M&W IGNITIONS
WWW.MWIGNITIONS.COM

1000 Max

ELECTRICAL WIRING
&
OPERATING INSTRUCTIONS

Applicable
S/No's 93xxxx

FAILURE TO FOLLOW INSTRUCTIONS
WILL VOID WARRANTY

CONTENTS:

ADDITIONAL RESOURCES & UP TO DATE
INSTRUCTIONS AVAILABLE FROM WEBSITE

INSTALLATION NOTES

(1,015mJ CDI)

MOUNTING

Mount the unit in a dry location away from intense heat and ensure bottom condensation slots are unobstructed and oriented to permit gravity drain. Ensure a source of cooling air is available.

Failure to use supplied rubber mounts will void warranty!

IGNITION LEADS

Use only inductively suppressed spiral wound metal conductor ignition leads. For best performance select leads with approximately 1,000 ohms per metre (300 ohm per ft) resistance.

Do not use carbon core or unsuppressed metal leads!

SPARK PLUGS

Non resistor spark plugs will greatly enhance ignition performance **however** most installations will require the use of resistor spark plugs for correct ECU operation.

When using resistor spark plugs check resistance regularly and replace immediately if out of tolerance otherwise damage to ignition coil or cdi may result!

Fixed gap surface discharge and semi surface discharge spark plugs are only suitable for naturally aspirated applications.

Keep spark plug gap <= 0.025” (0.6mm) for boosted motors to prevent coil and CDI damage!

INSULATION PRECAUTIONS

Degrease sparkplug insulators, sparkplug boots, ignition coil boots and installation tooling to prevent insulation breakdown.

Use supplied dielectric grease on sparkplug insulators and inside sparkplug boots and ignition coil boots to improve insulation properties.

POWER SUPPLY

REVERSE POLARITY WILL DAMAGE UNIT!
ALWAYS INSTALL EXTERNAL FUSE OR EQUIVALENT RATED CIRCUIT BREAKER!

For best performance use a 16V electrical system preferably with a Lithium chemistry battery.

Connect directly to battery, do not wire through PDM or other electrical management system

WIRING

M&W 1000 Max series ignition systems are supplied with an un-terminated harness. To complete installation it is necessary to first trim all wires to the correct length, coil and power supply wires are best kept as short as possible.

Keep coil primary wires well separated from HT leads, coil HV outlet, coil body and any ECU wiring!

TRIGGERING

Single box: Ignition channels may be triggered in any sequence.

Two box: Firing sequence must alternate between boxes.

1000 Max systems default to falling (negative) edge trigger, to select rising edge (positive) trigger join pins 5 (Trigger edge) & 17 (Edge ground).

Trigger input & coil output numbers indicate CDI firing order not cylinder number!

POWER LEVEL SWITCH

1000 Max ignition systems include a power level switch to reduce ignition load under low engine power conditions.

Activate high power mode by grounding input through either a ‘Hobbs’ style manifold pressure switch or programmable output from the ECU when increased ignition energy is required.

If excessive internal temperature is detected high power mode will be disabled until condition is corrected.

Do not manually or permanently activate this feature!

TUNING

CDI performance is not affected by changes in dwell settings!

M&W CDI systems may significantly change combustion characteristics requiring a reduction in ignition timing and alterations to fuel flow maps.

Do not attempt to re-use exiting timing curves, set ECU ignition delay to zero and re-tune both fuel and timing after installation!

TACHO OUTPUT

Tacho output provides a 50% duty cycle square wave signal approximately 1V below supply voltage.

LED INDICATOR

After applying power to switch wire both the red and green LED's will illuminate for approximately 1 second before extinguishing.

The green led flashes with each trigger event received

The red led illuminates when high power mode is selected however if over temperature conditions are sensed high power mode is disabled and the led will flash continuously until temperature returns to normal.

A repeated double flash of both led's may indicate a faulty ignition coil, faulty wiring, low supply voltage or damage to the CDI.

TESTING

When fault finding a new installation the CDI may be fired by momentarily grounding each trigger input separately which will cause the green LED to flash and corresponding ignition coil to spark.

Do not conduct this test without grounded spark plugs installed!

