U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: SUPPLEMENTAL WIND CONES | **Date:** 5/11/90 | **AC No:** 150/5340-23B
Initiated by: AAS-200 | **Change:**

1. **PURPOSE.** This advisory circular (AC) describes criteria for the location and performance of supplemental wind cones.

2. **CANCELLATION.** AC 150/5340-23A, Supplemental Wind Cones, dated June 24, 1975, is canceled.

3. **PRINCIPAL CHANGE.** The prior AC has been revised to preclude the installation of supplemental wind cones in runway safety areas. However, it is allowed in the touchdown area of Category II and Category III runways as long as it does not penetrate the obstacle free zone.

4. **APPLICATION.** The guidance in this AC is recommended for all applications involving supplemental wind cones. The siting and performance criteria specified herein is mandatory for supplemental wind cones which are required by regulation, i.e. FAR Part 139, or funded under the Airport Improvement Program.

5. **DISCUSSION.** The source of wind information on an airport that is reported to pilots may be 2 to 3 miles from the approach end of a runway. Factors such as topography, approaching fronts or thunderstorms could result in much different wind conditions near runway ends than those reported to pilots from the primary wind information source. Under these conditions, supplemental wind cones are needed to provide pilots a continuing visual indication of wind conditions near the runway ends during landing and take off operations.

6. **SITING.** The supplemental wind cone should be located near the runway end so that pilots have an unobstructed view during either landing or takeoff operations. Figure 1 shows the preferred area for installing supplemental wind cones. The wind cone may be installed no closer than 250 feet from the runway centerline. If the installed height of the wind cone is more than 16 2/3 feet above the runway centerline elevation, it must be farther from the runway to insure that it does not penetrate the obstacle free zone (OFZ) described in AC 150/5300-13, Airport Design. Because of the functional purpose of the supplemental wind cone, it is permitted in the touchdown area of CAT II and CAT III runways (reference AC 120-29, Appendix 2, paragraph 7), as long as it does not penetrate the OFZ. The preferred location is on the left side of the runway when viewed from a landing aircraft. However, it may be located on the right side of the runway where conditions such as the existence of another runway, taxiway, apron, terrain problems, or navigational aids preclude its installation on the left side. The proposed location must be coordinated with the local Airway Facilities Office to insure that it will not cause interference with the radiation pattern of any navigational aid facility.

7. **PERFORMANCE REQUIREMENTS.** Locally fabricated or commercially available supplemental wind cones may be used in lieu of equipment specified in AC 150/5345-27, Specification for Wind Cone Assemblies, provided the following parameters are met:

a. The wind cone shall be in the form of a truncated cone with a minimum throat diameter of 18 inches and with a length of 5 to 9 feet.

b. The wind cone shall move freely about the supporting shaft and indicate true wind direction within ±5 degrees at a wind velocity of 5 miles per hour.

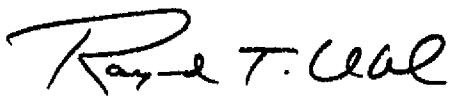
c. The support structure shall support the wind cone at wind speeds up to 50 mph, yet be lightweight so as to cause minimal damage if struck by an aircraft.

d. Lighting, where provided, should adequately illuminate the wind cone so that it is visible from a distance of 1/2 mile at night, yet does not create a glare problem for pilots of aircraft landing or taking off.

e. The ground around the wind cone structure, within a radius of 10 feet, should be treated to prevent vegetation growth and to provide added contrast with the surrounding area.

f. The color of the cone fabric may be white, yellow, or orange. All exposed structural parts of the wind cone assembly, except reflecting surfaces of light fixtures, shall be orange.

g. The installed height of the wind cone should not exceed 10 feet. However, this height may be exceeded where necessary to provide an unobstructed view provided the wind cone does not penetrate the OFZ specified in paragraph 6.



