



MAINTENANCE CONTROL MANUAL

This manual constitutes the manual required by *Canadian Aviation Regulation (CAR) 406.38*. It reflects the means by which Langley Flying School, Inc. will comply with the current requirements of the *Canadian Aviation Regulations*. All incorporated documents identified herein, and every amendment thereto, shall meet the requirements established in this manual. The policies and procedures outlined in this manual, and in all incorporated documents identified herein, must be strictly adhered to at all times.

Ning Zhang
Ning Zhang, President
Langley Flying School

June 13, 2017
Date

Each incorporated document, manual or list shall contain the following certification signed and dated by the person responsible for it within the organisation: "This document meets all requirements established in Langley Flying School's *Maintenance Control Manual* as per the requirements of *CAR 406.38(2)*."

Serial Number: 2

Approval

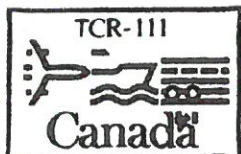
This manual is approved as meeting the requirements for a Flight Training Unit, pursuant to *Canadian Aviation Regulation 406.38*.



Approved by Transport Canada
Maintenance and Manufacturing


APR 21 2010

Date




2 List of Effective Pages

Page	Revision Number	Revision Date	Page	Revision Number	Revision Date
1	6	June 01, 2016	16	4	February 17, 2010
2	4	February 17, 2010	17	4	February 17, 2010
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8	4	February 17, 2010	23	4	February 17, 2010
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10	7	June 01, 2017	25	5	December 28, 2010
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Maintenance Manager,
Langley Flying School, Inc.

JUN 1, 2017
Date


Approved by Transport Canada,
Maintenance and Manufacturing

AUG 01, 2017
Date

Revision #7
Revision Date: June 01, 2017

4 Introduction to this Manual

This Maintenance Control Manual, hereafter referred to as the "Manual," establishes the procedures, terms and conditions of the aircraft maintenance system of Langley Flying School, Inc. The Manual, approved by Transport Canada, defines the duties and responsibilities of individuals participating in that system, and it has been compiled for the use of persons operating or maintaining Langley Flying School aircraft. It contains details of the procedures to be followed to ensure compliance with the *Canadian Aviation Regulations*, hereafter referred to as "CARs," and the related standards. ***The procedures detailed in this manual apply to all personnel performing maintenance, elementary work or servicing involving Langley Flying School, Inc. aircraft and must be adhered to at all times. Failure to comply with the terms of this manual may result in suspension of the operating certificate, aircraft certificates of airworthiness, or both.***

In case of conflict between this manual and the requirements of the CARs, the CARs will prevail. The amendment status of this manual may be determined by reference to the list of effective pages.

No aircraft shall be released for flight unless it has been maintained and certified in accordance with this manual. Where maintenance agreements are in effect, the operator remains responsible for the work done.

Economic considerations shall not take precedence over safety in the inspection and maintenance functions and shall not be factored into any joint or separate decisions made by personnel of the Langley Flying School, Inc. or the Approved Maintenance Organisations (AMOs).

Amendments and deviations must be authorised by Transport Canada.

When reference is made to the Company and/or Operator in this manual, it shall be taken to mean:

LANGLEY FLYING SCHOOL, INC.

The Maintenance Manager is responsible for all maintenance performed on the Company aircraft. Flight Instructors providing or supervising flight training, as well as pilots using Company aircraft for non-training flights, are responsible to ensure that take-offs are conducted in aircraft that are in compliance with the terms and conditions of this manual.

Safety in operations is paramount and any Instructor or Pilot-in-command is fully authorised to terminate or suspend any operation when, in the opinion of the Instructor or Pilot-in-command, the safety of the operation with respect to maintenance or airworthiness is in question.

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1 Maintenance Control Manual Administration

1.1 Distribution of This Manual

This manual will be made available to each person who performs or manages maintenance, elementary work or servicing of the Company's aircraft.

The distribution of this manual with respect to personnel and aircraft is controlled by serial number and is recorded on an *Incorporated by Reference* document and is maintained by the Maintenance Manager.

The proper distribution of this manual is the responsibility of the Maintenance Manager.

1.2 Amendments to Maintenance Control Manual

The Maintenance Manager conducts amendments to this manual when there are changes in the maintenance control system, when the Minister directs changes, when there are changes in *CARs*, or when there are changes within the Company such as personnel changes or the addition of aircraft operated.

Any amendment must be incorporated in all manuals within 30 days of the date at which Transport Canada approves the amendments.

For the purpose of tracking the amendment process the Maintenance Manager will keep a list indicating the return of the *Amendment Control Pages* as described in Section 1.2.1. This list and the returned copies of the *Amendment Control Pages* will be retained by the Maintenance Manager for a period of 6 years.

1.2.1 Amendment Procedure

Amendments will be conducted by the Maintenance Manager in accordance with the following:

In the bottom left-hand corner of each page of this Manual must appear the *Revision Number* and the *Revision Date* of the page. The validity of the page is determined by comparing the *Revision Number* and the *Revision Date* of the page with the *Revision Number* and the *Revision Date* that appears on the *List of Effective Pages*.

When a section of this manual is amended, a vertical line in the left margin will indicate the amendment.

Any amendment requires that a new *List of Effective Pages* be completed and placed in each manual copy.

Where an amendment requires additional pages, these pages shall bear the page number of the preceding page in the manual and be suffixed alphabetically.

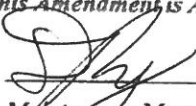


Each amendment must be accompanied by an *Amendment Control Page*, which appears in Section 1.2.2 of this manual.

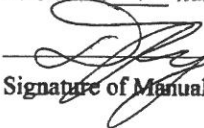
To initiate an amendment the Maintenance Manager will prepare and forward to Transport Canada two copies of the proposed amended page or pages, a revised *List of Effective Pages*, and an *Amendment Control Page*.

After approval by Transport Canada, the Maintenance Manager will, within 30 days, ensure that all distributed copies of this manual as listed in Section 1.1 have been amended.

After incorporating an amendment, each manual holder will sign the *Amendment Control Page* confirming that the amendment has been incorporated and holder's manual and a photocopy of the signed *Amendment Control Page* shall be returned to the Maintenance Manager for his or her records.

