

REVIVAL
WWW.REVIVALCYCLES.COM

UNIVERSAL M-UNIT V.2 WIRING DIAGRAM FOR CARBURATED MOTORCYCLES

- MINIMUM THAT IS REQUIRED:**
1. Factory wiring diagram (also take photos of connector backs for wire locations)
 2. Crimp Terminals / Connectors that match the TCI / CDI / ignition control module
 3. Wire to replace or extend sections of the factory harness
 4. Main fuse
 5. Wire loom / Electrical harness tape
 6. Heat shrink
 7. Solder and soldering iron (solder guns are terrible for this work)
 8. Time
 9. Patience
 10. Focus

ONE APPROACH TO WIRING AN M-UNIT:

How you go about installing your m-Unit isn't as important as the end result, but having a game plan can definitely ease your suffering and expedite the install. It isn't that difficult to get the wires to connect from A to B and get the system work. The difficulty comes in making it all look perfect and simple, and having it all in vinyl wire loom. It's much easier if you just wrap it all after the fact with electrical tape or split loom. If you work from the devices back to the m-Unit you can get the routing and cable lengths just right, and then finalize splices and terminations with ferrule terminals and install the wires into the connectors.

The best approach is to break the project down into bite sized pieces, and focus on one at a time. Start with getting power and ground to the m-Unit BAT and GND connections (don't forget the main fuse). Then wire in the ignition switch, so the m-Unit can be turned on. Next wire in the input switches, and configure the m-Unit for the appropriate switch configuration, this will allow you to test the inputs and verify that the corresponding output LED turns on/off as expected. The m-Unit will operate without connecting the outputs, and the LEDs are an effective test indicator. Once the inputs are working correctly, you can move on to the outputs, once you get an output connected you can test it. Going through the process this way can provide a better understanding of how the systems work, and also makes troubleshooting much faster than trying to chase a problem after the whole system is in place.

There are two factory systems that need to be integrated with the m-Unit

1. Charging System- This incorporates the wiring from your alternator or generator, Reg/Rec and battery. If you have an archaic 2 part Reg/Rec or your Reg/Rec is 20+ years old you should replace it with a quality modern component (stay away from cheap Chinese copies on eBay/Amazon). REGARDLESS New or Old Test your Reg/Rec to confirm it is operating within spec. **OVER VOLTAGE (>18V) WILL DAMAGE AN M-UNIT VERY QUICKLY**

WHAT YOU NEED TO DO. Using your OEM wiring diagram, trace the wires from the Regulator Rectifier, determine which wire provides rectified 12v + power back to the battery (normally this is a red wire) this wire will need to have the main fuse between the Reg/Rec and battery. This wire can be spliced into the m-Unit power supply wire, or the m-Unit can be powered separately directly from the battery. Just make sure the main fuse is between the reg/rec and the battery. If your system has a reg/rec wire that is connected to switched +12V that wire should be connected to the ignition output. The rest of the connections will follow the original diagram or aftermarket reg/rec instructions.

2. Ignition System - This consists of an ignition coil and some type of control module, which could be Breaker Points, CDI, TCI, ECU, etc. Most systems will be wired almost the same as they were on the original bike (or following aftermarket install instructions) the difference with the m-Unit is how they get power. Except for true CDI's most systems are 12V and the m-Unit ignition output provides power to the ignition coil and the control module (except breaker points). True CDI ignitions are self powered and are controlled by grounding a kill switch wire, see our m-Unit CDI wire diagram for details on how to use the m-Unit to control this type of system.

WHAT YOU NEED TO DO (non-CDI type). Using your OEM wiring diagram, find the control module and trace each wire, connections to the stator / trigger coils / ignition coils / ground remain the same as OEM. Wires that connected to the key switch / fuse block / kill switch or battery (+) will now be connected to the m-Unit ignition output. Note: A connection from the ignition system to the tachometer is often just a tachometer signal wire and can be left disconnected or used to signal a motogadget gauge. However if your bike is from the late 90's or newer and you have some extra "mystery" wires going to the key switch or gauges you may have some type of immobilizer or security system. Do some research, forums and google are your friend, as some can be bypassed very easily using a simple resistor.

