

# MIL-D-8510B(ASG)

18 DECEMBER 1958

Superseding

MIL-D-8510A(ASG)

20 February 1957

## MILITARY SPECIFICATION

DRAWINGS, UNDIMENSIONED, REPRODUCIBLES,  
PHOTOGRAPHIC AND CONTACT: PREPARATION OF

This specification has been approved by the Department  
of the Air Force and by the Navy Bureau of Aeronautics.

### 1. SCOPE

1.1 This specification covers the preparation of reproducibles  
(full-size on stable materials and reduced scale photographic negatives)  
of undimensioned drawings, tooling, and template layouts and master  
loft lines.

1.2 Classification.- Reproducibles of undimensioned drawings  
shall be of the following types:

1.2.1 Type I - Reduced size reproducible photographic negatives  
of full size undimensioned drawings. (See 6.2.)

1.2.2 Type II - Full size reproducible duplicates of full size  
undimensioned drawings.

### 2. APPLICABLE DOCUMENTS

2.1 The following document of the issue in effect on date of  
invitation for bid, forms a part of this specification:

#### SPECIFICATION

#### MILITARY

MIL-D-5480

Data; Engineering And Technical  
(Reproduction Thereof)

(Copies of the above specification 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. REQUIREMENTS

#### 3.1 Materials.-

3.1.1 Type I - Negatives shall be of high-contrast, transparent material, having dimensional stability equal to or better than calendared base vinylite film. Such material shall be no less than 0.010 inch thick.

3.1.2 Type II - The material used shall be a transparent base material. The material shall be coated with either a sensitized coating or a scribe coating and shall have stability characteristics within the limit defined in 3.2.

3.2 Stability (Type II).- Changes in linear dimensions shall not exceed 0.00001 inch per inch per degree Fahrenheit when the material conditioned at 80°F is exposed to 220°F for one hour, and returned to the original conditioning temperature. Changes in linear dimensions shall not exceed 0.00001 inch per inch per percent relative humidity when the material conditioned at 10% RH, is exposed to 98% RH for twenty four hours, and returned to the original conditioning relative humidity.

3.3 Thickness (Type II).- The thickness shall be in accordance with basic materials plus sensitized coating as specified by the procuring activity.

3.4 Allowable Tolerance (Type II).- The thermal and hygroscopic coefficients of linear expansion shall be such that the allowable overall tolerance between check points at extremities of sheet (length or width direction) shall not exceed 0.015 inch (in 144 inches) when exposed to a 70°F rise or drop in temperature or a 7% rise or drop in relative humidity under normal room conditions. Reproducibles shall be stamped in right-hand corner as shown in figure 1, and atmospheric conditions shall be noted at time of reproduction.

REPRODUCTION CONDITIONS	
Relative humidity	Date
Temperature	Checker

Figure 1

3.5 Clarity (Type II).- Lettering shall be clear and legible and line quality shall be suitable for reproduction.

#### 3.6 Size.-

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3.6.1 Type I.- Negatives shall be reduced scale (approximately 1/4 linear scale) and shall not exceed 24 by 24 inches. Drawings exceeding approximately 90 inches in length shall be photographed in sections from left to right, allowing for an overlap of 1 inch on each negative. When drawings are reproduced in sections, the drawing and section number shall appear on the negative, and each sectional negative shall contain trammel points in accordance with 3.7.

3.6.2 Type II.- Full size reproducibles shall not exceed 60 by 144 inches including margin space. Drawings exceeding these dimensions shall be furnished in sections, reading from right to left, allowing for an overlap on each section of a minimum of 2 inches to include a grid line, check point, or other identifying information. When drawings are reproduced in sections, the drawing and section number shall appear on each reproducible.

3.7 Trammel Points (Type I).- Each negative shall include four trammel points so rectangularly located that trammels may be applied vertically and horizontally. Dimensions from trammel point to trammel point shall be indicated.

3.8 Control Dimensions (Type II).- Suitable control dimensions shall be provided by means of grid lines, check points or other identifying information, so located that size may be checked vertically, horizontally, and diagonally.

### 3.9 Preparation.-

3.9.1 Type I.- Negatives shall be made directly from the original full-scale, undimensioned drawings by photographic means.

3.9.1.1 Accuracy (Type I only).- Negatives shall be sufficiently accurate to permit making a full-scale reproduction on sensitized material within manufacturing tolerances.

3.9.2 Type II.- Reproducibles shall be made by any commercially approved method, but all provisions of this specification shall be adhered to (tracing, X-ray, contact, photographic, etc.)

## 4. QUALITY ASSURANCE PROVISIONS

4.1 Inspection and acceptance.- Negatives or full size reproducibles shall be subject to inspection by the procuring activity or its authorized representatives to determine conformance with the provisions of this specification.

4.1.2 In the event that any reproductions do not meet requirements as specified herein and are rejected, the contractor shall submit additional acceptable reproductions at no cost to the Government.

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## 5. PREPARATION FOR DELIVERY

### 5.1 Packaging.-

5.1.1 Type I - Each reproducible photographic negative shall be enclosed in an individual envelope in one of three standard sizes (8-1/2 by 11, 9 by 15, or 24 by 24 inches). The envelope shall be suitable for permanent files and shall include the drawing number on the outside in the upper right-hand corner. Negatives shall not be rolled nor folded.

5.1.2 Type II - Full size reproducibles of the same size, in sizes A, B, C, and D shall be packaged in flat packs. Full size reproducibles larger than D size, shall be rolled (minimum diameter 3 inches) and inclosed in a container made of fiberboard or metal. One inch rubberized hair felt or equivalent shall be placed in each end of the container for protection. A shipping list shall be prepared in accordance with Specification MIL-D-5480(ASG) and inclosed within the package or container.

## 6. NOTES

### 6.1 Intended use.-

6.1.1 Type I - Intended for use in the preparation of reduced-scale reproducible photographic negatives of full-scale undimensioned drawings for production aircraft and guided missiles.

6.1.2 Type II - Intended for use in the preparation of full size reproducibles to produce tooling and parts for repair and modification.

6.2 Navy procurement.- Type I reproducibles only shall be furnished on Navy, Bureau of Aeronautics contracts unless otherwise specified.

NOTICE: When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

Custodians:  
Navy - Bureau of Aeronautics  
Air Force

Preparing activity:  
Air Force

**INSTRUCTIONS:** In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

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c. Reason/Rationale for Recommendation:

## 6. REMARKS

7a. NAME OF SUBMITTER (Last, First, MI) - Optional

b. WORK TELEPHONE NUMBER (Include Area Code) - Optional

c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional

8. DATE OF SUBMISSION (YYMMDD)

DD FORM 1426  
82 MAR

PREVIOUS EDITION IS OBSOLETE.

## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

☐

VENDOR

☐

USER

☐

MANUFACTURER

☐

OTHER (Specify): \_\_\_\_\_

b. ADDRESS (Street, City, State, ZIP Code)

## 5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording: