'93 Supercharged V-6 Trans Am

Though it looked like any other black WS6 Trans Am, this particular 'Bird was actually a Pontiac SVE prototype, a 1993 Trans Am fitted with a beefed-up 3800 Series I V-6 from a Bonneville SSEi.

By Don Keefe
Photos by the author

The late-1980s through the mid-1990s was a pretty exciting time behind the scenes at Pontiac, particularly at Pontiac Special Vehicle Engineering. SVE was the department that built many of the mechanical prototypes requested by Pontiac management for study as possible production models fo the future. They also built "mule cars," production vehicles that used the drivelines and other features of one-of-a-kind concept cars like the 1995 300 GPX. The talented engineers at SVE were a combination of veterans who had been with Pontiac and/or GM since the 1960s, like Tom Goad and Dave Ciavola, as well as younger guys like Dave Tiura, who were making their way through the ranks at the time.

A good deal of the cars built by Pontiac SVE were unique combinations of off-the-shelf components, cars that had engines and other features from other GM lines. Often these unique combinations would

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not just bolt together and required the talents of the SVE staff to properly integrate them to function as desired. This was particularly true when it came to program one-of-a-kind engine management systems for these non-production combinations.

One of those combinations that came from the SVE team was a V-6 powered fourth-generation Trans Am. At the time of its construction, the LT1 V-8 was still a pretty fresh offering and gathering a lot of praise from the motoring press. Its eventual replacement, the LS1, was under development and was still very much under wraps.

In the early and mid 1990s, there was some question inside GM as to whether future demand for larger V-8s would be high enough to warrant offering them in anything other than trucks. With the threat of tightening emission and CAFE standards looming, Pontiac was interested in seeing how a V-6 powered Trans Am would work out.

As you already know, there was some precedent for such a combination. Back in 1989, Pontiac released the limited-edition 20th Anniversary Indy Pace Car Trans Am, which was powered by a 3.8-liter turbocharged, sequentially fuel-injected and intercooled V-6. It was quite similar to the engine used in the Buick Grand Nationals and GNXs, but was modified somewhat. In order to fit in the narrower F-body engine bay, the V-6 was fitted with cylinder heads from the new 3800 V-6. These heads had the added benefit of flowing better than the old 231 Buick units. The Trans Ams didn't get the exotic ceramic impeller turbo that the limited-edition GNX had, but it didn't seem to make much difference.

Though there was ample room to fit the supercharged V-6, it still looked pretty busy in there. Custom air cleaner looked similar to stock WS6 unit but air was routed to the passenger side rather than directly back. It used the stock WS6 filter element.

The end result was the quickest Trans Am ever up to that time, one that would run well in the 13s at over 101 mph. Your author piloted one down the track at Englishtown to a best of 13.74 at 101.8 mph on a 90-degree day in the summer of 1989 for an article that ran in the December, 1989 issue of *High Performance Pontiac*.

Pontiac wanted to see if it could recapture that sort of performance level with a V-6, using pieces that were readily available. Though the turbo V-6 was no longer in production, there was a descendant of that engine that powered Pontiac's top-line Bonneville, the SSEi. It was a 3800 Series I V-6 fitted with an Eaton Model 62 supercharger. When it was first released, the Series I L67 engine put out a rather

Closeup of induction system shows the LT1 throttle body and the Holden V-6 inlet elbow. Blower drive precludes a front TB inlet- air must enter at the rear.

The reservoir for the air-to-liquid intercooler was located on the driver's side of the engine compartment. The system used a mild glycol solution.

conservative 205 horsepower at 4400 rpm, with a more impressive 260 lb-ft of torque at 2,800. It eventually picked up another 20 horsepower before it was retired at the end of the 1995 model year.

The actual car that was used for this experiment was a pilot-line 1993 Trans Am, serial number 000077, to be exact. It was originally built with a 275 horsepower LT1 V-8, six-speed manual and just about everything on the option sheets at the time, except for T-tops. Most of the mechanical prototype F-cars had the steel roofs for their enhanced structural rigidity.

Though the 3800 was quite similar to the old 3.8-liter V-6, there were a number of detail differences and some of them were significant. First off, the 3800 was originally designed to be a tranversely-mounted engine and the Trans Am of course, was a traditional north-south configuration. This meant three major areas would have to be addressed to make the engine fit.

Secondly, there was not an available bellhousing at the time that would mate the V-6 engine to the six-speed transmission. The simplest solution was to trade the six speed for the Borg-Warner T-5 5-speed manual used with the 3.4-liter 60-degree V-6 that came in base-model Firebirds. Both the 3800 and the 3.4-liter engine used the same trapezoidal "Aurora" bellhousing pattern and since that transmission was offered in the Firebird, all the linkages and mounts were available off the shelf.

Additionally, the transverse layout of the Bonneville-sourced engine put the throttle body in the

wrong position, pointing at the firewall and not having enough room for any sort of filtering system. That problem was solved with the addition of an Australian-sourced Holden intake elbow. The supercharged 3800 V-6 had been available in rear-drive Holdens so it was a matter of setting up the intake tract in a similar fashion. The elbow faced the throttle body on the passenger side of the engine bay, with air entering the supercharger at the rear. The throttle body itself was a production LT1 unit, featuring twin 58mm orifices.

