GUIDE TO COMPLETION OF TRANSPORT CANADA FORM 24-0079

Are you having trouble filling out the forms required for the final inspection of an Amateur-built aircraft? You are not alone, these forms are the main reason for delays, they are frequently incorrect, marked up with changes or illegible and must be returned to the builder. While filling out this form read the regulations along with the following details.

On this form, each box, numbered 1 through 29, must be filled out. Some of the entries are obvious, others require a little thought. Make a few copies of the form to work on, get your calculator and have a go at it.

1/ Registration Marks

Answer; as shown on your C of R.

Note; provide a photocopy of your C of R for the inspector at your final inspection, it is used to fill out the Flight Authority.

1) Registration Marks Marques d'Immatriculation
C-FGZX

2/ Aircraft Type and Model

Answer; from the kit or plans, if it's an original, don't use a name that will confuse air traffic control or fellow pilots.

2) Aircraft Type and Model (as specified by designer) Type et modèle de l'aéronef (selon les données du concepteur)
Piel Emeraude, CP301

3/ Serial Number

Answer; from the kit or plans, or, for your own design, you could use your initials plus dash 1 or whatever number of airplanes you have built.

3) Serial Number Numéro de série
X001

4/ Was the design modified by builder? If yes, attach details of modifications you have made.

Answer; No? - go to 5

Yes? Make a list of the modifications you made. Be prepared to explain how the modifications will affect your project.

4) Was design modified by builder? If yes, attach details of modification(s) Les plans ont-ils été modifies par le constructeur? Dans l'affirmation joindre la description complète Des modifications	**X**	Yes Oui No Non

5/ Name and address of person responsible for design.

Answer; from the kit or plans, or yourself if an original.

5) Name and address of person responsible for design- Nom et adresse du concepteur
Avions Claude Piel, (les Pierres Précieuses) Paris France

Local Phone : 519-457-2909 Toll Free : 1-877-419-2111

md-ra@md-ra.com www.md-ra.com

6/ A ¾ side view photograph of the aircraft at least 2"x3" (is a MINIMUM; the photo can be larger) shall be attached to this space.

Answer; This can be a bit tricky getting a photo cut to size so that the airplane fills the 2"x3" space. Staple it in place in case you need to remove it.

6) ¾ side view photograph of he aircraft at least 51mm X 76mm (2''X3'') shall be attached in this space. Ajouter dans cet espace une photographie d'au moins 51mm X 76mm (2''X3'') montrant l'aéronef aux ¾ de coté.

7/ Name and address of builder

Answer; the address where you want your Flight Authority (C of A) mailed.

7) Name and address of builder – Nom et address du constructeur
Pierre Kovalev 12548 Wright street London, Alberta Z2B 7R2

Note: *for imported aircraft use your name as the importer, and indicate the name of the actual builder as well in this area of the form.*

	Importer	Actual Builder
7) Name and address of builder – Nom et address du constructeur		
	Eddy Lalonde 3474 Fincastle Edmonton, Alberta Z4B 7B3	Bernie Smith Oakland, California USA

8/ My base of operations will be.

Answer; where the airplane will be based for the first 25 hours of operation.

8) My base of operation will be – Ma base d'exploitation sera
Oshawa Airport Alberta

9/ Class of aircraft

Answer; check as appropriate.

9) Class of Aircraft- Classe d'aéronef			
		Glider one engine Planeur (monomoteur)	Gyroglider Gyroplaneur
X	Aeroplane (one or more engine) Avion (un moteur ou plus)	Helicopter Hélicoptère	Manned free balloon Ballon libre habité
	Glider Planeur	Gyroplane Autogyre	Airship Dirigeable

10/ Number of seats

Answer; number of seats including pilot, no limit on number of seats.

10) Number of seats Nombre de places
2

11/ Capacity of fuel tanks

Answer; the total capacity in liters or CDN Gallons

11) Capacity of the tanks Capacité des reservoirs de carburant	
L	Gal
112	

or

11) Capacity of the tanks Capacité des reservoirs de carburant	
L	Gal
	25 Cdn

12/ Is aircraft provided with flaps?

