

THE (FIRST) COSWORTH PILOT AT STE. THERESE

by John Hinckley, GMAD-Lordstown Cosworth-Vega Launch Coordinator

During early 1973, Cosworth development was proceeding on schedule (relatively speaking) at Engineering, and production of Pilot units had been scheduled for some time to take place at Lordstown in April, 1973, with production launch scheduled for August (later re-scheduled for May, 1974, and this date soon became a moving target due to continuing development and emission certification issues).

At any rate, the early Pilot was “on” regardless of the wavering going on at the Tech Center, as Engineering needed the cars for further development. Shortly before the Pilot build was to gear up at Lordstown, the adjacent Fisher Body Stamping Plant went on strike, shutting down Lordstown Assembly; a lot of tap-dancing by all of us resulted in the Pilot being moved to Ste. Therese, Quebec at the last minute. Ste. Therese was building Vegas on one shift at 30 per hour at the time, and was preparing to add their second shift, so they had additional training manpower available that could be dedicated to organizing and executing the Cosworth Pilot along with Lordstown personnel.

My Body, Paint, Trim, Chassis, and Final assembly staff, along with Material & Production Control and Quality & Reliability staff relocated to Ste. Therese for about 10 days, where we were joined by a number of engineers and specifications people from Chevrolet Engineering and Bendix. The staff at Ste. Therese was extremely accommodating, and we got everything we needed; they were quite excited about being part of the “race car” program.

Seven silver Cosworths were built, with the planned “off-line” final assembly operations done in their final repair area by several veteran Ste. Therese repairmen they dedicated to our program. One of our tooling engineers brought the Lordstown video camera (they were pretty bulky in those days), and videotaped all the Cosworth-unique on-line and off-line assembly operations. We later used the edited tape for many employee training sessions at Lordstown, as we had no Cosworth Pilot car of our own at the plant to use for training. I don’t know where the tape finally went, but it was in my office when I left Lordstown in July, 1975 to return to the Tech Center.

Being in French-Canadian bi-lingual Quebec, we had some interesting times. For the first two days after the first car came off the line and was on the repair hoist for final assembly, our tool engineer doing the videotaping had a terrible time communicating with the repairman doing the work; the repairman spoke only French and indicated that he neither spoke nor understood English. Finally, on the third day, the joke had run its course, and the repairman opened up to our engineer in perfect English, telling him “You guys are OK after all!”, and communication was re-established! We sampled the best restaurants each night as a group, based on recommendations from the plant folks. One night we walked

into a VERY nice restaurant in Dorval, near the airport, and our group of 8 or 10 was seated at a large round table (we wore coats and ties in those days – remember that?). We sat for about 15 minutes with no water, no waiter, no wine steward, no attention at all; I finally got up and went over to the Maitre'd and asked if we could have some service, and he asked me where we were from. I told him we were visiting Ste. Therese from the U.S., and his face brightened right up – he said they thought we were “WASPS” from Ontario, and said “Welcome to Quebec”; he snapped his fingers, and we were immediately surrounded by the help, and had a terrific meal and great service for the rest of the evening, with after-dinner drinks “on the house”. That really brought home to us the depth of the division between “Quebecers” and the rest of English-speaking Canada at the time, which, of course, is even deeper today.

We got all the cars built and shipped on schedule, thanks to the Chevrolet and Bendix engineers who sorted out some of the mis-matched components that had been released and got the cars running properly, and returned to Lordstown. We had no idea at the time that almost two more years would elapse before the first production Cosworth would come down the line at Lordstown, with significant differences from the cars we built at Ste. Therese.

THE COSWORTH TIRE-MOUNTING DISASTER

-or-

HOW NOT TO MAKE FRIENDS AT ENGINEERING

If you haven't seen a tire-mounting machine in an assembly plant, it's quite a sight to behold; a flat steel pallet conveyor, with a large tapered pin in the center of each pallet, locates the wheel, inboard side down, securely on the flat surface. As the conveyor advances, the tire is dropped automatically ahead of the wheel, and lays back at about a 45° angle against the leading edge of the rim.

Just ahead lies the "Mounter" stage, which has two hinged arms which pivot horizontally from pins inside the machine; the business end of each arm has a pivoting "shoe" attached to it, at the same height off the conveyor pallet surface as the top edge of the wheel rim; as the wheel and tire enter this stage, the "shoes" engage the edge of the advancing rim, and proceed around the rim, engaging the bead of the tire as they go, and forcing both the lower and upper tire beads over the edge of the rim. When the pallet exits this stage, the tire is mounted to the rim, although has no air yet and the tire beads are just flopping loose between the rim flanges.

