



AEROSPACE STANDARD

AS5778™

Issued 1997-08
Reaffirmed 2017-11

Covers, Aircraft Components, General Requirements For

RATIONALE

AS5778 has been reaffirmed to comply with the SAE Five-Year Review policy.

NOTICE

This document has been taken directly from U.S. Military Specification MIL-C-5778D and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards.

The original Military Specification was adopted as an SAE standard under the provisions of the SAE Technical Standards Board (TSB) Rules and Regulations (TSB 001) pertaining to accelerated adoption of government specifications and standards. TSB rules provide for (a) the publication of portions of unrevised government specifications and standards without consensus voting at the SAE Committee level, (b) the use of the existing government specification or standard format, and (c) the exclusion of any qualified product list (QPL) sections.

1. SCOPE:

1.1 Scope:

This specification covers general requirements for covers intended to protect the following aircraft parts:

Cockpit	Fuselage	Canopy
Engine	Armament	
Propeller or Rotor	Miscellaneous	

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2017 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
<http://www.sae.org>

SAE WEB ADDRESS:

Full document details: SAE AS5778

SAE values your input. To provide feedback on this Technical Report, please visit <http://standards.sae.org/AS5778>

Documents
Document Sharing Hub

1.2 Classification:

Covers shall be of the following types, as specified (see 6.2):

Type I - Waterproof Fabric Material (see 3.3.1.1)

Type II - Coated Material (see 3.3.1.2)

2. APPLICABLE DOCUMENTS:

2.1 Government documents:

- 2.1.1 Specifications and standards: The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

T-T-881	Twine, Cotton, Seine
V-F-106	Fastener, Slide, Interlocking
CCC-C-419	Cloth, Duck, Cotton, Unbleached, Plied-Yarns (Army and Numbered)
CCC-D-950	Dyeing and Aftertreating Processes for Cotton Cloths
PPP-B-601	Box, Wood, Cleated-Plywood
PPP-B-636	Box, Shipping Fiberboard

MILITARY

MIL-P-116	Preservation, Methods of
MIL-W-5665	Webbing, Textile, Cotton Warp
MIL-C-10799	Cloth, Coated Cotton, Vinyl Coated, Fire and Mildew Resistant
MIL-R-17343	Rope, Nylon
MIL-C-20696	Cloth, Coated, Polyester or Goop, Synthetic, Nylon, Waterproof
MIL-F-21840	Fastener Tapes, Hook and Loop Synthetic
MIL-M-46032	Fungus Resistant Treatment for Sandbags: Cooper Processes

STANDARDS

FEDERAL

FED-STD-595	Colors
FED-STD-751	Stitches, Seams and Stitching

2.1.1 (Continued):

MILITARY

MIL-STD-100	Engineering Drawing Practices
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-147	Palletized Unit Loads
MIL-STD-831	Test Reports, Preparation of
MIL-STD-2073-1	DoD Material Procedures for Development and Application of Packaging Requirements
MS20230	Grommet, Metallic, Plain and Spur, With Washer, Type I and Type III
MS51700	Streamer, Warning

(Unless otherwise indicated, copies of federal and military specifications, and standards, are available from: Standardization Documents Order Desk Bldg. 4D, 700 Robbins Avenue Philadelphia, PA 19111-5094)

2.1.2 Other Government documents, drawings, and publications: The following other Government documents, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

Commercial Item Description

A-A-52094 Thread, Cotton

(Unless otherwise indicated, copies of commercial item descriptions are available from: Standardization Documents Order Desk Bldg. 4D, 700 Robbins Avenue Philadelphia, PA 19111-5094)

2.2 Non-Government publication:

The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

American Society for Testing and Materials (ASTM)

ASTM D 3951 Standard Practice for Commercial Packaging

(Application for copies of this ASTM should be addressed to American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1183).

2.3 Order of precedence:

In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS:

3.1 First article:

When specified (see 6.4), a sample shall be subjected to first article inspection (see 6.4) in accordance with 4.4.

3.2 General:

In addition to the requirements herein, the requirements specified on the drawings for covers for the particular model of aircraft shall also apply.

3.3 Materials:

Materials shall be as specified herein. Where materials are not specifically designated, they shall be designed or selected to be suitable for the purpose.

3.3.1 Fabric Material:

3.3.1.1 Type I: Unless otherwise specified, Type I materials shall be as specified in 3.3.1.1.1 thru 3.3.1.1.4.

3.3.1.1.1 Transparent plastic canopies: Material conforming to MIL-C-10799 shall be used in the covers for transparent plastic canopies such as the bombardier and pilot compartments, nose section, turrets and sight blisters.

3.3.1.1.2 Engine covers: Material for engine covers shall conform to MIL-C-10799, type II, class 4.

3.3.1.1.3 Warning streamers: Warning streamers, when specified (see 6.2), shall be in accordance with MS51700-12. The streamers shall be long enough to permit at least a 12 inch length exposure when the cover is installed on the aircraft.

3.3.1.1.4 All other covers: For covers not specified in 3.3.1.1.1 thru 3.3.1.1.3, the material shall conform to CCC-C-419, type III, 12.29 ounces per square yard. The material shall be finished in accordance with CCC-D-950, type I, class B.

3.3.1.2 Type II: Unless otherwise specified (see 6.2), the material for type II covers shall conform to MIL-C-20696, type I, class 2. Warning streamers shall be the same as for type I.

