

MIL-M-87958 (USAF)
14 June 1978

MILITARY SPECIFICATION

MARKER BLANKS, PRESSURE SENSITIVE ADHESIVE

WIRE OR CABLE MARKER AND IDENTIFICATION LABEL

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

1. SCOPE

1.1 Scope. This specification covers pressure sensitive adhesive backed wire marker and identification label blanks intended to be custom marked by the user on computer print-out equipment.

1.2 Classification.

1.2.1 Type. Marker blanks shall be of the Polyvinylfluoride backing type.

1.2.2 Color. Marker blanks shall be of the following colors, as specified (see 6.2):

| | | |
|----------|---------|----------|
| W-White | G-Green | O-Orange |
| Y-Yellow | B-Blue | GY-Grey |

1.2.3 Form. Marker blanks shall be furnished in the following forms, as specified (see 6.2):

Form F - Fan-folded sheets
Form R - Continuous rolls

1.2.4 Configuration. Marker blanks shall be furnished in one of the configurations described in Appendix A (see 6.2). The configuration identifier consists of the letter-number combination shown in the first column of the tabulation in Appendix A.

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:

Beneficial comments (recommendation, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: AFPC CASO/LODS, Federal Center, Battle Creek, MI 49016 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 7690

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SPECIFICATIONS

Federal

| | |
|-----------|----------------------------------|
| O-S-1926 | Sodium Chloride, Technical |
| PPP-B-601 | Box, Wood, Cleated Plywood |
| PPP-B-636 | Box, Shipping, Fiberboard |
| PPP-C-843 | Cushioning, Material, Cellulosic |

Military

| | |
|-------------|--|
| MIL-H-5606 | Hydraulic Fluid, Petroleum Base, Aircraft, Missile and Ordnance |
| MIL-T-5624 | Turbine Fuel, Aviation, Grades JP-4 and JP-5 |
| MIL-L-7808 | Lubricating Oil, Aircraft Turbine Engine, Synthetic base |
| MIL-L-23699 | Lubricating Oil, Aircraft Turbine Engine, Synthetic base |
| MIL-D-43362 | Detergent, Laundry, Anionic (A Standard for Testing) |
| MIL-I-10547 | Liner, Case, and Sheet, Overwrap, Water Vaporproof or Waterproof, Flexible |

STANDARDS

Military

| | |
|-------------|---|
| MIL-STD-104 | Limits for Electrical Insulation Color |
| MIL-STD-105 | Sampling Procedures and Tables for Inspection by Attributes |
| MIL-STD-129 | Marking for shipment and storage |

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issue in effect on date of invitation for bids shall apply.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

| | |
|-----------|---|
| D568 | Flammability of Flexible Plastics |
| D1000-70a | Testing Pressure-Sensitive Adhesive Coated Tapes Used for Electrical Insulation |

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

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NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC.

National Motor Freight Classification

(Application for copies should be addressed to American Trucking Associations, ATTN: Tariff Order Section, 1616 P Street, N.W., Washington, DC 20036.)

UNIFORM CLASSIFICATION COMMITTEE

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Room 202 Union Station, 516 W. Jackson Blvd., Chicago, IL 60606.)

U.S. DEPARTMENT OF COMMERCE

Standard Alphabet for Highway Signs

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

3. REQUIREMENTS

3.1 Data. No data is required by this specification unless specified in the contract or order (see 6.2).

3.2 First article approval. When specified by the procuring activity (see 6.2) the marker blanks shall be a product that has been inspected and passed the first article inspection of 4.5.1.

3.3 Construction. Marker blank material shall consist of a flexible backing, adhesive and liner. After marking and removal from the liner, the backing (with adhesive) constitutes the finished marker or identification label.

3.3.1 Backing. The marking face of the backing shall be coated with an ink receptive finish, smooth and uniform, and free from blisters, wrinkles, cracks and scratches. Backing material type shall be as specified (see 1.2.1).

3.3.2 Adhesive. The adhesive shall be a pressure-sensitive, permanent type. It shall be water insoluble, homogeneous, and shall be coated in a smooth layer on one side of the backing. The adhesive shall require no solvent, heat, or other preparation prior to application. Adhesive shall be of a type that will adhere to metal, plastic, or its own printable backing.

