



## Product Information

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### Description

The Euro MotoElectrics *EnDuraSpark* Electronic Ignition is an electronic Hall Effect trigger and electronic ignition advance module that replaces the stock under-performing BMW ignition points, condenser, mechanical advance unit, and on later models, the electronic ignition control unit and bean can trigger unit.

This ignition replaces the ignition systems on all 1970-1995 BMW motorcycles. It is configurable for both single-plugged and dual-plugged engines. It is the last improvement ever needed on an Airhead ignition!





## Features

- “Set once and forget” ignition timing requires *NO* maintenance. Both dwell and ignition timing are drift free and permanent. Worn rubbing blocks, failing condensers, closing points and burned contacts are problems of the past. No more burning hands on hot header pipes while trying to adjust the dwell (points gap) or rotating the points backing plate (ignition timing).
- Provides the hottest possible spark using existing coils.
- Unlike some competitive units, the *EnDuraSpark* electronic ignition is not sensitive to battery voltage. It provides a full spark with battery voltage as low as 7.5 volts.
- Also unlike some competitive units, the *EnDuraSpark* electronic ignition does not use the original mechanical advance unit so worn springs, gummy advance mechanisms, worn “D” slots in the mechanical advance units and obsolete timing curves are problems of the past. No more problems with fast idle speed because of “hung” advance units. Combined with the *EnDuraLast* alternator, there is no longer *any* maintenance under the front engine cover.
- The crankshaft-fired trigger provides rock solid timing (more accurate than the stock cam-fired points) independent of timing chain wear and uneven advance unit cam wear. No more dual or hopping timing images. Crankshaft firing allows operation on engines with damaged, or broken-off cam noses. Normally these situations require replacement of the camshaft!
- For peace of mind, the design allows the original ignition system to remain installed. Switching to the original stock ignition simply requires re-connecting one wire.
- Provides a harsh environment, waterproof, strain-relieved connection between trigger and electronics. The resin potted and mechanically robust electronics module requires no dielectric grease for mounting or maintenance. Both the trigger and electronics units are designed and manufactured to modern electronic packaging standards. The low profile Hall Effect sensor fits under the alternator cover with no cover modification.
- Provides dynamometer optimized ignition advance curves for both single and dual-plugged engines. Unlike some competitive units, the advance curves have a 3800 maximum rpm after which there is no increase. Also unlike some competitive units, there is no loss of power or gas mileage due to over-retardation at lower RPMs. Having the correction ignition advance reduces cylinder head temperature, extends exhaust valve and valve seat life and improves overall performance.



## Features (continued)

- Eliminates hard starting and high speed hesitation due to closed up or burnt points.
- Eliminates vibration caused by ignition timing variations between cylinders. This may be caused by a worn D slot in the advance unit, an imperfection in the point cam lobes or a slightly to bent cam nose. Because the *EnDuraSpark* ignition is fired from the crankshaft, it is immune to these problems.
- Automatically turns off of current to coils when the engine stops but the ignition is left on. This prevents over heating the coils.
- Starts easier than the stock system because the electronics reduces the advance to 0° between 0 and 400 RPM.

## Bonus Features

- An adhesive timing degree wheel for the *EnDuraSpark* Electronic Ignition timing wheel is included. This allows easy visual timing verification and adjustment.
- A double-sided laminated wiring diagram for both the *EnDuraLast* Alternator and *EnDuraSpark* Electronic Ignition is included, shaped to the size of the under-the-seat BMW toolbox. Also on this sheet are instructions for re-connecting the points ignition.
- The *EnDuraSpark* Electronic Ignition Installation Guide provides comprehensive ignition timing information and troubleshooting documentation for BMW Airheads.



## Model Applicability

This *EnDuraSpark Electronic Ignition* kit is designed for 1970-1980 BMW points-based ignition and 1981-1995 electronic based ignition motorcycles which have been upgraded to the *EnDuraLast* Charging System.

1981-1995 models will require the addition of an end user supplied relay available at the time of purchase from Euro Motoelectrics.

This kit is not designed for use with BMW motorcycles using the stock Bosch alternator.

This kit is designed for both stock single-plugged engines and engines which have been modified to add a second spark plug to each cylinder, “*dual-plugged*” engines.

