

# COOLINGMIST CMGS-FS SRT-4 SETUP GUIDE.



This instruction book is designed to be a guide to enhance your installation. There are some things that may vary from your actual setup. You may have a different tank, different intercooler or something different on your vehicle. In many cases you can deviate from this document. Call tech support if you have any questions regarding setup.



This is a **“GUIDE”** that you can use to install the **CMGS-FS** kit on your **Dodge SRT-4**. Its important to note that there are differences from vehicle to vehicle so there are going to be cases you will need to fill in the blanks or make some decisions out side the scope of this document. We do our best to give you the most accurate data possible. You must take all risks when installing this or any accessory on your vehicle

**. Coolingmist will not be responsible for any damage done to your vehicle due to improper setup or faulty component. Always use common sense and check your setup and test your system so you know what is doing.**

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# TANK SETUP and LOW LEVEL FLUID SWITCH.....2

You have several choices of tanks. You can choose a coolingmist tank which range from a 1 gallon wall mount tank or our 1.5 Gallon All in One trunkmount tank. You can use a 3<sup>rd</sup> party tank or your stock tank or your IC Sprayer tank.

## TANK OPTIONS:

**Figure A** shows our 1 gallon tank. This can be mounted in the trunk compartment along the wall. The ideal location is to mount so that the pump is lower than the tank or atleast the tank is not below the pump. We supply a fitting that you tap into the bottom of the tank. It's a 1/8<sup>th</sup> NPT. The low level float switch also gets installed into the bottom of this tank with a 7/16 drill bit. **FIGURE C** shows the factory WWF tank which you can use as well.

The trunkmount tank (**Figure B and D**) ships with hardware such as straps and brackets and screws. In **Figure B** you can see the pump assembled. The silver quick connect 90 degree fitting connects to the output side of the pump (use Teflon tape on the threads). On the input side the 90 degree nickel plated fitting is installed (use Teflon tape). The 1/8<sup>th</sup> NPT nickel plated fitting installs on the tank just below where the 90 degree fitting points once installed. Connect the input side 90 degree fitting and sit the pump on the tank where the pump base mounts. When you do this you will see exactly where to tap for the 1/8<sup>th</sup> NPT fitting. Take a 1 inch section of the black boost hose and connect the two fittings together. From there you mount the pump and strap the tank down.

See the picture below? For the trunkmount tank, if you cut a 8 inch portion of clear tubing and use it as a pickup, it will draw from the bottom of the tank and keep any air bubbles from getting into the system. If you have air bubbles in the line the flow will have disruption and the flow sensor will trip the failsafe. See the picture to the right to see where the ideal placement of the pickup hose is. The hole is tapped in the front of the tank like in **figure D** and routed to the location in **figure E**.



The low level float switch installs in the recessed area of the bottom of the tank. The next page talks about the 1 gallon tank float switch install, but the concept is the same.

**FIGURE A**



**FIGURE B**



**FIGURE C**



**FIGURE D**



**FIGURE E: View of trunkmount tank from under the lid. Tank pickup tube routing.**



# TANK SETUP and LOW LEVEL FLUID SWITCH.....3

Regardless of what tank you use, the concept will be similar. We will demonstrate on our 1 gallon tank and some pictures of the stock windshield washer tank (**Figures J and K**). The trunkmount tank has an indented circle on the bottom directly below where the cap is. This is where you install the float switch.

## Install the pickup fitting

In **Figure A** we tap the bottom of the tank for the pickup fitting just use a 1 1/32 drill bit and tap 1/8<sup>th</sup> NPT. When you are done it will look like **figure B**. No Teflon tape or sealant is needed unless you made the hole too big or did not tap correct.

**NOTE: you may find you need to tap the side of the tank depending on where you are installing the tank. For our 135 I, we tapped the side of the tank about 1/2 inch from the bottom.**

## Install the float switch

In **figure c** we drill a hole slightly larger than the float switch stem. Remove the nut and put the first oring on the inside stem just like **figure D**.

To route the float switch to the hole we just drilled we need to prepare the float switch. Take a 1 foot section of the nylon hose and put the wires inside it just like **figure E**. Route the plastic hose from the top of the tank into the hole just like **figure F**.

Turn the tank on its side and pull the hose through. Just like in **Figure G**. Now put the oring on the step like in **Figure H** and finally put the nut back on like in **Figure I**. **Figures J and K** shows the stock WWF tank after its been drilled and tapped.

