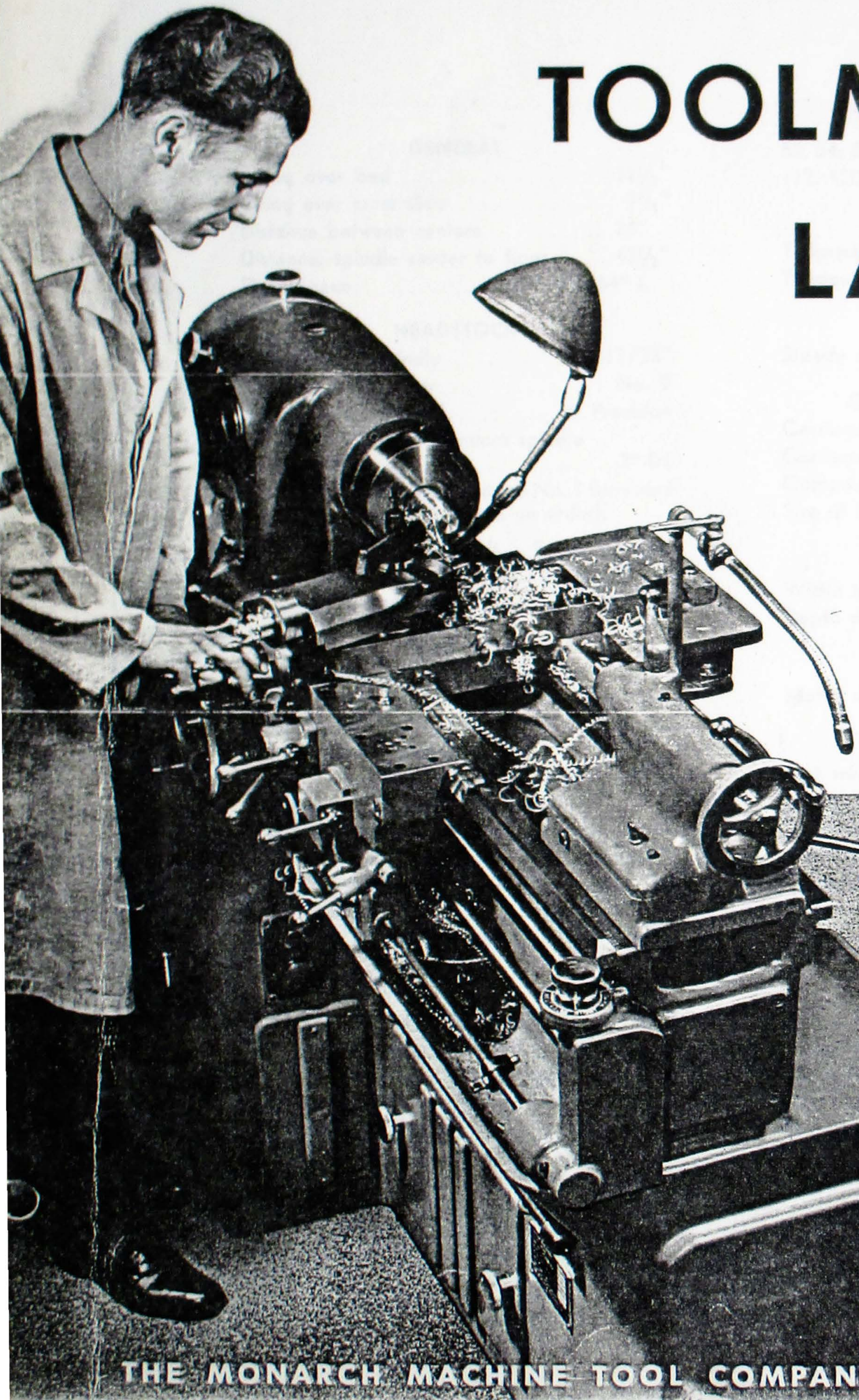
The Monarch 10″ — Model EE

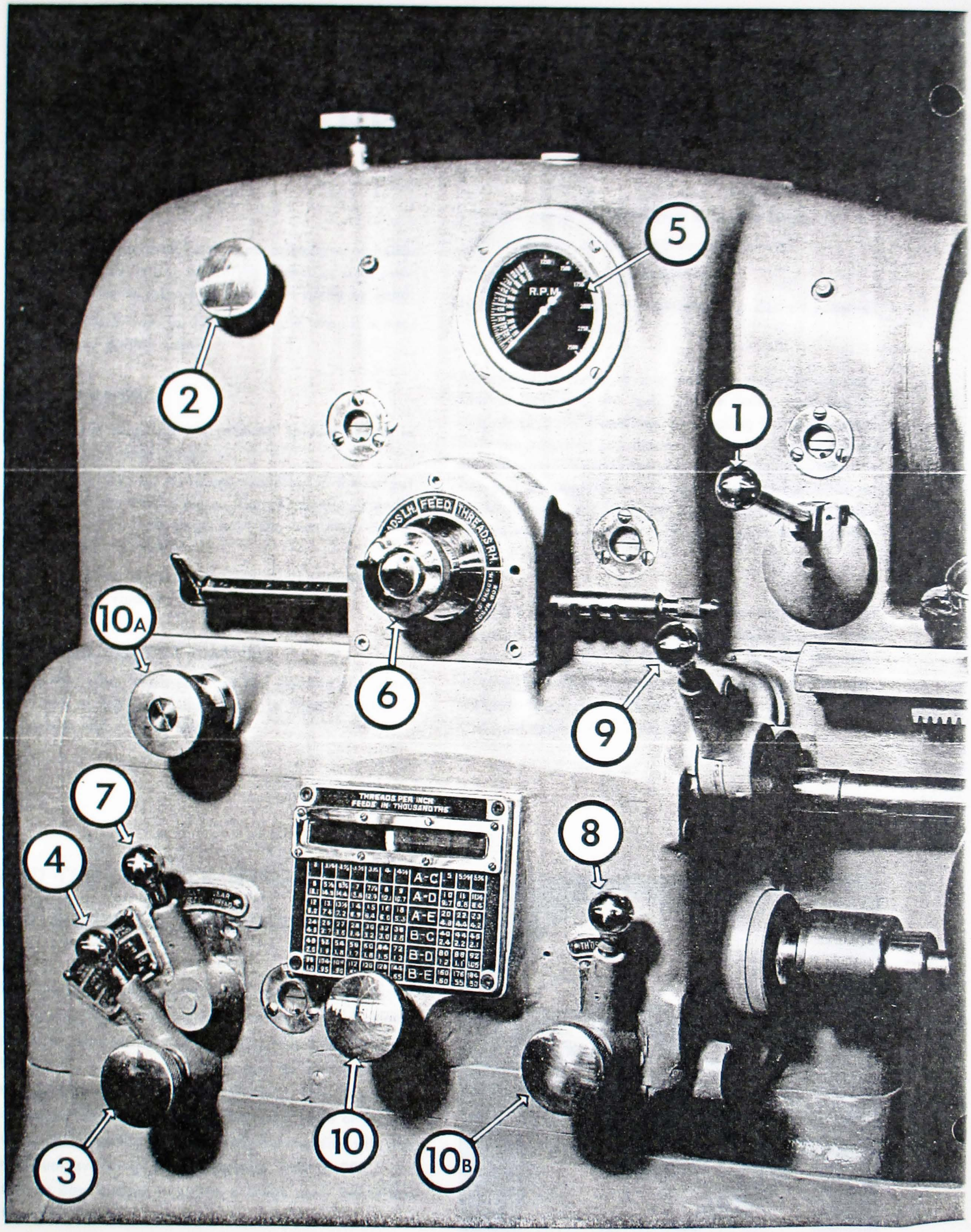
SENSITIVE PRECISION

TOOLMAKER'S

LATHE



THE MONARCH MACHINE TOOL COMPANY • SIDNEY, OHIO


5
R.P.M.
2
1
10A
6
9
7
4
8
THREADS PER INCH
FEEDS IN THOUSANDTHS
A-C
A-D
A-E
B-C
B-D
B-E
3
10
10B

SPECIFICATIONS

GENERAL

Swing over bed . . . . . 12½"
Swing over cross slide . . . . . 7¼"
Distance between centers . . . . . 20"
Distance, spindle center to floor . . . . . 43½"
Floor Space . . . . . 29" W x 64" L

HEADSTOCK

Hole through spindle . . . . . 1-13/32"
Center Morse taper . . . . . No. 2
Spindle bearings, ball . . . . . Precision
American Standard Camlock spindle nose . . . . . 3"-D1
Optional spindle speeds (range No. 1 furnished unless otherwise specified on order).

A.C. Supply	Open Belt	Speed Reducer
Range No. 1	30 to 3000 rpm	5 to 500 rpm
Range No. 2	40 to 4000 rpm	6.5 to 650 rpm

GEAR BOX

Leadscrew diameter and threads per inch . . . . . 1"—8 thd.
Range of threads . . . . . 3 to 184
Range of feeds through endless belt . . . . . .0005" to .016"
Number of thread changes 60
Number of feed changes 50
Actual threads cut 3, 3¼, 3⅜, 3½, 3¾, 4, 4½, 5, 5½, 5¾, 6, 6½, 6¾, 7, 7½, 8, 9, 10, 11, 11½, 12, 13, 13½, 14, 15, 16, 18, 20, 22, 23, 24, 26, 27, 28, 30, 32, 36, 40, 44, 46, 48, 52, 54, 56, 60, 64, 72, 80, 88, 92, 96, 104, 108, 112, 120, 144, 160, 176 and 184.

TAILSTOCK

Tailstock spindle diameter . . . . . 1¼"
Tailstock spindle traverse . . . . . 3½"

STEADY REST

Steady rest opening . . . . . 3"

CARRIAGE AND COMPOUND

Carriage length . . . . . 20½"
Carriage bridge width . . . . . 5"
Compound rest top slide travel . . . . . 2"
Size of lathe tool . . . . . ⅜" x ⅞"

BED

Width of bed . . . . . 10½"
Depth of bed . . . . . 10¼"

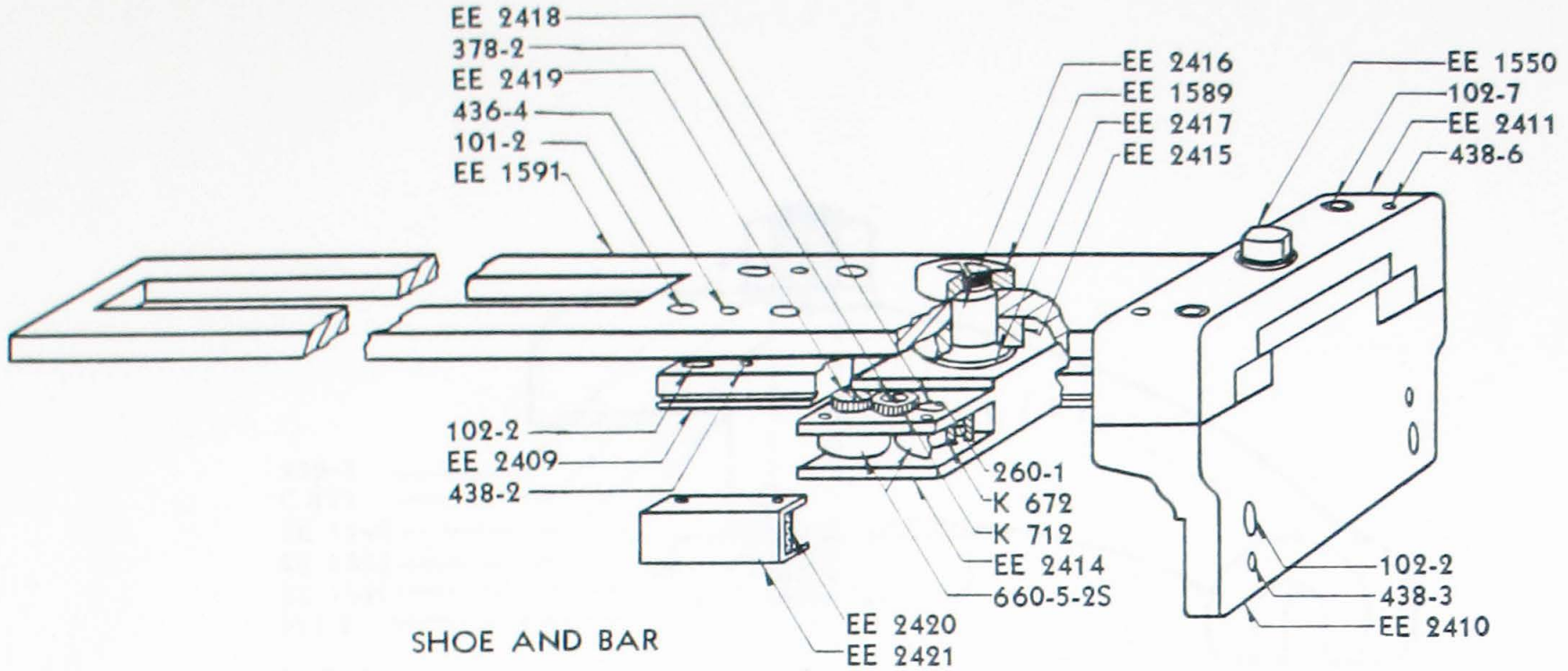
MOTOR DATA

Motor size . . . . . 3 hp

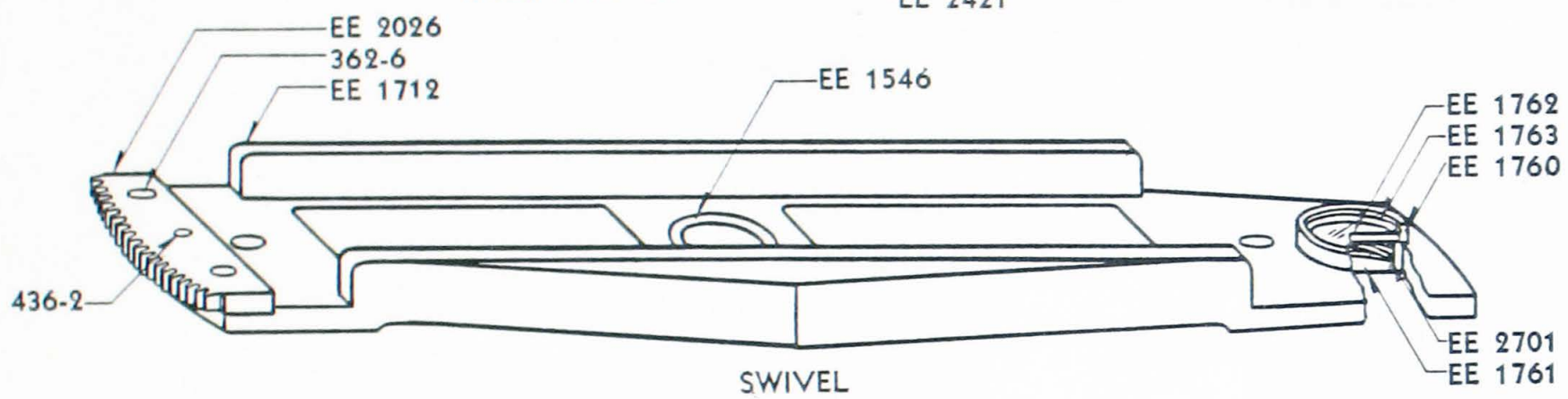
SHIPPING DATA

Net weight, with regular equipment only, (including electrical equipment) . . . . . 2900 lbs.
Domestic shipping weight, as above 3250 lbs.
Export shipping weight, as above . . . 3750 lbs.
Cubic content—boxed for export, as above . . . . . 105 cu. ft.

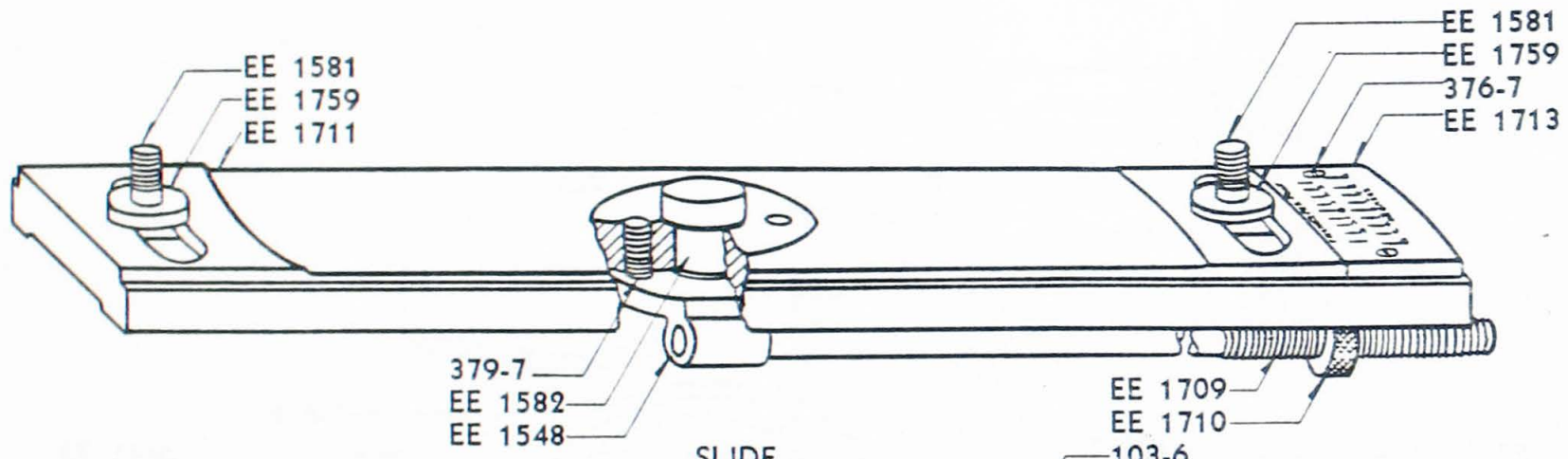
REGULAR EQUIPMENT INCLUDES—3 hp. 100 to 1 variable speed electric drive with magnetic switch with start and stop push button station, built-in leadscrew reverse operated from headstock, built-in oil pan (reservoir type), cabinet base, large (T-slotted) face plate, dog plate, compound rest, steady rest, precision dial type indicator carriage stop, chasing dial, chasing stop, tool post, centers and wrenches.



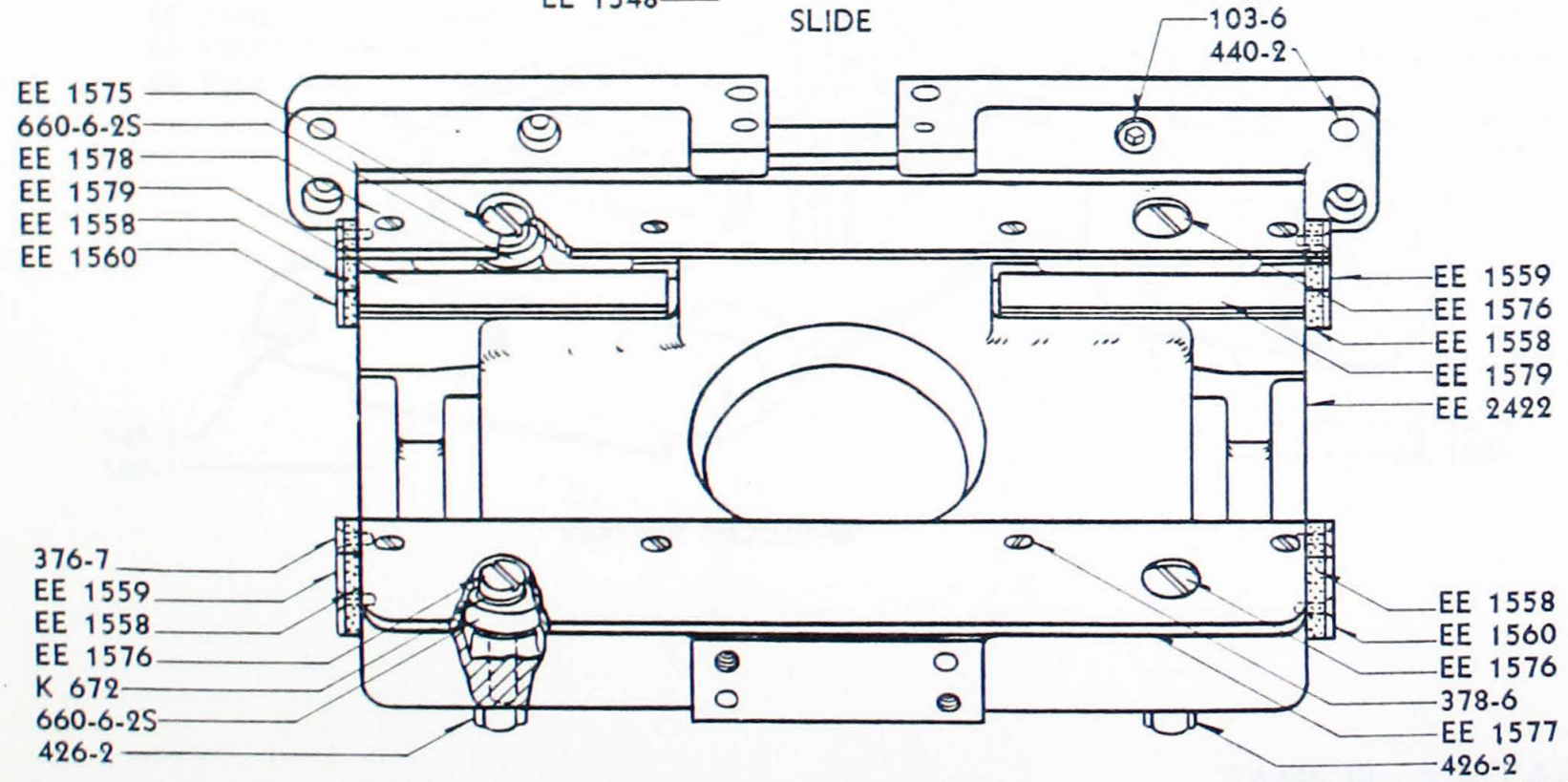
SHOE AND BAR



SWIVEL



SLIDE



CARRIAGE BRACKET

TAPER ATTACHMENT
UNIT EE 15
SHEET 113

MODERN,
CENTRALIZED HEADSTOCK CONTROLS

SPINDLE

1—Hand lever controls start, stop or reverse of headstock spindle at any operating speed. In stop position it permits spindle to be turned easily by hand.

