



INSTALLATION INSTRUCTIONS

COMPU-FIRE Model DIS-IX Distributorless Ignition System for the Bosch 009 Distributor

READ THIS FIRST!!!

Congratulations!... You have just purchased the highest performance Ignition System available for a VW engine equipped with the 009 Distributor.

A great deal of effort has gone into the writing of these instruction sheets to insure the proper installation of the system with the least amount of effort. If you follow them, the COMPU-FIRE system will work the first time, every time. If you don't, you're on your own. We strongly recommend that you take just a few minutes and read through the complete instructions before beginning the installation.

FIRST TAKE NOTE OF THE FOLLOWING SPECIAL INSTALLATION REQUIREMENTS OF THE COMPU-FIRE IGNITION SYSTEM.

1. Electrical ground is formed by the mating surface of the Compu-Fire Control Module (CFCM), to the distributor body. Clean all oil and dirt from the top surface of the distributor body before installing the CFCM.
2. DO NOT attempt to statically time the COMPU-FIRE System. It fires down to zero rpm. With the ignition switch on, the engine could possibly start when turned by hand!
3. DO NOT puncture the high voltage silicone wire with a voltage sensing timing light probe. This WILL cause eventual misfiring. An inductive pick-up timing light is highly recommended. If a voltage sensing timing light is used, a pick-up connector, inserted between the #1 coil terminal and the high voltage lead MUST be used. When using an inductive pick-up on #1 cylinder observe the correct orientation of the pick-up clamp. DO NOT use the COMPU-FIRE system without silicone high voltage wires.
4. USE CAUTION! The COMPU-FIRE is a HIGH OUTPUT ignition

system. DO NOT switch the ignition switch on and off when the system is connected to the battery and the high voltage wires are disconnected from either the coil terminals or the spark plugs. Do not rotate the engine with the ignition switch on and any of the high voltage wires disconnected at either end. Do not be in contact with any of the coil high voltage terminals or high voltage wires under any of the above conditions!!

5. The connectors used to connect the Control Module to the coil pack will go together in only one way.
6. There are many ways to connect the spark plug wires in a distributorless system. Only one of them is correct. If you follow these instructions carefully, you will have no problem installing them correctly.
7. The dwell times of the two coils overlap. This means that both coils are drawing current at the same time for a certain percentage of each revolution. These are high energy coils and each one draws up to 6 Amps. When both are charging, the total primary current can be as high as 12 Amps. For this reason THE IGNITION SWITCH SHOULD NEVER BE LEFT ON WHEN THE ENGINE IS NOT RUNNING. This could cause overheating of the coil pack and discharge the battery.
8. The spark plugs must be in good condition. For maximum performance the spark plug gap should be increased to ".050."

VERIFY THE CONTENTS OF THE BOX. It should contain the following:

1. COMPU-FIRE Control Module (CFCM)
2. Coil Pack
3. Plastic Trigger Rotor
4. Set of 4 Silicone Spark Plug Wires, 2 long and 2 short, for standard coil mounting.
5. Coil pack mounting bracket.
6. A plastic bag containing the following:
 - a. 4 10-32 x 3/8" button head socket screws for mounting the coil pack to the coil pack mounting bracket (see Figure 4).
 - b. A plastic bag containing 4 spark plug screw-on adaptors for those installation where the spark plugs do not already have them.
 - c. A fully insulated 1/4" female spade connector.

Before doing anything else you MUST verify the correct orientation of the distributor!

VERIFYING CORRECT DISTRIBUTOR ORIENTATION

To verify the distributor orientation, remove the distributor cap. Refer to Figure 1. Note the small groove in the distributor body to the left of the cap locating notch. With the transmission in neutral, AND THE IGNITION SWITCH OFF AND THE EMERGENCY BRAKE SET, rotate the engine pulley until the notch in the pulley lines up with the split in the crankcase, as shown in Figure 2. In this position, the tip of the rotor must be pointing directly at or directly away from the groove in the distributor as indicated by the solid line drawings in FIG. 1. If it is not, (that is if it is in one of the positions indicated by the dotted line drawing in FIG. 1) loosen the distributor clamp bolt and rotate the distributor until it is. Retighten the clamp bolt.