The kit can be used on BMW Airheads with exposed points under the front engine cover:

- All /5s (1969-1973 R50/5, R60/5 and R75/5)
- All /6s (1973-1976 R60/6, R75/6, R90/6 and R90S)
- Some /7s (all R60/7, all R75/7, R80/7 and R100/7 up to 1978)
- R100S, R100T, R100RS, R100RT up to 1978  
and BMW 1979-1980 Airheads with points in the "bean can":
- 1979 R100S,
- 1979-1980 R80/7, R100S, R100T, R100RS, R100RT
- All R45, R65 up to 1980
- 1980 R80G/S, R100, R100CS
- 1981-1995 See below

This kit does not work with /2 or any other pre /5 BMW model. BMW models after 1981 had electronic ignition with high energy spark coil which is incompatible, requiring an upgrade to a dual coil setup available at time of purchase from Euro Motoelectric. Refer to Coil information on page 6 of this guide.



## Spark Plug Compatibility

The *EnDuraSpark* Electronic ignition should be used with stock spark plugs, stock ignition wires, and stock ignition caps. For spark plugs, this means non-resistor plugs. Bosch has phased out their original non-resistor W5DC, W6DC and W7DC spark plugs and replaced them with WR5DC, WR6DC and WR7DC plugs, respectively. These are resistor plugs not compatible for this application. Currently, Bosch non-resistor spark plugs can only be purchased at BMW motorcycle dealers.

Airhead Model	Model Years	Bosch Plug	NGK Plug
R65	78-80	W5DC or W6DC	BP6ES or BP7ES
R60/6	74-76	W5DC	BP7ES
R75/6	74-76	W6DC	BP6ES
R90/6	74-76	W6DC	BP6ES
R90S	74-76	W5DC	BP7ES
R60/7	76-77	W5DC	BP7ES
R75/7	77-77	W6DC	BP6ES
R80	77-80	W7DC	BP6ES
R80GS	1980	W7DC	BP6ES
R100/7	76-78	W5DC	BP7ES
R100/T	79-80	W5DC or W6DC	BP6ES or BP7ES
R100RS	76-80	W5DC	BP7ES
R100RT	78-80	W5DC	BP7ES
R100S	76-80	W5DC	BP7ES

## Spark Plug Cap Compatibility

The *EnDuraSpark* Electronic ignition is compatible with the OEM stock 1K Bosch, 1.2K Beru, and 5K Bosch spark plug caps that originally came on the motorcycle. It is also compatible with any 1K or 5K aftermarket spark plug caps such as the NGK LB01FP, LB05FP or LB05EP.

## Ignition Wire Compatibility

The *EnDuraSpark* Electronic ignition is compatible with the OEM stock ignition wires that were originally outfitted on BMW Airheads. These are Hypalon covered, stranded copper core, non-resistor ignition wires with a resistance of about 2 ohms per foot. The ignition is also compatible with Hypalon or silicon insulated stranded copper aftermarket wires, such as that manufactured by Accel, Belden, and Packard.

It is important that copper core wires are used, not the carbon powder center ones normally sold at auto parts stores.



## Coil Compatibility

### Compatible Coils

The *EnDuraSpark* Electronic ignition is compatible with all stock BMW ignition coils used on models using points and condensers. Specifically, the *EnDuraSpark* can be used with ignition coils that have a primary resistance seen by the electronics between 2 -3 ohms. Since both stock Airheads and dual-plugged Airheads use two coils wired in series, each of these coils needs a primary resistance of 1 to 1.5 ohms.

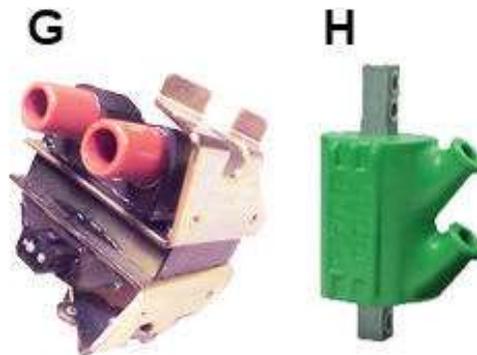
The optimal replacement coils available for use with the *EnDuraSpark* Electronic Ignition are the Bosch 6V 1.5 ohm “Super” coils, part # BO-Coil/6Vx2 available from Euro MotoElectrics.



### Examples of Compatible Coils

### Incompatible Coils

The EME ignition is NOT compatible with conventional *electronic* ignition coils, which typically have a primary resistance of around .7 ohms. These coils will fry the *EnDuraSpark* ignition. The older black Bosch coils and the newer electronic black Bosch coils look almost the same – except the electronic ignition coils (which can't be used) have a small yellow lightning icon on them.



