John Lodge’s Body Fit Procedure

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(ED. John Lodge has been working for Terry Tanner for 13 years. During that time John has strived to find a better method for installing door skins and ultimately complete bodies on Bricklins. Well, his efforts have really paid off. He can now achieve a body fit that the designers intended.

Both John and Terry have a very unique attitude, they don’t want to hide their knowledge, they want to share it! So after they developed their tools (which are easily purchased or made) they wanted me to come to their shop for a demonstration, photo shoot, and question and answer session, to publish their efforts in the magazine.

They realize that they can’t do all the work on every Bricklin and they want their knowledge shared so that others can learn to do the body work correctly.

If you plan on doing the work yourself, or have a local body shop that is going to do the work for you, Terry and John would like you and or your body man to come to their shop and ask questions so the job can be done correctly.

This article was written by John Lodge, and used as our outline for going through a body fitting. I have added additional comments as editors notes based on our discussions as we went.)

It is commonly known throughout the Bricklin community that at some point the doors will need to be restored. The primary reasons behind them needing to be restored are due to the steel frame structure being bent and or cracked, and the door skins delaminating or being damaged. Most of the time both problems are in evidence.

When taking on the restoration of a Bricklin door there are several factors that have to be considered. Are the quarter-panels attached to the car in the correct location to allow for a superb fit of the doors? Is the roof panel cracking or misaligned to the center of the car. Are the A-pillars located correctly, are they cracking as well. Are the door hinges bent. These are just a few of the major things that have to be looked at. The alignment of the birdcage to the frame and the hatch-deck being installed square to the rest of the car and the alignment of the front-clip parts play an important role in the door fit as well.

In the 12 years that I have been working under the tutelage of Terry Tanner, I have come across many problems that impede the fit of the doors. What I have found is that in order to achieve the absolute best fit possible, the entire body of the car has to be re-fit based on the door lines. “Why is this?”, you may ask. Well the explanation is quite simple; the typical factory worker at the Bricklin plant didn’t follow all installation procedures when assembling the cars. I have found hatch decks misaligned by over 1/2”, gas tank mounting frames (located between hatch deck and frame) misaligned so that the hatch deck cannot be aligned square to the rest of the car. Birdcages have been found to be set on the frame crooked. The list goes on. In short human nature to take shortcuts when doing repetitive tasks has shown its ugly head in more places than one.

“Can the doors be fit without replacing EVERY body panel on the car?” Yes it can. “Will it be as good of a fit?” No it won’t be, but it will be as good as humanly possible to achieve. (ED. However, if just doing door skins you should also replace the roof and A pillars, and you will have to remove the windshield.)

“Where do you begin work on a Bricklin door restoration?” Careful inspection of the entire car, including condition and fit of existing body panels will enable you to get a clear picture of what is needed in order to achieve the best fit possible for your Bricklin. Certain key locations would be the roof panel, A-pillars, quarter panel to the door jam, back panel (centered on both sides of the rear bumper), alignment of the front clip. (ED. Also look for cracks in the acrylic. As Terry says, “A little crack in a Bricklin is like being a little bit pregnant.” It’s going to grow! You can try and fix the cracks but they will return and be a lot bigger. You’re best bet is to replace the body panel. A 1” crack will require working an area 6 times larger.) Once you have determined what body panels
need to be replaced, you can begin the work of disassembling the parts.

The first thing that will need to be done is removal of all interior parts to protect them. All parts should be protected and stored so as to prevent any damage to them. (ED. Small parts should be placed in "zip lock" bags with labels; larger parts should be labeled with something like masking tape and indelible markers. Storage and organization is critical. John Lodge says, "not like John Blair where stuff is stored in every room of his house").) Once all interior parts are removed you can begin disassembling the car. Starting with removing the mirrors (probably the easiest part) the doors are taken apart. Removing the door skins is done with a heat gun and a scraper. Using the heat gun, you heat the metal flange, that the door skin is bonded to, so that the glue will let go. It takes about 140 deg. F. to get the bond to release. The scraper is gently inserted between the skin and steel flange and allowing the heat to do the work, push the scraper along the flange.

(ED. Where should you start this process? Look for anyplace where the skin has started to separate from the door, but not from the top. If it hasn’t then you should start at the bottom of the door. Always start from the bottom of the door working upwards since you can’t really access the top part of the door skin with the door open.)

Once the skin is free from the door steel it will now be easier to disassemble the window mechanisms and door latch components. Be careful with your door glass, as there is no replacement glass available that I am aware of, so you do not want to break it. Once the guts of the door are removed and safely stored you are ready to remove the steel door shell from the car. Start by removing the T-pin to detach the air cylinder from the door, then lifting the door up and removing the assist cylinder. You are then ready to remove the bolts holding the Tapered gap at A pillar and front fender usually means bent door
door to the hinge and lift the door steel from the car.

