

Distributor

[Mechanical Tii Distributor '72 ; PN: 0231151008 "JFUD4"](#)

[murphykevin15](#) [5](#)

I have a 20-year-old stock ignition setup from a 1974 BMW 2002 ti and I have been weighing my options in converting it to electronic ignition. I think I've decided on getting the Hot-Spark ignition conversion but I'm not sure which one would work for me. Also, I'm not sure of all the separate pieces I need to buy to make the conversion work.

Most of the conversion kits from hot-spark are about \$40 but what else would I need to buy along with that? Also, the stock distributor has been sitting for about 20 years and looks like it needs some polishing but does it need to be completely rebuilt?

Thank you in advance.

Kevin

['76mintgrun'02](#) [987](#)



['76mintgrun'02](#) [987](#)

[yesterday at 04:14 AM](#)

The fact that the distributor has been sitting could be a good thing. They do wear out. One thing to check is the gap between the gear and the bottom of the housing. Put a feeler gauge between the gear and a metal washer and see how tight it is. Be careful of the black fiber washer in there, because they are brittle.

Often the fiber washer that is inside the distributor has crumbled away and there is extra vertical play. This makes for a sloppy spark... or, inconsistent ignition timing.

If you have a 74 tii, your original distributor probably has a vacuum retard pod on it. Is it a model number 0 231 180 013?

Unless you still have the decel valve (I think it is called) you might as well disconnect the pod and run the distributor with centrifugal advance only.

Really the only way to know if it is worn out is to run it and see if the timing marks on the flywheel stay steady under the timing light. If they jump around, it needs 'attention'. Variable timing lights are relatively affordable and enable you to really assess the timing situation. A necessary tool, imho.

Here is stock distributor info...

BMW MODEL	FOOTNOTE No.	2002 Tii USA 1972-73	2002 Tii ¹⁾ USA 1974	2002 TURBO
Distributor Bosch No. BMW No.		0 231 151 008 12 11 1 355 273	0 231 180 013 12 11 1 357 771	0 231 180 014 12 11 1 356 336
Static Ignition Timing	A	TDC	TDC	TDC
Dynamic Ignition Timing	B	25° b TDC @ 2700	25° b TDC @ 2700	25° b TDC @ 2500
Dwell Angle	C	59° - 65°	59° - 65°	59° - 65°
Centrifugal Advance	D			
1000		0° - 4°	4° - 9°	-2° -- -8° ³⁾
1500		10° - 14°	10° - 15°	23° - 27° END
2000		15° - 20°	17° - 22°	
2500		21° - 26°	22° - 27°	
2700		---	---	
3000		25° - 30°	26° - 30°	
3800		27° - 32° END	27° - 31° END	
4000				
Max. Ignition Advance	E	30° ± 2°	29° ± 2°	25° ± 2°
Vacuum Action	F	NONE	RETARD	RETARD
Start in mm Hg		--	50 - 76	188 - 221
End in mm Hg		--	84 - 103	308 - 312
Adjustment Range		--	7° - 9°	8° - 12°

How to fit 123Ignition:

https://www.youtube.com/watch?time_continue=18&v=vQCRuBuwZcU

For 12V coils, the primary resistance between the push-on terminals should be roughly 3-5 ohms.

The secondary resistance from one push-on terminal to the hi-tension terminal is about 10,000 ohms.

Better is to test the coil under actual load.

Disconnect the distributor wire.

Turn the key On or connect + 12V to the + terminal.

Momentarily ground the other terminal repeatedly.

If you hold the hi-tension lead near ground, you should see a small spark.

The spark won't be nearly as big as it would be with the condenser connected, but this will at least tell you if the coil is working.

If that checks, connect the distributor up again.

Connect your voltmeter from ground to the (-) terminal (where the distributor wire goes).

With key On, turn the engine pulley.

The voltage should go from zero to + 12V twice each revolution.

If it stays at zero volts, the points or condenser are shorted.

If it stays at 12V, the points are not closing or there may be a problem with the points wire or even the grounding pigtail on the advance plate.

Speedy Jim

<http://www.nls.net/mp/volks/>

Common spark plug conditions



NORMAL

Symptoms: Brown to grayish-tan color and slight electrode wear. Correct heat range for engine and operating conditions.

Recommendation: When new spark plugs are installed, replace with plugs of the same heat range.



WORN

Symptoms: Rounded electrodes with a small amount of deposits on the firing end. Normal color. Causes hard starting in damp or cold weather and poor fuel economy.

Recommendation: Plugs have been left in the engine too long. Replace with new plugs of the same heat range. Follow the recommended maintenance schedule.



CARBON DEPOSITS

Symptoms: Dry sooty deposits indicate a rich mixture or weak ignition. Causes misfiring, hard starting and hesitation.

Recommendation: Make sure the plug has the correct heat range. Check for a clogged air filter or problem in the fuel system or engine management system. Also check for ignition system problems.



ASH DEPOSITS

Symptoms: Light brown deposits encrusted on the side or center electrodes or both. Derived from oil and/or fuel additives. Excessive amounts may mask the spark, causing misfiring and hesitation during acceleration.

Recommendation: If excessive deposits accumulate over a short time or low mileage, install new valve guide seals to prevent seepage of oil into the combustion chambers. Also try changing gasoline brands.



OIL DEPOSITS

Symptoms: Oily coating caused by poor oil control. Oil is leaking past worn valve guides or piston rings into the combustion chamber. Causes hard starting, misfiring and hesitation.

Recommendation: Correct the mechanical condition with necessary repairs and install new plugs.



GAP BRIDGING

Symptoms: Combustion deposits lodge between the electrodes. Heavy deposits accumulate and bridge the electrode gap. The plug ceases to fire, resulting in a dead cylinder.

Recommendation: Locate the faulty plug and remove the deposits from between the electrodes.



TOO HOT

Symptoms: Blistered, white insulator, eroded electrode and absence of deposits. Results in shortened plug life.

Recommendation: Check for the correct plug heat range, over-advanced ignition timing, lean fuel mixture, intake manifold vacuum leaks, sticking valves and insufficient engine cooling.



PREIGNITION

Symptoms: Melted electrodes. Insulators are white, but may be dirty due to misfiring or flying debris in the combustion chamber. Can lead to engine damage.

Recommendation: Check for the correct plug heat range, over-advanced ignition timing, lean fuel mixture, insufficient engine cooling and lack of lubrication.



HIGH SPEED GLAZING

Symptoms: Insulator has yellowish, glazed appearance. Indicates that combustion chamber temperatures have risen suddenly during hard acceleration. Normal deposits melt to form a conductive coating. Causes misfiring at high speeds.

