



SUPER T AVIATION

CESSNA 172

STANDARD

OPERATING

PROCEDURES

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1 Chapter – General

1.1 Introduction

These Standard Operating Procedures have been issued by Super T Aviation for guidance in the operation of the C172. The SOPs cannot cover all circumstances. However, they are intended to assist personnel to operate the aircraft within the limitations of the aircraft flight manual and to serve as a benchmark against which pilot performance may be measured. All students and instructors are expected to exercise sound judgment and consistency in their application. As these SOPs cover the Cessna 172s operated by Super T Aviation and contain procedures specific to those aircraft, they should be used only on those aircraft.

Standardization is one of the most powerful tools available to the pilot to prevent the undesirable, to determine when something undesirable is occurring, and to deal with the undesirable should it occur. It also provides guidelines for both student and instructor performance throughout the completion of their duties. These SOPs are provided as a part of the standardization tool. However, a standard procedure cannot be devised to cope with all situations. Although the SOPs are to be complied with to the extent practical, there may be situations where compliance with some part is inadvisable. Should it be appropriate to deviate from the SOPs, both student and instructor shall be thoroughly briefed on the deviations.

1.2 Application

Publications: The SOPs supplement and expand on the information contained in numerous publications. In particular, the SOPs supplement the following publications:

- i) Cessna 172 Pilot Operating Handbook (POH);
The SOPs are designed to promote standardization of the training of pilots during operation of the aircraft in accordance with the approved POH. The SOPs are not intended to replace the POH, but to supplement it. In some cases the procedures outlined in the SOPs are more restrictive than the POH.
- ii) Canadian Aviation Regulations (CARS).

1.3 Abbreviations and Acronyms

The following abbreviations and acronyms are used in the SOPs. Where the abbreviation or acronym is derived from another document (such as the Pilot Operating Handbook), the reference for that acronym is shown by the title of the publication preceded by the abbreviation "ref." The expanded text for the abbreviation or acronym is shown in this section. For definitions of terms see the Definitions section. Items are sorted in ascending alphabetical order sorted by abbreviation or acronym. Generally, the periods "." have been omitted from the abbreviation unless required for clarity.

AAIR	Annual Airworthiness Information Report
ADF	Automatic Director Finder
AI	Attitude Indicator

AIM	Aeronautical Information Manual
ATC	Air Traffic Control, (ref. AIM)
Capt	Aircraft Captain
CARs	Canadian Aviation Regulations
CAS	Calibrated Airspeed (ref. POH)
CB	Circuit Breaker
CFR	Airport Crash, Fire Fighting and Rescue Services (DND) (ref. CFS)
C of G	Center of Gravity
CFS	Canada Flight Supplement
ELT	Emergency Locator Transmitter
FSS	Flight Service Station
FO	First Officer
FOD	Foreign Object Damage
FP	Flying Pilot
GPS	Global Positioning System (ref. AIM)
GS	Ground Speed
HI	Heading Indicator
IAS	Indicated Airspeed (ref. AIM)
ISA	International Standard Atmosphere
KIAS	Knots Indicated Airspeed
KTAS	Knots True Airspeed
NAVAID	Navigational Aid (ref. AIM)
NFP	Non-Flying Pilot
OAT	Outside Air Temperature
PIC	Pilot in Command
QRH	Quick Reference Handbook
RCR	Runway Condition Report (ref. AIM)
RPM	Revolutions per Minute
RWY	Runway (ref. CAP)
SOP(s)	Standard Operating Procedure(s)
TAS	True Airspeed
T/C	Transport Canada
Va	Maneuvering Speed (ref. POH)

Vfe	Maximum Flap Extended Speed, (ref. POH)
VMC	Visual Meteorological Conditions (ref. CARs)
Vno	Maximum Structural Cruising Speed (ref. POH)
Vne	Never Exceed Speed
Vs	Stalling Speed
VSI	Vertical Speed Indicator
Vso	Stalling Speed in the landing configuration at the most forward C of G
Vx	Best Angle of Climb Speed
Vy	Best Rate of Climb Speed

1.4 Definitions

The following are selected definition. Although other meanings may apply to some words or terms, the definition indicated applies in this manual. Where the definition is derived from another document (such as the POH), the reference for that definition is shown by the title of the publication preceded by the abbreviation "ref". Where a commonly used abbreviation or acronym applies, it will be shown with the definition.

Air Time – with respect to keeping technical records, the time from the moment an aircraft leaves the surface until it comes into contact with the surface at the next point of landing

Critical Surfaces – the wings, control surfaces, rotors, propellers, upper surface of the fuselage on aircraft that have rear-mounted engines, horizontal stabilizers, vertical stabilizers or any other stabilizing surface of an aircraft.

Captain – the person assigned as "in-command" of an aircraft during flight.

Demonstrated Crosswind Velocity – the velocity of the crosswind component for which adequate control of the airplane during takeoff and landing was actually demonstrated during certification tests. The value shown is not considered limiting.

Flight Time – the time from the moment an aircraft first moves under its own power for the purpose of taking off until the moment it comes to rest at the end of the flight

Flying Pilot (FP) – the pilot or co-pilot that is:

- i) taxiing the aircraft or,
- ii) during flight, operating the flight controls directly

International Standard Atmosphere (ISA) – in which;

- i) The air is a dry perfect gas;
- ii) The temperature at sea level is 15°C;
- iii) The pressure at sea level is 29.92 inches HG;

- iv) The temperature gradient from sea level to the altitude at which the temperature is -56.5 degrees C is -1.98 degrees per 1000 feet, and 0 degrees above that altitude.

May – indicates permission.

Must – primarily mandatory; may be used in a permissive sense.

Pilot – a flight crew member authorized to operate the flight controls of an aircraft.

Port – the Left side of the aircraft as seen when seated in the pilot's seat.

Pressure Altitude – altitude measured from standard sea-level pressure (29.92 Inches of Mercury) by a pressure or barometric altimeter.

Propeller RPM – indicates propeller speed in rpm.

Should – indicates an obligation. Compliance is expected but not mandatory.

Starboard – the right side of the aircraft as seen from the pilot's seat.

Will – indicates that compliance is mandatory (similar to "shall").

1.5 Notes, Cautions and Warnings

Some information that requires emphasis is expanded upon in the form of a note, caution, or warning. The usage of each and method of display follow.

NOTE

Expands on information which has already been provided.

CAUTION

Provides information to prevent damage to equipment or people.

WARNING

Emphasizes information of immediate flight safety importance.

1.6 Units of Measure

Unless otherwise specifically stated, the following units of measure (and their abbreviations) are used in these SOPs and are to be used during the operation of the Cessna 172:

- i) **Airspeed** – Indicated Airspeed in Knots (**KIAS**);
- ii) **Altimeter Setting** – Inches of Mercury (**in Hg**);
- iii) **Altitudes, Elevations, Heights** – Feet, (ft, or '), note that heights Above Sea Level (ASL) or Above Ground Level (AGL) employ feet as the unit of measure;
- iv) **Distances**:

- a. **Navigation** – Nautical Miles, (NM);
 - b. **Visibility** – Statute Miles, (SM);
 - c. **Short distances** (i.e. runway length) – Feet, (ft or ');
 - d. **Very short distances** (i.e. weight and balance calculation) – Inches (in. or ")
- v) **Fuel:**
- a. **Volume** – Litres (**L**) or Gallons (**GAL**) (Most often US gallons)
 - b. **Weight** – Pounds (**LBS**)
- vi) **Horizontal Speed** – Knots (**KTS**);
- vii) **Temperature** – degrees Celsius (**°C**); and
- viii) **Vertical Speed** – Feet per Minute (**FPM**)

1.7 Aircraft Dispatch

Fuel Requirements – all local training and rental flights up to 1.5 hours long require a minimum of Half Tanks. All Cross Country Flights and all flights at night require full tanks or maximum permissible.

Description of Practice Areas

Day Training – see map located at back of this manual.

Night Training – **NO** night training will be conducted towards the Cypress Hills.

Use of Practice Areas – assigned training exercises ONLY. Flight must be conducted in accordance with Canadian Aviation Regulations.

Super T Aviation Academy Bookings – all bookings are to be made through an instructor. Failure to give reasonable notice of cancellation will result in a minimum of 1 hour dual charge.

Super T Aviation Academy Flight Authorization Sheet – Super T Aviation Academy Flight Instructors will authorize each flight. Student Acknowledgement of training is required for every flight.

1.8 Apron Safety and Embarking/Disembarking Passengers

These are general rules to follow for safety on the apron. They would apply to you, as a student, and to you and your passengers on the apron after you obtain your license.

- Aircraft are to be chocked at all times.
- Unless otherwise arranged, passengers are to be escorted to and from the aircraft.
- Passengers are to be discouraged from loitering on the apron when other aircraft are present.
- Avoid loading or unloading passengers in adverse conditions such as when other aircraft are producing large amounts of noise or jet blast may be present.
- No smoking allowed airside.

1.9 Fueling Procedures

The aircraft must be taxied to the fueling alley between the office and the fuel tanks or up to the portable tanks. Unless strong winds preclude it, taxi the aircraft to sit facing away from the main Super T hangar. Be careful not to taxi too close to other aircraft, buildings or other vehicles. Move the aircraft by hand if unsure of clearance.

As a general rule, aircraft are to be filled at noon and again before being put away for the evening. This helps to keep condensation from forming in the tanks. If it is a very cold day and the aircraft will be going into a warm hangar, ask for a “loose fill”. Cold fuel will warm up and expand in the hangar overnight and if the aircraft is filled to the brim, fuel will vent overboard onto the floor. The re-fuelers will ask you to sign a fuel confirmation sheet.

If you will be taking the aircraft away from base for a day trip and will require fuel, you can either ask for a Company credit card or purchase the fuel yourself and submit the receipt for reimbursement. If you are going to require the aircraft for a longer period, you will be expected to buy the fuel yourself and submit the receipts for reimbursement. Super T will reimburse any fuel bought at either the price you paid or the price Super T pays for fuel, whichever is lower.

1.10 Reporting of Aircraft Defects

The person discovering the defect shall, at the latest, before the next flight enter all aircraft defects in the Journey Logbook.

All defects must be reported to Maintenance by phoning 1-888-541-6636 or in person. The Journey Log Book with the defect recorded in it will then be removed from the front office area to the Maintenance office.

Should the aircraft become unserviceable away from base, the PIC shall contact the Person Responsible for Maintenance. If it is determined that the defect affects the basic airworthiness of the aircraft, arrangements shall be made through the AMO to rectify the defect where the aircraft is grounded, or when possible, to ferry the aircraft to the AMO on a flight permit.

If the defect does NOT affect the basic airworthiness of the aircraft, the PRM or AMO may authorize a defect deferral. The person authorizing the deferral may then make, or authorize the PIC to make, a journey log entry stating the defect has been deferred. In this case, the details of the defect shall include the statement “Defect does not affect airworthiness” and be signed by the pilot in command.

Deferred Defects will be recorded in the Journey Log Book as per the paragraph above; on the Maintenance Alert Card kept in the Journey Log book; on a Deferred Defect Sheet in the Document Bag; and will be placarded in the aircraft. If any of these items are found to be missing, bring it up to the Dispatcher.

1.11 Hangar Doors

It is imperative to show good airmanship on the ramp and in front of the hangar door. Do not taxi aircraft away from the hangar with the hangar door open. The prop wash from your aircraft may cause objects to blow around in the hangar, causing damage to persons or things. This action also blows dust and dirt into the hangar.

The hangar door should be operated only by an authorized person. If you need to open the hangar door please ask an employee for assistance.

1.12 Aircraft Icing Operations

The Flight School operates only when VFR conditions exist, however, you may be required to taxi or operate on the ground when conditions are less than optimal. The following are guidelines when this occurs:

- a) When taxiing through standing water and on slush contaminated taxiways or through loose snow, it is advisable to:
 - i) Avoid taxiing through standing water/slush whenever possible
 - ii) Taxi as slowly as local traffic conditions will allow reducing the amount of spray
 - i) Speed must be managed to minimize slush or snow impinging on flaps, landing gear, and brakes. Too high a taxi speed may result in contaminants spraying on the flaps. Too slow a taxi speed may cause the aircraft to bog down in snow.
 - iii) Use minimum braking to reduce the chance of the brakes heating and then having contaminants freeze after takeoff.
 - iv) Under no circumstances should the aircraft be taxied through packed snow drifts that are deeper than the distance from the bottom of the wheel hub to ground.
 - v) If you suspect or see snow or slush frozen on the brakes and wheels after takeoff, plan a “firm” landing to “break” any frozen matter off the wheels preventing the tires from skidding with frozen brakes and possibly bursting the tire.
- b) Regardless of any previous actions taken to remove frost, ice or snow from the critical surfaces of the aircraft, should any frost, ice or snow be found to be adhering to these critical surfaces, the aircraft shall not takeoff and will return to have further de-icing completed.

1.13 Appropriate Dress for the Weather

You must be dressed appropriately for the weather in order to be dispatched on a flight. Winter gear includes a winter jacket, snow pants, boots, a hat and gloves. These items must be in the plane with you for a winter flight, but need not be worn. During extremely hot weather, a water bottle must be carried onboard.

1.14 Solo Night Cross Countries

Student must be current at night prior to completing a solo night cross country.

Students are encouraged to complete solo night cross countries after receipt of the Night Rating with the following restrictions:

- All solo night cross countries must be to airports with either an open FSS or an operating control tower – no unattended airports will be approved
- Approved airports are:
 - YQL, if FSS will be open when the student arrives
 - YBW – if FSS or tower will be open when the student arrives
 - YYC
 - YEG
 - YXE
 - YQR
- Flights must be completed Monday-Thursday – no weekend solo night cross countries
- Student must be airborne within ½ hour of official night
- Student must have two alternates in mind besides a return to YXH when planning the trip
- Student must leave expected arrival and departure times with the Flight Follower and must contact the Flight Follower if times will be more than 20 minutes off the proposed times
- student must have a functioning phone capable of voice and text messages
- Forecast and actual weather must be at least as good as the published Weather Minima in the Safety Handout and as stated below.

1.15 Overwater Flights

Any flights conducted over water must be equipped with the appropriate survival equipment as specified in CARs 602.62 and 602.63.

1.16 Securing of Aircraft

Any aircraft parked on the ground must be secured using chocks and/or tie downs. Pitot covers are to be securely installed. Sunshades are to be used in the summer. In the winter, cowl covers and wing covers and engine heaters may be required.

1.17 Checks, Checklists, and Drills

General checks, checklists, and drills have been developed for the operation of the Cessna 172 to ensure that the required actions are not inadvertently omitted or completed in an inappropriate sequence. In this manual a **check** is a series of actions; a **checklist** is the physical written document that is associated with the check. A **drill** is a check for an abnormal or emergency situation that requires immediate action and is therefore, carried out from memory without reference to the checklist. The checklists are expanded upon in the body of the chapters. The expanded checklists provide additional detail (if applicable) for each checklist item. The abbreviated forms of the checklists are found in Chapter 9. The Normal Checklist and the QRH are to be onboard the aircraft at all times.

