

Pazon
IGNITIONS WITH THE 7½ YEAR WARRANTY

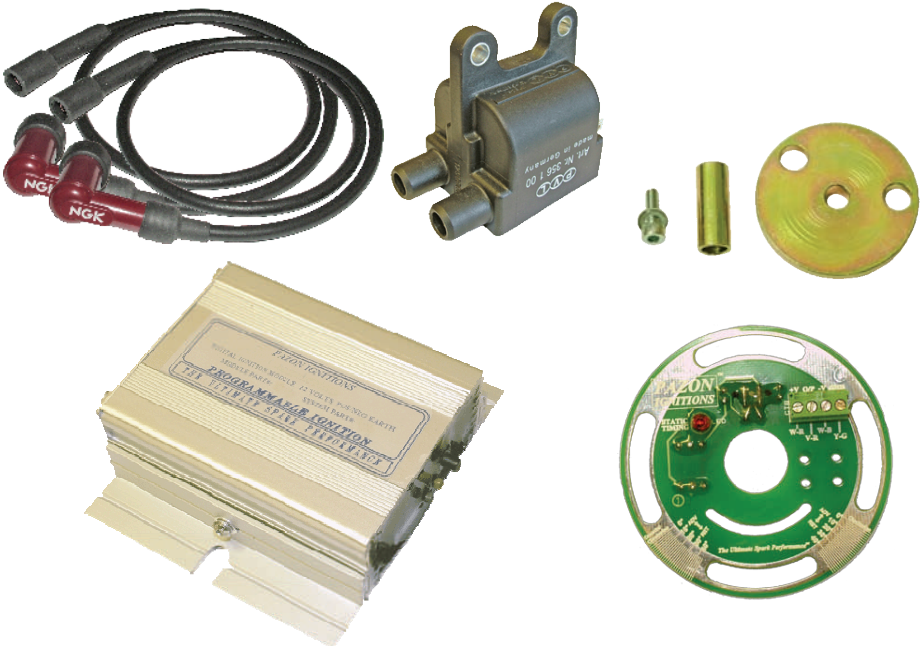
Smart-Fire™

DUCATI

750 TWIN

**HIGH-PERFORMANCE
IGNITION SYSTEM**

12 VOLT



SYSTEM TYPE: PDD750

Smart-Fire Applications

- DUCATI 750 TWINS & SIMILAR APPLICATIONS WITH 90° CRANK & 12-VOLT ELECTRICS
- CAMSHAFT/DISTRIBUTOR TRIGGERED, ANTI-CLOCKWISE/ CLOCKWISE ROTATION

FEATURES

- HIGH-POWER DIGITAL IGNITION MODULE (FULLY ENCAPSULATED)
- FULLY MAPPED IGNITION TIMING: IGNITION ADVANCE CURVE IS MAPPED FOR THE DUCATI 750 V-TWIN ENGINE
- PROGRAMMED COIL ENERGY CONTROL
- USER-PROGRAMMABLE REV.LIMITER BUTTON
- RELIABLE & RUGGED HALL-EFFECT SENSOR, INCLUDES ON-BOARD STATIC TIMING LIGHT, FOR EASY SETTING OF IGNITION TIMING
- MINIATURE HIGH-ENERGY DUAL IGNITION COIL
- ELECTRONIC TACHO DRIVE OUTPUT
- WASTED SPARK SYSTEM FOR SIMPLICITY
- LESS MAINTENANCE
- IMPROVED ENGINE PERFORMANCE
- FOR RACING OR HIGHLY TUNED APPLICATIONS: SPECIAL ADVANCE CURVES & REV-LIMITERS AVAILABLE
- COVERED BY MANUFACTURER'S 7½ YEAR WARRANTY
- MODULE SIZE(mm):
90 LONG x 65 WIDE (95 INC. MOUNTING BRACKETS)
x 30 DEEP, WEIGHT: 400g (INC. WIRES)

