

Radiator upgrade

Older Goldwings can have a cooling system deficiency in the 15-25 mph range. The fans are off and the incoming air rate is marginal for good cooling. Prolonged use at this speed (slow traffic, parades, creeping along) can cause the bike to run hotter or overheat (coolant puking). Going uphill, pulling a trailer, hauling a passenger, etc., makes the situation worse. The 2006 and newer Goldwings have larger fans and radiators to lessen this problem.

On the trip where my Goldwing was [crashed](#) I put the Goldwing into an overheating situation. The road to the cabin is 0.6 miles of windy, STEEP, one-lane road where you go 15-20 mph...the poor air zone. Add in warm temps, a passenger, and pulling a trailer and by the time I was at the cabin the bike was puking coolant. On subsequent trips up the hill I used my [reversed fans](#) and [manual switch](#). The temperature increased some but never went farther than one notch on the gauge.

While my bike was apart for repairs I decided to see if I could fit the larger 2006-later fans to my 2002. When I ordered Honda repair parts I also ordered larger radiators.



I wasn't sure how much bigger the new radiators would be but they are noticeably bigger...a little over 30% to be exact. The core is 1 1/4" taller...



...and an 1/8" thicker.



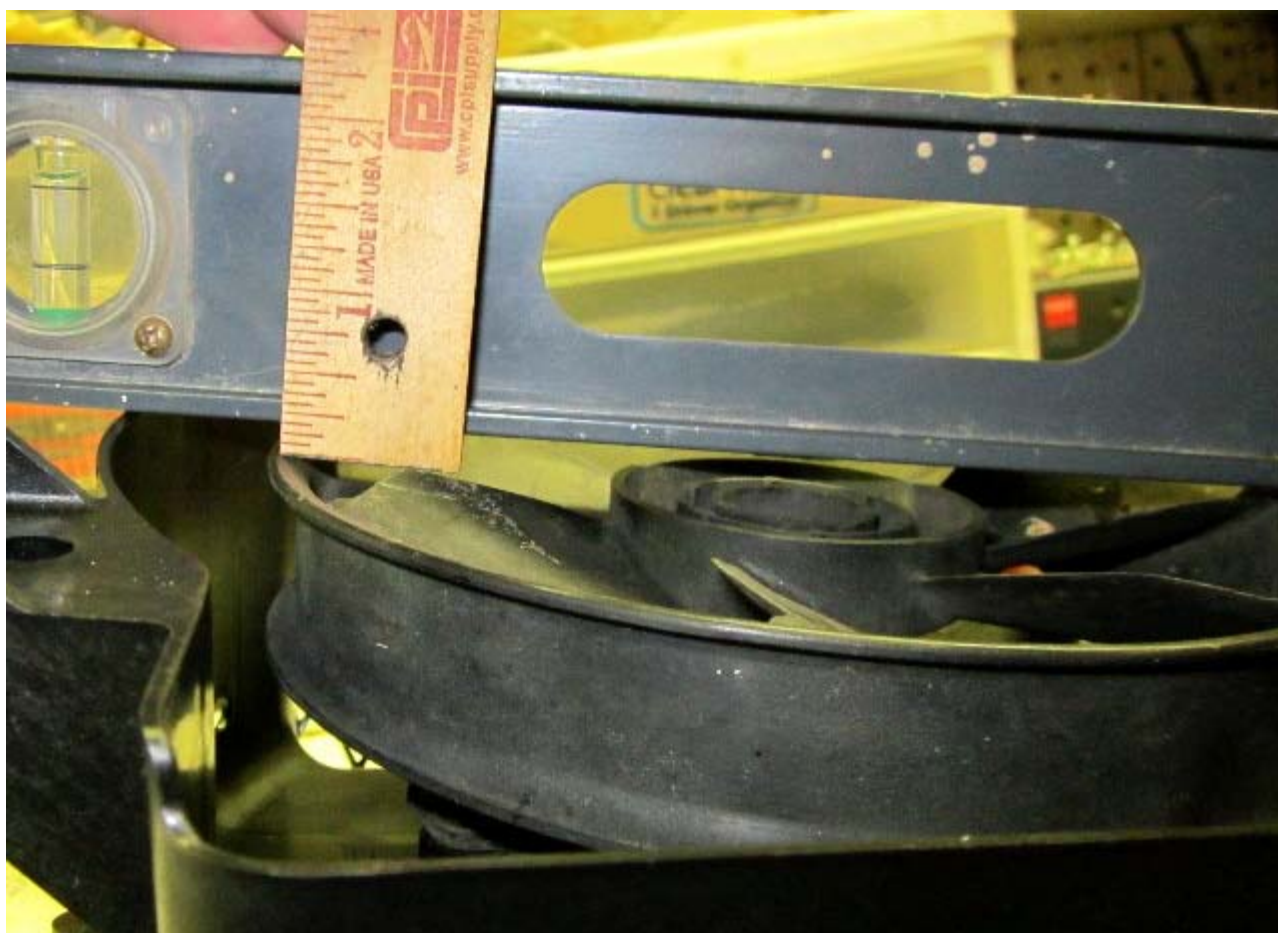
It didn't take much piddling to see the new radiators wouldn't work with the stock shrouds...