1.18 Standard Calls – General

To reduce the likelihood of an incorrect interpretation of a request or command and to initiate corrective action for undesirable situations, a number of Standard Calls have been established. Standard Calls are defined and referred to throughout the SOPs. The following are calls that have broad application or are not specifically dealt with elsewhere in this manual.

Condition	Location	CHALLENGE	RESPONSE
All phases of flight	Transfer of Control from one pilot to the other pilot	"I HAVE CONTROL"	"YOU HAVE CONTROL"

1.19 Standard Calls – Altitude and Heading

The following chart identifies the standard call out and response required during climbs and descents and level flight in regards to altitude.

Condition	Location	CHALLENGE	RESPONSE
Climb and Descent	1000 feet above/below an altitude	Call present altitude for target altitude ie. "8000 for 9000"	"CHECK 1000 ABOVE/BELOW"
Climb and Descent	100 feet above/below an altitude	"100 ABOVE/BELOW"	"LEVELLING"
All phases	Deviations 100 ft above or below desired altitude	"ALTITUDE"	"CHECK, CORRECTING"
All Phases	Deviations 10° left or right of desired heading	"HEADING"	"CHECK, CORRECTING"

1.20 Barometric Altimeter Setting Procedures

The procedures in the following paragraphs should be followed for setting of altimeters in various circumstances:

- i) Altimeter Setting – When saying an altimeter setting the decimal is omitted but all of the digits are included.
 - a. Eg. 29.89 in Hg is read as "two niner eight niner"
- ii) When receiving an altimeter setting that is either new or unchanged from another agency by radio, read that altimeter setting back to the agency.

2 Chapter – Pre-Flight

2.1 Introduction

This chapter deals with procedures required before you go flying.

2.2 Arriving for a Flight

Please ensure you arrive early enough before your scheduled booking to complete any or all of the following as per your instructor's request.

2.3 Operational Flight Plan

Complete the Operational Flight Plan before every flight. By doing the OFP you are confirming the weight and balance of the aircraft is acceptable and that the aircraft is airworthy and has enough time to complete the lesson. The OFPs may be found in the classroom on the shelves. At the beginning of training, the instructor will help with the completion of this form. This form should be completed before your scheduled booking starts.

2.4 Check the Weather

Once you have gained some experience with checking the weather with your instructor, you will be required to check it for yourself.

To aid you with your decision if it is a good day for flying or not use the following as a guide as it pertains to the training you are currently undertaking:

Recreational Pilot Permit, Private Pilot Licence

Type of Flight	Ceiling	Visibility	Temperature	Max Crosswind
Dual Circuit	SVFR limits	SVFR limits	-20°C	15 knots
Dual Practice Area	3000 Feet	5 Miles	-20°C	15 knots
Dual Cross Country	2000 Feet	6 Miles	-25°C	15 Knots
Solo Circuit	1500 Feet	6 Miles	-20°C	10 Knots
Solo Practice Area	3000 Feet	8 Miles	-20°C	10 Knots
Solo Cross Country	3000 Feet	8 Miles	-25°C	10 Knots

WARNING

ALL SPIN TRAINING WILL BE CONDUCTED AT NO LESS THAN 7500 FEET ASL IN THE PRACTICE AREA.

Night Rating, VFR Over the Top Rating and Solo Night Cross Countries

Type of Flight	Ceiling	Visibility	Temperature	Max Crosswind
Dual Circuit	VFR limits	VFR limits	-20°C	15 Knots
Dual Practice Area	3000 Feet	5 Miles	-20°C	15 knots
Solo Circuit	2500 Feet	8 Miles	-20°C	10 knots
Solo Practice Area	5000 Feet	8 Miles	-20°C	10 knots
All Night Cross Country Flights	5000 Feet	15 Miles	-20°C	10 knots

NOTE

Night Flights – Instructor’s discretion to be used concerning temperature/dewpoint spread.

NOTE

Flights will not be authorized when dew point/temperature spread converging rapidly.

Commercial Pilot Licence

Type of Flight	Ceiling	Visibility	Temperature	Max Crosswind
Dual Circuit	SVFR limits	SVFR limits	-20°C	15 knots
Dual Practice Area	3000 Feet	5 Miles	-20°C	15 knots
Dual Cross Country	2000 Feet	6 Miles	-25°C	15 Knots
Solo Circuit	1500 Feet	3 Miles	-20°C	10 Knots
Solo Practice Area	3000 Feet	5 Miles	-20°C	10 Knots
Solo Cross Country	3000 Feet	8 Miles	-25°C	10 Knots

Single Engine Instrument Rating

Type of Flight	Ceiling	Visibility	Temperature	Max Crosswind
Dual Single Engine	2000 Feet	3 Miles	-20°C	15 knots

2.5 Cross Country Navigation Planning

If the booking is for your first dual cross country you can expect the instructor to book at least two hours of individual ground instruction to help you complete all your planning for

the cross country. Make sure you make avail of this time to solidify your knowledge of the procedures required in planning a cross country.

For any navigation exercise after your initial dual cross country, you will be required to complete your planning **BEFORE** your scheduled booking. Your instructor will have assigned routing information to you before your arrival. Some of your planning may be completed at your residence with only the final calculations required to be done at the school.

Planning forms and Flight Plan Forms may be found in the classroom on the shelves.

2.6 Pre and Post Flight Briefings

Prior to your flight you will conduct a briefing with your instructor, and a post flight briefing will take place on completion of your sortie along with information and study required for your next flight.

The format of the briefings is to be in accordance with the card below, which you will be issued.



Student Pre-Flight Briefing Card
 Studied – SOPs, Student Syllabus, FTGU?
 Completed – PGI and TKT?

FLIGHT OVERVIEW
 What are we going to do?
 Where are we going to do it?

BRIEFING
 MET/CONDITIONS/NOTAMS
 AIRCRAFT –Hours/Fuel/STCs/Snags
 FLIGHT – T/O time/Duration/Return
 Sequence of exercises/NAV Legs/ Practice
 Area/ Dep & Arr Procedure

AIRMANSHIP
 Fit To Fly/PDM

Illness
Medication
Stress
Alcohol
Fatigue
Emotion



Student Post Flight Briefing Card
“How did it go?”
 Strengths
 Weaknesses

INSTRUCTOR DEBRIEF
 Advice to correct errors
 Any Questions?

NEXT FLIGHT
 Flight outline – Dual/Solo
 Exercises to review
 TKT to complete
 Study materials
 Book next flight!

GROUNDSCHOOL
 Written Test preparation

Any Further Questions?

2.7 Before Start Checks

The Before Start Checks will be completed with your instructor for the first couple of lessons. Once the instructor feels you are capable of completing them by yourself, you will be required to complete this check. With this Check, you would read the checklist and complete each item as you go.

Documents	Check
Pitot Cover	Remove
Control Lock	Remove
Flight Controls	Free & Correct
Fire Extinguisher	Check
ELT & Placards	Check
First Aid Kit	Check
Baggage/Cargo	Secured with installed nets
Trim	Check
All Switches	Off
Ignition	Off and Key out
Master	ON
Fuel Gauges	Check
Turn Coordinator	Check
Pitot Heat	Check
Lights	Check
Flaps	Extend, Check then retract
Master and Switches (EXCEPT BEACON)	Off
Pre-Flight Inspection	Complete
Dip Fuel Tanks	Check Quantity
Fuel Sample	Drain and Check
Check Engine Oil Level	5 Quarts Minimum

Before Start Checks – Expanded

Documents.....CHECK

Ensure that the following documents are on board, and check each one for its validity:

- **Certificate of Airworthiness**
 - Valid if:
 - Annual Airworthiness Inspection Report (AAIR) completed
 - Defects are deferred or rectified
 - Airworthiness Directives (Ads) are complied with
 - Scheduled maintenance is completed
 - Airtime remaining before next inspection due is sufficient for the flight
- **Certificate of Registration**
 - Owner is the same
 - Aircraft has not been taken offline

- Aircraft has not been destroyed
- **Radio Operators License (yours or your instructors)**
- **Operators Handbook**
 - Always kept in the aircraft in the back seat pocket
- **Weight and Balance Data**
 - Completed by the AMO
- **Insurance**
 - Check “valid to” date
- **Licenses**
 - Medical Certificate Current and Student Pilot Permit or License
- **Logbook**
 - Check when next inspection or required maintenance is due
 - Check for any defects

Pitot Cover.....REMOVE

Take the Pitot cover off and stow it in the seat back.

Control Lock.....REMOVE

Removing the control lock will allow us to move the flight controls during the pre-flight inspection. Place the control lock in the side pocket by your feet. If the aircraft is outside and it is windy, the control lock should be put back in place after the walk-around is completed.

Flight Controls.....FREE AND CORRECT

When you turn the control column in the cockpit to the left, as if you were in a car and wanted to make a left turn, the left aileron should move up and the right aileron should deflect down. When you turn the control column to the right, the right aileron should move up and the left aileron should deflect down. When you pull on the control column towards yourself, the elevator at the back of the aircraft should move up and when you push the control column away from yourself the elevator should deflect down. At this time, step on the right rudder and note the rudder at the back of the aircraft moves to the right and then step on the left rudder and note the rudder moves to the left. To check for freedom of movement, rotate the control column to the left, pull full aft, then rotate control column to the right and then return the control column to neutral.

Fire Extinguisher.....CHECK

The fire extinguisher must be secure in its cradle and the expiry date should not be exceeded. Ensure it is charged properly with the arrow in the green section.

ELT and Placards.....CHECK

The ELT must be secure at the back of the aircraft and a placard should be attached to the outside of the aircraft, as well as on the interior, noting its location.

First Aid Kit.....CHECK

The First Aid Kit must be secure at the rear of the aircraft under the cargo netting and the netting must be secured to the attachments points.

Baggage/Cargo.....SECURED WITH INSTALLED NETS

Ensure baggage and cargo is secured either under the netting in the baggage compartment, stored under the back seats, or strapped to the back seat with the seatbelt. If the cargo netting is to be used, ensure that the netting is secured to the attachments points.

Trim.....CHECK

Rotate the trim wheel forward toward the front of the aircraft to the stop. Note the trim indicator indicates a nose down trim condition and that the control surface attached to the elevator on the starboard side has moved up. Now move the trim wheel down, away from the front of the aircraft to the stop. Note the trim indicator indicates a nose up trim condition and that the trim control surface has moved to a downward position. Now move the trim wheel until the trim control surface is level with the edge of the elevator and note that the trim indicator is in a neutral position

All Switches.....OFF

Make sure the avionics switch, intercom switch, all light switches and radio switches are all in the OFF position.

Ignition.....OFF AND KEY OFF

Ensure the magnetos are off and the key is not in the ignition

Master.....ON

When you turn the master on you are running off battery power only. The next few steps should be expedited.

Fuel Gauges.....CHECK

Check the gauges for a fuel indication. Gauges can be used as a reference, but should not be entirely depended upon. Your walk-around will include a visual dipping of the tanks. When you dip the tanks, this reading should be compared to the reading that you obtained on the gauges.

NOTE

**All local training and rental flights up to 1.5 hours long
require a minimum of half tanks. Cross country flights
require full tanks or maximum permissible.**

Turn Coordinator.....CHECK

This instrument is electrical. Check for fluctuations in the instrument. It should remain steady. You will also be able to hear the electric gyro starting to spool up.

If the instrument includes a red flag to indicate its serviceability, it should disappear when you turn the master on.

Pitot Heat.....CHECK

Turn the Pitot Heat switch on in the cockpit. Feel the Pitot Heat with your hand to see if it is warming up. **Turn off Pitot Heat switch in the cockpit immediately after checking.**

Lights.....CHECK

Turn the Navigation lights, strobe lights (if installed), beacon light, landing and taxi lights all on, as well as the pitot heat and check serviceability of all. Pitot heat can be checked carefully by placing your fingers on the tube and then placing your fingers on the colder surface of the wing.

Flaps.....EXTEND, CHECK then retract

Extend the flaps to full by placing or holding the switch in the full down position. After checking, retract to flaps up position

Master and Switches (EXCEPT BEACON).....OFF

Turn the master switch off, as well as all the switches.

Pre-flight Inspection.....COMPLETE

Complete your walk-around checking all items listed below.

Dip Fuel Tanks.....CHECK QUANTITY

Using the clear fuel dipping tube located behind the pilots seat, dip each tank in turn to check the quantity. Compare with cockpit fuel gauge readings. Make a note of the total and ensure it is sufficient for your flight – refuel as required.

Fuel Sample.....DRAIN AND CHECK

Using the fuel sampler cup located behind the pilot's seat, drain a small quantity of fuel from the fuel tank sump quick-drain valves to check for water, sediment and proper fuel grade. Pour sample in red fuel can on rack outside hangar door. Ensure you wipe excess fuel from the sampler and dipping tube before replacing behind the pilots seat to reduce fuel vapour in the cabin.

Check Engine Oil Level....5 QUARTS MINIMUM

Using the access panel on the nose, remove the dipstick and check the engine oil level. Markings can vary on the dipstick, but ensure there is a minimum of 5 quarts indicated. Do not overtighten the dipstick! Only a suitably qualified person may top the oil up and this must be recorded in the journey log and in the Fluids Sign Out sheet in the lubricants cabinet.

The walk-around should not be rushed. You are checking the aircraft thoroughly to make sure it is safe for you to fly. Your eye may catch something that another student missed, or something new. If you notice **anything** in question, report it to your instructor, maintenance, or other Super T Aviation staff. It is safer to have it looked at by someone experienced as it may be worse than you think.

Grab the red jerry can for your aircraft as you walk out to start your inspection.

After you have completed the appropriate cockpit checks (as listed above), close the door and start your walk-around at the baggage door on the left side of the aircraft. You will make your way around the aircraft and return back to this door.

Baggage Door – Ensure the baggage door is closed and locked, with all cargo inside secured with cargo nets.

Left Side Fuselage – Check to make sure the rivets are all in place, and overall for surface damage. Glance under the belly to make sure there are no fuel leaks.

Empennage – The horizontal stabilizer surface should be checked for any damage/dents. Move the elevator to the full up position and the full down position to check for freedom of movement. Make sure the elevator does not catch any parts of the horizontal stabilizer or the vertical stabilizer. The vertical stabilizer should be checked for any damage/dents. Check the beacon light is not broken. Check the VOR antenna is not bent. Move the rudder to the full left and full right position while scanning the entire length to check for freedom of movement and catching. The white position light should be checked as well. Move the elevator and the rudder together full deflections and check that the cables for both are not worn/frayed or catching on any surface.

NOTE

When checking the rudder for freedom of movement,
DO NOT use the rudder trim tab to move the rudder.

Right Side Fuselage – Check to make sure rivets are all in place, and overall for surface damage. The ELT antenna should not be bent or broken.

Back Windows – Should be clean and not cracked.

Right Wing – The flap should be fully extended. It should have a little bit of movement when you apply force to the bottom of it. Check surface. Underneath the flap you will see 3 small openings. You will see the cables running the length of the wing to the ailerons. These should be checked for any fray or wear. The right aileron should be fully deflected up and down to check for freedom of movement. When holding the aileron up, check the pins are in place at the three attachment points. Moving to the wingtip, check the navigation and strobe light (if installed) are not broken. Follow the leading edge to the wing root. Check for any dents or surface contamination. (Dead bugs are considered contamination!) Both vent holes at the wing root should be clear of debris.

