

Bumper Conversion for the 1980 Spitfire

(revised 3-29-2016)

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I am writing this guide because I found that while there have been a number of threads on the subject of converting to rubber bumpers to chrome bumpers, most only mention a particular problem they were having, so I am attempting to put more information into a single source. Gathering the information to do the conversion took a number of evenings browsing through various internet forums. There is an article about the conversion in "Spitfire & GT6 Magazine" but I was never able to get a copy of the article. The only Spitfire I am familiar with is my own 1980 American market 1500 model that I believe to be mostly original. I don't know how applicable this article will be to other production years. I acknowledge and thank the Triumph Experience Spitfire forum members for the information and tips that helped prepare me to carry out my conversion and who inspired this article.

Disclaimer

The original bumpers on the American market 1980 Spitfires were designed to withstand 5 mph collisions without damaging the cars significantly. By removing the original bumpers, you could compromise the structural integrity of your car and make it less safe. You need to make your own informed decision or seek advice from experts before making the modifications described in this article. I am not an expert in car design, engineering or mechanics and assume no responsibility for the outcome or consequences of your conversion.

Sourcing the bumpers and other parts:

Chrome bumper sets from pre-rubber bumper years or from the European/British market are available on eBay, Triumph forums and other sources. They should look like the set in the photos below (Figures 1 and 2). I believe the chrome bumpers from the Mark IV and 1500 model Spitfires are suitable. My chrome bumpers were purchased by the previous owner of the car but he had not installed them. Purchasing used bumpers with good chrome can save considerable money and time as it is expensive and often slow to get bumpers re-chromed. If you live in a state that requires a front license plate, I noticed my front bumper has two holes underneath on either side of the center (see Figure 1 inset). They could be used to mount a front license plate. Luckily Florida is not one of those states, so I did not have to deal with it.

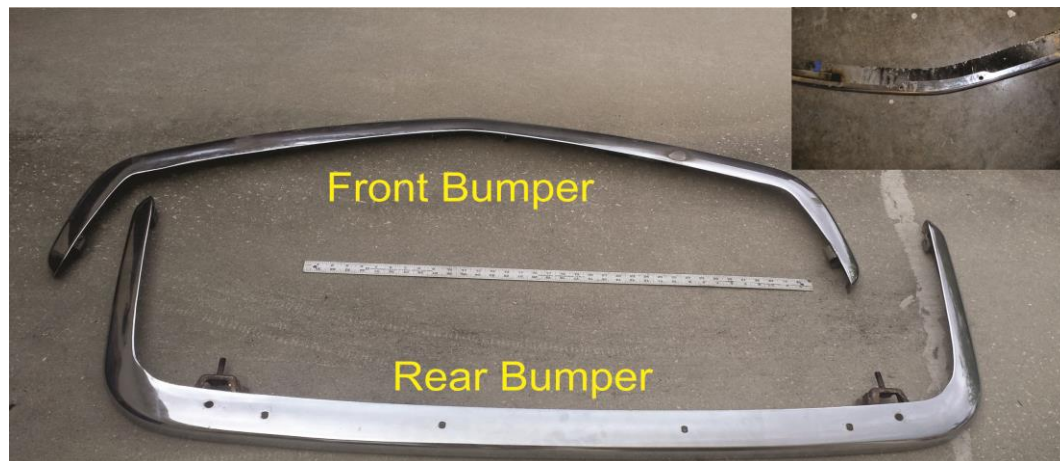


Figure 1. Chrome bumpers. Note the two studs in the rear bumper. You can see the extra holes that I later covered with stainless steel carriage bolts. The sides are mounted with bolts from inside the boot. The front bumper is mounted with four bolts. The inset in the upper right shows the underside of the center of the front bumper, potentially a place to fit a front license plate bracket.

My rear bumper had reasonable chrome but had four extra holes, I think they might have been for rear over-riders found on some models, but not all rear bumpers have the extra holes. It might be better to find bumpers without them but the holes aren't that difficult to deal with. I used short stainless steel carriage bolts to cover the extra holes for now, but if I decide to re-chrome the bumper I will fill in the extra holes first. Check that the threads in the bumper for the side bolts are in good shape. I chased mine with a tap. Be sure you have the right size fine-thread bolts and nuts. Also check that the threads on the studs that connect the rear of the bumper are in good shape and have been chased, and again, be sure you have the correct size nuts on hand.

My front bumper had poor chrome but was otherwise in good condition. There are four threaded holes for the mounting bolts, two in front and one on each side (Figure 2). On either side of the holes for the front mounting bolts are smaller $\frac{1}{4}$ " fine threaded holes for the under-riders. These should all be freshly chased with the appropriate size taps.