Recommendation: Install new plugs. Consider using a colder plug if driving habits warrant.



DETONATION

Symptoms: Insulators may be cracked or chipped. Improper gap setting techniques can also result in a fractured insulator tip. Can lead to piston damage.

Recommendation: Make sure the fuel anti-knock values meet engine requirements. Use care when setting the gaps on new plugs. Avoid lugging the engine.



MECHANICAL DAMAGE

Symptoms: May be caused by a foreign object in the combustion chamber or the piston striking an incorrect reach (too long) plug. Causes a dead cylinder and could result in piston damage.

Recommendation: Repair the mechanical damage. Remove the foreign object from the engine and/or install the correct reach plug.

Bosch Distributor Rebuild: <http://ranchotransaxles.com/rebuilding-the-bosch-010-distributor-part-i/>





↑ Here's what it looks like when I get



it.

↑ This is the inside – some rust but everything's there.



↑ Here's the back – no condenser or bracket.



↑ The Bosch badge looks pretty good.



↑ Remove 3 screws and the contact plate comes



out.

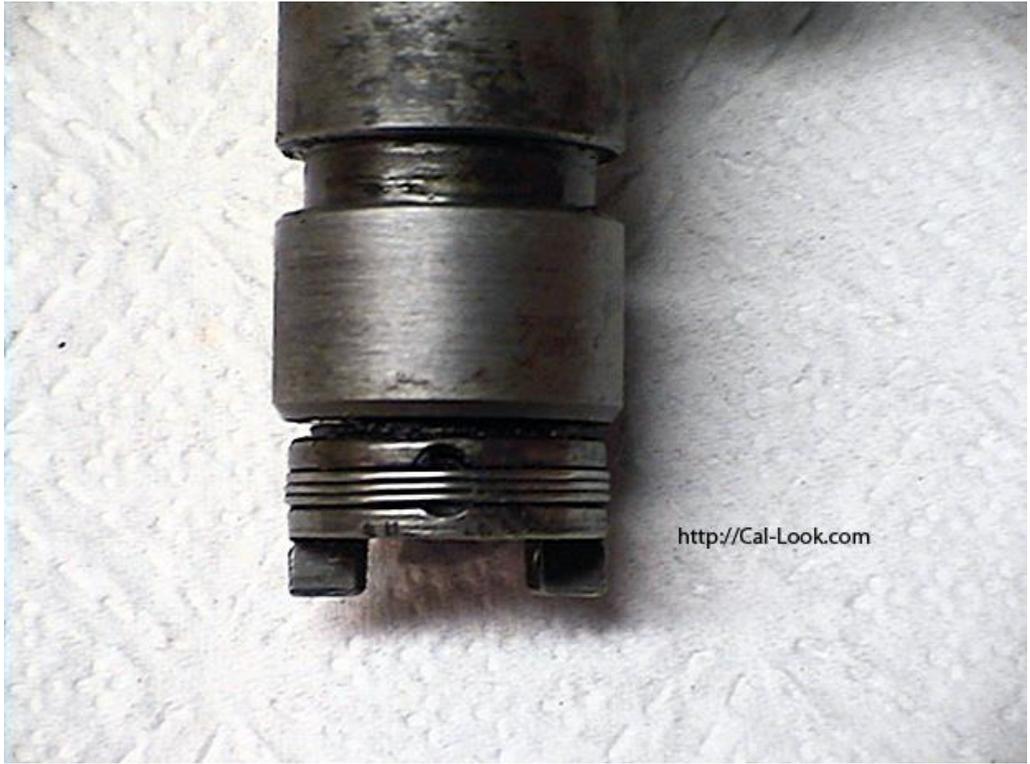
↑ Here's all the parts of the top section.



↑ Now you can see the advance mechanism.



↑ Notice the “fiber” washer – they’re very fragile.



↑ Now remove the wire retainer on the Distributor drive.



↑ The roll pin holds the drive on. This has to be punched out so the shaft can be removed.



↑ I mount the distributor in a vise and, using a center punch, carefully push the roll pin out. Now carefully take the drive off and slide the shaft out of the body. There are shims and washers between the drive and the body and the body and the bottom of the



advance.

↑ Pretty greasy – that's 40 years of oil and dirt.



↑ Now you know why I rebuild these.



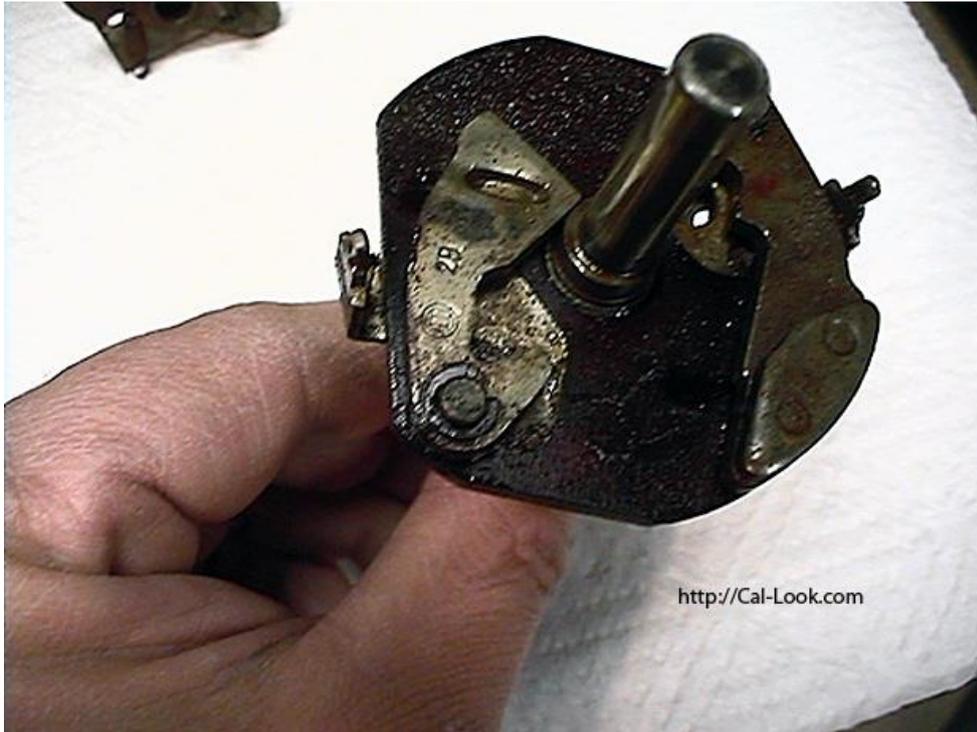
↑ Here's the shaft and advance mechanism. Notice where the 2 springs attach to the plate – you need to remove those and the advance will come apart.



