ADVANCE SHEET

BASIC AIRCRAFT COMMUNICATIONS

5-545-2 69-545-2

APRIL 1967

UNITED STATES ARMY AVIATION SCHOOL
FORT RUCKER, ALABAMA

DEPARTMENT OF TACTICS
UNITED STATES ARMY AVIATION SCHOOL
Fort Rucker, Alabama

File No. 545-2

PERFORMANCE OBJECTIVES

BASIC AIRCRAFT COMMUNICATIONS

1. KNOWLEDGES: Without the aid of notes or reference material, and with no errors, the student will be able to list in writing—

(Period one of two periods)

a. The meaning of the following letters of the AN Nomenclature System or any combination of these letters.

(1) APX.

(2) ARC.

(3) PRC.

(4) ARN.

b. Primary use, frequency band, and type of modulation of the following radios:

(1) AN/ARC-55.

(2) AN/ARC-51.

(3) T-366.

(4) AN/ARC-102.

(Period two of two periods)

c. The type radios associated with the switches of the signal distribution panels, SB-329, and intercommunications control set, C-1611.

d. The description and use of the—

(1) AN/APX-44.

(2) AN/APX-72.

e. Types of antenna for each of the following radios:

(1) FM.

(2) FM homing.

(3) UHF and VHF.

(4) Single side band (HF).

(5) Transponder.

(6) Navigation radios:

(a) VHF, VOR, and ILS.

(b) ADF.

f. Correct method for removal and four of the six methods for destroying communications equipment.

2. SKILLS: None.

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ADVANCE SHEET

BASIC AIRCRAFT COMMUNICATIONS

PURPOSE: This 2 hours of instruction is designed to provide the student with a general knowledge of the description, utilization, and operation of the SB-329, C-1611, AN/ARC-55, AN/ARC-51, T-366, AN/ARC-102, AN/APX-44, AN/APX-72, and emergency removal or destruction of avionics equipment.

GENERAL: During the next 2 hours all of the radios listed in the Performance Objectives, radio fundamentals, and the joint nomenclature system will be discussed. Be prepared to actively participate in this conference by answering questions in class covering the material in your study assignment.

STUDY ASSIGNMENTS:

a. Read: Foreword.

b. Study: Paragraphs 1 through 4 and 8 through 14 in the Communications Reference Handbook for Army Aviators.

b. Scan: Paragraphs 38 through 53, and 54 in the Communications Reference Handbook for Army Aviators and Avionics Equipment Operating Instructions.

SPECIAL INSTRUCTIONS: Bring to class: The Advance Sheet, Student Outline, Communications Reference Handbook for Army Aviators, and Avionics Equipment Operating Instructions.

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STUDENT OUTLINE

BASIC AIRCRAFT COMMUNICATIONS

1. Joint nomenclature system (page 14 of handbook).

   a. AN/ indicates:

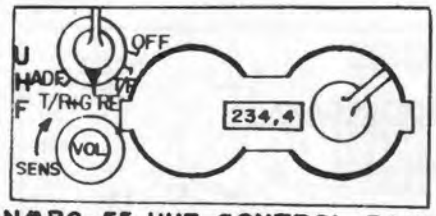
   b. First letter indicates:

   c. Second letter indicates:

   d. Third letter indicates:

   e. Number indicates:

2. AN/ARC-55 UHF radio set (page 40 of handbook).



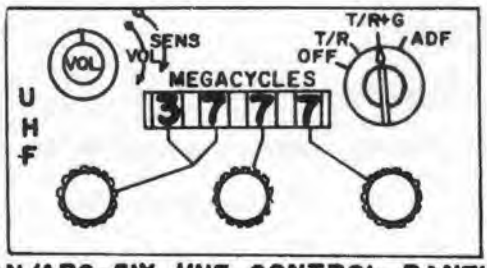
AN/ARC-55 UHF CONTROL PANEL

a. Purpose.

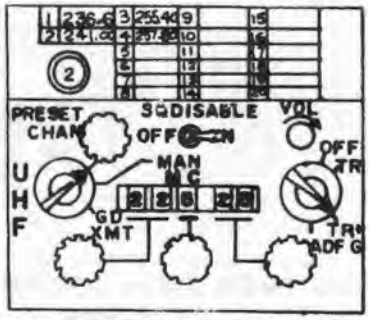
b. Characteristics.

c. Operation.