IGNITION SYSTEM COMPRISES:

- IGNITION MODULE (ALUMINIUM HOUSING WITH MOUNTING BRACKETS) & WIRING
- STEEL TIMING DISC, SPACER, FIXING SCREW & WASHER
- DIGITAL HALL-EFFECT TRIGGER UNIT
- DIGITAL IGNITION COIL (DUAL OUTPUT)
- H.T. LEADS (COPPER-CORED)
- PLUG CAPS (5K RESISTOR TYPE)
- FIXING SCREWS, WASHERS & NUTS
- CRIMP TERMINAL CONNECTORS & INSULATORS
- YELLOW-GREEN EARTHING WIRE
- LARGE & SMALL CABLE TIE-STRAPS

Smart-Fire Fitting instructions

**Warning: this system produces very high voltages,
Always switch off before working on the system.**

Important notes:

Before fitting, please read these instructions carefully, including the notice on page 16.

This system is designed to work only with the special digital ignition coil provided with the system. 5K resistor plug caps as supplied with the system should be fitted to the h.t. leads. Alternatively, resistor spark plugs can be used. Resistor plugs & resistor caps can be used, although it is not necessary to use both. Attempting to run the system without resistor type caps or plugs will result in excessive radio frequency interference (r.f.i.), which may cause bad running, misfiring and loss of ignition. For reliability, copper or steel cored h.t. lead should be used, we do not recommend using carbon fibre leads. This ignition is a wasted spark system, therefore both plugs fire at the same time.

These instructions are a general guide for installing the system to various machines and therefore it may be necessary to modify the length or routing of some wires in order to complete the installation. All connections should be made using good quality crimped or soldered connections; twisted wires will not give satisfactory operation. Wiring should be trimmed to the correct length, excess wire should not be coiled up as this can affect the correct running of the ignition system. If electric welding is to be carried out, the ignition module should be disconnected and its connectors covered with insulation, to help prevent stray sparks from damaging the module. If in doubt, remove the unit from the machine.

1. For safety, disconnect the battery (preferably both terminals).
2. Remove the fuel tank to gain access to the existing ignition system & wiring.
3. Disconnect all wiring from the ignition coils & remove the coils, h.t. leads & caps. Remove the spark plugs.
4. Fit the new ignition module in a convenient place. The unit can be orientated in any position, but this should be onto a flat surface, if

possible. Secure the unit by the mounting flanges using the two M5 bolts, washers & nuts. Alternatively, the mounting flanges can be removed by slackening the bracket securing screws and sliding the brackets out of the dovetail slots. The module can then be mounted using large tie-straps, with a small sheet of rubber between the case & the frame. The module casing acts as a shield for the internal electronics, therefore it is recommended that the case is connected to the frame earth. This can be achieved by direct contact between the mounting brackets & screws, but if the mounting surface is non-metallic, plastic-coated or not connected directly to the frame, then the yellow-green earthing wire provided should be used. A ring terminal at one end is placed under one of the module mounting screw heads or nuts (or case end plate screws) and a ring terminal at the other end connects to the frame earth.

