

SHAVER-WESMAR SMALL BLOCK CHEVROLET CAMSHAFT  
GEAR DRIVE INSTALLATION INSTRUCTIONS

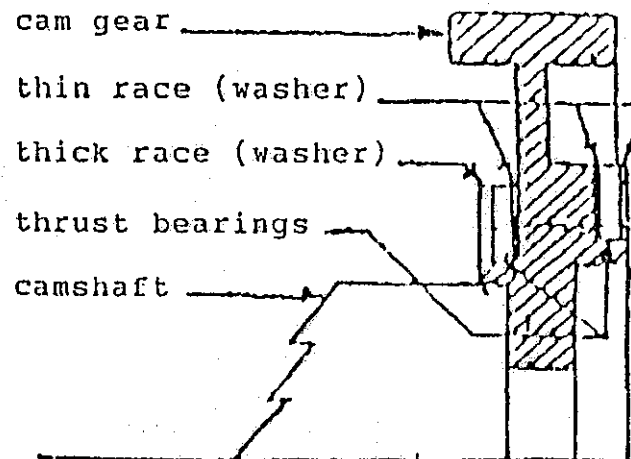
1. Remove front timing chain cover locating dowel pins with a dowel plug. Extract dowels as you would pull a nail. Install new dowels (furnished in kit) so that dowel protrudes 3/8" above face of block. Use care in driving dowels in place. Be sure they are straight.

1 inch long dowel pins are .250 diameter for aluminum blocks

Black 1 inch long dowel pins are .248 diameter for steel blocks

2. Before installing crank gear, be sure gear has .0001 to .0015 press. Remove and install crank gear. Align mesh marks on crank and idler gear.
3. Shorten dowel pin in camshaft so that it does not protrude beyond flange face of cam gear if using a fuel pump drive.

4. Coat small diameter needle thrust bearing and thrust washers with a heavy grease, and install on back of cam gear (washers must be on both sides of bearing). Install bushing. Install cam in block, using extreme caution to prevent thrust bearing and washers on cam gear from falling out of place. align mesh marks on cam and idler gear. CAUTION: The thick thrust washer must be installed after the thin washer and bearing. See the drawing at right.



5. Once all gears have been installed, you can then proceed to degree camshaft according to manufacture's specifications. Coarse adjustment of timing can be made by indexing cam gear one tooth. This is equal to 10.28 crankshaft degrees. Fine adjustment can be made by installing the concentric or eccentric bushings in a centered, advanced or retarded position. Bushings install from rear of gear. Do not assume that timing is correct without checking with a dial indicator and a degree wheel.

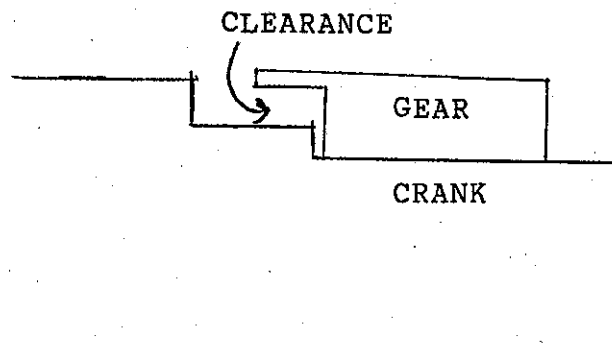
6. Place a piece of newspaper folded over once between both gear meshes, then push the idler gear assembly between the cam and crank gear and tighten the three bolts that hold the idler bracket in place. Using this procedure will give between .006 and .008 total back lash between the idler gear and the crank gear. Remove each of the three idler bracket bolts, one at a time, and apply Loctite to threads and re-install.
7. Coat the large diameter thrust bearing and two thrust washers with a heavy grease, and install in front of cam gear. The washers must be on both sides of the bearing. Be careful that the front washer does not fall out of place.
8. The idler gear bolts 1/4-28 are lock tightened in with red Loctite P.N.81792. There is no need for safety wire. If removed re Loctite.

