



Advisory Circular

Subject: IDENTIFICATION AND
REGISTRATION MARKING

Date: 7/16/2003
Initiated by: AIR-200

AC No.: 45-2B
Change:

1. PURPOSE. This advisory circular (AC) describes one way, but not the only way, to comply with the requirements for identifying Class I products (aircraft, aircraft engines, or propellers) with identification plates, and identifying aircraft with nationality and registration marks. The requirements are detailed in Title 14, Code of Federal Regulations (14 CFR), part 45, Identification and Registration Marking.

2. CANCELLATION. This AC cancels AC 45-2A, Identification and Registration Marking, dated April 16, 1992.

3. RELATED 14 CFR SECTIONS.

a. 14 CFR part 1, Definitions and Abbreviations. Part 1 defines the words and terms used in subchapters A through K of chapter 1 of 14 CFR.

b. 14 CFR part 21, Certification Procedures for Products and Parts. Part 21 sets forth rules for the issue of and change to type certificates (TC), and issue of production certificates (PC), airworthiness certificates, and export airworthiness approvals. It also sets forth the rules governing the holders of these certificates and the approval of certain materials, parts, processes, and appliances.

c. 14 CFR part 23, Airworthiness Standards: Normal, Utility, Acrobatic, and Commuter Category Airplanes. Part 23 sets forth airworthiness standards for the issue of TCs and changes to those certificates for normal, utility, acrobatic, and commuter category airplanes.

d. 14 CFR part 25, Airworthiness Standards: Transport Category Airplanes. Part 25 sets forth airworthiness standards for the issue of TCs and changes to those certificates for transport category airplanes.

e. 14 CFR part 27, Airworthiness Standards: Normal Category Rotorcraft. Part 27 sets forth the airworthiness standards for issue of TCs and changes to those certificates for normal category rotorcraft.

f. 14 CFR part 29, Airworthiness Standards: Transport Category Rotorcraft. Part 29 sets forth airworthiness standards for the issue of TCs and changes to those certificates for transport category rotorcraft.

g. 14 CFR part 31, Airworthiness Standards: Manned Free Balloons. Part 31 sets forth airworthiness standards for the issue of TCs and changes to those certificates for manned free balloons.

h. 14 CFR part 33, Airworthiness Standards: Aircraft Engines. Part 33 sets forth airworthiness standards for the issue of TCs and changes to those certificates for aircraft engines.

i. 14 CFR part 34, Fuel Venting and Exhaust Emission Requirements for Turbine Engine Powered Airplanes. Part 34 provides for the approval or acceptance by the Administrator or the Administrator of the Environmental Protection Agency of testing and sampling methods, analytical techniques, and related equipment not identical to those specified in part 34.

j. 14 CFR part 35, Airworthiness Standards: Propellers. Part 35 sets forth airworthiness standards for the issue of TCs and changes to those certificates for propellers.

k. 14 CFR part 43, Maintenance, Preventive Maintenance, Rebuilding, and Alteration. Part 43 sets forth rules for maintenance, preventive maintenance, rebuilding, and alteration.

l. 14 CFR part 45, Identification and Registration Marking. Part 45 sets forth rules for display of nationality and registration marks; display of special airworthiness classification marks; identification plates for aircraft, aircraft engines, and propellers; and identification of certain replacement and critical aircraft parts and components.

m. 14 CFR part 47, Aircraft Registration. Part 47 sets forth the requirements for registering aircraft.

4. DEFINITIONS.

a. Antique Aircraft. Paragraphs (1) through (3) below define which aircraft are considered antique aircraft. Paragraphs (2) and (3) below include restored or replica aircraft even if not identical to the original in every detail. Minor differences in configuration due to modern equipment and components, such as use of a tailwheel instead of a tailskid, main wheel brakes, or a modern type propeller, are acceptable.

