



# **PRO-14R**

## **4 CHANNEL (2 ROTOR) CAPACITOR DISCHARGE IGNITION**

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

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# **CAUTION**

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

**41xxxx**

**USE OF INCORRECT DIAGRAM  
WILL VOID WARRANTY AND  
MAY DAMAGE UNIT**

# INSTALLATION NOTES

## MOUNTING

Do not mount the unit where it will be exposed to water or other liquids and ensure the bottom drain slots are unobstructed. Select a location away from excessive heat and provide a cooling air supply if required. Use soft rubber (40 duro) mounts on all four corners to isolate from strong vibration.

## IGNITION LEADS & SPARKPLUGS

Straight metal wire ignition leads radiate electrical interference which may cause erratic operation of nearby electronic devices including the CDI. Carbon suppressed ignition leads are not capable of conducting the CDI energy without becoming damaged.

For best performance use spiral wound inductively suppressed metal core ignition leads such as those produced by Magnecor®. Where possible use non resistor spark plugs to reduce energy loss.

## WIRING & POWER SUPPLY

**FAILURE TO INSTALL THE RECOMMENDED SIZE FUSE WILL VOID WARRANTY**

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

250mJ and larger Pro-Drag CDI systems must not be operated below 13V.

Voltage boosters may limit CDI operation and ignition performance will not increase when operated above 13.8V

Connect the CDI directly to the battery with the recommended gauge wire. All coil negative wires must be joined at or in the connector.

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.

## TRIGGERING

All M&W CDI systems defaults to falling edge ignition, to select rising edge ignition connect the 'Trigger Edge' pin to the 'Signal Ground' pin. Where the ecu contains an in built igniter or there is an igniter between the ECU and CDI it may be necessary to select rising edge ignition. **The trigger edge on the CDI must be set the same as that in the ECU!**

For Autronic® multiplex ignitions set the ecu for –VE Edge (Pulse).

## DWELL

M&W CDI systems are 'edge' triggered which means they are not affected by changes in dwell time. If your ecu requires a dwell time be set then use something small such as 0.5-1mS.

## LED INDICATOR

After initially applying power to the CDI the LED will illuminate for 1 second then extinguish. The LED will then flash briefly with each consecutive trigger event received.

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

## TESTING

The CDI may be tested by momentarily grounding the inputs (with the exception of Reluctor trigger cdi's), this will cause the corresponding ignition coil to spark. Do not conduct this test without a grounded sparkplug installed. A comprehensive test procedure document may be found on our web site

[http://www.mwignitions.com/pg\\_data\\_sheets.php](http://www.mwignitions.com/pg_data_sheets.php)

## CAUTION

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

CHECK IGNITION TIMING AFTER COMPLETION

# IGNITION COILS

## COIL SELECTION

Most inductive ignition coils will work satisfactorily with CDI systems however for ultimate ignition energy use a coil specifically designed for CDI applications.

## 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 overheat when used in cdi applications and some contain an internal blocking diode in the secondary winding which must be taken into account during wiring.

## FERRITE CDI COILS

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

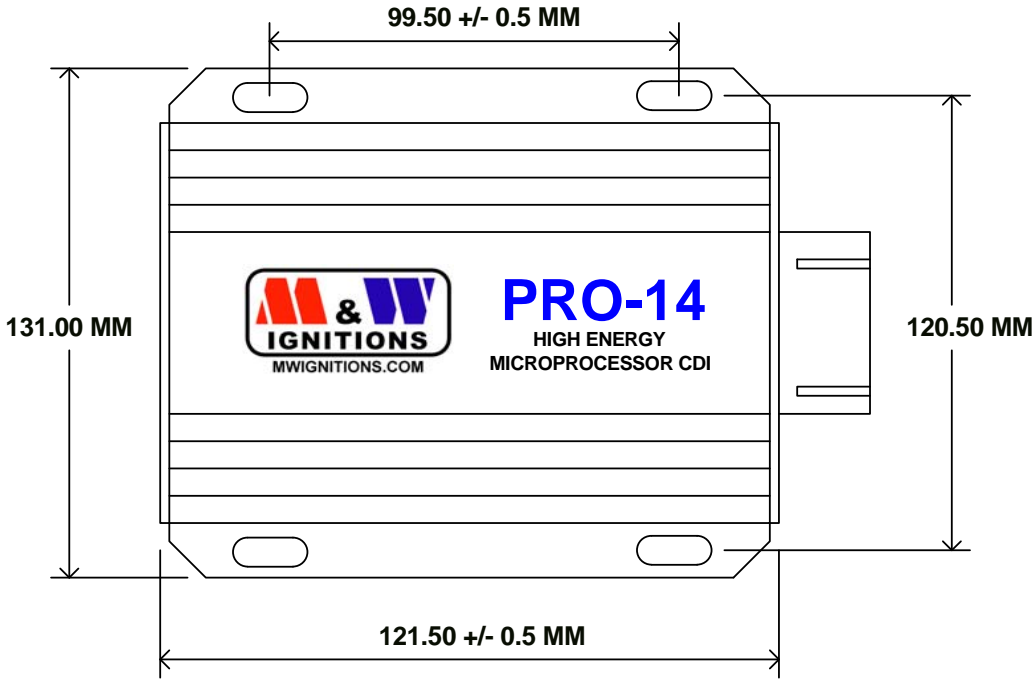
**Note!** Ferrite CDI coils are for direct fire ignition only. For high performance distributor applications use a coil similar to a Crane<sup>®</sup> PS92 or MSD<sup>®</sup> HVC2.

## COIL POLARITY

**All diagrams are shown for cdi style coils, for correct operation with inductive ignition coils they should be wired with their primary connections reversed to maintain correct spark plug polarity.**

**CAUTION!**

**IGNITION COIL DAMAGE MAY OCCUR IF OPERATED WITH AN EXCESSIVE SPARK GAP.**



1.1

Slot dimensions - 5mm \* 10mm

Title		<b>MOUNTING DIMENSIONS</b>	
Size	Number	Revision	
A4	<b>SERIES 3</b>		<b>1.2</b>
Date:	12-Sep-2010	Sheet 1 of	1
File:	D:\M&W\Rotary mounting dimensions.scd Drawn By: M&W		



DISCONNECT POWER BEFORE WORKING ON UNIT

VIEWED FROM BACK OF CONNECTOR



**TRIGGER EDGE SELECTION**

Falling edge ignition - leave pin #9 disconnected.  
 Rising edge ignition - connect pin #9 to pin #10.  
 When triggering this unit of an existing ignition module or an ecu with built in igniters such as the Microtech 'MTX' series it may be necessary to select rising edge trigger.

**KEEP ALL INPUTS WELL SEPARATED FROM COIL OUTPUTS**

1 +12V (Battery)	7 Ground (Battery)	13 Trigger D
2 +12V (Battery)	8 Ground (Battery)	14 Trigger B
3 Trigger C	9 Trigger edge	15 Trigger A
4 Tacho	10 Trigger edge	16 Ignition switch
5 Coil C +	11 Coil B +	17 Coils C & D -
6 Coil A +	12 Coil D +	18 Coils A & B -

**SPECIFICATIONS**

Supply voltage = 13.8V DC negative ground  
 Operating voltage = +6V to +18V (Restrictions apply)  
 Maximum supply current = 7.5A  
 Off current < 700uA  
 Maximum speed = 10,500 RPM  
 Coil primary voltage = 480V  
 Spark energy = 115 millijoules/plug  
 Trigger = 10mA open collector drive  
 Ignition split = 0 to infinity  
 Tacho = 12V, 25mA square wave  
 Maximum continuous operating temperature = 105°C

Title			<b>TWIN MICROPROCESSOR CDI</b>		
Size	Number	Revision			
A4	<b>Pro-14R S3</b>	<b>1.2</b>			
Date:	12-Sep-2010	Sheet 1 of 1			
File:	D:\M&W\Rotary_S3_1.sch	Drawn By: M&W			

# M & W IGNITIONS

Performance & Quality since 1996

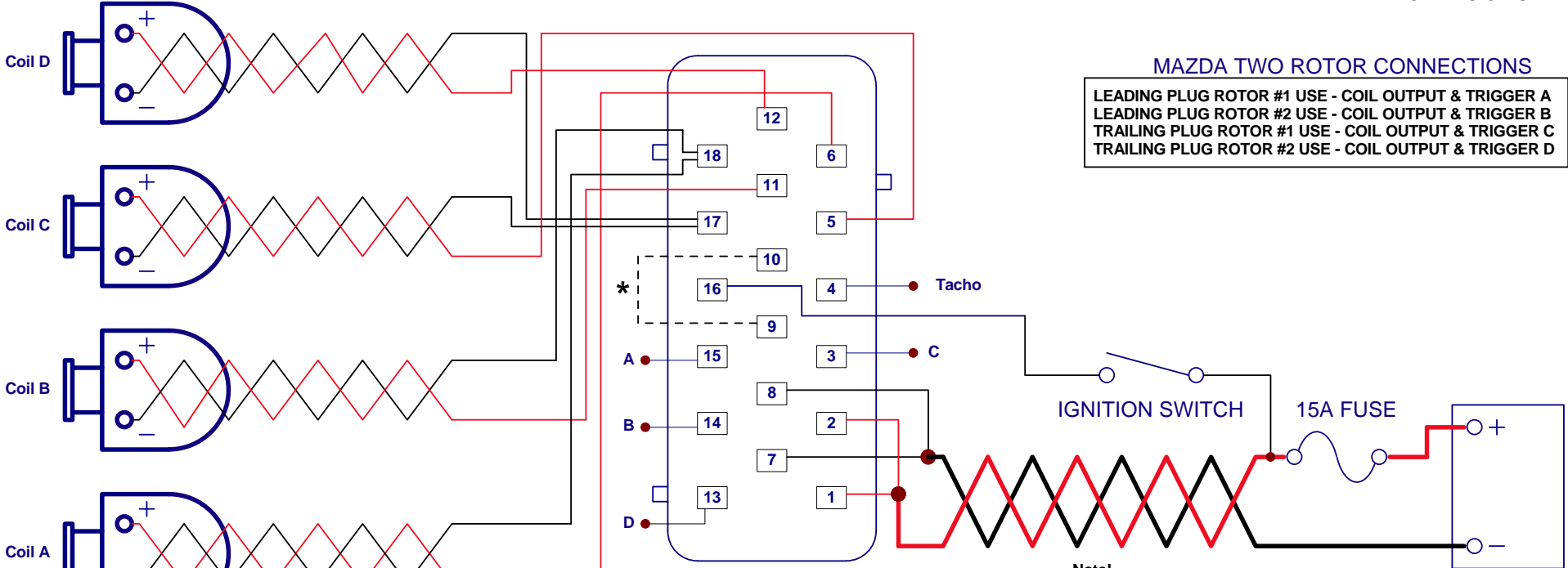
**CAUTION!**  
**HIGH VOLTAGE**



DISCONNECT POWER BEFORE WORKING ON UNIT

**MAZDA TWO ROTOR CONNECTIONS**

LEADING PLUG ROTOR #1 USE - COIL OUTPUT & TRIGGER A  
LEADING PLUG ROTOR #2 USE - COIL OUTPUT & TRIGGER B  
TRAILING PLUG ROTOR #1 USE - COIL OUTPUT & TRIGGER C  
TRAILING PLUG ROTOR #2 USE - COIL OUTPUT & TRIGGER D



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

← TOP  
CDI CONNECTOR  
(LOOKING AT END  
OF EXTRUSION)

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

\* See instructions for trigger edge selection link

Title		DIRECT FIRE & ROTARY CDI	
Size	Number	Revision	
A4	Pro-14R S3	1.2	
Date:	12-Sep-2010	Sheet 1 of 1	
File:	D:\M&W\Rotary_S3_2.sch	Drawn By:	M&W