3.3.3 Liner. A liner of material suitable for the purpose intended shall be used to protect the adhesive. It shall be capable of being quickly removed for fast, distortion-free application. The liner shall not split, tear, or leave a residue on the adhesive when the marker or label is removed.

3.4 Type I Label Blanks.

3.4.1 Form F. Unless otherwise specified by the procuring activity (see 6.2), Form F marker blanks shall be furnished in a continuous series of sheets fan-folded and perforated every 12 inches with a margin on each edge punched to accommodate standard computer print-out equipment and with the backing cut into individual label blanks (see Appendix A).

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3.4.2 Form R. Unless otherwise specified by the procuring activity (see 6.2) Form R marker blanks shall be furnished in continuous rolls with a margin on each edge punched to accommodate standard computer print-out equipment and with the backing cut into widths or individual label blanks (see Appendix A).

3.4.2.1 Rolls. Form R material shall be supplied wound with the adhesive side in, on a core of sufficient rigidity to prevent distortion of the roll under normal conditions of transportation and use. The inside diameter of the core shall be $3 \pm 1/16$ inches.

3.4.3 Splicing. A maximum of 10% of the material in any one lot may be spliced. However no package (Form F) or roll (Form R) may have more than two (2) splices. Splicing tape shall be applied to the liner only. Splices in Form F material shall not interfere with the fan-fold or change the dimensions of the sheet.

3.4.3.1 Splicing tape. Splicing tape with pressure sensitive adhesive shall have a nominal thickness of .0025 inch and a width of 1.0 inch. The splicing tape shall have a minimum of 38 oz. adhesion after either 20 hours at 150°F or 28 days at room temperature.

3.5 Color. Marker blanks shall be furnished in the color specified by the procuring activity (see 6.2). Colors shall conform to the requirements of Class I of MIL-STD-104.

3.6 Dimensions.

3.6.1 Thickness. The thickness of the backing and adhesive shall be 0.0034 \pm 0.005 when tested per ASTM D1000-70a, sections 14 to 18.

3.6.2 Length. Unless otherwise specified by the procuring activity, the number of sheets per package (Form F) shall be 250 ± 3 and the length of roll (Form R) shall be 100 ± 2 feet when tested per ASTM D1000-70a, sections 7 to 12.

3.6.3 Width and other dimensions. All dimensions are in inches. Standard commercial tolerances apply. Width and other detailed dimensions, when tested per ASTM D1000-70a, sections 77 to 80, shall be as shown in the applicable configuration (see Appendix A).

3.7 Mechanical properties.

3.7.1 Adhesion to steel. The adhesion to steel, when tested per ASTM D1000-70a, sections 33 to 41, shall be not less than 37 oz. per inch of width.

3.7.2 Adhesion to backing. The adhesion to backing, when tested per ASTM D1000-70a, sections 33 to 41, shall be not less than 15 oz. per inch of width.

3.7.3 Breaking strength and elongation. The breaking strength, when tested per ASTM D1000-70a, sections 19 to 25, shall be not less than 20 lbs. per inch of width and the elongation shall be 100% minimum.

3.8 Environmental requirements.

3.8.1 Low temperature flexibility. When tested as described in 4.5.4.1 the specimens shall exhibit no visible evidence of cracking, splitting, or

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loosening from the backing.

3.8.2 High temperature exposure. When tested as described in 4.6.5.2 the specimens shall exhibit no visible evidence of blistering, separation of flags or unrolling.

3.8.3 Fluid resistance. When tested in accordance with 4.6.5.3 and 4.6.5.4 the specimens shall exhibit no visible evidence of looseness, and no edge lift greater than 1/8 inch. Upon completion of exposure to fluids, the adhesion to backing or steel shall be not less than 15 oz. per inch of width.

3.8.4 Flammability. Specimens shall be self-extinguishing when tested in accordance with ASTM D568.

3.8.5 Printability. The backing material shall accept and retain printing applied by any of the following:

(a) Computer printer. Standard computer print-out equipment may be employed, with computer ribbon that has been demonstrated to provide permanent, legible markings when tested in accordance with this specification (see 6.3).

