



Timer-Synchronizer Set AN/FPN-46

FUNCTIONAL DESCRIPTION

The timer-synchronizer set is used with a Loran transmitting set (AN/FPN-44 or AN/FPN-45) to form a Loran-C ground station which, in turn, is part of a Loran-C chain. A Loran-C chain consists of one master and two or three slaves operating on a single specific repetition rate. A Loran-C chain supplies navigational information to ships and aircraft which are equipped with Loran-C receiver.

The timer-synchronizer set performs the following functions:

- a. It generates the signals required by a Loran transmitting set.
- b. If part of a slave station, it receives signals generated by the master station and maintains itself in synchronism with the master station.
- c. If part of the master station, it monitors and tracks the signals generated by the slave stations.

RELATION TO OTHER EQUIPMENT

Timer-Synchronizer Set AN/FPN-46 is similar to, and performs the same functions as, Timer-Synchronizer Set AN/FPN-41.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

The following equipment is required to enable the timer-synchronizer set to perform its functions:

Recorder AN/USH-7 (2 required)
 Frequency Standard AN/URQ-11
 Receiver Antenna AT-1018/FPA-13
 AC Power Distribution Panel
 Entrance Box
 Primary Power Source
 Screen Room

ELECTRICAL AND MECHANICAL CHARACTERISTICS**FREQUENCY:**

100 kc

BANDWIDTH:

20 kc with a 20-db bandwidth

RECEIVED SIGNAL CHARACTERISTICS:

Loran-C -pulses (Similar to cosine - squared type waveshape with a much longer decay time).

DESCRIPTION OF COAST GUARD ELECTRONIC EQUIPMENT

PULSE REPETITION RATES:

Six basic repetition rates modified by eight specific rates providing a total of 42 rates.

OUTPUT SIGNALS:

All of the triggers, phase code waveforms, and 100-kc signals necessary to drive a loran transmitting set.

ACCURACY:

Envelope, 0.5 microsecond; phase, 0.05 microsecond.

PEAK POWER REQUIREMENTS:

108 to 132 volts, 44 to 66 cps, single phase, 40 amperes.

ANTENNA CHARACTERISTICS:

Whip type, 35 ft long, output capacitance 150 pf.

AMBIENT TEMPERATURE LIMITATIONS:

Operation: 0° to +50° C (+30° to +123° F)
Storage: -62° to +75° C (-69° to +167° F)

INSTALLATION DATA:

The equipment is installed in a screened room (approximately 20 x 20 feet) with ducts, bus-bars, and wireways used to connect the various units.

POWER SUPPLY OUTPUTS:

+12 vdc at 0.5 amp -12 vdc at 2.2 amp
+26 vdc at 0.4 amp -150 vdc at 0.6 amp
+250 vdc at 0.7 amp +150 vdc at 1.0 amp
+28 vdc at 3.0 amp 1200/208 vac, 3 phase,
400 cps at 150 w, 1.2 amp

MANUFACTURER'S OR CONTRACTOR'S DATA

ITT Federal Laboratories, 500 Washington Avenue, Nutley, New Jersey. Contract Tcg-41848-A. Purchase Description number EEE-1-62.

Timer-Synchronizer Set AN/FPN-46, drawing number J2310492, contract number Tcg 41848.

TUBE, DIODE, AND TRANSISTOR COMPLEMENT

Type	Quantity	Type	Quantity
BX2000	6	1N3005B	8
RD669	32	1N3016B	1
1N38B	4	1N3018B	4
1N276	10	1N3031B	2
1N278	2	1N3033B	2
1N457	264	2N297A	20
1N459	1	2N337	82
1N483	1	2N343	12
1N538	22	2N489	5
1N540	2	2N498	26
1N547	2	2N526	12
1N645	50	2N657	1
1N658	28	2N1039	2
1N746A	2	2N1046	2
1N749A	10	2N1120	2
1N751A	1	3G1825	4
1N752A	2	12AT7WA	86
1N753A	8	34531	4
1N754A	4	34534	12
1N758A	2	5651	6
1N914A	8	5687WA	25
1N967B	18	5726/6AL5W	8
1N968E	2	5719	12
1N970B	28	5751	23
1N1124A	20	5814A	25
1N1202	4	6AU6WB	20
1N1614	8	6U8A/5U8	12
1N2988B	1	60J5/6AQ5W	18
1N2999RB	2	6336A	16

REFERENCE DATA AND LITERATURE

Technical Manual for Timer-Synchronizer Set AN/FPN-46. Publications number CG 273-104.

