

The Display of Nationality and Registration Marks on Aircraft: Guidance for Owners

CAP 523

Published by the Civil Aviation Authority, 2024

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First published (as CAA Document No. 245) June 1982

Reprinted April 1983

Second edition May 1984

Third edition December 1985

Fourth edition (as CAP 523) August 1986

Reprinted August 1988

Reprinted June 1989

Reprinted February 1990

Reprinted August 1990

Fifth edition January 1992

Reprinted October 1994

Reprinted March 1995

Reprinted May 1995

Sixth edition August 1995

Reprinted December 1996

Reprinted May 1997

Reprinted August 1997

Reprinted November 1998

Reprinted December 1999

Reprinted May 2000

Seventh edition December 2000

Reprinted August 2001

Eighth edition 5 February 2002

Ninth edition 04 March 2024

Tenth Edition October 2024

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The latest version of this document is available in electronic format at: www.caa.co.uk

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Chapter 1 The Display of Nationality and Registration Marks on Aircraft

- 1.1 Article 32 of the Air Navigation Order 2016 requires UK registered aircraft regardless of size and classification to bear nationality and registration marks in accordance with the regulations set out in Schedule 4, Part 2 to the Order. It is an offence not to comply with these regulations unless an exemption has been granted and for your convenience a copy of Schedule 4, Part 2 to the Order appears in Chapter 3, pages 10 and 11. Acceptable lettering and format are given in Chapter 2, pages 7, and examples of compliance and non-compliance are given in Chapter 4, pages 13 and 14.
- 1.2 The aim of displaying the registration mark is to allow ready identification of the aircraft. The requirements are specific but there are a number of points which some aircraft owners and operators may fail to appreciate. These are stressed in the following paragraphs:
- a) Paragraph 1 of Part 2 to the Schedule requires the letters to be in Roman characters and to be without ornamentation. Thus embellished letters are not permitted. For the side lettering a slope of not more than 30 degrees is acceptable as illustrated on Chapter 2, page 7. Please note that no other letter or number may be inserted between the nationality mark 'G' and the hyphen, nor between the hyphen and the particular registration letters, nor adjacent to the nationality and registration marks.
 - b) Paragraph 1(5) of the Schedule says that the nationality and registration marks shall be displayed to the best advantage taking into consideration the constructional features of the aircraft; and shall always be kept clean and visible. The 'best' advantage is the best advantage of an external viewer either on the ground or in another aircraft.
 - c) The size of the letters must not be less than the dimensions stated in paragraph 2 of Part B to the Schedule and, in particular, the height of the letters for underwing markings must be a minimum of 50 cm. The standard side markings required to be displayed on the fuselage or tail of an aircraft should normally be not less than 30 cm (except that if a height of 30 cm is not reasonably practicable owing to the structure of the aircraft, the height must be the largest reasonably practicable). Any authorised surface capable of carrying side markings at least 30 cm high may be used for their display, but if only one such surface exists, then that surface must be used in preference to any smaller surface which can accommodate only markings less than 30 cm high. If none of the authorised surfaces can accommodate 30 cm high markings, then the authorised surface capable of carrying the

largest reasonably practicable markings must be used. If on an aircraft having no fixed wing surface the largest reasonably practicable height of the side markings is less than 30 cm, marks must also be carried on the lower surface of the aircraft. The height of marks which may be required on the lower surface of an aircraft with no fixed wing surface should normally be not less than 50 cm but if this is not reasonably practicable owing to the structure of the aircraft, the height should be the largest reasonably practicable.

- d) Nationality and registration marks have to be of the same single colour and distinct from the background on which the letters are placed, and must be given adequate separation from any other marks. Letters should contrast markedly with the background colour of that part of the aircraft. Simply outlining the letters in a contrasting colour is unlikely to provide the necessary legibility and would not be accepted as this is classed as ornamentation.

Chapter 3 of this CAP lists the Air Navigation Order requirements. Below is the CAA guidance on key wording associated with contrast and ornamentation as mentioned within the Air Navigation Order.

- a) Without ornamentation (Para 1.(3)) – Ornamentation means adding decorative elements to enhance appearance.
- b) Clearly contrast (Para 1.(6)(b)) – Contrasting colours in this context means two colours that are strikingly different

The colours and contrast of background and foreground combinations in the following table, can be used as a guide. It is understood that different shades and intensities will have different outcomes.