1.2.2 Amendment Control Page

Langley Flying School, Inc			Maintenance Control Manual Amendment	
AMENDMENT CONTROL PAGE				
Revision No: 7			Date: June 01, 2017	
ADD:			REMOVE:	
<i>Page Number</i>	<i>Reference</i>	<i>Change</i>	<i>Page Number</i>	
3	<i>List of Effective Pages</i>	Update.	3	
9	1.2.2	Update.	9	
10	2.3	List of aircrafts added	10	
11	3.1	Organisation chart updated.	11	
<p><i>This Amendment is Approved by Langley Flying School, Inc.</i></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">  Maintenance Manager </div> <div style="width: 45%; text-align: right;"> <p>JUNE 1, 2017</p> Date </div> </div> <p><i>This Amendment is Approved by Transport Canada, Maintenance and Manufacturing.</i></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">  Transport Canada </div> <div style="width: 45%; text-align: right;">  <p>2017/08/01</p> Date </div> </div>				

Revision No: <u>7</u> has been incorporated into Manual No: <u>2</u> .	
 Signature of Manual Holder	<p>AUGUST 9, 2017</p> Date

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Revision Date: June 01, 2017

2 Air Carrier Description

2.1 Operations

LANGLEY FLYING SCHOOL, INC. is a privately owned Company providing fixed-wing flight training services to the public. Normally, flight-training operations are routinely conducted within the lower Fraser Valley and southern coastal area of British Columbia. Cross-country flight training is conducted elsewhere in accordance with demand for services.

Maintenance is performed by agreement with AMOs, which and quality standards of Transport Canada. Scheduled inspections are conducted in the approved facilities. Elementary Work and Servicing may be conducted on the ramp. Alternate AMOs holding Company Aircraft Ratings may be used in the event the aircraft requires repair when away from main base, provided this repair is undertaken in accordance with Section 4.2.2 of this Manual.

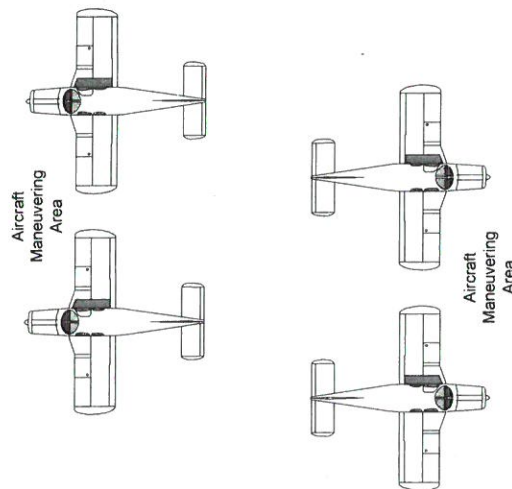
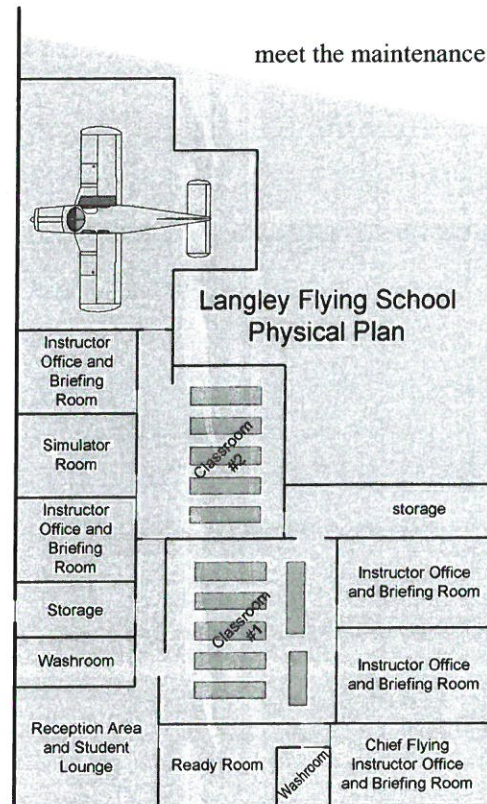
2.2 Facilities

Flight training operations are based at Langley Airport in facilities located in Hangar 4B. Facilities included three offices, three briefing rooms, two classrooms and a hangar (*indicated right*). When not in use, Company aircraft are either secured to tie-down adjacent to the Hangar 4B or stored in the hangar.

2.3 Aircraft

List of aircrafts operated by the company:

Model	Type	Number
Piper Cherokee	PA-28-140	Five (5)
Cessna	152	One (1)
Cessna	150J	One (1)
Cessna	172P	One (1)
	172N	Two (2)
	172M	One (1)
Piper Seneca	PA-34-200	One (1)



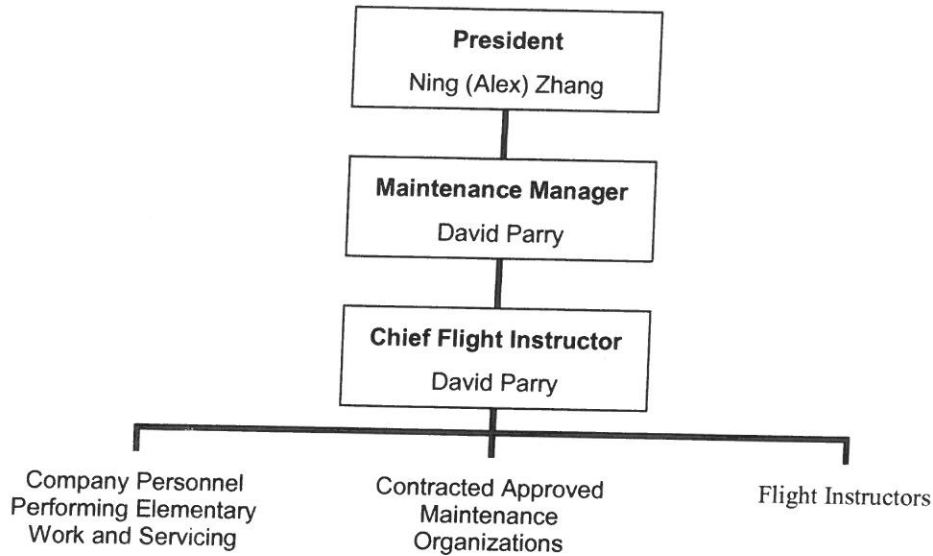
3 Personnel

3.1 Organisation Chart

The relationship between positions within the Company that relates to the maintenance control system is as follows:

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The list of individuals and organizations occupying the above depiction is recorded on an *Incorporated by Reference* document and is maintained by the Maintenance Manager.

3.2 Persons Responsible for Maintenance Control System

The duties and responsibilities will be as defined in the following sections. All personnel involved in the maintenance control system are required to become familiar with their designated responsibilities respecting this manual.

3.2.1 President

In accordance with Subsection 706.04(1) of the *CARs*, the President shall ensure that the Maintenance Manager is provided with a sufficient number of personnel to ensure the control of all required maintenance.

