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1956 wash

FOR STANDARD MODEL CAM DRIVEN MACHINES

LUBRICATION

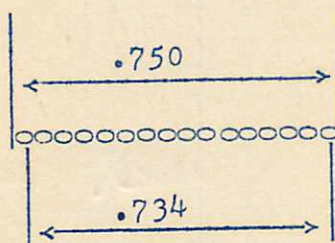
USE A LIGHT MACHINE OIL ON ALL SHAFT BUSHINGS WHICH ARE PROVIDED WITH OIL HOLES. THE FEED ROD BUSHINGS ARE OF OILITE BRONZE BUT SHOULD BE LUBRICATED FREQUENTLY. A SMALL AMOUNT OF GREASE SHOULD BE APPLIED TO THE CAM SURFACE; WE RECOMMEND LUBRIPLATE #930-AAA OR SIMILAR. ALL INTERNAL MOVING PARTS ARE ENCLOSED IN A GREASE-TIGHT COMPARTMENT, AND SUFFICIENT LUBRICANT IS SUPPLIED TO SERVE FOR A LONG TIME. IF A CONSIDERABLE QUANTITY OF GREASE HAS LEAKED OUT DURING SHIPMENT, OR AFTER USE A SUBSTANTIAL AMOUNT HAS LEAKED AROUND THE SHAFT BEARINGS, IT MAY BE NECESSARY TO ADD A FEW OUNCES OF LUBRICANT THROUGH ONE OF THE TAPPED HOLES IN THE BACK PLATE. LEAKAGE OF GREASE AROUND THE WORM GEAR SHAFT IS A SIGN OF TOO MUCH LUBRICANT.

THE CORK BRAKE SHOES ON THE DEREELING MECHANISM SHOULD BE OILED OCCASIONALLY, ESPECIALLY IF THE WIRE SPOOL RUNS UNEVENLY, OR "HUNTS."

LAYER WINDING WITH CAM

CAM SIZE: THE WIDTH OF THE WINDING ON A COIL IS DETERMINED BY THE SIZE OF THE CAM. WHERE EXTREME ACCURACY IS REQUIRED IT SHOULD BE BORNE IN MIND THAT THE CAM THROW AS INDICATED BY THE DECIMAL ON THE CAM FACE IS ACTUALLY THE TRAVERSE FROM CENTER TO CENTER OF THE END TURNS ON THE COIL. THUS TO WIND A BOBBIN WITH $3/4$ " BETWEEN FLANGES WITH #26 WIRE (.016" DIAMETER) WOULD ACTUALLY REQUIRE A TRAVERSE OF .734". SEE FIGURE 1. ON SMALL WIRE DIAMETERS THIS CONSIDERATION MAY BE NEGLECTED.

FIGURE 1



CAMS IN INCREMENTS OF $1/64$ " ARE NORMALLY AVAILABLE FROM STOCK. EXACT SIZES CAN BE SUPPLIED TO ORDER AT NO ADDITIONAL COST. SLIGHT ADJUSTMENT OF THE CAM THROW (DOWNWARD) CAN BE OBTAINED BY ALLOWING CLEARANCE BETWEEN THE FOLLOWER AND THE CAM. THUS TO WIND A BOBBIN WITH $1/2$ " BETWEEN FLANGES WITH #32 WIRE (.008" DIA.) WOULD REQUIRE A .492" CAM. A CLEARANCE OF .008 BETWEEN THE FOLLOWER AND A .500" CAM WOULD PROVIDE THE DESIRED STROKE WITH A VIRTUALLY IMPERCEPTIBLE PAUSE AT EACH END. THE WIRE ITSELF PROVIDES A CONVENIENT GAUGE. AS A GENERAL RULE THE CAM MAY BE SLIGHTLY SMALLER THAN THE INSIDE COIL WIDTH, NOT LARGER.

