



Pro-Drag4R

4 CHANNEL (2 ROTOR) 250mJ CAPACITOR DISCHARGE IGNITION

PLEASE REPORT ANY OMISSIONS
SALES@MWIGNITIONS.COM

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CAUTION

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

43xxxx

**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

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[®] PS92 or MSD[®] 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.

NOT FOR STREET USE!



DISCONNECT POWER BEFORE WORKING ON UNIT

VIEWED FROM BACK OF CONNECTOR



POWER LEVEL SELECTION

With nothing connected to Pin 9 the ignition will default to 150mJ output. To select 250mJ output join pins 9 & 10.

For best operation we recommend that Pin 9 be connected to one side of a normally open 'Hobbs' style manifold pressure switch. Connect the other side of the switch to ground and adjust for operation around 10-15 psig.

Alternatively connect Pin 9 to an output from the ECU that can be mapped to ground this pin when the engine boost exceeds 10-15 psi or as required.

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 Power level	15 Trigger A
4 Tacho	10 Signal ground	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
 Maximum supply current = 20A
 Shutdown current <700uA
 Maximum ignition frequency = 10,500 RPM
 Coil primary voltage = 380/500V
 Spark energy = 150/250 millijoules per plug
 Trigger = 10mA open collector drive, falling edge
 Trigger edge = -VE (falling)
 Ignition split = 0 to Infinity
 Tacho = 12V, 25mA square wave
 Maximum continuous operating temperature = 105°C
 Dimensions = 132L * 110W * 40H

Title		Pro-Drag4 Rotary 250mJ	
Size	Number	Revision	
A4	Pro-Drag4 Rotary	1.4	
Date:	25-Nov-2011	Sheet 1 of 1	
File:	D:\M&W\Pro-Drag4_Rotary_S3_1.sch	Drawn By:	M&W

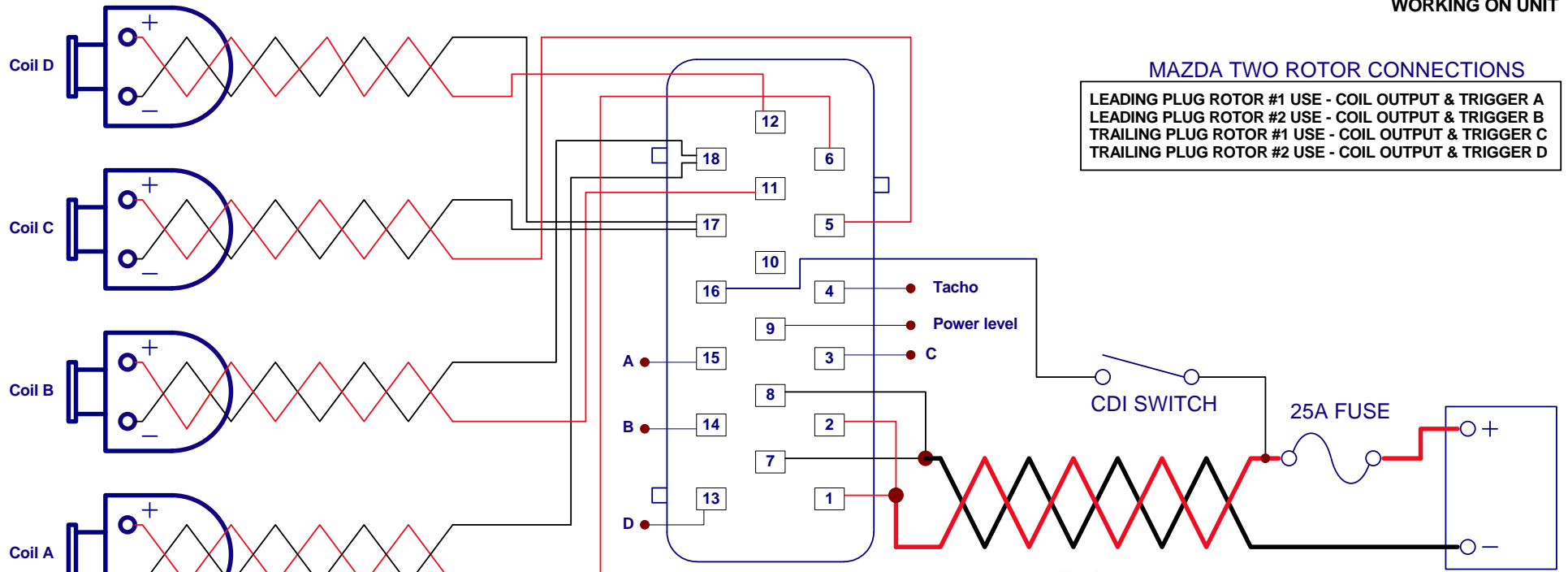
NOT FOR STREET USE!