*Don't forget to test your system for leaks! If the tank leaks at the float switch, make sure the nut is tight. If it still leaks you can seal it with epoxy.*



FIGURE A

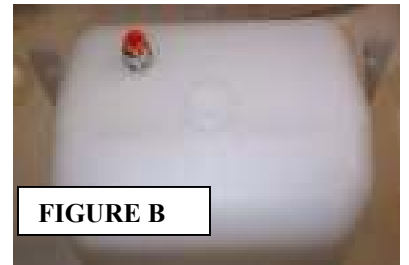


FIGURE B



FIGURE C

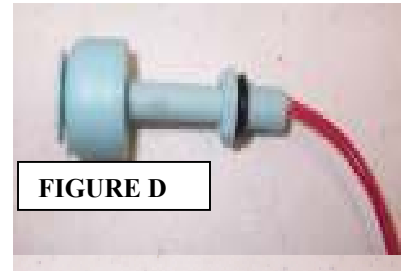


FIGURE D

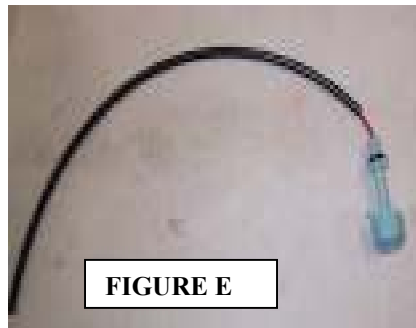


FIGURE E



FIGURE F



FIGURE G



FIGURE H



FIGURE I



FIGURE K Stock WWF Tank

Stock WWF tank for under hood install

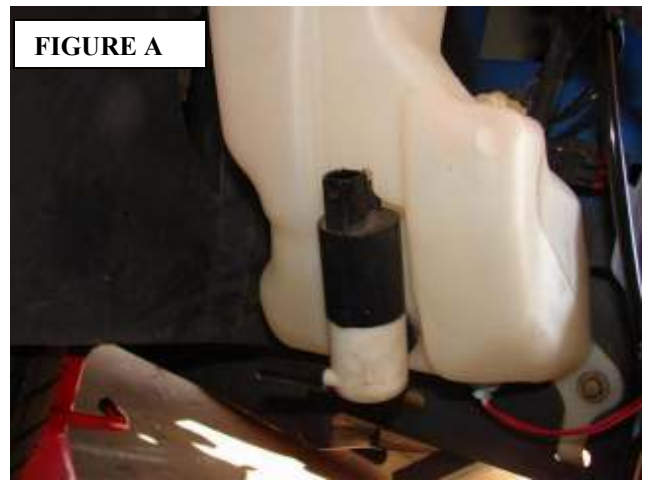


FIGURE J

**FIGURE A** This shows the factory WWF tank. If you choose this type of tank you need to remove your tank and put the float switch and fluid tap on the bottom. **FIGURE B** shows the Filter, checkvalve and flow sensor. Notice the arrows all point toward the injector.

**Figure C** Shows the pump/tank installed for the 1 gallon option installed in the trunk. In this case we recommend to put the filter/valve/checkvalve within a foot of the pump outlet..

**FIGURE D** shows the trunkmount tank assembled. You will use the included straps and brackets to finish the install. The filter/valve/flow sensor install just like in **figure C**.

