



Staff Instruction

Subject: **Agricultural Aeroplane Operations – Exemption from Subsection 605.03(1)(b) and Section 602.07 of the *Canadian Aviation Regulations***

Issuing Office:	Standards	Document No.:	SI 600-001
File Classification No.:	Z 5000-32	Issue No.:	01
RDIMS No.:	8666020-v12	Effective Date:	2014-05-07

TABLE OF CONTENTS

1.0	INTRODUCTION.....	2
1.1	PURPOSE.....	2
1.2	APPLICABILITY	2
1.3	DESCRIPTION OF CHANGES.....	2
2.0	REFERENCES AND REQUIREMENTS.....	2
2.1	REFERENCE DOCUMENTS.....	2
2.2	CANCELLED DOCUMENTS.....	3
2.3	DEFINITIONS AND ABBREVIATIONS.....	3
3.0	BACKGROUND	3
4.0	PROCEDURES.....	4
5.0	DELEGATED AUTHORITY	5
6.0	REQUIREMENTS	5
6.1	INSPECTION	5
6.2	REPORTING.....	5
7.0	CONTACT OFFICE	7

ANNEX A: **Exemption Policy Document concerning the Exemption Process Requirements from the *Canadian Aviation Regulations* (CARs) with regard to Aeroplanes Engaged in Agricultural Operations for the Aerial Dispersion of Jettisonable Cargo**

ANNEX B: **Sample Exemption from Subsection 605.03(1)(b) and Section 602.07 of the *Canadian Aviation Regulations***

1.0 INTRODUCTION

- (1) The predecessor to this document, Aircraft Certification Staff Instruction (ACSI) number 26, Issue 01, 1998-07-20 — *Agricultural Aeroplane Operations – Exemption from Paragraphs 605.03(1) and 602.07(b) of the Canadian Aviation Regulations* (RDIMS # 292197), provided instructions for the issuance of exemptions allowing the operation of aeroplanes engaged in special purpose agricultural operations for the aerial dispersion of jettisonable cargo. The current practice is to allow such operations where the operation would exceed the maximum weight limits specified in the applicable type certificate data sheets, provided that certain terms and conditions are met. This guidance is revised to reflect changes in the regional organizational structures and reissued with two important changes:
 - (a) Exemptions are to be issued with no expiry date, thus reducing administrative burden on both operators and Transport Canada Civil Aviation (TCCA); and
 - (b) Utilization statistics are to be reported so that a clear picture of who is using these exemptions and how often can be discerned.

1.1 Purpose

- (1) The purpose of this document is to:
 - (a) provide information and basic procedures to Regional Operations personnel relating to the application procedures associated with the submission of requests for an exemption allowing agricultural aeroplanes engaged in the aerial dispersion of jettisonable cargo to operate overweight;
 - (b) provide information and basic procedures to Regional Operations personnel relating to the requirements for the Regions to evaluate exemption requests; and,
 - (c) ensure that all Regions uphold a single standardized approach to issuing exemptions relating to agricultural aeroplanes operating overweight.

1.2 Applicability

- (1) This exemption policy applies only to aeroplanes approved for agricultural operations which:
 - (a) Have a normal take-off weight limit of 12,500 lb. or less; and
 - (b) Have a cargo jettison system capability permitting the pilot to jettison 80 percent (80%) of the jettisonable load in six (6) seconds or less.

1.3 Description of Changes

- (1) Changes in TCCA Regional Office organization and delegation have changed the approver for operational exemptions.
- (2) Exemptions are to be issued with no expiry date, thus reducing administrative burden on both operators and TCCA; and
- (3) Utilization statistics are to be reported so that a clear picture of who is using these exemptions and how often can be discerned.

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) *Aeronautics Act* (R.S., 1985, c. A-2);

- (b) Part VI, Subpart 5 of the *Canadian Aviation Regulations* (CARs) — *Flight Authority* (CAR 605.03);
- (c) Part VI, Subpart 2 of the *Canadian Aviation Regulations* (CARs) — *Aircraft Operating Limitations* (CAR 602.07);
- (d) Civil Aviation Directive (CAD) REG-003, Issue 01, 2009-10-01 — *Exemptions From Regulatory Requirements*, RDIMS # 3974018.

2.2 Cancelled Documents

- (1) As of the effective date of this document, the following document is cancelled:
 - (a) Aircraft Certification Staff Instruction (ACSI) 26, Issue 01, 1998-07-20 — *Agricultural Aeroplane Operations – Exemption from Paragraphs 605.03(1) and 602.07(b) of the Canadian Aviation Regulations*, RDIMS # 292197.
- (2) By default, it is understood that the publication of a new issue of a document automatically renders any earlier issues of the same document null and void.

