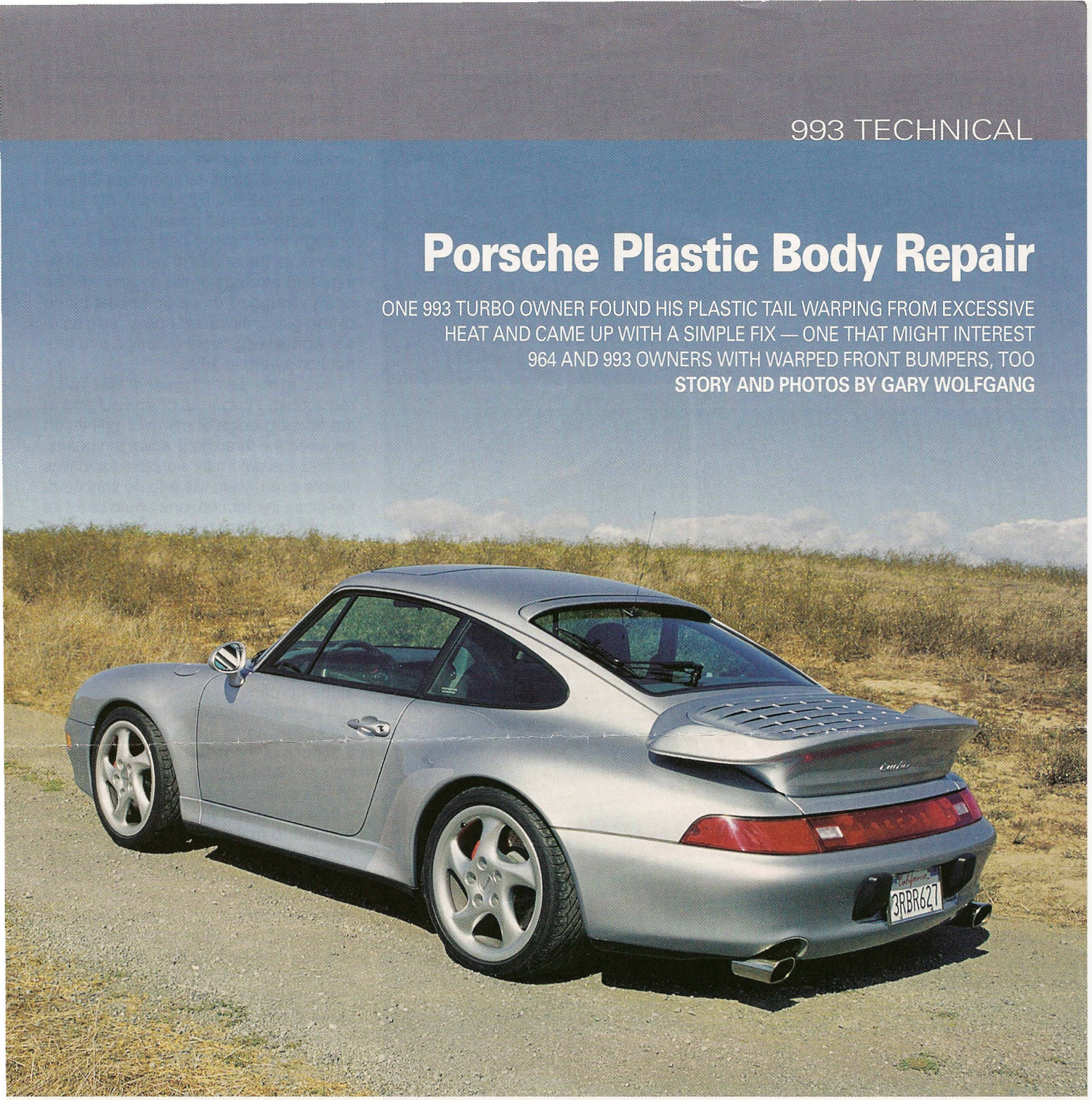
Porsche Plastic Body Repair

ONE 993 TURBO OWNER FOUND HIS PLASTIC TAIL WARPING FROM EXCESSIVE HEAT AND CAME UP WITH A SIMPLE FIX — ONE THAT MIGHT INTEREST 964 AND 993 OWNERS WITH WARPED FRONT BUMPERS, TOO

