

# **MSD** INSTALLATION INSTRUCTIONS

## **MSD Pro-Billet EFI Dual Sync Distributors**

**Chevrolet V8, PN 2375MSD/23753; W/Slip Collar, PN 2376MSD/23763;**

**Ford 289/302, PN 2377MSD/23773;**

**Ford 351W, PN 2378/23783; Ford 351C/460, PN 2379/23793;**

**Ford FE, PN 2380/23803; Chrysler SB, PN 2381/23813;**

**Chrysler 383/400, PN 2386/23863; Chrysler 426/440, PN 2383/23833;**

**Pontiac V8, PN 2384/23843; Oldsmobile V8, PN 2385/23853**

### **Parts Included:**

1 - Dual Sync Distributor	1 - Tube of Gear Lubricant
1 - Rotor, PN 8467	1 - Slip Collar (Chevrolet)
1 - Cap, PN 8431(Red), PN 84313(Black)	2 - O-rings (Chevrolet)
1 - Wire Retainer	1 - O-ring or Gasket
2 - 1.5" Self Tapping Screws	

**WARNING:** When installing any electronic accessory or component, disconnect the battery cables. When disconnecting, always remove the negative cable first and install it last.

**Note:** The terminals of this distributor require spark plug style terminals. You may need to change the terminals and boots of your wires. MSD offers two kits, PN 8849 or PN 8848, that are supplied with nine boots and terminals.

**Note:** Chevy Applications - If the gear is ever replaced, MSD Gear PN 8531 is required for replacement due to the .500" diameter shaft.

This distributor is equipped with two hall effect sensors for the crankshaft and camshaft signals for sequential fueling and/or Coil-On/Near-Plug (COP/CNP) applications. MSD offers a blank cap, PN 84323, for COP/CNP setups. When using PN 84323, remove the distributor cap and rotor for proper fit. Use the index mark on the shutter wheel to align the distributor in place of the rotor contact.

This distributor can be used with a MSD Direct Ignition System Control (DIS), PN 6015MSD/60153MSD, or any other ECU that supports Hall Effect crank and cam sensors.

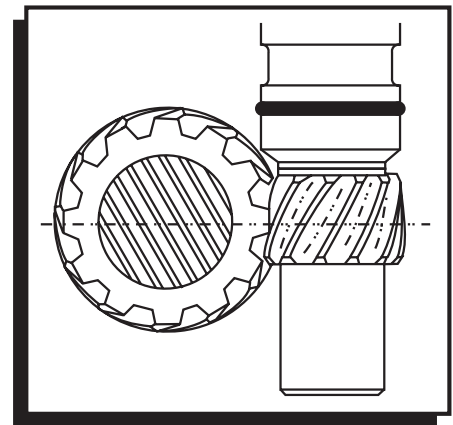
### **ADJUSTING THE SLIP COLLAR FOR CHEVROLET APPLICATIONS**

Before installing the Dual Sync Distributor, the slip collar adjustment must be set.

1. Loosen the slip collar and insert the distributor into the engine until it bottoms out against the oil pump drive. Do Not have the gasket installed yet.
2. After it bottoms out, slide the slip collar down into position and tighten it.
3. Remove the distributor and install the gasket.

### **CHECKING GEAR MESH**

It is recommended to check for proper gear mesh between the cam gear and distributor gear. To do this, coat the distributor gear with moly grease (not included) and install the distributor. Crank the engine over several times, pull the distributor out and inspect the gear pattern shown on the grease. The proper mesh will leave an even pattern in the middle of the gear (Figure 1). Adjust the slip collar to obtain the correct mesh.



**Figure 1 Correct Gear Mesh**

## CHECKING THE OIL PUMP TO DISTRIBUTOR SHAFT OVERLAP

The proper overlap between the distributor shaft and the oil pump shaft is very important. The tongue of the distributor shaft should fit into the groove of the oil pump shaft by at least 1/4". To check this:

1. Measure the distance between the base of the slip collar to the tip of the distributor shaft (Figure 2).
2. Using a straight edge, measure the distance from the intake manifold distributor flange to the bottom groove on the oil pump shaft (Figure 2).
3. Take the two measurements and subtract them. The difference is the overlap. If there is not enough or too much overlap a different oil pump shaft is required.