↑ These are the shims and spacers that were removed. The ones on the left sit between the contact plate and the advance. The ones in the center sit between the advance and the body. The ones on the right go between the body and the distributor drive.



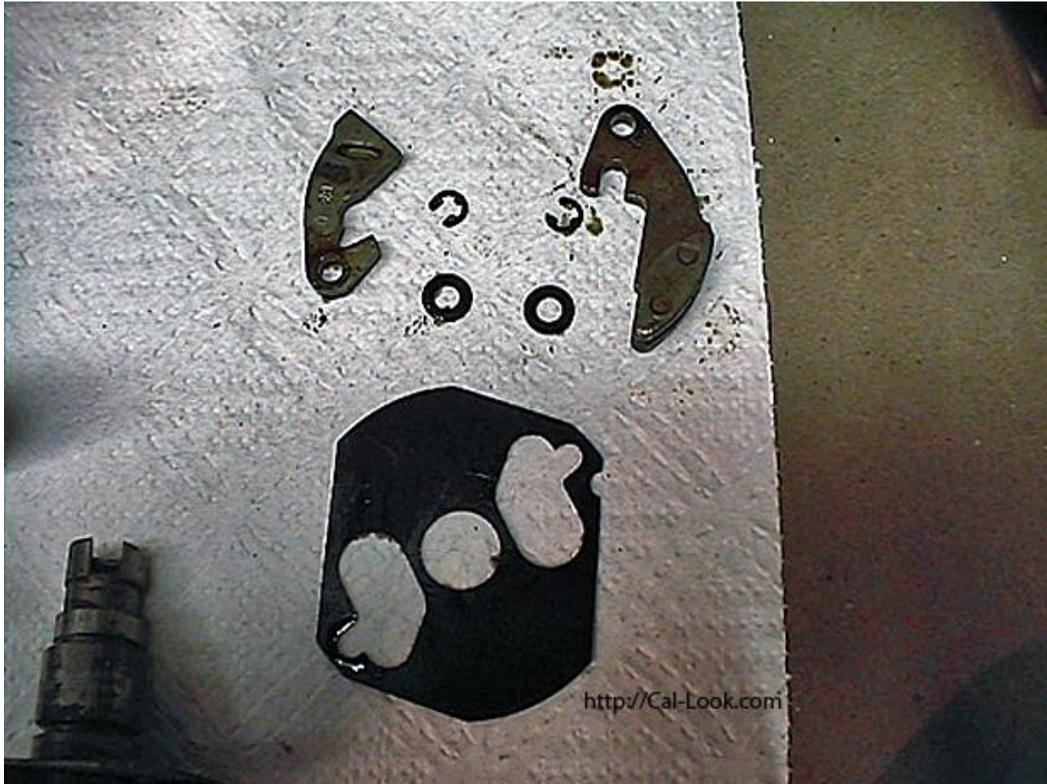
↑ Here's a close up of the advance weights. They are held on with small "C" clips. Also note that there are two different sizes and must go back the same way.



↑ Under the weights are small washer/spacers. Finally there is a very thin and fragile plate that needs to be removed. If you are not very careful, it WILL crack.



↑ Here's the advance totally apart.



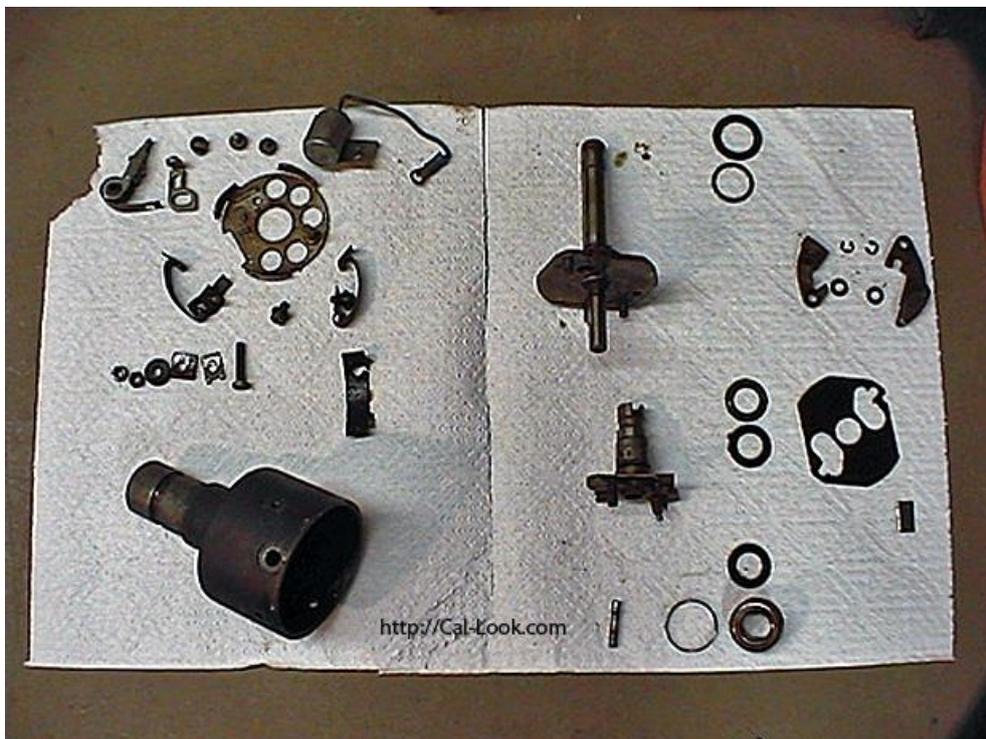
↑ Note the “C” clips and spacers.



↑ This is the top section of the advance. The 2 springs do not have to be removed.



↑ Another shot of the shaft and the bottom of the advance.



↑ Here it is, apart and ready to be cleaned. I let the parts soak in a pan of parts cleaner and use a brush to remove the oil and dirt. I use a bench grinder with a fine wire brush for the body and larger

parts.

I use a Dremel for the hard to get to spots and smaller parts.



↑ Everything is clean.



↑ The body has been totally stripped and is ready for paint.

Rebuilding the Bosch 010 Distributor – Part II

<http://ranchotransaxles.com/rebuilding-the-bosch-010-distributor-part-ii/>



07 Oct Rebuilding the Bosch 010 Distributor – Part II

Posted at 08:08h in [Technical Articles](#) by [Bob Clark](#)

The rebuild continues...

One of these is NOS, one is restored by Glenn. Can you tell the difference?

