



## ACCEL/DFI Dual Sync Distributor Instructions.

### INSTALLATION INSTRUCTIONS (With Distributor out of engine)

*Go to section 2 if you are doing the installation with the Dual Sync installed in the engine.*

#### NOTE:

Make sure that the injector harness, BLUE Trigger wire (EST) going to your 6A ignition box and your ignition coil are disconnected until you reach step 27.

1. Remove the cap from your distributor, verify which direction the rotor / distributor shaft turns when the engine is cranking (either clockwise, or counter-clockwise).
2. Rotate the engine to Top Dead Center of cylinder #1. If replacing another distributor, verify that the rotor is now pointing at the sparkplug wire for cylinder #1.
3. If replacing another distributor, disconnect all wires and remove the distributor from the engine.
4. Attach the Dual Sync Distributor adapter wire harness (part# 77101) to the DFI Gen 7 main wire harness, ensuring that the ground leads are connected to an appropriate grounding point on the engine. Then plug both the CAM & CRANK connectors to the Dual Sync Distributor.
5. Turn the ignition to the **Key-On, Engine-Off** position, and launch the DFI CalMap Engine Management Software program.
6. Select the "Online to ECM" data source, and go to the Engine Configuration screen by pressing the **CTRL-S** key combination, or selecting the **System** menu item from the **Configuration** menu.
7. From the **Injection Type** drop-down list, select **Sequential** then press the **F10** key on your keyboard.
8. If you are running CalMap version 3.0 or higher, from the **Ignition Type** drop-down list, select **Dual Sync Distributor or Hall Effect equivalent**, then press **F10** and skip to step 15. **If you are running CalMap version 2.0 or lower, complete steps 9 – 14.**
9. Change the **Crank Trigger Edge** switch to the **Falling** position and press **F10**.
10. Change the **Cam Trigger Edge** switch to **Falling** and press **F10**.
11. Change the **Output Trigger Edge** switch to **Rising**, and press **F10**.
12. Change the **Crank Signal Input Type** to **Hall Effect** and press **F10**.
13. Change the **Cam Signal Input Type** to **Hall Effect** and press **F10**.

14. Change the **Output Signal Type** to **Sink, Points**, and press **F10**.
15. Verify that the **Fuel Injector Firing Order** is set to the desired firing order, and press **F10**.
16. If no error messages were observed, exit the CalMap program using the **File->Exit** menu command, by pressing the **CTRL-X** key combination, or by clicking on the Gen 7 DFI icon on the lower right portion of the screen. If any error messages were present, repeat steps 6-15.

## **DISTRIBUTOR PHASING**

17. Position the Dual Sync Distributor so that you can see both the Red (Crank) and Blue (Cam) LEDs. Verify that the ignition is still in the **Key-On, Engine-Off** position.
18. Rotate the distributor shaft / rotor in the same direction as when the engine is running (either clockwise or counterclockwise). Continue rotating **until the blue LED shuts off completely**. This indicates the falling edge of the cam trigger position.
19. Continue to slowly rotate the distributor shaft / rotor **until the red LED shuts off, comes on again then shuts off (Stop)**. This indicates the falling edge of the crank trigger position. Stop at this point. Taking care not to rotate the distributor housing or shaft, make a mark inside the distributor housing where the rotor tip is pointing. Your distributor is now set to Top Dead Center of cylinder #1.
20. Install the distributor in your engine and position the distributor housing so the mark inside the distributor housing made in step 19 lines up with the rotor tip. It may be necessary to use a screwdriver or socket wrench to rotate the oil pump drive shaft slightly to properly seat the distributor. Do not rotate the engine.
21. Verify that the crank LED is not lit and tighten the distributor. If the red LED is lit, repeat steps 17-20.
22. Turn the ignition key to the **Off** position. The key must remain in the **Off** position for at least **30 seconds** for the programming changes to be implemented by the ECM.

## **ROTOR PHASING**

23. Rotate the engine backward to 22 to 25 degrees BTDC. Make a small mark on the outside of the distributor housing where the rotor tip is pointing.
24. Install the distributor cap, and locate the spark plug terminal that is closest to the mark on the outside of the distributor housing made in step 23. This is the terminal for cylinder #1. Mark the distributor cap to indicate the location of the #1 spark plug wire.
25. Remove the distributor cap, loosen the two 5/64" Allen-head screws slightly and adjust the rotor so it is pointed at the center of the terminal for cylinder #1. Tighten the two Allen-head screws to re-secure the rotor.
26. Install the distributor cap and spark plug wires. Double check that the spark plug wires match the firing order previously set in the ECM. Connect the injector harness
27. Connect the dark the Dark Blue wire from Pin "H" of the 77101 harness to the points/trigger lead of the ignition enhancer module (**Example: DFI 6A DK Blue – ACCEL 300+ White wire – Mallory 6852M White Wire – MSD 6A White Wire**)

**DO NOT ATTACH THE DK BLUE WIRE MARKED EST TO THE COIL !!!!!**  
**IF YOU ATTEMPT TO DO THAT, YOU WILL CAUSE DAMADGE TO THE ECU.**

Next, connect the pink wire to the from Pin “A” of the 77101 harness to the switched 12 volt lead of the ignition enhancer module (**Example: DFI 6A Red/White Wire – ACCEL 300 + Small Red Wire - Mallory 6852M Small Red Wire – MSD 6A Small Red Wire**).

**DO NOT ATTACH ANOTHER SWITCHED 12 VOLT SUPPLY TO THE BOX.**

**28.** Start the engine. Using a timing light, verify that the timing reading on the harmonic balancer is the same as the timing reading in CalMap. We recommend forcing the timing in CalMap to 10–20 degrees while verifying readings. If the readings are different, loosen the distributor and rotate the distributor housing until the timing readings on the harmonic balancer are the same as the timing reading in CalMap. Tighten the distributor.

