INSTRUCTIONS FOR CUTTING ODD & METRIC THREADS, WIRE WINDING

Thousands of odd threads, metric threads, feeds for coil and wire winding, and special tooling can be obtained using standard change gears on the Quick-Change quadrant in place of sliding gear and the two 48 tooth gears. Gear set-ups for metric threads, and odd threads from 1¼ to 70, are listed on page **4**. *Caution:* Extreme care must be taken when cutting threads less than 4 per inch. *Use Slow Speeds and Take Extremely Light Cuts* – the lead screw is revolving very rapidly, making it difficult for the operator to engage the carriage half nuts at the right moment. Also, excessive pressure is being exerted on lead screw, resulting in rapid wear of the gear train.

Information for setting up the gear train for wire winding and threads and feeds not listed can be obtained on request. When writing, specify thread or feed required – for coil winding feeds, give name, type and size of wire.

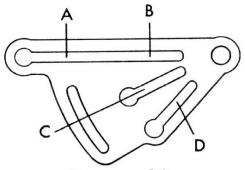

Figure 12

Gear train set-ups using standard change gears have been simplified by assigning gear positions A, B, C and D to the quadrant as shown in Figure 12. These positions are indicated in the odd thread and metric tables.

The outer portion of the longest slot is position A – the inner portion of the same slot is position B. The short middle slot is position C – the lower slot position D. These positions are approximate – they will vary with the size of the gears composing the train.

Before setting up a train of change gears, examine one of the change gear stud assemblies which hold gears to gear quadrant (Figure 13). Each stud assembly has an outer gear bushing long enough to accommodate two gears. This bushing has a double key which fits into the key ways in the gears. Gear bushing and gears fit over a stud bushing, and this assembly is bolted to the gear quadrant. The washer is a bearing for the outer end of the gear bushing.

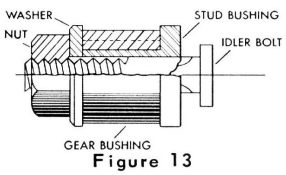

Figure 13

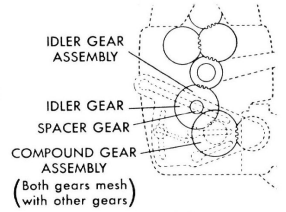

Figure 14

Notice that in order to make this assembly complete, two gears must be mounted on the gear bushing at one time. When both of the bears on a gear bushing mesh with other gears in the train, they form a "compound" gear assembly (Figure 14).

When only one of the two gears meshes with another gear in the train, this gear is called an "Idler." The other gear, or spacer, is called a "Spacer" gear and does not mesh with any gear in the train.

The positions of the gears on the stud assemblies are denoted as "N" and "F" in the gear set-up tables. "N" positions means the gear or spacer is positioned on stud Next to Quadrant – "F" position is gear or spacer Away from Quadrant. "SS" denotes that a double key way steel spacer must be used on gear stud.

GEAR SET-UPS FOR FREQUENTLY USED THREADS NOT SHOWN ON QUICK-CHANGE CHART

Threads per Inch	Feed in Inches	Position A		Position B		Position C		Position D		Compound Gear	Left Hand Lever Position	Right Hand Lever Position
		N	F	N	F	N	F	N	F			
1¼	.80000	—	—	64	SS	—	—	20	64*	32	A	1
1⅓	.75000	—	—	64	SS	—	—	20	60*	32	A	1
1½	.66666	—	—	64	SS	—	—	24	64*	32	A	1
2	.50000	48	SS	—	—	24	48*	—	—	32	A	1
2½	.40000	48	SS	—	—	24	48*	—	—	32	A	3
2⅝	.38094	—	—	64	SS	—	—	24	64*	32	A	8
2¾	.36362	48	SS	—	—	24	48*	—	—	32	A	4
2⅞	.34782	48	SS	—	—	24	48*	—	—	32	A	5
3	.33332	48	SS	—	—	24	48*	—	—	32	A	6
3¼	.30770	48	SS	—	—	24	48*	—	—	32	A	7
3½	.28570	48	SS	—	—	24	48*	—	—	32	A	8
21	.04761	24	56	—	—	—	—	64*	SS	16	A	2
25	.04000	20	50	—	—	—	—	64*	SS	16	A	3
27	.03703	20	54	—	—	64*	SS	—	—	16	A	3
33	.03030	SS	48	32	44	—	—	40*	SS	16	B	6
35	.02857	24	56	—	—	—	—	64*	SS	16	A	9
39	.02564	24	52	—	—	—	—	64*	SS	16	B	2
42	.02380	32	56	48	SS	—	—	—	—	16	B	6
45	.02222	24	54	—	—	—	—	64*	SS	16	B	3
49	.02040	32	56	48*	SS	—	—	—	—	16	B	8
50	.02000	36	60	48*	SS	—	—	—	—	16	B	9
54	.01851	32	54	48*	SS	—	—	—	—	16	C	1
55	.01818	SS	58	24	44	—	—	48*	SS	16	B	9
62	.01613	SS	64	32*	SS	—	—	44	54	16	C	7
63	.01587	24	54	—	—	—	—	48*	SS	16	B	8
65	.01538	SS	48	32	52	—	—	64*	SS	16	C	3
66	.01515	SS	48	24	44	—	—	48*	SS	16	C	2
69	.01449	24	46	48*	SS	—	—	—	—	16	C	2
70	.01428	24	56	—	—	—	—	64*	SS	16	B	9

