

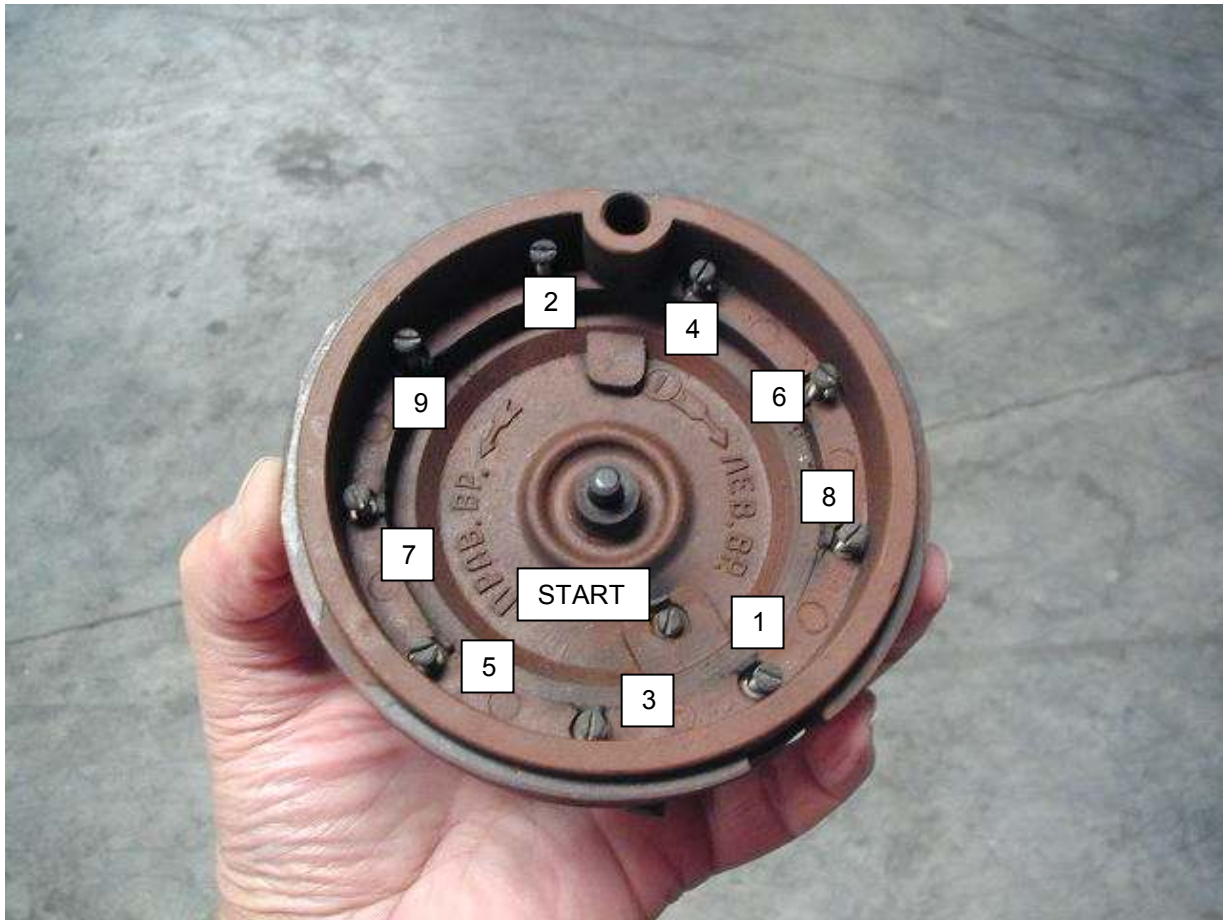
# M14 AUTOMOTIVE SPARK PLUGS AND WIRES CONVERSION KIT INSTALLATION INSTRUCTIONS

(It is highly recommended you read the instructions completely before beginning)