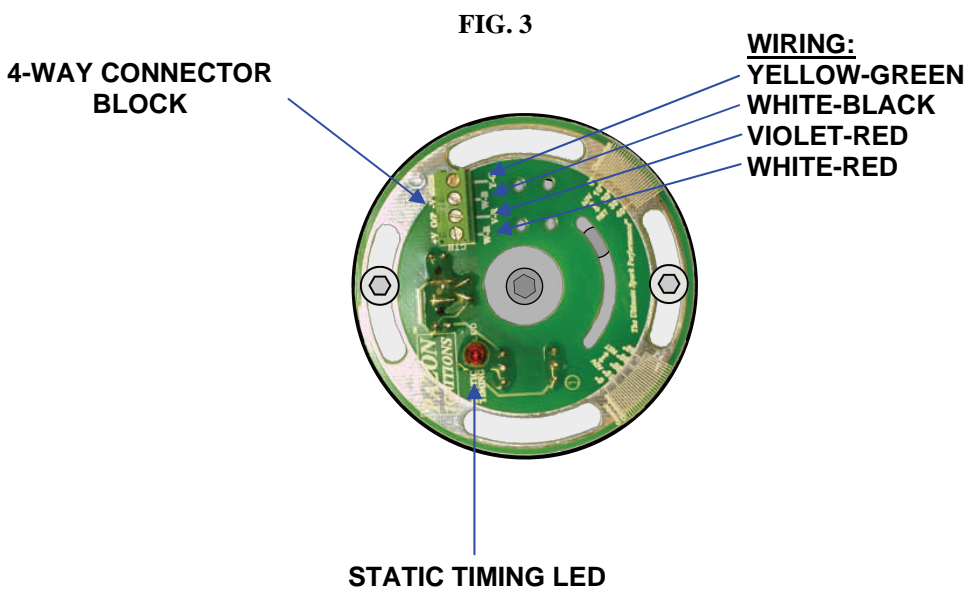
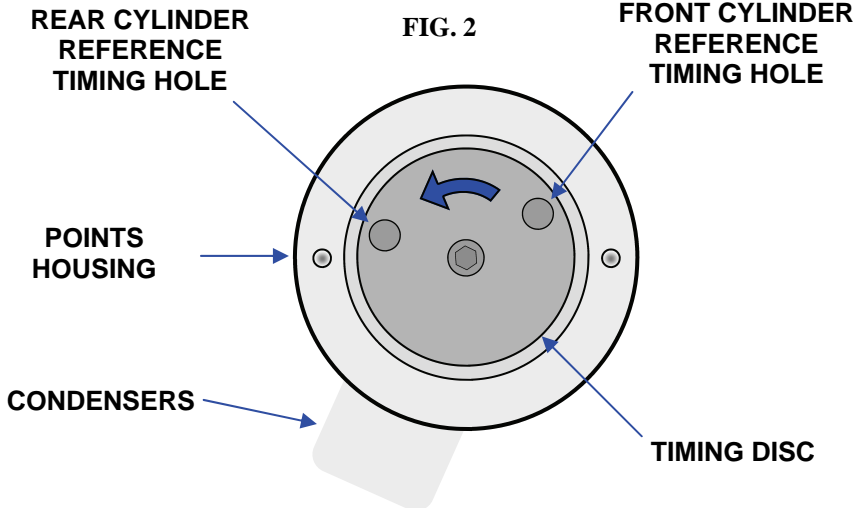
5. Fit the ignition coil in a convenient place, away from the ignition module. This can be in place of the old coil(s). Suspend the coil by the two mounting lugs, using the M5 bolts, washers & nuts. Alternatively, to avoid the need for drilling or a mounting bracket, the coil can be rubber mounted using two small pieces of rubber tubing (such as fuel pipe or heater hose) & two large tie-straps, see figs. 1 / 1a. The coil can then be secured by passing the tie-straps around the frame tube & fully tightening the tie-straps. Fit the new h.t. leads by pushing the brass connectors fully into the h.t. outlets of the coil, along with the rubber boots. Small tie-straps can be placed around the rubber boots & tightened to give extra security, if desired. The h.t. leads should now be cut to length, if necessary, & the plug caps screwed onto the ends of the h.t. leads. Since both h.t. leads fire together, it does not matter which h.t. lead goes to which plug.
6. Remove the complete points housing from the engine and take to a workbench.
7. Remove the points cover.
8. Cut the two wires close to the condensers. Undo the two screws & remove the complete contact-breaker assembly.
9. Remove the auto-advance/cam assembly.
10. Slide the supplied timing disc over the shaft (slotted end first), turn and push down until the slot locates onto the shaft. Due to slight variations between distributors (drive dog width and position), the

slot in the timing disc may need to be gently filed to allow it to fully seat.