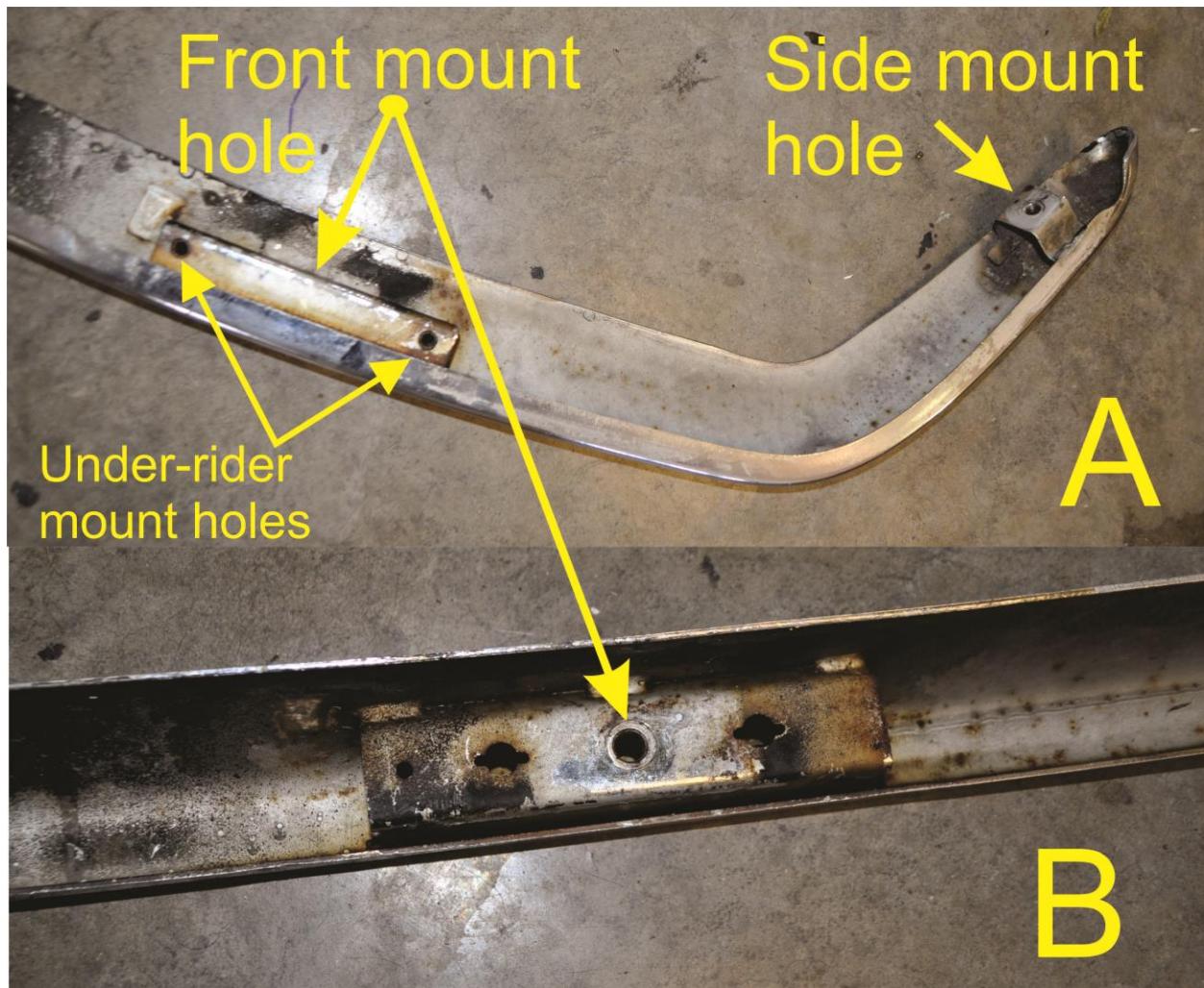


Figure 2. Front Bumper from underneath (A) and from the rear (B). Arrows indicate bumper mounts and the mounting holes for the under-riders.

You will need two under-riders and a grill (Figure 3). The original rubber bumpers had the grill incorporated into the bumper but with the chrome bumper you will need a separate grill. All my parts came from SpitBits. They also sell a bolt kit that has the ¼" fine bolts and washers you will need. I purchased the front grill and small grill ends. The grill ends fill in an area that is mostly covered by the stock spoiler on my car, but might be considered optional because they are nearly invisible when installed. The SpitBits under-riders interlock nicely with the grill, and the grill has a center mounting hole for which you will need to make a bracket when you install the front bumper (Figure 3). I have been told its better to find some angle supports from earlier model spitfires to better support the grill. The under-riders are more fragile than they look so be sure you do not try to force a fit. I used the original spoiler but had to trim a bit from the bottom of the under-riders to get a good fit. If you have a spoiler from an earlier year Spitfire you won't have to trim. I dressed up the rear bumper with the Triumph logo bumper plinth, also from Spitbits.

