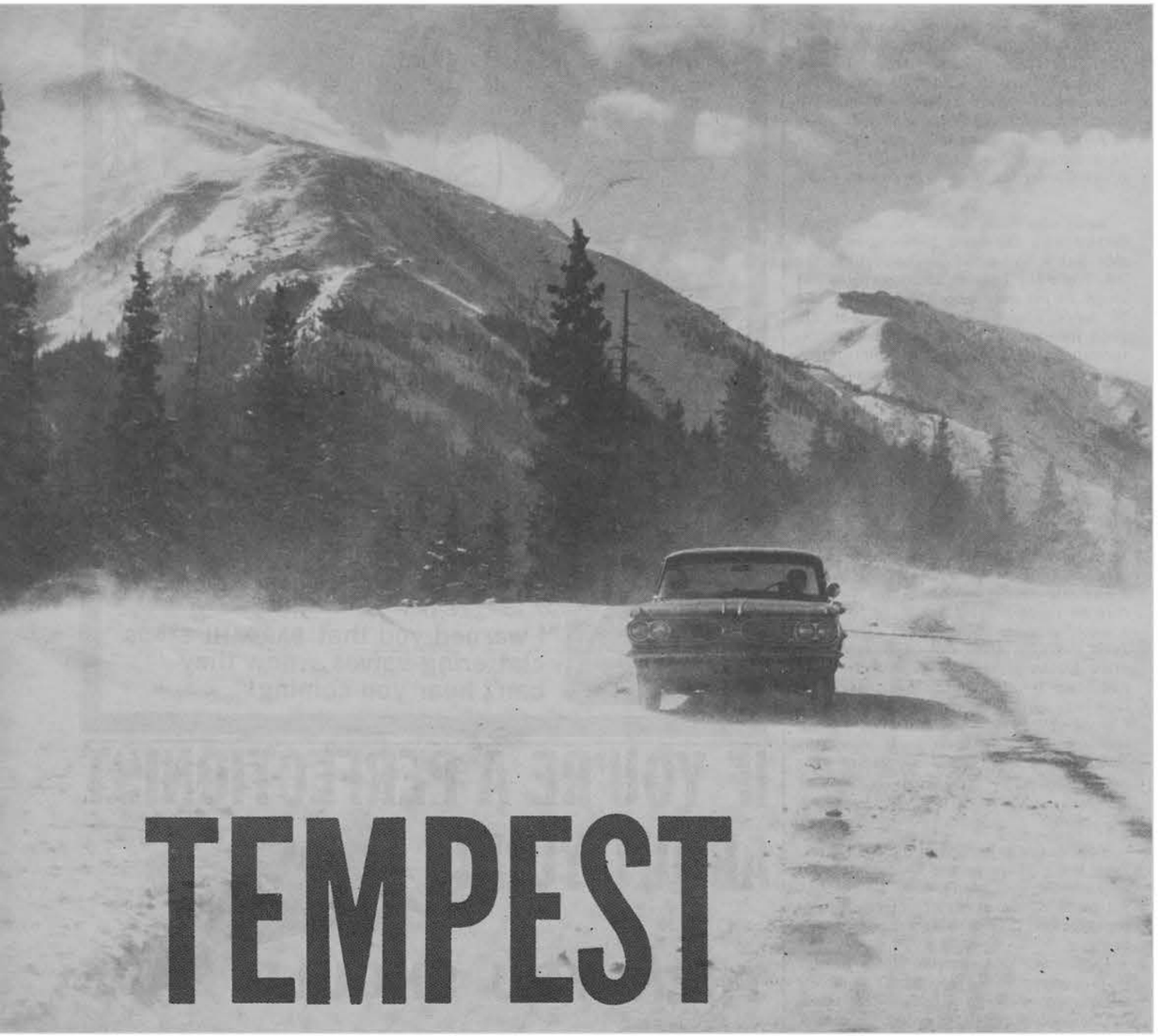


All-Weather Cross-Country Road Test

Snow-covered passes of the Rockies, Death Valley's desert wastes offered extreme tests for Tempest's stamina

by Chuck Nerpel, Technical Editor

OUR PONTIAC TEMPEST test car slid sideways across the icy, snow-covered highway under the pressure of 50 to 60-mph crosswinds. Falling snow (and that drifted by high winds) limited visibility to 50 feet as the predicted blizzard swept out of the northwest and through Utah's 8500-foot Strawberry Pass, east of Heber. Flag-topped snow stakes along this, the last mountain section of our cross-country Pontiac Tempest reliability run, marked the extreme edges of Route 40 for the snowplows that would have to clear the highway after the storm had vented its full fury.

