



# Major Maintenance and Repair Action

## Hull 269 – Jade

Maintenance or Repair Action: Repair Ignition System Number: 002

Reason for Action	Engine would not start	System	Engine
		Start	12/17/2017
		Complete	5/4/2018
		Cost	\$200.00

### DESCRIPTION OF ACTION

Upon purchase of the boat, the engine would not start. The batteries were good, and the starter motor would engage, but no sign of ignition. The following were replaced: Ignition Coil, Distributor Cap, Rotor, Spark Plugs, Spark Plug Wires (see below Parts Used). An electronic ignition system was procured and installed to improve upon the original condenser and points system for spark production. However, the magnetic collar apparently was pushed too far down on the distributor and shorted high voltage to the low voltage power lines to the coil. The \$120.00 electronic ignition assembly functionality is unknown. The ignition condenser, points, and breaker plate was put together as an assembly, and another complete unit (condenser, points, breaker plate) unit was built as a spare.

Still, no spark was being generated. The "Step By Step Ignition Check for Universal Atomic 4" document was created as a checklist to troubleshoot a No Spark condition specific to the Universal 4 by reviewing an existing troubleshooting video and referring the Atomic 4 Manual. It was determined that High Tension (Voltage) spark was not reaching the spark plugs (after checking continuity through the spark plug wires).

A cylinder was moved by Ignition Timing Crank to Top Dead Center (TDC) - engine was turned counter-clockwise - so the distributor "lobe" (a corner of the square) moved the points at the maximum gap. Using a feeler gauge, the points were adjusted by turning a screwdriver in the adjusting slot to provide .018" to .020" gap with a feeler gauge - after considerable effort. The engine started.

*See attached pictures.*

### NOTES

All parts used below are considered to be critical spares and were purchased to be kept as stock on board (V-Berth storage drawers). Unfortunately, the best way to get to the distributor assembly to adjust the points was to lay in an awkward position in the starboard sail locker instead of from the cabin side access.

After running the engine for a short period of time, fuel stopped reaching the cylinders. The fuel filter was changed, with no effect. The spare carburetor assembly was then swapped out, and the engine started and ran. The water temperature gauge was suspect when the needle rose and then moved suddenly to the left. The water temperature sensor and gauge were replaced. Shortly thereafter, it was discovered the cylinder head had a crack. See Repair Actions #003, 004, and 005 for subsequent remedies.

Tools, Materials, Manuals, and Diagrams Used	Parts Used	
	Name	Part Number
3/8" Torque Wrench, Socket Set	Coil, Ignition	Intermotor #UC15
Screwdrivers, Wrenches	Distributor Cap	Standard #DR437
Multimeter	Rotor, Ignition	Standard #DR314
Spark Tester	Condenser, Ignition	Standard #DR90
Circuit Tester	Points	Standard #DR2240
Ignition Timing Crank (Moyer Marine # IGLM_17_285)	Breaker Plate	IGLM_20.1_317
Feeler Gauge (for .018" to .020" gap)	Spark Plug	Autolite #85
Universal Atomic 4 Manual	Spark Plug Wire Set	Found Aboard
Step By Step Ignition Check for Universal Atomic 4	Filter, Fuel	NAPA #FIL 3110



Distributor/Ignition System as found



Old Ignition Coil removed



New Ignition Coil and Distributor Cap prepared for installation



New Ignition Components Installed with dates and cylinder numbers inscribed