PAINTING the R390-A

This document is a compilation of the wisdom shared by members of the online community of R-390A enthusiasts. As such, it is advice to those who endeavor to maintain and restore the R-390A family of receivers. The information is shared without warranty, expressed or implied. This information is in the public domain and can be freely copied or shared. Appropriate attribution is appreciated.

1.1 - Removing Paint Overspray

Lacquer thinner can be used to remove some types of paint overspray from the surface of enamel paints, such as are found in the original R-390A panels. Use a soft cloth and lots of 'elbow grease' to remove paint overspray without affecting the gray enamel or the white lettering.

CAUTION: The orange military inspection markings are much less resistant to paint thinners. They are relatively easy to 'accidentally' remove using most paint thinners or solvents.

1.2 - Surface Cleaning

Before cleaning any surface, test the proposed cleaner in an inconspicuous spot to ensure that it will not harm the finish. An automobile paint polish intended for oxidized paint can remove surface 'dinginess' and brighten up the panel. Do not use any polish that claims to 'cut' the surface - they are too harsh and will probably dull the finish.

Use of "Goof-Off" or similar Xylene based products requires some caution. The label states that it is useful for removing "latex" paint from "fully cured varnished and oil-based painted surfaces" In other words, it can remove latex paint from enamel painted and varnished surfaces. It usually will not remove enamel paint. It may seriously harm plastics if it comes in contact with them.

Some folks report good cleaning results when using "GoJo' hand cleaner, the kind that does not contain pumice.

1.3 - Surface Maintenance

If you choose to polish the surface with wax or similar products, several caveats have been posted by list members:

- Use of Armor-All or similar silicone bearing products will leave a nice sheen, but render it nearly impossible to repaint without stripping the panel or knob. It may also soften the paint.

-WD40 evaporates in a few weeks and leaves a dull finish behind, requiring frequent retouching.

-Several people seem to like 'Tannery' leather and vinyl care products.
They are available in both spray and creme forms.

2.1 - Chemical Stripping

Several chemical strippers have been used successfully to remove paint from the panel and knobs on the R-390A. - JASCO stripper

2.2 - Mechanical Stripping

Some folks have reported good results when using a fine wire brush attached to an electric drill or 'Dremel' tool. Use a dust mask, as the composition of the paint(s) you are removing is unknown. After all paint is removed, wash the surface to remove any remaining residues.

2.3 - Aluminum Surface Preparation

After removing all of the paint, sand out any imperfections using 240 grit or finer sandpaper. NEVER use steel wool, as it embeds bits of steel into the aluminum surface, which protrude from the surface and will eventually rust, marring the finish.

Bare aluminum requires surface preparation before painting. Several chemical cleaners are available which etch the surface. many of them require the use of rubber gloves and plenty of ventilation for their safe use. Pay close attention to any instructions and warnings associated with the package before beginning the process.

- Alumiprep 33 "Cleaning and Conditioning Chemical for Aluminum"
- DuPont 226S Conversion Coating
- Duro (Loctite) Aluminum Jell Cleaner

Work patiently and slowly and let the stripper do its work. Use an old toothbrush or toothpick to 'scrub' the engraving. Several applications of the stripper chemical may be required. If you are hesitant about using chemical strippers, The surface can be sanded with fine sand paper. Then wash it with water to remove any residue, followed by a rinse with alcohol. Then household ammonia can be used to remove any remaining grease.

There does not appear to be a consistent right' color to use when refinishing the panel and knobs on the R-390A.

Production R-390A receivers have appeared with front panels in shades of gray ranging from light gray to a dark blue-gray. Many different shades of grey appear on both military and civilian refurbished units.

There are reports that the U.S. Air Force repainted some of their receivers flat black to match other air-ground radio equipment. Canadian forces units reportedly painted their radios a light blue to match other equipment in use. Some receivers that were refinished by the U.S. Navy have a grey-green cast to their panel color that matches some other navy equipment.

Enthusiasts have painted their receivers a wide range of colors including shiny black, forest green, and incredibly - red. One receiver panel was completely stripped, given a turned' metal finish, re-lettered in black, and then clear coated!

The original procurement specification for the R-390 (non-A) dated 28 Aug 1950 as amended 28 Aug 1952 calls for the front panel to be "semi-gloss, non-wrinkle, gray enamel of a shade conforming to No. 2610 of Federal Specification TT-C-595".

R-390A Front Panel Drawing SM-D-283246 Revision 2, 3-Mar-60 calls for the panel surface to be "Finish P513F per Spec. MIL-F-14072". It also calls for filling the engraving with "White, color chip #27875 per Fed. Std. 595".

Military Specification MIL-R-13947B(SigC) dated 26 October 1960, in section 3.9 states "The final paint film on Type I surfaces shall be final film E, semigloss, light-gray enamel, conforming to MIL-F-14072".

3.1 - Primer

Because bare aluminum oxidizes so quicky, an etching primer is preferable, usually zinc oxide or zinc chromate based. Other primers are not as reliable in providing good paint adhesion.
- Zinc oxide or zinc chromate based primers, found mostly in marine or aviation supply houses
- Rustoleum white or gray primer (not zinc-based)
-latex based automotive primer
- "DAP Primer", followed by light sanding with 1500 grit sandpaper

3.2 - Panel Finish Selection of products

-Rustoleum "Professional" #7857, "Dark Machine Gray"
- PPG #55-307, "Battleship Gray"
- Plastikote # 1105, "Medium Gray"

If you desire to have a shiny finish, some claim that painting with a flat finish paint followed by application of a good wax looks better than using a gloss finish paint. Let the finish dry for at least 24 hours before touching it.

3.3 - Knob Finish
- Rubberseal Products #RS-526 "European Trim Black" (matte)
- Rustoleum #7777 "Satin Black"
- Sherwin-Williams DTM (Direct-to-metal) lacquer (custom mixed)
- Krylon Epoxy #EP705 "Gloss Black"
- Krylon #1613, "Semi-Flat Black"

Rubberseal products are not widely available. Their telephone number inside of Ohio is 513 890 6547 and outside of Ohio it is 800 257 6547.

3.4 - Engraved Lettering and Knob Striping
- "White out"
- Acrylic Paint Stick
- Bondex feather drywall patch

Some report that artist's acrylic paint in a tube works well. Some versions of the product have a very small nozzle opening, making application easier. It remains water soluble until it is completely dry.

Some folks use white lacquer stick paint as sold by Antique Electronic Supply. It has one drawback in its use - it never really hardens, remaining pliable and subject to 'adjustment' whenever it is accidentally touched.

If you thin the paint out a bit, a hypodermic needle can be used to apply paint to the

knob striping and lettering. Grind the tip of the needle off to a convenient angle. Knob line painting can be done in two steps: 1) paint the line on the side of the knob with the knob resting on edge or.... 2) paint the line on the top of the knob resting on its back. That way, the fluid never has to run downhill. This technique does require a steady hand during application.

Primer is applied in a very light coat, followed by one or more light coats of the final color. It seems to work better to use several light coats to achieve complete coverage rather than to continue spraying a piece until everything is well covered.

Baking increases the durability of the applied paint. Some opt to simply set the painted piece in the sun protected from bugs/dust by a layer of clear plastic suspended over it - like mosquito-netting. Baking will create a deep gloss on enamel painted parts. Semi-gloss or flat painted parts appearances are not enhanced by baking.

A few of the more enterprising painters build a home made paint oven by screwing a heat lamp into a porcelain socket and placing it into a box that will retain the relatively low heat level (200 degrees or so) required to cure the paint. The box can be constructed out of cardboard, plywood, or similar material. Some have used an old refrigerator/freezer. Place the work to be cured on a wire rack at least a foot-and-a-half (.5 meter) from the heat source. A consensus seems to indicate that one is to avoid rapid temperature changes which can disfigure the surface through uneven heating/cooling.

CAUTION: Do not bake paint indoors. The odors are noxious and very difficult to eradicate from indoor space.

4.1 -Panel Surface

One or more light coats of the final color, being careful not to allow drips to form

4.2 - Panel Engraving Thin coats to avoid filling in the engraved letters

4.3 - Knob Surface Thin coats to avoid filling in the knob striping
Mount the knobs on short pieces of dowel rod that protrude through a piece of cardboard.

4.4 - Knob Striping
- Apply white latex paint with a hypodermic needle.
- Allow it to dry for a few minutes and then wipe 'across' the stripe using a damp cloth to remove any excess.
- After it is completely dry, use a 't-shirt' type cloth dampened in mineral spirits or denatured alcohol to remove any 'shadows' of

paint that may remain around the stripe.

-end-

From: Michael Crestohl <mc@...>
Date: Fri Nov 28, 1997 4:00 pm
Subject: [R-390] Painting R-390/390A knobs, from George Rancourt, K1ANX

Just had a fairly lengthy discussion with my friend George Rancourt K1ANX who has literally tons of R-390A parts and modules. You may have seen his ads in ELECTRIC RADIO. Anyways, George was sharing his method of painting knobs with me and I thought I'd set them down here for everyone to read and use. George uses a fine wire brush in a drill press to remove all the old paint from the knobs. He then washes them with soap and water to remove all the residue then mounts the small knobs on a 1/4" wooden dowel, larger ones on a 3/8" dowel. He has a board with several holes that the dowels fit in which he uses as a stand. George then takes a plastic bag (the kind your clothes come back from the cleaners in) and makes a hole to spray paint through. The paint that George uses and recommends is European Trim Black made by Rubberseal Products, stock number RS-526. Their telephone numbers are: in Ohio: 513-890-6547, outside Ohio: 800-257-6547. I believe it costs $6.95 a can. This stuff is not available in the usual outlets as the primary users are automotive body shops. I plan on ordering a can and will report on my findings. Other reports will be welcomed too. I got some of this paint and I tried it out. It does a very acceptable job when compared to a known original. For the white index line George uses a Lacquer Stick purchased from AES, but there is a secret for applying it and remember you got it here. George says the only thing to use to wipe it off is an old cotton 'T' shirt. George does not have Internet access but as mentioned above advertises in ELECTRIC RADIO frequently. His address is: 82 While Loaf Road, Southampton MA 01073. Tel: 413-527-4304. He sells used/ checked modules and parts at very reasonable prices.

From: k5fte@... (Earl C. Harris)
Date: Fri Nov 28, 1997 9:08 pm
Subject: [R-390] Paint for knobs

I had the very good fortune of having a friend who was painting his motorcycle gas tank with black DuPont IMRON epoxy. I asked if he minded if I set the knobs up for a few spray coats. The result was astonishing. The knobs looked like they had been dipped in black glass. I`m not suggesting that everybody run out and buy $120 plus per gallon paint but some of you may know a person at a custom shop or Biker with deep pockets. Just a thought.

From: "Dr. Gerald N. Johnson, P.E." <geraldj@...>
Date: Fri Jan 16, 1998 8:04 am
Subject: Re: [R-390] Lettering

So do like Collins did. Paint the panel with an oven baked epoxy enamel, then spray the letters and use a paint solvent rag to wipe the excess paint off the panel. Then maybe put the shine back with a clear overcoat after baking the paint in the engraved letters or with a coat of Johnson's paste wax (but it will fill up the engraved letters with grunge). Maybe it would be easier just to apply a wax polish to the original (though probably scarred) paint and forget the painting. Crayons will work for lacquer stick (which has been the standard filling
for engraved letters for a century) too and are easier to acquire.

Date: Tue, 01 Feb 2000 19:59:16 -0500
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] R-390a Knob paint / Distortion update

Can't seem to stop posting this evening ... I had asked Dave at Fair about what they were using. At one point I thought he said it was Krylon, but later on, I think they started using Rustoleum Smoke Gray. The Krylon was a warmer looking gray,

while the Rustoleum Smoke has more of a blue tint in it. We had some back and forth about what was the "correct" gray -- no such animal.

However, one thing's for sure. Rustoleum, properly applied, is much tougher than Krylon, however, it takes a lot longer to fully dry and cure. As Dr. J. pointed out back when, the curing process actually takes months. You don't have to wait that long, but it will reach maximum toughness/resistance to scratching and chipping after 3-6 months. Best bet is to get an extra panel and refinish that, set it aside until it's ready. Krylon is much easier to work with, but will chip much more easily too. Not terrific for a surface that will be handled.

Date: Tue, 01 Feb 2000 22:16:39 -0600
From: "Dr. Gerald N. Johnson, P.E." <geraldj@ames.net>
Subject: Re: [R-390] R-390a Knob paint / Distortion update

www.brownells.com Collins used baked eposy paints in the 60s.

Krylon and Rustoleum from spray cans respond well to gentle baking. Something like 150_ to 200_ F. I used to give either a half hour or so. Refrigerator epoxy spray paint also responded well to that baking. One computer cabinet I did about 1976 is still in good shape except where it hit concrete block walls hard enough to bend the aluminum.

Date: Mon, 7 Feb 2000 14:39:16 -0500 (EST)
From: "Paul H. Anderson" <pha@pdq.com>
Subject: Re: [R-390] Removing Corrosion

From car restoration work, I know a bit about corrosion.

Basic rust removal from steel or iron can be done with acid or base solutions. Lye (sodium hydroxide) slowly eats the rust from the steel, and as far as I can tell from personal experience, doesn't etch the metal (i.e. leaves the original surface reasonably untouched). Lye is bad to breath, but you can mix some up in a plastic bucket of warm water and toilet bowl cleaner (got mine at the hardware store - crystal powder form). Lye also removes grease, paint, and I think flesh, so be careful.

A second choice is acid, but these all etch the surface in varying degrees, as well as do other things to the metalurgy at the surface of the steel or iron. Hydrochloric acid will strip rust, but also more heavily attack the steel itself, also leading to something called hydrogen embrittlement, where free hydrogen atoms goof with the surface structure of the metal, I believe in such a way to lead to surface cracks that can cause problems in car suspensions.

Phosphoric acid is a better choice for acid removal of rust from steel, as it attack the rust more directly, leaving the base metal relatively speaking less etched. It still, however, effects the appearance of the base metal, so you will find it less satisfying under certain circumstances (i.e. if you were fixing just a small spot of rust, then found that the entire surface was now etched, and a different than original color). Naval jelly, and rustoleum rust strippers are based on phosphoric acid, although they seem to me to be really, really slow.

Sandblasting is good, too, but causes mechanical deformation of the surface of steel or iron. You can plastic or wlanut shell blast steel or iron which gives about

the same result as dunking in lye (i.e. leaves the original surface, minus the paint and corrosion). You can't blast shiny tin with anything that I'm aware of and expect it to still be shiny (as originally stamped). Aluminum brackets and so forth (cast or forged structural pieces) will respond well to plastic blasting. Aluminum sheet metal will potentially warp or see loss of detail in places like the etched part of the front panel.

The faceplate, I gather is aluminum, and you don't want to subject it, or any aluminum part, to sandblasting or dipping in lye (the lye attacks the aluminum badly). Tin parts are also very soft and sensitive to any mechanical abrasion, and maybe also chemicals (though I don't know about the latter).

While cleaning, you can use nylon, brass, or stainless steel wire brushes from the hardware store. Nylon doesn't do much bad to the metal, brass will scratch shiny tin, has less of an effect on aluminum, and doesn't do anything harmful to steel or iron. Stainless steel brushes can badly scratch tin, leave noticable scratches in aluminum, and also mark steel or iron. For a radio restoration, a very fine brass brush is the strongest thing I'd try on visible areas, and may use stainless on stubborn rust spots elsewhere. Not having yet done a radio resto, I may change my tune a little bit. Wire brushes anywhere near electronics of any type also bugs me, but if you've got a dirty part, what else can you do?

For paint removal, you should be able to use methylene chloride based paint strippers to safely remove paint from steel, aluminum, and tin, but it is hazardous, and you should do it either outside, or with carbon filter respirators (at least). I'm not too wild about the citrus based strippers and 3M safest stripper - they are much less caustic, but really don't work as well. I like Mar Hyde spray stripper, and tal-strip III for stripping lots of paint (like off cars). I'm planning on just using a thin liquid methylene chloride stripper to remove the paint from the knobs and panels. While I'm here, I might as well mention (I think it was mentioned on this list) that Eastwood (www.eastwoodcompany.com) has paints that come close to duplicating the finish provided by various anodized platings, and might be a good choice for a cosmetic restoration of a radio. It will never be as good as the original, but it would be better than looking at rust.

Paul Anderson

PS - I just got my R-392 working better - found a short in pin 6 of the 3rd IF tube, so now 2-4-8 KC all work! Still have a hum in low MHz ranges, but I also have two bad RF mixer tubes I'm waiting for.

Date: Mon, 20 Mar 2000 00:04:44 -0500
From: "Richard A. (Tony) Stalls" <bc348@sprintmail.com>
Subject: Re: [R-390] Refurbished Front Panel For R390A

I've never used JB Weld, but I'm told it's the greatest thing since sliced bread and it seems to be an easy solution, but when I needed to plug a 5/8" hole in the side of my CY-979A/U cabinet, I took it to a welding shop and had them inert gas weld an aluminum plug. After finish sanding it was almost perfect and after priming before finish painting, you couldn't tell there was ever a hole there. I recall that they charged me about $10, but it was well worth it.

Date: Wed, 22 Mar 2000 15:51:01 -0500
From: "Gregory W. Moore" <gwmoore@moorefelines.com>

Subject: Re: [R-390] Re: [Collins] Super Clean is revolutionary new cleaner

The dishwasher detergents are all alkali based, and will do more than remove grease, they will remove paint, lacquer, and most aluminium chemical finishes.. they are just less potent, but still work the same as the industrial epoxy/paint strippers (epcostrip, etc) and they will remove just about anything.. I've still got the scars on my legs to prove it, when a pan of stripper was left on the floor of an unlit paint booth) <G> and they will remove alodine, and the metal finishes, as well as severely attack aluminum if it is not WELL neutralized and dried out. Personally, I like 1,1,1 Trichlorethane for grease removal from parts..and if you are lucky enough to have access to a vapor degreaser, use it... parts come out clean and dry. The super clean, however sounds like a good product. Incidentally, the "Alodine" trade name will leave a fairly good finish on the aluminum, if it is not etched too badly, If it has become etched, from whatever reason (grit blasting, acid or alkali attacks, etc) the colors will darken in direct proportion to the etching. There is also the process called "Iridite" which is usually specified for most mil spec aluminum prior to finishing. I have found that this process works better than the "Alodine" which is actually a trade name for one formulation.

Date: Thu, 23 Mar 2000 10:53:54 -0600
From: Laird Tom N <LairdTomN@jdcorp.deere.com>
Subject: [R-390] Painting meters....

Masking and spraying will give you a much better job. Put masking tape over the whole glass part and extending somewhat onto the black, take your fingernail and press the tape into the glass corners, than take an Exacto knife and cut the tape in the corners. Now lift off the excess and spray with semi-gloss Rustoleum (the slow drying-24hr type). Don't leave masking tape on for more than 24 hours or so. It tends not to want to come off if left on too long.

Date: Thu, 23 Mar 2000 11:16:11 -0800
From: bloper@ix.netcom.com
Subject: Re: [R-390] Painting meters....

Spray painting is best, but if you a great finish invest in a model air brush. There is no comparison. I bought a Testor for about $18 and have used it to paint a ton of small parts the finish is fantastic

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Date: Fri, 24 Mar 2000 14:34:03 -0600
From: "Dr. Gerald N. Johnson" <geraldj@ames.net>
Subject: Re: [R-390] Engraved R390A Panel

I think it was all hand work, lacquer stick followed by solvent rag to clean up the excess. A smudge followed by a wipe, doesn't take long on a bare panel.

Date: Fri, 24 Mar 2000 13:49 -0800 (PST)
From: rlruszkowski@west.raytheon.com
Subject: [R-390] Engraved R390A Panel Paint

You need a small rubber squeegee. And the white paint needs to be about the right thickness. Jerry is right. You just brushed a swipe of paint. Swiped it with the squeegee to fill the grove and move the extra paint away from the grove where you could wipe it off with a wet solvent rag. In the 60's we toured the Chevy shops in Michigan. The auto industry was doing a lot of detail work that way. At the Buick

plant the guy was doing one dash board a minute. Every one of them looked super.

Date: Fri, 24 Mar 2000 21:42:51 -0500
From: "Gregory W. Moore" <gwmoore@moorefelines.com>
Subject: Re: [R-390] Engraved R390A Panel

Most panels, at least for aerospace applications specified Futura Medium, which looks a lot like the Leroy lettering. In the B.C. (Before Computer) artwork generation days, we used to use 4:1 or more reduction from layout to photographic positive to make the screens with. We also used the Futura in the photomarked backlit panels where the paint is actually etched like making a printed circuit.

Date: Fri, 24 Mar 2000 22:22:31 -0600
From: "Dr. Gerald N. Johnson" <geraldj@ames.net>
Subject: Re: [R-390] Engraved R390A Panel

When and where was that? Certainly styles changed at Collins depending on the head of the art department (where they used warped T squares to lay out silk screens to match mechanical parts dimensioned to the nearest .001" so silk screens almost never matched the part perfectly, except mine because I had the artwork measured by a coordinato graph and the mechanical drawings made from those coordinates, or for an early prototype took an extra positive print of the art work to the model shop and instructed the machinist to center punch THROUGH the transparent print... Saved days of inaccurate position transfer... That was a fun occasion. Arnie Spielbaur and I delivered the work order and print to the model shop, and the machinist assigned to the project and supposed to finish it by morning moaned after we had positioned the prints (multiple colors) on the raw panel that it would take days to transfer the locations... So Arnie (Mechanical Engineer) grabbed a 2 pound hammer and half inch diameter center punch and made the first mark... That 6061T-6 rang for a couple minutes! And when the silkscreen, the largest ever made in that paint shop, and the panel arrived together, every HOLE had a cross hair on the screen that lined up perfectly with the panel. The paint shop had never seen that before. On a panel that size they figured on needing about 1/4" position tolerance.). Likely varied between products even though decrees from on high required commonality of appearance.

Date: Fri, 24 Mar 2000 22:22:35 -0600
From: "Dr. Gerald N. Johnson" <geraldj@ames.net>
Subject: Re: [R-390] Engraved R390A Panel

Yes, I believe they did sand panels, I never had any stamped or engraved on the front, but one pair of engineering prototypes were engraved on the back (component designations, if I'd known they were going to spend my project money on engraving I'd have stopped them! They did it while I slept overnight.). It was common to weld, insert Pem studs and the like through the panel, then fill, weld, and grind or sand flush. There was an entire department in the 50th and C plant that cleaned up welds and such with hand grinders, even inside subassembly shields, so I expect there was a BIG sander that could take large panels, though my biggest was 4' x 9' and that took a huge new silkscreen frame and table... It fit the baking oven OK though.

The panels of mine that were engraved on the back were treated that way because someone in fab or the model shop neglected to notice the omponents needed to be silk screened before the studs and brackets were attached. There wasn't

anything behind the panels but "door bell" wiring, no audio, no RF, but by standard practice every button had to be labeled.

For stampings in the front of a r-390(a) panel, I'd expect to see some opposing anvil imprint on the back of the panel.

Its critical that the base coat of paint not have filled the engraved or stamped letters, and that the base coat of paint is really cured before using any of these techniques to fill the letters because the fillers are all solvent based (whether white out, or lacquer stick or silkscreened paint, except maybe white modeling clay) and the embedded solvent will attack the panel. I suspect the slight residue some see around letters is from the applied blotch (whether brushed, scrubbed from a lacquer stick, or silkscreened) having attacked the paint. Even with the panel paint being epoxy, I've seen a slight change under lettering when the silk screen was a failure and was wiped off immediately. E.g. the next layer of paint etched the main panel color. Maybe for modern uses, painting the panel with light coats of epoxy enamel, thoroughly baked, then using water based latex for the lettering would be a good idea. At least the main color is going to be very hard while the water solvent of the latex paint isn't going to bother most any other type of paint, whether epoxy or not.

Applying the panel paint by controlled spray is important to not fill the letters with gray. Must leave room for the white.

I suspect a touch of lacquer solvent in the wiping rag for after the lacquer stick process speeds the cleaning and minimizes the smears. Direction and pressure of wipe may be critical to not push the wiping rag into the long strokes of the letters.

Paint pens and model paints cure very rapidly which gives little time for wiping during the optimum period. Baking should cure lacquer stick. White out dries too fast for my taste of control. Though wiping with a solvent rag should work most any time providing the strong solvent in the white out didn't etch the panel underneath.

If we were to go back into production to sell to Uncle, what techniques are required by the current set of drawings? Engraved, stamped, silkscreened? I'm too uninterested to look. I'd lean towards using silk screens as being the most cost effective in quantity, though if I had a pantograph engraver (and one has been on my wish list a few times), I'd probably lean towards engraving... (You know the scene, if all you have is a hammer, everything looks like a nail...). Failing to have the engraving hardware, for a one shot, I'd probably use my Leroy lettering set with india ink and protect it with a clear coat of Rustoleum, a technique that has worked for one shot stuff around here for at least 37 years. Allows me to sign my work too.

Date: Sat, 25 Mar 2000 03:30:45 -0800
From: Dan <hankarn@pacbell.net>
Subject: Re: [R-390] Engraved Panels

I will now insert my .0002 worth about the stamped, engraved, etched, dug out and or scratched out panels other than smooth. I now have 20 panels being powder coated and 2 panels that I am going to just leave with a gold alodine finish and fill one and silk screen one with black paint stick. All of the 22 panels in process will be silk screened on the rear with white. 14 will be filled with white paint stick.

The process that I an doing is as follows: Remove all hardware, chemically

stripped professionally, then checked for flatness, if need be they are pressed or hammered flat, any surface spots or extra holes filled by TIG welding they are then run through a time saver which is a fancy drum sander with a 800 to a 1000 grit with final sanding coated with WD-40 or kerosene to do a wet sand of the panel. It is then taken to be sandblasted with with neutral media to clean out all stamped areas and to get the panel squeaky clean just prior to being powder coated then wrapped in foam to be taken to the silk screen shop. The back cover is silk screened and then baked, then front panels are screened as required. The stamped panels get filled in with white paint stick and wiped off with an old T shirt. Any smudges are wiped off using denatured alcohol, this is all done while I watch Walker Texas Ranger. So with any luck I get one panel done a night. When this batch is finished it will be 40 panels. completed. I am also doing knobs with all of the above process except the time saver and screening. The lines get filled also during the Ranger episodes with luck about 30 an hour. It is time consuming for sure. I do not bake the panel after filling as the paint stick dries naturally.

Date: Tue, 28 Mar 2000 07:54:21 -0600
From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Painting meters....

Yes, that pretty much describes my meters, except, as I said, I have one with a removable cover and one without. They both have the flaky-looking needles and lettering so I don't dare take them apart. Some of the brass screws holding them together were showing some corrosion, and I cleaned that off, but didn't go any further. I suppose the radium has lost some of its magical powers since they don't appear to glow in the dark anymore -- too bad. At least the outsides of them look good now.

Date: Tue, 28 Mar 2000 07:17:12 -0800
From: Shadow <shadow@gilroy.com>
Subject: Re: [R-390] Painting meters....

If you want to repaint the meter face by hand. You may want to use Luminous Paint. It will not totally glow in the dark But.... with in very little light... the dial will have a slight glow... Luminous paint is still available from some sporting companies. They paint gun sights with it.

Date: Tue, 28 Mar 2000 20:01:51 -0600
From: "Richard Biddle" <theprof@texoma.net>
Subject: Re: [R-390] Painting meters....

GLO-IT Luminescent paint is carried by Hobby Lobby and other such stores. A one oz bottle is less than US$5.00. I haven't a steady enough hand anymore to do scales, but it looks like fun.

Date: Thu, 30 Mar 2000 17:56:49 -0500
From: Glenn Finerman <k2kl@acd-pc.com>
Subject: [R-390] re: Painting meters and engraved lettering

Sorry to get this in so late... Check your local hobby shop for a product called liquid mask. It's sold in a small model paint like jar. Paint it on the glass meter surface with a small model brush. It dries to a rubber like texture. Paint the meter, after the paint dries, just peel off the liquid mask. Works very well! After reading Barry's post, I realized that this may just be rubber cement e-packaged for us hobby shop

junkies as liquid mask.. If I remember correctly, the mask may be thinned compared to rubber cement. either way it does the job! (also may be called "liquid frisket") Also....I discovered a great way to paint (fill-in) the engraved panel lettering which I think beats the lacquer stick...I was wandering around my favorite art supply store (Pearl Paint) and found a paint pen with a fine tip that fits right inside the engraved lettering!. This is real permanent paint, not a "marker" Just run it around inside the letters a few times let it dry, do it again for a thicker coat. Nothing to wipe-up, no fuss no muss! and it looks great!...The tip is not a ball applicator, it appears to be the felt or nylon type.

Date: Thu, 30 Mar 2000 20:44:38 -0500
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] re: Painting meters and engraved lettering

My experience wasn't so good with what sounds like the same thing. I too bought it at Pearl Paint. The stuff I bought is called "Presto" jumbo correction pen. Is that what you bought? The tip looked like it would fit but the paint was hard to control. You must have bought something else. I also bought (there too I think) "Super Metal Marker" which also has a fine metal press-to-flow tip. Same problem. In both cases, the paint overflowed the grooves and I had slop to clean off which didn't clean off so well compared to the laquer stick. Either you got something else, or you have the "knack". What exactly did you buy there?

Date: Thu, 11 May 2000 21:19:58 -0400
From: eengineer <eengineer@erols.com>
Subject: Re: [R-390] Cleaning front panel

Start w/ soap and watter and a small hair dryer. I then went to 409. Then I used straight alcohol on cotton balls and I was very gentle. My Collins R390A original paint stood up well to it. Be gentle at first and make sure it doesnt come off. Try a place that isnt easly seen as a test. I used GOOF-OFF to take off old masking tape and scotch tape residue off of the same radio. It was probably over 30 year old residue. Jeff

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Date: Thu, 11 May 2000 21:36:44 -0400
From: "Ed Tanton" <n4xy@att.net>
Subject: RE: [R-390] Cleaning front panel

Hi Francesco... a good while before I lost all my R-390/et al tech notes/etc. in an OS-loss disaster, I had made a note about a new and different (in its grease/etc. cutting chemical reaction[s]) kind of cleaner. FORTUNATELY for me, I DID manage to remember the gist of this ONE note, and bought some. It is absolutely wonderful. I don't know what's in it, but the way it works is just amazing. And so far, it has not harmed any paint or lettering I have put it on.

The 'stuff' is: *** Castrol Super Clean ***. It smells just like regular 'Fantastic'/ et al, but it works MUCH better. Noticeably better, for example, on wrinkle finish. Of course, YOUR paint-and your results-may always be different, but try it on something/some spot less critical.

Mine says also: "Wheel Cleaner". This was not mentioned in the note, but this was the only spray stuff that had the rest of the name attached, and-as I have said-has been really great. And no, I don't own any Castrol stock/etc.

Date: Thu, 11 May 2000 20:48:38 -0500
From: "Dr. Gerald N. Johnson" <geraldj@ames.net>
Subject: Re: [R-390] Source for Glyptal Cement

I was thinking of pure cobalt blue pigment, not an oil paint, or water color paint but pure pigment. Its claimed to be strong. Might get more purple with the iron oxide pigment though. I found Glyptal paint at Eastwood auto restoration and hot rod supply. About $22 a quart.

For Barry Hauser, Glyptal is an alkyd paint with very good dielectric properties. Its thick, doesn't come off clothes or hands easily, has been used for a long time as varnish for motors and transformers. I think I recall that color in some WW2 vintage dynamotors too. I've used it on a few rewind jobs and it sets up tough as epoxy but dates from decades before epoxy. I learned you wanted that winding correct before applying and baking the Glyp... Its good stuff that way. It is fairly thick though motors and transformers would likely be dipped in a vat of the stuff. Possibly under vacuum to get air out of the windings to be replaced by Glyp. The Glyptal page (www.glyptal.com if I remember right) claims its good for 1500 volts per mil of thickness as a dielectric. That's a high quality dielectric.

All that applies to the standard red Glyptal #1201. The web page claims the company makes lots of products and doesn't mention a blue Glyp. I always figured the blue Glyp I saw at Collins was the same brew with a different pigment. But it might be totally different. Red Glyp has been available in the GC line for a long time, I think it still is. Some of the blue Glyp on fine set screws in ARC5 equipment still resists removal, far tougher than Loctite 222MS.

I think some of the corona dope I've seen looks just like red Glyp. Duco cement and some powdered blue pigment might make a reasonably facsimile.
Or maybe just a splash of Tester's blue paint... Forget the rest of the details. Maybe some modern blue nail polish. We hams have used odd colors of nail polish for eons for gentle thread locking. Its probably NOW available in blue. Not something I check for, so I'm not sure.

What does the assembly drawing CD call for use in thread locking? Is it blue Glyp or is it some ordinary thick blue lacquer (like Testor's for plastic) or is it truly Duco cement with a lot of blue pigment? There should be a specification in there somewhere. By the way, Testor's colors mix well to get custom shades different from the standard colors. 73, Jerry, K0CQ

Date: Fri, 12 May 2000 00:34:19 -0400
From: "Barry L. Ornitz" <ornitz@tricon.net>
Subject: [R-390] Glyptal

Glyptal is an extremely old synthetic resin made by the condensation polymerization of GLycerin and PhThALic acid, the resulting material being a thermoset polyester. Its natural color would be water clear to an extremely light transparent tan. As Jerry noted, many versions include red iron oxide pigment; almost any organic dye can also be used. The chemisty of the commercial products has changed over the years and most glyptals today are alkyd resins. As others have noted, glyptals are used as motor varnishes. These generally require baking to polymerize, however. A very simple substitute is oil-based polyurethane varnish from the hardware store. If you want it blue, buy a package of blue "RIT" dye and extract the dye from the salt in the package with a small amount of

acetone. This may be added to the urethane varnish. Blue food coloring could also be used in the new water-based polyurethane varnishes too, although the viscosity of these is far less than the original glyptal. The water-based urethanes are not particularly good electrical insulators until thoroughly dry and cured. Urethane varnish also makes an excellent cosmetic replacement for the moisture and fungusproofing varnish used in military gear. The original MFP contained copper naphthenate as the anti-fungus compound, but this is extremely toxic and best left out for restorations. To get the yellow color, find an old, dried "HiLiter" pen and use some acetone to extract the dye.

Date: Thu, 11 May 2000 22:47:26 -0500
From: "Dr. Gerald N. Johnson" <geraldj@ames.net>
Subject: Re: [R-390] Source for Glyptal Cement

I've dug into the R-390A CD-ROM. Drawing SM-D-343600, gear train assembly, calls out Loctite grade A and Loctite grade C for various places for liquid staking. I didn't dig deep enough to see which was used where. The general mil specs at the end of the main bill of material drawing mentions MIL-V-173 for varnish, TT-E-527 for enamel, and TT-L-31 for lacquer. I didn't find any of these on the CD-ROM.

Date: Fri, 12 May 2000 08:30:22 EDT
From: Kenneth A Crips <w7itc@juno.com>
Subject: Re: [R-390] Source for Glyptal Cement

Allied Electronic http://www.alliedelec.com Has five flavors of Glyptal, and Glyptal like products each has a different purpose. Two are clear, two are red, one is black I think Allied has a European office(s) the 7 digit number is the catalog number. The average cost per unit is about $7 US Dollars.

Koloid-Clear Acrylic..... 796-8665
Q-Dope..... 796-4335 Corona Dope..... 796-4345
Red X Corona Dope..... 796-2068 Red Glpt. Insulating Varnish...796-3670

Date: Fri, 12 May 2000 09:17:27 -0500
From: "Dr. Gerald N. Johnson" <geraldj@ames.net>
Subject: Re: [R-390] Glyptal Cement

If you want the setting to never move and never be moveable, red glyptal is a good product. If you EVER want to change the trimmer position it's too good. Q-dope would be better if you want to ever change the trimmer in the future. Both are high quality insulators.

Date: Fri, 12 May 2000 08:36 -0700 (PDT)
From: rlruszkowski@west.raytheon.com
Subject: Re:[R-390] Glyptal Cement

I would give the Loc Tight sales rep a call for some mil grade products. Hughes (Raytheon)has been using that brand for years. We use several grades depending on what is getting assembled. I do not do that work so my exact knowledge is just in engineering passage and what laps over to my radio hobby. When I take some of my computer stuff apart I have to redo the Loc Tight on reassembly, I just have a small generic bottle with no data provided by the assembly guys to the computer lab. The Loc Tight guys have it in smaller than 55 gallon drum quantities. (small

bottles). The blue stuff did come apart. The red stuff as Jerry says is more like epoxy and you grind the drips off. Nail polish is not going to make the Temp. range you need. The Testor paint will chew on the plastic. Roger KC6TRU San Diego

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Date: Fri, 12 May 2000 12:25:10 -0400
From: "Tetrode" <tetrode@sprynet.com>
Subject: Re: [R-390] Cleaning front panel--Super Clean

I used regular Super Clean (not the Wheel Cleaner) on my silk-screened 390A panel with excellent results, it didn't harm it at all and the finish looked great. After a good rinsing I gave the panel a coat of Butchers Wax to help protect it.
Electric Radio had an article on it a while back, I need to go back and take a look at it again as I am entering the cleaning phase of a very dirty 390 I've fixed up. I remember the ER article recommended diluting it 50% with water for boatanchor cleaning, I might have done that with the panel. Have to agree its an amazing degreaser to the point where I'm going to wear gloves the next time I use it. I can work with my hands in mineral spirits and acetone all day without much trouble, but when I get Super Clean on them it turns my finger tips into sandpaper. Although its great for the mechanical parts I'm not sure about its suitability for washing the underside of chassis where there are insulator posts, wiring, and components. I have read warnings and disasters about Fantastic cleaner (called am ionic solvent) getting soaked up by porous ceramic insulating surfaces in boatanchors and then breaking down later under HV. For now I think I want to avoid using the stuff there and instead use a gentler detergent like Murphy's Oil soap or dishwashing detergent. Any comments on the use of Super Clean for washing the electronics?

Date: Fri, 12 May 2000 22:18:17 -0400
From: "Barry L. Ornitz" <ornitz@tricon.net>
Subject: [R-390] Glyptal

> I don't believe all of these products are actual Glyptal.

They are not. With the exception of the Red Glyp, they are lacquers (polymers dissolved in solvents). The Red Glyp is red iron pigment loaded alkyd oil-based varnish. It hardens when the resin cross-links on exposure to oxygen in the air. Q-Dope is polystyrene dissolved in solvent and the Koloid is an acrylic (probably PMMA) dissolved in solvent (probably similar to Krylon's clear acrylic sprays). These harden when the solvent evaporates.

>The closest thing I've found to these is the Red GC brand GLPT insulating varnish which is a "take-off" on the actual Glyptal brand product (maybe private labeled?).

Glyptal is a trademark of General Electric. Its use is rather generic in that it refers to an extremely wide range of insulating resins. Polymer coatings based on alkyd, epoxy, silicone, polyamide, acrylic, vinyl, and urethane chemistry are all sold under the glyptal name. These coatings can be as different as oil-based enamel is from latex, yet both are called paint. The manufacturing division of GE that made Glyptal was spun off as a separate company in 1985. Their current use of the trademark is much like the use of Sherwin-Williams in paint products, it refers to the company rather than to the actual type of product.

>Unless someone is willing to try some of the "recipes" for making one's own Blue Glyptal (disolved dyes etc.) and report their success/failure, I'm going to try to find

the real thing. As Jerry pointed out the real stuff has been around for at least 70 years and its performance is well known and accepted. After all Collins still uses it!

Good luck! Just like Coca-Cola, you will not find the original glyptal material today. The "recipes" have changed over the years. While the alkyd versions are functionally similar, the actual ingredients have changed significantly - some because of easier manufacturing or lower cost, and others because of the need for reduced volatile solvent emissions as regulated by the Clean Air Act. Collins does not use the same stuff today as they did forty years ago! And then there are all the wide variety of new polymers sold under the glyptal name. Which one do you really want? From the descriptions of the applications, locking potentiometer and coil adjustments, simple thread locking, etc. the most likely replacements are the Glyptal 127 adhesive or the Glyptal LC-309IM15 lacquer. Both are cellulose nitrate-based with dibutyl phthalate as the plasticizer. The adhesive contains some alkyd resin too making it somewhat tougher. Both are fast evaporating, are slightly "rubbery" when new but get more brittle with age (the plasticizer slowly evaporates). [I doubt if either of these products would be suitable to +85 C in Carl's application, however.]

The dye in varnish works just fine in most applications as does fingernail polish. I usually use my own mixture which is cellulose acetate dissolved in acetone with a dioctyl phthalate plasticizer and rhodamine dye as the fluorescent coloring agent (hot pink and easy to distinguish in a crowded chassis). I use this mixture as it is slightly less flammable than the cellulose nitrate and the ingredients are far less toxic.

73, Dr. Barry L. Ornitz WA4VZQ ornitz@tricon.net

Date: Tue, 23 May 2000 00:17:50 -0400
From: "Barry L. Ornitz" <ornitz@tricon.net>
Subject: [R-390] Cleaners

The whole reason for using cleaners such as these is that they contain ionic and nonionic surfactants which lower the surface tension of water to allow it to do a better job of cleaning dirt away - and to penetrate small cracks and crevices. To keep salts and other potentially conductive and corrosive materials from staying in the cracks, it is necessary to rinse several times with at least the last two rinses being distilled or deionized water. You cannot let the surface dry before and between rinsings. [Once the surface has been wetted by the surfactants, water will penetrate the cracks. If you let the surface dry, you have the same surface tension effects all over again.]

I have found wholesale washing of electronic assemblies to cause more trouble than it cures. I reserve immersion washing as a last resort for cleaning something that would be useless otherwise, and I expect to always replace some parts damaged by the washing.

Cleaners like 409, Simple Green, Windex, etc. are fine for surface cleaning with a dampened cloth. Spraying them into the "guts" of a radio without proper rinsing following is asking for trouble.

As for other cleaning agents causing corrosion, one of the worst in this respect is dishwasher detergent which bleaches and chemically attacks aluminum. A dishwasher virtually never rinses well enough to adequately remove all traces of the cleaner.

Date: Mon, 24 Jul 2000 16:37:08 -0400 (EDT)
From: "Paul H. Anderson" <pha@pdq.com>
Subject: Re: [R-390] Painting

Mar-Hyde paint stripper is available in spray cans at my local automotive store. After spraying that, you use a brass brush to clean out the letters, then hose it off with water. Only use methylene chloride with rubber gloves and a face mask (or plenty of fresh air), unless you're interested in opting out of the gene pool. The key is to get serious with the paint stripper - much of the hardware store stripper is pretty wimpy. Better to use the stuff at places that do car repair. Anyway, I just did my TV-7 front panel this way. I have also partially done 390 panels this way, but usually finished them up with plastic media blasting.

Date: Mon, 24 Jul 2000 17:28:52 -0400 (EDT)
From: Ken and the Chew Crew <w7itc@juno.com>
Subject: [R-390] paint stripper

Have any of you used the paint stripper they use on aircraft. I don't know much about the stuff but it is obviously safe on aluminum. I watched a friend apply this stuff to a hotrod he was repainting with a paint brush. We then, a 0100 hours in the morning drove to a local coin operated car wash he hit it up with the high pressure water and the paint came off like skin. The reason for our visit at 0-dark-30 was apparent if you could have seen the mess he left behind. But the car was stripped to the bare metal it even did a good job on the body filler.

Date: Mon, 24 Jul 2000 20:46:07 -0400
From: Al Solway <beral@videotron.ca>
Subject: [R-390] Paint Stripper

Thanks a lot for the tip on the brass brush. Works very well even with the wimpy stripper. Finished the job in less than an hour.

Date: Mon, 24 Jul 2000 21:30:38 -0400
From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] Paint Stripper

Before painting, I'd clean the panel with solvent to make sure there's no residue of the stripper, then consider using metal prep, usually phosphoric acid, or self etching gray primer. But go easy on the coats. A heavy hand will fill the "engravings" you just liberated.

Whatever you do, don't use steel wool. The little fragments of steel filaments break off and dig into the pores of the aluminum. No matter how much you attempt to clean it, there may be a few strands left behind that are practically invisible -- that is -- until after you paint the panel. If you use any abrasive, use sandpaper or Scotch Brite pads. This is the time to fill in any dings with auto body filler -- the one-part pink stuff in the tube is easier to work with than most.

Good luck. If it doesn't come out right the first time, you can always go back to the stripper. Fresh paint comes off much easier than old paint.
Barry

Date: Mon, 24 Jul 2000 22:45:20 -0400

From: Al Solway <beral@videotron.ca>
Subject: Re: [R-390] Paint Stripper

Thanks for the tips. the filler was going to be my next question. I will use a commercial paint shop, an auto body shop. Any suggestions on the type of paint.

Date: Mon, 24 Jul 2000 22:50:59 EDT
From: Kenneth A Crips <w7itc@juno.com>
Subject: Re: [R-390] Paint Stripper

Please remember that all chlorated alcohols such as Methylene Chloride. can trigger heart arrhythmias if you are predisposed to them, in other word used them outside or with great ventilation or it can kill you.

Date: Mon, 24 Jul 2000 23:01:22 EDT
From: Kenneth A Crips <w7itc@juno.com>
Subject: Re: [R-390] Paint Stripper

Before I paint cars I use a solvent called Prep-Sol to wipe down the metal surfaces before applying paint. It's great stuff cleans all oils silicones, finger prints etc. You can get the stuff at any auto parts store that mixes and sells automotive paint. Is this the solvent you are taking about Barry?

Date: Mon, 24 Jul 2000 22:03:23 -0500
From: "Jon & Valerie Oldenburg" <jonandvalerieoldenburg@worldnet.att.net>
Subject: Re: [R-390] paint stripper

Not to mention the cost of proper disposal of the chemical stripper and the stress he put on the area waste water plant with the chemical fall out..... I'm not a green peace type but putting gallons of stripper in a sewer isn't right.

Date: Mon, 24 Jul 2000 23:41:59 -0400
From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] Paint Stripper

Any idea what's in Prep-Sol? I used denatured alchohol a couple of times, wiping it down with a clean cloth. I dunno, but sometimes I think alcohol has a way of whitening aluminum, so it's probably not the best choice. For a pure cleaning solvent -- not etchant -- trichloroethane, AKA clorothene, and other trade names -- is good, no residue choice. It also features carcinogenic properties, but probably not hazardous for occasional use.

The prep stuff I was referring to is a clear liquid sold in pint or quart plastic bottles at auto paint suppliers. The active ingredient is phosphoric acid. This is the same acid you'll find listed in the ingredients of Coke, Pepsi and other soft drinks. Way back when they used to contain cocaine as another active ingredient, they sold "phosphates" over the counter in soda fountains and drug stores. Helps steady an upset stomach. That's why some people recommend a Coke or Pepsi when you're queasy or nauseous. Also why people recommend not spilling the stuff on your car finish.

The phosphoric acid micro-etches the surface of aluminum and steel so it will hold paint. When you get a car repainted and it peels after a year or two, that's one of the steps they skipped if they brought it down to bare metal.

Last time I went to buy some, the paint store just had the self etching primer. Actually, I'm not sure that phosphoric acid is right for aluminum -- it's usually used on steel. There is a product called Alum-Prep that some on the list have mentioned, but I've never tried it. Maybe your Prep-Sol is the same thing. The effect is very subtle. Before treatment with etchant, the surface is slick. Afterwards, it appears much the same -- not necessarily dull, but you can feel the resistance when you drag your finger across the surface. Then apply some more where you just touched it and got skin oil on the thing. ;-)

Date: Mon, 24 Jul 2000 23:57:57 -0400
From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] paint stripper

Easy, eeeeeaaasy .... My experience with paint stripper is that it temporarily creates a noxious gloppy mix that slops onto the floor which is hopefully covered with newspaper or a tarp. Otherwise the glop sticks and dries quickly, becoming a permanant part of the concrete or asphalt. It will not run down the drain.

I stripped a '75 Caddy Brougham in my driveway some years ago -- that was a lot of glop. None of it ran off. Most becomes a rubbery solid. The driveway remained splotched for years afterwards.

There are two general types of strippers -- non-flammable caustic and flammable something else -- hydrocarbon/petroleum based, I guess. The first one glops up as I said. The flammable one is highly volatile -- so it may be a matter of fumes rather than liquid. As for the caustic stuff -- nothing compared to what goes down the drain with Liquid Plumber or Drano. As for runoff from roadways and driveways, there's a lot of other stuff that's more significant than some paint glop which mostly sticks to everything before it gets to a drain. Oil from leaky seals -- that black streak down the middle of the road, de-icing stuff, tree-spray fallout, common household cleaners, etc. Not nice to leave that mess, though. Ordinarily, the results of using stripper will be dried on paper or poly and get burned or go into a landfill. OK, back to not so easy and turn the klaxton back on --

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Date: Tue, 25 Jul 2000 06:16:50 -0400
From: " Charles Kembring" <kembring@epix.net>
Subject: [R-390] [R3990] Paint Distributor

Sometime back there was some discussion on R&R Designs and their going out of business or changing hands. As I recall some one may have purchased the business to continue operations. I'm curious if anyone out there has information on what happened and how to get in touch if still a viabe source of boatanchor paint. Maybe there is another source that I'm unaware of. I have some restoration projects at the "paint" phase...

Date: Tue, 25 Jul 2000 06:21:47 -0500
From: Keith Heitzmann <kk5fe@earthlink.net>
Subject: Re: [R-390] [R3990] Paint Distributor

Lynn, N0ALO took over the business, http://www2.southwind.net/~n0alo/
Probably has everything you need....

Date: Mon, 24 Jul 2000 12:03:52 -0400

From: Kim Mackey <mackeyka@muohio.edu>
Subject: [R-390] Briso Wrench

Well, I'm ready to take the front panel off my R-390A and I need the #8 Bristo (fluted) wrench. I have a hex head that seems to fit some of the knobs but nothing even comes close for the Megacycle and Kilocycle knobs. Where am I going to find one of these creatures? I remember seeing a site on the net where someone was making these. Am I going to have to find and
buy an expense hard to find Bristo, or is there another type of tool that I can buy that won't cost so much?

Date: Mon, 24 Jul 2000 12:09:50 -0400
From: "Ronald Reams" <wa4mjf@worldnet.att.net>
Subject: Re: [R-390] Briso Wrench

I got a complete set from Newark Electronics. XCelite with all sizes, handles and extender for about $45.00

Date: Mon, 24 Jul 2000 13:36:57 -0400 (EDT)
From: "Paul H. Anderson" <pha@pdq.com>
Subject: Re: [R-390] Briso Wrench

I strongly suggest using only the spline wrench. A hex wrench will round the splines in the cap screw. I'll cut and paste a few messages from my archive:
Small Parts in Florida: http://www.smallparts.com/ Their web page does not readily reveal spline cap screws, so I suggest an e-mail to them. Order a catalog while you are at it When it arrives, set aside an hour and make sure you have a towel to drool into. Roy

- ---

Try www.mcmaster.com and look under spline wrenches.
(Bobdsmith@aol.com)

- ---

I just bought a couple of replacement spline blades from Tecra Tools for $3.75 ea; . 096" type 99-66, which fit all the spline type screws in my radio. They are designed to snap into the Xcelite handle, so you'll one of those too if you don't have one. They are at www.TecraTools.com
john (tetrode@sprynet.com)

- ---

I'm looking at the old archives, and see it is called a spline wrench, a bristo, and bristol wrench. The size you want is .096 6 spline. I ordered mine from McMaster-Carr.

Date: Mon, 24 Jul 2000 13:54:01 -0400
From: rbussier@lexmark.com
Subject: Re: [R-390] Briso Wrench

Kim, bite the bullet and buy a set of good spline wrenches. I recently had to drill out a Mhz knob screw on a 390A, someone had mangled. Ain't fun. One tip to all bristol screw users. Like every tool, they need maintenance. You will see that the flutes near the end round off with age. When you can 'see' the wear (shine) it's time to fix 'em. I cut off the last 1/32" or so, and gently(!)
sand it flush with a belt sander. Do not overheat or you'll change the temper. As a Field Engineer for IBM, I used the fluted wrenches daily for years and much, much prefer them over the Allen style.

Date: Mon, 24 Jul 2000 12:10:24 -0500
From: "Dr. Gerald N. Johnson" <geraldj@ames.net>
Subject: Re: [R-390] Briso Wrench

DON'T EVEN THINK ABOUT TRYING TO TURN BRISTOL WITH HEX!!!!! That's a guaranteed split and then locked set screw. The best deals for Bristol are from McMaster-Carr. www.mcmaster.com. There is no substitute for the bristol wrench that won't wreck the set screws. Been there, done that...

Date: Mon, 24 Jul 2000 15:28:38 -0400
From: Al Solway <beral@videotron.ca>
Subject: Re: [R-390] Briso Wrench

Try Boatanchor Dreams. www.skirrow.org/boatanchors/ He has them for a reasonable price. Good luck on the front panel. I have finished stripping the paint, not to bad a job. To remove the paint tin the engraved letters is real a "B". The paint stripper does not seem be very effective. I ended up modifying a needle and using it as a scraper. About 80% complete. Maybe some one has a better method.

Date: Mon, 24 Jul 2000 20:35:40 -0400
From: Mike Marshall <w2hpq@earthlink.net>
Subject: Re: [R-390] Briso Wrench

McMaster-Carr sells Bristol wrench sets. Not cheap but cheaper than Surplus Sales of Neb.

Date: Tue, 25 Jul 2000 09:10:34 -0400
From: Kim Mackey <mackeyka@muohio.edu>
Subject: [R-390] Front Panel Removal Update

Using info I received from this list I got lucky and found what I needed at a local hardware store (they had one left of a special order that made years ago). The tool fit perfectly and worked great on all but the Megacycle and Kilocycle knobs. They appear to have been complete rounded off. When I put the tool in I could feel absolute not resistance. Is the set screw offset a little on these two knobs? When I went straight in I could not find anything to put the spline wrench into. I looked into the little hole and could not see a set screw. I turned the knob a little bit and could see something that might be the set screw kinda off to the side. Is this right? I sure hope I'm missing something here and that I'm not going to have to drill these set screws out!!!

Date: Tue, 25 Jul 2000 07:05:49 -0700 (PDT)
From: Joe Foley <redmenaced@yahoo.com>
Subject: Re: [R-390] Front Panel Removal Update

Whoa! Wait a minute, you're not looking at a set screw there!

That's a clamp like the gear shaft clamps inside the radio, only bigger. There should be a washer in the slot of the clamp to keep the clamp from turning around the shaft, that should keep the screw head pointed at the access hole.

Have you been to the FAQ page yet? You might want to read up on the stuff that has been posted there first. We've been real busy collecting information like this

over the last few years so new guys could have an easier time working on their radios.

Date: Tue, 25 Jul 2000 10:11:17 -0400 (EDT)
From: Norman Ryan <nryan@duke.edu>
Subject: Re: [R-390] Front Panel Removal Update

Yes, you're right, the screws inside the MC and KC Change knobs are off to the side. The knobs are held onto the shafts by clamps similar to what you see in the gear train. The knobs themselves have little slots for facilitating clasping the shafts. You also should see a flat washer in there that keeps the clamp from turning out of reach of the Bristo wrench.

Give a shot of WD-40 into the knob hole before you stick the tool in to loosen the clamp. When you are ready to replace the knobs, take extra pains to position the clamp for optimal alignment with the hole.

Date: Tue, 25 Jul 2000 10:16:10 -0400 (EDT)
From: Norman Ryan <nryan@duke.edu>
Subject: Re: [R-390] Front Panel Removal Update

Another thought: Some rigs use two sizes of Bristo screws, or more precisely, screws requiring different size wrenches. Kinda makes the job more interesting.

Date: Tue, 25 Jul 2000 10:34:30 -0400
From: pbigelow@us.ibm.com
Subject: Re: [R-390] Front Panel Removal Update

It helps to go ahead and insert the spline wrench and engage the screw BEFORE placing the knob back on the shaft -- no hunting around for the screw blindly, and the screw will be optimally placed.

Date: Tue, 25 Jul 2000 08:29:47 -0500
From: "Dr. Gerald N. Johnson" <geraldj@ames.net>
Subject: Re: [R-390] Front Panel Removal Update

The main knobs use a ring clamp with the screw quite a bit off to the side.

Date: Tue, 25 Jul 2000 10:02:30 -0700
From: "Pat McGrath" <patricio@cyberg8t.com>
Subject: Re: [R-390] Front Panel Removal Update

Where can a complete set of knobs, clamp and screws be obtained?

Date: Tue, 25 Jul 2000 13:29:01 -0400
From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] Front Panel Removal Update

The set screw in the MC & KC knobs goes through a clamp with a nut. There's a washer on the middle of the screw that's supposed to keep the clamp from rotating out of position to the point that you can't get the spline wrench into it.

I have found several MC/KC knobs with allen, not spline screws in them. I got some spare screws from Dave Medley that turned out to be hex allen screws, not

spline/bristol jobbies. To make sure what's in there and find the darn thing -- use a flashlight and peek into the hole -- the screw head is offset from the hole -- tangent with the shaft.

The clamps on these can break if overtightened, so don't overdo it. I suspect that's why some of them were replaced. I wouldn't be suprised if there weren't some with slotted or phillips screws. Make sure the washer is positioned in one of the slots of the knob collar and follow that suggestion -- put the wrench to the screw before mounting the knob.

Date: Tue, 25 Jul 2000 13:59:02 -0400
From: Al Solway <beral@videotron.ca>
Subject: Re: [R-390] Front Panel Removal Update

Just finished reading all the latest mail on the large knobs. On my radio the "set screws" are at least one size larger than normal #8 Bristol. From what I could see at the time it appeared that the screw was an Allen Key which I used successfully. This morning I examined it under magnification and the screw is definitely Bristol, but it been distorted by an Allen Key. I hesitate to advise you to use an Allen Key.

Date: Wed, 26 Jul 2000 10:26:32 -0400
From: Kim Mackey <mackeyka@muohio.edu>
Subject: [R-390] More Pictures

I was successful in getting the stubborn MHz and KHz knobs off my set last night. Using the info that I gathered on this list I went looking through my tools and found a six spline tool that was the right size to fit the clamp set screw on the ANT TRIM shaft. The shaft of this tool was too big to fit through the hole on the knob so I took it over to my step father's who had a grinder and we turned it down to the right size.

I took some pictures of the knob and the clamp assembly and posted them at the following site for anyone who is interested.

http://itools.mac.com/WebObjects/HomePage.woa/4/wo/
KT0000uC000ic80093/29.3.0 .0.3.1.3.1.1#FOCUS

Date: Wed, 26 Jul 2000 13:43:02 -0400
From: Kim Mackey <mackeyka@muohio.edu>
Subject: [R-390] A better link to the new pictures.

Some people had problems with the previous link so here is a different one that should work better. Sorry for the inconvenience.

http://homepage.mac.com/mackeyka/PhotoAlbum1.html

Date: Tue, 14 Nov 2000 18:50:02 -0500
From: Al Solway <beral@videotron.ca>
Subject: Re: [R-390] Knobs, how to restore the White area

I used acrylic artists paint that comes in a tube. Quite thick and does not flow. Fill the groove wait 2 or 3 minutes and wipe excess with a damp rag. If you are not satisfied with results wash with water and try again until you get the hang of it. Some have used a paint stick made for this. None of this is my own creation. See

the R-390A FAQ site for much more on restoring the R-390A.
http://www.r-390a.net/ good luck with the knobs

Date: Tue, 14 Nov 2000 20:11:17 -0500
From: Bill Riches <briches@dandy.net>
Subject: Re: [R-390] Knobs, how to restore the White area

I have used "ZIG" extra fine tip opaque writer 0.5 MM available from A.C. Moore art supply stores. Works great.

Date: Sat, 16 Dec 2000 13:55:30 EST
From: Llgpt@aol.com
Subject: [R-390] R-390/A Knobs

You might check out this page..... Formerly JAN HARDWARE...Now called Electronic Hardware Corp. Several years ago, they had R-390/A knobs, in all sizes. Look here http://www.ehcknobs.com/military.pdf

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Date: Sat, 16 Dec 2000 18:36:48 -0600
From: "Dr. Gerald N. Johnson, electrical engineer" <geraldj@ames.net>
Subject: Re: [R-390] Re: Knobs, 'Dillo's and guns

Solid knobs would be the easiest to make. There's little need to cobble set screw cushions, brass tipped set screws cost under 50 cents each in 10-32 allen head stainless steel. Black oxide are half that. 4" diameter 6061 bar stock runs about $75 a foot from McMaster Carr.

It appears to me that the shop work sequence would be:

1. Saw off a suitable chunk of bar for each knob.

2. Chuck the blank, face the back, turn the rear diameter, round the edge, drill and ream the shaft hole.

3. Chuck on the rear diameter, turn the face and round (perhaps with a shaped tool for speed) edge.

4. Mount on the rotary table (chuck probably) on the vertical mill, index and mill the finger grooves. That works best with a left handed milling cutter.

5. Hold in milling machine vice, drill, tap drill, drill clearance drill tap for set screws.

6. Remove burs all over, including those in reamed shaft hole.

7. Apply black finish.

Any casting short of a true die casting would need nearly as much machine work. Ideally a sand or permanent mold casting would need less metal removal but would still need the same steps. The knob might be assembled of pieces but heliarc work isn't very cheap and aluminum tubing suitable for the straight skirt is about as expensive as solid aluminum rod. It would probably more cost effective to

make a thinner knob, and roll a skirt from sheet aluminum and weld the seam and weld into a groove or recess in the back of the knob. Then there's have to be a hub secured to the middle of the thin knob.

Date: Sat, 16 Dec 2000 17:01:48 -0800
From: Ed Zeranski <ezeran@concentric.net>
Subject: Re: [R-390] Re: Knobs, 'Dillo's and guns

>Has anyone tried fitting a sleeve in the broken knobs and then filling the
>entire cavity with something like Devcon Steel?

I did something similar with JB Weld to fix the worn dial for an HRO-50T1. Gave the worn hole some teeth then filled it with JB. After it was a few days old just rebored the 5/16 hole on the lathe. It worked.

Date: Sat, 16 Dec 2000 22:42:53 -0600
From: "Dr. Gerald N. Johnson, electrical engineer" <geraldj@ames.net>
Subject: Re: [R-390] Re: (large knob for megacycle change)

I'd rather use some adhesive than a pure press fit for the skirt and bushing. Or maybe a touch of heliarc. Machining the disk round edge without a skirt to hold onto (neither pressing or welding is strong enough to stand rapid machining) could be a pain, though a carbide router bit might do just fine with the router slowed down a little.

When I turned an aluminum knob for my Tentec Corsair II, I cut a pocket on the back side so I could knurl the edge and cut a recess in the face. Might need that here and then let the outside diameter of that recess be the outside diameter of the skirt, but there's a conflict of removing too much metal to support the center bushing and making a groove wide enough for the lathe chuck jaws to fit.

Machining from a solid rod leaves handles to hold onto and that lowers machining cost.

Router bits will work on brass and aluminum, though they last a bit longer on plastics.

Date: Mon, 18 Dec 2000 10:25:27 -0500
From: rbussier@lexmark.com
Subject: Re: [R-390] Re: (large knob for megacycle change)

Maybe this issue has been addressed by the same method I used, but I didn't see it. I bought an EAC and it had a tuning knob that was brutalized, and the compressible fingers were broken off. The fix is quite simple but you do have to have access to some machine tools. Put the knob on an milling machine, and mill the internal fingers flush with the thicker portion of the boss. Enlarge the shaft hole to 3/8". Press fit an aluminum adapter (1/4" to 3/8") which has had 4 compression slots cut in the end facing the radio. Replace the compression ring and install.

I know, not everyone has a lathe or a mill. I do, and will be glad to repair any quantity of knobs. Sure beats throwing them away. I also filled the entire knob with JB weld and drilled and tapped a hole for a home made crank handle. Since the face of the knob has an annular ring on the outside edge where the crank needs to be, I milled a flat there. When done, a trip through the glass beader and new epoxy

paint and it's done. It looks like it was made that way. A lathe is perfect for cutting the ends off the old electrolytics, too. Sure beats a Dremel tool....

Date: Mon, 18 Dec 2000 18:29:45 -0800 (PST)
From: Joe Foley <redmenaced@yahoo.com>
Subject: Re: [R-390] EAC Cast Knobs?

> Look at 6048K31 at McMaster-Carr (www.mcmaster.com).
> Though I think a better knob is their 6672K5 or
> 6720K24 (with an adapter). though a 6243K48 would be striking. 73, Jerry, K0CQ

K 31's nice especially for the '391, it has the lock hole. It could have a skirt pressed into it, could buy one slightly larger and refine the features so it would look more historically accurate. Cheap, too! K 24 is a metric unit, that'd never work on one of these radios. K 5, I made a correction to the number, it didn't show in the catalog as 6672K25. Now that knob would work
well on a R-390. K 48, I don't know about the heavy hand wheel with the big crank, too hard on the stops, maybe. Out for consideration,..... please don't vote on it though. Joe

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Date: Mon, 18 Dec 2000 22:50:06 -0600
From: "Dr. Gerald N. Johnson, electrical engineer" <geraldj@ames.net>
Subject: Re: [R-390] EAC Cast Knobs?

Most of these knobs have shaft holes larger than the 1/4" shafts, so adapters will be needed but are easy to provide. 12mm is nearly twice the diameter of 1/4"= 6.35mm so an easy adaptation for the 6720K24. the 61405K71 would be a good one to look at also. It and the 6243K48 are both plastic and a little smaller radius than the 6672K5 so not too hard on the stops. Far easier on the wrists. the 6335K47 or 6335K54 would work sell also, but are a bit modern in appearance. Some have small holes that can be drilled larger

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Date: Sun, 24 Dec 2000 12:15:53 -0500
From: "Bill Marx" <bmarx@bellsouth.net>
Subject: [R-390] R-390A Loose Megacycle Knob

Ok I give up. I am suddenly unable to turn the Megacycle Knob without it twisting on the shaft. After locating a small screw driver to fit in the opening I was unable to tighten it on the shaft for a firm enough grip. I removed the knob and saw the collar that clamps down on the slots . I also see a washer that slips in the slot. Is that stock? It appears to me that the washer prevents overtightening of the collar but at the same time also prevents full clamping down on the shaft. I can easily turn the megacycle shaft with a pliers but it doesnt look good attached to the radio.

Date: Sun, 24 Dec 2000 10:13:58 -0800 (PST)
From: Joe Foley <redmenaced@yahoo.com>
Subject: Re: [R-390] R-390A Loose Megacycle Knob

I would have guessed that the clamp had broken, the washer is to keep the clamp in the proper orientation to the hole in the knob so you can get to the head of the bolt. It is stock. "Small screwdriver..."? That should have been a Bristo socketed bolt head, that may be the problem, its just not tight enough.

Try finding the right bolt and put it back together correctly and maybe that will solve the problem.

Date: Sun, 24 Dec 2000 12:42:18 -0600
From: Nolan Lee <nlee@gs.verio.net>
Subject: Re: [R-390] R-390A Loose Megacycle Knob

>After locating a small screw driver to fit in the opening I was unable to
>tighten it on the shaft for a firm enough grip.

It should use a hardened 4-40 bristol headed screw and a square nut.

> I removed the knob and saw the collar that clamps down on the slots . I also see a washer that slips in the slot. Is that stock?

Yes, it keeps the clamp from rotating on the knob. One edge of the washer goes in one of the slots between the petals or fingers of the knob.

>It appears to me that the washer prevents overtightening of the collar but
>at the same time also prevents full clamping down on the shaft.

The design works. If it slips then something is wrong. Either the incorrect washer is in place, the clamp is sprung, the shaft is undersize, the hole in the knob for the shaft is oversize, or something in the gear train is binding.

Date: Sun, 24 Dec 2000 12:52:46 -0600
From: "Dr. Gerald N. Johnson, electrical engineer" <geraldj@ames.net>
Subject: Re: [R-390] R-390A Loose Megacycle Knob

The screw is supposed to be Bristol so an ordinary screwdriver shouldn't tighten it. The washer keeps the clamp collar from rotating so the screw can't reached through the hole. Its essential. If the knob just started slipping, look for something in the gears.

Date: Sun, 24 Dec 2000 13:59:40 -0500
From: brumac@juno.com
Subject: Re: [R-390] R-390A Loose Megacycle Knob

Dr. Jerry,   do you know of a source of those Bristol headed screws?

Date: Sun, 24 Dec 2000 14:14:26 -0500 (EST)
From: Norman Ryan <nryan@duke.edu>
Subject: Re: [R-390] R-390A Loose Megacycle Knob

The washer in the knob slot keeps the clamp aligned with the screw access hole in the knob. Without it the clamp could turn such that you wouldn't be able to engage the screw with your Bristo wrench. If the washer is acting like it's too thick to permit the slot to close up around the shaft, substitute a thinner washer. I'd be reluctant to do anything to the slot, though, unless it's certain that there is wear inside the knob where it's engaged by the shaft. Inspect the shaft that takes the knob for burrs and visegrip marks and carefully smooth them off. You want the shaft to pass through the bushing smoothly whenever the front panel has to be lowered during heavy maintenance. Inspect the knob for wear and clean it out well, then see if it fits the shaft snugly without the clamp. If the slots need to close up tightly, you have wear

from the knob having been turned too many times while underclamped. Carefully widen the slot(s) to suit. Then adjust the clamp to fit the knob snugly. Lastly, put a tiny drop of oil under the Bristo screw head and on its screw threads to help put more of your torque to use actually getting the clamp tighter.

Date: Sun, 24 Dec 2000 13:21:12 -0600
From: "Dr. Gerald N. Johnson, electrical engineer" <geraldj@ames.net>
Subject: Re: [R-390] R-390A Loose Megacycle Knob

Nope. The closest visually are torx and they won't accept a Bristol wrench.

Date: Sun, 24 Dec 2000 16:31:55 -0500
From: "Bill Marx" <bmarx@bellsouth.net>
Subject: Re: [R-390] R-390A Loose Megacycle Knob

Thank you for the perfect replies...It is definitely a Phillips Head nut and bolt. I have a set of Bristol Wrenches and that's what I tried first of course. Looks like someone modified it and I doubt I will ever find the proper one. I thought the washer served the purpose to prevent rotation and all have confirmed that to be the case. Thanks for your great input. The shaft was scored slightly but the knob fits snug. So I checked the drawers for an Alan screw that might fit the threads but no good. I replaced the nut that had been used and put a shim washer under the head of the screw. I used a thinner washer for the slot and tried again. This time it tightened down what seems to be enough. I gently turned the knob and it works. At least I will not have to listen to the Broadcast AM band forever. (I hated using a pliers to change bands). I am open to buy the proper Bristol set screw from anyone.

Date: Sat, 31 Oct 1998 15:45:00 -0800
From: John R Bookout K7JB <k7jb@uswest.net>
Subject: Re: [R-390] [R390] Help with front panel

Perhaps you have heard of the St. Julian R-390A's. I bought one from George Rancourt for $125 and it needed allot of work. The front panel was really in need of restoration. It was an engraved panel and I first used a product called "paint and epoxy remover" by JASCO. It worked very well and I also used it to strip the black paint from the knobs as well. I was afraid to use any etch solutions because it might make the engraving lose its depth. For the same reason, I didn't want to paint it gray with any more than one coat. I used some enamel I bought along time ago from Collins Radio for S Line touchup. It worked out very well and I let it sit for 2 weeks just to let it harden. I talked to a friend of mine who was a painter describing my job. He suggested that I try a paint the painters use to make signs. It is called "ONE SHOT" Sign Painters Lettering paint. Supposedly, it is good enough that it only takes one application. He suggested that I apply it with a 1 or 2 hair brush working it into the deep engraving. Wait about 20 minutes then wipe off the excess. I gave it a try, however, I soon found that this was starting to remain on the areas where the panel was gray, so I gave that idea up. I then tried a very interesting paint that comes in a stick. I think this is available from Antique Radio Supply, but I bought mine from a fellow who was selling it at a swap meet. The colors came in red, white and blue. It went on much better than the one shot and I liked the results. I used the RED for things like: LINE METER, ANT TRIM, BFO PITCH + and BLUE for - minus. Also, RED for OFF and STAND BY. The CAUTION note I painted BLUE. I have another R-390A which was done by RICK MISH. I think he actually did a better job. In fact, if you decided to not want to do this yourself, I understand that there are those here in the US who redo front panels

and this might be a better choice.

