A HONEY OF A DESIGN

The history of Pontiac's famous Honeycomb wheels

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With the debut of the 1971 model year, Pontiac gave buyers a fresh new wheel design to complement the sleek lines of its performance models. In addition to the various wheel covers and the familiar Rally II units came the new Honeycomb Polycast wheel. Not only did the Honeycomb wheel represent a new look, but a new direction in design and manufacturing techniques.

While the Honeycomb wheel appeared to be a very attractive cast-aluminum unit, such was not the case. It was actually a steel wheel, which was covered with a urethane overlay that was very similar in composition to the material used in 1968-72 GTO Endura front bumpers. How this unique design came to market is a very interesting episode in Pontiac's history.

For its debut, the Honeycomb wheel was offered in 14- and 15-inch sizes. Here it is, shown on a 1971 GTO. A notable difference between the 1971 wheels and the later wheels is the center cap. 1971 wheels had no ornamentation; the red arrowhead came in 1972.

You certainly can say that the Honeycomb went out with a bang. In its last year, the Honeycomb could be had on the 50th Anniversary Trans Am and it featured a gold center section on this model.

Innovative Design

The Honeycomb wheel design is credited to William L. Porter, the retired Chief Designer of Pontiac Studio at GM Design Staff. In a recent phone conversation, Mr. Porter explained that his original inspiration for the wheel came from the geodesic dome, which was the brainchild of inventor/designer/futurist R. Buckminster Fuller. "I've always loved hexagons for their structural integrity—it's a very strong and lightweight pat-

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Optional for 1972 were 14- or 15-inch Honeycomb wheels replete with trim rings and center caps with a red arrowhead ornament.

tern to design with," Porter explained. "We even used the honeycomb as a grille pattern in the 1972 Firebird, though it was stretched horizontally so it became a sort of 'hex-eggcrate.'"

With the hexagon's high level of strength combined with light weight, it would stand to reason that the shape would be very useful on an automotive wheel and that was exactly where Porter wanted to go with it. "One of my most talented designers was a fellow named Maurice (Bud) Chandler, who has since passed away," Porter recalled. "Bud followed the wheel closely through its design process, so he and I shared the patent for the design."

The design concept started at the center of the wheel. "The five-bolt pattern suggested a 5-sided polygon for the center hub, a pentagon, actually," said Porter. "It was a complete coincidence that Chrysler took that shape as its logo. Of course, the Honeycomb wheel center has a little Pontiac arrowhead [from 1972-76] emblem in it."

While the center cap was indeed 5-sided, the individual wheel bolts were surrounded by hexagons and from there the outer rim bisects another, outer row of hexagons. According to Porter, this design was unique enough that he elected to have it modeled in the GM Sculpture Studio which specialized in plaster models rather than in the main Pontiac studio where clay was the medium. Plaster is better suited to modeling fine details.

Aluminum Out, Polycast In

Porter's original plan had been for the Honeycomb wheel to be cast out of aluminum, to make the best use of the hexagon's unique strength to weight properties. Also, the depth of the walls of the hexagons would give the wheel great lateral strength. But things did not go exactly as Porter and Chandler had envisioned. "We were told that there was no way GM could bring that wheel out in aluminum and keep the costs in line," Porter explained. "At the time, PMD's wheel engineer was a man by the name of Trevor Brown, who was taken with polycast wheel technology, which was quite new. The Honeycomb wheel ended up being produced as a polycast. I was somewhat disappointed, as the design wasn't structural and therefore not up to (R. Buckminster) Fuller's standard.

The polycast wheel was an economical and innovative way to bring out truly unique wheel designs without concern for strength issues. A specially-designed steel wheel served as the base and, from there, a flexible urethane face similar to Endura bumper material would be molded and bonded to the wheel and carry the desired styling elements. In addition to the urethane's natural adhesion to the steel wheel surface, the urethane was also held to the wheel by being pushed through its four slots which, when hardened, would hold it in place.

While the polycast process allowed the look of the Porter/Chandler design to hit the streets, there was a price to be paid in weight. Though very attractive, Honeycomb wheels were much heavier than any wheel offered on competing models, weighing up to 30 lbs. for the 15x7-inch unit, including trim ring and center cap. This did hurt acceleration somewhat, as there's no weight worse for performance than unsprung, rotating weight. It seems ironic that the 14x7-inch Hurst wheel checked in at 19 lbs. bare and was rejected for production in the 1960s due to excessive weight. A comparison of relative wheel weights is shown in the sidebar "Honeycombs Weigh In."

