



## Coanda Effect – Avro Car

The late 1940s and 1950s were halcyon days for UFO sightings in North America. The Roswell Incident occurred in 1947, heralding the belief that we were being visited – or even stalked – by alien beings. There were six reported sightings in Ontario alone between 1951 and 1957, many of which were classified as hoaxes. In 1959 a flying saucer flew around the Malton Airport in Toronto. It was observed by hundreds of people, photographed extensively, and its flight was even captured as a quality movie. Was it a hoax? No, The Malton flying saucer wasn't from outer space. It was designed and built right there at the A. V. Roe Aircraft Limited (AVRO) company.

Avro Car UFO



In his research, AVRO's Chief Designer, John Frost, had discovered an application of something called the "Coanda Effect". To learn more on the go to this site [The Coanda Effect](#). Frost's application of the Coanda Effect suggested that a powerful ground cushion could be created by a circulating fan and, in conjunction with horizontal engines, could provide the basis for a vehicle that could have both have VTOL (vertical take-off and landing) capabilities and could still run as an aircraft. AVRO and the Canadian government provided the first funding for Frost's work in 1952- 1953. Frost joined his innovative design into a disc shape, a saucer shape, which had been chosen as the most efficient aerodynamic shape and to simplify structural requirements for a circular hovering platform. The flying saucer was officially designated the VZ-9AV but was generally called the "AvroCar".



John Frost Avro Car

By late 1953, the project was costing upwards of \$400,000 to the Canadian government and, in their infinite wisdom, they pulled the plug on the project.

Frost, not wanting to give up his ideas turned to the US to fund the development. In 1955, the U.S. Air Force invested some \$1.9 million to allow Frost and AVRO, which also sunk \$2.5 million of their own money, to continue the work. In 1958 the first prototype was built for wind tunnel testing. In 1959 the second prototype took to the air, with AVRO pilot "Spud" Potoki at the controls, at Malton.

Avro Car Prototype



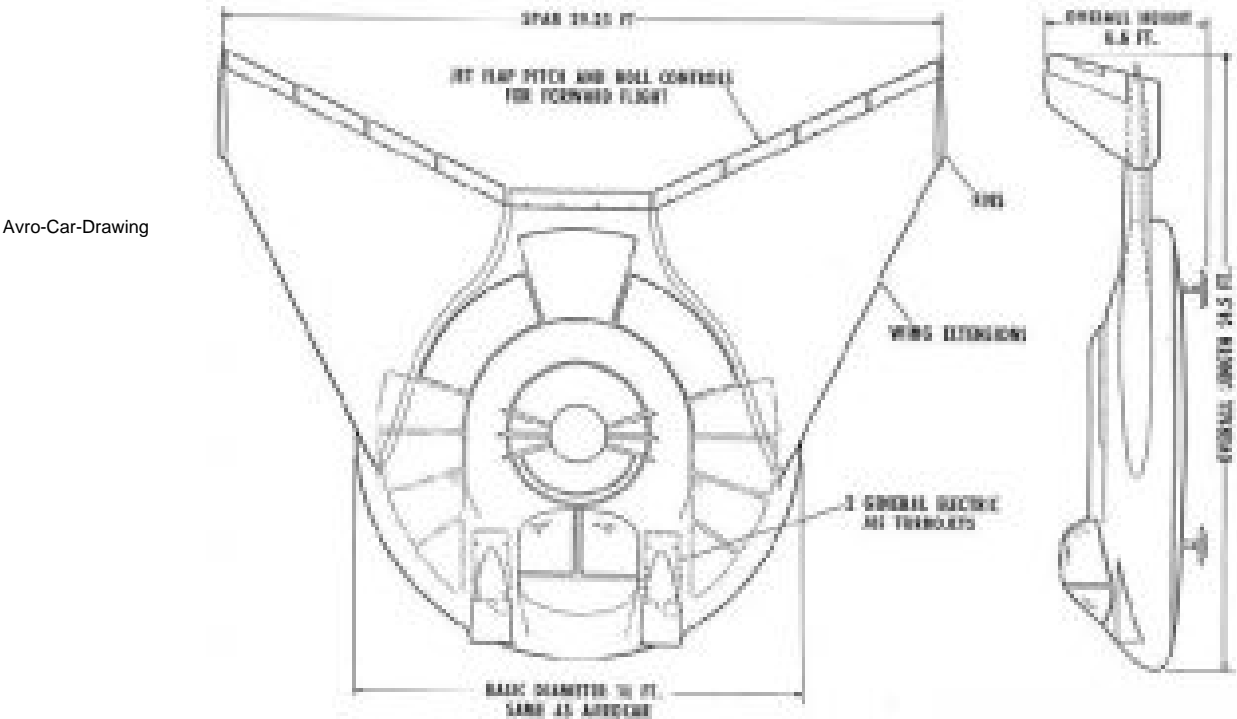
After several more flights and wind tunnel tests, the U.S. Air Force decided to end its funding of the project in 1961. They stated that their decision was based on the experiences of poor lateral stability with the Avro Car.

AVRO knew how to fix the problems but they were strapped for cash. Seems that a certain Canadian Government had killed funding on more than just the AvroCar. They had also killed the CF-105, the AVRO ARROW, a project that resulted in massive losses of money and talent at the company.

The Company scraped up enough cash to redesign the Avro Car. They used a pair of J-85 turbojets, a larger turborotor, for improved performance, and a wing/tailet configuration that they married to the central disc platform. These changes seemed to solve the stability problems but it was too late.

On April 30, 1962, the parent company, A. V. Roe Canada, which had disintegrated since the Arrow project was cancelled, ceased to exist.

The two prototype AvroCars still exist. The 1959 model is in an Army Museum in Fort Eustis, Virginia. The other belongs to the National Air and Space Museum, who have it stored in a warehouse in Maryland.



Authors note: This story tells many tales. It is a tale of stupidity on behalf of our Canadian government in the 1950s. Here was a company on the leading edge of pure aviation research, which was developing the rudiments of VTOL. VTOL is the basis of the success of the British Harrier Jet and the new Joint Strike Fighter program in the United States. Government has a place government is pressured to demand an immediate Return on Investment (ROI). Pure research does not some research can fail and offer no ROI. Our governments prefer to fund a new Regional Jet, a simple line-extension for a profitable aircraft manufacturer, than to invest in longer term innovation.