Dip the right fuel tank using the dip stick that is stored in one of the front seat back pockets to measure fuel quantity. Each notch of the dip stick represents 1 gallon. Ensure that the cap is replaced correctly and tight. The cap should run perpendicular to the wing leading edge. Fuel should be checked to determine the quality as well as the correct fuel grade. Use the fuel testing cup that is also found in the pocket with the dip stick. Take a small sample of fuel from the fuel drain located on the bottom aft portion of the wing,

closest to the wing root. Look for any debris or water, and a light blue hue. Water is heavier than fuel so it will bubble and sink to the bottom of the cup. If water is found in the sample continue to drain until the sample is only fuel. The samples can be dumped into the red jerry can.

Right Wing Strut – Check the casing for any cracks. Check attachment points for damage or stress.

Right Main Tire – Check the tire for skid marks. If you notice the rubber is fairly worn, or tread marks are showing notify someone. Check for proper inflation. Check there is no hydraulic brake fluid leaking. Check that the split pin is in place. Feel the brake pads for wear.

Right Main Wheel Strut – Check for any cracks in the cover. Check the attachment points to the tire and to the fuselage for any damage.

Nose – Check for missing screws and any damage or dents in the engine cowling left and right side. Check the oil level. Be cautious when removing the oil cap, as it may be fairly hot. Refer to the aircraft's POH for max and min oil quantities.

DO NOT over tighten the cap. A snug fit is all that is needed.

Front windows should be clean.

The propeller should be fully scanned with your finger tips for any nicks.

Air scoops should be checked for debris. Alternator belt should not be worn or broken.

Nose Wheel should be checked for proper inflation and wear. Nose oleo should be no less than 3 finger widths. The oleo is for shock absorption. If the nose oleo is low you may hit metal on metal and cause unwanted wear and tear.

The static vent should be checked that it is clear of water and debris. Do not rub anything over the outlet, or attempt to clear it if it is blocked. Notify your instructor.

Left Wing Strut – Check the casing for any cracks. Check attachment points for damage or stress.

Left Wing – Follow the leading edge to the wing root. Check for any dents or surface contamination. Both vent holes at the wing root should be clear of debris.

The left wing has some important items that the right wing does not have.

The pitot tube and fuel vent should be checked carefully for any debris or foreign object. The stall warning horn should also be checked by applying suction to the outlet on the leading edge. Check the navigation and strobe light (if installed) are not broken. Moving to the trailing edge of the wing, check the aileron and flap as described above under Right Wing.

Left Main Tire – Check as per Right Main Tire above.

Left Main Wheel Strut – Check as per Right Main Tire above.

Tie-downs and chocks can be removed at this time. If the walk-around is done before you meet with your instructor, the front chock can be slid outside the wheel and the back chock left in place. This prevents the aircraft from rolling backwards and will still allow you to taxi forward once started.

You have now completed your pre-flight inspection.

3 Chapter – Normal Flight Procedures

Engine Start

3.1 Introduction

This chapter of the SOPs provides guidance for normal operations from the start of the aircraft to the takeoff.

3.2 Engine Start

After the instructor has completed the Preparatory Ground Instruction, as necessary, and briefed you on your lesson you will proceed to the aircraft.

With this checklist, read aloud each item and respond with the action. As you go through the checklist, point to each control or gauge as you read and respond,

i.e. **“Mixture – Full Rich”** as you push the mixture control in.

Chocks/Tie-downs	Removed
Passenger Briefing	Complete
Emergency Briefing	Complete
Engine Gauges	Check Zero
Electrics and Avionics	Off
Circuit Breakers	Check
Brakes	Set
Fuel	Left Tank
Mixture	Full Rich
Throttle	Open 1/8”
Carb Heat	Cold
Beacon	On
Prime	As Required
Propeller Area	Clear
Master	On
Ignition	Engage
Throttle	800-1000 RPM

Oil Pressure	Check
Alternator	Check Charging
Engine Start Time	Record

At the completion of the checklist state – **“Engine Start Completed, After Start next”**.

Engine Start – Expanded

Chocks/Tie-Downs.....REMOVED

Passenger Briefing Briefing.....COMPLETE

It is important to let your passengers know where safety equipment is located in the aircraft, how to use the doors, what to do in the event of an emergency, and how to keep themselves comfortable. The following lists all the items that need to be covered and a brief explanation of why. An example of a full briefing is also included.

Emergency Exits – The two doors as well as the windows can be used for emergency exits. How to operate the doors should be talked about, as well as how to open and close the window. The rear baggage door can also be used as an emergency exit.

Seat and Seat Belts – Explain how to move the seat forward and aft using the bar underneath the seat. Seat belts should be worn during the entire flight. Explain how to attach and detach the lap belt as well as the shoulder strap, and how to tighten or loosen the shoulder strap.

Fire Extinguisher – Location, removal, and use. The C172 fire extinguishers are usually kept on the floor between the front two seats. This position is easily accessible for all occupants. It is secured by a clip to the floor; this clip needs to be unfastened to remove the extinguisher. A small pin on the extinguisher needs to be removed before you can depress the trigger for use. Always aim at the base of the fire.

Emergency Locator Transmitter – Location and function. The ELT is located on the right side rear panel at the front of the tail baggage area. Placards mark its exact location. The ELT emits a signal that notifies search and Rescue where your position is. It is armed and set to go off upon impact. Some C172's have a remote activation switch that is on the front control panel. The switch allows you to turn the ELT on without using the switch on the ELT itself.

First Aid Kit – Location. The first aid kit is kept in the baggage area secured underneath the netting.

No talking, No controls, No smoking – Headsets should be worn at all times. If there is chatter on the radio, conversation should stop for the time being. Hands and feet should be kept clear of the controls. No smoking.

Heat and Ventilation – Show where the heat and air controls are located, as well as the outside air vents. There are vents in the upper corner of the windscreen, one for the pilot and one for the front passenger. The rear passengers each have an air vent that they can open/close and adjust the direction of air flow.

Sick Sacks – These are kept in the front side pocket for the front passenger and in the rear seat pockets for rear seat occupants.

Passenger Briefing Cards – Are located in the same pockets as the sick bags. Also mention these cards can be referenced if further information is required.

Emergency Landings – In the event make sure the passengers know to keep calm and follow your instructions

Standard Passenger Briefing

“Before we get started I would like to review with you a few of the safety features of the Cessna 172. There are two main emergency exits – the doors through which we entered the aircraft. The two windows in the main exits could also be used for emergency exits. To open the door, lift up on the handle and move rearward until the door opens. To lock, ensure the door is fully closed and then move the handle forward until level with the arm rest. If asked to unlatch the door, position the handle up to about a 45 degree angle. Seat belts and/or shoulder harnesses are provided for your safety. Please use them for the entire duration of our flight. Insert the metal clip into the buckle and pull the belt tabs to tighten. To release, lift up on the clip. Our aircraft is equipped with an Emergency Locator Transmitter that will alert rescue facilities in the event of an emergency landing. It is located in the rear of the aircraft. It will transmit on impact but, if you can, remove it from the aircraft, set it upright and turn the function switch to “on”. It will broadcast a silent signal. A fire extinguisher is located between the front seats. If required, remove the extinguisher, pull the lock pin, and squeeze the trigger while aiming at the base of the fire. If needed, a first aid kit is located in the rear of the aircraft. Please do not smoke at any time in the aircraft. Please refrain from talking to me while I am on the radio or taking off or landing. If you are too warm or cold, please advise me and I will adjust the temperature. Please do not touch the controls or foot pedals if you are sitting in the front seat unless directed to do so. Please inform me immediately if you feel ill or if you feel discomfort in your ears. If required, sick sacks are located in the seat backs for your use. Passenger briefing cards are provided in the seat backs outlining the safety features and how to use them. In the event of an emergency, please remain calm and I will give you further instructions. Thank you for your attention and enjoy your flight.”

Emergency Briefing.....COMPLETE

The Emergency Briefing is a briefing between you, the student, and your instructor or flight test examiner. It clarifies what will occur if you have an emergency on the takeoff leg. It is assumed that the person in the left seat is flying the aircraft, unless briefed otherwise.

Standard Emergency Briefing

“Any problems affecting safety before rotation - reject the take off.

- **Engine fire or failure after rotation:**
- **_____ (I or you) will have control**
- **Glide speed 65 kts**
- **Mixture idle cut-off**
- **Mags off**
- **Land straight ahead**
- **_____ (I or you) will notify FSS**
- **No turns back to runway below 1000 feet ”**

In this scenario, it is assumed that this is an actual emergency, and, therefore, the instructor will have control of the aircraft and the student will operate the radios. When practicing emergencies, the briefing will be changed to the student having control of both the aircraft and the radios.

Engine Gauges.....CHECK ZERO

Check the oil and temperature gauges to ensure that they read zero

Electrics and Avionics.....OFF

Start this scan with the master switch on the left side of the panel. Master Switch is off, avionics switch is off (if installed), all light switches are off, intercom is off (if installed), radio/nav aids/transponder switches all off.

Circuit Breakers.....CHECK

With the tips of your fingers feel and look for any popped circuit breakers. If a breaker is popped inform a staff member.

Brakes.....SET

Apply brakes with the hand brake while at the same time firmly holding your feet on the brake pedals to stop the aircraft from lurching forward once started.

Fuel.....LEFT TANK

Check that the fuel selector on the floor is on the left tank.

Mixture.....FULL RICH

Push the button on the red mixture control and push the control all the way in.

Throttle.....OPEN 1/8”

Make sure the throttle lever is pulled back to idle. With your right hand, take your index finger and place it at about 1/8" from the base of the throttle. Now push the throttle in until your finger touches the base.

Carb Heat.....COLD

Ensure the smaller control to the left of the throttle is pushed all the way in.

Beacon.....ON

The beacon gets turned on now, so when you turn the master on for start, the beacon will let those around know that the aircraft is about to be started.

Prime.....AS REQUIRED

Priming the engine injects raw fuel directly into the cylinders, to assist with starting a cold engine. If the engine has just flown, or has been sitting in the sun all day and is warm, no priming is required.

Propeller Area.....CLEAR

Have a good look around the aircraft to ensure that there are no personnel or other aircraft close by. Make sure you have a clear path for the direction you are taxiing. Be aware of what movement is going on OUTSIDE of the cockpit. If another aircraft is returning back from a flight, wait till they shut down and park the aircraft out of your way before engaging.

Master.....ON

NOTE

During night operations, the cockpit floodlight may be turned on to provide some light to see the engine gauges during the start.

Ignition.....ENGAGE

As you are cranking the engine, keep your hand on the throttle

Throttle.....800-1000 RPM

After the aircraft has started set the RPM to 800-1000. The engine should run smoothly.

Oil Pressure.....CHECK

Check that the oil pressure has risen up from its zero indication. If oil pressure does not indicate within 30 seconds, shut down the engine and inform staff.

Alternator.....CHECK CHARGING

Check the ammeter for an above zero indication. If it shows a discharge, the alternator may not be charging the battery and you may be running off battery power only. Discontinue the flight if the ammeter does not indicate a positive charge.

Engine Start Time..... RECORD

Make a note of the time you started the engine for the daily flight record.

3.3 After Start

This check is completed immediately after starting the aircraft. Normally, the aircraft is in the same position on the ramp as when you performed the start.

Again, with this checklist, read the checklist out loud with the response as you complete it.

Lights	As Required
Avionics Master	On
Cabin Heat/Defrost/Ventilation	As required
Fuel	Right Tank
Flaps	Retracted
Mixture	Lean
Magnetos	Check for roughness
Heading Indicator	Set
Altimeter	Set to Field Elevation
Radios	Set
Nav Aids	On as Required
Transponder	Standby
Brakes	Check
Flight Instruments	Check on Taxi

After completing the check state – **“After Start completed, Run-up next.”**

After Start - Expanded

Lights.....AS REQUIRED

For day time taxiing all that is required is your beacon light. If you are flying at night you may want to have your taxi and Navigation lights on.

Avionics Master.....ON

If the aircraft is so equipped, turning it on will allow the electrical current from the primary bus to flow into the avionics bus bar and supply current to the avionics equipment ie your radio. Otherwise, just turn on your avionics equipment individually.

Cabin Heat/Defrost/Ventilation.....AS REQUIRED

Pulling out the knob will provide cabin heat. For defrost there are two sliding levers at the base of the dashboard. For maximum defrost slide the knobs apart from each other. Together indicates that the defrost outlet is closed. Cabin ventilation is provided by the knob below the heat control, the two side ventilators in the front window and two adjustable ventilators for the rear cabin.

Fuel.....RIGHT TANK

This check is to ensure that the engine continues to run smoothly when running off only one tank. Rough engine or engine stoppage would indicate poor fuel flow from the selected tank.

Flaps.....RETRACTED

If the flaps have not been retracted previously they can be retracted now. Retract the flaps up to 10° to test that the flaps stop at a desired setting. Then up to zero.

Mixture.....LEAN

For taxi the mixture is leaned slightly to prevent carbon build up on the spark plugs. Lean the mixture by approximately one knuckle width (from your fingertip to your first knuckle).

Magnetos.....CHECK FOR ROUGHNESS

Twist the key from the both position to each magneto separately and listen for a slight drop in power with no roughness. Cycle the mags back to both between selecting each one.

Ex. Both to Left back to both, Right back to both

Heading Indicator.....SET

Set to match the Magnetic Compass. Ensure that no metal objects are near the compass as this may disrupt its magnetic field and give an incorrect indication. Keeping your headset up on the dash will disturb the compass.

Altimeter.....SET TO FIELD ELEVATION

The Elevation of Medicine Hat is 2352ft

Radios.....SET

Check the radios are on, and the correct frequency is set. Medicine Hat FSS frequency is 122.20. Medicine Hat ATIS is 124.875. Super T's company frequency is 122.75.

Nav Aids.....ON AS REQUIRED

If a navigation aid is needed for the flight, ensure it is turned on.

Transponder.....STANDBY

Check that the transponder is in the STANDBY mode. Check that it is set to the VFR code 1200.

Brakes.....CHECK

Release the hand brake and release your foot pressure, apply a small amount of power to get the aircraft rolling forward, remove the power back to idle and gently depress the brakes to ensure you have pressure and that they work.

NOTE

Normally, at this point you are ready to commence taxiing to the area where you plan to do your run-up. The Flight Instrument check following may be done on the taxi at this time or when you continue your taxi after the run-up.

In Medicine Hat there is no need to initiate communication with Medicine Hat FSS at this time as the controlled taxiways do not begin until you see the signs for A (ALPHA) or B (BRAVO) taxi-ways. However, during the taxi, at least one VHF radio shall be on and tuned to an appropriate frequency

that would permit exchange of traffic information, as required.

