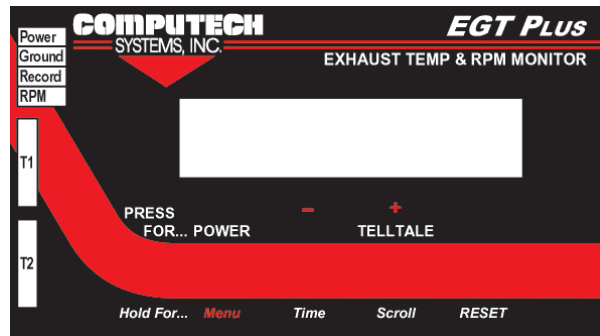


Introduction

The Computech Systems EGT Plus is designed to monitor exhaust gas, liquid, tire and track temperatures, and engine RPM. It has the capability of recording when maximums occur, as well as recording readings at the beginning and end of a run.



Installation – Mounting

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 Computech Systems EGT Plus.

Your Computech Systems EGT Plus may be installed anywhere that ignition noise is not a problem. Be sure to avoid close proximity to ignition modules, coils, and spark plug wires. Direct exposure to the weather is also discouraged.

Obviously, you'll need to mount the unit where your temperature probe cables can reach, possibly through the use of special thermocouple wire extensions. If you plan on recording RPM, using a record switch, or connecting to your transbrake, keep in mind that you'll need to connect both the desired signal as well as a chassis (car battery) ground signal to the unit. Choose your mounting location appropriately.

Operating Modes - Choose before wiring

Your Computech Systems EGT Plus may be operated in one of three modes. Before you complete your installation, it's best if you select which mode you would like to use. If you're unsure, don't worry too much. It's fairly easy to re-wire your Computech Systems EGT Plus for a different mode. Continuous mode, of course, may be used with any of the wiring scenarios. Select from one of the following Computech Systems EGT Plus operating modes.

Continuous Mode

In continuous mode, your Computech Systems EGT Plus behaves like most other EGT monitors. It continually monitors your EGT and RPM inputs, and continually takes note of the maximum reading.

To reset the maximums and start over again, press and hold the “RESET” button until the LCD display acknowledges the reset. If power is removed and restored, the previously noted maximums are remembered.

WARNING: In continuous mode, your EGT Plus will stay on forever or until the battery goes dead. If you have both a battery inside the EGT Plus and external 12V power supplied, then be careful about the following scenario. One evening in the shop or your garage, you might turn on the main auto kill switch for other purposes. This provides 12V to the EGT Plus and automatically wakes it up – something that a 9V level doesn’t do. Later, when you turn that kill switch back off, the EGT Plus will remain on, powered by the 9V battery inside. It will then remain on until it runs the battery dead! Don’t let this possible scenario catch you off guard with a dead battery.

Record Switch Mode

In record switch mode, you have the extra advantage of restricting the period of time over which maximums are noted. For example, you might choose to only turn the record switch on while you’re on the track, intentionally omitting possible maximums from burnouts or engine tests.

Each time you turn on the record switch, the old maximums are reset and new maximums are noted. You can press and hold the “RESET” button to eliminate the old maximums, but this is not necessary.

If power is removed and restored while the record switch is off, the previously noted maximums are remembered. If power is removed and restored while the record switch is on, the previously noted maximums are eliminated and a new recording with new maximums is begun.

Transbrake Mode

In transbrake mode, you have not only the extra advantage of restricting the period of time over which maximums are noted, you also have the advantage of gathering extra information at the beginning and end of your run, as well as the time during the run at which each maximum occurred. That is, for each EGT and for the RPM, you’ll be able to record: 1) the reading at the start of the run; 2) the maximum during the run; 3) when that maximum occurred (independently for each input); and 4) the reading at the end of the run.