2—Spindle lock knob for locking spindle when it is necessary to tighten collets.

SPEED CHANGE

3—Knob for selecting any desired spindle speed in almost unlimited range.

4—Selector lever for six to one reduction in the output speed of the driving motor. Thus, a very slow spindle speed can be obtained with the maximum horsepower of the motor.

5—Tachometer. This indicates any spindle speed within the entire stepless range.

FEED AND THREAD CHANGE

6—Shifter knob which engages end gearing for either right or left hand threading. In feed position it leaves end gearing idle.

7—End gearing or feed belt engaging lever.

8—Leadscrew or feed rod engaging lever.

9—Tumbler gear engaging lever.

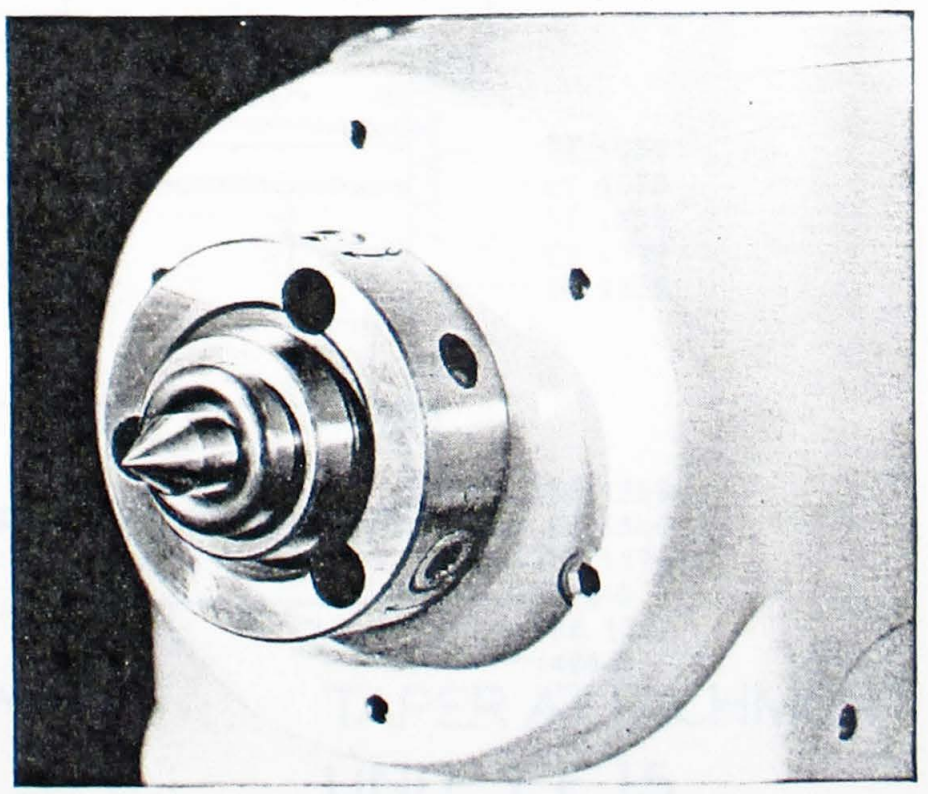
10, 10A, 10B—Knobs for selecting any desired range of feeds or threads.

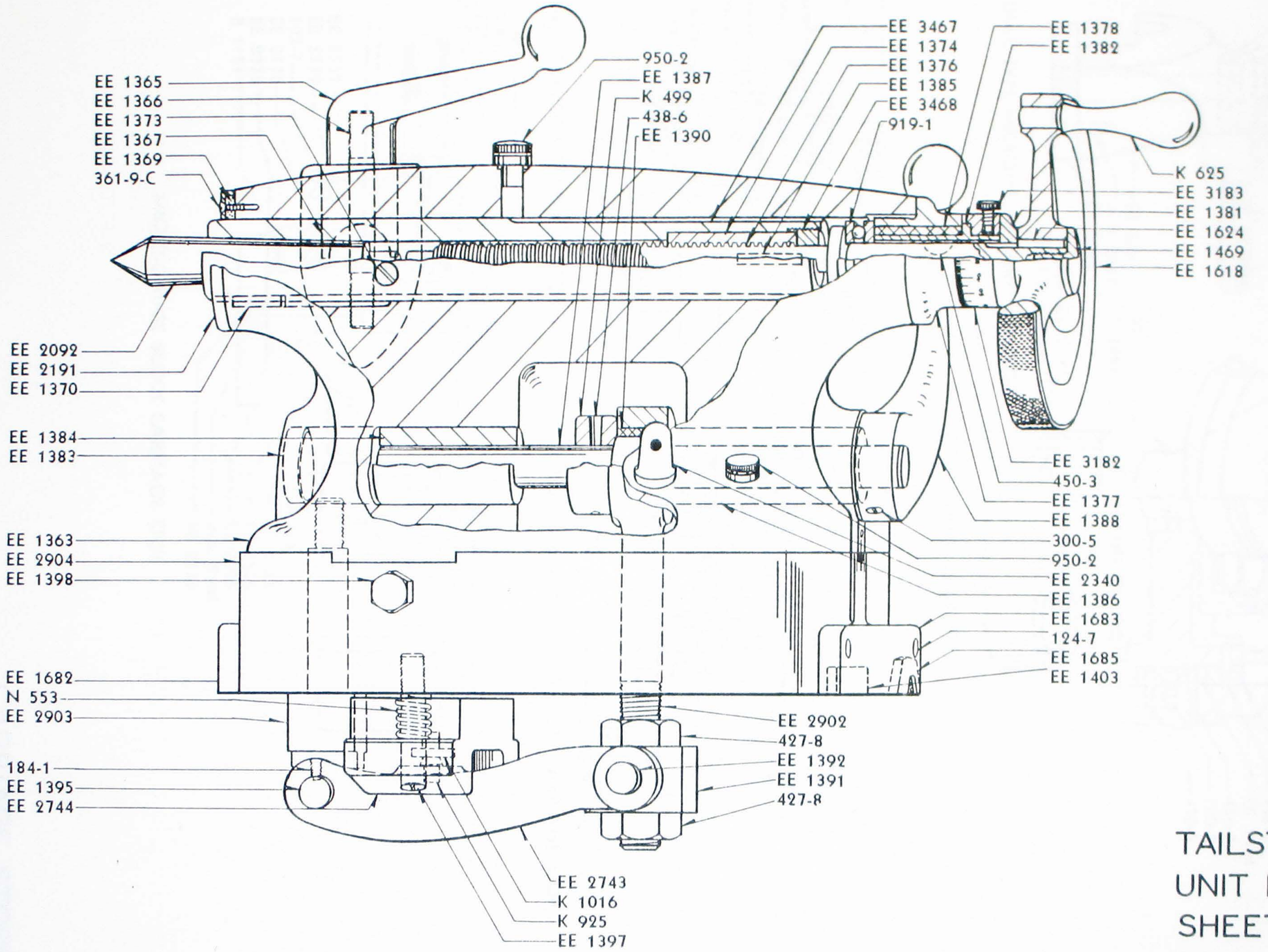
All operating parts in this unit are mounted on anti-friction bearings, the main spindle being mounted on precision type ball bearings. Interlocking features protect both the operator and the machine in the event controls are not manipulated in the proper sequence. Mounted on the bed convenient to the operator, but not showing in the illustration to the left, is the push button station for the main drive motor, with green light showing when motor is running.

Among a number of recently added new features are two electrical interlocks for machine protection. One of these makes it impossible for the operator to start the main drive motor with the spindle lock knob engaged. The other prevents engagement of the speed reducing unit above a spindle speed of 250 R.P.M.

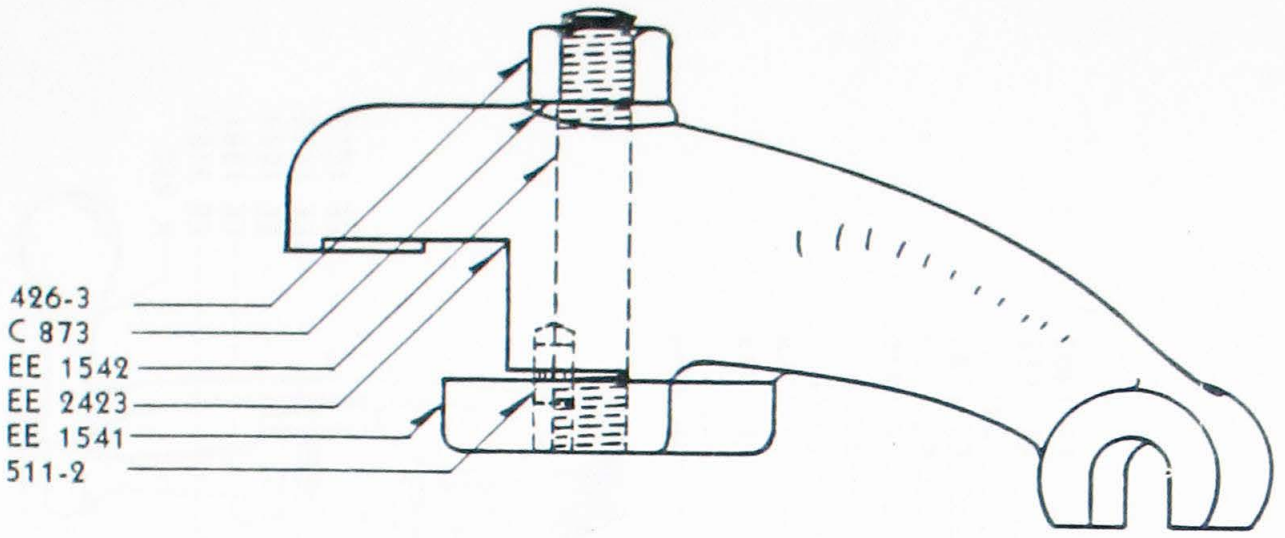
AND THE CAMLOCK SPINDLE NOSE FOR MAXIMUM PERFORMANCE

The Camlock spindle nose is the most perfect known means of quick, accurate and secure mounting of chucks, plates or fixtures. The chuck may quickly be slipped on the spindle nose and a quarter turn of the wrench on each locking cam locks it snugly in place. There is perfect centralization and squaring of the chuck plate or fixture; quick changeability and the utmost in rigidity with the minimum overhang. Final inspection limit is .0001" for spindle nose run-out with the average error being less than that figure.

