Transport Canada Transports Canada

Advisory Circular

Subject: **Recording of Flight Time for Skid-Equipped Helicopters**

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1.0 INTRODUCTION

(1) This Advisory Circular (AC) is provided for information and guidance purposes. It describes an example of an acceptable means, but not the only means, of demonstrating compliance with regulations and standards. This AC on its own does not change, create, amend or permit deviations from regulatory requirements, nor does it establish minimum standards.

1.1 PURPOSE

(1) The purpose of this document is to provide information and guidance on the correct method of recording flight time for skid-equipped helicopters in the aircraft journey log book and pilot log book.

1.2 APPLICABILITY

(1) This document applies to all operators of helicopters.

1.3 DESCRIPTION OF CHANGES

(1) Not applicable.

2.0 REFERENCES AND REQUIREMENTS

2.1 REFERENCE DOCUMENTS

(1) It is intended that the following reference materials be used in conjunction with this document:

- (a) Part I, Subsection 101.01 of the *Canadian Aviation Regulations* (CARs) — *Interpretation*;
- (b) Part IV, Subsection 401.08 of the CARs — *Personal Logs*;
- (c) Part VI, Subsection 605.94 of the CARs — *Journey Log Requirements*;
- (d) Part VII, Subsection 700.15 of the CARs — *Commercial Air Services*;
- (e) International Civil Aviation Organization (ICAO) Annex 1 — *Personnel Licensing*; and
- (f) ICAO Annex 6 — *International Operations Helicopters.*

2.2 CANCELLED DOCUMENTS

(1) As of the effective date of this document, the following document is cancelled:

- (a) General Aviation Policy Letter, GAPL 2005-02, dated 2005-09-07 — *cancelled 2009.*

2.3 DEFINITIONS AND ABBREVIATIONS

(1) The following **definitions** are used in this document:

- (a) **Air Time (CARs):** means, with respect to keeping technical records, the time from the moment an aircraft leaves the surface until it comes into contact with the surface at the next point of landing;
- (b) **Flight Time (CARs)** ***:*** means the time from the moment an aircraft first moves under its own power for the purpose of taking off until the moment it comes to rest at the end of the flight;

(c) **Flight time — Helicopters (ICAO Annex 1- Personnel Licensing):** The total time from the moment a helicopter's rotor blades start turning until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped.

(d) **Flight Time – Helicopters (ICAO Annex 6 Part III - International Operations):** The total time from the moment a helicopter's rotor blades start turning until the moment the helicopter finally comes to rest at the end of a flight and the rotor blades are stopped.

(The Annex 6 definition includes the following notes, not included in Annex 1)

Note 1: *The State may provide guidance in those cases where the definition of flight time does not describe or permit normal practices. Examples are: crew change without stopping the rotors; and rotors running engine wash procedure following a flight. In any case, the time when rotors are running between sectors of a flight is included within the calculation of flight time.*

Note 2: *This definition is intended only for the purpose of flight and duty time regulation.*

(e) **Flight Time (FARs):** means Pilot time that commences when an aircraft moves under its own power for the purpose of flight and ends when the aircraft comes to rest after landing.

(2) The following **abbreviations** are used in this document:

(a) **AC**: Advisory Circular;

(b) **CARs**: Canadian Aviation Regulations;

(c) **FARs**: Federal Aviation Regulations (U.S.A.);

(d) **GAPL**: General Aviation Policy Letter;

(e) **ICAO**: International Civil Aviation Organization;

(f) **IAW**: In accordance with;

(g) **NPA:** Notice of Proposed Amendment;

(h) **PL:** Policy Letter; and

(i) **TC:** Transport Canada.

3.0 BACKGROUND

(1) The definition of flight time was incorporated into the *Canadian Aviation Regulations* (CARs) in 1996 without change from the previous version in the *Canadian Air Navigation Orders* and *Air Regulations*. This definition is consistent with the current Federal Aviation Administration (FAA) definition.

(2) The CARs definition of aircraft includes both aeroplanes and helicopters.

