WWW.MWIGNITIONS.COM

Pro-Drag6

6 CHANNEL 250mJ CAPACITOR DISCHARGE IGNITION

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

CONTENTS:

CHECK WEBSITE FOR CURRENT INFORMATION &
ADDITIONAL INSTRUCTIONS

 S/No. 390401+

CAUTION

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

39xxxx

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 IGNTION COIL

INSTALLATION NOTES

(Pro-Drag 250mJ 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. 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 regularly measuring resistance value. Open circuit or high resistance may cause failure of spark plug wires, ignition coils and CDI.

Do not use surface discharge or semi surface discharge spark plugs as they contain excessively large non adjustable spark gaps.

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

M&W CDI systems contain internal protective mechanisms designed to blow the external 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/regulator may cause momentary over voltage spikes sufficient enough to blow the fuse.

Main connector pins are designed to be roll crimped not squeeze crimped or soldered. Distortion of pins during crimping and assembly may cause misfiring or incorrect operation of CDI.

Wire ignition system directly to the battery. If wire length exceeds recommendations use larger paired battery cables (power and ground) to make up distance. Do not rely on vehicle 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 no 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 sufficient instantaneous current required for 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 shielded pair wire for all coil connections. Twisted pair wire may be used for power/ground.
Keep coil wires one continuous length from CDI, do not fit intermediate connector into harness.

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

TRIGGERING

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

250mJ Pro-Drag systems include a selective trigger edge input which defaults to falling edge ignition when no jumper is installed. To select rising edge ignition install a jumper wire between 'Trigger Edge' and 'Signal Ground' pins.

Where the ECU contains an inbuilt igniter 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

Ignition system have no means of detecting engine load and provide maximum performance whether the engine is being free revved or under full load.

Some 250mJ units include a power level switch to allow for reduction of ignition energy during low load conditions.

Do not manually activate the power switch. Either install an adjustable 'Hobbs' style pressure switch in the inlet manifold or use a programmable output from the ECU and wire so input is grounded to select high power when engine starts to come on load.

IGNITION TIMING

M&W high power CDI ignition systems will typically change the engine combustion characteristics and may require significantly less total timing.

Always re tune both fuel and ignition systems 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.

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 (it may be necessary to view the LED directly on axis).

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

TESTING

The CDI 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 grounded spark plugs installed!

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

SAFETY

Due to the extreme energy and voltage levels developed by M&W 250mJ ignition systems it is strongly recommended certain procedures be followed to ensure safety of mechanics and prevent ignition component damage.

1. Install dummy, grounded, metal spark plugs in the engine bay and transfer the spark plug leads to these between race events or at least when working on engine.

2. Install an aircraft style guarded toggle switch in the CDI ignition switch wire circuit and habitually disable it when not actually running the engine.

For further instructions and cdi information check out the support tab on our web site

http://www.mwignitions.com

IGNITION COILS

(Pro-Drag systems only)

COIL SELECTION

For ultimate ignition energy and efficiency use coils specifically designed for CDI use. Use of ignition coils designed for inductive ignition will greatly limit ignition (spark) energy.

COP COILS

COP (coil on plug) coils were not designed for the energy levels developed by M&W Pro-Drag systems.

Use COP coils at own risk with 250mJ systems due to possibility of exceeding insulation limits, DO NOT use with 500mJ systems.

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!

CAUTION!

