



**Instructions for Continued
Airworthiness for the Installation of the
ALASKAN BUSHWHEEL® TUNDRA TIRES**

Part Numbers:

26126.I
26126.II
26126.R

29136.I
29136.II
29136.R

31136.I
31136.II
31136.R

351510.R
351510.R1

ALASKAN BUSHWHEEL® AIRSTREAKS™

26126.R1
29136.R1

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Record of Revisions

This Record of Revisions identifies all revisions to this manual. When changes to this manual are needed, revisions will be issued by ABI.

This Record of Revisions shall remain in this manual at all times. Upon the receipt of revisions, insert the revised page(s) into this manual and enter the revision number, revision date, insertion date and signature of person incorporating the revision into the manual in the appropriate spaces below.

Revision Number	Pages Affected	Revision Date	Inserted By

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1	Title Page	September 18, 2012
2	Record of Revisions	September 18, 2012
2	Table of Contents	September 18, 2012
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Introduction:

The instructions for Continued Airworthiness document has been developed using the guidelines in Appendix "G" of FAR part 23 as required by FAR 23.

This document is designed to provide aircraft technicians with the sufficient information to inspect, troubleshoot, adjust, repair, test, remove and install the either Alaskan Bushwheel or Airstreak tundra tires.

Information provided here is designed to help purchasers and maintenance personnel obtain maximum service life from their Alaskan Bushwheel™ Tundra Tires.

(NOTE: The procedures included here are intended to supplement the specific instructions issued by aircraft and wheel/rim/brake manufacturers.)

Alaskan Bushwheel™ Inc. (ABI) has obtained FAA TSO-C62d authorization for all tire models it manufacturers. Supplemental Type Certificates (STC) are available and will be provided to purchaser for all aircraft with STC approval. ABI makes no representations, express or implied, that FAA approval for use of ABI tires is or will be available.

Use of ABI's Tundra Tires for any purpose whatsoever is entirely at the purchasers' risk. ABI shall not be liable for personal injury, property damage or consequential damages that might occur during the use of Tundra Tires.

ALL TIRES SHOULD BE INSPECTED IMMEDIATELY UPON RECEIPT FOR SHIPPING AND HANDLING DAMAGE.

DO NOT PUT MORE THAN 1 PSIG. OF AIR PRESSURE IN AN UNMOUNTED TIRE. This can cause irreparable damage to the tire and/or split the core.

Alaskan Bushwheels and Airstreak tires are eligible for installation on many General Aviation Make and Model aircraft in the conventional type configuration. For a list of currently approved, STC'd Makes & Models, please see our Approved Model List (AML) available ABI, LLC, P.O. Box 670989, Chugiak, AK 99567, 907-331-4480, or on our website (www.airframesalaska.com).

The information in this document supplements or supersedes the original manufacturer's maintenance manual only in those areas listed. For limitations, procedures and other information not contained in this document, refer to the aircraft manufacturer's maintenance manuals, illustrated parts manuals and/or vendor manuals as listed in the LOAP.

Revisions:

For continuous use of this document, this document must be maintained in current revision status. The List of Effective Pages found on page 3 of this document specifies the current effective date for each page of the document. Each time the approval holder finds it necessary to revise this document, a revision will be distributed with all new product shipments and be available on our website (www.airframesalaska.com). Upon receipt of the revision, the revised pages should be inserted into this document, the old pages should be discarded and the Record of Revisions page should be completed by the person inserting the revision.

It is the responsibility of the person performing maintenance on the installed system to ensure that this document is current prior to performing this maintenance. The current revision number may be verified by contacting ABI, LLC, P.O. Box 670989, Chugiak, AK 99567, phone 907-331-4480.

Description and Operation:

Description: ***Manufacturing & Testing***

ABI aircraft tundra tire technology includes Computer Aided Design as well as the science of compounds and material applications. Materials and completed products are subjected to a variety of field and dynamometer evaluations to confirm performance and obtain certification.

The manufacturing process requires the precise hand lay-up assembly of components and monitoring the curing process under carefully controlled time, temperature and pressure conditions. Stringent Quality Control procedures ensure that all individual components and finished products meet specifications.

TIRE TERMINOLOGY

All ABI tires are clearly marked with the following information: Alaskan Bushwheel™ Inc., size, load rating, speed rating, Part number, serial number, plant code, ply rating, and TSO marking.