Taxiing

Taxi Speed – Taxi speed shall be appropriate to the conditions. Taxiing speed should not exceed a fast walk. For taxiing in open areas or when necessary, taxi speed may be increased, but shall not be such that harsh braking or turning at high speed is required. For taxiing on surfaces contaminated by slush, snow, or standing water, speed shall be adjusted to minimize spray on the aircraft. For taxiing on gravel, loose surfaces, or unprepared surfaces, speed shall be adjusted to minimize FOD to the propellers. Slush, snow, standing water, gravel, loose surfaces or unprepared surfaces all require holding the control column back (towards yourself) to lighten the load on the nose wheel. For turns of more than a few degrees, the aircraft shall not be taxied at more than walking speed. Reduced speed in turns is required (particularly in cold weather) to reduce lateral strain on the gear and minimize the possibility of a tire losing air through the bead/wheel contact area.

Taxi Procedure – Taxi procedure and speed are to be managed to operate the aircraft safely and smoothly. Only the minimum power that is required should be used to accelerate to taxi speed from a stop. All turns, accelerations, and decelerations shall be carried out smoothly. Steering is accomplished with the use of rudder. Brakes may be used in conjunction with rudder and power to tighten a turn, if required. **DO NOT TAXI WITH THE BRAKES APPLIED.** When applying brakes to stop the aircraft, brake pressure should gradually be reduced as the aircraft slows to prevent it from lurching to a stop. Ensure proper wind inputs are used.

Taxiing Safety – The safety of the aircraft during taxi shall not be jeopardized by other duties. The Flight Instrument check may be done during taxi only when it is safe to do so. As you taxi, remember to look out for other traffic or vehicles.

The standard call as you begin a turn, taxi onto the runway or cross an intersection is:

After looking to the left state: **“Clear Left.”**

Your instructor will reply: **“Clear Right”** as he/she looks to the right.

Flight Instruments.....CHECK ON TAXI

Check that the instruments are indicating properly/correctly when you turn left and right on the taxi. You may perform this check anytime during the taxi; however, **DO NOT PERFORM THIS CHECK WHILE MANEUVERING OUT OF THE “ALLEY”.**

Rolling Instrument Check

While taxiing, please complete the following Rolling Instrument check:

Point at the instruments as indicated as you verbalize the following:

“Right turn”

T/C	“Right turn indicated, ball to the left”
AI	“Steady”
HI	“Increasing”
Mag Compass	“Free and swinging”
ADF (if applicable)	“Tracking”

“Left turn”

T/C	“Left turn indicated, ball to the right”
AI	“Steady”
HI	“Decreasing”
Mag Compass	“Free and swinging”
ADF (if applicable)	“Tracking”

Use the following if completing the Rolling Instrument Check on aircraft equipped with the **G5 or Aspen**:

“Right turn”

T/C	“Right turn indicated twice, ball to the left twice”
AI	“Steady twice”
HI	“Increasing twice”
Mag Compass	“Free and swinging”
ADF (if applicable)	“Tracking”

“Left turn”

T/C	“Left turn indicated twice, ball to the right twice”
AI	“Steady twice”
HI	“Decreasing twice”
Mag Compass	“Free and swinging”
ADF (if applicable)	“Tracking”

3.4 Run-up Check

Complete this check after you have moved away from the parking area and have pointed the aircraft into wind. Ensure you have not positioned the aircraft where the run-up may throw FOD at another aircraft or where you may be in the way of other aircraft taxiing.

This is again a read and respond out loud checklist.

Nose Wheel	Into Wind & Straight
Brakes	Set

Area	Clear
Fuel	Both
Mixture	Rich
Throttle	1700 RPM
Engine Instruments	Check
Ammeter	Check
Suction	Check 4.5" to 5.4"
Magnetos	Max Drop 125 RPM, Max 50 RPM difference
Carb Heat	Check
Mixture Control	Check
Carb Heat	On
Throttle	Idle
Oil Pressure	Check
Carb Heat	Off
Throttle	800-1000 RPM
Mixture	Lean

State **"Run-up complete, Before Takeoff check next"** when you have completed the checklist.

Run Up Check - Expanded

Nose Wheel.....INTO WIND & STRAIGHT

Allow the aircraft to roll slowly forward with your feet off the brakes to straighten out the nose wheel. It will be straight when your feet are level together.

Brakes.....SET

Hold your feet firmly on the brakes. Set the hand brake as a back-up.

Area.....CLEAR

As stated in the run up checks paragraph above, make sure you are in a good, safe run-up area.

Fuel.....BOTH

Mixture.....RICH

Throttle.....1700 RPM

Slowly advance the throttle

Engine Instruments.....CHECK

Check that the oil temperature and oil pressure gauges are within the green arc

Ammeter.....CHECK

Place an electrical load on the system by turning on all the light switches including pitot heat. The ammeter should indicate above zero.

Suction.....CHECK 4.5" to 5.4"

The suction needle should read within this range (the green range). If it reads below this, the vacuum instruments may not be getting the suction they need to spin the gyro's fast enough for correct indications. If it reads above this, the gyros may be spinning too fast and this could result in increased wear on the instruments.

Magnetos.....MAX DROP 125 RPM, MAX 50 RPM DIFFERENCE

Switch the ignition from both to the left magneto, check the tachometer for a drop and make sure it does not drop below the above limits. Return the switch back to both and watch it rise back to 1700RPM. Move the switch to the right magneto position and check for the same. If a drop is noted outside of the limits as set above, assume spark plug fouling and attempt burn-off procedure.

NOTE

A large drop in power on one of the magnetos may indicate that the spark plug for that magneto has become fouled by carbon or lead deposits. To burn off any spark plug fouling, bring the throttle to a low cruise setting (2100-2300RPM) and lean the mixture until you get a slight drop in RPM. Run the engine at this setting for a few seconds. Then put the throttle back to 1700 RPM and check the mags again. If the problem does not clear up, return to base for repairs.

Carb Heat.....CHECK

When the carb heat is applied you are directing heated air through the carburetor. **Leave the Carb Heat out for at least 5 seconds for this check.**

Hot air is less dense, so therefore you are enrichening the mixture which will cause the engine to run at a slightly lower RPM. Also, if there is any carburetor ice present, it will melt and run through the engine as water which may cause the engine to momentarily run as well as at a lower RPM.

When you close the carb heat the RPM's should return back to the original setting of 1700. If the RPM rises past this setting it means that there was ice present. Keep this in mind as you idle on the ground before take-off, especially if it is a cool moist day. It would be good practice to check it again if you experience delays and prior to take-off.

Mixture Control.....CHECK

To ensure that the mixture control works properly, push the button and pull the knob aft to lean the mixture. You will note a slight rise followed by a drop on the tachometer. Do not let the RPM drop more than 300RPM. Then enrichen the mixture back to full rich. If the aircraft is equipped with an Exhaust Gas Temperature Gauge (EGT), you will notice a rise of the needle with the increase in engine temperature as you lean.

Carb Heat.....ON

As a general rule, the carb heat should be on whenever you plan to make a reduction of RPM below the green arc on the Tachometer.

Throttle.....IDLE

Gently retard the throttle to idle position.

Oil Pressure.....CHECK

Oil Pressure should remain above the red line.

Carb Heat.....OFF

Throttle.....800-1000RPM

Mixture.....LEAN

Lean for taxi as described in the after start checklist

3.5 Before Takeoff Checks

Continue with this check in the same position as your run-up.

This is another read and respond out loud checklist.

Seat Belts	Check Secure
Doors & Windows	Closed & Locked
Cabin/Baggage/Cargo	Secured Properly
Fuel	On Both
Trim	Set
Flaps	As Required
Alternate Static Source	Check
Throttle Friction	Set
Carb Heat	Cold
Circuit Breakers	In
Magnetos	Both
Master	On
Master	On
Primer	Locked
Flight Controls	Free and Correct
Listen to the ATIS on 124.875 before completing the check	
Pre-takeoff Briefing	Complete
Flight Instruments/ Radios/Nav Aids	Check, Test and Set

State “**Before Takeoff complete, On Runway next.**”

Before Takeoff Checks – Expanded

Seat Belts.....CHECK SECURE

Check that your shoulder harness is attached. Make sure that your passengers are secure as well.

Doors & Windows.....CLOSED AND LOCKED

Windows can stay open until ready for departure if it is hot. Make sure both doors are closed properly by pushing out on the door and checking around the seal, check that both are locked.

Cabin/Baggage/Cargo.....SECURED PROPERLY

Secure all loose ends in the cabin by placing them in the side-pockets or in the back seat pockets. If you have any baggage or cargo make sure it is secured either under the netting in the baggage area, under the back seat, or fastened with a safety belt on the back seat.

Fuel.....ON BOTH

This is a verification that the fuel is on both.

Trim.....SET

Pull the control column aft and check visually that the trim tab is flush with the elevator

Flaps.....AS REQUIRED

Set as required for the type of takeoff you are going to perform.

Alternate Static Source.....CHECK

Pull on and then off.

If the primary static vent (located on the left forward side of the fuselage) became blocked in flight, the alternate static source will vent the system to the cabin. You will notice a slight change in the indications of the ASI, VSI and ALT as you pull the vent open. The indications will return back to normal when you close the vent. This slight variance is due to the pressure inside the cabin being slightly different than the outside air pressure around the cabin.

Throttle Friction.....SET

You can adjust the friction of the throttle lever by rotating the friction lever at the base of the throttle control. If this is set loosely it will be very easy to move the throttle to different power settings. Vice versa with it set tighter. If it is set too loose, the vibrations and nose up attitude may cause the friction lock to slowly release, causing a reduction in power and performance. That is why you are taught to keep your hand on the power when climbing.

Carb Heat.....COLD

Circuit Breakers.....IN

Scan over the circuit breakers as you run your hand across them to ensure that one didn't pop while doing the run-up.

Magnetos.....BOTH

Master.....ON

Primer.....IN & LOCKED

Gently tug the primer knob to make sure that it is closed and locked in place

Flight Controls.....FREE AND CORRECT

Standard Flight Control Check

Accomplish the Flight Control Check by moving the controls in the following way while confirming the correct movement:

Turn the control column to the left and look from the left aileron to the right aileron and verbalize:

“Left turn; left aileron up; right aileron down”

Turn the control column to the right and look from the right aileron to the left aileron and verbalize:

“Right turn; right aileron up; left aileron down”

Pull the control column back towards your body, check the movement of the elevator and verbalize:

“Pitch up; elevator up”

Push the control column forward, check the movement of the elevator and verbalize:

“Pitch down; elevator down”

Push the rudder control with the right foot, check the movement of the rudder and verbalize:

“Yaw right; rudder right”

Push the rudder control with the left foot, check the movement of the rudder and verbalize:

“Yaw left; rudder left”

After completing this check that the controls are correct move the control column from right to left while pulling back at the same time and then from left to right while pushing the control column forward. This will confirm that the controls are free and not binding on anything.

“Flight controls free and correct”

At this point, listen to the **ATIS** on **124.875**. Be prepared to write down the reported **altimeter setting**, **winds** and **active runway**.

Now continue with the last items on the checklist.

Pre-Takeoff Briefing.....COMPLETE

The pre-takeoff briefing is a briefing between you, the student, and your instructor or flight test examiner. It clarifies what you are planning to do on the takeoff. The pre-takeoff briefing should include the following items. A list is also included on the back side of the passenger briefing kept in the aircraft.

- i) **Type of Take-off and from what seat** - Explain what type of take-off you will perform: a normal, short field or soft field, with or without obstacle; from the right or left seat
- ii) **Runway** – State the expected runway you will be using and what the surface condition is eg. Rough, dry, wet with rain or snow
- iii) **Take-off weight** – Round up to the closest weight given in the POH
- iv) **Flap Setting** – state for the type of take-off you are planning
- v) **Wind** - State the direction of the wind and what your inputs will be to correct for it.
- vi) **Take-off Speeds** – at Lift off and at 50' if doing an obstacle clearance take-off or normal climb speed to accelerate to
- vii) **Go/No-Go Point** – This is a point on the runway where you decide if you are going to carry on with the takeoff or abort the takeoff. **By this point, the aircraft should be accelerating and behaving normally and will be airborne momentarily.** It should also be a point that, if required to abort, there will still be sufficient remaining runway to stop the aircraft. Knowing the performance of your aircraft and your take-off distance expected will make determining this point easier. Five Hundred/Thousand Foot markers or a runway intersection point, are easy markers to distinguish.
- viii) **Departure Procedure** – Describe how you will continue the flight. What altitude you are climbing to, what heading you will be turning to and, if required, what is the set heading point and destination.

Standard Pre-Takeoff Briefing

“This will be a _____ (Normal/Short/Soft/with or without Obstacle) take-off from the _____ (left/right) seat.

Runway _____ (21, 03, 27, 09) _____ (paved, level, dry, or any other actual surface).

_____pounds (i.e. 2400, 2200, 2000)

Flaps _____ (zero or 10)

Wind _____ (ex. 240 @ 15 knots) ailerons _____ (left/right) into wind.

Lift off at _____(i.e. 51, 49, 46) Obstacle speed _____(56, 54, 51) (use speeds appropriate for aircraft model) OR Accelerate to _____(Normal climb speed - 75)

Go/no go point is _____ (ex. thousand foot markers.)

After departure, climb to _____ (ex. 6500 feet, left turn to 190 degrees, set heading point is Seven Persons for Claresholm”)

EXAMPLE: This will be a short field take off with an obstacle from the left seat, runway 21, paved, level, dry. 2400 pounds. Flap 10. Wind 240 at 15, ailerons to the right into wind. Lift off at 51, obstacle speed 56. Go/no go point is the 500' markers. After departure climb to 6500 feet, right turn direct to Rattlesnake Lake set heading point for Vulcan.

Flight Instruments/Radios/Nav-Aids.....CHECK, TEST & SET

Standard Flight Instrument Check

Begin with the Altimeter and work from right to left on both rows of instruments. While pointing to each instrument, verbalize as follows:

Altimeter “_____ (altimeter setting) set, _____ (elevation) feet”

NOTE

Using the reported altimeter setting, the altimeter may read up to 50' off the actual aerodrome elevation.

Attitude “wings level – on the horizon”

Airspeed “airspeed zero”

Vertical Speed “VSI zero”

Heading “heading ____ (ex. 280) with ____ (ex. 280) on the Magnetic Compass”

Turn Coordinator “no turn indicated, ball in the center, no flag”

COMM 1 “COMM 1 set to 122.2 Medicine Hat FSS, 126.70 Enroute Frequency on Standby”

COMM 2 “COMM 2 set to 124.875 ATIS, 121.5 Emergency Frequency on Standby”

(NAV equipment if required for flight)

NAV 1 “NAV 1 tuned to Lethbridge VOR, 115.7. Unable to identify.”

NAV 2 “NAV 2 set to Lethbridge VOR, 115.7. Unable to identify.”

ADF “ADF tuned to Medicine Hat NDB, 332. Identified. Tested.”

GPS “RAIM checked and route info...”

Transponder “Transponder Set To 1200.”

Left Seat Pilot “Set left”

Instructor responds with “Crosschecked.”

Using an aircraft with the electronic Garmin G5 or ASPEN indicators requires checking the instruments twice.