3.2.2 Maintenance Manager

The Maintenance Manager is responsible to the President for the control of all required maintenance. This responsibility and control includes, but is not limited, to the following:

- a) Developing this manual and aircraft maintenance schedules.
- b) Maintaining this manual, aircraft maintenance schedules and records of certification and traceability for aeronautical products and material.
- c) Scheduling maintenance, elementary work and servicing according to approved maintenance schedules.
- d) Controlling maintenance records.
- e) Proper delegation of responsibility for service difficulty reporting to the AMOs.
- f) Ensuring technical publications are amended.
- g) Ensuring work conducted by the Companies AMOs, personnel training, aircraft dispatch and control of defects are in accordance with this manual.
- h) Ensuring airworthiness directives are complied with.
- i) Ensuring that aircraft are in conformity with their type design.
- j) The operation and success of the *Quality Assurance Program* described in this manual.
- k) The proper administration of *Quality Assurance Findings* in accordance with CAR 406.36(1),

including the planning and administration of corrective action related to *Quality Assurance Findings* described in Section 7 of this Manual.

- l) Managing the training and authorisations for the performance of elementary work and servicing on Company aircraft.
- m) Liaising with AMOs and regulatory agencies.
- n) Monitoring aircraft inspections, repair, overhaul, alteration, defect rectification and certification of work.
- o) Conduct periodic *Weight and Balance* and *Equipment List* data audits in accordance with Section 6.2 of this Manual
- p) Identify items for service difficulty reporting.
- q) Maintaining up-to-date all documents *Incorporated by Reference*.

In the event of temporary absence of the Maintenance Manager, the President may assign another person within the Company's senior management to act as Maintenance manager provided the appointment is not more than 30 days, and the assignment is made in writing. Assignments of Acting Maintenance Manager for periods longer than 30 days require Transport Canada approval.

3.2.3 Flight Instructors

Flight Instructors are responsible to the President to ensure the flights they authorized in accordance with *CAR 405.32 (Authorization of Training Flights)* are conducted in accordance with the provisions of the Manual. This responsibility and control includes, but is not limited to the following:

- a) Elementary work and servicing is conducted in accordance with the initial and ongoing training they receive, and performed and recorded in accordance with Section 4.4 of this Manual.
- b) Aircraft defects are reported and managed in accordance with Section 4.3 of this Manual.
- c) Technical dispatch of aircraft is conducted in accordance with Section 5.2 of this Manual.
- d) All aircraft used for Company operations have prior flight authority in accordance with Section 6.3 of this Manual.

3.3 Personnel Qualifications, Authorisations and Records

3.3.1 Maintenance Manager Qualifications

The Maintenance Manager shall meet the requirements of *CAR 406.36* and the *Standards of Competence* set out in *CAR 426.36*.

The Maintenance Manager shall meet the human factors training requirements of *CAR 406.45* and *Airworthiness Notice B058*.

3.3.2 List of Authorized Persons

The Maintenance Manager will maintain a list of persons authorised to perform or supervise the performance of elementary work and servicing, which shall include the details of task authorised and a description of training undertaken by each person.

3.3.3 Acknowledgement of Aircraft Authorization

Aircraft authorisations provided to persons pursuant to this section will be indicated by the Maintenance Manager's signature in staff Initial Training Records, and will be acknowledged by the authorized person by initialling the training record authorization next to the Maintenance Manager's signature.

3.3.4 Transcripts and Training Records

Each Person authorised to perform elementary work and servicing will receive a transcript of his or her training upon completion of the training.

Training records and authorisations shall be retained for at least six years.

3.4 Training

The Maintenance Manager shall ensure that all persons performing or supervising the performance of elementary work tasks and aircraft servicing receive initial, update, and additional training as specified in Sections 3.4.1 and 3.4.2 of this manual.

Initial and update training shall include a human factors component in accordance with the requirements of *CAR* 406.45, and will consist of instruction in a classroom setting on the following subjects:

- a) human performance;
- b) factors influencing human error including
 - i. fatigue;
 - ii. stress
 - iii. assertiveness;
 - iv. awareness;
 - v. resources;
 - vi. knowledge;
 - vii. teamwork;
 - viii. norms (commonly accepted standards and procedures);
 - ix. complacency;
 - x. pressure;
 - xi. distraction; and
 - xii. communication;
- c) error management (which includes error prevention and error containment).

From time to time, additional training may be required in response to findings related to non-conformance or ineffectiveness as defined under Section 7.2.3 (*Quality Assurance Findings*) of this Manual. In such cases, the record of related training will be attached to the appropriate *Quality Assurance Corrective Action Forms* referred to in Section 7.3 of this Manual.

Maintenance related safety documentation will be made available to employees and communicated verbally as topics of discussion.

3.4.1 Initial Training

With respect to the Maintenance Control System, authorised persons shall receive initial training with respect to the content and requirements of this manual and the applicable sections of the *CARs*.

With respect to aircraft servicing procedures for the aircraft operated by the Company, authorised persons shall also receive initial training on refuelling, oiling, de-icing, pre-flight inspection and aircraft ground handling, and this training must be provided by an AME.

Trained persons must perform each elementary work task under the direct supervision of an AME, before being authorised to perform the task unsupervised.

Determination of whether or not a person is trained will be with reference to the list of authorised persons, along with their transcript of training.

The Company will keep a record of all initial training conducted pursuant to Section 3.4.1, a copy of which appears as in an *Incorporated by Reference* document.

3.4.2 Update and Additional Training

In addition to initial training, update and additional training shall be carried out on an annual cycle and the following table lists the minimum training which shall be completed within each twelve-month period by persons authorised to perform servicing or elementary work:

Subject	Amount
Operator's procedures	4 hours
Canadian Aviation Regulations	4 hours
Each Aircraft Type	4 hours

The Company will keep a record of all update and additional training conducted pursuant to this Section 3.4.2, a copy of which appears as in an *Incorporated by Reference* document.

4 Maintenance Policies

The maintenance policies of the Company are described in this section.

4.1 Approved Maintenance Schedules

All aircraft operated by this Company will be maintained in accordance with the Maintenance Schedules approved by Transport Canada in accordance with Parts 605 and 625 of the *CARs*.

The *Approved Maintenance Schedules* developed by this Company will contain maintenance and inspection requirements for the Company's airframes, engines, propellers, appliances, survival equipment, emergency equipment and other equipment installed on the aircraft, including all applicable out of phase equipment requirements. *Approved Maintenance Schedules* will take into account the requirements of any modification incorporated in the above items.

The Maintenance Manager will update and review the *Aircraft Status Display* daily, as per Section 5.1 of this Manual, for the purpose of scheduling maintenance and the Maintenance Manager will review completed *Approved Maintenance Schedules* at the completion of a maintenance event to insure their proper use.

4.1.1 Identification of Approved Maintenance Schedules

The *Approved Maintenance Schedules* in use for Company aircraft constitute documents that are separate from this Manual. The Maintenance Manager will ensure, that a copy of the current *Approved Maintenance Schedule* for each aircraft type operated by the Company is attached to each of the copies of this Manual distributed in accordance with Section 1.1.

The *Approved Maintenance Schedules* are identified as an *Incorporated by Reference* document, and may be found in the back of the same binder that holds the Company *Maintenance Control Manual*.

