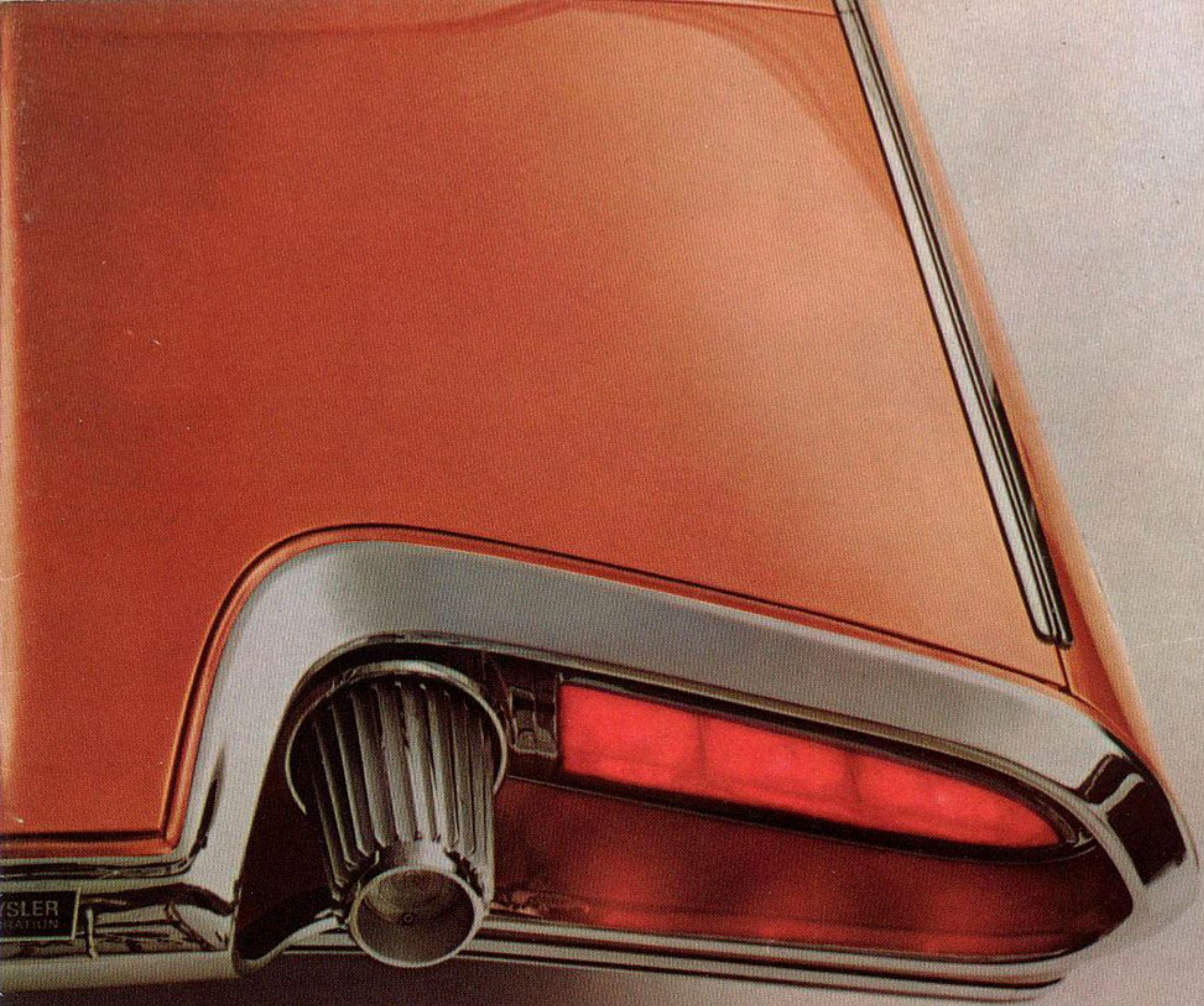


The Chrysler Corporation Turbine Car

The Story Behind the Car

This is the story of a principle, a promise, a challenge, and an engine.

The principle is the basic simplicity of a turbine engine as a source of power.

The promise is its great potential as the power plant in an automobile.

The challenge is the long list of seemingly insurmountable problems which Chrysler scientists and engineers had to solve.

