

Getting Floored

by Mike C. -

Floor Pan Replacement – Part 1

I vividly remember the night I went to this lady's house to look at a prospective Beetle to restore. This one, like many a poor little Bug, had seen its better days. I don't know how this lady could stand to drive it very much, because the floor pan was full of holes. Some were big; some small. I reckon the battery was held in place by a couple of 2x4's that spanned from the center tunnel to the heat channel or rocker panel (some of us in the club know exactly what I mean!). I had to point out to her that, from the outside of the car, you could see the ground from there! That could be a pretty drafty situation considering it was wintertime and you might get a pretty good bath on your way home if it was raining. Okay, you optimists out there would say that you get your bath at the same time you drove the car. Cool, don't forget your soap and shampoo! Anyway, most all unrestored Volkswagens by now have had hole-y floor pans. A lot of folks shy away at the thought of repairing or replacing floor pans because they look too difficult to do, they don't have the proper tools, it would take up too much space in the family living room, or it would be too expensive.

I will tell you that much of the above is true. It is rather involved. You do need air tools, a good MIG welder and some know-how about welding. Also a large hoist or overhead lifting device, if you remove the body from the chassis. Add to that, at least a cleaned-out two-car garage (preferably larger with a lot of overhead space for lifting), and some time on your hands. If you decide to let someone else do it, expect to pay \$300 or \$400 above the cost of the new floor pans to get the job done. It may very well be worth it to you if you really like the car and it seems to have no further rust damage. If there are just a few scant holes here and there, chances are that the rest of the body is in good shape. A lot of the time the floor pan is only rusted through where the battery has to sit. In this case, the repair can be made pretty inexpensively and with little involvement. You can even just cut out the bad part and insert a new repair panel and you may not even have to do any welding, only some careful trimming and fitting, of which I'll explain later. In the event that the floor pan is so rusted through that you wonder how you didn't end up dragging the asphalt on your way home because you might have fallen through, consider the whole car and look at it carefully. Chances are the heater channels are also badly damaged with rust, and many body panels are eaten through. You may want to look at a better prospect before tackling all this, because you can sink a lot of money into a rust bucket to get the chassis and body sound before you even see the good results of the shiny paint and new chrome. Okay, so you know what you are getting into here. I'll tell you how the floor pan can be repaired or replaced in this article. Since this is involved, it may take a few articles to get the information across. Even though you can do this job

without taking the body off the car, I'm writing this article as if you were taking the body off anyhow to be able to restore other parts of the car more easily. Trust me, it's a breeze to work on the suspension, engine, and transaxle with the body removed.

You need the following for the job:

- **Body Lifting Method:** A large engine hoist or overhead hoist mounted on an I-beam frame OR about six buddies willing to help out with the lifting of the body
- **A garage** with at least two empty bays & 10' of vertical space
- 2 new floor pan assemblies
- New seals to seal the perimeter of the floor pan
- Crowbar
- Air compressor with air tools (impact ratchet, impact hammer with chisel end)
- Set of metric tools (8mm to 17mm of wrenches, ratchets, and sockets)
- Rust-O-leum black paint or undercoating
- Good MIG welder
- Seam sealer
- Safety glasses (don't work on the dirty undercarriage without them!)

Preparation for Body Removal

1. Park the car on one side of the garage. Put on your safety glasses.
2. Disconnect the battery.
3. Remove the whole interior (seats, all carpet, and trim).
4. Remove the bolts around the perimeter of the floor pans. Don't forget the two bolts on either side of the front bulkhead and the bolts at the rear of the pan.
5. Remove the two bolts on top of the floor tunnel at the front inside the car.
6. Undo the fuel line at the front and the back (be prepared to catch any gas when it comes out).
7. Unplug the brake switch wires from the master cylinder up front.
8. Remove the ground strap from the battery to the body.
9. Disconnect the heater control cables at the rear and remove the two heater supply hoses that connect to the body from the heat exchangers.
10. Disconnect the backup light at the switch on the transmission.
11. Disconnect all wiring at the starter motor.
12. Disconnect the wires at the distributor, ignition coil, oil pressure switch, and idle cutoff solenoid.

