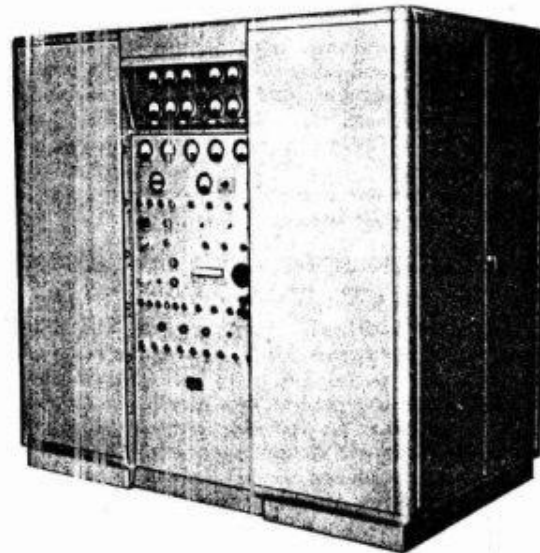
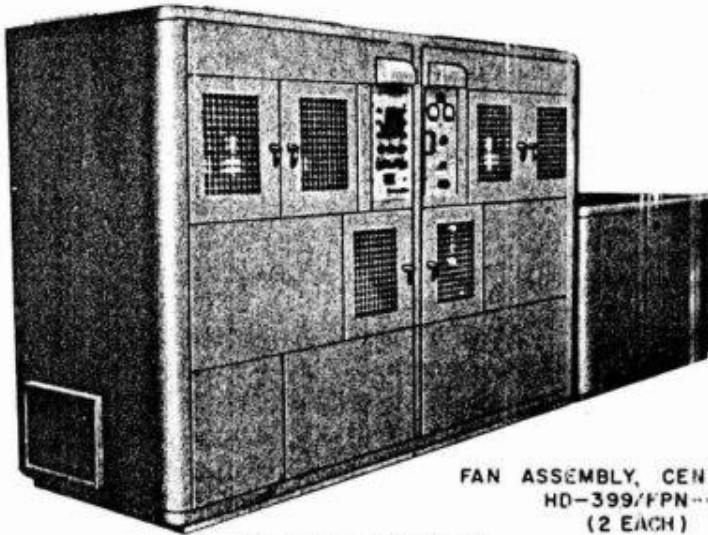


ANTENNA COUPLER
CU-807/FPN-42

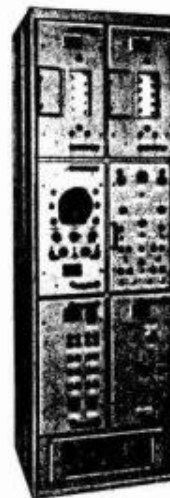


POWER SUPPLY ASSEMBLY
PP-2540/FPN-42
(2 EACH)



FAN ASSEMBLY, CENTRIFUGAL
HD-399/FPN-42
(2 EACH)

AMPLIFIER ASSEMBLY
AM-2481/FPN-42
(2 EACH)



TRANSMITTER CONTROL
GROUP OA-2631/FPN-42

Transmitting Set, Loran AN/FPN-42

DESCRIPTION OF COAST GUARD ELECTRONIC EQUIPMENT

FUNCTIONAL DESCRIPTION:

The Transmitting Set AN/FPN-42 generates, shapes, and radiates the pulse or group of pulses, timed by the Timer-Synchronizer Set AN/FPN-41, which are used by other stations in the chain, and the Loran Receiving Sets. The transmitter takes a phase coded 100-kc reference signal and transmitter triggers from the timer and generates pulses, consisting of 100-kc sine waves, of approximately 200-microseconds in duration corresponding in time with each transmitter trigger. The Transmitting Set AN/FPN-42 operates in conjunction with Timer-Synchronizer Set AN/FPN-41 at a permanently installed, land-based station which is located at an accurately known geographical location.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

The Timer Synchronizer Set AN/FPN-41 is required to provide the accurately timed triggers and 100-kc stable frequency reference which control the generation of the transmitter pulses. The timer at the Master station establishes the basic repetition rate for the station group operation. The timer also provides the monitoring and recording facilities for station operation. The antenna is a 625 foot, top loaded guyed antenna, used for the transmission of Loran-C signals, to other stations in the chain, and Loran Receiving Sets.

