PRO-16
6 CHANNEL
CAPACITOR DISCHARGE
IGNITION

PLEASE REPORT ANY OMISSIONS OR ERRORS TO SALES@MWIGNITIONS.COM

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ALWAYS CHECK WEBSITE FOR CURRENT INFORMATION & ADDITIONAL INSTRUCTIONS
CAUTION

THIS WIRING DIAGRAM IS APPLICABLE ONLY TO IGNITION SYSTEMS WITH SERIAL NUMBER PREFIX STARTING

38xxxx

USE OF INCORRECT DIAGRAM WILL VOID WARRANTY AND MAY DAMAGE UNIT

THE INSTALLATION OF HIGH ENERGY IGNITION SYSTEMS MAY REQUIRE ADVANCED KNOWLEDGE AND SKILLS.

IMPROPER INSTALLATION OR OPERATION OF THIS UNIT COULD CAUSE DAMAGE TO IGNITION SYSTEM AND IGNITION COIL
INSTALLATION NOTES

(Pro series street systems only)

MOUNTING

Do not mount the unit where it will be exposed to water or other liquids and ensure the bottom condensation slots are unobstructed and permit gravity draining. Select a location away from intense heat such as turbochargers and exhaust pipes. For continuous high rpm operation provide a source of cooling air to remove any internally generated heat.

FAILURE TO USE SUPPLIED RUBBER MOUNTS WILL VOID WARRANTY!

Suitable anti vibration mounts should be no stiffer than 40 Duro such as M&W #MNT002, Paulstra Radiaflex #521128, Farnell Components (Element14) #7107821, Newark #70C1626 or RS Components #254-7444

IGNITION LEADS

Do not use either straight metal wire ignition leads or carbon core ignition leads.

For best performance use spiral wound inductively suppressed metal core ignition leads such as those produced by Magnecor®.

SPARK PLUGS

The use of use non resistor spark plugs (where possible) will significantly increase coil to fuel energy transfer.

When using resistor spark plugs ensure they are not damaged internally by measuring resistance value. Open circuit or high resistance may cause failure of spark plug wires, ignition coils and CDI.

Surface discharge and semi surface discharge spark plugs may be used with CDI ignition however be aware they have a large non adjustable spark gap suitable only for naturally aspirated or low boost applications.
INSULATION PRECAUTIONS

Always degrease spark plug insulators and boots after handling to prevent insulation breakdown through contamination.

Use supplied dielectric grease on spark plug insulators and coil boots to significantly improve insulation properties and ease installation and removal. Use in main connector can also help reduce issues due to water ingress.

WIRING & POWER SUPPLY

FAILURE TO INSTALL RECOMMENDED SIZE FUSE WILL VOID WARRANTY!

M&W CDI systems contain internal protective mechanisms which are designed to blow the fuse under conditions of over voltage or reverse polarity. In the event this does occur fitting a larger size fuse will not solve the problem, will void warranty and may make the unit irreparable.

Faults such as a loose battery terminals, poor wiring or faulty alternator may cause momentary over voltage spikes sufficient to blow the fuse.

Wire ignition system directly to the battery. If wire length exceeds recommendations use larger pair of battery cables (power and ground) to make up distance. Do not rely on chassis to provide ground. If connected to a high impedance supply shared with the ECU or its sensors erratic operation will be experienced.

Do not operate below 13V. If the electrical system has not means of charging use either a 16V or 18V battery to ensure sufficient voltage supply to cdi.

Do not use voltage boosters as voltages above 13.5V provide no additional performance and most can not provide the required instantaneous current required to correct CDI operation.

When using extended voltage batteries disconnect the battery during charging to prevent excessive voltage (>22V) reaching the CDI as this may blow the fuse.
Use twisted pair wire for all power and coil connections. To comply with Australian EMC ’C Tick’ standards and for ultimate noise suppression use shielded twisted pair wire for coils.

All coil negative wires must be joined at or in the cdi connector.

TRIGGERING

Trigger input & coil output numbers indicate ignition sequence not cylinder number.

M&W Pro street CDI systems default to falling edge ignition. To select rising edge ignition install a jumper wire between ‘Trigger Edge’ and ‘Signal Ground’ pins.

Where the ECU contains an inbuilt igniter or there is an igniter wired in series between the ECU and CDI it may be necessary to invert the cdi trigger edge selected.

Trigger edge on the CDI must be set same as that in the ECU!

POWER LEVEL SWITCH

Some M&W Pro street systems are provided with a power level switch. This may be activated by grounding the input through either a ‘Hobbs’ style pressure switch or mapped ECU output when elevated energy levels are required. Do not operate this function continuously as it will significantly increase spark plug wear and system current draw.

