INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Aero Twin, Inc. Nose Gear Tire Scraper No. TSQ-100
for
Quest Model 100 Aircraft

Document No. TSQ-100-ICA

Maintenance Manual
Airworthiness Limitations
Illustrated Parts List

LOG OF REVISIONS

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N/C	3/17/09	Original Issue	David Swartz
A	11/12/12	Revised pages 2 and 8 per ECO AT-150	Jason Kepler
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1.0 Maintenance Manual

Aero Twin, Inc. Nose Gear Tire Scraper, Kit No. TSQ-100

1.1 Description

The Aero Twin nose gear tire scraper for the Quest Kodiak aircraft consists of a steel frame that is bolted to the nose gear by using existing bolts. The steel frame extends aft and down to attach to the rubber plate. The tire scraper provides protection from rock damage to the aircraft.

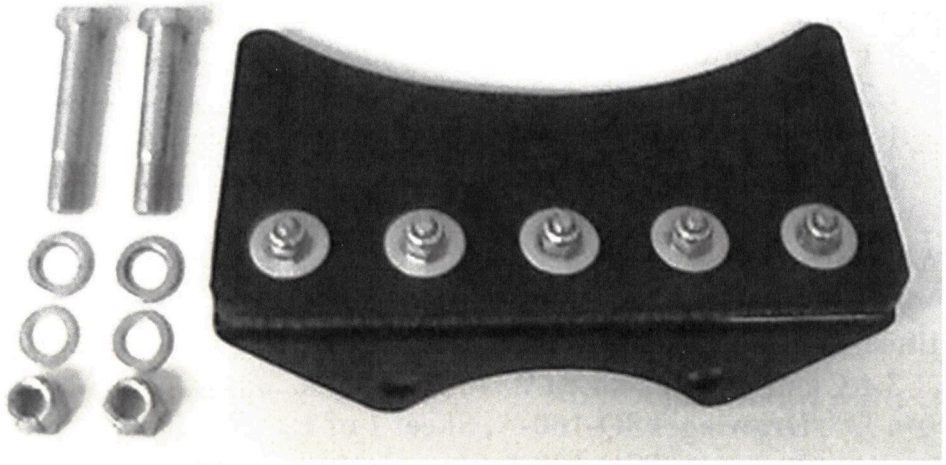


Figure 1.1.1 Nose Gear Tire Scraper Kit

1.2 Installation / Removal

(Refer to drawing TSQ-I, 1 sheet)

1.2.1 Installation:

1. Remove the nose wheel in accordance with the Quest 100 maintenance manual.
2. Remove the aft existing bolts (NAS6606-20) attaching the nose gear fork. Also remove the associated washers and nuts.
3. Replace aft bolts, washers, and nuts with new hardware (NAS6606-22, bolts, MS20002C6, countersunk washers, NAS1149F0663P, washers, and MS21045-6, nuts) attaching P/N TSQ-100 to the nose gear.
4. Reinstall nose wheel in accordance with the Quest 100 maintenance manual.
5. Update weight and balance by adding 0.8 pounds at FS -30.9. Complete Form 337 indicating installation of STC.

1.2.2 Removal:

1. Remove the nose wheel in accordance with Quest 100 maintenance manual.
2. Remove hardware attaching P/N TSQ-100 to the nose gear.
3. Replace aft bolts, washers, and nuts with NAS6606-20 bolts, new NAS1149F0663P washers, new MS20002C6 countersunk washers, and new MS21045-6 nuts.
4. Reinstall nose wheel in accordance with Quest 100 maintenance manual.

1.3 Weight and Balance

When the tire scraper is installed or removed, the aircraft empty weight and balance must be updated to reflect the configuration change. This section includes information required for weight and balance calculations pertaining to the installation of the nose gear tire scraper.

The total weight of the tire scraper is 0.8 pounds and its center of gravity is located at fuselage station -30.9, giving a total moment of -24.7 in-lbs. When the tire scraper is installed on the aircraft, the weight of the scraper must be added to the empty aircraft weight. The moment contribution from the tire scraper must be added to the previous empty aircraft moment. The new empty aircraft center of gravity is then calculated by dividing the new moment by the new empty weight. If the tire scraper is removed from the aircraft, the weight and balance of the aircraft must be updated by subtracting the weight and moment contribution of the tire scraper from the empty weight and moment and dividing the new moment by the new weight to achieve the new aircraft center of gravity.

1.4 Maintenance Instructions

1.4.1 General:

The Aero Twin Nose Gear Tire Scraper installation is designed to be highly durable and fairly maintenance free. However, a maintenance program has been established, in accordance with Appendix G of 14 CFR Part 23, to assure the continued airworthiness of the tire scraper and its installation. Adherence to the established plan is mandatory and records of performance of required inspections and maintenance must be maintained. See Section 2.0, Airworthiness Limitations, for required maintenance items and intervals.

