



# *Kestrel Publications*



## BRITISH AEROSPACE CT-155 HAWK ROYAL CANADIAN AIR FORCE SERIAL NUMBERS & INDIVIDUAL HISTORIES



by T.F.J. Leversedge

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## **Overview**

This publication is intended to provide a brief overview / summary of individual aircraft histories using information drawn from personal documents / records and other publicly available references identified at the end of the publication. In addition, this information has been further supplemented and / or verified against available RCAF incident / accident reports.

## **About the Author**



Terry Leversedge was born in Moose Jaw, Saskatchewan, while his father was serving at Royal Canadian Air Force (RCAF) Station Moose Jaw. He later graduated from the Royal Military College, Kingston, with a degree in Mechanical Engineering in 1979, and then received a Masters degree in aerospace vehicle design from the Cranfield Institute of Technology in the United Kingdom. His career in military aerospace engineering encompassed a wide number of positions at both field units and within the headquarters of the RCAF, before he retired after 35 years of service at the rank of Brigadier General. Now an aviation consultant and amateur historian, he is the author of other commercially available books on Canadian military aviation subjects and has published numerous articles as the Editor-In-Chief at *Airforce* magazine, the flagship publication of the Royal Canadian Air Force Association.

## **Additional Information**

The information in this serial as accurate and up to date as possible based upon the available public sources. It should not, however, be construed as an "official" list nor 100% accurate. Any errors of commission or omission are solely those of the author. As with all endeavours of this nature, however, the author would be pleased to hear of any additional information and / or corrections. Please provide any details to: Kestrel Publications at [kestrelpubs@gmail.com](mailto:kestrelpubs@gmail.com)

## **Dedication**

This publication is dedicated to all those who fly and maintain these CT-155 *Hawk* aircraft.

## **Cover Image Notes**

CT-155 #155417 is seen here in a special 75<sup>th</sup> anniversary of 419 Squadron and wearing the wartime colours of one of that squadron's Avro Lancasters. - (CF Photo #CK04-2016-0538-005)



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## CT-155 Hawk Serials

Serial #	Manufacturer	Model	c/n	CF Designation	Name
155201	British Aerospace	Hawk Mk. 115	IT009/0695	CT-155	Hawk

**TOS:** 13 April 2000

Carried RAF serial ZJ669 for initial tests in UK. Delivered to Canada on 3 July 2000. On June 10, 2011, a crew of two qualified instructor pilots were conducting an instructor upgrade sortie, including a wingman syllabus mission, in this a/c when they heard a loud bang and noticed an increasing turbine gas temperature. They then discontinued their training, analyzed the a/c systems, and turned the a/c towards the Cold Lake airport. The pilots set a medium engine power setting and commenced a shallow climb above 12,000 feet, above mean sea level. After receiving their wingman's report of smoke emanating from their aircraft and after noticing an increase in engine vibrations, the pilots shut down the engine. Shortly thereafter, after determining that insufficient altitude remained to glide to the Cold Lake airport, they attempted to restart the engine. During the restart, the wingman reported flames coming from the lead aircraft, after which the pilots then discontinued the restart and resumed their glide. Unable to reach a runway, they carried out a controlled low level ejection. The pilots parachuted in to a shallow swamp, receiving minor injuries, while the aircraft crashed and was destroyed. The investigation concluded that the Hawk *Adour* Engine low pressure turbine (LPT) blade, which had a history of fatigue cracking at the trailing edge rear acute corner, had failed prior to reaching its design life.

**SOS:** - 10 June 2011 - Cat "A" write-off

155202	British Aerospace	Hawk Mk. 115	IT010/0696	CT-155	Hawk
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**TOS:** 13 April 2000

Carried RAF serial ZJ670 for initial tests in UK. Delivered to Canada on 13 July 2000. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. On May 14, 2004, a crew of two (CF IP and RAF student) had completed a low level navigation syllabus mission, and were utilizing their remaining time conducting proficiency flying in the traffic pattern at 15 Wing Moose Jaw. The IP had just taken over aircraft control, with the aircraft accelerating and positioned near the departure end of Runway 29 Right. At about 70 ft above ground level (AGL), 239 kts indicated airspeed (KIAS) with the landing gear up and combat flaps selected, a bird struck the left side of the aircraft. This was immediately followed by several engine warnings and very high engine temperature indications. The IP initiated a climb to trade airspeed for altitude, confirmed that the engine temperature remained high and told the student pilot to prepare to abandon the aircraft. As the aircraft descended through 3000 ft mean sea level (MSL), (about 1000 AGL) and after confirming the student was ready, the IP initiated ejection. Both pilots survived the ejection, but the IP was seriously injured and the SP received minor injuries in the ejection. The aircraft crashed in a farmer's field about one mile north of 15 Wing and was destroyed. Investigation revealed a gull hit the Angle of Attack probe, then entered the left hand engine intake and was ingested by the engine, causing serious damage.

