

# Rebuilding Front Seat

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*1976 Jaguar XJ-S*

## **Background**

As part of spiffing up my interior I decided I had to rebuild the drivers seat. I had both of them reupholstered in 1988 so the leather was good. However, the foam was collapsing a bit both in the seat and the back bolsters, and the diaphragm was torn. Also, the piping on the seat back was worn in the usual spot from getting in and out of the car.

The passenger seat was still in excellent shape, of course. Several times I have read about XJ-S owners switching the drivers and passenger seats to deal with this. However, I don't see how that is a practical idea because the control hardware (tilt and release levers etc.) give a "handedness" to the seats. So if you traded the entire seats you would have these controls in the middle of the car instead of the outside where you want them. The advocates say, just switch the backs. Well, then you'd have a nice firm seat and a broken down back, an improvement but not by much. So I'm not a big fan of that approach.

**N.B.:** As you read this keep in mind that I'm talking about a 1976 XJ-S. I'm pretty sure the seats were the same up until the late 1980s.

## **Materials**

I ordered new seat foam from Original Specification Jaguar Interiors (OSJI). It cost \$57, plus \$22 for shipping. As seen in Figure 1, the new one was not an exact replica of the old one. Instead of being molded to shape, the new one was sliced and carved out of foam blocks. For reasons I do not understand, it came with the center cushion integral with the bolsters. It has to be cut out and covered separately. It all turned out well, however. I believe the molded foam can still be obtained, but at a much higher cost.

I also got medium density foam for the back from a local foam supplier, costing a few dollars. I got about 6 or 8 square feet each of 1" and ¼". This was used to beef up the seat back.

The diaphragm was from Exotic Car Parts, Upland CA, and cost \$45 plus \$7 shipping. Also, when I got the back cover off I took it to a local trim shop which replaced the piping for \$20, labor and materials. As part of the overall interior project I already had a pint of Leatherique dye.

Finally, you will need some good adhesive. I used the 3M Super Trim Adhesive, #08090, although this might have been overkill. Any good upholstery adhesive should work here. I might add that if you can find something that you can apply with a brush you might be better off. Probably because of air pollution controls or concern about the glue sniffers these seem to have disappeared from retail shelves. The problem with the spray cans is that you have to be continually masking things to keep the glue where you want it and off the front surface of the leather. You may also need some adhesive remover. Although I did not have any there were times when I wished I had.



**Figure 1 Seat foam, old (left) and new (right)**

### ***The Tear-down***

You can have the seats on your workbench in about 15 minutes. They are attached to the mounting pads on the floor with a large Philips head screw at each corner. You will have to slide the seat forward to get to the rear ones, then back to get at the front ones. Note the location of the spacers that come out so you can get them back to the right place.

To disassemble the seats first remove the back control hardware. As you know, on the outboard side there is a small black knob that releases the back for rear seat access. Using a piece of heavy vinyl or something to keep from damaging it, grip it with pliers and wiggle it off. Only a spring clip in the knob holds it on. Then remove the two screws holding the bezel on. At the bottom outboard side there is a chrome lever that controls the tilt. Remove the center screw and remove it. This will allow you to remove the two kidney shaped trim pieces that conceal the hinge. One the inboard side there is a single screw holding this trim piece in place.

The back is held to the seat frame by two bolts on each side. Remove them and separate the back from the seat.

The seat slider rails now have to be removed from the frame. By sliding the rails forward and back you can gain access to the 4 screws that hold them to the frame. Remove and set aside. They might be greasy so be careful not to soil the leather if you plan to reuse it.

### ***Rebuilding the Seat Cushion***

#### **Notes**

If you plan to do both seats it's a good idea to them one at a time. That way if you forget how something goes during reassembly you can always look at the other seat. Also, pay close attention to the way the seat is put together before you take it apart.

#### **Removing the Leather and Bolster Foam**

First, you have to remove the center pad from the cushion. Turn the seat upside down on your bench. You will see that it's held in by six vinyl straps from the pad upholstery that feed through holes in the diaphragm and are glued to the bottom of the rubber diaphragm. Work these straps free from the rubber, the flip the seat over and remove the pad from the

top. Now you will see that the leather glued to the top of the diaphragm. Carefully free it from the leather. Mine come up easily, but I have read that others ruined their leather trying to get it free. Consider using some kind of solvent if needed. I have read that 3M makes an adhesive solvent for work like this but I did not use it.