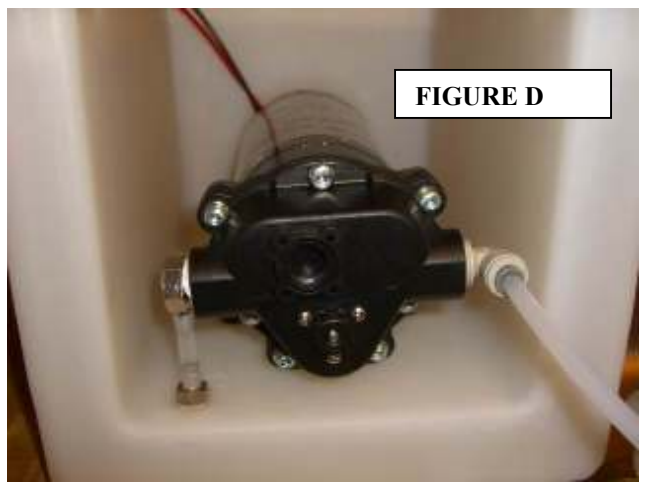


**FIGURE A**



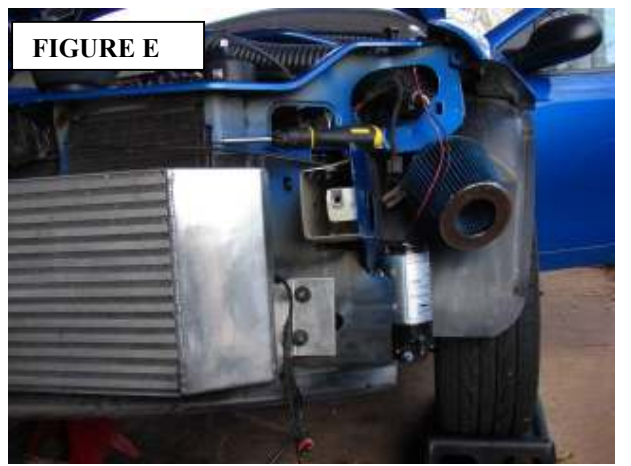
**FIGURE B**

**FIGURE C:** Pump, Tank and flow sensor installed for trunk install.



**FIGURE D**

If you are doing an underhood install, you will need to remove the bumper and install the pump as you see in **Figure E** and connect the inlet hose of the pump to the tank.



**FIGURE E**



**FLOW SENSOR INSTALL (ALL TANKS)**

We recommend to install the flow sensor as close to the pump as possible. This will drop the system response time dramatically. See page 7 for flow sensor calibration (after parts install is done).

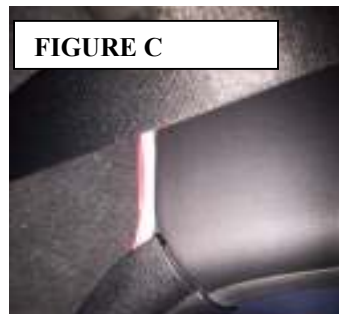
**HOSE AND WIRING:**

**FIGURES A and B:**

**IF YOU ARE DOING A TRUNK TANK INSTALL**

Please note: This example does not show a SRT-4 but the concept should be universal to your vehicle. Our test vehicle used the factory tank so we don't have pictures routing the hose.

Route the hose/wiring from the trunk through the back seat. In Figure a you will see we fold the seat down and wiring is routed between the crevice. In **Figure B** we pulled up on the bottom seat (with the top seat down). You can then take the hose and the wiring and move them to the right and slide them under the seat. The picture only shows the hose because we routed the wiring first. The Pump +, Pump - and both low level signal wire needs to be routed from the trunk. In addition, the 3 flow sensor wires (white, black and red) All 6 of these wires will connect to the CMGS. The other low level fluid switch wire can either connect to the battery ground OR you can route it with the other 6 wires and connect to the 22 gauge black wire off the CMGS. The black pump wire will connect to the 16 gauge green CMGS wire and the red pump wire will connect to the NON fused red CMGS wire eventually. The object is to route the wires through the car under the carpet. To do this you need to remove the door sill and put the wires underneath. The install will be nice and clean. See CDE & F.



**BOOST SOURCE:**

Figure A shows the boost source. This will connect to the tubing on the CMGS so it can read the boost. Just remove your stock boost gauge and replace with the CMGS! Its that simple. Talk about an easy way to mount a controller.

**ROUTE THE BOOST LINE AND WIRING**

The next step is to route wiring from the engine bay into the cabin along with the boost line we just installed. The wires that need to be routed are:

- Boost Line (black plastic tubing)
- Water Line (white nylon tubing)

**Figures B and B1** both show the hole in the firewall where you will route the wiring.

**Figure C** Shows the boost line and the wires going to the CMGS. Please note you will have the flow sensor wires ( 22 gauge white, black, red) as well as pump wires ( 16 gauge green/red) as well as the TPS wire (blue) going from engine bay to the CMGS along with the boost line.

**Figure D** shows the boost line and wiring connected up to the CMGS. The CMGS is in a gauge pod and going to be mounted shortly. You may install your CMGS where you feel fit.