Continued from Part I...

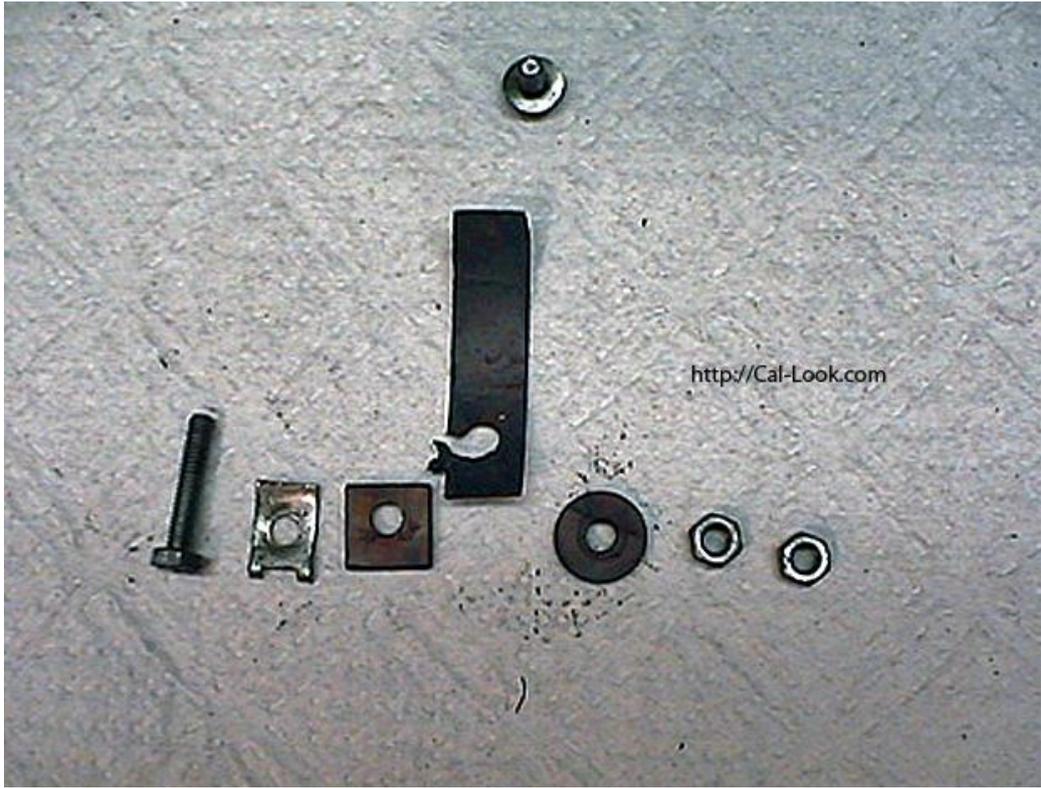


↑ The inside is a little cleaner than



before.

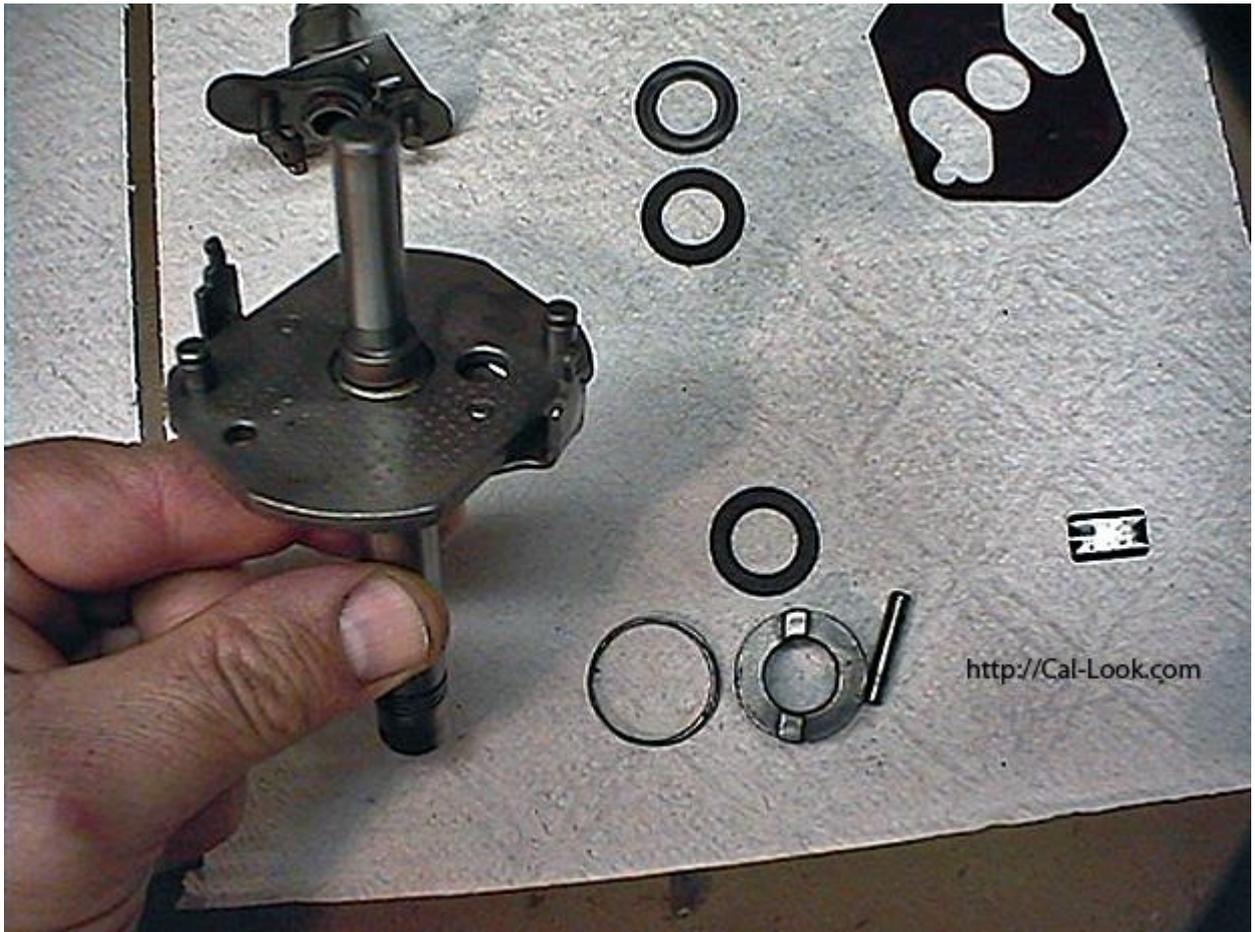
↑ The weights have been cleaned and I use a paper towel with parts cleaner to clean the spacers.