(3) In 2005, the Transport Canada (TC) General Aviation division developed Policy Letter (PL), GAPL 2005-02 that supported the use of the International Civil Aviation Organization (ICAO) Annex 1 definition of *flight time - helicopter* by flight training schools. This definition, if adopted, would have affected all helicopter operations – not just flight training schools.

(4) Using the ICAO definition for *flight time - helicopter* which includes an allowance for rotors turning to rotors stopped introduces a significant discrepancy between aeroplanes and helicopters because aeroplanes do not record start up and shut down times as flight time.

(5) GAPL 2005-02 was never incorporated in the CARs and cannot be used in place of the approved CARs definition for flight time.

(6) TC determined the existing CARs definition of *flight time* was more appropriate to ensure regulatory compliance by flight students, pilots, and air operators with the intended personnel licensing requirements. This would also ensure consistency by logging flight time in both aeroplanes and helicopters in accordance with the existing common standard. Subsequently, the GAPL was cancelled in 2009 and the Notice of Proposed Amendment (NPA) withdrawn.

(7) The Transport Canada interpretation of the existing CARs definition permits the pilot of a skid-equipped helicopter to exercise discretion and add a component to the flight time logged for those activities where the aircraft has landed (is in full contact with the ground) and the pilot remains at the controls without shutting down between flight segments. This is also consistent with Note 1 of the ICAO definition (above) for guidance to the pilot.

(8) However; the misuse of the ICAO definition itself in Canada when applied to pilot training operations is a serious concern. The current training syllabus for a commercial helicopter pilot licence in Canada only requires 100 hours of flight time - the minimum requirement specified in ICAO Annex 1 - Personnel Licensing. 150 hours of flight time is generally accepted internationally as the minimum standard for a commercial helicopter pilot licence.

(9) Including calculations for rotors start to rotors stopped as flight time negatively impacts the actual time spent in flight. For example - six minutes spent in start-up and shut down procedures for every hour of flight training can add up to ten per cent of the student's total flight training time being spent on the ground, in repetitious activities that should be mastered in the first few flight training sessions. A pilot undertaking a 100 hour flying course could have as few as 90 hours of actual air time and yet qualify for commercial licence issuance, eroding the already minimal licensing requirements.

(10) Flight schools must not log student flight time based on rotor start / stop times as that practice contravenes the CARs. As well, the negative safety impact on the intended training time for the commercial helicopter pilot licence is significant.

3.1 ANALYSIS

3.1.1 CARs Air Time Definition

(1) Air time as defined in the CARs is quite clear in its intent. It is simply the time in the air and is used primarily for technical component record keeping. However, there are exceptional operational circumstances that helicopter pilots must address. In some operations, helicopter pilots may have to hold their position involving partial ground contact by means of power and control inputs. Examples include toe-in operations, slope landings, hover exit with one skid in ground contact, or landing on surfaces that will not support the weight of the aircraft like deep powder snow, swamps or string bogs.

(2) In these cases, the pilot continues to literally fly the helicopter in position by manipulation of the controls and engine power lever(s) or throttle(s) set to the flight detent. This time should be logged as air time rather than flight time and applies whenever the aircraft is in partial ground contact, but has not securely landed. Anytime the helicopter position is maintained solely by aerodynamic forces and pilot control inputs cannot be construed as a landing. More simply stated, – if you can't lower the collective to the minimum stop and reduce the engine(s) to idle, you have not landed.