SKU	Description	Price
815278	FRONT UNDERIDER RH MK4/1500 up to FM10,000	\$97.99
815277	FRONT UNDERIDER LH MK4/1500 up to FM10,000	\$97.99
815277/8hardware	UNDERIDER BOLT KIT MK4/1500 up to FM10,000	\$3.75
715863/4	21a) GRILL ENDS LH & RH MK4/1500 up to FM10,000	\$42.99
815026/U	21) USED FRONT GRILL MK4/1500 up to FM95001	\$50.00
632300	BUMPER PLINTH 1500 FM1 up to FM28,000 1973-1974	\$90.00



Figure 3. Under-riders and grill. Yellow arrows indicate area trimmed when installed to fit snug against the spoiler. The center grill mounting hole can be seen in the left panel.

Tools and other materials:

- Thread Chaser Set or Tap and Die Set
- Reciprocating Saw with 2 metal cutting blades – I used this to make all the metal cuts as the cutting wheel on the electric or air grinder was much slower.
- Cutting oil
- Socket set
- Grinder - I used a 4 ½ inch electric grinder with a cutting wheel to remove welds and a grinding wheel to clean up the edges left by the reciprocating saw. My air powered cutter/grinder was too slow.
- Assorted steel nuts, washers and bolts, all nuts and bolts are UNC fine-thread
- Drill and bits
- Sheet metal for the grill bracket and a sheet metal screws
- Screwdriver
- Spray primer and spray satin black paint
- PB Blaster or Liquid Wrench
- Old pair of socks
- 12 nylon washers for mounting bolts

Rear Bumper:

The rear bumper is held on by one bolt on each side that is accessed through the boot, and two studs along the rear of the bumper that have nuts inside the boot. Finally, there are four bolts that hold two bumper support struts to the frame under the boot (Figure 4). On my car, the rear nuts came right off. The right side bolt also came out easily but the left side bolt was frozen and eventually snapped. There is a small rubber/metal fitting between the bumper and the fender at each side, held in place by the bumper mounting bolt and a sheet metal screw. When I was removing the left-side bolt, the fitting twisted and scratched the paint a bit, so if you have to force one of the side nuts, be patient, use a lot of PB Blaster or Liquid Wrench and check carefully as you attempt to loosen the nut. Once the two rear nuts, two side bolts, and the four bolts connecting the support strut to the frame are removed, the bumper comes off in one piece along with the struts. A trick from the forum is to put a sock on each end of the bumper so when the old bumper is being removed or the chrome bumper is installed, so you will be less likely to scratch the paint. The side rubber/metal fittings were replaced by three nylon washers on each side between the bumper and the body of the car (Figure 5).

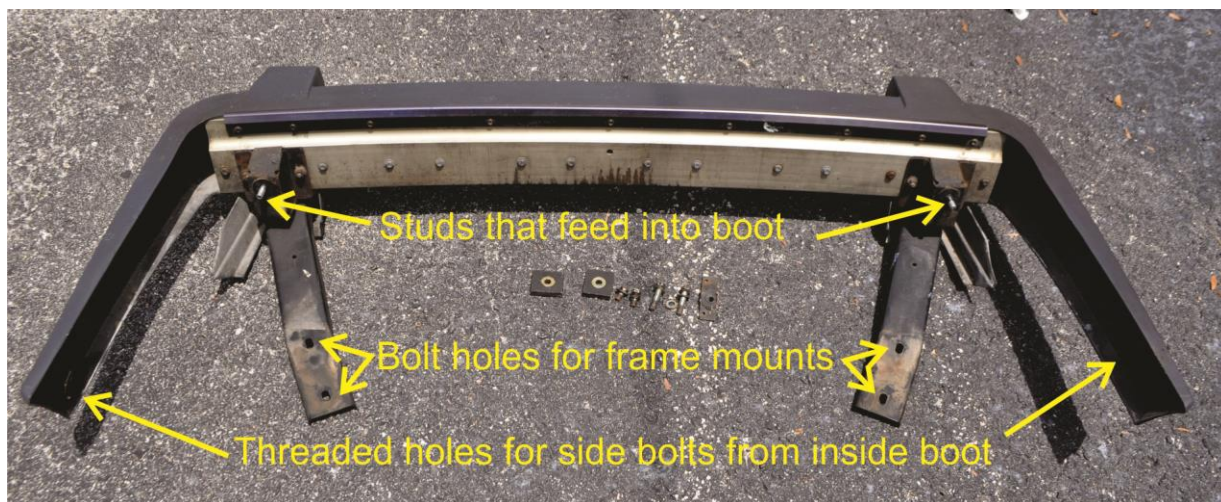


Figure 4. Rear rubber bumper can be removed as a unit by removing the 2 side bolts, the nuts that secure the two rear studs (all accessed in the boot) and finally the 4 bolts that attach support struts to the frame under the boot.

