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The "Other" Corvette Body Builder

Many new mid-year Corvette owners aren't aware that there were TWO plants that built '64-'67 Corvette bodies; half were built at St. Louis, and half were built under contract by the A.O. Smith Corporation in Ionia, Michigan. This month we'll examine a brief history of A.O. Smith (and its predecessor, the Mitchell-Bentley Corporation), and describe the product they produced and shipped to St. Louis for final assembly.

A. O. Smith helps St. Louis keep up with production

BY JOHN HINCKLEY

In The Beginning: The Ionia Manufacturing Company produced truck and bus seating, and during World War II produced Jeep components, seats, and tarps for the military. After the war, contracts were secured to build wood, wood/steel, and all-steel station wagon bodies for GM and Chrysler. In 1953, the name of the company changed to the Mitchell-Bentley Corporation, and their product line expanded to include interior trim parts, interior plastics, and bucket seats for Dodge trucks. They also built hundreds of Glasspar fiberglass kit car bodies and over 500 fiberglass/aluminum bodies for the Nash-Healey sports car. By the end of 1964, when station wagon body production ceased, Mitchell-Bentley had built over 400,000 station wagon bodies for GM, Chrysler, and Ford.

Chevrolet Knocks On The Door: As GM brought production of station wagon bodies in-house, and that business opportunity was fading for Ionia, in mid-1963 Chevrolet asked Mitchell-Bentley to submit a proposal to build 12,000 Corvette bodies per year, as there was some thought at the time of relocating Corvette production to a proposed new plant in Flint. The Mitchell-Bentley proposal was accepted, and they began production of 1964 Corvette bodies in the Ionia plant in late January 1964, using fiberglass body panels molded by other outside suppliers.

At about the same time, the Ionia operation was sold by Mitchell-Bentley to the A.O. Smith Corporation, and it became known as the Dow-Smith Division of A.O. Smith. Construction was also started on a major fiberglass molding facility on the same site, in order to bring Corvette panel production in-house.

The A.O. Smith-Built Corvette Body: A.O. Smith built the Corvette bodies using a duplicate set of body assembly tooling supplied by Chevrolet, and designed and built many of the smaller fixtures and hand tools themselves from Chevrolet drawings and their own production-development efforts. A.O. Smith had

Left: An A.O. Smith tri-level car being unloaded on the St. Louis body receiving dock inside the plant. Note the convertible body on its build truck being hauled away on the right. (Photo Joe Trybulec)

a large staff of production engineering personnel from the Mitchell-Bentley operation and produced complete and highly detailed assembly process sheets covering every single panel, part, fastener, adhesive, primer, paint, and sealer necessary to build, paint, and partially trim the Corvette body.

They were paid on a contract basis by Chevrolet for each body, and were very careful to thoroughly document every single operation and support it with labor-time studies in order to justify their charges. The A.O. Smith process sheets filled a 500-page book, and each sheet not only had an illustration and part numbers like the Chevrolet Assembly Manual, but also included detailed step-by-step assembly instructions, along with the required tool and fixture numbers. Only two of these A.O. Smith Assembly Process documents are known to exist today.

The Body Shop Process: The A.O. Smith Corvette body was built in essentially the same manner as the St. Louis body, with several minor exceptions: The front fender rear side panel was bonded in place in the off-line front clip bonding fixture versus the St. Louis process of bonding it in place after the front clip was bonded to the body on the main line. Different size rivets were used to attach the door hinge pillar reinforcement to the front upper corner of the door inner panel. All the various riveted-on underbody brackets and reinforcements for body mounts, seat and seat belt anchors, the shifter opening reinforcement, and the radiator support were primed with green zinc chromate primer versus the St. Louis process that coated these parts with black dip primer. A.O. Smith didn't have a black dip-prime paint system, so they used the same zinc chromate paint system that was installed for the birdcage to paint the Body Shop-installed plain steel parts.

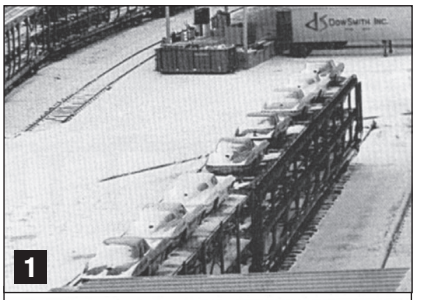
The cowl-mounted female hood latches and the cross-car hood release cable weren't installed until after the Paint Shop at Ionia, and showed no underhood blackout overspray. Those items were installed in the Body Shop at St. Louis, and show underhood blackout as a result. The birdcage assembly tooling at Ionia didn't include provisions to die-pierce the notches in the sills and sill reinforcements required for later assembly clearance for units with RPO N-14 side exhausts, so no orders for units specifying sidepipes were ever allocated to A.O. Smith. All bodies for sidepipe-equipped Corvettes were built at St. Louis.

