

INSTRUCTIONS

915-78420
915-78421

SMALL BLOCK FORD GEAR DRIVE SYSTEM

EMISSION CONTROL SYSTEMS: Check local laws for requirements. Not legal in California on pollution-controlled motor vehicles.

GEAR DRIVE OPERATING PRINCIPLE

The gear drive system utilizes a free floating idler gear that is self-aligning and connects the crankshaft and camshaft gears into proper mesh. The large floating idler gear is positioned on the right side of the engine (passenger side). During normal operation, the drive power is transmitted from the crankshaft through the large floating idler to the camshaft gear. During the running operation, there is no backlash between these gears.

The small idler gear (located opposite the large idler gear driver side) is also free floating. This small gear does not carry any operating gear loading. The small idler must be allowed to float vertically as noted in Figure 1. The small idler prevents the large idler gear from being disengaged from mesh in the event the engine is rotated backwards.

GEAR ASSEMBLY NOTES

- Never hammer directly on gears. You will damage the gear teeth and cause early failure.
- Lubricate all gears and bearings with engine oil before installing front cover.
- The small idler gear must be free to float vertically with the large idler gear in tight gear mesh with the crankshaft and camshaft gears. See Figure 1 for proper clearance. **CAUTION:** If gears do not have proper clearance, the gear teeth will become overheated and discolored and will fail due to excessive friction between the mating gears.
- Large idler gear shaft length may require material removal to obtain the correct clearance between the cylinder block and front cover. See Figure 3.
- If a non-stock front cover is used, be sure idler gear axles do not have more than .030" front end clearance. Install allen head capscrews inside cover (if necessary) to obtain proper clearance.
- Do not use aluminum hub harmonic balancer with your gear drive. Use only stock or aftermarket steel harmonic balancers.

Speedway Motors Inc., P.O. Box 81906
Lincoln, NE 68501 (402) 323-3200
www.speedwaymotors.com



