

# ORDER

## DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

6850.10A

3/18/77

**SUBJ:** RUNWAY END IDENTIFIER LIGHTING SYSTEMS STANDARD DRAWINGS (REIL)

1. PURPOSE. This order directs the use of the following standard drawings for the establishment of runway end identifier lighting systems (REIL) utilizing components furnished under FAA specification FAA-1250; FAA specification FAA-1106; FAA specification FAA-E-2159b; Multi-Electric Manufacturing Type FA-8767-1, Contract DOT-FA72WA-2826; GTE Sylvania Type FA-8981, Contract DOT-FA73WA-3277; and Type FA-9437, Contract DOT-FA74WA-3489; and Godfrey Engineering Type FA-9628, Contract DOT-FATQWA-3836.

<u>Number</u>	<u>Date</u>	<u>Title</u>
D-5888-1	3/26/75	Runway End Identifier Lights, Using Type 1106 Light Units, Pad and Structure Installation
D-5888-2	3/26/75	Runway End Identifier Lights, Using Type 1250 Light Units
D-5888-3	3/26/75	Runway End Identifier Lights, Pad and Structure Installation, Multi-Electric Manufacturing, Type FA-8768-1, Contract DOT-FA72WA-2826
D-5888-4	3/26/75	Runway End Identifier Lights, Pad and Structure Installation, GTE Sylvania, Inc., Type FA-8981, Contract DOT-FA73WA-3277, and Type FA-9437, Contract DOT-FA74WA-3489
D-5888-5	3/26/75	Runway End Identifier Lights, Typical Power Wiring Diagrams (Sheet 1 of 2)
D-5888-6	3/26/75	Runway End Identifier Lights, Typical Power Wiring Diagrams (Sheet 2 of 2)
D-5888-7	1/28/77	Runway End Identifier Lights, Equipment Installation, Godfrey Engineering, Type FA-9628

**Distribution:** WAF/LG/RD/AP-3; WFS/AT-2;  
RAF/AS/AT/FS-3 (except AEU); NC-1

**Initiated By:** AAF-560

2. DISTRIBUTION. This order is distributed to branch level in the Airway Facilities, Logistics, and Systems Research and Development Services and Office of Airports Programs, and division level in Flight Standards and Air Traffic Services in the Washington headquarters; branch level in Airway Facilities, Airports, Air Traffic, and Flight Standards in the regions (except AEU); and to the Director, NAFEC and the Aeronautical Center.
3. CANCELLATION. Order 6850.10, Runway End Identifier Lighting System Standard Drawings (REIL), is cancelled by this order.
4. BACKGROUND. Drawings D-5888-1, D-5888-2, D-5888-3, D-5888-4, D-5888-5, D-5888-6, and D-5888-7 are issued to provide the proper installation of REIL equipment manufactured under FAA specification FAA-1250, FAA specification FAA-1106; FAA specification FAA-E-2159b; Multi-Electric Manufacturing Type FA-8767-1, Contract DOT-FA72WA-2826; GTE Sylvania Type FA-8981, Contract DOT-FA73WA-3277, and Type FA-9437, Contract DOT-FA74WA-3489; and Godfrey Engineering Type FA-9628, Contract DOT-FATQWA-3836.
5. APPLICATION.
  - a. Drawings D-5888-1 through -4 and -7 show typical site layouts and details for REIL systems. Actual siting of the REIL system shall be in accordance with Order 6850.2, Visual Guidance Lighting Systems. The lateral tolerances on fixtures listed on Drawings D-5888-1 and D-5888-3 are to be in accordance with paragraph 152 of Order 6850.2. Drawings D-5888-1 through -4 and -7 have been developed as standard construction electrical installation drawings. The foundation designs for the REIL system are based on a minimum safe soil-bearing pressure of 3,000 psf. Foundation depths shall be increased as required to provide a footing depth at least 1'-0" or as detailed on drawings below local maximum frost penetration.
  - b. Drawings D-5888-5 and -6 illustrate electrical power diagrams for various REIL equipment requirements and available power sources. Design of the electrical power source shall be based on the most economical installation consistent with sound engineering practice,
  - c. Where runway edge light circuits are available and adequate spare regulator capacity exists, potential use of the circuit as the REIL power source shall be analyzed. Cost data indicates a 1kW capacity power adapter can be purchased and installed for \$3,000. The runway edge light system constant current regulators shall not be overlooked.
  - d. The designs detail the electrical power wiring for 20A and 6.6A constant current, 120/240V and 240/480V constant potential electrical power sources. With the electrical power sources and the flasher input voltages defined, the applicable wiring diagram shall be selected from the chart on drawing D-5888-5. The input voltage for