Standard Flight Instrument Check – GARMIN G5 or ASPEN Indicators

Begin with the Altimeter and work from right to left on both rows of instruments. While pointing to each instrument, verbalize as follows:

Altimeter	“_____ (altimeter setting) set <u>twice</u> , _____ (elevation) feet <u>twice</u> ”
Attitude	“wings level – on the horizon, <u>twice</u> ”
Airspeed	“airspeed zero <u>twice</u> ”
Vertical Speed	“VSI zero <u>twice</u> ”
Heading	“heading ____ (ex. 280) with ____ (ex. 280) on the Magnetic Compass <u>twice</u> ”
Turn Coordinator	“no turn indicated <u>twice</u> , ball in the center <u>twice</u> , no flag <u>twice</u> ”
COMM 1	“COMM 1 set to 122.2 Medicine Hat FSS, 126.70 Enroute Frequency on Standby”
COMM 2	“COMM 2 set to 124.875 ATIS, 121.5 Emergency Frequency on Standby”
(NAV equipment if required for flight)	
NAV 1	“NAV 1 tuned to Lethbridge VOR, 115.7. Unable to identify.”
NAV 2	“NAV 2 set to Lethbridge VOR, 115.7. Unable to identify.”
ADF	“ADF tuned to Medicine Hat NDB, 332. Identified. Tested.”
GPS	“RAIM checked and route info...”
Transponder	“Transponder Set To 1200.”
Left Seat Pilot	“Set left”

Instructor responds with “**Crosschecked.**”

3.6 Communication

At this time, you are now ready to communicate your intentions to Medicine Hat FSS.

This communication must be completed before you taxi onto the controlled taxi areas ALPHA or BRAVO.

Remember the “Clear Right”/“Clear Left” calls as you maneuver.
Communication should be as follows:

Medicine Hat Radio this is, Cessna 172 ____ (four letter call sign) with information ____ (ATIS ident).

Wait for response from Medicine Hat Radio

Medicine Hat Radio ____ (three or four letter call sign, depending on how Radio answered you), **run-up complete, planning to taxi** ____ (Alpha/Bravo) **for runway** ____ (21, 03, 27, 09) **for a flight to the** ____ (W,SW,SE,E,NE,N practice area, circuits, or departing for ____ destination) **via** ____ (SHP) **at** ____ (altitude).

Be prepared to jot down the following as given by Medicine Hat FSS.

Altimeter ____ (in case there is a change from the ATIS info) **squawk** ____.

Medicine Hat Radio ____ (three or four letter call sign depending on how Radio is addressing you), **altimeter** (if there has been a change from the ATIS info) ____, **squawk** ____.

Stop the aircraft before you reach the hold line for the runway and make the following call to Medicine Hat FSS.

Medicine Hat Radio ____ (three or four letter call sign), **is** (backtracking, taxiing to position) **runway** (21, 03, 27, 09).

After initial contact with the Radio, respond to them with either the 3 or 4 letter identification of the aircraft, depending on how Radio responds to you to positively identify your aircraft.

i.e. If GTMF and FTMF were both operating in the same area the four letter identification would be appropriate.

3.7 On Runway Checks

This check is normally completed after you have positioned yourself on the runway and have come to a stop. This check and the radio communication following it may be done on the taxi if you do not plan to come to a stop prior to take off (ie. You plan to complete a soft takeoff).

This check is to be read out loud with response.

Transponder	TO ALT
Mixture	RICH BELOW 3000 FEET OR AS REQUIRED
Landing Light	ON
Heading Indicator	SET
Time Off/Open Flight Plan	RECORD

At the completion of check state, **“On Runway complete, After Takeoff next.”**

On Runway Checks – Expanded

Transponder.....TO ALT

The ALT setting allows radar installations to “see” your altitude as well as your position.

Mixture.....RICH BELOW 3000 FEET OR AS REQUIRED

If you are taking off from a field with the elevation above 3000ft, it may be required that you lean the mixture to get the power required prior to take-off. Refer to the aircraft POH for specific RPM settings for take-off and procedures at high altitudes.

Landing Light.....ON

Having the landing light on greatly enhances the probability of you being seen by other aircraft and birds, especially when operating at low altitudes when in a control zone or near an airport.

Heading Indicator.....SET

Check the Heading Indicator from the Magnetic Compass and compare it to the runway bearing.

Time Off/Open Flight Plan.....RECORD

Record your takeoff time in UTC and request your Flight Plan be opened.

3.8 Communication

When ready for take-off, make the following call to Medicine Hat FSS.

Medicine Hat Radio ____ (three letter call sign), **departing runway**
____ (21, 03, 27, 09) (request you open my VFR Flight Plan).

4 Chapter – Normal Flight Procedures

Takeoff and Departure

4.1 Introduction

The aim of these SOPs is not to teach you how to accomplish the takeoff itself. That is left to the instructor. The procedures below are to help standardize any calls that Super T expects you to make or any standard procedures we expect you to follow.

4.2 Takeoff Procedures – General

- a) Turns after takeoff - After takeoff, no turns are permitted prior to 400 feet above the departure end of the runway unless required to prevent collision.
- b) If faced with an emergency engine failure/fire shortly after takeoff and insufficient runway remains to land on, do not attempt to return to the airport and plan to land straight ahead, restricting bank angle on any required turns to 15 degrees of bank.
- c) Flap retraction on performance takeoffs should be completed after clearing any real or imagined obstacles.

4.3 Standard Take-Off Calls

The following calls are to be made on the takeoff and departure:

Action	Response
After achieving full power check that the engine is developing normal full power and that the engine instruments are reading normal	“Power Set, Gauges Green”
As the aircraft accelerates	“Airspeed Alive”

Keep the aircraft straight on the runway by using rudder. Make sure your feet are off the brakes and on the rudder pedals only. As the aircraft accelerates, gently move the elevator control back until the aircraft lifts off.

After the aircraft becomes airborne, check slightly forward with the control column to allow the aircraft to accelerate to the climb speed (normal 75 KIAS) and climb out straight from the runway. On performance takeoffs maintain the obstacle clearance speed until clear of all obstacles and then allow the aircraft to accelerate slightly before retracting the flaps.

4.4 After Takeoff Check

At the 400 feet AGL mark, complete the After Takeoff Check.

At this point you are busy flying the aircraft. Do this check from memory saying the bold print as you action the check.

Action	Response
At the 400 feet mark, complete after takeoff check	“400 Feet Flaps Up Landing Light Off Engine Gauges Checked After Takeoff Complete – Cruise Check next”

After Takeoff Check – Expanded

Flaps.....UP

Briefly observe that the flaps have, in fact, retracted

Landing Light.....OFF

Normally, the landing light can be turned off at this point. If you are doing continuous circuits you may leave them on.

Engine Gauges.....CHECKED

Check the temperature and pressure gauges are still in the green range.

4.5 Communication

Once you are clear of the circuit, make the following call to Medicine Hat FSS.

Medicine Hat Radio_____ (Three letter call sign), is 3,400 feet, clear of the circuit in a (right/left) hand turn for (NE,N,SE,SW,E, W practice area), OR in a (right/ left) hand turn for _____(SHP).

Entering the practice area or leaving the zone, make the following call:

Medicine Hat Radio _____, is clear of the zone entering the _____(NE, N, SE, SW, E, W) practice area OR enroute to _____ changing to 126.7.

5 Chapter Normal Flight Procedures – Cruise

5.1 Introduction

This chapter of the SOPs provides guidance for the cruise level off and standardization for the safety check to be used for exercises in the practice area.

5.2 Cruise

This check is mandatory for the first level off from the climbs after takeoff. If practicing exercises in the practice area repeatedly, it can be simplified to include only the actions of power, carb heat check and mixture lean.

This check should be actioned from memory and then the checklist used to ensure completion of all items. When you access the checklist, then read and respond to each item out loud.

Power	SET
Carb Heat	CHECK
Mixture	LEAN
Heading Indicator	SET
True Airspeed	CHECK

After checking that all items have been accomplished, state “**Cruise Check complete, Descent Check next**”.

Cruise Check – Expanded

Power.....SET

Set power to the pre-planned power setting. Maximum 75%

Carb Heat.....CHECK

Apply carb heat to hot and then back to cold to ensure no ice has built up during the climb. Carb heat can be left on for a longer period if carb ice is suspected

Mixture.....LEAN

As you gain altitude the air becomes less dense. If you don't adjust the mixture for the less dense air, the engine will be running on a richer mixture. This can contribute to fouled spark plugs and rough engine operation as well as reduced engine performance. Leaning the mixture is more precise when you have an EGT but not all C172's are equipped with this instrument. Lean the mixture as described by your instructor.

Heading Indicator.....SET

Maintain straight and level flight and constant airspeed to avoid errors in the magnetic compass.

True Airspeed.....CHECK

True Airspeed can be checked with use of the Outside Air Temperature Gauge (OAT) and your pressure altitude. To get your pressure altitude, set the ICAO standard 29.92” of Hg in the Kollsman window on your altimeter and note your altimeter reading. Using the

rotating ring on your airspeed indicator, match the pressure altitude opposite the temperature (in Fahrenheit) and the needle of your IAS will point to the TAS on the outer rotating ring.

NOTE

Before changing the altimeter setting to 29.92"Hg, make sure to take a note of your current altimeter setting and to reset the altimeter to that setting after finding the pressure altitude.

Checking TAS with the G530 (GSTQ/GYKX)

Using the Garmin 530 in GSTQ and GYKX, the True Airspeed can be checked in the AUX Flight Planning Page.

5.3 HASEL

The complete HASEL check is to be completed for exercises:

- Slow Flight
- Stalls
- Spins

Although not required for other exercises, it is imperative that a thorough look out be maintained in all phases of flight and for all exercises.

H	Height – at least 2000 feet AGL
A	Area – not on airway, not over built up areas, towns, or people
S	Security – seat belts secure, doors and windows locked, all objects secure, all sharp objects (pencils and pens) in seat pockets
E	Engine – set up with Carb Heat on, Mixture rich, check gauges in green
L	Lookout – two 90 degree turns or a 180

For **Steep Turns**, complete the H, A, S portion and for the 'E' portion, enrichen the mixture. It is not required to complete the full 'L' portion; however, a good lookout in both directions prior to starting the turn is imperative.

5.4 Cross Country Procedures

In supplement to the training you will receive on cross country navigation, the following standard procedures apply for solo cross countries:

- i) The Flight Log must be completed for each leg of the cross country.
- ii) The completed Flight Log must be handed into an instructor after the cross country for the cross country debrief.

- iii) A VFR Flight Plan must be filed for each leg of the cross country. No round robin Flight Plans are approved.
- iv) A SPOT, a satellite personal tracker, must be on board and activated for the duration of the cross country. See section 5.6 for SPOT operation.
- v) In addition to the survival gear included in the Log Book binder, a survival gear kit must be onboard. Please ensure your weight and balance reflects the addition of this kit.
- vi) At each destination, after you have completed the landing, you must exit the runway and make the following calls:
 - a. Close your flight plan with Edmonton FIC. You may also, at this time, open your flight plan for the subsequent leg. Phone number 1-866-WXBRIEF or 1-866 992-7433.
 - b. Text or call Super T Aviation with your down time and any other pertinent information, as required. Phone number 1-403-548-6636 or 1-403-502-4064.

5.5 SPOT operation

A SPOT satellite personal tracker must be on board for all cross countries. The following explains the operation of the SPOT.

- i) To turn on, press the ON/OFF button. The indicator light above the ON/OFF button will continuously blink once every 3 seconds.
- ii) To activate the Track Progress feature:
 - a. Press and hold the OK button for more than 5 seconds. The green indicator above the OK button must blink in unison with the ON/OFF indicator light.
 - b. This feature should be checked prior to take off and at a minimum of every 30 minutes enroute to ensure both are blinking in unison.
 - c. With this feature activated, your exact location is updated every 10 minutes.
- iii) If you want to send a CHECK IN message, momentarily press the OK button.
- iv) If you require HELP but are not in an emergency situation, press the HELP button for 2 seconds. The indicator light above the HELP button will blink every 3 seconds and will send your coordinates and a HELP message every 5 minutes for 1 hour.
- v) If you have an emergency, press the 911 button for at least 2 seconds. A distress signal and your exact location will be sent to an Emergency Response Center, as well as to Super T, every 5 minutes until cancelled. The indicator light above the 911 button will blink every 3 seconds. To cancel, press and hold the 911 button for at least 3 seconds.

5.6 Periodic Checks

This check would apply for cross country navigation exercises or whenever the aircraft is to be at a steady power setting for an extended period of time.

Periodically during cruise, but no less than once every 30 minutes:

- Carry out a visual check of the engine instruments,
- Reset your Heading Indicator,
- Check the Carb Heat by applying and noting the reaction,
- Check the operation of SPOT, and
- Check the Carbon Monoxide Detector to ensure that the dot has not turned to a darkened color.

5.7 Position Reports

When travelling through uncontrolled airspace, pilots are encouraged to make a position report to inform other pilots in the area of their position and intentions. A position report should include:

- Identification
- Position
- Altitude
- Departure point and Destination
- Estimated Time of Arrival (in UTC)

6 Chapter – Descent, Landing and Shut-Down

6.1 Introduction

This chapter of the SOPs provides guidance for normal operations from and including the start of the descent through to, and including, shutdown of the engine at the completion of the flight.

6.2 Descent Check

There are several items to consider as you start your descent. Prior to beginning the descent, access the checklist and accomplish the following:

Mixture	Enrichen as you descend
ATIS	Listen and record Alt Setting
Passenger Briefing	Complete

After completing the check state, “**Descent Check complete, Pre-landing next**”.

Descent Check Expanded

Mixture.....Enrichen as you descend

Depending on your height and distance from the airport, you may want to enrichen the mixture slightly as you start your descent.

ATIS.....Listen and record Alt Setting

Listen to the ATIS on 124.875 prior to communicating with FSS so you can inform FSS that you have the ATIS information. Reset your altimeter setting if necessary.

Passenger Briefing.....Complete

Prior to landing, your passengers will require a passenger briefing. An example of this would be:

**“In preparation for landing, please ensure your seat belt
is securely fastened and all loose items have been
properly stowed. Thank you.”**

6.3 Communication

Communicate with Medicine Hat FSS prior to entering the Control Zone. If you are in the practice area, you will want to make this call immediately prior to turning inbound. If you are on a cross country you should make a call to FSS 5 minutes prior to entering the Control Zone. For landing at larger centers, ask your instructor for instructions.

Call as follows:

Medicine Hat Radio _____ (Four letter call sign) with information _____

Wait for response from Medicine Hat Radio

*Medicine Hat radio ____ (3 or 4 letter call sign, depending on how
Radio responded to you) is ____ miles (N,E,SW, W etc) of the*

airport at ____ (altitude), inbound for ____ (landing, circuits),
estimating the control zone in ____ (minutes).

**Be prepared to note any change to the Altimeter Setting
and listen for FSS Traffic Advisory.**

*Medicine Hat Radio ____ (3 or 4 letter call sign), Altimeter ____ (if it
has changed from the ATIS), Check the traffic (if appropriate), we
will enter ____ (Downwind, base, final) for runway ____ (21,03,27,09).*

Be sure to reset your altimeter to the setting on the ATIS or as given by FSS
and watch for traffic, whether FSS has notified you of any or not.