Date: Sat, 31 Oct 1998 18:55:24 -0600
From: "Jon Oldenburg" <jonandvalerieoldenburg@worldnet.att.net>
Subject: Re: [R-390] [R390] Help with front panel

The paint sticks are commonly known as lacquer sticks. They schould be available at a good hardware or paint store. Another option would be Testors Model Enammel sold at hobby shops in small 1/2 ounce bottles, applied with a fine brush and the remainder wiped off. It is slow drying and easy to find.

Date: Fri, 19 Jan 2001 07:44:58 EST
From: Llgpt@aol.com
Subject: Re: [R-390] Front Panel Repainting

>Has anyone created a silkscreen to re-letter them? Does anyone do this as a service? If so, how much does it cost and how are the results?

Contact Rick Mish at Miltronix
(419) 255-6220 I don't know what the price is.

Date: Fri, 19 Jan 2001 08:14:20 -0600
From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Front Panel Repainting

Contact Lynn from this website. I notice he no longer lists this service, but I'm pretty sure he still does it. He did an excellent job on mine (and he has the silkscreens for both sides of the panel if you want the component numbers restored). http://www2.southwind.net/~n0alo/

Date: Fri, 19 Jan 2001 08:23:45 -0600
From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Front Panel Repainting

I might have spoken too soon. Looking at the website again, I notice where he says he no longer refinished panels and to contact Total Electronics. I assume this means he no longer silkscreens them either.

Date: Fri, 19 Jan 2001 06:59:25 -0800
From: Craig McCartney <craigmc@pacbell.net>
Subject: RE: [R-390] Front Panel Repainting

Follow the link at the bottom to Total Electronics. It seems he now has the 390A screens.
---Date:
Thu, 1 Feb 2001 21:36:20 -0500
From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] Front panel paint color.

Here we go again, but that's OK. It was probably a year or more ago -- maybe two -- that we got into this. Here's a recap according to my recollection:
- -- Rustoleum Smoke Grey seemed to be the closest match.
- -- But the question was: Match to what??
- -- At that time I presumed that the gray with the slight blue tint was the"right" color.

But then, someone posted a URL to a photo of a heap of R-390A's -- St. Julien's Creek maybe -- and it looked like a mosaic. Mostly all gray, but all different shades. Even so, I suspect the group favors the slightly blue tinted version. But there's a problem:

1. Gray is mostly a "neutral" color. "Shades" usually refers to mix of white/black -- light vs. dark grays. "Tint" would refer to an added color, such as blue, yellow, brown, or even green. (I could swear R-1051's and associated Navy equipment has a touch of green in the gray.) So gray is basically neutral -- and therefore prone to be affected by ambient light sources -- direct or reflected.

2. Our perception of color is not exactly calibrated due to differences in eyes, optic nerves, occipital lobes, etc. Ditto for imaging equipment -- cameras, scanners, color printers and monitor. Also - what about glasses and contact lenses? Many are tinted.

Bottom line -- the slight differences are apt to drive us crazy. So -- if your paint job didn't come out exactly the right gray, try changing the bulbs in your shack. Like swapping daylight florescents for cool white. Ever see a fixture with one of each? Don't like florescents (noisy)? Invest in a new lampshade or paint the walls blue or whatever tint you want. Don't look good in the daytime -- you got it -- blue window shades. Of course, you can use the same compensating technique if there's too much blue.

"Hey doc, don't get me wrong, but these UV block glasses are great, but I don't like what they do for my radios." Can't stand it any more? Apply the Mick Jagger approach -- paint 'em black. Very snazzy, I'm told.

Date: Sun, 04 Feb 2001 21:36:54 -0800
From: K7JB John <k7jb@uswest.net>
Subject: [R-390] Enamel Paint comes off Knobs!

I have a paint question. Some of the knobs on my R-390, which I painted last year with Rust-oleum Enamel Stain Black, have chipped! I am not particularly rough on them, so I would think that the paint should have been more durable than it was! Does anyone have any suggestions on how I can improve the durability of the paint job I get? Does baking help? Am I using the wrong paint? Also, I have noticed on some of the knobs I painted, a second coat caused the paint to get lumpy, so I had to strip them and try painting again! What is the best way to get a good paint job?

Date: Mon, 5 Feb 2001 01:25:12 -0500
From: "Jim Miller" <jmille77@bellsouth.net>
Subject: Re: [R-390] Enamel Paint comes off Knobs!

I have used Krylon semigloss black on S-line knobs with very good results. Tried Rustoleum but wasn't happy with the results. Just bought a 390A where the owner had painted knobs with Rustoleum, and they are starting to chip also. This is what I did with my S-line knobs: Strip them down and repaint with Krylon, let dry a day or two, then bake in oven at low temp.

Date: Mon, 05 Feb 2001 01:45:42 -0600
From: "Dr. Gerald N. Johnson, electrical engineer" <geraldj@ames.net>

Subject: Re: [R-390] Enamel Paint comes off Knobs!

Bake 'em.

Date: Mon, 5 Feb 2001 09:09:01 -0600
From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Enamel Paint comes off Knobs!

Did you prime before painting? I used a self-etching primer on both the front panel and the knobs. Haven't had any problems ... yet. I also had a problem with a second coat of Rustoleum would crinkle. I found a heavy coat did better than a thin one when recoating.

Date: Mon, 05 Feb 2001 09:09:50 -0600
From: "Paul Staupe" <ptstaupe@comdisco.com>
Subject: Re: [R-390] Tuning Knob Size(s)

I have actually heard about this before. The guy I was talking to about this referred to the larger knob as a "speed" knob. Evidently, the "speed" knob would be used for the KC control. I guess with a larger knob, you would get more leverage. Could it be that with the "speed knob" the R-390 would feel more like a SP-600 (????) Is that speed envy?

Date: Mon, 05 Feb 2001 11:33:15 -0500
From: Al Solway <beral@videotron.ca>
Subject: Re: [R-390] Enamel Paint comes off Knobs!

The following is an extract from a msg covering a similar question back in Sept.

I filled the scratches and other flaws then sanded with 400 grit paper followed by 600 grit. This was done wet. I then washed the panels with a mild biodegradable degreaser. This was followed by an aluminum surface preparation using PrepSol, which I got from a local auto body paint shop. I then applied 2 coats of zinc chromate primer, followed by 2 coats of Krylon Rust Tough. Bake for 2 hours at 150 Deg F. The above procedure was for the front panel, but it also applies to the knobs including the baking. I used an artists acrylic paint in a tube to fill the lettering on the front panel and grooves in the knobs. This paint can be removed quite easily for about 5 minutes after applying, which is great for correcting mistakes. It dose not require baking. Check out this WWW site. It has all the info you will ever need for refinishing the R-390A. All the above was adapted from this site. http://www.mindspring.com/~tirevold/index.htm Good painting

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Date: Tue, 6 Mar 2001 09:00:44 -0500
From: rbussier@lexmark.com
Subject: Re: [R-390] 390A knob repairs

For those of you interested in having your broken R-390 knobs repaired (or modified), please send me an e-mail directly and I will send a coupe of jpegs. Not only can I repair the broken 'fingers' that grasp the shaft, if desired, I can make a nice spinner to help those who get tired of turning those Mhz and Khz knobs.

Date: Mon, 5 Feb 2001 19:27:25 -0500
From: Al Tirevold <tirevold@mindspring.com>
Subject: Re: [R-390] Enamel Paint comes off Knobs!

The painting info Al is referring to is now at http://www.r-390a.net

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Date: Mon, 5 Feb 2001 22:29:11 -0800
From: "Glen Galati" <eldim@worldnet.att.net>
Subject: Re: [R-390] Tuning Knob Size(s)

I don't think you can ever achieve the smooth tuning of the SP-600 on the R-390, due to the engineering of the drive mechanism, regardless of how big or heavy the knob is. The HAMMARLUND SP-600 has an internal heavy brass counter weight that accounts for the "spin action" that is acheved. I just played with a friend's SP-600-JX-14 and the SP-600-JRX-17 last evening. Brings back wonderful memories of the early "sixties" when we had these in the Air Force. Also, of note is that the Band Change and Vernier Tuning Knobs on the SP-600 are the same physical size and are Black Plastic Bakelite. The R-390 Knobs are cast Aluminum.

On the subject of painting aluminum knobs as used on the R-390 Series Receivers. Baking the knob after painting with enamel, hardens the paint and makes it less susceptible to chipping. I can't recall the ideal baking temperature and duration. This info may be available in the archives. However, an important note on painting any bare aluminum is the it must be clean. There is a commercially available (non-toxic/bio-degradible) solution that you just dip, rinse, and dry to remove the normal oxidation that happens to aluminum. I have not tried this on cast knobs as I don't know if the same oxidation occurs as on regular bare aluminum. Regular aluminum requires priming with Zinc-Chromate Primer prior to final painting.

Date: Sat, 10 Feb 2001 15:52:08 -0800
From: jan@skirrow.org
Subject: Re: [R-390] Bristol Set Screws

I seem to recall that the knob setscrews are standard 6-32. I do know that on one radio I had there were so many damaged setscrews that rather than have a mix, I replaced them all with standard Allen setscrews. I think they were 6-32.

Date: Mon, 9 Apr 2001 08:55:50 -0400
From: "Warren, W. Thomas" <wtw@rti.org>
Subject: [R-390] 390A Rear and side panel refinishing

I just received a rear panel and left and right panels from Mark up at ATC and want to see how folks are refinishing them. First, I received a non-bent right and left panel with a few scuffs, but absolutely no big deal. The rear panel was a little scuffed and slightly bent, but again no big deal at all. I really appreciate Mark making these parts available to the community. Really good and courteous service from Mark in getting me what I need. I currently have a bent right panel on my pride and joy EAC '67, and as soon as I figure out how to refinish one of Mark's panels, it will go in the place of the bent one on the EAC '67. Now, does anyone have first hand experience with re-chromating, re-alodyning, or re-anodyzing these panels? I suspect there is one good right way, and it probably involved etching away the current finish and then re-doing the original process or a more modern one. Anybody done this in a first class way?

Also, I don't want to lose the decals and inspection stamps on the rear panel. My first thought was to get some clear airplane dope and cover the decals. I'd

experiment with the inspection stamps as I believe they're ink (I washed most of the inspection stamps off a previously cleaned rear panel) so may dissolve in the solvents in clear paint. Anyone with experience here of covering the decals and stamps so their historicity comes through after re-finishing?

Date: Mon, 09 Apr 2001 06:47:36 -0700
From: Dan <hankarn@pacbell.net>
Subject: [R-390] Re: 390A Rear and side panel refinishing

Warren, First of all do NOT anodize as it is not conductive I have been told. Alodine is the correct process. I put the back panel with the harness in the dishwasher, they come out great and all of the markings remain. The harness sparkles. De-oxit the contacts with MCL the liquid version of De-oxit. I have all of the frames acid cleaned and gold alodined. Some non aggressive metal work will fix most of the panels. Use care not to work harden the Au. I can send you a picture of a frame in work with the rear panel and the frames back together. The proper cleaning process will remove all of the markings in the acid bath in most cases, at least will make them lighter. Been there done that. Send the XYL shopping and load it in the dishwasher with some Cascade full cycle, full dry.

Date: Fri, 06 Jul 2001 09:01:36 -0700
From: Dan <hankarn@pacbell.net>
Subject: Re: [R-390] PANEL REFINISH

Bob and Group, I have the panels professionally stripped then media blasted and then powder coated. I have silk screens for both sides of the A and front side of the non A. Also have SP-600, SX-28 & 28A. R&S EK-07 in both German and English. Also have RF deck covers for both models with proper XFMR silk screen.

Date: Fri, 6 Jul 2001 11:56:27 -0500
From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] PANEL REFINISH

Have you done stamped (engraved) panels? Do you still media blast them? Does it affect the crispness of the lettering? Do you end up with a lot of hand work cleaning out the old paint from the grooves? I know repainting this type panel is time consuming and is pretty much a "by hand" method, but I was wondering about the paint removal process for them.

Date: Fri, 6 Jul 2001 14:45:56 -0400
From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] PANEL REFINISH

I found that, while messy, paint stripper works well. I've used the spray on non-flammable type (caustic).

It may take several applications. Also, what may dissolve a depot repaint coat, may not lift the underlying original residue or primer. So, you may need to use denatured alchohol or some other solvent also -- but not at the same time. (To avoid explosions or the unintentional production of noxious gases.) I completely cleaned the lettering out with the stripper and an
automotive detailing brush -- looks like a big toothbrush -- with stiff nylon bristles. Don't use the brass bristle one and forget about the steel.

What's tricky with the stripper is protecting the back which is often good enough to leave alone. I mask the back and use double-stick tape behind the panel holes where practical. There's usually some seepage, though.

After the stripper, I use denatured alchohol to clean of the residue and then Scotch-Brite pads to finish up. Steel wool can leave small filaments embedded in the surface which can mess up the paint job. One of these days, I'm going to stop right there with the brushed aluminum look and fill the lettering with black. (If you rub in horizontally only, for a while there it
will look like a piece of vintage audio gear.) Then comes the self etching primer and the Rustoleum finish coats. The trick is to get the paint coverage without excessively filling the stampings. I bake the finish with a heat lamp in a makeshift oven.

A "do-able", but messy project. Actually very "do-able" -- truthfully, extremely "re-do-able". First one took three tries. ;-)

If you're not feeling particularly artsy-craftsy, concerned about your skin, lungs, and other body parts, not partial to cleaning up deepus goopus, and/or want to be assured of a perfect panel, then follow these alternate instructions. Obtain a large flat box and some newspaper or bubble wrap. Get a pen and your checkbook ... etc. ;-) (no, don't ship it to me!)

Date: Mon, 09 Jul 2001 10:03:55 -0400
From: John Mealey <jm3@cw.net>
Subject: RE: [R-390] PANEL REFINISH

Probably could get some beeswax in the holes to prevent seepage.

Date: Fri, 3 Aug 2001 08:39:45 -0700 (PDT)
From: <jlap1939@yahoo.com>
Subject: [R-390] Paint color variations.. 390 non a

Have continuing interest in original paint variations, but Dave Medley thinks my blue/gray was a re-paint by a prev. owner, and is repainting due to poor overall quality. I had believed it was from military duty... However, I remember some variation in service, but it may have been unit goof-ups. Nolan Lee gave a number I have written down from some source: #2610, semi-gloss gray, and I can't remember if that refers to either, or both of the 390(x). I got it somewhere on the net at sometime... Anyone who does panels remember the blue/gray on any panels, or did anyone else see a blue/gray radio in active unit use?

Date: Fri, 3 Aug 2001 12:37:11 -0700
From: "Roger L Ruszkowski" <rlruszkowski@west.raytheon.com>
Subject: [R-390] Paint color variations.

Have continuing interest in original paint variations, but Dave Medley thinks my blue/gray was a re-paint by a prev. owner, and is repainting due to poor overall quality. I had believed it was from military duty. Fellows, Some of the paint color variations are from repaint in the field. Some were done with spray paint cans, and Q tips. I watched a couple get done that way after a fire in a van. Some color changes were induced by properties of cleaning solvents not recommended for use by OSHA as utilized. These were dipped in a wash water some what close to lye drain cleaner. Some repaint was Depot Rebuild. There are likely as many

reasons for color variation as there are colors found. Roger.

Date: Mon, 03 Sep 2001 11:49:04 EDT
From: NE7X@aol.com
Subject: [R-390] Proper way to redo engraved lettering with "Lacquer sticks"

I have several National, Hammarlund, and a R390A receiver which I want to redo the engrave lettering. I purchased a white lacquer stick to do the task. However when I wipe off the excess lacquer from around the engraved lettering, some of the lacquer within the engraved letters is removed. I think this is due because some of the engraving is not very deep. What is the best method for using lacquer sticks to redo the lettering?

Date: Mon, 3 Sep 2001 12:48:17 -0400
From: Tom Leiper <twleiper@juno.com>
Subject: Re: [R-390] Proper way to redo engraved lettering with "Lacquer sticks"

I think it would be very hard to do it with lacquer. Personally, I like to strip and finish the panels with coats of color lacquer, and then let them sit for a week. Next I use latex super-white enamel (ceiling paint) and paint over (fill in) the engraving. After letting it dry for about 15 to 30 minutes I rub it off with a slightly damp terry cloth. You should practice first on the shallowest engraving to see how long to let the latex dry before removal...the most important thing being that you let it dry long enough. I have been able to rub off the excess hours later without any problem, you just need to dampen the cloth with water. If you screw up, you can just wash the latex off and start over. After all the lettering is finished and fully dry, I put a couple coats of lacquer overcoat on and the result is fabulous. I just did an SP-600 for my living room stereo in a brown metal-flake to match my Harmon Kardon Citation power amp and the cherry Queen Ann armoire that everything is mounted in. This SP-600 had chrome
tuning window bezels which made it especially pretty. The panel came out so perfectly that now I am going to have to repaint the dials...which will be a challenge, but they ARE engraved.

Date: Mon, 03 Sep 2001 11:34:08 -0700
From: shadow <shadow@gilroy.com>
Subject: [R-390] Proper way to redo engraved lettering with "Lacquer sticks"

I will make a suggestion and maybe this will help cute your problem.... Rather the using the lacquer stick. There is a liquid and dry power form of paint. That is used by some gun manufactures, owners on the lettering and engraving. On fire arms the engraving and stampings are very shallow and fine. I know it comes in gold, silver and white. Found at larger gun shops and gun shows. It works Excellent... Unfortunately I need to buy some more, so I can not give you the name or manufacture. But I'm sure not many manufacture it and a good sales man will be able to help you... It is very simple to use and I have had Great results with it in the past...

Date: Tue, 4 Sep 2001 03:18:30 -0700
From: "Dave Campbell" <wcampbell@odyssey.on.ca>
Subject: [R-390] Re: [Hammarlund] Proper way to redo engraved lettering with "Lacquer sticks"

Are you also painting the panel? One time when doing an SP-600 for a guy, I had

the same problem. Turned out to be the paint I used on the front panel. It went on so thick it filled in the engraved lettering too much. I stripped it, used a different paint and the lacquer stick worked like a charm.

Date: Tue, 4 Sep 2001 07:30:13 -0400
From: Tom Leiper <twleiper@juno.com>
Subject: Re: [R-390] Re: [Hammarlund] Proper way to redo engraved lettering with "Lacquer sticks"

Yeah, I always paint the panels if they are steel, and the aluminum ones only if they are beyond hope. It's because you HAVE to use zinc chromate primer on aluminum. I have never used any lacquer (stick or otherwise) for lettering because I just assumed it dries too fast and is unforgiving of mistakes. If you paint the panel with lacquer it probably gives you the thinnest coat for the coverage...which yields the best engraving. After it (the lacquer painted panel) is fully cured, you can use the latex to fill or re-fill the engraving as often as you want until you get it right because you can just wash it out and do it over again. When you finally have it perfect you seal it with a couple clear coats. Anyway, that's how I do it.

Date: Tue, 4 Sep 2001 09:43:35 -0400 (EDT)
From: "Paul H. Anderson" <pha@pdq.com>
Subject: Re: [R-390] Proper way to redo engraved lettering with "Lacquer sticks"

Part of the problem with what you're trying to accomplish is the shallowness of the engraving, which can happen for any of a number of reasons, including overpainting the grey base coat (which I've done several times now). After having done that, we note that wiping with a handheld rag too easily removes the paint from the etching. I have not tried this step yet, but I believe it is worth putting a kleenex or similar around a small wooden cube block, and gently wiping with the face of a block covered with the kleenex. The idea being to keep the absorbent material flat as you can, thereby hopefully reducing the amount that it "reaches in" and wicks out paint. I believe that a little experimentation with absorbing material (kleenex, cloth, smooth paper towels), and with solvent (water, mineral spirits, etc), that this technique should help those of us with shallowly engraved letters. If you try this, please let me know how it works - I've got a couple of panels I need to fill the paint in, and will probably try this in a month or two (just got married this last weekend, too - whoo hoo!)

Date: Tue, 04 Sep 2001 08:57:43 -0700
From: "Ken Warren" <Ken_Warren@beavton.k12.or.us>
Subject: Re(2): [R-390] Proper way to redo engraved lettering with "Lacquer sticks"

Many years ago when I worked at Tektronix I had the front panel for my R-725 repainted. The process that they used for engraved panels was to spray the striped panel with a baking enamel paint. After the panel had cured for a couple of days they dabbed a quick dry lacquer into the engraved lettering and let it dry for a couple of minutes. Taking a lint free tissue wrapped tightly around a square block of aluminum DAMPENED WITH A VERY QUICK DRYING SOLVENT, they quickly pulled the block across the lettering. If it required a second pass be sure to rotate the block to a clean side. The result was perfect. This is the same process they used for the engraved and painted panels on some of their instruments.

Date: Tue, 04 Sep 2001 09:53:07 -0700

From: Leo Jormanainen <lexa@mail.island.net>
Subject: Re: [R-390] Proper way to redo engraved lettering with "Lacquer sticks"

Put grease into the engraving first, then wipe the excess off with degreaser in a rag. Then paint the panel. After, clean out the grease in the engraving with any solvent that won't harm the paint. That'll leave the engravings original. It's something like etching a PCB.

Date: Tue, 04 Sep 2001 23:59:58 -0400
From: Norman Ryan <nryan@intrex.net>
Subject: [R-390] Joy of Cooking

Got to see firsthand what fun baked finishes in the oven can be.

Found an IERC tube shield that was bare aluminum-- something I'd never seen. Since it was a perfectly good shield otherwise, I thought I'd experiment with a baked on finish for the first time. Removed liner, degreased shell with lacquer thinnner, and prayed on Krylon Ultra Flat Black #1602, available at the DIY store. After it dried, placed shell on an aluminum pizza pan in the oven with the thermostat set just a touch above "warm." No bad smell. Forgot about the oven until about 18 hours later. Result was extraordinary. Finish on shield was a single coat of smooth, beautiful dull black, and really baked on. Could not scratch it with a fingernail no matter how hard I pressed. Did not have to prime! Now am looking forward to doing knobs for which I bought some Red Devil Ultra High Gloss Appliance Epoxy and primer for same. AL pizza pan will be used here as well. Will let you all know how it goes. (Won't be soon, though.) Can refinishing front panels be far off?

Date: Wed, 5 Sep 2001 12:19:48 -0500
From: "Jon & Valerie Oldenburg" <jonandvalerieoldenburg@worldnet.att.net>
Subject: Re: [R-390] Joy of Cooking

I used Kyrlon Machinery Gray on the front pannel of a BC-779A, Baked it at 175 degrees for 3 hours (after a 3 day drying period). Worked great and has held up well for 2 years now. Jon

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Date: Wed, 05 Sep 2001 15:25:49 -0400
From: Norman Ryan <nryan@intrex.net>
Subject: Re: [R-390] Joy of Cooking

Placing metal objects in a microwave oven is a no-no. It can ruin the magnetron.

Date: Wed, 5 Sep 2001 22:26:09 -0500
From: "Ron Kolarik" <rkolarik@neb.rr.com>
Subject: [R-390] Cooking and motorcycles

Ahh, fall approaches and the list goes astray. Could be an interesting Winter :).

Please don't bake your painted panels in anything you intend to cook food in and do it outside. Friend of mine sent a very expensive bird to "Tweety Heaven" and his wife to the ER doing it inside. Can't recall the particular paint but none of it is good in the kitchen oven.

Date: Fri, 19 Oct 2001 16:05:49 -0700 (PDT)

From: Joe Foley <redmenaced@yahoo.com>
Subject: [R-390] Knob information/manufacturer

While looking through my copy of the Standard Electronics 1966 Master Catalog,..... doesn't everyone have one? I found on page 562 the JAN Hardware Manuf. Co. at Long Island City 1, NY offering Item #K243 which is called a tuning knob. Its an exact match for the MC and KC change knobs of the R-390A's except its for a 3/8" shaft. Made to Fed Spec QQ-A-591 and MIL-F-14072. Also on that page are the smaller knobs of the R-390 line. Catalog #'s K-242-1, -2, -3. Available with and without the line filled in white. The question I have is; Does anyone know anything about this company? Are they still in business? Did they leave anything behind if they did disappear?

They also made the gear clamps.

Date: Tue, 4 Dec 2001 17:04:42 -0800 (PST)
From: Joe Foley <redmenaced@yahoo.com>
Subject: [R-390] Need Bristol wrenches?

http://www.mgs4u.com/bristol.htm

Date: Tue, 04 Dec 2001 18:37:38 -0800
From: "James A. (Andy) Moorer" <jam@sonic.com>
Subject: Re: [R-390] Need Bristol wrenches?

Yeah, I saw that web site, but I am now totally confused:

(1) the ones on the R-390/R-390A, are they four flutes or six flutes?

I can barely play saxophone, much less flute!

(2) Do we want "L"-keys or screwdrivers? (or industrial "T"-drivers?) It seems like the screwdrivers would be more useful.

(3) I though the R-390/R-390A only used the "#8" Bristol drive. Which one is that? This website doesn't identify them by number - only by "major diameter". What is the major diameter of the Bristol screws in the R-390/R-390A?

Sorry - I get confused easily these days (and most of the previous days)

Date: Tue, 4 Dec 2001 21:48:57 EST
From: Llgpt@aol.com
Subject: Re: [R-390] Need Bristol wrenches?

You want the 0.096 size, that has 6 flutes

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
To: "R390 (E-mail)" <R-390@mailman.qth.net>
Date: Thu, 17 Jan 2002 09:10:59 -0600
Subject: [R-390] Front panel paint removal

I'm starting on another front panel restoration -- this one with stamped/engraved lettering. When I did my first one, it was silkscreened so I was able to just wet-sand the old paint right off. With this lettering, naturally I want to remove the paint from

the tiny grooves as well. I'd prefer to minimize any sanding I might do as this could decrease the goove depths. Granted, it would be a lot of sanding to do this, but I'd rather not go there. I tried a bit of acetone and it was rather ineffective (the original paint is quite tough). What paint strippers have worked best for those who have done this? I'm concerned about the corrosive effects of some strippers on the aluminum. I suppose it can be neutralized, but I wanted to find out what the "professionals" have used.

Date: Thu, 17 Jan 2002 10:30:11 -0500
From: "Ray, W2EC" <w2ec@attglobal.net>
Subject: Re: [R-390] Front panel paint removal

Just get a stripper listed for "Aircraft". Aircraft are usually aluminum and will tolerate NOTHING in any compound that can possibly cause corrosion. Your local auto body store more than likely has "aircraft" grade certified stripper.

---From:
"Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Front panel paint removal
Date: Thu, 17 Jan 2002 09:43:28 -0600

Looks like I'm in business. First call and they knew exactly what I was talking about which is unusual when I go looking for a speciality item. The guy on the phone told me it would "this'll take it right of off of there" so this should be a cake-walk (grin)!

Date: Thu, 17 Jan 2002 11:16:01 -0500 (EST)
From: "Paul H. Anderson" <pha@pdq.com>
To: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Cc: "R390 (E-mail)" <R-390@mailman.qth.net>
Subject: Re: [R-390] Front panel paint removal

Acetone is a solvent, but won't touch baked enamel. You need something with methelene chloride - available in furniture and paint strippers in most hardware stores as far as I know. The stuff I like best in a spray can is Mar Hyde (automotive stores may have this), in a can, Tal-Strip III, which you let dry before removing the stuff. In all cases, be extremely careful - it desolves everything, I think eventually including skin and lungs. If you're sanding to remove paint from the grooves, something is wrong. Use a brash brush to get the paint out after a good soaking with paint stripper. There are two other possible alternatives to chemicals (that preserve the grooves) - plastic bead blasting (maybe glass bead - absolutely not sand blasting), and secondly, you can use heat to bubble the paint - I get impatient and use a torch, which starts affecting the metal in bad ways, but a hobby heat gun may do it, too.

From: "Joe" <joe.amp@verizon.net>
Subject: Re: [R-390] Front panel paint removal
Date: Thu, 17 Jan 2002 11:40:04 -0500

I am also stripping one, the aircraft grade strips like a breeze. Sprayed a 50:50 ford gray enamel with a tint of blue + bake and it look great, Thinking about going with a new UV activated 500 mesh passed glow powder/acrylic mix for the engrave lettering, knobs The stuff is white in normal light. Claims are holding capacity ten times ZnS(zinc sulfide) based pigments (10-20 hour's) Anyone tried any of these stuff ? http://www.proglow.com/

Others
http://www.rctritec.com/w_sln2.html
http://www.glo-net.com/glow/effect/index.html
http://www.magicmakers.com/retail/lighting/glowpaint.html

From: "Walter Wilson" <wewilson@knology.net>
Subject: Re: [R-390] Front panel paint removal
Date: Thu, 17 Jan 2002 16:33:40 -0500

Yes, the "Aircraft" grade paint remover is best. Then for the tough stuff that doesn't want to come out of the engraved lettering, I use a brass bristle brush (the toothbrush style brush). Don't dare try steel or anything harder than brass.

From: "Kenneth Crips" <w7itc@hotmail.com>
Subject: Re: [R-390] Front panel paint removal
Date: Thu, 17 Jan 2002 17:45:32 -0700

RE: methelene chloride Be very very careful using these chlorated alcohols. They can trigger heart problems, arrhythmias, slow heart rates, etc. If you have a heart condition I would not touch the stuff. At any rate it goes with out say that it should be used only where there is very good air circulation.

Date: Sun, 20 Jan 2002 10:24:22 -0500
Subject: Fw: Re: [R-390] Front panel paint removal
From: brumac@juno.com

I hardly ever post although I have been following the list for the past 3 years and have learned a lot about our great receivers. There was a recent thread on front panel refinishing and I thought that I would add my proceedure to the list.

I have had excellent luck using plain old automotive brake fluid, not the silicone variety, as a paint remover. It is not as fast as the comercial removers, but a whole lot cheaper and safer. It is slow to evaporate, and if let to sit, should clean up that R 390A front panel in a couple of days if the temp is around 70'F. I use scotch brite to remove the sludge. The engravings will take a little longer and I've found that my brass brush seems to mark the panel somewhat so I use a sharpened wooden "Q" tip stick to get down in the engraving. After a wet sanding with #400 wet or dry paper, I clean it with white vinegar and then lightly prime it with zinc chromate primer, from an outboard motor dealer, and then the topcoat is your choice.

From: "john page" <n8blb@hotmail.com>
Subject: Re: [R-390] Front panel paint removal
Date: Sun, 20 Jan 2002 15:32:29 -0500

Used to go into Monsanto Chemical Company to do field service work on some of their equipment. We used a pretty strong solvent at that time (early 70's) and one time while I was using it one of the chemical engineers came by for something and took one whiff of the stuff and just about had a hissy fit. He said " that is a clorinated solvent and cap it up and get it out of here and NEVER bring it back". He said " that stuff will kill you". I never used it again. The company stopped using it the next year. He claimed it would cause severe nerve damage.

From: "Kenneth Crips" <w7itc@hotmail.com>

Subject: Re: [R-390] Front panel paint removal
Date: Sun, 20 Jan 2002 14:19:41 -0700

One of the cleverest devices I have ever used was a mist degreaser. it used heated Perchloroethylene. When heat this stuff forms a mist with a very low vapor pressure. You could see the mist about four feet below the lip of the tank the PCE was in. To use it you would lower the part to be cleaned and degreased into the mist and instantly the PCE would condense on the part carrying all the goo away leaving you with a clean dry part. Oh but it was so dangerous. We had one crew member working on it and the thermostat failed which let the temperature of the PCE to reach it's flash point. I was 100 feet away and I saw the flash, not a flame, the flame was invisible, but what looked like a shock front. The Operator was not aware of what happened but he was burned on his hands, arms, his sight was saved by the face shield he had on, but his hair was burned off, he was hurting. A couple of us grabbed him and together we went into a large tank which was full of fresh water, putting out the flames. OSHA nailed the company with a big fine because there was no safety system in place to shut the degreaser down in event of a thermostat failing.

From: "Bob Nickels" <ranickel@mwci.net>
To: "Kenneth Crips" <w7itc@hotmail.com>, <r-390@mailman.qth.net>
Subject: Re: [R-390] Front panel paint removal
Date: Sun, 20 Jan 2002 20:16:30 -0600

> One of the cleverest devices I have ever used was a mist degreaser.

Vapor degreasers used to be the standard method for cleaning oily parts and they did work great. A sump of solvent, most often a chlorofluorocarbon (aka "ozone depleter") or nasty stuff like TCE or methelyne chloride was heated and the vapor was trapped at the desired height by a chilled band of pipes around the circumference of the tank. As the vapor rose, it would be cooled and condensate back into the tank. However there was always some loss, which was never given much thought "back in the old days". The process is still used, but obviously with "safe" materials and good safety systems to prevent the kind of disaster Ken described. You can read more than you ever wanted to know here:

http://www.degreasingdevices.com/ebook.htm

Most folks just use an aqueous cleaning proces these days, it saves on legal fees...

Date: Mon, 21 Jan 2002 10:44:33 -0500
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] PSK-31 and Paint Removal

Some followup on both ...

>Got some aircraft-grade stripper and when the weather cooperates and I can get a good day >outside, I plan to put it to the test.

The stuff I use is in a spray can and says aircraft something on it. It's of the caustic (non-flammable type). I found that the panels have a variety of paint/primer on them and it can take several applications of the stripper to get it all off. Best thing to use is one of those auto body applicators -- basically plastic putty knives without handles. Apply the stripper, allow the paint to bubble up a while, but don't wait too

long or it re-sets. Scrape in full swipes across the panel right off the end to let the glop slop off. Before that, put the panel on a box that's somewhat smaller so the edges are accessable. If you want to preserve the back side paint (and silk screening, if any), mask it off, but step the masking tape in from the edges just a bit so you can strip full around and allow for the prep, primer and new paint to wrap around the edges fully.

One problem concerns all those holes. The stripper and resulting caustic goop falls through and eeks it's way around the back under the masking -- unless you prep each hole with masking tape on the back side. Then puncture/trim out the masking tape patches so the slop can drip through. That box I mentioned before should be open top -- i.e. fold the flaps down. As for the "engravings", I found the best thing was a nylon auto detailing brush -- like a giant toothbrush. They sell these in a set of three -- nylon (or whatever), brass and steel bristles. Don't be tempted to use the brass one, it will scratch things up. Be sure to be wearing glasses or goggles because the stuff will splash or spit especially when you're using the brush. It takes some pressure and "vigor" to work the bristles down to the bottom of the stampings. You may well find that the stripper doesn't work on some of the old paint or primer. Before restoring to abrasives, try denatured alcohol or some other solvent. What was stubborn for the stripper may give way easily to alternate chemistry. I used denatured alcohol as the final scrub. Don't let different solvents mix -- might be hazardous. Put down plenty of newspaper or a tarp -- the fallout is messy and sticky and will take to concrete quite well. As you get most of the old paint off, check out the panel carefully. If there are a lot of small nicks, a pass with Scotch brite or a fine sanding pad may work well. This may be a good idea simply to grain up the surface to hold the primer. Also, look closely at the "engravings". The top edges should be sharp and well defined so that it will be easy to fill them after painting. If not, do the Scotch brite thing. Whatever you do, DO NOT USE steel wool. Tiny bits break off in the tiny pits in the panel or simply fall out and stick no matter how you try to clean up. That messes up the paint job. If there are some really deep gouges, fill with Plastic Aluminum or that other stuff the guys swear by -- forgot the name of it -- from the auto parts store. After the surface is cleaned up and neutralized of all chemicals, ideally you should immediately prime the panel, as oxidation starts right away. Originally, I was going to Alum Prep, but couldn't find it readily. Instead, I went with a self-etching primer. Raw metal surfaces should be etched before priming or else the surface may be too slick and result in peeling later on. The self etching primer I used was gray of a similar shade to the finish coat. This helps, because you've got to go very easy with the finish or else you'll load up the etchings too much to fill properly. That means the finish coats may be a bit thin in places and somewhat translucent. So, I think you're better off with gray rather than yellow zinc chromate or whatever. If the finish coat goes wrong, don't fret. There should be plenty of stripper left in that can and the stuff you just put on will come off a lot easier than what was there before.
<snip>

Date: Thu, 07 Feb 2002 07:44:41 -0600
Subject: Re: [R-390] removing cigarette smoke
From: blw <ba.williams@charter.net>

> I need suggestions on how to safely remove smoke from the front panel .....

Tar and nicotine is pretty easy to remove with safe stuff like dishwashing liquid and water. It will start to loosen up and run off right away. My worst residue to remove has been on the little plastic tube radios that were normally kept in or near the

kitchen area. Those have years of grease coated on the cases and require at least 3 days of soaking to start loosening up the stuff. Nicotine is much easier to remove. I would start with a fairly heavy concentration of dishwashing liquid applied over a towel to catch the runoff. Be careful to not scrub too hard
until you see how durable the silkscreened paint is. You may have to do this quite a few times until you get down to bare paint.

Date: Thu, 7 Feb 2002 08:17:54 -0600
From: mikea <mikea@mikea.ath.cx>
To: r-390@mailman.qth.net
Subject: Re: [R-390] removing cigarette smoke

I don't know of any magic bullet. Warm water, mild soap, paper towels for broad areas, Q-tips or the like for tiny ones. I know others have recommended DuPont 409, and it _does_ work, but it also eats some paints a little bit.

Date: Thu, 07 Feb 2002 09:45:48 -0500
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] removing cigarette smoke

First thing to try is just some plain soapy water -- from regular Ivory type bar soap. The water should be very warm and use a soft cloth to avoid abraiding the silk screening. If that doesn't seem to work, waterless hand cleaner, such as GoJo should work safely. I've used that with success -- it doesn't lift the paint or dull the surface. But be sure you get the regular, original version of the waterless hand cleaner. They have two types -- original non-abrasive, and with abrasive additives, like pumice. You don't want the latter.

From: R390rcvr@aol.com
Date: Thu, 7 Feb 2002 10:03:54 EST
Subject: [R-390] Smoke removal

Thanks for all the advice guys. I may try different techniques in different areas and compare. I am removing the knobs and cleaning them, and the underlying area. Should be a major improvement in appearance. There are even nicotine stains on the chassis!

From: "Kenneth Crips" <w7itc@hotmail.com>
Subject: Re: [R-390] removing cigarette smoke
Date: Thu, 07 Feb 2002 18:47:54 -0700

I have used tooth paste, the kind that cleans up tobbacco stained teeth. This works very well on plastic, it should work on the paint as well. use a very soft tooth brush, water, and elbow grease. One thing about this if it doesn't work no harm done.

From: "scott" <polaraligned@earthlink.net>
Date: Sun, 30 Jun 2002 20:49:26 -0400
Subject: [R-390] How to finish a front panel

I tried the popular "spray 10 VERY light coats method" and it did not work to my liking. It filled too much of the lettering, even with waiting 5 to 10 minutes between coats. The mineral spirits in the paint does not flash fast enough and the paint tended to "self level", filling in the lettering. Plus the surface had "orange peel" I did it twice this way and stripped it both times. I did not like the texture of the finish

or how much was in the lettering. Try this and I guarantee your panel will be smooth as glass and look like it was done in a factory.

- 1) First strip and sand lightly with 220 till surface is clean.
  Use BRASS brush to get old paint out of lettering.
- 2) Spray with self etching primer or other aluminum primer. Spray several light coats until just covered.
- 3) When dry, sand with 400 paper till perfectly smooth.
  If you go through the primer, just touch up those spots.
- 4) Get Benjamin Moore Impervo enamel (or equal) from a local paint dealer. Pick a color, or have them use the computer to match the old color perfectly. (do this before you strip!!). I used a flat paint. Semi-gloss is not original and I personally think that a gloss, even a semi, will l ook cheesy (Just my humble opinion)
- 5) Thin 25-30% with mineral spirits and load into spray gun. Spray lightly, I mean MIST the panel until primer is invisible.
- 6) Let paint harden for a day then sand with water and 600 paper until smooth as a baby's ass. Rinse off thoroughly and make sure sanding slurry is out of lettering.
- 7) You will sand through into the primer in several spots but don't worry. Spray again just MISTING the panel until it is covered.
- 8) You can repeat the sand and mist routine one more time if necessary, but I did not need to.Make sure when you sand you only sand just enough to smooth the surface. This is the hardest part- knowing when to stop. So take it easy and sand lightly. The smoother you make the sub- surface, the better the panel is going to look.
- 9) Let the panel dry for a day. Bake for 250 for 2-3 hours. I put mine in my barbaque grill with the burner set at the lowest setting. I had to prop the lid open about 4" to keep the temp inside down to 250.
- 10) That's it. Panel is done. A very important aspect of spraying enamel is making sure the room is dust-free. My garage is certainly not, but I tip toed in and sprayed then tip toed out. All turned out well. Now on to the letters....
- 11) I found a very easy way of filling the letters. So much so, that I had them all perfectly filled in half hour. Here it is:
- 12) Get a bottle of acrylic craft paint in a color of your choice. Squirt a little bit on an area to be filled. Use a small hard rubber squeege to press the paint into the letters and scrape the top clean.
- 13) After waiting a few minutes for the paint to set up a little, dampen a tissue and gently wipe off the residue left behind by the paint. The panel comes perfectly clean and the paint is left in the lettering. Just don't push too hard when wiping. Very easy to do. The enamel is rock hard after baking and it cleans up perfectly.
- 14) That's it. I predict I should be able to do my next panel from start to f finish in about 2-1/2 hours total time. Not bad. I can't wait for another one!! Bring on the non-a!! I hope I did not miss anything here, but I may have.
- 15) I used Eastwoods "chassis epoxy" for the knobs and I really like the way they look. Plus the epoxy is about the most durable paint you will find in a spray can.

There are a few pictures of the panel and the filling of the lettering on my webpage. Go to: http://home.earthlink.net/~polaraligned/_wsn/page2.html
It is worth the trip (I hope). Let me know what you think of this method.

Date: Sun, 30 Jun 2002 21:09:30 -0400
From: Jim Brannigan <jbrannig@optonline.net>
Subject: Re: [R-390] How to finish a front panel

Very nice and good tips. I never thought about using the BBQ for paint setting..... To clean the garage I use a leaf blower...open the door and blast away (wear a dust mask), let it settle and do it again....not dust free, but not bad....

From: "Ronald Davis" <RDavis24@carolina.rr.com>
Date: Sun, 30 Jun 2002 21:19:46 -0400
Subject: [R-390] How to bake without a oven or grill?

Hello..... Scotts good advice has me thinking. I was thinking about building a box and lining it with tin foil and inserting some heat lamps to bake the parts after washing and baking the paint on the panels after painting. I do not have a oven that I can use hi or do I have a grill so I have to make something. Does anyone have any ideas for a poor beginner? I was thinking of using a timer on the lamps but dont know if it will work or get hot enough? Let me know if you can help. Thanks

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From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] How to bake without a oven or grill?
Date: Sun, 30 Jun 2002 21:55:01 -0400

I've used a old stainless steel box I found with a home brew aluminum top and a 75 w heat lamp with good results. I dunno, but 250 degrees sounds kind of high to me. I thought 150-175 surface temp was more like it. I'd also recommend using a nylon detail brush, not the brass, along with some caustic stripper or solvent to clean out the lettering. I found that the brass brush scratched the panel and tended to rounded the edges of the stampings, which you want to keep as crisp as possible. (Wear goggles -- the stuff flies around with the brush.) Also, use Scotch-Brite or sandpaper -- don't use steel wool on aluminum at any stage. Tiny fragments dig into the aluminum and mess up the paint job, no matter how hard you try to clean it off. You can make an oven out of an old small refrigerator, two-drawer file cabinet, etc. Line with heavy aluminum foil or spray the inside silver. Then attach the flood lamp(s) to some kind of lid. You can tell if it's working if the panel becomes hot to the touch. It should be at the bottom of the "oven" on some pieces of wood or something as far away from the lamps as practical to prevent hot-spotting. You should be able to use those inexpensive clamp-on lamps with the reflectors. However, arrange the top so the sockets and line cords are not inside. (Oversized holes for the bases of the lamp fixtures.)

From: "scott" <polaraligned@earthlink.net>
Date: Mon, 1 Jul 2002 07:40:42 -0400
Subject: [R-390] How to finish a front panel (more)

What I did not mention in this first post is how I dressed the panel edges. This may be getting a bit carried away for some but it sure makes them look better!! The panels were sheared from aluminum plate in the factory and the edges were never dressed. The shearing leaves the edges rough from the blade cutting through the plate and compressing the metal on the edges. I used a disk sander to straighten the edge then I ran the panel through a router table with a 3/8" radius rounding bit. It is a nice soft radius for the edge. I needed to then sand starting at 120 grit up to 220 to remove a few chatter marks and give the panel a perfect edge. Take a look

at the pictures of the edge that I added:
http://home.earthlink.net/~polaraligned/_wsn/page2.html

Let me know what you think. Am I nuts? Well...let's not go there

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From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] How to finish a front panel (more)
Date: Mon, 1 Jul 2002 08:02:06 -0500

Hmmm, I have a panel that has a rather noticeable scrape on the lower-left edge. It's just enough to where I don't want to just paint over it. I had considered rounding/beveling the entire panel, but pretty much decided against it. I have plans to take it to a shop and have a small bead of heliarc done to the edge and then filing it back down square. I don't JBWeld would hold here as it is on an outside edge and might not hold very well. Your panel sure looks nice, though. It makes rounding/beveling a bit more attractive to me. I agree that the sheared edges aren't very nice and a bit of smoothing with a file is in order, but one thing to consider is the panels are already a bit undersize (slightly less than 19 X 10.5). I'm skiddish about doing anything to make it smaller. It should be a bit undersize to fit properly in a rack/cabinet, but I would be afraid to keep making it smaller. Just a thought.

From: "Drew Papanek" <drewmaster813@hotmail.com>
Date: Mon, 01 Jul 2002 12:53:32 -0400
Subject: [R-390] Re: How to bake without a oven or grill?

Try the attic on a hot summer day. Inside the car works too (but stinks of paint). I've baked paint with a 75- or 100-watt light bulb (not heat lamp) in an old trunk or even under a cardboard box (done in an area where it wouldn't matter if it had caught fire). These methods also work for drying out modules which have been cleaned with water.

From: "scott" <polaraligned@earthlink.net>
Subject: Re: [R-390] How to bake without a oven or grill?
Date: Mon, 1 Jul 2002 18:59:27 -0400

I have had no problems with the brass scratching the aluminum. Not even the slightest scratches or rounding. And 250 is probably the upper end of what you want to heat it. Others recommend 200 to 250 also. Let me tell you, that paint is ROCK HARD after 2 hours in the grill. Don't cut yourself short.

Date: Mon, 01 Jul 2002 19:25:12 -0400
From: Ed Tanton <n4xy@earthlink.net>
Subject: Re: [R-390] How to bake without a oven or grill?

I just wait 'til the XYL is definitely NOT going to be around for 3-4 hours, and put it in the oven on LOW (sometimes called something like "Keep Warm"). This seems to be above 125 degrees F, and does an awesome job of wrinkling black-wrinkle paint (for example.) I also turn ON the house A/C fan, and the downstairs bathroom's exhaust fan. Generally works out fine. I have a solid brass 75A-4 knob I'm going to do with 1st a coat or 2 of primer, and then some black epoxy enamel. Same basic methods. Here in the South, with dark paint colors, on very non-windy days (so there's no dust or pollen), you CAN just place the item to be painted outside in the sun. Not quite as good as the oven, but no smells either. You've

surely tested the power of this heat once or twice with the under side of your arm... on your automobile's window edge!!!

From: "scott" <polaraligned@earthlink.net>
Subject: Re: [R-390] How to finish a front panel (more)
Date: Mon, 1 Jul 2002 19:33:08 -0400

I would think Rustoleum Enamel would work pretty good. The stuff takes a few hours to dry and should self level. If they make a color you like, I would try it. Heating the can in hot water first surely will make the flowout better. Bet you have really good results. Bake at 250 for a few hours after the paint is dry to the touch.

From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] How to bake without a oven or grill?
Date: Mon, 1 Jul 2002 19:52:39 -0400

But you have to be prepared, just in case the XYL forgot something, makes a U-turn and comes back early. Here are some emergency procedures:

1. Put the rack over the panel and have a couple of muffins ready. If you get surprised, put the muffins in the oven and say "Did YOU spill something in this oven! It stinks!"

2. Have a can of polyurethane varnish handy, with the lid partly loosened and a brush. If you're nabbed in the act, make like you decided to touch up the bannisters.

3. Put one of those frozen pizzas on the kitchen counter all ready to pop in the oven. When asked, just say you had a senior moment and got 'em mixed up. Be ready -- you'll be asked with a suspicious look as to why the oven is set on warm instead of 400. Just say you turned it down when it smelled like the pizza was burning. Oh -- place a white laquer stick next to the "countermeasures pizza" to complete the effect.

4. Keep a bottle of perfume in reach and a lipstick. If she approaches the door, dump the perfume on yourself and put some lipstick on your collar. This is a dangerous diversionary tactic, however, in the long run you might have complete liberty to bake panels and knobs anytime you want.

As you may have surmised, I've given these contingencies much thought.

From: "scott" <polaraligned@earthlink.net>
Subject: Re: [R-390] How to finish a front panel (more)
Date: Tue, 2 Jul 2002 19:33:49 -0400

Hi Norman, To answer your questions, I ran the panel through a regular woodworking router table with a carbide bit. You need a ridged setup with featherboards to hold the panel securely and you have to feed steady, not necessarily slow. The alum cuts as easy as wood.

I have a bit of alum machining experience as my other hobby is making telescopes. You have to be real careful routing it. The alum is prone to chatter marks, but cuts well. It cuts better than some wood. Would I skip the disk sanding?, well maybe not. The routing is just gently rounding the corners and not cutting the panel

smaller so the ridges from the shearing of the panel are still there.

Next time I might make a curved sanding block to dress the edges. Just drill a 3/4" diameter hole in a thick block of wood and split it in half with a bandsaw. It will make a perfect form for sandpaper. Don't be bashful. Start with 60 grit to get the basic shape and work your way up to 220 grit. If you want I will send you the other half of my block when I make it. Let me know.

From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] Mc/Kc Knobs - Fair Radio
Date: Wed, 10 Jul 2002 22:44:01 -0400

<snip> Not so -- there are original knobs out there that were ground smooth. I have some. I have one R-390 with one of each, and the smooth one didn't come from Fair -- not a repro..

From: "scott" <polaraligned@earthlink.net>
Subject: Re: [R-390] Mc/Kc Knobs - Fair Radio
Date: Thu, 11 Jul 2002 05:56:43 -0400

When I was painting my knobs Barry, I thought about grinding them smooth but decided not to. It just seems to add a little character to them. As it is, my panel is far better than new having dressed the edges and all. The new billet alum knobs are superior to the cast ones. I had 2 of the little "fingers" that clamp the shaft break off of one of my knobs. I will just machine a new center hub for it even though a pair of new knobs does look appealing for $20 each.

Date: Thu, 11 Jul 2002 07:07:42 -0400 (EDT)
From: "Paul H. Anderson" <pha@pdq.com>
Subject: Re: [R-390] Mc/Kc Knobs - Fair Radio

> I do remember recently reading about a clutch in the handle.
> What is a 389 worth? I never see one of these for sale.

Rick Mish showed me an as-new one he had worked on that he thought was easily worth more than $4000 (maybe $5000, I don't remember). Of course, it was probably better than new in many ways.

> My 390 is cleaning up nice Roy. I can't wait to have it finished so it can kick some 390A butt. :-) Fair Radio's knobs are nice, but don't look original
> because they have no casting marks. They are too perfect.

There are some cast knobs that don't have significant casting marks.
I don't know which contract made them.

From: "scott" <polaraligned@earthlink.net>
Subject: Re: [R-390] Touch Up Paint for R390(A) Front Panel
Date: Wed, 24 Jul 2002 21:02:01 -0400

The color of the panel is as big a guess as the manufacturer. There were probably 100's of shades of gray used between the factory finishes and the re-painting at the depot.

My suggestion would be go to a high quality paint dealer and they will have a

computer that will read the existing color of your panel.

They can then mix a quart that will be a near perfect match. Should cost about $12 or so. I prefer Benjamin Moore paints for this.

Have them mix SATIN Impervo unless the panel has a noticable sheen. You can always re-paint the panel and have a "like new" front. Feel free to e-mail me any questions.

Date: Wed, 28 Aug 2002 20:59:45 +0000
From: Philip B Atchley <ko6bb@juno.com>
Subject: [R-390] Removing painted markings?

Hello. I'm getting ready to start working on the 2nd R-390A (Dons radio) while I'm waiting for my remaining capacitors to arrive. This unit isn't "quite" as nice as the unit I'm keeping (though much nicer than the last three I had). While I don't intend to really do any cometic restoration it does have some small painted areas on the front panel that I'd like to remove. One is a Yellow "CN" stenciled below the carrier meter and the other is the upper left corner that is painted "red" for some odd reason. Any idea about what these markings may indicate and how to best remove them without damaging the grey paint under them? I have paint remover but am almost certain that would damage the finish and make things worse than leaving it alone.

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Removing painted markings?
Date: Wed, 28 Aug 2002 16:11:29 -0500

If it is original paint, it is pretty tough and most cleaners won't hurt it. You can try some of the commercial things like GoofOff or maybe mineral spirits. I wouldn't try anything as harsh as acetone, but ordinary paint thinners are not likely to damage the finish. CAVEAT: If it is a repaint with Rustoleum, etc., then all bets are off. That stuff dissolves pretty easily.

Date: Wed, 28 Aug 2002 14:34:57 -0700 (PDT)
From: Joe Foley <redmenaced@yahoo.com>
Subject: RE: [R-390] Removing painted markings?

You might also try rubbing or polishing compound if its not on there real good.

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Removing painted markings?
Date: Wed, 28 Aug 2002 16:39:40 -0500

Automotive paste wax may be a first start before going to these "rougher" abrasives. Polishing compound is pretty fine, but rubbing compound can take the shine right off if you're not careful.

Date: Tue, 10 Dec 2002 04:37:09 -0800 (PST)
From: "Tom M." <courir26@yahoo.com>
Subject: Re: [R-390] Black Lettering

.....all the lettering on the panel is black, not white!

Sounds like a rare case from a re-do in the military. The drawings clearly call for white lettering so this was not done originally.

Date: Tue, 10 Dec 2002 06:04:35 -0800 (PST)
From: Mark Donaldson <wa1qhq@yahoo.com>
Subject: Re: [R-390] Black Lettering

One of my R390As from the St. Juliens Creek massacre has black lettering on a panel that is much lighter in color than your typical R390A so the black lettering would show up better in this case. The receiver was a Navy unit. Is possible that this is a paint scheme specified by the Navy? I do think that the black lettering is rather common.

Date: Tue, 10 Dec 2002 11:07:10 -0800 (PST)
From: "Tom M." <courir26@yahoo.com>
Subject: Panel Paint: was RE: [R-390] Black Lettering

This is what the specs say about the paint and lettering. Tom.

3.7 Marking.-
3.7.1 General.- Marking shall conform to Specification MIL-M-13231. (See 4.4). Front panel marking shall be Group I as described in that specification.

3.9 Finish, protective.- The equipment shall be given protective finish in accordance with Specification MIL-F-14072. This includes finish of hardware, such as handles, screws, etc., and necessary touch-up after mounting. The final paint film on type I surfaces shall be final film E, semigloss, lightgray enamel, conforming to Specification MIL-F-14072.

From: "Mark Richards" <mark.richards@massmicro.com>
Subject: FW: Panel Paint: was RE: [R-390] Black Lettering
Date: Tue, 10 Dec 2002 14:18:11 -0500

I've read that various service units often would repaint their R390's to match other gear. Black, if my feeble memory is correct, was Air Force.

From: "John Warren" <k5qx@earthlink.net>
Date: Wed, 25 Dec 2002 21:52:20 -0600
Subject: [R-390] KC and MC knobs

I would like to know if the set screws on the MC and KC knobs are normally very hard to break loose. I had my R-390a on the bench since a bias resistor in the BFO circuit opened and after replacing it and re-capping the IF deck, I decided to remove all the front panel knobs to clean the front panel up as I had not done this since I bought the radio this summer. I only have a Bristol allen wrench and was not able to budge either one using moderate effort. Do these knobs really need a bristol screw driver like the OEM one normally provided with the radio to get them off? <snip>

Date: Wed, 25 Dec 2002 21:00:54 -0800
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] KC and MC knobs

John, Take a toothpick and dip it in some penetrating oil and get a few to run down

the bristol wrench while is seated in the head so the oil goes on the threads. let it set for a while, the tap the top of the bristol lightly while applying force to turn it out. No I did not say WD-40. Hank KN6DI

From: "Drew Papanek" <drewmaster813@hotmail.com>
Date: Fri, 27 Dec 2002 00:18:38 -0500
Subject: [R-390] KC and MC knobs

Sometimes those KC/MC knob clamp screws need quite a bit of torque to break them loose. With that Bristol "Allen" wrench you are obviously getting a long reach into knob by inserting the long arm. You then get poor leverage because all you have left to grab is the short arm. You can slip a small box end (ignition) wrench over the short arm for more torque. You can also turn the short arm with pliers. Make sure that end of bristol wrench which engages screw socket is in good conditon - grind a little off end if necessary. Use a needle to clean out screw socket. You want maximum engagement of good splines here. Bristol screw sockets can take a lot of torque this way. If Bristol wrench slips and you strip out the socket's spline you will have a whole new set of problems. Dan's suggestion of using penetrating oil is a good one. You may need to apply a fair amount so that it runs down over the knob's shaft clamp and actually reaches screw threads. An aerosol can of penetrating oil with small red applicator pipe works really well. No, I didn't say WD-40 either.

Date: Thu, 26 Dec 2002 23:32:09 -0600
From: Don Reaves W5OR <w5or@comcast.net>
Subject: RE: [R-390] KC and MC knobs

Old timer trick: Try tightening the screw a bit before loosening. Sometimes tightening it breaks the screw loose from it's perch. It was last persuaded by its former owner to go in that direction anyway.

From: "Jerry Kincade" <w5kp@direcway.com>
Date: Thu, 6 Feb 2003 12:49:28 -0600
Subject: [R-390] Front Panel Paint Removal

Looks like I've got the world's toughest paint on this Imperial/Teledyne front panel. Three different types/brands of paint stripper, the last (marine epoxy stripper) left on for 36 hours with the final result only a mild discoloration of the original grey. Didn't even soften it. I've done several others without this problem, don't know what they used for paint but it is *good* stuff. Thought of chemical dip-stripping, but would like to preserve the original paint/lettering on the rear of the panel. At this point I'm leaning toward possibly some type of bead or soda blasting. Does anyone know if this has been successfully done without rounding off the edges of the lettering? If so, is there a small job shop I should know about that I can ship this thing to? Local sandblast shops around here just shrug their shoulders and want to know if I have a bridge I need done. Last resort, I'll take it down to the local powder coat shop, and I'm sure they would do a beautiful job, but that would of course wipe out the lettering on the rear of the panel. Sage advice, please. Thanks, Jerry W5KP

From: "Walter Wilson" <wewilson@knology.net>
Subject: Re: [R-390] Front Panel Paint Removal
Date: Thu, 6 Feb 2003 16:23:28 -0500

Bead blasting with plastic media works fine, and does not round the edges of the

engraved lettering. I've never tried anything harder than plastic beads, for fear of damage to the panel. The tough panels are still a bit challenging even with bead blasting, but it works far better than anything else I've tried.

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Front Panel Paint Removal
Date: Thu, 6 Feb 2003 15:32:40 -0600

I just use 400-grit wet-or-dry and finish with an aircraft-grade stripper for aluminum panels for the lettering. It takes a few applications, but using a very stiff nylon brush will aid this process. The lettering is preserved very nicely this way.

From: "Dave Faria" <Dave_Faria@hotmail.com>
Subject: Re: [R-390] Front Panel Paint Removal
Date: Thu, 6 Feb 2003 18:03:28 -0800

Jerry, I like to use aircraft paint stripper by **Klean-Strip**. It may take two or three applications. My auto body paint distributor stocks the stripper. I use a plastic paint scraper from Home Depot. The anodized primer on a 390 non A panel I am working on is still intact. To clean the engraved lettering I use the stripper and a power washer set at pencil point stream. The repainted panel almost always comes out good with sharp lettering... The power washer is a 110vac 1300psi cheapo that is used on my drive way and deck. the stripper needs a well ventilated area and temp 60 deg. Feh. or better. Read the can instructions. A quart is abt $15 I think.

From: "Jerry Kincade" <w5kp@direcway.com>
Date: Fri, 7 Feb 2003 15:35:17 -0600
Subject: [R-390] Imperial/Teledyne Front Panel Paint Removal

Thanks for all the excellent ideas and helpful comments on this. Talked to a local plastic bead blaster this morning who looked the panel over and said he'd be afraid to try it, he was pretty sure it would round out the lettering, even using plastic media. However, he had a gallon can of **"Jet-Strip"** that he swears by sitting there, so he swabbed a bit on a corner (it was 16 degrees in the outside doorway we were standing in) and in about 3-4 minutes the paint was soft enough to scrape with a fingernail. He said it works much faster (!) in a warm environment. Jet-Strip is an automotive and aircraft paint shop product, available at O'Reilly's Auto Parts stores for $20 a gallon. It doesn't appear to be available in quarts. Washes off with water, works when nothing else would, he said it also eats skin like a brown recluse spider bite, chemical/rubber gloves are required. I bought a gallon and will go at it this weekend. I expect to finally be able to paint
this thing lime chartreuse with black lettering like I always wanted. (just kidding). Thanks again to all.

Jerry W5KP

P.S. I finally unpacked my new CY-979/U cabinet from the carton. Boy, is it pretty. Now I have to get as good a finish on the front panel as is on the cabinet!

From: "Scott Seickel" <polaraligned@earthlink.net>
Subject: Re: [R-390] Imperial/Teledyne Front Panel Paint Removal
Date: Fri, 7 Feb 2003 17:32:43 -0500

I use a aircraft paint remover available from Eastwood Co. to do all my metal stripping. Problem with paint removers available "retail" is that they are all "environmentally friendly" which equates to "not working". Ya see, the paint was not that tough afterall.

Date: Fri, 07 Feb 2003 17:41:51 -0500
From: Jim Brannigan <jbrannig@optonline.net>
Subject: Re: [R-390] Imperial/Teledyne Front Panel Paint Removal

For wood stripping I've given up on the "friendly" strippers. A heat gun does a better job (for wood , not R-390's)

Date: Fri, 07 Feb 2003 20:21:11 -0600
Subject: Re: [R-390] Front Panel Paint Removal
From: blw <ba.williams@charter.net>

I used to sandblast too. What you want to ask for is sand-texting. We used a hard, metal nozzle instead of ceramic ones. Also, the nozzles are much smaller in diameter. Sandtexting is what you do to frost rifle receivers, etc. It lightly frosts the metal with very small pits. Regular sandblasting will make very big pits and burn away the edges of the lettering.

The pits are excellent for holding paint and primer. A good coat or two of primer should smooth out the surface. Also, the sandblaster could hold the nozzle at a much great distance from the panel to further stop any eroding of the letter edges. This gives a less concentrated column of air/sand to hit the surfaces. That is what will erode edges quickly.

From: DCrespy@aol.com
Date: Sat, 8 Feb 2003 12:54:36 EST
Subject: Re: [R-390] Front Panel Paint Removal
To: r-390@mailman.qth.net

I have had AWESOME results using a local furniture refinisher and their paint removal bath. $20 did two panels. Lettereing is clear with very crisp edges. Absolutely clean of all paint. Only problem: both sides get stripped (if you are trying to preserve the back of panel silk screening).

Date: Sat, 08 Feb 2003 13:39:10 -0500
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] Front Panel Paint Removal

That sounds like a very good idea. Stripper is nasty and messy with gooey caustic glop slopping and plopping all all over the place. If some gets on your garage floor, you'll be looking at gray splotches for many a year to come. As for the rear panel silk screening, it might be a good idea to refinish that as well, with transfer lettering and a clearcoat. (Doesn't have to be perfect, 'cause ya' can't see it!) Even when you mask the panel holes on the reverse side, some stripper soaks through and takes some paint on the back anyway. Of course, if your paint job doesn't come out so great the first time, you may need to strip it again yourself anyway. However, that comes off much more easily -- but still mess-iliy. Don't ask me how I know this ;-)

From: "Drew Papanek" <drewmaster813@hotmail.com>

Date: Tue, 11 Mar 2003 16:04:08 -0500
Subject: [R-390] Engraved Panels

>So what kind of machine was used to do engravings? ..... A vertical CNC machining center, though overkill, would make quick work of engraving a panel. A PC based CAD program would be used to enter text data, including size and position. The same program would translate that data into G-code (CNC machine language). Once that part was completed, the same machine code could be used to do any number of panels. CNC setup would be fast and easy. Clamp panel to machine table, establish a zero reference (perhaps the KC shaft hole), and hit start button. Engraving would be done in a matter of minutes. The major time and expense would be a one time effort : use of CAD, fiddling with data for a desired appearance, and test runs on CNC (using expendable material such as pieces of wood). It would be most economic to amortize that development expense against an eventual large number of panels. Maybe "someone" could do CAD part as a labor of love ala Dave Wise with his microcontroller based 3DW7 BallasTube replacement.

Date: Tue, 11 Mar 2003 11:58:08 -0500
From: tbigelow@pop.state.vt.us (Todd Bigelow - PS)
Subject: Re: [R-390] 390A Drawings, was Engraved front panels

Looks like others have nailed this one pretty well, Don. I always wondered this myself, since doing one panel at a time would be awfully time-consuming. Along with the fact that you'd want repeatability through many examples. I have seen references to both stamped panels in some literature, and more recently engraving for the previously-mentioned mixing console (which is almost 4' across, so not easily engraved). The manual is dated late 40s/early 50s.

Here's an even more interesting thought though: the console panel has a wear mark around one lever switch used for opening and closing the main mic. The paint appears to be several layers thick, a good baked on paintjob. However - the actual engraving in the metal sits somewhat below the paint. Therefore it *appears* to me that these huge panels were painted, then baked, *then* engraved afterwards through the thickness of the paint. Nothing else easily explains the crispness of the letter edges in the paint above the metal surface.

So, with one of these nifty machines and the knowledge to set it up and operate it, the world is your oyster! I'm sure many application used stamping instead or in addition to angraving, simply for the time involved and economy of large runs. I'm not prepared to say that panels for the R-390 or A were all stamped because I have no proof.

Until recently I assumed so, based on what I knew. It certainly makes sense to me that large production runs would warrant this approach. No idea the time involved with a... Pantograph(?) in regards to how long it takes to set up or to complete a panel. If it's all automated, then probably not long.

One other note worthy of mentioning is this: the console panel is shaped, not a standard flat panel. This may have some bearing on the method used. My guess is that the main panel was bent when it was made, certainly before painting or the paint would've cracked off.

As far as my radios, the Teledyne R-390A indeed has a stamped/engraved panel.

I'm 99.9% certain that the Collins-tagged R-390 does too, but I'll check again to be sure. The #2 R-390A came with a silkscreened panel and a Motorola tag. John Watkins fixed me up with a nice replacement panel for it though, so the silkscreened version will be available if someone wants authenticity or something to experiment with The paint is still in decent shape overall.

It sure would be nice to find a place that could properly engrave panels. Instead of trying to plug those 1/4" holes added by a previous owner, one could just get a new panel made. Probably wouldn't be cheap (the good stuff seldom is), but I bet it would look great. de Todd/'Boomer' KA1KAQ

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Date: Mon, 24 Mar 2003 08:37:26 -0600
Subject: [R-390] Alodining

Does anyone know where I can get some parts alodined? After reading about the process, I don't think I want to do the process myself.

From: R390rcvr@aol.com
Date: Mon, 24 Mar 2003 09:43:11 EST
Subject: [R-390] Alodining

Barry: My local aircraft restoration shop does alodining, and said they would run some parts through for me. Didn't get to prices, but I think that would be a good place to start. If they don't do it, they would know where to get it done locally. Randy Stout

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From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Alodining
Date: Mon, 24 Mar 2003 08:49:50 -0600

Well, I should have looked in the Yellow Pages first. Local places will do this reasonably. Sorry for the bother.

Date: Wed, 26 Mar 2003 00:09:59 -0500
From: Gene Beckwith <jtone@sssnet.com>
Subject: Re: [R-390] Alodining

For any one interested...and who might be here in the North Central Ohio area...there is an organization that I've never contacted, but they are an aircraft restoration group..."MAPS" or Military Air Preservation Society.... I think that is the translation...they might be a source of info on where to do the chemistry... I could dig up the address if anyone is interested if anyone wants to ask them the questions...

Date: Mon, 07 Apr 2003 11:50:42 -0700
From: Dan Arney <hankarn@pacbell.net>
Subject: [R-390] RE: "TRUE ENGRAVED PANELS"

What happened to all of the guys that wanted engraved Panels for the R-390-A? Now is the time to place your order for a CNC engraved panel. This requires your flat panel shipped to my shop, with tags removed any metal work is extra. Each panel will be marked on the rear contact area to make sure you get your panel back. The $150.00 flat charge includes: stripping, cleaning, powder coating, CNC

engraving, filling with white, silk screening on the reverse side, packing and return shipping in USA domestic postal service. If paying by PAypal or Bid pay please add 3.5% to the payment. International shipping to be determined by actual cost. So now is the time to put up or shut up HiHi. If you do not like the cost, then you do the legwork and coordination along with the filling etc. etc. beat the price and make sure it is quality work and I will send you mine to be done. I need orders by 4-15-03. Plan about 3 weeks turn round time. This is a one time deal as it is very time consuming. "WE NOW FIND OUT HOW MUCH HOT AIR" is out amongst the Reflector waves versus the talkers and the doers!!! Thanks for reading.

Date: Tue, 8 Apr 2003 18:27:03 -0400 (EDT)
From: "David P. Goncalves" <dpg@coe.neu.edu>
Subject: [R-390] Polishing

My R-390 power supply chassis is blackened from a fire under the rectifier tubes. I've removed most of the soot with water and a Q-tip. Today I got the idea that I was going to use NEVR-DULL to remove the rest. Well, that it did, but it also removed the chassis 'yellow'. Now I have a part yellow, part silvery chassis. What is this yellow color? Does it (usually) come off whenever polished? Is there a need to keep it on?

Date: Tue, 08 Apr 2003 18:12:39 -0400
From: rbethman <rbethman@comcast.net>
Subject: RE: [R-390] Polishing

That "yellow" coloration is the "MFP" or Military Fungus Protection. Unless you plan on operations in a high humidity environment, just polish till your happy!

Date: Tue, 08 Apr 2003 19:32:44 -0400
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] Polishing

From the "Yeah-But Department" YEAH, go ahead and remove the rest of it, BUT, be careful. While virtually harmless when intact, that MFP stuff has some nasty ingredients, so we're told -- like maybe some mercury compounds and other things you should not breathe in or ingest even in trace amounts. Don't use a wire brush or sanding wheel. Keep it wet with cleaner so it doesn't go airborne. Anybody remember "mercurichrome"? It was the lower-intensity, user-friendly alternative to iodine. Technically speaking, I suppose none of us should be here. Could be many bad things got worse over the last half century -- maybe one of those paradigm shifts.

