



# Installation and Troubleshooting Guide

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## CDI P/N 123-7878

This unit will replace P/N's: 986610, 987396 and 987878.

**WARNING!** This product is designed to be installed by a professional marine mechanic. CDI Electronics cannot be held liable for injury or damage resulting from improper installation, abuse, neglect or misuse of this product.

**WARNING! The 123-7878 may not work correctly and permanently damaged if a high current aftermarket coil is used. The product warranty may be void. Contact CDI Technical support for help selecting correct parts for aftermarket ignition systems.**

**NOTE:** This installation sheet covers the 123-7878 Electronic Shift Assist (ESA) module for boats equipped with the Delco EST (Electronic Spark Timing) distributor, and a harness wired for two connectors for the ESA, a 4 pin and a 3 pin. If your boat is wired for a single 5 pin connector, order CDI P/N: 123-7566. If your boat has any other type of distributor than a Delco EST as shown in the attached drawing, please call CDI for a cross reference to the correct part number.

### INSTALLATION

1. With the engine OFF, disconnect and remove the old ESA module.
2. Using the original bolts, mount the new 123-7878 ESA to the mounting bracket. Be careful not to pinch any wires behind the case.
3. Connect the wires as the original ESA was connected.
4. The pin positions/functions are as follows:

#### 3 Pin Connector

- A) **Violet** - Switched 12V to power the ESA module.
- B) **Gray/Black Stripe** – 6V Tach pulses from the EST Distributor to the ESA for measuring RPM.
- C) **Gray/White Stripe** - 4V interrupt pulses sent from the ESA to the EST Distributor during shift.

#### 4 Pin Connector

- A) **Black** – Engine ground reference for the ESA module. Ring terminal must have a good ground.
- B & C) **Blue** - Loop-back for optional over-stroke switch.
- D) **Blue** – Grounded by the shift switch to signal ESA module a shift is occurring.

### TROUBLESHOOTING

#### **Hard Shifting: ESA doesn't appear to affect RPM**

Verify all connections are correct. Inspect the connectors and make sure the wire colors and pin locations are the same on both sides of the connector. Check for pins that may have pushed out of the connector shell.

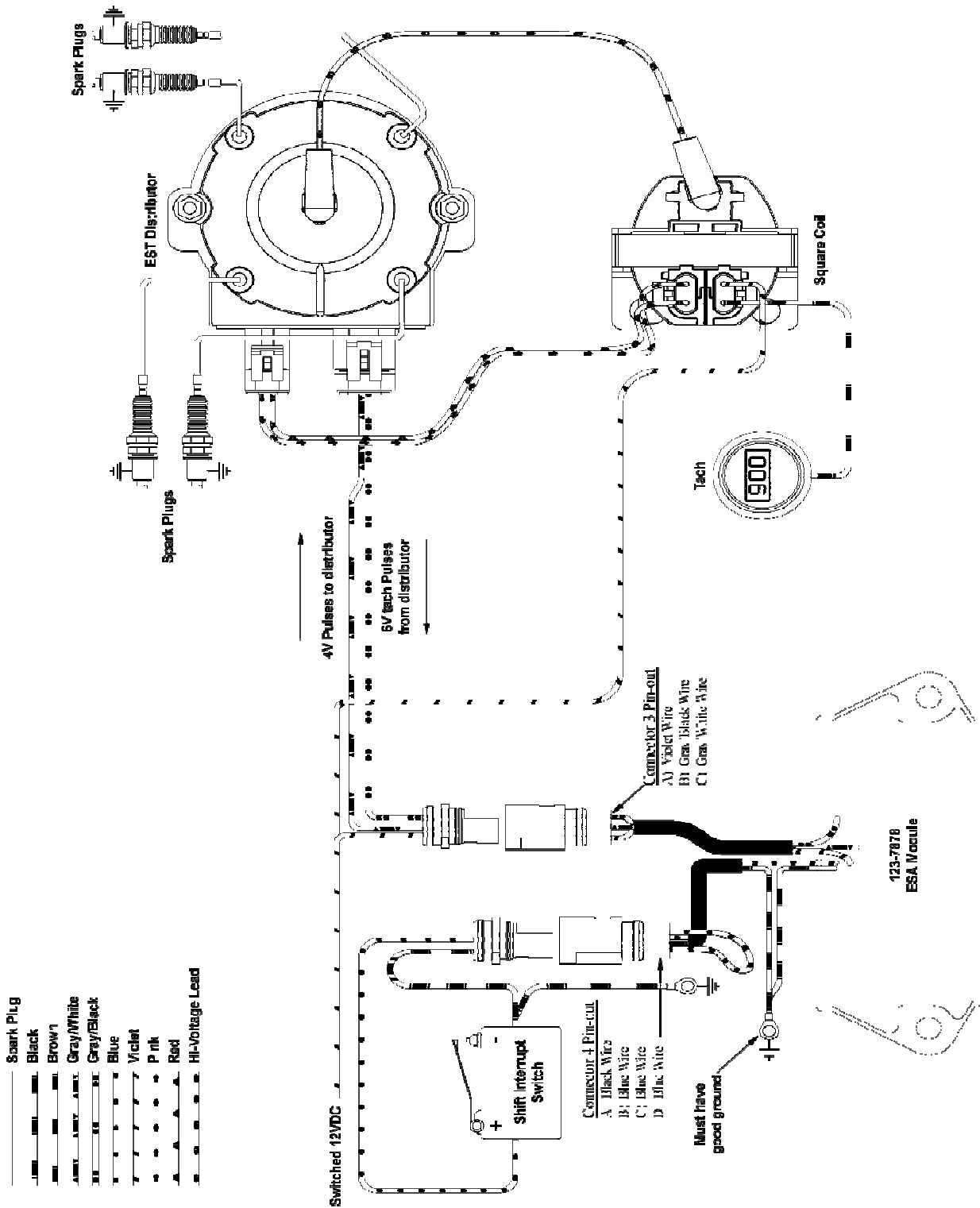
Back probe the Blue wire (*you may remove the wire from the connector if needed*) and with the engine idling in neutral, short the Blue wire (*the end going to the ESA module*) to engine ground. You should notice a slight drop in engine Rpm. If the engine works correctly with this test, but does not work when the Blue wire is connected to the shift switch, check the shift switch and wires to ensure it is providing the ESA with a ground when the switch is activated.

**Note:** If the engine is idling too fast, or too slow, the ESA will not engage. If the ESA does not work with the Blue wire shorted to engine ground, recheck the engine RPM, ground wire connection and 12V power to the ESA.

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