

FIGHTER

# Avro Canada CF-100 Canuck 1950



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In July 1945, Avro Aircraft Ltd was formed in Canada as part of the Hawker Siddeley Group, following acquisition of the Crown-owned Victory Aircraft Ltd at Malton, Ontario. One of the most significant products of this company was a twoseat all-weather long-range fighter, designated Avro Canada CF-100, intended for service with the Royal Canadian Air Force, Design of this aircraft was initiated in October 1946, and the first of two prototype CF-100 Mk Is was flown on 19 January 1950, both of these aircraft being powered by Rolls-Royce Avon RA 3 turbojets, each of 2948kg thrust. Its configuration was that of a low-wing cantilever monoplane of all metal construction, the tail unit incorporating a tailplane and elevators mounted mid-way up the fin. The retractable tricycle landing gear had twin wheels on each unit, and accommodation for two, in tandem, was provided in a pressurised cockpit. Successful testing of the prototypes led to an order for 10 unarmed pre-production CF-100 Mk 2s, these being the first examples to be powered by 2722kg thrust Orenda 2 turbojets, built by the engine division of Avro Canada. When the first of these CF-100 Mk 2s made its maiden flight, on 20 June 1951, it was the first aircraft that had been completely designed and built in Canada. One of this pre-production batch was equipped as a dual-control trainer, becoming designated CF-100 Mk 2T, and another example from this batch was the first to enter service with the RCAF, on 17 October 1951. Orders followed for production aircraft designated CF-100 Mk 3, named Canuck by the RCAF, and the first of these entered service soon after a first flight in early September 1952. They differed by having Orenda 8 turbojets (of similar output to the Orenda 2s), carried eight 12.7mm Colt-Browning machine-guns in a ventral pack, and were equipped with nose-mounted APG-33 radar. A total of 70 of this version was built, and of these 50 were converted subsequently to serve as CF-100 Mks 3CT and 3DT trainers.

Production of the above version was followed by the CF-100 Mk 4, of which a prototype had been flown on 11 October 1952. This differed by embodying structural redesign, the installation of 2948kg thrust Orenda 9 engines, a radar update introducing the APG-40, and a major weapon change. This involved the addition of wing-tip pods, each of which contained 29.70cm unguided rockets, plus 48 similar weapons in a ventral pack that could be interchanged with one containing eight machine-guns. This version was redesignated CF-100 Mk 4A after the introduction of a generally similar CF-100 Mk 4B that differed primarily by having more powerful Orenda 11 turbojets, each of 3300kg thrust. Production of CF-100 Mks 4A and 4B totalled 134 and 144 respectively, being followed by introduction of the major production version, the CF-100 Mk 5. This was powered by Orenda 11 engines, or Orenda 14s of equivalent output, and to improve highaltitude performance wing span was increased by 1.83m and a larger tailplane was provided. The Mk 5 prototype was flown in September 1954, followed by the first production example on 12 October 1955. In this version, of which 329 were built, weapons were carried only in the wing-tip missile pods. Of the total, 53 were supplied to the Belgian air force for service with its 1st All-Weather Interceptor Wing, based at Beauvechain. In addition to the true production Mk5s, 50 Mk4Bs were converted subsequently to Mk 5 standard. The last CF-100s were withdrawn from Canadian service only in the second half of 1981.

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# 3-View



A three-view drawing (1663  $\times$  1060)



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#### Specification

| MODEL               | CF-100 Mk 5                                   |              |  |
|---------------------|---|--------------|--|
| CREW                | 2   |              |  |
| ENGINE              | 2 x turbo-jet Orenda 11 or 14, 32.3kN         |              |  |
| WEIGHTS             |   |              |  |
| Take-off weight     | 16783 kg                                      | 37000 lb     |  |
| Empty weight        | 10478 kg                                      | 23100 lb     |  |
| DIMENSIONS          |   |              |  |
| Wingspan            | 17.68 m                                       | 58 ft 0 in   |  |
| Length              | 16.48 m                                       | 54 ft 1 in   |  |
| Height              | 4.74 m  | 16 ft 7 in   |  |
| Wing area           | 54.9 m <sup>2</sup>                           | 590.94 sq ft |  |
| PERFORMANCE         |   |              |  |
| Max. speed          | 1046 km/h                                     | 650 mph      |  |
| Ceiling             | 16460 m                                       | 54000 ft     |  |
| Range w/max.fuel    | 3220 km                                       | 2001 miles   |  |
| Range w/max.payload | 2072 km                                       | 1288 miles   |  |
| ARMAMENT            | 29 x 70mm missiles in each of wing containers |              |  |

#### Comments

Mac McKay, maymck=nb.sympatico.ca, 23.09.2010

Sam Burton was a Navigator on CF 100's, a Blue Noser from Digby NS, met him in Florida a couple years ago Had some tall tales regarding the lead sled..hell of an airplane, and a lot of fond memories.

