



PRO-10R

RELUCTOR TRIGGER CAPACITOR DISCHARGE IGNITION

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**CHECK WEBSITE FOR UPDATED INSTRUCTIONS &
ADDITIONAL INFORMATION**

CAUTION

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

44xxxx

**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, ensure the bottom condensation slots are unobstructed and oriented to permit gravity drain. Select a location away from intense heat and if required provide a source of cooling air to remove internally generated heat.

Failure to use supplied rubber mounts will void warranty! Suitable replacement anti vibration mounts are M&W #MNT002, or Paulstra Radiaflex #521128.

IGNITION LEADS

Do not use plain metal wire or carbon core ignition leads.

Use spiral wound inductively suppressed metal core ignition leads such as those available from Magnecor www.magnecor.com.

SPARK PLUGS

The use of use non resistor spark plugs (where possible) will greatly enhance ignition performance.

In some installations the use of resistor spark plugs may be unavoidable. In these cases ensure they are not damaged by testing internal resistance value as part of regular maintenance. Open circuit or high resistance may cause failure of spark plug wires, ignition coils and CDI.

Surface discharge and semi surface discharge spark plugs are designed for use 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

Degrease spark plug insulators and coil/plug boots after handling to prevent tracking or insulation breakdown.

Use (supplied) dielectric grease on spark plug insulators and coil/plug boots to increase insulation properties and ease installation/removal. Use of dielectric grease in main connector may reduce water ingress.

WIRING & POWER SUPPLY

M&W CDI systems are designed to blow the external fuse under conditions of over voltage or reverse polarity. Faults such as loose battery terminals, poor wiring or defective alternator/regulator may also cause for this to occur. Fitting a larger capacity fuse won't disable this feature, will void warranty and may cause irreparable damage to unit. **Only fit the recommended size fuse!**

Main connector pins are designed to be roll crimped. Squeeze crimping or soldering will cause distortion resulting in misfiring or incorrect CDI operation.

Wire ignition system directly to battery. If required wire length exceeds recommendations use small paired battery cable (power and ground) to make up distance. Do not rely on vehicle chassis to provide ground path. If connected to a high impedance supply shared with ECU or its sensors erratic operation will be experienced.

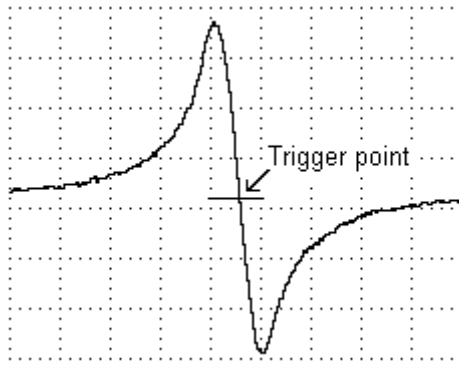
Do not use voltage boosters as most can't provide the instantaneous current required for correct CDI operation.

When using a total loss electrical system install either a 16V or 18V battery to ensure adequate supply voltage. If using extended voltage batteries isolate them during charging to prevent excessive voltage reaching the CDI and ECU.

Use twisted pair wire for all power and coil connections. For improved noise suppression and to comply with Australian EMC 'C Tick' standards use twisted shielded pair wire for coils. Twisted pair wire must be used for power/ground. Keep coil wires one continuous length from CDI and do not fit any intermediate connectors into harness. All coil negative wires must be joined at or in the cdi connector. Keep coil primary (CDI) wires away from HT leads, coil HV outlet and coil body to prevent a flashover occurring.

TRIGGERING

All M&W Reluctor CDI systems fire on the negative direction zero crossing point.



To check polarity a simple test may be conducted using a strobe light. Observe timing position while engine running then stop and reverse reluctor connections. Correct polarity will show most advanced timing and stable reading.

For MSD reluctor distributors use Violet wire as R+ and Orange wire as R- (Note! This is opposite to MSD documentation).

Use twisted pair wire for reluctor connections. In electrically noisy environments twisted shielded cable may be required.

Do not route the reluctor wires near any high voltage or high current conductors.

POWER LEVEL SWITCH

Some M&W Pro street systems are provided with a (active low) power level switch. Do not manually activate this feature or operate continuously as this will significantly increase spark plug wear and system current draw. Activate by grounding input through either a 'Hobbs' style manifold pressure switch or programmable output from the ECU when elevated energy levels are required.

TUNING

CDI systems are 'edge triggered' and not effected by dwell settings.