11. Slide over the supplied spacer tube. Tap the top of the tube with a soft mallet to ensure that the timing disc is fully seated onto the shaft.
12. Fit the supplied M4 washer & fixing screw into the top of the shaft.
13. Set the vertical (rear) piston to the required full advance timing mark (typically 34° - 36°) on the compression stroke, using a known accurate timing mark or make one using a timing disc & pointer or depth gauge down the bore. Note: if using a timing disc on the distributor shaft, the angular movement will be half the required crankshaft full advance figure, e.g. for 36° full advance, set rear piston to TDC, zero pointer & wind engine back 18° of distributor shaft movement.
14. Looking at the distributor body with the two fixing holes at 3 o'clock & 9 o'clock (the condensers will be at approx. 7 o'clock), position the timing disc with the two timing holes at just past 9 o'clock & 2 o'clock (approximately). Securely tighten the bolt. See fig. 4, page 12.
15. Take the supplied ignition trigger & feed two small tie-straps through the two sets of small holes in front of the connector terminal block (do not fasten yet). These will be used to secure the sleeved trigger cable to the trigger plate. Fit the trigger into the distributor housing (in the place of the removed contact-breaker), the red static timing light will be positioned at approximately 7 o'clock. Fit the two fixing screws, but do not tighten at this stage.



**TIMING DISC STATIC POSITION
RELATIVE TO TRIGGER FIXINGS,
REAR PISTON AT FULL ADVANCE
(ANTI-CLOCKWISE ROTATION)**



Wiring

(Please see wiring schematic on pages 9)

1. The ignition trigger wires (sleeved) are coloured white—red, violet—red, white—black, & yellow-green. Allowing some slack in the cable (for ignition timing adjustment), route these wires from the ignition module down to the trigger in the distributor housing. If passing through holes in metalwork, use grommets or sleeving. Cut the trigger cable & sleeving to length. Route the sleeved wires to the trigger connector block, passing over the two small tie-straps inserted earlier. Carefully strip back a small amount of insulation (4-5mm) from the ends of the four wires. Insert the wires into the connector block on the trigger in order (from left to right): white—red, violet—red, white—black & yellow- green. See fig.3. Tighten the terminal screws. Secure the sleeved wires to the trigger by fastening the two tie-straps; cut of the excess from the tie-straps.
2. Connect the violet wire from the ignition module to the negative (—) terminal of the ignition coil (left-hand spade connector), using a female crimp connector and insulating cover.
3. Connect the red wire from the ignition module to the positive (+) terminal of the ignition coil (right-hand spade connector), using a female piggyback crimp connector and insulating cover.

