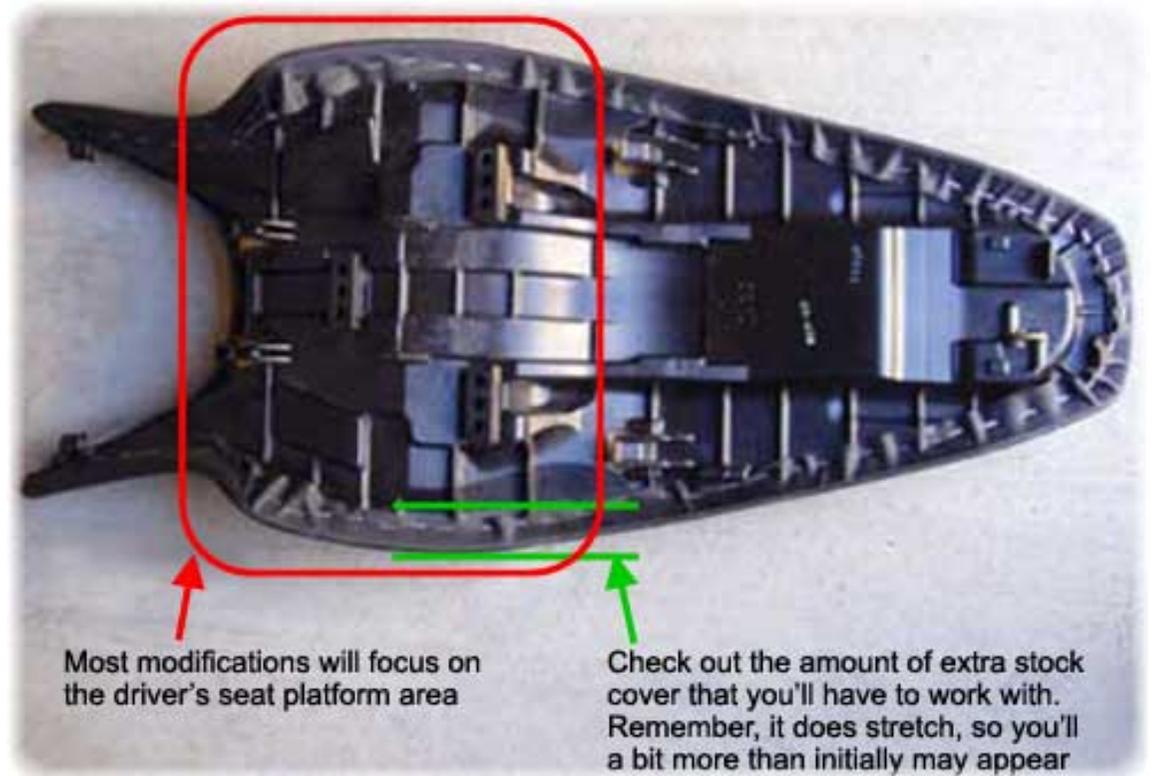


**T**his is a fairly simple process. Just make sure to avoid cutting or ripping the stock seat cover as you remove the staples that secure it to the seat pan. In most cases you can save a lot of time and money by reusing the seat cover. This will be more difficult if you accidentally put a bunch of holes or tears in it.

- 1** Remove the seat and check out how much seat cover you'll have to work with in the areas that you'll be modifying. Most modifications will focus on the driver's seat platform. Remember, the stock seat covers can be stretched, so you'll have a bit more to work with than may initially appear.



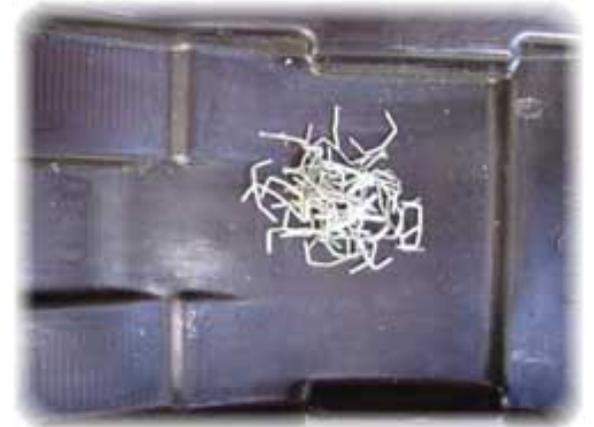
- 2** As you can see, the seat cover is attached using 1/2" or 3/8" crown, 1/4" long staples. Using your tack/staple remover, remove all the staples in the area you'll be modifying, if it's a one-piece seat as shown in the picture. If your working on the driver's seat of a two-piece seat, you'll have to remove all the staples so that you can completely remove the cover.

Be careful not to rip the seat cover under the staples with the tack puller as you pry them loose. Just get the tip of the tack puller under the staple a bit, and then pry it up by twisting it a bit. Don't try to jam the tack puller completely under the staple and then pry; you'll likely rip the cover sometimes doing this.



3

Do yourself, along with the people and pets you live with... and gather up the staples and throw them in the trash. Getting staples stuck in your feet (or paws) is a pain.



4

After you remove the staples, pull back the seat cover. Make sure that you've taken out enough staples to pull the cover back far enough to give you plenty of room to work on the area that you want to modify. Without enough room, you may accidentally nick the cover with the grinder when shaping the foam—there's a hole in the cover.

Consider this your canvas. On it you'll create your masterpiece! This picture shows the seat back on the bike. Notice how the stock cover is pulled back sufficiently beyond the rise to keep it out of the way.

