



INSTALLATION INSTRUCTIONS

P/N: 72256, SBC/BBC ULTRA-SERIES CRANK TRIGGER DISTRIBUTOR

This crank trigger kit has been specifically designed to fit a Small or Big Block Chevrolet. Its Collar height can be adjusted to accommodate the majority of intake manifolds. Once installed the distributor does not have to be loosened and rotated by the traditional hold down to adjust the rotor tip phasing. You will only need to adjust the caps position relative to the rotor. It can work with any brand crank trigger. When used with our MOROSO Ultra-Series Crank Trigger and Ultra-Series Crank Trigger Adjuster kits, your ignition system will have the most accessible and finite adjustment in the industry. If your application is for an engine other than Small or Big Block Chevrolet, please refer to the MOROSO catalog or web site. Crank Triggers are not legal for sale or use on pollution-controlled vehicles.

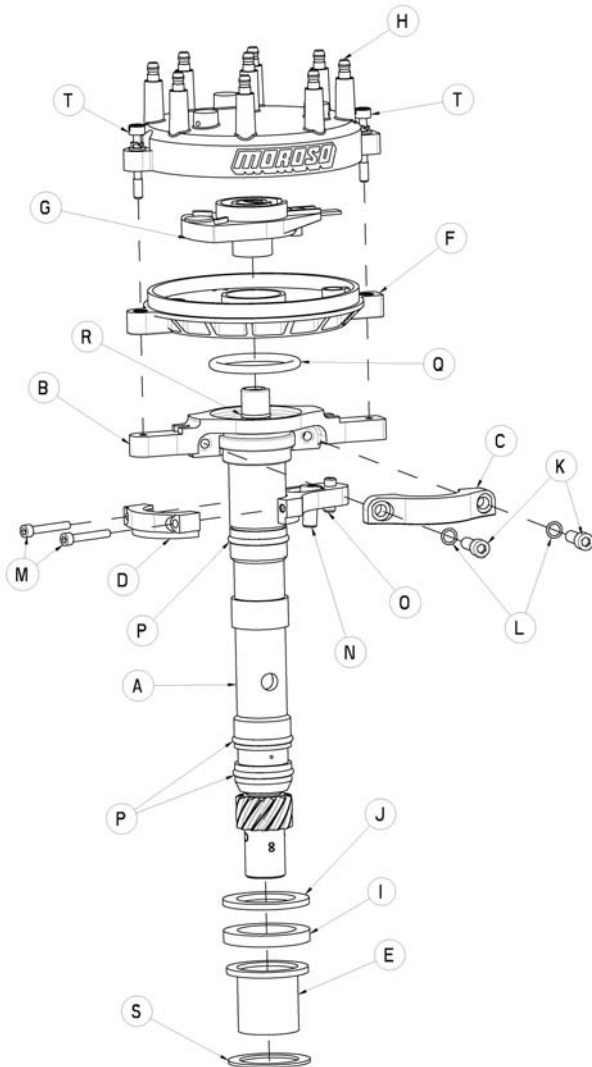


Figure 1

PARTS LIST		
ITEM	DESC	QTY
A	STEM ASSEMBLY	1
B	CLAMP BASE	1
C	CLAMP	1
D	COLLAR <i>(two mating parts)</i>	1
E	SEALING FLANGE	1
F	ADAPTER	1
G	ROTOR	1
H	CAP	1
I	SPACER .25 <i>(if required)</i>	1
J	SPACER .12 <i>(if required)</i>	1
K	1/4-20 X .75 CLAMP SCREW	2
L	WAVE WASHER	2
M	8-32 X 1.12 COLLAR SCREW	2
N	3/8-16 X 1.00 LOW HEAD SCREW	1
O	5/16-18 X .75 SET SCREW	1
P	STEM O-RING .13 THK	3
Q	ADAPTER O-RING .18 THK	1
R	ROTOR O-RING .07 THK	1
S	GASKET	1
T	CAPTIVE SCREW	2

ENGINE INITIAL TIMING & PREPARATION

Set your engine to the desired timing by turning the engine over by hand until the #1 cylinder is under compression and the desired timing mark on your damper or crank hub is lined up with the TDC pointer (Example: 30° BTDC). Confirm that a magnet in the crank trigger wheel is aligned with the sensor. Do not change this timing setting until the distributor is completely installed.

Remove the cap on the old distributor and note the rotor tip position for the #1 cylinder. Remove the distributor from the engine.

For a new build, determine the cap orientation on the motor for the desired #1 cylinder. For this application, MOROSO has designed the distributor with the idea that the cap ear centerline (through both captive screws) would be parallel with the camshaft and the round ear of the cap would be closest to the front of the engine. This is a suggested orientation only; it does not have to be maintained. Orient the distributor to best work on your engine and in your vehicle.

DISTRIBUTOR PREPARATION

1. Press the Gasket onto the Sealing Flange. Fit is tight.
2. Install the Set Screw into the Collar.
3. Lubricate the threads of the Collar and Stem Assembly to prevent galling.
4. Install the Collar onto the Stem Assembly at its lowest position (closest to the gear). Tighten the two 8-32 Collar Screws evenly.
5. Leave Collar loose enough so that the Stem Assembly will turn easily within it.

WARNING: To prevent thread galling, do not leave the Collar tight when adjusting the distributor height. Leave it tight enough so that the parts only wiggle slightly.

6. Slide the Sealing Flange/Gasket onto the Stem Assembly as oriented in Figure 1.

STEM ASSEMBLY INSTALLATION (WET SUMP)

1. Orient the oil pump drive shaft to achieve the desired Rotor tip position and install the Stem Assembly into the engine. This is a test fit only. The distributor may or may not engage the cam gear or oil pump drive shaft at this time.
2. Determine if any or all of the spacers are required for the Collar to seat correctly on your intake manifold.
3. Remove the distributor from the engine and the Sealing Flange from the Stem Assembly.
4. Raise the Collar to its highest position.
5. Install and lubricate the Stem O-Rings.
6. Slide the necessary spacers (if required) and the Sealing Flange/Gasket onto the Stem Assembly
7. Check the oil pump drive shaft orientation and install the distributor into the engine. Confirm that the shaft slot is correct for the desired Rotor tip position. The slot is on the same side of the shaft as the rotor tip will be when installed.
8. Turn the Stem Assembly and adjust the Set Screw until the Collar is aligned and seated correctly. Tighten the Low Head Screw enough so that the parts can turn without galling.
9. Turn the Stem Assembly to achieve the optimal meshing of the cam and distributor gears. Remember when the Low Head is tightened completely the Gasket will crush a small amount.
10. When the distributor height is completely set (read ***THINGS TO CONFIRM (WET SUMP)*** first) tighten the two 8-32 Collar Screws evenly and then tighten the Low Head Screw.

THINGS TO CONFIRM (WET SUMP)

After optimal meshing of the cam and distributor gears is achieved, the following (in order of importance) must be considered

1. The lower two Stem O-Rings:

The position of these two Stem O-Rings on the distributor was designed to seal the lifter galley when the cam and distributor gears are meshed properly. Tests have shown that better oil system pressure is achieved when the galley is correctly sealed. A good practice would be to inspect or measure, if possible, the O-RING positions. If the back of the engine is accessible, the O-Rings can be seen when the pipe plug or restrictor for the lifter galley is removed. The O-Ring position can be calculated by measuring from the intake into the block and measuring the distributor with the Collar/Spacer(s)/Sealing Flange. The distributor's threaded Collar can also be used to make a slight adjustment in the O-Ring location, but again at the cost of optimal cam/distributor gear meshing.

2. Oil pump drive shaft engagement with the distributor shaft:

The drive tang of the distributor shaft should engage the oil pump drive shaft slot as much as possible. You want the oil pump drive shaft to have some axial end play between the oil pump and the distributor. The distributor must not be bottomed (resting/hitting) on top of the oil pump drive shaft. They should also not be minimally engaged (.100" or less is too little engagement). If they are only minimally engaged, then you risk breaking the oil pump drive shaft. This distributor's threaded Collar can make up for some minimal engagement, but at the cost of optimal cam/distributor gear meshing. A different length oil pump drive shaft may be needed/available. See the Moroso catalog or web site for other lengths.

3. A note on lowering the distributor until it bottoms:

If you lower the distributor as deep as it can go into the engine it can be bottomed (resting/hitting) on two other things beside the oil pump drive shaft and have some undesirable consequences.

- The aluminum housing of the Stem Assembly can be resting on the cam gear. If the engine is run while in this condition, the cam gear will wear the housing putting aluminum into the oil.
- The side of the gear hub can hit the inside of the engine block. Gear material will abrade away and contaminate the oil when the engine is run in this condition.
- If the oil pump drive shaft is too short, the lower O-RING will be lowered out of and below the bore in the block of some engines. This will make the distributor very difficult to raise back up into position and will most definitely tear off a section of the bottom O-RING.

STEM ASSEMBLY INSTALLATION (DRY SUMP)

1. Install the Stem Assembly into the engine. This is a test fit only. The distributor may or may not engage the cam gear.
2. Determine if any or all of the spacers are required for the Collar to seat correctly on your intake manifold.
3. Remove the distributor from the engine and the Sealing Flange from the Stem Assembly.
4. Keep the Collar to its lowest position.
5. Install and lubricate the Stem O-Rings.
6. Slide the necessary spacers (if required) and the Sealing Flange/Gasket onto the Stem Assembly
7. Install the distributor into the engine. Confirm that the shaft slot is correct for the desired Rotor tip position. The slot is on the same side of the shaft as the rotor tip will be when installed.
8. Turn the Stem Assembly and adjust the Set Screw until the Collar is aligned and seated correctly. Tighten the Low Head Screw enough so that the parts can turn without galling.
9. Turn the Stem Assembly to achieve the optimal meshing of the cam and distributor gears. Remember when the Low Head Screw is tightened completely the Gasket will crush a small amount.
10. When the distributor height is completely set (read ***THINGS TO CONFIRM (DRY SUMP)*** first) tighten the two 8-32 Collar Screws evenly and tighten the Low Head Screw.

THINGS TO CONFIRM (DRY SUMP)

After optimal meshing of the cam and distributor gears is achieved, the following (in order of importance) must be considered

1. The lower two Stem O-Rings:

The position of these two Stem O-Rings on the distributor was designed to seal the lifter galley when the cam and distributor gears are meshed properly. Tests have shown that better oil system pressure is achieved when the galley is correctly sealed. A good practice would be to inspect or measure, if possible, the O-RING positions. If the back of the engine is accessible, the O-Rings can be seen when the pipe plug or restrictor for the lifter galley is removed. The O-Ring position can be calculated by measuring from the intake into the block and measuring the distributor with the Collar/Spacer(s)/Sealing Flange. The distributor's threaded Collar can also be used to make a slight adjustment in the O-Ring location, but again at the cost of optimal cam/distributor gear meshing.

2. A note on lowering the distributor until it bottoms:

If you lower the distributor as deep as it can go into the engine it can be bottomed (resting/hitting) on two other things beside the oil pump drive shaft and have some undesirable consequences.

- The aluminum housing of the Stem Assembly can be resting on the cam gear. If the engine is run while in this condition, the cam gear will wear the housing putting aluminum into the oil.
- The side of the gear hub can hit the inside of the engine block. Gear material will abrade away and contaminate the oil when the engine is run in this condition.

FINAL ASSEMBLY

1. Place the Clamp Base onto the Stem Assembly with the round ear pointing towards the front of the motor (suggestion only).
2. Using the 1/4-20 Clamp Screws and the Wave Washers fasten the Clamp to the Clamp base. Screws should only be tightened enough so that the Clamp Base can be rotated easily.
3. Place the Adapter O-RING into the Clamp Base.
4. Place the Adapter onto the Clamp Base aligning the round ears of both.
5. Install the Rotor O-RING and Rotor onto the shaft. Align the groove on the tip side of the rotor hub and press on by hand. If the rotor will not go more than half way down then the key is not aligning with the shaft slot. Remove and restart the process. The rotor must be completely seated on the shaft or it will hit the cap
6. Rotate the cap to orient the #1 cylinder on the cap to its desired location.

