STANDARD OVERHAUL PRACTICES MANUAL

INSTALLATION OF PROTECTIVE GROMMET

PART NUMBER NONE

PUBLISHED BY BOEING COMMERCIAL AIRPLANES GROUP, SEATTLE, WASHINGTON, USA
A DIVISION OF THE BOEING COMPANY
PAGE DATE: Jul 01/2009

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STANDARD OVERHAUL PRACTICES MANUAL

Revision No. 15
Jul 01/2009

To: All holders of INSTALLATION OF PROTECTIVE GROMMET 20-50-09.

Attached is the current revision to this STANDARD OVERHAUL PRACTICES MANUAL

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TITLE PAGE					
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A = Added, R = Revised, D = Deleted, O = Overflow

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Revision		Filed	
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INTRODUCTION

1. General

A. The instructions in this manual tell how to do standard shop procedures during maintenance functions from simple checks and replacement to complete shop-type repair.

B. This manual is divided into separate sections:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) Effective Pages

(5) Contents

(6) Revision Record

(7) Record of Temporary Revisions

(8) Introduction

(9) Procedures

C. Refer to SOPM 20-00-00 for a definition of standard industry practices, vendor names and addresses, and an explanation of the True Position Dimensioning symbols used.

D. The data is general. It is not about all situations or specific installations. Use it as a guide to help you write minimum standards.

E. If the component overhaul instructions are different from the data in this subject, use the component overhaul instructions.

INSTALLATION OF PROTECTIVE GROMMETS

1. INTRODUCTION

A. The data in this subject comes from the Boeing part standard documents for the specified grommet.

B. The data is general. It is not about all situations or specific installations. Use this data as a guide to help you write minimum requirements.

2. MATERIALS AND EQUIPMENT

NOTE: Equivalent substitutes can be used.

A. Solvents (SOPM 20-60-01)

(1) Methyl ethyl ketone – TT-M-261

(2) Toluene – TT-T-558

(3) Aliphatic Naphtha – TT-T-95 (replaces BMS 3-2 solvent)

(4) Series 98-1 (SOPM 20-30-98)

B. Adhesives (SOPM 20-50-12)

(1) Type 12

(2) Type 70

(3) Type 82

C. Primer, zinc chromate – TT-P-1757 (SOPM 20-60-02)

D. NAS1368 grommet installation tool – ST1065C or ST1065D or A20006-1 or A20006-32

E. BACG20L grommet installation tool – ST10690

3. SURFACE PREPARATION

A. All of the grommets can be installed on bare metal or all organic or inorganic coatings. Refer to the applicable overhaul instructions for the correct surface preparation and finish.

B. If the instructions tell you to bond the grommet with adhesive, clean the surface with a clean cloth wet with aliphatic naphtha, unless the finish is BMS 10-11 primer or enamel. Use toluene on BMS 10-11 epoxy coatings.

C. Clean with a Series 98-1 solvent (SOPM 20-30-98) the nylon grommet areas to be bonded. Dry with a clean, dry cloth.

4. NAS1368 FLIP TYPE GROMMETS

A. Regular Installation

(1) Put the grommet into the hole in the structure. The performed head can go in one direction or the other, as necessary for easy installation.

(2) Get the installation tool for the grommet to be installed.

NOTE: The dash numbers of ST1065C and D installation tools are the same as the dash numbers of the NAS1368 grommets. For example, tool ST1065C-16 or ST1065D-16 will fit the NAS1368-16 grommet. (The dash number is the nominal inside diameter of grommet in sixteenths of an inch. For example, the NAS1368-16 grommet has a nominal inside diameter of 1.00 inch.)

NOTE: The A20006 tool set comes with a placard on the storage box that tells what tool components to use for each NAS1368 grommet.

(3) Flip the grommet as shown in Figure 1. The installed grommet can be loose in the hole if the flipped leg is sufficiently bent to keep the grommet installed during service. The angle and the height of the flipped leg must be constant around all of the grommet circumference.

B. If the clearance with the adjacent structure is too tight to let you use the installation tool, or to replace a grommet without removal of the wire bundle or cable:

(1) Put the grommet in the installation tool and flip it as shown in Figure 1.

CAUTION: DO NOT GIVE THE FLIPPED LEG OF THE GROMMET MORE THAN A 40 DEGREE FLIP ANGLE.

(2) Cut the grommet with a sharp knife or a razor blade to make an angle cut as shown in Figure 2.

(3) Wipe the two cut edges of the grommet with a clean cloth wet with a Series 98-1 solvent (SOPM 20-30-98). Do not touch the cleaned cut edges with your fingers.

(4) Use the Type 82 adhesive per SOPM 20-50-12 unless the part will be open to fuel or phosphate ester fluids. Use Type 70 adhesive per SOPM 20-50-12 if the part will be open to fuel or phosphate ester fluids.

