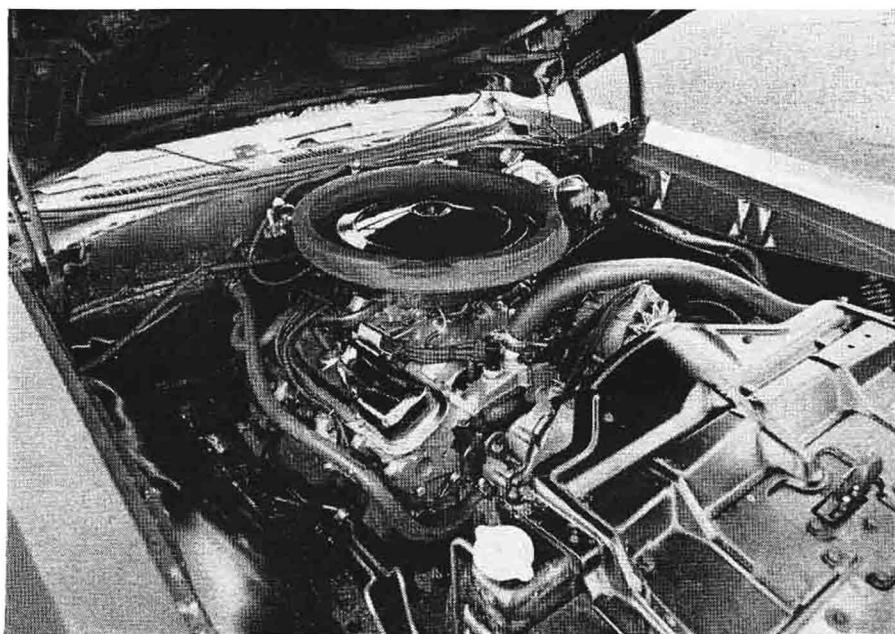




CAR and DRIVER ROAD TEST

# Project Car: Pontiac GTO 428

The Royal Bobcat GTO delivers everything on demand and no expertise asked; only expertise required



Pontiac's biggest engine, the 428, is a bolt-in replacement for the GTO's stock 400.

Back in the mid-fifties, funny things began to happen to Pontiac. For as long as anyone could remember (and many of Pontiac's customers in those days could remember when Eddie Rickenbacker was just a whelp) the Pontiac had been a kind of cut-price Cadillac. Quiet, conservative, and exquisitely dull. It was the kind of car your rich uncle (by marriage, twice removed) drove, to keep his bank's depositors from getting edgy about the way he handled their funds; the kind of car the younger set regarded as largely, and mercifully, invisible.

But then things started happening. Pontiacs began sporting red paint, and bigger engines, and lower rooflines and that indefinable something the ad agency boys now call *pizzazzzz!* Uncle was horrified, but his nephews, those in glorious, care-free, none-too-innocent louthood, really dug it. There being many more nephews than uncles, Pontiac's sales went right to the moon, and the tentative move toward a performance image back in the mid-fifties has become a headlong rush by now, a decade later. Corvettes and one or two hot Chevys notwithstanding, Pontiac has

become *the* Go-Fast specialist at General Motors, and the spearhead of Pontiac's thrust into the sporting market is their GTO. This car was introduced in 1964, and has been getting better with each passing year. Today, it is a *ne plus ultra* for (horrors) the street racers, with maybe the best combination of handling and horsepower available.

However, for some people enough is not sufficient, and that is where a certain Royal Oak, Michigan, neighborhood Pontiac dealer comes into the picture. At Royal Pontiac, you can get yourself a GTO that is more like GTO, or even, simply, GO. In Royal's service department, speed-merchant Milt Schornack will take your GTO and make it into a Wild Thing, complete with "blueprinted" engine, blocked heat-riser passages and all, a Ram Air kit, special shocks, wheels, tires and whathaveyou. A little something for the NHRA's B-Stocker class; or for thrilling passersby out on Woodward Avenue. Fun and games for all.

And now, speed-crazed sports fans, Royal Pontiac has outdone all its previous piffing efforts with a car that should send Ralph Nader right into shock. A GTO

with the standard, puny, 400 cu. in. V-8 removed and the full, top-of-the-line 428-incher inserted—with enough fiddling inside the replacement engine to bump the output up some unspecified but appreciable margin above the rated 390 horsepower. All this in a car weighing some several hundreds of pounds less than that from whence the 428 engine was borrowed.