The engine, and the Chrysler Corporation Turbine Car it powers, attest to their success.

The turbine principle of power is one of the oldest in the world. The windmill was one of the earliest turbines–driven by the air around it, turning the grinding mill attached to it.

A turbine engine is more sophisticated, of course, and it must make its own wind. It does this by drawing in the air through a compressor, heating the air to form a hot rushing gas, then directing the gas against turbine wheels. The spinning turbines transmit power through drive shafts to the vehicle itself as well as to all accessories.

Because the turbine engine has a minimum of working parts, very little vibration or friction, it inherently will have extremely long lasting major components.

Chrysler Corporation had long been intrigued by the possibilities of such an engine to power an automobile. Chrysler's development of an aircraft gas turbine engine confirmed many of the advantages which they felt were inherent in a turbine engine. But, while this was encouraging, there were still many radically different considerations to be faced in designing an automotive gas turbine engine.

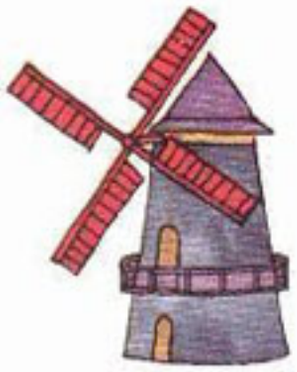
An automotive gas turbine engine–to be functional–had to be made from low-cost readily available materials, by mass production techniques.

It had to be light in weight, compact. It had to have a cool exhaust, a low noise level, prompt response at all speeds. It had to provide "engine braking", have low fuel consumption.

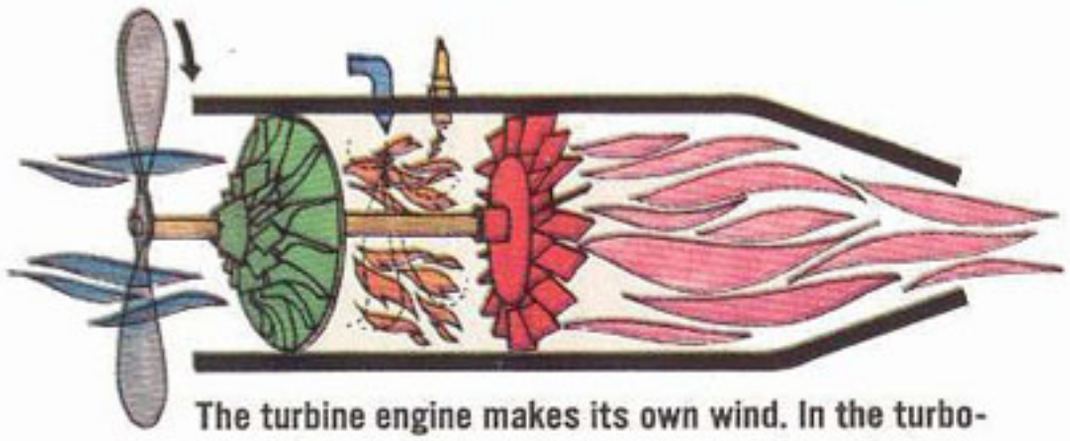
It had to compete with a piston engine that had been refined to its present high efficiency over a 75-year period.

Chrysler Corporation, in 10 years of intense development, has brought the turbine along to the point where it rates serious consideration as an automotive power plant.

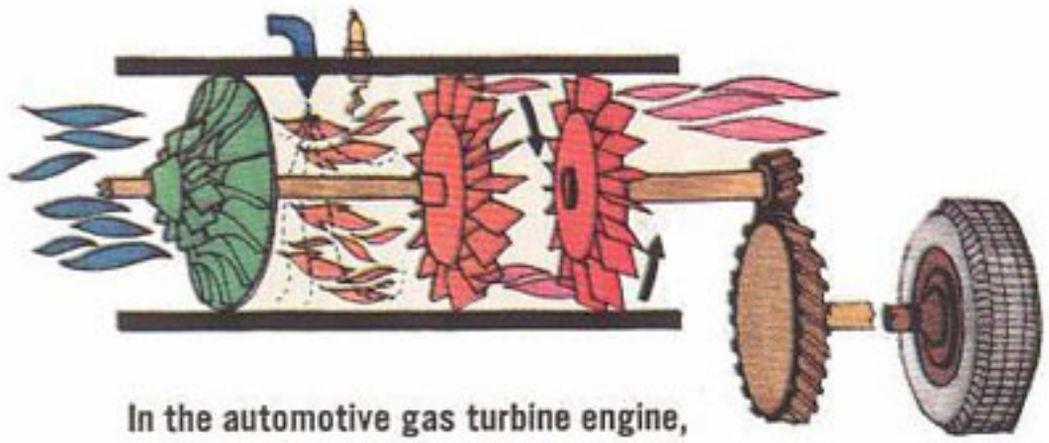
Along the way, three different experimental engines were designed and exhaustively