COIL SELECTION

Use only high quality cdi specific ignition coils such as the M&W COI006.

Do not use with COP coils

Do not use with pencil coils

Do not use with ferrite core coils such as those made by Mercury or Prufex or MSD #8201

OPERATION

1000 Max systems are designed for short duration use of less than 3 minutes at full rated RPM (slightly longer at lower speed) when starting from unit temperature of 25C (77F).

Important components are directly monitored for over temperature and output power reduced if high temperature detected.

While a cooling airflow assists in temperature recovery it will not extend operation time.

M&W IGNITIONS

Performance & Quality

CAUTION!
HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT

VIEWED FROM BACK OF CONNECTOR

1 +12V (Battery)	13 Ground (Battery)	25 Trigger 1
2 +12V (Battery)	14 Ground (Battery)	26 Ignition switch
3 +12V (Battery)	15 Ground (Battery)	27 Trigger 2
4 +12V (Battery)	16 Ground (Battery)	28 Trigger 3
5 Trigger edge	17 Edge ground	29 Trigger 4
6 Tacho	18 Mode (Future)	30
7	19 Com2 (Future)	31 Power
8	20	32 Com1 (Future)
9	21 Coil 4 -	33
10 Coil 3 +	22 Coil 3 -	34 Coil 4 +
11	23 Coil 1 -	35
12 Coil 1 +	24 Coil 2 -	36 Coil 2 +

SPECIFICATIONS

Operating voltage ..... 13.5V --> 18V DC
Startup voltage ..... >= 10V
Maximum supply current ..... 38A (per Box)
Power off current ..... < 700uA
Maximum peak energy speed (supply voltage)
4 cyl (1 box) ..... 10,800 rpm (13.5V)
12,600 rpm (16.0V)
6 cyl (2 box) ..... 12,800 rpm (13.5V)
16,800 rpm (16.0V)
8 cyl (2 box) ..... 10,800 rpm (13.5V)
12,600 rpm (16.0V)
Spark energy (per plug):
Low power 600mJ
High power 1,015mJ
Trigger:
Current 10mA
Edge ..... Adjustable
Voltage rising ..... >= 3.2V
Voltage falling ..... <= 1.6V
Tacho output:
Voltage ..... Supply - 1.2V
Output current 100mA
Shape ..... Symmetric
Operating temperature ..... <= 105°C
Dimensions ..... 179L * 137W * 50H
Weight ..... 1,300gm (per box)

Title	1000 Max CDI	
Size: A4	Number: (C) M&W Ignitions	Revision: 13.01.20.1
Date: 13-Jan-2020		Sheet 1 of 1
File: D:\M&W\..\1000 Max 1.sch		Drawn By: WAG

M&W IGNITIONS

Performance & Quality

Wire Specifications

POWER SUPPLY:

Use 12ga shielded wire from battery quadfurcated into 18ga wire <= 100mm from connector. Junction is best achieved using a Solistrand or similar butt splice / barrel crimp.
Maximum recommended wire length is 2M