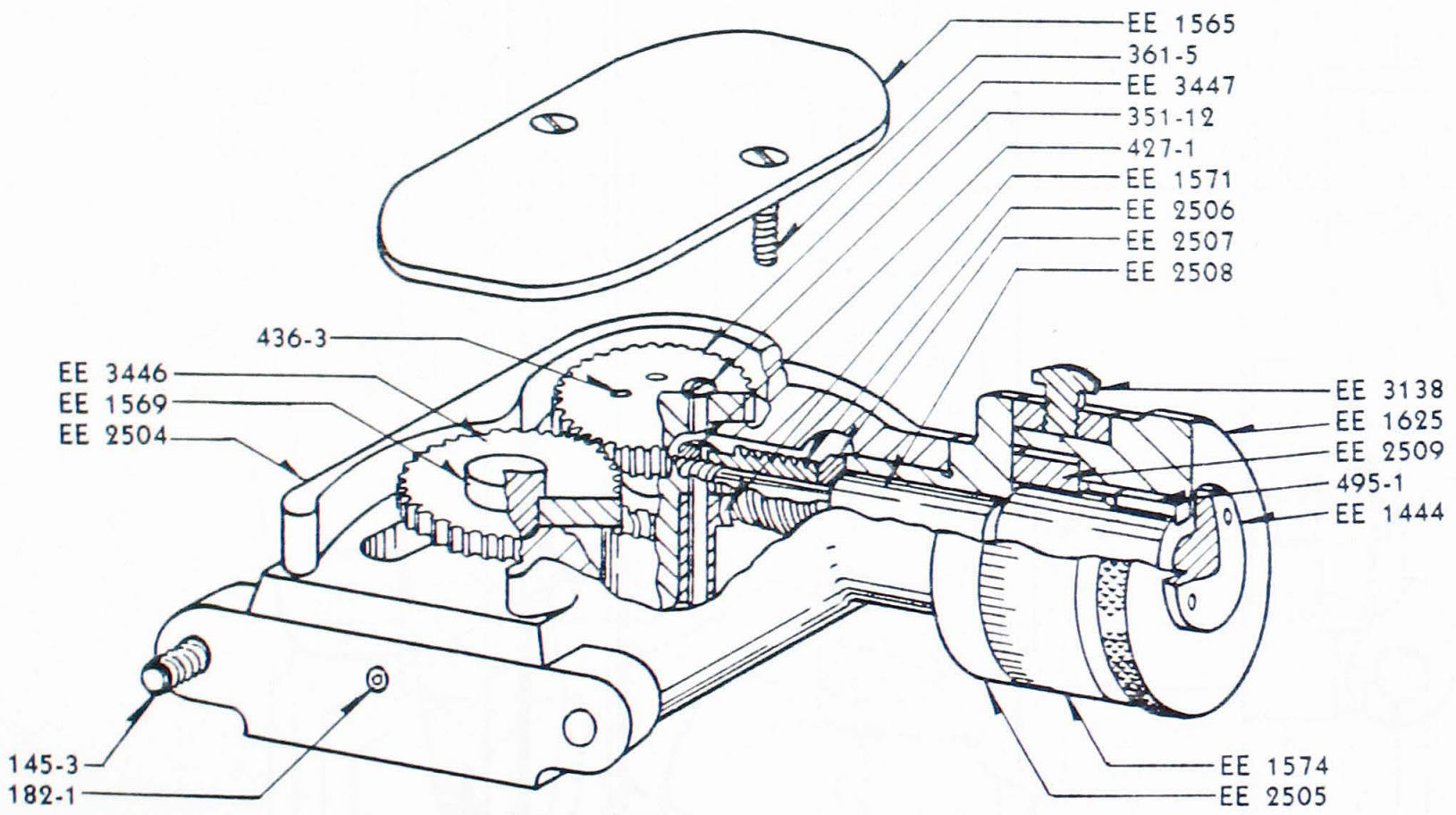




TAILSTOCK
UNIT EE12
SHEET 115

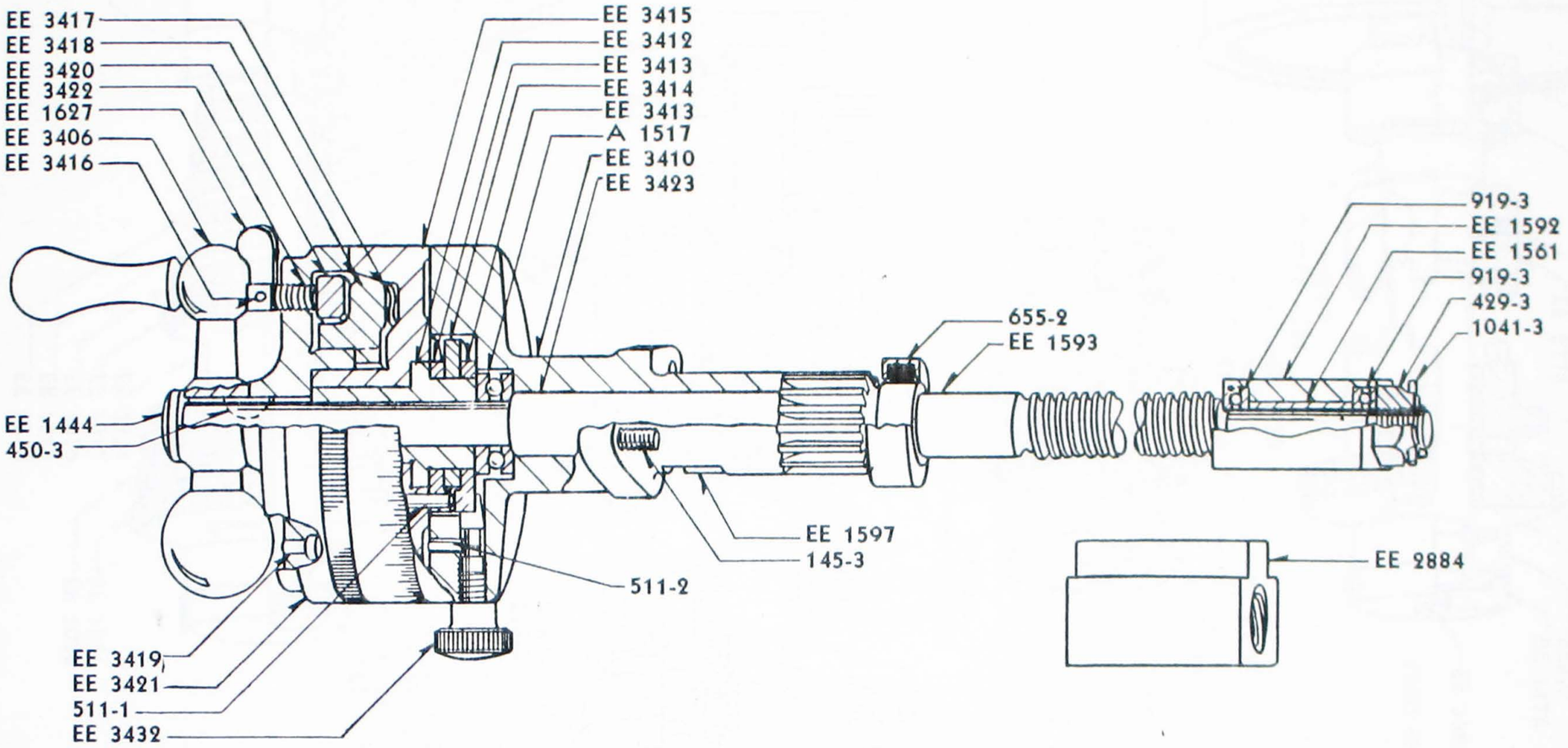


BED BRACKET



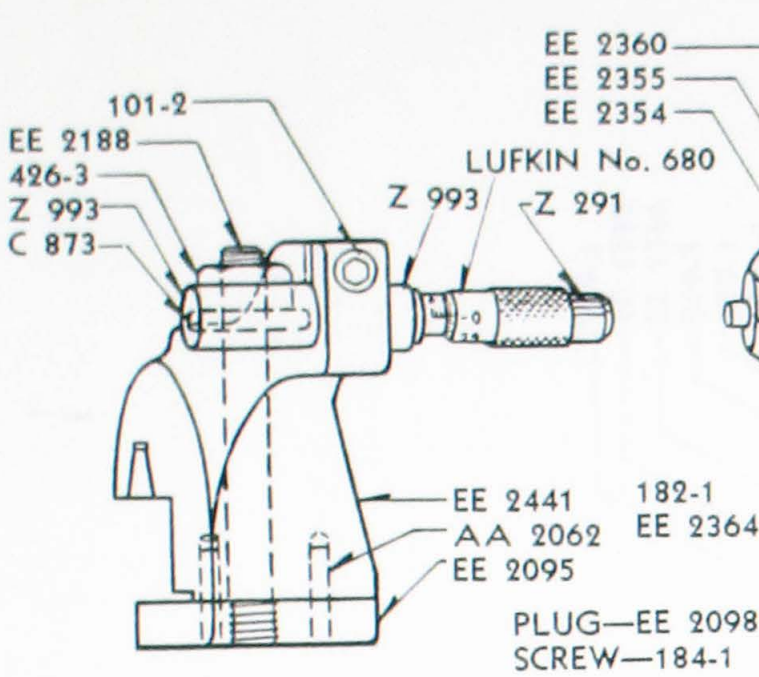
VERNIER HOUSING

TAPER ATTACHMENT
UNIT EE 15
SHEET 114

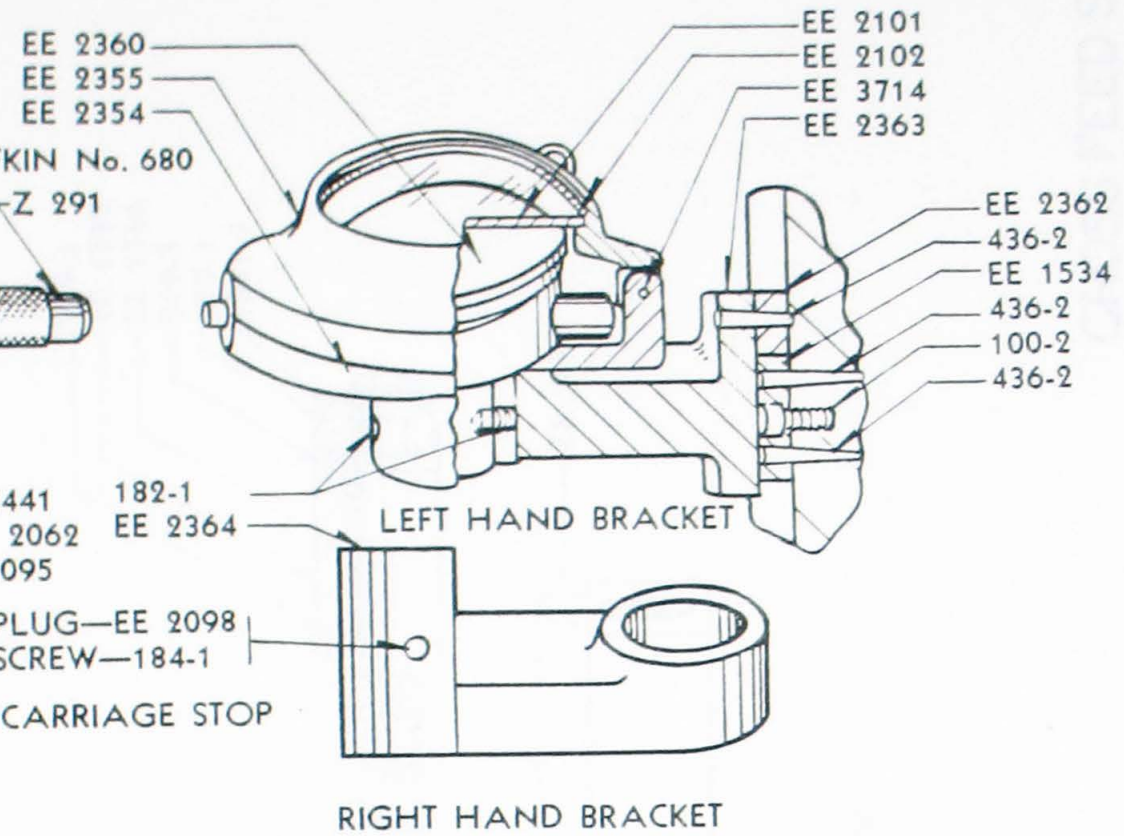


TELESCOPIC SCREW WITH ADJUSTABLE CHASING STOP

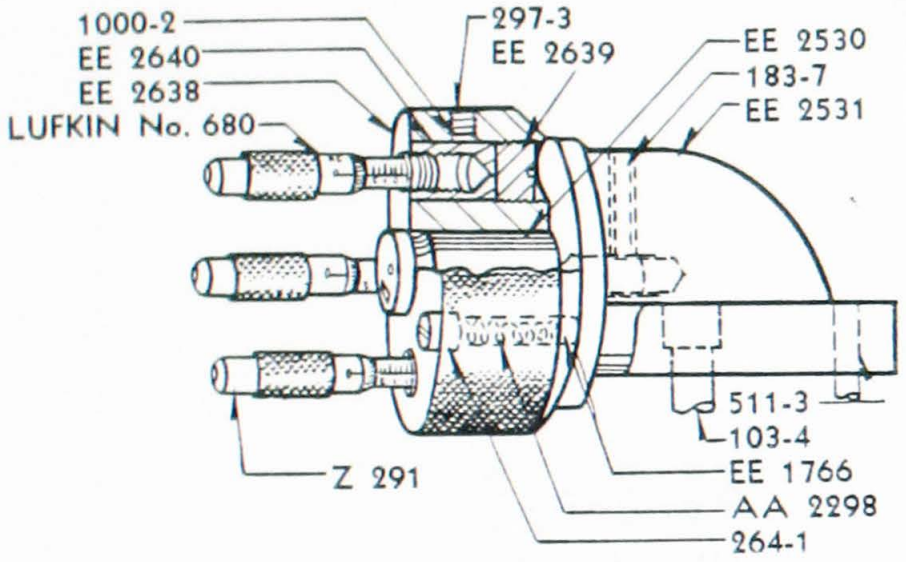
CROSS FEED SCREW
UNIT EE 8
SHEET 121



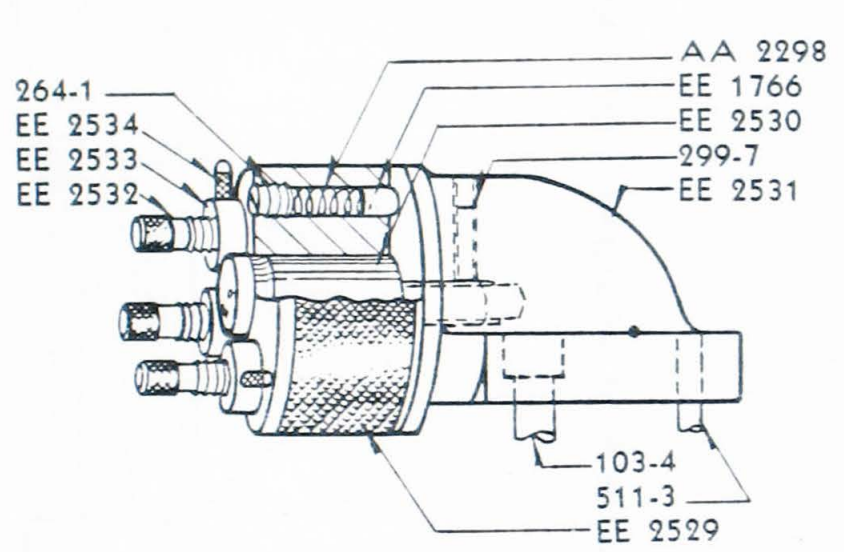
DIAL TYPE MICROMETER CARRIAGE STOP



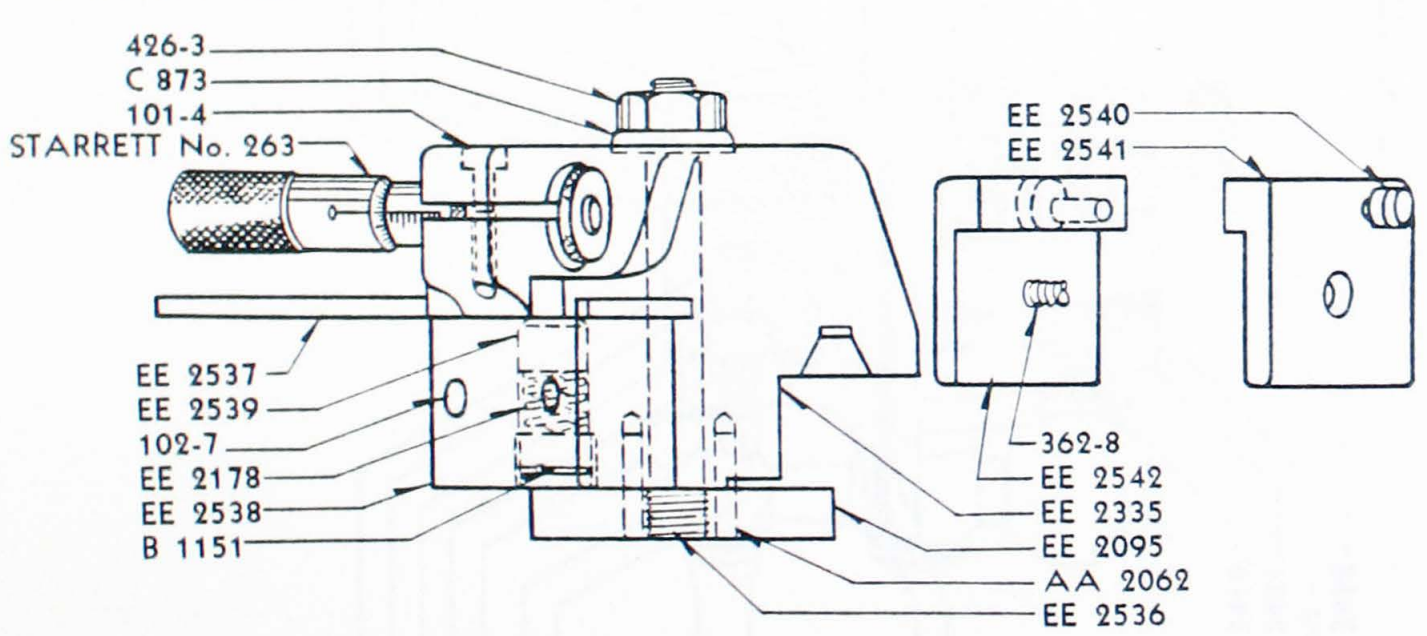
RIGHT HAND BRACKET



4 STATION MICRO CARRIAGE STOP

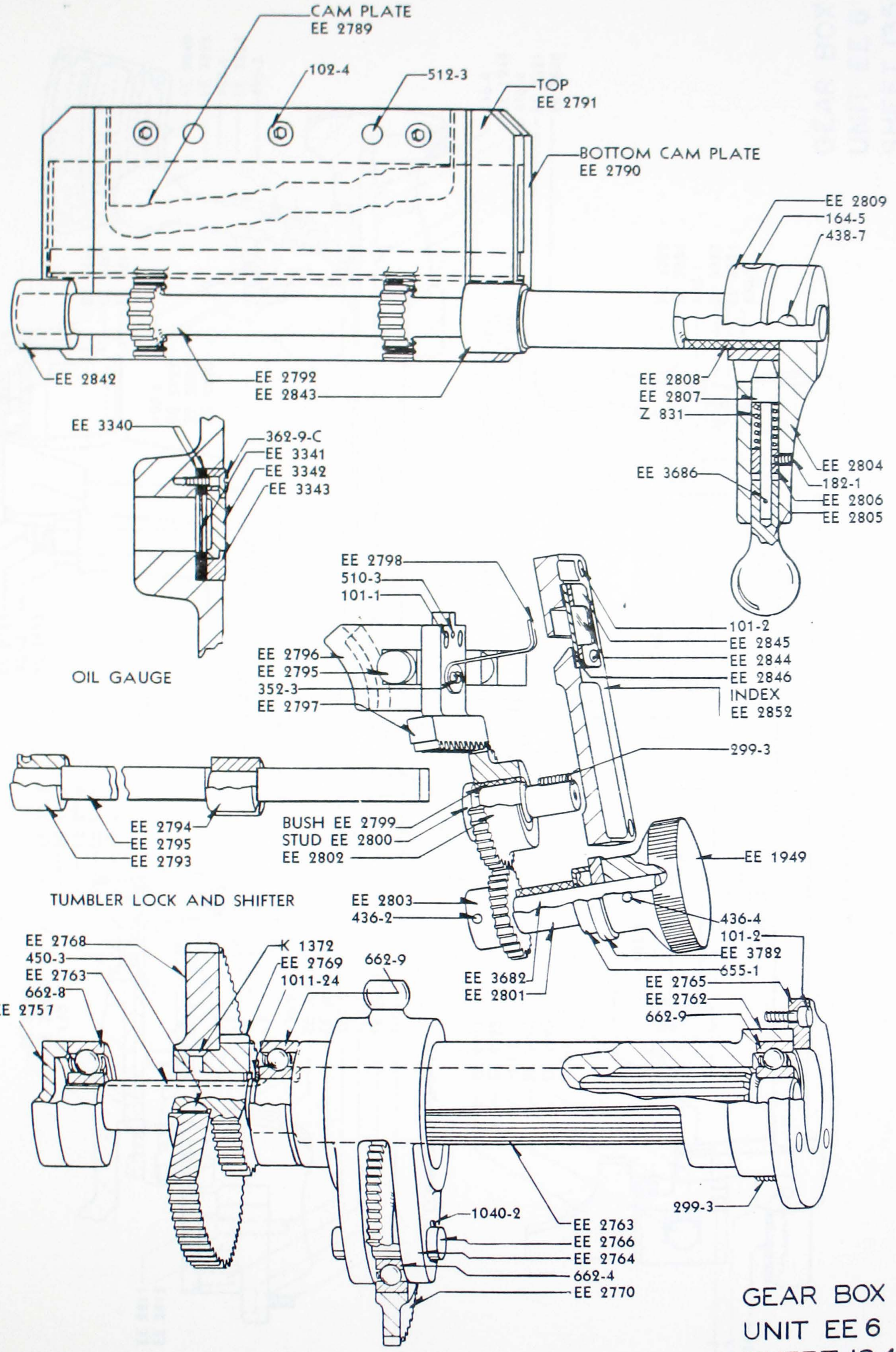


4 STATION MULTIPLE POSITION CARRIAGE STOP

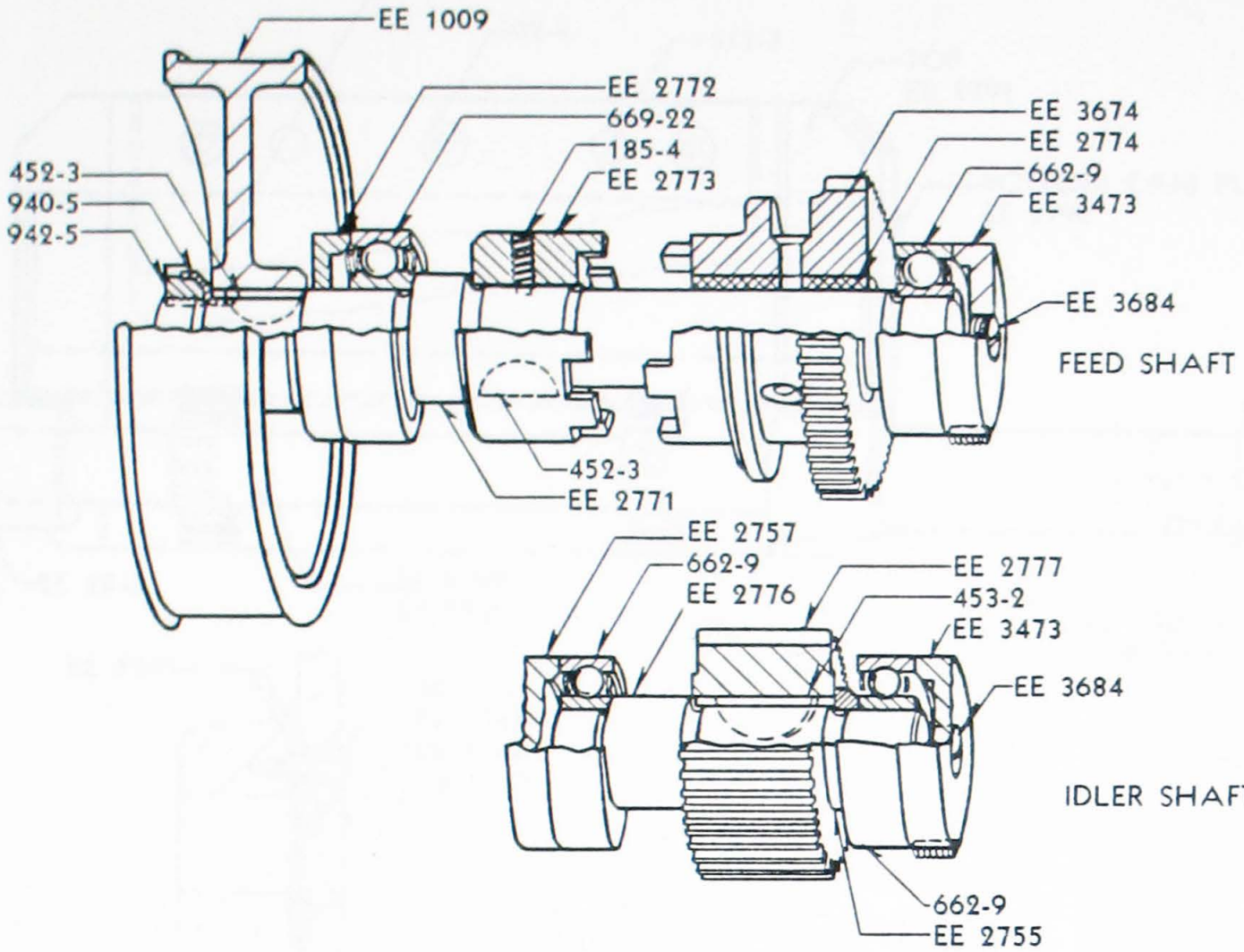


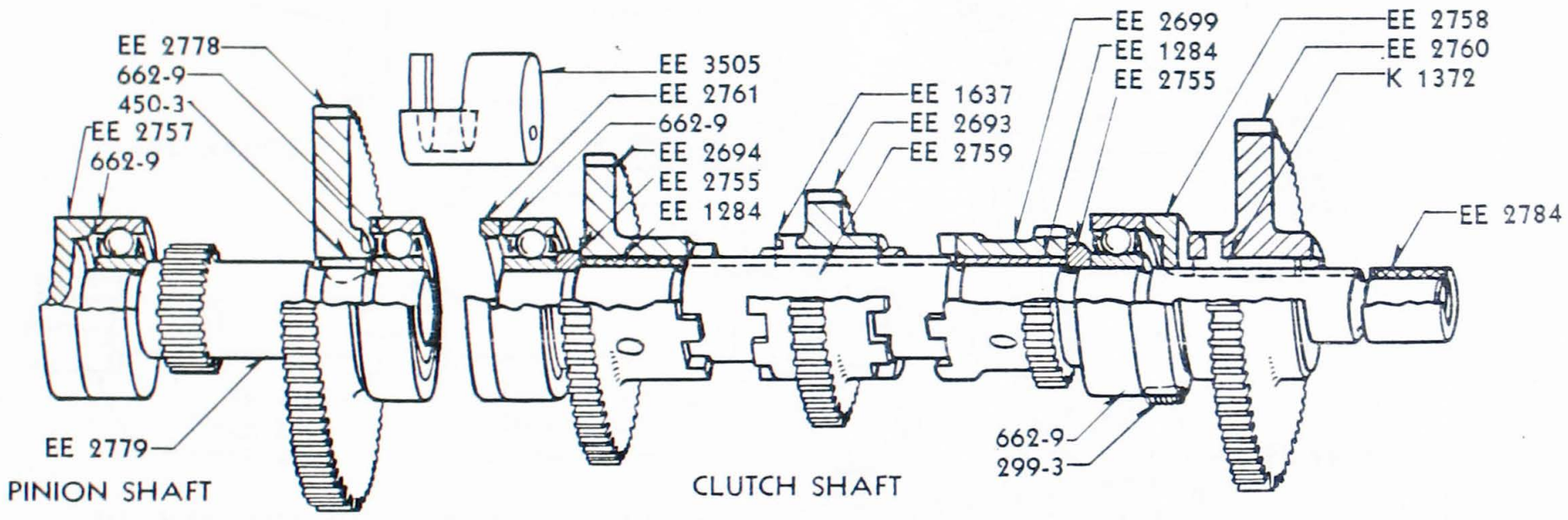
