

MITSUBISHI HEAVY INDUSTRIES AMERICA INC.

MITSUBISHI SERVICE PUBLICATIONS TRANSMITTAL

The attached Mitsubishi MU-2B series Service Publication has been issued by Mitsubishi Heavy Industries, Ltd. in Japan, who is the type certificate holder of the MU-2 aircraft. It is the owner and/or operator's responsibility to adhere to or comply with new information contained in the attached publication.

SL 105

SL 078/30-005

**Goodrich Service Bulletin – Propeller De-Icer Timer Repair
(SB 3E1150-30-01)**

NOTE

**THIS PUBLICATION IS PRINTED AND/OR DISTRIBUTED BY
MITSUBISHI HEAVY INDUSTRIES AMERICA, INC., UNDER LICENSE
FROM MITSUBISHI HEAVY INDUSTRIES LTD. FOR COMMENTS OR
INQUIRIES REGARDING DISTRIBUTION OF THIS PUBLICATION OR
RECEIPT OF ANY OF THE PUBLICATIONS LISTED HEREIN, PLEASE
CONTACT:**

Mitsubishi Heavy Industries America, Inc.
Aircraft Product Support Division
4951 Airport Parkway Suite 530
Addison, TX 75001
USA

Phone: (972) 934-5480

Fax: (972) 934-5488

**MU-2**

SERVICE LETTER

MITSUBISHI HEAVY INDUSTRIES, LTD.
NAGOYA AEROSPACE SYSTEMS WORKS
10 OYE-CHO, MINATO-KU, NAGOYA, JAPAN

JCAB T.C.: No. 105

DATE: April 26, 2019

FAA T.C.: No. 078/30-005

SUBJECT: Goodrich Service Bulletin – Propeller De-Icer Timer Repair (SB 3E1150-30-01)

MODELS AFFECTED: All MU-2B Airplanes

This Service Letter is issued to ensure that all MU-2 owners and operators are aware of the release of Goodrich Service Bulletin 3E1150-30-01 (Propeller De-Icer Timer Repair – Goodrich P/N 3E1150-10 and 3E1150-12), Rev. 1, dated November 28, 2012, and FAA Special Airworthiness Information Bulletin (SAIB) NE-13-21 (Propeller/Rotor Anti-Ice/De-Ice System – Goodrich De-Ice Timer), dated March 13, 2013.

Propeller deice system current draw and cycling is a 100 hrs periodic inspection item and an Airplane Flight Manual preflight check item prior to flight into known icing conditions. MHI recognizes that this Goodrich Service Bulletin and the SAIB are old information, but MHI is issuing this Service Letter out of an abundance of caution.

According to the SAIB NE-13-21, there is a potential loss of aircraft thrust due to ice accumulation on the propeller, resulting from failure of the propeller de-ice timer, P/N 3E1150-10, due to circuit board corrosion. FAA recommends that any flight into known icing conditions should be avoided until all propeller de-ice timers on the aircraft are in compliance with Goodrich Service Bulletin 3E1150-30-01.

MHI recommends the thorough review of the attached Goodrich Service Bulletin and FAA SAIB. For any questions regarding Goodrich Service Bulletin, please contact UTC Aerospace System (Goodrich Corporation) at the following contact information:

UTC Aerospace Systems (Goodrich Corporation)

Sensors and Integrated Systems

1555 Corporate Woods Parkway

Uniontown, OH 44685

Phone: +1-330-374-3040

Website: www.goodrich.com

Sensors and Integrated Systems
1555 Corporate Woods Parkway
Uniontown, OH 44685 USA
Tel: 330.374.3040
Fax: 330.374.2290
www.goodrich.com
Cage Code: 0AJJ0

PROPELLER DE-ICER TIMER REPAIR – GOODRICH P/N 3E1150-10 AND 3E1150-12

1. PLANNING INFORMATION

A. Effectivity

This service bulletin is applicable to Goodrich Propeller De-Icer Timers P/N 3E1150-10, all serial numbers except for serial number U3000 and up, and P/N 3E1150-12, all serial numbers except for serial number U200 and up.

B. Concurrent Requirements

None.

TRANSMITTAL OF TECHNICAL DATA (EAR)

THESE COMMODITIES, SOFTWARE, OR TECHNOLOGY ARE CONTROLLED BY THE U.S. EXPORT ADMINISTRATION REGULATIONS (EAR). DIVERSION CONTRARY TO U.S. LAW IS PROHIBITED.

ECCN: 9E991

The information contained herein is proprietary to Goodrich Corporation, Sensors and Integrated Systems, and is furnished to the user of the equipment described in this publication for maintenance of this equipment only. It shall not be disclosed, duplicated, or used in whole or in part for manufacture or procurement or any other purpose without the written permission of Goodrich Corporation, Sensors and Integrated Systems.

