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ARC-52 and PTR-175 General and Technical Information

Individual pages for each of these radios: ARC-52 | PTR-175

The main difference between these two radio types is that the ARC-52 is UHF-only, but the PTR-175 covers a slightly wider UHF band, plus a VHF band.

Both of these radio sets share a lot of similarities; same component sizes, weights, and control connections - this makes changing between ARC-52 and PTR-175 systems fairly straightforward from an aircraft interface point of view, however the PTR-175 requires an additional VHF aerial and associated coaxial wiring that the ARC-52 doesn't - alternatively, a broad band aerial can be used with a UHF / VHF realy switching unit.

Tuning

The control units allow for 18 preset frequencies to be stored by arranging 18 rows of sprung loaded pins on a drum. The CHAN selector rotates the drum, and these pins press on a row of microswitches, which set the T/R (Transmitter / Receiver) unit frequency. Manual tuning is also possible via control unit knobs when CHAN is set to "M".

The mechanical selection of channels takes approximately 6 seconds, as the T/R Unit clunks and whirs, selecting different crystals, inductors, and retuning variable capacitors.

Guard Receiver

These radios also include a separate Guard channel receiver to listen to emergency transmissions alongside regular communications. This is in the range of 238.0 to 248.0 MHz, the International Distress Frequency is 243Mhz. The Guard receiver can be activated by setting the control unit function switch to "T/R+G". (It also has a test frequency of 243.8Mhz).

The T/R unit can be switched to two-way communications on the Guard frequency when the CHAN selector is set to "G". This tunes the main radio to the Guard frequency for transmit and receive.

Side Tone

A side tone from the radio means it can be used as an intercom amplifier for multi crew aircraft. However as the side-tone is produced by the radio transmitter modulator, this only works when the radio is tuned to one of the viable frequencies, see Frequency Bands below. Frequencies outside these ranges can be inadvertantly set using the presets (ARC52 and PTR-175) and manual controls (PTR-175 only), and no side tone will be heard, and indeed the T/R unit won't transmit or recieve.

Technical Specifications

Temperature Limits	-55C to +55C		
Frequency Bands:			
ARC-52	UHF 225.0 to 339.9 MHz	at 100KHz intervals	= 1750 channels
PTR-175	UHF 225.00 to 399.95 MHz	at 50KHz intervals	= 3500 channels
	VHF 117.50 to 135.95 MHz	at 50Khz Intervals	= 370 channels
Transmitter Power:			

Cautions

Don't transmit on air band frequencies witout reasonable cause (such as operating an aircraft) and a license. Rules differ between countries, see: here for some initial information, but please do your research. Please also test transmitters into a dummy load, not an aerial.

Do not unplug the main 42-way T/R unit connector while the power is on, set the control unit function switch to OFF.

Beware that these radio T/R units contain lethal voltages used for the thermionic valves. Live fault-finding can be very dangerous.

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