Before a run, you must press and hold the “RESET” button. Once the LCD display indicates “Ready to Run...”, your Computech Systems EGT Plus is armed and ready to go. Whenever the transbrake is released, the unit will note the beginning readings and start watching for new maximums. After the end of the pre-configured approximate E.T., the unit will note the end readings and stop watching for new maximums.

If power is removed and restored, the previously noted maximums are normally remembered. However, if power is removed and restored while the unit is in the process of recording a run, the recording will be terminated early and may not contain valid information.

Installation – Wiring

WARNING: Do NOT connect the RPM input to a magneto ignition without reading the instructions further below!

NOTE: Before wiring your Computech Systems EGT Plus, please read the prior section about Operating Modes.

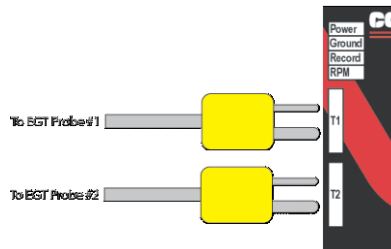
NOTE: Before wiring your Computech Systems EGT Plus, please read the section at the end of this manual entitled “Rules for avoiding ignition (radio frequency) interference.”

NOTE: This unit may be configured from the factory for use with a magneto ignition. When so configured, you can NOT power the unit from the car battery – you must use an internal 9V battery. This configuration can be changed, but may reduce the quality (cleanliness) of the RPM pickup from the magneto ignition.

Wiring your Computech Systems EGT Plus is simple. Note that EGT cables are made of special wire, and use special connectors. Substitutes are not acceptable. For best results with the other signals (RPM, Transbrake, Record Switch, Power, Ground), 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". At a minimum, twist the strands very tightly before inserting into the connector. For a better connection, tin the wire with solder.

To record one or two EGT's

Connect one (or two) temperature probe cables into the T1 (and T2) jack of the EGT Plus. Note that this jack accepts the two prongs of the sub-miniature yellow K-thermocouple type plugs. These plugs are polarized, with one wide prong and one skinny prong. The EGT Plus accepts the plug with the skinny prong toward the top.

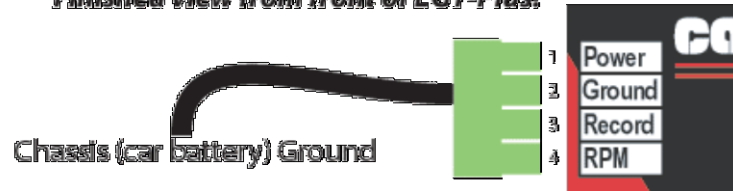


Connecting a chassis (car battery) ground

If you plan on recording RPM, triggering off your transbrake, using a record switch, or powering the EGT Plus from your car battery, then a chassis (car battery) ground wire is required. **Otherwise, no such connection is required.**

If you need a chassis (car battery) ground signal, then connect it to the indicated terminal on the EGT Plus, using the green pluggable header provided. On the EGT Plus end, be sure to strip the wire back only 1/4", and be sure that it is firmly held by the pluggable header set screw. Also, pay careful attention to the proper orientation of the green plug. Plug it into the EGT Plus temporarily in order to be certain that you're running the ground wire to the correct place.

Finished view from front of EGT-Plus:



In-progress view from screw-side of pluggable header:



To record RPM (non-Magneto ignition)

Follow these instructions for recording RPM with an ignition that is **NOT** a magneto. Note that both the RPM wire and a chassis (car battery) ground wire are required.

After connecting the chassis (car battery) ground signal, connect the RPM signal to the indicated terminal on the EGT Plus. The best place to pick up the RPM signal is from the same wire that drives your tachometer. Otherwise, use the "Tach" output of your ignition system. If you do not have either of these available, contact Computech Systems technical support to get information about a tach output generator for your car.



To record RPM (Magneto ignition)

Follow these instructions for recording RPM with a **magneto** ignition. Note that both the RPM wire and a chassis (car battery) ground wire are required.

WARNING: Never connect any wire directly from your magneto ignition to the Computech Systems EGT Plus! Doing so can cause permanent damage to the EGT Plus.

