

EQUIPMENT NOMENCLATURE AND MODEL	FUNCTION AND CAPABILITY	INSTALLED IN CONFIGURATION
Radio Set AN/ARN-30D	Vhf radio navigation (dual installation)	A and B
Radio Set AN/ARN-30E	Vhf radio navigation (dual installation)	C and D
Radio R-746/ AR...	Glide slope	A and B
Radio Set AN/APA-54	Glide slope	C
Radio Set AN/ARN-58	Marker beacon and glide slope	D
Radio Set AN/ARN-32	Marker beacon	A
Radio Set R-1041/ARN	Marker beacon	B and C
Direction finder set AN/ARN-59	Adf (dual installation)	A,B,C,andD (No. 2 adf radio is installed as an alternative to omni)
Transponder Set AN/APX-44	Identification	A,B,C,and D
IFF MK XII	Interrogator set	Space,weight and power provis- ions in A,B,C&D
Indicator, Course C-6A	Course indicator Pilot	A
Indicator, Azimuth ID-998/ ASN	Course Indicator (pilot)	B,C, & D
Indicator, Radio Magnetic ID-250/ARN	Course Indicator (copilot)	A,B,C,& D
J-2 Gyro Magnetic Compass Set	Heading information	A,B,C,& D
Radar Set AN/APN-158	Weather radar system	A,B,C,& D

c. Electronic Installation Items: Electronic installation items are necessary for the operations of the configurations and their differences are listed in the chart below:

INSTALLATION ITEM	INSTALLED IN CONFIG	DIFFERENCE
Rmi Converter CV-1275/ARN	A**----- B,C,& D- - - - -	Complete pro- vision only Two installed
Marker beacon control panel	A- - - - -	Control panel type C4R1181 Contains

INSTALLATION ITEM	INSTALLED IN CONFIG	DIFFERENCE
	A, (CONTINUED) - - - -	combined power switch and volume control.
	B- - - - -	Control panel type DHC60014-1. As for C4R1181, but with sensitivity switch added.
	C- - - - -	Control panel type DHC 60055-3. As for DHC 60014-1, but with glide slope power switch added.
	D- - - - -	Control panel type DHC 60055-5. As for DHC 60055-3, but without glide slope power switch.
Glide slope control - -	A and B- - - - -	Control panel type C4R1226. Contains power switch & frequency selector.
	C- - - - -	Freq selector is from No.1 omni control panel, C-3436A/ARN-30E, and power switch is on control panel DHC60055-3.
	D- - - - -	Glide slope freq selection is controlled from No.1 omni control panel C-3436A/ARN-30E. Power is applied to glide slope circuit of combined marker beacon and glide slope receiver, R-844/ARN-58 when freq selector on No.1 omni control panel is set to a localizer freq
Adf Sense antennas	A, B, & C, - - - -	Antennas C4R1516 mounted on underside of fuselage
	D- - - - -	Antennas C4R1857 mounted on top of fuselage

DIFFERENCES IN AVIONICS ELECTRONIC EQUIPMENT MODELS

The model differences of the basic electronic equipment installed in the configurations are given below:

Radio Receiving Set AN/ARN-30D

(1) General. The frequency range is 108.00 to 126.90 megacycles covered in 190 channels for Radio Receiving Set AN/ARN-30D. Selection of omnirange or localizer operation is accomplished automatically by the frequency selector switches on Control, Radio Set C-3436/ARN-30D

(2) Receiver, Radio R-1021/ARN-30D. Receiver, Radio R-1021/ARN-30D is crystal-controlled and electrically tuned. It uses the same mounting as the receiver R-445/ARN-30-D.

(3) Dynaverter: PP-2792/ARN-30D is a fully transistorized power unit, replacing the conventional dynamotor unit. The power unit is mounted at the rear of the receiver chassis.

