

2900 Selma Highway  
 Montgomery, AL 36108 USA  
 Tel: 334-386-5400 Fax: 334-386-5450

# Service Bulletin

## Service Bulletin No. 211

### Aircraft Starter Power-Lead Inspection

#### 1. Planning Information

##### A. Effectivity

- (1) Skytec starter P/N 149NL/EC manufactured by Hartzell Engine Tech LLC (HET) is affected by this Service Bulletin (SB).
  - (a) Aircraft engines using a fuel injection servo with a top mounted 90° fuel fitting are affected by this SB.
    - 1) Refer to Table-1 for aircraft engine effectivity.

**NOTE:** Table-1 is for reference only and is not an all-inclusive list of aircraft engines affected by this SB. It is the responsibility of the owner/operator to verify whether an affected starter may be installed.

**WARNING:** DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS SERVICE BULLETIN. INFORMATION CONTAINED HEREIN MAY BE SIGNIFICANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THIS SERVICE BULLETIN OR THE USE OF OBSOLETE INFORMATION MAY CREATE AN UNSAFE CONDITION THAT MAY RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR SUBSTANTIAL PROPERTY DAMAGE. REFER TO WWW.SKYTEC.AERO FOR THE MOST RECENT REVISION LEVEL OF THIS SERVICE BULLETIN.

HET Starter P/N	Aircraft Engine Effectivity (Lycoming) *
149NL/EC	AEIO-360-A1A, A1B, A1B6, A1D, A1E, A1E6, A2C; IO-360-A1A, A1B, A1B6, A1B6D, A1D6, A2B, A3B6, A3B6D, M1A, M1B, N1A; IO-390-A1A6, A3A6; IO-540-V4A5, V4A5D, W1A5, W1A5D, W3A5D

**Table-1 - Aircraft Engine Effectivity**

\* Listed engine models utilize a fuel injection servo with a top mounted 90° fuel fitting.

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#### B. Concurrent Requirements

- (1) None

#### C. Reason

- (1) Hartzell Engine Tech has discovered that affected starter models, when installed on engines containing a fuel injection servo with a top mounted 90° fuel fitting, may have an improper installation.
- (2) This SB is to advise the field of a potential condition and to supply inspection criteria to identify proper and improper starter installations.

#### D. Description

- (1) This Service Bulletin provides Instructions for Continued Airworthiness (ICA).

#### E. Compliance

- (1) Comply with section 3, Accomplishment Instructions, at the next regularly scheduled aircraft inspection or engine maintenance event, whichever occurs first.

#### F. Approval

- (1) FAA acceptance has been obtained on technical data in this publication that affects type design.

#### G. Manpower

- (1) Labor is negligible for identification and inspection when performed in conjunction with regularly scheduled maintenance required by the engine/aircraft manufacturer.
- (2) Up to one (1) hour labor required for starter removal and installation, if starter removal is required.

#### H. References

- (1) Applicable aircraft POH or AFM.
- (2) Aircraft maintenance manual (as applicable).
- (3) Engine Service Instructions or maintenance manual (as applicable).

#### I. Other Publications Affected

- (1) None

#### J. Weight and Balance

- (1) No Change

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#### 2. Material Required

##### A. If Required:

- (1) One new or overhauled starter P/N 149NL/EC not affected by this Service Bulletin. See Section 3.B. of this document for replacement criteria.

#### 3. Accomplishment Instructions

**WARNING:** THIS PROCEDURE MUST BE PERFORMED BY COMPETENT AND QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH ENGINE AND AIRFRAME MAINTENANCE THAT IS SPECIFIC TO THE AIRCRAFT STARTER SYSTEM. FAILURE TO DO SO MAY RESULT IN ECONOMIC LOSS, EQUIPMENT DAMAGE, AND/OR PHYSICAL INJURY.

