



# Instructions

## Part Number: BPIESTGMV8

It is recommended that you read this instruction manual to become familiar with the technical terms and to acquaint yourself with the procedures needed to complete this job correctly.

## General Information

### **!** Important

These instructions cover the general installation of the EST GM V8 Ignition System with Electronic Spark Timing (EST). They are intended for use by marine-certified technicians to provide the maximum benefits this ignition system offers. Trained technicians have the equipment, tools and knowledge to complete the installation safely and properly. Remember, these are general instructions and installation variations will occur based on the engine size and marine manufacturer of the engine.

**CAUTION:** The components in this kit comply with current U.S. Coast Guard regulations in effect. It is important that U.S. Coast Guard guidelines be observed when installing this kit to help prevent electrical sparks from igniting fuel vapors in the bilge during engine operation.

## **Kit Contents:**

EST Distributor with dist./block gasket

Ignition Coil w/ "B" bracket

"A" coil bracket

Spark plug Wire Set

Harness kit – Includes 1 each of the following:

    Harness, Distributor to Coil

    Harness, Power & Tachometer

    Harness, Timing

    Harness, Timing Plug

    Harness, Shift Interrupt (for Stern Drives)

**Note:** For best performance of the High Energy-EST ignition system, it is recommended to replace the spark plugs with a resistor type plug.



# Important

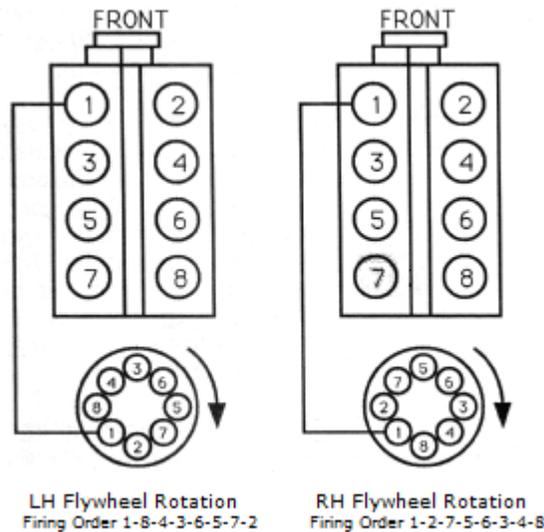


## Distributor Removal & Installation:

Refer to the specific engine manufacturer's technical manual for removal and installation of the distributor and spark plug wires.

## Helpful Installation Tips:

Twin installations may have engines that rotate opposite of each other and have different firing orders. Make note of the engine rotation prior to the distributor removal.



**Note: Rotation is viewed from the flywheel end of the engine.**

- 1) Disconnect the battery whenever performing electrical work.
- 2) Position the engine #1 cylinder, at top dead center (TDC) of the firing stroke and note the correct firing order for your spark plug wires. NOTE the position of where the rotor is pointing, before removing the distributor.
- 3) Inspect the gear of the old distributor for excessive wear after removal. If the distributor gear shows excessive wear inspect the camshaft gear with a light, through the distributor mounting hole for condition.

## Very IMPORTANT !!!!!

- 4) The B+ voltage to the new ignition coil **must NOT** be stepped down through a ballast resistor or resistance wire in the primary circuit. The EST System requires full battery voltage (12VDC) for proper operation.

# **Spark Management of the EST High Energy Ignition System**

There are **THREE different** modes of operation of the EST Spark Management System. Please read to understand these process' before attempting installation.

## **Starting & Running Mode Timing Mode Shift Interrupt Mode**

**They are explained below....**

### **1) Starting & Running Mode:**

During starting, the Ignition Control Module (ICM) allows spark to occur at the preset base timing position. This allows for easy engine starting. Once the engine starts the timing is controlled by the IC Module and the timing will advance via a built in timing advance circuit.

### **2) Base Timing Mode:**

To set base timing, 12 VDC is applied through the timing harness (98073), to the "B" terminal of the IC Module in the distributor. The "B" terminal is in the 4 terminal connector of the module. This locks-out the built in IC Module advance curve and prevents any ignition advance. The timing harness also has a looped wire that completes the circuit between IC Module terminals "C" & "D". This connection completes the signal from the pickup coil to the IC module. This allows ignition spark to continue, as the distributor is adjusted for base timing.