Frequent checks of the Taylor thermometer clipped outside our right windwing indicated temperatures of 10 above zero, just about what they had been since we drove the Tempest out of the factory garage and into the crisp, clear noon air of Pontiac, Mich. just five days before. Our inside thermometer, taped to the leading edge of the cowl, was showing a comfortable 75° with the heater control half open as we threaded our way in low gear.

Without chains or snow tires, we were able to maintain good forward traction on the slick surface, thanks to swing axles and the added weight of Tempest's rear-mounted transmission. The previous day's run over snow covered. 11,307-foot Berthoud Pass, west of Denver, provided a good test of negotiating icy surfaces, but without the howling blizzard and winds that threatened to skate the car completely off the road into heavy snow drifts that filled the ditches.

We encountered severe head- and crosswinds throughout most of the trip. At the start, heading south from Pontiac to Cincinnati, strong headwinds had the effect of a heavy hand pushing against the front grille, but when a curve in the highway brought winds quartering or fully across our direction of travel, we noticed the Tempest was not adversely affected by crosswinds.

The traction surface on this leg was excellent, with light snow flurries from early evening until we reached our destination at night, but winds and low temperatures kept the white stuff from sticking or wetting the roads.

Pontiac Tempest

continued

Total distance traveled first day: 324.3 miles. Total elapsed time including lunch and gas stops: 6 hrs., 40 mins. Average speed: 51.2 mph. Gas mileage: 19.7 mpg.

(At our request, the Pontiac factory had put 500 miles of break-in driving on our test car, tuned it and then changed the oil. The four-cylinder engine had the power kit option with four-barrel carburetor and 10.25:1 compression ratio, and we were using premium fuel. Transmission was a two-speed automatic.)

Cincinnati, a very hilly city, was our first stop, and the snow flurries that had been following us south from central Ohio blossomed into full-scale sleet and snowstorm shortly after our arrival. This was just the weather we were looking for, not knowing at the time we would have plenty more snow before our trek was two-thirds over.

Parking outdoors overnight coated the Tempest with a snow-topped layer of ice, a made-to-order cold chamber.

With the temperature at 15° above zero, we flicked the snow off front and rear windows, fired up the engine, and happy with the quick start, proceeded to defrost the windshield with internal heat from the heater defrosting ducts. Also, the factory had thoughtfully put de-icing fluid into the windshield washer tank. Everything worked. Within three minutes after starting a dead cold engine, the windshield was clear, and inside car temperature was 65°. Fellow motorists, armed with ice scrapers and a vocabulary hot enough to melt the windshield glass, were still chopping.

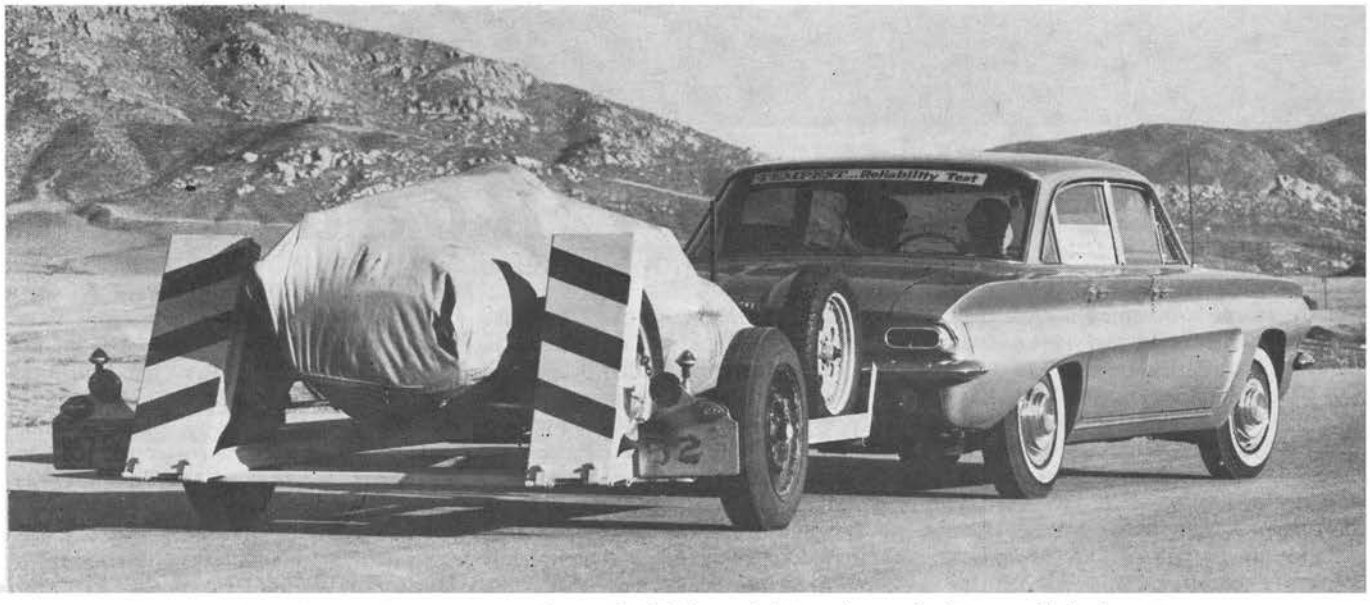
By noon the weather had warmed to just about the freezing point, enough to convert the snow and ice into a slush that froze again as soon as it splashed under fenders and body panels. The car dropped off big, dirty hunks of slush when they become large enough to break loose. Driving conditions and traffic were hazardous, to say the least, but we were able to maintain good control, the brakes worked well, and the stock 5.60 x 15 Firestone tires were sticking to the irregular pavement.