MICRO-GAUGE BLOCK CARRIAGE STOP

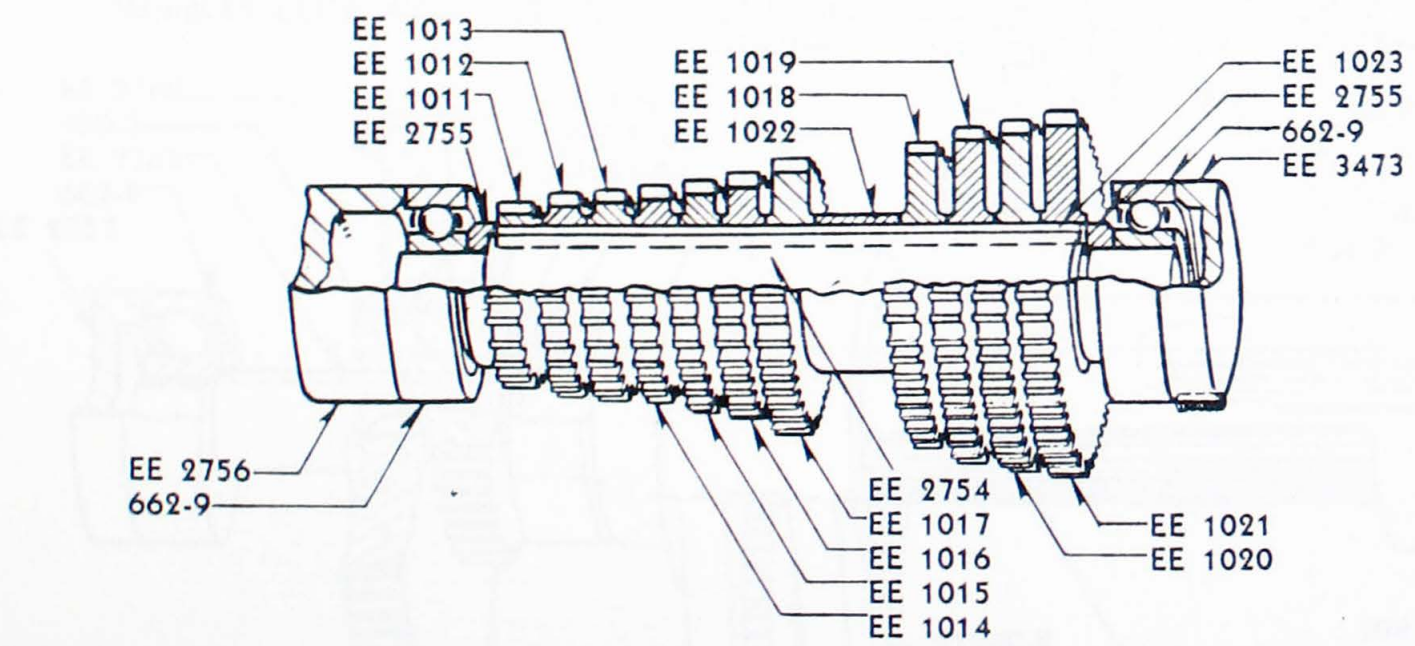
CARRIAGE STOPS
UNIT EE 20
SHEET 117



GEAR BOX
UNIT EE 6
SHEET 134

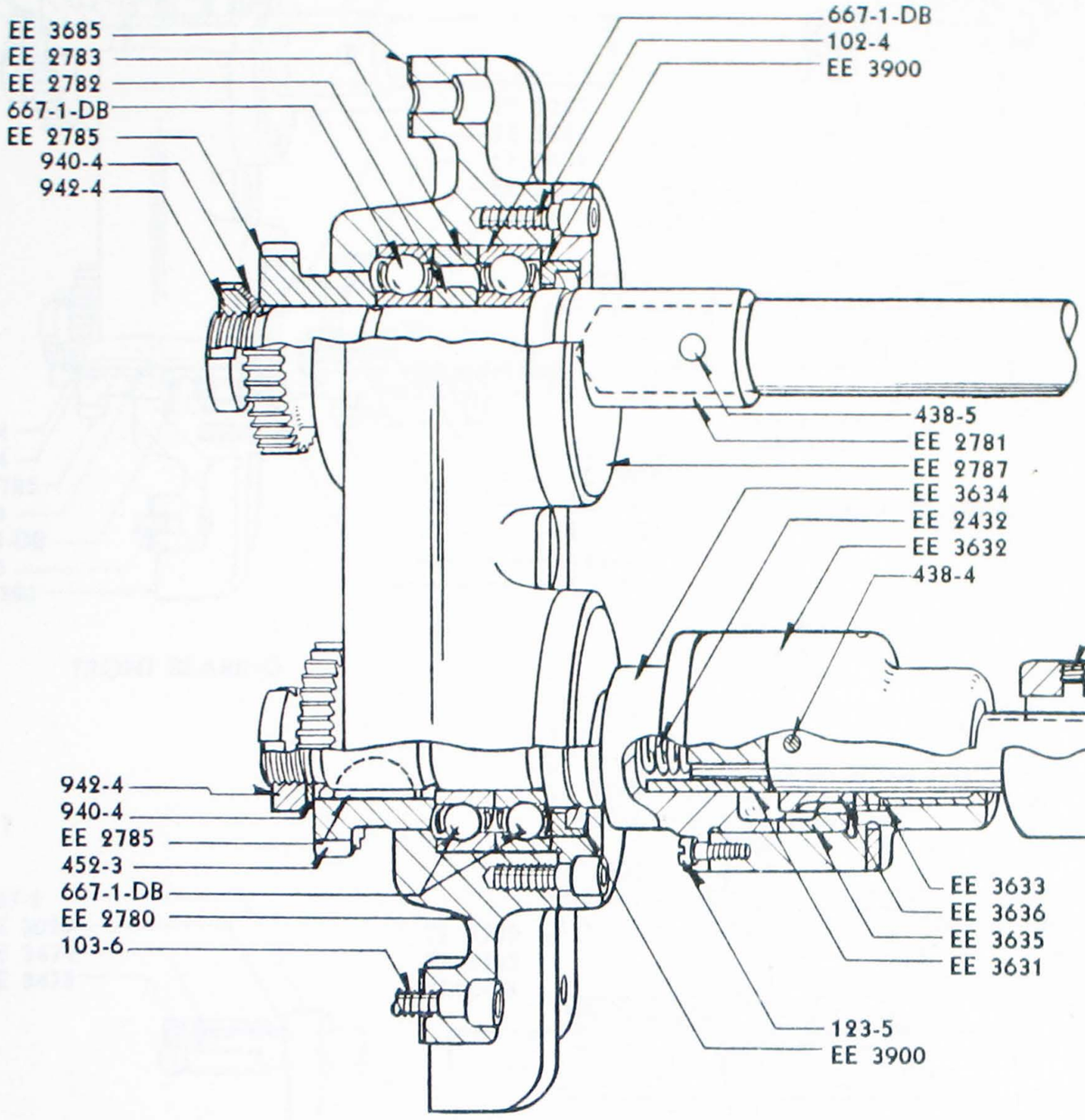




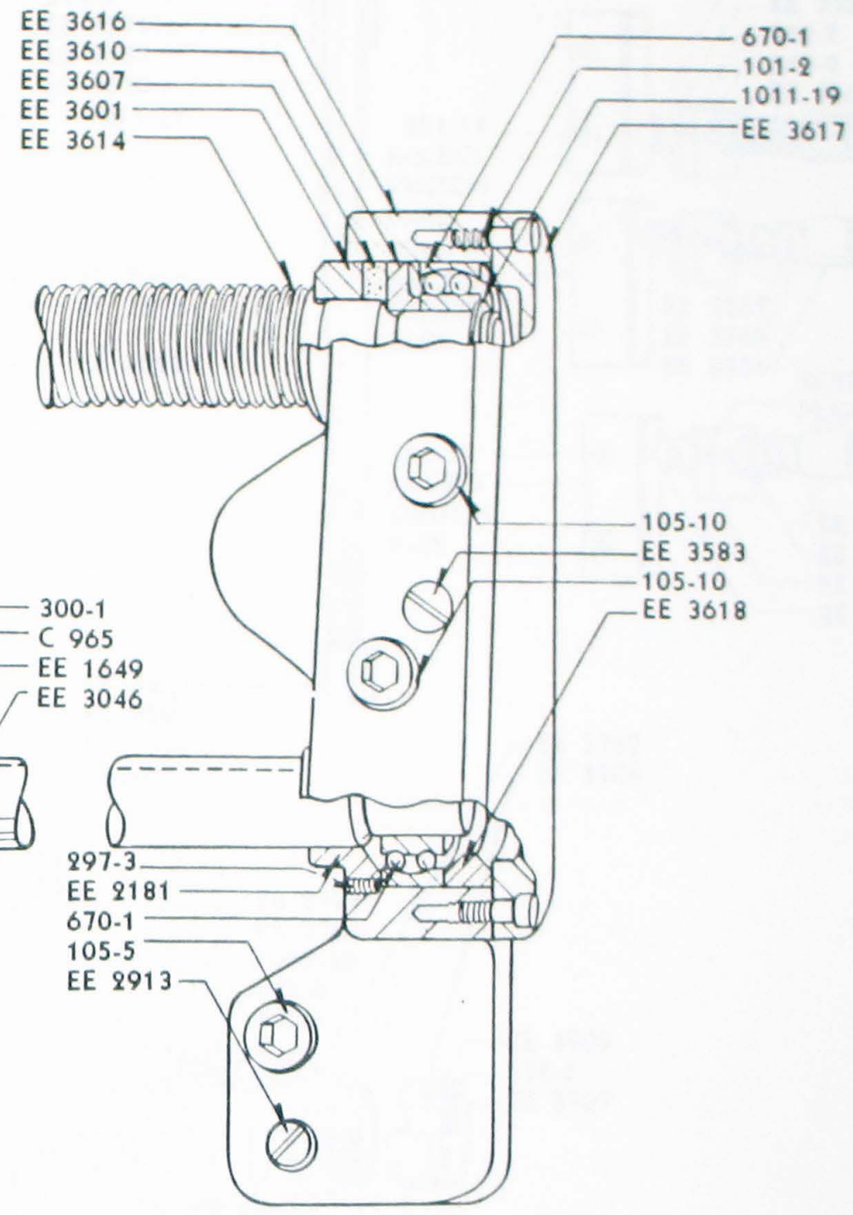


CONE SHAFT

GEAR BOX
UNIT EE 6
SHEET 133

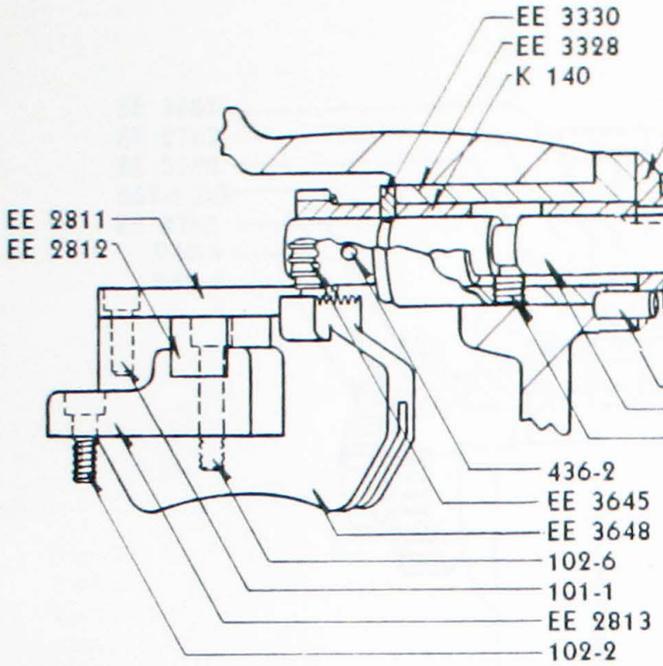


FRONT BEARING

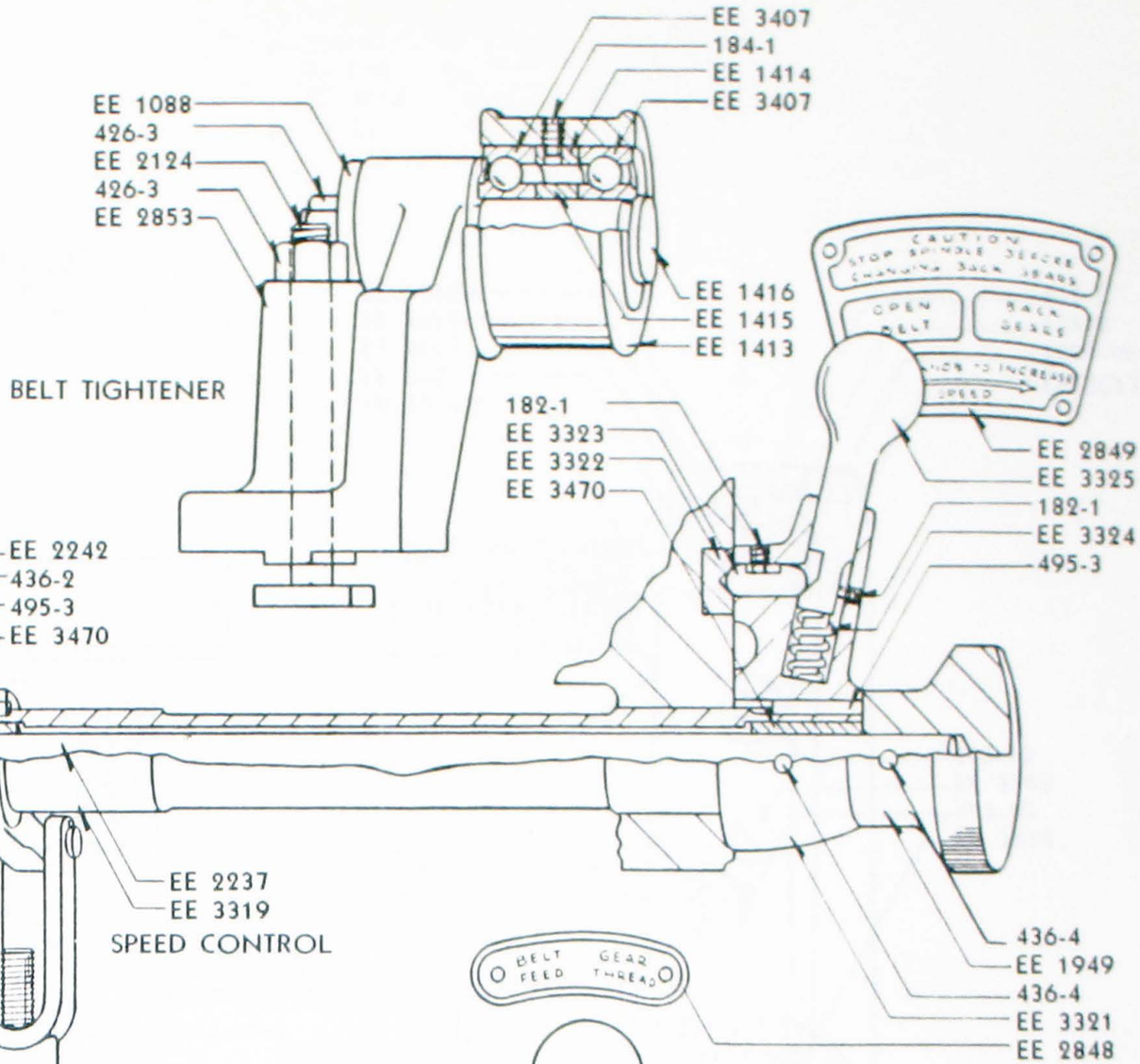


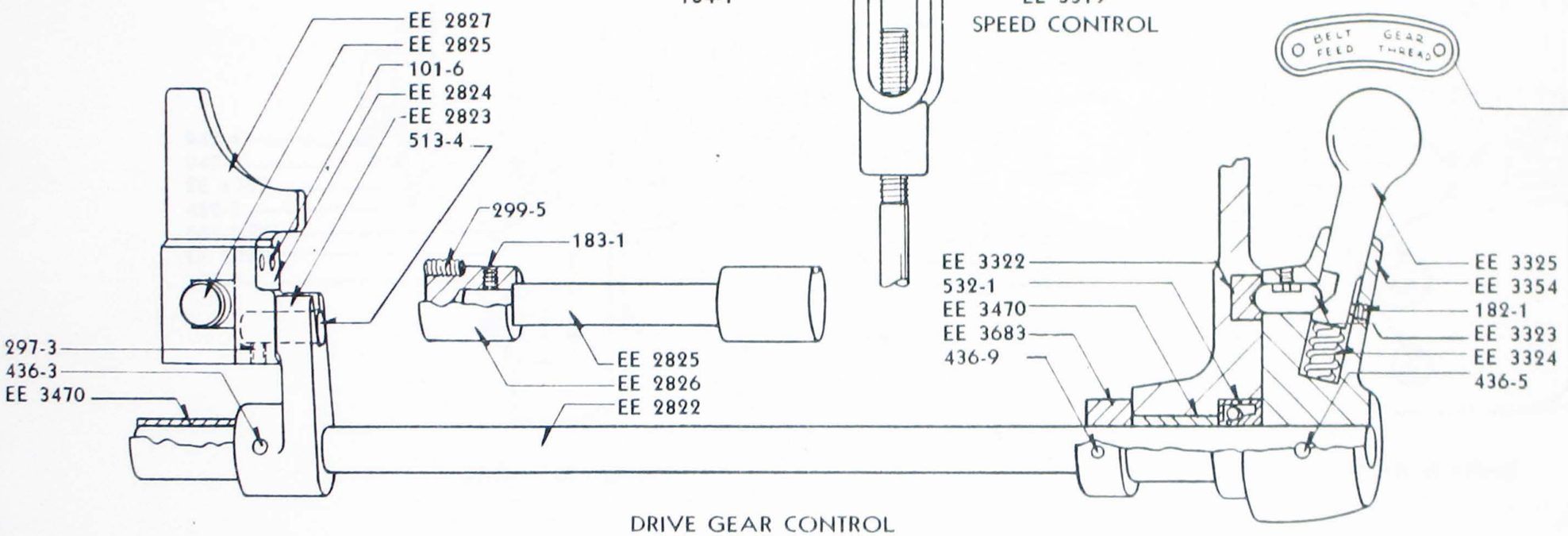
REAR BEARING

FEED ROD &
LEADSCREW
SHEET 136



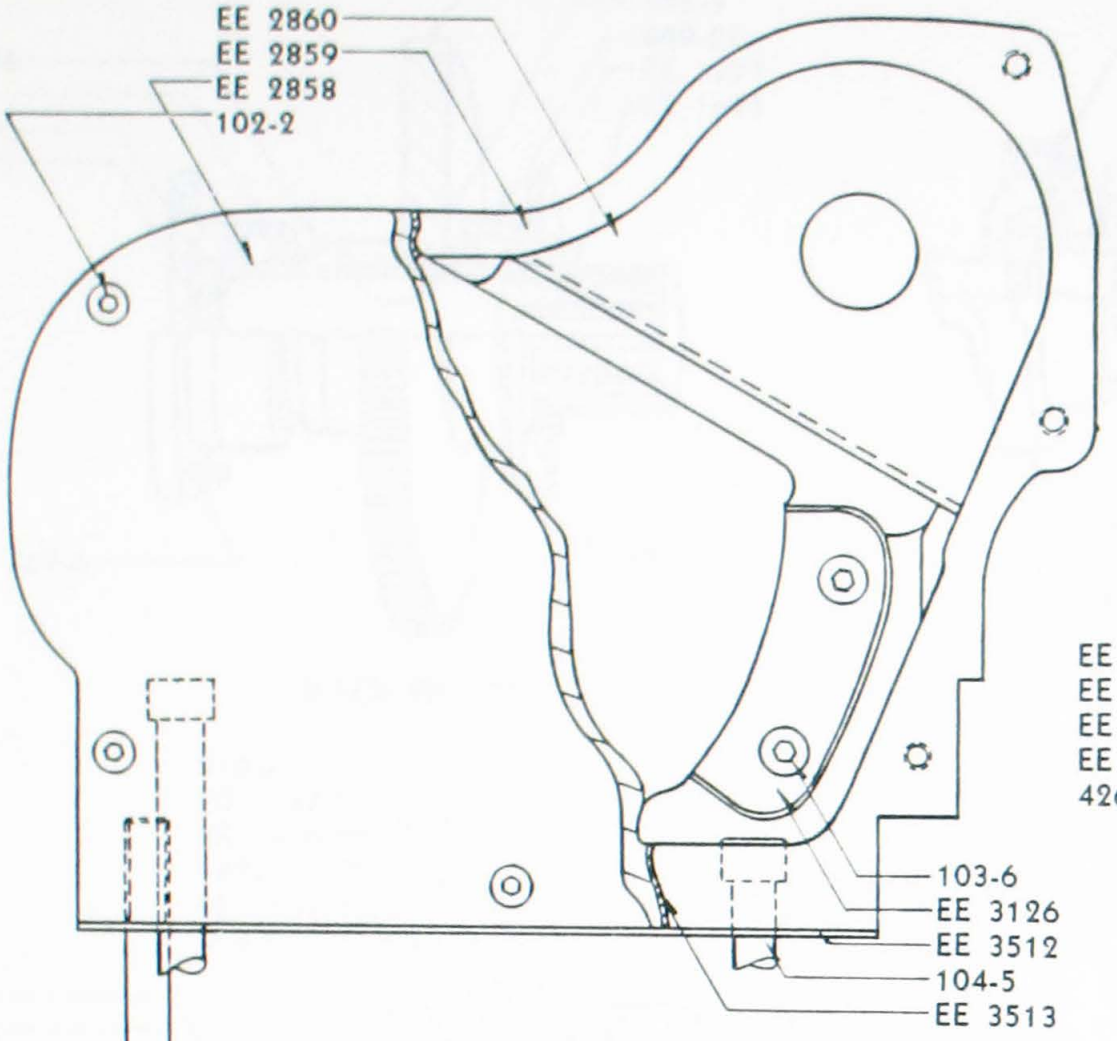
COMPOUND SHIFTER

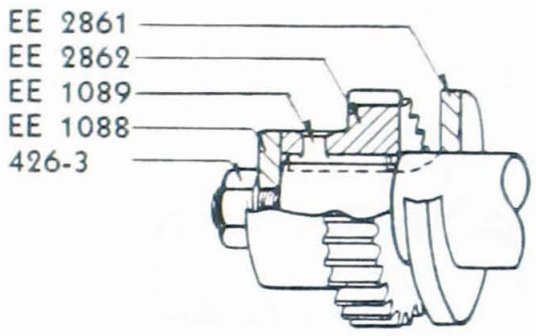




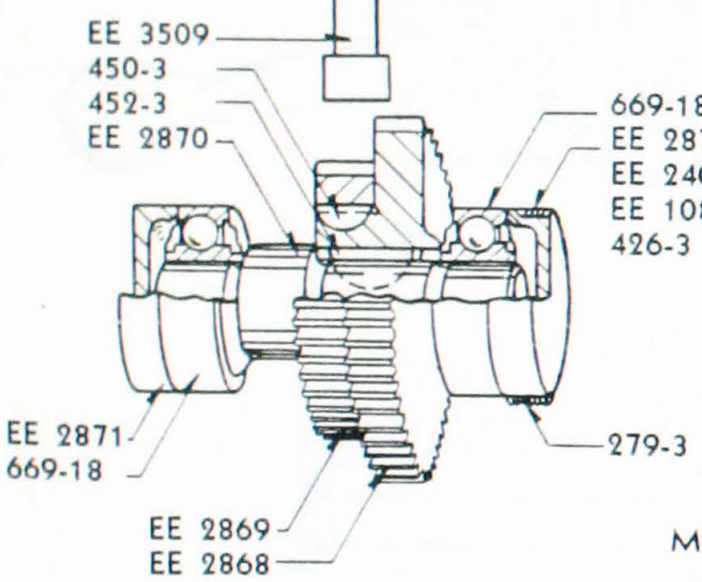
DRIVE GEAR CONTROL

GEAR BOX
UNIT EE 6
SHEET 135

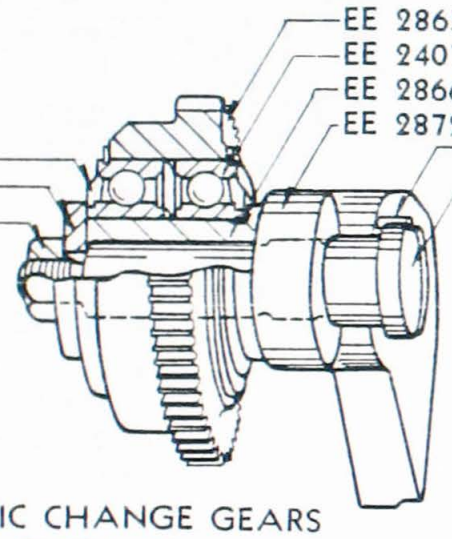




REVERSE SHAFT
MOUNTED IN HEADSTOCK