4.1.2 Evaluation and Amendments to the Approved Maintenance Schedules

The Maintenance Manager will meet at least once per every 12-month period with the AMO to evaluate the effectiveness of the *Approved Maintenance Schedules* and amend as required to ensure efficiency and effectiveness. A record of this communication will be maintained by the Maintenance Manager.

As the *Approved Maintenance Schedules* used by the Company constitute a separate document, amendments to the *Approved Maintenance Schedule* will be undertaken separately.

The Maintenance Manager, in consultation with the AMOs, will prepare proposed amendments to an exiting *Approved Maintenance Schedule* and submit them to Transport Canada for approval.

The proposed amendment to the *Approved Maintenance Schedule* will be tracked as using a *Quality Assurance Corrective Action Forms*.

Once the final version of the replacement Maintenance Schedule is approved, the Maintenance Manager

will immediately remove all superseded Maintenance Schedules from circulation and distribute the replacement Maintenance Schedules in accordance with Section 4.1.1 above.

4.2 Approved Maintenance Schedule Tolerances

4.2.1 General

All tolerances applicable to maintenance tasks are identified in the *Approved Maintenance Schedule* for each aircraft type, and shall be authorized and controlled as per the requirements of this section. This section reflects the requirements of CAS 625.86(8).

4.2.2 Requirement for a Maintenance Release

When the invocation of tolerance requires an inspection or other work by the AMO, a maintenance release is required (CAS 625.86[8,c]).

4.2.3 Airworthiness Directives and Airworthiness Limitation

Tolerances are not permitted for maintenance tasks that are specified by an airworthiness limitation or airworthiness directive (CAS 625.86[8,d]). If, for example, a repetitive 100-hour airworthiness directive (AD) inspection coincides with a 100-hour scheduled inspection check, the repetitive AD inspection must be accomplished and documented in the *Journey Log* prior to invoking a tolerance on the subsequent 100-hour scheduled inspection check. Tolerances, therefore, do not apply to tasks required by ADs.

4.2.4 Independent Tracking of Scheduled Check Tasks

Each check cycle set out in an *Approved Maintenance Schedule* must be tracked independently such that a 500-hour inspection is not the 5th 100-hour inspection, but instead is due 500 hours from the last 500-hour inspection (CAS 625.86[8,d, ii]). Adherence to the Company policy regarding the calculation of the next inspection time following the invocation of a tolerance will ensure conformity with this requirement.

4.2.5 Calculation of Next-inspection Time

The Company policy regarding the calculation of the next inspection time is as specified by (CAS 625.86[8,d, iii]): "*Each scheduled interval of a task is calculated from the time the task was last carried out, regardless if a tolerance is applied. For example, where the first interval of a 100 hour check is carried out at 110 hours, the next inspection is due at 210 hours.*"

4.2.6 Procedures for Invoking Tolerance for Component Tasks (e.g, Engine Overhaul)

CAS 625.86 (8, d, v) reads as follows: "*Prior to the commencement of a tolerance to a component task interval, maintenance action may be required to confirm continued serviceability of the component. For example, before using a tolerance to an engine TBO, filter checks or power runs may be appropriate.*"

It is the responsibility of the Maintenance Manager to determine when maintenance action for the purpose of determining the continued serviceability (AMO assessment) is required prior to invoking the tolerance for a component task. At all times, if there is doubt regarding a task and the need for maintenance action, the AMO should be consulted.

As a guideline, AMO assessments are **not** required prior to invoking a tolerance where the continued serviceability can be readily assessable by the pilot—for example, the serviceability of fixed-pitch propellers, tachometers, magnetic compasses, transponders, encoders, altimeters, first aid kits, fire extinguisher, and survival kits.

Conversely, AMO assessments are required prior to invoking a tolerance where continued serviceability cannot be readily assessed by the Pilot—for example, engine serviceability, serviceability of constant speed propellers, and serviceability of ELTs

Where AMO assessment is required, a record of the assessment is required in the *Journey Log*.

Once the AMO assessment is completed, or in the case of component tasks not requiring an AMO assessment, the tolerance shall be invoked by the Maintenance Manager by way of

- a) an amendment to the *Aircraft Status Display* for the purpose of tracking the revised date at which the task is required;
- b) a clear notation in the *Journey Log* that states the original date at which the task was required, and the revised date that the task is required; and,
- c) a clear statement in the *Journey Log* indicating that an inspection to the degree necessary has been conducted.

4.2.7 Procedures for Invoking Tolerance for Scheduled Maintenance Checks (e.g, non-Component Tasks)

In the case of Scheduled Maintenance Checks, the tolerance shall be invoked by the Maintenance Manager in accordance with the following procedure:

The Maintenance Manager will first examine the appropriate technical records and the *Aircraft Status Board* and ensure that the proposed tolerance period will not be in conflict with cycle of task completion required by an airworthiness limitation or airworthiness directive.

Where no such conflict exists, the tolerance shall be invoked by the Maintenance Manager by way of

- a) an amendment to the *Aircraft Status Display* for the purpose of tracking the revised date at which the Scheduled Maintenance Check is required; and
- b) a clear notation in the *Journey Log* that states the original date at which the Scheduled Maintenance Check was required, and the revised date that the task is required; and,
- c) a clear statement in the *Journey Log* indicating that an inspection to the degree necessary has been conducted.

4.2.8 Procedures for Invoking Tolerances for Aircraft located away from the Main Base

In the event that an aircraft is caught away from the main base owing to unforeseen circumstances such as the requirement for a diversion due to weather, a tolerance can be invoked with the verbal approval from the Maintenance Manager provided the inspection requirements determined by the Maintenance Manager are undertaken and the circumstances of the verbal approval are entered in the aircraft *Journey Log* by the Pilot-in-Command.

4.3 Maintenance Arrangements and/or Contracts

This Subsection describes the Company's Maintenance Arrangements with affiliated AMOs.

4.3.1 Regular Maintenance Arrangements

Maintenance facilities are contracted to AMOs. The AMOs used by the Company are identified in an *Incorporated by Reference* document.

The maintenance arrangements between the Company and the AMOs are governed by individual contracts, and these are also attached as *Incorporated by Reference* documents.

The relationship between the Company and AMOs is founded on the expectation that the AMOs, being certified by Transport Canada, have the skill and knowledge to ensure that technical aspects and functions of this maintenance control system will be undertaken to ensure safe and reliable aircraft operations.

It is the explicit policy of the Company that decisions related to aircraft maintenance be made based on the principle that safety is paramount, and at no time will economics or Company expenditure be a factor in the decision-making process.

To remain effective and efficient, communication with the AMOs will be by a Purchase Order System. All

work will be requested in writing using a Purchase Order, and a copy of the Purchase Order will be retained by the Maintenance Manager for a period of six years.

