

By Jan Skirrow

# Refinishing the R-390A Front Panel

I have had a number of queries about how I refinish R-390A front panels. I've been hesitant about outlining the procedure I use, because the particular chemicals may not be available everywhere, and the results are not completely predictable!

But I've used it enough times now to feel reasonably confident about sharing the approach. Be warned though that I make no guarantees, and if you have a way that works for you - great!

Many R-390As have original paint that is still in good condition and really should be left alone. However, many more show the results of years of active service followed by the neglect of the surplus disposal system--nicks, scratches, gouges, extra holes and so on. These panels are the subject of this article!

It needs to be understood that my goal in refinishing a panel is not to return it to factory quality. What I want to accomplish is a good finish, with major flaws repaired, while not being too obsessive about minor nicks and gouges, especially along the panel edges or rack mounting holes. This article applies only to engraved panels. If you have a silk-screened panel the process is much more difficult.

### Removing the Old Finish

Removing the panel from the radio is straightforward and I won't go into it here. I also won't go into how to straighten it, if it is bent, or how to repair major damage.

The first task is to remove the old finish. It isn't necessary to get every trace of the old finish off, although I try to do so. Some older panels have an undercoat that resists modern

paint removers that are safe for aluminum. If you cannot get some patches off, the edges will need to be feathered into bare metal with very fine grit sandpaper. Otherwise you will see the edge when the final enamel coat is applied.

It is important to use a paint remover that is intended for use with aluminum. Fortunately the increased use of aluminum in auto bodies means that safe removers are readily available. The one I use is sold by Canadian Tire in Canada. It is labeled as an automotive paint removed intended for use with aluminum panels. Whatever you pick, make sure it is intended for aluminum. Some paint removers will seriously etch aluminum surfaces and the subsequent sanding necessary to remove the oxide will damage the embossed lettering.

Follow the instructions on the paint remover. Once the finish has softened, I use a straight plastic or wood edge to scrape the goo off. While some finishes come off with a single application, others may require more than one. If you want to preserve the silk-screened back panel, it is useful to first close up the panel holes with masking tape to keep the paint remover from damaging the back side.

Once the panel is essentially bare, the lettering must be dealt with, and this will be the major challenge of this stage! It is very important that all of the old paint in the letters be removed. I apply more remover to the lettering, allow it to soften thoroughly and then use a bamboo toothpick (they are actually sold as "party picks" intended for spearing appetizers at fancy parties!). The pointed ends are quite hard and with some care will remove the paint from the lettering. You can use a steel dental

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pick, but it is easy for the pick to run out of the lettering and scratch the panel.

### **Prepping the Panel for Painting**

Once the panel is bare, give it a thorough wash, first with water and then solvent. At this point minor scratches or gouges can be fixed, or the extra holes some panels seem to have collected can be filled.

Minor scratches can be filled with a glazing or spot putty, sometimes called scratch filler, also sold in automotive finishing supply stores. It's usually applied in thin layers, allowed to dry and then sanded. Try to apply as little as possible as it is very hard and removing a lot of excess can be difficult. Deep gouges are usually filled using multiple thin layers. I've found that much of the "rack rash" found around the rack mounting holes can be cleaned up with this material.

Some R-390A panels have 4-40 or 6-32 threaded holes used to attach labels at some point. They can be filled with almost any two part epoxy material. Leave a little 'bump' so that you can sand the area flat once the epoxy is cured. If the epoxy has small flaws in it, these can be fixed with the spot putty.

Some panels have larger holes used to bring the Diode Load rear panel connection to the front panel, or to mount running time meters. Filling these is more difficult. I've done it by first making a fibreglass patch to lay across the back side of the hole. The fibreglass resin will bond the patch to the rear of the panel and provide a solid base for filling the hole. Small fibreglassing repair kits that contain both the cloth and the resin can be found in automotive or marine suppliers.

Once the patch is fully cured, the hole can be filled with virtually any automotive filler, such as Bondo. Once it is fully cured, the surface can be sanded down flat to the surrounding metal and any small flaws fixed with spot putty.

### **Undercoating the Panel**

Aluminum oxidizes as soon as it is exposed to air. So undercoat intended for steel will not work properly. Aluminum undercoat must be

able to bond to the underlying metal through the thin oxide layer that will always be there - no matter how shiny and clean it looks.

Traditional bichromate aluminum undercoats are no longer readily available due to environmental and toxicity concerns. Fortunately there are some good substitutes available. You must use one that is specifically intended for aluminum, and once again any automotive supply store should have these. The latest one I've been using is also a Canadian Tire product called simply Aluminum Primer and is yellow just like the older bichromate product.

