

NOT MEASUREMENT SENSITIVE

MIL-DTL-14631C  
16 December 1997  
SUPERSEDING  
MIL-P-14631B  
5 February 1992

## DETAIL SPECIFICATION

PLATE, AUTOMOBILE, INDIVIDUAL, GENERAL SPECIFICATION FOR

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

## 1. SCOPE

1.1 Scope. This specification covers the requirements for individual automobile plates used by the Department of the Army and the Department of Defense. (see 6.1).

1.2 Classification. Automobile plates covered herein shall be as specified herein and on the applicable specification sheets (see 2.1, 3.1, 6.2 and Supplement 1).

## 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in preparing this document should be addressed to: Director, The Institute of Heraldry, US Army, 9325 Gunston Road, Room S112, Fort Belvoir, VA 22060-5579, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document.

AMSC N/A

FSC 8345

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Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

STANDARDS

FEDERAL

FED-STD-595 - Colors

SPECIFICATION SHEETS

(See supplement 1 for list of specification sheets.)

(Unless otherwise indicated, copies of the above specifications, standards and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DoDISS - Department of Defense Index of Specifications and Standards

(Copies of the DoDISS are available on a yearly subscription basis either from the Government Printing Office or the DoDSSP Subscription Services, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

DRAWINGS

THE INSTITUTE OF HERALDRY

4-4-81 - Plates, Automobile, Individual, General of the Army and General Officers, Assembly and Details

4-4-95 - Plates, Automobile, Metal, Individual

(Figures 1 and 2 are miniature copies of Institute of Heraldry drawings and are for information only.)

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

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are issues of the documents cited in the solicitation (see 6.2)

PANTONE, INCORPORATED

PANTONE Matching System

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(Application for copies of the Pantone Matching System should be addressed to Pantone, Inc., 590 Commerce Boulevard, Carlstadt, N.J. 07072.)

(Non-government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other information services.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated specifications or specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheet. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern.

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.4.

3.3 Standard sample. Unless otherwise specified (see 6.2), the contracting officer shall furnish a standard sample of the plate which shall be used for matching color and finish only. Variation from this specification may appear in the standard sample; however, in such cases the specification shall govern.

3.4 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements and promotes economical advantageous life cycle costs.

3.5 Material. The material shall be as specified herein. Where materials are not definitely specified, the materials shall be of the quality normally used in sound commercial practice. Recovered material shall be used to the maximum extent possible.

3.5.1 Aluminum. Aluminum for the plate shall be any commercial alloy sheet of half-hard or harder. Care should be taken to insure the alloy selected is capable of being finished as required.

3.5.2 Brass. Brass for the stars and studs shall be any type commercial brass.

3.5.3 Primer. Primer shall be a spray application type having low-moisture-sensitivity and corrosion-inhibiting properties for use on surface-treated aluminum surfaces.

3.5.4 Lead-free Enamel. Lead-free enamel shall be an air drying, high gloss alkyd enamel for use on primed exterior metal surfaces. The enamel shall be lead and chromate free and meet air pollution requirements for solvent emissions. The color shall match the color of the standard sample.

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3.5.5 Hard Solder. Hard solder shall be a silver alloy solder having a melting point of not less than 1075 degrees F (580 c).

3.5.6 Rhodium for Plating. Rhodium for plating shall be the rhodium normally used in commercial practice.

3.5.7 Nickel for Plating. Nickel for plating shall be the nickel normally used in commercial practice.

3.5.8 Lacquer. Lacquer shall be composed of 100 % acrylic resins.

3.6 Design.

3.6.1 Embossed star. The design of the embossed stars on the General Officers plates shall be an exact replica of the design of a Government furnished hub (3.9) from which the contractor's working dies shall be extracted. The contractor's working die shall be tooled and polished to remove any dents, nicks, scratches or other imperfections.

3.6.2 Screen printed plates. The design of the screen printed plates shall be photographic duplicates of the design on Government furnished drawings.

3.7 Construction. Plates shall be constructed in accordance with the requirements of the applicable specification sheet and the requirements specified herein.

3.7.1 Stamping and trimming. The stars shall be struck in such a manner to insure a well defined die struck edge. All edges of the stars and plates (including the holes) shall be trimmed so as to be clean, smooth and free from burrs, drags, step and rough edges. The stamping and trimming operation shall not damage or distort the design or alter the shape of the them.

