

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

**Flight Manual Supplement**  
PIPER PA-18(125), (135), (150)  
PIPER PA-18A (135), (150)  
PA-12 with PA-18 3" extended gear  
Cub Crafters CC-18 (180)  
Super 18 LLC. Super 18 S-18-180

DOCUMENT AI-09-12FM

FAA APPROVED  
AIRPLANE FLIGHT MANUAL SUPPLEMENT  
FOR PIPER MODELS:  
**PA-18 (125), PA-18 (135), PA-18 (150)**  
**PA-18A (135), PA-18A (150)**  
**PA-12 with PA-18 3" extended gear**  
**Super 18 L.L.C. Super 18 S-18-180**  
**Cub Crafters CC-18 (180)**  
**Cub Crafters CC-18 (180A)**

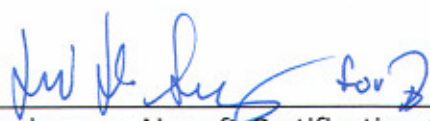
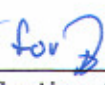
Equipped with

**AIRGLAS GLH3000 HYDRAULIC WHEEL SKI**

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

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

This supplement must be attached to the appropriate FAA, CAA or DMCR Approved Airplane Flight Manual listed on page 2 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 Airplane Flight Manual or Pilot's Operating Handbook.

FAA Approved By:  for   
Acting Manager, Anchorage Aircraft Certification Office  
Federal Aviation Administration  
Anchorage, Alaska

Date: 12/03/09

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PA-12 with PA-18 3" extended gear  
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Dakota Cub Super 18 S-18-180

Reg. # \_\_\_\_\_  
Ser. # \_\_\_\_\_

LOG OF REVISIONS

Revision	Pages Affected	Description	FAA Approval Signature	Date
Original	1 - 6	Original Document	David Swartz	3 DEC 2009

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## SECTION 1. General

This airplane is equipped with **Airglas Inc., GLH3000** Hydraulic Wheel Skis on 8.50 X 6 tires. This ski permits 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. Indicator lights on the control panel will confirm the deployment locked position of the skis.

## SECTION II. Limitations

- A.) *Airspeeds:*  $V_{ne}$  for all models is 138 MPH IAS.
- B.) *Powerplant limits:* NO CHANGE
- C.) *Markings and Placards:*

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

Place Airspeed Restriction Placard on instrument panel immediately adjacent to Airspeed Indicator and **in full view of pilot.**

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

Place Operations Placard on instrument panel **in full view of pilot.**

- D.) *Center of Gravity Limits:* NO CHANGE

## SECTION III. Emergency Procedures

If either of the skis does not deploy to the full up or full down configuration, avoid landing on non-frozen surfaces. High friction contact on the ski bottoms may cause high drag and reduced control.

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#### **SECTION IV. Normal Procedures**

- A.) *Pre-flight:* Inspect cables and bungees for fraying and wear, inspect for loose or missing hardware, bolts, nuts, shackles, cotter keys etc... Inspect skis for cracks or delaminations.
- 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.

**Control and Operation Information:** The door for the GLH3000 Ski Kit is actuated by the electric/hydraulic pump (preferred) or a previously installed FAA approved manually operated hand pump in the cockpit. The electric/hydraulic pump is controlled via a 3 position toggle switch and indicator lights that are located on the instrument panel.

1. When the switch is lifted up, the cylinder will extend and slide the door under the tire. While the switch is held up an operation indicator yellow light will illuminate showing the ski position has been selected and the pump is cycling. When the cycle is complete, a second (Skis Locked) yellow light will illuminate and stay on to confirm full deployment of the skis. As the switch is released the operation light will extinguish, but the position locked light will remain lit as long as the skis are extended.
2. When the switch is pressed down, the door will retract and expose the tire. While the switch is held down an operation indicator green light will illuminate showing the wheel position has been selected. When the cycle is complete, a second (Wheels Locked) green light will illuminate and stay on to confirm retraction of the skis. When the switch is released the selector light will extinguish, but the position locked light will remain lit as long as the skis are retracted.
3. Low speed taxiing and steering may be enhanced by applying one brake during the cycling of the door to the open position. Holding the brake will impede the actuation of the door and allow the opposite sliding door to cycle independently. By extending only one wheel at a time, the pilot will have increased maneuvering capability on certain snow conditions. This would be particularly advantageous during solo operations.

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**SECTION V. 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.
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.

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## **SECTION VI. Weight and Balance/Equipment List**

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 90 lbs. with a C.G. that is 8 inches forward of the wheel axle. The electric pump is 7 lbs. and may be located at installer's discretion. See the airplane's current weight and balance report for determining exact weight and balance calculations.

## **SECTION VII. Systems Descriptions**

This airplane is equipped with an **Airglas, Inc., GLH3000** Hydraulic Wheel Ski, with associated attachment rigging.

## **SECTION VIII. 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, Rev A dated 23 November 2009 or later FAA approved revision.

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