

POWDER COATING (Cont. from page 8)

Let's go through the process of coating a small part, step by step. First, all traces of old finish must be completely removed. Chemical strippers and sanding will suffice but I prefer media blasting (sandblasting with media other than sand, i.e. glass beads or baking soda). I use a bench top blast cabinet (from Harbor Freight for under \$100) for small parts, and a large pressure feed tank for outdoor use on large parts and panels.

After stripping, all traces of abrasive residue, grease, and oil must be carefully removed. Inattention here is the greatest cause of poor results. I wash my parts with acetone and then wash them a second time with a non-solvent based degreaser such as Paint Prep from Griot's Garage (www.griotsgarage.com) or Marine Clean, available from companies that handle POR15 paint supplies. If you cannot find these, try looking in Hemmings Motor News (www.hemmings.com). After degreasing, parts should not come into contact with bare skin (skin oils, you know) so wear latex, neoprene, or clean cotton gloves. If parts are buffed and polished, be especially conscientious in degreasing as buffing compounds consist of abrasive suspended in a grease base and the buffing wheel forces the grease into any surface imperfections.

Most parts will require attachment of a wire to suspend them and stainless steel safety wire is available from Eastwood. I use plain mild steel mechanic's wire from the local hardware store. Some parts can stand free on the oven rack if they have one or more surfaces that will not be coated.

Holes with internal threads must be plugged to prevent buildup of coating on the

threads with alteration of tolerances. High temperature silicone plugs are available from Eastwood for this. External threads and bearing surfaces must also be masked and special fiberglass masking tape is available for this purpose, again from Eastwood. Do not use any other type of tape. Large holes may be masked with kitchen aluminum foil secured at the edges with fiberglass tape.

Now for the application of powder, I suspend most parts from the bottom of an oven grill rack with steel wire. The grill is set across two wooden sawhorses with the part to be coated hanging free. Do not suspend parts from anything electrically conductive (such as a water pipe or metal building frame) as the part will ground out and not hold a charge to attract the powder. The powder cup on the powder-coating gun is filled about half full of the appropriate color and attached. The air hose is connected from the compressor (a small oil-less hobby compressor is adequate because of the low pressure and small volume of air required, but your big shop compressor will work as well. Make sure to drain the water from the lines and tank before starting.) Use a new disposable water filter on the gun handle, especially if spraying clear coat as it is most



sensitive to contaminants. The manufacturer recommends 5-10 psi pressure at the gun. I find that 4 psi works better. However, you may have to experiment a bit, depending on the accuracy of your pressure gauge and length of supply hose. Plug the kit's transformer into a 110V AC outlet and attach the ground wire alligator clip to the grill rack or suspending wire - not to the part itself.

With the left hand, depress and hold the deadman switch which activates the transformer and begin spraying with the gun in the right hand. Brief activation of the gun trigger produce "puffs" of powder (hold down the deadman switch continuously, even when "puffing"). Keep changing the angle and direction of the gun in relation to the work, but avoid applying the powder from directly above the work. This will avoid "rain out" and a lumpy appearance to the upper surface. Try to achieve a uniform but not overly thick application of powder.

The oven should be pre-heated to the temperature appropriate for the color chosen. Temperature varies depending on the color and is specified on the product container. A temperature reduction is usually required after the powder liquefies. Be sure to use a timer with an alarm, as over curing can result in a dull finish, color shift, or wrinkles.

When the oven curing is complete, immediately remove the grill rack and return it to the sawhorses to cool. Be very careful not to touch the part until it has returned to room temperature, it will blemish if you do. Remove the suspender wire and masking after cooling and the part is ready for use. Clean the equipment with a blow gun and air compressor.



Powder Coating (Continued on page 10)

POWDER COATING (Cont. from page 9)

Despite one's best effort, sometimes problems occur (through bitter experience, I think I have discovered most of them). Following are some suggestions for correction. Inadequate coverage in some areas often occurs and this is easily corrected. Simply reattach the ground wire and lightly apply a second coat to the part. The well-covered areas are insulated and will not cover as heavily as the "thin" spots. Don't try to get too much material on a second coat as you will produce lumps with excess material. Repeat the oven cure and the problem should be solved. If a few small lumps occur, they can be sanded off with 1500 grit automotive sandpaper, buffed with 2000 grit paper and polished with automotive polishing compound on a 100 % cotton cloth (don't use polyester blends or other fabrics as they will scratch the coating.)

If there is a major problem such as wrinkles, uneven surface, over-curing, or fisheyes, it's best to remove the finish and start over (being more careful about surface preparation). Don't try to sand off the damaged surface, this stuff is very abrasion resistant, remember? Methylene Chloride based paint stripper will remove all traces of it in a jiffy and with no

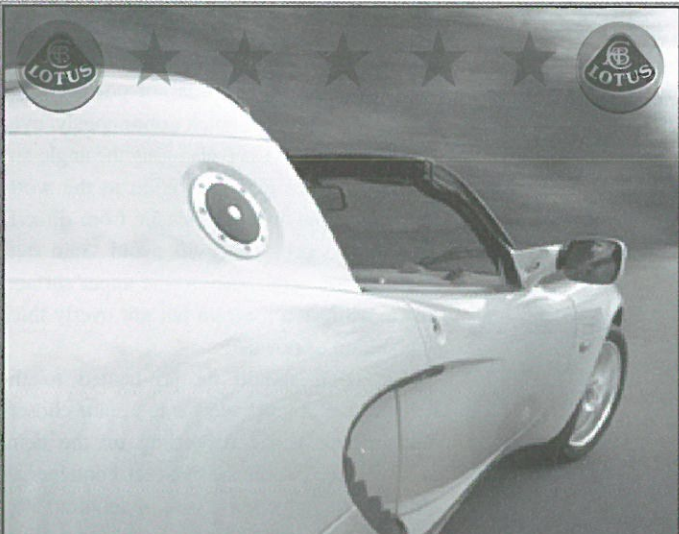


effort. It won't even disturb the high polish you painstakingly produced on aluminum. It's available at any hardware store, just read the labels. Wash the part in hot soapy water to remove all traces of the stripper or you will get to do it over a third time.

One last caution. Always touch the metal tip of the gun to the grill rack or suspension wire

after releasing the deadman switch. Failure to do so will result in a "shocking" experience sure to produce Pavlovian conditioning reminding you to always do so in the future.

If this has sparked your interest, I wish you well in your attempts to master this technology and I'm sure you will be pleased with the results of your efforts.



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Lotus Type 119c clinches victory in Brooklands Soapbox Derby

The Lotus Type 119c, which topped the timesheets in the 2004 Goodwood Soapbox Challenge, claimed its second title and record in the Brooklands Soapbox Derby, at the Brooklands circuit in Surrey, on 16 July 2006.

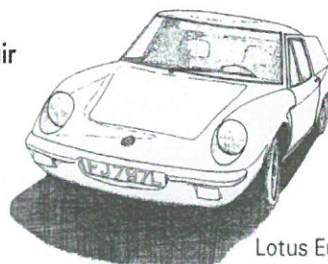
Paul Adams, who was once again at the wheel of the Type 119c closed-cockpit "streamliner," dominated from the very start, finishing ahead of closest rivals and last year's competition winners, Lola Cars. Adams, having mastered the sweeping curves and the historic banked section, went on to set a new course record of 67.7 seconds, 4.1 seconds quicker than last year's top time.

The Lotus Type 119c will continue to be used for marketing activities as a demonstration of capability of Group Lotus.

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