TWO SPARK SWITCH

Some M&W Pro street systems are provided with a two spark switch for part load conditions in lean burn engines. This may be activated by grounding the input manually or through a mapped ECU output. Do not use this function unless absolutely necessary as it will significantly increase spark plug wear and double system current draw.

IGNITION TIMING

M&W CDI ignition systems will typically change the engine combustion characteristics and may require significantly less total timing.
Always re-tune both fuel and ignition after installing CDI ignition.

**TACHO OUTPUT**

The M&W tacho output provides a 50% duty cycle square wave signal at battery supply voltage. This will work with most aftermarket digital tacho’s however earlier types and those designed to trigger from a coil negative signal may not read accurately.

**TESTING**

ECU triggered cdi’s may be tested by momentarily grounding the trigger inputs which will cause the LED to flash and corresponding ignition coil to spark.

Do not conduct this test without a grounded spark plug installed!

A more comprehensive test procedure may be found on our web site [http://www.mwignitions.com/pg_data_sheets.php](http://www.mwignitions.com/pg_data_sheets.php)

For further instructions and cdi information check out the support tab on our web site [http://www.mwignitions.com](http://www.mwignitions.com)

**CAUTION**

TO PREVENT IGNITION COIL & CDI DAMAGE DO NOT FIRE THE CDI WITH AN EXCESSIVE SPARK GAP!
IGNITION COILS

COIL SELECTION

Most inductive ignition coils will work reasonably well with CDI systems however for ultimate ignition energy and efficiency use a coil specifically designed for CDI use.

COP COILS

COP (coil on plug) coils with inbuilt drivers are not suitable for use with CDI ignition. COP coils designed for inductive ignition may contain a blocking diode in the secondary winding which must be considered during wiring (see coil polarity note below). Use resistive spark plugs with all COP coils. Keep plug gap < 0.025” (0.6mm) to prevent coil damage. DO NOT use AEM pencil coils under any circumstances!

FERRITE CDI COILS

Ferrite core cdi coils provide a lightweight solution for direct fire applications and give high secondary current however they may not be suitable for all applications due to their extremely short arc duration. The high level of EMI emitted by these coils may also require additional shielding to prevent electrical interference with the ECU or CDI.

COIL POLARITY

All diagrams are shown for cdi style coils. For correct operation with inductive ignition coils wire the primary connections in reverse to maintain correct spark plug polarity.

CAUTION!

IGNITION COIL DAMAGE MAY OCCUR IF OPERATED WITH AN EXCESSIVE SPARK GAP
CAUTION!
HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT

Title: MOUNTING DIMENSIONS

Pro-16 S3

Slot dimensions - 5mm * 10mm
CAUTION!
HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT

SPECIFICATIONS & CONNECTIONS

<table>
<thead>
<tr>
<th>PIN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+12V (Battery)</td>
</tr>
<tr>
<td>2</td>
<td>+12V (Battery)</td>
</tr>
<tr>
<td>3</td>
<td>Triggers E &amp; F</td>
</tr>
<tr>
<td>4</td>
<td>Tacho</td>
</tr>
<tr>
<td>5</td>
<td>Coils E &amp; F +</td>
</tr>
<tr>
<td>6</td>
<td>Coils A &amp; B +</td>
</tr>
<tr>
<td>7</td>
<td>Ground (Battery)</td>
</tr>
<tr>
<td>8</td>
<td>Ground (Battery)</td>
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<tr>
<td>9</td>
<td>Trigger edge</td>
</tr>
<tr>
<td>10</td>
<td>Signal ground</td>
</tr>
<tr>
<td>11</td>
<td>Coils C &amp; D +</td>
</tr>
<tr>
<td>12</td>
<td>Coils C &amp; D -</td>
</tr>
<tr>
<td>13</td>
<td>Power level</td>
</tr>
<tr>
<td>14</td>
<td>Triggers C &amp; D</td>
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<tr>
<td>15</td>
<td>Triggers A &amp; B</td>
</tr>
<tr>
<td>16</td>
<td>Ignition switch</td>
</tr>
</tbody>
</table>

KEEP ALL INPUTS WELL SEPARATED FROM COIL OUTPUTS

SPECIFICATIONS
- Supply voltage: 13V - 18V DC negative ground
- Startup voltage: 6V
- Maximum supply current: 7.0A (per unit)
- Power off current: < 700uA
- Maximum ignition frequency: 1200/800 Hz (combined)
- Coil primary voltage: 460V/540V
- Spark energy: 105/150 millijoules
- Trigger: 10mA adjustable edge
- Tacho: 12V, 100mA square wave
- Maximum allowable case temperature: 105°C
- Dimensions: 112L * 110W * 40H
- Weight: 570gm (each)