... so I ordered new shrouds (left) and [screens](#).



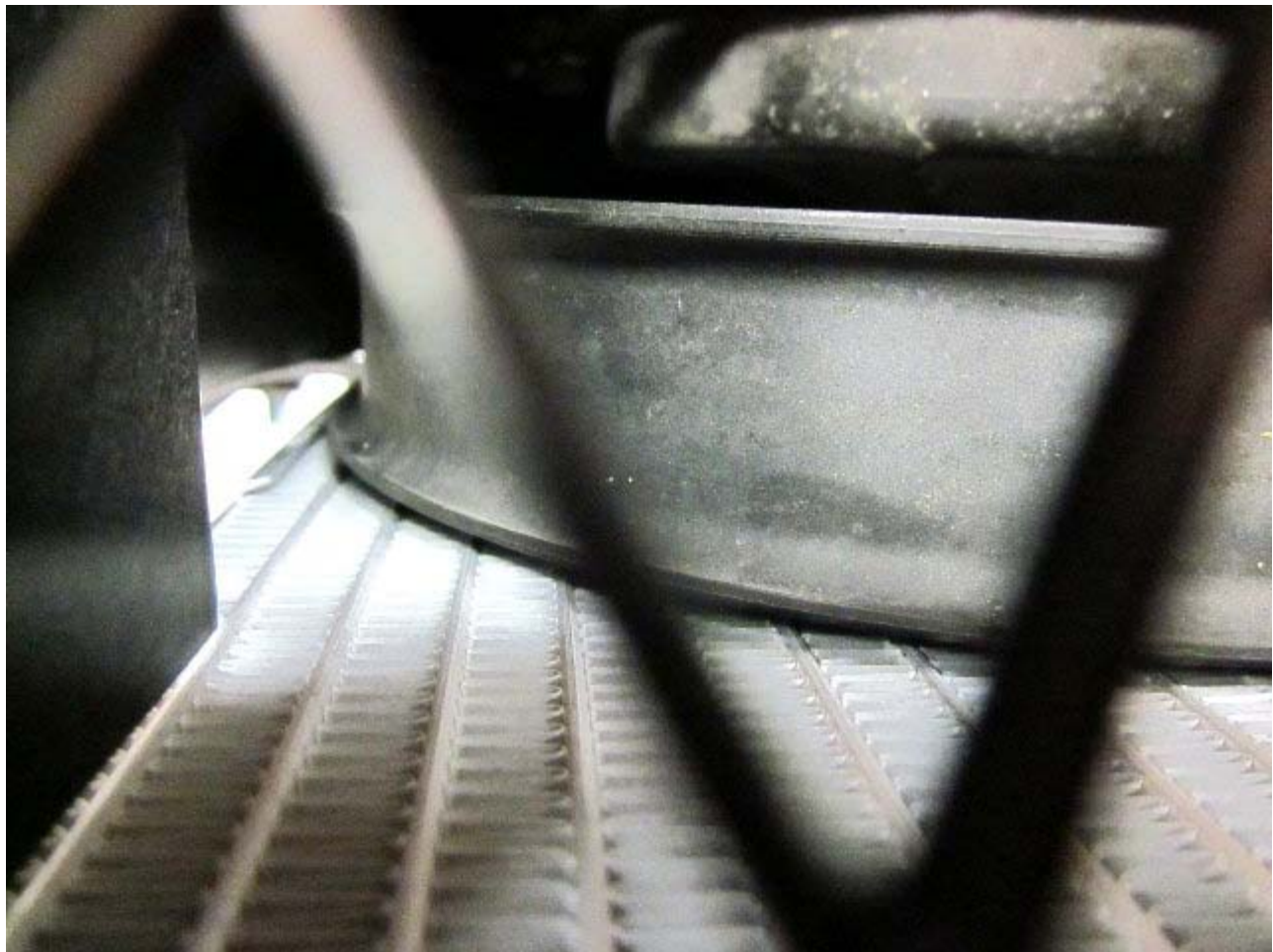
The newer shrouds have larger air openings as well.