#### SPECIAL NOTES FOR GEAR DRIVES

Check the diameter of the crankshaft adjacent to the seat where the gear presses on. This diameter must be a least .005" smaller than the recess in the crank gear.

Also check that the shoulder chamfer clears the corner radius in the gear recess. Any interference in these areas will cause crank gear breakage on installation.

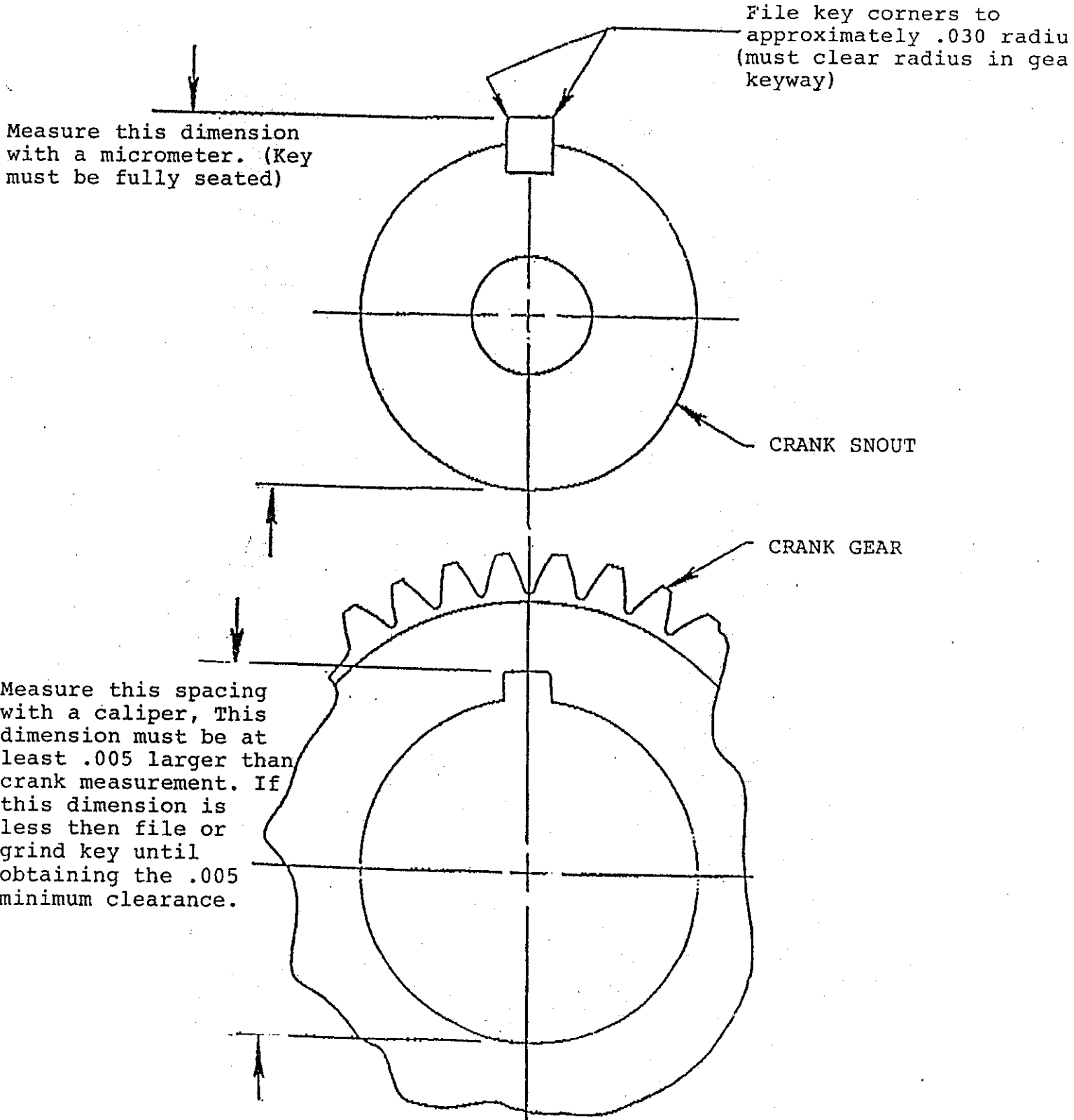
Most after market cranks will require modification to clear the gear. DO NOT modify the gear to clear the crank as it will fail.