NOW... Proceed with the instructions.

CAUTION

MAKE SURE THE IGNITION SWITCH IS OFF!!! The wire from the ignition switch to the ignition coil primary terminal is NOT fused in many applications. If this wire is allowed to touch vehicle or engine ground, with the ignition switch on, it can cause a direct short on the battery possibly causing permanent damage to the vehicle wiring and a fire. Engine Electronics, Inc. assumes no liability for damage caused from this occurrence or due to any faults in the existing vehicle wiring.

1. Remove the high voltage wire from the ignition coil.
2. Remove all of the high voltage wires from the spark plugs.
3. Remove the distributor cap and set it and the high voltage wires out of the way.
4. Remove the wire from the ignition coil primary that goes to the distributor.
5. Refer to Figure 3. Remove the rotor, points and the wire connected to the points from the distributor. Temporarily reinstall the rotor. Move it back and forth to insure that the advance mechanism is operating freely. Remove and save the

rotor. It will be used later to install the new COMPU-FIRE trigger rotor. Clean and oil the distributor mechanism if required.

6. MAKE SURE THE IGNITION SWITCH IS OFF! Remove the wire from the ignition coil primary that is connected to the ignition switch. Make sure this wire does not touch the vehicle or engine ground. If there is a wire connected to this terminal from the electric choke in the carburetor, remove this wire also.
7. Remove the ignition coil and set it aside. Save the mounting bolts .

NOTE: The coil pack is designed to mount in the conventional location on the fan housing. BEFORE MOUNTING THE COIL IN ANY OTHER CONFIGURATION PROCEED TO STEP 18.

8. Refer to Figure 4. Install the coil pack mounting bracket using the original coil mounting hardware. Position the coil pack with the wires to the bottom as shown. Mount the coil pack to the bracket using the 10-32 x 3/8" button head socket screws supplied.
9. Refer to Figures 5 & 6. Install the COMPU-FIRE trigger rotor. Orient the trigger rotor over the distributor shaft so that the "dot" in the trigger rotor is aligned with the slot in the top of the distributor shaft. While pushing the trigger rotor lightly against the distributor cam lobes, rotate it slightly back and forth until you feel it "lock" into place. DO NOT PUSH ON THE TRIGGER ROTOR DISK. Push on the raised center of the trigger rotor until the top of the trigger rotor is below the top of the distributor shaft. Now take the original rotor that was removed from the distributor and set it over the protruding distributor shaft and on top of the COMPU-FIRE trigger rotor. Using a small block of wood or other suitable object, "tap" the COMPU-FIRE trigger rotor down until it is fully seated.

VERIFY THAT THE COMPU-FIRE TRIGGER ROTOR IS FULLY SEATED. Refer to Figure 6. Set the bottom edge of the COMPU-FIRE Control Module (CFCM) on the top edge of the distributor body. Make sure the CFCM is sitting squarely on the distributor body and is up against the trigger rotor. The top face of the trigger rotor disk must fall between the middle and top of the outer ridge of the CFCM as indicated in Figure 6. Under no conditions should the top of the trigger rotor disk be higher than the top of the outer ridge on the CFCM.

NOTE: The CFCM makes electrical ground through contact with the top edge of the distributor body. MAKE SURE the top edge of the distributor body is free of all oil and dirt.