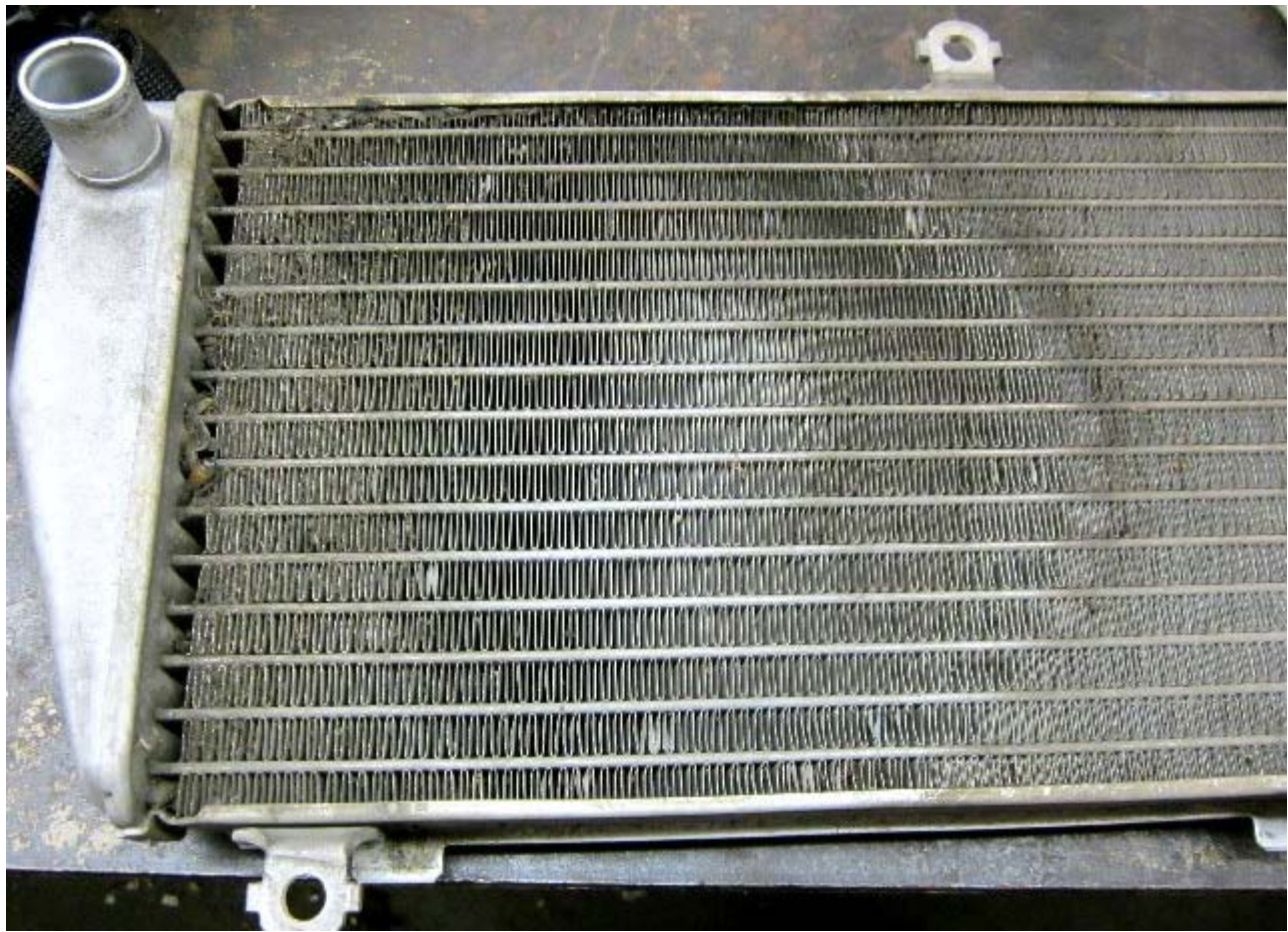
I was concerned how much fabrication would be involved in getting everything together. I was pleased to find the old motors bolted right into the new shrouds. The (reversed) fan assembly was about 3/16" away from the plane of the shroud.