(1) A U.S.-registered aircraft built at least 30 years ago,

(2) A U.S.-registered aircraft possessing a special airworthiness certificate in the experimental category for the purpose of exhibition with the same external configuration as an aircraft built at least 30 years ago, or

(3) A U.S.-registered aircraft possessing a special airworthiness certificate in the experimental category for the purpose of operating an amateur-built aircraft with the same external configuration as an aircraft built at least 30 years ago.

b. Builder. Builders include amateur-builders and manufacturers of aircraft, aircraft engines, and propellers.

c. Fireproof. As stated in § 1.1, General definitions, the capacity to withstand the heat associated with fire at least as well as steel.

d. N-number. An identifier unique to each aircraft. The letter prefix designates the country where the aircraft is registered. The United States is “N,” which is why this number is commonly called the “N-number.” The rest of the number is the aircraft’s individual registration number. For example, N1234, or a combination of numbers and letter suffixes as described in § 47.15(c), Identification number.

e. Product. An aircraft, aircraft engine, or propeller. For further explanation refer to § 21.1(b).

f. Text or Graphic. Includes any company name, decoration, emblem, symbol, or trademark.

5. WHO THIS AC APPLIES TO.

a. The discussion of identification plates applies to builders of civil aircraft, aircraft engines, and propellers. These builders include builders who provide valid identification plates in accordance with § 21.182 for aircraft, aircraft engines, and propellers that must be displayed for an aircraft to be issued an airworthiness certificate. This discussion also applies to repair stations operating under 14 CFR part 145 and air carriers operating N-numbered aircraft.

b. The discussion of nationality and registration marks applies to owners and operators of civil aircraft, including aircraft operated as public aircraft.

6. RELATED READING MATERIAL.

a. AC 20-62, Eligibility, Quality, and Identification of Approved Aeronautical Replacement Parts. AC 20-62 provides information on how to determine the quality, eligibility, and traceability of aeronautical parts and materials intended for installation on U.S. type-certificated products.

b. AC 20-65, U.S. Airworthiness Certificates and Authorizations for Operation of Domestic and Foreign Aircraft. AC 20-65 provides general information concerning issuance of airworthiness certificates and special flight authorizations for certain aircraft.

c. AC 43-17, Methods, Techniques, and Practices Acceptable to the Administrator Governing the Installation, Removal, or Change of Identification Data and Identification Plates. AC 43-17 provides information concerning installing, removing, or changing identification data and data plates on aircraft, aircraft engines, propellers, and propeller blades and hubs.

d. AC 45-3, Installation, Removal, or Change of Identification Data and Identification Plates on Aircraft Engines. AC 45-3 provides information concerning the installing, removing, or changing identification data and data plates on aircraft engines.

7. IDENTIFICATION OF AIRCRAFT, AIRCRAFT ENGINES, AND PROPELLERS.

a. Information to be Included as Identification. Each manufacturer of aircraft, aircraft engines, propellers, and propeller blades and hubs must display the following information by means of a plate, stamping, engraving, etching, or another approved method.

(1) Builder’s name. The “builder’s name” may be the name of an individual, firm, copartnership, corporation, company, association, or joint-stock association.

(2) Model designation.

(3) Builder's serial number.

(4) TC number, if applicable.

(5) PC number, if applicable. You must not include this PC number if the Class I product model and serial numbers have not been added to the TC data sheet and then added to the production limitation record issued by the Federal Aviation Administration (FAA) to the current TC/PC holder.

(6) The established rating for engines other than those listed in paragraph 7(a)(7).

(7) The date of manufacture and the engine's approved part 34 designation (approved designations include comply, exempt, and non-U.S.) for engines specified in part 34, manufactured on or after January 1, 1984.

b. Type and Placement of Identification. The identification must be fireproof, placed where it is not likely to be defaced or removed during normal service, and placed on a noncritical surface that is not normally removable (for example, not on an inspection plate, removable fairing, or access cover). Refer to table 1 below for additional identification plate location information.

