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SERVICE MANUAL AND PARTS LIST CATALOG



Cincinnati
**UNIVERSAL DIVIDING HEADS
AND ACCESSORIES,
INDEXING ATTACHMENTS**

IDENTIFICATION Nos. AA-OL, AW-OL, CC-OL, CB-OL and AD-OL

**This Booklet should be Filed in Tool
Crib and issued by Tool Check only**

THE CINCINNATI MILLING MACHINE CO., CINCINNATI 9, OHIO, U. S. A.

Publication No. M-1454

SERVICE MANUAL
AND
PARTS LIST CATALOG

FOR

Cincinnati

**UNIVERSAL DIVIDING HEADS AND ACCESSORIES,
INDEXING ATTACHMENTS**



THIS catalog was prepared for two primary reasons: First, to expedite the ordering of repair parts for your CINCINNATI Dividing Heads, Accessories, and Indexing Attachments; secondly, to present the correct methods of servicing to those responsible for keeping the attachments in proper operating condition.

At the time of writing, the data contained herein was completely up-to-date. However, due to continual improvements in design, it is possible that some of the information or appearance of the component parts may vary slightly from the attachment delivered to you. This merely indicates that the attachment has been improved to better fulfill your requirements.

THE CINCINNATI MILLING MACHINE CO.
CINCINNATI 9, OHIO, U. S. A.

THIS CATALOG TO BE USED ONLY FOR ATTACHMENTS WHOSE SERIAL NUMBER BEGINS WITH EITHER "AA", "AW", "CC", "CB" or "AD"

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TREAT YOUR ATTACHMENT WITH CARE

The materials of which CINCINNATI attachments are built have been carefully selected for the maximum toughness, hardness, and wear-resistant qualities imposed by the duties which the parts must perform. Nevertheless, it must be remembered that this basic excellence can, in part, be rendered ineffective or destroyed by carelessness. With this thought in mind, we urge you to treat the attachment with care.

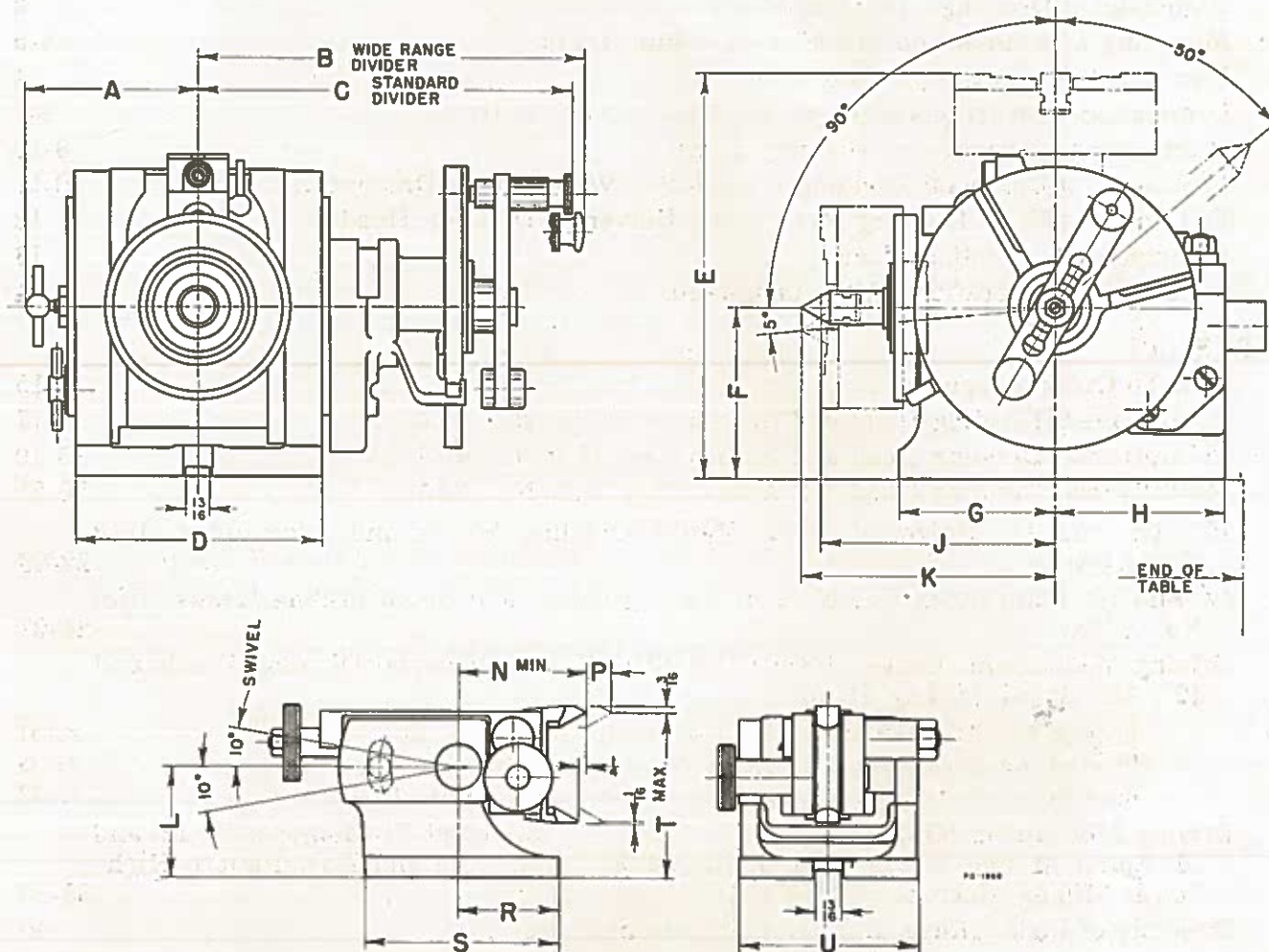
When adjustments are made to bearings, "feel" the settings made. Proceed with caution and only after eliminating outside disturbances which cause an attachment to "act up"—check external vibrations, cutter shape, angles, speeds, etc.

If you find it necessary to use a hammer, be sure that the blows are muffled by lead, wood, rawhide, or brass—preferably by using hammers made of such materials. After the attachment has been dismantled and re-assembled, fill the unit with clean oil, of the recommended specifications.

PATENT NOTICE—The attachments illustrated and described in this booklet are protected by issued and pending United States and Foreign Patents.

The design and specifications of the attachments illustrated and described herein are subject to change without notice.

DIMENSIONAL DRAWING



Size	A	B	C	D	E	F	G	H	J	K	L	N	P	R	S	T	U
10"	5 1/16"	11 1/8"	11 1/2"	7 3/8"	12 3/8"	5 1/4"	4 7/8"	5 1/4"	7 3/8"	7 1/8"	3 1/16"	4"	1 1/8"	3 1/8"	6"	6 1/2"	5 1/2"
12"	6 1/8"	13 1/16"	12 1/4"	9 1/4"	15 3/4"	6 1/4"	6"	6 1/8"	9 1/2"	8 1/4"	4 1/8"	4 1/8"	1 1/8"	3 5/8"	6 1/2"	7 3/4"	6 1/8"
14"	6 1/8"	13 1/16"	12 1/4"	9 1/4"	16 3/4"	7 1/4"	6"	6 1/8"	9 1/2"	8 1/4"	5 1/8"	4 1/8"	1 1/8"	3 5/8"	6 1/2"	8 3/8"	6 1/8"

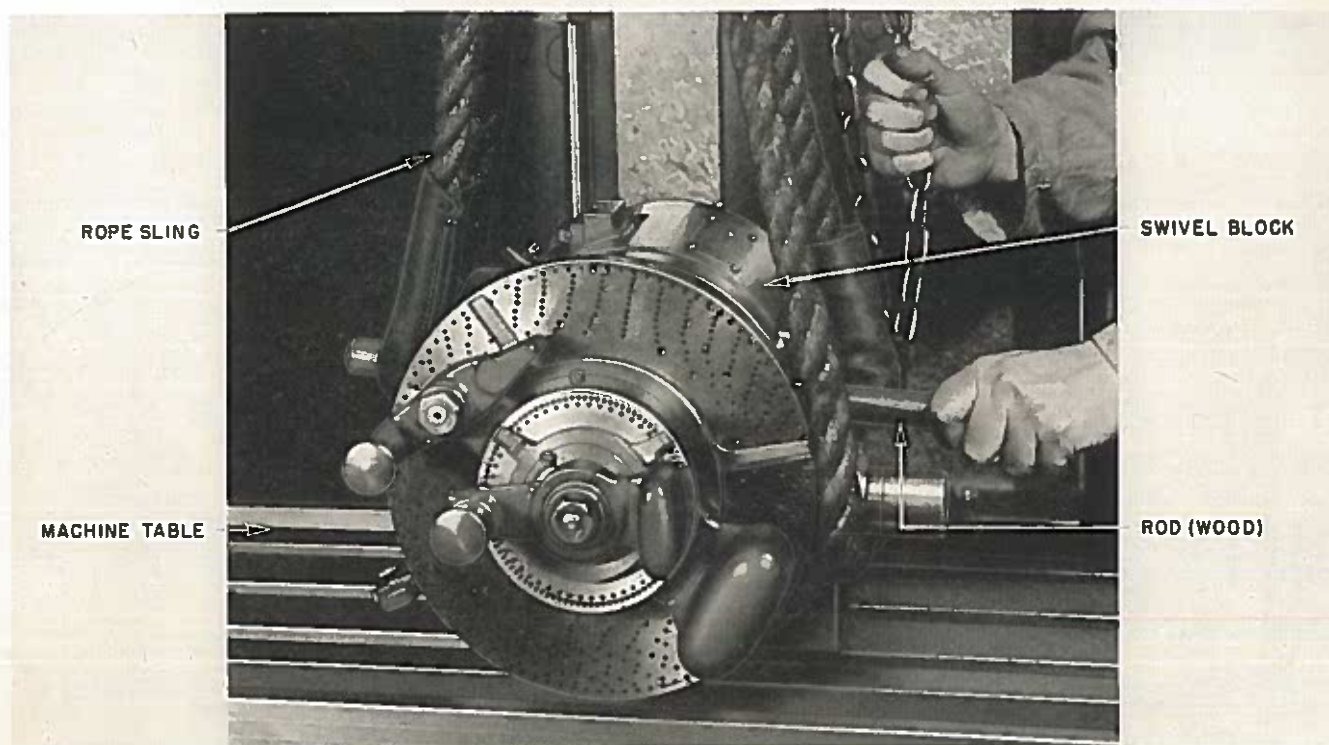


FIGURE 4A
Mounting a Universal Wide Range Dividing Head on a Milling Machine Table

FUNCTIONAL DIAGRAM

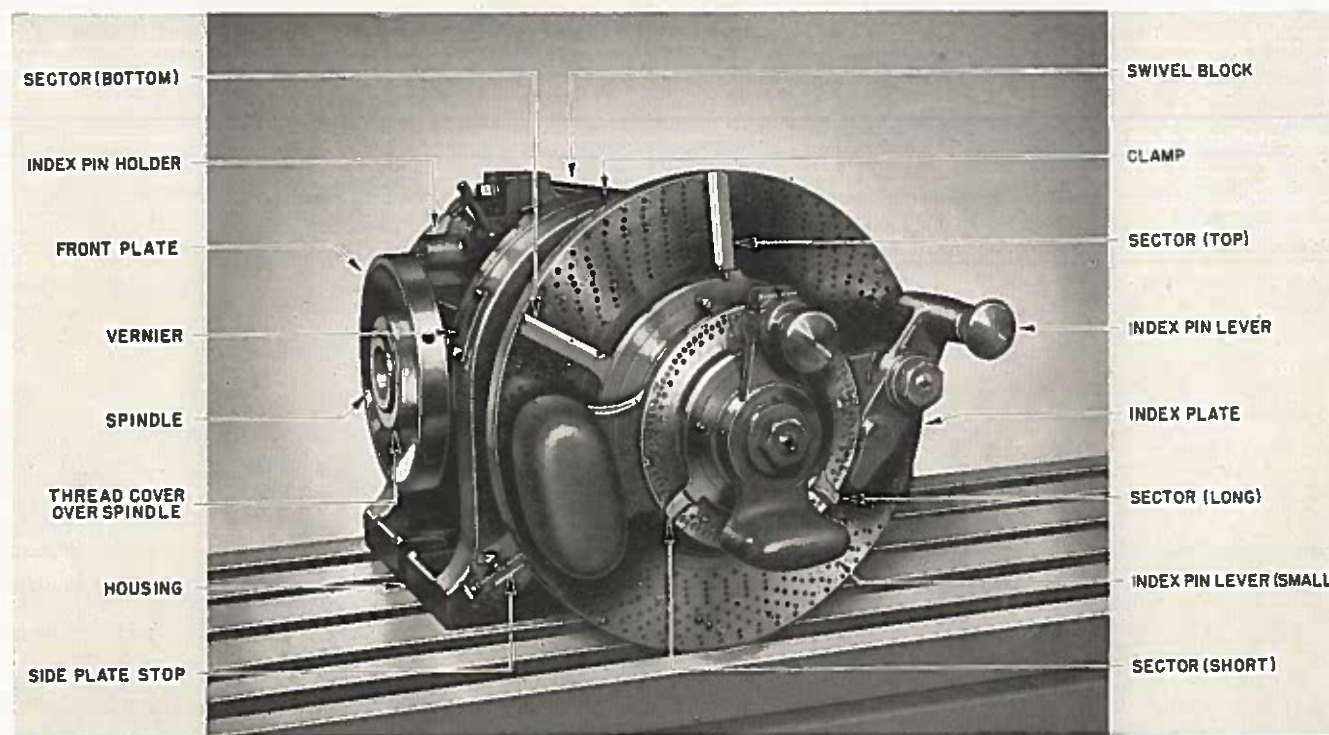


FIGURE 4B
Universal Wide Range Dividing Head

MOUNTING ATTACHMENT ON MACHINE

1. Lock Swivel Block of Dividing Head so Spindle is in horizontal position.
 2. Insert a round wooden rod (about 1" diameter) through Spindle of Dividing Head and fasten Rope Sling around each end of wooden rod. See Figure 4A.
 3. Raise Dividing Head to Table of machine, locate it into most convenient T-Slot and clamp.
- NOTE:** If Drive Mechanism is used, Dividing Head must be clamped in center T-Slot of Table.

NOTES

LUBRICATION INSTRUCTIONS AND SPECIFICATIONS

Thoroughly oil all moving parts as they are installed. Then lubricate all principal points as listed below before operating Dividing Head. Periodic and thorough lubrication

with correct lubricant, as specified, will help maintain the long life and accuracy built into this Dividing Head. The intervals listed are based on a normal eight-hour day.

Purchase Lubricants from Reliable Dealers FOR 10", 12", AND 14" DIVIDING HEADS

Interval	Point of Lubrication	Parts Lubricated	Lubricating Instructions	Lubricating Specifications
Weekly (When Used)	<u>Wide Range Only</u> 1. Differential Indexing Mechanism	Gears in Mechanism	One Shot with Oil Can	C.M.M.Co.—No.P-31 Straight Mineral Oil Viscosity 190 to 210 SSU at 100° F.
	<u>Universal Only</u> 2 and 3. Mitre Gear Bearing	Mitre Gears		
<u>Universal Only</u> 4. Mitre Gear Bearing	Mitre Gear Shaft			
Daily, (8-hours)	5. Back Cap	Spindle (Rear)		
	6 and 7. Top of Swivel Block	Spindle (Front)		
	8. Rear of Swivel Block	Worm and Bearing in Yoke		
	9. Swivel Block Front	Index Shaft		
	10. Swivel Block Front	Worm Shaft in Yoke Neck		
	11. Front Cover	Index Shaft and Hub Gear		
	12. Front Cover	Worm Shaft in Swivel Bearing		

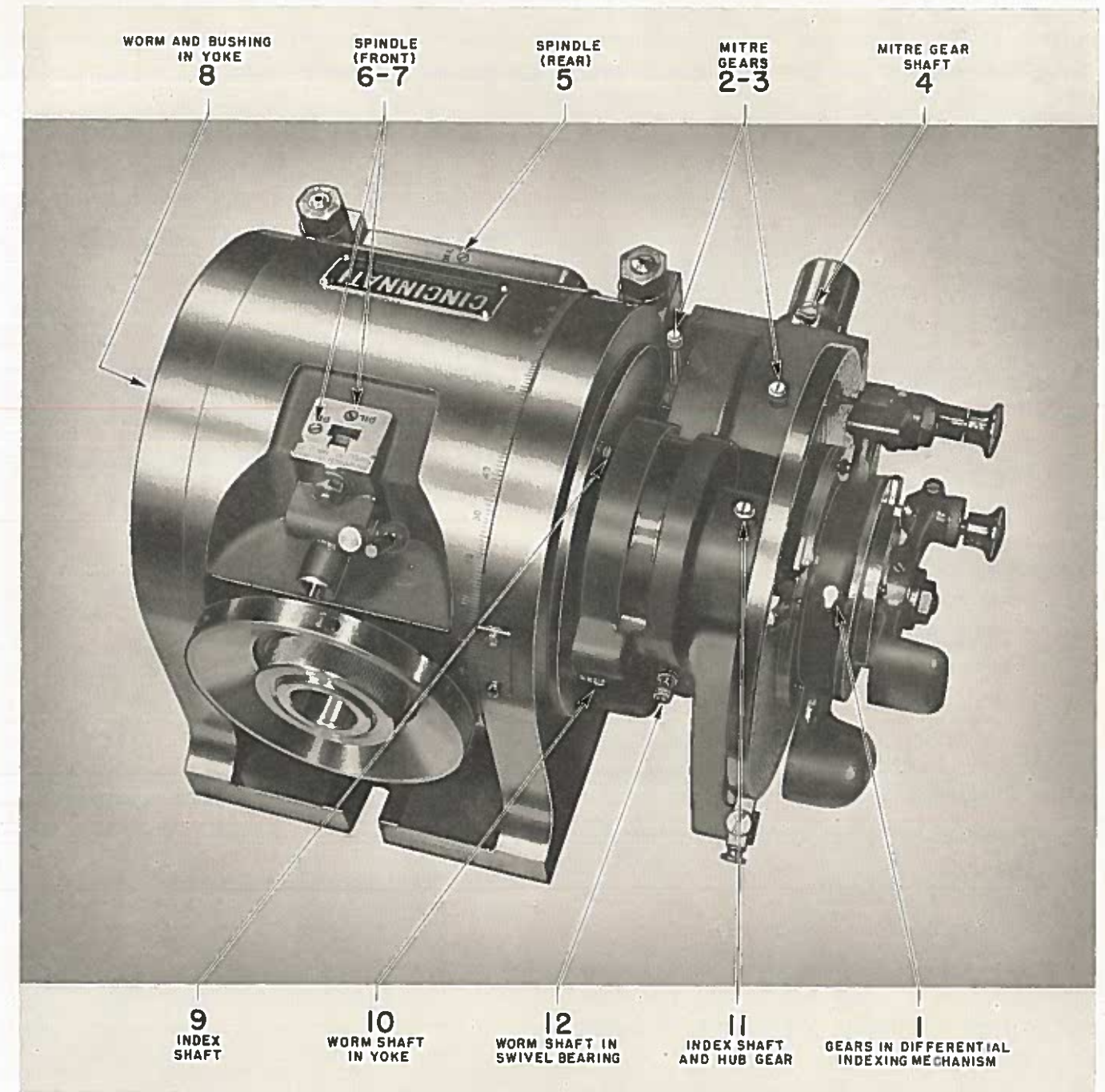


FIGURE 7A
Lubrication Diagram

DISMANTLING INSTRUCTIONS

To Remove Spindle (Figure 8A)

1. Disengage Worm from Worm Wheel by turning handle on Eccentric 180° (Figure 12A). Remove spindle thread cover from spindle nose, unscrew four $\frac{3}{16}$ " Fillister Head Screws and remove Front Plate.
2. Unscrew four $\frac{1}{2}$ " Fillister Head Screws and tap front of Spindle to free Back Cap from Swivel Block. Remove Back Cap from rear of Spindle. If necessary to remove Bushing it is 0.0013" to 0.0028" tight in Back Cap.
3. Remove Spindle Collar and Thrust Bearing from Spindle. Unscrew 1" Hand-Cap Clamp with Split Ring Plug from left exterior of Swivel Block. Tap Spindle nose to free from taper and remove from rear.