Yes, friends, for a mere \$650. exchange, Royal will snake out that overworked little engine in your GTO and slide in the 428, all prepared for action. Preparation includes skimming .025 inch off the underside of each cylinder head and installing special thin gaskets, which crush to a .028 inch thickness—compared to the stock headgasket's .040 crushed thickness. No changes are made down in the block, and the stock pistons are retained.

Milt Schornack recognizes that his creations are just naturally going to be flogged hard from time to time, so he fiddles the valve gear and slips .060 inch shims under the valve springs to make the engine a high-winder and essentially explosion-proof. With the changes made, the 428 will zip right up to 5700 rpm before anything unusual happens, and then the hydraulic lifters pump up—nothing more. Solid lifters would permit more turns, but then the limit would be imposed by a general tangling and confusion among the valves, pushrods, etc., with highly unpleasant and expensive consequences.

To make the most of the increased compression, there is a considerable reworking of the ignition distributor. The vacuum control is removed, and the centrifugal advance device is reworked to give a somewhat sharper advance curve. Maximum advance is set at 35° BTDC. Schornack says the Pontiac engine is particularly sensitive to ignition timing, and that this little alteration gives it a very worthwhile shot in the arm.

Royal does not change the stock 4-bbl. carburetor to anything more exotic, but it, too, is modified to make it more workable. There is a tendency for the engine to stumble if you lay into it all in a hurry, because the secondary throats then give the engine lots of air and no gasoline. Milt Schornack

Sleek and bulging with muscles, the 428 GTO is ready, even eager, to take matters into its own hands and send passersby scurrying up the nearest tree

richens the primary mixture, and adjusts the air-flap on the secondaries and the stumbling is gone.

In keeping with the general character of the car, the "hood scoops" are made functional. That is to say, they really do scoop air and feed it down into the carburetor—straining it through the air-cleaner on the way. Word has it that this operation will drop the underhood temperature some 50° F., compared to the fake scoop system, at the end of a quarter-mile run. The Ram Air package consists of a tub, which mounts over the carburetor and snugles up around the hood, and a plastic-foam ring to provide a seal. It is also necessary to hack away part of the inner hood panel to let the air down from the scoops and into the collector tub.

And that, children, is just about all there is to the engine swap. The 428 is a direct bolt-in replacement for the new 400, or the older 389. There are, however, some other oddments that rate mention—like the boost in line-pressure down in the 3-speed automatic transmission, which helps the clutches grab quicker and hold more firmly and all that good stuff. The Hurst dual-gate shifter is standard on all automatic transmissioned GTOs, of course, and with the tricky "able-to-leap-tall-shifts-with-a-single-bound" ratcheting mechanism down in there, everybody becomes a speed-shifting expert. It ain't like the old days (which we recall with a fondness that grows as memories dim) when you had to be a double-jointed, lightning-reflexed marvel to cope with non-existent synchromesh in the early Porsches.

Neither is the '68 Pontiac GTO's handling and ride much like the old days. This year, Pontiac seems to have worked out the rear axle hop that afflicted earlier GTOs, without departing from the previous method of axle location: four trailing suspension arms; two of them being angled to provide lateral location of the axle.

With 57% of an all-up weight of some 4000 pounds on the front wheels, it is probably a good thing that power steering is provided. We think that the servo-assist is a trifle strong, and makes the steering feel rather lifeless, but you can learn to treat the steering wheel almost like a dial, and simply twirl away to make the car do your bidding. Distress signals from the tires are obliged to transmit themselves *via* the seat instead of taking the more direct channel up through the steering.

The driver's seat is well arranged for the transmitting of signals from the tires. The GTO has the semi-bucket front seats so typical of present day sporty-type cars, and although a trifle wide for any but the most ample of posteriors, they do quite a nice job of supporting and locating the occupants. One of our number complained that the seatback was too upright; others thought it was just right. Similarly, there was a difference of opinion regarding the position of the steering wheel: one staffer held that the wheel was too close; the rest of us considered the "reach" perfect. We did note that the front seats were tilted slightly toward the car centerline, but this may be a deliberate ploy on the part of Pontiac's designers to bring our young people closer together.

It is very comforting to look at an instrument panel and actually see instruments. We think that the well-known, oft-seen Idiot Light is for idiots, and appreciated the implied flattery of real dials. The GTO has, in addition to the expected speedometer (round, and very easy to read), honest-injun water-temperature and oil-pressure gauges. Not strictly necessary, but nice, was a big "Rally" clock, which has, with the usual pointers, a 24-hour dial and a red sweep second hand.

