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Vehicle Reaction Timer Instructions

The Computech Systems Vehicle Reaction Timer is designed to very accurately measure the time from when your vehicle is "instructed" to launch to when it actually begins moving with at least 0.8G's of acceleration. The starting "instruction" for this launch is typically the release of a transbrake, line lock, foot brake, or the release of the clutch pedal. The Vehicle Reaction Time is determined by wiring to one of several possible places on your vehicle. Meanwhile, the exact time that your vehicle first generates 0.8G's of acceleration is measured by a highly repeatable accelerometer wired into the connector of the Vehicle Reaction Timer.

By recording your Vehicle Reaction Time for every run, you can monitor the health of your engine and drivetrain… a consistent time is an indication of a healthy car. If your Vehicle Reaction Time ever begins to vary by more than its typical amount, then some part of your engine or drivetrain may be ailing, such as your torque converter, for instance.

A consistent Vehicle Reaction Time is also very important for a consistent overall reaction time, which can help you trim time off of your overall reaction time without red lighting.

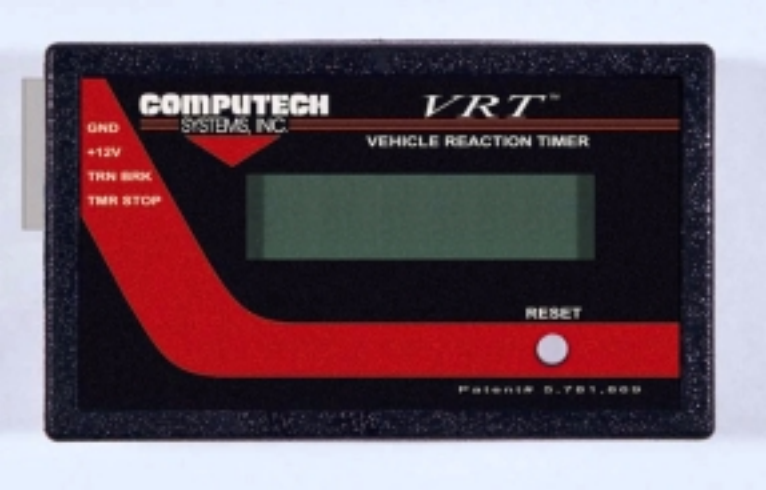


FIGURE 1

Mounting the VRT and Accelerometer:

Your Vehicle Reaction Timer may be mounted in any convenient location or orientation. It is recommended that double-stick foam tape or hook and loop fastener, such as Velcro™ brand which is included, be used to mount your Vehicle Reaction Timer.

Note that you should permanently install the accelerometer only after getting everything else working. This is because you may find it helpful to shake the accelerometer in order to simulate the launching of the vehicle for testing purposes during initial installation.

The accompanying accelerometer must be mounted with the arrow on the label pointing directly forward. It may be mounted on the floorboard or a frame rail, right side up, sideways, or upside down, as long as the arrow on the

label points directly forward. A slight angle is acceptable, as might result from mounting on a slightly tilted surface, as long as the difference between the rear and front of the case is less than one eighth of an inch.

Wiring the VRT and Accelerometer, excluding the "TRN BRK" wire:

Your Vehicle Reaction Timer has a removable connector on the left side with a legend on the front cover plate (See Figure 1). It is recommended that you first wire up the connector while still plugged into the unit. This way the legend on the front cover plate will help you make sure that you get the correct wire in the correct position on the connector.

For best results, use 18 to 22 gauge (AWG) stranded wire. Solid or smaller gauge wire is not recommended. Strip the insulation on each wire back 1/4". Twist the strands very tightly together before inserting into the connector. For a better connection, lightly tin the wire with solder.

The following wire colors are recommended. You may use any colors you like, but be aware that the remainder of these instructions refer to the wires by these colors!

Note also that some of these connector positions will have two wires inserted into one hole. After tightening the screw, pull back slightly on both wires to insure that they are each securely fastened. At your discretion, you may run single black, red, and white wires from the VRT to a separate connection point, where they are subsequently connected to the appropriate wires indicated below.

GND	**Your black wire, connected to a good chassis ground or preferably to the battery negative terminal, PLUS the black wire from the accelerometer.**
+12V	**Your red wire, connected to a fused (5 amp) 9 to 18 Volt power source, PLUS the red wire from the accelerometer.**
TRN BRK	**Your blue wire, connected to appropriate "Start" signal. See description below.**
TMR STOP	**The green wire from the Accelerometer.**