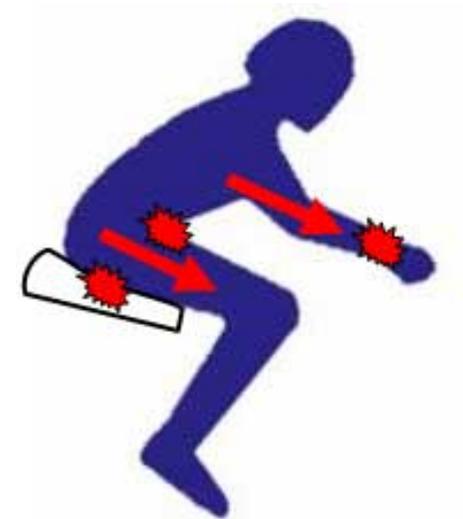
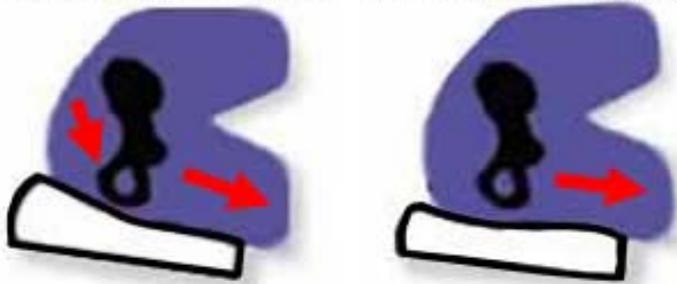


Before you start cutting and shaping foam, you should have a basic understanding of pitch and cradle, how these affect the comfort of your seat. This will also help you understand why your current seat doesn't work so well.

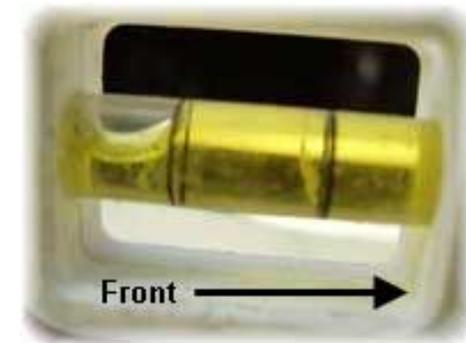
## Pitch

Pitch is the front-to-back angle of the seat. It determines how much the seat causes the rider to slide into the tank, how much pressure is placed on the wrists, and how much soft tissue in the buttocks is pushed away from below the sitting bones (ischium). A more forward pitching seat pushes the rider into the tank, places more pressure on the wrists, and pushes soft tissue out from under the ischium, thereby causing them to be irritated more quickly. The pictures to the right and below show this relationship.

**Too much forward pitch    More comfy forward pitch**



The picture to the right shows a close-up of a level placed on a stock Honda VFR seat with its cover removed. You can clearly see the forward pitch by looking at the position of the bubble. Along with other characteristics of the stock seat, this forward pitch made this stock seat very uncomfortable for me.



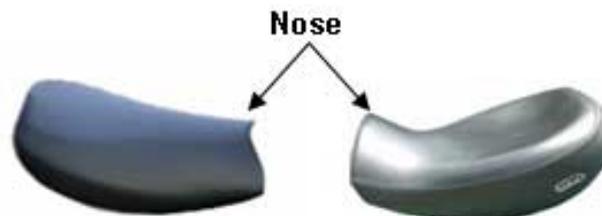
Below are a couple more pictures of a Honda VFR seat. The left seat has been modified to significantly decrease its forward pitch. This modification also provides a bit more leg room, given the slight increase in seat height. This can make longer rides easier on the knees. This exact modification may not work for a much shorter rider who needs to be lower to reach the ground. Also, notice that the original cover has been reused, saving time and money. It may not look as beautiful as an expensive, custom upholstered seat, but: 1) it's not *that* ugly, 2) nobody sees it when I'm riding, 3) it has allowed me to increase my comfortable riding time from about 30 minutes to about 10 hours, and 4) it costs me less than \$50 in materials.



And here are a couple of pictures of a Suzuki GSXR600 seat—that's a sweet bike! The left one has been modified to decrease its forward pitch, and to provide more cushion and better cradling. The stock seat doesn't look like it pushes the rider forward much, but with lower clip-ons and higher foot pegs, I found myself constantly having to push myself back off the tank. In addition, the stock seat's poor cushion and cradling caused my butt to hurt as soon as 30 minutes into a ride. With a stock seat like this, it was hard for me to enjoy the bike, and ride the heck out of it like I wanted to.

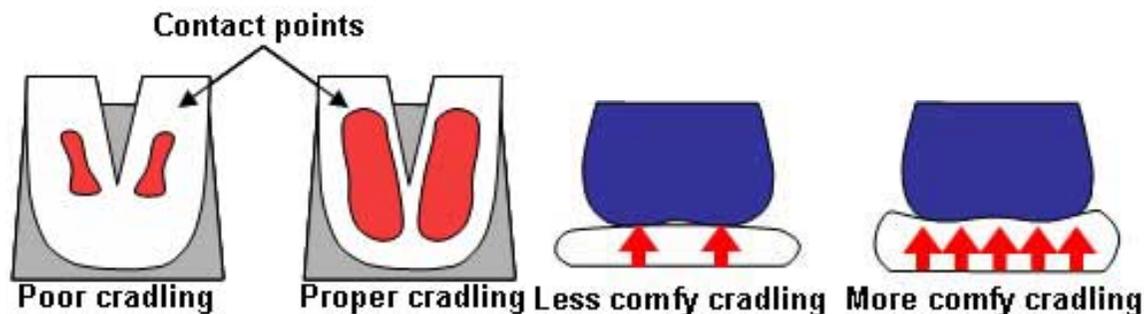


One part of the seat that helps decrease the obnoxious forward slide of so many stock seats is a well-shaped "nose." The pictures below show a Suzuki Haybusa stock seat (left) and a [Corbin](#) Hayabusa replacement seat with a more pronounced nose. The nose not only prevents the rider from sliding forward as much, but also helps distribute weight across the seat, thereby removing some pressure from the sitting bones.



## Cradle

Cradling is the property of a seat that determines how uniformly a seat distributes body weight across the seating area. By distributing body weight across more seat area, pain is reduced in places where the buttocks bears a lot of weight. This especially occurs right on the sitting bones. Cradling is a key aspect of making your seat more comfortable, especially for longer rides. The pictures below illustrate how cradling helps distribute weight to make a seat more comfortable.



