

Radio Set AN/APN-3 is the airborne portion of the precision aircraft navigational system known as Shoran. Used for precision navigation, permitting positioning of aircraft within 75 feet of any point in the range of the system.

Shoran consists of a single aircraft equipment (AN/APN-3) and two identical ground station equipments (AN/CPN-2). The AN/APN-3 measures the distance from the aircraft to each of the two ground stations (AN/CPN-2). A maximum of 20 AN/APN-3's can use a single pair of ground beacons simultaneously.

Used as a bombing system, the course of each aircraft is determined with the aid of accurate maps. The AN/APN-3 is adjusted so that when the aircraft reaches the point of bomb release the pips indicating the distance to each of the ground stations will coincide with the reference mark on the indicator. Approach to the target may be made from any direction in a given arc. (For further details on the operation of Shoran see Radio Set AN/CPN-2).

The following major components of AN/APN-3 perform the operations indicated:

Transmitter; this unit operates alternately on two different frequencies (about 20 mcx apart) which permits discrimination between the two receiving ground stations.

Receiver-Indicator; this unit receives the response from the two ground beacons (AN/CPN-2) by means of a scrambling device relays them to the indicator in their proper relation. The 3-inch "J-type" scope (circular scan) indicates the time delay in miles distance between the arrival of the two signals.

Comparator; this unit indicates the departure or error of the aircraft in respect to the predetermined course.

Computer; this is a bombing computer (AAF

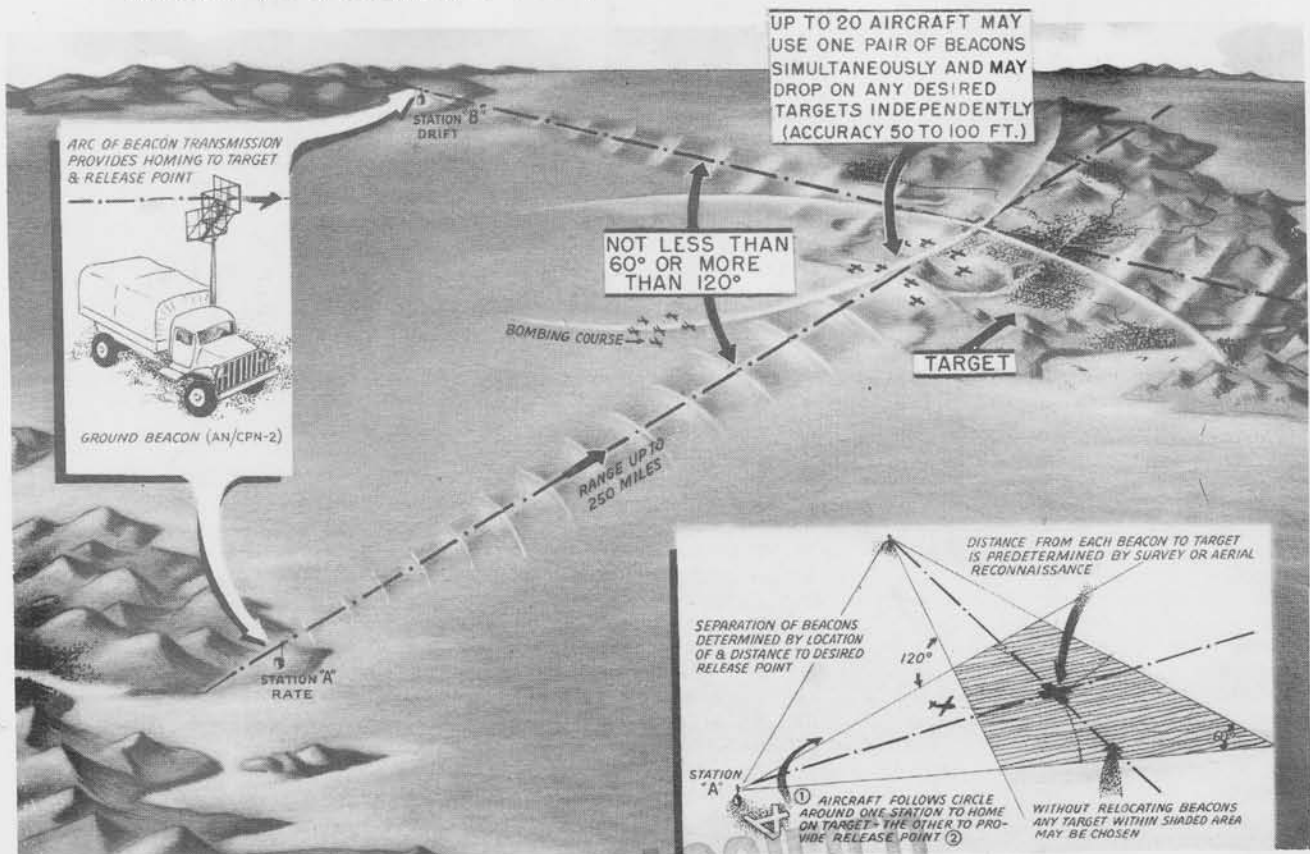
type K 1) which automatically releases the bombs and corrects for bassistics or wind.

