



# Students & Rusty Pilots

Program 2

Winter Flying

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# Winter Flying Topics

- Introduction
- Preflight
- Engine Operation
- Airport Operations
- Inflight Precautions
- Airport Services
- Pilot Preparation
- Post Flight
- Personal Minimums



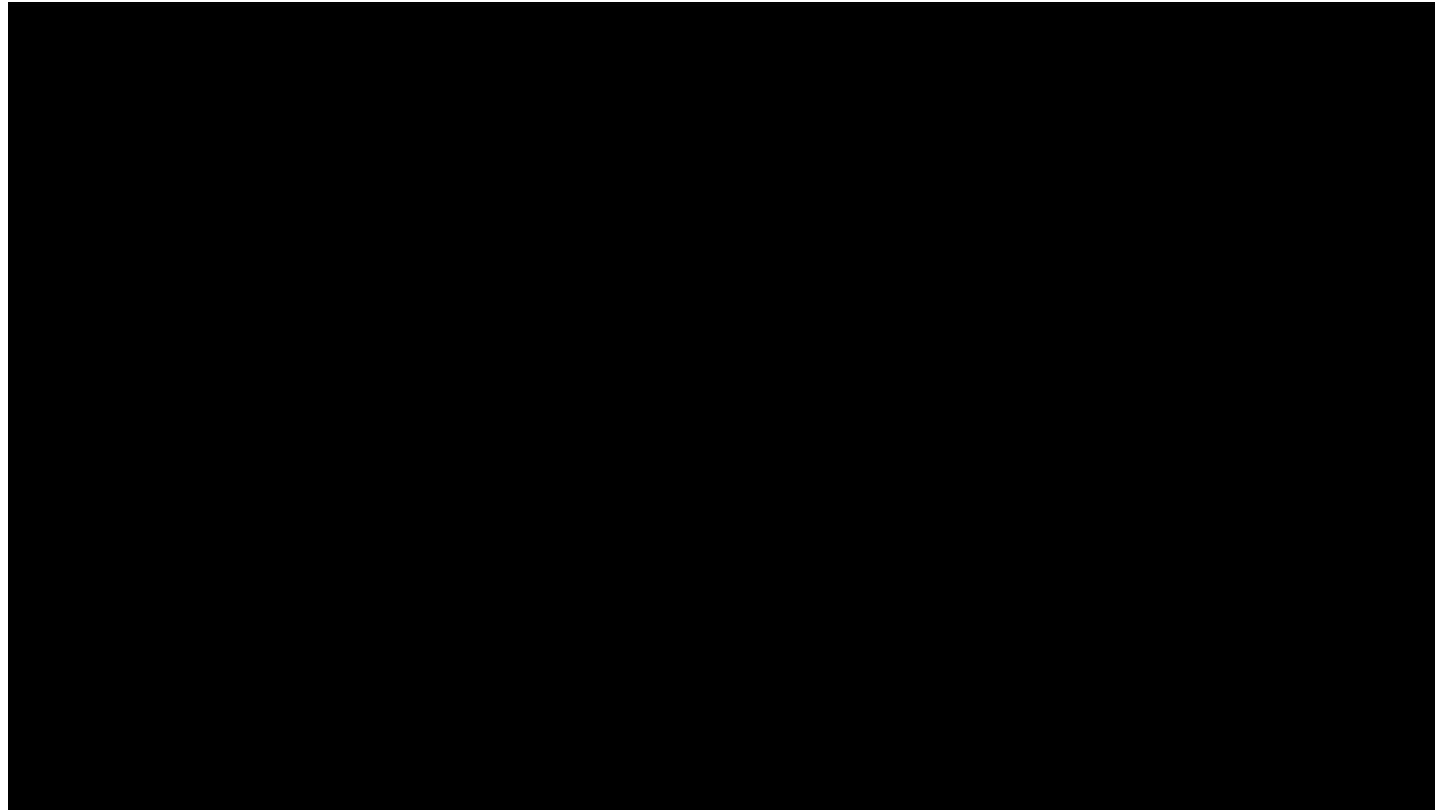
# Introduction

Some of the best flying weather occurs during the winter months; the opposite is also true. Winter flying adds factors which need to be addressed to mitigate the risks such that safe flying may ensue. This program will present many of those factors through video and discussion. My intent is for a sharing of knowledge between seasoned pilots and those new to flying.



