

## RA 3517 - Permanent Fixed Wing Aerodrome - Markers

### Rationale

*Aerodrome operations can often be impeded by poor visibility due to the weather or night time operations. This has the potential to be a contributory factor in hazardous incidents. Markers are used at aerodromes to provide clear and consistent information and guidance to the operating community under all conditions and particularly when markings and lights are not available or visible.*

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### Regulation 3517(1)

#### General

3517(1) Heads of Establishments (HoEs) and Aviation Duty Holder-Facing Organizations (ADH-Facing Organizations) **shall** ensure that all markers placed on an aerodrome are designed to minimize the risk of the markers damaging an Air System.

### Acceptable Means of Compliance 3517(1)

#### General

1. Markers **should** be frangible and retro-reflective.
2. Those markers located near a runway or taxiway **should** be sufficiently low to preserve clearance for propellers, and for the engine pods of jet Air Systems. ▶◀
3. Markers **should** be securely fixed to prevent their removal by jet efflux and/or rotor down wash.

### Guidance Material 3517(1)

#### General

##### Civil Equivalence.

4. This regulation is in line with International Civil Aviation Organization (ICAO) Annex 14 Vol I para 5.5.1.

### Regulation 3517(2)

#### Unpaved Runway Edge Markers

3517(2) HoEs and ADH-Facing Organizations **shall** ensure that markers are provided when the extent of an unpaved runway is not clearly indicated by the appearance of its surface compared with that of the surrounding ground.

### Acceptable Means of Compliance 3517(2)

#### Unpaved Runway Edge Markers

5. Where runway lights are provided, the markers **should** be incorporated in the light fixtures.
6. Where there are no lights, markers of flat rectangular or conical shape **should** be placed to delineate the runway clearly:

**Acceptable  
Means of  
Compliance  
3517(2)**

7. Runway edge markers **should** have the following characteristics:
- The flat rectangular markers **should** have a minimum size of 1 m by 3 m and **should** be placed with their long dimension parallel to the runway centre-line.
  - The conical markers **should** have a height not exceeding 0.50 m.

**Guidance  
Material  
3517(2)**

**Unpaved Runway Edge Markers**

8. 

**Civil Equivalence.**

9. This regulation is in line with ICAO Annex 14 Vol I para 5.5.2.

**Regulation  
3517(3)**

**Stopway Edge Markers**

- 3517(3) HoEs and ADH-Facing Organizations **shall** ensure that stopway edge markers are provided when the extent of a stopway is not clearly indicated by its appearance compared with that of the surrounding ground.

**Acceptable  
Means of  
Compliance  
3517(3)**

**Stopway Edge Markers**

10. The stopway edge markers **should** be sufficiently different from any runway edge markers used to ensure that the two types of markers cannot be confused.

**Guidance  
Material  
3517(3)**

**Stopway Edge Markers**

**Civil Equivalence.**

11. This regulation is in line with ICAO Annex 14 Vol I para 5.5.3.

**Regulation  
3517(4)**

**Edge Markers for Snow-Covered Runways**

- 3517(4) HoEs and ADH-Facing Organizations **shall** ensure that edge markers for snow-covered runways are used to indicate the usable limits of a snow-covered runway when the limits are not otherwise indicated.

**Acceptable  
Means of  
Compliance  
3517(4)**

**Edge Markers for Snow-Covered Runways**

12. Edge markers for snow-covered runways **should** be placed along the sides of the runway at intervals of not more than 100 m and **should** be located symmetrically about the runway centre-line at such a distance from the centre-line that there is adequate clearance for wing tips and power plants.

13. Sufficient markers **should** be placed across the threshold and end of the runway.

**Guidance  
Material  
3517(4)**

**Edge Markers for Snow-Covered Runways**

**Civil Equivalence.**

14. This regulation is in line with ICAO Annex 14 Vol I para 5.5.4

**Regulation  
3517(5)**

**Paved Taxiway Edge Markers**

- 3517(5) HoEs and ADH-Facing Organizations **shall** ensure that taxiway edge markers are provided on a taxiway where taxiway centre-line or edge lights or taxiway centre-line markers are not provided.