All maintenance arrangements will be subject to the Company's *Evaluation Program* described in Section 7 of this Manual. (Position of statement changed)

4.3.2 Airworthiness Directive Response Procedures

The Maintenance Manager is responsible to ensure compliance with all applicable *Airworthiness Directives* (ADs).

When an AD is received by the Company, the Maintenance Manager will retain the original on file and immediately forward a copy to one of the Directors of Maintenance.

For the purposes of tracking and implementing the Company response to the AD in a timely fashion, the Maintenance Manager will post the AD in a conspicuous location in his or her office and such posting will indicate the current status of the Company's response to the AD.

In consultation with a Director of Maintenance the Maintenance Manager will immediately assess the application and impact of the AD and determine the appropriate response or disposition.

The Maintenance Manager will record a summary of the Director of Maintenance's interpretation of the AD and respond and document a plan of action in accordance with that interpretation where applicable. A plan of action required by this section will be process and tracked as a *Quality Assurance Finding*, in accordance with Section 7.3.1 of this Manual.

If a maintenance event is required by the AD, the entries on the *Aircraft Status Display* concerning the aircraft affected by the AD will be immediately amended to reflect any AD requirements whereby "Air Time at which the next scheduled maintenance task is due" will be amended to reflect the Air Time at which the maintenance event required by the AD is noted, and the "type of scheduled maintenance next due" is replaced with the notation "AD Compliance". With respect to the Company policy in administering ADs and maintaining the *Aircraft Status Display*, see also Section 5.1 of this Manual.

4.3.3 Unforeseen Maintenance Arrangements

Unforeseen maintenance denotes any unpredicted event in which immediate maintenance of a Company aircraft is required and the AMOs are unable to perform the maintenance required owing to location of the aircraft. In the event of unforeseen maintenance being required, the Maintenance Manger will ensure that all unforeseen maintenance is conducted by an AMO holding the appropriate rating.

4.4 Defect Reporting and Rectification

Section 4.3 describes the policies and procedures related to the reporting and rectification of defects on Company aircraft.

4.4.1 Reporting Defects

All defects of aircraft must be immediately recorded in the affected aircraft's *Journey Log*. In reporting the defect in a *Journey Log*, the nature and effect of the defect must be sufficiently detailed so as to make any operational personnel reading the entry readily able to interpret the consequences of the defect on aircraft airworthiness.

All defect reports in a *Journey Log* shall be dated and signed by the person making the entry, and the entry shall include his or her licence number.

In the case of defects discovered during training flights, the person responsible for making a defect report in the *Journey Log* shall be the Flight Instructor authorizing the training flight.

In the case of defects discovered during *non-training flights*, the person responsible for the defect report in the *Journey Log* shall be made by the Pilot-in-command.

All defects shall be dealt with in accordance with this Section immediately upon discovering the defect, or

immediately after a flight during which the defect was discovered.

The Maintenance Manager will ensure that all student pilots are advised that defects must be immediately reported to a supervising Instructor.

Flight Instructors will notify the Maintenance Manager of all reported defects.

4.4.2 Removing Aircraft from Service

Effectively and safely removing an aircraft from service is the responsibility of the person making the defect report in the *Journey Log*.

When an aircraft is "removed from service" the person responsible shall immediately complete the following procedure:

- a) make a descriptive entry in the *Journey Log* related to the defect with the additional statement "*Aircraft removed from service*;"
- b) physically remove the aircraft *Journey Log* and keys from operational circulation by placing the keys inside the *Journey Log*, and then placing the *Journey Log* on center of the Maintenance Manager's desk;
- c) on the *Aircraft Status Display*, select the aircraft "*Temporarily out of service*" status.
- d) on the Flight Operations Board, write "*Removed from Service*";
- e) communicate to the Maintenance Manager in writing (e-mail, note on desk, or note on white board in in the Maintenance Manager's office) that the aircraft has been removed form status.

1.1.1. Deferring Defects

For the purpose of tracking deferred defect, the Company shall maintain a *Deferred Defects List* for each aircraft, which shall be affixed to the aircraft *Journey Log*; a copy of the *Deferred Defects List* appears as a *Incorporated by Reference* document.

All defects shall result in an aircraft being removed from service, and the defect being rectified by an appropriately rated AMO before returning to service, except as provided in this section.

Where permitted by CAR 605.10, aircraft having outstanding defects may be operated subject to the provisions of this Section.

4.4.3 Deferral of Defects by Flight Instructors

Where permitted by CAR 605.10, Flight Instructors may defer a defect for up to 5 days and therefore affect continued operation of an aircraft during this period provided they follow the *Defect Deferral Procedures* specified by Section 4.4.6, and all of the following conditions exist:

- a) the safety of continued operation of the aircraft is not in doubt;
- b) the defect does not constitute a hazard to any other aircraft system or to any person on board owing the defective equipment not being isolated or secured;
- c) the defect does not entail buckling, cracks, or extensive corrosion to the skin or structure of the aircraft;
- d) the defect does not pertain to any of the following incidents:
 - i. abnormally hard landings, nose-wheel landings, or landings involving tail strikes or excessive side-loading on the landing gear;
 - ii. bird strikes or possible bird strikes;
 - iii. collision or possible collision with any object during ground or flight operation;
 - iv. flap deployment in excess of the limit speeds specified for the aircraft;
 - v. airspeed in excess of the maximum structural cruise speed;

- vi. the exceeding of any other aircraft limitation prescribed by the *Pilot Operating Handbook*.
- e) the defect is not related to the pilot's movement of control surfaces or engine controls;
- f) the defect is not related power plant (engine) or equipment related to the power plant, including abnormal engine gauge indications;
- g) the defect is not related to electrical malfunction (excluding normal light bulb failure);
- h) the defect does not relate to fuel control, fuel supply, or fuel security;
- i) the defect does not relate to braking or directional control associated with ground manoeuvring including taxiing, takeoffs and landings;
- j) the defect is not related to physical security of cockpit equipment or passengers;
- k) the defect does not relate to emergency equipment, including fire extinguisher, first aid kits, and survival kits;
- l) the defect is not related to the ability of persons to exit the cabin in the event of an emergency;
- m) the defect is not related to the turn-coordinator;
- n) the defect does not violate the minimum equipment specifications of an intended flight as specified by CARs 605.14 (Day VFR), 605.15 (VFR OTT), 605.16 (Night VFR), or 605.18 (IFR)

4.4.4 Deferral of Defects by the Maintenance Manager

The Maintenance Manager may extend the deferral of a defect up to 30 days provided the conditions of Section 4.3.3 exist, or the AMO has been consulted regarding the safety of additional deferral, and a record of this safety consultation is referred to in the *Journey Log*.

In cases where the evaluation of a defect for deferral status is complex or clearly requires evaluation by AMO staff owing to the nature of the defect, the AMO will provide a written consultation in the *Journey Log*.

