

2G MAF in a 1G TEL/GVR4

The 1G MAF has a lot of drawbacks to it, the biggest being that it is too small for enough airflow for high horsepower applications without major mods. The 2G MAF is much larger, with more than 50% higher cross-sectional area to flow through. If you are having problems with MAF overrun (see the Talon Digest Archives for details), you can either hack your 1G MAF up and hope you can tune the car properly with an AFC or similar fuel control, or you can run the Al Blaha MAF (which is hacked, just more expertly, with electronics changes), or you can install a 2G MAF with an AFC. I personally think that the 2G MAF is the best overall choice for a street driven car. If you install 550s at the same time as the 2G MAF, very little tuning should be necessary on the AFC to have the car running as strong as ever, without the MAF overrun problems.

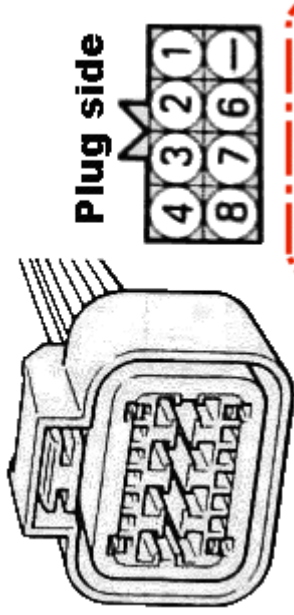
This VFAQ *only* concerns the wiring of the MAF, not the mounting - the mounting/plumbing can be done in so many different ways, it depends on if you have a sidemount or frontmount IC, and many other things. So mounting it is up to you.

Parts Needed:

- 2G MAF
- 2G MAF plug (or ignitor/ Transistor Power plug, or none - see text)
- Molex plugs (optional, not needed if using hacked 1G MAF plug - see text)

Tools needed:

- Wire stripper/cutter
 - Soldering iron
 - Heatshrink tubing
 - Windo Weld, epoxy, or RTV (optional - see text)
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Plug side



Wire side



Here's a look at the 1G plug. It *should* be the same for 1G TELs and GVR4s, except for one wire (#1). Note the pic is looking at the terminal side of the plug (wires facing away from you) on the left and top right. **However, you need to pay attention to the "Wire side" part of the diagram on the bottom right, since that is what you will be looking at as you cut the wires.**

1G TEL			
1 - GW	2 - GL	3 - R	4 - GR
5 - NONE	6 - GB	7 - GY	8 - GO

GVR4			
1 - GY	2 - GL	3 - R	4 - GR
5 - NONE	6 - GB	7 - GY	8 - GO

NOTE that the GVR4 has **two** GY wires, so you need to be careful when connecting the wires - it is best to cut/splice them one at a time to make sure you have the right GY wire. It's not hard if you do them one at a time, as the 1GY wire is the top corner of the plug, the 7GY is **not** the bottom opposite corner, it is 1 wire in from the corner.

Wire use according to the ECU wiring diagrams, 1G	
1 - <i>Idle position switch</i>	5 - None
2 - Air flow sensor	6 - Ground for sensors
3 - MPI control relay	7 - Barometric pressure sensor
4 - 5V power supply for sensors	8 - Intake air temp sensor

Wire use according to the ECU wiring diagrams, 2G	
1 - 5V power supply for sensors	5 - Ground for sensors
2 - Barometric pressure sensor	6 - Intake air temp sensor
3 - Air flow sensor	7 - <i>Volume air flow sensor reset signal</i>
4 - MPI control relay	8 - None

Note *the wires in bold/italics* - their terminology is slightly different according to the Shop Manuals.

