

Neil Turner

Memories of Neil Turner, Instrumentation Engineering Group (in training) A.V.Roe Canada

Years: Summers 1956, 1957. Student, Engineering Physics, U.O.F.T.

Orenda (Avro) Iroquois CF-105 Engine Division

1. Sign-on picture, Engineering Dept. 1956. I was very happy with the reception I received from my new fellow workers and anyone I met at the plant.

2. Large open floor for engineering groups and management. Engine construction, mechanical and maintenance lower floor.

3. Desk in Instrumentation section, engineer supervisor assigned to me. Ron?
Working the previous year in a factory earned \$80 per week, no union deductions. Orenda salary was \$64/week, but I got added income from overtime.

4. Assigned a number of tasks, the most important one was the design and the implementation of a device that could measure the thermal expansion of the engine. The device was attached to a running test Iroquois engine, and the measurement was successful and passed on to the airplane design department.

5. Saw high-level American Military visitors touring

6. Flying saucer: Some of our Instrumentation staff were privileged to visit the “flying” saucer project that was underway. It was said to be difficult to control and later it was sold to the U.S. The vacuum tube electronics of the time was not adequate to deal with the control of the saucer.

7. Bucket of steam: As a joke, I was told that some new employees were told to go downstairs and bring back a bucket of steam! That did not happen to me.

8. Noise and vibration of CF-100 Canuck Rolls -Royce Avon turbojet engine vs, Iroquois engine:
The day I visited both the CF100 engine test facility and the Iroquois test faculty, both were engines were running. The power of the Iroquois engine was very dramatic compared to the CF100's, as measured by the significantly higher vibration of my chest while standing beside the former.

9. Technology

Pride: Everyone was proud of what they were doing and what had been achieved.



Neil with his wife and grandson in front of the Arrow II during a visit to the Avro Museum June 2025



Photo of signing on at Orenda Engines 1956. Neil Turner is 2nd left.

Titanium: Working with titanium (Innovation) for lighter engine parts, such as compressor blades, was a newly learned technology and required innovative processing and procedures to make it work reliably. In 1956, there were some instances of broken Titanium compressor blades during ground testing. An Instrument Engineer in our group designed instrumentation to fasten to the engine to measure vibration.

Engine testing in flight: I learned that an Iroquois engine was strapped to a B47 Strato jet and tested successfully. It was reported that it went through about 35 hours of flight testing.

Vacuum Tubes in those days: Transistors and integrated solid circuits were in the future. All electronics were vacuum tubes and employed magnetically operated relays. I was told that only 10% of the engine electronic systems were for control, the remainder were for backup.

Personnel from Great Britain. Some of Britain's aircraft and engine experts, joined Avro and Orenda. One story we heard was that when one British specialist arrived with drawings, the drawings were copied while he was being interviewed.

10. Power of the engine, fly to the moon.

1956: I distinctly remember our Instrumentation supervisor telling us that Iroquois engine was so powerful it could fly us to the moon. Recently: At the end of an Avro Arrow documentary, the host stated the Iroquois engine was so powerful it could have taken us to the moon and Canadians would have been the first on the moon!

11. End of an Era

Diefenbaker election, was the beginning of the end of the Arrow programme and many thousands of jobs.

At the office the morning after the election, I witnessed firsthand, the feelings of doom and gloom.

Decision factors

Initially, at the time of the election, the election platform was to reduce defense spending, implying the elimination of the Avro Arrow project.

Later: It was the projected costs and it was felt in some quarters that there was no need for interceptor aircraft as the new Bomarc missiles being developed in the U.S. would shoot down Russian jets and bombers. As well, there was no financial support for the project from the U.S. as they did not want to jeopardize their aircraft industry. Ultimately, in 1959, the Avro project was cancelled.

Other Factors: It was rumored that the head of Avro, Crawford Gordon and Diefenbaker dislike each other intensely. Another influencing factor rumored was that the Army and Navy complained that they were not getting their fair share of defence spending.

For the first year after the election, defense spending leveled off, then surged following years, when it was realized the Russian threat still had to be dealt with. The U.S would supply us with less costly Bomarc missiles (Diefenbaker would not equip missiles with nuclear warheads). As an interim measure, U.S. F104 Starfighter interceptor jets were purchased. We have been buying U.S fighter aircraft ever since.