# Preflight

- [Winter Flying Cold Temp Pre Flight Tips](#) ([SmartPilotCanada](#))



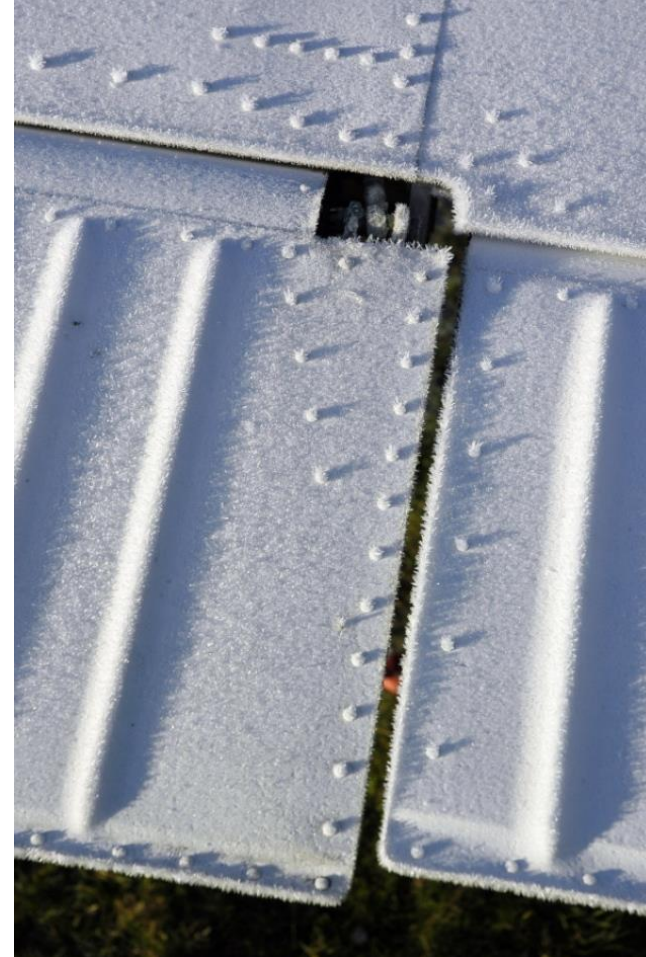
# Preflight

- Take-Aways
  - Don't hurry your preflight because it's cold, dress warm
  - Preheating is highly recommended and often a requirement
  - The cockpit will also be cold if the airplane is not warmed in a heated hanger
  - Surfaces must be free of snow, ice, and frost
  - Liquid water in the fuel tanks may freeze in fuel lines during flight
  - Frozen hinges from snow/ice melted in deice will refreeze outside
  - Fuel vents, pitot tube openings, clear of ice/snow
  - Tires lose pressure in cold temperatures due to contracting air



