

Operating Tips . . .

FOR BETTER NAVION FLYING

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COLD WEATHER STARTING TIPS

The output of a storage battery may be less than 50 percent if its temperature is sub-zero; consequently a pilot may believe his battery is discharged when only slow heating to 40 degrees F. or less, restores the necessary output to turn the starter. Placing a cold charged battery on a charging circuit restores its efficiency by warming the elements as well as interrupting the sulphation process. Slow heating, however, or keeping in warm place when not in use may also main-

tain its serviceability. Beware of rapid heating by external means.

On occasions when an engine does not begin firing normally after the first few attempts following preheating, indicates lessening signs, and finally does not fire at all, check for ice across the spark plug electrodes, as this phenomenon can occur very quickly. Extra precaution against nonstarting and external fire should be taken when an engine does not start immediately, as it is frequently overprimed.

ON THE USE OF BRAKES

Pilots should be wary in taking off from snowslushed runways, as brakes may freeze in flight, causing locked wheels when landing. A more obscure brake locking, however, may occur during sub-zero temperatures. Hoarfrost may form, or blown snow may lodge, inside the brake assembly when aircraft are parked in the open. Hard use of brakes generates heat, and the

water thus formed may freeze between lining and drum, or in the actuating mechanism. When water is believed to have formed in this manner, it is well to continue taxiing, meanwhile working the brake action without causing friction drag, until the brake assembly has again cooled below the freezing point. When possible, avoid use of brakes during taxiing and take-off.

COLD WEATHER USE OF CARBURETOR HEAT

It is well known that power decreases with an increase of applied carburetor heat, consistent with good mixture distribution. However, when operating in low temperatures (below 20 degrees F.) without carburetor heat, the mixture may not be properly distributed. Some carburetor heat often increases power output due to better fuel vaporization. It is well to experiment with many settings of heat control for the best power.

Keep in mind, when using mixture control at altitude,

that any movement of carburetor heat control requires a readjustment of mixture control. An increase of temperature in the carburetor air stream alters the mixture ratio, making it richer by the increased restrictions to flow when a considerable portion, if not all, of the carburetor air passes through the heating mufflers, additional ducts, and valve. The direct cold air "ram" is also lessened or lost when a considerable amount of carburetor heat is used.

IMPORTANCE OF TEMPERATURE GAGE READINGS

Oil temperature gages are usually more dependable than pressure gages during warm-up. Take note of the rate of indicated temperature rise during warm-up, considering the temperature of the oil at starting. Lack of temperature change or a rapid rise indication should

be checked. Note the reading of head temperature gage in conjunction with oil temperature. Maintain considerable power while letting down during sub-zero temperatures to prevent too rapid cooling of cylinder heads.

NOTE: The articles comprising this issue of OPERATING TIPS are composed of excerpts from the text of CAB Cold Weather Safety Bulletin No. 181-48. Copies of this Safety Bulletin may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. for the nominal charge of 10 cents per copy.