### Examples of Incompatible Coils



## *Specific Compatible & Incompatible Coils*

### *Single Plugged Engine using 2 Coils wired in Series (stock configuration)*

**Compatible Coils**

Stock BMW points & condenser coils from 1970-1980

Black coil BMW #: 12 13 1 351 584 Bosch part #: 0 221 100 022 (/5)

Black coil BMW #: 12 13 1 243 452 Bosch part #: 0 221 101 003 (/6, /7, early 100)

Black coil BMW #: 12 13 1 244 142 & 02-21 100 028 (R80RT, R100/T, CS, RS, RT)

C - Bosch Super "Blue" 6V single tower coil (NLA)

A - Bosch Super 6V single tower coil , Brazilian "silver" (EME part # BO-Coil/6Vx2)

**Incompatible Coils**

G - Any coil from any 1981+ BMW motorcycle, including all Oilheads, Airheads, K-bikes

G - Any coil from a stock BMW transistorized ignition.

### *Single -Plugged Engine using a Single Two Tower Aftermarket Coil*

**Compatible Coils**

Accel 140403S 3.0 ohm dual-tower coil

H - Dyna Dual-tower DC1-1: 3.0 ohms "Green"

**Incompatible Coils**

Accel 140404S .7 ohm dual-tower coil

Dyna Single-tower DC9-4: .7 ohm "blue"

Dyna Single-tower DC10-1: 5.0 ohms "black"

### *Single -Plugged Engine using Two, Single Tower Aftermarket Coils in parallel*

**Compatible Coils**

### *Dual -Plugged Engine using Two, Two Tower Aftermarket Coils in Series*

**Compatible Coils**

D - Dyna Dual-tower DC2-1: 1.5 ohms (2 in package) "brown"

D - Dyna Dual-tower DC5-1: 1.5 ohms (1 in package) "brown"

**Incompatible Coils**

Accel 140404S .7 ohms dual-tower coil

Dyna Dual-tower DC9-1: .7 ohms "blue"

Dyna Dual-tower DC4-1: 2.2 ohms "gray"

H - Dyna Dual-tower DC1-1 & DC6-1: 3.0 ohms "green"

Dyna Dual-tower DC7 & & DC8-1: 5.0 ohms "black"

Dyna Four-tower DC9-2: .7 ohms

### *Dual -Plugged Engine using Two, Two Tower Aftermarket Coils in Parallel*

**Compatible Coils**

**Incompatible Coils**

Accel 140403S .7 ohms dual-tower coil

H - Dyna Dual-tower DC1-1 & DC6-1: 3.0 ohms "green"

Dyna Dual-tower DC7 & & DC8-1: 5.0 ohms "black"



## *Stock Ignition Points Maintenance*

The introduction of the BMW /5 motorcycle series (1969 Europe, 1970 USA) included the introduction of the Bosch battery/coil ignition system, replacing the previous generation magneto/coil system of the /2s. These are "points and condenser" ignitions like those used in cars of the 1970s, except BMW motorcycles did not need a distributor (all the spark plugs on an opposed twin fire together).

This was state-of-the-art technology when introduced, although by today's standards requires considerable periodic maintenance (every 5,000 miles). Specifically:

1. The battery needs to be disconnected,
2. The front timing cover removed,
3. The ignition point gap cleaned,
4. The felt strip which lubricates the rubbing block oiled,
5. The advance unit's pivots oiled,
6. The advance unit shaft greased,
7. The dwell (point gap) set, preferably with a dwell meter, and
8. The ignition timing set, preferably dynamically with a strobe timing light.

Points last about 15,000 miles (with lubrication of the points cam @ 5,000 miles) after which they should be replaced. Advance units are often removed and cleaned up about every 60,000 miles. The ignition points and advance units are no longer manufactured by Bosch. The special greases specified to lubricate the advance (Bosch Ft 1 v22 or 26) and cam felt (Bosch Ft 1 v4) are no longer available from BMW and no longer imported into North America. (There are near equivalents, however.)

BMW has had serious quality control problems with their replacement ignition points. In addition to being on backorder for many months in 2007 and 2008, BMW tried several alternative sources (Bosch no longer manufactures them) including Beru, Bremi, and Doduco. In the spring of 2010 their ignition points (sourced from China) were recalled because they had a rubbing block that was too high. These points could not be adjusted. Also, the points are often shipped with the point contact surfaces not being parallel or with plating material flaking off. There have been quality issues on the rubbing block material (wears too fast) and contact surface plating (there isn't any!) On the China points, the spring is mounted in the wrong place, making adjusting the backup plate screw difficult. They are flimsy; tightening down the points on the backup plate causes the unit to flex. The pivot pin is a sloppy fit in its hole.