As we headed northwest from Cincinnati, toward Indianapolis to pick up Highway 40, a light but not freezing rain began to fall. Traction was good and Route 52 was its usual narrow, winding ribbon of tar-patched blacktop. It provided a wonderful chance to explore some of the handling characteristics of Tempest's rear suspension.

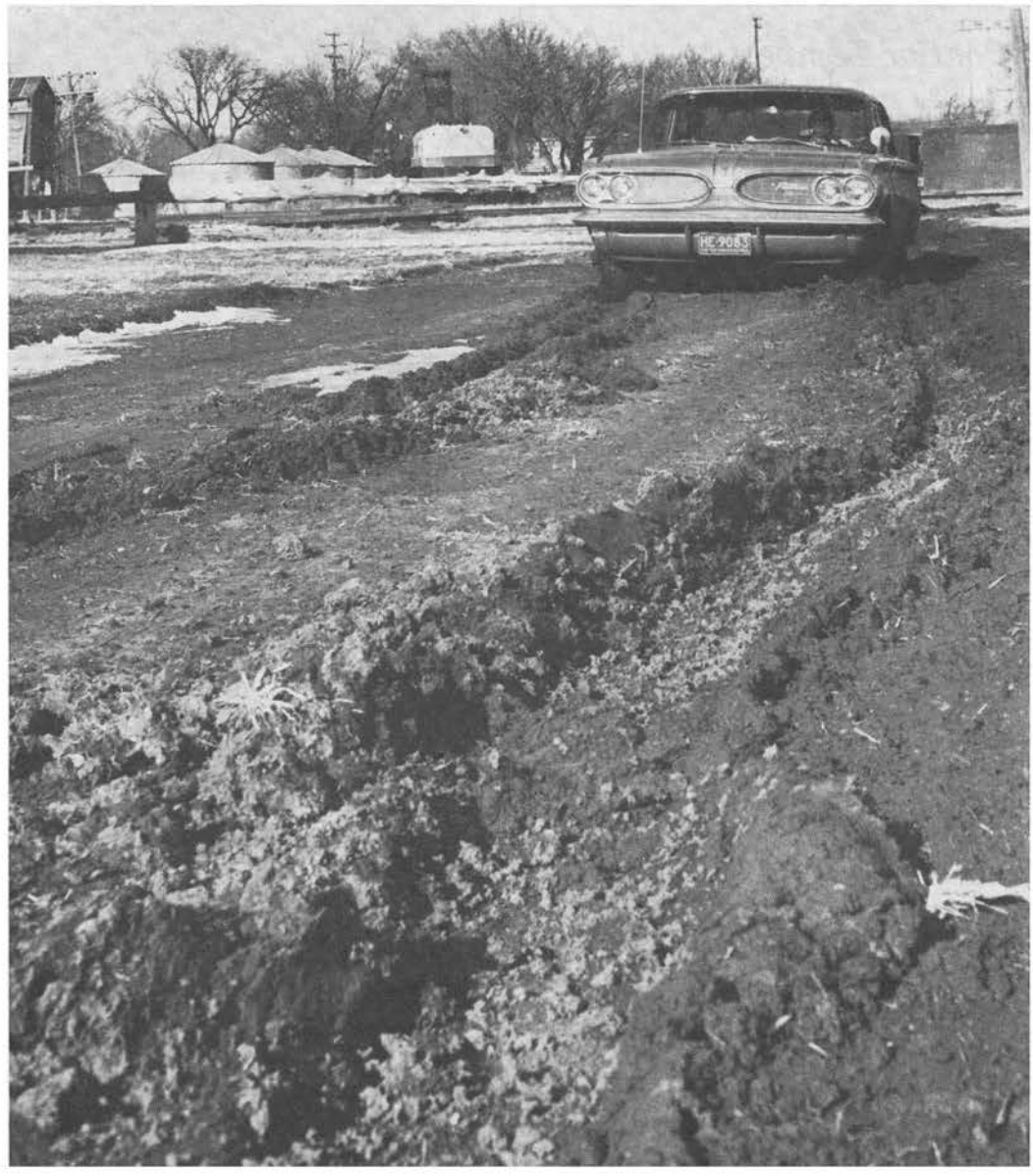
With driver and co-driver, and carrying 140 pounds of luggage and cameras, most of it in the rear trunk, we were running the recommended tire pressures of 22 pounds all around. The only power accessory on our test car — the steering — was light, quick and positive. Sharp curves, especially those that came up suddenly, took a while to master because we had a tendency to go into them with too much steering. Long sweeping curves, even at high speed, did not produce an oversteer condition when the weight shift occurred. One thing we have known for a long time: few cars oversteer radically but most drivers do, and the Tempest is sensitive to oversteering drivers.