Now flip the cushion over again. You will see that it is held around the front and side edges with steel clips. Pull these off with pliers, and carefully save them, as I expect they may be hard to replace. Along the rear edge the leather is rolled over the frame and glued to it on the inside. Free this glue and remove the leather. Note the condition of the foam that wraps the frame where the leather rolls around it. Mine was in fair shape so I did not replace.

Once the leather is removed you can easily separate the foam bolster, Figure 1, from the seat frame. Figure 2 shows the frame and diaphragm. The leather is still attached at the back, but I eventually removed it entirely.



**Figure 2 Seat frame and diaphragm.**

### Fitting New the Diaphragm

Once the leather and foam have been removed you can see that the diaphragm is attached to the frame with what appear to be "hog rings" at about 8 points around the perimeter. However, they are a good deal more substantial than ordinary hog rings, so don't lose them. You can see a few of them in Figure 2. One end fits around a steel pin molded into the rubber of the diaphragm, while the other end hooks into holes in the frame. They can be removed with good pliers and firm grip. The first few will take some tugging as they are under tension from the diaphragm.

Before you remove the old diaphragm study it a bit so you know how to install the new one. First, pay attention to how the rings are fitted before you remove them so you can get them back right. Around the two sides and front the rings hook into holes in the bottom of a tubular frame member, and necessarily are fitted with the open side of the ring facing up. Along the rear edge the hook into a flat edged frame member and could be fitted either up or down. As I recall, they were up on one of my seats, and down on the other, so perhaps it doesn't make any difference. My guess is they should be fitted with opening up as that would make them tend to engage further under load, but who knows. Also, make note of which side of the diaphragm itself is up, as the two sides are different.

Before fitting the new diaphragm you will have to punch some holes for the straps that hold the center cushion pad in. You can see where they should be from your old diaphragm. Do not use a knife for this job, as that will tend to leave sharp cuts that can lead to tearing. Get a 1/4" hole punch for the job (look up "arch punch" at McMaster-Carr).

Reattaching the new diaphragm is a bit of a chore. The difficulty is in trying to hold the seat frame with one hand while pulling mightily with your pliers in a hog ring, stretching the diaphragm. I managed to do it on my own, but if you have someone to help it will be easier. Also, you may find that there is not a through hole in the rubber for the rings, making it hard to securely attach the ring end that goes to the pin molded into the diaphragm. I had to use an ice pick to make a hole.

I don't remember for sure the order in which I attached the rings, but I believe it was along the front edge, then the rear, then the sides. You will be able to work it out, I'm sure.

### Attaching the Foam

The U-shaped foam bolster has to be glued to the frame. If you paid attention to what the old one looked like before removing it you will better know how to properly locate it. I hadn't, so had to play with it a bit. The issue is how far forward to position the bolster on the frame. I found that it has to overhang the front of the frame in order to line up at the back. Figure 3 shows the bolster attached to the frame, diaphragm installed.



**Figure 3 Bolster attached to frame.**

## Replacing the Leather

As you prepare to refit the leather the question will be where to begin. I choose to attach it around the bottom with the clips first, followed by gluing and clipping at the back, and finally gluing to the diaphragm on top. The problem with this approach is that the new foam tends to fight you, pulling up on the edges of the leather you are trying to glue to the diaphragm. I weighted the bolster down with a stack of heavy books, relieving the tension in the leather, while gluing it down. Once glued, I put some boards down into the center cavity and used bricks to weight it down to hold the joint firmly while the glue dried. It's a bit tricky because if you don't the leather attached to the diaphragm straight the leather will pucker.

Looking back, I am wondering if it would have been better to start by gluing to the diaphragm and clipping to the frame last. I had to pull it loose and start over a couple times, but finally got it looking pretty good, Figure 3.



**Figure 4 Leather covering bolster.**

## Replacing Foam in the Center Cushion

You can see the construction of the center pad in Figure 5. Perhaps you can see that the old one (top of photo) is covered with white cloth, glued to the foam. The (vinyl) sides of the cover is pulled around the foam and glued to this cloth. I used an old pillowcase for the cloth when I reassembled the cushion.