**Acceptable  
Means of  
Compliance  
3517(5)**

**Paved Taxiway Edge Markers**

15. Taxiway edge markers **should** be installed at the same locations as the taxiway edge lights would be, had they been used.
16. Taxiway Edge markers **should**:
  - a. Be reflective blue;
  - b. Have a rectangular marked surface, as viewed by the pilot, with a minimum viewing area of 150 cm<sup>2</sup>; and
  - c. Be frangible and a height sufficiently low to preserve clearance for propellers and for the engine pods of jet Air Systems.

**Guidance  
Material  
3517(5)**

**Paved Taxiway Edge Markers**

**Civil Equivalence.**

17. This regulation is in line with ICAO Annex 14 Vol I para 5.5.5.

**Regulation  
3517(6)**

**Taxiway Centre-Line Markers**

- 3517(6) HoEs and ADH-Facing Organizations **shall** ensure that taxiway centre-line markers are provided on a taxiway where taxiway centre-line or edge lights/markings, or taxiway edge markers are not provided.

**Acceptable  
Means of  
Compliance  
3517(6)**

**Taxiway Centre-Line Markers**

18. Taxiway centre-line markers **should** be installed at least at the same locations as the taxiway centre-line lights would be, had they been used.
19. Taxiway centre-line markers **should** be located on the taxiway centre-line marking except that they may be offset by not more than 0.3 m where it is not practicable to locate them on the marking.
20. Taxiway centre-line markers **should**:
  - a. Be reflective green;
  - b. Have a rectangular marked surface, as viewed by the pilot, with a minimum viewing area of 20 cm<sup>2</sup>; and
  - c. Be designed and fitted to withstand being run over by the wheels of an Air System without damage either to the Air System or to the markers themselves.

**Guidance  
Material  
3517(6)**

**Taxiway Centre-Line Markers**

**Civil Equivalence.**

21. This regulation is in line with ICAO Annex 14 Vol I para 5.5.6.

**Regulation  
3517(7)**

**Unpaved Taxiway Edge Markers**

- 3517(7) HoEs and ADH-Facing Organizations **shall** ensure that where the extent of an unpaved taxiway is not clearly indicated by its appearance compared with that of the surrounding ground, markers are provided.

**Acceptable  
Means of  
Compliance  
3517(7)**

**Unpaved Taxiway Edge Markers**

22. Where taxiway lights are provided, the markers **should** be incorporated in the light fixtures.
23. Where there are no lights, suitable markers **should** be placed to clearly delineate the taxiway.

**Guidance  
Material  
3517(7)**

**Unpaved Taxiway Edge Markers**

**Civil Equivalence.**

24. This regulation is in line with ICAO Annex 14 Vol I para 5.5.7.

**Regulation  
3517(8)**

**Boundary Markers**

3517(8) HoEs and ADH-Facing Organizations **shall** ensure that boundary markers are provided at an aerodrome where the landing area has no runway.

**Acceptable  
Means of  
Compliance  
3517(8)**

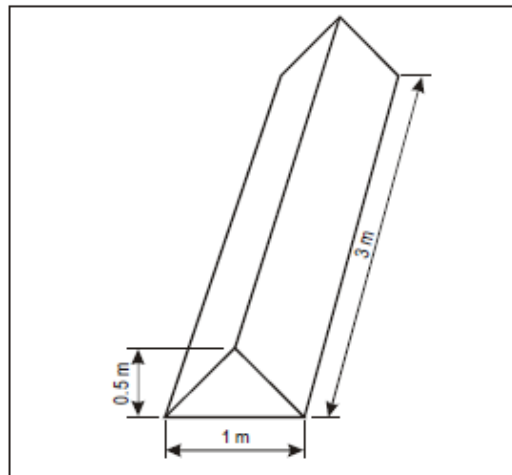
**Boundary Markers**

25. Boundary markers **should** be spaced along the boundary of the landing area at intervals of not more than 200 m, if the type shown in Figure 1 is used, or approximately 90 m, if the conical type is used with a marker at any corner.