3.1.2 CARs Flight Time Definition

(1) The term "Flight Time" is defined under subsection 101.01(1) of the CARs which states "**flight time** *means the time from the moment an aircraft first moves under its own power for the purpose of taking off until the moment it comes to rest at the end of the flight*. This definition can be divided and analyzed in accordance with the following sub-elements:

(a) Element: *"Flight Time means the time from the moment an aircraft first moves under its own power for the purpose of taking off"…*

This element must be read as a single action. Although a skid-equipped helicopter may move (vibrate or shake) during start up, it does not move under its own power for the purpose of taking off until all start and system checks have been completed and the pilot actively applies control inputs to lift the aircraft vertically. In the case of a skid-equipped helicopter, that initial movement occurs when the skids leave the supporting surface;

(b) Element "*until the moment it comes to rest at the end of the flight*"…

Flight time ends when the skid-equipped helicopter contacts the supporting surface and shutdown actions are initiated by the pilot such as when the collective is fully reduced to the minimum position and moving the throttle(s) from the flight to idle position. The term "*comes to rest**"*** has been purposely selected in the definition, rather than "*landing**"***, because "*comes to res*t" is interpreted to mean the chosen place for shutdown, or where no further flight is intended. In most cases, the shutdown sequence particular to the type will commence at this juncture; any or all intermediate stops where the pilot remains at the controls is to be included in the logging of flight time subsequent to the first take off.

3.2 EXAMPLES:

(1) The skid-equipped helicopter is positioned outside of the hangar for a flight. The pilot starts the helicopter, completes the system checks, makes a radio call advising intentions and repositions to the taxiway take off point. There is a delay due to other traffic. Flight time commences when the helicopter takes off to hover taxi from the hangar pad and continues while on the ground waiting for the departure instruction. Air time is only logged for the actual time in the air.

In this example, flight time and air time are not equal. (FT exceeds AT)

(2) This same flight involves several short segments and landings and then a shutdown at a camp for lunch. The first stop is for a crew change at a logging camp. The pilot lands and remains at the controls with the engine idling as the crew disembarks and another climbs on board. The time on the ground is added to the flight time calculation.

In this example, flight time and air time are not equal. (FT exceeds AT)

(3) The next leg involves a landing in a swampy clearing to deliver tools. The equipment is off loaded while the pilot holds position with some up collective and directed cyclic on the wet, boggy surface to prevent the skids from sinking or the helicopter from rolling over. Air time continues to accrue during this procedure because the pilot must hold position with the flight controls and cannot put all of the weight on the skids. The helicopter departs and lands at destination and the controls are secured for shut down. In this example, air time includes the actual time in the air and the time in partial contact with the ground.

In this example, flight time and air time are equal. (FT equals AT)

(4) The helicopter is being used for training purposes and unlike newer models, is not equipped with an automatic air time recording device. During the flight, a number of full-on autorotations are conducted. Following the landings, the throttle is brought back to flight RPM followed by a takeoff. After one of the more challenging landings, the instructor gives a lengthy debriefing on the ground before bringing back the throttle to flight RPM, followed by a takeoff. The flight time calculation includes the time spent on the ground.

In this example, flight time and air time are not equal. (FT exceeds AT)

(5) The helicopter is being used for training purposes and is not equipped with an automatic air time recording device. During the flight, a number of hovering autorotations are conducted. After each landing, the throttle is immediately restored and the hover re-established for another simulated engine failure in the hover. As the time on the ground is minimal, the pilot chooses to log the flight as air time only.

In this example, flight time and air time are equal. (FT equals AT)

(6) The helicopter is located on a pad in a remote camp and is to be operated/flown to another camp in the mountains. The pilot starts the helicopter, completes the system checks, makes a radio call advising intentions and takes off directly enroute. Upon arrival, the helicopter lands on the pad and the pilot commences shutdown procedures.

In this example, flight time and air time are equal. (FT equals AT)

3.3 SUMMARY

(1) Logging of flight time and air time must be in accordance with the above noted CARs definitions and not the ICAO definition.

(2) Flight Time for a skid-equipped helicopter commences when it first leaves the supporting surface, includes all intermediate stops where the pilot remains at the controls, and ends when the helicopter comes to rest on the supporting surface with the intention of shutdown.

Note: *The reduction of the throttle(s) to idle, or other actions taken to secure any system(s) temporarily between flight sectors does not affect the flight time calculation. The clock continues to run. Flight time ends when the pilot decides to shut down the helicopter and commences the shutdown procedures for that type.*

(3) Although the AC speaks to skid-equipped helicopters, it applies equally to float-equipped helicopters or any other combination of non-wheeled helicopters.