VIEWED FROM BACK OF CONNECTOR

Performance & Quality since 1996

M&W IGNITIONS
Performance & Quality since 1996

CAUTION!
HIGH VOLTAGE
6 CHANNEL SEQUENTIAL IGNITION

** Coil F
** Coil D
** Coil B
** Coil E
** Coil C
** Coil A

Note!
Use 18-20 gauge wire
Twist wires 1 turn in 20mm
Maximum wire length 2M

Note!
Use 18-20 gauge wire
Twist wires 1 turn in 20mm
Maximum wire length 2M

Power Level

IGNITION SWITCH

15A FUSES

+12V BATTERY

* See instructions for trigger edge selection link
** Firing sequence not cylinder number

CAUTION!
HIGH VOLTAGE
DISCONNECT POWER BEFORE WORKING ON UNIT

1.4
** Coil C2

** Coil B2

** Coil A2

** Coil C1

** Coil B1

** Coil A1

Note!
Use 18-20 gauge wire
Twist wires 1 turn in 20mm
Maximum wire length 2M

Note!
Use 20 gauge wire with junction < 100mm from connector
Join to 14 gauge for run to battery
Twist wires 1 turn in 20mm
Maximum length 2.5M

* See instructions for trigger edge selection link
** Firing sequence not cylinder number

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** Coil B1

** Coil A1

IGNITION SWITCH

15A FUSES

+12V BATTERY

+ -

IGNITONS

Performance & Quality since 1996

 WW&

Power Level

Note!
Use 18-20 gauge wire
Twist wires 1 turn in 20mm
Maximum wire length 2M

Note!
Use 18-20 gauge wire
Twist wires 1 turn in 20mm
Maximum wire length 2M

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Title: 6 CHANNEL WASTED SPARK IGNITION

Pro-16 S3

Revision 1.5
**Title**

MAZDA TRIPLE ROTOR IGNITION

**Pro-16 S3**

**Revision**

1.4

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**Note!**

Use 18-20 gauge wire
Twist wires 1 turn in 20mm
Maximum wire length 2M

**Note!**

Use 20 gauge wire with junction < 100mm from connector
Join to 14 gauge for run to battery
Twist wires 1 turn in 20mm
Maximum length 2.5M

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**CAUTION!**

HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT

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**WARNING**

HIGH VOLTAGE

---

**Leading #1**

**Leading #2**

**Leading #3**

**Trailing #1**

**Trailing #2**

**Trailing #3**

---

**L1**

**L2**

**L3**

---

**T1**

**T2**

**T3**

---

**+12V BATTERY**

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**15A FUSES**

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**IGNITION SWITCH**

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**Power Level**

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**See instructions for trigger edge selection link**
PorSche twin plug (option 1)

**CAUTION! HIGH VOLTAGE**

Disconnect power before working on unit.

**NOTE!**
Use 20 gauge wire with junction < 100mm from connector.
Join to 14 gauge for run to battery.
Twist wires 1 turn in 20mm.
Maximum length 2.5M.

**Note!**
Use 18-20 gauge wire.
Twist wires 1 turn in 20mm.
Maximum wire length 2M.

Option 1 will cause lower ignition coil voltage than Option 2!
Title: PORSCHE TWIN PLUG (OPTION 2)

CAUTION!
Option 2 will cause greater ignition coil voltage than Option 1!

Note!
Use 20 gauge wire with junction < 100mm from connector
Join to 14 gauge for run to battery
Twist wires 1 turn in 20mm
Maximum length 2.5M

Note!
Use 18-20 gauge wire
Twist wires 1 turn in 20mm
Maximum wire length 2M

FAILURE TO INSTALL FUSES WILL VOID WARRANTY

IGNITION SWITCH
15A FUSES
+12V BATTERY

M&W IGNITIONS
Performance & Quality since 1996

* See instructions for trigger edge selection link

CAUTION!
HIGH VOLTAGE
DISCONNECT POWER BEFORE WORKING ON UNIT

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<thead>
<tr>
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<th>1.2</th>
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<tbody>
<tr>
<td>Size</td>
<td>A4</td>
<td>Number</td>
<td>Revision</td>
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<tr>
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<td>28-Apr-2013</td>
<td>Sheet 1 of 1</td>
<td>Drawn By: M&amp;W</td>
</tr>
</tbody>
</table>
CAUTION!
HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT

* Use twisted shielded cable grounded at one end only  ** Shielded power cables required for Australian EMC compliance