3.7.2 Soldering. Soldering shall be accomplished using hard solder specified in 3.5.5. All flux and excess solder shall be removed. Joints shall be clean, smooth, strong and free from burned or reduced areas. When tested as specified in 4.6.1, the soldered joint shall not separate.

3.7.3. Plates. Plates shall be fabricated from aluminum specified in 3.5.1 and shall have a thickness of .064 inch  $\pm$  .003 inch (0.162 cm + 0.007 cm). After fabrication, the surface of the plates shall be visibly flat and free from surface recesses, protrusions or other imperfections which might affect the smoothness, appearance or serviceability of the enamel. All sharp edges of the plates shall be removed.

3.7.4 Embossed stars. Embossed stars shall be fabricated from brass specified in 3.5.2 and a stud shall be attached to the back surface by soldering. Care should be taken to insure that the stud is perpendicular to the back surface. Registering pins may be an integral part of the star or may be fabricated from brass and soldered to the back of the star in the location shown on drawing 4-4-81 (Figure 1).

3.7.4.1 Studs. Studs shall be made from brass specified in 3.5.2 and shall have NO. 10-24-UNC-2A threads. The studs shall be rhodium plated.

3.7.5 Retaining nut. The retaining nut shall be a 316L stainless steel, standard commercial No. 10-24-UNC-2B threads, winged lock nut with

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a nylon or fiber insert. Type A, Style 2 wing nut with corrosion resisting steel flat washer and lock washer can be used as an alternative.

3.7.6 Anodizing. Anodizing shall be to a minimum depth of .00015 inch. After anodizing, the plate shall be dyed to the applicable color. When tested as specified in 4.6.2, no stain shall be visible on the anodized surface.

3.8 Finish. All plates, regardless of color, shall be primed and covered with white baking enamel and baked prior to the application of final colors and design. As an alternative, plates may be anodized in accordance with 3.7.6. When this option is used, the requirements of 3.8.1.1, 3.8.1.2 and 3.8.1.3 shall not apply.

### 3.8.1 Plates

3.8.1.1 Surface preparation. Plates shall be prepared for priming and enameling in accordance with commercially acceptable practices to provide corrosion resistance and a surface having better paint adhesion than uncoated aluminum.

3.8.1.2 Primer and enamel. Primer specified in 3.5.3 and enamel specified in 3.5.4 shall be applied in such a manner that a smooth, uniform film will be produced. The film shall be uniform in color without objectionable orange peel, runs, wrinkles, drops, streaks or areas of thin or no film and shall be free from bubbles or foreign inclusions or other defects which may affect appearance or serviceability.

3.8.1.2.1 Colors of enamel or anodized. Enamel or anodized colors used on the basic plates shall be as specified herein and as cited on the applicable specification sheet. Enamel or anodized colors and shading for the design devices shall be cited herein and on the applicable cited drawing. Enamel or anodized colors and shading shall match the enamel or anodized color or the standard or approved samples. Color of the enamel or anodize shall conform to FED-STD-595 as follows:

<u>COLOR</u>	<u>CHIP NO.</u>	<u>COLOR</u>	<u>CHIP NO.</u>
Scarlet	11350	Old Glory Blue	15056
Purple	267 <u>1/</u>	Black	17038
Emerald	369 <u>1/</u>	Maroon	10049
Golden Yellow	13655	Bluebird	15092
Yellow	13538	White	17925
Parrot Blue	318 <u>1/</u>	Brown	10055
Silver Gray	16492		

1/ The enamel color has been referenced from the Pantone Matching System. The enamel shall approximate the Pantone chip number listed.

3.8.1.3 Lacquering. After enameling the front face and edges, the plate shall be coated with lacquer specified in 3.5.8. The lacquer film shall be level, continuous, adherent and free from dust, lint or other foreign matter.

3.8.2 Stars. All star surfaces shall be cleaned and given an underplating of nickel. The surfaces shall be rhodium plated with the front surfaces having a mirror-like polish. All plating shall be continuous and nonporous with no indication of cut-through, blistering or peeling. When tested as specified in 4.6.3, there shall be no perceptible

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change in brightness on the face of the star except along the edges where a slight darkening may occur.

3.9 Government loaned hubs. Hubs for the star will be loaned by the Government and shall be used for making the contractor's working dies necessary for one contract or order.

3.10 Workmanship. The assembled plates shall be clean, well made and shall meet the acceptable quality levels established by this specification.