Applications? The 15-inch Honeycomb was first used on the 1971 A, G and F cars, continuing until 1976. The '71-76 Trans Am used 15-inchers, while the '71-72 A-body convertibles used 14-inchers, as there was less clearance in the tops of the rear wheelwells than in coupes.

The 14-inch Honeycomb wheel was dropped after the 1974 model year. The 15-incher remained in production until the 1976 model year, where it appeared in gold for the Special Edition Trans Am that commemorated Pontiac's 50th Anniversary.

Honeycombs Weigh In

These optional wheels were weighed with trim rings and caps for best comparison. Since both sizes of the Honeycombs were introduced on '71 models, they are compared with other '71 wheels available on Pontiac GTOs and Trans Ams.

Size	Wheel	Comments	Weight
14 x 6	Std. (V8 A-body)	steel wheel & poverty cap	18.50 lbs.
14 x 6	Rally II	(code JT)	21.50 lbs.
14 x 7	Honeycomb	(code JX)	26.70 lbs.
14 x 7	Hurst	(bare)	19.00 lbs.
15 x 7	Rally II	(code KR)	25.25 lbs.

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Grand Ams could be had with Honeycombs as well, even though there is no breakout specifically for Grand Ams in the option totals. This 4-door model represents Pontiac's first attempt at a European-style sports sedan.

15 x 7	Honeycomb	(code KP, 1971-74)	30.00 lbs.
15 x 7	Honeycomb	(code HP, 1975-76)	30.00 lbs.

Honeycomb Part Numbers

Item	Size	Usage	Part Nos.
Wheel	14 x 7	1971-74	483084
Wheel	15 x 7	1971-74	484425
Wheel	15 x 7	1975-76	497154
Trim ring*	14 x 7	1971-74,1979-80 Buick Turbo Regal	483250
Trim ring	15 x 7	1971-76	490771
Ornament		1971 A, F, G (no emblem)	9791068
Ornament		1972-76	9795568
Lug Nuts**		'71 & 72 A, F, G, X Rally II or Honeycomb 7/16-20	399683
Lug Nuts***		'73-76 A, F, G, X Rally II or Honeycomb 7/16-20	414188

*Discontinued

**Discontinued in the '70s. Note this is the "tall" cap lug nut shared with Chevelle SS in '69 & '70. (Ted Williams Chevy Parts wholesales it to many Chevy vendors)

***Note this is the "short" cap lug nut used by Pontiac on Rally II Firebirds through 1981 model

Honeycomb Wheel Installations Per Year

Honeycomb wheel installations peaked across the lines in 1973, as you see. It was a great production year for Pontiac, to be sure, but even the percentage of wheels installed with regard to total production for each line increased for Honeycomb wheels. Who would have thought that they would be so popular with Grand Prix?—*Thomas A. DeMauro*

Year	LeMans	Firebird	GP
1971	2,840	2,625	2,735
1972	1,824	2,126	4,783
1973	5,395	4,020	8,198
1974	2,050	4,739	4,492
1975	2,444	10,847	3,800
1976	N/A	N/A	N/A

Restoration Tips

Honeycomb wheels are now much easier to restore than ever, thanks to the efforts of OEM Paints®, which has taken pains to develop products to correctly restore these unique wheels to original beauty. In addition to offering the correct finishes for both the urethane face and for the steel backing, OEM Paints® has brought to market such restoration aids as self-etching metal primer, surface preparation, adhesion promoter and flexible plastic primer. The latter two will help prevent a surface cracking problem that first appeared on early 1971 wheels. For a detailed description of the proper restoration of a Honeycomb wheel, be sure