GEAR SET-UP: THE NUMBER OF TURNS IN A LAYER IS DETERMINED BY THE GEAR RATIO. IF THE NUMBER OF TURNS IN A LAYER IS NOT KNOWN, IT MAY BE DETERMINED BY DIVIDING THE CAM SIZE BY THE WIRE SIZE; THIS SIZE TO INCLUDE AN ALLOWANCE (ABOUT 10%) FOR HELIX, ETC. SINCE ONE REVOLUTION OF THE CAM WINDS TWO LAYERS, ALL CALCULATIONS ARE BASED ON TWO LAYERS. GEAR RATIOS MAY BE DETERMINED AS FOLLOWS: FORM A FRACTION USING THE NUMBER OF TURNS IN 2 LAYERS AS NUMERATOR AND 100 AS DENOMINATOR AND REDUCE IF POSSIBLE. THE RESULTING NUMERATOR IS THE SIZE OF THE GEAR FOR THE CAM SHAFT. THE DENOMINATOR IS THE NUMBER OF TEETH IN THE DRIVING GEAR.

EXAMPLE A: 79 TURNS PER LAYER, 158 TURNS IN 2 LAYERS

$$\frac{158}{100} = \frac{79}{50}$$

USE 79 FOR CAM SHAFT AND 50 DRIVER

EXAMPLE B: 265 TURNS PER LAYER, 530 TURNS IN 2 LAYERS

$$\frac{530}{100} = \frac{53}{10} = \frac{106}{20}$$

USE 106 FOR CAM SHAFT AND 20 DRIVER

THE FIRST EXAMPLE SUGGESTS A SIMPLER PROCEDURE SUMMARIZED AS FOLLOWS: USING A 50 TOOTH DRIVER, THE NUMBER OF TEETH IN THE DRIVEN GEAR EQUALS THE NUMBER OF TURNS IN A LAYER. A 25 TOOTH DRIVER GIVES TWICE AS MANY TURNS IN A LAYER AS THE NUMBER OF TEETH IN THE DRIVEN GEAR WHILE A 100 TOOTH DRIVER WILL WIND 1/2 AS MANY TURNS PER LAYER AS THE TEETH IN THE DRIVEN GEAR WOULD INDICATE.

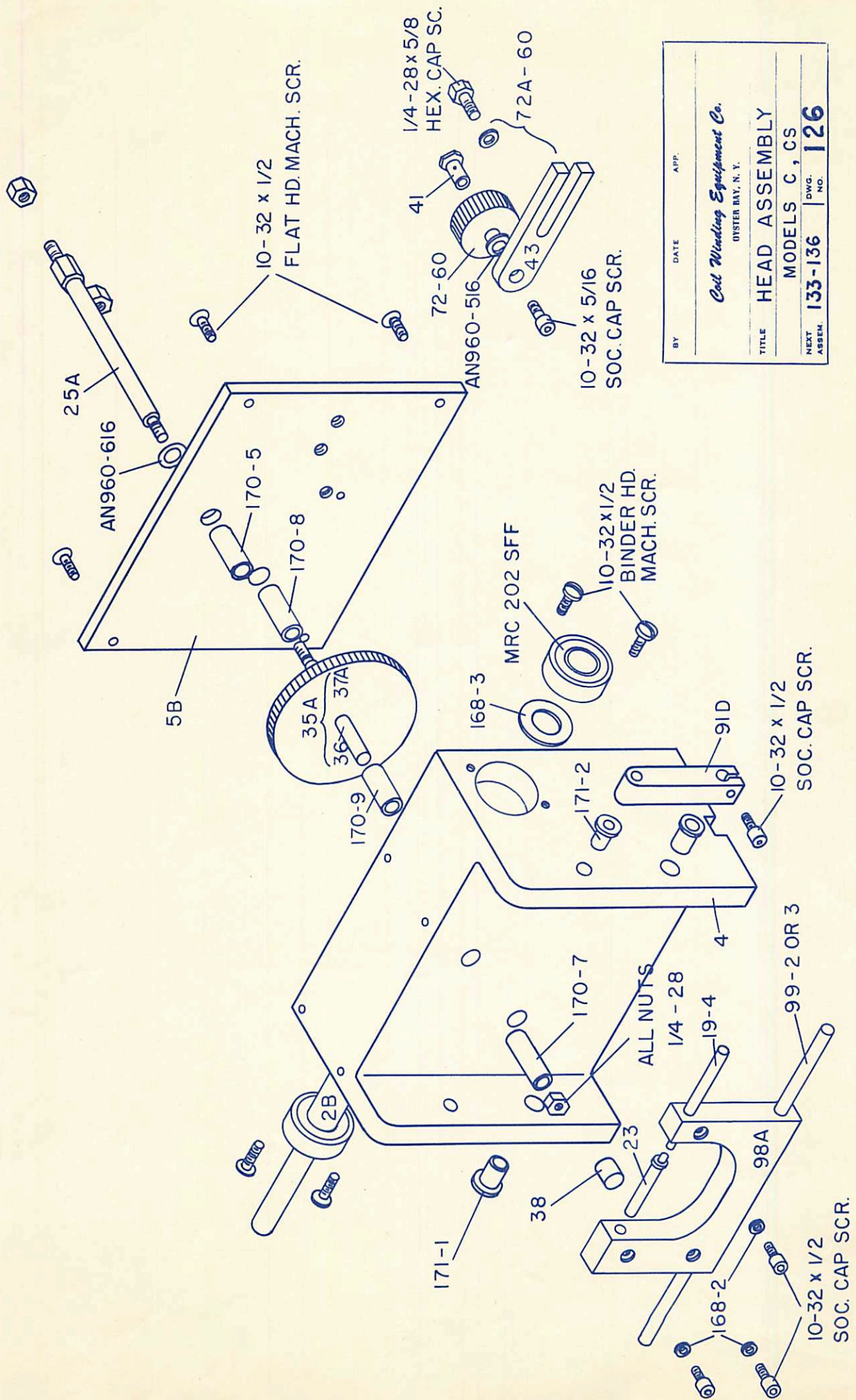
SPECIAL IDLER GEARS ARE AVAILABLE TO GIVE A STEP-UP OR STEP-DOWN OR 2-1, 5-2, OR 3-1.