for Leonard E. Mudd
Director, Office of Airport Safety and Standards

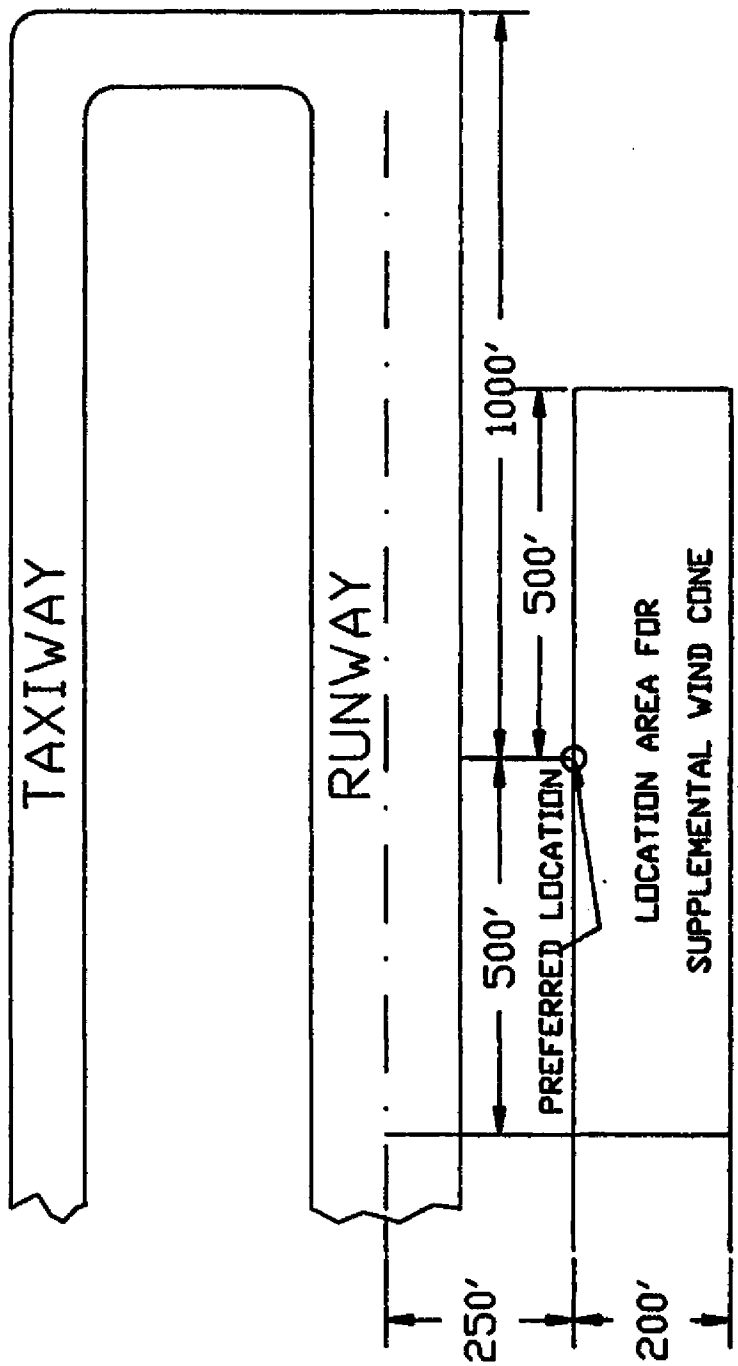


Figure 1. Location of Supplemental Wind Cone

Repl. by -23A

AC NO: 150/5340-23

DATE: 24 Aug 1971

ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SUBJECT: GUIDE FOR LOCATION OF SUPPLEMENTAL WIND CONES

1. PURPOSE. This circular describes standards for the performance and location of supplemental wind cones.

2. REFERENCES.

   a. Obtain additional copies of this circular and references from the Department of Transportation, Distribution Unit, TAD-484.3, Washington, D.C. 20590.

      (1) Advisory Circular 150/5340-21, Airport Miscellaneous Lighting Visual Aids.

      (2) Advisory Circular 150/5345-27A, Specification for L-807 Eight-Foot and Twelve-Foot Unlighted or Externally Lighted Wind Cone Assemblies.

   b. Obtain copies of Federal Aviation Regulation, Volume XI, Part 77, Objects Affecting Navigable Airspace, from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Send check or money order with your request made payable to the Superintendent of Documents in the amount of $2.75 plus 75¢ foreign mailing. No c.o.d. orders are accepted.

3. BACKGROUND.

   a. There is a need for the installation of wind cones, 8 feet or less in length, near the approach end or touchdown zone area of the runway. Supplemental wind cones furnish the pilot a continuing indication of wind conditions during the landing and takeoff phases of flight. The extra wind cone installations supplement the standard equipment and installation requirements contained in Advisory Circular 150/5345-27A and Advisory Circular 150/5340-21, respectively.