STORY AND PHOTOS BY GARY WOLFGANG

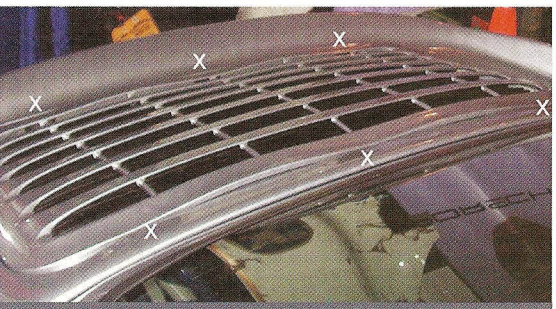


The introduction of the 993 Turbo brought a new level of performance to Porsche's 911 model line. The model was, in reality, a more affordable version of the legendary 959. With 400 horsepower on tap, a 3.6-liter flat six, bulging rear fenders to accommodate 18x10-inch rear wheels, and a six-speed transmission, there was no question that this was a regular-production automotive landmark. That 959 influence was also seen in the design of the 1996 993 Turbo's drooped wingtips on its rear spoiler. Those on the 959 had reached all the way to the fenders.

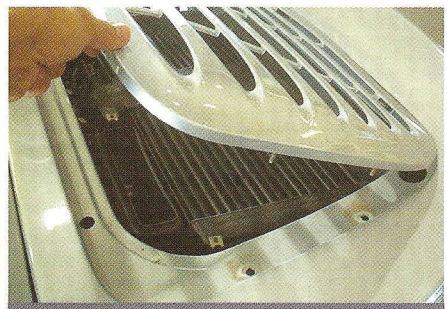
The new shape of the whaletail was controversial from the start. Author Peter Vann called the new shape "an imposing shovel." Leonard Turner likened it to "a Klingon Bird of Prey Warship." PCA concours official John Takahara drew a parallel to The Wicked Witch of the West portrayed by Margaret Hamilton, who cried "I'm Melting!...." That same line was used by Peter Seller's Inspector Clouseau in disguise as a dentist, when his wax nose melted away. These comparisons would prove to be prophetic to those of us who took ownership of these Turbos, as high engine heat would to take its toll on our spoilers over the years.

At the time of introduction, Porsche was actually very proud of the design and development of the 993 Turbo's tail spolier. Using an award-winning engineering technique, resin transfer method

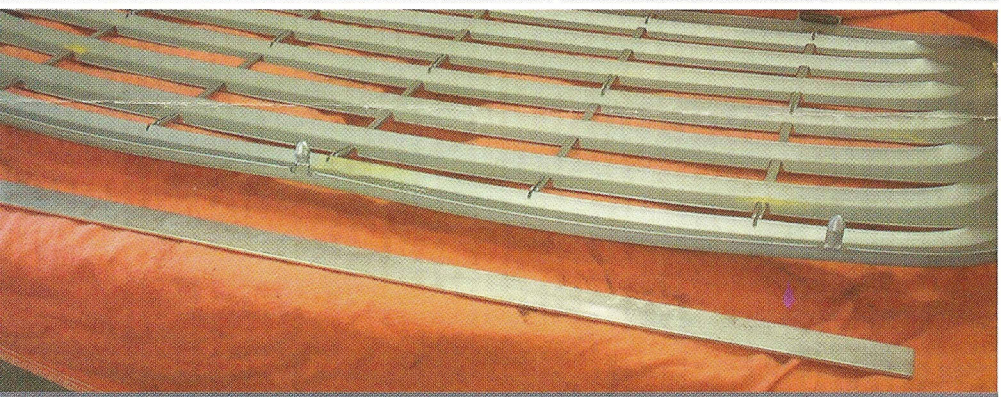
Heat soak after shutdown can take its toll on the 993 Turbo's rear grill, which is located above the intercooler. After a real workout, it might be a good idea to raise the engine lid...