# M & W IGNITIONS

Performance & Quality since 1996

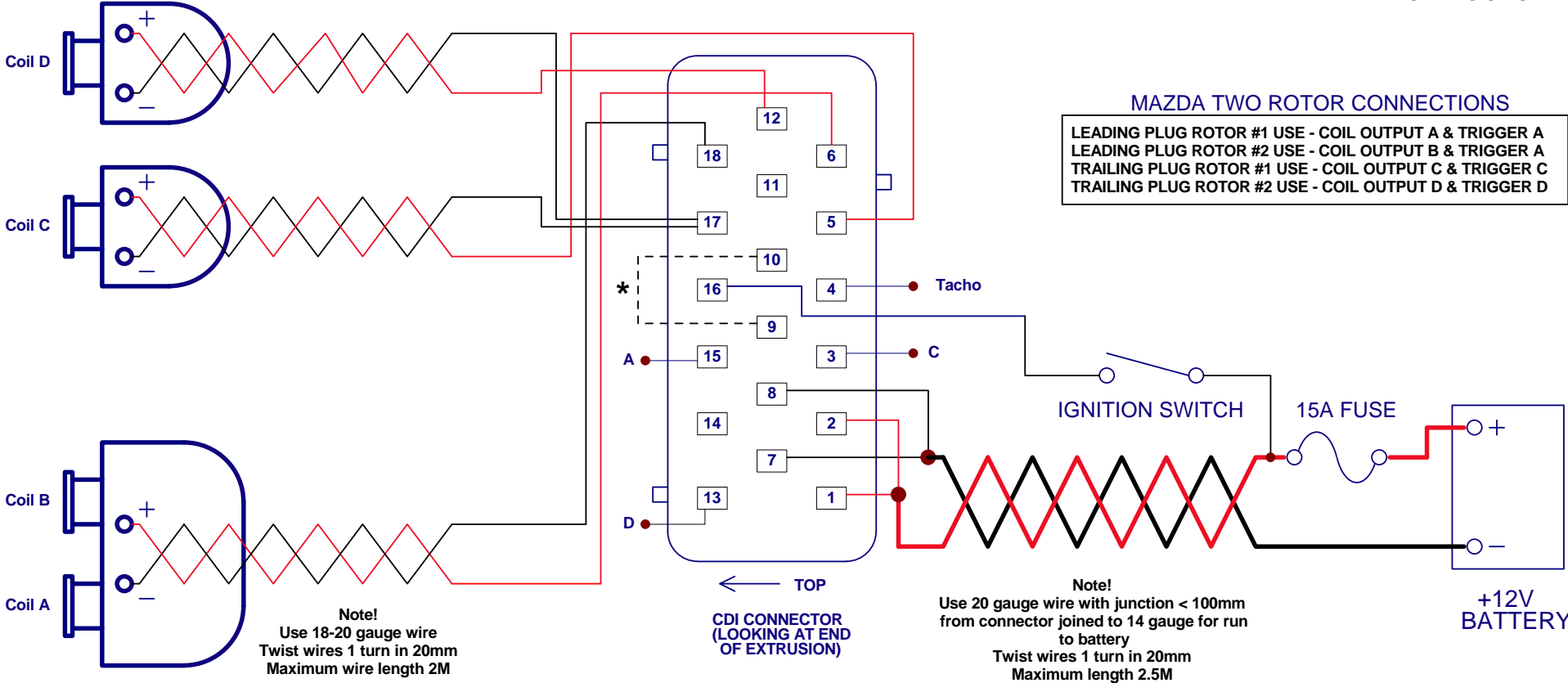
**CAUTION!**  
**HIGH VOLTAGE**



**DISCONNECT POWER BEFORE WORKING ON UNIT**

**MAZDA TWO ROTOR CONNECTIONS**

LEADING PLUG ROTOR #1 USE - COIL OUTPUT A & TRIGGER A  
 LEADING PLUG ROTOR #2 USE - COIL OUTPUT B & TRIGGER A  
 TRAILING PLUG ROTOR #1 USE - COIL OUTPUT C & TRIGGER C  
 TRAILING PLUG ROTOR #2 USE - COIL OUTPUT D & TRIGGER D



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 joined to 14 gauge for run  
to battery  
Twist wires 1 turn in 20mm  
Maximum length 2.5M

← TOP  
CDI CONNECTOR  
(LOOKING AT END  
OF EXTRUSION)

\* See instructions for trigger edge selection link

Title			
THREE TRIGGER ROTARY CDI (Version 2)			
Size	Number	Revision	
A4	Pro-14R S3	1.3	
Date:	12-Sep-2010	Sheet 1 of 1	
File:	D:\M&W\Rotary_S3_3.sch	Drawn By:	M&W