M&W CDI systems may reduce combustion delay and percentage misfire requiring a reduction in ignition timing. The resulting changes in combustion characteristics may also require alterations to fuel flow. Set ECU ignition delay to zero and tune engine as required.

Always re tune both fuel and timing curves after installing CDI ignition.

TACHO OUTPUT

The 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 for coil negative triggering may not read accurately.

LED INDICATOR

After applying power to switch wire the LED will illuminate for 1 second and extinguish. The LED will then flash briefly with each consecutive trigger event received (it may be necessary to view the LED directly on axis).

A repeated double flash of the LED may indicate a possible faulty ignition coil, faulty wiring, low supply voltage or damage to the CDI.

TESTING

Reluctor CDI's may not trigger by grounding inputs, in this case you will need to provide an AC signal such as that generated by a retractor distributor.

INSTALLATION PRECAUTIONS

The main cause of CDI damage is conduction of high voltage to coil primary wiring.

Care must be taken due to the propensity for HV flashovers and insulation breakdown caused by CDI ignitions unique characteristics.

It is important to fully read and understand these instructions and have a good knowledge of automotive electrical systems before commencing installation.

For further instructions and cdi information check out the support tab on our web site
<http://www.mwignitions.com>

IGNITION COILS

(Pro-Street systems only)

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. **Do not use ferrite coils in parallel wired pairs!**

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**

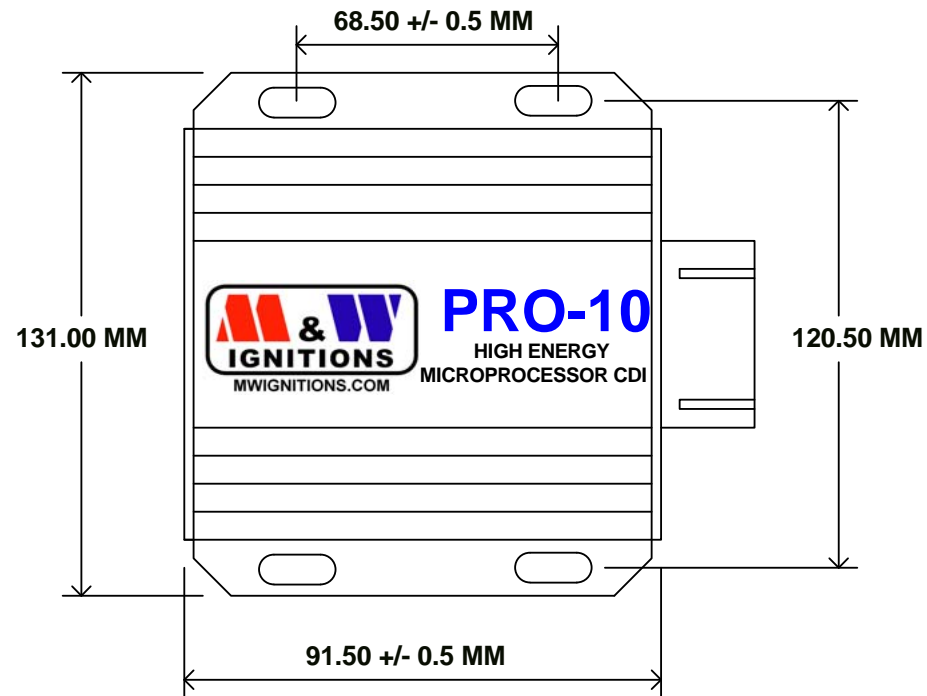
CAUTION!
HIGH VOLTAGE



**DISCONNECT POWER BEFORE
WORKING ON UNIT**

M & W IGNITIONS

Performance & Quality since 1996



Slot dimensions - 5mm * 10mm

Title				MOUNTING DIMENSIONS	
Size	Number	Revision			
A4	PRO-10 SERIES 3	25.05.13.1			
Date:	24-May-2013	Sheet	1 of 1		
File:	D:\M&W\Pro10r_S3_Mounting dimensions	Drawn By:	M&W		

M & W IGNITIONS

Performance & Quality since 1996

**CAUTION!
HIGH VOLTAGE**



**DISCONNECT POWER BEFORE
WORKING ON UNIT**

VIEWED FROM BACK OF CONNECTOR



KEEP ALL INPUTS WELL SEPARATED FROM COIL OUTPUT

1 +12V (Battery)	7 Ground (Battery)	13 Power level (P)
2 +12V (Battery)	8 Ground (Battery)	14 Reluctor -
3	9	15 Reluctor +
4 Tacho	10 Shield (Ground)	16 Ignition switch
5	11	17
6 Coil +	12	18 Coil -