The next stage is the "Inflator". The pallet transfers the tire/wheel to another conveyor which carries the wheel, still lying flat, on the edge of a pair of chains; this chain-link conveyor stops in this stage momentarily and transfers the wheel/tire into an open cavity in the center of the machine. At this point, pneumatic rams carrying large rubber seals capture the wheel/tire from both top and bottom, and air is blasted into the tire (between the tire and the rim) from both top and

bottom - the valve stem is never used in assembly - it's just along for the ride. From here the wheel/tire proceeds to the balancer, and is then conveyed to the line to be installed on the car.

What does all this have to do with the history of the Cosworth-Vega? It's another little anecdote from my past when I was the Cosworth Launch Coordinator at Lordstown, and the Chevrolet wheel engineer (whose name escapes me after all these years) probably still thinks about it.

Most plants have a "wheel room" that runs at 300 assemblies per hour (60 per hour, five wheels per car). Lordstown, however, had a "wheel room" that ran at 550 per hour (103 cars per hour, 5 wheels per car, with a slight margin to accommodate the inevitable minor breakdowns) - that's one mounted, inflated, and balanced wheel/tire assembly every 6.5 seconds.

The Cosworth wheel had to be able to be mounted, inflated, and balanced along with regular production wheels and tires in this fully-automated system, and we needed some pre-production tryout Cosworth wheels and tires to run through the system to make sure they could be accommodated by the equipment and to identify any modifications that might be necessary for them. The Cosworth wheel was designed with the center hole the correct diameter to accommodate the locating pin on our pallet conveyor, but we had to make sure it would mount and inflate properly as well.

We had requested wheels and tires for a long time, but the wheels were made by GKN in England and Engineering was unable to supply any to us until pretty late in the program. The wheel engineer finally arranged to have GKN send us five essentially hand-made prototype wheels (the production tooling wasn't complete yet at GKN) which he wanted back to put on a test car at Engineering when we were done with them, and he reminded us to be careful with them, as they cost \$5,000 each. He came to the plant to watch "his babies" the day of the tryout, and probably should have stayed home, by the time the tryout was over.

Two of the hand-made aluminum wheels were inserted into the loading system, as were the tires; the wheels dropped into place nicely on the pallets, and the special tires dropped into place properly ahead of them as the pallet approached the mounter. As the first Cosworth wheel/tire entered the mounter and engaged the pivoting tire mounter shoes on the machine, we heard an unusual noise, and watched as the mounting shoes neatly sliced the outer rim flange right off the wheel! The young wheel engineer nearly had a heart attack, screaming "shut it down, shut it down" at the top of his lungs, and by the time the high-speed system responded to the "Emergency Stop" button, one more Cosworth wheel had entered the mounter and had been sliced in half. We saw a machine problem, but I'm sure all the engineer could see was \$10,000 going down the drain!

The Maintenance crew pulled the dismembered remains of the two damaged wheels out of the system (including the two torn-up tires), and regular production resumed. Between shifts, the machinists modified the shape of the pivoting mounting shoes to better accommodate the machined edge of the Cosworth wheel

rim flange, and we ran one more Cosworth wheel and tire through the system during second shift successfully, with no damage to either the tire or the rim.

The wheel engineer took his three remaining wheels and tires back to Engineering the next morning, and probably spent most of the four-hour drive dreaming up an explanation for his boss for what happened to \$10,000 worth of hand-made prototype Cosworth wheels; I'm sure us "Manufacturing guys" got another "black mark" from Engineering for that one, but there were more to come later on.

COSWORTH JOB #1 MEDIA EVENT AT LORDSTOWN

-or-

THE DAY MY CAREER NEARLY ENDED

Having built five on-line Pilot cars in February, 1975 (the same week the two Proving Ground 50,000-mile emission certification cars successfully completed testing), initial salable production Cosworths started down the line during the last week in March, when the EPA indicated they would issue the required Certificate of Compliance later that week.

We built Cosworths for a couple of weeks before inviting the media in for the production launch celebration, to make sure all the processes and tooling were working as designed and de-bugged during the February Pilot build seven weeks earlier, finishing up the cosmetics on the off-line Cosworth Build Area, training the off-line employees in EFI diagnostic procedures, and making sure the guys in the off-line Cosworth area had their special uniforms and shop coats. I don't remember the exact numbers, but I think we built 40 or 50 cars during that ramp-up period.

On the morning of April 17th, the plant was full of television and print media people, lights, cameramen, reporters, and anchors from the local Youngstown TV stations; we gathered them in the Cosworth off-line area, where I gave them a brief slide presentation on the car and its unique features, the assembly process, and explained the off-line assembly process they were about to see.