3E1150-30-01

C. Reason

Some propeller de-icer timers may have experienced, or may be susceptible to experiencing failures due to a foam cushion, which may degrade over time in service. This Service Bulletin identifies actions necessary to:

- replace the foam cushion with a new cushion that will not degrade
- repair any damage that may have occurred due to the degradation
- apply protective coating to the printed circuit board to minimize the possibility of future malfunction.

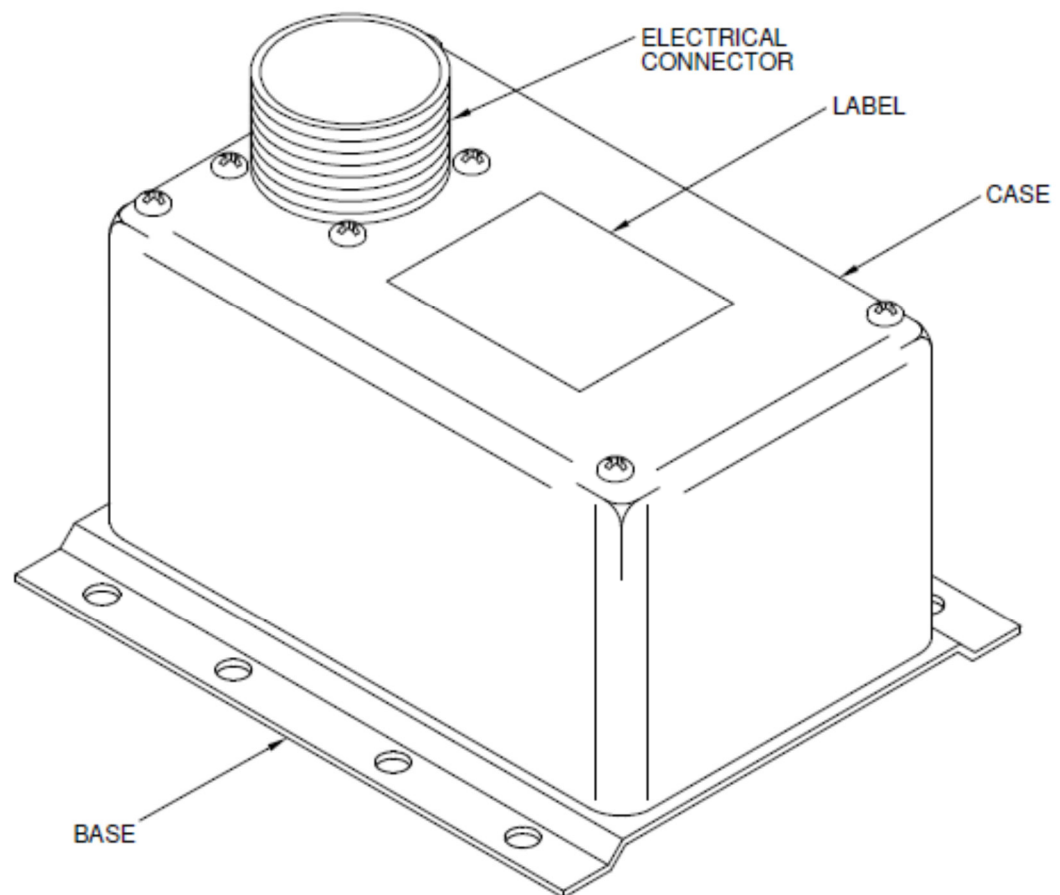


Figure 1: Propeller De-icer Timer Assembly

3E1150-30-01

D. Description

This service bulletin introduces a repair that has been developed to replace degrading foam cushions and to clean and seal the circuit board that may have been affected by the degraded foam.

The repair consists of disassembly of the timer, and removal of the foam cushion. The printed circuit board assembly is cleaned of any residual foam, foam adhesives and any contamination due to the degraded foam. The cleaned printed circuit board is then conformal coated and a new foam cushion is installed. The timer is reassembled and a functional test is performed per the Returned Goods (RG) repair spec.

E. Compliance

The accomplishment of this service bulletin is mandatory. This service bulletin shall be accomplished within 3 years of date of issue.

F. Approval

This service bulletin has been reviewed and approved by the FAA and the TC or STC holders of the aircraft on which these timers are used.

G. Manpower

Task	Estimated Man-hours
Determine if timer is on aircraft and verify S/N effectivity	0.5
Remove Timer	1.0
Ship timer to repair station	0.5
Re-install repaired timer to aircraft	1.0
Total Hours per Unit	3.0

NOTE: These values are general estimates only, subject to TC or STC holder approval or revision based on the specific aircraft model. Costs associated with these efforts will not be covered by Goodrich.