SPECIFICATIONS

Supply voltage = 13 - 18V DC negative ground
 Startup voltage = +6V
 Maximum supply current = 7.0A
 Standby current 700uA
 Maximum ignition frequency = 1,200Hz
 Maximum energy limit = 700/550Hz
 Coil primary voltage = 480V/540V
 Spark energy = 115mJ/150mJ
 Trigger = +/- 120V max
 Trigger location = negative going, zero crossing point
 Tacho = 12V, 100mA symmetric square wave
 Maximum case temperature = 105°C
 Dimensions = 91L * 110W * 40H
 Weight = 500gm

Title **SINGLE CHANNEL RELUCTOR IGNITION**

Size A4 Number **(C) M&W Ignitions** Revision 25.06.13.1

Date: 25-Jun-2013 Sheet 1 of 1
 File: D:\M&W\Pro10R_S3_1.sch Drawn By: M&W

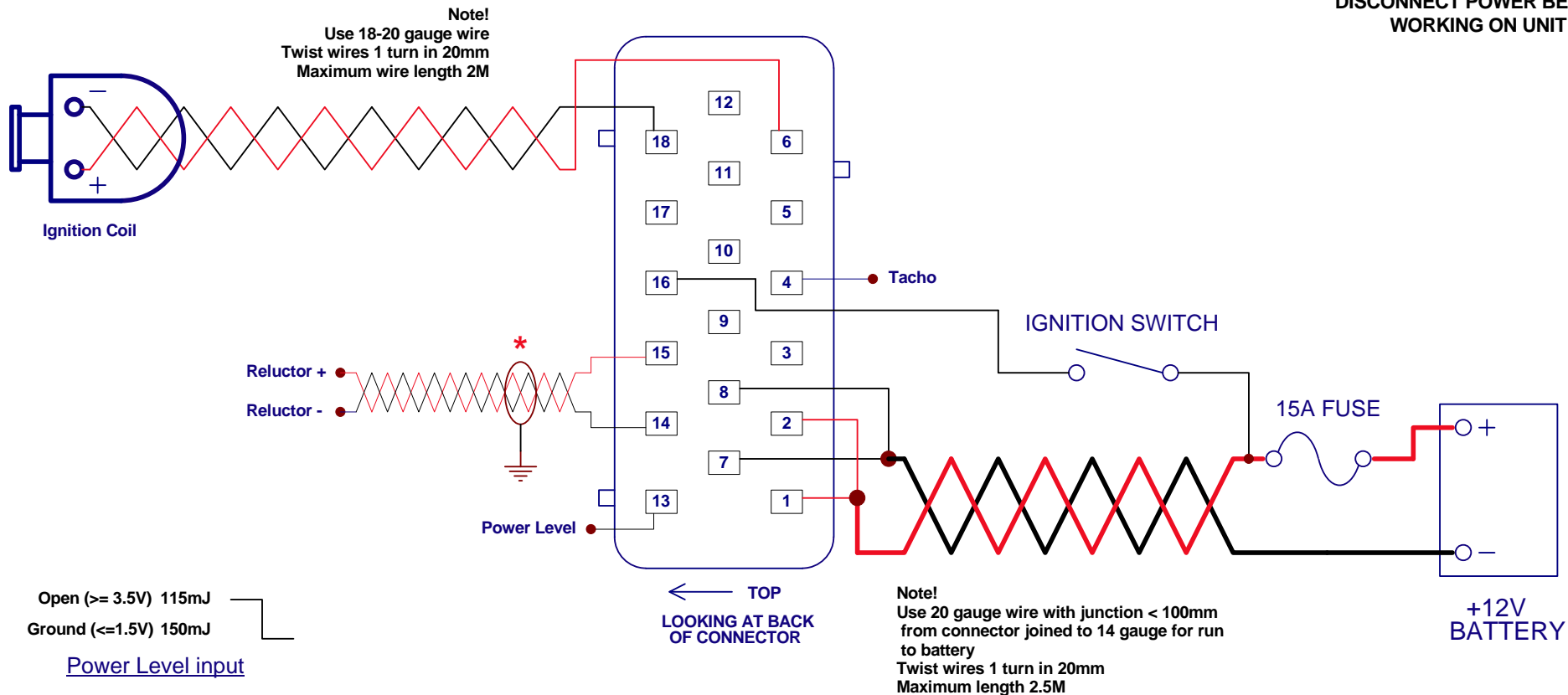
M & W IGNITIONS

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CAUTION!
HIGH VOLTAGE



**DISCONNECT POWER BEFORE
WORKING ON UNIT**



Title			RELUCTOR TRIGGER IGNITION		
Size	Number	(C) M&W Ignitions		Revision	
A4				20.10.14.1	
Date:	29-Oct-2014	Sheet 1 of	1	Drawn By:	M&W
File:	D:\M&W\...\Pro10R_S3_2.sch				

CAUTION!
HIGH VOLTAGE



DISCONNECT POWER BEFORE WORKING ON UNIT



IMPORTANT INSTALLATION NOTES!