Ply Rating: The term “ply rating” is used to indicate an index to the load rating of the tire.

Tires used to be made with cotton cording and the ply rating referred to the actual number of plies in the carcass. But with the development of higher strength fibers such as nylon and Kevlar®, fewer plies are needed to achieve the equivalent strength. Therefore, ‘ply rating’ has been replaced to mean an index of carcass strength or a load carrying capacity.

Load Rating: This is the MAXIMUM allowable load that the tire can carry at a specific inflation pressure.

Rated Pressure: Rated pressure is the MAXIMUM inflation pressure to match the load rating.

Aircraft tire pressures are given for an unloaded tire. When the rated load is applied to the tire, the pressure increases by 4% as a result of a reduction in air volume.

Serial Number Codes: All serials consist of alpha-numeric characters.

Example: ATR0403123

ATR – refers to manufacturer

04 – Refers to the year of production

03 – Refers to the month of production

123 – Refers to the tire ID

Bias Ply Tire

The main plies or cords run across the tread at a 45* angle.

Radial Tire

The plies or cords run from one bead to the other at right angles to both beads.

Bias and Radial Aircraft Tire Guidelines

Radial aircraft tires may exhibit different characteristics than bias aircraft tires when operated under similar conditions.

Airworthiness Limitations:

The Airworthiness Limitations Section is FAA approved and specifies maintenance required under 14 CFR §§ 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

There are none.

Maintenance Practices:

Access Panels:

There are no access panels involved in the installation or maintenance of these tires.

PREVENTATIVE MAINTENANCE

Tires of any kind should not be taken for granted on any aircraft. Tire maintenance costs are at their lowest if proper maintenance practices are in place.

Keeping aircraft tires at their correct inflation pressure is the most important factor in any tire preventive maintenance program. Air pressure enables a tire to properly support the load, which is why it is so critical.

Under-inflation can be particularly severe, producing uneven tread wear and shortening tire life because of excessive flex heating. Over-inflation can cause uneven tread wear, reduce traction, make the tread more susceptible to cutting and increase stress on aircraft wheels.

An important fact to remember is that for every 5°F change (increase) in temperature will result in a corresponding 1% change (increase) in tire pressure.

It is common for Mounted Tubeless Tires to have a slight amount of gas diffusion through the liner material and casing. A tire/wheel assembly can lose as much as 5% of the inflation pressure in a 24hr period and still be considered normal. The initial stretch or growth of a tire results in a pressure drop after mounting. Consequently, tires should not be placed in service until they have been inflated a minimum of 12 hours, pressures rechecked, and tires re-inflated if necessary.

Bias tires, left stationary for any length of time can develop temporary flat spots. The degree of this flat spotting depends upon the load, tire deflection, and temperature. Flat spotting is most severe and more difficult to work out during cold weather. Under normal conditions, a flat spot will disappear by the end of the taxi run.

Rotation

ABI recommends rotation of the tires not only from one side of the plane to the other, but also rotation of the tire on the wheel. This is especially important when the tires are exposed to frequent, long taxiing. Rotating should be done as frequently as determined by use and/or visible wear. (EX: every 100 long taxi's, 100 hours or annually)

Protecting Tires from Chemicals and Exposure

Tires should be kept clean and free of contaminants such as oil, hydraulic fluids, grease, tar and degreasing agents which have a deteriorating effect on rubber. Contaminants should be wiped off with denatured alcohol, and then the tire should be washed immediately with soap and water.

Aircraft tires, like other rubber products, are affected to some degree by sunlight and extremes of weather. Weather checking does not impair performance; it can be reduced by protective covers. Covers, ideally with a reflective outside surface, should be placed over tires when an aircraft is tied down outside. It is also recommended to store tires away from fluorescent lights, electric motors, battery chargers, electric welding equipment & electric generators, since they create ozone which has a deteriorating effect on rubber.

Inspection:

Systematic inspection of mounted tires is strongly recommended for safety and tire economy. The frequency of the inspection should be determined by the use and normal tire wear of the particular aircraft involved.

If there is any doubt that a tire is un-airworthy or is classified as unserviceable, it must not be used until it is properly repaired or otherwise inspected by qualified/authorized individuals. Call the factory for assistance in an airworthiness determination in accordance with ABI's Special Non-Destructive Inspection Techniques and Inspection Criteria to Continue the Tires in Service. ABI recommends that all repairs be done at the factory by the people best trained and equipped for this work.