Disclaimer: Revival Cycles is providing this diagram to the motorcycle community under no obligation. We are not responsible for any harm that comes to you or your motorcycle or any part thereof on account of this diagram or any other information provided by us or anyone else. This is a DIY project, you must invest the time necessary to research and understand the nature of these components in relation to your motorcycle and the requirements for installation or have the sense to hire a professional.

WIRE GAUGE AMPERAGE QUICK REFERENCE	
AWG	AMP
22	5
20	10
18	15
16	20
14	30
12	40

- ① A kick stand switch will prevent the start output from turning on when the side stand is down but will not kill the engine when it is running.
- ② Clutch safety switch can be omitted by connecting black starter solenoid switch direct to ground.
- ③ For ideal ground continuity tie handlebar control grounds together and back to m-Unit GND.

This wiring diagram shows two different ways of wiring the main fuse. One makes use of the universal starter solenoid offered on our site which has the main fuse incorporated into it. If not using this solenoid your main fuse may be a separate component in which
- ④ Installations that involve a Capacitive Discharge Ignition Module (CDI) require an alternative ignition arrangement. See Revival's m-Unit CDI Diagram for detailed instructions.

M-UNIT INPUTS DO NOT HAVE POWER FLOWING THROUGH THEM: Do not connect these to 12v power (it won't damage, but also won't work). This includes brake switches. The m-Unit is a micro-controller that reads ground signals sent by a simple switch and turns on the associated function. This is fundamentally different from all OEM manufacturers controls. You have 2 wires, one goes to a ground, the other goes to the m-Unit input. For this reason, you can use very small gauge wire for the inputs. Generally we use 22 gauge wire for the inputs because this is a good compromise between size and strength, much smaller than 22 gauge and they are difficult to work with and easy to physically break.

Grounds: It is of vital importance that ground connections all have low resistance path to the battery (-) terminal. This means every connection needs to be metal to metal contact, no paint, powder coat, rubber, etc to insulate the path. Also the ground wires need to be sized to match the power feed wires for the device. This is why there is a large ground strap between the battery (-) and the engine, this is the path for the high power starter motor which is fed with 6 gauge wire. The same is true for smaller devices if its fed with 18 gauge, it needs an 18 gauge or larger ground. Also pay attention to wire size when combining grounds in a wire splice, if the power supply is coming from different m-Unit outputs there is the potential to have too much current for the ground wire and the wire size should be increased. This is one of the reasons many people use the frame as a ground (it is effectively a very large wire) but the downside to this method is that most frames are steel and will rust at the exposed areas needed to get a good contact.



WWW.REVIVALCYCLES.COM

UNIVERSAL M-UNIT WIRING DIAGRAM FOR CARBURATED MOTORCYCLES

MINIMUM THAT IS REQUIRED:

1. Factory wiring diagram (also take photos of connector backs for wire locations)
2. Crimp Terminals / Connectors that match the TCI / CDI / ignition control module
3. Wire to replace or extend sections of the factory harness
4. Main fuse
5. Wire loom / Electrical harness tape
6. Heat shrink
7. Solder and soldering iron (solder guns are terrible for this work)
8. Time
9. Patience
10. Focus

ONE APPROACH TO WIRING AN M-UNIT:

How you go about installing your m-Unit isn't as important as the end result, but having a game plan can definitely ease your suffering and expedite the install. It isn't that difficult to get the wires to connect from A to B and get the system work. The difficulty comes in making it all look perfect and simple, and having it all in vinyl wire loom. It's much easier if you just wrap it all after the fact with electrical tape or split loom. If you work from the devices back to the m-Unit you can get the routing and cable lengths just right, and then finalize splices and terminations with ferrule terminals and install the wires into the connectors.

