


[Home](#)
[Subscribe Now!](#)
[Give A Gift](#)
[Features](#)
[Events](#)
[Tech](#)
[This Month](#)
[Message Board](#)
[Shop 4 Parts](#)
[This Month](#)
[Race Results](#)
[Classifieds](#)
[Performance](#)
[Directory](#)
[New Vehicle](#)
[Buyer's Guide](#)
[Back Issues](#)
[Magazine Editors](#)
[Web Editors](#)
[Subscriber Services](#)
[AUTO OFFERS](#)
[Corvette For Sale](#)
[Corvette Parts](#)
[Corvette Racing](#)
[Chevy Truck](#)
[Corvette 50th](#)
[Anniversary](#)


FREE

Sign up for our
Free Newsletter!

How-To

Opti-Spark Options

Fixing An Opti-Spark Distributor Without Reaching For A Hammer

By Andy Bolig

Photography: Andy Bolig

The Opti-spark distributor is positioned on the front of the engine underneath the water pump, and works well in its designed environment--when it works. It isn't a matter of if your Opti-spark will give you problems; it's a matter of when. When the Opti-spark first came out in 1992, it was part of a new engine package dubbed the LT1. This engine was a definite improvement over the L98, and the Opti-spark was part of the package.

The problem arises when the water pump begins to leak and the seals in the distributor begin to deteriorate, or water begins to condense inside the distributor. From the beginning, the engineers had the forethought to include small drain holes in the bottom of the distributor, but they weren't as effective as they were intended to be. In 1995 and 1996 the Opti-spark distributor was changed to include a vacuum vent to help remove any moisture that might have formed inside the distributor.

The problem is that you can't replace the older-style distributor with the newer style without tearing apart the front of the engine because of the differences in the drive assembly of the distributor. Changing to the newer Opti-spark would entail changing the timing cover and the locating pin in the camshaft.

Chris Petris at Corvette Clinic has come to the rescue, so we can walk you through a step-by-step solution to this problem with the older Opti-spark distributors. Chris says he has yet to see one of his reworked Opti-spark distributors return with a problem.



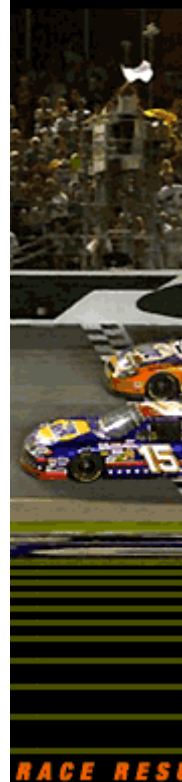
Chris had removed the flexible air-intake tube and the radiator before we got there, and was already removing the water pump. He notes that there are six bolts that hold the water pump instead of four. No matter how hard they are to see, they're there; so don't try to pry it loose with a bar with the other two bolts still holding it. Also, Chris typically does the water pump, distributor, and the intake gasket at the same time. Check these three areas very closely; it's much easier to address now than to have to tear it apart again later.



Next, remove the crank balancer. There are three 5/8-inch bolts holding it in place.


RACE RESU

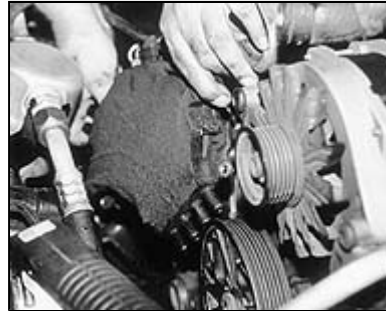
On a typical
weekend the
average
NASCAR ra


RACE RESU

To remove the balancer, Chris will remove the bolts from the top and then go under the car with a pipe or a piece of wood and tap the balancer off the hub.



Be careful to tap both sides evenly so the balancer doesn't bind.



Mark the plug wires so you can put them back in the right order later and remove them. Then remove the three 10mm bolts that hold the distributor in place.



There was no doubt that our distributor had water in it!