1. **Be sure the magneto switches are turned off.**
2. Remove the ignition wire clamps and rubber spacers from the intake tubes and ignition wires. **NOTE: RETAIN THE CLAMP, RUBBER SPACER AND THE SCREW AND SQUARE NUT ON EACH CLAMP AS THERE ARE TWO OPTIONS FOR CLAMPING THE NEW IGNITION WIRES TO THE INTAKE TUBES. ONE OF WHICH RE-USES THESE CLAMPS**
3. Disconnect the existing spark plug wires from the spark plugs. The left magneto (as seen from the rear of the engine) fires the front spark plugs and the right magneto fires the rear spark plugs. Remove ALL spark plugs.
4. Push the 9 rubber grommets supporting the front spark plug wires in the engine baffling through the engine baffling from the front to rear. The grommets will remain on the wires temporarily.
5. Push the front spark plug wires through the engine baffling holes.
6. Using a pair of wire cutters, make a single cut on the rubber grommets you just pushed back through the engine baffling and remove the grommet from the spark plug wire. **RETAIN THE 9 RUBBER GROMMETS FOR REINSTALLATION IN THE BAFFLING HOLES.**



7. Remove the top and front (black) magneto covers from both magnetos by removing the 4 – 9mm bolts from the black front cover and loosening the 3 slotted screws on the top cover. **CAREFULLY LIFT THE MAGNETO COVER STRAIGHT UP FROM THE MAGNETO.** This exposes the magneto distributor cap.
8. **Carefully lift** the distributor cap, turn the magneto distributor cap over and note the 10 small, slotted screws. These are the screws that pierce the ignition wires. The screw closest to the center of the distributor cap is the START wire or as it is sometimes called, the “Shower of Sparks” wire. It is only connected on the LEFT magneto cap.

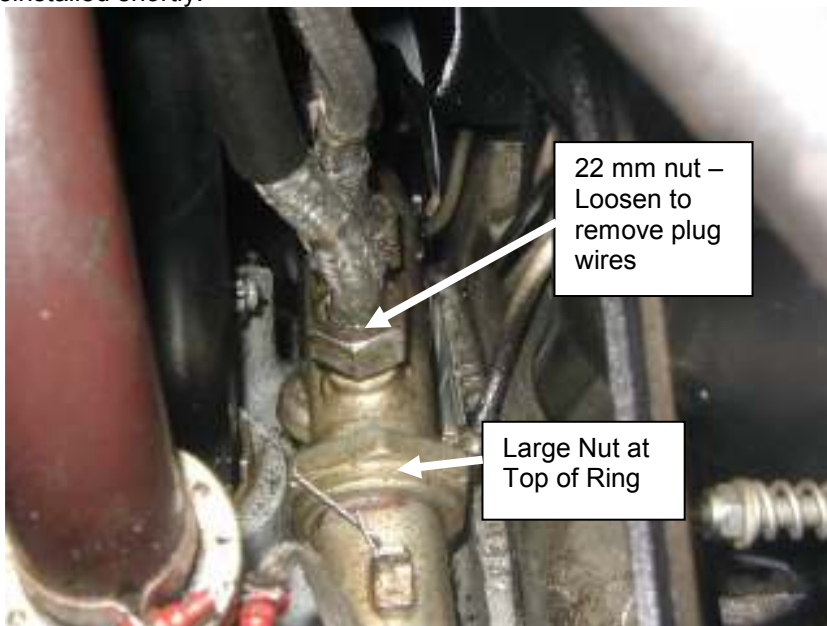


9. Loosen each screw individually about 10 to 12 mm and remove the wire from the distributor cap. You may initially find the wire somewhat difficult to pull straight out. If you encounter this, simply rotate the wire left or right slightly (it will most likely be sticking inside the hole) and then pull the wire from the distributor cap. The rubber sleeve at the end of each wire must also be removed from the distributor cap.
10. On the left magneto distributor cap, remove the START wire (the screw closest to the center of the cap). **RETAIN THIS WIRE AS IT WILL BE REUSED.**
11. On the left magneto black front cover plate, loosen the large, 19 mm nut at the top-center of the black front cover plate. This nut holds the start wire you just removed from the distributor cap. Pull the start wire through the front cover plate. **DO NOT CUT THIS WIRE AS IT WILL BE REINSTALLED.**
12. This step applies to both left and right magnetos and offers you two options depending on whether you decide to keep the old ignition wires in tact or not. Loosen the large knurled nut that is connected to the large braided section on the front of the black front cover plate. See the photo below.