The best advice is to break the project down into bite sized pieces, and focus on one at a time. Start with getting power and ground to the m-Unit BAT and GND connections (don't forget the main fuse). Then wire in the ignition switch, so the m-Unit can be turned on. Next wire in the input switches, and configure the m-Unit for the appropriate switch configuration, this will allow you to test the inputs and verify that the corresponding output LED turns on/off as expected. The m-Unit will operate without connecting the outputs, and the LEDs are an effective test indicator. Once the inputs are working correctly, you can move on to the outputs, once you get an output connected you can test it. Going through the process this way can provide a better understanding of how the systems work, and also makes troubleshooting much faster than trying to chase a problem after the whole system is in place.

There are two factory systems that need to be integrated with the m-Unit

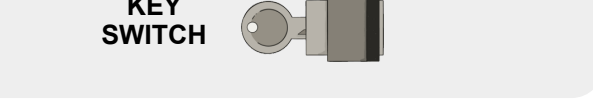
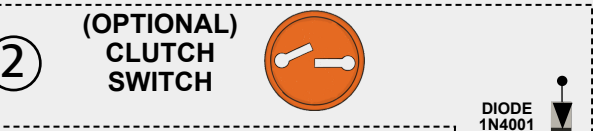
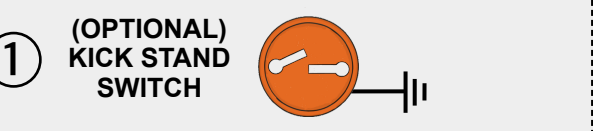
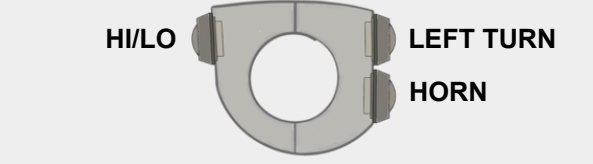
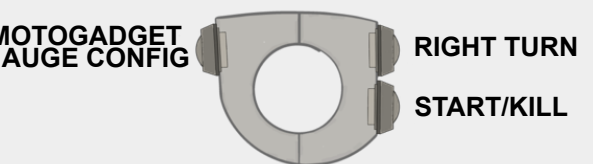
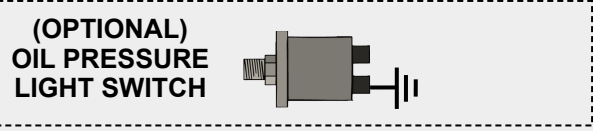
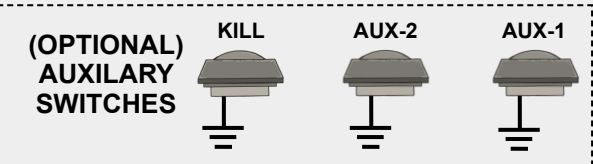
1. Charging System- This incorporates the wiring from your alternator or generator, Reg/Rec and battery. If you have an archaic 2 part Reg/Rec or your Reg/Rec is 20+ years old you should replace it with a quality modern component (stay away from cheap Chinese copies on eBay/Amazon). REGARDLESS New or Old Test your Reg/Rec to confirm it is operating within spec. OVER VOLTAGE (>18V) WILL DAMAGE AN M-UNIT VERY QUICKLY

WHAT YOU NEED TO DO. Using your OEM wiring diagram, trace the wires from the Regulator Rectifier, determine which wire provides rectified 12v + power back to the battery (normally this is a red wire) this wire will need to have the main fuse between the Reg/Rec and battery. This wire can be spliced into the m-Unit power supply wire, or the m-Unit can be powered separately directly from the battery. Just make sure the main fuse is between the reg/rec and the battery. If your system has a reg/rec wire that is connected to switched +12V that wire should be connected to the Ignition output. The rest of the connections will follow the original diagram or aftermarket reg/rec instructions.

