



CONVERTING A SWING PAN TO IRS

The crew at Ron Lummus Racing shows us how it's done

BY BRUCE SIMURDA

If you have an early Beetle pan with swingaxle suspension, and were thinking of converting it to the better handling 1969-later independent rear suspension (IRS), there is good news. Most of the components for the conversion — from the transaxle to spring plates, are a bolt-on swap between years. Unfortunately, there is one component that is not that easy to install — the swingarms. You see, when VW switched to the IRS suspension they added two little brackets to the floorpan, just behind the torsion housings and on the outside of the framehorns, to support the new swingarms that were needed for the new suspension. Adding these brackets take a bit of work.

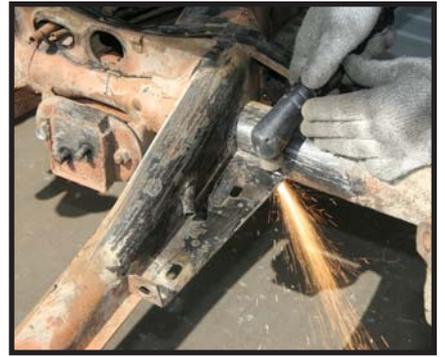
Being suspension locating components, your first question might be, how do you know where the brackets are supposed to go? Actually, that turned out to be the easy



ABOVE, when converting from a swingaxle to IRS suspension, this is the big issue — how to mount the trailing arms — as 1968-earlier pans do not have the needed brackets. ABOVE RIGHT, to convert an early pan, a special swingarm pivot bracket, like this one from Pacific Customs, needs to be welded in place.



part, as Pacific Customs (in Corona, California) not only has the IRS pivot brackets you'll need, they also have special left and right "IRS Pivot Jigs" that locate the swingarm brackets in their proper positions. It does this by bolting to the four torsion housing cover bolts at the end of the housing to properly position the brackets.



ABOVE, to properly position the new bracket on the pan, the special jig, also from Pacific Customs, was used. It bolts to the end of the torsion housing to position the bracket. **ABOVE CENTER**, to properly install the bracket, we went to Ron Lummus Racing (RLR) in Anaheim, CA. Here, Ron checks out the fixture to see where to begin cutting. **ABOVE RIGHT**, after cleaning the work area, Ron used a plasma cutter to remove the metal plate on the side of the framehorns.



ABOVE, to simplify matters, and because the jig will be taken on and off over 20 times during the process, long studs were used to locate the jig while work progressed. At this point we can see that the bracket must go into the framehorn about an inch. **ABOVE CENTER**, the side of the framehorn was then marked with the shape of the bracket, indicating where to cut. **ABOVE RIGHT**, a plasma cutter was then used to cut through the metal. Be very careful not to cut any of the tubes (for brake and heater cables and the fuel line) that run inside both framehorns.

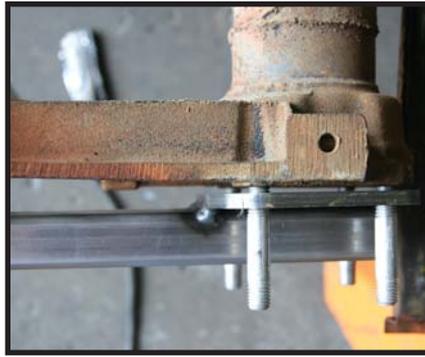


ABOVE, with a basic hole cut, Ron checks to see how much clearance we have with the e-brake cable tube. The fit between the tube and the bracket is very close. **ABOVE CENTER**, at this point the bracket/jig was set in place, to determine the next area to cut. Just a little material was cut away at a time to ensure a tight fit and no gaps — it a process that was repeated many times. **ABOVE RIGHT**, it was also necessary to trim material from the bracket, where it mounts to the torsion housing. **BELOW LEFT**, Ron held the bracket in a vise, then trimmed the bracket with a hand grinder. **BELOW RIGHT**, to ensure a good fit, any high spots in the torsion housing were also ground away.



Sounds easy? Well, it's a little more complicated than that.

