Repair of a Rusted Gas Tank

Repair of pin hole leaks and rusted spots in the tank

We received a phone call from a fellow who had recently acquired an early-'30s car. Among the questions that he had for us was, "Where can I buy a replacement gas tank?" We've been planning an article on gas tank repair, and this seemed like the perfect opportunity. In the case of this gentleman, replacement of the tank seemed unnecessary; he had one known spot which was leaking. We advised him that if he had one rust spot, there were undoubtedly several more which would be discovered during cleaning and repair.

Let's go through the procedure step by step, and hopefully, repair of the tank would be all that was necessary. The entire repair procedure will take up to a week (including drying time). Don't rush it or skip steps. Thorough internal drying of the gas tank is often imperative. Any remaining moisture could prevent a good adhesion of the sealer.

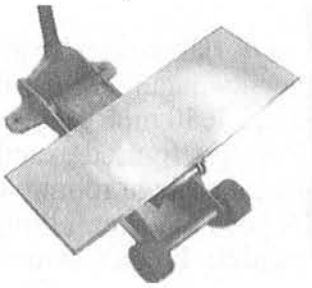
Removal of the gas tank

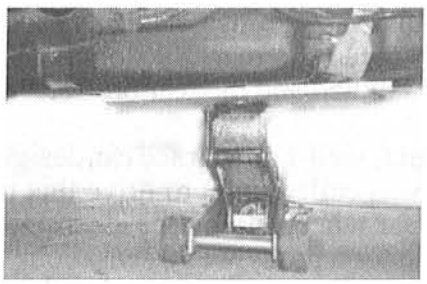
DO NOT SMOKE OR HAVE AN OPEN FLAME ANYWHERE NEAR THE GAS TANK WHILE MAKING REPAIRS.

Small, individual leaks might be repaired without removing the gas tank. Drain the tank first, and be extra careful not to create sparks when cleaning the area around the leaking pin hole. Use a hand wire brush, not a powered tool, to minimize the possibility of sparking. If you are not going to remove the gas tank, skip down to the section beginning with 'Repairing Small Leaks and Pin Holes'. It is recommended that the gas tank be removed from the car and thoroughly cleaned and sealed to minimize the leak(s) and future internal rusting.

Proper repair requires removal of the gas tank. It cannot be done adequately with the tank still in the car. Drain any gas out of the tank. Generally, there is a drain plug at the lowest part of the tank. Sometimes the plug has a raised head, allowing a wrench to remove it, and sometimes the plug has a recess. A 3/8" ratchet will often be the tool for removal in this case. Have plenty of clean buckets available to catch the gas as it drains.

Once the gas tank is empty, crawl under the car, and locate the filler tube, gas pick-up line, and the gas gauge sender unit. Disconnect them from the tank. Examine the gas tank to determine how it is retained in place. Often it is no more than two straps. Having a buddy available at this time (and again at re-installation) will make the job much easier. Have a floor jack handy, along with a wooden board about two feet long. Loosen the straps holding the tank. Note the position of any leather cushions or wooden wedges. They will have to be reinstalled later on. As you loosen the straps, the weight of the gas tank itself will allow it to drop slightly. If it is necessary to use a hammer to break the bond between the straps and the tank, be sure that you use a brass hammer or rubber mallet. Never use a tool that could cause sparking. Do not remove the straps completely; alternate between the left and right strap until the tank drops about an inch. Place the saddle of the floor jack under the center of the tank with the wooden board between the saddle and the tank. The board will help distribute the weight of the tank along its length. Raise the jack enough so that the tank is resting on the floor jack/board. Your buddy can balance the tank as you continue to release the straps. Lower the tank out of the car.

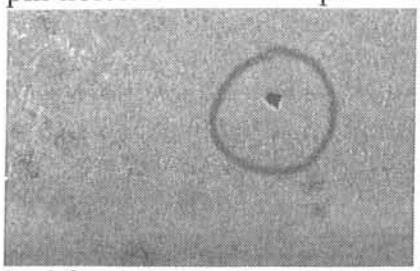




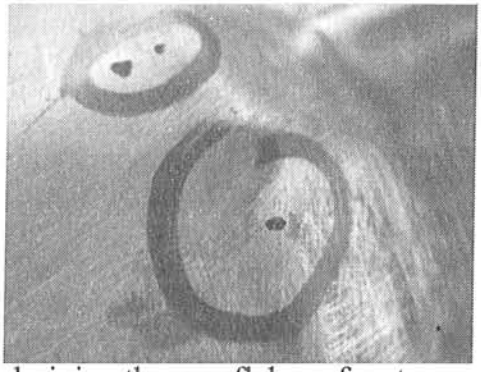
Place the saddle of the floor jack under the center of the tank with the wooden board between the saddle and the tank

