

CMGS SYSTEM X TECHNICAL SPECIFICATION AND OPERATIONS MANUAL

CMGS V 1.10



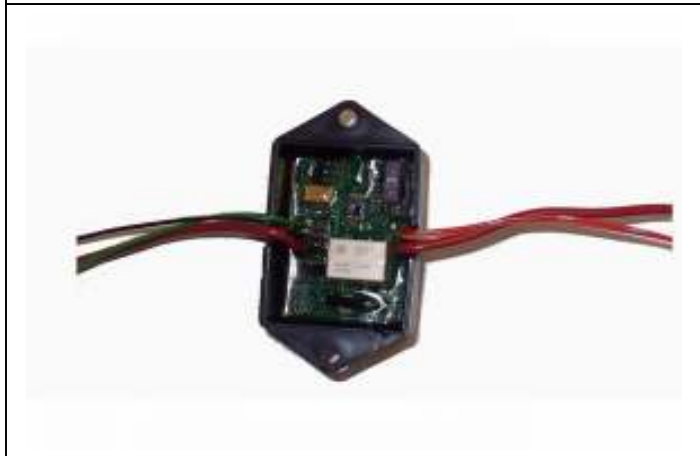
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Optional Flow Sensor



Failsafe Control Box (FCB)



This all new system by Coolingmist has the first “autolearn” failsafe in the industry. No need to setup the failsafe. Install the system, failsafe is automatic. You can set the yellow failsafe wire to normally close or normally open, by default its set to normally open. Most failsafes on the market give you a low and high flow and a boost threshold of some kind. This system protects your engine from 25% to 100% DC with our new FCB. The flow sensor is optional and if you get that, it will log flow from 25% to 100% and protect through out the entire boost curve as well.

Nothing is easier or higher performance. No more messing with settings.

CMGS SYSTEM X WILL CHANGE THE WAY YOU THINK ABOUT FAILSAFE SYSTEMS. INSTALL IT, DRIVE IT AND IT WILL AUTOLEARN AND TURN THE FAILSAFE ON. THE NEW FCB SENSOR WILL LOG ALL OF YOUR PUMP PARAMETERS FROM 25% TO 100% DUTYCYCLE. ANY PROBLEMS THE SYSTEM WILL TRIP THE FAILSAFE. OUR FLOW SENSOR CAN BE USED WITH THE SYSTEM AS WELL FOR THOSE RUNNING A WATER/METH MIX. IF YOU HAVE THE FLOW SENSOR, IT WILL BE AUTO DETECTED AND LOG THE FLOW FROM 25 TO 100% DC. NO MORE SETTINGS TO CHANGE. YOU ARE PROTECTED THROUGH THE ENTIRE BOOST RANGE. FOR THOSE THAT WANT TO FINE TUNE, YOU CAN SET INDIVIDUAL SETTINGS IN THE FAILSAFE. BY DEFAULT THE YELLOW FAILSAFE WIRE IS NORMALLY OPEN, IF YOU NEED IT NORMALLY CLOSED YOU WILL JUST NEED TO CHANGE THAT SETTING. NOTHING IS MORE SIMPLE OR RELIABLE! MOST FAILSAFES ON THE MARKET HAVE A HIGH/LOW WINDOW. CMGS SYSTEM X CHECKS THE EXPECTED ELECTRICAL AND OR FLOW AGAINST REAL TIME DATA FOR ALL DUTYCYCLES.

The CMGS System X is an all new state of the art system that was designed for the safety minded customer that wants an easy to install system with the most comprehensive failsafe on the market. Coolingmist spent many months developing a system that promises to change the way you think about complicated failsafes and hard to install systems. A traditional failsafe typically allows the user to manually setup a low and high flow rate and the system looks at the flow and makes sure you are within that range. These have to be manually setup and they only look to see if you are within that range. Everything changes with CMGS System X.

With CMGS System X you are protected from 25% duty cycle to 100% duty cycle and all points in between. In addition to that CMGS System X has an industry first AUTOLEARN feature. Install the system and it will learn. There are 2 failsafe signal units available.

The FCB (Failsafe Control Box) is an all new potted electronic pump reading module. This module never comes in contact with any fluid so the reliability is without equal. The FCB will be installed between the CMGS and the pump. This unit will and log several criteria about the pumps operation and send it to the CMGS. CMGS will store this in flash memory. CMGS will expect the system to be operating within the logged params. If there is a deviation, there is an error and the CMGS will trip an error code and trip the yellow failsafe wire based on how you set it up (its normally open by default so it would close if you did not set it otherwise). You will have to fix the problem and cycle the power before the yellow wire and the code will clear. We will discuss this further in the document. You can run the FCB with the flow sensor or by itself, however you cannot run the flow sensor without the FCB.

The Traditional Flow Sensor can be used with the FCB. The flow sensor requires a minimum of 30% water. If you are running a high concentration of methanol the flow sensor cannot be used, the FCB however can since it does not come in contact with fluid. If the flow sensor is installed, the system will automatically detect the flow sensor and log your flow as well as the other parameters the FCB logs. Remember, you wire it up and your done that's it! No setup required. **NOTE: the CMGS system X is able to inject based on Boost or Frequency based MAF. If you are injecting based on MAF you cannot install the flow sensor because the flow sensor and MAF signal use the same input.** You can only use the flow sensor if your injecting based on boost. You can use the FCB in either case. Once you install the flow sensor the system will start logging your flow rate from 25% to 100% DC and from then on you will be required to keep your flow sensor installed or you will get codes. **Note: If you install the flow sensor it must be in the engine bay.**

Which is better FCB or Flow Sensor?

