

Docket No. SA-520

Exhibit No. 17-E

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C.

Boeing Service Letter dated December 21, 1995

(4 Pages)

SERVICE LETTERSERVICE ENGINEERING BOEING COMMERCIAL AIRPLANE GROUP P.O. BOX 3707 SEATTLE WASHINGTON 98124-2207

707-SL-20-018
727-SL-20-028
737-SL-20-032
747-SL-20-047
757-SL-20-027
767-SL-20-027
777-SL-20-003

ATA: 2030-23

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SUBJECT: BMS 3-33 GENERAL PURPOSE AIRCRAFT GREASE**MODEL:** All 707, 727, 737, 747, 757, 767 and 777 Series**APPLICABILITY:** All Airplanes

REFERENCES:

- a) Service Letter 707-SL-20-10, 727-SL-20-20, 737-SL-20-25, 747-SL-20-39, 757-SL-20-08, 767-SL-20-20 "Evaluation of General Purpose Greases for Routine Relubrication During Airplane Maintenance" dated 23 December 1992
- b) Service Letter 707-SL-20-12, 727-SL-20-22, 737-SL-20-27, 747-SL-20-44, 757-SL-20-22, 767-SL-20-22 "Summary of Most Commonly Used Greases on Boeing Airplanes"

PURPOSE:

The purpose of this service letter is to advise operators of a new general purpose grease specification designated BMS 3-33 which provides improved corrosion and wear protection compared to MIL-G-23827 and other grease types. Additional relubrication applications will be reviewed for expanded use of BMS 3-33 and this Service Letter will be revised as additional applications are determined.

BACKGROUND:

Boeing has worked with several grease manufacturers with the objective of developing a new general purpose grease with improved corrosion and wear protection and the potential of

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consolidation of several grease types currently required for routine airplane lubrication. ^{Page 2 of 4} The second part of this objective is in response to operator request to reduce the number of different grease types used for routine lubrication. The ref /a/ service letter provide testing requirements for those operators who wished to use a general purpose grease not specified in Boeing documents. The ref /b/ service letter described the basic properties of the four most commonly used grease types on Boeing airplanes.

DISCUSSION:

Due to the wide range of operating temperatures, loads, and other environmental conditions required for various airplane components, several different grease types with different desirable properties are used during routine lubrication of airplane components. In developing the BMS 3-33 specification, the desired properties of the different grease types currently used for airplane lubrication were studied. However, consideration was also taken regarding the economical feasibility given current technology of providing a material that would provide these properties. BMS 3-33 was therefore written to specify a grease which would provide improved performance and to incorporate the widest possible range of grease applications. The improved performance properties of BMS 3-33 is a result of the use of a lithium complex thickener, together with a base oil blend of diester and synthetic oils and special corrosion and oxidation inhibitors.

BMS 3-33 may be used for routine relubrication per Chapter 12 of the maintenance manual for all Boeing airplane models where MIL-G-23827 or BMS 3-24 is specified or where MIL-G-21164 is listed as an option to MIL-G-23827. One exception to this is the 757 T.E. Flap Toque Limiter which will continue to require MIL-G-23827 until further testing has been completed in 1996. These grease types account for over 95% of routine lubrication tasks on any one Boeing airplane model.

The remaining limited number of areas where BMS 3-33 is not currently acceptable require special performance grease types. Areas requiring MIL-G-21164 and Royco 11MS grease types will be reviewed on a case-by-case bases for BMS 3-33 applicability. MIL-G-21164 is used on heavily loaded sliding surfaces on all models and Royco 11MS is used primarily on the 767 and 777 main landing gear. The review for these applications will include possible in-service testing and is expected to be completed by December 1996. Routine lubrication points requiring the use of MIL-G-81322, DC 33 or DC 77, however, have unique lubrication requirements that currently do not facilitate the use of BMS 3-33.

A full review of the additional routine lubrication locations mentioned above is expected to be completed by the end of 1996. Following the completion of this review, operators will be advised through a revision of this service letter of the full application range of BMS 3-33.



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BOEING ACTION:

1. BMS 3-33 will be added to the list of general purpose grease types in Chapter 20 of the maintenance manual as a preferred alternative to MIL-G-23827, BMS 3-24 and where MIL-G-21164 is listed as an option to MIL-G-23827. Routine lubrication instructions in Chapter 12 of the maintenance manuals will reflect the preference for BMS 3-33 as they are revised.
2. A review of additional routine lubrication areas where MIL-G-21164 and Royco 11MS is specified is being conducted to determine BMS 3-33 applicability. This service letter will be revised following the completion of this review to advise operators of the full application range of BMS 3-33.
3. Aeroshell Grease 33 manufactured by Shell Oil Products has been qualified to BMS 3-33. Additional products are under evaluation and a status of this evaluation will be provided when this service letter is revised.

SUGGESTED OPERATOR ACTION:

Consider the use of BMS 3-33 as an alternate general/purpose grease with improved corrosion and wear protection.

SUPPLIER:

Currently, the only product qualified to BMS 3-33 is Aeroshell Grease 33 manufactured by:

Shell Oil Products Co.
One Shell Plaza
P.O. Box 2463
Houston, TX 77001

Additional products are being evaluated and further information will be provided during the revision of this service letter.

Original signed by:

A. Mansoori for
707/727/737/757/747/767/777
Service Engineering Managers

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