



# Plastic Pointers

The Newsletter on Repairing & Refinishing Automotive Plastics

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## Use of SMC Components Up 52% Since 1993

Parts made from SMC (Sheet Molding Composite), often relegated to support duty as header panels and fender extensions, are coming out of the closet in a big way.

According to the SMC Automotive Alliance, there are 106 new SMC components on 29 cars and trucks for the 1997 model year. Over one-quarter of the 438 SMC components currently on vehicles are new this model year. This represents a **43% increase** in the number of new SMC components compared to those introduced in 1996. The number of total SMC components has risen 52% since 1993.

SMC has many advantages that promise even greater growth in the future. Tooling costs for SMC are lower than those for steel, making SMC ideal for lower volume vehicles like the new Plymouth Prowler and Saturn EV-1 electric vehicle. But because SMC is also cost effective and lightweight, it is also used in high volume vehicles like the Ford Mustang (hood) and GM F-bodies (Camaro/Firebird).

In addition to these advantages, SMC parts may also be molded to take the place of several steel parts, reducing the total parts count and thus minimizing inventory costs.

Finally, of all automotive plastics, SMC's thermal expansion coefficient is the closest to steel, eliminating the need for complicated mounting to accommodate expansion.

Recent innovations in SMC include **low-density SMC**, used on the Corvette and EV-1. This lightweight SMC incorporates glass microspheres, which reduces the specific gravity from the standard 1.9 to a much lighter 1.3.

Another innovation is the use of parts containing **recycled SMC**. SMC is "recycled" by heating it to about 1500 degrees in the absence of oxygen. This breaks the SMC down into

its component parts, the solids of which are used in recycled SMC.

Finally, Union Carbide has developed a new **flexible SMC** that has been in use on the fenders of the Lincoln Continental since 1995. This material has the added flexibility required for use on vertical body panels, yet maintains high strength and a Class A surface finish.

With all of these innovations, you can be sure that the use of SMC in both body panels and structural components will continue to rise in the future. To keep up with this new technology, the repair technician must become acquainted with the

repair of SMC. The following section highlights some of the repair technologies available from Urethane Supply Company.



30% of the Prowler's skin is SMC including the quarter panels, front fenders, front quarter extensions, and rear valence panel.

## SMC Is Easy to Repair, But You Need to Reinforce It Properly

One of the best features of SMC as a material for automotive manufacture is that its thermal coefficient of expansion is very close to that of another popular automotive material, steel. This enables the manufacturer to design SMC parts to mate with steel parts with close tolerances.

Because most repair materials have a higher coefficient of thermal expansion, special care must be taken to minimize any halo effects arising from differences in thermal expansion rates. In other words, when a repair material is used to join broken SMC, and the repaired part is heated or cooled, the repair area will

## 1,000 Pounds of SMC in Kenworth T-2000



The striking aerodynamic style of the new Kenworth T-2000 Class-8 heavy truck is made possible with the formability and light weight of SMC. The rig's drag coefficient is improved 6% over the old version and the fuel economy is improved by 3%. The T-2000 features an SMC hood, cab door assembly, aero roof, bumper, storage doors, firewall assembly, and A and D pillars.

tend to expand or contract at a greater rate than the SMC itself, perhaps causing the repair area to become visible.

This effect may be combated by designing the repair joint with both reinforcement on the backside and within the repair taper on the frontside. See the Tech Tip below for instructions on how to best repair cracks in SMC components.



*Insta-Weld instant adhesives are great for making fast and strong repairs to clean breaks in SMC.*

One of the nice things about repairing SMC is that adhesion of the repair material to it is excellent. You don't need to use an adhesion promoter on SMC; the naturally good bond will provide you with a fine featheredge every time.