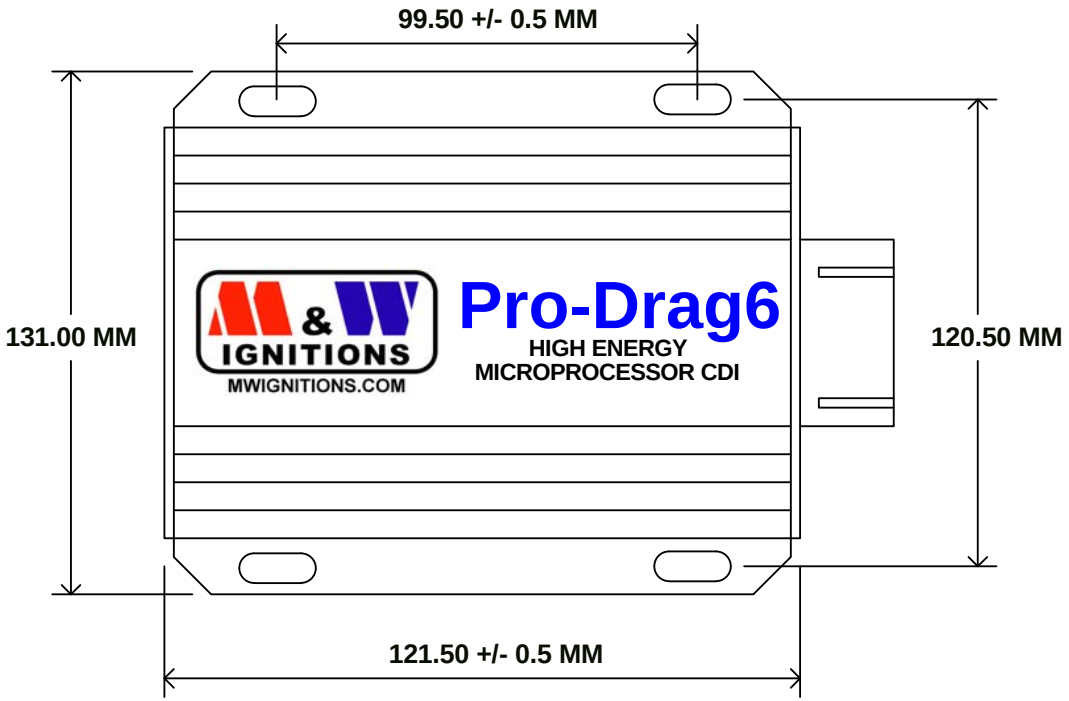
IGNITION COIL DAMAGE MAY OCCUR IF OPERATED WITH AN EXCESSIVE SPARK GAP

M&W IGNITIONS

Performance & Quality since 1996

CAUTION!
HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT



Slot dimensions - 5mm * 10mm

Title	MOUNTING DIMENSIONS		
Size: A4	Number: Pro-Drag6 250mJ	Revision: 25.04.13.1	
Date: 25-Apr-2013		Sheet 1 of 1	
File: D:\M&W\..\Mounting.sch		Drawn By: M&W	

NOT FOR STREET USE!

M&W IGNITIONS

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CAUTION!
HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT

VIEWED FROM BACK OF CONNECTOR

KEEP ALL INPUTS WELL SEPARATED FROM COIL OUTPUTS

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

SPECIFICATIONS

Operating voltage = 13V - 18V DC negative ground
Starting voltage = +11V (not for operation)
Maximum supply current = 20A (per unit)
Power off current < 700uA
Maximum ignition frequency = 1200 Hz (combined)
Coil primary voltage = 500V
Spark energy = 250millijoules
Trigger = 10mA adjustable edge
Tacho = 12V, 100mA square wave
Maximum allowable case temperature = 105°C
Dimensions = 112L * 110W * 40H
Weight = 750gm (each)

Title	PRO-DRAG6 250MJ		
Size A4	Number Pro-Drag6 S3		Revision 25.04.13.1
Date:	25-Apr-2013	Sheet 1 of 1	
File:	D:\M&W\..\Pro-Drag6_S3_1.sch	Drawn By:	M&W

