PROJECT POOR MAN'S GNX

Part 2

This article appeared in *Popular Hot Rodding* March 1994. The layout of the article has been kept as close to original as possible, with the omission of advertisements, etc. The article was all black and white.

CHEAP SHOT SERIES

PROJECT POOR MAN'S GNX

BY MATT HARDESTY
Photos by the author

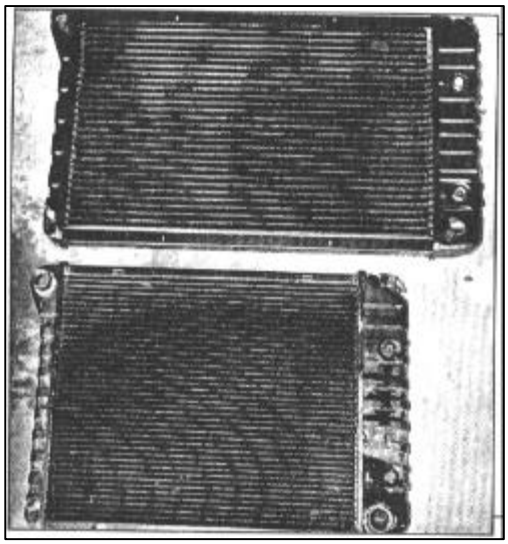
The awesome Buick GNX was capable of mid-13-second quarter-mile bursts with 0-60mph sprints in the 5.5-second range and a top speed of about 125 mph (limited by its computer). Very mild tweaking can easily put a GNX on the verge of 12-second quarter-mile times, and all this with a basically stock 3500-pound family car! With looks to match its amazing performance, the GNX is easily one of the most intriguing and wanted cars on any enthusiast's wish list.

As seen last month, our 1984 Turbo T-Type was in pretty rough shape to begin with, but it has all the makings for a monster under its tattered shell. We started with the suspension since several bushings needed attention right away. With a solid undercarriage on which to ride, the Buick was now ready to pump iron and gain some muscle.

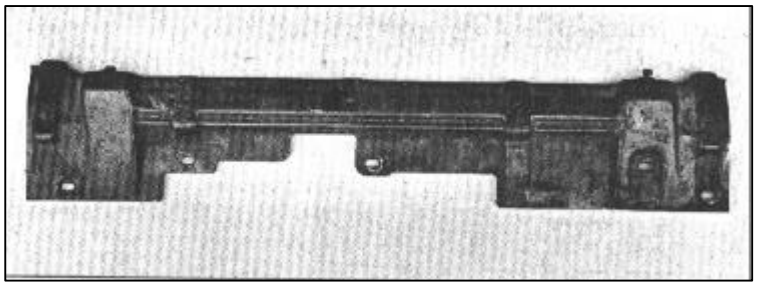
There were a few things we needed to address first before we started bolting on the power parts. With over 50,000 miles racked up on the odometer when purchased, there were a few gremlins roaming around the car that required abatement. A rough idle and occasional miss turned out to be a bad negative battery cable connection. Bolted with several other electrical grounds to the engine's block, the connection was corroded and prevented good conductivity. A new cable, some wire brushing and reconnection cleared up the stumbling idle.

The cooling system also seemed lacking in its ability to keep things cool, which is no way to make power on a turbo engine, especially one without an intercooler. There are several inexpensive improvements that can be made to the cooling system. First off, the radiator on the 1984-85 Grand Nationals and turbo Regals is several inches shorter than the one used on 1986-87 models. This shorter radiator is designed to cool standard, non-turbo V6 engines installed on regular Regals. The longer radiator is used on V8-powered G-body cars and station wagons.