IN SETTING THE FOLLOWERS TO THE CAM, BE SURE TO ALLOW A FEW THOUSANDTHS CLEARANCE, AND REVOLVE THE MACHINE BY HAND THROUGH ONE CYCLE TO AVOID BINDING. THE FACE OF THE CAM SHOULD BE WELL LUBRICATED.

$$\frac{200}{014} = 200$$

$$\frac{400}{100} = 4$$

$$\frac{\text{UPPER}}{\text{LOWER}} \times 50 = \# \text{ PER LAYER}$$



BY	DATE	APP.
<i>Coal Mining Equipment Co.</i>		
OYSTER BAY, N. Y.		
TITLE HEAD ASSEMBLY		
MODELS C, CS		
NEXT ASSEM.	DWG. NO.	126
133-136		

OPERATING INSTRUCTIONS
FOR IVO PREDETERMINING SUBTRACTING COUNTERS U-390

SETTING:

1. OPEN FLAP AND DEPRESS LATERAL RESET LEVER AS FAR AS IT WILL GO.
2. SET THE DESIRED NUMBER BY TURNING THE GRIP TEETH OF NUMBER WHEELS.
3. CLOSE FLAP-RESET LEVER WILL RETURN AUTOMATICALLY TO ITS POSITION.
4. ASCERTAIN THAT THE PRESET NUMBERS APPEAR CORRECTLY IN THE WINDOW, AND THAT NONE FALL INTO HALF POSITIONS.
5. THE COUNTER SUBTRACTS FROM THE PREDETERMINED NUMBER DOWN TO ZERO. RELEASE IS AFFECTED BETWEEN 00000 AND 99999, AND THEREFORE, ONE NUMBER LESS THAN DESIRED HAS TO BE PRESET. IF, FOR EXAMPLE, PREDETERMINATION IS DESIRED EXACTLY AFTER 2,000 COUNTS, THE COUNTER HAS TO BE PRESET TO 1,999.
6. REPETITION OF THE COUNTING CYCLE IS ACCOMPLISHED SIMPLY BY DEPRESSING THE RESET LEVER. PRESS LEVER BACK UNTIL "SNAP".

NOTE:

IT IS POSSIBLE TO USE THE RESET LEVER AS A STARTING SWITCH. IN SO DOING, IT IS IMPORTANT THAT THE LEVER BE DEPRESSED TO THE "SNAP" POSITION AND THEN RELEASED QUICKLY SO THAT THE COUNTER DOES NOT OPERATE WITH THE COUNTING WHEELS DISENGAGED.