I used a washer per fan mounting bolt to space the assembly closer. Two washers caused the fan assembly to rub the radiator.



Here is the clearance with one washer spacing the fan motor.



As can be seen by the old radiator the fan overlaps the radiator. On the new radiator the entire fan blows through the radiator.



Here is the new radiator/new shroud/old fan assembly.

While I had the fans and radiators out I wanted to also do some airflow testing, so I bought an airflow meter off Ebay. I measured the airflow of the different configurations:

Stock - air being sucked through towards the front
Stock setup with wires reversed to blow air through the radiators
Reversed - fan assembly reversed, wires reversed. This is the normal 'reversed fan' setup.

I don't have a fancy airflow assembly to measure the total volume of air coming through the radiator, so I measured the airflow at eight circular points in the fan flow and averaged them. I used the stock airflow as a baseline. Here is what I found:

Stock - 100% (since this is the baseline).
Stock setup with only the wires reversed - 12%. This is proof positive you should not 'reverse' the fans by only reversing the power leads. There's almost no airflow through the radiator due to the pitch of the fan blades.
Reversed - 72%.

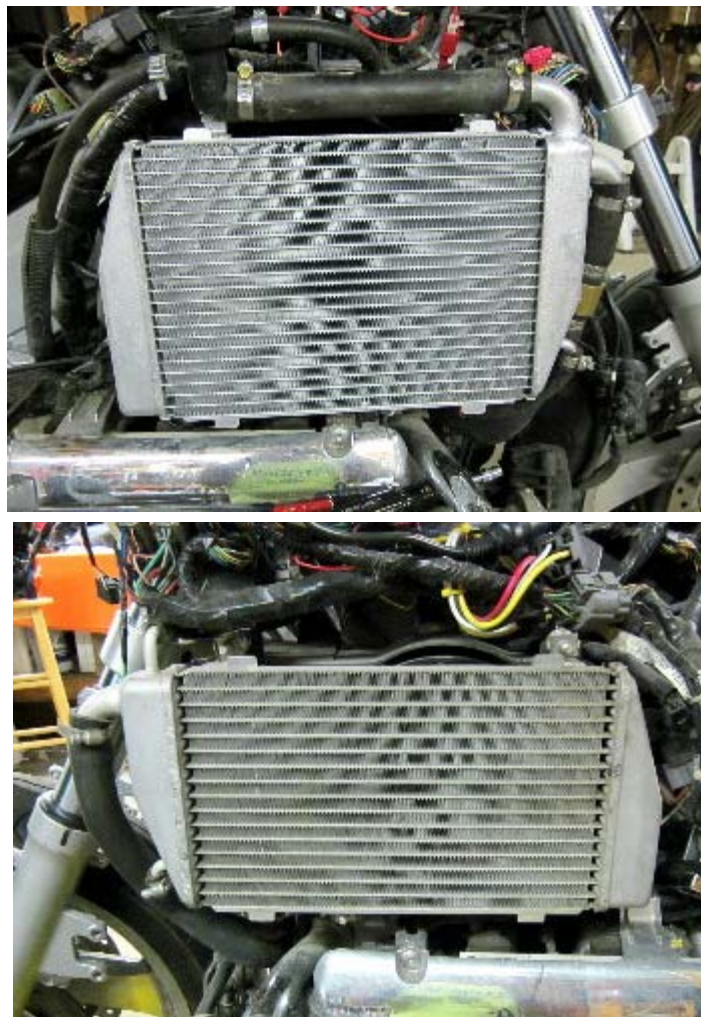
I was surprised by the results. I would have guessed the reversed airflow to be higher judging by the way it feels to your hand. A company called [Electric Fan Engineering](#) sells a kit for reversing the fans on the GL1800. I think the 'magic' of their fans is they are designed to blow more air through a radiator and work better reversed than the stock fan assemblies.