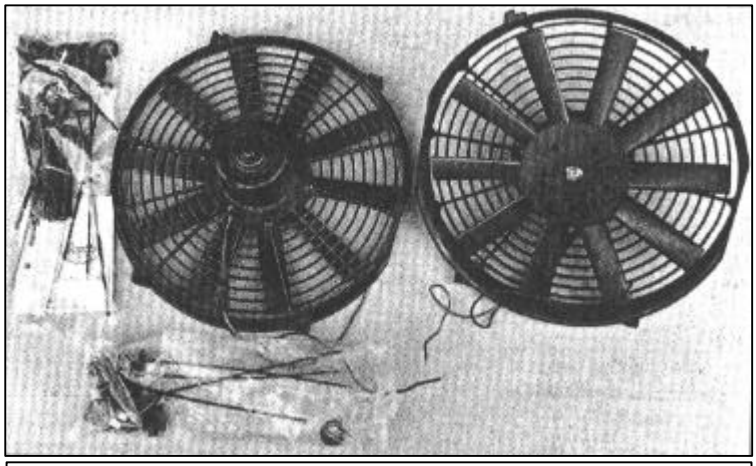
We picked up a new Modine radiator (#562) for V8 G-bodies and 1986-87 turbo Buicks and installed it in our Regal. The transplant requires the lower radiator mounts to be spaced out to their farthest position (accommodations to fit the larger radiator are already there from the



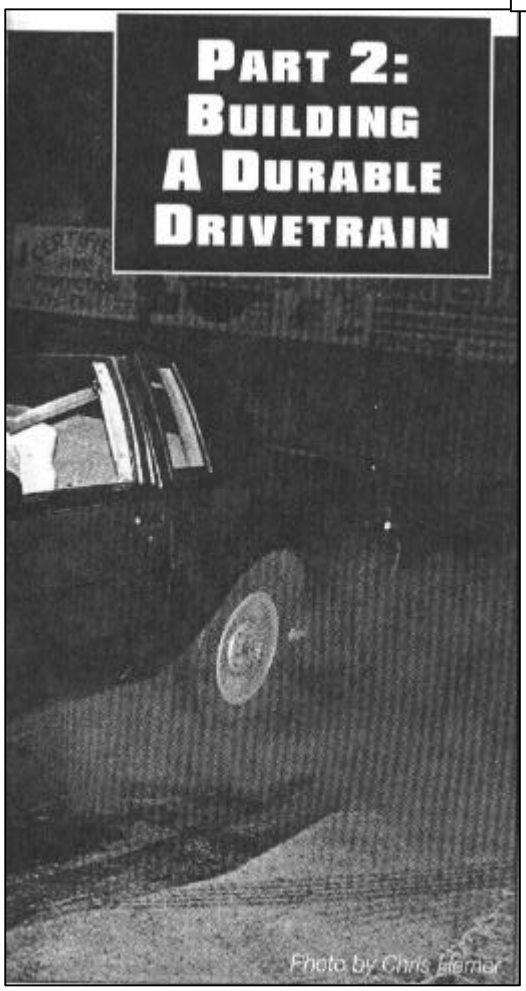
This photo shows just how much smaller the stock radiator is compared to the V8 unit used on 1986-87 turbo Buicks. The new Modine will hold more coolant and provides more area for improved cooling.



This upper radiator support was extracted from a mid-Eighties Olds Cutlass diesel. We got it from a junkyard for the paltry price of $10. We cleaned it up and painted it wrinkle-finish black for a slick look.



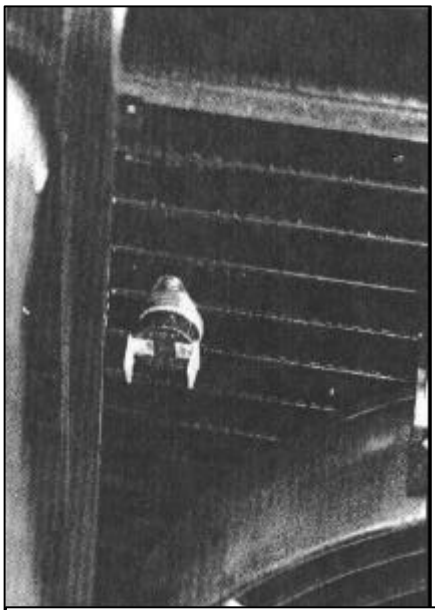
This electric cooling fan kit from Scotts Manufacturing included two 13-inch puller fans consisting of high performance blades and competition five-inch motors. Mounting hardware, a thermostat and a relay are included for proper installation allowing for automatic or manual fan control.



factory). The stock radiator hose will fit but it's a stretch. The stock fan shroud will not fit the longer radiator without much work, so we made a trip to the junkyard and found a steel, upper shroud from a mid-Eighties Cutlass diesel that bolted up perfectly. The longer radiator affords better cooling by adding more coolant to the system and more area in which to cool it.

