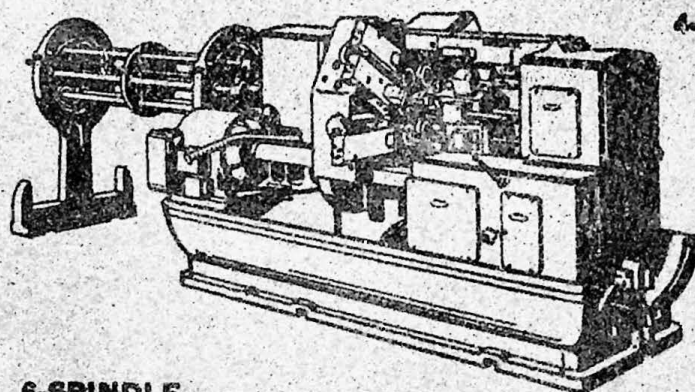


TOOLS and ATTACHMENTS



4-SPINDLE

6-SPINDLE

**AUTOMATIC
BAR
MACHINES**



GREENLEE BROS & CO

2136 12th St., Rockford, Ill. 61101 U.S.A.

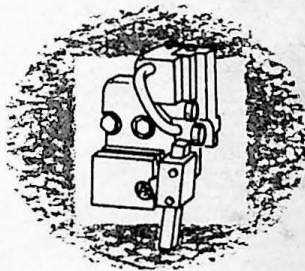
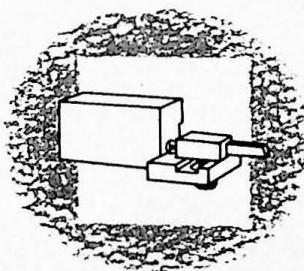
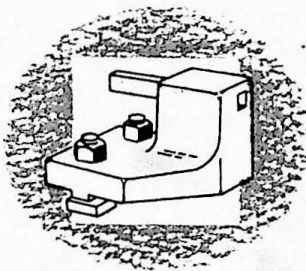
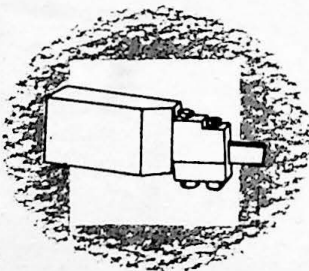
Greenlee

TOOLS and ATTACHMENTS

for

Automatic Bar Machines

The purpose of this catalog is threefold: to acquaint the customer with some of the attachments that are available, to aid the layout man when making his tooling layout, and to assist the machine operator in obtaining the highest possible efficiency from the machine.



SPECIFICATIONS	3
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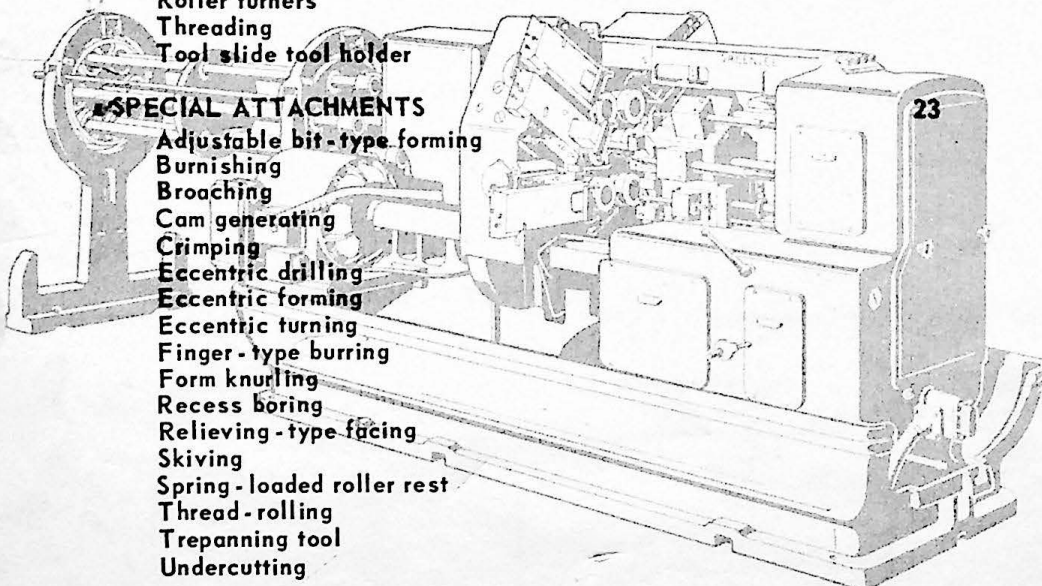
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CROSS-SLIDE ATTACHMENTS	6
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- Cut - off
- Facing
- Forming
- Form turning
- Knurling
- Shaving
- Stenciling

END-WORKING ATTACHMENTS	13
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- Burring
- High - speed drilling
- Knee turners
- Knurling
- Live center support
- Milling
- Reaming
- Recessing
- Roller supports
- Roller turners
- Threading
- Tool slide tool holder



SPECIAL ATTACHMENTS

- Adjustable bit - type forming
- Burnishing
- Broaching
- Cam generating
- Crimping
- Eccentric drilling
- Eccentric forming
- Eccentric turning
- Finger - type burring
- Form knurling
- Recess boring
- Relieving - type facing
- Skiving
- Spring - loaded roller rest
- Thread - rolling
- Trepanning tool
- Undercutting

BUSHINGS	28
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- Coolant bushing and holder
- Drill
- Floating holder
- Reamer
- Spot - drill
- Stock - reel
- Tap

SPEED AND FEED CHARTS - After Serial No. A1522	29
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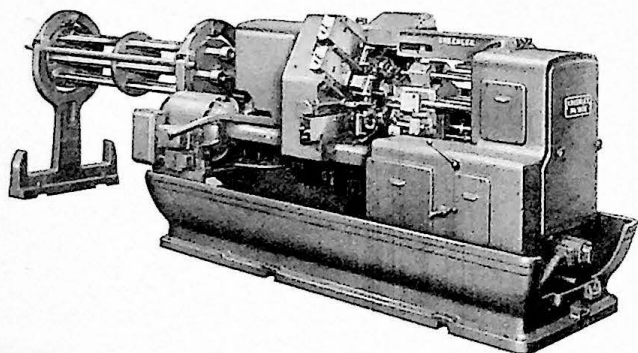
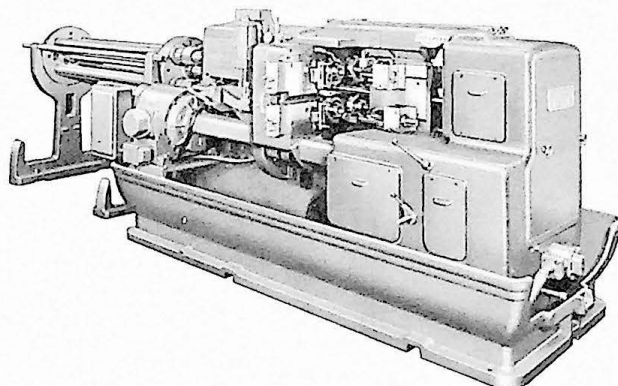
SURFACE SPEED CHART	40
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FORMING SLIDE CAMS	42
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SPEED AND FEED CHARTS - Before Serial No. A1522	Appendix
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FOUR SPINDLE



SIX SPINDLE

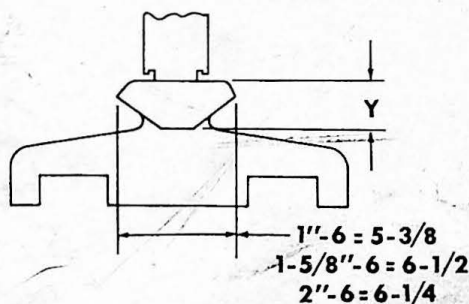
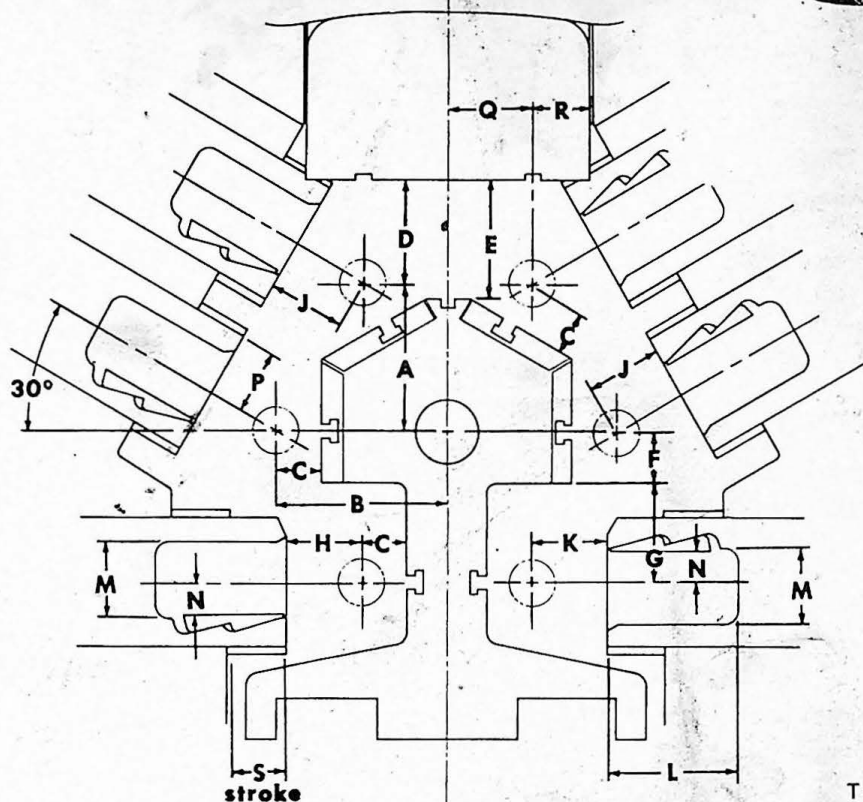
SIZE OF MACHINE	1" - 6	1-5/8" - 6	2" - 6	1-5/8" - 4	2-5/8" - 4
Chuck capacity, round	1"	1-5/8"	2"	1-5/8"	2-5/8"
Chuck capacity, hexagon	7/8"	1-13/32"	1-3/4"	1-13/32"	2-1/4"
Chuck capacity, square	3/4"	1-1/8"	1-7/16"	1-1/8"	1-7/8"
Stock feed	6-3/16"	8-5/16"	8-5/16"	7-1/8"	8-3/16"
Turning length	6"	7-1/2"	7-1/2"	6"	7-1/2"
Spindle speed range	215 TO 3683	100 TO 2490	100 TO 2490	210 TO 2100	120 TO 1200
Feed range per spindle rev.	.0012 TO .0183	.0018 TO .0408	.0018 TO .0408	.0016 TO .025	.002 TO .0458
Motor horsepower	15	20	25	15	20
R. P. M. of motor	1800	1800	1800	1800	1800
Floor space:					
Length with stock reel	17' - 6"	17' - 3"	17' - 3"	17' - 6"	17' - 3"
Length without stock reel	10' - 5"	10' - 6"	10' - 6"	10' - 5"	10' - 6"
Width	5' - 0"	5' - 4"	5' - 4"	5' - 0"	5' - 4"
Height	4' - 11"	5' - 4"	5' - 4"	4' - 7"	5' - 0"
Net weight in pounds	14,400	17,940	18,150	15,300	17,000
Domestic shipping weight	14,850	18,390	18,500	15,750	17,450
Boxed for export (approx.)	16,800	20,430	20,600	17,800	19,500
Cubic feet, boxed	378	400	400	400	400

SIX SPINDLE

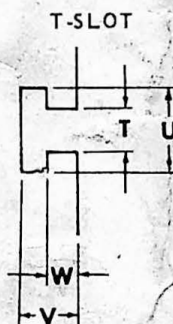
Dimensions



Key No.	Dimensions In Inches	
	1" - 6	1-5/8" - 2" - 6
A	5.196	6.278
B	6	7.250
C	1.594	2.047
D	3.491	4.096
E	4.062	4.874
F	1-3/4	2-1/8
G	3.446	4.153
H	2-5/8	3-5/8
J	2-5/8	3-1/8
K	2-5/8	3-3/8
L	4-5/8	5-1/2
M	2-11/16	3-1/8
N	1-3/16	1-3/8
P	2.250	2.8125
Q	3	3.625
R	2	1-7/8
S	1-3/4	2-1/4
T	1/2	9/16
U	13/16	1-1/16
V	19/32	25/32
W	5/16	7/16
X	1-1/2	2
Y	2-1/16	2-7/16
Z	6-5/8	8-7/8
AA	2-13/16	3-1/8
BB	2.500	2.312
CC	13	13.875
DD	14-1/2	15-7/8
EE	6.208	7.948
FF	7-1/4	9-3/8
GG	2-3/4	3-5/16
HH	1-3/64	1-7/16
JJ	4-5/16	5-3/8
KK	6-5/16	7-1/8
LL	14-5/8	10-5/16

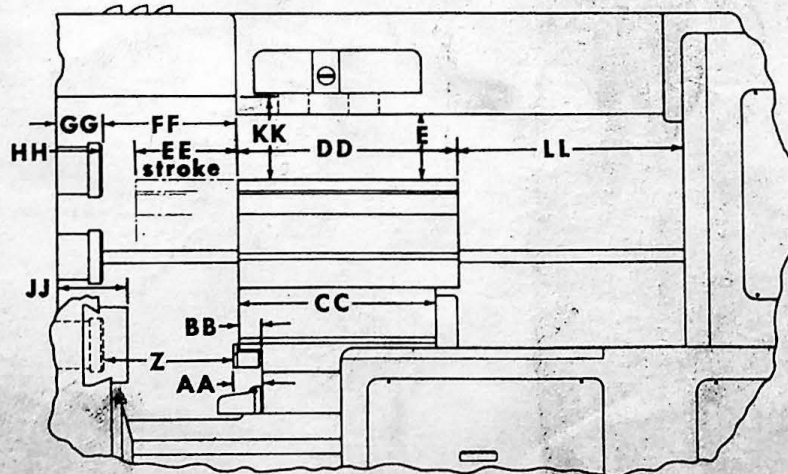
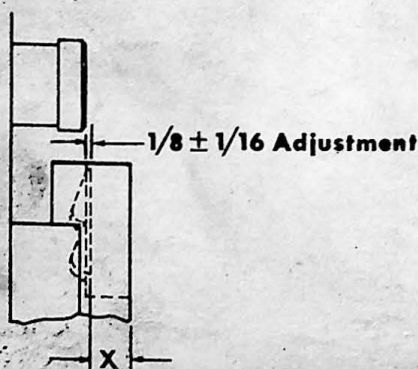


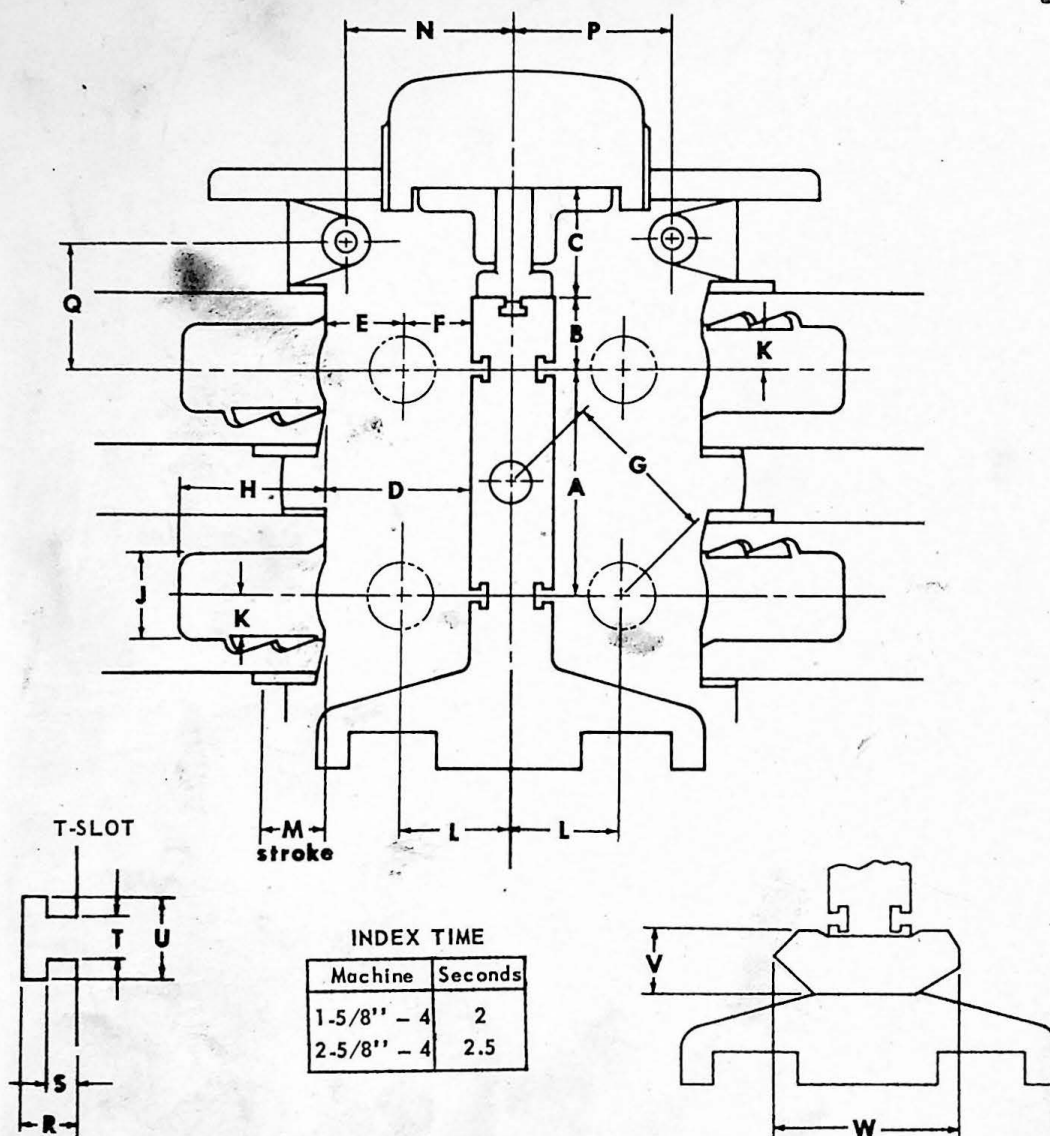
INDEX TIME	
Machine	Seconds
1" - 6	2
1-5/8" - 6	2.25
2" - 6	2.25



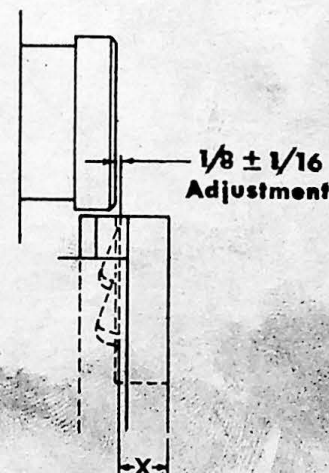
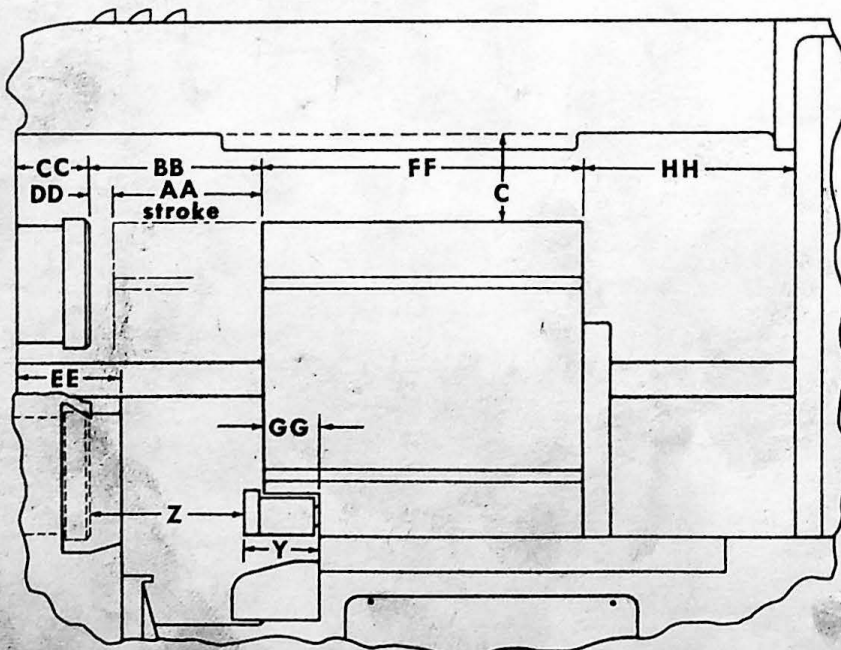
MAX. DIE HEAD DIA. WITH INSERTS REMOVED
STARTING WITH SERIAL No. 1691

MACHINE SIZE	3rd POS.	4th POS.	5th POS.	6th POS.
1" - 6	4-1/16	4-1/16	4-1/16	3-1/8
1-5/8" - 6	5-5/16	5-5/16	5-9/16	4-1/16
2" - 6				



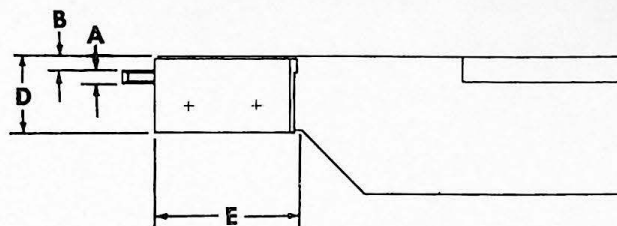
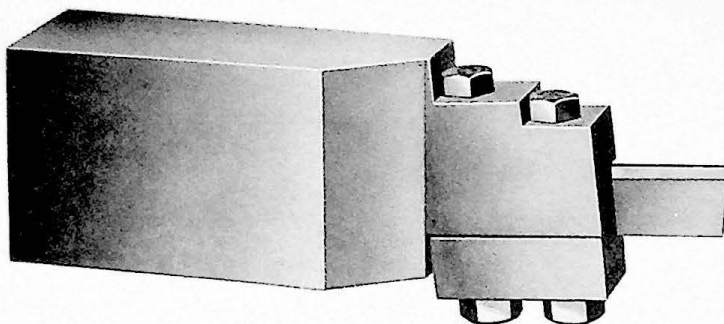


Key No.	Dimensions In Inches	
	1-5/8"-4	2-5/8"-4
A	8.484	9.369
B	2.946	2-15/16
C	3-1/2	4-3/8
D	5-11/16	6-7/16
E	3-1/16	3-1/2
F	2.625	2.937
G	6	6-5/8
H	5-1/2	6
J	3-1/8	3-5/8
K	1-3/8	1-11/16
L	4.242	4.684
M	2-3/4	2-1/2
N	4-7/8	7-1/8
P	4-7/8	6-3/4
Q	4-7/8	5-7/16
R	25/32	25/32
S	7/16	7/16
T	9/16	9/16
U	1-1/16	1-1/16
V	2-5/16	2-7/16
W	7-1/2	8-1/16
X	2	2
Y	2-3/4	2-3/4
Z	7-1/4	7-5/8
AA	6.208	7.948
BB	7-35/64	8-5/8
CC	3-5/16	3-1/2
DD	1-11/32	43/64
EE	5-5/16	5-9/16
FF	15	16
GG	2-5/8	2-5/8
HH	11-49/64	10-1/2

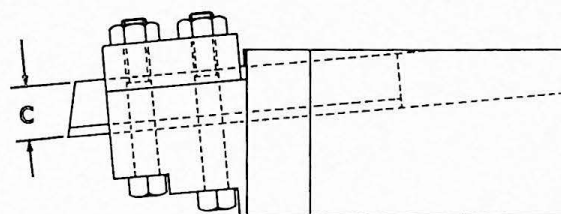


CUT-OFF

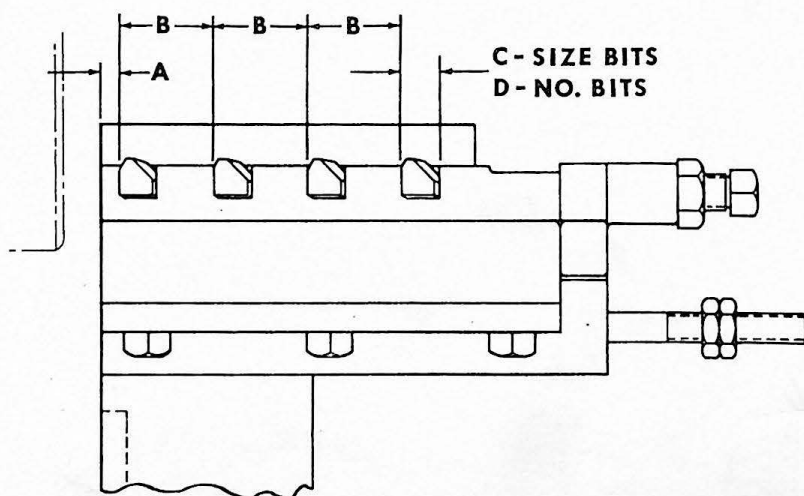
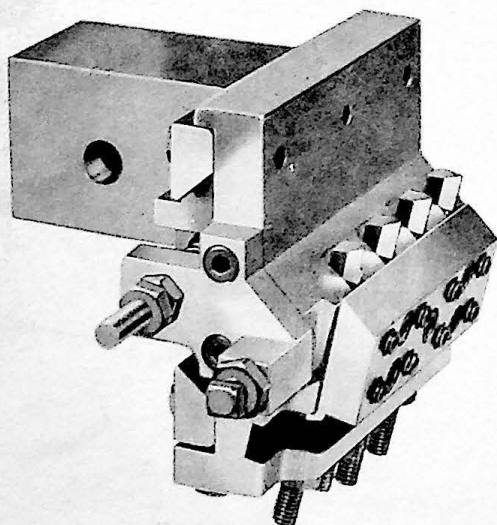
Cross-Slide Attachments



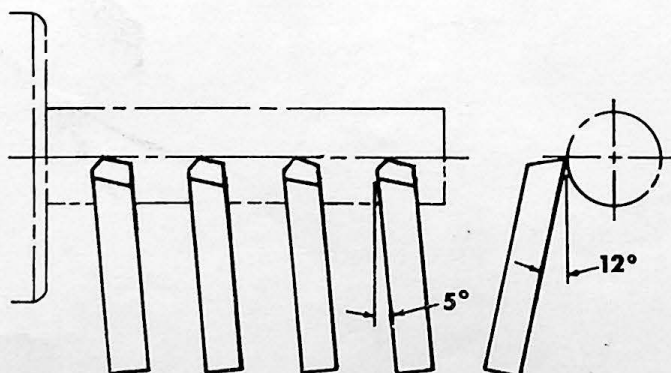
Machine Size	Unit No.	Luers No.	Dimensions In Inches				
			A	B	C	D	E
1"-6	3004	T-3	1/8	3/16	11/16	15/16	1-13/16
	3005	T-5	3/16	3/16	7/8	1-1/16	1-3/4
	3006	T-4	5/32	3/16	11/16	15/16	1-13/16
	3007	P-1	1/16	3/16	7/16	1	1-13/16
1-5/8"-4	3204	T-5	3/16	3/16	7/8	1-1/16	1-7/8
1-5/8"-6 2"-6	3205	T-3	1/8	3/16	11/16	15/16	1-7/8
	3206	T-4	5/32	3/16	11/16	15/16	1-7/8
	3291	P-1	1/16	3/16	7/16	1	1-7/8
2-5/8"-4	3501	T-5	3/16	3/16	7/8	1-1/16	1-7/8
	3502	T-3	1/8	3/16	11/16	1-1/32	1-3/4
	3503	T-9	1/4	3/16	1-1/8	1-3/16	1-7/8



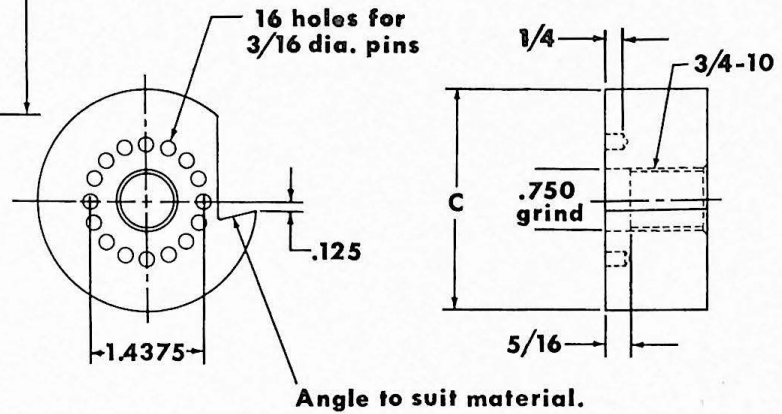
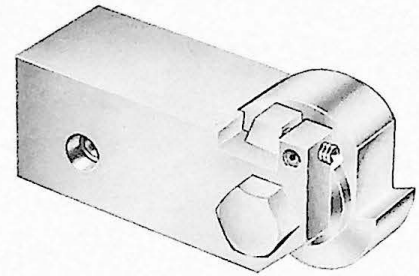
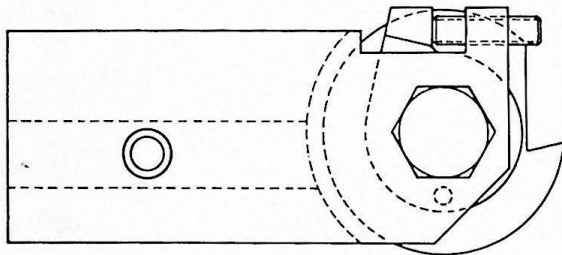
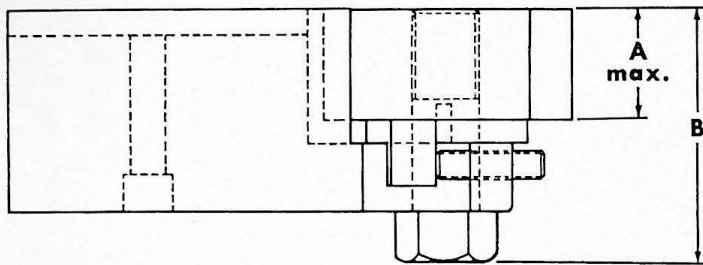
FORM TURNING



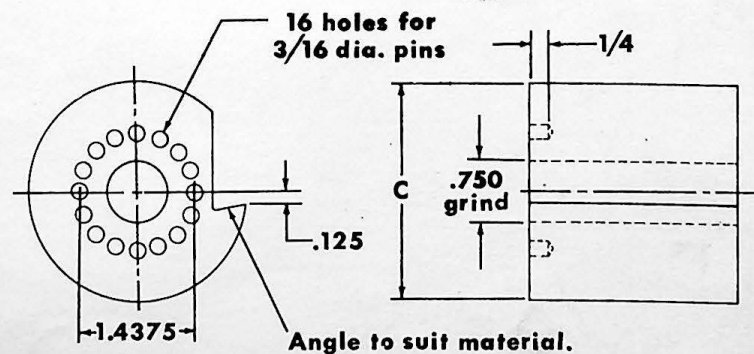
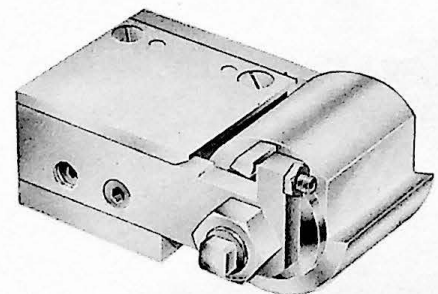
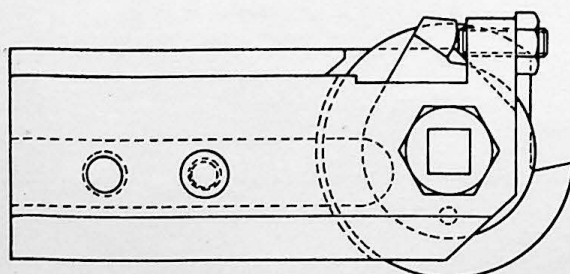
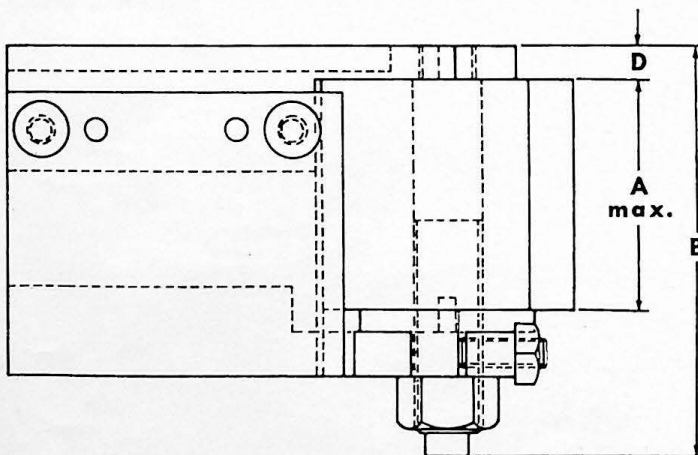
Machine Size	Unit No.	Dimensions In Inches			
		A	B	C	D
1" - 6	3021	3/16	1	3/8	4
1-5/8"-6 2" - 6	3221	3/16	1	3/8	4