Installation of the rear replacement chrome bumper is very straight forward. Just remember to put the socks on the ends so you don't scratch your paint. I used three nylon washers between the body and the bumper instead of the original rubber/metal fitting (Figure 5). If you re-tapped or chased the threads everything should go well. Just hold the bumper to the rear of the car and fit the two rear mounting studs through the holes and put washers and nuts on inside the boot and hand tighten them. Then fit the side bolts in through the boot using a flat washer and lock washer. Before you thread them into the bumper, add the three nylon washers to the bolt outside the car, then hand-thread the bolts into the bumper. Lastly, go around and tighten all the nuts and bolts with a socket wrench. I dressed up the rear bumper with the Triumph logo plinth (Figure 5). My bumper did not have the mounting holes for it so I drilled two small holes in the rear bumper to mount.



Figure 5. Rear Bumper after installation. The plinth is visible in the left panel and the 3 nylon washers used on the forward left side of the rear bumper is visible in the right panel.

Front Bumper:

The front bumper comes off in pieces (Figure 11). There is a black plastic “skin” that is connected with a series of small bolts underneath and on top of the bumper. You will also need to unscrew the right and left front signal/running light assemblies from their mounts, thread them through their rectangular opening in the bumper skin and then reattach them to the same mounting holes directly to the body. There is no need to unplug the wires. Once the skin is removed, three yellow bumper pads (Figure 6) can be seen. The two on either side are mounted to the hinge box and can be unbolted and removed. The center cushion can be removed by taking out two bolts from the back of the supporting steel plate.



Figure 6. Front bumper skin removed. The bonnet is open in this photo. Note the three bright yellow bumper pads and the bolt holes in the bumper skin. You can see the chrome bumper on the floor under the car. Note the left side signal/running light is hanging from its wire.

Once the bumper pads are removed you need to remove the underlying steel structures. I suggest removing the spoiler which is held by a long bolt at each end and also is attached to a "cardboard" cowl that lies under the radiator and I think directs air to the radiator. Removing the spoiler will give you a bit more room when removing the steel support structures for the old bumper. There is a steel plate welded on to each hinge box that was not present on pre-rubber bumper cars (Figure 7). You should remove the bolts that go through the plate into the hinge box, grind the welds off, remove the plates and put the bolts back into the hinge box. I was careful not to move the bonnet until after the hinge box bolts went back in. Once the plate was off, I cleaned up the edges with the grinder, primed all the edges with a zinc primer followed by satin black paint. The hinge boxes will be completely covered by the new under-riders so will not be visible.

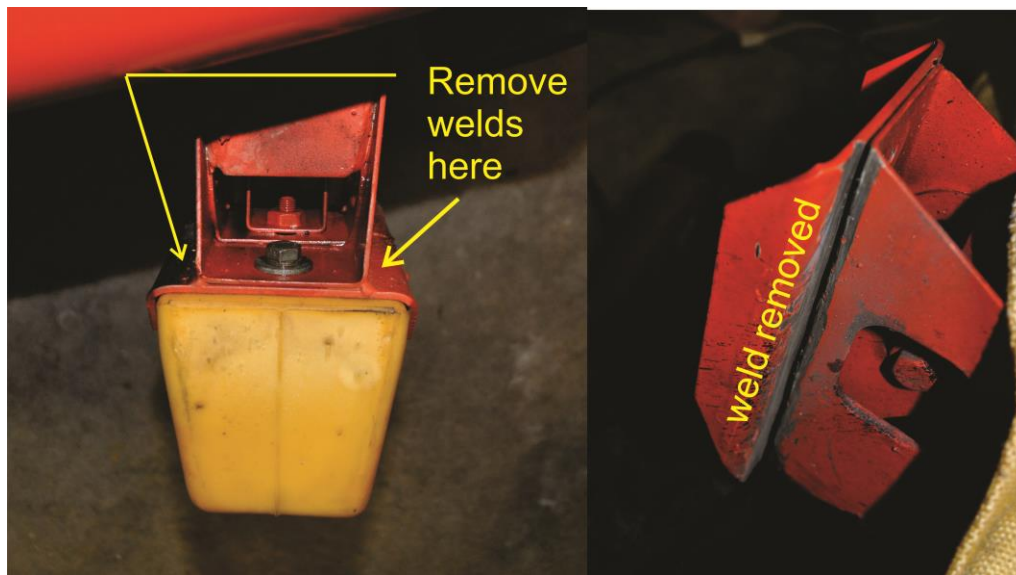


Figure 7. Left: hinge box from above showing welds to remove. Right: Side view of hinge box after the first weld has been ground away.