(4) Wheeled helicopters calculate flight time in the same manner as aeroplanes and should include intermediate stops not involving shut downs to determine their total flight time.

(5) Operators must provide specific company guidance to their pilots for clarity and consistency of the application of the flight time definition in their documents as above.

Note: *Further examples of flight logs (flight time versus air time) for both skid-equipped and wheel – equipped helicopters for comparison purposes are provided in Appendices A and B in this AC.*

4.0 CONCLUSION

(1) The CARs provide a definition of flight time which operators must follow in accordance with that interpretation and the guidance provided in this AC.

(2) There are no plans to change the TC interpretation and method currently used to record flight time in the aircraft journey log book and pilot log book.

(3) TC's position is that for a skid equipped helicopter, this interpretation is consistent with the CARs definition. In some instances, this means flight time and air time will be equal, and in other cases, the calculations will differ according to circumstances where the pilot remains at the controls between flight segments.

(4) Operators must ensure that all of their pilots record flight time in accordance with these instructions.

5.0 INFORMATION MANAGEMENT

Not applicable.

6.0 Document history

Not applicable.

7.0 CONTACT office

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Suggestions for amendment to this document are invited, and should be submitted via:
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APPENDIX A — FLIGHT AND AIR TIME SKID/FLOAT EQUIPPED HELICOPTER

The following is an example of how to calculate flight and air time for a skid/float equipped helicopter:

FLIGHT AND AIR TIME SKID/FLOAT EQUIPPED HELICOPTER				
Sequence	Location	Time	Flight Time	Air Time
Engine Start	Parking Spot	08:00		
Taxi	Parking Spot	08:10	Commence	
1st Takeoff	Runway	08:20		
1st Landing	Field Site	08:40		30
2nd Takeoff	Field Site	08:47		
2nd Landing	Field Site	08:57		10
3rd Takeoff	Field Site	09:03		
3rd Landing	Field Site	09:28		25
4th Takeoff	Field Site	09:35		
Approach	Runway	09:55		
Stop Taxi 4th Landing	Parking Spot	10:06	Stop	31
Engine Shutdown	Parking Spot	10:08		
Total			1Hr 56 Minutes	1 Hr 36 Minutes

Flight is the time from the moment an aircraft first moves under its own power for the purpose of taking off until the moment it comes to rest at the end of the flight. In this case it is from 08:10 to 10:06, 1hour 56 minutes.

Air time is the time from the moment an aircraft leaves the surface until it comes into contact with the surface at the next point of landing. In this case there were four takeoffs and landings during the flight, for a total of 1 hour 36 minutes of Air time.

APPENDIX B — FLIGHT AND AIR TIME WHEEL EQUIPPED HELICOPTER

The following is an example of how to calculate flight and air time for a wheel equipped helicopter:

FLIGHT AND AIR TIME WHEEL EQUIPPED HELICOPTER				
Sequence	Location	Time	Flight Time	Air Time
Engine Start	Parking Spot	08:00		
Taxi	Parking Spot	08:10	Commence	
1st Takeoff	Runway	08:20		
1st Landing	Field Site	08:40		20
2nd Takeoff	Field Site	08:47		
2nd Landing	Field Site	08:57		10
3rd Takeoff	Field Site	09:03		
3rd Landing	Field Site	09:28		25
4th Takeoff	Field Site	09:35		
4th Landing	Runway	09:55		20
Stop Taxi	Parking Spot	10:06	Stop	
Engine Shutdown	Parking Spot	10:08		
Total			1Hr 56 Minutes	1 Hr 15 Minutes

Flight is the time from the moment an aircraft first moves under its own power for the purpose of taking off until the moment it comes to rest at the end of the flight. In this case it is from 08:10 to 10:06, 1hour 56 minutes.

Air time is the time from the moment an aircraft leaves the surface until it comes into contact with the surface at the next point of landing. In this case there were four takeoffs and landings during the flight, for a total of 1 hour 15 minutes of Air time.