

GLLC Tech

Project: **Electric Fan conversion with Griffin radiator**

Feature Tech Article by Mark Dixon

The purpose of this project was to allow as much packaging space as possible for my V8 engine conversion to a '79 FJ40. I was installing a GM 5.3l engine with 4L60E transmission, married with an adapter for the stock Toyota transfer case. The overall drive train is very long, so it was to be packaged as far forward as possible.

Other reasons for this modification were:

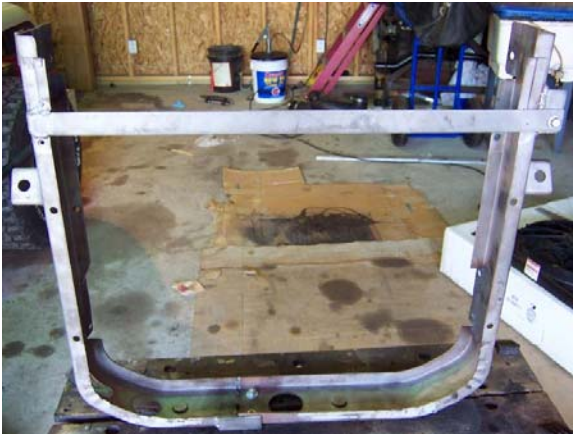
1. I wanted to avoid having to fabricate a fan shroud for the GM clutch fan
2. I didn't think the GM fan would line up in the center of the radiator for maximum performance
3. I needed a new radiator anyway, so I wanted to use an "off the shelf" radiator to minimize initial cost and replacement
4. Having an electric fan could allow more options for cooling (having the fan stay on for a short period of time after the engine is turned off, or while driving in high water).

I had read that many people were using a Lincoln Mark VIII electric fan because it's dimensions were suitable for the stock Toyota radiator support. I was attracted to this fan rather than an aftermarket fan because 1) they are OEM, so the design has been validated for well known conditions, and 2) they are cheap, and can be found at many junk yards.

I also had read that there was a particular aluminum radiator from Griffin (Summit Racing sells them) that fit the stock Toyota support.

More on the Fan and Radiator to follow at the end.

MODIFICATION OF THE RADIATOR SUPPORT



(Front View - Support Only.jpg)

The modification of the radiator support was rather easy. Although I used a welder to attach the brackets (and I'm a novice, so the welds were poor), it could be done with

rivets (the higher strength 1/4" rivets, like the ones that are used to attach the window motors). There were only 3 basic mods that had to be done.

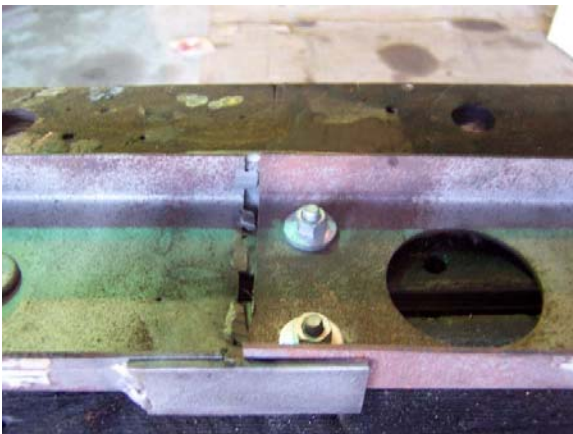
- 1) Upper support member (the flat strap that goes across the front)
- 2) The base of the radiator support
- 3) The sides - for attaching the fan and clearance for the hoses

The first task was to make the radiator support separable into 2 parts. The Summit radiator would not slide into the existing support because of the inlet and outlet were too close to the edges. Also, the radiator was just barely larger than the support (by about 1/8"). I first cut off the original top strap and replaced it with 1"x1/8" steel flat stock. I welded one side to the support, but left the other side long by about 1 inch or so. An angle bracket was welded on to the radiator support side.



(Top support modified.jpg)

Next the base of the radiator support was cut in 2 parts. The location was arbitrary. 2 pieces of 1" angle iron were used so it could be fastened together. One side of each was welded, and the other side was left long to accept a hole for a fastener.



(Bottom support modified.jpg)



(Bottom support modified – bottom view.jpg)



(Rad support separated.jpg)

Portions of the rear radiator support were bent up (out of the way of the radiator inlet and outlet) to allow the radiator to fit, then the radiator was temporarily installed so that the holes for the upper support and the lower brackets could be located. That was about it for the radiator!

To complete the mod, more of the rear radiator support was bent up to allow the fan to be fastened.



(Bends for fan.jpg)



Bends for fan 2.jpg

Next the fan was placed into position and the holes for the radiator inlet and outlet were located and drilled with a hole saw (2 different diameters were necessary).

(Fan mod for hose - top.jpg) (Fan mod for hose - bottom.jpg)



(Fan mod for hose - top.jpg)



(Fan mod for hose - bottom.jpg)

Many of the existing holes in the rad support were used, so it wasn't necessary to drill new ones to mount the fan. Once the fan was lined up, holes were drilled in the fan's plastic shroud. J-clips were used to allow a fastener to secure the fan to the radiator support. Basically, the J clip slides over the plastic edge of the fan where the hole is, so it gives the bolt a place to thread into without needing access to the back surface (it is not possible to locate a nut on the inside of the fan while the radiator is in place).



(Fan installed rear view.jpg)

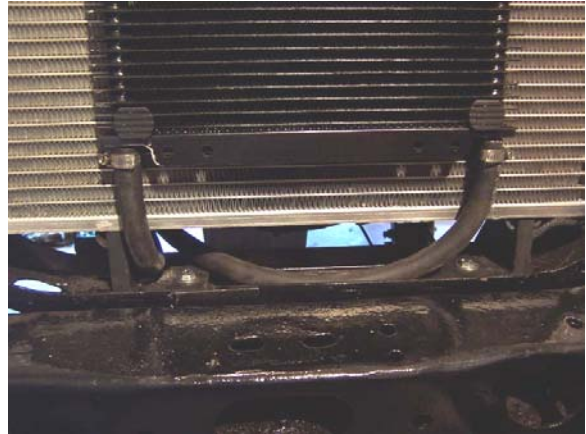


(Fan installed bottom view.jpg) (J clip.jpg)

L brackets between the radiator support base and the bottom of the radiator. That was pretty much it. The fan support was painted and the whole package was mounted to the vehicle. An adjustable thermostat was purchased to control the fan.



(Radiator Installed.jpg)



(Rad installed - lower view with L brackets.jpg)

Now more on the Fan and Radiator...

FAN

The fan was from a '93 Lincoln Mark VIII, but the best years are '97 - '98. Those year had the highest CFM rating. You can also use a fan from the Ford Taurus, it's pretty much the same (year doesn't matter). The part number molded with the plastic. The part number for mine was F3LY 8C607 A . The year is the single digit after the F (in this case '93). The fan CFM rating for the non '97-'98 fans are 1100 on low and 1850 on high. CFM rating for the '97-'98 fans are 1800 on low, and 2225 on high. Fan was \$40 from a local junkyard.

RADIATOR

Summit Racing has an "off the shelf" Griffin radiator that works. Because I wanted to use the stock GM hoses, I had the inlet and outlet changed (instead of using an adapter). The summit part number is GRI-1-25182-X. The fan dimensions are W=22", H=19", T=3". Upper outlet = 1 1/2", lower outlet = 1 3/4". Price was \$189 + shipping.