MOUNTING:
For best reliability it is suggested the unit be mounted inside the cabin where it will not be exposed to water or extremes of temperature.

WIRING:
If factory terminals/wiring are corroded or damaged crimp splice extension wiring onto the existing harness. An adaptor harness may be constructed using a 6 pin TE (AMP) Faston 250 series connector.

This diagram is only for customers wishing to retain the factory wiring harness. For performance installations or if the vehicle is being re-wired please refer to the Reluctor diagram and use all connections as shown therein.

IGNITION LEADS:
If misfiring is detected after cdi installation it may be necessary to replaced the ignition wires with a set of premium quality spiral wound metal conductor ignition leads. Magnecor have black leads available if appearance is important!

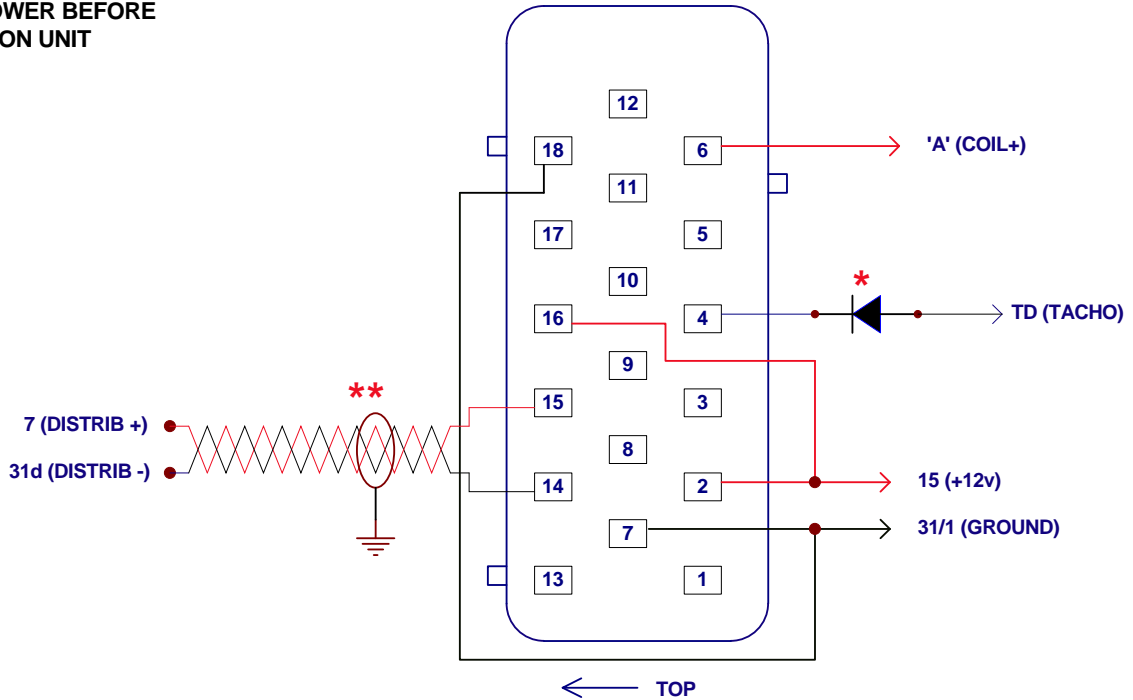
IGNITION COIL:
For best performance use a true cdi coil such as our COI-006 alternatively to retain stock appearance use an MSD 8222 blaster bottle coil.

SPARK PLUGS:
Start with factory recommended spark plug gap, this may be increased by experimentation however be aware an excessive gap may cause arcing or crossfiring inside the distributor cap. If misfiring is detected after installation it may be necessary to use a resistor spark plug.

TACHO:
An external diode is required to match factory installation.

