



Overview:

Moving the oil tank to the front of the car has several benefits; weight placement, higher oil volume, easier access and servicing. The problem historically has been that to do so required extensive modification to the air conditioning "well" to accommodate large round tanks.

The area required to get the desired volume exists in the well, it just needed a tank that fit the well and not the other way around. Our tank was designed specifically to fit in that space. All in-and-out lines were placed strategically to minimize the installation effort and to maximize its efficiency. The original tank was built and tested for two years, compiling information for the production tanks to ultimately benefit from. Many of the things I learned while building oil tanks for Porsche 962's have been incorporated into the final design for 911's. These tanks are 100% hand made.

A Few Important Hints

Prior to final installation be sure to wash the inside of the tank with warm water and dish washing soap such as Dawn or Palmolive, then dry.

Oil-Out or Feed Line: I put a -20 oil-out female bung because that is the best size for 911's of all engine sizes with such a long oil-feed run. If you decide to reduce it to -16 you can do so, but be cognizant of low pressure in the hose (suction) under high demand that may collapse the hose. There are spirally wound flat flex spring steel support coils specifically for that purpose that you put into the hose of the suction side (do not use conventional round wire type spring coils in the hose because they will cause turbulence in the oil flow). Some people choose to use hard lines to the back of the car and then have the final few feet be hose, and some use hose the entire run; it's your choice.

Oil and Vent In and Out: All of the fittings on top of the tank are dash -16 male. The three are: 1, Oil return from cooler or thermostat (which is marked with red circle); 2, Vent in-coming from engine; 3, Vent out-going to atmosphere. **If the red circle is missing for some reason, look down the three dash 16 fittings with a flashlight. The one that has a 1" tube welded to it is oil return.** The other two can be used as you wish for vent from engine and to atmosphere or catch tank.

Cleaning: If you blow your engine or need the tank to be cleaned, spend the \$125.00 or so and have it ultrasonically cleaned. All the big teams have their coolers and lines cleaned that way and you can too.

Here is who I recommend: Pacific Oil Cooler Service, 9761 Kingerman Street, South El Monte CA phone 626-454-3172. They are good people to do business with and know what they are doing (they do work for Jerry Woods Ent.).

Internal Baffling: The internal baffles in this tank are preassembled and then placed inside the tank before the last side is welded on. The idea is that the baffling assembly will "float" inside the tank and not cause undue stresses and crack. It has a little room to move around, so don't be alarmed if you turn the tank over and you hear the assembly inside clanking back and forth. This is normal and once oil is in it, the rattling will go away.

Instructions

Front Oil Tank for 1969 to 1989 911's

Installation:

The number one most important thing to remember is **DO NOT RIGIDLY MOUNT THIS TANK!** If you do it will vibrate and crack itself to pieces. There are a number of ways to mount the tank - if you want to weld some tabs on it you can (but use rubber spacers between tabs and body mounts), or you can mount it in a "saddle". Here is the saddle method. .