Tread Wear

Inspect tread wear visually. Tires should be removed when any cording is showing regardless of the amount of tread remaining elsewhere. If tread wear is excessive on one side, the tire can be demounted and turned around, providing there is no exposed fabric. Gear misalignment causing this condition should be corrected.

Sidewall Damage

Remove tire from service if weather-checking, cracking, cuts and snags extend down to the casing ply in the sidewall bead areas or if fabric is exposed. Cuts and Cracks deeper than one ply require factory inspection.

Bulges

Bulges in any part of the tire tread, sidewall or bead area indicate a separation or damaged tire. Please contact factory.

Checking

Random patterns of shallow sidewall cracks...usually caused by age deterioration, prolonged exposure to weather, or improper storage. Remove if fabric is exposed. Contact the factory.

Tire Storage

Ideally, new tires should be stored in a cool, dry place out of direct sunlight. Particular care should be taken to store tires away from fluorescent lights, electric motors, battery chargers, electric welding equipment, electric generators and similar equipment. These items create ozone, which has a deteriorating effect on rubber.

WARNING: INSURE AIRCRAFT IS SECURE AND PROPERLY SUPPORTED BEFORE BEGINNING ANY WORK. WORKING UNDER AN IMPROPERLY STABILIZED AIRCRAFT COULD CAUSE INJURY OR DEATH.

Properly stabilize the aircraft following the airframe manufacturer's instructions.

REMOVAL OF MAIN LANDING TIRES.

Correct mounting and demounting of aircraft tires and tubes are essential for maximum safety and economy. It should be done with the proper tools and careful attention to specific instructions and established procedures.

Manufacturer's Instructions

Aircraft wheels made today, for tube –type and tubeless tires, are the split wheel or demountable flange variety. Specific instructions on modern wheels are contained in maintenance manuals available from the aircraft manufacturer or directly from the wheel manufacturer. It is advisable to mount or dismount tires with the specific information contained in these manuals. Also refer to airframe manufacturer's manual on use of incline ramps and/or jacks for maintenance purposes.

Safety Precautions with Wheels

An inflated tire/wheel assembly is a potentially explosive device. Mounting and demounting of aircraft tires is a specialized job that is best done with the correct equipment.

Demounting

Prior to demounting the wheel, completely deflate the tire. When all pressure has been relieved, remove the valve core. (Valve cores under pressure can be ejected like a bullet.) Using a combination of pressure against the tire sidewalls and controlled lateral movement against the beads, remove the tire from the wheel.

Installation of Main Landing Tires.

Balancing

Alaskan Bushwheels(R) must meet maximum unbalance specifications during manufacturing. The red dot on the tire marks the light side of the tire. These production limits are satisfactory for most operators and generally are not noticed unless the tires are run at high speed on smooth pavement.

Mounting

Refer to airframe manufacturer's manual on use of incline ramps and/or jacks for maintenance purposes.

ABI STC's require that Heavy Duty brakes be installed under separate approval.

- Use the right size and load rated wheels applicable to your aircraft. Cleveland Wheel 6.00 x 6 or approved equivalent for installation of 26"x12"x6", 29"x13"x6", or 31"x13"x6" Alaskan Bushwheels(R) or Airstreaks(TM).
- Cleveland Wheel 7.50 x10 (PN 40-134) or an approved equivalent for installation of 35"x15"x10" Alaskan Bushwheels(R) Beaver Tires.
- Alaskan Bushwheel ABI-10650 for installation of 35"x15"x10" Lightweight Alaskan Bushwheels(R).
- Use a Direct reading or dial type low-pressure air-gauge.
- Tape or fill with silicone the tube valve stem holes in the wheels. This keeps dirt/grit off the tire core.
(This step is unnecessary with the tubeless PN40-134 Cleveland Wheel for 35"x15"x10" tire installation)
- Lubricate the Bead/Core area of the tire with a light coat of talc or soapy water.
- Remove the wheel bearings and visually assure that the wheel halves are drawn together evenly and aligned/mated and that none of the rubber on the tire core between the tire beads gets pinched between the wheel halves.
- Insert disc brake rotor
- Insert, evenly tighten, and correctly torque the wheel bolts/nuts/washers.