To facilitate the ordering of parts, the Maintenance Manager may further extend a deferred defect for two additional 30-periods provide the additional deferrals are invoked by an entry in the *Journey Log* and the defect deferral is carried forward in the *Deferred Defects List* so as to be readily apparent to persons evaluating the deferred defect status of an aircraft.

4.4.5 Deferred Defect Procedure

In the event that a defect is to be deferred as per Sections 4.4.4 or 4.4.5 of this Manual, the following procedure must be accomplished by the person authorized to make the deferral:

- a) Make an entry in the *Journey Log* specifying the defect and a clear statement of deferral. The date by which the defect must be rectified, and any restrictions on operational use of the aircraft that may apply during the period of deferral. CAR 605.10 (2) also requires that that the *Journey Log* entry includes reference to the following:
 - a. where unserviceable equipment is not removed from the aircraft, that it has been isolated or secured so as not to constitute a hazard to any aircraft system or any person on board; and
 - b. that an appropriate placard is installed.
- b) Make entry in the aircraft's *Deferred Defects List*, including the date at which the defect was noted in the *Journey Log*, and the date by which the defect must be rectified.
- c) Make a deferred defect entry in the Aircraft Status Display.
- d) Prepare and post a defect placard to be adhered to the center of the glare shield so as to be immediately visible to the Pilot-in-command; this posting must include reference to any operational restrictions derived from the defect, as well as the date by which the defect must be rectified.

4.4.6 Rectification of Defects

At scheduled maintenance events, AMO staff will review the *Deferred Defects List* for the purpose of undertaking rectification.

In the case that the defect is rectified during the maintenance event, notation of this rectification will be included in the Maintenance Release following the maintenance event.

In the case of “outstanding defects” (defects appearing on the *Deferred Defects List* that cannot be immediately rectified) information shall be included in the Maintenance Release describing the reason for non-rectification and the action that have been taken towards completing rectification. The outstanding defects will remain on the current *Deferred Defects List* located in the back of the aircraft *Journey Log*.

4.4.7 Recurring Defects

A recurring defect is a defect that is repeated three (3) times on a particular aircraft within a period of fifteen (15) flight segments of a previous repair.

At periods not exceeding 35 days, the Maintenance Manager will examine the *Journey Log* of Company aircraft to determine if any defects are recurring.

If a recurring defect is identified, the Maintenance Manager will review the recurring defect with the Director or Directors of Maintenance for the AMO participating in the rectification attempts and devise a plan of action to remedy the recurrence; record of this meeting will be maintained on the Maintenance Manager’s AMO file.

4.4.8 Service Difficulty Reporting

Service Difficulty is defined in *Airworthiness Manual Chapter 591*, and the discovery of a *Service Difficulty* will be reported in accordance with *CARs Part 591*.

Service Difficulty reporting is contracted to the AMOs.

The reporting to the AMOs of *Service Difficulty* encountered during flight operations is the responsibility of the Maintenance Manager.

To ensure the AMOs are properly advised of a *Service Difficulty* encountered during flight operations, reference to an actual or possible *Service Difficulty* condition will be explicitly referred to in the purchase order associated with the subsequent request for maintenance work.

4.5 Elementary Work and Servicing

This Section describes the system used by the Company to ensure that Elementary Work and Servicing is conducted in accordance with the *CARs*.

4.5.1 Elementary Work and Servicing Restrictions

Only those tasks listed in *CAS 625, Appendix A* will be undertaken as elementary work, only those tasks defined in *CAR 101*, will be undertaken as servicing.

As per *CAR 101*, *servicing* means *cleaning, lubricating and the replenishment of fluids not requiring disassembly of the product*.

Only persons trained and authorized in accordance with Section 3 of this Manual will perform elementary work.

Only persons trained and authorized in accordance with Section 3 of this Manual will perform or directly supervise the performance of servicing.

4.5.2 Elementary Work and Servicing Standards

In accordance with *CAS 571.02(1)*, the standards used for the performance of elementary work or servicing will be the same as, or equivalent to, those specified in the aircraft manufacturer’s instruction or are

recognized industry standards.

4.5.3 *Elementary Work and Servicing Control and Recording*

Methods, techniques and practices used by the Company in the performance of Elementary Work and Servicing are the same as, or equivalent to, those specified in the aircraft manufacturer's instruction or are recognized industry standards.

In sampling the aircraft fuel, only fuel sample devices designed for that purpose shall be used.

The use of any tools, equipment, and test apparatus by persons other than AMO staff must be supervised by AMO staff.

Parts and materials used for Elementary Work and Servicing shall meet the requirements of Part 571 of the CARs.

Fuels, oils, lubricants and cleaning materials shall be kept in closed containers, clearly marked with the contents. No fluids shall be dispensed from any unmarked container.

The person performing elementary work is responsible to ensure that a record of the work is made in the appropriate aircraft *Journey Log*, and that the entry conforms to the requirements of CAS 571.03 to elementary work, summarized as follows:

- a) product identification (aircraft registration marking, nomenclature, type/model number, name of manufacturer, part number, and serial number), unless the entry is being made in technical record that contains this information;
- b) a brief description of the work performed;
- c) where a standard other than the manufacturer's recommended practice is being used, reference to the standard used in the performance of the work.

Additionally, in accordance with CAR571.03(2), the record of elementary work in the *Journey Log* must also include accuracy "with respect to any outstanding elements of the work performed, in particular, the need to secure any fastening device that was disturbed to facilitate the work."

5 Maintenance Planning, Control and Dispatch

This Section describes the Company's system for maintenance planning, control and dispatch.

5.1 Maintenance Planning and Control

The Company will maintain a centralized record of maintenance status for each aircraft, which will be referred to as the *Aircraft Status Display* (ASD). The ASD will be maintained in accordance with the provisions of this Section.

For each aircraft in the Company fleet, the ASD will be maintained on a daily basis, and provide display of the following data:

- a) the current date of the ASD;
- b) the identification of each aircraft in the Company fleet;
- c) the flying status of the aircraft, including applicable ADs as per Section 4.2.1 of this Manual and deferred defects;
- d) the current Air Time of each aircraft at the beginning of each day;
- e) the Air Time at which the next scheduled maintenance task or any AD-compliance maintenance is due;
- f) the type of scheduled maintenance next due;

- g) the Air Time or date for each Company aircraft at which all Out of Phase Items are due derived from the Approved Maintenance Schedules.

The ASD will be displayed manually or electronically on computer terminals conspicuously located in the office facilities of the Company, so that aircraft status can be readily viewed by operations personnel.

The Maintenance Manager will ensure operational personnel are aware of the Company policy that ASD must be examined prior to each flight in accordance with the following:

- a) prior to any training flight, the ASD must be examined by the Flight Instructor supervising a student solo flight or the Flight Instructor acting as Pilot-in-command;
- b) in the event of any non-training flight, the ASD must be examined by the Pilot-in-command.