26. Boundary markers **should**:

- a. Be of a form similar to that shown in Figure 1, and
- b. Be coloured to contrast with the background against which they will be seen.

*Figure 1. Boundary Marker Dimensions*



**Guidance  
Material  
3517(8)**

**Boundary Markers**

27. A single colour, orange or red, or two contrasting colours, orange and white or alternatively red and white, may be used, except where such colours merge with the background.

**Civil Equivalence.**

28. This regulation is in line with ICAO Annex 14 Vol I para 5.5.8.

**Regulation  
3517(9)**

**Arrestor System Markers**

3517(9) HoEs and ADH-Facing Organizations **shall** ensure that the position of all runway arrestor gear cables are marked.

**Acceptable  
Means of  
Compliance  
3517(9)**

**Arrestor System Markers**

29. The position of all runway arrestor gear cables **should** be indicated by vertical illuminated arrestor gear markers as follows:

- a. The markers **should** be placed on both sides of the runway in line with the cable and normally equidistant from the runway centre-line;

**Acceptable  
Means of  
Compliance  
3517(9)**

- b. The distance from the edge of the usable runway to the markers **should** be a minimum 15 m but no greater than 23 m;
- c. The markers **should** show an aviation yellow disc of 1.0 m diameter on a black background;
- d. The markers **should** be frangible.

**Guidance  
Material  
3517(9)**

**Arrestor System Markers**

30. The average luminance of marker boards is detailed in RA 3515<sup>1</sup>.

**Regulation  
3517(10)**

**Distance To Go Markers**

- 3517(10) HoEs and ADH-Facing Organizations **shall** ensure that Runway Distance Markers (RDM) are installed on all runways.

**Acceptable  
Means of  
Compliance  
3517(10)**

**Distance To Go Markers**

31. The RDM **should**
- a. Be placed on both sides of the runway on lines parallel with and normally equidistant from the centre-line of the runway.
  - b. Indicate the distance for both directions of operation.
  - c. Indicate the runway distance remaining in thousands of feet (the last three digits being omitted).
  - d. Be frangible.
32. The distance from the edge of the usable runway to the RDM **should** be a minimum 15 m but no greater than 23 m.
33. The colour of the number on each RDM **should** be white on a black background.
34. The height of the figures **should** be 1.0 m and the stroke of each figure **should** be 0.13 m wide. The breadth of the figure **should** be approximately 0.6 m.

**Guidance  
Material  
3517(10)**

**Distance To Go Markers**

35. Where the length of the runway is not an exact multiple of 300 m the amount remaining after subtraction of the maximum number of such multiples can be shared equally between and added to the runway start to the first RDM and the last RDM to the runway end distance to give the ideal position (eg a 2600 m runway will give 8 multiples of 300 m plus 200 m remaining; this shared equally gives distances of 400 m at each end of the runway).
36. Markers that would normally be at a runway or taxiway intersection may be omitted. However, they may be sited up to 30 m from the calculated position and along the line if this makes it possible to avoid omitting them altogether. The corresponding markers may remain opposite to each other.
37. The current control for an RDM will be in accordance with RA 3520(1) Table 3<sup>2</sup>.
38. The average luminance of marker boards is detailed in RA 3515<sup>1</sup>.

<sup>1</sup> ► Refer to ◀ RA 3515 - Permanent Fixed Wing Aerodrome - ► Lighting. ◀

<sup>2</sup> ► Refer to ◀ RA 3520(1): ► Aerodrome Electrical System Design. ◀

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