

Atlas

INSTRUCTIONS AND PARTS PRICE LIST FOR Nos. 590 AND M6-590 CUT-OFF TOOLS

Bulletin T-LA-1A
May, 1943

GRINDING CORRECT BACK CLEARANCE

The blade of the Atlas cut-off tool is furnished with correct front and side clearance. No back clearance has been provided, because the angle depends upon the depth of the cut-off operation.

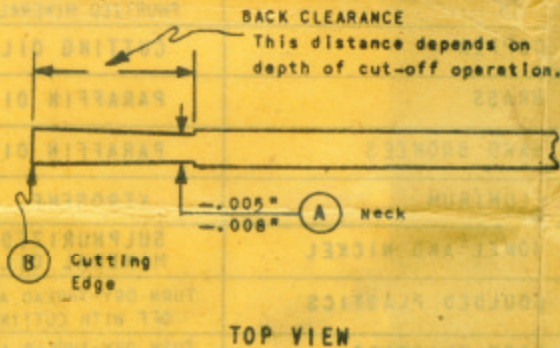


FIG. 1 View of blade showing back clearance.

See Figure 1. The proper method of grinding back clearance is to hold the side of the cut-off blade flat against the side of the grinding wheel, angling it slightly to make the neck portion "A" approximately .005" to .008" narrower than at the cutting edge "B". Repeat this grinding operation on opposite side of blade. NOTE: The .005" to .008" dimension shown in Figure 1 indicates total back clearance.

CUT-OFF OPERATION

In setting the cut-off blade to the work, the cutting edge "B" must be set exactly on center line. See Figure 2. The centerline of the blade (Figure 3) must be parallel with the face of the chuck or face plate. This can be checked as follows: Position the blade to rest against the face of the chuck or face plate, letting cutting edge "B" touch the face of the chuck or face plate, and leaving a small amount of clearance at "C". Place the shank of the cut-off tool as far back into the tool post as possible to minimize overhang.

The two most common troubles in cutting-off are "chatter" and "hogging-in". The following paragraphs tell how these troubles are avoided - follow these rules carefully:

RIGIDITY:—Not only the tool and carriage, but every part of the lathe must be tight when cutting off—loose fits in the spindle, carriage and compound rest will surely cause

trouble. See that the gibs on the rear of the carriage fit snug and that the carriage is locked securely in position on the bed. Tighten the gibs on the cross feed and compound feed. Set the tool holder as far back into the tool post as possible and keep the tool post screw tightened. The tool is fed into the work with the manual cross feed.

RATE OF FEED:—The rate of feeding-in is especially important because the chip is actually wider than the cutting edge of the tool blade. A fast feed tends to cause "hogging", either stopping the lathe or breaking the tool—a slow feed usually produces chatter. Experience aids in "feeling out" the exact rate of feed to avoid both chatter and "hogging-in".

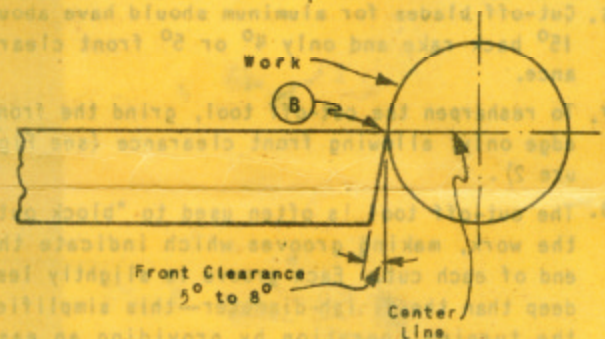


FIG. 2 Side view of blade showing front clearance and correct setting of blade to work.

SPINDLE SPEED:—The correct spindle speed varies with the diameter of the work and the type of material being cut off. In most cases the spindle speed used for general turning is also correct for cutting off. The spindle speed should be reduced to eliminate chatter, increased to eliminate "hogging-in".

COOLANT OR CUTTING OIL:—Thorough application of lubricant is absolutely essential during the cut-off operation. In large lathe work, a continuous stream of lubricant is directed at the front of the cut-off tool. When cutting off on a small lathe, the lubricant should be applied with a 1"-wide brush. The Lubrication Chart (Figure 4) gives the correct lubricant to be used for various materials.

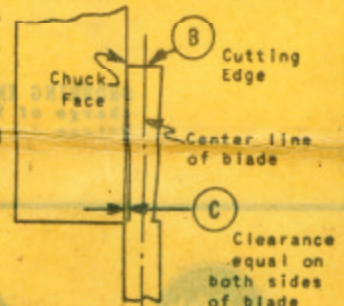


FIG. 3 Using chuck to correctly align blade.

For correct prices add 20% to those shown—all prices have been increased 20% above those listed in this bulletin—in accordance with Amendment 3 to Maximum Price Regulation No. 67, effective April 19, 1946.

FURTHER RULES FOR CUTTING-OFF

1. Set the cutting edge of the tool on the lathe center line. The tool blade should be at an exact right angle with the work (Figure 3).
2. If the tool "hogs-in" and stops the spindle rotation, stop the motor and reverse the spindle by hand before backing out the tool with the cross feed. After resetting the tool, feed in slowly and remove the bad spots.
3. Never complete a cut-off of work which does not swing free at one end.
4. Cut off as close to the headstock as possible. Use a steady rest if work is to be cut-off some distance from headstock.
5. When cutting off large diameter stock or soft copper many machinists start with a groove wider than the cut-off blade and move the cut-off tool back and forth continually as it is fed into the work.
6. Cut-off blades for aluminum should have about 15° back rake and only 4° or 5° front clearance.
7. To resharpen the cut-off tool, grind the front edge only, allowing front clearance (see Figure 2).
8. The cut-off tool is often used to "block out" the work, making grooves which indicate the end of each cut. Each groove is slightly less deep than the finished diameter—this simplifies the turning operation by providing an easy stopping place after each cut.

Experiment to determine the proper spindle speed and rate of feed for the diameter and material being cut off—this is the best way to get the "feel" of the operation.

LUBRICANTS FOR CUTTING-OFF AND GENERAL MACHINING OF VARIOUS MATERIALS

MATERIAL	LUBRICANT
STEEL (Mild Cold Roll)	CUTTING OIL
STEEL (Medium Hard)	CUTTING OIL
STEEL (Tough Alloy)	CUTTING OIL
CAST IRON	DRY
STAINLESS STEEL	CUTTING OIL OR SULPHURIZED MINERAL OIL
COPPER	CUTTING OIL
BRASS	PARAFFIN OIL
HARD BRONZES	PARAFFIN OIL
ALUMINUM	KEROSENE
MONEL AND NICKEL	SULPHURIZED MINERAL OIL
MOULDED PLASTICS	TURN DRY-THREAD AND CUT-OFF WITH CUTTING OIL
CAST PLASTICS	TURN DRY-THREAD AND CUT-OFF WITH CUTTING OIL
FORMICA AND MICARTA	DRY
FIBER	DRY
HARD RUBBER	DRY

FIG. 4 Lubrication Chart

PARTS PRICE LIST

Part No.	Name	Price
590 CUT-OFF TOOL		
9-591	Tool Holder.....	\$1.40
9-592	Cut-Off Blade.....	.70
9-593	Lock Screw.....	.30
M6-590 CUT-OFF TOOL		
M6-591	Tool Holder.....	\$1.40
M6-592	Cut-Off Blade.....	.70
9-593	Lock Screw.....	.30

ORDERING INFORMATION: All prices are subject to change without notice. A minimum charge of \$0.25 will be made on any order. Always order by part number and name. Prices do not include postage or express charges.



ATLAS PRESS COMPANY
1827 No. Pitcher St. Kalamazoo, Michigan