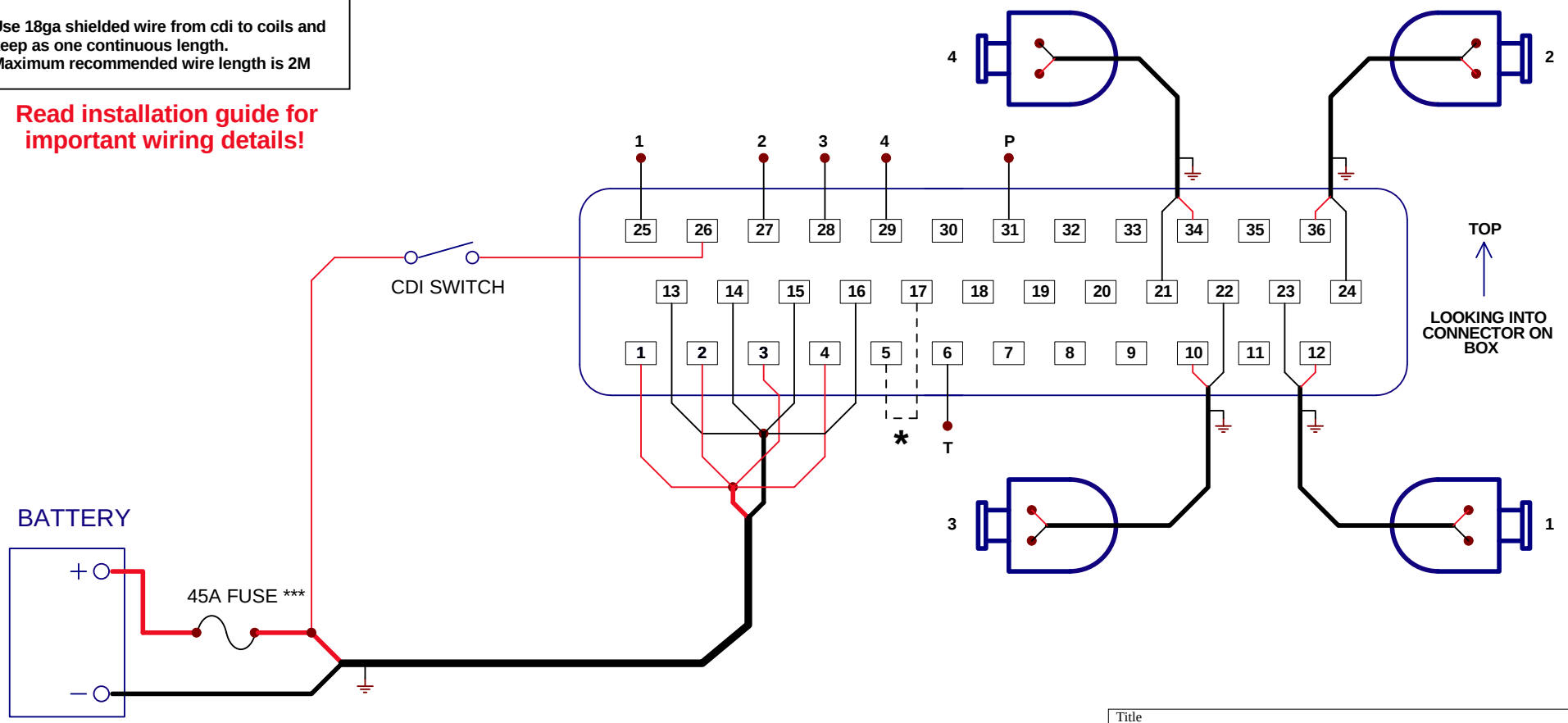
IGNITION COILS:

Use 18ga shielded wire from cdi to coils and keep as one continuous length.
Maximum recommended wire length is 2M

Read installation guide for important wiring details!

CAUTION! HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT



Reverse polarity connection without fuse installed will damage unit!

* See installation instructions
** Indicates wiring for second box
*** Or equivalent circuit breaker

Title	1000 MAX - 4 CYLINDER	
Size: A4	Number: (C) M&W Ignitions	Revision: 13.01.20.1
Date: 6-Mar-2020		Sheet 1 of 1
File: D:\M&W\..\1000 Max 2.sch		Drawn By: WAG

M&W IGNITIONS

Performance & Quality

Wire Specifications

POWER SUPPLY:

Use 12ga shielded wire from battery quadfurcated into 18ga wire <= 100mm from connector. Junction is best achieved using a Solistrand or similar butt splice / barrel crimp.
Maximum recommended wire length is 2M