## *Issues with BMW Points Ignitions*

- A poorly running, hard to start engine can be caused by the ignition points closing up. This is caused by the wearing down of the points rubbing block on the points cam due to lack of lubrication or excessive wear. Rubbing block wear can also be due to surface corrosion on the point cam surface of the advance unit.
- Dirty points can cause irregular ignition firing. This is usually due to either oil contamination from a weeping point cam seal (which is under the points plate) or water invasion from using a pressure washer to wash the bike. This is aggravated if a Dyna DB-1 or similar points amplifier has been inserted into the ignition system. A points amplifier reduces the current flowing through the points, letting them last longer. The down side is that the reduced current doesn't burn off oil contamination like the stock configuration does.
- Erratic or poor performance from accelerated points wear due to the tungsten plating being filed off the points contact surfaces by an inexperienced mechanic.
- Points burned closed and ignition coils fried by leaving the ignition key "on" without the motor running. This is because the points may be in the closed position. These components are not intended to be passing current 100% of the time (when running, they have a duty cycle of about 30%).
- Erratic performance caused by ignition points that wear asymmetrically, with a "mountain" peak on one side and a valley pit on the other, due to a faulty condenser.
- Squeaking noises coming from the front of the engine from a dry rubbing block on the points cam. This is especially common on 1979-1980 Airheads with the "bean can" canister which didn't have a felt for lubricating the cam as the earlier models had.
- Vibration due to a firing discrepancy between cylinders. This can be caused by a worn "D" slot in the advance unit, a bent ignition cam nose, or an advance unit cam out of spec. The ignition points cam on the BMW advance units have two, supposedly identical lobes. Due to manufacturing irregularities there can be a slight variation between cylinders. BMW issued a service bulletin instructing dealers to repair the advance unit by honing the advance cam surface.
- Points float if the points return spring has been stretched beyond its elastic limit. This happens during cleaning the point contacts by opening the points too far.
- Unmaintained ignition advance units can "hang up" in the advanced position when the engine is warm, causing the engine to idle too fast. It is the center of the advance that is sticking, so oiling the weight pivots won't fix the problem. The advance units in the canister models are particularly difficult to service.
- Advance units can wear out: the springs loosen and the pivot pin holes on the weights can become elongated. The point cam surface may develop corrosion in the form of pitting. The brazing that attaches the metal tabs to the back of the advance can break.



## *Issues with BMW Electronic Ignitions*

- The electronic ignition system on the model years 1981-1995 is considered fairly reliable but suffers from a few problems.
- The electronic system that BMW developed is not actually fully electronic—it relies on some mechanical weights and springs to control the ignition advance.
- In time, the lubrication inside the bean can breaks down resulting in the idle speed sticking at around 2,000 RPM.
- The bean can is not designed to be easily serviceable and a replacement unit is very costly.



## Ignition Options for 1970-1995 BMW Airheads

(Adapted from [www.bmwscotter.org](http://www.bmwscotter.org), with permission)

There are generally seven options for configuring a 1970-1995 BMW motorcycle ignition system:

1. Leave the system stock.
2. Add a points amplifier (usually Dyna DB-1) to the stock points system. These retain the stock points but reduce the current passing through them so that they last 50,000 miles instead of 10,000.
3. Replace the points with a Dyna III electronic ignition running off the camshaft.
4. Replace the points and ignition advance with a Boyer electronic ignition running off the camshaft.
5. Replace the points and ignition advance with a Breindl-Grope OMEGA Type W electronic ignition running off the crankshaft.
6. Replace the points and ignition advance with a Silent Hektik electronic unit running off the crankshaft.
7. Replace the points and ignition advance, or on models 1981-1995, replace the entire factory electronic system with a Euro MotoElectrics *EnDuraSpark* Electronic Ignition running off the crankshaft.

Older manufacturers of electronic ignitions including Camtron, Gerex, Lucas-Rita, Martek, Pazon and Prestolite are out of business or no longer market models for BMW Airheads. The Alpha unit bean-can from Motorrad Elektrik is designed for 1981-1995 BMW models, not the 1970-1980 models addressed here.

All seven solutions work well; there are thousands of Airheads running these systems with no problems. All seven systems can, and most have, failed. They vary in how much maintenance they require and how they are repaired on the road. The caveat with some of the electronic ignition options is that if they DO fail on the road, you might not get going again. Points can almost always be made to work to get you home.



