

Flying the KC-135 Tanker
and
Related Communications



Flying the KC-135 Tanker in Mid-air Refueling, and Related Communications

- Since 1957, we have had jet-powered tankers/bombers
- Gen. Curtis Lemay ➡ ~ 1949 – 1950 ➡ ➡
- Boeing 367-80 714 KC-135a 707
- Primarily Global Nuclear Bomber Support for SAC
- Refueling for all USAF Military Aircraft
- Combat Crew Training (CCTS) at Castle AFB
- I attended from May to Sept 1974

Flying the KC-135 Tanker and typical Pilot Training Syllabus

- 52+ weeks USAF Undergraduate Pilot Training – UPT – ’73 - ’74
- Transition Training in aircraft type – 20 weeks for KC-135
- Land Survival Training – 2 weeks (E&E / Prison Camp)
- Water Survival School – 1 week (Biscayne Bay)
- Combat Crew Certification – 2 weeks at gaining unit
- Local Checkout / Checkrides 2x/year
- Ready to Pull SAC Alert – 7 days in Alert Facility
- Satellite Alert – Force Dispersal / Survivability



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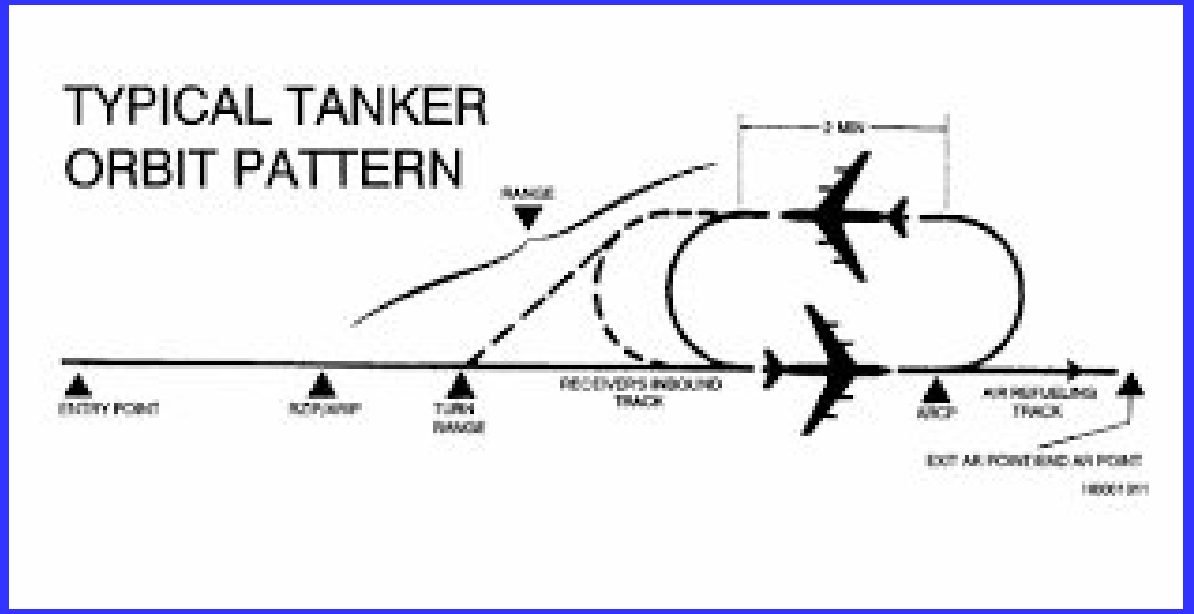
- Usually take-offs were made at high gross weights
- Up to ***90 seconds*** on the runway! (A – models)
- M.I.T.O. takeoffs – 15 second intervals (EWO)
  - 30 second intervals for training
- Rendezvous at ARCP (control point) at ARCT (time)
- Designated Air Refueling tracks in US – 2000' block alt.
  - FL290 – FL310 in ARTCC airspace
- Fuel transferred at >6400 lbs/min (~1000 gals/min)

The Rendezvous / Images from Tanker







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- Communication *IMPORTANT*: proximity of A-C inflight!
- All military Comm on HF and UHF frequencies
- HF initial callup by Receiver NAV to Tanker NAV then
  switch to designated UHF when in range ~ 75 miles
- Receiver arrives at ARCP 1,000’ below Tanker @30 mi

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- Radios used in older A-model KC-135:
  - HF: AN/ARC 21 and AN/ARC 190 (newer A-C)
    - 300 W on AM signals, 1,000 W on SSB (both USB and LSB) – WARNING!
    - Operated from 2 Mhz to 30 Mhz – Communicate with SAC Airways – OPS Reports
    - Antenna mounted on top of tailfin as a horizontal "spike"
    - Older models had end-fed long wire mounted to mid-section of tail to front of fuselage
    - "Raytheon's partnership with FlexRadio combines commercial innovation with advanced military hardening techniques to rapidly deliver a next-generation operational capability that supports strategic and tactical missions. Designed to augment space-based beyond-line-of-sight (BLOS) systems."





  - UHF: AN/ARC 34 - AN/ARC 62 - AN/ARC 164 (newer A-C)
    - 10 W – Communicate with ARTCC and Tower/Ground Control stations
    - Manufacturers: Bendix, Raytheon, Collins, RCA, etc.
    - Antennas located bottom and top of fuselage

Frequencies Used in Flight Ops

Frequency	Band Name
118 - 137 MHz	VHF Air / Ground Communications (Civilian communications)
4725, 6761, 9027, 11243 KHz	Long Range HF Contact / OPS Reporting
225 - 328.6 & 335.4 - 400 MHz	**UHF Air / Ground Communications (U.S. Military)**
328.6 - 335.4 MHz	**ILS Glide Slope**

Current Operations

AN/ARC …….. “Airborne Radio Communications”

AN/ARC-151…… UHF SATCOM Transceiver; **A-37**, **KC-135**, **RF-4**

AN/ARC-164 “Have Quick II” …… "HAVE QUICK II" UHF/AM Transceiver; manufactured by **Raytheon (Magnavox)**; used in **B-52G/H**, **C/EC/RC-26D, F-15, F-16, UH-1D, CH-47 and many others**

HAVE QUICK (also **HAVEQUICK**, short **HQ**) is an ECM resistant / frequency-hopping system used to protect military aeronautical mobile (OR) radio traffic.

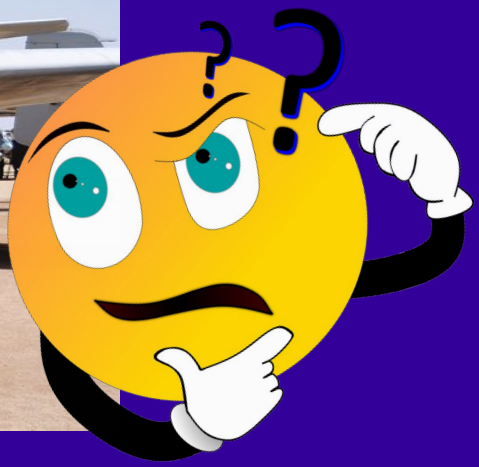


AN/ARA to AN/ARC - Equipment Listing

Questions??







Thank you!