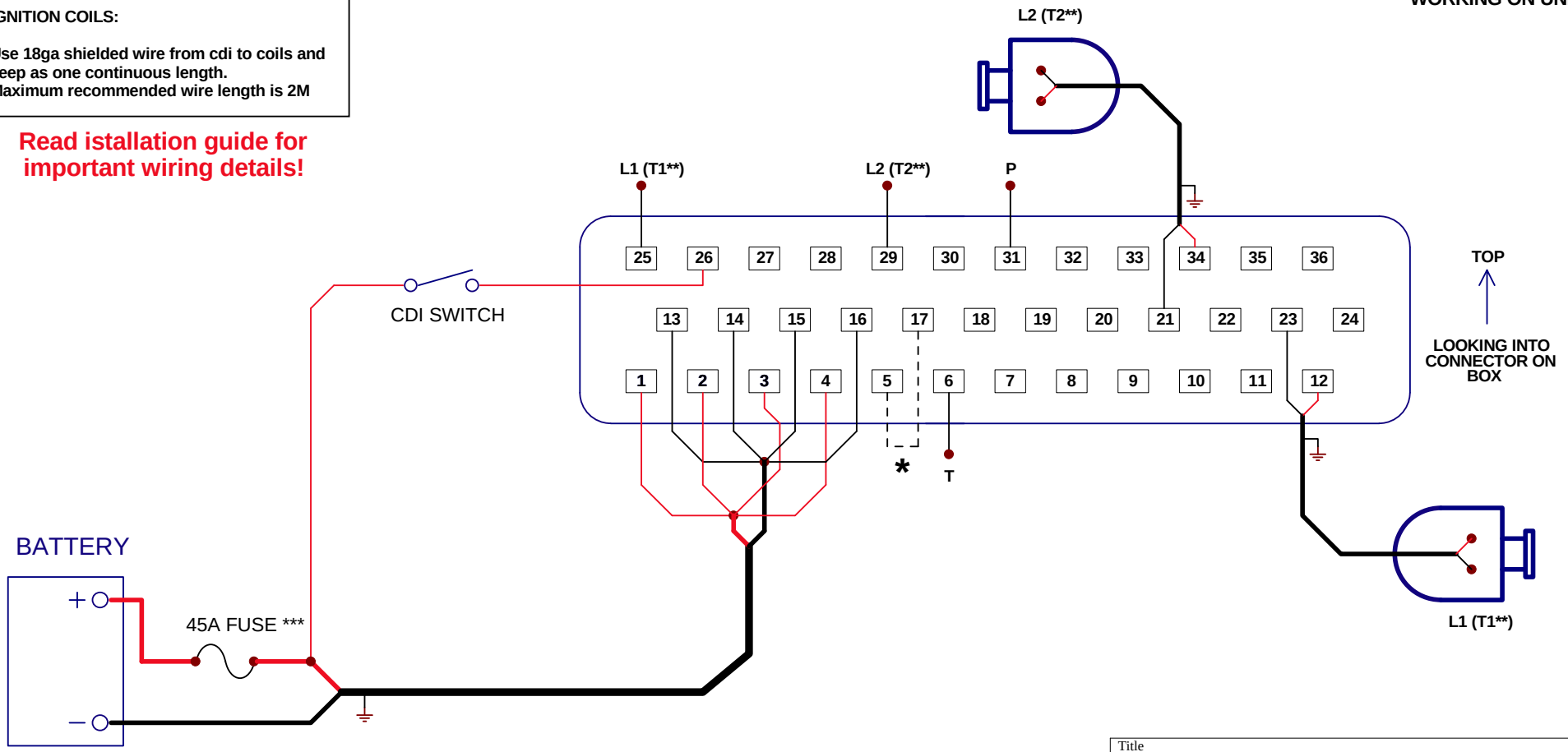
IGNITION COILS:

Use 18ga shielded wire from cdi to coils and keep as one continuous length.
Maximum recommended wire length is 2M

Read istallation guide for important wiring details!

CAUTION! HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT



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Title	1000 MAX - 2 ROTOR	
Size: A4	Number: (C) M&W Ignitions	Revision: 13.01.20.1
Date: 6-Mar-2020		Sheet 1 of 1
File: D:\M&W\..\1000 Max 3.sch		Drawn By: WAG

M&W IGNITIONS

Performance & Quality

Wire Specifications

POWER SUPPLY:

Use 12ga shielded wire from battery quadfurcated into 18ga wire <= 100mm from connector. Junction is best achieved using a Solistrand or similar butt splice / barrel crimp.
Maximum recommended wire length is 2M