		Background								
		Red	Orange	Yellow	Green	Blue	Violet	Black	white	Grey
Foreground	Red		Poor	Good	Poor	Poor	Poor	Good	Good	Poor
	Orange	Poor		Poor	Poor	Poor	Poor	Good	Poor	Poor
	Yellow	Good	Good		Poor	Good	Good	Good	Poor	Good
	Green	Poor	Poor	Poor		Good	Poor	Good	Poor	Good
	Blue	Poor	Poor	Good	Good		Poor	Poor	Good	Poor
	Violet	Poor	Poor	Good	Poor	Poor		Good	Good	Poor
	Black	Good	Good	Good	Good	Poor	Good		Good	Good
	White	Good	Good	Poor	Poor	Good	Good	Good		Good
	Grey	Poor	Poor	Good	Good	Poor	Poor	Poor	Good	

e) The following notes give guidance on suitable colour schemes:

- i. Dark lettering against a light background is preferred but light lettering on a dark background is acceptable.
- ii. Ideally the background should be of uniform colour and have a gloss finish, and lettering should be matt. However, if light lettering is used, this should be gloss while the background should be matt.
- iii. Recommended colours for registration letters include: black, dark blue, darkgreen, dark red and dark purple.
- iv. Recommended background colours include: white, yellow, light blue (but notwith dark blue letters), light green (not with dark green) and pink (not with red).
- v. Intermediate colours such as orange, brown and grey should be avoided foreither lettering or background.
- vi. There are, of course, other colour combinations available but those mentioned above give an idea of the general principles involved.

- 1.3 There is also a requirement for the provision of a fireproof metal plate bearing the nationality and registration marks of the aircraft. This plate has to be affixed to the aircraft in a prominent position in accordance with the requirements stated in paragraph 1(7) of Part 2 to the Schedule. If the registration subsequently changes a revised fireproof metal plate will be required. The same registration marks must be shown on the airframe structure or balloon envelope etc. as on the fireproof metal plate.
- 1.4 Owners of aircraft should be aware that it is an offence for the aircraft to bear any marks which purport to indicate that it is registered in a country in which it is not registered. Exemptions may be granted in certain circumstances against the need to carry UK nationality and registration marks but this will not include permission to bear foreign civil nationality and registration marks.
- 1.5 The proper display of registration marks is in the interests of the owner and the commander of the aircraft. Non-compliance with the provisions of Article 32 of the Air Navigation Order 2016 may lead to prosecution.

Chapter 2 Aircraft Nationality and Registration Marks – Specifications

2.1 The Air Navigation Order 2016 Schedule 4 details the specifications of the lettering to be used for the display of aircraft nationality and registration marks. This lettering is required to conform to the English alphabet and is defined in the international standard ICAO Annex 7 as capital letters in Roman characters (as distinct from eg. Cyrillic or Arabic characters). Examples of lettering styles accepted as meeting the requirements of the Order are given below:

2.2 Upright lettering:

ABCDEFGHIJKLMNOPQRSTUVWXYZ

2.3 Lettering with a slope of not more than thirty degrees:

ABCDEFGHIJKLMNOPQRSTUVWXYZ

2.4 The lettering is required to be without ornamentation. Ornamentation is adding decorative elements to enhance appearance.