When we removed the cap from the old distributor, we were amazed that this car even ran.



There were no bearings to speak of, and the timing wheel was running off to one side. Chris told us this one was going up in his trophy room.



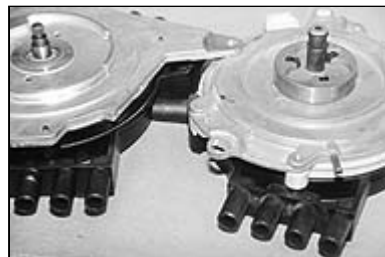
But wait! There's more! The fact that the thermostat housing had silicone on it gave us a hint of interesting things under the housing. We were greeted with enough silicone to hold back the Atlantic Ocean and an improper thermostat for an LT1.



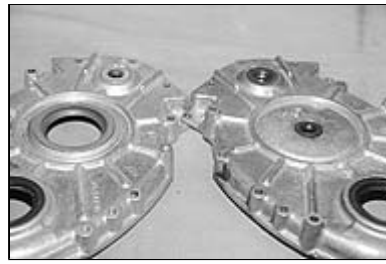
The right thermostat has a rubber seal, not a gasket, to prevent leaks and also has a round plate on the bottom which blocks off a passage inside the pump when the thermostat opens. Without that passage closed, the engine will never get proper coolant to the heads.



Here's another trouble area with the Opti-spark distributor. The distributor gets a lot of heat, and the original seals have a tendency to dry out and crack. As soon as you drive in the rain, wash your engine, or have a water pump that starts to leak, water gets into the distributor, and that's the beginning of the problem.



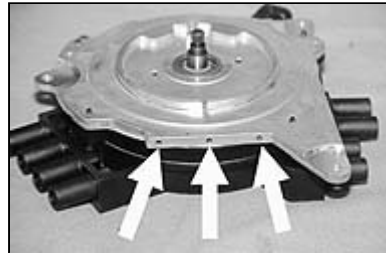
The differences are obvious between the '92-'94 (left) and the '95-'96 (right) Opti-sparks.



The timing covers are also different, with the newer cover on the right and the older-style ('92-'94) on the left.



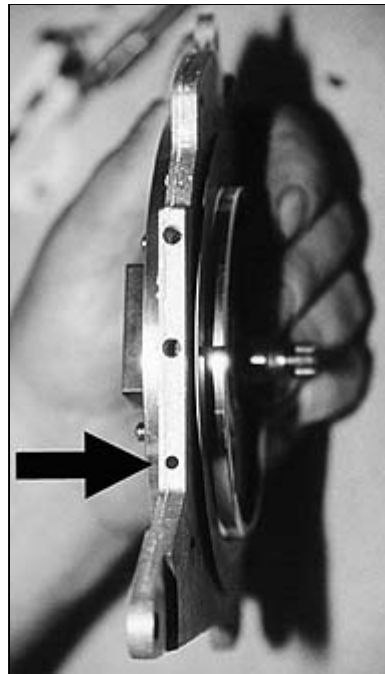
With the water pump removed, check the drain hole on the bottom of the pump. If there is any scale, rust, or discoloration coming from this hole or the bearing surface around the shaft, replace the pump. Do it now or redo it later.



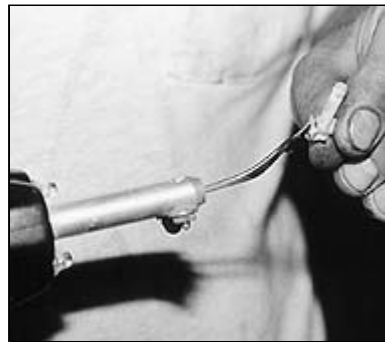
Chris starts with a new '92-'94 Opti-spark distributor. Note the three drain holes on the bottom of the distributor by the cap.