The weather cleared shortly after picking up Route 40 in Indianapolis. It was a crisp 30° and windy all the way through Terre Haute, St. Louis, and to the end of the day's run at Concordia,

Wide-open spaces, winding roads, and jolting dips in the Death Valley area made an ideal proving ground for the Tempest's handling, speed and shock absorber control.



Independent rear suspension can be overloaded beyond designed capacity. Tempest had adequate power to tow 1240-pound trailer, but some leveling control is needed to maintain proper camber.



Axle-deep in Kansas mud, the Tempest pulled through rutted wagon tracks. Added rear end heaviness of the transaxle unit improves the driving wheel traction.

The brakes worked well after tour through mixture of mud, water and melted snow near Old Abilene, Kan.

Kan. Total distance traveled: 567.7 miles. Elapsed time including fuel, and picture taking stops: 11 hrs., 30 mins. Average speed: 49.3 mph. Gas mileage: 19.8 mpg.

Our outside thermometer registered 10° above zero as we started the Tempest for the day's run from Concordia, Kan. through Kansas City and Topeka, into Abilene, where we tried the test car in the deep, black, gooey mud of some of the dirt roads in this area. Then we crossed the Kansas plains to the first sizeable town across the Kansas-Colorado border, Cheyenne Wells. This day's run was a combination of very high-speed driving on a section of the Kansas Turnpike, slow rush hour traffic through major cities, and 65 to 75-mph cruising along windswept roads across the flat, level Kansas plains.

Nearing the Colorado border, the road climbs gradually to the highest point in Kansas, Sharon Springs, ele-