The windmill is one of the earliest turbines.



The turbine engine makes its own wind. In the turbo-prop aircraft engine, the compressor (green) draws in cool air which combines with fuel to produce a hot, rapidly expanding gas – the "wind". This gas turns the turbine wheel (red) – the "windmill" – turning the propeller and compressor. The hot exhaust gases, escaping from rear, provide jet thrust.



In the automotive gas turbine engine, there are two stages: 1st turbine drives the compressor; 2nd turbine drives the wheels.

tested in laboratory and on the road – in standard Plymouths and such cars as the Turbo Fury and the Turbo Dart.

Chrysler research engineers developed an efficient regenerator system to cool off the exhaust, and at the same time, decrease fuel consumption.

They perfected a variable nozzle mechanism to provide engine braking, speed up acceleration, and improve fuel economy.

Perhaps most amazing of all, Chrysler Corporation metallurgists—working with plentiful, non-strategic materials – created a number of new, low-cost alloys, possessing the high strength and heat resistance found previously only in the most costly and exotic materials used in jet aircraft engines and other critical production.

And so today, we present The Chrysler Corporation Turbine Car powered by the "fourth generation" Chrysler gas turbine engine.

It will be the mission of the Chrysler Corporation Turbine Car to determine how car owners like driving a turbine powered car. To accomplish this, 50 turbine cars will be delivered to typical motorists. Each car will be assigned to four successive users at no

charge to them, for a period up to three months each. Thus, a total of 200 motorists, from all over the country, with backgrounds reflecting a cross-section of the nation's car buyers, will participate in this consumer test of turbine power.

Their reactions, coupled with continuing research, will play a vital role in determining the feasibility of the automotive gas turbine car and help to direct its future course.

Powering Chrysler Corporation's Turbine Car is a twin-regenerator gas turbine engine.

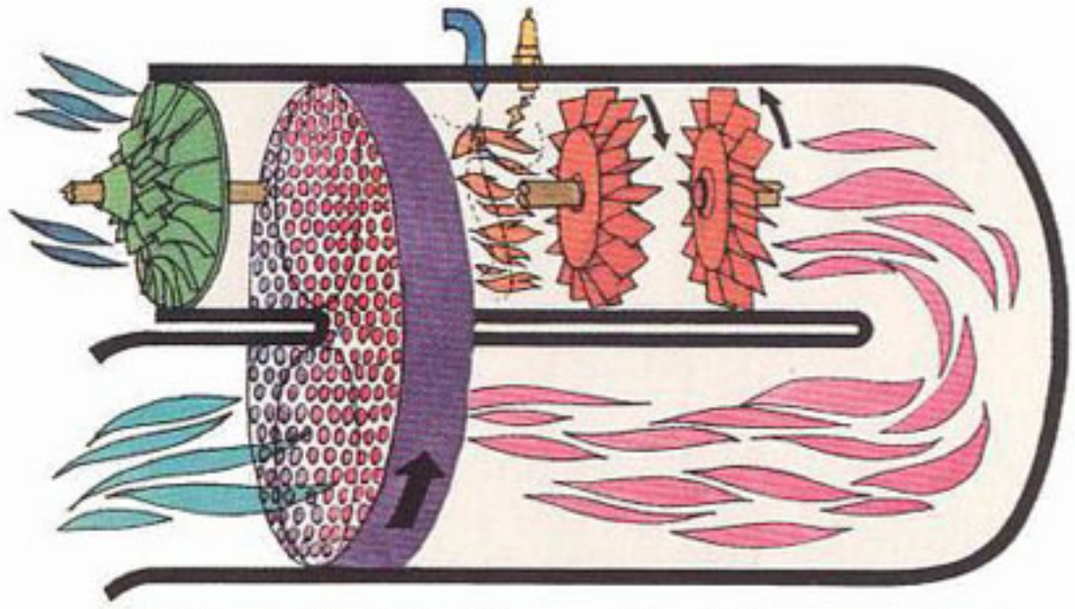
It is coupled to a modified TorqueFlite 3-speed automatic transmission without torque converter. It develops 130 horsepower, equivalent in performance to a 200 hp V-8 engine installed in the same vehicle, and is, on that basis about one-half the weight.