2. Ignition System - This consists of an ignition coil and some type of control module, which could be Breaker Points, CDI, TCI, ECU, etc. Most systems will be wired almost the same as they were on the original bike (or following aftermarket install instructions) the difference with the m-Unit is how they get power. Except for true CDI's most systems are 12V and the m-Unit ignition output provides power to the ignition coil and the control module (except breaker points). True CDI ignitions are self powered and are controlled by grounding a kill switch wire, see our m-Unit CDI wire diagram for details on how to use the m-Unit to control this type of system.

WHAT YOU NEED TO DO (non-CDI type). Using your OEM wiring diagram, find the control module and trace each wire, connections to the stator / trigger coils / ignition coils / ground remain the same as OEM. Wires that connected to the key switch / fuse block / kill switch or battery (+) will now be connected to the m-Unit ignition output. Note: A connection from the ignition system to the tachometer is often just a tachometer signal wire and can be left disconnected or used to signal a motogadget gauge. However if your bike is from the late 90's or newer and you have some extra "mystery" wires going to the key switch or gauges you may have some type of immobilizer or security system. Do some research, forums and google are your friend, as some can be bypassed very easily using a simple resistor.

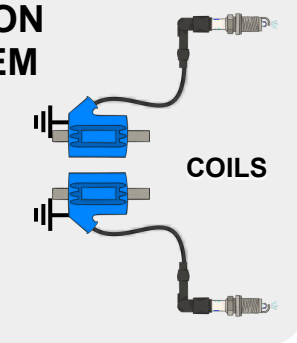
SWITCHES



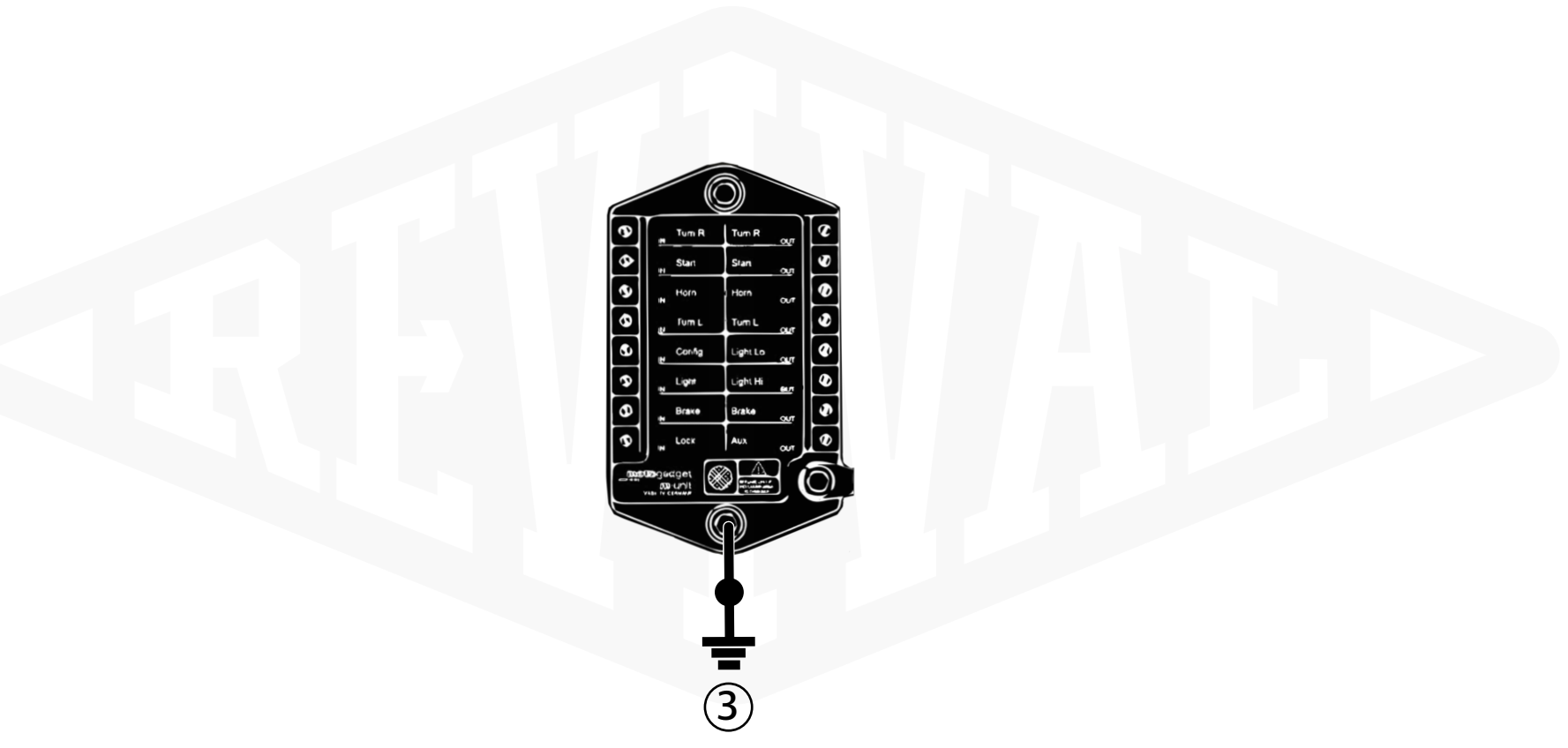
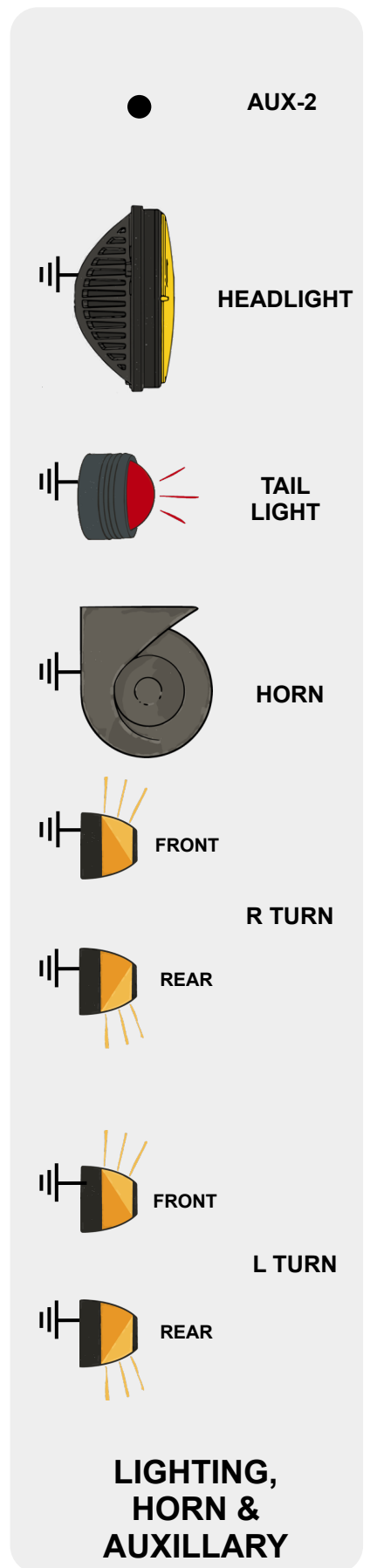
GAUGES & DASH LIGHTS



