

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 RFI 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 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 vehicle master switch on. Allowing this amount of excess voltage to hit the unit could cause damage. Turn the vehicle master switch off, turn the battery charger on, then, if needed, turn the master switch back on.

WARNING!

Be prepared! As the driver of the car, you must be aware that any time RFI could stop the RPM switch or timer from activation. 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 acceleration 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 it's safe limits.

IMPORTANT INFORMATION

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

If using a RPM switch it is not necessary to run the engine when testing most "SHIFNOID" models. 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 either power or ground when the engine is accelerated to the preset RPM. This can be simulated by using a jumper wire from power or ground, based on the model RPM switch you have and the way you wired the unit, to the relay supplied.

MAKE SURE YOU SUPPLY THE CORRECT CHOICE OF POWER OR GROUND DURING THIS TEST. IF YOUR RPM SWITCH SUPPLIES A NORMALLY OPEN GROUND THEN YOU WILL USE A GROUND. IF YOUR RPM SWITCH SUPPLIES NORMALLY OPEN POWER THAN YOU WILL USE POWER. MOMENTARILY touch the jumper to the same post on the relay where the RPM switch attaches (usually post 86). The SHIFNOID 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 few seconds at a time. Longer may cause the solenoid to overheat.

MODIFYING THE SHIFTER

In order to utilize the maximum efficiency of the SHIFNOID shifter kit, sometimes minor modifications must be made to various shifters. Be aware that modifying any brand of shifter may void the manufacturer's warranty. Once a shifter has been modified, the ability to receive warranty service or the return of the shifter may be impaired. As SHIFNOID has no control over the manufacturer's warranty on your shifter, you must assume all responsibility for any modifications.

SHIFNOID WARRANTY

SHIFNOID 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 SHIFNOID. To the extent permitted by law, the foregoing 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 SHIFNOID be liable for special or consequential damages.

WARNING! IF YOU ARE USING AN 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 acceleration 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 it's 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. Wiring diagrams are available at www.contenderperformance.com. Go to SHIFNOID DIAGRAMS and pull down to your model. SHIFNOID LTD. has arranged for all technical questions and warranty to be handled by it's distributor.

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