10. Refer to Figure 7. Install the CFCM onto the distributor using the original distributor cap clamps. Note that the two small drive pins on the inside of the CFCM locate in the notch in the distributor body.
11. Install the spark plug wires. NOTE: **IF THE SPARK PLUGS HAVE THREADED ELECTRICAL CONTACTS, INSTALL THE SCREW-ON ADAPTORS SUPPLIED.** There are two long wires and two shorter wires. The long wires go to cylinders #1 and #2. The two shorter wires go to cylinders #3 and #4. The cylinder connections are indicated on the coil labels next to each of the four high voltage towers. The cylinder designations in the VW BUG are as follows:
 - #1 Passenger side front
 - #2 Passenger side rear
 - #3 Driver side front
 - #4 Driver side rear
12. Make the electrical connections. Refer to Figure 9. Connect the three terminal connector from the coil pack to the mating connector from the CFCM. This is a polarized connector and fits only one way. Make sure the cable from the CFCM can not touch the crank pulley, generator belt OR any of the spark plug wires.
13. Connect the original wire from the ignition switch to the insulated male 1/4" spade lug on the red wire from the coil pack. Use the insulated 1/4" female spade connector supplied, if necessary.
14. If you have an electric choke on the carburetor, connect the wire from the choke to the wire from the ignition switch.
15. Make sure none of the wiring or connectors is laying against any surface that gets hot enough to cause damage.
16. TIMING THE IGNITION. NOTE: A Variable Timing Light CANNOT be used unless the degree delay is set to ZERO and it is used like a conventional timing light. This is because each spark plug wire has one pulse per engine revolution instead of one pulse per every two engine revolutions as in a conventional

ignition system. Since there are no exposed electrical connections from the coils, a timing light is required. An inductive pick-up type of timing light is highly recommended. DO NOT attempt to static time the engine for the reasons already mentioned. IF THE PROCEDURE TO VERIFY THE DISTRIBUTOR WAS DONE CORRECTLY, THE TIMING WILL BE CLOSE ENOUGH TO START THE ENGINE & make sure the transmission is in neutral. Connect the timing light pick-up to the #1 sparkplug wire. (Note the correct orientation of the pick-up on an inductive pick-up timing light.) Start the engine and time it in the conventional manner using the timing light. For best results the engine should, be timed at maximum advance.

17. The installation is now complete. If you have an electric tachometer a tach adapter, Compu-Fire P/N 51105, is required. Tape over the square hole in the distributor where the original wire from the coil was attached with a good quality electrical tape.
18. INSTALLING THE COIL PACK IN A LOCATION OTHER THAN THE STOCK LOCATION. Refer to Figure 8. The coil pack heat sink must be mounted with the fins oriented vertically to remain within the correct operating range. DO NOT mount the heat sink next to a surface that can not withstand 350 degrees F. DO NOT mount the coil pack in a location where exhaust manifold or cylinder head heat will come in contact with it.

Extender cable (Part No. 41101) is available if required.

BE CAREFUL NOT TO DAMAGE THE OIL COOLER. Wrapping tape around the drill bit can serve as a protective stop.

Now return to step 9.

GENERAL NOTE: In a conventional distributor the arcing between the rotor and cap electrodes creates ozone. If this ozone is not vented it will cause deterioration of the insulating quality of the rotor and cap. For this reason all conventional distributors are vented. In the COMPU-FIRE System all arcing inside the distributor is eliminated. For this reason the distributor can be completely sealed, i.e. all holes plugged. This is a distinct advantage in off-road and marine environments.

TROUBLE SHOOTING

System is totally dead. No firing at all.

- Check to see that there is 12 volts present at the wire from the

ignition switch when the ignition switch is on.

- Verify that the 3 terminal connector from the CFCM is fully inserted into the mating connector from the coil pack. When these connectors are fully mated the locking tab will engage.
- Check to see that the CFCM is fully seated on the distributor body.
- Make sure that there are no “noises” from the distributor when it **is** turning that could be caused by an interference between the rotor and the CFCM. Double check rotor position per FIG. 6.
- Verify that distributor body is solidly grounded to crankcase and that battery ground is solidly connected to crankcase.

Engine fires but with backfiring and misfiring.

- **The** spark plug wires are connected incorrectly or the distributor orientation is incorrect or the rotor is incorrectly oriented on the distributor shaft. Verify that spark plug wires are connected properly.
- Double check rotor orientation. (FIG. 5)
- Make sure all rubber boots on the spark plug wires are fully seated at both the coil and spark plug ends.
- Double check distributor orientation. (FIG. 1 and FIG. 2)

Advance curve is incorrect.

- The advance curve is determined by the advance ~~weights in the 009~~ distributor. If the advance curve is incorrect the advance **mechanism** in the distributor may be faulty OR the rotor may be dragging against the CFCM.
- Verify that the rotor is not dragging against the CFCM by noting that there are no marks on the rotor and by verifying the correct rotor location as per FIG. 6. If this is OK, then the advance mechanism in the distributor will have to be corrected.
- DO NOT check to see if system is firing by disconnecting a spark plug wire and holding it next to ground. The high voltage caused by this procedure stresses the insulation at the coil AND IS DANGEROUS!