Entering the circuit make the following call:

*Medicine Hat Radio ____ (3 or 4 letter call sign) is ____ (joining
downwind, crossing overhead, left base, etc) for runway ____
(21,03,27,09), ____ (full stop, stop and go, touch and go, stop and
backtrack).*

6.4 Pre-Landing Check

This check is to be completed prior to landing. Generally, it is completed on the
downwind leg of the circuit but if you are entering the circuit from other than the
downwind leg, ensure that it is completed before you are on final to land.

It is a geographic flow starting at the engine gauges to the primer and along the bottom
row of switches and knobs to the mixture, down to the fuel, then a check of the cabin
security and finally the brakes. Touch each item and make the appropriate change, as
required. Make sure you slide your feet off the brakes onto just the rudders after
checking.

It is not necessary to verbalize this check. The circuit is a busy place and you need to
be sure to hear any radio transmissions that may be made. Also, for the same reasons,
this check must be memorized and is completed without reference to the checklist.

Gauges	CHECKED
Primer	LOCKED
Master	ON
Magnetos	BOTH
Circuit Breakers	CHECK
Landing Light	ON
Carb Heat	ON
Mixture	RICH
Fuel	BOTH
Seat Belts	CHECK
Doors	SECURE
Baggage/Loose Objects	SECURE
Brakes	CHECK

After completing the check, call “**Pre-landing Check Complete, After Landing Next**”.

To which the instructor will reply “**Cross-checked**”.

Pre-Landing Check Expanded

Gauges.....CHECK

Ensure all the engine gauges are reading normal.

Primer.....LOCKED

Give the primer a tug to ensure it is locked.

Master.....ON

Circuit Breakers.....CHECK

Run your fingers across the circuit breakers to make sure none have popped during flight.

Landing Light.....ON

Carb Heat.....ON

Carb heat should be turned on prior to reducing the power outside of the green arc on the tachometer. This allows heated air from the hotter engine temperatures to pass through the carburettor before you reduce the engine to lower operating temperatures.

Mixture.....RICH

Fuel.....ON BOTH

Seat Belts.....CHECK

Even if you have given the passengers a pre-landing briefing you are responsible to ensure that your passengers are secure as well as yourself.

Doors.....SECURE

Baggage/Loose Objects.....SECURED PROPERLY

Again, even if you have instructed your passengers to stow all loose objects, it is your responsibility to ensure that they are.

Brakes.....CHECK

You should feel resistance on the brakes as you evenly apply pressure to both pedals simultaneously

NOTE

If not already completed, make a call advising Medicine Hat
Radio of your position in the circuit and your intentions.

6.5 Landing

Please note the following speeds to be used for your approach:

Zero Flap to 10 degrees of flap	70 KIAS
20 degrees of flap	65 KIAS
30-40 degrees of flap	60 KIAS

Unless strong crosswinds or gusts are present, all landings will be executed with full flap.

If the winds are gusty, use one-half the gust factor to add to your final approach speed to a maximum of 5 knots.

ie. Winds 210 at 10G20 add 5 knots to the final approach speed.

If your approach will result in a landing beyond 1000 feet from the intended touchdown point, initiate an overshoot and come around for another attempt.

Approach Speed (V_{REF} Speed Calculation) – Commercial Students

Commercial students must maintain a stabilized approach at the recommended airspeed, or in its absence, use the pre-calculated V_{REF} speed, $1.3 V_{SO}$ corrected for landing weight:

$$V_{REF} = 1.3 * V_{SO} * \sqrt{\frac{\text{landing weight}}{\text{gross weight}}}$$

Stabilized Approach – Private and Commercial Students

Students must configure the aircraft for a stabilized approach by 200 feet AGL. If stability is not established by 200 feet AGL, an overshoot will be executed.

On the correct final approach flight path:

- Briefings and checklists complete;
- Aircraft must be in the proper landing configuration appropriate for wind and runway conditions;
- Appropriate power settings applied;
- Maximum sink rate of 1,000 feet per minute;
- Speed within +10/-5 knots of the reference speed;
- Only small heading and pitch changes required;
- Stable by 200 feet AGL.

6.6 Overshoot

The following procedure is to be used when conducting an overshoot:

Throttle.....FULL OPEN

Carb Heat.....COLD

Flaps.....20° (immediately)

Climb Speed.....55 KIAS

Flaps.....10° (until obstacles are cleared, then gradually retract at 60 KIAS and passing 400ft AGL)

6.7 Communication

On final, make the following call:

Medicine Hat Radio ____ (3 or 4 letter call sign) on final runway ____ (21,03,27,09).

If FSS responds with a wind reading, you do not have to make any response to this call.

6.8 Touch and Go's

When completing continuous circuits, it will be necessary to complete an abbreviated check prior to the application of power on a touch and go.

Once the aircraft is safely on the ground and under control, the following should be actioned:

- **Flaps** – Retracted (be sure to give a quick look to ensure the flaps are travelling to the position set)
- **Carb Heat** – Cold (Reach for this control without looking down)
- **Trim** – Reset to take off position.
 - This should be a coarse change from the nose up trim the a/c should be in to a more neutral position.
 - Do not become distracted from keeping the aircraft under control to do this.
 - DO NOT PUT YOUR HEAD DOWN IN THE COCKPIT TO ACCOMPLISH THIS)
- **Power** – Apply

Touch and go's should not be attempted if the aircraft will land beyond the first 1000 feet on the runway. In this case, initiate an overshoot and come around for another attempt.

Performance Take-Off and Landing Circuits

All soft field take-off and landing circuits will be accomplished by performing either a **STOP-AND-GO** or **STOP-AND-BACKTRACK**. No touch-and-go's are permitted for performance circuits.

No Solo Touch-And-Go's on Runway 09/27

Touch-and-go circuits are NOT PERMITTED on Runway 09/27 for students on solo training flights.

6.9 After Landing Checks

Do not attempt to complete the After Landing Check until you are slowed down and have the aircraft under control. You may elect to complete this check after you have taxied off the runway. There is no absolute need to come to a stop on the taxiway to complete this check, but if you don't, ensure that completing the check does not interfere with your taxiing.

As you may complete this checklist as you are taxiing, you do not have to read and respond out loud to this check. However, after you have come to a complete stop, check that all items have been completed before you complete the shutdown.

Transponder	STANDBY
Flaps	RETRACT
Mixture	LEAN
Carb Heat	COLD
Landing Light	OFF
Time Down	RECORD

After Landing Check – Expanded

Transponder.....STANDBY

Once you have taxied clear of the runway in use, past the hold short lines, and are on a taxiway, you can then switch the transponder to standby. It should be kept to ALT until clear of the runway surfaces.

Flaps.....RETRACT

Mixture.....LEAN

Lean for taxi, one knuckle width.

Carb Heat.....COLD

When carb heat is on, the heated air directed into the carburetor is unfiltered. When you are on the ground if carb heat is needed it should be kept to a minimum as dirt and impurities could be entering into the carburetor.

Landing Light.....OFF

Time Down.....RECORD

6.10 Communication

After landing and once clear of the runway, communication should be as follows:

*Medicine Hat Radio _____ (3 or 4 letter call sign) down and clear runway _____
(21,03,27,09 or all runways), taxiing _____ (Alpha or 27/Bravo) to Super T.*

6.11 Engine Shut-Down and Secure

After taxiing the aircraft back to the hangar or to the gas pumps, as required, the following check is to be completed to shut the engine down and secure the aircraft.

Radio	MONITOR 121.5 – RESET TO 122.2
Avionics Master/Radio Switches	OFF
Lights	OFF EXCEPT BEACON
Magnetos	LIVE CHECK
Mixture	IDLE CUT OFF
Magnetos	OFF AND KEY OUT
Master	OFF
Control Lock	INSTALLED
Fuel	LEFT TANK
Engine Stop Time	RECORD
Transponder	RESET TO 1200
Pitot Cover	INSTALLED
Aircraft	SECURE
Flight Plan	CLOSE

Engine Shut-Down & Secure – Expanded

Radio.....MONITOR 121.5/RESET 122.2

The ELT is armed and set to go off upon impact. If you complete a hard landing, there is a chance that it might set the ELT off. You will hear a high pitch beeping noise that is transmitted on the emergency frequency. Reset the radio back to the MF after you have checked. If you do hear the ELT report it right away.

Avionics Master/Radio Switches.....OFF

Turn off the avionics master switch and all radio switches including the transponder.

Lights.....OFF EXCEPT BEACON

The beacon light is left on as a visual message to anyone around the aircraft that the pilot has not yet secured the aircraft. Also if the beacon is left on, you will be able to tell if someone has left the master switch on after shut-down.

LIVE MAGNETOS.....CHECK

Cycle the ignition switch all the way to the off position and listen for the engine to start shutting off. Then turn the switch back to the BOTH position. This motion should be completed quickly, with only a momentary stop on the off position. If the engine sounds like it would shut down this means that the contact breaker for the magneto switch is closed and the primary circuit is directly grounded. If it does not sound like it would shut off and continues to run with no change in engine noise, this could mean that the ground wire is broken, or the switch is malfunctioning, and you have a live magneto.

CAUTION

If a live magneto is present, complete the checklist then report IMMEDIATELY to a Super T staff member. DO NOT GO NEAR THE PROPELLER.

Mixture.....IDLE CUT OFF

Slowly cut off the fuel flow to the engine

Magnetos.....OFF AND KEY OUT

Hang the key on the heading indicator knob

Master.....OFF

Control Lock.....INSTALL

Fuel.....LEFT TANK

To minimize cross-feeding (especially when on a sloped surface) the fuel should be secured on one side.

Engine Stop Time.....RECORD

Record the time you shut the engine down.

Transponder.....RESET TO 1200

Pitot Cover.....INSTALLED

Take the pitot cover out of the seat back and carefully install it over the pitot heat.

Aircraft.....SECURE

Chalks are placed under one tire. Tie the aircraft down, if possible. Re-install the pitot cover. When you are walking back to the hangar, it is good airmanship to double check the beacon light and make sure it is not on. If it is, you have left the master switch on.

Flight Plan.....CLOSE

FSS can close your flight plan for you, but it is good practice to phone FIC yourself and make sure it has been closed.

7 Chapter – Abnormal and Emergency Procedures

7.1 Introduction

General – The contents of this chapter pertain to operations during abnormal and emergency situations. Judgment, skill, and training are necessary to bring an abnormal or emergency situation to a safe conclusion. In training, these may be simulated situations but the response should remain the same. It is impossible to develop guidance and procedures to deal with all situations. The guidance in this chapter is in the form of instructions, expanded checklists, detailed procedures, or a combination of all of these. Unless safety is jeopardized they shall be applied in the handling of Abnormal and Emergency situations, whether real or simulated.

Publications – These SOPs have been developed to provide as much guidance as practical for handling Abnormal and Emergency situations. Obviously, it is not possible to deal with all situations. Accordingly, it may be appropriate to refer to other publications such as:

- i) The Pilot Operating Handbook;
- ii) Aeronautical Information Manual (AIM) Canada;
- iii) Canada Flight Supplement.

7.2 General

a) **Objectives**

Obviously, the primary objective in dealing with an Abnormal or Emergency situation is to complete the flight safely. To achieve this primary objective, other goals need to be pursued and tenets observed, depending on the situation. The following is a partial list. Depending on the circumstance, others may need to be developed to meet the needs imposed by the situation.

- i) The abnormality or emergency should be mitigated such that aircraft operation is returned to as close to normal as possible.

- ii) Although it is usually desirable to complete abnormal and emergency procedures quickly, it is more important that they be done correctly.
- iii) The safety of passengers and persons on the ground is the first priority. The safety of the crew is the second priority. The third priority is the protection of property and the aircraft.

b) Crew Coordination on Dual Flights

As Super T is a training organization, a great deal of your flying will be with an instructor. Training on Abnormal and Emergency Procedures and the response to these situations will normally be considered as if you are flying the aircraft on your own.

It is important to remember that in the unlikely event of an actual Abnormal or Emergency situation, you and your instructor become a Crew and you may employ your instructor as either the person who flies the aircraft while you assist or you may elect to fly the aircraft with the instructor assisting. In either case, a clear distinction should be made. This distinction should come in the following form:

- i) At the first indication of an actual abnormal or emergency situation, the first person who notices the condition will identify the problem. i.e. Low Voltage Light On
- ii) If you want the instructor to fly the aircraft state "You have control" to which the instructor will reply "I have control." Otherwise state "I have control" to which the instructor will reply "You have control." The instructor reserves the right for actual emergencies to assume control of the aircraft.
- iii) The pilot flying the aircraft will call for the applicable drill or check
- iv) Together, the drill or check should be completed
- v) As soon as practical after the initial actions are taken to respond to the abnormal or emergency situation, you and your instructor will decide on the plan of action, i.e. return to Medicine Hat, land in field, return with master off, etc.
- vi) Any external communication is to be delayed until the initial drill is completed. After this has been accomplished, the non-flying pilot should initiate any communication that may be required.

c) Using the QRH

The Emergency Checklist is found in the form of a QRH or a Quick Reference Handbook. Drills that have a **red** box around them are memory items and must be completed without reference to the QRH. If there are any remaining items on the checklist not in a red box, the QRH should be accessed and the memory drill items should be reviewed for completeness before completing any remaining items on the checklist. Any situations that do not require memory items will not be enclosed in a red box. These situations are to be handled by accessing the QRH and reading and actioning the items on the checklist.

d) The QRH as a separate checklist

The QRH that follows in Chapter 8 is to be published as a separate entity without reference to Chapter numbers.

e) Organization

The QRH is grouped into the following sections:

- i) Abnormal Starts
- ii) Engine
- iii) Electrical
- iv) Cabin Fire
- v) Wing Fire
- vi) Emergency Landings
- vii) Miscellaneous
- viii) Unsure of Your Position
- ix) Passenger Briefings

7.3 Common Procedure

These common procedures apply to all Abnormal and Emergency situations and provide general guidance when dealing with an emergency situation.

A thorough knowledge of procedures is required to deal with abnormal and emergency situations. It is impossible to provide guidance for all situations. Sound judgment must prevail. It is important to keep the following in mind:

- a) First and foremost in the moments following an actual or simulated abnormal or emergency situation is to **FLY THE AIRCRAFT**. It is of no consequence how quickly and correctly a drill or check is completed, if the aircraft departs controlled flight.
- b) In terms of dealing with any emergency, two general rules apply:
 - i) ELIMINATE THE SOURCE**
 - ii) SURVIVE**
- c) **PRIORTIZE**
 - i) The checklists provide optimal reaction to an emergency. As a pilot, you must be prepared to deviate as required when conditions warrant.
 - ii) Examples of when your priorities may be different are:
 - a) A Forced Landing from a higher altitude over isolated areas where a descent will not allow your MAYDAY call to be heard may lead you to make your MAYDAY call as soon as possible.
 - b) A sudden and violent engine roughness may cause you to perform an engine shutdown immediately.

