

THREAD CUTTING
PIPE AND CONDUIT

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1. GENERAL

1.1 This section contains the proper procedures for cutting threads on pipe or conduit using the thread cutters contained in Tool Kit 267. Detail information on the operation of each of the three threaders included in the 267 kit is contained herein. See Paragraphs 3 thru 5. Table 1 contains a composite of thread lengths for pipe sizes 1/8" thru 10". This table should be used in conjunction with Figure 1. The table gives the overall length of thread which should be cut, L1. It gives the thread length, L2, which is the handtight engagement of the pipe; and thread length, L3, which is the length for the wrench tight engagement.

1.2 To insure a tight connection, a proper thread must be cut. To insure a proper thread, the following steps are of utmost importance:

1.21 The cutting dies (R-2655 threader) or the die head (R-7730 & R-1361 threaders) must be adjusted properly before beginning a cut.

1.22 The die and die head must be centered on the pipe.

1.23 The length of thread cut must be a definite length - See Table 1.

1.3 When making a joint the following steps are necessary:

1.31 Put pipe compound on the first three or four threads of the male pipe.

1.32 The pipe and fitting must be engaged the length, dimension L2 plus L3.

1.4 Pipe and conduit threads are exactly the same. Pipe compound is not necessary on conduit unless the conduit is exposed to moisture.

2. TOOLS AND MATERIAL

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| 2.1 267 Kit | Pipe & Conduit Threading Kit |
| R-3050 | Compound, Non-Hardening (Water Pipe) |
| R-3111 | Compound, Permatex #1 (Fuel Pipe) |

3. R-2655 PIPE THREADER 1/4", 3/8", 1/2" AND 3/4"

3.1 Insert the bushing corresponding to the pipe size, into the die head. Secure by tightening the thumb screw. Lay the die head on a bench, bushing end down. Insert the pipe dies (number side up). Bolt the two dies in place using the two 3/8" retaining bolts. Make finger tight.

3.2 Adjust the position of the dies by turning the 5/16 inch adjusting screws. Adjust so that the notch on the cutting die lines up with the notch on the die head. Then tighten down the dies by using a wrench on the two 3/8" retaining bolts.

3.3 With the pipe held in the pipe vise, slide the die head onto the pipe-bushing end first. Use the two handles provided to rotate the die head and cut the thread. Use cutting oil liberally. Cut a thread length corresponding to the L1 dimension in the table.

3.4 After the thread is cut, back off the die head to remove the cutting die from the pipe.

4. R-7730 PIPE THREADER 1", 1 1/4", 1 1/2" AND 2"

4.1 Set the die head on its side, and insert the bushing corresponding to the pipe size. Tighten the three thumb screws far enough to hold the bushing in place.

4.2 Set the die head, bushing end down, on a bench or floor. Holding the bushing end still, rotate the die head until THE TOPS OF THE FOUR TAPER PINS ARE FLUSH WITH THE TOP OF THE DIE HEAD.