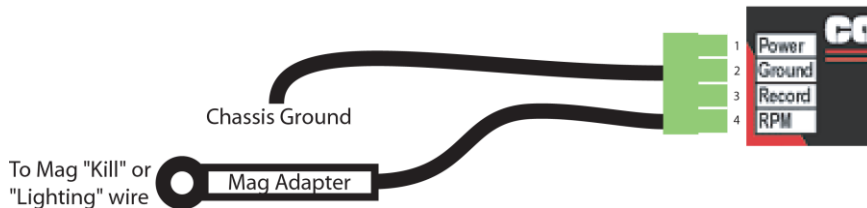
Due to the extremely high voltages produced by magneto ignitions, an adapter is required between the EGT Plus and your magneto ignition. This adapter simply reduces the voltage before it reaches the EGT Plus.

NOTE: If you did not receive the Magneto Adapter, then request one from Computech Systems via 800-870-8383 or www.computechracing.com.

NOTE: The Magneto Adapter is actually simply a 100K resistor of size ½ Watt or larger.

However, if you have a normal non-magneto type tachometer in your car already, being driven by a magneto tach adapter of some kind, such as the one from MSD, then this adapter is ALREADY doing the high voltage protection. In this case, you can wire your EGT Plus RPM input directly to the same wire as your tachometer RPM input. In fact, it is recommended that you pick up power, ground, and RPM DIRECTLY from the back of your tachometer. (See the “Rules for avoiding ignition (radio frequency) interference” near the end of these instructions.) Note that this short cut, not using the Magneto Adapter, is only appropriate if you have some other adapter between your tachometer and magneto. If your tachometer is connected directly to your magneto, then the tachometer itself must have the voltage protection inside, and you’re back to the case of needing the Magneto Adapter from Computech Systems.

Using the Magneto Adapter, after connecting the chassis (car battery) ground signal, connect the RPM signal from the EGT Plus to the Magneto Adapter, and then connect the Magneto Adapter to the “kill” or “lighting” wire of your magneto. While the adapter is provided with convenient connectors, the orientation of the adapter does not matter.



NOTE: Your Magneto Adapter may have two bare wires rather than the ring connector illustrated above. Please mount your Magneto Adapter as close to the magneto as possible. This reduces ignition noise transmitted into the air from the long wire, and thus reduced ignition interference with this and other computer equipment.

To power your EGT Plus from your car battery

NOTE: When the EGT Plus is configured for use with a magneto, you CAN NOT power it from your car; you MUST use an internal 9V battery.

To power your EGT Plus from your car battery, both the positive battery and a chassis (car battery) ground wire are required.

After connecting the chassis (car battery) ground signal, connect positive battery power to the indicated terminal on the EGT Plus. This may be any voltage between 9V and 12V. Note that it is indeed safe to power from the car with a 9V battery inside the unit. As long as the car battery is higher than the 9V battery, the car battery will be used. If the unit is unplugged from the car, the internal 9V battery will automatically take over.

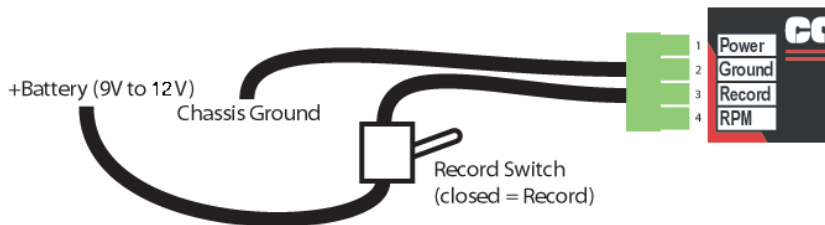
WARNING: On some cars, if you use both the car battery and the internal 9V battery, then the 9V battery might later supply power to you ignition and prevent it from turning off. If this occurs, then **REMOVE** and **DO NOT USE** the internal 9V battery.