A few minutes later, the first Cosworth (for them, not for us) came into view across the aisle at the end of the Final Line, and two of the off-line Cosworth guys pulled it off the line with an electric "tugger" and guided it into place in its stall in the Cosworth area. The media types watched the assembly of all the EFI and exhaust components, following the handout I had prepared for them (so if they published something it would be technically correct); this took about 45 minutes or so. When assembly was complete, the Team Leader handed me the keys and said it was ready to fire up. I gave the keys back to him and said "you guys did all the work, you do the honors".

He slid in behind the wheel, all the cameras and lights came on, the reporters pressed in close, and he turned the key to "on", let the pump build fuel

pressure, then turned it to “Start”. It cranked a couple of revs, and there was a muffled blast followed by a really impressive sheet of flame over the passenger side fender, with everyone ducking for cover! NOT good publicity! I did a brief tap-dance about “minor adjustments” to be made, and quickly arranged for a brief plant tour in the electric “tour train” for everyone while we did damage control and doped-out what had happened.

Once the “tour train” left, the guys set to work with diagnostics to find the cause of the “4th of July” fire-up, and quickly found that the distributor was nearly 180° out of time, causing the engine to fire with intake valves open. The resulting blast and sheet of flame blew the throttle body-to-air cleaner hoses off, and fortunately nobody was hit by the pieces or singed. The engine still had the Tonawanda ticket on it, signed by their Chief Inspector, certifying that it had been hot-tested and was OK for shipment; he and I had a particularly memorable phone conversation later, especially after I had the Team go through the inventory of Cosworth engines in racks at the Engine Dress Line and they found three more with the same Tonawanda assembly error – there was no way that particular batch of engines had ever been hot-tested.

We swapped-out the intake manifold, assuming the blast had damaged the throttle bodies, re-timed the distributor, and fired it up – ran fine, no other problems. About ten minutes later, the “tour train” showed up, and we did the “fire-up” all over again for the cameras and lights, then took them all out to the shipping yard and let them drive some of the cars awaiting shipment.

Thankfully, none of the TV or print coverage that showed up that night and the next day mentioned the screw-up at all; it was very positive, and only those that were actually there ever knew about it. I was particularly relieved, as I saw my career vanishing before my eyes when the sheet of flame followed the flying air cleaner hoses over the fender in front of all the cameras during the first fire-up!

DISTRIBUTION OF COSWORTH DASH NUMBER PLATES

The Cosworth dash number plates were supplied by an industrial jeweler in Syracuse, New York (whose name I can’t remember), who sent them directly to me; they were sent 60-100 per shipment, each one tissue-wrapped, sequentially packed in-between cardboard dividers in a box.

Knowing full well that everyone in the plant would want one as a “souvenir”, I kept them locked in my desk and parceled them out on a daily basis to my Trim Shop Coordinator, who delivered them directly to the Supervisor in whose group the instrument cluster was subassembled and installed. We had the plates designed with the threaded studs and nuts on purpose (as opposed to the usual barrel-nuts or adhesive backing) so they couldn’t be removed without fully removing the cluster bezel. The supervisor gave the shift’s supply of sequential plates to the assembler on the cluster subassembly line who installed them, and the assembler was supposed to install them in sequential order. This process was

not guaranteed foolproof, and surely some number of units were built with the order of the dash plates not exactly following the ascending order of VIN numbers, at least within one day's production volume (1600 cars, within which there would have been 16-20 Cosworths).

The second shipment was lost in transit, but it was only a partial shipment of 20 plates, as the supplier was still ramping-up his process; we notified him of the loss, and he duplicated the lost plates and re-shipped to replace them, in time so we didn't miss any units. The lost shipment of 20 plates showed up about two weeks later, and I just put it in my desk, as we didn't want two cars built with the same number.

After the Cosworth Job #1 Media Day celebration, I opened the "lost shipment" box and handed 19 of the 20 plates out as "souvenirs" to all the hourly and salary folks who had contributed to the launch of the car as tokens of appreciation; I kept #0084, which I still have on my desk today!

JohnZ's Vega Biography

John spent 1964-1985 with Chevrolet and GMAD, and 1985-2001 with Chrysler, retiring earlier this year after five years as Plant Manager of the Viper and Prowler assembly plant in Detroit.

He was the Senior Process Engineer at Chevrolet Pilot Operations responsible for Manufacturing Liaison with Engineering during the 2-year development of the original Vega, and was responsible for all Chevrolet assembly process development, pre-production activities, and the layout and conversion of the Chevrolet-Lordstown assembly plant for Vega production, including management of the production launch in June, 1970. John then was assigned as Vega Chassis and Final General Foreman for three years, and then became the GMAD-Lordstown Launch Coordinator, responsible for all new model launch activities, including planning and execution of the Cosworth-Vega launch. John was transferred from Lordstown back to GMAD Production Engineering at the Tech Center in July, 1975, and was recruited out of GM by Chrysler in 1985.

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