

Installation of Cold Case Aluminum Performance Radiator in 2005 GTO

Performed October 2015

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Car is one owner, 90,000 miles, manual transmission

Factory radiator failed by getting a crack in the plastic tank on the passenger side, which is a very common problem for these cars.

I was fortunate to have Mr. Eric Casperson, Product Manager for Max Performance, provide me with a test unit to install in my car for verification of fit and function from a new batch of the Cold Case Aluminum Performance Radiators they had recently received.

This is how it went.

Here is the new radiator in all its shining glory:



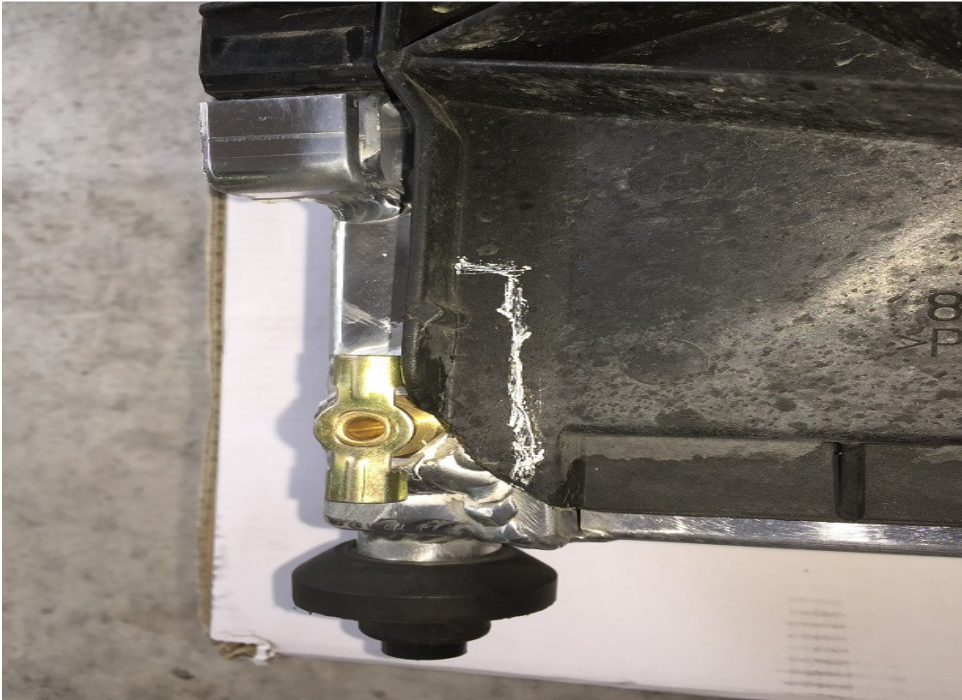
Here is the radiator bay ready to get its new super cooler:



Test fit of the fan assembly before installation in the car – shroud is contacting the drain petcock preventing the assembly from dropping down enough for the tabs to engage the radiator retaining clips:



Simple solution – trim the shroud (marked in white). This is not a critical stress area so this should not create any issues:



Here is the fit after completing the shroud modification:



As you may have noticed from the previous picture, the tab does not slide all the way into the retaining bracket. This due to the location of the bracket. The top bracket stops the tab from fully engaging once the ridge on the tab contacts the bracket:



The factory radiator had brackets that allowed the tab to completely seat and then also locked it in by latching on to the ridge on the tab. I realize this type of bracket is not as easily duplicated in aluminum (factory is plastic), however after installation I can say that the fan assembly is sufficiently secured.

