

Pazon
IGNITIONS WITH THE 7½ YEAR WARRANTY

Boyer Bransden Ignitions
Electrifying Performance

Pazon v Boyer

The Trigger

Mini Series Part 1 www.pazon.com

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Introduction

Isn't Pazon just a Boyer copy?

We are always being compared to Boyer Brandsden.

Aren't you just a Boyer copy? people have asked countless times. So in answer to the question we are writing a series of booklets to give you the chance to decide for yourself, and make an informed choice.

In making that informed choice, we can understand if you are saying to yourself "Isn't Pazon going to be biased towards their own products?"

So why should I bother to read.

Well here's why.

We are not just going to tell you how wonderful we are when compared to Boyer. We could, but that that would not be playing the game fair. So what we are going to do is do a direct comparison, like for like, so you can decide for yourself, whether we are just a Boyer copy or not.

So here goes.

Let's start with the trigger, stator plate, pickup, sensor or whatever you like to call it. For the purposes of this booklet, we will call it 'The Trigger'.

The Trigger

Boyer Mk3 versus Pazon Sure Fire

The circuit board:

A circuit board is a circuit board, right?
Let's take a look, shall we...



**Boyer-Brandsden
Mk3 trigger**

As you can see, the Boyer trigger has no information on the top side. This is because the circuit board is what is known as 'single-sided', which means that it has been manufactured with information and circuits on one side only (the bottom side).

What does this mean to you?

First it means you have no timing information on the top side.

This is the only side visible to you when the trigger has been fitted onto your bike.

The static timing holes are marked on the bottom side, so it's unclear which hole should be used.

This can lead to setting the ignition timing extremely retarded, resulting in difficult starting, and an overheated engine.



**Pazon Ignitions
Sure Fire trigger**

The reason the Pazon trigger has writing on the top side is because the circuit board is 'double-sided'. This allows information to be printed on both sides of the trigger.

On the top side there are markings against the two static timing holes, with directional arrows, so no guesswork involved when setting the static timing.

Also, there are markings next to the terminal connector block, so incorrect connections can be avoided. Finally, there are calibration marks (equivalent to crankshaft degrees) provided for both directions of rotation, as an aid when adjusting the final timing.

What does this mean to you?

The design of the Pazon circuit board has allowed us to help you have an easier and quicker time fitting the ignition system.



**Boyer-Brandsen
Mk3 trigger**



**Pazon Ignitions
Sure Fire trigger**

Plated Through Holes

What are they?

These are small copper tubes inserted into each of the drill holes during the manufacture of the circuit board. Finally, they are plated.

A single-sided circuit board does not permit the use of plated through holes, therefore the Boyer trigger does not have any.

What does this mean to you?

Weaker solder joints can result from not having plated through holes. This can result in fracturing of the solder connections, leading to misfiring or total ignition failure.

Adjustment Slots

These are perfectly fine and the size does the job well.

Plated Through Holes

Now that you know what they are, the Pazon circuit board, being double-sided, has plated-through holes.

What does this mean to you?

Due to the use of plated-through holes, the solder flows right through from one side to the other, making for a very strong and reliable connection.

This means greater reliability, even under the tough conditions a bike can throw at it.

Adjustment Slots

The slots on the Pazon trigger are just that little bit wider, giving a greater range of adjustment, if needed.



**Boyer-Brandsden
Mk3 trigger**



**Pazon Ignitions
Sure Fire trigger**

Trigger Coils

Well, what can be said about the two small coils, mounted onto the trigger circuit board?

Each of the Boyer trigger coils have a high number (over 3000) of very very fine turns of copper wire wound around each bobbin.

What does this mean to you?

Not much, really. They do the job, so the main difference between this and the Pazon trigger coils is the appearance.

Connectors

The connections to the Boyer trigger are made with two wires terminated with two pre-insulated female bullet connectors.

What does this mean to you?

This is the weak link in the Boyer trigger. These types of connectors can be unreliable, due to the crimp design. It is difficult to guarantee a good connection, as you cannot see inside the crimp.

Trigger Coils

The trigger coils have less than half the number of turns of the Boyer ones. The copper wire is thicker, so less fragile.

What does this mean to you?

Again, no major difference between the two, only the look and that way the trigger coils are mounted to the circuit board.

Connectors

The connections to the Pazon trigger are made with a 2-way terminal connector block, or directly to two solder pads – the choice is yours. The connector block is a high quality rising clamp design, which avoids damage to the wires.

What does this mean to you?

A reduction of two connections means less chance of a bad connection, and less chance of fractured wires.

The Trigger

Boyer Micro-Digital/Power versus Pazon Smart Fire

The circuit board:

A circuit board is a circuit board, right?
Let's take a look, shall we...