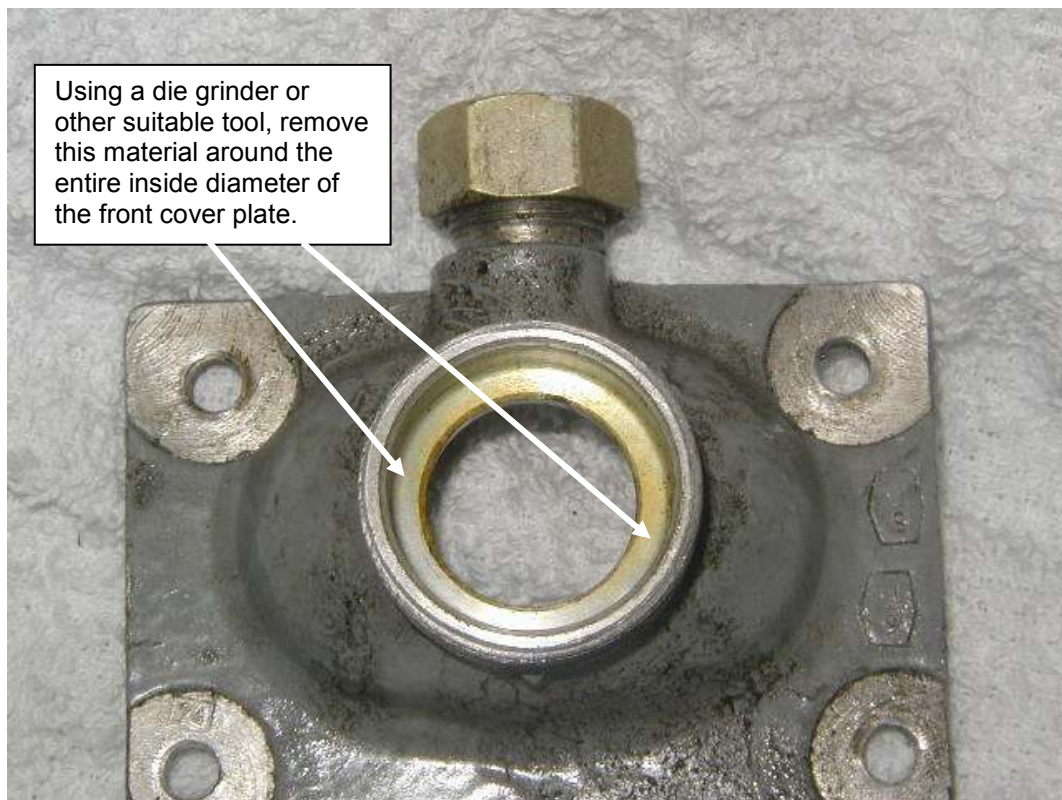
Regardless of whether you are going to keep the old wires in tact or not, remove the black front cover plates AND the square copper insulation gaskets from both magnetos and set them aside.

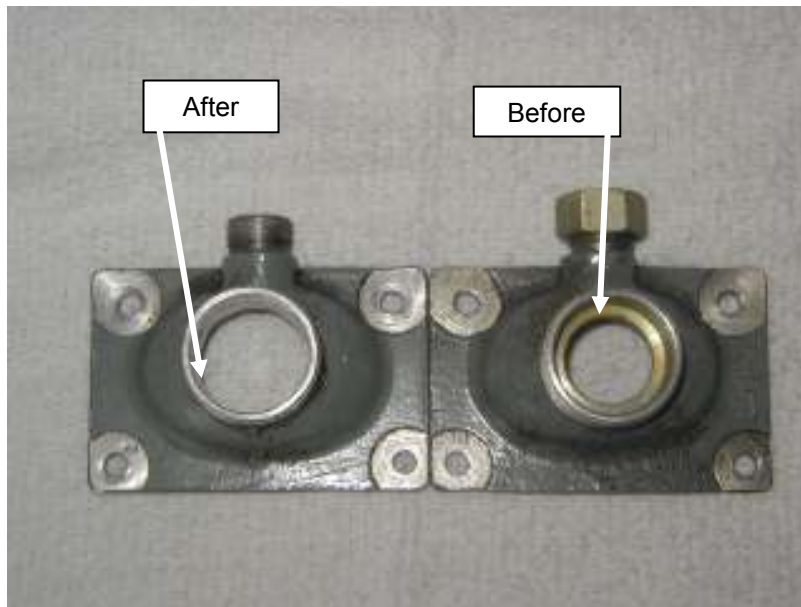
- a. **IF YOU WISH TO KEEP THE OLD WIRES IN TACT** – Loosen the 22 mm nuts (see photo below) at the wiring harness ring for each wire and pull the spark plug wire through the ring. You may want to mark each wire with the cylinder number AND “Front” or “Rear” as appropriate.
  - b. **IF YOU DO NOT WISH TO KEEP THE OLD WIRES IN TACT** – disregard step “a” above and accomplish Step 13. Once the large nut at the top center of the ring is loose and the 4 - 11 mm nuts and lock washers holding the ring to the engine have been removed, cut the spark plug wires passing through the top-center of the ring.
13. Remove the curved ring from the engine. Look for the 4 metal tabs on the ring (2 on each side). These tabs have an 11 mm nut and lock washer holding the ring to the engine. Also, at the top-center of the ring is a large nut. This nut holds the two halves of the ring together. **First**, loosen the large nut at the top center of the ring. This separates the two halves of the ring. Next, remove the 4 – 11mm nuts and lock washers. The easiest way to access and remove the 11mm nuts is to use a ¼ drive, 11 mm flex/swivel socket with a 6” extension to a ¼” drive ratchet. Keep the 11mm nuts and lock washer as these will be reinstalled shortly.