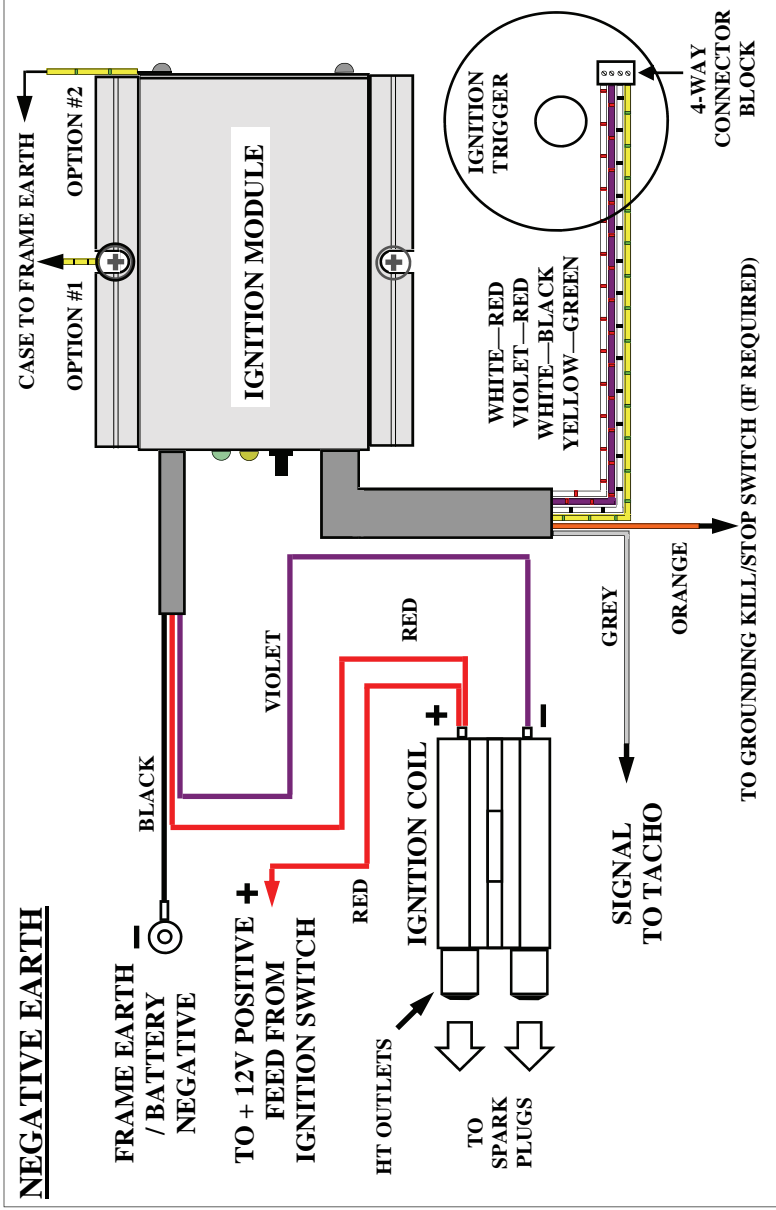
*Re-check the connections to the ignition coil;
reverse polarity may damage the coil.*

4. Connect the black wire from the ignition module to a good earth point on the frame or directly to the battery negative (—), using a ring terminal.
5. Connect the spare terminal on the piggyback connector (on the positive side of the ignition coil), to a switched positive supply (+12 volts). An in-line fuse can be included (8-10 amp recommended). It is important that the switch is in good condition; corroded or dirty contacts will cause misfiring/cutting out.
6. The **ORANGE** wire is an *ignition inhibit* input. This can be connected to a grounding kill switch or a hidden security switch. If not required, place insulating tape over the end of the wire to prevent shorting out.
7. The **GREY** wire is a tacho output signal for driving an electronic

tachometer, if fitted. This is a 12 volt output and provides 1 pulse per two engine revolutions (0.5 pulses/rev). This is compatible with the Ducati Veglia tacho. If your tacho requires a different pulse rate, contact Pazon Ignitions. Connect to the tacho signal input terminal/wire. If you have a mechanical tacho, an inductive pickup tacho (e.g. Scitsu) or no tacho, then leave unconnected; cut short the wire & and insulate the wire end.

8. Any remaining wires which may be present on the ignition module are for factory use and should remain unconnected and insulated, as supplied.

WARNING: TURN OFF/DISCONNECT THE BATTERY BEFORE WORKING ON THE SYSTEM HIGH VOLTAGES CAN KILL



Timing (PLEASE SEE PAGES 12 & 13, FIGS. 4-7)

1. Switch off ignition or disconnect the battery.
2. If not already set (step 13, page 5), position the rear (vertical) piston at the required full advance timing position on the compression stroke. This will be easier if the spark plugs are removed first. The advance graph on page 15 is based on a setting of 36° BTDC. If using a figure other than 36° the graph line will be shifted up or down accordingly.
3. If not already set, position the timing disc on the distributor shaft with the two timing holes positioned at just past 9 o'clock & 2 o'clock (approximately). Securely tighten the fixing screw. See fig. 4, page 12.
4. If necessary, slightly loosen the trigger fixings so that it can be rotated by hand. Position the trigger plate in the fully clockwise position. See fig. 6, page 13.