CIRCULAR—SINGLE



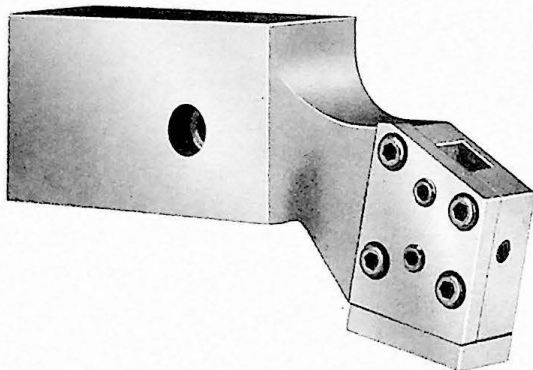
CIRCULAR—DOUBLE



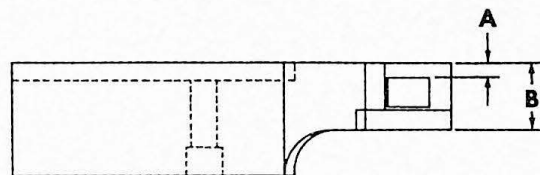
Machine Size	Tool Size	Unit No.	Dimensions In Inches			
			A	B	C	D
1" - 6	Single	3014	1-1/4	2-13/16	2.750	—
	Double	3015	2-9/16	4-5/8	2.750	3/8
		3016	3-1/8	5-1/4	2.750	3/8
1-5/8" - 4	Single	3213	1-1/4	2-13/16	3.250	—
1-5/8" - 6 2" - 6	Double	3214	2-9/16	4-1/2	3.250	1/4
		3215	3-1/4	5-1/4	3.250	3/8
2-5/8" - 4	Single	3509	1-3/4	3-5/16	3.250	—
	Double	3510	2-1/4	4-5/16	3.250	5/16

FORMING

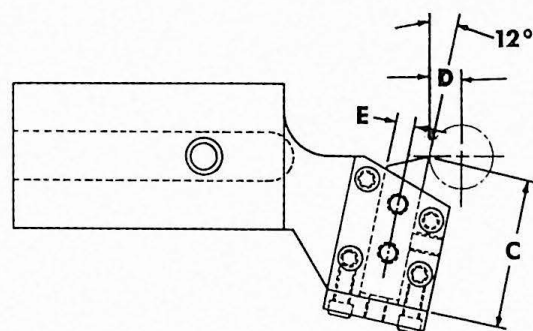
Cross-Slide Attachments



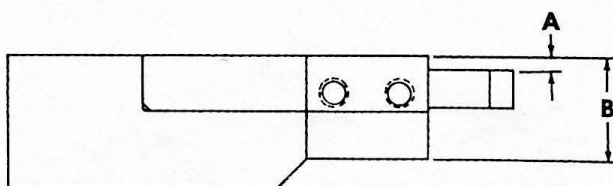
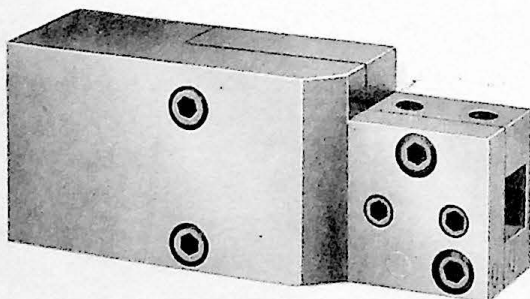
BIT



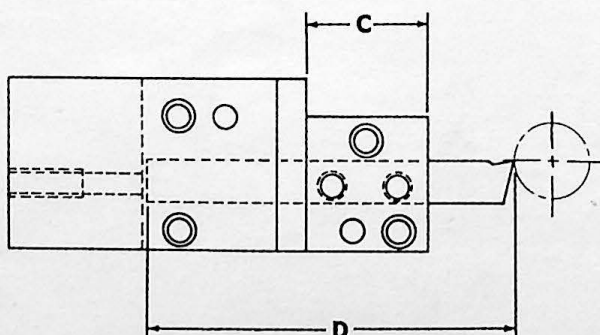
Machine Size	Bit Size	Unit No.	Dimensions In Inches				
			A	B	C	D	E
1"-6	3/8	3010	3/16	1-1/32	2-1/4	1/2	3/16
	1/2	3011	3/16	1-1/32	2-1/4	1/2	3/16
	5/8	3012	3/16	1-5/32	2-1/4	1/2	5/16
	3/4	3013	3/16	1-9/32	2-1/4	1/2	5/16
1-5/8"-4	3/8	3209	3/16	31/32	2-3/4	1-3/8	3/16
1-5/8"-6	1/2	3210	3/16	1-1/32	2-3/4	1-3/8	3/16
2"-6	5/8	3211	3/16	1-5/32	2-3/4	1-3/8	5/16
	3/4	3212	3/16	1-9/32	2-3/4	1-3/8	5/16
2-5/8"-4	1/2	3505	3/16	1-1/32	3	1-7/16	1/4
	5/8	3506	3/16	1-5/32	3	1-7/16	1/4
	3/4	3507	3/16	1-9/32	3	1-7/16	3/8
	1	3508	1/2	2-1/32	3	1-7/16	1/2



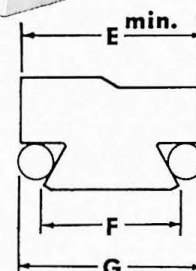
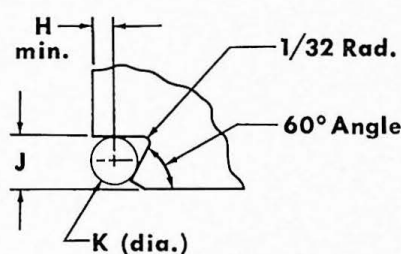
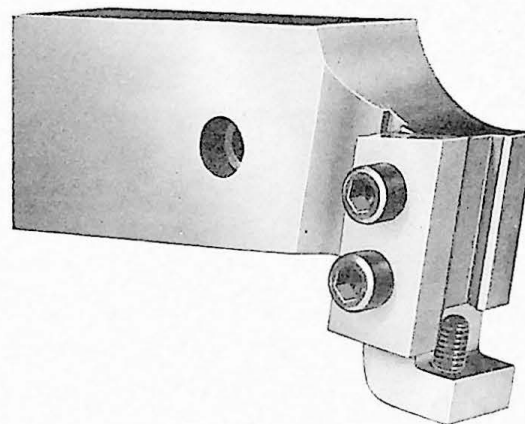
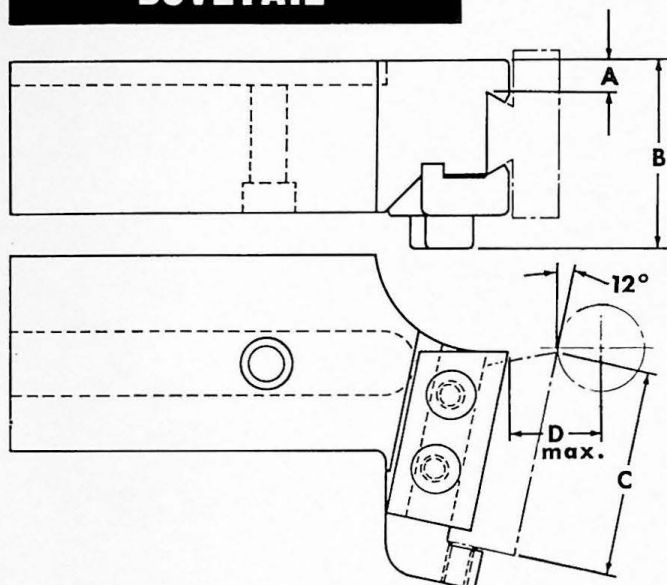
FLAT



Machine Size	Bit Size	Unit No.	Dimensions In Inches			
			A	B	C	D
1"-6	1/2	3019	3/16	1-3/8	1-5/8	5-7/8
	5/8	3020	3/16	1-3/8	1-5/8	5-7/8
1-5/8"-6	1/2	3218	3/16	1-1/4	2-1/8	6
2"-6	5/8	3219	3/16	1-1/4	2-1/8	6
1-5/8"-4	3/4	3220	3/16	1-1/2	2-1/8	6
2-5/8"-4	1/2	3513	3/16	1-1/4	2	6
	5/8	3514	3/16	1-1/4	2	6
	3/4	3515	3/16	1-3/8	2-1/16	6
	1	3516	3/16	1-5/8	2-1/16	6

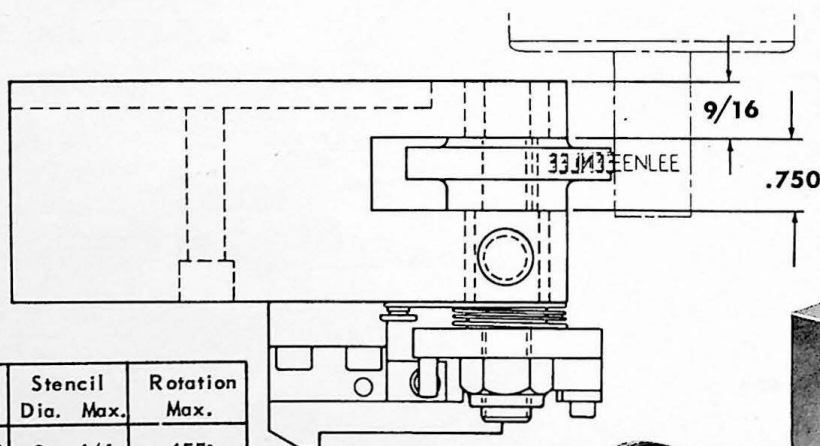


DOVETAIL

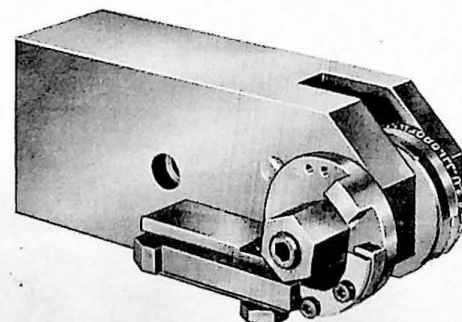


Machine Size	Dovetail Size	Unit No.	Dimensions In Inches									
			A	B	C	D	E	F	G	H	J	K
1" - 6	Wide	3018	3/8	2-5/8	2-3/8	1-1/16	1-3/4	1.484	1.8426	1/8	.281	.250
	Narrow	3017	3/8	2-1/16	2-3/8	1-1/16	1-3/16	.9136	1.2722	1/8	.281	.250
1-5/8" - 6	Wide	3217	3/8	2-5/8	3	1-1/4	1-3/4	1.484	1.8426	1/8	.281	.250
	Narrow	3216	3/8	2-1/16	3	1-1/4	1-3/16	.9136	1.2722	1/8	.281	.250
1-5/8" - 4	Wide	3402	3/8	2-5/8	3	1-1/4	1-3/4	1.484	1.8426	1/8	.281	.250
	Narrow	3401	3/8	2-1/16	3	1-1/4	1-3/16	.9136	1.2722	1/8	.281	.250
2-5/8" - 4	Wide	3512	1/2	3-5/8	3	1-13/16	2-1/2	2.3273	2.775	1/16	.500	.375
	Narrow	3511	1/2	2-25/32	3	1-13/16	1-9/16	1.4523	1.900	1/16	.500	.375

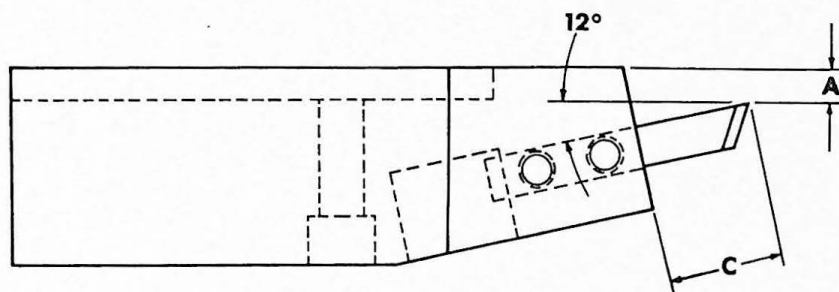
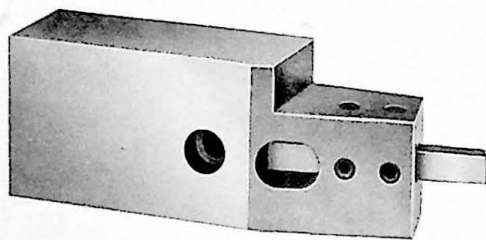
STENCILING



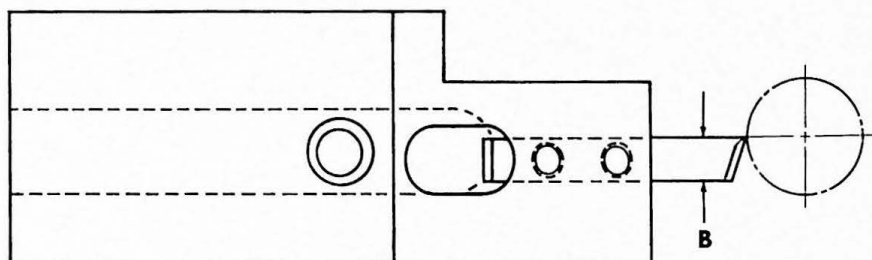
Machine Size	Unit No.	Stencil Dia. Max.	Rotation Max.
1" - 6	3076	2 - 1/4	155°
1-5/8" - 6	3275	2 - 1/2	155°
2-5/8" - 4	3533	2 - 1/2	155°



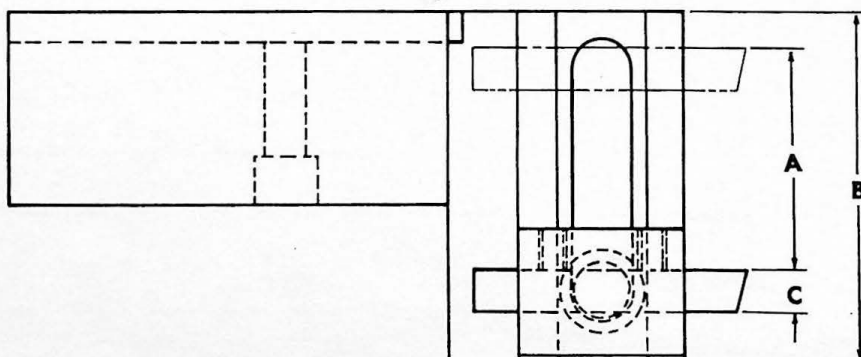
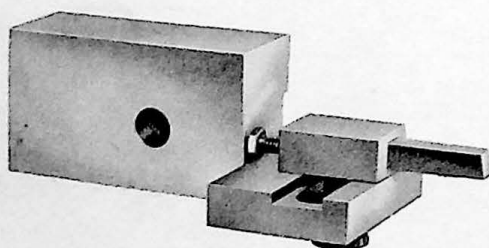
STANDARD



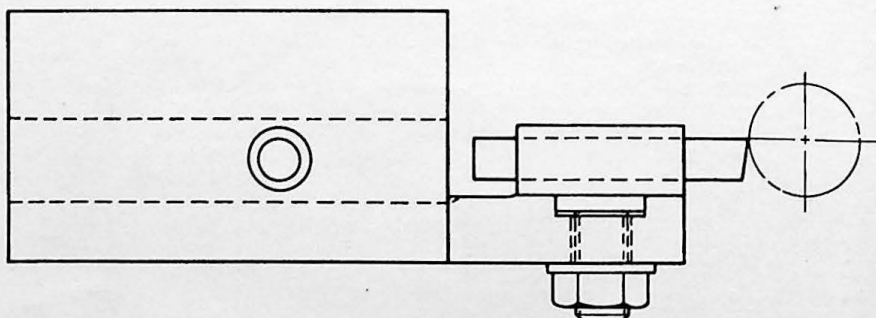
Machine Size	Unit No.	Dimensions In Inches		
		A	B	C
1"-6	3008	5/16	3/8	3/4
1-5/8"-4	3207	5/16	3/8	1-1/4
1-5/8"-6				
2"-6				
2-5/8"-4	3504	1/4	3/8	1-1/4



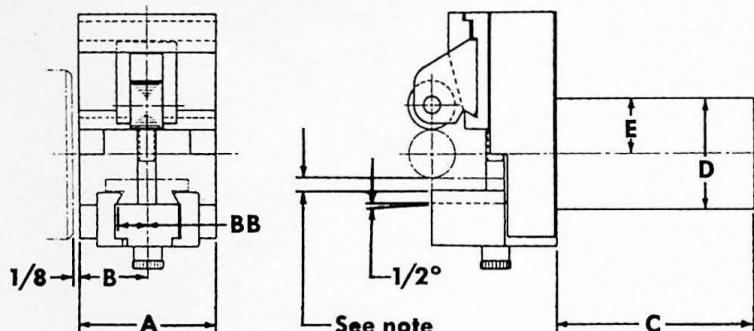
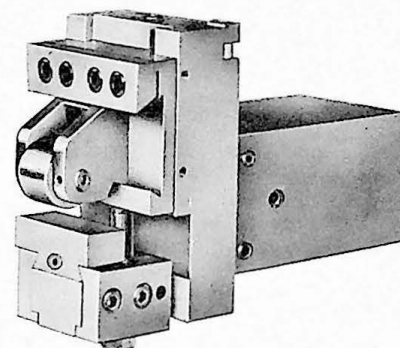
ADJUSTABLE



Machine Size	Unit No.	Dimensions In Inches		
		A	B	C
1"-6	3009	2	3-1/8	3/8
1-5/8"-6	3208	2-1/4	3-1/4	3/8
2"-6				



Machine Size	Attachment No.*	Capacity of Work			Offset Roller Unit No.					
					Right Hand			Left Hand		
	Roller Dia.▶	3/4	1	1-1/4	3/4	1	1-1/4	3/4	1	1-1/4
1" – 6	Narrow 3073	3/4	–	–	3074	–	–	3075	–	–
	Wide 3068	–	1	1	–	3069	3070	–	3071	3072
1-5/8"–6	3269	–	1-5/8	1-3/4	–	3271	3272	–	3273	3274
2" – 6	3270	–	2	1-3/4	–	3271	3272	–	3273	3274

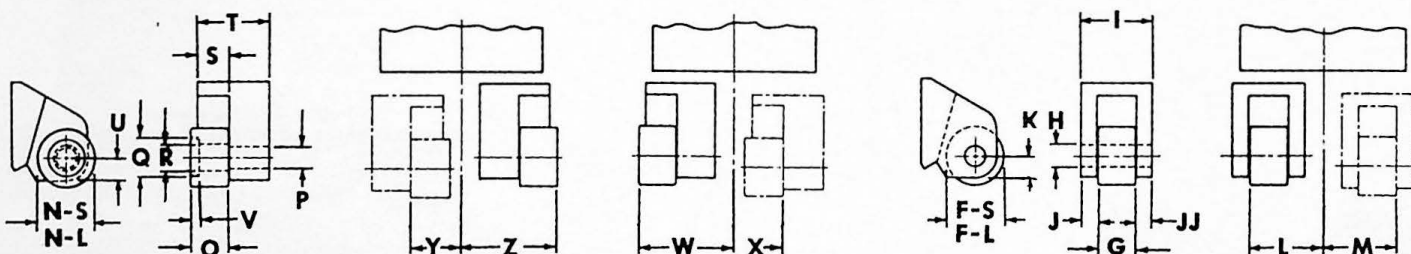


R. H. and L. H. OFFSET ROLLER ASSEMBLY

* All units furnished with straddle-type roller assembly
 3073 furnished with 3/4" dia. roller
 3068-3270 furnished with 1" dia. roller
 3269 furnished with 1-1/4" dia. roller

NOTE: A constant of .187 inches on Unit 3073 and .250 inches on Units 3068, 3269, 3270 is maintained between the top of the dovetail and the outside diameter of the standard stock capacity for the attachment. Any decrease of the outside diameter of the stock requires a proportional increase in the thickness of the shaving tool.

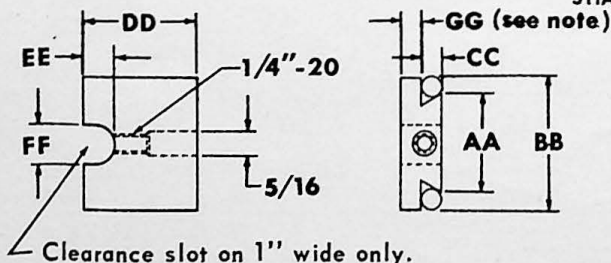
STRADDLE TYPE ROLLER ASSEMBLY



Machine Size	Unit No.	Dimensions In Inches															
		A	B	BB	C	D	E	F-S	F-L	G	H	I	J	JJ	K	L	M
1" - 6	3073	1-7/8	.642	.3577	4-1/16	2.250	1-1/8	3/4	-	5/16	.250	3/4	3/16	1/4	1/4	7/16	3/8
	3068	2-7/8	1.437	.6435	4-1/8	2.250	1-1/8	1	1-1/4	11/16	.375	1-1/4	9/32	9/32	3/8	1-7/32	1-7/16
1-5/8" - 6	3269	2-7/8	1.437	.6435	5	2.750	1-5/16	1	1-1/4	11/16	.375	1-1/4	9/32	9/32	5/16	1-7/32	1-7/16
2" - 6	3270																

Machine Size	Unit Nos.	Dimensions In Inches													
		N-S	N-L	O	P	Q	R	S	T	U	V	W	X	Y	Z
1" - 6	3074-3075	3/4	-	5/16	.250	1/2	.3125	5/16	3/4	1/4	3/32	5/8	3/16	3/16	5/8
1" - 6	3069-3070														
1-5/8" - 6	3071-3072														
2" - 6	3271-3272	1	1-1/4	11/16	.375	21/32	.437	9/16	1-1/4	5/16	1/8	1-1/2	13/16	13/16	1-9/16
	3273-3274														

SHAVE TOOL DIMENSIONS

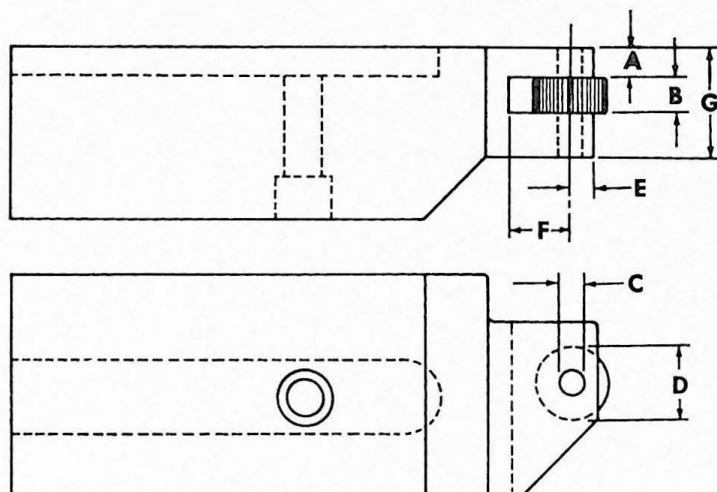
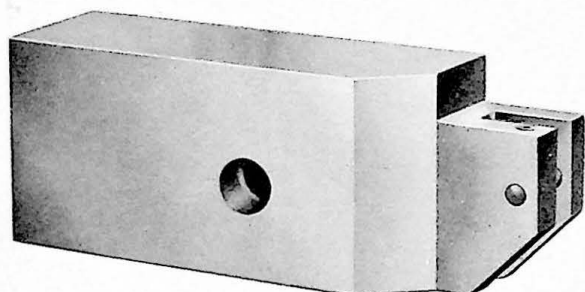


Machine Size	Unit No.	Dimensions In Inches					
		AA	BB	CC	DD	EE	GG
1" - 6	3073*	.7155	.992	.202	15/16	-	.1875
	3068	1.287	1.664	.2635	1-1/2	7/16	.250
1-5/8" - 6	3269	1.287	1.664	.2635	1-3/8	-	.250
2" - 6	3270						

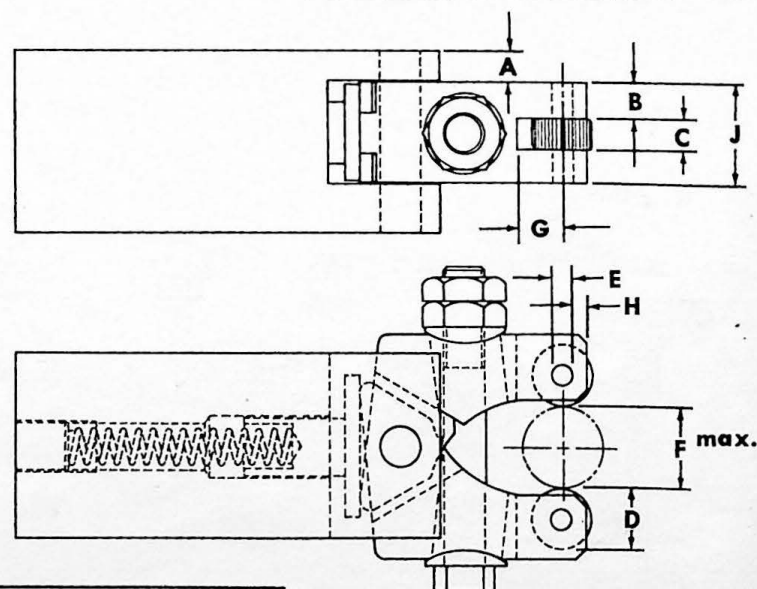
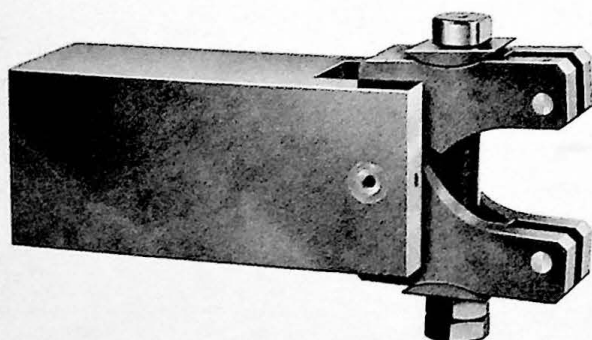
* .1875 DIA. BALLS ARE USED ON UNIT No. 3073.
 .250 DIA. BALLS ON ALL OTHER UNITS.

KNURLING

Cross-Slide Attachments



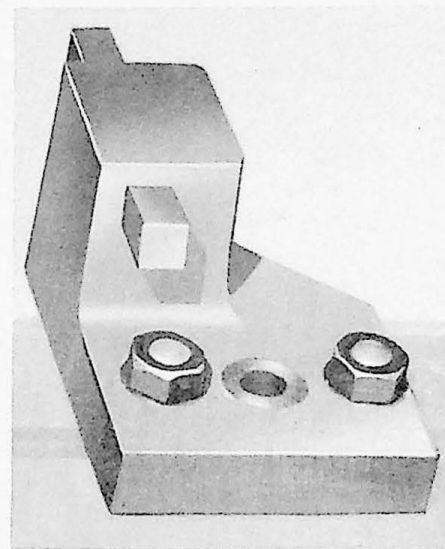
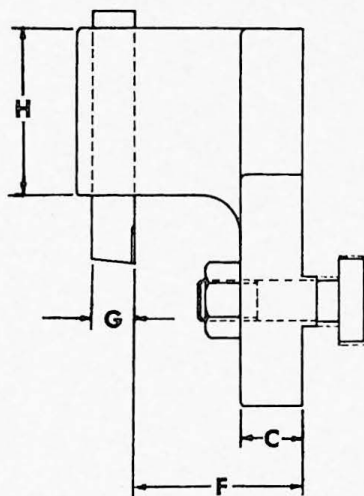
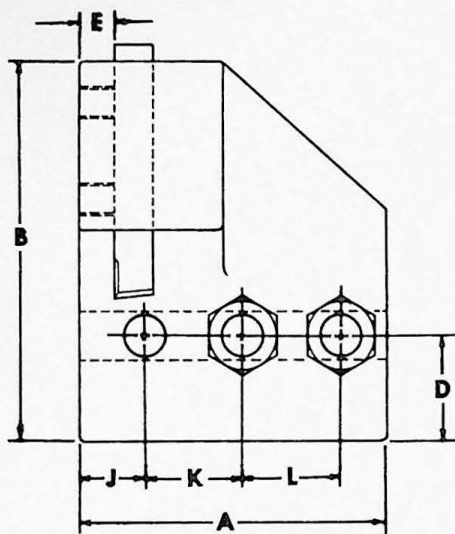
Machine Size	Unit No.	Dimensions In Inches						
		A	B	C	D	E	F	G
1" - 6	3043	5/16	3/8	1/4	3/4	1/4	5/8	1-1/8
1-5/8" - 4	3247	5/16	3/8	1/4	3/4	1/4	5/8	1-1/8
1-5/8" - 6								
2" - 6	3524	5/16	3/8	1/4	3/4	5/16	9/16	1-3/16
2-5/8" - 4								



Machine Size	Unit No.	Dimensions In Inches								
		A	B	C	D	E	F	G	H	J
1" - 6	3044	3/8	7/16	3/8	3/4	1/4	1	9/16	5/16	1-1/4
1-5/8" - 4	3248	5/16	7/16	3/8	3/4	1/4	1-5/8	1/2	3/8	1-1/4
1-5/8" - 6										
2" - 6	3525	5/16	5/16	3/8	3/4	1/4	2-5/8	7/16	3/8	1-1/4
2-5/8" - 4										

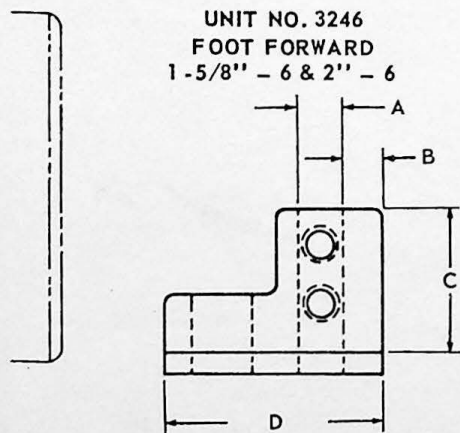


WIDE and NARROW

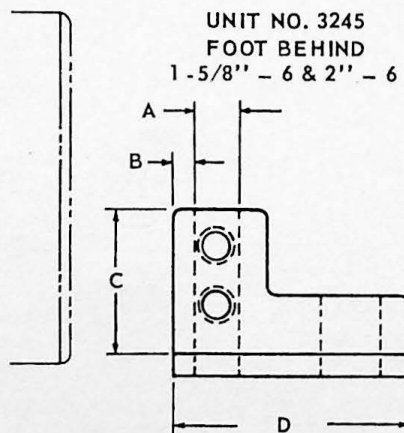


WIDE												
Machine Size	Unit No.	Dimensions In Inches										
		A	B	C	D	E	F	G	H	J	K	L
1" - 6	3039	3-7/8	3-1/4	5/8	1	5/16	1.594	3/8	1-1/2	7/8	1-1/2	1
1-5/8" - 4	3406	3	4-1/2	3/4	1-1/4	3/16	2.625	1/2	2	1-1/4	1	-
1-5/8" - 6 2" - 6	3243	3-3/4	4-1/2	3/4	1-1/4	11/32	2.047	1/2	2	13/16	1-3/16	1-3/16
2-5/8" - 4	3522	3-3/4	5-1/4	3/4	1-3/4	11/32	2.937	1/2	2	13/16	1-3/16	1-3/16
NARROW												
1" - 6	3103	1-3/4	3-1/4	5/8	1	5/16	1.594	3/8	1-9/16	7/8	-	-
1-5/8" - 4	3407	1-3/4	4-1/2	3/4	1-1/4	3/8	2.625	1/2	2	7/8	-	-
1-5/8" - 6 2" - 6	3244	1-3/4	4-1/2	3/4	1-1/4	3/8	2.047	1/2	2	7/8	-	-

SMALL



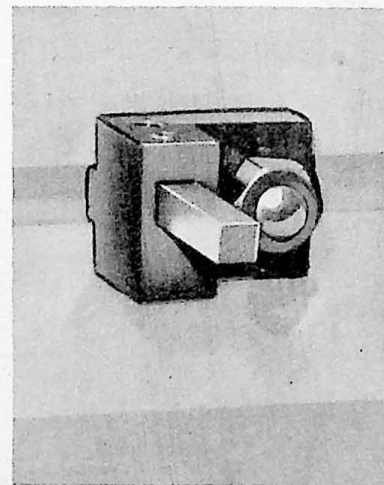
UNIT NO. 3246
FOOT FORWARD
1-5/8" - 6 & 2" - 6



UNIT NO. 3245
FOOT BEHIND
1-5/8" - 6 & 2" - 6

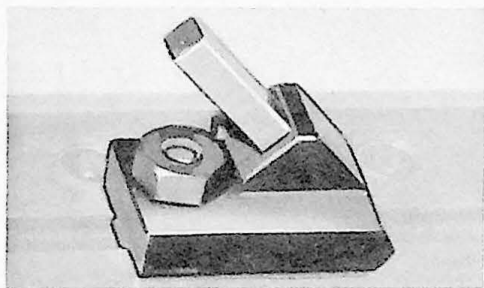
MACHINE SIZE	UNIT NO.	A	B	C	D
1" - 6	3042	5/16	3/16	1	1-3/4
1-5/8" - 6 2" - 6	3246	3/8	3/8	1-1/4	1-15/16

MACHINE SIZE	UNIT NO.	A	B	C	D
1" - 6	3041	5/16	3/16	1	1-3/4
1-5/8" - 6 2" - 6	3245	3/8	3/16	1-1/4	2-1/16



KNEE TURNING

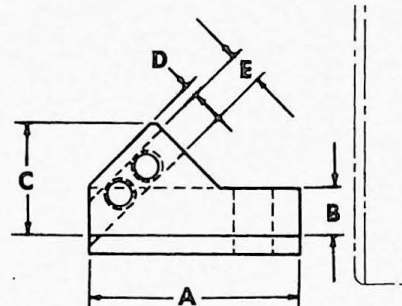
End-Working Attachments



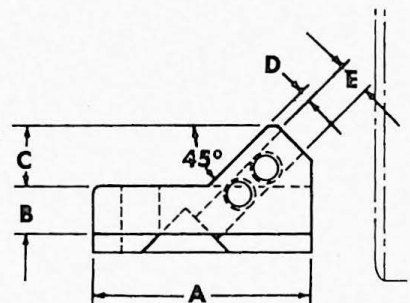
FOOT FORWARD

Machine Size	Unit No.	Dimensions In Inches				
		A	B	C	D	E
1" - 6	3003	2-3/16	1/2	1-1/8	1/8	5/16
1-5/8" - 6	3202	2-1/2	1/2	1-3/16	3/16	3/8
2" - 6						
1-5/8" - 4	3400	2-1/2	1/2	1-3/4	3/16	3/8
FOOT BEHIND						
1" - 6	3002	2-1/4	1/2	5/8	1/8	5/16
1-5/8" - 6	3203	2-7/16	9/16	3/4	3/16	3/8
2" - 6						