The pictures of the stock and Corbin Hayabusa seats above clearly show the difference in cradle between a stock seat and more comfortable, modified seat. The pictures below show an example of the stock and modified Suzuki GSXR600 seat. The modified seat is far more comfortable, and also allows the rider to move around easily on the seat when riding the twisties.



Some seat makers, such as [Russell](#) and [Bill Mayer](#), build custom saddles particularly for cruisers and sport-touring bikes. They cater to riders who want a comfortable seat for serious, long-haul riding. The shape of their seats may not work for most sportbike riders who need to move around a lot on the seat (side-to-side and front-to-back). However, the shape of their seats illustrates how these seat makers, based on years of experience, research, and rider feedback, incorporate comfortable pitch and cradling.

## ADDING, REMOVING, AND SHAPING FOAM

Hopefully by now you have a decent understanding of how you can reshape your seat to make it more comfortable, and why this will work. Now it's the time to remove and reshape some of the stock foam, and to add and shape some new, more comfortable foam. In the end, you're looking for optimum pitch, cradle, and support.

This part of the process can be a bit disconcerting the first couple of times. You may wonder whether you've ruined your seat. Just realize that, unlike modifying an internal engine component, you can't do any damage to the bike here. It's just a seat, with some foam and a vinyl cover. As you try different combinations of the suggestions below, you'll quickly gain confidence in your ability to master the art of seat-improvement.

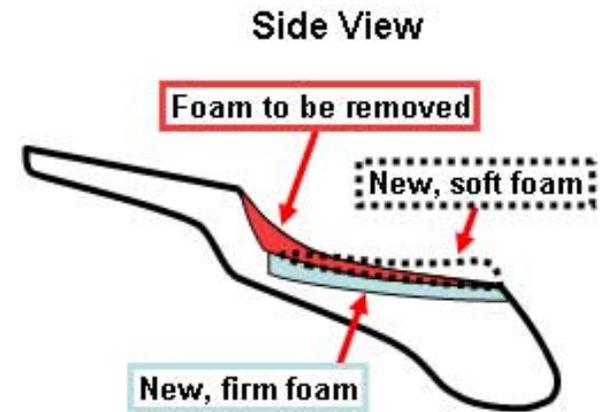
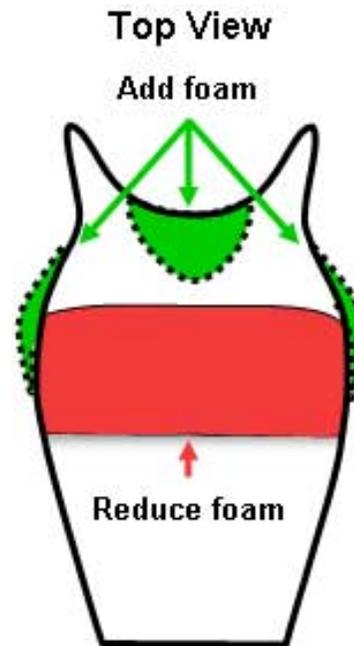
**Note that the descriptions below should be viewed as OPTIONS, not steps that must be followed exactly as described.** Be creative and to try out approaches that you think will work best for your bike, body, and riding style. You might want to try just some of the modifications described below. You can always try a "version," put the seat on your bike, give it a try, and then adjust as necessary. The [Other Ideas](#) page has a couple of other ideas available to you out of the almost infinite variety.

- 1 With the seat cover removed, you should have plenty of access to the area that you'll be working on.



**2** These pictures outline the basic plan of attack. The key changes shown here are reducing the forward pitch, increasing cradle and, increasing the length of the driver's platform to give taller riders a bit more forward-backward room.

Also, notice that we'll be using two layers of foam. The bottom layer provides a firmer foundation layer, while the top layer uses softer foam to improve comfort and minimize any imperfections in the shapes below it.



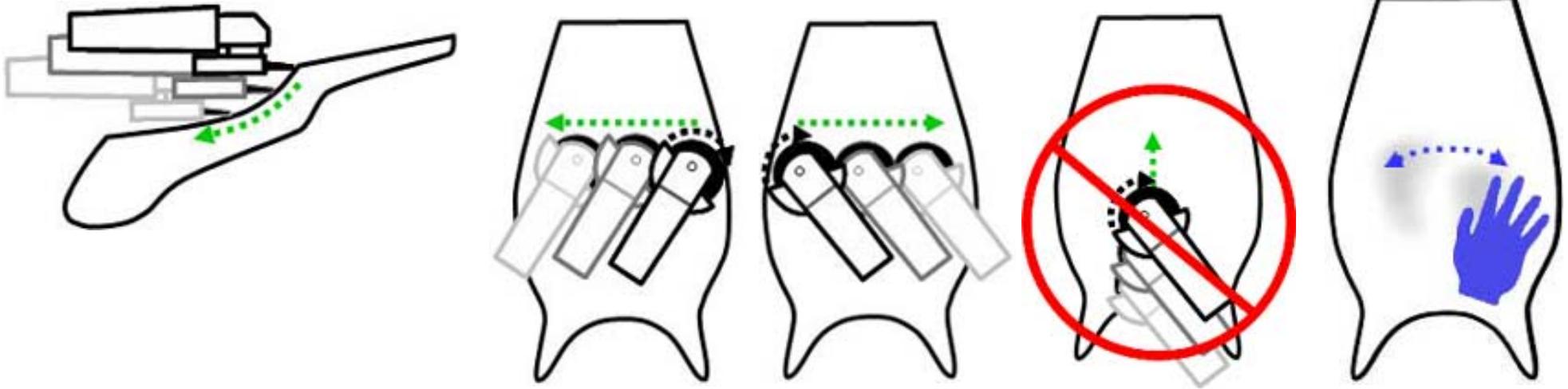
It may help to mark the basic areas of the stock seat that you want to grind lower. Just remember that it's generally easier to remove foam than to add it, so work patiently and carefully.



**3** Carefully grind down the areas of the stock foam that you've identified. Use very light pressure with the grinder, as it easily cuts through and takes off foam. Use longer strokes where possible, instead of working the grinder in one small area. Never push the grinder into the foam in the direction of its rotation; instead, pull it towards you, gently "sweeping" away the foam you want to remove.

