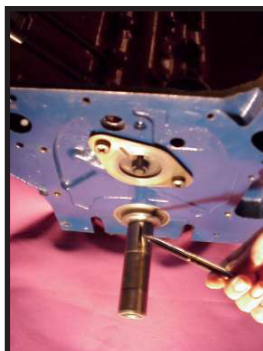


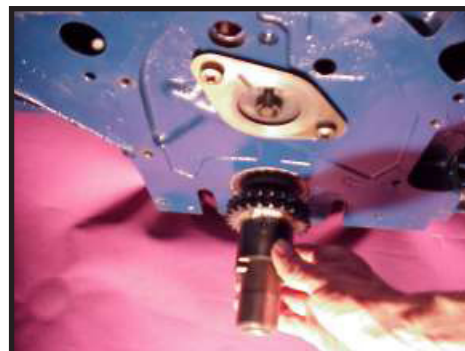
**CAM DRIVE INSTALLATION INSTRUCTIONS**



Rotate crankshaft to TDC #1  
Remove harmonic balancer, front timing cover, timing chain and gears as shown.



Using a hammer and chisel, carefully remove the lower crankshaft timing sprocket drive key and discard.



Install special crankshaft gear in the zero position (Dot up).



Install top gear and timing chain, lining up dots on each gear (top gear dot down).



Carefully install the timing cover, making sure the timing cover seal is not damaged.



Install degreed drive plate on the end of the crankshaft, noting TDC inline with the timing pointer. Coupler on crankshaft gear and degreed drive plate should couple together.



Install spacer between harmonic balancer and degreed drive plate.



Re - Install harmonic balancer drive key.



Install 3/8" drive studs into harmonic balancer.



Install harmonic balancer. TDC should coincide with timing pointer.



IMPORTANT ! Do not fully seat harmonic balancer against degreed drive plate before starting 3/8" washers and flange nuts.



After 3/8" washers and flange nuts have been started, continue to install harmonic balancer using the center crankshaft bolt.

### **Advancing or retarding the cam timing using the CAM Research Cam Drive System**

Step A- Raise front of car, use proper jack stands or ramps to avoid potential accidents.

Step B - Using a remote starter button, bump the starter until T.D.C. mark on the Harmonic Balancer is pointing straight up (Vertically). Loosen two of the most accessible drive nuts (usually best performed under the car).

Step C - Bump the starter 180 degrees until T.D.C. mark is pointing down. Loosen remaining drive nuts and the large center crank shaft bolt. **CAUTION: DO NOT ALLOW ENGINE TO BE ROTATED WHILE DRIVE STUDS OR CRANKBOLT ARE LOOSE.**

Crankshaft rotation at this time may allow piston and valve to contact resulting in serious engine damage.

Step D- Loosen the crankshaft bolt approximately half-way. Using a long pry bar wedged between the crankbolt and the drive studs, rotate the crankshaft the desired amount (advance or retard) using the "O.T.D.C." mark on the Harmonic Balancer as a reference point.

**TO ADVANCE THE CAM, ROTATE THE CRANKSHAFT COUNTER CLOCKWISE, TO RETARD THE CAM, ROTATE THE CRANKSHAFT CLOCKWISE.**

### **CAUTION: ADVANCING OR RETARDING CAMSHAFT TIMING ALSO CHANGES IGNITION TIMING**

On some crankshafts, piston to valve clearance can become dangerously close as the camshaft is advanced or retarded. CAM Research recommends that the engine builder knows the particular camshafts piston to valve limits before extreme timing changes are attempted.

**IF YOU HAVE ANY QUESTIONS CONCERNING THESE INSTRUCTIONS, PLEASE CONTACT US AT (303) 762-8186.**