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TCI® 863000

Outlaw/Thunder Stick 2 Speed Electric Shifter Kit

TCI® 863000 KIT CONTAINS:

- (1) Solenoid/Bracket Assembly
- (1) Relay
- (4) Wire Connecters
- (1) Solenoid Connector

The TCI® 2 Speed Electric Shift Kit bracket is drilled for the TCI® Outlaw and Thunder Stick Powerglide Shifters.

STEP 1 To mount, place the bracket between the shifter and the mounting surface, (floor, shifter platform, etc.). Bolt the bracket down using the bolt holes on the left side of the bracket. These are directly inline with the front to back movement of the shifter. Line the solenoid to line up directly behind the shifter handle, but do not tighten. Adjust the bracket so there is 1/8" to 1/4" between the rubber tip on the plunger and the shifter handle when the shifter is in 1st gear. After verifying correct alignment, tighten the mounting bolts.

DO NOT CONNECT THIS UNIT DIRECTLY TO A RPM SWITCH! ALWAYS USE THE INTERFACE RELAY. THE RPM SWITCH MAY BE DAMAGED IF CONNECTED DIRECTLY.

STEP 2 To wire the solenoid, follow the wiring diagram supplied. If your RPM switch or Timer supplies a "Normally Open Ground" connect the trigger wire from your device to post 86 on the relay. Supply post 87 and 85 with 12V+, thru a 12 gauge wire. Connect post 30 to the solenoid (**SEE FIGURE 1**).

If your RPM or Timer supplies a "Normally Open Hot" connect the trigger wire from your device to post 85 on the relay and ground post 86. Supply post 87 with 12V+, thru a 12 gauge wire (**SEE FIGURE 2**).

The attached solenoid is grounded to the bracket thru the shifter which is grounded to the car. Sometimes the shifter mount to the car is not a sufficient ground to properly complete the circuit and may cause a weak or no activation. You may need to install a ground wire to one of the screws on the face or the back of the solenoid or to the bracket, then to the chassis. Also make sure to use 12 AWG wire from the switched positive side of your cars master switch to post 87 on the relay. This will insure a solid 12V+ to the relay.

***PLEASE READ THIS* RADIO FREQUENCY INTERFERENCE AS IT RELATES TO RPM SWITCHES HOW TO DEAL WITH A POTENTIAL PROBLEM .**

Radio Frequency Interference (RFI) is a problem that is becoming more common as technology changes and electrical components are used more frequently in the average race car: RFI can occur wherever electric is being used or generated. RFI is a complex problem, so we will only deal with how it applies to the average race car. Our purpose is to help eliminate problems that tend to effect RPM switches and timers common in the automotive racing industry.

HOW DO YOU KNOW IF YOU HAVE AN RFI PROBLEM? An RFI problem, as it relates to RPM switches and timers, will commonly cause activation of the units to be unreliable. It may result in activating early, late, or not at all, and generally without a pattern. The appliance being triggered with the switch will consequently be equally effected. As an example, if the RPM switch is activating an air or electric shifter, it may not shift at the correct RPM setting or may not shift at all. This problem tends to worsen as the RPM increases. The problem may only be detected at high RPM, even after the unit tested properly at low RPM. Be aware that high energy ignition components tend to be the worst offenders. Solid core spark plug wires and old or damaged plug wires are a major contributor and are rarely compatible. Coils mounted inside cars may have to be moved to the outside of the firewall. While any electrical device can cause trouble, coils, distributors, ignition boxes, etc, all tend to cause the most problems. RFI travels through the air. Metal to metal contact is not necessary for this signal to jump from wire to wire or unit to unit. While most timer and RPM switch manufacturers try to filter their units from this interference, no one can guarantee this.