2.3 Definitions and Abbreviations

- (1) The following **definitions** are used in this document:
 - (a) **Class of Person:** May include aeroplane operators and owners
 - (b) **Operator:** in respect of an aircraft, means the person that has possession of the aircraft as owner, lessee or otherwise (definition repeated from CAR 101.01). *Note: the term operator is used in most instances in this document to indicate the owner or operator, as per the CAR 101.01 definition.*
- (2) The following **abbreviation** is used in this document:
 - (a) **NCAMX:** National Civil Aviation Management Executive of Transport Canada

3.0 BACKGROUND

- (1) This Staff Instruction (SI) pertains to the operation of aeroplanes engaged in special purpose agricultural operations for the aerial dispersion of jettisonable cargo (i.e., herbicides, pesticides, etc.). The current practice is to allow such operations where the aeroplane would exceed the specified maximum weight limits in the applicable type certificate data sheets, provided that certain terms and conditions are met.
- (2) Subsection 5.9(2) of the *Aeronautics Act* allows the Minister to exempt any person or class of persons from complying with specific regulations subject to prescribed conditions if it is in the public interest and is not likely to adversely affect aviation safety. This SI provides Transport Canada staff, as well as operators of agricultural aeroplanes, criteria to be considered when an exemption from complying with take-off weight limitations governed by subsection 605.03(1)(b) and section 602.07 of the *Canadian Aviation Regulations* (CARs) is requested.
- (3) Farmers use light aeroplanes to apply pesticides and herbicides to their crops. To allow for this farming industry practice, TCCA issues exemptions to the above mentioned CARs. This SI ensures that a standardized approach is used when issuing the exemptions. The addition of reporting requirements in this guidance will allow TCCA to develop a utilization profile and more accurately assess the need for future activity.
- (4) Despite the provisions of CAD-REG-003, “Exemptions from Regulatory Requirements,” stating that an exemption that is neither a certification exemption nor a regulatory amendment in progress is limited to an 18-month maximum validity period, the Director of Standards (AART) and the Director of Policy and Regulatory Services (AARB) have authorized the issuance of exemptions with indefinite validity periods (i.e., no expiry date) in order to reduce administrative

burden that provides no perceived safety benefit on applicants and TCCA. For that reason, it is imperative that these exemptions be recorded and tracked. (See Paragraph 6.2 (2).)

- (5) The provision to exempt from CAR 602.07, “Aircraft Operating Limitations” relieves the requirement to operate the aeroplane at or below the maximum certificated take-off weight that is approved for that aeroplane (as long as the scope of the exemption is limited to that specific limitation only). The conditions of the exemption provide for new maximum weight and centre-of gravity limitations.
- (6) The provision to exempt from CAR 605.03(1)(b), “Flight Authority” relieves the requirement to operate the aeroplane at or below the maximum certificated take-off weight that is expressed on its flight authority (as long as the scope of the exemption is limited to that specific limitation only). The conditions of the exemption provide for new maximum weight and centre-of gravity limitations.

4.0 PROCEDURES

- (a) Regions are to reproduce the request for exemption form included in the “Exemption Policy Document Concerning the Exemption Process Requirements from the Canadian Aviation Regulations (CARs) with regard to Aeroplanes Engaged in Agricultural Operations for the Aerial Dispersion of Jettisonable Cargo”, which is included in Annex A of this document, and make it available to the public upon request.
- (b) The operator is to establish the proposed take-off weight limits through the conduct of a flight evaluation of his aeroplane type.
- (c) The issue of a Flight Permit-Specific Purpose is required for the flight evaluation.
- (d) The applicant may consult the Flight Test Division of the National Aircraft Certification Branch to obtain advice with respect to the flight evaluation.
- (e) The results of the flight evaluation are to form the basis for an Operating Manual Supplement – Overweight Operational Limitations.
- (f) The Operating Manual Supplement will not be approved by TCCA.
- (g) The Regions are to ensure that the conditions of the exemption are satisfied.
- (h) Exemptions issued according to this SI are to be of indeterminate validity (i.e., no expiry date), as authorized by AART and AARB. However, the validity section must continue to provide that the exemption, “...shall be in effect until:
 - (i) the date on which any one of the conditions set out in this exemption is breached; or
 - (ii) the date on which this exemption is cancelled in writing by the Minister where he is of the opinion that the exemption is no longer in the public interest or that it is likely to affect aviation safety.”
- (i) Copies of the request for exemption form, Operating Manual Supplement, and the exemption, once granted, are to be retained on the 5008 aeroplane file for record purposes.
- (j) A Regional office that issues an exemption according to this SI shall maintain a register of all such exemptions issued under this provision so that all exemptions can be readily identified and classified as valid and active or cancelled, and so that information reported by operators can be recalled. This register may be created using existing databases or filing systems (i.e., it need not be a standalone system).
- (k) A Regional office that issues an exemption according to this SI shall forward a scan of the signed copy of each exemption to Regulatory Affairs, AARBH, as instructed in CAD-REG-003.

- (l) A Regional office that issues an exemption according to this SI shall collect the report described in Paragraph 6.2(1) from the operator on behalf of the Minister and forward them (via email) to the Chief, Commercial Flight Standards (AARTF).
- (m) All Regional offices shall forward a summary for each calendar year, once all of the operator reports described in Paragraph 6.2(1) have been received, of the exemptions issued, cancelled and still valid, including a nil report if appropriate, to the Chief, Commercial Flight Standards (AARTF). The summary shall include the exemption numbers and/or RDIMS or other document numbers, operator name, issue date and cancellation date (if applicable).

