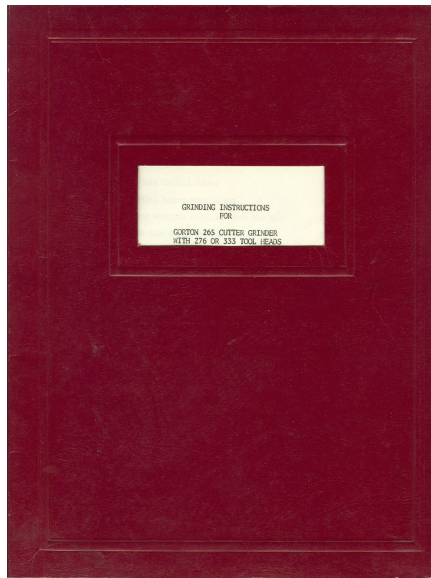
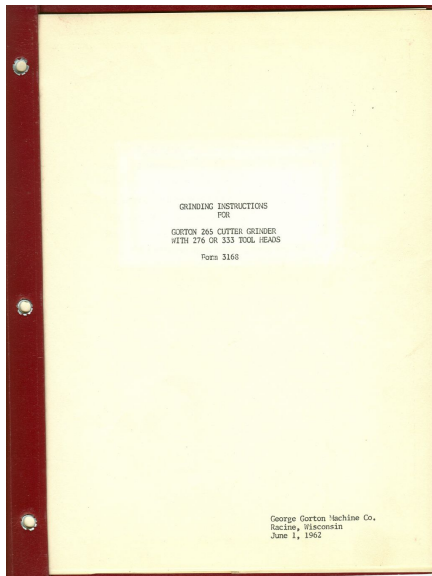


# Photo 1



## Photo 2



# Photo 3

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Print #15271	

# Photo 4

GRINDING INSTRUCTIONS  
FOR 345 CUTTER GRINDER  
WITH 276 or 333 TOOL HEADS  
(Refer to Print #15271)

A. General Information

1. Flaring Cup Wheel is to be dressed with Carborundum Stick, high on outside edge and is to be used for roughing and/or as specified in the instructions.
2. Straight Cup Wheel is to be dressed with Diamond Dresser, mounted in Tool Head.
3. Diamond Wheels to be lapped flat on cast iron plate, using Aluminum Oxide or equivalent of approximately 100 Grit.

NOTE: Flaring cup wheels not supplied as standard equipment. May be ordered from Gorton Accessories Catalog, 2720.

4. Cutter Grinders without Oiler K-512 have grease-sealed bearings and need no lubrication to spindle.
5. Style Grinding Arm not supplied on all models of tool heads.
6. These instructions pertain to straight shank tools (276 Tool Head) and taper shank tools (333 Tool Head). No specific reference will be made to these tools in the instructions.

NOTE: Ball or radius tools cannot be ground on this grinder. Gorton 375 Cutter Grinder should be used.

B. Single Flute Conical Cutter

1. Insert proper tool blank in collet, split to center.
2. Set on Sement "G", angle of cutting edge. See Chart below. Clamp tool head with "B".

Radial Clearance Chart

<u>Angle of Cutting Edge</u>	<u>Clearance Angle</u>
45°	40°
40°	35°
35°	30°
30°	25°
25°	21°
20°	17°
15°	13°
10°	8°
5°	4°

# Photo 5

3. Spin or circle grind tool to point.
4. Reset on Segment "G", clearance angle from Radial Clearance Chart.
5. Feed tool into grinding wheel with "W" until point of tool (obtained when tool was circle ground) is reached. Rotate tool until excess stock is removed. Grind up to, but not over, cutting edge. Do not leave land.
6. Tip-off, if needed, is done by hand.

## C. Single Flute Square Nose Cutter

1. Insert proper tool blank in collet, split to center.
2. Set on Segment "G" zero degrees. Side of tool parallel to wheel face.
3. If tool is larger in diameter than desired, spin or circle grind to the necessary dimension.
4. Feed tool into wheel with "W" amount of clearance shown in table below:

Clearance Table for Square Nose Cutters

<u>Cutter Dia.</u>	<u>Clearance</u>
1/10"	.004"
1/8"	.006"
5/32"	.006"
3/16"	.008"
1/4"	.010"
5/16"	.012"
3/8"	.015"
7/16"	.015"
1/2"	.020"

NOTE: Clearance is approximate and will vary depending on material to machine.

5. Rotate tool until excess stock is removed. Grind up to, but not over cutting edge. Leave no land.

## D. Regrinding Multiple Straight Flute End Mill

1. Use flaring cup wheel.
2. Set on Segment "V" zero degrees. Side of tool parallel to wheel face.

NOTE: If conical multiple straight flute tool is to be reground, set on Segment "G" degree (angle) of cutting edge. Clamp tool head with "B".

# Photo 6

3. Be sure index pin "C" is in correct index hole in "D" so that each index will bring next flute into proper relationship with wheel.
4. Manually rotate tool in collet so that proper clearance is ground on flute.
5. Loosen clamp "A" and pivot tool through wheel. Use "H" to feed tool into wheel.
6. Index for each flute. Use "C" in index wheel "D".

## E. Three and Four-Sided Conical Cutter

1. Place proper diameter tool blank, not split or halved to center, in collet and place index pin "C" in correct hole in index plate "D". (33 holes for 3-sided and #4 holes for 4-sided cutters.)

2. Set angle from table below for correct cutting angle. Use Segment "G" and clamp "B".

Included Angle of Cutter	45	40	35	30	25	20	15	10	5
Angle of 3-sided	26-1/2	23	19-1/2	16	13	10-1/2	7-1/2	5	2-1/2
Setting "G"	35-1/2	30	25-1/2	22-1/2	18-1/2	14-1/2	10	7	3-1/2

3. Feed tool into wheel (flaring cup) with "H" and pivot tool into and away from wheel by releasing clamp "A".
4. Index tool so that each side of tool is presented to the wheel. Use index "C" and "D".
5. Continue above steps 3 and 4 until tool is ground to sharp point.

**NOTE:** This type of tool is used for finishing cuts only where a few thousandths of stock is to be removed and finish is critical.

# Photo 7

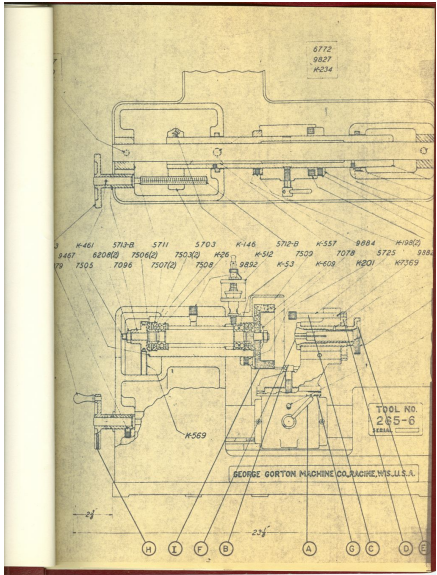
## DESIGNATION OF PARTS

(Refer to Print #15271)

- A. Carrier Clamp
- B. Radius Head Clamp
- C. Index Pin
- D. Index Plate
- E. Draw-In Nut
- F. Collet
- G. Rake Segment
- H. Head Adj. Handwheel
- I. Grinding Wheel

NOTE: When ordering replacement parts, etc., supply serial number of machine so proper material can be supplied.

Photo 8





# Photo 9

