Jet powered cars – a fascinating history (so far!)

Published: January 29, 2016

Author: Dave Moss

Online version: https://www.wheels-alive.co.uk/jet-powered-cars-a-fascinating-history-so-far/



Retired and forgotten old lady – now 66 – by Dave Moss

Time to reflect on a story which began in 1941, when the Rover Company received a wartime invitation to help make the experimental jet engines dreamed up by inventor Frank Whittle production-ready. Despite lacking experience in the field, Rover dutifully began work at sites in the midlands and northern England, but friction between the parties involved saw the entire project amicably handed to Rolls-Royce in 1943. In exchange, Rover gained their contract to build Merlin tank engines.

Those two years of development effort must have provided food for thought, for, after the war, the company started work on scaling down gas turbine engines to suit cars. The project

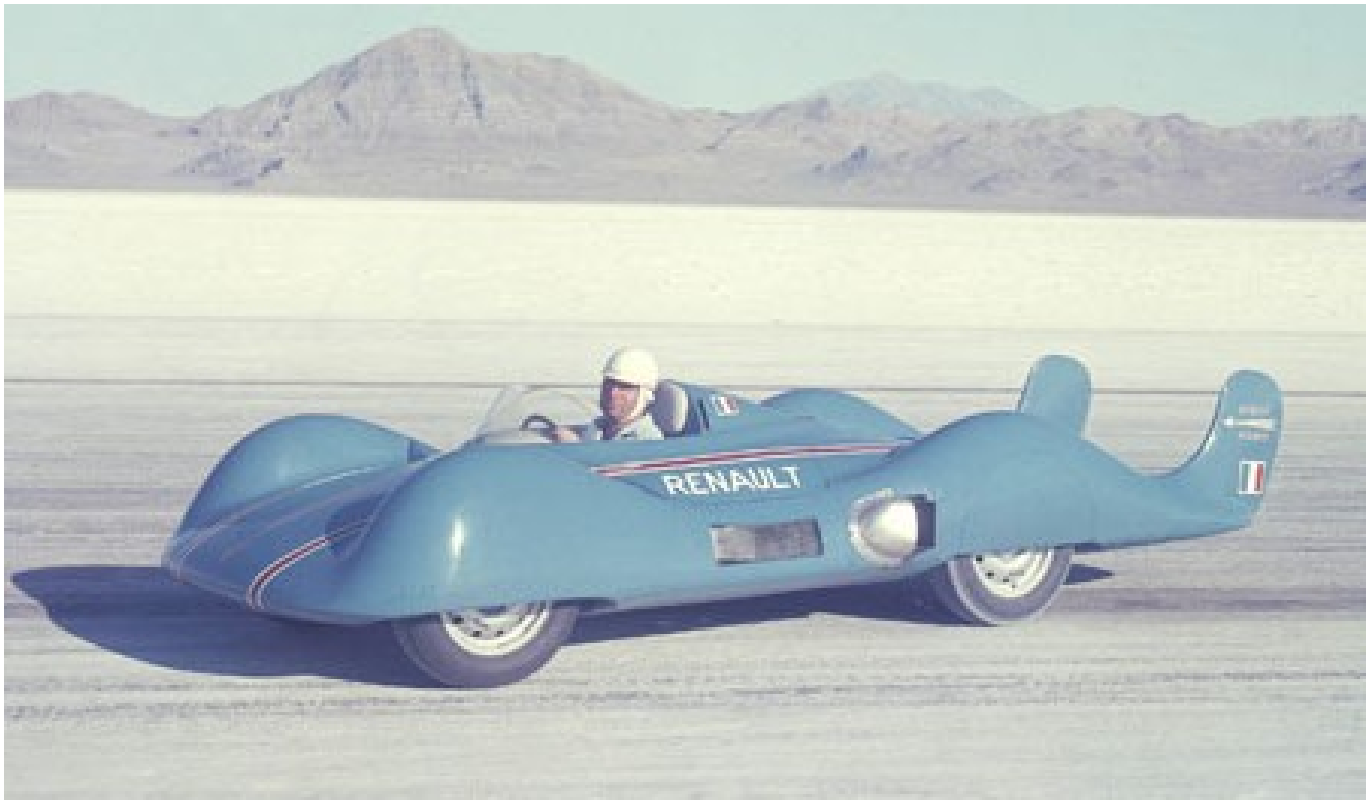
began late in 1945, and despite post-war specialised material shortages, Rover's first turbine engine ran in 1947. At least one unit was tested in a marine installation, but by 1949, a prototype car was under construction, using a much modified version of the recently introduced P4 saloon, later to become famous as "Auntie." The prototype followed its basic style, but had two-door, open-top bodywork and a mid-mounted gas turbine: it was fittingly registered "JET 1" for road use.