Our line of Insta-Weld adhesives work very well in making repairs to SMC. As with any adhesive, the greater the surface area for bonding, the greater the total strength of the repair will be. On clean breaks in SMC, the interlocking fibers of the broken SMC create a very large surface area for the adhesive to bond to. The water-thin 2200 Insta-Weld 1 wicks down into the crack through capillary action, bonding the two

broken parts together in a very strong and rigid repair. After bonding the parts with Insta-Weld, the repair may be finished as described in the Tech

Tip by reinforcing the backside with a backing plate, tapering the frontside, and finishing cosmetically with 2020 SMC Hardset epoxy filler from Urethane Supply Company.

### And The Survey Says...

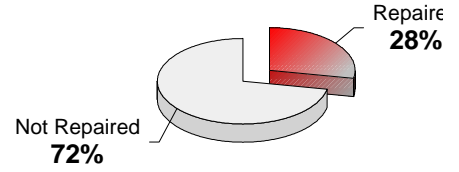
### Insurance Companies Don't Pay Enough.

In May, Urethane Supply Company conducted a telephone survey of 75 body shops selected at random from three cities (25 in each city): Philadelphia, New Orleans, and Milwaukee. We asked everyone the same five questions and got the following results.

#### Q1: What percentage of repairable bumpers do you actually repair?

Philadelphia	22%
New Orleans	26%
Milwaukee	37%
<b>Overall</b>	<b>28%</b>

#### Percent of Bumpers Repaired



#### Q2: Which method of repair do you prefer?

	Welder	Adhesive
Phila.	16%	84%
N.O.	52%	48%
Milwau.	32%	68%
<b>Overall</b>	<b>34%</b>	<b>66%</b>

#### Q3: Which type of adhesive do you prefer?

Epoxy	36%
Urethane	24%
Acrylic	5%
Don't Know	35%

#### Q4: What is the main problem with plastic repair?

Ins. Cos. Don't Pay Enough	31%
Too Difficult	21%
Quality Not Adequate	12%

## TECH TIPS

### Minimizing Halo Effects on SMC Repairs

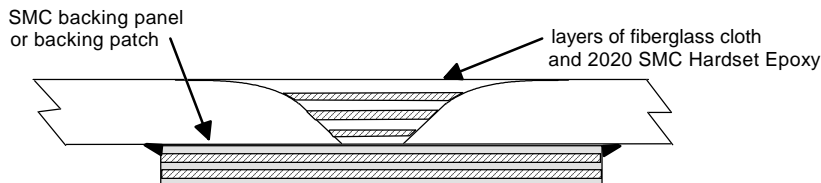
Because SMC's thermal expansion coefficient is so low, the repair must be designed to reinforce any cracks or holes to minimize thermal haloing effects. Ideally, if the damage is a clean break, you can first lock the fibers of the SMC back together with 2200 Insta-Weld 1 thin adhesive. Reinforce the break with 2020 SMC Hardset epoxy and fiberglass cloth on the backside, then finish the repair with a slight v-groove on the frontside and some more epoxy to restore the cosmetic appearance.

Extra care must be taken if there is a hole or a panel replacement joint. The key to minimizing thermal

haloes is to try to simulate as closely as possible the internal structure of the SMC; namely, reinforce the repair taper with several layers of fiberglass cloth.

The schematic shows the best practice for repairing a hole in SMC. An SMC patch panel is used as a backing plate and is epoxied to the backside. The repair taper is then filled with alternating layers of 2020 SMC Hardset epoxy and 2043-U Uni-Cloth fiberglass cloth.

If an SMC backing panel can't be used, make a backing patch by alternating layers of epoxy and fiberglass cloth to simulate the SMC's structure.



*Reinforce any hole or crack in SMC with an SMC backing panel or backing patch made from alternating layers of fiberglass cloth and adhesive. The repair taper should also be reinforced with layers of fiberglass cloth to simulate the structure of the SMC.*

All of the Above	5%
Other Problems	10%
No Problems	21%

**Q5: Compared to last year, is your business up, down, or about the same?**

	Up	Down	Same
Phila.	16%	16%	68%
N.O.	20%	24%	56%
Mil.	32%	20%	48%
<b>Tot.</b>	<b>23%</b>	<b>20%</b>	<b>57%</b>

To summarize the survey results, it's obvious that we've still got a long way to go if **three out of every four repairable bumpers is being tossed out.**

Over 30% of the shops told us that **insurance companies don't pay enough** to make it worth their time to attempt to repair the bumpers. Urethane Supply Company has had close contact with several major insurance companies over the years and we are beginning to see some movement amongst the industry to be more liberal in regards to compensation for bumper repairs. As an example, one customer in North Dakota recently was paid six hours to do a repair that took him 30 minutes to complete with the Uni-Weld Ribbon.