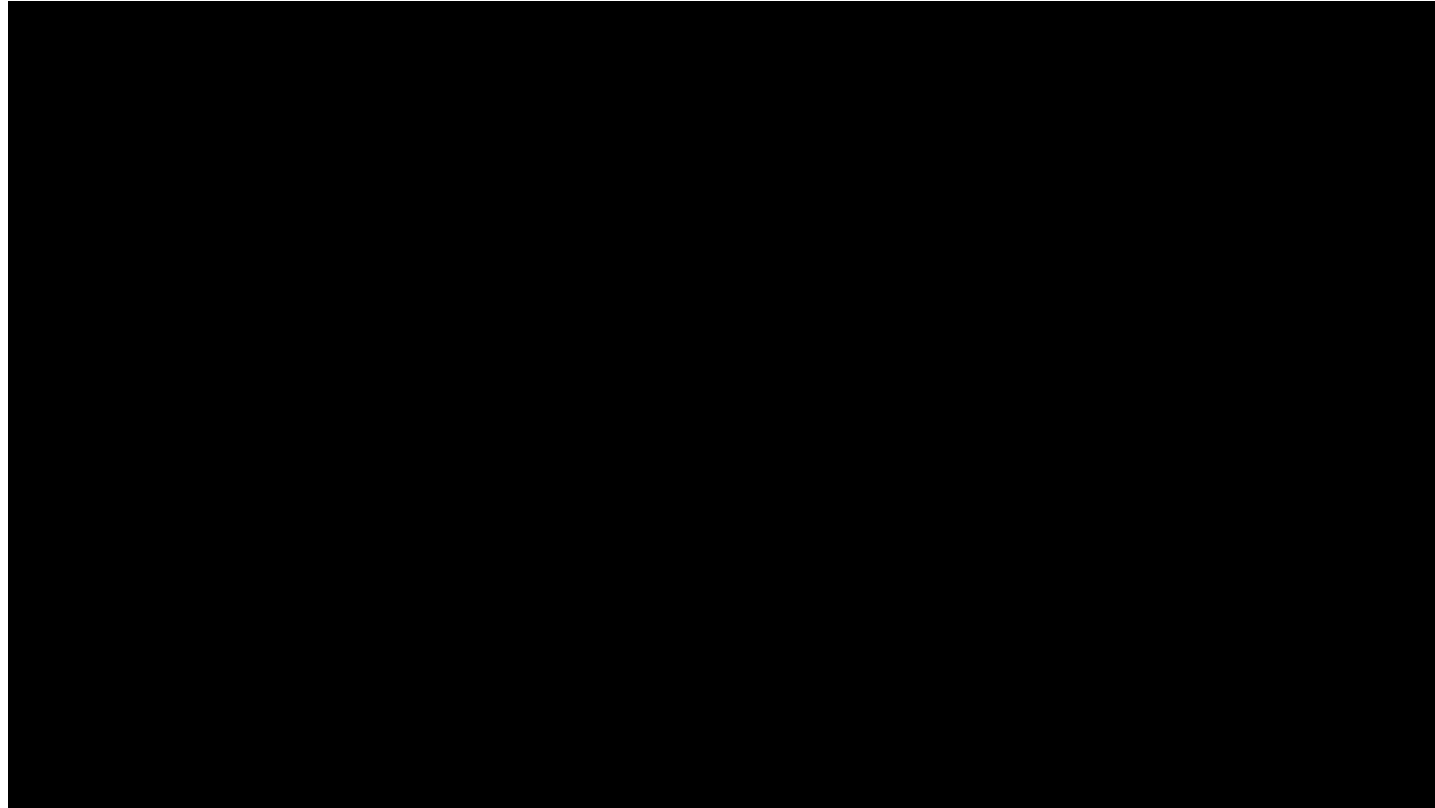
# Preflight

- Frost & ice on airplane surfaces
  - Adds weight
  - Creates drag
  - Disrupts airflow destroying lift



# Engine Operation

- [Winter Flying Engine Operation in Cold Weather](#) ([SmartPilotCanada](#))



