INSTRUCTIONS for CONTINUED AIRWORTHINESS

Including

INSTALLATION, MAINTENANCE & SERVICE INSTRUCTIONS

Airglas ®

Model LTB2600 Modular Terrain System

Document No: LTB2600-105
Date: April 5, 2016
Revision: B

RECORD OF REVISIONS

REVISION NUMBER	DATE	PAGE	BY	EXPLANATION OF REVISION
Original	**04/24/2013**			Original document
A	**09/10/2014**	**12**	**CDB**	Removed Drawings and Diagrams Section
B	**04/05/2016**	**4, 5, 12**	**CDB**	Revised weight and balance chart data and information. Added note to weigh components before installation.

Distribution of Changes

A current copy of this manual will be maintained on the **Airglas, Inc.** ® website available for download.

Airworthiness Limitations

"The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved."

Limitations:

- ***Currently there are no components of the LTB2600 modular terrain system that have a time limited mandatory service interval.***

Table of Contents

1.0 Introduction and & Description

Introduction:
Since 1966 ***Airglas, Inc.*** ® has designed and manufactured composite skis that dramatically increase the load distribution of the helicopter skids on snow or soft surfaces. Not only does it allow the aircraft to land on snow with full support of the aircraft; it also allows for "running" landings and takeoffs when both aft tundra pads and forward skid skis are installed.

With the introduction of the LTB2600 Modular Terrain System© ***Airglas, Inc.*** ® provides the operator with the light weight and versatility of a tundra pad for mixed terrain, and an optional skid ski that can be added to provide full support in deep soft snow.

Description:
The modular terrain system is comprised of a pair of two LTB2600-R44-TP aft tundra pads and if desired for additional floatation, two LTB2600-R44-SS forward skid skis that may installed. The system adds a minimum weight and has no adverse effect on the flight characteristics of the aircraft. The center of gravity changes are negligible.
Vibration analysis has shown the skis to work harmoniously with the skids.

The skis are attached to the skids using a simple strap system using a series of stainless steel straps that wrap around the skid tube secure the skis. Typical installation takes 1/2 hour and can be accomplished using the ground handling wheels to jack the helicopter. There are cutout areas that provide clearance for the ground handling wheels to be installed with no interference from the tundra pads or skis.

Since the system is very simple and has no moving parts; it is very easy to maintain and inspect. This manual will detail the installation, inspection procedures and intervals along with maintenance and repair instructions.

2.0 Installation- Tundra Pad and Skid Ski Attachment

2.1 Attaching tundra pads on the skid tubes:

Note: The LTB2600-R44-TP aft tundra pads may be used without the LTB2600-R44-SS forward skid skis installed. <u>Weigh the tundra pads before installation.</u>

a) Raise one side of the helicopter using the ground handling wheels, jacking points or an approved alternative jacking system.
b) Slide the LTB2600-R44-TP aft tundra pad from behind the skid past the ground handling wheel.
c) Position the aft tundra pad in place using the A667-8 shoes as guides, align shoes into cutouts on bottom of ski. Lift each ski into place on the skid tube, making sure to have adequate personnel to hold the tundra pad in place while other personnel place the straps across the skid tube.

2.0 Installation- Tundra Pad and Forward Skid Ski Attachment - Continued

d) Place straps in the appropriate locations across skid tube and on to the ski attach studs. (See Installation Drawing LTB2600-R44 sheet 1 of 2)
e) Attach and Hand Tighten the hardware on the studs until each stud just protrudes from the nut.
f) Rock the tundra pad on the skid tube to seat it while gently tightening each pair of nuts on each strap.
g) Torque nuts to 35 inch pounds (+/- 5). See notes on installation drawing.
h) Lower the helicopter.
i) Place the ***Airglas, Inc.*** ® RFMS in rotorcraft flight manual.
j) Revise rotorcraft weight and balance and equipment list. Calculate weight and balance with 150 lbs. pilot and full fuel. If calculation shows CG aft of limit, fixed ballast must be installed to comply with solo pilot weight limitation of Section 2 of Pilots Operating Handbook.
k) File form 337 and record installation in permanent aircraft records.