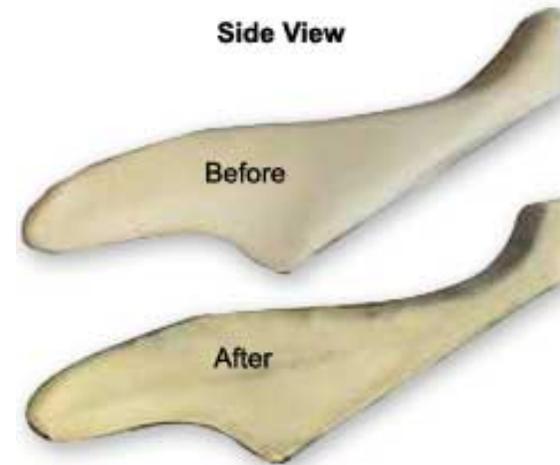


Always use eye protection and a filter mask when grinding foam. Grinding foam can kick up a lot of dust that can irritate your eyes and lungs.



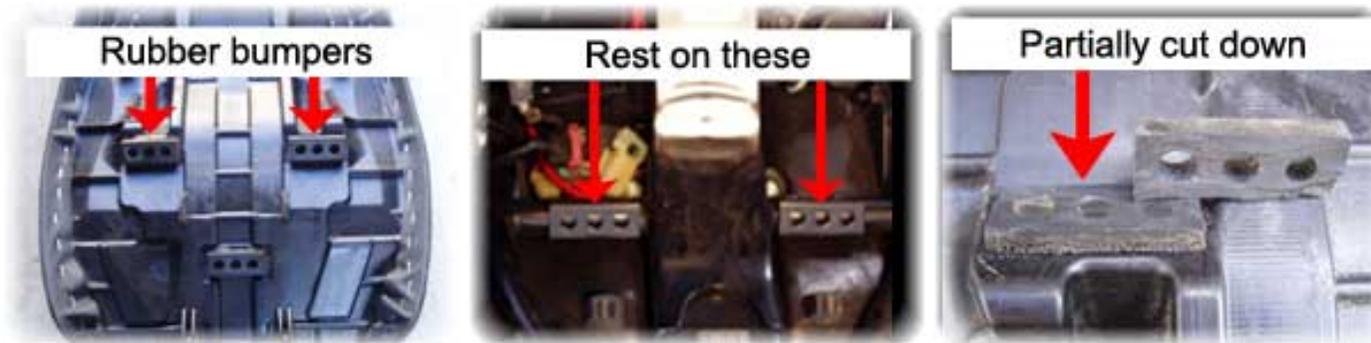
Occasionally check the area that you're grinding with your hand to make sure there are no accidental, significant high or low spots. If there are, gradually remove them with the grinder.

- 4 While you're grinding down some of the stock foam, you may want to dish the surface a bit to improve cradling. The back part of the driver's platform on this Honda VFR seat (pictured below) needed to be taken down as far as the seat pan to mitigate the pitch angle and improve cradling. Removing this much foam doesn't pose a problem since I'm adding about 1 1/2 layers of quality foam on top of this area. Also, very little weight is supported in the very back area of the driver's platform.



The before-after pictures above bring up a good point: sometimes the shape of the stock seat pan and stock amount of foam doesn't offer much opportunity to grind down enough foam to make substantial pitch or cradle changes. This may cause other modifications to increase the seat height a bit, though this depends on the specific combinations of modifications made. It's a trial-and-error process that will be different for each bike and rider.

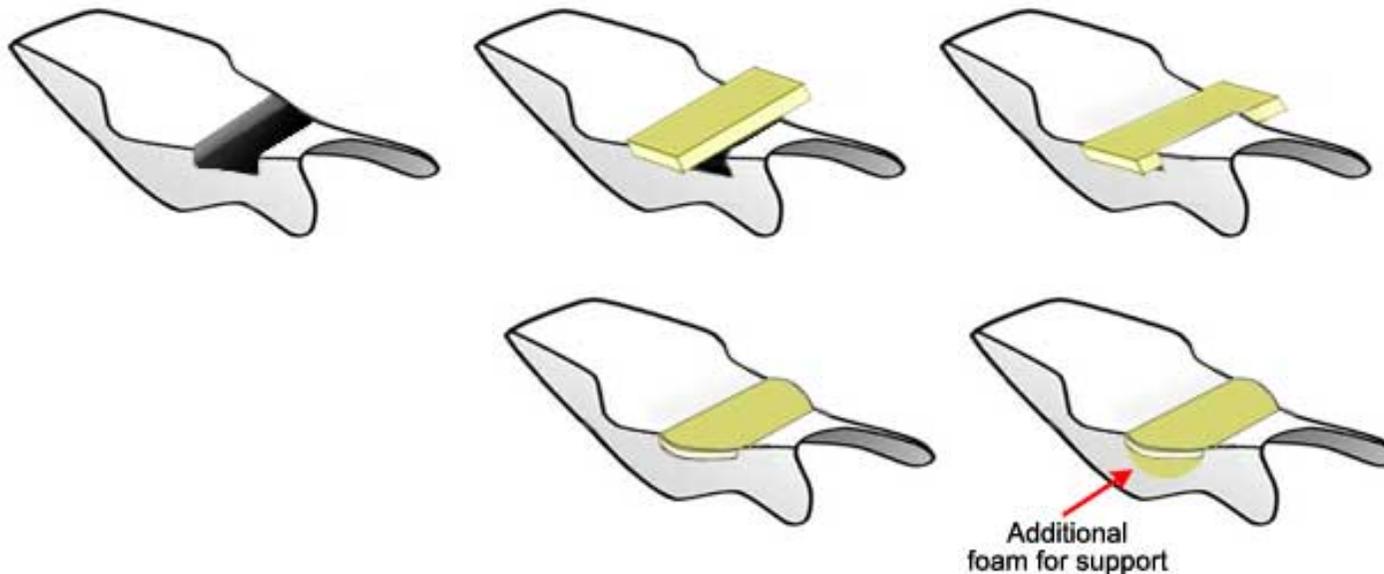
In this particular case, I was able to reduce the height of the rubber bumpers under the seat pan. This reduced the forward pitch of the stock seat slightly. I didn't want to completely remove the bumpers since they absorb some engine and road vibration, and also to prevent the seat pan from grinding on the rear cowl plastic.