# Engine Operation

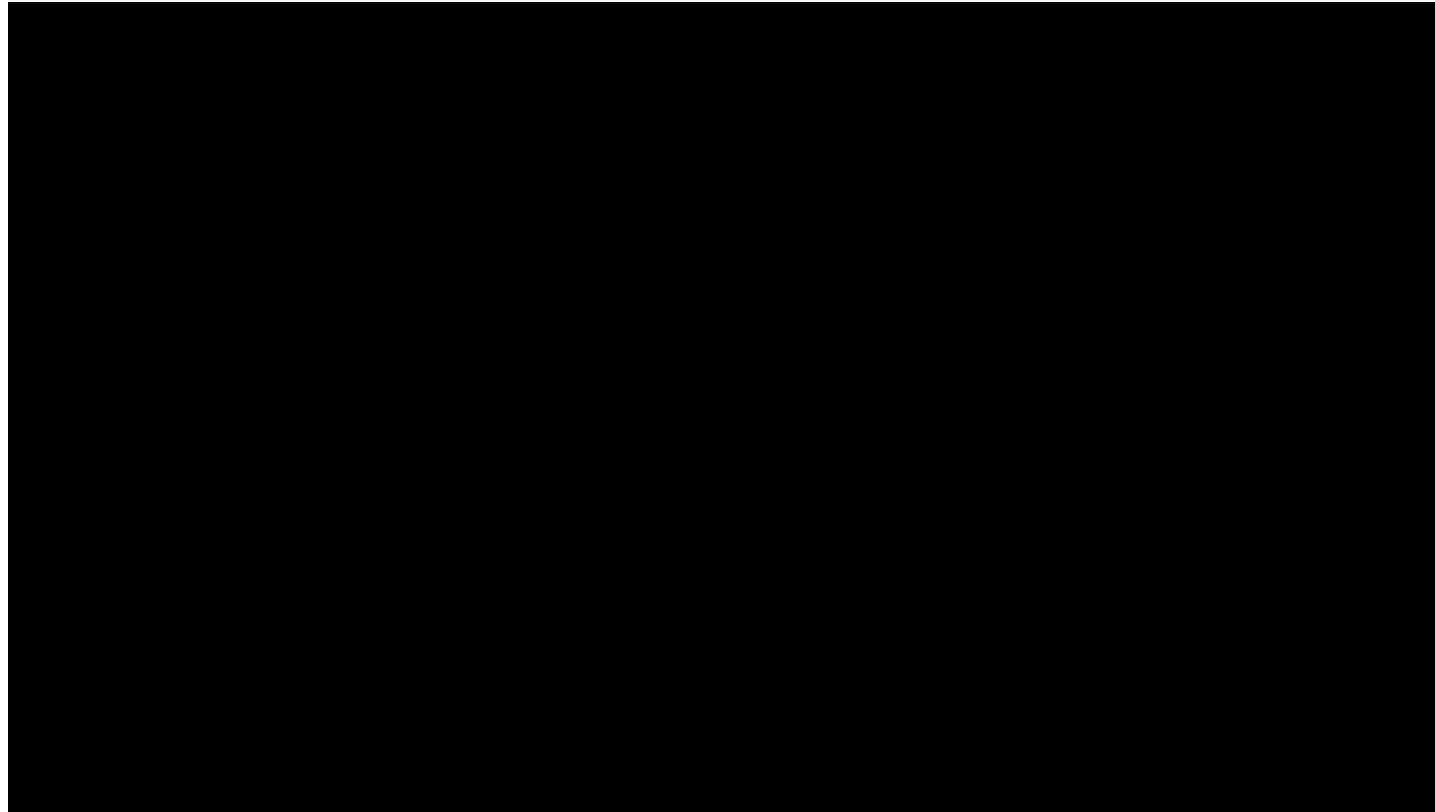
- Take-Aways
  - Improved performance from cold dense air
  - Ensure the oil is the correct viscosity for cold temperatures
  - Does the aircraft/engine require a winter kit installation?
  - Don't over prime
  - Check oil pressure immediately after start-up (30-60 seconds)
  - Application of carburetor heat will improve fuel atomization (winter only\*)
  - Warm up engine before flight ~1000 RPM to avoid lead fouling
  - Use the warm up time to tune radios and execute check lists
  - Check the POH for minimum take off oil temp





# Airport Operations

- [Winter Flying Ice & Snow Covered Aerodromes](#) ([SmartPilotCanada](#))