The Maintenance Manager will ensure that all Instructors and student pilots are advised that ASD must be examined prior to each flight and will ensure compliance by means of education and supervision.

The methods and procedures to be used by the Company to insure compliance with ADs are described in Section 4.2.1 of this Manual.

The Company's policies with respect to ADs, including applicability, compliance, recording and application for an exemption or alternate means of compliance, will be in accordance with Parts 605 and 593 of the CARs.

5.2 Technical Dispatch

The person responsible for system of safe and proper technical dispatch of aircraft is the Maintenance Manager.

Flight Instructors are responsible to Maintenance Manager to ensure that safe and proper technical dispatch of individual flight operations.

Prior to conducting a take-off in a Company aircraft all persons acting as Pilot-in-command will conduct the following:

- a) examine the ASD to ensure the times and dates of required maintenance events are not exceeded, or will not be exceeded during the course of the anticipated flight;
- b) examine the aircraft *Journey Log* and *Deferred Defects List* to ensure defects do not exist that may bring into question the airworthiness of the aircraft during the anticipated flight;
- c) ensure that the weight and balance during all phases of the anticipated flight is in accordance with the *Pilot Operating Handbook*;
- d) for the purposes of determining airworthiness, conduct a pre-flight inspection of the aircraft in accordance with the *Pilot Operating Handbook* and, in the event of the first flight of the day, initial that a daily inspection (DI) was completed in the aircraft *Journey Log*;
- e) for the purposes of determining airworthiness, conduct pre-takeoff checks in accordance with the *Pilot Operating Handbook* and aircraft Checklist.

When a Company aircraft is operated away from its main base (distant operations), all persons acting as Pilot-in-command will, prior to departure from the main base of operations, conduct the review of the ASD as required above, giving due consideration for the period of time distant operations will be conducted. Flights conducted under Flight Permit authority can only occur if a Flight Permit issued by Transport Canada is carried on board the aircraft. The requirements for Flight Permit authority are described in Sec. 6.3 of this Manual.

5.3 Technical and Regulatory Publications

The following is a list of the technical and regulatory publications that will be maintained to current status:

- a) *Pilot Operating Handbooks* for Company aircraft;
- b) *Canadian Aviation Regulations*, including the *Airworthiness Manual*;

- c) *Airworthiness Notices*;
- d) *Airworthiness Directives* issued for the aircraft, engines, propellers, accessories and equipment types operated by the Company.

The Maintenance Manager will contact the manufacturer of Company aircraft annually to ensure the *Pilot Operating Handbooks* are maintained as current status. A record of this communication will be maintained on file.

The Maintenance Manager will examine and review the Transport Canada website summarizing amendments to the *Canadian Aviation Regulations* twice a year to ensure maintenance control system policies and procedures are current with the latest *CARs* amendment status. This inspection will occur in January and June. A record of this examination will be maintained on file and any applicable amendments will be managed as *Quality Assurance Findings*.

The Maintenance Manager will ensure the above publications are readily available to persons conducting technical dispatch via internet access or via direct access on aircraft.

The Manufacturers Maintenance and Parts Manuals for the aircraft maintained, including airframe, engine, equipment, and continuing airworthiness publications such as Service Letters and Bulletins are provided by the AMO(s). Langley Flying School contracts with the AMO to ensure these publications are at the latest and current status and this/these contract(s) appear as documents *Incorporated by Reference*.

6 Aircraft Technical Records and Documents

The Section sets out the Company's standards with respect to the administration and maintenance for aircraft technical records and documents.

6.1 Aircraft Technical Records

The Maintenance Manager shall be responsible for the safe keeping of all records required to be kept by this document. Records shall be retained for a minimum of six (6) years.

The Maintenance Manager shall be responsible to ensure that *Journey Log* entries are transcribed to the Technical Logs within 30 days.

Following maintenance, the AMO under contract to perform the maintenance shall make the appropriate *Journey Log* entries. The Maintenance Manager shall be responsible for the transcription of the AMO's *Journey Log* entries into the technical logs.

The Maintenance Manager shall retain copies of all work packages, for all maintenance performed on Company aircraft. For purposes of this requirement, work packages shall include, but shall not be limited to the following:

- a) *Inspection Check Sheets*;
- b) additional work orders or invoices;
- c) parts lists;
- d) conformity certificates;
- e) other maintenance related documents.

6.2 Aircraft Weight and Balance Control

The Maintenance Manager shall ensure that the *Weight and Balance Reports* and Amendments to the *Weight and Balance Reports* of Company aircraft shall conform to the *Part V—Standard 571 Appendix C (Aircraft Weight and Balance Control)* of the *CARs*.

At intervals not exceeding intervals of 7-months, the Maintenance Manager will conduct an audit of Company

aircraft weight and balance data to ensure the *Weight and Balance Reports and Amendments*, as well as the *Equipment Lists* and *Electrical Load Analysis (ELA)*, remain current and accurate.

This weight and balance audit shall be based on the requirements of Standard 571 Appendix C. and will consist of a review of maintenance activity during the audit period to ensure all equipment changes were properly documented through weight and balance amendment reports.

The audit will also review maintenance activity for electrical equipment changes that may require ELA documents. In the case of uncertainty regarding ELA documentation, the applicable AMO performing the electrical equipment change will be consulted.

A record of the audit, including specification of the audit period, will be recorded by the Maintenance Manager in applicable aircraft *Journey Log*.

The Company does not use a fleet weight and balance control system.

6.2.1 Removal or Installation of Passenger Seats

The removal or installation of passenger seats requires that the weight and balance calculations for the flight are amended to reflect this change.

To insure adherence, passenger seats may only be removed or installed with the consent of the Maintenance Manager.

The Maintenance Manager is responsible to ensure that the weight and balance data is amended when the seat configuration is changed for more than the occasional flight.

6.3 Aircraft Flight Authority

In accordance with Section 605.03 of the *CARs*, no person shall operate a Company aircraft unless a flight authority is in effect with respect to that aircraft and that flight authority is carried on board the aircraft.

As set out in Section 507 (Flight Authority) of the *CARs*, a flight authority is a valid *Certificate of Airworthiness*, a *Special Certificate of Airworthiness*, or a *Flight Permit*.

In the event that an aircraft operated by the Company no longer conforms to the conditions of issue for its *Certificate of Airworthiness*, and a flight is required for the purpose of repairs or maintenance, the Maintenance Manager will make application for a *Flight Permit* in accordance with Part V—Standard 507, Appendix B (Application for a Flight Permit) of the *CARs*

The Company's authorization requirements for a flight conducted under the authority of a *Flight Permit* are described in Section 5.2 of this Manual.

6.4 Location of Records

All technical records related to the maintenance system will be kept in the Company's main office at Langley Airport.