**SOS:** 14 May 2004 - Cat "A" write-off

155203	British Aerospace	Hawk Mk. 115	IT012/0698	CT-155	Hawk
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**TOS:** 3 August 2000

Carried RAF serial ZJ671 for initial tests in UK. Delivered to Canada on 6 September 2000. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. In service with 419 (TFT) Sqn in Cold Lake, AB in 2018.

**SOS:** March 8, 2024 - 419 Sqn in an "hiatus" awaiting new trainer

155204	British Aerospace	Hawk Mk. 115	IT012/0698	CT-155	Hawk
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**TOS:** 25 August 2000

Carried RAF serial ZJ672 for initial tests in UK. Delivered to Canada on 27 September 2000. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. In service with 419 (TFT) Sqn in Cold Lake, AB in 2018.



**SOS:** March 8, 2024 - 419 Sqn in an "hiatus" awaiting new trainer

<b>155205</b>	<b>British Aerospace</b>	<b>Hawk Mk. 115</b>	<b>IT013/0699</b>	<b>CT-155</b>	<b>Hawk</b>
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**TOS:** 13 September 2000

Carried RAF serial ZJ673 for initial tests in UK. Delivered to Canada on 20 October 2000. Used by NATO Flight Training Centre, CFB Moose Jaw, SK.

**SOS:** March 8, 2024 - 419 Sqn in an "hiatus" awaiting new trainer

<b>155206</b>	<b>British Aerospace</b>	<b>Hawk Mk. 115</b>	<b>IT014/0700</b>	<b>CT-155</b>	<b>Hawk</b>
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**TOS:** 19 October 2000

Carried RAF serial ZJ674 for initial tests in UK. Delivered to Canada on 26 November 2000. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. In service with 419 (TFT) Sqn in Cold Lake, AB in 2018.

**SOS:** March 8, 2024 - 419 Sqn in an "hiatus" awaiting new trainer

<b>155207</b>	<b>British Aerospace</b>	<b>Hawk Mk. 115</b>	<b>IT015/0701</b>	<b>CT-155</b>	<b>Hawk</b>
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**TOS:** 10 November 2000

Carried RAF serial ZJ675 for initial tests in UK. Delivered to Canada on 7 December 2000. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. In service with 419 (TFT) Sqn in Cold Lake, AB in 2018.

**SOS:** March 8, 2024 - 419 Sqn in an "hiatus" awaiting new trainer

<b>155208</b>	<b>British Aerospace</b>	<b>Hawk Mk. 115</b>	<b>IT016/0702</b>	<b>CT-155</b>	<b>Hawk</b>
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**TOS:** 25 November 2000

Carried RAF serial ZJ676 for initial tests in UK. Delivered to Canada on 7 December 2000. Used by NATO Flight Training Centre, CFB Moose Jaw, SK.

**SOS:** Summer 2023 - scheduled to become a maintenance trainer at 16 Wing Borden

<b>155209</b>	<b>British Aerospace</b>	<b>Hawk Mk. 115</b>	<b>IT017/0703</b>	<b>CT-155</b>	<b>Hawk</b>
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**TOS:** 24 January 2001

Carried RAF serial ZJ677 for initial tests in UK. Delivered to Canada on 1 February 2001. Used by NATO Flight Training Centre, CFB Moose Jaw, SK.

**SOS:** Summer 2023 - scheduled to become a maintenance trainer at 16 Wing Borden

<b>155210</b>	<b>British Aerospace</b>	<b>Hawk Mk. 115</b>	<b>IT018/0704</b>	<b>CT-155</b>	<b>Hawk</b>
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**TOS:** 23 December 2000

Carried RAF serial ZJ678 for initial tests in UK. Delivered to Canada on 14 January 2001. Used by NATO Flight Training Centre, CFB Moose Jaw, SK.