I told you this was involved, so I hope I haven't forgotten anything! Remember, the entire wiring harness stays with the body itself, so make sure you have the wiring off anything that is connected to the chassis.

Body Removal

You should now be ready to lift the body off the chassis. If you have an I-beam type hoist, assemble it over the car. You might have to make some kind of load spreader bar to span over the top of the car so you can distribute the load when strapping the bar through the roof.

1. Slowly start lifting the body off. It should start to separate from the chassis. If it seems to not separate, try prying it with the crowbar. If it still doesn't separate, check to see if there are any other bolts you missed.
2. As the body lifts up, watch for wires and other objects.
3. When you have cleared the engine, move the body to the other side of the garage or bay and set it down on the ground.

Floor Pan Replacement – Part 2

If you didn't break off any rusty bolts while taking everything apart, you are indeed a blessed individual. If you are those usual few that leave pieces of bolts in their holes because the head snapped off, don't fret. A gas welding torch with an easy hand will help get them loose, along with the properly-sized easy-outs.

Before I get started on further events, I should add that it would be a lot easier if you removed the seats. Anything you see that would only make the job easier by reducing the height you have to lift the body, remove it. If the engine is already out, much the easier for you. If not, it's still not that bad. Also, don't forget to remove any of the steering components that connect between the steering column and the chassis.

Now stand back and investigate the situation.

1. If you have a standard Beetle with the torsion beam front end, you're in business. If you have a Super Beetle, you'll have to support the chassis frame with some concrete blocks or jack stands, as there is nothing to support the front wheels once the body is removed. If you work on Super Beetles a lot, you might want to make you a spreader bar to connect between the strut towers and a brace that attaches to the middle of the spreader bar, extending down and tying it to the center tunnel. That way, the front wheels could then support the chassis.
2. Remove all carpet, padding, pedal cluster, anything pertaining to the rear seat.
3. If the heater cable tubes aren't separated from the floor pan, go ahead and do that now using the air chisel. Try your best to save the tubes. If they aren't salvageable, you can use brake line that is the same diameter of the original tubes. Just cut it and bend it to shape. Bundle up all the heater cables and tie them aside.
4. Assuming that you have everything out of the way in the floor, get out the air chisel. Look at the welds on the floor pan perimeters. You will see that the factory spot-welded the pans to the center tunnel and at each end. Start at the back with the air chisel and slowly work your way around the tunnel, peeling the pan up as you go. Be careful, as the chisel will go through the thick tunnel flange if you let it. Trust me, you'll really appreciate the air chisel once you use it for this. The spot-welds are 3 or 4 inches apart, so there will be several to go through. Also be careful not to hit the brake lines, as they are attached right along the tunnel on either side.
5. When you have the pans off both sides, you will have nothing less than a big mess on the floor of the garage and one picked-over chassis. Clean up the floor around you and take the old pans outside to the garbage.
6. Now you need to prepare the new pans for the install. Make sure the tunnel is relatively free of slag from the original welds by taking a die

grinder and grinding them down smooth. Take some coarse sandpaper and scuff the paint off the edges of the new floor pans so the welding will be easier.