Repairing Small Leaks and Pin Holes

Examine the gas tank, looking for obvious leaks, wet spots or rust, and, of course, pin holes. Use a small paint brush and a colored paint to circle these spots in order to find them again later. As you proceed, you may find additional spots which require attention. Mark these as well. Use a wire brush to clean any mud, road debris, etc. from the outside of the tank. Clean the outside of the tank down to bare metal.



Look for obvious leaks, wet spots or rust and pin holes.

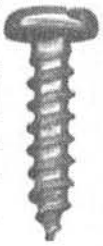


If, when draining the gas, flakes of rust also drained out, it is an indication of internal rust. Use loose nuts and bolts or clean gravel, poured into the tank, to loosen the rust. Shake the tank well to allow the abrasive to help loosen the rust. Be sure to remove all of the gravel before proceeding. Alternatively, you can send the tank to a radiator shop to be boiled out before sealing.

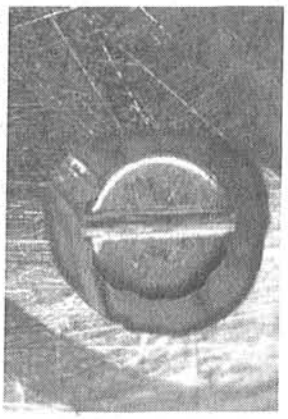
We recommend a cleaner/metal etcher/sealer from Hirsch Auto. We have used it with excellent results. Be sure to follow the directions implicitly for the best results. Seal all openings (drain plug, sender unit, pick-up tube opening, open rust spot holes) with duct tape and pour the Hirsch gas tank cleaner/degreaser (dilute as per instructions with the product) into the tank through the filler tube opening. Then seal the filler tube opening with duct tape to keep the liquid from spilling out. Rotate and invert the tank to allow the cleaner to reach all corners, top and sides of the tank. Remove the duct tape and drain the cleaning solution. Repeat as warranted. Allow the tank to air dry thoroughly before proceeding. In each of the steps, you may find that putting the 'blow' end of a vacuum cleaner hose or a hair dryer into the tank will help circulate the air and dry the inside of the tank. (See special instructions included with the kit for plastic or fiberglass tanks.)

Reseal the tank with the duct tape, and use the metal etcher. This step will prepare the inside of the tank for the sealer. A thin layer of phosphate will remain in the tank. This will aid the sealer's adhesion. Remove the duct tape, drain the tank and allow it to dry thoroughly. Any moisture that remains in the tank will prevent the sealer from properly adhering. A hair dryer or the blow-end of a vacuum cleaner hose inserted into the fill neck will help dry the inside of the tank. (Be sure that the vacuum cleaner, shop vac and filter are clean so that you do not blow dust and dirt into the gas tank.) Complete drying is a very important step. Please do not take shortcuts in allowing the tank to dry.

The next step is repair of the rust holes. Small holes, up to about 1/8" diameter, can often be sealed using pan head sheet metal screws. Be sure the screws are large enough so that they are installed into the clean, rust-free metal and not merely into the rust. Use a good two-part epoxy (we recommend the original formula JB Weld), putting a dab on each rust spot before installing the sheet metal screws. Coat the threads of each screw with the epoxy, and screw into each hole in the tank. Be sure the epoxy coats the entire underside of the head of the screw. Do not wipe away all of the excess epoxy; leave a small circle of it around the screw head. Allow the epoxy to cure fully, at least for 24



hours. (Soldering* the pin holes is another option. We will discuss that later in this article.)