From: tburr@dixie-net.com
Date: Tue, 8 Apr 2003 21:44:02 -0500 (CDT)
Subject: [R-390] R-390 Polishing

Think I used some of this yellow stuff in the military, which was a yellow color zinc-chromate material. Used by military and commerical on exposed aluminum and ferrous metal surfaces for the purpose of corrosion prevention. Not sure if this is the same stuff as is on the R-390 chassis, as it appears to be some sort of anodizing, and could very well be a zinc based anodizing process. I do know the zinc-chromate coating was very effective, but toxic, and has since been banned by EPA. It was used to reflect / dissipate heat on military commo equipment, as well as corrosion prevention on aircraft, and certain military hardware. It will usually be

greenish or yellow in color. I did know a source for this material. You can no longer get it down at the local automotive paint store. I stripped and coated a Ford A Model with it about ten years ago. It is no longer commercially available. Contact me, if interested, and I will see if I can find the source for the zinc-chromate. It doesn't take much to do the job.

From: "Michael Young" <myoung76@bellsouth.net>
Subject: Re: [R-390] R-390 Polishing
Date: Tue, 8 Apr 2003 23:13:38 -0400

I am thinking that what we have on many of the R390s is alodine process. Invented in the late 50's and very popular in the 60s (may still be) it is/was a strictly chemical process. The finished product was non-toxic. Another alternative was anodizing (NaOH etch, followed by electoplate process in a sulfuric acid bath, then wash then actual dye dip then sealing the pores. Hey...I did this in my basement shop as a kid. Worked great. To complicated though. The Alodine process (patented) much easier and faster.

From: "Jon & Valerie Oldenburg" <jonandvalerieoldenburg@worldnet.att.net>
Subject: Re: [R-390] Polishing
Date: Tue, 8 Apr 2003 23:25:30 -0500

Barry- MFP is an acid varnish product using mercury compounds for the fungal resistance. These varnishes are very solvent resistant, and are evident as a semi clear yellow tinted over coat on all components of a treated radio, most treated radios are stamped "MFP" in a diamond shape on the chassis after treatment. Alodineing is a chemical process similar to anodizning and is more likely to be damaged by accident, MFP is very tough to remove. Jon

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From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] Polishing
Date: Wed, 9 Apr 2003 01:13:08 -0400

The lights are still on in the "Yeah-But Dept.": Yeah part: Yeah, Jon, there's the MFP and there's the alodinine and anodizing. All are fairly tough to remove, though the alodining can be removed by accident. Anodizing is a bit more like plating and a somewhat more durable. The "but part": While the MFP coating is fairly solvent resistant, it can start to flake off due to a deteriorating bond -- particularly if coated over raw un-alodined/anodized metal. From the original post, it sounded like this had already started. Generally, to remove the rest of it, abrasives are in order, or some kind of scraping action. Either way, when that MFP varnish flakes or is sanded, the particles can become airborne. As a fix for either the MFP or alodining coming off, it might make more sense to overcoat it with a tinted varnish or polyurethane to even out the color and seal any MFP. I haven't done this yet, but I do have some gear with MFP that's flaking. I think they still sell tinted polyurethane for one-step wood finishing. It should be possible to get a pretty good color match. Not sure how it stands up to heat, though. Any recommendations from someone who's been there, done that?

Date: Wed, 9 Apr 2003 08:38:56 -0400 (EDT)
From: "David P. Goncalves" <dpg@coe.neu.edu>
Subject: [R-390] Re: Polishing

From what I remember from past projects, the anti-fungal varnish usually appeared

as a light brown (if thick enough) coating on the electronic components and underchassis. It appears that that is the case on this radio as well, on the few Motorola modules that I have in the radio. I think what I have is a thin plating (alodine, it seems) on all of the metal surfaces. The overall color of the metal is a very light yellow, but when viewed closely, a rainbow of colors can be seen - just like a metal plated camera lens. I've seen the same rainbow on the metal frames of 80's VCRs and audio equipment. I'm not too worried about reapplying it; if there is a cheap and safe (no zinc chromate, thanks) way to reapply it, I'm all ears. Until then, I'll be limiting my polishing where needed; still have lots of it to do in this beat-up radio. I was working on the Crystal Oscillator cover, with the black painted numbering and varnished labeling; both are pretty resilient to NEVR-DULL polishing. I had expected quite the opposite, especially on the varnished label. Now the cover is shiny! Yippeee.

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Re: Polishing
Date: Wed, 9 Apr 2003 10:06:30 -0500

What you describe is alodine. I have a frame I'm currently refurbishing. There is a local company that will re-alodine for me. I plan to clean/wet-sand all the pieces and have them done this way. It should look pretty good when I'm finished.

Date: Wed, 09 Apr 2003 11:38:13 -0400
From: Jim Brannigan <jbrannig@optonline.net>
Subject: Re: [R-390] Re: Polishing

I use Simple Green to clean chassis and panels. It is applied with a broad artists brush, allowed to sit for a while and rinsed with water.

From: "Bill Hawkins" <bill@iaxs.net>
Subject: RE: [R-390] Polishing
Date: Wed, 9 Apr 2003 08:23:56 -0500

I think Jon is right. Perhaps the yellow that came off was tobacco?

Date: Wed, 09 Apr 2003 11:55:12 -0400
From: Gene Beckwith <jtone@sssnet.com>
Subject: Re: [R-390] Re: Polishing

Gents, There is info out there in cyber world on doing the Alodine...and I recall that Hank or someone in recent past did it/had it done for top and bottom covers for our big pets... Also...lots of info...maybe the Alodine process for fun and restroation on Varmint Al's web page...I think that's where I may have seen it....?? So much info out there it's tough to keep track ... btw...if anyone is in to using small lathes...for fabrication of broken parts...check "mini-lathe.com" for great intro and hands on how to for the popular mini lathes for not too much loot available from a variety of houses...great reading and info..plus links to more good stuff...

Date: Wed, 9 Apr 2003 10:37:52 -0700
From: ronald j deeter <k6fsb@juno.com>
Subject: [R-390] Re R-390 Polishing

A possible replcement for the yellow/gold color is a dyed musical instrument laquer, it is what i'ne been using on the newly machined parts retrofitted to the

chassis (r390A C551, r390 C546/7, nonoriginal IF covers), gold dye added to the laquer seems to match quite nicely, holds up well in the heat , and if cleaned properly prior application adhears quite well. being i repair musical instruments and having to do laquer work, it was a logical try, there is also an epoxy available.

From: "Josh Heide" <kd6kml@interx.net>
Sent: Thursday, April 17, 2003 6:20 PM
Subject: [K6BW] Some helpful radio hints

> Here are a few things I have found over the years. Hope you find something
> useful here. Maybe some others here can pass on some helpful hints.
>
> 1. If the display of your HT or mobile has been slightly scratched, try
> polishing it with Brasso metal polish.
> 2. Use a small length of surgical tubing or automotive vacuum line as
> extention for small knobs. Makes them muich easier to grasp and turn. I
> learned this one from the Sheriff's deputies in Napa.
> 3. Use the same tubing as shaft couplers to provide insulation on things like
> variable capacitors. This will also allow for some offset betwees the shafts.
> 4. To really clean up glass that has a dirty film on it that won't come clean
> by other means try using a product called "Bar Keeper's Friend". Works really
> well on the car's windshield to remove road film. <snip>
> 6. To clean the mechanical parts of the above mentioned radios, go to an
> automotive paint store and get some wax and grease remover. This is used
> before painting to clean the surface. It will not harm most painted surfaces.
> I have not had any trouble with it bothering the lettering or laquer on the
> coils and chassis of my R-390. It will really cut through the old hard
> grease. (PPG number DX-330) <snip>
> 8. A reat product for all around corrosion prevention and lubrication is
> called Corrosion-X. It is available ar marine supply houses. I use it on
> everything from guns to autmotive to electronics. It can be used on jsut
> about anything. If applied to the end of a piece of coax when the connector
> is put on, water will not migrate into the cable if it becomes exposed to the
> elements.
> 73 de KD6KML Josh Heide

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Date: Mon, 21 Apr 2003 08:35:38 -0500
Subject: [R-390] Powder-coating the escutcheon

Has anyone powder-coated an R390 dial escutcheon? I plan to have the knobs and meter covers(if possible) powder-coated and want the escutcheon to match. The only problems I see are the lamp holders. These are riveted in place with a fibre-like insulator. As I understand it, powder-coating involves making the object to be coated quite hot. I don't how hot, but I'm wondering if this will significantly degrade these insulators. Has anyone experience with this?

Date: Thu, 8 May 2003 10:19:10 -0400 (EDT)
From: "David P. Goncalves" <dpg@coe.neu.edu>
Subject: [R-390] Painting Notes and Parts

1. Jeez, that paint that they used on the R-390 is tough to remove. I let the knobs soak for a WEEK in Zip-Strip, and I still had to sand them. I spread the stripper on the panel with a plastic scraper (which then melted into yellow goo) and still has to

scrub it for an hour - and that was just the gray bits! The white lettering refuses to go! The bare alodined panel sure looks nice though. If it wasn't for the ugly scratches, I'd just clear coat it. I'd impress my friends with my 'gold plated' radio. In comparison, the paint I used on one of the knobs (to try out different colors) bubbled and flaked off in a couple minutes. What the heck is that paint made of? The white paint can't be acrylic, can it?

2. In a Icarus moment: As I was removing my perfectly stripped-sanded-preped-primed-sanded-epoxy painted knobs from my spray paining jig to put them on the baking sheet, the jig fell to the floor, wrecking the finish on each and every knob. I quit for the night and went for a walk in the Common. Next time I'm doing them one-at-a-time.

3. Leeds Electronics (www.leedselect.com) seems to be selling a Dejur 100 microamp meter ($6) in the 1.75" square case most desired for replacements. They also have IERC shields in stock too. If they are reasonable in price, don't buy too many, I need some!

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Painting Notes and Parts
Date: Thu, 8 May 2003 09:41:58 -0500

Wet-sanding seems to be the fastest method as the original paint is very difficult to remove. I think it can be removed with commercial hot stripping techniques, but the stuff at the local hardware store is pretty ineffective. I have had success removing the lettering with aircraft aluminum stripper and a very stiff nylon brush. Interesting that Leeds Electronics has replacement knobs for General Radio gear too.

From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] Painting Notes and Parts
Date: Thu, 8 May 2003 12:46:00 -0400

Hi Boomer & List I think that was me on the stripper -- no not THAT stripper.

The stuff I use is in an oversized can and says aircraft something or other on it. It's a caustic (non-flammable) type. It worked, but not completely.The panels were primed with one thing, finish coated with another, then refinished once or twice more. So you'll find a mix of things on them. There are two basic kinds of stripper -- nonflammable (caustic) and the flammable solvent gel types (napalm?) The second type may work on some finishes that the caustic ones fail on. I used a combination of the aircraft spray and denatured alcohol -- but not at the same time so as to avoid generating nerve gas or explosions or the-end-of-life-as-we-know-it, etc. There was some stuff -- yellow primer -- that neither worked on and called for elbow grease. Best to start with a Scotch-Brite pad or similar abrasive pad rather than sandpaper wet or otherwise. It doesn't load up badly and is easy to rejuvenate as you go along. Never use steel wool as the filaments dig into the pits in the aluminum and keep showing up in the new paint no matter what you do. As for cleaning out the lettering -- try one then the other with a detailing brush -- I prefer the nylon one -- the brass scratches things. I don't remember if the stripper works or the alcohol on the lettering, which I
suspect is most often laquer, but who knows. On stubborn spots, one of Man's original tools is in order -- a pointed stick, also good for diagnostic work in locating microphonic tubes and bad solder joints. (Actually, can't credit "Man", as apes are known to use pointed sticks for digging out insects and other treats from holes in

trees. Not recommended, for while rich in protein, also high in cholesterol.) Finish off with wetsanding using a block behind it to even out the grain -- and sharpen up the edges of the stampings. I suggest always sanding/scotchbriting in one direction -- horizontal. If there are no gouges to fill, the panel looks so nice at this stage, I've been tempted to finish with clearcoat and fill the lettering with black or nothing. (That snazzy brushed aluminum look! One of these days, maybe even in this lifetime.) Before repainting, you should use a prep solution, such as Alum-Prep (they say) but I couldn't find that nearby, so used a I used self-etching primer. Gotta put it on very sparingly or you'll fill up the "engravings" too much. (Then it becomes pointed stick time again.) Spread out plenty of newspaper or a tarp you won't mind getting rid of. It's a messy business, but somebody has to do it.

Date: Thu, 8 May 2003 12:50:16 -0400 (EDT)
From: "Paul H. Anderson" <pha@pdq.com>
Subject: Re: [R-390] Painting Notes and Parts

I've never had any problems removing paint with Mar-Hyde in the spray can, or Tal-Strip III (in gallon cans). I can get specific names for the Mar-Hyde product I like - I get it at the local car parts place. The good paint strippers often will only strip one layer of paint at a time - they bubble the layer, then no longer are in physical contact with lower layers. I have never gotten very effective paint strippers in the hardware stores, although the liquid stripper is ok if you drop something like knobs into a sealed can and shake it around a bunch and let it do its thing for an hour or two. Most of the semi-paste or especially the safe strippers don't work well for automotive, aircraft or military paint removal. The safe strippers are a lot safer, however, since they don't seem to have methylene chloride. What I like doing is knocking off most of the paint with a stripper, then plastic media blasting the knob. Last batch I did, I got a little careless and didn't get all the white out of the grooves, though.

Date: Thu, 8 May 2003 12:58:20 -0400 (EDT)
From: "Paul H. Anderson" <pha@pdq.com>
Subject: Re: [R-390] Painting Notes and Parts

The main strippers I know of use methylene chloride, which is nasty stuff, but works well. Respirator is mandatory, as are rubber gloves, doing it outside, and flushing with water afterwards. Caustic compounds will lift paint, too, but turn aluminum to jello if exposed long enough. You can make a lye bucket and drop parts in it to remove paint - I've done this with some degree of success on auto parts. Even better but dangerous, is to heat it to near boiling. I'd only do this with iron or steel parts, only outside, and only with a respirator.

> There was some stuff -- yellow primer -- that neither worked on and called
> for elbow grease. Best to start with a Scotch-Brite pad or similar abrasive
> pad rather than sandpaper wet or otherwise.

These pads work real well.

> Finish off with wetsanding using a block behind it to even out the grain --
> and sharpen up the edges of the stampings. I suggest always
> sanding/scotchbriting in one direction -- horizontal. If there are no
> gouges to fill, the panel looks so nice at this stage, I've been tempted to
> finish with clearcoat and fill the lettering with black or nothing. (That
> snazzy brushed aluminum look! One of these days, maybe even in this

> lifetime.)

I did that with a TV-7 panel I refinished. It looked great, and I'd love to try it with an R-390!

From: "Al Parker" <anchor@ec.rr.com>
Subject: Re: [R-390] Painting Notes and Parts
Date: Thu, 8 May 2003 13:27:16 -0400

I spent my former life in the aluminum industry, learned a lot, forgot a lot, sure didn't learn it all. But, back when I was in some plants that did "coating", or painting, strip/ sheet for various things, usually at speeds of several 100fpm & continuously, I learned that the various paints/coatings used like to have a slightly acidic surface upon which to attach, and dislike a slightly caustic surface, which good be left by soapy cleaners. Phoshphoric acid was the "preferred" stuff, & was used in various combinations with other stuff, including chromium, to provide a "conversion coating" for future painting/coating. Phosphoric was/is pretty nasty stuff, and the chromium solution was/is tough to treat for proper disposal. Other safer alternatives were developed, and a conversion coating as such is not always developed or reqd. (If Dr. Ornitz frequents this list I'm sure he could elaborate much better than I.) Anyhow, to make a long story useful, the metal surface, especially aluminum, should be somehow acidified before priming. I've found the easiest way to do this is with diluted household vinegar, a few ounces to a pint of water. Just swab it on after the surface has been cleaned. Let it run off & dry naturally. I've even used the mixture when wet sanding between coats, just 'cuz it was still sitting there. Figured it couldn't hurt, might help. I can't think of any flaking or peeling problems with anything I've treated this way over the yrs. I guess the dilute acid actually does slightly etch the surface, and provides a bit of tooth. All FWIW & YMMV

From: "Laird Tom N" <LairdThomasN@JohnDeere.com>
Date: Thu, 8 May 2003 12:17:16 -0500
Subject: [R-390] RE: Paint stripping

Made yourself a bead blast cabinet! Works much better.

Date: Thu, 08 May 2003 12:05:57 -0700
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Painting Notes and Parts

I have them professionally stripped in a hot caustic bath and washed down with high pressure water, then off to the powder coater. No mess no fuss.

From: "Jerry Kincade" <w5kp@direcway.com>
Subject: Re: [R-390] Painting Notes and Parts
Date: Thu, 8 May 2003 20:46:32 -0500

Went through the same drill a few months ago with the nearly impossible to remove front panel paint on my Imperial/Teledyne. Local bead blaster shop refused to blast it, said they were sure it would round off the edges of the lettering, no matter how careful they were. Plus they were concerned about warping the panel, because I only wanted the front stripped. They did, however, tell me what to use to strip it, and it worked like a charm. It's the same stuff they use in their shop to prep autobody work, and is called **JET-STRIP Professional Strength Automotive Paint Stripper.**

It's "Autobody Master P/N 7713", and is distributed by Auto-Value Associates of San Antonio, TX 78126.

Seems to be easy to find, as I recall I found it at a large home center type store (sorry, don't remember which one. Like convenience stores, they all look alike to me anymore), but it's sold in gallons only. About $16 a gallon. Can is blue and yellow in color. I wasted a bunch of time and change on about five other brands and types. None of them even discolored the surface of the original paint, let alone softened it, and I tried soaking some of them overnight. This stuff softened it in about 15 minutes to the point where it was "gently scrapable", and a followup coat and a soft wire brush cleaned up the remainder and the lettering.

Piece of cake. It also doesn't seem to be the super-volatile, stinky, methyl-ethyl-xxx stuff. No major smell or fumes. Of course, the gallon is a bit of overkill, since a gallon should do maybe 100 front panels. I wonder what the shelf life of this stuff is... :-)

From: "David Knepper" <cra@floodcity.net>
Date: Tue, 27 May 2003 22:56:03 -0400
Subject: [Collins] Wonderful Stuff

I have "discovered" a wonderful cleaner and restorer for the wrinkle finish on our Collins radios. It is liquid Pledge that comes in a spray bottle. It contains orange oil and the label says that it cleans and revitalizes wood. Better than any other liquid that I have used to clean and beautify our Saint James Gray boxes. This is a "miracle" liquid that brings a lovely shine to the paint and gives the room a wonderful orange scent! You can bet that I am going to keep a bottle handy. Try it and let me know what you think.

From: "R.J. Keller" <rkeller@ij.net>
Subject: Re: [Collins] Wonderful Stuff
Date: Wed, 28 May 2003 18:52:55 -0400

Ditto on how this does the job. By the way, I was told by the company that this is a direct replacement for Pledge Wood and Glass which is no longer sold. I had used the latter on every classic I have, mainly for the front panel and knobs, but it seemed to work on everything and never removed any lettering on anything. You don' t get a bright shine, just a clean, semi-gloss appearance.

Date: Thu, 29 May 2003 11:01:44 +0100
From: "David P. Goncalves" <dpg@coe.neu.edu>
Subject: [R-390] Epoxy paint toughness

I've repainted my meter cases with black appliance paint from Krylon; did it really nice a with zinc chromate primer, and an hour long bake in my toaster oven. I packed these wrapped in tissue paper to carry to work; when I unwrapped them, there were wear marks on the finish! How could this be? The meters were packed into tube boxes, and the ride wasn't bumpy. Isn't this paint supposed to be tough? Anybody have experience with this paint?

From: "Robert Goff" <robert_h_goff@hotmail.com>
Date: Thu, 29 May 2003 10:01:48 -0600
Subject: [R-390] ID plate repair

I've got an identification plate from which I accidentally rubbed off some of the black portion while polishing. Is there a way to repair a mistake like that? Can the plate

simply be touched up with paint? If so what would be the best kind? Does anyone have experience with this? Any help would be greatly appreciated.

Date: Thu, 29 May 2003 15:43:56 -0500
From: Dave Merrill <r390a@rcn.com>
Subject: [R-390] Mini Mc/Kc Knobs

Some years ago I got a pile of knobs from an industrial surplus place that was located in what was then a low rent warehouse district just north of the Chicago Loop. In the lot were some that are the same design as the R-390x Mc/Kc knobs but smaller in size:

http://www.geocities.com/plutoniac2003/Knobs/Group1.jpg

As you can see from the first photo, two of the three are about the size of two bar knobs of the R-390x. Some knucklehead (not me!) cut a notch in the larger ones. Anybody ever see these smaller varieties on military or commercial equipment? Another odd fact is that Doehler Jarvis was also located in Chicago. They are the supplier identified on the knob print from Jeff Adam's R-390 CD.

From: "Bill Smith" <billsmith@ispwest.com>
Subject: Re: [R-390] ID plate repair
Date: Thu, 29 May 2003 13:54:07 -0700

Yes, use paint remover to take off the rest of the black paint from the label. Then spray the whole thing with gloss black. Set it aside for a month to let the paint fully cure. Then, place part of a sheet of 600 or finer-grit sandpaper on a very flat surface, such as a formica table top. Place the label face down on the sandpaper and with even pressure, perhaps using a figure-eight sanding pattern, gently sand off the paint from the raised surfaces of the label. Do not overdo it, but the raised surfaces will be polished by the sandpaper. Finish with a clear coat, or varnish to restore the "weatherized" effect.

Date: Thu, 29 May 2003 17:01:26 -0400
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] Epoxy paint toughness

Not familiar with that paint, but I wouldn't put anything in contact with a recently painted surface for a long long time. Paint may dry quickly, especially aided by baking, however that baking time sounds short and paints vary in terms of how they respond to baking. For example, some paints are primarily cure by evaporation, however in other formulations (and probably epoxy) the curing is an "inside job" -- chemical process. Most Krylon paints are fast dry and fairly fast curing, but I don't know about the epoxy version. Rust-Oleum is very slow drying and slow curing -- actually several months to full hardness. Powder coating is apparently a whole 'nother story, whereby it's solid and stable right after the process is completed. Some wrappers are worse than others -- abrasive, acid content, inks -- but no wrapper is best. One clue -- if the painted item still has the faintest aroma (nose right on it), it ain't done yet. Sounds like you should have baked it for a much longer time -- several hrs. at a fairly low temp -- maybe 120-150 F - if the epoxy paint responds to baking at all. Other opinions?

Date: Thu, 29 May 2003 17:55:04 -0400
From: tbigelow@pop.state.vt.us (Todd Bigelow - PS)
Subject: Re: [R-390] Epoxy paint toughness

If memory serves me correctly, folks have posted about Krylon not being as tough as they'd like, Dave. The consensus seemed to be that Rustoleum was a better choice. However, it sounds like that 'soft' tissue was actually abrasive, like a fine emery cloth perhaps? Seems to be the case too if you wipe your nose too often when you have a cold. What sayeth the others?

Date: Thu, 29 May 2003 14:57:54 -0700
From: Dan Merz <djmerz@3-cities.com>
Subject: Re: [R-390] ID plate repair

Bob, try a black Sanford Sharpie permanent marker pen, build the density by letting it dry. This works pretty well if the area isn't too big and can depend on how light your touch is. It has one big advantage, it's pretty quick and dries rapidly and doesn't have brush marks. But probably not as opaque as the original paint. Dan.

Date: Thu, 29 May 2003 16:10:07 -0700 (PDT)
From: David Goncalves <my_black_shoe@yahoo.com>
Subject: Re: [R-390] ID plate repair

I did the same thing :-) I'll be glad when the cleaning/paining part of my radio restoration is done, I've messed up more times that I'd like to say. The following suggestions have alot of 'shoulds', which means I have yet to do them myself. You could touch it up with marker or a couple brushes of model paint. It should look OK for little boo-boos. The model paint should looks better - marker ink has an odd shine; it looks like it is refracting light, producing color waves on the surface.

For Major F-Ups: As long as your ID place doesn't have gouges or dents, this hint I recieved might help...

1. Strip off all of the paint chemically.
2. Spray on a gloss black paint
3. Wait till it gets dry and hard, days to months.
4. Tape down fine (600) grit sandpaper to a flat surface.
5. Rub the ID plate on the sandpaper till all the letters are clean of paint.

This should (since I have yet to do it) work, as the tags are etched, leaving the letters and numbers raised above the background black. Sanding removes the paint right off the top of them. Even pressure would seem to be very important. Fair Radio has repro tags for the R-390 for most of the contracts, Hank Arney have quite a few more (almost all R-390 and R-390A contracts, as well as for some other radios) I just got one from him today, it appears to be finished aluminum with silkscreened black.

From: "Scott Seickel" <polaraligned@earthlink.net>
Subject: Re: [R-390] Epoxy paint toughness
Date: Fri, 30 May 2003 07:20:16 -0400

The epoxy should be as tough a paint as you can get. You probably did not let it cure long enough or the paint was not mixed well, or a bad can of paint.

On a very high gloss finish you will get slight spider web type scratches that you can only see if the angle of the light is right. How bad are the marks? I painted my meter covers with automotive epoxy and the finish is tough as you can get.

Date: Fri, 30 May 2003 08:37:19 +0100
From: "David P. Goncalves" <dpg@coe.neu.edu>
Subject: Re: [R-390] Epoxy paint toughness

Wow, what a response! Thanks all. The can was shaken as much as a can could be (5 minutes!). I baked the meter for an hour, and let them sit for a week while I worked on fitting new parts into the movement cases. I used bathroom tissue (soft enough for my rear, soft enough for my meters) to wrap them, then stuck them into a couple of cardboard tube boxes. There were two types of marks; the spider webbing you mentioned, and wear marks, as if produced by fine grit sandpaper.Question: Is that paint available in a spray can? Any recommendations?

From: "Terry H. Burroughs" <tburr@dixie-net.com>
Date: Fri, 30 May 2003 09:28:44 -0500
Subject: [R-390] Re: [R390] Epoxy Paint toughness

I recommend you trash the Krylon brand paint, or use it on some of your outdoor patio furniture, etc... I recommend using only a professional brand automotive coating such as Sherwin-Williams, Dittzler, etc... Also go with a "lacquer" coating of your color choice. "Beware" - lacquers and enamels don't mix. Lacquer should go over the zinc-chromate o.k., if the zinc has some age on it.

Even enamel based zinc-chromate coatings tend to dry hard enough that lacquers will not harm them - but I recommend using a seal coat over the zinc first. It is best to be sure. A "very" light coat of lacquer primer over the zinc should be enough to do the job, if you don't use a sealer. Be sure to remove all the old enamel coating - and I mean all. Any traces of a fresh enamel coating will wrinkle and cook under the lacquer coat, as you are applying it.

Usually, the off the shelf type paints, such as you used, will never dry or harden. You gets what you pays for.....This is why I recommend going with the professional brand materials. Experiment with the lacquer. I think you will like it. You won't have to heat it, and should age to glass like hardness in a week or so. Let me know if I can help further.

From: "Robert Goff" <robert_h_goff@hotmail.com>
Subject: Re: [R-390] ID plate repair
Date: Fri, 30 May 2003 09:08:05 -0600

I tried using a sharpie to color the scratched portions of the plate. I figured if I could fix it without having to unrivet the plate, so much the better. The sharpie ink does look a little purplish when you first put it on, probably from the way it reflects light, as Dave Gonzales said in his email. However, after I had colored it with the sharpie I lightly rubbed some Lemon oil on there and that seemed to even out the color and reflection differences.

Model paint might look better, but the sharpie and oil worked well enough for now. Speaking of lemon oil: I read a restoration article on the Collins (CCA) site on the 75A4 where they mentioned using lemon (furniture) oil to even out the finish on a black wrinkle front panel or cabinet. I tried it the other day and the results were amazing! I thought I would have to repaint the panel to get it to look good, but now it looks great. Now I'll have to dig out all that ARC-5 stuff I've got lying around and give it the same treatment.Thanks to everyone for your help.

From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] Re: [R390] Epoxy Paint toughness
Date: Sat, 31 May 2003 11:33:32 -0500

Good luck finding Lacquer....except in automotive touch up spray cans. Most automotive repair supply stores don't handle it any longer. (exception is gloss black as I understand it) It has been pretty much outlawed but the EPA folks.

It is the most user friendly paint I have ever used. It is available in touch up spray cans because the stuff can be sprayed over just about any cured paint type...Years ago American car paints were enamel. Most body shops shot their repair jobs with lacquer because there were no ill effects with the original paint lifting etc...

It will most definitely raise most "green" (fresh) paints. The good part is overspray dries before it lands on surrounding surfaces so you just dust it off. Try that with other paints. Down side is it is not as tough and durable as most would like. But it can be touched up with just another shot or two and blends well. You can color sand the surface with 1000, 1500 and 2000 grit papers and water then polish with fine polishing compound and make a finish like glass!

It should be applied in many light coats...time between coats can be just a matter of minutes...so it's pretty easy to build quite a film thickness. Most old classic cars with Black Lacquer paint jobs that looked a mile deep had 30, 40 or more coats...then color sanded to perfection! I think it would be ideal for grey panel jobs...goes on very thin, dries in minutes...very forgiving! I found a couple cans of machine grey lacquer a year or so back and plan to give it a try!

From: "Drew Papanek" <drewmaster813@hotmail.com>
Date: Mon, 02 Jun 2003 13:18:07 -0400
Subject: [R-390] Re: paints

> "If memory serves me correctly, folks have posted about Krylon not being as tough as they'd like, Dave. The consensus seemed to be that Rustoleum was a better choice."

In my experience Rustoleum is much tougher than Krylon. It seems that Krylon's only advantage is shorter drying/curing time. Rustoleum takes weeks to reach full hardness if not baked. Painted finish hardens in a couple of days when placed in attic (120 to 130 degrees) in warmer weather. Enamels (Rustoleum is one) are tougher than lacquers. However, lacquers will flow, hiding minor surface imperfections and giving that "wet" look.

Date: Mon, 02 Jun 2003 19:34:14 -0400
From: Gene Beckwith <jtone@sssnet.com>
Subject: Re: [R-390] Epoxy paint toughness

Gents, Re painting problems and techniques... Have used several different brands of paint including the Krylon type...all with good success... There are too many variables to say exactly what might have happened to the "meter re-hab" project...but... Seems as thought I recall a comment about a "Toaster Oven" ??

Any idea what the actual temperature was? Have seen tendency to 'crack and line' when temps get too high... Even the best quality paints can literally 'shrink' and

hence 'crack' if temps are too hight and sustained during curing process....

For suggestions on temperatures...I'm regularly using aprox. 150 degrees max... utilizing the indicated temp indicator on the oven itself...(digital)....note this is the minimum this oven will operater at...the oven is in my wife's kitchen...and yes, I get to use it for paint curing... Did find one time, when my wife didn't know I was "baking," when she up-ed the temperature...I discovered it after about 30 minutes...at 300 degrees...and Yep...there were signs of early cracking and spider webing... Cooler temps are ok...the object is to remove solvent and 'gently' allow the chemistry to work. So, loooonnnnger and a bit cooler is fine... And btw, before baking...use your nose...all hint of solvent should be gone before heating...may take a bit of time...like several days...but, painting is not a race...but a search for quality...so take ur time ... no solvent by the nose test...then baking for two to three hours at minimum temps...in the range of 150 degrees F... Have done several St. J. Panels, knobs, and lots of other 19 inch custom panels here for the station in a variety of colors without problem and good durability... I usually use Rustoleum...but have had good success with many others as listed by others...sometimes, if the color is what I want, I use it...regardless of the brand...so far so good... Hope this helps...there has been enough stuff on the list over the past several years to write a book...it is entirely possible to do absolutely professional work with a spray can and patiences...

Date: Thu, 5 Jun 2003 10:06:47 -0700 (PDT)
From: David Goncalves <my_black_shoe@yahoo.com>
Subject: [R-390] ID Tag Painting

Hello All, Just because I had nothing better to do at that moment, I took an old tag and stripped it clean. Then, using one of those large permament markers (Avery Marks-A-Lot) I coated the tag, getting ink into all of the pits and crevases. I let it dry for a couple minutes, not letting it get too hard, and then began to rub it on a flat sheet of paper. Presto! The ink wiped off the raised lettering, leaving the silver on black text. The ink didn't have the color rainbow that other marker inks have - it was flat black.

The result was very satisfying when compared to the ease of application; there were some little fibers embedded in the dried ink, but it wasn't very noticable. The particular tag I was working with had scratches, which raised that area above the paper during the polishing. I used some Q-tips and toothpicks dipped in acetone to remove the ink in and around the scratches. Now it looks marvelous. Tonight I am going to apply a light first coat of a gossy clearcoat. I'll report if that operation is a success. I'm a bit worried that the spray will dissolve the ink on contact, and splatter it about the tag face.

Date: Thu, 26 Jun 2003 05:53:42 -0700
From: hankkarn <hankarn@pacbell.net>
Subject: Re: [R-390] Repaired 390 non a

The .99 cent stores here in the LA area have a spray bottle of a cleaner called "AWESOME" and it is an awesome cleaner, easy on the hands, lite odor, spray it on let it soak for a few minutes agitate and rinse off. no residue.

Date: Thu, 26 Jun 2003 09:27:59 -0400
From: Jim Brannigan <jbrannig@optonline.net>
Subject: Re: [R-390] Repaired 390 non a

I find that "Simple Green" cleaner is good for removing smoke, crud and dirt from panels and chassis. It is mild and does not affect paint, lettering and plastics. Brushed on and rinsed by brushing with distilled water leaves a chassis looking brand new! For shiny metal parts, "Flitz" is great. It is a low abrasive paste for r ack handles, keys, mics, etc. The shine lasts longer than with Brasso or other cleaners. Do not use on stenciled lettering, it will remove it. Lastly, "Pledge" furnisher polish will bring a shine to plastic/bakelite knobs, meters, Escutcheons. It will take a few coats to work.

From: "Forrest Myers" <femyers@attglobal.net>
Subject: Re: [R-390] Repaired 390 non a
Date: Thu, 26 Jun 2003 09:53:31 -0400

It's "Purple Power" not "Purple Powder". Comes in a spray dispenser. In the automotive section of Wal Mart. Don't want anyone to be confused between powder and power. Gunpowder equals power though.

Date: Thu, 26 Jun 2003 09:09:36 -0700 (PDT)
From: Joe Foley <redmenaced@yahoo.com>
Subject: Re: [R-390] Repaired 390 non a

http://www.purpleplates.com/magic_plates.htm

From: "Richard Biddle" <theprof@texoma.net>
Subject: [R-390] Brownells GunKote for knobs
Date: Sat, 19 Jul 2003 14:36:20 -0500

Has anyone tried Brownells GunKote for knobs? Is there something equivalent I can find at the local five and dime? This is the blurb from the catalog: http://www.brownells.com/aspx/NS/store/ProductDetail.aspx?p=3D1150

Now you can easily apply the self-lubricating benefits of molybdenum disulfide to alloy steel, stainless steel, brass and aluminum, even properly prepared nickel plating, in just minutes. Prepare, clean and pre-heat your part to 100_, spray on Brownells GUN-KOTE and allow the part to dry. Bake the part in an oven at 300_ for one hour and you're done. You have protected the metal parts of your valuable firearm from rust, corrosion, and scratches with a beautiful, matte black finish that will wear for years and help keep your gun looking just like new.

Brownells GUN-KOTE is a durable, second-generation epoxy, thermoset resin finish that will not break down, peel or dissolve. In fact, once it is applied, the only way to remove Brownells GUN-KOTE is to abrasive blast the part. It is resistant to all known gun solvents and thinners. Each coat is approximately .0004" thick so Brownells GUN-KOTE can be used on both internal and external parts where a close-tolerance fit is required without having to worry about interference. This makes Brownells GUN-KOTE the perfect, maintenance-free coating for handgun slides and frames, shotgun receivers and magazine tubes, rifle actions and bolts, anywhere you need an ultra-thin, self-lubricating, permanent coating that protects and wears ike crazy. I know mentioning "firearms" products such as oil and grease got me flamed once before, but this looks like pretty good stuff:)

Date: Sat, 19 Jul 2003 14:48:38 -0500
From: Jerry Kincade <w5kp@direcway.com>

Subject: Re: [R-390] Brownells GunKote for knobs

Knobs, heck... I'm already thinking PANEL!

Date: Sat, 19 Jul 2003 14:53:36 -0500
From: Jerry Kincade <w5kp@direcway.com>
Subject: Re: [R-390] Brownells GunKote for knobs

OTOH, it might be fun to try and find a filler paint for the lettering that would stick!

From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] Brownells GunKote for knobs
Date: Sat, 19 Jul 2003 18:35:33 -0400

Hmmm ... sounds interesting, but most gun metal is steel. Will GunKote take to aluminum alloy and pot metal? One thing I've been meaning to try -- dipping the KC and MC knobs in that vinyl coating made for tool handles. I think it comes in red, black and yellow. It might reduce fatigue and wristitis by providing a better, more comfortable grip. I have some of the "dip" on hand, but it's red which would render the '390 inappropriate for formal settings. Might even be a zoning violation. Somebody else go first and tell me how it works out ;-)

From: "Spence Barton" <ence-ack@rio.com>
Subject: Re: [R-390] Brownells GunKote for knobs
Date: Sat, 19 Jul 2003 15:48:14 -0700

>Bake the part in an oven at 300° for one hour and you're done.....

I'll say I'm done. If my wife catches me one more time baking on a finish in our oven I'll be cooked.

Date: Sat, 19 Jul 2003 18:50:17 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Brownells GunKote for knobs

I don't know about the "Tool Dip", but I submitted the question as to whether GunKote will work with aluminum alloy and pot metal. I'll post the answer when I get it. To be honest, since it IS epoxy, it should work just fine.

Date: Sat, 19 Jul 2003 20:36:02 -0400
From: Ed Tanton <n4xy@earthlink.net>
Subject: Re: [R-390] Brownells GunKote for knobs

Are you sure about that 300 degrees? Only time I ever got above ~ 125-150 degrees F (with black wrinkle-not GunKote) it 'parched' it into flakes and such. And I didn't think baking at 125 degrees F could smell any worse!!!

From: "Richard Biddle" <theprof@texoma.net>
Subject: Re: [R-390] Brownells GunKote for knobs
Date: Sat, 19 Jul 2003 20:19:33 -0500

For panels I was thinking about this puppy ....check out the color ..... choices. A gray parkerized or stainless steel front panel just seems kind of appealing :)

BROWNELLS AEROSOL BAKING LACQUER

Brownells Aerosol Baking Lacquer is an epoxy-enhanced, oven-cured finish that's sprayed directly on clean, degreased metal with no priming required. Let dry for 10 minutes then bake in a oven for 30-40 minutes at 300-350_ F. You'll get a flexible, uniform, professional coating that offers exceptional resistance to salt sprays, plus Brownells Aerosol Baking Lacquer is impervious to corrosion, water, sweat, solvents, chemicals, trichlor and bore cleaners. Highly resistant to nicks, scratches, abrasions and wear marks. Brownells exclusive, self-leveling, run-resistant formula and circular spray nozzle make blending original and successive coats fast, easy and almost mistake-proof. Touch-up coats can be sanded with wet-or-dry abrasive, re-sprayed and re-heated without damage to the original application.

Spray right over degreased bluing, plating, zinc or manganese phosphate and other military coatings for increased resistance to rust and moisture. Can be applied to any properly prepared, metal surface that can withstand temperatures as high as 350_ F. without melting or warping. Black is available in two gloss levels, Matte Black and Gloss Black; O.D. Green and Earth Brown produce a matte, non-reflective finish that can be combined with Matte Black to produce camouflage patterns on firearms. Matte Clear provides an easy application of French Gray Finishes. Parkerizing Gray is a dark, matte gray that closely matches Brownells Parkerizing for easy restoration of military firearms and accessories. Dark Parkerizing Gray is a darker gray to match parkerized guns that show years of age, use and oil. Stainless Steel Gray is a light, metallic-silver gray that approximates the look of bead-blasted stainless steel. SPECS: Aerosol, 6 oz. (170 g) wt. Circular spray. Remove cured coating by bead blasting, abrasive blasting or sanding.

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] 8-36 stainless-steel hex-socket setscrews used in the R-390A Knobs
Date: Mon, 21 Jul 2003 10:33:07 -0500

That was probably me. I bought some screws that were supposed to be for the knobs that had Bristol drives, but they turned out to be #8-32 instead of #8-36. The fellow I bought them from tried to get some #8-36, but no luck. #8-36 is the standard fine thread form, but there must be about zero demand for these. Otherwise, I don't know why they are so rare.

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: [R-390] 8-36 stainless-steel hex-socket setscrews used in the R-390A Knobs
Date: Mon, 21 Jul 2003 10:35:58 -0500

BTW, McMaster (www.mcmaster.com) has #8-36 x 1/4" set screws with hex drives, but they are standard alloy steel, not stainless.

Date: Mon, 21 Jul 2003 11:42:15 -0400 (EDT)
From: <ah7i@atl.org>
Subject: RE: [R-390] 8-36 stainless-steel hex-socket setscrews used in the R-390A Knobs

mscdirect.com They have in alloy steel but not stainless or brass
1/4"
8-36 UNF

5/64 key
$5-$10+ / 100

Depending on alloy, point, and manufacturer. they have hardened, extra deep, cup point, knurled cup point,

Other than that, just look on Google under fasteners. Star has had oddball stuff in the past but I don't know if they have an URL. You could have them made. Look on web under 'cold heading'. probably run you a few $1000 but you'd have a lifetime supply.

From: <Tarheel6@msn.com>
Subject: Re: [R-390] 8-36 stainless-steel hex-socket setscrews used in the R-390A Knobs
Date: Mon, 21 Jul 2003 12:31:49 -0400

Thanks to Scott, I just ordered the 1/4" 8-36 AS set screws and some #6 1/4" SS phillips head screws to fasten my R390A top and bottom covers. McMaster-Carr makes ordering a breeze!!

From: ToddRoberts2001@aol.com
Date: Mon, 21 Jul 2003 13:49:45 EDT
Subject: Re: [R-390] 8-36 stainless-steel hex-socket setscrews used in the R-390A Knobs

Thanks Barry! I checked McMaster-Carr and went ahead and ordered 2 packs of 100 Alloy Steel setcrews, size 8-36 x 1/4" , hex-socket, cup-point @ $7.32 per pack. Now I should have a lifetime supply of the R-390A medium and small size knob setscrews. McMaster-Carr has a very easy, logical system worked out for ordering hardware/fasteners online, a great way to order! Thanks to everyone who wrote back to my inquiry!

Date: Mon, 21 Jul 2003 15:35:11 -0400
Subject: [R-390] Brownells GunKote for knobs - Brownells RESPONSE

Here is the response directly from the Brownells Tech Support Staff:

"Dear Sir, We certainly do appreciate your interest in Brownells. Gun Kote should work on any material that will withstand 300-350 degrees Fahrenheit for up to an hour, and that can be aluminum oxide abrasive blasted to prepare the surface. "Pot metal" or zinc alloys, may not hold up to this temperature range. You may want to take a look at our air-cured epoxy finish, Aluma-Hyde II.
David Kaiser BROWNELLS, INC(r) Technical Services"

From: AB3L1@aol.com
Date: Mon, 1 Sep 2003 12:42:40 EDT
Subject: [R-390] W3HM Does 390 Knobs

I wanted to pass a good thing along. I just got my knob set back from Howard Mills. He used the powder coat on them and they look great. He will do the line painting also.

From: AB3L1@aol.com
Date: Mon, 1 Sep 2003 20:27:54 EDT

Subject: [R-390] W3HM Email and Phone

Sorry about my omission in my earlier note about the 390 knobs. Howard Mills email address is:: W3HM@nfis.com or call 304-876-6483 He can give you all of the info you need.

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Date: Fri, 5 Sep 2003 11:49:31 -0500
Subject: [R-390] Knob painting question

I am in the (slow) process of refurbishing a couple of sets of knobs. I have cleaned the old paint off and smoothed the surfaces with #320 and #400 wet-or-dry paper and figured they were pretty much ready for powder coating. In the process of restoring some brass and other parts for my "new" Zenith T.O., I was using a cotton buffing wheel with jeweler's rouge as the polishing paste. I wondered what this would do to the aluminum knobs so I gave it a shot. Wow! The surface really polishes up nicely. I thought about giving them a coat of lacquer and letting them stay bright, but it gives them a "dime-store stereo knob" kind of look so I nixed that. My question is will buffing them prior to powder-coating be a bad thing? In other words, will the coating be less likely to stick to the shinier surface? If it will stick, then I think the polished surfaces will result in a much nicer looking knob. Anyone tried this?

From: AB3L1@aol.com
Date: Fri, 5 Sep 2003 17:55:16 EDT
Subject: [R-390] Knob Painting

I just had Howard Mills do some knobs for me with the powder coat process. The first set I had were from my 390. Before I talked to him about doing them I assumed I would be able to dip them in paint stripper to get the paint off. The paint came off OK but the yellow primer underneath wouldn't budge. I spent a lot of time with steel wool getting down to the metal. Got them cleaned up real nice (I thought) but Howard set me straight on the coating process. If there is anything in the pores of the metal when doing it, there is a good chance that whatever is in there will expand under the baking step and cause the powder to lift.and break the bond. I figured that stripping might be good for cabinets also but the same thing can happen if there is any stripper in those hard to get corners or folds. The suggestion from him was to bake the knobs in the oven for a while to burn the residue out. Sure enough after they cooled there was some light powder on the knobs. Back to the steel wool. Set two from the 390A had no primer and the paint came off nicely with a glass bead blast. I had first taken a dental type tool to first scrape out the line channels. I did that as an extra precaution so wouldn't have to spend too much time hitting that area with the blaster. Maybe a bit of overkill on my part cuz the line paint fills in the channel anyway. I think the glass blast is the best route to take. It provides a nice surface to grip and it doesn't make the finish rough looking at all. Opinions vary. Have fun,

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From: hankarn@pacbell.net
Date: Fri, 05 Sep 2003 14:15:09 -0700
Subject: Re: [R-390] Knob painting question

Scott, they have to be very clean to get a good powdercoat. Make sure they plug the set screw holes. Hank

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Date: Fri, 05 Sep 2003 19:48:35 -0500
From: b w <ba.williams@charter.net>
Subject: Re: [R-390] Knob painting question

My guess is that a roughed surface would hold the primer and paint better. I used to sand-tex metal for painting, such as motorcycle frames/gas tanks, cars, wrought iron, etc. Same principle. Sand-texing is what you see on the nonglare parts of rifle receiver sections.

Date: Fri, 05 Sep 2003 22:30:58 -0400
From: "Gregory W. Moore" <gwmoore@moorefelines.com>
Subject: Re: [R-390] Knob painting question

Many years ago, back in the mid-70's, I happened to have the fortune to do some engineering for a subcontractor to Boeing. Now, I believe all on this list are familiar with the standard Green Zinc Chromate primer which is used on most interior metal surfaces of aircraft. Well, Boeing went a step further, and prescribed a 2-part Epoxy version of the same dull green (actually, it turned out semi gloss, but they didn't care). Once you had baked that paint for an hour at 80C (176F) but a few degrees won't matter if the components can handle it (we were producing instruments and control surface position transducers, with the electronics already sealed within, so when a finish was specified, you had to be real sure that the cure temp wasn't a destruct temp--hi--. That being said, once that was baked on for an hour, well, it JUST WOULDN'T COME OFF!!!. Even EpcoStrip, which from personal experience can remove skin from your legs easily (neutralize with a drench shower and vinegar, followed by a 100+ MPH trip to the hospital in a police car (hey, the police officer had a grin ear to ear, who was I to keep him from enjoying himself), and I had some weird looking legs for a while --hi--... (some idjit had left a pan in a walk in paint booth, and I had gone down to the paint shop after hours to do some "government work", on (what else, the front panel of an R390A, as well as changing the color of a M28ASR teletype from WU livery to Navy livery.) the light switch was inside the booth, and I didn't see the pan....lesson well learned....

To put it mildly, even EpcoStrip won't budge that Boeing Green Epoxy Primer (I don't remember the mfg P/N, nor the Randolph P/N but unless environmental controls have changed all that signficantly, it still should be available. I would recommend a light bottom coat of that, baked on, and then use Dulac Semi-Gloss lacquer (27038 per Fed-Std 595) OPNOTE: This is kind of simple, 17038 = gloss black 27038=semi-gloss black 37038 =flat black. or Wornow Cat-L-Ink screen printing epoxy ink, which many companies will produce to the Fed-Std color of your desire... if you want to start with gloss black, they also make a "flatting agent" which is a white silica powder which you mix thoroughly with the thinned mix. The only couple of things which are important with Epoxy paints are first, mix them in a METAL container (I have caught too many idiots trying to mix the base and hardener in wax cups, ordinary paper cups, and all sorts of other porous materials). Second, follow the manufacturers directions exactly (some call for mix by weight, and some by volume). Third, allow to react for at least 1/2 hour before using reducer or thinner. Fourth, insure that the reducer or thinner you are using is compatable with the environmental conditons in which you will apply the finish. Fifth, cure exactly according to the mfg's instructions, or to a time determined by previous experimentation. Lastly, don't try and stretch the work time. These finishes all have a definite pot life. This does not mean that they turn into gel either, they may look just fine, but won't apply or cure worth a counterfeit 3 dollar bill.

This is not to be considered definitive, I just happened to work designing and specifying finishing and marking materials for a variety of aircraft instrument dials, scales, pointers, etc, as well as the cases in which they were housed, as well as a lot of equipment destined for the Navy, Marines, Air Force, and Army, as well as NASA and a lot of Commercial Aviation, so I developed a pretty good handle on this stuff. This was additional assignments besides designing and building the "innards" for the prototype stuff, so I wound up with a fairly balanced education about finishes, as well as electronics, and complex analog displays. More info: Randolph Products, Inc. http://www.randolphproducts.com/index.htm

You can get copies of Federal Standard 595 (the standard color chips for all milspec products) by FAXING (Phonecalls don't work) to: DODSSP (Dept. of Defense Single Stock Point) in Philadelphia, PA. The number is (215) 697-1462. Just fax a sheet of paper with your name and mailing address on it, and state that you want a copy of Federal Standard 595.

Wornow Cat-L-Ink, fine mesh screens, etc:

Podgor Joseph E Co Inc 609-663-7878 7550 Central Hwy Pennsauken NJ 08109

OK, I will now end this long, obtuse screed concerning paints and finishes, I'm sure that every member of this list has their own pet suppliers, and coating methods, but it really helped my mind to come up with these from when I was actively involved in specification writing and one-off prototyping.

From: "Dennis L. Wade" <dwade@pacbell.net>
Date: Sat, 06 Sep 2003 13:38:33 -0700
Subject: [R-390] Stripped Knob Screw

Decided to drop the front panel on my A unit to get better access to the SSB unit behind the panel. Turns out the head on the megacycle knob has been pretty well stripped. The other knobs show signs of abuse in that the heads are not in very good shape. What's the best way to proceed without doing damage? Suggestions welcomed...

Date: Sun, 07 Sep 2003 10:42:00 -0700
From: "W. Li" <wli@u.washington.edu>
Subject: [R-390] Re: Stripped knob screw

Sounds like your options are to recut stripped threads, press in another insert, or get another knob.

To avoid similar events on less abused knobs, is to wrap a small piece of sandpaper around the shaft, rough side in, and slide the knob over it. Now the threaded insert can "grip" the shaft more firmly.

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Date: Mon, 8 Sep 2003 15:33:49 -0500
Subject: [R-390] Lacquer Stick/Pen

Can someone tell me a good source for the lacquer sticks (pens?) used for filling in the engravings and knob stripes?

Date: Mon, 08 Sep 2003 16:38:28 -0400
From: Roy Morgan <roy.morgan@nist.gov>
Subject: Re: [R-390] Lacquer Stick/Pen

AES www.tubesandmore.com

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Lacquer Stick/Pen
Date: Mon, 8 Sep 2003 15:39:45 -0500

The first place I looked and I didn't see them. Did I just miss them??

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Lacquer Stick/Pen
Date: Mon, 8 Sep 2003 15:42:05 -0500

Let me retract my reply. I *did* find a lacquer pen, but I wasn't sure it was the kind I've heard discussed. I was thinking the pens were more of a fine-tipped instrument and these appeared to be a rather large, crayon-like, tip. Is this what is commonly used?

Date: Mon, 08 Sep 2003 16:45:37 -0400
From: Roy Morgan <roy.morgan@nist.gov>
Subject: RE: [R-390] Lacquer Stick/Pen

That's them.. You rub the waxy stuff into the line goove on the knob or panel, remove any over-rub with a cloth, let it dry and presto ... all done.

From: "Scott, Barry (Clyde B)" <cbscott@ingr.com>
Subject: RE: [R-390] Lacquer Stick/Pen
Date: Mon, 8 Sep 2003 16:03:46 -0500

Okay, thanks. Someone said they thought they sold the pens at HobbyLobby, but no one there seemed to know what I was asking for. They did have some nice, sharp-pointed, paint pens, but I wasn't sure what kind of "paint" was in them.

Date: Mon, 8 Sep 2003 14:13:17 -0700 (PDT)
From: Joe Foley <redmenaced@yahoo.com>
Subject: RE: [R-390] Lacquer Stick/Pen

I found them at a hardware store that carries such items as "upside-down paint" for marking construction sites, flagging tape for surveyors, and those little twirly things that tie the wires that hold re-bar together. Ya' just can't pour cement without one of those!!

From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] Lacquer Stick/Pen
Date: Mon, 8 Sep 2003 17:22:45 -0400

It's the crayon-like thing. It's a gooey lacquer inside a wax covering. You cut the end to start using it. You can find them at specialty paint stores and possibly also at an art supply place like "Pearl" -- don't know how widespread a chain that is. You might also consider acrylic paint or even wite-out. The laquer stick takes a long time to dry and doesn't seem to completely harden. The acrylic has the advantage

of cleanup with water. You may have to use some solvent to clean up the residue of the laquer stick, in which case you have to be careful of the panel or knob paint.

Date: Mon, 08 Sep 2003 18:55:53 -0500
From: b w <ba.williams@charter.net>
Subject: Re: [R-390] Lacquer Stick/Pen

>snip> but I wasn't sure what kind of "paint" was in them.

Normally, laquer.

Date: Mon, 08 Sep 2003 19:20:33 -0500
From: Terry O'Laughlin <terryo@wort-fm.terracom.net>
Subject: [R-390] Re: Lacquer Stick/Pen

I found them in the veterinary section of the local farm supply store "Farm and Fleet." They were sold as cattle markers and look identical to some I got from Antique Electronic Supply a few years ago. I only bought black and white but they had a wider range of colors than AES.

From: "pete wokoun, sr." <pwokoun@hotmail.com>
Subject: Re: [R-390] Lacquer Stick/Pen
Date: Mon, 08 Sep 2003 21:13:08 -1000

I have had good results with the Liquid Paper 'all purpose' Correction Pen available almost everywhere. Don't laugh if you haven't tried them. It's some kind of lacquer base (quick drying). Try a little on the back side of knobs to make sure it doesn't attack plastic knobs before drying. I haven't had any problem with phenolic type knobs. You have to wipe any excess off
quickly but what's left is hard and white. It flows nicely as you squeeze the tube for the amount you need. Practice with a couple old knobs and you might be pleasantly surprised. My experience with the lacquer sticks is they take a long time to harden up good; probably better if you work slowly.

Date: Tue, 09 Sep 2003 07:35:19 -0400
From: Jim Brannigan <jbrannig@optonline.net>
Subject: Re: [R-390] Lacquer Stick/Pen

I use whatever white household acrylic paint is on the shelf. Paint on and wipe clean with a damp paper towel. No problems and it looks good.

From: "Francesco Ledda" <frledda@comcast.net>
Date: Sun, 26 Oct 2003 13:39:09 -0600
Subject: [R-390] R-392 Paint

I would like to repaint a beaten up R-392. I would like to use the same color code as the original paint, but I don't know where to find such information.

From: "James A. (Andy) Moorer" <jamminpower@earthlink.net>
Subject: Re: [R-390] R-392 Paint
Date: Sun, 26 Oct 2003 12:45:50 -0800

I have bought matching paint from Rapco Parts Company.
www.rapcopartscompany.com/paint.html

Their 24087 Semi-Gloss Olive Drab Enamel is a perfect match for the R-392. I have done several this way and they look perfect. They have two other olive drab colors for earlier (40's vintage) and later (70's vintage), but the 24087 is right for the R-392. I get cans of spray paint, since I don't have a paint spray machine.

Date: Sun, 2 Nov 2003 21:13:33 +0000
From: "David P. Goncalves" <dpg@coe.neu.edu>
Subject: [R-390] Note on Krylon Appliance Paint

Some months ago, I reported on my experience with Krylon 'epoxy' appliance paint sprayed on my rebuilt meters, which indicated that it was not tough at all, and that wrapping them with soft paper and transporting them in a box had rubbed some spots to dullness. After that report, I put the meters on the shelf in defeat, promising myself that I'd get back to them toward the end of my (slow) restoration work.

This afternoon, then I look another look at the meters, I found something very interesting: The dulled spots had regained their shine, leaving only a slight roughness! Wow! Who would expect that - self healing paint. I'm not looking for an explanation, though one woulod be interesting. Just telling you what I've noticed.

From: "Barry Hauser" <barry@hausernet.com>
Subject: Re: [R-390] Note on Krylon Appliance Paint
Date: Sun, 2 Nov 2003 17:30:38 -0500

There was a thread on paint way back in which someone (Dr. Jerry, I think), pointed out that regular Rustoleum takes months to cure fully, even after baking. I believe it. That's why I like to use a extra panel for refinishing and then swap it on months later. It's also a good idea to wait until then before re-filling the stampings. Regular Krylon dries and cures much faster than Rustoleum, but it's not as durable. I don't know just how different their epoxy paint is, but it may be a very slow curing paint like Rustoleum, and so has some tendency to continue to re-gel or settle, restoring the gloss. One rule of thumb someone had pointed out -- if it still has an odor, it's still curing. If it's still curing, it's not at maximum hardness. It may be possible to decrease the curing time by baking longer or at a higher temperature. However, even after baking, the Rustoleum-ed panels I've done still have an aroma weeks and months lately, so I put them up to age, like wine. ;-) (You would need to remove the bezels and paint them separately. Baking whole meters is not a good idea.) Hope this sheds some light on the subject. Not so much a "self-healing" feature, as the stuff probably just takes forever to cure. (or it wasn't well mixed or you had a bad batch -- or maybe some other reason altogether ;-) I betcha if you made a mark in it now, it wouldn't self-repair.

From: David Hallam <dhallam@RapidSys.com>
Date: Thu, 27 Nov 2003 11:41:28 -0500
Subject: [R-390] Lacquer-Stik

I don't know if anyone is interested, but Skycraft Parts & Surplus, Inc. in Winter Park, FL (407 628-5634) has the original white lacquer sticks made by Lake Chemical Co. This is the white fill-in paint for the knobs and panel in stick form. They are selling them 3 for $1.00. I picked up several last weekend.

From: "signalshifter" <w7itc@hotmail.com>
Subject: Re: [R-390] Museum Quality R-390 Non-A on the E-Place

Date: Sat, 7 Feb 2004 20:07:22 -0700

If it has a bluish finish it was probably Kromacoated. This is a chemical protective coating used on sheet metal, ferrous and non ferrous, it gives the metal a bluish mother of pearl look.

Date: Sat, 27 Mar 2004 14:01:10 -0600
From: windy10605@juno.com
Subject: [R-390] Painting a SP-600

I acquired one of these with a really bad (good ?) "dunking" of that anti-fungal stuff or whatever it is and several adhesive residues on the front panel. There were a number of chipped places, some of the front panel was sticky, you get the idea. After trying some of the usual soap, solvents, etc it just got worse. I read the R-390A articles you guys have posted on repainting and decided that was the only way. Surprisingly easy !! I know you guys who have done this before are probably laughing, but it really was easy to strip the panel with chemical stripper, sand with 400/600 wet/dry, good water flush clean, and paint it. Next comes filling in the lettering with antique white. I checked at Home Depot and the closest I could find is a "pewter" Rust-O-lium paint which has minimal gloss, a slightly textured finish, and is slightly darker (but not nearly as dark as some restorations I've seen) than original. Looks good .....so far.

Date: Sun, 04 Jul 2004 19:37:21 -0400
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] front panel corrosion

.....repaint the front panels, problem is they are both corroding.....

What you need to do exactly depends on how deep the corrosion has cut into them. In any event, it's under the paint, so the panels need to be stripped first with paint stripper and cleaned up with an abrasive pad, like Scotchbrite. If the pitting is deep, you'll have to excavate with a sharp tool or at least a wire brush in those spots and fill the pits with something like auto body putty or "liquid aluminum" or some epoxy based stuff. Then sand down the whole thing smooth. Apply alum-prep or used self-etching primer and your choice of finish coats - e.g. Rustoleum Smoke Grey. If the pitting is close to the stampings, that will be difficult to fix completely. Some of that corrosion may just be under the paint and not too deep, but I've seen it go nearly all the way through the panel on some. (Started scraping and experienced the "China Syndrome") If they're that bad, you are better off getting used panels that are in better shape and refinishing those, if needed. Attempting to neutralize and seal over the corrosion is not likely to work. If it's minor, and you're not up to doing the full refinishing routine, you might just try some WD-40 on a rag. I've done that -- seems to help, but I'm not sure how effective it is long term.

Date: Mon, 05 Jul 2004 10:07:28 -0400
From: Bob Camp <ham@cq.nu>
Subject: Re: [R-390] front panel corrosion

6One thing that is a little expensive but it may help the process. A lot of hobby shops sell little air brush gizmos that will also do sand blasting. Obviously the chunks of sand they blow are pretty small. They should be just about perfect for cleaning out pits in a damaged front panel. There are also chemical prep agents

that might help with the cleaning process. A final really weird approach would be do do a little reverse anodizing in the area. It should take out the rough stuff around the corrosion. What ever you do it's a good idea to do a water wash and oven dry before you do the filling. It can be a real pain to do all the filling, sanding, and painting only to see the stuff all pop out three months later.

Date: Mon, 5 Jul 2004 10:21:44 -0400 (EDT)
From: "Paul H. Anderson" <paul@pdq.com>
Subject: Re: [R-390] front panel corrosion

Clean the panel. Strip the paint the best you can with autobody or aircraft spray on paint stripper (this softens the paint in the engraved letters for blasting - if you're careful, you can do just the front with no damage to the back). Clean the panel again. Use glass or plastic beadblasting to clean the front panel of remaining paint. When clean, you may see pits. Refill pits with aluminum based autobody filler if deep. Paint. Bake. Silkscreen if not engraved. Install and enjoy. If you have an engraved panel and the pits are bad or are in the lettering, I'd toss the panel - easier to get a spare than to redo that kind of stuff.

Date: Wed, 18 Aug 2004 16:52:00 -0700
From: "Dave Faria" <Dave_Faria@hotmail.com>
Subject: [R-390] Black Faced 390A on Ebay - R-390a Trivia

I've got one of those curiosity questions. There is a 390A on Ebay and the seller says its a repainted panel and it made me wonder. Is it true the black faced radios were used on submarines and the lettering was red rather than white?? I don't know where I heard that or read it - anyone know??

Date: Wed, 18 Aug 2004 15:33:16 -0700
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Black Faced 390A on Ebay - R-390a Trivia

I do R-390A panels in black with red lettering on order and have 2 or 3 in stock.

Date: Wed, 18 Aug 2004 19:33:13 -0400
From: Llgpt@aol.com
Subject: Re: [R-390] Black Faced 390A on Ebay ?- ?R-390a Trivia

Well, the story as related to me several years ago by a then Motorola employee goes like this: At night onboard Naval ships, they use red lighting. In a radio room, the grey panels with white lettering tended to "wash out", Motorola built 50 or so with a black matte finish and "white" lettering. I've never heard of the red lettering theory, but who knows? Maybe the Shadow does..... Les Locklear

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Date: Wed, 18 Aug 2004 16:41:30 -0700
From: "Glen Galati" <eldim@worldnet.att.net>
Subject: Re: [R-390] Black Faced 390A on Ebay - R-390a Trivia

SOUNDS LIKE "RED OCTOBER" TO ME! Maybe we gave the SOVIETS some as part of our dear to get our U-2 Pilot back. Check to see if there is the famous 'HAMMER & SICKLE' symbol stamped anywhere on this receiver, or if the printing looks funny and you can't read it. Of course, if you're fluent in the language, you'll be able to answer these questions. I've never had one or seen one, other that from someone's web page.

Date: Wed, 6 Oct 2004 21:20:47 -0400
From: "Patrick" <brookbank@triad.rr.com>
Subject: Re: [R-390] Front Panel Restoration

What is the best method of painting the lettering (Not silk screened) after the front panel has been repainted?

Date: Wed, 06 Oct 2004 22:06:06 -0400
From: Bob Camp <ham@cq.nu>
Subject: Re: [R-390] Front Panel Restoration

Common wisdom is that it is easiest to do the job with a white paint stick. The alternative is to use white paint, flood the letters and then wipe off the excess. Various recommendations have come up for the appropriate paint with white latex being the most common. A lot depends on how well defined the engraving on the panel is after the paint job is done. The more empty the etching is the better the letters hold. Either way they seem to be a bit fragile. With the paint stick you go back and redo them from time to time. With the latex paint I suppose you go through some kind of strip process first. If you don't mind the extra work a clear coat over the finished panel will protect the lettering. If you go crazy enough with the clear coat you can get a pretty amazing look to the panel. It also lets you build up enough paint to protect the paint job fairly well. Most of the paint we use these days seems to wear off a lot faster than the original
paint did.

Date: Thu, 07 Oct 2004 07:40:49 -0400
From: polaraligned <polaraligned@optonline.net>
Subject: Re: [R-390] Front Panel Restoration

Use a latex craft paint. Use a fine brush to get the paint in the letters. Wipe off excess with a damp paper towel/sponge using very light pressure. There is no need to coat over this. It will last the life of the panel. Try it on one letter. It is very easy. Paint sticks are a lot harder to use and to clean off the excess.

Date: Fri, 8 Oct 2004 09:58:32 -0400
From: "Al Parker" <anchor@ec.rr.com>
Subject: [R-390] Re: R-390 Digest, Vol 6, Issue 6

I'm not sure where this thread started, but I use artist's acrylic (water soluble), and a small rubber squeegee. You can see my process about half way down the page at: <http://www.thecompendium.net/radio/sp600.htm>
(the captions are above the pix)... That was my first attempt, didn't repaint the panel. I've done it a few times since, it's easier after some practice.

Date: Sat, 9 Oct 2004 13:59:46 +0900
From: "Osamu Hazawa" <pomerol@mocha.ocn.ne.jp>
Subject: [R-390] Calligraphy Pen for Non-engraved Front Panel Lettering

Is there anyone who have succeeded to restore the rubbed off letterings on the Non- engraved front panel of the R-390A? I used a lacquer stick with little success so far and I bought a calligraphy pen today. I tried some letters with a 0.5mm pen tip and had a better feeling with it. But I seemed to get a good ruler to get more solid lettering. Do you guys think dry transfer letterings is better than hand writing? I

didn't find a good source for the dry transfer lettering except AES. Your advice would be appreciated.

Date: Sat, 09 Oct 2004 11:53:10 -0400
From: Bob Camp <ham@cq.nu>
Subject: Re: [R-390] Calligraphy Pen for Non-engraved Front Panel Lettering

This is a little off topic but hey, why not. I have one of the Motorola front panels that are kind of interesting. It obviously have been around for a while and they have worn paint. Nothing unusual so far. What is unusual is that under the top coat of paint is a second coat of paint. The second coat of paint is complete with it's own set of screened on lettering. The second set of lettering is offset from the lettering on the top layer. I don't know enough about the history of these radios to know if the military repainted them or not. The other possibility is that the factory goofed and repainted them. Doing a over paint / repaint job on a screened panel obviously didn't bother the military inspectors. I *assume* that the original lettering went on with a silk screen process. Having done it a number of times it's not as hard as you might think. They guys that do novelty tee shirts do it all the time and that's hardly a high tech industry. On electronic gear we normally do it with a wooden frame around the screen and a hand squeegee moving the paint around. If you want to go crazy you can use stainless steel screens and a fancy printer but for panel marking a cheap screen and a wooden frame. Your local tee shirt factory probably can help out with a source for the screens if you have a scan of a good front panel. At least in my experience, if we go back into the business of fabricating replacement front panels for the 390 the silk screen process is the way to go. If you are going to duplicate a real panel you will at least need to silk screen the back side anyway. Doing it on both sides isn't all that much harder.

Date: Sat, 09 Oct 2004 12:51:36 -0400
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] Calligraphy Pen for Non-engraved Front Panel Lettering

The laquer stick is used only for the stamped ("engraved") panels by rubbing across the lettering and thereby filling it with the laquer. Dry transfer letters would probably be easier than hand writing, but they are fragile -- easily rub off. If you use those, it's best to overspray with clear acrylic paint -- or some paint that will not damage the panel paint or lettering. Draftsmen once used something called a "lettering machine" which was like a small pantograph. The letters were engraved in a part that looked like a ruler. You traced the machine's letters with a stlylus and the drew the characters. Those and dry transfer letters in Roman/English may be difficult to find. The transfers used to be available in electronics parts shops and may still be found in some arts & crafts shops. However, as someone else described, you could consider silk-screening. If I'm not mistaken, hand silk screening is a traditional art in Japan. There are various kits sold here and on the internet. I'm not familiar with them. It may be that you can find the materials locally. And that would be the same way as the non-engraved panels were originally lettered. Even so, an acrylic or compatible paint should be used so you can overspray a clear coat to protect the lettering and the panel from wear.

Date: Sat, 09 Oct 2004 10:16:05 -0700
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Calligraphy Pen for Non-engraved Front Panel Lettering

Bob, I have both master silk screens for the R-390-A front and rear. I also refinish

the panels by commercial stripping, cleaning, run through a time saver to eliminate surface scratches, powder coat and the silk screen. $150.00 exchange plus UPS.

Date: Sat, 9 Oct 2004 12:33:31 -0500
From: mikea <mikea@mikea.ath.cx>
Subject: Re: [R-390] Calligraphy Pen for Non-engraved Front Panel Lettering

The lettering machines were called "Leroy", and were quite nice if you could bear *hours* of tedium. They're still available from stores that cater to graphic artists and draftsmen, such as OKC's own Triangle A&E. I seem to recall that Keuffel & Esser made them, or maybe Dietzgen, and I certainly remember seeing quite excellent copies while I was living in Japan.

Date: Sat, 9 Oct 2004 16:30:21 -0500
From: "Francesco Ledda" <frledda@comcast.net>
Subject: RE: [R-390] Calligraphy Pen for Non-engraved Front Panel Lettering

I am bebuilding an MRC-108. The control heads needs to repainted and silk-screened. I would like to do the silk-screening myself. Would it be possible for anybody on the list to describe the process of silk-screening from start to end?

Date: Sat, 09 Oct 2004 18:14:21 -0400
From: Bob Camp <ham@cq.nu>
Subject: Re: [R-390] Silk screen

Here's a basic explanation of the process. I'm sure others can elaborate further. The basic equipment is pretty simple. You need:

1) A "nest" to hold the panel you are going to silk screen. Usually this is a piece of plywood with a couple of pegs in it to position the panel.

2) A screen to do all the work. Industrial screens are made out of wire, often stainless steel. For light weight work like panel screening you don't have to get very fancy. Local suppliers will probably have a range of screens for you to pick between. For this kind of work go with one that is not very expensive.