With a new radiator in place the car ran fine, but the stock fan and clutch did little to keep things cool without the big plastic shroud that used to surround it. We never really liked the noisy and power-robbing fan combo (especially after we had to replace the clutch to the tune of $50), so we opted for another cooling improvement—electric fans. Scotts Manufacturing in Valencia, California offers several electric cooling fans for radiators as well as oil coolers. We installed two of their 13-inch puller fans equipped with the five-inch, competition motors and extra performance blades. These little fans are designed to pull a ton of air through the radiator and install neatly. The kit included mounting hardware, thermostat, relay and switch for complete installation and control within the car. The thermostat automatically turns the fans on at about 200°, or you can manually switch the fans on any time you like.

As we eluded to earlier, a cool-running turbo engine is vital to performance. We further improved our cooling system's efficiency with the addition of a FlowKooler water pump (#1018) from The Brassworks. The FlowKooler line of water pumps fea-



The thermostat attaches to the radiator like this and is electically connected to the relay and the switch inside the car. It will turn the fans on when coolant temp reaches about 200°.

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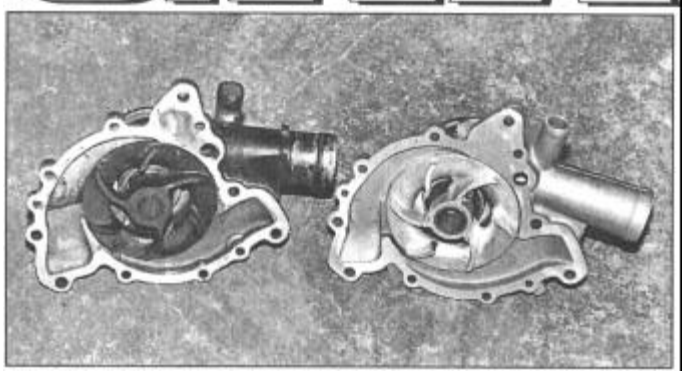


To further improve cooling we added a FlowKooler water pump from The Brassworks shown here on the right. The unique impeller design speeds up flow without cavitation and other problems related to elevated flow.

The stock catalyctic converter took a bump from a high driveway and busted up its monolith innards. When we pulled it off, these little charred remains fell out, having plugged up the exhaust system and impeded performance.

ture a unique impeller designed to outflow stock water pumps by a wide margin, thus circulating more coolant and lowering temperature. These water pumps are high-quality direct replacements and shaved a few more degrees off our Buick's running temperature.

As soon as we thought things were headed in the right direction, another problem reared its ugly head. The car, seemingly for no reason, began to lose power. The problem persisted and the turbo seemed to offer no relief even under full boost. The car became barely driveable, and excessive pedal would only stall the engine. A peek under the hood turned up what seemed like a huge exhaust leak developing in the expansion joint of the turbo intake pipe. At one point, the original owner had the joint welded after it

Auburn Gear
Auburn Drive
Dept. PHR
Auburn, IN 46706
(219) 925-3200

The Brassworks
289 Prado Road
Dept. PHR
San Luis Obispo, CA 93401

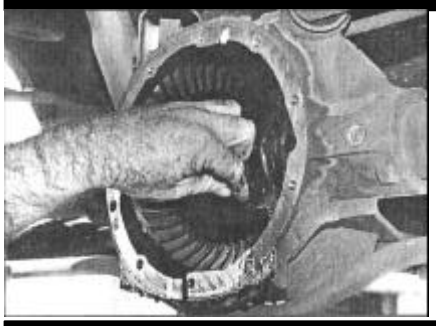
Walker Manufactoring/Dynomax
1201 Michigan Blvd.
Dept. PHR
Racine, WI 53402
(414) 632-8871

Mesa Muffler
2177 Harbor Blvd.
Costa Mesa, CA 92627
(714) 548-5600

Mike Doyle Automotive
9791 Foothill Blvd.
Dept. PHR
Rancho Cucamonga, CA 91730
(909) 989-7014

Scott's Manufactoring Company
28075 Ave. Stanford
Dept. PHR
Valencia, CA 91355
(800) 451-9461

INSTALLIN



After the cover is removed and the gear oil drained, the first step is removing the C-clips that hold the axles in

Next, the pinion lockscrew is unbolted and the pinion shaft is removed.

