

ALERT SERVICE BULLETIN

407-14-102

23 January 2014

Revision A, 10 April 2014

MODEL AFFECTED: 407

SUBJECT: ENGINE, FUEL AND CONTROL - OVERSPEED ADAPTER, INTRODUCTION OF

HELICOPTERS AFFECTED: Serial numbers 53000 through 53900, 53911 through 54162, and 54300 through 54500.

[Serial numbers 54163 through 54299 and 54501 and subsequent will have the intent of this bulletin accomplished prior to delivery.]

COMPLIANCE: **Part I** - No later than **30 June 2014**
Part II - At customer's option
Part III - 50 flight hours following completion of **Part I** and every 50 flight hours thereafter

DESCRIPTION:

Bell Helicopter has been made aware of a potential condition where a false engine overspeed protection system activation could occur. **Part I** of this bulletin introduces the installation of an overspeed adapter to reduce the likelihood of a false overspeed activation as well as introducing a recurring functional check of the overspeed protection circuits within the Electrical Control Unit (ECU). With the overspeed adapter installed, there will be changes to the normal procedures during the prestart checks of the helicopter. Therefore, we are also introducing temporary revisions to both the BHT-407-FM-1 and the BHT-407-FM-2 Rotorcraft Flight Manuals (RFM). **Part II** of this bulletin provides the instructions to apply Stabilant 22 to the connectors and the adapters required in the bulletin. **Part III** of this bulletin introduces a recurring 50-hour requirement to functionally check the overspeed protection system by performing overspeed test shutdowns. Revision A of this ASB includes additional applicability of affected Electrical Control Units (ECU) of the 250-C47B engine FADEC system, as well as additional clarification to the required procedures to follow. Bell Helicopter has also released a Technical Bulletin 407-14-107 to relocate the FADEC/ECU maintenance switch to the right side of the center pedestal to provide easier access to perform the FADEC fault verification procedure.

4. Use a magnifying glass and a strong light source to examine the contacts for any foreign material, corrosion, and loose or damaged contacts.
 - a. If foreign material is found, repeat process starting at step 1.
 - b. If corroded, loose, or damaged contacts are found, replace the suspect harness.
5. For ease of application, if Stabilant 22 (C-052) is too thick, dilute with 99% Isopropyl Alcohol (C-385) and thoroughly mix. Mixing ratio is 15 ml Stabilant 22 (C-052) to 1.0-1.5 ml Isopropyl Alcohol (C-385).

CAUTION

Do not apply an excessive amount of contact enhancer. Only a few drops per connector is required. If the internal section of the connector is overfilled with Stabilant 22 (C-052), hydraulic damage to the contacts may result when the connectors are mated.

6. Use a nylon bristle or other non-metallic brush to apply a light coating of contact enhancer Stabilant 22 (C-052) to internal sections and contacts (male pins) of the connector/adaptor. Do not apply Stabilant 22 to the socket side (female pins) of the mating connector/adaptor.
7. If required, remove any excess Stabilant 22 (C-052) with a lint-free cleaning cloth (C-486) moistened with isopropyl alcohol (C-385). Allow half an hour for the alcohol to dissipate before mating connector and receptacle.

Part III – Overspeed Shutdown Test

Recurring 50 hr check

-NOTE-

With the overspeed adapter installed, overspeed shutdown test shall not be used. If the FADEC OVSP TEST button is pressed with the engine running, the engine will not shut down and the FADEC FAULT and FADEC DEGRADED cautions will illuminate.

1. Remove the connector 4P1 from the overspeed adapter P/N M250-10684.
2. Remove the adapter P/N M250-10684 from the 4J1 adapter of the forward engine firewall.

3. Install the connector 4P1 to the 4J1 adapter of the forward engine firewall.
4. Make sure that the FADEC circuit breaker is pushed in.
5. Apply electrical power to the helicopter (battery switch to BATT or external electrical power ON).
6. Make sure that the FADEC mode switch is in the AUTO mode.
7. Verify that no FADEC faults are present on the Caution Warning Advisory (CWA) panel or the Crew Alerting System (CAS), as applicable.

-NOTE-

Two engine starts will be required to verify both the Channel A and Channel B of the engine overspeed protection system.

8. Perform an engine start per procedures in the applicable Rotorcraft Flight Manual (RFM).
9. Stabilize at IDLE.
10. Perform an overspeed system shutdown test per procedures in the applicable RFM.
11. Make sure that the residual MGT indication is below 150°C.
 - a. Performing the DRY MOTORING RUN procedure may be required (refer to Section 2 of the applicable RFM).
12. Verify that no FADEC faults are present on the CWA or CAS, as applicable.
13. Repeat step 8 through step 12 (perform a second engine start).
14. Remove electrical power from the helicopter (battery switch OFF or external electrical power OFF).
15. If desired, apply Stabilant 22 (C-052) between the connector 4P1, overspeed adapter P/N M250-10684, and 4J1 forward firewall adapter per the Accomplishment Instructions contained in **Part II** of this bulletin.

-NOTE-

The adapter P/N M250-10684 may be installed either to the FADEC harness or at the forward firewall first, whichever is more convenient.

16. Install the adapter P/N M250-10684 to the forward firewall adapter 4J1. Make sure that the red security line on the forward firewall adapter is completely covered, ensuring connector is fully engaged and secure.
17. Install the connector 4P1 to the overspeed adapter P/N M250-10684. Make sure that the red security line on the adapter is completely covered, ensuring connector is fully engaged and secure.
18. Perform a functional check of expected FADEC fault indications per step 8 of **Part I** of this ASB.
19. Make an entry in the helicopter logbook and historical service records indicating compliance with **Part III** of this Alert Service Bulletin.