**FIGURE E:** shows the CMGS in the factory boost gauge location, how clean!



FIGURE A



FIGURE B

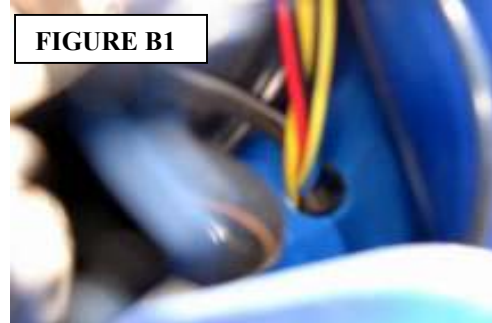


FIGURE B1



FIGURE C



FIGURE D

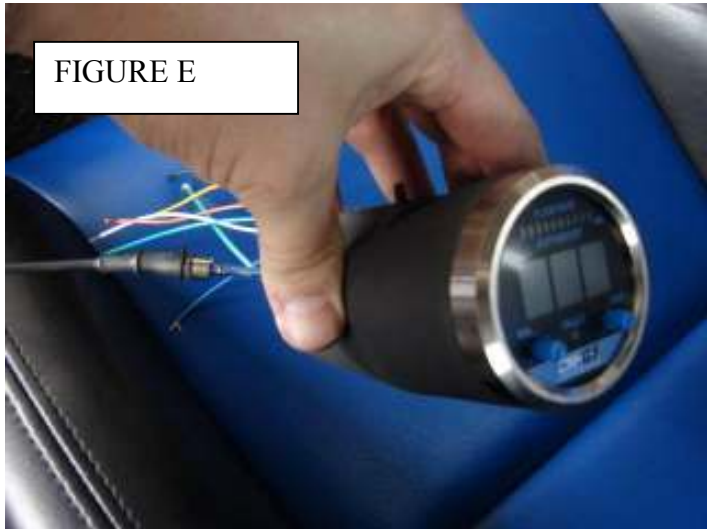


FIGURE E

**INJECTOR INSTALLATION:**

Your injector installs into your cold side pipe. This can be a hard pipe or your stock pipe. The picture in Figure A shows the injector installed. You must drill and tap a 1/8<sup>th</sup> NPT. (27 threads per inch). Use a 11/32 drill bit to drill a hole and then using a 1/8<sup>th</sup> NPT tap, tap the spot for your injector.

**FIGURE A**



**THROTTLE POSITION, SYSTEM GROUND, SWITCHED POWER.....**

Your factory TPS Sensor is in **figure B**. the middle orange wire is the 0-5V TPS sensor. This wire will need to connect to the blue CMGS wire. We provide wiring for you to do this (22 gauge blue wire).

**Figure C** shows the switched ignition source. The switched ignition source can be found in the drivers side door fuse box. **Figure D** shows us removing the fuse box. You can see the Red with white strip wire on the end. This is the system power. You need to splice into this wire. Remove the 2 phillips head screws back. The red and white wire is. spot # 14. This connects to the large orange wire on the CMGS.

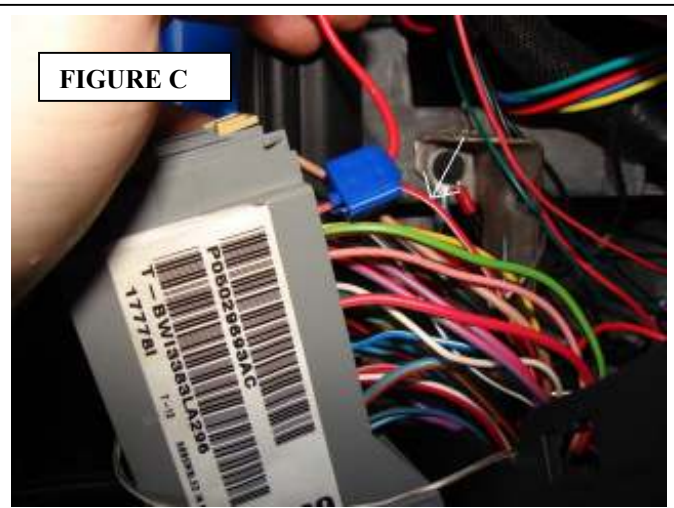
**GROUND:**

You can ground the System to a good system ground or to the battery directly.