Information Note: The exemption is to be attached to the Special Certificate of Airworthiness.

- (n) The reporting from the operator required under Paragraph 6.2(1) is in addition to all normal reporting. Any reporting required elsewhere under the CARs, such as service difficulty or other technical reporting, is to be submitted through normal channels.

5.0 AUTHORITY

- (1) In accordance with Schedule A-5 of the TCCA Consolidated Record of Authorities, Regional Directors of Civil Aviation hold the authority to grant such exemptions.

6.0 REQUIREMENTS

- (1) The following supplemental requirements are to be included as conditions of an exemption issued according to this SI, and are already included in the template in Annex B.

6.1 Inspection

- (1) As a condition of any exemptions going forward, the subject aeroplane is to be maintained in accordance with the requirements of subsection 605.86 of the *Canadian Aviation Regulations*. The Maintenance Schedule required by this provision must also include a special structural inspection of the airframe to take into account the effect of the overweight operation on life limited structural elements. In addition, the following inspection requirements must form part of the supplemental inspection program:
 - (a) At the end of each day of operation, the aircraft must be cleaned of any corrosive chemical dispersed during the operation.
 - (b) At every 100 hours of spray operation, or at intervals not to exceed 30 days, the aircraft structure is to be inspected to detect any corrosive defects and structural damage, with surface corrosion protection and structural repairs applied as per approved methods. Any structural damage is to be reported to the responsible regional office for monitoring purposes as soon as possible or, at the latest, within three (3) working days.
 - (c) Prior to the beginning of each spraying season, or at intervals of not more than 12 calendar months, the complete airframe structure, flight controls and their attachments, and landing gear must be inspected for corrosion, structural integrity and proper functioning. Defects discovered are to be rectified using approved methods.

6.2 Reporting

- (1) As a condition of any exemptions going forward, each operator issued an exemption according to this SI must provide the Minister with a report for each calendar year, by the end of February of the following year or by a date agreed mutually between TCCA and the operator, that includes the following information:
 - (a) Name and address of operator.

- (b) List of aeroplanes that **are granted an exemption** to operate in excess of the maximum certificated take-off weight expressed in its limitations and/or on its flight authority by that operator (whether or not they are), including:
 - (i) Aeroplane type and model.
 - (ii) Aeroplane registration.
 - (iii) Maximum Permissible Take-off Weight recorded on the Certificate of Airworthiness (i.e., without use of the exemption).
 - (c) For each aeroplane that **is granted an exemption** to operate in excess of the maximum certificated take-off weight expressed in its limitations and/or on its flight authority (whether or not it is):
 - (i) Total number of flight hours for each aeroplane at the time of reporting and, if available, the approximate number of flight hours accrued in the previous calendar year.
 - (ii) If available, total number of application flights for all aeroplanes that may be operated under this exemption.
 - (d) Information on aeroplanes that **have been operated** under an exemption allowing operation in excess of the maximum certificated take-off weight expressed in its limitations and/or on its flight authority, including:
 - (i) Aeroplane type and model.
 - (ii) Aeroplane registration.
 - (iii) Maximum Permissible Take-off Weight recorded on the Operating Manual Supplement for Overweight Operational Limitations.
 - (iv) If available, number of application flights operated overweight.
 - (v) Number of flight hours operated overweight.
 - (vi) If available, total number of application flights.
 - (vii) Total number of flight hours operated.
 - (viii) Description of any structural issues found during inspection.
 - (e) Information on aeroplanes that **have been operated** under an exemption allowing operation in excess of the maximum certificated take-off weight expressed in its limitations and/or on its flight authority, but have been sold or retired from service for any reason, including:
 - (i) Aeroplane type and model.
 - (ii) Aeroplane registration.
 - (iii) Maximum Permissible Take-off Weight recorded on the Operating Manual Supplement for Overweight Operational Limitations.
 - (iv) Name and address of new owner, or reason for retirement, as appropriate.
- (2) A Regional office that issues an exemption according to this SI shall maintain a register of all such exemptions issued under this provision so that all exemptions can be readily identified and classified as valid and active or cancelled, and so that information reported by operators can be recalled. This register may be created using existing databases or filing systems (i.e., it need not be a standalone system).
- (3) A Regional office that issues an exemption according to this SI shall forward a scan of the signed copy of each exemption to Regulatory Affairs, AARBH, as instructed in CAD-REG-003.

- (4) A Regional office that issues an exemption according to this SI shall collect the report from the operator on behalf of the Minister and forward them (via email) to the contact office, below.
- (5) All Regional offices shall forward a summary for each calendar year, by the end of February of the following year, of the exemptions issued, cancelled and still valid, including a nil report if appropriate, and forward it (via email) to the contact office, below. The summary shall include the exemption numbers and/or RDIMS or other document numbers, operator name, issue date and cancellation date (if applicable).

