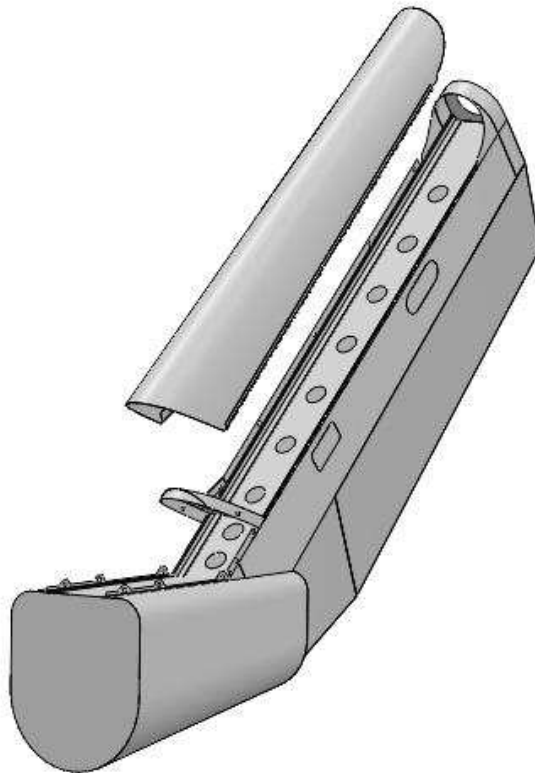




**Bell 205, 212, and 412 Tail Rotor Driveshaft  
Fin Cover Installation Instructions**

**Document: TAS-5411-101**  
**Revision: B**



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**Log of Revisions**

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O	20-SEP-2017	Original Release	All	J Wilfong
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## **1 Introduction**

### **1.1 Description**

These installation instructions pertain to the installation of the Trinity Aviation Services Ltd. carbon fiber tail rotor driveshaft fin cover installation P/N T17450-000-0001 on the Bell Textron 205/212/412 series rotorcraft as applicable. The Trinity Aviation Services Ltd. carbon fiber tail rotor driveshaft fin cover P/N T17450-000-0010 replaces the Bell Textron tail rotor driveshaft fin cover P/N 209-031-816-005 or P/N 209-031-816-105.

The carbon fiber tail rotor driveshaft fin cover P/N T17450-000-0010 is lighter and is less susceptible to damage than the original aluminum cover providing many hours of damage free operation and costly replacement. In addition the tail rotor driveshaft fin cover installation P/N T17450-000-0001 incorporates an improved hinge pin retainer system eliminating chaffing damage to the left hand spar cap caused by improperly bent hinge pins.

Refer to this document and installation drawing T17450-000-100 for the procedure and the requirements for the installation of Trinity Aviation Services Ltd. carbon fiber tail rotor driveshaft fin cover installation P/N T17450-000-0001.

### **1.2 Applicability**

The model and serial number eligibility is listed below:

205A1 Series    Serial Numbers: 30309-Subs

212 Series      Serial Numbers: 30875-Subs

412 Series      Serial Numbers: 33001-Subs

The serial number eligibility listed above is based upon the rotorcrafts configuration at time of delivery from Bell Helicopter. Many of the early part number tailbooms for the 205A1 and 212 series rotorcraft have upgraded configurations for interchangeability.

To determine the eligibility of this alteration, ensure that your tail rotor driveshaft fin cover is P/N 209-031-816-105 and has the feature depicted in Detail A of the installation drawing T17450-000-100.

Prior to replacement of the older P/N 209-031-816-005 tail rotor driveshaft fin cover with Trinity Aviation Services Ltd. tail rotor driveshaft fin cover installation P/N T17450-000-0001, it is recommended the owner/operator replace the RH fin skin P/N 212-030-099-069 with P/N 212-030-099-105 RH fin skin, using Bell Textron approved data for the rotorcraft affected.

### **1.3 Approval**

The engineering design aspects of this alteration are Transport Canada approved.

## **2 Consumable Material**

<b>Nomenclature</b>	<b>Specification</b>
Methyl-Ethyl-Ketone (MEK)	ASTM D740
Aliphatic Naphtha	TT-N-95, Type II
Primer	MIL-PRF-23377, Type I or II, Class C2
Scotch Brite 3M 07447	Commercial
320 Grit Abrasive Cloth	Commercial

## **3 Preparation**

### **3.1 General**

Verify that all the contents listed on the installation drawing T17450-000-100 except those listed as "REF" is included in your kit. Read all of these instructions before attempting installation, to become familiar with the procedure and requirements. Check for equipment or modifications that may interfere with this installation before proceeding. All work must be done in conjunction with the applicable rotorcraft Approved Maintenance Manuals.

