Spark Plug Change

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Did some checking and the BULLITT came with **AWSF-32P** Platinum Motorcraft Plugs.

The owners manual calls for AWSF-32P
The car manual calls for AWSF-32PP
The Dealer says it calls for AWSF-32PM

Had the dealer do a little research for me to see what the difference is,

- AWSF-32P is OEM central electrode Platinum
- AWSF-32PP is optional with both the center electrode and the ground have Platinum tips
- AWSF-32EE is the Cobra Plug with both ends Platinum
- AWSF-32PM was too new and the dealer did not have any info on it but the price was in between the PP and the EE.

Purchased 8 new AWSF-32PP retail is $8.56 each.

Here is a close up of the Platinum tips.

Here is a picture of the COP removed.

I numbered them as I removed them to make sure they went back in the same spot.

The plugs only have 7500 miles on them but I wanted to see how they looked and as long as I had them out I thought I would upgrade to the PP.

Here is a picture of the #1 and #8 plug. #1 had the most deposits on it and #8 had the least.

Torque on the COP bolt is 89 **INCH** pounds
Torque on the Plug is 11 Foot pounds according to the manual
Gap is 1.32-1.42 mm (.052 - .056 inch)
Most Spark plug manufactures list our plug as a taper seat 14mm thread and the torque should be 7 to 15 lbs or just turn 1/16th turn after finger tight.

NOTE: Only remove and install spark plugs on a COLD engine!!!

As a reference this is how I changed my plugs to give you an idea if you want to change your plugs your self or if there are any other tools you may need.

Tools used

- 5/8 spark plug socket
- 3/8" locking extensions
- 3/8" ratchet
- 7mm 1/4" drive socket

- 8mm 1/4" drive socket
- 1/4" ratchet
- 7mm wrench
- 8mm wrench
- Air compressor
- Air wand
- 3/8" torque wrench
- ink pin
- plug chaser
- spark plug gap tool
- Flashlight
- Spark plug gap tool, that goes to .056"

Supplies

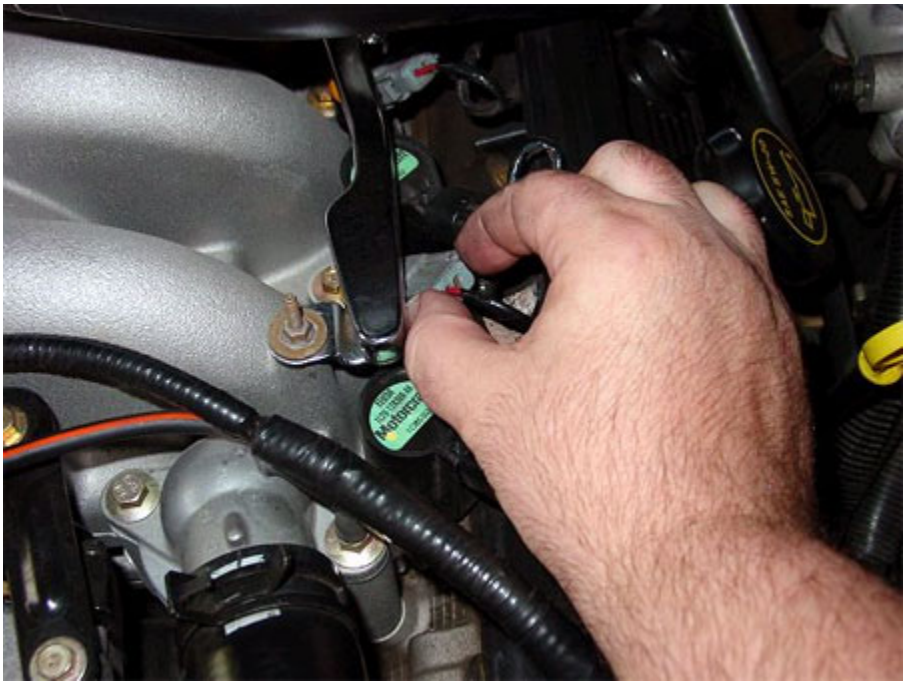
- Dielectric grease
- Anti seize compound

I started on the easy driver's side first. If you want to remove all the plugs at the same time and are going to put them back in, the manual says to make sure you put the plugs back where they were. So you will want to keep track of them. When I removed the COPs I went ahead and just marked them with an ink pen which cylinder they were in.