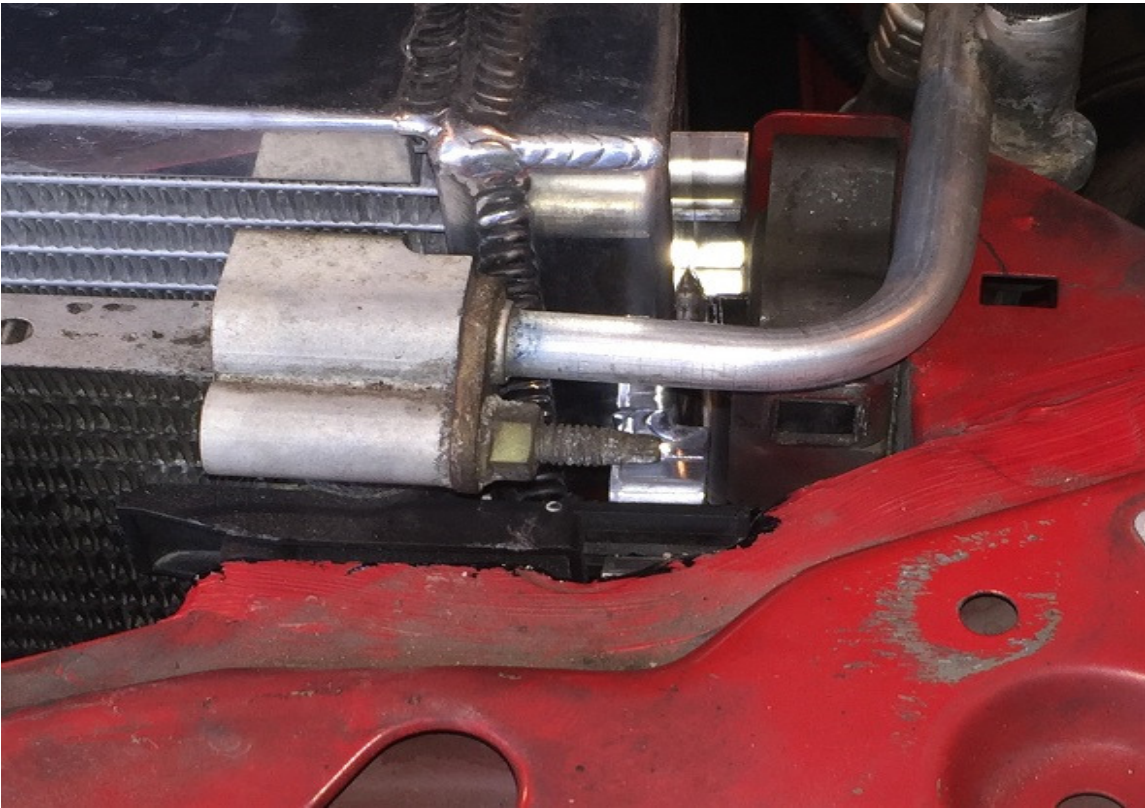
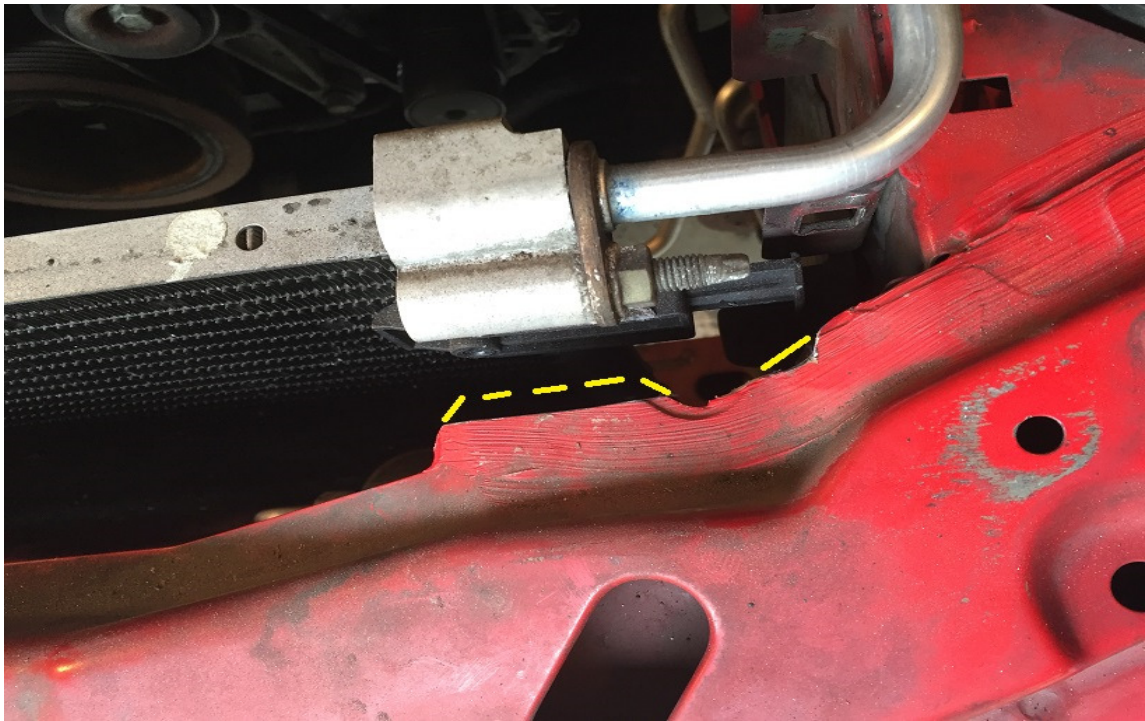
The next “issue” was more related to the car than the radiator. The larger radiator exaggerated what was already an issue, but could be worked around with the factory radiator. The AC condenser mounting tab/clip on the upper driver side contacted body sheet metal when raised, which prevented the condenser from being able to lift up high enough to lock in the tab to the radiator retaining bracket. Despite trying (for way too long) to work around this by taking the screw out of the clip so it could flex, manipulating the radiator and condenser in multiple positions, - I decided the only fix was to remove some of the sheet metal:



Another photo of the interference issue:

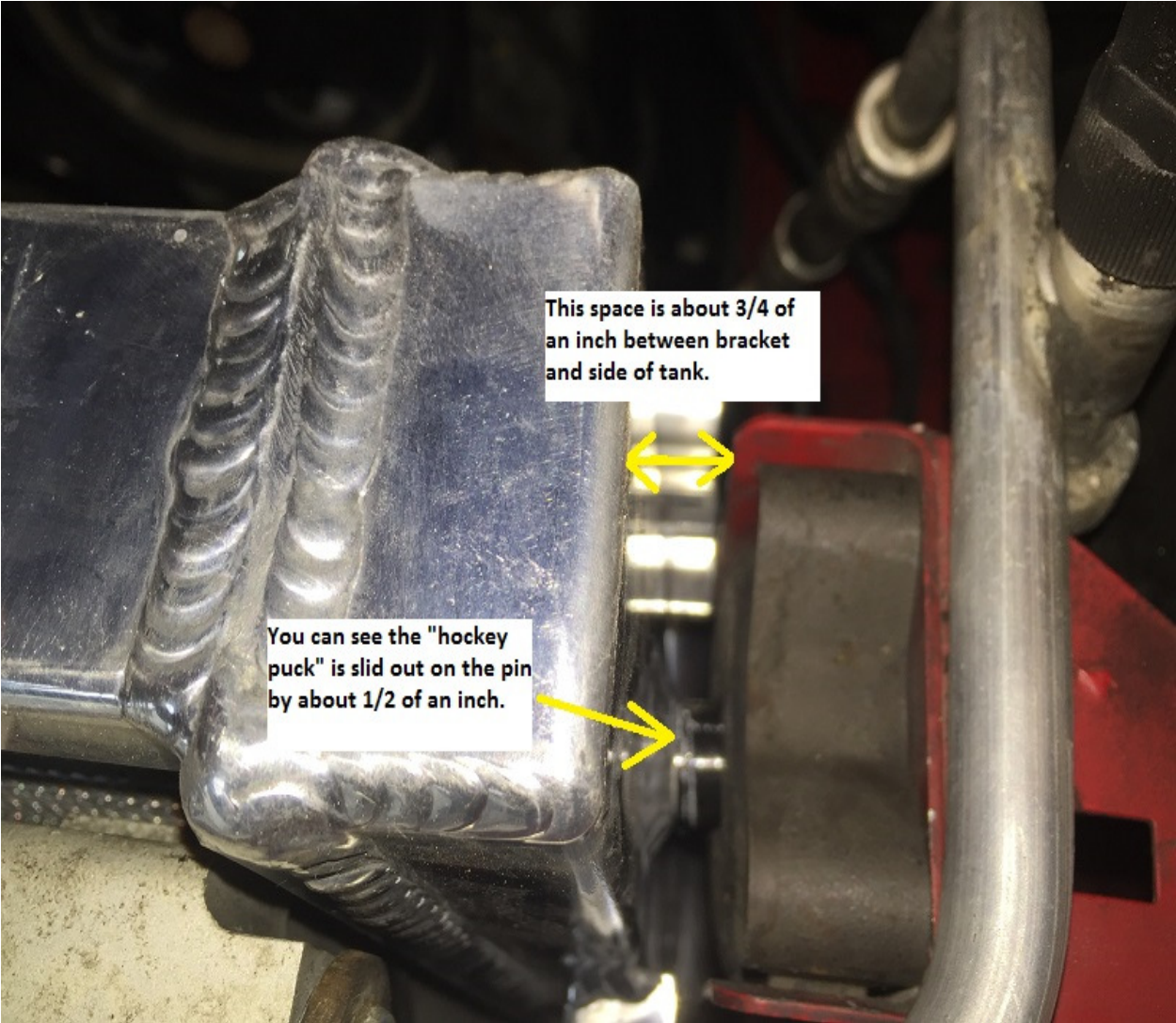


Once the sheet metal was removed, piece of cake:



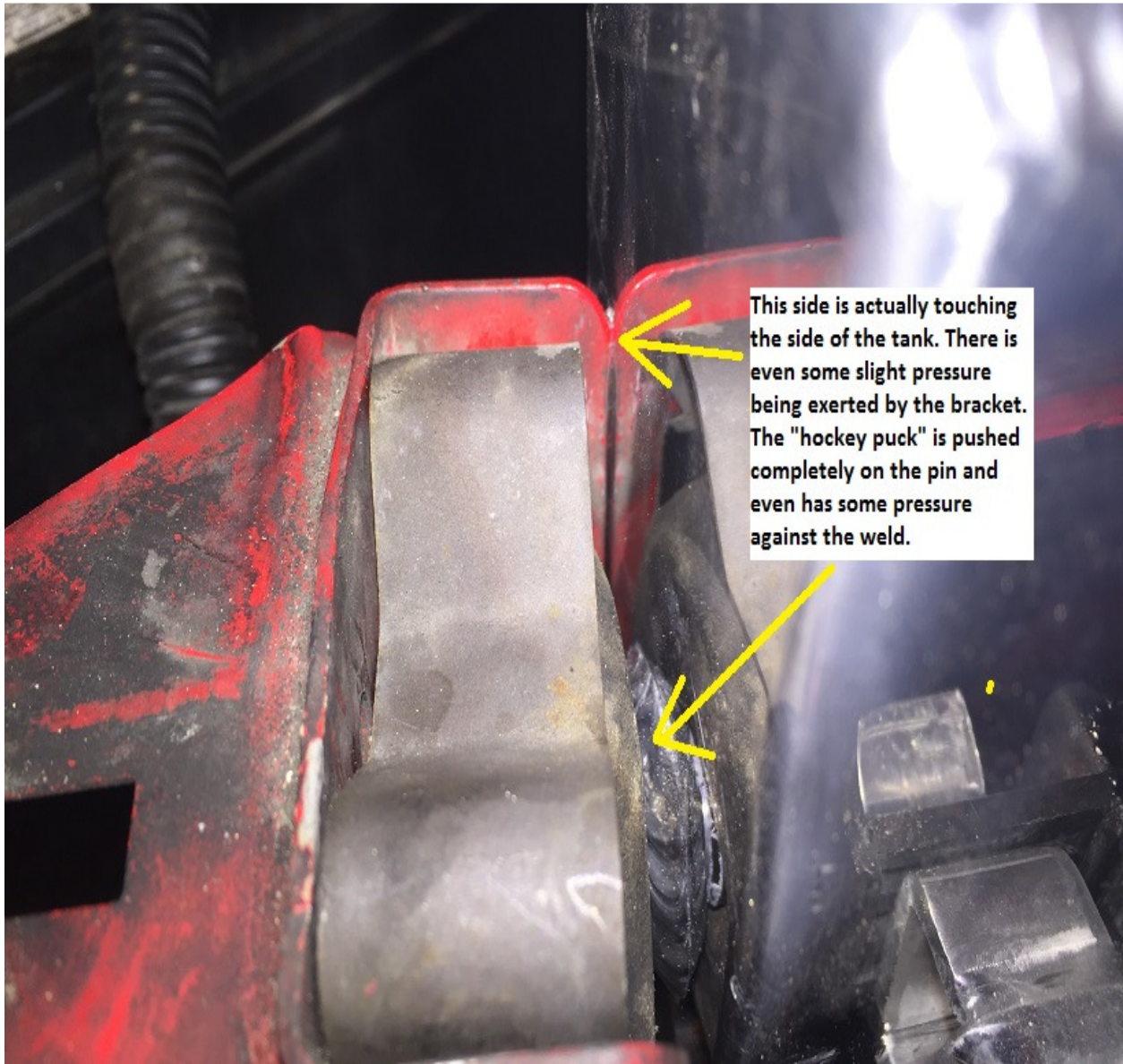
And onward.....