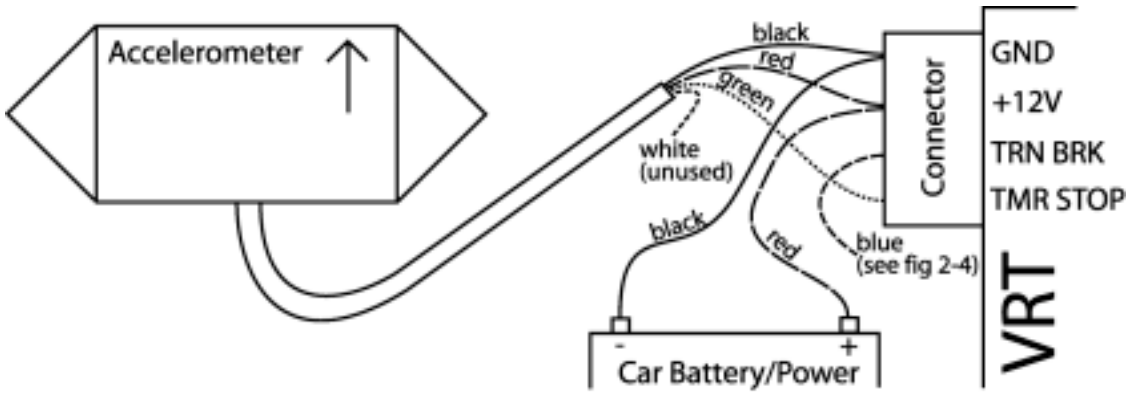


FIGURE 5

Note that the timer forgets the most recent reaction time whenever it looses power, so connect the power cable to a point that will keep the unit powered until you have recorded the Vehicle Reaction Time. Note also that if you use a separate battery to power the Vehicle Reaction Timer, the negative terminal of the battery (common with the Vehicle Reaction Timer's black wire) must be connected to a chassis ground.

Wiring the VRT "TRN BRK" wire:

Your blue wire, connected to the VRT "TRN BRK" position, is the timer "start" wire. It is used to initiate the timer's count.

If you have a transbrake:

See Figure 2: Connect the blue wire directly to the transbrake control wire. This control wire looses 12V when the transbrake is released, starting both the car and the timer. Test the vehicle reaction timer by pressing the reset button, engaging and releasing the transbrake, and then shaking the accelerometer. You will need to wait at least 15 seconds before a time is displayed. (This delay is required by some sanctioning bodies.)

If you have a two step or throttle stop, but no transbrake:

See Figure 3. These devices will have a 12V control signal (similar to a transbrake's) that looses the 12V whenever the car is launched. Connect the blue wire directly to this control wire. Test the vehicle reaction timer by pressing the reset button, pretending to launch the car (de-activating the two step or activating the throttle stop), and then shaking the accelerometer. You will need to wait at least 15 seconds before a time is displayed. (This delay is required by some sanctioning bodies.)

If you do not have a two step, throttle stop, or transbrake:

You may still have a control signal that looses 12V when the vehicle is launched. If so, please follow the installation instructions for the two step above.

If you don't have the 12V control signal:

You may need to add a switch or relay, such as a switch connected to the clutch. See Figure 4. One side of the switch or relay output should be connected to 12V while the other side should be connected to the blue wire. The contacts of the switch or relay should be closed prior to launching the vehicle and open when the vehicle is launched. It's OK if you have other devices connected to this switch such as a two-step; they will all act independently. Test the Vehicle Reaction Timer by pressing the reset button, opening the switch or relay contacts, and then shaking the accelerometer. You will need to wait at least 15 seconds before a time is displayed. (Delay is required by some sanctioning bodies.)

Wiring Diagrams:

FIGURE 2:
Connecting to a Transbrake

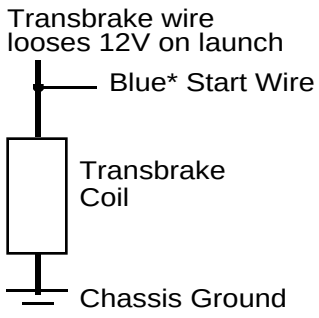


FIGURE 3:
Connecting to a Two Step without a Transbrake

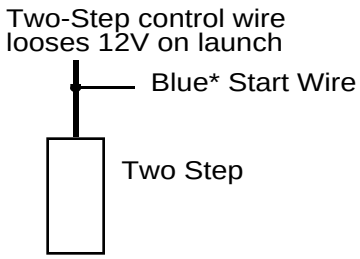
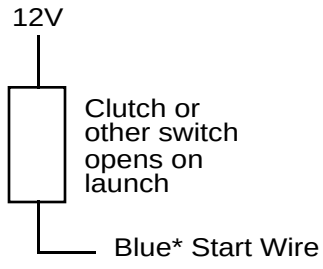


FIGURE 4:
Connecting to a Clutch or other Switch to 12V



*Use the wire color you connected to the "TRN BRK" position on the removable connector.

Operation of the Vehicle Reaction Timer):

Operation of your Vehicle Reaction Timer is as simple as 1, 2, 3.

1. Press the "Reset" button before making your run. The display will indicate "Ready for Launch."
2. "Instruct" the vehicle to launch from the line, (release the transbrake) thus starting the timer. The timer will stop when you reach 0.8G's or more. While it normally happens too fast to see, the display will indicate what's happening.
3. Wait 15 seconds for the reaction time to be revealed. (This delay is required by some sanctioning bodies.)

Please note that the reset button should be pressed after a time when there will be no "false start instructions". For example, if you have a transbrake and must engage it to back up after your burnout, you'll want to be sure to press the "Reset" button after backing up and releasing the transbrake. Otherwise, the timer will start counting from when you finished backing up rather than from when you instructed the car to launch!

On a clutched car you probably had to install a pedal actuated switch to 12V. Be sure that this switch is positioned so that the timer is not triggered while you're staging. This can be accomplished by making sure that a significant amount of pedal motion is required before the switch opens. Then to operate the Vehicle Reaction Timer, simply press the "Reset" button just before staging and then stage by only partially releasing the clutch. The Vehicle Reaction Timer will not be started until you leave the line by releasing the clutch all or nearly all of the way.

Operation of the VRT as a Special Interval Timer:

Your Vehicle Reaction Timer can also be used as test equipment to measure the amount of time between events. For example, you can test your delay box, throttle stop, or most other timers. Contact Computech to order the special wiring harness, connector, and instructions for this purpose.

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