The limited-slip differential from Auburn Gear is a tough, performance-oriented unit designed for quiet operation unlike stock differentials.

When unbolted the bearing cap can be removed.

g A Limited Slip Differential

The shims between the differential bearings and the axle tube can be removed to keep them from falling out when the diff is pulled out.

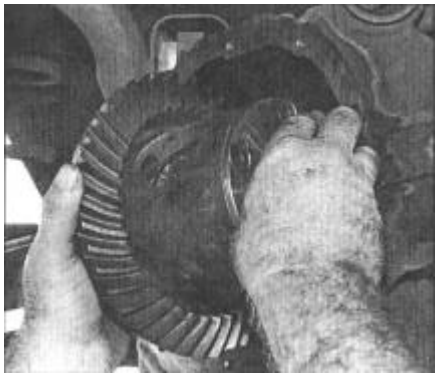
The unit can then be pulled straight out of the axle housing as shown.

New bearings are pressed on to the Auburn posi as shown. You can have any local shop do the work for you at a nominal cost. New bearings are imperitive for a proper and durable installation.

To remove the stock gears from the differential the bolts are removed and a plastic or brass hammer is used to knock the ring gear free.

A bit of Loctite is used on the bolts that attach the ring gear to the new posi after which they are torqued down to 70 pounds.

The stock shims are cleaned up, checked for wear and then prepared for reinstallation with a liberal coating of white grease.

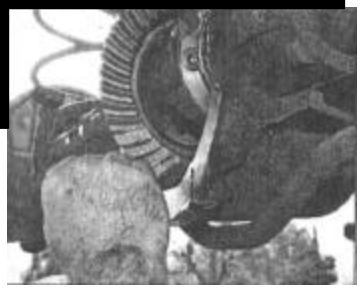


The Auburn with the new bearings and ring gear installed is hoisted into place and held there by finger-tightening the bearing caps.

Before buttoning it all together the bearing caps are torqued down to about 55 pounds. Gear-marking compound is then

Applied to several of the teeth on the ring gear and the unit is spun around so the teeth on the pinion mesh with those on the marked ring gear. In doing this we can see that proper contact is being made; poor contact will show up as marking compound spread to the edges

of the teeth rather than right in the center.

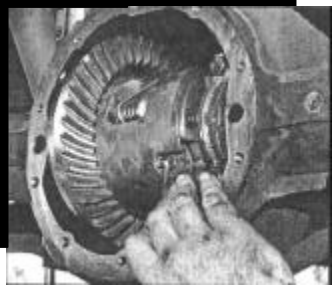


With proper teeth contact being made the stock axles are reinstalled

and attached with their respective C-clips.

The pinion shaft from the new Auburn is installed (you'll have

to take it out to install the unit) and held in place with its lockscrew.



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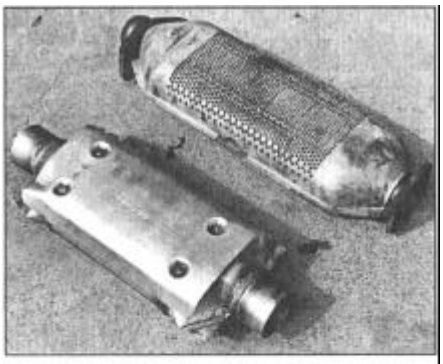
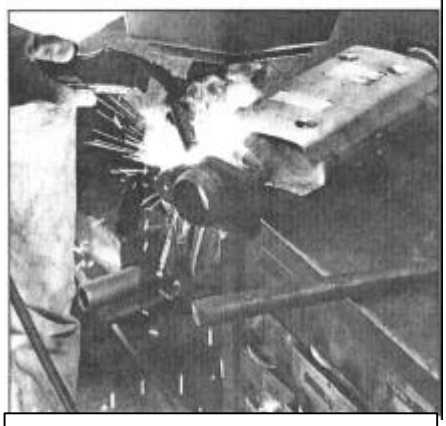