3. AN/ARC-51X and AN/ARC-51BX UHF radio (page 41 of handbook).



AN/ARC-51X UHF CONTROL PANEL



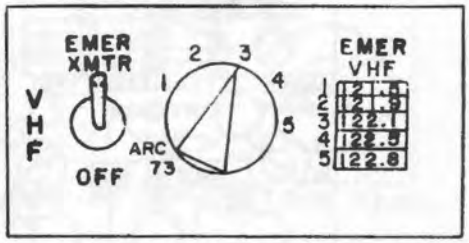
AN/ARC-51BX UHF CONTROL PANEL

a. Purpose.

b. Characteristics.

c. Operation.

4. T-366 emergency VHF transmitter (page 44 of handbook).



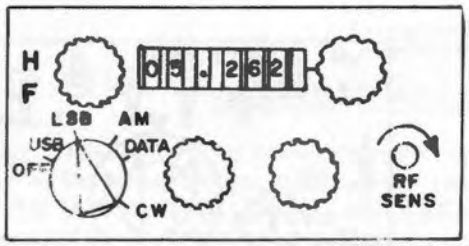
VHF EMER XMTR CONTROL PANEL
T-366

a. Purpose.

b. Characteristics.

c. Operation.

5. AN/ARC-102 HF radio set (page 53 of handbook).



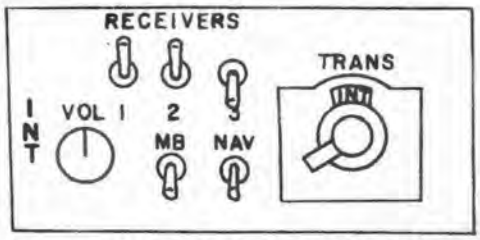
AN/ARC-102 HF CONTROL PANEL

a. Purpose.

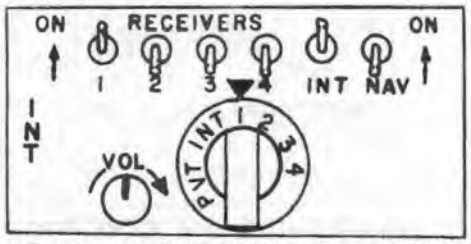
b. Characteristics.

c. Operation.

6. Signal distribution panel (SB-329) and intercommunications control set (C-1611) (page 37 of handbook).



SIGNAL DISTR PANEL SB-329/AR

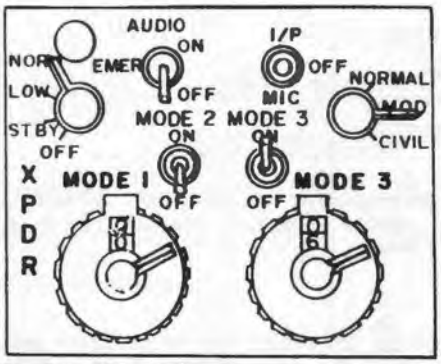


CONTROL, INTERCOMMUNICATION SET C-1611/AIC

a. Purpose.

b. Operation.

7. AN/APX-44 transponder (page 54 of handbook).



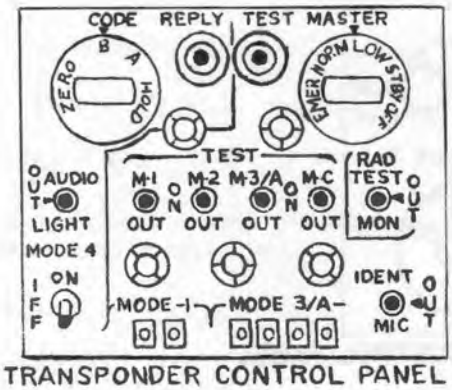
AN/APX-44 TRANSPONDER CONTROL PANEL

a. Purpose.

b. Operation.

c. Special instructions.

8. AN/APX-72 transponder.



AN/APX-72 TRANSPONDER CONTROL PANEL

a. Purpose.

b. Operation.

c. Special instructions.

9. Antennas (types and locations).

a. FM.

(1) Communications.

(2) Homing.

b. UHF and VHF communications.

c. HF antenna.

d. Transponder.

e. Navigational antennas.

10. Emergency removal or destruction.

a. Emergency removal of receiver-transmitter.

b. Destruction to prevent enemy use.

(1) Authority.

(2) Means available.

(a)

(b)

(c)

(d)

(e)

(f)

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PERFORMANCE CHECK

BASIC AIRCRAFT COMMUNICATIONS

1. List the meaning of the following letters of the AN nomenclature system:

   a. APX.

   b. ARC.

   c. PRC.

   d. ARN.