#### 4. VERIFICATION

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 (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the supplier 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 specification where inspections are deemed necessary to assure supplies and services conform to the prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of section 3. The inspections set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements; however, this does not authorize submission of known defective material, either indicated or actual, not does it commit the Government to accept defective material.

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

- a. First article inspection (see 4.4).
- b. Conformance inspection (see 4.5).

4.3 Inspection conditions. Unless otherwise specified, all inspection shall be performed in accordance with the test conditions specified in 4.5 and 4.6 in the specification.

4.4 First article inspection. Inspection and testing of the first article (see 3.2) shall be made of a completely finished item for all provisions of this specification applicable to the end product examination and tests.

4.5 Conformance inspection. Inspection shall be in accordance with the provisions set forth herein, except where otherwise indicated (see 6.3).

##### 4.5.1 Inspection of components.

4.5.1.1 Component testing. In addition to the verification provisions of the subsidiary specifications and drawings, testing shall be

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performed on finished (plated) stars and anodized plates for the test characteristics listed in Table I. The lot shall be expressed in the terms of five stars. The requirements are applicable to the sample unit. There shall be one determination per sample unit and the results shall be reported as pass or fail.

<u>Characteristic</u>	<u>Requirement Paragraph</u>	<u>Test Method</u>
Test for soldered	3.7.2	4.6.1
Dye stain test	3.7.6	4.6.2
Continuity of rhodium plating	3.8.2	4.6.3

4.5.1.2 Certification of compliance. Components and materials listed below may be accepted on the basis of a contractor's certification of compliance for requirements specified in the applicable paragraphs of this specification.

<u>Component</u>	<u>Characteristic</u>	<u>Requirement Paragraph</u>
Aluminum	Material identification and temper	3.5.1
Brass	Material identification	3.5.2
Baking enamel	Material identification	3.5.4
Acrylic lacquer	Material identification	3.5.8

4.5.2 In-process inspection. Inspection shall be made at any point or during any phase of the manufacturing process to determine whether operations or assemblies are accomplished as specified. When a deviation is noted a correction shall be made. Failure to make immediate correction shall be cause for rejection of affected end item lots. In-process inspection shall be conducted to see that accomplishment of the following is in accordance with this specification's requirements:

<u>Requirement/Operation or Assembly</u>	<u>Requirement Paragraph</u>
Cleaning and subsequent chemical treatment of all surfaces prior to application of primer and enamel coating.	3.8.1.1
Application of primer	3.8.1.2
Underplating of nickel	3.8.2

4.5.3 Inspection of the end item.

4.5.3.1 Visual inspection of insignia. Examination shall be made at a distance of approximately 16 to 22 inches. The defects found during examination shall be classified in accordance with 4.5.3.1.1 and 4.5.3.1.2. The unit of product for the examinations in 4.5.3.1.1 and 4.5.3.1.2 shall be one completely finished and assembled plate of each type specified in the procurement document.

4.5.3.1.1 Examination of insignia for defects in design, finish, construction and workmanship. Defects designated by an asterisk (\*) shall be classified as major when seriously affecting serviceability or appearance and minor when affecting appearance or serviceability but not seriously.

TABLE I. Classification of Visual Defects

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EXAMINE	DEFECT	CLASSIFICATION		
		MAJOR	(*)	MINOR
Color and Finish:  Plate	Color and shade does not match standard sample ----- -	x	-	-
	All surfaces not completely enameled -	x	-	-
	Enamel or anodized not smooth, not continuous or not adherent, i.e., peeling wrinkles, drops or streaks -- -	-	*	-
	Foreign matter imbedded in finish, i.e., lint, grit or dust clearly noticeable ----- -	-	*	-
	Design distorted or incomplete ----- -	x	-	-
	Scores or scratches, clearly noticeable ----- -	-	*	-
	Star	Color and finish does not compare favorably with standard or approved sample ----- -	x	-
Discoloration, such as spot, stain or speck ----- -		-	*	-
Quality of Plating	Surface spotted or open grained, i.e., appearing as pitted, porous or crystallized ----- -	x	-	-
	Any plated area cut through, not continuous broken, peeling, blistered or otherwise impaired ----- -	x	-	-
	Not plated or plating is not specified type ----- -----	x	-	-
Design:  Plate  Star	Not correctly located ----- -	-	*	-
	Design not as specified ----- -	x	-	-
	Design details altered or obscured or not conforming to Government hub or drawing ----- -	x	-	-
	Any significant detail marred or reduced ----- -	-	*	-
	Warp, twist or distortion, producing irregular surface contour or outline -	-	*	-
	Detail struck over resulting in a double impression ----- -	x	-	-
Construction and  Workmanship	Finish edges not square ----- -	-	*	-
	Surfaces or edges not clean, not smooth or not free from burrs, roughness, sharp edges, drag, step or tool marks ----- -	-	-	x