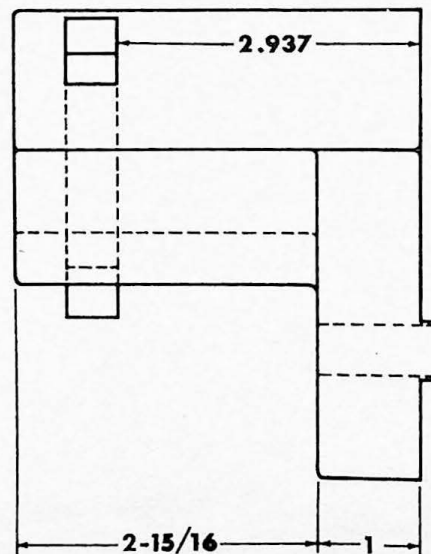
FOOT FORWARD



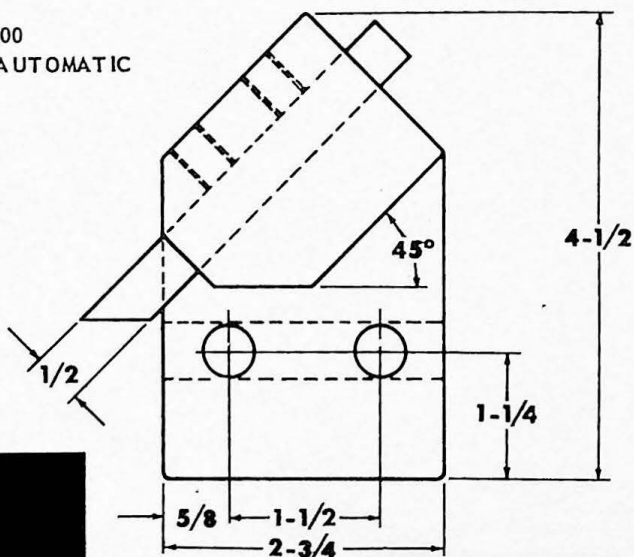
FOOT BEHIND



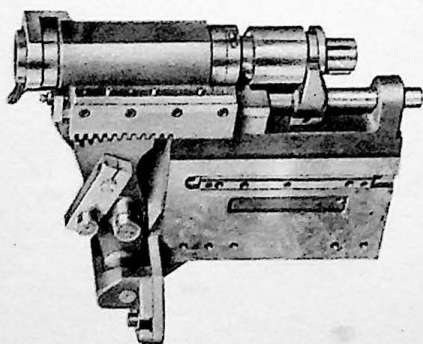
CHAMFERING



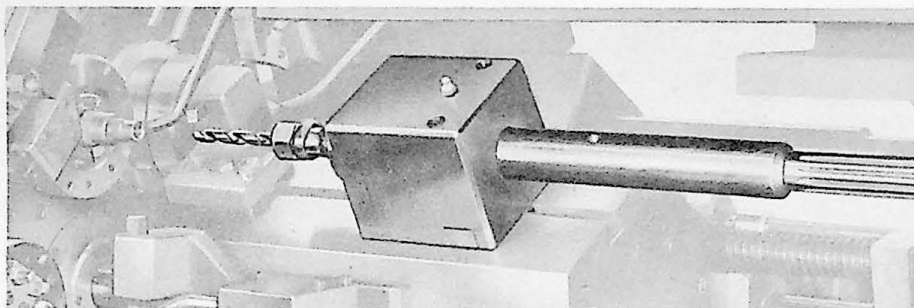
UNIT NO. 3500
2-5/8" - 4 SPINDLE AUTOMATIC



BURRING



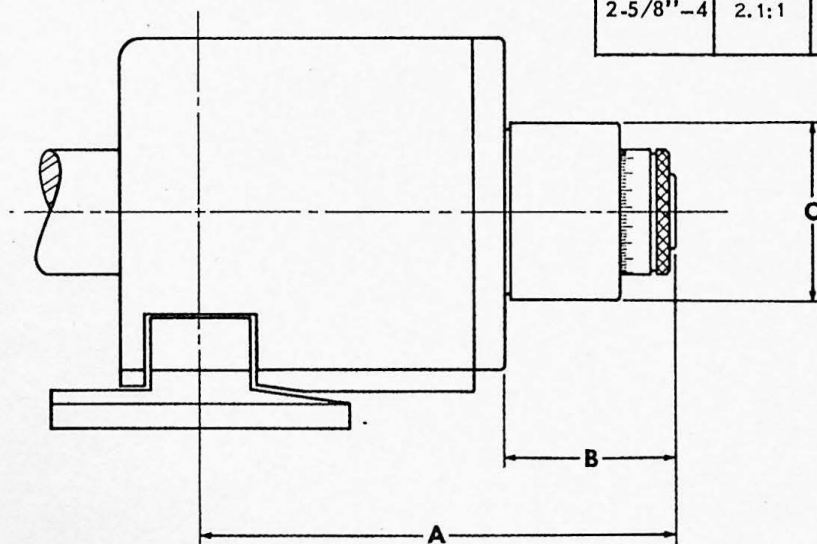
Machine Size	Unit No.	Stroke	Capacity
1" - 6	3001	3	1
1-5/8" - 6	3201	3	1-5/8
2" - 6			



BASIC ATTACHMENT

Machine Size	Unit No.	Drill Holder Size	Dimensions In Inches		
			A	B	C
1" - 6	303201	#1 M.T.	4-5/16	1-3/4	1-3/4
	303301	#2 M.T.			
1-5/8"-6	323301	#2 M.T.	5	1-3/4	2-1/2
2" - 6	323401	#3 M.T.			
1-5/8"-4	3403	#2 M.T.	4-7/8	7/8	2-1/2
2-5/8"-4	3517	#3 M.T.	6-3/16	1-11/16	3

Machine Size	Ratio	Idler Gear	Spindle Gear
1" - 6	2.15:1	9251YA - 19T	9216YA - 26T
	2.8:1	9252YA - 19T 9254YA - 24T	9253YA - 21T
1-5/8"-6	2.3:1	11043YL - 23T	11011YL - 32T
	1.82:1	11044YL - 18T 11047YL - 23T	10999YL - 40T
2" - 6	3.4:1	11045YL - 33T 11046YL - 23T	11042YL - 25T
1-5/8"-4	2.1:1	2270YA - 29T	6181YA - 38T
2-5/8"-4	2.1:1	4155YL - 26T	4144YL - 46T
	2.1:1	4155YL - 26T 4158YL - 37T	4157YL - 35T

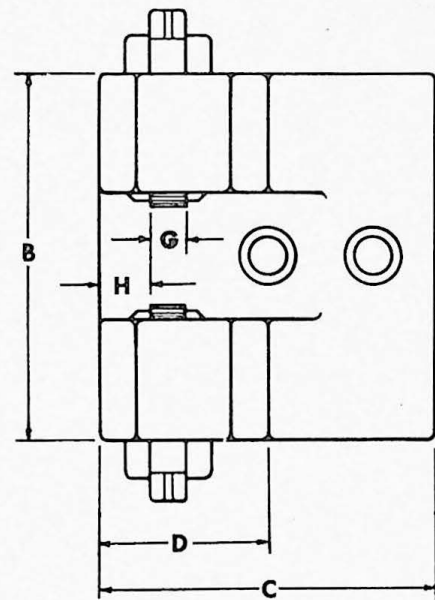
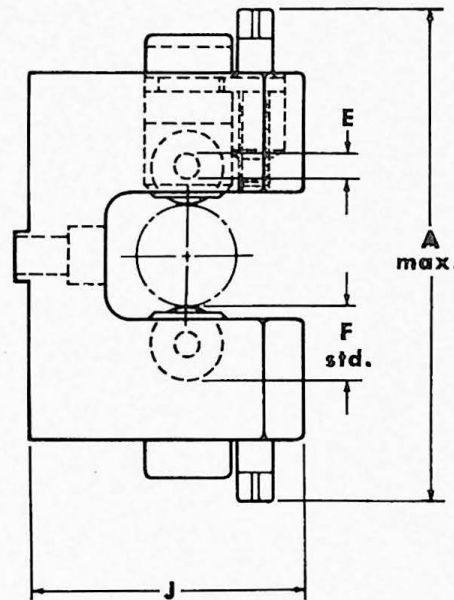
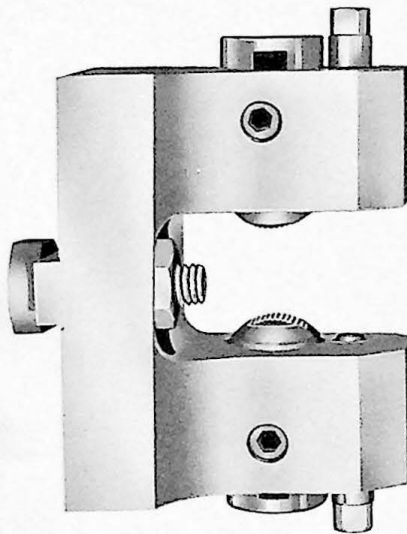


DRIVE PARTS

Machine Size	1st Position		2nd Position		3rd Position		4th Position		5th Position		
	Ratio	Unit	Ratio	Unit	Ratio	Unit	Ratio	Unit	Ratio	Unit	
1" - 6	2.15:1	3034	2.15:1	3034	2.15:1	3035	2.15:1	3035	2.15:1	3035	Standard Ratio
	2.8:1	3036	2.8:1	3036	2.8:1	3037	2.8:1	3037	2.8:1	3037	
	2.15:1	3034	2.15:1	3034	2.1:1	3038	2.1:1	3038	2.1:1	3038	Double Clutch
1-5/8"-6	2.3:1	3235	2.3:1	3235	2.3:1	3236	2.3:1	3236	2.3:1	3236	Standard Ratio
	1.82:1	3237	1.82:1	3237	1.82:1	3238	1.82:1	3238	1.82:1	3238	
2" - 6	3.4:1	3239	3.4:1	3239	3.4:1	3240	3.4:1	3240	3.4:1	3240	
	2.3:1	3235	2.3:1	3235	2.1:1	3241	2.1:1	3241	2.1:1	3241	Double Clutch
1-5/8"-4	2:1	3404	2:1	3404	2:1	3405	2:1	3405			
2-5/8"-4	2.1:1	3518	2.1:1	3518	2.1:1	3519					Standard Ratio
	3.1:1	3520	3.1:1	3520	3.1:1	3521					

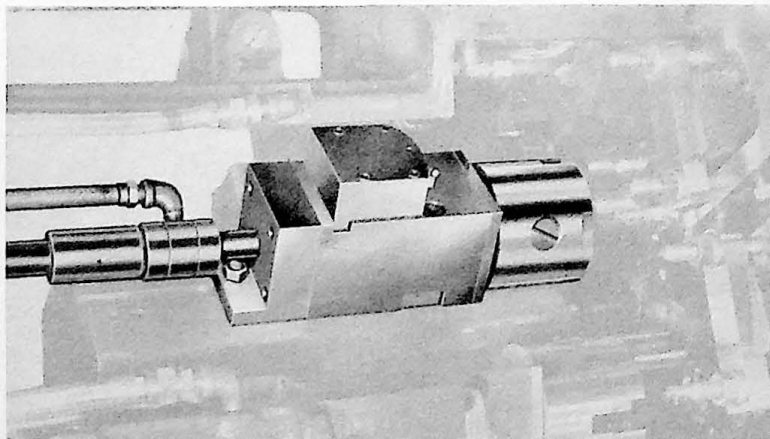
KNURLING

End-Working Attachments



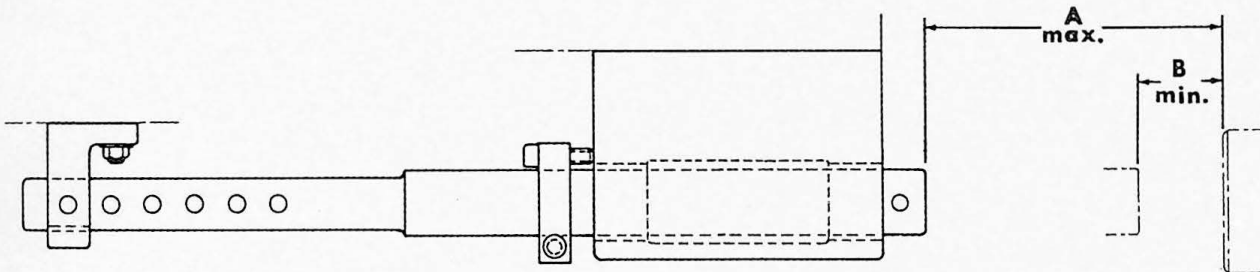
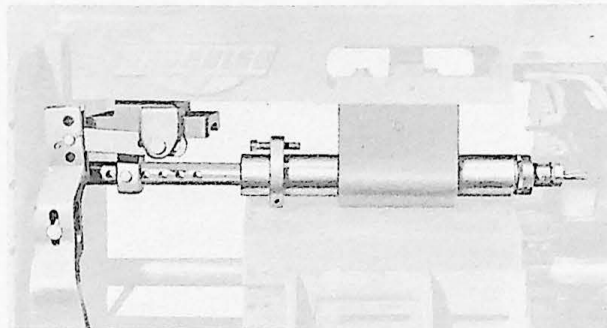
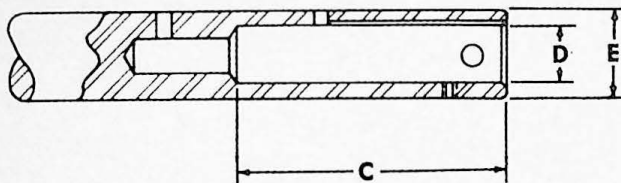
Machine Size	Unit No.	Dimensions In Inches								
		A	B	C	D	E	F	G	H	J
1" - 6	3045	4-7/8	3-5/8	3-3/8	1-11/16	1/4	3/4	3/8	1/2	2-3/4
1-5/8"-6 2" - 6	3249	7-1/8	4-7/8	4-7/16	1-7/8	1/4	3/4	3/8	33/64	2-3/4
1-5/8"-4	3408	6-11/16	4-7/8	4-1/8	1-7/8	1/4	3/4	3/8	5/8	3-5/16
2-5/8"-4	3526	7-7/8	6-3/4	2-3/4	1-15/16	1/4	3/4	3/8	5/8	4-1/4

MILLING

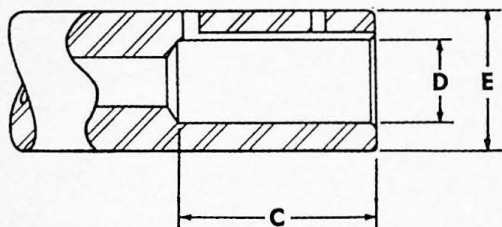


Machine Size	Unit No.	Cutter Dia.-Max.	Spdl. Nose To Cutter Center-Max.
1" - 6	3048	2-1/4	5-15/16
1-5/8"-6 2" - 6	3251	2-1/2	4-3/4

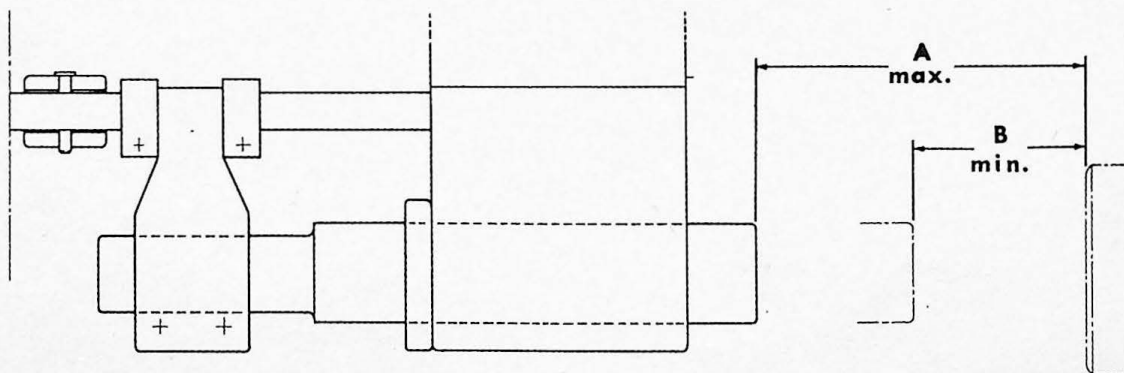
CAM FED



SIX SPINDLE AUTOMATICS

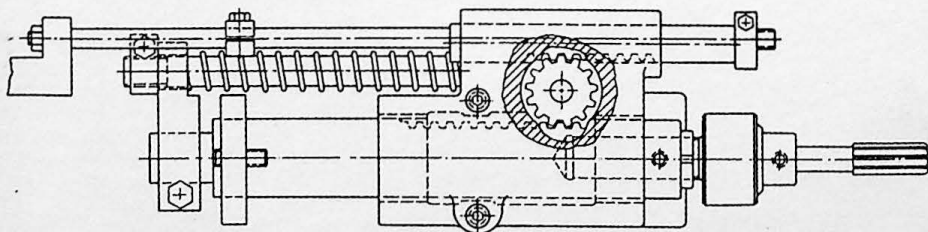


Machine Size	Basic Attach.	Brg. Brkt.	Max. Stroke	Dimensions In Inches				
				A	B	C	D	E
1" - 6	3049	3051	5	12-1/4	2	4-11/16	1.000	1.500
	3050	3054	5	12-1/4	2	4-11/16	1.500	2.000
1-5/8" - 6	3242	3253	5	11-1/16	2	4-1/4	1.750	2.375
2" - 6	3409	3410	5	13-1/4	5-1/4	4-1/4	1.750	2.937
2-5/8" - 4	3527	3528	5	14	6	4-1/4	1.750	3.250



FOUR SPINDLE AUTOMATICS

GEAR FED



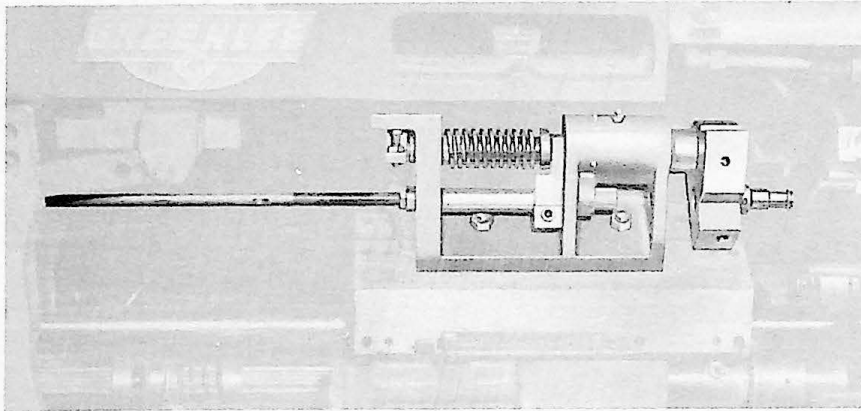
Machine Size	Ratio	Unit No.	Bore Size
1" - 6	2:1	3055	1
	2.9:1	3056	
1-5/8" - 6	2:1	3255	1-1/4
2" - 6	3:1	3256	

RECESSING

End-Working Attachments

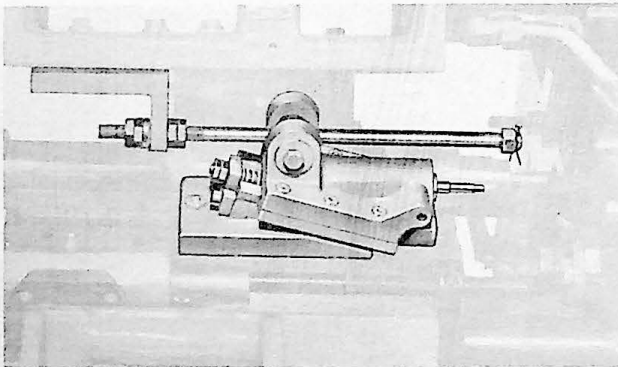


COMPENSATING

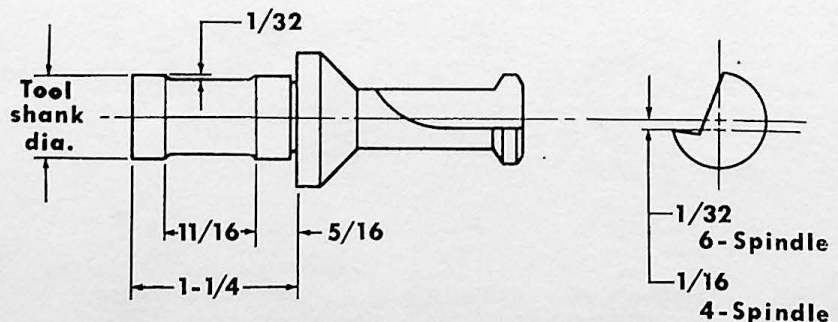
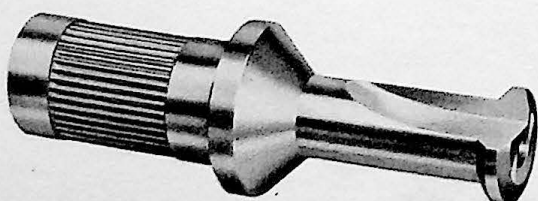
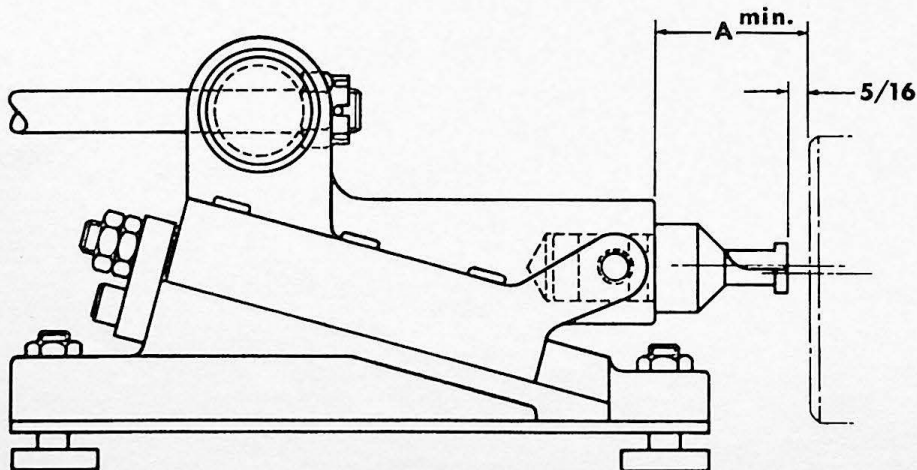


Machine Size	Unit No.	Tool Shank Dia.
1" - 6	3060	3/4
1-5/8"-6 2" - 6	3260	1

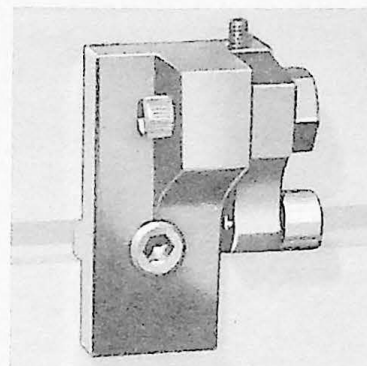
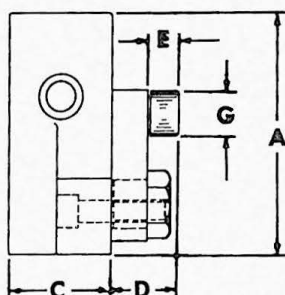
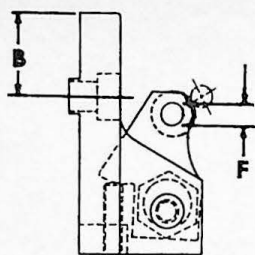
DRAW BACK



Machine Size	Positions	Unit No.	Travel Forward Max.	Recess Travel Max.	A	Tool Shank Dia.
1" - 6	3-4-5	3058	21/32	.178	1-15/16	5/8
	2	3059				
1-5/8"-6 2" - 6	3-4-5	3258	1-3/8	.368	1-1/2	5/8
	2	3259				
1-5/8"-4	ALL	3411	5/8	.162	2-1/4	5/8
2-5/8"-4	ALL	3529	1-3/4	.468	2-3/4	1-1/4

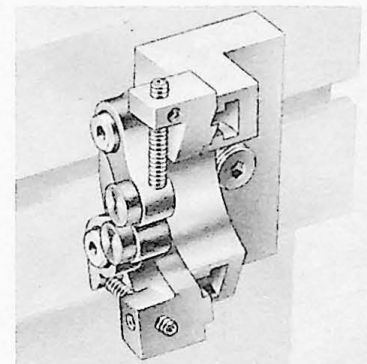
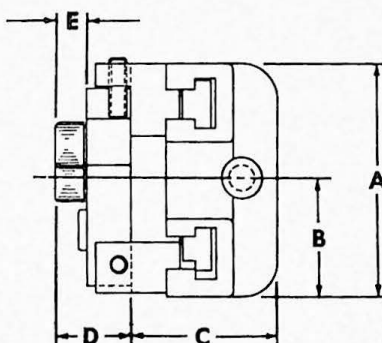
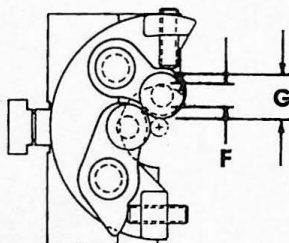


ONE ROLL



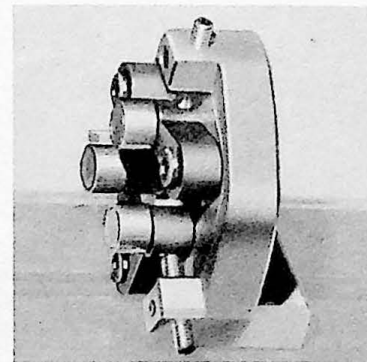
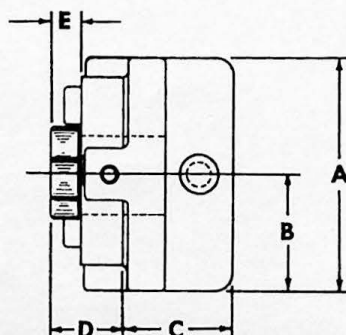
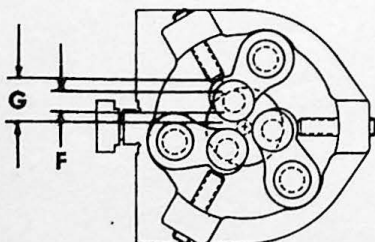
Machine Size	Unit No.	Dimensions In Inches						
		A	B	C	D	E	F	G
1" - 6	3063 3104	1-15/16	3/4	1-3/4	1-1/16	7/16	5/16	5/8
1-5/8" - 6	3292	4	1-3/8	1-3/4	1-5/32	17/32	3/8	3/4
2" - 6	3263							

TWO ROLL

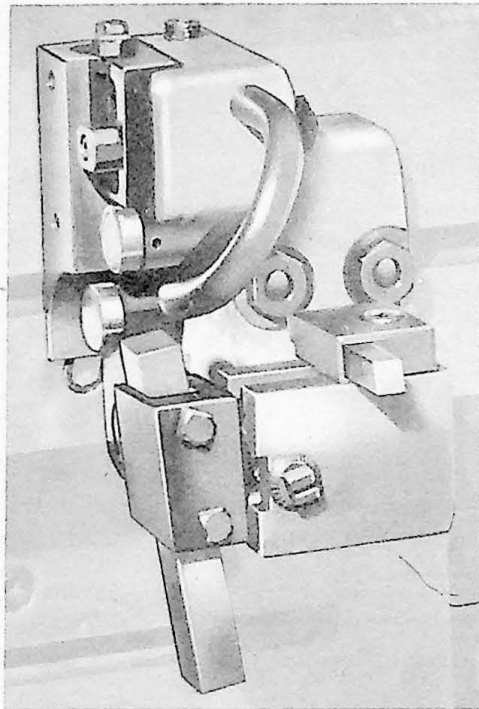


Machine Size	Unit No.	Roller Capacity	Dimensions In Inches						
			A	B	C	D	E	F	G
1" - 6	3064	1/4 To 1"	3-3/16	1-5/8	2-1/16	1-1/16	7/16	5/16	5/8
1-5/8" - 6	3264	1/4 To 2"	3-7/8	1-7/8	2-25/32	1-5/32	17/32	3/8	3/4
2" - 6									

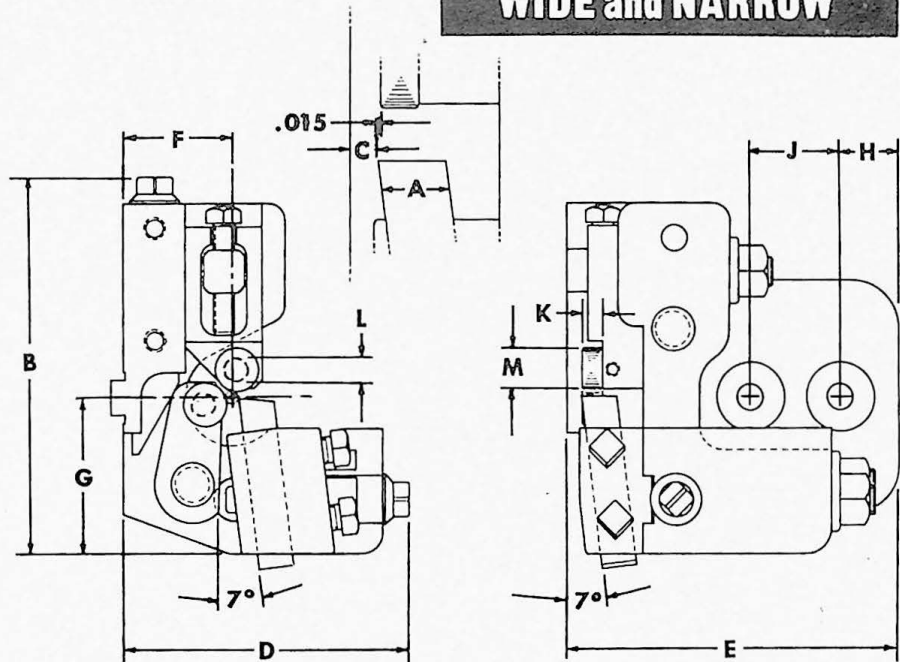
THREE ROLL



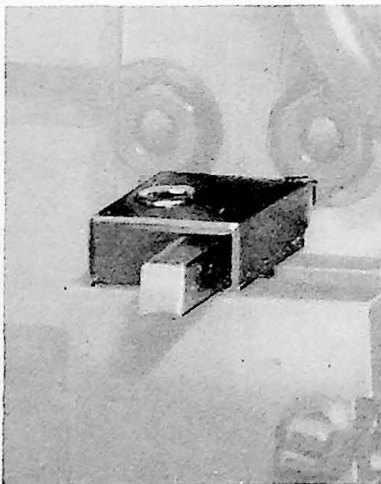
Machine Size	Unit No.	Roller Capacity	Dimensions In Inches						
			A	B	C	D	E	F	G
1" - 6	3065	3/16 To 1"	3-3/8	1-11/16	1-5/8	1-1/16	7/16	5/16	5/8
1-5/8" - 6	3265	1/4 To 2"	4-1/4	2-1/8	2	1-5/32	17/32	3/8	3/4
2" - 6									



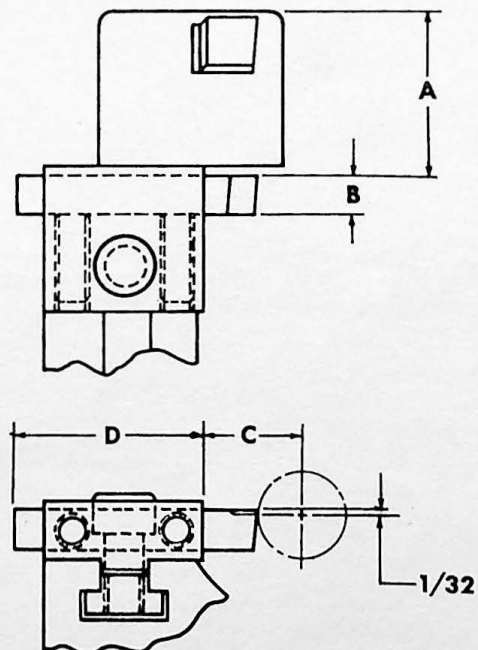
WIDE and NARROW



Machine Size	Unit No.	Turner Capacity Range Dia.	Max. Depth of Cut	Dimensions In Inches											
				A	B	C	D	E	F	G	H	J	K	L	M
1" - 6	3066	1/8 to 1"	7/16	1/2	5-7/16	7/32	4-3/16	4-7/8	1-19/32	2-3/16	7/8	1-5/16	.291	1/4	5/8
1-5/8" - 6	3266	3/8 to 2"	13/16	5/8	6-1/4	1/4	4-13/16	5-1/4	2-3/64	2-1/2	9/16	1-5/8	.305	5/16	7/8
2" - 6	3267	3/8 to 2"	13/16	5/8	6-1/4	1/4	4-13/16	3-5/8	2-3/64	2-1/2	9/16	1-1/8	.305	5/16	7/8
1-5/8" - 4	3414	3/8 to 2"	13/16	5/8	6-1/4	1/4	5-3/8	5-1/4	2-5/8	2-1/2	9/16	1-5/8	.305	5/16	7/8



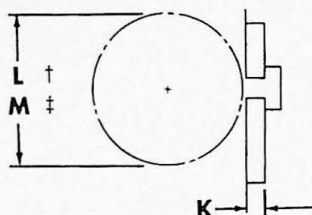
AUXILIARY



Machine Size	Unit No.	Dimensions In Inches				
		A Max.	A Min.	B	C	D
1" - 6	3040	3-3/16	5/8	3/8	21/32	1-1/2
1-5/8" - 6	3040	3-13/32	27/32	3/8	57/64	1-1/2
2" - 6						
1-5/8" - 4	3523	3-15/16	1-1/16	1/2	1-3/32	1-3/4
2-5/8" - 4						

SIX SPINDLE

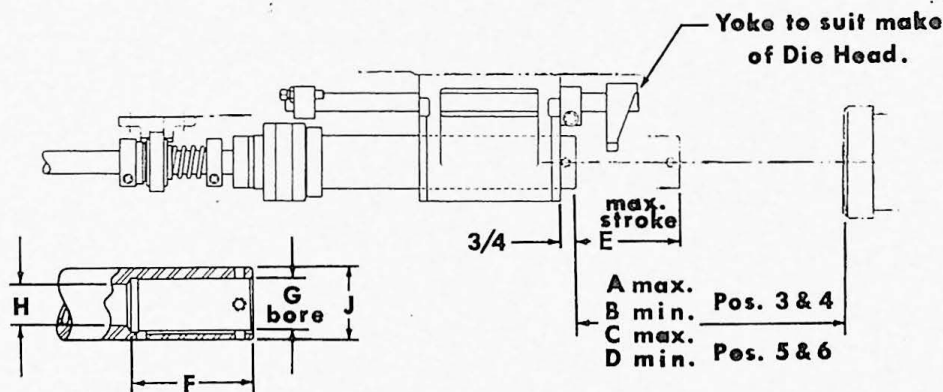
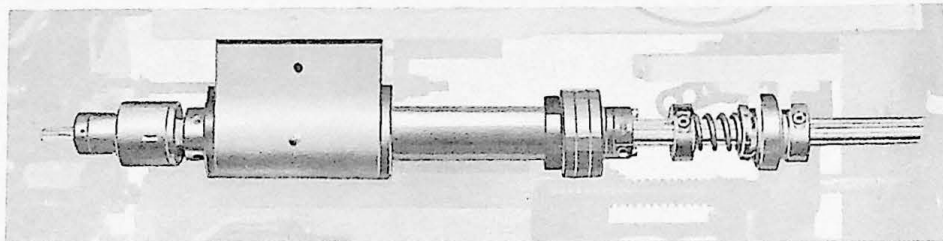
All standard Greenlee threading attachments are universal and may be used for threading or tapping in 3rd, 4th, 5th, and 6th positions. A built-in drive is provided from the gear box.