2. List the primary use, frequency band, and modulation of the following radios:

   a. AN/ARC-55.

   b. AN/ARC-51.

c. T-366.

d. AN/ARC-102.

e. AN/APX-44.

f. AN/APX-72.

3. Match the following receiver switches of the SB-329 with the radio associated with that switch:

Position 1 _____	a. VHF radio.
Position 2 _____	b. UHF radio.
Position 3 _____	c. HF radio.
	d. FM radio.

4. Match the following receiver switches of the C-1611 with the radio associated with that switch:

Position 1 _____	a. VHF radio.
Position 2 _____	b. UHF radio.
Position 3 _____	c. HF radio.
Position 4 _____	d. FM radio.

5. List types of antenna for each of the following radios:

a. UHF and VHF communications.

b. Single side band radio set (HF).

c. FM radio.

(1) Communications.

(2) Homing antenna.

d. Transponder.

(1) AN/APX-44.

(2) AN/APX-72.

e. Navigation radios.

(1) VHF, VOR, ILS.

(2) ADF.

6. List the correct method of removing a receiver-transmitter from the shock mount.

7. What are four of the six methods employed in destroying communications equipment?

a.

b.

c.

d.

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PERFORMANCE CHECK SOLUTION SHEET

BASIC AIRCRAFT COMMUNICATIONS

1. List the meaning of the following letters of the AN nomenclature system:

   a. APX - airborne radar identification and recognition.

   b. ARC - airborne radio communications.

   c. PRC - pack or portable radio communications.

   d. ARN - ground vehicular radio communications.

2. List the primary use, frequency band, and modulation of the following radios:

   a. AN/ARC-55. An amplitude modulated (AM), UHF, two-way voice, airborne radio. Used for air-to-air and air-to-ground communications. 225.0-399.9 megacycles (200-400 megacycles).

   b. AN/ARC-51. Same as the AN/ARC-55. (ARC-51BX 225.00-399.95 megacycles.

   c. T-366. An amplitude modulated (AM), VHF, airborne, emergency transmitter. Provides five preset channels. (100-200 megacycles band).

   d. AN/ARC-102. An amplitude modulated (AM), HF, two-way voice, airborne radio. Used to provide air-to-air and air-to-ground single side band communications. 02.000-29.999 megacycles.

   e.&f. AN/APX-44 and AN/APX-72. Airborne transponder which operates in conjunction with ground-based IFF interrogation equipment. Provides the air controller or GCA operator with a means to accurately identify one aircraft from another during inclement weather or during combat situations.

3. Match the following receiver switches of the SB-329 with the radio associated with that switch.

Position 1	d	a.	VHF radio.
Position 2	b or c	b.	UHF radio.
Position 3	a	c.	HF radio.
		d.	FM radio.

4. Match the following receiver switches of the C-1611 with the radio associated with that switch.

Position 1	d	a.	VHF radio.
Position 2	b	b.	UHF radio.
Position 3	a	c.	HF radio.
Position 4	c	d.	FM radio.

5. List types of antenna for each of the following radios:

a. UHF command set and VHF command set - regular broad blade.

b. Single side band radio set - a long wire which is a minimum of 45 feet long.

c. FM radio.

(1) Liaison radio set.

AN/ARC-44 - 7 1/2-foot whip.

AN/ARC-54 - 4 1/2-foot whip.

(2) Homing antenna.

AN/ARA-31 homing antenna group with AN/ARC-44.

AT-764 antenna and ID-48 indicator or equivalent with AN/ARC-54.

d. Transponder.

Lightweight blade-type.

e. Navigation radios.

(1) VHF, VOR, ILS - ram's horn or half loop.

(2) ADF.

(a) Sense - long wire or bathtub.

(b) Loop.

6. List the correct method for removing the receiver-transmitter from the shock mount.

a. Remove the antenna cable from antenna jack.

b. Remove all cannon plugs; turn counterclockwise.

c. Cut and remove the safety wire.

d. Turn the knobs or wingnuts counterclockwise until loose.

e. Grasp the handle on the front panel and remove the unit up and out from the shock mount.

7. What are four of the six methods employed in destroying communications equipment?

a. Smash controls and tubes with sledges, hammers, or crowbars.

b. Cut the components with an ax or knife.

c. Burn cables and technical manuals with gasoline, oil, flamethrowers, or incendiary grenades.

d. Bend panels and cabinets.

e. Explode; use firearms or grenades.

f. Dispose; bury or scatter the destroyed parts in slit trenches or throw them into streams.

NOTES