3. Ground Training

3.1 **Summary:** Ground school consists of the following subjects:

a) Mandatory items:

i) Company Indoctrination Training;

ii) Technical Ground Training;

iii) Emergency Procedures Training;

iv) Surface Contamination Training;

v) Survival Equipment Training;

vi) Aircraft Servicing and Ground Handling Training; and

vii) Low Visibility Training; and

b) As required items:

i) Aerial Work Training particular to duties;

ii) Class B/C External Load Training;

iii) Class D External Load Training;

iv) Dangerous Goods Training;

v) Pilot Decision Making Training;

vi) Flight Follower Training;

vii) Regaining Qualifications Training; and

viii) Persons Assigned Onboard Duties Training.

3.2 **Training Records:** The Company will maintain a record of all training for each pilot and other person who requires training, recording, as applicable:

a) name, license number, type and ratings;

b) medical category and the expiry date;

c) the dates on which the person, while in the air operator's employ, successfully completed any required training, pilot proficiency check, competency check or examination;

d) information relating to any failure of the person, while in the air operator's employ, to successfully complete any required training, pilot proficiency check, competency check or examination; and

e) the type of aircraft or flight training equipment used for any required training, pilot proficiency check, competency check;

f) a record of each pilot proficiency check; and

g) a copy of the most recent written examination completed by each pilot for each type of aircraft for which the pilot has a qualification.

All training records will be retained for at least three years.

3.3 **Training Program Standards:** The syllabus of each training program shall include the programmed time allotted and the subject matter to be covered.

Manuals, if applicable, shall be provided during training to each trainee on the subject matter to be taught. Relevant training aids such as fire extinguishers, life preservers, rafts, aircraft components, static aircraft, etc. shall be available for the program being presented.

Ground training programs shall provide a means of evaluating the trainee after completion of the syllabus by completion of an examination with review and correction of any errors. Training examinations should be comprehensive and periodically reviewed and updated.

3.4 **Company Indoctrination Training:** This training is required upon employment for all persons assigned to an operational control function, including base managers, pilots and persons responsible for flight following. The program shall ensure that persons involved in control of flight operations are aware of their responsibilities, know company reporting relationships and are competent to fulfil their assigned duties related to flight operations.

A person who has not acted in an operational control position within the previous three months shall, prior to acting in an operational control position, satisfy the air operator that the person still has the knowledge and abilities referred to in this syllabus.

Programmed time allotted: 4 hours

Syllabus:

a) the Canadian Aviation Regulations and applicable Standards;

b) Air Operator Certificate and Operations Specifications;

c) company organisation, reporting relationships and communication procedures, including duties and responsibilities of flight crew members and the relationship of those duties to other crew members;

d) flight planning and operating procedures;

e) fuelling procedures including procedures for fuelling with passengers on board and fuel contamination precautions;

f) critical-surface contamination and safety awareness program;

g) passenger safety briefings and safe movement of passengers to/from the helicopter;

h) use and status of the Company Operations Manual including maintenance release procedures and accident/incident reporting procedures;

i) aircraft icing and other meteorological training appropriate to the area of operations;

j) navigation procedures and other specialised operations applicable to the operator;

k) accident/incident reporting;

l) passenger on board medical emergency;

m) handling of disabled passengers;

n) carriage of external loads;

o) operational control system;

p) weight and balance system procedures; and

q) pre-flight crew member briefing.

On completion of training a satisfactory written exam will be placed in the persons training record file.

3.5 **Technical Ground Training:** Pilots require technical ground training annually. Training will be type specific. On completion of training a satisfactory written type training exam will be placed in the pilot's training record file.

This training shall ensure that each pilot is knowledgeable with respect to helicopter systems and all normal, abnormal and emergency procedures.

Type training programs should be performance oriented and stress the operation (normal, emergency and malfunctions) of the helicopter systems and equipment. Instruction related to components and systems that flight crews cannot control, influence or operate should be minimised.