(4) Control, Radio Set C-3436/ARN-30D: Control, Radio Set C-3436/ARN-30D tunes the receiver.

e. Radio Receiving Set AN/ARN-30E. : Radio Receiving Set AN/ARN-30E differs from AN/ARN-30D in that Radio Set Control C-3436A-30E simultaneously tunes the omni receiver and the glide slope receiver.

f. Glide Slope Facility:

(1) Glide slope Receiver R-746/AR. In configurations A and B the glide slope receiver R-746/AR is tuned and switched by glide slope control panel C4R1226. In configuration C, the glide slope receiver R-746/AR is part of the Glide Slope Receiving Set AN/ARN-54 which is tuned by No.1 omni control panel C-3436A/ARN-30E, and controlled by the power switch located on the marker beacon and glide slope control panel DHC60055-3. In configuration D, the glide slope receiver is part of the combined marker beacon and glide slope receiver R-844/ARN-58. The glide slope receiver frequency is set on No.1 omni control panel C-3436A/ARN-30E, and the glide slope section of the receiver is energized when the frequency control is set to a localizer freq.

(2) Glide slope control panels: The glide slope control panel C4R1226 used for configurations A and B, is a control panel SBA-85C. In configuration C, the control panel DHC60055-3 contains the glide slope power switch.

g. Marker Beacon Facility.

(1) Marker Beacon Receivers: In configuration A, receiver R-666/ARN-32 is used, controlled by control panel C4R1181. In configurations B and C, receiver R-1041/ARN is used, controlled by control panel DHC60014-1 in configuration B, and control panel DHC60055-3 in configuration C. In configuration D, the marker beacon receiver is part of the combined marker beacon and glide slope receiver R-844/ARN-58. The marker beacon section of the receiver is controlled by panel DHC60055-5.

(2) Marker Beacon Control Panels: Marker beacon control panel C4R1181, used in configuration A has a combined volume control and power switch. Marker beacon control panel DHC60014-1, used in configuration B, has a combined volume control and power switch and a sensitivity

(2), cont'd... switch. The marker beacon and glide slope control panel DHC60055-3, used in configuration C has a combined volume control and power switch, sensitivity switch, and glide slope power switch. The marker beacon and glide slope control panel DHC60055-5 is the same as the DHC 60055-3, but without the glide slope power switch.

h. Direction finder Set AN/ARN-59: The direction finder set uses Indicator, Radio magnetic ID-250/ARN in the copilot's position and Indicator, Course C-6A in the pilot's position in configuration A, or Indicator, Azimuth ID-998/ARN in the pilot's position in configurations B and C.

NOTE*** When two automatic direction finder (adf) sets are installed the No 1 pointers on both indicators are slaved to No.1 adf set and No.2 pointers on both indicators are slaved to No.2 adf set.

RADIO RECEIVING SET AN/ARN-30D or -30E CONTROLS AND INDICATORS

CONTROL	FUNCTION
VOL-OFF, combined volume control and power switch	Rotation clockwise turns the vhf navigation receiver on and increases the audio output to the headset. Counter-clockwise rotation decreases audio level; turns equipment off.
SQUELCH CONTROL	Adjusts squelch circuit of receiver.
Frequency Selector Knobs	Selects the desired frequency and displays it in the MC indicator window. No.1 VHF NAV control panel frequency selector also sets the glide slope receiver frequency in configurations C and D only.
Course Selector-Indicator Knob	Permits selection or determination of magnetic bearing of the vor station.
TO-FROM T F R	Indicates direction TO or FROM the vor station.
Cross-pointer Indicator	Vertical pointer- moves left and right to indicate relationship with runway localizer or vor station. When centered, indicates on-course. Horizontal pointer- moves up and down to indicate relationship with glide slope beam. When centered, indicates on- beam.
Blue and yellow arc.	Used in conjunction with vertical pointer and range audio signal to identify the range quadrant of the visual-aural range.
OFF, flag alarms (one for each pointer)	If visible, indicates that signals actuating the respective pointer are unreliable.