It has only a fifth of the moving parts. It is smoother, quieter, more vibration-free, with little friction.

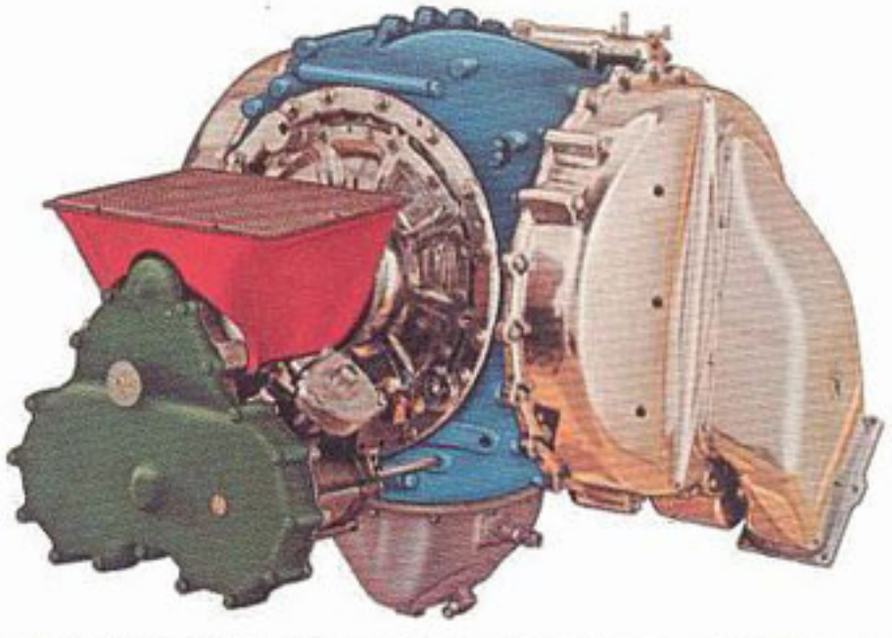
It requires less maintenance. No conventional tune-ups. Only negligible oil consumption. Its exhaust is cooler, cleaner than a conventional engine's.

It starts up immediately, even in sub-zero temperatures. No warm-up period is needed.