**This gear to mesh with gear in gear box.*

GEAR SET-UPS FOR METRIC THREADS

Pitch in Millimeters	English Equivalent	Position A		Position B		Position C		Position D		Compound Gear	Left Hand Lever Position	Right Hand Lever Position
		N	F	N	F	N	F	N	F			
.25	.00984	SS	48	32*	SS	—	—	52	60	16	D	4
.3	.01181	48	SS	46	50	—	—	SS	24*	32	E	5
.35	.01378	48	SS	40	44	—	—	SS	24*	32	E	3
.4	.01575	SS	48	40*	SS	—	—	40	52	16	C	4
.45	.01772	56	SS	SS	24*	—	—	44	50	32	E	1
.5	.01968	SS	48	32*	SS	—	—	52	60	16	C	4
.55	.02165	48	SS	—	—	40	52*	—	—	32	D	9
.6	.02362	48	SS	46	50	—	—	SS	24*	32	D	5
.65	.02559	SS	48	36	44	—	—	32*	SS	16	C	1
.7	.02756	48	SS	40	44	—	—	SS	24*	32	D	3
.75	.02952	48	SS	—	—	40	52*	—	—	32	D	4
.8	.03150	SS	48	40*	SS	—	—	36	52	16	B	4
.85	.03346	SS	48	24*	SS	—	—	60	64	16	B	8
.9	.03543	SS	64	32*	SS	—	—	44	54	16	B	5
.95	.03740	SS	64	32*	SS	—	—	46	56	16	B	4
1.00	.03937	SS	48	32*	SS	—	—	52	60	16	B	4
1.25	.04921	SS	48	32	50	—	—	40*	SS	16	A	7
1.50	.05906	48	SS	—	—	40	52*	—	—	32	C	4
1.75	.06889	SS	60	24*	SS	—	—	54	56	16	A	8
2.00	.07874	48	SS	—	—	44	52*	—	—	32	B	9
2.50	.09842	50	32	SS	48	—	—	—	—	32	A	4
3.	.11811	48	SS	—	—	40	52*	—	—	32	B	4
3.50	.13780	56	54	—	—	SS	48*	—	—	32	A	8
4.	.15750	48	SS	—	—	44	52*	—	—	32	A	9
4.50	.17720	48	SS	26	46	—	—	SS	24*	32	A	8
5.	.19685	48	SS	—	—	50	64*	—	—	32	A	7
5.5	.21650	48	SS	—	—	40	52*	—	—	32	A	6
6.	.23620	48	SS	—	—	40	52*	—	—	32	A	4
7.	.27560	48	SS	40	44	—	—	SS	24*	32	A	1

REPLACING THE QUICK-CHANGE GEAR TRAIN

After making special setups for wire winding, odd or metric threads, be sure to assemble the sliding gear and the double 48 tooth gears in their original positions on the quadrant as shown in Figure 15.

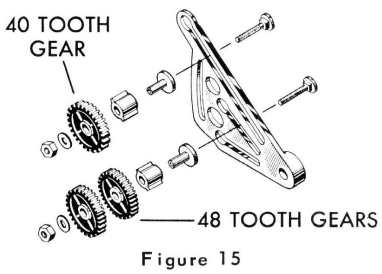

Figure 15