H. Weight and Balance

Not affected.

I. Electrical Load Data

Not affected.

3E1150-30-01

J. Software Accomplishment Summary

Not applicable.

K. References

Applicable aircraft maintenance manual (AMM).

L. Other Publications Affected.

None.

M. Interchangeability or Intermixability of Parts

Not affected.

3E1150-30-01

2. MATERIAL INFORMATION

A. Material - Price and Availability

All materials required to accomplish the repair are supplied by the repair station.

B. Industry Support Information

Parts affected by this service bulletin are all currently out of warranty. The repair provided in this service bulletin will be performed by authorized repair stations with free-of-charge materials that will be provided by Goodrich directly to the authorized repair stations. The repair stations may have a charge for their labor which will not be covered by Goodrich.

The costs of any required repair beyond the scope of this service bulletin will be the responsibility of the owner/operator.

C. Material Necessary for Each Unit

Direct materials (replacement foam cushions) required to accomplish the repair will be provided by Goodrich free-of-charge to the repair stations performing the repair. All other materials required for accomplishing the repairs will be provided by the repair stations. The costs of any required repair beyond the scope of this service bulletin will be the responsibility of the owner/operator.

D. Material Necessary for Each Repair

See paragraph 2.C above.

E. Re- Identified Parts

The service bulletin number will be permanently marked by the repair station on the ID plate, or on a separate label affixed immediately adjacent to the ID plate, of any repaired propeller de-icer timers. There will be no change to timer part number or serial number upon accomplishment of this service bulletin.

F. Tools necessary for Performing the Repair

Only standard mechanics tools are required to remove and reinstall the timer. No special tooling is required and necessary tooling to accomplish the repair of the timer will be provided by the authorized repair station.

3E1150-30-01

3. ACCOMPLISHMENT INSTRUCTIONS

A. General Notes

Accomplishment of this repair is the removal of suspect material which has caused, or may lead to, timer malfunction. This repair will also apply protective conformal coating to the circuit board to minimize the possibility of future malfunction.

Goodrich will provide the replacement material required to accomplish this repair directly to the following repair stations. This material will be provided free-of-charge and in sufficient quantities in advance of this bulletin to allow the repair to be accomplished. Labor costs associated with the repair, will not be covered by Goodrich. Please contact one of the repair stations listed below for cost and leadtime for accomplishing this repair. The applicable repair station warranty will apply upon completion of the repair.

The following repair stations are authorized by UTC Aerospace Systems (Goodrich) to perform this repair.

UTC Aerospace Systems Customer Services (Goodrich)

4115 Corporate Center Drive
Monroe, NC 28110
USA
FAA Repair Station G84R924X
Therese.Price@utas.utc.com
Phone: 704-282-2635

Ametek (B&S) Aircraft Parts and Accessories

1414 S. Mosley
Wichita, KS 67211
FAA Repair Station NE2R028L
USA
sales.bsaircraft@ametek.com
Phone: 800-835-2961

Mid-West Aero Support, Inc.

1303 Turret Dr.
Machesney Park, IL 61115
USA
FAA Repair Station MXSR849K
EASA.145.4679 Repair station
Joel Johnson – joel@midwest-aero.com
Phone: 815-398-9202

Precision Electronics, Inc.

5000-A Clark Howell Highway
Atlanta, GA 30349
USA
FAA Repair Station PRZRO73K
Bryan King – bryan@precision-electronics.com
Felicia Shorter – felicia.s@precision-electronics.com
Mike Kennelly – mkennelly@precision-electronics.com

3E1150-30-01

Phone: 404-767-4667

Canadian Aero Accessories (Canada)

170 George Craig Blvd. N.E.

Calgary, Alberta. T2E 7H2

Canada

FAA Repair Station 30-87

sales@cdnaero.com

Phone: 403-250-9077

B. Work Instructions (Owner/Operator)

Refer to effectivity section 1.A. Verify that affected P/N and S/N is installed on the aircraft or in spare stock. If verified, contact one of the above listed authorized repair centers to schedule the repair. Once scheduled, if the timer is installed on aircraft, remove the affected timer utilizing applicable Aircraft Maintenance Manual instructions and send to the repair center.

C. Work Instructions (Authorized Repair Stations Only)

NOTE: Only the Goodrich-authorized repair facilities listed above are authorized to perform this repair. The following accomplishment instructions apply only to these facilities.