FIRING ORDER MUST ALTERNATE BETWEEN BOXES

M&W IGNITIONS

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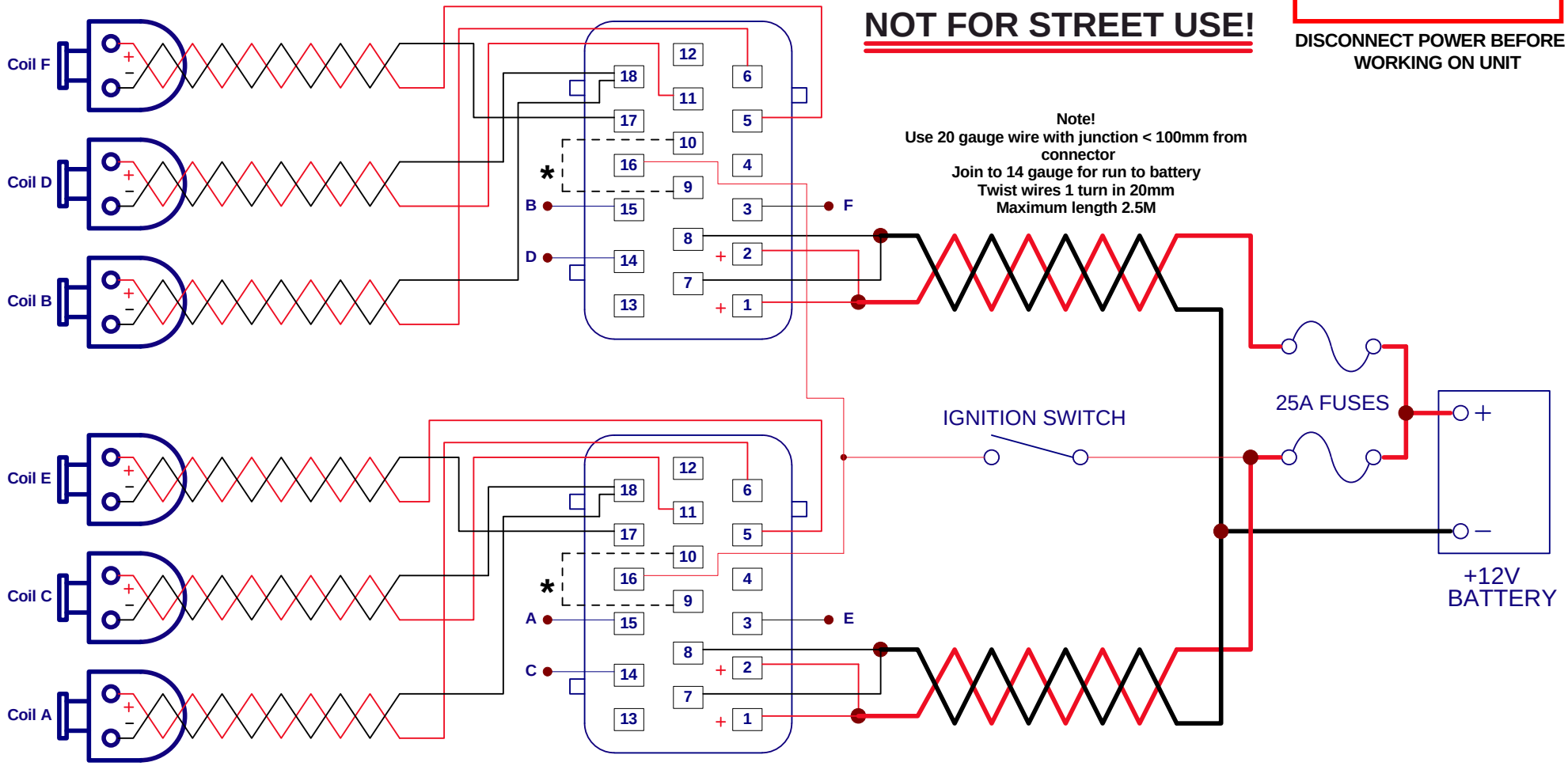
CAUTION! HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT

* See installation instructions for use of trigger edge selection

NOT FOR STREET USE!