Answer; Yes or No

12) Is aircraft provided with flaps? L'aéronef est-il muni de volets	
Yes	No
X Oui	Non

When filling out Box 13 to 25 use Metric (SI) or Imperial (SAE) measurements, not both.

In all the above calculations Transport Canada regulations take precedence and remain the only Transport Canada approved method of calculation.

13/ Gross wing area

Answer; from kit or plans or by calculation. Use disk area for rotary wing.

13) Gross Wing Area – Surface alaire brute	
10,8 m²	ft² pi²

or

13) Gross Wing Area – Surface alaire brute	
117	ft² pi²
m²	

14/ One flap area

Answer; from kit or plans or by calculation.

14) One flap Area – Surface alaire d'un des volets	
0,465 m²	ft² pi²

or

14) One flap Area – Surface alaire d'un des volets	
5	ft² pi²
m²	

15/ Flap deflection

Answer; from the actual aircraft, check that the deflection is the same on both sides; record the angle.

15) Flap Deflection – Braquage des volets	
40	Degrees Degrés

16/ Maximum empty mass. (Aeroplane and rotary wing), use the following formula:

MEmax=**M**TOmax-(80+80√a+0.3P)(kg)

WEmax = **W**TOmax-(175+175√a+0.5P)(lb)

where:

MTOmax (**W**TOmax) = maximum permissible take-off mass (weight) selected by the application in kg(lb)

a= the number of ***passenger seats***; and

P = the rated power of all engine(s) in kw(BHP)

Click on **Maximum empty mass** to access calculator.

16) Maximum empty mass – Masse maximale à vide		16) Maximum empty mass – Masse maximale à vide	
577.4 kg	lb	kg	1275 lb

or

17/ Actual empty mass.

Answer; the empty weight from your weight and balance, must be equal or less than #16, (Maximum empty mass)

17) Actual empty mass – Masse à vide réelle		17) Actual empty mass – Masse à vide réelle	
464 kg	lb	kg	1023 lb

or

18/ Maximum permissible take-off mass.

Answer: NOT APPLICABLE, leave blank

18) Maximum permissible take-off mass – Masse maximale permise au décollage	
kg	lb

19/ Maximum mass requested, Maximum take off weight (MTOW)

Answer; this value must not be greater than the designers recommended gross weight. In the case of your own design MTOW it must be supported by the calculations listed in the Exemption 549.

19) Maximum mass requested – Massa maximale requise		19) Maximum mass requested – Massa maximale requise	
771 kg	lb	kg	1700 lb

or

20/ Maximum permissible load

Answer: NOT APPLICABLE, leave blank

20) Maximum permissible load – Charge maximale permise	
kg/ m²	lb/ft² lv/pi²

21/ Maximum requested load **(**= WING LOADING**)**

Answer; Box 19 ÷ Box 13

If the answer is greater than the followings;

a / Rotary wing 4.10 lb./sq. ft.

b / Fixed wing without flaps 13.2 lb./sq. ft.

c / Fixed wing with flaps 20.4 lb./sq. ft.

CARs **High performance aeroplane, Part IV - Standard 421. 40 (3) (c)** applies

Note: *Do not exceed the designer's specifications for your particular aircraft.*

21) Maximum requested load – Charge maximale requise			**or**	21) Maximum requested load – Charge maximale requise		
		lb/ft²				lb/ft²
71.4	kg/m²	liv/pi²			kg/m²	liv/pi²

22/ Name of manufacturer (engine)
Enter the information here

22) Name of manufacturer – Nom du constructeur
LYCOMING

23/ Engine model Answer:
Enter the Information here

23) Engine model – Modèle du moteur
O320-A2B

24/ Minimum rated power
Answer; for a monoplane, tandem or canard wing use the following formulae

For SAE units use:

P**min**=$0.016W+\frac{C\sqrt{W^3}}{b}$ (BHP) The result will be in Brake Horsepower (BHP)

Where
Pmin = Minimum power require in BHP
C (Constant) = 0.018 for monoplanes- tandem and canard
Or
C (Constant) = 0.023 for biplanes and triplanes
W = Declared Max Take Off Weight
b = Total span of all wings

For Metric units use:

P**min**=$0.0263M+\frac{C\sqrt{M^3}}{b}$ (kW) The result will be in kW

Where
Pmin = Minimum power required - in kW
C (Constant) = 0.01339 for monoplanes- tandem and canard
Or
C (Constant) = 0.01711 for biplanes and triplanes
W = Declared Max Take-Off Weight
b = wing span in meters

Note: *For jet propelled aircraft, the builder is responsible to determine what power is appropriate and adequate for the aircraft.*

For a rotary wing it is the responsibility of the builder to ensure the power is adequate.