To record using a record switch

For using a record switch, both the record signal and a chassis (car battery) ground wire are required.

After connecting the chassis (car battery) ground signal, connect a wire from your record switch to the indicated terminal on the EGT Plus. The other side of the record switch **MUST** be connected to your car battery signal. The record switch will not function properly if this other side is connected to ground. Also, while this other side may be connected to the EGT Plus power terminal, doing so without also connecting it to the car battery will not work. The EGT Plus power terminal will accept power coming in, but it will not produce power going out. Recording will occur while the switch is in the **CLOSED** position.



To record automatically using your transbrake signal

For using the transbrake, both the transbrake and a chassis (car battery) ground wire are required.

After connecting the chassis (car battery) ground signal, connect your transbrake wire to the indicated terminal on the EGT Plus



Sensor Installation

Weld-In Style Sensor #4110:

1. Select the header tube in which you wish to mount the sensor.
2. Measure a spot 1-1/4 inches from the header flange. If more than one probe is to be mounted, it is important that all probes be located the same distance from the header flange. This will allow for comparison from cylinder to cylinder.
3. Once the spot has been located, drill a 5/16 inch (.3125") diameter hole in the header pipe.
4. Center the weld-in weldment on the hole and weld to the header pipe a full 360 degrees.
5. Coat the 1/8" pipe threads on the compression fitting liberally with anti-seize and install the compression fitting into the weldment and tighten.
6. Now, using a marker or pencil, make a mark on the probe that is half the diameter of the header pipe plus one-inch (the length of the weldment and the compression fitting) from the exposed tip of the probe. Verify this depth by visual inspection into the pipe. Probe should be at least 1/2" into the header pipe.
7. Slip the compression nut (with the cup side to the exposed tip of the probe) and the ferrule onto the probe.
8. Insert the probe into the compression-fitting base to the point where the ferrule and the line on the probe come together. This will insure that the probe is in the middle of the exhaust stream and will set the ferrule on the probe sheath.
9. While holding the probe in place, tighten the compression nut down tight. **Make certain that the thermocouple is in its proper position prior to tightening the compression nut.**
10. Loosen the compression nut to the point that the probe will turn, and, if room permits, align the transition spring and the lead wire at a 90-degree angle from the exhaust pipe. This will position the sender tip correctly in the exhaust stream.
11. Re-tighten the compression nut to secure the probe.

Clamp-On Style Sensor #4115:

1. Select the header tube in which you wish to mount the probe.
2. Measure a spot about 1-1/4 inches from the header flange. If more than one probe is to be mounted, it is important that all probes be located the same distance from the header flange. This will allow for comparison from cylinder to cylinder.
3. Once a spot has been located, drill a 1/4 inch (.250") inch diameter hole in the header tube.
4. Insert probe into hole and snug it to the header using the band clamp.
5. If room permits, align the transition spring and lead wire at a 90-degree angle from the exhaust pipe. This will position the sender tip correctly in the exhaust stream.
6. Tighten the band around the exhaust header pipe.

Thermocouple Extension Wire Installation:

1. Route the thermocouple extension wire to the EGT monitor location in the cockpit. Route the wire away from areas of high heat and from areas where the wire could be vulnerable to damage.
2. *The thermocouple extension wire may be shortened if required. Cut the wire to the desired length and carefully cut the stainless steel over braid back approximately 1". Shrink tubing should be used over the cable where it exits the connector to make for a neater installation. Make certain that the overbraid in no way comes in contact with the wire terminals in the connector. Strip the RED wire back approximately 1/4" and connect to*

the minus (-) terminal in the connector. Repeat the process for the YELLOW wire and connect to the positive (+) terminal. NOTE: Only this wire can be utilized, substitution of a different wire will affect the operation of the monitor.

REMEMBER - The RED wire must be connected to the Minus (-) terminal and the YELLOW wire must be connected to the Positive (+) terminal.