(b) Typewriter. Standard typewriters with carbon or inked ribbon may be employed. (see 6.3).

3.8.5.1 Printing permanence. When tested in accordance with 4.6.5.5 the printed matter on test specimens shall remain legible to the naked eye.

3.8.6 Reclaimed materials. The assemblies shall contain reclaimed materials to the maximum extent possible without jeopardizing the material quality or performance of the equipment. The reclaimed material shall be reprocessed, remanufactured, or recycled in a manner which restores them to the same chemical composition and physical properties as the material originally selected for use on the bit assemblies. Reclaimed materials shall be inclusive of all alloying elements applicable that have been collected from discarded solid, liquid, or gaseous waste from garbage, refuse, sludge, and from other collections of materials.

4. QUALITY ASSURANCE PROVISIONS.

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. The supplier may use his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Classification of inspection. The examination and testing of marker blanks shall be classified as follows:

- (a) First article inspection
- (b) Quality conformance inspection

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4.3 Lot formation. A lot shall consist of all marker blanks of one type, color, form, and configuration that has been produced at one plant, under essentially the same conditions, processed in a continuous operation and submitted for inspection at one time.

4.4 Sampling.

4.4.1 First article sampling. Unless otherwise specified by the procuring activity, the first article sample shall consist of prepared marker blank material 30 to 60 yards in length. The sample may be either Form F or R.

4.4.2 Quality conformance sampling. The quality conformance sample shall consist of sufficient strips of material, selected at random from the lot, to provide a sample equivalent to MIL-STD-105, Level I requirements. For this purpose, the total length in feet of the lot shall be considered as the lot or batch size.

4.5 Inspections.

4.5.1 First article inspection. The first article inspection shall consist of all the examinations and tests of this specification, conducted at the contractor's facilities or any other facility acceptable to the Government.

4.5.1.1 Prior approval. If contractor has previously delivered an acceptable product meeting the requirements of this specification, First Article inspection may be waived at the discretion of the procuring activity on subsequent contracts or order.

4.5.2 Quality conformance inspection.

4.5.2.1 Inspection of sample for tests. The sample selected in accordance with 4.4.2 shall be examined and tested per MIL-STD-105, AQL 2.5 for conformance to the following requirements:

| <u>Characteristic</u> | <u>Requirement</u> |
|------------------------------|--------------------|
| Construction and workmanship | 3.3 & 3.4 |
| Color | 3.5 |
| Dimensions | 3.6 |
| Adhesion to Steel | 3.7.1 |

4.6 Test Methods

4.6.1 Test conditions. Unless otherwise specified, the test specimens shall be conditioned for a minimum of 24 hours at 23 ± 10 ($73.4 \pm 2F$) and a relative humidity of $50 \pm 2\%$ prior to testing. A set of test specimens for a specific test shall consist of six (6) specimens, selected at random from the lot. Test results obtained from a set of specimens shall be averaged and that average shall conform to the requirements specified herein.

4.6.2 ASTM tests. ASTM tests shall be performed in accordance with ASTM Standard Methods of test, with any exceptions that may be specified herein.

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4.6.3 Construction and workmanship. Specimens shall be visually examined for construction and general workmanship in accordance with the requirements of 3.3 and 3.4.

4.6.4 Dimensions and mechanical properties. Specimens shall be tested for dimensions and mechanical properties as specified in 3.6 and 3.7.

4.6.5 Environmental tests. Unless otherwise noted, each specimen marker blank to be tested shall be 1 1/2 inches wide by 2 inches long. Specimens requiring wrapping on a test fixture shall be wrapped a minimum of three (3) wraps.

4.6.5.1 Low temperature flexibility. A set of specimens 2 inches wide by 2 1/2 inches long wrapped on test fixture wire bundles consisting of six (6) lengths of Teflon insulated wires AWG 20, 12 inches long, shall be subjected to -40°C (-40°F) for four (4) hours. At the end of this period, the specimens shall be bent by hand over a 1.0 inch diameter mandrel. The specimens shall receive two (2) 360 bends in each direction prior to visual examination for cracking, splitting, or loosening from the wire bundle.