14. Now that the ring is separated and loose from the engine, remove the two halves of the ring.
15. Once the two halves of the ring are removed, install one flat washer supplied in the kit and the previously removed lock washer and 11mm nut onto the exposed studs which held the ring in place. Tighten the 11 mm nuts securely.
16. Using a die grinder or other suitable tools, grind the front hole in both of the black magneto front cover plates, removing approximately 1/8" of material around the entire inside diameter of the front hole. This will permit the new, larger 8 mm wires to pass through the hole. See photos below.





17. **Before proceeding with this step, remove 9 wire-piercing screws from each magneto distributor cap.** It is not necessary to remove the START wire screw. Using the drill bit supplied in the kit, **CAREFULLY** drill each hole in both magneto distributor caps (**DO NOT DRILL THE START WIRE HOLE ON THE DISTRIBUTOR CAP**) until the drill bit bottoms out in the hole. Once all 9 holes are drilled, clean out the debris from inside each hole and start the 9 wire-piercing screws back into the threaded holes. Look into the holes just drilled to make sure the point of the screw is not protruding into the hole. **If the screw point can be seen in the hole, it will prevent the new wire from reaching the bottom of the hole and the screw point will not pierce the new wire correctly.**
18. Gap the new spark plugs supplied in the kit to approximately .020 - .021.
19. Put a light coat of anti-seize compound on each spark plug thread. Be sure to keep the anti-seize compound off of the electrode end of the spark plug. Install the spark plugs in each cylinder and torque using a torque wrench to 24 foot-pounds. **NOTE: Remove the washer from the spark plug when installing the spark plug into the cylinder with the CHT temperature probes.**
20. There are two sets of spark plug wires in the kit. FRONT and REAR. Each plug wire is cut to length for its appropriate cylinder and is marked with a number band on the spark plug wire. **NOTE: FOR #6 AND #9 WIRES, THE NUMBERS ARE READ IN THE SAME DIRECTION AS THE PREPRINTED WORDS (TAYLOR) ON THE INDIVIDUAL WIRE. ANOTHER WAY TO DIFFERENTIATE BETWEEN THE #6 AND THE #9 WIRE IS – REAR #9 WIRE IS SHORTER THAN THE REAR #6 AND THE FRONT #9 WIRE IS SHORTER THAN THE FRONT #6 WIRE.** The FRONT spark plug wire set has a **RED BAND** on each wire. The REAR spark plug wire set has **NO BAND**.
21. In the kit you will find a 50" piece of 3/8" (ID) black hose. Cut 27 pieces of hose approximately 1.5" in length. Install 1 piece of 1.5" hose on each rear spark plug wire. Install 2 pieces of 1.5" pieces of hose on the front spark plug wires
22. Place the LEFT magneto distributor cap, LEFT magneto black front cover plate and square copper gasket on a work bench or table with the bottom edge of the front cover plate and distributor cap facing down toward the table.
23. Route a FRONT spark plug starting with #8 wire, then 1, 3, 5, 7 wires **ONE AT A TIME**, first through the black front cover plate, then through the square copper gasket, then into the correct hole in the distributor cap with wire #'s 8,1,3,5 and 7 on the bottom of the bundle going through the black front cover plate. See the photo below for the correct wire position. Refer to the Figures 1, 2, and 3 at the end of the installation instructions for proper distributor cap plug wire orientation. **Make sure the wire is pushed all the way to the bottom of the hole.** While holding the wire securely in the hole with one hand, tighten the wire-piercing screw. Repeat this for each individual wire. Once the wire-piercing screw is tight, gently tug on the wire to make sure the wire-piercing screw has pierced the wire. If the wire is properly installed, it will not pull out of the hole when you gently tug on the wire. **NOTE: Try to keep the wires as neat as possible when they pass through the black front cover plate so they do not have to cross over each other before going into the distributor cap holes.**