EQUIPMENT SUPPLIED

TIMER-SYNCHRONIZER SET AN/FPN-46

QUANT. PER EQUIP.	NOMENCLATURE		UNIT DESIGNATION	*OVERALL DIMENSIONS			*VOLUME	*WEIGHT
	NAME	DESIGNATION		HEIGHT	WEIGHT	DEPTH		
2	Timer-Synchro- nizer Group (includes following units)	OA-4484/FPN-46	1					1340
1	Oscilloscope Control	C-4561/FPN-46	1A1	20.41	9.55	22.06	2.48	**90
2	Oscilloscope	OS-147/FPN	1A2 and 1A3	8.54	19.22	20.83	1.98	**35
1	Receiver Group	OA-4485/FPN-46	1A4	20.41	9.55	22.06	2.48	**90
1	Frequency Divider	CV-1488/FPN-46	1A5	20.41	9.55	22.06	2.48	**110
1	Envelope Control	C-4559/FPN-46	1A6	20.41	9.55	22.06	2.48	**90
1	Phase Control	C-4562/FPN-46	1A7	20.41	9.55	22.06	2.48	**90
1	Master Control	C-4560/FPN-46	1A8	20.41	9.55	22.06	2.48	**90
1	Power Supply	PP-3660/FPN-46	1A9	20.41	9.55	22.06	2.48	**110
1	Phase-Time Comparator	CM-268/FPN-46	1A10	20.41	9.55	22.06	2.48	**70
1	Pulse Generator	O-1088/FPN-46	1A11	20.41	9.55	22.06	2.48	**90
1	Power Supply	PP-3661/FPN-46	1A12	20.41	9.55	22.06	2.48	**120
1	Electrical Equip- ment Cabinet	CY-3842/FPN-46	1A13	72.00	41.00	24.00	41.10	**320
1	Control-Indicator Group (includes following units)	OA-4486/FPN-46	2	72.00	60.00	42.00	105.00	1150
1	Variable Attenua- tor	CN-917/FPN-46	2A1	19.375	19.75	10.00	2.21	**50
1	Simulator Group	OA-4487/FPN-46	2A2	19.375	19.75	16.50	3.68	**150
1	Variable Attenua- tor	CN-918/FPN-46	2A3	19.375	19.75	10.00	2.21	**50
1	Power Distribu- tion Panel	SB-1885/FPN-46	2A4	19.375	19.75	14.00	3.10	**110
1	Control-Indica- tor	C-4563/FPN-46	2A5	19.375	19.75	17.25	3.82	**80
1	AC Power Distri- bution Cabinet	CY-3843/FPN-46	2A6	19.375	19.75	12.75	2.82	**500
1	Antenna Coupler	CU-1041/FPN-46	3	8.25	7.50	8.09	0.30	**10

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

SHIPPING DATA

TIMER-SYNCHRONIZER SET AN/FPN-46							
BOX NO.	NOMENCLATURE		*OVERALL DIMENSIONS			*VOLUME	*WEIGHT
	NAME	DESIGNATION	HEIGHT	WIDTH	DEPTH		
R1	Desk		33	34	64	41	**335
R2	Cables		28	28	32	5.6	**154
R3	Installation Material		19	39	99	42	**370
R4	Control Indicator Group and Antenna Coupler	OA-4486/FPN-46 and CU-1041/FPN-46	84	28	73	98	**950
R5	Timer-Synchronizer Group	OA-4484/FPN-46	83	32	51	80	**1340
R6	Timer-Synchronizer Group	OA-4484/FPN-46	83	32	51	80	**1340
R7	Oscilloscope	OS-147/FPN	32	37	42	28	**242
R8	Installation Material		84	56	126	180	**455

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