### **3) Shift Interrupt Mode - (Stern Drive Applications ONLY)**

The shift interrupter harness (500429), is used to provide a means of ignition interruption, to allow the ease of shifting from gear engagement, into neutral. **This must be done when used in a stern drive applications with a shift interrupt.** Installation of this harness requires a 12 VDC signal to be wired through the existing shift interrupt circuit. Operation of this circuit is similar to the timing mode operation. When the shift interrupt switch is activated (circuit closed) the "B" IC Module terminal is energized and the ignition is interrupted. The difference is that the shift interrupt harness has no looped wire completing the circuit between IC Module terminals "C" & "D". Because this circuit is not completed, the engine ignition stops momentarily, allowing the stern drive unit to come out of gear. As the shift interrupt switch relaxes (circuit opened) the "B" terminal is de-energized allowing engine ignition to return to normal.



## Setting Initial Base/Spark Timing: PLEASE READ BEFORE ATTEMPTING PROCEDURE



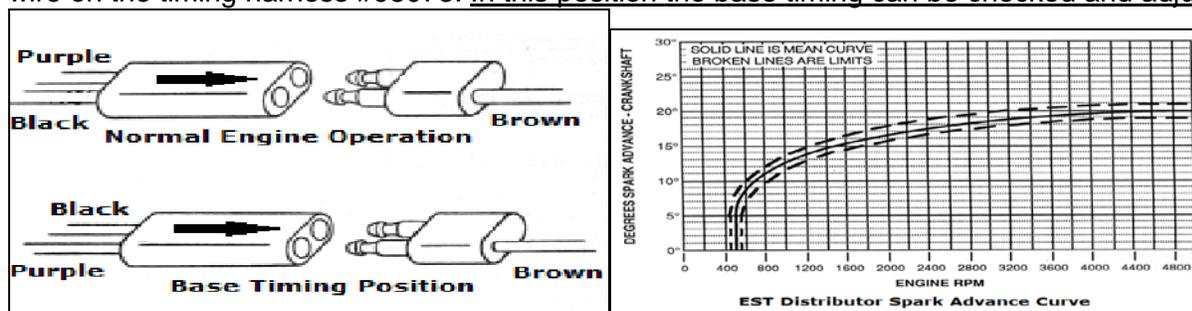
The following procedure is used to check and adjust ignition timing for the EST ignition system. In order to set the timing correctly, it **is necessary to lock out the automatic spark advance feature in the ignition module**. This is accomplished using the timing connector plug # 22747.

### NOTE-1: Normal engine running position is when..

...the **BLACK** wire on the harness #22747, (plug with the arrow) is lined up with the brown wire on the timing harness #98073. This is the position the harness **MUST** be, after setting initial base timing, as noted in #5 below.

### NOTE-2: Spark advance locked out position is when..

...the **PURPLE** wire on the harness #22747, (plug with the arrow), is lined up with the brown wire on the timing harness #98073. In this position the base timing can be checked and adjusted.



### To Set Initial Base/Spark Timing:

1. Connect a timing light to the #1 spark plug lead.
2. Change the timing plug, harness #22747, to the "Base Timing Position" See "**Note:**" below.
3. Start the engine and allow it to warm to operating temperature. Bring the engine to idle speed (650 to 800 rpm's).
4. Aim the timing light at the timing indicator. Adjust the timing by loosening the distributor hold down clamp and rotating the distributor to the proper mark. Tighten down the distributor hold down and recheck the timing. Repeat adjustment if timing has changed.
5. Stop the engine and switch the timing plug to the "Normal Engine Operation" position, as described in **NOTE-1** above.
6. Restart the engine and check total timing at 4000 rpm's. Compare this to the engine manufacturer's requirements for total advance. Make adjustment to the base timing by advancing or retarding to achieve total advance recommended by the engine manufacturer.

**Note:** to #2 ABOVE - On stern drive engines with a shift interrupt, the interrupt harness will need to be temporarily unplugged from the distributor and the timing harness plugged in while setting ignition timing.