On March 9th 1950, this, the world's first driveable gas turbine car, was presented to a slightly incredulous press, which hailed it as the 'future of motoring.' Rover cautioned that "…it could be four or five years before production vehicles reach the public.." Afterwards, behind the scenes, work to develop a practical road-going power unit began, leading to a moment of glory on June 26th 1952, when, on the Jabekke highway between Ostend and Brussels, JET 1 achieved a world record speed for its type, reaching 151.96 mph. Prototypes T2 and T3 followed… but doubts were already surfacing.

By 1952 several other makers were investigating turbines for road vehicle use. As JET 1 made headlines, testing was beginning in Seattle in a joint US project between the Kenworth corporation and Boeing – involving a gas turbine powered 10 ton truck. Its engine offered 175 horsepower, weighed much less than the equivalent diesel – and occupied just 13% of its engine space. The project was abandoned through poor performance and heavy fuel consumption – though a handful of Boeing engines later went into American-La France fire tenders. Around the same time in Europe, a truck chassis with a Turbomeca turbine was exhibited by French military vehicle maker Laffly. Production numbers are unknown.

Several prototype turbine-powered cars surfaced after JET 1. A stylish one-off designed by French engineer Jean-Albert Gregoire was unveiled in 1952 as the SOCEMA Gregoire turbine coupé, though it seems never to have been publicly demonstrated in working order. The handsome, rear engined Fiat Turbina was then also under development: it ran on the famous rooftop test track at Fiat's Lingotto factory on April 10th 1954. Public demonstrations followed later that month at Turin airport, making Fiat the second manufacturer worldwide to demonstrate a running gas turbine car.

The experimental Renault ‘Etoile filante’ (shooting star) emerged early in 1956, and took to Bonneville salt flats on September 5th, where its 270hp Turbomeca turbine produced speeds of 306.9 km/h over a kilometre, and 308.85 km/h over 5 kilometres. This easily beat JET1’s 1952 record, and set various other turbine car records in the process. Most still stand today.



Though not seen by the public, General Motors claimed its futuristic Firebird XP-21 turbine-powered concept car first ran in Autumn 1953; two more wildly-styled show cars followed in 1956 and 1958, GM maintaining throughout they were feasibility studies, not production prototypes. Chrysler displayed their first turbine-engined car in New York in April 1954, with public demonstrations on June 16th: the company later launched the only real-world gas-turbine car evaluation programme to date, when 50 fully engineered prototypes were loaned for three months each to 200 selected drivers.



Back home, Austin was running a gas turbine Princess saloon in 1954, allegedly with a top speed around 70 mph – and fuel consumption under 5 mpg. Though tested extensively, the high point of its career was a place in the Austin Golden Jubilee cavalcade on July 9th 1955, after which it faded into obscurity. It did though spawn the successful '250' series of gas turbine powered generators and pumping units which were a little-known part of Austin's output from 1961. Also in the 1960s, some experimental turbine powered 404 series trucks (with the 'threepenny bit' cab) were built.