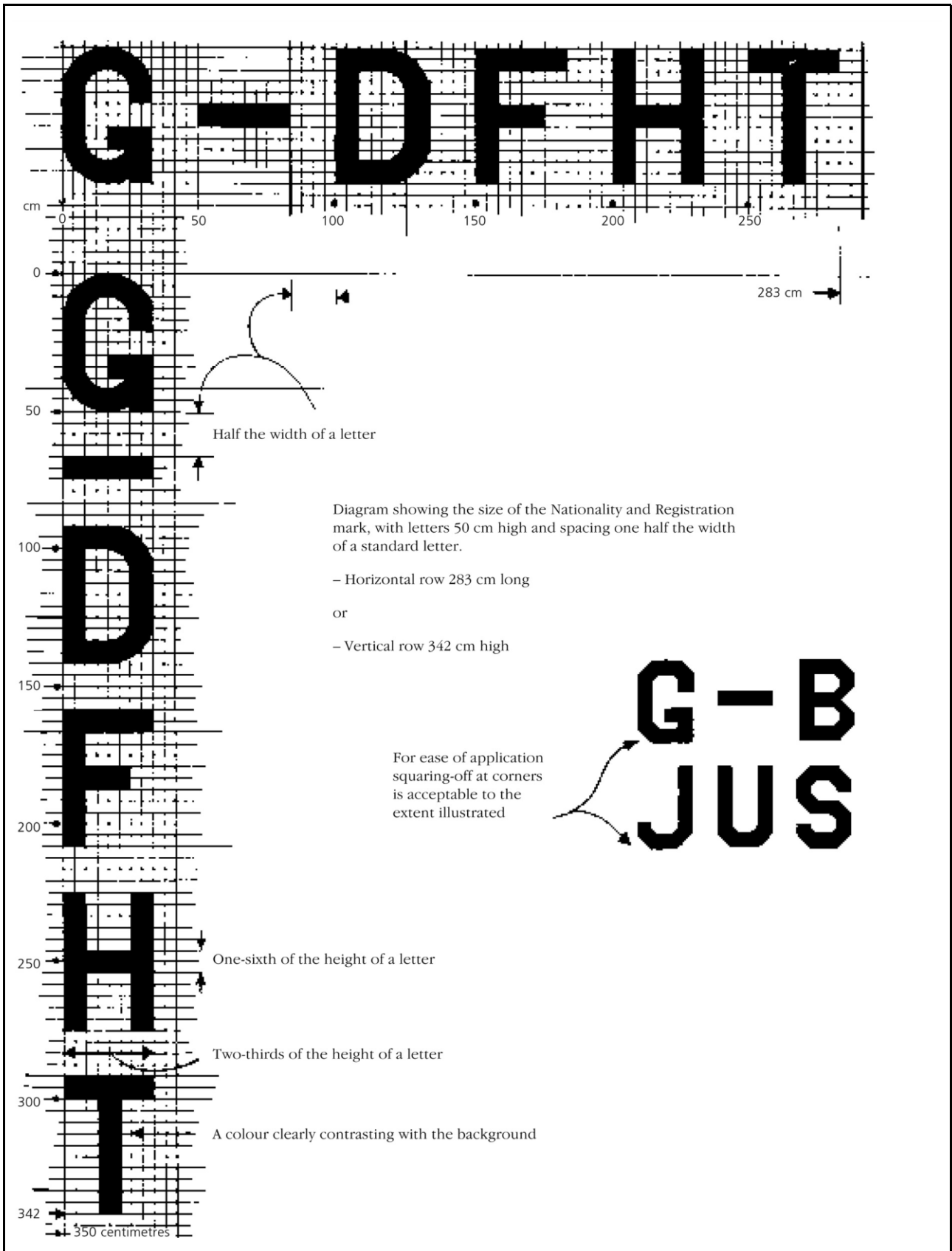
2.5 Where the aircraft has small vertical surfaces which preclude the use of the standard size or format of side markings, where normally the nationality mark, the hyphen and the four registration letters are displayed in a single line, the marks may be displayed in two lines. Note this is applicable to the vertical surface but not the under wing or under fuselage markings on rotorcraft:

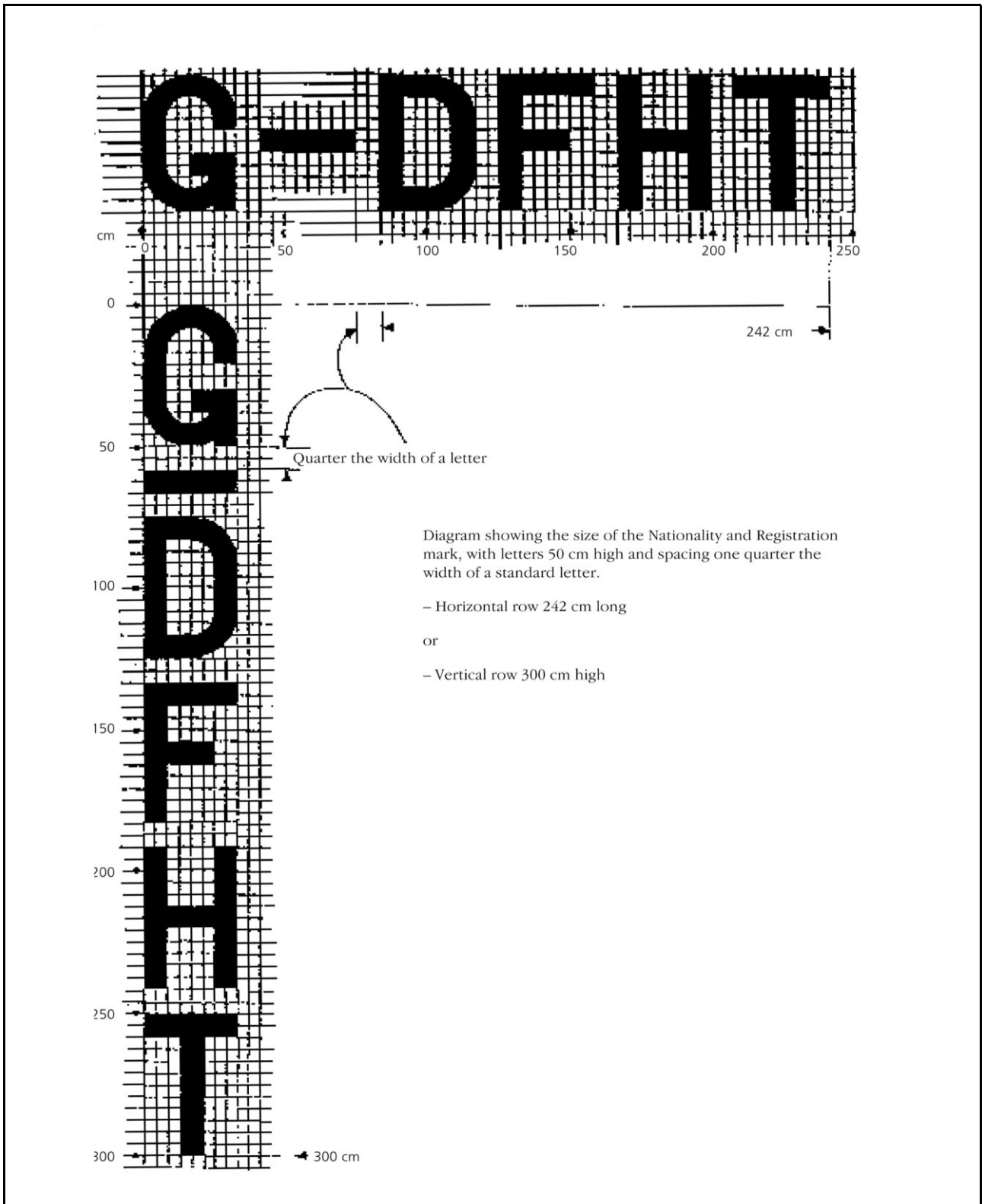
**G-A
BCD**

2.6 If a particular difficulty arises in locating the marks, or there is doubt about the acceptability in terms particularly of size or colour, then the Aircraft Registration Section should be contacted for advice.

Civil Aviation Authority
Aircraft Registration Section
Aviation House
Beehive Ring Road
Crawley, West Sussex
RH6 0YR

E-mail: aircraft.reg@caa.co.uk





Chapter 3 Air Navigation Order, 2016, Schedule 4, Part 2 (Excerpt)

Marking of aircraft

General

- 1.—(1) The nationality mark of the aircraft is the capital letter “G” in Roman character.
- (2) The registration mark is a group of four capital letters in Roman character assigned by the CAA on the registration of the aircraft.
- (3) The letters must be without ornamentation.
- (4) A hyphen must be placed between the nationality mark and the registration mark.
- (5) The nationality and registration marks must be displayed to the best advantage, taking into consideration the constructional features of the aircraft and must always be kept clean and visible.
- (6) The letters constituting each group of marks must—
 - (a) be of equal height; and
 - (b) together with the hyphen, all be of the same single colour which must clearly contrast with the background on which they appear.
- (7) The nationality and registration marks must also be inscribed on a fire-proof metal plate affixed in a prominent position—
 - (a) in the case of a microlight aeroplane, either on the fuselage or car or on the wing;
 - (b) in the case of a balloon, on the basket or envelope;
 - (c) in the case of a remotely piloted aircraft, secured in a prominent position near the main entrance or compartment, or affixed conspicuously to the exterior of the aircraft if there is no main entrance or compartment; or
 - (d) in the case of any other aircraft on the fuselage or car.
- (8) The nationality and registration marks must be painted on the aircraft, or affixed to the aircraft by any other means ensuring a similar degree of permanence, in the manner specified in paragraphs 2, 3 and 4 of this Part.