Table 1. Identification Plate Location

| Aircraft or Equipment | Location | Comments |
|---|---|--|
| Aircraft, except for balloons | (1) Outside the aircraft so that it is legible from the ground, either just behind and next to the rear-most entrance door or on the underside of the fuselage near the tail surface. (2) If the aircraft was manufactured before March 7, 1988, some other interior or exterior location near an entrance, so that it is legible from the ground, either just behind and next to the rear-most entrance door or on the underside of the fuselage near the tail surface. The model and serial numbers also must be displayed on the fuselage exterior. | For aircraft described in (2), the FAA accepts locations where you have to open a door, or remove items such as baggage or carry-on items, to make the plate visible. The plate may be covered or enclosed if it can be uncovered without tools or removing aircraft components. |
| Engines | At an accessible place where it will not likely be lost in an accident. | |
| Propellers, propeller blades, or propeller hubs | On a noncritical surface. If possible, where it is visible without disassembly of the propeller. | |
| Balloons | On the balloon envelope and where it is legible to the operator when the balloon is inflated. | Mark the basket and heater assembly with the manufacturer's name, part number (or equivalent), and serial number (or equivalent). |

c. Manufacturer-Installed Identification Plate.

(1) The FAA has previously approved factory-installed identification plates on the fuselage exterior near the tail surface on some models. These models do not need an additional plate.

(2) The manufacturer-installed identification plate on some models may not follow the guidance in this AC, however, they may have been previously determined by the FAA to be acceptable. In all cases, it is important to comply with the guidance in § 45.13 that requires FAA approval for the removal of a data plate, except as required during maintenance operations. If those models do not follow the guidance in this AC, do not remove the identification plate without written approval from the FAA.

d. Identification Plate Requirements for Aircraft Built from Spare or Surplus Parts.

Information to be displayed as identification is described in paragraph 7a. The builder's name is your name (the person who assembled the aircraft), not the name of the manufacturer who builds the same model of aircraft. You may assign any serial number if it is clear the manufacturer who builds the same model of aircraft did not assign an identical number. You should add a letter prefix or suffix, such as your name or initials, to the serial number to provide positive identification.

e. Identification Plate Requirements for Aircraft or Related Parts Produced Under a Licensing Agreement. You may apply the identification requirements to aircraft or related parts produced under licensing agreement as follows:

(1) The builder's name is the name of the licensee as shown on the licensee's PC.

(2) The model designation is as identified on the TC.

(3) The builder's serial number is as selected from a block of numbers, or as otherwise approved by the FAA using prefixes or suffixes to show the approved location of manufacture, as assigned to the builder by the TC holder.

(4) The TC number is as identified on the TC.

(5) The PC number is as issued to the licensee.

(6) For engines, the established rating is as shown on the TC.

f. Removing an Identification Plate During Maintenance. You may remove an identification plate if necessary for performing work in accordance with methods, techniques, and practices acceptable to the FAA. However, once you've completed maintenance, you must reinstall the identification plate on the same product—

(1) At the same location, using the original means of attachment; or

(2) In another location and/or by using another means of attachment in accordance with FAA-approved technical data, including Instruction for Continued Airworthiness, or other data acceptable to the Administrator.

g. Acquiring a New Identification Plate from the Manufacturer.

(1) When a new identification plate is required from a manufacturer as a result of becoming lost, stolen, or damaged during maintenance operations, the owner or owner's authorized representative should review the requirements in paragraph 18 of FAA Order 8130.2, Airworthiness Certification of Aircraft and Related Products, to obtain the procedures for requesting a replacement identification plate. The owner or owner's representative should then contact the appropriate manufacturing inspection district office, manufacturing inspection satellite office, flight standards district office, certificate management office, or certificate management unit through the local FAA inspector to obtain FAA approval for obtaining the replacement.

(2) When a new or additional identification plate is required as a result of part 43 action (that is, rebuilding or alteration), when instructed by specific FAA-approved maintenance procedures contained in manufacturers' manuals, letters, or bulletins, you do not need to get FAA approval as described in paragraph 7(g)(1).

h. Changing Identification Plate Information. Changing the identification data required by § 45.13(a) may only be done when instructed to do so to comply with specific FAA-approved or -accepted design data, maintenance procedures, and rebuilding or alteration procedures contained in manufacturers' manuals, letters, bulletins, or other data acceptable to the FAA.

i. Acquiring an Identification Plate from Somewhere Other Than the Manufacturer. You must have the FAA's approval to remove, change information on, or install an identification plate for other than maintenance. You must not use an identification plate from scrapped or destroyed aircraft or aircraft engine. You must buy identification plates from an approved source after going through the process described in paragraph 7(g). If you install an identification plate without the FAA's approval, you are in violation of § 45.13(b), (c), and/or (e), Identification data.