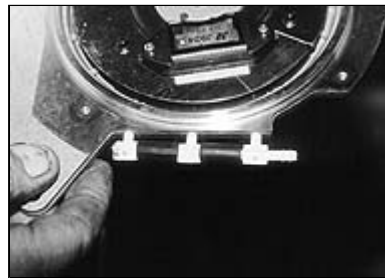
Drill out the three drain holes on the bottom of the distributor body with a .187 drill bit.



You can see the difference in size with the one hole not yet drilled.



Chris takes three 3/16-inch T-fittings and cuts off the end of one and seals it.



He then takes the other two and connects them with small sections of hose.



Next, we took a 7/32-inch Y-fitting and cut off the ends. This will be the fitting that connects to the distributor cap.



We marked the spot where they will be molded, and cut it with a soldering-gun cutting tip. Chris has tried drilling the cap, but it's too prone to cracking.



Take your time and let the gun melt the plastic sufficiently.



Once you have the fitting secure, use a razor to clean up the inside groove of the cap. Take off only enough material to remove the high spots because a good seal here will ensure that the air travels through the entire distributor.



Chris likes to have the Y-fitting pointing out on the same angle as the plug wires. Using a "Y" instead of a single fitting gives more support and ensures that the fitting won't break off.



Put the distributor back together and connect a '96 Revised Vacuum Hose Harness (GM PN 12556174).



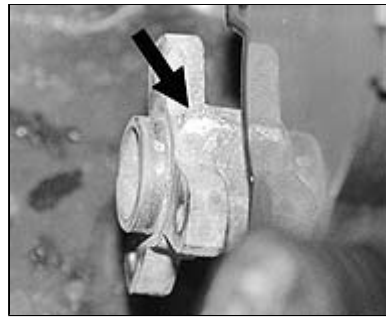
It has the necessary filters and valves to do the job right.



18 The driveshaft for the distributor will go in only one way; make sure that the distributor seats fully before you go cranking the bolts tight.



There is no adjustment on these distributors, so once they're bolted on, you simply need to hook up the wires. It's much easier if you do them before you install the water pump.



Next, install the balancer. You'll notice a mark on the hub...



...which should mate with an arrow on the balancer.



Installing the water pump is next. In this shot you can see the port by Chris' finger that gets closed off by the thermostat when it opens.



Chris always uses Permatex Aviation Sealer on both sides of the gasket when he installs a water pump.



Another reason for using this revised hose kit is that it comes with a retaining clip to prevent rubbing the pulleys or belts.



To supply vacuum to the hoses, Chris removes the two fittings between the injectors on the driver side of the intake.



The larger one gets a brass T-fitting which is reduced for the hose from the distributor, and the smaller fitting in the front is removed only to allow you to screw in the "T." Once it's in place you can put the front fitting back in the intake.



The other hose in the revised hose kit has an elbow on the end, and we simply puncture a small hole in the intake duct to slide in the fitting. This is where the air will come from as it gets sucked through the distributor. Connect this line into a clean air source because you don't want debris or water getting sucked into the distributor.

SOURCES

Corvette Clinic
701-D Cornwall Rd.
Sanford, FL 32773
(407) 323-7804

FREE TRIAL ISSUE!

CORVETTE FEVER is a must have for enthusiasts looking to pursue their preservation, restoration, and high-performance modification goals. Covers everything from engine, driveline, suspension, brakes, interior, paint and body, and the latest C5 enhancements.

Subscribe to **CORVETTE FEVER** now and get 12 issues for \$24.97 and free home delivery! You'll **save 48% off the newsstand price.**

It's easy! Just complete the information below and click submit.

Outside the US? Canada or International

GIVE A GIFT



Email:

First Name:

Last Name:

Address Line 1:

Address Line 2:

City:

State: Zip:

Select a payment option:

- ☒ Charge my credit card
☐ Bill me later

Submit Order

[Subscribe](#) [Subscriber Services](#) [Help](#) [Privacy Policy](#) [Part of the Automotive Network](#)
Copyright © Primedia Magazines, Inc. All rights reserved.