

With the rod or bolt in position, adjust the guides by turning the chuck plate counter clockwise until guides touch the rod or bolt. Clamp plate is then held in place by tightening the two knurled screws. The adjustable guides properly set insure cutting straight threads.

### CUTTING EXTERNAL THREADS

Rigidly secure the correct size rod or bolt, preferably .005" to .010" undersize and beveled for ease in starting, and turn the die clockwise. As the die starts to cut chips will flow and should be broken by reversing every 1/4 to 1/2 turn. Periodic application of cutting oil will help in cutting smooth threads and prolong die life. Continue the forward and reversing action until the desired length of thread has been cut.

### DO'S AND DON'TS TO REMEMBER WHEN USING DIES

- DO Select the right size die.
- DO Keep die at right angle to work piece.
- DO Use correct lubrication. Follow recommendations on Page 7.
- DO Slightly chamfer or bevel the workpiece by filing or grinding the end to be threaded.
- DO Clean and store dies in proper spaces after use.
- DON'T Crowd die — Die should be turned backwards slightly every 1/4 to 1/2 turn to clear chips from die.
- DON'T Jam the die against the head or shoulder when threading close.

### EFFECT OF HOLE OR BOLT SIZE ON HEIGHT OF THREAD

When cutting threads, if the tap or die cuts away metal the full form or depth of the thread, the result is 100% height of thread on the work. Therefore, the height of thread is determined by the size of the drilled hole for tapping, or the size of bolt or rod when using a die. If the size of the hole is the same size as the minor diameter of the tap, the thread produced would be 100% height.

When the hole is larger than the minor diameter of the tap, or the size of the bolt or rod is less than the major diameter of the die, the height of the thread cut will be less than 100%. Thus, to vary the height of thread, one must vary the size of the drilled hole or size of the bolt or rod.

As shown in Fig. 8, a 100% thread is only 5% stronger than a 75% thread height, but requires 3 times the power to turn the tap. A 100% thread height does not give a tighter fit. It only serves to overload the tools and possibly cause premature failure.

The recommended thread height is 75% for average use and the Tap Drill Reference Chart gives the correct drill size for each size tap. One should also remember in preparing bolts or rods for cutting of the external thread, that diameter of the bolt or rod should be from .005 to .010 under the nominal size.

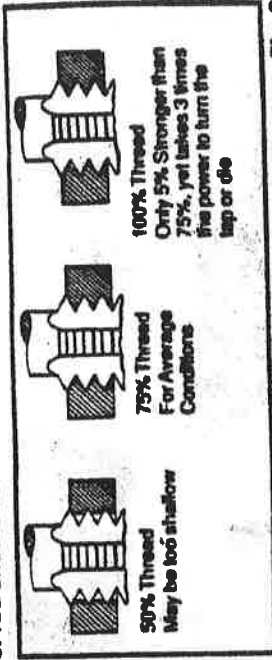


Fig. 8

### RENEWING THREADS

Damaged threads are readily repaired by proceeding as for cutting new threads. Care should be taken to start the die in the previously formed thread. (See Fig. 9.) Always check to be sure the bolt or bar being cut is not of hardened steel.

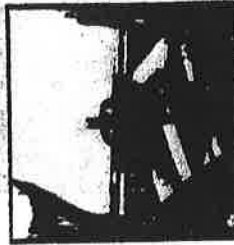


Fig. 9

Hex dies are not adjustable, and are made to cut correct thread size.

Dies are not for reducing, for example, a 9/32" thread to a 1/4" thread.

Damaged, mutilated, or rusty threads are easily repaired. First check the part for correct thread size and select the proper tap. Next carefully start the tap into the pre-threaded hole and proceed in the same manner as when cutting new threads. Some materials are case hardened and if a tap is forced into work of this type, damage to the tap will result. A simple file test will determine whether or not to proceed. If material can not be easily filed, do not attempt to re-thread it.

### MAINTENANCE OF TAPS AND DIES

The importance of using sharp taps and dies cannot be overemphasized. As dies require precision sharpening equipment, it is recommended that dull or damaged tools be replaced from Sears stores or catalog. Prompt replacement assures you that your set is complete and ready for use at all times.