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Size: A4	Number: Pro-Drag6 250mJ	Revision: 25.04.13.1
Date: 25-Apr-2013		Sheet 1 of 1
File: D:\M&W\..\Pro-Drag6_S3_2.sch		Drawn By: M&W

M&W IGNITIONS

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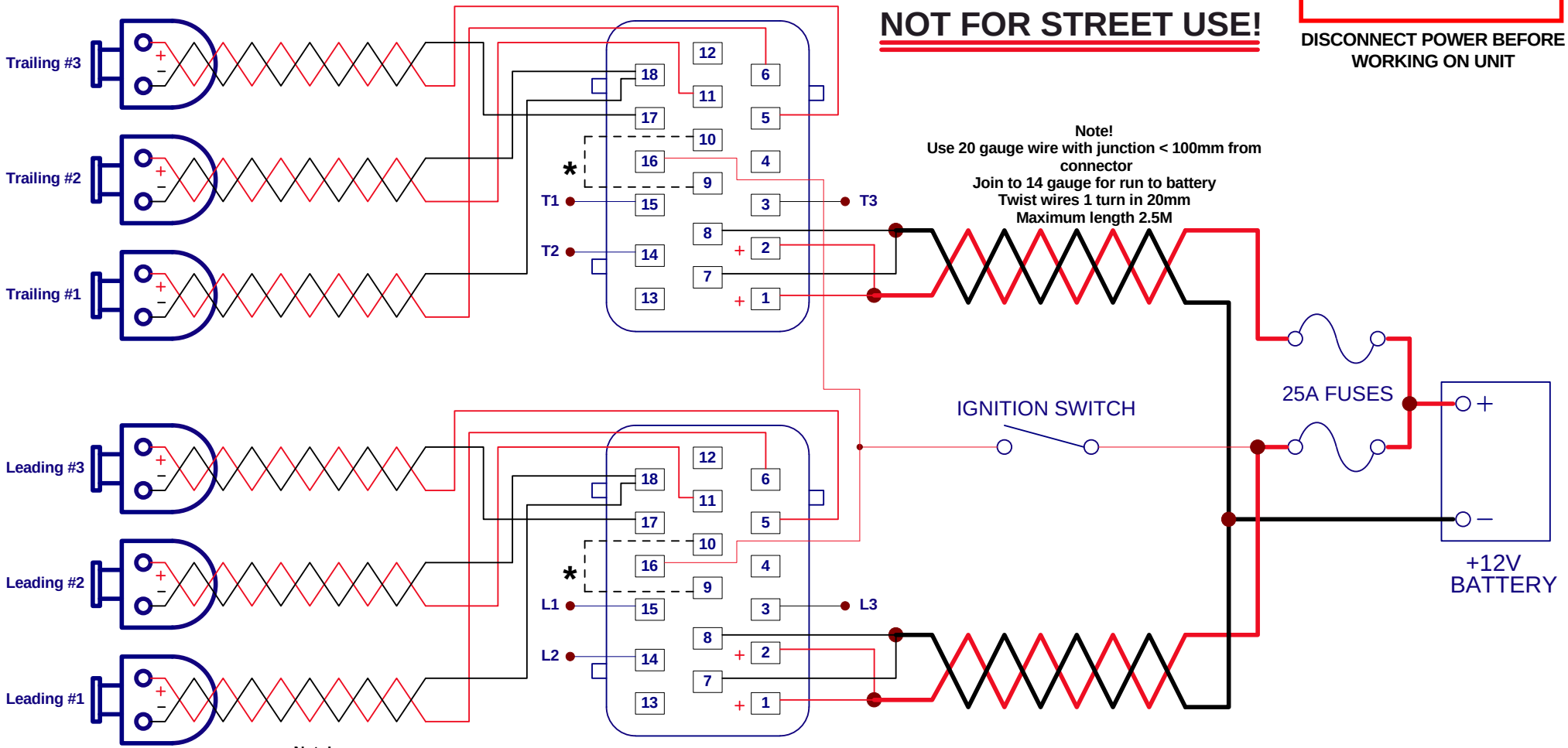
CAUTION!
HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT

*** See installation instructions for use of trigger edge selection**

NOT FOR STREET USE!