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COMPU-FIRE MODEL DIS-IX INSTALLATION DRAWINGS

Rotor must be orientated in one of the two positions indicated by the solid lines when timing mark is aligned as in FIG. 2.

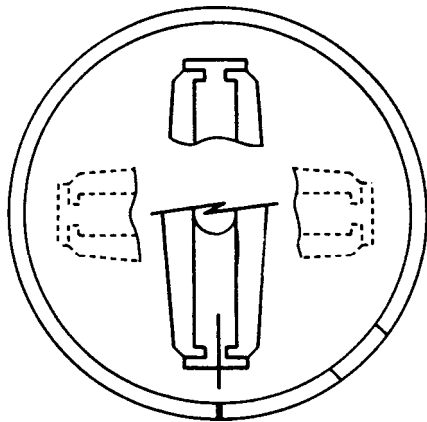


FIG. 1

Alignment of timing mark to crankcase to verify correct distributor orientation as shown in FIG. 1.

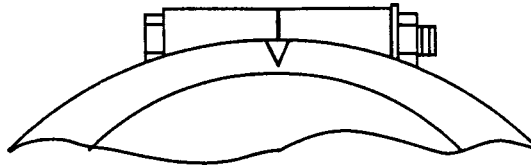


FIG. 2

Disassembly and removal of parts from stock distributor

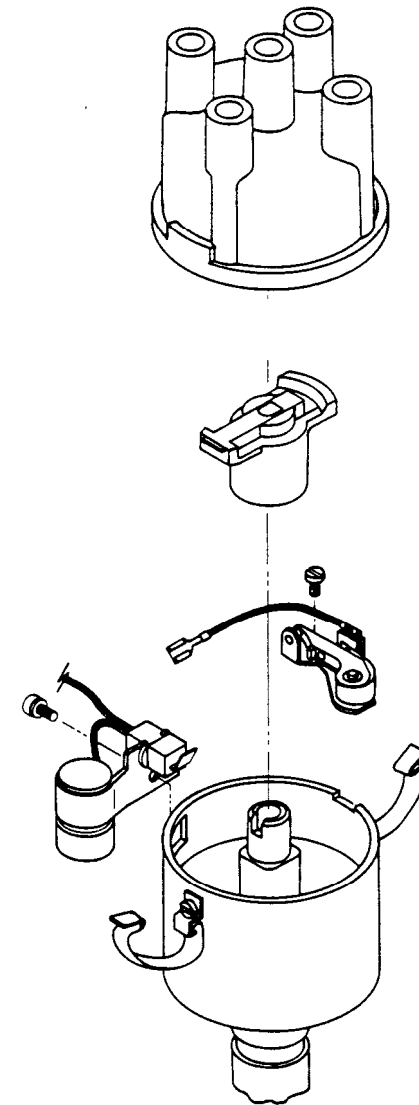


FIG. 3

Installation of coil pack to fan housing using coil pack mounting bracket, original coil mounting hardware and 10-32 x 3/8" Button head screws.