1. Review the enclosed sketch so you understand where the tank fits in relation to the well itself. Put the tank into the well and check its overall fit. You want it as close to the drivers-right side of the car as possible. There are several pins that the factory welds in place to hold some of the A/C pieces in place. Remove these and any other little brackets that will interfere with its placement.
2. I mount the tanks so far to the drivers-right that it hits the drivers-right rear corner of the opening of the well, so I cut 3-4 little slits in the stamped radius where the lid used to fit and fold the cuts down (see sketch). You can cut it with a good pair of snips or an air saw etc. You also have to slightly modify the large, round thin gauge steel opening to the tunnel of the car. I just bend it neatly over by cutting a couple of slits in it, then tap it over with a bodymans flat-headed hammer. Recheck the fit.
3. I also remove the sheet metal from the corner of the well, (mentioned above), all the way over to the steering shaft. Look at the sketch again, you can see the sheet metal I remove as the dashed line. It gives the installation a really clean appearance.
4. Once you are happy with its location, mark the body itself where the tank will go. Lay some clay (or similar) on the floor of the well. Place the tank in its place to leave an impression of where the drain hole will be. Remove the tank and drill the hole with a 2" hole saw. Deburr both sides of the hole.
5. Using two pieces of .5" x 1.5" x 4" soft pine (you can use plastic, plywood, Bakelite etc.) and lay them on either side of where the tank will sit and on either side of the drain hole, but out closer to the outer edges of the tank (parallel to the centerline of the car). Set the tank on these pieces of wood or equivalent. The idea is to raise the tank off of the steel floor just a bit since the floor is not flat.
6. Measure where the oil-out dash 20 fitting's vertical and horizontal centerlines are, remove the tank and drill a 2.5" hole with a hole saw. Deburr both sides of the hole.
7. Recheck the tank's fit and adjust the holes if necessary.
8. I use a two-part expanding foam (available from Tap Plastics, Pegasus Auto Racing Supplies, Aircraft Spruce etc.) to form a "saddle" for the tank to sit on. A frame made from thin gauge steel or aluminum will work just as well. I decided to use the foam saddle because the floor of the well is not flat and access is troublesome. Here is how I make the saddle.
 - Lay the strips of wood where you want them.
 - Double-check the fit of the tank to be sure it clears everywhere.
 - Use a thin, flexible plastic bag (like a garbage bag) and mix and pour the quantity of two-part foam into it. Note: I practiced how much foam to use with a practice bag; you can use a shoe box as a template to mimic the bottom of the well to check to see how much foam expansion you get-otherwise, you might end up filling the whole well with foam!
 - Evenly distribute the quantity of foam you need in the bag and lay it in the well. Now as the foam is expanding, place the tank down into it and secure its position with a few pieces of tape so it won't lean too far forward or backwards.
 - Allow the foam to set-up and dry as the instructions indicate.
 - When dry, grab the tank and wiggle it out of the foamed bag.
 - Trim the excess foam and bag from the drain hole, oil-out hole and other places as needed. It won't hurt anything if you cut off parts of the plastic bag because the foam is of the "closed cell" variety so it won't absorb liquids. It may not be the prettiest thing you've ever seen, but the tank will enjoy sitting on it because it is semi-soft, non-abrasive and vibration dampening.

