Omega KDC-10 Air-to-Air Refueling Procedures
KDC-10 Tanker

- Former Japan Airlines DC-10-40 modified for air-to-air refueling (AAR)
- Flight Refueling Limited (FRL) 909E pod mounted under each wing
- Looks like USAF KC-10
  - No centerline hose or boom
- Complies with NATOPS/USAF/NATO (ATP-56B) AAR procedures
Tanker Characteristics

- Hose and drogue configuration
- Flight Refueling Limited AAR system
- 75 ft long black hose
  - 4 (1-ft) white markings
  - 2 (5-ft) white markings
  - 20-ft refueling range
Tanker Exterior Lighting

• Position Lighting
  − Red—lower beacon
  − Green—lower fueling beacon
  − White—nacelle (dimmable), fuselage (dimmable), logo (not dimmable)

• Navigation Lighting
  − Standard aircraft green/red/white per 14 CFR
AAR Pod Lighting

• Status Light (Dimmable)
  • Red
    – Dead hose/tanker not ready
    – Flashing red means “emergency disconnect”
  • Amber
    – Solid amber means “tanker is ready”
    – Flashing amber means “approaching inner limit of the refueling range”
  • Green
    – Transfer pumps energized and fuel is flowing
• Pod “covert lighting” for NVD operations (not normally available)
Tanker Responsibilities

• Tanker arrives 5-15 min prior to ARCT or “on station” time
• Tanker provides WX avoidance
• Tanker maintains ATC or CV comms (strike/control freq + boom freq)
Rendezvous Procedures

• **Standard ATP-56B/Navy refueling anchor**
  - 250-275 KIAS
  - Left-hand turns unless otherwise required
  - ATP-56B comm/terminology

• **Check-in/join up procedure (AAR freq)**
  - Call sign/offload request
  - Cleared to Port Observation
  - Maintain 1000-ft altitude (below) 1 NM lateral separation until visual with tanker aircraft
  - Cleared to climb/join with visual and positive comm
AAR Procedures

• From observation position (port or starboard), tanker will clear receiver, “astern to the left or right hose”

• Hose in trail, steady amber light - tanker READY

• From the pre-contact position, when stable and cleared “CONTACT,” receiver initiates contact
  – 1-3 kts closure at contact recommended

• Once in contact, move hose in 5 -10 ft to initiate fuel transfer

• Green light on/amber light off means tanker refueling transfer pumps operating
AAR Procedures

• Proper AAR position is aft and slightly left of the pod centerline, below the chord of the wing, at the natural trail point of the basket
  - Hose length centered between the two 5-ft white marks (50-70 feet of hose extended)

• 200-300 gal/min flow rate: depends on receiver’s fuel state (usually lower fuel state = higher flow rate) and fuel tank cross-feed setup

• All AAR operations monitored/recorded by video cameras (pod and fuselage mounted)

• F/E calls: “forward 10”; “back 10”; “up 5” etc.
• MA-4 coupler on the drogue assembly physically ensures AAR pressure at 50 PSI max
  − Actual refueling pressure is not gauged, depends on aircraft configuration/ambient pressure, etc.
  − Prowler flow rate 150-250 gal/min at nominal 50 PSI

• Nominal AAR envelope
  − 5,000 to 33,000 MSL
  − 200 to 300 KIAS
  − Must trail/retract hoses below 290 KIAS
AAR Procedures

Proper F/A-18 Series
Day Sight Picture
Post AAR Procedures

- After pre-briefed offload, when cleared by the tanker, receiver initiates disconnect
- “Reform RIGHT or reform LEFT” as directed to await wingmen
- When AAR is complete, cleared to depart normally high and to the right (or as directed)
- Tanker will report offload prior to receivers departing
Abnormal Procedures

• Approaching inner limit of the refueling range (no 5-ft white markings showing) amber status light will flash, then extinguish. Green light also extinguishes. Slide aft to resume refueling

• As you approach the outer limit of the refueling range (both 5 ft white markings showing) green light will extinguish and fuel flow will stop. Move forward to resume fueling

• Emergency disconnect (BREAKAWAY!)
  – Called by anyone due to an unsafe condition
  – Red status tanker light will flash

• Tanker system failure - both baskets stowed
  – Tanker will RTB/notify controlling agency
Abnormal Procedures

- Dead hose - steady **RED** light
  - AAR will not be attempted on dead hose
  - Basket stowed for the remainder of flight
  - AAR may continue with a serviceable drogue on the opposite wing

- Emergency disconnect (**BREAKAWAY**!)
  - Called by anyone due to an unsafe condition
  - **RED** status tanker light will flash

- Downed aircraft - tanker will mark position and maintain orbit until SAR arrives
  - UHF/VHF and HF equipped. Can initiate long-range SAR via HF if necessary
More Information

Available on the Omega Air Refueling website

- Pictures
- Videos of AAR operations
- Mission planning information
- Email and telephone contact information

www.OmegaAirRefueling.com
Urgent Schedule or Other Operational Changes

- Notify Omega Ops
- Email: Ops@OmegaAirRefueling.com
- Phone:
  - Ryan Murphy: 757-646-0085
  - Robert Proano: 619-534-0235