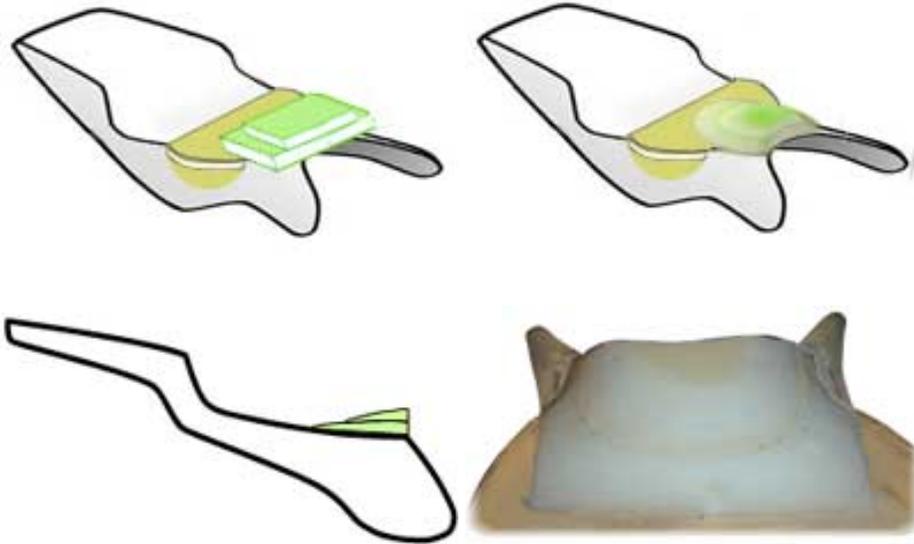
**5** Adding some width in the area that bears most of a rider's weight will help cradling and comfort. About the most that can be added without changing the seat pan is about 1 1/2 inches beyond the stock width. Adding too much extra width also will make re-using the stock seat cover more challenging.

The pictures below show one way to do this. Cut out a section of the stock foam. Using spray adhesive, place a piece of rebond or firm closed-cell foam in the cut out section. I like using 1" thick pieces of foam, since they're easier to cut and shape. If you want a thicker, 2" piece, all you need to do is laminate (i. e., glue) two 1" pieces together using spray adhesive.

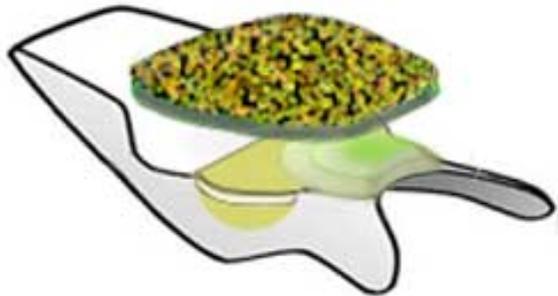
As seen in the last picture in the sequence, it helps to add and shape a small piece of foam to smooth out the overall shape and add a bit more support under the "cantilever" or part that sticks out. Exactly where you add width to the seat depends on the your body and personal preferences. The pictures below are illustrative only.

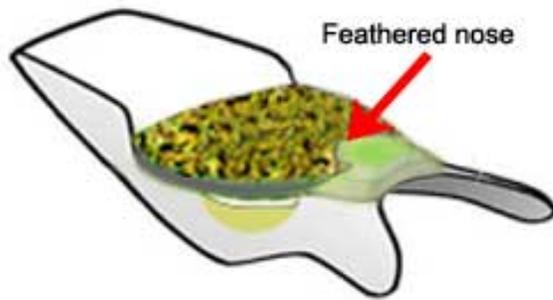


**6** One or two pieces of 1" open-cell foam can be used to build up the nose. This improves both cradling and reduces forward pitch. This can really help minimize the obnoxious-sliding-into-the-tank syndrome. If you use two pieces of 1" foam, just glue them together with spray adhesive. Then glue these onto the stock foam. Though 2" may seem like a lot of extra height at the nose, the material is a softer, open-cell foam that compresses nicely under pressure, and I've found this additional height necessary to mitigate the uncomfortable forward pitch and poor cradling of most stock seats. Also, you'll be adding additional foam on the seat later, which effectively will make the rise in the nose less pronounced. When you try it out for a bit on the road and you find it's a bit high, you can always grind down small amounts of ore foam until the nose is just right for you.



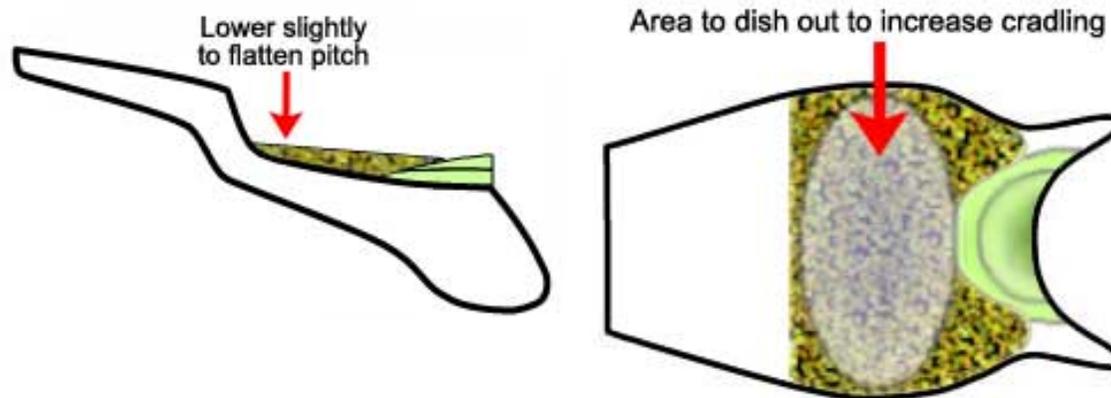
Grind this added piece of nose foam into a smooth shape that's comfortable for you. When shaping them with the grinder, make sure that the grinder wheel rotates towards the seat so that the two pieces of foam stay tightly together. Otherwise, you could easily pry apart the two pieces with the grinder as you're trying to shape it. Be patient and take off small amounts at a time. Work your way around the shape, rather than concentrating on one small section at a time. When you're finished, the shape should be smooth, balanced, and with a tight seam.