If you have any questions regarding the installation, please contact:

Trinity Aviation Services Ltd.  
201-19148 27th Avenue  
Surrey, BC Canada V3Z 5T1  
www.trinityav.ca  
604-536-9606

**NOTE: Consumable materials are not provided in the kit and are the responsibility of the installer.**

### ***ATTENTION***

***Work in a properly ventilated area and use adequate personal safety equipment when drilling or sanding the carbon fiber parts.***

### **3.2 Removal**

- Disconnect the Battery.
- Secure the rotorcraft for maintenance.

- Remove the intermediate gearbox using the applicable Maintenance Manual sections listed below:
  - Bell Textron 205, section 66-118 or current revision
  - Bell Textron 212, section 65-22 or current revision
  - Bell Textron 412, section 65-27 or current revision
- Remove the tail rotor driveshaft fin cover P/N 209-031-816-105 or -005 using the applicable Bell Textron Approved Maintenance Manual.
- Remove all studs P/N 50-019-6 and ejectors P/N 50-011-1. Remove retainer P/N 209-031-816-035 or -123 as applicable and associated hardware. Remove hinge pins P/N's 209-031-816-029, -031, or -119 as applicable.
- Weigh the original cover after accomplishing the previous step to the nearest tenth of a pound and record for new rotorcraft weight and balance calculation.
- Remove the lower two receptacles P/N 50-020-2 from the tailboom fin support P/N 212-030-121-017 or -103 as applicable.
- Inspect the tail rotor driveshaft fin cover attachments on the tailboom for wear, looseness, or other discrepancies. Inspect the LH spar cap for chaffing damage at the hinge pin retainer location.
- Repair any discrepancies found per Bell Textron approved data, prior to fitting the new cover.

## 4 Installation

- 4.1** Reference drawing T17450-000-100 for installation.
- 4.2** Fabricate a pattern template from the removed cover P/N 209-031-816-105 of the stud (7) and ejector rivet (10) holes utilizing the RH lower tail rotor driveshaft fin cover edge as a datum reference, from any suitable material. Pilot drill the ejector holes #30 on center and the ejector rivet holes to #30.
- 4.3** Position the tail rotor driveshaft fin cover P/N T17450-000-0010 (1) on the fin with the hinge pins (4) & (5). Install the intermediate gearbox fairing and ensure there is a minimum of 0.050" clearance between the cover (1) lower leading edge and the intermediate gearbox fairing, trim cover (1) by sanding as necessary. Deburr with abrasive cloth 320 grit or finer.
- 4.4** Check the cover (1) upper edge overlap to tailrotor gearbox fitting P/N 212-030-103-001. The cover (1) should sit flush on the gearbox fitting P/N 212-030-103-001. Ensure there is a minimum of 0.032" between the cover (1) and the LH P/N 212-030-099-069 and RH P/N 212-030-099-105 skins in this area, trim as required. Remove the intermediate gearbox fairing and align the cover (1) lower leading edge with the nose rib P/N 212-030-136-015, -019, or -107 and clamp cover to avoid movement from this position.
- 4.5** Using a scribe or felt pen, reach through the fin nose rib and transfer the two lower stud (7) receptacle holes onto the cover (1). Transfer the fin RH skin P/N 212-030-099-105 upper edge to the cover (1) for a trim line.

### ATTENTION

**Always use a block of wood or the equivalent to back up the hole when drilling or cutting to prevent breakout. The supplied drills, a drill guide and/or drill press, drill paste lubricant, and a slow rate of speed (1000 RPM max.) and light feed rate are recommended for drilling operations. The RH side of the cover has a titanium doubler in the laminate, dull drills or excessive RPM can cause excessive heat and delamination.**

- 4.6** Remove the cover (1) and trim by sanding to the transferred trim line established in step 4.3. Install cover (1) and re-check, adjust as necessary by sanding. Deburr with abrasive cloth 320 grit or finer. Utilizing the supplied drill bit, pilot drill the transferred stud (7) receptacle holes accomplished in step 4.3 to #30 on center. Attach the pattern template of the stud (7) and ejector rivet (10) holes fabricated in step 4.2 aligning the lower edge datum point with the tail rotor driveshaft cover (1) RH lower edge. Pilot drill the remaining stud (7) receptacle holes to #30 and ejector rivet (10) holes to #30.
- 4.7** Utilizing the supplied drill bit and a drill press, enlarge stud (7) holes to 0.53" DIA reference sheet 2 of the drawing, and deburr with abrasive cloth 320 grit or finer. Countersink ejector rivet (10) attachment holes on the inner side of the cover to 0.174 DIA by 0.028 deep maximum per figure 1.