Now the hookup to the 2G plug - there are *many* ways you can do this, here are some of them, **listed from the least modifications to the car to the most:**

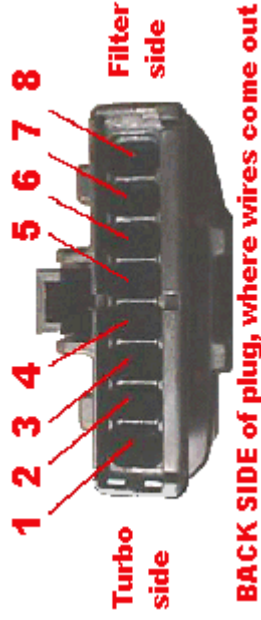
- Make an adapter harness - get a spare 1G MAF from a junkyard, break the stock plug out of it, trim down the circuit board that the pins attach to (or cut the pins from the board), and solder the 2G MAF plug wires to the 1G MAF plug. This allows a pure plug-in solution and makes it a quick swap back to your 1G MAF if needed. If you do this, make sure to fill the space between the pins on the plug from the spare MAF with RTV, WindoWeld, or epoxy (you can wrap tape around the entire plug, fill with epoxy, then remove the tape after the epoxy has dried) so that the pins/wires can't touch if the adapter harness gets beat around. **Make sure** to test the adapter harness on the car before filling in the plug.
- Strip the insulation back on the stock wires, solder the 2G wires to them, and tape the joints
- Do the same as above, but remove the terminals from the 1G plug **one at a time** and use heatshrink tubing instead of electrical tape, then put the terminals back into the 1G plug
- Cut the 1G MAF plug off (remember, **one wire at a time!**) attach the wires to a terminal strip or Molex plug, and attach the 2G wires to the terminal strip or mating Molex plug (this allows you to Molex the stock 1G plug to enable switching back and forth if needed).
- Cut the 1G MAF plug off (remember, **one wire at a time!**) and solder the 2G wires directly to the car's wires.

FYI: you don't have to track down a 2G MAF plug.

The ignitor plug on 91-up (or 92-up?) DSMs is the same configuration, though you'll need to pull one of the wires and move it so that it matches up with the MAF. To swap the wire:

- Depress the tabs on the one end of the tan wire retainer and push/pull it out of the plug
- Grab the orange silicone plug in position 5 and pull it out
- Shine a flashlight in the back of the plug, you will see a tab holding the number 8 terminal in the plug
- Stick a pin/needle in there and depress the tab and the wire pulls out easily. **Do not** just yank on the wire!
- Place that wire in position 5, place the orange silicone plug in position 8, and replace the tan wire retainer in the plug

The ignitor is also known as the Power Transistor, it is the small black box bolted to the intake manifold near/under the coils.



Here are the wire colors for the 2G MAF, late 1G transistor plug, and 2G transistor plug. For the transistor plugs, the first row is the stock wiring configuration, the second is after you have moved the wire in position 8 to position 5. Pictured is an empty plug, and a late 1G Transistor plug.

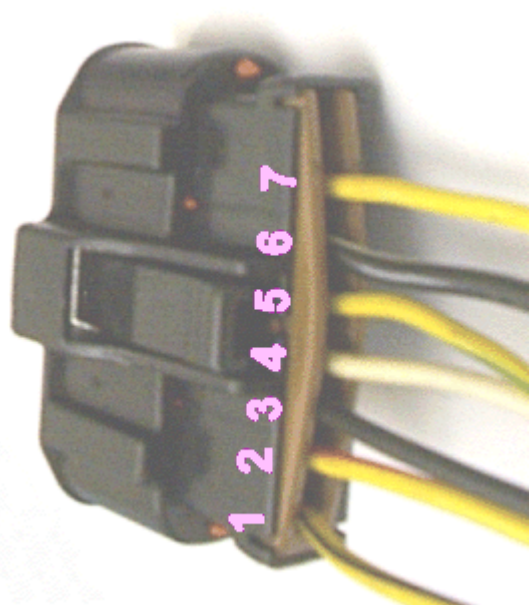
2G MAF Plug wiring	1 - GY	2 - O	3 - LY	4 - R	5 - B	6 - RL	7 - RW	8 - None
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Here's a pic of an adapter harness I've made for one of my cars. I got a dead 1G MAF and broke the plug out of it and soldered the late 1G Transistor Power plug wires directly to the 1G MAF terminals. Once it is tested and working, I'm going to fill the solder joint area with WindoWeld. This adapter will let me easily plug the 2G MAF into a 1G without wiring mods.