HOW TO AVOID INTERFERENCE. PLEASE READ THIS BEFORE YOU INSTALL ANY BRAND OR MODEL OF RPM SWITCH The best way to deal with RFI is to avoid it in the first place. If possible, mount the unit in a location physically away from the other ignition components and any electric appliances. It is not uncommon to have to be two or three feet away from some parts. When wiring the unit, the wires running to and from it can pick up the RFI signal as easily as the unit itself. Some of the best ways to avoid this is to run the (black) ground wire from the RPM switch or timer directly and independently to the Negative side of the battery. Do not connect this wire to the same place on the chassis where anything else is grounded. When routing this wire to it's ground, do not run the wire in a wrap or under wire ties that will force this wire to have contact with any other wires, especially wires that feed or come from other ignition components. Likewise, the (red) power or 12 volt wire that feeds the RPM Switch should come directly from the main disconnect or master switch and should not have contact with other wires. Although any wire can pick up distortion or interference, these two wires are the main ones to protect. Another solution, in addition to the one above, is to put a commercially available RF Filter or Noise filter on the power or 12 volt line that feeds your ignition system. This is a common part used to filter noise out of a car stereo. Ask for the type that dumps the interference signal to ground. They are inexpensive, readily available, and easily installed. MSD makes one designed for their ignitions. In addition to RFI, most units are voltage sensitive and therefore a battery charger should not be turned on with the cars master switch on. Allowing this amount of excess voltage to hit the unit could cause damage. Turn your master switch off, turn your battery charger on, then, if needed you can turn your master switch back on.



WARNING! Be Prepared! As the driver of the car, you must be aware that at any time RFI could stop the RPM switch or timer from activating. This, in turn, could cause the automatic shifter to not activate and you will need to shift manually. Always pay attention to the car and be prepared to manually shift or lift off of the accelerator to prevent the over revving of the engine. One of the best ways to protect the engine under these conditions is to also install some type of over rev control so that the engine cannot reach an RPM beyond its safe limits.

IMPORTANT NOTES

SUFFICIENT GROUND & POWER: Be aware that the electric solenoid must make a good connection for grounding at the point where the solenoid connects to the bracket. There must also be a good connection where the bracket mounts to the floor or shifter platform. These surfaces must be clean and a good connection made. When wiring the kit, it is important that the 12 volt source used to power the system is sufficient for the demands placed on the vehicle. Use only 12 awg wire or larger.

TESTING: It is not necessary to run the engine when testing as long as sufficient power is available. Upon completion of installation, turn on all power and place the shifter in first gear. If wiring has been done properly, as per the diagram, the RPM switch will supply a ground when the engine is revved to the preset RPM. This can be simulated by using a jumper wire from a good ground to the relay supplied. **MOMENTARILY** touch the jumper to the same post on the relay where the RPM switch attaches (usually post 86). The Solenoid should now trigger. Do this as many times as necessary to align or adjust the solenoid. **DO NOT** leave this jumper connected for more than a second at a

time. Longer may cause the solenoid to overheat.

WARRANTY TCI® warrants this product to be free from defects in material and workmanship under normal use, if properly installed, for 90 days from the date of purchase. If found to be defective, the unit will be repaired or replaced, if returned prepaid, along with proof of purchase. This shall constitute the sole remedy of purchaser and the sole liability of TCI®. To the extent permitted by law, the forgoing is exclusive and in lieu of all other warranties or representation, whether expressed or implied. This includes any implied warranty of merchantability or fitness. In no event shall TCI® be liable for special or consequential damages.

WARNING! IF YOU ARE USING A RPM SWITCH, READ THIS! Be Prepared! If you are using an RPM switch or timer, you must be aware that at any time, RFI (Radio Frequency Interference) could stop the RPM switch or timer from activating. This, in turn, could cause your automatic shifter to not activate and you will need to shift manually. Always pay attention to your car and be prepared to shift manually or lift off of the accelerator to prevent the over revving of the engine. One of the best ways to protect your engine under these conditions is to also install some type of over rev control so that the engine cannot reach an RPM beyond its safe limits. Please read the enclosed information on RFI included with this kit.

QUESTIONS? If you have any questions or concerns on the installation or use of this product, Do NOT contact the retailer where the kit was purchased. Most retailers are not equipped to help you with in depth technical questions. Contact TCI® direct.