Follow the instructions, being careful as always to use multiple thin coats rather than one heavy coat to avoid sheeting and other paint troubles. It is important to be sparing, as the letter engraving is easily filled up to the point where you will have a great deal of trouble with the final step in this refinish! I paint with the panel essentially flat on the working surface.

One of the secrets I learned from a professional painter was to gently warm the spray can in hot water prior to use. However, as I learned the hard way, do not warm the panel above normal room temperature, as otherwise the primer will dry instantly as it hits the surface and you will end up with a fizzy undercoat that will need to be sanded and redone - or removed.

The undercoat does not have to absolutely conceal the spot putty or other fillers. What is important is to have a good thin coat of primer everywhere.

Once the primer has dried for an hour or so, put it in an oven and bake it for a couple of hours or so at 275F. I can't overstate the importance of the baking steps in this process!

### **Painting the Panel**

Once the panel has cooled, it is ready to paint. Any good automotive enamel will do. Although most R-390As were originally a dark blue-gray color, in fact there were quite a few "original" colors used, and over the years many were repainted during depot repair with colors somewhat different from the original.

There apparently were even a few painted black.

One of the first R-390As I had was an ex-Navy unit painted a light gray color that was attractive and seemed to be very good at concealing minor panel defects. I found a virtually identical automotive gray called "Mist Gray", and that has become the color I use.

Whichever paint you use, follow the instructions on the can. I find it is useful to apply one series of sweeps covering the panel surface and then rotating the panel 180 degrees for the next series. This increases the likelihood that you will get paint into all the holes and produce a better looking result. As before, warming the paint somewhat will make for a superior result. Be sure to bake the panel for at least a couple of hours at 275F.

### Panel Lettering

Up to this point, all is fairly standard metal painting. But refinishing the lettering is more daunting for the beginner who doesn't want to



make a mistake that we'll require restripping the panel and starting all over! I've seen several different ways of refilling the engraved lettering, all of which may well work perfectly. But this is what I do.

Antique Electronic Supply in Tempe, Arizona, sells a paint stick called "Lacquer Stik" that is ideal. It comes in Black, White, Gold

and Red. While all R390A panels that I've seen had white lettering, I sometimes use black because it shows up much better on the light gray panels I prefer. I've always thought a black panel with red lettering would look good too!

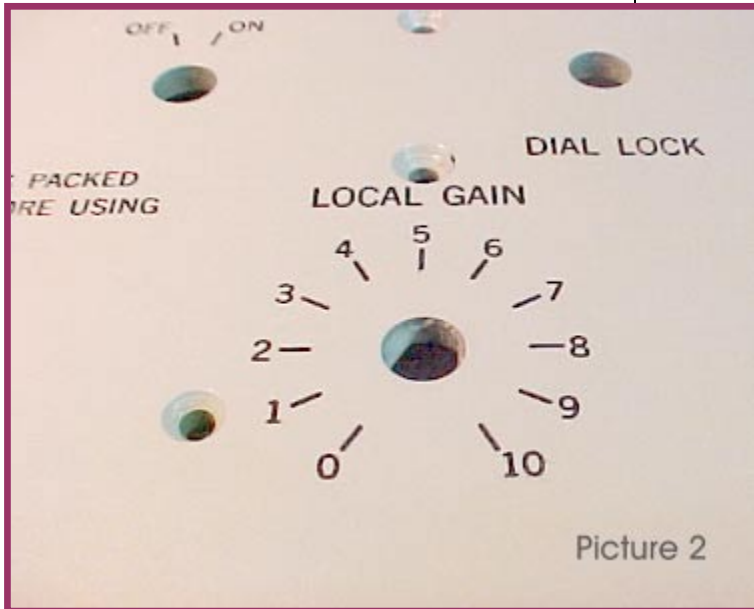
This is where it gets scary! The paint stick makes a heck of a mess, and will appear to have wrecked the panel you have just sweated over. It is used just like a crayon. When applying it, make sure you fill the lettering completely. I suggest applying and then removing the excess on one section of the panel at a time—don't risk this stuff hardening before you want it to!

Once it's on, use a smooth clean cloth wrapped around a piece of wood or a rubber sanding block to make a smooth, flat surface. Press down firmly on the filled area and wipe away the excess filler. It will leave a major smear. Remove as much of the smear as you can with a clean cloth, being careful to avoid the lettering. If you try to get all the smear, the cloth will simply pull more paint out of the lettering and make more smear. You can also use a Q-tip to remove a bit more, but basically just try to get most of the excess off, without wrecking the filled letters. You can reapply more filler if the odd letter is not quite right. The result should look like Picture 1.