See page 4 for machines — after Serial No. A1691

† Max. dia. of Die Head in the 3rd & 6th positions.

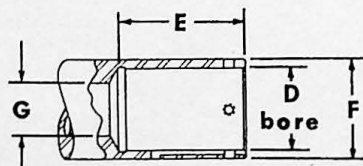
‡ Max. dia. of Die Head in the 4th & 5th positions with inserts removed.



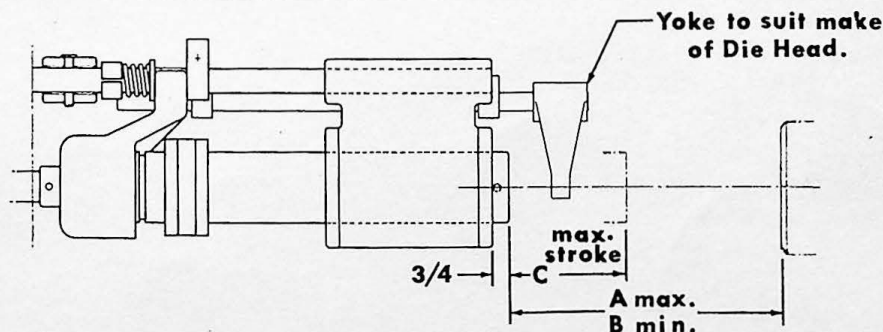
SECTIONAL VIEW OF SPINDLE

CAM ACTUATED THREADING															
Machine Size	Brg. Brkt. Assem.	Basic Attachment Before A1522	Begin A1522	A	B	C	D	E	F	G	H	J	K	L	M
1" - 6	3091	3077	3084	10-5/8	7-5/8	10-5/8	7-5/8	5	4-1/4	1	3/4	1-1/2	7/16	3-1/8	4-5/16
	3092	3078	3085	10-5/8	7-5/8	10-5/8	7-5/8	5	4-1/4	1-1/2	13/16	2	7/16	3-1/8	4-5/16
1-5/8" - 6	3284	3276	3280	12-7/8	9	13-3/4	9	5	4-1/4	1-3/4	1-3/8	2-1/2	9/16	4-1/16	5-1/8
2" - 6															
LEAD SCREW THREADING															
1" - 6	3092	3081	3088	10-5/8	7-5/8	10-5/8	7-5/8	5	4-1/4	1	13/16	2	7/16	3-1/8	4-5/16
1-5/8" - 6	3284	3278	3282	12-7/8	9	13-1/4	9	5	4-1/4	1-3/4	1-3/8	2-1/2	9/16	4-1/16	5-1/8
2" - 6															

FOUR SPINDLE



SECTIONAL VIEW OF SPINDLE

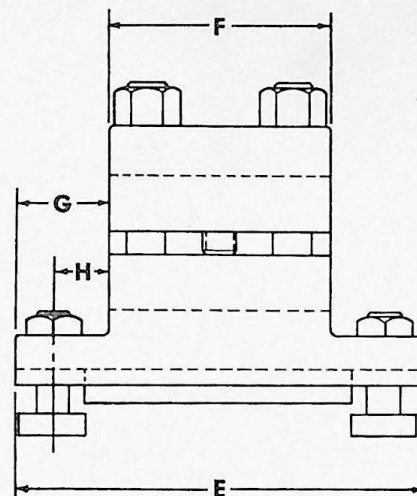
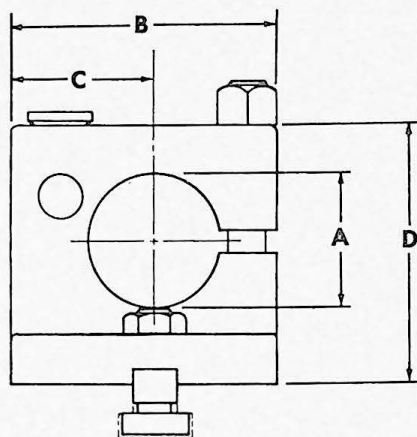
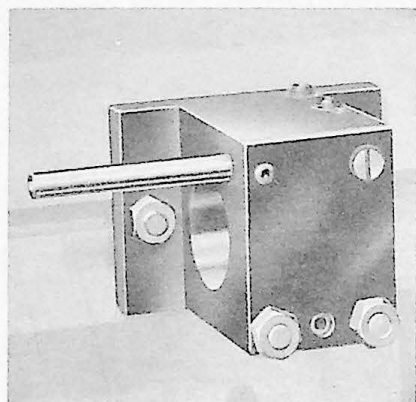


CAM ACTUATED THREADING										
Machine Size	Type	Basic Attach.	Brg. Brkt. Assem.	A	B	C	D	E	F	G
1-5/8" - 4	Bushing	3416	3410	13	10-1/4	5	1-3/4	4-1/4	2-15/16	1-3/8
2-5/8" - 4	Roll. Brg.	3534	3538	12-3/4	11-1/4	5	2-3/4	4-1/4	3-1/4	1-3/4
LEAD SCREW THREADING										
2-5/8" - 4	Roll. Brg.	3536	3538	12-1/2	11-1/4	5	2-3/4	4-1/4	3-1/4	1-3/4

TOOLSLIDE TOOL HOLDER

End-Working Attachments **GREENLEE**

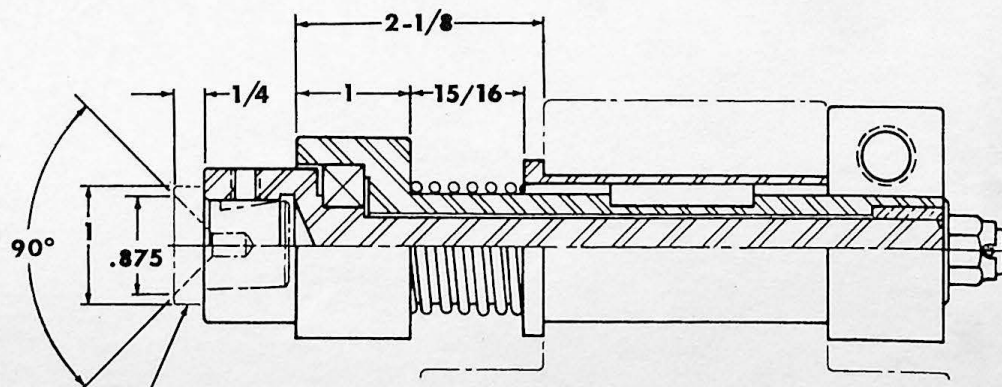
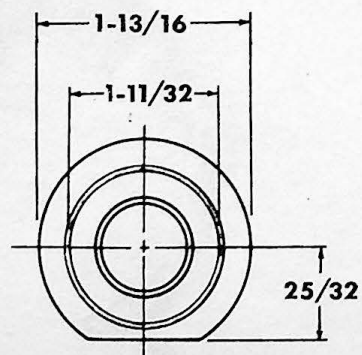
PRODUCTION MACHINERY



Machine Size	Unit No.	Dimensions In Inches							
		A	B	C	D	E	F	G	H
1" - 6	3100	1-1/4	3	1-5/8	2-7/8	4-5/8	2-1/2	1-1/16	5/8
	3101	1-1/2	3	1-5/8	2-7/8	4-5/8	2-1/2	1-1/16	5/8
	3102	1	3	1-5/8	2-7/8	4-5/8	2-1/2	1-1/16	5/8
1-5/8" - 6	3287	2-1/8	4	2-1/8	4	5-1/2	3	1-1/4	11/16
	3288	1-1/2	4	2-1/8	4	5-1/2	3	1-1/4	11/16
	3289	2	4	2-1/8	4	5-1/2	3	1-1/4	11/16
2" - 6	3290	1-1/4	4	2-1/8	4	5-1/2	3	1-1/4	11/16
	3417	2-1/8	5	2-1/2	4-9/16	6-1/4	3-3/4	1-1/4	11/16
1-5/8" - 4	3539	3	5-1/2	2-7/8	5-3/8	6-3/4	4	1-3/8	3/4
	3540	2-1/2	5-1/2	2-7/8	5-3/8	6-3/4	4	1-3/8	3/4
	3541	2	5-1/2	2-7/8	5-3/8	6-3/4	4	1-3/8	3/4

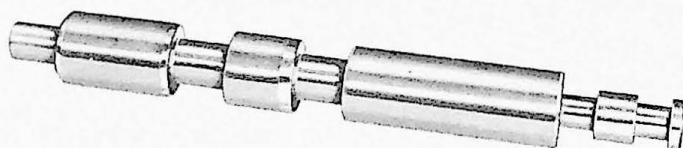
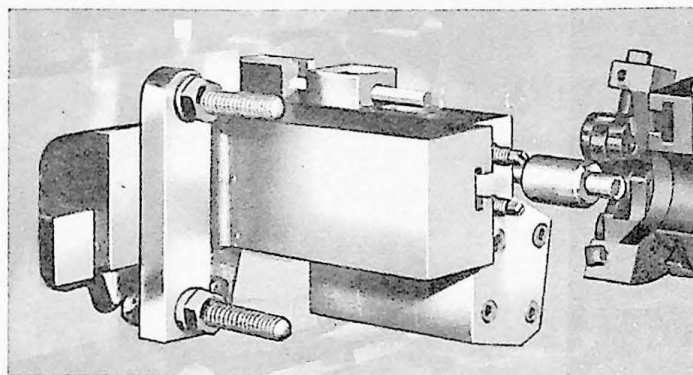
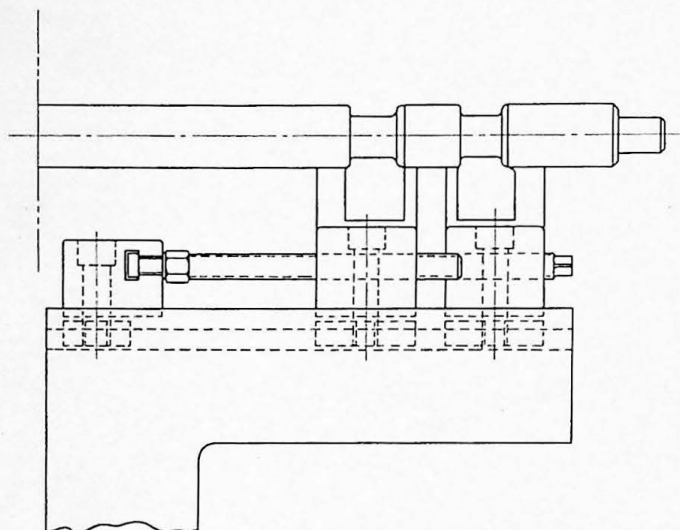
LIVE-CENTER SUPPORT

UNIT NO. 3046
1" - 6 SPINDLE AUTOMATIC

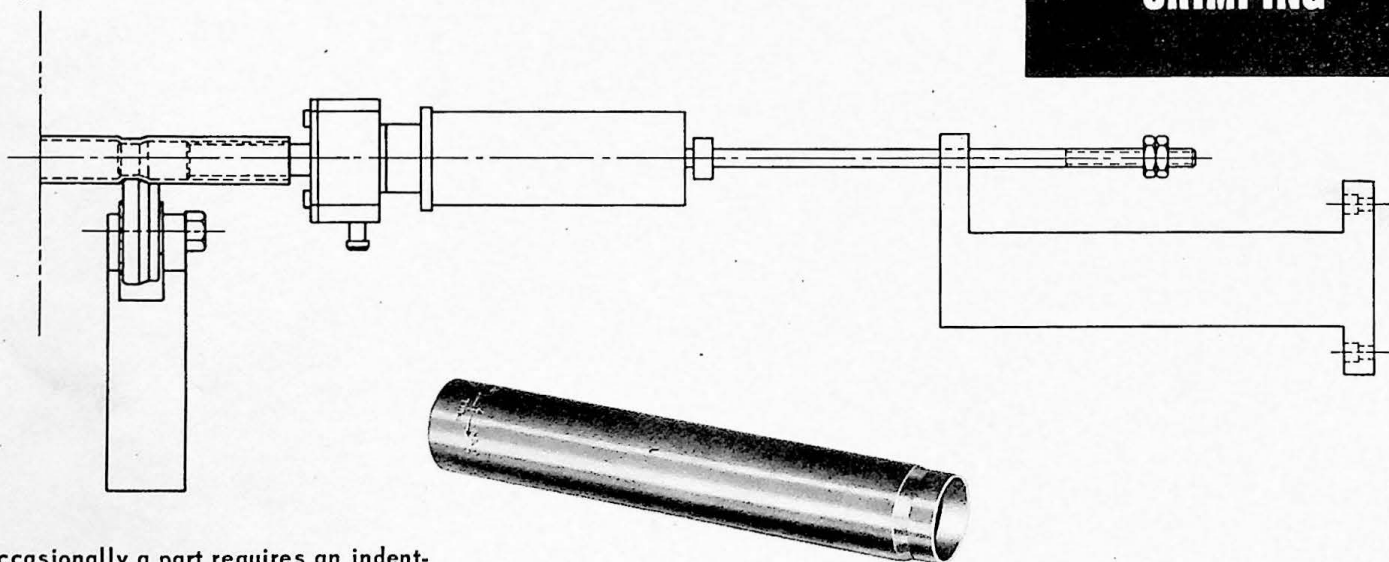


Centering Bushing shown is furnished with attachment. Other type Bushings may be made to order as per customers specifications.

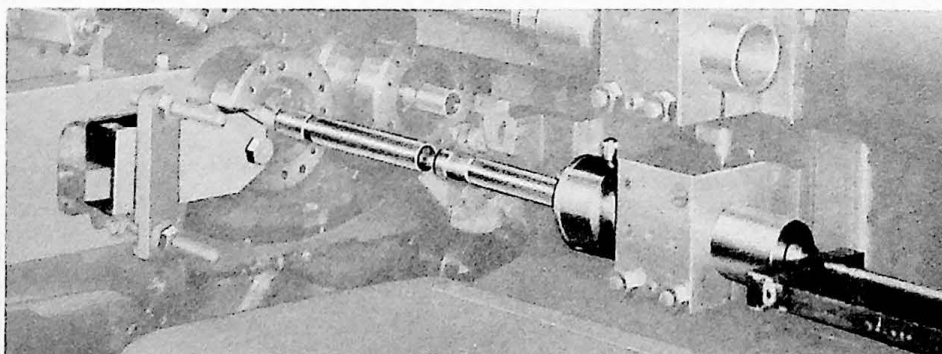
These toolholders are designed so that the tool bits can be set independently of each other at any position along the entire length of a part, thereby eliminating the need for a wide form tool or several forming operations.



CRIMPING

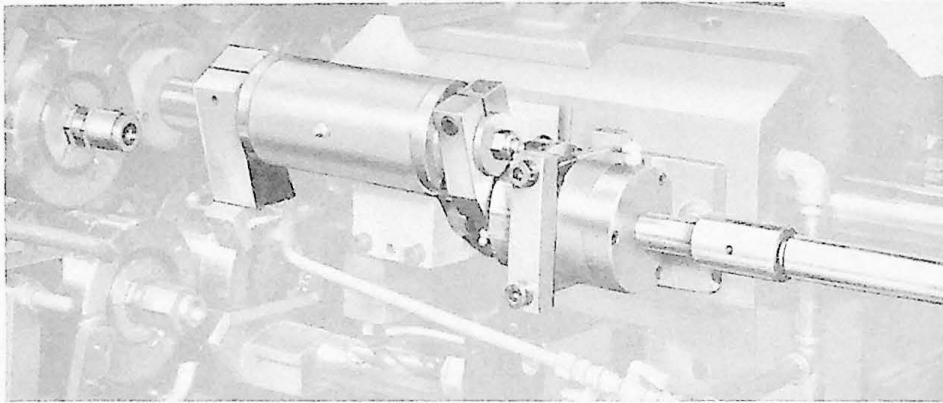


Occasionally a part requires an indented groove or a flange on the end of the piece. Crimping attachments are successful for this type of operation on thin-walled parts. This unit consists of a crimping roll and holder mounted in the forming slide. A live-center mandrel is mounted on the main tool slide and acts as a forming die. Positioning of the mandrel to coincide with the crimp roll is accomplished by a stop rod fastened to the gear box. Being spring loaded, the mandrel remains in position while the tool slide advances.



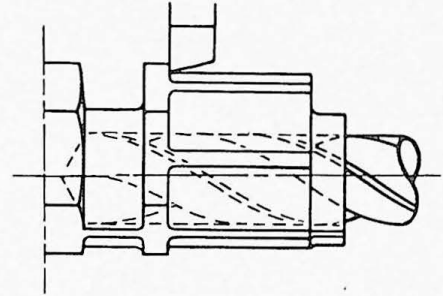
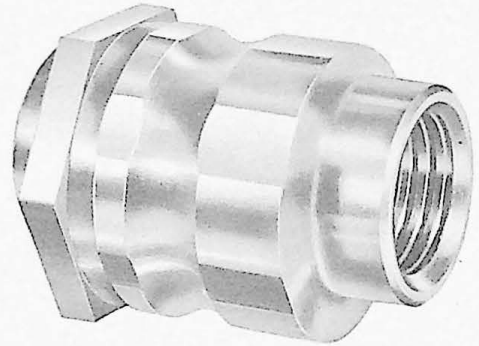
EGCENTRIC TURNING

Special Attachments

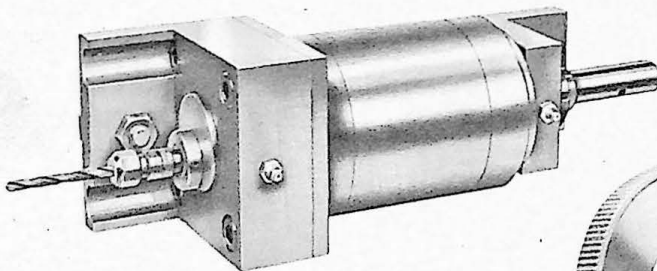


This attachment is used for turning eccentric diameters on the front end of parts. It consists of a tool-holder

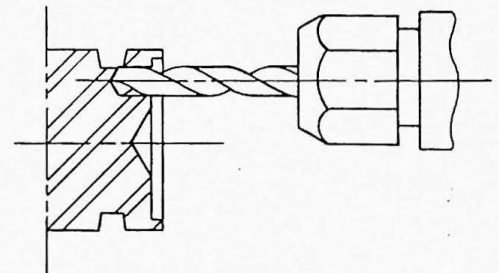
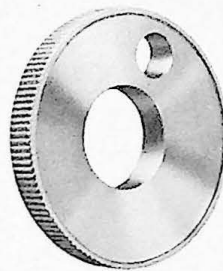
block, mounting bracket, operating lever, eccentric cam plate, and a splined drive shaft, which is connected to the drive in the main gearbox. A roller, riding in the eccentric path of the cam plate, provides the proper eccentricity.



EGCENTRIC DRILLING



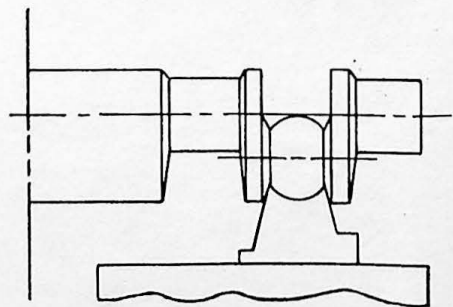
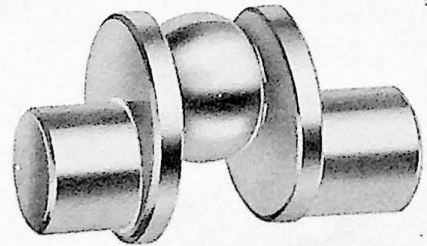
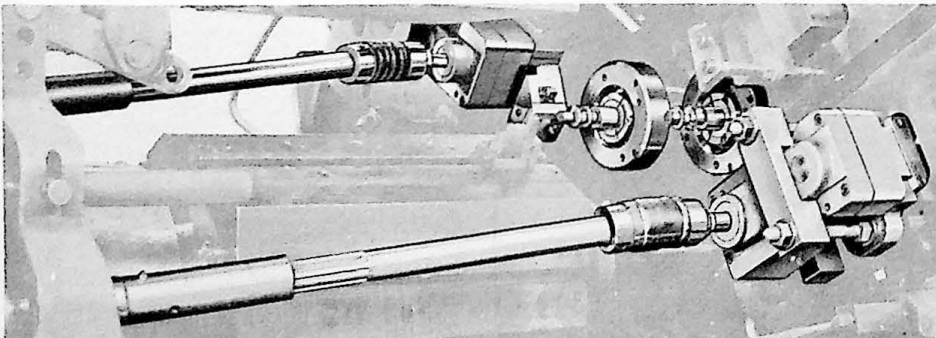
These attachments are specially designed for particular application where holes are to be drilled or bored off-center from the O.D. of the work. The drill head revolves at the same rpm as the work spindle, through a spindle drive shaft connected to the gearing in the main gear box. Internal gearing in the drill head rotates the drill.

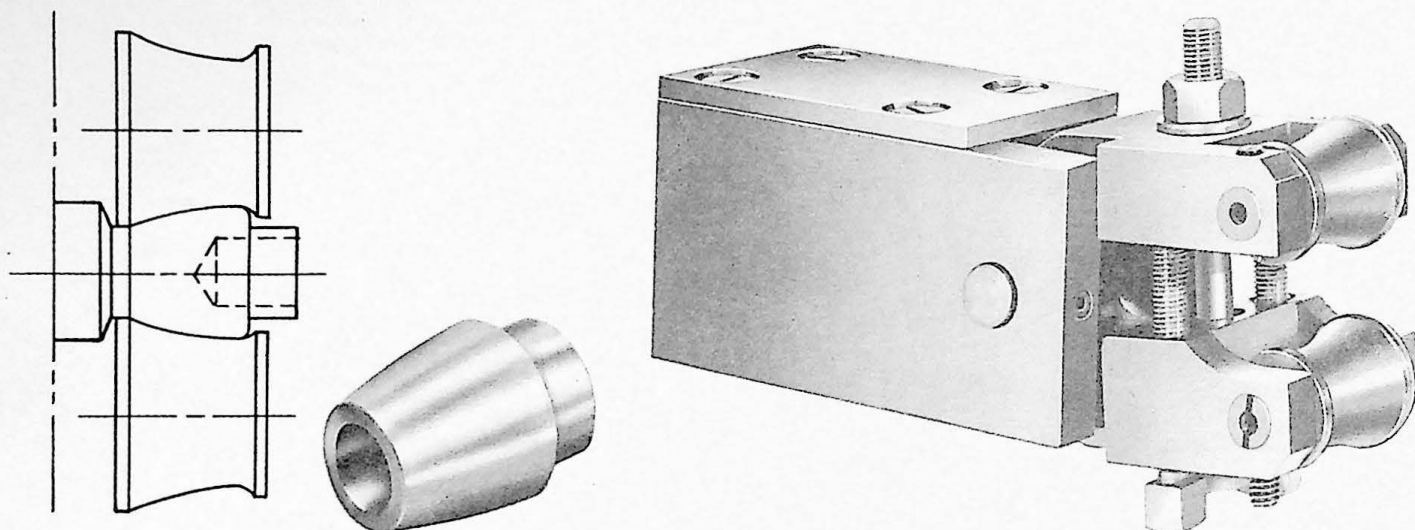


EGCENTRIC FORMING

This attachment is for machining eccentric diameters up to 1/4" eccentricity. The attachment is mounted in the cross slide and driven through a spline shaft from a drive in the main

gear box. The amount of eccentricity required on the work piece is designed into the attachment. One or more attachments can be used simultaneously, with each one being timed to the preceding cut. This unit is generally used for roughing operations.

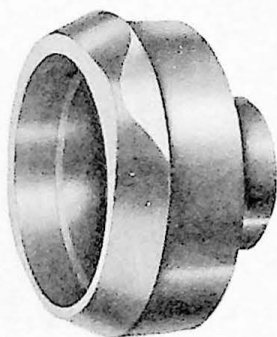




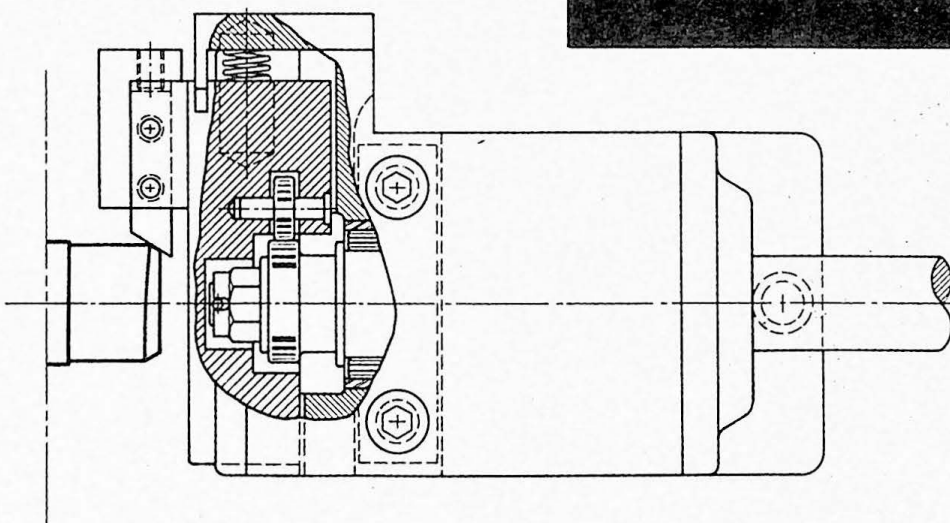
The straddle-type burnishing attachment illustrated is one of several types which may be used to suit special

burnishing applications. All are easily adjusted to the size and burnishing pressure required.

CAM GENERATING



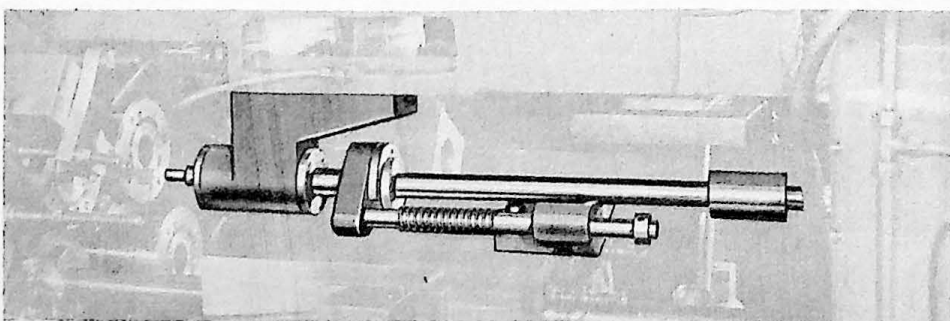
This attachment mounts on the main toolslide and contains a single-point tool, which machines an irregular contour in the outside diameter of the work. The master cam, housed in the attachment and rotating at the same rpm as the work spindle, drives the cutting tool in a predetermined pattern. Changes in the contour on the

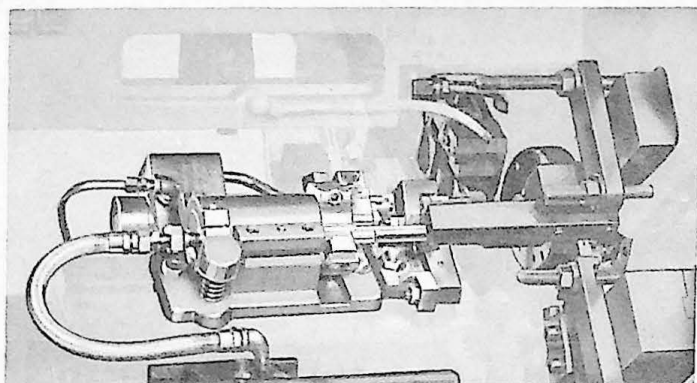


work are accomplished by installing the required master cam to guide the tool.

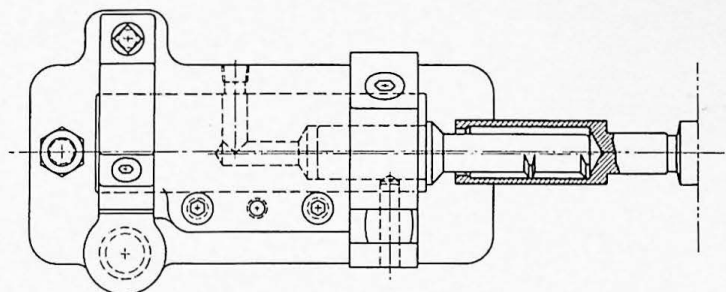
FINGER-TYPE BURRING

Used primarily for eliminating the cutoff burr, this simplified attachment can be mounted on the overarm in the 3rd and 4th positions and on the threading bracket in the 5th and 6th positions. A specially designed spring-finger, rotating at the same rpm as the work piece, holds the part while it is being cut off. A stripping rod on the inside of the spindle removes the workpiece from the feed-finger as the toolslide retracts.





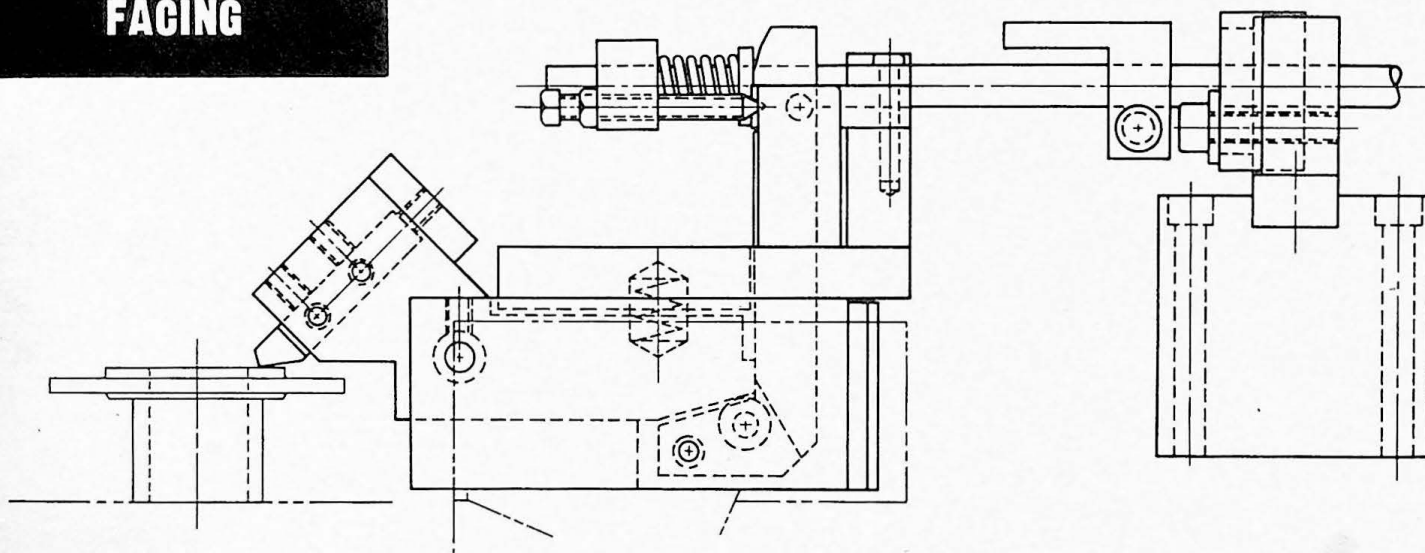
This attachment mounts on the main tool slide. As it advances, the boring



tool enters the work piece on center and is fed into cutting depth by the roller contacting a cam plate, which

is mounted in the forming slide. The boring tool returns to center when the tool slide retracts.

