

MIL-STD-801A  
13 May 1981  
SUPERSEDING  
MIL-STD-801  
27 May 1959  
(see Section 6)

MILITARY STANDARD  
INSPECTION  
&  
ACCEPTANCE STANDARDS  
FOR PROPULSION  
FLUID CELLS & FITTINGS



MIL-STD-801A  
13 May 1981

DEPARTMENT OF DEFENSE  
Washington, DC 20301

Inspection and Acceptance Standards for Propulsion Fluid Cells and Fittings

MIL-STD-801A

1. This Military Standard is approved for use by all Departments and Agencies of the Department of Defense.
2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: ASD/ENESS, Wright-Patterson AFB, OH 45433, by using the self-addressed Standardization Document Improvement Proposal (DD form 1426) appearing at the end of this document or by letter.

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## 1. SCOPE

1.1 Scope. This standard applies to all fluid cells manufactured in accordance with:

MIL-T-5578  
MIL-T-6396 (Except Type I)  
MIL-T-27422

1.2 Purpose. The purpose of this standard is to establish:

- a. A classification of commonly occurring defects in fluid cells and cell fittings.
- b. Standards for normal finish operations.
- c. Standards for acceptance limits of repair on new cells in the manufacturer's plant.
- d. Limits of acceptable conditions requiring no repair.
- e. Inspection criteria for acceptance determination of cells that have been subjected to quality control stand or dissection tests prescribed in MIL-T-5578, MIL-T-6396 and MIL-T-27422.

1.3 Application. This standard, when referenced in a specification or in a Government procurement document, shall govern the inspection of production fluid cells in the manufacturer's and prime contractor's plants or at government facilities to the extent specified in the contract under which the cells are being procured.

## 2. REFERENCED DOCUMENTS

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

## SPECIFICATIONS

## MILITARY

MIL-T-5578	Tanks, Fuel, Aircraft, Self Sealing
MIL-T-6396	Tanks, Fuel, Oil, Water-Alcohol, Coolant Fluid, Aircraft, Non-Self-Sealing, Removable Internal
MIL-T-27422	Tank, Fuel, Crash-Resistant, Aircraft

## STANDARD

## MILITARY

MIL-STD-105      Sampling Procedures and Tables for Inspection by Attributes

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

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### 3. DEFINITIONS

3.1 Approved repair procedures. Approved repair procedures are those repair procedures that have been approved by the local government inspector.

3.2 Back rind. Back rind is a surface blemish defect caused by mold flash material becoming folded inside a fitting cavity when the mold is opened and immediately closed to allow the plates to align or when a fitting is given a second cure.

3.3 Baffle shoes. Baffle shoes are fabric straps usually having holes protected by grommets. These straps are attached to the liner of the cell for the purpose of securing the internal baffles.

3.4 Bleeder patch. A bleeder patch is a patch on the outside of a cell which covers the cut ends of bleeder cords. NOTE: Bleeder cords are cords which are built in between the plies for the purpose of evacuating solvents and trapped air from between plies of a cell.

3.5 Blister. A blister is an area of no adhesion between plies of the cell wall. It is usually pressurized considerably above atmospheric pressure.

3.6 Design failure. Failure caused by a physical breakdown of the cell or attach points as a result of imposed loads which the cell was not designed to withstand.

3.7 Deterioration of construction or construction failure. A failure caused by action of the test fluid on any ply or coat of cement or barrier in the cell.

3.8 Dissection test. A destructive test in which the cell is sectioned to permit critical examination of the interstitial areas of the cell (see MIL-T-5578, MIL-T-6396, and MIL-T-27422).

3.9 Fitting leakage. Leakage at the sealing surface of a fitting.

3.10 Fried or scarred condition. An area in the liner material which has become spongelike, where solvent laden adhesive has "blown" during the vulcanization procedure.

3.11 Hanger straps. Straps applied to the outside surface of cells for the purpose of handling cells or securing cells in the cavities.

3.12 Inspector. The quality control inspector or engineer who is directly responsible for the procuring agency quality control function.

3.13 Looseness. Area of nonadhesion.

3.14 Lumps and craters. Depressions or craters caused by scuffing of uncured gum stocks or inclusion of cement lumps or foreign material.