7.0 CONTACT OFFICE

Suggestions for amendments to this document are invited, and should be submitted via the contact information listed above, or via email to the attention of the Chief, Commercial Flight Standards (AARTF), care of: AARTInfoDoc@tc.gc.ca



Aaron McCrorie
Director, Standards

Transport Canada documents or intranet pages mentioned in this document are available upon request through the Contact Office.

ANNEX A

EXEMPTION POLICY DOCUMENT CONCERNING THE EXEMPTION PROCESS REQUIREMENTS FROM THE *CANADIAN AVIATION REGULATIONS* (CARs) WITH REGARD TO AEROPLANES ENGAGED IN AGRICULTURAL OPERATIONS FOR THE AERIAL DISPERSION OF JETTISONABLE CARGO

TABLE OF CONTENTS

- APPENDIX "I": THE REQUIRED PROCESS WHEN MAKING AN EXEMPTION REQUEST FROM
SUBSECTION 605.03(1)(b) AND SECTION 602.07 OF THE *CANADIAN AVIATION
REGULATIONS*
- APPENDIX "II": REQUEST FOR EXEMPTION FROM THE REQUIREMENTS OF SUBSECTION
605.03(1)(b) AND SECTION 602.07 OF THE *CANADIAN AVIATION REGULATIONS*
- APPENDIX "III": EVALUATION OF THE OVERWEIGHT AEROPLANE TO DETERMINE OPERATING
LIMITATIONS IN THE AERIAL APPLICATION ROLE
- ATTACHMENT I: OVERWEIGHT OPERATION OF AEROPLANES IN THE AERIAL APPLICATION
ROLE
- ATTACHMENT II: OPERATING MANUAL SUPPLEMENT – OVERWEIGHT OPERATIONAL
LIMITATIONS

APPENDIX I

THE REQUIRED PROCESS WHEN REQUESTING AN EXEMPTION FROM SUBSECTION 605.03(1)(b) AND SECTION 602.07 OF THE *CANADIAN AVIATION REGULATIONS*

The Aeroplane

Exemptions will only apply to aeroplanes with normal take-off weight of 12,500 lb. or less which are equipped for the aerial dispersion of cargo in an agricultural role, and have a cargo jettison system which permits the operator to jettison at least 80 percent (80%) of the jettisonable load in six (6) seconds or less.

The Process

A representative request form for an exemption is provided in Appendix II to this Annex.

The guidelines for performing an evaluation of an aeroplane are provided in Appendix III to this Annex.

Before an exemption request is considered, an operator will establish an increased take-off weight by evaluating a specific aeroplane type.

Since the evaluation requires that the aeroplane be operated at weights in excess of the maximum permissible weight contained in the Special Certificate of Airworthiness, a specific purpose flight permit is required for the flight evaluation.

The evaluation guidelines provide information on the suggested maximum take-off weight for airframe structural considerations, and methods for determining the flight characteristics. A pilot conducting an evaluation may obtain additional guidance by contacting by email Transport Canada, Civil Aviation, National Aircraft Certification Branch, Flight Test Division (AARDC) at AARTInfoDoc@tc.gc.ca.

The results of the evaluation are entered into an Operating Manual Supplement, together with the declaration by the pilot making the evaluation that the aeroplane is suited for overweight operations.

A copy of the Operating Manual Supplement, together with the completed exemption request form is required before an exemption request can be considered.

The Exemption

When an exemption is granted, it applies to the operation of a specific aeroplane. That aeroplane can be operated within the limits contained in the "Operating Manual Supplement - Overweight Operational Limitations" (see Attachment II to this Annex for a template for this supplement) which is **NOT** approved by Transport Canada. A number of operating restrictions apply when an exemption is granted, and these form the terms and conditions of the exemption. Ferry flights to reposition the aeroplane may be conducted in accordance with the limitations contained in the aeroplane basic flight manual. The conditions of the exemption apply to **ALL** other operations of the aeroplane.

To transfer the aeroplane for which an exemption has been issued to another operating role, a special airframe inspection program is required and all detected defects must be first be rectified before the transfer can take place.

APPENDIX II

REQUEST FOR EXEMPTION FROM THE REQUIREMENTS OF SUBSECTION 605.03(1)(b) AND SECTION 602.07 OF THE *CANADIAN AVIATION REGULATIONS*

An exemption is requested from the requirements of subsection 605.03(1)(b) and section 602.07 of the *Canadian Aviation Regulations* pursuant to subsection 5.9(2) of the Aeronautics Act. The purpose of this exemption is to allow operators to engage in special purpose agricultural operations for the aerial dispersion of jettisonable cargo. This exemption is to apply to the operators for the aeroplanes listed herein.

A representative aeroplane of each make and model for which this exemption is requested has been subject to an evaluation of the overweight aeroplane to determine its operating limitations in the aerial application role, the results of which will become a condition of the exemption. [See Appendix III for guidelines for performing an evaluation of an aeroplane, Attachment I for Overweight Operational Limitations of Selected Aeroplanes in the Aerial Application Role, and Attachment II to this Annex for a template for this supplement.]