4.6.5.2 High temperature exposure. Separate specimens shall be both wrapped and also conventionally flagged on a 1/8 inch diameter mandrel. A set of specimens shall be subjected to 135°C (275°F) for 168 hours. During this period, and after 168 hours, the specimens shall be examined for permanent visible warping, blistering, separation of flags or unrolling.

4.6.5.3 Fluid resistance: Method A. A separate set of specimens shall be employed for each test fluid specified in Table I. A specimen one (1) inch wide by nine (9) inches long shall be laminated to a clean stainless steel plate with a second specimen, of the same size and type, laminated directly over the first. Each set of specimens shall be immersed in each one of the test fluids for one (1) minute, removed and allowed to dry on a drying rack for twelve (12) hours. Repeat the immersion and dry procedure for ten (10) cycles. At the end of the ten cycles, test the specimens for adhesion to backing as described in 3.7.2 and adhesion to steel as described in 3.7.1. The adhesion to backing and adhesion to steel shall be not less than 15 oz. per inch of width. Slight fading of the color is acceptable.

TABLE I

TEST FLUIDS

| | |
|--------------------|-------------|
| Detergent | MIL-D-43362 |
| Hydraulic Fluid | MIL-H-5606 |
| Jet Fuel | MIL-T-5624 |
| Lubricating Oil | MIL-L-7808 |
| Lubricating Oil | MIL-L-23699 |
| Methyl Alcohol | Commercial |
| 5% Saline Solution | O-S-1926 |

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4.6.5.4 Fluid resistance: Method B. A separate set of specimens shall be employed for each test specified in Table I. A set of specimens 1 1/2 inches wide by 3 1/2 inches long shall be both wrapped around, and also conventionally flagged, on a test fixture wire bundle consisting of 26 lengths of Teflon insulated wire AWG 20, 12 inches long. Each set of specimens shall be immersed in each one of the test fluids as described in 4.6.5.3 using the same fluids. After each cycle, note any visible effects detrimental to the specimens. Slight fading of the color is acceptable.

4.6.5.5 Printing permanence. This test may be conducted as part of the Fluid Resistance tests of 4.6.5.3, when desired by the testing activity. Specimens shall be marked in accordance with 3.3.5 (a) and subjected to the Fluid Resistance test of 4.6.5.3. Exposure to test fluids shall not occur sooner than four (4) hours after marking application. Upon completion of the test, the printing shall be examined for legibility.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or C, as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Sheets. A quantity of sheets, of one Form only, shall be packaged in a snug-fitting, paperboard or fiberboard box conforming to style R3C, type CF (variety SW), class domestic, applicable grade of PPP-B-636. Each box shall be securely closed with 2 inch minimum width gummed paper tape, or by means of pressure-sensitive tape.

5.1.1.2 Rolls. One roll only shall be packaged in a snug-fitting fiberboard box conforming to style R3C, type CF (variety SW), class domestic, applicable grade of PPP-B-636. The roll shall be held in suspension within the box by means of a centering device. The centering device shall be protected from the edges of the roll by the application of cushioning material conforming to classification optional of PPP-C-343. The roll shall be immobilized against movement by application of the specified cushioning material; or diecut or scored built-up pads made of the same material as the box. Each box shall be securely closed with tape as specified in 5.1.1.1.

5.1.2 Level C. Marking materials and markers shall be packaged to afford adequate protection against physical damage during shipment from the supply source to the first receiving activity. The supplier may use his standard practice when it meets this requirement.

5.2 Packing. Packing shall be level A, B, or C, as specified (see 6.2).

5.2.1 Level A. A quantity of marking materials or markers, of one description only, packaged as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style B3C or R3C-L (as applicable), grade V15c of PPP-B-636; or overseas type A load of PPP-B-601. The inside of each PPP-B-636 container packed with unboxed packages shall be fitted with a taped box liner conforming to type CF, class weather-resistant, variety DV, grade V15c of PPP-B-636. Each PPP-B-636 shipping container shall be closed, waterproofed, and reinforced in accordance with the appendix of the container specification. Each wood container shall be closed and reinforced in accordance with the appendix of PPP-B-601; and waterproofed with a scaled case liner conforming to type I or II, grade C of MIL-L-10547. Shipping con-

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containers packed with waterproof packages need not be waterproofed. The weight of the contents of each fiberboard container shall not exceed 65 pounds and for each wood container shall not exceed 150 pounds.