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

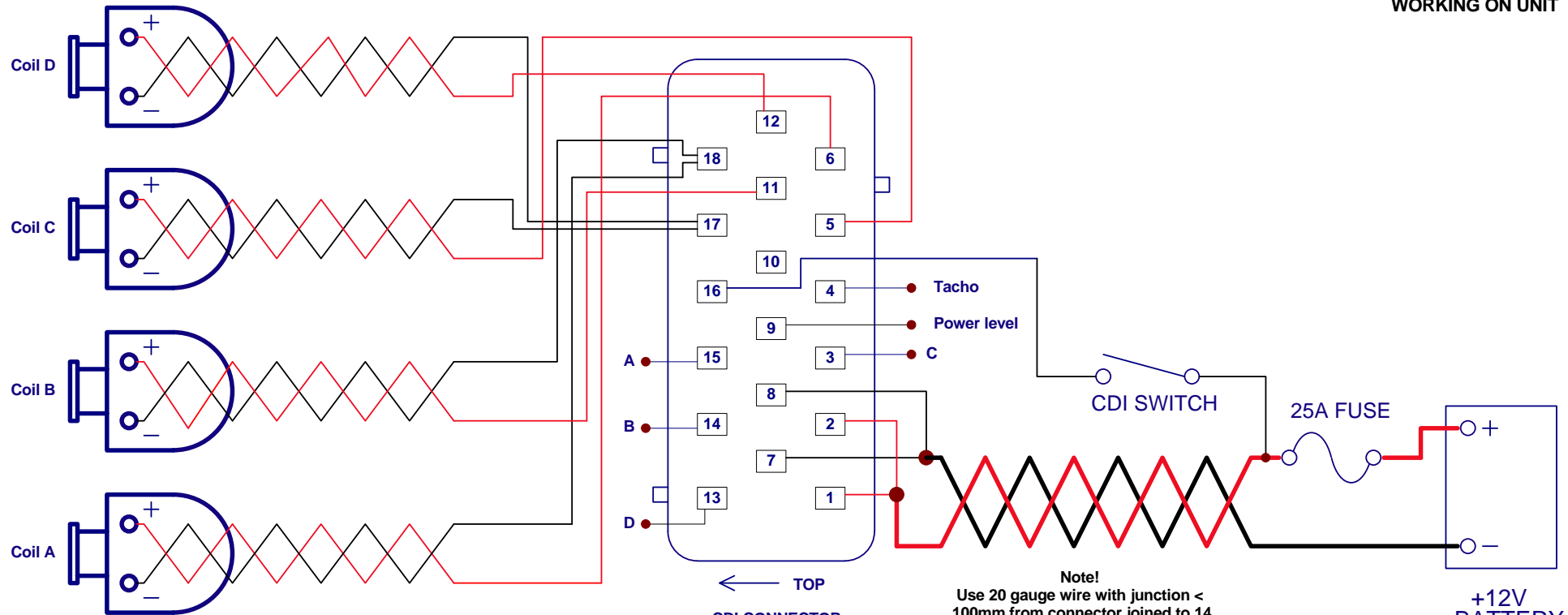
+12V BATTERY

Title		DIRECT FIRE ROTARY CDI	
Size	Number	Revision	
A4	Pro-Drag4R S3		1.5
Date:	25-Nov-2011	Sheet 1 of 1	
File:	D:\M&W\Pro-Drag4_Rotary_S3_2.sch	Drawn By:	M&W

NOT FOR STREET USE!