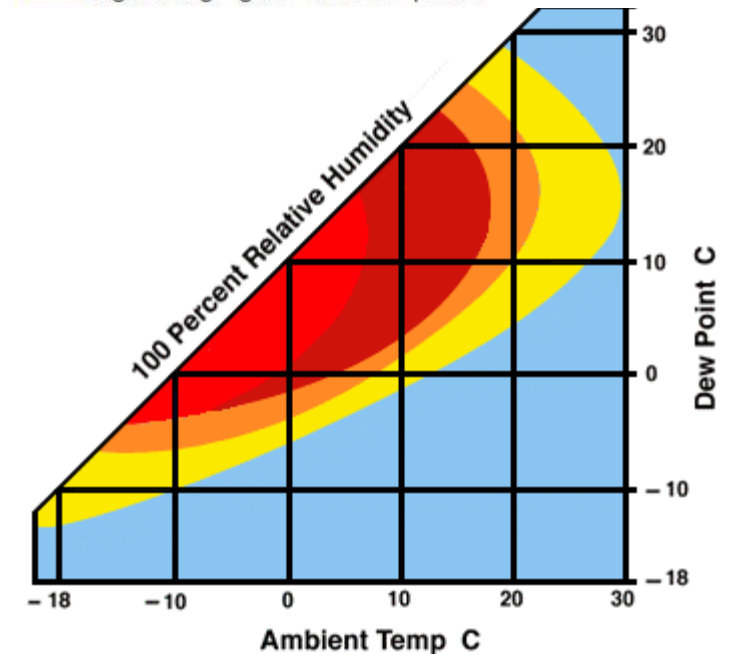
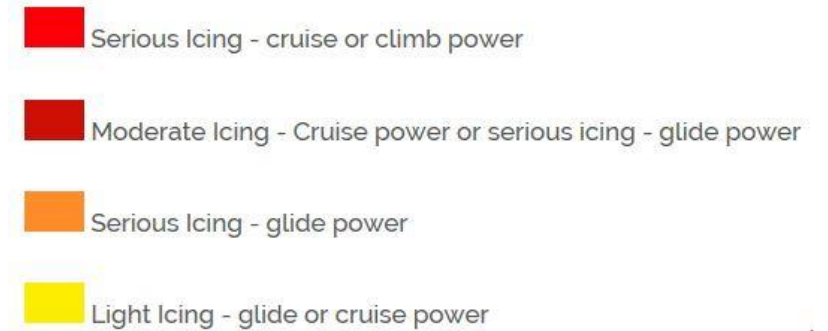
# Airport Operations

- Take-Aways
  - Surface contamination; ice, snow, slush
  - Snowbanks are an issue especially for low wing aircraft
  - If possible perform run-up on dry surface
  - Use proper control inputs during taxi
  - Avoid riding the brakes making them hot
  - Be sure to check the destination airport conditions



# Inflight Precautions

- Take-off
  - Proper control input
  - Smooth throttle application
  - Heater/defrost working properly
- Enroute
  - Be aware of carburetor icing potential
  - CO poisoning, recognize symptoms and act
  - Monitor engine temperatures
  - Stiff controls



# Inflight Precautions

- Letdown/Landing
  - Plan ahead, reduce engine power gradually
  - Avoid power off descents
  - Use carburetor heat



# Airport Services

- Deicing
- Pre-heating
- Overnight/day hanger
- Snowplowing
- Deicing



# Post Flight

- Fuel
- Remove slush
- Covers



# Pilot Preparation

- Dress for the environment you'll be flying over
  - Warm clothing; coat, hat, gloves, boots
- Currency
  - Winter days are shorter, are you night current?
- Survival Gear
  - An off airport landing in the winter...



# Personal Minimums

- Temperature?
- Wind Speed?

WIND - CHILL CHART

ACTUAL THERMOMETER READING F

ESTIMATED WIND SPEED MPH	50	40	30	20	10	0	-10	-20	-30	-40	-50
CALM	50	40	30	20	10	0	-10	-20	-30	-40	-50
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57
10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83
15	36	22	9	-5	-18	-36	-45	-58	-72	-85	-99
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125
35	27	11	-4	-20	-35	-49	-67	-83	-98	-113	-129
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132

EQUIVALENT TEMPERATURE F

LITTLE DANGER FOR PROPERLY CLOTHED PERSON

INCREASING DANGER

GREAT DANGER

Wind speeds greater than 40 MPH have little additional effect

DANGER FROM FREEZING OF EXPOSED FLESH





# Aviation Learning

- [Faasafety.gov](https://www.faa.gov/safety/teams/wings) – FAA Safety Team (FAASTeam/Wings)
- [AOPA - Tips on Winter Flying](#)
- [Flying Magazine - Winter Flying](#)
- [Plane & Pilot - Winter Flying Tips](#)
- [I Fly America - Tips on Winter Flying](#)
- [Pilot - How to stay safe when flying in winter](#)

