

## Porsche Oil Coolers & the "Ruf Radiator"

Leonard Zechiedrich

The Porsche 356 and 911 engines are often referred to as air-cooled. However, it is probably better to call them oil-cooled since it is the intimate contact between the "cooled" oil and the bearing surfaces which cools the engine. It is this "cooled" oil that is the topic of discussion.

According to Karl Ludvigsen, author of Excellence Was Expected, oil temperature gauges have been standard on the 356 since 1950. The gauge scales usually ended at 250°F or 280°F. Around 1957, the gauges were modified to use a new system of bars. These bars provided little information about the actual temperature of the oil. A red bar was placed at the high end of the scale to indicate a potentially dangerous (hot) condition.

Since 1953, the 911 came with a gauge to accurately determine engine oil temperature. Around 1975, as in the case of the 356, the numbers mysteriously disappeared and were replaced with a series of bars. It is the opinion of some "experts" that the number scales indicating degrees were purposely removed to prevent Porsche owners from worrying too much about oil temperatures.

From 1969 to early 1973, a front-mounted radiator-style aluminum oil cooler was available from Porsche. From 1973 to 1983, Porsche incorporated a loop (trombone) cooler into the right front wheel well. In 1980, a 28-tube all-brass oil cooler was used in place of the loop cooler on higher performance 911s. This too was eventually upgraded mid-1984 back to a radiator-style cooler, then to its last evolution which included an electric (active) fan.

As suggested by Bruce Anderson, Porsche guru and author of Porsche 911 Performance Handbook, the optimal temperature range for the Porsche 911 oil-cooled engine is 180°F to 220°F. Also, according to Anderson, oil temperatures greater than 230°F are potentially damaging. Yet, the old loop-style coolers started their thermostatically controlled cooling at 182°F and later the electric fan coolers started at 244°F! Again, some "experts" have stated that as material design improvements were made, like synthetic oils, engine parts, and gaskets, engine oil temperature became slightly less critical. However, most "experts" agree that cooler oil is better for engine longevity as long as the engine is operating at an efficient temperature of 200°F.

Cheaply manufactured aftermarket coolers are a waste of time and money. They can literally cause more problems than they are worth. Some have oil lines and fittings that are too restrictive, some are mounted in locations with little air flow, and some are poorly designed and therefore too difficult to wrestle into position. One particular compact type of cooler, which connects the oil tank to the engine oil cooler, made no detectable difference by gauge or infrared gun. However, it did make a difference in the thickness (...or thinness) of my wallet! Some cheap coolers have also yielded little results and lots of frustration. Few things are more irritating than lying on your back while trying to fix an oil cooler leak with hot oil dripping on your arms and face! **Value is not added to a Porsche by adding inferior parts!!**

Through both research and my own testing, I have found that front-mounted oil coolers exposed to fresh air are best at keeping oil temperatures down. This is especially true for cars that have either been modified for more horsepower or for track cars. Since installing a Ruf front-mounted radiator-type oil cooler on my modified 930, the oil temperature gauge has never exceeded 210°F. Keep in mind that front-mounted oil coolers will also increase the total capacity of the oil circuit.

If considering the installation of a front-mounted oil cooler, the following should be taken into account.

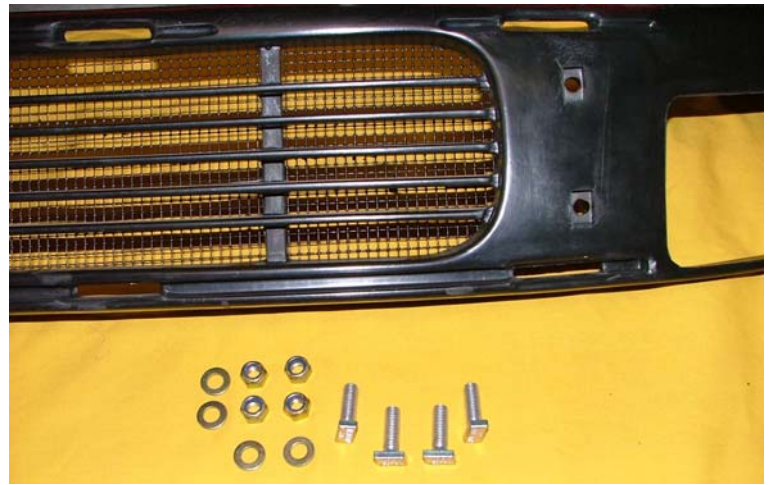
1. Quality of Parts - Remember that cheap rarely equals quality.
2. Attachment Points - Is drilling into body panels required? Does the cooler plumb into the factory lines? If not, it has not been well thought out or designed.
3. Weight & Efficiency - Look for well-engineered kits. Big clumsy angle brackets that screw into the body may be quick and easy, but are they really a good addition to your car?
4. Ease of Installation - Kits that have been well-engineered will be easier to install and fit better than a "one size fits all". Look for kits that have been designed for your specific Porsche model.

If your car needs to be fitted with a new spoiler to accommodate your new oil cooler, keep in mind that polyurethane (PU-R-RIM) is a type of plastic material as seen on the 944, 993, 996, Boxster, etc. It is lighter, flexible, and more forgiving than fiberglass. This will be a huge advantage the first time you hit a curb! It is more cost upfront, but will result in fewer headaches later.

The pictures and captions below show the Ruf oil cooler and polyurethane front spoiler, which I recently installed on my 1979 930.



All brackets, bolts, hose fittings, and clamps are anodized. All components are covered - right down to the zip ties.

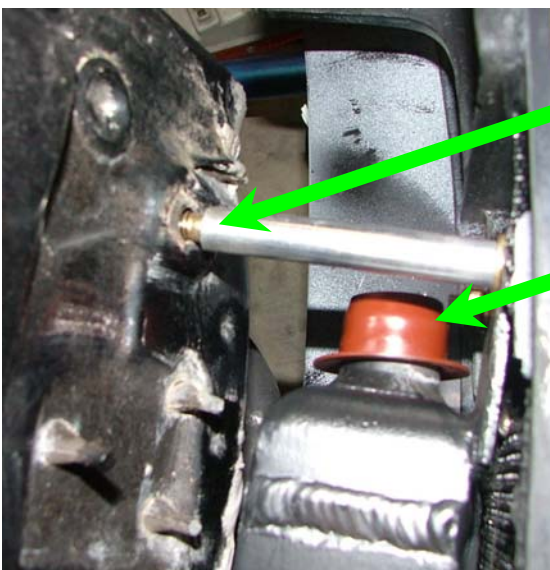


Oil cooler mounts cleverly to the ABS grill, which allows the entire assembly to bolt directly to the body.

Ruf kits include all necessary hardware. Each component is engineered to the highest quality.



Notice the oil cooler is contoured to match the front of the 911 suspension/body pan.



Oil cooler mounts to existing body points.

Model specific, pre-bent oil lines (see above left) will connect to the cooler here.



Polyurethane spoiler wraps around cooler & grill, mounting only to factory points.

**Fertigprodukt!**