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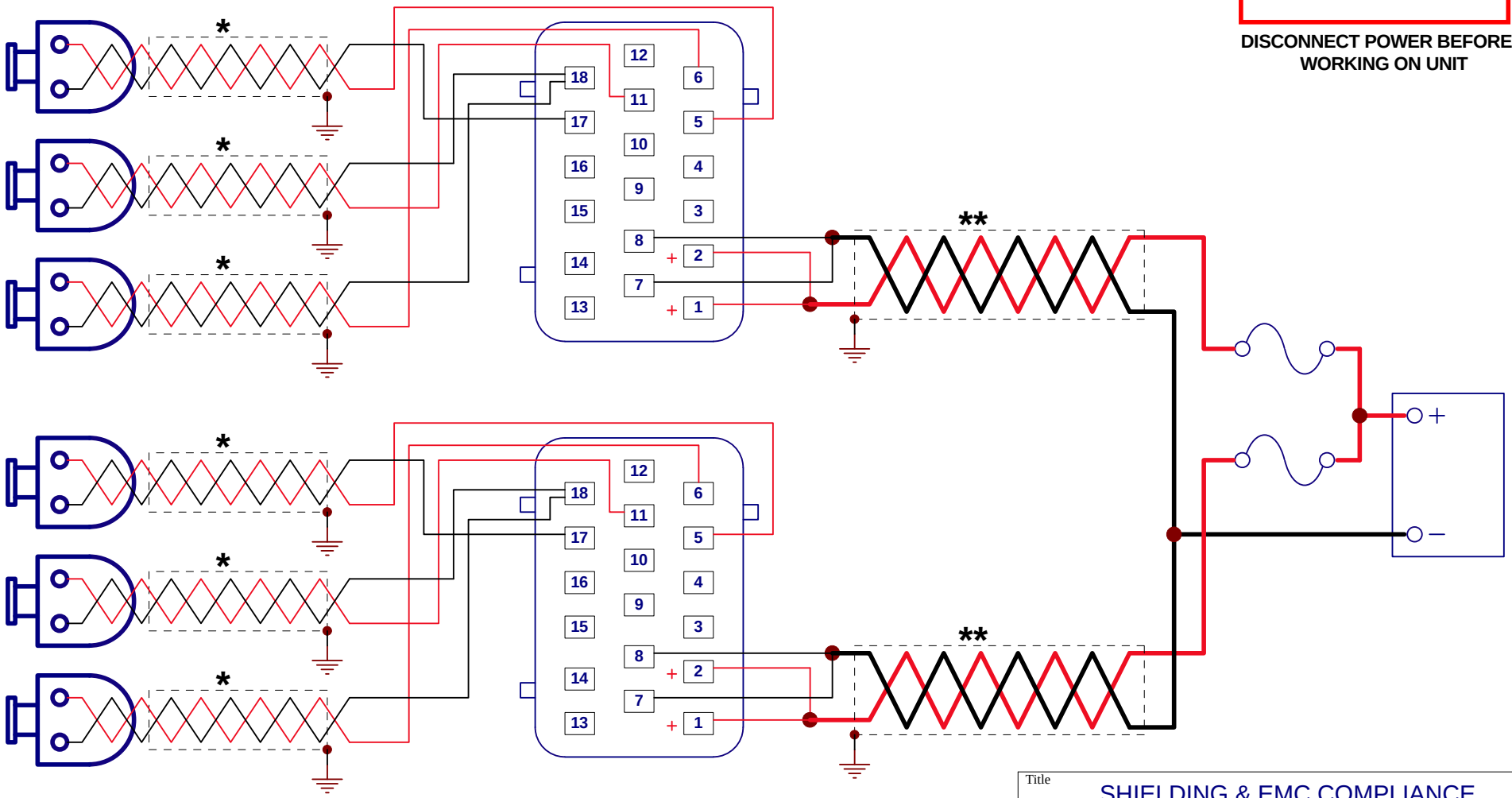
Size: A4	Number: Pro-Drag6 250mJ		Revision: 25.04.13.1
Date:	25-Apr-2013	Sheet 1 of 1	
File:	D:\M&W\..\Pro-Drag6_S3_4.sch	Drawn By: M&W	

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 cables required for Australian EMC compliance

Title	SHIELDING & EMC COMPLIANCE		
Size: A4	Number: Pro-Drag6 S3		Revision: 25.04.13.1
Date:	25-Apr-2013	Sheet 1 of 1	
File:	D:\M&W\..\EMC-250.sch	Drawn By:	M&W