3. DO NOT HARNESS THE EXTENSION WIRE TIGHTLY. Make long sweeping bends and loosely guide the extension wire to the instrument. This will allow the wire to absorb the vibration along the wire's length.

Initial Configuration

Before using your Computech Systems EGT Plus, a simple initial configuration is required. Press and hold the “POWER” button until you see the configuration menu option for number of cylinders. To advance to the next configuration menu option, simply press the “POWER” button again (you may notice that below the “POWER” button is the word “Menu”).

NOTE: To change between using a magneto and a non-magneto ignition, please see the Ignition Configuration section further below.

Cylinders

This one's easy. Simply select the appropriate number of cylinders for your engine.

Redline

If you're recording RPM, it's important to properly configure your redline. The unit will be able to record a RPM up to 25% beyond the configured redline. Any spark or ignition signals that are received closer together than that are assumed to be noise and are ignored. Since this kind of noise is very common, it's important to accurately set your redline. Otherwise, you're likely to get erratic RPM readings. Tachometers don't need this kind of setting because they actually don't react very fast to RPM changes, and so random noise pulses aren't noticed. Even tachometers with telltales, whether mechanical or electrical, are able to ignore these fast changes due to noise. However, for the most accurate computer recording of your RPM, this information is very important.

Mode

Select “Continuous”, “Record Swt”, or “Transbrake”. See the instructions for **Operating Modes** for details.

Note at

This configuration menu option will only appear if you've selected “Transbrake” mode. It allows you to make a note of the readings at any time during the run, prior to the “End at” time. Enter the number of seconds from the beginning of the run until that time you would like to note. For example, you may pick a time close to your expected first gearshift in order to make a note of the readings at that time.

End at

This configuration menu option will only appear if you've selected "Transbrake" mode. Enter the number of seconds for a typical run. It will be exactly this long after the transbrake is released that your Computech Systems EGT Plus makes a note of your end-of-run EGT and RPM readings. Don't worry if your E.T. doesn't match exactly. Near the end of your run, the EGT and RPM readings won't be changing very rapidly. By allowing you to explicitly set this time, difficulties with automatic end-of-run detection are avoided, and you have a highly reliable, repeatable engine diagnostic tool.

Operation:

NOTE: If you have strange or unexpected behavior of your Computech Systems EGT Plus, it could be due to ignition (radio frequency) interference. Please read the section at the end of this manual entitled "Rules for avoiding ignition (radio frequency) interference."

So now you've installed your Computech Systems EGT Plus, determined the operating mode you want to use, wired up the unit, and set the initial configuration. Now time to actually put the EGT Plus to use.

Power On/Off

When powering from the internal 9V battery, you can turn the unit on or off at any time by pressing the "POWER" button. However, if connected to your car battery (at 11V or higher), the unit will turn itself on, by design.

LCD Backlight

When powering from the internal 9V battery, the LCD backlight will come on for a few seconds, each time that you press a button. This is a battery power conservation feature. However, if connected to your car battery (at 11V or higher), the LCD backlight will stay on continuously.

HELP – Bad EGT cabling or temperature too high

If an EGT probe is not connected, or if that probe temperature is too high, then the word "HELP" is displayed instead of an EGT reading. "Not connected" includes the possibility that one of the EGT cable wires is broken or disconnected. The normal maximum reading is just above 1800°F.

If the EGT probe or wiring has the wires reversed, then a reading between 32°F and ambient will be displayed, regardless of the actual temperature. If you see the reading start at ambient and go DOWN as the temperature goes up, then you have the wires swapped somewhere!

Recording

First, you need some readings. In Continuous mode, you're getting them all the time. In Record Switch mode, you'll need to turn on the record switch on for a while, and then off. In Transbrake mode, you MUST first reset the unit by pressing and holding the "RESET" button. Then, upon release of the transbrake signal, the unit will start recording for the pre-configured amount of time.