Initiated by: AS-580

b. At many locations, the source of wind data reported to the pilot may be up to 2 or 3 miles from the approach end of the runway. In these cases, extra wind cones are needed to provide wind information near the runway threshold or touchdown zone area during landing and take-off phases of flight. In addition, supplemental wind cones provide transient wind conditions.

4. EQUIPMENT PERFORMANCE REQUIREMENTS. Supplemental wind cone installations may utilize commercially available wind cones in lieu of Advisory Circular 150/5345-27A equipment providing the equipment supplier furnishes to the user a certification that at least the following requirements are met:

a. The wind cone fabric, support assembly, and all accessories are designed and manufactured for continuous operation and service under weather conditions specified in Advisory Circular 150/5345-27A.

b. The fabric wind cone moves freely about the supporting shaft and the cone indicates the true direction of the wind for all velocities in excess of 3 miles per hour.

c. The wind cone fabric may be a color in contrast with surrounding ground.

d. If specified, wind cones may be internally or externally lighted. See Advisory Circular 150/5345-27A for guidance for lighting wind cones.

5. LOCATIONS.

a. Install the supplemental wind cone 150 feet from the runway edge and downwind 800 feet from the runway threshold. See Figure 1 for tolerances. Installations near or inside the edge of the primary surface as defined in FAR 77, paragraph 77.25 should be considered on a case-by-case basis to determine that the wind cone will not interfere with normal aircraft operations or navigational aids.

b. Supplemental wind cones may be located near any runway. Consider runway obstruction and ILS criteria when determining the optimum location for the wind cone. Installation of supplemental wind cones on ILS runways are made on the opposite side, with respect to the ILS glide slope. For example, if the glide slope is near the right side of the runway, the supplemental wind cone is installed near the left side of the runway. The installation of the supplemental wind cone in front of the glide slope, for an ILS runway, is unacceptable.

c. Locate the wind cone structure and provide frangible mounts to prevent the wind cone from adversely affecting the safety of a missed approach under Category I operations and during a non-precision instrument approach.

d. The optimum location of the supplemental wind cone is near the left side of the runway when viewed by an approaching pilot. Use right side of runway where taxiways intersect runways or other conditions make left runway side installations undesirable. See figure 1 for optimum location distance.

6. INSTALLATION.

a. Install supplemental wind cones at locations near runways having a history of abnormal wind movements.

b. Install supplemental wind cones at locations where it has been determined that location of the source of wind data reported to the pilot is in a position where reliable wind information is not available to the pilots on a continuing basis.