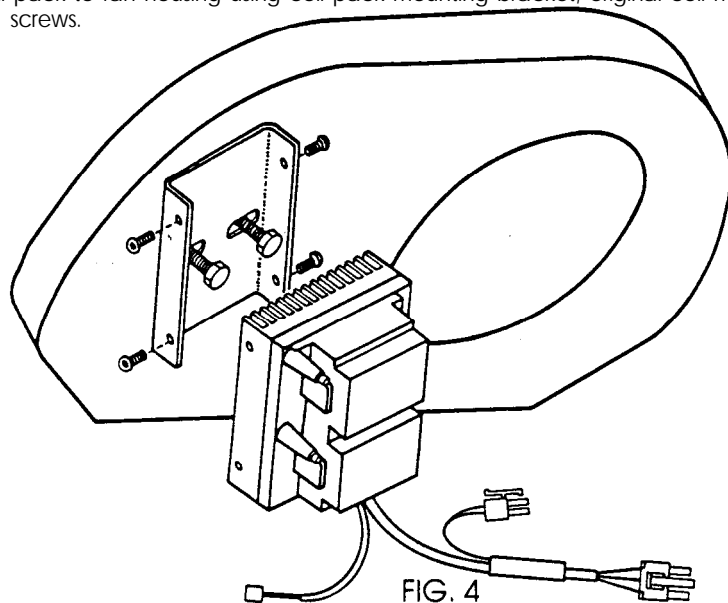


FIG. 4

Installation of COMPU-FIRE trigger rotor using original rotor as tool to drive it onto cam lobes. Dot in trigger rotor must line up with notch in distributor shaft.

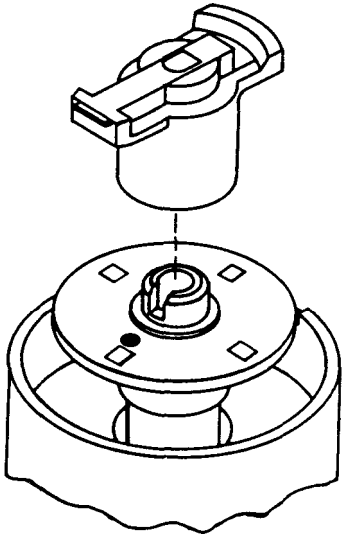


FIG. 5

Verification that COMPU-FIRE trigger rotor is fully seated using COMPU-FIRE Control Module as a gauge.

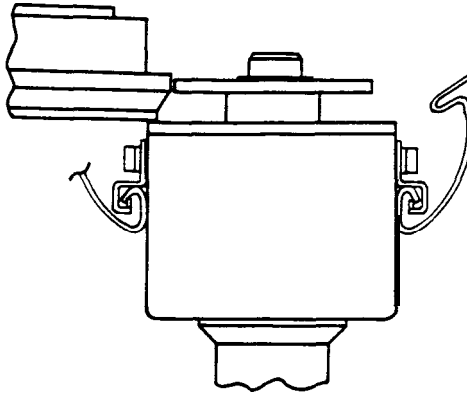


FIG. 6

Installation of COMPU-FIRE Control Module onto distributor body using original distributor cap clamps. Internal locating pins locate in the notch in the distributor body.

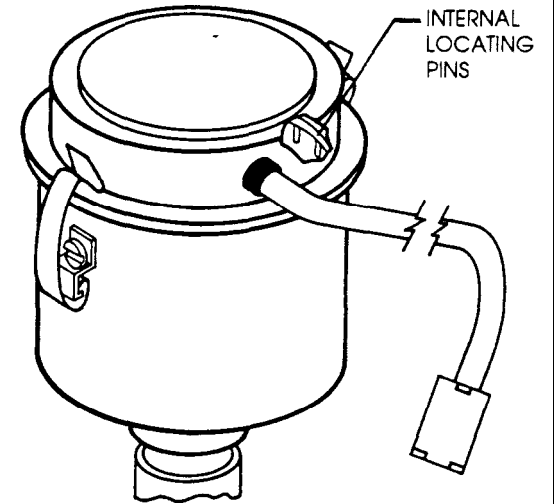
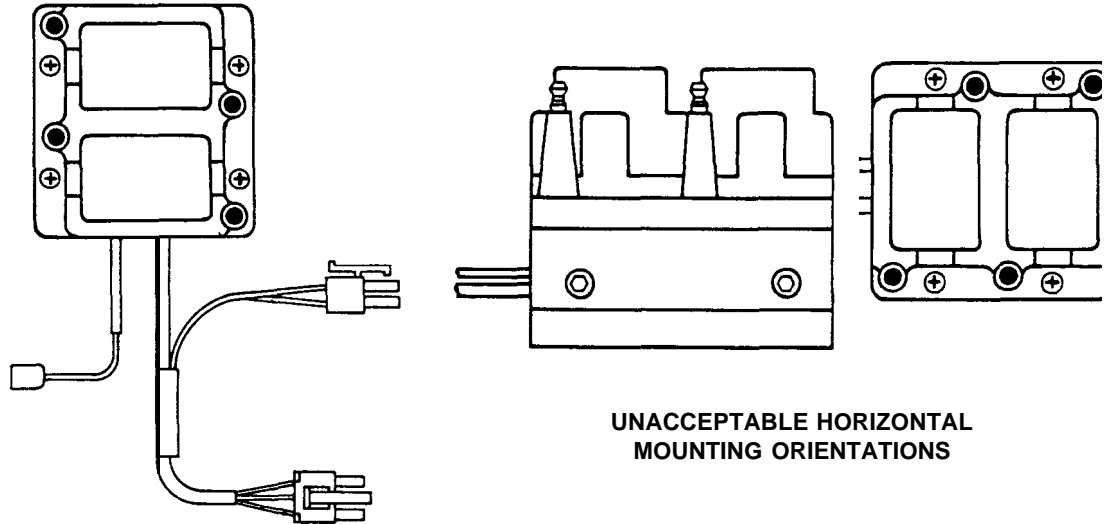