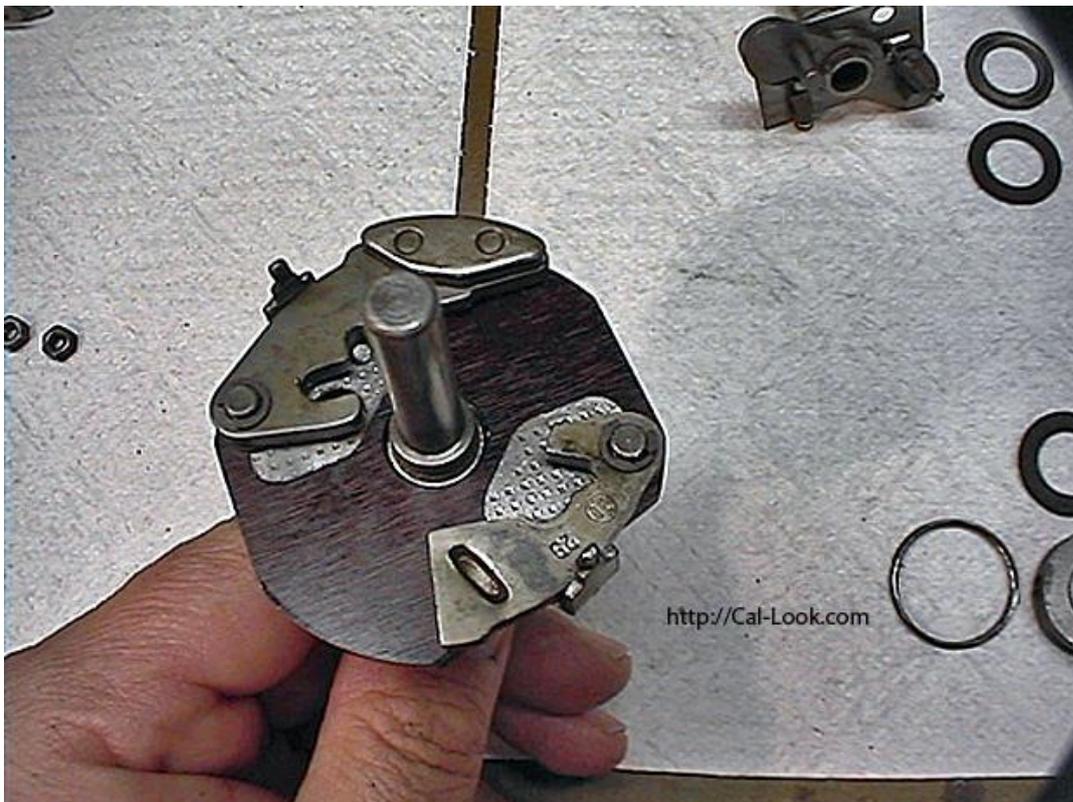
↑ This is the order of parts for the points bolt.



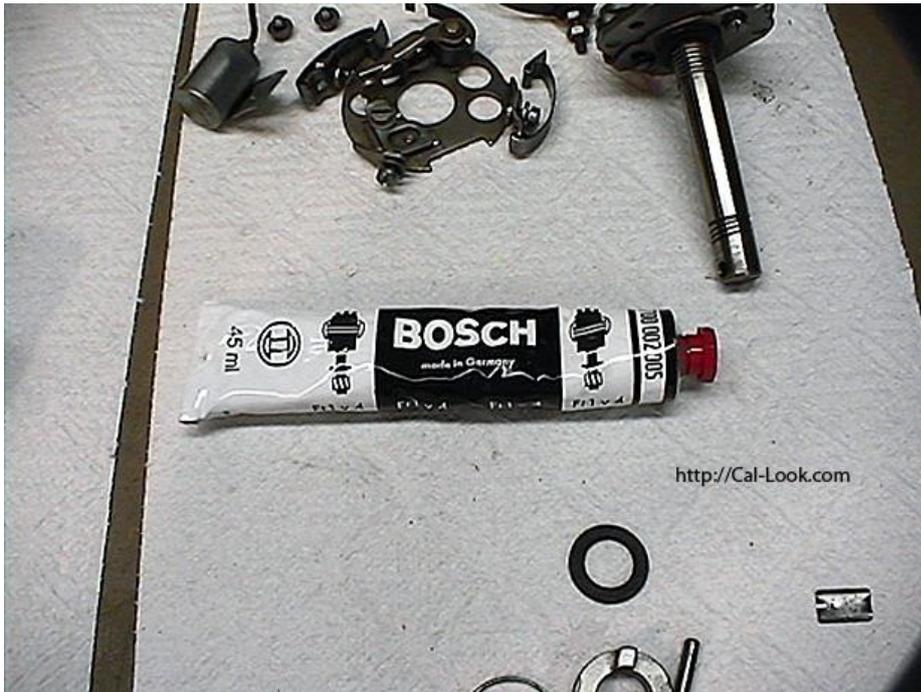
↑ Here's the contact plate and the cap clips.



↑ The shaft has been cleaned. I very carefully cleaned the fiber surface with a paper towel and some parts cleaner.



↑ The bottom of the advance with the weights back on.



↑ Here's the Bosch Distributor grease.