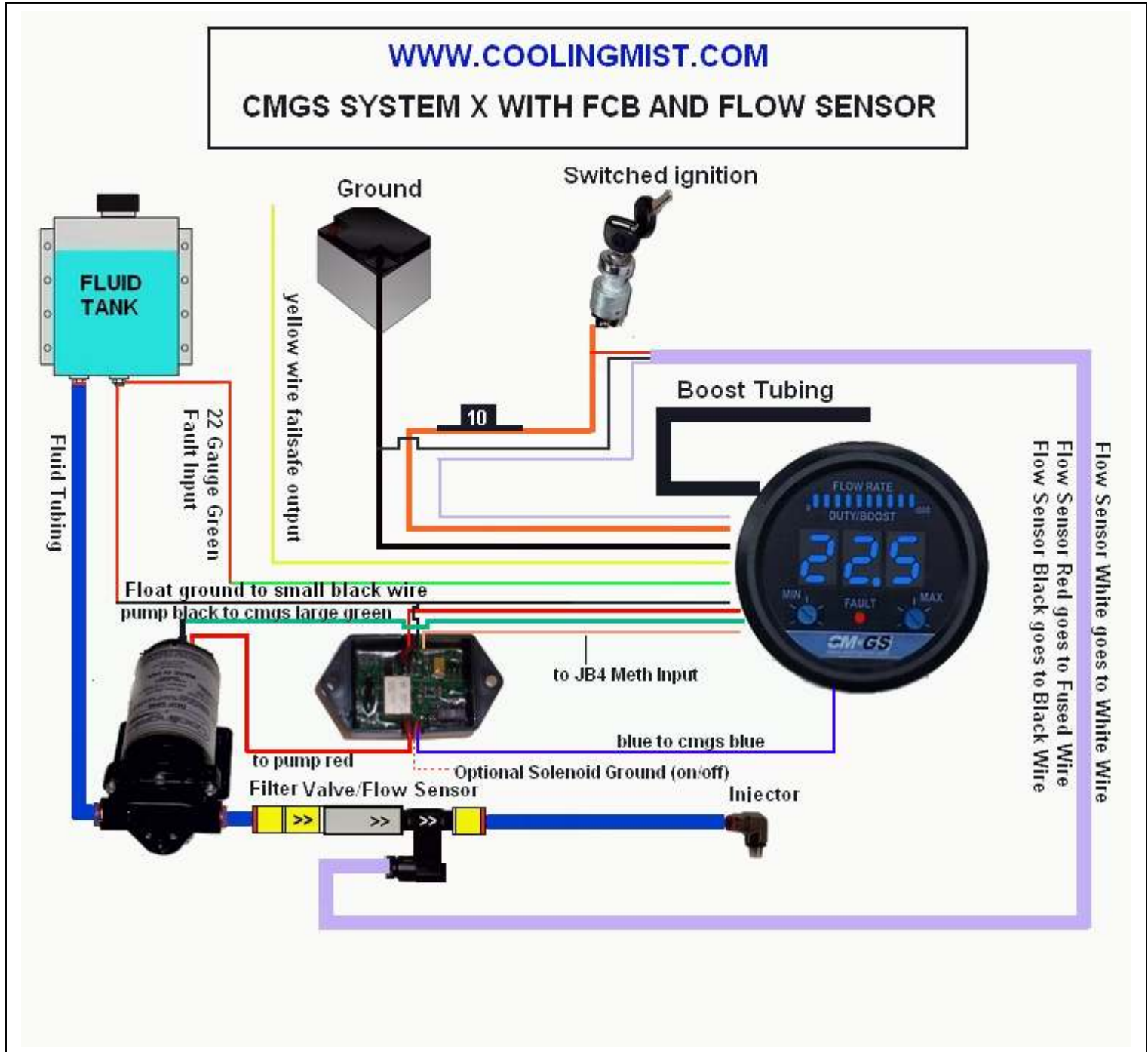
If you are running the recommended 50/50 mix of methanol water the best solution is to use both the FCB and Flow Sensor. The FCB has a faster response time to problems with the pump, accurately detects problems with pump pressure and other failures that the flow sensor does not care about. The flow sensor detects flow which the FCB does not. By using both you will get the best protection available however the FCB is designed to protect your system with or without the flow sensor.

Injection:

The CMGS System X can inject based on Boost only or based on MAF (Frequency Based). Boost range is 1-30 PSI or 1 to 100 PSI depending on the version. MAF range is from 200 to 20,000 HZ or from 20,000 HZ to 200. We will discuss how this works later in the configuration document. **Please note: If you are injecting based on MAF, you can not use the flow sensor, you can only use the FCB.**

Display:

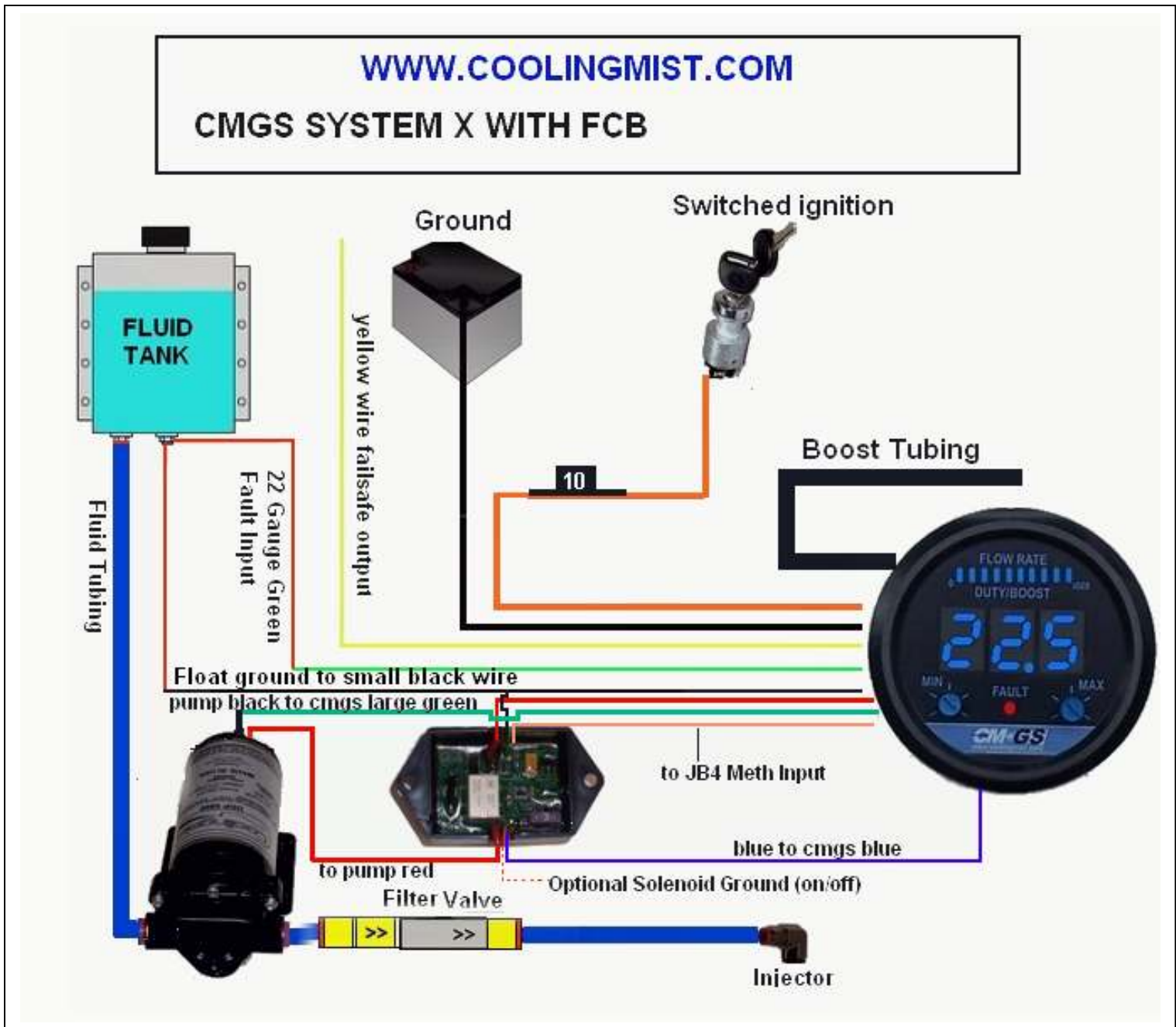
CMGS/VC2 system X V 1.10 can display different things on the 3 digit center display. These can be MAF, Boost in PSI, or BAR or pump DC or the flow rate. The 10 segment display is automatic and depending on how you are injecting can display flow rate or pump duty cycle or MAF.



