

FSG 300-01

TEMPORARY FLYING RESTRICTIONS

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References:

- A. RCAF Flight Operations Manual (FOM) 4.1.4 Aircrew Grounding and Ungrounding
- B. [A-MD-154-000/FP-000 Canadian Armed Forces Medical Standards \(CFP 154\)](#)
- C. [AMA 100-01 Medical Standards for CF Aircrew](#)
- D. [FSG 1900-01 Medications and Aircrew](#)
- E. B-GG-380-000/FP-002 CF Diving Manual Vol 2, Organisation, Regulations, Rules & Compressed Air Breathing Apparatus (CABA) Diving
- F. STANAG 3474 AMD (EDITION 5) Temporary Flying Restrictions due to Exogenous Factors Affecting Aircrew Efficiency Sep 2010
- G. US Army Regulation 40-8 Temporary Flying Restrictions Due to Exogenous Factors Affecting Aircrew Efficiency

Record of Amendments:

Date (DD/MMM/Y Y)	Changes	OPI/SME	Fully Reviewed (Y/N)
Jan 2016	Restrictions for medications now found only in ref D. Anaesthetic reduced to 48 hrs. Routine immunization reduced to 12 hrs. Added ROBD and CADO 2 hr. Added RUET grounding of 4 hrs.	ASCS	Y
Feb 2020	Change to para 10 Old – para 10 ...flying as crewmembers for 12 hours following completion of the simulator session (but may fly as passenger). New– para 10 ...flying for 12 hr unless by exception as described in FOM 4.2.1.5 - Simulator Restrictions.	ASCS	N

April 2021	1. Paragraph 14 (New) Paragraph 14 (New) Information added about grounding post COVID-19 vaccination	ASCS	N
June 2021	1. Changes: Minimum grounding period changed from 72 hrs to 24 hrs for plasma and platelets donation for volumes less than or equal to 450 cc.	ASCS	N
Nov 2023	1. Change to para 12. Allergy desensitization to include information about geographic TCAT. 2. Change to para 13. Japanese encephalitis: Decrease grounding period to 12 hrs (from the current 72hrs). 3. Change to para 14. COVID vaccination – grounding to remain at 48 hrs, reduction to 48 hrs no diving (from 72 hrs)	ASCS	N

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Annex A – Quick Reference

AIM

1. This Flight Surgeon Guideline (FSG) stipulates the minimum temporary flying or controlling restrictions for CAF aircrew in a variety of non-clinical circumstances. When medical employment limitations such as unfit flying, controlling duties, or simulated ascents are applied this is also known as grounding. The restrictions discussed in this FSG are of short duration and do not typically affect the long-term aircrew status of the member.
2. This Guideline does not preclude a Flight Surgeon or Basic Aviation Medicine Provider (referred to collectively as aviation medicine providers) from imposing any restriction considered to be clinically necessary in addition to those specifically covered in this guideline, other FSGs or instructions. If the aircrew member's situation is complicated consult with the 1 Cdn Air Division Surgeon office or CFEME before applying this guideline.

BACKGROUND

3. Medical fitness is a factor in determining overall effectiveness of RCAF personnel. Aeromedical risk evaluation of a medical condition, medication or other circumstance that might degrade effectiveness includes considerations such as flight safety and operational effectiveness. It is incumbent upon aviation medicine providers to clearly and precisely describe aircrew limitations.
4. Aircrew instructions to self-ground for circumstances such as alcohol use (CADO 1-270), mild illness/injury, or fatigue/ duty time restrictions (FOM 2.3.3 – part 3) are found elsewhere. When an aircrew member is in any doubt about fitness to fly, aircrew must report to an aviation medicine provider for assessment (ref A).
5. Definitions and procedure for grounding and ungrounding are specified in ref A. Medical instructions for temporary medical categories, including grounding, are found in reference B. The air factor and any associated medical employment limitations (MEL) identify the functional capacity of aircrew. A1 - A4 are aircrew factors and define the MOSID-specific duties which a member can perform (ref C). A3 indicates MEL have been applied and is used only in combination with those MEL. A7 is MOSID-specific assigned to aircrew that are medically unfit for flight or controlling duty (i.e., grounded) but typically may still fly as passengers. If an aircrew member is unfit flying duties and unfit to fly as passenger both should be stated as MEL.