**ATTENTION**

**Do not over countersink the holes. Use a microstop or leave rivet heads slightly tall and shave.**

**4.8** Using a hand or pneumatic compression riveter, install the ejectors (6) to the cover (1) using the rivets (10) dipped in MIL-PRF-23377 primer. Shave the rivet (10) heads as required to obtain a flush surface taking care not to cut into the composite laminate. Install studs (7) into ejectors (6).

**ATTENTION**

**Do not use percussion riveters (rivet guns); damage to the cover and joint failure can result.**

**4.9** Reinstall the stud receptacles P/N 50-020-2 removed in section 3.2 to the tailboom fin support P/N 212-030-121-017 or -103 as applicable.

**4.10** Install the cover (1) with hinge pins (4) & (5) and lock studs (7), press down firmly across the entire top edge of the fin cover to remove any fastener play and check for the required clearance between the lower edge of the cover (1) and upper edge of the skin P/N 212-030-099-105 per figure 2. Ensure there is 0.032" minimum clearance between the lower edge of the cover (1) and the upper edge of the skin P/N 212-030-099-105, trim cover (1) by sanding as necessary maintaining a 0.400" stud (7) hole minimum edge distance and deburr with abrasive cloth 320 grit or finer. When trimming cover (1) and the above minimum tolerances will be exceeded, it may be necessary to trim the skin P/N 212-030-099-105 upper edge.

**4.11** Loosen the studs (7) and check cover (1) for proper function. Hinge operation should be smooth without any binding or distortion of the cover. Studs (7) should fully engage and be of the proper grip length, correct any discrepancies.

**4.12** Remove the cover (1) and clean trimmed edges with aliphatic naphtha or MEK and touch up with MIL-PRF-23377 primer and allow time to dry.

**4.13** Scuff the cover (1) with 3M 07447 scotch brite pad or equivalent, clean with aliphatic naphtha or MEK, and apply desired paint finish per BHT-ALL-SPM, Chapter 4.

**4.14** Install the cover (1) with hinge pins (4) & (5). Ensure hinge pins (4) & (5) are in the correct position per drawing T17450-000-101, sheet 2, detail B and figure 3.

**4.15** Install the hinge pin retainer (2) using the following procedure per figure 3;

- Install screws (9) through cover (1) with the head against the outer surface.
- Install retainer plate (3) onto screws (9) against the inner face of the cover (1).
- Position hinge pins (4) & (5) into the notches of the retainer (2). Install retainer (2) onto screws (9) and retainer plate (3). Hinge pins may be trimmed for length to avoid contact with the tail rotor gearbox fitting P/N 212-030-103-001 and nose rib P/N 212-030-136-015, -019, or -107 as applicable.
- Install washers (11) onto screws (9) and retainer (2).
- Install nuts (8) onto screws (9) and washers (11) and torque nuts (8) to 30 inlb.

**4.16** Install the intermediate gearbox using the applicable Maintenance Manual sections listed below.

- Bell Textron 205, section 66-121 or current revision
- Bell Textron 212, section 65-27 or current revision
- Bell Textron 412, section 65-32 or current revision

**4.17** Close cover ① and secure the studs ⑦. Install any other items that may have been removed to perform this installation using the applicable Bell Textron Approved Maintenance Manual.

**4.18** Amend the rotorcraft's weight and balance report. Weight and balance information will be found in the Instruction for Continued Airworthiness, document number TAS-5411-102, Section 2.8.

**4.19** Complete a Major Modification Report or regulatory equivalent for the rotorcraft's country of registration and record the installation in the appropriate rotorcraft maintenance record.