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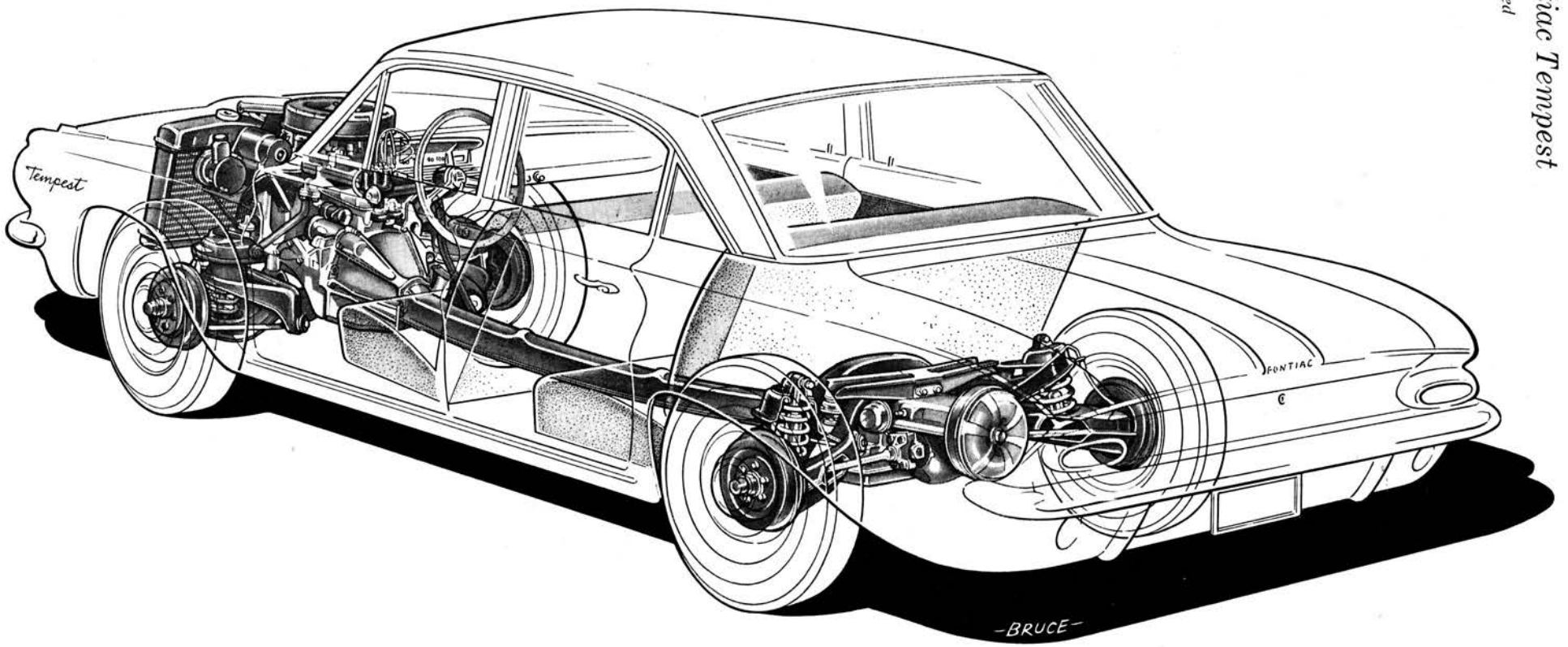


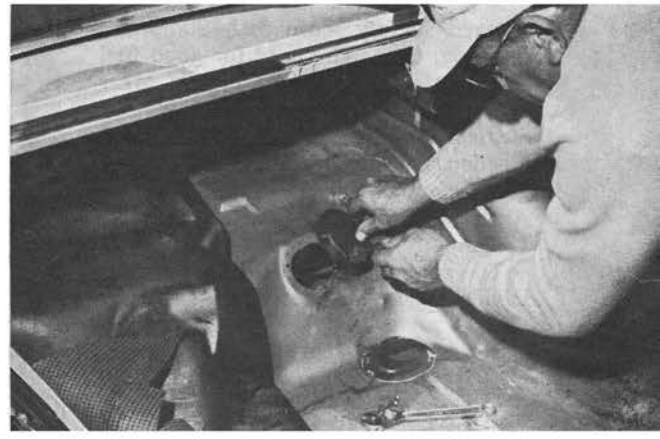
Big-bore four-cylinder engine is exceptionally smooth and free from the vibration usually associated with in-line fours. Curved, pre-loaded driveshaft, mounted to center body tunnel with rubber-cushioned bearings, absorbs the engine firing impulses and reduces drive-line noise because it uses no universal joints. Transaxle includes either manual or automatic transmission. The differential is rubber-mounted to integral body/frame. Independent rear suspension has swing axles, angled control arms, coil springs. Automatic transmission, shown in this cutaway, has a torque converter which is located behind the transaxle unit.

vation 4136 feet. We made many stops on this day's run besides those for gas and food. As we said, off-pavement drives had us looking for conditions that a car owner in this area might encounter every day. Slush, mud and water were our targets and we found them. The Abilene, Kan., area has – without a doubt – the gooiest, blackest mud we have ever seen. Axle-deep in the stuff, and ankle-deep while taking pictures, we were able to get through on traction and horsepower, never once calling on four-legged horse or mule power to solve our problems. Total distance traveled: 542.3 miles. Total elapsed time: 11 hrs., 55 mins. Average speed: 48.2 mph. Gas mileage: 17.1 mpg.

The weather was a clear, cold 15° above zero as we pulled out of Cheyenne Wells, Colo., for the mile-high city of Denver, on what was to be the shortest day's run of the test trip. Since we were well ahead of the 400-miles-per-day minimum schedule we had set as a driving pattern, extra time in Denver would provide an opportunity to check fuel mileage and performance at altitudes over 5000 feet with standard, near-sea-level engine adjustments.