# M & W IGNITIONS

Performance & Quality since 1996

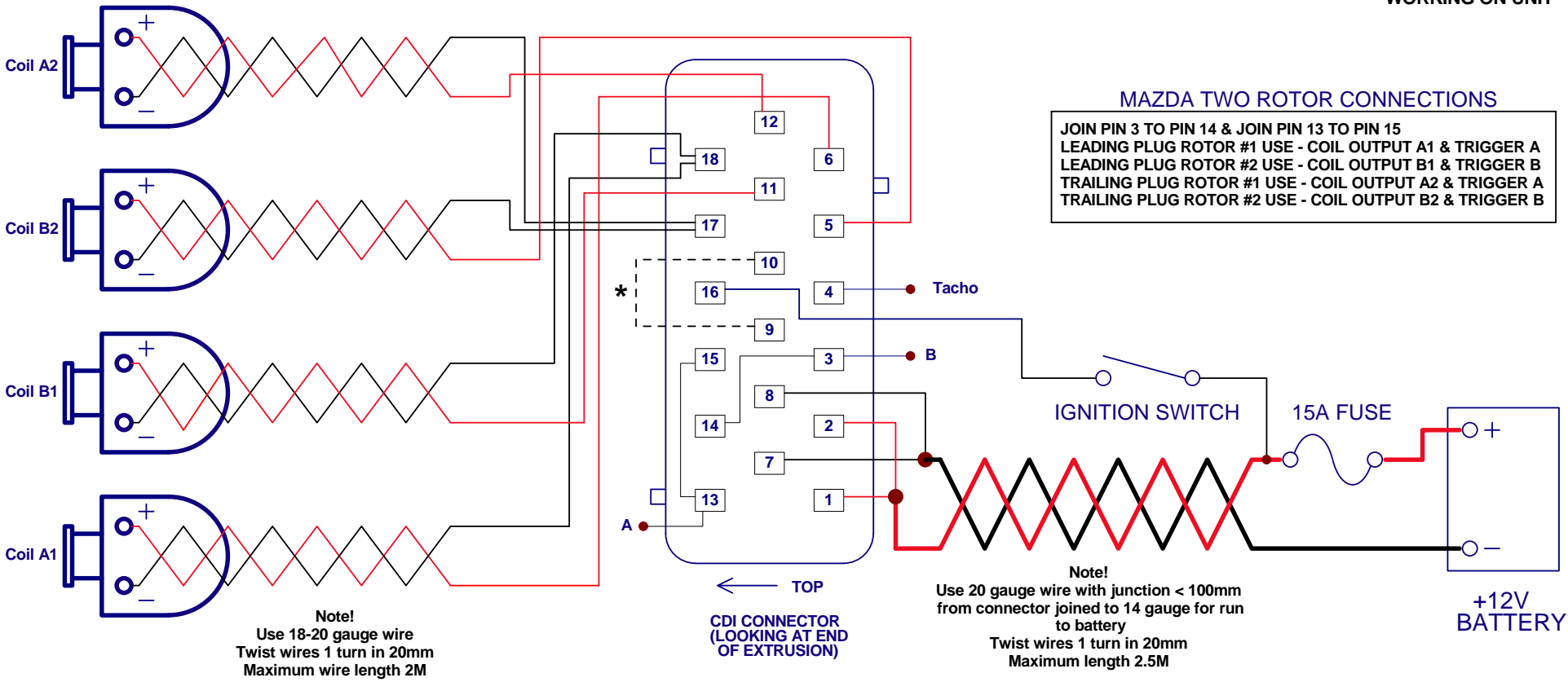
**CAUTION!**  
**HIGH VOLTAGE**



DISCONNECT POWER BEFORE WORKING ON UNIT

### MAZDA TWO ROTOR CONNECTIONS

JOIN PIN 3 TO PIN 14 & JOIN PIN 13 TO PIN 15  
 LEADING PLUG ROTOR #1 USE - COIL OUTPUT A1 & TRIGGER A  
 LEADING PLUG ROTOR #2 USE - COIL OUTPUT B1 & TRIGGER B  
 TRAILING PLUG ROTOR #1 USE - COIL OUTPUT A2 & TRIGGER A  
 TRAILING PLUG ROTOR #2 USE - COIL OUTPUT B2 & TRIGGER B



