

WINGS OVER WAXHAW FLYING CLUB

# OPERATIONS MANUAL

REVISION 0.0 | EFFECTIVE 06-11-2018



This page intentionally left blank

**Wings Over Waxhaw Flying Club**

**Operations Manual**

Revision 0.0      Effective 06/11/2018

**Table of Contents**

1. Introduction .....	5
2. General Procedures .....	6
Collision Avoidance .....	6
Ground Operations .....	6
General Flight Procedures .....	7
Post-Flight Procedures .....	7
3. Operating the Aircraft .....	8
Parking Brakes .....	8
Mixture Leaning .....	8
Servicing with Engine Oil .....	9
Garmin GTN650 .....	9
4. Fire Precautions and Procedures .....	10
5. Using Flight Circle .....	10
6. Inoperative Equipment .....	11
Airplane Discrepancies .....	11
Return to Service .....	11
7. JAARS-Townsend Airport .....	11
Airport Overview .....	11
Nighttime Operations .....	12
Engine Runups [Temporary Revision] .....	12

### **Revision Control**

<b>Revision</b>	<b>Date</b>
d0	06/05/2018
0.0	06/11/2018

## 1. Introduction

This document has been prepared to aid you, a member of the Wings Over Waxhaw Flying Club, in operating club aircraft in a safe and enjoyable manner.

This document primarily serves to make *recommendations*, although it may mention items that you must adhere to, such as regulations and club SOPs. Please remember that violating regulations and club rules will result in disciplinary action and/or legal prosecution. On the other hand, however, careful observation of the procedures outlined in this document will make flying the club aircraft a fun and enjoyable experience not only for you, but others in the club as well.

Should a discrepancy exist between this document and current Federal Aviation Regulations and/or club SOPs, the latter takes precedence.

*Note: The pronouns “he”, “him”, and “his” are used without specific reference to gender.*

*Note: The definition of the words “must”, “should”, and “may” are adopted from IETF RFC 2119:*

- *Must. This word, or the terms “required” or “shall”, mean that the definition is an absolute requirement of the specification.*
- *Should. This word, or the adjective “recommended”, mean that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.*
- *May. This word, or the adjective “optional”, mean that an item is truly optional.*

## 2. General Procedures

### Collision Avoidance

You, the Pilot in Command, are responsible to see and avoid other aircraft. Vigilance during ground and flight operations is required.

During ground operations, *look*. At many airports, there is considerable activity. Ground vehicles such as fuel trucks and aircraft tugs may be moving about; mechanics may be running up engines; aircraft will be taxiing; and pedestrians may be walking on the flight line. Because of the constant movement and noise, watch continuously for traffic. Never trust engine noise only to indicate aircraft activity.

If maneuvering during flight, clear the area by looking to all sides, above and below the airplane. If necessary, raise or lower the wing in the direction of the turn. Since an aircraft is most difficult to spot when flying straight and level, occasionally make turns to clear the practice area. This is especially important during slow flight when the airplane is in a nose-high attitude. During long climbs or descents, it is wise to do alternating shallow clearing turns for the purpose of checking blind spots.

As mentioned in the WOW SOP, formation flying, racing, or engaging in any flying competition is absolutely prohibited.

### Ground Operations

It is unsafe and, in some cases, illegal to walk on a taxiway or runway. The PIC should inform passengers of any ramp boundaries. At JAARS-Townsend, there are no particular locations at the airport that are off-limits for walking, but the concrete ramp in front of the hangar and the area around the T-hangar is a busy area. Exercise extra caution when walking across this zone, especially during JAARS business hours.

When on the ground, the propeller is the most dangerous part of the airplane. You should be alert for propellers and careful while on the flight line. For that reason, *do not* wear items that may hamper hearing when walking around the airport.

Never start the engine without first clearing the propeller blast area. The airplane must be in a safe spot to start the engine, as the propeller is prone to pick up loose gravel that can seriously injure a bystander or damage nearby property. Ensure that the propeller blast is not being directed into a hangar. Before an engine is started, the area around the airplane must be clear, the beacon or position lights should be on, and a "CLEAR" warning shouted.

You and anyone inside club aircraft are encouraged to observe the “sterile cockpit” rule during taxi operations in congested areas (e.g. the JAARS concrete ramp). When the “sterile cockpit” rule is being observed, only conversation pertinent to immediate taxi operations is spoken.

While taxiing, power is used to control speed. Do not ride the brakes. Taxi speed should allow turning and stopping should it become necessary.

During taxi across an airport, watch for other aircraft entering the taxiway or running up engines. Propeller or jet blast produced by large aircraft can cause loss of control to small airplanes taxiing too closely. A safe distance from other aircraft must be maintained.