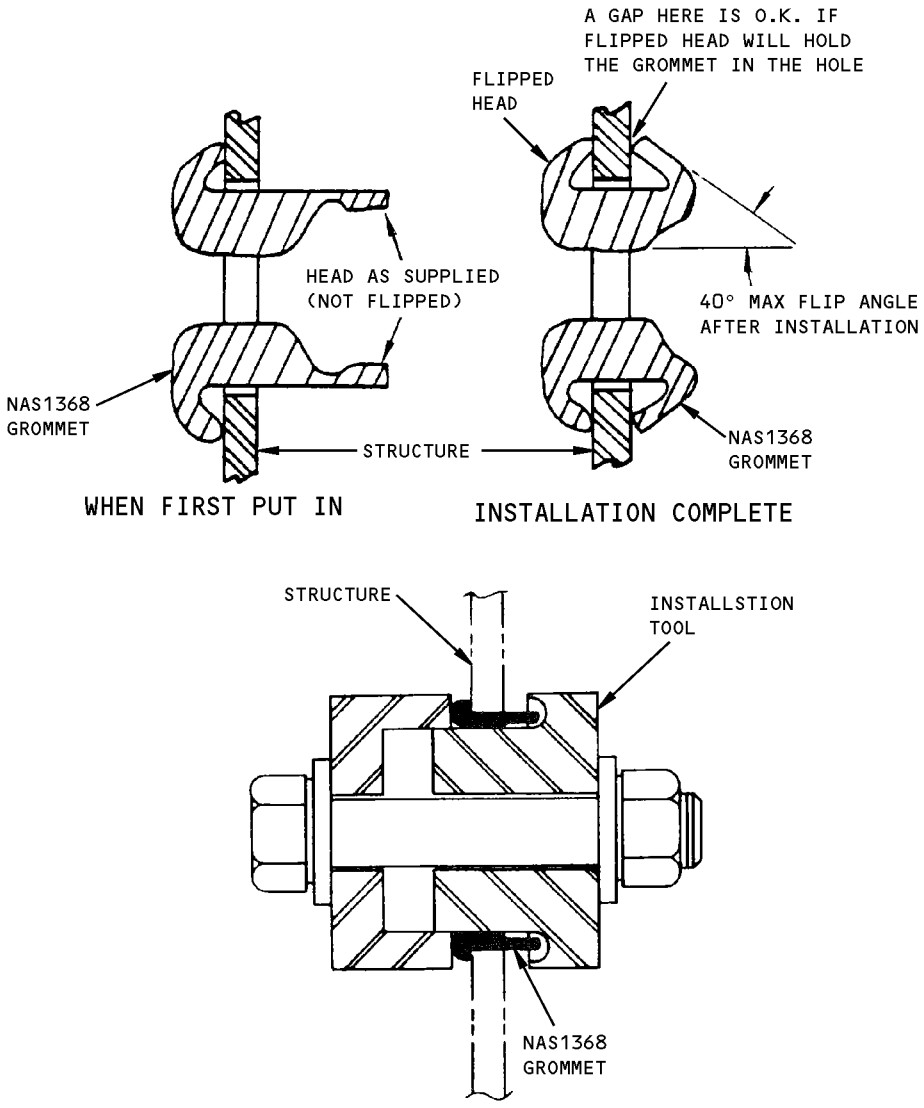
(5) Apply a thin layer of the adhesive to the cut edges of the grommet.

(6) Install the grommet in the hole with the bonded seam at the top.

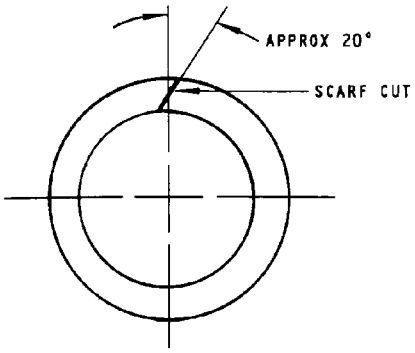
NOTE: If the cut faces of the grommet will not touch each other with sufficient pressure for a good bond (approximately 10 psi), wrap a length of string or wire-bundle tie cord around the grommet and pull it tight. Tie this string with a basic slip knot and keep the ends long for easy removal when the adhesive is cured.

(7) Wipe off unwanted adhesive with a clean cloth wet with a Series 98-1 solvent (SOPM 20-30-98)

(8) Let the adhesive cure as specified in SOPM 20-50-12 before you use the part.



Installation of NAS1368 Flip Type Grommet
Figure 1



How to Cut a Pre-flipped NAS1368 Grommet
Figure 2

5. BACG20Z CATERPILLAR GROMMETS

A. These caterpillar grommets are supplied as strips and must be cut to the correct length at installation. For larger holes two or more pieces can be used, but must be bonded in position. When used in slots or holes with flat or almost flat surfaces, the grommet is bonded to the flat surface to keep the shape in the hole and prevent loose pieces.