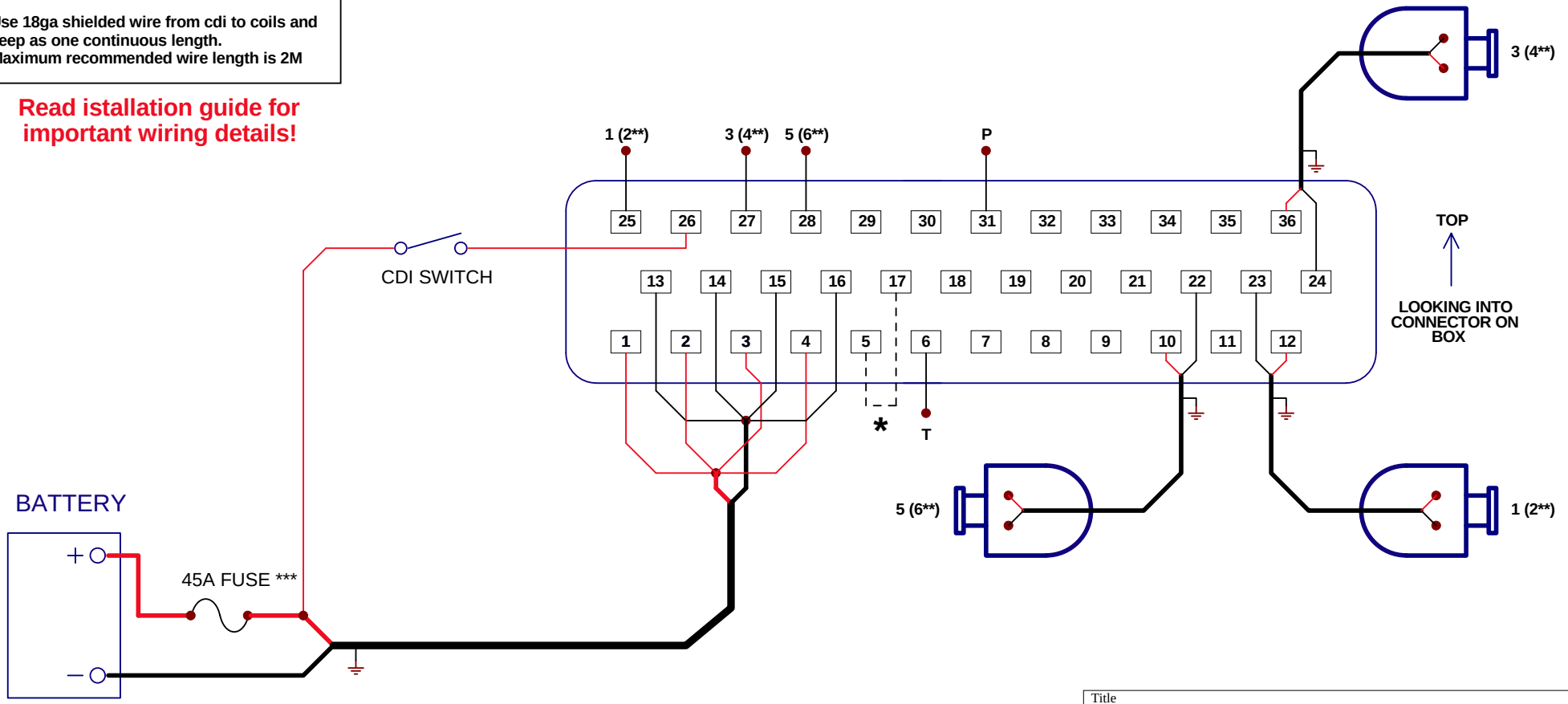
IGNITION COILS:

Use 18ga shielded wire from cdi to coils and keep as one continuous length.
Maximum recommended wire length is 2M

Read istallation guide for important wiring details!

CAUTION! HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT



Reverse polarity connection without fuse installed will damage unit!