WARNING: RISK OF ELECTRIC SHOCK, KEEP HANDS & BODY AWAY FROM COIL, HT LEADS, CAPS & PLUGS

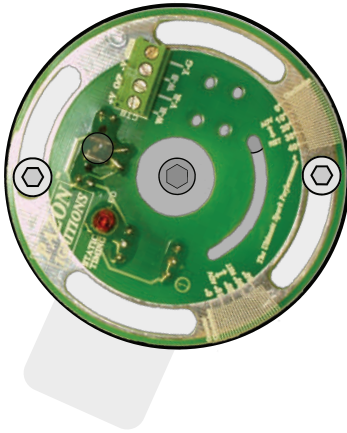
5. The following operations may produce a spark from the plugs, therefore it is recommended that the spark plugs be removed and grounded onto the cylinder head (with the plug caps & h.t. leads connected to them). Alternatively, the violet wire can be temporarily disconnected from the negative terminal of the ignition coil, place insulating tape over the end of the connector to prevent shorting to earth. This will prevent any undesired sparks whilst timing.
6. (Reconnect the battery).
 - Switch the ignition on, the small green light on the ignition module turns on.
 - The red static timing light on the trigger should be OFF.
 - Turn the trigger plate slowly anti-clockwise until the red timing light turns ON. This is the timing point for full advance. See fig. 7 on page 13.
 - Keeping the trigger in position, tighten the fixings.
 - If you make a mistake, switch the ignition off and restart from step 4.
 - Note the final position of the timing hole at about 2 o'clock, visible through the inspection window.

- The final position of the trigger may be slightly different to that shown in fig. 7 due to variation in the initial timing disc position
 - If the timing light does not turn on and off as in the above steps, switch the ignition off, remove the points housing, reposition the timing disc slightly and restart from step 4.
7. Switch off the ignition.
 8. Refit the spark plugs, if removed earlier. Reconnect the violet wire to the ignition coil, if disconnected in step 5.
 9. Push the plug caps firmly onto the plugs, they should click into place.
 10. Refit the fuel tank, if removed earlier. The engine should now start and after warming up should tick over well, provided everything else is correctly adjusted. The ignition will advance as per the pre-programmed curve (see advance graph on page 15).
 11. The timing can now be checked & adjusted (if necessary) using a strobe timing light. Proceed as follows:
 - Run engine for 4-5 minutes to warm up
 - Using a white light (xenon) strobe, time the engine to the full advance mark (as used earlier to set the static timing)
 - To advance the timing, rotate the trigger clockwise
 - To retard the timing, rotate the trigger anti-clockwise
 - Make very small adjustments, 1° of trigger movement equals 2° of crankshaft movement
 - For safety, switch ignition off between adjustments
 12. Refit the points cover.

INSTALLATION IS NOW COMPLETE.

STATIC IGNITION TIMING
ANTI-CLOCKWISE SHAFT ROTATION

FIG. 6

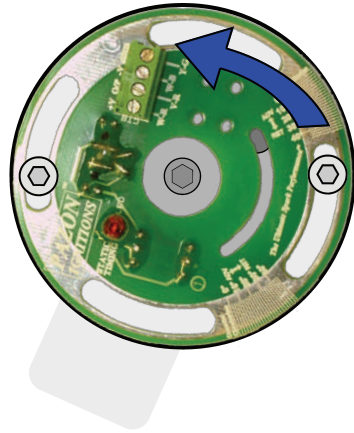


START POSITION

IGNITION ON

RED TIMING LIGHT IS OFF

FIG. 7



TURN
SLOWLY ANTI-CLOCKWISE,
UNTIL THE RED TIMING LIGHT
TURNS ON,
STOP TURNING

TIGHTEN TRIGGER FIXINGS

REV-LIMITER

USE OF THIS FUNCTION IS AT YOUR OWN RISK, SINCE IT IS POSSIBLE TO SET THE REV-LIMITER TO BEYOND THE DESIGNED UPPER RPM LIMIT FOR YOUR ENGINE.