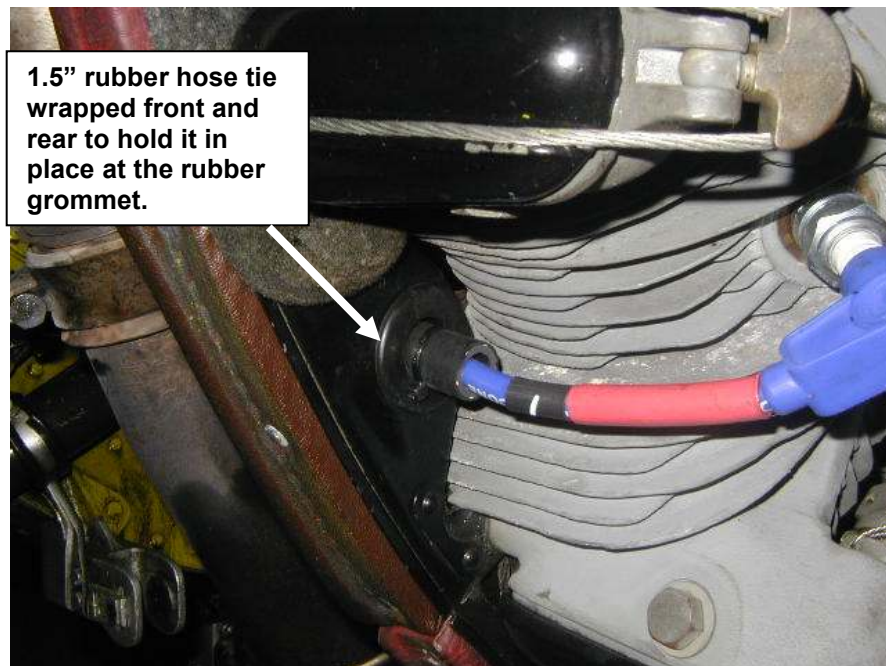


24. After completing Step 23, once again verify the wires are in the correct position in the distributor cap.
25. While holding the left distributor cap, black front cover plate and wires close to the engine, reinstall the START wire through the top of the black front cover plate and copper gasket and into the left magneto distributor cap. Insure the START wire is seated at the bottom of the hole in the distributor cap. Tighten the wire-piercing screw for the START wire.
26. Carefully place the distributor cap on the magneto with the entire wire bundle, black front cover plate and square copper gasket. To help alleviate any stress on the distributor cap and high tension lead caused by the loose hanging spark plug wires, take the entire bundle of wires and lay them over the top of the engine loosely for the time being. At this time you can install the bottom two screws through the front cover plate into the magneto.



27. Route each individual wire to its respective front spark plug through the baffling. Reinstall the rubber grommets in the baffling removed in Step 6 AFTER routing all front wires through the baffling. Place the piece of 1.5" hose closest to the spark plug end of the wire in the rubber grommet and tie wrap the

hose at the front and rear side of the baffling with a 4" tie wrap supplied in the kit, to hold it in place in the grommet. See the photo below.



