VERTEX MAGNETO FACTS

RONCO

The Vertex Magneto is an outgrowth of the world famous Scintilla aircraft magneto which provided the dependability and performance needed for success when Charles A. Lindbergh crossed the Atlantic Ocean in 1927 with a single-engined plane. If the Scintilla Magneto wasn't a precision, sophisticated, performance ignition system, Lindbergh would have had a much shorter, and wetter, flight.

Today, the same performance and dependability characterizes every Vertex Magneto built by Ronco for automotive use. On street or track, a Vertex Magneto is your guarantee of unbeatable ignition performance. But don't just take our word for it... ask anyone who uses a Vertex Magneto.

the ignition system

Whether your engine is stock, as received from the factory, or rests between the frame rails of a fuel dragster or other race car, the ignition system is the most critical system affecting performance. Minor problems in other systems are insignificant by comparison; if the point gap in an ignition is off by a few thousandths of an inch, the result is the loss of several hundred rpm from peak engine speed and a substantial loss of power.

Two types of systems are currently available to fill the vital ignition function of building a fire in an engine's cylinders: battery/distributor systems (including capacitive discharge systems) and magnetos. The two are very different and the following comparison should convince you that the magneto is far more reliable and delivers much more power.

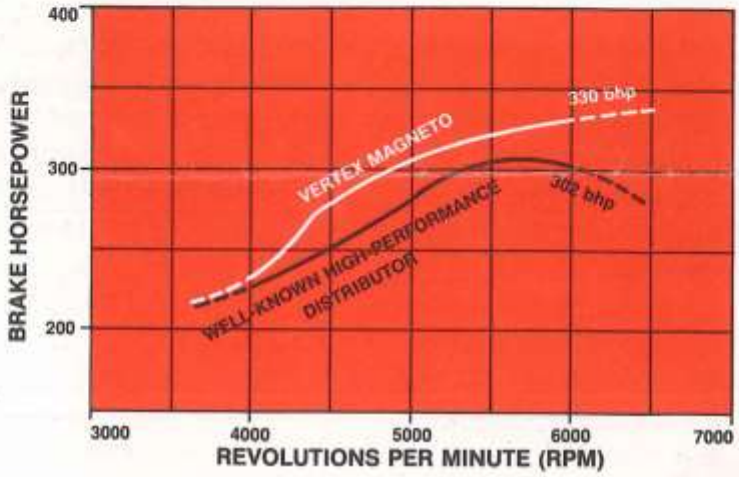
distributors vs. magnetos

Any distributor system, even so-called high-performance distributors, rely on a battery to provide electric energy. A weak or overloaded battery reduces the amount of energy available to fire the engine's spark plugs, thus robbing power. That's why race car builders eliminate all unnecessary devices which compete for electricity.

The Vertex Magneto, on the other hand, is a self-contained electric alternator. The Vertex unit supplies its own independent juice, so the battery is only needed for cranking and the power available to fire spark plugs is constant. As shown on the accompanying graph, a Vertex delivers 10% more power than competitive *performance*

battery/distributor systems. That's because a distributor's voltage decreases with increased engine speed, while a Vertex delivers more power as engine rpm increases. Peak spark occurs at peak rpm, but only with a Vertex Magneto.

The graph below shows the results of comparative testing on a General Electric Induction Dynamometer. The engine used was a blue-printed 302 cid Chevy V-8. First test was made with a well-known high-performance battery distributor. Result was 302 bhp. Next, the distributor was replaced with a Vertex Magneto. Spark plugs were re-gapped to .020 and *no other changes were made.* The result was 330 bhp, almost a 10% power increase due solely to the Vertex Magneto.



coils

In a battery/distributor system, the coil is used to build up electrical energy produced by the battery. When the points separate, high voltage from the coil is transmitted to the spark plugs. At the higher engine speeds associated with high-performance use, a distributor's coil can't build up energy fast enough, so the resulting weaker spark reduces power.