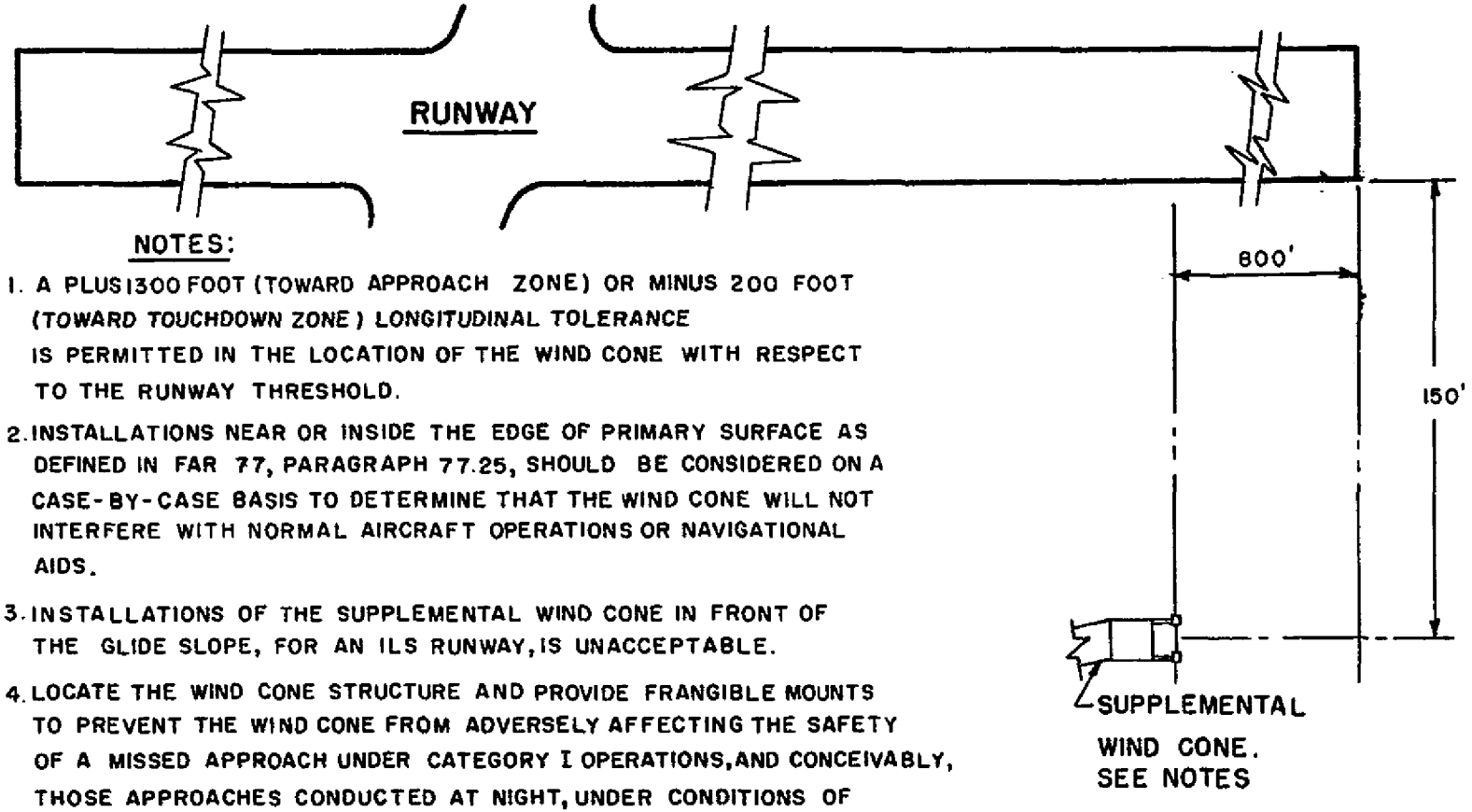
c. Install supplemental wind cones where it has been determined that the distance from the runway end to the principal wind indicator is excessive. This excessive distance prevents a true indication of wind conditions on the runway.

d. The area around the supplemental wind cone may be treated to provided a contrast to the surrounding ground for quick identification of the wind cone.

e. Where the supplemental wind cone is located adjacent to a lighted runway, provide a lighted wind cone.

f. See figure 2 for a typical wind cone installation. Alternate details are contained in Advisory Circular 150/5340-21.