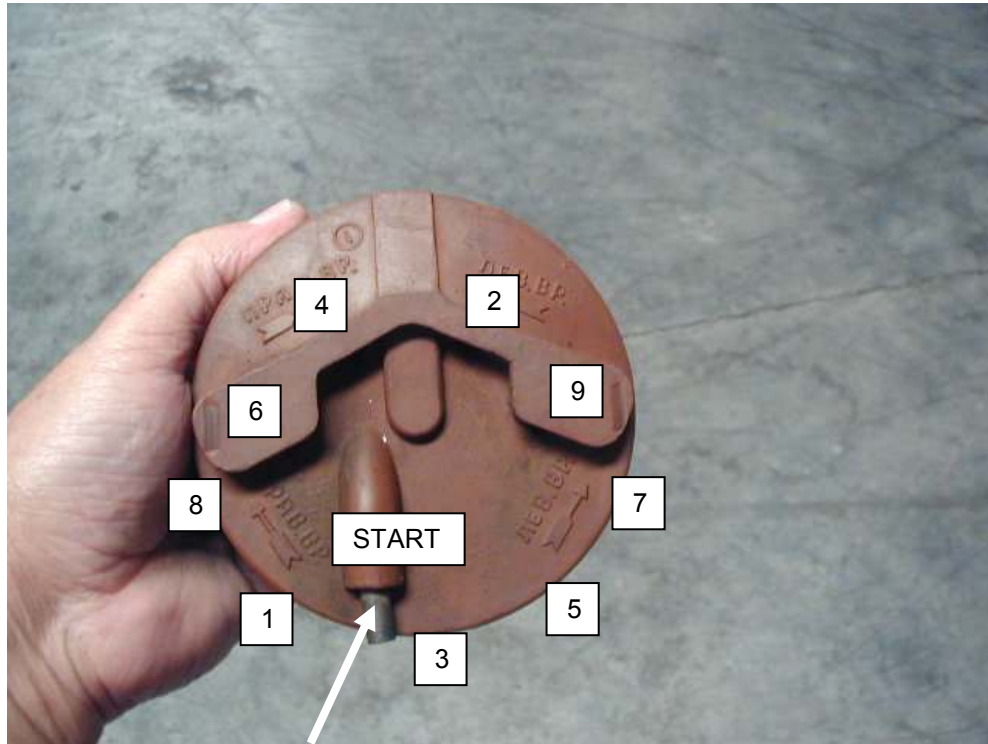
The other piece of 1.5" hose on the front spark plug wires will be used to secure the wires to the intake tube with a tie wrap or installed in the previously removed intake tube clamps as described in Step 29.

28. Repeat steps 21 through 27 for the RIGHT magneto distributor cap and REAR spark plug wires. **IF AFTER ROUTING THE REAR SPARK PLUG WIRES TO THEIR RESPECTIVE REAR SPARK PLUGS YOU FIND THE #9 SPARK PLUG WIRE TO BE SLIGHTLY TOO LONG, CAREFULLY REMOVE THE #9 WIRE FROM THE DISTRIBUTOR CAP AND CUT/SHORTEN THE WIRE TO FIT PROPERLY.** NOTE: THE RIGHT MAGNETO DISTRIBUTOR CAP DOES NOT HAVE A START WIRE AND THE SPARK PLUG WIRES HAVE ONLY 1 PIECE OF 1.5" HOSE WHICH WILL BE PLACED IN THE INTAKE TUBE CLAMP. REMEMBER, THE REAR SPARK PLUG WIRE SET **DOES NOT** HAVE A RED BAND ON THE WIRES.
29. **PLEASE READ THIS STEP COMPLETELY BEFORE PROCEEDING.** Once all wires are neatly routed to their respective front and rear spark plugs, tie wrap the front and rear spark plug wires using the 1.5" piece of rubber hose to that cylinder's intake tube as shown in the next photo. One front and one rear wire will be tie wrapped together on each intake tube. ie: Front and rear spark plug wires for #5 cylinder will be clamped to the #5 cylinder intake tube. This example applies to all cylinders accordingly. As an option, instead of tie wrapping the wires and hose to the intake tubes, you can also reinstall the intake clamps, rubber spacers, screw and square nut, **LOOSELY** clamping the remaining 1.5" pieces of rubber hose on each spark plug wire into the clamp and onto the intake tubes. This will permit the new spark plug wires to temporarily slip through the rubber hose as needed. The clamps will be tightened completely in the next step. One front and one rear wire will be clamped together on each intake tube. ie: Front and rear spark plug wires for #5 cylinder will be clamped to the #5 cylinder intake tube. This example applies to all cylinders accordingly.





30. Using the remaining tie-wraps in the kit, neatly dress out all wires from the magneto front covers to the spark plugs. **TAKE A LOOK AT FIGURES 4, 5, 6, 7, AND 8 TO SEE HOW THE WIRES LOOK WHEN PROPERLY DRESSED OUT AND TIE WRAPPED.** If you reinstalled the intake tube clamps, allow the wires to slide through the rubber hoses being held loosely by the clamps. The new spark plug wires will not be affected if they rest on the top of the engine where the old ring was installed. Once you have dressed out the wires to your satisfaction, tighten all intake clamps (if installed), install the magneto covers on both magnetos, install the remaining two 9 mm bolts through the front cover plate and safety wire the 4 magneto front cover plate screws and the 3 magneto cover screws.