7 Quality Assurance Program

This Section describes the Company's quality assurance with respect to the maintenance control system.

7.1 Quality Assurance Program

In accordance with CAR 406.47, Langley Flying School maintains a *Quality Assurance Program (QAP)*, the purpose of which is to ensure its maintenance control system, including *Approved Maintenance Schedules*, has continued effectiveness and remains in compliance with the *Canadian Aviation Regulations*.

The QAP centres on the detection and remedy of non-conformance or ineffectiveness within the maintenance control system. The detection component consists of two processes, the first is continued surveillance by the

Maintenance Manager, and the second is an annual *Quality Assurance Audit* (QAA). The remedy component consists of systematic analysis and response to findings of non-conformance and ineffectiveness in accordance with Section 7.3 of this Manual.

7.1.1 Retention of Quality Assurance Program Records

In accordance with CAR 406.47(4), the records derived from the QAP, including the record of findings derived from continued surveillance and the annual QAA, as well as the corrective actions and related follow-up, shall be retained for the greater of two audit cycles or two years.

7.1.2 Control and Responsibility

The QAP is under the sole control of the Maintenance Manager.

The Maintenance Manager is also responsible for all corrective actions (CAs) made in response to unsatisfactory findings identified by the QAP.

7.1.3 Standards for Corrective Actions

This section establishes the standards for the actions and concepts associated with a *Quality Assurance Finding* (QACAF) and their related *Corrective Actions* (CA).

A *root cause* is an initiating cause of a causal chain which leads to an outcome or effect of interest. Commonly, root cause is used to examine in depth the causal chain where an intervention could reasonably be implemented to change performance and prevent an undesirable outcome.

A *causal chain* is an ordered sequence of events in which any one event in the chain causes the next event.

Short-term Corrective Actions are action taken to immediately remedy the non-conformance identified in a finding, and must be timely, taking due consideration for safety risks associated with the QACAF. Accordingly, short-term corrective action must correct the non-conformance, must change the operation as necessary so as to prevent recurring, and must entail communication to staff regarding the necessary operational changes.

Long-term Corrective Actions must prevent or significantly reduce the odds of non-conformance happening again, and must directly address the outcome of the root cause analysis.

7.2 Quality Assurance Audit

In periods not exceeding twelve months, the Maintenance Manager will co-ordinate the execution of the QAA that will provide an evaluation of all aspects of the systems and practices used for the control of maintenance in Langley Flying School. The audit will produce an unbiased picture of Langley Flying School's performance to verify that activities and practices comply with the MCM and confirm that the system and procedures, as described in the MCM, remain effective.

The QAA will include an examination and evaluation of the AMOs performing maintenance work for the Company. This evaluation will ensure the AMOs are appropriately rated and maintain these ratings, and that its approvals are still valid. The QAA will also ensure AMOs have the following adequacies: facilities, tools, equipment, and personnel at the location where maintenance is undertaken.

7.2.1 Quality Assurance Audit Procedures

Using the checklist provide in the *Quality Assurance Audit Form* contained in the *Documents Incorporated by Reference*, the QAA will systematically examine checklist items to ensure compliance and effectiveness.

7.2.2 Auditor Appointment and Briefing

In accordance with the CAR 406.47(6), the person appointed by the Maintenance Manager to conduct the QAA shall have no responsibility for carrying out the maintenance system management tasks or activities subject to audit evaluation.

The person appointed to conduct the QAA will be briefed by the Maintenance Manager with respect the following:

- a) the function and operation of the Maintenance Control System;
- b) the role of the Maintenance Control Manual as the governing contract;
- c) the role of QAA as measure of success for the Maintenance Control System;
- d) the role and purpose of the *Quality Assurance Audit Form*, including the need for determining satisfactory or unsatisfactory findings;
- e) the need to indicate satisfactory and unsatisfactory findings using the auditor's initials.
- f) the role and purpose of the *Quality Assurance Finding Form* and the *Quality Assurance Corrective Action Form*.
- g) the role of Maintenance Manager during and after the audit.

7.3 Non-conformance and Ineffectiveness

7.3.1 *Response to Non-conformance or Ineffectiveness (Quality Assurance Findings)*

In the event that non-conformance or ineffectiveness is detected, either by the continued surveillance or the annual Quality Assurance Audit, the Maintenance Manager is responsible to ensure that a *Quality Assurance Corrective Action Forms (QACAF)* is completed. The QACAF is contained the *Documents Incorporated by Reference*.

The content of the QACAF must provide specific reference to the following:

- a) the specific section of the Maintenance Control Manual with which the non-conformance or ineffectiveness is related;
- b) a specific example of the non-conformance or ineffectiveness; and
- c) a description of the Short-term Corrective Action to immediately correct the non-conformance, including the target date of implementation;
- d) an analysis of the root cause of the QAF event, including the acceptance of the root-cause analysis by the accountable executive;
- e) a description of the proposed Long-term Corrective Action to prevent recurrence, including the target date of implementation.;
- f) a record of a follow-up review that evaluates the Long Term Corrective Action, including an indication of effectiveness of this action;
- g) where the follow-up review indicates success, acceptance by the accountable executive;
- h) where the follow-up review indicates non-effectiveness, the initiation of a new QACA form.

As a rule, long-term Corrective Action should be completed within 90 days of the initial date of the QACAF; where additional time is required, the reasons for additional time beyond 90 days should be addressed.

Where the *Short-term Corrective Action* meets the requirements for *Long--term Corrective Action*, this must be so stated in the *QACAF*.

8 Documents Incorporated by Reference

8.1 General

Some activities of the Company which are subject to frequent changes can more effectively be addressed in documents separate from the *Maintenance Control Manual*.

The documents listed in Section 8.2 are the only documents *Incorporated by Reference* in this Manual, in accordance with *CAR 571.10 (2)*. Pursuant to *CAR 573.03*, the certification of this Manual by this Company shall be taken to include that the documents *Incorporated by Reference* and every change thereto meet the requirements of the policy established in this Manual with respect to those documents.

A copy of all changes to the documents *Incorporated by Reference* must be forwarded to Transport Canada for incorporation within 30 days of that change being approved by the Company.

8.2 Index of Documents Incorporated by Reference

- 1) Distribution List of the Langley Flying School *Maintenance Control Manual*;
- 2) Langley Flying School Organization Chart—Personnel and Organizations;
- 3) Langley Flying School *Record of Initial Training*;
- 4) Langley Flying School *Record of Update and Additional Training*;
- 5) Identification of Langley Flying School's *Approved Maintenance Schedules*;
- 6) Approved Maintenance Organizations contracted by Langley Flying School;
- 7) Contracts between Langley Flying School and Approved Maintenance Organization;
- 8) Langley Flying School *Deferred Defects List*;
- 9) Langley Flying School *Quality Assurance Audit*;
- 10) *Quality Assurance Corrective Action Form*.

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