Viewing Readings

Whether you've recorded any maximums or not, you can always view the current readings for EGT and/or RPM. Whenever the LCD says "Now" in the top left corner, you're viewing current readings.

To view the maximum readings recorded, simply press the "TELLTALE" button (repeatedly) until the LCD says "Max" in the top left corner. While viewing the maximums, you can press and hold the "Time" button. After a moment, those maximum readings on the LCD will be temporarily replaced by the time at which they occurred. Note, however, that these time readings are only applicable for Record Switch or Transbrake mode.

In Transbrake mode, you can also view the readings as of the beginning or end of your run. Simply press the "TELLTALE" button (repeatedly) until the LCD says either "Begin" or "End" in the top left corner.

Reset

By pressing and holding the "RESET" button, you can make your Computech Systems EGT Plus eliminate the maximums it has recorded so far. If in Continuous mode, it will start recording new maximums right away. In Record Switch or Transbrake mode, it will wait until you start recording.

Factory Reset

Pressing and holding the "RESET" button while powering up the unit will cause the EGT Plus to "Factory Reset". The unit will power up, blink off, and then power back up. All previously recorded information and user defined set-up information will be erased and the EGT Plus will return to the original factory set-up.

Anticipated Exhaust Gas Temperatures

Monitor the exhaust gas temperature and carefully make tuning adjustments as required to obtain the desired exhaust gas temperature. In general terms, methanol temperatures range from 1000 degrees to 1200 degrees; gasoline ranges from 1250 degrees to 1500 degrees, and E85 is around 1250 degrees. Consult with your engine builder to determine what an appropriate exhaust gas temperature for your engine combination is, the fuel you are using, and the engine air inlet temperature. **Many things affect the exhaust gas temperature such as: fuel, jetting, engine inlet air temperature, ignition timing, compression ratio, coolant temperature, etc. BE CAREFUL - EXHAUST GAS TEMPERATURES THAT ARE TOO HIGH CAN CAUSE SEVERE ENGINE DAMAGE!!! All tuning changes should be made very carefully and with the advice of your engine builder.**

Ignition Configuration – Magneto or Non-Magneto?

Your EGT Plus can be configured for use with either a magneto or non-magneto ignition. This configuration has to do with noise and the quality of the RPM reading; as opposed to the ABILITY to be used with a magneto or non-magneto. The ABILITY to be used with a magneto depends on use of the magneto adapter (protector) mentioned in the installation section.

NOTE: Opening the case and changing this configuration is a violation of the warranty, unless you contact Computech Systems first!

In order to change the configuration, the case must be opened up by removing the hook-and-loop fastener from the back of the unit and removing the screws. Doing this without first consulting Computech Systems is a violation of the warranty.

NOTE: Opening the case and changing this configuration is a violation of the warranty, unless you contact Computech Systems first!

Inside the case, there are two jumper positions. A jumper position consists of two 0.025" square metal pins, 0.100" apart, sticking up from the board, accompanied by a black plastic jumper block (with metal contacts inside the block).

- The P3 jumper is located immediately behind the green connector, near the top end (the end where POWER and GROUND connect). This jumper is used to isolate the external ground (green connector) from the internal ground (9V battery and computer).
- The P4 jumper is located immediately behind the T1 thermocouple jack, down close to the neighboring T2 thermocouple jack. This jumper is used to provide attach an internal pull-up resistor to the RPM circuit, so that a contact closure may be used to generate the RPM signal – as would be done for picking up RPM from a magnetic switch like a crank-fire ignition.

For the best performance with a magneto ignition, BOTH of these jumper positions should be “open”. This means that the jumper block, while stored sideways on one pin, does NOT electrically short the two pins together. In this configuration, because P3 has isolated the internal and external grounds, you can NOT power the unit from an external (car) battery. You MUST use an internal 9V battery.