**FIGURE B**



**FIGURE C**



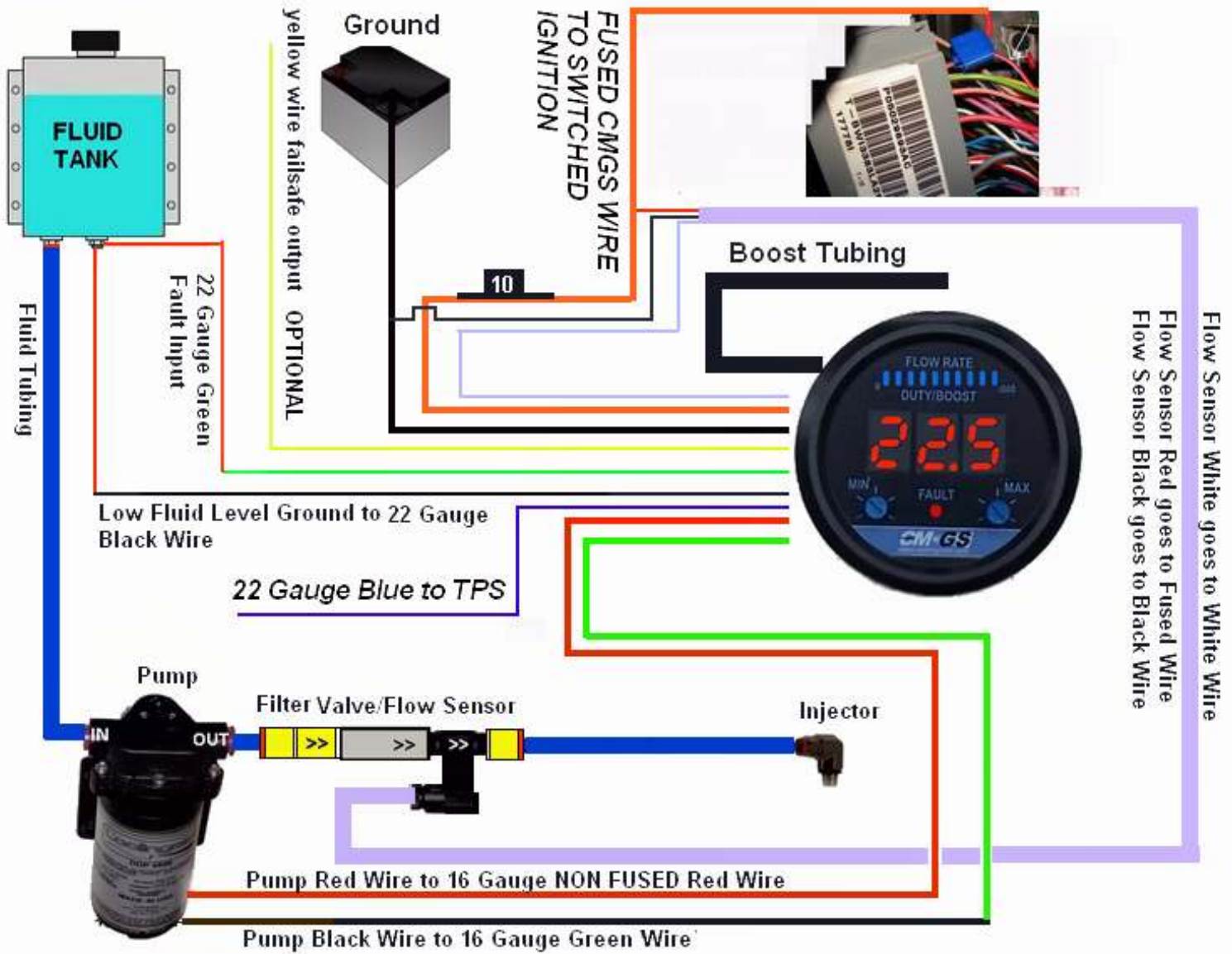
**FIGURE D:**





WWW.COOLINGMIST.COM

CMGS FS SRT-4 KIT



See the guide to the right for calibrating the flow sensor when the flow sensor is in the trunk. If the flow meter is under the hood ignore this section.