A Vertex Magneto uses no external coil. Due to the sophisticated design of the Vertex unit, an internal coil is used. With a Vertex Magneto, there's always enough juice to fire the plugs, and that's true at well over 10,000 rpm. This performance benefit results from the fact that the Vertex Magneto generates its own alternating current. By comparison, a distributor requires a less efficient direct current battery and heavy external coil. This difference between the Vertex Magneto and battery/distributor systems is one of the prime reasons for the 10% additional power a Vertex delivers.

Vertex-equipped, push-start race cars eliminate the need for a battery, coil, alternator, regulator, starter and associated wiring—all for a substantial weight savings.

spark advance

When a spark plug fires is vitally important to performance. In a distributor, the timing of the plug firing is determined by an advance mechanism governed by a combination of weights, springs, and engine vacuum. Together, they provide a means for varying the point-in-time when the plugs fire in relation to piston travel on the compression stroke. If this spark timing is off by even a couple of degrees (of crankshaft rotation), performance suffers substantially.

Because springs gradually lose their tension, and because engine vacuum can change and is subject to leaks, the Vertex Magneto uses a precision cam within the magneto body to set advance. Any advance from 0 to 70 degrees can be obtained with a Vertex and the positive, metal-to-metal cam arrangement assures a constant advance curve for consistent performance over years of operation.

points

In a battery/distributor ignition, point wear has to be closely monitored for maximum performance. Adjustment and replacement are frequent service problems, especially in many high-performance distributors. The Vertex Magneto, however, produces the hottest spark available at any rpm without increasing the volt-ampere draw across the points. The result is that Vertex points, made from platinum alloy, often serve up to 75,000 miles before requiring replacement. Adjustment of point gap with a Vertex is only necessary on a yearly or 10,000-mile basis. Because the voltage load is light, the Vertex condenser produces long life and performance.

The net result of all this is that the Vertex Magneto produces a hotter, more intense spark within the engine's combustion chamber. The quicker, smoother burning reduces the combustion strains on rods, piston crowns, spark plugs and combustion chamber surfaces. There are less deposits, so your engine stays cleaner. The more efficient combustion produces better mileage. With the Vertex Magneto replacing a conventional distributor, acceleration is quicker and speeds are increased. You'll notice the difference the first time you step on the gas pedal.

