

COVER SHIPPING FLEXIBLE (NONREUSEABLE)

1. SCOPE:

This SAE Aerospace Recommended Practice (ARP) defines and establishes design, construction, and performance requirements for a flexible nonreusable waterproof cover for shipment of aircraft engines, major components, and other military and commercial items not intended for storage; items to be removed within fourteen (14) days.

2. APPLICABLE DOCUMENTS:

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal form a part of this specification to the extent specified herein.

2.1.1 U.S. Government Publications: Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

FED-STD-101 Test Procedures for Packaging Materials
FED-STD-191 Textile Test Methods
FED-STD-595 Colors

2.2 Other Publications:

The following documents form a part of this document to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

2.2.1 ASTM Publications: Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 2136 Coated Fabrics - Low Temperature Bend
ASTM D 1044 Abrasion Resistance - Film Materials

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Documents

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2.2.2 Uniform Freight Classification: Available from the Uniform Classification Committee, Room 1106, 22 South Riverside Plaza, Chicago, IL 60606.

3. REQUIREMENTS:

3.1 Materials:

Materials shall conform to this document and the specifications referenced herein or as otherwise stated by the procuring agency.

3.1.1 Barrier Material: Barrier material used in fabrication of the covers shall conform to physical properties as specified in Table 1.

3.1.2 Color of Cover: The color of the cover shall be as specified by the purchasing activity (see 6.2) in accordance with FED-STD-595.

3.2 Cover Design and Construction:

3.2.1 Design: The cover shall be designed to conform to the configuration of the equipment specified.

3.2.2 Patterns: The patterns for the protective covers shall be taken directly from the equipment. Access to the equipment may be as stipulated in the contract.

3.2.3 Fit: Protective covers shall be generally form-fitting without obstructing the flow of air currents and shall be sufficiently loose at extremities to relieve any strain on the closure and ease the installation process, as required.

3.2.4 Construction: The cover shall be constructed using good commercial practices.

3.2.4.1 Closure: The design of the cover shall provide manually operated closure for the rapid installation/removal of the cover on/from the item. Multiple closures are permitted to expedite installation. Closure shall not fail during transport.

3.2.4.2 Installation Instructions: Each cover shall be accompanied by one set of water resistant instructions. The instructions shall include a step-by-step procedure for closing, opening, installing, and removing the cover from the item and handling equipment for which it is designed. The instructions for each design shall be approved by the purchasing activity.

3.2.4.3 Seams: The seams of the cover shall be the overlap type. Seams shall meet all requirements of the barrier material when tested in accordance with 4.5.1 where applied.

3.2.4.4 Draw Straps (Optional): Draw straps shall be installed on the cover to hold loose fitting material close to the item. The straps shall be an integral part of the cover to prevent accidental loss of the strap assembly (see 6.2).

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TABLE 1 - Physical Properties of Barrier Material

Properties	Requirements	Test Paragraph
Flame resistance	The film will show a time of not more than 10 s	4.5.1.1
Abrasion resistance - Avg loss in grams per 2000 wear cycles	.28 g	4.5.1.2
Corrosiveness	No corrosion	4.5.1.3
Resistance to blocking	Slight blocking, No delamination or rupture	4.5.1.4
Resistance to fluids /1/ - fluids tested: defined by user activity	No swelling, delamination, embrittlement, or other visible defects	4.5.1.5
Hydrostatic resistance	No puncture entirely through the material at 136 kg (300 lb)	4.5.1.6
Tensile strength - each direction	9.14 kg/cm.sq (130 psi)	4.5.1.7
Tear strength - pounds force, any direction minimum	178 N (40 lb)	4.5.1.8
Low temperature resistance stiffening temperature (°F)	-40 °C (-40 °F)	4.5.1.9
Lacquer lifting /2/	No appreciable lifting or swelling in the area of control and no exudation of plasticizers from the film	4.5.1.10
Waterproofness	No dye penetration Zero transmittance within 10 min	4.5.1.11
Ply separation - pounds force per inch, minimum	44.5 N (10 lb)	4.5.1.12
/1/ Special design considerations may be necessary due to the corrosive nature of these fluids. Long-term contact with these fluids may require special compatible barriers to protect the cover from physical degradation. /2/ Appreciable means a change that is immediately noticeable in comparing the test specimen with the original.		