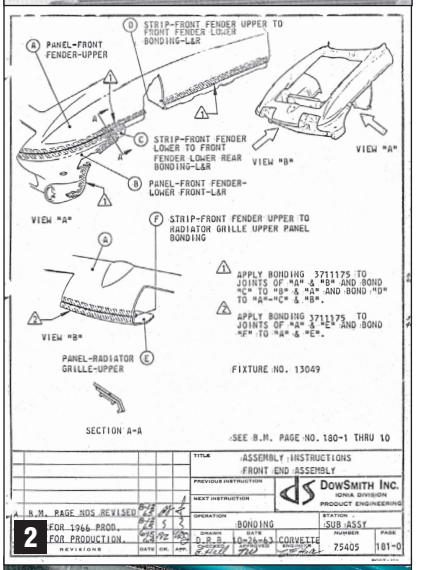
The Paint Shop Process: The A.O. Smith paint shop used the same process and materials that were used at St. Louis, except for the 1967 big-block hood. The physical layout of the A.O. Smith paint shop wasn't conducive to the time-consuming and labor-intensive masking required to paint the contrasting colors on the big-block "stinger" hood and header panel, and their personnel were never able to master the masking process. As a result, it's generally accepted that very few 1967 big-block bodies (or none) were built at A.O. Smith after the first few weeks of 1967 production.

The Body Trim Process: The Trim Line process at A.O. Smith was quite simple, as the only parts installed were those required to make the car watertight and safe for rail shipping.

A.O. Smith installed all glass – windshield, side glass, and backlites; they also installed the stainless front and rear outer reveal moldings and the outer wipe seals and window regulators for the side glass. Weatherstrips for the doors and deck lid were also installed, along with the trim tag; the VIN plate was installed at St. Louis when the body was loaded on their Trim Line. The trim tag on A.O. Smith cars had an "A" prefix for the body number, and character spacing and alignment was different from the St. Louis trim tags. The A.O. Smith trim tags also didn't show the ECL code suffixed to the trim number like St. Louis tags did.

All door hardware, including glass run channels, outside handle, lock cylinders, inside remote door release and lock rods and spindles, and access hole covers, plus power window conduits and wiring and the cross-car power window harness were installed on the Trim Line. Both styles also received the main body harness and accelerator lever. The lock cylinders for the ignition and spare tire lock and the keys were placed in a plastic bag and taped to the lower instrument panel brace for use at St. Louis.