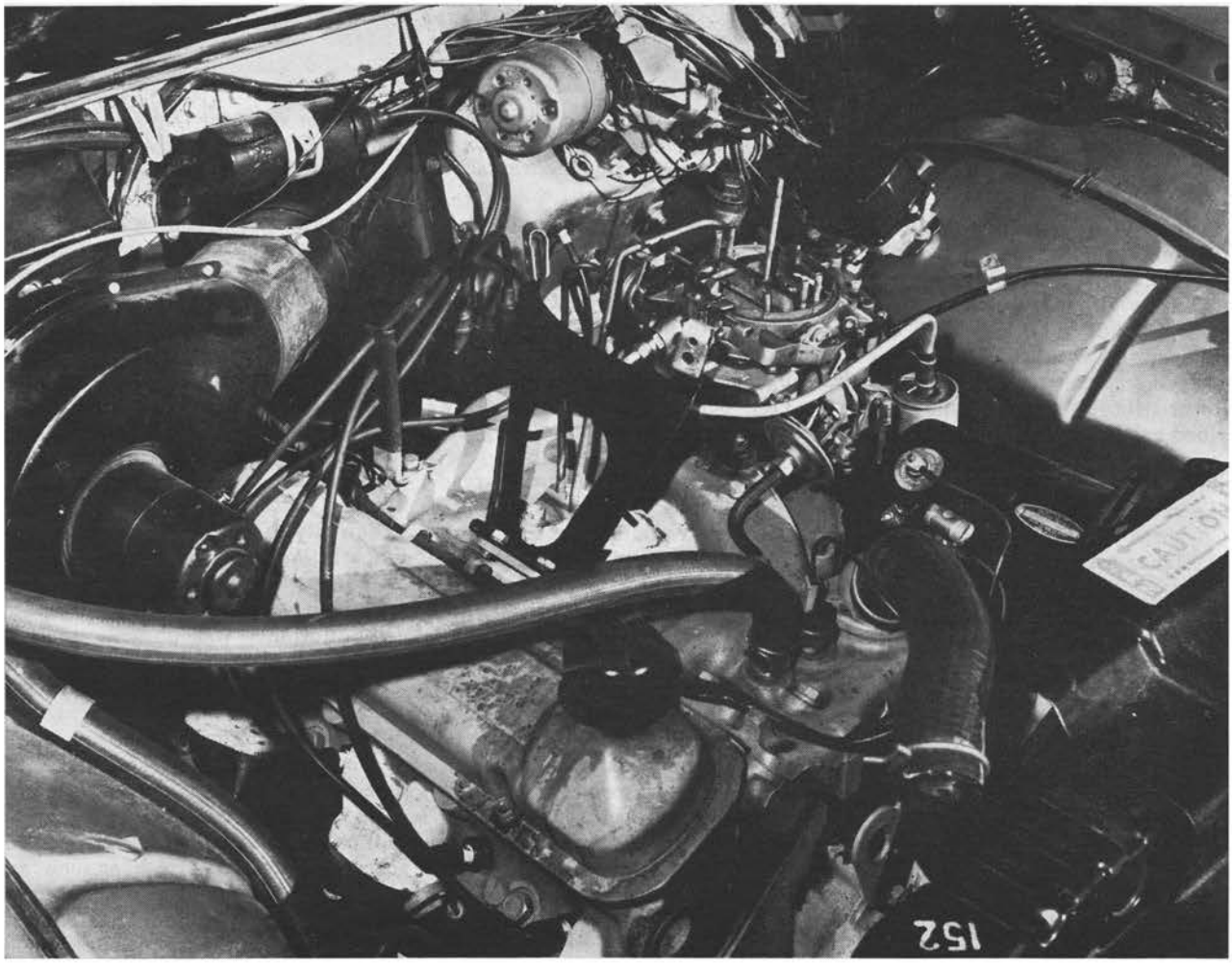
The short leg from Cheyenne Wells, climbing all of the way at or near full throttle, produced the lowest gas mileage of the entire trip and was almost exactly that logged driving around weekend traffic in the city of Denver. Performance was cut slightly and was most noticeable in the increased distances required for passing other cars in high gear. At slower speeds, when the engine lugged to just above down-shift speed, the four-banger showed its excellent torque characteristics. Slight pressure on the throttle to cause a downshift produced the expected acceleration, even at Denver's altitude. Town mileage under these conditions: 15.6 mpg. Total distance traveled: 183 miles. Elapsed time: 3 hrs., 10 mins. Average speed: 57.9 mph. Gas mileage: 15.7 mpg.