For the most convenient use a non-magneto ignition, the P3 jumper should be “closed”. This means that the jumper block is placed across both pins so as to electrically short them together. All this really accomplishes is connecting the internal and external grounds, so that the unit can be powered from your car battery. If you don't care about powering it this way, you can leave P3 “open”, as configured for a magneto ignition, even though you have a non-magneto ignition.

The only time you need to make jumper P4 “closed” is if your RPM signal consists of a contact closure to ground, such as is the case when you're picking up RPM using a magnetic switch off a crank magnet (on the belt pulley perhaps).

Rules for avoiding ignition (radio frequency) interference

Your Computech Systems EGT Plus has been specially engineered to be resistant to radio frequency interference generated by automotive ignition systems. Nevertheless, it's a very good idea to follow some simple rules about installation and wiring.

How to recognize interference problems

RF (radio frequency) interference can cause a number of different behaviors in any piece of computer equipment. For the Computech Systems EGT Plus, the most common symptoms are:

1. The characters on the LCD display appears gray, faded, or blinking, rather than with good contrast.
2. You find that the unit is “locked up” and non-responsive at some time after the engine has been run.
3. The RPM or EGT readings appear to be nonsense, especially if the RPM is in the tens of thousands.
4. The max EGT reading reads “HELP”. This normally indicates an open circuit due to loose wiring. However, it is sometimes due to RF interference.
5. The configuration items (Cylinders, Redline, Mode, Note at, and End at) appear to be gibberish after you know you had set them correctly.

If you do suspect RF interference, please re-read the wiring advice below. Also, be sure to read below about what to do at the first and second sign of a problem.

Wiring Advice

1. Always mount your Computech computer equipment on the OPPOSITE side of the firewall as the motor and ignition. The firewall will serve as a barrier to radio interference. If any part of the ignition system is in the driver's compartment, then mount the Computech computer equipment as far away as conveniently possible, and be sure to keep a good distance (at least 8") between their respective wiring.
2. If possible, mount your Computech computer equipment near the dash of your car, and pick up power, ground, and the RPM signal DIRECTLY from the back of your tachometer. Use short length wires if possible and bind all three wires together. Again, pick up all three signals (12V battery power, ground, and engine RPM) DIRECTLY from the back of the tachometer. If you do not have a tachometer, then pick up the RPM signal at some other nearby appropriate place. When doing so, connect the ground wire as nearby as possible. Route the power wire, if used, parallel to the ground and RPM wire until reaching their final destination, and then continue the power wire on further to pick up power.
3. Always minimize loop antennas. Any loop whatsoever, even between totally different wires, can act as an antenna. For example, if the ground wire runs off to the left to a common chassis point, and then the power wire runs off to the right to a fuse box or the battery, then you've created a GIANT loop antenna. In this example, the loop consists of the path A) from the computer equipment, B) through the ground wire, C) to the common chassis ground point, D) through the chassis to where the battery is grounded, E) through the battery ground strap, F) through the battery itself, G) out the positive side of the battery, H) then through the remaining wiring until you reach the power connection of the computer equipment again, I) then through the computer equipment again and back to its ground wire.

The larger the cross-sectional area of the loop, the more likely it will pick up radio frequency interference. Your wiring will always be full of accidental, parasitic loop antennas. Minimize the count of these loop antennas if possible. For example, never coil up excess wire. Cut it to length and re-terminate as necessary. Also, minimize the area of unavoidable loop antennas. For example, when connecting the three wires for power, ground, and RPM to the back of the tachometer, bind the wires together so that the area inside the loop between those wires is minimized. Likewise, if you're using two thermocouple probes (EGT probes), bind the extension cables together for as long a distance as practical. Furthermore, in all cases, try to bind your wires and cables directly to and parallel to metal chassis members (especially for tube frame cars), because a loop antenna can exist between the wires and the chassis. All of these efforts of binding things together are intended to minimize the cross-sectional area of the parasitic loops and thus minimize the sensitivity to radio frequency interference.