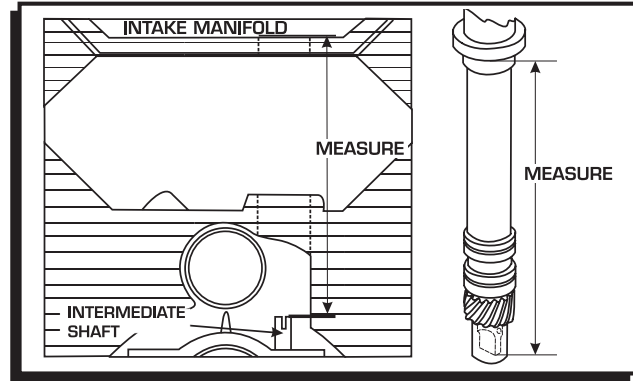


Figure 2 Measuring Oil Pump Overlap

## REPLACING THE DISTRIBUTOR

1. Rotate the engine until it is at 50° before top dead center (BTDC) on the compression stroke. If the balancer is not marked at 50°, measure to the right from 0° and mark the distance shown in Table 1. The mark Does Not have to be exact. *NOTE: To check that the engine is on the compression stroke, either: Remove the distributor cap and verify the rotor is pointing to the #1 terminal. Or remove the spark plug from the #1 cylinder and lightly place your thumb over the hole. (DO NOT put your finger in the hole). As the engine rotates you should feel air being pushed out of the cylinder.*
2. Disconnect the wiring from the distributor. If applicable, MARK THE SPARK PLUG WIRES and remove the distributor cap.
3. Loosen the distributor hold-down clamp and slide the clamp out of the way.
4. Lift the distributor out of the engine. Note that the rotor rotates as you lift the distributor out. This is due to the helical cut gear and should be taken into consideration when installing the new distributor. (Does not apply to Chrysler applications as the gear is on the oil pump shaft).
5. Install the gasket or O-ring and apply a liberal amount of the supplied lubricant to the distributor gear. CHEVY: The supplied O-rings can only be used if the block has been modified as shown in Figure 3.
6. Align the rotor contact (*index mark if using blank cap, PN 84323*) to the crankshaft position sensor as shown in Figure 4. Install the distributor making sure it fully seats with the rotor pointing toward your desired direction of the #1 spark plug wire (*not applicable if using a 6015MSD/60153MSD or other COP/CNP system*). If the distributor will not fully seat with the rotor pointing in the desired position, you may need to rotate the oil pump shaft until the rotor lines up and the distributor fully seats.
7. Position the distributor hold-down clamp onto the housing step, but do not tighten it completely.

Table 1 Distance to 50° Based on Balancer Diameter

Balancer Diameter	Distance
6"	2-5/8"
7"	3-1/16"
8"	3-1/2"

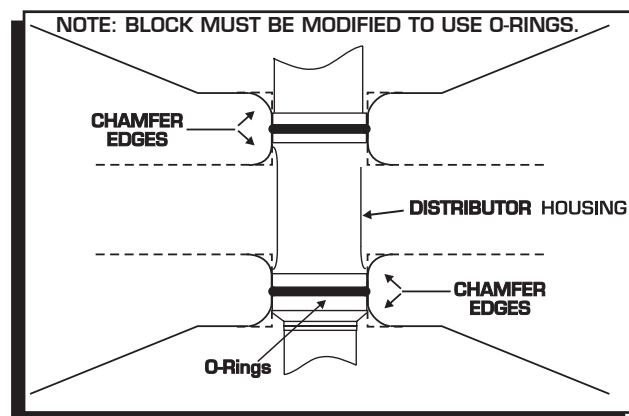


Figure 3 Modified Block for use with O-Rings

Table 2 Distributor Pinout

A	Crank Signal	Purple/White
B	Cam Signal	Purple
C	Signal Ground	Green
E	12V Power	Red

**ALIGNING THE DISTRIBUTOR HOUSING**

There are two LEDs on the distributor circuit board. These correspond to the crank and cam hall effect sensors and are used to align the distributor housing. An LED is On whenever a shutter is **not** passing through a sensor (digital falling). An LED turns Off when a shutter passes through a sensor (digital rising).

8. With power going to the distributor make sure the rotor contact or index mark is aligned with the crank sensor and both LEDs are On (Figure 4). Consult Table 3 before proceeding.
  - a. For engines that have the **rotor rotating CW**: It is important to rotate the housing CW until the Crank LED turns Off, to find the edge of the sensor. Then rotate the housing CCW just until the LED turns On.
  - b. For engines that have the **rotor rotating CCW**: It is important to rotate the housing CCW until the Crank LED turns Off, to find the edge of the sensor. Then rotate the housing CW just until the Crank LED turns On.
9. This will position the distributor close to where it needs to be. *If using a 6015MSD/60153MSD, consult its instructions to set timing and for final alignment.* Tighten the hold-down clamp, locking the distributor in place.
10. After aligning the distributor housing, if applicable, install the distributor cap and spark plug wires one at a time to ensure correct location. A wire retainer is supplied to secure the wires in place. Align the mounting bosses and use the supplied 1.5" self-tapping Phillips screws to hold the retainer in place.