8. NATIONALITY AND REGISTRATION MARKING REQUIREMENTS FOR AIRCRAFT (The N-Number). The FAA Civil Aviation Registry issues the aircraft N-number. You can call the Civil Aviation Registry at (405) 954-4206 to get an available N-number or information on how to log onto their Web page.

a. Placing Other Text or Graphics Between the Two Parts of an N-Number.

(1) You must not place any text or graphic between any of the letters or numbers in the N-number unless the aircraft is an antique aircraft.

(2) You may insert the symbol ("C," standard; "R," restricted; "L," limited; or "X," experimental) appropriate to the airworthiness certificate of the three types of aircraft listed below. The symbol may be placed between the nationality designation and the registration number, for example, NX1234.

(a) A U.S.-registered aircraft built at least 30 years ago,

(b) A U.S.-registered aircraft with the same external configuration as an aircraft built at least 30 years ago for which a special airworthiness certificate has been issued for operation as an exhibition aircraft, or

(c) An amateur-built aircraft with the same external configuration as an aircraft built at least 30 years ago.

b. Placing Text or Graphics Elsewhere on the Aircraft. You may put text or graphics on areas of the aircraft other than those reserved for the N-number. Ask a local FAA inspector to make sure the text or graphic does not impede or degrade the legibility of the N-number.

c. N-Number Legibility. The N-number must be legible and be written in capital Roman style letters without any ornamentation. You may use shading or a border only if it makes the number more legible.

(1) Make sure the color contrasts sufficiently with the color of the fuselage to make it easy to read. Be especially careful when the background is highly decorated, as in checkering. Consider applying the requirements of § 23.811(c)(7)(ii) or § 25.811(f)(2), Emergency exit marking, as a test of whether the color of the N-number contrasts sufficiently with the background.

(2) Check the reflectance of external markings by using electro-optical instruments or photometer card sets. The FAA considers a 12-inch number legible if you can read it from 500 feet away, in a horizontal line, perpendicular to the side of the aircraft during daylight hours, without using an optical aid such as binoculars.

(3) If you question whether an N-number is legible either because of color or reflectance, check with your local FAA inspector.

d. Applying the N-Number on Aircraft.

(1) You must apply the N-number in a permanent way. Use paint that needs thinners or strippers to remove it, or use decals. Do not use tape that can be peeled off and do not use water-soluble paint, such as poster paint.

(2) You may use removable materials if the aircraft—

(a) Has a temporary nationality designation and registration number.

(b) Is intended for immediate delivery to a non-U.S. purchaser.

(c) Will be flown into an Air Defense Identification Zone or a Distant Early Warning Identification Zone and does not have permanent markings.

e. Displaying the N-Number on Aircraft. Except as provided in table 3, Exceptions to Displaying the N-Number, mark aircraft according to the following table.