5.2.2 Level B. A quantity of marking materials or markers, of one description only, packaged as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style R33 or R33-1 (as applicable), type SF (variety D1) or SF, class domestic, grade 275 or PPF-B-636. The inside of each container packed with unboxed packages shall be fitted with a taped box liner conforming to class domestic, variety D1, grade 275 of PPF-B-636. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPF-B-636. The weight of contents of each shipping container shall not exceed 65 pounds.

5.2.2.1 When specified (see 6.2), the fiberboard shipping container shall be a grade V3c, or V4s fiberboard box fabricated in accordance with PPF-B-636 and closed in accordance with the appendix of the container specification.

5.2.3 Level C. Marking material and markers, packaged as specified in 5.1, shall be packed in manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. Containers shall be in accordance with Uniform Freight Classification Rules or National Motor Freight Classification Rules, as applicable.

5.3 Marking. In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with MTL-STM-129.

6. NOTES

6.1 Intended use. The pressure sensitive adhesive backed marker blanks described herein are intended primarily for use in the automated fabrication of "custom" wire markers and labels for special application. The material and construction is such that markings can be applied by computer print-out equipment or by less automated other methods to provide finished markers and labels that are fluid resistant and flame retardant. Although the material lends itself particularly to wire and cable identification, its use need not be restricted to such applications.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Color (see 1.2.2).
- (c) Form (see 1.2.3 and 3.4).
- (d) Configuration (see 1.2.4 and Appendix A).
- (e) Waiver of length, if required (see 1.4).
- (f) Quantity.
- (g) First article approval, if required (see 3.2).
- (h) Additional data, if required (see 3.1).

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(d) Level of packaging and packing required (see 5.1 and 5.2).

6.3 Printing ribbons. Suitable ribbons for use with computer print-out equipment and typewriters are listed below. Other ribbons may be approved at the option of the procuring activity.

COMPUTER RIBBONS

| <u>Manufacturer</u> | <u>Ribbon Designation</u> |
|---|-----------------------------------|
| Columbia Ribbon and Carbon Co. Glen Cove, NY | #320984083 "Commander" 14 inch |
| IBM Corporation New York, NY | #457937 |

TYPEWRITER RIBBONS

| <u>Manufacturer</u> | <u>Ribbon Designation</u> |
|---------------------------------|---|
| IBM Corporation New York, NY | #1136138 Fabric #3121 Carbon #1010731 Fabric #1136182 Carbon |