FIG. 7

Correct vertical mounting orientation of coil pack. Horizontal orientations can cause overheating.



CORRECT VERTICAL MOUNTING

UNACCEPTABLE HORIZONTAL MOUNTING ORIENTATIONS

FIG. 8

WIRING DIAGRAM

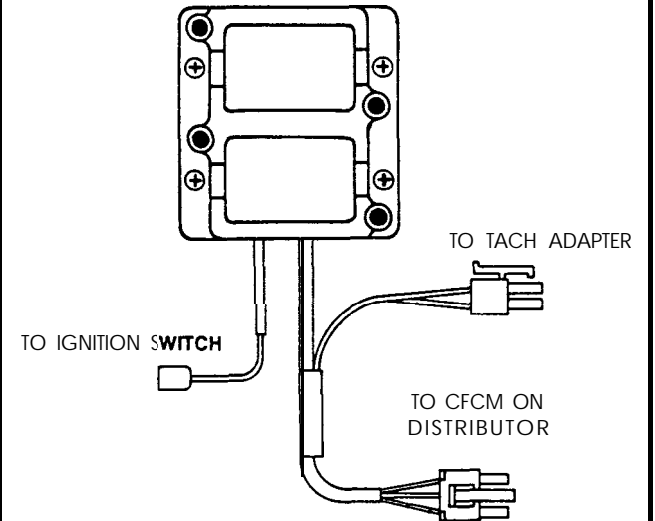


FIG. 9

Installation of COMPU-FIRE rotor using original rotor as tool to drive it onto cam lobes, Dot in rotor must line up with notch in distributor shaft.

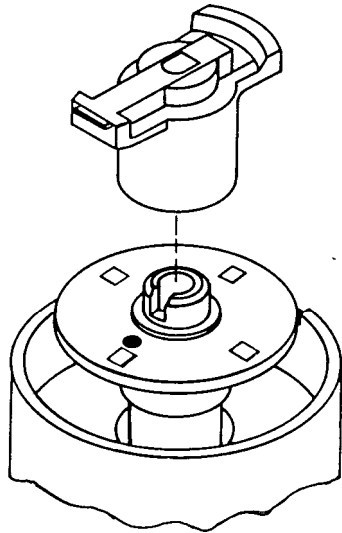


FIG. 5

Verification that COMPU-FIRE rotor is fully seated using COMPU-FIRE Control Module as a gauge.

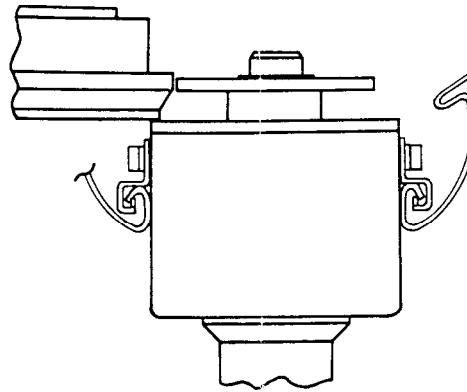


FIG. 6

Installation that COMPU-FIRE Control Module onto distributor body using original distributor cap clamps. Internal locating pins locate in the notch in the distributor body.