This diagram above shows you how to install the FCB and the flow sensor to your CMGS System X (v1.10 +) CMGS.
NOTE: Flow sensor must be installed close to the injector in the engine bay.

- 16 gauge orange=system power (12V switched)
- 16 gauge black = system ground.
- 16 gauge green= pump black wire (do not ground pump to chassis)
- 16 gauge red cmgs to 16 gauge red FCB input wire.
- 24 gauge orange to 24 gauge orange FCB box
- 24 gauge blue to 24 gauge blue FCB wire

- 24 gauge yellow is optional failsafe wire.
- 24 gauge black connects to 24 gauge black FCB wire and float ground wire.
- Flow sensor red goes to 12V power
- Flow sensor black goes to ground
- Flow sensor white connects to CMGS white wire



This diagram above shows you how to install the FCB to CMGS System X (v1.10+) CMGS.

NOTE: you must put a 15 amp fuse on the orange power wire and on the red pump Wire between the pump and FCB.

CMGS 16 gauge orange=system power (12V switched)

CMGS 16 gauge black = system ground.

CMGS 16 gauge green= pump black wire (do not ground pump to chassis)

CMGS 16 gauge red cmgs to 16 gauge red FCB input wire.

CMGS 24 gauge orange to 24 gauge orange FCB box

CMGS 24 gauge blue to 24 gauge blue FCB wire

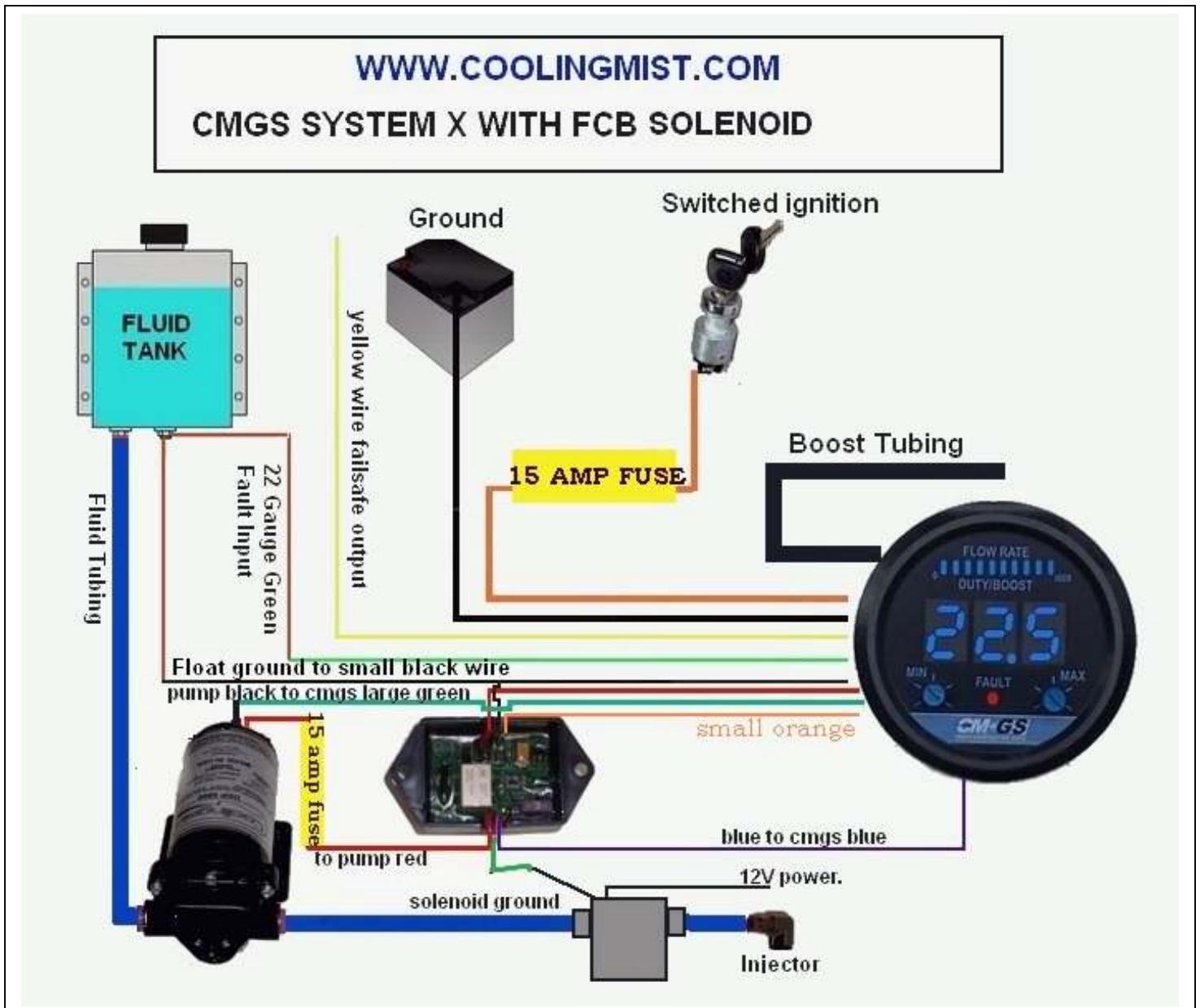
CMGS 24 gauge yellow is optional failsafe wire.

CMGS 24 gauge black connects to 24 gauge black FCB wire and float ground wire.

NOTE: For 07 and earlier WRX, you connect the yellow wire to the female end of the test connector. For canbus versions you can use it as a custom failsafe. For all other vehicles you can use it if you have a custom failsafe or just look at the error codes on the screen.

NOTE: If you have a N54 BMW with a JB4 you can connect the orange Wire to the the JB4 for failsafe. Other vehicles do not use this wire.

NOTE: For BMW and other makes see other diagrams on the last few pages.



- CMGS 16 gauge orange=system power (12V switched)
- CMGS 16 gauge black = system ground.
- CMGS 16 gauge green= pump black wire (do not ground pump to chassis)
- CMGS 16 gauge red cmgs to 16 gauge red FCB input wire.
- CMGS 24 gauge orange to 24 gauge orange FCB box
- CMGS 24 gauge blue to 24 gauge blue FCB wire
- CMGS 24 gauge yellow is optional failsafe wire.
- CMGS 24 gauge black connects to 24 gauge black FCB wire and float ground wire.
- FCB GREEN 24 gauge wire connects to one of the solenoid wires.
- The other of your solenoid wires gets 12V power

NOTE: the FCB has a ground output that will turn on once the pump has activated. Most of you will not use this feature, but if you have a solenoid you can use that as the ground. This wire can run 1 amp.