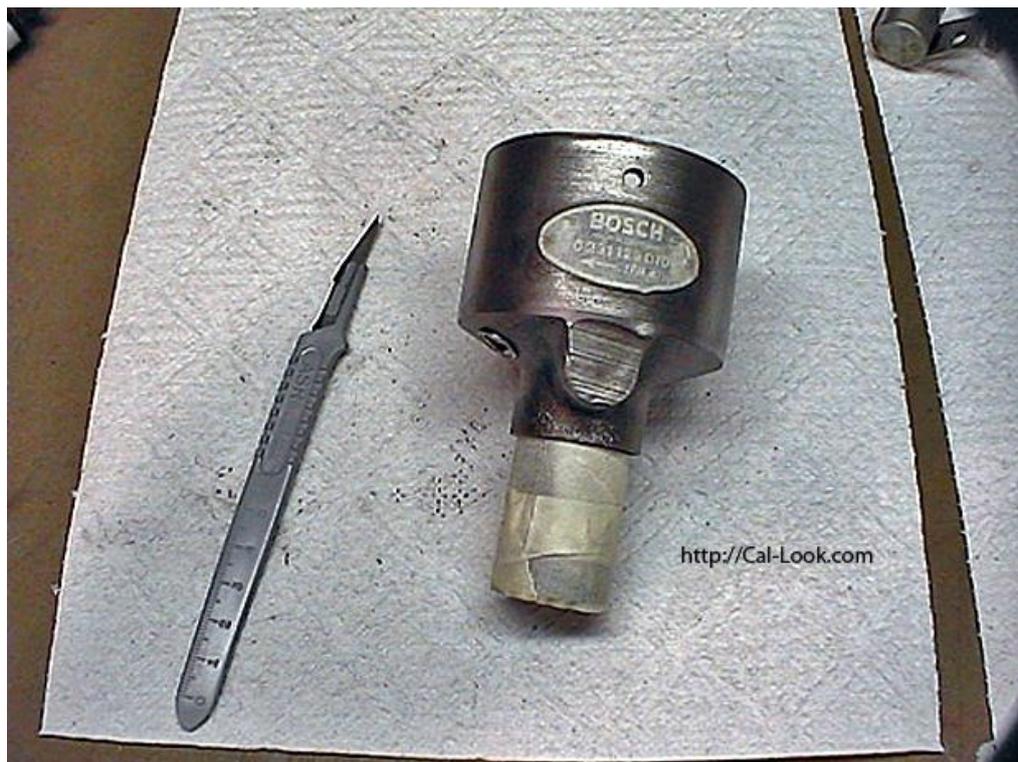
↑ I apply some Bosch Distributor grease on the shaft and then slide the top of the advance back on. It only goes on 1 way. You'll know if it's on wrong. The springs get put back on the holding tabs. Test

it by pulling the weights toward the outside and the top section should



rotate.

↑ I put masking tape over the Bosch badge and use a razor to cut around it.



↑ I also cover the body so I don't have to be too careful.



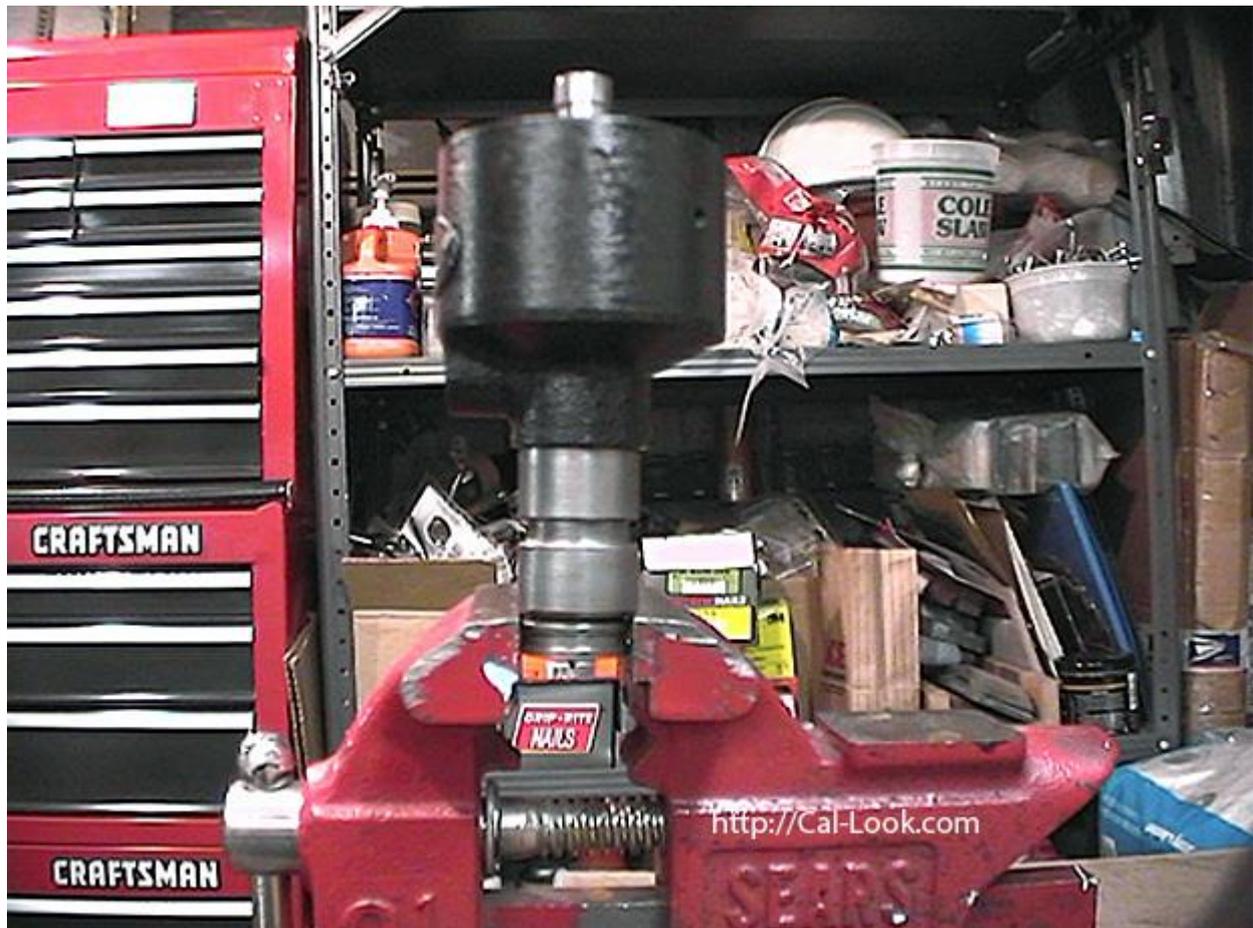
↑ The body is painted and I don't have to worry about the badge. It won't be that shiny once it dries.