The center bumper pad is backed by a rectangular thick steel plate about the size of a license plate, which in turn is attached to a 2" x 2" square tube cross-member that sits about a foot higher but parallel to the lower frame cross-member. This upper cross-member is held by one bolt on either end that can be accessed from inside the engine compartment (Figures 9 and 10). Once the bolts are out it can be lifted out easily with the steel plate still attached and you can see what needs to be cut away (Figure 8).

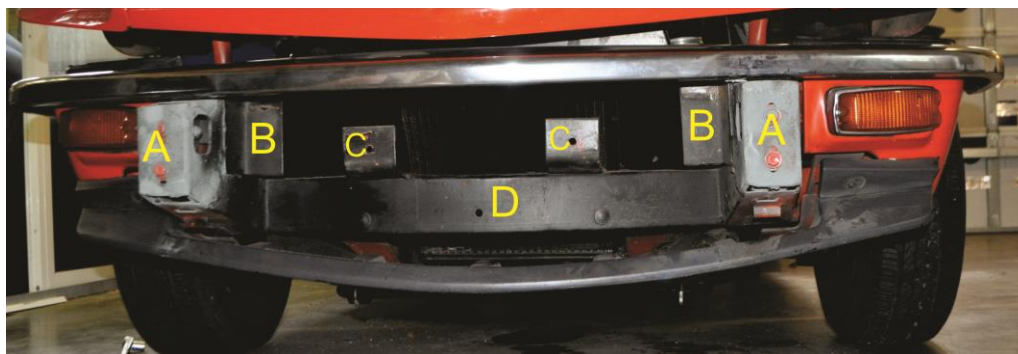


Figure 8. Detail of bumper support structures. The L-brackets (C) welded to the lower cross-member (D) and the "angle iron" brackets (B) just inside the hinge boxes (A) can be seen.

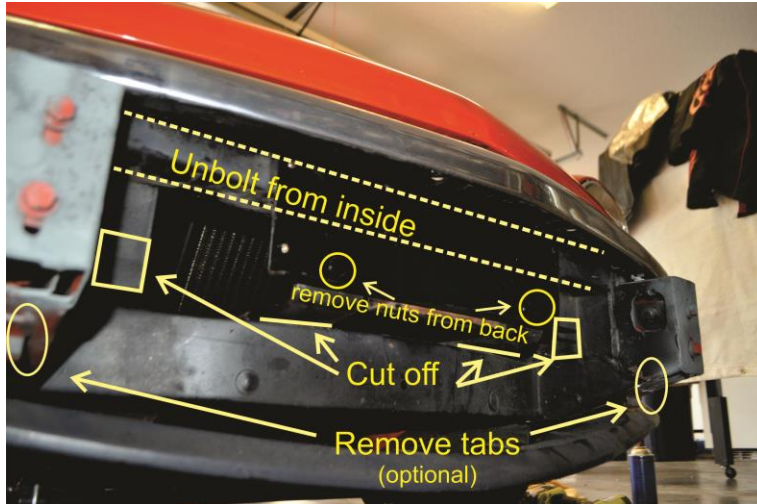


Figure 9. Overview of support structure to remove. From top to bottom: the upper cross-member (dashed lines) unbolts from inside the engine compartment. Circles indicate location of nuts that connect the center pad support to the L brackets. The nuts are behind the plate. Squares indicate the part of the vertical “angle iron” brackets to be removed and the horizontal lines show where the L-brackets should be cut flush with the lower cross member. Ovals indicate metal tabs I removed from the underside of the hinge boxes because they interfered with the fit of the original spoiler. They can be left on and bent down to use as an attachment for the under-rider if you have an older model (pre 1978) spoiler and are used to attach some after market options.

There are two thick L-brackets (Figure 8C) that are welded to the lower cross member that connected to the large metal support for the center yellow pad. I just cut them off flush with the lower cross member using a reciprocating saw. I thought about grinding off the welds that held them onto the cross-member but found it a bit awkward to maneuver my grinder in that area.



Figure 10. Location of the right side bolt in the engine compartment that holds the upper cross-member in place. The left side bolt is not visible in this photo.

On the left and right side behind the bumper are two vertical “angle iron” brackets (Figure 8B). They support the upper cross-member that helped buttress the rubber front bumper. The lower part of them will interfere with the installation of the new under-riders later on. I used a reciprocating saw to remove the bottom portion of these brackets (Figure 9 and 11).

On the underside of each hinge box is a small bent metal tab, meant to attach some kind of bolt. They were not used with the rubber bumper on my car and interfered with the installation of the new under-riders so I cut them off with the reciprocating saw. My understanding is that these tabs can be bent downward and used to mount the bottom of the under-riders if you use an older style (pre-1978) spoiler

instead of the original spoiler from your car. These tabs are also used for some aftermarket parts such as the Spitfire Options' under spoiler, so think twice before you remove them. The removed parts are shown in Figure 12.



