

In English, please

PRACTICE FOR THE FCL 1.028



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ICING A WINTER DELICACY

BY DOMINIQUE DÉFOSSÉZ

Air traffic controller, author of *L'anglais pour voler* • www.anglais-pour-voler.com



Dangers of icing

To the average cook, icing is a nice, sweet topping used to decorate a cake. To the pilot, it is a major hazard that can seriously impact aircraft performance. Structural icing, caused by **ice accretion** on the airframe, reduces lift and increases drag by altering airflow over the wings and tail, it also adds weight. Ice affects engine efficiency if it blocks the air intake, or in case of carburetor icing. Instrument icing may clog the pitot tube or the static port and render pressure instruments (airspeed indicator, altimeter and vertical speed indicator) unreliable. Ice also degrades the quality of radio communications when it forms on antennas.

Formation of ice

Except for carburetor ice, which can form in moist air at rather warm temperature, icing occurs in clouds or precipitation when the temperature of the aircraft surface is 0°C or colder. There are two types of structural icing: clear or rime. Mixed icing is a combination of the two. **Rime ice** forms if small water droplets freeze instantly when striking the aircraft surface, trapping air at the same time. It is opaque, **rough** and **brittle** and often forms on leading edges. On the contrary, large water droplets don't entirely freeze on impact and the remaining water spreads back over the aircraft surface, glazing it. They unite to form a solid sheet of tenacious **clear ice**, also called **glaze ice**, that can be quite difficult to remove.

Icing conditions

Icing is an **insidious** enemy whose precise location is difficult to forecast, but it can be easily encountered at altitudes where general aviation

aircraft fly. Icing intensity is classified into four categories: trace, light, moderate and severe.

To fight structural icing, aircraft can be fitted with de-icing equipment, such as de-icing boots, to remove ice when it has already formed, or with anti-icing devices, such as fluid freeze point **depressant** systems, to prevent ice from contaminating the aircraft surfaces. However, in severe icing conditions, even proper equipment is not sufficient to control the hazard of icing and immediate diversion is the only safe option.

Most light aircraft are not equipped with any of these systems and are therefore not certified for flight into known icing (FIKI). A few systems are under development to provide protection for GA aircraft. But that will be **icing** ... on the cake!

Listening comprehension

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New York departure

CTL Eagle 45-82 maintain 1-7 thousand.
PIL 1-7 thousand Eagle 45-82.
CTL Eagle 45-82 New York center 1-3-4 point 6.
PIL 34-6, we'll see you, Eagle 45-82, ... and before we go, we've got (- 1) (- 2) and (- 1) (- 3).
CTL Thanks.
 ...
PIL Departure TBM 731 CA 8 for 10 thousand.
CTL 731CA New York departure maintain 1-4, 14 thousand.
CTL And 1CA (- 4) of (- 5) (- 2) 15 (- 6) 17 ... (- 1) (- 2), so if there was a problem at 14, I'll keep you up there, if it gets (- 7) let me know, I'll climb you.
PIL 1 CA we'll let you know what happens when we get in there and, yeah, if we can get (- 8) (- 6) it, that's no problem for us.

...
CTL Wisconsin 37-37, also, (- 9) (- 2) (- 10) (- 6) 15 to 17.
PIL All right, thanks.
CTL And as soon as the center takes the hand off, you'll have (- 11).
PIL All right.
 ...
CTL Dotcom 30-64 NY departure expect (- 9) (- 2) out of 13 (- 6) 17
PIL OK
 ...
PIL Wisconsin 37-37 are we going to get (- 11)?
CTL I am right on the hand off, it should be any second.
PIL You're just going to have to be quick, we're having some (- 12) issues.

New York center

PIL New York, TBM 731CA, we are 13 point 3 for 17 thousand.
CTL 731CA, New York Center, roger.
CTL 731 CA, we'll have (- 11) for you as soon as I can, you will get some (- 1) (- 10) near 17 thousand.
PIL 1 CA we can confirm that (- 1) (- 10) for you, it's (- 1) to ... , yeah, it's pretty (- 1) for now, we've been in here for, ... for a little while and (- 11) when able would be great.
 ...
PIL 731 CA we are getting a little ladled here, can we get ... (- 11) as soon as possible, please?
CTL Yeah, stand by.
CTL 731CA climb and maintain flight level 200.
PIL 200 for 1CA thank you.
 ...
PIL New York Center, Dotcom 30-64, out of 16 to 17
CTL Dotcom 30-64, New York Center, roger, (- 11) in about 5 more miles, (- 1) (- 10) at 17
PIL Yeah, we are (- - - 13) fast, Dotcom 30-64
 ...
CTL Eagle 46-54, (- 4) of (- 14) (- 10), climb and maintain flight level 2-8-0
PIL Climbing to 2-8-0 Eagle 46-54

Vocabulary

Ice accretion, ice buildup.....accumulation de glace
 Brittle.....friable
 Clear ice, glaze ice.....givre clair, verglas
 A Delicacy.....un mets délicat
 A Freeze point depressant.....un abaisseur du point de congélation
 Icing on the cake.....la cerise sur le gâteau
 Insidious.....trompeur
 To Ladle.....servir à la louche
 Rime ice.....givre blanc
 Rough.....irrégulier

Answers

1 - light; 2 - rime; 3 - chop; 4 - reports; 5 - moderate; 6 - through; 7 - worse; 8 - straight; 9 - straight; 10 - moderate; 11 - higher; 12 - anti-ice; 13 - picking it up; 14 - severe