**7** This step adds a 1" layer of high quality, firm foam to the seat platform. This replaces the less comfortable stock foam that was removed, and adds back some of the height that was lost. This additional layer also provides a foam layer that can be further shaped to improve pitch and cradle. For this layer, you can use firm open-cell foam (such as [rebond](#)) or a firm [closed-cell foam](#).

Notice how the area around the nose is feathered down. This keeps the nose of the seat feeling softer and not getting too high. If you want to use this layer to decrease the pitch of your seat a bit more, grind down the rear part of the seat platform. Grinding down the center part of the platform, as shown in the picture, can also increase cradling.



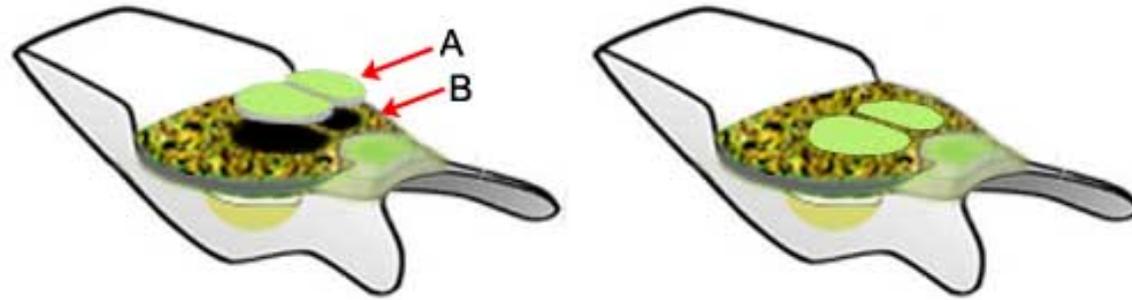
**8** I've found this step to be very helpful in calming the sitting bone (ischium) hot spots. The step involves the removal of a 1" piece of firmer foam (e.g., rebond, B in the pictures below), and replacing it with a 1" piece of softer foam (A in the pictures below). The softer foam could be the same type of open-cell foam that you used on the nose. If you use a good quality open-cell foam, the two layers of it under your sitting bones will not cause excessive "[ride](#)." In other words, it shouldn't be so soft as to cause you to sink way down into the seat.

Sit on the bike with the seat attached. Notice where your sitting bones make the most contact with the seat. Use white chalk, pastel, or something similar to mark this area on the seat. You can cut out the marked area with scissors, utility knife, or something else. The cut out area(s) are labeled as B in the pictures below. If you use scissors, you'll first have to remove the piece of foam from the seat.

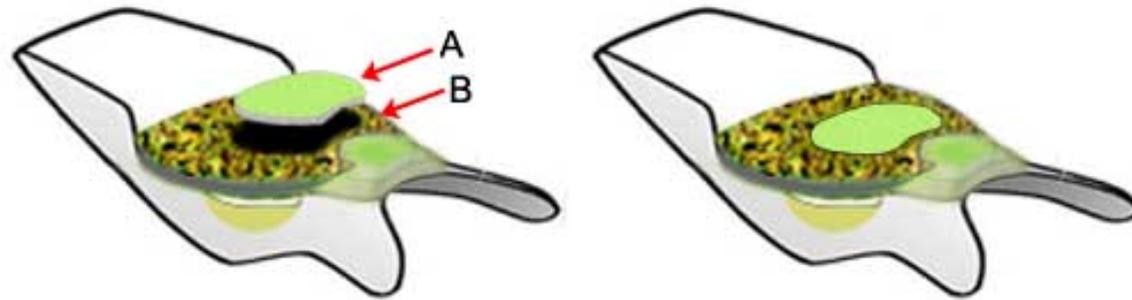
Now cut out a piece(s) of the softer foam (A) so that it fits into the hole(s) you just cut out (B). Spray a bit of adhesive where it will set, and put it in place.

What this will do is give you a bit softer area where your sitting bones make contact with the seat. On longer rides, the weight on these bones, if the seat is not properly shaped or too firm, can really start to ache.

### Two-piece method



### One-piece method



**9** This step involves putting a 1" piece high quality, open-cell foam over the whole seat platform. This will give the seat a slightly softer feel than if you left the firm rebond or closed-cell foam on the top layer. This final layer will also cover up surface imperfections, making the seat look and feel smooth when you re-install the seat cover.

This step doesn't involve much other than cutting the piece of foam to the correct shape. You may want to slightly smooth out the corner edges with a grinder, and also feather a bit the front edging where the hamstrings contact the front/side of the seat (see pictures below).



## [Gel Pad Installation](#) | [Mod To Reduce Tail Bone Pain](#)

**Y**ou can try just some of the modifications described elsewhere on this site, or you may want to try an approach described but change it slightly to suite your particular needs. For example, instead of using two 1" pieces of foam to build up the nose of your seat, you may feel that only one piece is necessary. Also consider that foam is available in thicknesses generally ranging from 1/2" to 4", though 1/2" and 1" pieces are easier to cut and shape. And remember that you can always laminate 1/2" and 1" pieces together as necessary to achieve any desired thickness.

### **Add A Gel Pad**

A lot of riders like gel pad inserts, though as usual, how well they work varies from person to person. If you do want to use a gel pad without adding additional height to the seat, the basic steps are as follows.

These steps also apply if you want to insert a foam pad that provides more padding and/or support than the stock foam (e.g., good polyurethane open-cell foam, memory foam, etc.).