To see all params goto  
[www.coolingmist.com/instructions/cmgs.pdf](http://www.coolingmist.com/instructions/cmgs.pdf)

### Calibrating the correct flow rate for trunk install:

**Step 1:** Turn the MIN and MAX to 1 and it will count down. Once it reaches 0 you are ready.

**Step 2:** Turn the MAX knob until 3 BARS are lit up. Like in figure F. Turn the MIN knob counter clockwise until the 25 is "10". Quickly light up 3 more BARS until 6 bars are lit just like figure G.. you must not stop on any of the bars in between. It should say "220". Turn the Min knob until the numbers say "270". Then turn the MAX knob all the way clockwise till it cannot turn anymore and do the same for the MIN KNOB.



FIGURE F



FIGURE G

### Note:

On page 12 we talk about setting up your failsafe. The yellow wire on the CMGS can be normally open or normally close based on how you set the controller up. You can use this wire optionally to turn off or on a device when you are not within the flow window. For example, you can use the CMGS yellow wire as a ground to your boost controller. Once there is a flow problem it will turn your electronic boost controller off and you will drop to wastegate pressure. Once the flow situation is fixed you can boost again. If you just wish to see the error codes on the screen you can set the failsafe up, but not use the yellow wire as well. This will give you a visual that something is wrong without activating your failsafe.

**Figure A. Flow sensor and checkvalve** are assembled here. You must put Teflon tape on the flow sensor threads. Do NOT allow Teflon tape to get into the flow sensor or it will give false readings. Its difficult to see in the picture but the flow sensor has an arrow. **The arrow on the filter, checkvalve AND flow sensor MUST point toward the injector.** *Installing the flow sensor backwards will damage the flow sensor.* The black plastic body on the **flow sensor** can be assembled to the right or the left at the factory. Regardless of how that is represented in the diagram you **MUST** look at the flow sensor arrow. Hand tighten the checkvalve and turn an additional ¼ turn. If it leaks, turn one ¼ turn more. The filter is installed before the checkvalve and the checkvalve is connected to the inlet of the flow sensor. This must be installed **EXACTLY** as you see in figure A. the flow sensor should be installed close to the pump in the trunk.

**Figure A: Filter, Checkvalve, Flow Sensor. Arrows all pointing toward injector. Filter is PRE-Checkvalve. The checkvalve is prior to the Flow Sensor.**



**FIGURE B**

The **injector assembly** is shown to the right. The lock washer gets installed on the injector once its in the intercooler tubing. The orange clip is quick connect fitting. Insert the hose into the clip. To remove the hose push in on the clip and pull out on the hose. You may need to press in on the clip with a screw driver or adjustable wrench to build enough pressure.

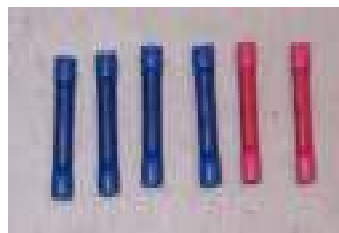


**FIGURE B**

**FIGURE C:**

There are **6 connectors** included in this kit. The blue ones are for the **16 gauge wire**. You will connect CMGS power, CMGS Ground, Pump + and pump – with the blue connectors. The Red Connectors are for the Green float switch wire and the white **flow sensor** wire. The flow sensor power wire is spliced into the CMGS power wire and the flow sensor ground wire is spliced into the CMGS Ground Wire.

**FIGURE C**



**FIGURE D**



**FIGURE D:**

Included in the kit is the wire you need to complete the install. This includes:

- 5 feet 16 gauge black wire for CMGS ground
- 15 feet 16 gauge red wire. 5 feet for CMGS power and 10 feet for pump red wire to CMGS red wire (non fused)
- 10 feet 16 gauge green wire for pump ground to CMGS 16 gauge green wire.
- 5 feet 22 gauge green wire for the float switch input
- 5 feet 22 gauge white wire for flow sensor signal wire.
- 8 feet 22 gauge black wire 5 feet for flow sensor ground wire and 3 feet for the float switch ground

**FIGURE A**

The **4 screws** you see on the top of **figure A** are what we call pan handle screws. They are used to mount the tank to the wall of the trunk and also to mount the straps on the trunkmount tank version. The **sheetmetal screws** on the bottom of **Figure A** are used to mount the pump to the wall as well.