## *Issues with Options Using the Advance Unit*

Option #1, the stock system, needs the most maintenance. The points themselves need to be replaced at 12,000 - 20,000 miles. This costs \$20 in parts and takes about 20 minutes. They should be re-gapped and the engine re-timed after about 500 miles when new points are installed and then every 5,000 miles thereafter. However, no matter what happens on the road the points can usually be adjusted to get you home.

Option #2, with the points amplifier, reduces the current flowing through the points and hence allows the points to last 50,000 miles. All the maintenance, however, is the same as #1.

Options #1 and #2 both retain the use of the standard condenser. Condensers can fail, although it is not common. Configurations #1 and #2 both have the issue of wear on the fiber rubbing block which slowly closes the point gap. On Airheads, the wear is usually due to lack of lubrication but can also be due to surface corrosion on the point cam surface.

Option #3, the Dyna ignition, completely eliminates the points and condenser. There is no points wear, no re-gapping and no re-timing. One failure mode of the Dynas, indicated by mid-range RPM sputtering, is caused by the advance unit binding because of over tightened screws that mount the trigger magnet to the advance cam.

Options #1, #2, and #3 still use the stock BMW mechanical advance unit, however, which still requires periodic maintenance. It has a common failure mode of "sticking" on when the engine is hot, especially the bean-can models which don't have lubricating felts. This causes a fast idle.



## *Issues with Options Eliminating the Advance Unit*

Options #4, #5, #6 and #7 (the Boyer, Omega, Silent Hektik and *EnDuraSpark* ignitions, respectively) completely eliminate the points, condenser and advance unit. They require no maintenance at all under the front engine cover. These also solve the problem of when the camshaft nose is broken off or its threads damaged.

Boyers sometimes had problems at low RPMs causing the engine to quit while idling and difficult starting. The Boyer ignition advance curve is retarded compared to stock.

Both the Boyer and Dyna systems sometimes fail because of pinched wires under the timing cover. On the Dyna, the advance weights may scrape the wires. A failure mode of the Boyer and Dyna systems is that if water from rain or power washing gets into the points area, the electronic circuit boards can corrode. Another failure mode for the Dynas and Boyers is that a low battery voltage will prevent them from working. Boyers can't be static timed as the sensor is passive (not supplied with electricity) and generates its own when moving.

Option #5, #6 and #7 eliminate the problems with #1, #2, #3, and #4. These upgrades are driven off the crank, not the camshaft.

Option #5, the Omega ignition, will void the 3-month warranty if attempted to be used with the Omega charging system or the ThunderChild diode board. The *EnDuraSpark* warranty is 12 months from installation.

The Omega has 10 advance curves to select from, the Silent Hektik 16. While the *EnDuraSpark* has only two selectable advance curves (one for single-plugged and dual-plugged engines) they are perfect for Airheads. All three solutions allow the original points, condenser, and advance unit to be left on the bike so they can be easily reverted to in the field. Another advantage of crank-fired ignitions is the elimination of dual timing images and their associated engine vibration.

Dual plug users have unique ignition curve requirements. After 20 years of testing and discussion, the consensus in the Airhead community is static timing should be close to stock but the fully advanced timing reduced to about 28 degrees. The different solutions above vary in their ability to adjust the advance range for dual-plugged engines. Boyer has several electronic ignition systems for dual-plugged Airheads available (two Micro Digital Units; two Micro Power Digital Units, plus racing versions). But all of them have fixed advance curves which have too much advance and the shape of the advance curves goes about 1000 RPM too high. The unit is still advancing at 4500 RPM.

The problem with the Omega and Silent Hektik electronic ignitions is these solutions preclude using the *EnDuraSpark* alternator. If you are going to upgrade your electrical system, it is more important to get rid of the stock rotor, brushes, and diode board (all of which are problem areas on Airheads) than doing anything with the points!

