operation if the primary power fails. A trickle charge must be supplied to recharge the batteries during the period of available primary power. Upon loss and subsequent restoration of power, the battery must be restored to full charge within 24 hours. When primary power is applied, the state of the battery charge must not affect the operation of the MLS ground station. The battery must allow continuation of normal operation of the MLS facility for at least 2 hours without the use of additional sources of power. When the system is operating from the battery supply without prime power, the radome deicers and the environmental system need not operate. The equipment must meet all specification requirements with or without batteries installed.

(h) There must be a means for determining, from the ground, the performance of the system including antenna, both initially and periodically.

(i) The facility must have, or be supplemented by, ground, air, or landline communications services. At facilities within or immediately adjacent to controlled airspace, that are intended for use as instrument approach aids for an airport, there must be ground air communications or reliable communications (at least a landline telephone) from the airport to the nearest FAA air traffic control or communication facility. Compliance with this paragraph need not be shown at airports where an adjacent FAA facility can communicate with aircraft on the ground at the airport and during the entire proposed instrument approach procedure. In addition, at low traffic density airports within or immediately adjacent to controlled airspace, and where extensive delays are not a factor, the requirements of this paragraph may be reduced to reliable communications from the airport to the nearest FAA air traffic control or communications facility. If the adjacent FAA facility can communicate with aircraft during the proposed instrument approach procedure down to the airport surface or at least down to the minimum en route altitude, this would require at least a landline telephone.

(j) The location of the phase center for all antennas must be clearly marked on the antenna enclosures.

(k) The latitude, longitude and mean sea level elevation of all MLS antennas, runway threshold and runway stop end must be determined by survey with an accuracy of ±3 meters (±10 feet) laterally and ±0.3 meter (±1.0 foot) vertically. The relative lateral and vertical offsets of all antenna phase centers, and both runway ends must be determined with an accuracy of ±0.3 meter (±1.0 foot) laterally and ±0.03 meter (±0.1 foot) vertically. The owner must bear all costs of the survey. The results of this survey must be included in the ''operations and maintenance'' manual required by section 171.325 of this subpart and will be noted on FAA Form 198 required by §171.327.

[Doc. No. 20669, 51 FR 33177, Sept. 18, 1986, as amended by Amdt. 171–16, 56 FR 65665, Dec. 17, 1991]

### § 171.325 Maintenance and operations requirements.

(a) The owner of the facility must establish an adequate maintenance system and provide MLS qualified maintenance personnel to maintain the facility at the level attained at the time it was commissioned. Each person who maintains a facility must meet the FCC licensing requirements and demonstrate that he has the special knowledge and skills needed to maintain an MLS facility, including proficiency in maintenance procedures and the use of specialized test equipment.

(b) In the event of out-of-tolerance conditions or malfunctions, as evidenced by receiving two successive pilot reports, the owner must close the facility by encasing radiation, and issue a ''Notice to Airmen'' (NOTAM) that the facility is out of service.

(c) The owner must prepare, and obtain approval of, an operations and maintenance manual that sets forth mandatory procedures for operations, periodic maintenance, and emergency maintenance, including instructions on each of the following:

(1) Physical security of the facility.

(2) Maintenance and operations by authorized persons.

(3) FCC licensing requirements for operations and maintenance personnel.

(4) Posting of licenses and signs.

(5) Relations between the facility and FAA air traffic control facilities, with a description of the boundaries of controlled airspace over or near the facility, instructions for relaying air traffic control instructions and information, if applicable, and instructions for the operation of an air traffic advisory service if the facility is located outside of controlled airspace.

(6) Notice to the Administrator of any suspension of service.

(7) Detailed and specific maintenance procedures and servicing guides stating the frequency of servicing.

(8) Air-ground communications, if provided, expressly written or incorporating appropriate sections of FAA manuals by reference.

(9) Keeping the station logs and other technical reports, and the submission of reports required by § 171.327.

(10) Monitoring of the MLS facility.

(11) Inspections by United States personnel.

(12) Names, addresses, and telephone numbers of persons to be notified in an emergency.

(13) Shutdowns for periodic maintenance and issuing of NOTAM for routine or emergency shutdowns.

(14) Commissioning of the MLS facility.

(15) An acceptable procedure for amending or revising the manual.

(16) An explanation of the kinds of activities (such as construction or grading) in the vicinity of the MLS facility that may require shutdown or recertification of the MLS facility by FAA flight check.

(17) Procedures for conducting a ground check of the azimuth and elevation alignment.

(18) The following information concerning the MLS facility:

(i) Facility component locations with respect to airport layout, instrument runways, and similar areas.

(ii) The type, make and model of the basic radio equipment that provides the service including required test equipment.

(iii) The station power emission, channel, and frequency of the azimuth, elevation, DME, marker beacon, and associated compass locators, if any.

(iv) The hours of operation.

(v) Station identification call letters and method of station identification and the time spacing of the identification.

(vi) A description of the critical parts that may not be changed, adjusted, or repaired without an FAA flight check to confirm published operations.

(d) The owner or his maintenance representative must make a ground check of the MLS facility periodically in accordance with procedures approved by the FAA at the time of commissioning, and must report the results of the checks as provided in § 171.327.

(e) The only modifications permitted are those that are submitted to FAA for approval by the MLS equipment manufacturer. The owner or sponsor of the facility must incorporate these modifications in the MLS equipment. Associated changes must also be made to the operations and maintenance manual required in paragraph (c) of this section. This and all other corrections and additions to this operations and maintenance manual must also be submitted to FAA for approval.

(f) The owner or the owner's maintenance representative must participate in inspections made by the FAA.

(g) The owner must ensure the availability of a sufficient stock of spare parts, including solid state components, or modules to make possible the prompt replacement of components or modules that fail or deteriorate in service.

(h) FAA approved test instruments must be used for maintenance of the MLS facility.

(i) Inspection consists of an examination of the MLS equipment to ensure that unsafe operating conditions do not exist.

(j) Monitoring of the MLS radiated signal must ensure a high degree of integrity and minimize the requirements for ground and flight inspection. The monitor must be checked daily during the in-service test evaluation period (96 hour burn in) for calibration and stability. These tests and ground checks or azimuth, elevation, DME, and marker beacon radiation characteristics must be conducted in accordance with the maintenance requirements of this section.