

MIL-C-12316E
10 August 1984
SUPERSEDING
MIL-C-12316D
22 May 1969

MILITARY SPECIFICATION

CASE, MAP AND PHOTOGRAPH, COTTON DUCK

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This document covers a cotton duck carrying case with shoulder strap.

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

FEDERAL

L-P-378	-	Plastic Sheet and Strip Thin Gauge Polyolefin
V-T-285	-	Thread, Polyester
FF-R-556	-	Rivet, Solid, Small; Rivet, Split, Small; Rivet, Tubular, Small; Flat Washer (Burr) and Cap, Rivet; General Purpose
UU-P-268	-	Paper, Kraft, Wrapping

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research and Development Center, Natick, MA 01760-5014 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 8460

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- CCC-C-419 - Cloth, Duck, Cotton, Unbleached, Plied-Yarns, Army and Numbered
- CCC-D-950 - Dyeing and Aftertreating Processes for Cotton Cloths
- DDD-L-20 - Label: for Clothing, Equipage, and Tentage, (General Use)
- PPP-B-636 - Boxes, Shipping, Fiberboard

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- MIL-F-495 - Finish, Chemical, Black, For Copper Alloys
- MIL-W-530 - Webbing, Textile, Cotton, General Purpose, Natural or in Colors
- MIL-B-543 - Buckles, Tongueless and Web Strap
- MIL-R-3390 - Ring, Dee
- MIL-F-10884 - Fasteners, Snap
- MIL-C-13924 - Coating, Oxide Black, For Ferrous Metals
- MIL-T-43566 - Tape, Textile, Cotton, General Purpose, Natural or in Colors
- MIL-S-43770/1- Snap Hooks, Wire Body, Fixed Loop Eye, Flat Spring Closure, with Retainer

STANDARDS

FEDERAL

- FED-STD-151 - Metals; Test Methods
- FED-STD-751 - Stitches, Seams, and Stitchings

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-147 - Palletized Unit Loads

DRAWINGS

U.S. ARMY NATICK RESEARCH AND DEVELOPMENT CENTER

- 2-2-220 - Case, Map and Photograph, Cotton Duck; Assembly, Illustration and Details
- 2-2-221 - Case, Map and Photograph, Cotton Duck; Details and Sections
- 2-2-222 - Case, Map and Photograph, Cotton Duck; Map and Photograph Envelopes

(Copies of documents required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

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* 2.2 Other publications. Unless otherwise specified, the following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this document to the extent specified herein.

TECHNICAL ASSOCIATION OF THE
PULP AND PAPER INDUSTRY PUBLICATIONS (TAPPI)

T-411-OS-68 - Thickness and Density of Paper

(Application for copies should be addressed to the Technical Association of the Pulp and Paper Industry, 360 Lexington Avenue, New York, NY 10017.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A 545 - Steel Wire, Carbon, Cold-Heading Quality, for Machine Screws

D 3951 - Standard Practice for Commercial Packaging

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

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 shall take precedence.

3. REQUIREMENTS

* 3.1 First article. When specified, a sample shall be subjected to first article inspection (see 4.3, 6.2, and 6.3).

3.2 Materials and components (see 6.4).

3.2.1 Cloth, duck, cotton. The cloth shall conform to type I, No. 10, hard texture of CCC-C-419.

3.2.1.1 Color and treatment. The finished cloth shall be dyed Olive Drab, 7 and shall conform to type I, class B of CCC-D-950.

3.2.2 Webbing, textile, cotton. The webbing shall be dyed Olive Drab 7 and shall conform to class 4 of MIL-W-530 in the following types and widths:

Type IIa - 2-inch width (for shoulder pad)
Type IIb - 1-inch width (for shoulder strap)
Type III - 1-inch width (for dee ring chape)

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3.2.3 Tape, textile, cotton. The tape for the keeper loops and binding shall be dyed Olive Drab 7, and shall conform to type I, class 4, 3/4-inch width of MIL-T-43566.

* 3.2.4 Thread, polyester. The thread for all stitching shall conform to type I, class 1, sub-class B, size FF, Olive Drab S-1, (C.A. 66022) of V-T-285.

3.2.5 Fasteners, snap. The snap fasteners shall conform to style 2. finish 2, button 24 line size, size 1 and eyelet size 1, any construction, of MIL-F-10884.

3.2.6 Buckles, tongueless, 1-bar. The buckles shall conform to type I, style 2, class 1, size 1-inch of MIL-B-543.

* 3.2.7 Snap, loop eye. The 1-inch loop eye snap shall conform to M 43770/1-CWBC3, M43770/1-CWBC4, M43770/1-SWZE3, or M43770/1-SWZE4 of MIL-S-43770/1.

* 3.2.8 Rings, dee, 1-inch by 3/4-inch. The dee rings shall conform to class 1, configuration K of MIL-R-3390.

* 3.2.9 Rivets, tubular with caps. The tubular rivets shall conform to type XII, class 1, grade E or F, 9/64-inch nominal diameter, 5/16-inch nominal length of FF-R-556, except that grade E rivets and caps shall be fabricated from a low-carbon steel grade 1006 to 1012 as specified in ASTM A 545. The end hole of the type XII tubular rivets shall extend to the head and shall be chamfered on the inside of the rivet shank. Caps required for grade F rivet shall conform to type II cap of FF-R-556. Grade E rivets and caps shall have a black oxide coating conforming to class 1 of MIL-C-13924. Grade F rivets and caps shall have a black chemical finish as specified in MIL-F-495.

3.3 Construction. The construction shall conform to the drawings listed in section 2 and as specified herein.

3.3.1 Envelopes. Each carrying case shall be provided with envelopes in the quantity and sizes as specified herein.

3.3.1.1 Map envelopes. Three map envelopes, 20-1/2 by 23 inches shall be fabricated from polyethylene sheets or tubing conforming to type II, grade C, finish 1, 0.0060-inch nominal thickness, conforming to L-P-378. The envelopes shall be of such transparency that the contents can be easily read or interpreted without being removed.

3.3.1.2 Photograph envelopes. Nine opaque photograph envelopes, 10-1/2 by 11-3/4 inches, shall be fabricated from 0.01 inch \pm 0.002 inch thick sheets of cellulose acetate or cellulose acetate butyrate containing 2 to 3 percent carbon black. The envelopes shall be free of breaks or cracks and shall show no signs of tackiness when tested for cold and heat resistance as specified in 4.4.1.1.

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3.3.2 Stitching, machine. All stitching shall conform to type 301 of FED-STD-751, 6 to 8 stitches per inch.

3.3.2.1 Thread breaks. Thread breaks in stitching shall be overstitched not less than 1 inch at each break.

3.3.2.2 Stitching ends. Stitching at the ends shall be overstitched not less than 1 inch except where ends are turned under in a hem, held down by other stitching or where stitching is performed automatically. Where stitch patterns such as box, or box with cross-stitch are performed automatically, at least 3 or more tying, overlapping or back stitches shall be used to secure the ends.

3.3.2.3 Lubrication of thread. The addition of any lubricant to the polyester sewing thread prior to or during the sewing operations is prohibited.

* 3.3.3 Setting of metallic snap fasteners. A hole shall be prepunched through the material before inserting the stud eyelet tube or the socket eyelet tube. The hole shall be smaller than the outside diameter of the applicable eyelet tube so that the tube must be forced through the hole. Prepunched holes shall not be accomplished by using the stud or eyelet tubes. Fastener components shall be securely clinched without cutting the material. The roll of the clinched eyelet of the assembled fastener component shall not possess more than two scores (splits).

* 3.4 Marking. The identification marking shall be in the location shown on Drawing 2-2-221 and shall conform to type IV, class 5 of DDD-L-20. The letters "US" shall conform to type IV, class 9, in the size and characters indicated on Drawing 2-2-220. Fastness of the class 9 marking shall be as specified for class 5 markings.

3.5 Workmanship. Cloth components shall be clean and free of holes, cut, tears, or cloth defects such as multiple floats or broken or missing yarns. Webbing and tape shall not have frayed or scalloped edges. Thread tension shall be maintained so that there will be no loose stitching and seam allowances shall be maintained so that no runoffs, twists, pleats or open seams will result. All thread ends shall be trimmed. Metal components shall be free of burrs, sharp edges, corroded areas and shall not be broken or malformed. The enamel finish of loop eye snaps shall have no objectionable orange peel, wrinkles, drops, streaks or areas of no film. Envelopes shall be free of scratches or imperfections such as fish eyes, particles of foreign matter and the edges shall be free of nicks and cuts.

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4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

* 4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

* 4.3 First article inspection. When a first article is required (see 6.2), it shall be examined for defects listed in table II and 4.4.3. The presence of any defect shall be cause for rejection of the first article.

* 4.4 Quality conformance inspection. Unless otherwise specified herein, sampling for inspection shall be performed in accordance with MIL-STD-105.

* 4.4.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document.

* 4.4.1.1 Photograph envelope testing. The photograph envelopes shall be tested for the characteristics specified in table I. The lot size shall be expressed in units of envelopes. The sample unit shall be one envelope. For each characteristic, the inspection level shall be S-1 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 6.5.

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TABLE I. Photograph envelope tests

<u>Characteristic</u>	<u>Requirement paragraph</u>	<u>Test method</u>	<u>Number determinations per sample unit</u>	<u>Results reported as</u>
Thickness	3.3.1.2	TAPPI T-411	1	Nearest 0.001 inch
Material identification	3.3.1.2	Std. Comm1.	1	Pass or fail
Carbon black content	3.3.1.2	Std. Comm1.	1	Nearest 0.1%
Cold and heat resistance	3.3.1.2	4.5.1	1	Pass or fail

* 4.4.2 In-process inspection. Examination shall be made of the following requirements, operations, or assemblies to establish conformance to specified requirements. Whenever nonconformance is noted, correction shall be made to the items affected, the lot in progress, and to the operation. Parts which cannot be corrected shall be removed from production.

<u>Requirement, operation or assembly</u>	<u>Requirement paragraph or drawing</u>
Cut dimensions of body components prior to assembly	Drawing 2-2-221
Cut dimensions of pocket pieces prior to forming pocket pleats	Drawing 2-2-221
Body, side panels and gores are prestitched prior to binding operation	Drawing 2-2-221
Pocket pleats are formed and stitched down 1/8 inch from bottom of pocket prior to application of binding	Drawing 2-2-221
No lubrication of polyester thread prior to or during sewing operations	3.3.2.3
Holes punched to receive snap fasteners	3.3.3

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* 4.4.3 End item visual examination. The end item shall be examined for the defects listed in table II. The lot size shall be expressed in units of cases. The sample unit shall be one case. The inspection level shall be II and the AQL, expressed in terms of defects per hundred units, shall be 6.5 for major defects, 15.0 for major and minor A combined defects, and 25.0 for total (major, minor A and minor B combined) defects.

TABLE II. End item visual defects

Examine	Defect	Classification	
		Major	Minor A B
Fabric	Any smash, weak place, broken or missing yarns, multiple floats or open places clearly visible at normal inspection distance (approximately 3 feet)	X	
	Shade bar, or fine or coarse filling bar		X
	Hole, cut, or tear	X	
Webbing and tape	Frayed or scalloped edge, holes, cuts, tears, and missing yarns	X	
Hardware:	Broken or malformed; protective finish omitted; corroded area; burrs or sharp edges which may damage the item or cause injury in handling	X	
Snap fasteners	Not securely clinched so that they may become disengaged from body, or clinched excessively tight cutting material; fasteners fail to snap in a closed position or to open freely	X	
	More than two scores (splits) per fastener		X
Rivets	Not securely clinched so that rivets may become disengaged		X
	Rough chamfer edge on shank		X
Snap, loop eye	Spring loose or defective, i.e. causing spring to jam or remain in an open position	X	
	Spring does not exert pressure on body at opening		X
	Enamel finish shows orange peels, wrinkles, drops, streaks, or areas of no film, when applicable.	X	

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TABLE II. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor A B
Seams and stitching	Open seams:		
	- 1/2 inch or less		X
	- more than 1/2 inch but not more than 1 inch		X
	- more than 1 inch	X	
	Run-offs (see open seams)		
	Thread breaks overstitched less than 1 inch		X
	NOTE: A seam shall be classified as open when one or more stitches joining a seam are broken and not overstitched, when there are two or more continuous skipped stitches, or when run-offs occur. On double stitched seams, a seam shall be classified as open when one or both sides of a seam are broken.		
	Any raw edge; mends or darns; needle chews	X	
Seam and stitch type	Wrong seam or stitch type	X	
Stitch tension	Loose, resulting in a loosely exposed top or bobbin thread		X
	Tight, resulting in excessive tightness or puckering of fabric		X
Stitches per inch	One stitch less than minimum specified		X
	Two or more stitches less than minimum specified		X
	One or two stitches in excess of maximum specified		X
	Three or more stitches in excess of maximum specified		X
	NOTE: Variation in the number of stitches per inch, caused by the operator speeding up the machine and pulling the fabric in order to sew over heavy places, heavy seams or in turning corners, shall be classified as follows:		

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TABLE II. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor A B
Stitches per inch (cont'd)	a. Within the minor B defect classification - no defect		
	b. Within the minor A defect classification - minor B defect		
Stitching margins and stitching gage	Not as specified		X
Stitching ends	Overstitched less than 1-inch (except where ends are held down by other stitching, turned under in a hem or where stitching is performed automatically)		X
	Secured with less than 3 tying, overlapping, or back stitches where automatic stitching is performed		X
Boxstitching	Incomplete:		
	- one end row of stitching omitted		X
	- two end rows of stitching omitted	X	
	- any other row of stitching omitted	X	
Bartack	Not running in correct direction		X
Envelopes	Any hole, cut, crack, or tear	X	
	Folding margin not bonded	X	
	Alternate method, heat seal open more than 1 inch	X	
	Two or more envelopes omitted	X	
	One envelope omitted		X
	Heat seal improperly applied		X
Construction and workmanship			
Components and assembly	Any required component or operation omitted (unless otherwise specified herein)	X	
	Any required operation not as specified	X	

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TABLE II. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor A B
Binding	Improperly or loosely applied; ends not finished as specified		X
Pocket compartments	Partition stitching forming pockets omitted, or obstructing passage	X	
Body flap	Corners not rounded, or irregularly shaped		X
Shoulder pad	Not one continuous piece forming double ply Ends not abutted by more than 1/8 inch		X X
Markings	Omitted, incorrect, illegible, misplaced, or character size not as specified		X
Cleanness	Grease or oil stains; thread ends not trimmed throughout		X

* 4.4.4 End item dimensional examination. The end item shall be examined for conformance to the dimensions specified on the drawings. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of cases. The sample unit shall be one case. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

* 4.4.5 Packaging inspection. An examination shall be made to determine that preservation, packing, and marking comply with section 5 requirements. Defects shall be scored in accordance with table III. The sample unit shall be one shipping container fully packaged with the exception that it need not be closed. Defects of closure listed below shall be examined on shipping containers fully packaged. The lot shall be expressed in units of shipping containers. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

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TABLE III. Packaging defects

<u>Examine</u>	<u>Defect</u>
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.
Materials	Any component missing or damaged.
Workmanship	Inadequate application of components, such as incomplete closure of container flaps, loose strapping, or improper taping. Bulged or distorted of container.
Content	Number of units per container is more or less than required

* 4.4.6 Palletization examination. An examination shall be made to determine that palletization complies with section 5 requirements. Defects shall be scored in accordance with table IV. The sample unit shall be one palletized unit load fully packaged. The lot size shall be the number of palletized unit loads in the inspection lot. The inspection level shall be S-1 and the AQL, expressed in terms of defects per hundred units shall be 6.5.

TABLE IV. Palletization defects

<u>Examination</u>	<u>Defect</u>
Finished dimension	Length, width, or height exceeds specified maximum requirement.
Palletization	Palletized pattern not as specified. Interlocking of loads not as specified. Load not bonded with required straps as specified.
Weight	Exceeds maximum load limits.
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.

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4.5 Methods of inspection.

- * 4.5.1 Cold and heat resistance test. Condition the photograph envelopes at a temperature of minus 10°F for 1 hour. After conditioning, bend the envelopes on a surface having a 2-inch radius and examine to determine conformance to 3.3.1.2. Then condition the envelopes at a temperature of 125°F for 1 hour and examine to determine conformance with 3.3.1.2. Any break, crack, or tackiness shall be considered a test failure.

5. PACKAGING

- 5.1 Packing. Packing shall be level A, B, or Commercial as specified (see 6.2).

- * 5.1.1 Level A packing. Twenty complete cases, with envelopes and carrying straps placed inside the body, shall be packed upright on end within a fiberboard shipping container conforming to style RSC-L, V2s of PPP-B-636. The inside of each container shall be fitted with a box liner conforming to type CF, class domestic, variety DW, grade 275 of PPP-B-636. The approximate inside dimensions of each shipping container shall be 21 inches in length, 13-1/2 inches in width, and 13 inches in depth. Approximate dimensions are furnished as a guide only. Each container shall have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to type I, grade B of UU-P-268. Each shipping container shall be closed, in accordance with method III as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.5.
- * 5.1.2 Level B packing. Twenty complete cases, with envelopes and carrying straps placed inside the body, shall be packed upright on end within a fiberboard shipping container conforming to style RSC-L, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. The inside of each shipping container shall be fitted with a box liner conforming to type CF, class domestic, variety SW, grade 275 of PPP-B-636. The approximate inside dimensions of each shipping container shall be 21 inches in length, 13-1/2 inches in width, and 13 inches in depth. Approximate dimensions are furnished as a guide only. Each container shall have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to type I, grade B of UU-P-268. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.5.
- * 5.1.2.1 Weather-resistant fiberboard container. When specified (see 6.2) the shipping container shall be grade V3c, V3s or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.5.
- * 5.1.3 Commercial packing. The complete cases shall be packed in accordance with ASTM D 3951.

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5.2 Palletization. When specified (see 6.2) cases packed as specified in 5.1, shall be palletized on a 4-way entry pallet in accordance with load type Ia of MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L or film bonding means O or P. Pallet patterns shall be in accordance with the appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course. If the container is of a size which does not conform to any of the patterns specified in MIL-STD-147 the pallet pattern used shall first be approved by the contracting officer.

5.3 Marking. In addition to any special marking required by the contract or purchase order, shipping containers and palletized unit loads shall be marked in accordance with MIL-STD-129 or ASTM D 3951, as applicable.

6. NOTES

- * 6.1 Intended use. The case is used to carry maps, photographs and equipment for sketching.
- * 6.2 Ordering data. Acquisition documents should specify the following:
- a. Title, number, and date of this document.
 - b. When a first article is required (see 3.1, 4.3 and 6.3).
 - c. Selection of applicable levels of packing (see 5.1).
 - d. When weather-resistant fiberboard is required for level B shipments (see 5.1.2.1).
 - e. When palletization is required (see 5.2).
- * 6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209-4. The first article should be a preproduction sample consisting of one finished map and photograph case. The contracting officer should include specific instructions in all acquisition documents regarding arrangements for inspection and approval of the first article.
- * 6.4 Commercial product. A suggested source of supply for polyethylene sheets or tubing as specified in 3.3.1.1 is AAA Brand Plastic Industries, 4041 Ridge Avenue, Bldg. 31, Scotts Lane, Philadelphia, PA 19129.
- * 6.5 Recycled material. It is encouraged that recycled material be used when practical as long as it meets the requirements of the document (see 3.2).
- 6.6 Changes from previous issue. The margins of this document are marked with with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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Custodians:

Army - GL
Navy - NU
Air Force - 99

Preparing activity:

Army - GL
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Review activities:

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