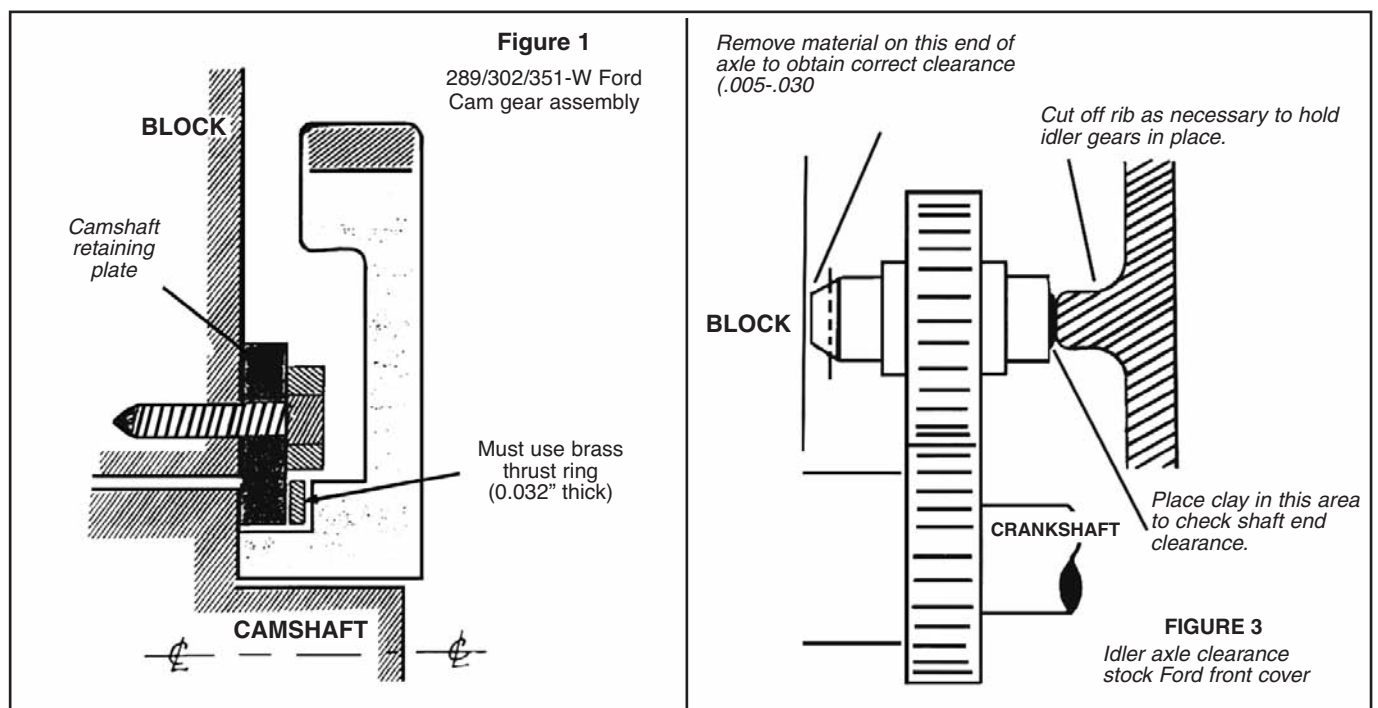
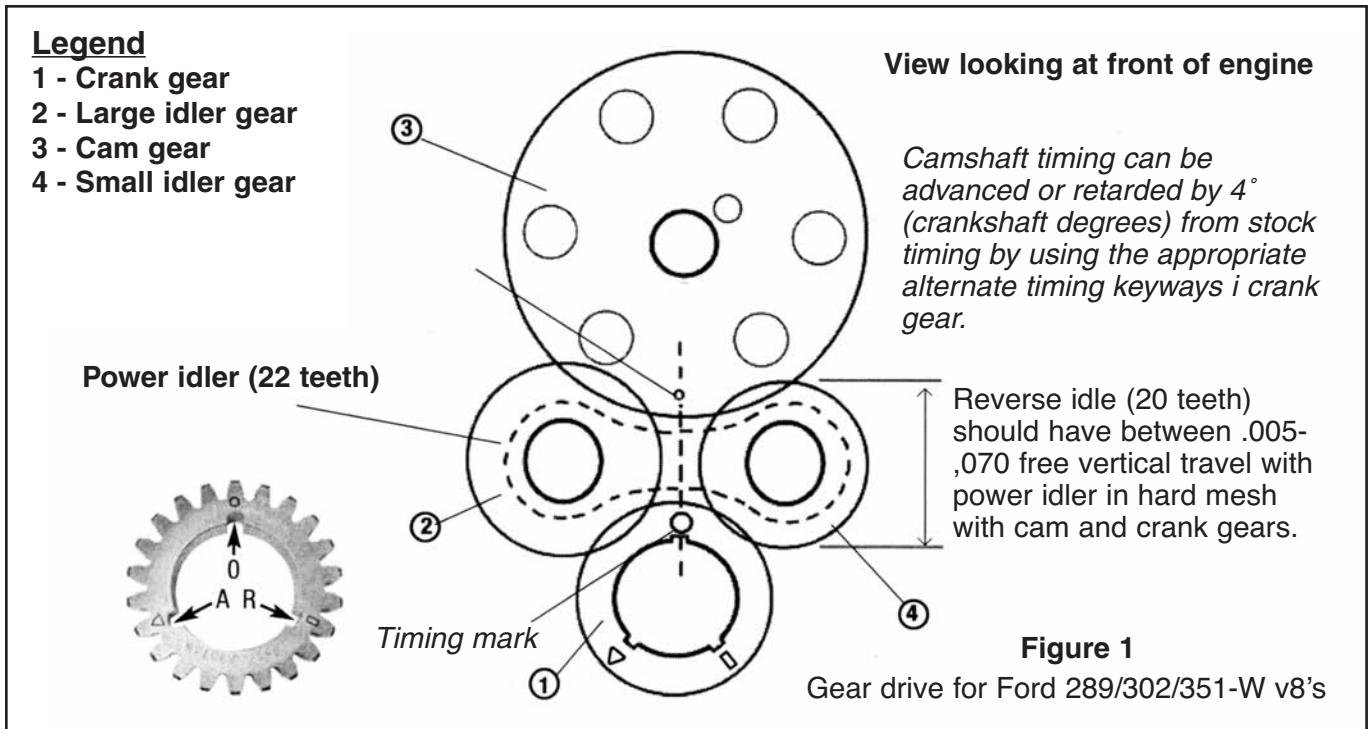
INSTALLATION INSTRUCTIONS

NOTE: THE FOLLOWING STEPS ARE CRITICAL FOR THE PROPER OPERATION OF YOUR GEAR DRIVE

1. Remove stock timing cover. Rotate engine to Top Dead Center of cylinder #1 so that the timing marks on the original crank and cam sprockets are directly lined up with each other, i.e. the mark on the crank sprocket will be straight up and the mark on the cam sprocket will be straight down. Using suitable gear puller, remove stock crank and camshaft sprockets and timing chain. Refer to repair manual if necessary for individual steps.
2. Assemble as shown in Figure 1.
3. Install crank gear with the large inside chamfer toward rear of engine and timing mark toward front of engine. Make certain crankshaft drive key is aligned with keyway of the crank gear before assembling.
4. See Figure 2 "Camshaft Gear Assembly" for correct assembly.
 - (a) Place well-lubricated washer on the rear (block) side of cam gear.
 - (b) The gear drive system is furnished with 0.032" thick thrust ring that installs between the backside of the cam gear and the front side of the camshaft thrust plate. Torque the thrust plate retaining capscrews to 9-12 ft./lbs. NOTE: No thrust button is used on Ford engines.
 - (c) Select the desired keyway in the crank gear "0" (standard), "A" (4° retarded at the crank, 2° at the cam) and install on keyway onto crankshaft. Use the "0°" standard keyway hole as a baseline for camshaft timing.
 - (d) Install the one-piece Ford fuel pump drive #CAZ-6287-B and retaining capscrew, Finger tighten only at this time to hold parts in place. Make sure pin is in pump drive.
5. Align the cam gear and crank gear timing marks as shown in Figure 1.
6. Install the idler gear sub-assembly as follows:
 - (a) The larger idler gear must be installed on the passenger side (right side of the engine).
 - (b) With large idler cranked tightly into mesh, make certain the idler (left side of engine) has free vertical movement (clearance) of no less than .005" or no more than .070".