NOTE: If you have a N54 BMW with a JB4 you can connect the orange Wire to the the JB4 for failsafe. Other vehicles do not use this wire.

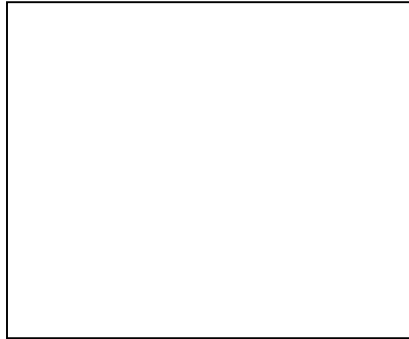
YOU MUST INSTALL A 15 AMP FUSE ON THE PUMP RED WIRE AS SHOWN. YOU MUST ALSO INSTALL A 15 AMP FUSE ON THE MAIN POWER WIRE AS SHOWN. THIS IS 100% REQUIRED.

CMGS System X has an industry first “Auto Learn” feature. What this means is that when you install your FCB or FCB and flow sensor the system will learn over a period of time how your system is supposed to inject. Once a problem is detected the fault code will turn on and the yellow failsafe wire will trigger based on how you set it up. You do not need to turn the failsafe feature on, once the FCB and flow sensor or FCB only is detected and the tables fill the failsafe will automatically turn on. You do have the ability to turn the failsafe off if you wish.

How does all of this work behind the scenes?

Its quite simple for you however the engineering that went into this is very detailed. There are 2 tables that are stored in memory. These tables are for pump information and flow rate. These tables will store information from 25% to 100%. When you first start up the CMGS/VC2 there will be a 10 seconds period where you will see “1.10” blink rapidly. This is the flash version. After that, you will see up to 8 bars light up for a second.

- Bar 1: 25-39 %
- Bar 2: 40-49 %
- Bar 3: 50-59 %
- Bar 4: 60-69 %
- Bar 5: 70-79 %
- Bar 6: 80-89 %
- Bar 7: 90-99%
- Bar 8:100%



NOTE: If you have the flow sensor, bar #10 will light up at startup for the first 10 seconds. This indicates that the system autosensed the flow sensor. After the 10 second startup is over, the bars will go back to normal.

AUTOLEARN:

While you are driving the system will be recording the data and once CMGS has learned all of the flow and or pump information for each bucket above, that bar will light up on startup after the 10 second flash. For example, assume you are using the Fault Control Box only and you have recorded the pump values from the dutycycles 80-95%, 40-52% and from 55 to 63% , when you start up the controller you will see bar 2 light up, and bar 8 light up. None of the other bars will be lit. This is how you know the system has completely learned. If you have the flow sensor as well as the FCB the bars will light up only once flow and pump information has been recorded. You can manually learn by going into configuration mode and setting failsafe to 001 and setting param #6.

RESETTING THE TABLES:

The learning is automatic, even if you turn the failsafe off the system will learn. If your system has learned without the flow sensor and later you decide to add the flow sensor you must re-set the failsafe tables, connect your flow sensor and re-learn. If you later add a 2nd nozzle or change nozzle sizes, you must reset the failsafe so it can relearn. To reset the failsafe tables its simple. Turn the MIN and max all the way to the right while you see the “000” in the main display. You will see it count down from “10”. Once it gets to zero the failsafe tables will be cleared. The system will relearn, regardless of whether you turn the failsafe on or not.

ADJUSTING SENSITIVITY:

Failsafe sensitivity can be adjusted on several factors. You can set the sensitivity from 1 to 50 on the low side, high side for both flow and pump electronic feedback. You can see details on page 12

To go into configuration mode turn the MIN dial and the MAX dial to 1 and it will count down from 5 to 0. Now you can set a few parameters. Coolingmist chose to make this system as automatic as possible with only a few parameters for convenience or necessity.

How it works:

Each bar across the top is a parameter. Bar #1 is param #1, Bar # 10 is param #1. You use the Maximum dial to move to the next param and the Minimum dial to change the value. Once you get past the 10th, bar, it will be Parm #11 and the fault light will flash faster.

PARAM # 1 3 digit display. This is the information that you want to display on the 3 digit center display.

000 Boost (DEFAULT)

001 BAR

002 MAF (can only display maf if injecting based on MAF)

003 Flow (Can only display flow if flow sensor is attached and injecting based on boost)

004 Pump Dutycycle

005 special failsafe values

PARAM #2 Injection mode.

000 Boost (DEFAULT)

001 MAF

PARAM #3 5 volt output (small orange wire)

000 Dutycycle (default)

001 flow reading (.1 volts for every 100 cc/m flow)

NOTE: During a flow or pump error the value of the 0-5 output will drop to 0.

PARAM #4 FAILSAFE:

000 Failsafe Off

001 Failsafe On

NOTE: If you are going to manually fill your tables instead of autolearn you will need to set this param to 001 for it to work.

002 Failsafe Automatic (DEFAULT) ** this param is default and will auto sense the FCB.

PARAM #5 AUX Failsafe Wire Config (Yellow wire)

000 Normally Open (Default)

001 Normally Closed

002 Normally Open (closed when MIN set point reached)

003 Normally Open (closed when MAX set point reached)

** NOTE 002 and 003 could be used if you don't need to activate the failsafe but need to open a solenoid, turn on a second pump or do some other operation when the min or max set point is reached.

PARAM #6 PUMP TEST MODE (PRIME THE LINE OR MANUALLY LEARN)

Use the minimum knob to turn the pump on at specific dutycycles for testing. Your pump will be running at the dutycycle shown on the screen. Once you turn the max knob to the next setting the pump turns off and you go to the next param

NOTE: if you have failsafe set to 001 while you are in pump test mode the system will auto learn while you are priming the lines. This starts at 30% DC and goes to 100%. Once you see the dutycycle value flash, the system has learned

PARAM #7 LOW FLOW FINE TUNING

If you have the flow sensor you can adjust this to fine tune the sensitivity of the flow sensor failsafe. This value is the 25% to 59% DC flow setting. By default this is set at 10 and should work well for any situation. If you get “001” or “002” errors during low dutycycle you can adjust this higher.

PARAM #8 HIGH FLOW FINE TUNING

If you have the flow sensor you can adjust this to fine tune the sensitivity of the flow sensor failsafe. This variable defines the flow deviation at 60 to 100% DC. By default this is set to 10 and should work well with most setups. If you get “001” or “002” errors during high dutycycle set this number higher until the errors go away.