Table 2. Displaying the N-Number on an Aircraft

| Aircraft Type or Category | Minimum Height | Location | Orientation | Comments |
|---|---|--|---|---|
| Airships | 3 inches | (1) Upper surface of the right horizontal stabilizer and on the under surface of the left horizontal stabilizer with the top of the marks toward the leading edge of each stabilizer, or (2) Each side of the bottom half of the vertical stabilizer. | Horizontal | |
| Antique aircraft | 2 inches | (1) On both sides of the fuselage between the trailing edge of the wing and the leading edge of the horizontal stabilizer, or (2) On the vertical tail surface, either over or under the horizontal stabilizer. | Horizontal | You may display the category symbol between the nationality designation and the registration number. You may not display any other mark beginning with the nationality designation elsewhere on the aircraft. |
| Experimental aircraft – exhibition, and amateur-built aircraft with a maximum cruising speed of 180 knots or less | 3 inches (with exceptions as shown in table 3) | (1) On both sides of the fuselage between the trailing edge of the wing and the leading edge of the horizontal stabilizer, or (2) On both sides of the vertical tail surface. | Horizontal (with exceptions as shown in table 3). | No markings are required on certain exhibition aircraft, if the registration marks would be inconsistent with exhibition of that aircraft. Operations without markings are limited to those operations and procedures listed in § 45.22, Exhibition, antique, and other aircraft: Special rules, and each flight must receive prior approval. See details in table 3. |
| Fixed-wing aircraft | 12 inches (with exceptions as shown in table 3) | (1) On both surfaces of a single vertical tail or on the outer surfaces of a multivertical tail, or (2) On the fuselage surfaces, on both sides of the fuselage between the trailing edge of the wing and the leading edge of the horizontal stabilizer. If engine pods or other equipment are located in this area and are an integral part of the fuselage side surfaces, you may place the marks on those pods or equipment. | Horizontal | |

Table 2. Displaying the N-Number on an Aircraft (continued)

| Aircraft Type or Category | Minimum Height | Location | Orientation | Comments |
|---------------------------|---|--|--|--|
| Gliders | 3 inches | (1) On both surfaces of a single vertical tail or on the outer surfaces of a multivertical tail, or (2) On the fuselage surfaces, on both sides of the fuselage between the trailing edge of the wing and the leading edge of the horizontal stabilizer. | Horizontal or vertical Horizontal | |
| Nonspherical balloons | 3 inches | On each side near its maximum cross-section and immediately above either the rigging band or the points of attachment of the basket or cabin suspension cables. | Horizontal | |
| Rotorcraft | 12 inches (with exceptions as shown in table 3) | Both external side surfaces: Engine nacelles, roof structure, and fixed surfaces visible from 500 feet away, in a horizontal line, perpendicular to the side of the aircraft during daylight hours, without using an optical aid such as binoculars. Allowable locations include— (1) The cabin or fuselage, including the roof structure, and hinge or sliding doors, but not where it will be covered by doors that can be opened in flight. The appropriate controls should be in place to prevent the loss of the required identification when the door panels are replaced. (2) Boom. Side surfaces. (3) Tail. Outboard surfaces of the vertical tail(s), if the rotorblades, guards, or other equipment do not obstruct the display. | Horizontal | If none of the approved surfaces are large enough for 12-inch letters, make them as large as practicable and put them on the largest of the authorized surfaces. |
| Spherical balloons | 3 inches | In two places diametrically opposite and near the maximum horizontal circumference. | Horizontal | |

f. N-Numbers as Part of the Type Design of an Aircraft. N-numbers are not design requirements. The FAA does not approve them as part of the type design, although they may appear in type design drawings and data as points of reference. The N-number must comply with the requirements specified in part 45.

g. Exceptions to Displaying the N-Number. There are exceptions to how and where you display your N-number. The table below lists the circumstances and explains the exceptions.