Rover's gas turbines gained the upper hand after the BLMC merger, with commercial versions sold into the 1970's, but the final roadgoing prototype car was the 1961 T4. This used the P6 Rover 2000 bodyshell, which entered volume production with a frontal structure designed in hopeful – but unfulfilled – anticipation of eventually accommodating a gas turbine unit. With further development the T4's engine was put to useful effect in the 1963 and 1965 Le Mans Rover-BRM race car… and that was that. Attention turned to two bigger but ultimately stillborn projects – the Leyland gas turbine truck, and, later, British Rail's experimental Advanced Passenger Train. Both still survive, as do most prototype gas

turbine cars – many of which still run.

Gas turbines proved ideal for aircraft, and have fulfilled many primary power source requirements… but 1950s research proved the concept wasn't easily adaptable to directly power roadgoing motor cars. Poor fuel consumption, high emissions, indifferent low speed pull and slow throttle response were inherent and intractable problems – but above all, back then, car-sized units were just too expensive to build. Familiar piston engines had drawbacks, but avoided those big issues – and were far cheaper to manufacture.

Now, it seems, turbine cars are stirring again, for the hybrid Jaguar C-X75 jointly developed in 2010 used micro gas turbines to power its range-extending battery technology. Like its predecessors the car was promising yet stillborn, but it raises an intriguing question: is a new chapter about to open in a story that's been gathering cobwebs for fifty years?

This slideshow requires JavaScript.

(Note: This article first appeared, in a slightly different form, in March 2015 on the website of the Western Group of Motoring Writers.)

References/Bibliography

Rover's JET 1 car is today in the Science museum collection (please see photograph above). The entry is here:

http://www.makingthemodernworld.org.uk/icons_of_invention/technology/1939-1968/IC.061/

The SOCEMA Gregoire is preserved at the Le Mans museum:

http://www.lemusee24h.com/

There are some interesting archive papers on this site, including original articles and releases from 1950 on Rover's JET 1 car:

http://www.rover.org.nz/pages/jet/jet.htm

There is information on the Renault Etoile filante here:

http://en.renaultclassic.com/the-renault-car-collection/democratization-of-the-motor-car/renault-etoile-filante/

…and more here:
http://group.renault.com/en/news/blog-renault/renault-etoile-filante-fastest-car-in-the-world/

The story of Fiat's Turbina is told here by Karl Ludvigsen:

http://www.hemmings.com/hsx/stories/2006/01/01/hmn_feature29.html

The story of the General Motors Firebird concepts/show cars is here:

https://www.gmheritagecenter.com/gm-vehicle-collection/1958_Firebird_III.html

https://www.gmheritagecenter.com/gm-vehicle-collection/1956_Firebird_II.html

https://www.gmheritagecenter.com/gm-vehicle-collection/1953_Firebird_I.html

Much of interest about the Chrysler gas turbine cars story is here:

http://www.turbinecar.com/turbine.html

There's also this book…

Chrysler’s Turbine Car: The Rise and Fall of Detroit’s Coolest Creation

Author: Steve Lehto. Publisher: Zephyr Press (16 Nov. 2010)

ISBN-13: 978-1569765494

An overview of the Austin Princess gas turbine prototype is here:

http://www.austinmemories.com/page19/page19.html

Commercial Motor magazine reported in some detail in 1968 that the Leyland Gas turbine truck would be on sale in 1970:

http://archive.commercialmotor.com/article/20th-september-1968/84/leylands-400-bhp-turbine-truck-for-production-in-1

This site has details of the background and the technicalities of the British Rail Advanced Passenger train – experimental:

www.apt-e.org

Some background to the Jaguar C-X75 concept can be found here:

http://www.jaguar.co.uk/about-jaguar/concept-cars/cx75.html

http://www.bladonjets.com/news/potential-for-bladon-jets-micro-gas-turbine-range-extenders/

http://newsroom.jaguarlandrover.com/en-in/jaguar/news/2013/06/jag_c-x75_film_release_270613/?t=c-x75&ct=NewsArticles&rs=5&fr=11&allCounts=False&locus=2