Compared with the heights of peaks and passes that surround it, Denver – "the mile-high city" – is not really high at all. As we headed west on Route 40, our Taylor auto altimeter indicated 11,307 feet over Berthoud Pass, which is really up in the air. Snow-covered roads, fairly heavy traffic of ski enthusiasts, brilliant sunshine, and a comfortable 34° temperature, plus the high



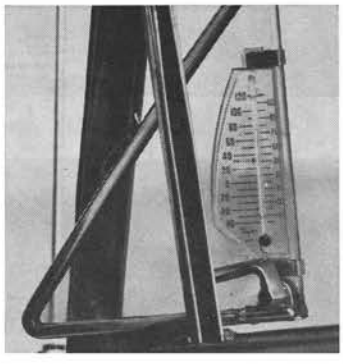
Spare tire, rear trunk mat and cover plate must be removed for access to transmission dipstick.

Four-cylinder engine, one bank of a conventional V-8, has optional power kit which includes special high-compression pistons, free-flow intake manifold and four-barrel carburetor (shown here without air cleaner).



altitude, gave us a good test of handling, traction and fuel economy over this section. Without chains or snow tires, we were able to negotiate the stop-and-go traffic on snow-covered roads, driving in low gear most of the time. We made many stops to sight-see and photograph. There was also the natural time-barrier of traffic, and all these factors combined to consume the better part of the daylight hours while we covered slightly more than 200 miles to Craig, Colo. The need for good fuel economy is indicated in certain areas of the Rockies, as premium fuel in Steamboat Springs, Colo., is 40.5 cents a gallon. Distance traveled: 228.6 miles. Total elapsed time: 7 hrs., 40 mins. Average speed: 29.8 mph. Gas mileage: 17.2 mpg.

The road west from the Continental Divide is not all downhill. Traveling toward Provo, Utah, where we would turn south on Route 91, we came to 8500-foot Strawberry Pass. Booming along at a steady 70 mph, we could see heavy storm clouds that indicated a sudden change in weather. We kept climbing steadily. Soon the light snow flurries turned into a blizzard, and as we described earlier, we had our hands full for a good two hours before coming out into the clear weather at Heber, Utah. The rest of the day's run into Cedar City was flat-out dry highway driving. Distance traveled: 533.9 miles. Elapsed time: 10 hrs., 30 mins. Average speed: 50.8 mph. Gas mileage: 19.1 mpg.



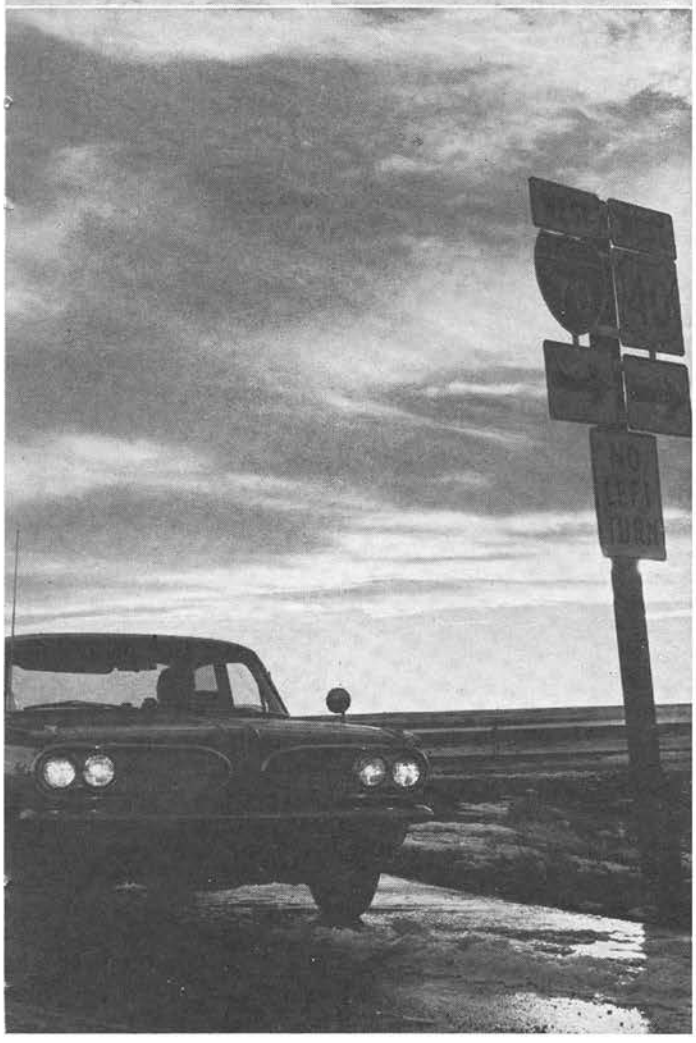
Instrumentation included Taylor outside thermometer on windwing (left), inside thermometer taped to cowl, combination altimeter and barometer, and compass. Other test aids were Dixson electric tachometer, Bowmonk G-meter dynometer.