Programmed time allotted:	Initial:	4 hours
	Annual:	2 hours (may be self study)

Syllabus:

a) helicopter systems operation and limitations as contained in the helicopter Flight Manual;

b) operation of all equipment that is installed in all helicopters of the same type operated by the air operator;

c) differences in equipment that is installed in all helicopters of the same type in the air operator's fleet;

d) helicopter performance and limitations; and

e) weight and balance procedures.

3.6 **Emergency Procedures Training:** Pilots require annual training on emergency procedures. It must include instruction in the location and operation of all emergency equipment. Training devices approved to simulate flight operating emergency conditions, static helicopters, ground demonstrations, classroom lectures, films or other devices may be used for training provided the method used ensures that each flight crew member is adequately trained in the operation or use of all emergency equipment. Where practical training is required, it shall be completed on initial training and every three years thereafter.

Programmed time allotted:	Initial and every 3 years:	2 hours

Annual: 1 hour

Syllabus:

a) fire in the air and on the ground;

b) use of fire extinguishers, including practical training;

c) operation and use of emergency exits, including practical training;

d) passenger preparation for an emergency landing or ditching, (as applicable) including practical training;

e) emergency evacuation procedures, including practical training;

f) donning and inflation of life preservers (when equipped), including practical training;

g) removal from stowage, deployment, inflation and boarding of life rafts (when equipped), including practical training;

h) hijacking, bomb threats and other security procedures;

i) passenger on board medical emergency;

j) special emergency procedures where the helicopter is used on MEDEVAC operations, including patient evacuation in emergency situations.

On completion of training a satisfactory written exam will be placed in the pilots training record file.

3.7 **Regaining Qualifications Training:** Pilots are required to have completed three takeoffs and landings on type in the last 90 days. Pilots who have not maintained this recency qualification but have completed three takeoffs and landings in the last 180 days must undergo the following regaining qualification training:

a) a briefing on changes that have occurred to the helicopter or its operation since the last flight;

b) three take-offs and landings (which may be carried out as part of a PPC where one has come due).

Pilots who have not completed three takeoffs and landings in the last 180 days must undergo annual flight training in order to re-qualify.

3.8 **Flight Follower Training:** Persons assigned the duties of the flight follower shall receive appropriate training.

Programmed time allotted: 4 hours

Syllabus:

a) company indoctrination;

b) duties and responsibilities;

c) communication procedures;

d) applicable regulations and standards;

e) flight preparation procedures as applicable to assigned duties;

f) procedures in the event of an emergency or overdue aircraft;

g) accident and incident reporting procedures;

h) requirements of the approved Company Operations Manual as applicable to the duties and responsibilities.

On completion of training a satisfactory written exam will be placed in the person's training record file.

3.9 **Surface Contamination Training:** Pilots require initial and recurrent training to ensure they are aware of hazards and procedures for ice, frost and snow critical contamination on helicopters.

Programmed time allotted: 1 hour (may be self study)

Syllabus:

a) responsibility of the pilot-in-command and other operations personnel;

b) regulations related to operations in icing condition;

c) weather conducive to ice, frost and snow contamination;

d) inspection before flight and removal of contamination;

e) in-flight icing recognition; and

f) hazards related to critical-surface contamination by ice, frost and snow.

On completion of training a satisfactory written exam will be placed in the pilots training record file.

3.10 **Survival Equipment Training:** Pilots require survival equipment training.

Programmed time allotted: 1 hour

Syllabus:

a) survival concepts;

b) contents of the survival equipment kit;

c) how to use the survival equipment carried on board as appropriate for the operation.

3.11 **Aircraft Servicing and Ground Handling Training for Pilots:** Pilots require training in aircraft servicing and ground handling.