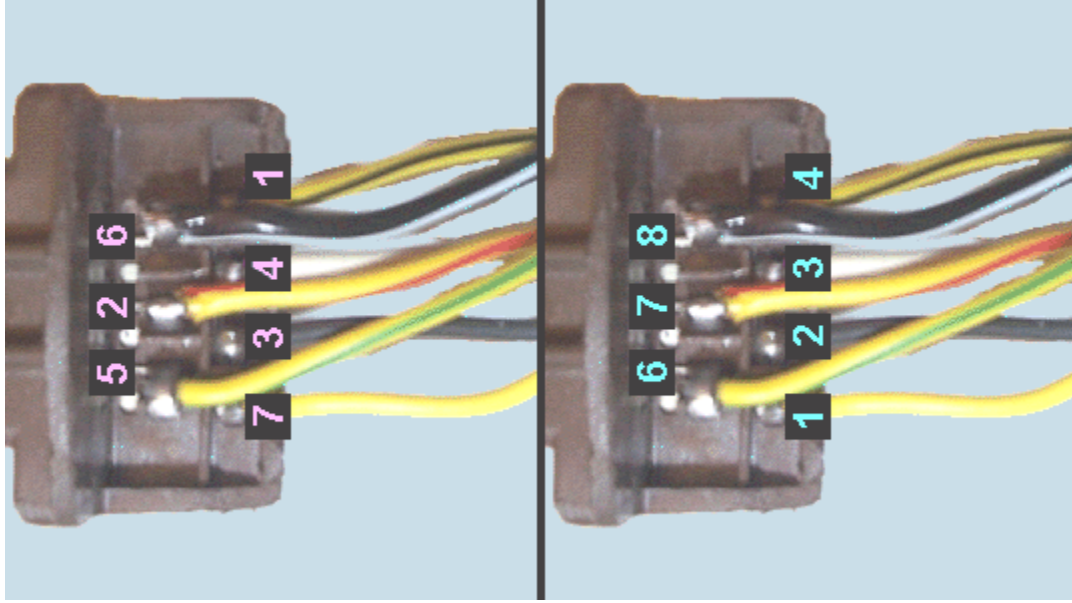


Here's a closeup of the 1G MAF plug that was broken out of the 1G MAF.



Here's a closeup of the 2G MAF style plug. This is actually a late 1G transistor plug, so here's the colors I was dealing with:

- 1 - YB
- 2 - YR
- 3 - B
- 4 - W
- 5 - YG (moved from pin 8)
- 6 - BW
- 7 - Y



Here's another closeup of the 1G MAF plug that was broken out of the 1G MAF. I cut the terminals shorter and bent them away from each other to make sure the wires have no chance of touching. Again, though, I'll be filling that area with WindoWeld sooner or later, to weatherize and protect the solder joints.

This table and pic might be a bit confusing at first, but look at it long enough and it will make sense. The top of the pic has the numbers in **pink** - these are the numbers of *the wires from the late 1G Power Transistor (PT) plug*. The bottom of the pic has the numbers in **blue** - these are the numbers of *the 1G plug terminals after translating them from the plug side to the terminal side*.

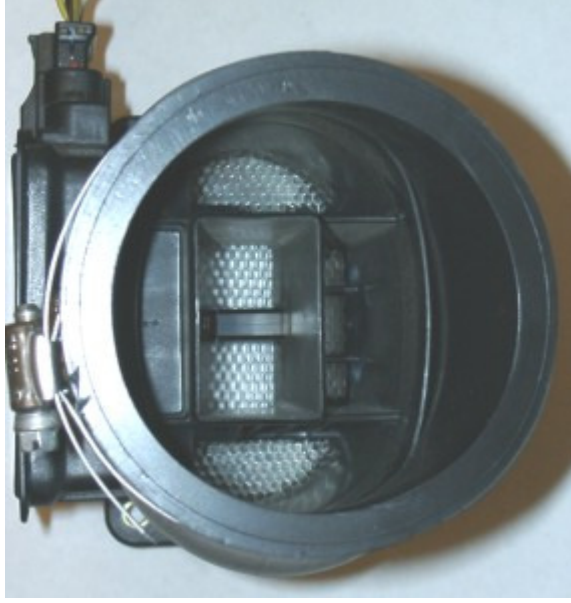
1G PT Wire (# in pink)	1G MAF plug terminal (# in blue)
1 - YB	4 on 1G plug
2 - YR	7 on 1G plug
3 - B	2 on 1G plug
4 - W	3 on 1G plug
5 - YG	6 on 1G plug
6 - BW	8 on 1G plug
7 - Y	1 on 1G plug