The following are general procedures for handling a variety of situations:

a) Emergency landing – Inform the passengers of the following:

- i) Type of emergency (i.e. engine failure, electrical fire, etc)
- ii) Preparation for emergency landing – include:
 - 1) Try to keep the passengers calm and reassure them that you have the situation under control
 - 2) Seat belt /should harness use
 - 3) Have the front passenger slide his/her seat back to avoid striking the dash.
 - 4) All baggage items should be securely stowed under the netting in the rear. Any sharp objects in the cabin or on the passengers, i.e. glasses, pens, pencils, and even false teeth, should be removed and placed in the seat backs or in the glove box. Sharp object can become projectiles in an emergency landing and people have been known to choke on false teeth.
 - 5) If the passengers have coats or other soft objects, instruct them to use them to cushion their bodies.
 - 6) Brace position on touch down as per the Passenger Safety Briefing Card
 - 7) Be sure front passenger knows to only unlatch the door when you instruct. Do not have the door totally open as this reduces the structural integrity of the fuselage.
 - 8) Remind passengers of the location of the First Aid Kit, Fire extinguisher and ELT.
- iii) Evacuation information – This should include whether the landing will be on or off an aerodrome; the route and/or exits that are to be used to evacuate from the aircraft
- iv) Time Remaining – Brief the time remaining to landing and if different, the time remaining to prepare.

b) Evacuating the aircraft

- i) Ensure passengers exit to the rear of the aircraft to avoid damage from the propeller, whether still spinning or not.
- ii) Supervise, if able, the passengers exit from the aircraft. Have the passenger in the front exit first, and then slide the passenger seat forward to aid in the exit of the rear passengers.
- iii) **If the evacuation occurs at an aerodrome:**
 - 1) Passengers and crew are to move directly away from the aircraft, on the non-fire side if applicable, to the edge of the runway. From this point, passengers and crew are to go upwind, away from the aircraft by a minimum of two runway lights.
 - 2) Keep the passengers together and offer assistance, as able
 - 3) Await emergency rescue
- iv) **If evacuation occurs off airport:**
 - 1) Move passengers a safe distance away from the aircraft
 - 2) If you are able, retrieve the First Aid Kit, ELT and Survival Kit from the aircraft
 - 3) Administer First Aid, as required, to the best of your ability.

- 4) Place the ELT on a refractive surface (piece of metal) in an upright position, with the switch placed in the “on” position.

c) Fires

- i) An electrical fire is usually first indicated by the odor of burning insulation.
- ii) Engine fires generally smell more like hot oil.
- iii) Do not attempt to restart the engine if you have experienced an engine fire.

d) Engine failures after rotation

- i) DO NOT attempt to return to the runway or the runway environment unless you are at least 1000' above the surface. Even at this height, it takes a great deal of skill to glide the aircraft into a position where a landing can be safely made.
- ii) If forced to make an emergency landing after rotation over the city, consider your options with the thought of the least amount of risk to persons and property on the ground. A school yard with no children in it may be an option. A street with little traffic may be an option. In truth, landing in the city is not a pleasant thought. If at all possible, use a runway that does not take you over the city.

e) Unscheduled or Forced Landing

- i) Report occurrence as soon as possible to Super T Aviation, phone number 1-888-541-6636 or 1-403-502-4064.
- ii) Instructions to the pilot as per the Super T Aviation Academy Emergency Response Manual.
- iii) The aircraft must not be moved until inspected by Super T Aviation Academy maintenance personnel and/or Transportation Safety Board.

8 Quick Reference Handbook

8.1 Introduction

The Quick Reference Handbook (QRH) is intended to be used in aiding the pilot when faced with abnormal or emergency situations. It and the normal Cessna 172 checklist are to be kept onboard the aircraft at all times.

8.2 ABNORMAL STARTS

HOT OR FLOODED STARTS

Indication – weak intermittent firing followed by puffs of black smoke from exhaust.

Mixture	FULL LEAN
Throttle	FULL OPEN
Starter	CRANK THROUGH SEVERAL REVOLUTIONS
If engine starts to catch, reduce throttle and advance mixture at the same time otherwise reset controls and attempt the start without further priming.	

8.3 ENGINE

ENGINE FIRE ON START

CONTINUE CRANKING to get a start which would suck the flames and accumulated fuel through the carburetor and into the engine.	
IF ENGINE STARTS:	
Power	1700 RPM
Engine Throttle Mixture Ignition Switch Master	SECURE IDLE IDLE CUT OFF
Engine	INSPECT FOR DAMAGE NOTIFY MAINTENANCE
IF ENGINE FAILS TO START:	
Throttle	FULL OPEN
Mixture	IDLE CUT OFF
Cranking	CONTINUE
Fire Extinguisher	OBTAIN
Engine Ignition Switch Master Switch Fuel Selector	SECURE OFF OFF OFF
Fire	EXTINGUISH

Fire Damage.....INSPECT
Maintenance.....NOTIFY

ENGINE FAILURE/FIRE BEFORE ROTATION

Throttle	IDLE
Brakes	MAX UNTIL STOP
Flaps	RETRACT
Mixture	IDLE CUT OFF
Ignition Switch	OFF
Advise FSS	
Master Switch	OFF
If the aircraft is on fire	EVACUATE

ENGINE FAILURE/FIRE AFTER ROTATION

Airspeed	65 KIAS (flaps UP) 60 KIAS (flaps DOWN)
IF INSUFFICIENT RUNWAY REMAINS FOR LANDING:	
Mixture	IDLE CUT OFF
Fuel Selector Valve	OFF
Ignition Switch	OFF
Flaps	AS REQ'D
Advise FSS if possible	
Master Switch	OFF
Forced Landing	EXECUTE
If the aircraft is on fire	EVACUATE

ENGINE FAILURE IN FLIGHT

Airspeed	65 KIAS (flaps UP) 60 KIAS (flaps DOWN)
Carburetor Heat	ON
Landing area	PICK
Cause Check (if cause not apparent)	
Engine Gauges	CHECK
Primer	LOCKED
Master	ON
Ignition Switch	CYCLE, BOTH, L or R
Throttle	VARY
Fuel Selector	RE-SELECT FUEL POSITION
Restart, if problem found	
Mixture	FULL RICH
Master	ON
Primer	ENGAGE

Ignition Switch	BOTH or START IF PROPELLER STOPPED
If restart not feasible or unsuccessful	
Mayday Call	TRANSMIT Current Freq, 126.7, or 121.5 Transponder to 7700
Engine	SECURE
Fuel Selector	OFF
Mixture	IDLE CUT OFF
Ignition Switch	OFF
Passenger Briefing	COMPLETE
Flaps	AS REQ'D Full Flap recommended
Master Switch	OFF
Doors	UNLATCH PRIOR TO TOUCHDOWN
Touchdown	SLIGHTLY TAIL LOW
Brakes	APPLY HEAVILY considering landing surface
Evacuate the aircraft as able	

ENGINE FIRE IN FLIGHT

Mixture	IDLE CUT OFF
Fuel Selector Valve	OFF
Ignition Switch	OFF
Mayday Call	TRANSMIT Current Freq, 126.7 or 121.5 Transponder to 7700
Master Switch	OFF
Cabin Heat and Air	OFF except overhead vents
Airspeed	100 KIAS
Increase speed as necessary to blow fire out	
Once fire is out:	
Airspeed	65 KIAS
Landing Area	PICK
Passenger Briefing	COMPLETE
Doors	UNLATCH PRIOR TO TOUCHDOWN
Touchdown	SLIGHTLY TAIL LOW
Brakes	APPLY HEAVILY considering landing surface
Evacuate the aircraft as able	

CARBURETOR ICING

Indication – gradual loss of RPM and eventual engine roughness or stoppage	
Throttle	FULL
Carb Heat	FULL ON
Engine may run even rougher while the ice clears – leave Carb Heat ON until engine runs smooth	
If conditions warrant, operate with minimum amount of Carb Heat necessary to prevent ice formation and lean the mixture for smoothest engine operation	

SLIGHT ENGINE ROUGHNESS IN FLIGHT - SPARK PLUG FOULING

Carbon or lead deposits on the spark plugs may cause slight engine roughness in flight	
Ignition Switch	MOMENTARILY FROM BOTH TO EITHER L OR R POSITION
An obvious power loss in single ignition operations is evidence of spark plug or magneto trouble	
Mixture	LEAN to recommended lean setting for cruise flight
If problem does not clear up in several minutes try a richer mixture	
If problem persists land ASAP with ignition on BOTH	

SUDDEN ENGINE ROUGHNESS OR MISFIRING – MAGNETO MALFUNCTION

Usually indicated by sudden engine roughness or misfiring	
Ignition Switch	SWITCHING FROM BOTH TO L OR R WILL IDENTIFY WHICH MAGNETO IS MALFUNCTIONING
Select different power settings and enrichen mixture to determine if continued operation on BOTH practicable	
If not, switch to the good magneto and proceed to the nearest airport for repairs	

LOW OIL PRESSURE

Total loss of oil pressure accompanied by a rise in oil temperature indicates engine failure is imminent	
Throttle	REDUCE IMMEDIATELY
Landing Area	PICK CLOSEST SUITABLE
Use minimum power required to reach the field	
Be prepared for total engine failure	

NOTE

Low oil pressure with normal oil temperature may indicate oil pressure gauge or relief valve malfunctioning. Not necessarily cause for immediate precautionary landing. However, a landing at the nearest airport would be advisable to inspect the source of trouble.

8.4 ELECTRICAL

ELECTRICAL FIRE/SMOKE IN FLIGHT

Master Switch	OFF
Avionics Power Switch	OFF
All Other Switches (except Ignition)	OFF
Vents/Cabin Air/Heat	CLOSED
Fire Extinguisher	ACTIVATE IF FLAMES EVIDENT

WARNING

**After discharging an extinguisher within a closed cabin,
ventilate the cabin**

If fire not out and Fire Extinguisher depleted	PREPARE FOR EMERGENCY LANDING
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If fire is out and electrical power is NOT NECESSARY for continued flight, continue flight with all electrical power off. Considerations include:

- **Attempt communication with cell phone/ SPOT
HELP activation**
- **Divert to uncontrolled airport**
- **Correct circuit entry and lookout for traffic**
- **Landing flapless**

If the fire appears out and electrical power is NECESSARY for continued flight:

Master Switch	ON
CHECK FOR SIGNS OF SMOKE/FIRE	
CBs	CHECK FOR FAULTY CIRCUIT (DO NOT RESET)
Radio Switches	CHECK OFF
Avionics Power Switch	ON

CHECK FOR SIGNS OF SMOKE/FIRE	
Radio/Electrical Switches	ON AS REQUIRED TURN ON ONLY THOSE REQUIRED
CHECK FOR SIGNS OF SMOKE/FIRE	
Vents/Cabin Air/ Heat	OPEN when ascertained fire is completely out

LOW (HIGH) VOLTAGE LIGHT ILLUMINATES IN FLIGHT (Ammeter Indicates Discharge)

NOTE

Illumination of the low(high)-voltage light may occur during low RPM conditions with an electrical load on the system such as during a low RPM taxi. Under these conditions, the light will go out at higher RPM. The master switch need not be recycled since an over-voltage condition has not occurred to de-activate the alternator system.

Avionics Power Switch	OFF
Master Switch	OFF
Master Switch	ON
Low-Voltage Light	CHECK OFF
Avionics Power Switch	ON
If Low(High)-Voltage light illuminates again:	
Alternator	OFF
Nonessential Radio and Electrical Equipment	OFF
Flight	TERMINATE ASAP
The only source of electrical power is now the battery. Consider operating with the battery switch off until electrical power is necessary.	

8.5 CABIN FIRE

Unknown source coming from the front portion of the aircraft.

Master Switch	OFF
Vents/Cabin Air/Heat	CLOSED
Fire Extinguisher	ACTIVATE
Cabin	VENTILATE

Fire of known source in passenger compartment does not necessitate the Master Switch to be turned off.

WARNING

After discharging an extinguisher within a closed cabin, ventilate the cabin.

If fire cannot be extinguished	PREPARE FOR EMERGENCY LANDING
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8.6 WING FIRE

Navigation Lights	OFF
Pitot Heat	OFF
Strobe Lights (if installed)	OFF
If fire does not extinguish	PREPARE FOR EMERGENCY LANDING

NOTE

Perform a sideslip to keep flames away from the fuel tank and cabin, and land using zero flaps.

8.7 EMERGENCY LANDINGS

FORCED APPROACH – CABIN, WING OR ELECTRICAL FIRE NOT EXTINGUISHABLE

To be used in those cases where an immediate landing is imperative, (i.e. Cabin, Wing or Electrical fire not extinguishable).

Mixture	IDLE CUT-OFF
Fuel Selector	OFF
Ignition Switch	OFF
Landing Area	PICK CLOSEST SUITABLE
Airspeed	100 KIAS, SLOW TO 65 KIAS AT 1000 FEET ABOVE TERRAIN
Mayday Call	TRANSMIT, if able
Master Switch	OFF, if not already
Passenger Briefing	COMPLETE
Doors	UNLATCH PRIOR TO TOUCHDOWN
Touchdown	SLIGHTLY TAIL LOW
Brakes	APPLY HEAVILY considering landing surface
Evacuate the aircraft as able	

DITCHING

Mayday Call	TRANSMIT Current Freq, 126.7 or 121.5 Transponder to 7700
Heavy Objects	SECURE OR JETTISON
Approach	HIGH WINDS, HEAVY SEAS – INTO WIND LIGHT WINDS, HEAVY SWELLS – PARALLEL TO SWELLS
Wing Flaps	20 to 40°
Power	ESTABLISH A 300 FT/MIN DESCENT AT 55 KIAS
Cabin Doors	UNLATCH
Touchdown	LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
Aircraft	EVACUATE THROUGH CABIN DOORS. IF NECESSARY, OPEN WINDOW AND FLOOD CABIN TO EQUALIZE PRESSURE SO DOORS CAN BE OPENED.
Life Vests and Raft	INFLATE

NOTE

If no power is available, approach at 65 KIAS with flaps up or at 60 KIAS with 10° flaps.

PRECAUTIONARY LANDING

If the decision to perform a Precautionary Landing is made:

Wing Flaps	20°
Airspeed	60 KIAS
Selected Field or Runway	FLY OVER then OVERSHOOT
Radio Call	If urgent situation, TRANSMIT PAN PAN call on Current Frequency, 126.7, or 121.5. Otherwise make normal calls on published frequency
Pre-Landing Check	COMPLETE
Avionics Power Switch and Electrical Switches	If landing on unprepared surface, OFF
Passenger Briefing	COMPLETE
Wing Flaps	PLAN 40°

Approach	60 KIAS
Master Switch	If landing on unprepared surface, OFF
Doors	If landing on unprepared surface, UNLATCH PRIOR TO TOUCHDOWN
Touchdown	SLIGHTLY TAIL LOW
Ignition Switch	If landing on unprepared surface, OFF
Brakes	APPLY HEAVILY considering landing surface

8.8 MISCELLANEOUS

LANDING WITH A FLAT MAIN TIRE

Approach	NORMAL
Touchdown	GOOD TIRE FIRST, HOLD AIRCRAFT OFF FLAT TIRE AS LONG AS POSSIBLE

LANDING WITH A FLAT NOSE TIRE

Approach	NORMAL
Touchdown	ON MAINS, HOLD AIRCRAFT OFF FLAT TIRE AS LONG AS POSSIBLE
Mixture	IDLE CUT OFF ON TOUCHDOWN
Have aircraft towed or moved by hand after coming to a stop and securing the aircraft	

LANDING WITHOUT ELEVATOR CONTROL

Trim for horizontal flight with airspeed approximately 60 KIAS by using throttle and elevator trim controls.
DO NOT CHANGE ELEVATOR CONTROL SETTING.
CONTROL GLIDE ANGLE BY ADJUSTING POWER ONLY.
At flare, elevator trim control should be adjusted toward the full nose-up position and the power adjusted so that the aircraft will rotate to the horizontal attitude for touchdown.
Close throttle at touchdown.

