

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF AERONAUTICS-STANDARD SPECIFICATION
L-125, Subpart "C"
Taxiway Guidance Sign Systems
(Based on AC 150/5340-18)

DESCRIPTION

1.1 This work shall consist of furnishing and installing taxiway guidance signs as specified in the plans and this subpart.

Support equipment and installation, such as cable, duct, vault and control equipment, are covered under other specifications as listed in L-125-1.1.

EQUIPMENT AND MATERIALS

2.1 Commercial Equipment. Equipment and materials used, which do not have FAA specification numbers, shall be suitable for the intended use and shall meet the specifications and descriptions shown in the plans. Electrical equipment shall bear the Underwriters' Laboratories label.

2.2 Taxiway Sign Fixtures. Taxiway signs shall conform to L-829, AC 150/5345-4 and shall be of the number of panel units and symbol types shown in the plans for individual signs. Each sign shall be furnished with a lamp or lamps, connecting leads, specified panels and mounting assemblies.

2.3 Isolation Transformers. Isolation transformers for use in series circuits shall be type L-830 conforming to AC 150/5345-47 and shall be of the rating specified in the plans.

2.4 Cable Connectors. Cable connectors for use in series circuits shall be type L-823 conforming to AC 150/5345-26. For parallel (multiple) circuits, connectors shall conform to specification L-108, Installation of Underground Cable for Airports, or approved equal. Specific details pertaining to series or parallel circuit cable connectors shall be as shown in the plans.

2.5 Guidance Sign Mounting

(a) **Base Mounting.** Bases shall be type L-857, type I conforming to AC 150/5345-42 with two inch to 3/4 inch hot dipped galvanized pipe reducing bushings and 3/4 inch by 10 inch (250 mm) long hot dipped galvanized conduit stubs. One base shall be used per sign.

(b) **Stake Mounting.** If specified in the plans, for one or two panel signs, stake mounting conforming to AC 150/5345-48 shall be furnished.

2.6 Concrete. Concrete shall conform to specification P-610, Structural Portland Cement Concrete.

INSTALLATION

3.1 General. Installation of a taxiway guidance sign system consists of internally lighted taxiway guidance signs for series or multiple circuits furnished and installed in accordance with this subpart and at the location and in conformity with dimensions, layout, design, details and panel symbols shown in the plans.

All signs shall be oriented so that the face of the sign is approximately 90 degrees to the direction of the taxiing path from which it is viewed.

3.2 Base Mountings. Base mounted signs shall be installed with a concrete pad of the dimensions shown in the plans. The concrete shall be poured in undisturbed soil and reinforced with steel bars formed and placed as shown in the plans. The concrete surface shall be sloped 1/4 inch per foot (20 mm per meter) away from the base to provide adequate drainage and shall be finished to a smooth finish

by a steel trowel or by rubbing. The base mounting (transformer housing) shall be placed in the concrete as shown in the plans. Anchor bolts for additional flange supports, if required, shall be placed in the concrete in accordance with manufacturer's instructions.

The transformer base housing shall be adjusted and firmly held in place during the construction of the concrete pad so that the machined upper surface of the base flange will be level within ± 2 degrees and not more than $3/8$ inch (10 mm) above the surface of the pad. All other bearing areas shall be in the same horizontal plane as the transformer base flange.

All male threads of the conduit stubs shall be liberally coated with pipe joint sealer compound to make a watertight joint and to prevent corrosion of bare metal threads.

3.3 Stake Mountings. If specified in the plans, the guidance sign shall be installed on a metal stake which shall be installed in a six inch (150 mm) diameter hole to a depth of 30 inches (750 mm). The top of the stake shall be installed even with, or not more than $1/2$ inch (15 mm) above, the finished grade and within one degree of vertical. The stake shall not be installed by driving. The stake shall be backfilled with concrete to form a six inch (150 mm) diameter anchor which, starting at 18 inches (450 mm) below finished grade, extends to 40 inches (1.0 m) below finished grade.