Instructions

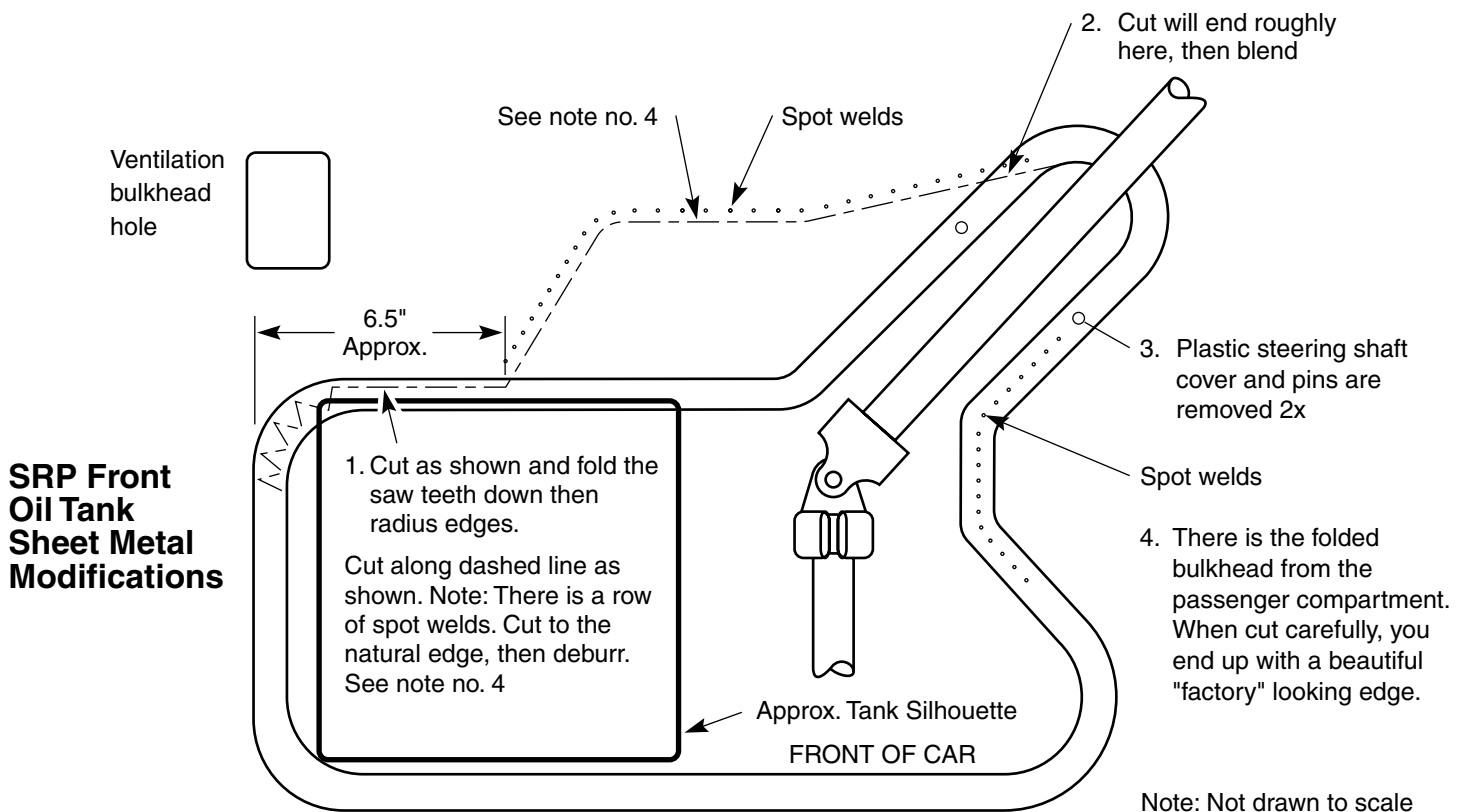
Front Oil Tank for 1969 to 1989 911's

- Now fabricate a simple strap that will go over the top of the tank to secure it (these are available from us, part no. 185-0201). Remember that it does not need to be held in like a fuel cell, but rather, like the driver, ie, securely, but not rigidly. Some people use two small straps. It's your choice. I then weld two 8 x 40mm bolts to act as studs to the body and lay the strap over the studs and nut the strap down gently with nylocks.
- Plumb the tank as you would any other hydraulic system. Be careful when tightening the dash 16 hose ends or you'll tear the male fitting right off the tank. They just need to be good and snug. Remember, to use an o'ring on the union fitting of the dash 20 oil-out line, be it -20 to -20, or -20 to -16. . .the drain plug as well.

Note: If you want to know more about automotive hydraulic and plumbing systems, Carroll Smith wrote an excellent reference book called "Carroll Smith's Nuts, Bolts, Fasteners and Plumbing Handbook", in 1990. It is a terrific reference for anyone at any level, plus, it's jammed with little secrets he's learned throughout his successful career-highly recommended reading, as are all of his books. Published by Motor Books International® available on Amazon.

Oil Level: The first time the tank is used, the general rule of thumb is to fill the tank about three quarters full, start the engine and let it come up to temperature (while keeping an eye on the oil level in the tank – don't let it empty itself if the entire system is new and completely empty). At operating temperature, it should be about 3/4 full. You will know how much it wants because if you over fill it, it will push oil out of itself continuously as it seeks its natural level (engine condition, blow-by, can be a factor). Once you have found the operating height, make a dipstick out of welding rod and mark the operating position and refill at oil changes accordingly.