Now I checked the fit and found that the radiator seemed to be biased toward the passenger side. There was a gap on the driver side between the side tank and the "hockey puck" bushing retaining bracket:



However on the passenger side.....

There was not only no gap, but it was actually pushed up against the “hockey puck” bushing retainer steel bracket:



Solution – remove more sheet metal. I ground down about 3/16 of an inch from the bracket where it was touching the tank. This still left plenty of material for the bracket to maintain its integrity required to retain the “hockey puck” and spring clip. I now had about 1/16-1/8 of clearance between the bracket and the tank (I coated the ground edge with some black chassis paint):



Due to the “hockey puck” being fully seated it is not possible for the radiator to shift toward the bracket and regain contact. The bottom mounting pins and bushings are fully seated, so now this seems to be a good fit with the radiator fully floating on all 4 rubber mounts.

Observation: It appears that if the bottom mounting pins were moved toward the passenger side by about 1/8 inch this would eliminate the clearance issues. At least on my car. I work in the auto industry and I know that no 2 cars are the same. Another car might have the opposite problem, but I obviously can't speak for them.

Anyway, this seems to have eliminated the hurdles to get the radiator fully installed with all accessories, hoses, clips etc. back in place. Final fit of the radiator, location of hose connections and mounting tabs all seem to be perfectly fine for safe and secure operation. With the exception of the couple of mods I had to do the car, this was a fairly straightforward install and overall I am very happy with the way it fits. And it even looks awesome!



Only thing left is to snap the top radiator cover back in place.
Ummm..not so fast.....



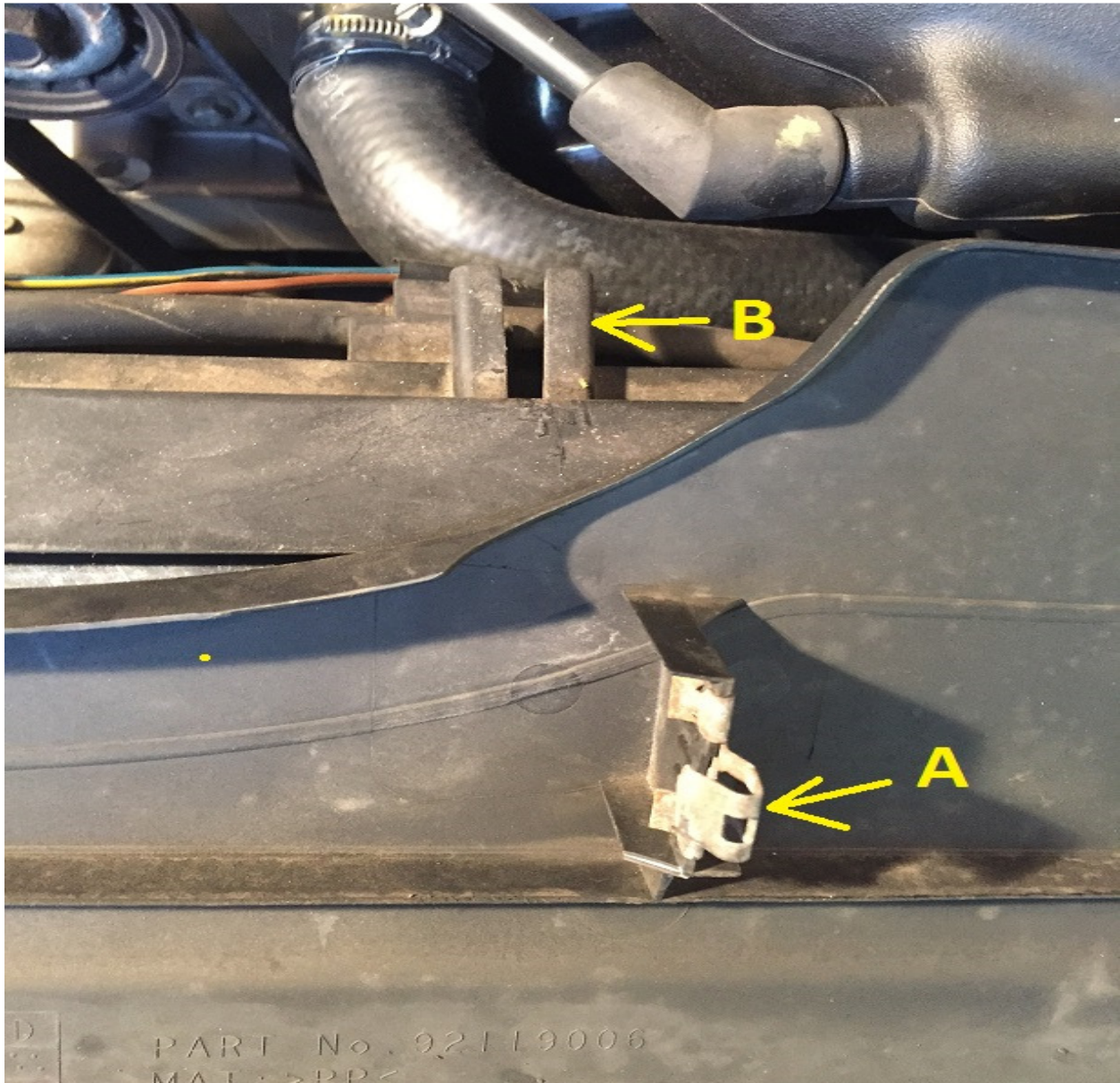
The driver side of the cover is located in place by the coolant recovery tank, and the retaining pin holes line up okay.