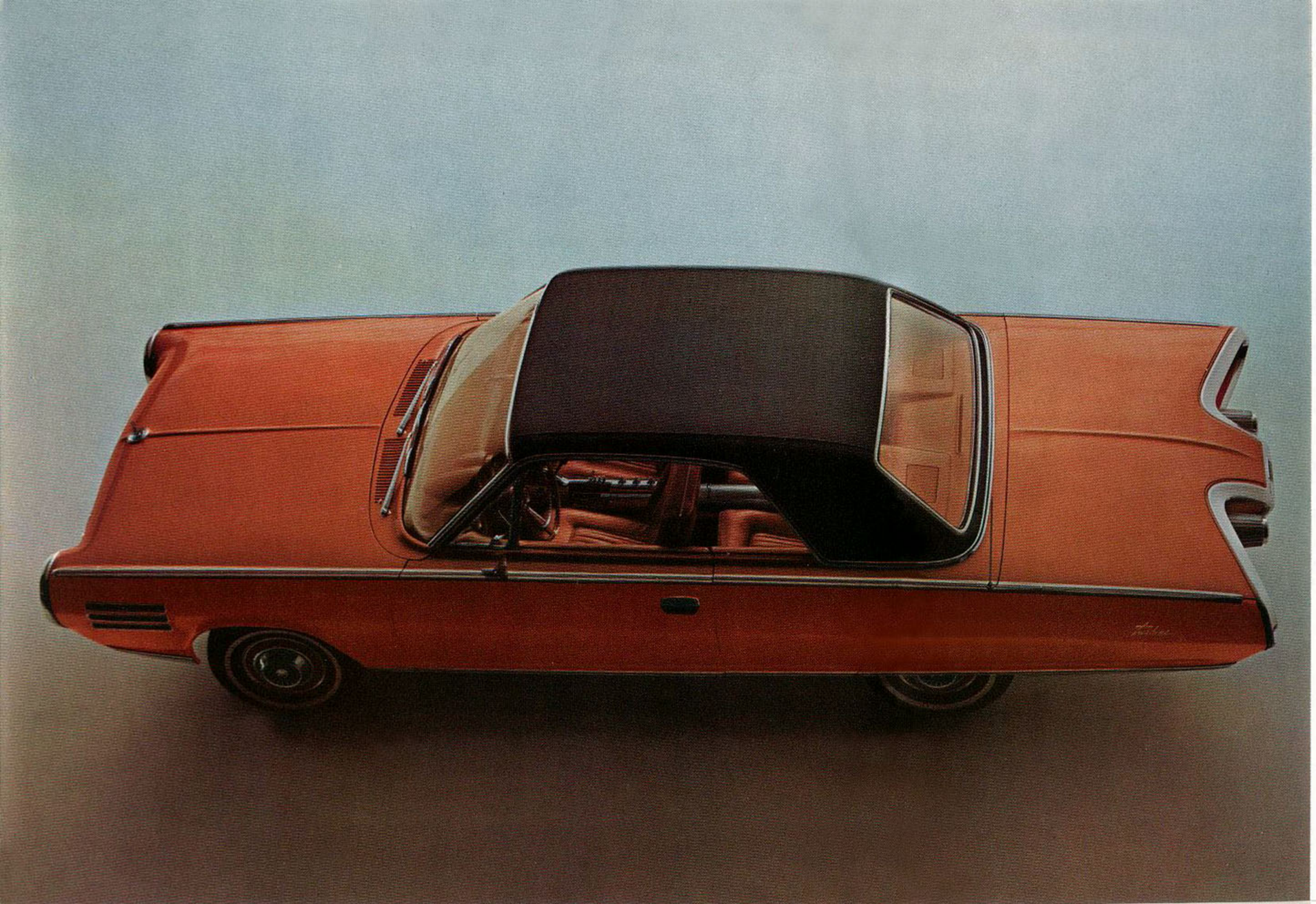
There is no radiator. No need for water



This diagram illustrates the operation of the regenerator in the Chrysler Corporation turbine engine. As regenerator disc (purple) revolves, it passes in path of exhaust gases, absorbing heat from these gases, and cooling them to a safe level. Continuing on its cycle, the regenerator passes through cool air coming from compressor on way to combustion chamber. Regenerator gives up its heat to this air, pre-heating it to temperatures close to operating level.



This is the twin-regenerative automotive gas turbine engine that powers the Chrysler Corporation Turbine Car.



or anti-freeze. The engine is self-cooled.

The engine provides braking action comparable to a piston engine with automatic transmission.

In every respect, this engine will function as well or better than a conventional piston engine of comparable performance.

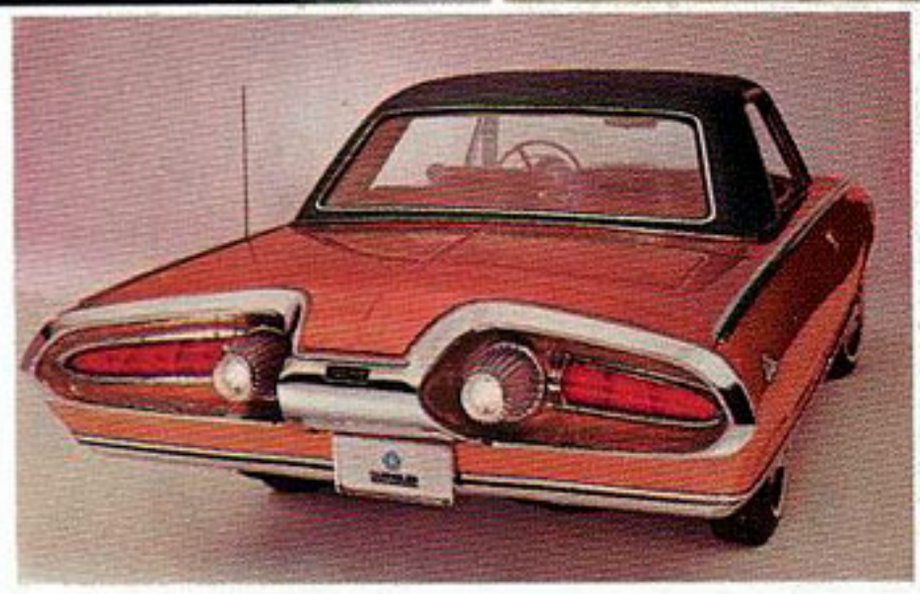
The engine will not stall even under excessive load conditions. It has exciting response, excellent acceleration, maximum torque at breakaway.