3) A negative to coat the screen with. The screen material is often coated with photographic emulsion. You scan the lettering on a good panel and use it to generate a graphics file with the data in it. The file goes out to the shop that generates the screen and they do the photographic process that converts the data in the file to a finished screen. They send you the finished screen in the mail.

4) A frame with the screen on it. The frame normally is attached to the nest board with some common hardware store hinges. The panel goes in the nest and the frame brings the screen down on top of the panel. The hinges and pegs on the nest are there to keep everything in good alignment.

5) Ink (paint) and something to push it around with (a squeegee). Normally on the stuff I do we use an epoxy ink that comes in two parts. You mix them up and screen them on. You then bake the finished part at 125_C for about an hour to cure the ink. The ink that is left on the screen you clean up with normal solvents.

The odd thing about all of this is that the only thing that costs very much is the screen. Everything except the screen probably costs less than $25. The screens

we use at work are a couple of hundred dollars, but they are pretty etched stainless steel screens.

The hard part in the whole process is coming up with the image of a good panel. Usually this involves doing a scan of the best panel you can find and then playing with a good graphics editor for quite a few hours to clean up the result. FInding a good clean panel to scan can be tough. Simply doing a good scan of the panel is harder than it sounds.

You may be better off just using the scan as a guide and generating new lettering from scratch. Matching the type face used is the main challenge. If you can get close enough the result will be much better done this way. Once you have the stuff set up for your first panel you are also set up to do lots more of them.

I suspect that the original panels were done almost exactly by the process described above. With a bit more work and a CNC machine you could turn out brand new panels from scratch this way. The other way to do a panel is using lithography.

This is a more precise process than silk screening and will give better detail on the finished product. In order for it to work properly the panel you are printing must be absolutely flat. It also takes more equipment to do. There may be some panels out there that were done this way but I doubt it.

Date: Sat, 09 Oct 2004 15:48:48 -0700
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Silk screen

Bob, that is a very good explanation for DYI. I have a few master screens and about 200 films so when I need something we go through all of the bags of film to find what is needed and my screener makes a screen on a press board along with others, mask off or around and makes the tags or panels as required. by shooting several on a press screen saves him time and me money. We use 2 part inks and bake them.

Date: Sat, 9 Oct 2004 20:08:59 -0500
From: "Francesco Ledda" <frledda@comcast.net>
Subject: RE: [R-390] Silk screen

THANK YOU. Great explanation! I think that I will have to get a gitila drawing, in my case. Where do you reccomend I get the screeb done?

Date: Sun, 10 Oct 2004 11:26:28 -0400
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] Silk screen

Aren't there small arts 'n crafts silk screen kits or materials that can be used for spot replacement? We have a big store here, but I don't know what to look for. I've seen some websites with kits -- but not intended for our kind of application. Some of the lettering is more prone to wear than others, and a detailing of a silk-screened panel might call for replacing only a few labels. The remains of the worn lettering could be rubbed off, the grey base compounded, and then the 2 or 3 that need be replaced could be done with small pieces of the screen. Is there any home-brew way to do that? This might also well apply to restoring some other gear that doesn't

have much labeling on it.

Date: Sun, 10 Oct 2004 11:54:14 -0400
From: Bob Camp <ham@cq.nu>
Subject: Re: [R-390] Silk screen

I certainly have seen a lot of silk screen kits in craft stores. They seem to be a bit simple for a front panel project. The problem is that you need a fairly high resolution photo process to generate a nice sharp screen. Without a sharp screen the lettering is going to look a bit rough. I have not tried any of the kits so I really can't say what the result would be. Doing a limited number of labels with a silk screen is easy. As a matter of fact it's probably easier than doing the whole panel. To do a small area you just line up the screen over the right area on the panel and use tape or what ever to hold it in place. You then just rub the ink on the part of the screen you want to print through. Next you hit it with a hair dryer for a while and you're done.

Date: Sun, 10 Oct 2004 16:23:56 -0400
From: Bob Camp <ham@cq.nu>
Subject: Re: [R-390] Silk screen

One thing I have never seen done is to make up dry transfers that directly do the marking. Obviously there is a process that generates them but I don't know what's involved in setting it up. It would be the perfect way to patch up marking on a panel without much effort. The down side would be that most of the ones I have seen are not very durable.

Date: Mon, 11 Oct 2004 08:54:51 -0500
From: Mahlon Haunschild <mahlonhaunschild@cox.net>
Subject: [R-390] Re: R-390 Digest, Vol 6, Issue 10

I am also surprised that no one has talked about using water-slide decals to restore a panel. A water-slide decal, properly applied, looks just like ink printing. The tricks, of course, are matching fonts and actually making the decal. Fonts are no big deal what with the wide selection that comes in Office these days, but there are certain exceptions. Two of us are working on a round-serif font made from a Leroy lettering instrument which should match R-390 and other Collins/military lettering. As for the printer, you need a dye sublimation printer to make the decal; nothing else will work. And if you have white lettering, you need a printer that can print white. The older ALPS MD-1000, MD-1300, and MD-5000 printers are capable of all of this. Or I'm sure that there are commercial alternatives. Needless to say, I have such a printer. We're working on an ART-13 decal sheet right now. Other possibilities include the TMC GPR-90 and, of course, the R-390A. Will write further if I have anything interesting.

Date: Mon, 15 Nov 2004 06:11:02 -0800 (PST)
From: Mark Donaldson <wa1qhq@yahoo.com>
Subject: Re: [R-390] Front Panel Lerttering

I have a Navy R-390A of the same panel color, tag was removed so not sure of which contract it was. The lettering on mine was black. You can ID the shipboard Navy units by the fact that the back panel has an additional subpanel added with circular mil style connectors for interconnect, this allowed easy interconnect in racks that had no rear access.

Date: Mon, 10 Jan 2005 08:28:40 -0600
From: mikea <mikea@mikea.ath.cx>
Subject: Re: [R-390] Silkscreening a back panel

You can get silkscreening kits in various sizes from your local graphic arts supplier. Speedball makes, or used to make, a nice one. Also, you most likely can get a local silk-screener to make you up a framed screen; all you need to do then is get the image stencil into the screen, which is pretty much the same process as for making photo-etched PCBs. It's a *lot* of trouble to go to for a one-off, though.

Date: Thu, 13 Jan 2005 11:48:16 -0500
From: N4BUQ@aol.com
Subject: [R-390] Alodine and hexavalent chromium

I've been doing a bit more looking into getting the panels for my R390A's re-alodined. Turns out this stuff is hazardous as it contains hexavalent chromium (chrome?). Around here, you have to dispose of this stuff properly so I might not be trying this at home after all. Fortunately I've found a place that will do the lot of parts for a reasonable price. This got me to wondering how hazardous it is to remove this coating. Is it safe to wet-sand the parts to remove the old coating? Is the amount of coating removed so small that it is insignificant?

Date: Thu, 13 Jan 2005 12:30:17 -0600
From: "Ron L." <wb7vdn@knology.net>
Subject: [R-390] Excess Power plugs for R-390(non-A)

I have acquired several 4-pin Plugs that fit the power connector on the rear of the R-390(non-A). I only need one for the Dumpster Refugee R-390 I just got. Most have a 1 to 2 foot High Current pig-tail. The cable clamp fits a .5 inch cable. I am asking $10 each plus postage for them. Please reply via E-mail off-list. My Address is: calbrguy@knology.net
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Date: Thu, 13 Jan 2005 13:51:01 -0500
From: "John KA1XC" <tetrode@comcast.net>
Subject: Re: [R-390] Alodine and hexavalent chromium

After Alodine is applied and dried I believe it's totally safe (as long as you don't eat it). It is commonly used as a surface finish on all kinds of aluminum parts or as a surface prep for painted aluminum to increase paint adhesion, like on the R-39x dial bezel. It is a very, very thin coating, usually 0.5 to 3 thousands of an inch, and is easily removed by sanding or by phosphoric acid metal prep solution or a lye bath as Hank suggested. If you are sending your pieces to an Alodiner are you sure you need to remove what's already there?; they will probably throw the parts in an acid bath first thing.

It IS something you can do at home, but aside from the cost of buying a gallon and having it shipped, you need to practice a bit to get the coating to be uniform and the correct thickness to match the other parts. (longer soak or brushing = heavier coat = darker color). If you screw up the part you can always throw it back in the lye bath and start over :^) I've done the R-390 IF coil cans, dial bezels, and a back panel with good results, but it's not something I'd want to do frequently.

For *small* quantities of the stuff that are used for home projects I wouldn't worry

about disposal issues, but please don't throw the used stuff on the ground. You definitely want to wear gloves to protect your skin (and to keep hand oils off the prepped part), and it can permanently stain anything it touches.

Date: Thu, 13 Jan 2005 14:23:15 -0500
From: N4BUQ@aol.com
Subject: Re: [R-390] Alodine and hexavalent chromium

The reason I wanted to wet-sand the pieces is they weren't in really great shape. Scratches, small oxidized patches, etc., made me want to get them in physically better condition before any surface finishes. The center shelf seemed to have a rough texture about it that I wasn't sure would come out if just chemically stripped. I got a lot of the old finish off and it went down the sink. I assume there wasn't enough of anything in that to be a hazard. As someone else mentioned, once it has dried and done its thing, it isn't as hazardous as when in liquid form. As I said, the local place is quite reasonable and I'd rather someone do it right than have me messing it up on top of creating a potential biohazard. There's a lot of things I can do, but some things I'd just rather leave to the pros. You mention you did a back panel. Did the process destroy the lettering? I assume it did. What did you (if anything) about that? -----

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Date: Thu, 13 Jan 2005 13:13:25 -0700
From: <jay_coward@agilent.com>
Subject: RE: [R-390] Alodine and hexavalent chromium

Here's an alodine story that really burned me up at the time: Years ago I was a production lead on a mil qualified component that had two end bells that were yellow alodined.The bells were slightly different so they got alodined as separate batches in the alodine tank.After mounting the parts,and final wiring harness and final elecrical test the completed assemblies went to final QA..... where they were rejected because the shade of yellow of the two end bells didn't exactly match.There was no spec for color match anwhere in the contract documentation but there was no convincing the QA inspector.Back to re-work where the assemblers then had to line up all the bells and then try to pick matching pairs. Arrrrrrgggggg! No one liked QA inspectors at our plant.They led lonely lives...

Date: Thu, 13 Jan 2005 16:21:40 -0500
From: "John KA1XC" <tetrode@comcast.net>
Subject: Re: [R-390] Alodine and hexavalent chromium

Oh OK, yeah the chemical stripping only takes care of the surface, scratches and pitting need sanding or grinding to clean up. Out of curiosity how much is the plater charging for how many parts? Might need to go this route someday. The rear panel work that I did was a couple of years ago and the radio isn't in front of me now so I can't take a peek, but as I recall the damage was only in one area on one side (I think the inside) , where some kind of corrosive gook had seriously damaged and discolored an area. The lettering in the back was in good condition and I didn't want to mess with it or take on a re-lettering job so basically what I did was mask it, or possibly even masked the entire back side with ordinary masking tape which worked very well while I did the metal prep and Alodining. Anything that can keep the surface dry for several minutes will work as a mask, and for masking small areas wax or crayons would probably work well.

Date: Thu, 13 Jan 2005 16:51:10 -0500

From: N4BUQ@aol.com
Subject: Re: [R-390] Alodine and hexavalent chromium

I may try masking. If I can work with the guy at the plater, then it would be worth it. He said it would be about $40 to for 8 parts. Sounded like it wasn't set in stone and a few back panels wouldn't run it up much past $50. Worth it to me to have these looking good again. Be sure to wash down that hot-n-sour soup with a little wasabe. :P

Date: Thu, 13 Jan 2005 17:25:05 -0500
From: "John KA1XC" <tetrode@comcast.net>
Subject: Re: [R-390] Alodine and hexavalent chromium

That's not bad at all considering the messy work that it saves. Keep in mind that if your Alodining and masking adjacent areas then there *will* be a visible difference in the color of the new coating as compared to the original under the mask. If the masking around the lettering is done very neatly then it might even give it a "label" effect which might be interesting. As Jay pointed out a couple of posts back there is no standard for color matching between batches. Heck even within the same batch and on the same part I've seen color differences.

Date: Mon, 24 Jan 2005 22:54:56 -0700
From: "Kenneth Arthur Crips" <crips01@msn.com>
Subject: Re: [R-390] Knob powder coating

go here: http://www.harborfreight.com/

For powder coating goodies, all you would need with this set up is a cheap used electric stove so you could use the oven for the baking. Note how cheap the price is. For small jobs this is a great setup.

Date: Mon, 24 Jan 2005 22:18:13 -0800
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Knob powder coating

You still have to strip them, smooth out the rough spots, remove the set screw, plug them, mount them properly, remove the plus and replace set screws then fill in the white line. I get $85.00 exchange for the 15 small knobs plus shipping. I sell new CNC machined large knobs for $30.00 each or $55.00 per pair.

Date: Mon, 24 Jan 2005 23:21:48 -0700
From: "Kenneth Arthur Crips" <crips01@msn.com>
Subject: Re: [R-390] Knob powder coating

I see the link isn't working quite right. just put "powder coat" in the search engine. Note this rig needs a air compressor, Harbor freight also has those for a real good price.

Date: Tue, 25 Jan 2005 09:29:32 -0500
From: "John KA1XC" <tetrode@comcast.net>
Subject: Re: [R-390] Knob powder coating

Link fixed... http://www.harborfreight.com/cpi/ctaf/Displayitem.taf?itemnumber=42802

Date: Tue, 25 Jan 2005 16:00:04 -0500
From: Roy Morgan <roy.morgan@nist.gov>
Subject: Re: [R-390] Knob powder coating

Let me see if I understand powder coating, in simple terms: (After you do what Hank says, above)... the powder gets glommed onto the piece by electrostatic charge, and you bake it to make it hard. Issat right? This reminds me of the recipe for elephant soup: First get some elephant. Then you put it in a pot, add vegetables, season to taste, and simmer till done. Now, that *sounds* simple enough...

Date: Thu, 14 Apr 2005 12:21:29 -0400
From: "John KA1XC" <tetrode@comcast.net>
Subject: Re: [R-390] R390 knob set screw

Dan, my notes say it's 8-36 UNF thread, yet another oddity of the 39x's. If you had the tap you could epoxy the hole and drill and retap it but a replacement knob can be gotten cheaper. Sometimes you can smear some JB Weld across just the damaged area, let it firm up a bit, and then use the setscrew itself as a tap, then remove it and let the JB cure. If your lucky it can give the setscrew the little extra bite it needs to do the job. That phenolic insulating shaft on the 390 is pretty tough, I wouldn't worry too much about hurting it.

Date: Thu, 14 Apr 2005 12:52:19 -0400
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] R390 knob set screw

Coincidentally, I have a question about JB Weld. I just used it to repair a small folding table which was inadequately glued to start with. I'm more accustomed to regular and quick-cure epoxy which is clear.

Had some small tube sets of JB weld somewhere, but lost track of it. I picked up some at Pep Boys -- big box "J-B Industro Weld, Cold Weld Shop Size" This stuff when mixed is medium to light gray. Are all of the J-B Welds that color?

I also picked up the small tubes of the quick set version. That grey looks very similar in shade to the "right" shade for R-390 front panels. Anyone try it to detail out a chip? Might not even need touch-up. I used to assume J-B was the same basically as regular epoxy glue, but possibly better quality. Must be something very different as it doesn't have that characteristic annoying aroma. It also cleans up a heck of a lot easier.

Date: Thu, 14 Apr 2005 11:58:43 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] R390 knob set screw

Apparently they do make #8-36 helicoil inserts. I found the helicoil taps for them but haven't found the coils. It would make for some good threads if you could find them (and have the knack for drilling, tapping, and inserting them).

Date: Thu, 14 Apr 2005 13:48:09 -0400
From: "John KA1XC" <tetrode@comcast.net>
Subject: Re: [R-390] R390 knob set screw - JB Weld

I didn't know there was a quick set version, all I've used so far is the regular stuff which is dark grey after mixing. The next time I'm out shopping I'll look for the quickie stuff out of curiosity. Check out http://jbweld.net/index.php especially the FAQ and technical section, it has some of the info you seek.

Yes, I've also noticed that it is a pretty good match for the front panel and its shade can also be altered depending on the resin/hardener mix ratio. It also can be thinned with the usual paint solvents. They call it a "steel" epoxy. The MSDS info didn't say anything about steel but the two components do contain calcium carbonate, iron powder, and barium sulfate in large parts which probably account for it's hardness and machinability.

They also said in the FAQ section that the quick set version is only half the strength of the original JB, which agrees with my thinking that the longer set time epoxies are inherently stronger. I'll use quick set epoxy on tiny parts and things that don't require a lot of strength but use the longer cure time stuff elsewhere. I just epoxied part of a hair dryer power switch back together where the switch contactor broke away from the finger slide part of the switch. It was an easy fix but I couldn't believe how freakin' weakly they designed the broken joint; for lack of a bean sized amount of additional plastic they created a very weak link. So besides gluing the original break I also filled in the entire hollow end of the joint and now it's strong as a rock.

Date: Tue, 19 Apr 2005 23:20:10 EDT
From: Llgpt@aol.com
Subject: Re: [R-390] Yet another Black Panel '390A on the 'bay

Several ex-operators who worked for the NSA in various capacities while still attached to the United States Naval Security Group (in various locations) would tell us different. Another friend who worked for Motorola at Wright Patterson said that they (Motorola) made up a batch of fifty for the USN. If you have ever been aboard ship at night and tried to see the front panel detail with red night lanterns will know what I'm talking about. The claim was the black panel with the white engravings/ silk-screen provided a much better contrast. Howard Mills has what sure appears to be an original black front panel. I've seen several myself. For the non-believers, be careful of strange visitors.....

---Date: Wed, 20 Apr 2005 08:18:36 -0400
From: Bob Camp <ham@cq.nu>
Subject: Re: [R-390] Yet another Black Panel '390A on the 'bay

This is more in the line of an interesting story than hard data. The R390's and 390A's from Motorola were made at the Augusta Boulevard plant in Chicago. That plant was long gone from the Motorola empire by the time I got there but the stories lived on. Like a lot of factories in that era pretty much everything was done on site. They did painting in house. Repainting equipment carts to your department's colors was a favorite night time sport. They would paint
anything any color 24 hours a day .... Since they did the front panels in house varying the color would have been easy. I have also seen evidence that they repainted front panels on new radios in production. It's very likely that they repainted panels as a repair process. I find the theory that they painted some of the production radios black plausible. I have yet to see evidence that it happened as a "painted that way new" process rather than a repaint later in life. There is evidence

of white panel and light blue panel radios out there. The same thing applies to them. They certainly existed in military service. How they got that way nobody seems to know.

Date: Wed, 20 Apr 2005 10:45:50 EDT
From: Llgpt@aol.com
Subject: Re: [R-390] Another black faced Motorola

The units I have seen, had the original silk screening on the back of the panel. None were black front and rear. I have seen silk-screened and engraved versions. Les

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Date: Wed, 20 Apr 2005 16:39:03 -0700 (PDT)
From: "Richard M. MC Clung" <wa6knw@sbcglobal.net>
Subject: [R-390] Re: Black 390A's

Well, We have a woman here at work who was an Oh Five Hog (05H). To the unwashed and uncleared in the audience that means she was a Morse Intercept Operator in the US Army. That also meant, during her time in service, that she was a member of Army Security Agency (ASA). Not to belabor the subject, we were discussing R-390(*)'s one day and I provided her some pictures of some that were at various unmentionable places. She remarked that she wish that she could have gotten some pictures of the receivers she used at a certain 3-letter agencies facility that were black faced. So I later showed a picture of one of the pseudo-black paneled radios that is floating around the Internet. Man, she went bonkers.... How did you get that picture? We're going to get into trouble if we get caught with that picture. She could not belive that it was from the internet. So I sent several URL's with all kinds of R-390(*) stuff and she was just flabbergasted at the information that was at hand..... BTW, she's the HR manager where I work. Well, I did mention R-390(*) several times so I guess this wasn't off topic =;>)

Date: Wed, 20 Apr 2005 19:45:12 -0500
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] Re: Black 390A's

I though it was a good post...I think it qualifies as hard evidence of the existence of the blackfaced 390A. I move we consider it verified...all in favor say amen! The amen's have it....No opposed...it carries! Still would like to see the back side of the panel on the one on the bay right now...It looks like it could qualify as a demiled NAS dog....

Date: Thu, 21 Apr 2005 15:06:49 -0500
From: "Bill Keller" <kellerfamily01@charter.net>
Subject: [R-390] Black Panel R-390A

I was one of those military spooks assigned to the NSA at a location in the late 1950's that is, to this day, still secret. I had both an SP-600 and an R-390A at my operating position for voice intercept.. I recall that the SP-600 had the standard grey panel, but the R-390A, while not exactly black, was a very dark shade of grey - something like charcoal grey. Not trying to keep this discussion going - just putting in my two cents worth.

Date: Thu, 21 Apr 2005 15:19:33 -0500
From: "Barry" <n4buq@aol.com>

Subject: Re: [R-390] Black Panel R-390A

I think I have that R390A. :) Shhhh! Don't tell anyone, though.
http://members.aol.com/n4buq/r390a/

Date: Fri, 22 Apr 2005 07:28:05 -0700
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Crayola front panels

I also have a 390A with the front panel in Gold alodine and black letters.
Hank

Date: Fri, 22 Apr 2005 12:05:08 EDT
From: Radiograveyard@aol.com
Subject: [R-390] 390-A front panels

I had one a few years ago foolishly sold it. The whole front panel was polished and engine turned. Thought it must have been the generals or admirals. Yes the lettering was there and was engraved. Pete

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Date: Sun, 24 Apr 2005 21:17:03 -0500
From: "Barry" <N4BUQ@aol.com>
Subject: [R-390] Paint advice needed

I had the R390A front panel powder coated and now need to re-letter the engraved lettering. I tried this with acrylic enamel and, while the lettering came out nicely, the enamel doesn't stick all that well to the powder-coated surface. I could easily peel the excess off with my fingernail and the enamel is pretty easily wiped clean with something as innocuous as denatured alcohol. I'm wondering what to use to fill in the lettering. I've read a bit about acrylic lacquer. Does anyone know if that would adhere any better to the surface than the enamel? What have others used on powder-coated panels?

Date: Mon, 2 May 2005 13:25:05 -0500
From: "Barry" <n4buq@aol.com>
Subject: [R-390] Powder-coating update

A while ago, I mentioned I was getting the front panels for a couple of R390As powder-coated. I thought I'd report a few things. First, one of the panels came out just great. I've finished filling the lettering with lacquer and it really looks good. Nice, clear, distinct letters. The first time they did the knobs, they got very globby with the powder and it filled in the grooves to the point that a lot of them were indistinct. They removed the coating, recoated a thinner coat, and they look good now. Meter covers and escutcheons look good too. I wish they hadn't coated where the lamps go, but I was able to sand that back to metal so the bulbs would make contact.
The unfortunate victim in all this is the second panel. Try as they might, they could not lay a thin enough coating on to make the lettering distinct. I thought they were pretty much the same, but perhaps the first panel had deeper, sharper lettering. The first try looked terrible. You could tell the engravings were there, but to try to fill them in would have been a disaster. They removed the coating and tried again with a thinner coat. This time, some of the lettering would have worked, but other letters would be just too indistinct. They're going to strip it back to metal and I'm going to resort to lightly spray painting this one. I guess I just wanted to warn

anyone else that unless the engravings are nicely defined and the coaters can keep the finish very thin, powder-coating has its drawbacks. At any rate, I do have one very, very nice front panel now. The second one will be nice too, and the knobs and escutcheon will be powder-coated, but it will just have to be a painted version.

Date: Mon, 2 May 2005 18:28:26 -0400
From: "John KA1XC" <tetrode@comcast.net>
Subject: Re: [R-390] Powder-coating update

I've got a couple panels out to Howard Mills W3HM for painting and he told me that he does not use the powder coat process anymore on the engraved panels for the exactly the reasons you described. The engraving can vary a lot, I've seen from normal to light to very heavy lettering depths and widths.

Date: Tue, 10 May 2005 02:54:51 -0700 (PDT)
From: "KC8OPP Roger S." <kc8opp@yahoo.com>
Subject: Re: [R-390] Panel engravings

> I need to hear from veterans of panel refinishing. I am having a very difficult time getting all the paint out of the panel engravings..... Been there.....done that. I finally used a lighted magnifier and some sharp object. The best I found was the frog sticker from the kids chemistry set. Small plastic handle with a sharp point on the end of about 2" stainless pin. Went over entire panel carefully inspecting each letter and digging out the chips. Not much fun, but that is how it was done here.

Date: Tue, 10 May 2005 03:16:23 -0700
From: "wb6orz" <wb6orz@pacbell.net>
Subject: Re: [R-390] Panel engravings

Dental pick. Next time in the chair, say: "Say, could I ask a favor? When you're done with the cleaning, could you possibly spare an old pick? I need to clean out the engravings on the 390-A." Most likely the reply will be, "Sure, I do retire old tools. And do you know where I can source some test cables to extend modules outside the radio?" Seriously, my old pick has been very useful on the bench.

Date: Tue, 10 May 2005 09:56:05 -0500
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: [R-390] Panel Engravings

Thanks to all who have submitted suggestions for the removal of the paint from the engravings of my panel. Top suggestions....

1) Use of dental tools....using some old ones now. (I have a friend that is a dentist)

2) More powerful stripper....(Tim the Tool Man would be proud!)

3) Brake Fluid and sharp instruments....That's a thought....Paint adhesion a problem afterwards?

4) Bead blasting.....am experimenting with that, but it has its own problems. Erosion and panel warpage.

Thanks to all who responded....Looks like I was on the right track....just wondered if there was an easier way I had not thought of.... My dental tools are not very sharp....fairly blunt. May try to pick up some newer ones. Looks like a few hours at the bench with the visor on...some decent light and a sharp dental tool will be the ticket...after softening it up a bit more with some better chemistry!

Date: Tue, 10 May 2005 10:05:31 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] Panel Engravings

Another useful tool is a carbide-tipped scribe, the type used in sheet-metal and machine-shops to layout patterns, etc. You can apply a lot more pressure with one of those without breaking it and I seem to have a bit better control keeping the tip in the engraving. A dental pick tends to "sproing" out of the engraving and scratch the front panel pretty easily.

Date: Tue, 10 May 2005 10:06:07 -0500
From: "Laird Tom N" <LairdThomasN@JohnDeere.com>
Subject: [R-390] RE: Panel Engravings and bead blasting

Glass bead blastng isn't as aggressive as sand, therefore less heat and warpage. The 390 panels are thick enough to withstand blasting the engravings without warpage. I've done three with no problems. YMMV.

Date: Tue, 10 May 2005 13:42:37 -0400
From: Bernice & Al <saglek@videotron.ca>
Subject: Re: [R-390] Panel Engravings

My couple of cents worth. (in Canadian funds) I done an R-390 a few years ago and had the same problem. What I finally done, at the recommendation of a friend who said that, "the main active ingredient in most paint strippers evaporates very fast and especially on a hot day". What to do. If possible, strip on a cool day outside. Put the panel in a plastic bag. Pour the stripper inside the bag and over the panel. Close the bag and press the bag against the panel and let out as much air as possible. Seal the bag and let soak like this for about twenty minutes or more. Then use a brass brush and scrub vigorously. I Cut the bristles down to about 1/4 inch. This gives a stiffer bristle and seems to be more effective. Inspect each letter for paint residue and use your favorite type of pick to remove any residue. Done a Fair Radio R-390A Bluestriper about 4 years ago and did not have the same problem. The primer on the R-390A was, if I remember correctly, the conventional yellow color. On the R-390 it was a dark gray color. Don't know if this significant or not.-

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Date: Tue, 10 May 2005 22:26:51 -0400
From: Dave or Debbie Metz <dmetz@ntelos.net>
Subject: Re: [R-390] panel cleaning

Just a wonder here. A long time ago, I used a dunk tank of sodium hydroxide to soak fenders from a car. Put it in a tank for a couple of days and wash off the paint. Can you still buy sodium hydroxide as a dry pellets? My guess is that it has gone the way of carbon tetrachloride. Too dangerous for idiots. As a strong base solution, it didn't etch the bottom metal but sure got rid of the paint.

Date: Tue, 10 May 2005 22:33:48 -0700

From: "Dan Merz" <djmerz@3-cities.com>
Subject: RE: [R-390] panel cleaning

Hi, you can buy sodium hydroxide at your local market as "Lye" . The last brand I bought was Red Devil, used for drain cleaner. But put an aluminum panel in enough of this stuff and it may be gone overnight. Sodium hydroxide dissolves aluminum. I used it to clean up aluminum shields/panel for old radios. If you warm it up a bit, it really goes to work. It leaves a frosted surface. I also used it to make metal tags for radios using laser printer transfers on aluminum as "resist". It is very corrosive and poisonous. In the lab, I used NaOH to dissolve large amounts of aluminum from uranium shaped charge cones. It only attacks certain metals aggressively and uranium isn't one of them, Dan.

Date: Wed, 11 May 2005 20:37:39 -0400
From: "Dave Maples" <dsmaples@comcast.net>
Subject: RE: [R-390] RE: Panel Engravings and bead blasting

All: I'm curious about the bead blasting; I've read references to it but don't really know anything about it. Is this something you guys set up to do at home, or do you hire it done, or ??? Sorry for the ignorance, but I don't guess I'll learn if I don't stick my neck out there...

Date: Wed, 11 May 2005 22:49:53 -0700
From: "Dan Merz" <djmerz@3-cities.com>
Subject: RE: [R-390] RE: Panel Engravings and bead blasting

Dave, the term "bead blasting" probably originated when glass beads were used as the propelled agent rather than sand or other more angular abrasive grits. I think the term is used more loosely nowadays. In the process, the media is propelled by compressed gas, typically air, onto the surface being treated, to remove paint, oxide, or other material on the surface or to smooth or etch the surface. I've never had such equipment at home but see you can buy somewhat inexpensive equipment to do this, for instance a glove box to contain the particles during blasting as well as the gun/hopper. I would guess some of the guys here have the equipment, or have access to it. The lab where I worked had bead blasters to clean and treat surfaces used in vacuum processes and to remove errant deposited metal from reusable shields We had a small pencil shaped blaster that could be used for more intricate application of the beads to small areas. This gadget would be the ticket to clean paint out of panel lettering but I never tried it and don't have access to it. I suspect if you live near an industrial area, you could find shops that would do bead blasting or blasting with abrasives. I think plating shops or enameling shops might have abrasive blasting equipment to prepare surfaces. A related technology is used to "etch" designs on glass. A more advanced technology called water jet cutting uses high pressure water to propel an abrasive such as garnet to do actual cutting of metals, rock, wood, concrete and various materials. This equipment is out of the price range of most hobbyists. Dan.

Date: Thu, 19 May 2005 14:38:30 -0500
From: "Barry" <n4buq@aol.com>
Subject: [R-390] Front panel saga

After attempting to have one of the engraved front panels powder-coated two times, I decided it wasn't going to work. The first time they baked the old coating off and the second time, they chemically stripped it. Right now, it looks pretty pitiful. The

front panel has visible pits and the engravings are now not very distinct, so much so that I won't be able to simply paint and fill in the lettering. I'm figuring the engravings are a total loss at this point. I'm planning on filling them in (along with the small pitting) with JB-Weld, having it powder-coated (after all this they at least said they would do the next project free), and have it silk-screened. It's ashamed to lose the engravings, but I'm not sure I have much choice now. I'm hoping that I can get the panel smoothed out with the JB-Weld such that it is imperceptible where the old engravings were. Who out there does a silkscreening? Since I've invested quite a bit in these panels already, I'm looking for the best price and only want the front done. This will be for a chassis with a power supply that I'm selling. I've had the panel pieces re-Alodined, the knobs and escutcheon are powder-coated, so someone will get a pretty nice starting-point for a "new" radio.

Date: Thu, 19 May 2005 22:36:50 EDT
From: Flowertime01@wmconnect.com
Subject: Re: [R-390] Front panel saga

"I'm hoping that I can get the panel smoothed out with the JB-Weld such that it is imperceptible where the old engravings were."

Barry, before you can get the panel that flat, you are going to be sanding a lot of aluminum. Walk that panel around to a few trophy shops. Most of the shops have a pretty good size engraving machine. They often do large platters and things like that. They can set your panel up and "recut" it for you. Let them go at it free hand into the current groves. They can set up a "Reasonable" few letters and transcribe any letters that are just to flat to follow by hand. YMMV. Here they may have to work from a different "font" to follow but scribe the line to match the current stamped font. Then you can fill the spots and maybe work a few errant scribe lines. I do not know how much you have into the receiver, but you could ask here for a different panel. There were some available once upon a time. You could set down on the anvil with a glass, cold chisel and hammer and bang a few characters. You may have to grind some steel to make some nice corners on some of the letters. After paint some varied scribes could come up
looking very good. Does any one have a set of stamps that match the engraving? I would not give up on the panel yet. The flip side is a lot of hours and not necessarily a large return on the time. If you are doing a fix and sell, ask for a panel here on the reflector. If this is one for your own, I would ask around a few engraving shops. The trophy guys could likely point you to a source. Roger KC6TRU

Date: Thu, 19 May 2005 23:08:19 -0500
From: "Barry" <N4BUQ@aol.com>
Subject: Re: [R-390] Front panel saga

Some good suggestions. I took a closer look at the panel through an eye loop. It appears a lot of the letters could still be good, but there is still a lot of old powder-coating residue in them. I don't know what will cut that stuff. If an engraving shop could help, that might be the way to go. I'd really like to preserve the engraving if possible. Yes. If there is a set of stamps that match the font, I could definitely punch them. A few good punches and some sanding to get the displaced material flat around the lettering again, and it could work. I think it would definitely knock the old coating loose in the grooves. If anyone has a set of lettering punches, I'd sure like to talk.

Date: Fri, 20 May 2005 08:16:54 -0400

From: Glenn Little WB4UIV <glennmaillist@bellsouth.net>
Subject: Re: [R-390] Front panel saga

You might try dental burs in a Dremel tool to clear out the residue from the engravings. I get my dental burs from my dentist. They do not cost me anything. Just ask the next time you are there. You could use the larger ball mill bur at a slow speed for the job.

Date: Fri, 20 May 2005 09:48:19 -0400
From: JMILLER1706@cfl.rr.com
Subject: Re: [R-390] Front panel saga

Wear some magnifying eye glasses (like jewelers use) to see the nooks and crannies, and a hand pick (very fine needle tipped tool) to carefully work the stuff out by hand.

Date: Fri, 20 May 2005 08:03:41 -0700
From: "Dan Merz" <djmerz@3-cities.com>
Subject: RE: [R-390] Front panel saga

Barry, get one of those carbide-tipped scribes. It is a pencil-shaped tool with a cylinder of cabide with point inserted in one end of the aluminum pencil-like holder. Usually the other end has a magnet. This is a true point and is durable. I've used this tool for cleaning crevices, lettering, knob dirt. The beauty is the sharp, cylindrical point. It lasts and holds its point as long as you don't drop it on something hard -the carbide is brittle, Dan.

Date: Fri, 20 May 2005 08:15:30 -0700
From: "Dan Merz" <djmerz@3-cities.com>
Subject: RE: [R-390] Front panel saga

Barry , McMaster Carr sells the scribe for about $4 with extra tip for about $3, item 2157A11 tip is 2157A14. You might find one at a machine/tool store. The type with the magnet is about a dollar more. You can also get diamond-tipped ones but that's unnecessary for these kinds of materials. Dan.

Date: Fri, 20 May 2005 13:41:09 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] Front panel saga

Yes, I have one of those from when I worked as a machinist/toolmaker in the '70s. Great little tool, but I don't know if I have the patience to dig the goo out of that many letters.....

Date: Mon, 23 May 2005 11:41:16 -0400 (EDT)
From: "Paul H. Anderson" <paul@pdq.com>
Subject: Re: [R-390] R390 RF deck cover

Hank Arney has all covers for the R-390/R-391 as well as R-390A. I've ordered a few sets, and they are perfectly fine!

Date: Mon, 23 May 2005 12:29:54 -0400
From: Roy Morgan <roy.morgan@nist.gov>
Subject: Re: [R-390] Front panel saga

>I'm figuring the engravings are a total loss at this point. I'm planning on
>filling them in (along with the small pitting) with JB-Weld,

Don't bother.

>Who out there does a silkscreening?

Send your panel with $150 to Howard Mills. You will get a BLACK, power coated and silk screened panel in return. You will be amazed at how good it looks. You will then be either the envy or the scourge of all your R-390A friends.

"Howard Mills W3HM" <w3hm@nfis.com> 304-876-6483

Date: Mon, 23 May 2005 12:46:38 EDT
From: Llgpt@aol.com
Subject: Re: [R-390] Front panel saga

Don't use JB weld to fill in the engravings, use auto body glazing putty or bondo, glazing putty is preferable. Les

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Date: Mon, 23 May 2005 11:56:44 -0500
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] Front panel saga

I think he's doing the more common gray as well... I'm going to pick up a black one in the near future though for a project I'm doing for myself....I just like the way it looks.....no other motivation than that!-

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Date: Wed, 29 Jun 2005 08:32:34 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] Panel Lettering question

I used an acrylic lacquer. After it sets up, I wiped the excess off with some thinner. Since the panel was powder coated, it worked great - otherwise, the thinner would have stripped the panel paint too.

Date: Thu, 30 Jun 2005 08:27:19 +1000
From: "pete williams" <jupete@bigpond.net.au>
Subject: [R-390] Fw: Fill in engravings

Don't know about the lacquer sticks vs baking but have found that it hardens up in time. My experience with R-390A panel is to follow the proceedure that is outlined in a back copy of "ER".

1. Prime and paint the panel -lightly.

2.Use artists white latex based paint. only do a few engravings at a time .

3. Take windscreen squeegee and wipe off excess on one pass only.

4. using a barely damp rag, wipe of the squeegee lines without disturbing the areas just filled .

5. wait about 15 mins and using a barely damp rag. lightly wipe over the engraved areas until fairly clean. Don't press heavily and use a rag with minimum nap - i.e hairy .

6 leave for a few days to harden up and use a fine abrasive car polish to remove the last of the white paint. - don't use excessive force/pressure on any of these operations.

7. wash with soap and water and you're thru '

Works every time for me and I wouldn't worry/bother with any over spray of satin anything

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Date: Thu, 30 Jun 2005 14:53:25 -0400
From: Roy Morgan <roy.morgan@nist.gov>
Subject: Re: [R-390] Panels

Howard Mills offers R-390A panels in BLACK POWDER COAT and white lettering. The last price I heard from him was $150 plus exchange of a useable panel. He may also do panels in gray, but I don't know. Here is contact info for him: "Howard Mills W3HM" <w3hm@nfis.com> 304-876-6483

Date: Thu, 30 Jun 2005 19:49:35 -0400 (EDT)
From: "Paul H. Anderson" <paul@pdq.com>
Subject: Re: [R-390] Fw: Fill in engravings

I use Testor's model airplane white enamel paint. I just put too much in, wipe off with a very lightly thinner dampened tissue. If you bake it, it gets rock hard just like the panel paint should.

Date: Thu, 30 Jun 2005 20:47:08 -0400
From: Bernice & Al <saglek@videotron.ca>
Subject: [R-390] R-390 Panels

Try this site. Walter Wilson's site is very detailed. I am sure that you will find all you will need here. Also follow the link at the top of the page, great info there. PS. To all of you south of our southern border. Have yourselves a great July 4th Weekend. Be happy, drive safely, God bless you and the United States of America.

Date: Sun, 03 Jul 2005 21:31:16 -0400
From: shoppa_r390a@trailing-edge.com (Tim Shoppa)
Subject: [R-390] Dent removal 101

My yellow striper had a corner of the front panel dented in. I slapped a couple blocks of hardwood in a vise, put that corner in, and bent it back nicely. But I'm having more trouble with the side panels, which have been banged up on the back corners. It's not just that there's a bend, but the metal seems to have been stretched and distorted. It's like there's too much metal. Any tricks to getting it back and flat? Hammering it would seem to me to just make it thinner. I think I can get all the screw-holes back to where they're supposed to be but I'd prefer to get the metal back to the point where, I guess, the back of the radio that nobody sees looks nice too :-). Maybe the next thing I'll try is sandwiching it between some steel plate and seeing if I can hammer them into flattening out the aluminum sides. Tim.

Date: Sun, 03 Jul 2005 22:01:57 -0400
From: n4tua@aol.com
Subject: [R-390] Cleaning?

I am cleaning my new 390A and need some advice. Is the slight yellow color on some of the transformer cans and other chassis areas going to come off with polishing with never dull? Is this good? What is a good cleaning agent for a dull looking insides. I have also found a trick some may know. Some of the transformer cans were crushed down from to much fastener tightening. I made a wooden die to fit inside the can and have formed it back to original shape again. Some of the cans look as if they came with no hole for adjustments. Some one either drilled a hole or enlarged the hole rather crudely. I have cleaned these up a bit also. Any help on cleaning chassis? Thanks, Collin

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Date: Sun, 3 Jul 2005 22:03:28 -0400 (EDT)
From: John Lawson <jpl15@panix.com>
Subject: Re: [R-390] Dent removal 101

A judicious application of a very hot propane torch (or better: MAPP) is called for here. you evenly heat just the 'stretched' areas, being careful not to actually melt the aluminum.... the surface will change to a grey-ish 'grainy' appearance. If this is done carefully, you will observe the metal to shrink back quite a bit. Then go after the dent again - being careful not to re-stretch the aluminum again. Many times the 'hammer' and 'heat' routines must be repeated. I am not a professional metal worker - but I was shown this technique by one of the best vintage auto restorers in the business, and I've gotten it to work pretty well. The key is "less is more"...

<snip> .....sandwiching it between some steel plate..... <snip>

Get a small cloth bag - or large discarded sock - fill with fine sand - use that as a backing and 'dead-blow' absorber. A cheap body-and-fender hammer, perhaps a hand-held sheet metal "dolly" will make the job go better. Harbor Frieght has this kind of gear for cheap bux. Also - I like to do radio-restoration type metalwork using an up-ended 2X4 or 6X6 as an "anvil".

Date: Sun, 03 Jul 2005 22:16:00 -0400
From: Glenn Little WB4UIV <glennmaillist@bellsouth.net>
Subject: Re: [R-390] Cleaning?

The slight yellow color on the aluminum hardware is an anodize conversion coating. The aluminum was chemically treated to protect the aluminum from corrosion by this process. This is by design and should not ce polished off.

Date: Sun, 03 Jul 2005 20:01:49 -0700
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Cleaning?

The hole in the IF can is done when you are aligning the unit as per the manual. Do not polish the chassis and cans the alodine is a protective coating, it is supposed to look dull. Hank

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Date: Sun, 03 Jul 2005 20:07:47 -0700
From: Dan Arney <hankarn@pacbell.net>

Subject: Re: [R-390] Dent removal 101

Tim, you are peeing upwind into a hurricane to try and get the panels straight. If you heat it like some one suggested you will remove all of the alodine. Heating aluminum with a torch is asking for blowing a hole in it in a blink of the eye due to the low flow point of aluminum. Then you have real problems.

Date: Mon, 4 Jul 2005 00:04:36 -0400 (EDT)
From: John Lawson <jpl15@panix.com>
Subject: [R-390] Dent removal

<snip> .....remove all of the alodine..... <snip>

Alodining kits are available from several sources - and they're in the same average toxicity range as PC-board etch stuff, etc. I have managed to re-alodine several pieces of mine, and we do it to very large items where I work, re-furbing military aircraft ground support gear.

<snip>.....low flow point of aluminum.....<snip>

For heavier guage aluminum and soft steels - we use an oxy-acetyline torch fitted with a 'rosebud' to spread a lot of heat over a large area. For the lighter, thinner stock we, and I, have straightened out panels that were bent, crumpled, and had holes knocked in them, using a plumber's MAPP-gas torch. Of course if you don't keep the flame moving, and don't practise any on similar scrap pieces until you get the hang of it, then what you describe is bound to occur. HOWEVER - when pounding the dents out of thin sheet metal, some form of annealing and re-tempering of the affected area is needed to maintain the dimensions of the affected piece, and it is common practice in all shops doing any kind of sheet-metal work, to use a torch to heat the work. Besides, in the few hurricanes I've had the dubious 'honor' of being out in - the continuous sheets of 90-mph horizontal rainfall would tend to obfuscate the fact that one was micturating therein.... ;} <snip>

Date: Sun, 3 Jul 2005 22:59:49 -0700 (PDT)
From: Wayne Light <hwlight@sbcglobal.net>
Subject: [R-390] Metal yellowing

Try Wenol Metal Polish. Works great.

Date: Mon, 4 Jul 2005 08:30:52 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] Cleaning?

What you describe might be either alodine coating or MFP (multi fungal protection - or something like that). The MFP coating is rather thick-looking (kind of like varnish) and is rather shiny when cleaned. Alodined surfaces stay rather dull If it is alodine, you can have it recoated. I had this done to a couple of R390A chassis recently and they really look nice. The downside is I couldn't do the backs without losing the lettering so they don't look as good as the rest of the chassis. Good luck, Barry

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Date: Mon, 04 Jul 2005 09:59:19 -0400
From: shoppa_r390a@trailing-edge.com (Tim Shoppa)
Subject: Re: [R-390] Cleaning?

> The aluminum was chemically treated to protect the aluminum
> [anodizing/alodyning]

It's just a single data point, but my yellow striper shows zero sign of anodizing/ alodyning on the side panels. The back plate, internal plates, and modules all were alodyned/MFP'ed and have a yellow sheen or a dull yellow coating. Is there any way to definitively identify the maker of a mainframe, as opposed to the modules? Or is it just commonly assumed that the RF deck usually stays attached to the mainframe? One of my R-390A's seems to have had the B+ fuses retrofitted. Does this narrow down the range of possible makers/contracts?

Date: Mon, 04 Jul 2005 12:19:54 -0400
From: Bernice & Al <saglek@videotron.ca>
Subject: Re: [R-390] Cleaning?

The anodizing comes in two versions, what is commonly known as Clear and Gold colored. From what I understand they are equivalents as far as protection is concerned. It would be highly unlikely if the side panels were not treated. Google anodizing and I am sure you will find all the facts about the anodizing corrosion treatment.

Date: Mon, 4 Jul 2005 11:46:31 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] Cleaning?

Just to clarify, the panels are alodined (or a similar process as Alodine is a brand name if I'm not mistaken). The were most likely not anodized as this makes the surface electrically non-conductive.

Date: Mon, 4 Jul 2005 12:52:06 EDT
From: Llgpt@aol.com
Subject: Re: [R-390] Cleaning?

If it has a silver look with no trace or almost no trace of alodine, it is more than likely a 67 EAC. They had the crappiest coating of alodine of all the R-390A's built.

Date: Mon, 4 Jul 2005 15:41:08 -0600
From: "Kenneth Arthur Crips" <CRIPS01@MSN.COM>
Subject: Re: [R-390] Cleaning?

I have noticed how thin the chromacoat is on My '67 EAC unit. That is one thing I have to say bout my SP-600 it is well protected by whatever type of chromacoat was used on it. Chromacoating is easy to do except for the acid etch part of the treatment most of the time you use either acidic, or hydrochloric acid. Using these two acids is not for someone with out experience. Then there is the safe disposable of the chemicals. I am not even sure if a person can even get these chemicals without a license anyway.

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ate: Mon, 4 Jul 2005 16:08:01 -0600
From: "Kenneth Arthur Crips" <CRIPS01@MSN.COM>
Subject: Re: [R-390] Dent removal 101

<snip> ..... low flow point of aluminum..... ....<snip>

Hank is right, The only thing I can think of that might work is a Planishing Hammer. However these take a great deal of skill to use. Go here: www.eastwoodco.com

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Date: Tue, 05 Jul 2005 06:04:31 -0400
From: shoppa_r390a@trailing-edge.com (Tim Shoppa)
Subject: [R-390] My repaint success

With great encouragement from this list, I've repainted the front of my yellow striper. As it arrived from Fair Radio the front was obviously depot-repainted already. The back of the front panel had no legends. The front had some extra holes (including diode load jack) and some extra holes for rack-mounting, some of which had been bondo-ed over. Paint removal wasn't all that bad. I bought some stripper at home depot and with a couple of applications it had removed the paint from both the front and the back. I then began sanding down (320, 400, 640, 800 grade) the front and the back. I used some bamboo skewers to clean out the engraved lettering. Bondo filled the extra holes and the diode load hole and text.

First paint job was not a total success. I started with Rustoleum industrial enamel primer and followed by their "forest green" industrial enamel. There was a fair amount of orange-peel effect and I was not happy. Repeated the strip/sand procedure. Did a little more bondo-ing.

Second paint job went much better. I skipped the primer and heated the green paint in hot water before spraying on. The result was zero orange peel and a very nice surface.

Baked in a cardboard box with 150 watts of light bulbs for a day or two. The panel got too hot to hold for more than a few seconds...I'm guessing temps of 150 or so.

Filled in the lettering with acrylic "titanium white". I brushed it into the lettering and then wiped with a paper towel. I think a rubber squeegee would've been better as sometimes the towel would remove white paint from inside the engraving, but a second application fixed it up when this happened.

The result is stunning even if not "original" appearance. The green is glossy and deep/dark. The lettering is vibrantly white. Maybe for my next R-390A refurb I'll go with smoke gray. Or maybe candy-apple red :-).

I will also probably put a little more effort into sanding the bondo down next time. Where I filled in holes I can see a very slightly different texture to the paint. It is not at all noticeable, I only see it if I look for it. A light sanding and a second coat of paint probably would've taken care of it but I didn't want to get too much of the base coat into the engravings.

Date: Sun, 9 Oct 2005 21:48:46 -0500
From: "Barry" <N4BUQ@aol.com>
Subject: [R-390] Black Anodizing?

Anyone know of a good source for black anodizing? I have eight small aluminum parts (1.5" x 1.5" x 2.25" aluminum tubing (4pcs) and 1.5" x 1.5" x 0.125" plate (4pcs)) I would like to have black anodized. These are the new filter cap housings for my R390A. I'm going to try to find a local place that will do these -- hopefully in with a batch of other stuff so minimum charges won't make this cost-prohibitive, but

I thought you guys might know where I can get this done very reasonably. By the way, this is a new design for replacement caps that doesn't involve gutting the old caps. I plan to post some pictures when I get them finished.

Date: Sun, 9 Oct 2005 22:41:59 -0600
From: "Kenneth Arthur Crips" <CRIPS01@MSN.COM>
Subject: Re: [R-390] Black Anodizing?

Here is a listing of places that do this kind of work.
http://www.aluminumanodizing.com/
You might check out local Gunsmiths to see who they use for this. They deal with this sort of thing all the time.

Date: Mon, 10 Oct 2005 01:50:50 -0400
From: "Gregory W. Moore" <gwmoore@moorefelines.com>
Subject: Re: [R-390] Black Anodizing?

Boy, now, you hit the 'ol nail on the head --hi-- being a boatanchor fanatic, a Greenkeyer, AND a gunsmith, I couldn't help but try to answer the question..... Now Barry, I did a search for anodizing in your area (Huntsville) and came up with the following URL:

http://www.thomasnet.com/alabama/anodizing-1790179-1.html

There seem to be a couple of places in the area, I don't, of course know if they do jobbing work or one off stuff..but, it wouldn't hurt to call..

Date: Mon, 10 Oct 2005 07:55:48 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] Black Anodizing?

Thanks. I know there is at least one place here that does anodizing, but they have a very hefty minimum charge (something like $50 or more). This is mainly for cosmetic purposes and if I can't find a very reasonable solution, I'll probably just leave them bare. I can get them alodined and I may see what they'll charge for this very small lot if I can't find inexpensive anodizing. I had the other parts of a couple of frames alodined there and they look great. I'd rather have them protected, but I already have quite a bit "invested" in these things so if it comes to it, they'll be left bare.

Date: Mon, 10 Oct 2005 10:01:36 -0400
From: Bruce MacLellan <brumac@juno.com>
Subject: Re: [R-390] Black Anodizing?

I copied this from the internet a few years ago as something that might be usefull. Well, that hasn't happened with me yet but someone on this list might want to try it. Looks simple enough. Good luck. Oh yes, the usual disclaimer that I have no interest etc.

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Anodizing at Home
by Jim Bowes

Based on the number of companies selling, and people looking for, anodizing

services for their gun's aluminum bodies and parts, I wanted to provide this info to the paintballing community. I first came across the process in Super Chevy magazine, in an article about anodizing your own parts and brackets, for a custom touch on your hot rod. (* Original article by Bruce Hampson.) Often anodizing is considered and/or presented as a difficult and expensive procedure.
As it turns out, it really isn't that hard or that pricey.

Supplies Needed:
The first thing to do is to get the following things together: First on the list is the most expensive item: a 6 to 12 volt battery charger. This item is what might make this too expensive for some paintballers. I (and most other hot rodders) already have one, for my car. If you don-t, then you will need to pick one up. They run from $45.00 to $110.00 depending on model, functions, etc. While it may seem like a lot, it does have other uses. (You could charge a battery, for example.) =) The next item, though not that expensive, will take some effort to find: battery electrolyte, a.k.a. sulfuric acid. This should be available at a battery wholesaler for about $2.00/gal. To make the negative ground, you will need some aluminum ground wire and aluminum-foil. The wire can be found at an electronics store for about $35/spool, and you should have the foil in the kitchen. If you happen to be out of foil, you can pick up somemore at the store when you go to buy the last item for this project. No super-special chemicals or solutions necessary to make the colors; just plain-old fabric dye. (Something like Rit dye, for about $5.00.) Rit offers something like 30-40 different colors, so you have quite a number of choices for what color you want your parts to be. An optional item is nitric acid:about $25.00/2.5 L. (This is used to clean parts prior to anodizing, but there are some cheaper alternatives. See end notes.) This is available at chemical supply stores. Should you not be able to find any, you can try to get on the good side of the high school science teacher. He may help you out since you only need a few ounces.

Safety Precautions:
There are a few precautions I want to go over to help keep you from blowing up the house or trashing the garage. First of all, do not mix or store your anodizing solution in a glass container. Something could happen to make it break, and most households are not equipped to deal with that kind of spill. You also don't want to knock over the container, so a stable, rubber bucket makes a good choice. You will also need to be certain that the part you want to color will fit in the container without sticking out of the solution, and without touching the negative ground in the bottom of the container. Any acid that you don't use, keep in what it came in, or an old plastic bottle, like a bleach bottle. You can also store your used solution this way for doing more parts later. (Make sure that there is absolutely no bleach left in the bottle. Acid and bleach make chlorine gas. Very bad. Don't breath. Poisonous.) Safety also applies to the nitric acid, but in a different way. It is imperative that you label and keep track of this stuff, as it is a stronger acid than sulfuric, and more dangerous. The breakage/spill problem is not as likely since you won't have that much around. (Unless you bought more than a few ounces from the chem store.) The last note about the acids is to mix properly when adding acid and water. Always pour acid into water, never the other way, and do so slowly, being sure to mix in well. There is a reaction taking place and it releases a lot of energy. During the anodizing process, you will be running electricity through a weak acid solution. This creates hydrogen (just like charging a battery) which is very flammable. This stuff burns at the speed of thought when ignited, so do be careful. (Read as Remember the Hindenburg?) Make certain that there is some way to ventilate the project area, and DO NOT let any sources of ignition near the project area. Other precautions you should take include safetyglasses, rubber gloves, and maybe

some sort of drop sheet under the area. (Editor's Note: While Mr. Bowes recommends not using a glass
container, we highly recommend use of glass within a plastic container to help keep the acid from eating through plastic, but keeping the glass less breakable in the event the container falls over.)

Preparations:
One of the most essential things you need to do in order to get even color over the whole part is to be sure that the part is absolutely clean. You want it free of all contaminates, from dirt to the oils in your skin. This is where the nitric acid and some rubber gloves will help. A solution of 1-2 ounces of nitric acid in a gallon of distilled water will allow you to clean the surface in preparation for the anodizing. Aluminum oxidizes very quickly when exposed to air, so the easiest way to keep it clean is to clean it just before you are ready to start working on the piece. (You should rinse the part with distilled water before you put it in the next acid solution.) Other options are carburetor or brakes cleaners, or other similar degreasers. Soap and water will work also, or cleaners like Simple Green. These are cheaper, a nitric acid wash is the best. (You decide, it's your money.) =) Make your negative ground with the aluminum wire and foil. Shape the end of the wire into a paddle shape and cover the round part with the foil. What you want to do is create a flat, round shape to sit on the bottom of the bucket, with a lead that comes up out of the bucket. You will clip the battery charger's negative lead to the wire that comes out of the bucket. When you are ready to start, you will want to mix up your immersion solution. In your rubber bucket, combine the sulfuric acid and water to come up with a solution that is about 30% water. (1 part water to 2 parts acid.) Place the paddle in the bucket and attach the negative lead. Then attach the positive lead to the part, making it an anode, and immerse it in the solution. (Remember that the two leads the paddle (cathode), and the part (anode) should not touch.) This is the best time to turn on the charger: once the part begins to fizz, leave it in there for about 10-15 minutes. After about this time the part should no longer conduct electricity. (You can also use an ohmmeter to check conductivity, but this is not needed.) Turn off and disconnect everything, and rinse the part in cold water. Do not use hot water! You will find out why in the next section.

A couple of notes:
I have read some other procedures that say it is important that the copper lead from the charger does not enter the acid solution. The article says nothing about this, and shows a picture with the lead right in there. It may take some trial and error to find out if this is a problem. It wouldn't be a bad idea to get some scrap aluminum and play with it before you start anodizing your paintgun's parts. You can check out the above, as well as pick the colors you like best. If you test out some colors, you'll also learn just how long or short you need to work with the color solution.

Color:
So now it doesn't conduct electricity, and is ready for color. It's been rinsed and waits eagerly to change to a new look. Don't wait too long to do the color, due to that oxidizing thing again. You want to mix up a strong solution of dye and water, in a container that can be heated. The solution needs to be at low heat, such as on the stove, so bread and cake pans work well. Again, you need something that will fit the whole part, but it's okay if it touches the bottom this time. I would recommend turning parts every few minutes just to make sure that you get all-over color. Inform your mom or wife that the pan can (and will be) washed out. It is important that the heat be low enough. If the solution gets too hot, you will seal the surface, and it will no longer take any color. (See, told you to rinse it in cold water!) Leave it in the dye

until the part is slightly darker than you want it. The next step is to seal the surface of the metal in clean, boiling water. This will leech a bit of color from it,thus the slightly darker color in the previous step.

End Notes: It is important to realize that the process described above will yield only one color on your part. At this time, I haven't found out how to do any of the splash type of anodizing. (That's okay though, it looks really ugly anyways.) =) Should anyone happen to figure it out, I suggest you submit it to Warpig so they can put it up for others who like it. Also, this process is for aluminum. I don't know how, or if, it will work on other metals. (I doubt it.) Anodizing only works well on rock metal like bar or sheet stock, as opposed to castings. If it was forged or machined, it should have the density to take color through this process. I figure this shouldn't be too big a problem with the guns, but just thought I should let you know about it. Something to consider when looking for a charger, is how many amperes it puts out. Without getting into any mumbo-jumbo, anodizing relies on 10 to 40 amperes per square foot. For small brackets and such, this is no problem. The larger parts in a gun however, may need the higher levels of amperes. The other note about part size, has to do with how long you leave it in the solution. Above it said 10-15 minutes, but that is for a smaller part. The larger parts may not only need higher amperes, but more time as well. I would recommend an ohmmeter, but again, I have one already. So there you have it. Quick, fairly easy, and not too expensive. If you don't have the charger, then your first anodizing session could cost as much as sending your gun out to be done. But, then you can do it again for much less. Or do your buddies stuff. Or talk them into chipping in on a setup for all of you to use. We all know ways to help make things cheaper. And the stupid statement required to cover myself... If you try this and something gets messed up, or someone gets hurt, you are on your own. Deal with it, you can't blame it on anyone else.

Date: Mon, 10 Oct 2005 07:31:23 -0700
From: "Craig C. Heaton" <wd8kdg@worldnet.att.net>
Subject: RE: [R-390] Black Anodizing?

I'd like to add $0.02 to this tread. Nitric acid must be handled with extreme caution! This acid loves protein, toss a house fly into nitric acid and the fly will disappear quicker than you can blink your eyes. Anyone who has spent time in a chem lab might of tried this experiment. In other words, don't get none on you! A rubber apron and eye protection are a must. Should nitric acid splash on your skin, I doubt it can be washed off quick enough. nuf said.....

Date: Mon, 10 Oct 2005 09:33:09 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] Black Anodizing?

I figure if I try this, I'll skip the nitric acid. I plan to clean the surfaces with wet-or-dry paper just before processing to expose fresh metal. BTW, anyone know how to properly dispose of the sulfuric acid? My car batteries are "sealed" so I can't use it in them and I don't relish the thought of keeping it around the shop.

Date: Mon, 10 Oct 2005 12:26:26 -0500
From: Tom Norris <r390a@bellsouth.net>
Subject: Re: [R-390] Black Anodizing?

For any extreme caustic/corrosive, always use chem gear - long gloves, rubber apron, closed goggles, face shield. Or the best handling method yet is to not handle it at all. Nitric'll burn a hole clean through, and keep going. (flush with liberally with water, call 911) About the only worse acid is hydrofluoric. Not only does it burn your flesh, but if exposure is sufficient it binds to calcium in your body, which things like your heart need to work. I have no idea what my babbling has to do with either R-390's or Anodizing.

Date: Mon, 10 Oct 2005 13:46:35 -0400
From: "David C. Hallam" <dhallam@rapidsys.com>
Subject: RE: [R-390] Black Anodizing?

As a chemist by education and over 45 years of experience in the field, I can state that strong acids of the type in used in these anodizing discussions present minimal danger IF the proper safety precautions are taken. Remember they are utilized in large volume by commercial anodizers with a semiskilled workforce. Always use safety protection gear, goggles, rubber gloves, and a rubber apron doesn't' hurt Work with the smallest volume possible Always pour the acid into water SLOWLY and never ever pour water into the acid When you are finished, don't pour the left over down a household drain or into a storm sewer. Take it to a hazardous waste disposal facility Above all, exercise common sense

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Date: Wed, 12 Oct 2005 12:19:29 -0600
From: "Kenneth" <crips01@msn.com>
Subject: RE: [R-390] Black Anodizing?

Why not powder coat them go here:
http://www.harborfreight.com/cpi/ctaf/Displayitem.taf?itemnumber=42802

It is not super expensive and would set you up to powder coat knobs, front panels, and other parts

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Date: Wed, 12 Oct 2005 14:14:40 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] Black Anodizing?

The "system" is reasonable enough, but if you plan to use a separate oven (instead of the kitchen oven), that gets expensive. Also, it requires air pressure and I don't have a compressor. Otherwise, it's a great idea. There's a local place that will do powder coating for me and does a pretty good job. Yes, it costs more than the "system", but then I don't have to find a place to put all the "stuff".

Date: Thu, 13 Oct 2005 09:44:30 -0400
From: Roy Morgan <roy.morgan@nist.gov>
Subject: Re: [R-390] Re: R-390 Digest,

Howard Mills, well known as a re-builder of "Black Collins Radios", is able to provide a BLACK front panel with white lettering for the R-390A. His panels are NOT-"engraved" (stamped) but are silk screened. Some time ago he offered these at $150 exchange (plus $ if your panel needs additional work to get it in shape for later re-finishing). You send him your panel, and he sends you one already done. If you send him a stamped panel, I think he plans to fill in the stamping and then silk-screen the lettering when he does another batch. I don't know if he has gray or not. An email or phone call to him will tell:

"Howard Mills W3HM" <w3hm@nfis.com> 304-876-6483

Date: Thu, 13 Oct 2005 10:08:49 -0400
From: "Tim Shoppa" <tshoppa@wmata.com>
Subject: [R-390] On the subject of manufacturing front panels...

Roy reminded me of the subject of front panels... why was anodizing front panels (black, other colors too) never very popular for 50's/60's radios? Something to do with fungus-proofing maybe? Certainly by the 70's consumer stereo equipment was being anodized. Anodizing with engravings can get a bit tricky (with "grown" thickness smearing out the engravings) but it's gotta be less of an effect than painting. Looks like someone with a little bit of patience and a PC could design up a pretty spiffy R-390/390A front panel using

http://www.frontpanelexpress.com/material/examples.htm

and get it anodized black or green or bronze (looiks more olive to me) or whatever, lettered (engraved, maybe silkscreened?), and delivered for circa $150-$200.

Date: Thu, 13 Oct 2005 09:22:53 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] On the subject of manufacturing front panels...

Good idea, but the front panel needs to be electrically conductive. Unless you mask certain areas, it wouldn't work very well.

Date: Thu, 13 Oct 2005 10:58:08 -0400
From: "Tim Shoppa" <tshoppa@wmata.com>
Subject: Re: [R-390] On the subject of manufacturing front panels...

True. When I've done this at home I can always go back in with a drill bit to clear the anodizing out of a hole or a mill to scrape stuff off the back for bonding to the rest of the chassis. I'm not sure what order FPE does stuff in but I'd think that by default all the machining comes before anodizing.

Date: Thu, 13 Oct 2005 10:58:58 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] On the subject of manufacturing front panels...

I looked at their site and it appears they start with a sheet of pre-anodized aluminum. I didn't know such a thing was available. I'm tempted to load their "front panel designer" software and give it a go. I have the file with the dimensions for the holes and cutouts. The only thing would be the reliefs on the backside -- not too much work there. One thing that might not look too good is the outside edges of the panel would be bare aluminum. If the radio is in a rack or cabinet, this wouldn't be an issue, though.

Date: Thu, 13 Oct 2005 11:40:37 -0500
From: "Les Locklear" <leslocklear@cableone.net>
Subject: RE: [R-390] On the subject of manufacturing front panels...

Chuck Rippel does engraved panels. Might want to check with him:
WA4HHG@R390A.com

Rick Mish does silk screens. His address: radiomon@buckeye-access.com
Hank Arney does panel too. His address: hankarn@pacbell.net

Date: Thu, 13 Oct 2005 14:45:22 -0500
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] On the subject of manufacturing front panels...

Downloaded their design tool. Slick. You can place tapped holes, thru-holes, lettering, even "cavities" (counterbored holes) on the reverse side. It will tell you exactly how much your panel will cost (minus tax and shipping). It looks like it wouldn't be very difficult to design the R390A front panel this way.

Date: Thu, 13 Oct 2005 21:33:46 -0400
From: "Michael Murphy" <mjmurphy45@comcast.net>
Subject: Re: [R-390] On the subject of manufacturing front panels...

Sure, anodize is sexy, sheds heat, is an excellent insulator and is "harder than paint". But, you can't hide blemishes, seams and mistakes with anodize. In fact anodize will tend to bring out imperfections. Hard anodize isn't. Scratches and dings will inevitably appear and they tend to really stand out on an anodized panel. At work we switched from Sherwin Williams paint to powercoat which was fine but lately the craze is hard anodize. Last week we a got a lot of black hard anodized chassis that all looked like a million. We built up 10 units and
burned them in. They all came out purple. Woops. A lot of military manufacturers, especially microwave module houses, prefer paint. A scratched subassembly can be stripped and repainted or repainted and rebranded. Paint can actually help a module pass a hermetic test too. Just a few thoughts..

Date: Fri, 14 Oct 2005 08:07:09 -0400
From: "Tim Shoppa" <tshoppa@wmata.com>
Subject: Re: [R-390] On the subject of manufacturing front panels...

> Sure, anodize is sexy, sheds heat, is an excellent insulator and is "harder than paint".

Isn't black anodized the IERC "black tube shield" secret?

> But, you can't hide blemishes, seams and mistakes with anodize.

If I understand the Front Panel Express process, the raw pre-anodized panel will be flawless. Machining is done entirely by automation. I haven't seen their black anodize in person (have seen some unanodized work - incredible!) but it looks pretty spiffy.

> Hard anodize isn't. Scratches and dings will inevitably appear and they tend to really stand >out on an anodized panel.

Yeah, I like my 13 year old car because it's already covered with scratches and dents so I don't have to worry about new ones!

> At work we switched from Sherwin Williams paint to powercoat which was fine

Everybody keeps writing "powercoat". Is that the same as "powdercoat", or a specific brand name for powdercoat, or something completely different?

> but lately the craze is hard anodize.

I thought that craze was from the 70's!

> Last week we a got a lot of black hard
> anodized chassis that all looked like a million. We built up
> 10 units and burned them in. They all came out purple. Woops.

I've seen that on heat-sinks that get run to 300F or higher. You must have a pretty serious "burn-in" process!

Date: Mon, 14 Nov 2005 15:46:27 -0500
From: "Tim Shoppa" <tshoppa@wmata.com>
Subject: Re: [R-390] WTB R-390A KC/MC knobs

>My KC knob has a broken shaft tab, just 3 rather than 4, and a bit of occassional
>slippage.

My Blue Striper's big knobs had similar problems. My solution:

1. Drill out the knob body (be careful you don't go through the front!)

2. Use JB Weld to glue in a new slotted stainless tube.

3. Reattach knob.

Date: Mon, 14 Nov 2005 17:40:44 EST
From: Bonddaleena@aol.com
Subject: Re: [R-390] WTB R-390A KC/MC knobs

I can repair these for list members. I use a Bridgeport to ensure the repair is centered. I can also add a spinner knob. Don't help on ther Mc knob, but it's great for the Kc knob. Also, knobs glass beaded and refinished. I like to remove the 'parting line' on the knobs during the refinishing process..... Please reply off-line and photos are available. Ron

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Date: Mon, 5 Dec 2005 09:59:54 -0600
From: "Barry" <n4buq@aol.com>
Subject: [R-390] Anyone getting a front panel silkscreened?

This weekend, I began the rather sad task of filling in the engravings in an R390A a front panel and will have it powder-coated and then will need it silk-screened. The engraving was too badly damaged to try to restore and the chemical stripping they used to remove the first couple of attempts at powder-coating left some rather bad pitting in the panel. I had to coat the entire front side with JB Weld and sand back down to the metal (kind of like a grain-filling operation for wood). It should turn out nicely but will need silk-screening.

I'm wondering if there is any kind of price break if more than one panel is done at a time? Is the screen a "use-once and throw-it-away" kind of thing? If so, then there's no need in trying, but if it can be used for more than one panel if done together, then perhaps there might be some cost saving?

Date: Mon, 05 Dec 2005 11:42:33 -0500
From: Roy Morgan <roy.morgan@nist.gov>
Subject: Re: [R-390] Anyone getting a front panel silkscreened?

It depends on who the supplier is.. and what you are having done. Howard Mills has some black powder coated, silk-screened panels. You send your usable panel plus $150 to him and you get a completed panel back. I don't know about discounts for quantity, and I don't know if that covers shipping. Usable means no dents or holes.. and I think it should be a previously screened panel so he does not have to fill in the stampings. Do check that the material you are using to fill the stampings would stand the heat of the powder coat process. Repair or metalwork on your sent panel means you pay more. As I understand it, you get an already done panel back, not your original one.

Hank Arney has had refinished panels also, check the archives or email him for details.

