



BIG BLOCK CHEVY STD CAM HEIGHT INSTALLATION INSTRUCTIONS **P/N's 251500-0002 BBC Gear Drive**

DUE TO MANUFACTURING TOLERANCES OF THE CAM, CRANK AND GEAR DRIVE, RCD RECOMMENDS THE CAM BE DEGREED FOR OPTIMUM PERFORMANCE. PLEASE REFER TO THE CAM MANUFACTURE FOR THE CAM SPECS AND PROCEDURE

1. Remove contents from package and check parts against the bill-of-materials to confirm the kit is complete and that you have all of the parts and kits that you ordered. Before starting the installation read through the instructions and have all of the tools and parts you will need for installation. If you have any questions please call for clarification.

NOTE: The front cover assembly is pre-assembled with the idler gear and "O" ring gasket. The idler gear, bracket, axle and bearing assembly is pre-lubricated and must be relubricated during reassembly after an engine rebuild. Idler gear axle bolts #356837-12 are installed with red Loctite and the torque set at 420 in-lbs (35 ft-lbs). For removal, the bolts need to be warmed to about 300 degrees max to soften the Loctite.

CAUTION: IF YOU SUSPECT THAT YOUR BLOCK HAS BEEN LINE BORED CHECK THE DIMENSION FROM THE CRANK TO CAM. Standard cam measurement should be 5.152". If it is less than 5.148" you will need to order undersized crank gear. **fig A pdf in Library>** Motors>BBC>BLOCK_STD

2. Test install the cover assembly onto the block. **DO NOT** use any gaskets! The cover should fit snugly on the dowel pins. Use (6) 1/4-20 x 0.875 long 12pt cover bolts #356325-14 and (6) 1/4 AN washers #352503-14. Install (4) on both sides of the dowel pins and (2) at the top by the water pump holes. Snug the bolts lightly and make sure the cover fits flat against the block. Be sure the idler gear bracket #251511-01 is not touching the block and that the idler gear turns smoothly. If there is any interference it will be necessary to remove the cover, relieve the block and check again. Remove the cover after inspection.

3. Install the RCD woodruff key #354510-12 into the crank by pushing it in with a "C" clamp or water pump pliers with soft aluminum strips over the jaws. Be sure the key is completely seated and the top is parallel to the crank surface. Measure from the top of the woodruff key to the opposite side of the crank. This dimension can not be more than 1.68" inches for a single key or 1.76" if you are using (2) keys at 180 degrees apart. If you are using a stock key and this dimension is greater you will have to carefully grind or file the top of the key. The top edges on the key should have a .010" min radius or chamfer. **NOTE THE RCD WOODRUFF KEYS ARE MADE OF CHROMALLY STEEL AND PROPERLY MACHINED TO FIT RCD GEARS.** **fig-B same place**



4. Install crank gear. The back side of the crank gear #250521-05 has a .17" chamfer.

Be sure this fits flat against the crank shoulder and does not interfere with the radius on the crank. If everything looks good apply some oil or anti-seize to the key and crank diameter where the gear fits and push the gear onto the crank.

NOTE: When the gear is seated against the shoulder there may be about 1/8" of the key protruding from the front of the gear. This is OK as it will line up with the keyway in the damper or crank hub.

5. Install the cam hub on the camshaft. Using some grease stick the thrust bearing assembly #350590-65 to the back of the cam hub #251526-02. Be sure the BLACK part of the thrust bearing goes against the cam hub. Bolt the cam hub to the camshaft using (3) 5/16-18 x 1.0 long 12pt bolts #356331-16. Use light oil on the threads and under the heads of the bolts. Push the hub onto the pin and start it over the front cam journal. Carefully tighten the bolts evenly, so as to not bind the cam hub on the end of the cam. The cam hub should fit tight on the pin and over the end of the cam journal for approx. 1/8" inch. Torque bolts to 335 in-lbs (28 ft-lbs) max.

TDC note and FIG-1

6. Test install the cam gear #250521-60 on to the cam hub with 2 or 3 of the 5/16-24 x .55 long 12pt bolts #357931-08. Line up the dowel pin in the cam hub to hole #10 on the cam gear per Fig: #2. Snug the cam gear bolts and apply light pressure toward the back of the engine on the cam hub and be sure it rotates freely.

NOTE: Sometimes the oil galley plugs around the front cam bearing are not installed deep enough. If there is interference here, the plugs can be removed and the threads cut deeper or simply leave them installed and grind them off.

7. Rotate the cam until the dowel pin is in the 3:00 o'clock position when looking at the front of the engine. Check to be sure that both valves are closed on cylinder #1. Rotate the crankshaft with the gear such that #1 piston is at TDC. The woodruff key in the crank gear should be in line with #1 cylinder.

8. Install the cover assembly. Align the idler gear teeth with those on the cam and crank gears, any position of the idler gear is OK. Slide the cover on over the dowel pins and secure with (10) 1/4-20 x 0.875 long 12pt and (10) 1/4 AN washers. Starting with the four bolts around the dowel pins, snug the bolts down evenly. Maximum torque 160 in-lbs (13.5 ft-lbs). The gears should line up like Fig-2 with the dot on the cam gear above hole #1 lined up with the dot on the RCD gear drive cover.

FIG-2

NOTE: You may want to use blue Loctite on the cover bolts.

NOTE: If you have an aluminum block, RCD has a stud kit available #xxxxxx-xx.



The installation should like Fig-B. The cam should be at theoretical zero. Install the remaining 5/16-24 x .57 long 12pt bolts #357625-09 with some light oil under the head of the bolts and on the threads. Maximum torque 360 in-lbs (30 ft-lbs).

NOTE: You may want to use blue Loctite on the cam gear bolts, if so do NOT put oil on the threads.

10. Install seal housing. The seal housing #250540-01 and crank seal #351515-58 are preassembled. Slip the "O" ring #351550-3 over the 2.625" diameter of the seal housing. Install the seal housing assembly in the cover with (3) 10-32 x .50 flat head bolts #356810-08. Lube the treads with a little light oil and torque to a maximum of 24 in-lbs (2 ft-lbs).

NOTE: We do not recommend using any Loctite on these flat head bolts.

NOTE: Put a little light grease or oil on the crank seal before pushing on the crank hub or damper.

11. Setting the cam thrust. Install one of the hardened thrust washers #350592-36 over the 1.00" diameter nose of the cam hub (the hardened washers measure .031" thick). Next slip on the thrust bearing #350590-36 and second hardened washer. Leave the "O" ring off and test install the cam gear cover. Lube threads and snug all of the bolts. Using a dial indicator measure the total end play of the cam.

NOTE: If you are using the plain cam gear cover you will need to measure the end play from the back of the cam (with the rear soft plug removed) or through the distributor drive hole or from the valley with the intake manifold removed.

Remove the cam gear cover thrust bearing and both hardened washers. Select the appropriate shims from the thrust shim kit #350597-0002 to set the cam end play at 0.000 to 0.005. From the shims you have selected, pick the thickest one to put on first, the rest you have selected may go on in any order. Slip on one of the hardened washers, the thrust bearing and then the other hardened washer. Some light grease will help hold all of these pieces in place.

12. Install cam gear cover with the "O" ring in place. Maximum torque on these bolts 160 in-lbs (13.5 ft-lbs).

RCD has a crank hub, crank bolt, degree ring (with or without crank trigger magnets) water pump spacers, ported water blocks and many other accessories for the front of your BBC.