ELECTRICAL AND MECHANICAL CHARACTERISTICS:

The Transmitting Set comprises six basic units: High Voltage Power Supply, Pulse Control Unit, Power Amplifier, Blower, Coupling and Load, and Transmitting Antenna. The complete transmitter group assembled at the station includes two High Voltage Power Supplies, one Pulse Control Unit, two Power Amplifiers, one Coupling and Load, two Blowers, and one Transmitting Antenna.

The High Voltage Power Supply is housed in a cabinet measuring approximately 82-3/4 inches high, 86 inches wide, and 48 inches deep. This unit, which is connected to the 208-volt, 3-phase, 60-cps power source, supplies all the power required by the Transmitting Set except for that required by the Pulse Control Unit and Coupling Load.

The Pulse Control Unit cabinet, which is housed in the operations building, measures 78 inches high, 24-1/4 inches wide, and 26 inches deep, consists of six basic subassemblies: a low voltage power supply, two Pulse Generators, a Pulse Analyzer, an Oscilloscope, and a Control Panel. The Pulse Control Unit provides remote operating and monitoring facilities for the Transmitting Sets located in the transmitter building at the base of the transmitting antenna. The dual low voltage power supply provides internal plate and bias voltages. The Pulse Generators produce 100-kc pulses, for the Pulse Driver stages, located in the transmitters. The output of either Pulse Generator may be used to drive either transmitter. The Pulse Analyzer enables the operator to check the locally transmitted pulse shape. The Oscilloscope is used for observing various waveforms in the Pulse Generator and the output of the Pulse Analyzer. It is also used to observe the Antenna and Load pulses. The Control Panel contains the necessary switches and indicator lights for remote operation of the two transmitters.

The Lower Amplifier is housed in a cabinet 82-3/4 inches high, 120-3/4 inches wide, and 43-3/4 deep, which contains the four main amplifiers of the transmitter. These are the Pulse Driver, the first and second intermediate power amplifiers and the final power amplifier. These stages raise the power level of the 100-kc pulses supplied by the Pulse Generator. The Power Amplifier cabinet also contains a Monitor Oscilloscope and a Control Panel.

The Coupling and Load, housed in a cabinet 55 inches high, 52-1/2 inches wide and 36 inches deep, contains the antenna tuning coil, the final power amplifier output circuit and a dummy load and cooling fan. The unit provides facilities for reading antenna current and contains a switch which assigns control of the transmitters to either the transmitter building for local operation or to the operations building for remote operation.

The Blower, housed in a cabinet 47 inches high, 73 inches wide and 44 inches deep, forces air into the Power Amplifier cabinet to cool the high power tubes in the power amplifier stages.

MANUFACTURER'S OR CONTRACTOR'S DATA:

Transmitting Set AN/FPN-42 is manufactured by Sperry Gyroscope Company, Division of Sperry Rand Corporation, Great Neck, New York, under U.S. Coast Guard Contract Tcg-41012 (CG-43, 944-A) dated 12 March, 1959.

Mfg. drawing No. 1504524.

Coast Guard purchase description No. EEE-4-59.

TUBE COMPLEMENT:

Tube	Quantity	Tube	Quantity
OA2WA	4	12AU7	4
2X3000F	12	12AX7	1
3CX100A5	2	12B4A	3
4PR6	2	304th	2
6AU6	2	5651	11
6AW8	1	5687	5
6BH6	2	5725/6AS6W	1
6BQ7A or		5726/6AL	2
6DJ8/EG-C88	3	5726/6AL5W	4
6DJ8/ECC88	1	5751	13
6U8	1	5814A	15
6X4	1	6005/6AQ5	2
12AL5	1	6080	8
12AT7	3	7300	10
		Total:	116

REFERENCE DATA AND LITERATURE:

Technical Manual for Transmitting Set AN/FPN-42: CG-273-74.