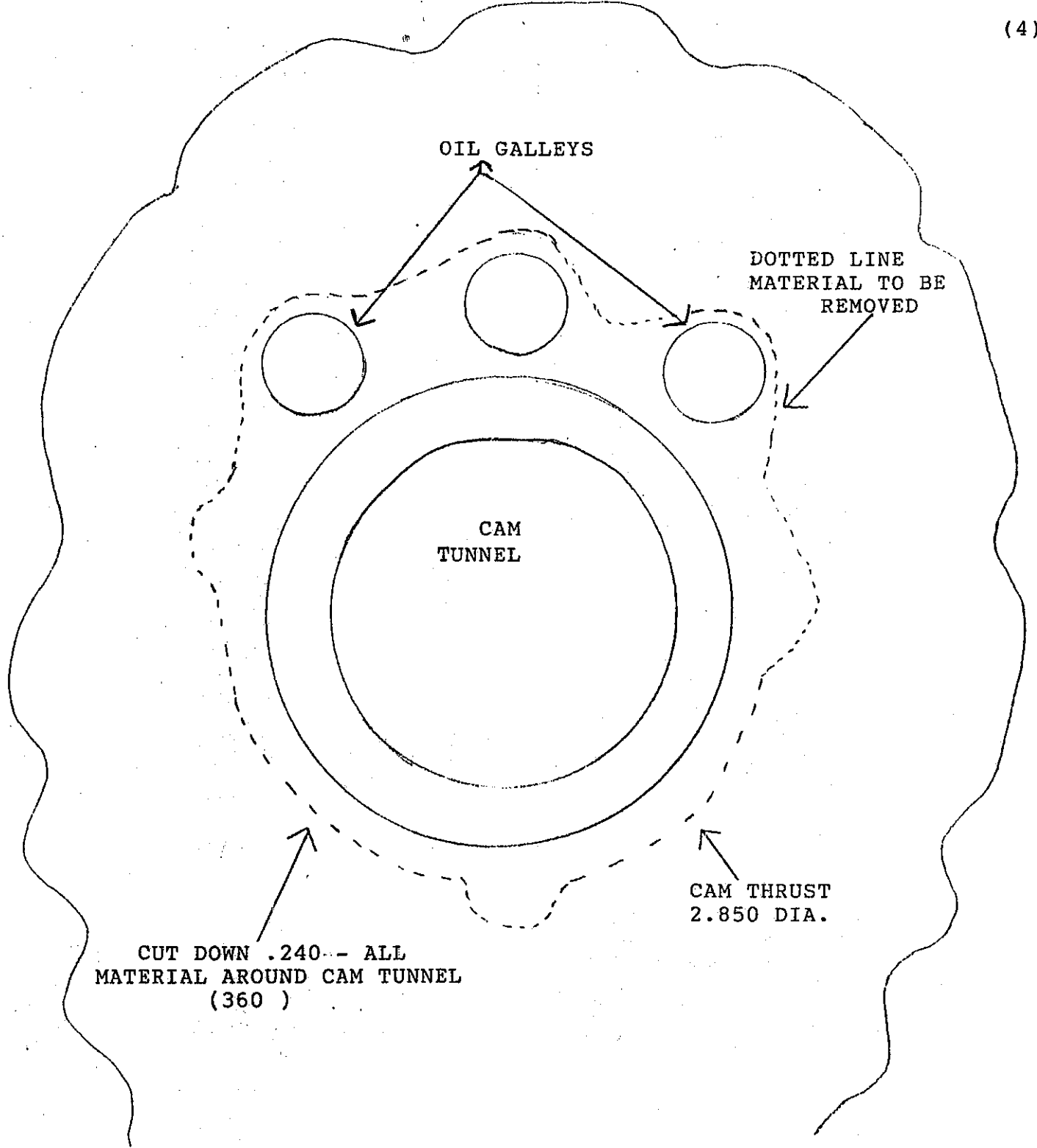


SHAVER-WESMAR

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OIL GALLEYS

DOTTED LINE  
MATERIAL TO BE  
REMOVED

CAM  
TUNNEL

CAM THRUST  
2.850 DIA.

CUT DOWN .240-- ALL  
MATERIAL AROUND CAM TUNNEL  
(360 )

BEFORE INSTALLING FRONT MAIN CAP (#1) IT IS ADVISABLE TO NOTCH THE MAIN CAP IN TWO PLACES. THIS WILL HELP WITH OIL DRAIN BACK AND PREVENT OIL FROM BEING SLOSHED AROUND, THUS IMPAIRING YOUR ABILITY TO SEE THE TIMING MARKS CORRECTLY.

THIS PROBLEM IS ESPECIALLY PREVALENT IN SPRINT CAR ENGINES WHERE THE TIMING IS READ OFF THE HUB THAT IS MOUNTED ON THE FRONT OF THE CAMSHAFT SNOUT.

1.) WHEN USING BIG BLOCK CRANK GEAR WITH A SHAVER-WESMAR GEAR DRIVE, MAKE SURE YOU HAVE NO MORE THAN .0005 PRESS BETWEEN GEAR AND CRANK.

2.) CRANKSHAFT MUST BE MACHINED .200 FURTHER BACK SO GEARS LINE UP.

3.) IF USING CRANK DRIVE WATER-PUMP, IT IS RECOMMENDED THAT YOU CUT FRONT OF CRANK BACK .200.