Perhaps it would have been better for all concerned if the space occupied by the clock (just to the speedometer's right) had been given to the tachometer. The tach is mounted inside a shroud out on the hood, some distance from the driver. The instrument face is small and poorly illuminated, and while driving the car at night we felt like a utility company field worker checking a water-meter from the far end of a cellar.

Visibility forward and to the sides is very good, but, as noted on our check list, a look back over one's shoulder reveals little more than the car's interior. The back window is rather small, and there is more sheet metal than glass around the rear quarter. Of course, it can be argued fairly convincingly that there is little chance of anyone sneaking up behind the GTO.

Interior appointments were neat and tasteful, and of uniformly excellent quality, with Haddon-padding all around the instrument panel and up the forward window posts. In our test car, all inside paneling and upholstery was done in a black vinyl,

(Text continued on page 84; Specifications overleaf)



## PONTIAC GTO 428/ROYAL BOBCAT

**Manufacturer:** Royal Pontiac  
400 North Main Street  
Royal Oak, Michigan

**Number of dealers in U.S.:** 1

**Vehicle type:** Front-engine, rear-wheel-drive,  
4/5-passenger sports sedan, all-  
steel body and chassis

**Price as tested:** \$5,099.00

(Manufacturer's suggested retail price, including all options listed below, Federal excise tax, dealer preparation and delivery charges; does not include state and local taxes, license or freight charges)

**Options on test car:** Ram Air Package (\$77.00), Turbo HydraMatic transmission (\$237.00), H/D-Safe-T-Track 3.55:1 rear axle (\$63.00), AM/FM stereo radio (\$239.00), rear window defroster (\$28.00), retractable headlight covers (\$53.00), hood-mounted tachometer (\$63.00), Rally II wheels (\$84.00), Sport steering wheel (\$31.00), console (\$68.00), rally gauges incl. clock (\$51.00), power steering (\$95.00), power brakes (\$42.00), tilt steering wheel (\$42.00), disc brakes (\$63.00), tinted glass (\$35.00), H/D suspension package (\$4.00), trunk and engine compartment lights (\$6.00), 428 cu in engine installation and Royal Bobcat modification (\$650.00, exchange), delivery charge (\$75.00).

### ENGINE

Type: Water-cooled V-8, cast iron block and head, 5 main bearings  
Bore x stroke: 4.12 x 4.00 in, 104.7 x 101.7 mm  
Displacement: 428 cu in, 7015cc  
Compression ratio: 10.75 to one  
Carburetion: 1 x 4-bbl Rochester AVS Valve gear, Pushrod-operated overhead valves, hydraulic lifters  
Power (SAE): 390 bhp @ 5200 rpm  
Torque (SAE): 465 lbs/ft @ 3400 rpm  
Specific power output: 0.91 bhp/cu in, 55.5 bhp/liter  
Max. recommended engine speed: 5500 rpm

### DRIVE TRAIN

Transmission: 3-speed automatic  
Max. torque converter ratio: 2.3 to one  
Final drive ratio: 3.55 to one

Gear	Ratio	Mph/1000 rpm	Max. test speed
I	2.48	8.6	47 mph (5500 rpm)
II	1.48	14.4	79 mph (5500 rpm)
III	1.00	21.3	111 mph (5200 rpm)

### DIMENSIONS AND CAPACITIES

Wheelbase: 112.0 in  
Track: F: 60.0 in, R: 60.0 in  
Length: 200.7 in  
Width: 74.8 in  
Height: 52.2 in  
Ground clearance: 5.3 in  
Curb weight: 3784 lbs  
Test weight: 4111 lbs  
Weight distribution, F/R: 57.0/43.0%  
Lbs/bhp (test weight): 10.5  
Battery capacity: 12 volts, 61 amp/hr  
Alternator capacity: 444 watts  
Fuel capacity: 21.5 gal  
Oil capacity: 6.0 qts  
Water capacity: 17.8 qts

### SUSPENSION

F: Ind., unequal-length wishbones, coil springs, anti-sway bar  
R: Rigid axle, upper and lower trailing arms, coil springs

### STEERING

Type: Power-assisted, recirculating ball  
Turns lock-to-lock: 4.3  
Turning circle: 41.5 ft

### BRAKES

F: 11.1-in vented discs  
R: 9.5 x 2.5-in cast iron drums  
Swept area: 323.6 sq in