IVO COUNTERS WITH QUICK RESET FEATURE

THESE COUNTERS HAVE BEEN ALTERED TO ELIMINATE THE POSSIBILITY OF THE MACHINE STARTING WITH THE LEVER DEPRESSED OR THE WHEELS DISENGAGED.

AT THE LEFT HAND END OF THE RESET LEVER SHAFT, A CAM HAS BEEN INSTALLED WHICH HOLDS THE SWITCH CONTACTS OPEN UNTIL THE RESET LEVER HAS BEEN RETURNED TO ITS NORMAL POSITION. IF ADJUSTMENT SHOULD BE NECESSARY, IT WOULD BE ADVISABLE TO REMOVE THE COVER FROM THE COUNTER AND EXAMINE THE FUNCTIONING OF THIS MECHANISM. THE TRIP POINT OF THE CAM CAN BE ADJUSTED BY LOOSENING THE SET SCREW WHICH HOLDS THE CAM AND REPOSITIONING AS REQUIRED.

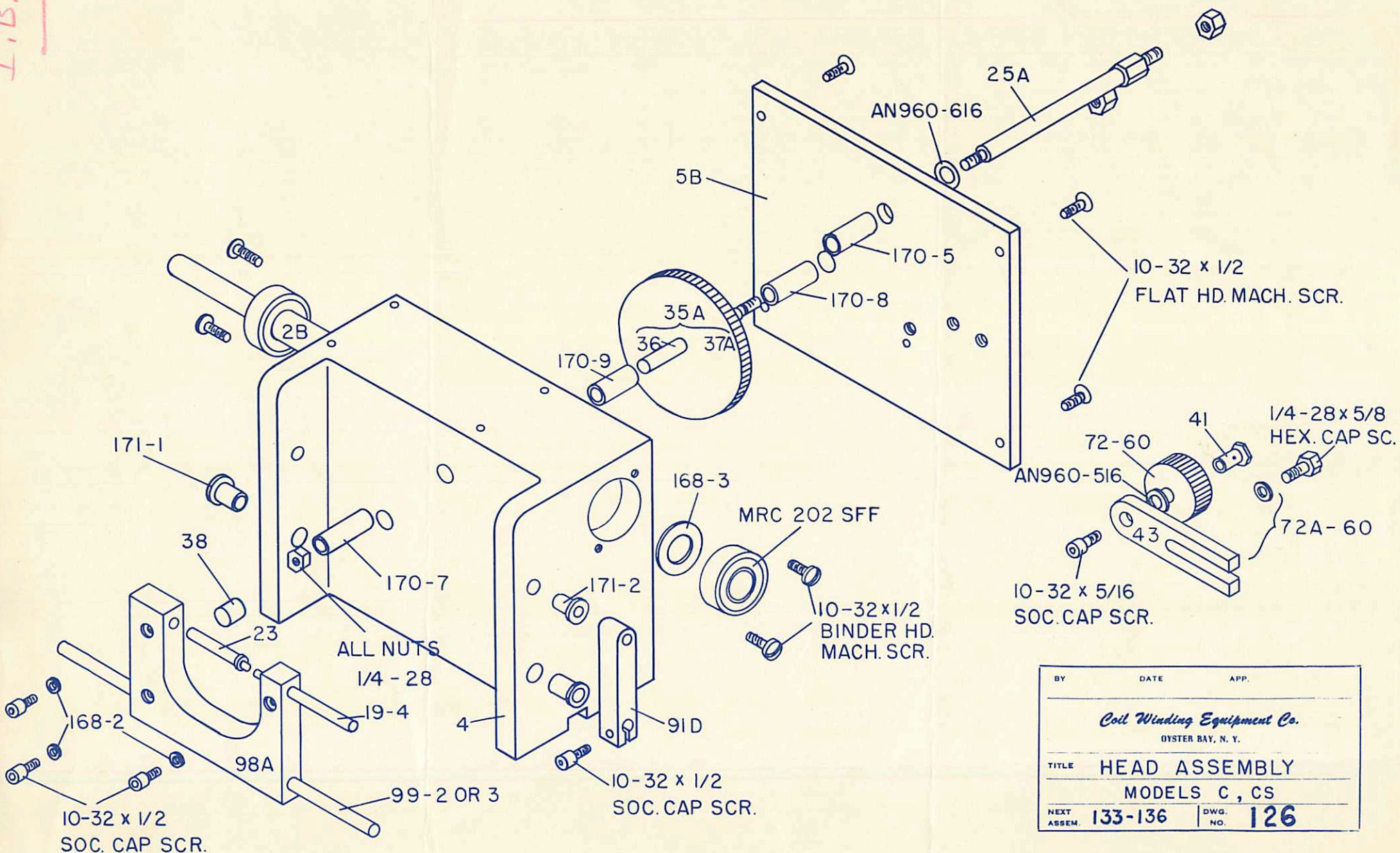
IF REPLACEMENT PARTS ARE TO BE ORDERED, GIVE:

- 1) NAME AND TYPE OF COUNTER
- 2) TYPE OF DRIVE (TIMING BELT, ROLLER CHAIN OR GEAR)
- 3) SERIAL NUMBER AND MODEL OF MACHINE
- 4) NUMBER OF TEETH ON COUNTER DRIVE SPROCKET OR GEAR.
- 5) DOES COUNTER HAVE QUICK RESET CAM AS DESCRIBED ABOVE?

LUBRICATION:

FOR RELIABLE FUNCTIONING OF THESE HIGH PRECISION INSTRUMENTS CAREFUL HANDLING IS REQUIRED. A REGULAR LUBRICATION OF THE BEARINGS WITH A FEW DROPS OF A GOOD GRADE OF SEWING MACHINE OIL AT INTERVALS OF ABOUT 50 WORKING HOURS IS ADVISABLE.

I.B. free



BY	DATE	APP.
<i>Coil Winding Equipment Co.</i> OYSTER BAY, N. Y.		
TITLE	HEAD ASSEMBLY	
	MODELS C, CS	
NEXT ASSEM.	133-136	DWG. NO. 126

COIL WINDING EQUIPMENT Co.

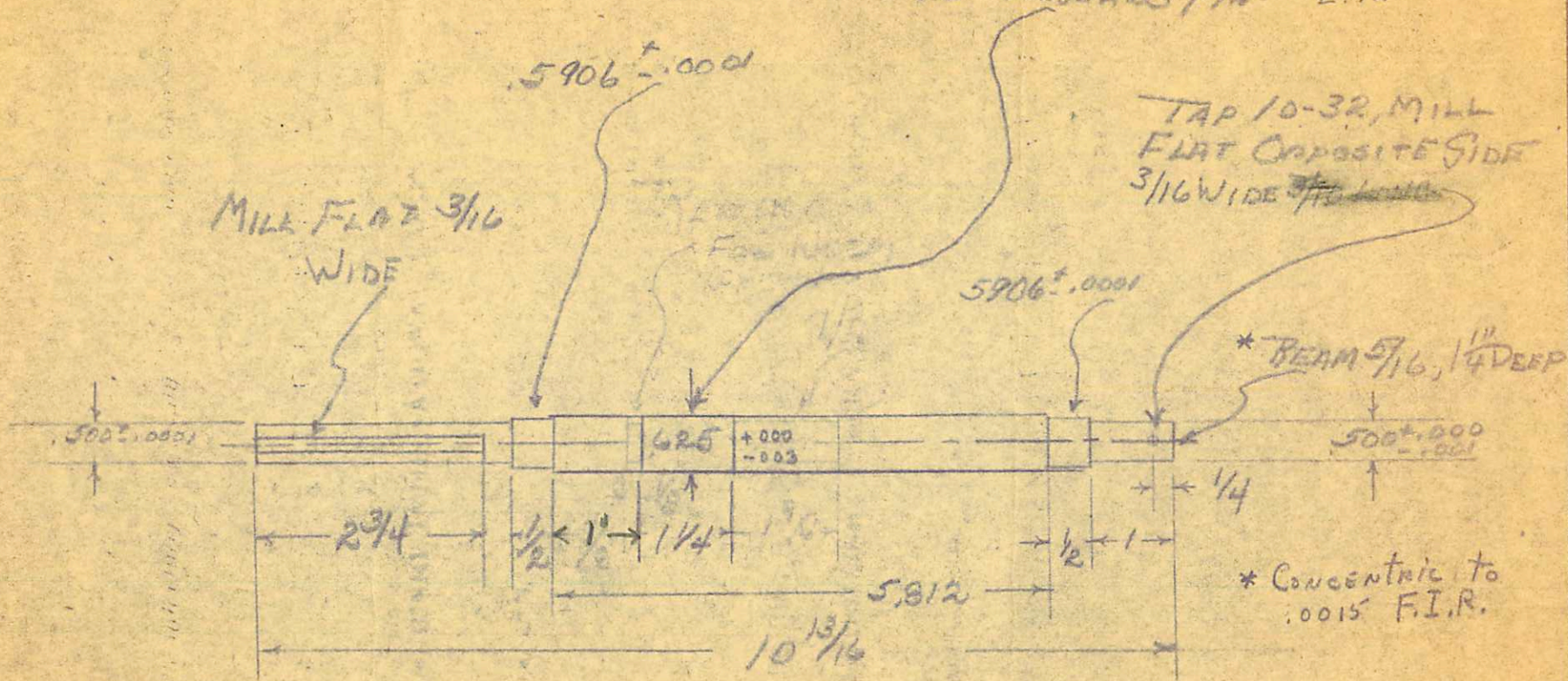
OYSTER BAY, N. Y.