NOTE: THE GEARS WILL BE SEVERELY DAMAGED FROM FRICTION IF THEY DO NOT HAVE THE PROPER RUNNING CLEARANCE AS NOTED.
7. With the idler sub-assembly fully installed in mesh with crank and cam gears and the large idler gear axle all the way back against the block, check the clearance between end of idler axles and front cover as follows:
 - (a) Place a small amount of clay on the front end of both axles as shown in Figure 3. NOTE: It will be necessary to cut material off rib inside front cover to hold idler gears in place.
 - (b) Install front cover with gasket in place.
 - (c) Remove cover and measure the thickness of the compressed clay. It should be .005"-.030". Do not tighten cover down until proper clearance has been obtained. Without sufficient clearance, there is risk of cracking the cover when tightened down.

- (d) If clearance is less than .005 you will need to grind off idler axle as shown to obtain proper clearance. If clearance is greater than .090, replace left side (larger idler side) stud with tapered end axle provided in the kit. Re-install idler assembly and recheck for minimum clearance between block and front cover.
8. With all gears correctly in mesh and timed, tighten the camshaft capscrew to 35 ft./lbs. It would also be a good idea to use Loctite™ or equivalent on the bolt threads prior to final assembly.
 9. Lubricate all gears and bearings with engine oil.
 10. Re-install the front cover.
 11. Re-install all components removed in preparation for step 1.



IMPORTANT

DISCLAIMER In an effort to offer our customers the low prices, quick service and great value, Speedway Motors reserves the right to change suppliers, specifications, colors, prices, materials. Each of the previous items is subject to change without notice. Speedway is not responsible for any typographical errors or misinterpretations. Quantities are limited on some items.

WARRANTY DISCLAIMER The purchaser understands and recognizes that racing parts, specialized street rod equipment, and all parts and services sold by Speedway Motors, Inc. are exposed to many and varied conditions due to the manner in which they are installed and used. Speedway Motors, Inc. makes no warranties, either express or implied, including any warranty of merchantability or fitness for a particular purpose other than those contained in its current catalog with respect to the goods identified on the face of the invoice. There is no warranty expressed or implied as to whether the goods sold hereby will protect purchaser or ultimate user of such goods from injury or death. Speedway Motors assumes no liability after this period.

DAMAGE CLAIMS Always inspect your package upon delivery. Inspect all packages in the presence of the delivery driver. The driver must note any damage. Ask the driver the Carrier's procedures for handling damage claims. You must hold the original box, packing material and damaged merchandise for inspection or the carrier will not honor the claim. Notify Speedway Motors customer service department for instructions on returning damaged goods. Speedway is not responsible if no notification is given within 5 days of receipt.

SHORTAGES Always check the contents of your delivery to insure all the parts that you ordered were received. Please read the invoice. Double check all packing materials, small items may be wrapped inside with these products. Shortages may occur from damage to the box, so save all packing materials. Inspect the box for holes that would allow parts to fall out. If you are missing any item(s) be sure to check your invoice for back orders or canceled items before calling the customer service department. If Speedway has to split a shipment into multiple boxes, packages may be delivered on different days. You need to contact the customer service department within 5 days of delivery to assure the prompt replacement. Speedway Motors assumes no liability after this period.

REFUSALS All refused COD customers will be billed a 15% restocking charge plus freight to and from the destination! If you have questions please contact Speedway's customer service department.

WARRANTY CLAIMS If an item has a manufacturer's warranty as being free from defects we will exchange only. If the item has been used and you are requesting warranty work, this may take up to 30 days as warranty work is done by the manufacturer NOT Speedway Motors. If you have any questions please contact customer service.

RETURNS Speedway wants you to be satisfied with your purchase. If within 30 days after you receive your shipment you are not satisfied, you may return the item for refund or exchange. All exchanged or returned merchandise must be in original factory condition with no modifications or alterations. Returned merchandise must include all packaging materials, warranty cards, manuals, and accessories. If the items being returned need to be repackaged there will be a re-packing charge. Re-pack the item in a sturdy box and include a copy of your invoice and complete the form on the back of the invoice. You must ship orders back **PRE-PAID. WE DO NOT ACCEPT COD SHIPMENTS.** All exchanges need to have reshipping charges included. Items that are returned after 30 days are subject to 15% restocking charges. All fiberglass returned will have 15% restocking charge. No returns on electrical parts, video tapes, and books. Absolutely no returns on special order or close out merchandise.

FREE CATALOGS Speedway Motors offers FREE catalogs for Race, Street, Sprint and Midget, Sport Compact and Pedal Car restoration.

**Some items are not legal for sale or use in California on pollution controlled motor vehicles. These items are legal in California for racing vehicles only which may never be used upon a highway.

Speedway Motors Inc., P.O. Box 81906
Lincoln, NE 68501 (402) 323-3200
www.speedwaymotors.com



©Speedway Motors, Inc. 2007