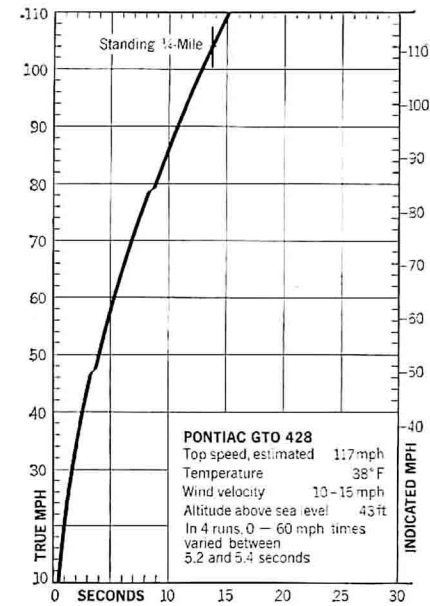
### WHEELS AND TIRES

Wheel size and type: 6.0 x 14-in, stamped steel wheel, 5-bolt  
Tire make, size and type: UniRoyal Fastrak G77-14, 2-ply rayon, tubeless  
Test inflation pressures: F: 24 psi, R: 28 psi  
Tire load rating: 1380 lbs per tire @ 24 psi

### PERFORMANCE

Zero to	Seconds
30 mph	1.6
40 mph	2.5
50 mph	4.0
60 mph	5.2
70 mph	6.7
80 mph	8.9
90 mph	10.8
100 mph	12.9

Standing 1/4-mile: 13.8 sec @ 104 mph  
80-0 mph panic stop: 300 ft (0.71 G)  
Fuel mileage: 10-13 mpg on premium fuel  
Cruising range: 215-297 mi



## CHECK LIST

### ENGINE

Starting: Good  
Response: Excellent  
Vibration: Good  
Noise: Fair

### DRIVE TRAIN

Shift linkage: Excellent  
Shift smoothness: Good  
Drive train noise: Good

### STEERING

Effort: Excellent  
Response: Excellent  
Road feel: Good  
Kickback: Very Good

### SUSPENSION

Ride comfort: Good  
Roll resistance: Very Good  
Pitch control: Very Good  
Harshness control: Fair

### HANDLING

Directional control: Very Good  
Predictability: Very Good  
Evasive maneuverability: Very Good  
Resistance to sidewinds: Very Good

### BRAKES

Pedal pressure: Very Good  
Response: Good  
Fade resistance: Poor  
Directional stability: Poor

### CONTROLS

Wheel position: Very Good  
Pedal position: Very Good  
Gearshift position: Very Good  
Relationship: Very Good  
Small controls: Good

### INTERIOR

Ease of entry/exit: Very Good  
Noise level (cruising): Good  
Front seating comfort: Good  
Front leg room: Very Good  
Front head room: Good  
Front hip/shoulder room: Very Good  
Rear seating comfort: Good  
Rear leg room: Poor  
Rear head room: Fair  
Rear hip/shoulder room: Good  
Instrument comprehensiveness: Very Good  
Instrument legibility: Good

### VISION

Forward: Very Good  
Front quarter: Good  
Side: Excellent  
Rear quarter: Fair  
Rear: Fair

### WEATHER PROTECTION

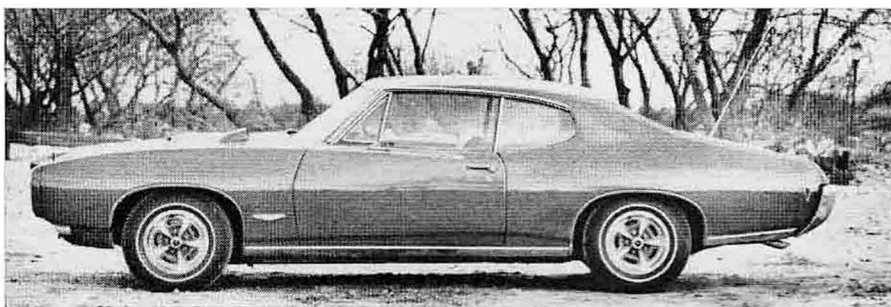
Heater/defroster: Excellent  
Ventilation: Excellent  
Air conditioner: —  
Weather sealing: Very Good

### CONSTRUCTION QUALITY

Sheet metal: Excellent  
Paint: Very Good  
Chrome: Very Good  
Upholstery: Very Good  
Padding: Good  
Hardware: Very Good

### GENERAL

Headlight illumination: Excellent  
Parking and signal lights: Excellent  
Wiper effectiveness: Excellent  
Service accessibility: Good  
Trunk space: Good  
Interior storage space: Very Good  
Bumper protection: Very Good



## PROJECT CAR: PONTIAC GTO 428

(Continued from page 26)

and this, combined with the relatively limited window area, gave the feeling that one did not quite so much sit in the car as lurk there.