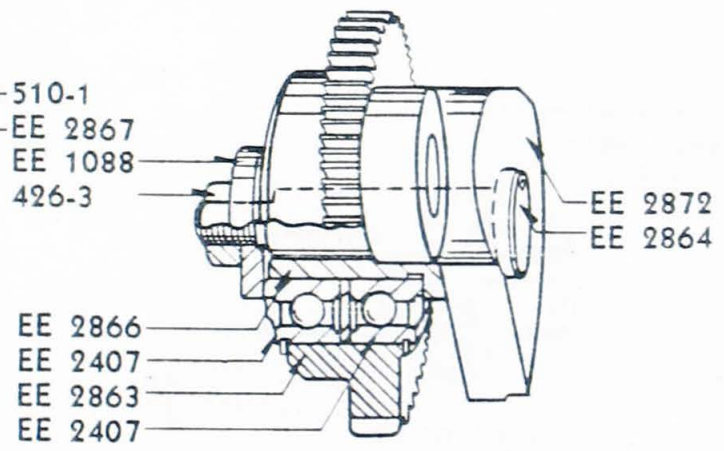


INTERMEDIATE SHAFT

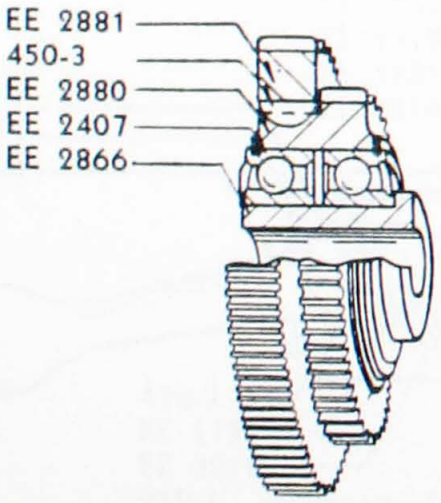


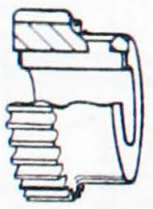
METRIC CHANGE GEARS

45 TEETH	EE 3690
50 TEETH	EE 3691
55 TEETH	EE 3692
60 TEETH	EE 3693
65 TEETH	EE 3694
70 TEETH	EE 3695
75 TEETH	EE 3696
80 TEETH	EE 3697



QUADRANT





KEYED INTO HEADSTOCK
REVERSE SHAFT

METRIC TRANSPOSING GEARS

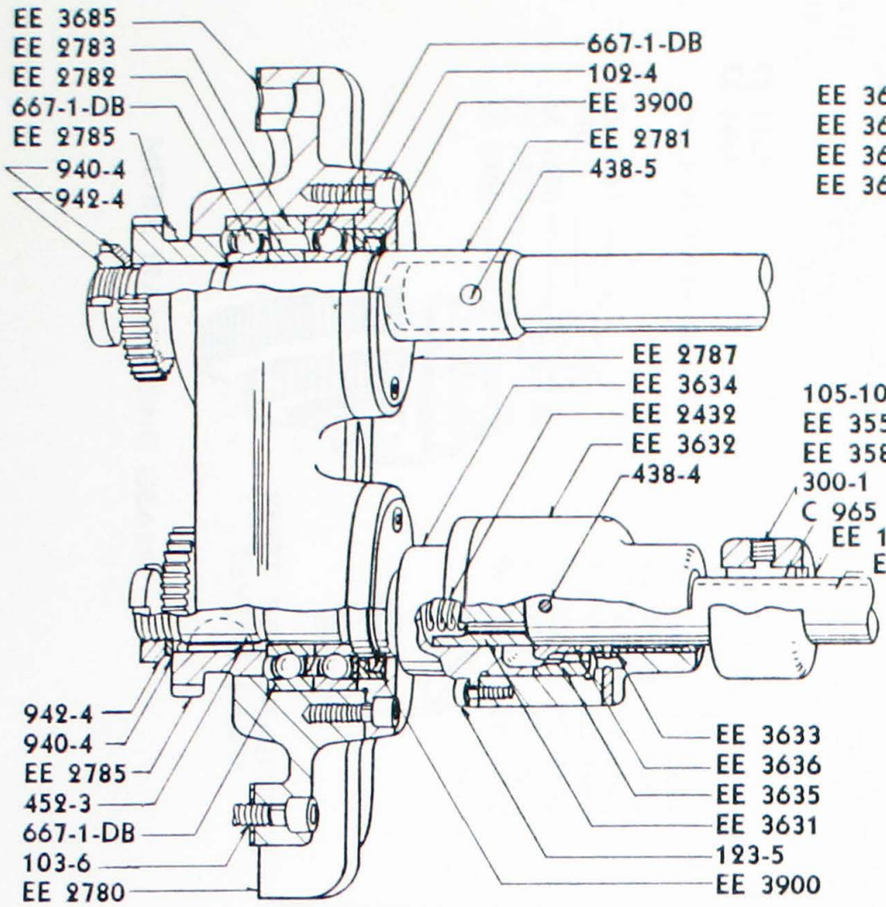
PITCH IN MILLIMETERS

SET BOX FOR THD.	COMP	STUD GEARS							
		45	50	55	60	65	70	75	80
80	127/60	225	25	275	30	325	35	375	40
40		45	50	55	60	65	70	75	80
20		90	1.00	1.10	1.20	1.30	1.40	1.50	1.60
16		1.125	1.25	1.375	1.50	1.625	1.75	1.875	2.00
10		1.80	2.00	2.20	2.40	2.60	2.80	3.00	3.20
8		2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00