VOR AUDIO PROCESSING

CONFIG. A

Pilots VOR distributed via NAV switch with VHF EMERGENCY switch panel selected to STD VHF.

If any channel is selected on the emergency panel VOR audio is processed thru #3 receiver switch on interphone panel.

CONFIG B & C

Pilots VOR audio selected via NAV switch with emergency VHF panel on ARC-73.

If any channel is selected on the VHF emergency panel the pilots VOR is selected thru the #3 interphone receiver switch.

CONFIG D

Pilots VOR audio is selected with the NAV switch when VHF emergency panel is in TX-1 position.

If any channel is selected the VOR audio is routed thru the #3 receiver switch on the interphone panel.

ALL CONFIGURATIONS

Co-pilots VOR audio is always to be selected with the NAV switch on the interphone panel.

BEARING PRINTER DATA DISPLAY

CONFIG B, C, & D

#1 needle displays pilots VOR or ADF as selected by VOR/ADF selector switches on instrument panels.

#2 needle displays co-pilots VOR OR ADF whichever is installed.

CONFIG A

With 1 ADF system installed both needles display pilots ADF magnetic bearing. (both needles locked together)

With 2 ADF systems installed #1 needle indicates Pilots ADF station bearing and #2 needle displays co-pilots ADF station bearing.

****NOTE--** No VOR magnetic bearing is shown on the RMI indicators in the 1960 model A/C (all configurations)

CONTROL DIRECTION FINDER SET AN/ARN-59 CONTROLS AND INDICATORS
FUNCTION

MC BAND switch	Selects the frequency band that the receiver can be tuned through. The frequency bands are as follows: 0.19 to 0.40 MC (190-400 kc) 0.40 to 0.84 MC (400-840 kc) 0.84 to 1.75 MC (840-1750 kc)
VOL-OFF, volume and power control.	Turns direction finder set on or off. Adjusts receiver audio level.
Function switch (COMP- ANT- LOOP)	Selects the mode of operation as follows: COMP position- Receiver operates with combined loop and sense antennas as a radio compass or automatic direction finder. ANT position- Receiver operates with sense antennas as a conventional receiver for receiving low- freq radio range or standard broadcast signals. LOOP position- Receiver operates with the loop antenna only as a manual direction finder.
LOOP switch-	Positions the loop antenna when function switch is in either COMP or LOOP position. Loop antenna can be rotated clockwise or counter-clockwise by holding the switch in the right or left position.
Tuning crank-	Tunes the receiver to the desired signal frequency.
Tuning meter-	Indicates when receiver is accurately tuned.
BFO switch-	Turns the beat frequency oscillator on or off. The beat frequency oscillator is used when receiving cv signals.
C6H (ID-998/ASN) indicator	Provides the pilot with aircraft magnetic heading and visual indication of relative bearings of signals received by the adf and omni receivers. (Installed in configurations B,C, & D only, table 5-3) Transmits magnetic heading to copilot's indicator ID-250 /ARN. Azimuth scale-indicates through 360° in increments of 2°. Numbers on dial are placed at 30° intervals. Heading index- indicates fixed reference point with respect to aircraft heading.