**SOS:** Summer 2023 - scheduled to become a maintenance trainer at 16 Wing Borden

<b>155211</b>	<b>British Aerospace</b>	<b>Hawk Mk. 115</b>	<b>IT019/0705</b>	<b>CT-155</b>	<b>Hawk</b>
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**TOS:** 15 December 2000

Carried RAF serial ZJ679 for initial tests in UK. Delivered to Canada on 7 January 2001. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. In service with 419 (TFT) Sqn in Cold Lake, AB in 2018.

**SOS:** March 8, 2024 - 419 Sqn in an "hiatus" awaiting new trainer



155212	British Aerospace	Hawk Mk. 115	IT020/0706	CT-155	Hawk
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**TOS:** 13 January 2001

Carried RAF serial ZJ680 for initial tests in UK. Delivered to Canada on 24 January 2001. Used by NATO Flight Training Centre, CFB Moose Jaw, SK.

**SOS:** Summer 2023 - scheduled to become a maintenance trainer at 16 Wing Borden

155213	British Aerospace	Hawk Mk. 115	IT021/0707	CT-155	Hawk
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**TOS:** 16 February 2001

Carried RAF serial ZJ681 for initial tests in UK. Delivered to Canada on 27 February 2001. Used by NATO Flight Training Centre, CFB Moose Jaw, SK.

**SOS:** Summer 2023 - scheduled to become a maintenance trainer at 16 Wing Borden

155214	British Aerospace	Hawk Mk. 115	IT022/0708	CT-155	Hawk
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**TOS:** 8 January 2001

Carried RAF serial ZJ682 for initial tests in UK. Delivered to Canada on 25 March 2001. Used by NATO Flight Training Centre, CFB Moose Jaw, SK.

**SOS:** Summer 2023 - scheduled to become a maintenance trainer at 16 Wing Borden

155215	British Aerospace	Hawk Mk. 115	IT023/0709	CT-155	Hawk
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**TOS:** 4 April 2001

Carried RAF serial ZJ683 for initial tests in UK. Delivered to Canada on 21 May 2001. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. ON Apr 18, 2008, this a/c was climbing through 10,000' above sea level at maximum continuous power when the pilots noticed a change in engine noise, followed shortly afterwards by a T6/NL caution in the rear cockpit, indicative of an engine malfunction. The qualified instructor took control, zoomed, turned towards the airfield, reduced power to idle and declared a "Mayday". The vibration increased dramatically, followed by a loud bang and the illumination of the oil pressure and generator lights and the loss of the Head-Up display. The instructor realized they were not going to make the runway and commanded ejection. Both pilots successfully ejected at an estimated height of 200 to 300 ft above ground while the aircraft was in a steep descent. Both pilots sustained serious injuries during ejection. The aircraft struck the ground 1.5 seconds after the ejections in a wings level 30 degree nose down attitude and exploded. The airframe was destroyed.

**SOS:** 18 Apr 2008 - Cat "A" write-off

155216	British Aerospace	Hawk Mk. 115	IT024/0710	CT-155	Hawk
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**TOS:** 1 May 2001

Carried RAF serial ZJ684 for initial tests in UK. Delivered to Canada on 18 June 2001. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. On July 4, 2003, a task-overloaded student on his third solo managed a gear-up landing which damaged the a/c beyond economic repair. After a touch-and-go landing the student requested a closed pattern from tower. Once downwind, he was sequenced number three behind another Hawk on short final and a Snowbird Tutor directly ahead. In order to accommodate all a/c, tower requested that the Snowbird extend his downwind and land behind the re-sequenced solo student. The accident pilot, now number two, initiated the final turn and landed on the centreline of runway 29 Right with the landing gear in the up position. The investigation found that the pilot was task-saturated and had channelized his attention to monitoring ATC, planning his re-sequence to land, reducing speed, and adjusting the power and configuration for the Final Turn. The pilot was also distracted from flying the a/c by his attempt to monitor the Snowbird, who was flying a pattern unfamiliar to the student. Management of the a/c's non-standard configuration (gear-up) on the Final Turn increased the pilot's task saturation level.

**SOS:** 4 July 2003 - Cat "A" write-off



155217	British Aerospace	Hawk Mk. 115	IT025/0711	CT-155	Hawk
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**TOS:** 4 June 2001

Carried RAF serial ZJ685 for initial tests in UK. Delivered to Canada on 18 June 2001. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. Assigned to 419 Sqn. In 2016, for the 75th anniversary of 419 Sqn, this a/c was repainted in a stylized application of the Second World War Bomber Command camouflage pattern of topside green and brown, combined with an all-black undersurface which masked the aircraft from below against the night sky when most wartime bombing operations occurred for the Allied effort. The call letters VR-W and the dedication of the aircraft on the nose (with yellow "W") were rooted with the Wellington bomber flown by Wing Commander John "Moose" Fulton, the first Commanding Officer of the Sqn in 1941. The Moose insignia on the nose and registration KB799 belonged to the Lancaster era of 419 Squadron, and the oldest known "Moose" nose art for the Unit. The roundels on the wings were a stylized combination of old style RCAF wartime markings with the addition of a Maple Leaf in the centre to link the wartime era markings to that of today, while the fin flash and side roundels were the wartime RCAF versions.