**CAUTION 1:** DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS SERVICE BULLETIN AND THE APPLICABLE AIRCRAFT, ENGINE, AND OVERHAUL MANUAL. INFORMATION CONTAINED IN THESE MANUALS OR THIS SERVICE BULLETIN MAY BE SIGNIFICANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THIS SERVICE BULLETIN OR THE USE OF OBSOLETE INFORMATION MAY CREATE AN UNSAFE CONDITION THAT MAY RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR SUBSTANTIAL PROPERTY DAMAGE. REFER TO THE SKYTEC WEBSITE (WWW.SKYTEC.AERO) FOR THE MOST RECENT REVISION LEVEL OF THIS SERVICE BULLETIN.

**CAUTION 2:** DO NOT DEPEND ON THIS SERVICE BULLETIN FOR GAINING ACCESS TO THE ENGINE. ACCESS REQUIRES THE USE OF THE APPLICABLE MANUFACTURER'S MAINTENANCE MANUALS OR SERVICE INSTRUCTIONS. IN ADDITION, ANY PREFLIGHT OR IN FLIGHT OPERATIONAL CHECKS REQUIRE USE OF THE APPROPRIATE AFM OR POH.

##### A. Starter Identification

- (1) If positive identification of the starter can be made through the engine or aircraft documentation, and the starter **is** affected per 1.A, continue to 3.B., Inspection. If the starter is **not** affected, continue to 3.D, Maintenance Record.
- (2) If positive identification cannot be made through engine or aircraft documentation, gain access and locate the data tag on the starter assembly to verify effectivity.
  - (a) If the starter **is** affected, continue to section 3.B., Inspection.
  - (b) If the starter is **not** affected, install any components that were removed to gain access in accordance with the latest engine/airframe service instructions or maintenance manual. Continue to 3.D., Maintenance Record.

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#### B. Inspection

(1) Starters installed in conjunction with a fuel injection servo containing a top mounted 90° fuel fitting:

(a) Inspect the starter power-lead against Improper (Fig. 1) and Proper (Fig. 2) installations.

1) Starters found with an improper installation (Fig. 1):

a) Remove the starter assembly in accordance with the latest aircraft/engine maintenance manual and service instructions.

b) Visually inspect the starter power-lead and boot for damage, e.g., chaffing, tears, heat damage, or exposed wire core.

1: If the starter power-lead and/or boot **is** damaged, replace the starter in accordance with the latest aircraft/engine maintenance manual and service instructions.

2: If the starter power-lead and boot are **not** damaged, re-install the starter onto the engine.

**WARNING:** TO PREVENT DAMAGE TO THE STARTER AND/OR AIRCRAFT, ENSURE TO POSITION THE STARTER POWER-LEAD BOOT BETWEEN THE FUEL INJECTION SERVO 90° FUEL FITTING AND THE STARTER HOUSING, AS SHOWN IN FIG. 2.

c) Install any components that were removed to gain access in accordance with the latest engine/airframe service instructions or maintenance manual. Continue to 3.C., Return to Service.

2) Starters found with a proper installation (Fig. 2):

a) Inspect the starter power-lead and boot for damage, e.g., chaffing, tears, heat damage, or exposed wire core.

1: If the starter power-lead and/or boot **is** damaged, replace the starter in accordance with the latest aircraft/engine maintenance manual and service instructions.

**WARNING:** TO PREVENT DAMAGE TO THE STARTER AND/OR AIRCRAFT, ENSURE TO POSITION THE STARTER POWER-LEAD BOOT BETWEEN THE FUEL INJECTION SERVO 90° FUEL FITTING AND THE STARTER HOUSING, AS SHOWN IN FIG. 2.

2: If the starter power-lead and boot are **not** damaged, continue to 3.B(2), Recurrent Inspection.

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(2) Recurrent Inspection

(a) Starters found with a proper installation (Fig. 2):

1) At each regularly scheduled aircraft inspection or engine maintenance event, inspect the starter power-lead and boot for damage, e.g., chaffing, tears, heat damage, or exposed wire core.

a) If the starter power-lead and/or boot **is** damaged, replace the starter in accordance with the latest aircraft/engine maintenance manual and service instructions.