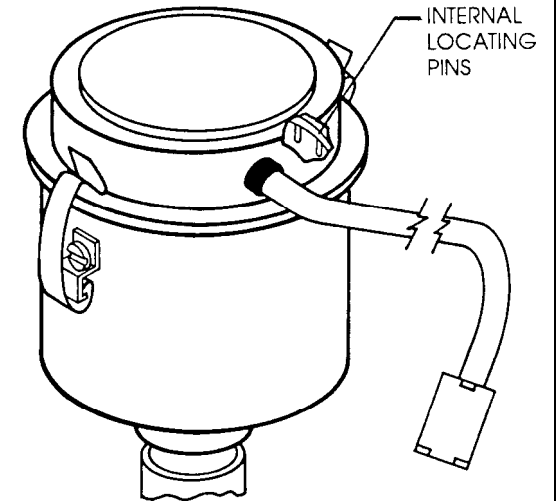
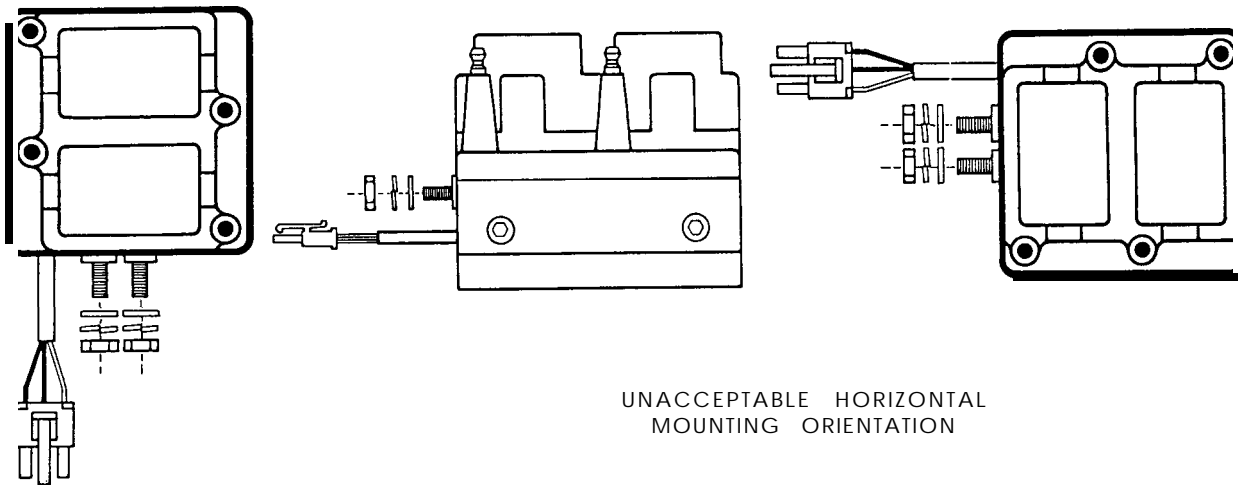


FIG. 7

Correct vertical mounting orientation of coil pack. Horizontal orientations can cause overheating.



UNACCEPTABLE HORIZONTAL MOUNTING ORIENTATION

CORRECT VERTICAL MOUNTING

FIG. 8

OLD STYLE

WIRING DIAGRAM

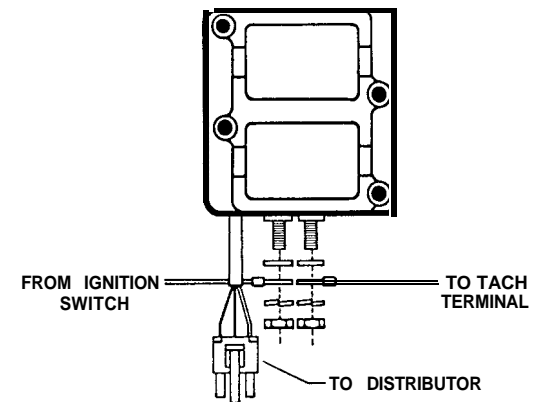


FIG. 9

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COMPU-FIRE MODEL DIS-IX INSTALLATION DRAWINGS

Rotor must be orientated in one of the two positions indicated by the solid lines when timing mark is aligned as in FIG. 2.

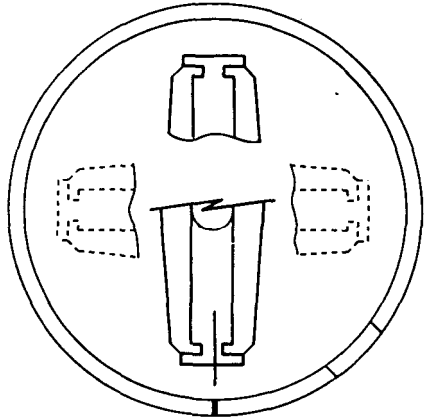


FIG. 1

Alignment of timing mark to crankcase to verify correct distributor orientation as shown in FIG.

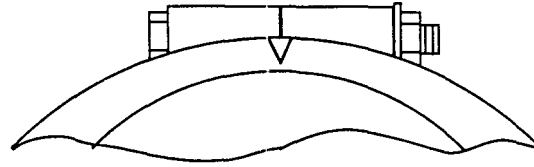


FIG. 2

Disassembly and removal of parts from stock distributor.

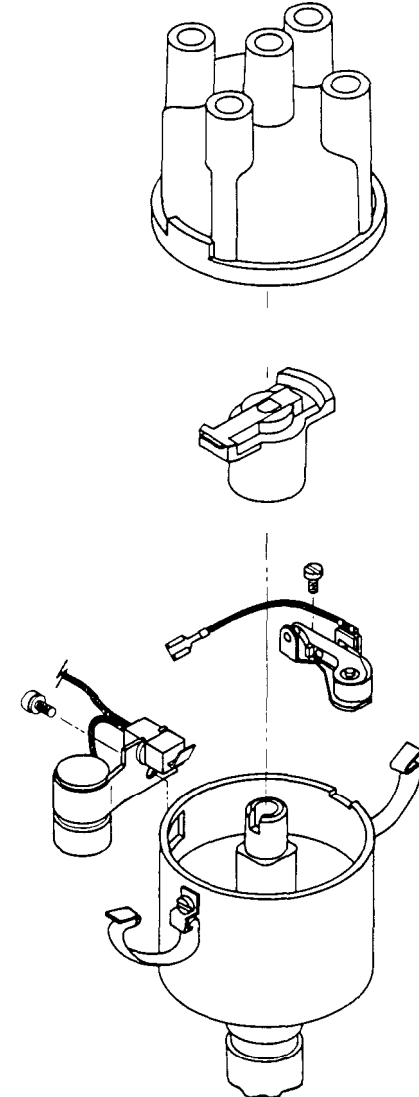


FIG. 3

installation of coil pack to fan housing using the new coil pack mounting bracket

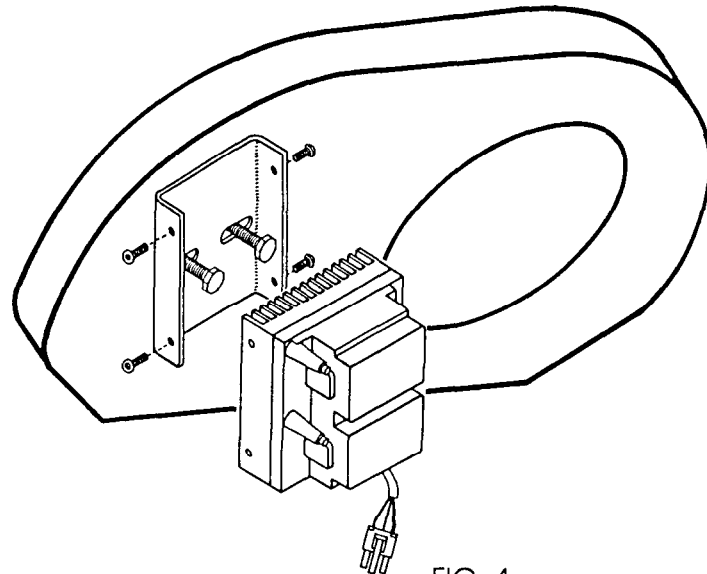


FIG. 4