Due to the radiator being a little thicker which moves the fan shroud back toward the engine, the retaining pin holes on the passenger side do not align:



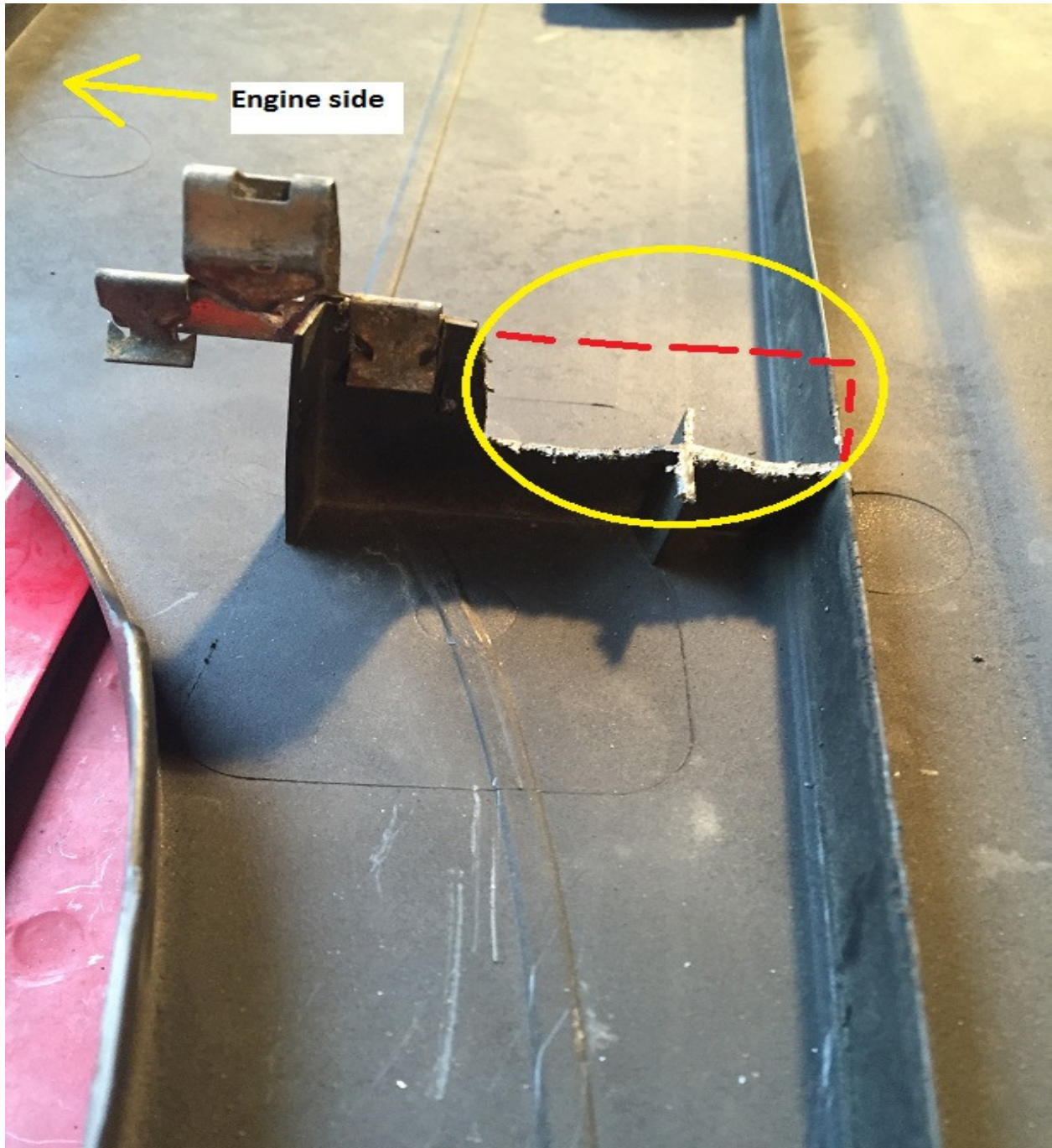
After investigation, the fix is not bad.....