Dan Arney <hankarn@pacbell.net>

If you are having a silk screen MADE FOR YOU, and then used to screen panels you provide, it will cost less per panel to do a bunch. Making the silk screen may cost you $350 or more. Then they (whoever "they" are) will charge a setup charge an an amount per piece to do the screening. If you are doing just one or two, don't plan to get a screen made and have it be economical. Final costs *per panel* might be $400. If you were going to do a hundred panels, the cost of making the silkscreen would not be too important, and the cost per panel would be much lower, especially if you had the hundred panels to send to the screener all at once. Powder coating is similar: setup charge plus per piece charge. Then there is the paint/powder needed. I say get one from Hank (gray) or Howard (black)

The black is nice. An added "bonus" is that it will irritate the total-originality-at-all-costs folks. Yes, there were black faced R-390A's made that way, presumably for a three-letter agency. And presumably very few of them. The panels Howard has are quite stunning. Quite. Most likely he could get your CY-979 cabinet powder coated black to match the next time he does a KW-1 cabinet. Which might be soon. Very soon.

"Howard Mills W3HM" <w3hm@nfis.com> 304-876-6483

Date: Mon, 5 Dec 2005 11:09:30 -0600
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] Anyone getting a front panel silkscreened?

I downloaded a front-panel design tool (might be FrontPanelExpress) and considered that route.

They have all the ability to make all the necessary cutouts, reliefs, holes, etc., as well as the engravings. It would take quite a while to make the lettering look correct, but they would make a pretty nice panel. The only thing that was brought up about these before is that they are anodized and that they might scratch easily.

Once scratched, there's not much you can do for them. Of course, being anodized, proper care would have to be done to make the front panel electrically conductive where it is necessary for it to be.

Date: Tue, 13 Dec 2005 20:14:56 EST
From: Flowertime01@wmconnect.com
Subject: Re: [R-390] Big Knobs

>I made large knobs out of 6061 bar stock and ran them on a CNC center and
>powder coated them. I sell them for $30.00 each and have about 30 left out of 2
>runs of 100 each. Plus some for the R-391 with holes in the center plus I made
>the locking pins for it and the ARR/15 Plus I have a good supply of original
>knobs of all 3 sizes. Some sets of small and medium are available that have
>been stripped and powder coated. Hank KN6DI

Thank you for this post. I did not know you had these knobs available.

Date: Tue, 13 Dec 2005 19:49:58 -0600
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] Big Knobs

I think he also has CNC machined Oldham couplers and has had CNC machined replacement front panels and I believe makes repop front panel tags.

Makes some of the best affordable shipping containers for the R-390 series and others as well....(reminds me I need to order another one the last two didn't come home from the R-390 sale) Ain't much Hank hadn't tried....including breaking even on selling most of his creations to the community.

I'll sit back and watch for the 2006 model R-390B. Somebody is going in the hole big time on that one.

Date: Thu, 29 Dec 2005 14:22:48 -0700
From: DW Holtman <future212@comcast.net>
Subject: [R-390] Chassis finish

Does anyone know if the yellow coating put on the aluminum parts (including the chassis) throughout the R-390A is Alodine? I was under the impression that Alodine was not tough enough for an exterior coating on a chassis, that will be subjected to rough handling. <snip>

Date: Thu, 29 Dec 2005 16:25:33 -0600
From: "Barry" <N4BUQ@aol.com>
Subject: Re: [R-390] Chassis finish

Yes, the finish is Alodine (or a generic chromate coating -- not specifically Alodine which is a brand name product). I have had two chassis recoated and they look great.

Date: Thu, 29 Dec 2005 17:30:39 -0800
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Chassis finish

All of my repro R-39XX parts are gold alodined. Also the R390-A's that I rebuilt frames are torn down and caustic cleaned and gold alodined with the exception of the rear panel and harness assembly which is cleaned with Awesome and then run through the dishwasher using Cascade.

Date: Thu, 29 Dec 2005 19:46:39 -0600
From: Tom Norris <r390a@bellsouth.net>
Subject: Re: [R-390] Chassis finish

DW noted there is an IF amp for sale on ebay for the 390A. From the tag it appears to be a simple depot repaired unit. Are ordinary depot repairs now "Government Rebuilt Units" for the sake of Ebay? I guess they may have been all along and I just wasn't paying attention.

Date: Thu, 05 Jan 2006 10:33:48 -0500
From: <mfisch@kent.edu>
Subject: [R-390] Two questions as I put an R-390a back together

<snip>

2) There are two types of non-megacycle/ kilocycle knobs larger and smaller. Where do the larger ones go? (The pictures and drawings make both look the same size to my eyes.)

Date: Thu, 5 Jan 2006 09:44:03 -0600
From: "Barry" <n4buq@aol.com>
Subject: Re: [R-390] Two questions as I put an R-390a back together

<snip> As for the knobs, it should be fairly obvious which knobs go where based on the lettering. I know the Local Gain, RF Gain, Main Power, BFO Pitch, and Bandwidth use larger knobs.

I don't recall offhand what sizes are on the rest of the controls. I don't have my radio in front of me. You might be able to tell from http://members.aol.com/n4buq/r390a.

The two knobs without marker lines are for the Dial Lock and Zero Adjust. Hope this helps.

Date: Thu, 5 Jan 2006 09:57:18 -0600
From: mikea <mikea@mikea.ath.cx>
Subject: Re: [R-390] Two questions as I put an R-390a back together

There's an image of an R-390A with all the knobs in the right places at

<http://mikea.ath.cx/R-390A/bigfront.jpg>.

It may help. Oddly enough, all the knobs on that R-390A seem to have marker lines. It's ex-MARS for sure, but I don't know its prior history.

Date: Thu, 05 Jan 2006 11:21:49 -0500
From: Barry Hauser <barry@hausernet.com>
Subject: Re: [R-390] Two questions as I put an R-390a back together

There are two unstriped small knobs, but two are swapped/wrong -- the zero adjust has the striped knob that belongs on the audio response switch.. Looks like the dial lock knob is (properly) unstriped, probably just a reflection of the groove on the side (facing top).

Date: Thu, 5 Jan 2006 11:53:32 EST
From: DJED1@aol.com
Subject: Re: [R-390] Two questions as I put an R-390a back together

Good picture to answer the question Mike. When I looked at the picture I see two unlined knobs, one on the dial lock and the other on the audio filter switch- I agree that the other unmarked knob should go on the cal control.

Date: Thu, 05 Jan 2006 12:17:21 -0500
From: Roy Morgan <roy.morgan@nist.gov>
Subject: Re: [R-390] Two questions as I put an R-390a back together

Be very careful. If you have a larger knob than normal, you *may* have an R-389 tuning knob. These are definitely larger, and have a clutch built into them that prevented disastrous damage to the R-389 PTO. If this is in fact what you have, and you have no R-389, I'll be glad to swap knobs with you.

>(The pictures and drawings make both look the same size to my eyes.)

The MC an KC knobs I have seen on R-390...'s are all the same size.

Date: Thu, 05 Jan 2006 12:22:45 -0500
From: Roy Morgan <roy.morgan@nist.gov>
Subject: Re: [R-390] Two questions as I put an R-390a back together

OOPS. I did not realize he was talking about the NON-megacycle/kilocycle knobs. Sorry.

Date: Sat, 18 Feb 2006 13:18:41 -0800 (PST)
From: "W. Li" <wli98122@yahoo.com>
Subject: [R-390] re: front panel protectors

Here is a cheap way to protect our newly finished front panels: Take two of those clear plastic CD spacers that come with the bulk packs. It's flexible, and can be cut with tin snips or filed to clear nearby structures. Remove both KC and MC knobs, and place these under the large washer/nuts and retighten carefully. Now our fingers will not rub off the paint as we tune. When all scratched up after years of use, they are easily replaced.

Date: Sun, 19 Mar 2006 16:33:16 -0500 (EST)
From: John Lawson <jpl15@panix.com>
Subject: Re: [R-390] R-390A Front Panel restoration

>Can anyone recommend where to get an R-390 front panel painted and
>re-lettered? It has the engraved panel. I have an Imperial 1963 that has
>the off Grey/Green front panel and I'd like to keep it the same color.
>The reasoning is that the 1956 vintage US Navy Destroyer I served 30
>plus years ago had these same receivers with the same color front
>panels. The rear of the panel could be used for color matching and the
>only part I want painted in the front panel and perhaps the edges and
>outer margin on the rear. This color scheme matches the LS-474 speakers
>which I have. This color is not the typical Battleship Grey that most of
>us are accustomed to seeing. What is interesting is that the interior of

>the tin can I was on pretty well matched this color as well. The color
>is typical of the R-1051 line.

Howard Mills re-finished my R-388 (Collins 51-J4) front panel (and also the dial-drum) and did a stunning job. [w3hm@nfis.com] I very heartily recommend him.

Date: Sun, 19 Mar 2006 21:50:10 +0000
From: "John Page" <k4kwm@hotmail.com>
Subject: RE: [R-390] R-390A Front Panel restoration

If you wanted to DIY. Ace hardware "Ford Gray" is the green gray you need.

Date: Mon, 20 Mar 2006 09:36:51 +0200
From: "federico" <federico@dottorbaldi.it>
Subject: Re: [R-390] R-390A Front Panel restoration

Hi to all, in my personal opinion absolutely the best is Rick Mish of Miltronix but I don't know if Rick make the job on the lone front panel instead of rebuilding the entire rig. I made by myself an engraved front panel of an R-392/URR :

1) I sand-blasted the panel with very subtle sand

2) then I re-painted with nitro spray two-three times

3) re-lettered with white smalt (SARATOGA pencil) and I took the excess with solvent (it is easy because the nitro spray is resistent to solvent) you can see the work done in my webspace R-390 FEDERAL folder and subfolder PRIMA E DOPO (BEFORE & AFTER).

4) your degree of auto-evaluation shall be better if you done the work by yourself I hope that you can understand my enghils that isn't so goog as I should like.

Date: Fri, 24 Mar 2006 10:34:49 -0500
From: Roy Morgan <roy.morgan@nist.gov>
Subject: Re: [R-390] R-390A Front Panel restoration

The contact info I have for Howard is:
"Howard Mills W3HM" <w3hm@frontiernet.com> 304-876-6483

Howard has already re-finished and silks creened panels on hand. I believe he operates on an exchange basis: you send a panel, he keeps it for later refinishing and sends you a completed one.

NOTES:

1) His panels, whether originally embossed or flat, have all been filled level, refinished and then silk screened. He does not supply embossed/stamped/ engraved panels that I know of.

2) He has at least some Black finished panels with white lettering. These are stunning if you want black.
3) His price exchange some time ago was $150, likely plus shipping. If you send a panel that needs work to be useful to him (bends, holes), he has to charge for that

work.

Date: Wed, 27 Sep 2006 20:19:23 -0500
From: "Charlie Hugg" <hug-a-bug1@cox.net>
Subject: Re: [R-390] Does anyone know who refurbishes knobs for R-390As?

WD4INP, Dario Hernandez refurbishes R-390As and as part of his work, he powder coats the knobs. They look fantastic and will last forever. His e-mail is spechobbies@yahoo.com I highly recomend him.

Date: Mon, 02 Oct 2006 22:00:07 -0500
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Odd MC/KC Knobs?

Well I make the real knobs CNC milled and powder coated. Hank

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Date: Mon, 02 Oct 2006 23:56:17 -0400
From: jcoward5452@aol.com
Subject: Re: [R-390] Odd MC/KC Knobs?

Yes,but that does not explain the odd knobs.Maybe they were turned down on a lathe?

Date: Mon, 2 Oct 2006 23:02:57 -0500
From: Tom Norris <r390a@bellsouth.net>
Subject: Re: [R-390] Odd MC/KC Knobs?

Not only are they the real thing they look and feel better than the original, and you don't have to have them shipped from Greece. Why, I have a pair of them staring me in the face right now. :-)

Date: Tue, 03 Oct 2006 10:55:45 -0400
From: shoppa_r390a@trailing-edge.com (Tim Shoppa)
Subject: Re: [R-390] Odd MC/KC Knobs?

They look like some kind of idler pulley to me, painted black. Drill for 5/16" and put a setscrew in the sides, and viola!, knobs! I'm not going to claim it's impossible to turn the MHz knob with a smooth knob, but boy do those lobes come in handy... Random 5/16" knobs aren't all that rare, a search at McMaster-Carr turns up thousands of different types.

Date: Tue, 03 Oct 2006 11:09:01 -0400
From: <mfisch@kent.edu>
Subject: [R-390] make knobs for R-390 series?

The discussion about knobs has gotten me thinking. There is a student chapter of the Society of Manufacturing Engineers at Kent State that I have some affiliation with. They are always looking for ways to fund their other projects and have access to CNC lathes and mills, powder coating equipment, etc. Is there interest in having them look into making duplicates of three types of knobs? I have no idea what the cost might be, and I have not discussed this with them- this note is simply to see if it is something I should look into. No promises or orders wanted or taken at this time.

Date: Wed, 04 Oct 2006 04:11:13 -0500
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] make knobs for R-390 series?

I have been making the MC/KC knobs for a few years. They are CNC milled out of of 6061 bar stock and powder coated ebony black. $30.. each plus S&S
Hank KN6DI/5

Date: Fri, 19 Jan 2007 14:51:36 -0500
From: "rbaldwin14" <rbaldwin14@nc.rr.com>
Subject: [R-390] R-390A Front Panel Art Work

Has anyone digitized the art work of the front panel of an R-390A? I suspect that someone has and might be willing to share the effort. I would like to make a silk screen for a new panel.

Date: Fri, 19 Jan 2007 14:08:03 -0600
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] R-390A Front Panel Art Work

I think Hank Arney probably has. I know Rick Mish and others are already doing "A" silk screening. What is badly needed is an R-390/URR silk screen.

Date: Fri, 19 Jan 2007 17:59:38 -0600
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] R-390A Front Panel Art Work

Cecil all of the R-390 and 391's that I have seen are engraved/stamped.

Date: Sun, 18 Mar 2007 20:36:46 +0100
From: Paolo Mantovani <pmthome@gmail.com>
Subject: [R-390] Cleaning

Slightly OT: I'm cleaning my Siemens E311 "the Dave Medley's way": 409, distilled water, drying. What if the area includes coils and transformers that cannot be removed? Water will penetrate and will not go away easily. Does anyone have an alternative method?

Date: Sun, 18 Mar 2007 18:11:36 -0700
From: "Dan Merz" <mdmerz@verizon.net>
Subject: RE: [R-390] Cleaning

Hi, if it were a 390 I'd let it warm up to 45 to 50 deg C with air movement and I would guess the water would be gone within a few hours to 24 hours. Direct sunlight and some way of forcing warm air over the radio should do it. Turn the radio upside down if you literally filled every nook and cranny. You can probably safely heat it higher but not sure. Has anyone ever submerged a 390 radio in distilled water and plugged it in while under water ? Or has anyone ever turned the heater on to a typical receiver vacuum tube under water? Unless you really soaked the power tranformer to the extent that water got into the windings, I'm having trouble imagining what would give. If you took a dry 390, put it under distilled water and immediately turned it on, what would give. Do ferrite cores soak up water? Does the phenolic suck up water and weaken? Probably to some extent but can safely driven out by moderate temperature. I'm not willing to try

submerging mine and powering it up unless someone is willing to pay for the report. And since I'm not familiar with a Siemens E311 my recommendation about how to get rid of the water may not be worth much. I started out to be helpful but got lost in expanding the scope of the question, forgive me.Postscript: what a beautiful looking radio the E311 is !! - I googled it and found some pics. Most cleaning jobs, with the exception of cleaning moving mechanical parts such as gears, bearing, are aimed at cosmetic beauty. I can't recall a radio performing any better after cleaning except for the moving mechanical parts. So I would be judicious in how I used the liquids involved when cleaning near the coils and transformers since you are just wanting to clean the outside. After all, you can use a saturated toothbrush to scrub away areas without submerging the area with liquid and then wash away the residue with small streams of water rather than a garden house ala Medley.I think the beauty of the garden hose is getting rid of all the cleaner and steel wool (use only when absolutely necessary, I like the green scrub pads instead) in a forceful way. I try to wash away cleaning residue and not immerse the radio in liquid at any time. If liquid can make its way into some slight opening under slight pressure, then water vapor can likely make its way out later when you heat the radio. It doesn't want to be there when there's drier air outside. Moisture is safely driven away by warm temperature and time. If you can touch it with your finger, the temperature is ok but a little cool. If it's a little too hot for your finger for any length of time, it's probably still ok for the radio and the water will go away faster. I seem to remember that 60 deg C was too hot to touch for very long. I've never bothered using distilled water, but for some tap waters it may be a good alternative and it can't hurt. If we all had the Arizona sun, life would be much simpler.

Date: Mon, 19 Mar 2007 11:30:29 +0000 (GMT)
From: sdaitch@mor.ibb.gov
Subject: Re: RE: [R-390] Cleaning

I had to make sure this is not April first, in reference to the distilled water questions, but in all seriousness, unless you have thoroughly cleaned the radio numerous times with distilled water, as soon as any of the salt compounds and other impurities get disolved in the distilled water, it probably becomes highly conductive again. It doesn't take a lot to make distilled water conductive.

Date: Tue, 20 Mar 2007 21:37:26 +1100
From: "pete williams" <jupete@bigpond.net.au>
Subject: [R-390] Zero adjust R-390

<snip>FRONT PANEL PREPARATION. Being a bit fussy, I like to clean up the engraved lettering on the panel after old paint removal and prior to repainting. Some original paint and the white filler defy chemical removal and prior to my discovering heat, I laboriously scraped out every letter with a suitable scriber (some of us are crazier than others down here in OZ). The paint is hard but recently I cut the time down by soffening the painted engravings with a fine tip soldering iron and followed behind with the scriber.-- one in each hand. Then a brush over with a brass bristle brush gets it all off.I'd take advise from those who have got a solvent for the recalcitrant finish.

Date: Tue, 20 Mar 2007 07:03:08 -0500 (GMT-05:00)
From: Bruce MacLellan <brumac@peoplepc.com>
Subject: Re: [R-390] Zero adjust R-390

I have had good luck removing paint using ordinary automobile brake fluid. Just be patient and it will soften everything up.

Date: Tue, 20 Mar 2007 07:40:52 -0600
From: "Dave Faria" <Dave_Faria@hotmail.com>
Subject: [R-390] Paint Removal

The way I like to remove paint from the panel lettering, after the surface is as clean, is I have one of the cheap 110vac power washers. I set the wand to a pencil point stream and the paint comes right out of the engraving. I lay the panel on a couple pieces of card board and once the card board gets wet the panel will not move. I also use aircraft paint stripper from Home Depot to remove the surface paint. This saves me time cause I can never get a panel right the 1st time or sometimes the 2nd or 3rd.....

Date: Wed, 21 Mar 2007 11:17:10 -0500
From: "Keith Densmore" <densmore@idirect.com>
Subject: [R-390] Non-engraved Panel

Round 3 on my Imperial Electronics R-390A. I have owned several of these fine beasts over the years and this is the only one I have seen that does not have an engraved front panel--which is going to make re-lettering the panel much more of a challenge than the usual lettering job. Anyone had any experience with re-lettering one like mine?--Or would I need to find a silk screen? Any help or ideas would appreciated,

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Date: Wed, 21 Mar 2007 12:20:19 -0500
From: "Miles B. Anderson, K2CBY" <k2cby@optonline.net>
Subject: [R-390] Non-engraved panel

I rehabbed an early (S/N/ 1200) Motorola R-390-A by using the following procedure: I did not try to remove either the existing paint or the existing lettering. I just sanded the rough paint edges with #400 wet or dry paper and feathered the edges. I masked the front panel lettering with Scotch Magic Tape (either the stock variety or the blue roller "temporary" low-tack kind) and trimmed with an Xacto knife using a #11 blade as close to the lettering as possible.

I sprayed panel with two light coats of Ace Hardware Machinery Gray #17021 “Premium, Enamel.” Letting the first coat dry overnight and the second coat dry for 48 hours. I peeled the mask off the lettering. I then sprayed the panel with two medium-heavy coats of Ace Clear Satin #17014 Polyurethane Clear Finish, sanding between coats with #400 paper. Then spray with a final light coat of Satin polyurethane. (After spraying with gray enamed, there will be a depressed area in the paint where the lettering was masked. The urethane fills this nicely and makes the whole finish flat.)

Date: 23 Apr 2007 19:05:36 -0000
From: "n4buq@knology.net" <n4buq@knology.net>
Subject: [R-390] Silkscreening Front Panels, Anyone?

Is anyone on the list providing silk-screening services for the R390A front panels? After much tribulation, it looks like I will finally have this used-to-be-engraved front panel ready for silkscreening. I know there are some resourses off the list, but was wondering if anyone on the list is doing this now and how much it will cost. Also, if

anyone has endeavored to do this themselves and found a way to do it right, I'd be interested in trying it myself.

Date: Mon, 23 Apr 2007 20:09:27 -0500
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Silkscreening Front Panels, Anyone?

I have 390A panels screened and CNC engraved in stock.

Date: Mon, 23 Apr 2007 23:01:24 -0700
From: "Greg Werstiuk" <greg_werstiuk@msn.com>
Subject: RE: [R-390] Silkscreening Front Panels, Anyone?

Why is it "used to be engraved"? If it is still engraved but stripped paint, there have been multiple discussions on this list on how to refinish an engraved front panel. You should be able to find them in the archives. Silk-screening is neither required nor used.

Date: Tue, 24 Apr 2007 07:16:47 -0500
From: "Craig Anderson Ext 1365" <Craig.Anderson@saintpaul.edu>
Subject: [R-390] R-390A Panel Re-Finisher - The Best!

I have tried them all but Howard Mills is really the best. He takes an engraved front panel and fills it in re-finishes it and silk-screens it. Mine was perfect when received it back. He will do an exchange or he will do your own panel.

Craig W9CLA

Howard Mills, W3HM
RT 3 Box 712
Harpers Ferry, WV 25425
(304) 876-6483
E-Mail: w3hm@nfis.com

Date: Tue, 24 Apr 2007 07:48:10 -0500
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] Silkscreening Front Panels, Anyone?

My comment was out of seeing and hearing of his paint work and various other things. He is a production shop, setup to move radio's through quickly. That's not to say they don't work just that he's not focused on the love of the radio and restoring what was created many years ago. It's more about making a profit. I would reference the fact that he won't restore an engraved panel. He fills the engravings, sands them smooth, hits them with a coat of gray and runs them through the silk screening setup. Now it sounds like he has had a Lexan front panel decal made up which will further simplify that part of the production process. Nice modern touch but not what I would want on my R-390 series radio...but that is my personal opinion.

I had considered the same when I was doing R-1051 restorations but for two valid reasons....the front panels were all silk screened and they all were recessed below a 1/2" outer rim making refinishing in a small shop next to impossible. Not being the sought after classics the R-390 series is I would not have felt bad doing that with the R-1051 series...in fact it would have been a great improvement to most of

the front panels I had seen. If those panels had been engraved they would have been easy to bring back to original condition.... Restoring an engraved front panel is a lot of work but the outcome is usually well worth the effort.....but you will never make any money doing them for others.....it's truly a labor of love!

And by the way good luck with your harness....if there is a problem in the Audio deck that's not figured out first you may burn the new one.I would check with Fair radio...they had them not too long ago. Ebay is not a bad place to buy a radio you just have to do your homework.

Date: Tue, 24 Apr 2007 07:57:38 -0500
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] R-390A Panel Re-Finisher - The Best!

I've seen Howard's work and I have to agree. He does a very professional job....his Collins wrinkled finish panels are a true work of art and all his paint work it top notch. Howard is the best....

Date: 24 Apr 2007 13:33:01 -0000
From: "n4buq@knology.net" <n4buq@knology.net>
Subject: RE: [R-390] Silkscreening Front Panels, Anyone?

I've had a few replies wondering about this so perhaps I should explain to the list. I had two engraved panels that I stripped and had them powder-coated. One turned out fine (lettering was still distinct enough so that they could be filled in and the lettering still looked crisp) but one did not. For some reason, the lettering was filled in way to much with the coating leaving the edges of the letters very rounded and somewhat indistinct. It wouldn't have looked good at all to try to fill them in with paint.

I asked them to strip and recoat the panel, trying to coat with the thinnest coating possible. It still looked bad so I asked them to remove the coating again and I would deal with it myself. I found out that they remove the coating by heating the panel to a very high temperature and basically burn off the old coating. Apparently this was quite rough on the lettering as well and the panel looked pretty rough after this. I decided to fill in what was left of the engravings with JB Weld, wet-sand the panel smooth, have it powder-coated, and then silk-screen it. For powder-coating,

JB Weld will work for very small imperfections, but for larger voids like these letters, it doesn't stick very well because it is non-conductive. This resulted in significant ghosting where the letters used to be. I decided to simply wet-sand the powder-coating off and prime and spray paint it. This has worked very well. The panel sanded absolutely smooth and now that it's primed, you cannot see where the engravings once were.

It's kind of sad to lose the engraved lettering this way and kind of odd that one panel turned out fine and the other one didn't, but that's the way it worked out. I've put a whole lot of work into this panel and am quite tired of it at this point. I want to get it lettered and back on the frame and be done with with.

Sorry for the long post, but it might steer someone else clear from attempting the powder-coating route. It will work, but it is risky and sometimes doesn't work out. I think there is a well-known panel finisher who fills in the engravings and silkscreens them as well. I think he tried the powder-coating thing and got similar

results. YMMV.

Date: Tue, 24 Apr 2007 17:32:49 EDT
From: ToddRoberts2001@aol.com
Subject: Re: [R-390] Silkscreening Front Panels, Anyone?

Hi Barry, Dee W4PNT does nice R-390A front panel refinishing and silkscreening. He also recommends filling in the engraved lettering and silkscreening the panel. He even did a custom R-390A front panel for me with the filter choices re-labeled . 1-1-2-4-6-8 for use with a custom 6KHz filter. It turned out very nice. Only problem is the last time I checked he was hopelessly backlogged and couldn't take any more work for at least a year. Howard Mills W3HM does superb work as others have said. He might be your best bet and I don't think he has any long backlogs.

Date: Tue, 24 Apr 2007 17:05:41 -0700
From: "Ed Zeranski" <ezeran@ezeran.cnc.net>
Subject: [R-390] Panel Re-Finisher - The Best!

I have tried them all but Howard Mills is really the best. .....

Date: Tue, 24 Apr 2007 21:04:25 -0400
From: roy.morgan@nist.gov
Subject: Re: [R-390] Silkscreening Front Panels, Anyone?

Better check with Dee before you count on him doing your panel. I understand he's gotten out of the business of panel refinishing.

Date: Wed, 25 Jul 2007 16:08:45 -0400
From: Charles A Taylor <WD4INP@isp.com>
Subject: [R-390] screeening and repainting power supply

Just got a R-390A power subassembly from Fair Radio It works, but it has rust spots and cratches on it. Is there someone out in R-390 land who can repaint and restencil the module? It certainly needs it.

Also got a rather dirty PTO assembly from Fair. A few dents on the cylinder, and the original manufacturer's logo has been obliterated. Instead, the rework facility placed their stencil over the where the OEM stencil would be. At the base of the rework facility's ID is "HPNS." That means something to me: Hunters Point Naval Shipyard. My ship (USS Hancock CV-19 aircraft carrier) [now scrapped] was in drydock there for a year 1967 - 1968 when I went aboard in April1968. Shop 67 is the name of the repair organization that handles ship-board electronics.

Date: Thu, 26 Jul 2007 08:22:34 -0500
From: "Les Locklear" <leslocklear@cableone.net>
Subject: Re: [R-390] screeening and repainting power supply

Contact Howard Mills: W3HM@nfis.com

Date: Sat, 01 Sep 2007 22:22:47 -0500
From: Tom Frobase <tfrobase@kitparts.com>
Subject: [R-390] Tap size for R-390A Knobs

The best I can tell the tap size for the smaller R-390A knobs is an 8/40 anyone else

have information other than that? ... thanks tom, N3LLL

Date: Sat, 01 Sep 2007 23:36:17 -0400
From: Scott Bauer <odyslim@comcast.net>
Subject: Re: [R-390] Tap size for R-390A Knobs

8-36

Date: Sun, 02 Sep 2007 11:26:58 -0500
From: Tom Frobase <tfrobase@kitparts.com>
Subject: Re: [R-390] Tap size for R-390A Knobs

There are some 40 TPI taps around for rifle sights I was not sure if it. 36 TPI NF or that one

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Date: Sun, 02 Sep 2007 21:05:04 -0500
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Tap size for R-390A Knobs

8-36 x 3/16 and x 3/8 is correct.

Date: Tue, 11 Sep 2007 21:33:17 EDT
From: Flowertime01@wmconnect.com
Subject: Re: [R-390] More on my new (old) R-390 Zero Adjust

The zero adjust knob is a small knob, same as antenna trim and Limiter knobs. Big knobs are Audio gain and RF gain. Large Knobs are the MC and KC change knobs.The knobs come in these 3 sizes.

Zero adjust shaft screws into a threaded bushing. If the knob sets on the shaft to close to the front plate or the bushing, it will not allow the shaft to screw in far enough to disengage the zero adjust clutch. Having a wrong knob on the shaft could be part of your problem by causing clearance problems.

Also the zero adjust shaft has a large (1 1/2 dia) disk that covers the three pins on the zero adjust clutch. This disk will wear off the small pin on the zero adjust shaft and the disk falls out of the receiver, As usual once parts begin to fall out of any thing it does not work as well as it did before the items fell out. Check that the disk is on the end of the zero adjust shaft. It's an eye ball inspection once you know the receiver is supposed to have the item.

The zero adjust gets turned counter clock wise to engage the clutch and let the KC knob run free. Set the dial counter to any XX,X00 number and run the zero adjust knob clock wise to a firm stop. This should disengage the clutch. The KC know should turn freely a bit through the zero adjust range and not move the dial counter. You can force the KC knob at the end of the zero adjust range and move the dial counter. Something a good operator would not do.

Set the function to Cal. turn the BFO, set the BFO pitch to zero. Now the KC know can be rotated to bring the receiver to zero beat. If the VFO bandspread is not more than a couple Kilo hertz the calibration of the receiver should be good across several hundred KC. You may want to zero the receiver as you tune from end to end of the KC band. You may want or need to zero the receiver as you change

from one MH band to another. The crystals of one or more bands may have good output level but be off frequency. Rather than spend big bucks trying to get a bunch of crystals all with about the same error its just cheaper to live with the various errors and use the zero adjust when needed. Most days the receiver error and use are well within bounds and lots of zero adjusting is not needed.

I hope this helps with this one problem.Keep working on the others.

If you need some knobs to get your front panel back in shape, ask here on the reflector for what you need. You will get someone on one mail offering you some parts. The R390 and R390/A knobs are interchangeable. Download the R390 TM off the reflector and you will see what size knobs go where. http:// www.r-390a.net/

If you have a knob with a stripped set screw hole it can be drilled and tapped to a larger size and still used. The large MC and KC knobs have a clamp inside them. The clamps break. New clamps can be located here buy asking for them if you need them.

You can swap the spline bolts around in the various gear and knob clamps to get the spline bolts in where you need them often (IF deck and Large knob clamps) you can then put a 4-40 bolt with a slot head in some where else that you may never need to adjust again. Once you get the mechanical alignment set, it may never need resetting unless you do some disassembly work for a repair.

Date: Wed, 19 Sep 2007 09:44:04 -0400
From: wabate <wabate@verizon.net>
Subject: Re: [R-390] Front panel Paint Formula

I just had some made at Home Depot. They computer matched my panel that was in decent shape. This is the formula on the can lid:

COLORANT	OZ	48	96	
B	LAMP BLACK	1	16	1
C	YELLOW OXID	0	8	1
E	THALO BLUE	0	2	0

The base paint was BEHR Interior Satin Enamel Acrylic Latex. Hope that helps.

Date: Tue, 16 Oct 2007 11:36:59 -0500
From: Robert Nickels <W9RAN@oneradio.net>
Subject: [R-390] Filling Engraved Panels

I'm looking for "best practices" aka "what works" when filling engraved panels. The panel in question is for a Hammarlund SP-210 but I've got a 390 panel in the queue and the process should be the same. I've read everything Google has produced on the topic, which basically amounts to using a) acrylic artists paint or b) lacquer stick to fill the engraved lettering. "Filling" is the easy part, the trouble comes when trying to remove the residue that inevitably gets on the panel. Most folks say to wait "a while" for the fill to dry, then remove the residue with a damp cloth, or something similar. It sounds good, but I've had less than zero success at removing the excess paint while leaving the filled area intact. The laws of physics seem to get in the way. Common sense tells us that a thin layer of paint will dry before a thick one, and my attempts thus far confirm that if I wait long enough for

the filled area to be sufficiently dry, the residue on the panel has fully dried and is nearly impossible to remove without marring the panel. Edison-like, I've tried dozens of different methods on my (now) test panel, including adding cornstarch to thicken the paint, using various materials as a squeegee, and different cure times, but the result is inevitably a whitish haze around the letters, inconsitent filling of some letters, and a generally lousy (polite word) appearance. There must be a trick to this, and while I'm busy stripping and re-priming and painting, I'm hoping some of you who have had success will share your secrets. In as much detail as possible, please! Edison was a patient man....I'm not ;-)

Date: Tue, 16 Oct 2007 12:48:44 -0400
From: "David C. Hallam" <dhallam@rapidsys.com>
Subject: RE: [R-390] Filling Engraved Panels

Get a Lacquer-Stix made by Lake Chemicals. It is a fill-in paint on stick form made for this application. Any excess can easily be removed with a wipe of light mineral oil.

Date: Tue, 16 Oct 2007 12:57:21 -0400
From: "Tim Shoppa" <tshoppa@wmata.com>
Subject: Re: [R-390] Filling Engraved Panels

In my experience the only way to reduce/eliminate the haze is to make sure the panel's paint is truly super-smooth and uniform. Any speckling of the panel around the lettering will "hold" the haze. I also had futher luck using wet cloths to clean up any haze IMMEDIATELY afterwards, before it dires. The acrylics I had were easily cleaned up with water, as long as I did it before it dried. Of course I am really just smearing the haze around if there is any lack of smoothness.

Date: Tue, 16 Oct 2007 14:44:12 -0400
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Filling Engraved Panels

Have you tried using polishing compound? This worked well for a powder-coated panel I had but not sure how well it would work for an ordinary painted one. I figure you'd be into polishing the entire panel to achieve uniformity and may have to follow up with a wax, but it might work.

Date: Tue, 16 Oct 2007 19:24:46 +0000
From: "Bill Kirkland" <kirklandb@sympatico.ca>
Subject: RE: [R-390] Filling Engraved Panels

I've used the acrylic paint method very successfully on sp-600 panels. I dilute the paint a bit as my paint is very thick. I use a paint brush to fill in the letters and go over the letters with a plastic body work scraper. This leaves the "hazy" on the body of the panel. What I have found with acrylics, is that they appear to dry quite quickly however the paint is stiff quite soft. If you wait a couple of days you will find that the paint gets considerably harder. So, I wait for the paint to dry for some 10's of minutes and then wipe the panel off with a paper towel and automobile "scratch/swirl remover". This allows the paint in the letters to dry to a sufficient level that the "cloth" doesn't just smear it all over again. If you wait a week to remove the haze, the paint has gotten way too hard.

The cloth you use is critical too. It should be quite smooth. Any roughness/or hairs

will tend to affect the paint in the lettering. The other trick I use is that the above process is tied in to the entire paint job. I haven't had great success in getting a "smooth" paint application from the spray bombs. So, what I resorted to doing is painting the panel and then using the automotive buffing/polish compounds.

- lightly sand with 600 or better wet sand paper (prefer 1000)
- medium coarse buffing compound (applied with a polish machine, 3000 rpm)
- 1st application fine buffing compound/swirl/scratch remover.
- Fill in lettering
- Followed by final application of swirl/scratch remover. This takes off the haze.

Main issue with this is that you get a very polished (glossy) paint job when most of the panel are flat or semi-gloss. As for the the polishing machine, I got mine on ebay for less $50. In the US there are several stores that carry these for similar prices (they just don't ship to Canada)

Date: Tue, 16 Oct 2007 15:34:23 -0400
From: Norman J McSweyn <normn3ykf@stny.rr.com>
Subject: Re: [R-390] Filling Engraved Panels

I spent the most time on this particular phase of my 390A project. Experimenting with paints showed that Rust Oleum was the best. Not sure why. It seemed to be harder (would take more rubbing prior to "staining" and had a non pourous surface. Some (panel) paints I tried would stain immediately.

Technique:
1: squeeze paint into a small cup.
1.5: let acrylic paint set up for 1/2 hour.
2: brush a little on the lettering
3: squegee the excess.
4: gently remove the extreme excess with a *slightly damp* paper towel
5: wait a few minutes.
6: ******gently***** buff off the white with a *slightly damp paper towel*
7: utter a prayer of thanks when you are done.

An aside. When doing the front panel for my sp-600, on my third attempt, the clearcoat ran. I'd spent 8+ hours using a white artist's pen to do the engraving. AAAAAHGHHHHHHHHH!!! A total of seven attempts were necessary for a great looking panel.

Date: Tue, 16 Oct 2007 17:02:20 -0400
From: "Al Parker" <anchor@ec.rr.com>
Subject: [R-390] Re: Filling Engraved Panels

I'm probably the guy that's been using & promoting acrylic artist's paint the most, it's about the consistency of ketchup. What Bill & Norm say is pretty much the key(s) to success. Have a smooth panel. Let it dry "not too long" maybe 10 min. Use a "hard" cloth, like a linen napkin, no fuzz, barely damp, to remove the haze, with "not too hard" pressure. The squeegee pressure needs to be developed with a little practice, like the rest of the variables. It's hard to quantify things that are involved in "an art". The nice thing about the acrylic is that it's water soluble, and easy to clean up. I've used oil based to try silk screening, it's messy when you have to start over, which is often for me in screening. In a previous life I screened T-shirts by the dozens, much easier than on metal.

Date: Tue, 16 Oct 2007 19:06:00 -0500
From: Robert Nickels <W9RAN@oneradio.net>
Subject: [R-390] Re: [Hammarlund] Filling Engraved Panels

Ruh roh....that'd be lead-based paint...probably the only source nowadays would be in China ;-
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Date: Thu, 6 Dec 2007 16:02:04 EST
From: Flowertime01@wmconnect.com
Subject: Re: [R-390] Front panel painting and engraving

I know we have painted this subject from edge to edge. But I see a fellow over on the boat anchors need some help with one of his anchors. Will someone please send Gene the many secrets that you have all created to deal with the problem on the face of the R390/URR and R390A/URR. I know a process has been developed to get the whole job done.

Date: Thu, 06 Dec 2007 15:24:51 -0600
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] Front panel painting and engraving

Well I have a CNC program for the 390-A. We stripped the panels, ran them through a Taskmaster to get them smooth on both sides, chemically cleaned, powder coated and the CNC engraved and then filled with artist titanium white acrylic in a tube. These were original non engraved panels customer furnished. I took a bath on that deal as over 50 signed up for it and 11 came through, I had to do 25 to meet the minimum run for the CNC program. I still have a few at $350.00 plus UPS and exchange panel flat and no scratches. Prepaid.

Date: Mon, 18 Aug 2008 14:24:05 -0400
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] It followed me home

Just wondering if anyone knows anything about the manufacturer of this case - Taffet Electronics, Inc. A web search doesn't turn up much, especially not for a CY-979A/URR.

Date: Mon, 18 Aug 2008 23:04:52 +0000 (GMT)
From: triodes@optonline.net
Subject: Re: [R-390] It followed me home

The CY-979A/URR was made by several different contractors. Taffett was one of them, along with the following others that I have seen:

Avco, Division of Crosley Mfg.

Radio City Manufacturing

There were several other contractors, but I cannot seem to recall them at this time. I have both Avco and Radio City cabinets. I think the build quality of the Avco unit is better than the Radio City Unit. Of possible interest, the Avco CY-979A/URR that I have is serial number one. I often wonder if this was the very first CY-979A/URR to roll off the assembly line for an early run of the R-390 receivers, but I think the

correct answer is long lost to history. A quality restoration of these cabinets is quite easy. Have the cabinet and the mounting rails/sleds glassbeaded at low pressure with a fine grade abrasive, so as to avoide damaging or distorting the wire mesh shielding. Before glassbeading, neatly mask the nickel-plated rails the receiver rests on within the cabinet with several layers of masking tape, so the glassbeading will not ruin the shiny finish of the plating. Feather sand out any imperfections in the cabinet surface with a fine grade of sandpaper. Remove the masking tape and polish the nickel-plated rails to a high gloss with very fine steel wool. Be sure to also carefully mask before painting, the nickel-plated rails as well as the attachment points for the two spring grounding clips mounted on the top inner surface of the cabinet. For paint, I used an oven-dry enamel that matches the FED-STD-595 color code these units (and the front panel of the R-390/390A receivers) were originally painted with; the color code is 26152, light gray semi-gloss. This material is available from Spectrum Coatings of Providence, RI. Good luck with your CY-979A/URR!

Date: Mon, 18 Aug 2008 21:34:37 -0500
From: "Barry" <n4buq@knology.net>
Subject: Re: [R-390] It followed me home

Thanks for the info. I'm not sure if I'll paint this one myself of leave it to the next guy, but I do enjoy restoring things. I'd thought about taking it to a place that knows how to paint aluminum, but I can do a pretty nice job with a spray can myself if it's really nice paint. Not sure how to go about getting paint from Spectrum Coatings. I assume a dealer would have to order it? Cool on the serial number 1. This cabinet doesn't have a serial number tag nor holes for mounting one. I guess Taffet wasn't required to supply them. It does have the CY-979A/URR and Taffet Electronics Inc. nicely silk-screened (or otherwise painted) on the floor of the cabinet and if I restore it, I'm not going to bother with the inside as I don't want to lose that.

Date: Mon, 18 Aug 2008 21:35:28 -0500
From: "Barry" <n4buq@knology.net>
Subject: Re: [R-390] It followed me home

Cool. I didn't know it was named after anyone. I hope he's still around.

----- Original Message -----
From: "AI2Q" <ai2q@roadrunner.com>

>Barry, I personally know Milt Taffet, W2ERJ. Used to work with him on ham
>radio club projectrs. We used to have QRQ skeds every week, but he's in his
>90's now, and I don't hear him on any more.

Date: Tue, 19 Aug 2008 03:16:00 +0000 (GMT)
From: triodes@optonline.net
Subject: Re: [R-390] It followed me home

Did Milt Taffet own a machine/fabrication business? Just curious! My guess is yes, as the CY-979A/URR is a weldment, consisting of several pieces of fabricated aluminum that are welded together.

Date: Mon, 18 Aug 2008 17:35:27 -1000
From: "Ray Cote" <rjcote@hawaii.rr.com>
Subject: Re: [R-390] It followed me home

Barry said!!!!

This subject has probably been discussed in so many places on this and other lists, but I cannot find much. Perhaps someone can tell me where I can locate datum on the painting (and paint scheme) of R-388,R-389-R-390 series of receivers (if they can all be the same color). I came across 3 gallons of St. James Grey paint from an estate of an SK ham. The family was going to paint the inside of a metal shed until I talked them OUT of that plan by offering them some like colored paint for them to use. So my question, then, is what is the story on St. James Gray for receiver painting. Seems that if ther are no available references for shades of gray nearby, all gray in's the same. I would like to use the original paint if it is at altogether in keeping with being original, but that is just me. Ray

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> For paint, I used an oven-dry enamel that matches the FED-STD-595 color code these units (and the front panel of the R-390/390A receivers) were originally painted with; the color code is 26152, light gray semi-gloss. This material is available from Spectrum Coatings of Providence, RI. Good luck with your CY-979A/URR! 73, Bruce, W2XR

Date: Tue, 19 Aug 2008 10:40:14 -0400
From: "Tim Shoppa" <tshoppa@wmata.com>
Subject: [R-390] Military repaints

> .....always variations in the color.....front panels.....

I've seen/worked on/owned several 390A's that I think came through St Julien's Creek and a huge number of them had been "refurbed" by the military. It seems part of the refurb was a repaint with grey or green spray paint, and amazingly enough just a light coat of paint remover gets the yellow stripe and repaint job off and I can see the original paint (far more durable) underneath.

Date: Tue, 19 Aug 2008 14:31:05 +0000 (GMT)
From: triodes@optonline.net
Subject: Re: [R-390] It followed me home

Sorry, I am a little confused.

Are you looking for information on the Collins St. James Gray paint, i.e., that used on the Collins A-line such as the 75A-4, KWS-1, etc? Or the semi-gloss, light-gray finish as used on the R-389, R-390, R-390A equipment?

To answer Barry's question: the FED-STD-595A color code 26152 Semi-Gloss Gray enamel paint that I described in my message of yesterday, is available directly from Spectrum Coatings, of Providence Rhode Island. Call Nancy of Spectrum at 401-781-4847 for pricing and other information. The minimum they will mix for you is one gallon, and I paid $70.00 for one gallon several months ago. The shipping is expensive, as the paint is considered a Hazmat. But the color is absolutely dead-on when referenced to my pristine original '67 EAC R-390A; this is important, as everyone here knows there were always variations in the color of the R-390/R-390A front panels, depending upon who the manufacturer of the receiver used for a paint supplier, the paint lot, ageing of the paint, etc., etc.

The manufacturers of these receivers and the CY-979A/URR cabinets always used

oven-dry enamel for the front panel paint, and with good reason. The paint becomes very hard, and with very little orange peel if properly applied. And that is why I used the exact same type of paint when I restored all of my R-390/R390A/ CY979A equipment.

Unrelated to this, in a manufacturing environment, the oven-dry finish is critical, as it drys quickly, speeding production.

Here is the information you must specifiy to Spectrum for the paint for R-390 family of receivers:

Per FED-STD-595, Color Code 26152, Semi-Gloss Gray, I.A.W Specification TTE-529D, Class B Oven Dry Enamel

Based upon my experience, I would not consider any supplier other than Spectrum for this paint. I have seen samples of this color from Sherwin-Williams when done in their urethane finish; a little too glossy and too much orange peel.

It is also available in an air-dry finish, but the orange peel (i.e roughness of the finish) may be slightly greater and the hardness of the finish may be less.

Suffice it to say, one gallon of this paint will provide enough coverage for a number of R-390 front panels, CY-979A/URR cabinets, etc.

Date: Tue, 19 Aug 2008 11:34:45 -0400
From: Barry <n4buq@knology.net>
Subject: Re: Re: [R-390] It followed me home

I have painted two R390A front panels with the same color as the Collins S-Line (#250 from SurplusSales of Nebraska). While not planned that way, it is very, very close to the same color as this CY-979A/URR. I'll need to get them both out in the sunlight to get a much better idea of how close they really are.

While I'd really like to preserve the closest color match to the cabinet as possible, I doubt I'll spring for a gallon of paint, especially at that price. If I were going to do another front panel for another R390A, maybe...

One thing I don't want to lose is the lettering that's inside showing "CY-979A/URR" and "Taffet Electronics Inc.". I don't plan to paint the inside so I need to stick as close as possible to the original color so it won't be as obvious it was repainted. The original paint is in pretty good shape and I almost am tempted to just leave it alone. There is some overspray on the back that I think will come off with a bit of polishing compound and that might be enough for the rest of the cabinet as well. We'll see. The thing that's not so pretty are the shock mounts and rails. This thing saw a lot of use in an apparently rugged environment. Someone mentioned the rails were plated(?) but these are simply painted so at the very least, I plan to remove them and clean-and-paint those. Thanks for all the input. I did find somewhere on the web where one can order a paint chip on an index card of the various FED 595 paints. At $35 I doubt I'll do that either, but it might be a good way to get a local paintshop to reproduce the color if they don't do FED paints.

Date: Wed, 20 Aug 2008 14:23:26 +0000 (GMT)
From: triodes@optonline.net
Subject: Re: [R-390] It followed me home

Yes, the paint I described is designed for spray application only, and remember it is oven-dry. I agree with your comments concerning Spectrum Coatings; great people to deal with, prompt delivery, wonderful quality product, etc.

Application instructions are available from Spectrum for all of their paints. Just ask for this information at the time of order. Thinning information, air pressure and volume for correct application, etc., are all defined.

I do not do spray painting myself. There are some things in life that are best left to others, and professional spray painting is one of them. Here on Long Island, there are several professional paint shops that cater to the defense and aerospace industry, and they do absolutely first class quality work, including properly prepping the material before the application of the finish.

The last process I would recommend for painting R-390 front panels or CY-979A/URR cabinets is powdercoating. There is plainly a place for this process in this world, such as painting automobile chassis and the like, but not when it comes to applying an extremely smooth, uniform, thin coat of paint to a panel like Collins, Motorola, EAC, etc., did many years ago. I have seen powdercoated R-390 front panels as well as CY-979A/URR cabinets, and in my opinion they look awful, not to mention the fact that I do not believe a color exists in powdercoat that very closely approaches that of the original R-390 paint color. Since many of the R-390/390A front panels were engraved, a very thin coat of paint is essential so the engraving can be properly filled. With powdercoat, it would be difficult to get the thiness of finish required to do this.

Additionally, powdercoat may be difficult to remove once applied, if you should happen to make a mistake or be unhappy with the finish.

Date: Wed, 20 Aug 2008 10:52:35 -0400
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] It followed me home

I'll second that. I had two engraved panels powder coated. One came out fairly nice, but on the other one, the coating was too thick to allow the engravings to be filled in and still be crisp enough.

I asked them to remove it and apply as thin a coat as possible, but it still looked bad and I asked them to remove that and leave it bare. These four processes (coatings/removals) left the pane in a pretty rough condition. They have to bake the coating at somewhere around 400 deg. F but to remove it, they burn it off at around 600 deg. or more (not sure about those temps, but something like that).

I ended up having to fill in what was left of the engravings and other tiny pockmarks, sanding smooth, and priming/painting/silk-screening. It was sad to lose the engraving but it was about the only recourse at that point. I thought they could apply a very thin coating (and perhaps another shop could have done a better job), but that didn't work out that way.

You're also correct about the texture. The panel with the powder coating had a very slight orange peel look to it. It wasn't really al that noticeable and given that the finish was going to be extremely durable, I though it was a good trade-off. Bottom line, though, I would not to go with the powder coating again.

Aso, I mentioned that I thought the Collins S-Line front panel paint was a pretty close match for the CY-979A/URR, but it isn't. I got them both out in the sunlight yesterday afternoon and the panel is a shade darker than the cabinet. I'm not sure if I'll paint the cabinet non-original to match the panel (kind of hate to do that), or try to get it matched.

Given our location (Huntsville, AL), there should be several places around here that can do military or aerospace finishing and would be familiar with the spec you have mentioned. That would be ideal.

Thanks again for all the help advice.

Date: Tue, 02 Sep 2008 20:49:37 -0400
From: bonddaleena@aol.com
Subject: [R-390] Re: Knobs

Hello. I was in my shop this weekend and my milling machine was begging for work..... In the past, I have offered the ability to repair the Main Tuning Knobs of our beloved receivers. I can:

1. fix the 'broken finger' problem
2. add an nice 'spinner' handle
3. glass bead, smooth, and re-spray the knob (I say 'smooth', because some knobs I have seen, have a very ugly casting line around the circumference)

Anyway, if you are interested, contact me at the following e-mail addresses, and I will send digital pix of the knob on my beautiful '67 EAC.... n4ue@arrl.net or bonddaleena@aol.com

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Date: Thu, 16 Oct 2008 23:05:38 -0500
From: mlmccauley <mlmccauley@tx.rr.com>
Subject: [R-390] OFF TOPIC: reworking a National planetary dial

I have a National planetary dial, one of the ones that has the small windows spaced every ten marks in which a disk with the most significant digits of the dial position is displayed.

I got it off the e-place a while back, and while the knob, the mechanism inside the dial, and the external gearbox are all in very good shape, the paint on the outer dial, the one with the small vertical rectangular holes in it, is really trashed. Here's my question. If I disassemble the dial, clean up the chips and scratches in the old paint, and repaint it, what's the trick to getting fresh white paint down into the "units" mark line recesses that are etched/pressed in/ground/? into the outer dial piece, and have it look good?

Date: Fri, 17 Oct 2008 00:13:49 -0400
From: ews265 <ews265@rochester.rr.com>
Subject: Re: [R-390] OFF TOPIC: reworking a National planetary dial

Check out some of the items on this page.
http://www.micro-tools.de/mm5/e_paint.htm

It's not the greatest solution but it may be worth a try. The narrower and sharper the

recessed lines, the better this type of thing works.

Date: Fri, 17 Oct 2008 23:35:37 -0500
From: Tom Frobase <tfrobase@gmail.com>
Subject: Re: [R-390] OFF TOPIC: reworking a National planetary dial

Here is how I do it. Best product is Krylon lacquer in a bottle, it can be purchased at your local art supply store, or white lacquer from the nearest hobby store. Paint and fill the marker, let dry for about 10 minutes. Here is the trick! take an old T-shirt or something with a similar texture and spray a small amount of WD-40 on it. Stretch it across your finger and lightly rub the surrounding paint until it is dissolved leaving the engraved section with paint. It takes a little practice but believe me I have done many a 390 panel in that manner ...

Date: Sun, 7 Dec 2008 12:04:41 -0700 (GMT-07:00)
From: "Richard W. Solomon" <w1ksz@earthlink.net>
Subject: [R-390] Paint Recommendation (Knobs)

The knobs on my R-390A are kind of ratty and could do with a new coat of paint. What would folks recommend I use ?

Date: Sun, 7 Dec 2008 13:08:20 -0600
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] Paint Recommendation (Knobs)

Have them powder coated. I think someone on the list is offering that service if I'm not mistaken???

Date: Sun, 7 Dec 2008 12:29:45 -0700 (GMT-07:00)
From: "Richard W. Solomon" <w1ksz@earthlink.net>
Subject: RE: [R-390] Paint Recommendation (Knobs)

That's not the answer I want to hear !! I could send the whole radio out to get restored, but then I forgo the pleasure of doing it myself. After all, it is not a "one-of-a-kind" item. I guess I could experiment with different Krylon Spray Paints if I have to.

Date: Sun, 7 Dec 2008 13:37:30 -0600
From: "LEE BAHR" <pulsarxp@embarqmail.com>
Subject: Re: [R-390] Paint Recommendation (Knobs)

First off, you won't be "cranking" on this radio 24/7. Most paint will hold up for your use. I would go get some spray black glossy black EPOXY paint in a can from The Home Depot or Lowes. If your old knobs have "pits", fill them with auto body putty and sand smooth before painting. On aluminum parts, I like to use a zinc chromate primer. I get this primer on line from Aircraft Spruce.

Date: Sun, 7 Dec 2008 13:41:31 -0600
From: "Barry" <n4buq@knology.net>
Subject: Re: [R-390] Paint Recommendation (Knobs)

Krylon black works just fine. Use a primer appropriate for aluminum. Wet sanding down to the aluminum is a good first step. Be careful not to round the corners/ edges excessively in the process (it's easy to do that). I had a couple of sets

powder-coated but I think I prefer the lighter coating that paint leaves.

Date: Sun, 7 Dec 2008 14:20:28 -0600
From: "Dave Merrill" <r390a.urr@gmail.com>
Subject: Re: [R-390] Paint Recommendation (Knobs)

IIRC the R-390 knobs are zinc-based pot metal.

Date: Sun, 7 Dec 2008 17:52:53 -0500 (EST)
From: "Richard W. Solomon" <w1ksz@earthlink.net>
Subject: RE: [R-390] Paint Recommendation (Knobs)

Thanks to all for your advice. I have a couple of spare R-390 knobs in the junque box that I'll experiment with. Should make the old girl sparkle !!

Date: Sun, 07 Dec 2008 17:49:00 -0600
From: Tom Frobase <tfrobase@gmail.com>
Subject: [R-390] Refinishing Knobs

I have been powder coating knobs for the last couple of years with great success. I use black satin powder, they look like dynamite when done. My painting preference is the Krylon Black satin, Krylon never wrinkles! and is very forgiving!! Pay close attention to the steps below, it will save you untold frustration. Once the painted knobs have dried for a couple of day's, head off to the local art supply store and pick up a bottle or to of Krylon touch up paint, see the link below. Have a can of WD-40 on hand. With a small paint brush fill the pointer slot with the white paint make sure the paint fills the slot and overlaps each side. Let the paint dry for a few minutes, so that it is tacky. Taking an old T-shirt take your index finger and wrap the rag around it so a single layer pulled tight around your finger. Spray a small amount of WD-40 on the rag and gently rub the unwanted paint off of the knob. It requires a very light touch, let the WD-40 do the work. Change the position of the rag often to eliminate residual paint from smearing. This same technique works on refilling engraved panels. Sans the dust take a look at my R-390 http:// www.kitparts.com/ebay/r390-knobs.jpg

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Date: Sun, 7 Dec 2008 19:15:38 EST
From: Flowertime01@wmconnect.com
Subject: Re: [R-390] Refinishing Knobs

I looked at your photo.
It makes me want to redo my front panel.
I am not a believer in repainting old radios.
That fine worn paint is part of its history.
Repaint is for auto's.
But I could be converted. Roger AI4NI

Date: Sun, 07 Dec 2008 18:26:48 -0600
From: Tom Frobase <tfrobase@gmail.com>
Subject: Re: [R-390] Refinishing Knobs

I agree with you, I avoid it if I can but sometimes there just isn't a choice. This one had a totally hosed panel that someone had painted over. I think it turned out well. Sometimes I will remove the front panel take all of the hardware out and scrub it with pumice to restore the luster; many times that works as well as repainting. This

particular r-390 is the smoothest tuning 390 I have ever owned ...

Date: Sun, 7 Dec 2008 18:42:04 -0600
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] Paint Recommendation (Knobs)

Well it was an answer. I'd guess you not a Kielbasa eater either....HA! Actually I take mine and glass bead blast them..then lightly zinc chromate them. I let that dry for several days until it's not tacky feeling and then shoot them with either Krylon or Rustoleum satin black. The radios never had glossy knobs.... Krylon dries quicker but Rustoleum is more durable. (probably got the spelling wrong) I use the zinc chromate\rustolium combo for all my front panels. Takes a while but dries hard as nails and doesn't seem prone to chip like the faster drying Krylon. I re-letter with lacquer sticks. Works great and have no problems with
yellowing.

Date: Sun, 7 Dec 2008 19:08:26 -0600
From: "Barry" <n4buq@knology.net>
Subject: Re: [R-390] Paint Recommendation (Knobs)

Someone's post made me remember - it's Rustoleum, not Krylon, that I've used. Sorry.

Date: Sun, 7 Dec 2008 20:21:29 -0500 (EST)
From: John Lawson <jpl15@panix.com>
Subject: [R-390] Paint Recommendation (Knobs)

I refurbish and rebuild small motors (blower, window, seat, etc) for vintage cars - and I customarily refinish them with black glossy 'appliance epoxy' as was mentioned back down this thread a ways... this includes motors for competition show cars where it has to be 'factory' looking. This type paint is available at all the larger home-supply places, Lowe's, Home Depot, etc. If the surface is clean and meticulously degreased, and the Item is kept warm - above 70F or so (as well as the paint) then one coat does the trick. I always let the paint dry naturally for at least a full day. It comes out very glassy and durable. There are many colors available - as well as 'satin' and 'matte' finishes.

Powder coating small items is easy, too - many places sell the powder, and a small cheap air-gun to apply it (check out Harbor Freight)- then (when The Significant Other is not looking) you set your oven for the right cure temp and bake the knob, etc. If you do a lot of this, find a cheap oven in a thrift store and hook it up in your shop... Cheers and best of the season!

Date: Mon, 8 Dec 2008 10:52:45 -0700 (GMT-07:00)
From: "Richard W. Solomon" <w1ksz@earthlink.net>
Subject: Re: [R-390] Paint Recommendation (Knobs)

Should I strip off the old paint first ? Any particular paint stripper I should use ??

Date: Mon, 08 Dec 2008 12:59:51 -0500
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Paint Recommendation (Knobs)

Yes, strip the old paint off. Choose your poison! Give ample thought to safety.

Personally, I use lacquer thinner. That is a personal preference. I place items in a container, pour a "bit" over them, swish around several times, and let the solvents do the work. It becomes very easy to brush off the paint. I've been leery about the use of paint strippers. Many are incompatible with some metals. They can be a real mess, and are easily just as hazardous or more so than the lacquer thinner. I just ensure I perform this outside on my deck.

Date: Tue, 09 Dec 2008 02:16:03 +0000
From: odyslim@comcast.net
Subject: [R-390] front panel restoration

I have re-finished several front panels and am quite proud of my work.
With this said, I am always trying to find ways to make it easier.

My question is, has anyone used a media blaster to strip the front panel? I am curious if the engraved lettering gets smoothed out and looses that nice sharp engraved look? Has this happened to any one? I am really trying to fine a good reason to buy a small, portable type blaster, probably from Harbor Freight Tools. BTW, a few years ago, I purchased a nice touch up paint gun from Sears. I thought it was a good deal. It came with some attachments and a hose for $89.00 It is aluminum and stainless and the quality is ok. I was seriously pissed off when I saw the EXACT same item at Harbor Freight for $19.00. It even had the same box, just a different name on it. Just FYI Any comments about the media blaster are welcome. Also, has anyone used this method for cleaning knobs. Please forgive me if this was discussed in the knob painting thread, I did not read it.

Date: Mon, 08 Dec 2008 20:23:30 -0600
From: Gary Pewitt <n9zsv@magtel.com>
Subject: Re: [R-390] front panel restoration

Scott, if you go this route confine your abrasive to either glass brads or walnut shells. Any thing rougher will be too aggressive. Best of luck with it. 73 Gary

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Date: Mon, 8 Dec 2008 21:37:56 -0600
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] front panel restoration

I have glass bead blasted one....and would probably do so again. The paint is so tough to get off...I couldn't find any strippers that would remove the stuff so I resorted to bead blasting. There are two issues.

One issue is that it does soften the edges of the engravings but not enough that it is noticeable once refinished. You have to go easy around the engravings.

The other issue that is more of a concern is that bead blasting spreads the metal. I only bead blasted the front side and when I was done the panel was slightly arched...just enough that it wouldn't lay flat against the center face of a cabinet. I think the solution would be to blast both sides and the panel would probably come out flat but slightly larger all around. Probably only a few thousandths but it does grow. I did end up with a beautiful finish and I believe one that probably adhered better than any other I had done due to the surface having a bit of a tooth. I sprayed it with a very light dusting of zinc chromate and a week later a
coat of Rustoleum machine gray. Filled the letters with a lacquer stick in brilliant white and it was beautiful. I have pictures if the radio if you would like to see the

finished product. Hope that helps... I will probably do the same again...am considering doing the Hammarlund SP-600-VLF panel but am a bit worried since it's a bit thinner than the R-390 series.

Date: Mon, 08 Dec 2008 21:02:37 -0700
From: george stringe <egnirts@comcast.net>
Subject: Re: [R-390] front panel restoration

Look at: http://www.eastwoodco.com/ and look at their soda blaster. I have not used one of those but it appears it might solve those blasting issues.

Date: Mon, 8 Dec 2008 22:06:30 -0600
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] front panel restoration

Plastic media blasting is used on aircraft and you might be able to find someone that is doing that type work and will throw in the panel for little cost. I've heard good things about soda blasting as well...

Date: Mon, 08 Dec 2008 22:30:15 -0600
From: Robert Nickels <ranickel@comcast.net>
Subject: Re: [R-390] front panel restoration

> You have to go easy around the engravings.....

I wouldn't use my bead blaster for just that reason, although I can't imagine it producing sufficient force to warp a 1/8" thick steel panel! I've always had good luck with chemical strippers but still end up sanding panels before painting. I think Hank Arney will confirm that the professional surface treatment is called a "Timesaver". This is actually the name of the company that makes the Timesaver machines, which are essentially very large belt sanders. Running a panel through a Timesaver is roughly the same as running a piece of wood through a surface planer, only much less metal is removed. With proper setup a very smooth, flat surface results, without damaging the engraving. In fact, the machine leaves a "grain" that helps paint adhere, or in the case of aluminum, makes for an attractive finish when anodized (what most of us would call "brushed aluminum").

I've not done it with an R-390 panel (yet) but I have used a wood shop type belt sander for the same purpose. For a less aggressive approach, a random orbital sander works really well and doesn't leave a "grainy" appearance. Velcro-back sandpaper in different grits can take you from rough removal down to the finish you want.

Date: Tue, 09 Dec 2008 05:09:07 -0600
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] front panel restoration

It depends on the media.
Use walnut shell

Date: Tue, 9 Dec 2008 07:01:57 -0600
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] front panel restoration

Not sure what it would do on a steel panel..will use it on my SX-28A project....but it does "Expand" the metal enough on an aluminum panel to cause a change in shape.

Date: Tue, 9 Dec 2008 09:40:38 -0500
From: "Paul Anderson" <paul@pdq.com>
Subject: Re: [R-390] front panel restoration

I use aircraft paint stripper on the front panel and on the knobs to remove what will come off, and soften the rest, then plastic media blast the remainder. Rather than resorting to bead blasting, I will put another layer of paint stripper on. Most any metal, sand or glass media will start pushing metal around, which you don't really want if the panel is engraved. If it is not engraved, it matters less. I never had problems with paint stripper getting on the back of the panel and removing paint that I didn't want to - I was just careful not to glob it on the back while brash brushing off the residue.

Date: Tue, 09 Dec 2008 09:06:04 -0600
From: Jerry K <w5kp@hughes.net>
Subject: Re: [R-390] front panel restoration

Lots of ways to do this, and to me, blasting is one of the least desirable. Hank Arney's setup is probably hands down the best method there is, but of course he does panels by the hundreds. For us poor onesies-twosies guys who must do things the hard (cheap) way, Jet Strip is the only thing that has worked for me. Other than O'Reilly's Auto Parts, it's available on several automotive/industrial products websites such as this one:

http://www.autobodymaster.com/product_list.jsp?PHPRJ_GROUP_ID=44073

Enjoy your shop time, there's never enough of it!

Date: Tue, 9 Dec 2008 11:24:43 -0500
From: Bruce Mac Lellan <brumac11@hotmail.com>
Subject: RE: [R-390] front panel restoration

I agree that the best way to remove that old and hard paint is with a paint remover. I have had excellent results by just using automotive brake fluid. I tape off the holes from the back of the panel and set it on blocks to be pretty much level, them apply a good coat of the brake fluid and go away for a day or two. A second application may be necessary. I use a wooden stick to clean out the engraving. When it's ready to paint, wipe it down with white vinager, a thin coat of zinc chromate and then the finish of your choice. This works well for me and the brake fluid is much less expensive than aircraft paint remover.

Date: Tue, 9 Dec 2008 17:09:58 +0000
From: "Jim M." <jmiller1706@cfl.rr.com>
Subject: Re: [R-390] front panel restoration

The consumer grade removers are weak. Find some "aircraft" paint stripper from a specialty or industrial supplier.

Date: Mon, 22 Dec 2008 08:04:04 -0800
From: David Byrne <kapnkid@ameralinx.net>

Subject: [R-390] knob set screws source

Does anybody know of a source for the Bristo fluted set screws on the knobs of the R-390A? There was a recent eBay auction of some newly manufactured replacements that were made 1/4" long. I can no longer find the auction, and the seller "W0QQsassZjamminpower" doesn't seem to be auctioning them now. I was hoping somebody had his email address, or a source for the screws. If the seller watches this board, maybe he could contact me.

Date: Mon, 22 Dec 2008 10:49:15 -0600
From: "Barry" <n4buq@knology.net>
Subject: Re: [R-390] knob set screws source

JamminPower is a member of this list. Perhaps he'll respond.

Date: Mon, 22 Dec 2008 11:50:18 -0500
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] knob set screws source

It isn't heresy! It becomes common sense! We do the same for Hallicrafters when one of the little buggers goes bad.

Bob - N0DGN

Richard W. Solomon wrote:
> I know this is heresy, but after stripping a couple of BY brand wrenches, I
>decided to replace any set screw I had to work on with good old Allen Head Set
>Screws. They are available at ACE Hardware.

Date: Mon, 22 Dec 2008 12:47:51 -0500
From: "Al Parker" <anchor@ec.rr.com>
Subject: Re: [R-390] knob set screws source

Yuh but-- the knob setscrews on the R-390's aren't the normal thread pitch, they're 6-36 instead of the common 6-32. from my archives: "McMaster even has the 8-36 hex-key socket screws to fit the R-390A front panel knobs" Somebody here had some taps a yr or 3 ago, I bought 1 or 2, for chasing out the threads after painting or powder coating.

Date: Mon, 22 Dec 2008 11:52:31 -0600
From: "Barry" <n4buq@knology.net>
Subject: Re: [R-390] knob set screws source

That's correct. I doubt the hardware stores have that thread. I have an 8-32 tap I bought for the very same reasons. I think I got it from Fastenal.

Date: Mon, 22 Dec 2008 13:01:48 -0500
From: "James A. (Andy) Moorer" <jamminpower@earthlink.net>
Subject: Re: [R-390] knob set screws source

Right. That be me. Here's the pitch - contact me off-list at jamminpower@earthlink.net:

I ampleased to offer two bags of NEW MANUFACTURE Stainless-Steel set screws

for the R-390 and R-390A line of fabulous vintage vacuum-tube shortwave receivers. There is one bag of 20 pieces of the 3/8", 8-36, 6-point Bristol spline set screws (full-cup end) and one bag of 20 pieces of the 1/4", 8-36, 6-point Bristol spline set screws (also full-cup end). I got tired of trying to scrounge vintage set screws and had a bunch of these made up. They still have the machining oil on them. They fit the R-390/R-390A knobs perfectly. Yes, I know the original used a 3/16" length rather than 1/4", but I had trouble with the shorter ones - I kept cross-threading them - so I had mine made 1/4". Works great.

Price is $25 per set.. Buyer to pay flat rate of $3.00 for US shipping or $6.00 for foreign. PayPal preferred. Check or money order accepted.

Date: Mon, 22 Dec 2008 13:03:44 -0600
From: "Barry" <n4buq@knology.net>
Subject: Re: [R-390] knob set screws source

Duh... Make that an 8-36 tap. Sorry.

Date: Mon, 22 Dec 2008 13:45:45 -0600
From: "Tisha Hayes" <tisha.hayes@gmail.com>
Subject: [R-390] Bristol Spline Screws

I bought a small bag of Bristol Spline screws from Jamminpower about six months ago. (I think it was 10 or 20 in a plastic bag). They worked out great in putting the shaft clamps back into prime condition. The term "bristo" was a typographic error that came from poor spell-checking in the military manuals, once it got started the spelling error became part of history. I strongly recommend that if you can find bristol set screws to use them. They are much better for tightening down the shaft clamps as they have a much lower tendency to strip out when you really torque them down. From the old literature, that was the primary reason on why the bristol spline was adopted for certain applications. Nowadays with improved alloys, better machining, etc.. it is very likely that there are fasteners that would rival or exceed the bristol spline in the applications we use them for. Of course, I have had my share of broken shaft clamps, from time to time you can find those at the way overpriced Surplus Sales of Nebraska or periodically from Fair Radio. I had investigated purchasing a lot of bristol set screws from a manufacturer. The smallest manufacturing lot they would run was 5,000 screws and the price was prohibitive. I did not want to be in the speciality fastener business so I benched that idea.

Friday, January 30, 2009 3:47 AM

1a. Panel cleaning - seeking 75A-4
Posted by: "Mike, K9UW" k9uw@wi-net.com k9uw
Date: Fri Jan 30, 2009 1:04 am ((PST))

Hi folks!
Anyone have experience with a successful technique for cleaning the front panel of your 51J-x or R-388? Not sure that mine is actually dirty or just naturally grungy looking and I don't want to experiment with processes that would harm the paint or lettering. There is some label residue to contend with as well. <snip>

1b. Re: Panel cleaning - seeking 75A-4
Posted by: "Dave Faria" dave_faria@hotmail.com dave_faria2003
Date: Fri Jan 30, 2009 3:06 am ((PST))

The only thing I would try is GOJO hand cleaner without the pumice. I would test a very small amount and I mean very small amount on a bottom edge that can be easily touched up with paint if it should react. If it works there without damage to the paint try it on the end of a letter. Again the same idea. An area that can be touched up easily. Use a hair dryer on the test spots so you will know how it will look when dry. If the GOJO appears safe work it in gently with your fingers(no pressure) without a brush and then rinse it off. If you are successful you might want to spray on a clear coat of paint to protect the surface now that it is clean. Painting is a whole different subject so someone else may want to comment. I use GOJO to clean painted surfaces but, on 50+ year old paint who knows what will happen. Good Luck and take your time

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Date: Mon, 02 Mar 2009 09:25:09 -0500
From: "Tim Shoppa" <tshoppa@wmata.com>
Subject: Re: [R-390] Painting?

