



FUNCTIONAL DESCRIPTION

Radio Frequency Amplifier AM-1700/FPN is designed to amplify the output of loran transmitters type T-137 and T-325/FPN series to a level of 1,000-kw peak power for single-pulsed operation or 800-kw peak power for double pulsed operation.

RELATION TO OTHER EQUIPMENT

Radio Frequency Amplifier AM-1700/FPN is similar to Loran Power Amplifier Model T-138. The major differences in the unit are that the AM-1700/FPN operates from a two-phase power line and uses an improved type power amplifier tube. The AM-1700/FPN is used with loran timers, switching equipment, and transmitters.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

Equipment required is that which is normally found at a loran station. The requirements for each particular station will vary slightly.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

Frequency range:

1,700 kc to 2,000 kc. Specifically designed to operate at the loran frequencies of 1,750 kc, 1,800 kc, 1,850 kc, 1,900 kc, 1,950 kc.

Type of emission:

Pulse.

Pulse repetition rates:

Basic rates of 20, 25, and 33-1/3 pulses per second, single or double pulsed.

Pulse shape:

Width at 10 percent amplitude: approximately 65 microseconds; width at 50 percent amplitude: 42 ± 1 microseconds; rise-time from 10 percent to 90 percent amplitude: 20 ± 1 microseconds.

Pulse spectrum:

Sidebands are approximately 60 db below carrier amplitude, 100 kc from the carrier frequency.

Peak power output:

1,000 kw single pulsed; 800 kw double pulsed.

Input impedance:

52 ohms from loran transmitter series T-137 or T-325/FPN.

Output (transmission line to antenna) impedance:

52 ohms.

Ambient temperature limitations:

From +5°F (-15°C) to +122°F (+50°C) up to 95 percent humidity.

ELECTRICAL AND MECHANICAL CHARACTERISTICS (cont)

Heat dissipation of amplifier:
15 kw.

Power requirements:
230 volts ac ± 10 percent, 50/60 cycles, two-phase, 20 kva max.

Nominal wattage, power factor and current requirements:
Standby: 38 amp, 90 percent power factor. Operating:
See table below.

The AM-1700/FPN is housed in a single cabinet. It consists of a power amplifier section, a bias-pedestal generator, two identical trigger generators and a power supply section. The cabinet is 72-1/4 inches wide by 43-3/16 inches deep by 84-1/8 inches high. All panels except the control panel are secured to the frame by screws, and hinged access doors are provided at front and rear. The control panel is hinged along its lower edge, which enables it to drop forward for necessary inspection or adjustment of components. Filtered air intakes are provided at the rear of the cabinet and on each side. The fuse panel is located at the rear of the cabinet and is accessible via the hinged doors.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Company, a division of International Telephone and Telegraph Corporation, Clifton, New Jersey.

U.S. Coast Guard Contract No. Tcg-40351 (CG-37, 703-A), dated 9 November 1956.

TUBE COMPLEMENT

- (2) 3B28
- (1) 3C45
- (4) 250-R
- (2) 2050
- (12) F7012
- Total tubes: (21)

REFERENCE DATA AND LITERATURE

- (a) Technical manual for Radio Frequency Amplifier AM-1700/FPN, CG-273-38.
- (b) Technical manual for Radio Transmitter Type T-137 or T-325/FPN series.
- (c) Technical manual for Loran Timer Set AN/FPN-30, CG-273-15.
- (d) Technical manual for Loran Switching Group AN/FPA-2 series.
- (e) Technical manual for Loran Antenna Coupling Unit, as applicable.

PROCUREMENT DATA

Type Designation: AM-1700/FPN
Design Cognizance: U.S. Coast Guard
Procurement Cognizance: U.S. Coast Guard
Procurement Information: U.S. Coast Guard
Purchase Description RLA-427
F.I.I.N.: CG5825-552-1577

OPERATING CURRENT, POWER FACTOR & WATTAGE

Pulse Rate	Single Pulsed						Double Pulsed					
	Current (Amperes)		Power Factor		Wattage (KW)		Current (Amperes)		Power Factor		Wattage (KW)	
	Phase											
	1	2	1	2	1	2	1	2	1	2	1	2
20	37.4	23.5	99%	86%	8.5	4.6	37.4	26.8	99%	86%	8.5	5.2
25	37.4	27.8	99%	86%	8.5	5.5	37.4	33.0	99%	86%	8.5	6.4
33-1/3	37.4	30.4	99%	86%	8.5	6.0	37.4	39.4	99%	86%	8.5	7.8

SHIPPING DATA

Shipping Box No.	Contents	Overall Dimensions*			Volume*	Weight*
		Height	Width	Depth		
1	1 Radio Frequency Amplifier AM-1700/FPN	100	93	58	312	2840
2	1 Transformer (T606), Fed. Tel. & Rad #FRE-21491-12	25	26	24	9	470
3	1 Transformer (T612), Fed. Tel. & Rad #FRE-21481-1	15	20	14	3	182

SHIPPING DATA (cont)

Shipping Box No.	Contents	Overall Dimensions*			Volume ^o	Weight ^o
		Height	Width	Depth		
4	1 Capacitor, Cornell-Dubilier Type TK-20020	26	18	15	5	156
5	1 Capacitor, Cornell-Dubilier Type TK-20020	26	18	15	5	156
6	1 Capacitor, Cornell-Dubilier Type TK-20020	26	18	15	5	156
7	1 Capacitor, Cornell-Dubilier Type TK-20020	26	18	15	5	156
8	1 Set of PA and Pulse Tubes for Radio Frequency Amplifier AM-1700/FPN	38	46	38	39	310
9	1 Set of Rectifier Tubes for Radio Frequency Amplifier AM-1700/FPN	22	26	25	8	77
—	1 Set of Equipment Spare Parts	—	—	—	—	—

*Unless otherwise stated, dimensions are in inches, volume in cubic feet, and weight in pounds.

EQUIPMENT SUPPLIED

Quantity	Unit	Overall Dimensions*			Volume ^o	Weight ^o
		Height	Width	Depth		
1	Radio Frequency Amplifier	84-1/8	72-1/4	43-3/16	152	3250
2	Technical Manual	11	8-1/2	3/4	—	—
2	Plasticized Service Diagram	12	20	—	—	—
1	Installation Drawings	—	—	—	—	—
1	Maintenance Parts Kit	—	—	—	—	—

*Unless otherwise stated, dimensions are in inches, volume in cubic feet, and weight in pounds.