I think some people will look at this (non-scientific) data and conclude that reversing the fans is bad because of the decreased airflow. I'll disagree. Four years of using my reversed fan/manual switch setup has shown the reversed fan airflow does a fine job of cooling. I also look at it this way...the stock setup has to flow more air because it fights the incoming air. The reversed setup adds to the incoming air, so the fans don't need to produce as much airflow to put the same amount of air through the radiators.



It was unknown if the new shrouds would use the old frame mounting holes, but they did! Here the right radiator is installed.

NOTE: I got rid of the worthless plastic vent tubes years ago. The larger radiators won't fit with the vent tubes.



Comparison of the new and old radiator size.



The filler neck didn't look right. It stuck out and there's no way the front fairing would fit with it like that. A check of the parts fiche revealed the newer bikes have a different neck so I ordered one.



The left radiator installed.

I tested the new radiators and everything worked fine. The reversed fans put out plenty of air. There was enough air to spin the flowmeter over seven feet away.



The new neck is oriented differently and is [shorter](#).



The new filler neck in place. The two nipples for the crossover hose and overflow tank hose point inwards and makes more sense than the previous filler neck.

Note the antifreeze drops on the radiator...I overfilled it as I seem to do every time. Makes the bike stink of antifreeze for awhile.



With the front fairing on there is plenty of room for the new radiators.

Time will tell, but I'm calling this a successful project. The only other upgrade I could have did was use the fans from Electric Fans Engineering, but I'm gonna see how these do. I suspect they'll do the job just fine.

Here are the parts I used:

- Right radiator (19010-MCA-A61)
- Left radiator (19060-MCA-A61)
- Right shroud (19015-MCA-A80)
- Left shroud (19025-MCA-A80)
- Right radiator grille (19105-MCA-A60)
- Left radiator grille (19205-MCA-A60)
- Filler neck (19039-MCA-A61)