2.2 Attaching forward skid skis on the skid tubes:

Note: The LTB2600-R44-SS forward skid skis require the LTB2600-R44-TP aft tundra pads to be installed before flight. Weigh the skid skis before installation.

a) Raise one side of the helicopter using the ground handling wheels, jacking points or an approved alternative jacking system. Jack the nose of the helicopter using the approved jacking point.
b) Slide the LTB2600-R44-SS forward skid ski from the front along the skid until it makes contact with the front of the skid.
c) Position the skid ski in place using the A667-8 shoes as guides, align shoes into cutouts on the bottom of the ski. Lift each ski into place on the skid tube, making sure to have adequate personnel to hold the ski in place while other personnel place the straps across the skid tube.
d) Place straps in the appropriate locations across skid tube and on to the ski attach studs. (See Installation Drawing LTB2600-R44 sheet 2 of 2)
e) Attach and Hand-Tighten the hardware on the studs until each stud just protrudes from the nut.
f) Rock the skid ski on the skid tube to seat it while gently tightening each pair of nuts on each strap.
g) Torque nuts to 35 inch pounds (+/- 5). See notes on installation drawing.

2.0 Installation- Tundra Pad and Skid Ski Attachment -Continued

h) Lower the helicopter.
i) Revise rotorcraft weight and balance and equipment list.
j) Record installation in permanent aircraft records.

3.0 Removal and Re-installation

3.1 Removing LTB2600-R44-SS forward skid skis from the skid tubes:

a) Remove the nuts from each strap clamp. Remove the strap clamps from the ski.
b) Raise one side of the helicopter using the ground handling wheels, jacking points or an approved alternative jacking system. Jack the nose of the helicopter using the approved jacking point.
c) Slide the LTB2600-R44-SS forward skid ski toward the front along the skid until it clears the front of the skid.
d) Lower the helicopter.
e) Revise rotorcraft weight and balance and equipment list. Calculate weight and balance with 150 lbs. pilot and full fuel. If calculation shows CG aft of limit, fixed ballast must be installed to comply with solo pilot weight limitation of Section 2 of Pilots Operating Handbook.
f) Record removal in permanent aircraft records.

3.2 Removing tundra pads from the skid tubes:

Note: The LTB2600-R44-SS forward skid skis <u>may not</u> be used without the LTB2600-R44-TP aft tundra pads installed.

a) Remove the nuts from each strap clamp. Remove the strap clamps from the tundra pad.
b) Raise one side of the helicopter using the ground handling wheels, jacking points or an approved alternative jacking system.
c) Slide the LTB2600-R44-TP tundra pad aft and to the side of the skid until it clears the ground handling wheels and is clear of the skid.
d) Lower the helicopter.
e) Revise rotorcraft weight and balance and equipment list. Calculate weight and

3.0 Removal and Re-installation-Continued

balance with 150 lbs. pilot and full fuel. If calculation shows CG forward of limit, some fixed ballast may be removed to comply with solo pilot weight limitation of Section 2 of Pilots Operating Handbook.

f) Record removal in permanent aircraft records.

3.3 Re-Installation of tundra pads on the skid tubes:

Caution: Replace self-locking nuts when drag torque is less than 8 inch pounds of prevailing torque.

Note: The LTB2600-R44-TP aft tundra pads may be used without the LTB2600-R44-SS forward skid skis installed.

a) Raise one side of the helicopter using the ground handling wheels, jacking points or an approved alternative jacking system.
b) Slide the LTB2600-R44-TP aft tundra pad from behind the skid past the ground handling wheel.
c) Position the aft tundra pad in place using the A667-8 shoes as guides, align shoes into cutouts on the bottom of the ski. Lift each ski into place on the skid tube, making sure to have adequate personnel to hold the tundra pad in place while other personnel place the straps across the skid tube.
d) Place straps in the appropriate locations across skid tube and on to the ski attach studs. (See Installation Drawing LTB2600-R44 sheet 1 of 2)
e) Attach and Hand Tighten the hardware on the studs until each stud just protrudes from the nut.
f) Rock the tundra pad on the skid tube to seat it while gently tightening each pair of nuts on each strap.
g) Torque nuts to 35 inch pounds (+/- 5). See notes on installation drawing.
h) Lower the helicopter.
i) Confirm that the ***Airglas, Inc.*** ® RFMS is in rotorcraft flight manual.
j) Confirm the rotorcraft weight and balance and equipment list reflect the LTB2600-R44-TP installation. Calculate weight and balance with 150 lbs. pilot and full fuel. If calculation shows CG aft of limit, fixed ballast must be installed to comply with solo pilot weight limitation of Section 2 of Pilots Operating Handbook.
k) Record installation in permanent aircraft records.