**28.** Your Dual Sync Distributor is now correctly mounted, phased, and ready to run Sequential Fuel Injection.

## **Section 2**

### **INSTALLATION INSTRUCTIONS (With Distributor installed in the engine)**

#### **NOTE:**

**Make sure that the injector harness, BLUE Trigger wire going to your 6A ignition box and your ignition coil are disconnected until you reach step 27.**

- 1.** Verify which direction the rotor / distributor shaft turns when the engine is cranking (either clockwise, or counter-clockwise).
- 2.** Rotate the engine to Top Dead Center of cylinder #1. If replacing another distributor, verify that the rotor is now pointing at the sparkplug wire for cylinder #1.
- 3.** Remove the distributor being replaced from the engine.
- 4.** Install the Dual Sync distributor making sure that it seats properly and the rotor is pointing at #1 position; attach the Dual Sync Distributor adapter wire harness (part# 77101) to the DFI Gen 7 main wire harness and to the Dual Sync distributor, ensuring that the ground leads are connected to an appropriate grounding point on the engine.
- 5.** Turn the ignition to the **Key-On, Engine-Off** position, and launch the DFI CalMap Engine Management Software program.

6. Select the “Online to ECM” data source, and go to the Engine Configuration screen by pressing the **CTRL-S** key combination, or selecting the **System** menu item from the **Configuration** menu.
7. From the **Injection Type** drop-down list, select **Sequential** then press the **F10** key on your keyboard.
8. If you are running CalMap version 3.0 or higher, from the **Ignition Type** drop-down list, select **Dual Sync Distributor or Hall Effect equivalent**, then press **F10** and skip to step 15. **If you are running CalMap version 2.0 or lower, complete steps 9 – 14.**
9. Change the **Crank Trigger Edge** switch to the Falling position and press **F10**.
10. Change the **Cam Trigger Edge** switch to **Falling** and press **F10**.
11. Change the **Output Trigger Edge** switch to **Rising**, and press **F10**.
12. Change the **Crank Signal Input Type** to Hall Effect and press **F10**.
13. Change the **Cam Signal Input Type** to Hall Effect and press **F10**.
14. Change the **Output Signal Type** to **Sink, Points**, and press **F10**.
15. Verify that the **Fuel Injector Firing Order** is set to the desired firing order, and press **F10**.
16. If no error messages were observed, exit the CalMap program using the **File->Exit** menu command, by pressing the **CTRL-X** key combination, or by clicking on the Gen 7 DFI icon on the lower right portion of the screen. If any error messages were present, repeat steps 6-15.

## **DISTRIBUTOR PHASING**

17. Position yourself so that you can see both the Red (Crank) and Blue (Cam) LEDs in the Dual Sync Distributor. Verify that the ignition is still in the **Key-On, Engine-Off** position.
18. Rotate the distributor housing opposite the rotor rotation (**Chevy: Rotate housing counter clockwise**) or opposite direction as when the engine is turning the rotor. (Either clockwise or counterclockwise). Continue rotating **until the blue LED shuts off completely**. This indicates the falling edge of the cam trigger position.
19. Continue to slowly rotate the distributor housing **until the red LED shuts off, comes on again then shuts off (Stop)**. This indicates the falling edge of the crank trigger position. Stop at this point.
20. Taking care not to rotate the distributor housing, Verify that the crank LED (red) is not lit and tighten the distributor. If the red LED is lit, repeat steps 17-20.
21. Turn the ignition key to the **Off** position. The key must remain in the **Off** position for at least **30 seconds** for the programming changes to be implemented by the ECM.

## **ROTOR PHASING**

22. Rotate the engine backward to 22 to 25 degrees BTDC. Make a small mark on the outside of the distributor housing where the rotor tip is pointing.

**23.** Install the distributor cap, and locate the spark plug terminal that is closest to the mark on the outside of the distributor housing made in step 23. This is the terminal for cylinder #1. Mark the distributor cap to indicate the location of the #1 spark plug wire.

**24.** Remove the distributor cap, loosen the two 5/64" Allen-head screws slightly and adjust the rotor so it is pointed at the center of the terminal for cylinder #1. Tighten the two Allen-head screws to re-secure the rotor.

**25.** Install the distributor cap and spark plug wires. Double check that the spark plug wires match the firing order previously set in the ECM.

**26.** Connect the injector harness.

**27.** Connect the dark the Dark Blue wire from Pin "H" of the 77101 harness to the points/trigger lead of the ignition enhancer module (**Example: DFI 6A DK Blue – ACCEL 300+ White wire – Mallory 6852M White Wire – MSD 6A White Wire**)

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Next, connect the pink wire to the from Pin "A" of the 77101 harness to the switched 12 volt lead of the ignition enhancer module (**Example: DFI 6A Red/White Wire – ACCEL 300 + Small Red Wire - Mallory 6852M Small Red Wire – MSD 6A Small Red Wire**).

**DO NOT ATTACH ANOTHER SWITCHED 12 VOLT SUPPLY TO THE BOX.**

**27.** Start the engine. Using a timing light, verify that the timing reading on the harmonic balancer is the same as the timing reading in CalMap. We recommend forcing the timing in CalMap to 10–20 degrees while verifying readings. If the readings are different, loosen the distributor and rotate the distributor housing until the timing readings on the harmonic balancer are the same as the timing reading in CalMap. Tighten the distributor.

**28.** Your Dual Sync Distributor is now correctly mounted, phased, and ready to run Sequential Fuel Injection.

If you encounter problems or if you need further technical assistance, please call our DFI technical service line at (248) 380-2780.