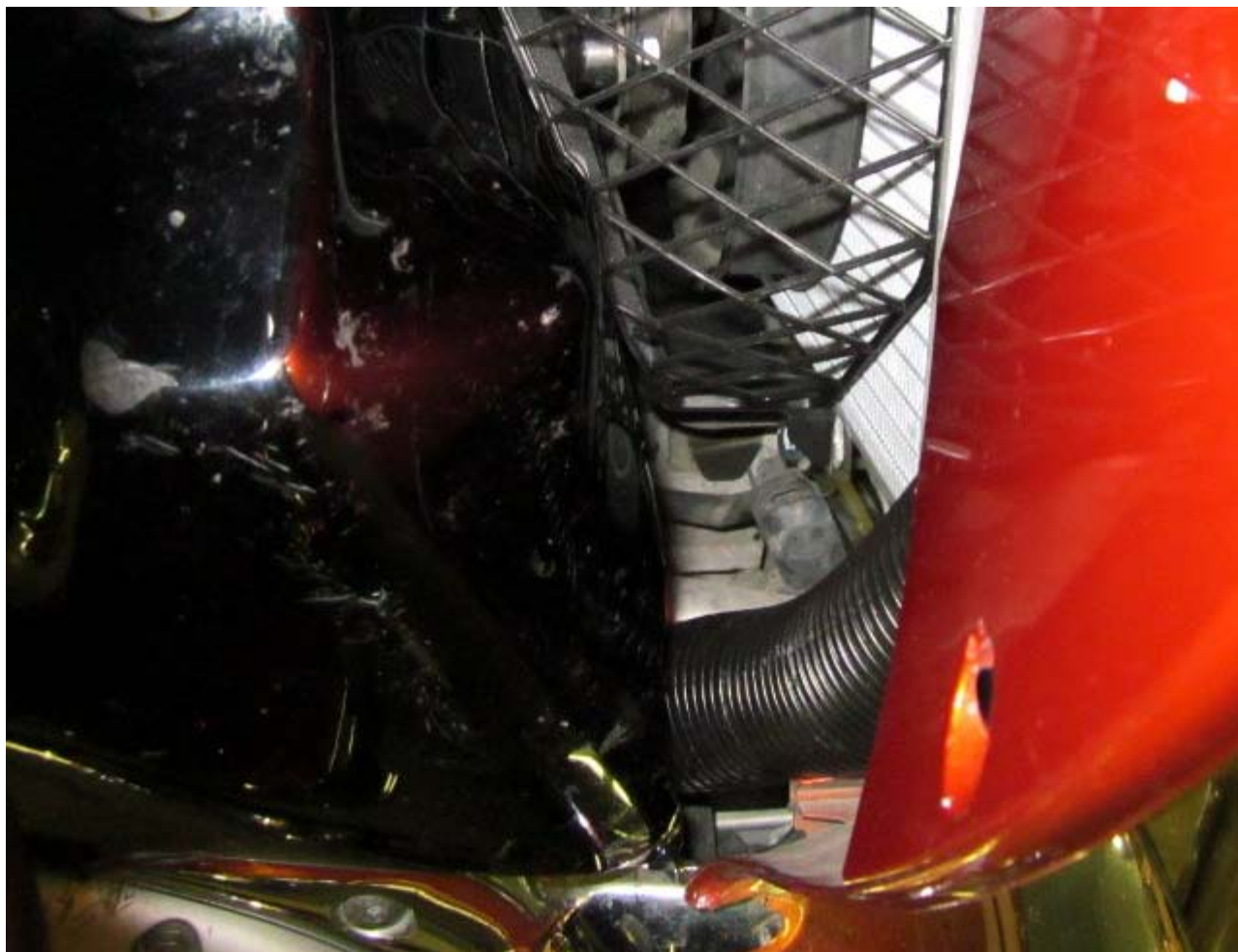


When I received all the frame pieces I was able to reassemble the bike, and I found a couple areas of conflict due to the larger radiators. The larger radiators pull the radiator hose upwards. This causes a fitment issue with the inner fairing covers. I could have bought the correct hoses but that would have been a pain to take the bike apart again and snake the hoses through the motor. Instead, I trimmed the covers. You can barely see them anyways.



There was a similar issue with the black motor cover. Some trimming did

the job.



Here are both trimmed covers bolted in. Trimming the covers makes them ten times easier to install than normal. A section of the water hose was exposed so I put some ziploam over it. No one will ever notice this. The larger opening might let a little more air in.



When I put the top shelter on the left storage pocket interfered with a cable bundle that was raised due the larger radiator. I used a heat gun to flatten the bottom for clearance.

Update 2013: After several trips on the Goldwing I'm pleased to report the cooling system is rock solid. A couple times my friend's Goldwing trike's temperature has went up a couple notches on his gauge whereas mine has stayed cool.

I recently received this email from Gerry in Oregon who did this mod:

"I wanted to let you know that I completed this upgrade on my 2003 wing in the spring and just got back from a 4,300+ mile trip towing our leasure-lite tent trailer (riding 2 up with my bride). We crossed the continental divide a half dozen times and climbed numerous significant other grades in high ambient temperatures. Much to my delight the temp gauge never ran above the mid point, ever. Best upgrade ever!..."



[E-mail me](#)