**SOS:** March 8, 2024 - 419 Sqn in an "hiatus" awaiting new trainer

155218	British Aerospace	Hawk Mk. 115	IT026/0712	CT-155	Hawk
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**TOS:** 27 July 2001

Carried RAF serial ZJ686 for initial tests in UK. Delivered to Canada on 27 August 2001. Used by NATO Flight Training Centre, CFB Moose Jaw, SK.

**SOS:** Summer 2023 - scheduled to become a maintenance trainer at 16 Wing Borden

155219	British Aerospace	Hawk Mk. 115	IT028/0715	CT-155	Hawk
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**TOS:** 15 July 2002

Carried RAF serial ZJ952 for initial tests in UK. Delivered to Canada on 23 August 2002. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. Assigned to 419 (TFT) Sqn. On 28 Jan 2016, a pilot flying this a/c, based at CFB Cold Lake, AB, was performing a *Cuban 8* manoeuvre. During the inverted 45 degree portion following the first loop the pilot's unrestrained publications bag drifted upwards (relative to the cockpit) and aft. The pilot then rolled upright and pulled 5g to complete the Cuban 8. During the 5g pull, the bag dropped down towards the aft portion of the right console and struck the Miniature Detonation Cord (MDC) firing unit with enough force to activate it, fragmenting the canopy. The pilot ceased manoeuvring, slowed the a/c and RTB'd without further incident. The pilot received minor injuries from the MDC combustion products and canopy fragments and there was significant damage to cockpit equipment and external airframe structures. Still in service with 419 (TFT) Sqn in Cold Lake, AB in 2018.

**SOS:** March 8, 2024 - 419 Sqn in an "hiatus" awaiting new trainer

155220	British Aerospace	Hawk Mk. 115	IT029/0716	CT-155	Hawk
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**TOS:** 15 August 2002

Carried RAF serial ZJ953 for initial tests in UK. Delivered to Canada on 23 August 2002. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. In service with 419 (TFT) Sqn in Cold Lake, AB in 2018.

**SOS:** March 8, 2024 - 419 Sqn in an "hiatus" awaiting new trainer

155221	British Aerospace	Hawk Mk. 115	IT030	CT-155	Hawk
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**TOS:** 11 June 2004

Carried RAF serial ZJ687 for initial tests in UK. Delivered to Canada on 2 August 2004. Used by NATO Flight Training Centre, CFB Moose Jaw, SK. In service with 419 (TFT) Sqn in Cold Lake, AB in 2017.

**SOS:** March 8, 2024 - 419 Sqn in an "hiatus" awaiting new trainer



**TOS:** 29 June 2004

Carried RAF serial ZJ688 for initial tests in UK. Delivered to Canada on 2 August 2004. Used by NATO Flight Training Centre, CFB Moose Jaw, SK.

**SOS:** 1 Summer 2023 - scheduled to become a maintenance trainer at 16 Wing Borden

### ADDITIONAL NOTES

In 1996, National Defence obtained Cabinet approval to enter into a 20-year, \$2.8 billion solesource contract with Bombardier Inc. to provide support to the NTFC. The legal relationships underlying this arrangement are complex and interdependent. The flight training takes place at 15 Wing Moose Jaw and 4 Wing Cold Lake. The government had licensed the use of these bases to MilitAir Inc., an independent nonprofit organization incorporated for the sole purposes of the flight training program. The organization is not subject to control by either Canada or (originally) Bombardier Inc. MilitAir Inc. purchased the planes, flight simulators and other equipment with the proceeds of a \$720 million bond offering. Bombardier Inc. had been appointed MilitAir Inc.'s agent for the negotiation and purchase of the equipment. In addition, MilitAir Inc. had granted Bombardier Inc. the right to use the facilities at the bases for flight training. By way of a separate agreement, MilitAir Inc. had leased the equipment to Bombardier Inc. Under the Canada Services Agreement, Bombardier Inc. provided certain ground-based training and maintained the aircraft, equipment and base facilities; while Canada pays tuition fees. The Bombardier portion of the contract has since been acquired and assumed by CAE Inc. and the contract has been extended by at least another 5 years.