**START WIRE hole plugged on right magneto distributor cap.**

Figure 1

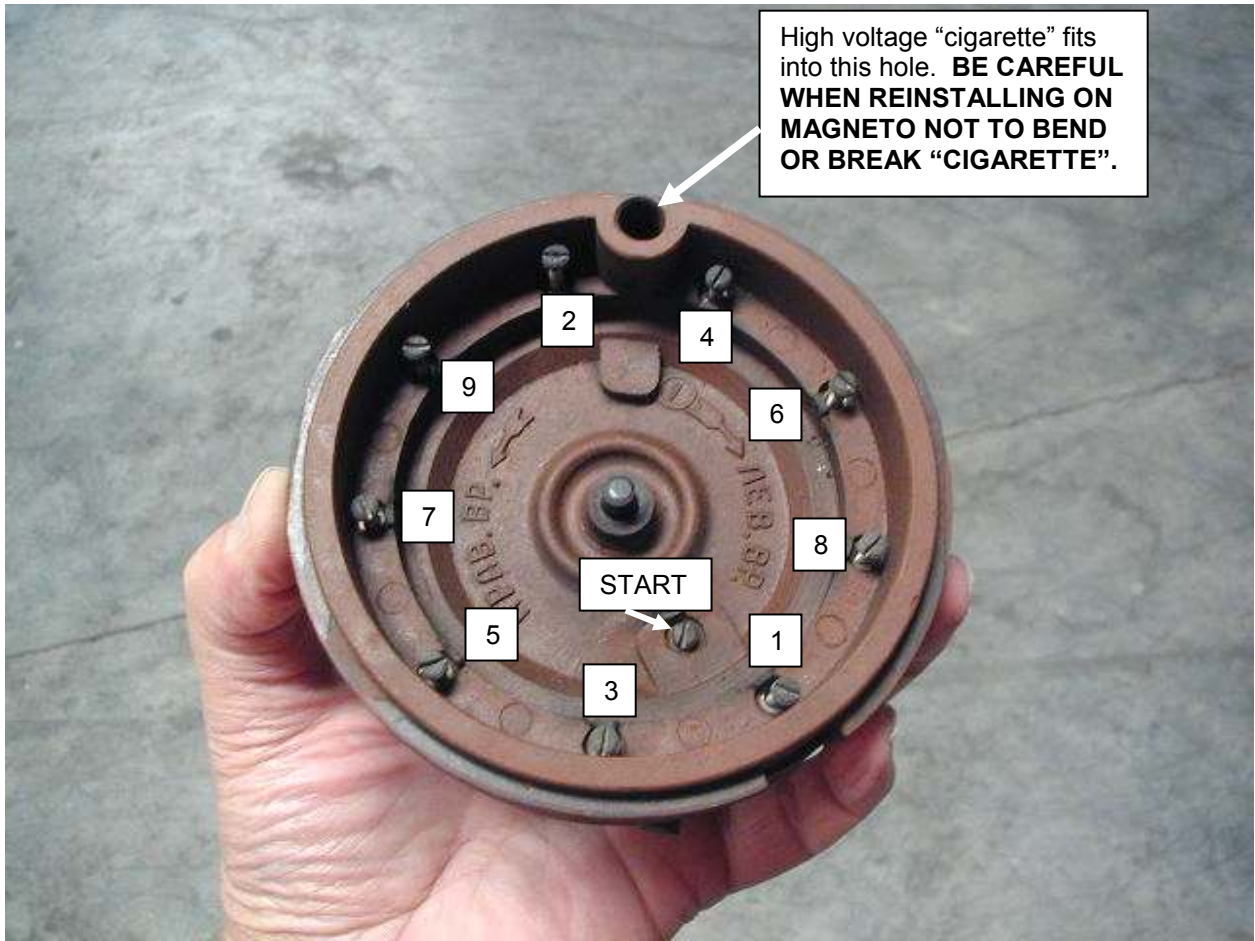


Figure 2

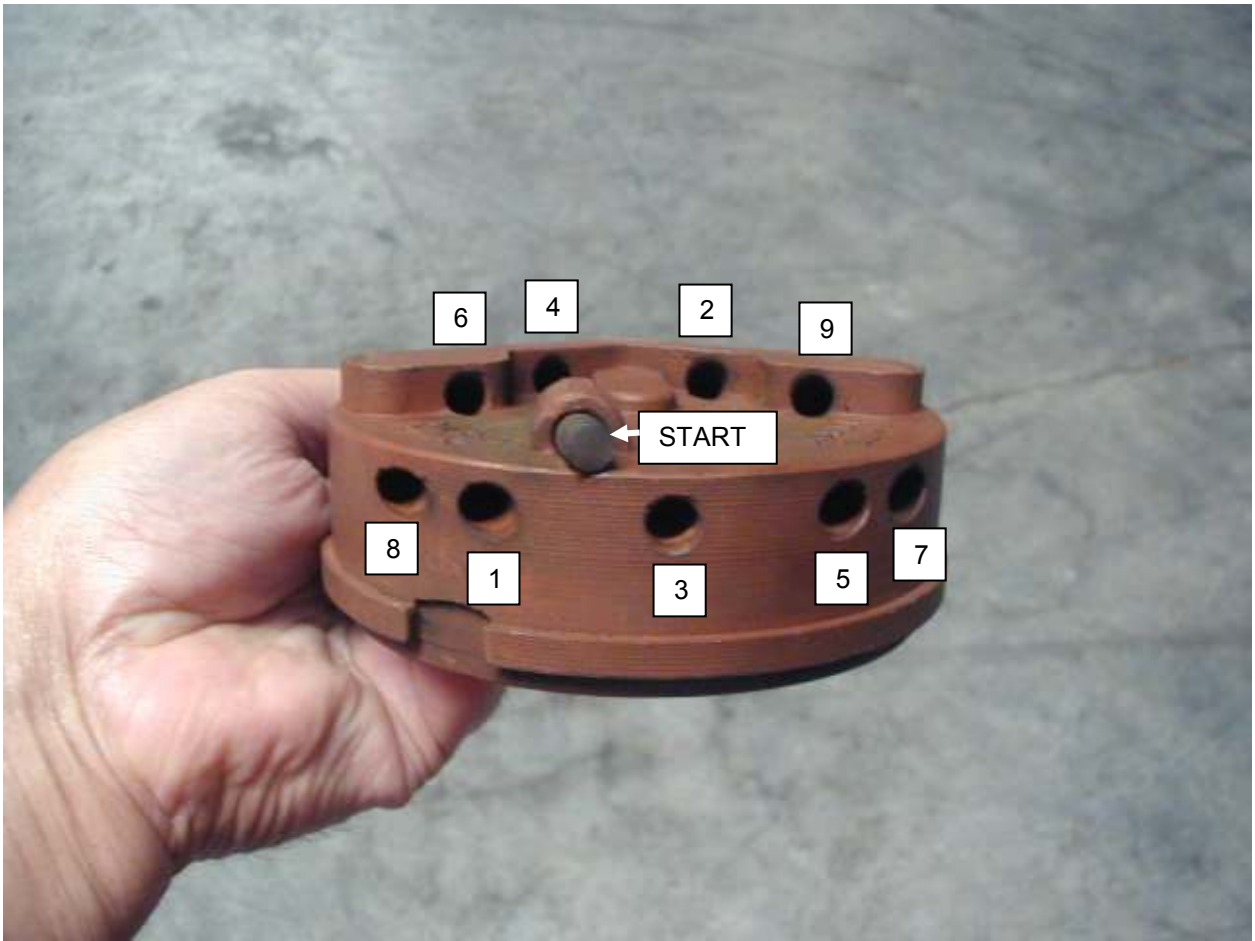


Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8

INCLUDED IN THE KIT

18 - Spark Plugs

- 1 – Front Spark Plug Wire set with red band on each wire, cut to length and numbered
- 1 – Rear spark plug wire set with NO red band on each wire, cut to length and numbered
- 1 – 50" piece of 3/8" ID rubber hose
- 4 – 7 mm ID washers
- 20 – 4" UV resistant tie wraps
- 25 – 11" UV resistant tie wraps
- 1 – 8 mm drill bit
- 1 – Installation instruction manual on CD

Should you have any questions concerning the installation of the conversion kit, please call 334-546-8182, between 8 AM and 5:30 PM central time in the USA or -6 hours GMT.

A. Dennis Savarese  
215 Crossgate Dr.  
Elmore, AL 36025