Once the panel is completely done, and you're satisfied that the filling is adequate, bake it again for a couple of hours at 275F. Be certain that this bake is long enough to completely dry the letter filler. If some of your letters still aren't as good as you want, refill them and rebake

Your panel will look far from satisfactory, as the remains of the smears will be obvious. Meguiar's Paint Scrub—which is widely available and used to restore oxidized auto finishes—is used to remove the haze and smears on your panel. This product is essentially a very fine abrasive in some kind of carrier that removes a very thin layer of the old finish. Pour a small amount on the panel

and rub it around gently using a soft clean cloth. The remaining black Paint Stik material (or whatever color fill you use) will come off very easily--it's not bonded to the panel unless you didn't bake it properly after applying the enamel time! The panel should now look like Picture 2 on the next page. The colors in both these pictures are not true to the actual panel color. Also, although the lettering doesn't look crisp in these pictures, that is the result of lo-res photos. It actually is clear and crisp!



The panel is now finished, and you can either leave as-is, or use a coat of car wax to sheen it up a bit. Although I have never done it, a coat of Clearcoat could also be applied to provide better protection for your new panel.

While the results may well not be perfect, your new radio will look better than 95% of the other R-390As around!

### Refinishing the Knobs

Refinishing the knobs involves essentially the same process as the panel. Some earlier knobs had a bichromate undercoat that will NOT come off. So if your knobs resist the paint remover, you should get as much of the finish off as possible and use fine sandpaper to feather any remaining finish to produce a perfectly smooth painting surface.

Use the same paint remover as for the panel will work fine--but you may need to be a bit

more careful. The knobs don't seem to be aluminum, but rather some kind of pot metal that is more vulnerable to paint remover damage. But if you work quickly and don't forget the knobs soaking in paint remover, the results should be satisfactory. If there is any obvious oxidation (a fine white powder), use fine sandpaper to remove it.

It has been suggested that the knobs be placed in a glass sealer full of acetone until the paint comes off. This does work, but the acetone definitely attacks the metal if you leave it in for more than a couple of hours. I think the aluminum-safe paint remover is best even though it may take several applications to get the paint off to the point where you have a paintable surface.

I have used both a flat black and a semi-gloss enamel to refinish knobs. Once painted, the knobs should be baked for a couple of hours at 275F. If you aren't careful, it is easy to clog the set screw threads with primer and enamel. You can either put a set screw in the hole before painting, or use a 6-32 tap to carefully clean up the hole after painting.

To restore the white index line on the knobs, I use a very fine artist's paint brush and a white acrylic paint. The acrylic is water soluble so that any slop onto the knob proper can be removed (carefully) with a wet cloth or Q-tip. If you muck it up, you can wash all the white off and try again. The knobs can then either be left as-is, or given a coat of clear acrylic for a shinier look that will resist wear better.

It should be possible to use the same paint stick, with a second bake, to produce a superior result. I intend to try this with my next panel.

### The Digital Readout Cover

The thin aluminum digital readout cover can be refinished exactly as for the knobs. The only point here is to mask off the lamp bracket. If the plastic readout cover is badly scratched or missing, a standard microscope slide makes

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an excellent replacement. If the retaining clips are still present, the slide can be eased under them for a better than new result. If the clips are missing, flat head 6-32 hardware can be used, with a couple of soldering lugs placed in a Y configuration will hold the slide in place.

**Resources**

[Antique Electronic Supply](#)

Need [Parts?](#)

Send Jan Skirrow [eMail](#)

## Want Parts, Information, Pictures??

-  [Boatanchor Dreams](#) - information on collecting and resurrecting fine old radios. Military, ham & broadcast.
-  [Classic Technology](#) - military connectors, semiconductors, lamps, manuals etc. Small quantities, no minimum order for the collector, hobbyist & rebuilder.
-  [Tech Talk 1](#) - The R-390A RF deck is the radio's heart. There is a safe and relatively easy way to thoroughly clean it.
-  [Tech Talk 2](#) - The R-390A often comes without meters. Read why! Originals are hard to find and pricey. But there are other meters available that can be adapted!
-  [Tech Talk 3](#) - Turn on your precious tube radio and tubes, transformers and other pricey bits may blow. Learn how to protect from In-Rush Current Surges!
-  [Tech Talk 4](#) - Want to Improve your R-390A Audio? Read this first!
-  [Tech Talk 5](#) - Receiver multicouplers are great! Read about the classic Collins CU-168/FRR.
-  [Tech Talk 6](#) - Another multicoupler - the RCA CU-5069 and the problem with heat.
-  [Tech Talk 7](#) - Cooling the Collins HF-2050 - another heat problem.
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