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EXAMINE	DEFECT	CLASSIFICATION		
		MAJOR	(*)	MINOR
	Plate not flat, i.e., warped, distorted, bent, or twisted ----- - Required operation omitted or not accomplished as specified ----- - Plate broken, fractured or cracked -- - Any component missing, i.e., wing nut or insert for wing nut ----- - Stud not perpendicular to back of star	-  x  x  x  x	*  -  -  -  -	-  -  -  -  -
Lacquering	Not lacquered ----- - Lacquer forms noticeable runs or contains foreign matter ----- -	x  -	-  *	-  -
	Lacquer coating is not smooth and adherent, i.e., is flaking, blistering or peeling ----- -----	-	*	-
Construction and Workmanship	Threads of stud or wing nut stripped or damaged or not specified type, size or fit ----- ----- Die struck edge, rim or outline is not well defined ----- ----- Not accurately trimmed to die struck edge ----- - Joint not clean and not smooth, i.e., flux or excess solder not removed --- - Metal burned or reduced in soldering - Solder spatter ----- - Stud not completely joined by solder -	x  -  -  -  x  -  x	-  -  *  *  -  *  -	-  x  -  -  -  -  -

4.5.3.1.2 Examination of plate. Any dimension which is not within the specified tolerances shall be classified as a defect.

#### 4.6 Tests.

4.6.1 Test for soldered joint. Stars to be tested shall be place in an oven maintained at 1065 degrees F., + 5 degrees F. for a period of 10 minutes. After 10 minutes the stars shall be picked up by the stud. The stars shall then be examined to determine compliance with the requirements specified in 3.7.2.

4.6.2. Dye stain test. A spot (approximately 1/8 inch (0.32 cm) in diameter) of phosphate-free anthorquinone violet RN dye shall be placed on the anodized surface. After five minutes the dye shall be wiped off and the surface examined to determine compliance with 3.7.6.

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4.6.3 Continuity of rhodium plating. The rhodium plated star shall be immersed for three minutes in a solution of liver of sulfur (2 percent sulfurated potash and 98 percent water by weight) at 100 degrees, F.,  $\pm$  10 degrees F. After removal, the star shall be washed and examined to determine compliance with 3.8.2.

## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The automobile plates covered in this specification are intended to be attached to a motor vehicle in which a General Officer is a passenger in order to designate his presence and rank.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1).
- (c) Type and class required (see applicable specification sheet).
- (d) When preproduction sample is required (See 3.2).
- (e) Whether standard sample is to be furnished (See 3.3).
- (f) Selection of packaging and packing (See 5.1).

6.3 Samples. For access to guide samples, address the contracting activity issuing the invitation for bids.

6.4 First article. When first article inspection is required, the contracting officer should provide specific guidance to offerors whether the item should be a preproduction sample, a first production sample or a standard production item from the contractor's current inventory as specified in 4.4. The first article should consist of one completely fabricated plate. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such

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products, who wish to rely on such production or tests, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract.

6.5 Government-loaned property. The contracting officer should arrange to loan the property listed in 3.9.

6.6 Subject term (key word) listing.

Aluminum  
Nickel

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:  
Army - IH

Preparing activity:  
Army - IH

Review activities:  
DLA - CT

(Project No. 8345-0225)





# 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-DTL-14631C	2. DOCUMENT DATE (YYMMDD) 971216
3. DOCUMENT TITLE PLATE, AUTOMOBILE, INDIVIDUAL, GENERAL SPECIFICATION FOR		
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) AUTOVON <i>(If applicable)</i>	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY		
a. NAME  THE INSTITUTE OF HERALDRY	b. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (703) 806-4990	(2) AUTOVON DSN 656-4990
c. ADDRESS <i>(Include Zip Code)</i> 9325 Gunston Road, Room S112 Fort Belvoir, VA 22060-5579	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	