There is a mounting tab and clip (A) that are attached to the underside of the cover and engage with a slot in the fan shroud (B):

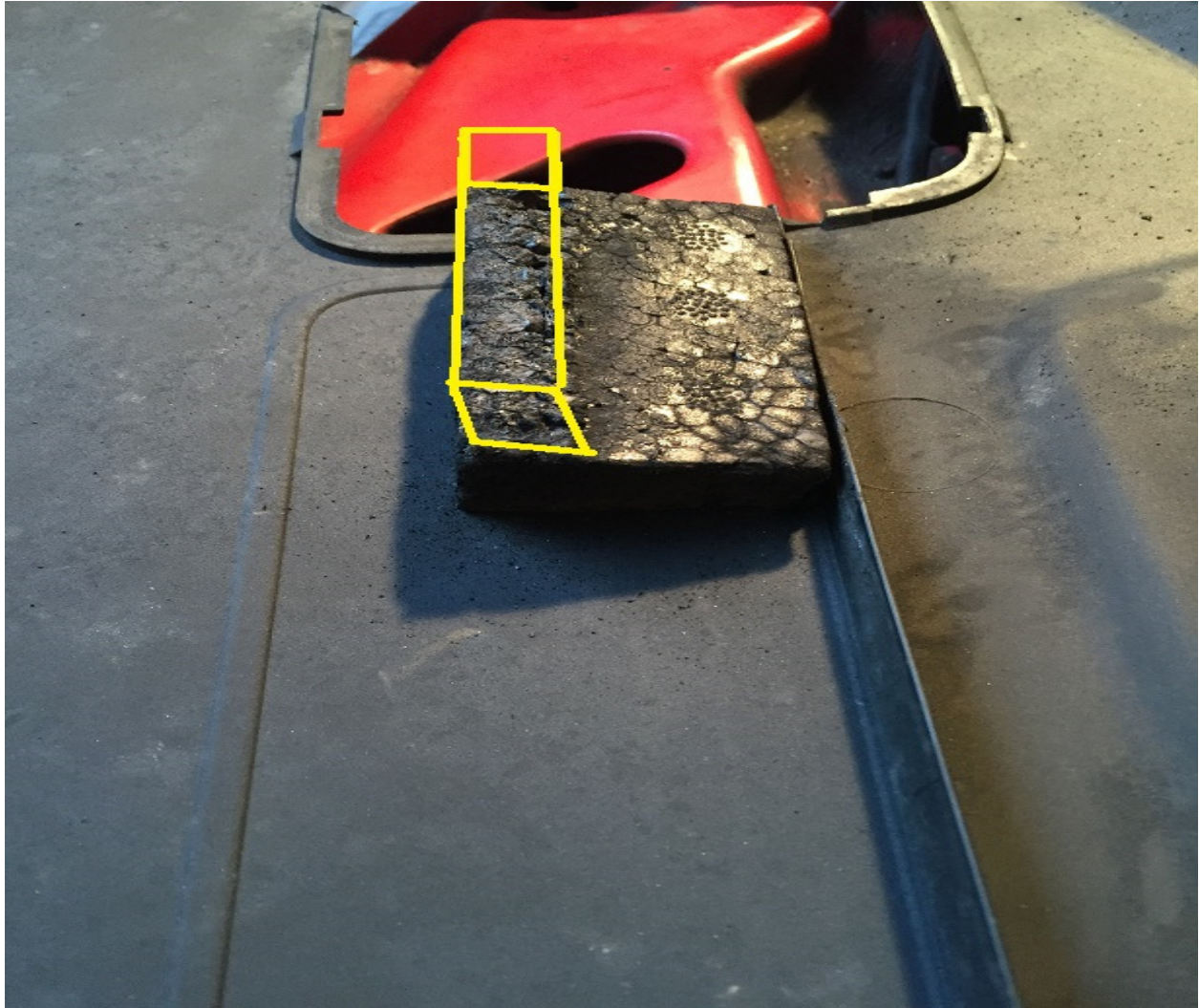


Since the fan shroud is now closer to the engine the clip attachment point is causing the top cover to be out of alignment.