Copies of the Operating Manual Supplement containing the operating limitations for the aircraft at increased take-off weight as determined by the evaluation of the aeroplane are attached hereto, and form part of this request. [See Attachment "II" to this Annex for a template for this supplement.]

AIRCRAFT INFORMATION

- Operator / Owner (both if different) / Company Name:
- Address:
- Manufacturer:
- Model:
- Engine Model:
- Registration Model:
- Type Approval/Certificate:
- Maximum Permissible Take-off Weight recorded on the Certificate of Airworthiness:

I certify that the aircraft listed on this request for exemption are equipped with a system which permits the operator to jettison at least 80 percent (80%) of the disposable load in six (6) seconds or less, and that the information contained in the Operating Manual Supplement or placards, or both is an accurate representation of the results of the evaluation conducted on each aircraft type in accordance with the criteria [set out in Appendix III to this Annex].

I also acknowledge that if this exemption is granted with respect to the special purpose agricultural operations for aerial dispersion of jettisonable cargo for the aeroplanes listed herein, such aeroplanes are not eligible for transfer to another operating role without first rectification of defects incurred during operation under this exemption, and identified during the special inspection program approved by the Minister for this purpose.

Operator (Owner/Company/Representative) _____

() registered owner as shown on the registration certificate

() authorized representative

Date _____

APPENDIX III

EVALUATION OF THE OVERWEIGHT AEROPLANE TO DETERMINE OPERATING LIMITATIONS IN THE AERIAL APPLICATION ROLE

1.0 Applicability

This evaluation applies to aeroplanes in special purpose agricultural operations for aerial dispersion of jettisonable cargo where an operator requests exemption from the requirement that the aircraft operate in accordance with the conditions set out in the flight authority under subsection 605.03(1)(b) of the *Canadian Aviation Regulations*, and also requests exemption from operating the aircraft in accordance with the aircraft operating limitations under section 602.07 of the *Canadian Aviation Regulations*.

2.0 Responsibility

The operator is responsible for the evaluation of the aeroplane. The pilot conducting the evaluation shall hold at least a commercial licence, aeroplane category or higher, and have a minimum of 25 hours pilot-in-command on the aircraft type.

3.0 Objective

The purpose of the evaluation is to determine that the aeroplane is suitable for operations at the higher weights, and to ensure that the operator is aware of the aeroplane's characteristics at these weights. As a result of the evaluation, the operator shall:

- a. prepare an Operating Manual Supplement defining the overload operation; [See Attachment II of this Annex];
- b. install the placards on the aircraft in accordance with the information contained in section 3 of Attachment II of this Annex (Placards); and
- c. enter a declaration in the journey log book signed, and dated by the pilot conducting the evaluation attesting to the aeroplane's suitability for operations at the higher weight. [See Attachment II of this Annex.]

4.0 Evaluation

4.1 General. The operational evaluation must be carried out with a hopper load consisting of water which may be safely jettisoned. Before flight, the jettison mechanism should be ground checked with the water load to ensure satisfactory operation. The flights should be conducted initially with the hopper at reduced capacity gradually increasing to the maximum operating weight anticipated. The maximum take-off weight should be the lesser of the weights determined under 4.2 and 4.3 below.

4.2 Structural Considerations. One of the following methods can be used to determine a suggested maximum take-off weight (MTOW) which will take into account airframe structural strength:

4.2.1 Aircraft with Normal or Restricted Category MTOW of 6,000 lb. or less. (Including aircraft with a previously approved weight increase of 20 percent (20%) in accordance with E&I Manual provisions.)

For aircraft designed for a maximum take-off weight of 6,000 lb. or less, an empirical formula is applied which, in conjunction with an appropriate speed limitation, will provide an upper limit to the wing structural loads.

In applying this formula, it is imperative that the value used for W_n does not exceed 6,000 lb., and the value used for V_a does not exceed 115 knots.

The suggested maximum take-off weight (W_o) is given by:

$$W_o = \frac{W_n \times V_a^2}{7,800}$$

where: W_n = normal MTOW (maximum value 6,000 lb.)

V_a = manoeuvring speed in knots (maximum value 115 knots)

Example: For the Air Tractor 301:

W_n = 5,000 lb.

V_a = 121 kts (use 115 kts)

$$W_o = \frac{5,000 \times (115)^2}{7,800}$$

W_o = 8,478 lb.

NOTE:

Attachment I of this Annex contains suggested maximum take-off weights for selected aircraft types. While some of the weights in Attachment I have been derived from the application of the formula, others have been extracted from sources listed in the notes on Attachment I. It may be seen that the formula has been applied to aircraft with weights of 6,300 lb. and 6,500 lb. respectively, however, the value for W_n used in the calculation is 6,000 lb.

Extreme caution should be used for any operation at weights in excess of the suggested values.

4.2.2 Aircraft with Normal Category MTOW Greater than 6,000 lb., but not more than 12,000 lb.

For aircraft with a MTOW greater than 6,000 lb., the original structural design load factor may have a value that is lower than the value applicable to the lighter aircraft, and for that reason the empirical formula cannot be used.