PARAM #9 LOW PUMP FEEDBACK FINETUNING

The FCB (failsafe control box) reads the electrical state of the pump at all dutycycle and by doing this we know exactly how the pump should be operating at each dutycycle. Use this to set the low end of the variance. That his how much lower than the failsafe table setting for that dutycycle you are willing to let it vary. This value references 25 to 59% DC. By default its set at 20.

PARAM #10 HIGH PUMP FEEDBACK FINE TUNING

The FCB (failsafe control box) reads the electrical state of the pump at all dutycycle and by doing this we know exactly how the pump should be operating at each dutycycle. Use this to set the high end of the variance. That his how much higher than the failsafe table setting for that dutycycle you are willing to let it vary. This is the 60 to 100% DC value. This number should be as small as possible. Due to natural pules of the pump there can be a variance and it will be different for each nozzle size. Typically on the high end a value of 3 will work well which is the default. If you get 004 or 005 errors at high dutycycle adjust this number higher.

Once you are at param #10 you notice the fault light flashes slow. If you turn the MAX knob one more setting you will see one bar across the top lit and the fault flashing fast. This is param 11. Param #11 onward are for tech support and not to be used. To save your configuration settings turn the MAX dial all the way to the right till it cannot turn anymore and then do the same for the MIN dial. Now you can set the MIN/MAX where you need them for injection.

ENTERING CONFIGURATION MODE:

To make changes to the system you need to go into configuration mode. Turn the MIN and MAX both to 1. The system will count down from 5 to 0. Once you reach 0 you are in configuration mode. Once you make your changes turn the MAX all the way to right and the MIN all the way to right (in that order) and changes will be saved.

RESET YOUR AUTOLEARNED TABLE:

When you make changes to your system such as nozzle size, or pump or add more nozzles or if you add a flow sensor to the system after it has learned with FCB you will need to reset the table. When you are in run mode turn the min/max all the way to the right. It will count down from 10, at 0 the table is erased. If you re-start the system you will see none of the flow bars light up at startup indicating the table is empty. This does not erase the configuration settings.

RESET CONFIGURATION TO DEFAULT:

This does not affect or erase your tables but will set the params #1 to 10 back to default. When you first start the system turn the min and max all the way to the right. You will see a 15 second count down. At 0 you will be reset.

Fail Safe error codes:**000 – Fault Input error**

This error occurs when you are low on fluid OR if you have a bad ground on the FCB.

001 – Minimum Flow error

This error occurs when a Flow Sensor is being used and the Flow is below the Fail Safe minimum operating parameters as established in the Fail Safe table or default fail safe rules.

002 – Maximum Flow error

This error occurs when a Flow Sensor is being used and the Flow is above the Fail Safe maximum operating parameters as established in the Fail Safe table or default fail safe rules.

004 – Minimum pump electrical error

This error occurs when the pump electrical state is below the Fail Safe minimum operating parameters as established in the Fail Safe table or default fail safe rules. Could be hardware failure, clog, leak, etc.

005 – Maximum pump electrical

This error occurs when the pump electrical state is above the Fail Safe maximum operating parameters as established in the Fail Safe table or default fail safe rules. Could be hardware failure, clog, leak, etc.

999 – Critical error

But when this type of error condition occurs the CMGS sends a command to the CMGS Current Meter via the 0-5V output to open the pump motor relay and shutdown the pump. The Critical error latches on and can only be cleared by power cycling the CMGS and removing the cause(s) of the error. This error would occur if the pump was miswired (for example, grounding the pump to the chassis) or if an electrical problem caused the controller to malfunction. 999 code causes the pump to completely shut off and can protect your engine.

NOTE: IF YOU GET A FAULT CODE AFTER THE SYSTEM HAS BEEN INSTALLED FOR A PERIOD OF TIME, YOU HAVE SOME SORT OF PROBLEM. THIS CAN BE A CLOG, OR HARDWARE FAILURE OF SOME SORT. IT HELPS TO LOOK AT THIS CHART AND ALSO IT WILL HELP TO KNOW WHAT DUTYCYCLE THE ERROR IS HAPPENING AT.

INJECTING BASED ON BOOST

By default the system will inject based on boost and it will display boost. You can change the boost to BAR if you prefer that unit of measurement. See the configuration settings detail to understand how to set that up. The MIN dial is your start point. The MAX dial is your full point. The system will turn on when you reach your MIN setting and as your boost increases it will inject more until you reach your MAX setting. After your MAX setting you will remain at full flow.

If you have the FCB the system will autodetect this and turn the failsafe on (autosense). The flow sensor is optional and if you connect the flow sensor to the system at the same time as the FCB the system will autolearn the flow as well. You can turn the failsafe off, however we recommend you leave it on. If you get random 004 and 005 or 001 and 002 errors after the system has learned, you may need to go into the tables and make adjustments (see configuration settings 7,8,9 and 10). If you get 001,002,004,005 errors after the system has been installed for a long time, you can be sure there is a problem. Note what error you get and investigate.

INJECTING BASED ON FREQUENCY MAF

This system can inject based on frequency MAF as well. **BY DEFAULT THE CMGS SYSTEM X WILL INJECT BASED ON BOOST. YOU NEED TO SET PARAM #2 TO 001 TO INJECT BASED ON MAF. IN ADDITION, IF YOU WANT TO DISPLAY MAF YOU WILL NEED TO SET PARAM #1 TO 002.** You can inject within a range of 200 HZ to 20,000 HZ. The scale will 100. So 002 HZ is 200 HZ and 200 is 20,000 HZ. You can also inject based on descending hertz. For example, if you set the MIN to 005 and the max to 010 you will start at 500 HZ and be full flow at 1000 HZ. If you however set the MIN to 010 and the max to 005, the system would turn on at 1000 HZ and be at full flow by 500 HZ. You will need to know where your MAF system frequencies are to use this feature. Always look at the dutycycle bar across the top of the controller so you know when its injecting. NOTE: If you are injecting based on MAF, you cannot use the flow sensor.

NOTE: THIS VERSION OF THE CMGS CANNOT INJECT BASED ON A 0-5 V.

DISPLAYS:

10 bars across the top:

If you are injecting based on boost you can use the flow sensor with the FCB (**you can not use the flow sensor if injecting based on MAF**). If the flow sensor is installed, the 10 bars across the top of the controller will show the flow rate. Each bar will equal 100 cc/m. The flow sensor can read upto 2500 cc/m, however the flow bar will only display upto 1000 cc/m. You can make the 7 segment display show flow if you like by setting param #2 to 003.. If you are injecting based on MAF, the bars across the top will show pump dutycycle. Anytime the flow sensor is installed the bars across the top will display flow (when injecting based on boost). Any time you don't have the flow sensor installed, each bar will be 10% dutycycle.