**WARNING:** TO PREVENT DAMAGE TO THE STARTER AND/OR AIRCRAFT, ENSURE TO POSITION THE STARTER POWER-LEAD BOOT BETWEEN THE FUEL INJECTION SERVO 90° FUEL FITTING AND THE STARTER HOUSING, AS SHOWN IN FIG. 2.

b) If the starter power-lead and boot are **not** damaged, continue 3.D (1), Maintenance Record.

C. Return to Service

(1) Perform the recommended starter system set up and functional tests in accordance with the appropriate aircraft maintenance manual, engine service instructions, and operational tests in the AFM or POH.

D. Maintenance Record

(1) For recurrent inspections, make a logbook entry at each scheduled aircraft inspection or engine maintenance event indicating compliance with this SB.

#### 4. Contact Information

A. Contact HET Product Support for all communications regarding the technical content of this Service Bulletin.

- (1) Phone +1.334.386.5400 (Option 2)
- (2) Fax +1.334.386.5450.
- (3) E-mail at techsupport@Hartzell.aero
- (4) Address

Hartzell Engine Tech LLC  
2900 Selma Highway,  
Montgomery, AL 36108  
USA

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Figure-1 - **Improper** Starter Installation

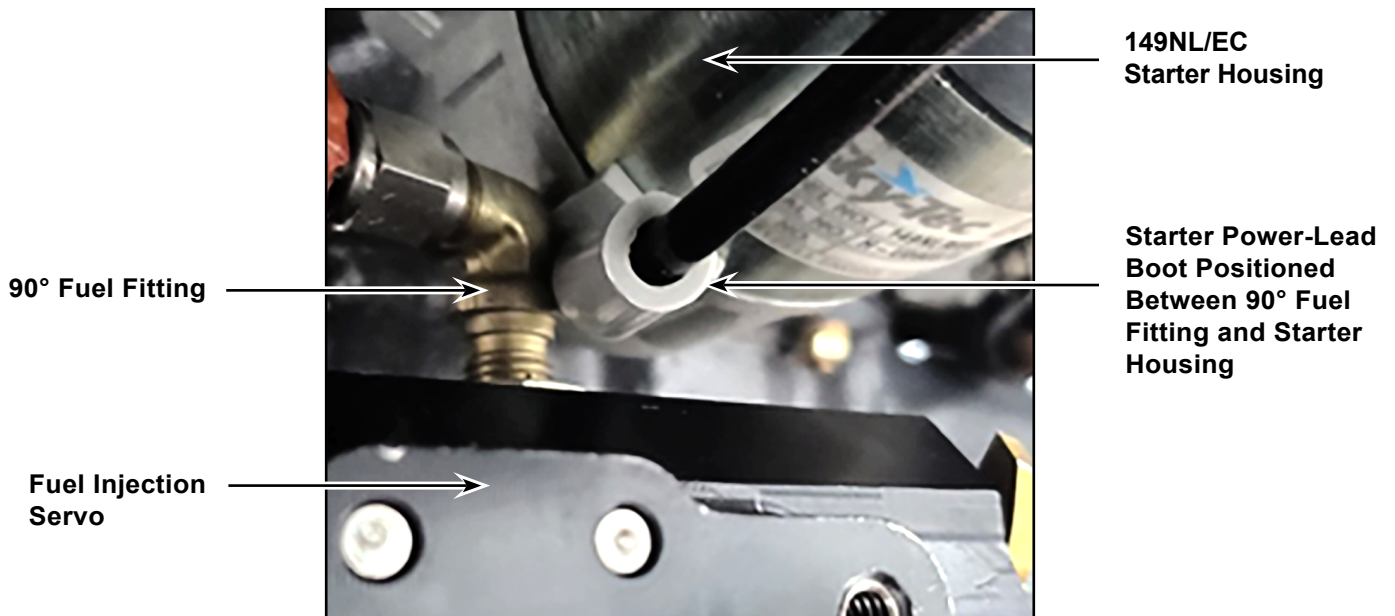


Figure-2 - **Proper** Starter Installation

# SERVICE BULLETIN APPENDIX

## SERVICE BULLETIN No. 211

### Aircraft Starter Power-Lead Inspection

#### 1. Eligibility:

- A. Skytec starter P/N 149NL/EC manufactured by Hartzell Engine Tech LLC (HET) is affected by Service Bulletin (SB) 211.
  - (1) Aircraft engines using a fuel injection servo with a top mounted 90° fuel fitting are affected by SB 211.
    - (a) Refer to Table-1 of SB 211 for aircraft engine effectivity.