PHOTO COURTESY OF GM

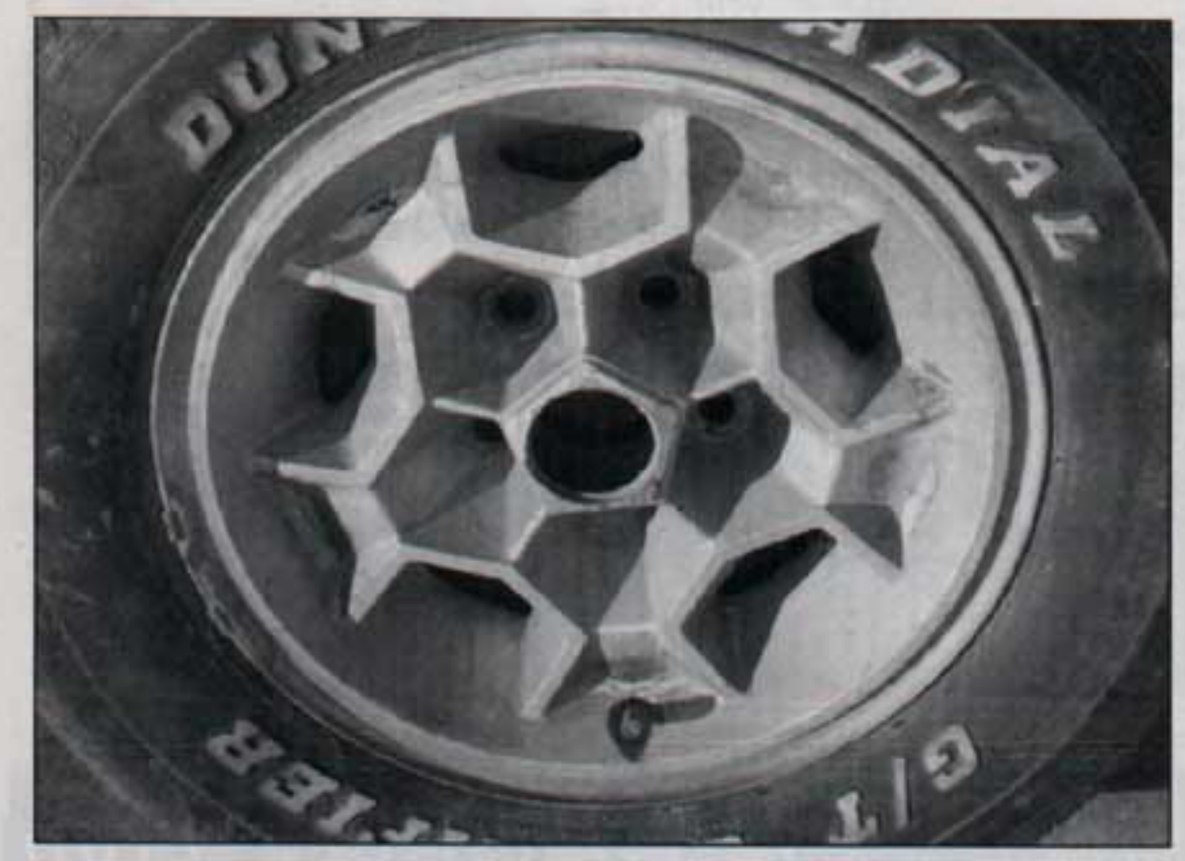
Even show cars were fitted with the famed polycast wheels. The Grand Am based All American is so adorned and like the '76 Anniversary T/A, these wheels feature a color key to the exterior hue.

to check out the excellent article that appeared in the HPP *Pontiac Tech Special* Summer 2000. Back issues are available at 714-213-1030.

The updated wheel finish formula that the factory adopted altered slightly the finish of the urethane outer face and was much more durable. OEM Paints® chose to adopt the later finish for its Honeycomb Wheel Coating, as it is correct for the vast majority of wheels. Most of the originals were updated by dealers after the cracking developed anyway.

This is the only correct finish for Honeycomb wheels that is available on the market and, unlike the original, is UV light resistant. OEM Paints® manufactures a newer Honeycomb factory-packaged color that delivers the original metallic fleck, pebble look and sandy feel with a vibrant grain. The color of Magnesium for 1971-76 production years is currently available. In 2002, OEM Paints® plans to manufacture a limited production run of Special Edition Gold for 1976 Trans Ams.