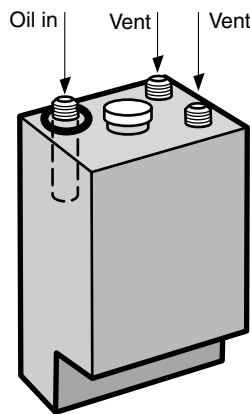
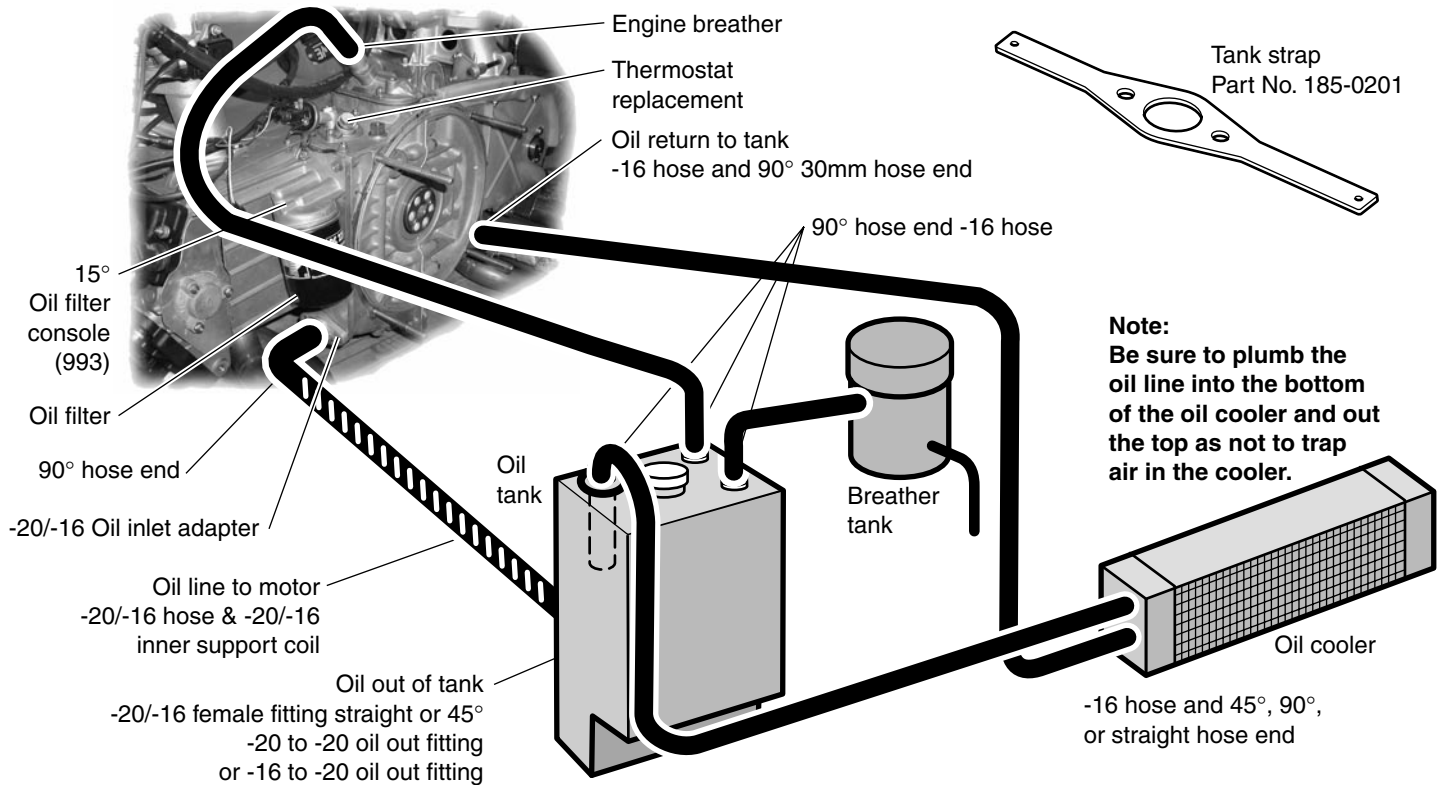
Oil Temperature Sending Unit: I have provided a 1/8-pipe bung on the side of the tank for an oil temperature sending unit. Some people keep the one on the engine, but I take the readings from the tank because I want to know what the "stored" oil temperature is – it's your choice.



Our 911 Oil Tank and Line Diagram

Here is how we recommend plumbing your 911

You will need these support products to complete your oil tank installation: Oil filter console, oil inlet adapter, thermostat replacement, oil cooler, oil breather tank, oil line inner support coil, and lines and fittings.



Note:
~18 liters for full system.
(depending on cooler and other components sizes)