BRAKE FAILURE

As evidenced by no resistance when brake pedals are checked on downwind.

Approach	NORMAL
Touchdown	ON MAINS AS CLOSE TO BEGINNING OF RUNWAY AS POSSIBLE
Mixture	IDLE CUT OFF ON TOUCHDOWN
Have aircraft towed or moved by hand after coming to a stop and securing the aircraft.	

DOOR OPEN IN FLIGHT

On takeoff below 45 KIAS	REJECT TAKEOFF
On takeoff above 45 KIAS	CONTINUE WITH TAKEOFF, RETURN FOR NORMAL LANDING
In flight	ENSURE ALL PASSENGERS HAVE SEAT BELTS SECURELY FASTENED
Airspeed	REDUCE TO MAXIMUM ENDURANCE
Window	OPEN
Attempt to forcibly open and close door.	
If unable to secure	CONTINUE FLIGHT AT REDUCED SPEED, LAND ASAP

INADVERTENT ICING ENCOUNTERS

Pitot Heat	ON
Turn back or change altitude to obtain an outside air temperature that is less conducive to icing.	
Cabin Heat Control	FULL OPEN
Defroster Outlet	FULL OPEN
Adjust Cabin Air to obtain maximum defroster heat and airflow	
Throttle	OPEN to increase airspeed and minimize ice build-up on propeller blades

Carb Heat	AS REQUIRED. IF CONTINUOUS CARB HEAT REQ'D, LEAN MIXTURE
Land	AS SOON AS PRACTICAL. CONSIDER AN OFF-AIRPORT PROCEDURE IF ICE BUILD UP IS RAPID
Ice accumulation of ¼ inch or more	EXPECT SIGNIFICANTLY HIGHER STALL SPEED
Flaps	LEAVE RETRACTED
Left Window	OPEN to scrape ice off windshield
Approach	USE FORWARD SLIP TO IMPROVE VISIBILITY
Approach Speed	65 to 75 KIAS
Landing	LEVEL ATTITUDE

NOTE

With a severe ice build-up on the horizontal tail, the change in wing wake airflow direction caused by wing flap extension could result in a loss of elevator effectiveness.

8.9 INSTRUMENT MALFUNCTIONS

VACUUM SYSTEM FAILURE

As evidenced by no reading on Suction gauge.

Attitude Indicator and Heading Indicator	ANTICIPATE GRADUAL BUT TOTAL FAILURE, COVER INSTRUMENTS IF POSSIBLE, CONTINUE FLIGHT USING AVAILABLE INSTRUMENTS
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PITOT OR STATIC BLOCKAGE

As evidenced by unusual readings of Airspeed, Altimeter and/or VSI.

Pitot Heat	ON
Alternate Static Source	ON

Consult POH, Section 5 for airspeed corrections when using Alternate Static Source.

8.10 DIVERSION TO ALTERNATE DESTINATION

If a decision is made to divert to an alternate destination.

- Make an early decision.
- Identify present position.
- Decide alternate destination:
 - Within fuel range and suitable terrain.
- Estimate track or select geographic reference to head towards destination as necessary.
- Estimate heading to compensate for drift.
- Estimate distance.
- Estimate time.
- Estimate fuel/time remaining.
- Determine initial minimum safe altitude.
- Set heading and note time:
 - Reset heading indicator.
 - Check departure angle.
 - Estimate time of arrival.
- Cruise check.
- Advise ATC.
- Passenger briefing.
- Confirm ETA enRoute.
 - Half way point.

8.11 UNSURE OF YOUR POSITION

These are some helpful tips to avoid and/or remedy being unsure of your position.

- Always make your flight planning as complete and accurate as you are able.
- Always file a flight plan.
- Always take the maximum fuel load you are able to take.
- Always complete your Flight Log as accurately as possible. That calculated heading and ETA becomes vital information when faced with uncertainty of position.
- Reset your heading indicator OFTEN. Be careful to set the HI when you are in steady flight.
- Pick a higher altitude to complete your flight giving you a broader field of vision.
- When looking at the map and the outside, keep your field of vision wide. Try to keep track of your position as you go along by noting large and/or small landmarks, near or far to you.

- Consider returning to last known position.
- Keep in mind the 1 in 60 rule. Each degree off track you may be translates to one mile off course in 60 miles. That means that if you have drifted 5° off course on a 120 mile cross country, you are not more than 10 miles off your destination.
- If you become unsure of you position:
 - Draw a circle of uncertainty.
 - “Watch to map to ground”
 - Look for something recognizable and try to find it on the map.
 - Check your calculated ETE and ETA. If the time has not expired, continue on your course until it does.
 - When your ETE and ETA have lapsed and you can’t see your destination, remember, you can’t be that far off course. Circle your position to try and pinpoint your destination. Small prairie towns are sometimes very difficult to spot. Your destination may even be directly below you and you may have missed it the first time.
 - If your ETE and ETA have lapsed and you think you are beyond your destination, take a reciprocal heading back to where you know where you are or circle and try to pinpoint your location.
 - Climb – the higher you are the easier it is to see landmarks. It also allows you to pick up distant nav aids or communication stations.
 - Communicate your problem.
 - Get in touch with Edmonton FIC on 123.375, or Medicine Hat FSS, or Lethbridge FSS, or Edmonton Centre on 132.65. They may be able to see you on radar and give you a heading to fly. Try to contact Super T on 122.75.
 - Try calling or messaging Super T on your cell phone. 1-888-541-6636, 1-403-548-6636 or 1-403-502-4064.
 - Try calling other traffic on 126.7 or 121.5. Someone may hear you and be able to relay a message between you and ATC.
 - Select the Medicine Hat on the ADF or GPS.
 - With the ADF, select 332 and turn the aircraft until the needle points to the top of the instrument and fly a heading that keeps it there.
 - With the GPS, select the Direct to function and put CYXH into the GPS.
 - Keep in mind how much fuel you have remaining, and, if necessary, perform a Precautionary Landing.

8.12 PASSENGER BRIEFINGS

ENGINE FAILURE/FIRE

This is a sample of the briefing to give to passengers in the event of an emergency that requires a Forced Approach:

Forced Approach Briefing

“Please remain calm. We are experiencing a problem that requires us to land immediately. In preparation for landing, please slide your seat back; remove all sharp objects including your glasses and false teeth and place them in the glove box or seat back; use your coat or any other soft object to shield your face; prior to touchdown unlatch the door but do not open; please review the Passenger Briefing Card for brace position at touchdown; once we are on the ground and stopped, evacuate to the rear of the aircraft; remember there is a fire extinguisher between the front seats, a first aid kit in the baggage area and the Emergency Locator Beacon also in the baggage area.”

PRECAUTIONARY LANDING

This is a sample of the briefing to give to passengers if a Pre-Cautionary Landing becomes necessary due to an urgent situation:

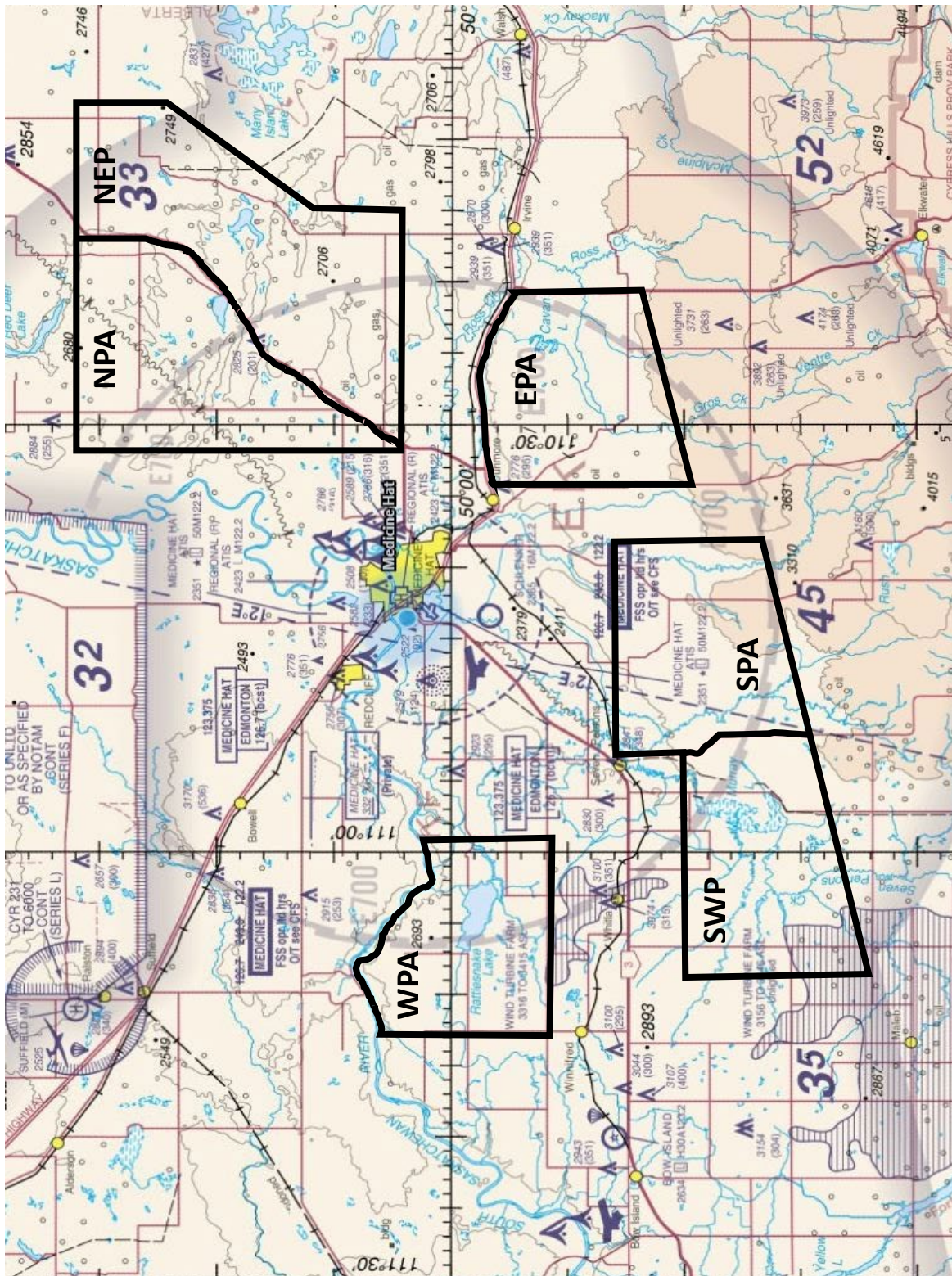
Before making the Low Pass

“(State the problem, eg. We are running low on fuel, it is getting dark, I am feeling sick, the weather is deteriorating, etc) and I have decided we need to make a precautionary landing. I have found what I think is a suitable field and I am going to fly over it and have a closer look. If the field is suitable we are going to land in it.”

After inspecting the field

“The field looks suitable. Please remain calm. As we are not landing at an airport the landing may be rougher than normal. In preparation for landing please slide your seat back; remove all sharp objects including your glasses and false teeth and place them in the glove box or seat back; use your coat or any other soft object to shield your face; prior to touchdown unlatch the door but do not open; please review the Passenger Briefing Card for brace position at touchdown; once we are on the ground and stopped, evacuate to the rear of the aircraft; remember, if needed, there is a fire extinguisher between the front seats, a first aid kit in the baggage area and the Emergency Locator Beacon also in the baggage area.”

9 CHAPTER – PRACTICE AREAS



ROUTES TO AND FROM PRACTICE AREAS
DEPARTURES

- CLIMB STRAIGHT AHEAD TO 1000 FEET AAE BEFORE MAKING ANY TURNS. ONCE PAST 1000 FEET AAE TURN TOWARDS DESIRED PRACTICE AREA AS OUTLINED BELOW AND CONTINUE CLIMBING TO A MINIMUM OF 4500 ASL BEFORE LEAVING CIRCUIT AREA.

ARRIVALS

- A CALL TO FSS MUST BE MADE PRIOR TO DEPARTING PRACTICE AREA NOTIFYING YOUR INTENTIONS. ALL FLIGHTS INBOUND ARE TO BE AT 4000ASL OR LOWER UNTIL ENTERING THE ZONE. CIRCUIT MUST BE ENTERED AT 1000 FEET AAE OR LOWER

PRACTICE AREA	OUTBOUND PROCEDURE *4500' ASL*	INBOUND PROCEDURE *4000'ASL*
NORTH	21- Right Turn 03- Straight Out 27- Right Turn 09- Left Turn	21- Straight In Final 03- Left Downwind 27- Cross Mid-Field Left Downwind 09- Left Base
NORTH EAST	21- Right Turnout 03- Right Turnout 27- Right Turnout 09- Left Turnout <i>*after initial turn remain close north of Hwy41A until past intersection of 41A and 41*</i>	21- Left Base 03- Cross Mid-Field Left Downwind 27- Cross Mid-Field Left Downwind 09- Left Downwind <i>*remain south Hwy41A & north of Hwy1 until entering zone*</i>
EAST	21- Left Turn 03- Right Turnout <i>direct</i> Dunmore 27- Right Turn <i>direct</i> Dunmore 09- Straight Out <i>direct</i> Dunmore	21- Left Base 03- Cross Mid-Field Left Downwind 27- Straight In Final <i>via</i> Dunmore 09- Left Downwind
SOUTH	21- Left Turn 03- Right Turn 27- Left Turn 09- Right Turn <i>*remain west of Hwy3</i>	21- Left Downwind 03- Straight In Final 27- Left Base 09- Cross Mid-Field Left Downwind <i>*remain east of Hwy 3 until entering zone*</i>
SOUTH WEST	21- Straight Out <i>direct</i> Seven Persons 03- Left Turn <i>direct</i> Seven Persons 27- Left Turn <i>direct</i> Seven Persons 09-Right Turn <i>direct</i> Seven Persons <i>*remain west of Hwy3*</i>	21- Left Downwind <i>via</i> Seven Persons 03- Straight in Final 27- Left Base 09- Cross Mid-Field Left Downwind <i>*remain east of Hwy 3 until entering zone*</i>
WEST	21 –Right Turn <i>direct</i> Rattlesnake Lake 03 – Left Turn <i>direct</i> Rattlesnake Lake 27 – Left Turn <i>direct</i> Rattlesnake Lake 09 – Right Turn <i>direct</i> Rattlesnake Lake	21 – Cross Mid-Field for Left Downwind 03 –Straight in Final 27 – Left Downwind 09 – Straight in Final