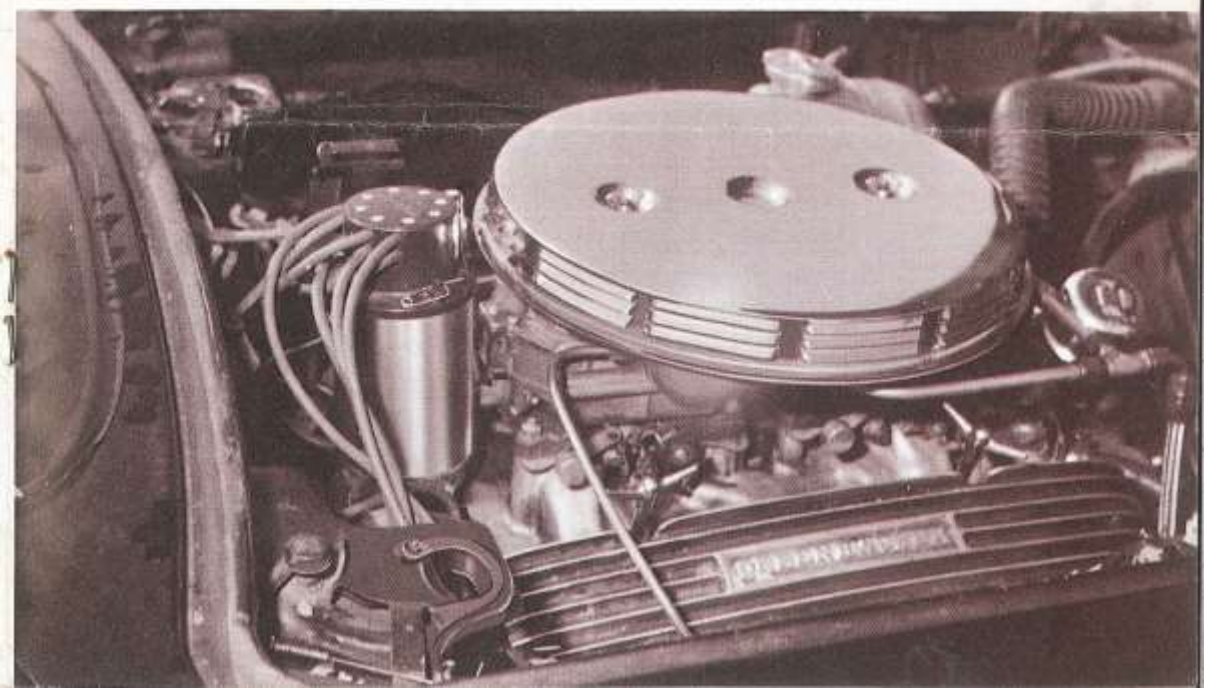
using a Vertex Magneto on the street

Since the early days of hot rodding, the Vertex Magneto has demonstrated its superior performance on everything from the old flathead engines to contemporary OHV V-8s. Yet many drivers in search of better performance have avoided the use of a magneto because they feel the design is not compatible with street use. Such is not the case.

With a distributor ignition, the key-switch is used to pass battery juice to the ignition system. With a magneto, which supplies its own power, it is necessary only to eliminate the magneto's ground to produce juice to fire the plugs. This is done in race cars through the use of a kill switch. For street use, Vertex has developed an inexpensive relay which allows the magneto to be controlled by the stock ignition key-switch. Installation of the relay is painless and takes only a couple of minutes. *(See the following accessories for additional information.)*

Also contrary to popular opinion, special plug wires are not required by the use of a Vertex Magneto. Any good grade of plug wire will do, but carbon wire should be avoided for best performance.

An additional benefit lies in the fact that a Vertex Mag can be transferred when you sell your car. As long as the new engine has the same number of cylinders, a new base drive assembly can be fitted and updating to new specs can be taken care of by Ronco or an authorized factory service representative.



installing a Vertex Magneto

Replacing your conventional distributor with a Vertex Magneto couldn't be much simpler. All that's required is removal of the old distributor, the coil and the wires that connect these pieces to the battery and ignition switch. The Vertex Magneto then mounts in the same vertical position as the distributor. Vertex Magnetos can be supplied with virtually any advance curve and need only to be bolted in place and timed. An optional degree ring may be fitted easily to the outside of the magneto body to facilitate timing.

Vertex Magneto accessories

In keeping with the simplicity of the Vertex Magneto, only a few select options are potentially needed. None are required, but one or more may provide more flexible use or simplify installation and timing for your specific application.

Vertex Starting Relay. Easily installed, the relay permits normal starting and shut-down of the engine with stock ignition key and wiring. The Vertex Starting Relay opens when key is turned on, allowing the Vertex Magneto to fire the engine. Turn the stock ignition key off and the relay grounds the Vertex Mag to stop the engine.

Vertex Degree Ring. This easily installed accessory fits around the Vertex Magneto body without removing the mag from the engine. It provides a fixed reference for setting initial timing advance. Stainless steel band is non-magnetic and will not interfere with the magnetic field of the Vertex Magneto.

Vertex Key-Type Switch. Designed primarily for street and show cars to eliminate the need for a kill switch or button. The Key-Type Switch also reduces the chances of theft. Quickly installed and wired.

questions & answers

How is Vertex controlled for off and on?

The terminal marked "P" is wired to a grounding switch. To run the engine, open the switch. To stop, close it. Present ignition switch can be used by installing a Vertex Relay grounding switch.

Are special spark plugs needed?