B. For one-piece grommets installed in small round holes, an adhesive bond is not necessary. Install with the parting edges at the 12 o'clock position.

C. For installations in large holes, where two pieces of the grommet are necessary, or if the hole shape can cause a loose area, as in slots:

(1) Clean the area around the hole per Paragraph 3.B.

(2) Prepare some Type 82 adhesive (SOPM 20-50-12), unless the part will be open to fuel or phosphate ester fluids. Use Type 70 adhesive (SOPM 20-50-12) if the part will be open to fuel or phosphate ester fluids.

(3) Clean the grommet with a clean cloth wet with a Series 98-1 solvent (SOPM 20-30-98).

(4) Apply a thin layer of the prepared adhesive to the grommet and the mating surface.

(5) Install the grommet with the joints in the top half of the hole. Clean off unwanted adhesive with a clean cloth and a Series 98-1 solvent (SOPM 20-30-98).

(6) Make sure that the grommet has a good bond with the mating surfaces. Let the adhesive cure as specified in SOPM 20-50-12.

D. For installation of the caterpillar grommet material on sharp linear edges of structure under wires or cables:

(1) Clean the linear edge per Paragraph 3.B.

(2) Prepare Type 82 adhesive or Type 70 adhesive per step C.(2) above.

(3) Clean the grommet with a clean cloth wet with a Series 98-1 solvent (SOPM 20-30-98).

(4) Apply a thin layer of the prepared adhesive to the grommet and the mating surface.

(5) Install the grommet material as a strip along the linear edge of the structure. Clean off unwanted adhesive with a clean cloth and a Series 98-1 solvent (SOPM 20-30-98).

(6) Make sure that the grommet material has a good bond with the mating surface. Let the adhesive cure as specified in SOPM 20-50-12.

6. BACG20AD CATERPILLAR GROMMETS

A. These caterpillar grommets are supplied as strips and must be cut to the correct length at installation. They must be used only in flanged holes and must be bonded to the substrate.

B. Cut the grommet ends square. Cut off the necessary length for the hole.

C. Cut the flanged hole per Paragraph 3.B.

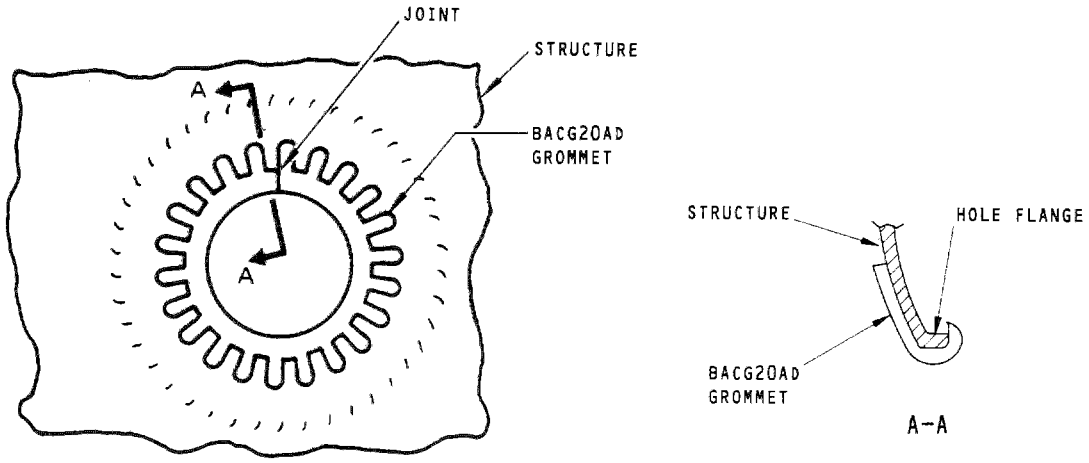
D. Prepare some Type 82 adhesive (SOPM 20-50-12), unless the part will be open to fuel or phosphate ester fluids. Use Type 70 adhesive (SOPM 20-50-12) if the part will be open to fuel or phosphate ester fluids.

E. Clean the grommet with a clean cloth wet with a Series 98-1 solvent (SOPM 20-30-98).

F. Apply a thin layer of the prepared adhesive to the grommet and the mating surface.

G. Install the grommet with the joint in the top half of the hole (Figure 3). Clean off unwanted adhesive with a clean cloth and a Series 98-1 solvent (SOPM 20-30-98).