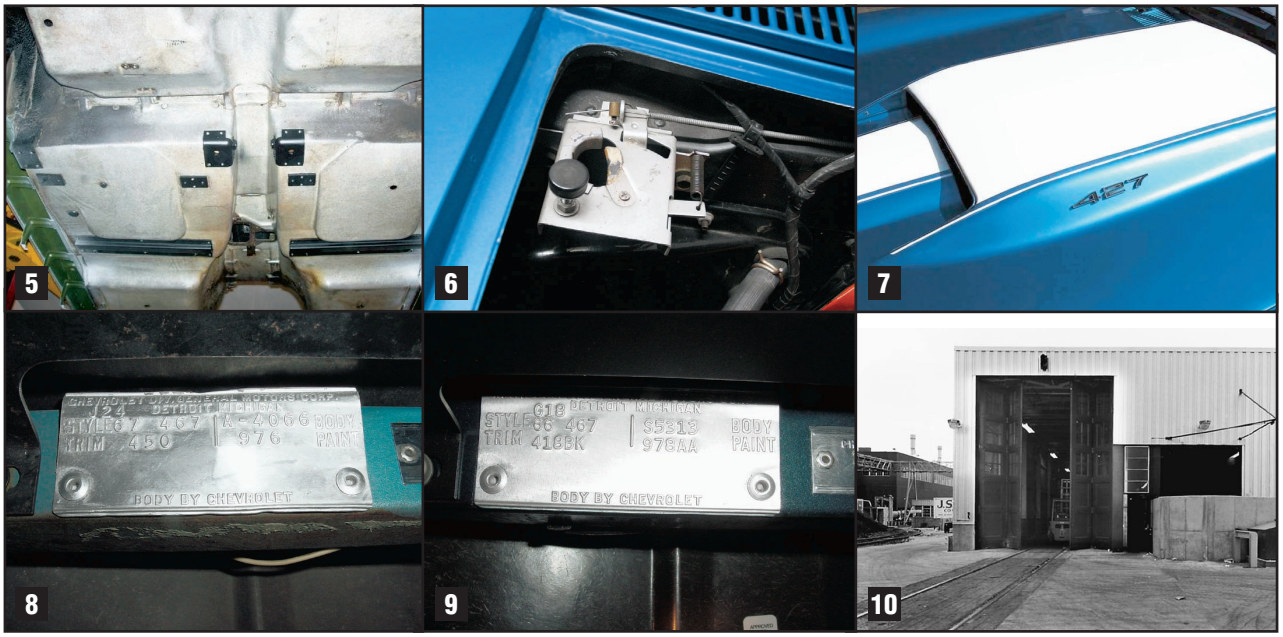


1 Finished Corvette bodies on a tri-level rail car at the A.O. Smith plant in Ionia, Michigan, awaiting their trip to St. Louis. (Photo Noland Adams)

2 One of the 500+ A.O. Smith assembly process sheets, including the illustration, parts, assembly instructions, and fixture and tool numbers required.

3 The large-head rivets A.O. Smith used at the front upper corner of the door inner panel. St. Louis used a different type of rivet with a smaller head at this location.

4 An original A.O. Smith underbody, showing the green zinc chromate primer on riveted brackets and reinforcements. (Photo Robert Pelland)



5 A St. Louis underbody, showing the black dip-primed riveted brackets and reinforcements.

6 The hood latch and release cable were installed AFTER paint at A.O. Smith, and exhibit no underhood blackout overspray.

7 The 1967 big-block "stinger" hood caused masking and painting problems at A.O. Smith, so very few were built there.

8 An A.O. Smith trim tag – note the character double-spacing and alignment, the "A" prefix on the body number, and lack of an ECL code suffix on the trim number.

9 A St. Louis trim tag – note the character single-spacing and alignment, the "S" prefix on the body number, and the presence of the ECL code suffix on the trim number.

10 The trains from A.O. Smith rolled right into the St. Louis plant through these doors for unloading. (Photo Joe Trybulec)

On coupes, all trim from the belt line up was installed – inner back window garnish moldings, vinyl trim panel behind the back window, headliner, halo panel, dome light (and top compartment lamp on convertibles), top and side windshield inner garnish moldings, inside mirror, sun visors, and the painted caps on the lock pillar. The convertible top was sub-assembled off-line and installed with its deck lid latching hardware, plus the trim strip at the front of the deck lid. If the car called for a hardtop, it was built up and installed, and the soft top was stowed for shipping. Soft top-only cars had a protective cover for the top taped in place. Exterior trim installation included the parking lamps, license lamp and rear license plate bezel.

All the rest of the interior trim and hardware (dash mats, carpets, brake and clutch pedals, steering column, seats, door trim panels, seat belts, storage compartment cover, quarter trim panels, side vents and kickpads, sill plates, heater, wiper linkage, main dash panel and eyebrow pads, cluster, glove box, shift console, instrument panel harness, and lower windshield inner garnish molding, etc.) were installed later at St. Louis.

Final Assembly And Shipping: Holes in the cowl and dash for the heater, wiper transmissions, dash grommets, fuse block and steering column were taped over, and the finished body was vacuumed out and water-tested. Following the water test and final inspection, the completed body on its wheeled build truck was loaded on a tri-level railroad car and shipped to St. Louis. Transit time varied from four days to two weeks. The train came right into the plant at St. Louis, and the bodies were unloaded into a scheduling area, where they were stored until they were required for production.

Summary: The Body and Paint Shops at St. Louis operated only on the day shift from 1964-1967, producing half the bodies required; the other half came from A.O. Smith. As you might expect, a rivalry developed between St. Louis and A.O. Smith in terms of producing the best quality painted body, and regular joint quality audits fostered a continuing competition between the two for continuous quality improvement, which benefited the customer during the mid-year era.

The original Chevrolet plan to move Corvette production to Flint never came to fruition, and the contractual arrangement with A.O. Smith for finished bodies was phased out at the end of the 1967 model year, following a four-month strike at A.O. Smith that forced St. Louis to run their body and paint shops on a six-day, twelve-hour schedule in order to maintain production during the strike at Ionia.

The huge A.O. Smith fiberglass molding plant in Ionia continued to supply many Corvette body panels and assemblies to St. Louis after 1967, all the way through the C3 era. In 1971, the Ionia plant was sold to General Tire and Rubber and became part of GTR's "GenCorp" division.

When St. Louis was re-tooled in late 1967 for production of the new 1968 body styles, the second shift was reinstated in the body and paint shops, and all bodies were produced in-house from that point until the plant closed in 1981 when Corvette production was moved to Bowling Green. ■