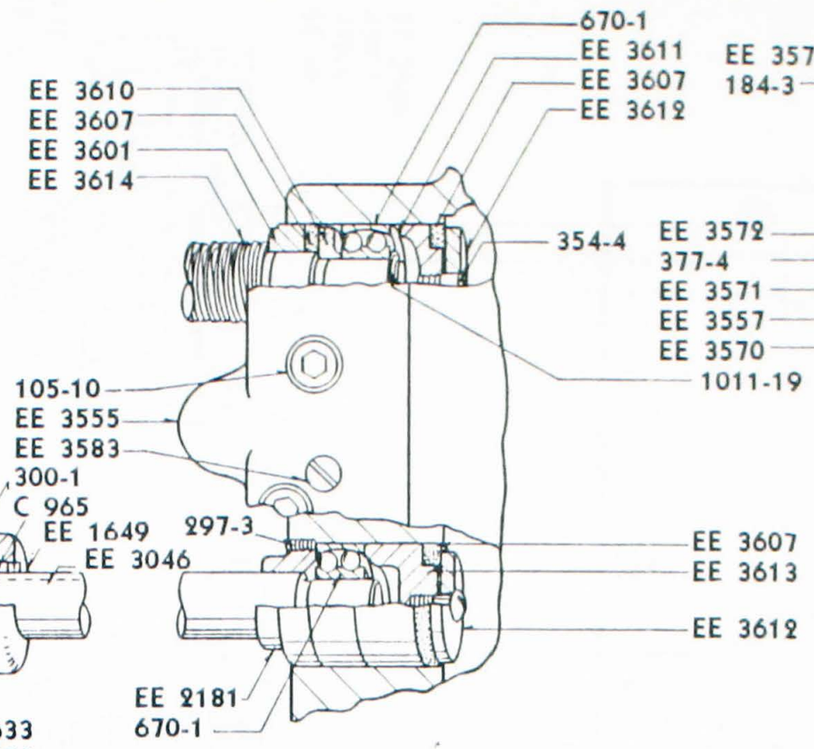
EE 3125

361-5

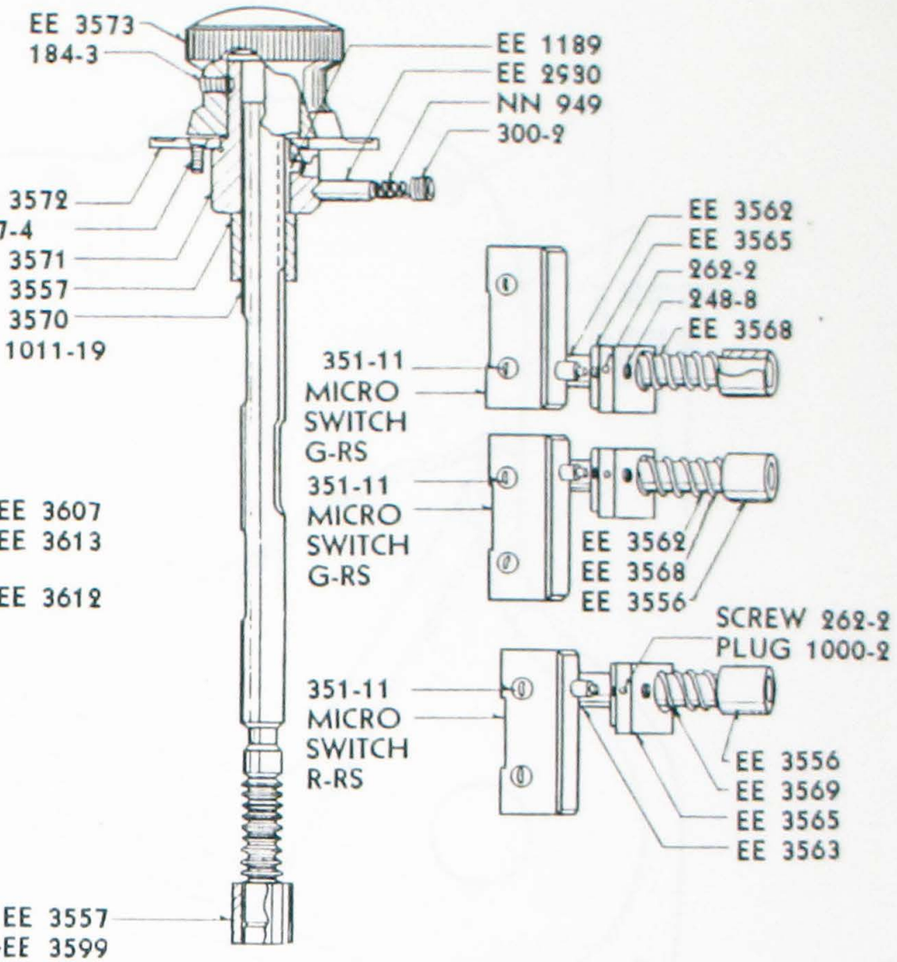
END GEARING
UNIT EE 5
SHEET 142

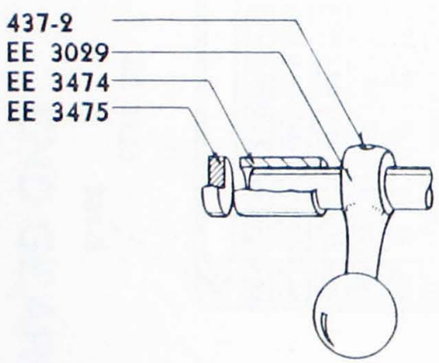


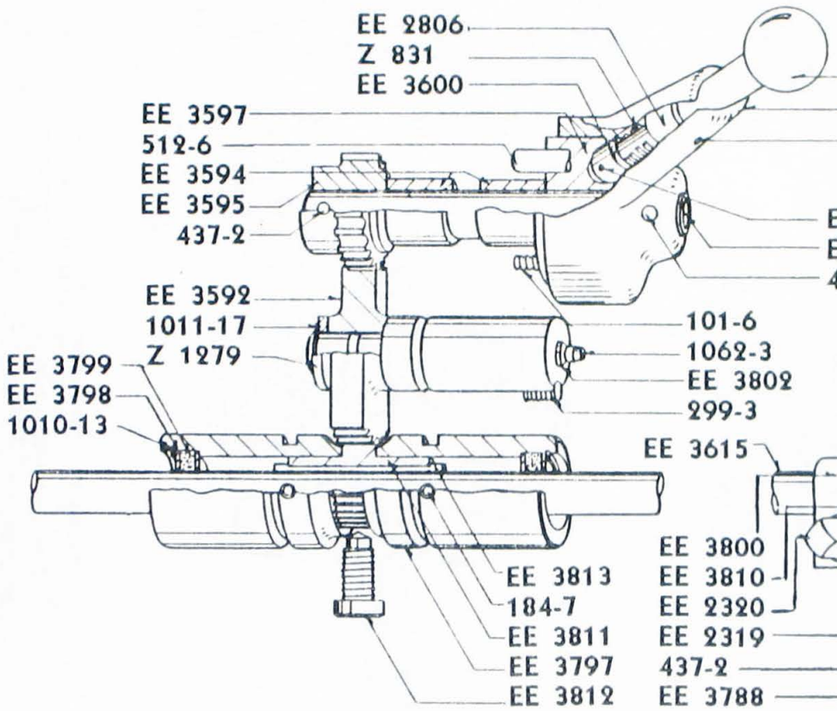
FRONT BEARING



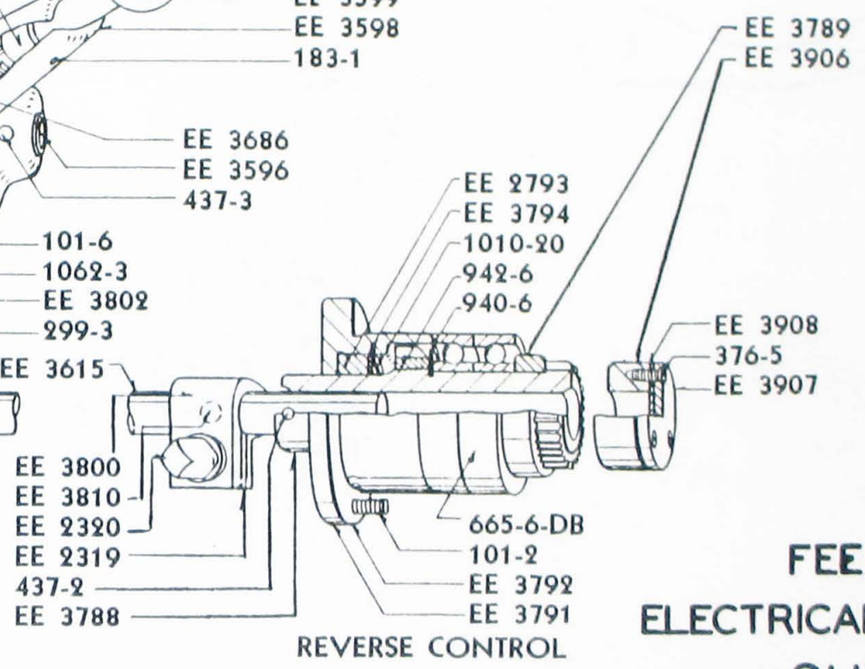
REAR BEARING







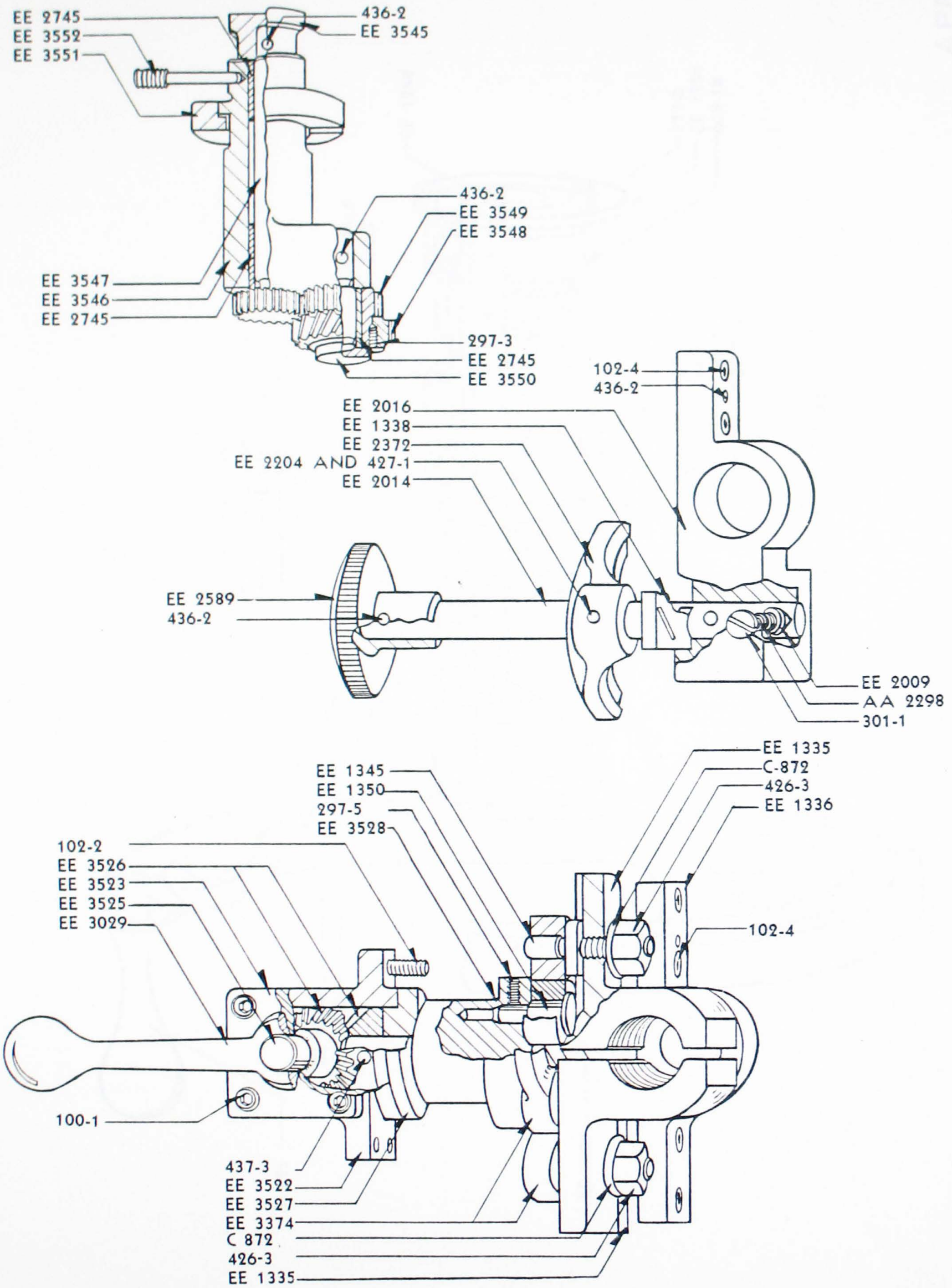
APRON CONTROL



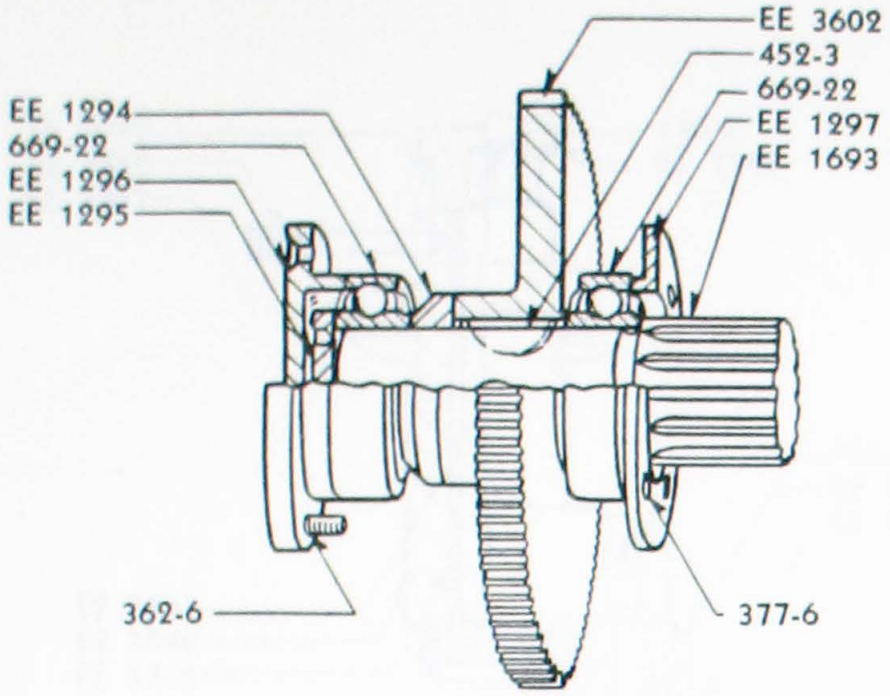
REVERSE CONTROL

FEED ROD AND ELECTRICAL LEADSCREW

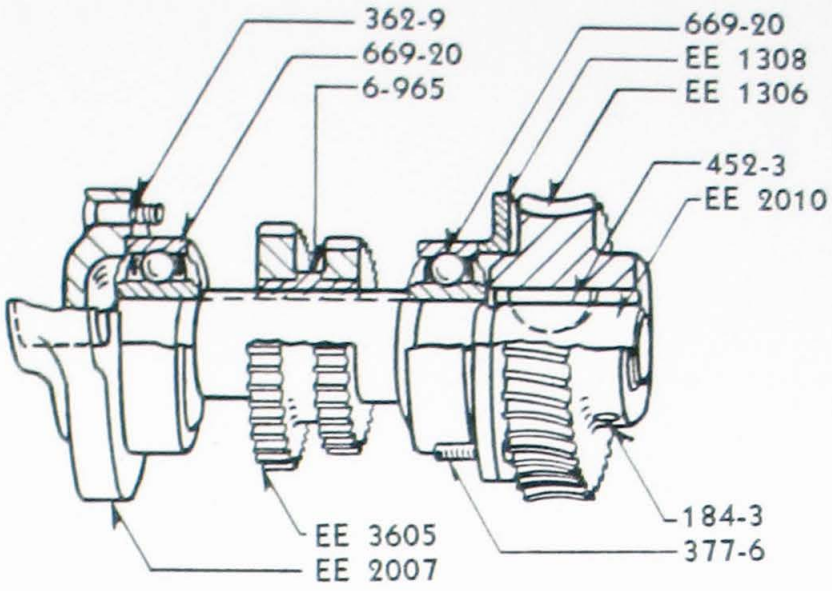
SHEET 137



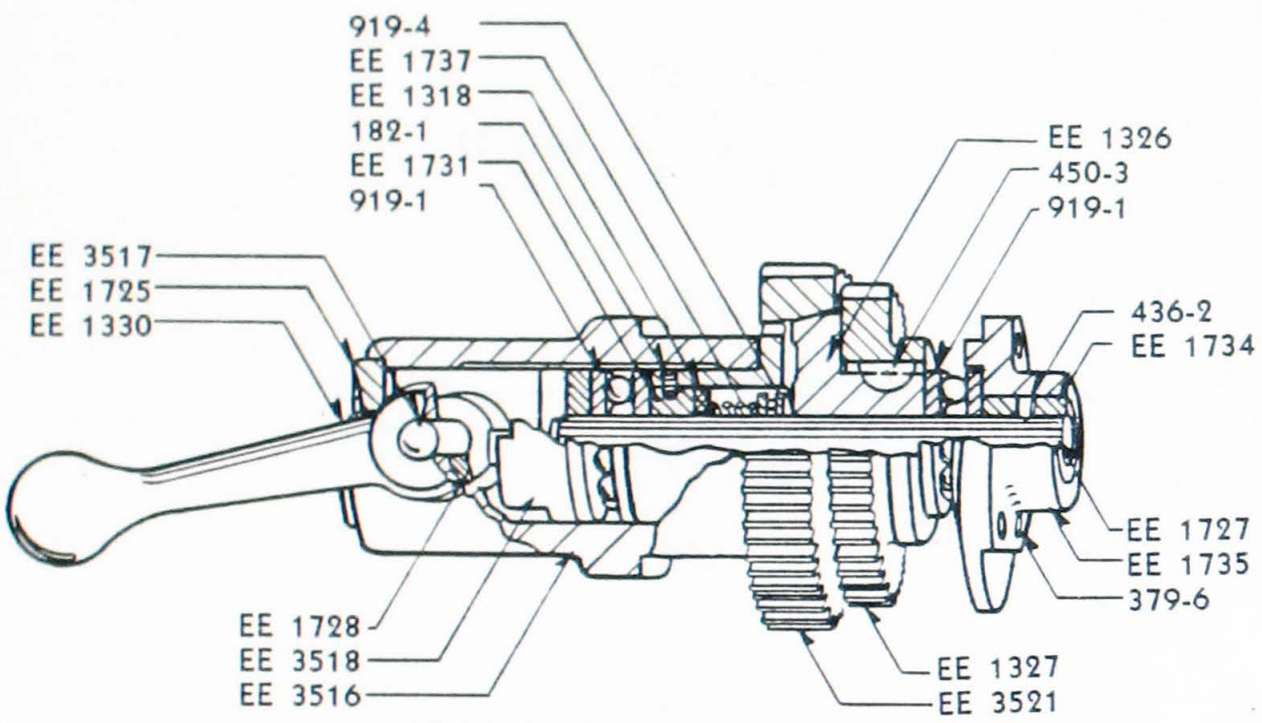
APRON
UNIT EE 7
SHEET 145



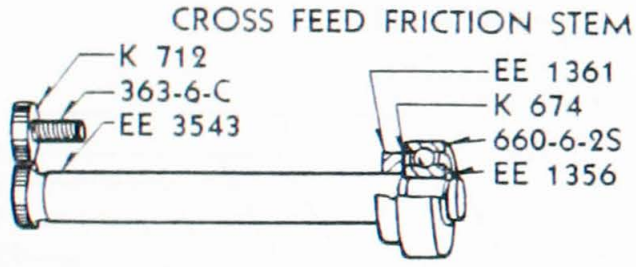
RACK PINION

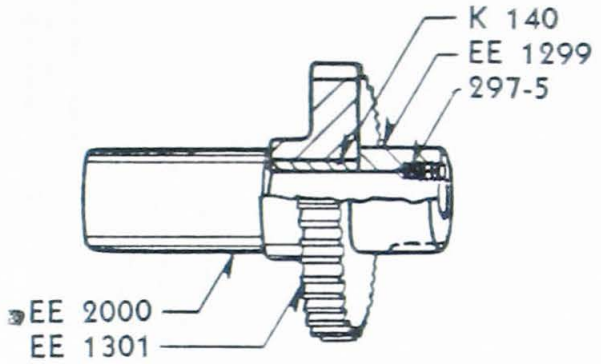


WORM WHEEL SHAFT

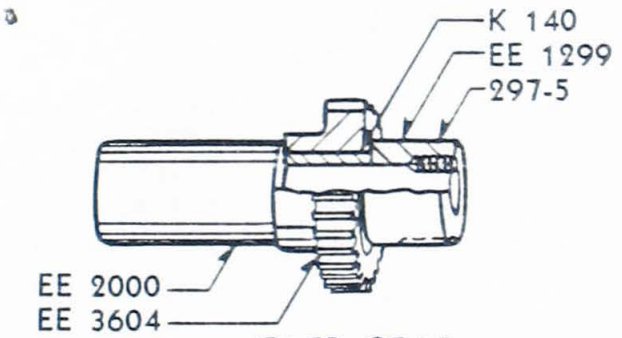