\* See instructions for trigger edge selection link

Title		<b>TWO TRIGGER ROTARY CDI</b>	
Size	Number	Revision	
A4	<b>SERIES 3</b>	1.3	
Date:	12-Sep-2010	Sheet 1 of 1	
File:	D:\M&W\Rotary_S3_4.sch	Drawn By:	M&W

# M & W IGNITIONS

Performance & Quality since 1996

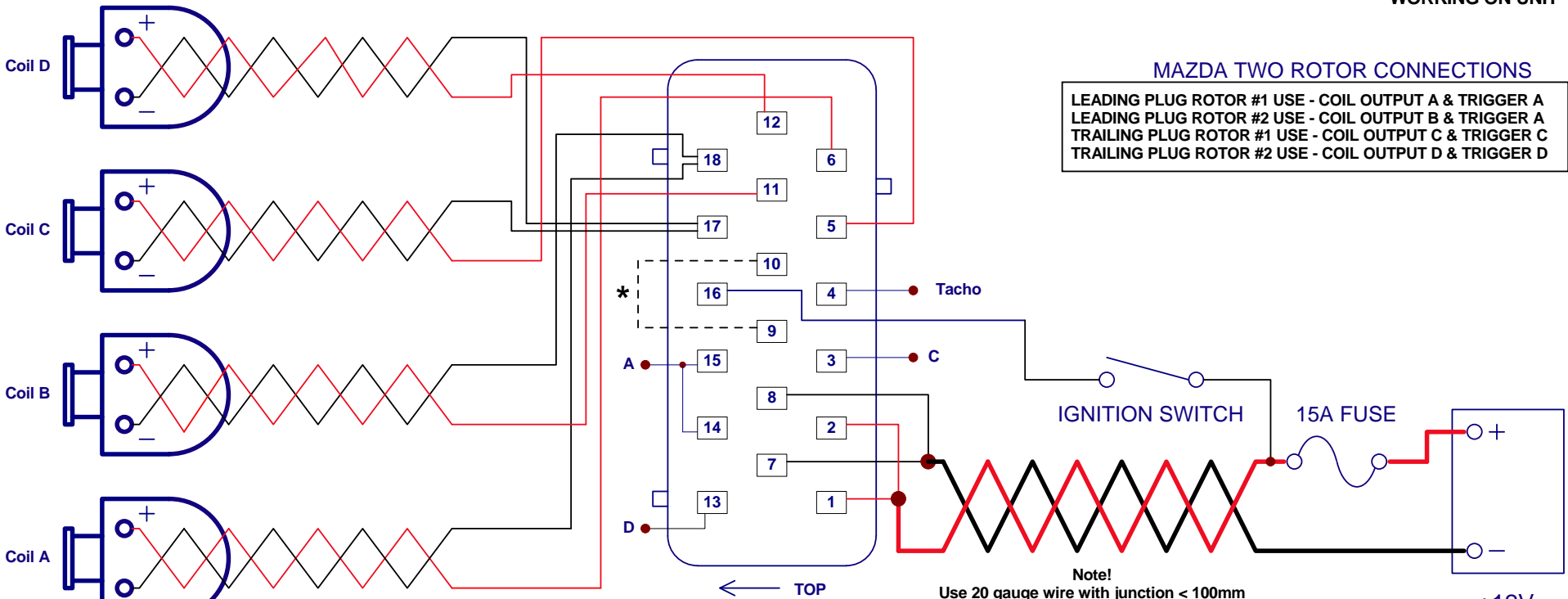
**CAUTION!**  
**HIGH VOLTAGE**



DISCONNECT POWER BEFORE WORKING ON UNIT

**MAZDA TWO ROTOR CONNECTIONS**

LEADING PLUG ROTOR #1 USE - COIL OUTPUT A & TRIGGER A  
 LEADING PLUG ROTOR #2 USE - COIL OUTPUT B & TRIGGER A  
 TRAILING PLUG ROTOR #1 USE - COIL OUTPUT C & TRIGGER C  
 TRAILING PLUG ROTOR #2 USE - COIL OUTPUT D & TRIGGER D



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

← TOP  
CDI CONNECTOR  
(LOOKING AT END  
OF EXTRUSION)

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

**APPLICABLE FROM S/NO 410421**

\* See instructions for trigger edge selection link

Title			THREE TRIGGER ROTARY CDI (Version 1)		
Size	Number	SERIES 3		Revision	1.3
A4					
Date:	12-Sep-2010	Sheet 1 of 1		1	
File:	D:\M&W\Rotary_S3_5.sch	Drawn By:		M&W	