Position and size of marks – heavier than air aircraft

- 2.— (1) The position and size of marks on heavier than air aircraft (excluding kites) must be as specified in this paragraph.
- (2) On such aircraft having a fixed wing surface—
 - (a) the marks must appear on the lower horizontal surface of the wing structure and on the port wing unless they extend across the whole surface of both wings;
 - (b) so far as is possible the marks must be located equidistant from the leading and trailing edges of the wings;

- (c) the tops of the letters must be towards the leading edge of the wing;
 - (d) the height of the letters must be—
 - (i) subject to sub-paragraph (ii), at least 50 centimetres;
 - (ii) if the wings are not large enough for the marks to be 50 centimetres in height, marks of the greatest height practicable in the circumstances.
- (3) On the fuselage (or equivalent structure) and vertical tail surfaces of such aircraft—
- (a) the marks must also appear either—
 - (i) on each side of the fuselage (or equivalent structure), and must, in the case of fixed wing aircraft be located between the wings and the horizontal tail surface; or
 - (ii) on the vertical tail surfaces;
 - (b) when located on a single vertical tail surface, the marks must appear on both sides;
 - (c) when located on multi-vertical tail surfaces, the marks must appear on the outboard sides of the outer-surfaces;
 - (d) subject to sub-paragraphs (f) and (g), the height of the letters constituting each group of marks must be at least 30 centimetres;
 - (e) if one of the surfaces authorised for displaying the required marks is large enough for those marks to be 30 centimetres in height (whilst complying with sub-paragraph (g)) and the other is not, marks of 30 centimetres in height must be placed on the largest authorised surface;
 - (f) if neither authorised surface is large enough for marks of 30 centimetres in height (whilst complying with sub-paragraph (g)), marks of the greatest height practicable in the circumstances must be displayed on the larger of the two authorised surfaces;
 - (g) marks on the vertical tail surfaces must be such as to leave a margin of at least five centimetres along each side of the vertical tail surface.
- (4) On rotary wing aircraft where owing to the structure of the aircraft the greatest height practicable for the marks on the side of the fuselage (or equivalent structure) is less than 30 centimetres—
- (a) the marks must also appear on the lower surface of the fuselage as close to the line of symmetry as practicable;
 - (b) they must be placed with the tops of the letters towards the nose;
 - (c) the height of the letters constituting each group of marks must be—
 - (i) subject to sub-paragraph (ii), at least 50 centimetres; or
 - (ii) if the lower surface of the fuselage is not large enough for the marks to be of 50 centimetres in height, marks of the greatest height practicable in the circumstances.
- (5) Wherever in this paragraph marks of the greatest height practicable in the circumstances are required, that height must be such as is consistent with compliance with paragraph 4 of this Part.

Position and size of marks – airships and free balloons

- 3.— (1) The position and size of marks on airships and free balloons must be as specified in this paragraph.
- (2) In the case of airships the marks must be—
- (a) placed on each side of the airship; and
 - (b) placed horizontally either on the hull near the maximum cross-section of the airship or on the lower vertical stabiliser.
- (3) In the case of free balloons, the marks must be in two places on diametrically opposite sides of the balloon.
- (4) In the case of both airships and free balloons—
- (a) the side marks must be so placed as to be visible from the sides and from the ground; and
 - (b) the height of the letters must be at least 50 centimetres.

Width, spacing and thickness of marks

- 4.— (1) For the purposes of this paragraph—
- (a) “standard letter” means any letter other than the letters I, M and W;
 - (b) the width of each standard letter and the length of the hyphen between the nationality mark and the registration mark must be two thirds of the height of a letter;
 - (c) the width of the letters M and W must be neither less than two thirds of their height nor more than their height; and
 - (d) the width of the letter I must be one sixth of the height of the letter.
- (2) The thickness of the lines comprising each letter and hyphen must be one sixth of the height of the letters forming the marks.
- (3) Each letter and hyphen must be separated from the letter or hyphen which it immediately precedes or follows by a space equal to—
- (a) either one quarter or one half of the width of a standard letter; and
 - (b) every other such space within the marks.

Chapter 4 Examples of compliance and non-compliance

Non-Compliant examples of Registration Markings:



Figure 1 - Non-compliant due to ornamentation shadow



Figure 2 - Non-compliant due to ornamentation shadow and lack of clear contrast.



Figure 3 - Non-compliant due to ornamentation outline and lack of clear contrast



Figure 4 - Non-complaint due to lack of clear contrast

Compliant examples of Registration Markings:



Figure 5 - Good contrast and no ornamentation



Figure 6 - Good contrast and no ornamentation



Figure 7 - Good contrast and no ornamentation



Figure 8 - Good contrast and no ornamentation