RELIEF-TYPE FACING



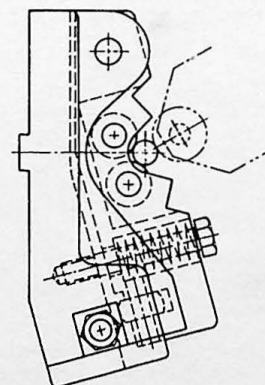
The relieving-type facing attachment is designed so that the toolholder block is firmly locked in position while

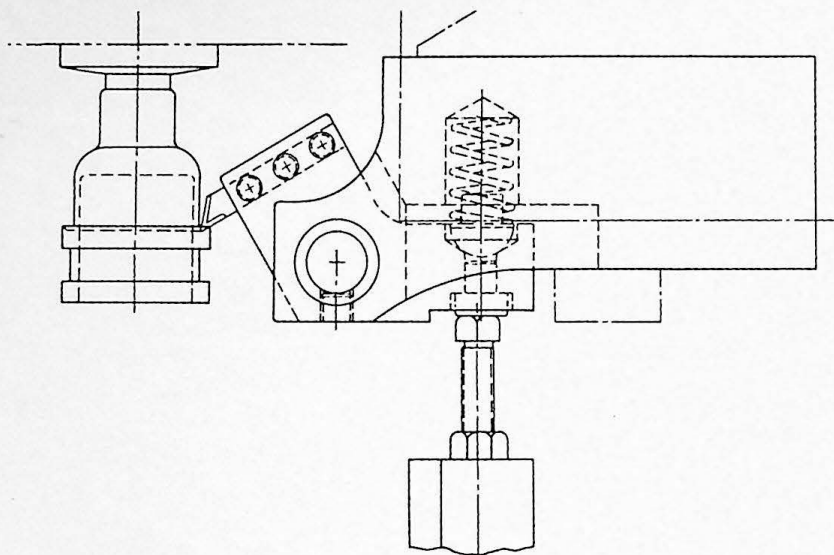
the tool is facing the part. Upon completion it will swing away from the work, thus eliminating any drawback marks on the faced surface.

SPRING-LOADED ROLLER SUPPORT

The roller support illustrated is a cam-operated, two-roll roller support, designed to support the workpiece behind a knurled surface or a small shoulder or under conditions which prevent the

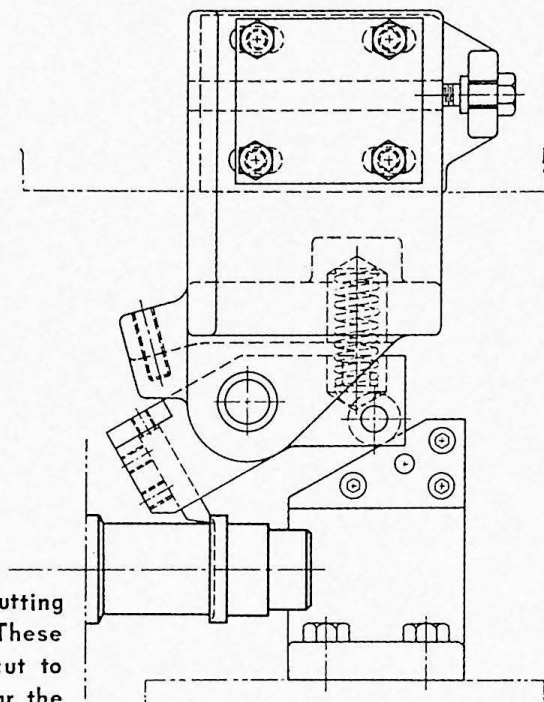
use of standard roller supports. The rollers are spring loaded and will remain out of contact with the workpiece while passing over its raised portion. Once this portion is safely passed the rollers will securely grip the workpiece. Other types of special roller supports are also available.





There are two types of undercutting attachments. One is mounted in the forming-slide cavity and the other is mounted on the overarm. Both are

specifically designed for undercutting on the back side of a shoulder. These attachments allow the tool to cut to the required depth and then clear the work when the toolslide retracts.



There are two types of broaching attachments: one is power driven from the gearbox and the other is a live-center type. The type of material

being machined, the size, and contour of the broach will determine the type of attachment to be used. Both internal and external broaching can be done.

BROACHING

Whenever the knurled surface is too wide for special wide knurls, and where excessive side pressure results, the form-knurling attachment is used. This unit mounts in the cross slide and is fed to depth by a special cross-

slide cam. It is held at this depth while the toolslide or an accelerated lever pushes the knurls lengthwise across the piece knurling the part. A spring resets the unit when the toolslide and cross slide retract.

FORM KNURLING

This attachment is generally used for removing steps on a diameter resulting from multiple turning or forming passes. The tool is set on an angle and passes over or under the workpiece.

This produces single-point contact, and side deflection is held at a minimum. Generally not recommended for holding size or for exceptionally fine finishes.

SKIVING

This method of producing a thread is becoming more and more popular for eliminating secondary threading operations. Generally it is used for com-

pleting threading operations behind shoulders. This is a straddle-type unit, and internal gearing drives the one roll from the other.

THREAD ROLLING

A radial receding trepanning tool, used for machining a stem on the inside of an internal diameter or for grooving on the shoulder or face of a part, is

available. The tool is ground to the contour and clearance desired and can be mounted in an adjustable boring toolholder or a stationary toolholder.

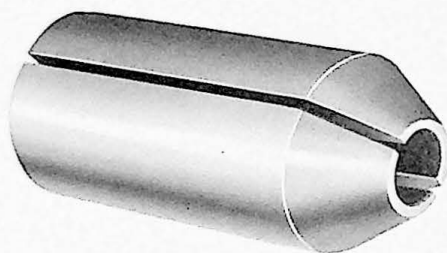
TREPPANNING TOOL

BUSHINGS

Accessories

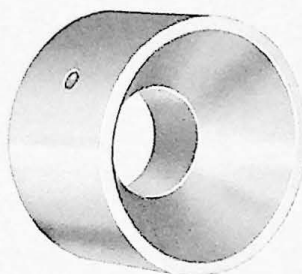


DRILL



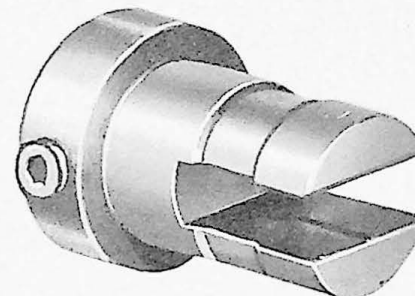
Order by size of drill and size of tool slide tool holder bore.

STOCK REEL



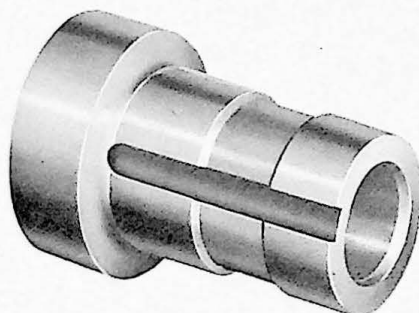
Specify stock size for which bushing is to be used and size of machine.

TAP



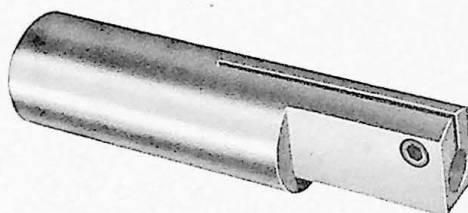
Specify shank diameter of tap and I.D. of floating holder.

REAMER



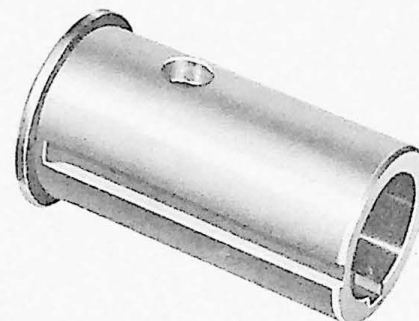
Specify shank diameter of reamer and I.D. of floating holder.

SPOT DRILL



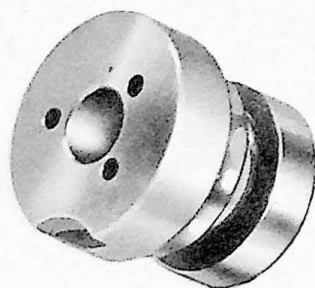
Used in conjunction with roller turner for extremely short drill projection. Order by size of drill and size of tool slide tool holder bore.

FLOATING HOLDER



Specify I.D. and O.D. as required.

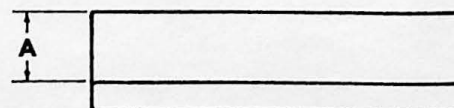
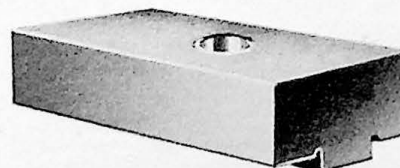
COOLANT BUSHING and HOLDER



A compact coolant bushing and holder designed for use with standard drills. Three small openings in the bushing channel coolant directly into the hole being drilled, effectively flushing out chips.

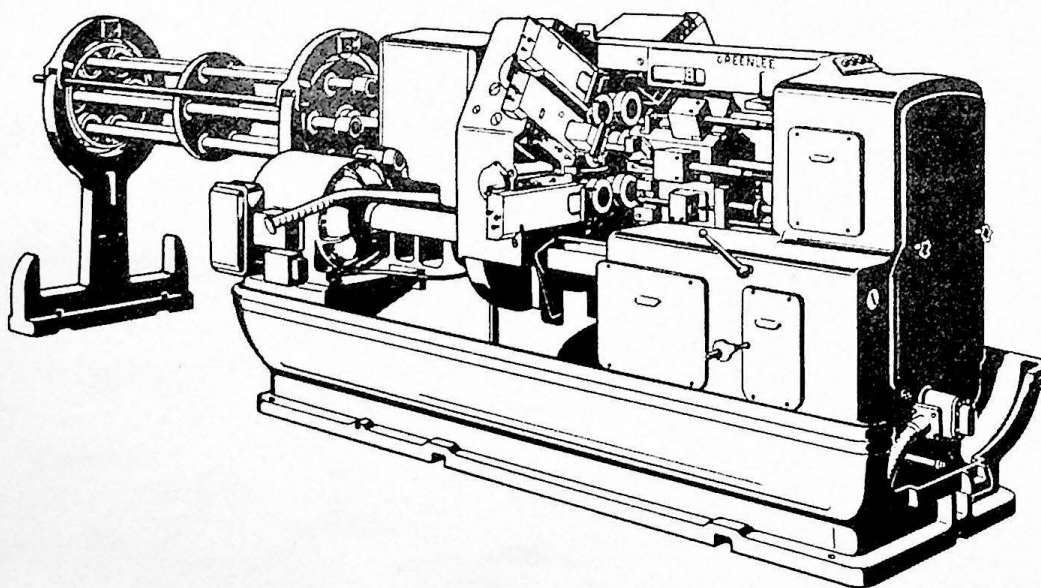


FILLER BLOCKS



When ordering specify thickness "A", attachment with which block is to be used, and the size of the machine.

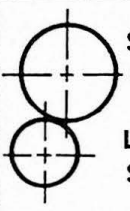
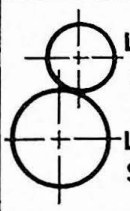
Speed and Feed Charts
For Automatic Bar Machines
After Serial Number A-1522

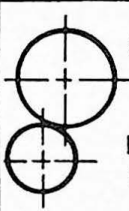
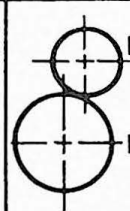


WHEN ORDERING:

- ▶ If machine is other than standard specify whether it has cam feed or fast index.
- ▶ List serial number of machine.

AFTER SERIAL NO. A1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
215	3683	21 87	9266YA 9267YA
227	3475	22 86	9268YA 9269YA
241	3285	23 85	9270YA 9271YA
254	3112	24 84	9272YA 9273YA
268	2951	25 83	9274YA 9275YA
282	2804	26 82	9276YA 9277YA
296	2667	27 81	9278YA 9279YA
311	2540	28 80	* 9280YA 9281YA
326	2422	29 79	9282YA 9283YA
342	2311	30 78	9284YA 9285YA
358	2208	31 77	9286YA 9287YA
374	2111	32 76	9288YA 9289YA
391	2020	33 75	* 9290YA 9291YA
408	1935	34 74	9292YA 9293YA
426	1854	35 73	9294YA 9295YA
445	1778	36 72	* 9296YA 9297YA
463	1706	37 71	9310YA 9311YA

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
483	1638	38 70	* 9312YA 9313YA
502	1573	39 69	9314YA 9315YA
523	1511	40 68	* 9316YA 9317YA
544	1453	41 67	9318YA 9319YA
566	1397	42 66	* 9320YA 9321YA
588	1344	43 65	9322YA 9323YA
611	1293	44 64	* 9324YA 9325YA
635	1245	45 63	9326YA 9327YA
660	1198	46 62	* 9328YA 9329YA
685	1154	47 61	9330YA 9331YA
711	1111	48 60	* 9332YA 9333YA
738	1070	49 59	9334YA 9335YA
766	1031	50 58	* 9336YA 9337YA
795	994	51 57	9338YA 9339YA
826	957	52 56	* 9340YA 9341YA
857	923	53 55	* 9342YA 9343YA
889	889	54 54	9344YA 9345YA

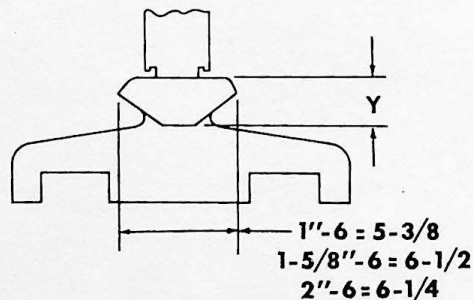
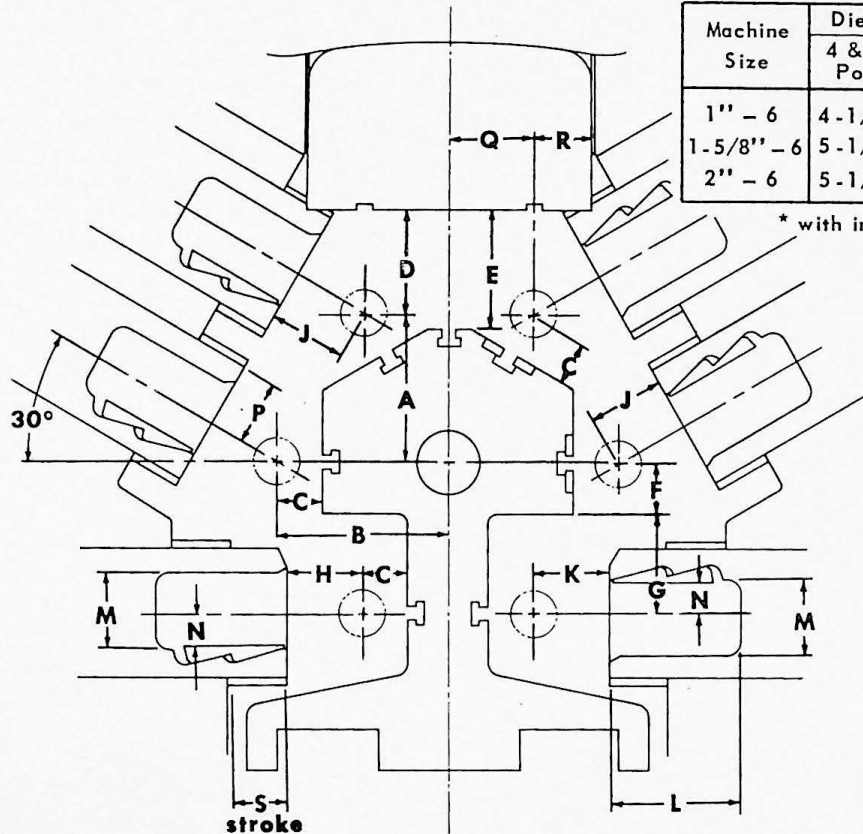
* These gears are available for immediate delivery

MAX. DIE HEAD DIA.

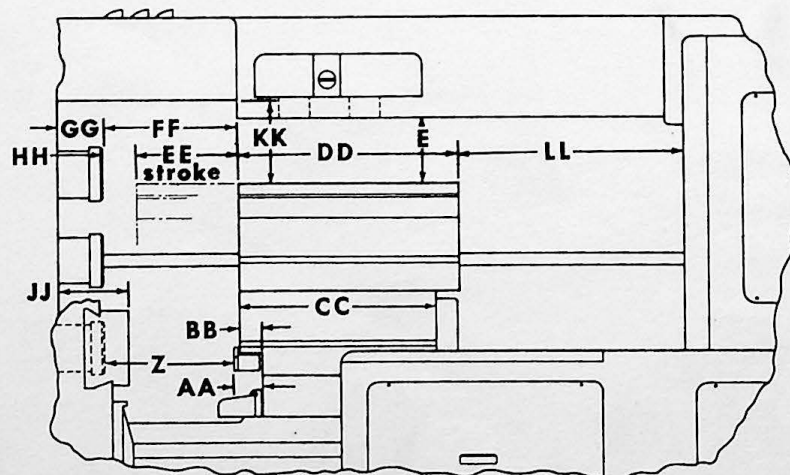
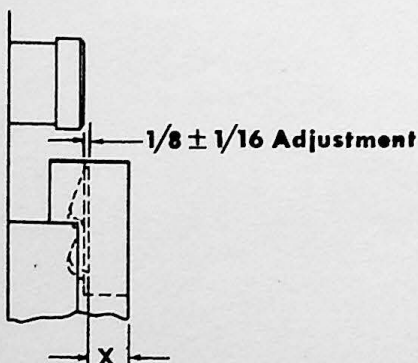
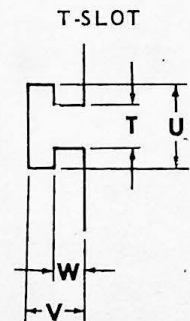
Machine Size	Die Head Dia.	
	4 & 5 * Pos.	3 & 6 Pos.
1" - 6	4-1/16	3-1/8
1-5/8" - 6	5-1/8	4-1/16
2" - 6	5-1/8	4-1/16

* with insert removed

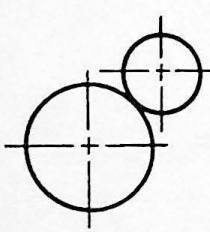
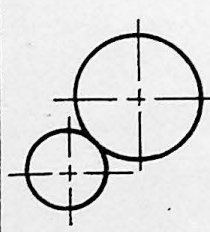
Key No.	Dimensions In Inches	
	1" - 6	1-5/8" - 2" - 6
A	5.196	6.278
B	6	7.250
C	1.594	2.047
D	3.491	4.096
E	4.062	4.874
F	1-3/4	2-1/8
G	3.446	4.153
H	2-5/8	3-5/8
J	2-5/8	3-1/8
K	2-5/8	3-3/8
L	4-5/8	5-1/2
M	2-11/16	3-1/8
N	1-3/16	1-3/8
P	2.250	2.8125
Q	3	3.625
R	2	1-7/8
S	1-3/4	2-1/4
T	1/2	9/16
U	13/16	1-1/16
V	19/32	25/32
W	5/16	7/16
X	1-1/2	2
Y	2-1/16	2-7/16
Z	6-5/8	8-7/8
AA	2-13/16	3-1/8
BB	2.500	2.312
CC	13	13.875
DD	14-1/2	15-7/8
EE	6.208	7.948
FF	7-1/4	9-3/8
GG	2-3/4	3-5/16
HH	1-3/64	1-7/16
JJ	4-5/16	5-3/8
KK	6-5/16	7-1/8
LL	14-5/8	10-5/16



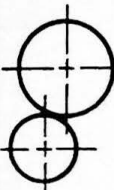
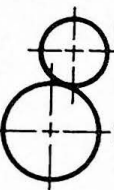
Machine	Seconds
1" - 6	2
1-5/8" - 6	2.25
2" - 6	2.25

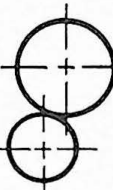
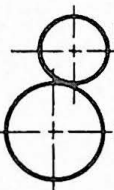


AFTER SERIAL NO. A1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE											
			3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	2	2-1/2
SMALL GEAR ON UPPER SHAFT 	9418YA 9458YA	18 58	.0012	.0013	.0013	.0014	.0014	.0014	.0014	.0015	.0015	.0016	.0017	.0018
	9422YA 9454YA	22 54	.0016	.0017	.0018	.0019	.002	.002	.002	.002	.002	.0021	.0023	.0024
	9426YA 9450YA	26 50	.002	.0021	.0022	.0023	.0024	.0025	.0026	.0026	.0027	.0027	.0029	.0031
	9429YA 9447YA	29 47	.0024	.0025	.0026	.0027	.0028	.0029	.003	.0031	.0031	.0032	.0033	.0035
	9431YA 9445YA	31 45	.0026	.0028	.0029	.0031	.0031	.0032	.0033	.0034	.0035	.0036	.0036	.004
	9433YA 9443YA	33 43	.003	.0031	.0032	.0034	.0036	.0037	.0037	.0038	.0039	.004	.0042	.0044
	9435YA 9441YA	35 41	.0033	.0035	.0037	.0037	.0039	.0041	.0042	.0043	.0043	.0044	.0047	.0048
	9437YA 9439YA	37 39	.0037	.0038	.004	.0043	.0044	.0045	.0046	.0047	.0048	.0049	.0052	.0054
	9438YA 9438YA	38 38	.0038	.0041	.0043	.0044	.0046	.0048	.0048	.0049	.0051	.0053	.0054	.0058
	9439YA 9437YA	39 37	.0041	.0043	.0045	.0047	.0048	.005	.0051	.0052	.0054	.0055	.0058	.006
LARGE GEAR ON UPPER SHAFT 	9441YA 9435YA	41 35	.0045	.0048	.005	.0052	.0054	.0056	.0057	.0058	.006	.0061	.0065	.0067
	9443YA 9433YA	43 33	.005	.0053	.0055	.0058	.006	.0062	.0064	.0065	.0067	.0068	.0071	.0075
	9445YA 9431YA	45 31	.0056	.0059	.0062	.0065	.0067	.0069	.007	.0072	.0074	.0076	.0079	.0083
	9447YA 9429YA	47 29	.0063	.0065	.0069	.0072	.0075	.0077	.0079	.0081	.0082	.0085	.0089	.0094
	9450YA 9426YA	50 26	.0075	.0078	.0082	.0085	.0088	.0092	.0094	.0096	.0098	.010	.0105	.0111
	9454YA 9422YA	54 22	.0094	.0099	.0102	.0109	.0113	.0116	.0119	.0122	.0125	.0128	.0134	.0141
	9458YA 9418YA	58 18	.0125	.0131	.0133	.0143	.0146	.0154	.0157	.0161	.0163	.0168	.0176	.0183

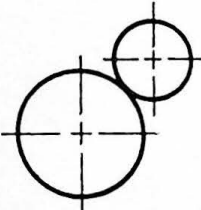
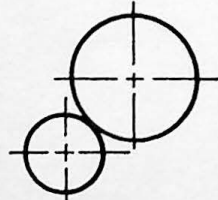
AFTER SERIAL NO. A1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
285		21 87	9266YA 9267YA
301		22 86	9268YA 9269YA
319		23 85	9270YA 9271YA
336		24 84	9272YA 9273YA
355		25 83	9274YA 9275YA
374	3714	26 82	9276YA 9277YA
392	3533	27 81	9278YA 9279YA
412	3365	28 80	* 9280YA 9281YA
432	3208	29 79	9282YA 9283YA
453	3061	30 78	9284YA 9285YA
474	2925	31 77	9286YA 9287YA
495	2796	32 76	9288YA 9289YA
518	2676	33 75	* 9290YA 9291YA
540	2563	34 74	9292YA 9293YA
564	2456	35 73	9294YA 9295YA
589	2355	36 72	* 9296YA 9297YA
613	2260	37 71	9310YA 9311YA

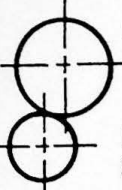
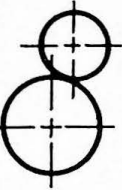
 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
640	2170	38 70	* 9312YA 9313YA
665	2084	39 69	9314YA 9315YA
693	2001	40 68	* 9316YA 9317YA
721	1925	41 67	9318YA 9319YA
750	1850	42 66	* 9320YA 9321YA
779	1780	43 65	9322YA 9323YA
809	1713	44 64	* 9324YA 9325YA
841	1649	45 63	9326YA 9327YA
874	1587	46 62	* 9328YA 9329YA
907	1529	47 61	9330YA 9331YA
942	1472	48 60	* 9332YA 9333YA
978	1417	49 59	9334YA 9335YA
1015	1366	50 58	* 9336YA 9337YA
1053	1317	51 57	9338YA 9339YA
1094	1268	52 56	* 9340YA 9341YA
1135	1223	53 55	* 9342YA 9343YA
1178	1178	54 54	9344YA 9345YA

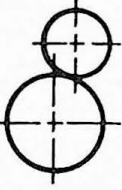
* These gears are available for immediate delivery

AFTER SERIAL NO. A1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE							
			1/4	3/8	1/2	5/8	3/4	7/8	1.000	1.125 & UP
SMALL GEAR ON UPPER SHAFT 	9418YA 9458YA	18 58	.0015	.0017	.0018	.0019	.0020	.0020	.0021	.0021
	9422YA 9454YA	22 54	.0020	.0023	.0025	.0026	.0027	.0027	.0028	.0028
	9426YA 9450YA	26 50	.0025	.0029	.0031	.0032	.0033	.0034	.0035	.0035
	9429YA 9447YA	29 47	.0030	.0035	.0037	.0039	.0040	.0041	.0042	.0042
	9431YA 9445YA	31 45	.0034	.0038	.0042	.0044	.0045	.0046	.0047	.0048
	9433YA 9443YA	33 43	.0038	.0043	.0046	.0049	.0050	.0051	.0053	.0054
	9435YA 9441YA	35 41	.0042	.0048	.0051	.0054	.0056	.0057	.0058	.0059
	9437YA 9439YA	37 39	.0046	.0053	.0056	.0059	.0061	.0062	.0064	.0065
	9438YA 9438YA	38 38	.0049	.0056	.0060	.0063	.0065	.0066	.0068	.0069
LARGE GEAR ON UPPER SHAFT 	9439YA 9437YA	39 37	.0052	.0059	.0064	.0067	.0069	.0070	.0072	.0073
	9441YA 9435YA	41 35	.0057	.0065	.0070	.0073	.0076	.0077	.0079	.0080
	9443YA 9433YA	43 33	.0064	.0073	.0078	.0082	.0085	.0086	.0089	.0090
	9445YA 9431YA	45 31	.0071	.0081	.0087	.0091	.0094	.0095	.0098	.0100
	9447YA 9429YA	47 29	.0080	.0091	.0098	.0103	.0106	.0108	.0111	.0112
	9450YA 9426YA	50 26	.0094	.0106	.0115	.0121	.0125	.0127	.0131	.0133
	9454YA 9422YA	54 22	.0120	.0137	.0147	.0154	.0159	.0161	.0166	.0169
	9458YA 9418YA	58 18	.0158	.018	.0194	.0202	.0210	.0213	.0220	.0222

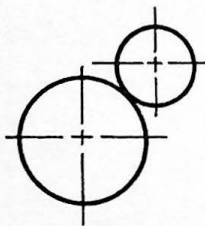
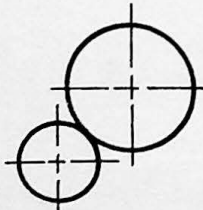
AFTER SERIAL NO. A1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
100	2490	18 90	9395YA 9396YA
106	2333	19 89	9397YA 9398YA
113	2191	20 88	* 9399YA 9400YA
120	2063	21 87	9266YA 9267YA
127	1947	22 86	* 9268YA 9269YA
135	1840	23 85	9270YA 9271YA
142	1743	24 84	* 9272YA 9273YA
150	1653	25 83	9274YA 9275YA
158	1571	26 82	* 9276YA 9277YA
166	1494	27 81	9278YA 9279YA
174	1423	28 80	* 9280YA 9281YA
183	1357	29 79	9282YA 9283YA
192	1295	30 78	* 9284YA 9285YA
200	1237	31 77	9286YA 9287YA
210	1183	32 76	* 9288YA 9289YA
219	1132	33 75	* 9290YA 9291YA
229	1084	34 74	* 9292YA 9293YA
239	1039	35 73	9294YA 9295YA

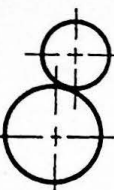
 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
249	996	36 72	9296YA * 9297YA
259	956	37 71	9310YA 9311YA
270	917	38 70	* 9312YA 9313YA
281	881	39 69	9314YA 9315YA
293	847	40 68	* 9316YA 9317YA
305	814	41 67	9318YA 9319YA
317	783	42 66	* 9320YA 9321YA
329	753	43 65	9322YA 9323YA
342	724	44 64	* 9324YA 9325YA
356	697	45 63	9326YA 9327YA
369	671	46 62	* 9328YA 9329YA
384	646	47 61	9330YA 9331YA
398	622	48 60	* 9332YA 9333YA
414	600	49 59	9334YA 9335YA
429	578	50 58	* 9336YA 9337YA
446	557	51 57	9338YA 9339YA
462	536	52 56	* 9340YA 9341YA
480	517	53 55	* 9342YA 9343YA
498	498	54 54	9344YA 9345YA

* These gears are available for immediate delivery

AFTER SERIAL NO. A1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE											
			3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	2	2-1/2
SMALL GEAR ON UPPER SHAFT 	9416YA 9458YA	16 58	.0018	.0019	.0021	.0022	.0023	.0024	.0024	.0025	.0026	.0027	.0028	.0030
	9420YA 9454YA	20 54	.0024	.0026	.0028	.0030	.0032	.0033	.0034	.0036	.0037	.0038	.0039	.0041
	9424YA 9450YA	24 50	.0031	.0034	.0036	.0039	.0041	.0043	.0044	.0045	.0046	.0048	.0050	.0053
	9427YA 9447YA	27 47	.0038	.0040	.0043	.0046	.0049	.0052	.0053	.0054	.0056	.0058	.0062	.0064
	9429YA 9445YA	29 45	.0041	.0045	.0049	.0053	.0056	.0058	.0059	.0060	.0062	.0065	.0069	.0072
	9431YA 9443YA	31 43	.0046	.0050	.0055	.0058	.0061	.0064	.0065	.0067	.0069	.0072	.0077	.0081
	9433YA 9441YA	33 41	.0052	.0057	.0061	.0065	.0068	.0072	.0074	.0077	.0079	.0082	.0085	.0090
	9435YA 9439YA	35 39	.0057	.0063	.0068	.0074	.0077	.0080	.0082	.0085	.0088	.0092	.0096	.0100
	9437YA 9437YA	37 37	.0063	.0070	.0076	.0082	.0085	.0089	.0092	.0095	.0098	.0102	.0107	.0113
LARGE GEAR ON UPPER SHAFT 	9439YA 9435YA	39 35	.0072	.0080	.0085	.0090	.0096	.0100	.0103	.0106	.0110	.0114	.0119	.0126
	9441YA 9433YA	41 33	.0077	.0088	.0095	.0101	.0106	.0112	.0116	.0120	.0124	.0128	.0133	.0139
	9443YA 9431YA	43 31	.0089	.0098	.0107	.0114	.0119	.0124	.0127	.0132	.0136	.0140	.0147	.0158
	9445YA 9429YA	45 29	.0101	.0109	.0118	.0126	.0133	.0139	.0143	.0147	.0153	.0158	.0165	.0175
	9447YA 9427YA	47 27	.0114	.0124	.0133	.0141	.0148	.0156	.0161	.0166	.0171	.0177	.0185	.0196
	9450YA 9424YA	50 24	.0135	.0147	.0157	.0165	.0171	.0177	.0185	.0194	.0202	.0210	.0221	.0234
	9454YA 9420YA	54 20	.0177	.0191	.0206	.0221	.0231	.0242	.0248	.0257	.0265	.0274	.0288	.0303
	9458YA 9416YA	58 16	.0235	.0259	.0276	.0295	.0309	.0324	.0337	.0347	.0358	.0368	.0377	.0408

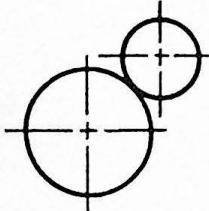
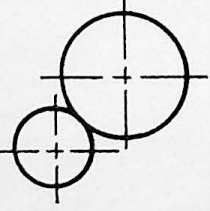
AFTER SERIAL NO. A1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
128		18 90	9395YA 9396YA
136		19 89	9397YA 9398YA
145		20 88	* 9399YA * 9400YA
154		21 87	9266YA 9267YA
163	2501	22 86	* 9268YA * 9269YA
173	2363	23 85	9270YA 9271YA
182	2239	24 84	* 9272YA * 9273YA
193	2123	25 83	9274YA 9275YA
203	2018	26 82	* 9276YA * 9277YA
213	1919	27 81	9278YA 9279YA
223	1828	28 80	* 9280YA * 9281YA
235	1743	29 79	9282YA 9283YA
247	1663	30 78	* 9284YA * 9285YA
257	1589	31 77	9286YA 9287YA
270	1519	32 76	* 9288YA * 9289YA
281	1454	33 75	* 9290YA * 9291YA
294	1392	34 74	* 9292YA * 9293YA
307	1334	35 73	9294YA 9295YA

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
320	1279	36 72	* 9296YA * 9297YA
333	1228	37 71	9310YA 9311YA
347	1178	38 70	* 9312YA * 9313YA
361	1131	39 69	9314YA 9315YA
376	1088	40 68	* 9316YA * 9317YA
392	1045	41 67	9318YA 9319YA
407	1006	42 66	* 9320YA * 9321YA
423	967	43 65	9322YA 9323YA
439	930	44 64	* 9324YA * 9325YA
457	895	45 63	9326YA 9327YA
474	862	46 62	* 9328YA * 9329YA
493	830	47 61	9330YA 9331YA
511	799	48 60	* 9332YA * 9333YA
532	771	49 59	9334YA 9335YA
551	742	50 58	* 9336YA * 9337YA
573	715	51 57	9338YA 9339YA
593	688	52 56	* 9340YA * 9341YA
616	664	53 55	* 9342YA * 9343YA
640	640	54 54	9344YA 9344YA