# M & W IGNITIONS

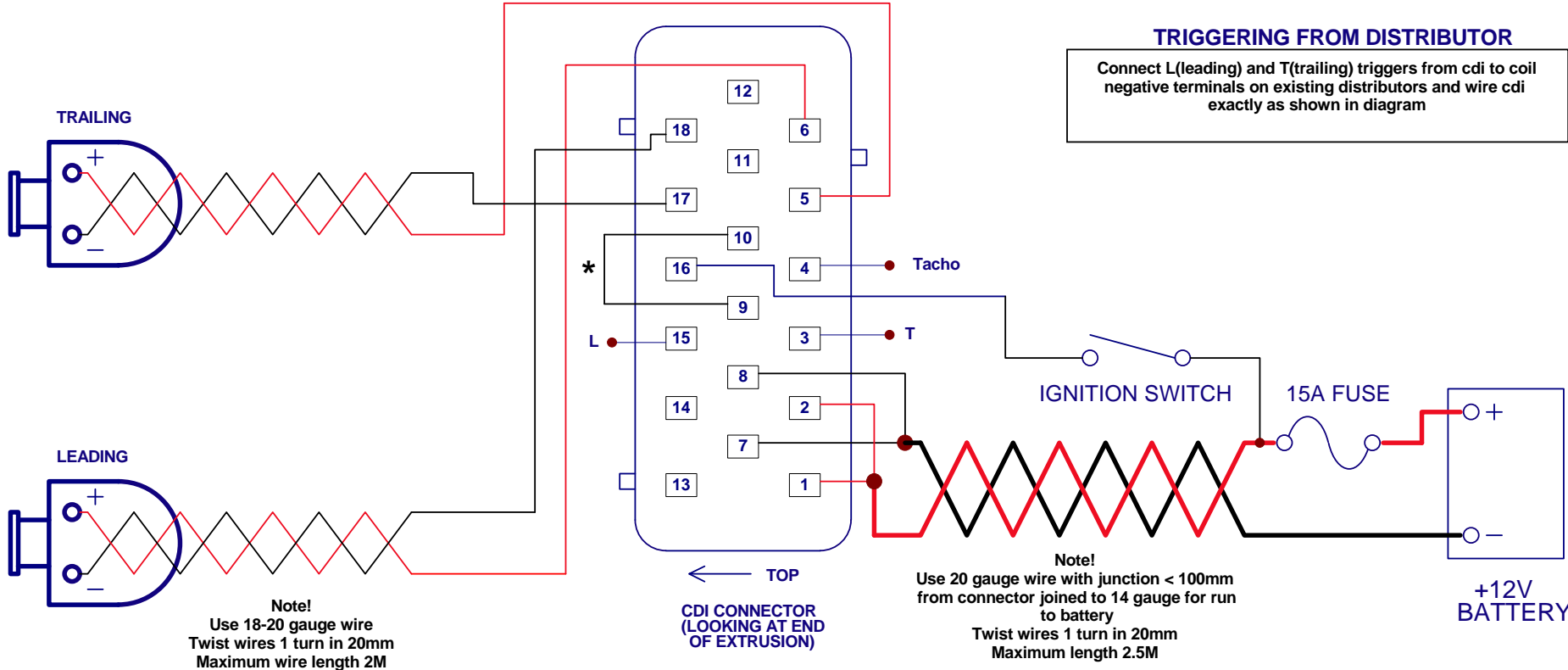
Performance & Quality since 1996

**CAUTION!**  
**HIGH VOLTAGE**



**DISCONNECT POWER BEFORE WORKING ON UNIT**

**TRIGGERING FROM DISTRIBUTOR**  
Connect L(leading) and T(trailing) triggers from cdi to coil negative terminals on existing distributors and wire cdi exactly as shown in diagram



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 joined to 14 gauge for run  
to battery  
Twist wires 1 turn in 20mm  
Maximum length 2.5M

← TOP  
CDI CONNECTOR  
(LOOKING AT END  
OF EXTRUSION)

\* INSTALL LINK BETWEEN PINS!