CT-155 aircraft training operations ceased at 15 Wing Moose Jaw, Sask. in summer 2023 with the Hawk reaching the end of its service life after 20 years of operations. The remaining CT-155 Hawks will eventually move to the Canadian Forces School of Aerospace Technology and Engineering at Canadian Forces Base Borden, ON, where they will support the training of RCAF aircraft technicians. 419 Tactical Fighter Training Squadron officially began its hiatus period on March 8, 2024 in a ceremony at Cold Lake that marked the end of CT-155 training operations for the RCAF. While the squadron is on hiatus from operations, LCol Kean says that its personnel will support other units at 4 Wing Cold Lake, Alta., awaiting the planned reactivation of the squadron in the early 2030's. Until then, the squadron will remain administratively active, so that it can resume its role as the RCAF's Tactical Fighter Training Squadron.

### Operating Units

The following units are using or have flown CT-155 *Hawk* trainers:

- No. 2 Canadian Forces Flying Training School, Moose Jaw, SK
- No. 419 (Tactical Fighter Training) Squadron, Cold Lake, AB



### Aircraft (or Air Vehicle) Damage Level (ADL) Categories: <sup>1</sup>

The RCAF's ADL is a qualitative categorization system used to determine the level of damage sustained by an aircraft / air vehicle during an occurrence. The following damage level definitions are used to reflect the degree of damage:

**Cat "A"** = Destroyed / missing: The aircraft has been totally destroyed, is assessed as having suffered damage beyond economical repair or is declared "missing";

**NB** - Aircraft totally destroyed are normally written off the inventory. Accidents with a lower ADL may also subsequently result in administrative write-off of the aircraft for reasons (primarily economic) not directly related to the original damage assessment.

**Cat "B"** = Very Serious: The aircraft has sustained damage to multiple major components;

**Cat "C"** = Serious: The aircraft has sustained damage to a major component;

**Cat "D"** = Minor: The aircraft has sustained damage to non-major components; and

**Cat "E"** = Nil: The aircraft, including the power plant, has not been damaged.

**Number of CF CT-155 Hawk Cat "A" write-offs = 4** (~ 18% of the total fleet)

<sup>1</sup> Drawn from: A-GA-135-001/AA-001 *Manual of Flight Safety for the CF*



## ABBREVIATIONS

AB	=	Alberta (Canada)
a/c	=	aircraft
Cat	=	Category
CF	=	Canadian Forces
CFB	=	Canadian Forces Base
C/N	=	Construction Number
ft	=	feet
IP	=	Instructor Pilot
kts	=	knots
NATO	=	North Atlantic Treaty Organization
OTU	=	Operational Training Unit
QFI	=	Qualified Flying Instructor
RAF	=	Royal Air Force
RCAF	=	Royal Canadian Air Force
RTB	=	Returned To Base
SK	=	Saskatchewan (Canada)
SP	=	Student Pilot
S/N	=	Serial Number
Sqn	=	Squadron
SOS	=	Struck Off Strength
TOS	=	Taken On Strength
UK	=	United Kingdom

### (Current) RCAF RANKS

Aviator	-	Avr
Corporal	-	Cpl
Master Corporal	-	MCpl
Sergeant	-	Sgt
Warrant Officer	-	WO
Master Warrant Officer	-	MWO
Chief Warrant Officer	-	CWO
Officer Cadet	-	Ocdt
2nd Lieutenant	-	2nd Lt
1st Lieutenant	-	Lt
Captain	-	Capt
Major	-	Maj
Lieutenant Colonel	-	LCol
Colonel	-	Col
Brigadier General	-	BGen
Major General	-	MGen
Lieutenant General	-	LGen

## REFERENCES

### Government Reports:

- Canadian Forces Flight Safety Investigation Reports - <http://www.rcaf-arc.forces.gc.ca/en/flight-safety/investigation-reports.page>

### Articles

- <http://www.rcaf-arc.forces.gc.ca/en/news-template-standard.page?doc=419-squadron-unveils-75th-anniversary-ct-155-hawk/iozi4rmc>
- Jan de Ridder, Dirk, "Cold Lake - Where Fighter Pilots Are Made", *Airforces Monthly*, February 2019.

### Websites

- <http://www.rwrwalker.ca>