MEDICAL CONDITIONS

6. Evaluation of temporary aircrew flying restrictions relating to medical condition, prognosis, recovery or management thereof is outside the scope of this FSG. The process is individualized and guided by condition-specific FSGs, references B and C, (CF H Svcs Instruction 4154-00 in development) and occupational requirements.

PRESCRIBED OR OVER-THE-COUNTER MEDICATION

7. Prescribed and over-the-counter medication use in aircrew is discussed in reference D. Grounding considerations include the potential side effects of the medication and the performance implications of the medical condition for which it is being taken. Incapacitation, significantly compromised performance or subtle suboptimal function must all be considered. Aircrew members are instructed to ground themselves if taking any medications (prescription or non-prescription), herbal preparations or supplements without the approval of a Flight Surgeon (ref A).

REGIONAL AND GENERAL ANAESTHETICS

8. Grounding for longer than listed below may be necessary after regional or general anaesthetic due to the medical reasons for administration of the anaesthetic, or type and extent of surgery. If there are side effects from the anaesthetic then an aviation medicine provider should make an individualised decision on flight restriction. Administration of the anaesthetic itself requires grounding, for:
 - a. General, spinal or epidural anaesthetic. Minimum three days grounding and then may return to flying duties if no adverse effects;

- b. Major peripheral nerve blocks. Minimum 48 hrs grounding and then may return to flying duties if no adverse effects;
- c. Short-acting IV sedative (e.g., midazolam, ketamine, fentanyl, etc). Minimum 72 hr grounding and then may return to flying duties if no side effects; and
- d. Local or regional anaesthetic for minor procedures including dental. Minimum 12 hr grounding and then may return to flying duties if no adverse effects.

BLOOD AND MARROW DONATIONS

9. Aircrew are permitted to voluntarily donate blood, platelet, plasma or bone marrow with the following minimum grounding:

- a. Blood donation. Minimum 72 hr grounding from crewmember duties, and may return to flying if no side effects.
- b. Platelet and Plasma donation less than or equal to 450 cc in volume. Minimum 24 hr grounding from crewmember duties, and may return to flying if no side.
- c. Bone Marrow donation. Minimum two weeks grounding is advised after each harvest, but ungrounding requires aviation medicine provider assessment.

SIMULATOR, CENTRIFUGE OR SPATIAL DISORIENTATION TRAINING

10. Aircrew undertaking a simulator session in a virtual environment, using head mounted displays, simulators equipped with a visual display system and/or a motion system are prohibited from flying for 12 hr unless by exception as described in FOM 4.2.1.5 - Simulator Restrictions.

11. Aircrew undertaking centrifuge and/or spatial disorientation training are prohibited from flying as crewmembers (may fly only as passengers) for:

- a. 12 hours upon completion of spatial disorientation training;
- b. 24 hours following completion of spatial disorientation training if the aircrew exhibits symptoms of motion sickness during training;
- c. 12 hours following completion of centrifuge training. If there is a GLOC the aircrew must not drive for four hours and may not fly as crewmember for a minimum of 12 hours including an overnight sleep.

ALLERGY DESENSITIZATION

12. Aircrew require a 12 hour grounding following initiation of desensitization therapy and following each administration of an escalating dose. Return to flying duties without restriction follows only if there are no adverse systemic effects. Four hour grounding is required following all

maintenance doses of desensitization therapy with return to flying duties only if there are no side effects. Members requiring monthly allergy shots normally require a series of TCATs with a change in Geographic Factor indicating the need for monthly follow-up for the duration of treatment. As of Sept 2022, TCATs solely for allergy desensitization therapy have been delegated to Base/Wing Surgeons. In most cases, this will not require a change to Air Factor.

IMMUNIZATION

13. Most vaccines are safe to administer and cause only minor side effects, including mild fever. Aircrew require a 12 hour initial grounding after routine immunization (including influenza, and Yellow Fever, and Japanese Encephalitis) and then may continue to fly without restriction if there are no adverse effects. If immunization reactions (other than local redness, swelling, tenderness) occur the member shall report to an aviation medicine provider who will determine if further restriction from flying is required.

14. COVID-19 vaccination requires a 48-hr grounding period (and 48 hr no-diving period). Similar to grounding-by-policy for other vaccinations, aircrew may return to flight duties without restriction (or assessment by an aviation medicine provider) at 48 hrs post-vaccination provided they are no longer experiencing adverse effects related to the vaccine. Given the frequency of potential adverse effects of mRNA vaccines lasting up to 72 hours following COVID-19 vaccination aircrew are to remain grounded until all adverse effects have resolved when present. If symptoms persist beyond 72 hrs, or they are either severe or atypical, aircrew shall report to an aviation medicine provider who will determine if further restriction from flying is required.