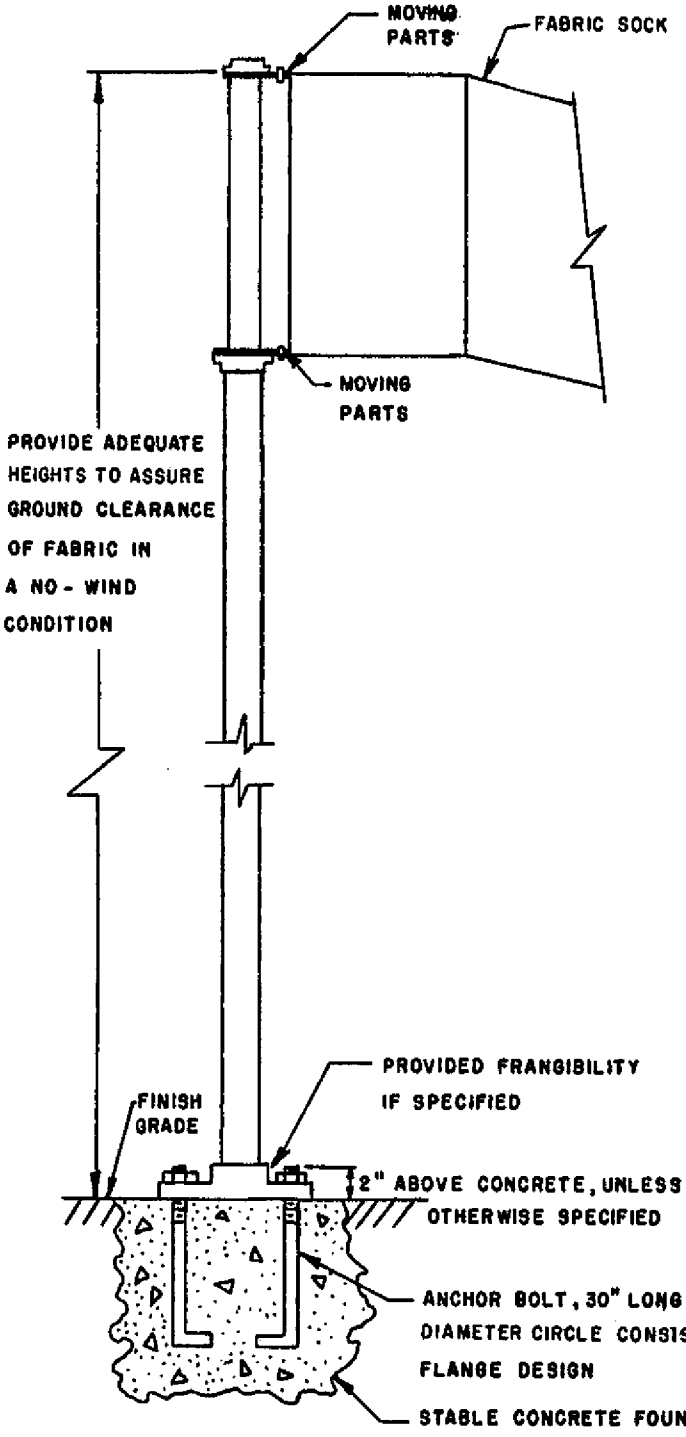
7. REPORTING REQUIREMENTS. Provide a notice of the proposed construction of supplemental wind cones as required by FAR, Part 77.13(a)(5).



NOTES:

1. A PLUS 1300 FOOT (TOWARD APPROACH ZONE) OR MINUS 200 FOOT (TOWARD TOUCHDOWN ZONE) LONGITUDINAL TOLERANCE IS PERMITTED IN THE LOCATION OF THE WIND CONE WITH RESPECT TO THE RUNWAY THRESHOLD.
2. INSTALLATIONS NEAR OR INSIDE THE EDGE OF PRIMARY SURFACE AS DEFINED IN FAR 77, PARAGRAPH 77.25, SHOULD BE CONSIDERED ON A CASE-BY-CASE BASIS TO DETERMINE THAT THE WIND CONE WILL NOT INTERFERE WITH NORMAL AIRCRAFT OPERATIONS OR NAVIGATIONAL AIDS.
3. INSTALLATIONS OF THE SUPPLEMENTAL WIND CONE IN FRONT OF THE GLIDE SLOPE, FOR AN ILS RUNWAY, IS UNACCEPTABLE.
4. LOCATE THE WIND CONE STRUCTURE AND PROVIDE FRANGIBLE MOUNTS TO PREVENT THE WIND CONE FROM ADVERSELY AFFECTING THE SAFETY OF A MISSED APPROACH UNDER CATEGORY I OPERATIONS, AND CONCEIVABLY, THOSE APPROACHES CONDUCTED AT NIGHT, UNDER CONDITIONS OF PRECIPITATION AND MARGINAL WEATHER MINIMA FOR A NONPRECISION INSTRUMENT APPROACH.
5. THE OPTIMUM LOCATION OF THE SUPPLEMENTAL WIND CONE IS NEAR THE LEFT SIDE OF THE RUNWAY WHEN VIEWED BY AN APPROACING PILOT. USE RIGHT SIDE OF RUNWAY WHERE TAXIWAYS INTERSECTING RUNWAYS OR OTHER CONDITIONS MAKE LEFT RUNWAY SIDE INSTALLATIONS UNDESIRABLE.