CROSS FEED FRICTION STEM

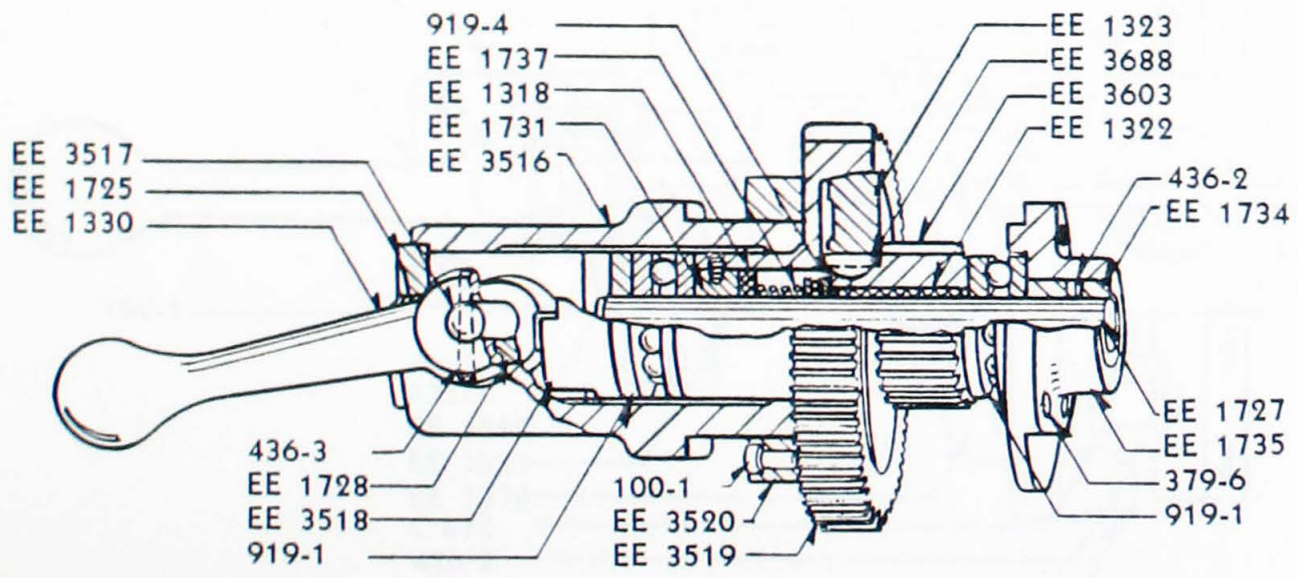




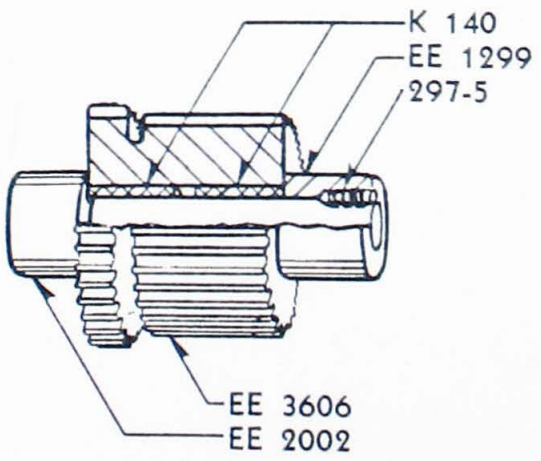
CROSS FEED INTERMEDIATE GEAR STEM



IDLER GEAR

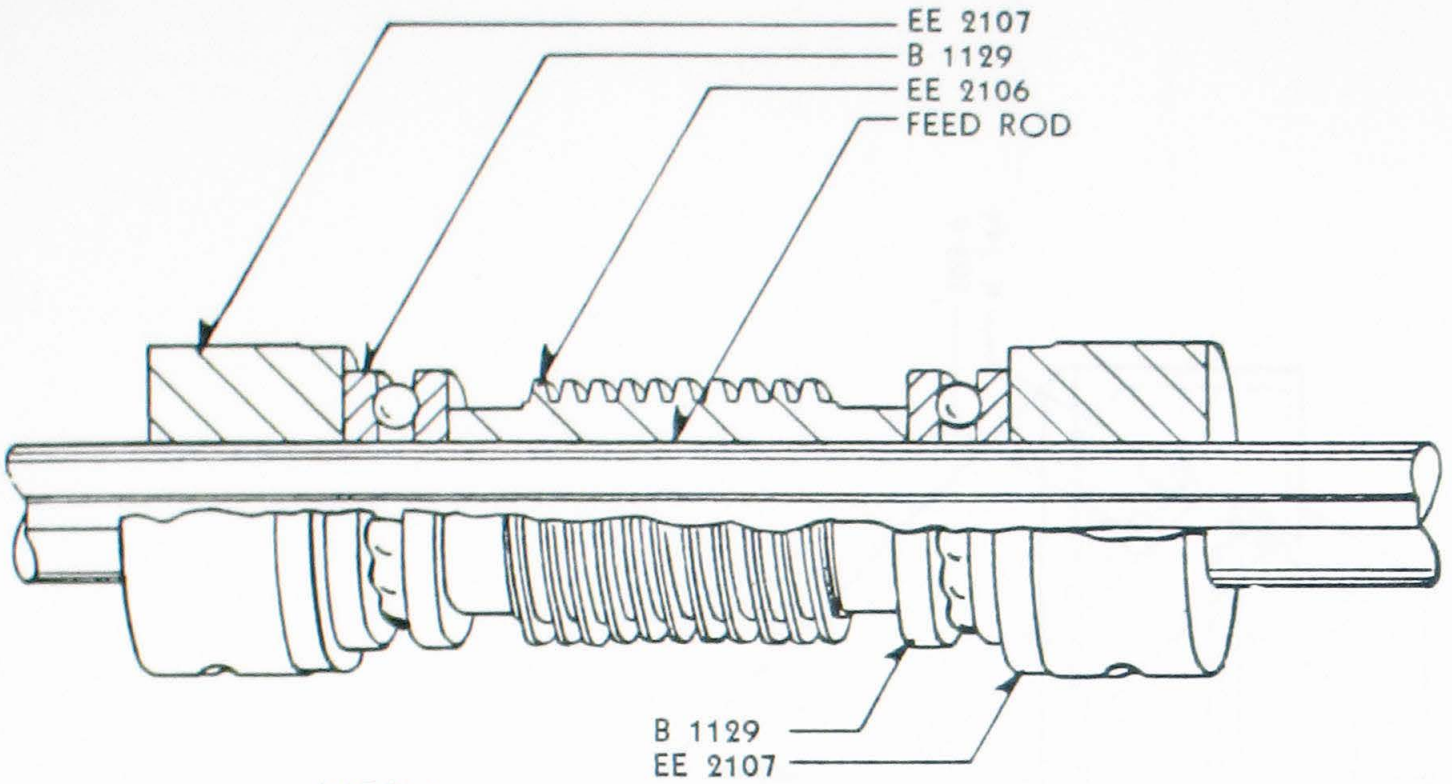


LONGITUDINAL FRICTION STEM

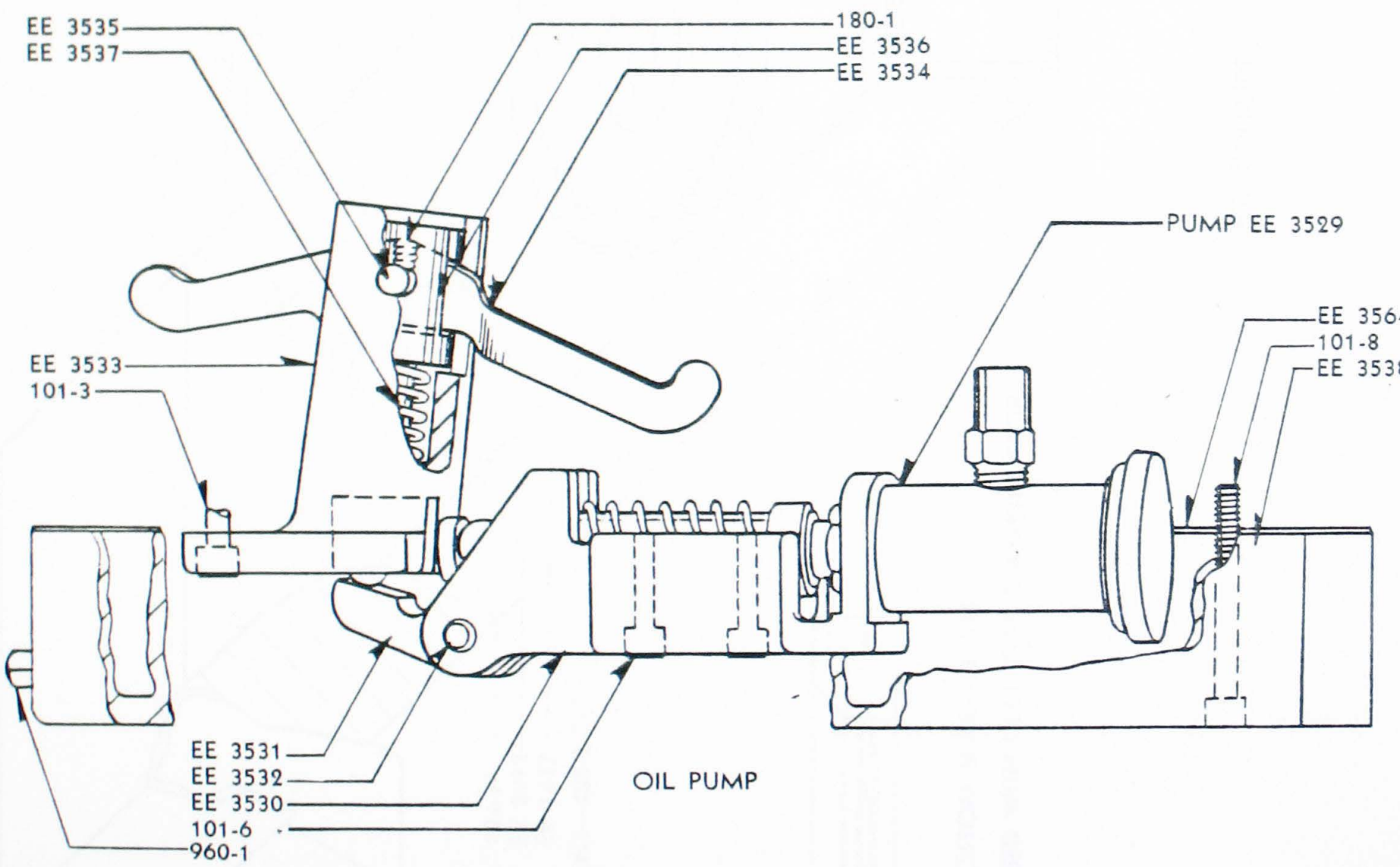


COMPOUND GEAR

APRON
UNIT EE 7
SHEET 143

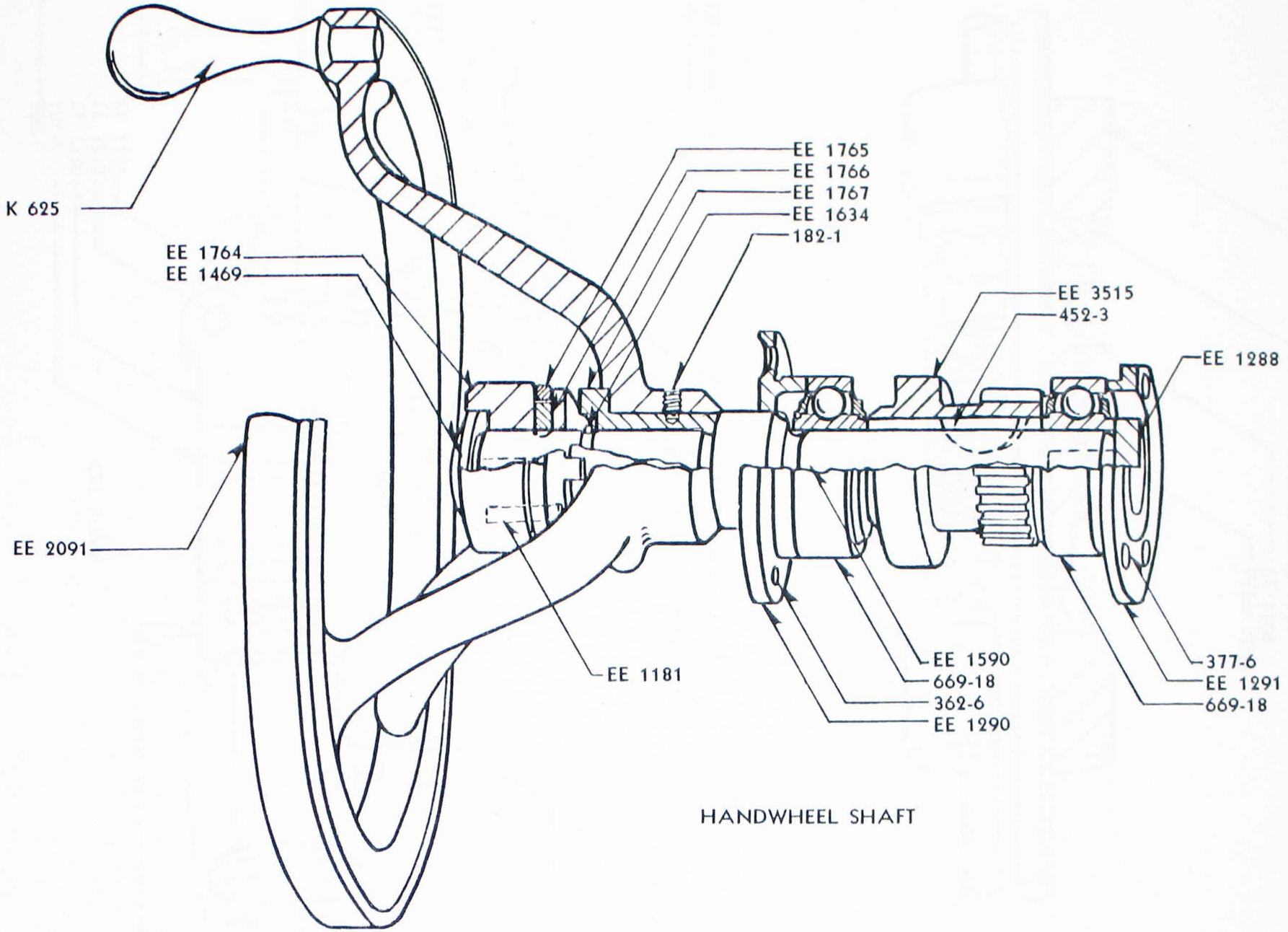


WORM



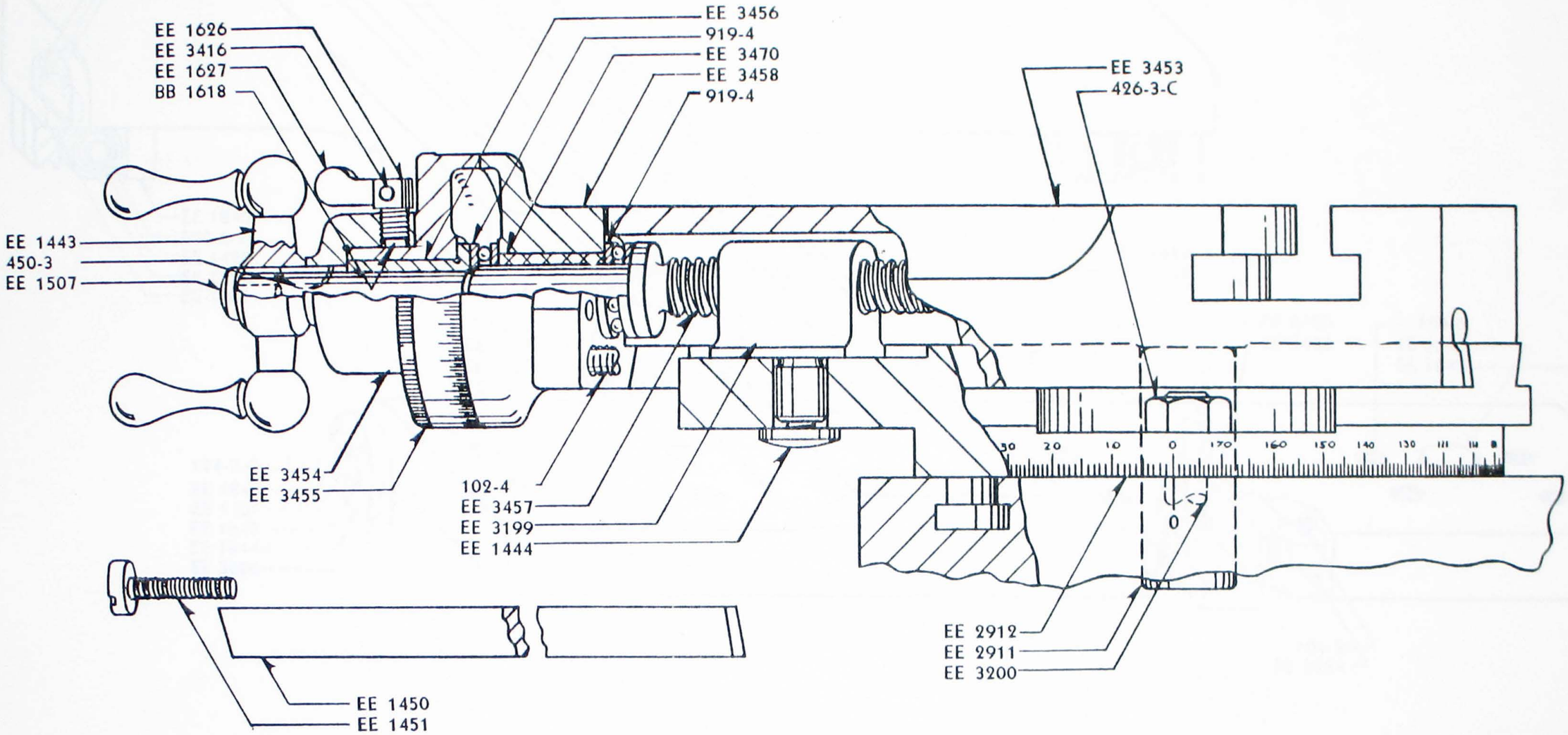
OIL PUMP

APRON
UNIT EE 7
SHEET 147



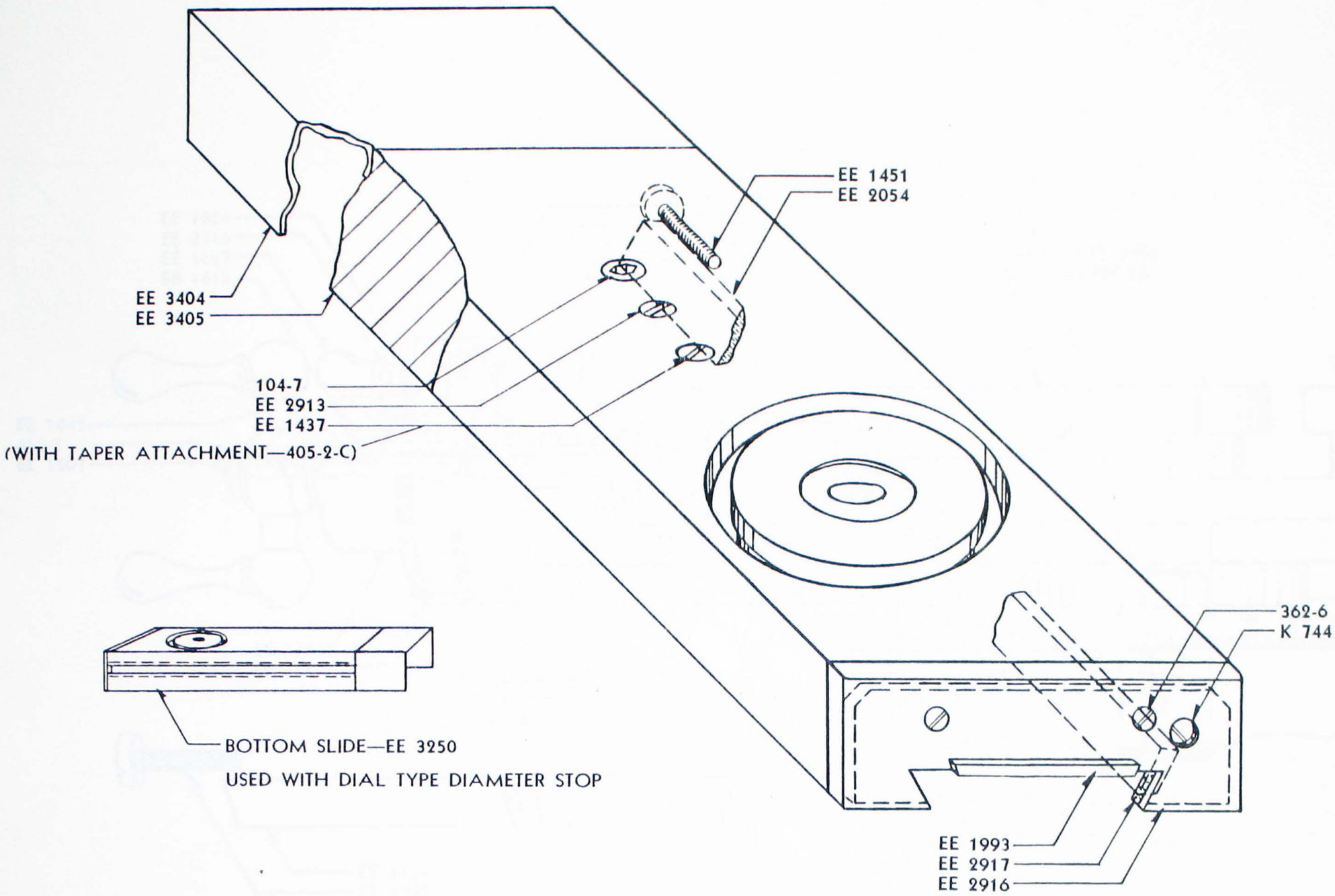
HANDWHEEL SHAFT

APRON
UNIT EE7
SHEET 146



COMPOUND SCREW AND TOP SLIDE

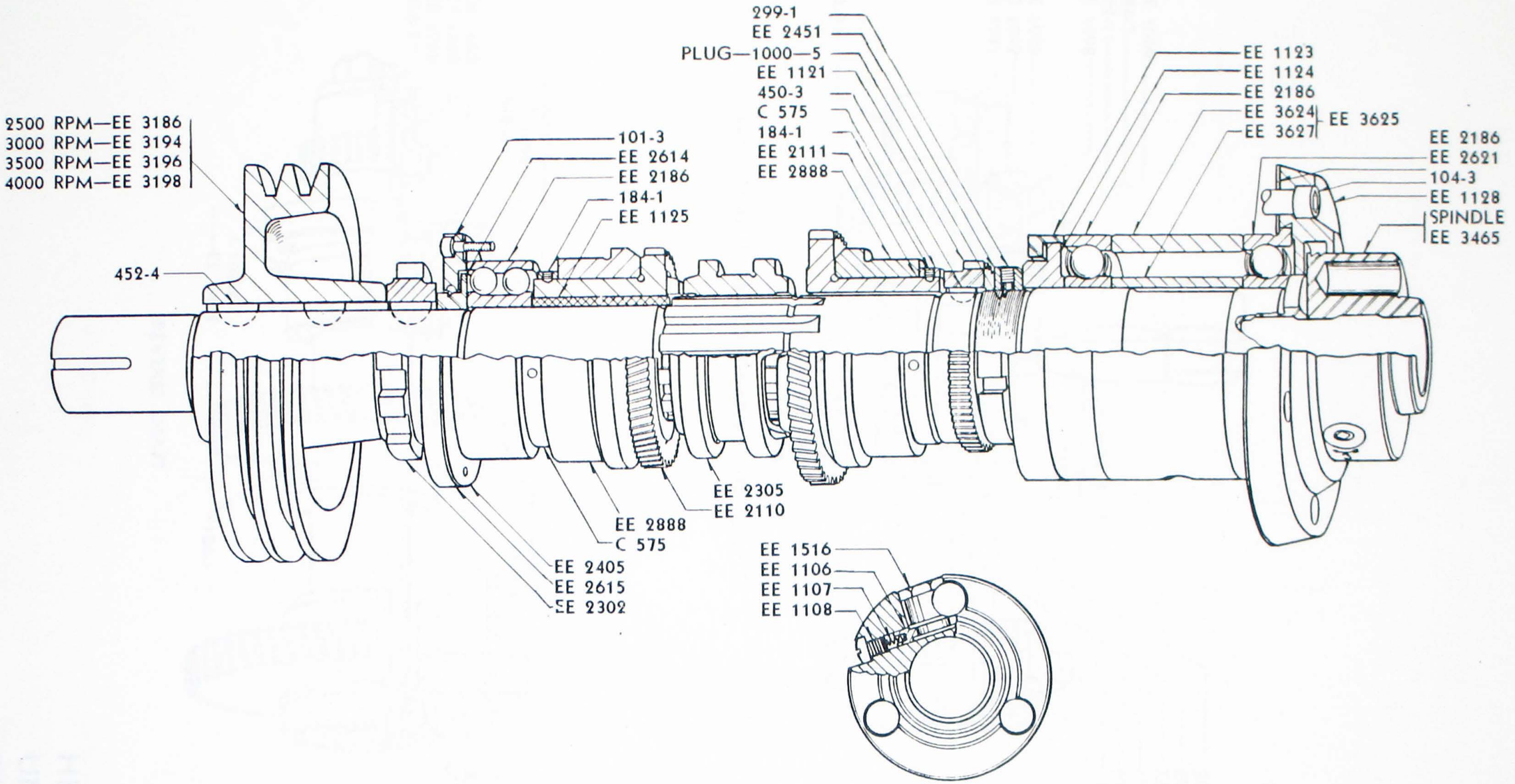
COMPOUND
UNIT EE 8
SHEET 150



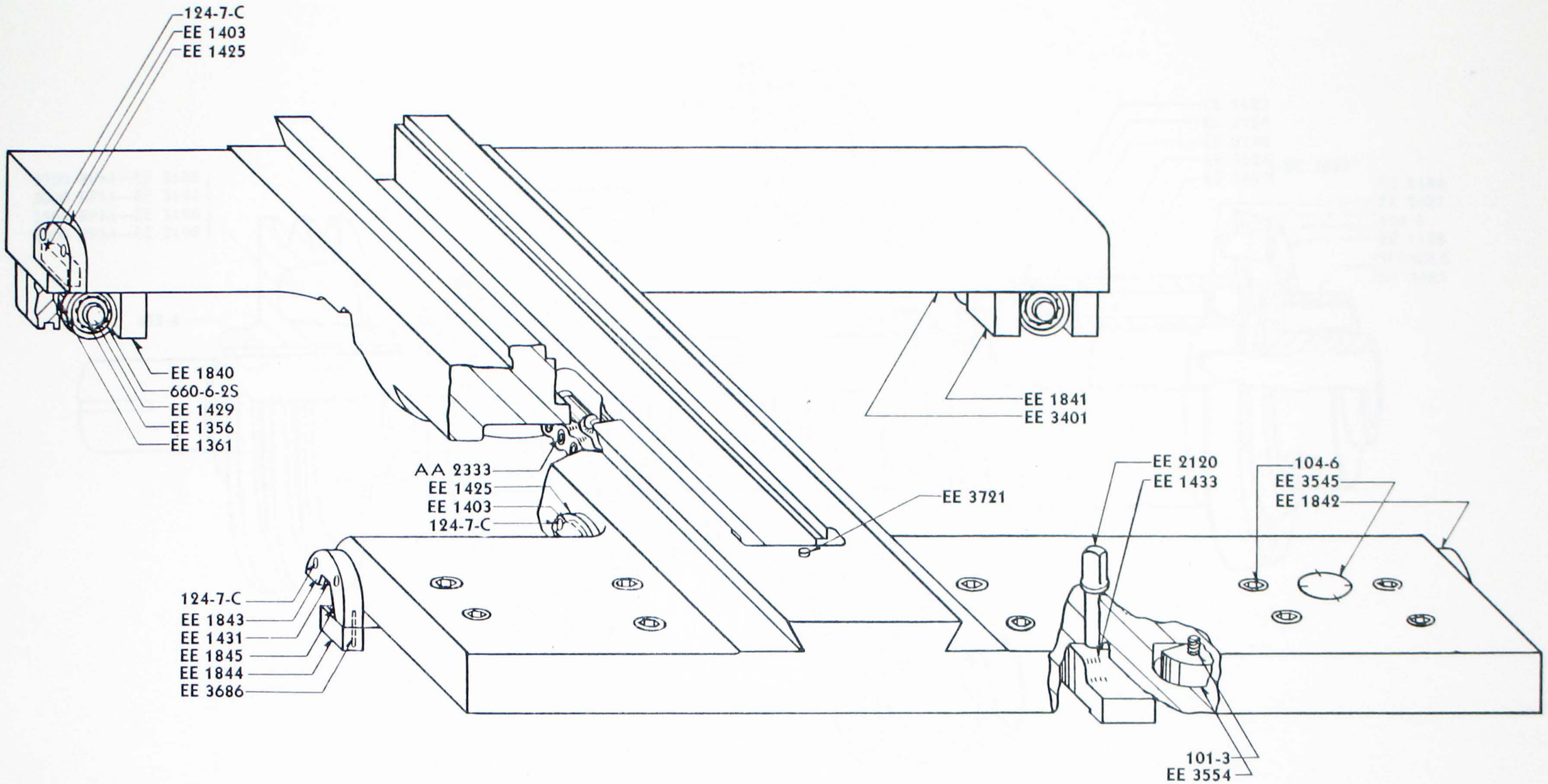
BOTTOM SLIDE—EE 3250
USED WITH DIAL TYPE DIAMETER STOP