Antenna; this component is used to transmit and receive the rf signals. It consists of two vertical coaxial units and is omnidirectional.

Test equipment required includes Wavemeter TS-247/APM-48, Voltmeters IS-185 and IS-189, Power Meter TS-305/UP, Cord CX-187/APN-3.

POWER INPUT	700 WATTS, 115 VOLTS, 400 TO 2400 CPS. 495 WATTS, 27.5 VOLTS D.C.
POWER OUTPUT	12 KW (PEAK)
FREQUENCY (TRANSMIT.)	220 TO 270 MCS
FREQUENCY (RECEIV.)	220 TO 330 MCS
SWITCHING RATE	10 CPS
PULSE LENGTH	0.5 MICROSECOND
RECEIVER SENSITIVITY	10 MICROVOLTS
RANGE	280 MILES AT 40,000'
ACCURACY	INDICATED DISTANCE: ± 75'; BOMBING: 12.5 MILS

TUBE COMPLEMENT			
NO.	TYPE	NO.	TYPE
3	3E29	2	6J6
3	5R4GY	1	2X2
2	5Y3GT/G	1	3DP1
11	6A7	5	6SA7
4	6AG7	8	6SL7GT
1	6H6	19	6SN7GT
1	RKR73	4	6V6GT/G
2	4C28	3	OD3/VR-150
7	6AG5	1	OC3/VR-105



Radio set AN/APN-3 is the airborne element of an Aircraft Navigation System employing radar ranging and principles known as SHORAN. It may be used for precision bombing, dropping paratroops and supplies, aerial mapping, or precision navigation of aircraft and surface vessels.

UNCLASSIFIED



Radio Transmitter T-11/APN-3
On
Mounting MT-215/APN-3



Indicator ID-17/APN-3
On
Mounting MT-216/APN-3



Comparator CM-3/APN-3
On
Mounting Base MT-167/U



Antenna
AT-13/APN-3



Antenna
AT-14/APN-3



Pilot Direction
Indicator ID-103/APN-3

RADIO SET AN/APN-3

TOTAL WEIGHT 335 LBS.

Component	Nomenclature	Size	Weight
Computer	K1	9" x 17" x 20"	56 Lbs.
Radio Receiver	R-15/APN-3	(included as indicator)	
Indicator	ID-17/APN-3	15" x 18" x 25"	77 Lbs.
Antenna	AT-14/APN-3	3" x 3" x 12"	1 Lb.
Radio Transmitter	T-11/APN-3	20" x 23" x 21"	106 Lbs.
Visor	M-387	4" x 4" x 4"	
Antenna	AT-13/APN-3	3" x 3" x 14"	1 Lb.
Mounting	MT-215/APN-3	2" x 20" x 21"	9 Lbs.
Mounting	MT-216/APN-3	12" x 18" x 21"	16 Lbs.
Cord	CX-198/APN-3	Length 5'	
Inverter	PU-16/AP		
Pilot Direction indicator	ID-103/APN-3	4" x 4" x 4"	1 Lbs
Mounting	MT-182/AP		
Comparator	CM-3/APN-3	5" x 8" x 23"	19 Lbs.
Mounting	MT-167/APN-3	2" x 22" x 8"	3 Lbs.

and includes plugs, adapters, connectors, switch and miscellaneous cable.