Custodian

Air Force - 99

Preparing Activity

Air Force - 99
Project No - 7690-F052

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APPENDIX

APPENDIX A

VARIABLE BLANK
CONFIGURATIONS

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APPENDIX A
CONFIGURATIONS

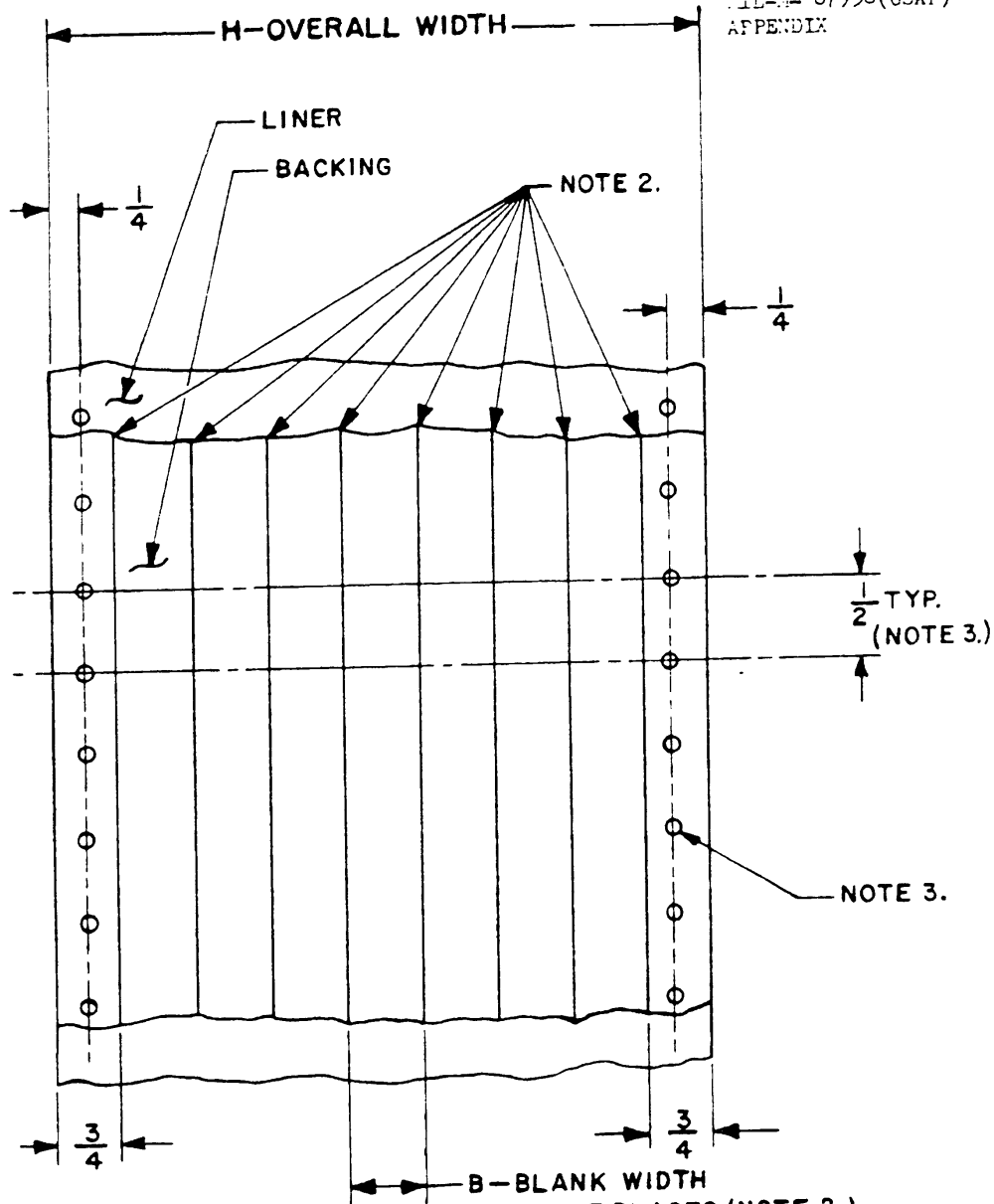
FORM R (ROLL) CONFIGURATIONS

| NO. | SEE FIG. | BLANK SIZE & SPACING | | | | PERFORATIONS | | | H OVER-ALL WIDTH (INCH) | NO. OF BLANKS PER LIN. FOOT |
|-----|----------|----------------------|----------------|-----------------|------------------------|--------------|------------------|------------------|-------------------------|-----------------------------|
| | | A-NO. WIDE | B WIDTH (INCH) | C LENGTH (INCH) | D-VERT. SPACING (INCH) | VERTICAL | | HORIZ. | | |
| | | | | | | E NO. | F SPACING (INCH) | G SPACING (INCH) | | |
| R1 | 1 | 7 | 1.50 | CONTINUOUS | | NONE | | | 12.00 | — |
| R2 | 2 | 4 | 1.50 | 2.90 | 3.00 | 5 | 1.60 | 3.00 | 7.30 | 16 |
| R3 | 2 | 2 | 1.50 | 2.90 | 6.00 | 1 | CENTER ONLY | 6.00 | 4.10 | 4 |