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- 3.15 Manufacturing defect. A defect caused by the cell not being fabricated in accordance with applicable drawings and specifications.
- 3.16 Manufacturing damage. Damage incurred while the cell is in the process of manufacture.
- 3.17 Multiple construction cell. A cell which consists of more than one basic construction.
- 3.18 Stand test. A static test in which the test cell is filled with fuel or test fluid for a given period of time and then examined for evidence of leakage or material deterioration (see MIL-T-5578, MIL-T-6396, and MIL-T-27422).
- 3.19 Step off.
- a. The edge of a lap of one or more plies of material.
  - b. The edge of discontinued plies in a multiple construction cell.
- 3.20 Repair damage. Damage incurred during repair or finishing operation.
- 3.21 Total effective bond. Amount of bond in fitting flange or lap splice whether or not bond is continuous.
- 3.22 Crashworthy tanks. The column heading, CRASH RESISTANT TANKS, which appears in tables I, II, and III applies to both self-sealing and non-self-sealing crash resistant tanks.
- 3.23 Delamination. A delamination is an area of no adhesion between plies of the cell wall and of such magnitude as to prevent the cell from satisfactorily performing its primary function, that is, to hold propulsion fluid. A delamination is not an area in which adhesion between plies is intermittent, such as where the fabric innerliner adheres primarily to the high points produced by the coarse weave of a reinforcing layer of fabric and does not adhere to the low points (valleys). These areas are essentially unpressurized and do not prevent the cell from satisfactorily holding propulsion fluid.

#### 4. GENERAL STATEMENTS OF REQUIREMENTS

- 4.1 Inspection requirements. The inspection requirements prescribed herein are not intended to supersede or delete any existing quality control standards but to supplement them. It is expected that the manufacturer or procuring activity will conduct further tests and have other detailed requirements in excess of those specified herein.
- 4.2 Results. Reporting of results of tests and inspections conducted in accordance with this standard will be in accordance with the applicable contract requirements.

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## 5. DETAILED STATEMENTS OF REQUIREMENTS

5.1 Classification of defects. Defects are herein considered with regard to character and extent. Defects are classified and limited to fall within one or more of the following classes as defined in MIL-STD-105:

- a. Critical. A critical defect is one that judgment and experience indicate could result in hazardous or unsafe conditions for individuals using or maintaining the product; or for major end-item units of which the product is a component, such as ships, aircraft, or tanks; a defect that could prevent performance of their tactical function.
- b. Major. A major defect is a defect, other than critical, that could result in failure, or materially reduce the usability of the unit or product for its intended purpose.
- c. Minor. A minor defect is one that does not materially reduce the usability of the unit or product for its intended purpose or is a departure from established standards having no significant bearing on the effective use or operation of the unit.

5.1.1 Unlisted defects. Unlisted defects, when deemed by the Inspector to be such as to adversely affect the serviceability or strength of the cell or fitting, shall be classified in accordance with the above criteria.

## 5.2 Use of tables (See table V for summary)

5.2.1 Table I. Corrections of discrepancies listed in table I are considered to be normal finishing operations and will not be counted as defects when properly repaired prior to the time the cell (or fitting) is submitted for acceptance or if the repairs are accomplished prior to initiation of stand or dissection tests. An "X" in one or more of the seven columns on the right hand side of the chart indicates the type of cell(s) or fitting(s), or the portion of the cell (interior, exterior) to which a particular inspection is considered applicable.

5.2.2 Table II. This table presents acceptance standards for various defects that may occur on fuel cells that are submitted by the fluid cell manufacturer for acceptance by the procuring activity. This table is also used for inspection of stand or dissection tested cells (see 5.2.3). The left hand columns indicate the applicability of each defect in regard to type of cell, fitting, or location of defect (interior, exterior).

5.2.3 Table III. This table lists inspections and defects that are unique to stand tested cells. For stand tested cells the inspections listed in table III will be conducted in addition to the inspections of table II. Stand tests are normally conducted in fixtures lined with brown paper. The "stains" referred to in this table are the stains showing on the brown paper when cells are defective. If some alternate method of leak detection is used for stand tests, equivalent criteria will be used for defect classification. Leaks that cannot be attributed to physical damage or shown to be a unique case will be classified as a critical defect.



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5.2.4 Table IV. Table IV lists defects that are applicable to dissection tested cells. These inspections are to be conducted on dissection tested cells in addition to the inspections of table II. Item 6 of table IV is applicable to replacement fittings that are subjected to dissection tests on a sampling basis as well as to dissection tested cells.

5.2.5 Table V. Table V summarizes the contents of 5.2 and 5.3.

5.3 Action to be taken on identified defects. (See table V for a summary of these actions.)

5.3.1 Minor defects. Discrepancies classified as minor defects will be considered acceptable without repair provided they do not exceed the following limits:

a. Cell interior - One per 10 sq. ft. of total cell area. NOTE: Where an accumulation of minor defects does not exceed the limits specified in the table, they will be considered one defect. For example, an accumulation of five 1/4 inch blisters in any one 5 ft. length of splice (table II, defect 1.a) will be counted as one minor defect.

b. Cell exterior - Not to exceed limits specified in table.

c. Installed fittings - Minor defects in installed fittings will be counted and included when determining acceptability of cells without repair per 5.3.1.a. and b.

d. Replacement fittings - Replacement fittings submitted for acceptance will be considered as acceptable without repair if minor defects do not exceed the following:

(1) Fittings with bolt circle of 6 inches or less - two minor defects permitted.

(2) Fittings with bolt circles larger than 6 inches - three minor defects permitted. NOTE: For noncircular fittings, consider bolt circle to be largest dimension of fitting.

Minor defects in excess of the criteria listed above will be considered a major defect and repaired prior to acceptance.

5.3.2 Major defects. Major defects in cells or replacement fittings submitted for acceptance under a production contract will be corrected using an approved repair procedure prior to acceptance. Major defects detected in cells during stand or dissection tests or in separate fittings subjected to destructive sampling tests shall be analyzed to determine cause. If the defect can be shown to be a unique case, the lot represented by the defective item may be accepted. If not unique, all like defects must be repaired using the approved repair procedure prior to acceptance of the lot and appropriate alterations must be made in the manufacturing process to prevent repetition of the defect.

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5.3.3 Critical defects. Critical defects in cells or replacement fittings that are submitted for acceptance under a production contract will be cause for rejection of the cell. The cell may be deliverable if the manufacturer can devise a special repair technique along with a test procedure, both of which are acceptable to the procuring activity. When a critical defect is identified in cells subjected to stand or dissection tests, the procuring activity will be notified immediately. If a critical defect is identified during the production sampling test, production will be stopped until the problem is resolved and a course of action established that is mutually satisfactory to the cell vendor and the procuring activity.

## 6. NOTES AND CONCLUDING MATERIAL

6.1 Supersession note. The following documents are superseded by MIL-STD-801: ANA Bulletin 107, "Inspection Standards for Stand and Dissection Tested Self-sealing Fuel and Oil Cells;" ANA Bulletin 112, "Acceptance Standards for Self-sealing Fuel and Oil Cells;" ANA Bulletin 434, "Acceptance Standards for Non-self-sealing Type Cells;" and ANA Bulletin 435, "Inspection Standards for Stand and Dissection Tested Non-self-sealing Type Cells."

Custodians:  
Army - AV  
Navy - AS  
Air Force - 11

Preparing activity:  
Air Force - 11  
Project 4730-0006

TABLE I. Fluid cell finishing operations.

CORRECTION OF THE ITEMS LISTED IN THIS TABLE ARE NORMAL FINISHING OPERATIONS AND WILL NOT BE COUNTED AS A DEFECT OR REPAIR WHEN COMPLETED. SEE TABLE II FOR DEFECTS THAT DO NOT REQUIRE REPAIR.

	BLADDER TANKS	SELF SEALING TANKS	TANK EXTERIOR	TANK INTERIOR	REPLACEMENT FITTINGS	INSTALLED FITTINGS	CRASH RESISTANT TANKS
1. LOOSE CORNER PATCH	X	X	X	X	X	X	X
2. BLISTERED CHAFING STRIPS	X	X	X	X		X	X
3. LOOSE BAFFLE SHOES	X	X	X	X		X	X
4. LOOSE LINER AT THROAT OF FITTING THAT CAN BE REPAIRED BY TRIMMING, RETAINING MINIMUM BOND PERMITTED BY APPLICABLE SPECIFICATION	X	X	X	X		X	X
5. LOOSE LINER OR OUTER PLY LAP THAT CAN BE REPAIRED BY TRIMMING OR USE OF ADHESIVES MAINTAINING MINIMUM BOND PERMITTED BY APPLICABLE SPECIFICATION	X	X	X	X			
6. EDGE LOOSENESS ON REINFORCEMENT, ATTACHING STRAPS, CHAFING STRIPS, TABS, ETC.	X	X	X	X			X
7. COATING OF EXPOSED FABRIC EDGES AFTER CURE, PROVIDED FABRIC IS NOT DAMAGED. EXPOSED FABRIC EDGES ARE ACCEPTABLE.	X	X	X	X			X
8. BLISTERS BETWEEN LINER OR OUTER PLY AND FITTING FLANGES	X	X	X	X		X	X
9. DAMAGED GROMMETS IN ACCESSORIES	X	X	X	X			X
10. DAMAGED COATING ON METAL, RUBBER, OR WOOD ACCESSORIES	X	X	X	X			X

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TABLE I. Fluid cell finishing operations. - Continued

BLADDER TANKS  
 SELF SEALING TANKS  
 TANK EXTERIOR  
 TANK INTERIOR  
 REPLACEMENT FITTINGS  
 INSTALLED FITTINGS  
 CRASH RESISTANT TANKS

	X	X	X	X	X	X	X	X	X
11. IMPROPER OR LACK OF IDENTIFICATION MARKING, EXCEPT REPLACEMENT OF CEMENTED LABELS									
12. SKIM COAT BLISTERS	X	X	X	X	X	X	X	X	X
13. SKIM COAT OFF OUTER PLY, PROVIDED CORDS OR FABRIC NOT DAMAGED	X	X	X	X	X	X	X	X	X
14. MISSING BLEEDER PATCH	X	X	X	X	X	X	X	X	X
15. MISSING OR MISLOCATED TRIM TAPE	X	X	X	X	X	X	X	X	X
16. RUST OR DIRT IN THREADS OR DEFECTIVE THREADED INSERTS	X	X	X	X	X	X	X	X	X
17. METAL FINISH DAMAGE	X	X	X	X	X	X	X	X	X
18. BENT FITTINGS THAT CAN BE STRAIGHTENED WITHIN STRESS LIMITATIONS	X	X	X	X	X	X	X	X	X
19. FLASH ON FITTING FLANGE TIPS, INSIDE DIAMETERS, THROUGH HOLES, ETC.	X	X	X	X	X	X	X	X	X
20. TEARS IN FITTING FLANGES THAT CAN BE TRIMMED WITHOUT VIOLATING APPLICABLE SPECIFICATION MINIMUM FLANGE LENGTH	X	X	X	X	X	X	X	X	X
21. DEFECTS SUCH AS MOLDING MARKS, CUTS, OR DEPRESSIONS THAT CAN BE CORRECTED BY BUFFING AND STILL MAINTAIN SPECIFICATION TOLERANCES	X	X	X	X	X	X	X	X	X
22. EXPOSED FABRIC CORDS THAT CAN BE CORRECTED BY SEAL COATING PROVIDED FABRIC IS NOT DAMAGED	X	X	X	X	X	X	X	X	X

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TABLE II. Acceptance standards.

CRASH RESISTANT TANKS	SELF SEAL TANKS	BLADDER TANKS	TANK INTERIOR	TANK EXTERIOR	INSTALLED FITTINGS	REPLACEMENT FITTINGS	DEFECT	MINOR	MAJOR	CRITICAL
X	X	X	X	X			1. AREAS OF NONADHESION OR BLISTERS BETWEEN INNER LINER LAPS	X		
							a. 1/4 inch maximum dimension (1/2 inch for crash resistant cells) - Average 1 per 5 linear ft. of splice with maximum of 5 in any one 5 ft. length of splice b. Areas in excess of 1.a.		X	
X	X	X	X	X			2. BLISTERS BETWEEN PLYS OR BETWEEN INNER LINER AND SEALANT	X		
							a. 1 inch maximum dimension b. Blisters between plys in excess of 2.a.		X	
X	X	X	X	X			3. BLISTERS BETWEEN FITTING FLANGE AND ADJACENT PLY			
							a. 1/4 inch maximum dimension - Maximum of 1 in any 1 linear ft. of flange, or maximum of 1 per fitting when flange is less than 1 linear ft b. In excess of 3.a.	X		
X	X	X	X	X			4. BLISTERS BETWEEN ATTACHMENTS AND OUTER OR INNER PLY			
							a. Not exceeding 15% looseness provided a continuous bond at least 1/4 inch wide is maintained around edge except at step-off where item 8 applies b. In excess of 4.a.	X		X

NOTE: A MINIMUM EFFECTIVE BOND AS REQUIRED BY THE APPLICABLE DETAIL SPECIFICATION SHALL BE MAINTAINED. IF NOT SPECIFIED, A ONE INCH MINIMUM EFFECTIVE BOND WILL BE MAINTAINED. DEFECTS VIOLATING THE APPLICABLE MINIMUM BOND REQUIREMENT WILL BE CLASSIFIED AS A MAJOR DEFECT.

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TABLE II. Acceptance standards. - Continued

DEFECT	REPLACEMENT FITTINGS					INSTALLED FITTINGS					MINOR	MAJOR	CRITICAL		
	CRASH RESISTANT TANKS	SELF SEAL TANKS	BLADDER TANKS	TANK INTERIOR	TANK EXTERIOR	CRASH RESISTANT TANKS	SELF SEAL TANKS	BLADDER TANKS	TANK INTERIOR	TANK EXTERIOR					
5. CHANNELS BETWEEN PLYS AT BURIED EDGE OF LAP SPLICES AND IN TRANSITION AREA, ENTIRE LENGTH OF SPLICE															
a. In excess of 1/4 inch in width	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
b. In excess of 3/8 inch in width for crash resistant tanks															
6. CHANNEL AROUND ENTIRE OUTER EDGE OF FITTING FLANGE															
a. In excess of 1/4 inch in width	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
b. In excess of 1/2 inch in width for crash resistant tanks															
7. CHANNEL AROUND ENTIRE THROAT OF FITTING FLANGE															
a. Up to 1/4 inch in width	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
b. In excess of 7.a.															
c. In excess of 1/2 inch in width for crash resistant cells															
8. CHANNELS AT FABRIC COMPONENTS															
a. 1/4 inch maximum dimension - Maximum of 1 in any 1 linear ft	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
b. In excess of 8.a.															
c. In excess of 8.a. and 8.b. for crash resistant tanks															

TABLE II. Acceptance standards. - Continued

	CRASH RESISTANT TANKS	SELF SEAL TANKS	BLADDER TANKS	TANK INTERIOR	TANK EXTERIOR	INSTALLED FITTINGS	REPLACEMENT FITTINGS	MINOR	MAJOR	CRITICAL
9.	X	X	X	X						
DEFECT OPEN END CHANNELS IN 3 PLY-LINER OVERLAPS OR TAILORED CORNERS										
a.								X		
Less than 1/8 inch wide by 3 inches long and less than 1 inch bond maintained between end of channel and barrier. (N/A if 1" bond is maintained)										
b.									X	
In excess of 1/8 inch wide by 3 inches long.										
10.	X		X	X						
FRIED OR SCARRED CONDITION OR THINNING OUT OF GUM INNER LINERS IN BLADDER TANKS										
a.								X		
Less than 1/2 thickness										
b.									X	
In excess of 1/2 of specified thickness of liner										
11.	X	X	X	X						
FRIED OR SCARRED CONDITION OR THINNING OUT OF GUM INNER LINER IN SELF-SEALING TANKS - In excess of 1/2 of specified liner thickness (less than 1/3 - no defect)										
12.	X	X	X	X						X
CUTS OR HOLES IN INNER LINER RESULTING FROM IMPROPER TOOLS OR USE OF TOOLS <u>1/</u>										
13.	X		X	X						
LUMPS, CRATERS OR FOREIGN MATERIALS IN BLADDER CELL GUM INNER LINERS										
a.								X		
Up to 1/2 of specified liner thickness										
b.									X	
In excess of 1/2 thickness										

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	CRASH RESISTANT TANK	SELF SEAL TANKS	BLADDER TANKS	TANK INTERIOR	TANK EXTERIOR	INSTALLED FITTINGS	REPLACEMENT FITTINGS	MINOR	MAJOR	CRITICAL
14.	X	X	X	X	X					
LUMPS, CRATERS OR FOREIGN MATERIALS IN SELF-SEALING CELL GUM INNER LINERS										
a.								X		
Up to 1/2 of specified liner thickness										
b.									X	
In excess of 1/2 specified liner thickness										
15.	X	X	X	X	X					
SEPARATION OF CEMENTED COMPONENTS (CHAFING STRIPS, TABS, ETC.) IN EXCESS OF 15% TOTAL AREA										
16.	X	X	X	X	X					
DELAMINATION OR SEPARATION BETWEEN ANY TWO PLYS OR BETWEEN LINER AND ADJACENT PLY										
a.									X	
1 inch maximum dimension; not to exceed average of 1 per 5 sq ft area; maximum of 5 in any one 5 sq ft area; minimum of six inch solid bond between delaminations										
b.									X	
In excess of 16.a.										
17.	X	X	X	X	X					X
EXTERNAL DIMENSIONS OF CELL OUT OF TOLERANCE										
18.	X	X	X	X	X	X				X
FITTING MISLOCATED OR FITTING ROTATED BEYOND SPECIFIED TOLERANCE										
19.	X	X	X	X	X					
LAP SPLICE EDGE LOOSENESS										
a.										X
Up to 1/8 inch in width and 3 inches long; no more than 1 per 5 linear ft and repair can be made by trimming										



CRITICAL

TABLE II. Acceptance standards. - Continued

	CRASH RESISTANT TANKS	SELF SEAL TANKS	BLADDER TANKS	TANK INTERIOR	TANK EXTERIOR	INSTALLED FITTINGS	REPLACEMENT FITTINGS	MINOR	MAJOR	CRITICAL
b. In excess of 19.a. or if repair cannot be made by trimming									X	
20. OUTER PLY CUTS OR SPLITS PARALLEL TO CORDS IF CORDS ARE NOT DAMAGED	X	X	X	X	X	X	X	X		
21. LOOSENESS UNDER HANGER FITTINGS INCORPORATING METAL OR FIBER PLATES OR METAL RINGS, IN EXCESS OF THE CONTACT SURFACE AREA OF THE PLATES AND RINGS AND UP TO 1/4 INCH BEYOND OUTER EDGE OF PLATE OR RING	X	X	X	X	X	X		X		
22. BLISTERS IN FLANGE AREA OF REPLACEMENT FITTINGS	X								X	
23. MOLD MARKS IN FLANGE AREA OF FITTING	X	X	X	X	X	X	X			
a. No interference with design characteristics of fitting									X	
b. Sufficient to cause interference									X	
24. FLOW CRACKS, LAMINATIONS, POROUS AREAS OR BACK RINDS IN EXCESS OF 1/2 INCH BODY THICKNESS OF FITTING FLANGE AT LOCATION OF DEFECT	X	X	X	X	X	X	X		X	
25. FOREIGN MATERIAL IN FITTING FLANGE	X	X	X	X	X	X	X			
a. 1/32 inch or less									X	
b. Over 1/32 inch but less than 1/2 body thickness at defect										X

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TABLE II. Acceptance standards. - Continued

	CRASH RESISTANT TANKS	SELF SEAL TANKS	BLADDER TANKS	TANK INTERIOR	TANK EXTERIOR	INSTALLED FITTINGS	REPLACEMENT FITTINGS	DEFECT	MINOR	MAJOR	CRITICAL
26. TEARS IN FITTING FLANGE	X	X	X	X	X	X	X	a. If fairing can be accomplished while still maintaining specified minimum flange width	X		
								b. In excess of 26.a.		X	
27. CUTS OR NICKS IN FITTING FLANGE	X	X	X	X	X	X	X	a. 1/32 inch or less	X		
								b. Over 1/32 inch but less than 1/2 body thickness at defect		X	
								c. Greater than 1/2 body thickness			X
28. EXPOSED FABRIC IN FITTING FLANGE	X	X	X	X	X	X	X	a. With no damaged cords. Cords exposed at edge of fitting flange are permitted.	X		
								b. With damaged cords		X	
29. BLISTERS IN FITTING FILLET	X	X	X	X	X	X	X	a. Up to 1/8 inch			X
								b. In excess of 1/8 inch		X	

TABLE II. Acceptance standards. - Continued

	CRASH RESISTANT TANKS	SELF SEAL TANKS	BLADDER TANKS	TANK INTERIOR	TANK EXTERIOR	INSTALLED FITTINGS	REPLACEMENT FITTINGS		DEFECT	MINOR	MAJOR	CRITICAL
X	X	X	X	X	X	X	X	30.	CUTS OR CRACKS IN FITTING FILLETS	X		
X	X	X	X	X	X	X	X	31.	EDGE LOOSENESS BETWEEN FITTING FILLET AND FABRIC	X		
X	X	X	X	X	X	X	X	32.	EDGE LOOSENESS BETWEEN FITTING FILLET AND METAL	X		
X	X	X	X	X	X	X	X	33.	SEALING SURFACE OF FITTING ROUGHER THAN SPECIFICATION LIMITS	X		
X	X	X	X	X	X	X	X	34.	FITTING CRITICAL FLAT AREA FINISH, OTHER THAN SEALING SURFACE, ROUGHER THAN SPECIFICATION LIMITS	X		
X	X	X	X	X	X	X	X	35.	SCRATCHES, PITS OR MARS IN SEALING SURFACE BEYOND LIMITS OF SPECIFICATION		X	
X	X	X	X	X	X	X	X	36.	MOLDING FLASH ON SEALING SURFACE OF FITTING			X
X	X	X	X	X	X	X	X	37.	FAULTY DOME NUT		X	
X	X	X	X	X	X	X	X	38.	THREAD DIMENSIONS OUT OF TOLERANCE		X	
X	X	X	X	X	X	X	X	39.	CORROSION, DIRT, METAL FINISH DAMAGE OR LACK OF SPECIFIED PROTECTIVE COATING		X	
X	X	X	X	X	X	X	X	40.	"O" RING GROOVE WIDTH OR DEPTH, FITTING FLATNESS, THICKNESS I.D. OR BOLT HOLE DIMENSIONS OUT OF TOLERANCE		X	
X	X	X	X	X	X	X	X	41.	BENT FITTING			X
								a.	Can be straightened within stress limits of metal			
								b.	Cannot be straightened within stress limits of metal			X



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CRASH RESISTANT	SELF SEAL	BLADDER	NOTE: Following Stand Test the following inspection standards shall apply in addition to the standards of Table II.	DEFECT CLASS	
				MAJOR	CRITICAL
X	X	X	1. Stain or activation due to deterioration of cell		X
X	X	X	2. Stain or activation due to design failure		X
X	X	X	3. Stain or activation due to manufacturing defect		X
X	X	X	4. Stain or activation due to manufacturing damage or rework damage		X
X	X	X	5. Stain or activation due to mishandling or improper cell installation		
			a. Condition of cell does not preclude complete evaluation of cell	NO DEFECT	
			b. Condition precludes complete evaluation	RETEST	
X	X	X	6. Activation anywhere in the cells	X	

NOTE: If it is impossible to determine source of stain by thorough engineering and laboratory tests, excluding dissection, a stain of 1 inch maximum diameter or equivalent area is allowable, provided there is not more than one such stain per 150 sq. ft. of cell area.

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TABLE IV. Additional criteria for dissection tested cells.