A sample calculation in SAE (Imperial) follows.

SAMPLE CALCULATION - VALUES IN SAE (IMPERIAL)

Example: For a **monoplane** of 1650 Lb, with a wing span of 23 feet.

W = Maximum weight from box 19. For this example = 1650 lb.
b = Total span of wings, in this case 23 ft

C = Constant = 0.018
Pmin = Minimum Permissible Rated Engine Power

The solution to this formula will be in Brake Horsepower (BHP)

$$Pmin = 0.016(1650) + \frac{0.018*\sqrt{1650^3}}{23}$$

$$26.4 + \frac{0.018*\sqrt{4492125000}}{23}$$

$$26.4 + \frac{0.018*67023.32}{23}$$

$$26.4 + \frac{1206.42}{23}$$

$$26.4 + 52.45$$

Pmin= 78.9 BHP

Example: For a **biplane** of 1650 Lb, with a wing span of 23 feet.

W = Maximum weight from box 19. For this example use 1650 lb.
b = Total span of wings, in this case 23 ft
C = Constant = 0.023
P = Minimum Rated Power
The solution to this formula will be in Brake Horsepower (BHP)

$$Pmin = 0.016(1650) + \frac{0.023*\sqrt{1650^3}}{23}$$

$$26.4 + \frac{0.023*\sqrt{4492125000}}{23}$$

$$26.4 + \frac{0.023*67023.32}{23}$$

$$26.4 + \frac{1541.53}{23}$$

$$26.4 + 67.02$$

Pmin= 93.4 BHP

SAMPLE CALCULATION - VALUES IN SI (METRIC MEASURE)

Minimum Rated Engine Power- Metric units.

Builders must use the following formulae

$$Pmin = 0.0263M + \frac{C\sqrt{M^3}}{b}$$ Solution will be in kW

Where Pmin = Total rated power of all engines in kW
b = Wing Span in M
M = Declared Take Off Mass in Kg
C = Constant - 0.01339 for monoplanes or 0.01711 for biplanes or triplanes

Example: For a **monoplane** of 750 Kg, with a wing span of 7.01M

W = Maximum weight from box 19. For this example = 748.4 Kg.
b = Total span of wings, in this case 7.01M
C = Constant = 0.01339
Pmin = Minimum Permissible Rated Engine Power, solution in kW

$$Pmin = 0.0263M + \frac{C\sqrt{M^3}}{b}$$ Solution will be in kW

$$0.0263M + \frac{0.01339\sqrt{748.4^3}}{7.01}$$

$$19.68 + \frac{0.01339\sqrt{419180750}}{7.01}$$

$$19.68 + \frac{0.01339*20473.9}{7.01}$$

$$19.68 + \frac{274.14}{7.01}$$

19.68 + 39.1 = 58.6 kW

Pmin = 58.86 kW

For a **biplane** of the same wing span and mass:
The constant is: 0.1711

$$Pmin = 0.0263M + \frac{C\sqrt{M^3}}{b}$$ Solution will be in kW

$$0.0263M + \frac{0.01711\sqrt{750^3}}{7.01}$$

$$19.5 + \frac{0.01711\sqrt{750^3}}{7.01}$$

$$19.5 + \frac{0.01711\sqrt{421875000}}{7.01}$$

$$19.5 + \frac{0.01711x20539.56}{7.01}$$

$$19.5 + \frac{351.43}{7.01}$$

19.5 + 50.13 = 69.63 kW

Pmin = 69.6 kW

Click on **Minimum Rated Engine Power** to access calculator.