- Be sure that wheel bolts are properly torqued per the wheel manufacturer's instructions.
- Install the short, internal spring valve core provided or its equivalent.
- Use a plastic valve stem extension to inflate your tires if necessary with your particular air pump. **DO NOT LEAVE THE EXTENSION ATTACHED TO THE TIRE.**
- When inflating a tire/wheel assembly, regulate the supply line to a pressure no more than 50 percent higher than the tire service pressure.
- Do not inflate a tire above rated pressure to seat beads.
- Inflate tire to the preferred working pressure (see chart below). It is recommended that dry nitrogen be used. Nitrogen will not sustain combustion and will reduce degradation of the liner material and casing plies due to oxidation, reducing possible leakage problems.

Remember that tire pressure in a warm shop area will change when the tire goes into the cold outside.

- Install an airtight cap.

Follow aircraft manufacturer's installation instructions for tire/wheel installation onto the aircraft.

APPROXIMATE TIRE WEIGHTS

Tire Part Number	Approximate Finished Weight/tire
26126.I, 26126.II	28lbs
26126.R	28lbs
26126.R1	19lbs
29136.I, 29136.II	34lbs
29136.R	30lbs
29136.R1	27lbs
31136.I	38lbs
31136.R	31lbs
351510.R	60lbs
351510.R1	48lbs

RECOMMENDED AIR PRESSURE

26126.I, 29136.I, 31136.I	Minimum of 8psi Maximum 12psi
26126.II, 26126.R	Minimum of 8psi Maximum of 20psi
29136.II, 29136.R	Minimum of 8psi Maximum of 20psi
31136.I, 31136.R	Minimum of 8psi Maximum of 20psi
351510.R	Minimum of 10psi Maximum of 30psi

TEST SYSTEM

Always stay within the aircraft manufacturer's limits. When your tundra tire installation is complete and inspected, and the brakes are safe, verify the function ability and adequacy of the whole system by conducting ground and air practice/comparison test runs at safe area/altitude at your gross weight. Make note of any operational differences and include these in your flight planning, decision making, and operating techniques.

Cleaning, Inspection and Repair:

Systematic inspection of mounted tires is strongly recommended for safety and tire economy. The frequency of the inspection should be determined by the use and normal tire wear of the particular aircraft involved.

ABI recommends that tires should be inspected for tread wear, sidewall damage, bulges, and/or checking.

If there is any doubt that a tire is un-airworthy or is classified as unserviceable, it must not be used until it is properly repaired or otherwise inspected by qualified/authorized individuals. Call the factory for assistance in an airworthiness determination in accordance with ABI's Special Non-Destructive Inspection Techniques and Inspection Criteria to Continue the Tires in Service. ABI recommends that all repairs be done at the factory by the people best trained and equipped for this work.

Emergency/Temporary Repair

If at your own risk, you elect to perform an emergency, temporary, or field expedient repair, you may try the following fixes for air seepage or pin holes.

- Commercial tubeless tire repair sealants may be used following the manufacturer's instructions. The key to the effectiveness of these substances is getting a sufficient amount of the sealant to pass through the hole(s) in the airbag. This may require spinning the tire or taxiing for several miles. This is not a permanent fix if there is any nylon cord damage to the tire or if the leakage persists.

- Tubeless tire plug insert repair kits, used only when there is no cord damage. Follow the manufacturer's instructions and at the first opportunity, consult the factory to permanently finish this repair.

Do not try to get home on an unsafe tire. Get the tire repaired first or use a spare. We have loaner tires available in many areas. ABI is the ONLY approved repair facility.

Wear Limits.

Tires should be removed when any cording is showing regardless of the amount of tread remaining elsewhere.

Inspection Requirements:

Scheduled Inspections and Maintenance Checks:

This section of the document contains information regarding Time Limits- Inspection and Maintenance Checks, Overhaul and Replacement Items and Inspection Requirements.

Time Limits – Inspection and Maintenance Checks:

Note: Recommended inspection/maintenance intervals do not guarantee that the item will function properly between inspection/maintenance checks.

The inspection intervals are based on average usage and environmental conditions.

Aircraft operated under extreme conditions may require more frequent maintenance than the intervals specified in this document. The aircraft operator may perform more frequent inspection/maintenance checks based on his own usage.

The operator should perform the first inspection interval of the Alaskan Bushwheels or Airstreak installation during pre-flight.

Overhaul and Replacement Items:

There are no scheduled overhauls of replacement item requirements. Maintenance of Alaskan Bushwheels or Airstreaks are “on Condition”.