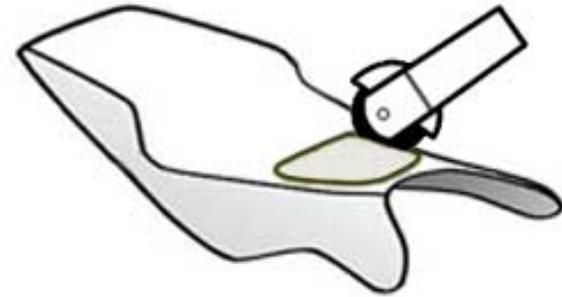
- Cut the gel pad to a size and shape that will provide support for the area of your buttocks that makes the most contact with the seat. In other words, your sitting bones should **not** be halfway on the gel pad and halfway on foam. Note that the sitting bones are relatively close together, so you don't need to have a really wide (and expensive) piece of gel to help support and distribute the lion's share of your weight. I'm 6-4 and 215 lbs, and you can see in the picture below where my sitting bones lie on a 10" x 9" piece of gel. **Note:** Remember, you usually can easily bond one or more pieces of gel pads together if you do want a bigger piece. Typically, no adhesive should be necessary... just clean off the cut edges that you want to bond. Then press the sticky edges together.



- Trace the outline of the gel pad so that you know where to cut (shown in the picture below). Again, the placement of the gel pad is critical. Make sure the gel pad is located so that it supports the areas of your buttocks that bear the most weight.



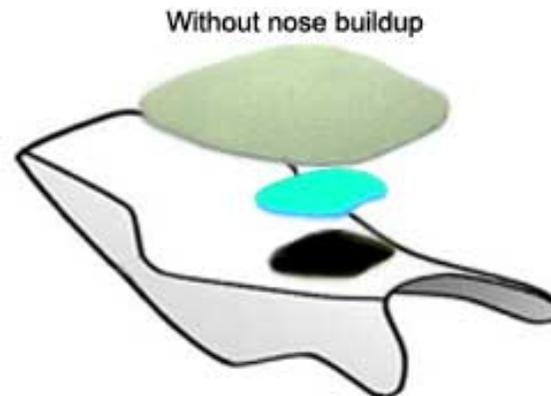
- Remove a section of the stock foam equal in shape and depth to the shape and thickness of your gel pad. There are a number of ways to cut out the section in which the gel pad will fit.
  - First, make a clean cut on the outline mark. One way to do this is to use a sanding wheel attached to a drill (shown in the picture below). You could also use the side of your grinder wheel, or anything else that allows you to cut a smooth ditch along the outline. Because this method makes a clean cut line around the perimeter of the gel pad area, it helps minimize the space between the sides of the pad and seat foam. Cut out a clean groove at least as deep as the gel pad is thick.

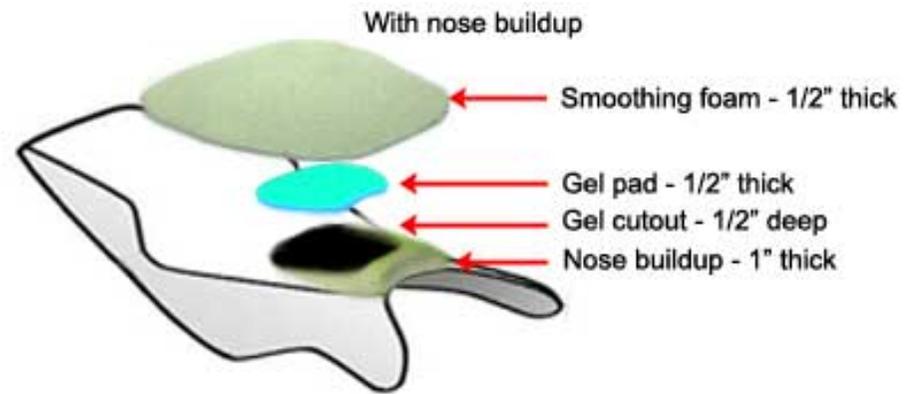


- Once you've completed this outline, use a grinder to grind down the foam inside the outlined area. Again, remove an amount of foam equal to the thickness of the gel pad so that the gel pad, when placed in the foam, will be flush with the surface. Remember, it's easier to *remove* a bit more foam than it is to add foam. So, be patient and smooth with the grinder, occasionally seeing how the gel pad fits into the space you're making.

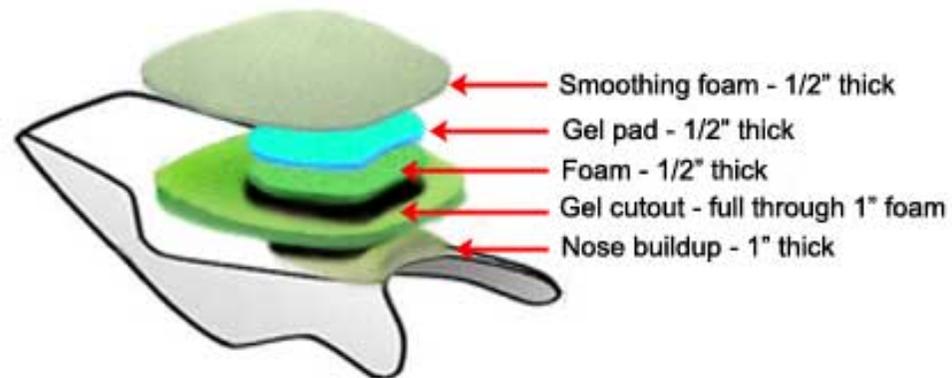


- Place the gel insert into the cutout shape, using spray adhesive to make sure that it's secure. A 1/2" piece of open-cell foam over the top of everything will smooth out any surface imperfections and reduce the amount of heat buildup in the gel pad on sunny days. The pictures below two examples of how this might look: one version with a nose buildup and one without.





The possibilities are endless. Below is picture of just one other idea. It shows a shape for the gel pad cut completely through a 1" piece of foam. If the gel pad is 1/2", you can use a piece of 1/2" thick foam the same shape as the gel pad to place under the gel pad. This will allow the gel pad to sit flush with the top layer of foam. This is an easier way to make a place for the gel pad than grinding 1/2" of foam through the 1" top layer of foam.