CAUTION: Make certain Worm is disengaged from Worm Wheel.

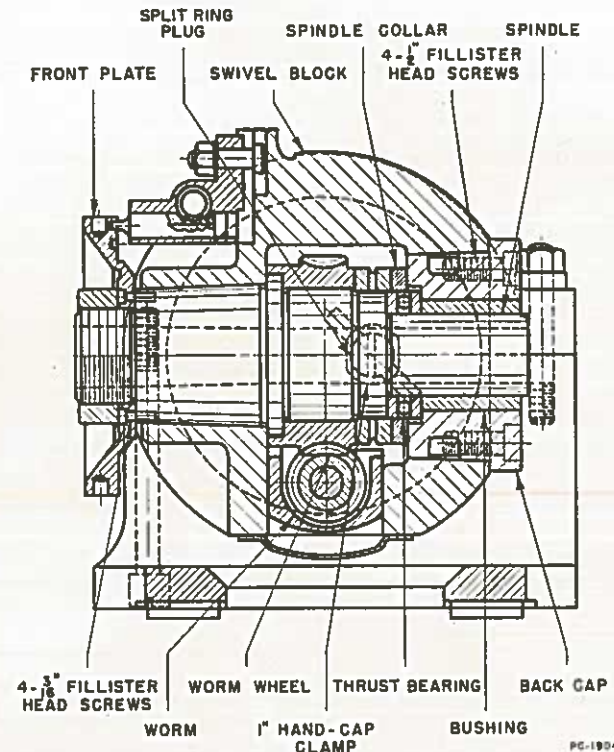


FIGURE 8A
Section Thru Spindle

To Remove and Dismantle Mitre Gear Bearing

1. Unscrew $\frac{3}{8}$ " Hexagon Nut and washer from end of Index Shaft (Figure 8B). If Dividing Head is Wide Range remove $\frac{1}{2}$ " hexagon nut.
2. Remove Index Pin Lever from Index Shaft. On Wide Range type slip Differential Indexing Mechanism off Index Shaft.

(Note: If at any time parts must be replaced in Differential Indexing Mechanism, send unit to manufacturer for repair. This is necessary because entire unit must be fitted and lapped.)

3. Unscrew four No. 10/24 Fillister Head Screws and remove Index Plate from Hub Gear on Index Shaft.

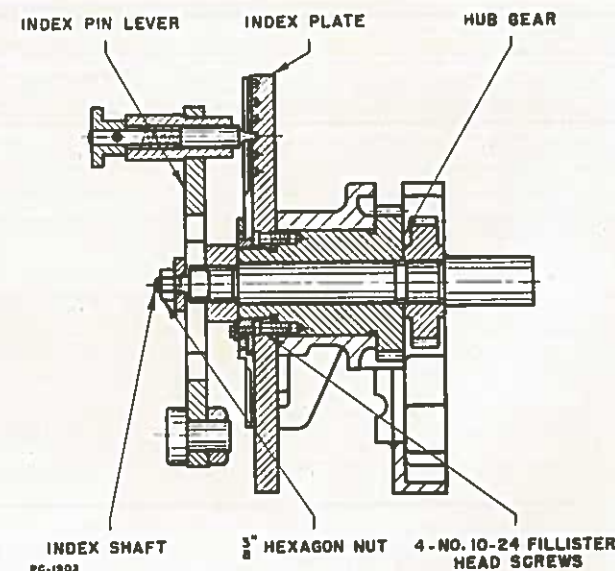


FIGURE 8B
Section Thru Index Shaft

4. Unscrew two $\frac{1}{4}$ " fillister head screws from Cover (top) and Cover (front). Remove both covers from Mitre Gear Bearing (Figure 9A).
5. Unscrew two $\frac{1}{2}$ " Fillister Head Screws and remove Mitre Gear Bearing from dividing head housing. Tongue is 0.001" tight to 0.0005" loose with slot in dividing head housing. A Straight Pin locates bearing on housing.

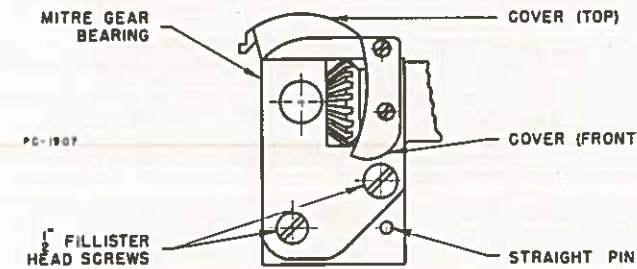


FIGURE 9A
Mitre Gear Bearing

6. If necessary to further dismantle Mitre Gear Bearing, drive Short Shaft out side opposite Bushing. (Figure 9B) Mitre Gear is 0.001" to 0.0015" tight on shaft. If necessary to remove Gear (On Mitre Gear), from Mitre Gear, it is 0.000" to 0.0005" tight.
7. Drive No. 4 Taper Pin from Mitre Gear on Mitre Gear Shaft and remove shaft. Mitre Gear is 0.000" to 0.0008" tight on shaft.

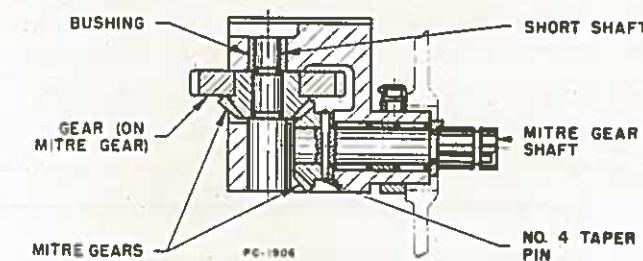


FIGURE 9B
Section Thru Mitre Gear Bearing

To Remove Index Shaft (Figure 9C)

1. Proceed as per paragraphs 1 to 5, inclusive, under To Remove and Dismantle Mitre Gear Bearing.
2. Loosen $\frac{3}{8}$ " lock screw, tap to free lock shoe and remove Lock Nut from end of Worm Shaft (Figure 9C).
3. Unscrew two No. 10-24 fillister head screws and remove half-moon Cover Lid so Cover (on Swivel Block) will clear Gear (on Worm Shaft).

(Note: If Worm and Yoke are also to be removed—page 10—Lock Nut, Figure 9C, should be loosened before removing index shaft. Replace Index Pin Lever on Index Shaft, place a spanner wrench on Lock Nut and loosen nut by turning index pin lever clockwise.)

4. Unscrew oiler from left side of Cover (On Swivel Block) and remove three $\frac{3}{16}$ " fillister head screws which fasten Cover to Swivel Block. Tap Cover from two No. 4 taper pins.
5. Remove Index Shaft, with Hub Gear, from Bronze Bushing in Swivel Block. Woodruff keyed gear on Index Shaft, it is 0.0005" to 0.0015" tight.

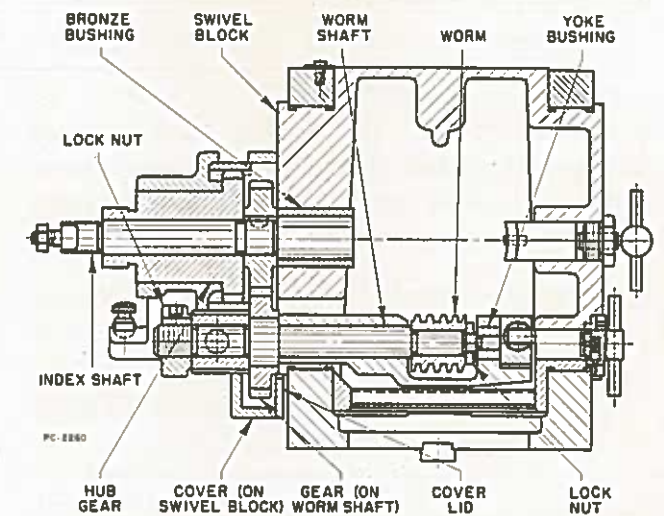


FIGURE 9C
Section Thru Worm and Index Shafts

To Remove Worm and Yoke (Figure 10A)

1. Proceed as per paragraphs 1 to 3, inclusive, page 8, under To Remove Spindle; paragraphs 1 to 5, inclusive, page 8, under To Remove and Dismantle Mitre Gear Bearing; paragraphs 2 to 5, inclusive, page 9, under To Remove Index Shaft.
2. Unscrew three No. 6-32 fillister head screws and remove Eccentric Plate and Eccentric from left side of Swivel Block.
3. Unscrew four $\frac{1}{8}$ " fillister head screws and remove Yoke Cover from Swivel Block.
4. Tap left end of Worm Shaft to free Worm from taper and Woodruff key on Worm Shaft. Unscrew $\frac{3}{16}$ " Lock Nut and remove Worm Shaft. If necessary to remove Yoke Bushing it is 0.0005" to 0.001" tight in Yoke.

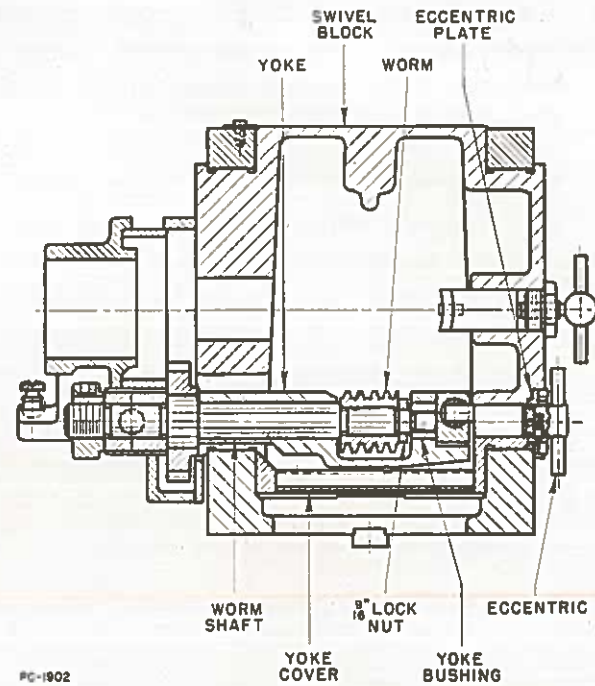


FIGURE 10A
Section Thru Worm Shaft

TO CONVERT A UNIVERSAL DIVIDING HEAD INTO A WIDE RANGE DIVIDING HEAD

1. Unscrew $\frac{3}{8}$ " Hexagon Nut and washer from end of Index Shaft and remove Index Pin Lever (Figure 8B).
2. Unscrew four No. 10-24 Fillister Head Screws and remove Index Plate from Hub Gear on Index Shaft.
3. Unscrew two $\frac{1}{4}$ " fillister head screws from Top and Front Covers and remove both covers from Mitre Gear Bearing (Figure 9A).
4. Unscrew two $\frac{1}{2}$ " Fillister Head Screws and remove Mitre Gear Bearing from Straight Pin. Tongue on Mitre Gear Bearing is 0.0005" loose to 0.001" tight in tongue slot in housing.
5. Loosen $\frac{3}{8}$ " lock screw, tap to free lock shoe and remove $\frac{1}{8}$ " Lock Nut from end of Worm Shaft (Figure 9C). The 10"

- Dividing Head has $\frac{1}{8}$ " Lock Nut.
6. Unscrew two No. 10-24 fillister head screws and remove half-moon Cover Lid from Cover (On Swivel Block).
 7. Unscrew oiler from left side of Cover (On Swivel Block), remove three $\frac{5}{16}$ " fillister head screws and remove Cover with two No. 4 taper pins from Swivel Block (Figure 9C).
 8. Remove Index Shaft from Bronze Bushing in Swivel Block and press Woodruff keyed gear off shaft. Gear is 0.0005" to 0.0015" tight. Remove four $\frac{1}{4}$ " screws from both bearing caps and remove Swivel Bearing (Figure 11A).

IMPORTANT: When mounting Swivel Bearing on wide range Cover (On Swivel Block), distance from face of cover to

- top of each trunnion must be equal and the same as old assembly.
9. Set swivel block bearing surface, of original Cover (on Swivel Block), down on surface plate.
 10. Check height of Trunnions on both sides of Swivel Bearing with a 0.0001" dial indicator.
 11. Set Swivel Bearing in Bearing Cups of new Cover.
 12. Again indicate both trunnions. If new indicator reading is greater than the original reading or out of parallel with bottom, scrape Bearing Cups until reading is equal to original reading.

If indicator reading on new assembly is less than old assembly, scrape difference of two readings off surface "Y" of Swivel Bearing (Figure 11A).

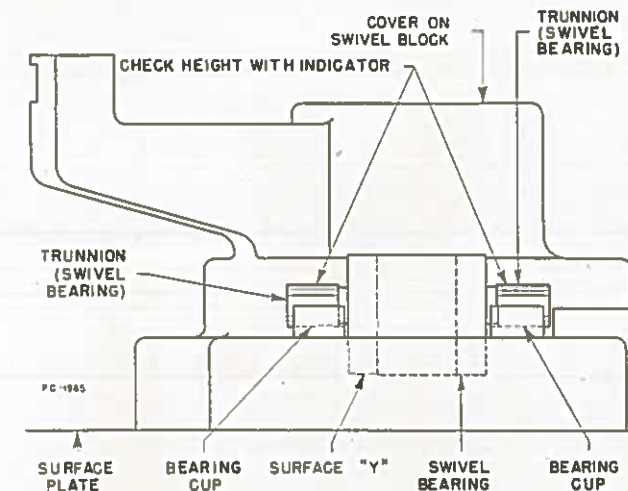


FIGURE 11A
Side Cover Alignment Check

The reason for above operation is to make certain that after wide range Cover is installed, same portion of Worm will be in contact with Worm Wheel.

13. Align key slot of gear with Woodruff key on new index shaft and press on. Gear is 0.0005" to 0.0015" tight.

14. Fit dust ring into new Cover (On Swivel Block).
15. Slip Hub Gear (gear in Cover) on Index Shaft and Shaft into bronze bushing in swivel block.
16. Slip new Cover over Hub Gear and fasten snugly with three $\frac{1}{8}$ " fillister head screws.
17. The $\frac{7}{8}$ " diameter on Index Shaft should project .005" to .008" beyond face of Hub Gear (Figure 8B). If more than .008" projects, face shoulder of index Shaft to acquire correct dimension. If less than .005" projects, face hub end of Hub Gear. This dimension is necessary to allow proper clearance for sectors on index plate.
18. Make certain all shafts and gears turn freely.

Ream taper pin holes in wide range cover and insert two No. 4 taper pins. (Holes in cover are jig drilled so they will be in line with holes in swivel block.)

19. Screw half-moon Cover Lid into position and alter mitre gear Cover (top) to suit wide range cover.
20. Mount mitre gear bearing on housing.
21. Fasten wide range index plate to, and mount wide range sector on, hub gear (Figure 8B).
22. Re-drill and tap ($\frac{1}{4}$ "-20) Mitre Gear Bearings and Top Cover to fit new wide range divider Cover (Front) (12" and 14" Heads only) Figure 9A.
23. Fasten differential indexing mechanism to Index Shaft with washer and $\frac{1}{2}$ " hexagon nut. Attachment is ready for use. See adjustment, page 13.

TO CONVERT A PLAIN DIVIDING HEAD INTO A UNIVERSAL DIVIDING HEAD

1. Proceed as per paragraphs 1 to 3, inclusive, under To Remove and Dismantle Mitre Gear Bearing. Proceed as per paragraphs 2 to 4, inclusive, under To Remove Index Shaft.
2. Unscrew $\frac{1}{4}$ " dog point set screw located between oiling stations Nos. 10 and 12, figure 7A, page 7. Remove dust ring in cover, turn it around, and place it back in cover. Fasten cover on swivel block.
3. Unscrew two $\frac{1}{2}$ " slotted set screws in side of housing. Place mitre gear bearing in tongue slot and fasten with two $\frac{1}{2}$ " fillister head screws. Tap mitre gear bearing to left to set backlash between gears. Drill and ream for $\frac{1}{4}$ " straight pin. Replace index plate, spacer, and index pin lever. Dividing head is now ready for use.

NOTES

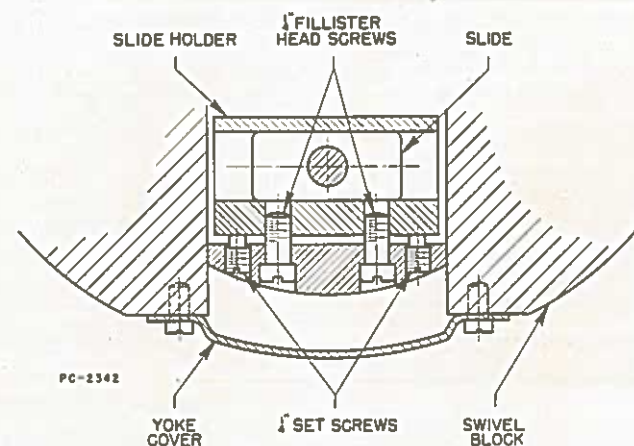


FIGURE 12A
Section Thru Swivel Block

ADJUSTMENTS

To Adjust Worm Shaft (Figure 13A)

1. Disengage worm from worm wheel with eccentric and position Index Pin Lever on index shaft for greatest amount of overhang.
2. Index Pin Lever should remain in any position through 360° . If it does not it will be necessary to adjust the worm shaft as follows: Loosen $\frac{3}{8}$ " lock screw, tap to free lock shoe, and tighten $\frac{1}{8}$ " Lock Nut on worm shaft until Index Pin Lever turns with a slight drag. Tighten $\frac{3}{8}$ " lock screw. The 10" Dividing Head has a $\frac{1}{8}$ " Lock Nut.