> What do I use for the engraving fill paint?-----the color needed is red.

What I have used with success for filling in engravings is acrylic paint from the art store. Dab it over the engravings, lightly wipe it off, and let dry. For this method to work it is important that the base color be smooth and completely dry. If it's not smooth then the fill paint will get into all the little valleys, and if it's not dry when you wipe off the fill paint you might rub it into the base coat.

If lightly wiping off the acrylic doesn't remove everything, a wet cloth will do a great job cleaning it off. I think the fact that acrylic is so easily removed, without any rubbing pressure at all, with a wet cloth is what makes it the winner for filling engravings on painted panels/buttons.

> And, ---Do I bake---and other process comments?

I don't think baking is really necessary for acrylic paints. For enamels or spray-can epoxy paints I think that baking really does accelerate the process. I have a insulated fireproof box with some light bulbs in it that I use for baking. And for temperature compensating my homebrew VFO's :-).

I have had very good success with Rustoleum Crystal-Clear enamel as a topcoat to protect lettering etc.

Date: Mon, 02 Mar 2009 19:52:28 -0600
From: Tom Frobase <tfrobase@gmail.com>
Subject: [R-390] painting

I use Krylon lacquer in the bottle from the local art store. I use a small brush to apply. Once it is partially dry I remove the excess with a small bit of WD-40 on a clean rag. Works like a champ ...

Date: Sat, 28 Mar 2009 01:00:07 +0000 (UTC)
From: odyslim@comcast.net
Subject: [R-390] media vs soda blaster

I going shopping tomorrow for some paint stripping gear. Is there anyone on the list that has used media blasters as well as the soda blasters? My reason for asking is I have no experience with either. I have only used the old sand blasters.

I want to strip paint from the front radio panels knobs and sides. Which would be better? Media blaster with walnut shells or soda blaster? Any input from experienced individuals?

Your advice greatly appreciated. Regards, Scott W3CV

Date: Fri, 27 Mar 2009 20:36:43 -0700
From: "Chris Kepus" <ckepus@comcast.net>
Subject: Re: [R-390] media vs soda blaster

Soda blasters are great because soda does not damage the metal as it strips the paint, nor does it damage rubber or plastic moldings. However, soda blasting does not remove rust. Abrasive blast systems using aluminum oxide, glass bead, etc., are great because they can give you a paint ready finish fairly quickly and various media grades are available (less or more aggressive) depending on your project. You need to hit Google and read up on the subject. One easy read that may help you is "Abrasive Blasting vs. Soda Blasting For Paint Stripping" at this site:

http://www.eastwoodco.com/jump.jsp?
itemID=1493&itemType=CATEGORY&path=1%2C3%2C688%2C1319&KickerID=
490&KICKER

Date: Sun, 29 Mar 2009 08:50:40 -0700 (PDT)
From: Richard Green <k7yoo@yahoo.com>
Subject: Re: media vs soda blaster

Glass bead (fine grade) works extremely well on panels and knobs, but use caution "on delicate items". I have done numerous knob sets and panels over the years--all with good results. NEVER use silica sand as it will embed in the metal. I recently did an SP 600 chassis with walnut shell and it was OK but was really more of a thorough cleaning than metal refinishing. Soda blasting would have been a better choice for the chassis. If I were setting up for production I would have both, but since I only do one a month I get by with the glass bead machine and a handheld blaster (Harbor Freight) that I use with walnut shell (McMaster Carr).

Date: Mon, 30 Mar 2009 10:13:58 -0400
From: Paul Anderson <paul@pdq.com>
Subject: Re: [R-390] R-390 Digest, Vol 59, Issue 33

Another option is plastic media blasting. Clean plastic or walnut will tend to leave all or some of the original finish on the harder metals, and not erode softer metals too badly.

I use fine glass beads on aluminum that I am repainting - for panels and knobs it works fine - I usually soak in paint stripper first to soften the paint, especially in the engraved letters or indicator lines on the knobs.

I don't recall having used plastic media on radio bits, but there are certainly cases where I'd try it. In my particular case, the problem is my plastic media is a) expensive, and b) I wound up contaminating it with some glass beads, so the end result is not bad, but still more etching than I'd like in soft materials.

I use a 5HP dual stage compressor, and a home made TiP cabinet made from a

TiP kit (I think they're still in business). I'm not sure if it is the draw tube or what, but I don't get very good blasting action with the siphon at present. I also have a pressure blaster which works amazingly well with the dual stage compressor, but it far far more than you'd ever use on any radio I know of.

Another approach you could take is seeing if a ammo case tumbler with walnut shell running overnight would remove paint. I doubt it, but it is worth a shot (snicker).

Date: Mon, 13 Apr 2009 12:01:31 -0400
From: "James A. \(Andy\) Moorer" <jamminpower@earthlink.net>
Subject: Re: [R-390] FS Items

Alodine 1200 is a product of Henkel Industries. It is used to deposit a thin layer of Chrome on alluminum to prevent corrosion. OK, it is not "original", but it prevents the alluminum from deteriorating further. You should see some of the chassis I have with big hunks of front panel disintegrating into white power. If we want these receivers to last another 50 years, some treatment is needed, and Alodine is a particularly attractive one. It does change the color of bare alluminum a bit - it gives it a gold-ish sheen. You can read more than you ever wanted to know about Alodine 1200 here (among other places):

http://www.chemical-supermarket.com/product.php?productid=432

Date: Wed, 9 Sep 2009 15:17:40 -0400
From: Roy Morgan <k1lky@earthlink.net>
Subject: Re: [R-390] Restoring my '390

<snip>

>One of my efforts will be to compile a g-code CNC file for engraving front-panel
>letterig.....

Howard Mills can provide silk screened panels. He may even have or can get one in BLACK! But, he does not do the "engraved" (actually stamped) panels as far as I know. There may be a CNC file/capability out there somewhere.

Date: Wed, 9 Sep 2009 14:41:33 -0500
From: <ka9egw@britewerkz.com>
Subject: Re: [R-390] Restoring my '390

Well, as long as I can scan the panel [I may have to do it in 2 sections, but that's OK, making a CNC file to turn plain stock into a recessed-lettering panel is just mindless busywork...but if I can get a freshly silkscreened panel from W3HM, so much the better...some might call it sacrilege, but...I wonder if he's ever done, or can do, an R-390A panel in St. James Grey? It wouldn't be 'purely authentic', but personally I think it'd look sharp. Blanking a new panel out of raw stock ought not be difficult for this hobby machinist...I'll have to drop him a line...

Date: Wed, 9 Sep 2009 16:16:25 -0500
From: "Barry" <n4buq@knology.net>
Subject: Re: [R-390] Restoring my '390

I painted a couple of front panels with the same color as used on the S-Line front

panels. They looked great. Yes, they're not authentic, but I wasn't painting them for the government either. I would think the biggest problem might be keeping an old panel flat for the engraving process. I think a list member, Hank, may have done this, though. I think he passed them through a significant amount of flattening, smoothing, and conditioning before machining them. Whatever you do, if you engrave them (or restore previously-engraved panels), it is ill-advised to attempt to have them powder-coated. BTDT and the results are very "iffy". One panel turned out good, the other had to have the engravings filled in, sanded smooth, and silk-screened. Long, boring, sad story. Good luck with it.

Date: Wed, 9 Sep 2009 14:30:44 -0700 (PDT)
From: John Flood <kb1fqg@yahoo.com>
Subject: Re: [R-390] Restoring my '390

George Rancourt in Western MA does panels as well. Silk-screened, George paints them, IIRC, had an auto paint shop computer match the paint, then he had a local guy cut a screen. I think he does them in batches. He brought some to Nearfest and they look very good.

Date: Wed, 9 Sep 2009 18:35:09 -0400
From: Paul Anderson <paul@pdq.com>
Subject: Re: [R-390] Restoring my '390

> .....it is ill-advised to attempt to have them powder-coated.....

On one front panel I nicely painted and sent out for silk screening (Iforgot who), it turned out the the paint I used was too smooth so the silkscreened letters beaded up and looked pretty bad. I had to use fine sandpaper to give it a flat finish before the paint could bite well. That was Rustoleum smoke gray, which otherwise worked quite well.

Date: Wed, 09 Sep 2009 22:40:34 -0500
From: Jerry K <w5kp@hughes.net>
Subject: Re: [R-390] Restoring my '390

If anybody has a CNC file for these panels it would probably be Hank KN6DI. Whether he'd give you the file or not I have no idea, since he professionally rehabs and sells 390/390A parts on a commercial basis. He used to do a LOT of front panels, top and bottom panels, Utah plates, chassis alodining, etc.etc.

Date: Thu, 10 Sep 2009 22:36:33 -0400
From: Gene Beckwith <W8KXR@neo.rr.com>
Subject: Re: [R-390] Restoring my '390

Panel restoration has been treated extensively in days past...including primers, baking, enamel vs krylon, silk screened vs engraved...it is not too difficult to produce results indistinguishable from original...esp with respect to engraved panels...have done several and so they are as good or better in cosmetics than oe . . btw, do some shopping around...engraved panels are out there...not worth the effort to do engraving; unless that's your game... If one is serious about doing a restoration, and getting under the hood, panel restoration is just part of the game...don't be intimidated...and actually, if you don't like your first attempts, do it over...until you're happy... <snip>

Date: Tue, 24 Nov 2009 07:10:56 +0000 (UTC)
From: odyslim@comcast.net
Subject: [R-390] painting

Has anybody gone as far as removing the transformers, relays, any other filters etc on the A/F deck to re-paint them. I am seriously considering it. I guess I need a life :-) Regards, Scott

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Date: Tue, 24 Nov 2009 06:23:58 -0600
From: Jerry K <w5kp@hughes.net>
Subject: Re: [R-390] painting

Haven't gone that far, but on the one I'm doing now I did airbrush the electrolytic cans and all the RF deck springs to match the front panel.

Looks pretty good. Painting the little sheet metal xfmr covers would be easy except for the lettering.

Date: Tue, 24 Nov 2009 10:01:08 EST
From: DJED1@aol.com
Subject: Re: [R-390] transformer painting

Nope. I will touch up transformers as needed, but I think I would do more harm in unsoldering all the connections to pull the part. Ed W2EMN

Date: Fri, 5 Feb 2010 16:00:15 -0800 (PST)
From: Steve Toth <stoth47@yahoo.com>
Subject: [R-390] A few questions

1.) What is the closest match OTC gray spray can paint for refinishing an engraved R390-A front panel? <snip>

Date: Sat, 6 Feb 2010 12:46:37 EST
From: Flowertime01@wmconnect.com
Subject: Re: [R-390] A few questions

ANSI 49 Gray. Still used by Square D on cabinets, structures and boxes.
Look for is as spray paint on line as ANSI 49 GRAY.

The spray stuff goes well with the powered coat stuff being painted on the paint lines and baked. The color is carried down from the military gray color since Patton was a private.

Date: Sat, 6 Feb 2010 12:14:45 -0600
From: "Barry" <n4buq@knology.net>
Subject: Re: [R-390] A few questions

Anyone ever tried the "Industrial Choice" ANSI 49 from Fastenal?

http://www.fastenal.com/catalog_pages/2009/8-5.pdf

I have a CY-979A I want to refinish and thought this might be a good choice.

Date: Sat, 6 Feb 2010 22:06:56 +0200

From: "Paul Galpin" <galpinp@absamail.co.za>
Subject: [R-390] 390A knobs

Progress is proceeding, and one of my 390s works just fine. the other lacks a 17M/ 200k crystal unit, but looks complete otherwise. I/m concentrating on the cosmetics first, to have a nice clean worker, while I work on the non-worker! I have a large selection of 390 knobs, now all re-painted and white-lined, and I find that I don't actually know for sure where they go! the big knobs are for the Mc/s and kc/s, that's a no-brainer, but the others? I looked in the Y2K ver3a parts list and find that four types are called for.

(1) 8x B 249242-1;
(2) 3x B 249242-2;
(3) 3x B 249242-3;
(4) 1x B 249243 (Knob, tuning).

Only one tuning knob? If it can be that wrong on one knob type, is it right on the others? since No1 has the greatest quantity, I guess that's the small ones, but what are the two other types? Medium white-lined and Medium all-black? But Fig 6-37 only shows 2 all-black (zero adj and dial lock) And which knobs go where? The Y2K is singularly unhelpful on this. Fig 6-37 has all the knobs the same size, except the two tuning knobs. Apologies if this has all been logged to death before!

Date: Sat, 6 Feb 2010 20:14:04 EST
From: DJED1@aol.com
Subject: Re: [R-390] 390A knobs

Hmmm- I don't know about the Y2K data, but here's what is on my R-390A:

2 large knobs for Kc change and Mc change
2 unlined small knobs for dial lock and zero adjust
5 medium lined knobs for local and RF gain, function, BFO and bandwidth
8 small lined knobs for everything else.
That's my story

Date: Sun, 7 Feb 2010 12:41:33 -0600
From: "Bill Breeden" <breedenwb@cableone.net>
Subject: Re: [R-390] 390A knobs

Mine is equipped the same way as Ed's.

Date: Mon, 8 Feb 2010 11:37:15 +0200
From: "Paul Galpin" <galpinp@absamail.co.za>
Subject: [R-390] R390 knobs and more!

THANKS to all who helped me on the knob placing question. As everybody agrees, then that must democratically be correct! So now, after sorting the knobs properly, I find I have 18 small (all lined), 11 Medium and 4 large, between the two sets. that's two down on the small, one up on the medium. It will work for me, as one set is missing the dial lock mechanism. but I'd still like to know how the Parts List got it so wrong! <snip>

Date: Thu, 4 Mar 2010 17:09:00 -0800 (PST)
From: Glen Zook <gzook@yahoo.com>

Subject: [Collins] Paint formulas

I have redone the article on the formulas for the various cabinet paints for Collins, Heath, Hallicrafters, Johnson, and National. The formulas are now formatted in a much easier to understand format. The URL for the formula article is: http://k9sth.com/uploads/Boat_Anchor_Paints.pdf website: http://k9sth.com

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Date: Fri, 3 Dec 2010 13:03:26 -0500
From: "Jerry Stern" <jsternmd@att.net>
Subject: [R-390] R390-A Paint Formula

I know there were many variations but does anyone have a Sherman Williams Paint formula for the R-390A panel gray color or for the CY-917 cabinet?

Date: Sat, 4 Dec 2010 11:34:35 -0600
From: "Ray" <bluegrassdakine@hotmail.com>
Subject: Re: [R-390] R390-A Paint Formula

I don't have the formula, but have 2 gallons of St. James Gray. Is this the color scheme for the R-390A and associated cabinet? I don't have the CY-917 which I assume is an official collins type cabinet.

What I do have are some cabinets that fit the R-390A and have a flip top that is louvered as well as louvers on the back. The back has a section that only goes 2/3rds of the way down and an area without metal to allow access to the terminal board of the R-390A and will also fit my R-390, R-389 and 75A4 I assume. I have not measured the others as some have reallllly detiorated and need lots of reworking.

I plan to paint these all St. James Gray, and any Radio that I refill the engraved lettering. Now if I could only engrave those front panels that look like silk screening. Any comments on paint cabinets will be appreciated.

Yes, I know, the cabinets are not the actual original ones, but I am not a purist and the radios will not mind if they wear a different "coat". I after all, just moved to Illinois from Hawaii, and I am wearing a different coat.

Date: Sat, 04 Dec 2010 12:43:02 -0500
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] [Boatanchors] R390-A Paint Formula

It would be pure "speculation" on my part, but presumably this equipment has a "particular" military requirement to meet the Government's colors to be used.

I do not believe that the U.S. Army Signal Corps ordered them and left that piece out of the contract. Somewhere there is a paper copy of the contract, and all the specifications outlined, all the way down to the specific color.

Date: Sat, 04 Dec 2010 17:58:27 +0000 (GMT)
From: triodes@optonline.net
Subject: Re: [R-390] R390-A Paint Formula

The correct color code for the R-390A front panel (and the CY-979A cabinet) is per U.S. Federal Standard FED-STD-595A, color code 26152, Semi-Gloss Gray, per

specification TTE-529, Class B Oven Dry.

If you give this information to the Sherwin-Williams industrial paint supplier (or any other paint manufacturer that can mix paint to the FED-STD-595 colors), they can mix it to the exact color. I used this color code to repaint the CY-979A cabinets that I had restored several years ago. There is always some subtle range in color variation, even among the 26152 color code, due to very slight paint formulation differences between manufacturers, etc. This was true over the period when the R-390A and the CY-979A were in production, and is still true to this day when using current-production paint. I always use oven-dry enamel paint for these projects, which is the same type of paint that was used when this equipment was originally in production. The later formulations are of air-dry urethane to comply with the EPA and OSHA regulations, and from what I have seen, I think they can be a bit too glossy and definately have too much orange peel when dry, when compared to oven-dry enamel. Of course, to a large extent, the minimization in orange peel in the finish is a function of the skill of the painter, and the quality of the spray gun and related equipment he is using to apply the finish, not to mention the humidity when the paint is applied, etc., but oven-dry enamel is still the best for the least orange-peel finish. Note that I never used Sherwin-Williams paint for any of my restoration projects, but my guess is it will work out just fine. They are a quality supplier. Just be sure to specify oven-bake enamel for the material.

Date: Sat, 04 Dec 2010 12:58:56 -0500
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] [Boatanchors] R390-A Paint Formula

Going back to "posted" information regarding to Paint Specifications, I located the following:

> The original procurement specification for the R-390 (non-A) dated 28
> Aug 1950 as amended 28 Aug 1952 calls for the front panel to be
> "semi-gloss, non-wrinkle, gray enamel of a shade conforming to No. 2610
> of Federal Specification TT-C-595".
>
> R-390A Front Panel Drawing SM-D-283246 Revision 2, 3-Mar-60 calls for
> the panel surface to be "Finish P513F per Spec. MIL-F-14072". It also
> calls for filling the engraving with "White, color chip #27875 per Fed.
> Std. 595".
>
> Military Specification MIL-R-13947B(SigC) dated 26 October 1960, in
> section 3.9 states "The final paint film on Type I surfaces shall be
> final film E, semigloss, light-gray enamel, conforming to MIL-F-14072".

Date: Sat, 18 Dec 2010 05:13:31 -0600
From: <ka9egw@britewerkz.com>
Subject: [R-390] Replacement panels [was RE: R390-A Paint Formula]

If I could get a decent scan of a silkscreened panel, with a machinist's ruler included in the scan for scale [or three letter-size scans with overlap with a 12" machinist's ruler temporarily rubber-cemented to the panel to provide indexing] I could create an AutoCAD file to allow replacement engraved panels [I mean engraved replacements for silkscreened panels] to be CNC machined.

I started on this years ago working from a digital photo of a panel, but the photo I was given to work from wasn't accurate; it was a trapezoid and I gave up on that...up til I figured out it was a trapezoid, 'twas going smoothly.

Of course this requires a scanner on which the panel can lie truly flat, which does not describe my scanner--mine has a raised lip all the way around...but whaddya expect for $49.95? HI

Date: Sat, 18 Dec 2010 07:14:42 -0600
From: "Les Locklear" <leslocklear@cableone.net>
Subject: Re: [R-390] Replacement panels [was RE: R390-A Paint Formula]

Why not just contact Hank Arney: hankarn@pacbell.net
He has new CNC machined engraved front panels for sale.

Date: Sat, 18 Dec 2010 16:32:53 -0600
From: "Cecil Acuff" <chacuff@cableone.net>
Subject: Re: [R-390] Replacement panels [was RE: R390-A Paint Formula]

What we are missing are R-390/URR panels....
Andy has SP-600 panels and Hank has R-390A panels...
I'll take one in black matte...

Date: Sat, 18 Dec 2010 16:49:30 -0600
From: <ka9egw@britewerkz.com>
Subject: Re: [R-390] Replacement panels [was RE: R390-A Paint Formula]

Without a top-quality scan I am powerless...

Date: Sat, 18 Dec 2010 18:14:59 -0600
From: <ka9egw@britewerkz.com>
Subject: Re: [R-390] Replacement panels [was RE: R390-A Paint Formula]

I already have a silkscreened R-390A panel [although it's part of my radio at the moment HI]. Not a big deal to remove it, but since Mr. Arney is already making new production engraved R390A panels, [as several on the list have informed me], and it is my understanding Rick Mish and Howard Mills are both doing silkscreened panels, hence it seems what folks are still wanting a source for, is R-'390 [non-A] panels.

To be able to create the AutoCAD files to generate CNC files from for machining, what I need is a good true flatbed scan of whichever kind of panel we're talking about. I'm thinking it would be better to work from an engraved panel if I'm making AutoCAD files for making engraved panels.

I guess I could just take it to the print shop and have them scan it if their scanner were big enough.

If you have an engraved one of those and could get it scanned or could send it for me to scan, it would certainly help a bunch. I'm very leery of entrusting it to any shipper, however... QTH?

I haven't even looked into the costs of getting the machined in quantity yet--I have a small local CNC shop I've worked with in the past who has done ignition covers for

Harley motors with complex artwork from AutoCAD files I supplied for an attractive price, but I would have to take the files and perhaps a sample panel to get a quote...my experience is batch price increases as the cube [or 4th] root of quantity...I'm trying to say to do one part or a couple dozen is substantially the same price...it's the setup time that costs...his VMC has a 20HP spindle motor, a 5HP coolant pump and cuts aluminum at the depths we're discussing at several hundred IPM, so for something simple like a '390 panel, the loading-and-unloading time takes as long as the machining time...

Date: Sun, 19 Dec 2010 16:09:55 -0600
From: Barry Williams <ba.williams@charter.net>
Subject: Re: [R-390] Replacement panels [was RE: R390-A Paint Formula]

Yes, a good printer will have scanners big enough to lay on, so size isn't a problem. If they charge more than a few bucks you are being gouged. Some software will find the lines of the letters and generate the CAD files. I used to cut screens and screen print for a living, but it was all cut by hand or photo screening. I'm sure there are better methods nowadays. A silk screen is simple enough. Ralph Sanserino sent me a front panel once and it arrived without damage. I later mailed to a guy for a swap on some tubes. Just get cardboard of a reasonable thickness and cut it oversized by 2-3 inches around the panel. Put the panel in the middle and use plenty of 1/4" staples all around the seams. Maybe add an extra sheet of cardboard to each side, but I don't think we did that when my panel got mailed around.

Date: Sun, 26 Dec 2010 15:34:48 -0600
From: "libbysales" <libbysales@austin.rr.com>
Subject: [R-390] cy-979 cabinets

Readers: several years ago I had found and offered a small sum of original cabinets, that were for the large part still wrapped in those large brown sealed bags, these were made in the 1989-1992 ear it seemed .. those were sold and I thought that was the end of them forever..

But along the way I discovered several things, these came to me direct from a DRMO facility, included in some of the pacing materials were original inspection and DD-250 reports, these showed who had built the cabinets and when they were accepted by the Govt buying activity. I didn't give it a lot of thought at the time, but did keep the info, later I started making calls or trying to find these companies, of the 3 firms one is no longer in business and no information is available it seems... the second is still in business but has no interest in this project, but did agree to sell me the drawing package for the total details to build the cabinets if I so wanted, the third company is also still in business, they have 28-32 of the cabinets left over from the last order, they regularly over built on orders for these cabinets, to allow for shipping damage and such .. I know this fact to be a valid one, in have found these cabinets over the years don't always ship well or at least w/o some damage... this company is also the company that made the last production run and their cabinets featured the 'nut plate' that floated.. this allowed the receivers to actually fit into the cabinets far better and didn't require you to have to hold your mouth just right to get the front panel screws to force fit the front panel into the cabinet, rather it allowed a very good fit and didn't require near the effort to get the 8 front panel screws to all align...

Some can see where this is headed, they are very willing to sell the 32 odd

cabinets to me... they feel sure they have this authority and will not be under any restrictions... personally I cant see any reason either, it is not like these cabinets ever posed any security risk or threat...

From my experiences over the past 13 or so years I have hunted these cabinets down and such, the packing shipping and such is a good part of the cost, this company is not close to me.. I can buy these cabinets for 425.00 each shipped to me or 385.00 if I drive up and accept delivery...

I don't know what the market is, but I will commit to buy the 32 cabinets and offer them for sale for $480.00 each... I expect to have them shipped to me, my time and fuel cost would equate to a 4 day trip and fuel plus some small trailer rental, so it seems to make better sense for these to just be shipped to me, I can pack them and ship them for about 23.00 as I recall, that will leave me a very small profit margin but I will have the fun and once more experience of finding these and the like and I do enjoy these efforts...

So this is offer #1 at 480.00 each I will be able to provide a brand new cabinet to you, shipped to your lower 48 address, I am told the data plates are BLANK, they have no serial no. stamped into that area... the represented thinks they have 6 black cabinets and the rest are gray, in 97' I had a few black cabinets, I thought they were pretty much a pig in a sack at the time .. I sent one to Les Locklear and a few to Chuck Ripple .. as I find out these are pretty well sought after .. but my point it looks like this lot might have a handful included..

Offer # 2 the company willing to sell the drawing package is wanting 2500.00 for the package, they claim the cabinets can be produced by most competent shops using these drawings for about a 300.00 each price amount, painted and ready for shipping...I don't know this for fact, they are willing to let me have the top level drawing package if I sign an agreement and promise to not do things that will try and reverse engineer these cabinets, if I agree to this offer it will allow me to go out and try and find a local or nearby shop who can make these at I hope a lower price and not have shipping involved, this is all speculation and will require some extended time and effort on my part to see if indeed this can be done and that the quality is equal or better... I welcome your comments and such on this idea...

So we have some options here, plan # 1 is pretty much a deal I am going to do... if you want to buy one of these or more as I have discovered, last time one person bought 6 total... do this, make a deposit of $150.00 to my PayPal account : libbysales@austin.rr.com I have no problem asking for this, my reputation is good for this, the effort several years ago was drawn out and obstacle filled but I did deliver all but one cabinet to those that had made deposits or ordered one .. to my knowledge everyone was pleased, it did take a bit, but no one got too pissed or such at the length it took .. IF you decide you want to not buy or your financial situation changes I will be pleased to refund your deposit money 100% no questions asked ... that is as good as I can make it for you ..

This has gone pretty long, but I know what I am offering, I know what is involved, I have a good reputation on these cabinets...

thank you for the read... mac/mc w5mc

Date: Sun, 26 Dec 2010 16:13:17 -0600
From: "libbysales" <libbysales@austin.rr.com>

Subject: Re: [R-390] cy-979 cabinets

Andy has it right, and I have seen the drawings, these might look like simple cabinets until you really look at the detail and construction, but what else have we come to expect for these radios, the cabinet should be no exception... and yes the drawing package would need to be amotorized unless I want to forsake a 32 year marriage, and even at that my thinking still gets called into question...but fortunately we are dealing with my SECOND wife, not my first ..

From: (Andy) Sent: Sunday, December 26, 2010 3:53 PM
To: "libbysales" <libbysales@austin.rr.com>
Subject: Re: [R-390] cy-979 cabinets

>
> On buying the drawings, I guess that means you would have to be able to
> amortize it over, say, 25 units.
>
> I'm a bit concerned about the $300 number - The problem will be the set-up
> charges. That $300 is probably be for a number of units, and it is hard to
> tell without looking at the plans what that number would be. My
> brother-in-law runs a professional metal shop - I'm sure he would love to
> bid on any production run we might want to make - and he would be able to
> give us a breakdown on what the set-up would be and the per-unit would be.
>
> He's pretty cocky about his skills. I have asked him about these cabinets
> before and his response was something like "you just get me one of those
> in here and I can make as many as you want" - meaning to me that he didn't
> feel any particular need for fancy plans (he would take the measurements
> off the unit and just clone it, although he would probably build it
> somewhat differently on the inside).
>
> Interesting project. I wouldn't mind helping out on it if there is
> anything I can reasonably do to help.

Date: Sun, 26 Dec 2010 17:19:00 -0700
From: w9ya <w9ya@qrparci.net>
Subject: Re: [R-390] cy-979 cabinets

Um... would it make any sense to ask the firm if they can drop ship them ? ;

-As you point out they can and often did get damaged in shipment, and shipping twice adds to the odds of such damage.

- Why add to the cost to ship ?

Date: Sun, 26 Dec 2010 18:38:13 -0600
From: Jerry K <w5kp@hughes.net>
Subject: Re: [R-390] cy-979 cabinets

If my endorsement is worth anything, I bought two of Mac's original batch of CY-979 cabinets Mac mentioned several years back (in addition to a fine Harris receiver from him) and was VERY happy with everything he sold me, and especially with effort he cheerfully expended in order to get them to me.

I don't need another cabinet at this point, since I'm down to only one 390A receiver at the moment, but in case you're new on the list and don't know Mac's reputation, I can personally vouch for his integrity. He's very well known across the country, and he's a straight shooting Old Timer who will treat you right. And Hi Mac, long time no see on here!

73, Jerry W5KP Mustang, OK
(Veteran R-390 list member from way back in the early Chuck Rippel days)

Date: Sun, 26 Dec 2010 20:27:20 -0500
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] cy-979 cabinets

Still wish I could find someone who would strip and paint my CY-979A hamfest special back to its original glory...

Date: Mon, 27 Dec 2010 04:16:23 -0800 (PST)
From: "Tom M." <courir26@yahoo.com>
Subject: Re: [R-390] cy-979 cabinets

I ended up with a black and a gray cabinet from Mac. Mac is a straight up guy and his time is valuable so this is a generous offer of him to handle this transaction. One of the cabinets I received was made by Laboy Industries of Camden NJ. Like a lot of businesses in Camden NJ they are now out of business. I must say the black cabinet reminded me of a black Cadillac, the paint I mean. So if you want a cabinet refinished I would recommend an auto body shop. The scope of work is known and small so you should be able to get a firm price. Also a powder coat shop would be great too.

Date: Mon, 27 Dec 2010 13:18:38 -0500
From: wa4aos@aol.com
Subject: Re: [R-390] cy 979 Cabinet

For my two cents worth, I bought an R 390A from Mac on ebay about 3 or 4 years ago. It was an exceptionally pristine unit that had never been in service; one he had opened from the original crate for an engineering project he was involved with for the government. I was very concerned about it not being damaged in shipment. Mac carefully installed the receiver in a heavy duty, extra tough box and triple wrapped it with heavy shipping blankets. <snip> Later, I bought 2 of the CY 979 cabinets from Mac on ebay. They also arrived in perfect shape and now host an R 391 and R 389 that I restored.. I would be most interested in 2 more cabinets myself. As I recalled, I paid $500 for each cabinet a few years back which is probably a little nuts for a metal box, however, what a really nice metal box! ! ! Mac, came through for me each time and did EXACTLY what he promised, I would have no reason do doubt his integrity and trust that he will come through with he promises.. I only wish more people I have dealt with on ePRAY had half the integrity that Mac obviously has..

Date: Mon, 27 Dec 2010 19:38:38 -0500
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] cy-979 cabinets

Are these the CY-979 or CY-979A cabinets? I assume there's some differences? Is the back of the CY-979 configured for the R-390 and the CY-979A configured for

the R-390A? If there are differences, will an R390A fit in the CY-979 (or vice-versa)?

Date: Wed, 29 Dec 2010 17:42:13 -0600
From: Dan Arney <hankarn@pacbell.net>
Subject: Re: [R-390] [R-39 0-A UTAH PLATES

I have a new run of the Utah plates with silk screening $27.50 each mailed in USA

Date: Thu, 24 Feb 2011 12:09:45 -0500
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] My last major hurdle in restoration

On the one I did, I filled the engravings in with a generous amount of filler paint, let it dry, and then polished the excess away. This worked well, but my panel was powder-coated so I could polish pretty heavily as needed.

Note: I wouldn't go the powder-coating route. I had a terrible time getting a thin enough of a coating to prevent the engravings from being filled in with the coating. I had two done and one filled in so badly that I had to have the coating removed, I filled the engravings in with JB Weld, painted it, and then had it silk-screened. I think that's what another restorer does regularly.

Date: Thu, 24 Feb 2011 12:18:50 -0500
From: Dave or Debbie Metz <dmetz@ntelos.net>
Subject: Re: [R-390] My last major hurdle in restoration

While not perfection, my technique was strip the panel making sure the engraved depressions were really clean using a dental pick. Then very lightly prime with a primer available in boat shops for aluminum. Just a dusting--really. Then be sure to lightly sand with # 600 paper. Then, recoat with the lightest coat that will make it grey. While lots of folks recommend paint stick, I never had any consistent success so on a whim I tried to use white acrylic artist paint (water based) and cover the engraving and take a small squeegee and strip off the excess,

Then, clean as much of the excess white around the engraving area that you smeared over the grey with a damp cloth. At this point, do not try to mess with the actual engraved area. Then let it dry a couple of days. Then the magic: take some fine grade automotive rubbing compound and rub over the engraving areas until its just right. The engraving is perfect, and the grey is unhurt.

Date: Thu, 24 Feb 2011 12:28:52 -0500 (EST)
From: djed1@aol.com
Subject: Re: [R-390] My last major hurdle in restoration

I've followed much the same process as discussed by others here: I use a brass Dremel brush to get all of the old paint out of the engraving while stripping the old paint, then spray a couple of light coats. I use a paint stick to fill the engraving, then use a piece of thin plastic (from packaging) with a straight edge to squeegee as much of the paint as possible flush with the surface. I let the filler paint dry, and then clean off any excess with a little paint thinner and a Q-tip. Any remaining haze gets treated with some fine auto polish.

Date: Thu, 24 Feb 2011 09:31:02 -0800 (PST)

From: Rasputin Novgorod <priapulus@yahoo.com>
Subject: [R-390] filling engravings

>I've given multiple attempts to refinishing an engraved one. The filling in has been VERY >problematic.

Where I work, we make engraved labels of plastic. We fill the letters, one of two ways:

1) Rub with a wax crayon, like children colour books with; then rub off the excess.

2) Wipe/fill with an oil based paint; when nearly dry wipe off the "smear" with a lightly varsol'd rag. Wait between wipes, or you'll start pulling the paint out of the engraving.

Date: Thu, 24 Feb 2011 10:01:44 -0800 (PST)
From: Mack Rogers <n4vgb@yahoo.com>
Subject: Re: [R-390] filling engravings

Lacquer sticks, available online or at hobby stores.

Date: Thu, 24 Feb 2011 12:26:16 -0600
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: [R-390] My last major hurdle in restoration Paint and Engraving

What I did was after priming the front panel is to fill in all of the engraving with plaster of Paris. Gently wipe that down until the plaster residue around the engravings is clean and the plaster is hard, then paint the panel.

After the paint dries I used a dental pick to pluck out the plaster. It left behind very deep engraving (with only primer inside) so I could letter the panel. If you did it right you need some sort of guide to figure out where the engravings are as it may be impossible to see after painting.

Usually a few pokes with a sharp dental probe and the plaster cracks and is easily removed from the engraving.

I use Tempo Aviation Aircraft Enamel, A-1105 Medium Gray (spray cans) as my paint. After 3-4 coats, oven baking and a few days curing it looks spectacular.

Date: Thu, 24 Feb 2011 13:21:27 -0600
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: Re: [R-390] My last major hurdle in restoration Paint and Engraving

I keep a very sharp assortment of dental picks and surgical instruments. When I am bored I watch select scenes from the movie "Marathon Man" over and over again. You never know when you need to go the next step to get cooperation. <g>

Yes, a pin would work fine. I just happened to have a few dental picks in my desktop container of give-away miniature screwdrivers, contact burnishing strips and ceramic alignment tools. Normally I just use them to hook tiny springs when taking something apart.

Date: Fri, 11 Feb 2000 16:44:31 -0600

From: Nolan Lee <nlee@gs.verio.net>
Subject: Re: [R-390] Knob Quest

The earlier, unreinforced hub tuning knobs usually had a much finer finish than the later reinforced hub knobs. There's a good chance that if you remove both knobs and look at the hubs, you'll see a major difference. The newer design knobs are much stronger. You can do a little prettying up of the newer knobs with needle files, and various grit emery paper. Wet works better. Dave Medley had some NOS tuning knobs real reasonable a while back. I don't know if he still does.

Date: Sun, 31 Jul 2011 16:47:20 -0500
From: Ben Loper <brloper@gmail.com>
Subject: [R-390] Front panel paint removal

Does anyone one know a paint remover that works on R 390 panels . I remember years ago trying to strip one and the paint remover. I used just didn't cut it You have to turn into the wind to take off, push against what resists you.

Date: Sun, 31 Jul 2011 14:51:46 -0700
From: "Lloyd Godsey" <kk7iz@cox.net>
Subject: Re: [R-390] Front panel paint removal

Best I have found is JASCO, i I believe it is labeled industrial, maybe not.
Available at Home Depot in quatrs and gallons.
Will even remove powder coating and I thought nothing would touch it.
Handle with CARE.

Date: Sun, 31 Jul 2011 17:53:26 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Front panel paint removal

I went the path of Lacquer Thinner. Worked like a champ!
All caveats in place - OUTDOORS plenty of VENTILATION - etc.
A Bondo scraper slides it off!

** And *if* you get the urge - Rustoleum now has lacquer in a rattle can
at least at Lowe's! **

Date: Sun, 31 Jul 2011 20:16:48 -0500
From: Jerry K <w5kp@hughes.net>
Subject: Re: [R-390] Front panel paint removal

I've tried several types, but the only remover I've found that really worked well was called "Jet-Strip". Available lots of places (check the web) but only in blue & yellow gallon cans or larger. It's a commercial shop product made for aircraft refinish work, worked great on the last four or five panels I did. Clings well, brushes on easy, lifts paint quickly. Don't breathe it. :)

Date: Sun, 31 Jul 2011 22:08:45 -0400
From: Walter Wilson <wewilsonjr@gmail.com>
Subject: Re: [R-390] Front panel paint removal

I've found the aircraft stripper at Pep Boys in a blue and white spray can.

Date: Mon, 1 Aug 2011 13:05:10 -0400 (EDT)
From: Glenn <wa4aos@aol.com>
Subject: Re: [R-390] R-390 Digest, Vol 88, Issue 1

I have restored many R 390 and 390A receivers and have long since stopped using paint strippers. They are time consuming to use and the chemicals are not fun to deal with. Additionally, they don't get all of the paint out of the engraves requiring more time with a dental pic and brass brush to get the rest out.

After reading about the benefits of soda blasting a number of years ago, I bought a soda blaster from Harbor Freight and had all sorts of problems getting it to work, using the wrong media type. Then I bought a FAR better unit from Eastwood supply, $250, only to discover my compressor was marginal with only 7 to 8 CFM. I ended up buying a $1500 Quincey Compressor with about 15 to 17 CFM. You will also need the proper media made by Armor and it's about $25/50lbs. The media is encapsulated and works FAR better than plain baking soda.

I know most people are not going to spend nearly $2K to do one front panel but like I said, I do many. I can take a front panel down to Aluminum in under 5-minutes. I also use the quarter inch blue tape from NAPA and mask all of the lettering on the rear of the panel and use electrical tape to mask where the rear of the front panel mates with the chassis. Yep, I do the front and rear of each panel since the rear of the panels are usually badly scuffed up from rack mounting and years of abuse.

When I was developing my technique(s) I had one panel that I had to strip 7 times, long story, but it was when I was playing with different kinds of paint, paint guns, primers, sanding devices and on and on. I really worried if I was going to damage the engraves but ABSOLUTELY NO DAMAGE occurred and the engraves took paint just fine. Soda blasting will not hurt glass rubber or plastic. It will not take rust off either but this is not an issue with Aluminum. Like I said, I use soda blasting often and blast on top of vinyl tapes with no problems with the tape being damaged. I doubt it would take skin off but at 95 PSI and 14 CFM, I am not going risk a trip to the horsepital.

I considered using a sand blaster with a soft media like pecan shells and this might work but I didn't want to risk damaging a front panel and after my research, I knew soda blasting was the way I wanted to go. NO REGRETS.

If anyone wants the Harbor Freight blaster to play with, contact me. It will probably work much better with the Armor media. When I was playing with it, I had bought boxes of regular baking soda and had lots of problems. The HF unit will work on less CFM and may be just right for someone with a smaller compressor. I paid $100 for the unit, used it two or three times and it's been on a shelf in my workshop since. $75 and $15 for shipping and it's yours. I'll be at the Shelby Ham fest next month if anyone wants me to bring it and save the shipping fee.

If there is interest, I will be glad to describe my front panel painting and lettering processes. It took a lot of time, money and hair-pulling before I came up with a process that is predictable, repeatable and teachable. Others may know the process as well but I have never read anything exactly like what I do, described on the Internet searching on R390(A) Front panel paint, variations. I have read what I consider a lot of bad or questionable suggestions regarding the same topic.

Date: Mon, 1 Aug 2011 15:08:00 -0500

From: Ben Loper <brloper@gmail.com>
Subject: Re: [R-390] Front panel paint removal

On another topic I have to decide what type of paint to use. I wonder if powder coating will fill in the engraving more than several coats of paint. I assume the original panels were not powder coated.

Does anyone have experience with powder coating?

Date: Mon, 01 Aug 2011 16:16:57 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Front panel paint removal

Powder coating has a HIGH likely-hood of filling the engraving. Much more so than a couple of coats of paint. Keep the paint in spray consistency, and paint accordingly. Put it in oven on warm - about 145Deg F for a couple of hours. <snip>

Date: Mon, 01 Aug 2011 15:27:34 -0500
From: Jerry K <w5kp@hughes.net>
Subject: Re: [R-390] Front panel paint removal

Powder coating, IMO, is a bad idea for pressed-in or engraved panels. Coating is waaay too thick, will fill in and obliterate the engraving. For the most scratch-resistant coating possible, I'd recommend a Duracoat kit instead. I apply it with an airbrush, but I see they now have it in spray can kits. See www.lauerweaponry.com.

Date: Mon, 1 Aug 2011 13:31:54 -0700 (PDT)
From: John Flood <kb1fqg@yahoo.com>
Subject: Re: [R-390] Front panel paint removal

Do you have one of those white pop out things stuck into a screw hole, like they put into chickens telling you when it's "done" and ready to come out of the oven?? ("Ducking and Running")?

Date: Mon, 1 Aug 2011 19:14:33 -0400
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Front panel paint removal

I did manage to do one successfully with powder-coating, but it wasn't easy. It took them two tries to get the coating thin enough. The second one just never worked out and I ended up having to fill them with JB Weld and having it silk-screened. I definitely would not try it again.

Date: Wed, 3 Aug 2011 12:00:39 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: Re: [R-390] Front panel paint removal

Of course then there was the BIG PCB thing. And here I'd been into transformers with an arm up to my arm pits changing voltage taps. My tissue sample is in the Military data bank for Agent Orange.

So when I bake the finish, releasing the volatiles, I VENT very heavily!"

Oh, I know the feelings. Back when I was a "lab rat" at college there were a few times it was "up to the elbows" in PCB oil on the load banks. Nice toasty, 140 degree transformer oil. I tried to find the big black rubber gloves but more times than not, they had more oil in them than the load bank had in the tank. I would always scrub down with soap and water after dealing with the load banks but some of the other "rat-ettes" were perfectly happy to just wipe their arms down with scrap cloth towels.

In the 90's I had a super-acute exposure to benzine (industrial accident) that overwhelmed my full face respirator in a matter of seconds. I was the "industrial hygiene lab rat" that time and was doing a Draeger glass tube pump sample to determine the benzine levels. It was supposed to be 10 pumps through the tube and then read where the brown line was on the side of the tube. I was still halfway through the first draw on the pump when the tube turned totally brown (saturated) and I could taste the benzine in the air as the organic solvent breathing canister filter was swamped. Just taking the 20 steps or so out of that area were nearly impossible. I almost passed out from the benzine fumes. I figure that one incident probably took a year off of my liver. At least I do not drink alcohol or do other obnoxious, ilicit things to my chemistry with drugs.

I bake the paint on my radio panels in my kitchen convection oven (Jennair) that has convection air circulation inside and an external exhaust fan that goes by duct to outside of the house. Fortunately it does not take long to bake a radio panel and I only do that work when it is cool enough for me to have all of the windows open. After baking I shut down the convection mode and leave the exhaust fan on the oven running for a few hours. The panel comes right out of the oven and I put it on top of the porch railing outside for another day.

I would never try that with a gas fired oven (only have electricity up here, no gas) nor would I do that with something that did not have an external ventilation system.

Baking the enamel paint really makes a difference in how the panel turns out.. I am in the process of making every radio panel the exact same color as I have a case of the same color paint.

I have not had to do anything really aggressive to remove old paint. I use Strip-Ez and let it sit for a few hours before going after it with a plastic scraper. I have also used lacquer thinner and some automotive paint remover/ thinners. Usually I can clean out the lettering with a small brass brush or even a hard toothbrush.

Date: Wed, 03 Aug 2011 13:38:41 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Front panel paint removal

My "breathable" air source was fed by air line from compressor and breathable air filter immediately after. This was late '70s. PCB exposure was necessary to change voltage taps in the main step down transformer with switchgear. Generator was one trailer, feeding the xfmr and switchgear trailer mounted. One instance was feeding the NOAA Ship

Researcher. Second instance was emergency standby for DC VA Hospital while engine was being overhauled. I was fortunate in that we didn't rely on a filter mask!

Date: Fri, 19 Aug 2011 17:21:00 -0400
From: Curt Nixon <cptcurt@flash.net>
Subject: Re: [R-390] Why polished radios?

My experience (in offshore yachts) has been that unless you are ready to do a proper acid etch/zinc chromate and epoxy primer with some sort of 2 part epoxy or urethane top coat, it is better to leave the clean aluminum bare. It is its exposure to oxygen that creates the micro oxide protective coating...just like stainless steel. Take away the oxygen..as in rattle can krylon or similar, and you can create oxygen depeted areas that can pit and corrode very quickly..even in a mild environment. Also, stainless fasteners into aluminum with no galvanic barrier results in white powder destructive corrosion of the aluminum--in a marine environment. Not sure if Alodine (TM) m is exactly zinc chromate or not. It is still sold by the aircraft maintenance folks like Aircraft Spruce Co.. The nice thing about Alodine over anodize is that Alodine can be done over older Alodine. Anodizing can't really do that because of the insulation layer. Anodizing is ALL clear..the color comes from dyeing the bare aluminum
before the anodize process.

This is what I remember +/- the old age frequency drift ;)

Date: Fri, 19 Aug 2011 16:02:03 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: Re: [R-390] Why polished radios?

I think that with aluminum the passivation layer reforms in a matter of seconds. If it is not exposed to a corrosive atmosphere or an electro galvanic reaction it does not go any further.

I use a metal polish with a cloth wheel to clean up things like IF cans in an SP-600 or brass gears for drivetrains and it contains some sort of protective layer like a wax. I have never thought of doing it to an entire chassis and would think that taking down all of the anti-corrosive coating on an R-390 would be quite an exercise.

Is the yellowish color a chromate coating? I would not want Erin Brockovich to show up at my door because I used hevavalent chromium to restore a finish and dumped the residue down my septic system. For a shiny radio you may be able to use a lacquer varnish to lock in the pretty look or if you really wanted to get into it you could completely strip the chassis, take out all of the components, tube sockets and steel parts and anodize the entire thing. You can even do anodization in colors (Caswell kits). It would take some pretty serious solvents, strippers, acids, etc.. to get down to bare metal. I would probably go with the anodized gold color <s>.

Maybe we can simulate the yellow chromate color by putting the radio in the same room as a dozen smokers for a year <j/k>.

I have seen some industrial equipment in shiny aluminum cabinets put in places where they were eaten up in weeks. At water plants where there are

high levels of chlorine, fluorine or ozone gas or in salt-water environments like on the pier at Pensacola NAS. It is amazing how quickly ozone eats stuff up and leaves nothing but a black sticky residue behind.

Anodization is actually an insulating layer and I could see problems where tube socket screws need to get to chassis ground. Then again, slight differences in alloys can also cause dissimilar levels of anodization and you could end up with a very grainy, porous finish on external surface areas and almost no coating inside of the little cavities inside of something like the bottom of an IF deck.

I DESPISE the cadmium coated screws in a receiver like the SP-600. Almost every one of those things looks awful. I went through a small fortune in stainless steel hardware to replace those things. Pulling stuff apart to do a re-cap; old screw into the trash can, dig out a new shiny philips head screw, washer and nut in it's place. It is amazing how many intermittent problems on a receiver can be caused by loose hardware.

Date: Sun, 30 Oct 2011 12:11:06 -0500
From: "Bob Jackson" <bob@nofrowns.net>
Subject: [R-390] Chassis Cleaning

I've used several detergents, "mixtures", etc. with some success at cleaning really grimy chassis. Has anyone tried sand blasting? I know sand isn't always the medial used, e.g. beads, walnut shells, are popular. What sort of media are best? What kind of gun is used? How much air pressure? How much media is expended? etc. etc. What precautions should be made, e.g. (a) for the person and (b) for the chassis, etc.?

Date: Mon, 31 Oct 2011 09:46:05 -0500
From: Barry Williams <ba.williams@charter.net>
Subject: Re: [R-390] Chassis Cleaning

I used to sandblast when I was out of highschool. For metal work, we called it sand texting and I've heard it's called something else now. Same hose pressure but small metal nozzles with finer 'sand.' It will leave a satin like finish pitted into the surface. Think receivers on lever action.

Date: Mon, 31 Oct 2011 15:18:47 +0000
From: <kirklandb@sympatico.ca>
Subject: Re: [R-390] Chassis Cleaning

Media blasting (sand, glass etc being the media).
My gun has a ceramic nozzle.

You can get a sand blasting cabinet so that you have a closed system. This recovers the media and you can re-use. You can also use it outside in which it is much harder to re-use the media. With sand/silicon you don't want to breath the dust. You also have to keep in mind the old paints contained LEAD and you don't want to breath that either. You can check out some of the gear at Princess Auto (Canada) but I suspect the US has equivalent stores.

Date: Mon, 31 Oct 2011 11:29:12 -0400
From: Barry <n4buq@knology.net>

Subject: Re: [R-390] Chassis Cleaning

> I used to sandblast when I was out of highschool. For metal work, we
> called it sand texting and I've heard it's called something else now.
> Same hose pressure but small metal nozzles with finer 'sand.' It will
> leave a satin like finish pitted into the surface. Think receivers on lever action.
> the other Barry

Did you mean "texturing"?
the other, other Barry

Date: Mon, 31 Oct 2011 11:33:19 -0400
From: "Ed Tanton" <n4xy@comcast.net>
Subject: Re: [R-390] Chassis Cleaning

You can get a nice sandblasting airbrush, extra aluminum oxide abrasive, and extra ceramic tips from MicroMark at:

http://www.micromark.com/Paasche-Air-Eraser-Mini-Sandblast-Gun-Set,9117.html

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Date: Mon, 31 Oct 2011 10:39:27 -0500 (CDT)
From: ka9egw@britewerkz.com
Subject: Re: [R-390] Chassis Cleaning

I've owned Badger's version of that tool for many years...right useful, it is...stay away from cheap import knockoffs...

From: Curt <cptcurt@flash.net>
Subject: Re: [R-390] Chassis Cleaning

I would NEVER use sand to blast a piece of aluminum...unless you want it to look sandblasted. If you want to clean it without impacting the surface, try soda blasting. Same type equipment (check Harbor Freight for inexpensive setup) It is essentially baking soda. washit off with water...will take of haze and paint without roughing up the aluminum surface.

Date: Mon, 31 Oct 2011 11:19:22 -0500 (CDT)
From: ka9egw@britewerkz.com
Subject: Re: [R-390] Chassis Cleaning

When I was working part time at a local motorcycle shop, there was a body shop guy we used who used to have a setup to blast with powdered dry ice... took all the paint, rust, bondo etc off slick as a whistle without disturbing the surface of hte metal...

Date: Mon, 31 Oct 2011 11:35:33 -0500
From: Curt <cptcurt@flash.net>
Subject: Re: [R-390] Chassis Cleaning

We started doing dry ice blasting in late 80's for cleaning machines in the plant. It leaves ZERO residue. Soda blasting is pretty much the same but you need to rinse off the remaining soda with water, then we bake the units if they had wire harnesses or other electronics inside. Leaves and almost polished finish..no need to even sand it unless you want to add some 'tooth" for paint.

Date: Mon, 31 Oct 2011 21:22:41 -0500
From: "Ba.Williams" <ba.williams@charter.net>
Subject: Re: [R-390] Chassis Cleaning

Dry ice? That's a neat idea. One place where I worked had a crude outside shed that was like a sand box for retrieving sand. I also used the big booths that took rolling carts. I never heard of anyone using masks back then. I worked only with silica and carborundum.

Date: Thu, 03 Nov 2011 13:14:56 -0500
From: Barry Williams <ba.williams@charter.net>
Subject: Re: [R-390] Chassis Cleaning

I began by sandblasting redwood and oak signs. This was a new thing at the time in the Atlanta area, and a lot of money was in that. I also did motorcycle tanks. Like you said, the bondo from shaping chopper tanks would be stripped away quickly. There was business in sandblasting wrought iron items that had been painted. Some auto work. One guy insisted that I sandblast the rear compartment of his Chevy van without masking anything at all. After trying to talk sense, the boss told me to sandblast away. His vinyl seats were chewed up some, but most damage was to the inside of the windows. He paid and never said a thing.

Date: Thu, 03 Nov 2011 14:23:38 -0500
From: Curt <cptcurt@flash.net>
Subject: Re: [R-390] Chassis Cleaning

Oh My! LOL.. Sand or other abrasive media sure has its place..you named several. But I see NO place you would ever want to use it on a pc of aluminum electronics. I think $68 bucks for the system for soda blasting at Harbor Freight and a bag of soda for $20. Your compressor and you have it made. Watch the you tube videos on soda blasting and you will see what it can do without damage. FWIW Curt
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Date: Wed, 30 Nov 2011 15:34:06 -0800 (PST)
From: Perry Sandeen <sandeenpa@yahoo.com>
Subject: [R-390] Simple Green Precision Cleaner

Quite a while back I got some Simple Green Extreme Aircraft and Precision cleaner but hadn?t had a chance to use it until now.

It is a completely different cleaner than the usual green Simple Green found in all the stores. Originally when I used it on the painted surface of my lawn tractor it took off the gunk but also some of the paint.

The Extreme Aircraft and Precision cleaner is entirely different. First it is clear. When using it it is very similar to 409 but with some significant advantages. Although the directions give information for diluting, if you wish, I used it without dilution.

First of all, it removed dirty film that 409 couldn?t clean. Secondly it is not as allergic if one gets a sniff of it while spraying. It still needs the elbow grease and you may need to do a surface several times before all the grime comes off. I didn?t wear gloves when using it and after rinsing and drying my hands they seemed normal with no dryness.

The fine print says to wear gloves if having a long exposure (whatever that means) and use in a well-ventilated space. Since I was doing a small test I just winged it. However, when I do a major cleaning I will do the gloves and ventilation shtick.

I got my cleaner from Granger?s and bought two gallons as it was the lowest cost-per-ounce and also shipping. The part number is D6-17487P. Not cheap but worth it to me. YMMV.

Date: Thu, 1 Dec 2011 11:42:06 -0600
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: Re: [R-390] Simple Green Precision Cleaner

Thanks for the firsthand report on the super-version of Simple Green. It sounds like it is worth picking up a gallon and leaving the regular Simple Green stashed under the kitchen sink for more pedestrian home cleaning activities. I have a few radios I need to de-grunge including that SP-200 that I picked up at the Huntsville show. (it is "still" in the trunk of my car).

Even though it is pretty chilly outside I can do a radio cleaning inside with scalding hot water and simple green, a rinse with boiling hot distilled/ deionized water and then stick the radio on the porch railing to dry out for a day or so before giving it the 140 degree convection oven treatment in the kitchen.

I am only working on individual modules right now, IF decks, audio decks and one really grungy RF deck so it is not as if I will be hefting an 80 pound radio from room to room. Your collection practically requires a factory assembly line to go through all of the gear you have collected. I hope you are working on your hybrid 390's with the non A IF decks.

Mostly I have been distracted by the restoration of a couple of Racal 6790's and a Watkins Johnson 8718A. I have to admit that the siren's song of how the 8718A sounds has been attempting to lure me into brand disloyalty. I give myself periodic shocks with B+ to drive away those tempting thoughts as there are no warm little filaments to heat up my radio room.

Date: Thu, 1 Dec 2011 11:48:32 -0600
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: Re: [R-390] Simple Green Precision Cleaner, clarification

Maybe a point of clarification for those looking for the Simple Green Precision. The number that Perry listed, "D6-17487P" is actually a Boeing specification for the cleaner. If you follow the trail you can get to the right product. I went to the Simple Green web site and they list out the GSA part number for actual product ordering. The part number for a one gallon container is 13406 and a google search under "Simple Green" 13406 will yield many more hits on suppliers.

Date: Sat, 24 Mar 2012 19:51:36 -0700 (PDT)
From: Perry Sandeen <sandeenpa@yahoo.com>
Subject: [R-390] Removing MFP

Some of the BA?s we have/get were coated with MFP which causes several problems.

Background.
A long time ago the US military found it had a problem in some situations with mold and/or fungus thriving inside electronic equipment so they developed a spray material that was applied to combat the problem. It is a brownish looking material on wires and solder joints and adds a somewhat golden look to aluminum chassis parts

Our current problems with MFP
Wires and terminals coated with MFP makes repair difficult as the wires become stiff and tend to glue together in wire harnesses. Sometimes adding to the problem is the spray coating was very heavy. Terminals covered with MFP must be scraped clean before soldering or one gets an ugly residue. Scraping the stuff off can be difficult. I?ve found that a stainless steel cuticle pusher, about $4 at beauty supply stores, sharpened a bit on a grinding wheel worked best for me. I tried using a Xacto knife. For me in many cases the blade was too large or wasn?t good for prying, but then it wasn?t designed to pry. I had no success with either alcohol or acetone. A list member suggested AFAICR, Goof-Off. I tried it but it didn?t work on the MFP. I?m still looking for a chemical cure that isn?t a carcinogen.

Removing MFP from aluminum parts.
For removing the stuff from chassis parts thanks to Walter Wilson, I learned of an automotive product called NEVER-DULL by Eagle One. It is about $5 for a 5 oz. and comes is a round metal can. It is a bit of a strange product. It seems to be cotton wading moistened with a faint kerosene-like odor fluid. To use it, one pulls out a wad and then rubs the MFP coated metal. The wading turns black in color as you rub. You keep moving the wadding around until the whole piece is black. The results are spectacular. Now the downside is that this takes a great deal of time and can be expensive. To do both sides of one R390A side panel might consume a whole can and several hours. Somewhat faster (relatively speaking) and considerably cheaper was using a product marketed by Turtle Wax called POLISHING COMPOUND & scratch remover. It is a white cream with some abrasive in it so the finished shine was a bit duller than using NEVER DULL. I have yet to try using NEVER DULL as a final polisher for metal done with polishing compound.

For very heavy MFP or corrosion I used The Turtle Wax product rubbing compound. This is a rust colored paste that removed MFP fairly rapidly. It is about the same price as the polishing compound but leaves a duller finish. The level of finish ?shine? desired is totally subjective. The amount of MFP applied seems to very greatly. My best advice is to try any or all of these products in an inconspicuous place and see how they work in your particular situation.

A final note. I also tried these products on an old plain SP-600 side panel and got the same results. IMNSHO, I believe any BA metal polished with these products makes for a very good looking radio. Still on the to-do list is to see if front panel paint can be shined up with the NEVER DULL or the polishing compound. I personally wouldn?t use rubbing compound on a painted surface because it is so aggressive.

Perhaps others would share their experiences.

Date: Sat, 24 Mar 2012 23:31:00 -0500
From: "chacuff" <chacuff@cableone.net>
Subject: Re: [R-390] Removing MFP

I'm wondering if lacquer thinner or maybe enamel reducer. Haven't tried either but have both. I have an SP-600 main tuning cap that was sprayed with that stuff and it's flaking. Caused all kinds of problems. Ended up changing the cap out. Would like to be able to clean that thing up by dipping it in some solution that would cut it....

Date: Sun, 25 Mar 2012 10:49:26 -0400
From: Al Parker <anchor@ec.rr.com>
Subject: Re: [R-390] Removing MFP

This is a very timely subject for me. I'm working at/on an SP-600-JX-28/R-620, that was MFP'd, and is pretty cruddy. It has the large square side panels which gave even more area to clean, and as you say, there's MFP on everything, I've been chipping away at solder terminals to get it off so I can remove/re-solder, or even just get a meter probe on them and make connection.

I have a can of Never Dull Wadding, so did a little experimenting this AM. Took the turret cover as a trial, as it's relatively small, with some difficult areas as the s/n tag, and the ground post. Using your wadding approach took about 10 minutes to get the horizontal surface almost clean. I wasn't sure if the fluid it's soaked in was doing much, and put a wad of the stuff on a side panel area that was pretty thick with MFP, and let it sit under some pressure for about 10 min. It may have softened the stuff a little. I've left it on another spot and will
go back after lunch to see the result.

But, after wiping a surface with the wadding, I used some extra fine steel wool on it and it came off very easily. I know, there are folks that wouldn't let steel wool anywhere near a radio, and I rarely do, but I think this is a safe application. Many pieces can/will be removed before cleaning. It'd still be nice to find a solvent, but I know it's been looked for before with no results that I can remember.

No matter how you do it with the wadding or steel wool, the black grimy stuff needs to be removed, so you can see how it's going. Just wipe it off with a rag, it'll help keep the wadding or the steel wool a bit cleaner. But it'll get all over your hands, rubber gloves might be good, just for cleanliness, the black stuff must be fine MFP and aluminum oxide, it's hard to wash off your fingers, gets in the creases.

It's still going to take a while to get this rcvr cleaned up, but hopefully it'll be worth it. It has some interesting design differences from the run of the mill SP-600's. You can take a look at it as it was when I got it, over a yr ago
<http://www.boatanchors.org/SP-600-JX-28.htm> I will get more info up
there on it's features soon.

Date: Sun, 25 Mar 2012 10:07:45 -0400
From: Curt Nixon <cptcurt@flash.net>
Subject: Re: [R-390] Removing MFP

Having dealt with a variety of "unknown" materials like this stuff, my preferred course of action to find a remover is to find the application data sheet or similar to an MSDS sheet on it. For sure, the application sheet is the best--it often will tell you what the wet cleanup solvent is as well as some idea of removal.

Also, as opposed to something like a mild abrasive, I prefer soda blasting from a

micro tool. It is controllable enough to do individual terminals and is very green. Residue will blow away with air or wash clean off with plain water and leaves no film or other contaminate behind. The media is baking soda. It is very mild. Will for instance remove the printing ink from a beer can and leave a polished aluminum surface sheen.

Date: Sun, 25 Mar 2012 15:11:35 -0400
From: Thomas Chirhart <k4ncgva@gmail.com>
Subject: Re: [R-390] Removing MFP

Perrier, every sailor on the list with grey hair knows NeverDull. Never a dull moment polishing 16 inch projectiles in boot camp or bright work onboard ship such as the ships telegraph on the bridge. Works wonders on brass buckles too. Thanks for sharing... 73

Date: Mon, 26 Mar 2012 09:28:33 -0400 (EDT)
From: djed1@aol.com
Subject: Re: [R-390] Removing MFP

I've used the white polishing compound on both old and newly-painted front panels with no problems. I agree that the heavy rust colored compound is probably too agressive.

Date: Mon, 26 Mar 2012 08:49:42 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: [R-390] NEVER-DULL cleaner

I found a reference to NEVER-DULL many years ago and bought 12 cans. Where I found it particularly useful was on aluminum and brass. I would degrease components first, then apply NEVER-DULL and use a cordless drill with a wheel polishing attachment (white cotton like lambs wool) to shine it up.
The brass would gleam to the point that you could practically see your reflection in it and the aluminum would look better than the day it rolled off the factory floor. It also applied a protective coating to prevent re-oxidation of brass and fingerprints from appearing on shined up metal.
It got to the point that I would remove the paint from items like the dial bezels on an SP-600 so it was down to copper and then I would NEVER-DULL the finish and re-install.

I have only used two cans. I even use it for the bottom of cookware in the kitchen (copper pots).

Date: Mon, 26 Mar 2012 09:27:27 -0500
From: "Bill Hawkins" <bill@iaxs.net>
Subject: Re: [R-390] Removing MFP

Google found a specification for MFP at
http://www.wbdg.org/ccb/FEDMIL/t152b.pdf

It is dated 2006, but the text may have been written in 1961. This 14 page document says MFP is a varnish, but doesn't say how to remove it. Varnish remover comes to mind. It doesn't say anything about the fungicide used, either, but gloves are a really good idea. Steel wool leaves bits of iron in aluminum that will rust if the surface isn't protected. Boat stores (West Marine) sell bronze wool

that doesn't rust. Hope this was useful.

Date: Mon, 26 Mar 2012 11:25:31 -0400
From: Nick England <navy.radio@gmail.com>
Subject: Re: [R-390] [GreenKeys] Removing MFP (fwd)

You just need a bottle of "suitable solvent" -

SIMCO http://www.simcocoatings.com/t-838.html says:
Solvent Type: Xylene/Aromatic/Aliphatic Hydrocarbon

Army Technical Manuals usually say remove MFP varnish by scraping with a knife blade (for a small area) or using trichloroethylene as a solvent for larger areas. A study of MFP removal for circuit board repair tried 28 solvents as chemical strippers, of which about 50% worked. www.dtic.mil/dtic/tr/fulltext/u2/283476.pdf
It also says a "cool" soldering iron 35-400 deg worked better than a "hot" 600 deg one at softening the varnish. Finally, any number of military manuals (including for the SP-600) talk about touching up the MFP afterwards, but never mention anything special for unsoldering.
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The applicable document on MFP treatment seems to be:
MIL-T-152B 31 March 1961
SUPERSEDING MIL-T-152A 14 December 1955
MILITARY SPECIFICATION - TREATMENT, MOISTURE- AND FUNGUS-RESISTANT. OF
COMMUNICATIONS, ELECTRONIC, AND ASSOCIATED ELECTRICAL EQUIPMENT

Which unhelpfully just says:
"Resoldering of wire connections shall be made only after cleaning the ends of wires and terminals with a suitable solvent to remove old varnish."

MIL-T-152B says to use:
MIL-V-173 - Varnish. Moisture-and-Fungus-Resistant (for the Treatment of Communications, Electronic, and Associated Electrical Equipment).

MIL-V-173C (1969) says:
This specification covers one type of moisture-and-fungus-resistant varnish consisting of a para-phenyl phenol-formaldehyde resin in combination with tung oil and suitable solvents which has been made fungi static by the addition of 7.0 +/- 1 . 0 percent salicylanilide or one percent copper 8-quinolinolate, for the treatment of assembled communications, electronic, and associated electrical equipment.

3.1.1 Volatile content. The volatile portion of the varnish shall be any suitable solvent or solvents: however, methanol (wood alcohol), benzene (benzol), chlorinated hydrocarbons, or other highly toxic solvents shall not be used.
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FWIW, A 2008 discussion on antique radio forum turned up the following comments:
1) "In WWII a mixture of Tung oil and copper Napthalate was used"
2) "In 1950's-60's aircraft - a two part resin compound, and not easy to get off en mass. you can soak it in MEK or Acetone but probably not a good idea since that stuff will attack just about anything that

isn't metal."
3) "Use a xacto knife or similar tool to get enough off to put a
soldering iron on the bare solder joint. The MFP will then become very
plyable and it can be easily cleaned off after removing the component
or wire".
4) "I've always used Acetone to remove MFP before soldering."

Date: Mon, 26 Mar 2012 10:49:22 -0500
From: Curt <cptcurt@flash.net>
Subject: Re: [R-390] [GreenKeys] Removing MFP (fwd)

If it is phenolic-based varnish it would most likely come off with methylene-chloride.
MEK might also work.

Date: Mon, 26 Mar 2012 16:53:17 +0100
From: "Lester Veenstra" <lester@veenstras.com>
Subject: Re: [R-390] Removing MFP

Or to get to the real (navy) stuff; its BRASSO, which, interesting enough, polishes
up very nicely, dull plastic (Bakelite) knobs from an AR-88.

Date: Mon, 26 Mar 2012 11:01:36 -0500
From: Curt <cptcurt@flash.net>
Subject: Re: [R-390] Removing MFP

Seems like Brasso and Never-Dull are very similar except for the batting.

Date: Mon, 26 Mar 2012 11:47:06 -0500
From: "Bill Hawkins" <bill@iaxs.net>
Subject: Re: [R-390] Removing MFP

It occurred to me that chipping dry MFP might require a mask, so I dug a little
deeper. MFP Varnish http://www.wbdg.org/ccb/FEDMIL/v173c.pdf

3.1.2 Oil. The oil shall be tung oil conforming to Specification TT-T-775.

3.1.3 Resin. The resin shall be para-phenyl phenol-formaldehyde resin
conforming to Specification TT-R-271. http://en.wikipedia.org/wiki/
Formaldehyde#Safety
Formaldehyde is highly toxic to all animals, regardless of method of intake.
Known to be a human carcinogen.

3.1.4 Fungistatic agent. The varnish shall be made fungistatic by the addition of
salicylanilide, or, when specified, copper 8-quinolinolate.

Salicylanilide 7 +/- 1%
>From MSDS at http://www.sciencelab.com/msds.php?msdsId=9924857
Potential Acute Health Effects: Very hazardous in case of ingestion. Hazardous in
case of skin contact (irritant), of eye contact (irritant), of inhalation.

Copper 8-quinolinolate 1.0 +.25/-0%
Used to treat exterior wood. Not nearly as harmful as salicylanilide.

Disclaimer: I have chipped some MFP in my day (and snorted rosin from

lead solder) with apparently no ill effects at age 74. YMMV

Date: Mon, 26 Mar 2012 14:29:23 -0400 (EDT)
From: Gordon Hayward <ghayward@uoguelph.ca>
Subject: [R-390] phenol-formaldehyde resin

Just a note - phenol-formaldehyde resin is also known as Bakelite. Not as bad as the name 'formaldehyde' suggests.

Date: Mon, 26 Mar 2012 19:20:57 -0500
From: "Ba.Williams" <ba.williams@charter.net>
Subject: Re: [R-390] Removing MFP

Never Dull always worked much better for me on brass. You are always polishing brass in the Army.

Date: Tue, 27 Mar 2012 07:32:57 -0700 (PDT)
From: Raymond Massey <dougmassey@masseyradiolabs.com>
Subject: Re: [R-390] Removing MFP

I have found Brasso works very well with a little elbow grease or polishing wheel as well, especially on the IF/RF cans etc. Now as for the the side panels and chassis, I bead blast those with a fine bead. It works great, and makes quick work of it. I get all of the crud of of it including the rims of the holes. I say this because I have had many cuts on my hands from trying to polish the holes in the side panels!!!? It hurts.

After it comes out of the beadblaster, I just wash them off with soap and water to get residue off it, and Im ready to go.? I also use it for the front panels as well. Does a great job and no chemicals to worry about!!

Date: Tue, 27 Mar 2012 16:13:53 +0000
From: "Webb, Gary" <glwebb@gundluth.org>
Subject: Re: [R-390] Removing MFP/Metal polishes

Sounds like a person might be wise to wear rubber gloves and mask when removing MFP. This site has a various products for polishing metals and other materials: http://www.caswellplating.com/ And if you have some item you are restoring that could us some plating -like a 1970 BSA 650 Lightning- they can help you there too.

Date: Tue, 27 Mar 2012 12:11:17 -0700
From: "Chris Kepus" <ckepus@comcast.net>
Subject: Re: [R-390] Removing MFP

When you say "fine bead", are you referring to glass bead or ? I have a TIP cabinet and have started using it more and more for electronic stuff than the car stuff for which it was acquired. I use glass bead for more "delicate" items and when the going gets rough, I switch to aluminum oxide. Are your chassis stripped when you do the blasting or do you mask off portions? I've looked at putting together a soda blaster for my electronics blasting because you can literally blast anything without causing damage. Only issue is that it doesn't remove rust which, of course, doesn't occur on most metals used in our radios. For rusting ferrous stuff, either glass bead does or al oxide is the ticket. Look forward to any response you may wish to send.

Date: Tue, 24 Apr 2012 11:42:14 -0400
From: Barry <n4buq@knology.net>
Subject: [R-390] Paint/Lacquer Sticks?

Where do you folks get white paint/lacquer sticks (for relettering)? I can find them online but was wondering if there's a chain store that might sell them.

Date: Tue, 24 Apr 2012 11:47:08 -0400
From: "David C. Hallam" <dhallam@knology.net>
Subject: Re: [R-390] Paint/Lacquer Sticks?

Try your local big box craft store.

Date: Tue, 24 Apr 2012 11:51:09 -0400
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Paint/Lacquer Sticks?

I tried that a few years ago without much luck. I looked in Hobby Lobby but they only sell paint pens (liquid paint) that doesn't work very well for this. I think WalMart sells them online but by the dozen (or something like that). Maybe the store sells them individually? I think they're used for things like gun engraving. Maybe a gun shop?

Date: Tue, 24 Apr 2012 12:35:54 -0400
From: "David C. Hallam" <dhallam@knology.net>
Subject: Re: [R-390] Paint/Lacquer Sticks?

I don't know if they are used in gun engraving, but you might try Brownell's. They are about the largest supplier of gunsmith items in the country. They have their complete catalog on line.

Date: Tue, 24 Apr 2012 12:42:45 -0400
From: Rolfe Tessem <rolfe@ldp.com>
Subject: Re: [R-390] Paint/Lacquer Sticks?

http://www.micro-tools.com/store/SearchByKeyword.aspx?word=stik
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Date: Tue, 24 Apr 2012 16:43:33 +0000
From: <kirklandb@sympatico.ca>
Subject: Re: [R-390] Paint/Lacquer Sticks?

You don't have to use a Lacquer stick to fill in the engraved lettering. Put a dab of paint on the panel close to the lettering and use body repair spatula to draw the paint over the engraving. Let dry for a bit and then wipe off the excess paint. Let completely dry and use a soft cloth to remove the rest of the excess paint. You might even use a bit of paint rubbing/polishing compound to help.
I use acrylic artist paint.

Date: Tue, 24 Apr 2012 12:45:38 -0400
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Paint/Lacquer Sticks?

I can get them online but to pay what most places want for shipping on a $2 item is

hardly worth it for something I don't really have to have. I'll have to remember to order a stick from somewhere whenever I order other things.

Date: Tue, 24 Apr 2012 17:56:16 +0100
From: "Andy Jackson G8JAC" <g8jac@btinternet.com>
Subject: [R-390] FW: Paint/Lacquer Sticks?

See: http://www.markal.com/prod/82/lacquer-stik-highlighter-fill-in-paint.aspx.
They are frequently offered on ebay too, so not hard to find.
There's even a distributor in the UK!
http://www.paint-markers.co.uk/lacquerstik-c-8625_8669_8677.html

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Date: Tue, 24 Apr 2012 09:58:47 -0700 (PDT)
From: Garry Stoklas <jergar@sbcglobal.net>
Subject: [R-390] Paint/Lacquer Sticks? (Barry)

A company called Micro-Tools has the lacquer sticks in a variety of colors at very reasonable prices, $2.99 each stick for all colors they carry except gold which is $4.99 a stick. I've used red, black and white sticks to re-letter a number of pieces of test equipment and a radio with engraved front panels. They are very easy to use and produce nice results. Their lacquer sticks can be found here:

http://www.micro-tools.com/store/SearchByKeyword.aspx?word=lacquer

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Date: Tue, 24 Apr 2012 11:10:37 -0700 (PDT)
From: Steve Toth <stoth47@yahoo.com>
Subject: Re: [R-390] Paint/Lacquer Sticks?

Aaron Brothers is one source out here in the west:
http://www.aaronbrothers.com/store_locator

I would think most art supply stores and university campus book stores that sell art supplies, would have them.

Date: Tue, 24 Apr 2012 14:20:52 -0400
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Paint/Lacquer Sticks?

Yes, I've done that before on R390A front panels. I wanted to try the lacquer stick approach. The acrylic paint I'm using doesn't want to stick really well to some of the grooves in some plastic knobs (on a Simpson 260 meter) so I thought I'd see if lacquer did any better. If it does, I have an R390 front panel that I'm considering refinishing and wondering which filler would work best.

Date: Tue, 24 Apr 2012 14:56:05 -0500 (CDT)
From: nryan@mchsi.com
Subject: Re: [R-390] Paint/Lacquer Sticks?

I recently repainted a set of knobs, using acrylic paint for the stripes. I suspect this paint also will work fine for front panel engravings, too.

The paint is found in Walmart's craft department, cheap and readily available. It's marketed by Plaid Enterprises, Inc., and branded FolkArt Outdoor Opaque #1610

Wicker White Acrylic Paint. A two fluid ounce bottle is plenty to work with.

Some quotes from the label: "UV and weather resistant. Permanent outdoors. Waterbase, non-toxic. Satin sheen. Self sealing. Cure: 48 hours. Clean while wet with soap and water. Made in USA."

What's not to like about this product?

My procedure for restriping knobs:

After painting, scraping the stripe to bare metal is fast and easy, using the back corner of a box cutter blade. Stanley makes a small version with a 3/8" wide blade that fits the hand comfortably. Brush away scrapings with an old toothbrush.

Cut some 2" wide strips from a sheet of blue "Shop Towels" that you find in the automotive section. Cut strips into half lengths and fold. Dampen two of them. Have some dry towel strips handy.

With a flat toothpick or suitable dental tool, dip and apply paint to the stripe on just the knob's top surface. No need to fill completely. Be sure paint reaches all the way into groove. Working quickly, wipe off excess with finger tip along (not across) the stripe and off the edge of the knob. Clean finger tip on first damp "towelette", grab a second damp one to wipe away remaining excess, then dab with a dry towelette if needed. Do the same for the stripe along the side. Paint sets up quickly, so working really, really fast eases clean-up effort.

Curious about how I repainted the knobs?

Spray paint primer is Krylon Epoxy Enamel #319 Gray Primer. Top coat is Red Devil Appliance Epoxy #RDAE0902 Appliance Black. Follow label instructions religiously.

1. Remove set screws, keeping them in a safe place.
2. Scrape and sand knobs, then degrease with lacquer thinner.
   Scrape stripes with small box cutter as described above, then brush clean.
3. Cut 1/4" dowel stock into 3" pieces as needed. Bore 5/16" holes 1/2" deep into
   a scrap 2 x 4. Space holes two inches apart along two rows -- wider spacing for MC/KC change knobs.
4. Place knobs onto dowel pieces, hold by dowel tip and spray paint outdoors with wind at your back. Set out to dry on the 2 x 4 board. Consult instructions on can about recoating.
5. Dry overnight in garage, then bake in under 200 degree oven when XYL is out
   of town.
6. Use set screws to chase out threads by dabbing a trace of Mobil 90 synthetic
   oil. Don't force so as to avoid stripping threads.
7. Follow above re-striping procedure.

Date: Tue, 24 Apr 2012 20:13:29 +0000
From: <kirklandb@sympatico.ca>
Subject: Re: [R-390] Paint/Lacquer Sticks?

I had a tough time getting the sticks to fill in. Yes the paint is tricky, that is why you have to find the right drying time. One could also use oil based paint or model paints.

Date: Thu, 26 Apr 2012 10:49:02 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: [R-390] Paint/Lacquer Sticks, redoing engraved panels

I use a pretty dense paint for redoing front panels. It is an aviation paint that is normally used to do things like the struts on landing gear and selected areas on an airplane. It bonds to just about anything and after drying/ baking is beautiful looking. A dark shade of grey with a high gloss finish.

The downside of this paint is that it tends to fill in the engraving and makes it difficult to get good fill. I came up with a technique where I paint and then have very deep engraving areas for letter filling with an acrylic blend.

After I chemically strip a front panel and do the plastic spatula scrape I sand the panel with scotchbrite pads (you can get different grits). Then I apply a very thin layer of plaster to where the engraving will be and wipe down and do a once over with a scotchbrite pad and a tacky rag (auto body supply stores sell those). What you end up with is a shiny panel with white lettering filled in flush. Then I shoot the paint (3-4 layers with light sanding in between, this takes a few days to do). After the last paint layer I let the panel dry at room temperature for a day. The paint is still soft at this time.

Now I take a dental pick and poke down on each engraving, the plaster just cracks and pops right out of the painted panel. I apply a water based latex
paint that is a blend of white and a glow-in-the-dark paint that shows up as green in dark light but is off-white/clear in normal lighting. After I do the wipe down on the letter fill and the acrylic dries for a few hours I put the panel into my convection oven and heat the panel to 250 F (until the thermostat bings to tell me it has reached the temperature and then I turn off the convection heat but leave the ventilation fan running. I let the panel slowly cool down all night long in the oven.

I end up with a really nice panel, with a very deep looking paint finish and completely filled in lettering. With the glow-in-the-dark paint mix the front panel will have a faint greenish glow that lasts all night long just off of a few hours of normal room lighting.

My next project is to make new meter bezels out of off white transparent plastic (like what you get on a coffee can lid). Heat transfer on new scales that include S units with a dBm scale for the RF meter and mV, dB for the line level meter, paint the backside of the plastic with the glow in the dark stuff and add a very tiny white LED to the internals of the panel meters to provide a diffuse white light. I would end up reversing the color scheme on the meters from white/green on a black background to white/red on a off white background that has a greenish glow (non radioactive meter fronts that are much sharper lettering than the existing meters).

Date: Thu, 26 Apr 2012 12:59:40 -0500 (CDT)
From: nryan@mchsi.com
Subject: Re: [R-390] Paint/Lacquer Sticks, redoing engraved panels

Brilliant, Tisha! Can you tell us some more about the glow-in-the-dark paint?

Date: Thu, 26 Apr 2012 11:02:14 -0700
From: David Wise <David_Wise@Phoenix.com>

Subject: Re: [R-390] Paint/Lacquer Sticks, redoing engraved panels

Yes, I'd love to see a picture of one of these, it sounds awesome.

Date: Thu, 26 Apr 2012 14:36:28 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: [R-390] Glow in the dark paint, questions

I have been asked where did I get the glow in the dark paint. Since I have had the bottles for a few years and they were eBay items at the time I went back and looked up the seller. Look at items 110863310765 120639758380 120885670707 Then go to the seller's store. They sell it in all sorts of base colors (white in normal lighting), (all sorts of weird colors either by UV light or others that are regular photo luminescent paints powders tints, etc). Some is water based, some is solvent based. The stuff I had cost about $100 a bottle for what is probably 4 oz of paint and has a 12-16 hour glow after exposure to light.

I did not know that they now have the paint in a normal white base color with a different photoluminesent color (aqua, purple, white, green, etc). it is interesting that you can get it in printer cartridges now. It is pretty durable. The last time I used it I washed out my paintbrush and dumped the water in the utility sink. I forgot to rinse out the sink and now whenever I go down to the laundry room at night there is a greenish glow coming out of the utility sink. I tried to scrub the stuff off and it does not go away.

Date: Thu, 26 Apr 2012 18:43:40 -0400
From: "David C. Hallam" <dhallam@knology.net>
Subject: Re: [R-390] Glow in the dark paint, questions
To: Tisha Hayes <tisha.hayes@gmail.com>

I have purchased glow in the dark paint at Hobby Lobby. WACO Night Color and is solvent based. They had a couple of different brands but this seemed to be the best. It comes in 20 mL bottles.

Date: Mon, 7 May 2012 20:42:37 -0400
From: John Wendler <wendlerjrv@gmail.com>
Subject: [R-390] Charred chassis cleaning

I pulled the audio deck off and spotted the big char mark on the main chassis underneath. The mark was like something "hot" broke loose and partially arced and partially burned. A mess of carbon and some resin, perhaps a resistor burnt. (A previous audio deck; the present one shows no signs of reciprocal damage.)

Formula 409 did not touch it, neither did Isopropyl Alcohol. PVC pipe cleaner, on the other hand, worked a treat. The charred mess disolved like a drop of ink into a large glass of water. PVC pipe cleaner is a mixture of things like Acetone and MEK; there may be other organic solvents depending on brand. I would not use it near a painted surface or any plastics, but it did a nice job on the aluminum. Use only with good ventilation and appropriate chemical precautions.

Date: Mon, 07 May 2012 20:14:54 -0500
From: Thomas Frobase <tfrobase@gmail.com>
Subject: Re: [R-390] Charred chassis cleaning

Go to the paint store and purchase a quart of denatured alcohol and a quart of acetone no shop should be without them ... tom, N3LLL

Date: Tue, 8 May 2012 15:45:55 -0400
From: Barry <n4buq@knology.net>
Subject: [R-390] Restoration Tip #3583

I know a lot of folks on this list restore the R390[A] series as well as many other radios and other gear and part of that process may involve the use paint strippers. I had a can of aerosol "aircraft" paint stripper (the kind that can be used on aluminum). It had sat on the shelf for several years until last week when it decided to rupture and spray my workbench with its contents.

The bottom of the can had rusted and it finally let loose. It damaged and/or ruined several pieces that were on my desk (some pretty much irreplaceable) as well as other areas of the shop. I don't think I could have aimed it any better at my desk from that distance if I had tried. The blast was sufficient to blow another can of cleaner from in front of it to clear the path to my workbench.

I only mention this as you may have a similar can of something caustic/corrosive lurking on your shelf as well. I suppose I was somewhat lucky in that it was at eye level and if the timing had been different...

I have taken this as an opportunity to clean my shelves of anything that might follow suit. I know it will most likely never happen again to me but it's a chance I'm not willing to take. Anyway, be forewarned.

Date: Tue, 8 May 2012 15:55:33 -0400
From: Tom Bridgers <tarheel6@msn.com>
Subject: Re: [R-390] Restoration Tip #3583

Excellent point and reminder, Barry!Many thanks,-Tom KE4RHH

Date: Tue, 8 May 2012 16:56:11 -0500
From: "chacuff" <chacuff@cableone.net>
Subject: Re: [R-390] Restoration Tip #3583

Good info Barry, I have had a couple of cans of the non aerosol that the bottom rotted out of...I think it does if from the inside out by the looks of things. I guess it's not a good idea to keep that stuff around more than a year or so...
Sorry for your loss of stuff...

Date: Thu, 11 Oct 2012 12:52:52 -0400 (EDT)
From: Roger Ruszkowski <flowertime01@wmconnect.com>
Subject: Re: [R-390] R-620 Color

49 gray use to be a range of acceptable shades.
It has gotten more exact over the years.
It may have been a good color in the beginning.
You have no idea how much sunshine that receiver may have seen.
You have no idea what that receiver may have been assaulted with over the years in the name of cleaning.

The things I have smeared on R390's in the name of maintenance procedures

hurts my soul to remember.

Date: Sat, 8 Dec 2012 10:45:16 -0600
From: "KA9EGW" <ka9egw1@britewerkz.com>
Subject: [R-390] stripping paint

>The problem is how to strip the thick while paint from the plastic case. I think I can spray paint it back like the original. It's worth a few bucks if I have to pay someone to do it.<

Stripping paint from a plastic case. The model-train guys have 2 ways they go about it. One is a product called "Unpaint". It is ethylene glycol monoethyl ether, and strips the paint without harming the polystyrene plastic underneath. The other is old fashioned DOT3 brake fluid. I've used both in the past, but I think the Unpaint was a little less embrittling to the plastic. Whether a particular radio is made from the same polystyrene plastic as a model railroad car, I cannot comment but to say "YMMV"...

Date: Sat, 8 Dec 2012 14:20:13 -0600
From: "KA9EGW" <ka9egw1@britewerkz.com>
Subject: [R-390] FW: stripping paint

Methylene chloride will eat most plastics. However Bakelite is not a plastic, it's a phenolic.

Date: Sat, 08 Dec 2012 15:42:20 -0500
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] FW: stripping paint

There is at least one significant issue when dealing with "Bakelite" or "Dakaware" items.
While indeed Phenol is the resin that binds all, carefully examine the item(s) BEFORE doing anything! Carefully examine the item(s) for hairline cracks! If any are found, then I'd suggest coating with a "neutral" sealant. If these cracks are not sealed, anything and everything will simply soak in and break it apart. The only "Phenolic" items that do not have this issue is the sheet based that has layers of cloth. The "knob" items are essentially flour with Phenol as a binding agent. This being the case, the hairline cracks are a quick path in for any moisture and expansion, leading to significant if not total fracture.

Date: Sat, 08 Dec 2012 16:21:51 -0600
From: barry williams <ba.williams@charter.net>
Subject: Re: [R-390] FW: stripping paint

I don't know about all of that. At least on the 70+ radios that I have now with the majority being Bakelite. Sadly, I don't have any catalin radios. This is a post war, 1946 so it is about guaranteed to be Bakelite. I have the Sam's or Rider's info, I forget which, and can look it up.

I pretty much ignore cracks unless they are visible and then I don't buy the radio anyway unless for parts. But, you do end up discovering them later on the bench from time to time. I leave them alone unless the crack is large enough to threaten the whole case. The radio cases all get the same treatment- a waxing/buffing with the real Liquid Lustre. The shine and slick surface reflection is beautiful and

durable. It also is an excellent cleaner, but regular dishwashing liquid mixed liberally (I hate that word) with water is easier. Almost every radio you find will have a coating of bacon grease and/or tobacco smoke. One of my first radios that I tinkered with was a gem of a Stromberg AM that I got for $3. It looked like it had been in a chemical pool or in the ocean. I was bored. Anyway, 24 hours of soaking it dishwashing soak gave it a beautiful, faultless surface. That is pretty much what got me started with these things. The Stromberg is still one of my all time favorites.

I've never seen the kind of knobs you are talking about either. They pretty much are all hard, pressure baked Bakelite. Durable. I've seen crumbly knobs but it a rare thing for me. I think my Hallicrafters S-38B and an EC-1 (is that right, Les?) has them. Les has one too and offered to give the whole radio to me when I begged for a knob, but his wife liked it too much when he went to box it up. What are the odds of having someone's wife like a radio too much??? C'mon Les! Go get her a nice, modern radio with a few bells and whistles at the Wal-Mall, and send me the % %&*@ thing! =8^P

I've just never seen the horror stories you are talking about. Catalin is certainly a different story. Among other things, it becomes brittle over time. I have a heavy hand mirror that was my mothers that is amber catalin. It suffered when formed into radio cases due to handling and heat. You have to be careful with that stuff but it is worth whatever
effort it takes.

Date: Sat, 08 Dec 2012 18:17:17 -0500
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] FW: stripping paint

I've only seen ONE knob that crumbled. Out of hundreds I've either had or still have. The only thing I have seen that is similar to the issues of Catalin, is acetate. Not only is it extremely fragile, it will burn rapidly, and should never be stored in any significant amount together. It is one of a number of long outdated things that were developed for what was intended to be "good" ideas. The infamous Dynamite developed by Nobel was one of those intended "good" ideas. That was until it was found to sweat when too warm. It sweated pure drops of nitroglycerin. Tended to make things very interesting. This brought about the invention of TNT. Highly stable, and "almost" foolproof. YMMV. C4 doesn't blow up while it is burning no matter what you due to it! It is great for heating C-Rations. It is far safer than the old blue foil wrapped heat tablets. We saw at least one overzealous person during training that "tried" to remove it, only to find out that it was indeed burning with a colorless flame. Everyone saw the results and never tried that. Just let it burn out on its own.

Date: Sat, 8 Dec 2012 15:33:07 -0800
From: Dan Merz <mdmerz@frontier.com>
Subject: Re: [R-390] FW: stripping paint
Message-ID: <4231C2C1-44C2-4E56-A2F7-785F03BEA4AF@frontier.com>

Barry, pretty much parallels my experience. The cracks in bakelite radios I've dealt with seem resistant to further propagation. By the way, phenolic is a plastic, in the thermosetting class. And bakelite is a trade name , or was, of Bakelite Corporation. I suspect most 20-40's phenolic for radio panels or cabinets used wood flour for a filler rather than fiber reinforcement. I believe thermal mistreatment, e.g. uneven heating and cycling, and outright mechanical impact or

stress, are the main reason bakelite ends up cracked. For every rule, there's an exception especially for material that might have been poorly manufactured. I'm impressed that Collins used metal knobs rather than phenolic on the 390's. Is there a past thread that discusses this choice? Catalin and bakelite are related chemically, catalin is cast from liquid source while bakelite is molded from powder source under heat & pressure. I've not owned a catalin radio, but have seen a lot of beautiful ones.

Date: Wed, 20 Mar 2013 16:12:59 -0400
From: rbethman <rbethman@comcast.net>
Subject: [R-390] Engraved Panel

I have been fighting with refinishing an engraved panel for about 2 years.
I achieved success! I went to a Craft Store, and picked up "Oil Pastel Sticks". (They are really $$$$ all of $1.99!) After I rub the white one into the engraving, I can wipe the excess off around it with denatured alcohol! <snip>

Date: Wed, 20 Mar 2013 16:19:00 -0500
From: Raymond Cote <bluegrassdakine@hotmail.com>
Subject: Re: [R-390] Engraved Panel

Aren't those the same sticks avail from Antique electronics out of Arizona? I seem to remember that coming up a couple years ago. Anyway congrats on getting panel ready for mounting.

Date: Wed, 20 Mar 2013 17:24:20 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Engraved Panel

I really don't know. But these are a set of 12 different colors. At the princely sum of $1.99 for the set, I figured I couldn't go too wrong. I got them at an A. C. Moore Arts and Crafts store. Yes - I'm inherently cheap! However, I've got enough labor and capacitors plus resistors in this, it makes up for it!

Date: Thu, 21 Mar 2013 17:39:33 -0400 (EDT)
From: Glenn Scott <wa4aos@aol.com>
Subject: Re: paint sticks

For my 6 cents, worth, "inflation," I have never liked those lacquer/paint/oil sticks. I have tried a number of different kinds and did not like the results.
I have done many panels, over 65, and here is the short version of my process. The first thing is the panel needs to be painted with a good quality paint; I use Sherwin Williams enamel.

Then ((VERY IMPORTANT)) the paint must be completely cured before doing the lettering. Either baked at 140F for 4 hours let it cool and baked for another 4 hours at 130F or sun cured for a few weeks. If it's left inside to cure I would not proceed for at least a month. Shortcuts with my process will yield a mess that will require re-stripping the panel; been there and done that multiple times.

I use acrylic white paint and dob it on heavy with a brush like the disposable Harbor Freight cheapies! Then use a small plastic Bondo blade, from the auto stores covered with a water dampened shop towel. Have plenty ready to get rid of most of the excess white paint. This is the messy part, so, plan on having some

clean up water, lots of shop towels and a trash can/basket handy. I also use disposable gloves as well.

The panel will have white smear everywhere but don't fret, it's going to get worse.. After I make a pass all around the panel, I do it once more, yes a second pass, with the same process. Now the panels really looks bad,,,,really really BAD!.

Wait about 10 minutes and in a well ventilated location, outside is good, and with chemical resistant gloves on, wet a folded shop towel with Acetone and start wiping. I fold the towel in half 4 times and wipe with the towel flat over the lettering wells with as little pressure as possible.You will need to keep folding the towel different ways to have a clean surface. As you wipe the smear away, you will see the clean bright lettering jump out at you.

I have never seen an original panel look this good. I often see some lettering that never received paint or originally smeared lettering. Often the original paint looks like it was very thin and never lives up to what you can achieve with this process.

I have played with all kinds of solvents but Acetone works best by far. NOTE..You do NOT want to breath acetone fumes, thus I prefer going out side for this.

If the panel paint is not completely cured the acetone will take some of the top coat off too and make a big mess. If you have any doubts about using Acetone try this. Before you strip the panel, go outside and pour a cup of acetone on the panel, let it start evaporate and try to remove the paint. You will see just grime/dirt and almost no paint at all. I learned this when I was experimenting with stripping panels and wondered if Acetone would work, IT DID NOT!!..

If anyone cares, I have a 4 or 5 page document that I wrote up for complete panel restoration including, stripping, paint types, panel repairs, equipment I use, lettering and panel finishing. I wasted a lot of money and time developing a process I like that gives repeatable results. I can email or post it here it if there is interest. However, it will be a few weeks, since I am recovering from a back injury and don't want to go to that system at a different location now.

Date: Thu, 21 Mar 2013 18:07:58 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] panel finishing

Basically I started out as you do/did. I stripped the panel bare. It was in sad shape to start with. It is a St.J's Survivor, otherwise called a Blue Striper. All stripping and painting was done outside. The reasons are multiple. I have folks with Asthma in the house. I used Lacquer Thinner to strip clean. Brushed out all engraved areas with a fine brass brush. I painted it with Acrylic Enamel. I baked it for around 3 hours while those with issues were out to work. I gave acrylic paint a try - two - or - three. NEVER again! That was my results. The oil stick worked like a charm. NOTE: This is NOT a lacquer stick! It is a Easel Painter's Oil Stick used for painting with them. I have found that it takes two passes and wiping with soft shop rags that have been washed quite a few times. I use denatured alcohol on the rags. It looks dull around the lettering at first. Left overnight, and warmed in the oven, this rubs out to the original shine around the engraving. I suspect that there are just about as many ways of doing this as there are folks that have done it. When I am completely done, I'm going to give it a coating of clear satin, and bake once more.

Date: Fri, 22 Mar 2013 08:36:23 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] panel finishing

The results literally sucked! All it managed to do was smear out of the engravings. Hence I simply quit trying THAT method. I finally enjoyed GREAT success with the Oil Stick. It easily filled the engraving and didn't smear "out" of the engravings. I could simply wipe of the excess that came from applying by using the denatured alcohol rag rub. It left the engraving totally intact. I gave the Acrylic Enamel numerous tries. It always smeared horribly, and most of the engravings would loose the paint when wiping - even using a Bondo Applicator with a cloth over its edge. Everyone's results will vary. I'm doing this for PERSONAL use, not doing this or other panels/radios for others as a business. Obviously I haven't done around six dozen radios. I have on other panels used the Dry Transfer Decals. These were then covered with clear nail polish. I did this on the old "faint" markings on a Northern Radio SP-600. The markings cent to the Diversity controls was nearly readable. A light application of 800 grit carborundum paper removed the old markings, left the gray background intact, polished it out with a compound, then applied the Dry Transfer Decals.

** ADDED **I took 800 grit carborundum paper "LIGHTLY" over the enrire panel to remove the "Semi-gloss" finish. This was cleaned by a dry rag to get the dust off, the wiped with a rag soaked with denatured alcohol to get ALL the remaining dust off the panel face. This step is to ensure that the satin clear coat will adhere in the final stage. ** END ADDITION **

Date: Fri, 22 Mar 2013 09:00:34 -0800
From: "Lester Veenstra" <lester@veenstras.com>
Subject: Re: [R-390] panel finishing

Bob: From your post, I thought the never again paint was the panel paint,
not the filling

Date: Fri, 22 Mar 2013 10:22:07 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] panel finishing

Typically Artists Acrylic Enamel is water based. I ordered dry transfer letters, to include radio words, from Antique Electronics. It has been some number of years ago, but they most likely still have them. I have been able to get others such as black from a local Art Supply store.

Date: Fri, 22 Mar 2013 11:04:35 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] panel finishing Dry Transfer Decals ADDENDUM

The Dry Transfer Decals that I have:
"Dri-Transfer Lettering" Part No: HAM-1W
****
** HAM-1 is black letters. **In spite of the error on their web site**
HAM-1W are INDEED White! I am holding the 3 unused sets in my hands.
The 4th set has been partially used! ***

They have full words, on the first three sheets, and the alphabet on the

last sheet are multiples of each letter
****
Russell Industries Inc. Oceanside, NY
They come 4 sheets to a package. I bought 4 packages when I bought them.
Currently: <http://www.russellind.com/Russell/letterin/main.htm#Electronic
WordsMarkit?>

This takes you to the "source". As you will see - they even have dial marking sets.

Date: Fri, 22 Mar 2013 11:16:08 -0400
From: rbethman <rbethman@comcast.net>
Subject: [R-390] Dry Transfer Decals

I have BAD news! Russell Industries has NONE of the HAM-1 or HAM-1W sets any
longer! They are discontinuing the ENTIRE line of dry transfer decals!
[I'm gong to protect the ones I have!]

Date: Fri, 22 Mar 2013 12:05:38 -0800
From: "Lester Veenstra" <lester@veenstras.com>
Subject: Re: [R-390] Dry Transfer Decals Better News

Have a look at: http://www.pulsarprofx.com/

Date: Fri, 22 Mar 2013 11:13:25 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: [R-390] Dry Transfer Decals

Interestingly if you read the instructions with dry transfer letters they have a storage life expectancy that is quite short. The paper is supposed to contain some low volatility oil-type product to ease in them sliding off when you use the rub-transfer technique. At one time I had found a reference that indicated that the really old ones used PCB transformer type oils. That is a very old reference and I only recall it because it was weird. Not that I particularly care, earlier in my career it was not uncommon to be dipped arms up to your elbows in transformer oil when doing tap changes on transformer banks.

If you have had them for years you may find that they do not transfer worth a darn. I have had that problem with some of them and may try some sort of rejuvenation technique on the backing paper. It has not even been on my to-do-list but if I ever need to pull out the packs again I may give it a try rather than throwing them away.

Date: Fri, 22 Mar 2013 12:42:04 -0800
From: "Lester Veenstra" <lester@veenstras.com>
Subject: Re: [R-390] Dry Transfer Decals Better News

Does anyone have a high quality scan or typeset image of an R-390 and 390A front panel
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Date: Fri, 22 Mar 2013 17:06:37 +0000 (GMT)
From: chuck.rippel@cox.net
Subject: [R-390] Panel Refinishing

I do panels regularly and don't envy anyone involved in that task. Suggest you

don't clear coat the panel. Have seen several that may taken that approach. The drawback is (on the ones I've seen, YMMV) that the washers and nuts holding the controls and the 2 stanless steel handles tend to "sink" into the finish over time. Paint stick yields mixed results and tends to yellow over time.

Date: Fri, 22 Mar 2013 13:13:33 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Panel Refinishing

The layers of paint that I put on are pretty darn thin. I sort of cheat, in that I use an airbrush. I don't use rattle cans. If those marking grow yellow with age, it won't matter! I'm almost 63. It only has to last as long as I do! [LOL!]

Date: Fri, 22 Mar 2013 12:26:19 -0500
From: barry williams <ba.williams@charter.net>
Subject: Re: [R-390] Dry Transfer Decals Better News

Yes, someone does but I forget who. There were some details about a silkscreen that was shot just for the front panel a few years back. Rick Mish? It probably was him. I remember that it was a well done screen that looked good when printed according to a few people on the list.

Date: Fri, 22 Mar 2013 13:39:23 -0400
From: Tom Nicholson <gunsrus@optonline.net>
Subject: [R-390] Items for sale

Would this be an appropriate site to list a "package deal" for sale that
is "Mostly" 390 or 390 test equipment?

Date: Fri, 22 Mar 2013 13:42:15 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Dry Transfer Decals Better News

I believe that Phil (?) Mills has the silkscreen master. There was a great deal of this done when the Gentleman in Virginia was doing Johnson radio restorations. It was Dee Almquist IIRC. The different methods for doing panels by him was broken up to two different individuals. With regard to the dry transfer sets that I have, almost ALL the needed wording is already in one word, i.e., MEGACYCLES. I too used to spend many hours and days over a drawing board. I still have a couple of K+E LeRoy lettering sets for use with the various sized pen points. Don't have much call for that anymore. There is still a roll of vellum downstairs. I duplicated a set of plans for a 1/4 scale PT-17 Stearman a number of years ago. So there IS a chance that I can get them lined up pretty good.

Date: Fri, 22 Mar 2013 14:16:03 -0400
From: rbethman <rbethman@comcast.net>
Subject: [R-390] Panels

As I have looked at what all is in the storage room, I also came across my old K+E "Drafting Machine". That will make placing words and letters a whole lot easier! I used to draw blueprints and one line drawings of electrical distribution systems. Boy, does this take me back to a LOT of memories.

Date: Fri, 22 Mar 2013 14:28:01 -0400 (EDT)

From: Barry <n4buq@knology.net>
Subject: [R-390] Panels

I often thought of using these folks to make a batch of panels though I think the maximum thickness material they offer is not quite as thick as the originals:
http://www.frontpanelexpress.com/

Date: Fri, 22 Mar 2013 14:43:08 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Panels

Taking a digital caliper to a front panel I get 0.192" in thickness. When converted to mm I get 4.32768mm. For all intents and purposes, 1/5" thick. The other consideration is that the front panel is indeed a "structural" element in the design. Too thin, and big problems would result.

Date: Fri, 22 Mar 2013 14:51:22 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Panels

Before I left Lockheed Martin, we made quite a few things by the CNC method. The software that we used was "KATIA". (I don't even know if I'm spelling it right. It has been too long!

Date: Fri, 22 Mar 2013 13:52:50 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Panel Refinishing

Never had a problem with lacquer sticks...easy to do and never had a yellowing problem....have done several with that method with no problems. I don't clear coat the panels though...maybe that contributes to the yellowing. I've had zero success with filling with acrylic paints and wiping though. Always resulted in a big mess.

Date: Fri, 22 Mar 2013 14:54:20 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Panels

They have plain anodized aluminum in 5mm thicknes. It would still need to be painted and filled, but the panel would be new.

Date: Fri, 22 Mar 2013 13:57:04 -0500
From: Mike A <mikea@mikea.ath.cx>
Subject: Re: [R-390] Panels

It's CATIA. It's huge and it's pricey, but there things it will do that nothing else will. You may also have used CADAM, which sort-of-interoperates with it.

Date: Fri, 22 Mar 2013 14:58:09 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] Panels

It is a thought. I wonder how much it would ultimately cost.
Using their software would require getting up to speed on it too!

Date: Fri, 22 Mar 2013 15:10:03 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Panels

The software is very easy and, as I recall, it will do just about everything needed (threaded holes, rectangles, reverse counterbores, etc.). I've created several designs (although never had any of them manufactured). Using the available mechanical drawing, it wouldn't take too long to put the design together. Price goes down as quantity goes up. I'd guess 1.5 to 2 C-Notes for a one-off. It's a shame they don't offer thicker panels in colors. That would look great.

Date: Fri, 22 Mar 2013 14:10:33 -0500
From: Les Locklear <leslocklear@hotmail.com>
Subject: Re: [R-390] Panel Refinishing

I've never noticed any yellowing of lacquer sticks on any of the knobs or panels I've done with them. I'll soon be 70 and really don't worry about things like that anymore.....

Date: Fri, 22 Mar 2013 14:12:50 -0500
From: Les Locklear <leslocklear@hotmail.com>
Subject: Re: [R-390] Dry Transfer Decals Better News

Howard Mills did silk screens as did Rick Mish. Chuck Rippel did re-paints and filled the engravings rather nicely.

Date: Fri, 22 Mar 2013 15:13:26 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Panels

A cool part of their software is it has built-in pricing. Add or remove a feature (hole, etc.) and get a new price on the spot. No need to wait for a quote. Only part that's not included is shipping.

Date: Fri, 22 Mar 2013 15:16:19 -0800
From: "Lester Veenstra" <lester@veenstras.com>
Subject: Re: [R-390] Panels

Sandwich two drilled panels, one lettered and thin, and a thicker "load bearing" panel?

Date: Fri, 22 Mar 2013 14:37:58 -0500
From: Robert Nickels <ranickel@comcast.net>
Subject: Re: [R-390] Panels

I was looking for something unrelated last night and came across this guy who makes a gizmo to fake out the Meade telescope controller when the keypad goes bad. He makes the PC board one-off on a CNC mill using a very fine endmill - the SMT packages give you a good reference for the character size:

http://www.dv-fansler.com/dvf%20Technologies/Images/LX200-keypad-simulator-front.JPG

I think you'll quickly see why I am posting it here - now all you need is...

Date: Fri, 22 Mar 2013 16:44:43 -0400
From: "Charles P. Steinmetz" <charles_steinmetz@lavabit.com>
Subject: Re: [R-390] Panels

We have used FPE for prototypes that needed to be pretty enough to show around and for small job shop lots. The panels look very nice, FPE's ordering and customer service processes are very friendly, and they cater to one-off orders. But, the prices are breathtaking.

They can do aluminum panels up to 10mm thick (0.394") in natural (undyed) anodizing or quite a number of powder-coated finishes.

Date: Fri, 22 Mar 2013 15:56:46 -0500
From: Gary Pewitt <garypewitt@centurytel.net>
Subject: Re: [R-390] Dry Transfer Decals

You can get all of the transfers, dry or other, at a -real- print shop. A -real- print shop has printing presses and is -not- a copy shop. A friend of mine was a journeyman printer and often made decals and transfers for me. It helps if you have good originals for them to work with but computer printouts will work too.

Date: Fri, 22 Mar 2013 19:30:37 -0500
From: "Ba.Williams" <ba.williams@charter.net>
Subject: Re: [R-390] Dry Transfer Decals Better News

Different apples or oranges. I have 3 sets of Kohlinors that I still use for line drawings. Mostly aviation drawings. Art stuff. At least you'll experience what kerning by hand is. (Evil laughter) i changed over to computer based illustration and graphics design through the 80's and 90's. Started out in Graphics Design at Auburn in the 90's, but changed majors to painting. I know about r/c plans too because I build and fly those things. I work on the plans like you mention, but all of my work is on the computer.

Guess you will have to learn the hard way about using Chartpak type of lettering. (Evil laughter)

Personally, if this were a project I just had to do, I would ask those who already made good screens if I couldn't do it all myself.

If you have skills in either Freehand or Illustrator you could make a detailed rubbing of a good panel. Get a copy shop to scan that to a file for about $10. Use either of the graphics programs to overlay the lettering properly over your file of the scan in the background. This will look perfect when done. It will cost to get this shot to a silkscreen. That's why I suggested a good vinyl cutter.

Date: Fri, 22 Mar 2013 22:10:26 -0500
From: Richard <prof1705@cableone.net>
Subject: Re: [R-390] Panels

I use DraftSight (free and works like AutoCAD which I'm used to using) or Front Panel Express to lay out the panel and print on quality paper. I then overlay with

very thin Plexiglass. Makes for a nice front panel but not exactly stock for an R-390A. We have a E-sized inkjet printer at work for the bigger projects if needed. For lesser projects I shot the paper with several coats of clear acrylic and that stands up pretty well.

Date: Sat, 23 Mar 2013 09:18:25 -0400
From: Bill <bmarx@bellsouth.net>
Subject: Re: [R-390] Dry Transfer Decals Better News

Make your own decals. I made one for an SP-600. You make what you want using some program and then simply print it out on your Inkjet Printer on their paper. Or you can do as I did and photograph the item before stripping it and then convert it and print it out on their decal paper. It wont work for everything but it worked for me.
http://www.modeldecal.com/
http://www.modeldecal.com/contact.html

There are other companies but I used this one.

Date: Wed, 01 May 2013 16:39:47 -0700
From: Gordon <gordon@n6wk.com>
Subject: [R-390] 390A front Panel Color

Does anyone know the exact color of the 390A front panel ? I have mine all primed and ready to paint, but I want to use the correct color before I paint it and then fill in the engraved lettering. I thought of going to black, but decided the original gray looks pretty good. Just not sure what the exact gray is.

Date: Wed, 1 May 2013 22:00:52 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] 390A front Panel Color

If I'm not mistaken, it is 26152 on this page:
http://www.fed-std-595.com/FS-595-Paint-Spec.html

Date: Thu, 2 May 2013 10:29:21 -0400 (EDT)
From: Roger Ruszkowski <flowertime01@wmconnect.com>
Subject: [R-390] 390A front Panel Color

Today we would call the color ANSI 61 gray.
Pretty much Square D and fuse box gray paint.

It is still a standard color. But with much less variation in the shade these days. You may not think it is an exact match to what you are looking at on the front panel of your receiver. But you must consider the age of that paint and all the stuff applied to the paint in the last 50 plus years either with intent or not and not of it was mean to change the color.

Date: Thu, 2 May 2013 10:54:13 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] 390A front Panel Color

Isn't that assuming it was a Navy radio? Didn't some of the other contracts specify different colors?

Date: Thu, 02 May 2013 13:06:40 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] 390A front Panel Color

I believe it would have varied upon the Branch of Service that ordered it. The color standard during the period of manufacture was a bit varied, and in many cases was based on a book of paint chips. I have gone with black since I have it paired with a BC-610. Those were all black with white lettering. It is just my preference to be consistent.

Date: Thu, 02 May 2013
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] 390A front Panel Color ADDITIONAL

I was across the pond in the late '60s and the early '70s. I can say that even in ONE branch of the service, that the radios and vehicles varied in color. It was very apparent when all the equipment was lined up very carefully for the big IG, (Inspector General's), layout of all of this.Which color of OD, (Olive Drab), was the standard? I still have no clue! The different shades were very obvious. Then adding insult to injury was the application of diesel fuel to all painted surfaces to make it have a "sheen" for the "Dog and Pony" show.

Date: Fri, 03 May 2013 19:57:27 -0500
From: Sherry Guttery <comcents@bellsouth.net>
Subject: Re: [R-390] 390A front Panel Color ADDITIONAL

Mine is still original Navy gray (as in original paint and color so far as I know). I don't know what all has influenced it's current color in the way smoke and / or chemicals. Perhaps someone could run one of the color, since as already pointed out varies by branch of service etc., you would most likely wish to paint yours by the nearest paint matching store to get an exact match for you. I am pretty sure Sherwin Williams still matches color and Wal-Mart may. You would need to contact a store near you to see if they still match paint.

Date: Mon, 20 May 2013 11:34:12 -0700 (PDT)
From: Dave Sampson <challanger13041@yahoo.com>
Subject: [R-390] aluminum knob/panel paint stripper?

I have been reading about the process of painting front panels/knobs and it is clear that because of the rapid oxidation of aluminum that an aluminum prep chemicle is needed.....my question is , does the paint strip chemicle also prep the surface for priming? or do you use one chemicle to remove the paint and another to prep for new paint/primer?

Date: Mon, 20 May 2013 15:11:19 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] aluminum knob/panel paint stripper?

I haven't yet found a stripper that works on an original panel....the stuff is like stone. I have tried several with no luck. I've gone to glass bead blasting the panels and

then lightly zinc chromating them prior to top coating. I usually wait a few weeks for the chromate to fully cure before top coating. I've had no problems with damage to the engravings. Media blasting probably would be better...soda or plastic might be the ticket. In any event..to answer your question... any stripper will not prep the aluminum panel for paint.
In any event..to answer your question...any stripper will not prep the aluminum panel for paint.

Date: Mon, 20 May 2013 16:27:25 -0400
From: rbethman <rbethman@comcast.net>
Subject: Re: [R-390] aluminum knob/panel paint stripper?

FWIW, I found that laying a couple of layers of newspaper over the front face, and soaking it with lacquer thinner made it loosen up within a couple of minutes. I used a plastic scraper to skim it off. It doesn't oxidize fast at all once stripped. Aircraft Specialty & Spruce STILL carries Zinc Chromate.

Date: Mon, 20 May 2013 16:42:10 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] aluminum knob/panel paint stripper?

I've had success with aircraft-grade paint stripper (made for stripping paint from aluminum surfaces). It's available in a spray can and can be bought at automotive supply stores. It all depends on what was used to paint the panel, though. I'm pretty sure they weren't all painted alike and most have been repainted by now so there's not much telling what really is on one now. The aircraft-grade stripper is not supposed to react with the aluminum surface as some stripper might do. Good luck with it,

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Date: Mon, 20 May 2013 17:42:47 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] aluminum knob/panel paint stripper?

I tried it...it just laid there....for an hour...not even a wrinkle...I was amazed. Aircraft stripper...in a turquoise and white can....may be others....

Date: Mon, 20 May 2013 21:23:03 -0500
From: "Thomas Frobase" <tfrobase@gmail.com>
Subject: Re: [R-390] aluminum knob/panel paint stripper?

I use a medium wire wheel, the paint is usually brittle, comes right off. I then sand blast the knobs and powder coat them. They will never need redone again! ...

Date: Sun, 18 Aug 2013 22:04:46 -0400
From: "Robert N. Newberry" <N1XBM@amsat.org>
Subject: [R-390] Paint and ID plate

I have two questions, first one is I have the front panel stripped of paint. My plan was to go to an auto parts store to get a rattle can of paint for the gray and one rattle can of black for the knobs. My thought on this was that usually those colors are used on motors and transmissions and I thought it would be a good durable finish. I figured on using one of those white paint pens for the knobs and lettering. Any ideas pro/cons on this?

My ID plate I am unsure what I should do. There are two problems that are connected the major problem is that something gouged it pretty bad and I'm worried it will look bad after all of this work and I'm wondering is there someone who re-manufactures these? The second problem is that it looks like MFP was applied to the data plate or this thing has one mean coat of nicotine, which my nose hasn't detected. I've noticed pics of peoples rebuilds and the data plate has a nice metallic/black look to them and mine is yellowy/black. I imagine cleaning it is easy, but if I could get another data plate pretty easy then I'd like to do that. If its going to be a problem I guess I will have to live with the gouge.

Date: Sun, 18 Aug 2013 22:33:50 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Paint and ID plate

My normal procedure is to very lightly dust the panel with a zinc chromate primer. I let that fully cure for several days. Then I spray the panel with a fully covering but thin coat of machine gray Rustoleum. I let that fully cure for several days as well. When a fingernail pulled across it under reasonable pressure won't mess it up its up for re-lettering. The primer and top coat has to be thick enough to cover but not so thick to fill in the stamped lettering. It's a fine line.

Rustoleum is slow to cure but much more durable than Krylon. Krylon cures quickly but chips easily and seems to me to be brittle once cured.

The zinc chromate primer can be bought at a marine store or boat dealer in spray cans. For aluminum it's the best choice.

I user white lacquer sticks for filling the lettering. Works great but is certainly not the only way to get the job done.

I glass bead blast my knobs, chromate them and spray them with the black paint of choice. I like the "Tooth" the bead blasting leaves on the knobs. I think it adds durability to the finish which is important for something that gets handled a lot.

As far as the tag...I have striped them with paint stripper then painted them with a light coat of gloss black. Once fully cured I'll take a sheet of 600 or 1000 grit paper and lay it on a piece of glass. Wet it down with a mixture of water with a few drops of dish washing liquid mixed in. Place the tag face down and slide it around in a figure 8 pattern until all the paint is removed from the high spots..which will be the lettering and the tag outer edges. Comes out really nice.

Hope that helps provide a bit of insight.

My latest panel project I have stripped with a small soda blast machine... came out nice so far...I'll report once its finished. I have a couple of SP-600 panels waiting and an R-389 once I'm satisfied with the stripping results.

Date: Sun, 22 Sep 2013 15:33:11 -0700 (PDT)
From: "R. David Eagle" <kb8nnu@yahoo.com>
Subject: [R-390] Refinishing Knobs

OK Experts....what seems to be the preferred method to refinish all of the knobs for a 390a?? Do you completely strip them, sand them, prime them, and???? How

about the white line?? I have read that acrylic paint works well. Thanks again,

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Date: Sun, 22 Sep 2013 21:09:08 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Refinishing Knobs

The process I use...

Glass bead blast the knobs to strip them and to add a nice finish for primer to grab onto. I prime with zinc chromate and let them cure for a week or so in the air conditioned shop. I then spray with a matte finish black paint...usually Rustoleum due to its durability. I let that cure for a week or so and fill the lines with a white lacquer stick. Comes out really nice.

I do the same with the frequency bezel and the meters...

Date: Tue, 24 Sep 2013 03:18:53 -0700 (PDT)
From: "Tom M." <courir26@yahoo.com>
Subject: Re: [R-390] Refinishing Knobs

I stripped some and painted them with Krylon spray paint with no rimer. That was about 15 years ago. Set up a 2x4 with holes for series of dowels. Put each knob on a dowel and rotate it whilst spraying and then stab the dowel into the 2x4 for drying. After dry to the touch I bake them in the oven on warm for a couple of hours (while the wife is out). I've since painted motorcycle parts with zinc chromate primer first and then paint but knobs came out fine without the primer.

Date: Tue, 24 Sep 2013 07:54:16 -0500
From: Tom Frobase <tfrobase@gmail.com>
Subject: [R-390] Knob Refinishing

Typically the existing paint is brittle so I remove the paint with a fine wire wheel, once the paint is removed, I blast the knobs with glass beads.

Several years ago I bought a powder coating kit from Harbor Freight, I use matt black powder for the process. I also salvaged our old stove when it came time to be replaced. Once the knobs are powdered I bake them for about 20 minutes @ 400 degree F. Make sure the powder is correct, it is pure hell to get the powder off if you make a mistake! I also do the lens cover in the same manner.

The local art supply store sells Krylon white paint in the bottle, I fill the indicator lines with the paint, once the paint is semi-dry I remove the excess with a soft rag and a little WD-40.

This process provides a beautiful matt finish with crisp white pointers and a finish that is nearly indestructable. tom, N3LLL

Date: Tue, 24 Sep 2013 11:39:21 -0700 (PDT)
From: Richard Green <k7yoo@yahoo.com>
Subject: [R-390] knob prep (glass bead)

Most areas have a local automotive machine shop with a glass bead machine that will do this quite reasonably.

Make sure they are using medium or fine glass bead, NOT silica sand which really tears up the surface and is tough on panel lettering. There is also soda blasting that does a great job on chassis without leaving any embedded grit (it dissolves with clear water). I have also used walnut shell on rusty steel chassis' with decent results. If you get stuck I can glass bead knobs or panels for a reasonable price.

Date: Wed, 25 Sep 2013 09:12:01 -0400
From: Robert Newberry <N1XBM@amsat.org>
Subject: Re: [R-390] knob prep (glass bead)

I can attest to soda blasting. I've done it in my R-390. It's great!

Date: Thu, 26 Sep 2013 16:36:45 -0700 (PDT)
From: "R. David Eagle" <kb8nnu@yahoo.com>
Subject: [R-390] Knob removal...cont'd

Thanks to all for your input as I progress in restoring my first 390A!

I recently purchased a small set of Bristol wrenches to remove the knobs... ya know the type....little and not very fun to work with. I have been successful in removing all but the two main tuning knobs. It appears as though they are either stripped out or my wrench is two small. I can't imagine that they would design those knobs with a different size set screw. Anybody had the same issue? If they are stripped, any tips on how to get those out of there? It's not like they are easily accessible..

Date: Thu, 26 Sep 2013 20:29:13 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Knob removal...cont'd

If you can see it well enough, make sure someone hasn't replaced the spline-drive screws with hex-drive screws.

Date: Fri, 27 Sep 2013 16:27:42 +0000 (GMT)
From: chuck.rippel@cox.net
Subject: [R-390] Knob Removal

I'll second what been said. You may well find that the Bristo-spline socket screw has been removed and replaced with a hex. It also may be stripped.

In the case of the latter, turn the knobs so that the access hole is facing down, turn the radio on its side and drill out the screw. Be careful not to damage the full-circle clamp; they are becoming rare.

Date: Fri, 27 Sep 2013 11:28:50 -0700 (PDT)
From: Johnsay Johnsay <groundwave@yahoo.com>
Subject: [R-390] re. Knob removal

The Bristol head bolts are offset from the center of the shaft on the tuning knobs (they tighten a clamp). You have to aim above or below the shaft. It's tricky and it's easier with a long arm Bristol wrench (McMaster-Carr is one source).

Date: Mon, 7 Oct 2013 22:39:26 -0700 (PDT)
From: Perry Sandeen <sandeenpa@yahoo.com>
Subject: [R-390] Blood Removal from Equipment

Wrote: There is one radio that I have that was filled with blood... Oh yes, large quantities of it too, not just drips and drabs. (Central Electronics 20A) I *do not* want to know what was going on that caused that to happen. I do not know from what animal (or person) it came from. Ah, that's what one is likely to get if one buys it from the Kentucky Headhunters band. (joke)

Seriously, there is a simple and inexpensive method for removing blood on many items. Just go to Wally World or such and buy large bottles of Hydrogen Peroxide. When applied to blood it foams and then can be removed with cotton balls, Q tips and the like. Due use caution as dried blood can harbor bad pathogens. Old dried blood will take a bit longer to remove. After foaming it off, a cleaning solution such as 409 or Fantastic is a good disinfectant. Do plan on having a bunch of old towels or such underneath to absorb the runoff. They can be cleaned in the washing machine.

Just buy the amount of Hydrogen Peroxide that you need as it has a relatively short shelf life. Keep the leftover in the dark bottle and store in a cool place, on the concrete floor of a basement in a dark corner would be good. Hydrogen peroxide has a bleaching effect and if you get it on your hands the skin turns white.? Not a big deal, just use some Jergins Lotion.? The blend that has alovera plant extract is somewhat better. Also it will bleach some colored cloth. This is how we cleaned blood off of hemodialysis machines and other equipment in the hospital that would have blood on and in them for 25 years.

Date: Tue, 8 Oct 2013 11:09:04 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: [R-390] Blood on the chassis, blood on the ground

Thanks for the advice on how to get that mess out of that 20A. I have not
been really willing to mess with that radio because I did not want to get
some sort of disease like hepatitis. I will put it out on the porch and try
the hydrogen peroxide treatment with a parts brush. It can be a very strong oxidizer
so I will rinse it off with the garden hose right away.

Date: Tue, 8 Oct 2013 12:35:23 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Blood on the chassis, blood on the ground

I used to rebuild kidney dialysis machines when I worked as a biomed tech. The machines were purged with formaldehyde between uses. We used peroxide to clean them and prep them for rebuild.

Date: Tue, 8 Oct 2013 12:41:46 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Blood on the chassis, blood on the ground

Oops...didn't see Perry's post prior to mine...nice confirmation though....not like he needed one!

Date: Tue, 8 Oct 2013 13:00:05 -0500
From: Tom Frobase <tfrobase@gmail.com>
Subject: [R-390] Current thoughts on washing

I was fortunate to pick up a Motorola R-390 at the Belton Hamfest last weekend. That is the good news the bad news is that the radio looks as if it was stored in a barn. Mud dabbers nests in the coax sockets and lots of dirt, good news is no mouse droppings or blood hi hi !

Although I have restored numerous r-390 and r-390a's, I have never totally immersed anything but the chassis plates and the gear assembly after removal. I have a large ultrasonic cleaner that I use to clean the gears. I usually clean the chassis with ajax or other mild cleanser and of course the normal paint and powder coat refinish on the knobs and other parts

So if I were to immerse the modules would I use a mild dish washing detergent in the ultrasonic cleaner and use DI water in the ultrasonic to rinse? What about the IF covers and BFO, do I remove the covers to keep from trapping moisture, RF cans are removable they can be cleaned otherwise.

I would be tempted to try it with this radio, I know this has been covered a million times before but I would like to hear the current thoughts ... tom,

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Date: Tue, 8 Oct 2013 16:24:07 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Current thoughts on washing

I'm usually not too wild about submerging any part that has coils or inductors in solutions. I prefer to clean those parts by hand in a gentle manner. The remaining module parts I don't worry too much about. Dunk them, scrub them, hose them off whatever. I would be concerned about pots and switches so I continue to clean the bare chassis by hand with minimal solution and water to those parts...same for trimmer caps but maybe to a lesser degree...

I still use 409 for scrubbing with a tooth brush and lots of rinse. I've had no problems with my tap water...it's really soft...little mineral deposits. I sun dry and then put in an A/C environment for a week or more before Deoxit work and reassembly.

Date: Tue, 8 Oct 2013 17:48:36 -0400
From: "Ed Tanton" <n4xy@comcast.net>
Subject: Re: [R-390] Current thoughts on washing

Granted I haven't done anything significant lately, but -FWIW- I'm with you Cecil! Back in the early 70s, I was a Calibration Tech for Tectronix in Atlanta. When we would get in a really dirty 547 -or the like- I would pressure wash it, with spray soap and regular water (using a wand.) You had to be careful not to directly spray the power transformer, but even after a 24-48 hour (I forget exactly) bake you still lost maybe 50% of 'em. While I was still there, we pretty much cut that out, and went to blow out with air, and hand-cleaning using something like 409.

I have a JRC NRD-515 that was in a broken kitchen drain (sink, garbage disposal, dish washer) deluge for several months unbeknownst to me (I had heart surgery in DEC 2005 and did not go down into the basement for 2-3 months.) It was VERY caustic, and I consider the receiver a total loss... but one of these days, I might just try and resurrect it. I'll do the cleaning by hand-not spraying.

If anyone would like to give it a try, for $$$ of course, let me know. I really liked that

receiver (I even have the extra memory & the matching transmitter) but-being retired-will probably never have the $$$ for another one.

Date: Tue, 8 Oct 2013 19:23:13 -0400
From: Bob Camp <ham@kb8tq.com>
Subject: Re: [R-390] Current thoughts on washing

I've been down this road before. It's not pretty.

If you soak it in anything like water, you discover all sorts of things that you never thought would rust do. Neat things like the inside of resistor leads. You also discover that coils are a real wonder to (eventually) dry out. I once spent a *lot* of time working on radios that went under water. If you go this way, you will need *lots* of very clean water and a good bake oven.

Solvents (freon / tri-chlor / nerver gas) might work better. They all seem to be on the same sort of list these days.

That gets you down to things like petroleum based solvents or alcohols. Fire / explosions / death by vapor come to mind there. At least you wouldn't be breaking any laws. Being sure that you haven't found a solvent that dissolves some part of the radio could be tricky.

Date: Tue, 8 Oct 2013 19:23:40 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: [R-390] Current thoughts on washing

I had this belief that radio baths were anathema, watching Chuck's videos gave me the courage to try it out. It is not an immersive sort of process and I imagine things like transformers and panel meters would not take too kindly to it. Since then I pretty much follow his routine. I know that Chuck will not take advantage of this forum to hawk the videos but I have absolutely no fiduciary interest with what Chuck has done but I can say, if you have never really gone through a radio from top to bottom, see if you can find the DVD's (legally).

Date: Tue, 8 Oct 2013 17:42:07 -0700 (PDT)
From: Joe Connor <joeconnor53@yahoo.com>
Subject: Re: [R-390] Current thoughts on washing

Amen, Tisha. Chuck's video on the SP-600 gave me the courage to tear mine apart. He shows a lot of tricks that you would probably never think of.

Date: Tue, 8 Oct 2013 21:01:27 -0400
From: "quartz55" <quartz55@hughes.net>
Subject: Re: [R-390] Current thoughts on washing

I have this stuff called '8070 Electrical 88' made by 'Crown'. It must be really ancient, and there's not much left in the can. But I use it on anything that needs cleaning, water displaced, etc. It says on the can 'displaces water and moisture, improves electrical properties, prevents corrosion, protects metal, lubricates'. I've got no clue what it is, but it works wonders on switches and even slug tuned coils. I wish I could find some more of it. Comes out of the spray can and seems to sort of foam up and then evaporates and leaves a slightly greasy/silicone feel to it. It hasn't melted anything yet.

But I'm sure that's not going to be much help. I just thought I'd relate.

Crown Industrial Products Co
Hebron, IL 60034

Date: Tue, 8 Oct 2013 21:08:27 -0400 (EDT)
From: Roger Ruszkowski <flowertime01@wmconnect.com>
Subject: Re: [R-390] Current thoughts on washing

I would not put any of the coils in the sonic cleaner. You could shake the varnish loose, and then some wire turns lose their place, then things are just not the same.

Pull the covers and run all the knobs, covers, loose what not's through the sonic's.

I have not actually run a module in a dish washer.
Lots of soap, tooth brush and running water.
Lots of sun dry time (days).

Date: Wed, 9 Oct 2013 01:14:10 +0000
From: <chacuff@cableone.net>
Subject: Re: [R-390] Current thoughts on washing

Picked up a can recently of ZEP Aerosolve II which has been pretty good in the absence of Tri-clor. Its active ingredient is Tricloroethyene as opposed to Tricloroethane. I?m not a chemist and the difference between the ethyenes and ethanes is not clear to me but it does a good job of degreasing and cleaning electrical/electronic stuff. May be tough on some plastics and paints....but I?m sure Tricloroethane did some of the same.

As with anything like this...use it outdoors where there is plenty of ventilation.

Date: Tue, 08 Oct 2013 18:45:40 -0700
From: Frederick Bray <fwbray@mminternet.com>
Subject: Re: [R-390] Current thoughts on washing

Looks like this stuff -- or something similar -- is still legal to use
in India. A Google search brought back several references, all in India.

Date: Tue, 8 Oct 2013 19:51:53 -0700 (PDT)
From: Johnsay Johnsay <groundwave@yahoo.com>
Subject: [R-390] re. Current thoughts on washing.

What I use as a general chassis wash is 92% isopropyl alcohol USP. This should be done outside with a soft bristle brush with adequate time for drying. It's available at almost any pharmacy at about $3.00/qt.

For cleaning gear trains I used the WD-40 approach followed by Tri Flow and silicone dielectric grease, sparingly applied with a small acid brush.

Date: Wed, 9 Oct 2013 20:31:46 -0500
From: "Thomas Frobase" <tfrobase@gmail.com>
Subject: [R-390] Current thoughts on washing

Reading through the responses a majority of the respondents share my concern about total immersion of the 390 radio parts. As for cleaning materials there was a wide variety of choices. The most exotic was sending it to India and using fluorocarbon spray which are still available there and I guess legal to use. Other choices were as follows: Ammonia / 409 Mix, 409, ZEP Aerosolve, as well as soapy water and a tooth brush.

This radio has lots of dirt, so I think my approach on the latest radio will be 409/ammonia mix with a tooth brush with a water follow up to limit any corrosion from the ammonia. As well as lots of elbow grease.

To follow up on Tisha's comment I have scrubbed a SP-600 down with soap on the driveway and sprayed it down with a hose. Let it bake in the Texas sun for 2 days and set in my shop to dry for a month. Got the radio back together tipped on its side to align it and water ran out from somewhere, even though I tipped the radio every which way during the drying process. I want to thank you all for the comments . tom, N3LLL

One last questions: Do the R-390 RF deck cans socketed and can be removed similar to the R-390A?

Date: Wed, 9 Oct 2013 21:52:02 -0400 (EDT)
From: larrys@teamlarry.com (Larry Snyder)
Subject: Re: [R-390] Current thoughts on washing

Tom, I was also a Tek tech, in the Dayton svc ctr 1975-1986. One step Ed left out was before throwing it in the drying oven blow out as much of the 'loose' water as you could with the air hose. The oven ran around 125 F and had a big honking blower in it. Even so, you wanted to get as much of the H2O out as you could ahead of that. Then give it a couple days baking.

Date: Thu, 10 Oct 2013 14:01:12 +0000
From: <chacuff@cableone.net>
Subject: Re: [R-390] Current thoughts on washing

Yes...R390 RF Deck cans are socketed.

Date: Sat, 12 Oct 2013 14:48:46 -0700 (PDT)
From: Perry Sandeen <sandeenpa@yahoo.com>
Subject: [R-390] More cleaning tools.

Some additional items that may be useful when washing/cleaning equipment. Orange cuticle sticks. You can clean with them and not scratch. 100 for $6, ebay. Stainless Steel cuticle stick. Good for moving components and de-soldering. About $6.

An old Electrolux canister vacuum cleaner with the back air outlet. Sucks out the dirt and reversed blows out the water without too much pressure but high volume. The crevice tool seems to be the most useful for both sucking and has a nice laminar flow for drying. Check thrift stores or a vacuum cleaner store for one. They are cheap but take a bit of scrounging to find

The last tool is a ladies hair dryer. Tisha, chime in here with some model

suggestions! The one I borrow from my wife has variable heat as well as several flow settings. Works like a champ BUT be careful to watch the heat. It can start to melt some plastic parts or damage coils. When you use one after a short time you will develop finesse for how hot to get things. I would still use a warm oven or hot sun drying if available, but the blowing and hair dryer method can shorten the drying time needed considerably.

Date: Tue, 22 Oct 2013 16:39:54 -0400
From: Robert Newberry <N1XBM@amsat.org>
Subject: [R-390] Paint

I just got my knobs and front panel soda blasted. My plan is:
Zinc chromate primer
Machine gray paint (gloss or matt)
Black paint (for knobs gloss or matt)
Paint lacquer stick the lines/letters Any suggestions?

Date: Thu, 24 Oct 2013 20:17:36 -0400 (EDT)
From: Roger Ruszkowski <flowertime01@wmconnect.com>
Subject: Re: [R-390] Paint

Paint should be matte.
ANSI 61 gray

Date: Thu, 24 Oct 2013 20:31:58 -0400
From: Sandy Geiger <chg111@hotmail.com>
Subject: Re: [R-390] Paint

No disrespect, Roger, but my R-389, & 1955 Collins contract R-390A were "Shiny" paint, not "Matt" finish.. But I'll admit to "Polishing" them w/Meguier's Body Scrub, & then Carnauba wax, too...I get compliments that ALL my Boatanchors look "Brand-New"...

Date: Fri, 27 Dec 2013 12:37:11 -0500 (EST)
From: Glenn Scott <wa4aos@aol.com>
Subject: [R-390] Front panel QUESTION

I looked into having a batch of 30) 390A front panels manufactured. If I have them engraved similar to the original panels the unit cost/panel on a lot of 30 is about $170 ea plus shipping. Without the engraves, $140/ panel. That does NOT include prep, primer, paint or lettering fill/silk screen. Figure $150/panel in labor each. Now we are talking ~$320 (plus or minus)... On one hand new panels would help me and others resurrect some receivers from various parts inventory and some people would probably be willing to pay ~$320 for a new panel. My friend, Mat, in CA who also restores 390 series receiver had New Old Stock panels that he was trying to get ~$200 each and they moved REAL slow. I would appreciate some feedback from list members..That is a lot of upfront cash for me to invest and I am willing but I don't want the inventory getting dusty on some shelf and eventually tossed or sold at a loss. For users of this list, I would offer panels at my cost plus 5% and shipping but if I make the investment the rest will go on epay for a profit.

Please, your thoughts, suggestions, ideas; I sure wold appreciate feedback on this...Anyone have access to a CNC milling machine.. This is not the first time new panels have been discussed but to my knowledge, no one has actually bit the sour

bullet yet

Date: Fri, 27 Dec 2013 13:57:36 -0500
From: Bob Camp <ham@kb8tq.com>
Subject: Re: [R-390] Front panel QUESTION

Also consider the cost of something going wrong. A letter engraved a bit off, a hole not quite in the right place, any one of any number of things. I would suggest that pricing the process so that only 27 of the 30 need to be sold is probably a smarter approach.

One way to do this is with a kickstarter project. I?ve never seen it done on radio parts. It?s quite common on other techie things.

Date: Sat, 28 Dec 2013 12:10:59 -0600
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: Re: [R-390] Front panel QUESTION

I do not want to be too discouraging but it is not too difficult to find old engraved panels that are restorable. I picked up a couple off of ePay for about $100 each. You just need to wait and watch for a few months.

Most of the old blue-stripers are out there. Unless someone beats up the panel with a hammer or gouges it badly they are pretty easy to restore.

I would hate for you to end up with a few thousand dollars tied in in panels that ends up taking you 4-5 years to sell off. Definitely find out more about the interest and how many people are willing to make the commitment.

Date: Sat, 28 Dec 2013 19:31:42 -0600
From: "KA9EGW" <ka9egw1@britewerkz.com>
Subject: [R-390] 390A engraved panels

I had started the CAD files, for engraved panels, but we?re looking at a total of about 10 hours total CAD time [once], probably 2-3 hours of CAM time [4 different setups as my little mill can only do ? of the panel at a time] and $35 in materials for 6061-T6.

Yes, I’m kicking myself in the counterpoise for not spending the extra thousand for a PCB gantry mill or the extra 2K for a CNC Bridgeport. Anyone got a good CNC mill near Beloit, WI they’ll trade for a KWS-1- 73,

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Date: Sat, 28 Dec 2013 19:38:02 -0600 (CST)
From: Jim Haynes <jhhaynes@earthlink.net>
Subject: Re: [R-390] 390A engraved panels

Seems to me a more viable approach would be a service of refinishing existing panels, or of exchanging an old panel for a freshly refinished one. It's hard to imagine a receiver being salvageable if the panel has been damaged beyond what a refinishing job can do.

Date: Sat, 28 Dec 2013 20:02:14 -0600
From: "KA9EGW" <ka9egw1@britewerkz.com>

Subject: Re: [R-390] 390A engraved panels

Given that once the files are right and the setup's right, making the panels is a minimal-attention task my as-yet-only-semi-trained stepson who works for "eats-and-sheets-and-pocket-money" could do, I could probably deliver a bare panel for about $125 [substantially less if I can get it all in one setup on the bigger mill I don't have yet HI HI]. I'm a crummy spray painter, so that part of the equation I dunno...I've got good spray guns, and -40C dew point air in my shop, and Junior aspires to be an airbrush artist, but first he's gotta build the spray booth...anybody care to break their foot off in his counterpoise to motivate him? He's at that age that I was during the times that I went back later and apologized to Dad for and thanked him for letting me live...

On a more achievability-driven note, if I do get my hands on an engraved panel one way or another, that puppy's going to be St. James Grey...

Date: Sat, 28 Dec 2013 20:03:00 -0600
From: "KA9EGW" <ka9egw1@britewerkz.com>
Subject: Re: [R-390] 390A engraved panels

Any auto body guys on the ist?

Date: Sun, 29 Dec 2013 02:31:46 +0000 (GMT)
From: chuck.rippel@cox.net
Subject: [R-390] Panels

I have some engraved panels that would re-finish just fine. As I recall, the panel on your radio looked pretty good. Tisha makes an excellent point which also serves to illustrate why I don't refinish a quantity of panels.

Date: Sat, 28 Dec 2013 20:53:21 -0600 (CST)
From: ka9egw1@britewerkz.com
Subject: Re: [R-390] Panels

Chuck, the panel on my radio you did looks absolutely splendid! Please do not think I was disparaging your work in any way!

I have a little CNC mill [strictly as a hobby pursuit at this point], plus some other bigger machine tools; I make some custom Harley parts for my friends, and am starting to dabble in custom iambic paddles having worn out my Bencher after 30 years plus and not rich enough to buy a Begali, and I do odd one-off's here and there...see, making metal chips is what keeps me sane when the weather sucks for riding *and* the band sucks for radio-ing [both of which happen simultaneously far too often here in the frozen tundra of Occupied Cheeseland]. If I were to get into making R-390A panels, it would be more as a labor of love than expecting to make any real dough at it...but a bigger CNC mill WOULD allow me to take in other work I maybe *could* make a buck at.

My comment was inspired solely by idle curiosity--I've seen a HP grey/black lettered '390A which I thought looked OK, and there's that one black wrinkle one keeps reappearing on eBay [or more than one], and I've seen pix of an OD green one, but never one in St. James Grey...