7 Segment Display.

The center display has 3 digits and can be configured to display MAF value, Boost, BAR, Flow, Pump Electrical Status or Dutycyle. See the configuration setup for this feature. NOTE: you cannot inject based on boost and display MAF. If you connect the white wire to the MAF sensor and inject based on boost the system is going to

Controller Wiring Testing:

- 1) Remove the nozzle from your charge pipe so it will spray in the air.
 - 2) Set the MIN and MAX to 1 and count down from 5 to 0 to go into configuration mode.
 - 3) Move the max dial until 6 bars are lit up on the controller.
 - 4) turn the min dial through the various dutycycles (make sure water is in your tank)
- Doing the above the system will turn on and prime. What this does is prime your line. It does not test the failsafe.

Filling the failsafe tables through config mode instead of auto learn

Please note that once you connect everything correct and drive for the first time the system will fill a base failsafe table. This base failsafe table will protect you against complete failure of hardware, over flow and things like that. If you want to get more specific to your setup faster than the auto learn here are the steps:

- 1) Set the MIN and MAX to 1 and count down from 5 to 0 to go into configuration mode.
- 2) Set Param #4 to "001"
- 3) Follow #3 and #4 on the **"Controller Wiring Testing"** feature above

Doing basic tests of your failsafe:

To test the failsafe is pretty simple. Disconnect the red wire from the pump to simulate a pump failure and drive. You will get a "004" error and your failsafe will trip.

Check to see what failsafe values have been stored in your tables:

- 1) turn power OFF to the controller
- 2) turn power ON to the controller
- 3) look at the bars across the top and note which ones are lit up. Once all failsafe buckets are full it will light up the first 8 bars. If you see bars 2 and 6 not lit up, then the 40% to 49% bucket and the 70 to 79% DC are not full yet. You still will have failsafe protection at those DC, but it will be the base map.
- 4) If you see the 10th bar lit up, that means the system auto detected your flow sensor as well.

GOTCHAS:

Once the system has learned, it has learned. If you learn with just the FCB for example and then add a flow sensor the system will not work correct. You must rest the failsafe tables and learn again. (min/max to right count down from 10). This also holds true if you change your nozzle size or make other changes to your system. If you use the flow sensor you MUST still have the FCB. You can run the FCB without the flow sensor but not the other way around. Also, the flow sensor must be installed in the engine bay as close to the injector as you can.

FINETUNING YOUR FAILSAFE:

After all 10 buckets are full, if you get 001, 002, 004 or 005 errors and there is no real problem you will need to adjust the sensitivity of the system. Anytime you get these errors, you must recycle power to the controller to clear the codes. If you do get a false error you may want to fine tune the system. Its important to know where the error came from. See page 8 for the configuration params.

001 means low flow error (must have flow sensor)

002 means high flow error (must have flow sensor)

004 means FCB reported a pump feedback problem. Pump may have lost pressure or many other issues.

005 means the FCB reported a pump feedback problem. Pump may have more pressure than should or other issues.

