

= Avro Canada CF @-@ 103 =

The Avro Canada CF @-@ 103 was a proposed Canadian interceptor , designed by Avro Canada in the early 1950s as a development , and possible replacement of the company 's CF @-@ 100 Canuck , that was entering service at the time with the Royal Canadian Air Force (RCAF) . Although intended to be capable of flying at transonic speeds , the CF @-@ 103 only proffered a moderate increase in performance and capability over the CF @-@ 100 ; subsequently , the aircraft never progressed beyond the mock @-@ up stage .

= = Design and development = =

Even before the prototype of the CF @-@ 100 had flown , Avro Canada was conducting studies of potential advanced variations of the aircraft , as the RCAF was seeking an interceptor with greater high @-@ speed performance . Due to the perceived limitations of the CF @-@ 100 's original " thick " , straight wing , Chief Designer John Frost proposed a series of refinements that included a thinner swept wing . In December 1950 , the Avro Aircraft Design Office decided to proceed with a redesign , primarily incorporating the early series CF @-@ 100 fuselage structure with a new swept wing and tail surfaces as part of the C @-@ 100S design study .

Frost considered the new design as an interim aircraft between the CF @-@ 100 and the more advanced C @-@ 104 project . The salient changes to the basic wing planform were in decreasing its chord and thickness , and adding a 42 ° sweep to the leading edge , creating a near @-@ delta wing configuration . The tail surfaces were also swept back . One version that was considered featured two streamlined fuel tanks blended into the leading edge of the wings near the three / quarter position . Despite the use of more powerful engines , the redesign had very modest performance specifications , with a planned maximum diving speed of Mach 0 @-@ 95 , scarcely better than the placarded Mach 0 @-@ 85 speed limit of the production CF @-@ 100 Mk 2 and Mk 3 . Avro executives , recognizing that the company had already suffered due to the protracted development of the CF @-@ 100 , determined that Frost 's revised design would provide a " hedge " against the CF @-@ 100 's failure to secure long @-@ term contracts .

In 1951 , the Canadian Department of Trade and Commerce issued an order for two prototypes and a static test airframe , under the CF @-@ 103 project designation . Jigs , tools and detailed engineering drawings were in place by June 1951 , with wind tunnel testing , conducted at Cornell University , completed by November 1951 . Although a wooden mock @-@ up of the CF @-@ 103 was built , along with a separate cockpit area and engine section that was partially framed in , the mock @-@ up did not feature an undercarriage unit nor any interior fittings . Two different tail designs were fitted with the initial effort only having a swept leading edge of the tail , while the definitive version had a much more raked appearance . The engineering and installation requirements for the CF @-@ 103 's proposed Orenda 17 jet engines were not finalized , as the experimental " hybrid " using an Orenda 8 compressor unit and Orenda 11 two @-@ stage turbine , matched to a " reheat " unit , had not been fully developed .

= = Cancellation = =

During 1951 , flight tests carried out by Chief Development Test Pilot S / L Janusz ?urakowski and other members of the Flight Test unit , revealed the development potential of the CF @-@ 100 had outstripped the intended performance envelope of the CF @-@ 103 , while Frost and the Design Office became preoccupied with more sophisticated designs as potential replacements for the CF @-@ 100 . Work on the CF @-@ 103 stalled , with the maiden flight originally scheduled for the summer of 1952 , postponed to mid @-@ 1953 . With Cold War pressures mounting , the Canadian government demanded that production of the latest CF @-@ 100 fighter , as well as developing more advanced variants of the Canuck should predominate , leading the Avro company to curtail the moribund CF @-@ 103 project in December 1951 .

Although the mock @-@ up languished in the experimental bay at the factory , a dramatic event

served to preclude any attempt to restart the project . On 18 December 1952 , from a height of 33 000 ft (10 000 m) , ?urakowski dived the CF @-@ 100 Mk 4 prototype (RCAF Serial No. 18112) to Mach 1 @. @ 06 . His " unauthorized " test flight resulted in the final scrapping of the mock @-@ up .

= = Specifications = =

Data from Avro Arrow : The Story of the Avro Arrow from its Evolution to its Extinction

General characteristics

Crew : 2

Length : 59 ft 9 in (18 @. @ 2 m)

Wingspan : 43 ft (13 @. @ 1 m)

Height : 16 ft (4 @. @ 87 m)

Powerplant : 2 × Orenda 17 turbojets

Dry thrust : 7 @, @ 275 lbf (34 @. @ 36 kN) each

Thrust with afterburner : 8 @, @ 490 lbf (37 @. @ 8 kN) each

Performance

Maximum speed : Mach 0 @. @ 85 or 647 mph (1 @, @ 039 km / h) (Mach 0 @. @ 95 in dive)

Armament

Proposed

Forward @-@ firing ventral gun pack containing eight .5 @-@ inch Browning M3 machine guns (200 rounds per machine gun)