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*** Or equivalent circuit breaker

Title	1000 MAX - 6 CYLINDER	
Size: A4	Number: (C) M&W Ignitions	Revision: 13.01.20.1
Date: 6-Mar-2020		Sheet 1 of 1
File: D:\M&W\..\1000 Max 4.sch		Drawn By: WAG

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Performance & Quality

Wire Specifications

POWER SUPPLY:

Use 12ga shielded wire from battery quadfurcated into 18ga wire <= 100mm from connector. Junction is best achieved using a Solistrand or similar butt splice / barrel crimp.
Maximum recommended wire length is 2M

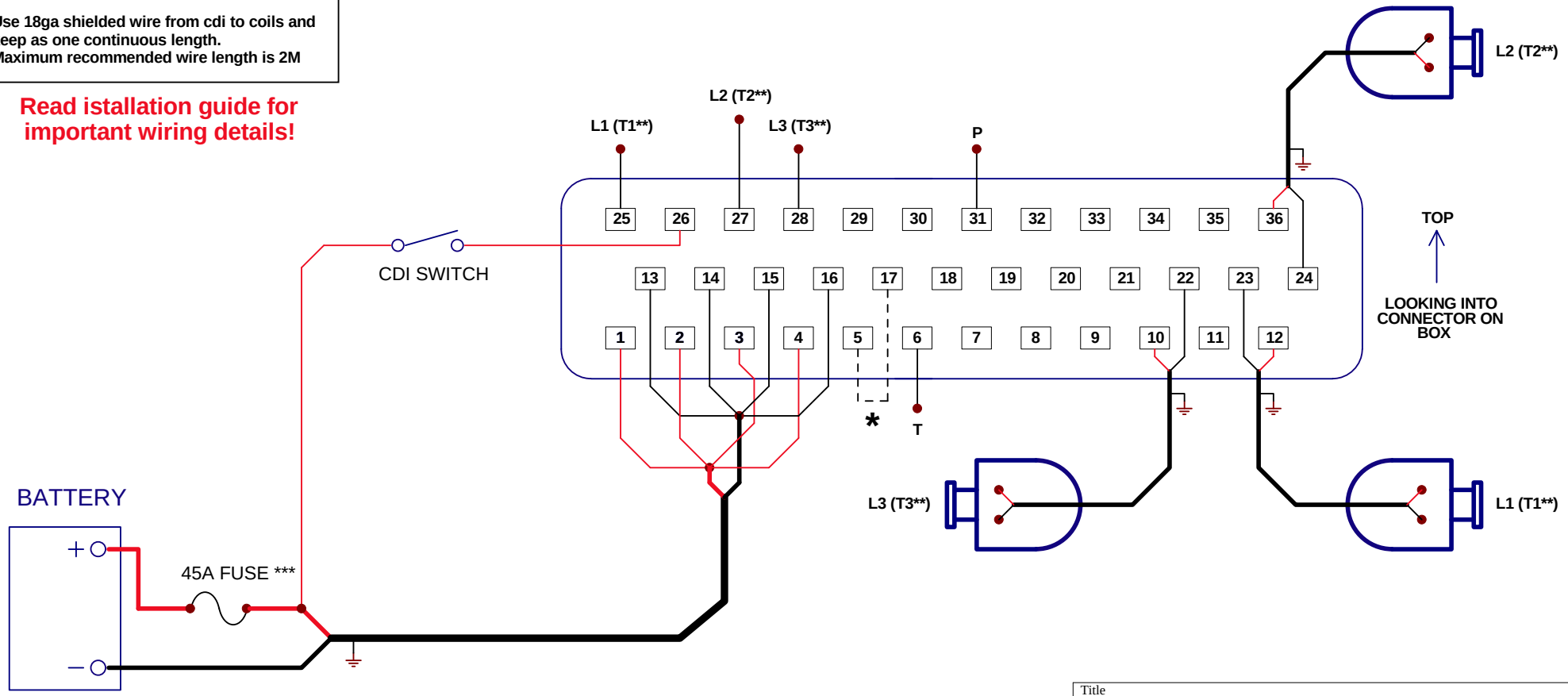
IGNITION COILS:

Use 18ga shielded wire from cdi to coils and keep as one continuous length.
Maximum recommended wire length is 2M

Read istallation guide for important wiring details!

CAUTION! HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT



Reverse polarity connection without fuse installed will damage unit!