1.4.2 Corrosion Prevention:

The steel frame of the tire scraper is powder coated to protect the structure from the elements. The finish on the tire scraper parts must be inspected to ensure adequate corrosion prevention. If the powder coated surface of the steel plate structure is marred in service or during handling, the affected area should be stripped and repainted to prevent corrosion, see paragraph 1.4.4.3. Corrosion prevention is also enhanced by keeping the structure clean. The steel and rubber parts of the tire scraper should be kept free of dirt and may be cleaned using water and a mild detergent.

1.4.3 Disassembly / Assembly: (Refer to drawings TSQ-A, 1 sheet)

1.4.3.1 Disassembly:

- The rubber flap that acts as the tire scraper should be inspected for wear and may need to be replaced periodically when it is ineffective in protecting the aircraft from rock damage. To remove the rubber flap (P/N TSQ-100-3), first remove P/N TSQ-100 from the nose gear (see section 1.2.2 Removal). Next remove the five MS24694S54 screws from the forward side of TSQ-100 with the MS21044N3 nuts, and A3235-028-24A countersunk washers.

1.4.3.2 Assembly:

- Install the rubber flap using the following hardware as shown in Figured 1.4.3.2:
  - 5 MS24694S54 screws
  - 5 A3235-028-24A countersunk washers
  - 5 MS21044N3 nuts
- Use standard torques specified in the FAA approved Quest Maintenance Manual.
- Reinstall P/N TSQ-100 in accordance with section 1.2.1

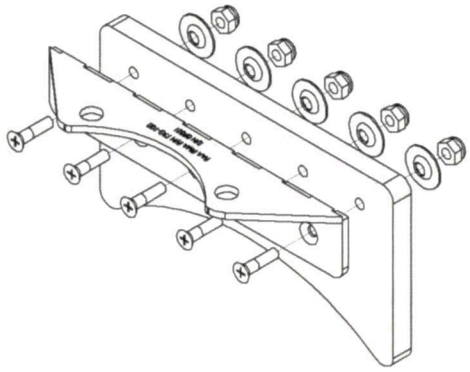


Figure 1.4.3.2 – Tire Scraper Assembly

1.4.4 Tire Scraper Repair:

1.4.4.1 Hardware Replacement:

Hardware and fittings used throughout the tire scraper are aircraft standard. Hardware should be replaced if corroded, damaged, or excessively worn. Replace self-locking type nuts with new hardware when reassembling or reinstalling the tire scraper. Do not substitute hardware - refer to the Illustrated Parts List for correct part numbers. If you encounter difficulty procuring replacement hardware or fittings, contact Aero Twin, Inc. at (907) 274-6166. Refer to previous section for assembly information.

1.4.4.2 Steel Frame:

Before any repairs may be made to the steel frame, written approval must be obtained from the manufacturer, Aero Twin Inc. Contact Aero Twin Engineering Department at (907) 274-6166 or write: Aero Twin Inc., Engineering Dept., 2403 Merrill Field Dr., Anchorage AK, 99501.

1.4.4.3 Painted and Powder Coated Surfaces:

Painted and powder coated surfaces should be maintained and refinished as required to prevent corrosion. When refinishing of a painted surface is required, lightly sand the affected area using fine sandpaper or an abrasive pad (such as 3M *Scotch-Brite*™). When refinishing a powder coated surface, a commercial grade stripper may be used. Polish out minor surface nicks or scratches where present. Clean the area thoroughly with a clean cloth wetted with non-petroleum-based solvent to remove any residual oils and dust. Apply a zinc-chromate or equivalent primer coat, then a matching color coat of quality enamel or epoxy-type paint. Follow manufacturer's instructions in preparing and applying primer and color coats. If a surface was previously powder coated, and it is desired to keep a powder coat finish, contact Aero Twin, Inc. at (907)274-6166.

----------End of Section 1.0 Maintenance Manual----------

2.0 Airworthiness Limitations

Aero Twin, Inc. Nose Gear Tire Scraper, Kit No. TSQ-100

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

This section describes required inspection, maintenance, and replacement items. When repairs are deemed necessary, follow accepted standard practices and/or specific maintenance instructions in Section 1.4 of this manual. This section constitutes Component Airworthiness Limitations which apply to the nose gear tire scraper installation only.

2.1 Scheduled Inspections and Maintenance:

Note: First inspection should be accomplished at next aircraft inspection requiring inspection of the nose wheel assembly so that subsequent inspections coincide.