ON REGULAR GEAR DRIVES YOU WILL FIND TWO COUNTERSUNK BOLT HOLES OPPOSITE OF THE CROSSBRACE. THESE COUNTERSUNK HOLES ARE NOT ON RAISED CAM GEAR DRIVES. THESE TWO BOLT HOLES WERE PUT THERE TO MAKE IT EASIER FOR YOU TO: 1) HOLD THE GEAR DRIVE IN PLACE DURING CAM INSTALLATION AND 2) HOLD THE GEAR DRIVE IN PLACE IN THE INSTANCE YOU MIGHT NEED TO CHANGE A CAM AFTER THE MOTOR HAS BEEN COMPLETED. ONCE YOU HAVE COMPLETED DEGREEING THE CAM AND ARE READY FOR THE FRONT COVER, JUST PUT SILICONE OVER THE HOLE WHERE THE FRONT COVER BOLT WOULD NORMALLY GO.

ATT: GEAR DRIVE FOR DART BLOCKS WITH BIG BLOCK CHEVY CAM JOURNALS.....

FRONT OF CAM MUST BE MACHINED TO 1.869 DIAMETER TO A DEPTH OF .130 FOR GEAR TO REGISTER PROPERLY.

WE HAVE FOUND THAT LIFTER BORE TO CAM LOBE ALIGNMENT VARIES FROM BLOCK TO BLOCK. BE SURE TO INSTALL CAM AND CAM GEAR AND CHECK THIS.

IF THE CAM NEEDS TO GO TO REAR, INSTALL THE PROPER SHIM BETWEEN THE CAM AND CAM GEAR. THESE SHIMS ARE AVAILABLE IN THICKNESSES OF .030.

IDLER GEAR

USE TWO SINGLE DOTS FOR STANDARD CAM LOCATION

FOR RAISED CAM USE ONE SINGLE DOT TO LINE UP WITH  
CRANK GEAR DOT AND TWO DOTS LINE UP WITH CAM GEAR DOT