FIGURE 1. LOCATION OF SUPPLEMENTAL WIND INDICATORS



NOTES:

1. SEE A/C 150/5340-21 FOR ALTERNATE INSTALLATION DETAILS.
2. INSTALL SUPPLEMENTAL WIND CONE AT LOCATIONS NEAR RUNWAYS WITH ABNORMAL WIND MOVEMENTS.
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5. THE AREA AROUND THE SUPPLEMENTAL WIND CONE MAY BE TREATED TO PROVIDE A CONTRAST TO THE SURROUNDING GROUND FOR QUICK IDENTIFICATION OF THE WIND CONE.
6. WHERE THE SUPPLEMENTAL WIND CONE IS LOCATED ADJACENT TO A LIGHTED RUNWAY, PROVIDE A LIGHTED WIND CONE. SEE A/C 150/5340-21 FOR GUIDANCE ON LIGHTING WIND CONES AND ALTERNATE INSTALLATION DETAILS
7. PROVIDE A NOTICE OF THE PROPOSED CONSTRUCTION OF SUPPLEMENTAL WIND CONES AS REQUIRED BY FAR, PART 77.13 (a) (5).

FIGURE 2. TYPICAL INSTALLATION DETAIL FOR SUPPLEMENTAL WIND CONES

8. MAINTENANCE. Perform regular maintenance checks in accordance with the manufacturer's instructions. Replace defective components when the equipment fails to perform in accordance with manufacturers specifications or the requirements of paragraph 4.

Chester G. Bowers

CHESTER G. BOWERS
Director, Airports Service

GPO 917.308

AC NO: 150/5340-23

DATE: 24 Aug 1971

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

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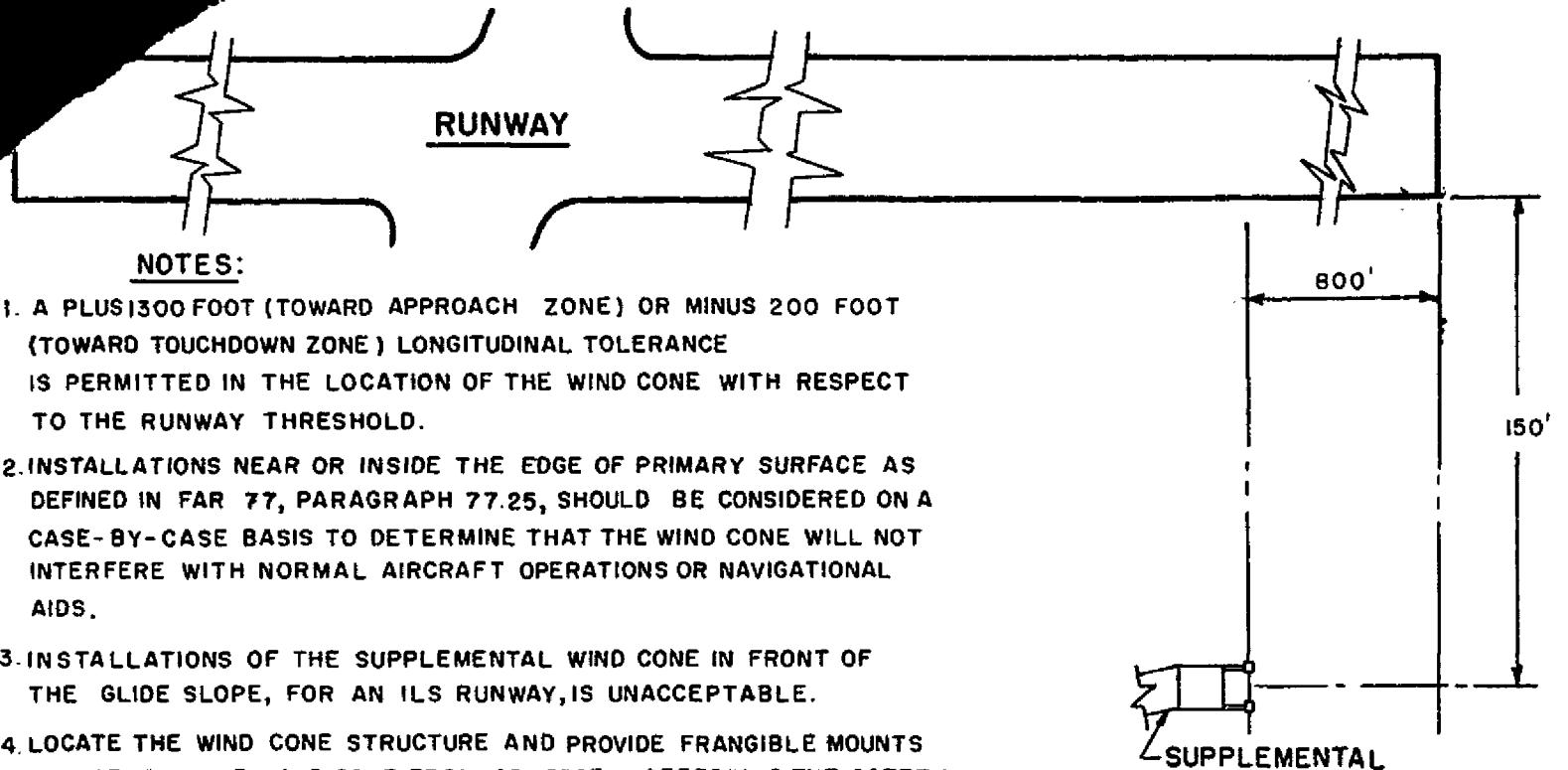