#### 2. Commercial Assistance Program:

The following will be provided with the submission of a completed SB 211 Claim Form, copies of invoices showing breakdown of material and labor charges, and log book entries. **Any commercial assistance or other consideration shall expire twelve (12) calendar months from the original published date of SB No. 211.**

- A. Required material listed in section 2 of SB 211.
- B. Labor for inspection, removal, & installation of an affected aircraft starter will be paid at a shop rate of \$85 per hour, not to exceed US \$85 per affected starter.
  - (1) Up to one (1) man hour of labor are needed for removal and installation of an affected starter assembly.

#### 3. Commercial Assistance ADMINISTRATION:

- A. Complete the SB 211 Claim Form attached to this appendix.
  - (1) Mail, e-mail, or fax the SB 211 Claim Form to the attention of Product Support as indicated on the SB Claim Form.
- B. Upon receipt of the SB Claim Form, Hartzell Engine Tech LLC will:
  - (1) Ship the required material in accordance with section 2 of SB 211 to the service provider indicated.
  - (2) The service provider must return proof of service within thirty (30) days or the service provider shall be invoiced for the HET supplied materials.
- C. For labor and parts listed in section 2:
  - (1) Aircraft/engine service facility or owner must submit an invoice up to the amount specified in section 2, copies of logbook entries, and a completed SB 211 Claim Form for reimbursement (*May be a copy of the original form provided*).

# **SERVICE BULLETIN APPENDIX**

## **SERVICE BULLETIN No. 211**

### **Aircraft Starter Power-Lead Inspection**

#### **4. WARRANTY STATEMENT:**

- A The sole warranty for the actions of SB 211 are contained in the HET Limited Warranty Policy issued with the purchase of each new/overhauled starters (see terms and conditions therein).
- B. Commercial assistance may apply as stated in this Appendix.
- C. Issuance of SB 211 in no way constitutes an implied or expressed warranty of any kind.
- D. This publication does not imply or state any responsibility for the workmanship of any person or entity performing work or maintenance on the engine or aircraft electrical system.

#### **5. CONTACT INFORMATION:**

- A. Contact HET Product Support for all communications regarding the technical content of this Service Bulletin.

- (1) Phone +1.334.386.5400 (Option 2)
- (2) Fax +1.334.386.5410
- (3) E-mail at techsupport@Hartzell.aero
- (4) Address

Hartzell Engine Tech LLC  
2900 Selma Highway,  
Montgomery, AL 36108  
USA



# SERVICE BULLETIN APPENDIX

## SERVICE BULLETIN No. 211

### Aircraft Starter Power-Lead Inspection

#### SB 211 CLAIM FORM

#### Owner information

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Company Name: \_\_\_\_\_ E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Country: \_\_\_\_\_

#### Aircraft/Engine Service Facility information

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Company Name: \_\_\_\_\_ E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Country: \_\_\_\_\_

Aircraft Mfg: \_\_\_\_\_ Model: \_\_\_\_\_ Time in Service: \_\_\_\_\_ S/N: \_\_\_\_\_

Engine: \_\_\_\_\_ Model: \_\_\_\_\_ Time in Service: \_\_\_\_\_ S/N: \_\_\_\_\_

#### Component Information

Nomenclature: Starter Assembly \_\_\_\_\_ Part Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_ (Starter) Date Removed: \_\_\_\_\_

Part Time in Service: \_\_\_\_\_ (Starter) Original Date Installed: \_\_\_\_\_

For RMA Number

Send this SB 211 Claim Form to:

Hartzell Engine Tech Product Support

Fax: +1.334.386.5410

E-mail: techsupport@hartzell.aero

#### RMA Number:

(write in HET assigned RMA number)

**Hartzell Use Only - do not write below this line.**

Warranty No: \_\_\_\_\_ Authorized by: \_\_\_\_\_