3.0 Removal and Re-installation-Continued

3.4 Re-installation of LTB2600-R44-SS forward skid skis on the skid tubes:

Note: The LTB2600-R44-SS skid skis require the LTB2600-R44-TP aft tundra pads to be installed before flight.

Caution: Replace self-locking nuts when drag torque is less than 8 inch pounds of prevailing torque.

a) Raise one side of the helicopter using the ground handling wheels, jacking points or an approved alternative jacking system. Jack the nose of the helicopter using the approved jacking point.
b) Slide the LTB2600-R44-SS forward skid ski from the front along the skid until it makes contact with the front of the skid.
c) Position the skid ski in place using the A667-8 shoes as guides align shoes into cutouts on the bottom of the ski. Lift each ski into place on the skid tube, making sure to have adequate personnel to hold the ski in place while other personnel place the straps across the skid tube.
d) Place straps in the appropriate locations across skid tube and on to the ski attach studs. (See Installation Drawing LTB2600-R44 sheet 2 of 2)
e) Attach and Hand-Tighten the hardware on the studs until each stud just protrudes from the nut.
f) Rock the skid ski on the skid tube to seat it while gently tightening each pair of nuts on each strap.
g) Torque nuts to 35 inch pounds (+/- 5). See notes on installation drawing.
h) Lower the helicopter.
i) Confirm the rotorcraft weight and balance and equipment list reflect the LTB2600-R44-SS installation.
j) Record installation in permanent aircraft records.

4.0 Servicing Information:

The skis and tundra boards are virtually maintenance free with the ski constructed of fiber glass. Runners are made out of 1/8” steel sections. The runners are designed to give tracking stability to the ski and protect the bottom of the ski. When the runners have worn down to less than .06” they will need to be replaced. Drag bolts are provided at two locations to prevent the helicopter from sliding sideways or rotating during starting and shut-down when on ice. Replace the drag bolt when the head is worn down to less than .125”. Waxing the ski bottoms for decreased friction and improved glide is recommended, especially in wet snow.

5.0 Instructions for Continued Airworthiness

5.1 Maintenance and Ground Handling Restrictions:

a. DO NOT – Push or Pull on skis to move aircraft.
b. DO NOT – Subject to flame or high heat.
c. DO NOT – Attempt to jack aircraft using the skis for a Jack Point.
d. DO NOT – Subject to harsh solvents or caustic chemicals.
e. DO NOT – Use skis as a tie down for the aircraft.

5.2 Maintenance and Operational Checks

Damage Classification

Negligible Damage (repair as soon as practical)

a. Small and shallow nicks, scratches and abraded areas on the top or bottom.
b. Stress Cracks in the gel coat.

Field Repairable Damage

a. Replacement of studs i.e. strap mounting screws.
b. Cracks or fractures less than 3"; more than 3" require consultation with Airglas.
c. Delamination of 0.5" horizontal penetration from edge and 3-5" in length.
d. Small holes that are no more than 1-2 inches in diameter.
e. Abrasions to the ski from terrain contact.
f. Replacement of worn runners.
g. Replacement of loose or missing rivets.
h. Replacement of worn drag bolts.

NOTE: Stress Cracking in the gel coat from flexing are cosmetic and ARE NOT an airworthiness issue.

Non-Field Repairable Damage (Factory Repair Only)

a. Strap mounting screws pulled through the ski.
b. Delamination within 1" of a mounting screw.
c. Cracks and delamination longer than 3"

Daily Preflight Check (May be performed by appropriately rated pilot)

A visual inspection is required prior to each flight for overall condition of ski, skid attachment straps, and all associated hardware condition. **Replace or repair any damaged parts before next flight.**

a. Inspect for loose or stripped strap attach screws or damage to attaching clamps.
b. Inspect for cracks, holes, or abraded areas in the fiberglass.
c. Inspect for loose, cracked, or working rivets.
d. Inspect for worn, loose or damaged runners.

5.0 Instructions for Continued Airworthiness-Continued

e. Inspect for worn, loose, or missing drag bolts.