15. No aircrew restriction is needed for traveler's diarrhea prophylaxis (although oral antibiotic or oral cholera vaccination prophylaxis is not routinely recommended).

16. Immune globulin Injection (SC or IM) may cause local reactions as the administration site, but grounding is not routinely required. Intravenous immune globulin (IVIG) is more likely to produce a systemic reaction (20-50% of individuals, although most reactions are mild) so an aviation medicine provider should be consulted before return to flight duties.

17. Aircrew must be observed for 15 minutes in the health care clinic after receiving a tuberculin skin test (TST).

18. Antiviral prophylaxis for seasonal influenza may be considered under some restricted circumstances (e.g., CFHS Advisory 6636-35). Oral or inhaled antiviral agents side effects and reactions may be expected in the first 24 hours. Aircrew require a minimum 24 hour grounding and then may return to full flying/controlling duties if no adverse effects and if no acute infectious illness is apparent.

GAS HUT TRAINING

19. Aircrew require two hour grounding and then may return to flying duties without restriction if there are no adverse effects following exposure to "Gas Hut" training exposure to CS gas. Aircrew member must shower and change all clothing items worn in the gas hut before returning to flight duties.

20. Non-training CS gas exposures or exposures without protective equipment requires aviation medicine provider assessment. Exposure to any other CBRN agent requires aviation medicine provider assessment.

OPHTHALMOLOGICAL EXAM

21. Aircrew require 24 hour grounding after a cycloplegic refraction/dilated funduscopy. The dilating effect of the anticholinergic cyclopentolate in particular may last up to 24 hours.

HYPOBARIC/SIMULTATED ASCENT

22. When adverse symptoms or reactions occur or Decompression Sickness (DCS) is suspected during or after a hypobaric chamber exposure, suspension from flying duties is mandatory until fitness is evaluated by an aviation medicine provider (see also section on DCS below).

23. ROBD or CADO hypoxia demonstration requires two hour grounding. If there are adverse effects during the demonstration an aviation medicine provider assessment is needed for ungrounding. Hypobaric chamber exposure exceeding the equivalent of 25,000 ft requires grounding as crew and passenger for 12 hours.

24. Hypobaric chamber simulated ascent will not be performed within 48 hours of the completion of any water dive.

HYPERBARIC/DIVING

Flying after Diving

25. The incidence of decompression sickness during flight is considerably increased after exposure to any environment greater than 1 atmosphere of pressure, which includes recreational self-contained underwater breathing apparatus (SCUBA) diving. A rough rule-of-thumb for those not conversant with established flying-after-diving directives (Ref E, or agencies certifying recreational diving) is that flying as crew or passenger should not take place within 24hrs of diving; however, this recommendation is conservative most of the time, but inadequate under certain circumstances. This 24 hr grounding applies to non-repetitive no-decompression air dives and hyperbaric chamber exposures. If there are adverse effects an aviation medicine provider is required to clear the member for flight after consultation with Air Division Surgeon office.

26. There are exceptions to the above 24 hr rule based on no-decompression dive tables (Ref E section 313) e.g., SAR Techs, Ship or Clearance Divers. Exceptions will be made only by those trained to make this assessment.

- a. Before flying after a no-decompression (No-D) dive allow enough surface interval time, based on the highest repetitive group (RG) achieved and applied after the last dive, for the repetitive factors (RF) to diminish to 1.0. Ref E provides full guidance for the calculation of RF with examples;

- b. After No-D dives to a maximum depth of 15 msw (50 fsw) for search and rescue operations or training, flying immediately after diving is permitted to a maximum cabin altitude of 610 metres (2000 feet) MSL. The aircraft that will transport the divers must carry oxygen in case of DCI. The quantity of oxygen should be sufficient to allow oxygen breathing for all divers throughout the flight;
- c. After a decompression dive a minimum surface interval (SI) of 24 hours is required before flying; and
- d. Hypobaric chamber duties will not be permitted within 48 hours of the completion of any dive.

27. In exceptional situations CAF divers such as clearance, ship and rescue specialist divers may fly sooner after diving with the review and approval of any Consultant in Diving Medicine. Options for contacting Consultant in Diving Medicine can be found at Ref E (page i) or via Air Div Surg office.