**4.20** Re-connect the battery and make the rotorcraft safe for flight.

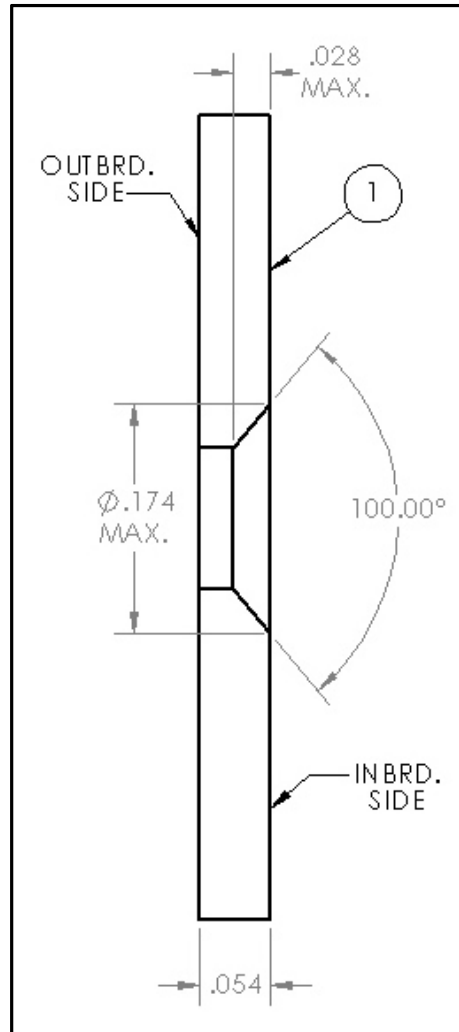


Figure 1

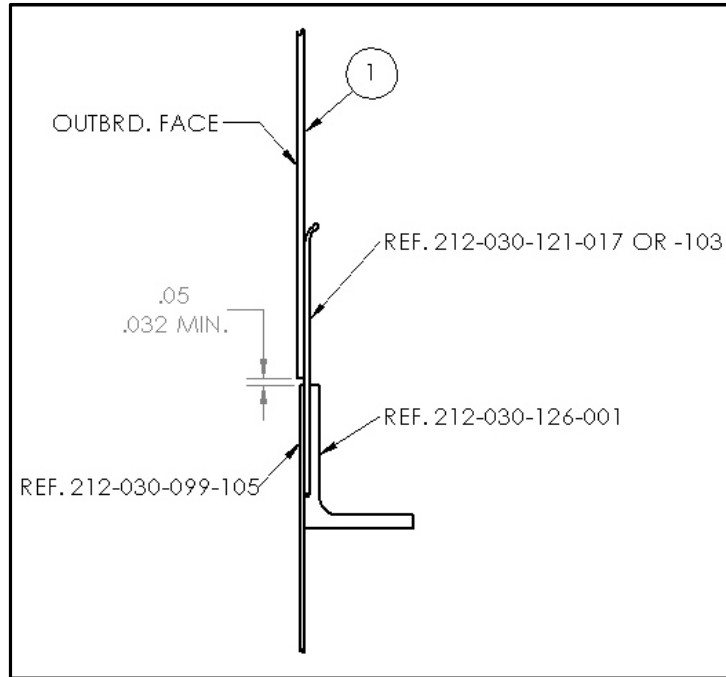


Figure 2

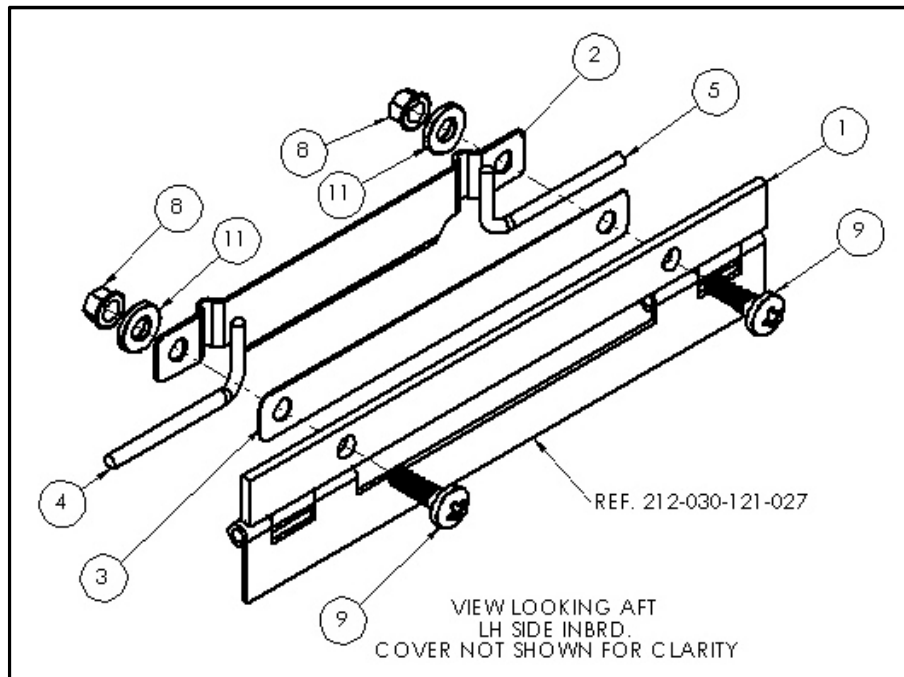


Figure 3