To Adjust Worm (Figures 12A, 13A)

Do not adjust Worm without first checking, and adjusting, if necessary, backlash in Worm Shaft, as above.

1. Fully engage worm with worm wheel, unscrew four $\frac{1}{8}$ " fillister head screws and remove Yoke Cover from Swivel Block.
2. Slightly loosen both $\frac{1}{4}$ " Fillister Head Screws an equal amount. Tighten two $\frac{1}{4}$ " Set Screws and retighten both fillister head screws. Turn Index Pin Lever by hand to make certain spindle turns freely and with no backlash.

CAUTION: If Worm is adjusted too tightly you must readjust. Do not partially disengage worm from worm wheel to compensate for an improper adjustment. Dividing Head will not index accurately, unless pitch circles coincide, and damage to worm and worm wheel may result.

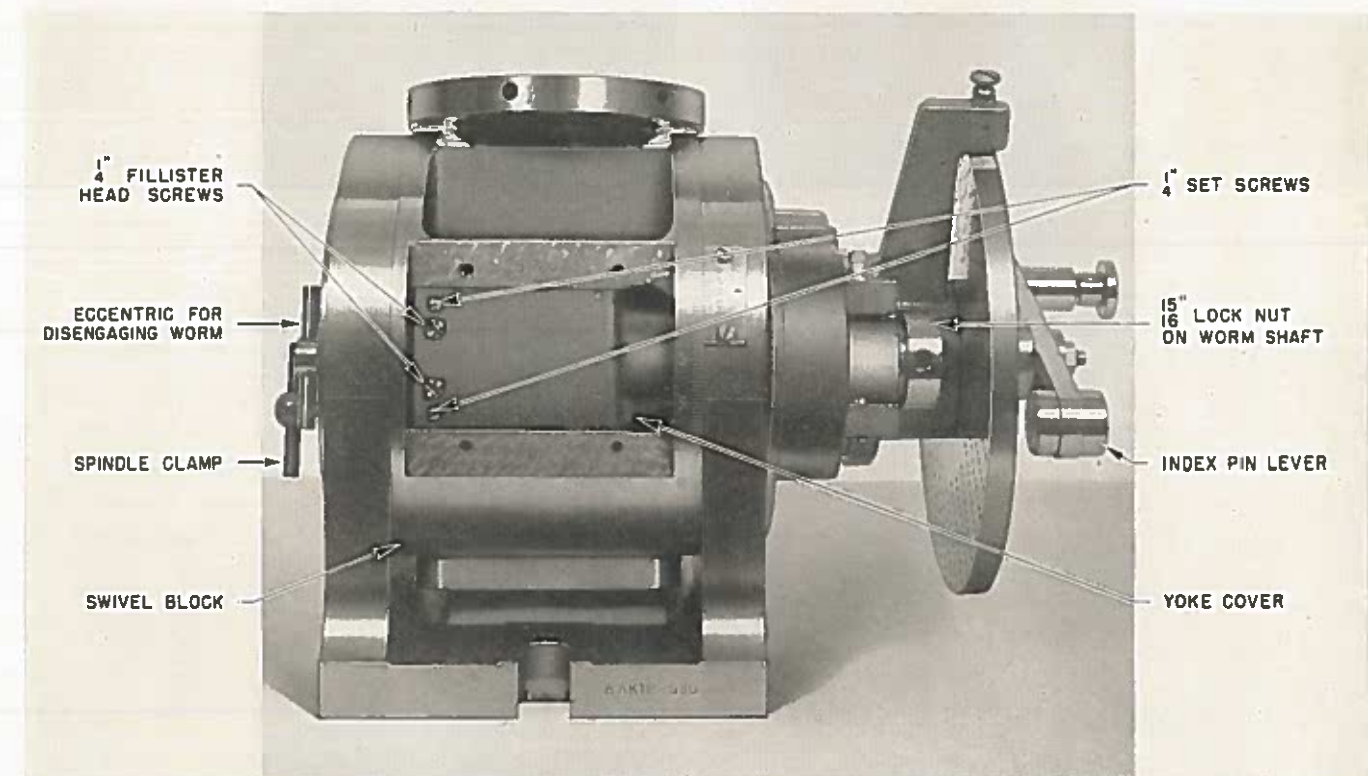


FIGURE 13A
View Into 12" or 14" Dividing Head With Yoke Cover Removed



FIGURE 14A
10", 12" and 14" Dividing Heads—Unit No. AAA



FIGURE 14B
Plain Index Head—Unit No. AWA



FIGURE 14C
Gear Cutting Head—Unit No. AWA



FIGURE 14D
Driving Mechanism (Open Type)—Unit No. ADA



FIGURE 14E
Driving Mechanism (Enclosed Type)—
Unit Nos. CBA, CCA

HOW TO ORDER REPAIR PARTS

You will receive quicker and better service when ordering repair parts if you will adhere to the following instructions when ordering such replacements.

These four requirements are essential:

1. State amount wanted.
2. Give catalog key number, part number and name of part. If ordering parts by part number, please advise where the number was obtained. (See paragraph A, below.)
3. Give complete serial number of machine (on which attachment is used) found on face of column either directly above or below front spindle bearing and right front edge of table—and serial number of attachment, location indicated on opposite page.
4. Specify how and where to ship. (See paragraph B, below.)

Paragraph A

When ordering parts by number, kindly advise how the number was obtained, namely:

Number stamped on part.

Prior Invoice.

Parts List Catalog. (Give identification and publication numbers on front cover.)

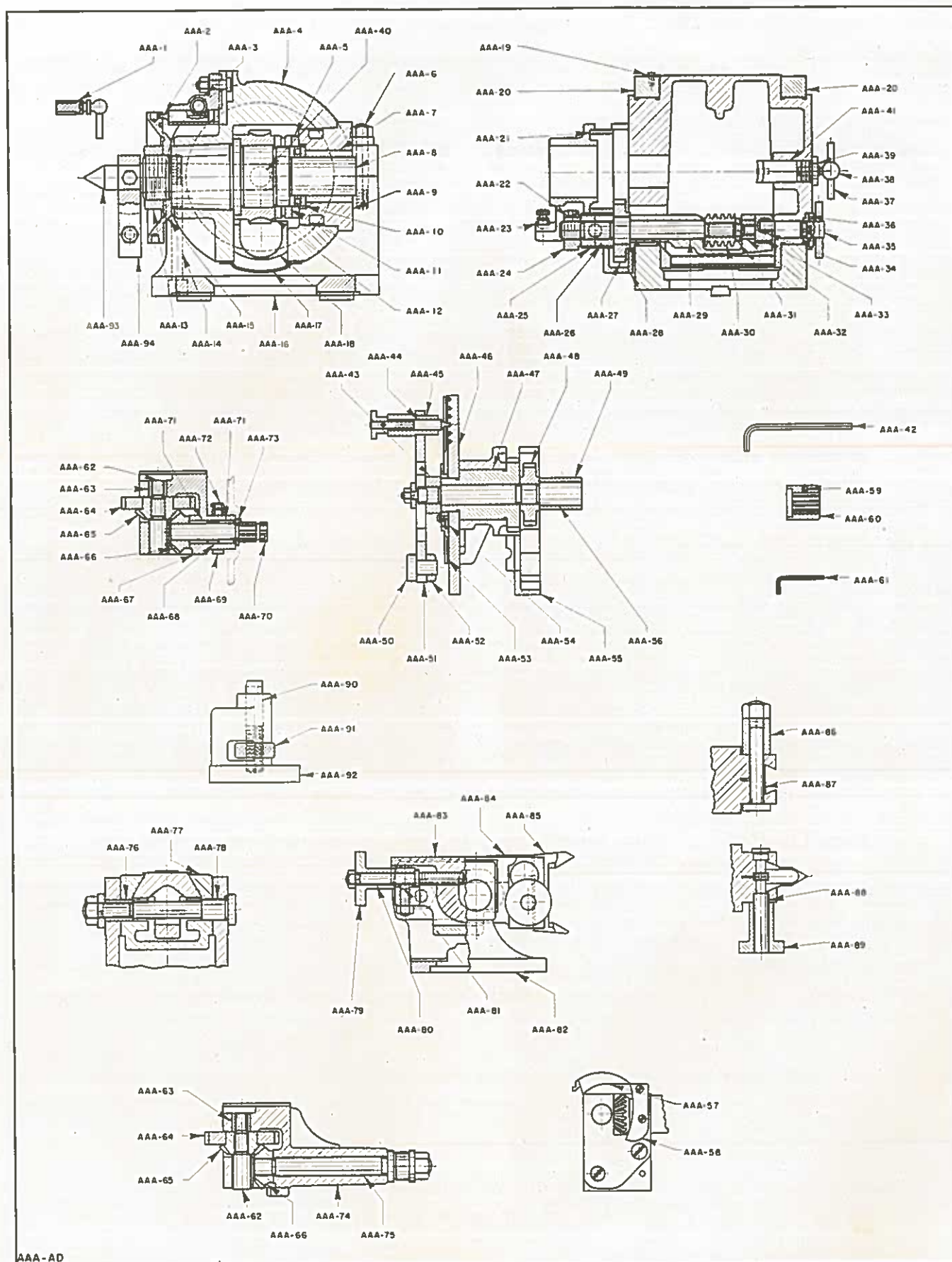
Paragraph B

Do not say, "Ship quickest way." Be definite and state agency desired, that is—Air Mail, Parcel Post (Special Delivery), Parcel Post (Regular), Express, Motor Freight, Rail Freight, etc.

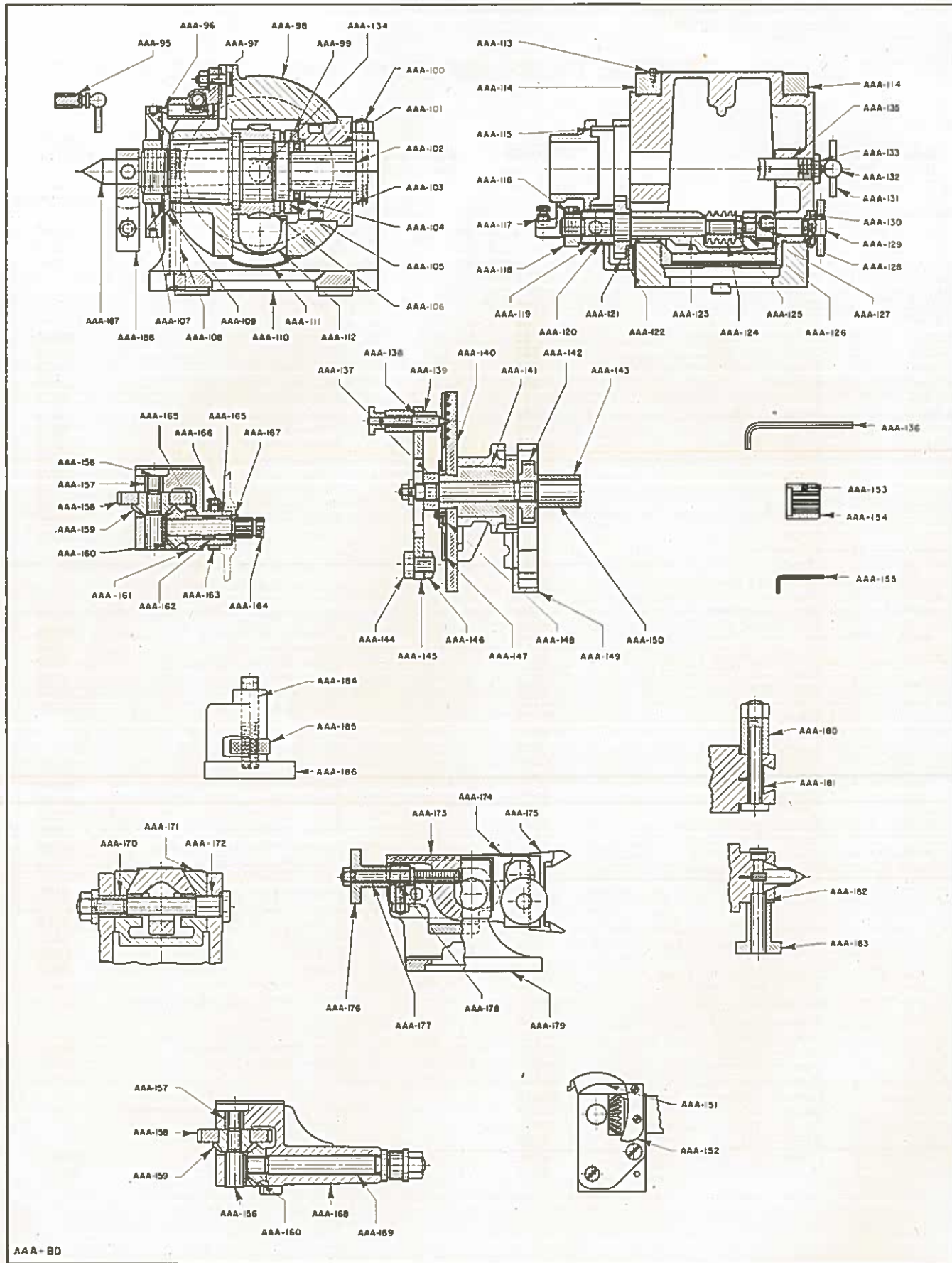
Specify each individual piece that is required in the order. If only certain parts of a unit are required, never use the word "complete"; it always raises a question as to how much of a unit to supply.

However, in some cases, due to the nature of the part, it will be necessary and less costly to you, for us to supply additional related pieces, especially if part wanted is obsolete.

10" UNIVERSAL DIVIDING HEAD AND ACCESSORIES—UNIT No. AAA



Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
10" DIVIDING HEAD COMMON							
AAA-1	1	Pinion	19084	AAA-57	1	Cover—Top Mitre Gear Bearing	107500
AAA-2	1	Pin—Index	8363	AAA-58	1	Cover	8276
AAA-3	1	Holder—Pin Index	8234	ENCLOSED TYPE DRIVING MECHANISM			
AAA-4	1	Block—Swivel	5556	AAA-59	1	Screw—Allen Set	216585
AAA-5	1	Collar—on Spindle	76953	AAA-60	1	Guard—Shaft Mitre Gear	94925
AAA-6	2	Stud—Body Fit	114523	AAA-61	1	Wrench	216584
AAA-7	1	Bush—Cap Back of Spindle	76952	AAA-62	1	Shaft—Short	8286
AAA-8	1	Spindle	76945	AAA-63	1	Bushing—In Bearing	22829
AAA-9	1	Cap—Back of Spindle	76954	AAA-64	1	Gear—On Mitre Gear	8221
AAA-10	1	Bearing—Thrust	102146	AAA-65	1	Gear—Mitre	8279
AAA-11	1	Ring—Split	8369	AAA-66	1	Gear—Mitre	8278
AAA-12	1	Wheel—Worm	36155	AAA-67	1	Bearing—Mitre Gear	79767
AAA-13	1	Cover—Over Spindle Thread	33592	AAA-68	1	Spacer	79766
AAA-14	2	Screw—Clamp	46793	AAA-69	1	Collar	79348
AAA-15	1	Plate—Front	8365	AAA-70	1	Shaft—Mitre Gear	79764
AAA-16	1	Housing	60515	AAA-71	2	Bearing—Needle	79762
AAA-17	1	Cover—Yoke	57150	AAA-72	1	Oiler	44980
AAA-18	1	Yoke	5774	AAA-73	1	Washer	79765
AAA-19	1	Vernier	8231	OPEN TYPE DRIVING MECHANISM			
AAA-20	2	Clamp	8354	AAA-62	1	Shaft—Short	8286
AAA-21	1	Ring—In Cover	35998	AAA-63	1	Bushing—In Bearing	22829
AAA-22	1	Shoe	36124	AAA-64	1	Gear—On Mitre Gear	8221
AAA-23	1	Stop—Side Plate	8106	AAA-65	1	Gear—Mitre	8279
AAA-24	1	Nut—Lock	36125	AAA-66	1	Gear—Mitre	8278
AAA-25	2	Cap—Cover	8353	AAA-74	1	Bearing—Mitre	13956
AAA-26	1	Bearing—Worm Shaft	6688	AAA-75	1	Shaft—Change Gear	13957
AAA-27	1	Gear—On Worm Shaft	103490	TAILSTOCK			
AAA-28	1	Lid—Cover	8360	AAA-76	1	Bushing—Housing	8377
AAA-29	1	Shaft—Worm	35130	AAA-77	1	Block—Swivel	44183
AAA-30	1	Worm	34391	AAA-78	1	Bolt—Long	8375
AAA-31	1	Nut—Worm	8361	AAA-79	1	Knob—On Screw	23620
AAA-32	1	Bush—Yoke	8352	AAA-80	1	Screw—Tailstock	8380
AAA-33	1	Holder—Slide	8223	AAA-81	1	Bearing—Tailstock Screw	44184
AAA-34	1	Slide	8373	AAA-82	1	Housing—Tailstock	60516
AAA-35	1	Eccentric	8296	AAA-83	1	Slide—Tailstock	44180
AAA-36	1	Plate—Eccentric Stop	8295	AAA-84	1	Plate—Over Slot	6106
AAA-37	1	Handle—Hand Clamp	3637	AAA-85	1	Center—Elevating	8378
AAA-38	1	Screw—Hand Screw Clamp	3636	AAA-86	1	Collar—Short Bolt	8379
AAA-39	1	Cap—Hand Clamp	8225	AAA-87	1	Bolt—Short	8376
AAA-40	1	Plug—Swivel Block	8367	AAA-88	1	Pinion	8238
AAA-41	1	Plug—Split Ring	8366	AAA-89	1	Knob	8227
AAA-42	1	Wrench—3/8" Hollow Set Screw	35678	STEADY REST			
FOR STANDARD DIVIDING HEAD ONLY							
AAA-43	1	Collar—Front of Sector	8072	AAA-90	1	Stem—Steady Rest	8384
AAA-44	1	Pin—Index—Side Plate	8083	AAA-91	1	Nut—For Steady Rest	18977
AAA-45	1	Holder—Index Pin	37750	AAA-92	1	Body—Steady Rest	8382
AAA-46	1	Plate—Standard Index	8855	FOR DIVIDING HEAD WITHOUT COMPENSATING DOG			
AAA-47	1	Gear—In Cover	5574	AAA-93	1	Center	107830
AAA-48	1	Gear—Index Shaft	103492	AAA-94	1	Holder Dog	24102
AAA-49	1	Bushing—Swivel Block	23596				
AAA-50	1	Stud—Balancing	76948				
AAA-51	1	Carrier—Index Pin Holder	76951				
AAA-52	1	Collar—Balancing Stud	76949				
AAA-53	1	Sector—Top	8101				
AAA-54	1	Sector—Bottom	8100				
AAA-55	1	Cover—On Swivel Block	8356				
AAA-56	1	Shaft—Index	8372				