Out of the snow country and heading toward Death Valley via Las Vegas, the roads were dry and the weather clear and warm. On these winding stretches we again tried various handling tricks, including a change in rear tire pressure. As we said, recommended pressure is 22 pounds all around. This seemed a little soft to us for the rear tires because they had a tendency to roll a bit more than we liked under hard cornering. Each gas stop we pumped an additional five pounds pressure into the rear tires, and each stretch of winding road thereafter we noticed better rear end handling characteristics. We got up to 45 pounds pressure in the rear, and while the car had a harder ride over some of the rough stuff, handling was the best ever. Our personal choice would be higher-than-recommended rear tire pressures for better handling.

Camber angles of the Tempest's rear wheels with swing axle suspension are subject to wide variation, depending on the load carried. Rear-engined cars or front-engined, swing axle vehicles with small rear luggage compartments are not easily overloaded at the rear, but conventional cars with relatively large rear luggage and passenger space can be easily loaded beyond the designed capacity. It is the tendency of most of us to overload our cars anyway, and if swing axle rear suspension becomes popular (and we are sure it will) then Detroit manufacturers can dust off the air leveling devices they abandoned as options several years ago.

At sea level and below in Death Valley, the Tempest was running under near-perfect jetting and spark advance. Acceleration was noticeably better than at high altitudes, and on a long deserted stretch we indicated 106 mph on the speedometer (corrected true speed, 98 mph). One three-hour drive between fuel stops netted 20.5 mpg at an average speed of 64 mph. Included in this stretch was a series of dips that can lift some cars right off the ground, but we experienced no such effect, nor did the Tempest bottom. Distance traveled from Cedar City to Los Angeles: 606.7 miles Elapsed time 12 hours. Average speed: 50.5 mph. Gas mileage: 19.4 mpg.

Not many years ago a cross-country drive in winter was termed successful if you arrived at your destination without trouble. Today's motorist demands more than that. Comfort, speed, handling and fuel economy are equal parts of dependability. A week-long, 3000-mile junket is nothing with today's highways and cars. We not only arrived in Los Angeles with our Tempest on schedule, but were fresh enough and enthusiastic enough to turn right around and head back to Pontiac, Mich., with no more preparation than an oil change. •



PONTIAC TEMPEST

4-door, 6-passenger sedan

OPTIONS ON CAR TESTED: Engine power kit, automatic transmission, power steering, radio, heater, tinted glass

ODOMETER READING AT START OF TEST: 3900 miles

PERFORMANCE

Acceleration (2 aboard)

0-30 mph	5.5 secs.
0-45 mph	9.5
0-60 mph	16.6

Standing start ¼-mile 20.4 secs. and 66 mph

Speeds in gears (2-speed automatic transmission)

Low ..... 45 mph @ 4600 rpm

Speedometer error on test car

Car's speedometer reading	33	48	64	75	88
Weston electric speedometer	30	45	60	70	80

Miles per hour per 1000 rpm in top gear (Tires 6.00 x 15) ..... 18.7 mph

Stopping distances — from 30 mph, 45 ft.
from 60 mph, 182 ft.

SPECIFICATIONS FROM MANUFACTURER

Engine

In-line 4, ohv
Bore: 4.06 ins. Stroke: 3.75 ins
Displacement: 194.5 cubic inches
Horsepower: 155 @ 4800 rpm
Compression ratio: 10.25:1
Ignition: 12-volt battery/coil

Gearbox

Rear mounted, 2-speed split torque converter, incorporated with rear axle

Driveshaft

Bowed and held under tension by rubber-mounted bearings inside center body/frame tube

Differential

Hypoid transaxle includes transmission

Wheels and Tires

Pressed steel 15-inch disc wheels
6.00 x 15 tubeless tires

Suspension

Front: Independent, upper and lower control arms, ball joints, coil springs
Rear: Independent, swing axles with angled control arms, coil springs

Brakes

Drum type, molded linings
Front and rear: 9-inch diameter, 108.9 sq. ins. effective area

Body and Frame

Integral all steel with bolted-on front and rear crossmembers and suspension assemblies
Wheelbase 112 ins.
Track: front 56.8 ins., rear 56.8 ins.
Overall length 189.3 ins.
Dry weight 2970 lbs.

WINTER WEATHER ALONG NORTHERN SECTION OF CONTINENTAL DIVIDE PROVIDED PERFECT CONDITIONS FOR TEMPEST RELIABILITY TESTS.