The GTO's exterior is even better finished than its interior. The paint is deeply lustrous and the chrome (applied in moderation. Allah be praised) sparkles. As Detroit products go, it is a moderately small car, and by any standard, immoderately good looking. Nice swoopy lines and very clean. Some of the clean appearance undoubtedly stems from the lack of a separate and disruptive front bumper. The long pointy nose on these cars has always been vulnerable, so the people at Pontiac have simply made the whole front of the body bashproof. The bodywork nosepiece is a heavy plastic molding, thick enough to accept the consequences of other's inept parking techniques without any damage. Unfortunately, this nosepiece could not be considered a perfect fit on our test car, and we understand that Pontiac has been having serious difficulties with the mass-production of these plastic bumpers. We hope they work out the snags; it's a terrific idea, and one that deserves to succeed. If the production problems are solved, the styling implications are far reaching.

No car weighing two tons is ever exactly agile, but the GTO most definitely can be herded along in fine, slashing style if the driver knows his craft and is willing to work at it. The suspension is soft, in terms of spring-rate, but wheel movements are exceptionally well controlled by the shocks; so while the GTO may lean a bit it never lurches or wallows. Up to the limit imposed by tire adhesion (high), the GTO will go where it is aimed, with just enough understeer to make it stable in crosswinds and to help keep the occasional utter nit

on the road and out of serious difficulties.

Judged on the same scale as handling, the GTO's brakes come through a poor second. We have not yet found a disc front/drum rear braking system that worked really well, and the GTO more or less added just another piece to the pattern. Several quick stops from moderately high speeds went as follows: with the first stop, a pronounced tendency for the rear wheels to lock and an inclination for the car to yaw all over the road; subsequent stops went better, because the rear brakes faded rapidly and gave the whole system a better balance. However, it was evident through all this that the front disc brakes were beginning to fade, too, and the pedal-pressure requirement was going higher—even with the power-assist.

More leisurely stops were not much more satisfactory, because of the uneven action of the whole system. The control modulation was rather poor: grabby at first touch; then easing and asking for a tad more foot pressure. All of this was the more unfortunate because other aspects of roadworthiness were uniformly at such a high level.

In driving our GTO down the expressway, we noted that at 60 mph there were a couple of sounds louder than the clock's ticking. Most prominent of these was the exhaust burble, which sounded a lot like King Kong gargling in a cave, and had a certain visceral charm. There was also some drive-train whine, and both this and the exhaust were more noticeable at 60 mph because of the 3.55:1 axle ratio—not usually standard with the GTO's Ram Air package, but then Ram Air does not usually come with a 428 engine, which is not usually available in the GTO. Wherever that leaves us . . .

And wherever that leaves us the Royal

428-engined GTO leaves everything else far behind. Royal refers to their custom GTO as the "Bobcat" and they pop a little sticker on the door to inform the world of that fact. We would disagree with their choice of names: with the 428 engine, the GTO is not a bobcat at all—it is a great, rooting, grunting intimidating boar hog of a car. Hide sleek and bulging with muscles. Tusks barely hidden, patently ready, even eager, to take matters into its own hands (hooves?) and send passers-by scurrying up the nearest tree.

Our 428 GTO was a fine, exciting car for either fast touring or tootling around in traffic. Not overly fussy. Not difficult to drive—up to a point. And that point could be reached and exceeded in a flash with a casual downward movement of the right foot. In the hands of an inexperienced or irresponsible driver the 428 GTO would be as dangerous as a basket of hair-trigger hand grenades. Too much throttle at the wrong time will spin the car, or send it rocketing off the road and into the farmer's field. You can light up the car's tires like it was an AA-fueler anytime the notion seizes your fancy, and it is now a matter of record that the 428 GTO needs only a 13-second burst to hit 100 mph—and perhaps one or more of one's fellows on the road. In a car of less effective stability and general roadability, the performance would be downright lethal.

It is true, of course, that there are cars around that will edge the 428 GTO at the drag strip. But these tend to be funny-cars, giving away much in smoothness to get the performance and requiring a certain deftness before they give their best. The 428 GTO will rumble along like a leashed tiger even for granny—but if granny puts her foot down she's in for the ride of her life. The GTO delivers everything on demand and no expertise asked; only expertise required. ●

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