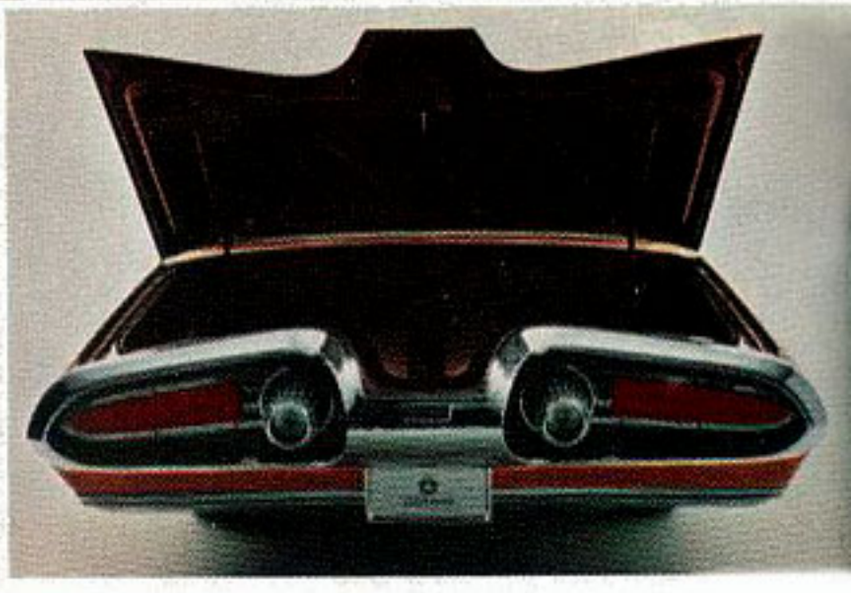
There are no pistons, no valve gear, a single spark plug for igniting the fuel in the combustion chamber.

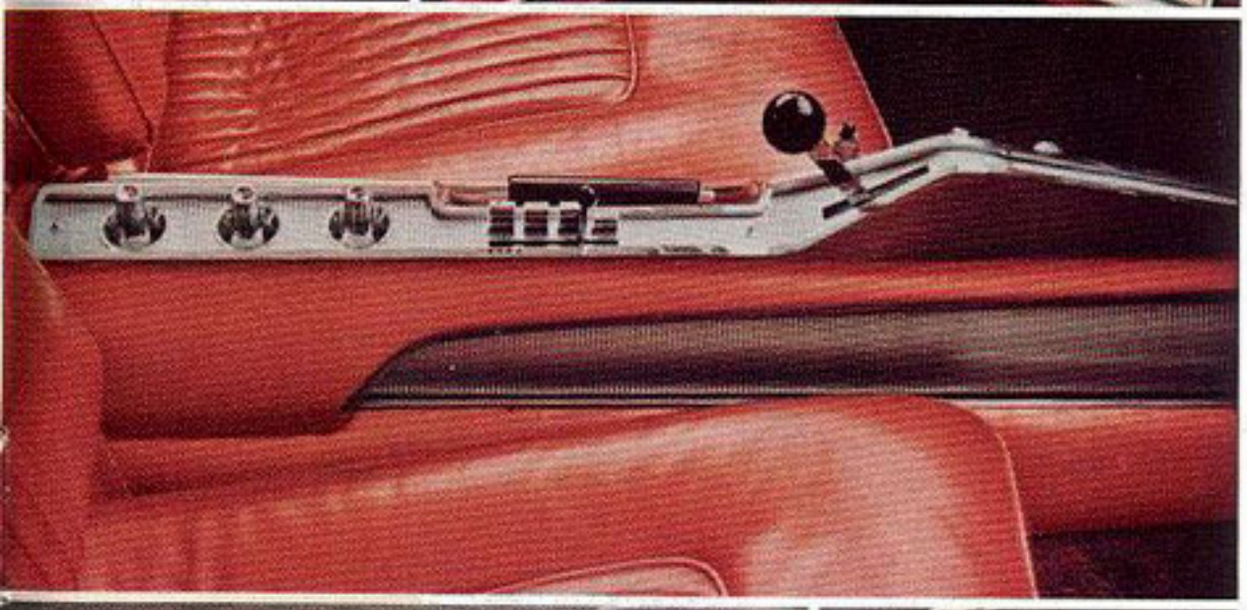
Its fuel economy is comparable to that of a piston engine, but it operates on a wide variety of fuels, including white gas, diesel oil, kerosene, JP-4 aircraft turbine engine fuel, or any mixture of them.