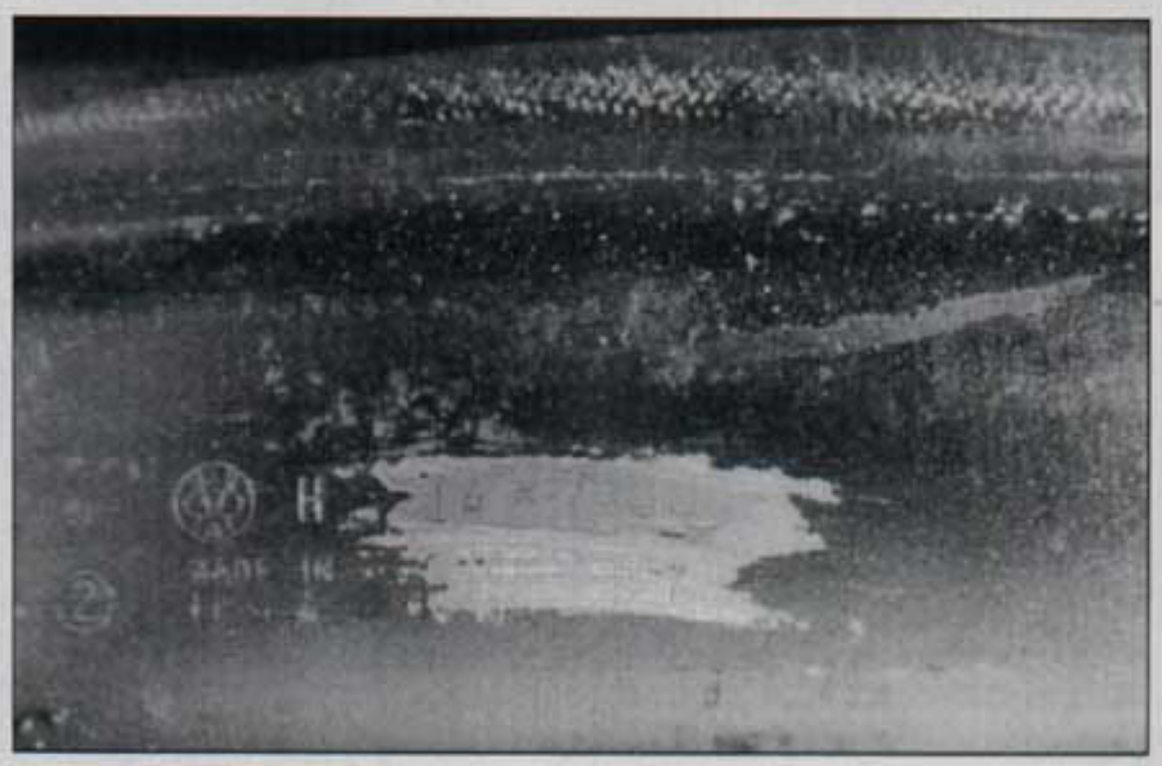
Carl Weaver of OEM Paints® is quick to caution restorers not to use chemical paint stripper on any part of the wheel, as it is corrosive to the urethane, turning into a spongy mess in very short order. Chemical stripper can work its way into tiny pock-



Shown is a 15-inch Honeycomb wheel (KP code) in need of restoration. Honeycomb wheels carried a P05 UPC and a 478 sales code from 1971 to 1976.