**In summary, while all seven options will work, the *EnDuraSpark* Electronic Ignition together with the *EnDuraLast* Alternator is the Airhead GOLD STANDARD: Optimal ignition advance curves, maintenance free, modern ruggedized packaging and the ability to easily revert back to the stock ignition system.**



## Frequently Asked Questions

<p>1. Can the EnDuraSpark Ignition be used with a...</p> <ul style="list-style-type: none"> <li>• BMW /2?</li> <li>• R65?</li> <li>• Moto Guzzi or other non-BMW motorcycle</li> <li>• BMW Oilhead, Hexhead, or K-bike?</li> <li>• “bean can” bike?</li> <li>• BMW with factory electronic ignition?</li> <li>• Omega alternator?</li> </ul>	<p>No. The model year must be 1970-1995.</p> <p>Yes, for model years up to 1995.</p> <p>No.</p> <p>No.</p> <p>Yes.</p> <p>No. The high energy spark coil must be replaced with compatible coils and an additional relay for these models.</p> <p>No.</p>
<p>2. Can the stock ignition system be left on the bike?</p>	<p>Yes.</p>
<p>3. Is it easy to switch back to the stock ignition?</p>	<p>Yes, five minutes.</p>
<p>4. Can I use my existing coils?</p>	<p>Yes, only on pre electronic ignition models if stock.</p>
<p>5. Can I use a “hotter” coil?</p>	<p>No. The primary resistance of the two coils in series must be 2-3 ohms.</p>
<p>6. Can I use my existing spark plugs?</p>	<p>Yes.</p>
<p>7. Is a condenser used?</p>	<p>No.</p>
<p>8. Can carburetors be synchronized by shorting the spark plug caps?</p>	<p>Yes, but the caps must always be grounded to something.</p>
<p>9. Does it hurt to leave the ignition key on with the engine not running?</p>	<p>No.</p>
<p>10. Can I change the amount of electronic ignition `advance?</p>	<p>No. You may select 20° or 26°</p>



## Frequently Asked Questions (continued)

<p>11. Can I change the initial timing?</p>	<p>Not really. The initial timing or the final timing can be set, but not both independently since the total advance range between them is fixed. Timing should be adjusted to make the advanced timing perfect, letting the initial timing fall where it may, generally 8°.</p>
<p>12. Can I change the maximum advance value?</p>	<p>Yes, it can be set anywhere.</p>
<p>13. Can I adjust the ignition curves?</p>	<p>No.</p>
<p>14. What is the dwell?</p>	<p>The system has a variable dwell. The system provides a constant 4ms dwell time independent of RPM.</p>
<p>15. Can the dwell be adjusted?</p>	<p>No. There is no need. Dwell is dynamic, optimized at each RPM.</p>
<p>16. At what RPM does the electronic advance operate?</p>	<p>1000 – 3800 RPM for single-plugged engines, 1000-3000 for dual-plugged engines..</p>
<p>17. Can the advance start and stop RPMs be changed?</p>	<p>No.</p>
<p>18. Are special tools needed for installation?</p>	<p>No. A strobe timing light and an in-lb torque wrench are optional.</p>
<p>19. What is the “whrrring” sound I hear?</p>	<p>This is the normal sound of the <i>EnduraLast</i> alternator creating an electromagnetic field at all RPMs.</p>
<p>20. When removing the flywheel, the crankshaft must be blocked from moving forward. This prevents the thrust washer on the crank inside the engine from slipping off its locating pins. How do you block the crankshaft when the <i>EnduraLast</i> Ignition has been added to the front of the crank?</p>	<p>Simply back out the rotor bolt a half an inch and replace the front cover. Gently tighten down on the cover bolts. The cover will push on the rotor bolt, keeping the crankshaft from moving forward.</p>



## Frequently Asked Questions (continued)

<p>21. <i>Can the EnDuraLast ignition be used with a battery loss system on a race bike, i.e., without an alternator?</i></p>	<p>Yes, it is a very good ignition for racing applications. You will need a battery designed for total loss systems, i.e., physically vibration tolerant and capable of multiple deep cycles without losing capacity. Voltage needs to remain above 11.5 volts as the battery discharges until it is almost dead. Two commonly used motorcycle racing batteries are:</p> <ul style="list-style-type: none"> <li>• Odyssey 680PC, 15lbs, maintains 11.9 volts (down to 25% charge) for 7.5 hours: <a href="http://www.odysseybatteries.com">http://www.odysseybatteries.com</a></li> <li>• Carbon Speed 8-cell, 1.5 lbs, 2.6 hours @ 1.5 amps: <a href="http://www.carbon-speed.com/prod.htm">http://www.carbon-speed.com/prod.htm</a></li> </ul> <p>The dual-plugged ignition curve should be selected in the dip switches in the <i>EnDuraLast</i> black box for racing applications even if the motor is not dual plugged. This is because the dual-plugged ignition curve ends 600 RPM sooner, 3000 RPM vs 3800 RPM.</p>
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## Appendix: Ignition Advance Curves