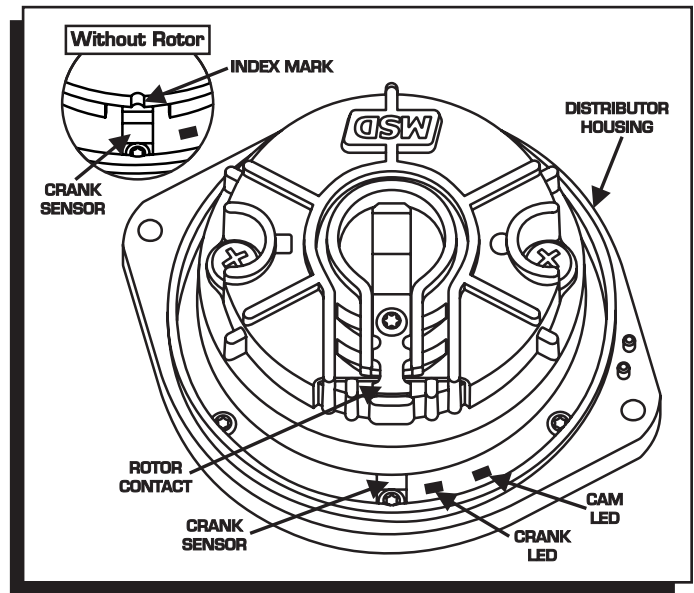


Figure 4 Aligning the Distributor

Table 3 Rotor Rotation Based on Engine Type

Engine Type	Rotor Rotation
Chevrolet	Clockwise (CW)
Chrysler SB	Clockwise (CW)
BB Chrysler	Counter-Clockwise (CCW)
Ford	Counter-Clockwise (CCW)
Oldsmobile	Counter-Clockwise (CCW)
Pontiac	Counter-Clockwise (CCW)

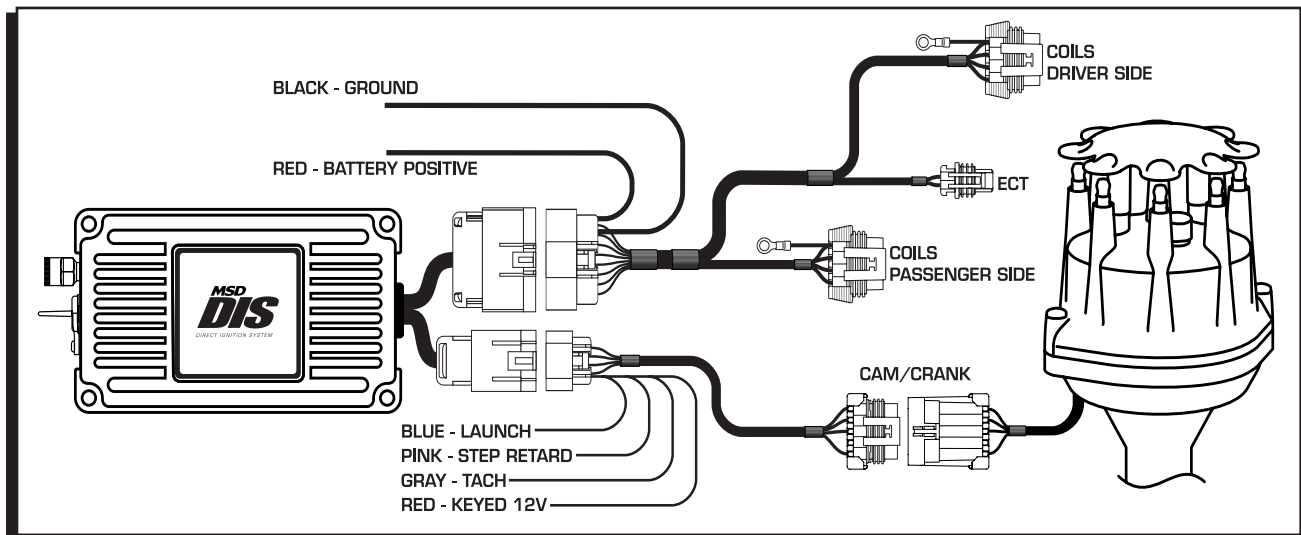


Figure 5 Wiring to a 6015MSD/60153MSD Direct Ignition System



# INSTALLATION INSTRUCTIONS

## GEAR INSTALLATION FOR FORD APPLICATIONS

It is recommended to send your Ford Distributor to MSD to have a new gear installed. The installation process requires a press fit and the need for special tools to achieve proper installation without damaging the shaft, gear or housing. If returning the distributor to MSD is not an option, a quality machine shop may also be able to install your new gear.