At each inspection interval for which inspection of the nose wheel assembly is required by the FAA approved Quest 100 Maintenance Manual or other FAA approved maintenance program for the aircraft, the following inspections shall be performed on the nose gear tire scraper:

- Visually inspect the steel structure for cracks, bends, dents, corrosion, or other defects.
- Visually inspect the rubber flap for security and condition.
- Visually inspect the hardware and fittings for security and condition.

At intervals not to exceed 500 hours or Annual Inspection, remove the tire scraper from the nose gear assembly and perform the following inspections:

- Visually inspect the steel structure for cracks, bends, dents, corrosion, or other defects.
- Visually inspect the rubber flap for security and condition.
- Visually inspect the hardware and fittings for security and condition.
- Replace all self locking nuts used to attach the tire scraper to the nose gear.

An inspection interval may not be exceeded by more than 10 hours while en route to a scheduled inspection (if time controlled), or by more than 30 days (if date controlled). In addition, the following guidelines can be used to establish the inspection intervals:
1. In the event of late compliance with an inspection interval, the next inspection in sequence retains its original due date from the time the late inspection was originally scheduled.
2. In the event the inspection is accomplished within 10 hours before or 10 hours after the inspection is due, the subsequent inspection may retain its original due date/time interval.
3. In the event of early compliance with a scheduled inspection that takes place more than 10 hours prior to when the inspection is due, the subsequent inspection must be rescheduled to establish a new date/time interval from the point of early compliance.

FAA Approved: _____

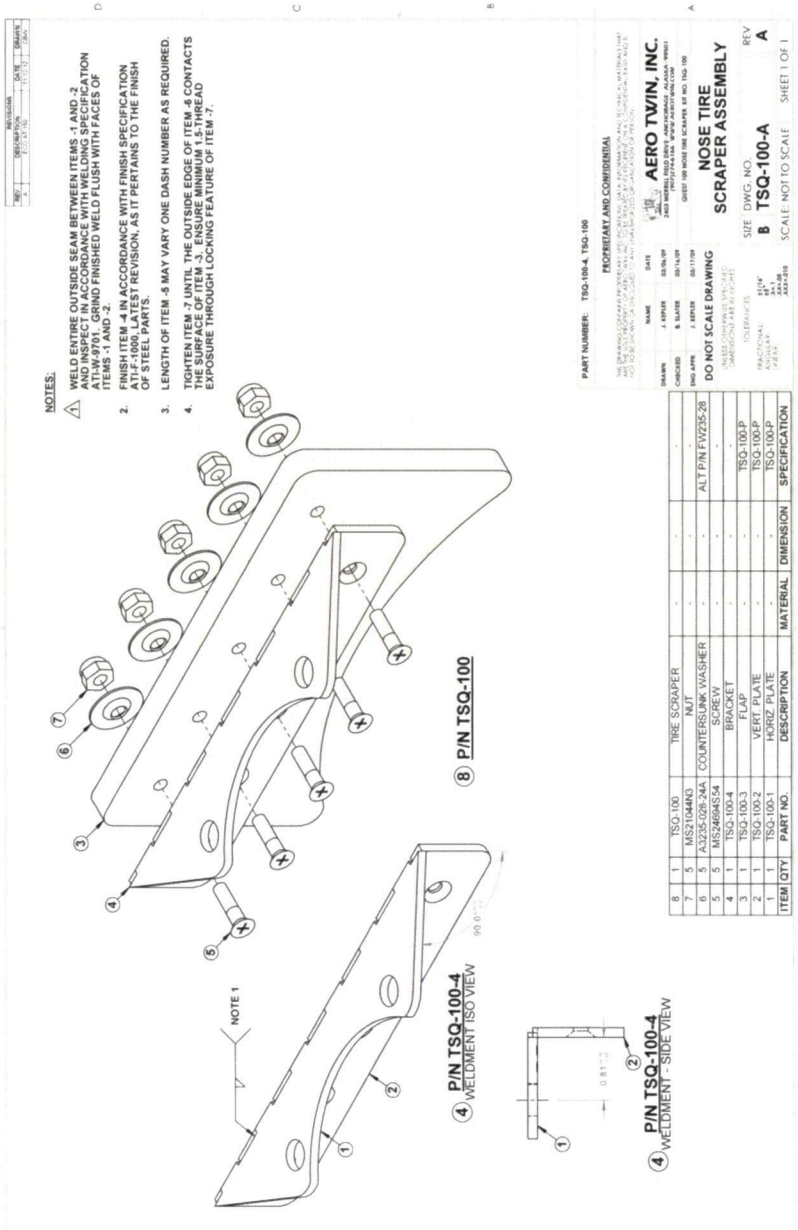
----------End of Section 2.0 Airworthiness Limitations----------