3.4 Guidance Sign Installation.

(a) **General.** The contractor shall assemble, connect to mounting, level and adjust the guidance sign in accordance with the manufacturer's instructions. The signs shall be installed such that the overall height above finished grade, including mounting supports, is not less than 20 inches (500 mm) nor more than 30 inches (750 mm). Panels shall be installed with specified symbols in proper order and orientation.

(b) **Base Mounted Guidance Signs.** Prior to mounting the guidance sign on the base, an L-823 connector kit shall be installed on the primary power cable ends in accordance with manufacturer's instructions. The specified L-830 isolation transformer shall be installed in the base. The primary cable/isolation transformer connection shall be wrapped with at least one layer of rubber or synthetic tape and one layer of plastic tape, one-half lapped and extending at least $1\frac{1}{2}$ inches (40 mm) on each side of the joint. The guidance sign disconnecting plug shall be plugged into the transformer secondary receptacle, but shall not be taped.

(c) **Stake Mounted Guidance Signs.**

1. **Series System.** Transformer connections shall be made as detailed in paragraph 125C-3.4b. Cable connectors shall not be attached to the mounting stake. Primary cable connectors, splices and transformers shall be installed at a depth of at least 10 inches (250 mm), or as otherwise specified in the plans, with adequate slack provided as shown in the plans. The radius of cable bends shall not be less than 10 inches (250 mm). The secondary lead from the transformer to the lamp socket shall be placed in a loose spiral with excess slack at the bottom.

2. **Parallel (Multiple) System.** Connections of the lighting fixture pigtail leads to the primary cable shall be made with taped "T" splices. The "T" splice shall be made as follows: Remove the overall jacket for a distance of six inches (150 mm) from the light fixture pigtail lead. Remove the insulation for three inches (75 mm) from each of the two pigtail conductors and thoroughly clean the bare copper wire. Remove the jacket and insulation from a section of the underground supply cable by penciling the jacket and insulation so as to expose $1/2$ inch (15 mm) of bare conductor. Tightly wrap one of the bare pigtail wires

around the bare section of the supply cable and make a soldered connection. Apply high-voltage rubber tape, one-half lapped over the bare wires. Proceed to continuously build up the tape over the entire "T" splice section to 1½ times the cable diameter. Apply the tape with ends tapered a distance of approximately one inch (25 mm) over the original jackets of the feeder and the pigtail. Take care when applying the tape to seal the area where the two conductors emerge from the overall jacket of the pigtail. Repeat this procedure with the second conductor of the pigtail and the remaining feeder wire. Apply double wrapping of plastic tape over the entire splice to give added mechanical protection. Glyptal or lacquer should not be used over vinyl plastic tape as they react as a solvent to the tape.

3.5 Direct Burial Cable and Counterpoise

Wire. Primary cable and counterpoise wire shall be installed in trench and duct in accordance with specification L-108. Primary cable ends shall be sealed during construction to prevent the entrance of moisture. When base mounted signs are installed, at least two feet (600 mm) of slack cable shall be provided in the base to permit connection of the primary cable and isolation transformer above ground. Bare counterpoise wire, when included in the project, shall be securely bonded to light bases and mounting stakes as specified in the plans.

INSPECTION AND TESTS

4.1 System Inspection. The contractor shall perform the following inspection in addition to those listed in L-125-3.3b.

(a) Inspect all guidance signs to insure the correct sign panels and symbols have been installed and are in specified order and orientation.

4.2 System Tests. The contractor shall perform the system tests listed in L-125-3.3c.

METHOD OF MEASUREMENT

5.1 The method of measurement shall be as specified in L-125-4.1.

BASIS OF PAYMENT

6.1 The basis of payment shall be as specified in L-125-5.1.

Payment will be made under the nomenclature and seven digit item number specified in the plans and proposal for each type taxiway guidance sign required- - -per each.