Obviously compensation is a major factor, but on the other hand, so is **training.** Over 20% of the respondents told us it was "too difficult" to do plastic repairs. It's true that it's a newer and more rapidly changing field, but with the proper training, any experienced body technician can do plastic repairs. Urethane Supply Company is doing its part to provide training to body technicians by offering a 40-minute plastic repair instructional video tape for \$14.95. Call us today if you'd like a copy.

### Improved Large Activator Sprayers Now Available

As many of you are aware, we have recently had a problem with the sprayers on our 2303-6 large Insta-Weld Activators. The sprayers would leak and quit working very quickly.

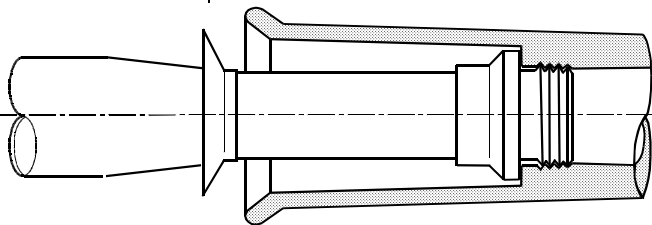
We have secured a new vendor for the sprayers. The new sprayer is much more durable and has the added advantage of a finer spray pattern. If you are having a problem with one of the old sprayers, please call us and we'll send out a new bottle and sprayer to you at no cost.

### Improved 80 Watt Element Handle Now Available

The handles on our airless plastic welding elements are made of a highly heat-resistant nylon plastic. There is normally no problem with the design, but occasionally, if the nylon soaks up too much heat, the mounting pins may begin to distort.

Starting with June shipments of our 5400HT Mini-Weld Model IV and 6005HT replacement elements, we will introduce a **stronger, more durable handle design.** Being longer, it allows more area for the heat to dissipate before reaching the plastic handle. The new design also eliminates the three screw attachment in exchange for a larger, stronger, single thread attachment.

Although the cost of the new unit is higher than the old, Urethane Supply is holding the line on the price to the user. This is another example of our commitment to providing the best

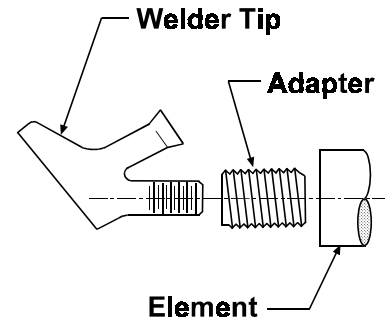


*This cross-section of the new 80 watt welding element design shows the longer barrel and the more durable threaded mount. The longer barrel allows the heat to dissipate more thoroughly before it is transferred to the nylon handle.*

quality products and services to our valuable customers.

### Watch Out for the 80 Watt Thread Adapter!

With the advent of the 6005HT 80 Watt element late last year, we've had a few customer calls regarding a thread adapter that mates the smaller threads of our welder tips to the larger threads of the element. When new, the adapter will tend to stick to the tip when unscrewed. After use,



however, the adapter will tend to seize inside the element, eliminating the problem altogether.

### Urethane Supply Company Now Accepts Credit Cards!

As of June 1st, Urethane Supply Company is able to accept your major credit card for purchases. Just say "charge it" on your next order and say "adios!" to those high COD charges.



### Roy Rogers Body Shop Looking to Sell Hot Dip Tank

One of our customers, Roy Rogers Body Shop in Laurel, Mississippi, is looking to sell his hot dip tank for straightening out those warped urethane bumpers. If you're interested, please call Thomas Rogers directly at 601-426-2090.