* See installation instructions
** Indicates wiring for second box
*** Or equivalent circuit breaker

Title	1000 MAX - 3 ROTOR	
Size: A4	Number: (C) M&W Ignitions	Revision: 13.01.20.1
Date: 6-Mar-2020		Sheet 1 of 1
File: D:\M&W\..\1000 Max 5.sch		Drawn By: WAG

M&W IGNITIONS

Performance & Quality

Wire Specifications

POWER SUPPLY:

Use 12ga shielded wire from battery quadfurcated into 18ga wire <= 100mm from connector. Junction is best achieved using a Solistrand or similar butt splice / barrel crimp.
Maximum recommended wire length is 2M

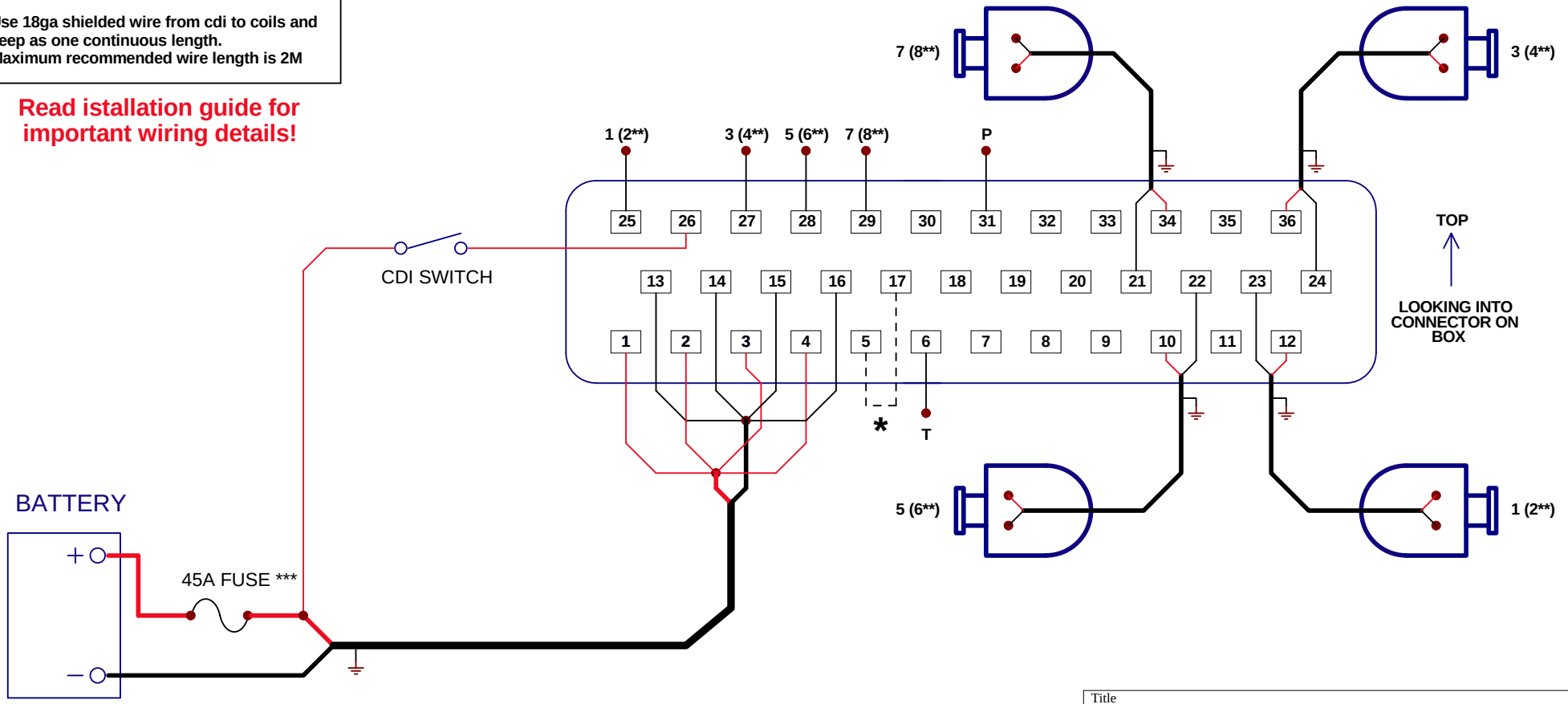
IGNITION COILS:

Use 18ga shielded wire from cdi to coils and keep as one continuous length.
Maximum recommended wire length is 2M

Read istallation guide for important wiring details!