Programmed time allotted: 1 hour

Syllabus:

a) Elementary Work, as per CARs 706.10;

b) Fuelling procedures:

(i) types of fuel, oil and fluids used in the helicopter;

(ii) correct fuelling procedures;

(iii) procedures for checking fuel, oil and fluids and the proper securing of caps.

c) use of tow bars;

d) installation of protective covers on the helicopter;

e) procedures for operating in cold weather, such as:

(i) moving the helicopter out of a warm hangar when precipitation is present;

(ii) the environmental impact of employing de-icing or anti-icing fluids (not authorized at Campbell Helicopters); and

(iii) engine and cabin pre-heating procedures, including proper use of related equipment.

On completion of training a satisfactory written exam will be placed in the pilots training record file.

3.12 **Persons Assigned Onboard Duties:** Where the company has assigned on-board duties to a non-flight crew member, that person shall be given adequate initial and annual training to perform the procedures relevant to the duties with which the person is to be involved.

Programmed time allotted: as required (at least 1 hour)

Syllabus:

a) the authority of the pilot-in-command;

b) means of communication;

c) a general description of the helicopter in which the person is to serve and the proper use of cabin installed systems controls;

d) procedures for the handling of normal, abnormal, and emergency situations including:

(i) safe movement in the vicinity of the helicopter and safe movement to and from the helicopter;

(ii) briefing of passengers;

(iii) handling of passengers;

(iv) securing of the cabin;

(v) location, operation and use of emergency, life-saving and survival equipment carried, including practical training;

(vi) fire fighting, including practical training;

(vii) location, operation and use of emergency exits, including practical training;

(viii) passenger preparation for an emergency landing or ditching, including practical training; and

(ix) evacuation, including practical training; and

e) knowledge of the relationship of the procedures with respect to those of the other crew members.

On completion of training a satisfactory written exam will be placed in the person's training record file.

3.13 **Aerial Work Training:** Pilot training shall be provided where the aerial work requires particular flight manoeuvres, aircraft performance considerations or knowledge of equipment to safely conduct the operation.

Programmed time allotted: as required

Syllabus:

a) training related to contents and requirements of flight manual supplements or airworthiness approvals;

b) pre-flight inspection requirements of aerial work equipment;

c) procedures for handling malfunctions and emergencies related to the aerial work equipment;

d) operational preparation procedures related to reconnaissance of aerial work areas before low level flight operations;

e) operational restrictions;

f) flight training and practice in required flight manoeuvres.

On completion of training a satisfactory written exam will be placed in the pilots training record file.

3.14 **External Load Training - Class B and C External Loads:** This training is required where a pilot has not received training for the Class of external load to be carried or has not conducted the Class of external load within the previous 24 calendar months.

Programmed time allotted: 1 hour ground, 30 minutes air.

Syllabus:

a) restrictions related to external load operations over built-up areas;

b) preparation of loads, load rigging procedures and attaching of Class B and Class C loads as applicable;

c) steps to be taken before starting operations, including flight and ground crew briefings, and instructions, inspection of suspension cables and pre-flight checking of jettison system;

d) precautions related to aerodynamics of Class B and Class C external loads, including oscillation and carriage of un-weighted cables;

e) flight training in the pick-up, departure, approach and delivery of representative Class B external loads as applicable;

f) flight training in manoeuvring with Class C external loads as applicable; and

g) instruction on the applicable external load flight manual supplement.

On completion of training a satisfactory written exam will be placed in the pilots training record file.

3.15 **External Load Training - Class D External Load:** Pursuant to CAR 702.76 and CASS 722.76(6) (c) the initial and annual recurrent training program shown below is required for pilots assigned to Class D external load operations. All pilot training for Class D external loads as specified in this section will be conducted ONLY after successful completion of the Aerial Work Training as specified in section 6.17 of the Campbell Helicopters Ltd. Operations Manual.

Programmed time allotted:

Ground School

Initial	8 hours
Recurrent	1.5 hours

Flight Time

Initial	1.0 hours
Recurrent	0.4 hours

Note: If the pilot has not conducted Class D External Load operations or successfully performed recurrent training within the past 36 months, the pilot will re-do the Initial training program.