FORM F (FAN-FOLD) CONFIGURATIONS

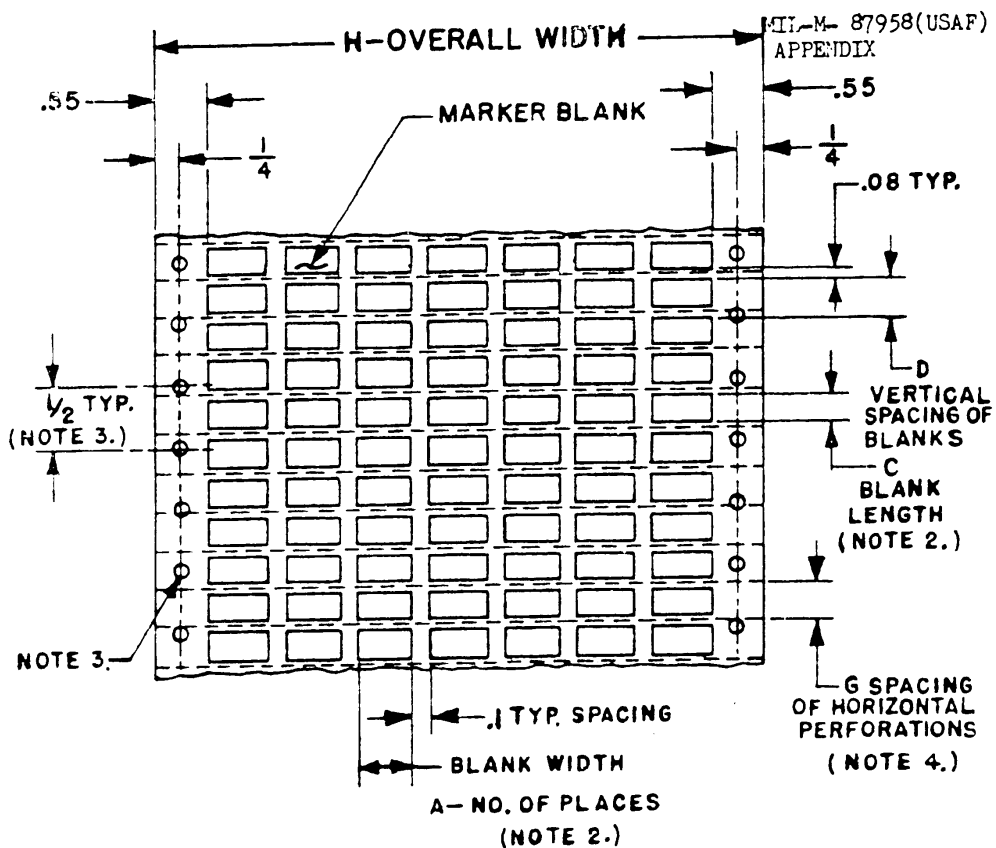
| NO. | SEE FIG. | BLANK SIZE & SPACING | | | | PERFORATIONS | | | H OVER-ALL WIDTH (INCH) | NO. OF BLANKS PER SHEET |
|-----|----------|----------------------|----------------|-----------------|------------------------|--------------|------------------|------------------|-------------------------|-------------------------|
| | | A-NO. WIDE | B WIDTH (INCH) | C LENGTH (INCH) | D-VERT. SPACING (INCH) | VERTICAL | | HORIZ. | | |
| | | | | | | E NO. | F SPACING (INCH) | G SPACING (INCH) | | |
| F1 | 3 | 12 | .90 | .25 | .33 | NONE | | .33 | 13.00 | 432 |
| F2 | 3 | 10 | .90 | .25 | .33 | NONE | | .33 | 11.00 | 360 |
| F3 | 4 | 4 | 1.50 | .75 | 1.00 | 3 | 1.70 | 1.00 | 7.60 | 48 |