APPLICABLE TO		NOTE: Following Dissection Test the following inspection standards shall apply in addition to the standards of Table II.	DEFECT CLASS		
SELF SEAL	BLADDER		MINOR	MAJOR	CRITICAL
X	X	1. Adhesion of inner liner to sealant or adjacent ply in flat panel areas is less than 6 lb per inch of width <u>1/</u>		X	
X	X	2. Adhesion of inner liner to chafing strips less than 6 lb per inch of width <u>1/</u>		X	
X	X	3. Adhesion of fitting flange to inner ply less than 6 lb per inch of width <u>1/</u>		X	
X	X	4. Adhesion of inside and outside accessories less than design values <u>1/</u>		X	
X	X	5. Dissection of fitting flange indicates construction is not in accordance with approved manufacturing specification		X	
X	X	6. Adhesion of fabric fitting flanges to metal ring less than 150 lb per inch of width NOTE: This factor also used for sampling tests of replacement fittings <u>1/</u> , <u>2/</u>		X	

1/ Test Method: ASTM-D751, Dry Pull at 2 inches per min.

2/ Failure of fabric flange prior to adhesion failure does not constitute defect.

TABLE V. Summary.

PURPOSE OF INSPECTION	APPLICABLE TABLE	ACTION TO BE TAKEN WITH DEFECTIVE ITEMS		
		MINOR DEFECT	MAJOR DEFECT	CRITICAL DEFECT
Production cells submitted for acceptance	TABLE II	Cells with minor defects are acceptable without repair provided the defects do not exceed the limits noted in 5.3.1.a, b, & c. If these limits are exceeded, they will be treated as major defects.	All major defects must be corrected using an approved repair procedure prior to acceptance.	Cells with critical defects will be rejected. The cell will be scrapped unless the manufacturer proposes a repair procedure acceptable to the procuring activity.
Replacement: production fittings submitted for acceptance	TABLE II	Fittings with minor defects are acceptable without repair provided the defects do not exceed the limits noted in 5.3.1.d. If these limits are exceeding, they will be treated as major defects.		
Inspection of cells subjected to stand test or dissection test	TABLE II & either TABLE III or TABLE IV as applicable	Test results will be considered satisfactory if minor defects do not exceed limits listed in applicable portion of 5.3.1. If limits are exceeded, they will be treated as major defects.	When major defects are identified, production items may be given approval provided it can be shown that this is a unique case. If it is not a unique case, all like defects in production cells will be repaired. Lot represented by test is then acceptable. Take appropriate action to prevent repetition of defect.	When a critical defect is identified, test is considered unsatisfactory. Notify prime contractor and procure activity. All production represented by test shall be inspected to determine if this is a unique case and must be found free of this defect prior to acceptance. If this is a unique case, test cell may be repaired, if possible, utilizing approved procedures. If not a unique case, action shall be taken to determine if defective cells can be repaired and the defect shall be corrected in future production.
Replacement: fittings subjected to dissection test.	TABLE II & Item 6 of TABLE IV			

# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.  
 NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

<b>I RECOMMEND A CHANGE:</b>		1. DOCUMENT NUMBER MIL-STD-801A	2. DOCUMENT DATE (YYMMDD) 1981 May 13
3. DOCUMENT TITLE Inspection and Acceptance Standards for Propulsion Fluid Cells and Fittings			
4. NATURE OF CHANGE <i>(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)</i>			
5. REASON FOR RECOMMENDATION			
6. SUBMITTER			
a. NAME <i>(Last, First, Middle Initial)</i>		b. ORGANIZATION	
c. ADDRESS <i>(Include Zip Code)</i>		d. TELEPHONE <i>(Include Area Code)</i> (1) Commercial:  (2) DSN: <i>(If Applicable)</i>	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY			
a. NAME COMMANDER NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION		b. TELEPHONE NUMBER <i>(Include Area Code)</i> (1) Commercial (732) 323-2947 (2) DSN 624-2947	
c. ADDRESS <i>(Include Zip Code)</i> CODE 4.14100B120-3 HIGHWAY 647 LAKEHURST, NJ 08733-5100		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office, 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3468 Telephone (703) 756-2340 DSN 289-2340	