Inspection Criteria-100 Hour/Annual Inspection Interval

Replace or repair any damaged parts before next flight.

a. **INSPECT –** The Ski for:
   Cracks, wear, fractures and abrasions. Inspect the bottom for cracks, scratches, delamination, and excess wear. If fibers are exposed or damaged, consult Airglas. If ski shows signs of delamination, contact Airglas.
b. **INSPECT-** The ski for:
   Loose or stripped strap mounting screws and nuts.
c. **INSPECT-** The ski for:
   Loose, cracked or working rivets.
d. **INSPECT-** The ski for:
   Loose, worn, missing or cracked runners.
e. **INSPECT-** The ski for:
   Loose, worn, or missing drag bolts.
f. **INSPECT-** The ski for:
   Cracked attach straps.

Special Inspections

Hard Landing
Replace or repair any damaged parts before next flight.

a. **INSPECT –** The Ski for:
   Cracks, wear, fractures and abrasions. Inspect the bottom for cracks, scratches, delamination, and excess wear. If fibers are exposed or damaged, consult Airglas. If ski shows signs of delamination, contact Airglas.
b. **INSPECT-** The ski for:
   Loose or stripped strap mounting screws and nuts.
c. **INSPECT-** The ski for:
   Loose, cracked or working rivets.
d. **INSPECT-** The ski for:
   Loose, worn, missing or cracked runners.
e. **INSPECT-** The ski for:
   Loose, worn, or missing drag bolts.
f. **INSPECT-** The ski for:
   Cracked attach straps.

5.0 Instructions for Continued Airworthiness-Continued

5.3 Maintenance and Repairs

Replacement of Straps and Strap Mounting Screws

a. Remove Nut (AN365-524 or MS21044N5) and washer from screw.
b. Remove attaching strap assembly.
c. Remove Nut (AN316-5R) and washer from screw.
d. Remove old screw (NAS514P524-24P) from ski.
    i) This may require chipping or grinding the coating material from around the screw head on the ski bottom.
    ii) Lightly tap the damaged screw through the ski with an appropriate hammer.
e. Replace the screw and nut. (See installation drawing and section 3.0)

Rivet / Runner Replacement

a. Place the ski on a solid surface; drill the heads only off of the rivets with #9 drill bit.
b. Drive the rivet shanks through the ski with a 3/16 straight punch.
c. Remove the damaged runner from the ski.
d. Inspect ski for damage around runner. Make repairs to the ski as necessary.
e. Position the new runner in the same location of old runner.
f. Align the runner holes with an awl, drift punch or #9 drill bit.
g. Clamp the runner to the ski with enough clamps to maintain correct positioning.
h. Install SSB6-8 stainless rivets (Available from Airglas, Inc.) using an appropriate rivet puller.
i. Grind rivet stems flush with the surface of the runner.
j. Touch up with flat black paint as necessary.
k. Heat ski base & runners to 200°F with a heat gun and apply a coating of paraffin wax.
l. Inspect replacement runner installation and return ski to service.

Drag Bolt Replacement

a. Place the ski on a solid surface; remove worn drag bolt.
b. Install new drag bolt (AN4-3A) and two washers (NAS1149F0463P) with Loctite 242.
c. Turn ski over and grind any protruding bolt threads flush with fiberglass surface.

Base Surface Maintenance

If the bottom surface sustains excessive wear; it may be sanded down with a 36 grit belt or disc sander and then recoated with epoxy or abrasion resistant gel coat. Once the epoxy or abrasion resistant gel coat is cured, the surface should be re-sanded with 80 grit paper using an orbiting sander. When more advanced and complicated repairs are necessary; ***Airglas, Inc.*** should be consulted.

Base Surface Maintenance-Continued

Note 1: Excessive Wear is defined as when the ski base coating is scraped or worn off to the point that the underlying fiberglass composite fibers are exposed.

Note 2: Epoxy and abrasion resistant gel coat formulas change over time.
Contact: ***Airglas, Inc.*** for current information.

6.0 Weight and Balance

Revise rotorcraft weight and balance and equipment list. Calculate weight and balance with 150 lbs. pilot and full fuel. If calculation shows CG aft of limit, fixed ballast must be installed to comply with solo pilot weight limitation of Section 2 of Pilots Operating Handbook. Sample weights are below, use actual weight of aft tundra pad and forward skid ski when making calculations.

ITEM (installed pair)	WEIGHT	LONGITUDINAL CG	LATERAL CG
LTB2600-R44-TP	14.5 lbs.	123.4	0.0
LTB2600-R44-SS	15.0 lbs.	66.28	0.0

-END-