The **Smart-Fire** ignition module features a function button that enables the user to set/reset the ignition rev-limiter. Unless specified when purchasing the system, the rev-limiter is not preset, allowing your engine to rev to its maximum (unrestricted).

To set the rev-limiter

To accurately set the rev-limiter you will need a rev. Counter/tachometer to monitor the engine rpm. Rev the engine to one-half the desired rev-limit rpm, press & hold the function button for a minimum of 3 seconds. The ignition module will take a snapshot of the engine rpm at the instant the button is pressed, therefore it is not essential to maintain a precise rpm whilst the button is pressed. The yellow indicator led on the module will flash 5 times Release the button. The rev-limiter is now set. When your engine reaches the preset rpm the ignition will turn off the ignition coil, cutting all sparks. Thus, the engine rpm will fall and, once below the rev-limit setting, ignition will resume.

The minimum rev-limiter setting is 3000 rpm (i.e. set with the engine running at 1500 rpm).

To reset the rev-limiter

To reset (disable) the ignition rev-limiter, press & hold the function button for a minimum of 3 seconds, with the engine below 1500 rpm (or stationary). The yellow indicator led on the module will flash 5 times. Release the button. The rev-limiter is now reset.

The rev-limiter setting is retained in the ignition module memory & will be recalled when the ignition is turned on.

Terms & Conditions and Warranty

- Use of this product indicates your acceptance of this notice.
- The product design, firmware & literature is Copyright © PAZON IGNITIONS LTD. 2005-2008, and is protected under international copyright, trademark & treaty provisions.
- To provide the best ignition systems possible, Pazon Ignitions Ltd. reserves the right to alter and improve the specifications of its products without prior notice.

Ignition Systems

- Pazon Ignitions warrants to the original purchaser that the Pazon Ignition System be free from defects in workmanship & parts under normal use for a period of 7½ years from date of purchase.

Ignition Spares

- Spares are defined as item(s) not purchased as part of a complete ignition system. Pazon Ignitions warrants to the original purchaser that these item(s) be free from defects in workmanship & parts under normal use for a period of one year from date of purchase.
- Ignition coils will only be covered by the warranty if it can be proved that the fault is due to a manufacturing fault within the coil.

Limitation of Liability

- In no event shall Pazon Ignitions' liability related to the product exceed the purchase price actually paid for the product.
- Neither PAZON nor its suppliers shall in any event be liable for any damages whatsoever arising out of or related to the use or inability to use the product, including but not limited to the direct, indirect, special, incidental or consequential damages, or other pecuniary loss.
- This warranty will be void if the product or parts have been altered, damaged, abused or installed incorrectly.
- This warranty will be void if parts supplied by Pazon Ignitions are used with other makes of ignition. Your statutory rights are not affected.

Warranty Claims

- To make a claim under warranty, the product must be returned to Pazon Ignitions or its authorized representative, with a copy of your receipt (or evidence of date and place of purchase), within the warranty period.
- Include a detailed description of the problem and why you believe there is a fault within the ignition system.
- The system must be returned postage paid. Proof of posting is not proof or receipt, therefore we recommend using a recorded mail service.
- Upon receipt we will thoroughly test the returned items and repair or replace any items found to be faulty and covered by the warranty.
- Please allow seven working days from receipt of the returned parts before contacting us, to allow sufficient time for a thorough test and evaluation.
- PLEASE CONTACT PAZON IGNITIONS FOR RETURN INSTRUCTIONS.

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