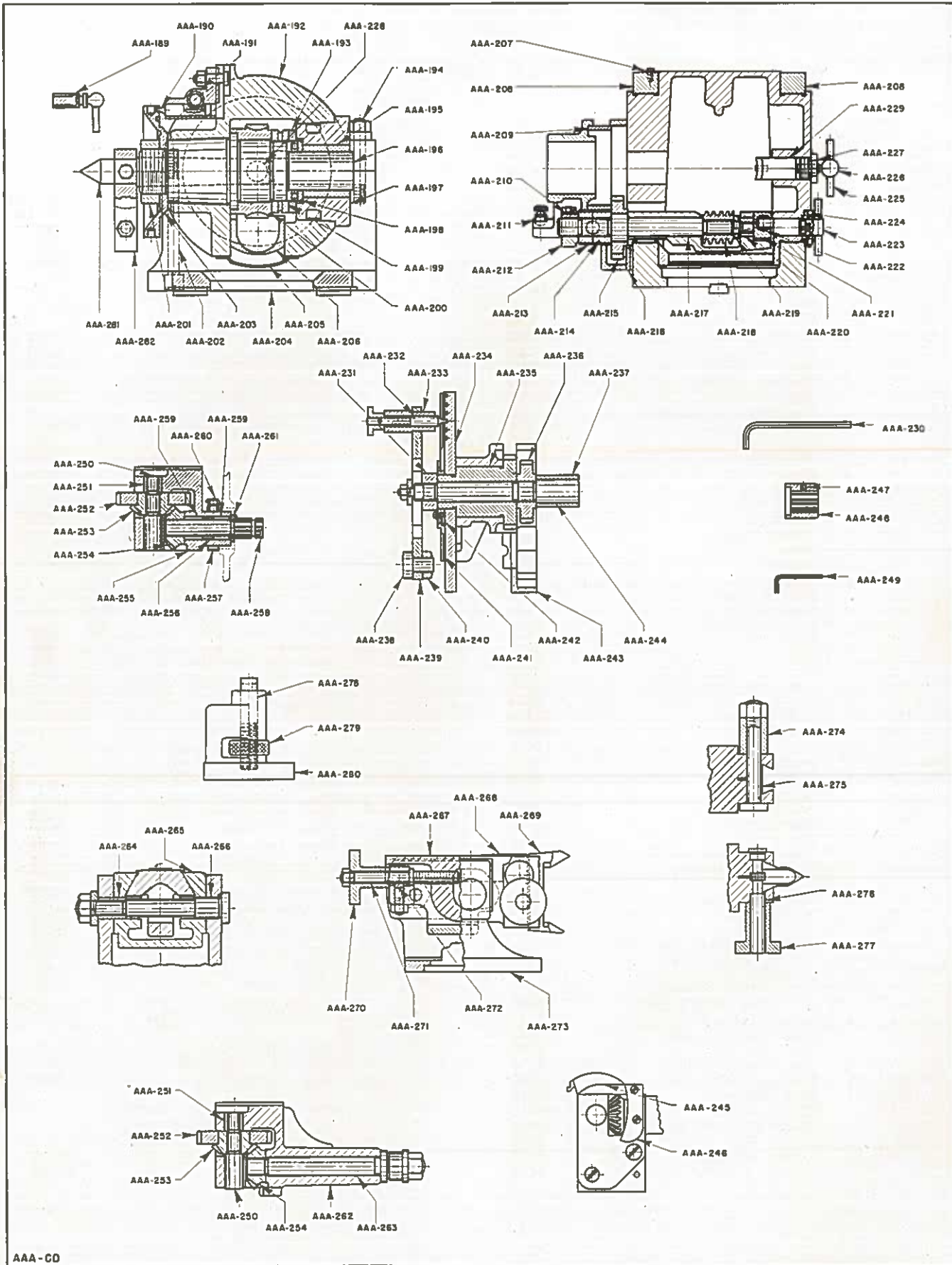


12" UNIVERSAL DIVIDING HEAD AND ACCESSORIES—UNIT No. AAA

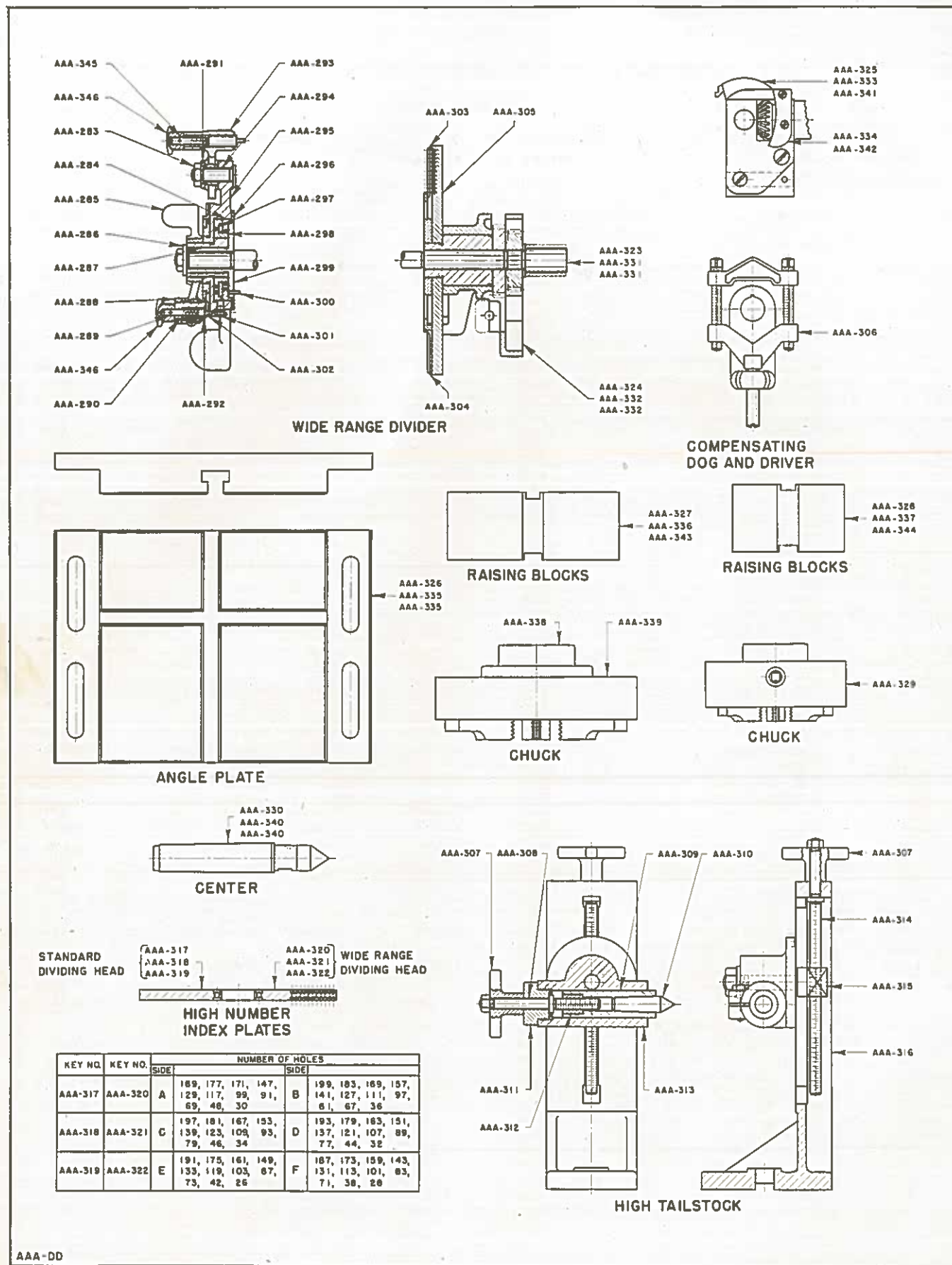
Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
12" DIVIDING HEAD COMMON				AAA-150	1	Shaft—Index	8427
				AAA-151	1	Cover—Top Mitre Gear Bearing	107501
				AAA-152	1	Cover—Front of Mitre Gear	8260
ENCLOSED TYPE DRIVING MECHANISM							
AAA-95	1	Pinion	19084	AAA-153	1	Screw—Allen Set	216585
AAA-96	1	Pin—Index	8363	AAA-154	1	Guard—Shaft Mitre Gear	94926
AAA-97	1	Holder—Pin Index	8234	AAA-155	1	Wrench	216584
AAA-98	1	Block—Swivel	8213	AAA-156	1	Shaft—Short	8264
AAA-99	1	Collar—On Spindle	78958	AAA-157	1	Bushing	8259
AAA-100	2	Stud—Body Fit	114524	AAA-158	1	Gear—On Mitre Gear	8262
AAA-101	1	Bushing—In Cap	78957	AAA-159	1	Gear—Mitre	8261
AAA-102	1	Spindle	78944	AAA-160	1	Gear—Mitre	8076
AAA-103	1	Cap—Back on Spindle	78959	AAA-161	1	Bearing—Mitre Gear	79768
AAA-104	1	Bearing Thrust	102144	AAA-162	1	Spacer	79766
AAA-105	1	Ring—Split	8424	AAA-163	1	Collar	79348
AAA-106	1	Wheel—Worm	35156	AAA-164	1	Shaft—Mitre Gear	79764
AAA-107	1	Cover—Over Spindle Thread	33583	AAA-165	2	Bearing	79762
AAA-108	2	Screw—In Clamp	45794	AAA-166	1	Oiler	44980
AAA-109	1	Plate—Front	8421	AAA-167	1	Washer	79765
AAA-110	1	Housing	80517	OPEN TYPE DRIVING MECHANISM			
AAA-111	1	Cover—Yoke	57151	AAA-156	1	Shaft—Short	8264
AAA-112	1	Yoke	5775	AAA-157	1	Bushing	8259
AAA-113	1	Vernier	8233	AAA-158	1	Gear—On Mitre Gear	8262
AAA-114	2	Clamp	8412	AAA-159	1	Gear—Mitre	8261
AAA-115	1	Ring—In Cover	35999	AAA-160	1	Gear—Mitre	8076
AAA-116	1	Shoe—In Nut	35124	AAA-168	1	Bearing—Mitre Gear	12087
AAA-117	1	Stop—Side Plate	8106	AAA-169	1	Shaft—For Change Gear	12097
AAA-118	1	Nut—Lock	35126	TAILSTOCK			
AAA-119	2	Cap—Cover	8353	AAA-170	1	Bushing—Housing	8377
AAA-120	1	Bearing—Worm Shaft	5589	AAA-171	1	Block—Swivel	44181
AAA-121	1	Gear—On Worm Shaft	103493	AAA-172	1	Bolt—Long	8402
AAA-122	1	Lid—Cover	8418	AAA-173	1	Slide—Tailstock	44182
AAA-123	1	Shaft—Worm	35131	AAA-174	1	Plate—Over Slot	8106
AAA-124	1	Worm	34393	AAA-175	1	Center—Elevating	8405
AAA-125	1	Nut	8419	AAA-176	1	Knob—Screw	23621
AAA-126	1	Bushing—Yoke	8410	AAA-177	1	Screw—Tailstock	8380
AAA-127	1	Holder—Slide	8222	AAA-178	1	Bearing—Tailstock Screw	44184
AAA-128	1	Slide	8428	AAA-179	1	Housing—Tailstock	60518
AAA-129	1	Eccentric	8297	AAA-180	1	Collar—Short Bolt	8406
AAA-130	1	Plate—Eccentric Stop	8294	AAA-181	1	Bolt—Short Tailstock	8403
AAA-131	1	Handle—Hand Clamp	3537	AAA-182	1	Pinion	8239
AAA-132	1	Screw—Hand Screw Clamp	3536	AAA-183	1	Knob—Pinion	8229
AAA-133	1	Cap—Hand Clamp	8225	STEADY REST			
AAA-134	1	Plug—Swivel Block	8367	AAA-184	1	Stem—Steady Rest	8399
AAA-135	1	Plug—Split Ring	8422	AAA-185	1	Nut—For Steady Rest	18977
AAA-136	1	Wrench— $\frac{3}{8}$ " Hollow Set Screw	35678	AAA-186	1	Body—Steady Rest	8400
FOR STANDARD DIVIDING HEAD ONLY							
AAA-137	1	Collar—Front of Sector	8072	FOR DIVIDING HEAD WITHOUT COMPENSATING DOG			
AAA-138	1	Pin—Index—Side Plate	8083	AAA-187	1	Center	107829
AAA-139	1	Holder—Index Pin	37750	AAA-188	1	Holder—Dog	24102
AAA-140	1	Plate—Standard Index	6855				
AAA-141	1	Gear—In Cover	5575				
AAA-142	1	Gear—On Index Shaft	103494				
AAA-143	1	Bushing—Swivel Block	23598				
AAA-144	1	Stud—Balancing	78948				
AAA-145	1	Carrier—Index Pin Holder	78951				
AAA-146	1	Collar—Balancing Stud	78949				
AAA-147	1	Sector—Top	8101				
AAA-148	1	Sector—Bottom	8100				
AAA-149	1	Cover—On Swivel—Block	8414				

AAA-BD

14" UNIVERSAL DIVIDING HEAD AND ACCESSORIES—UNIT No. AAA
(Continued on page 23)



Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
14" DIVIDING HEAD COMMON							
AAA-180	1	Pinion	19084	AAA-244	1	Shaft—Index	8427
AAA-190	1	Pin—Index	8363	AAA-245	1	Cover—Top Mitre Gear Bearing	107501
AAA-191	1	Holder—Pin Index	8234	AAA-246	1	Cover—Front of Mitre Gear	8260
AAA-192	1	Block—Swivel	8213	ENCLOSED TYPE DRIVING MECHANISM			
AAA-193	1	Collar—On Spindle	76958	AAA-247	1	Screw—Allen Set	216685
AAA-194	2	Stud—Body Fit	114524	AAA-248	1	Guard—Shaft Mitre Gear	94925
AAA-195	1	Bush—In Cap	76957	AAA-249	1	Wrench	216684
AAA-196	1	Spindle	76944	AAA-250	1	Shaft—Short	8264
AAA-197	1	Cap—Back On Spindle	76959	AAA-251	1	Bushing	8269
AAA-198	1	Bearing—Thrust	102144	AAA-252	1	Gear—On Mitre Gear	8262
AAA-199	1	Ring—Split	8424	AAA-253	1	Gear	8261
AAA-200	1	Wheel—Worm	35156	AAA-254	1	Gear—Mitre	8076
AAA-201	1	Cover—Over Spindle Thread	33593	AAA-255	1	Bearing—Mitre Gear	79768
AAA-202	2	Screw—In Clamp	45795	AAA-256	1	Spacer	79766
AAA-203	1	Plate—Front	8421	AAA-257	1	Collar	79348
AAA-204	1	Housing	60619	AAA-258	1	Shaft—Mitre Gear	79764
AAA-205	1	Cover—Yoke	57151	AAA-259	2	Bearing	79762
AAA-206	1	Yoke	5775	AAA-260	1	Oiler	44980
AAA-207	1	Vernier	8233	AAA-261	1	Washer	79765
AAA-208	2	Clamp	8412	OPEN TYPE DRIVING MECHANISM			
AAA-209	1	Ring—In Cover	35999	AAA-250	1	Shaft—Short	8264
AAA-210	1	Shoe—In Nut	35124	AAA-251	1	Bushing	8269
AAA-211	1	Stop—Side Plate	8106	AAA-252	1	Gear—On Mitre Gear	8262
AAA-212	1	Nut—Lock	35126	AAA-253	1	Gear—Mitre	8261
AAA-213	2	Cap—Cover	8353	AAA-254	1	Gear—Mitre	8076
AAA-214	1	Bearing—Worm Shaft	5589	AAA-252	1	Bearing—Mitre Gear	12087
AAA-215	1	Gear—On Worm Shaft	103493	AAA-263	1	Shaft—For Change Gear	12097
AAA-216	1	Lid—Cover	8418	TAILSTOCK			
AAA-217	1	Shaft—Worm	35131	AAA-264	1	Bushing—Housing	8377
AAA-218	1	Worm	34393	AAA-265	1	Block—Swivel	44181
AAA-219	1	Nut	8419	AAA-266	1	Bolt—Long	8402
AAA-220	1	Bushing—Yoke	8410	AAA-267	1	Slide—Tailstock	44182
AAA-221	1	Holder—Slide	8222	AAA-268	1	Plate—Over Slot	6106
AAA-222	1	Slide	8428	AAA-269	1	Center—Elevating	8405
AAA-223	1	Eccentric	8297	AAA-270	1	Knob—Screw	23621
AAA-224	1	Plate—Eccentric Stop	8294	AAA-271	1	Screw—Tailstock	8380
AAA-225	1	Handle—Hand Clamp	3537	AAA-272	1	Bearing—Tailstock Screw	44184
AAA-226	1	Screw—Hand Screw Clamp	3536	AAA-273	1	Housing	60520
AAA-227	1	Cap—Hand Clamp	8225	AAA-274	1	Collar—Short Bolt	8406
AAA-228	1	Plug—Swivel Block	8367	AAA-275	1	Bolt—Short Tailstock	8403
AAA-229	1	Plug—Split Ring	8422	AAA-276	1	Pinion	8239
AAA-230	1	Wrench—3/8" Hollow Set Screw	35678	AAA-277	1	Knob—Pinion	8229
FOR STANDARD DIVIDING HEAD ONLY							
AAA-231	1	Collar—Front of Sector	8072	STEADY REST			
AAA-232	1	Pin—Index—Side Plate	8083	AAA-278	1	Stem—Steady Rest	8398
AAA-233	1	Holder—Index Pin	37750	AAA-279	1	Nut—For Steady Rest	18977
AAA-234	1	Plate—Standard Index	6655	AAA-280	1	Body—Steady Rest	8400
AAA-235	1	Gear—In Cover	5575	FOR DIVIDING HEAD WITHOUT COMPENSATING DOG			
AAA-236	1	Gear—On Index Shaft	103494	AAA-281	1	Center	107829
AAA-237	1	Bushing—Swivel Block	23596	AAA-282	1	Holder—Dog	24102
AAA-238	1	Stud—Balancing	76948				
AAA-239	1	Carrier—Index Pin Holder	76951				
AAA-240	1	Collar—Balancing Stud	76949				
AAA-241	1	Sector—Top	8101				
AAA-242	1	Sector—Bottom	8100				
AAA-243	1	Cover—On Swivel Block	8414				