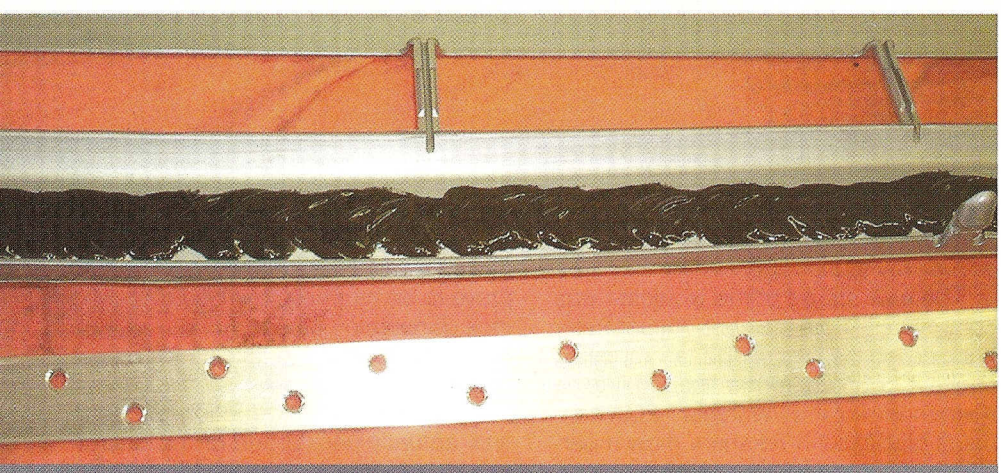
X marks the spot, or in this case, each of the hold-down pins for the grill section



Two additional hold-down points are located on each side of the grill



The strip of aluminum we chose to strengthen our grill was a 0.25-inch thick bar that is 1.0-inch wide and 28 inches long, seen here laying next to the grill



We drilled a lot of holes down the aluminum strip's length to allow the epoxy to get an additional hold on the strip, then spread the epoxy down the "bed" of the grill

(RTM), the entire piece was formed as a single unit into which a grill could be inserted. A *Christophorus* article in 1995 documented an 18-month development process. The spoiler was to be aerodynamically efficient, temperature tolerant from -35° to 95° C, lightweight, paintable with water-based paints, and strong enough to withstand heavy wind forces as well as the shock of repeated openings and closings of the engine lid. The newly designed droop-tip spoiler made of fiberglass reinforced epoxy resin actually won an engineering design and fabrication award in 1995.

But, in my seventh year of 993 Turbo ownership, I began to notice bulging in the leading edge of my tail's grill insert between the three hold-down pin points. In time, the deformity worsened and was visible even when the engine was cold. On close inspection, one could see that the grill had expanded in length, causing upward bulging in areas where there were no attachment pins to hold it down. The heat-warped grill was still flexible, however, and finger pressure on the bulged areas corrected the deformity. But, since the grill was elongated, holding down the bulges created a tighter fit at the corners.

I asked a number of magazine technical consultants about a fix, only to find that none of them had seen the problem before. John Paterek offered two suggestions, favoring grill replacement with a new unit which would then have to be painted to match. His second thought was to glue in additional hold-down clips with polyurethane windshield cement, but success was not guaranteed. One magazine printed my letter, asking for reader response. Bruce Grinstead wrote in to say that he had the same problem and that the Porsche factory in Stuttgart had produced a grill smaller in size to solve the problem. Unfortunately, we have never been unable to locate such a replacement from Porsche AG.

Jon Yetter, who is the service manager at Sun Motors Porsche in Camp Hill, Pennsylvania, investigated the problem and came up with a good fix, which we'll describe here. In a nutshell, a strut of aluminum is cemented to the underside of the leading edge of the grill insert with two additional hold-down pins cemented to the underside of each corner of the leading edge. The steps of this somewhat simple repair follow.

Disassembly involves removing two vinyl plugs from each side of the bottom of the grill — as well as removing the two nuts holding the grill down on both the

left and right sides. The leading edge is then pulled upward, unsnapping three hold-down pins. The trailing edge of the grill is then unclipped from its three holding points. The grill structure can now be removed and cleaned. Removal of the grill allows identification of three leading-edge anchor holes and the two side-bolt anchor holes.

