



Switching Group, Radio Frequency, AN/FPA-3B, Relationship of Units

DESCRIPTION OF COAST GUARD ELECTRONIC EQUIPMENT

FUNCTIONAL DESCRIPTION

The Switching Group, Radio Frequency AN/FPA-3B, provides automatic, semi-automatic or manual single control switching of transmitters from local or remote locations on a loran station, and also provides visual and aural indicators and/or alarms to show the status of the equipment operation and/or malfunction. The Switching Group, Radio Frequency AN/FPA-3B is comprised of seven major units which are listed below with their basic functions. The first four listed equipments are rack mounted in an equipment cabinet which is physically located near the other equipment comprising the loran transmitting station.

Standing Wave Ratio Indicator, IM-105/U is not part of the AN/FPA-3B but space is provided at the top of the equipment cabinet for rack mounting this equipment.

The Control-Alarm, C-2518/FPA-3B rack mounts immediately beneath the standing wave indicator. This unit controls the operating voltages for two types of alarms used in the system, indicating RF output less than 64 percent but greater than 10 percent and RF output less than 10 percent and records elapsed time of both situations by means of an elapsed time meter.

The Control, Transmitter, Transfer, C-2519/FPA-3B rack mounts beneath the Control-Alarm. This unit controls primary power to the AN/FPA-3B system through an interlocking system of Local-Remote, Automatic-Manual, and Test-Normal switches. In either automatic, semi-automatic states will cause the loran transmitters to be shifted from standby to operate status by providing 110-Volt ac to appropriate relays in the Antenna Couplers. Proper delaying, de-energizing and indicating circuits are included to insure safe operation.

The Interconnecting Box, J-977/FPA-3B is located in the bottom of the equipment cabinet and connects transmission lines from No. 1 and No. 2 transmitters, contains link switching arrangements which permits transmitters to be changed manually from one coupling unit to the other, and contains mounting hardware for transformers from the Standing Wave Ratio Indicator, IM-105/U.

The Control-Indicator, C-2520/FPA-3B is a self contained unit for wall or rack mounting, and provides at a remote location visual and aural indicator for transmitter output, rate A and/or B synch error and off synch. It also provides visual indication for remote or local control, indicates operating transmitter and provides means for switching transmitters.

The Alarm-Monitor, BZ-50/FPA-3B, is a bulkhead mounted unit for remote location. The Alarm-Monitor provides visual means to determine whether the audible alarm circuit which operates the RF Power Horn is in an operating or non-operating condition.

The RF Power Horn is suitable for indoor or outdoor mounting and its sole purpose is to sound an outside alarm in the event that the RF power is reduced or fails.

The Primary Power Failure Gong, spring wound, solenoid operated, suitable for indoor or outdoor installation, is actuated upon failure of the primary power.

RELATION TO OTHER EQUIPMENT

The AN/FPA-3B performs all of the functions of the AN/FPA-3A.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

Loran Transmitters
Loran Timers
Antenna Coupling Units

ELECTRICAL AND MECHANICAL CHARACTERISTICS

Type or Transmission or Reception: The AN/FPA-3B is controlled by signals taken from the loran timers and from the RF output from the antenna coupling units.

Frequency Range: The equipment is designed for 2 MC maximum frequency.

Output Signal Characteristics for Visual and/or Audio Outputs: SPDT switching to indicate No. 1 or No. 2 transmitter operating to Switching Group AN/FPA-2.

Power Source Required: The equipment is designed to operate from a 110 to 120-Volt, 55 to 60-cycle, single phase power source.

Power Requirements: 200 watts maximum.

Where and How Installed: Equipment Cabinet installed on floor in loran transmitter building thru four 11/32 diameter holes in the bottom of the cabinet, spaced 12 1/2" wide x 19 1/2" deep.

Alarm Monitor, BZ-50/FPA-3B installed on bulkhead thru four 9/32 diameter holes in the back spaced 3-9/16" wide x 3 3/8" high.

Control-Indicator, C-2520/FPA-3B installed on bulkhead or in 19" rack thru mounting flanges on either side for mounting.

RF Power Horn installed on bulkhead, indoor or outdoor thru three 3/8" diameter holes in the back on a 5 3/4" diameter circle.

Primary Power Failure Gong installed on bulkhead outdoors thru four 1/4" diameter holes in the back spaced 7 7/8" wide x 7 7/8" high.

Fusing: The equipment is supplied with both replaceable fuses and magnetic circuit breakers. Turning off the breakers or blowing a fuse does not actuate the alarm gong.

MANUFACTURER'S AND CONTRACTOR'S DATA

Manufactured by Piasecki Aircraft Corporation
Island Road
Philadelphia 42, Penna.

Federal Code No. 04926

Contract No. Tcg-40522 (CG-39, 899-A)

Drawing Numbers:

86C1000 Switching Group, Radio Frequency,
AN/FPA-3B
86C1900 Alarm-Monitor, BZ-50/FPA-3B
86C1600 Interconnecting Box, J-977/FPA-3B
86C1100 Control-Alarm, C-2518/FPA-3B
86C1200 Control, Transmitter, Transfer C-2519/FPA-3B
86C1300 Control-Indicator, C-2520/FPA-3B

DESCRIPTION OF COAST GUARD ELECTRONIC EQUIPMENT

REFERENCE DATA AND LITERATURE

Technical Manual for Switching Group, Radio Frequency
AN/FPA-3B, Schematic Diagram Switching Group, Radio
Frequency AN/FPA-3B.

TUBE AND CRYSTAL COMPLEMENT

A. SWITCHING GROUP RADIO FREQUENCY
AN/FPA-3B.

Type of Tube	Quantity
JAN-5692	1

SHIPPING DATA

Number of Boxes	Contents	Volume (Cu. Ft.)	Length x Width x Height (Inches)	Weight Packed (Pounds)
1	One Each Alarm-Monitor, BZ-50/FPA-3B Equipment Cabinet containing one each Interconnecting Box, J-977/FPA-3B Control-Alarm, C-2518/FPA-3B Control, Transmitter, Transfer C-2519/FPA-3B Control-Indicator, C-2520/FPA-3B Gong, Primary Failure Alarm Horn, Reduced RF Power Alarm	59.1		588

EQUIPMENT SUPPLIED

Quantity	Nomenclature	Length and Width, Height (Inches)	Weight (Pounds)
1	Alarm-Monitor, BZ-50/FPA-3B	5" x 6 $\frac{1}{4}$ " x 7"	4
1	Equipment Cabinet	27 $\frac{3}{4}$ " x 23 $\frac{7}{8}$ " x 69 $\frac{3}{4}$ "	202
1	Interconnecting Box, J-977/FPA-3B	21 $\frac{1}{2}$ " x 19" x 15 $\frac{3}{4}$ "	
1	Control-Alarm, C-2518/FPA-3B	7 $\frac{1}{4}$ " x 19" x 8 $\frac{3}{4}$ "	
1	Control, Transmitter, Transfer C-2519/FPA-3B	12 $\frac{1}{4}$ " x 19" x 23 $\frac{3}{4}$ "	
1	Control-Indicator, C-2520/FPA-3B	9" x 19" x 14"	21 $\frac{1}{2}$
1	Gong, Primary Failure Alarm	5 $\frac{1}{4}$ " x 10 $\frac{3}{8}$ " x 11"	17
1	Horn, Reduced RF Power Alarm	4 $\frac{1}{2}$ " x 6 $\frac{1}{2}$ " x 6 $\frac{1}{2}$ "	5

DESCRIPTION OF COAST GUARD ELECTRONIC EQUIPMENT