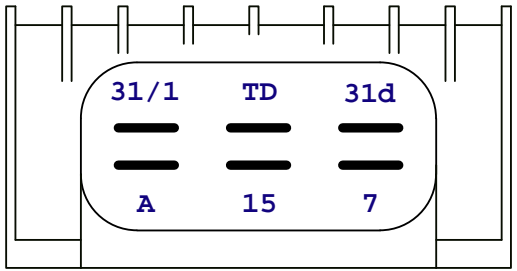
TIMING:
Always check and reset timing after installtion!

REFER TO MAIN INSTALLATION INSTRUCTIONS AT FRONT OF DOCUMENT FOR FURTHER INFORMATION.



← TOP
LOOKING AT BACK OF CONNECTOR

FACTORY CONNECTIONS



* 1N4148 or similar. (500mW 100V fast switching)
** Shielded cable recommended from distributor to cdi.

Title		
6 PIN BOSCH CDI CONNECTION		
Size	Number	Revision
A4	(C) M&W Ignitions	15.05.16.1
Date:	15-May-2016	Sheet 1 of 1
File:	D:\M&W\...\Pro10R_S3_B6.sch	Drawn By: WAG

CAUTION!
HIGH VOLTAGE



DISCONNECT POWER BEFORE WORKING ON UNIT

M & W IGNITIONS

Performance & Quality since 1996

IMPORTANT INSTALLATION NOTES!

MOUNTING:
For best reliability it is suggested the unit be mounted inside the cabin where it will not be exposed to water or extremes of temperature.

WIRING:
If factory terminals/wiring are corroded or damaged crimp splice extension wiring onto the existing harness. An adaptor harness may be constructed using a 8 pin TE (AMP) Faston 250 series connector.

This diagram is only for customers wishing to retain the factory wiring harness. For performance installations or if the vehicle is being re-wired please refer to the Reluctor diagram and use all connections as shown therein.

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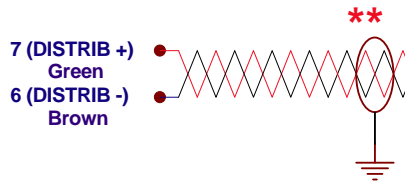
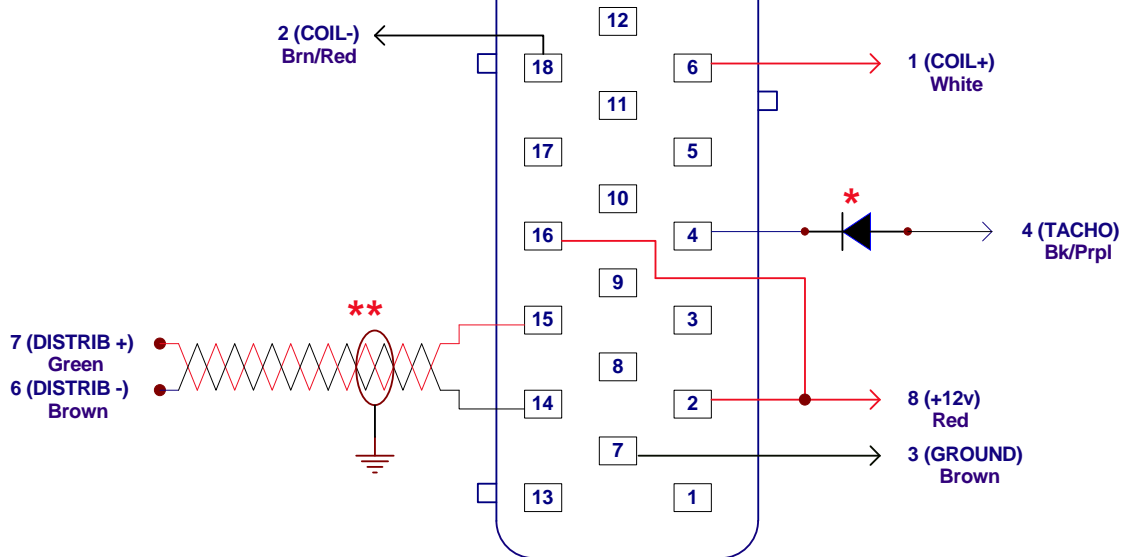
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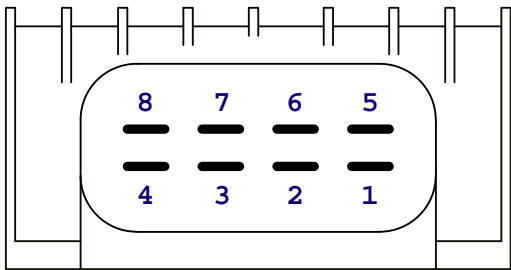
TACHO:
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TIMING:
Always check and reset timing after installtion!