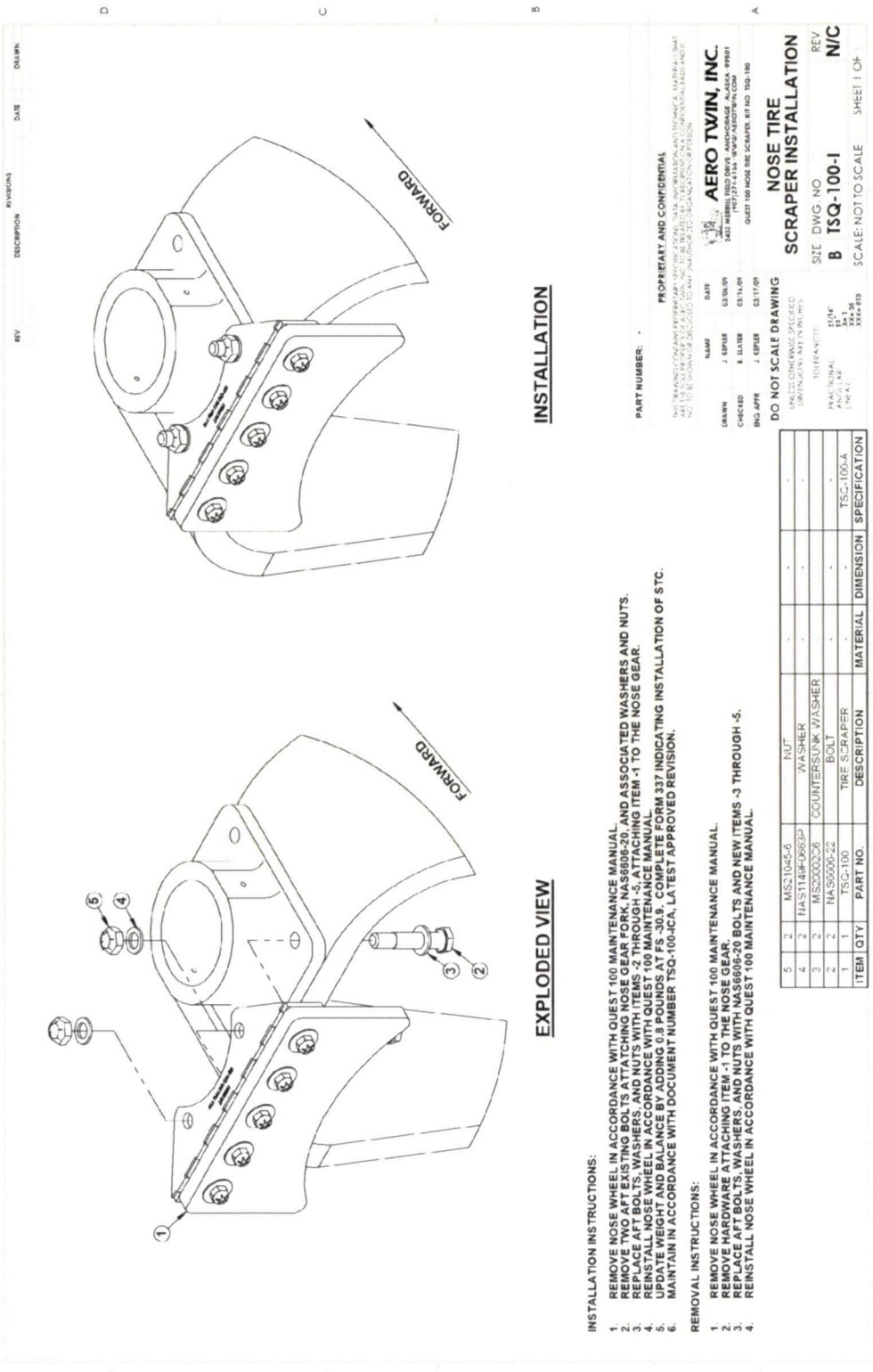
3.0 Illustrated Parts List

Aero Twin, Inc. Nose Gear Tire Scraper, Kit No. TSQ-100

3.1 Complete Parts List:

Drawings TSQ-100-A, sheet 1 of 1, and TSQ-100-I, sheet 1 of 1 are provided here for a listing of all tire scraper parts and hardware. Rubber flap, P/N TSQ-100-3, is installed prior to delivery. Drawing TSQ-100-A, sheet 1 of 1, is provided only for reference in replacing the rubber flap.





----------End of Section 3.0 Illustrated Parts List----------