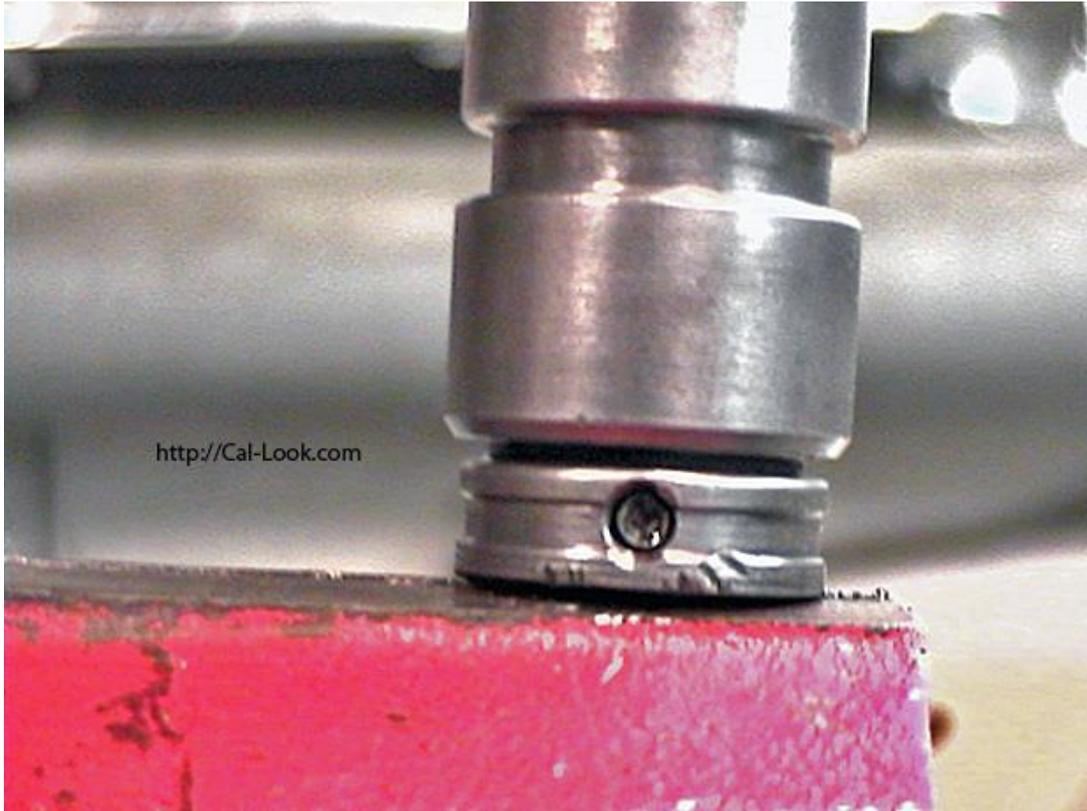


↑ I've installed the shaft, remembering to put the shims back in the correct order. To install the drive, you need to add those shims back and make sure you are putting the drive in correctly.

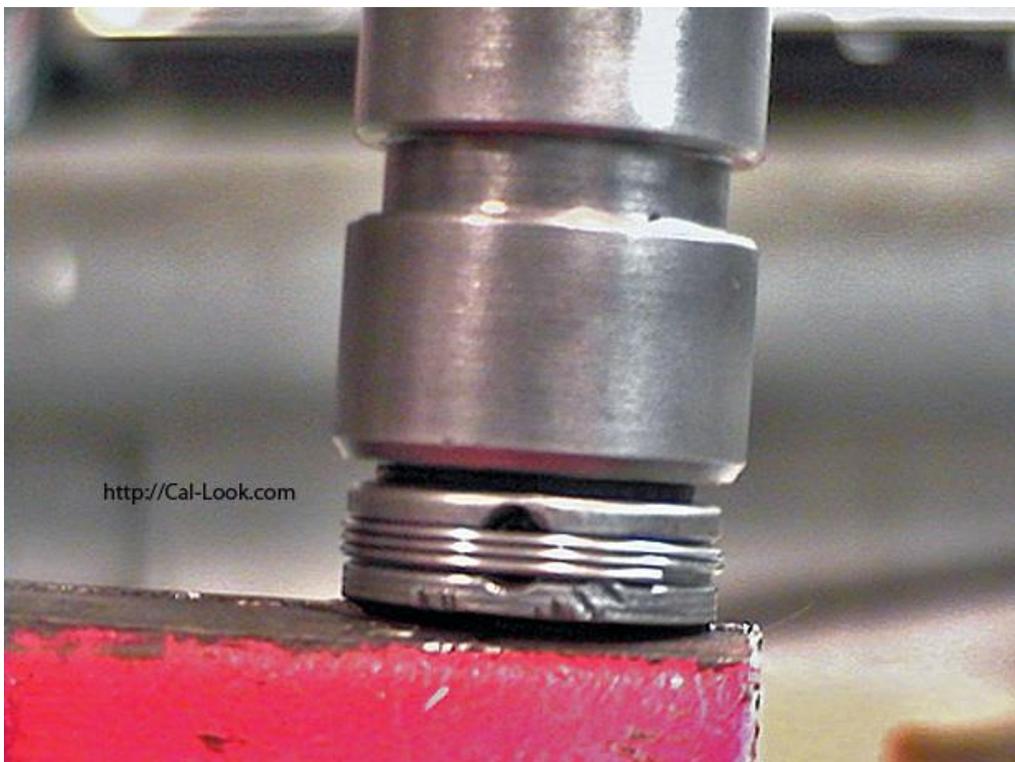
The drive has a tab that is offset and if you put it in wrong, the distributor will be 180 degrees off. The correct way is to have the larger half of the drive toward you and the notch for the rotor pointing northeast.

Now drive the roll pin back in. I use my vise to slowly force the pin in. When it's flush I use a center punch to finish the job.





↑ This is what it should look like when correctly installed.