DISCONNECT POWER BEFORE WORKING ON UNIT



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

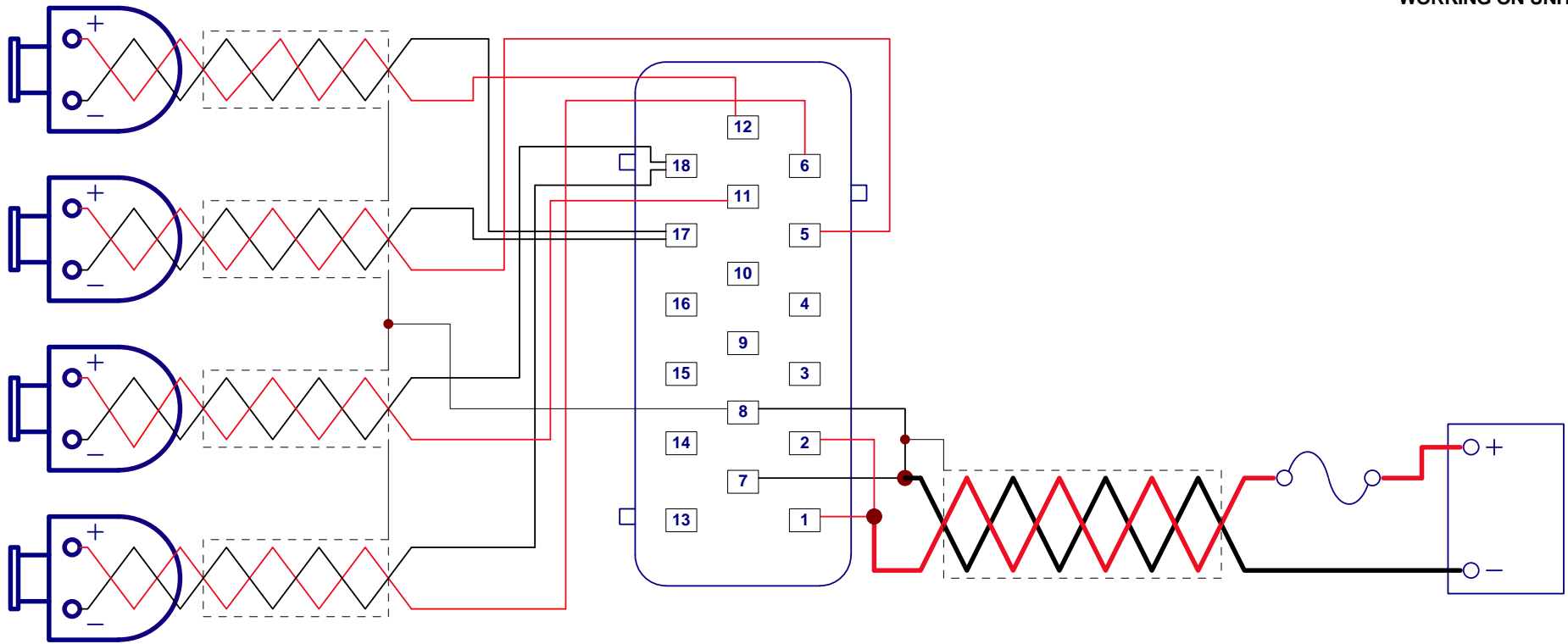
← TOP
CDI CONNECTOR
(LOOKING AT END
OF EXTRUSION)

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

Title		DIRECT FIRE 4 CHANNEL CDI	
Size	Number	Revision	
A4	Pro-Drag4R S3		1.0
Date:	25-Nov-2011	Sheet 1 of 1	
File:	D:\M&W\Pro-Drag4_Rotary_S3_3.sch	Drawn By:	M&W



DISCONNECT POWER BEFORE WORKING ON UNIT



SHIELDED CABLES MUST BE USED FOR AUSTRALIAN EMC COMPLIANCE

Title			SHIELDING & EMC COMPLIANCE		
Size	Number	Revision			
A4	Pro-Drag4R S3	1.1			
Date:	25-Nov-2011	Sheet 1 of	1		
File:	D:\M&W\Pro-Drag4_Rotary_S3_EMC.sc	Drawn By:	M&W		