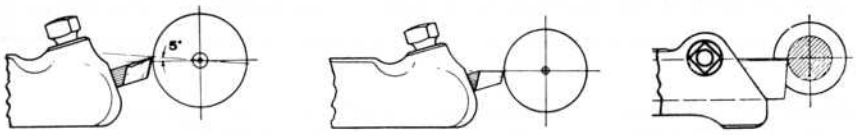
CUTTING TOOLS DATA

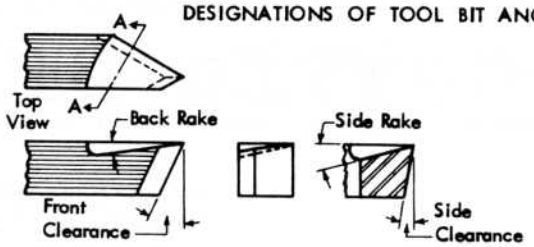
This Cutting Tool Data also available in chart form 12x16 inch size. Price 15¢

CORRECT HEIGHT OF THE CUTTING EDGE

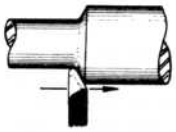


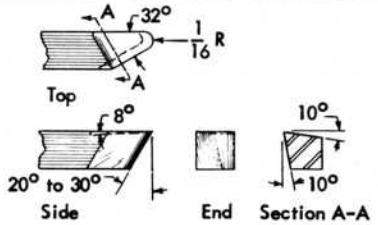
STRAIGHT TURNING — TAPER TURNING, THREAD CUTTING, BRASS TURNING — CUTTING OFF

DESIGNATIONS OF TOOL BIT ANGLES

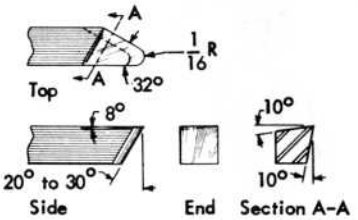


APPLICATIONS — TOOL BIT ANGLES — APPLICATIONS

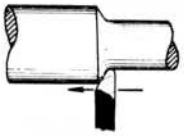


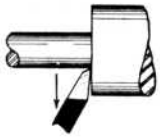


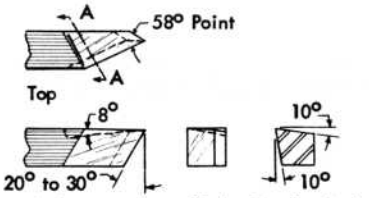
LEFT HAND TURNING TOOL



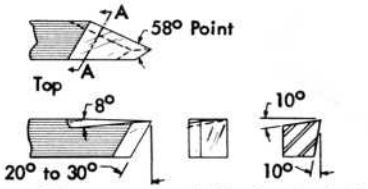
RIGHT HAND TURNING TOOL







LEFT HAND SIDE TOOL



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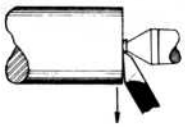
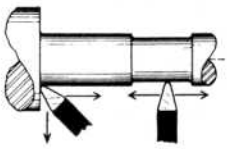
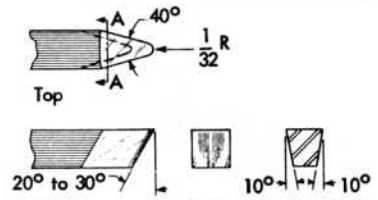
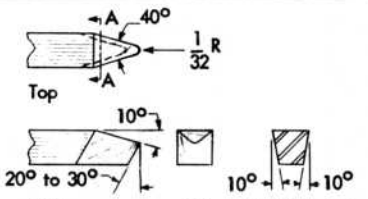


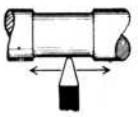


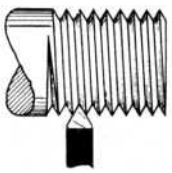


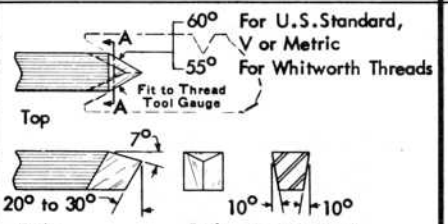
ROUND NOSED TURNING TOOL



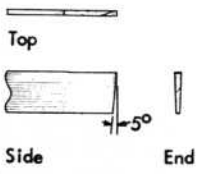
BRASS TURNING TOOL





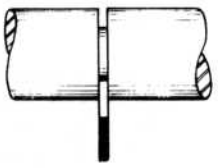


SCREW THREAD CUTTING TOOL



CUTTING OFF TOOL

Cutting off tool cannot be ground in block



Cutting Speeds for Turning With High Speed Steel Cutting Tools

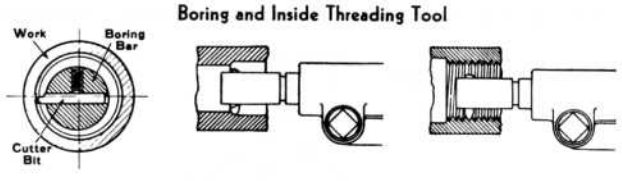
Material	Ft. per Minute	Lubricant
Aluminum	300–400	Comp. or Kerosene
Brass, leaded	300–700	Dry or Comp.
Brass, red & yellow	150–300	Comp.
Bronze, leaded	300–700	Comp.
Bronze, phosphor	75–150	Comp.
Cast Iron	50–110	Dry
Cast Steel	45–90	Comp.
Copper, leaded	300–700	Comp.
Copper, electro.	75–150	Comp.
Chrome Steel	65–115	Comp.
Die Castings	225–350	Compound
Duralumin	275–400	Compound
Fiber	200–300	Dry
Machine Steel	115–225	Compound
Malleable Iron	80–130	Dry or Comp.
Mang. Bronze	150–300	Comp.
Mang. Steel	20–40	Comp.
Moly. Steel	100–120	Comp.
Monel Metal	100–125	Comp. or Sul. Base
Nickel Silver 18%	75–150	Comp.
Nickel Silver, leaded	150–300	Comp.
Nickel Steel	85–110	Comp. or Sul. Base
Plastics, hot-set molded	200–600	Dry
Rubber, Hard	200–300	Dry
Stainless Steel	100–150	Sul. Base
Tool Steel	70–130	Comp.
Tungsten Steel	70–130	Comp.
Vanadium Steel	85–120	Comp.

The above speeds have been collected from several sources and are suggested as practical for average work. Special conditions may necessitate the use of higher or lower speeds for maximum efficiency.

HONING the CUTTER BIT

After grinding, hone cutting edge of tool on oil stone. It will improve cutting quality of cutter bit.

Boring and Inside Threading Tool



The boring tool is ground exactly the same as the left hand turning tool except the front clearance of boring tool must be ground at a slightly greater angle so that the heel of the tool will not rub in the hole of the work. The inside threading tool is ground the same as the screw thread cutting tool except that the front clearance must be increased for the same reason as for the boring tool.

NOTE: These are suggested starting angles for general work. Slightly smaller or larger angles may prove more efficient, depending on the texture of the material machined, finish required, cutting speed and the type of cutting tool used.

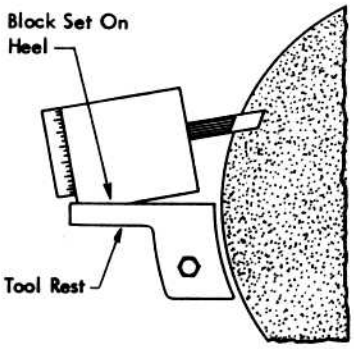
SOUTH BEND LATHE
SOUTH BEND INDIANA

INSTRUCTIONS ON USE OF CUTTER BIT GRINDING BLOCK

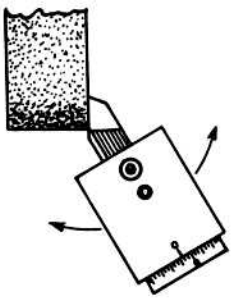
Suggested Cutting Off Tool grinding angles as illustrated on the reverse side of this sheet are given as general information only, as cutting off tools CANNOT be ground in the Universal Cutter Bit Grinding Block.

1. Insert cutter bit in proper sleeve and tighten securely, allowing approximately 1" of the cutter bit to protrude from the nose of the sleeve.
2. Place sleeve in block, set cutter bit to desired angle (graduations on sleeve are in increments of 5°) and lock in position with set screw on top of block. Reset for top and side clearance angles, if desired.
3. Due to the many variations that enter into correct grinding angles such as: cutting speed, type of finish and kind of material to be machined with cutter bit, no attempt has been made to show these angles in the instructions, however, suggested clearances are charted on the reverse side of this sheet. This is for the average type of work and may not agree with the various other publications on cutter bit grinding.

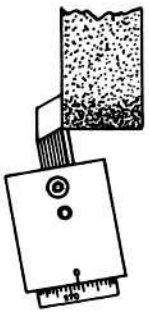
Note: If tool rest on your grinder is not large enough to accommodate Cutter Bit Grinding Block, clamp an auxilary plate to extend the tool rest.



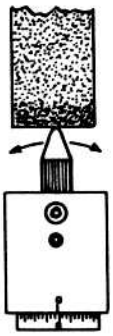
1. Heel the block as shown for grinding all clearances. Unless a small degree of front clearance is required then lay on flat of block.



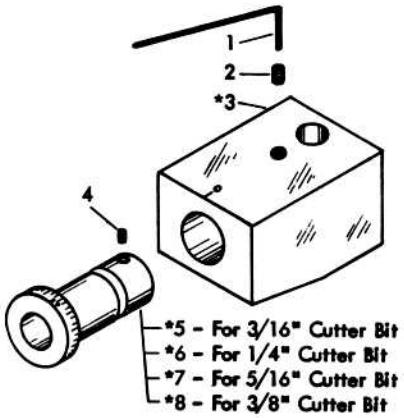
2. Use both sides of wheel for grinding side clearances on all shapes of tools. Angle block to get proper shape.



3. Use sides of wheel for grinding back and side rake. Angle block to get proper top back rake. Heel block if desired.



4. Use face of wheel for grinding radius, on round nose tools, rotating the block to develope the proper radius. Heel the block as shown in Fig. 1.



Item No.	Part Name	Part No.	
1.	Hex Wrench	173x6	
2.	Set Screw	149x505	
3.	Block (2)	*AS4635-1	
4.	Set Screw	126x503	
5.	Sleeve (4) For 3/16" Bit	*AS4636-1	
6.	Sleeve (4) For 1/4" Bit	*AS4637-1	
7.	Sleeve (4) For 5/16" Bit	*AS4638-1	
8.	Sleeve (4) For 3/8" Bit	*AS4639-1	

*Available only as sub-assembly. Parts included are indicated by the item numbers appearing in parenthesis after part name.

Bulletin 5910A

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