Figure 11. Front bumper area after all the old support structure has been removed and cut edges primed. Note the area just outboard of the lower part of the left side hinge-box below the signal/running light directly to the left of the spray bottle in this photo. This is where one of the grill ends fits.

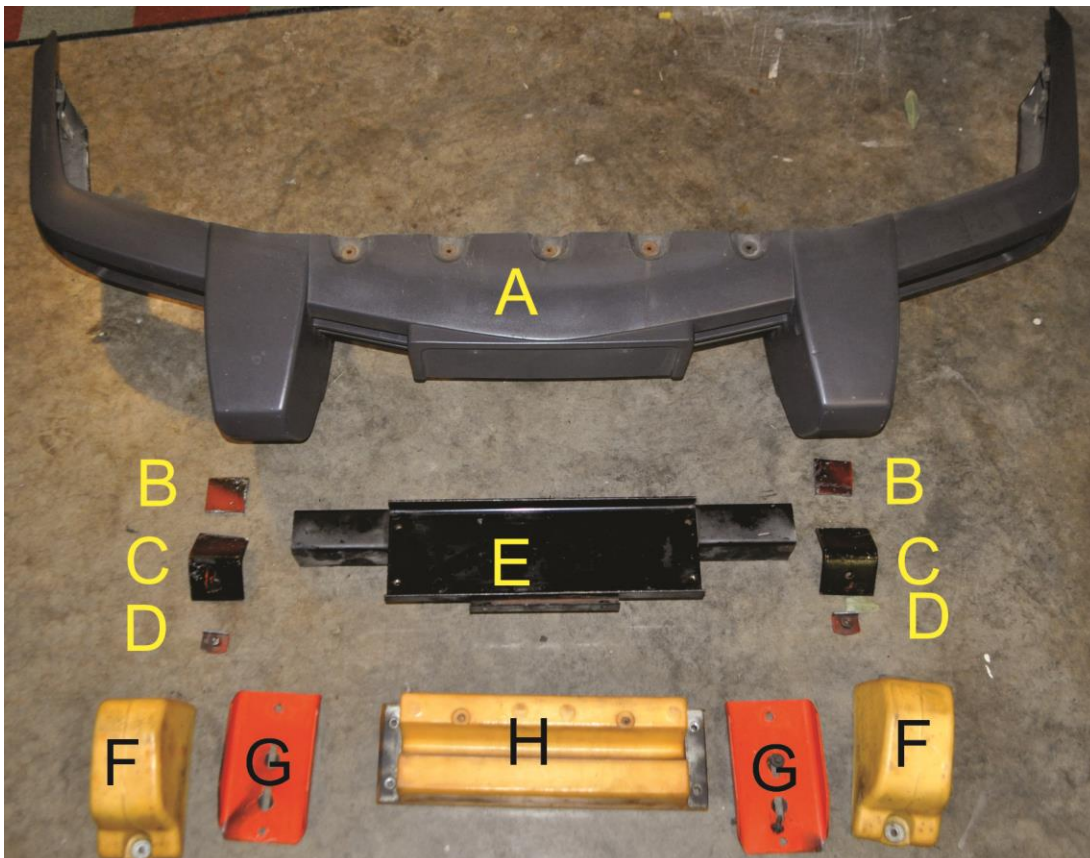


Figure 12. Removed parts. A: bumper skin, B: lower part of "angle iron" brackets, C: L-brackets D: tabs from underside of hinge boxes E: upper cross-member and center pad support, F: Side pads, G: Side pad supports removed from hinge boxes H: center pad.

The hinge boxes themselves need to be trimmed to allow the under-riders to fit. I cut them with the reciprocating saw following the angle observed on the rearmost part of the hinge box (Figure 13). All the cut metal edges were primed with zinc primer and then coated with a black satin topcoat. This was to protect the metal but also to make the edges blend in once the bumper, under-riders and grill are installed. I did not want to see shiny metal glinting from behind the grill.