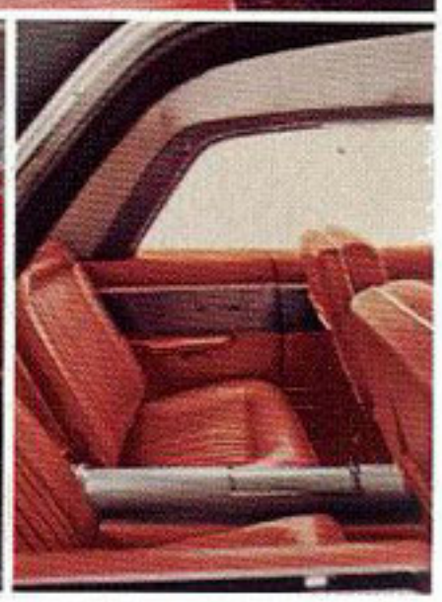
The Chrysler Corporation Turbine Car has been styled as a car of today, rather than as a futuristic "dream" car. Yet it is appropriately distinctive in its role as the vehicle for the turbine engine.

It is luxuriously elegant, hand-crafted by Ghia of Italy. A four-passenger two-door hardtop, it has an unusual metallic bronze color with contrasting black vinyl top.









A dramatic "swept back" rear accents the smooth flowing, sculptured lines of the car.

Turbine symbolism is evident throughout. In the ribbed tubes which house the back-up lights, in the dominant tubular headlamp shape, in the bladed wheel covers and special tire design. And in the steering wheel.

Inside, the turbine motif continues. An aluminum tubular console extends from front to rear between the seats. The seats themselves are bucket type, deep and covered with copper-colored leather. There is full leather trim throughout, accented by bright stainless steel. On the floor there is deep pile carpeting of the same rich copper color.

What will it be like to drive the Chrysler Corporation Turbine Car?

There will be a marked lack of engine vibration, a smoother acceleration, a tremendous amount of power at low speed.

Otherwise, driving the car will be much like driving a piston-engine car with automatic transmission.

The controls are similar. One difference is "Idle" instead of "Neutral" on the modified TorqueFlite transmission. There is an accelerator pedal, a brake pedal. You operate them both in the normal manner. The car

has power steering, power brakes.

There are two new dials on the instrument panel. One, the tachometer, is familiar to most sportscar drivers (although this tachometer registers revolutions per minute far above those on a sportscar tach). The other is a turbine inlet temperature gauge to report the temperature at the first stage turbine wheel.

The starting procedure is actually simpler than for a piston engine. Just turn the key. All functions are carried out automatically. The car starts up easily even in extreme cold. Once started, the gas cycle reaches full operating temperature almost immediately so that the car can be driven at maximum power without warm-up.

The engine is unusually responsive at all speeds—on curves, hills, straightaways.

But, perhaps, most noticeable of all, is the sound of the engine. It is a smooth, pleasant sound—the soft sound of rushing air.

Listen for it. The exciting new sound of the Chrysler Corporation Turbine Car.

Litho in U.S.A.