4. With all this talk of binding things together, however, you do NOT want to bind these computer wires together with other, unrelated wires. This is especially true if those other wires are associated with the ignition, any type of solenoid or coil, or with any other device that suddenly switches or draws significant current. Such wires radiate (generate) interference, and binding together and parallel to them is another way to inject their interference right into your computer system.

Even better, when it comes to such other wires, try to keep as much distance between them and your computer system wires. This is especially true of your ignition system wires, and even more so of the coil wire or spark plug wires, which are often necessarily close to your EGT probe wires. Whenever close proximity is

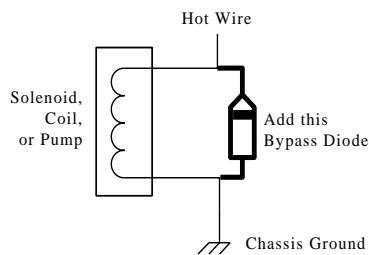
unavoidable, delay it as long as possible and then, in the end, try to keep things at right angles (90 degrees) from each other rather than parallel.

Suppressing Solenoid Switching Reaction to Protect and Improve Computer System Performance

If you have a transbrake, line lock, or any other solenoid on your car that consumes a significant amount of current when energized, then you should add a BYPASS DIODE to each and every one of them. This need also includes electric fuel pumps and the like. When the current is shut off to the electric coils inside these devices, they act much like the coil on an ignition system – they try to generate a large voltage and perhaps even a spark somewhere else in your electrical system. This reaction can disrupt and sometimes even damage computer equipment on your car. It does not matter if the coil and computer are directly wired to one another. The reaction of the coil can go through the power wiring of the car and even through the air like a radio signal.

A diode rated at 3-amps with a peak reverse voltage of several hundred volts is preferred. If this package does not include bypass diodes, Radio Shack part number 276-1143 will work. This is a type 1N5402 diode rated at 3 amps average current, 200 amps peak surge current, and 200V peak reverse voltage.

The installation location and direction of the diode are extremely important. For each device being bypassed, the diode should be wired as close to the device as possible, preferably connected directly to the device terminals or within one inch of the device. The diode will have an indicator on one end. That indicator will be a painted band or a pointed end. This end of the diode must be connected to the [sometimes] hot wire of the solenoid, coil, or motor. The other end of the diode should be connected to the other end of the device, which is often chassis ground. Note: connecting the diode backward may prevent operation of the bypassed device or else invisibly damage the diode. Warning: a damaged diode later connected in the correct direction will provide no protection at all.



NOTE that Shogun Industries (shogunindustries.com) produces “Stop-it”, a device specifically designed for eliminating this kind of noise problem caused by the transbrake solenoid. It’s more expensive than a diode, but is claimed to do a better job as well.

At the first sign of a problem

At the first sign of an RF interference problem, please re-read the section above about wiring advice. Also, strongly consider using MSD brand 8.5mm ignition wires. Time and time again, these ignition wires have been proven the absolute best at eliminating such problems for not only Computech Systems computer equipment, but for other computer equipment as well.

At the second sign of a problem

Magneto ignitions are the worst about RF interference. It's also sometimes a problem with other high performance ignition systems. Your Computech Systems EGT Plus has been specially engineered to resist the far majority of these problems. Nevertheless, sometimes resistance needs to be taken a step further.

Inside the EGT Plus, immediately behind the green connector, is a removable jumper block. It's a small piece of black plastic and metal, slid on top of two thin metal posts or wires. This jumper block connects the ground from the magneto and transbrake circuits – very noisy circuits by the way – to the rest of the ground inside the computer equipment.

If you've already done whatever you can about the wiring and the spark plug wires, yet still have RF interference problems, then open the case of the EGT Plus, find this jumper block, and remove it. This will isolate the grounds. As a result, you **MUST** use an internal 9V battery to power the EGT Plus. You can no longer rely on the external automotive battery to power the EGT Plus. In exchange, you'll have a much more robust unit that's much less sensitive to RF interference.