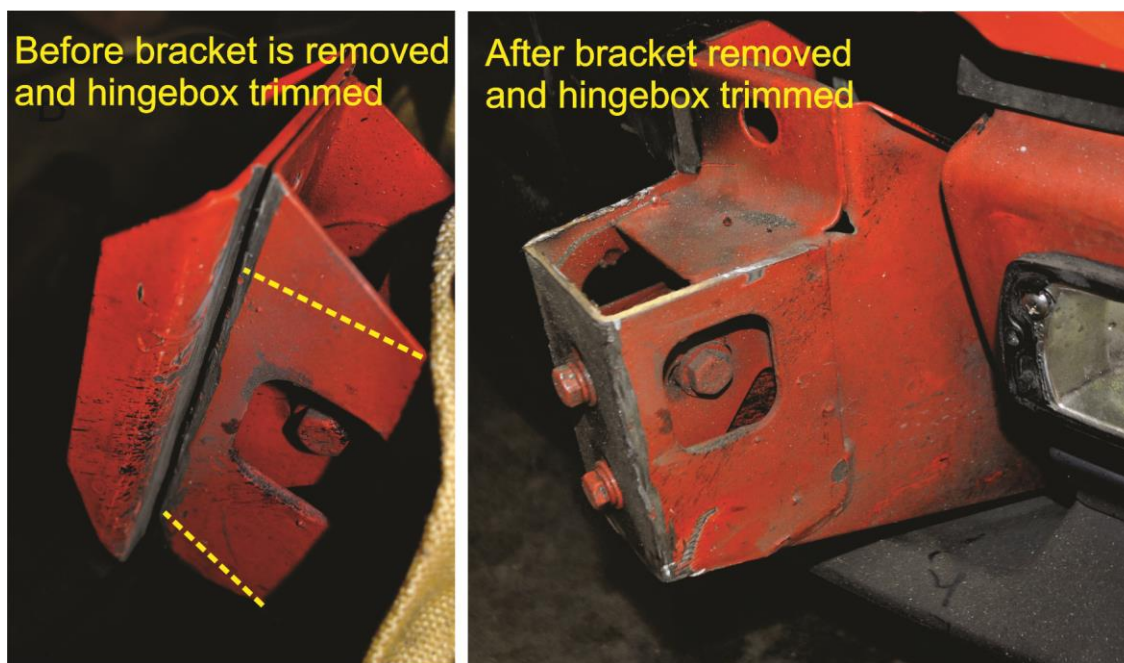


Figure 13. Hinge box. Left panel shows the hinge box with the bumper pad bracket still attached. Dotted lines show where the cuts to trim the hinge box should be made. I followed the line of the back part of the hinge box which is easier to see in the panel on the right, after the pad bracket was removed and the cuts were made.

Installation of the front chrome bumper was straight forward. First I re-tapped or chased all the threads in the bumper. This includes the threaded holes in each side of the bumper and the two threaded holes along the front of the bumper. I also re-tapped the smaller $\frac{1}{4}$ " threaded holes on either side of the front attachment mounts of the bumper that are where the under-riders will attach. I purchased four new stainless steel bolts with appropriate nuts and washers to attach the bumper and had the under-rider attachment kit which has the $\frac{1}{4}$ " bolts and washers needed to attach the under-riders. Socks went over the ends of the bumper.

You can see in the photos in Figure 14 where the front bumper attachment bolts go. I set the bumper in place resting across the tops of the hinge boxes. The holes for the front attachment bolts are inside the hinge box. With the bonnet up, you can place the bolt in the hole by hand even though the hood support bar is partially blocking the space in the hinge box. I placed several large steel washers and a lock washer on the bolt, threaded it through the hole from the engine compartment and placed a single nylon washer on the bolt after it went through the hole. With freshly tapped threads in the bumper, it was relatively easy without an extra person to maneuver the bumper and start the bolts into their threads in the bumper. Once they were hand tight, I loosely attached the side bolts, using steel washers inside the engine compartment and two nylon washers between the bumper and the car fender. Once the side bolts were hand tight, I lowered the bonnet half way, propped up on a cardboard box or two sitting on the engine to hold it in that position. Then I was able to get a socket wrench without an extension over the bolt head and tighten the front bolts down. Lastly, I tightened up the side bolts.

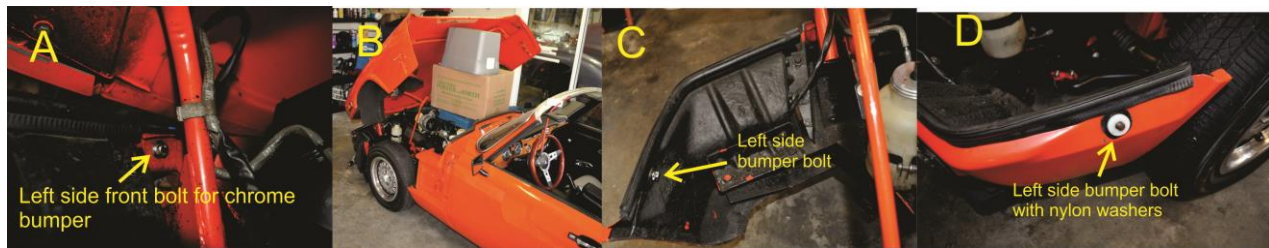


Figure 14. Front bumper mounting. A: site of left front bolt at the top of the hinge box from inside the engine compartment. B: Propping up the bonnet for access to the front bumper bolts. C: Location of the left side front bumper bolt inside the engine compartment. D: Location of the left side front bumper bolt from the outside showing the two nylon washers.

