

*Airglas, Inc.*  
3500 O'Malley Rd.  
Anchorage, AK 99507

**Airplane Flight Manual Supplement**  
Document Number: AI-12-2-170 FM  
Cessna 170A, 170B

FAA APPROVED  
AIRPLANE FLIGHT MANUAL SUPPLEMENT  
FOR CESSNA MODELS:  
170A, 170B  
Equipped with

**AIRGLAS GLH3000-SG HYDRAULIC WHEEL SKI**

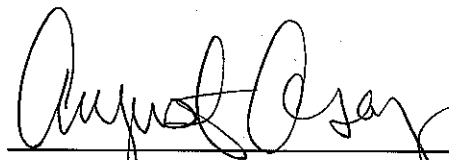
**When actuated by Wipaire, Inc. Hydraulic System.**

Registration Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

This supplement must be attached to the appropriate FAA Approved Airplane Flight Manual and must be carried in the airplane when the *Airglas, Inc.* **GLH3000** Hydraulic Wheel Ski is installed in accordance with STC SA02360AK. The information contained in this document supplements or supersedes the basic manual and applicable appendices only in those areas listed. For limitations, procedures, and performance information not contained in this supplement, consult the basic FAA Approved Airplane Flight Manual.

FAA Approved: \_\_\_\_\_



August A. Asay  
Manager, Anchorage Aircraft Certification Office  
Federal Aviation Administration  
Anchorage, Alaska

Date: APR 22 2015

LOG OF REVISIONS

Revision	Pages Affected	Description	FAA Approval Signature	Date
Original	All	Original Document	See Cover	APR 23 2015

Table No. 1

<b>To be eligible for installation using this manual the fuselage hydraulic system must have been installed in accordance with the installation drawings and revision level below or a prior revision level.</b>			
Aircraft Model	Amphibious Float STC Number	Wipaire Amphibious Float Hydraulic System Installation Drawing	Revision Level
Cessna 170A, 170B	SA00804CH	10D1-6391	Rev. Original

## **Introduction**

This airplane is equipped with *Airglas Inc.*, **GLH3000** Hydraulic Wheel Skis on 8.50 x 6 tires. These skis permit operations on snow as well as hard surface and gravel runways. The skis are operated from inside the cockpit by the pilot via a control switch that commands an electric/hydraulic pump to actuate from wheel position to skis and back to wheel position.

## **SECTION I. Limitations**

- A. Airspeeds:
  - 1. Vne: 138 MPH IAS
  - 2. Vno: 122 MPH IAS
- B. Airspeed Indicator Markings:
  - 1. Redline: 138 MPH
  - 2. Yellow arc: 122 to 138 MPH.
- C. Powerplant limits: NO CHANGE
- D. Flight Load Factors: NO CHANGE
- E. Usable Fuel: NO CHANGE
- F. Flight Limitations: NORMAL CATEGORY ONLY
- G. Usable Fuel: NO CHANGE
- H. Markings and Placards:

Adjacent to airspeed indicator and in full view of the pilot:

**DO NOT EXCEED 138 MPH IAS  
WITH AIRGLAS GLH3000 SKIS INSTALLED**

On instrument panel in full view of the pilot:

**ONLY NORMAL CATEGORY OPERATIONS APPROVED,  
SPINS ARE PROHIBITED.**

CAUTION- IT IS POSSIBLE TO EXCEED THE FORWARD CG  
LIMITAION WITH AIRGLAS SKIS INSTALLED AND MINIMUM FUEL.  
OPERATIONS OUTSIDE THE CG LIMITATIONS ARE PROHIBITED.

CAUTION- IT IS POSSIBLE TO EXCEED THE MAXIMUM WEIGHT LIMITAION WITH  
AIRGLAS SKIS INSTALLED AND ALL SEATS OCCUPIED. OPERATIONS OUTSIDE THE  
MAXIMUM WEIGHT LIMITATIONS ARE PROHIBITED.

APR 22 2015

## **SECTION I. Limitations-Continued**

On instrument panel in full view of the pilot:

EMERGENCY GEAR EXTENSION
<ol style="list-style-type: none"><li>1. Pull the landing gear pump circuit breaker.</li><li>2. Move landing gear position switch to desired position.</li><li>3. Select the desired position on the Emergency Gear Selector.</li><li>4. Manually pump until the desired tire position is obtained and there is significant force on the pump handle. (Approximately 80 strokes of the hand pump.)</li><li>5. Visually confirm the skis are in the desired configuration for the intended landing.</li></ol>

## **SECTION II. Normal Procedures**

- A. Pre-flight:
  1. CHECK – Bungees, cables, clevis pins, cotter pins, nuts, bolts and attach fittings for security.
  2. CHECK – Cylinders for leaks at the seals and fittings.
  3. CHECK – Hydraulic pump fluid level and inspect for leaks, and wiring connections.
  4. CHECK – Ski Kit for cracks, excessive wear, fractures, abrasions, and delamination.
  5. CHECK – Door Guides for wear and security. Lube with silicone spray or wax.
  6. CHECK – Tires for proper pressure- 20 psi minimum.
  7. CHECK – 25 hour servicing has been performed within last 25 hours of operation.
- B. Starting the engine: Hand propping of engine is not recommended.
- C. Before Takeoff: Ensure the skis are locked in the desired configuration. Prepare for longer takeoff distances.
- D. Before landing: Ensure the skis are locked in the desired configuration. Ensure planned landing area is free of logs, rocks, snowdrifts or other obstacles. Prepare for longer landing distances.