Now would be a good time to get the fender cover out that you got for Christmas.

Disconnect Cop wires. They release on the very bottom of the plug.

Disconnect Injector wires for better access, just depress the latch on each side.



Remove 7mm bolt on the cop plugs.

Remove Cop plugs and number them with a pen.

I used the air wand to blow out any debris in the spark plug well.

Use a 3/8" ratchet and locking extensions with a 5/8" socket to remove the spark plug.

Note: On the drivers side the plugs actually tilt a little forward and out. On the passenger side the plugs will tilt back and to the outside. I was using a spark plug socket with a swivel on it so some of the pictures may look like the plug is straight up and down.

Note: If you are re-installing the plugs then you should either number them like the COP or I just removed them one at a time.

OEM plugs are platinum tipped and you should not have to clean up the edges. (Sparks jump better from sharp edges than rounded edges) You may want to use some fine sand paper and touch up the edges of the ground electrode.

The factory gap is .54, use a proper spark plug gapping tool to adjust the gap if needed. Never pry against the center electrode, it is very fragile and can break or crack easily.

NOTE: if you are installing the Denso Iridiums I have read to not adjust the gap but just install them as they are from the factory.

OEM plugged removed.

After the plug is gapped you can install the plug finger tight. An old trick is to use a piece of 3/8" rubber hose, slipped over the plug and tighten the plug in this way. The rubber will slip while turning the plug in. You will not be able to tighten it more than finger tight. After you have done this a few times you will probably be able to just use the socket and extension by hand and feel when the plug shoulder makes contact.

To verify the 1/16th rule I first installed the #5 plug finger tight and then turned 1/16th of a turn. You will feel the tension stack up quickly.

I then set the torque wrench to loosen, starting at 5 lbs I kept trying to move the sparkplug with out the torque wrenching clicking. I finally got the plug to move at 14 pounds. This would mean the plug was torqued to about 13 pounds of torque using the 1/16th turn method puts us in the range of the 7-15 pounds of torque.

What about if we use the anti-seize compound? Anti-seize compound is a lubricant. The lubricant on the threads should allow you to over torque the threads if you use the same settings. You do not want to over torque your spark plugs!

To see what the difference would be using anti-seize, I LIGHTLY applied anti-seize compound to the spark plug threads.

NOTE: DO NOT get any anti-seize on the shoulder of the plug or on the porcelain. Only on the threads.

I installed the plug again using the torque wrench set at the 13 pound mark. The torque wrench clicked in the same spot, 1/16th of a turn. So as long as the shoulder area is dry then at least for my application I am going to use the anti-seize and torque them to 13 foot pounds.

I put a small amount of the Dielectric grease in the boot of the COP.

Push the COP down and you will feel it seat on the spark plug. Install and tighten the 7mm COP hold down bolt. Do not over tighten. The COP will probably be able to turn under pressure. I don't think I would try to tighten it down so tight that it would not move. The manual calls for only 89 **INCH** pounds.

Reconnect the COP connector and the Fuel injector connection.

For Plugs 5, 6 and 7 they are pretty easy. For number 8 you need to remove the DPFE sensor. One 8mm nut and a 7mm bolt with an 8mm nut.

For the #2-3 plugs I was able to use a short extension to get underneath the Throttle Body. Used the 1/4 ratchet without an extension for the COP hold down bolt and then was able to use the short extension for the spark plug. My torque wrench was small enough that I was able to use it here also.

Here is a picture of the ratchet and extension on the number 8 plug. You can see how the plug tilts back and to the outside.

All that is left is to put everything back that you removed.

When putting the TB hose on check to make sure the temperature sensor is facing the air flow.

NOTE: Make sure you do not switch the connections between adjacent COP plugs or fuel injectors. Most of the time the harness is just long enough to reach the correct COP or injector. But I have seen it done before. You will know right away when it starts up that something is not right.