7. Test-fit the new pans for fit. Some years back, it was a chore to fit new pans. Nowadays with the full-length pans and better quality, this is not as big a problem. Note that a new rear bulkhead support may be included on the new pans. If your originals are rusted badly, you'll need the new ones. If not, chisel the new ones off the new pans and that will be less trouble to fit the new pans.
8. The only way I know to truly make sure that the pans are on correctly, is to tack-weld them to a few spots around the tunnel (just enough to hold them in place and easily be taken off with little damage if need be). Then, set the body on the chassis to see if the bolt holes line up. Bolt hole alignment shouldn't be much of a problem, even if you don't do this. But just use your judgement here. In both of my floor pan experiences, I've had good results just by making sure the pans fit the tunnel well. You may have to trim the floor pan flange with some snips to get it to fit right. Be careful here and take your time. You can cut more off, but you can't easily add more back on.
9. Once you know you have the fit correct, clamp or weight the pans down with concrete blocks or something else heavy to make sure the flange is flat on the tunnel flange.
10. Make spot welds with the MIG welder the same distance apart as original, about 3 to 4 inches. Start at one end and go all the way around. Again, be careful about those brake lines!
11. When you have everything welded down around the perimeters, weld your heat cable tubes back in the original locations. It's easy to burn through the tube, so go easy on this weld.
12. Unless you plan to make a smooth custom ride out of your Bug, don't forget to weld on the jacking reinforcements. These usually have to be purchased separately of the pans. The procedure is simple here, just locate them the same as the originals and weld them on, noting how the factory welded them.
13. Okay, those pans are looking good by now. Clean any slag off the welds and take the seam sealer and brush it into the perimeters well. Since this will keep the water out of the seams and away from you, don't leave any gaps here. Brush the sealer both on the inside and outside.
14. Scuff the outside of the pans down with a Scotchbrite pad and clean them off. Spray the entire underneath with the Rust Oleum black, undercoating, or other material/color of your choice. Don't trust the factory-applied paint to protect the pans. This is just there to keep them from flash-rusting during shipment. It is simply not very durable. Once the Rust Oleum dries fully, you can't easily scratch it, and it will look good for many years to come.

Floor Pan Replacement – Part 3

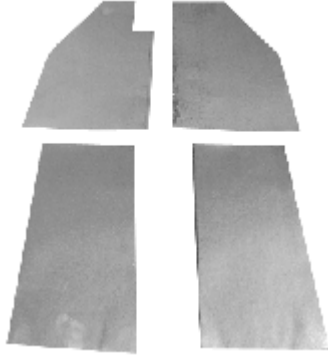


It's been a rather involved battle, but you've made it this far. Those floor pans are really looking good now. There's nothing like the smell of fresh paint and the feeling of knowing you won't fall through the floorboard when riding down the street. As far as finishing up this part of the project, there isn't much more here except putting the body back on the chassis. Before you proceed with the reinstall, think about things you would like to accomplish. If you need to rebuild the front and/or rear suspensions, engine, transmission, brakes, shifter and related mechanisms, get

all this done before you bolt the body back on. It is a breeze to work on all this with the body removed. If you have to replace any fuel line, brake line, parking brake cables or tubes, clutch cable or tube, or heater cables and tubes, it'll be a lot easier this way. If you're really into restoring your ride for maximum detail, do it all now.



Don't forget the floor pan perimeter seal. I like to use windshield sealer rope that comes in a flat roll. You can get this stuff at Autozone and is well worth it. Just lay it around the perimeter of the pans and wherever the body makes contact with the chassis and floor pan. When the body is placed on the chassis, it will squeeze the sealer rope down and make a perfectly tight seal. Once you've done everything you want to the chassis, get your buddies to help you set the body back on. Once you have the body suspended about an inch above the chassis, note the general alignment of the bolt holes. If possible, try to get a few bolts started before putting all the pressure of the body weight on the chassis. This way, you'll know that the holes will line up. After that, let the body sit fully on the chassis. I hope you had any wiring out of the way of the pans before you set the body on. If not, you'll have to peel the body back off to get the wiring out of the way and reseal the floor pan. Unless you were really lucky and the original bolts weren't broken, stripped, or rusty, I would only use new bolts in the reinstall. Stainless bolts are often available in restoration kits and are well worth the investment. Take a metric tap of the correct thread and pitch, and use it to clean the threads of each bolt hole. Coat each bolt with a good anti-seize compound and tighten them down snugly. Don't forget the bolts at the top of the tunnel inside the car at the front firewall. Reconnect your steering mechanism, all wiring, fuel lines, and heater components. You might even put the carpet back in, but if you are going to do bodywork and paint the car, don't reinstall any new upholstery until you have all painting processes completed.



You will want to put some kind of sound deadening on the floor pans before you put the carpet back in. Read the articles on sound deadening for more details on this. Stand back and admire your project. This is a big step in making the whole car feel solid and airtight, which has always been the big trademark with the Volkswagen. You've come a long way and are ready for the parts of your restoration that you can actually see.

Your VW Maniac and tech specialist,
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