CAUTION! HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT



Reverse polarity connection without fuse installed will damage unit!

* See installation instructions
** Indicates wiring for second box
*** Or equivalent circuit breaker

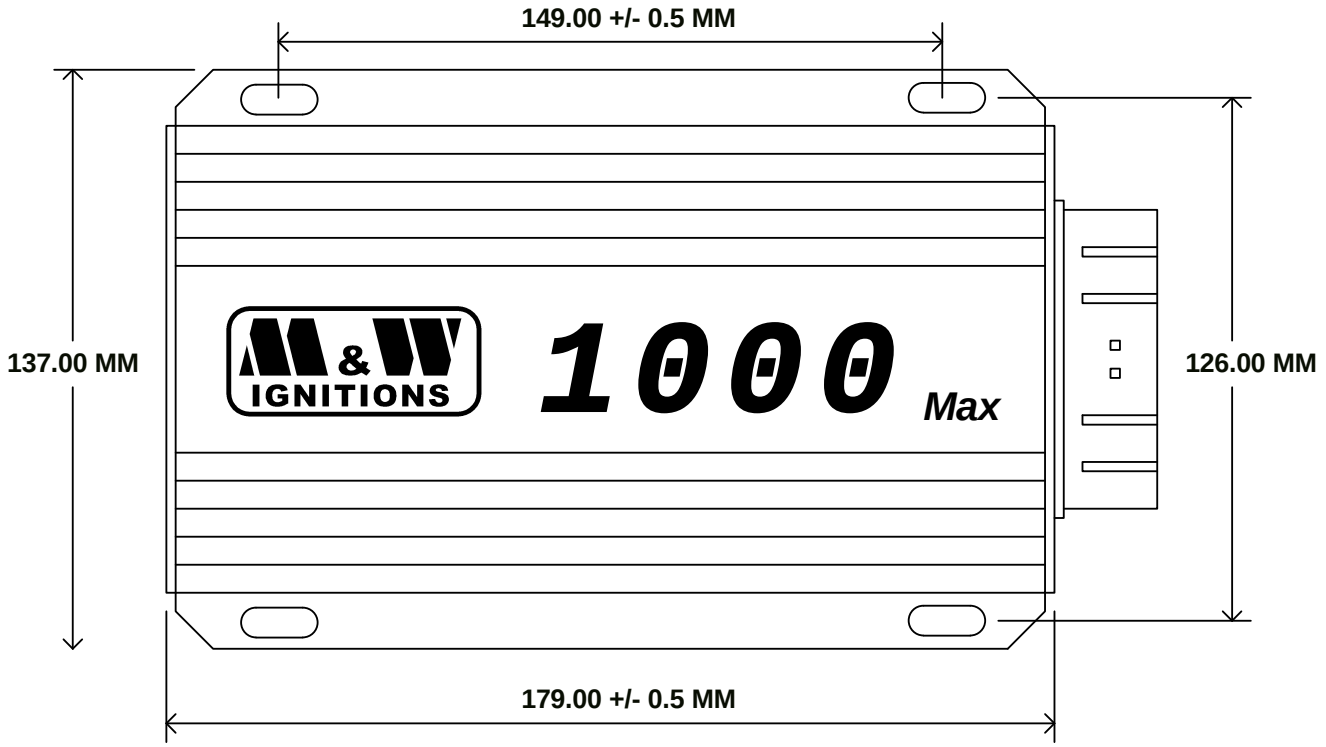
Title	1000 MAX - 8 CYLINDER	
Size: A4	Number: (C) M&W Ignitions	Revision: 13.01.20.1
Date: 6-Mar-2020		Sheet 1 of 1
File: D:\M&W\..\1000 Max 6.sch		Drawn By: WAG

CAUTION!
HIGH VOLTAGE

DISCONNECT POWER BEFORE WORKING ON UNIT

M&W IGNITIONS

Performance & Quality



Slot dimensions - 5mm * 10mm

Title: **1000 MAX CDI**		
Size: A4	Number: **(C) M&W Ignitions**	Revision: **13.01.20.1**
Date: 13-Jan-2020		Sheet 1 of 1
File: D:\M&W\..\1000 Max Dimensions.sch		Drawn By: WAG