Lastly, the accessory drives for the transverse engine layout were not compatible with the Firebird's engine compartment, necessitating a custom-designed setup. This custom system was built using a combination of off-the-shelf pieces and a lengthened blower snout to line everything up. Unfortunately, the Holden accessory-drive system also wasn't compatible with the Firebird engine bay, so a direct changeover was not possible. Still, Pontiac SVE was able to properly package the system so everything fit and operated correctly, using a combination of off-the-shelf parts and custom pieces.

The engine that was used was not a stock Bonneville V-6 by any means. Though the shortblock was said to be stock, the engine benefitted from a larger Eaton Model 90 supercharger, a version of which later made it to production on the 3800 Series II V-6.

A non-production air-to-liquid intercooler system was also used. It consisted of a prototype intake manifold with an integral cooling element inside. An electric pump forced a mild glycol solution from a holding tank, through the intercooler, into a small radiator core and back to the tank. The use of an intercooler allowed for lower than normal intake charge temperatures and the possibility of higher than stock boost levels, though boost was held to a maximum of 8.4 pounds for this particular combination.

A composite Ram Air hood was also added to give the supercharged V-6 cool air to breathe. Engine was incredibly responsive and free-revving.

The resulting modifications raised the horsepower substantially, to a maximum of 305 horsepower at 5,500 rpm, with 339 lb-ft of torque at 3,500. This compared with the output of the WS6 LT1 and was

The Eaton Model 90 drive snout was lengthened to line up with custom accessory drive.

Externally, there really wasn't a tip that anything was not factory stock. PHS President Jim Mattison used this Trans Am as a company car for a while.

a full 20 horsepower above the best output for a non-Ram Air F-body LT1. Combined with the lighter weight of the V-6 engine and the torque available from the huffed V-6, performance was said to rival a stock WS6 Trans Am.

Over the course of its life, the Trans Am was modified and upgraded substantially. After its initial completion, it received a conversion to WS6 standards, including the wheels and suspension, as well as a custom air cleaner to match the Ram Air hood. The T-56 6-speed transmission also found its way back into the Trans Am. It was connected to the 3800 by way of a custom bellhousing. The truth was, the stock five-speed wasn't up to the task of harnessing that much torque and it finally gave up the ghost.

After these photos were taken in the summer of 1996, the black Trans Am went in for its final set of modifications. A more powerful 3800 Series II V-6, similar to the engine in the Grand Prix 300 GPX, was installed. After testing, this piece of Pontiac history was destroyed in the summer of 2000.

More modifications were also performed. Shortly after these photos were taken in 1996, the T/A was repowered by a similar but more powerful 3800 Series II V-6.

Your author had a chance to put this particular prototype through its paces back in the summer of 1996 and it turned out to be one of the best-integrated vehicles SVE ever put together. I had driven it briefly once before when the five-speed was in it and it was obvious that it

was on its way out, preventing anything other than a trip around the block. The engine was willing but the T-5 just wasn't up for the task. It was noisy and shifted very poorly.

When I returned several weeks later, the T-56 was in and the black Trans Am was raring to go. I fell in love with this car- the engine revved freely and was so responsive that I couldn't believe it. There was no hesitation, flat spots or any other misbehavior. The engine management system was on the money and the power was "right there," all the time. From my seat of the pants impression, it was noticeably quicker than any stock LT1 car I had driven.

Though they were never intended to work together, the blown V-6 and the six-speed tranny were an ideal match. Since the power level and rpm range of the breathed-on 3800 and the LT1 were so similar, the six-speed hardly seemed to notice the difference. The gear ratios worked very well with the bent six's torque output.

The other thing that made this car such a pleasure to drive was the handling. Not only was the V-6 engine lighter, it moved the front-to-rear balance back just enough to make a significant difference in handling. Compared to a nose-heavy LT1 installation, the V-6 Trans Am, with its WS6 underpinnings, felt substantially lighter and more responsive than its production brethren. Though the LT1-powered cars are excellent handlers in their own right, they just didn't have the nimble, responsive feel of this one-off Trans Am.

Unfortunately, I never did get to drive it once the 3800 Series II V-6 was added but I was told it was even stronger and more responsive than before. That window closed, as this Trans Am, along with dozens of other cars, were crushed in the summer of 2000, along with several other one-of-a-kind prototypes. It was tragic to see them go.

Though the supercharged Trans Am never made it to production, it did hasten the addition of the 3800 Series II V-6 into the Firebird late in the 1995 model year. It also was instrumental in the addition of the 3800 Performance Package Firebird in 1996, which included V-8 Firebird suspension, steering, four-wheel disc brakes and in the automatic version, 3.42 gears. They are one of the great sleeper combinations of all time- responsive, quick, easy on gas, easier to insure- and the handling? It's the best part ... ***PP***

The interior of the Trans Am was left 100% stock, except for a single boost gauge that was put in the center air vent located in the dash. Boost was limited to 8.4 psi.

Left: Decal on the door jamb listed the car as a non-saleable unit. It was a pilot-line 1993 Trans Am, the 77th unit built. Right: Though the Trans Am was originally built in 1993, Pontiac SVE brought it up to WS6 specs, including the HD chassis components, 17-inch wheels and badging.