The proposed maximum take-off weight should not exceed:

- a. 1.25 times the maximum take-off weight in the normal category; or
- b. a maximum take-off weight determined by the aircraft manufacturer's analysis to be structurally acceptable.

4.3 Flight Characteristics. The flight evaluation should include the aspects noted below, plus manoeuvres simulating the intended operation of the aircraft. All evaluation flights must be conducted at a safe altitude over open terrain. In flight, it should be possible to trim the aircraft for steady, level flight. Any undue tendency to stall or to dive (instability), or to roll is considered unsatisfactory. At the completion of the flight, the hopper load should be jettisoned at the speed recommended by the manufacturer to confirm that at least 80 percent (80%) of the hopper load can be jettisoned in six (6) seconds or less, and additionally to reduce weight to the normal landing weight.

4.3.1 Take-off Speed. The speed at which a clean transition can be made from the take-off roll to the initial climb should be noted in the Operating Manual Supplement.

- 4.3.2 Minimum Operating Speed (V_{min}).** The minimum operating speed should be determined as the minimum speed at which the aircraft is free of any stalling indication or tendency; that is, five percent (5%) above the speed at which there is any stall buffet, or any tendency to pitch nose down, or to roll that is not easily controllable. This speed should be determined at a safe altitude by slowly reducing speed from typical trimmed cruise condition with idle power set. The configurations checked may also include partial flap settings.
- 4.3.3 Maximum Level Flight Speed (V_h).** The maximum speed the aircraft can attain in level flight should be determined using Maximum Continuous Power (MCP). This speed should not be less than 30 knots above the V_{min} speed determined in 4.3.2 above. If it is, the proposed gross weight should be reduced.
- 4.3.4 Manoeuvring Capability.** Confirm that the aircraft can sustain a level turn at 1.2 times the V_{min} speed with 40 degree of bank, without any buffet, or other stall indications evident. If stall indications are evident, the proposed gross weight should be reduced.
- 4.3.5 Best Climb Speed.** The best climb speed should be determined, and should be at least 10 knots greater than the minimum operating speed (V_{min}) noted above. A series of timed climbs (using the altimeter and a timepiece) should be flown at different airspeeds to determine the speed for best rate-of-climb. These climbs should be carried out through the same general altitude band, and the recommended climb power (not more than MCP) should be used. The effect of wind can be minimized by repeating each climb on a reciprocal heading, and averaging the rate of climb achieved at each speed.
- 4.3.6 Climb Verification.** For the proposed gross weight (minus the fuel used for take-off and climb), the rate of climb at 5,000 ft ASL (density altitude) should be demonstrated to be at least 100 fpm at the best climb speed. A statement of this climb capability should be included in the performance section of the Operating Manual Supplement.
- 4.3.7 Maximum Operating Speed (V_{max}).** Throughout the evaluation above, and for operations at the proposed gross weight, the maximum operating speed should be limited to the approved design manoeuvring speed (V_a). This speed should be obtained from the existing Pilots Operating Handbook, placards, the Type Certificate Data Sheet (TCDS) or, for some specific aircraft types, Attachment "I" to this Annex.

5.0 Operating Manual Supplement

An Operating Manual Supplement addressing the overweight condition shall be prepared and made available to the pilot. See sample format in Attachment "II" to this Annex.

ATTACHMENT “I”

OVERWEIGHT OPERATIONAL LIMITATIONS OF SELECTED AEROPLANES IN THE AERIAL APPLICATION ROLE

For the aircraft types listed below, it is suggested that the overweight take-off limitations (W_o) not exceed the value given in this table.

	W_n (lb.)	V_a (Kts)	W_o (lb.)	
Air Tractor				
301	5,000	121	8,478	
401	6,000	122	10,173	
502	6,500	122	10,173	
Ayres Corp.				
S2R-R1300	6,000	109	8,800	See Note 1.
S2R-T34	6,000	109	9,120	See Note 1.
S2R-R1820	6,000	109	9,120	See Note 1.
Cessna				
A188B	3,300	101	4,000/4,200	See Note 2.
Piper				
PA-25-260	2,900	104	4,020	
PA-36-285	-	-	4,400	See Note 3.
PA-36-300	-	-	4,400	See Note 3.
PA-36-375	-	-	4,800	See Note 3.
Schweizer				
G-164A	4,500	102	6,075	See Note 4.
G-164B	4,500/5,200	101	6,075/6,800	See Note 5.
G-164C	6,300	97	7,238	

NOTES:

- 1) W_n is the normal maximum take-off weight.
- 2) W_o is overweight maximum take-off weight.
- 3) V_a is the design manoeuvring speed.
- 4) Maximum weights determined from manufacturer's engineering data.
- 5) For S/Ns 833-1374, maximum weight is 4,000 lb. For S/Ns 1375T and up, maximum weight is 4,200 lb. (Reference TCDS No. A-115).
- 6) In accordance with Note 3 of FAA TCDS A10SO.
- 7) Maximum weight in accordance with TCDS A-91.
- 8) For S/Ns up to 708B, maximum weight is 6,075 lb. For S/Ns 709B and up, it is recommended that maximum weight not exceed 6,800 lb.