Aircraft Pressurization Testing

28. The following time periods must elapse before members who have been exposed to pressure while testing an aircraft pressurization system on the ground are permitted to fly as crew or passenger, or ascend in a hypobaric chamber (see ref E for full discussion of this topic):

- a. 30 minutes grounding following any single pressurization to a level not exceeding 1.6 ATA (20 fsw; 17.6 inches Hg gauge; 8.7 psig) involving pressurization and depressurization over not less than 5 minutes but not more than 10 minutes and a maximum time at peak pressure of no more than 5 minutes;
- b. 9 hours grounding following any pressurization(s) to a level not exceeding 1.9 ATA (30 fsw; 26.9 inches Hg gauge; 13.2 psig) for a duration not exceeding 30 min total time under pressure per 24 hours;
- c. 18 hours grounding following pressurization(s) to a level not exceeding 1.9 ATA for a duration exceeding 30 min total time under pressure per 24 hours but not exceeding 5 hours total time; and
- d. A minimum of 24-48 hours grounding following any pressurization(s) to a level not exceeding 1.9 ATA for a duration exceeding 5 hours per 24 hours total time under pressure. Such extreme pressurization(s) must be regarded as a 'decompression dive'. The advice of a Consultant in Diving medicine must be obtained under such circumstances.

Rotary Wing Underwater Escape Training (RUET)

29. A four hour grounding interval between last training immersion and commercial flight or operational helicopter flying (ref F) is sufficient provided:

- a. total time of immersion is less than 20 min;
- b. depth of immersion has not exceeded 3 meters; and

- c. cabin pressure altitude is not above 8000 ft.

DECOMPRESSION SICKNESS

30. When suspicion of symptoms of decompression sickness (DCS) occur during or after flying, decompression event, or during or after high altitude exposure or an hypobaric chamber, aircrew or passengers shall not be permitted to re-ascend either in aircraft or hypobaric chamber exposure until cleared to do so. Consult with Air Division Surgeon office is required.

31. Grounding for DCS shall be guided by the clinical situation. Consultation with a Dive Medicine Consultant or Air Division Surgeon office is required. Guidelines for DCS grounding duration are:

- a. Type 1 DCS. Aircrew are unfit flying for 72 hours following the complete relief of these symptoms, whether treated with hyperbaric oxygen or not;
- b. Type 2 DCS and arterial gas embolism (AGE). Aircrew are unfit flying for 7 days following the complete relief of these symptoms, whether treated with hyperbaric oxygen or not;
- c. Type 2 DCS with residual symptoms requiring more than one hyperbaric oxygen treatment(s) and AGE requiring more than one hyperbaric oxygen treatment(s). Aircrew are unfit flying for 10 days following complete relief of these symptoms; and
- d. Symptoms or reactions other than DCS during or after exposure to decreased pressure in a hypobaric chamber. The aircrew member shall consult the attending aviation medicine provider who may order a temporary suspension from flying or other hypobaric activities.

QUESTIONS

32. For questions or clarification contact the Air Division Surgeon office/ASCS using office numbers during working hours and Air Div Surg call cell phone on weekend or after hours only (204) 801-8983. Please refer to the [Air Div Surg website](#) for more contact details.

33. References on NATO and allied practice wrt temporary flying restrictions can be found at references F and G, and scattered within USAF and USN waiver guides.

Annex A
FSG 300-01

Quick Reference – Minimum Temporary Flying Restrictions

General, spinal or epidural anaesthetic	72 hrs
Peripheral nerve blocks major	48 hrs
Short-acting IV sedative	72 hrs
Local/regional anaesthetic minor	12 hrs
Blood donation	72 hrs
Platelet and Plasma donation <450 cc	24 hrs
Bone marrow donation	two weeks
Simulator	12 hrs
Spatial Disorientation training	12 hrs
Centrifuge	12 hrs
Allergy Desensitisation	12 hrs after initiation; 4 hrs maintenance doses
Immunization	12 hrs
Gas Hut training	two hrs
Cylcoplegic exam	24 hrs
ROBD / CADO	two hrs
Flying after diving	24 hrs after last dive rule-of-thumb
RUET	four hours
DCS	requires aviation medicine provider assessment
Ground pressurisation testing	30 min to 48 hrs depending on exposure