Once the bumper was on, I assembled the grill and two under-riders from Spitbits that snap together (Figure 3), and placed the assembly over the hinge boxes. Then I was able to measure for the bracket I used to support the grill using the mounting hole in the center of the grill (Figure 15). I made the bracket from a scrapped stainless steel shelf from a defunct outdoor gas grill. The bracket attaches to the two $\frac{1}{4}$ inch threaded holes on top of the lower cross-member behind the bumper with $\frac{1}{4}$ inch fine bolts. I could not fit a regular tap with a T-handle into the space to chase the threads so instead used a thread chaser from a Sears kit. Once the flat bracket was bolted onto the cross member I bent the bracket upward as shown in Figure 15 to match the mounting hole in the grill, gave the bracket a quick coat of black paint, drilled the hole and fastened the grill to it with a sheet metal screw.

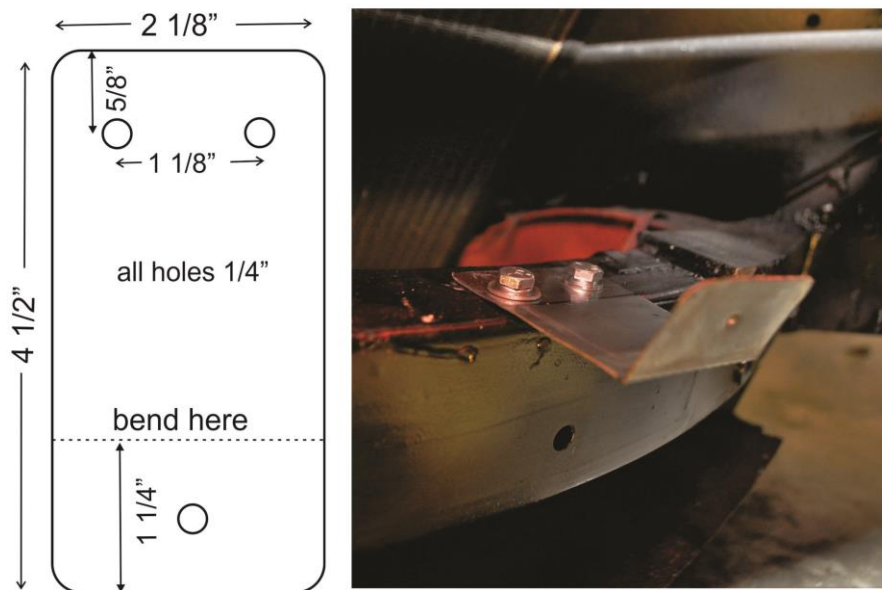


Figure 15. Left: dimensions of grill bracket made from sheet metal. Right: bracket bent and bolted onto the front cross-member.

The under-riders mount with two $\frac{1}{4}"$ bolts that fit threaded holes on either side of the hole for the front bumper mounts. It is a bit tricky getting the bolts started because the thick plastic of the under-riders is not very flexible, yet you need to bend them a bit to get the holes to line up. This is where you will be very happy you re-tapped the holes. I only attached the under-riders to the bumper with the two top bolts but they are quite snug and secure when the spoiler was mounted.

The last step was to mount the spoiler (Figure 16). On my car it would not quite fit because of plastic mounting tabs on the bottom of the under-riders. I remove the bottom part of them with a hand

hacksaw and then was able to remount the spoiler that then fit snugly against the bottom of the under-riders. One might think that the plastic mounting tab might have matched the metal tabs previously removed from the underside of the hinge boxes, but at least on my car, the metal tabs were located an inch too far forward to fit the plastic mounting tab on the under-riders. The grill ends fit in the space mostly covered by the spoiler just below the running lights. The long screw that holds the spoiler on each end goes through the spoiler, through the plastic spacer, through the hole in the grill end and finally into the sheet metal. I would consider the grill ends an option since they are barely visible.



Figure 16. Grill, grill ends, under-riders and spoiler installed.

I have read that a spoiler from an earlier model Spitfire is necessary for this conversion but I found the original spoiler fit just fine once the plastic tabs on the bottom of the under-riders were trimmed. It's a bit tricky getting the spoiler on as there is a long white plastic spacer that fits on the very long mounting bolt between the spoiler and body of the car. On my car, the mounting holes for the spoiler and the threads of the mounting bolts needed to be re-tapped or chased prior to mounting the spoiler. It would have been nice to have a helper but I used a bungee to hold the spoiler in position while I fastened either end. It has been suggested that chrome trim tape could be used to brighten up the grill slats.

So now you have it, a very sleek looking car!

