

Comparing a Universal Northern radiator and a Direct Fit® radiator manufactured by DeWitts.

Recently I read a report on the Corvetteforum that said a universal radiator sold by Summit fit just as good as the DeWitts Direct Fit model (A77) for 1977-82 models. I thought I would purchase one of these radiators and see if this was true. The following report is what I found out.

This radiator is manufactured by Northern Radiator Company based on the identification stamped into the end tank. This unit features a press formed end tank that was very nicely made. The core size is 26.25" which is perfect for the 1977-82 corvette. The header size is 3" x 18.5", which is exactly the same size we use and the core is furnace brazed in a Nocolok type furnace. This is the best form of brazing available today because it provides a leak free core without the need for epoxy.



The above photo shows the DeWitts unit in front and the Northern in back.

I believe the Northern unit will cool equal to the Direct Fit® model however; it is definitely not the same fit. All aftermarket aluminum radiators will require the rubber cushion to be trimmed slightly to allow for the thicker core to be installed in a 77-82 Corvette. The DeWitts unit is no different but that is where our modifications end. The Northern unit would require many changes to get this unit to fit and it would seem this would eliminate any saving that were enjoyed by purchasing a universal unit.

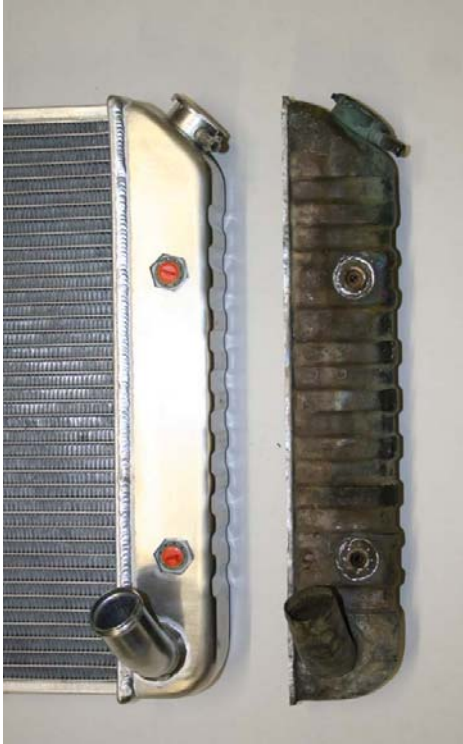
The first problem I noticed was the open U shape channels on the top and bottom of the core. These channels only have two bends versus the four bends on the Direct Ft. The “hat” channel design was what GM used on all copper type cross flow radiators and they are much stronger. In addition to the strength, the hat channels face inward while the U channels face outward. This adds an additional ¾” to the height of the core on each end and it creates major fitment problems.



Unlike the earlier U type saddle brackets, the factory core support for 1977-82 Corvettes uses a full-length plate to support the radiator. The Northern channel interferes with the bottom plate and the radiator will not fit down into the rubber saddles. Since the radiator will not fit all the way down, the upper brackets will not fit over the top without major modifications. The above photo also illustrates the automated MIG welds around the tube and header joints. Note that the lower connection is a straight tube, angled slightly into the center of the core.



The above photos illustrate the actual differences in height as a result of the aftermarket type channel. The Northern (left) sits far above the upper mounts. We concluded that the lower channels would have to be cut off completely in order to get the radiator to sit down enough.



The factory filler neck shown above.

DeWitts Direct Fit® Outlet tank vs. stock unit (above)

In the upper right photo you can see where the upper bracket and cushion attaches to the header section. This simply isn't possible with the inverted U channel on the top of the core. The upper channel would have to be cut off as well. Since the filler neck is mounted so close to the header, there would be no other option than to move the upper bracket.

The filler neck did not include a nipple for the hose and the port was facing straight back, which was not going to work well.



Note the automated Mig type welds on the Northern



Manually Tig welded by expert craftsmen provides the finest in aluminum welding.