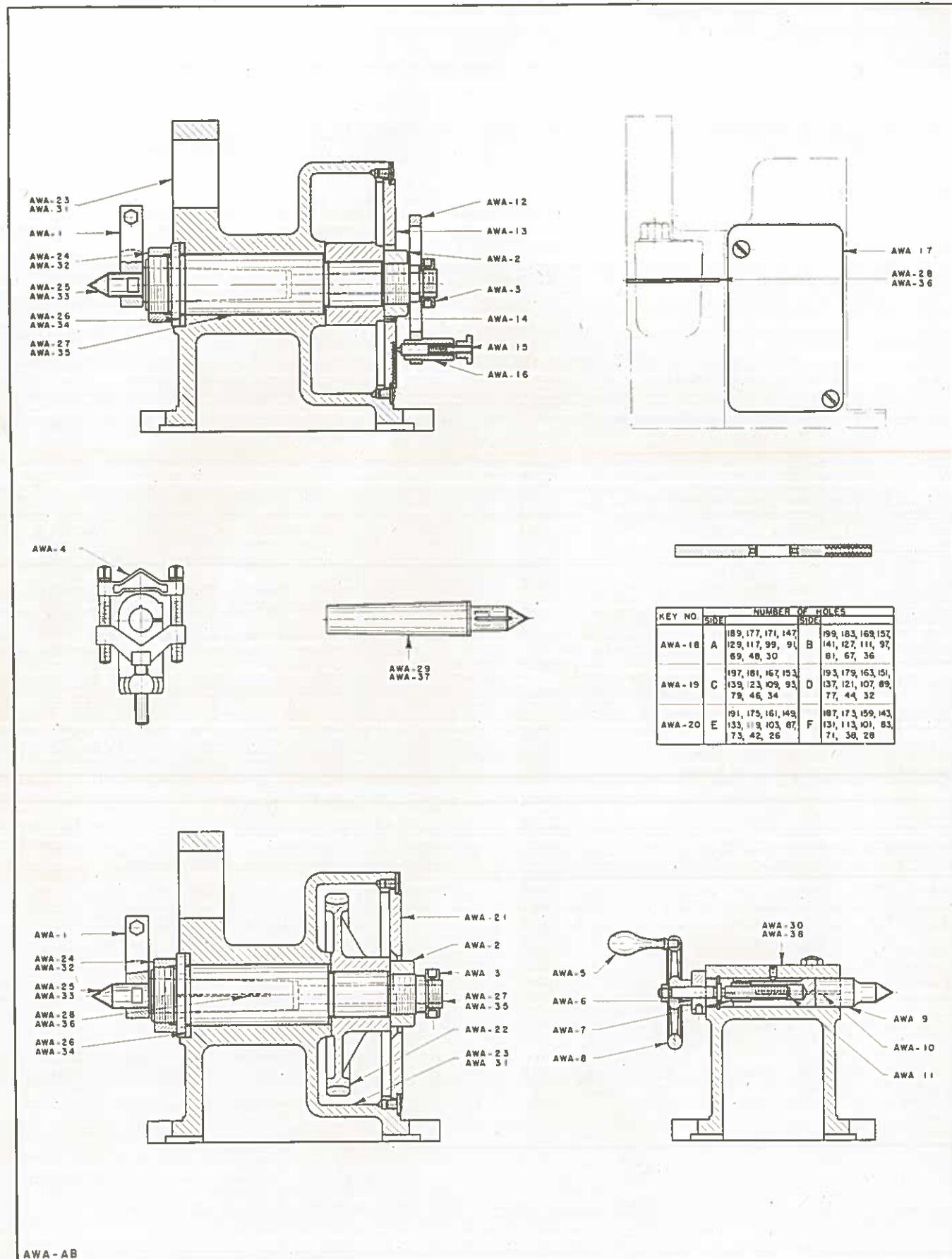


AAA-DD

10", 12", and 14" UNIVERSAL, WIDE RANGE DIVIDING HEAD, AND ACCESSORIES—UNIT No. AAA

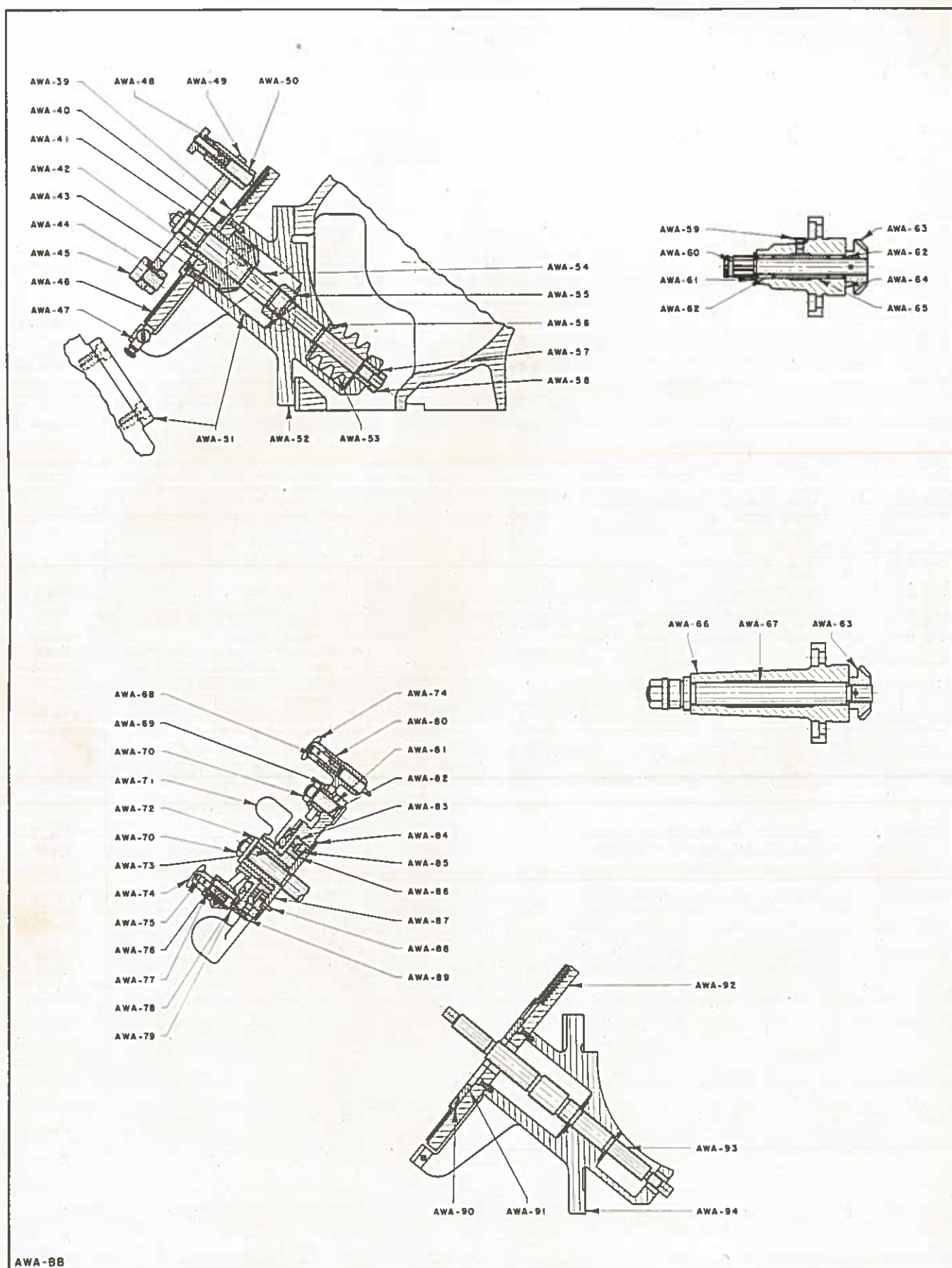
(Concluded)

Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
COMMON				FOR WIDE RANGE DIVIDING HEAD			
AAA-283	2	Nut.....	70858	AAA-320	1	Plate—Index A-B.....	113505
AAA-284	1	Gear—Loose Internal—70T. D. P. 28/37.....	70864	AAA-321	1	Plate—Index C-D.....	113506
AAA-285	1	Lever—Index Pin Small.....	71938	AAA-322	1	Plate—Index E-F.....	113507
AAA-286	1	Washer.....	79263	10" DIVIDING HEAD			
AAA-287	1	Bushing—Eccentric.....	73011	AAA-323	1	Shaft—Index.....	73015
AAA-288	1	Collar—Eccentric Bushing.....	73010	AAA-324	1	Cover—Swivel Block.....	70633
AAA-289	1	Pin—Index Small.....	73008	AAA-325	1	Cover—Top Mitre Gear.....	107500
AAA-290	1	Bushing—Eccentric.....	73009	AAA-326	1	Plate—Angle.....	61509
AAA-291	1	Washer.....	70621	AAA-327	1	Block—Headstock.....	60521
AAA-292	1	Sector—Short Top.....	70623	AAA-328	1	Block—Tailstock.....	60522
AAA-293	1	Lever—Index Pin.....	71939	AAA-329	1	Chuck—6".....	103303
AAA-294	1	Stud—Index Plate.....	70622	AAA-330	1	Center—Head—Compensating Dog.....	107834
AAA-295	1	Plate—Index.....	105146	12" DIVIDING HEAD			
AAA-296	1	Ring—Retainer Index Plate Gears.....	105145	AAA-331	1	Shaft—Index.....	73016
AAA-297	1	Gear—Fixed Internal, 77T. D. P. 28/37.....	70863	AAA-332	1	Cover—Swivel Block.....	70633
AAA-298	1	Gear—Cluster on Eccentric—70T. and 63T. D. P. 28/37.....	70865	AAA-333	1	Cover—Top Mitre Gear.....	70815
AAA-299	1	Flange—Eccentric Bearing.....	70816	AAA-334	1	Cover—Front of Mitre Gear.....	70817
AAA-300	2	Pin.....	3539	AAA-335	1	Plate—Angle.....	61509
AAA-301	1	Cup—Oil.....	44980	AAA-336	1	Block—Headstock.....	60523
AAA-302	1	Sector—Short Bottom.....	70624	AAA-337	1	Block—Tailstock.....	60524
AAA-303	1	Sector—Long Bottom.....	70626	AAA-338	1	Flange—Chuck.....	65611
AAA-304	1	Sector—Long Top.....	70625	AAA-339	1	Chuck—9".....	16458
AAA-305	1	Plate—Index, Large.....	70634	AAA-340	1	Center—Head—Compensating Dog.....	108991
AAA-306	1	Dog—Compensating.....	24184	14" DIVIDING HEAD			
AAA-307	2	Knob.....	10862	AAA-331	1	Shaft—Index.....	73016
AAA-308	1	Screw—Tailstock.....	8380	AAA-332	1	Cover—Swivel Block.....	70633
AAA-309	1	Spindle.....	10866	AAA-335	1	Plate—Angle.....	61509
AAA-310	1	Center.....	10865	AAA-338	1	Flange—Chuck.....	65611
AAA-311	1	Cap.....	8125	AAA-339	1	Chuck—9".....	16458
AAA-312	1	Nut—Spindle.....	10869	AAA-340	1	Center—Head—Compensating Dog.....	108991
AAA-313	1	Block—Swivel.....	25228	AAA-341	1	Cover—Top Mitre Gear Bearing.....	70815
AAA-314	1	Screw—Elevating.....	105206	AAA-342	1	Cover—Front of Mitre Gear.....	70817
AAA-315	1	Bolt—Swivel Block.....	105205	AAA-343	1	Block—Headstock.....	60525
AAA-316	1	Housing.....	60527	AAA-344	1	Block—Tailstock.....	60526
AAA-345	1	Pin—Index Long.....	70861	FOR STANDARD DIVIDING HEAD			
AAA-346	2	Knob.....	70862	AAA-317	1	Plate—Index A-B.....	10525
				AAA-318	1	Plate—Index C-D.....	10526
				AAA-319	1	Plate—Index E-F.....	10527



12" and 16" PLAIN INDEX HEADS,
12" and 16" GEAR CUTTING AND SPIRAL MILLING HEAD—UNIT No. AWA

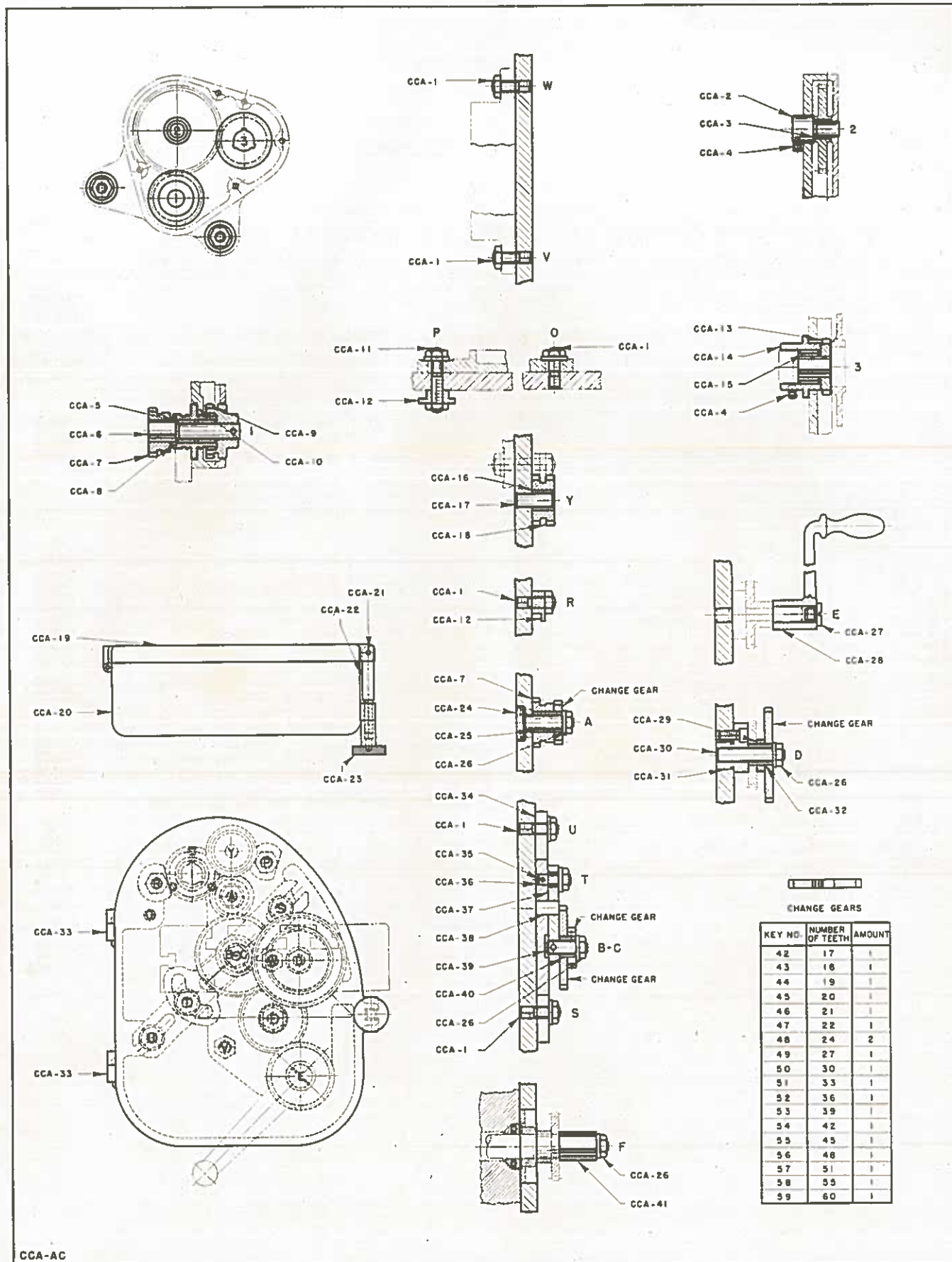
Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
COMMON							
AWA-1	1	Holder—Dog (without Compensating Dog)	24102	AWA-21	1	Plate—Rear Cover for Head	24754
AWA-2	1	Nut—Spindle Head Adjusting	20471	AWA-22	1	Wheel—Index Head—Worm	34553
AWA-3	1	Nut—Lock	20470	12" PLAIN INDEX HEAD AND 12" GEAR-CUTTING HEAD AND SPIRAL MILLING HEAD			
AWA-4	1	Dog—Compensating and Driver	24184				
AWA-5	1	Handle	6809				
AWA-6	1	Cap—For Tailstock	8125				
AWA-7	1	Nut—In Spindle for Tailstock	8115				
AWA-8	1	Handwheel	20467				
AWA-9	1	Spindle for Tailstock	8118				
AWA-10	1	Packing	37694				
AWA-11	1	Screw—Tailstock Spindle Adjusting	20468				
12" AND 16" PLAIN INDEX HEADS							
AWA-12	1	Carrier—Index Pin Holder	34959				
AWA-13	1	Plate—Index	20476	AWA-24	1	Cover—Over Spindle Thread	33591
AWA-14	1	Collar—On Spindle	28233	AWA-25	1	Center—Head (without Compensating Dog)	109003
AWA-15	1	Pin—Index Plate	8083	AWA-26	1	Washer—Head Spindle Thrust	21384
AWA-16	1	Holder—Index Pin	37328	AWA-27	1	Spindle—Head	31694
AWA-17	1	Cover—Bracket Hole	20469	AWA-28	1	Packing—Body Head	34089
12" AND 16" GEAR-CUTTING HEADS AND SPIRAL MILLING HEADS				AWA-29	1	Center—Head (with Compensating Dog)	108992
				AWA-30	1	Body—Tailstock	60512
				16" PLAIN INDEX HEAD 16" GEAR-CUTTING HEAD AND SPIRAL MILLING HEAD			
				AWA-31	1	Body—Head	60513
				AWA-32	1	Cover—Spindle Thread	20548
				AWA-33	1	Center—Head (without Compensating Dog)	108989
				AWA-34	1	Washer—Head Spindle Thrust	20474
AWA-18	1	Plate—Index No. 1 Sides A and B (High number Index Plate)	10525	AWA-35	1	Spindle—Head	31681
AWA-19	1	Plate—Index No. 2 Sides C and D (High number Index Plate)	10526	AWA-36	1	Packing—Body Head	34090
AWA-20	1	Plate—Index No. 3 Sides E and F (High number Index Plate)	10527	AWA-37	1	Center—Head (with Compensating Dog)	108990
				AWA-38	1	Body—Tailstock	60514