**FIGURE A**

**FIGURE B**

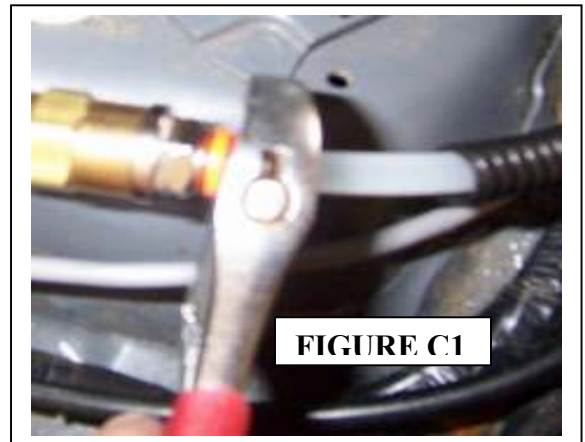
**Figure B** is our **nylon hose**. You are provided with 15 feet of this hose. It will be used for the methanol/water fluid and for the input side of the pump.

**FIGURE B**



**FIGURE C1 TECH TIP!**

*Removing the tubing from our fittings is easy. If there is pressure in the line you will have to loosen the fittings first. To remove the tubing just take an adjustable wrench as in figure C1 and close the wrench on the tubing (loosely). Pull on the hose and the wrench will put pressure on the orange clip and the hose will come off.*



**FIGURE C1**

**FIGURE E**

**Our low level fluid switch.** Details are provided earlier on how to install.

**FIGURE E**



**FIGURE F**

The **high pressure pump** is set at 200 PSI, but if necessary can be adjusted to 250 PSI. Turn the hex key 1/4 turn clockwise to make it higher pressure. If you have the 1 gallon tank your pump will have built in fittings. If you have the 1.5 gallon trunkmount tank you will have fittings to allow you to mount to the tank.

**FIGURE F**



**OTHER PARTS:**

There are other parts such as zip ties and so forth. The CMGS gauge is pictured on the cover of this document and the various tanks are featured in one of the setups as well.

By default the CMGS will display boost and inject based on boost. We suggest you inject based on boost and TPS, if you wish to enable this feature do the following:

It is important to understand how the cmgs works. When you receive your cmgs by default it will inject based on boost settings only. If you prefer you can set it up to inject based on TPS and boost. This will allow the engine to run higher flow at high boost, but less flow at high boost/low throttle times. This keeps the engine from running too rich or flooding.

Its recommended that you watch this video to get a basis for what you are about to do:

**setting multiple inputs**

<http://www.coolingmist.com/videos.aspx?videoid=12#video>

Please note the setting multiple input link shows boost and EGT, its just meant to give you an idea of how it works.

Decide how you want to inject. Your choices are below:

- 1) **Boost Only.** If you choose this option, you are done as the CMGS is configured to display boost and inject based on boost
- 2) **Boost and TPS.** You need to set the coniguration mode to (003) AND set the MIN/MAX MAF in the configuration.

If you prefer boost only, you are done. **If you want to inject based on TPS and BOOST you need to go into configuration mode.**

**Set the MIN to 1 and the MAX to 1. When you do this the CMGS will count down. Once it reaches "000" you can now set the values. Please see figure A.**

To familiarize with this watch our videos at:  
[www.coolingmist.com/videos.aspx](http://www.coolingmist.com/videos.aspx)

**MAF and BOOST**

**SET THE MIN TPS**

Once in config mode turn the MAX dial to light up the 2<sup>nd</sup> flow bar (**figure A**). turn the MIN dial clockwise until the reading is 002. Now, very important. Turn the MAX knob quickly until the 9<sup>th</sup> bar is lit up. Do NOT pause on any of the other settings. Its critical to quickly go straight to the 9<sup>th</sup> LED. See **Figure B**. Turn the Min knob clockwise to set the MIN TPS setting. You can set between 1 to 5 volts. Typically you set it at 1.5 volts.

**SET THE MAX TPS**

Turn the **MAX** knob 1 more position until all 10 Bars are lit see **Figure C**. use the **MIN** knob to set the **MAX** value. For the SRT-4 you shoulds set this to 2.7 Volts

**SAVE YOUR SETTINGS:**

To save your settings turn the **MAX** knob clockwise until it will not turn any more. Turn the **MIN** knob clockwise until you cant turn anymore. Your changes are now burned into the flash memory. Setting the **MIN/MAX** boost is done during run mode, you do NOT set them in configuration mode so they can be changed on the fly.