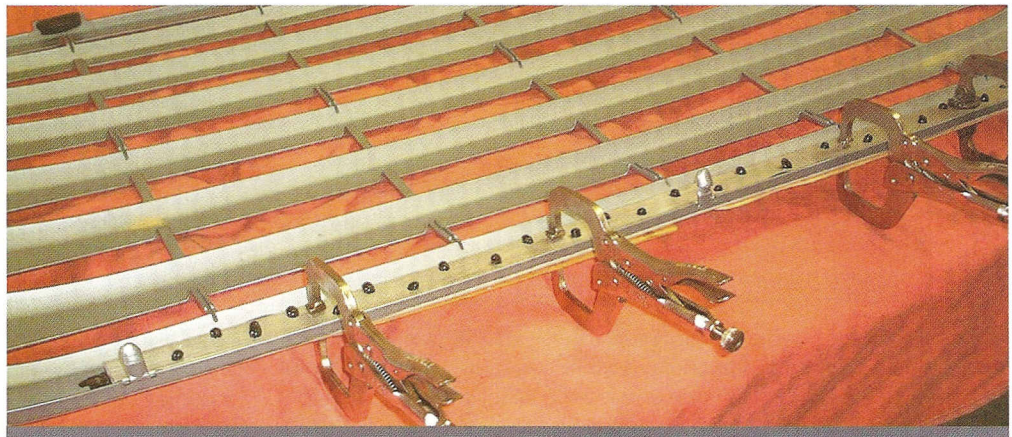
A strip of aluminum stock — 0.25-inch thick, 1.0-inch wide, and 28 inches long — was readied for application. 0.25-inch holes were drilled into the aluminum stock to allow for intrusion of the cement. Polyurethane cement — Speed Grip by Norton — was applied to the underside of the leading edge of the grill. The aluminum was clamped to the grill and allowed to set. The cemented strip actually elongates the leading edge of the grill, causing minor upward bulging of the corners. A T-shaped panel rivet pin was also cemented to the underside of each corner with polyurethane cement.

Inserting the grill temporarily allowed marking on masking tape for a careful location of two corner anchorage holes, which still needed to be drilled.

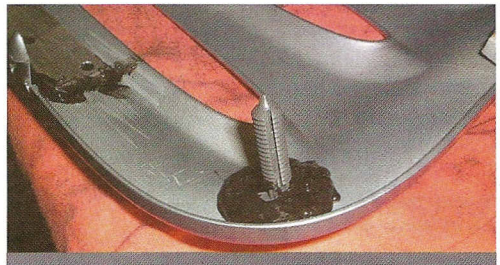
Replacement of the grill is a reversal of the disassembly process. The posterior edge clips are engaged, the three hold-down clips are snapped together, and the newly installed corner clips are attached. The two side bolts are fastened on each side and their vinyl plugs are then replaced. The resultant grill fit and alignment is quite acceptable — although it's still not perfect. The corners remain slightly elevated and the seam width on each side is a tight fit.

Future lasting success will depend on the integrity of the cement bond of the aluminum to the grill. Hopefully, the elongation of the grill itself has reached maximum expansion. This repair method requires drilling two holes in the bodywork, but an advantage of this method is the preservation of the original paint-match. It is hoped that the multiple holes in the aluminum stock will not weaken the metal to the point of bending. The cost of the repair was roughly half the cost of grill replacement and painting the new grill to match the rest of the car. Installing a new grill of the same size would seem to be doomed to fail as the new piece will probably suffer from the same heat warping.

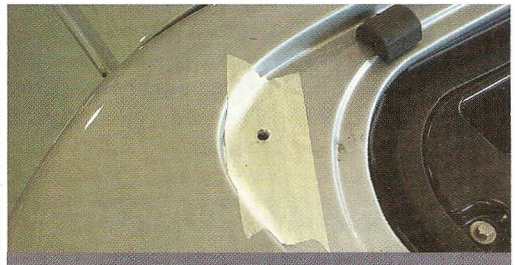
My thanks go to Jon Yetter for taking on a job well off the beaten path and ironing out the wrinkles of my melted whale tail's grill. Now we'll see what Jon can do with the melted Witch and Inspector Clouseau's nose... ●



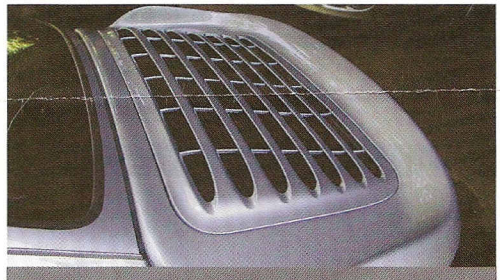
You can see the epoxy protruding out of the holes in the aluminum strip. Simple Vice-Grip clamps make curing easy, but be sure to protect the paint on the other side of the clamps!



New holding pin cemented in the corner of the grill's underside leading edge...



...while a matching hole was drilled in the spoiler. Tape protects the paint for drilling



From this angle, the repaired spoiler looks just about perfect...

...though a closer look gives the game away. But it's more than good enough!

Jon Yetter, Service Manager at Sun Motors Porsche, stands proudly with his first "restructured" 993 Turbo wing. Perhaps it's not his last?