## **SECTION II. Normal Procedures-Continued**

**Control and Operation Information:** The door for the GLH3000 Ski Kit is actuated by the electric/hydraulic pump. The electric/hydraulic pump is controlled via a two-position toggle switch that is located on the instrument panel.

### PROCEDURES FOR RETRACTION AND EXTENSION OF MAIN WHEEL SKIS

1. GEAR SELECTOR – As required. Select desired position (wheels or skis) using selector on instrument panel. A red light marked "PUMP ON" should illuminate to advise the pilot that the electro-hydraulic power pack is energized and should remain illuminated while the ski plates are in transit. A pressure switch should shut off the pump automatically when a preset hydraulic pressure is obtained. The ski plates should be in the desired position at that time.
2. Gear position – Verify. Always visually verify the position of skis prior to take-off or landing.

## **SECTION III. Emergency Procedures**

- A. Ski plate(s) fail to move to the selected position:
  1. Pull the landing gear pump circuit breaker.
  2. Move landing gear position switch to desired position.
  3. Select the desired position on the Emergency Gear Selector.
  4. Manually pump until the desired tire position is obtained and there is significant force on the pump handle. (Approximately 80 strokes of the hand pump.)
  5. Visually confirm the skis are in the desired configuration for the intended landing.

If it is ascertained that a mechanical failure has occurred, the recommended procedure in this case is to retract the other tire(s), if extended, and land on snow. If either of the skis does not deploy to the full up or down configuration, avoid landing on non-frozen surfaces. High friction contact on the ski bottoms may cause high drag and reduced control.

### SECTION III. Emergency Procedures-Continued

#### B. "PUMP ON" Light remains illuminated:

If the pressure switch in the electro-hydraulic pump system should fail, the pump will continue to run after the skis are in the desired position (indicated by the red "Pump On" light remaining illuminated). The power can be manually turned off by pulling the pump circuit breaker. The skis can still be operated using the power pack by turning the power back on (pushing the circuit breaker in) and selecting the next desired position and again manually turning off the power if necessary. The faulty pressure switch should be repaired as soon as possible.

### SECTION IV. Performance Information

1. **TAKEOFF:** Under the most favorable conditions of smooth packed snow at temperatures approximating 32°F, the ski-plane takeoff distance is approximately 30 percent greater than that shown for the land plane.



Warning

In estimating distances for other conditions, caution should be exercised in making provision for other temperatures or other snow conditions that may **significantly** affect or increase these distances.

2. **CLIMB:** Rate of climb performance is decreased approximately 26% over climb performance with eight and one half inch (8.50") tires.
3. **CRUISE:** Cruise speed may be decreased as much as 3%. Maximum range will also be reduced.

## **SECTION IV. Performance Information-Continued**

4. **LANDING:** Under the most favorable conditions of smooth packed snow at temperatures approximating 32°F, the ski-plane landing distance is approximately 20% greater than that shown for the land plane on a hard surface.



Warning

In estimating distances for other conditions, caution should be exercised in making provision for other temperatures or other snow conditions that may **significantly** affect or increase these distances.

## **SECTION V. Loading Information**

The equipment added to this airplane by this modification consists of the GLH3000 Hydraulic Wheel ski kit. The weight of the wheel ski kit is 124 lbs. with a C.G. that is 7.25 inches forward of the wheel axle. The fuselage hydraulic system with oil is 18.8 lbs. and its location may vary. See the airplane's current weight and balance report for determining exact weight and balance calculations.

## **SECTION VI. Systems Descriptions**

This airplane is equipped with an *Airglas, Inc.*, **GLH3000** Hydraulic Wheel Ski, with associated attachment rigging. The fuselage hydraulic system is a Wipaire, Inc. system installed in accordance with the documents outlined in Table No. 1.

A two-position gear selector toggle switch labeled "WHEEL SELECTOR" provides for either extending or retracting the wheels. The wheel up position, labeled "UP SNOW", retracts the wheels for ski operation, and the wheels down position, labeled "DOWN LAND", extends the wheels for landplane operations.

Hydraulic pump operation is automatic when the gear selector switch is placed in a new position and pump operation is indicated by a red "PUMP ON" indicator light.

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## **SECTION VII. Servicing and Maintenance**

All servicing procedures for this installation are standard. The GLH3000 Hydraulic Wheel Ski may be maintained and inspected in accordance with Part 43 of the Federal Aviation Regulations (FAR 43). Servicing and maintenance in accordance with FAR 43 is adequate to insure the continued airworthiness of this modification. Preferred information on installing, removing, maintaining, and insuring continued airworthiness of the GLH3000 Hydraulic Wheel Ski is detailed in the Instructions for Continued Airworthiness Including Installation, Maintenance and Service Instructions Manual No. GLH3000-105-AHSA, Rev B dated March 3, 2015 or later FAA approved revision.

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