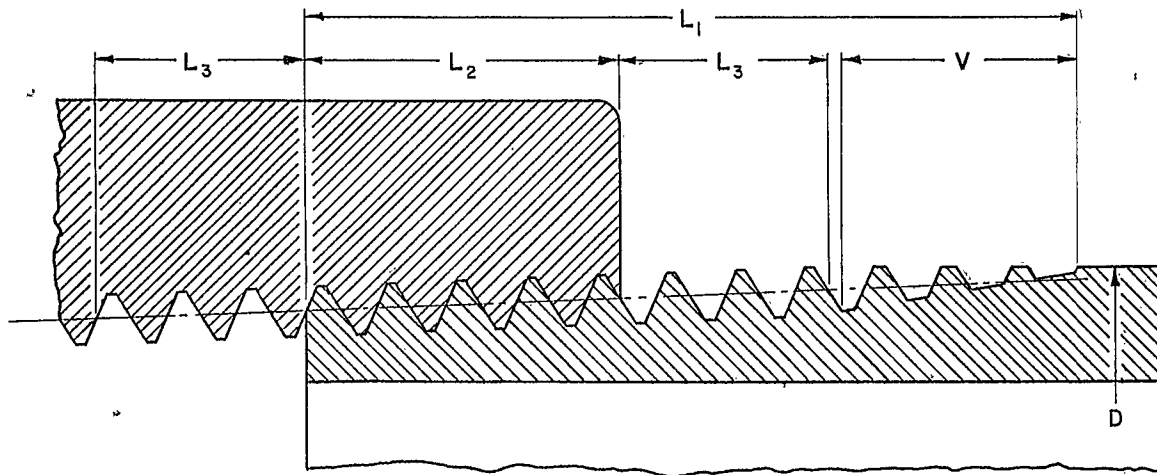


FIG. 1 BASIC DIMENSIONS PIPE THREAD

TABLE 1

BASIC DIMENSIONS, AMERICAN STANDARD TAPER PIPE THREAD, NPT										
Nominal Pipe Size	Outside Diameter of Pipe		Overall Length External Thread, L ₁		Handtight Engagement Length L ₂		Wrench Makeup Length Length L ₃		Imperfect Thread V	
	D	n	In.	Threads	In.	Threads	In.	Threads	In.	Threads
	2	3	4	5	6	7	8	9	10	11
1/8	0.405	27	25/64	10.6	0.1615	4.36	0.1111	3	0.1285	3.47
1/4	0.540	18	19/32	10.7	0.2278	4.10	0.1667	3	0.1928	3.47
3/8	0.675	18	39/64	10.9	0.240	4.32	0.1667	3	0.1928	3.47
1/2	0.840	14	25/32	11	0.320	4.48	0.2143	3	0.2478	3.47
3/4	1.050	14	51/64	11.1	0.339	4.75	0.2143	3	0.2478	3.47
1	1.315	11 1/2	63/64	11.3	0.400	4.60	0.2609	3	0.3017	3.47
1 1/4	1.660	11 1/2	1	11.6	0.420	4.83	0.2609	3	0.3017	3.47
1 1/2	1.900	11 1/2	1 1/32	11.8	0.420	4.83	0.2609	3	0.3017	3.47
2	2.375	11 1/2	1 1/16	12.2	0.436	5.01	0.2609	3	0.3017	3.47
2 1/2	2.875	8	1 37/64	12.6	0.682	5.46	0.2500	2	0.4337	3.47
3	3.500	8	1 41/64	13.0	0.766	6.13	0.2500	2	0.4337	3.47
3 1/2	4.000	8	1 11/16	13.5	0.821	6.57	0.2500	2	0.4337	3.47
4	4.500	8	1 47/64	13.9	0.844	6.75	0.2500	2	0.4337	3.47
5	5.563	8	1 27/32	14.7	0.937	7.50	0.2500	2	0.4337	3.47
6	6.625	8	1 61/64	15.6	0.958	7.66	0.2500	2	0.4337	3.47
8	8.625	8	2 9/64	17.2	1.063	8.50	0.2500	2	0.4337	3.47
10	10.750	8	2 23/64	18.8	1.210	9.68	0.2500	2	0.4337	3.47

4.3 Insert the four cutting dies in the die holders. The dies are numbered 1 to 4. Make sure the number on the die and its die holder are the same. Use a screw driver to lift the clip to permit the cutting die to slide in place.

4.4 With the pipe held secure in the pipe vise, slide the die head (bushing first) onto the pipe until the pipe end touches the cutting dies. Center the pipe in relation to the die head and cutting dies by turning the three thumb adjusting screws on the bushing end of the die head. The end of the pipe should just touch each of the four cutting dies. Tighten these adjusting screws (maintaining the center position of the pipe) until the die head is held tightly on the pipe.

4.5 Check once again that THE TOPS OF THE FOUR TAPER PINS ARE FLUSH WITH THE TOP OF THE DIE HEAD. Using the handle provided, begin cutting the thread. The die head will ratchet in either direction. To change the direction of the ratchet, pull out the knurled button on the die head. Rotate the button 1/2 a turn and release. When cutting, use cutting oil liberally. Cut the length of thread for the particular size pipe as specified in Table 1 Column 4. (This is the L1 dimension shown in Figure 1).

4.6 When the proper thread length is reached, back off the die head. Once the dies have cleared the end of the pipe, loosen the bushing screws to remove the die head from the pipe.

5. R-1361 PIPE THREADER 2 1/2", 3", 3 1/2", AND 4"

5.1 Set the die head on a bench or floor. Using the two handles provided, rotate the die head until THE TOPS OF THE FIVE TAPER PINS ARE FLUSH WITH THE TOP OF THE DIE HEAD.

5.2 Insert the five cutting dies in the die holders. The dies are numbered 1 to 5, as well as the die holders. Make sure the number on the die and its die holder are the same. Use a screw driver to lift the clip to permit the cutting die to slide in place.

5.3 Turn the die head on its side. Place the bushing, corresponding to the pipe size, into the end of the die head. Tighten the three set screws far enough to hold the bushing.

5.4 With the pipe held secure in the pipe vise, slide the die head (bushing first) onto the pipe until the end of the pipe touches the cutting dies. Center the pipe in relation to the die head and cutting dies by turning the three adjusting screws on the bushing end of the die head. The end of the pipe should just touch each of the five cutting dies. Tighten these adjusting screws (maintaining the center position of the pipe) until the die head is held tightly on the pipe.

5.5 Check once again that THE TOPS OF THE FIVE TAPER PINS ARE FLUSH WITH THE TOP OF THE DIE HEAD. Using the ratchet and handle, begin cutting the thread. Use cutting oil liberally. Cut the length of thread for the particular size pipe as specified in Table 1 Column 4, (this is the L1 dimension shown in Figure 1.)

5.6 When the proper thread length is reached, back off the die head using the two handles. Once the dies have cleared the end of the pipe, loosen the bushing screws to remove the die head from the pipe.

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