

First Flight of the Avro Arrow: Just 50 years ago

By Eric Gibson

You may find this a little hard to believe but fifty years ago, in 1959, some parts of Mississauga could be noisier places than they are today, even though the area was much more rural and there was a great deal less traffic. The city of Mississauga did not exist back then of course. The area was still called Toronto Township and the population was about 30,000 - a far cry from today's 670,000 living in what is now Canada's sixth largest city. The township was mainly agricultural with farms and orchards and villages and there was not a great deal of industry. So, in these circumstances, why would there have been so much noise?

For the answer to this question one would have to look to Malton in the north-east corner of the township. There, one would have found Malton airport with airliners such as the *DC-3*, the *Constellation*, and the *North Star* together with the recently introduced turbo prop *Viscount*. Even though jet transports such as the Boeing 707 and the *DC-8* were still a few years in the future, airports were noisy places because at that time noise suppression of aircraft engines was given little consideration.

Even noisier than the airport and its civilian transports was the flight line at the A.V. Roe factory. This was located a few hundred yards north of the terminal building and was the home of a production line turning out jet fighters for the Royal Canadian Air Force. Avro, as the company was known, had already developed and built several hundred *Canuck* jet propelled fighters for the RCAF but finally the production run was coming to an end. In its place, the company was working on its latest and most powerful product, the Avro *Arrow*. The first example of this supersonic interceptor had been completed and rolled out during October of 1958 and in early 1959 it was being prepared for its first flight.

Among the many tasks to be performed before the new aircraft could fly was ensuring that both of the *Arrow's* engines were running efficiently and were compatible with the airframe. Among other things, this involved ground running of the engines to full power and also testing the afterburners which boosted the output of the engines for rapid acceleration and maximum speed. Both were very noisy operations!

But the engines fitted to the first batch of *Arrows* - and in the event these aircraft proved to be the only ones that would be flown - were to an interim design. The engines intended for the production version of the *Arrow* were being developed concurrently with the airframe at Malton by an Avro subsidiary named Orenda Engines. The Orenda plant was just across the road from the Avro plant and some of its building are now part of the International Centre. The engine intended for the *Arrow* was known as the *Iroquois* and it would be at least 20% more powerful than the interim engine. Because it was a new design there was a great deal of testing to be done to obtain certification. Again, this involved some very noisy operations. In addition to ground testing, Orenda had the use of a six-engined American *B-47* bomber for use as a flying test bed.

When jet engines are run up to full power, particularly with afterburners switched on, the noise can be quite devastating. Any readers who lived in the area at the time will remember the noise even though they may have lived quite some distance from the source. In Malton itself, there are stories of window panes and china rattling and of picture frames on the walls vibrating until they hung crookedly. The noise could be heard in Cooksville and Dixie and over a large part of Etobicoke. There are stories about tests which started very early in the morning and which woke people up, and there were complaints that no warnings were given before these tests.

Then on 25th March 1958 the *Arrow* flew for the first time marking the beginning of a flight test programme which was to be cut short after only eleven months. The accompanying photograph shows the *Arrow* during its maiden flight and there are some interesting things to see in the picture.

First of all the undercarriage of the aircraft is locked down, but this is not unusual on a first flight. There are many things that the pilot has to check during such a test flight and he may elect not to retract the undercarriage but rather to concentrate on his many other tasks. And also, if the aircraft does not respond as expected and it must be brought back to earth in a hurry, the wheels are already down and locked in place. In this case the *Arrow* performed as predicted and test pilot Jan Zurkowski kept it aloft for 35 minutes. Also of interest is the view the picture affords of the airport terminal buildings and of the Avro plant. At the bottom of the picture is the airport with its tiny parking lot, small terminal building and four aircraft parked on the apron. At the top right of the picture is the Avro plant, its car park and buildings dwarfing those of the airport. Close to the top of the picture is Derry Road bordered by farm land and with not a hint of the industries which were to develop in later years.

On its third flight on 3rd April 1958 the *Arrow* went supersonic for the first time and during its seventh flight, four days later, the machine achieved a speed of more than 1,000mph. Fortunately for township residents most of the *Arrow's* high speed runs with their attendant supersonic booms were made in the sparsely inhabited areas beyond North Bay.

The maximum speed recorded by an *Arrow* was Mach 1.96 (ie 1.96 times the speed of sound) which equates to about 1,510mph. Since the official world air speed record at that time stood at 1,404mph, the *Arrow*, even with its interim engines, had surpassed that figure by 106mph. Legend has it too, that at a time when aircraft manufacturers around the world were striving to achieve the elusive speed of Mach 2, the *Arrow* had in fact exceeded that figure. However, Avro is said to have chosen to keep it a secret and to acknowledge a maximum speed of “only” Mach 1.96. This, it is claimed, was because it was achieved with an aircraft fitted with the interim American engines.

It has also been said that Avro had every intention of making an official attempt on the world speed record - but not until the *Iroquois* engine with its additional power was available. There was certainly no doubt in the minds of anyone employed at Avro that when the *Arrow* eventually made its attempt on the record, it would break it easily, and by a very considerable margin. Neither was there any doubt that breaking the speed record and being the first aircraft to exceed Mach 2 would have given Avro a very powerful marketing tool.

Unfortunately though the marketing effort was cut short before any record attempts could be made for. as most readers will know, the fate of the *Arrow* programme was to end with cancellation. Mississauga became a quieter place but at a tremendous cost!