Table 3. Exceptions to Displaying the N-Number

| Circumstance | Exception |
|--|---|
| Displaying an N-number on an exhibition aircraft | <p>If displaying the N-number is inconsistent with the purpose of the exhibition (for example, during the taping of a motion picture or television production, or during an airshow), you may operate the aircraft without displaying the N-number.</p> <p>(1) You may operate unmarked exhibition aircraft only—</p> <ul style="list-style-type: none"> (a) For practice and test flights necessary for exhibition, (b) At the exhibition, (c) Between exhibition locations, or (d) Between those locations and the base of operations of the aircraft. <p>(2) For each flight in the United States, you must either—</p> <ul style="list-style-type: none"> (a) File a flight plan under 14 CFR part 91, General Operating and Flight Rules, § 91.153 or § 91.169, or (b) Get prior approval from the flight standards district office if the flight is within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for the takeoff airport, or within 4.4 nautical miles of that airport if it is within Class G airspace. |
| Displaying an N-number on a limited or restricted category aircraft or experimental or provisionally certificated aircraft | <p>Unless you've included the aircraft's category letter in the N-number between the nationality designation and the registration number (for example, NR1234 for a restricted aircraft), the aircraft must display near each entrance to the cabin or cockpit the term "limited," "restricted," "experimental," or "provisional airworthiness," as appropriate. The term should be visible to anyone entering the aircraft. The term should be 2 to 6 inches high.</p> |
| Displaying an N-number on an aircraft with multiple airworthiness certificates | <p>You may use a removable category placard for the term "limited," "restricted," "experimental," and "provisional airworthiness," as appropriate. The term should be 2 to 6 inches high.</p> |
| Displaying nationality and registration marks on an aircraft intended for export | <p>(1) If you manufactured an aircraft and are preparing that aircraft for export and it is registered in the United States, you may mark the aircraft with the nationality and registration marks assigned by the country you will be delivering it to. You may operate the aircraft in the United States with that number to transport it to the purchaser or, for a limited time, for test or demonstration flights.</p> <p>(2) If the aircraft is already registered in the importing country, you may not display an N-number during operations in the United States. You must display the nationality and registration marks of the importing country and obtain a special flight authorization under § 91.715, Special flight authorizations for foreign civil aircraft, to operate the aircraft in the United States.</p> <p>(3) You may not display the marks of the United States and those of other countries at the same time. This could cause confusion as to the correct marks.</p> |
| Displaying a minimum-height N-number on a fixed-wing aircraft | <p>On an aircraft displaying 2-inch marks before November 1, 1981, and on aircraft manufactured between November 2, 1981, and January 1, 1983, you may display those marks until the aircraft is repainted or the marks are repainted, restored, or changed. Once the aircraft is repainted or the marks are repainted, restored, or changed, the N-number must be 12 inches high.</p> |
| Displaying a minimum-height N-number on a rotorcraft | <p>On a rotorcraft manufactured and marked before December 21, 1983, you may display those marks until the rotorcraft is repainted or the marks are repainted, restored, or changed. Once the rotorcraft is repainted or the marks are repainted, restored, or changed, the N-number must be 12 inches high.</p> |

Table 3. Exceptions to Displaying the N-Number (continued)

| Circumstance | Exception |
|---|--|
| Displaying a minimum-height N-number on exhibition or amateur-built aircraft with a maximum cruising speed of 180 knots or less | (1) If you display N-numbers on each side of the vertical tail surface, the minimum height for a newly painted mark is 3 inches, except for antique aircraft, or aircraft with the same external configuration as an aircraft built at least 30 years ago. Details are found in § 45.22(b)(1). (2) If you display N-numbers vertically, follow the requirements of § 45.25(b)(1), Location of marks on fixed wing aircraft. |
| Displaying required marks on a surface not large enough to meet size requirements | (1) If one of the surfaces authorized for displaying required marks is large enough to display marks meeting the size requirement and the other authorized surface is not large enough, you must display full-size marks on the larger surface. (2) If neither authorized surface is large enough for full-size marks, you must display marks as large as practicable on the largest authorized surface. |
| Displaying an N-number on an aircraft, but not as specified in this AC | You may ask the FAA for authority to display the number in some other way. Contact your local flight standards district office or manufacturing inspection district office for assistance. |

9. HOW TO GET THE PUBLICATIONS REFERRED TO IN THIS AC.

a. The CFR and those ACs for which a fee is charged may be obtained from the Superintendent of Documents at the following address. A listing of the CFR and current prices is located in AC 00-44, *Status of Federal Aviation Regulations*, and a listing of all ACs is located in AC 00-2, *Advisory Circular Checklist*.

Superintendent of Documents
P.O. Box 371954
Pittsburgh, PA 15250-7954

b. To be placed on the FAA's mailing list for free ACs, contact—

U.S. Department of Transportation
Subsequent Distribution Office
SVC-121.23
Ardmore East Business Center
3341 Q 75th Avenue
Landover, MD 20785

c. You may view and print the CFR and Aircraft Certification Service and Flight Standards Service ACs on the FAA Web page located at <http://www.airweb.faa.gov/rgl>.

/S/

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