You are encouraged to use proper aileron and elevator deflection for the wind while taxiing.

Before crossing or taxiing into a runway for takeoff, ensure that the runway is clear of traffic.

### General Flight Procedures

Please make every effort to conduct your flight within the scheduled time.

### Post-flight Procedures

The airplane must be secured at the termination of your flight. Make sure that the following is completed before walking away from the aircraft:

- *All electrical switches are off (except for beacon light)*
- *Cabin air vent and cabin heat knobs are pushed in*
- *The control lock is installed*
- *The pilot-side window is closed and latched*
- *The windshield sun shield is installed*
- *The center console cover is installed*
- *All trash and personal items are removed from the cabin*
- *Seat belts are clicked together and stowed orderly*
- *Club headsets cords are wrapped around headsets*
- *The club flight log is filled out correctly\**
- *The pitot cover is installed*
- *The cowl plugs are installed*
- *The LH main gear is chocked*
- *The aircraft is tied down*

*\* When the last digit of the Hobbsmeter and/or Tachometer reads between two numbers, round up to the higher number.*

If a discrepancy with the airplane has been identified, please report it by creating a squawk on Flight Circle. In the squawk entry, provide a brief description of the issue at hand (e.g. RH mag drop rough). In addition, contact the Maintenance Officer specifying details pertaining to the discrepancy, including date/time, phase of flight, and any other information that may help in finding a solution to the discrepancy.

### **3. Operating the Aircraft (Cessna 172E)**

#### Parking Brakes

The parking brake system is designed to keep the brakes engaged even when your feet are off the pedals. The system consists of the parking brake lever connected to each brake pedal through a series of pulleys. Pulling on the parking brake handle physically pulls the brake pedals down, engaging the brakes.

To properly engage parking brakes, first ensure that the rudder pedals are centered. Depress the brake pedals with your feet, then pull the parking brake handle out all the while rotating it counterclockwise until it faces down. Keep pulling the handle until you hear one or two clicks. The clicking noise is from the ratchet in the handle shaft that keeps it pulled out. The parking brakes are now set.

To disengage the brakes, rotate the parking brake handle clockwise until the handle points left. Allow the handle to slide in. The parking brakes are now released.

#### Mixture Leaning

The Continental O-300-D engine that powers the Cessna 172E was designed for 80/87 avgas, which has a considerably lower lead (TEL) content than the 100LL avgas used today. Therefore, proper leaning technique should be used from startup to shutdown in order to prevent lead-fouling the spark plugs.

During taxi and ground idle, it is recommended that the mixture knob be pulled out about 1.5 inches. Doing so will allow the engine to operate with enough fuel to keep it running, but no so much that the lead in the unburned fuel would start fouling the spark plugs.

Conduct all takeoffs and engine run-ups with full mixture. However, if the aircraft is at a high-altitude airport, lean the engine for best RPM during the engine run-up, then conduct the takeoff with that mixture setting.

When level in cruise or climbing above 3500ft MSL, it is recommended that the mixture be leaned for best power. Although the engine can be leaned using the generally-accepted definition of 50°F above peak EGT, the Continental O-300 Operator's Manual suggests leaning for highest RPM. However, both techniques are acceptable at Wings Over Waxhaw.

Descents and landings are done with the mixture at full rich. However, if the aircraft is landing at a high-altitude airport (above 5000ft MSL), set the mixture for best RPM.

### Servicing with Engine Oil

Ensure before each and every flight that the engine has at least 6 quarts of oil in it. A common mistake regarding engine oil is checking the oil level shortly after the engine has been shut down. Doing so will yield erroneously low readings because much of the engine oil remains suspended inside the engine assembly for the few minutes following shutdown. Wait at least 5-10 minutes before reading the oil level. This way, you can avoid servicing the engine with too much oil. Although the oil sump capacity is listed as 8 quarts, operational experience has shown that any amount above 7 quarts tends to blow out of the oil filler cap during flight.

### Garmin GTN650

The club aircraft is equipped with a Garmin GTN650 GPS/Nav/Comm. Unlike previous-generation avionics where the pilot controlled them with knobs and buttons, the GTN650 relies heavily on its touchscreen interface. Members are urged to familiarize themselves with the GTN650 by reading the GTN650 Pilot's Guide and/or using the GTN650 emulator, both of which are available on Garmin's website.

The GPS in the GTN650 is equipped with WAAS and can be used to navigate IFR, but only if its navigation database is current. The GTN650 checks its databases (navigation, obstacle, terrain, etc.) on each power-up cycle – ensure that the navigation database is current and in effect if flying IFR.

The GTN650 receives FIS-B weather data through the GDL88 datalink. The GTN650 is capable of displaying NEXRAD radar data on the moving map display. Note that FIS-B weather data is only advisory in nature and under no circumstances shall be used as a primary information source for weather avoidance.