* These gears are available for immediate delivery

AFTER SERIAL NO. A1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE							
			1/4	3/8	1/2	5/8	3/4	7/8	1.000	1.125 & UP
SMALL GEAR ON UPPER SHAFT 	9416YA 9458YA	16 58	.0014	.0015	.0016	.0017	.0018	.0018	.0018	.0018
	9420YA 9454YA	20 54	.0018	.0021	.0022	.0023	.0024	.0024	.0024	.0025
	9424YA 9450YA	24 50	.0023	.0027	.0029	.0030	.0031	.0031	.0032	.0032
	9427YA 9447YA	27 47	.0028	.0032	.0034	.0036	.0037	.0038	.0038	.0039
	9429YA 9445YA	29 45	.0032	.0036	.0038	.0040	.0041	.0042	.0042	.0043
	9431YA 9443YA	31 43	.0036	.0040	.0043	.0045	.0046	.0047	.0047	.0048
	9433YA 9441YA	33 41	.004	.0045	.0048	.0050	.0051	.0053	.0053	.0054
	9435YA 9439YA	35 39	.0045	.005	.0054	.0056	.0057	.0059	.0059	.0060
	9437YA 9437YA	37 37	.005	.0056	.0060	.0062	.0064	.0065	.0066	.0067
LARGE GEAR ON UPPER SHAFT 	9439YA 9435YA	39 35	.0055	.0062	.0067	.0069	.0071	.0073	.0074	.0075
	9441YA 9433YA	41 33	.0063	.0070	.0074	.0076	.0080	.0081	.0082	.0083
	9443YA 9431YA	43 31	.0069	.0078	.0084	.0087	.0089	.0091	.0092	.0094
	9445YA 9429YA	45 29	.0078	.0087	.0093	.0097	.0100	.0102	.0103	.0104
	9447YA 9427YA	47 27	.0087	.0097	.0104	.0108	.0110	.0114	.0116	.0116
	9450YA 9424YA	50 24	.0104	.0116	.0124	.0129	.0132	.0135	.0137	.0139
	9454YA 9420YA	54 20	.0136	.0152	.0162	.0169	.0173	.0177	.0180	.0182
	9458YA 9416YA	58 16	.0183	.0205	.0218	.0226	.0233	.0238	.0242	.0245

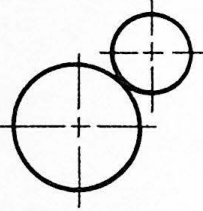
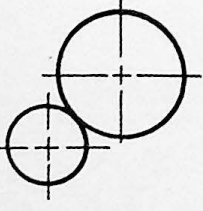
AFTER SERIAL NO. A1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
120	1200	26 82	* 9276YA 9277YA
130	1150	27 81	9278YA 9279YA
135	1100	28 80	* 9280YA 9281YA
140	1050	29 79	9282YA 9283YA
145	990	30 78	* 9284YA 9285YA
155	950	31 77	9286YA 9287YA
160	910	32 76	* 9288YA 9289YA
170	870	33 75	* 9290YA 9291YA
175	825	34 74	* 9292YA 9293YA
185	800	35 73	9294YA 9295YA
195	770	36 72	* 9296YA 9297YA
200	735	37 71	9310YA 9311YA
210	700	38 70	* 9312YA 9313YA
220	680	39 69	9314YA 9315YA

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
230	650	40 68	* 9316YA 9317YA
235	630	41 67	9318YA 9319YA
240	600	42 66	* 9320YA 9321YA
250	580	43 65	9322YA 9323YA
260	560	44 64	* 9324YA 9325YA
270	535	45 63	9326YA 9327YA
285	515	46 62	* 9328YA 9329YA
295	500	47 61	9330YA 9331YA
305	480	48 60	* 9332YA 9333YA
320	460	49 59	9334YA 9335YA
325	440	50 58	* 9336YA 9337YA
345	430	51 57	9338YA 9339YA
355	415	52 56	* 9340YA 9341YA
365	395	53 55	* 9342YA 9343YA
385	385	54 54	9344YA 9345YA

* These gears are available for immediate delivery

AFTER SERIAL NO. A1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE											
			3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2	2	2-1/2	2-3/4
SMALL GEAR ON UPPER SHAFT 	9416YA 9458YA	16 58	.002	.0022	.0024	.0025	.0026	.0027	.0028	.0029	.003	.0033	.0034	.0035
	9420YA 9454YA	20 54	.0026	.0029	.0031	.0034	.0035	.0036	.0038	.004	.0041	.0044	.0046	.0047
	9424YA 9450YA	24 50	.0034	.0038	.0041	.0045	.0046	.0047	.0049	.0052	.0053	.0058	.006	.0061
	9427YA 9447YA	27 47	.0042	.0046	.005	.0055	.0057	.0058	.006	.0063	.0065	.007	.0073	.0074
	9429YA 9445YA	29 45	.0046	.0051	.0055	.006	.0062	.0063	.0066	.0069	.0071	.0077	.008	.0081
	9431YA 9443YA	31 43	.0051	.0057	.0062	.0067	.0069	.0071	.0074	.0077	.008	.0086	.009	.0091
	9433YA 9441YA	33 41	.0058	.0064	.007	.0076	.0078	.008	.0083	.0087	.009	.0097	.0101	.0103
	9435YA 9439YA	35 39	.0065	.0072	.0078	.0084	.0086	.0089	.0093	.0097	.010	.0108	.0113	.0115
	9437YA 9437YA	37 37	.0073	.0081	.0088	.0095	.0098	.0101	.0105	.011	.0114	.0123	.0128	.013
LARGE GEAR ON UPPER SHAFT 	9439YA 9435YA	39 35	.008	.0089	.0097	.0105	.0108	.0111	.0116	.0121	.0125	.0135	.014	.0142
	9441YA 9433YA	41 33	.0089	.0099	.0107	.0116	.0119	.0123	.0128	.0134	.0138	.015	.0156	.0158
	9443YA 9431YA	43 31	.0098	.0109	.0118	.0128	.0131	.0135	.0141	.0148	.0152	.0165	.0172	.0174
	9445YA 9429YA	45 29	.0111	.0124	.0134	.0145	.015	.0154	.0161	.0168	.0173	.0187	.0195	.0198
	9447YA 9427YA	47 27	.0125	.0138	.015	.0163	.0167	.0172	.018	.0188	.0194	.0209	.0218	.0222
	9450YA 9424YA	50 24	.0147	.0163	.0177	.0192	.0197	.0203	.0212	.0221	.0228	.0246	.0258	.0261
	9454YA 9420YA	54 20	.0191	.0212	.0231	.025	.0258	.0265	.0276	.0288	.0298	.0321	.0336	.034
	9458YA 9416YA	58 16	.0258	.0287	.0313	.0338	.0348	.0357	.0373	.0389	.0408	.0434	.0453	.0458

REVOLUTIONS PER MINUTE FOR VARIOUS CUTTING SPEEDS AND DIAMETERS

FORMULA

$$\text{R.P.M.} = \frac{\text{S.F.M.}}{.262 \times \text{O.D.}}$$

$$\text{S.F.M.} = \text{O.D.} \times .262 \times \text{R.P.M.}$$

R.P.M. = Revolutions Per Minute
S.F.M. = Surface Feet Per Minute

O.D. = Outside Diameter of Part

$$.262 = \left(\frac{3.1416}{12} \right)$$

Feet Per Min.	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	110	120	125	130	140	150	160	Feet Per Min.
Diam.	REVOLUTIONS PER MINUTE																									Diam.
1/4	229	306	382	458	535	611	688	764	851	917	994	1070	1147	1222	1300	1376	1453	1528	1681	1734	1910	1986	2139	2292	2445	1/4
5/16	183	245	306	367	428	489	550	611	672	733	794	856	917	978	1039	1100	1161	1222	1344	1466	1527	1589	1711	1833	1955	5/16
3/8	153	204	255	306	357	408	458	509	560	611	662	713	764	815	865	916	967	1018	1121	1222	1273	1323	1425	1527	1629	3/8
7/16	131	175	218	262	306	349	393	437	481	524	568	611	656	699	743	786	830	874	961	1049	1093	1136	1224	1311	1398	7/16
1/2	115	153	191	229	268	306	344	382	420	459	497	535	573	611	649	688	726	764	840	917	955	993	1070	1146	1222	1/2
9/16	102	136	170	204	238	272	306	340	373	407	441	475	509	543	577	611	645	679	747	813	869	883	951	1019	1086	9/16
5/8	92	123	153	184	214	245	276	306	337	367	398	428	459	489	520	552	581	612	673	736	765	796	857	918	979	5/8
11/16	83	111	138	167	194	222	249	273	300	333	360	389	416	444	472	500	527	555	611	666	692	722	770	833	888	11/16
3/4	76	102	127	153	178	203	229	254	279	306	330	357	381	409	432	458	483	508	559	610	635	661	711	762	813	3/4
13/16	71	95	119	142	166	190	213	237	261	284	308	332	356	379	403	427	450	474	521	569	593	616	664	711	758	13/16
7/8	66	87	109	131	153	175	196	219	241	262	285	306	329	349	372	392	416	438	482	526	548	569	613	657	701	7/8
15/16	61	81	101	122	142	163	183	204	224	244	265	285	305	326	346	366	387	407	448	488	509	529	570	611	651	15/16
1	57	76	96	115	134	153	172	191	210	229	258	267	287	306	325	344	363	382	420	458	478	497	535	573	611	1
1-1/16	54	72	90	108	126	144	162	180	197	215	233	251	269	287	305	323	341	359	395	431	449	467	503	539	579	1-1/16
1-1/8	51	68	85	102	119	136	153	170	187	204	221	238	255	272	289	306	324	340	374	408	425	442	476	510	544	1-1/8
1-3/16	48	64	81	97	113	129	145	161	177	193	209	225	242	258	274	290	306	322	354	386	403	419	451	483	515	1-3/16
1-1/4	46	61	76	92	107	123	137	153	168	183	199	214	230	245	260	274	291	306	337	367	383	398	428	459	490	1-1/4
1-5/16	44	58	73	87	102	116	131	146	160	175	189	204	218	233	247	262	276	291	320	349	351	378	407	437	466	1-5/16
1-3/8	42	56	70	83	97	111	125	139	153	167	180	195	208	222	236	250	264	278	306	334	348	361	389	417	445	1-3/8
1-7/16	40	53	66	80	93	106	119	133	146	159	172	186	199	212	225	239	252	265	292	318	331	345	371	398	424	1-7/16
1-1/2	38	51	64	76	90	102	115	127	140	153	165	178	191	204	216	230	241	254	279	305	318	330	356	381	406	1-1/2
1-9/16	37	49	61	73	85	98	110	122	134	146	159	171	183	195	207	220	232	244	268	293	305	317	342	366	390	1-9/16
1-5/8	35	47	59	71	82	94	106	117	129	141	152	165	176	188	199	212	222	234	257	281	293	304	328	351	374	1-5/8
1-11/16	34	45	57	68	79	90	102	113	124	136	147	158	170	181	192	203	215	226	249	271	283	294	316	339	362	1-11/16
1-3/4	33	44	55	66	76	87	98	109	120	131	142	153	164	175	185	196	207	218	240	262	273	283	305	327	349	1-3/4
1-13/16	32	42	53	63	74	84	95	106	116	127	137	148	158	169	179	190	200	211	232	253	264	274	295	317	338	1-13/16
1-7/8	31	41	51	61	71	82	92	102	112	122	133	143	153	163	173	184	194	204	224	244	255	265	286	306	326	1-7/8
1-15/16	30	39	49	59	69	79	89	99	108	118	128	138	148	158	167	177	187	197	217	236	246	256	276	296	315	1-15/16
2	29	38	48	57	67	76	86	96	105	115	124	134	143	153	162	172	181	191	210	229	239	248	267	287	306	2
2-1/8	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	162	171	180	198	216	225	234	252	270	288	2-1/8
2-1/4	25	34	42	51	59	68	76	86	94	102	111	119	128	136	145	153	162	170	187	204	213	221	238	255	272	2-1/4
2-3/8	24	32	40	48	56	64	73	81	89	97	105	113	121	129	137	145	153	161	177	193	201	209	225	242	258	2-3/8
2-1/2	23	31	38	46	54	61	69	76	84	92	100	107	114	122	130	138	145	153	168	184	191	199	213	230	245	2-1/2
2-5/8	22	29	36	44	51	58	65	73	80	87	94	102	109	116	123	131	138	145	160	174	181	189	203	218	232	2-5/8
2-3/4	21	28	35	42	49	56	63	70	77	83	90	97	104	111	118	125	132	139	153	167	174	181	195	209	222	2-3/4

CUTTING SPEEDS
and DIAMETERS

Charts



REVOLUTIONS PER MINUTE FOR VARIOUS CUTTING SPEEDS AND DIAMETERS

FORMULA

$$R.P.M. = \frac{S.F.M.}{.262 \times O.D.}$$

$$S.F.M. = O.D. \times .262 \times R.P.M.$$

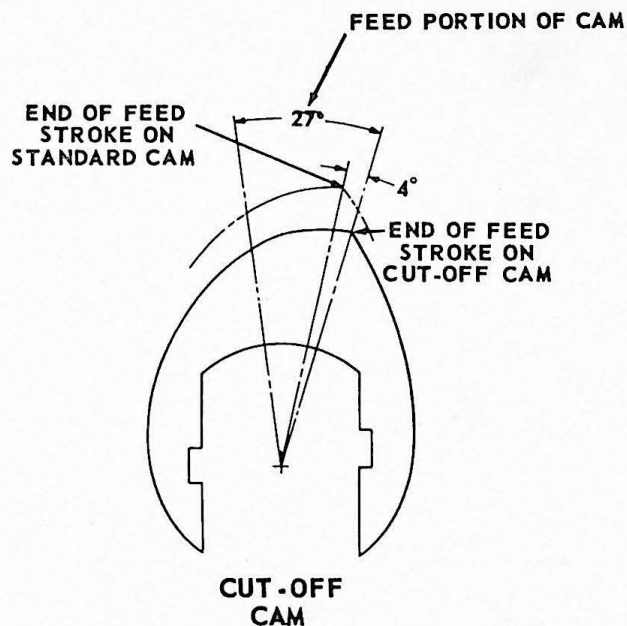
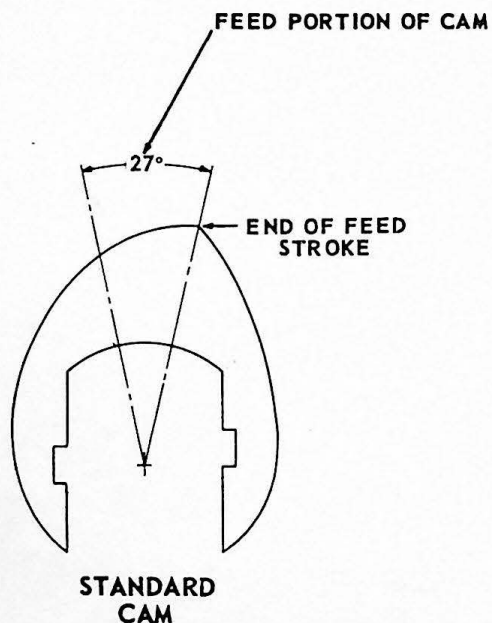
R.P.M. = Revolutions Per Minute
S.F.M. = Surface Feet Per Minute

O.D. = Outside Diameter of Part

$$.262 = \left(\frac{3.1416}{12} \right)$$

Feet Per Min.	170	175	180	190	200	210	220	230	240	250	260	270	280	290	300	325	350	375	400	425	450	475	500	525	550	Feet Per Min.
Diam.	REVOLUTIONS PER MINUTE																									Diam.
1/4	2598	2674	2750	2903	3056	3209	3361	3514	3667	3820	3972	4125	4278	4431	4584	4966	5348	5730	6112	6494	6876	7258	7640	8022	8404	1/4
5/16	2077	2139	2200	2322	2444	2567	2689	2811	2934	3056	3178	3300	3423	3545	3666	3971	4277	4582	4888	5193	5499	5804	6110	6415	6721	5/16
3/8	1731	1782	1832	1934	2036	2139	2241	2343	2445	2546	2648	2750	2852	2954	3057	3311	3566	3821	4076	4330	4585	4840	5095	5349	5604	3/8
7/16	1486	1530	1573	1661	1748	1833	1921	2008	2095	2183	2270	2357	2445	2532	2620	2838	3057	3275	3494	3712	3930	4149	4367	4585	4804	7/16
1/2	1299	1337	1375	1452	1528	1604	1681	1757	1833	1910	1986	2063	2139	2215	2292	2483	2675	2866	3057	3248	3439	3630	3821	4012	4203	1/2
9/16	1154	1188	1222	1290	1358	1426	1494	1562	1630	1698	1766	1833	1901	1969	2037	2207	2377	2547	2717	2887	3056	3226	3396	3566	3736	9/16
5/8	1040	1071	1102	1163	1224	1283	1345	1406	1467	1528	1589	1650	1711	1772	1834	1987	2139	2292	2445	2598	2751	2904	3057	3209	3362	5/8
11/16	944	971	999	1054	1110	1167	1222	1278	1333	1389	1445	1500	1556	1611	1667	1806	1941	2084	2223	2362	2501	2640	2779	2917	3056	11/16
3/4	864	889	914	965	1016	1070	1120	1171	1222	1273	1324	1375	1426	1477	1528	1655	1783	1910	2038	2165	2292	2420	2547	2674	2802	3/4
13/16	806	830	853	901	948	987	1034	1081	1128	1175	1222	1269	1316	1363	1410	1528	1646	1763	1881	1998	2116	2233	2351	2469	2586	13/16
7/8	745	767	788	832	876	917	960	1004	1048	1091	1135	1179	1222	1266	1310	1419	1528	1637	1746	1855	1965	2074	2183	2292	2401	7/8
15/16	692	712	733	773	814	857	896	937	978	1019	1059	1100	1141	1182	1222	1324	1426	1528	1630	1732	1834	1936	2038	2139	2241	15/16
1	649	669	688	726	764	802	840	879	917	955	993	1031	1070	1108	1146	1241	1337	1432	1528	1623	1719	1814	1910	2006	2101	1
1-1/16	610	628	646	682	718	755	791	827	863	899	935	971	1007	1043	1078	1168	1258	1348	1438	1528	1618	1708	1798	1887	1977	1-1/16
1-1/8	578	595	612	646	680	714	747	781	815	849	883	917	951	985	1018	1103	1188	1273	1358	1443	1528	1613	1698	1782	1867	1-1/8
1-3/16	547	564	580	612	644	675	708	740	772	804	836	868	901	933	965	1045	1126	1206	1287	1367	1448	1528	1609	1689	1769	1-3/16
1-1/4	520	536	551	581	612	641	672	703	733	764	794	825	856	886	917	993	1069	1146	1222	1299	1375	1452	1528	1604	1681	1-1/4
1-5/16	495	509	524	553	582	611	640	669	698	728	757	786	815	844	873	946	1018	1091	1164	1237	1309	1382	1455	1528	1601	1-5/16
1-3/8	472	487	500	528	556	584	611	639	667	694	722	750	778	806	833	903	972	1042	1111	1181	1250	1320	1389	1458	1528	1-3/8
1-7/16	451	464	477	504	530	558	584	611	638	664	691	717	744	771	797	863	930	996	1063	1129	1196	1262	1329	1395	1461	1-7/16
1-1/2	432	445	457	483	509	535	560	586	611	637	662	688	713	738	764	827	891	955	1018	1082	1146	1209	1273	1337	1400	1-1/2
1-9/16	415	427	439	464	488	514	538	562	587	611	636	660	684	709	733	794	855	916	978	1039	1100	1161	1222	1283	1344	1-9/16
1-5/8	398	410	421	445	468	493	517	541	564	588	611	635	658	682	705	764	822	881	940	999	1057	1116	1175	1234	1293	1-5/8
1-11/16	384	396	407	429	452	475	498	521	543	566	589	611	634	656	679	735	792	849	905	962	1018	1075	1132	1188	1245	1-11/16
1-3/4	371	382	392	414	436	459	481	502	524	546	567	589	611	633	654	709	764	818	873	927	982	1036	1091	1146	1200	1-3/4
1-13/16	359	369	380	401	422	443	464	485	506	527	548	569	590	611	632	685	737	790	843	895	948	1001	1054	1106	1159	1-13/16
1-7/8	347	357	367	388	408	428	449	469	489	509	530	550	570	591	611	662	713	764	815	866	917	968	1019	1069	1120	1-7/8
1-15/16	335	345	355	374	394	414	434	453	473	493	513	532	552	572	591	640	690	739	788	838	887	936	986	1035	1084	1-15/16
2	325	334	344	363	382	402	421	439	458	477	497	516	535	554	573	620	668	716	764	811	859	907	955	1002	1050	2
2-1/8	306	315	324	342	360	378	395	413	431	449	467	485	503	521	539	584	629	674	719	764	809	854	899	943	988	2-1/8
2-1/4	289	298	306	313	340	357	374	390	407	424	441	458	475	492	509	551	594	636	679	721	764	806	849	891	933	2-1/4
2-3/8	274	282	290	306	322	338	353	370	386	402	418	434	450	466	482	522	563	603	643	683	724	764	804	844	884	2-3/8
2-1/2	260	268	275	291	306	321	336	344	367	382	397	413	428	443	458	496	534	573	611	649	687	725	764	802	840	2-1/2
2-5/8	247	254	261	276	290	306	320	335	349	364	378	393	407	422	436	472	509	545	582	618	654	691	727	763	800	2-5/8
2-3/4	236	242	250	264	278	292	306	319	333	347	361	375	389	403	416	451	486	520	555	590	625	659	694	729	763	2-3/4

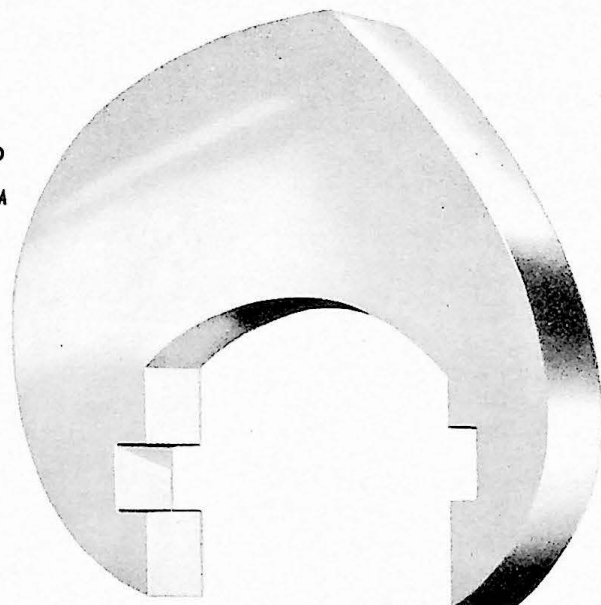
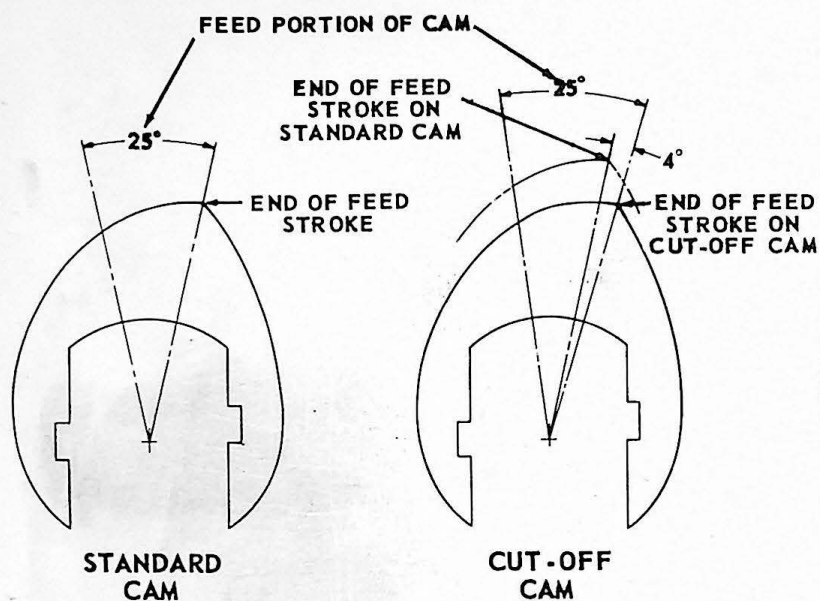
(FOR CAM FEED TOOL SLIDE)



27° Rotation of the cam shaft is equal to .800" travel in feed of the end tool slide stroke for 1" - 6 and 1.095" for 1-5/8" - 6 and 2" - 6 machines.

CAM RATIO ►		1:1	1.5:1	2:1	2.5:1	3:1	3.5:1	4:1	5:1	6:1	7:1	8:1
1" - 6	Maximum Stroke	.800	.532	.400	.320	.266	.228	.200	.160	.133	.114	.100
	Standard Cam No.	3101310	3101311	3101312	3101313	3101314	3101315	3101316	3101317	3101318	3101319	3101320
	Cut-off Cam No.	-	3101321	3101322	3101323	3101324	3101325	3101326	3101327	-	-	-
1-5/8" - 6 2" - 6	Maximum Stroke	1.095	.730	.547	.438	.365	.312	.274	.219	.182	.156	.137
	Standard Cam No.	3101330	3101331	3101332	3101333	3101334	3101335	3101336	3101337	3101338	3101339	310140
	Cut-off Cam No.	-	3101341	3101342	3101343	3101344	3101345	3101346	3101347	-	-	-

(FOR GEAR AND RACK TOOL SLIDE)



25° Rotation of the cam shaft is equal to 1-1/4" travel in feed of the end tool slide stroke for 1"-6 and 1-5/8"-4, 1-1/2" for 1-5/8"-6, 2"-6 and 2-5/8"-4.

CAM RATIO ►		1:1	1.5:1	2:1	2.5:1	3:1	3.5:1	4:1	4.5:1	5:1	6:1	7:1	8:1
1" - 6	Maximum Stroke	1.320	.880	.660	.528	.440	.377	.330		.264	.220	.189	.165
	Standard Cam No.	7188YA	3106YA	2139YA	2744YA	2140YA	2745YA	2141YA	9960YA	2142YA	2143YA	2144YA	2145YA
	Cut-off Cam No.	6076YA	7187YA	6932YA	6845YA	2153YA	7003YA	8310YA		8308YA	2692YA	8515YA	8463YA
1-5/8"-6 2" - 6	Maximum Stroke	1.539	1.027	.770	.616	.513	.440	.385	.342	.308	.257	.220	.193
	Standard Cam No.	5962YL	4335YL	3707YL	4277YL	3708YL	4278YL	3709YL	12288YL	3710YL	3711YL	3712YL	3713YL
	Cut-off Cam No.		7227YL	6970YL	6717YL	3721YL	7311YL	8436YL		3100131	4678YL		
1-5/8"-4	Maximum Stroke	1.320	.880	.660	.528	.440	.377	.330		.264	.220	.189	.165
	Standard Cam No.	7444YA	5769YA	2146YA	2746YA	2147YA	2747YA	2148YA		2149YA	2150YA	2151YA	2152YA
	Cut-off Cam No.			7596YA	7445YA	2154YA							
2-5/8"-4	Maximum Stroke	1.539	1.027	.770	.616	.513	.440	.385	.342	.308	.257	.220	.193
	Standard Cam No.	7701YL	5138YL	3714YL	4279YL	3715YL	4280YL	3716YL	12287YL	3717YL	3718YL	3719YL	3720YL
	Cut-off Cam No.		7702YL	7703YL	7704YL	3722YL	7705YL	11630YL					

Burring Attachment		Knee Turner	
Standard	14	Chamfering, Foot Behind	14
Finger-type	25	Chamfering, Foot Forward	14
Bushing		Chamfering, Four Spindle	14
Coolant and Holder	28	Small, Foot Behind	13
Drill	28	Small, Foot Forward	13
Floating Holder	28	Wide & Narrow	13
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Spot Drill	28	Form Type	27
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Tap	28	Straddle Type	12
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Cam Feed Tool Slide	42	Live Center Support	22
Gear & Rack Tool Slide	43	Milling Attachment	16
Chamfering Tool Holder		Reaming Attachment	
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Foot Forward	14	Gear Fed	17
Four Spindle	14	Recessing Attachment	
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Adjustable	10	Three Roll	19
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Standard	10	Roller Turner	
Filler Blocks	28	Auxiliary	20
Form Tool Holder		Wide & Narrow	20
Bit-type	8	Shaving Attachment	
Circular, Double	7	Shave Tool	11
Circular, Single	7	Special Attachments	
Dovetail	9	Adjustable Bit-type Forming	23
Flat	8	Broaching	27
Form Turning Attachment	6	Burnishing	25
Gears, Feed Change (After Serial No. A1522)		Cam Generating	25
1" - 6 Standard Speed	31	Crimping	23
1-5/8" - 6 & 2" - 6 Standard Speed	33	Eccentric Drilling	24
2-5/8" - 4 Standard Speed	35	Eccentric Forming	24
1" - 6 Cam Feed	37	Eccentric Turning	24
1-5/8" - 6 & 2" - 6 Cam Feed	39	Finger-type Burring	25
Gears, Speed Change (After Serial No. A1522)		Form Knurling	27
1" - 6 Standard Speed	30	Recess Boring	26
1-5/8" - 6 & 2" - 6 Standard Speed	32	Relieving-type Facing	26
2-5/8" - 4 Standard Speed	34	Skiving	27
1" - 6 Fast Index	36	Spring-loaded Roller Support	26
1-5/8" - 6 & 2" - 6 Fast Index	38	Thread-Rolling	27
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		Undercutting	27
		Specifications	3
		Stenciling Attachment	9
		Threading Attachment	21
		Tool Slide Tool Holder	22

Speed and Feed Charts

For Automatic Bar Machines

Before Serial Number A-1522

INDEX TO APPENDIX

Speed Change Gears
1" - 6

Standard Speed	2a
Standard Speed, Fast Index	4a
Slow Speed	6a
Slow Speed, Fast Index	8a

1-5/8" - 6

Standard Speed	12a
Standard Speed, Fast Index	14a
Slow Speed	16a
Slow Speed, Fast Index	18a

2" - 6

Standard Speed	20a
Standard Speed, Fast Index	22a
Slow Speed	24a
Slow Speed, Fast Index	26a

2-5/8" - 4

Standard Speed	28a
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Feed Change Gears
1" - 6

Standard Speed	3a
Standard Speed, Cam Feed, Unit 1212-2 ..	5a
Standard Speed, Cam Feed, Unit 1212-1 ..	10a
Slow Speed	7a
Slow Speed, Cam Feed, Unit 1212-2	9a
Slow Speed, Cam Feed, Unit 1212-1	11a

1-5/8" - 6

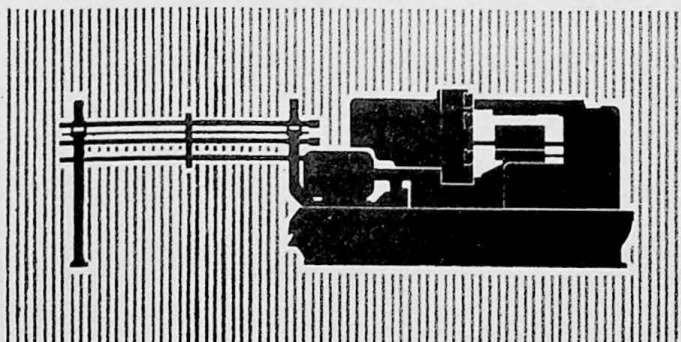
Standard Speed	13a
Standard Speed, Cam Feed	15a
Slow Speed	17a
Slow Speed, Cam Feed	19a

2" - 6

Standard Speed	21a
Standard Speed, Cam Feed	23a
Slow Speed	25a
Slow Speed, Cam Feed	27a

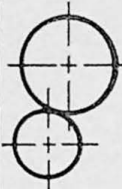
2-5/8" - 4

Standard Speed	29a
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WHEN ORDERING:

- Specify if machine is slow or standard speed.
(Identification plate is located on rear plate by speed change gears.)
- Specify if machine has cam feed or fast index.
- List serial number of machine.