24) Minimum rated power – Puissance nominale minimale		24) Minimum rated power – Puissance nominale minimale	
61.2kw	BHP	kw	78.9 BHP

or

Disclaimer: *The examples above are for educational and demonstration purposes only. The definitive reference for these calculations is found in:*

Click on **Exemption from section 549.01 of the Canadian Aviation Regulations and Chapter 549 of the Airworthiness Manual-Airworthiness Standards-Amateur Built Aircraft** to view document

This document can also be found on the Internet on the MDRA web site at **www.md-ra.com**

End of sample calculations, let's continue with the remaining boxes.

25/ Actual estimated power
Answer; from engine specification

25) Actual estimated power – Puissance réelle estimée		25) Actual estimated power – Puissance réelle estimée	
112 kw	BHP	kw	150 BHP

or

26/ Name of manufacturer (propeller)
Answer: enter propeller make

26) Name of manufacturer – Nom du fabricant
Sensenich

27/ Propeller Model
Answer; from the manufacturer, or use diameter/pitch for a custom made prop.

27) Propeller model – Modèle d'hélice
Composite 2GOM7

The builder must sign and date the Application for C of A form.
Three copies are required, all with ORIGINAL SIGNATURES.

***THESE LIMITATIONSARE SPECIFIED IN CHAPTER 549 OF THE AIRWORTHINESS MANUAL. LE CHAPITRE 549 DU MANUEL DE NAVIGABILITÉ SPÉCIFIE LES LIMITATIONS**	
LIST AMATEUR-BUILT ON REVERSE SIDE INDIQUER AU VERSO LES PIÈCES DE CONSTRUCTION AMATEUR	**LIST FABRICATED PARTS OBTAINED FROM OHER SOURCES ON REVERSE SIDE INDIQUER AU VERSO LES PIÈCES PRÉFABRIQUÉES OBTENUES D'UNE AUTRE SOURCE**
I certify that the **above information is correct and this aircraft complies with al the requirements designations as an amateur- built aircraft as specified in Chapter 549 of the Airworthiness Manual**	Je certifie que les renseignements ce dessus sont exacts et que l'aéronef en cause satisfait à toutes les conditions requises pour être désigné comme étant un aéronef de construction-amateur les quelles conditions apparaissent dans le Chapitre 549 du Manuel de Navigabilité,

_____ _____

Date (Y/A-M-D/J) **Signature (Owner – Propriétaire)**

FOR DEPARTMENTAL USE - À L'USAGE DU MINISTÈRE

THIS AIRCRAFT HAS BEEN INSPECTED DURING CONSTRUCTION AND AFTER ASSEMBLY, THE WORKMANSHIP IS SATISFACTORY AND NO UNSAFE FEATURES ARE APPARENT.

L'AÉRONEF EN CAUSE A ÉTÉ INSPECTÉ AU COUR DE SA CONSTRUCTION ET APRÈS SON MONTAGE FINAL. LA QUALITÉ DU TRAVAIL EST SATISFAISANTE ET L'AÉRONEF NE SEMBLE PRÉSENTER AUCUNE PARTICULARITÉ EN COMPROMETTRAIT LA SÉCURITÉ.

_____ _____

Date (Y/A-M-D/J) **Signature (Regional Director Airworthiness – Directeur Régional de la Navigabilité)**

28/ Amateur built parts:
Answer; Aircraft constructed from a kit or, list the major components that you built.

29/ Prefabricated parts obtained from other sources
Answer; List the major components you used, eg: Engine, Propeller, Wheels, Instruments, etc.

28) Amateur built parts – Pièces construites par des amateurs	29) Prefabricated parts obtained from other sources – Pièces préfabriquées obtenues d'une autre source
Fuselage, Fin and rudder Stailizator and elevator Landing gear Wings	Engine Propeller Spinner Wheels Fuel tank

FINISHING THE FORM (AT LAST)

The builder must sign and date the Application for C of A form, as must the MD-RA inspector who is doing the inspection. Three copies are required, all with ORIGINAL SIGNATURES.

This form should NOT be embossed with the Transport Canada stamp.

A last note regarding the final inspection paperwork:

Request your inspection paperwork well ahead of time, give MD-RA office at least two months lead time. Once the final inspection has been paid for, obtain your C of R, fill out all the required paperwork from MD-RA and then request the inspection.