Technical Manual for Timer-Synchronizer Set AN/FPN-41: CG-272-75.

DESCRIPTION OF COAST GUARD ELECTRONIC EQUIPMENT

SHIPPING DATA:

Box Number	Contents	Height x Width x Depth (Inches)	Volume (Cu. Ft.)	Weight Packed (Pounds)
1T 2T	Power Supply cabinet (left)	92 x 58 x 39	120	1400
3T 4T	Power Supply cabinet (center)	92 x 58 x 39	120	1700
5T 6T	Power Supply cabinet (right), 1-Set Electron tubes, 1-Set Mounting Hardware	92 x 58 x 39	120	1500
7T 8T	Plate Transformer (High Voltage Power Supply)	69 x 54 x 35	75.5	2750
9T 10T	Plate voltage regulator	57 x 41 x 35	47.5	2020
11T 12T	Power Amplifier Sect. A (left)	95 x 50 x 73	207.6	1725
13T 14T	Power Amplifier Sect. B. (right)	95 x 50 x 73	207.6	1845
15T	Coupling and Load, and Tuning Coil	65 x 49 x 61	110.2	923
16T 17T	Blower Assembly, 3 H.P. blower, Transi- tion piece (2), Filter (4), Strap (6), Flexible Sleeve (2), and Drive cleat (4)	58 x 52 x 79	128.1	1200
18T	Pulse Control cabinet, Control Panel, and Cabinet blower	88 x 35 x 37	75.7	601
19T	Pulse Generator (2), Pulse Analyzer, Dual Power Supply, and Oscilloscope	53 x 38 x 66	47.1	485
20T	Oscilloscope (2), and Pulse Driver (2)	53 x 35 x 54	37.0	290
21T	Installation Equipment	15 x 23 x 49	9.8	193
22T	Wire and Cable, and Wire duct	60 x 48 x 48	80	500
23T	Ducting	25 x 23 x 61	45.9	370
24T— 27T	Tuning capacitors (2 per box)	25 x 26 x 25	9.5	253
28T— 33T	Filter capacitors (3 per box)	23 x 24 x 23	7.8	265
34T 35T	Output transformer	33 x 23 x 44	19.4	190
37T	Instruction books, Special tools, and Test Equipment	11 x 11 x 21	1.5	100
38T 39T	Electron tubes (10 required)	41 x 34 x 34	27.0	410
40T— 49T	Filament transformer	15 x 14 x 18	2.2	127

TOTALS

18848.0

DESCRIPTION OF COAST GUARD ELECTRONIC EQUIPMENT

EQUIPMENT SUPPLIED:

Quantity Per Station	Nomenclature		Dimensions in Inches			Approx. Weight Uncrated (Pounds)
	Name and Designation	Short Form Name	Height	Width	Depth	
1	Transmitting Set AN/FPN-42	Transmitter Group	—	—	—	—
2	Power Supply Assembly PP-2540/FPN-42	High Voltage Power Supply	83	86	48	7400
1	Transmitter Control Group OA-2631/FPN-42	Pulse Control	78	24-1/2	26	500
2	Generator, Pulse 0-706/FPN-42	Pulse Generator	22	10-3/4	22	60
3	Oscilloscope OS-103/FPN	Oscilloscope	22	10-3/4	22	60
1	Power Supply Assembly PP-2541/FPN-42	Power Supply	22	10-3/4	26	60
1		Control Panel	22	10-3/4	8	25
1	Analyzer, Electrical Pulse TS-1360/FPN-42	Pulse Analyzer	22	10-3/4	26	60
2	Amplifier Assembly AM-2481/FPN-42	Power Amplifier	83	121	44	3500
2		Pulse Driver	10	29	20	50
1	Coupler, Antenna CU-807/FPN-42	Coupling and Load	55	52-1/2	36	1000
2	Fan Assembly, Centrifugal HD-399/FPN-42	Blower	47	73	44	700

DESCRIPTION OF COAST GUARD ELECTRONIC EQUIPMENT