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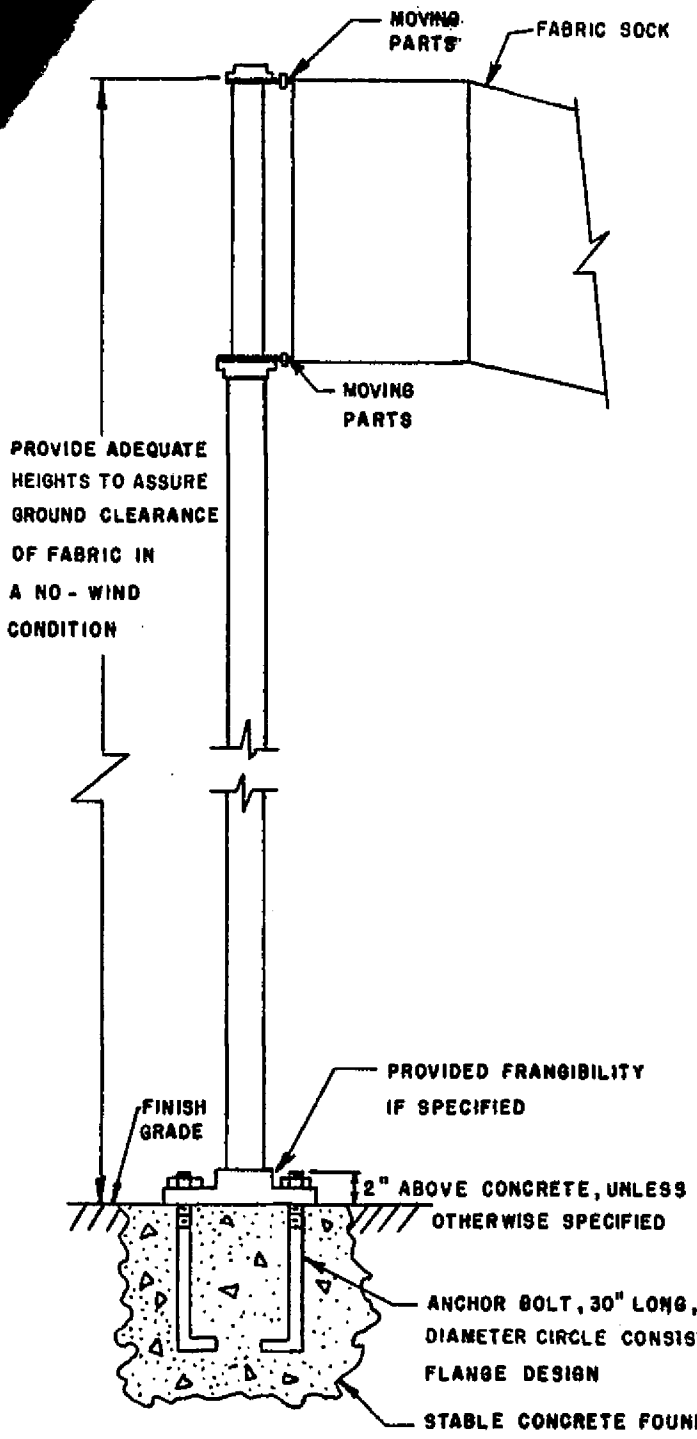

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