**Boyer-Brandsden
Micro-Digital/Power trigger**

Does this look familiar?
Well it should...it's the same trigger as used in the Boyer Mk3 system.

So for full details on this trigger, refer to Chapter One on page 2.

Some of the drawbacks of using an analogue trigger in a digital system include:

- The output of the trigger varies with speed, and is lower at cranking speeds
- The output signal changes with temperature
- Older technology mixed with newer technology, e.g. microprocessor

What does this mean to you?

Use of an analogue trigger in a digital system can mean harder starting and less accuracy with the ignition timing.



**Pazon Smart Fire Trigger
Front & Back views**

The Pazon trigger uses a double-sided printed circuit board. The advantages of this are covered on pages 2-3.

The advantages of this digital trigger include:

- A true zero-speed self-calibrating differential hall-effect device.
- Static timing light on the board
- Quality terminal connector block
- Degree calibration marks
- Timing disc inspection window

Pazon Smart Fire Trigger

What does this mean to you? Let's take a closer look at the main parts.

The hall-effect device

The type of hall-effect device used on this trigger produces a digital switched output (on or off), making it match perfectly with a fully digital microprocessor-based ignition system. The output and switching point is consistent over a very wide temperature and supply voltage range.

The true zero-speed feature means that the trigger will switch at any cranking speed determined by the ignition designer, allowing for easier starting.

The digital differential hall-effect device detects moving metal over its surface; it also has a built-in magnet. This means that no magnets are required on the rotating (timing disc) part of the ignition system, making for a simpler and more reliable system.

The hall-effect device incorporates patented self-calibration circuitry that nulls out the effects of installation air gap and ambient temperature to provide superior timing accuracy. The self-calibration at power up keeps the performance optimized over the life of the sensor.

The sophisticated digital circuitry eliminates magnet and system offsets to achieve true zero-speed operation. It also allows air-gap independent switching, which greatly reduces the vibration sensitivity of the device.

The static timing light

The use of a digital trigger allows for the inclusion of a static timing light. This simplifies and speeds up the installation of the system – the static ignition timing can be accurately set by moving the trigger on its slots and watching the timing light go on and off.

Terminal Connector Block

The trigger uses the same type of quality connector as used on the Sure Fire trigger only bigger, to accommodate the extra wires. The connector uses what are known as 'rising clamps'. As the screw is tightened, a clamp rises to grip the wire securely, without damaging it.

Degree Calibration Marks

As on the Sure Fire trigger, the outer edge of the printed circuit board has markings equivalent to crankshaft degrees. Also, there are arrows indicating the direction you need to turn the trigger on its slots, in order to advance or retard the ignition timing.

There are two sets: one for clockwise rotation and one for counter-clockwise rotation of the timing disc or rotor.

Timing Disc Inspection Window

Finally, there is an inspection window, to allow viewing of the timing disc below. This helps with verifying that the timing disc holes or slots are correctly positioned. It also allows the running depth of the timing disc to be measured.

Conclusion

So in conclusion, is the Pazon a Boyer copy?

Both the Pazon and Boyer triggers do their job, but which one would you choose?

This is the first booklet in a series of five, taking an in-depth look at each of the main components that make up an ignition system.

For more information, visit www.pazon.com

About The Author

Dad was a sparky, working on planes and big brother was into electronics, so I would say it was in the blood.

I can still hear mum saying “Oh no, not again!”. For as long as I can remember, I’ve always taken things apart just to see how they work and put them back together again.

But the computer age was here, and the fascination for software engineering began. So there I was, heading down that career path.

So designing ignitions, following in the family tradition of electronics, who’d have thought it!

The road to classic bike passion

Designing ignitions for classic motor bikes became a passion for me after being employed in several jobs, from software engineer on microcontroller systems to working on radar and communications equipment for the Ministry Of Defence. I landed a job at Boyer Bransden back in 1990 and very quickly ended up involved in the software development on several ignition systems.

Sparks flew at first sight

This is where I met Debbie my wife and business partner, it was sparks at first sight (pardon the pun) where we soon rose to director level, but felt classic bike owners deserved a better product and we could not achieve this at Boyer Bransden. So in 2004 we went out on our own.

Taking the big leap

Taking this leap seemed second nature to us and we've never looked back. Andy now produces ignitions systems on the cutting edge of technology, as bikers deserve the best. These classic bikes are treasures and should be looked upon as such, so keeping them on the road gives us a great sense of achievement.

The big move

This is the next big adventure for Pazon Ignitions, moving from the UK to the other side of the world: New Zealand. This move has allowed us the freedom to follow our dreams, to grow Pazon into the kind of company that every classic bike rider deserves.

Feedback

If you have any feedback or any questions please email or call Pazon Ignitions.

No matter is too small.

Email: ignition@pazon.com



Andy Perkins

Pazon

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