This clip is very sturdy and has teeth that bite very hard into the plastic (PIA to remove!). Because of this the mounting tab can be trimmed and the clip can be relocated with only one of the “jaws” engaged on the remainder of the mounting tab closer to the engine:



There is also a Styrofoam block that is sort of an “L” shape. This rests on top of the radiator (sorry, I didn’t get a before pic – the yellow outline shows where the part of it was that I removed):



I had to trim off the top so now it is just a flat piece (same picture without my awesome sketch – lol):



Continued.....

Once this was done, I realized the radiator cap was going to need more room. A small amount of plastic trimmed away and problem solved:



Here is the cover installed, near factory height so there is no problem closing the hood and it still retains a stock appearance:
(I know, I am missing a retainer pin...I think my dog stole it...)



And you can see the radiator cap cover where I had to trim is barely noticeable:



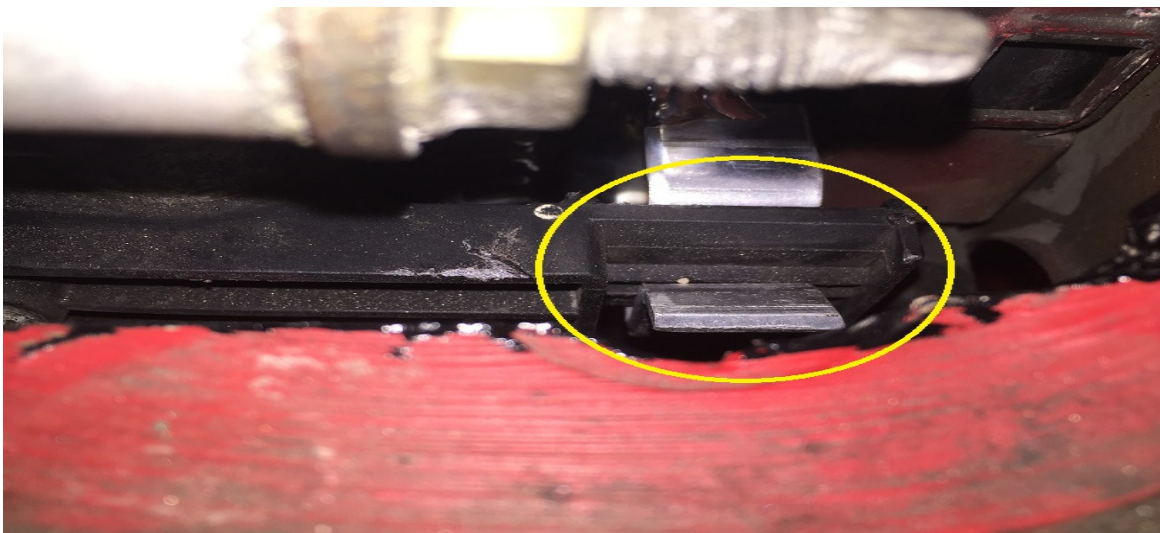
This is one of the nicest parts I have seen, and after years of building pro-street cars basically from scratch and modifying many of my “toys” in the past I can easily say that all-in-all it went VERY well for an aftermarket part installation.

If I had to make one suggestion it would be regarding the AC condenser and fan assembly mounting brackets. The brackets themselves, since they don't clamp/latch on to the tabs on the condenser and fan like the factory unit, could probably be a bit bigger allowing more engagement of the tabs.

As you can see from this picture only about ½ of the tab is actually seated - this is the condenser, lower, driver side:



And the upper condenser bracket also only has about half of the tab seated:



Fan assembly brackets/tabs are basically the same way.

Again, both the condenser and fan assembly seem to be plenty secure, but a little more bracket might instill a bit more confidence in that. I will keep an eye on it and if I see anything starting to shift or get loose I will get back with you.

That's it. Installation complete. Off to the races.....

Thank you Eric and Max Performance!!!