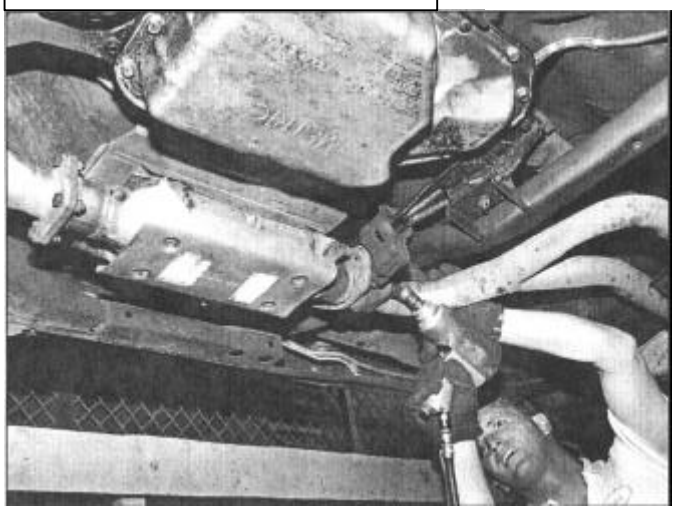


The performance converter from Dynomax is seen on the left compared to the stocker. Although slightly smaller, the Dynomax is more efficient, flows better and works better. To install it, however, the stock flanges had to be removed and welded to the new one. This was accomplished by Mesa Muffler Service in Costa Mesa, California.

had apparently cracked. Now it had popped open. Two hundred dollars later, after installing a new pipe from Buick (the thing is stainless and covered in braided steel), the car reacted even worse. Further inspection revealed there wasn't anything coming from the exhaust pipe—ah, ha! We crawled underneath and unbolted the catalytic converter. The cat popped off and out came a few charred briquets of what once was the monolith interior of the cat. We recalled a high driveway that had scraped a little off the bottom a few weeks earlier and deduced it was the cause of the busted converter, which then plugged up the exhaust system and killed all the power.

We obtained a new performance converter from Dynomax and jetted down to Mesa Muffler in Costa Mesa, California to have the swap made. Mesa removed the attachment ends from the stock cat and welded them to the new one for a good, OEM fit. The new unit was then bolted back up and the car ran like a tightly wound top.

Our T-Type was slowly being transformed into a reliable means of above-average transportation, but there were a few more areas to improve upon before we could dabble in the horsepower corral. From the factory our Buick was outfitted with the corporate 10-bolt rear end, 8.5-inch ring gear and 3.42 gearing without limited slip. As anyone can tell you, two tires digging into the pavement and clawing for traction are certainly better than just one. In a way, we were glad our car didn't have the factory limited slip; it tends to be noisy and unreliable. Additionally, to find one for transplant into our car would be quite expensive and not worth the effort or the money.



Russ then bolted up the new converter in place of the busted-up stocker.

The solution is the limited-slip differential (#542018) from Auburn Gear. This bulletproof posi is a direct bolt-in for the 10-bolt rear end and is easily installed. Mike Doyle at Mike Doyle Automotive in Rancho Cucamonga, California installed ours in just about an hour. Besides being a dependable differential, the Auburn is very quiet, grabs like a gorilla and has proven to be completely troublefree.

With these areas squared away we thought we might be ready for some fun, but it wasn't to be. An alternator main drive bearing decided to weld itself to the shaft, resulting in not only a dead alternator but a fried belt when the unit froze up. A rebuilt replacement runs about $100 because it is a high amperage alternator. Another vital component that decided 50,000-plus miles was a good time to quit was the starter. A replacement removed another $35 from the wallet, but it was a high-torque V8 Buick starter that will spin the low-compression turbo V6 all day long. Various other things needed replacement as they do on any car that sees a lot of mileage. Rather than curse the car as another wretched product of General Motors, as many politically correct foreign car fanciers do these days, we simply took the opportunity to replace worn-out parts at the end of their lifespan or just before. Nothing lasts forever, not even Japanese cars.

At the time of this writing, we have yet to make any major dents in quarter-mile times, although we've improved from a stock 15.92 to a low 15.20 with our simple modifications. Now that the car sports a trustworthy performance suspension and an efficient, durable drivetrain sans most of the 'bugs" that plagued it early on, we can prepare for the next step— installing a new exhaust system along with a complete intercooler kit, beefed-up transmission and a few ignition and fuel system upgrades. All tuned and ready for action, prepare to see our Poorman's GNX fly!