Aircan mods

Here is the plug adapter on the MAF. You can also see the black pipe coupler I am using to mount the MAF to a 3" mandrel bend to fit to my Frank3 on my red car. My blue car will use a 2G MAF hose with the accordion end cut off and replaced with a 2.5" mandrel bend.

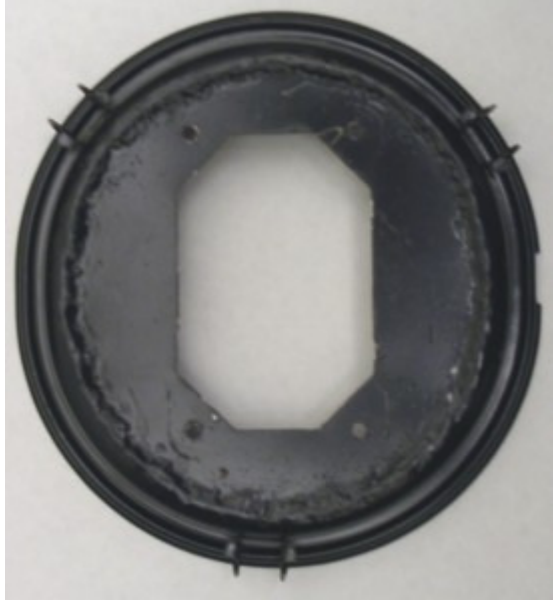


Looking into the back end of the MAF.





The Fernco 1056-33 3" CI/Plastic coupler. I bought it at Orchard Supply Hardware. The internal diameter is a little over 3". It stretches to fit over the MAF, and compresses over a 3" pipe and seals completely. It's a **very** thick rubber coupler. I used one in a previous 3" MAF hose when I was still running a 1G MAF on my 20G, and it held up over 1.5 years use without a problem.



Here's the modded 1G aircan base (with rotten welds - flux wire MIG). I've elected to use 1G aircans for several of reasons:

1. I can get the bases **cheap** from boneyards, so I can keep the originals if needed. (FYI, many Hyundais have similar aircans, and they have one less "hump/dome" in the aircan base, so they are simpler to mod).
2. I already have 1G filters for all 3 of my DSMs, so it saves me money over buying a 2G kit.
3. It looks more stock, which matters to the SmogNazis in Kalifornia.

All I did was cut the top "hump/dome" off of the aircan base in order to make the aircan as short as possible, then weld some sheetmetal to it, and cut out the opening for the 2G MAF inlet. I have another spare base, so I might do some precision cutting of the sheetmetal for it and have it TIG welded, then grind down the welds, so it looks like the base was never modded.



Here's the aircan base set on the 2G MAF.



Here's the 2G MAF from the outlet side, sitting on the 1G modded aircan base.

I'll add more pics later as I finish up the aircan. I'm going to be making mounts that weld to the aircan base rather than the filter side of the aircan, to make switching between a full aircan and a trim ring easier. I'm modding the filter side of the aircan too - I've removed the snorkel and mounts, and will be making a new snorkel that is much larger, and fits directly to the fenderwell, as I have cut out most of the fenderwell where the stock IC outlet comes out (since I have an FMIC). This will make the car look a lot more stealth/stock, and I won't need a [ramair dam](#) like I currently have on the car to keep hot engine air away from the intake.

Questions, suggestions, comments, constructive criticism and/or corrections