C6H (ID-998/ASN)indicator, cont'd	Narrow (No.1) indicator pointer- indicates relative direction of aircraft from transmitting station, using adf or vor, as set by ADF-VOR switch. Broad (No.2) indicator pointer- Indicates realtive direction of aircraft from transmitting station, using vor or adf (whichever is installed) ADF/VOR control- Permits connection of signals received from the adf or vor sets to indicator No.1 pointer only. DG/SLAVE switch (on pilot's flight instrument panel) permits use of indicator as a directional gyro or as a gyro compass. When indicator is used for adf or vor operation, switch should be in SLAVE position.
C6A INDICATOR	Installed in configuration A only. Performs same function as C6H installed in configurations B,C, and D, but magnetic bearing information on No. 1 and No. 2 pointers is from adf radio only. (No rmi converters are installed, thus no omni bearings are available) When No.2 adf radio set is installed No. 1 pointer indicates bearings from No. 1 adf radio and No. 2 pointer from No. 2 adf radio.
ID-250/ARN indicator	Provides copilot with aircraft magnetic heading and visual indication of magnetic bearings of adf or omni signals. The magnetic heading is transmitted from the pilot's indicator C6A or C6H, as applicable. In configuration A, the pointer readouts are the same as for the pilot's indicator C6A. In configuration C and D the copilot has a separate ADF-VOR switch for No. 1 pointer on his indicator,.
VOL-OFF CONTROL	When turned clockwise from OFF position applies power to receiver and increases audio level of received signal.
MKR-SENS Switch (configurations B,C, and D only)	Hi position-selects high sensitivity of circuit receiver. Lo position-selects low sensitivity circuit of receiver.
MKR indicator light	Illuminates as aircraft passes over a 75 mc marker beacon, provided the marker beacon receiver is in operation.
G/S power switch (config C only)	ON position-turns glide slope receiver on. OFF pos-turns glide slope receiver off

CONTROL

FUNCTION

GLIDE SLOPE RECEIVING SET CONTROLS AND INDICATORS

VHF NAV frequency selector
(CONFIGURATIONS A & B)

Permits selection of glide slope receiver frequency to correspond with localizer freq set on VHF NAV (omni control panel)

VOL control (config A & B)

A combined volume and power control. When rotated clockwise from OFF position, applies power to receiver.

G/S power switch (config C only)

ON position- Applies power to receiver.
OFF position- Turns receiver off.

NOTE*** On configurations C & D the glide slope receiver is automatically tuned (and switched on in configuration D) when No.1 omni receiver is tuned and in operation on a localizer frequency.

Course selector indicators

Horizontal pointer indicates glide slope receiver is in operation, and aircraft is attempting a landing at an airfield equipped with a glide slope facility.

TRANSPONDER SET AN/APA-44 CONTROLS

Master switch

Turns transponder set off or on, selects receiver sensitivity, and provides for emergency operation. The switch positions are as follows:
OFF position- Renders transponder set inoperative.

STBY position- Places transponder set in warm-up (standby) condition.

LOW position- Applies full power to transponder set with low receiver sensitivity in accordance with military characteristics to meet certain operational requirements for tactical conditions.

NORM position- Applies full power to transponder set with maximum receiver sensitivity.

EMER position- Permits automatic transmission of emergency signals. (This position is protected by a barrier)

Function switch

Selects transponder set operational mode as follows:

NORM pos- permits transponder set to reply with normal pulse codes, representing modes 1, 2 and 3.

MOD pos- Permits transponder set to reply with selective identification feature) pulse codes, representing modes 1, 2, and 3.

FUNCTION

FUNCTION SWITCH CONT'D

	CIVILpos- permits transponder set to reply with civil pulse codes, representing modes 1,2, and 3.
I/P switch	Selects i/p (identification of position) reply operation. MIC position- connects i/p energizing circuits to microphone keying circuits and permits i/p signals for 30 seconds after microphone switch is released. OFF position- disconnects microphone keying and i/p initiating circuits. I/P pos- when momentarily actuated (spring loaded) initiates i/p operation for 30 seconds.
AUDIO SWITCH	ON pos- Permits monitoring of transponder (not connected to interphone system) OFF pos- Switches off radio.
MODE 2 SWITCH	ON pos- permits transponder set to provide mode 2 replies for mode 2 interrogations.
MODE 3 switch	ON pos- Permits transponder set to provide mode 3 replies for mode 3 interrogations.
MODE 1 code control	Selects and indicates two-digit, mode 1 code number.
MODE 3 code control	Selects and indicates two-digit, mode 3 code number.
Pilot light-	Comes on when power is applied to the transponder. A shutter controls brilliance of pilot lighting. (A press-to-test-feature is incorporated)