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FACTORY CONNECTIONS



← TOP
LOOKING AT BACK OF CONNECTOR (OR END OF BOX)

- * 1N4148 or similar. (500mW 100V fast switching)
- ** Shielded cable recommended from distributor to cdi.

Title			8 PIN BOSCH CDI CONNECTION		
Size	Number	(C) M&W Ignitions		Revision	
A4				15.05.16.1	
Date:	15-May-2016	Sheet 1 of 1			
File:	D:\M&W\...\Pro10R_S3_B8.sch	Drawn By: WAG			

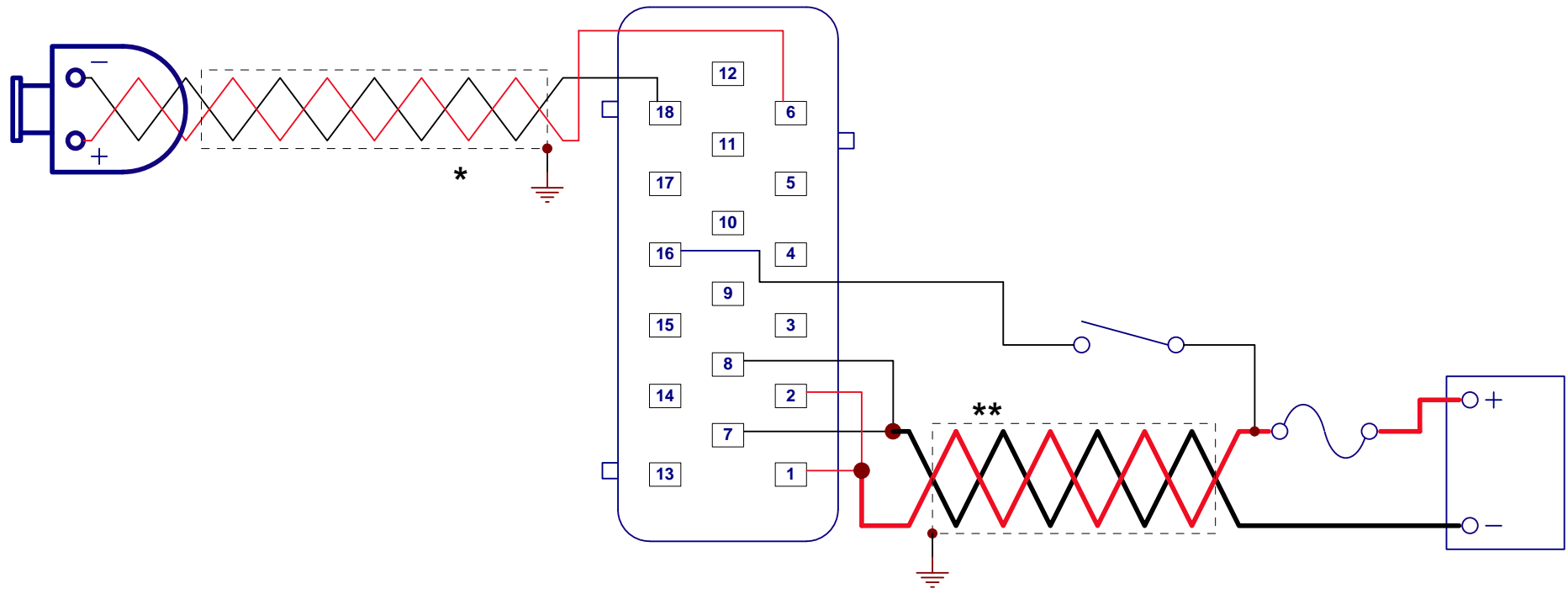
M & W IGNITIONS

Performance & Quality since 1996

**CAUTION!
HIGH VOLTAGE**



**DISCONNECT POWER BEFORE
WORKING ON UNIT**



* Use twisted shielded cable grounded at one end only

** Shielded power cable required for Australian EMC compliance

Title			SHIELDING & EMC COMPLIANCE		
Size	Number	Revision			
A4	PRO-10 SERIES 3	24.04.13.1			
Date:	28-May-2013	Sheet 1 of	1		
File:	D:\M&W\EMC.sch	Drawn By:	M&W		

P10R S3 CHANGELOG

Date	Alterations
15/05/2016	Alterations and additions to B6 & B8 installation instructions