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APPENDIX

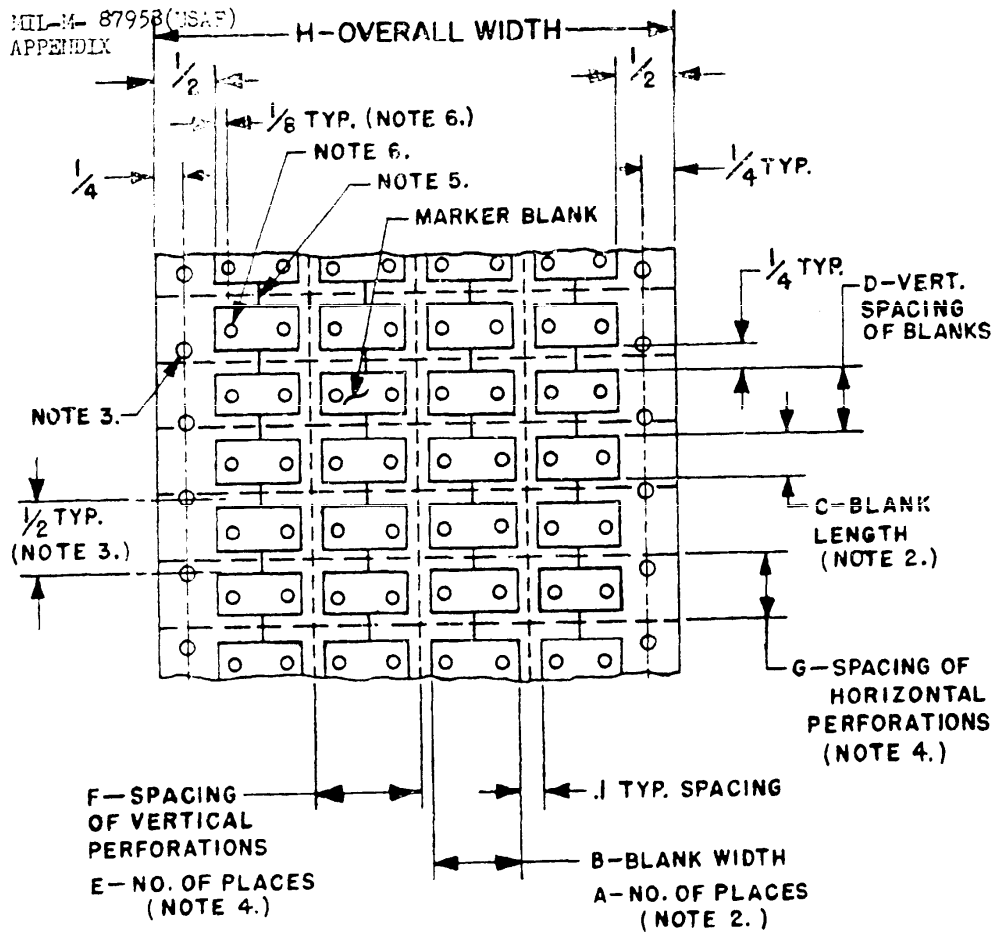


NOTES:

1. DIMENSIONS ARE IN INCHES. TOLERANCES: $\frac{X}{XX} = \pm \frac{1}{32}$, $.XX = \pm .03$
2. BACKING SLIT INTO BLANK WIDTHS AS SHOWN.
3. BOTH MARGINS PIERCED WITH .156 DIAMETER HOLES ON $\frac{1}{2}$ INCH CENTERS, HORIZONTALLY ON LINE AS SHOWN.

**NOTES:**

1. DIMENSIONS ARE IN INCHES. TOLERANCES: $\frac{x}{xx} = \pm \frac{1}{32}$, $.xx = \pm .03$
2. BACKING CUT INTO INDIVIDUAL MARKER BLANKS, EACH WITH LENGTH, WIDTH, & SPACING AS INDICATED. CORNERS ROUNDED $\frac{1}{16}$ MAX. RADIUS.
3. BOTH MARGINS PIERCED WITH .156 DIAMETER HOLES ON $\frac{1}{2}$ INCH CENTERS, HORIZONTALLY ON THE LINE AS SHOWN.
4. LINER PERFORATED AS INDICATED TO FACILITATE SEPARATION OF BLANKS.

**NOTES:**

1. DIMENSIONS ARE IN INCHES. TOLERANCES: $\frac{x}{xx} = \pm \frac{1}{32}$, $.xx = \pm .03$
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3. BOTH MARGINS PIERCED WITH .156 DIAMETER HOLES IN $\frac{1}{2}$ INCH CENTERS HORIZONTALLY ON LINE AS SHOWN.
4. LINER PERFORATED AS INDICATED TO FACILITATE SEPARATION OF BLANKS.
5. LINER SPLIT BEHIND EACH ROW OF MARKER BLANKS TO FACILITATE REMOVAL.
6. EACH MARKER BLANK TO HAVE TWO $\frac{1}{8}$ DIAMETER HOLES, ONE AT EACH END, PIERCED THRU BOTH MARKER AND LINER, AS SHOWN.

11-5-16

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