No. Simply close plug gaps to .015". Magneto ignition does not require wide gaps to build up its high tension and closer gaps are preferable for high performances.

Is special ignition cable necessary?

No. Any good grade ignition cable is satisfactory. Avoid bunching or taping wires together because voltage is very high and cross leakage may occur. Keep cables as short as possible.

Does Vertex produce radio interference?

Interference is usually less since the Vertex circuit is independent of the battery and there is no feed-back through the system.

Can Vertex be radio shielded?

Yes. Complete radio shielding is available.

Does Vertex require extra power to drive?

At low speeds torque resistance is slightly greater, however, this factor can be ignored as shown by years of operating history.

Should suppressors be used?

No. It is recommended that no resistance be placed in the Vertex circuit.

How are Vertex points adjusted?

There is one locking screw and an adjustment slot. Only a screw driver and a .015" thickness gauge are needed.

What is life of breaker points?

Platinum alloy points have long life. Many serve up to 75,000 miles or more. Point loading is light and voltage very low. Maintain .015" point clearance.

How often do points need adjustment?

Under normal conditions yearly checking, or at 10,000 mile intervals.

Does Vertex have double breaker points?

No. Due to the Vertex magneto principle of operation long saturation dwells are not necessary at any speed. Dual points would add nothing to efficiency or dependability.

How is Vertex lubricated?

At intervals of 10,000 miles add a small amount of Vertex or equivalent lubricant to the grease fitting in the base. No other lubrication is necessary. The ball bearing under the breaker cam is lubricated and sealed during assembly.

Is there a condenser?

Yes. Voltage loading is light and long life is obtained. Capacity of the condenser is .024 MF.

Is recharging the magnet rotor necessary?

No. Magnets are permanently magnetized. Loss of magnetism is a rare possibility. Should it occur the rotor can be remagnetized by an authorized dealer.

Is Vertex moisture resistant?

Yes. All outer housings and parts are closely fitted. However, the inside of the cap should be wiped off occasionally as engine film will accumulate in time.

What do index numbers on the distributor head indicate?

They indicate the firing sequence of Vertex, not firing order of the engine.

What are the degree marks for on the top breaker plate?

To align the magnet rotor with the breaker cam. They have nothing to do with advancing or retarding the spark and should not be moved.

Will Vertex provide more power?

Yes. Acceleration and top speeds are increased materially. See chart.

Does Vertex reduce fuel consumption?

Yes. Due to more complete combustion and accurate timing more power is obtained from a given quantity of fuel. Consumption will be reduced proportionately.

Is there any reason to remove the distributor rotor?

There is no reason to remove the rotor, other than for complete Vertex overhaul, which should be done by factory trained personnel.

Does Vertex have automatic spark advance?

Yes. This advance governor provides very smooth engine performance. Certain applications require fixed advance which can be readily provided.

If I sell my car, can I keep the Vertex and put it on a new car?

Yes, provided the engine of the new car has the same number of cylinders. Your Vertex can be modified to fit the new engine.

Where can Vertex be obtained? Who makes installations? Are parts available?

Facilities are available through dealers for complete service and installation information. A list of these dealers is available and Vertex magnetos of all types are available through your nearest listed dealer. Should desired service or information not be available in your area, write direct to the Ronco Corporation.

RONCO

VERTEX MAGNETO

the ultimate ignition

- 10% power increase over high-performance distributors
- Better mileage
- Increased battery life
- Longer point and condenser life
- Produces much hotter spark at peak engine rpm
- Legal for most classes in all racing associations
- Needs only yearly points adjustment
- Eliminates expensive, heavy coils
- Costs no more than good headers, provides equal power increase
- Special relay allows use of stock ignition key for street
- Proven superior in drag racing since the days of the flathead

A product of

RONCO

Ronco Corp.
Blue Bell, Pa. 19422
215-828-2150

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HARDIMAN AUTO SUPPLIES PTY. LTD.
9 BULLECOURT AVE.
MILPERRA NSW 2214
PH: 771 6677