Instructions for repair of Goodrich 3E1150-10/-12 Timers with degraded foam:

3E1150-10 Timer:

3K1451	Foam Cushion
4E2278	Subassembly drawing for the 3E1150 Prop Timer
40-073	Engineering Requirements for the 3E1150-10 Prop Timer
3E1150-10	Envelope Drawing for the 3E1150-10 Prop Timer

3E1150-12 Timer:

3K1451	Foam Cushion
4E2278	Subassembly drawing for the 3E1150 Prop Timer
40-079	Engineering Requirements for the 3E1150-12 Prop Timer
3E1150-12	Envelope Drawing for the 3E1150-12 Prop Timer

Procedure to Repair Timers with degrading foam cushions:

Use following procedure to replace the foam cushion in both P/N 3E1150-10 and P/N 3E1150-12 timers. These procedures are also listed in the general Goodrich repair specification 40-012. Proper ESD precautions must be followed when handling circuitry and electronic assemblies.

With reference to assembly drawing 4E2278, remove and discard foam cushion (item no 3). Clean the circuit board of foam residue or other contaminants.

3E1150-30-01

Visually inspect circuit board for conformal coating. If conformal coating has not been applied to the circuit board, is missing in certain areas, or if it is difficult to determine whether conformal coating is present, perform the following procedures:

- a) Clean the circuit board including the removal of foam cushion (4E2278, item no. 3) if not already removed, and any flux, adhesive residues, or any other contaminants. Also clean the inside of the housing and any other components of debris and remnants of the foam cushion.
- b) Conduct a preliminary functional test to determine if functionality is restored after cleaning the circuit board assembly. If functionality is restored, proceed to next step. Otherwise, perform necessary repair to restore functionality
- c) Mask off the relays mounted on the circuit board to ensure that no conformal coating ends up on the relay contacts or mechanism. Apply conformal coating (Hysol PC18M per MIL-I-46058, Type UR) to both sides of the circuit board. Allow conformal coating to dry per manufacturer instructions.

NOTE: Ensure that 24 hour dry time at room temperature is used after application of conformal coating before proceeding with assembly. Allow extra dry time if required to ensure the coating is completely dry. DO NOT accelerate drying of the conformal coating by placing in an oven.

Perform a check of the relays for general appearance of contacts and burnish as needed. Check for operation per 40-005, para. 6.0, and make all adjustments as needed, especially the over-travel and pull-in voltage adjustments.

Install new foam cushion, item no. 3, P/N 3K1451, per drawing 4E2278.

Complete repair and re-assembly of unit.

NOTE: Ensure that the new foam cushion is not trimmed when installed. The foam cushion is intentionally larger than the printed circuit and extends beyond the printed circuit board edge.

Once the unit has been repaired, perform Final Operation Checkout as per the referenced Engineering Requirement document for the applicable prop timer.

3E1150-30-01



FAA
Aviation Safety

SPECIAL AIRWORTHINESS INFORMATION BULLETIN

SUBJ: Propeller/Rotor Anti-Ice/De-Ice System - Goodrich De-Ice Timer
Failures

SAIB: NE-13-21

Date: March 13, 2013

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) alerts you, owners and operators of airplanes equipped with **Goodrich Corporation propeller de-ice timers, part numbers 3E1150-10 or 3E1150-12**, of the potential for loss of propeller ice protection capability. These de-ice timers are installed on a wide variety of propeller-driven aircraft equipped with Goodrich electrical propeller de-ice systems. The airworthiness concern is not an unsafe condition that would warrant airworthiness directive action under Title 14 of the Code of Federal Regulations (14 CFR) part 39.

Background

This SAIB addresses a potential cause for loss of aircraft thrust due to ice accumulation on the propeller. Goodrich Corporation propeller de-ice timers, part numbers 3E1150-10 and 3E1150-12, are susceptible to failure from circuit board corrosion. When this circuit board fails, the propeller de-ice boots will either be constantly on or constantly off, depending on their status at the time of failure. The pilot cannot detect the failure of either condition in flight until the ice accumulation on the propeller causes a loss of performance. When the de-ice boots are constantly on, the wiring in the boots will eventually overheat and the boots will fail to de-ice the propellers. There have been numerous shop findings of corroded circuit boards, and at least one in-service event whose suspected cause was de-ice timer failure.

Recommendations

We recommend that you avoid flight into known icing conditions until all propellers on the aircraft are in compliance with Goodrich Service Bulletin 3E1150-30-01, Revision 1, dated November 28, 2012. In addition, within three years of publication of this SAIB, we recommend that you comply with this Goodrich service bulletin.

For Further Information Contact

Christopher Richards, Aerospace Engineer, Chicago Aircraft Certification Office, FAA, 2300 East Devon Avenue, Des Plaines, IL 60018; phone: 847-294-7156; fax: 847-294-7834; email: christopher.j.richards@faa.gov.

For Related Service Information Contact

Goodrich Corporation, 1555 Corporate Woods Parkway, Uniontown, OH 44685; phone: 330-374-3040; fax: 330-374-2290; Internet: <http://techpubs.goodrich.com>.