12" and 16" GEAR CUTTING AND SPIRAL MILLING HEADS—UNIT No. AWA

Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
COMMON				OPEN SEGMENT			
AWA-39	1	Sector—Bottom	8100	AWA-63	1	Gear—Mitre on Shaft	8076
AWA-40	1	Sector—Top	8101	AWA-66	1	Bracket—Change Gear Shaft	20468
AWA-41	1	Collar—Front of Sector	8072	AWA-67	1	Shaft—Change Gear	20540
AWA-42	1	Geat—Mitre on Shaft for Worm	8077	WIDE RANGE DIVIDER FOR 12" AND 16" GEAR-CUTTING HEADS AND SPIRAL MILLING HEADS			
AWA-43	1	Bushing—Worm Shaft Gear	20476				
AWA-44	1	Collar—Balancing	76949				
AWA-45	1	Stud—Balancing	76948				
AWA-46	1	Plate—Standard Index	8855				
AWA-47	1	Stop—Side Plate	8108				
AWA-48	1	Holder—Index Pin	37750				
AWA-49	1	Carrier—Index Pin Holder	76951				
AWA-50	1	Pin—Index Side Plate	8083				
AWA-51	1	Cover—Compound Index Bracket	20544				
AWA-52	1	Bracket—Compound Index	28237	AWA-68	1	Pin—Index Long	70861
AWA-53	1	Worm—Index Head	34552	AWA-69	1	Washer	70821
AWA-54	1	Shaft—Compound Index	28867	AWA-70	2	Nut—Thin Hexagon	70858
AWA-55	1	Collar—Compound Index Shaft	28635	AWA-71	1	Lever—Index Pin Small	71938
AWA-56	1	Washer—Small Compound Index Shaft	28638	AWA-72	1	Washer	79253
AWA-57	1	Bushing—Worm Shaft Lower	28866	AWA-73	1	Bushing—Eccentric	73011
AWA-58	1	Nut—Lock	20466	AWA-74	2	Knob	70862
12" AND 16" SPIRAL MILLING HEADS (NEEDLE BEARING)				AWA-75	1	Pin—Index Small	73008
AWA-59	1	Oiler	44980	AWA-76	1	Collar—Eccentric Bushing	73010
AWA-60	1	Shaft—Mitre Gear	79965	AWA-77	1	Bushing—Eccentric	73009
AWA-61	1	Washer	79765	AWA-78	1	Sector—Short Top	70623
AWA-62	2	Bearing—Needle	79782	AWA-79	1	Sector—Short Bottom	70624
AWA-63	1	Gear—Mitre	8076	AWA-80	1	Lever—Index Pin	71939
AWA-64	1	Bearing—Mitre Gear	79896	AWA-81	1	Stud—Index Plate and Lever	70622
AWA-65	1	Spacer—Bearing	79966	AWA-82	1	Plate—Index	105146
				AWA-83	1	Gear—Fixed Internal	70863
				AWA-84	1	Ring—Retainer Index Plate Gears	105145
				AWA-85	1	Gear—Loose Internal	70864
				AWA-86	1	Gear—Cluster on Eccentric	70865
				AWA-87	1	Flange—Eccentric Bearing	70818
				AWA-88	2	Pin	3539
				AWA-89	1	Cup—Oil	44980
				AWA-90	1	Sector—Long Top	70825
				AWA-91	1	Sector—Long Bottom	70826
				AWA-92	1	Plate—Index Large	70834
				AWA-93	1	Shaft—Compound Index	70628
				AWA-94	1	Bracket—Compound Index	70831

AWA-88



CCA-AC

DRIVING MECHANISM (ENCLOSED TYPE)—UNIT No. CCA

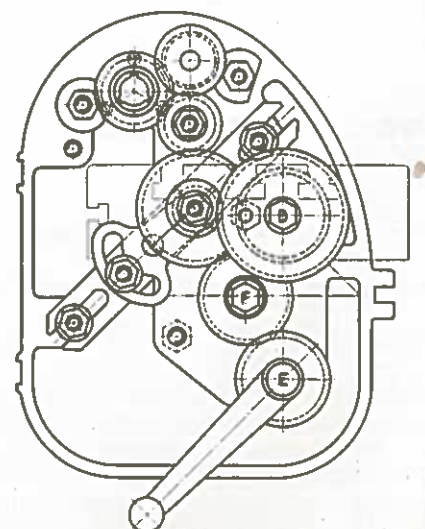
FOR

10", 12" and 14" UNIVERSAL DIVIDING HEADS AND 12" and 16" SPIRAL MILLING HEADS
USED ON Nos. 2, 3, and 4 DIAL TYPE; Nos. 2L, 2MH AND 2MI MILLING MACHINES

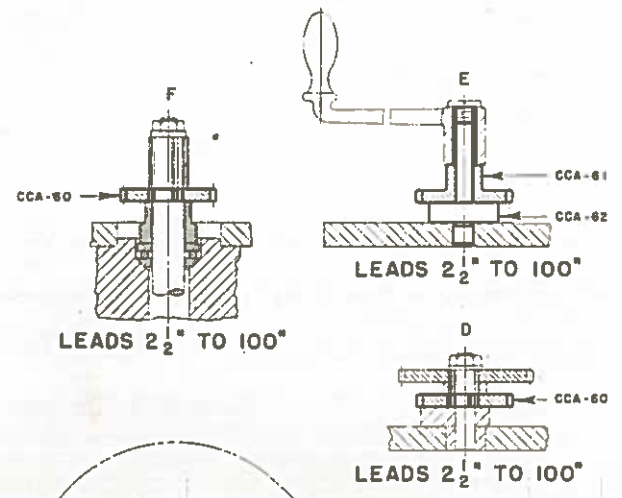
2 1/2" to 100" Leads

(Continued on pages 31 and 33)

Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
COMMON							
CCA-1	6	Stud—Plate	71740	CCA-28	1	Crank	3565
CCA-2	1	Stud—Intermediate	105181	CCA-29	2	Spacer—Change Gear	76343
CCA-3	1	Bearing—Needle (Torrington No. B-1012)	79761	CCA-30	1	Stud—Bracket	76491
CCA-4	2	Oiler	44980	CCA-31	1	Bracket—Stud	77172
CCA-5	2	Bearing—Needle (Torrington No. B-1212)	79762	CCA-32	1	Bushing—Bracket Stud	76446
CCA-6	1	Shaft—Reversing Gear	105182	CCA-33	2	Block—Hinge	76510
CCA-7	2	Gear—Reversing—24 T. 12 D.P.	76456	CCA-34	1	Bar—Sliding Change Gear	77177
CCA-8	1	Washer	79765	CCA-35	1	Pin—Spindle Lock Plunger	225133
CCA-9	1	Gear—Drive—27 T. 12 D.P.	77173	CCA-36	1	Stud	85488
CCA-10	1	Bushing—Flanged	105038	CCA-37	1	Link—Change Gear	77176
CCA-11	1	Stud—Plate	79929	CCA-38	1	Pin—Link	75944
CCA-12	2	Retainer—Reversing Gear	76454	CCA-39	1	Stud—Change Gear	76344
CCA-13	1	Gear—Mitre Gear Shaft—27 T. 12 D.P.	79345	CCA-40	1	Bushing—Change Gear	76345
CCA-14	1	Housing—Gear	105178	CCA-41	1	Collar—Lead Screw	76511
CCA-15	1	Bearing—Needle (Torrington No. B-2018)	79763	Change Gears (D.P. 12)			
CCA-16	1	Bushing—Idler Gear	76452	CCA-42	1	Gear—Change—17 T.	103351
CCA-17	1	Stud—Idler Gear	76451	CCA-43	1	Gear—Change—18 T.	78323
CCA-18	1	Gear—Idler—24 T. 12 D.P.	76453	CCA-44	1	Gear—Change—19 T.	78324
CCA-19	1	Plate	116530	CCA-45	1	Gear—Change—20 T.	78325
CCA-20	1	Cover—Plate	116529	CCA-46	1	Gear—Change—21 T.	78326
CCA-21	1	Pin—Standard	3544	CCA-47	1	Gear—Change—22 T.	78327
CCA-22	1	Bolt—Hinge	76443	CCA-48	2	Gear—Change—24 T.	78328
CCA-23	1	Knob—Hinge Bolt	76372	CCA-49	1	Gear—Change—27 T.	78329
CCA-24	1	Stud—Plate	76445	CCA-50	1	Gear—Change—30 T.	78330
CCA-25	1	Bushing—Plate Stud	76444	CCA-51	1	Gear—Change—33 T.	78331
CCA-26	4	Nut—Collar 1/2"	76639	CCA-52	1	Gear—Change—36 T.	78332
CCA-27	1	Screw—Crank Gear	76449	CCA-53	1	Gear—Change—39 T.	78333
				CCA-54	1	Gear—Change—42 T.	78334
				CCA-55	1	Gear—Change—45 T.	78335
				CCA-56	1	Gear—Change—48 T.	78336
				CCA-57	1	Gear—Change—51 T.	78337
				CCA-58	1	Gear—Change—55 T.	78338
				CCA-59	1	Gear—Change—60 T.	78339



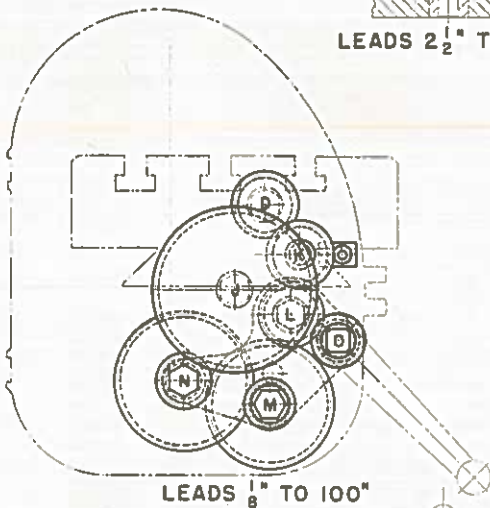
LEADS 2 1/2" TO 100"



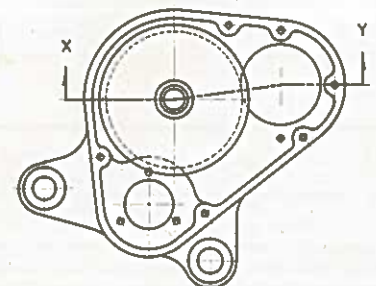
LEADS 2 1/2" TO 100"

LEADS 2 1/2" TO 100"

LEADS 2 1/2" TO 100"



LEADS 1/8" TO 100"

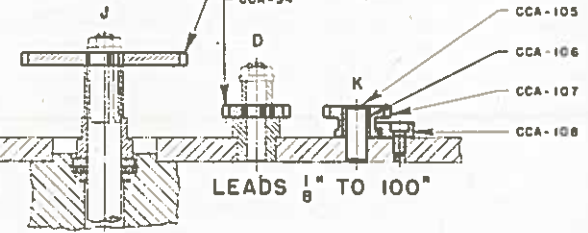
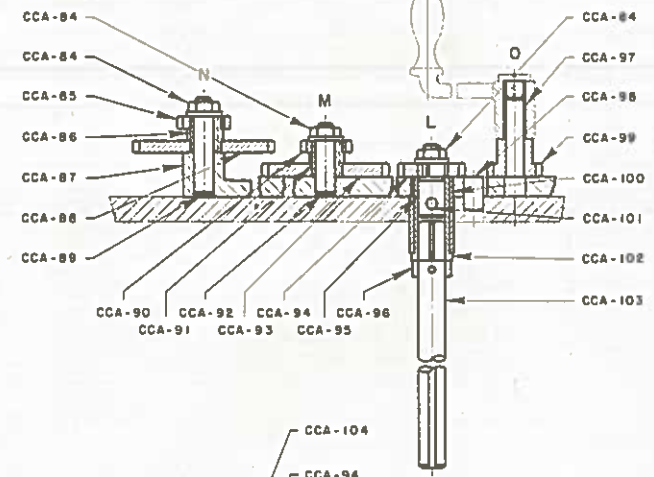


LEADS 1/8" TO 100"



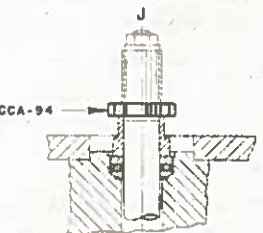
SECTION X-Y

PART	MA-CHINE TYPE	10" DIVIDING HEAD		12" DIVIDING HEAD		12" SPIRAL HEAD		16" SPIRAL HEAD	
		KEY NO.	AMOUNT	KEY NO.	AMOUNT	KEY NO.	AMOUNT	KEY NO.	AMOUNT
A	2L	CCA-64	1	CCA-68	1	CCA-71	1	CCA-148	1
	2MH	CCA-75	1	CCA-77	1	CCA-79	1	CCA-81	1
B	2L	CCA-65	1	CCA-65	1	CCA-65	1	CCA-73	1
	2MH	CCA-65	1	CCA-73	1	CCA-65	1	CCA-82	1
C	2L	CCA-66	1	CCA-69	1	CCA-72	1	CCA-74	1
	2MH	CCA-76	1	CCA-78	1	CCA-80	1	CCA-83	1
D	2L	CCA-67	1	CCA-70	1	CCA-70	1	CCA-70	1
	2MH	CCA-70	1	CCA-70	1	CCA-70	1	CCA-70	1



LEADS 1/8" TO 100"

LEADS 1/8" TO 5"



LEADS 2 1/2" TO 100"

CCA-8C

DRIVING MECHANISM (ENCLOSED TYPE)—UNIT No. CCA
FOR

10", 12" and 14" UNIVERSAL DIVIDING HEADS AND 12" and 16" SPIRAL MILLING HEADS
USED ON Nos. 2L, 2MH AND 2MI MILLING MACHINES

1/8" to 100" and 2 1/2" to 100" Leads

(Continued on page 33)

Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
(For 2 1/2" to 100" Lead)				12" Dividing Head			
CCA-60	2	Gear—34 T. 12 D.P.	76447	CCA-77	1	Cover—Idler Segment	111637
CCA-61	1	Gear—34 T. 12 D.P.	76450	CCA-73	1	Gear—Intermediate Stud—64 T. 12 D.P.	79759
CCA-62	1	Stud—Crank Gear	76448	CCA-78	1	Segment—Idler	111639
CCA-63	1	Plug—Gear Housing	105177	CCA-70	1	Clamp—Gear Housing	105179
For No. 2L Milling Machine				12" Spiral Head			
10" Dividing Head				CCA-79	1	Cover—Idler Segment	111659
CCA-64	1	Cover—Idler Segment	105196	CCA-65	1	Gear—Intermediate Stud—45 T. 12 D.P.	79758
CCA-65	1	Gear—Intermediate Stud 45 T. 12 D.P.	79758	CCA-80	1	Segment—Gear Housing	111658
CCA-66	1	Segment Idler	105194	CCA-70	1	Clamp—Gear Housing	105179
CCA-67	1	Clamp—Gear Housing	105180	16" Spiral Head			
12" Dividing Head				CCA-81	1	Cover—Idler Segment	111709
CCA-68	1	Cover—Idler Segment	111638	CCA-82	1	Gear—Intermediate Stud 57T. 12 D.P.	79760
CCA-65	1	Gear—Intermediate Stud—45 T. 12 D.P.	79758	CCA-83	1	Segment—Idler	111710
CCA-69	1	Segment—Idler	111640	CCA-70	1	Clamp—Gear Housing	105179
CCA-70	1	Clamp—Gear Housing	105179	For 1/8" to 100" Lead Driving Mechanism Nos. 2L, 2MH and 2MI Milling Machines			
12" Spiral Head				CCA-84	3	Nut—Collar—1/2" Standard	76639
CCA-71	1	Cover—Idler Segment	111644	CCA-85	1	Gear—Change—18 T. 12 D.P.	78323
CCA-65	1	Gear—Intermediate Stud—45 T. 12 D.P.	79758	CCA-86	1	Bushing—Change Gear—Long	76442
CCA-72	1	Segment—Idler	111643	CCA-87	1	Bracket	76514
CCA-70	1	Clamp—Gear Housing	105179	CCA-88	1	Gear—Change—51 T. 12 D.P.	78337
16" Spiral Head				CCA-89	1	Stud—Bracket	76491
CCA-148	1	Cover—Idler Segment	111641	CCA-90	1	Gear—Change—17 T. 12 D.P.	103351
CCA-73	1	Gear—Intermediate Stud—54 T. 12 D.P.	79759	CCA-91	1	Bushing—Change Gear—Short	76441
CCA-74	1	Segment—Idler	111642	CCA-92	1	Stud—Change Gear	76486
CCA-70	1	Clamp—Gear Housing	105179	CCA-93	1	Gear—Change—38 T. 10 D.P.	76488
Nos. 2MH and 2MI Milling Machines				CCA-94	3	Gear—Change—19 T. 10 D.P.	76487
CCA-75	1	Cover—Idler Segment	105184	CCA-95	1	Stud—Sleeve	76506
CCA-65	1	Gear—Intermediate Stud—45 T. 12 D.P.	79758	CCA-96	1	Collar—Spline Shaft	76508
CCA-76	1	Segment—Idler	105185	CCA-97	1	Stud—Crank Gear	76486
CCA-70	1	Clamp—Gear Housing	105179	CCA-98	1	Pin	75944
10" Dividing Head				CCA-99	1	Gear—Crank—15 T. 10 D.P.	76440
CCA-75	1	Cover—Idler Segment	105184	CCA-100	1	Bushing—Bracket	76504
CCA-65	1	Gear—Intermediate Stud—45 T. 12 D.P.	79758	CCA-101	1	Pin—Sleeve	76507
CCA-76	1	Segment—Idler	105185	CCA-102	1	Sleeve	76505
CCA-70	1	Clamp—Gear Housing	105179	CCA-103	1	Shaft—Spline	76509
CCA-75	1	Cover—Idler Segment	105184	CCA-104	1	Gear—Change—60 T. 12 D.P.	78339
CCA-65	1	Gear—Intermediate Stud—45 T. 12 D.P.	79758	CCA-105	1	Stud—Idler Gear	76451
CCA-76	1	Segment—Idler	105185	CCA-106	1	Bushing—Idler Gear	76452
CCA-70	1	Clamp—Gear Housing	105179	CCA-107	1	Gear—Idler—19 T. 10 D.P.	76489
CCA-70	1	Clamp—Gear Housing	105179	CCA-108	1	Block—Gear Retainer	76490