H. Cure the adhesive as specified in SOPM 20-50-12.



Typical BACG20AD Caterpillar Grommet Installation
Figure 3

7. BACG20H CABLE GROMMETS

A. Clean the area around the hole per Paragraph 3.B.

B. Prepare some Type 12 adhesive per SOPM 20-50-12.

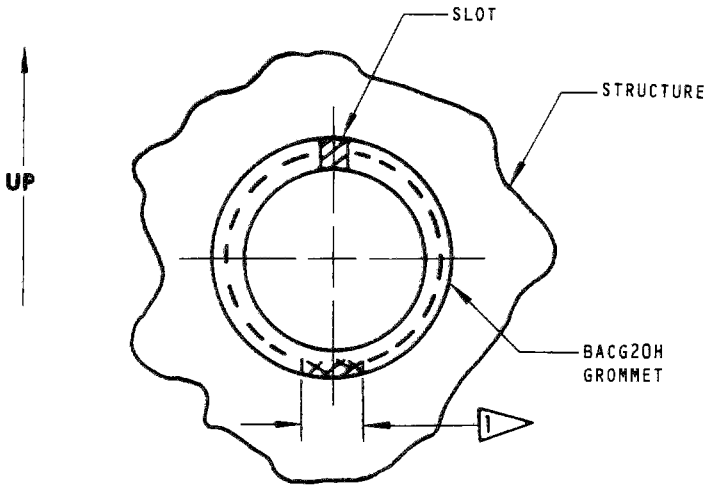
C. Clean the grommet with a clean cloth wet with a Series 98-1 solvent (SOPM 20-30-98).

D. Apply a thin layer of the adhesive to the grommet outside diameter and the hole inside diameter as shown in Figure 4.

E. Let the adhesive dry for 10-20 minutes, or until the adhesive is tacky but will not come off when touched.

F. Install the grommet as shown in Figure 4. Push all surfaces of the grommet down against the mating hole surfaces for a good bond. Clean off unwanted adhesive with aliphatic naphtha.

G. You can use the assembly immediately. No cure time is necessary.



1 ON 707 AND 720 ONLY, KEEP THE ADHESIVE IN THIS AREA (APPROXIMATELY 0.25 INCH).
ON OTHER MODELS, THE BOND AREA HAS NO LIMIT UNLESS SPECIFIED BY OVERHAUL INSTRUCTIONS.

Installation of BACG20H Cable Grommet
Figure 4

8. BACG20L ALUMINUM GROMMETS

A. Apply a layer of zinc chromate primer to the hole surfaces.

B. Installation (Figure 5)

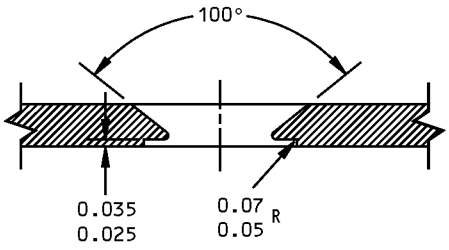
(1) Install the grommet in the hole.

(2) Use the tool to flare the grommet against the hole countersink.

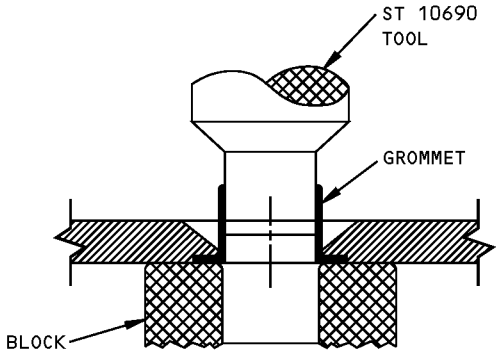
(3) Machine the grommet flush with the surface.

(4) Install the mating bolt with wet zinc chromate primer on the surfaces that will touch the grommet.

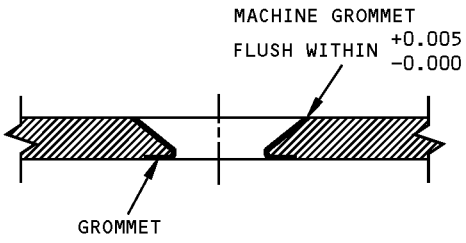
(5) Apply other finishes to the unit as given in the overhaul instructions.



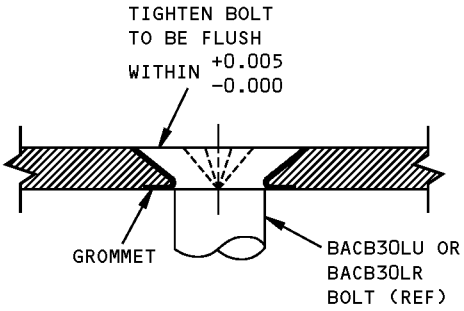
TYPICAL HOLE CONFIGURATION



GROMMET INSTALLATION



GROMMET ADJUSTMENT
AFTER INSTALLATION



INSTALLATION COMPLETE

ALL DIMENSIONS ARE IN INCHES

Installation of BACG20L Aluminum Grommet
Figure 5