ATTACHMENT "II"

(Company Name)

OPERATING MANUAL SUPPLEMENT

OVERWEIGHT OPERATIONAL LIMITATIONS

(Aircraft Type)

(Aircraft Registration)

The information contained in this Operating Manual Supplement expands upon and supersedes information contained in the basic aircraft operating manual. For items not addressed in this manual, refer back to the basic operating manual.

The content of this supplement has NOT been approved by TCCA.

1.0 DESIGN LIMITATIONS

1.1 Weight Limits

The maximum takeoff weight is _____ lb. /kg (as appropriate)

Maximum hopper loads are:

- a) _____
- b) _____ etc

The maximum landing weight (unchanged) is _____ lb. / kg

1.2 Center of Gravity Limits

The CG limits previously approved are not to be expanded for, or as a result of, this evaluation.

Forward Limit: _____

Aft Limit: _____

1.3 Airspeed Limits

Maximum operating speed (Vmax): _____ mph/knots IAS (as appropriate)

Minimum operating speed (Vmin): _____ mph/knots IAS, Flaps up

_____ mph/knots IAS, Flaps _____ degrees

1.4 Other Operating Speeds

Recommended takeoff speed _____ mph/knots IAS

Recommended climb speed _____ mph/knots IAS

2.0 OPERATIONAL LIMITATIONS

- a) Operations are prohibited in or out of airports while commercial passenger operations are being conducted.
- b) No cargo is carried in flight other than the material being dispersed.
- c) Only those manoeuvres that are required in aerial application operations are permitted. Intentional spins, stalls, acrobatic or abrupt manoeuvres are prohibited.
- d) The pilot must ensure that there are adequate performance margins to contend with altitude, temperature and terrain conditions.
- e) Once the exemption is in effect and this aircraft is operating under its terms and conditions, this aircraft shall not be transferred to any other role category, or used for any other purpose than aerial application, unless a structural inspection is conducted, and written authorization from the Minister.
- f) Ferry flights to reposition the aircraft may be conducted, and such flights shall be made in accordance with the limitations contained in the basic aircraft flight manual (or Aircraft Type Certificate).

3.0 PLACARDS

The following placards must be in place on the aircraft:

Near each entry door:

- a) **"RESTRICTED"**
- b) **"Refer to Operating Manual Supplement for pertinent overweight limitations".**
- c) For aircraft with more than one seat **"CREW ONLY"**.

On or near the hopper filler opening:

"MAXIMUM LOAD _____ lb. / kg" (as appropriate).

Near the airspeed indicator:

Max Operating Speed _____ mph/knots IAS (as appropriate)

Min Operating Speed _____ mph/knots IAS

Best Climb Speed _____ mph/knots IAS

On the instrument panel in clear view of the pilot:

"Intentional spins, stalls, acrobatic and abrupt manoeuvres are prohibited".

4.0 NORMAL PROCEDURES

Include normal procedures for take-off, climb and manoeuvring, including the speeds for takeoff and climb.

5.0 EMERGENCY PROCEDURES

5.1 Power Loss or Engine Failure

In the event of a power loss or engine failure, jettison the hopper load, if possible.

5.2 Overweight Landing

Landing at weights in excess of the normal landing weight of _____ lb. should only be conducted under emergency conditions, and only when the hopper contents cannot be safely jettisoned. In this event, the aircraft should be flown at an approach speed of _____ (1.3x V_{min}). The landing should be made on a smooth hard surface, and the sink rate at touchdown must be minimized.

6.0 PERFORMANCE

Include the following statement from the climb verification check in paragraph 4.3.6.

"The measured rate of climb at _____ lb., at _____ ft density altitude, at _____ Outside Air Temperature was _____ fpm at an airspeed of _____ IAS with the flaps _____."

Weight, altitude, temperature can have a significant effect on the aircraft's performance. The gross weight must be reduced as altitude and temperature increase, if the performance capabilities are to be maintained.

7.0 PILOT DECLARATION FOR INCLUSION IN THE JOURNEY LOG BOOK

I have conducted the operational evaluation of this aircraft type in accordance with the procedures set out in the Request for Exemption form, at a weight of _____ lb. / kg.

On the basis of my evaluation, I, _____ (Pilot), hereby declare that the aircraft listed herein is suitable for restricted overweight aerial application operations when operated in accordance with the _____ (Operator, Owner or Company) Operating Manual Supplement.