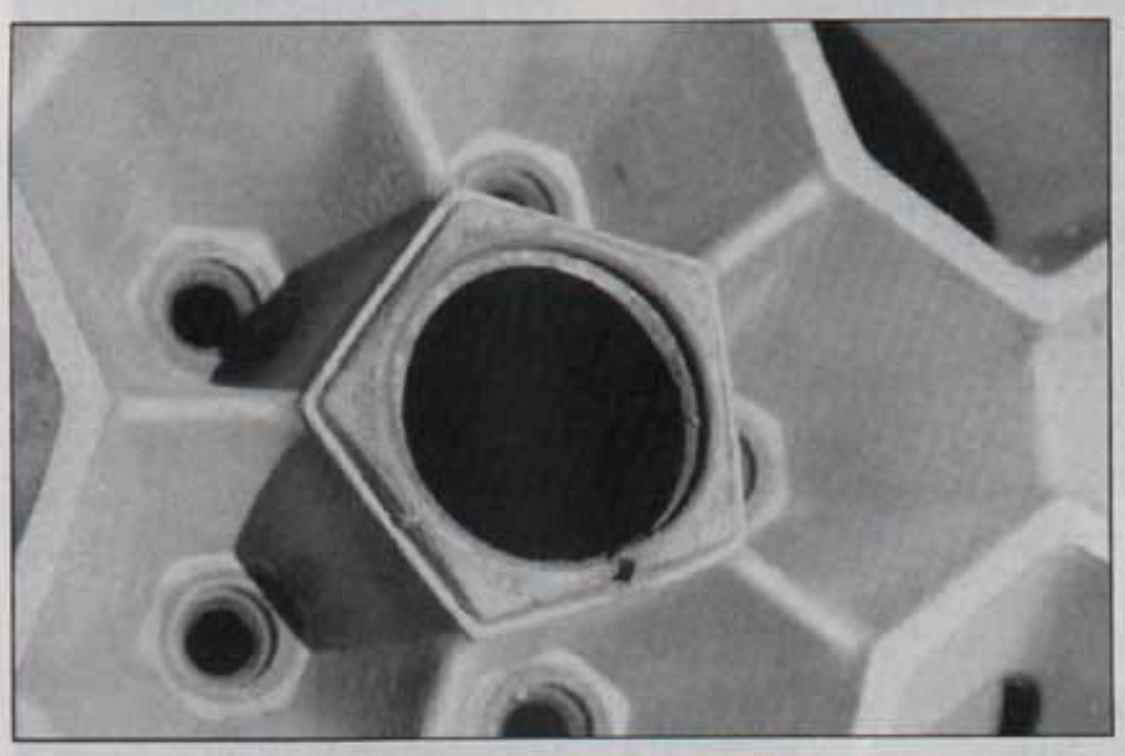
Note the unique steel wheel to which the polycast fascia was affixed. The 14-inch and 15-inch wheel look much the same, save diameter.

Here is a 14-inch wheel sans tire, also in need of restoration.



In the tire bead area, our 14-inch wheel displays its size and the JJ code for the steel wheel. Most sources indicate that JJ steel wheels were used for 14-inch Honeycomb wheels.

The back of the wheel rim, however, shows the JX code (the 15-inch wheel in our example had no code in this area) for the 14-inch wheel, which ...



... matches the code found on the front of the wheel in the pentagonal area that is usually covered by the center cap. Note that the remaining four points of the pentagon say "poly" "cast" "pat" "pending." The 15-inch wheel also displays the wheel code and the same words in this area.

ets in wheel welds and be drawn out by centrifugal force after the paint has dried.

The preferred method for removing paint is to have the wheels plastic media blasted, which is very gentle and won't damage the urethane if used correctly. If there are imperfections in the urethane, they can be repaired by using Duramix #4039 Flexible Plastic Repair Injection Kit, a two-part plastic that is mixed and injected from a syringe. After drying, the "new" plastic in the repaired area can be sanded to match the original contours with a 3M "Super-Fine" sanding sponge.

In order to replicate the original look of the wheels, one must know how they were finished. The steel wheel was painted before the honeycomb face was applied, so the urethane that oozed through the slots was unfinished and should remain black. Be sure to mask it off before painting the back of the wheel.

Additionally, one should keep in mind that there should be no overspray on the back of the wheel. When the original topcoat was applied to the urethane face, a foam "doughnut" was put over the wheel back to prevent paint from being sprayed through the slots to the rear of the wheel. This can be replicated by stuffing an old beach towel in the back of the wheel to block any overspray. The OEM Paints "Honeycomb Wheel Coating" finish coat should be applied to the urethane as well as to the outer wheel bead, which is visible between trim ring and the mounted tire. Be sure to apply paint to all angles to ensure proper coverage.

Conclusion

Though the Honeycomb wheel has been out of production for a quarter of a century, it remains a Pontiac design icon. To this day, Pontiacs use honeycomb grille patterns and the 1999 GTO concept car even used an updated version of the Honeycomb wheel design. It remains the wheel of choice for 1970s-era Pontiac aficionados and restorers.

Wheel Restoration Part Numbers

OEM Paints®
Flexible Plastic Primer # 72070
Self-Etch Gray Primer # 72075
Adhesion Promoter # 72060
Honeycomb Wheel Coating (urethane finish) # 11015
Inner Rally Wheel Finish # 12010
Honeycomb Wheel Coating— Special Edition Gold #11005
Prep EZ # 21065 (surface cleaner)

Duramix
Flexible Plastic Repair Injection Kit # 4039

3M
"Super-Fine" Softback Sanding Sponge # 02602

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SOURCE

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