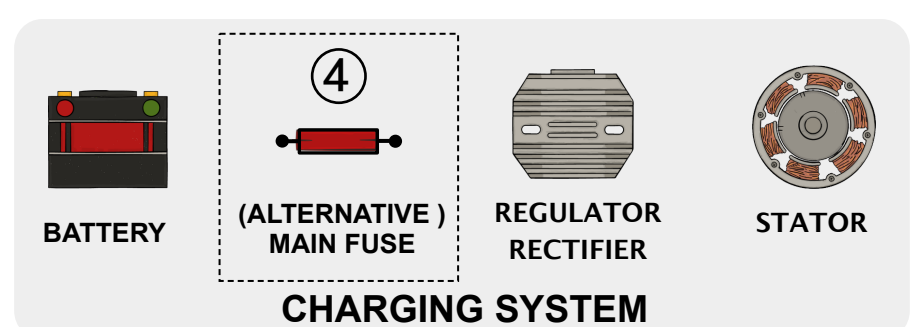
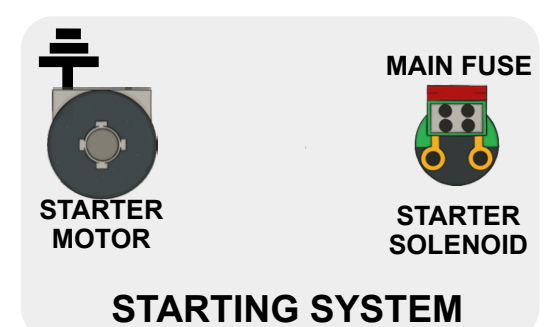
IGNITION SYSTEM



12V POWER TO COILS IF A POINTS IGNITION SYSTEM OR TO ECU/IGNITION MODULE. FOR CDI (CAPACITIVE DISCHARGE IGNITION) SEE M-UNIT CDI WIRING SUPPLEMENT



WWW.REVIVALCYCLES.COM



Disclaimer: Revival Cycles is providing this diagram to the motorcycle community under no obligation. We are not responsible for any harm that comes to you or your motorcycle or any part thereof on account of this diagram or any other information provided by us or anyone else. This is a DIY project, you must invest the time necessary to research and understand the nature of these components in relation to your motorcycle and the requirements for installation or have the sense to hire a professional.

WIRE GAUGE AMPERAGE QUICK REFERENCE	
AWG	AMP
22	5
20	10
18	15
16	20
14	30
12	40

- 1 A kick stand switch will prevent the start output from turning on when the side stand is down but will not kill the engine when it is running.
- 2 Clutch safety switch can be omitted by connecting black starter solenoid switch direct to ground.
- 3 For ideal ground continuity tie handlebar control grounds together and back to m-Unit GND.
This wiring diagram shows two different ways of wiring the main fuse. One makes use of the universal starter solenoid offered on our site which has the main fuse incorporated into it. If not using this solenoid your main fuse may be a separate component in which
- 4 Installations that involve a Capacitive Discharge Ignition Module (CDI) require an alternative ignition arrangement. See Revival's m-Unit CDI Diagram for detailed instructions.

M-UNIT INPUTS DO NOT HAVE POWER FLOWING THROUGH THEM: Do not connect these to 12v power (it won't damage, but also won't work). This includes brake switches. The m-Unit is a micro-controller that reads ground signals sent by a simple switch and turns on the associated function. This is fundamentally different from all OEM manufacturers controls. You have 2 wires, one goes to a ground, the other goes to the m-Unit input. For this reason, you can use very small gauge wire for the inputs. Generally we use 22 gauge wire for the inputs because this is a good compromise between size and strength, much smaller than 22 gauge and they are difficult to work with and easy to physically break.

Grounds: It is of vital importance that ground connections all have low resistance path to the battery (-) terminal. This means every connection needs to be metal to metal contact, no paint, powder coat, rubber, etc to insulate the path. Also the ground wires need to be sized to match the power feed wires for the device. This is why there is a large ground strap between the battery (-) and the engine, this is the path for the high power starter motor which is fed with 6 gauge wire. The same is true for smaller devices if its fed with 18 gauge, it needs an 18 gauge or larger ground. Also pay attention to wire size when combining grounds in a wire splice, if the power supply is coming from different m-Unit outputs there is the potential to have too much current for the ground wire and the wire size should be increased. This is one of the reasons many people use the frame as a ground (it is effectively a very large wire) but the downside to this method is that most frames are steel and will rust at the exposed areas needed to get a good contact.