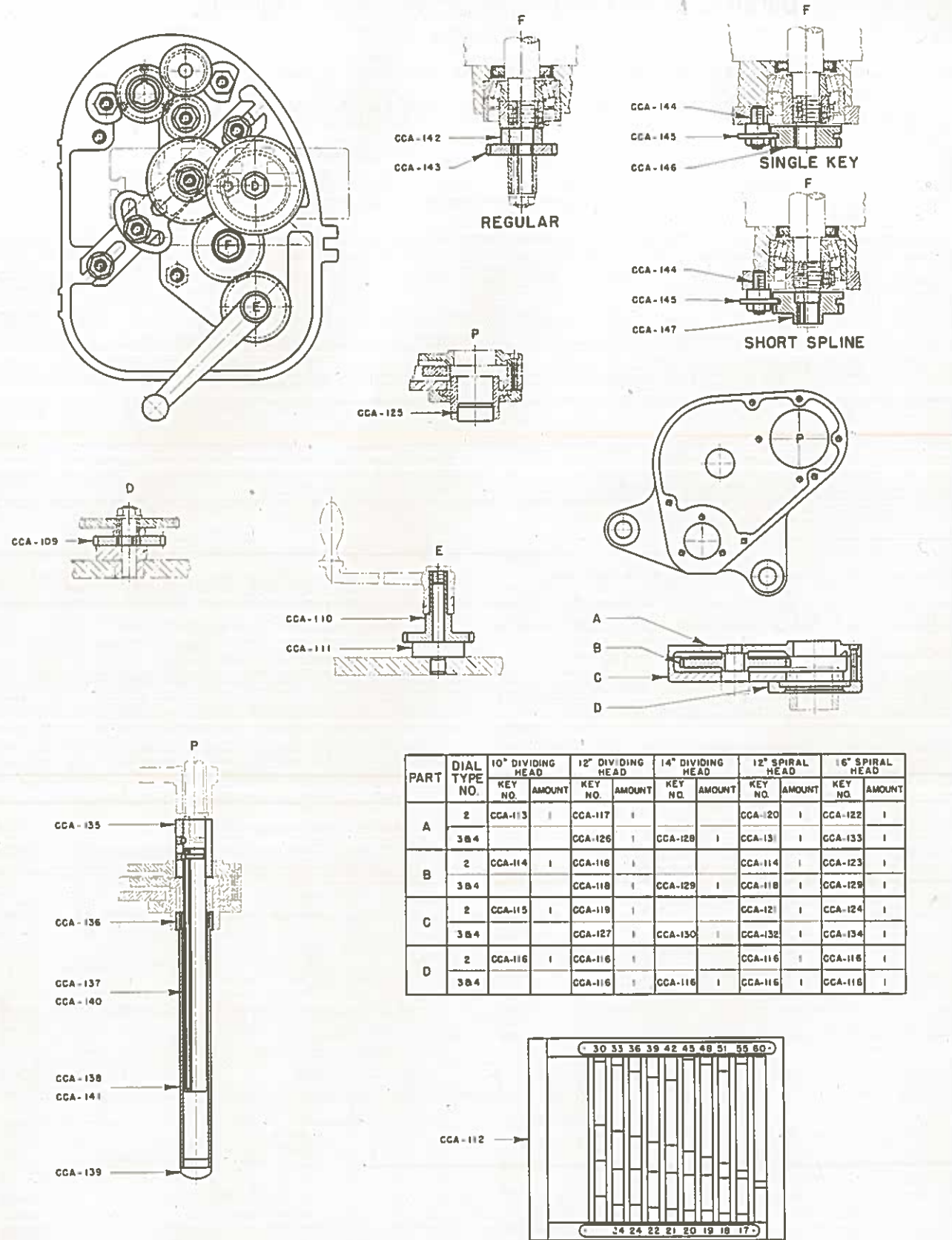
DRIVING MECHANISM (ENCLOSED TYPE)—UNIT No. CCA

FOR

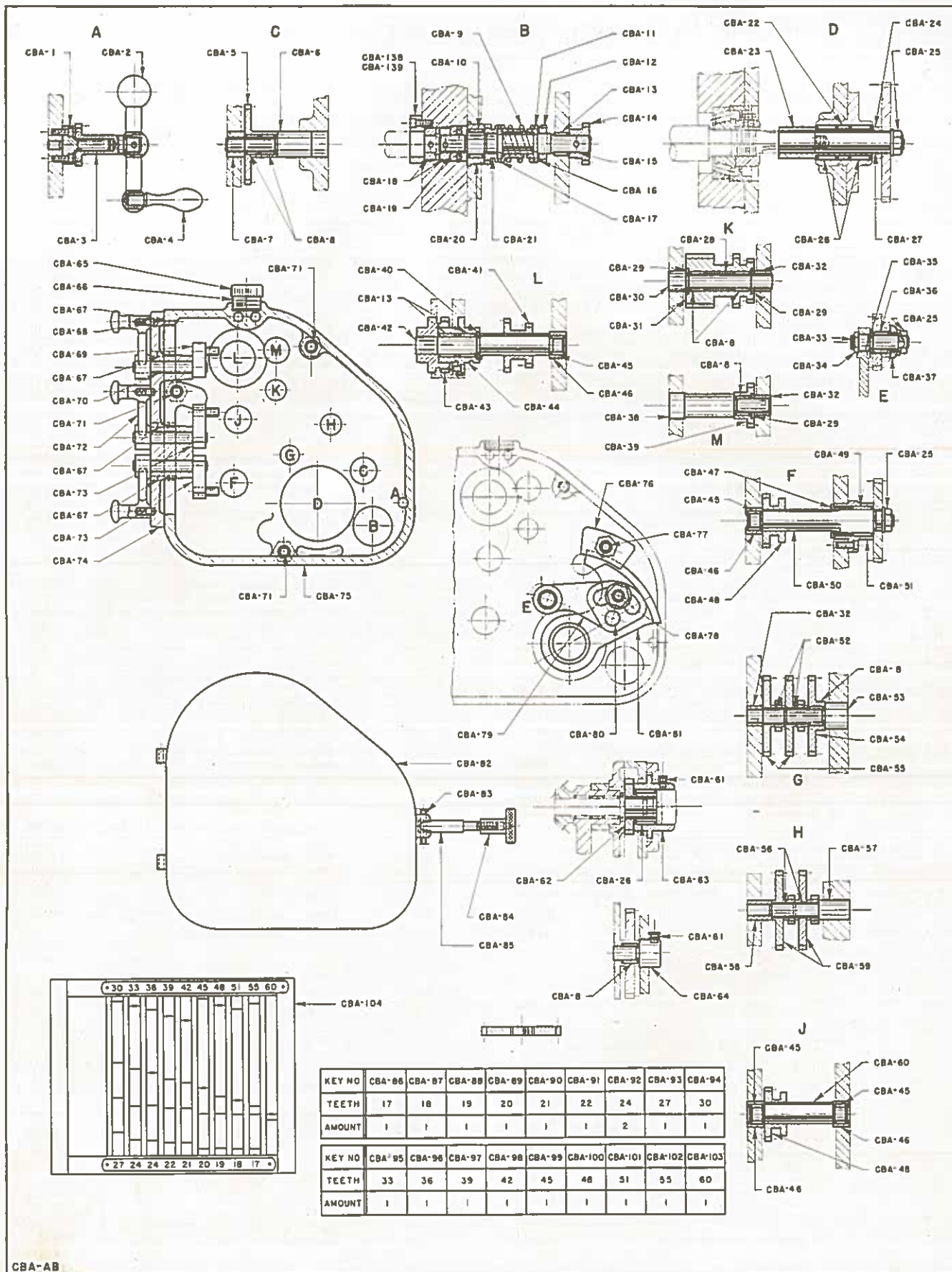
10", 12" and 14" UNIVERSAL DIVIDING HEADS AND 12" and 16" SPIRAL HEADS USED ON
Nos. 2, 3, and 4 DIAL TYPE MILLING MACHINES

2 1/2" to 100" Leads

(Concluded)



Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
COMMON							
CCA-109	1	Gear—34 T. 12 D.P.	76447	CCA-128	1	Cover—Idler Segment	105163
CCA-110	1	Gear—Crank—34 T. 12 D.P.	76450	CCA-129	1	Gear—Intermediate Stud—63 T. 12 D.P.	105214
CCA-111	1	Stud—Crank Gear	76448	CCA-130	1	Segment—Idler	105182
CCA-112	1	Box—Change Gear	76377	12" Spiral Head			
No. 2 Dial Type Milling Machine							
10" Dividing Head							
CCA-113	1	Cover—Idler Segment	105184	CCA-116	1	Clamp—Gear Housing	105179
CCA-114	1	Gear—Intermediate Stud—45 T. 12 D.P.	79758	CCA-118	1	Gear—Intermediate Stud—54 T. 12 D.P.	79759
CCA-115	1	Segment—Idler	105185	CCA-131	1	Cover—Idler	111657
CCA-116	1	Clamp—Gear Housing	105179	CCA-132	1	Segment—Idler	111656
12" Dividing Head							
CCA-116	1	Clamp—Gear Housing	105179	CCA-116	1	Clamp—Gear Housing	105179
CCA-117	1	Cover—Idler Segment	111637	CCA-129	1	Gear—Intermediate Stud—63 T. 12 D.P.	105214
CCA-118	1	Gear—Intermediate Stud—54 T. 12 D.P.	79759	CCA-133	1	Cover—Idler Segment	111707
CCA-119	1	Segment—Idler	111639	CCA-134	1	Segment—Idler	111708
12" Spiral Head							
CCA-114	1	Gear—Intermediate Stud—45 T. 12 D.P.	79758	No. 3 Dial Type Milling Machine			
CCA-120	1	Clamp—Gear Housing	105179	CCA-135	1	Coupling—Spline Shaft	79350
CCA-121	1	Cover—Idler Segment	111658	CCA-136	1	Plug—Tube Adapter	105198
16" Spiral Head							
CCA-116	1	Clamp—Gear Housing	105179	CCA-137	1	Shaft—Splined Extension	79471
CCA-122	1	Cover—Idler Segment	111709	CCA-138	1	Shield—Mitre Gear Shaft	79470
CCA-123	1	Gear—Intermediate Stud—57 T. 12 D.P.	79760	CCA-139	1	Plug—In Shield	79341
CCA-124	1	Segment—Idler	111710	No. 4 Dial Type Milling Machine			
10" Dividing Head							
12" and 16" Spiral Head							
CCA-125	1	Plug—Gear Housing	105177	CCA-135	1	Coupling—Spline Shaft	79350
Nos. 3 and 4 Dial Type Milling Machines							
12" Dividing Head							
CCA-116	1	Clamp—Gear Housing	105179	CCA-136	1	Plug—Tube Adapter	105198
CCA-118	1	Gear—Intermediate Stud—54 T. 12 D.P.	79759	CCA-139	1	Plug—In Shield	79341
CCA-126	1	Cover—Idler Segment	105169	CCA-140	1	Shaft—Splined Extension	79349
CCA-127	1	Segment—Idler	105168	CCA-141	1	Shield—Mitre Gear Shaft	79342
14" Dividing Head							
CCA-116	1	Clamp—Gear Housing	105179	Nos. 2, 3 and 4 Dial Type Milling Machines			
Regular							
Single Key Lead Screw							
CCA-144	1	Stud—Plate	71740	CCA-142	1	Collar—Spacer Lead Screw	77560
CCA-145	1	Retainer—Reversing Gear	76454	CCA-143	1	Gear—34 T. 12 D.P.	76447
CCA-146	1	Gear—Drive—34 T. 12 D.P.	77423	Nos. 3 and 4 Dial Type Milling Machine			
Short Spline Lead Screw							
CCA-144	1	Stud—Plate	71740	Single Key Lead Screw			
CCA-145	1	Retainer—Reversing Gear	76454	Short Spline Lead Screw			
CCA-147	1	Gear—Drive—34 T. 12 D.P.	77422	Short Spline Lead Screw			



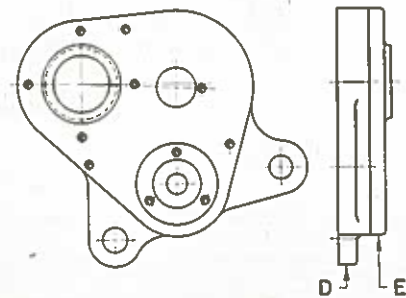
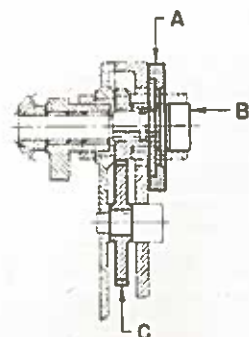
CBA-AB

DRIVING MECHANISM (ENCLOSED TYPE)—UNIT No. CBA
FOR

10", 12" and 14" UNIVERSAL DIVIDING HEADS AND 12" and 16" SPIRAL HEADS USED ON
Nos. 2, 3 and 4 DIAL TYPE MILLING MACHINES

.010" to 1000" Leads
(Continued on page 37)

Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
COMMON							
CBA-1	1	Stud—Housing	93429	CBA-52	2	Bushing	93442
CBA-2	1	Crank	3508	CBA-53	1	Stud—40T. and 13T. D. P. 12	93458
CBA-3	1	Gear—Crank 20T. D. P. 12	93436	CBA-54	1	Gear—40T. D. P. 12	93453
CBA-4	1	Handle	3501	CBA-55	2	Gear—40T. and 13T. D. P. 12	93457
CBA-5	1	Gear—Intermediate 40T. D. P. 12	93423	CBA-56	2	Bushing—Gear 39T.	93443
CBA-6	1	Shaft—Idler	93420	CBA-57	1	Stud—39T. and 12T.	93456
CBA-7	1	Bushing—Idler Shaft	93422	CBA-58	1	Bushing—39T. and 12T. Gear Stud	78435
CBA-8	7	Bearing—Needle (Torrington No. B-1012)	79761	CBA-59	2	Gear—39T. and 12T. D. P. 12	93455
CBA-9	1	Spring—Compression	78183	CBA-60	1	Shaft—26T. Sliding Gear	93444
CBA-10	1	Bearing—Needle (Torrington No. B-1612)	93416	CBA-61	2	Oiler	44980
CBA-11	1	Collar—Clutch Shaft	77701	CBA-62	1	Gear—Mitre Gear Shaft 27T. D. P. 12	79345
CBA-12	1	Nut—Lock	3808	CBA-63	1	Housing—Gear	105178
CBA-13	3	Bearing—Needle (Torrington No. B-1212)	79762	CBA-64	1	Stud—Intermediate	105181
CBA-14	1	Gear—20T. D. P. 12	93432	CBA-65	1	Cap	3986
CBA-15	1	Shaft—Clutch	93412	CBA-66	1	Nipple	3912
CBA-16	1	Washer	3807	CBA-67	6	Pin	3636
CBA-17	1	Clutch—Yieldable	77702	CBA-68	3	Ball— $\frac{1}{8}$ " Dia.	13665
CBA-18	2	Clutch—Drive	93426	CBA-69	1	Shifter—Reverse	75383
CBA-19	1	Bearing—Ball Thrust (Auburn T-100)	93415	CBA-70	3	Shaft—Shifter Lever	75381
CBA-20	1	Bushing—Clutch Shaft	93418	CBA-71	4	Stud	75386
CBA-21	1	Gear—18T. D. P. 12	77700	CBA-72	3	Lever—Shifter	93440
CBA-22	1	Collar—Spacer	93427	CBA-73	2	Shifter	75382
CBA-23	1	Coupling—Lead Screw	93411	CBA-74	1	Bracket—Gear Shifter	93466
CBA-24	2	Spacer—Change Gear	75343	CBA-75	1	Housing	107472
CBA-25	3	Collar—Nut $\frac{1}{2}$ "	76639	CBA-76	1	Clamp—Segment	93433
CBA-26	3	Bearing—Needle (Torrington No. B-2016)	79763	CBA-77	1	Stud—Segment Clamp	76710
CBA-27	1	Shaft—Lead Screw Coupling	93410	CBA-78	1	Stud—Change Gear Segment	85488
CBA-28	1	Spacer—Bearing	93452	CBA-79	1	Link—Change Gear	93430
CBA-29	3	Washer—Thrust	93448	CBA-80	1	Pin—Link	75944
CBA-30	1	Shaft—26T and 21T	93454	CBA-81	1	Segment—Change Gear	93465
CBA-31	1	Gear—26T and 21T. D. P. 12	93450	CBA-82	1	Cover—Housing	93467
CBA-32	3	Bushing	93596	CBA-83	1	Pin	3544
CBA-33	1	Stud—Change Gear	93436	CBA-84	1	Knob—Hinge	75372
CBA-34	1	Nut—Change Gear Stud	93434	CBA-85	1	Bolt—Hinge	93439
CBA-35	1	Pin	64896	CBA-86	1	Gear—Change 17T. D. P. 12	103351
CBA-36	1	Stud—Change Gear Bushing	93414	CBA-87	1	Gear—Change 18T. D. P. 12	78323
CBA-37	1	Nut—Hand Knurled	96929	CBA-88	1	Gear—Change 19T. D. P. 12	78324
CBA-38	1	Shaft—Idler	93447	CBA-89	1	Gear—Change 20T. D. P. 12	78325
CBA-39	1	Gear—Idler 21T. D.P. 12	93431	CBA-90	1	Gear—Change 21T. D. P. 12	78326
CBA-40	1	Washer	79765	CBA-91	1	Gear—Change 22T. D. P. 12	78327
CBA-41	1	Gear—26T and 21T. D. P. 12	93449	CBA-92	2	Gear—Change 24T. D. P. 12	78328
CBA-42	1	Shaft—26T. and 21T. Sliding Gear	105183	CBA-93	1	Gear—Change 27T. D. P. 12	78329
CBA-43	1	Gear—Drive 27T. D. P. 12	77173	CBA-94	1	Gear—Change 30T. D. P. 12	78330
CBA-44	1	Bushing—Flanged	105038	CBA-95	1	Gear—Change 33T. D. P. 12	78331
CBA-45	4	Bearing—Needle (Torrington No. M-10121)	93445	CBA-96	1	Gear—Change 36T. D. P. 12	78332
CBA-46	4	Bushing	93446	CBA-97	1	Gear—Change 39T. D. P. 12	78333
CBA-47	1	Sleeve—Splined Shaft	93437	CBA-98	1	Gear—Change 42T. D. P. 12	78334
CBA-48	2	Gear—Sliding 26T. D. P. 12	93451	CBA-99	1	Gear—Change 45T. D. P. 12	78335
CBA-49	1	Bearing—Needle (Torrington No. B-1616)	93421	CBA-100	1	Gear—Change 48T. D. P. 12	78336
CBA-50	1	Shaft—Splined	93413	CBA-101	1	Gear—Change 51T. D. P. 12	78337
CBA-51	1	Bearing—Splined Shaft	93438	CBA-102	1	Gear—Change 55T. D. P. 12	78338
				CBA-103	1	Gear—Change 60T. D. P. 12	78339
				CBA-104	1	Box—Change Gear	75377
						Without Back Lash Eliminator	
				CBA-138	1	Bearing—Drive Shaft	93425
						With Back Lash Eliminator	
				CBA-139	1	Bearing—Drive Shaft	100587