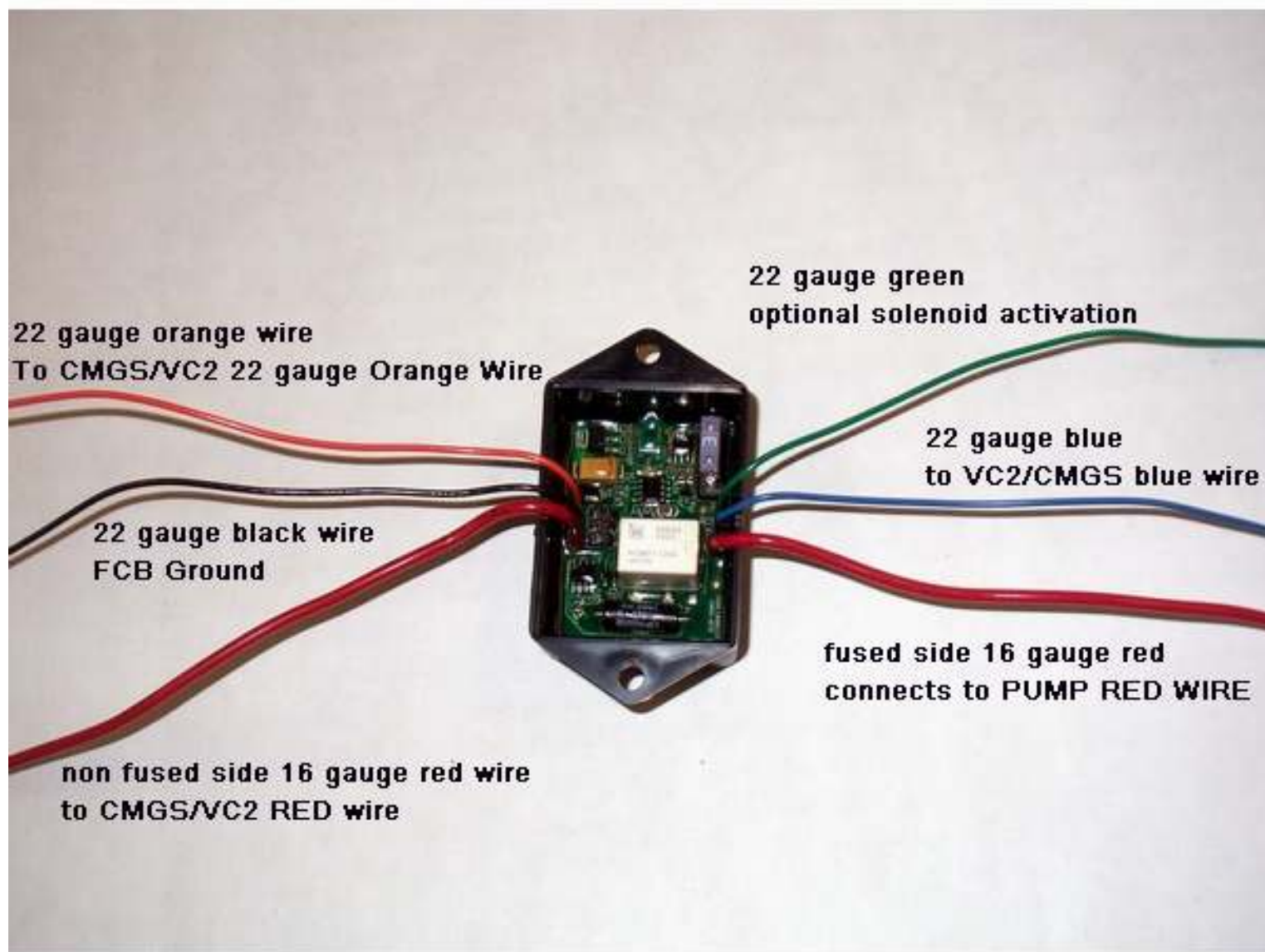
Param #7 controls 001

Param #8 controls 002

Param#9 controls 004

Param #10 controls 005

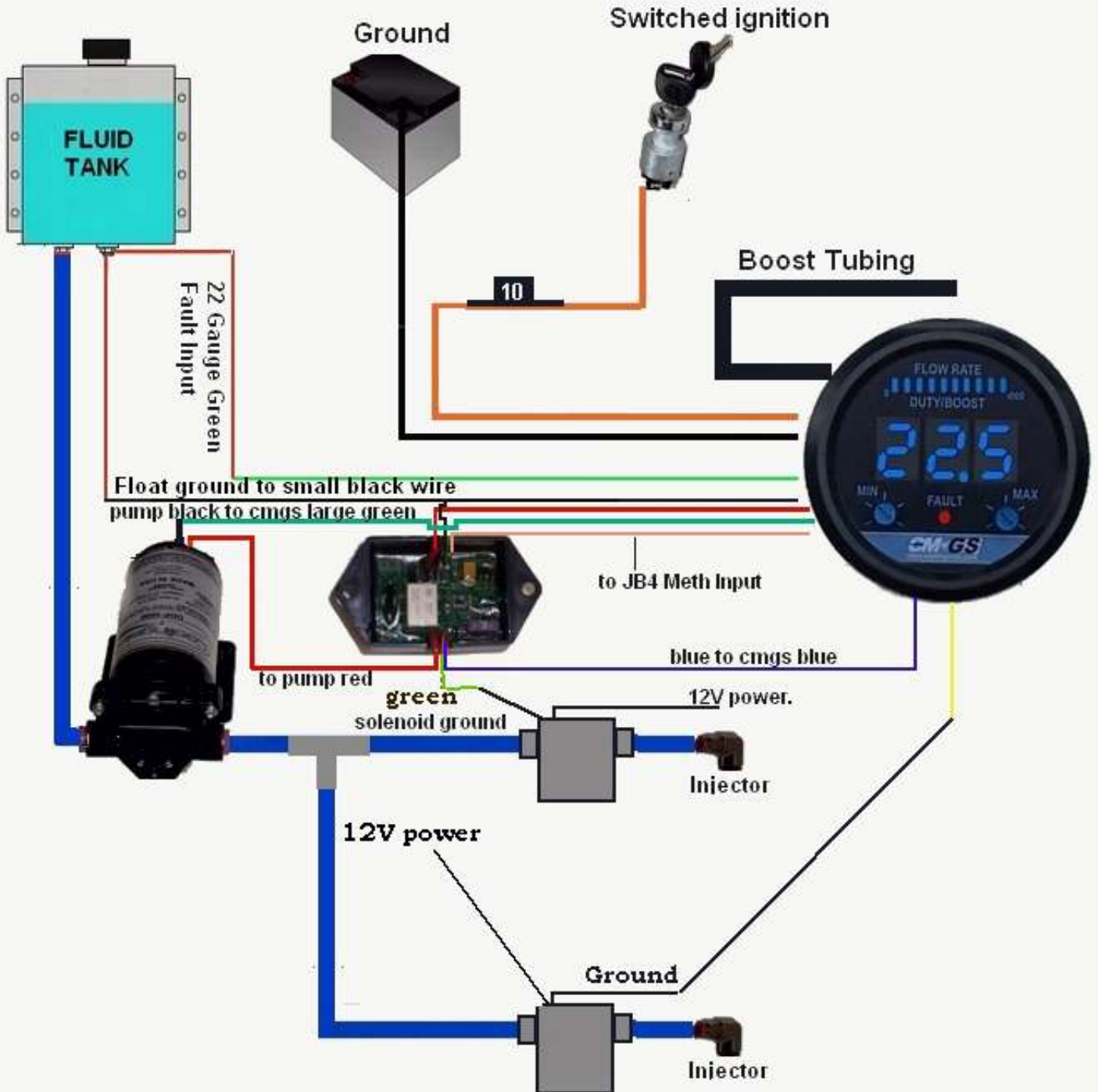
When you first install the FSB by default param #9 is set to 20 and Param #10 is set to 3. After you first install the system set the display mode to 5. This will display our pump value. By default to prevent a 005 you will need to be within 3% of that number. For example if that number is 300 @ 100% DC you will need to stay between 300 and 309 to prevent fault code 005. The 005 can happen at any dutycycle between 25 and 100%, but since 100% DC is most important and easiest to test we will focus on that. Write that number down so you know what the expected value is. If you get random 005 errors over the next couple days turn the failsafe off and watch the display mode and see what the number on the display is. Set param #5 higher to compensate. For example, if your number is 315, you know you need to set param #10 to 6. **Its important to note, if the number substantially different you have a problem in the system and you will need to investigate.** You should not need to set param #10 higher than 10. use the same concept above for 004. Once your done with your testing you can set your display mode back to whatever you were using before (boost, maf, etc). Also don't forget to turn your failsafe (Param #4 back to 002 so its back on)



This setup below is great for those that need a lot of flow. The first nozzle will come at at your MIN controller setting and be progressive until you reach your MAX controller setting. The 2nd nozzle will come on at your MAX setting. This gets you great atomization down low and good atomization up top. This is better than just having to large nozzles come on from min to max.