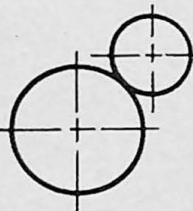
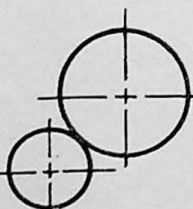
BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
227	2511	25 83	* 3723YL 3724YL
239	2385	26 82	* 1586YL 1587YL
252	2269	27 81	7977YL 7978YL
264	2161	28 80	5437YL 5438YL
277	2060	29 79	* 3725YL 3726YL
290	1966	30 78	* 1588YL 1589YL
304	1879	31 77	9326YL 9327YL
318	1796	32 76	* 3731YL 3732YL
332	1719	33 75	9181YL 9182YL
347	1646	34 74	* 1590YL 1591YL
362	1577	35 73	9328YL 9329YL
378	1512	36 72	* 3647YL 3648YL
394	1451	37 71	* 3733YL 3734YL
410	1393	38 70	* 1592YL 1593YL
427	1338	39 69	6245YL 6246YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
444	1286	40 68	4325YL 4326YL
462	1236	41 67	6243YL 6244YL
481	1188	42 66	* 1594YL 1595YL
500	1143	43 65	8440YL 8441YL
520	1100	44 64	6241YL 6242YL
540	1059	45 63	* 1596YL 1597YL
561	1019	46 62	7465YL 7466YL
582	981	47 61	6341YL 6342YL
609	945	48 60	* 1598YL 1599YL
628	910	49 59	7655YL 7656YL
652	877	50 58	* 1600YL 1601YL
676	845	51 57	8702YL 8703YL
702	814	52 56	* 7517YL 7518YL
728	785	53 55	* 1602YL 1603YL
756	756	54 54	9330YL 9331YL

* These gears are available for immediate delivery

BEFORE SERIAL NO. A 1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE											
			3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	2	2-1/2
SMALL GEAR ON UPPER SHAFT 	2175YL 1703YL	18 58	.0014	.0015	.0015	.0016	.0016	.0017	.0017	.0018	.0018	.0019	.002	.0021
	2176YL 1701YL	22 54	.0019	.002	.0021	.0021	.0023	.0023	.0023	.0023	.0024	.0025	.0027	.0028
	2177YL 1699YL	26 50	.0024	.0025	.0026	.0027	.0028	.0029	.003	.0031	.0032	.0032	.0034	.0036
	1694YL 1697YL	29 47	.0028	.0029	.0031	.0032	.0033	.0034	.0035	.0036	.0037	.0038	.0039	.0041
	1692YL 1695YL	31 45	.0031	.0033	.0034	.0036	.0037	.0038	.0039	.004	.0041	.0042	.0042	.0047
	1690YL 1693YL	33 43	.0035	.0036	.0038	.004	.0042	.0043	.0044	.0045	.0046	.0047	.0049	.0052
	1688YL 1691YL	35 41	.0039	.0041	.0043	.0044	.0046	.0048	.0049	.005	.0051	.0052	.0055	.0057
	1687YL 1689YL	37 39	.0043	.0045	.0047	.005	.0052	.0053	.0054	.0055	.0057	.0058	.0061	.0064
	2178YL 2178YL	38 38	.0045	.0048	.005	.0052	.0054	.0056	.0057	.0058	.006	.0062	.0064	.0068
LARGE GEAR ON UPPER SHAFT 	1689YL 1687YL	39 37	.0048	.005	.0053	.0055	.0057	.0059	.006	.0061	.0063	.0065	.0068	.0071
	1691YL 1688YL	41 35	.0053	.0056	.0059	.0061	.0064	.0066	.0067	.0068	.007	.0072	.0076	.0079
	1693YL 1690YL	43 33	.0059	.0062	.0065	.0068	.0071	.0073	.0075	.0077	.0079	.008	.0084	.0088
	1695YL 1692YL	45 31	.0066	.0069	.0073	.0076	.0079	.0081	.0083	.0085	.0087	.0089	.0093	.0098
	1697YL 1694YL	47 29	.0074	.0077	.0081	.0085	.0088	.0091	.0093	.0095	.0097	.010	.0105	.011
	1699YL 2177YL	50 26	.0088	.0092	.0096	.010	.0104	.0108	.0111	.0113	.0115	.0118	.0124	.013
	1701YL 2176YL	54 22	.0111	.0117	.012	.0128	.0133	.0137	.014	.0143	.0147	.0151	.0158	.0166
	1703YL 2175YL	58 18	.0147	.0154	.0157	.0168	.0172	.0181	.0185	.0189	.0193	.0198	.0207	.0218

SPEED GEARS

1"-6 Standard Speed, Fast Index



BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
300	3327	25 83	* 3723YL 3724YL
316	3160	26 82	* 1586YL 1587YL
333	3006	27 81	7977YL 7978YL
349	2863	28 80	5437YL 5438YL
367	2729	29 79	* 3725YL 3726YL
384	2604	30 78	* 1588YL 1589YL
402	2489	31 77	9326YL 9327YL
421	2379	32 76	* 3731YL 3732YL
439	2277	33 75	9181YL 9182YL
459	2180	34 74	* 1590YL 1591YL
479	2089	35 73	9328YL 9329YL
500	2003	36 72	* 3647YL 3648YL
522	1922	37 71	* 3733YL 3734YL
543	1845	38 70	* 1592YL 1593YL
565	1772	39 69	6245YL 6246YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
588	1703	40 68	4325YL 4326YL
612	1637	41 67	6243YL 6244YL
637	1574	42 66	* 1594YL 1595YL
662	1514	43 65	8440YL 8441YL
689	1457	44 64	6241YL 6242YL
715	1403	45 63	* 1596YL 1597YL
743	1350	46 62	7465YL 7466YL
771	1299	47 61	6341YL 6342YL
801	1252	48 60	* 1598YL 1599YL
832	1205	49 59	7655YL 7656YL
863	1162	50 58	* 1600YL 1601YL
895	1119	51 57	8702YL 8703YL
930	1078	52 56	* 7517YL 7518YL
964	1040	53 55	* 1602YL 1603YL
1001	1001	54 54	9330YL 9331YL

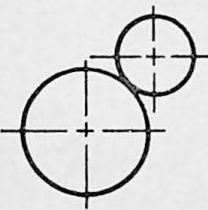
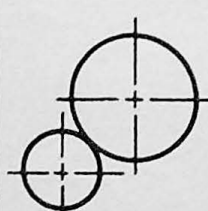
* These gears are available for immediate delivery



1"-6 Standard Speed, Cam Feed - Unit 1212-2

BEFORE SERIAL NO. A 1522

FEED GEARS

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE							
			1/4	3/8	1/2	5/8	3/4	7/8	1.000	1.125 & UP
SMALL GEAR ON UPPER SHAFT 	2175YL 1703YL	18 58	.0018	.0020	.0022	.0023	.0023	.0024	.0024	.0025
	2176YL 1701YL	22 54	.0023	.0027	.0029	.0030	.0031	.0032	.0032	.0033
	2177YL 1699YL	26 50	.0030	.0034	.0037	.0038	.0040	.0040	.0041	.0042
	1694YL 1697YL	29 47	.0035	.0040	.0044	.0045	.0047	.0048	.0049	.0050
	1692YL 1695YL	31 45	.0040	.0045	.0049	.0051	.0052	.0054	.0055	.0056
	1690YL 1693YL	33 43	.0044	.0050	.0054	.0057	.0059	.0060	.0061	.0062
	1688YL 1691YL	35 41	.0049	.0056	.0060	.0063	.0065	.0067	.0068	.0069
	1687YL 1689YL	37 39	.0055	.0062	.0067	.0070	.0072	.0074	.0075	.0076
	2178YL 2178YL	38 38	.0058	.0066	.0071	.0074	.0076	.0078	.0079	.0080
LARGE GEAR ON UPPER SHAFT 	1689YL 1687YL	39 37	.0061	.0069	.0075	.0078	.0080	.0082	.0084	.0085
	1691YL 1688YL	41 35	.0068	.0077	.0083	.0086	.0089	.0091	.0093	.0094
	1693YL 1690YL	43 33	.0075	.0086	.0092	.0096	.0099	.0102	.0104	.0105
	1695YL 1692YL	45 31	.0084	.0097	.0103	.0107	.0110	.0113	.0115	.0117
	1697YL 1694YL	47 29	.0094	.0107	.0115	.0117	.0123	.0127	.0129	.0131
	1699YL 2177YL	50 26	.0113	.0127	.0136	.0142	.0146	.0150	.0153	.0155
	1701YL 2176YL	54 22	.0142	.0162	.0177	.0181	.0186	.0192	.0195	.0198
	1703YL 2175YL	58 18	.0187	.0213	.0232	.0239	.0245	.0252	.0256	.0260

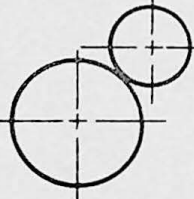
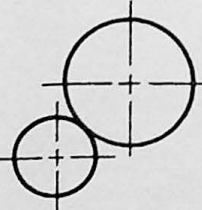
BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
158	2161	23 85	* 5883YL 5884YL
167	2046	24 84	4783YL 4784YL
176	1941	25 83	* 3723YL 3724YL
185	1844	26 82	* 1586YL 1587YL
194	1754	27 81	7977YL 7978YL
204	1670	28 80	5437YL 5438YL
214	1592	29 79	* 3725YL 3726YL
224	1520	30 78	* 1588YL 1589YL
235	1452	31 77	9326YL 9327YL
246	1388	32 76	* 3731YL 3732YL
257	1328	33 75	9181YL 9182YL
268	1272	34 74	* 1590YL 1591YL
280	1219	35 73	9328YL 9329YL
292	1169	36 72	* 3647YL 3648YL
304	1122	37 71	* 3733YL 3734YL
317	1077	38 70	* 1592YL 1593YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
330	1034	39 69	6245YL 6246YL
343	994	40 68	4325YL 4326YL
357	955	41 67	6243YL 6244YL
372	918	42 66	* 1594YL 1595YL
386	883	43 65	8440YL 8441YL
402	850	44 64	6241YL 6242YL
417	818	45 63	* 1596YL 1597YL
433	788	46 62	7465YL 7466YL
450	758	47 61	6341YL 6342YL
467	730	48 60	* 1598YL 1599YL
485	704	49 59	7655YL 7656YL
504	678	50 58	* 1600YL 1601YL
523	653	51 57	8702YL 8703YL
542	629	52 56	* 7517YL 7518YL
563	606	53 55	* 1602YL 1603YL
584	584	54 54	9330YL 9331YL

* These gears are available for immediate delivery

BEFORE SERIAL NO. A 1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE											
			3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	2	2-1/2
SMALL GEAR ON UPPER SHAFT 	2175YL 1703YL	18 58	.0017	.0019	.0019	.002	.0021	.0021	.0022	.0023	.0024	.0024	.0025	.0026
	2176YL 1701YL	22 54	.0024	.0025	.0025	.0026	.0027	.0028	.0029	.003	.0031	.0031	.0034	.0035
	2177YL 1699YL	26 50	.003	.0031	.0033	.0034	.0035	.0036	.0037	.0038	.0039	.004	.0042	.0045
	1694YL 1697YL	29 47	.0035	.0036	.0038	.004	.0042	.0044	.0045	.0046	.0047	.0047	.0049	.0051
	1692YL 1695YL	31 45	.0039	.0041	.0043	.0045	.0046	.0047	.0048	.0049	.005	.0052	.0053	.0059
	1690YL 1693YL	33 43	.0044	.0048	.0049	.005	.0052	.0053	.0054	.0056	.0058	.0059	.0061	.0065
	1688YL 1691YL	35 41	.0049	.0051	.0053	.0055	.0058	.006	.0061	.0062	.0065	.0065	.0069	.0071
	1687YL 1689YL	37 39	.0054	.0056	.0059	.0062	.0063	.0064	.0066	.0068	.007	.0072	.0077	.008
	2178YL 2178YL	38 38	.0056	.006	.0063	.0065	.0068	.007	.0072	.0074	.0076	.0077	.008	.0085
LARGE GEAR ON UPPER SHAFT 	1689YL 1687YL	39 37	.006	.0062	.0066	.0069	.0072	.0075	.0077	.0078	.0079	.0081	.0085	.0089
	1691YL 1688YL	41 35	.0064	.007	.0074	.0077	.008	.0082	.0084	.0086	.0088	.009	.0095	.0098
	1693YL 1690YL	43 33	.0075	.0077	.0081	.0085	.0088	.0091	.0093	.0095	.0098	.010	.0105	.011
	1695YL 1692YL	45 31	.0082	.0086	.0091	.0095	.0098	.0101	.0103	.0105	.0108	.0111	.0116	.0122
	1697YL 1694YL	47 29	.0092	.010	.0103	.0106	.011	.0114	.0117	.012	.0123	.0125	.013	.0137
	1699YL 2177YL	50 26	.011	.0115	.012	.0125	.013	.0135	.0138	.0141	.0144	.0147	.0156	.0162
	1701YL 2176YL	54 22	.0139	.0146	.0153	.016	.017	.018	.0182	.0184	.0186	.0189	.0197	.0207
	1703YL 2175YL	58 18	.0183	.0192	.0201	.021	.0218	.0226	.0231	.0236	.0241	.0247	.0258	.0272

SPEED GEARS

1"-6 Slow Speed. Fast Index



BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
209	2863	23 85	* 5883YL 5884YL
221	2710	24 84	4783YL 4784YL
233	2571	25 83	* 3723YL 3724YL
245	2443	26 82	* 1586YL 1587YL
257	2324	27 81	7977YL 7978YL
270	2212	28 80	5437YL 5438YL
283	2109	29 79	* 3725YL 3726YL
296	2014	30 78	* 1588YL 1589YL
311	1923	31 77	9326YL 9327YL
325	1839	32 76	* 3731YL 3732YL
340	1759	33 75	9181YL 9182YL
355	1685	34 74	* 1590YL 1591YL
371	1615	35 73	9328YL 9329YL
386	1548	36 72	* 3647YL 3648YL
402	1486	37 71	* 3733YL 3734YL
420	1427	38 70	* 1592YL 1593YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
437	1370	39 69	6245YL 6246YL
454	1317	40 68	4325YL 4326YL
473	1265	41 67	6243YL 6244YL
492	1216	42 66	* 1594YL 1595YL
511	1169	43 65	8440YL 8441YL
532	1126	44 64	6241YL 6242YL
552	1083	45 63	* 1596YL 1597YL
573	1044	46 62	7465YL 7466YL
596	1004	47 61	6341YL 6342YL
618	967	48 60	* 1598YL 1599YL
642	932	49 59	7655YL 7656YL
667	898	50 58	* 1600YL 1601YL
692	865	51 57	8702YL 8703YL
718	833	52 56	* 7517YL 7518YL
745	802	53 55	* 1602YL 1603YL
773	773	54 54	9330YL 9331YL

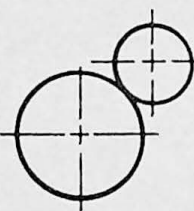
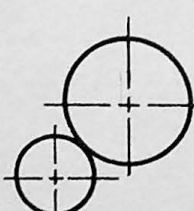
* These gears are available for immediate delivery

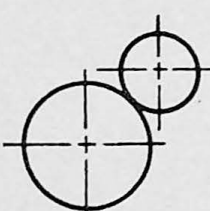
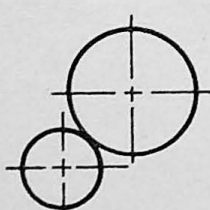


1"-6 Slow Speed, Cam Feed - Unit 1212-2

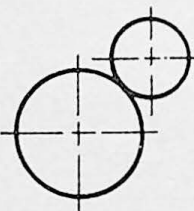
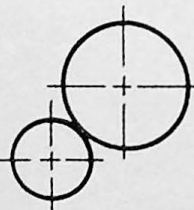
BEFORE SERIAL NO. A 1522

FEED GEARS

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE							
			1/4	3/8	1/2	5/8	3/4	7/8	1.000	1.125 & UP
SMALL GEAR ON UPPER SHAFT 	2175YL 1703YL	18 58	.0023	.0026	.0030	.0030	.0031	.0031	.0032	.0032
	2176YL 1701YL	22 54	.0031	.0035	.0037	.0039	.0040	.0041	.0042	.0042
	2177YL 1699YL	26 50	.0039	.0044	.0048	.0050	.0051	.0052	.0053	.0054
	1694YL 1697YL	29 47	.0046	.0053	.0056	.0059	.0061	.0062	.0063	.0064
	1692YL 1695YL	31 45	.0052	.0059	.0063	.0066	.0068	.0069	.0071	.0072
	1690YL 1693YL	33 43	.0058	.0065	.0070	.0073	.0076	.0077	.0079	.0080
	1688YL 1691YL	35 41	.0064	.0073	.0078	.0082	.0084	.0086	.0088	.0089
	1687YL 1689YL	37 39	.0071	.0081	.0087	.0091	.0094	.0096	.0098	.0099
	2178YL 2178YL	38 38	.0075	.0085	.0091	.0095	.0099	.0101	.0103	.0104
LARGE GEAR ON UPPER SHAFT 	1689YL 1687YL	39 37	.0079	.0090	.0096	.0101	.0104	.0106	.0108	.0110
	1691YL 1688YL	41 35	.0088	.0100	.0107	.0112	.0116	.0118	.0120	.0122
	1693YL 1690YL	43 33	.0098	.0114	.0120	.0128	.0129	.0133	.0134	.0135
	1695YL 1692YL	45 31	.0109	.0124	.0133	.0139	.0144	.0146	.0149	.0151
	1697YL 1694YL	47 29	.0122	.0139	.0149	.0156	.0160	.0164	.0166	.0168
	1699YL 2177YL	50 26	.0145	.0165	.0176	.0184	.0191	.0194	.0198	.0200
	1701YL 2176YL	54 22	.0185	.0210	.0235	.0225	.0243	.0248	.0253	.0255
	1703YL 2175YL	58 18	.0243	.0276	.0296	.0309	.0319	.0325	.0332	.0335

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE							
			1/4	3/8	1/2	5/8	3/4	7/8	1.000	1.125 & UP
SMALL GEAR ON UPPER SHAFT 	2175YL 1703YL	18 58	.0008	.0009	.0009	.0010	.0010	.0010	.0011	.0011
	2176YL 1701YL	22 54	.001	.0012	.0012	.0013	.0013	.0014	.0014	.0014
	2177YL 1699YL	26 50	.0013	.0015	.0016	.0016	.0017	.0017	.0018	.0018
	1694YL 1697YL	29 47	.0015	.0018	.0019	.0020	.0020	.0021	.0021	.0022
	1692YL 1695YL	31 45	.0017	.0020	.0021	.0022	.0023	.0023	.0024	.0024
	1690YL 1693YL	33 43	.0019	.0022	.0024	.0024	.0025	.0026	.0027	.0027
	1688YL 1691YL	35 41	.0022	.0025	.0026	.0027	.0028	.0029	.0030	.0030
	1687YL 1689YL	37 39	.0024	.0027	.0029	.0030	.0031	.0032	.0033	.0034
	2178YL 2178YL	38 38	.0025	.0029	.0031	.0032	.0033	.0034	.0035	.0035
LARGE GEAR ON UPPER SHAFT 	1689YL 1687YL	39 37	.0027	.0030	.0032	.0033	.0035	.0036	.0037	.0037
	1691YL 1688YL	41 35	.0030	.0034	.0036	.0037	.0038	.0040	.0041	.0041
	1693YL 1690YL	43 33	.0033	.0038	.0040	.0041	.0043	.0044	.0045	.0045
	1695YL 1692YL	45 31	.0037	.0042	.0045	.0046	.0048	.0049	.0051	.0051
	1697YL 1694YL	47 29	.0041	.0047	.0050	.0052	.0053	.0055	.0056	.0056
	1699YL 2177YL	50 26	.0049	.0051	.0059	.0061	.0063	.0065	.0067	.0067
	1701YL 2176YL	54 22	.0064	.0071	.0076	.0078	.0081	.0083	.0086	.0086
	1703YL 2175YL	58 18	.0082	.0093	.0100	.0103	.0106	.0110	.0113	.0113

BEFORE SERIAL NO. A 1522

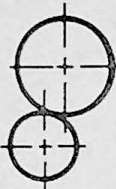
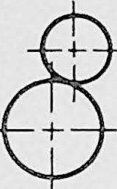
	GEAR PART NO.	TEETH	TOOL SLIDE STROKE							
			1/4	3/8	1/2	5/8	3/4	7/8	1.000	1.125 & UP
SMALL GEAR ON UPPER SHAFT 	2175YL 1703YL	18 58	.0010	.0011	.0012	.0013	.0013	.0013	.0014	.0014
	2176YL 1701YL	22 54	.0013	.0015	.0016	.0017	.0017	.0018	.0018	.0019
	2177YL 1699YL	26 50	.0017	.0019	.0021	.0022	.0022	.0023	.0023	.0024
	1694YL 1697YL	29 47	.0020	.0023	.0025	.0026	.0026	.0027	.0028	.0028
	1692YL 1695YL	31 45	.0022	.0026	.0028	.0029	.003	.003	.0031	.0031
	1690YL 1693YL	33 43	.0025	.0029	.0031	.0032	.0033	.0034	.0034	.0035
	1688YL 1691YL	35 41	.0028	.0032	.0034	.0036	.0037	.0037	.0038	.0039
	1687YL 1689YL	37 39	.0031	.0035	.0038	.004	.0041	.0042	.0042	.0043
	2178YL 2178YL	38 38	.0033	.0037	.0040	.0042	.0043	.0044	.0045	.0046
LARGE GEAR ON UPPER SHAFT 	1689YL 1687YL	39 37	.0035	.0039	.0041	.0044	.0045	.0046	.0047	.0050
	1691YL 1688YL	41 35	.0037	.0043	.0047	.0049	.0050	.0051	.0052	.0054
	1693YL 1690YL	43 33	.0043	.0049	.0052	.0054	.0056	.0057	.0058	.006
	1695YL 1692YL	45 31	.0048	.0054	.0058	.0061	.0062	.0064	.0065	.0067
	1697YL 1694YL	47 29	.0053	.0061	.0065	.0068	.0070	.0071	.0073	.0074
	1699YL 2177YL	50 26	.0063	.0072	.0077	.0080	.0082	.0084	.0086	.0088
	1701YL 2176YL	54 22	.0081	.0092	.0098	.0103	.0105	.0108	.0110	.0113
	1703YL 2175YL	58 18	.0106	.0121	.0129	.0135	.0138	.0141	.0145	.0148

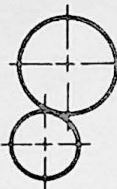
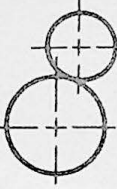
SPEED GEARS

1 5/8" - 6 Standard Speed



BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
126		18 90	* 3555YL 3556YL
135		19 89	9324YL 9325YL
144		20 88	6247YL 6248YL
153	2629	21 87	* 3729YL 3730YL
160	2509	22 86	4684YL 4685YL
171	2345	23 85	* 5883YL 5884YL
181	2221	24 84	4783YL 4784YL
191	2106	25 83	* 3723YL 3724YL
201	2001	26 82	* 1586YL 1587YL
211	1903	27 81	7977YL 7978YL
222	1813	28 80	5437YL 5438YL
232	1728	29 79	* 3725YL 3726YL
244	1650	30 78	* 1588YL 1589YL
255	1576	31 77	9326YL 9327YL
267	1507	32 76	* 3731YL 3732YL
279	1442	33 75	9181YL 9182YL
291	1381	34 74	* 1590YL 1591YL
304	1323	35 73	9328YL 9329YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
317	1269	36 72	* 3647YL 3648YL
330	1217	37 71	* 3733YL 3734YL
344	1169	38 70	* 1592YL 1593YL
358	1122	39 69	6245YL 6246YL
373	1078	40 68	4325YL 4326YL
388	1037	41 67	6243YL 6244YL
403	997	42 66	* 1594YL 1595YL
419	959	43 65	8440YL 8441YL
436	923	44 64	6241YL 6242YL
453	888	45 63	* 1596YL 1597YL
470	855	46 62	7465YL 7466YL
488	823	47 61	6341YL 6342YL
507	793	48 60	* 1598YL 1599YL
527	764	49 59	7655YL 7656YL
547	736	50 58	* 1600YL 1601YL
563	709	51 57	8702YL 8703YL
589	683	52 56	* 7517YL 7518YL
600	658	53 55	* 1602YL 1603YL
634	634	54 54	9330YL 9331YL

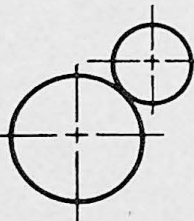
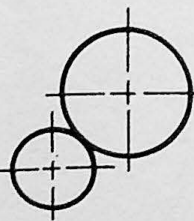
* These gears are available for immediate delivery



1⁵/₈" - 6 Standard Speed

FEED GEARS

BEFORE SERIAL NO. A 1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE											
			3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	2	2-1/2
SMALL GEAR ON UPPER SHAFT 	1702YL 1703YL	16 58	.0014	.0015	.0017	.0018	.0018	.0019	.0019	.002	.0021	.0022	.0023	.0024
	1700YL 1701YL	20 54	.0019	.0021	.0023	.0024	.0025	.0026	.0027	.0028	.0029	.003	.0031	.0033
	1698YL 1699YL	24 50	.0024	.0027	.0029	.0031	.0033	.0034	.0035	.0036	.0037	.0038	.004	.0042
	1696YL 1697YL	27 47	.0030	.0032	.0035	.0037	.0039	.0041	.0042	.0043	.0044	.0046	.0049	.0051
	1694YL 1695YL	29 45	.0033	.0036	.0039	.0042	.0044	.0046	.0047	.0048	.005	.0052	.0055	.0057
	1692YL 1693YL	31 43	.0037	.004	.0043	.0046	.0048	.0051	.0052	.0053	.0055	.0057	.0061	.0064
	1690YL 1691YL	33 41	.0041	.0045	.0048	.0052	.0055	.0057	.0059	.006	.0062	.0064	.0068	.0072
	1688YL 1689YL	35 39	.0046	.005	.0054	.0058	.0061	.0063	.0065	.0067	.0069	.0072	.0076	.0079
	1687YL 1687YL	37 37	.0051	.0056	.0061	.0065	.0068	.0071	.0073	.0075	.0077	.008	.0084	.0089
LARGE GEAR ON UPPER SHAFT 	1689YL 1688YL	39 35	.0057	.0063	.0068	.0072	.0075	.0079	.0082	.0084	.0086	.0089	.0094	.0099
	1691YL 1690YL	41 33	.0064	.007	.0075	.008	.0084	.0088	.009	.0093	.0096	.0099	.0105	.011
	1693YL 1692YL	43 31	.0071	.0078	.0084	.009	.0094	.0098	.0101	.0105	.0109	.0111	.0117	.0124
	1695YL 1694YL	45 29	.008	.0087	.0094	.010	.0105	.011	.0113	.0117	.012	.0124	.0131	.0138
	1697YL 1696YL	47 27	.009	.0098	.0105	.0112	.0118	.0123	.0127	.0131	.0135	.014	.0147	.0155
	1699YL 1698YL	50 24	.0107	.0117	.0125	.0134	.014	.0147	.0152	.0157	.0162	.0167	.0176	.0185
	1701YL 1700YL	54 20	.014	.0152	.0163	.0174	.0179	.0191	.0197	.0203	.0209	.0216	.0228	.024
	1703YL 1702YL	58 16	.0186	.0205	.0222	.0234	.0245	.0257	.0265	.0273	.0281	.0291	.0307	.0323

SPEED GEARS

15/8"-6 Standard Speed, Fast Index



BEFORE SERIAL NO. A1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
162		18 90	* 3555YL 3556YL
173		19 89	9324YL 9325YL
185		20 88	6247YL 6248YL
197		21 87	* 3729YL 3730YL
206		22 86	4684YL 4685YL
220		23 85	* 5883YL 5884YL
233		24 84	4783YL 4784YL
246	2712	25 83	* 3723YL 3724YL
258	2577	26 82	* 1586YL 1587YL
271	2451	27 81	7977YL 7978YL
285	2335	28 80	5437YL 5438YL
298	2225	29 79	* 3725YL 3726YL
314	2125	30 78	* 1588YL 1589YL
328	2029	31 77	9326YL 9327YL
343	1941	32 76	* 3731YL 3732YL
359	1857	33 75	9181YL 9182YL
374	1778	34 74	* 1590YL 1591YL
391	1704	35 73	9328YL 9329YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
408	1634	36 72	* 3647YL 3648YL
425	1567	37 71	* 3733YL 3734YL
443	1505	38 70	* 1592YL 1593YL
461	1445	39 69	6245YL 6246YL
480	1388	40 68	4325YL 4326YL
499	1335	41 67	6243YL 6244YL
519	1284	42 66	* 1594YL 1595YL
539	1235	43 65	8440YL 8441YL
561	1188	44 64	6241YL 6242YL
583	1143	45 63	* 1596YL 1597YL
605	1101	46 62	7465YL 7466YL
628	1060	47 61	6341YL 6342YL
653	1021	48 60	* 1598YL 1599YL
678	984	49 59	7655YL 7656YL
704	947	50 58	* 1600YL 1601YL
725	913	51 57	8702YL 8703YL
758	879	52 56	* 7517YL 7518YL
772	847	53 55	* 1602YL 1603YL
816	816	54 54	9330YL 9331YL

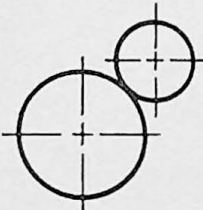
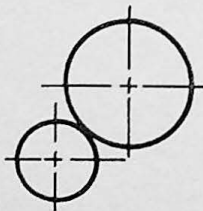
* These gears are available for immediate delivery



1 5/8" - 6 Standard Speed, Cam Feed

FEED GEARS

BEFORE SERIAL NO. A 1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE							
			1/4	3/8	1/2	5/8	3/4	7/8	1.000	1.125 & UP
SMALL GEAR ON UPPER SHAFT 	1702YL 1703YL	16 58	.0011	.0012	.0013	.0013	.0014	.0014	.0014	.0014
	1700YL 1701YL	20 54	.0014	.0016	.0017	.0018	.0018	.0019	.0019	.0019
	1698YL 1699YL	24 50	.0019	.0021	.0023	.0023	.0024	.0025	.0025	.0025
	1696YL 1697YL	27 47	.0022	.0025	.0027	.0028	.0029	.0029	.0030	.0030
	1694YL 1695YL	29 45	.0025	.0028	.0030	.0031	.0032	.0033	.0034	.0034
	1692YL 1693YL	31 43	.0028	.0032	.0034	.0035	.0036	.0037	.0038	.0038
	1690YL 1691YL	33 41	.0032	.0036	.0038	.0039	.0040	.0041	.0042	.0042
	1688YL 1689YL	35 39	.0035	.0040	.0042	.0044	.0045	.0046	.0047	.0047
	1687YL 1687YL	37 37	.0039	.0044	.0047	.0049	.0050	.0051	.0052	.0053
LARGE GEAR ON UPPER SHAFT 	1689YL 1688YL	39 35	.0044	.0049	.0053	.0054	.0057	.0057	.0058	.0059
	1691YL 1690YL	41 33	.0049	.0055	.0059	.0061	.0063	.0064	.0065	.0066
	1693YL 1692YL	43 31	.0055	.0061	.0066	.0068	.0070	.0071	.0072	.0073
	1695YL 1694YL	45 29	.0062	.0069	.0073	.0076	.0078	.0080	.0081	.0082
	1697YL 1696YL	47 27	.0069	.0077	.0082	.0085	.0088	.0090	.0091	.0092
	1699YL 1698YL	50 24	.0082	.0092	.0099	.0102	.0105	.0107	.0109	.0110
	1701YL 1700YL	54 20	.0107	.0120	.0128	.0132	.0136	.0139	.0141	.0143
	1703YL 1702YL	58 16	.0144	.0161	.0172	.0178	.0183	.0187	.0190	.0192

SPEED GEARS

1 5/8" - 6 Slow Speed



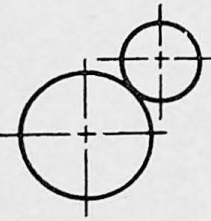
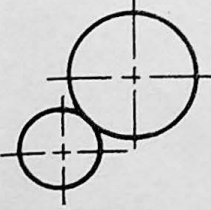
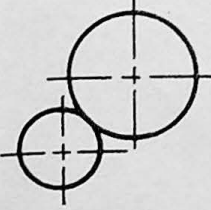
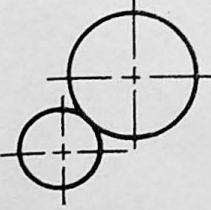
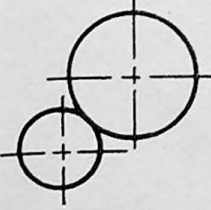
BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
105	2627	18 90	3555YL * 3556YL
112	2461	19 89	9324YL 9325YL
119	2312	20 88	6247YL 6248YL
126	2177	21 87	* 3729YL 3730YL
134	2054	22 86	4684YL 4685YL
142	1942	23 85	* 5883YL 5884YL
150	1839	24 84	4783YL 4784YL
158	1744	25 83	* 3723YL 3724YL
166	1657	26 82	* 1586YL 1587YL
175	1576	27 81	7977YL 7978YL
183	1501	28 80	5437YL 5438YL
192	1431	29 79	* 3725YL 3726YL
202	1366	30 78	* 1588YL 1589YL
211	1305	31 77	9326YL 9327YL
221	1248	32 76	* 3731YL 3732YL
231	1194	33 75	9181YL 9182YL
241	1143	34 74	* 1590YL 1591YL
251	1096	35 73	9328YL 9329YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
262	1051	36 72	* 3647YL 3648YL
273	1008	37 71	* 3733YL 3734YL
289	968	38 70	* 1592YL 1593YL
297	929	39 69	6245YL 6246YL
309	893	40 68	4325YL 4326YL
321	858	41 67	6243YL 6244YL
334	825	42 66	* 1594YL 1595YL
347	794	43 65	8440YL 8441YL
361	764	44 64	6241YL 6242YL
375	735	45 63	* 1596YL 1597YL
389	708	46 62	7465YL 7466YL
404	682	47 61	6341YL 6342YL
420	656	48 60	* 1598YL 1599YL
436	632	49 59	7655YL 7656YL
453	609	50 58	* 1600YL 1601YL
470	587	51 57	8702YL 8703YL
488	565	52 56	* 7517YL 7518YL
506	545	53 55	* 1602YL 1603YL
525	525	54 54	9330YL 9331YL