- 3.3.2 Thread: Unless otherwise specified, all thread used for sewing shall be in accordance with A-A-52094, ticket No. 16, 4 ply, type II, and shall be the same color as the cover material.
- 3.3.3 Metal fittings: Grommets, eyelets, and fasteners shall conform to the applicable service use.
- 3.3.4 Webbing (type I): Unless otherwise specified, the webbing used for attaching the covers and for all binding and reinforcement shall conform to MIL-W-5665, and shall be the same color as the cover material.
- 3.3.5 Tie cord: Unless otherwise specified, the tie cord used for attaching covers and holding them in place shall be 1/4 inch rope conforming to MIL-R-17343.
- 3.3.6 Twine: Unless otherwise specified, the twine used for wrapping ends of the tie cords shall conform to T-T-881.
- 3.3.7 Mildew proofing: The cotton thread, webbing, and ropes used in engine covers shall be treated in accordance with MIL-M-46032, type I organic solvent dispersion method, except the permissible weight increase shall be 15 percent maximum and the metallic copper content shall be 0.3 ± 0.1 percent by weight.
- 3.3.8 Interlocking fasteners (type I): Except as otherwise specified herein, interlocking slide fasteners shall conform to V-F-106, type IV, style No. 1 or 3, class B, size H, wire-stirrup pull, metal-zinc alloy with natural finish, color 613 of FED-STD-595. An $18 \pm 1/2$ inch fabric thong shall be looped through the wire-stirrup pull and shall be capable of withstanding a tension pull of at least 100 pounds.

3.4 Design and construction:

The covers shall be so designed that when installed they will fit neatly and completely cover the part of the aircraft for which they are intended. The edges of the covers shall fit snugly to prevent ingress of driving rain, snow, or dust. The covers shall not contain any wrinkles or lines of stress concentration. The method of padding valleys on the edges of the covers shall be in accordance with figure I.

- 3.4.1 Stretch loading: The covers, when installed, shall be adjustable to and capable of withstanding a stretch loading of not less than 2 pounds per inch of width in all directions.
- 3.4.2 Seams and stitching: The seams and stitching used in the manufacture of covers shall be in accordance with FED-STD-751.
 - 3.4.2.1 Type I: All sewing shall be done with stitch type 301 to form a type LSc-2 seam with 3/4 inch gage. There shall be not less than four nor more than eight stitches per inch.
 - 3.4.2.2 Type II: All sewing shall be done with stitch type 401 to form a type LSc-2 seam with 3/4 inch gage. There shall be not less than four nor more than eight stitches per inch.

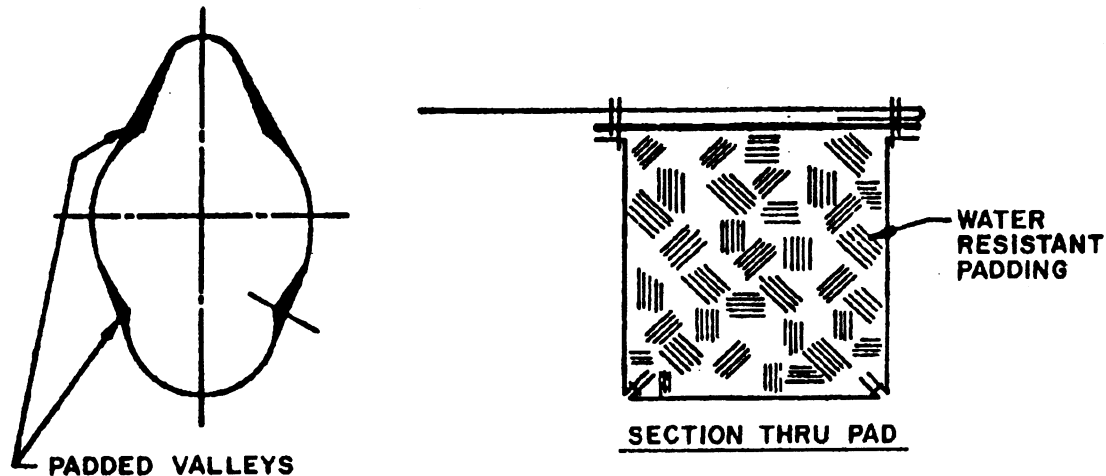


FIGURE 1. Method of padding valleys on edge of engine and cockpit covers.

- 3.4.3 Hems: Covers shall have a hem 1-1/2 inches wide on all free edges. Each edge of each hem shall have one row of stitching.
- 3.4.4 Slits: Slits shall be provided for obstructions such as struts, stay wires, shafts, or other aircraft parts. Slits shall extend to the nearest free edge, unless another position is specified. Unless otherwise specified, the edges of each slit shall be closed by means of an interlocking fastener installed as shown on figure 2. Means for attaching and securing covers shall be accomplished by means of ties, straps, ropes or fasteners on the edge to permit fastening them around fuselage, wings, or some adjacent fittings. The hardware or fittings used for securing the cover shall be padded and the padding permanently attached, by sewing around the periphery, to prevent contact with the aircraft skin.
- 3.4.5 Patches: The covers shall be provided with reinforcement patches where they come in contact with sharp corners or projections.
- 3.4.6 Engine or transmission covers: The engine or transmission cover shall extend beyond the fire wall and the propeller or rotor hub. Typical designs are shown on figures 3 through 7.