BOTTOM SLIDE

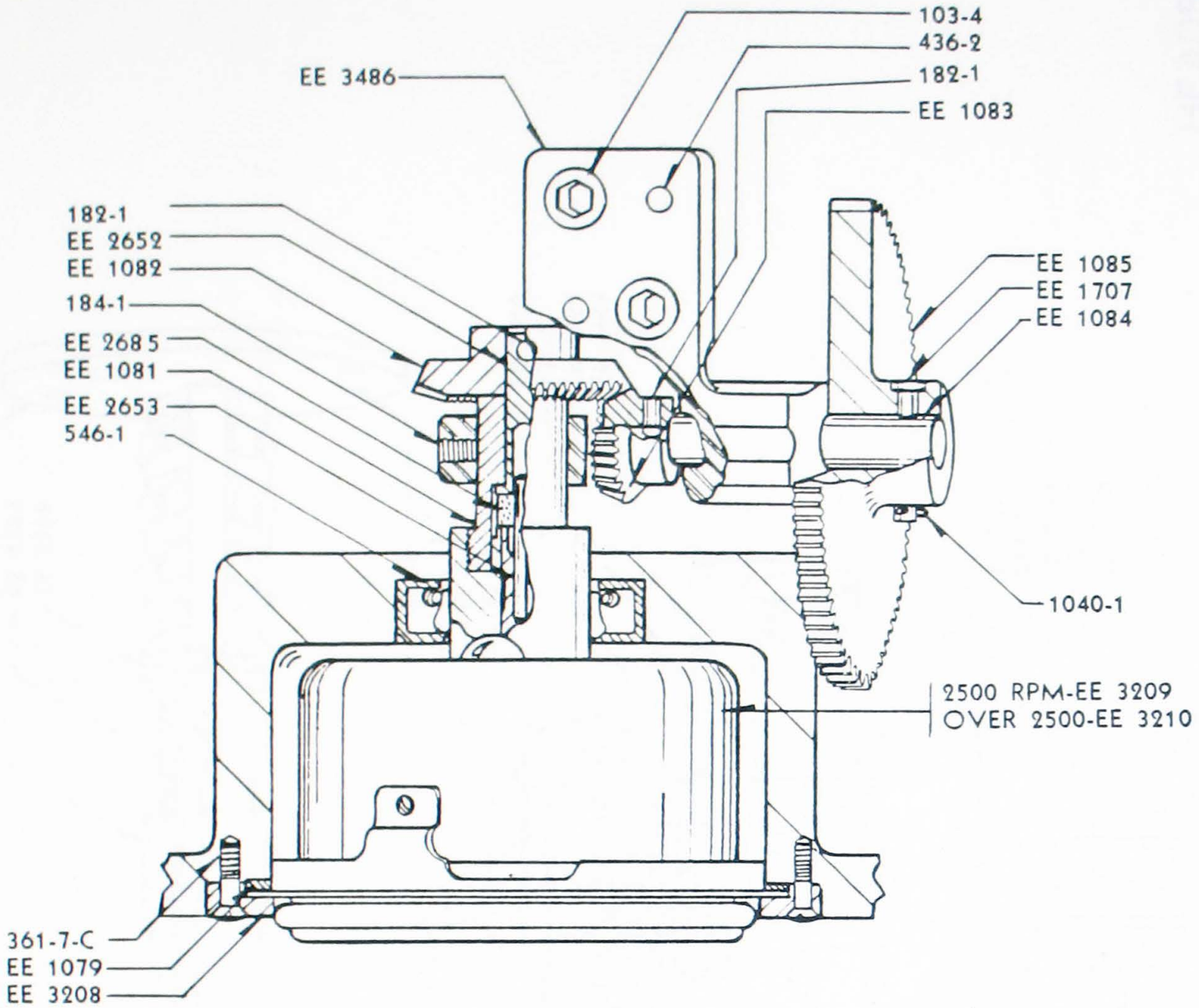
CARRIAGE & COMPOUND
UNIT EE 8
SHEET 148



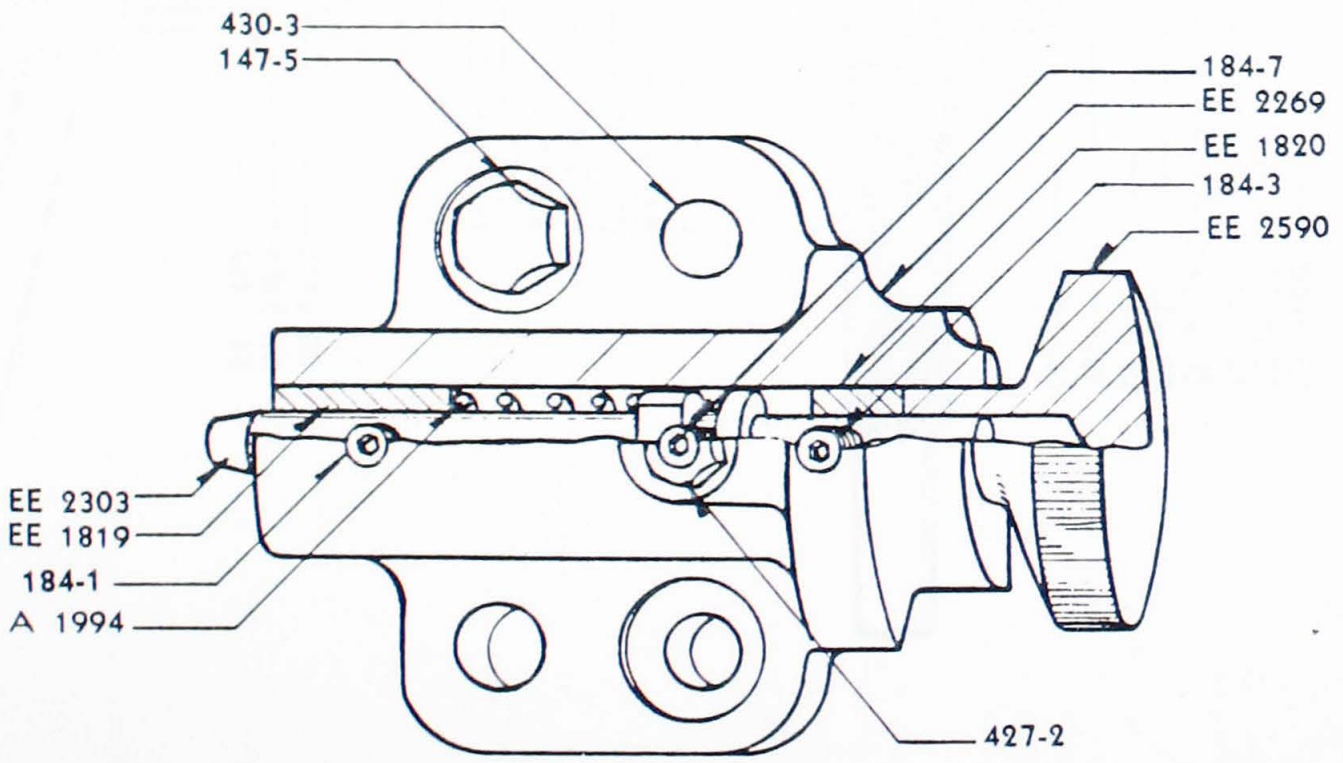
HEADSTOCK
UNIT EE 4
SHEET 153



CARRIAGE
UNIT EE 8
SHEET 151

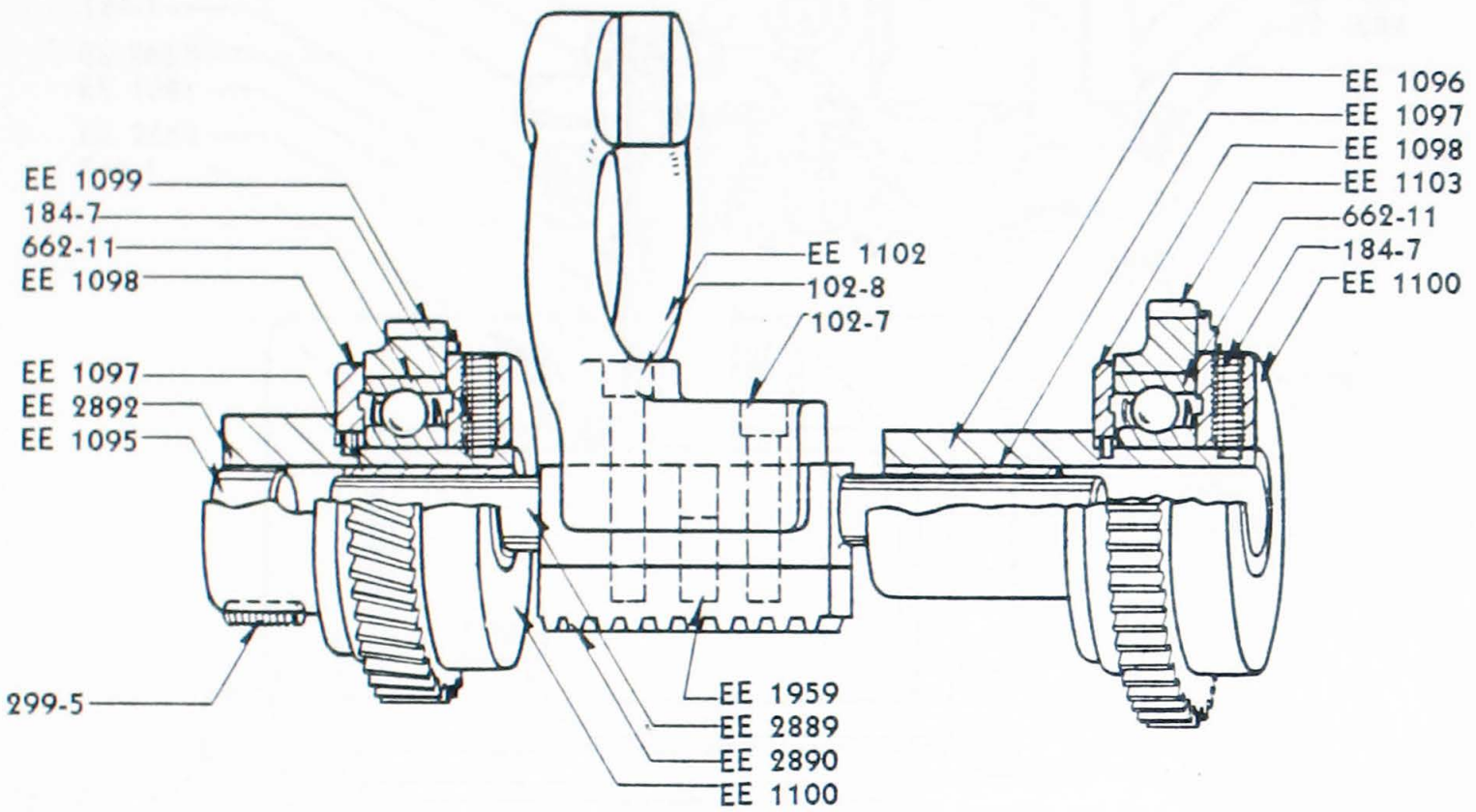


TACHOMETER

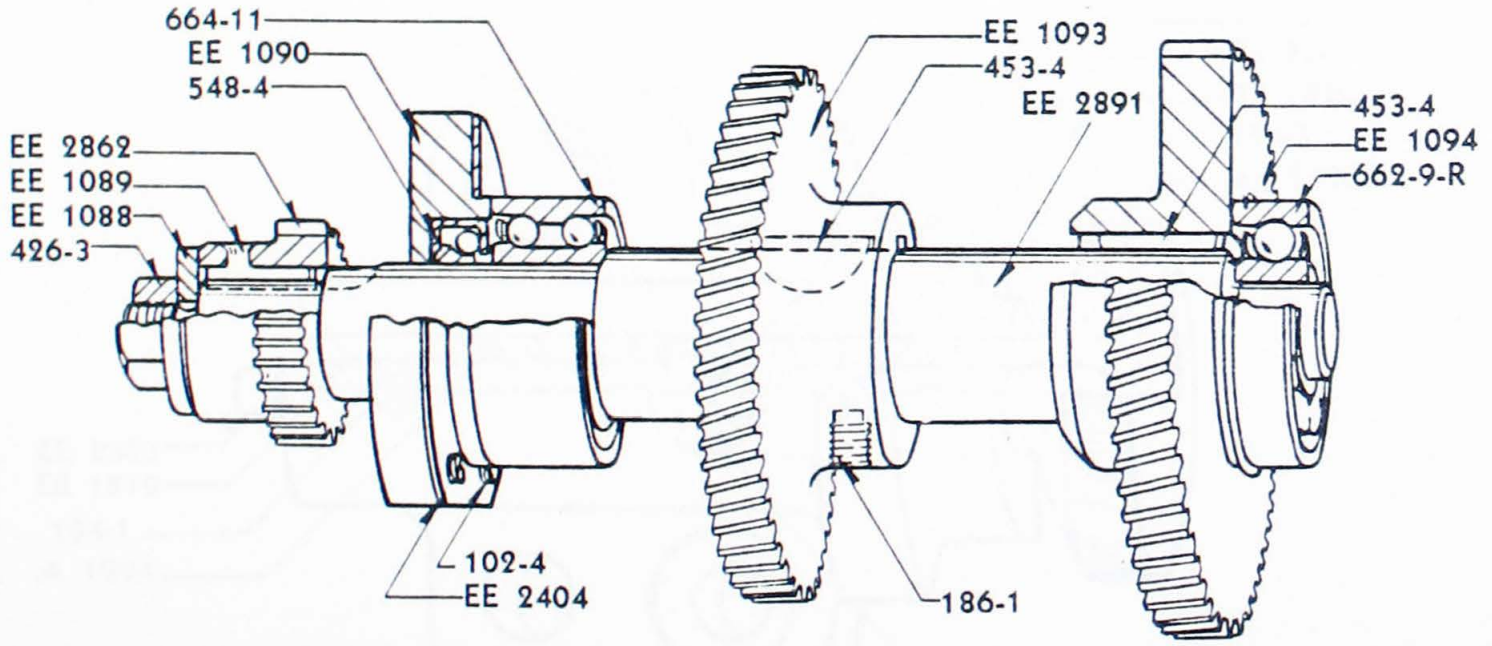


SPINDLE LOCK

HEADSTOCK
UNIT E E 4
SHEET 156

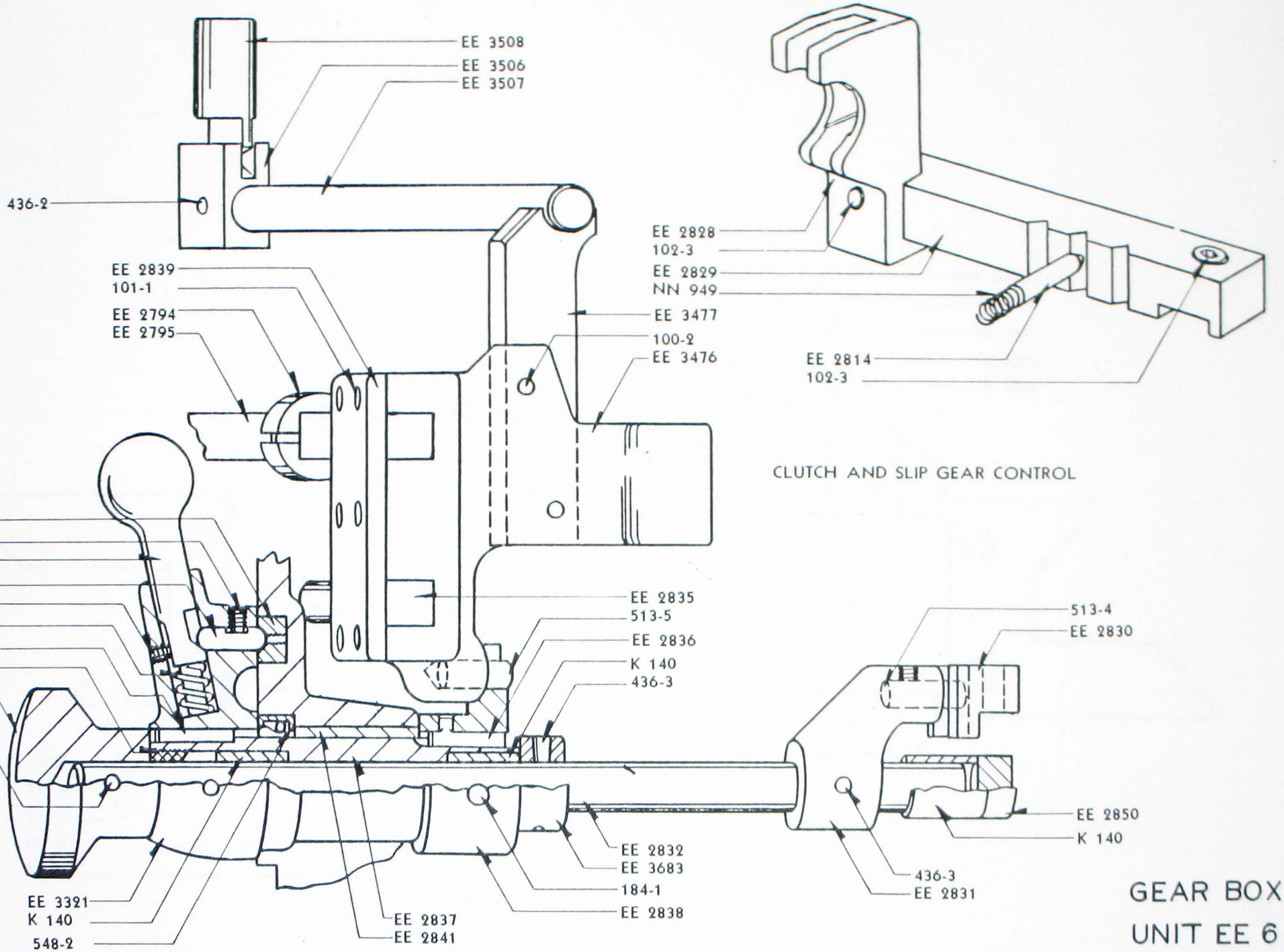


REVERSE IDLER GEAR & SPINDLE CLUTCH SHIFTER



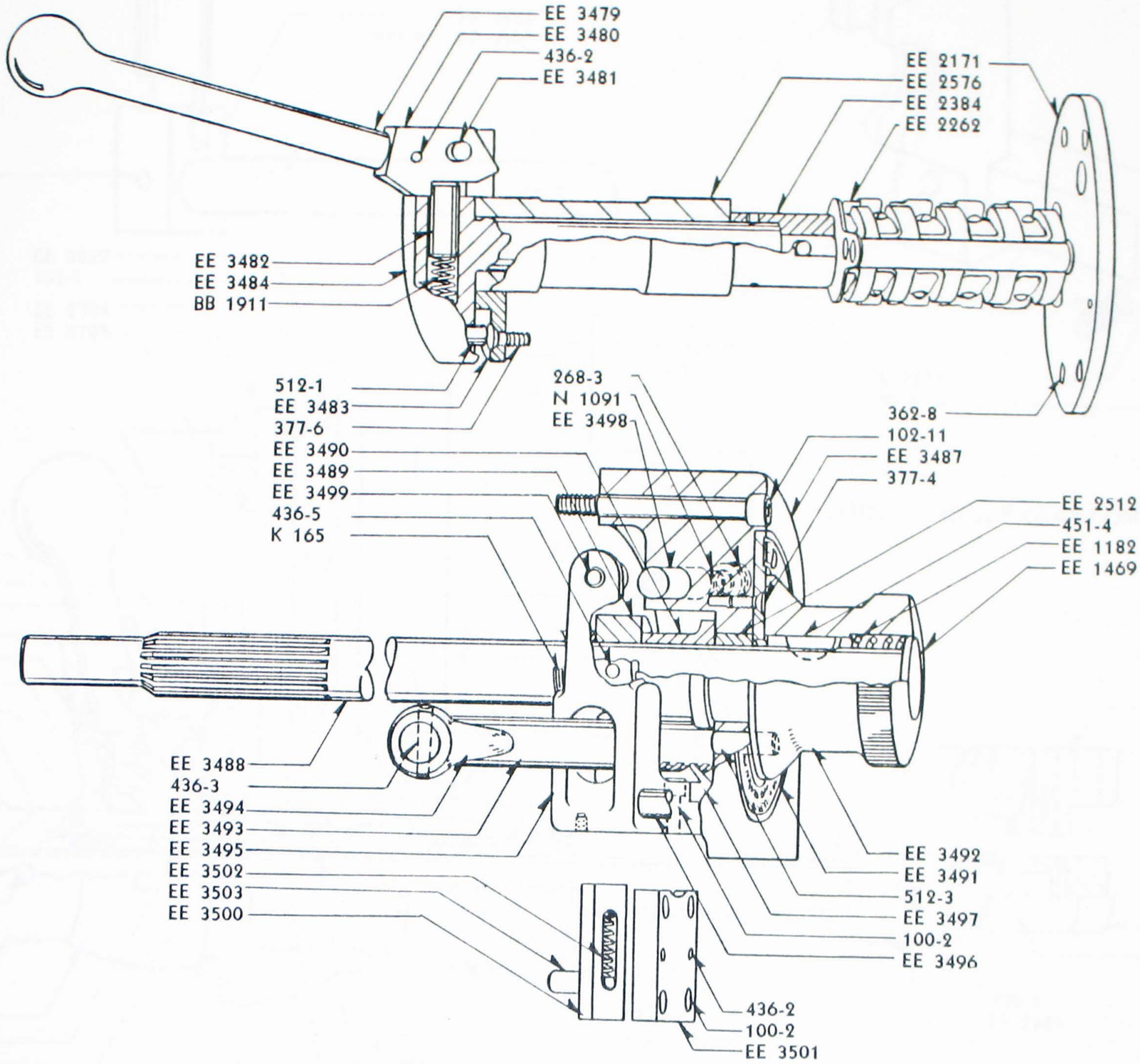
REVERSE SHAFT

HEADSTOCK
UNIT EE 4
SHEET 154

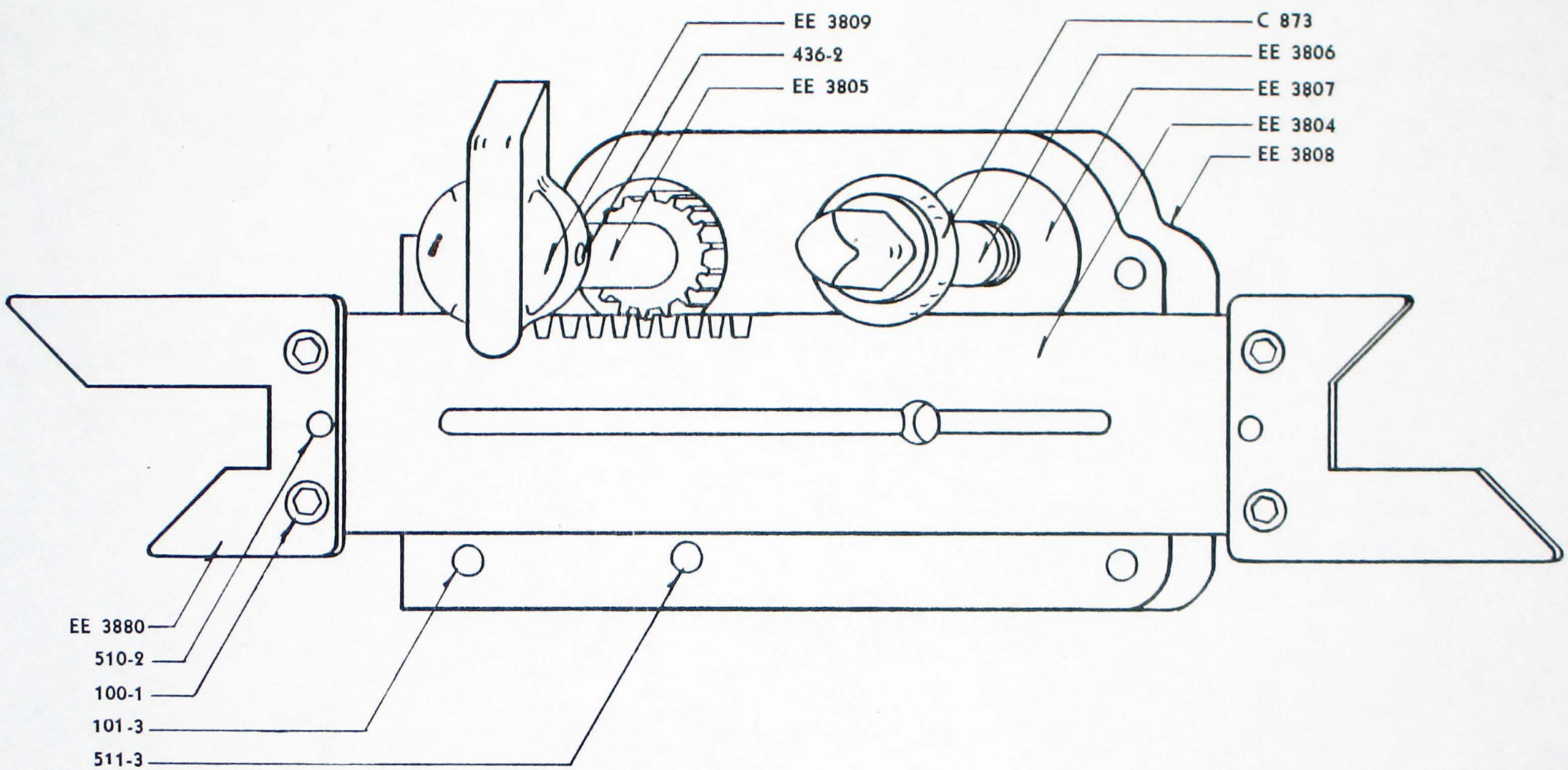


CLUTCH AND SLIP GEAR CONTROL

GEAR BOX
UNIT EE 6
SHEET 161



HEADSTOCK
UNIT EE 4
SHEET 157



FEED ROD AND
ELECTRICAL LEADSCREW
SHEET 177