



## INSTRUCTIONS

### Magnum Belt Drive System #6100

Thank you for choosing COMP Cams® products; we are proud to be your manufacturer of choice. Please read this instruction sheet carefully before beginning installation, and also take a moment to review the included limited warranty information.

#### *Kit Contents*

- Belt Drive main plate with crank seal and cam studs
- Main plate attachment bolts (10) ¼"-20
- Belt
- Upper gear assembly
- Lower gear assembly
- Cam adapter
- Cam adapter bolts (3) 5/16"-18
- Upper gear retention bolt/washer (left hand thread)
- Bronze thrust washers (2)
- Endplay adjustment shims (3)
- Cam retention plate Assembly
- Cam retention plate Locknuts (6) ¼"-20
- Spanner wrench



#### **Tools Required**

- Torque wrench
- Allen wrenches (5/16", 5/32" & ¼")
- Crankshaft gear installer #4933
- 5/8" socket & wrench
- Camshaft degree kit # 4796
- Tube of RTV or suitable replacement
- Small supply of motor oil
- Thread locker

*Note: These instructions begin with the previous cam drive system removed and the cam still in the block. Rocker arms should be removed to facilitate easily rotating the cam itself. It is also best to start a first time installation with the oil pan removed, since some interference between the block and belt drive main plate may exist, necessitating repeated trial fittings of the main plate.*

#### **Installation Instructions**

##### **Step 1 – Main Plate Installation**

Temporarily install the main plate on the front of the engine, placing the block dowel pins in the holes in the back of the plate as guides. Attempt to push the plate flush against the block. Interference between the back of the plate and the block may exist, preventing the plate from going on all the way. Note the location of interference, remove the plate, and grind the block accordingly to provide adequate clearance. Do not grind the plate, this may weaken it and cause failure!

Once the adequate clearance has been obtained, place a regular front cover gasket on the block, the proper oil pan front seal (thick or thin, depending on which your oil pan requires) in the main plate groove, and install the main plate with the 1/4"-20 button head Allen screws supplied.

### Step 2 – Cam Installation

Lightly lubricate both sides of the smaller bronze thrust washer (supplied) with motor oil, and install it over the end of the cam protruding from the block. Apply a light coat of RTV to the cam mating surface of the cam adapter hub and slide it on the end of the cam, making sure to engage the cam dowel pin in the blind hole in the adapter. Put a dab of thread locker on the cam adapter hub bolts (supplied) and screw them into the cam. Using the spanner wrench as shown in **Figure 1**, torque these three bolts to 25 ft./lbs. Lightly lubricate both sides of the second (larger) bronze thrust washer with oil and install it over the cam adapter. Then using all the shims supplied, install the cam retention plate and shims over the studs protruding from the main plate and secure with the 1/4"-20 lock nuts supplied. Check cam endplay. Remove shims and repeat the measurement until endplay is .005-.010". After endplay is correct, remove the shims and plate one last time and lightly coat between them with RTV.



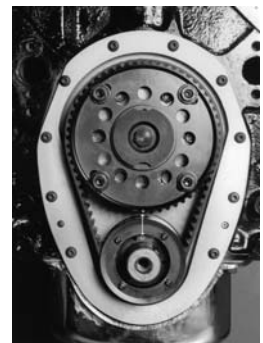
**Figure 1**

### Step 3 – Crank Hub Installation

Remove the outer belt guard from the crank gear by loosening and removing the four button head Allen screws from the front of the gear. Set the guard and screws aside for reinstallation later. Install the lower gear with suitable soft metal driver like COMP Cams® part #4920. Do not use just a hammer to beat the lower gear on! Severe damage to the lower gear may result from doing so. Make sure that the crank gear goes all the way on the crank up against shoulder on the snout. Some cast cranks have an extremely generous radius down to this step that prevents the gear from going all the way back against the step. Provisions must be made to eliminate this potential interference if it exists or belt misalignment will occur.

### Step 4 – Belt Installation

Install the upper gear over the cam adapter, making sure to align the key on the adapter with the keyway in the upper gear. Start the upper gear retention bolt/washer (remember– left hand thread) in the end of the adapter one thread or so. Rotate both the cam and crank until the markings on the upper and lower gears are aligned as shown in **Figure 2**. Remove the upper gear retention bolt and gear. Keeping the gear rotated the same as it came off the engine; slip the belt over the upper gear. Then with the upper gear in one hand, slip the belt over the lower gear making sure that the timing mark on both stay aligned. Once aligned, slide the upper gear up onto the tapered cam adapter enough to start the cam retention bolt again. Tighten this bolt the remaining amount and torque to 70 ft./lbs. while holding the crank from spinning with the crank socket such as COMP Cams® part #4793. Reinstall the belt guard removed in step 3 onto the lower gear. Use a small amount of thread locker on the retaining screws.



**Figure 2**

### Step 5 – Cam Timing Adjustment

To adjust cam timing (**Figure 3**) while degreasing your cam, loosen the four nuts in the center of the upper gear and turn the crankshaft accordingly (*counterclockwise to advance the cam, clockwise to retard the cam*). The timing marks in the center of the upper gear represent 2 crankshaft degrees each. Retighten the four nuts when finished before starting the engine.



**Figure 3**

### Step 6 – Final Assembly Notes

After completing the remainder of your engine assembly project, there are a few potential interference points to check before starting your engine. Check for:

- Water pump to upper gear interference
- Harmonic balancer to upper gear interference

### Step 7 – Maintenance

COMP Cams® belt drives should be covered with some type of protective cover if used on engines in dirt track applications, or where abrasive track conditions might damage the drive. The belt should be replaced annually, or whenever the engine suddenly stops, such as happens during an engine failure or accident. The upper and lower seals should also be replaced annually to avoid inadvertent oil leakage problems.

#### COMP Cams® Replacement Parts

#6100B	Belt
#6100LS	Lower Seal
#6100US	Upper Seal
#6100SP	Seal Pack
#6100LHB	Cam Gear Bolt (LH Thread)
#6100RW	Retainer Washer
#6100BS	Bronze Shim for Upper Gear
#6100BSC	Bronze Shim
#6100WA	Washer - .010" Thick
#6100WB	Washer - .020" Thick
#6100WC	Washer - .030" Thick



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## Limited Warranty

Competition Cams, Inc. warrants that all of its products are free from defects in material and workmanship, and against excessive wear for a period of (1) one year from the date of purchase. This **limited warranty** shall cover the original purchaser.

**Competition Cams, Inc.'s obligation under this warranty is limited to the repair or replacement of its product.** To make a warranty claim, the part must be returned within (1) one year of purchase to the address listed below, freight prepaid. Items covered under warranty will be returned to you freight collect.

**It is the responsibility of the installer to ensure that all of the components are correct before installation. We assume no liability for any errors made in tolerances, component selection, or installation.**

**There is absolutely no warranty on the following:**

- A) Any parts used in racing applications**
- B) Any product that has been physically altered, improperly installed or maintained;**
- C) Any product used in improper applications, abused, or not used in conjunction with the proper parts.**

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This warranty gives you specific legal rights and you may also have other legal rights, which vary from state to state.



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