ROTOR TIP PHASING (WITH TIMING RETARD)

For situations where the engine's timing is retarded during usage, the rotor tip must be aligned at the ignition timing when the engine's cylinder pressures are at their highest. There is a limit for how much the Rotor tip can be retarded or advanced during operation. The Rotor tip must be closer to the cylinder terminal that is being fired than the cylinder terminal that was before it or after it. ***If this is not adhered to, the engine will misfire and/or cause the ignition's energy to burn through the Rotor's plastic body.***

1. Modify an old distributor cap by making a hole (or opening) in it that will allow you to see a cylinder terminal and the rotor tip as it passes by (see Figure 2). You can perform the check on any cylinder, so choose one that will allow you to easily view it.
2. Use the following ***example*** to phase the Rotor tip.
 - The initial engine timing is set at 30° BTDC (as in **ENGINE INITIAL TIMING & PREPARATION**)
 - If the engine is going to be retarded 4°, turn the engine by hand until the mark on your damper or crank hub is at 26° BTDC.
 - Adjust the cap until the Rotor tip is centered on the cylinder terminal and tighten the Clamp Screws.

For Extreme levels of timing retard it may be necessary to compromise Rotor tip phasing to prevent misfiring and Rotor burn through.

3. With the modified cap and ignition wires installed start the engine.
4. Aim the timing light at the sensor and spinning crank trigger wheel. If a Wheel Magnet is not showing directly in front of the sensor shut off the engine and disconnect the electrical power. Check the wiring from the sensor to the ignition box.
5. Set the timing to the desired retarded ignition timing (in example above it would be 26° BTDC).

WARNING: Exercise caution around the hole when the engine is running. Do not let anything near and/or into the cap. A catastrophic event, damage to the distributor, personal injury and/or electrocution can occur.

6. Aim a timing light into the hole in the cap and view the Rotor tip's position relative to the cylinder terminal. The timing light pickup can be either clamped onto the ignition wire that corresponds to the cap hole or to the coil wire.
7. If needed, loosen Clamp Screws and adjust the cap so the rotor tip is phased correctly. Since the Rotor is fixed rotationally to the shaft and the crank trigger is controlling your timing, the engine's timing will not change.
8. Remove the modified cap and replace it with the new Cap that came with your distributor using the Captive Screws. The modified cap cannot be run on the engine at any other time.
9. Re-time the engine to the initial timing (in example above it would be 30° BTDC). ***DO NOT re-phase the rotor.***



Figure 2

ROTOR TIP PHASING (STANDARD)

The Rotor tip phasing must be checked and optimized for proper ignition system performance and longevity. Since the Rotor tip position relative to the cylinder post will be the same for all eight cylinders, it is only necessary to check it on one post.

1. Modify an old distributor cap by making a hole (or opening) in it that will allow you to see a cylinder terminal and the rotor tip as it passes by (see figure 2). You can perform the check on any cylinder, so choose one that will allow you to easily view it.
2. Adjust the cap until the Rotor tip is centered on the cylinder terminal and tighten the Clamp Screws.
3. With the modified cap and ignition wires installed, start the engine and check timing as normal using a timing light on the pointer and balancer.

WARNING: Exercise caution around the hole when the engine is running. Do not let anything near and/or into the cap. A catastrophic event, damage to the distributor, personal injury and/or electrocution can occur.

4. Aim the timing light at the sensor and spinning crank trigger wheel. If a Wheel Magnet is not showing directly in front of the sensor shut off the engine and disconnect the electrical power. Check the wiring from the sensor to the ignition box.
5. Aim a timing light into the hole in the cap and view the Rotor tip's position relative to the cylinder terminal. The timing light pickup can be either clamped onto the ignition wire that corresponds to the cap hole or to the coil wire.
6. If needed, loosen Clamp Screws and adjust the cap so the rotor tip is phased correctly. Since the Rotor is fixed rotationally to the shaft and the crank trigger is controlling your timing, the engine's timing will not change.
7. Remove the modified cap and replace it with the new Cap that came with your distributor using the Captive Screws. The modified cap cannot be run on the engine at any other time.

**For Technical Assistance, Call Moroso's Tech Line at
(203) 458-0542, (203) 458-0546 8:30am–5:00pm EST**

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