* These gears are available for immediate delivery

BEFORE SERIAL NO. A 1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE											
			3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	2	2-1/2
SMALL GEAR ON UPPER SHAFT 	1702YL	16	.0017	.0018	.002	.0021	.0022	.0023	.0023	.0024	.0025	.0026	.0027	.0029
	1703YL	58												
	1700YL	20	.0023	.0025	.0027	.0029	.003	.0031	.0032	.0034	.0035	.0036	.0037	.0039
	1701YL	54												
	1698YL	24	.0029	.0032	.0034	.0037	.0039	.0041	.0042	.0043	.0044	.0045	.0048	.005
	1699YL	50												
	1696YL	27	.0036	.0038	.0041	.0044	.0047	.0049	.005	.0051	.0053	.0055	.0059	.0061
	1697YL	47												
	1694YL	29	.0039	.0043	.0047	.005	.0053	.0055	.0056	.0057	.0059	.0062	.0066	.0068
	1695YL	45												
LARGE GEAR ON UPPER SHAFT 	1692YL	31	.0044	.0048	.0052	.0055	.0058	.0061	.0062	.0064	.0066	.0068	.0073	.0077
	1693YL	43												
	1690YL	33	.0049	.0054	.0058	.0062	.0065	.0068	.007	.0073	.0075	.0077	.0081	.0086
	1691YL	41												
	1688YL	35	.0054	.006	.0065	.007	.0073	.0076	.0078	.0081	.0083	.0086	.0091	.0095
	1689YL	39												
	1687YL	37	.006	.0067	.0072	.0078	.0081	.0085	.0087	.009	.0093	.0096	.010	.0107
	1687YL	37												
	1689YL	39	.0068	.0076	.0081	.0086	.0091	.0095	.0098	.0101	.0104	.0107	.0113	.012
	1688YL	35												
LARGE GEAR ON UPPER SHAFT 	1691YL	41	.0073	.0084	.009	.0096	.0101	.0106	.011	.0114	.0118	.012	.0126	.0132
	1690YL	33												
	1693YL	43	.0085	.0093	.010	.0108	.0113	.0118	.0121	.0125	.0129	.0133	.014	.015
	1692YL	31												
	1695YL	45	.0096	.0104	.0112	.012	.0126	.0132	.0136	.014	.0145	.015	.0157	.0166
	1694YL	29												
	1697YL	47	.0108	.0118	.0126	.0134	.0147	.0148	.0153	.0158	.0163	.0168	.0176	.0186
	1696YL	27												
LARGE GEAR ON UPPER SHAFT 	1699YL	50	.0128	.014	.015	.016	.0163	.0166	.0176	.0184	.0192	.020	.021	.0222
	1698YL	24												
	1701YL	54	.0168	.0182	.0196	.021	.022	.023	.0236	.0244	.0252	.026	.0274	.0288
	1700YL	20												
LARGE GEAR ON UPPER SHAFT 	1703YL	58	.0223	.0246	.0263	.028	.0294	.0308	.032	.033	.034	.035	.0368	.0388
	1702YL	16												

SPEED GEARS

*1 5/8" - 6 Slow Speed,
Fast Index*



BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
135		18 90	* 3555YL 3556YL
144		19 89	9324YL 9325YL
153		20 88	6247YL 6248YL
162		21 87	* 3729YL 3730YL
172	2645	22 86	4684YL 4685YL
182	2501	23 85	* 5883YL 5884YL
193	2368	24 84	4783YL 4784YL
203	2246	25 83	* 3723YL 3724YL
213	2134	26 82	* 1586YL 1587YL
225	2029	27 81	7977YL 7978YL
235	1933	28 80	5437YL 5438YL
247	1843	29 79	* 3725YL 3726YL
260	1759	30 78	* 1588YL 1589YL
271	1680	31 77	9326YL 9327YL
284	1607	32 76	* 3731YL 3732YL
297	1537	33 75	9181YL 9182YL
310	1472	34 74	* 1590YL 1591YL
323	1411	35 73	9328YL 9329YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
337	1353	36 72	* 3647YL 3648YL
351	1298	37 71	* 3733YL 3734YL
367	1246	38 70	* 1592YL 1593YL
382	1196	39 69	6245YL 6246YL
397	1150	40 68	4325YL 4326YL
413	1105	41 67	6243YL 6244YL
430	1062	42 66	* 1594YL 1595YL
446	1022	43 65	8440YL 8441YL
464	984	44 64	6241YL 6242YL
483	946	45 63	* 1596YL 1597YL
501	911	46 62	7465YL 7466YL
520	878	47 61	6341YL 6342YL
540	844	48 60	* 1598YL 1599YL
561	814	49 59	7655YL 7656YL
583	784	50 58	* 1600YL 1601YL
605	756	51 57	8702YL 8703YL
628	727	52 56	* 7517YL 7518YL
651	701	53 55	* 1602YL 1603YL
676	676	54 54	9330YL 9331YL

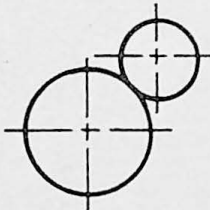
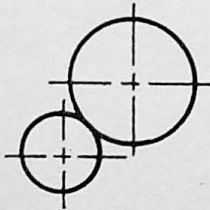
* These gears are available for immediate delivery



1 5/8" - 6 Slow Speed, Cam Feed

FEED GEARS

BEFORE SERIAL NO. A 1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE							
			1/4	3/8	1/2	5/8	3/4	7/8	1.000	1.125 & UP
SMALL GEAR ON UPPER SHAFT 	1702YL 1703YL	16 58	.0013	.0015	.0016	.0016	.0017	.0017	.0017	.0018
	1700YL 1701YL	20 54	.0017	.0020	.0021	.0022	.0022	.0023	.0023	.0024
	1698YL 1699YL	24 50	.0023	.0026	.0027	.0028	.0029	.0030	.0030	.0031
	1696YL 1697YL	27 47	.0027	.0031	.0033	.0034	.0035	.0036	.0036	.0037
	1694YL 1695YL	29 45	.0031	.0034	.0037	.0038	.0039	.0040	.0040	.0041
	1692YL 1693YL	31 43	.0034	.0039	.0041	.0043	.0044	.0045	.0045	.0046
	1690YL 1691YL	33 41	.0038	.0043	.0046	.0048	.0049	.0050	.0051	.0051
	1688YL 1689YL	35 39	.0045	.0048	.0054	.0056	.0058	.0059	.0060	.0061
	1687YL 1687YL	37 37	.0047	.0053	.0057	.0059	.0061	.0062	.0063	.0064
LARGE GEAR ON UPPER SHAFT 	1689YL 1688YL	39 35	.0053	.006	.0064	.0066	.0068	.0069	.0070	.0071
	1691YL 1690YL	41 33	.0059	.0067	.0071	.0073	.0076	.0077	.0078	.0079
	1693YL 1692YL	43 31	.0066	.0074	.0079	.0082	.0085	.0086	.0087	.0089
	1695YL 1694YL	45 29	.0074	.0083	.0089	.0092	.0095	.0096	.0098	.0099
	1697YL 1696YL	47 27	.0083	.0094	.0100	.0103	.0106	.0108	.0110	.0111
	1699YL 1698YL	50 24	.0099	.0112	.0119	.0123	.0127	.0130	.0131	.0133
	1701YL 1700YL	54 20	.0129	.0148	.0155	.0160	.0165	.0168	.0170	.0176
	1703YL 1702YL	58 16	.0173	.0195	.0204	.0215	.0221	.0226	.0229	.0232

SPEED GEARS

2"-6 Standard Speed



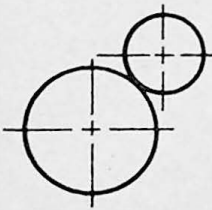
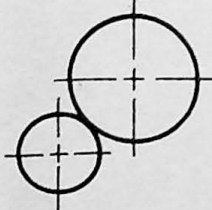
BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
112		18 90	* 3555YL 3556YL
120		19 89	9324YL 9325YL
128	2484	20 88	6247YL 6248YL
136	2339	21 87	* 3729YL 3730YL
144	2207	22 86	4684YL 4685YL
152	2086	23 85	* 5883YL 5884YL
161	1976	24 84	4783YL 4784YL
170	1874	25 83	* 3723YL 3724YL
179	1781	26 82	* 1586YL 1587YL
188	1694	27 81	7977YL 7978YL
197	1613	28 80	5437YL 5438YL
207	1538	29 79	* 3725YL 3726YL
217	1468	30 78	* 1588YL 1589YL
227	1402	31 77	9326YL 9327YL
237	1341	32 76	* 3731YL 3732YL
248	1283	33 75	9181YL 9182YL
259	1229	34 74	* 1590YL 1591YL
270	1177	35 73	9328YL 9329YL
282	1129	36 72	* 3647YL 3648YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
294	1083	37 71	* 3733YL 3734YL
306	1040	38 70	* 1592YL 1593YL
319	999	39 69	6245YL 6246YL
332	960	40 68	4325YL 4326YL
345	922	41 67	6243YL 6244YL
359	887	42 66	* 1594YL 1595YL
373	853	43 65	8440YL 8441YL
388	821	44 64	6241YL 6242YL
403	790	45 63	* 1596YL 1597YL
418	761	46 62	7465YL 7466YL
435	732	47 61	6341YL 6342YL
451	705	48 60	* 1598YL 1599YL
468	679	49 59	7655YL 7656YL
486	655	50 58	* 1600YL 1601YL
505	631	51 57	8702YL 8703YL
524	608	52 56	* 7517YL 7518YL
544	586	53 55	* 1602YL 1603YL
564	564	54 54	9330YL 9331YL

* These gears are available for immediate delivery

BEFORE SERIAL NO. A 1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE											
			3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	2	2-1/2
SMALL GEAR ON UPPER SHAFT 	1702YL 1703YL	16 58	.0015	.0016	.0018	.002	.002	.0021	.0021	.0022	.0023	.0024	.0025	.0026
	1700YL 1701YL	20 54	.0021	.0023	.0024	.0026	.0027	.0028	.0029	.003	.0032	.0033	.0034	.0036
	1698YL 1699YL	24 50	.0026	.003	.0032	.0034	.0036	.0037	.0038	.0039	.004	.0042	.0044	.0046
	1696YL 1697YL	27 47	.0033	.0035	.0038	.0041	.0043	.0045	.0046	.0047	.0048	.005	.0054	.0056
	1694YL 1695YL	29 45	.0036	.0039	.0043	.0046	.0048	.005	.0051	.0052	.0054	.0057	.006	.0063
	1692YL 1693YL	31 43	.004	.0044	.0047	.005	.0053	.0056	.0057	.0059	.0061	.0063	.0067	.007
	1690YL 1691YL	33 41	.0045	.0049	.0053	.0057	.006	.0063	.0064	.0066	.0068	.007	.0075	.0079
	1688YL 1689YL	35 39	.005	.0055	.006	.0064	.0067	.0069	.0071	.0074	.0076	.0079	.0083	.0087
	1687YL 1687YL	37 37	.0056	.0061	.0066	.0071	.0075	.0078	.0081	.0083	.0085	.0088	.0092	.0098
	LARGE GEAR ON UPPER SHAFT 	1689YL 1688YL	39 35	.0062	.0069	.0074	.0079	.0083	.0087	.0089	.0092	.0095	.0098	.0103
1691YL 1690YL		41 33	.007	.0077	.0082	.0088	.0093	.0097	.0099	.0103	.0106	.0109	.0115	.0121
1693YL 1692YL		43 31	.0078	.0086	.0092	.0099	.0103	.0108	.0111	.0114	.0118	.0122	.0129	.0136
1695YL 1694YL		45 29	.0088	.0096	.0103	.011	.0115	.0121	.0124	.0128	.0132	.0136	.0144	.0152
1697YL 1696YL		47 27	.0099	.0107	.0115	.0123	.0129	.0135	.0139	.0144	.0149	.0154	.0161	.017
1699YL 1698YL		50 24	.0117	.0129	.0138	.0147	.0154	.0161	.0167	.0172	.0177	.0183	.0193	.0203
1701YL 1700YL		54 20	.0154	.0167	.0179	.0191	.0199	.021	.0216	.0223	.023	.0237	.025	.0279
1703YL 1702YL		58 16	.0204	.0225	.0241	.0257	.0269	.0282	.0293	.0302	.0311	.032	.0337	.0355

SPEED GEARS

2"-6 Standard Speed, Fast Index



BEFORE SERIAL NO. A1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
144		18 90	* 3555YL 3556YL
154		19 89	9324YL 9325YL
164		20 88	6247YL 6248YL
175		21 87	* 3729YL 3730YL
185		22 86	4684YL 4685YL
195		23 85	* 5883YL 5884YL
207		24 84	4783YL 4784YL
218	2413	25 83	* 3723YL 3724YL
230	2293	26 82	* 1586YL 1587YL
242	2181	27 81	7977YL 7978YL
253	2077	28 80	5437YL 5438YL
266	1980	29 79	* 3725YL 3726YL
279	1890	30 78	* 1588YL 1589YL
292	1805	31 77	9326YL 9327YL
305	1727	32 76	* 3731YL 3732YL
319	1652	33 75	9181YL 9182YL
333	1582	34 74	* 1590YL 1591YL
347	1515	35 73	9328YL 9329YL
363	1454	36 72	* 3647YL 3648YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
378	1394	37 71	* 3733YL 3734YL
394	1339	38 70	* 1592YL 1593YL
410	1286	39 69	6245YL 6246YL
427	1236	40 68	4325YL 4326YL
444	1187	41 67	6243YL 6244YL
462	1142	42 66	* 1594YL 1595YL
480	1098	43 65	8440YL 8441YL
499	1057	44 64	6241YL 6242YL
519	1017	45 63	* 1596YL 1597YL
538	980	46 62	7465YL 7466YL
560	942	47 61	6341YL 6342YL
580	908	48 60	* 1598YL 1599YL
602	874	49 59	7655YL 7656YL
625	843	50 58	* 1600YL 1601YL
650	812	51 57	8702YL 8703YL
674	783	52 56	* 7517YL 7518YL
700	754	53 55	* 1602YL 1603YL
726	726	54 54	9330YL 9331YL

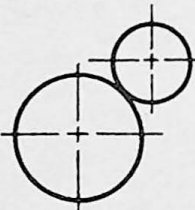
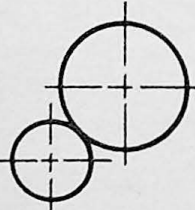
* These gears are available for immediate delivery



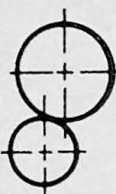
2"-6 Standard Speed, Cam Feed

BEFORE SERIAL NO. A 1522

FEED GEARS

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE							
			1/4	3/8	1/2	5/8	3/4	7/8	1.000	1.125 & UP
SMALL GEAR ON UPPER SHAFT 	1702YL 1703YL	16 58	.0012	.0013	.0014	.0015	.0015	.0016	.0016	.0016
	1700YL 1701YL	20 54	.0016	.0018	.0019	.0020	.0021	.0021	.0022	.0022
	1698YL 1699YL	24 50	.0021	.0024	.0025	.0026	.0027	.0028	.0028	.0028
	1696YL 1697YL	27 47	.0025	.0028	.0030	.0031	.0032	.0033	.0033	.0034
	1694YL 1695YL	29 45	.0028	.0032	.0034	.0035	.0036	.0037	.0038	.0038
	1692YL 1693YL	31 43	.0032	.0036	.0038	.0040	.0041	.0041	.0042	.0043
	1690YL 1691YL	33 41	.0036	.0040	.0043	.0044	.0045	.0046	.0047	.0048
	1688YL 1689YL	35 39	.0041	.0045	.0048	.0049	.0051	.0052	.0053	.0053
	1687YL 1687YL	37 37	.0044	.0050	.0053	.0055	.0057	.0058	.0059	.0059
LARGE GEAR ON UPPER SHAFT 	1689YL 1688YL	39 35	.0049	.0055	.0059	.0061	.0063	.0064	.0065	.0066
	1691YL 1690YL	41 33	.0055	.0062	.0066	.0068	.0070	.0072	.0073	.0074
	1693YL 1692YL	43 31	.0061	.0069	.0074	.0076	.0079	.0080	.0082	.0082
	1695YL 1694YL	45 29	.0069	.0077	.0083	.0086	.0088	.0090	.0091	.0092
	1697YL 1696YL	47 27	.0077	.0087	.0093	.0096	.0099	.0101	.0103	.0103
	1699YL 1698YL	50 24	.0092	.0104	.0111	.0115	.0118	.0121	.0123	.0124
	1701YL 1700YL	54 20	.0120	.0135	.0143	.0149	.0154	.0156	.0159	.0160
	1703YL 1702YL	58 16	.0161	.0181	.0193	.0202	.0203	.0210	.0214	.0215

BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
93	2338	18 90	* 3555YL 3556YL
99	2190	19 89	9324YL 9325YL
106	2057	20 88	6247YL 6248YL
112	1937	21 87	* 3729YL 3730YL
119	1828	22 86	4684YL 4685YL
126	1728	23 85	* 5883YL 5884YL
133	1636	24 84	4783YL 4784YL
140	1552	25 83	* 3723YL 3724YL
148	1474	26 82	* 1586YL 1587YL
155	1402	27 81	7977YL 7978YL
163	1336	28 80	5437YL 5438YL
171	1273	29 79	* 3725YL 3726YL
179	1215	30 78	* 1588YL 1589YL
188	1161	31 77	9326YL 9327YL
196	1110	32 76	* 3731YL 3732YL
205	1062	33 75	9181YL 9182YL
214	1017	34 74	* 1590YL 1591YL
224	975	35 73	9328YL 9329YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
233	935	36 72	* 3647YL 3648YL
243	897	37 71	* 3733YL 3734YL
253	861	38 70	* 1592YL 1593YL
264	827	39 69	6245YL 6246YL
275	794	40 68	4325YL 4326YL
286	764	41 67	6243YL 6244YL
297	734	42 66	* 1594YL 1595YL
309	706	43 65	8440YL 8441YL
321	680	44 64	6241YL 6242YL
334	654	45 63	* 1596YL 1597YL
346	630	46 62	7465YL 7466YL
360	606	47 61	6341YL 6342YL
374	584	48 60	* 1598YL 1599YL
388	563	49 59	7655YL 7656YL
403	542	50 58	* 1600YL 1601YL
418	522	51 57	8702YL 8703YL
434	503	52 56	* 7517YL 7518YL
450	485	53 55	* 1602YL 1603YL
467	467	54 54	9330YL 9331YL

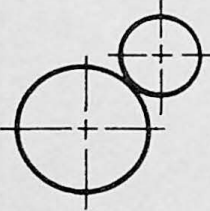
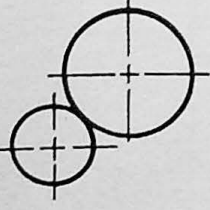
* These gears are available for immediate delivery



2"-6 Slow Speed

FEED GEARS

BEFORE SERIAL NO. A 1522

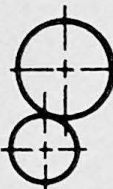
	GEAR PART NO.	TEETH	TOOL SLIDE STROKE											
			3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	2	2-1/2
SMALL GEAR ON UPPER SHAFT 	1702YL	16	.0019	.002	.0022	.0024	.0024	.0025	.0026	.0027	.0027	.0029	.003	.0032
	1703YL	58												
	1700YL	20	.0025	.0028	.003	.0032	.0033	.0034	.0035	.0036	.0038	.004	.0041	.0044
	1701YL	54												
	1698YL	24	.0032	.0036	.0038	.0041	.0043	.0045	.0046	.0047	.0048	.005	.0053	.0056
	1699YL	50												
	1696YL	27	.004	.0042	.0045	.0049	.0052	.0055	.0056	.0057	.0059	.0061	.0065	.0068
	1697YL	47												
	1694YL	29	.0044	.0048	.0052	.0056	.0058	.0061	.0063	.0065	.0067	.0069	.0073	.0076
	1695YL	45												
LARGE GEAR ON UPPER SHAFT 	1692YL	31	.0049	.0053	.0057	.0061	.0064	.0068	.007	.0072	.0074	.0076	.0081	.0085
	1693YL	43												
	1690YL	33	.0055	.006	.0064	.0069	.0072	.0076	.0078	.008	.0082	.0085	.0091	.0096
	1691YL	41												
	1688YL	35	.0061	.0066	.0071	.0077	.008	.0084	.0087	.009	.0093	.0096	.010	.0105
	1689YL	39												
	1687YL	37	.0068	.0075	.0081	.0087	.0091	.0095	.0098	.0101	.0103	.0106	.0112	.0119
	1687YL	37												
	1689YL	39	.0076	.0084	.009	.0096	.010	.0105	.0108	.0111	.0115	.0119	.0125	.0132
	1688YL	35												
	1691YL	41	.0085	.0093	.0099	.0106	.0111	.0117	.0121	.0125	.0129	.0132	.014	.0146
	1690YL	33												
	1693YL	43	.0095	.0107	.0113	.012	.0125	.013	.0134	.0138	.0143	.0148	.0156	.0165
	1692YL	31												
	1695YL	45	.0107	.0116	.0124	.0133	.0139	.0146	.0151	.0156	.0161	.0165	.0178	.0184
	1694YL	29												
	1697YL	47	.012	.013	.0140	.0149	.0156	.0164	.0169	.0174	.018	.0186	.0196	.0206
	1696YL	27												
	1699YL	50	.0142	.0156	.0167	.0178	.0187	.0196	.0202	.0208	.0215	.0222	.0234	.0246
	1698YL	24												
	1701YL	54	.0186	.0202	.0217	.0232	.0243	.0254	.0262	.027	.0279	.0288	.0304	.032
	1700YL	20												
	1703YL	58	.0248	.0273	.0292	.0312	.0327	.0342	.0348	.0354	.036	.0368	.041	.043
	1702YL	16												

SPEED GEARS

2"-6 Slow Speed, Fast Index



BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
119		18 90	* 3555YL 3556YL
127		19 89	9324YL 9325YL
136		20 88	6247YL 6248YL
144		21 87	* 3729YL 3730YL
153	2354	22 86	4684YL 4685YL
162	2225	23 85	* 5883YL 5884YL
171	2107	24 84	4783YL 4784YL
180	1998	25 83	* 3723YL 3724YL
190	1898	26 82	* 1586YL 1587YL
199	1805	27 81	7977YL 7978YL
209	1720	28 80	5437YL 5438YL
220	1639	29 79	* 3725YL 3726YL
230	1564	30 78	* 1588YL 1589YL
242	1495	31 77	9326YL 9327YL
252	1429	32 76	* 3731YL 3732YL
264	1367	33 75	9181YL 9182YL
275	1309	34 74	* 1590YL 1591YL
288	1255	35 73	9328YL 9329YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
300	1204	36 72	* 3647YL 3648YL
312	1155	37 71	* 3733YL 3734YL
325	1108	38 70	* 1592YL 1593YL
340	1065	39 69	6245YL 6246YL
354	1022	40 68	4325YL 4326YL
368	984	41 67	6243YL 6244YL
382	945	42 66	* 1594YL 1595YL
397	909	43 65	8440YL 8441YL
413	875	44 64	6241YL 6242YL
430	842	45 63	* 1596YL 1597YL
445	811	46 62	7465YL 7466YL
463	780	47 61	6341YL 6342YL
481	752	48 60	* 1598YL 1599YL
499	725	49 59	7655YL 7656YL
519	698	50 58	* 1600YL 1601YL
538	672	51 57	8702YL 8703YL
558	647	52 56	* 7517YL 7518YL
579	624	53 55	* 1602YL 1603YL
601	601	54 54	9330YL 9331YL

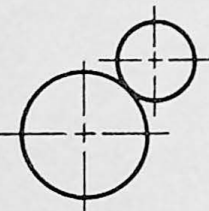
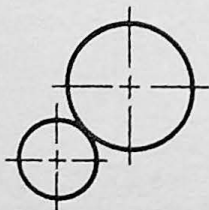
* These gears are available for immediate delivery



2"-6 Slow Speed, Cam Feed

FEED GEARS

BEFORE SERIAL NO. A 1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE							
			1/4	3/8	1/2	5/8	3/4	7/8	1.000	1.125 & UP
SMALL GEAR ON UPPER SHAFT 	1702YL 1703YL	16 58	.0014	.0016	.0017	.0018	.0019	.0019	.0019	.0020
	1700YL 1701YL	20 54	.0020	.0022	.0024	.0024	.0025	.0025	.0026	.0026
	1698YL 1699YL	24 50	.0025	.0029	.0031	.0032	.0033	.0033	.0034	.0034
	1696YL 1697YL	27 47	.003	.0034	.0037	.0038	.0039	.0040	.0040	.0041
	1694YL 1695YL	29 45	.0034	.0039	.0041	.0043	.0044	.0045	.0046	.0046
	1692YL 1693YL	31 43	.0038	.0043	.0046	.0048	.0049	.0050	.0051	.0052
	1690YL 1691YL	33 41	.0043	.0048	.0052	.0053	.0055	.0056	.0057	.0058
	1688YL 1689YL	35 39	.0048	.0054	.0057	.0060	.0061	.0063	.0063	.0064
	1687YL 1687YL	37 37	.0053	.0060	.0064	.0066	.0068	.0070	.0071	.0072
LARGE GEAR ON UPPER SHAFT 	1689YL 1688YL	39 35	.0060	.0067	.0071	.0074	.0076	.0078	.0079	.0080
	1691YL 1690YL	41 33	.0067	.0075	.008	.0083	.0085	.0087	.0088	.0089
	1693YL 1692YL	43 31	.0074	.0084	.0089	.0092	.0095	.0097	.0098	.0100
	1695YL 1694YL	45 29	.0083	.0094	.0100	.0104	.0106	.0108	.0110	.0112
	1697YL 1696YL	47 27	.0093	.0105	.0112	.0116	.0119	.0122	.0124	.0125
	1699YL 1698YL	50 24	.0112	.0126	.0134	.0139	.0143	.0146	.0148	.0150
	1701YL 1700YL	54 20	.0145	.0166	.0174	.0180	.0189	.0189	.0192	.0194
	1703YL 1702YL	58 16	.0195	.0219	.0234	.0242	.0249	.0254	.0258	.0260

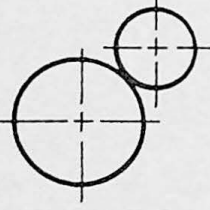
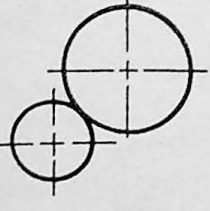
BEFORE SERIAL NO. A 1522

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
119	1192	26 82	* 1586YL 1587YL
126	1134	27 81	7977YL 7978YL
132	1080	28 80	5437YL 5438YL
138	1030	29 79	* 3725YL 3726YL
145	983	30 78	* 1588YL 1589YL
152	939	31 77	9326YL 9327YL
159	898	32 76	* 3731YL 3732YL
166	859	33 75	9181YL 9182YL
173	823	34 74	* 1590YL 1591YL
176	810	35 73	9328YL 9329YL
189	756	36 72	* 3647YL 3648YL
197	725	37 71	* 3733YL 3734YL
205	696	38 70	* 1592YL 1593YL
213	669	39 69	6245YL 6246YL

 SMALL GEAR ON LOWER SHAFT	 LARGE GEAR ON LOWER SHAFT	TEETH	GEAR PART NO.
222	643	40 68	4325YL 4326YL
231	618	41 67	6243YL 6244YL
240	594	42 66	* 1594YL 1595YL
250	571	43 65	8440YL 8441YL
260	550	44 64	6241YL 6242YL
270	529	45 63	* 1596YL 1597YL
280	509	46 62	7465YL 7466YL
291	490	47 61	6341YL 6342YL
302	472	48 60	* 1598YL 1599YL
314	455	49 59	7655YL 7656YL
326	438	50 58	* 1600YL 1601YL
338	422	51 57	8702YL 8703YL
351	407	52 56	* 7517YL 7518YL
364	392	53 55	* 1602YL 1603YL
378	378	54 54	9330YL 9331YL

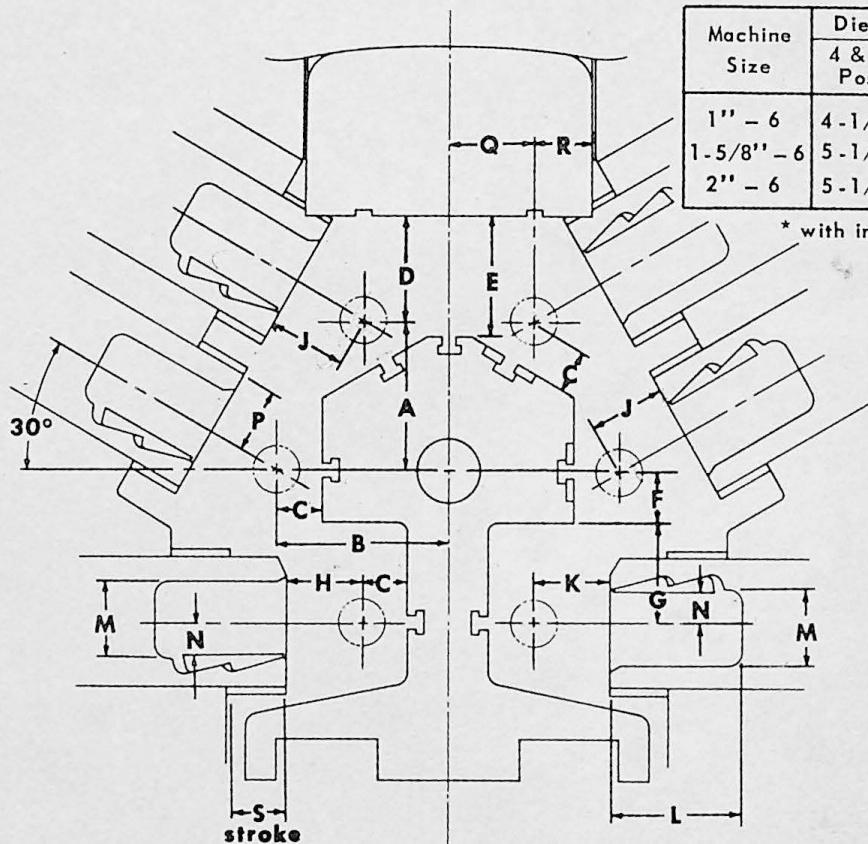
* These gears are available for immediate delivery

BEFORE SERIAL NO. A 1522

	GEAR PART NO.	TEETH	TOOL SLIDE STROKE											
			3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2	2	2-1/2	2-3/4
SMALL GEAR ON UPPER SHAFT 	1702YL 1703YL	16 58	.002	.0022	.0024	.0026	.0026	.0027	.0028	.0029	.003	.0033	.0034	.0035
	1700YL 1701YL	20 54	.0026	.0029	.0031	.0034	.0035	.0036	.0038	.004	.0041	.0044	.0046	.0047
	1698YL 1699YL	24 50	.0034	.0038	.0041	.0045	.0046	.0047	.0049	.0052	.0053	.0058	.006	.0061
	1696YL 1697YL	27 47	.0042	.0046	.005	.0055	.0057	.0058	.006	.0063	.0065	.007	.0073	.0074
	1694YL 1695YL	29 45	.0046	.0051	.0055	.006	.0062	.0063	.0066	.0069	.0071	.0077	.008	.0081
	1692YL 1693YL	31 43	.0051	.0057	.0062	.0067	.0069	.0071	.0074	.0077	.008	.0086	.009	.0091
	1690YL 1691YL	33 41	.0058	.0064	.007	.0076	.0078	.008	.0083	.0087	.009	.0097	.0101	.0103
	1688YL 1689YL	35 39	.0065	.0072	.0078	.0084	.0086	.0089	.0093	.0097	.010	.0108	.0113	.0115
	1687YL 1687YL	37 37	.0073	.0081	.0088	.0095	.0098	.0101	.0105	.011	.0114	.0123	.0128	.013
LARGE GEAR ON UPPER SHAFT 	1689YL 1688YL	39 35	.008	.0089	.0097	.0105	.0108	.0111	.0116	.0121	.0125	.0135	.014	.0142
	1691YL 1690YL	41 33	.0089	.0099	.0107	.0116	.0119	.0123	.0128	.0134	.0138	.015	.0156	.0158
	1693YL 1692YL	43 31	.0098	.0109	.0118	.0128	.0131	.0135	.0141	.0148	.0152	.0165	.0172	.0174
	1695YL 1694YL	45 29	.0111	.0124	.0134	.0145	.015	.0154	.0161	.0168	.0173	.0187	.0195	.0198
	1697YL 1696YL	47 27	.0125	.0138	.015	.0163	.0167	.0172	.018	.0188	.0194	.0209	.0218	.0222
	1699YL 1698YL	50 24	.0147	.0163	.0177	.0192	.0197	.0203	.0212	.0221	.0228	.0246	.0258	.0261
	1701YL 1700YL	54 20	.0191	.0212	.0231	.025	.0258	.0265	.0276	.0288	.0298	.0321	.0336	.034
	1703YL 1702YL	58 16	.0258	.0287	.0313	.0338	.0348	.0357	.0373	.0389	.0408	.0434	.0453	.0458

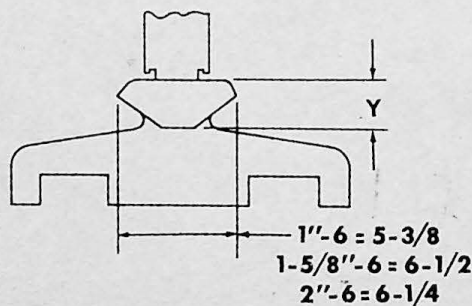
MAX. DIE HEAD DIA.

Key No.	Dimensions in Inches	
	1" - 6	1-5/8" - 2" - 6
A	5.196	6.278
B	6	7.250
C	1.594	2.047
D	3.491	4.096
E	4.062	4.874
F	1-3/4	2-1/8
G	3.446	4.153
H	2-5/8	3-5/8
J	2-5/8	3-1/8
K	2-5/8	3-3/8
L	4-5/8	5-1/2
M	2-11/16	3-1/8
N	1-3/16	1-3/8
P	2.250	2.8125
Q	3	3.625
R	2	1-7/8
S	1-3/4	2-1/4
T	1/2	9/16
U	13/16	1-1/16
V	19/32	25/32
W	5/16	7/16
X	1-1/2	2
Y	2-1/16	2-7/16
Z	6-5/8	8-7/8
AA	2-13/16	3-1/8
BB	2.500	2.312
CC	13	13.875
DD	14-1/2	15-7/8
EE	6.208	7.948
FF	7-1/4	9-3/8
GG	2-3/4	3-5/16
HH	1-3/64	1-7/16
JJ	4-5/16	5-3/8
KK	6-5/16	7-1/8
LL	14-5/8	10-5/16



Machine Size	Die Head Dia.	
	4 & 5 Pos.	3 & 6 Pos.
1" - 6	4-1/16	3-1/8
1-5/8" - 6	5-1/8	4-1/16
2" - 6	5-1/8	4-1/16

* with insert removed



INDEX TIME

Machine	Seconds
1" - 6	2
1-5/8" - 6	2.25
2" - 6	2.25

T-SLOT