Now the real work begins, depending on which body panels you will be replacing. The heat gun and scraper are still used, along with a cutter. I prefer using a cast cutter as it cuts down the amount of fiberglass dust generated. *(ED. The cast cutter is a non-rotating saw, it oscillates. This is similar to the Multi Function Tool sold at most retailers like Home Depot, Lowes, and Sears. Harbor Freight has a corded version for about $39. Well worth the cost!)* I have found that it’s a required step to replace both A-pillars and roof as it will allow you to dramatically fit the doors better and you wont be constrained to keep the doors aligned to them, but be able to fit them to what the door wants to be. **This allows you to hide the ugly!**

From here you will be looking at the rear section of the car. The things you will be looking for are quite numerous as each and every piece determines the lines for the door opening at the front of the quarter panels. The very first place you will look is the line of the quarter panels following down the B-pillar steel. This line needs to be even from the top all the way down to the bottom. If it is not then your quarter panels were installed incorrectly at the factory and will impede the fit of the doors. This does not mean that you absolutely have to replace them; it just means that you need to be aware of the problem so that when it comes time you can adjust for them. For the most optimum fit of the doors, the quarter panels should be replaced, which also means that the back panel and rear trough will have to be replaced as well.

The next place you will look for problems is at the back-panel. What you are looking for here is the centering of the back panel to the rear bumper. If you have a bigger gap on 1 side of the car versus the other, this is indicating that your hatch deck was not installed straight to the car and should be realigned. To do this you will need to remove the entire rear section of the car skins delaminating.
car and loosen the hatch deck from the mounting flange of the birdcage and re-center it. When you have the hatch deck loose from the car, it is a good idea to check the gas-tank mounting bracket and make sure that it is aligned to the hatch deck correctly. I have found them to be misaligned to the point where it is impossible to straighten the hatch deck. If you find this to be evident, it is a simple matter to drill out all the rivets and detach the bracket with a heat gun and install it in the correct location since the hatch deck does have an indentation in it for the gas-tank bracket.

Once you have determined whether or not you will be replacing the rear section of the car you are ready to look toward the front of the car. Here you will primarily be looking for cracked panels. There is only 1 area where you can “get away with” repairing the cracks, and that is the lower section of the fenders. Any other cracks will mean replacing the parts because there are too many stresses, from either heat or force, to allow for a lasting repair. After inspection of the panels is done and you know which panels you will have to replace, you are ready to disassemble the front clip.

The order in which you remove panels from the car on the front end is very simple. You start with the hood since having it out of the way will allow you access to the bolts holding the remaining panels. The hood is held onto the car only at the hood hinges with only 8 5/16”-18 x 1/2” inch bolts.

The next item to be removed is the headlight covers. Be sure to check these for warpage,
as these items are very prone to this. To remove them you will need to first remove the headlight bezels to access the 4 screws that hold each headlight cover on. Once they are off and in your hand, check to see if they are warped. If so, they will need to be replaced and you will need to remove the brackets that hold them in place. This is done with your trusty heat-gun and scraper; again let the heat do the work to separate the glue.

Now you are ready to remove the hood extension. This is held in place with 2 bolts going to each fender (1 in front of and 1 behind the headlight opening), 2 braces that go down to the front cross-member, and a bracket holding it to the hood-bar that is located just in front of the top of the radiator. You will need 2 1/2 inch wrenches for the bolts attaching to the fenders, and a 7/16 socket for the remaining bolts.

Now for the fenders, you may wonder “Why am I removing the fenders if I am not replacing them?” This is very simply answered with the fact that when you have them off the car it is much easier to align the door to where it needs to be, and then reinstall them to where the doors say they should be.

The fenders are held in place at 4 locations: 1 large bolt and shims at the front and rear of the fender (visible with the hood open), another large bolt and shims holding the bottom rear part of the fender to the birdcage, and 2 bolts attaching it to the front scoop.

The hardest bolt to find on the fenders is the rear bottom bolt. You will need to remove an access panel to get to them.

Just inside of the door opening and underneath the dash are 2 openings. Moving forward from the door opening, the first panel you come to is the birdcage body bolt, DO NOT take this bolt out. The next opening you come to will have the cover-plate over it. The best way to know for certain that you have the right bolt is what size socket you are using to remove it. If you are using a 9/16 socket then you are removing the correct bolt. If you are using a 5/8 socket, stop what you are doing and keep looking for the other bolt. (ED. It's not uncommon for this bolt to be frozen. Be sure to use PB Blast to try and free the bolt.)

In some cars there will be a '76 style fender brace that attaches to the bottom side of the headlight section of the radiator support. Usually only '76 cars have these, but if we have worked on the car, it will have them.

Remember if you are trying to remove a panel, always cut the panel you want to replace. Then use the heat gun to break any glue bond to the part you want to salvage.

Now it's the time to sandblast the door, POR 15 it (all but the bond flanges and where the ginger painting should be. Also prime and paint the ginger around the inside window opening.

End of Part 1

Jim Kelliher tightening a fender bolt enroute to Gettysburg