the flashers is listed below in paragraph 5e(1). All REIL systems are supplied a control cabinet as listed below in paragraph 5e(2). All the wiring diagrams are designed for a REIL load of 1000 watts. Where the flashers to be installed are Type FA-8981 or FA-9437/1, the installation may use 1000-watt or two 300-watt adapters. To use the 300-watt adapters, follow Details D, J, F, or L, as applicable, and delete one adapter for each REIL; then the design will supply sufficient power to operate Type FA-8981 or FA-9437/1 flashers. Where the flashers to be installed are Type FA-9628, the installation may use a 6.6-ampere or a 20-ampere power adapter in accordance with Drawing D-5888-7. The electrical characteristics for the power adapters are listed below in paragraph 5e(3).

e. REIL system electrical characteristics are:

(1) FLASHER

<u>Equipment Type</u>	<u>Load</u>	<u>Input Voltage</u>	<u>Timing</u>
Specification FAA-E-1106	500 watts	240/480V	120V
Specification FAA-E-1250	500 watts	240/480V	120V
Type FA-8767-1	500 watts	240V	120V
Type FA-8981	225 VA	120/240V	120V
Type FA-9437/1	225 VA	120/240V	120V
Type FA-9628/1	280 VA	120/240V	120V

(2) CONTROL CABINET

<u>Equipment Type</u>	<u>Load</u>	<u>Input Voltage</u>	<u>Timing</u>
Type FA-9437/2	125 VA	120/240V	120V
Type FA-9628/2	120 VA	120/240V	120V

(3) POWER ADAPTER

<u>Equipment Type</u>	<u>Constant Current Input</u>	<u>Constant Voltage output</u>	<u>Loading</u>	
			<u>Input</u>	<u>output</u>
1000 watt Type	2.8 to 6.6A	120/240V	1000 VA w/PF correction	1000 watt

1000 watt Type 9628/3	2.8 to 6.6A 120/240V	1000 VA w/PF correction	1000 watt
1000 watt Type 9628/4	8.5 to 20.0A 120/240V	1000 VA w/PF correction	1000 watt
300 watt Type	2.8 to 6.6A 240V	600 VA	300 watt

6. DEVIATION FROM STANDARD. No deviation from the standard is authorized without the prior approval of the Director, Airway Facilities Service. Regional site adaption to accommodate terrain, utility connections, parking lots, access roads, and similar details are authorized without further clearance. Dimensional errors, discrepancies, or suggestions for modification or addition of details should be brought to the attention of Chief, Environmental Systems Division, AAF-500.
7. CORRECTIONS TO STANDARD. Corrections to the standard may be made by the Director, Airway Facilities Service, without further regional or interservice coordination.., These may include corrections of dimensional errors, misspellings, and modification, addition, or deletion of details.
8. DISTRIBUTION OF DRAWINGS. A reproducible copy of each drawing is being forwarded to each region (except AEU), Attention: Chief, Airway Facilities Division; NAFEC; and two copies of each drawing to the Aeronautical Center, Attention: Chief, FAA Depot. Inquiries and comments regarding these drawings as well as requests for additional copies, should be directed to the. Chief, Environmental Systems Division, Airway Facilities Service, Attention: AAF-510.

  
 WARREN C. SHARP  
 Director, Airway Facilities Service