Syllabus:

a) instruction on the applicable flight manual supplement or Airworthiness approvals, including weight and balance calculation procedures, method of loading, rigging and attaching the external load and pre-flight procedures;

b) instruction on operational requirements, including calculation of one engine inoperative performance as applicable, co-ordination and communications procedures, and operational restrictions;

c) steps to be taken before commencing Class D load operations, including flight and ground crew briefings and instructions and pre-flight inspection requirements;

d) flight training with representative Class D loads including, as applicable to the load attachment configuration:

e) precision hovering in and out of ground effect, including vertical reference maneuvering;

f) pick up, departure, approach and delivery of Class D loads;

g) simulated emergencies and malfunction procedures with representative Class D loads.

h) comprehensive classroom instruction, on-the-helicopter training and simulated mission(s) as specified in Appendix 1 – Campbell Helicopters Ltd. Training Program, Helicopter Human External Load Operations (Canada), to this section.

On completion of training a satisfactory written exam will be placed on the pilot's training record file.

3.16 **Low Visibility Operations Training Program:** The pilot shall take the following factors shall be discussed and considered when conducting low visibility operations:

a) Gross Weight: The gross weight should not exceed the allowable weight for the planned density altitude (WAT chart);

b) Wind: The pilot should always be aware of wind direction and speed and how the wind might affect ground speed and turning radius;

c) Turning Radius: Distance traveled increases with speed therefore turning downwind will increase the turning radius;

d) Weather: It is important for the pilot to receive proper weather briefings prior to any flight. Consideration should be given to both existing and forecast conditions, particularly with regard to wind, precipitation, changing conditions, frontal size and intensity.

e) Terrain: Consideration must be given to the terrain of intended flight: flat, hilly or mountainous. If mountainous, the availability of a route through low passes should be considered. The terrain should be constantly monitored for possible landing sites in case of rapidly deteriorating weather;

f) Time of Day: Flight in reduced visibility is restricted to take-off not before one hour after sunrise and shall be completed one hour before sunset. The time of sunrise and sunset varies with latitude and pilots can obtain that information from the nearest FSS or in the AIM, GEN Section 1.6.4;

g) Communications: It should be considered that at reduced altitude the broadcast range is reduced and therefore it might be difficult maintaining communications for flight following (Section 3 - 3.2), receiving weather reports and notifying a ground station about changes to the planned route or possible emergencies;

h) White-out: White-out is normally a loss of visual reference and is the most common cause of accidents during winter flying. Flat light and open white surface blends with the sky and there is no discernible horizon, which makes it difficult to detect falling snow from clouds ahead. Entering falling snow could cause loss of visual reference. If the area ahead looks doubtful, turn around. Do not fly passed your present reference point without the next reference point in sight. The most dangerous part of the flight is landing the helicopter in reduced visibility and loose and light snow. It is imperative to have a good, fixed and dark reference point for landing. This is also true in good visibility since visual reference could be lost landing, depending on the amount of loose snow;

i) Fuel Consideration: See this manual Section 4.1.2;

j) Aircraft Minimum Speed: On encountering low visibility operations, the helicopter shall be flown at a *reduced*

airspeed that will provide the pilot adequate opportunity to see and avoid obstacles.

The minimum safe airspeed shall be in accordance with the Height / Velocity diagram in the approved RFM for the applicable type, but in any case not less than:

(i) Bell 204/205 **35 kts;** and

(ii) Bell 212 **35 kts;**

Should the operation be such, that the airspeed needs to be reduced even further, i.e. beyond this minimum speed, the pilot shall not proceed any further on the selected route. In this case, either a safe landing shall be made at the nearest suitable landing site, or a turnaround shall be initiated.

On completion of training a satisfactory written exam will be placed in the pilots training record file.

3.17 **Resetting of Tripped Circuit Breakers:** Study helicopter systems operation and limitations as contained in the helicopter Flight Manual and Company Operations Manual, including tripped CB resetting procedures.

3.18 **Dangerous Goods Training:**

3.19 **Pilot Decision Making Course:**