

STANDARD OPERATING PRACTICES

RWSA Tow Pilots

1. Introduction

The intent of this paper is to standardize the practices of the RWSA Tow Pilots and in doing so improving the safety practices of the club.

The document is divided into three parts:

1. Flight Safety
2. Taking Care of the Aircraft
3. Training

2. Flight Safety

A. The First Turn after Takeoff.

The first turn should be made as soon as possible after takeoff. A turn at 200 feet is suggested. The turn should always be into the wind. This practice will keep the tow plane and the glider close to the airport during the initial climb. If the wind is directly down the runway, use powered aircraft practice.

B. High Density Altitude Operations.

During periods of high ambient temperature or high humidity (High Density Altitude) extra care must be taken to insure safe operations. The Aircraft performance during High Density Altitude conditions is significantly degraded. The takeoff run will be longer and the climb performance is less than normal. A local temperature of 90 degrees F should cause you to consider assessing probable degradation in performance of the tow plane. During high density altitude operations, consider reducing the weight of the tow plane (less fuel, smaller pilot) and the glider (single pilot operation of two place ships).

3. Taking Care of the Aircraft

A. Use of Idle Mixture Control

NEVER extend the idle mixture control when operating a full power under 5000 MSL.

This means do not attempt to gain a few more RPM during departure and climb by adjusting the Idle mixture control.

Reference Lycoming. **Adequate cooling** is more important than maximum power. If the engine is delivering more than 75% of rated power, the only way to adequately cool it is with a rich mixture. If the density altitude is high enough to limit maximum power to less than 75%, it is permissible to lean to maximum power, indicated by maximum RPM.

B. Clearing fouled Plugs

Given a bad mag check (rough running, excessive mag drop, or excessive difference between mags), it is permissible to operate at 2000 RPM, on both mags, with the mixture leaned to slightly less than maximum power (on the lean side, slightly, no serious misfiring), for one minute, to attempt to clear fouled spark plugs, as indicated by a passing mag check. **Do not launch** unless the mag check is OK!

C. Start on Left Magneto Only

Reference Lycoming. The left mag has an impulse coupling, which provides retarded spark timing for starting to avoid damaging the starter or engine. The right magneto does not have an impulse coupling. The starter cranks the engine very fast and the right mag, if turned on during starting, is likely to fire and may damage the engine or starter.

D. MAXIMUM Cylinder Head Temperature

Reference Lycoming. Lycoming specifies a CHT limit of 500° F; they recommend not over 435° F for maximum service

E. Cold Weather Operations

The engine must be pre-heated when the local temperature is below 40 degrees F

F. Engine operations while stationary.

Operate the engine at 1,000-1,200 RPM while stationary to minimize fouling the spark plugs. Idle the engine while taxiing to limit speed; do not ride the brakes while taxiing with the engine operating above idle speed. If it won't idle, don't fly it!

G. Move the Throttle Gently

Always move throttle slowly, in accordance with Lycoming recommendations, to prevent damaging the crankshaft counterweight bushings (called 'detuning the crankshaft'). This applies to both advancing the throttle and retarding the throttle.

H. Minimum Power during Descent

After a tow, maintain a minimum of 18/20 inches of Manifold Pressure until CHT is below 300F. Reducing power so that the air is powering the prop causes ring flutter which damages the ring lands of the pistons and breaks piston rings. This practice is emphasized as a No-No by Lycoming. At indicated air speed (IAS) greater than 90 mph, maintain at least 1,800 RPM. At IAS 70-90 mph, maintain at least 1,600 RPM. In the traffic pattern, at IAS less than 70 mph, use throttle as necessary for the desired descent.

I. Fuel reserve

1 tow + 30 minutes and time for diversion to Forest Lake (enough to work through a problem).

J. Oil Usage

Lycoming states that the engine may be operated with 2-6 quarts of oil, RWSA practice shall be to operate with 5-6 quarts, to avoid operating with too little or too much. Add a quart when the oil level is at 5 to 5 1/2 quarts. Record addition of oil in the tow log.

3. **Training**

All RWSA Tow Pilots are required to complete the Online SSF-CAP certificate for tow pilots. Tow pilots will be required to complete the SSF-CAP tow pilot test and provide a copy of the certificate for RWSA files. <http://www.soaringsafety.org/dl.asp>