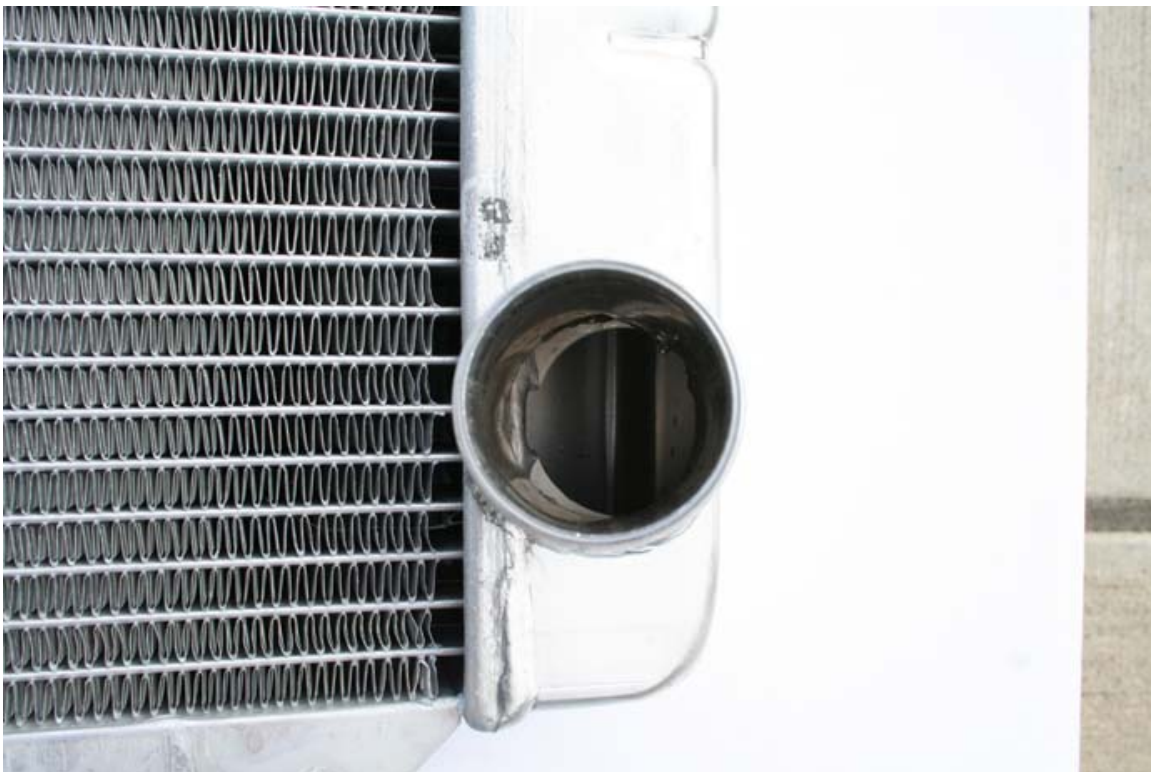
The 1977-82 era actually used two different radiators. 1977-79 models used a 1 1/2" hose and 80-82 used a 1 1/4" hose. To consolidate both models into one, DeWitts uses a special reducer tube, which is double beaded for either size connection. The smaller section can be simply cut off if restriction is a concern. The tank section below the inlet narrows down to allow for clearance of the fender shirt. Note the weld around the tube!



The northern inlet is mounted lower and it is only 1 1/2" size.



Mig welding (wire feed) is used with automation equipment, when speed is the only concern. The process is very dirty and the appearance of the welds are less desirable.



The Northern lower connection is a straight $1\frac{3}{4}$ " connector. The tube angles slightly inward toward the core. I also noticed the hole punch in the end tank was $1\frac{1}{2}$ ".

The factory connection for 1977-82 is 1 ½” and the tube must radius upward in order to clear the suspension.



This photo is from the underside of a 1980 Corvette. With the proper 45 degree fitting, the hose clears the stabilizer bar by about ¼”.



The Northern unit does not include a drain connection.

Conclusion: The Northern radiator is a high production, mass-produced radiator for racing applications. The automated Mig welds are not very pretty but functional. The core is Nocolok brazed and very well made and the end tanks are press formed. I would have to say this is a very nice product for the money. As far as it fitting into a Corvette, I don't see that as a viable option.

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