## **4. Fire Precautions and Procedures**

Improper engine priming creates a fire hazard. Follow the checklists and procedures when starting an engine.

Should a fire start on the ground, continue to crank the engine with the fuel shut off. If this does not extinguish the fire, turn off the magnetos and master switch and evacuate the airplane. We urge you to memorize the engine fire checklist for the club airplane. At JAARS-Townsend, a fire extinguisher is available at the fuel station. If the fire is uncontainable, do not attempt to extinguish the fire and instead call 911.

If a fire starts in the air, use the appropriate emergency checklist procedures (conditions permitting) to deal with the situation.

## **5. Using Flight Circle**

Wings Over Waxhaw uses Flight Circle, an online web portal, to manage scheduling, report squawks, and keep track of maintenance intervals. For more information on how to use Flight Circle, refer to the Flight Circle user guide available [here](#)<sup>1</sup>.

Make every effort to return from your flight as indicated on your Flight Circle reservation. If you are unable to return on time and if another member has created a reservation that will be “stepped on”, contact him as soon as practicable to inform him of the situation.

Members should check in their reservation blocks on Flight Circle following their flights. Failing to check in within a reasonable time after a flight prevents pilots of subsequent flights from checking in as well, thus creating a ripple effect of delayed check-ins. The Hobbs and Tach numbers entered into Flight Circle shall match the numbers reported on the Hobbsmeter and tachometer (RPM gauge) and the numbers recorded in the aircraft flight logs.

If maintenance must be performed on the aircraft, the maintenance reservation takes precedence over any overlapping rental reservation. In such a case, the Maintenance Officer will contact the member behind the overlapping rental reservation to inform him of the situation.

---

<sup>1</sup> If viewing this manual on hardcopy, use the following URL:  
<https://www.flightcircle.com/blog/docs/users/getting-started/>

## **6. Inoperative Equipment**

### Airplane Discrepancies

When malfunction or damage is encountered on the ground, return the airplane to the ramp and notify the Maintenance Officer immediately. Land as soon as practical if encountered during flight. Should damage occur during landing, do not attempt another takeoff.

All discrepancies should be noted as squawks on Flight Circle. Before starting a flight, check Flight Circle, the Aircraft Information File, and other documents on the aircraft clipboard for items that would limit or prohibit your intended flight. All squawks on Flight Circle should be marked as verified or repaired.

Club members may not authorize any repairs to an airplane. The Maintenance Officer shall authorize all repairs.

### Return to Service

Only the Maintenance Officer or a maintenance facility authorized by the Maintenance Officer may return an airplane to service. The Maintenance Officer may authorize a pilot to defer a maintenance item if the airplane is not at JAARS-Townsend.

Any discrepancy must be fixed or marked for future repair before the airplane can be returned to service. If a discrepancy has not been fixed or marked for future repair on Flight Circle, the airplane is considered not airworthy. This is referred to as an “open squawk.” Bring the “open squawk” to the attention of the Maintenance Officer.

## **7. JAARS-Townsend Airport**

### Airport Overview

JAARS-Townsend is a privately-owned airport that is open to public use. It has one runway, Runway 4-22, which is 3309ft long and 40ft wide. Fueling is done at the fuel pump located on the paved ramp.

The club aircraft is normally parked in the leftmost (southernmost) grass tie-down or the next one over. The aircraft may occasionally be parked on the paved ramp in front of the hangar, but this is usually done following maintenance or for a quick turnaround between members.

The grass airstrips (one parallel to Runway 4-22 and the other running north-south to the north side of the runway) are for JAARS use only. Operating on these airstrips is strictly prohibited.

### Nighttime Operations

Due to the relatively tight runway, surrounding vegetation, and sparse ground lighting, JAARS-Townsend Airport can be a challenge to operate in and out of at nighttime. It is highly recommended that members do not operate at JAARS-Townsend during night unless they are familiar with the airport and surrounding areas.

If winds are calm, the preferred nighttime takeoff runway is Runway 22, and the preferred nighttime landing runway is Runway 4. This is because there are fewer trees at the southwestern side of the airport and less ground population that would be hear the aircraft's noise.

Note that all IFR approach procedures into JAARS-Townsend (N52 RNAV 4 and RNAV 22) are not available at night.

### Engine Runups (Temporary Revision)

Since the summer of 2017, JAARS has been trying to make grass grow on the patches of gravel adjacent to the threshold of Runway 22. If an engine runup is done in this area, ensure that the tail of the airplane is facing direction other than that towards the patches of gravel.



This page intentionally left blank

**Wings Over Waxhaw Flying Club**

P.O. Box 172  
Waxhaw, NC 28173