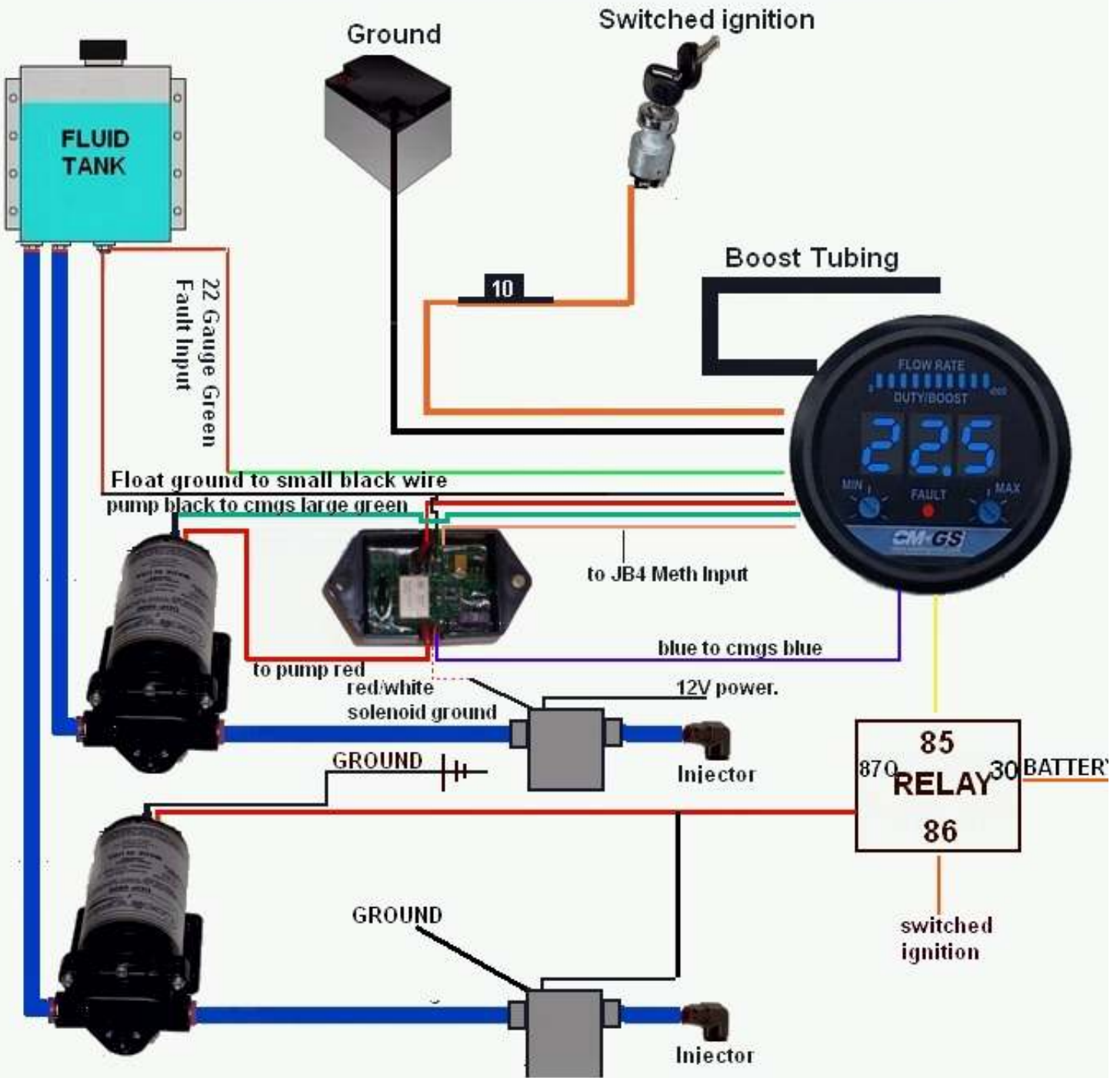
CMGS SYSTEM X Dual Solenoid Kit.

Note: You must set param #3 to 003.

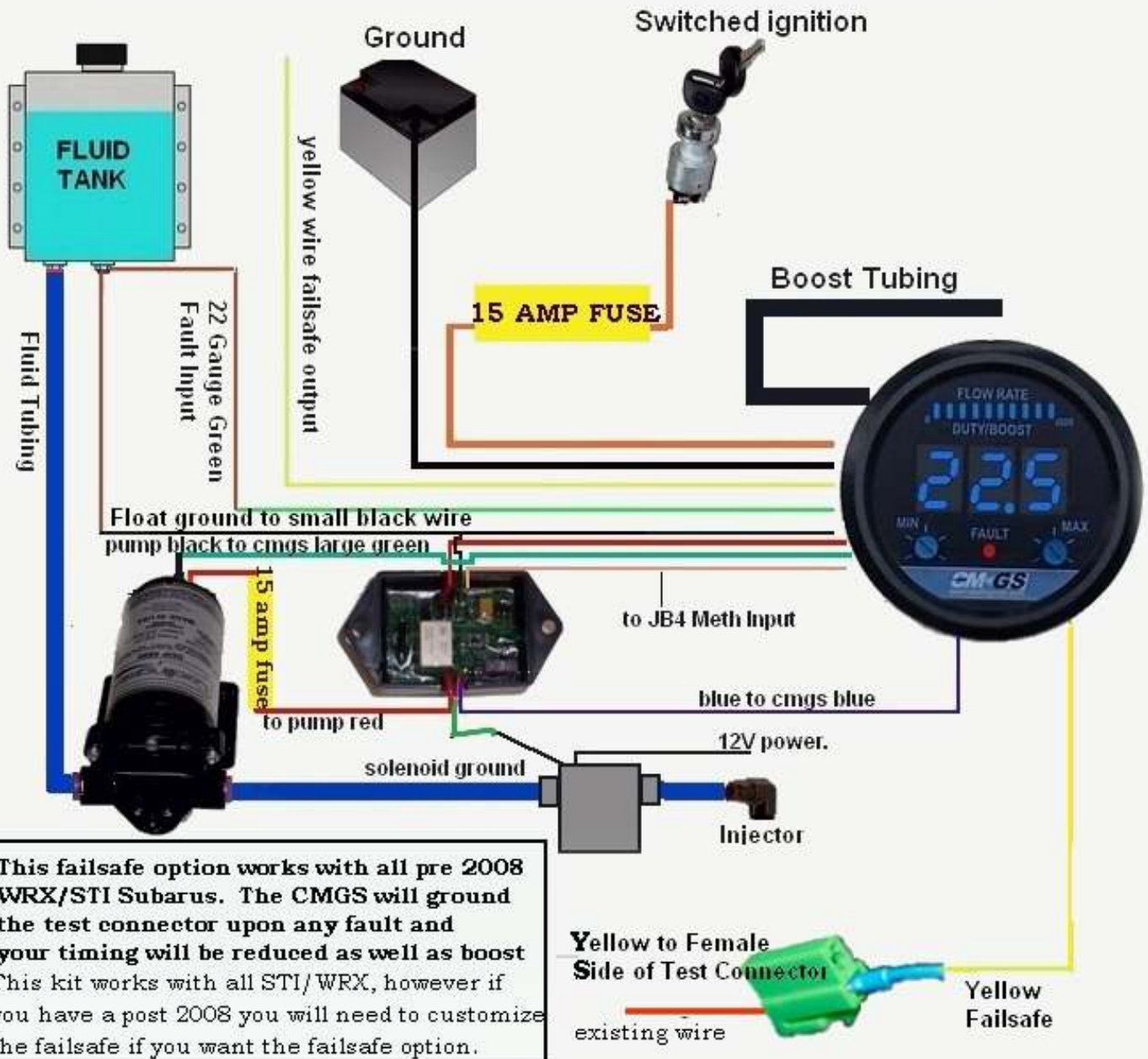


This diagram below shows the setup for this 2 pumps system. Pump 1 comes on at your min setting and runs progressive until you reach your max setting. Pump 2 comes on at your max setting. This requires a 2nd pump, extra hose, injector and solenoid. And relay.

CMGS SYSTEM X
Dual Pump, Dual Solenoid Kit.
Note: You must set param #3 to 003.



WWW.COOLINGMIST.COM
 CMGS SYSTEM X WRX STI WITH SOLENOID



This failsafe option works with all pre 2008 WRX/STI Subaru. The CMGS will ground the test connector upon any fault and your timing will be reduced as well as boost. This kit works with all STI/WRX, however if you have a post 2008 you will need to customize the failsafe if you want the failsafe option.

BMW 335/135 WWW.COOLINGMIST.COM
CMGS SYSTEM X WITH FCB SOLENOID