AJPatterson 409Sqn 1958, 25.03.2010

This post is more about operating with the "lead sled". To show a bit of our operation when pilots still had freedom to choose. A really fun aircraft, had 996 hr. which is about 500 missions in 3 years. So stable it would almost trim hands off for a GCA. In 1958 6600# thrust was still awesome power for a frontline fighter. Once I struggled to near coffin corner @ 50,000' with a low fuel 4B, rolled it over, popped the fences and let it fall through. Radar control asked for a repeat when I called over penetration @ 50,000' Black Hawk Sqn worked a lot with the USAF and USN. Nothing like your Alt. reading minus 200 as you manoeuver & penetrate a USN convoy over the Pacific. Red & green flares showed simulated hits and misses of their guns. We took on anything from the Rocky Mtn. valleys to B57 at 46,000' from the Aleutians. Usually our runs were against B36, B47, B52. Imagine flying through a cell of 4 B52. Only once did the CO suggest a silk landing @ base due no nose gear. I declined the offer and put it down with only very minor damage to the radom. The engines were dependable but your first compressor stall was an unforgetable experience, as everything shook or howled. A really great toy for a 20 year old pilot in 1958. Fantastic memories. If JB Hagen is "Barney" from 409 Sqn and United Airlines, I say Hi.

KR McKenzie, faxcap=gmail.com, 11.03.2010

Any of you guys who flew the CF-100 know Harv Clark? He was at one time the oldest fighter pilot in the RCAF.

Stephen Lowry, stephen\_lowry=rogers.com, 22.02.2010

Mr. Foster:

Just saw your posting on the Avro Canada site.

Perhaps you knew of my dad, S/L Bob Lowry.

I have his log book and some photographs which may be of interest to you.

Steve Lowry

Ottawa -

p pattison, samandpat=telus.net, 05.02.2010

The gunpack was a nightmare. The extraction pin would jam and hours could pass before repaired. I was an airframe tech. so it was a nightmare hydraulicly as well. no good memories for me.

Butch Foster, annebutch=shaw.ca, 23.01.2010

flew Mk4bs At Marville 445Sqn 58 to 61,ThenEWU 61to65. We received a Mk5 out of storage and test flew it to 55000ft. Thesame a/c After tiptanks to 57500ft, Stupid of me But it Proofedthe effectiveness of the the tiptanks. Also, With Bud Jenks a Mk4c For 5hrs&5min fromT/o toT/D &shutdown with 700# a side nonstop, Its agood thing I was toyoung and stupid to be scared!

Dave Stern author, psidavid=yahoo.com, 17.09.2009

Greeitngs. Quality site and "Clunk" sstory. I once sat in cockpit of CF-100 research visit to Thule AB 1962-1963 winter of, and got my photo taken by maint. troop. It will be included in a quality and friendly story of the Canuck for AAHS Journal...American Av. historical Society. Anybody with unusual or rare Canuck pics wish to share for credit/and or trade for same from my large av photo collection, please do contact me. Thanks and good fortunes.

# Jock Williams, williamsB25=aol.com, 07.04.2009

I flew the CF100 (Mk 5, electronics warfare version) for about 600 hrs in the late 1960s. It was a superb aircraft! As an example it cruised at Mach .82 using only about 85%rpm on both engines. Obviously this meant we had a bunch of excess power for manoeuvering. It was a wonderful aircraft to fly on instruments and quite manoeuverable for such a large airframe.

One slight problem (I jest) is that in supercooled water droplets the engines could develop "tip rub" and grind to a halt. I once force landed in Fort Wayne Indiana with an engine that failed for this reason -and on runup prior to takeoff after the engine change the remaining engine failed. This meant that I had been within about 20 seconds of a second engine failure and a nylon letdown!

Fortunately engine technology improved -but the Orenda -when it was working) developed an impressive amount of thrust without afterburner.

As a test pilot I got to do aerobatics with it -and it was really good. Also -we had the opportunity as young pilots to fly with some of the best navigators in the world. I would give a lot for one more hour in a "Clunk"!

Jock Williams (ex 414 Sqn)

#### L Rudnicki, leo rudnicki=hotmail.com, 03.04.2009

Main wing spar was weak under engines, big trouble at high G. Rear seat ejection couldn't be reached once canopy was blown. A few remain in Canada sitting on a stick. (tricky landing)

#### JB Hagen, jbhagen=mac.com, 22.05.2008

The line drawing is of the Mk. 4 CF-100, with rocket pods and an 8, 50 mm. gun pack. The Mk. 5 CF-100 had 3 foot wing extensions, along with extended horizontal stabilizer, all for better high altitude handling. The Mk. 5 did not have the gun pack, just 58 2.75" rockets.

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