Name: _____

License: _____

Signature: _____

Date: _____

ANNEX B

SAMPLE EXEMPTION FROM SUBSECTION 605.03(1)(b) and SECTION 602.07 OF THE *CANADIAN AVIATION REGULATIONS*

Pursuant to subsection 5.9(2) of the *Aeronautics Act*, and after taking into account that the exemption is in the public interest and is not likely to affect aviation safety, and in consideration of the request for exemption made by (Operator, Owner/Company, Address) and the declaration made by (Pilot), I hereby exempt persons operating the aeroplanes listed herein from the application of the maximum weight and center of gravity limitations of the following provisions:

- (a) Subsection 605.03(1)(b) of the *Canadian Aviation Regulations* stipulates that no person shall operate an aircraft in flight unless it is operated in accordance with the conditions set out in the flight authority pertaining to maximum weight and center of gravity limitations; and
- (b) Section 602.07 of the *Canadian Aviation Regulations* requiring the person to operate an aircraft in accordance with the aircraft operating limitations pertaining to maximum weight and center of gravity limitations.

APPLICATION

This exemption applies to the operation of the following aeroplanes:

Operator (owner or Company) Name and Address:

Manufacturer:

Model:

Registration Marks:

PURPOSE

The purpose of this exemption is to allow agricultural aeroplanes to engage in special purpose operations for the aerial dispersion of jettisonable cargo, at weights in excess of the maximum weights expressed in its aircraft operating limitations and/or the maximum weight expressed on its flight authority.

CONDITIONS

- (1) The operator of the aeroplane shall operate the aeroplane in accordance with the limitations set out in the Operating Manual Supplement for Overweight Operational Limitations for the aeroplane.
- (2) The basic aircraft operating manual shall apply for those procedures not addressed in the aeroplane's Operating Manual Supplement for Overweight Operational Limitations.
- (3) The aeroplane shall clearly and legibly be marked "RESTRICTED" near each entry door.
- (4) No cargo shall be carried in flight other than the material being dispersed.
- (5) When in overweight condition, the aeroplane shall not take-off or land while commercial passenger operations are being conducted at the same airport.
- (6) The Pilot's Declaration contained in Attachment "A" shall be entered in the aircraft journey logbook.
- (7) A copy of this exemption shall be attached to the Special Certificate of Airworthiness issued for each aeroplane listed herein.
- (8) Ferry flights may be conducted to reposition the aircraft. Such flights shall be conducted in accordance with the limitations of the basic aircraft flight manual.

- (9) The Maintenance Schedule required by section 605.86 of the *Canadian Aviation Regulations* shall also include a special structural inspection of the airframe to take into account the effect of the overweight operation on life limited structural elements.
- (10) The operator shall provide utilization information for each calendar year by the end of February of the following year, or by a date agreed mutually between TCCA and the operator, as described in Appendix A to this Exemption.

VALIDITY

This exemption is in effect until the earliest of:

- (a) The date on which any condition in this exemption is breached;
- (b) The date on which this exemption is superseded by an amendment to the *Canadian Aviation Regulations* and related standards of airworthiness where operational limitations for restricted category aircraft in aerial application operations are brought into effect; and
- (c) The date on which the exemption is canceled in writing by the Minister where he is of the opinion that it is no longer in the public interest, or that it is likely to affect aviation safety.

DATED at _____, in _____, Canada, this ____ of _____, 201__, on behalf of the Minister of Transport.

Regional Director of Civil Aviation

**Appendix A to the Exemption,
Annual Reporting to TC**

- (1) The following information is to be provided on an annual basis to the TCCA regional office that issued the exemption.
- (a) Name and address of operator.
 - (b) List of aeroplanes **that are granted an exemption** to operate in excess of the maximum certificated take-off weight expressed in its limitations and/or on its flight authority by that operator (whether or not they are), including:
 - (i) Aeroplane type and model.
 - (ii) Aeroplane registration.
 - (iii) Maximum Permissible Take-off Weight recorded on the Certificate of Airworthiness (i.e., without use of the exemption).
 - (c) For each aeroplane **that is granted an exemption** to operate in excess of the maximum certificated take-off weight expressed in its limitations and/or on its flight authority (whether or not it is):
 - (i) Total number of flight hours for each aeroplane at the time of reporting and, if available, the approximate number of flight hours accrued in the previous calendar year.
 - (ii) If available, total number of application flights for all aeroplanes that may be operated under this exemption.
 - (d) Information on aeroplanes **that have been operated** under an exemption allowing operation in excess of the maximum certificated take-off weight expressed in its limitations and/or on its flight authority, including:
 - (i) Aeroplane type and model.
 - (ii) Aeroplane registration.
 - (iii) Maximum Permissible Take-off Weight recorded on the Operating Manual Supplement for Overweight Operational Limitations.
 - (iv) If available, number of application flights operated overweight.
 - (v) Number of flight hours operated overweight.
 - (vi) If available, total number of application flights.
 - (vii) Total number of flight hours operated.
 - (viii) Description of any structural issues found during inspection.
 - (e) Information on aeroplanes **that have been operated** under an exemption allowing operation in excess of the maximum certificated take-off weight expressed in its limitations and/or on its flight authority, but have been sold or retired from service for any reason, including:
 - (i) Aeroplane type and model.
 - (ii) Aeroplane registration.
 - (iii) Maximum Permissible Take-off Weight recorded on the Operating Manual Supplement for Overweight Operational Limitations.
 - (iv) Name and address of new owner, or reason for retirement, as appropriate.