To actually install these pivot brackets, we went to Ron Lummus Racing in Anaheim, California. Since RLR is a full fabrication shop with all the latest tools, we were sure that would be a quick and easy job. It turned out to be a lot more involved than we thought. You see, while at first it looks like the brackets simply bolt in place after clearing a little extra metal off the framehorns, they are actually recessed right into them! That's where Ron Lummus' plas-



ABOVE, you can see how the bracket fits tightly to the torsion housing. **ABOVE CENTER**, by watching the angle of the jig plate in comparison to the end of the housing, you can determine where the framehorn or bracket needs clearancing. Here, the gap is much wider in back than in front, indicating the bracket needs to be trimmed a little more to move it forward. We don't have much further to go at this point. **ABOVE RIGHT**, you can see how the bracket is now positioned inside the framehorn.



ABOVE, this is what the final hole in the framehorn looked like. Note that you can see the important tubes inside. **ABOVE CENTER**, to make the job a little easier, Ron cut a template of the first hole and transferred it to opposite side. The hole was then cut a little undersize, and the same process of slowly trimming away material continued. **ABOVE RIGHT**, likewise, the shape of the first modified bracket (right) was transferred to the second bracket to speed trimming.



ABOVE, to prepare for the welding process, RLR's Courtney Hutton cleaned the area of all paint and grease. **ABOVE CENTER**, the bracket and jig where then bolted in place, and double-checked for fit. **ABOVE RIGHT**, both brackets were then tack-welding at several points. Next, using short beads and moving from side to side to prevent heat build-up and possible warping, Courtney slowly welded the bracket in place using a MIG-welder. **BELOW LEFT**, because the bracket is so far inside the framehorn at the bottom corner, it was necessary to tap the metal inward about 1/2-inch to close the gap for welding. **BELOW RIGHT**, the completed bracket looks incredible, and is now ready to accept the IRS trailing arm!

ma cutter really came in handy!

The process started by cleaning the area, then cutting away the excess metal off the side of the framehorns. Then, with the right side bracket bolted to the right side jig with a stock pivot bolt, it was set in place to see what needed to be cut. After marking the side of the framehorn, Ron would make a cut, then set the bracket and jig back in place to see what progress had been made. It was a process that was repeated over and over again (over 20 times!) as Ron slowly sank the bracket into the side of the frame



horn without removing excess material. To help determine where material needed to be removed, he would check the alignment of the jog plate against the torsion housing to see if he needed to go up, down, forward, or back. It was also necessary to remove material from the new brackets themselves, in order to get everything to properly fit. Also, the brackets sit very close to the emergency brake tubes, and when working close to those tubes Ron traded the plasma cutter for various other grinders and cut-off wheels to prevent damage to the tube.

As the installation progressed, and the jig plate got about 1/4-inch from mating with the torsion housing, Ron switched to grinding the material from the frame horns to keep the fit as tight as possible. This wasn't just a job to make a big hole and then stick the bracket in, it was a slow, step-by-step process, and after every cut the bracket got just a little closer to being in the proper location. To get the final 1/16-inch, a small amount of material had to be removed from the side of the bracket, right at the brake cable tube.

Once the first bracket finally fit snugly in the frame horns, Ron made a pattern of that hole, and transferred it to the other side to make installation of the second bracket a little easier. Still, he started a little small, and slowly enlarged the hole to ensure a tight fit to the bracket for proper welding.

Once both brackets were in place, and the jigs bolted to the torsion housing, Ron handed the welding chores over to Courtney Hutton, one of RLR's talented team members. Before firing-up the MIG-welder, Courtney cleaned the weld area of all grease and paint, ensuring a clean weld. She then proceeded to tack-weld both brackets, then completed the process by welding in short beads in different areas, to prevent creating too much heat all in one spot. Once the welding was complete, everything was allowed to cool down before the jigs were removed.

While our completed brackets look great, we should give a few words of caution. It is a very demanding job, and requires a lot of cutting and grinding. Also, inside the frame horns are tubes for the emergency brake cable, heater box cables and the fuel line, and extreme care must be taken not to cut or damage them. Using a tool such as a cutting torch is probably not a good idea in this area as these tubes will definitely be damaged. In all, it took the team at RLR just over four hours to complete the installation with their wide range of metalworking tools. Not a fun job by any means, but one that came out very good.

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