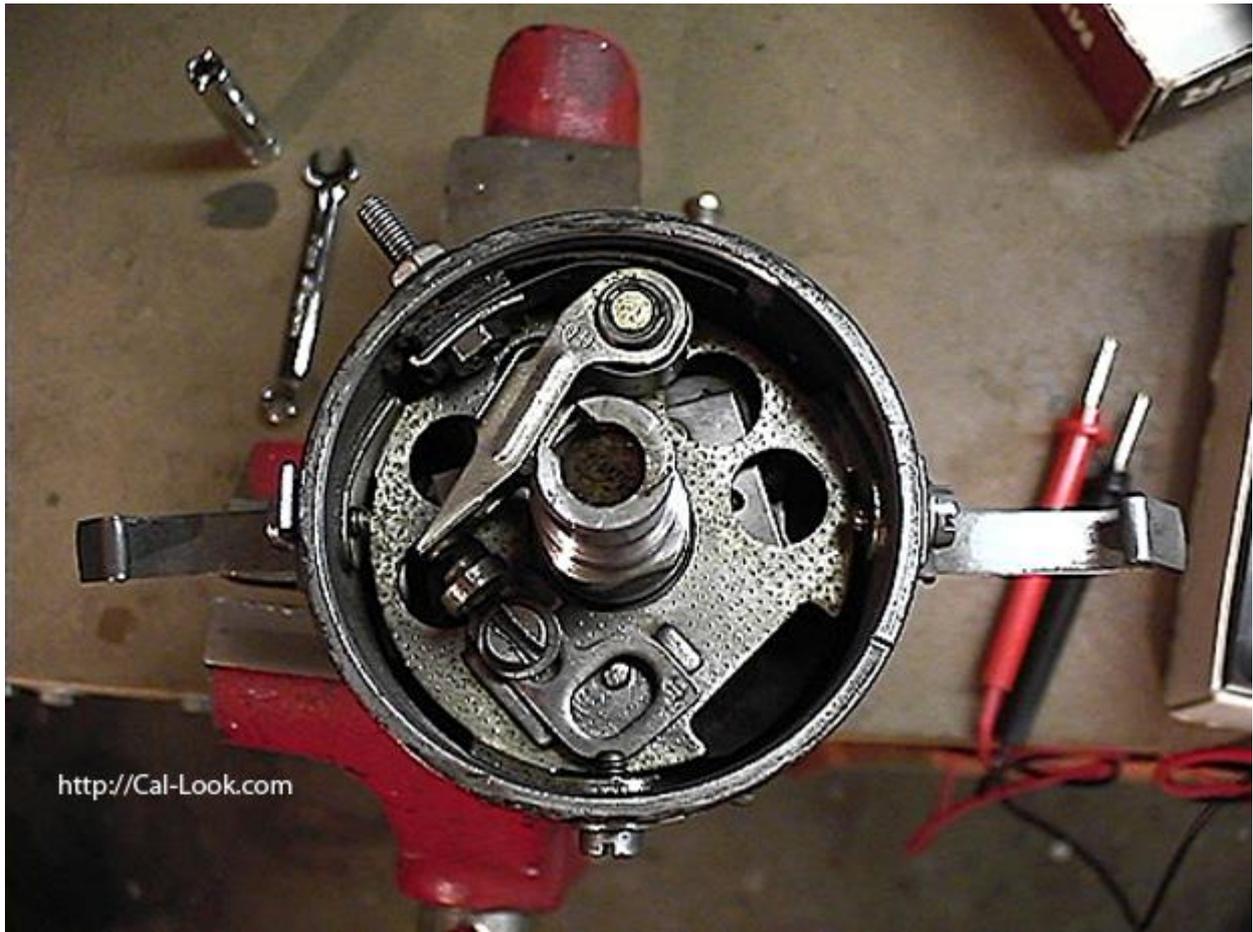


↑ Now put the wire retainer back on.



<http://Cal-Look.com>

↑ Starting to get there.



<http://Cal-Look.com>

↑ The contact plate drops in and 3 screws hold it in. Make sure the longer distributor cap clip is on the left of the badge or the distributor cap won't fit.

A little grease on the point's shaft. The points are installed along with the bolt. You have to make sure that the bolt doesn't contact the body. I use a meter to double check. Don't forget to grease the distributor cam or the points will wear quickly.



<http://Cal-Look.com>

↑ Here it is.



<http://Cal-Look.com>

↑ The inside looks a lot cleaner then when I 1st got it.



↑ I added a condenser bracket so the correct condenser can be mounted.



↑ Here's part of the collection. The one with the black cap is a 019 and the one on the right is a German 009.



↑ A closer look. The 2 on the top left have NOS dark brown German caps. Two still have the original non-resistor rotors. Some have the original condensers with the yellow wire. Some have condensers with a black wire and other have a condenser that just fits.



↑ Getting kits is harder than it used to be. Some of the parts are still available from Bosch, but they are generic kits.



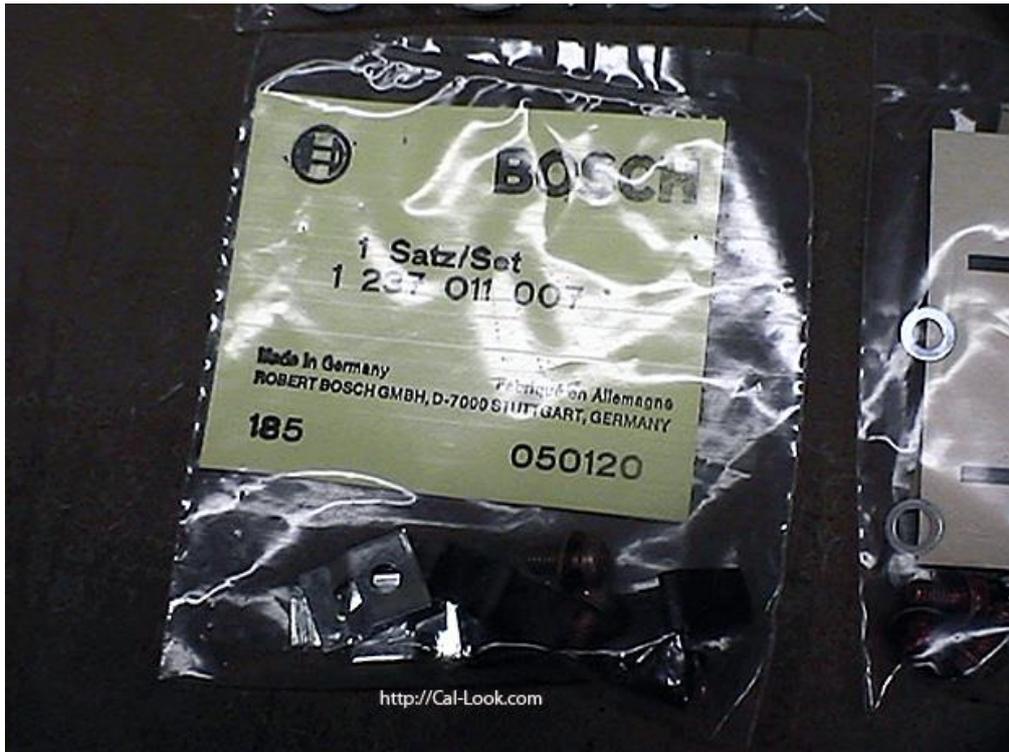
↑ 1 237 011 500 is the points bolt and insulators.



↑ 1 237 010 007 is shims, fiber spacers and "C" clips.



↑ Here's a Teflon replacement for the fiber plate that goes under the advance weights.



↑ 1 237 011 007 is the distributor cab clips. These are black while the originals are silver.



↑ 1 237 010 012 is miscellaneous hardware and I don't bother with it anymore.



↑ Replacement springs are available, but they are not specific to the 010 and will probably not give the same advance curve. Condenser brackets are available. I found a source for the correct “cheese head” screw. You just have to cut them to length.

I hope this helps you with your rebuild. It takes about 4 hours of work to completely disassemble, clean and reassemble the distributor. I do at times have spare completely restored 010's and 019's for sale. Email me for details.

Questions or comments?

Send us an email or call us Toll Free within North America

1.800.304.8726 | 714.680.6737

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