[Top](#)

## Reduce Tailbone Pain

Under construction

**The BOTTOM LINE—use your imagination, try different approaches, and test them out. You will eventually come up with something that's just right for you!**

## RE-INSTALLING THE COVER

**N**ow you're ready to tuck everything back together, and get back to riding. The changes made to the shape of the seat will inevitably affect how challenging it will be to stretch and staple the stock cover back in place. Those areas where you've built up foam and added height to the seat will pose the bigger challenges. In most cases, if the stock cover does not have any seams in it, you should be able to stretch the cover enough so to give you sufficient area for stapling. Even if you have to muscle the cover back in places, the staples all around the edge will share the tensile (pulling) forces acting on the cover, helping to make sure that the cover doesn't rip at any one of the staple points. Over time, vinyl covers will stretch a bit, therefore making subsequent stretches easier. And chances have it that you will have to take the cover off at least a couple of times to tweak things a bit.

### Stapling

This may seem like a topic that doesn't need any explanation. However, if you've ever tried to fire staples into the bottom of a plastic seat pan with a manual staple gun, or even a cheap powered one, you'll realize that getting the staples securely, completely back into the seat pan is not like stapling a piece of plywood. The plastic is relatively hard, which is why you should at least use a decent consumer- or commercial-grade electric staple (see the [Tools](#) page for more info).

If you're using a regular, heavy-duty staple gun like the Arrow ETFX50 shown on the [Tools](#) page, hold the seat in your lap or some way so that you can press the vinyl against the seat pan firmly with the staple gun (see picture below). Don't put the seat on a rough floor or workbench. While these provide a stable, firm base, you're likely to scuff or rip the vinyl cover.



### [Removing the](#)

If the seat pan doesn't have a firm support against which you can push firmly, the staple will probably only drive half-way into the plastic. If this happens, carefully remove the staple so as not to rip the vinyl (as described in the

[Seat Cover](#) section) and give it another shot. Try not to avoid ripping or getting holes in this strip of vinyl that you're using to re-attach the cover.

As you test ride your seat, you'll likely make adjustments to your modifications—shaping, adding, or removing a bit of foam here and there. Assuming this will be the case, you may want to use fewer staples to re-attach the seat cover for the first versions. Once you get your seat to a place where you think it will stay for a while, you can then drive in staples so they are about one inch apart. Taking off and putting the cover back on will naturally create little staple holes in the plastic. Don't sweat this. Nobody sees this minor imperfection and, as long as your staples are driven in completely, the seat cover is not going anywhere.

### **Getting a Firm, Even Tension on the Cover**

The re-installed cover should be relatively tight to avoid having it move or wrinkle as your body shifts around on the seat while riding. This is one aspect of sportbike seats that makes them different from ,say, cruiser seats. If you've increased the overall amount of foam on your seat, and you decide to re-use the stock seat cover, this should be easy since you'll be forced to use the same size cover over comparatively more foam.



Tucked pleated material around sharp corners



If the gathers result in excess folds of vinyl will be visible when the seat is installed, trim this excess vinyl with scissors by pulling up the vinyl by its "ears" at the fold and cut it along the fold line to within about 1/2 inch from the edge (see the picture to the right). Eventually, you should end up with the seat cover that's smooth on the top, and pleated and smooth enough underneath to fit snugly against the rear seat cowl.



### When the Stock Cover No Longer Fits

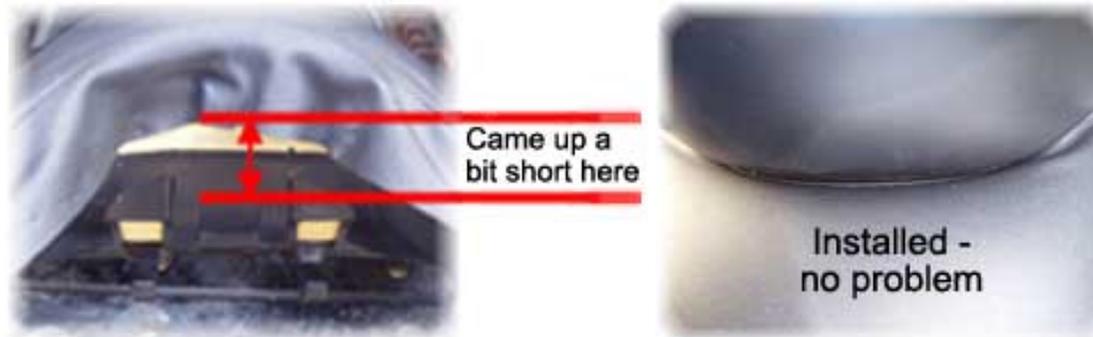




A trickier situation is when you have substantially changed the shape of the underlying foam on a stock seat that is a more unusual shape that necessitated a cover with seams. Sometimes in these situations the original cover will not quite fit over the new foam.

The pictures to the right show a stock and modified Kawasaki Concours seat that. The underlying shape of the seat was modified too much to re-use the stock cover. As a result, I simply used one piece of marine-grade vinyl to cover the modified seat; and also made a small saddle strap so that it wouldn't be too plain looking. Is it as slick looking as a \$450 aftermarket seat? No. But it cost me about \$75 for the materials, and I was able to tweak it as much as I wanted to until it fit just right. My comfortable driving time went from about 30 minutes to about 10 hours. I'll take it.

Occasionally a modification might result in the stock seat cover fitting in all areas except where the seat meets the tank. If this is the case, just don't staple that area. There will be plenty of staples to keep the seat very secure, and this gap will be invisible once the seat is installed. The pictures below show an example of this situation, both with the seat off and installed.



### One Other Option

If you'd like a new stitched, seamed cover to fit over your self-modified seat, you can always take your seat to an auto upholstery or custom motorcycle seat shop. This certainly will cost you some extra money, but less than if you had a shop do the entire modification job for you. And while you may be able to modify the shape of your seat, the skill and experience required to cut and stitch a nice looking seat cover is beyond what most do-it-yourself riders are willing to develop.