**CAUTION:** If the gear is installed improperly, severe damage to the distributor and/or engine block will occur!

1. With the end play of the distributor shaft removed, measure the distance from the bottom of the gear to the bottom of the mounting flange (Figure 6). It should be within the specifications shown.
2. Scribe a mark on the shaft at the bottom of the gear. This will aid in the installation position of the new gear.
3. Remove the original roll pin and remove the press fit gear. Use extreme care not to damage the end of the shaft where it meshes with the oil pump.
4. Position the gear so the new roll pin will enter the shaft 90° from the original hole. (Lining up the original hole is possible, but a new hole will likely be machined.)
5. Press the new gear into position on the shaft. Measure the distance as shown in Figure 6 before drilling the new roll pin hole.
6. Carefully drill a 0.125" hole through the shaft using the gear as a guide.
7. Install the new 1/8" spiral roll pin.

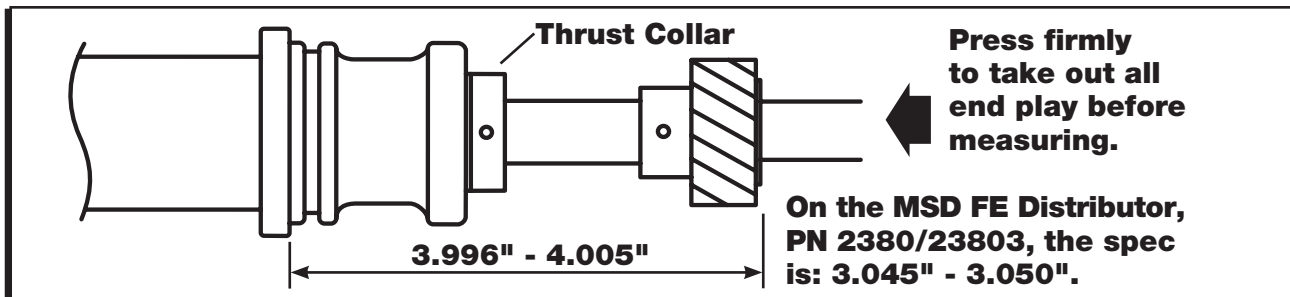


Figure 6 Gear Installation Specifications

### Service

In case of malfunction, this MSD component will be repaired free of charge according to the terms of the warranty. When returning MSD components for warranty service, **Proof of Purchase** must be supplied for verification. After the warranty period has expired, repair service is based on a minimum and maximum fee.

**All returns must have a Return Material Authorization (RMA) number** issued to them before being returned. To obtain an RMA number please contact MSD Customer Service at 1 (888) 258-3835 or visit our website at [www.msdpower.com/rma](http://www.msdpower.com/rma) to automatically obtain a number and shipping information.

When returning the unit for repair, leave all wires at the length in which you have them installed. Be sure to include a detailed account of any problems experienced, and what components and accessories are installed on the vehicle. The repaired unit will be returned as soon as possible using Ground shipping methods (ground shipping is covered by warranty). For more information, call MSD at (915) 855-7123. MSD technicians are available from 7:00 a.m. to 5:00 p.m. Monday - Friday (mountain time).

### Limited Warranty

MSD warrants this product to be free from defects in material and workmanship under its intended normal use\*, when properly installed and purchased from an authorized MSD dealer, for a period of one year from the date of the original purchase. This warranty is void for any products purchased through auction websites. If found to be defective as mentioned above, it will be repaired or replaced at the option of MSD. Any item that is covered under this warranty will be returned free of charge using Ground shipping methods.

This shall constitute the sole remedy of the purchaser and the sole liability of MSD. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representation whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall MSD or its suppliers be liable for special or consequential damages.

\*Intended normal use means that this item is being used as was originally intended and for the original application as sold by MSD. Any modifications to this item or if it is used on an application other than what MSD markets the product, the warranty will be void. It is the sole responsibility of the customer to determine that this item will work for the application they are intending. MSD will accept no liability for custom applications.