FIGURE A

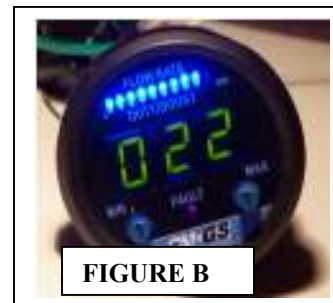


FIGURE B



FIGURE C

Once you save your settings the CMGS will have the new injection code permanently in memory. To reset to default, set the min and max to 30 and turn the cmgs off and back on. This will disable the failsafe and any changes you made. To set the MIN and MAX boost, just turn the MIN and MAX dials in run mode.

# SETTING UP YOUR FAILSAFE (optional).....13

## SETTING UP YOUR FAILSAFE

If you choose to setup the failsafe we must go back into configuration mode. Like before set the MIN/MAX to 1 and watch the system count down to 0. Now we are in configuration mode. CMGS will inject based on boost and display boost. If you want to see any flow errors you can setup the failsafe. Make sure the MIN knob is all the way to the left and turn the MAX to lightup 1 LED at a time until you notice you will eventually be back to having 1 LED lit up and the FAULT light is blinking fast. If you are setup to inject based on boost only or MAF only after the 8<sup>th</sup> LED lights up, the next turn of the max knob will lightup the first LED. If you are injecting based on boost and MAF at the same time, it will light up the first bar AFTER the 10<sup>th</sup> bar has lit. If the fault light is blinking rapidly and 1 bar is lit you are in failsafe configuration mode. See **figure A**.

## ENABLE FAILSAFE:

By default the failsafe is disabled. If you are injecting based on BOOST AND TPS you need to set the threshold to "001" dutycycle. If you are doing boost only, set it to "002"

## SET FAILSAFE THRESHOLD

Turn the MAX knob 1 position until the 2<sup>nd</sup> bar is lit up see **Figure B** If you enabled the failsafe based on boost, you can set the threshold from 0 to 30 PSI. 12 PSI is the default. If you enabled the failsafe based on **dutycycle** you can set the threshold from 0 to 100%. 60 % will be the default. If you enabled the failsafe based on voltage, you can set the threshold from 0 to 5V, the default is 3. Turn the MIN knob clockwise to set the value.

## SET THE FLOW MINIMUM

Turn the MAX knob one more turn until 3 leds are lit. See **Figure C**. The default value of 17 is 170 CC. You can set this value from 100 CC/M to 2500 CC/M. If you put a value of 20, it would mean 200 CC/M. Turn the MIN knob clockwise to set the value where you want it.

## SET THE FLOW MAXIMUM

Turn the MAX knob one more turn until 4 leds are lit. See **figure D**. Use the MIN knob to set the value between 100 and 2500 CC/M (10 to 250 on the gauge) . Set this value at least 200 CC/M higher than your MAX flow rate.

## SETTING FAILSAFE RESPONSE TIME

**Figure E**

If your CMGS displays "001" during pump ramp up during high gear you will need to set a delay. You can set a value from 1 (10 MS) up to 150 (1500 ms). Initially you should leave this set to 0, if you find you need a delay return to this param later and set the delay.

## SET THE FAILSAFE OUTPUT BEHAVIOR

Turn the **MAX knob** one more turn until 6 bars are lit. See **Figure F**. Use the **MIN knob** to the value to "000" or "001". "001" is normally close, "000" is Normaly Open. If you set the value to "000" the output wire will remain off until there is a flow problem and at that time it will turn on a ground. Set the value to "001" will have the output wire always grounded until there is a problem and it will turn the ground off.

## SAVE YOUR SETTINGS TO FLASH MEMORY

To save your settings turn the MAX knob all the way to the right and then turn the MIN all the way to the right. You can now set your MIN/MAX settings by turning the knobs where you want them. The CMGS gauge will notify you when it activates the failsafe by flashing a code on the screen until the error has been resolved.

"000" means the fluid level is low

"001" means the flow is less than the flow minimum

"002" means the flow is higher than the flow maximum

"003" means the system is injecting when it should not be. This does not trip the failsafe but does alert the problem via error code.

To see a video of us setting up the failsafe and then injecting to show the error visit:

<http://www.coolingmist.com/videos.aspx?videoid=13#video>



FIGURE A



FIGURE B



FIGURE C



FIGURE D



FIGURE E