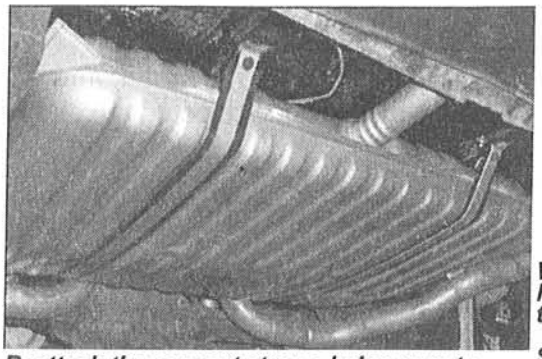
Reseal the tank with the duct tape. Make sure that the gas pick-up tube is removed from the tank so that it doesn't plug up during the next steps. Pour the entire contents of the Hirsch sealer into the tank through the filler tube, and seal the filler tube with duct tape. Slosh the sealer around, being sure that each and every internal surface is coated. Remove the duct tape from the filler tube and pour the sealer back into the can to be reused for a second coat. (Most sealers must be discarded after this step. The Hirsch sealer can be reused a second time.) Do not allow the sealer to puddle in the tank. Pour it all out, and back into the can. It will be re-used for a second treatment of sealer.

Remove the duct tape. Allow the sealer to dry thoroughly – at least overnight, possibly longer. Pour the remaining sealer back into the gas tank, and repeat the sloshing. Drain the tank again. Again, do not allow puddling within the tank, and set it aside to dry completely – at least for several days – before putting gas into the tank. The sealer will leave a thin protective film inside the tank. This film is gasoline and ethanol resistant.

Continued on page 39

* The pin holes discussed above can also be soldered to seal them. Again, be sure that the heat does not migrate to other areas of the tank by surrounding the areas to be repaired with wet towels or rags. Be sure that the heat generated by the soldering iron or gun is high enough to heat the metal to the point that it melts the solder. Do not rely on the soldering iron to melt the solder and provide a secure bond. In some cases, patches may be used on larger holes. The patches should extend slightly beyond the size of the actual hole. Be sure that the solder completely seals the patch to the tank.

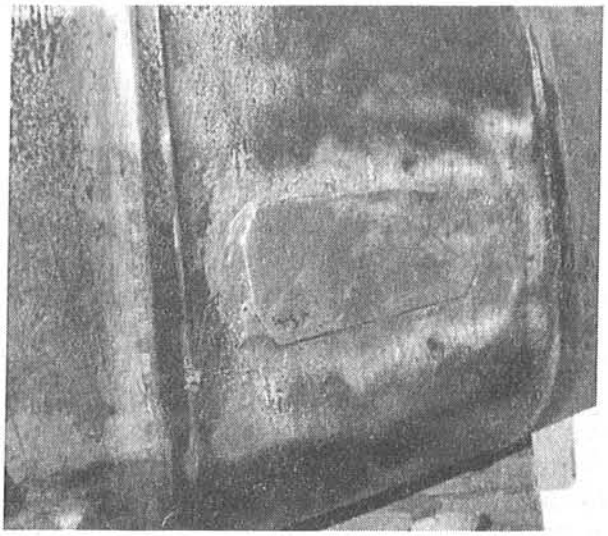
Reinstall the tank. Be sure to place wedges (if originally used) into their correct position. Lift the tank into position with the floor jack, but do not put too much pressure on the metal. The jack is just for support and balance. Reattach the support straps and leather or rubber cushions, and tighten the straps, alternating between left and right. Reattach the filler tube, using a new ethanol-resistant rubber connector, if required, and reconnect the pick-up tube connections and the sender unit. Replace the drain plug.



Reattach the support straps, being sure to place the wedges (if used) and cushions in their proper position.

If damage to the gas tank is larger than the pin holes, a separate repair will have to be made. Never work on the tank until all of the gasoline fumes are removed through a thorough washing or boil-out. Those fumes are extremely explosive.

Do not try welding to replace a rusted section of a gas tank. The tanks were originally soldered, not welded, and the heat of welding is apt to open other seams causing additional leaks in the gas tank. Have the tank resoldered by someone well experienced with soldering techniques. Be sure the heat is restricted to the area being repaired, and that it does not spread to adjacent areas.



Welding a gas tank creates too much heat. The excess heat is liable to melt the solder seams in other sections of the tank, causing a much more serious problem.

Solder the patch, using only as much heat as necessary for the heated metal to melt the solder.

Do not coat the outside of the gas tank with any type of 'sealer' or thick material. (We have heard that truck bedliner compound has been used. This is not a good idea.) Any moisture that gets between the coating material and the metal cannot escape and will cause rust. Use a spray paint to protect any bare metal on the tank and for cosmetic reasons.

If care was taken, and all steps followed completely, you should have a trouble-free gas tank for years to come.

S.K.

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The deadline for Classified Ads (November 2017 issue) is September 25.

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