And also if I can get Junior into it, he will learn some autoCAD skills
and CNC skills which definitely have to pay better than burger-flipping...

'Twas never my intent to stir anything up other than to assuage my own
idle curiosity...beats watching Junior and the XYL fight with Win8 vs
Netflix...this is why I have a terminal in the shop too HI HI

Date: Sat, 28 Dec 2013 21:55:58 -0600
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Panels

I did some front panels in Collins S-Line front panel gray. I thought they looked great. It's not as dark as St. James, but I liked it better than the standard gray.

Date: Thu, 15 May 2014 17:47:14 +1000
From: Pete Williams <jupete@internode.on.net>
Subject: [R-390] How are your knobs ?

G'dsy..... in the process of restoring/rejuvenating 390s'over the years . I've been blessed on few occasions with broken fingers on the kHz and Mhz knobs To get proper functioning and everything looking right, I got me a tame machinist./turner with lathe and such. I don't know if this has been documented on this list but the procedure and work done was as follows .

.!.. The inside of the knob where the fingers and web meet at the shaft 5/16" (0..312) hole is drilled out to about 0.55"and down to the bottom of the shaft hole.

2. A brass insert was turned up 0.95 " long with OD of 0.55" for a snug fit in the drilled hole . The ID of this insert is same as shaft diameter 0,312. and has a wall thickness of about 0.12".

3. The insert is held in place with a coating of metal adhesive--- one of the cyanoacrylate type and I was assured this will never let go..... and never has either.

4. Two holes were drilled on the outer lip of the knob and holes drilled into the brass insert of appropriate diameter to be tapped and take the usual Bristo set screw. These holes were set 90 degrees apart to prove for ample holding ability. The length of the protruding insert from the hole is about 0.4 "--- approx. same as the length of the 4 fingers from the web.. Set screw holes positions located as in original; has worked well with no problems..... I've taken some close up pics of the knob and can email off to any interested.

Date: Thu, 15 May 2014 10:55:16 -0400
From: quartz55 <quartz55@hughes.net>
Subject: Re: [R-390] How are your knobs ?

How about a bronze sleeve bearing 5/16 (0.312) id, 7/16 (0.437) od 1" long. McMaster 6381K446. Drilling the hole on mine at 0.55 would not leave much material. 0.437 would work though. Drilling out an E-Z Loc may work too if you could find one long enough.

Date: Thu, 15 May 2014 22:41:26 -0700 (PDT)
From: "Drew P. via R-390" <r-390@mailman.qth.net>
Subject: Re: [R-390] How are your knobs ?

"How about a bronze sleeve <snip>

This might work, although the bushing's wall thickness would be only 1/16"; you would need to slot the bushing lengthwise and use a clamp as per original, dispensing with the set screws. And, down there in VK land, don't you guys use "grub screws" instead?

Date: Fri, 16 May 2014 09:16:42 -0400
From: quartz55 <quartz55@hughes.net>
Subject: Re: [R-390] How are your knobs ?

Where do we get this 'metal glue'? I ordered a bushing for mine. The fingers on my good one are only 1/16" thick, and it would be handy to use the original clamp. I suppose I better take it to someone that has a drill press to get a good straight hole to work with.

Date: Fri, 16 May 2014 09:24:13 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] How are your knobs ?

I think they're referring to a product similar to JB Weld, available at most hardware stores, WalMart, and other fine retailers.

Date: Fri, 16 May 2014 10:16:22 -0400
From: Charles Steinmetz <csteinmetz@yandex.com>
Subject: Re: [R-390] How are your knobs ?

>Where do we get this 'metal glue'?

The OP said he used some version of cyanoacrylate ("super glue"). There are many versions -- every hobby store and machine supply has lots of them. Choose by (i) substrates (get one for metal to metal bonding), (ii) the gap (that you will have between bushing and knob), and (iii) working time. Most manufacturers publish detailed brochures aimed at getting you to the right choice, and they also have help lines you can call and someone will tell you what to get. You may need to apply an accelerator before the adhesive.

>think they're referring to a product similar to JB Weld

JB Weld is epoxy. Very good epoxy, as is West System epoxy. Either of these would be a fine choice (I'm more familiar with epoxies than cyanoacrylates, so I'd probably gravitate to one of these if I didn't have help choosing a cyanoacrylate. If the clearance is tight, you may want to thin the mixed epoxy with a little acetone to make sure it wets the whole bond surface (but don't go crazy with the thinning).

For either adhesive, you want the parts scrupulously clean. I'd probably drop the knob and bushing into a can and cover them with acetone, let them sit a day or two, scrub the contact surfaces well with a stiff brush (a brand new .45 caliber bore brush should be great for the knob), then change the acetone and let them sit another day. NB: acetone may remove the knob finish.

Epoxy would benefit from some "tooth" on the bonding surfaces (40 grit sandpaper -- to do the bore, put a split into the end of a dowel and insert a strip of sandpaper). I don't think cyanoacrylates need that much tooth, but do what the manufacturer suggests.

Date: Fri, 16 May 2014 10:38:09 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] How are your knobs ?

You're correct about the CA. I was thinking epoxy and forgot the OP mentioned CA. I'm with you, though. I'd tend to go with epoxy in this application.

Thinking about this entire thread, I'm curious as to the strength of such a repair. While the original center spindle has held up pretty well, a repair like this seems like a weak way to approach it.

It would seem to me that one could machine a slug large enough to fit in the skirt of the old knob - hollowed out such that an original-like set of fingers that would accommodate the original-style clamp would rise from the center (hope I'm explaining that well enough). It would require some time/expertise on a lathe, but if someone had those resources (sure wish I still access to a good machine shop - sigh...) it could be done. Epoxying (or other glue) on the large inner surface of the skirt would be a much stronger mechanical arrangement.

Date: Fri, 16 May 2014 14:19:55 -0400
From: Roy Morgan <k1lky68@gmail.com>
Subject: Re: [R-390] How are your knobs ?

For any R-389 owners: The frequency knob on the R-389 is NOT the same as on the other radios of the family. It has an internal clutch to prevent wrecking the gears or worse, the PTO (unobtainable!) if a hammer fisted person holds onto it while motor driving the tuning, or at the end of travel. All R-389 owners should check the operation of the clutch.

Date: Fri, 16 May 2014 13:23:11 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: Re: [R-390] How are your knobs ?

Look up the epoxy used for golf club heads, it does not come off. Way
better than JB Weld. A brand name to look for is "GolfWorks".

Date: Fri, 16 May 2014 14:52:30 -0400
From: Roy Morgan <k1lky68@gmail.com>
Subject: Re: [R-390] How are your knobs ?

Thanks for that tip. I assume (with no knowledge of the sport) that a set of golf clubs can easily cost more than a nice R-390A. Let?s see, what SHALL I do: play golf or work on radios? Play golf or work on radios? Hmmmmmm

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Date: Fri, 16 May 2014 21:30:24 -0600
From: Robert Moses <rhmoses@earthlink.net>
Subject: Re: [R-390] How are your knobs ?

A word on acetone: it polymerizes and leaves an organic residue. If you want a clean surface wash off the acetone with distilled water and then bake off the water film after shaking out the drops that you are able to. (Baking would be at about 240 F (120 - 140 C) for a day or 2. I am assuming that you are talking about the 2 larger metal tuning knobs.) Before baking non metal parts test to be sure that they will not be damaged.

Date: Fri, 16 May 2014 23:38:14 -0600
From: Robert Moses <rhmoses@earthlink.net>
Subject: Re: [R-390] How are your knobs ?

Oh, it would be easy to spend more on an R-390 and ALL of the accessories to support it than to do comparably with golf: Think over a thousand acres with towers to run the antenna farm with a buffer around the edges to help reduce rfi as a start. It would be easy to spend as much as it would cost to have a private golf course! Come to think of it since the two are not incompatible you could have both. <g>

Date: Sat, 17 May 2014 01:48:40 -0400
From: Charles Steinmetz <csteinmetz@yandex.com>
Subject: Re: [R-390] How are your knobs ?

>A word on acetone: it polymerizes and leaves an organic residue.

Do you have references in the scientific literature that discuss this polymer residue phenomenon? My quick search didn't turn anything up. Acetone is rated as 100% volatile and is certified for residue-free cleaning to a number of aerospace and military standards. I have never observed a residue on optics cleaned with acetone, although there have been reports that it can dissolve rosin (used through the mid-20th century as an inter-element cement) and deposit it on the outer surfaces of a cemented-element lens. Also, some commercially available acetone has trace impurities that can remain after evaporation, which has been reported by amateur astronomers in connection with cleaning telescope mirrors.

Date: Sat, 17 May 2014 05:02:56 -0600
From: Robert Moses <rhmoses@earthlink.net>
Subject: Re: [R-390] How are your knobs ?

This is from my training as a chemist. I cannot cite references off-hand. I can assure you that the stuff DOES polymerize and is prone to leave a residue film. The standard fix by chemists is to rinse with distilled water while still wet with acetone. This gives a clean surface. Chemists use acetone to wash glassware too, but residues can contaminate the next experiment and produce unexpected and difficult to reproduce results. In the chemistry business it is common knowledge that aldehydes and keystones are capable of forming co-polymers of the addition type.

Date: Sat, 17 May 2014 05:31:28 -0600
From: Robert Moses <rhmoses@earthlink.net>
Subject: Re: [R-390] How are your knobs ?

Do a search for 'addition co polymers from aldehydes and ketones' on dogpile and you will find an ample offering of references. I have also seen a bottle of 'acetone' that was quite solid. It was filled with a white block of plastic (acetone co polymer).

Date: Sat, 17 May 2014 08:12:07 -0400 (EDT)

From: Gordon Hayward <ghayward@uoguelph.ca>
Subject: [R-390] Acetone solvent

> …. acetone: it polymerizes and leaves an organic residue…….

I disagree. Clean acetone doesn't polymerize and doesn't leave residue. A long time ago we used to dry lab glassware with acetone because it forms a low boiling azeotrope with water. That said, now we avoid releasing VOC's. You need to be careful with acetone because it dissolves a lot of plastics and can easily ruin nice surfaces. 2-propanol is a lot less aggressive. Both are flammable.

Date: Sat, 17 May 2014 06:47:11 -0600
From: Robert Moses <rhmoses@earthlink.net>
Subject: Re: [R-390] Acetone solvent

That is like saying 'clean ether does not form peroxides'. Traditional does not equal good science. Always test experimentally. High purity ketones do polymerize.

Date: Sat, 17 May 2014 07:04:11 -0600
From: Robert Moses <rhmoses@earthlink.net>
Subject: Re: [R-390] Acetone solvent

Acetone will dissolve, swell, or soften most non crosslinked polymers and you are correct that it can ruin finishes (and worse). Isopropanol is much less aggressive. If you use it use the 91% rather than the 70% concentration as a solvent since the large amount of water in the 70% concentration tends to interfere with its ability to dissolve hydrophobic materials like grease.

Date: Sat, 17 May 2014 19:40:15 -0500
From: Mike A <mikea@mikea.ath.cx>
Subject: Re: [R-390] How are your knobs ?

>……..it polymerizes and leaves an organic residue. <snip>

This is interesting. I've used it for the final cleaning on lab glass and optics, and my wife, a chemist, has used it to clean and dry lab glass forever. Neither one of us has ever heard of any problems with acetone polymerizing by itself on clean glass surfaces. When mixed with other reagents, though not water, it may polymerize, and there are articles on this in the literature, but none that I could find for just acetone by itself or with water.

Date: Sun, 18 May 2014 06:58:45 -0600
From: Robert Moses <rhmoses@earthlink.net>
Subject: Re: [R-390] How are your knobs ?

Tradition dies hard.

Date: Mon, 19 May 2014 19:01:37 -0400
From: quartz55 <quartz55@hughes.net>
Subject: Re: [R-390] How are your knobs ?

The bushing is looking good. It's a good sliding fit on the shaft. Now I need a 7/16' bit. I thought I might have one but no joy. It's about the same thickness as the fingers. I'll probably have to shorten it since the drill won't go as deep as original

and a hack saw or dremel will take care of the slots. I'm going to try some Permatex epoxy I have on hand I used for the filter repair. If the glue holds, it will be better than the pot metal for the fingers. I found the hss bit on ebay for less than $5 delivered. So total of less than $10 plus my time which must be at about $3000 by now.

http://i251.photobucket.com/albums/gg287/DogTi/R390A/bushing_zpsd2c72309.jpg

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Date: Mon, 19 May 2014 23:50:41 -0400
From: Charles Steinmetz <csteinmetz@yandex.com>
Subject: Re: [R-390] [OT] Acetone [WAS: How are your knobs?]

OT now, but a very interesting sub-thread.

> A word on acetone..<snip>

It is interesting, indeed. I spent several hours researching the literature this weekend, and that was my experience as well. Just as an initial clarification, I assume we must be talking about homopolymers of acetone, since we presuppose pure, clean acetone and substrate materials that are not organic monomers (thus, there would by definition be no other monomer present to form a co-polymer). It seems to be uncontroversial that (unlike aldehydes) ketones are difficult to polymerize in general, and the successful polymerization of acetone seems to require unusual conditions: very low temperatures, stong acids or alkalies, or magnesium or Ziegler catalysts. Spectrometrists have reported field-induced polymerization in field ion microscopes. Several researchers reported that the polymers resulting from these methods are very unstable, even at room temperature.

According to the Handbook of Polymer Synthesis, which I believe is a canonical reference text:

>In the 1960s acetone was claimed to have been polymerized by several
>groups, mostly by means of anionic initiators, but the identity of
>the products of these experiments is doubtful, and reproducibility
>is questionable. * * * While the occurrence of ketone
>homopolymerization is doubtful, more recently copolymerization of
>acetone with formaldehyde has been reported to take place in bulk at
>-78C with hexafluoroacetone as initiator. The product, a copolymer
>containing 33% acetone and 66% formaldehyde, was obtained in 50%
>yield and was characterized as being a poly(acetal) by elemental
>analysis, IR, and NMR. It had a reduced viscosity of 0.39 dL/g in
>chloroform (0.2 g per 100 mL). Another copolymerization of acetone
>which has been reported is that with dimethylketene. Copolymerization of these monomers was accomplished at -6OC in toluene, with Li alkyls as initiators. The product was shown by x-ray analysis to be highly crystalline and to consist of alternating acetone and dimethylketene units. However, this polymer is not a true polyaectal, but can be considered a polyester of a [beta]-hydroxy acid.

I have not been able to find any reports in the literature of the polymerization of acetone at room temperatures, without the presence of initiators or catalysts, and/or in the short time it takes a film of acetone to evaporate at room temperature and pressure. This is interesting in itself, given that so much research has been

devoted to attempts to polymerize acetone with so little success. I realize that, as Robert said, sometimes the received wisdom dies hard even in science -- it just seems odd that so many researchers have devoted so much effort to polymerizing acetone and nobody ever noticed that all
they had to do was pour some out in a beaker and let it evaporate.

Date: Tue, 20 May 2014 08:11:33 -0400
From: Mark Richards <mark.richards@massmicro.com>
Subject: Re: [R-390] [OT] Acetone [WAS: How are your knobs?]

The never-ending story, accentuated in the last few decades, where technology has superseded science, and common sense is relegated to an "app".

Date: Tue, 20 May 2014 11:11:52 -0400
From: Roy Morgan <k1lky68@gmail.com>
Subject: Re: [R-390] [OT] Acetone [WAS: How are your knobs?]

And here is a note that classifies as a sub-sub thread, with direct reference to the Infamous 807 transmitting tube, which rightly gained a very robust reputation far and wide in the world of transmitting, and later in audio amplifiers.* The thread on the Glowbugs list: RE: [Glowbugs] THE INFAMOUS 807 ranged far and wide to include use of an 807 tube modified to be a beer quaffing vessel,** and a discussion of the history of beer making and great praise for the current upsurge in micro-breweries here in the US. This leads me to a tale about acetone:

> It seems to be uncontroversial that (unlike aldehydes) ketones are difficult to polymerize in general, and the successful polymerization of acetone seems to require unusual conditions:

A long time ago now I took an evening class in Harvard Square on German Wines.*** We learned that some of the differences, and good qualities, found among wines was due to the aldehydes and ketones in the final product. This does make sense to me because of all the different and variable ingredients, main and trace, in the grapes and overall process. One evening the instructor opened a bottle of wine, poured a polite amount into a clean glass and sniffed then tasted it. After a thoughtful and serious pause, she announced:

?This wine tastes like ?. ?. acetone!?

Sure enough, it did. We may have confused the tastes and smells of a variety of compounds with nail polish remover that we were familiar with.

R-390 related content:
Later that evening, I happily made my way back to my loft room in a factory building nearby, where I also worked as a repairer of film sound recording and playback equipment. This often involved the 12AU7, 12AT7, and the occasional 12AY7 tubes that we find in our treasured radios and other equipment. Long live the 12AU7 and 807, and their variants!

Roy

*I have a much-treasured 1950's home brewed Williamson amplifier that uses two 807's in P-P triode mode for an estimated 20 watts output through a legendary

UTC LS output transformer. It also has a couple of 6SL7's and a 5U4. The 6SL7's should be 6SN7's, though, and that may explain the case of microphonics it has.

Date: Fri, 23 May 2014 18:20:34 -0400
From: quartz55 <quartz55@hughes.net>
Subject: Re: [R-390] How are your knobs ?

Got the bit today. Just hand drilled it with the Milwaukee. Had to cut off some of the bushing, expected, but of course I cut off .1" too much, but I'm going to try it anyhow. Cut it off by chucking the bushing in the drill and using a hacksaw while drilling, pretty easy. Then I used the good end to cut the slots with the same hacksaw. Pretty quick. I cleaned everything with brake cleaner (so there won't be a long thread about acetone), dried it with the heat gun and made up the glue, so I'll give it 2 days to cure. I put the clamp on so it wouldn't fall down in too much.

http://i251.photobucket.com/albums/gg287/DogTi/R390A/bushing_zps532eb123.jpg

http://i251.photobucket.com/albums/gg287/DogTi/R390A/knobglued_zps35c9bfdb.jpg

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Date: Sun, 25 May 2014 10:34:25 +1000
From: Pete Williams <jupete@internode.on.net>
Subject: Re: [R-390] R-390 Digest, Vol 121, Issue 21

REF KNOBS....looks good Dave but I would like? a bit more 'meat' on the bushing that the clamp fits around.. The adhesive to hold the metal bush in the knob I mentioned in my first submission is LOCKTITE and comes in several types and Google will tell you all. Apparently the blue is the most tenacious and its holding ability is increased with the closeness of the fit of the two parts being bonded. This is apparently a function of how cyanoacrylates work so effectively.

Date: Sat, 24 May 2014 22:29:13 -0400
From: quartz55 <quartz55@hughes.net>
Subject: Re: [R-390] R-390 Digest, Vol 121, Issue 21

Well the bushing is a bit thicker than the original fingers so the clamp goes on the bushing a bit tight, but I put the knob on tonight and it feels fine. I'll keep turning it every day and see how it holds up until it breaks or I get bored. Both my RXs are pretty smooth on the KC change. I should probably put it on the MC shaft. The clamp tightens down just fine. If the epoxy doesn't hold up, I can always go back in and try the Locktite super glue. The fit of the bushing in the casting was a loose sliding fit, being drilled by hand it was tighter at the bottom than at the top. If it were 'reamed' I'm sure there could be a very close fit, but it would have to be machine done. I think it's an acceptable fix for the price and done at home. Right now it feels like it's going to hold up.

Date: Sun, 25 May 2014 02:31:23 -0400
From: Charles Steinmetz <csteinmetz@yandex.com>
Subject: Re: [R-390] How are your knobs ?

>Well the bushing is a bit..<snip>

When I saw the photo, I thought the OD of the fingers could actually stand to be

turned down a bit, to give them more flexibility and, consequently, a stronger clamping force on the shaft for a given clamp screw torque.

>The fit of the bushing.. <snip>

Ideally, you would like the ID of the fingers to have a specific amount of "bell" so that they become perfectly parallel when it is tightened on the shaft (any collet-type joint holds strongest when this condition is met). My only criticism is that the fingers are a bit short (as you noted), which reduces the abvailable clamping force. I think I'd have glued the bushing in with the fingers sticking out maybe 0.050" beyond the clamp (I don't think there is any advantage to bottoming the bushing in the hole). But I doubt seriously there is any practical problem with the repair job.

>I think it's an acceptable fix…<snip>

I suspect it will last until the radio is scrapped. Good job! (You, too, Pete.)

Date: Sun, 25 May 2014 18:40:26 -0400
From: quartz55 <quartz55@hughes.net>
Subject: Re: [R-390] How are your knobs ?

I agree with everything you've said. Sounds like a good plan. Yes, I did cut the bushing .1" too short, but that is not necessary to do, the mentioned bushing will stick out as far as the original fingers fully inserted in the drilling if it's cut right, at about .9". I've moved the knob to the MC position and am running it end to end at least once a day. So far it feels like a real knob. The other thing I messed up was not lining up the slots with the web, so the clamp probably doesn't work to it's most effectiveness. Just sloppy work on my end, I wasn't paying attention when I glued it in.

I'm sure these bronze fingers are not as brittle as the pot metal of the original, so 'honking' should be allowed, but I don't think it's necessary, like I said less than 1 turn on the bristow screw tightened it sufficiently, but I have a pretty smooth gear train in both the KC and MC on both RXs. But when I get to the end it stops agreeably. Yes, I replied to you, not the list, I'll do better. Isn't it great when this crowd sourcing works out? I can only hope it benefits others.

Date: Sat, 11 Oct 2014 23:06:36 +0300
From: Grayson Evans <wa4gvm@gmail.com>
Subject: [R-390] What is on the 390 chassis anyway

I am in the process of restoring one of my R390A?s, I disassembled it and disassembled the chassis. I am trying to clean it up, and get the chassis back in reasonable shape. In the process I have to do some scrubbing to get the dirt, old adhesive labels, and corrosion off the chassis pieces (sides, back, partitions, etc.), the chassis metal is coated with a light yellow something. Is this an anodized coating or something the manufacturer sprays on? It comes off quite easy, so I don?t think it is an anodized coating. Is it the same stuff thats on the solder connections?

What would you recommend as the best (or reasonable) way to treat the metal in areas where the coating is removed? just covering with a light machine oil? Spray it with a clear acrylic?

Date: Sat, 11 Oct 2014 16:14:24 -0400
From: Bob Camp <kb8tq@n1k.org>
Subject: Re: [R-390] What is on the 390 chassis anyway

The yellowish coating on the aluminum goes by a number of trade names. You can buy a bottle of this or that and spread it on. The problem is that to really get it to stick you need to do a proper strip (as in chemical etch) of the entire piece and then re-coat the entire thing. By far the best way to do that is to take it over to a local plating shop and let them do the job.

Date: Sat, 11 Oct 2014 15:01:25 -0700
From: "Craig Heaton" <hamfish@efn.org>
Subject: Re: [R-390] What is on the 390 chassis anyway

"It comes off quite easy" Could it be nicotine??? I don't think the yellow coating Bob is speaking of comes off easy. If it is nicotine, elbow grease and the cleaner of your choice. Mr Yuk frown here!

Date: Sat, 11 Oct 2014 18:22:36 -0400
From: Bob Camp <kb8tq@n1k.org>
Subject: Re: [R-390] What is on the 390 chassis anyway

The standard yellow aluminum coating is pretty tough. It will come off of edges of parts and areas that see significant scraping as modules are mated / un-mated. When we build parts that have that “stuff” on it, there is always a touchup bottle at the final inspection station. Even with careful handling, there will always be a corner here or there that gets the stuff rubbed off.

The main reason to have something on the aluminum is to take care of salt air / chlorine corrosion issues. If you live at the beach and use your radio while sipping Margaritas out on the deck - worry about it. If you live in the middle of Kansas - worry about the tornadoes instead.

Date: Sat, 11 Oct 2014 19:45:44 -0500
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] What is on the 390 chassis anyway

Are there little stamped marks with "MFP"? If so, that coating could what you're scrubbing off.

Date: Mon, 13 Oct 2014 07:54:47 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: Re: [R-390] What is on the 390 chassis anyway

The yellowish tinge of the aluminum can come from a couple of things;

1. It can be MFP (moisture and fungus protectant); a type of varnish. Usually you will see it coating lots of things and not just the aluminum.

2. It can be aluminum yellow chromate. This is a electrolytic treatment that was done to many aluminum items in the military and avionics industries. It is no longer available as it used "hexavalent chromium" to create the coating. It "passivates" the aluminum, sort of like a controlled corrosion up front to keep uncontrolled corrosion from setting in later. It

has a golden look to it. The original process was toxic as hell and is no longer possible using the same technique.

3. It can be fifty years of cigarette smoke residue.

409 spray cleaner will not remove MFP or aluminum yellow chromate, it will cut through dirt and cigarette smoke residue. If you get aggressive with solvents you can remove the MFP. If you get aggressive with abrasives you can remove the passivated layer of aluminum yellow chromate. You really do not want to take the radio all the way down to bare, shiny aluminum unless you plan on waxing, varnishing or painting it again. I have succeeded in restoring the MFP and the yellow chromate look with spray varnish. It (mostly) looks the same and provides at least some corrosion resistance. If you are re-finishing aluminum front panels you probably need to primer the aluminum of you used stripper or a mechanical means to take it down to shiny metal.

Date: Mon, 13 Oct 2014 08:32:54 -0700
From: Bill Guyger via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] What is on the 390 chassis anyway

Tisha as usual is dead on about the coatings and what not to do. If you totally remove the Chromate / Alodine / trade name of the moment coating the aluminum will begin to oxidize and the chassis is the ground return..... .....kind of important. Especially important if you take the radio down to bare metal and clean the mating areas between the various sub panels which is what should be done if you are totally rebuilding a 390A because vibration will have had its little say over the last 50 years or so and loosened some of the hardware connections.

FWIW Henry Rogers at http://www.radioblvd.com/ on his ART-13 page has a recipe for simulating the MFP coating using paint available at art supply places.

Date: Mon, 13 Oct 2014 19:48:15 +0300
From: Grayson Evans <wa4gvm@gmail.com>
Subject: Re: [R-390] What is on the 390 chassis anyway

Yes, I had to rub of the chromate in various locations due to corrosion and damage. Not everywhere. The chromate does not look like it was applied to areas where the chassis parts join. on the panels and sides where i had to rub it off, I may as well take it all off since it won?t look right to see some of it on and some off.

I will experiment with Henry Rogers (radioblvd) technique of using a yellow tinted and thinned lacquer. I was simply going to use some clear spray lacquer, but his idea is definitely better. Henry's web site is great (even if it is totally retro - early 1990's with text on a blue background). I read all his stuff on the 390A. There is an ART13 in a surplus yard here that is in excellent shape. His page on ART13 restoration got me very interested in acquiring yet another project. Hmmm, not sure I will live that long!

Date: Mon, 13 Oct 2014 15:13:18 -0500
From: "Bill Hawkins" <bill@iaxs.net>
Subject: Re: [R-390] What is on the 390 chassis anyway

Zinc Chromate spray paint is still available. Google same. The primer has been used on aluminum parts for aircraft since WW II, at least. True, people have died

from cancer since then, but chromate was not identified as a cause.
This link has some good information, for an Internet source:
http://www.finishing.com/0600-0799/702.shtml

Date: Mon, 13 Oct 2014 16:26:24 -0400
From: Charles Steinmetz <csteinmetz@yandex.com>
Subject: Re: [R-390] RF deck removal

>I may initially clean the gear case intact with liberal WD40 and paint brush.

You may want to reconsider using WD-40, unless you plan to wash it all out thoroughly with a residue-free solvent before you reassemble the radio. In addition to solvents, WD-40 contains some really crappy non-synthetic oil that is notorious for oxidizing and gumming up after the solvent evaporates.

The part of WD-40 that is useful for cleaning the gear train is the kerosene/mineral spirits solvent. Just buy a jug of kerosene or mineral spirits at the hardware store (or odorless lamp oil, if you're feeling really flush). These solvents evaporate cleanly. All the benefit of WD-40 without the residue problem.

Date: Mon, 13 Oct 2014 15:26:54 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] What is on the 390 chassis anyway

I buy it at marine supply stores. (Tempo brand I think) I use it to prime my front panels prior to top coating them...use to prime the knobs too after a glass bead blasting. I let it cure for a couple weeks before final finish application. Works great with a very thin coat.

Date: Mon, 13 Oct 2014 14:05:19 -0700
From: Bill Guyger via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] What is on the 390 chassis anyway

I bought some Zinc Chromate primer several years ago from an aircraft supply house and the cans indicated on the label that The State of California has determined that this is a carcinogen but then again The State of California has determined that living is hazardous to your health.

I just refinished a couple of 600 Ma. chokes out of a Wilcox Ground to Air (AM about 200 W.) transmitter that dated from the 30's and the end caps were primed with Zinc Chromate under the finish coat so I did Google Z Chromate and it is regarded by other organizations more creditable than The State of California as dangerous if inhaled as an aerosol or in fine particulate form like I was creating by sanding with a flapper wheel so I did put on a mask, but the coating on the chassis of a 390A should not cause a problem since it is more than likely something like Alodine which is another dipped coating similar to Anodizing.

If you are refinishing the front panel you can use self etching primer on the Aluminum. It's available in spray cans at Home Depot and Lowes or in bulk at automotive finish suppliers.

Date: Mon, 13 Oct 2014 17:17:55 -0400
From: Alan Victor <amvictor@ncsu.edu>
Subject: Re: [R-390] RF deck removal

Ah Kerosene it is. Thanks Charles. I was not aware of the bad side effects of WD40 on the lubrication side.

Date: Mon, 13 Oct 2014 14:31:18 -0700
From: Scott Overstreet <scott@becklawfirm.com>
Subject: Re: [R-390] What is on the 390 chassis anyway

I don't know where all this zinc chromate stuff has come from. True, zinc chromate paint has been used for years and years on aircraft aluminum but I've never seen it on 390's.

The finish on 390 aluminum is "alodine" This is a very much still in use, aluminum finish that , believe it or not, is available in quart bottles in most automotive paint stores for a very affordable price----I can't remember just what I paid for the last bottle I bought. There is also "clear" alodine but this is not what you may want or was used on the 390's.

Commercially, the process is a dip in caustic (lye) to clean and etch a bit and then in a "bright dip" (?) to clean up the impurities left behind (usually a bit gray) and then into the alodine tank. The immersion period is usually about 45 seconds with fresh alodine and up to several minutes for near dead alodine. The longer in the tank, the darker it gets which can be pretty dark brown. Ask Google for process details. Alodine on a rag can make things look better but things have to be very clean for uniformity------wear rubber gloves, alodine stains.

Date: Mon, 13 Oct 2014 17:41:10 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] What is on the 390 chassis anyway

Several years ago, I found a company here in town that would still do the conversion for me (not sure it was Alodine but it was very similar). Was rather expensive to have that done since it was in such a small quantity. Not sure if they'll still do that anymore.

Yes, I think you can still get Alodine; however, I think you have to be careful about disposal of the rinse water, etc. I think it's classified as a heavy metal (not a chemist so not sure of that nomenclature) and I think you can get into some serious trouble if it is not disposed of properly (letting it go down the drain, etc.).

I believe zinc chromate was indeed used on the R390/R390A. It was the primer on the front panel (and possibly the knobs). It is VERY difficult to remove.

Date: Mon, 13 Oct 2014 17:03:50 -0500
From: Les Locklear <leslocklear@hotmail.com>
Subject: [R-390] What is on the 390 chassis anyway

Zinc Chromate primer was used on R-390 and R-390A series receivers front panels and the knobs. Yeah, it is supposedly carcinogenic, but so is most everything these days. I've used it on automotive battery posts to combat corrosion among other things.

We've become so damn afraid of various chemicals and agents that as a society I guess we ought to stay indoors and watch TV re-runs of All in the

Family or succumb..... I still use certain banned chemicals as a degreasing agent. Oh, I forgot to mention, I drink beer, Irish Whisky, wine in boxes too. I'm 71, blood pressure is 120 over 70 and don't take any prescription medications either. YMMV Les Locklear

"The two most common elements in the universe are Hydrogen and stupidity". Harlan Ellison US science fiction author & screenwriter (1934 -)

Date: Mon, 13 Oct 2014 18:09:30 -0400
From: Alan Victor <amvictor@ncsu.edu>
Subject: Re: [R-390] RF deck removal

Excellent Roger. Thanks. I believe that will be my first course of action. If the need to go beyond a cleaning of the gear box is apparent, then so be. However, if the CAMs and other elements are reasonably on the mark, say less than 3 kHz error on any one piece, PTO, cam, switch, etc... Then I am most likely to keep it simple at first. Charles suggested the kerosene or mineral spirits as the flush agent in lieu of WD40. And in hindsight I do recall prior work where WD40 leaves a residue behind that is difficult to remove. That was a worthwhile flag.

Date: Mon, 13 Oct 2014 22:55:45 +0000
From: <joldenburg2@new.rr.com>
Subject: Re: [R-390] What is on the 390 chassis anyway

Spruce Aircraft sells Alodine 1201 @ $26.00 a quart which will cover 100 sq ft Haven't tried it but seems very reasonable

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Date: Mon, 13 Oct 2014 19:10:36 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] What is on the 390 chassis anyway

I don't think anyone was suggesting the use of zinc chromate on the chassis... I only use it as a primer on the front panel and the knobs. I'm not a fan of any effort to try to duplicate the MFP coating...it was necessary in the jungles of SE Asia but not in my air conditioned shop/station. I have one SP-600 that some mis-guided soul sprayed MFP all over the main tuning cap...it's slowly flaking off...drives the radio crazy. The cap plates are gold plated to start with....didn't need any protection.

Date: Mon, 13 Oct 2014 19:09:17 -0700
From: Bill Guyger via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] What is on the 390 chassis anyway

Yes definitely Zinc Chromate on the front panel under the paint. I have not stripped any knobs yet but I will find out ASAP. But first I have to get finished with the power supplies for my ATC (father of the ART-13) then my R-390A is next on the taxiway.

Date: Mon, 13 Oct 2014 21:40:06 -0500
From: Raymond Cote <universal_comm@reagan.com>
Subject: Re: [R-390] What is on the 390 chassis anyway

How do you differentiate between chromate and MPF? Is MPF much older than the 390 series of radios? I still have a can of spray MPF but don't want to use it. It is on a shelf to look at Rx

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Date: Mon, 13 Oct 2014 23:38:22 -0500
From: Bill Guyger via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] What is on the 390 chassis anyway

MFP is yellowish almost yellow orange,
Chromate is a greenish yellow bordering on chartreuse.

Date: Mon, 13 Oct 2014 16:50:14 -0500
From: Les Locklear <leslocklear@hotmail.com>
Subject: Re: [R-390] What is on the 390 chassis anyway
Message-ID: <COL127-DS45E1F55D142A91064A676A4AC0@phx.gbl>

Zinc Chromate primer was used on R-390 and R-390A series receivers front panels and the knobs. Yeah, it is supposedly carcinogenic, but so is most everything these days. I've used it on automotive battery posts to combat corrosion among other things. <snip>

Date: Tue, 14 Oct 2014 02:28:12 -0500
From: Raymond Cote <bluegrassdakine@hotmail.com>
Subject: Re: [R-390] What is on the 390 chassis anyway

Ah yes MFP not MPF. color would be a dead giveaway.
Thanks. Guess none of mine but one have the yellow not Green.

Date: Fri, 17 Oct 2014 06:29:03 -0500
From: Tisha Hayes <tisha.hayes@gmail.com>
Subject: Re: [R-390] What is on the 390 chassis anyway

This is the extreme far end of what you "could" do; If you felt compelled to be obsessive about getting the color just right you could take all of the aluminum, strip it down polish and clean it up and get gold anodizing done. Anodizing creates a surface finish that is like a miniature forest of aluminum oxide;
(see; http://www.anodizing.org/Reference/reference_guide.html)

This leaves behind a mostly non-conductive surface that can then be dyed to whatever color you want. Then finished off with a sealer. There are home anodizing kits and the process is similar to electroplating.
(see; http://www.caswellplating.com/deluxe-anodizing-kit.html)

It is expensive to get started doing anodizing, takes work to get good at it and unless you are in that business you will never recoup your money.

Date: Sun, 30 Nov 2014 14:51:44 -0500
From: Robert Newberry <N1XBM@amsat.org>
Subject: [R-390] Lacquer stick

I'm going to be working on my very long drawn out tear down rebuild. I'm going be using lacquer stick to do the letters. What should I use to remove the excess?

Date: Sun, 30 Nov 2014 20:39:09 +0000 (UTC)
From: Steve Toth via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] Lacquer stick

When I last restored a set of knobs I used water based Liquitex Acrylic Artist Color, Titanium White, to re-paint the white indicator lines (I picked it up in an art supply store). A damp cloth will easily wipe off the excess. I would think it should work fine on an engraved panel too.- Steve

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Date: Sun, 30 Nov 2014 15:03:06 -0600
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Lacquer stick

Bob I use lacquer stick on my rebuilds, it's easy, long lasting and I haven't had any problems with yellowing as some report.

I don't usually fill the engravings until the panel or knobs paint work are fully cured and can stand some rubbing. (Weeks) I usually fill the engravings heavily and let it set for a few minutes then wipe over them with a clean white cotton cloth to take the excess off then roll to a clean spot on the cloth and buff over the panel area and engraving to sharpen up the engraving then let set overnight. If more cleaning is necessary I might wipe over the area quickly and lightly with the same type cloth lightly dampened with lacquer thinner. Usually I don't have to resort to the last step.

Date: Wed, 11 Mar 2015 15:21:00 -0500
From: Phil <pmills7@comcast.net>
Subject: [R-390] Need panel painting advice

I've decided to repaint the engraved panel of my R-390A. It appears that the engraving is pretty well filled up by the white lettering paint. I'm thinking I need to use paint stripper to clean this up as well as the rest of the front of the panel. Any suggestions or advice?

Date: Wed, 11 Mar 2015 17:20:59 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Need panel painting advice

A good soaking with a solvent or stripper followed by a pointy thing (plastic, wooden, etc.) usually works. I used a nylon brush with short, stiff bristles (used for paint stripping) to work those out.

Date: Wed, 11 Mar 2015 22:38:59 +0000 (UTC)
From: Bill Guyger via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] Need panel painting advice
Content-Type: text/plain; charset=UTF-8

Go to www.radioblvd.com Henry has very detailed instructions for refinishing on his R-390A page. He covers a lots of other classic radios as well. Especially good info on ART-13's and BC-348's etc.

Date: Wed, 11 Mar 2015 19:22:09 -0400
From: djed1--- via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] Need panel painting advice

I haven't done my R-390A, but have done a couple of Hammarlund Super Pros. Stripping the front panel will naturally soften the paint in the engraving. I used a

brass brush on a Dremel to completely remove the paint in the engravings. To be a little more obssesive-compulsive, after each layer of front panel paint I used a dental pick and magnifying glass to clean the paint out of the engraving. Otherwise you need to spray very thin layers so you don't fill the engravings. When all my paint was dried, I filled the engravings with a white paint stick. I used the edge of a piece of thin plastic to level the paint, then let it dry. Finally, I cleaned any residue with a Q-tip and a little solvent. Looks great. And yes, I was off the list last night because I was having a dinner of Kielbasa..

Date: Thu, 12 Mar 2015 14:40:01 +0000 (UTC)
From: Steve Toth via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] Need panel painting advice

"Titanium White" water based acrylic paint stick (available at art supply stores and college campus bookstores in the art supply section) works very nicely - have used it on knobs too!

Date: Thu, 12 Mar 2015 09:50:34 -0500
From: Tom Frobase <tfrobase@gmail.com>
Subject: [R-390] Paint & Letter fill

I have been using the inexpensive stainless steel brushes from Harbor Freight. Once the solvent loosens the filler I circle the wire brush around the engraving with moderate to low pressure, making sure to keep the bristles perpendicular to the surface. It does an effective job pulling the old stuff out. Once the bristles are bent throw away the brush. I also use a dry stainless brush prior to final cleaning for prep, the stainless brush breaks the oxidation up and helps the paint stick better

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Date: Thu, 12 Mar 2015 11:31:26 -0400
From: rkofler--- via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] Paint & Letter fill

Something to think about. When I restored my SP600, the panel paint and lettering were very discolored and grimy. I noticed, however, that the paint was not scratched or scraped, just looked like years of cigarette smoke and general grime. I thought I would have to repaint and reletter, but I went to the auto parts store and bought some rubbing compound, which is an abrasive mixed with a wax. After removing the panel, I carefully rubbed down the panel. The paint looked like new. Even the lettering turned white again. I didn't need to repaint or reletter. Just a thought.

Date: Thu, 12 Mar 2015 10:57:03 -0500
From: Tom Frobase <tfrobase@gmail.com>
Subject: Re: [R-390] Paint & Letter fill

I have done that as well, sometimes the nicotine works as a preservative!

Date: Thu, 12 Mar 2015 14:45:13 -0400
From: k2cby@optonline.net
Subject: [R-390] Paint and Letter Fill

I have found that the very best solvent to remove nicotine stains is denatured alcohol. It is not only effective but it does no harm to painted finishes.

Date: Fri, 13 Mar 2015 12:36:03 +1100
From: "bernie nicholson" <vk2abn@bigpond.net.au>
Subject: [R-390] Re- Finishing Panels

I like to use the White Correction Fluid, after picking out the old paint with a dental pick, I apply the correction fluid [Not Sparingly], and when it's almost dry I wipe off the excess, its blindingly WHITE and does a good job which stands the test of time Also very cheap and available. It's good on knobs too

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Date: Thu, 12 Mar 2015 23:23:14 -0400
From: Guido Santacana <gsantacanav@gmail.com>
Subject: Re: [R-390] Paint & Letter fill

Years ago I removed cigarrette tar from the painted chassis of a Halli SX23
an revealed the original mint paint. The tar acted as a protective agent.
The same thing happened with the front panel of one of my HQ180s.

Date: Sun, 5 Apr 2015 15:34:26 +0300
From: Grayson Evans <wa4gvm@gmail.com>
Subject: [R-390] Panel painting advice

I have a 1954 Collins R390A I am restoring. Front panel has silk screened on lettering of course. The panel was in fair condition, no dents or bends, but paint is definitely ratty. The old problem is how to repaint and restore the lettering.

I have read a few ideas about using the DIY decal sheets (that you run through a inkjet printer). Has anyone tried these? One obvious problem is you can't make white lettering. Has to be a color that the inkjet can make. I guess black lettering on a light grey would look OK. I thought about rub on lettering (that you CAN get in white). Really time consuming and relies heavily on a steady hand, good hand/ eye coordination, etc. Has anyone tried it? Input appreciated as always.

Date: Sun, 5 Apr 2015 09:25:14 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Panel painting advice

I think before I did any of that I would pick up a used engraved panel...or restore the radio and leave the front panel with its battle patina.... Rat Rod radio restoration.

Date: Sun, 5 Apr 2015 11:45:46 -0500
From: Ben Loper <brloper@gmail.com>
Subject: Re: [R-390] Panel painting advice

I think cleaning the panel will look much better than trying to stencil it yourself.

Date: Tue, 07 Apr 2015 11:51:32 -0400
From: k2cby@optonline.net
Subject: [R-390] Panel Painting Advice

Some years ago I had excellent results painting the stenciled panel on an early Motorola R-390A. I cleaned the panel as thoroughly as possible with Naphtha, followed by alcohol. I then masked off the white-painted areas with Scotch Type 811 Removable tape (pale blue box), trimming the edges as close to the lettering as possible with an Xacto knife. I then shot the panel with

several very light coats of Tru Value Machine Gray, which is an excellent match to the original. After the paint dried, I peeled off the Scotch tape, using the Xacto knife to lift the edges. To make everything blend, I gave the entire panel a shot of Krylon Crystal Clear acrylic. This effectively hid the edges where the tape had been applied.

Date: Tue, 7 Apr 2015 11:02:45 -0500
From: Ben Loper <brloper@gmail.com>
Subject: Re: [R-390] Panel Painting Advice

I used tho paint numbers on rifles and we always had overspray so I rubbed grease on the area outside the stencils, it took too long to tape them off. Anyway it might be possible to put some Vaseline on the panel lettering and then spray the panel. Once the panel drys just wipe the Vaseline away and the lettering will be intact

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Date: Tue, 7 Apr 2015 13:15:34 -0400
From: Bill Kirkland <b13kirkland@outlook.com>
Subject: Re: [R-390] Panel Painting Advice

Had the vaseline dry out when I used an oil based paint. On 51J panels, I use latex molding liquid applied with an old drafting pen, quill type. This allows me to trace the letters, often allowing the inside of "A" to be painted. I use a light overspray, let it dry, then rub of the rubber cement. Gently rubbing around the letters helps smooth the transition from painted to non-painted area.

Date: Tue, 07 Apr 2015 14:39:50 -0300
From: Howard Weeks <weeksh@att.net>
Subject: Re: [R-390] Panel Painting Advice

Back around 1964, I restored a stenciled R-390 panel while living in Germany. I had a German shop engrave the panel. He matched the font very closely and when finished, I doubt that anyone could tell the difference. And he charged me less than 50 dm (4:1) at that time. If I had one to do today, I would do it the same way (assuming I could find a competent engraver).

Date: Tue, 7 Apr 2015 21:27:48 +0300
From: Grayson Evans <wa4gvm@gmail.com>
Subject: Re: [R-390] Panel Painting Advice

Thanks for that advice on the panel. I thought about masking off the lettering somehow, either with masking tape, or a scotch tape of some kind. This might work, but my problem is about 25% of the white lettering is worn away enough to look crummy.

Back in my architecture days I used a lot of the rub on (dry transfer) lettering. I see that it is still made, although in greatly reduced fonts/sizes/colors. It is tedious, but probably about the same as masking it off. To have to give the panel a light coat of clear acrylic once the letters are on. I might get a sheet and try it out on the panel as is to see what it looks like. I swear I remember, way back, maybe 20-25 years ago I bought a sheet that had premade “radio” labels on it like ON / OFF / VOLUME, GAIN, etc. Too good to be true now.

Date: Tue, 7 Apr 2015 14:37:32 -0400 (EDT)

From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Panel Painting Advice

About 15 years ago, a fellow was silk-screening R390A panels for about $40 (maybe more for both sides). I had one done and it looked great. I think it became a losing venture for him and he stopped doing it. I sure wish someone was still doing that at a reasonable cost. I no longer need one but I'm sure a lot of folks do.

Date: Tue, 7 Apr 2015 14:47:49 -0400
From: Robert Newberry <N1XBM@amsat.org>
Subject: Re: [R-390] Panel Painting Advice

Check out this guy www.radiodaze.com

A few years ago he did a Hallicrafters S-76. He did a top notch job. I stripped the front panel, primed, and painted it. I then sent it to him to have the letters put on. I think he had a machine that printed the letters onto the panel somehow. It looked factory when he was done. I had to take before pictures at a high resolution with a scale ruler in the picture.

Date: Tue, 7 Apr 2015 19:07:15 +0000 (UTC)
From: Mike Bracey <mikebracey@att.net>
Subject: Re: [R-390] Panel Painting Advice

Grayson,This company has two ham kits of dry transfer lettering.
http://www.russellind.com/Russell/letterin/main.htm#Dial%20Marking%20Kit

>From: Grayson Evans <wa4gvm@gmail.com>
>Sent: Tuesday, April 7, 2015 1:27 PM
>Subject: Re: [R-390] Panel Painting Advice

Thanks for that advice on the panel. I thought about masking off the lettering somehow, either with masking tape, or a scotch tape of some kind.? This might work, but my problem is about 25% of the white lettering is worn away enough to look crummy.

Back in my architecture days I used a lot of the rub on (dry transfer) lettering.? I see that it is still made, although in greatly reduced fonts/sizes/colors. It is tedious, but probably about the same as masking it off. To have to give the panel a light coat of clear acrylic once the letters are on. I might get a sheet and try it out on the panel as is to see what it looks like. I swear I remember, way back, maybe 20-25 years ago I bought a sheet that had premade ?radio? labels on it like ON / OFF / VOLUME, GAIN, etc.? Too good to be true now.

Date: Tue, 07 Apr 2015 14:08:24 -0500
From: Phil <pmills7@comcast.net>
Subject: Re: [R-390] Panel Painting Advice

You are not wrong about the premade "radio" labels. I think I still have a few left but not may.....I think I bought them about 40 years ago in both black lettering and white lettering. You do have to be careful using them though.
good luck with the radio, 73, Phil W5BVB

Date: Wed, 8 Apr 2015 13:21:59 -0400

From: Bob Miller via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] Panel labels

I've had good luck with wet slide decals. You can get the blank sheets for either Ink Jet wet slide or Laser printer wet slide decals, Both types will allow you to print anything you want and any font or size on you computer using just a word processor. Only problem is getting white as neither the Ink Jet or the Laser printers do White. There was one printer (no longer made) that would print with white ink.. Can't recall the brand at the moment.

On the wet slide decals for laser schemes they work just like the old fashioned Technical decals, the Wet slide for Ink Jet printers must be sprayed with a clear Krylon type spray before use to prevent the ink from running. I use both types with excellent results. And of course both types will require a good coating of Krylon type spray when completed to blend the backing into the panel paint. While this won't help with the R390/A white lettering, it's a great solution to black and other colors on projects. Might even work with the old Hallicrafters Green Lettering on some of their flat black paint schemes.

Do a search on google for wet transfer decal paper.

Date: Wed, 8 Apr 2015 14:26:02 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Panel labels

I reversed the scale on a panel meter (just to preserve the original scale), sprayed it white, printed a wet-slide decal of the new scale, and applied it. Looks very nice.

Date: Thu, 9 Apr 2015 10:36:20 +1000
From: Pete Williams <jupete@internode.on.net>
Subject: [R-390] Panel refurbishment...

Some years back I had couple of silkscreened panels needing attention and made a visit to our local trophy engraver for suggestions....he uses laser engraving for some of his work doing panels for industrial use and said why not have me do a computer program after copying the sample and I'll laser engrave the lettering after you paint the surface. The upshot was he did this. copied the layout, the font, I cleaned the panel down, painted the appropriate grey and he then ran the computer controlled laser over the job.... Result perfect as the laser took the lettering down to the metal surface. He still has the program as I have a panel here needing treatment I'm sure you guys would have even better facilities than I have access to in rural VK3 but the principle remains valid.... ...Cost not a deterrent if a few need the job done .

Date: Wed, 8 Apr 2015 20:21:08 -0500
From: Bill Guyger via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] Panel refurbishment...

FWIW I did a panel for a transmitter out of the '55 handbook and being as how the old fashion decal sets are not available, I did some layout guides using my Visio CAD program for example 0 - 10 around a knob and legends like Plate Tuning etc. and printed them on transparent plastic intended for use in over head projectors.

I then taped them to the panel such that I could slip a sheet of dry transfer lettering

under the guide sheet and line the lettering up properly. I would then lift the loose edge of the guide sheet and rub the transfer letter onto the panel.

It was pretty tedious, but looked really good afterward. The final step was to spray the panel with fixative.

I can send anyone who is interested a picture off list since the list doesn't permit attachments.

Date: Thu, 9 Apr 2015 15:16:19 -0400
From: Bob Miller via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] water slide decals for panels source

The company noted sells 20 pages of 8.5 by 11 inch sheets of Ink Jet water slide decals for $17 plus postage. Enough to last for years. They also have water slide decals for Laser printers as well as a bunch of other nifty stuff. I've actually done complete panels with a sheet of this stuff and it worked great. Takes a bit of practice... but the results were worth the effort.

http://www.decalpaper.com/category-s/2.htm

Date: Fri, 17 Jul 2015 19:39:37 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Front Panel Restoration ER Don Reaves

I'd be curious to know how you guys are handling the soda that goes verywhere and kills the plants. I killed a spot in the back yard when I stripped my R-390 panel a while back....just now supporting life again... Is there a better way?
Would be nice to contain it and wash it down the drain or some such.. (I'll probably get spanked for that notion). Cecil

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Date: Fri, 17 Jul 2015 22:05:25 -0400
From: Glenn Scott via R-390 <r-390@mailman.qth.net>
Subject: [R-390] Front Panel Restoration ER Don Reaves Kielbasa

Powder coating is great for lots of applications. I use it for the R390(A) veeder root cover and knobs, not the meters and that is a long story for later. However, on panels with engraves powder coating will fill letters and generally make a mess since it is thicker than paint. Especially on the earlier R390's pre-A models that have smaller and less deep engraves. Those panels fill in almost completely to make a flat, clean panel ready to be silk screened. Even the knob index line of R390 or A series receiver can be powder coated and the line repainted but it takes some time to get the powder flow being applied to be thick enough to cover the skirts of the knob and yet not fill the index line.
R392 engraves are a little wider and deeper and will hold up well for powder coating.

I have figured out how to spray just enough powder to cover the panel but not fill the engraves but I still had to hand paint the completion of several letters before; that is a real pain. And my reason for the continued use of paint and all of the associated constraints and safety issues. Perhaps, a powder coat product will be developed that will be more suited for engraved panels.

With powder coating, there are no messy primer nor paints, no air guns to spend

half an hour cleaning, no volatile chemicals to deal with. The only clean up is to sweep up the left over powder and toss it. The MOST important requirement is an oven that will not be used for food preparation EVER, NEVER, EVER!!!!, Though, it is OK to cook KIELBASA in a powder coat oven. In Fact, you can powder coat KIELBASA any color you want before consuming it; even St James Gray; that and OD green KIELBASA are the most tasty!!!!!!!
(Kielbasa comments are not to be taken too seriously)

Date: Fri, 17 Jul 2015 22:15:39 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Front Panel Restoration ER Don Reaves Kielbasa

Glad you mentioned the drawbacks with powder-coating engraved panels. I ran into the same problem. I did manage to get one looking pretty nice but the second one never looked right and I think I ended up having to fill in the lettering, powder-coating, and then having it silk-screened. Kind of sad to have had to do that...

Date: Sat, 18 Jul 2015 00:23:23 -0400
From: Glenn Scott via R-390 <r-390@mailman.qth.net>
Subject: [R-390] Front Panel Restoration ER Don Reaves Kielbasa

I am writing a paper on my powder coating and soda blasting techniques and hope to make it available soon. Maybe I can impose on Done Reaves to critique my grammar and syntax once more. (He is really good at this) Hi

To answer your question Cecil, the only safe way to do a lot of soda blasting is with a blasting cabinet. Soda blasting cabinets can be dual purpose for Soda and other medias such as sand, hulls, and others. Which means two blast nozzles, two media tanks and associated hoses if you want dual utility.

The down side to soda blasting is it does NOT remove rust. The plus side to soda blasting is it is excellent for removing paint and grime and will not damage glass, rubber, most plastics nor adhesive labels that protect underlying lettering. I use adhesive tape to cover the lettering on the rear side of R390A front panels and soda blasting does not remove or damage the tape. It is also the safest and quickest way, that I know of, to blast Aluminum panels clean without burrowing into the surface that may happen with more aggressive media..

The SAND blasting cabinets I have looked at did not have adequate filtration and the powder went everywhere, including, outside the cabinet.. Cabinets designed for SODA are tighter and have an expended media drop box as well as a filter and separate media collector for the powder that does not fall to the bottom. You can NOT recycle SODA like you can SAND. Once it impacts the surface it is spent. You must use the right soda media which is encapsulated pellets; I use Armex from Harbor Freight.. I did try Arm & Hammer sodium bicarbonate and I could never get it to flow right. Perhaps someone living in an area that is considerably less humid than it is here in the Carolina's might have better luck.

I really don't want to paint, pun intended, myself into a corner with painting and powder coating panels knobs and other cosmetic issues. I am much more at home with and enjoy the electronics and performance of these receivers, However, there has been far less discussion on the cosmetic issues than the FUN stuff. I hope some of the info I have provided may help others. If not, I offer a full refund on all advice, though, you must pay for return shipping...Hi

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Date: Sat, 18 Jul 2015 10:47:47 -0400
From: "kr4hv" <kr4hv@numail.org>
Subject: Re: [R-390] Front Panel Restoration ER Don Reaves

Has anyone tried ground pecan shells?

Date: Sat, 18 Jul 2015 10:01:22 -0500
From: Don Reaves <donreaves@gmail.com>
Subject: Re: [R-390] Front Panel Restoration ER Don Reaves

Flush with water, Cecil. I've yet to have any significant lawn damage and I do my work in the same area each time. The soil here is rocky, in the foothills of the Ouachita Mountains, with high mineral content so my grass probably welcomes a good application of sodium bicarbonate.

http://www.armex.com/faqs/will-armex-damage-plants-or-grass
You might speed up the decomposition by sprinkling your soda with vinegar.

Date: Sat, 18 Jul 2015 19:20:24 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Front Panel Restoration ER Don Reaves

Walnut shell is commercially available but I've never tried it.... Plastic media blasting is used on aircraft to strip paint...haven't tried that either but it should be a good choice. I have glass bead blasted an R-390 panel...worked great, didn't deform the engravings excessively but did cause the panel to bow as it seemed to cause the blasted side to grow from the impact of the tiny glass beads. Was hardly noticeable and paint adhered really well. I only refinished one side..had I done both it might have still been perfectly flat... Interesting experience. I still prefer glass bead blasting of the knobs for the paint adhesion advantage.

Date: Sat, 18 Jul 2015 22:34:45 -0400
From: Glenn Scott via R-390 <r-390@mailman.qth.net>
Subject: [R-390]
http://mailman.qth.net/pipermail/r-390/2015-July/055399.html

I have tried glass, hulls, and several other media's on these panels. Nothing came close, especially, with rapidly cleaning out the letter engraves while not doing ANY damage to the front panel whatsoever. Once the flow and pressure are dialed in, I can do one side of a panel in about 5 minutes or less with no subsequent picking of paint and primer from the engraves. The Armex powder pellets are small and get deep into into the engraves much better than anything else I have tried.

For the knobs, I use a large rock tumbler with 2 gallon drums with the green pyramid media I get at Harbor freight. I put 3 or 4) R390 or A sets in the tumbler and let it spin about 2 weeks. Sometimes, I have to put a few knobs back in for another 2 weeks but I keep enough spare knobs ready to keep up with and exceed my restoration needs. I have not seen any rounding of corners or other issues with the tumbler. After the green pyramid treatment, I swap jugs on my tumbler and spin the knobs with hulls for another 4 or 5 days. They come out very clean and ready for Powder coating after a quick dip into my Acetone tank to remove any oil from the hulls.

I bought tapered silicone plugs to shove into the holes on the bottom of the knobs to keep chunks of media from clogging them. The plugs are especially needed for the large MHz and KHz knobs. If you don't plug those holes, there is a chance of breaking off the fingers on back. Can we post links on this forum?

http://www.ebay.com/itm/186-piece-High-Temp-Silicone-Rubber-Powder-Coating-Tapered-Plug-Kit-MIT-PK-186-/261872974999?hash=item3cf8d87c97&item=261872974999&vxp=mtr

The plugs were cheap, reusable and color coded. You can get them at companies that sell powder coat supplies and on epay. I have some worn out, sacrificial, Bristol set screws that I loosely install in the set screw holes to keep the media out as well.

Unless the Bristol screws are perfect I replace them with the EXCELLENT screws that Dr. James A. Moorer sells on epay. I bough a substantial number of these from Dr. Moorer and they are of OUTSTANDING quality. He had these PROFESSIONALLY machined a number of years ago and this has been a wonderful resource for all of us who enjoy these receivers; his ebay name is jamminpower. As most R390 series receiver enthusiast know, Dr Moorer has an excellent website that has loads of R390(A) information.

I like using the tumbler since it's working 24 x 7 and does not take away from my bench, play or rest time. I tried a vibrating tumbler from Harbor freight which worked well, maybe a little faster than the rock tumbler but after a month the HF unit started to fall apart. HF did give me a refund which I used for more media.
The tumbler I bought was about $300 and has a large heavy duty motor; the additional jugs were ~$35 each. I have used it for the last 3 or 4 years and it's still running with no problems. 73, Glenn Scott WA4AOS DSM Labs

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Date: Sat, 18 Jul 2015 20:50:19 -0700
From: David <k7iou1@gmail.com>
Subject: Re: [R-390] Front Panel Restoration ER Don Reaves

I've used walnut shell, messy film left on items you strip. Glass beads work great and available in different sizes, just don't breath dust.

Date: Sun, 19 Jul 2015 09:26:56 -0500
From: Cecil <chacuff@cableone.net>
Subject: Re: [R-390] Front Panel Restoration Knobs Rock Tumbler

Strange..I use the HF blaster with their coarse media and it took me half an hour or more...a full bag of media (maybe two..can't remember) and I killed the grass in a 20x20 area in the yard even after a good flushing with the hose. Humidity is a big deal with these things and during the summer her you can plan on 90% most days.I had frequent clogs and had to purge the system often..between those problems stripping was slow and used way more media than I had hoped. That was my first try though...will have to have another go at it. The glass bead blasting was very quick...wiped away the paint, primer, corrosion and cleaned out the engravings quickly...it was in a blast cabinet though and nicely contained.

Date: Sun, 19 Jul 2015 13:25:38 -0400
From: Glenn Scott via R-390 <r-390@mailman.qth.net>
Subject: Re: [R-390] Front Panel Restoration soda blasting trials

Cecil and anyone interested, when you are using soda, hopefully Armex, you want the flow to be very lean. You should be able to do at least 2 panels from and back with ~40 pounds of media. You MUST have enough volume from your compressor or you will be starting and stopping constantly waiting for air and this may be causing some of the clogging problems. I blast at a pressure of ~90psi but some shops use lower pressure but they have even more volume with larger compressors. My Quincy compressor delivers 15.4cfm @90PSI which is decent but NOT like the big shops have. My smaller compressor would only deliver about 9cfm and I had problems similar to what you described.

If the supply line to the media tank is too small, this will compromise the flow and pressure at the spray nozzle. I had a cheap Harbor freight ~$100 blasting unit 5 or 6 years ago to start with and constantly had clogging problems but some of that may have been being new at dialing in volume and pressure properly. I still have that unit and have planned to see if I could do better with it now.

When I learned to set the flow for less volume is when things started to work much better. I used less media and got faster and better results. Dialed in wrong, I was just pumping a thick spray of powder that worked very slow to not at all and wasted a huge amount of media.

ALSO Sodium Bicarbonates has a hardness of 2.5 on the Mohs scale. Aluminum 4 - 5 . Glass-bead is 5.5, Silica sand is 6-7, lead free glass 7... Which is my primary reason for using Sodium Bicarbonate; it will NOT burrow into the aluminum.
http://www.reade.com/Particle_Briefings/mohs_hardness_abrasive_grit.html

I am not an expert in this area and have learned by a lot of trial and error. One thing I have learned is when the process is working properly the tone of the air through the nozzle is pitched differently and the almost invisible spray of Armex cuts through paint like crazy. There may be a name for this effect, It was as if you dialed into a resonant point where performance took off. (maybe a poor analogy) I simply don't know. What I do know is out of the medias I have tried Soda was best by far.

Not to insult your work but I ASSUME, you know that you must use a SODA nozzle for soda blasting. It is different than those used for sand, glass, hulls etc. Eastwood sells a nozzle kit that can be used for abrasive units.
http://www.eastwood.com/abrasive-blast-media-vs-soda-blast-media-removing-rust-and-paint-with-media

Our summer time humidity here in SC is high as well but that does not affect what is coming out of my nozzle. I use 2 stages of water filtering and all hoses are as short as possible..

I am glad you are happy using glass and you know the inherent safety issues with silicone getting in your lungs. Soda blasting is probably as dangerous especially if you are blasting zinc chromate primers off that are often found on R390(A) panels. I have done enough of these with Soda that I am convinced this is that way I need to proceed. Though, I did go through a lot of media initially trying to get the results I had hoped for. Good luck!

Date: Sun, 19 Jul 2015 16:34:31 -0400
From: Glenn Scott via R-390 <r-390@mailman.qth.net>

Subject: Re: [R-390] Front Panel Restoration blasting trials
CORRECTION

Cecil and anyone else not TOTALLY bored to tears with my post, one correction; Aluminum Hardness is 2.5 to 3.0 not 4-5. Still, Sodium bicarbonate is only 2.5. The Aluminum on these panels is probably hardened and I defer that to the chemist in our group. However, after blasting MANY panels using Armex sodium bicarbonate I have seen no burrowing whatsoever. NONE, NADA, ZIP, ZILCH.. Just perfectly clean bare Aluminum panels ready to be processed.

When I first started using Soda blasting years ago, I ended up blasting one particular panel 7 times due to a calamity of problems/errors from priming, painting and even waxing the final panel with a piece of debris on my buffing wheel. That swirled up the panel after everything I had done and back to the blasting equipment..

I was very mad and frustrated as I took that panel back for blasting for the 8th time. My wife was concerned that I was going to blow my head gasket. Hi
However, everything came off quickly, AGAIN,, I repeated all of the steps listed in my ER article AGAIN and the engraves took paint and formed beautiful letters with ZERO indication of distortion or lack of fill. The science that I had investigated about hardness prevailed in spite of my ability to make LOTS of mistakes.

I don't want to beat this point up too much but I honestly believe this is the best way to strip these panels that I am aware of. If someone has a better method, I am listening.

As mentioned, I MUCH prefer doing the electronics and squeezing every bit of performance out of these receivers as possible. I don't particularly like blasting, priming, painting nor waxing but I wear a lot of hats in my small business and some get dirtier than others...Hi

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Date: Mon, 20 Jul 2015 14:57:11 +1000
From: Pete Williams <jupete@internode.on.net>
Subject: [R-390] R-390A Panels

As a believer in the KISS principle., my restorative procedures with these panels prefer to restore to original or somewhat better condition than when manufactured for military use. Recent mailings appear to indicate that 'concour d' elegance ' was the objective on a mass production cycle ....a pleasantly finished panel certainly is desirable , but an overall attractive and useful R-390A means more than a smart looking panel . My own experiences doing over 30 of these in past years ... finished product equal to the original with minimum of fuss and elaborate stripping techniques ..... and no complaints from the clients . They are engraved types--- EAC usually

1...All panels denuded of paint using auto stripper methylene chloride... engravings usually come clean as well but a brass/bronze 'tooth brush' type can assist..... maybe faint scratches but these disappear during next stage.

2...After washing. panel is block sanded with #1200 wet n dry... after any deep scratches/ indents cleaned up with a filler.. the objective being to have a surface that will take etch primer and final coats.

3...Pressure pack etch primer sprayed on THINLY.. for obvious reasons after being thoroughly degreased. A light wet n dry going over if required.

4... Pressure pack coats of shop prepared color applied thinly...I use auto acrylic. Allowed to cure .

5... Engravings filled with artists titanium white: squeegeed off ---excess always occurs. This procedure already on file from back copy of ER.

6... Finally panel cleaned off with semi abrasive auto polish;

The rear of the panel repainted with machinery grey after masking the components ID's. Some might think my doings are a bit agricultural by comparison with the other offerings, but the finished product, with minimum of extraneous activities , has stood the test of time ...Very gratifying when other afficionados visit a customer and remark 'just looks like new one. Needless to say. all other mechanical/electrical activities worked on to complete the event.

Date: Thu, 30 Jul 2015 18:26:03 -0400
From: "Chuck Catledge" <ae4cw@att.net>
Subject: [R-390] Front Panel Restoration ER Don Reaves

Thank you very much for your comprehensive article in ER. I'm in the process of refinishing my first engraved panel and have it stripped down to what I think is the golden-brown Alodine coating. The zinc chromate and paint stripped just fine. Before proceeding I would appreciate your (and others who might care to respond) thoughts on a few questions I have: 1) Is necessary to sand off the Alodine(?) coating before priming with zinc chromate?

2) Is Bondo (or equivalent) a good substitute for filling small dings or deeper scratches vs. J-B Kwik? It seems like it might be easier to sand and feather into the panel. I suspect Bondo might not be a good sub on the panel edges where mechanical strength would be an asset.

3) One of the rack mounting holes is "enlarged". I'm considering filling it with Loctite epoxy putty, sanding flush and re-drilling the hole. Is this a workable solution?

4) Don, you call for shop towels for wiping off the smeared acrylic lettering paint. Are these cotton terry towels or paper or something else?

This is my first venture, so I really appreciate the great knowledge of this group. Thanks to all!

Date: Thu, 30 Jul 2015 18:40:44 -0400 (EDT)
From: Barry <n4buq@knology.net>
Subject: Re: [R-390] Front Panel Restoration ER Don Reaves

I'm pretty sure the zinc chromate conversion is best left there and primer will adhere very well to it. If it were me, I'd stick with JB Weld for filling divits.

Date: Thu, 30 Jul 2015 20:58:57 -0400
From: Glenn Scott via R-390 <r-390@mailman.qth.net>

Subject: [R-390] FrontPanelRestorationforChuck

Hi Chuck and others, I hope this helps Chuck.

1) With regard to the layers on these panels, When I have chemically removed old paint years ago or in the last 5 or 6 years using soda blasting, I always go down to the Aluminum substrate. In fact I can't imagine a way to go through one layer at a time without a great deal of aggravation. The chemical stripping processes I used were messy and I ended up going back with a dental pick and brass brush to clean the engraves out. Soda blasting simply rids the panel of EVERYTHING at once. You should be ready to prime soon after you strip the panel since Aluminum starts to form oxides almost as soon as it is bare. As I mentioned in the article, I mix about a tablespoon of white vinegar to a gallon of water and wash the panel after soda blasting to neutralize and remove the remnants of the the soda. Then a second wash with acetone to get rid of any oils from handling; then. finally prime the panel. I like zinc chromate but other primers may work well to. I have not found one I like but a recommendation was made by one of the list members and I will try it soon.

2) Bondo vs JB Weld That is a good question. I have dealt with some nasty gouges and have NOT had any that I could not fill with JB Weld. Both are hard once cured and sanding it down is a chore. I have used bondo to fill and re-drill rack holes as you asked in your question 3. If your gouge raises above the surface of the panel, you must sand it down to be flush. JUST REMEMBER, anything you can feel or see before painting will be visible after painting. Take your time and get your panel ready before priming and painting.

3) Using Locktight or Bondo to fill a rack hole is probably a fair to good solution. I have on a occasions used bondo for reamed out rack holes. Herein lies the problem, if someone later plans to rack mount the receiver without supporting the receivers weight from the bottom, I would not be surprised to see a filler crack. I have seen many applications where the receiver was supported by the front panel only and as stout as it is, seemed to be an OK way to get by. However, this is NOT the recommended way to support a heavy receiver. It should have support from below. I have one rack where I rigged Teflon pads on support rails on the left and right side for an R 390, R390A and a R389 in the rack. The front panel rack holes are occupied with mounting screws with round black plastic disk behind the head of the screws to prevent marring but this is simply cosmetics. The receivers are held in place by the supports below each one. Removal is VERY easy.

4) the blue towels I use are available from any of the auto parts store. They are tough and fairly low lint.

Hope this helps. My email address is in the ER article and I will leave it below. Feel free to email me direct if you have further questions. My biz number is on my webpage if you want to call. Glenn WA4AOS

glenn@dsmlabs.com www.dsmlabs.com

Date: Fri, 31 Jul 2015 04:39:47 -0400
From: Roy Morgan <k1lky68@gmail.com>
Subject: Re: [R-390] FrontPanelRestorationforChuck

……..Aluminum starts to form oxides almost as soon as it is bare…….

Actually much faster than that. I've been told by a just-retired career EE and lab

maven who *really* knows his materials and processes, that aluminum actually oxidizes within milliseconds upon being made really bare, as happens in abrasion or machining. The first layer of oxidation is only a molecule or two thick, and we don?t normally see it. Later, further oxidation that we can see is much deeper and thicker. (I just trashed a two-penlight-cell Mag-Light flashlight because of totally corroded batteries. I couldn?t even drill them out.)