**Figure 5 Replacing foam pad in center chshion.**

### Reinstalling Center Cushion

The only difficulty in reinstalling the center pad is getting the straps through the holes in the diaphragm. Figure 6 shows how I did this. A string is attached to each strap and threaded through the holes. It's then easy to pull the straps through.

After removing the strings apply adhesive to the back site of the tabs and to the portion of the diaphragm where they will be glued. After the adhesive has dried the prescribed time, pull the strap so as to pull the cushion firmly down into its place, then press the strap to the diaphragm and hold for a while. After all of them have been done, weight them down with boards and bricks and let stand overnight this way to get a good bond.

Figure 7 shows the completed seat cushion with the center pad in place.



**Figure 6 Installing the center pad.**



**Figure 7 Completed seat cushion**

## ***Repairing the Back***

### **Taking it Apart**

Removing the cover from the back begins with freeing it along the bottom edge. Both the front, leather part of the cover and the rear, vinyl part of the back are stapled to a wooden cross member along the bottom edge, Figure 8.



**Figure 8 Bottom of back**

Once the staples are removed you can slip the vinyl-covered rear panel out, exposing the interior, Figure 9. To get the cover off you have to unbolt the headrest and pull it out. Then free the leather where it is glued around the top and sides. You also have to remove the clips that hold the gray flannel cloth from the frame, and free the tan colored cloth where it is glued to the horsehair bolsters. Before you do this, though, make careful note of exactly how it's done. These cloth pieces are sewn in to the center panel of the front cover and pulling them tightly to the frame and bolsters gives the concave shape to the seat back.

### **Repairs**

If yours is like most XJ-Ss with a few miles the piping will be worn through at the lower outboard edge of the drivers seat back. Once you have the cover off you can take it to a trim shop and have them sew in new piping for about \$20. My shop was able to find something of close enough color in their collection. You could of course order it from OSJI in the exact color if need be.



**Figure 9 Interior of back.**

### Rebuilding the Foam

Figure 10 shows how I added foam to build up the seat back. The side bolsters and top are 1" thick pieces. Although you can't see it in the picture, I also slipped an extra narrow piece, which I had trimmed to a tapered thickness, under the inside edges of the side strips. All of this was in an effort to fill in behind the leather covering the bolsters that had collapsed a bit over the years. The center panel is a 1/4" piece covering the horsehair padding.



**Figure 10 Adding foam to back.**

### Refitting the Leather

Slip the repaired leather front part of the cover down from top, pulling it into place. Check that the cutouts for the seat release lever on the side and the headrest on the top line up with the hardware.

Pull the cloth pieces through the frame to the back and pull them into place, Figure 9. Clip the gray cloth to the frame. Then apply adhesive to the tan cloth and the horsehair side bolster and carefully pull the cloth and press into place. It's a little more difficult than it sounds, but hard to explain. But you will be able to tell if it's wrong because the center panel will look slack from the front.

Once the cloths are in place, apply adhesive and glue the leather around the top and sides. You will need to stretch it around a bit before pressing it into place in order to get a nice tight fit. Be sure the cutouts line up with the holes in the frame.

Once the front part of the cover has been fitted you can reinstall the headrest and the back panel. Restapling the bottom edge, Figure 1, is the final step. Figure 11 shows my results. You can see there is still a little slackness in the bolster near the top right, but it's a lot better than it was before.



**Figure 11 Finished back.**

### ***Reassembling and installing***

Before reattaching the back to the seat you have to reattach the slide rail hardware. I first cleaned mine up a bit and applied fresh white silicone lubricant.

Reassembling the seat and the back is a bit of a challenge for one person. You need both hands to maneuver the back and another hand or two to hold the seat down so it doesn't keep scooting away as you wiggle the back mounting brackets into place. I managed, but it would be a good place to ask for some help.

Before putting the seats back in the car you might want to give the carpets a good scrub and do whatever other interior detailing is needed. Applying leather conditioner to seats and door panels is a consideration. It will never be easier.

I have read about people having difficulties reinstalling the seats due to unrestrained block nuts etc. I had no such difficulty. Three of the mounting points seemed to have well restrained nuts so it was simply a matter of inserting the screws and tightening. The

outboard rear mount points had unrestrained nuts, but it was easy to get them started and hold the nuts with an wrench. It took about half an hour to get them in.