PARTS LIST, MODELS C, CS
HEAD ASSEMBLY

QTY.	PART #	PART NAME
1	2B	SPINDLE
1	4	CASTING, HEAD
1	5B	PLATE, BACK
1	19-4	ROD, FEED 3 1/2"
1	23	FOLLOWER
1	25A	SHAFT, CAM
1	35A	ASSEMBLY, WORM & SHAFT (INCLUDING PART # 36, 37A, ROLL PIN 1/8 x 1/2)
1	36	SHAFT, WORM GEAR
1	37A	GEAR, WORM
1	38	PLUG, WORM GEAR
1	41	STUD, IDLER, 3/8"
1	43	BRACKET, IDLER
1	72-60	IDLER, 60T
1	72A-60	ASSEMBLY, IDLER 60T (INCLUDING PART # 41, 43, 72-60, AN960-516, 10-32 x 5/16 SOCKET CAP SCREW)
1	91D	CLAMP
1	98A	YOKE, LARGE
1	99-2 OR 3	ROD, GUIDE, LARGE YOKE 13" OR 8"
1	168-2	WASHER, YOKE
2	168-3	WASHER, SPINDLE
1	170-5	BUSHING, REAR CAM
1	170-7	BUSHING, FRONT CAM
1	170-8	BUSHING, REAR WORM
1	170-9	BUSHING, FRONT WORM
2	171-1	BUSHING, FLANGED; GUIDE ROD
1	171-2	BUSHING, FLANGED; FEED ROD
3		1/4-28 NUTS
4		10-32 x 1/2 S. C. S.
2		MRC 202SFF BEARING
4		10-32 x 1/2 BINDER H. M. S.
1		AN960-616 WASHER
4		10-32 x 1/2 F. H. M. S.
1		1/4-28 x 5/8 HEX. CAP
3		THREAD INSERTS

2 B

31.4 PITCH WORM - T.D. 560-564
 LEAD 1/10" / REV. OR
 10 THREADS / IN. L.H.



1/4 TO 1 1/4	3/5/54	TOLERANCES UNLESS SPECIFIED	FRACT. DIM ± .010	DECIMAL DIM ± .005	ANGULAR DIM ±	SCALE: 2=1
2" TO 1 1/4"	3/5/54	DATE	BY	APPROVED	Coil Winding Equipment Co. 37 WEST MAIN STREET • OYSTER BAY, N. Y.	
Removed Undercuts	5/14/56	12/31/53	D.B.D.	ENG'R.		
Material was X4130	5/14/56	CHECKED			TITLE SPINDLE, MODEL C4CS	
		HEAT TREAT			NEXT ASSEM.	
		FINISH			DWG. NO. 2 B	
REVISION	DATE	APP'D.	CHANGE	MAT'L. Type 303 Stainless 5/800.		

REVISED BY _____ DATE _____ SUPERSEDES _____ CLASS _____