Title		<b>PORSCHE TWIN DISTRIBUTOR</b>	
Size	Number	Revision	
A4	<b>SERIES 3</b>	1.2	
Date:	12-Sep-2010	Sheet 1 of 1	
File:	D:\M&W\Rotary_S3_Twin Distributor.scd	Drawn By:	M&W

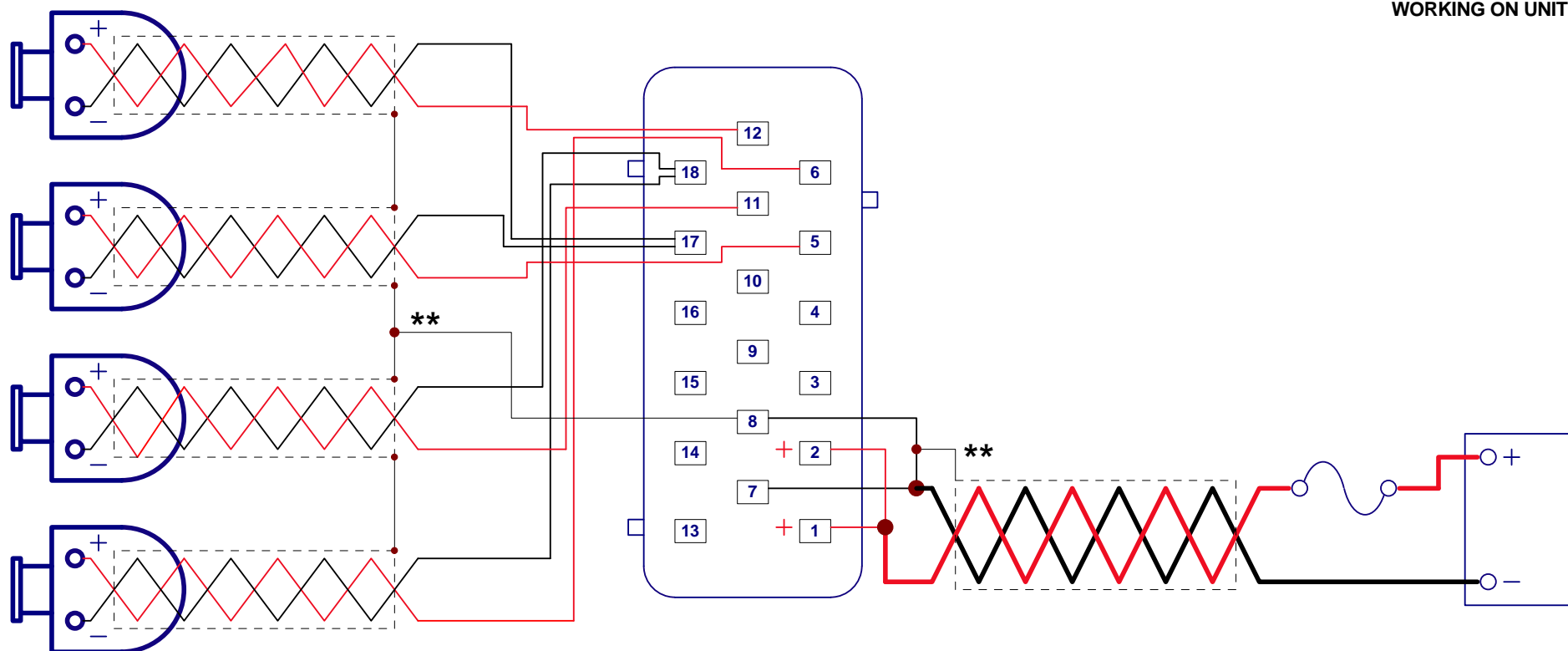
# M & W IGNITIONS

Performance & Quality since 1996

**CAUTION!**  
**HIGH VOLTAGE**



**DISCONNECT POWER BEFORE  
WORKING ON UNIT**



**\*\* Shielded cables required for Australian EMC compliance**

Title			AUSTRALIAN EMC REQUIREMENTS		
Size	Number	Revision			
A4	PRO-14 S3	1.1			
Date:	9-Mar-2009	Sheet 1 of	1		
File:	E:\M&W\Diagrams\Pro-14 S3\EMC.sch	Drawn By:	M&W		