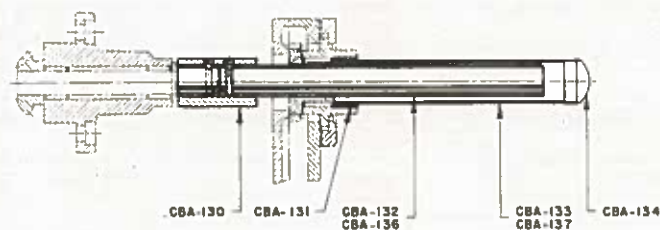


PART	MACHINE NO.	KEY NUMBER					
		DIVIDING HEAD			SPIRAL HEAD		
		10"	12"	14"	12"	16"	
A	2	CBA-105	CBA-105		CBA-105	CBA-105	
	3		CBA-105	CBA-105	CBA-105	CBA-105	
	4		CBA-105	CBA-105	CBA-105	CBA-105	
B	2	CBA-106	CBA-106		CBA-106	CBA-106	
	3						
	4						
C	2	CBA-107	CBA-108		CBA-107	CBA-109	
	3		CBA-108	CBA-110	CBA-108	CBA-110	
	4		CBA-108	CBA-110	CBA-108	CBA-110	

PART	MACHINE NO.	KEY NUMBER					
		DIVIDING HEAD			SPIRAL HEAD		
		10"	12"	14"	12"	16"	
D	2	CBA-111	CBA-113		CBA-115	CBA-117	
	3		CBA-119	CBA-121	CBA-123	CBA-125	
	4		CBA-119	CBA-121	CBA-123	CBA-125	
E	2	CBA-112	CBA-114		CBA-116	CBA-118	
	3		CBA-120	CBA-122	CBA-124	CBA-126	
	4		CBA-120	CBA-122	CBA-124	CBA-126	



MACHINE NO.	KEY NUMBER
2 WITH BACKLASH ELIMINATOR	CBA-127
2 WITHOUT BACKLASH ELIMINATOR	CBA-128
3	CBA-129
4	CBA-135



CBA-88

DRIVING MECHANISM (ENCLOSED TYPE)—UNIT No. CBA

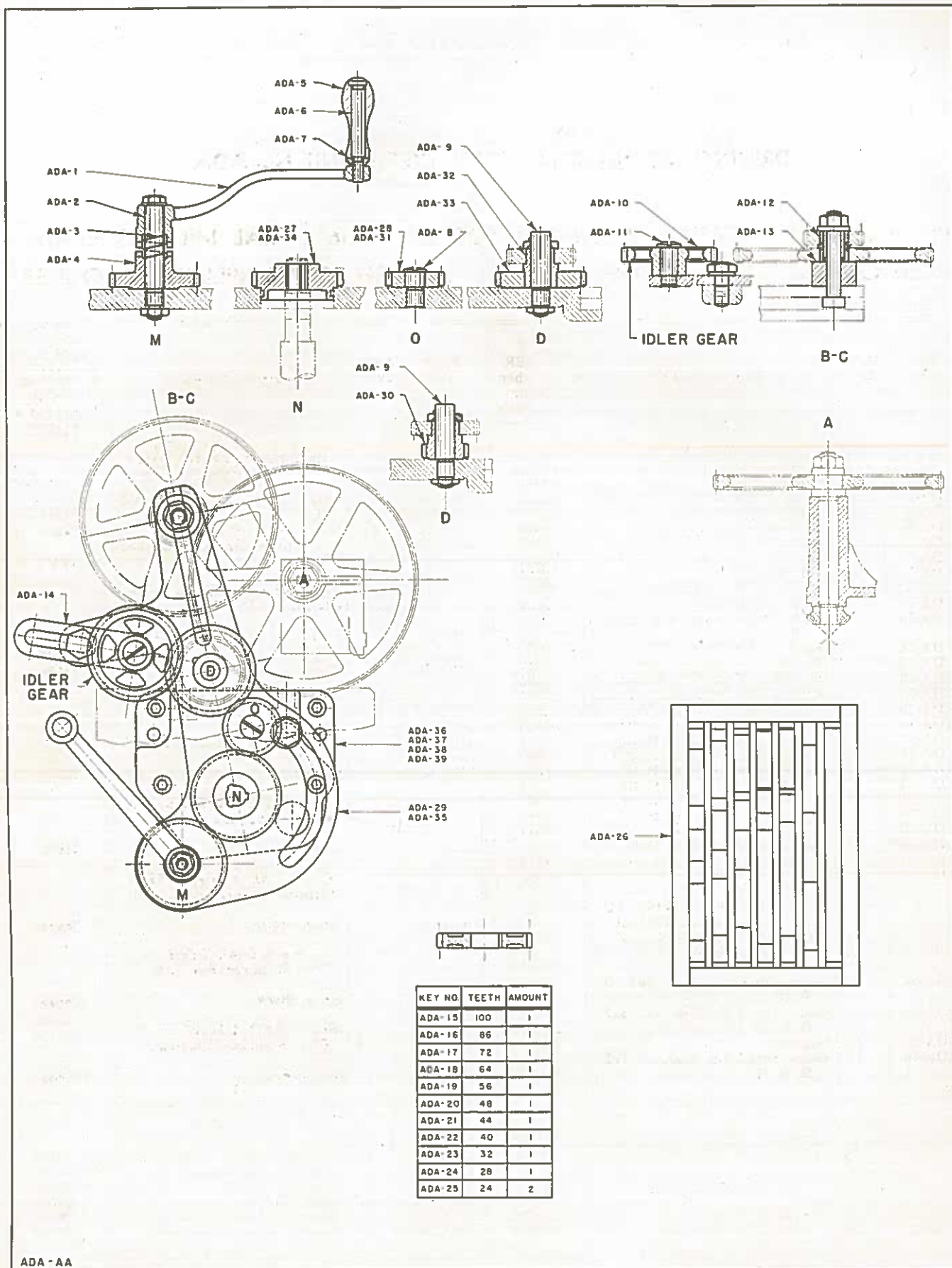
FOR

10", 12" and 14" UNIVERSAL DIVIDING HEADS AND 12" and 16" SPIRAL HEADS USED ON Nos. 2, 3 and 4 DIAL TYPE MILLING MACHINES

.010" to 1000" Leads

(Concluded)

Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
		No. 2 DIAL TYPE MILLING MACHINE 10" Dividing Head and 12" Spiral Head				16" Spiral Head	
				CBA-117	1	Segment—Idler	111710
				CBA-118	1	Cover—Idler Segment	111709
						Nos. 3 AND 4 DIAL TYPE MILLING MACHINES 12" Dividing Head	
CBA-105	1	Clamp—Gear Housing	105179				
CBA-106	1	Plug—Gear Housing	105177				
CBA-107	1	Gear—Intermediate Stud 45T. D. P. 12	79758	CBA-119	1	Segment—Idler	105168
				CBA-120	1	Cover—Idler Segment	105169
		12" Dividing Head				14" Dividing Head	
CBA-105	1	Clamp—Gear Housing	105179				
CBA-106	1	Plug—Gear Housing	105177	CBA-121	1	Segment—Idler	105162
CBA-108	1	Gear—Intermediate Stud 54T. D. P. 12	79759	CBA-122	1	Cover—Idler Segment	105163
		16" Spiral Head				12" Spiral Head	
CBA-105	1	Clamp—Gear Housing	105179	CBA-123	1	Segment—Idler	111656
CBA-106	1	Plug—Gear Housing	105177	CBA-124	1	Cover—Idler Segment	111657
CBA-109	1	Gear—Intermediate Stud 57T. D. P. 12	79760			16" Spiral Head	
		Nos. 3 AND 4 DIAL TYPE MILLING MACHINES 12" Dividing Head and 12" Spiral Head					
				CBA-125	1	Segment—Idler	111708
				CBA-126	1	Cover—Idler Segment	111707
		No. 2 DIAL TYPE MILLING MACHINE With Backlash Eliminator				No. 2 DIAL TYPE MILLING MACHINE Without Backlash Eliminator	
CBA-105	1	Clamp—Gear Housing	105179				
CBA-108	1	Gear—Intermediate Stud 54T. D. P. 12	79759	CBA-127	1	Shaft—Drive	102906
		14" Dividing Head and 16" Spiral Head				No. 2 DIAL TYPE MILLING MACHINE Without Backlash Eliminator	
CBA-105	1	Clamp—Gear Housing	105179	CBA-128	1	Shaft—Drive	93460
CBA-110	1	Gear—Intermediate Stud 63T. D. P. 12	105214			No. 3 DIAL TYPE MILLING MACHINE	
		No. 2 DIAL TYPE MILLING MACHINE 10" Dividing Head					
				CBA-129	1	Shaft—Drive	93461
				CBA-130	1	Coupling—Spline Shaft	79350
				CBA-131	1	Plug—Tubing Adapter	105198
				CBA-132	1	Shaft—Splined Extension	79471
CBA-111	1	Segment—Idler	105185	CBA-133	1	Shield—Mitre Gear	79470
CBA-112	1	Cover—Idler Segment	105184	CBA-134	1	Plug—In Shield	79341
		12" Dividing Head				No. 4 DIAL TYPE MILLING MACHINE	
CBA-113	1	Segment—Idler	111639				
CBA-114	1	Cover—Idler Segment	111637	CBA-130	1	Coupling—Spline Shaft	79350
		12" Spiral Head		CBA-131	1	Plug—Tubing Adapter	105198
				CBA-134	1	Plug—In Shield	79341
				CBA-135	1	Shaft—Drive	93462
CBA-115	1	Segment—Idler	111658	CBA-136	1	Shaft—Splined Extension	79349
CBA-116	1	Cover—Idler Segment	111659	CBA-137	1	Shield—Mitre Gear Shaft	79342



DRIVING MECHANISM (OPEN TYPE)—UNIT No. ADA
FOR
10", 12" and 14" UNIVERSAL DIVIDING HEADS; 12" and 16" SPIRAL MILLING HEADS
USED ON Nos. 2, 3, 4 DIAL TYPE AND Nos. 4, 5 HIGH POWER MILLING MACHINES

Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts	Key No.	Amt. Used	PART NAME	PART NUMBER to use when ordering Repair Parts
COMMON							
ADA-1	1	Crank—Clutch	56426			Nos. 2, 3, and 4 DIAL TYPE SINGLE THREAD LEAD SCREW	
ADA-2	1	Stud—Quick Return Gear	36364	ADA-31	1	Gear—Small On Segment 24T. D. P. 10	18807
ADA-3	1	Spring—Hand Crank	33744	ADA-32	1	Sleeve—On—Stud	18808
ADA-4	1	Gear—Quick Return Stud	36365	ADA-33	1	Gear—Large On Segment 38T. D. P. 10	18806
ADA-5	1	Handle—Spool	3505			Nos. 2, 3 AND 4 DIAL TYPE SINGLE SPLINE LEAD SCREW	
ADA-6	1	Stud—For Handle	3503				
ADA-7	1	Collar—Handle	3504				
ADA-8	1	Stud—For Gear Segment	12099				
ADA-9	1	Stud—In Segment	12098				
ADA-10	1	Gear—Intermediate 40T. D. P. 10	9352	ADA-27	1	Gear—On Lead Screw 38T. D. P. 10	12085
ADA-11	1	Stud—In Holder	12096				
ADA-12	1	Bushing—In Change Gear	8059	ADA-29	1	Segment	73637
ADA-13	1	Sleeve—Change Gear Bushing	8065			Nos. 2, 3 AND 4 DIAL TYPE 3-SPLINE LEAD SCREW	
ADA-14	1	Holder—For Intermediate Gear	12084				
ADA-15	1	Gear—Change 100T. D. P. 10	5987				
ADA-16	1	Gear—Change 86T. D. P. 10	5988				
ADA-17	1	Gear—Change 72T. D. P. 10	5364	ADA-34	1	Gear—On Lead Screw 38T. D. P. 10	77025
ADA-18	1	Gear—Change 64T. D. P. 10	5365				
ADA-19	1	Gear—Change 56T. D. P. 10	5366	ADA-35	1	Segment	77014
ADA-20	1	Gear—Change 48T. D. P. 10	5989			No. 2 DIAL TYPE Without Backlash Eliminator	
ADA-21	1	Gear—Change 44T. D. P. 10	5990				
ADA-22	1	Gear—Change 40T. D. P. 10	5986				
ADA-23	1	Gear—Change 32T. D. P. 10	48045				
ADA-24	1	Gear—Change 28T. D. P. 10	48043	ADA-36	1	Apron—Back	79842
ADA-25	2	Gear—Change 24T. D. P. 10	48044			Nos. 3 AND 4 DIAL TYPE Without Backlash Eliminator	
ADA-26	1	Box—Change Gear	67259				
		Nos. 2, 3 and 4 DIAL TYPE AND Nos. 4 and 5 HIGH-POWER DOUBLE THREAD LEAD SCREW					
ADA-27	1	Gear—On Lead Screw 38T. D. P. 10	12085	ADA-37	1	Apron—Back	79845
ADA-28	1	Gear—Large On Segment 27T. D. P. 10	12083			No. 2 DIAL TYPE With Backlash Eliminator	
ADA-29	1	Segment	73637	ADA-38	1	Apron—Back	102936
ADA-30	1	Gear—Small On Segment 19T. D. P. 10	12100	ADA-39	1	Apron—Back	102938

DIRECT FIELD ENGINEERING OFFICES

CINCINNATI MILLING AND GRINDING MACHINES, INC.

CONNECTICUT, WEST HARTFORD 7
10 North Main St., P. O. Box 4

D. C., WASHINGTON 9
2701—14th St., N. W.

ILLINOIS, CHICAGO 12
2400 West Madison St.

MASSACHUSETTS, BOSTON 16
724 Statler Bldg.

MICHIGAN, DETROIT 2
428 New Center Bldg.

NEW YORK, BUFFALO 7
1807 Elmwood Ave.

NEW YORK, NEW YORK 17
155 East 44th St.
P. O. Box 912, Grand Central Station

NEW YORK, SYRACUSE 2
472 South Salina St.

OHIO, CINCINNATI 9
4701 Marburg Ave.

OHIO, CLEVELAND 3
4614 Prospect Ave.

PENNSYLVANIA, PITTSBURGH 22
1207 Empire Bldg.

SALES REPRESENTATIVES

UNITED STATES

ALABAMA, BIRMINGHAM 3
McVoy-Hausman Co., 2024 Sixth Ave., N.

CALIFORNIA, LOS ANGELES 11
Harron, Rickard & McCone Co. of Sou. Cal., 3850 Santa Fe Ave.

CALIFORNIA, SAN FRANCISCO 10
Harron, Rickard & McCone Co. of Nor. Cal., 2070 Bryant St.

COLORADO, DENVER 17
Hendrie & Bolthoff Mfg. & Supply Co., 1621 Seventeenth St.
P. O. Box 5110, Terminal Annex

FLORIDA, JACKSONVILLE 3
Farquhar Machinery Co., 720-728 West Bay St.

GEORGIA, ATLANTA 3
Chandler Machinery Co., 120 Houston St., N. E.

IDAHO, BOISE
Salt Lake Hardware Co., 401 S. Eighth St., P. O. Box 1489

INDIANA, INDIANAPOLIS 4
Marshall & Huschart Machinery Co. of Indiana
625 Chamber of Commerce Bldg.

LOUISIANA, NEW ORLEANS 4
J. F. Dohan, 214 Carondelet Bldg., P. O. Box 1154

MINNESOTA, ST. PAUL 4
Anderson Machine Tool Co., 2645 University Ave.

MISSOURI, ST. LOUIS 8
Robert R. Stephens Machinery Co.
1505 Continental Bldg., 3615 Olive St.

NEBRASKA, OMAHA 8
T. S. McShane Co., 1113 Howard St.

NORTH CAROLINA, ASHEVILLE
Tidewater Supply Co., 95 Roberts St., P. O. Box 212

OREGON, PORTLAND 4
Hallidie Machinery Co., 333 S. W. Oak St.

PENNSYLVANIA, PHILADELPHIA 2
W. E. Shipley Machinery Co., Morris Bldg., 1421 Chestnut St.

SOUTH CAROLINA, COLUMBIA, E.
Tidewater Supply Co., 1220-1224 Lincoln St., P. O. Box 1138

TENNESSEE, CHATTANOOGA 1
Noland Co., Inc., 115 Market St.

TENNESSEE, MEMPHIS 2
Hays Machine Tool Co., P. O. Box No. 2585

TEXAS, DALLAS 2
Briggs-Weaver Machinery Co., 309 N. Market St.

TEXAS, HOUSTON 1
S. H. Penny, 408 Petroleum Bldg., P. O. Box No. 1271

UTAH, SALT LAKE CITY 9
Salt Lake City Hardware Co., 101 N. Third St., W., P. O. Box 510

VIRGINIA, NORFOLK 1
Tidewater Supply Co., Inc., 36-44 Commercial Place
P. O. Box No. 839

WASHINGTON, SEATTLE 4
Hallidie Machinery Co., 2245 First Ave., S.

U. S. TERRITORIES

HONOLULU 2, HAWAII, H. S. Gray Co., 74 S. Queen St., P. O. Box 3016

CANADA

B. C., VANCOUVER
B. C. Equipment Co., Ltd., B. C. Equipment Bldg.,
551 Howe St.

MANITOBA, WINNIPEG
John Bertram & Sons Co., Ltd., 1205 McArthur Bldg.

ONTARIO, DUNDAS
John Bertram & Sons Co., Ltd.

ONTARIO, TORONTO 1
John Bertram & Sons Co., Ltd., Room 614, Commerce &
Transportation Bldg., 159 Bay St.

ONTARIO, WALKERVILLE
John Bertram & Sons Co., Ltd., 16 Imperial Block, Wyandotte St.

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