STANDARDS RELATED DOCUMENT

NATIONAL SRD – ISRAEL

OCTOBER 2017

Published by the "Desert Giants" SQ. of the Israeli Air Forces
1. **Introduction.** Israel has two types of tankers in operational service with the Israeli Air Force (IAF). The IAF complies with all ATP 3.3.4.2 edition C (former ATP-56) procedures unless stated otherwise in this national SRD.

2. **Tanker Aircraft Type.**

3. **National AAR Clearance Process.** Requests for AAR clearances with IAF tankers should be made IAW ATP 3.3.4.2 SRD-1 "Guide to obtaining Air-To-Air Refueling Clearances and Compatibility Certification". The format, content and addresses for a clearance request are at Annex B of this document, along with additional information.

4. **AAR Arrangements.** Relevant bi-lateral or multi-lateral AAR Implementing Arrangements are to be in place between IAF and the nation requiring AAR support. These arrangements will include conduct of operations, training and currency of aircrews, certification and testing of the tanker-receiver pair, logistics / fiscal issues and relevant legal / liability issues.

5. **Receiver Aircrew Qualification and Currency.**
   a. **Introduction.** The IAF complies with NATO SRD 2 "Recommended Air-To-Air Refueling (AAR) Aircrew Certification and Currency". Unless specifically agreed otherwise, before attempting to refuel from Israeli tankers, foreign national aircrew must be receiver qualified within their own Air Force. Additionally, the receiver aircrew must have been briefed by one of the following:
      
      (1) A qualified and current IAF KC-707 tanker boom operator.
      
      (2) A qualified and current IAF receiver AAR instructor.
      
      (3) An authorized deputy of the IAF "Desert Giants" tanker Squadron.
      
      **Note:** As a minimum, this briefing will include: closure limitations, lighting schemes, Boom/Pod procedures as applicable, possible difficulties and emergency actions. The briefing is to be given with the aid of the relevant Israeli Annexes of the ATP 3.3.4.2.
      
   b. **Maintaining AAR Currency on IAF Tankers – Foreign National Aircrew.** After initial qualification, receiver currency requirements for foreign national aircrew receiving from IAF tankers include both of the following:
(1) AAR currency and qualifications in accordance with receiver national regulations, and;

(2) 1 AAR mission in the preceding 6 months, including a minimum of 3 contacts as a receiver (wet or dry).

c. **Re-Qualifying if AAR Currency has lapsed.** To regain currency if foreign national AAR currency has lapsed, a current and qualified instructor (who may be in another aircraft) must brief and monitor at least one re-qualifying flight, which must include a minimum of 2 contacts (wet or dry).

4. **AAR POCs.** If there are multiple POCs for a paragraph below please list them and their area of responsibility. For example there may be a STAN/EVAL POC for each tanker type or each service branch may have their own POC.

a. **POC for National SRD.**

   Name/Rank: Maj. Eran Struol.
   Job Title: Head of boom operators department
   Office/Agency Responsible: "Desert Giants" sq.
   Address: Nevatim AFB, zip 8955000, Israel.
   Email: stroul@gmail.com, itai465@iaf.gov.il.
   Tel office : +972 86823637
   Tel cell : +972 542120126
   Fax: not available

b. **POC for Tanker/Receiver Clearances.** The initial point of contact for all matters concerning tanker and receiver clearances.

   Same as for National SRD.

c. **POC for STAN/EVAL.** The initial point of contact for all international AAR and STAN/EVAL matters.

   Same as for National SRD.

5. **National SRD Last Updated – OCTOBER 2017.**

6. **Multinational Simultaneous AAR and AT Matrix Structure and Contents.**
The Multinational Simultaneous AAR and AT Matrix lists tanker assets along the left side and list various national and multinational combinations of AT missions conducted simultaneously with AAR missions. Each combination will be colour coded, as per the key below, depending on the presence of restrictions enforced by each nation for each tanker and circumstance.

Colour Key:

<table>
<thead>
<tr>
<th>PERMITTED</th>
<th>SUBJECT TO RESTRICTIONS (Case-by-case basis)</th>
<th>NOT PERMITTED</th>
</tr>
</thead>
</table>


7. **SIMULTANEOUS EMPLOYMENT MATRIX FOR AAR PLATFORMS**

(Including Air Transport, Air-to-Air Refuelling and Aeromedical evacuation only. Excluding ISR, C², EW, SOF and any weaponization).

<table>
<thead>
<tr>
<th>NATIONAL</th>
<th>MULTI-NATIONAL</th>
</tr>
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<tbody>
<tr>
<td>Simultaneous AAR whilst carrying Passengers (Pax)</td>
<td>Simultaneous AAR whilst carrying Cargo</td>
</tr>
<tr>
<td>Simultaneous AAR whilst carrying (DG) Cargo</td>
<td>Simultaneous AAR whilst carrying Aeromedical Evacuation (AE)</td>
</tr>
<tr>
<td>Simultaneous AAR whilst carrying Dangerous Goods Cargo</td>
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<td>Simultaneous AAR whilst carrying Aeromedical Evacuation (AE)</td>
<td>Simultaneous AAR whilst carrying other nation’s AE</td>
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<tr>
<td>Simultaneous AAR whilst carrying other nation’s receivers whilst carrying your nation’s Pax</td>
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<tr>
<td>Simultaneous AAR whilst carrying other nation’s receivers whilst carrying your nation’s DG Cargo</td>
<td>Simultaneous AAR whilst carrying your nation’s AE</td>
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<tr>
<td>Simultaneous AAR whilst carrying your nation’s receivers whilst carrying other nation’s Cargo</td>
<td>Simultaneous AAR whilst carrying other nation’s receivers whilst carrying your nation’s Cargo</td>
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<tr>
<td>Simultaneous AAR whilst carrying your nation’s receivers whilst carrying other nation’s AE</td>
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<tr>
<td>IAF KC707 tanker capabilities</td>
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<tbody>
<tr>
<td>OCTOBER 2017</td>
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</table>
Tanker Information

1. **Introduction.** The IAF has several KC-707 tankers in service. All KC-707’s are equipped with a center line Boom system.

2. Four wing-mounted Pratt & Whitney JT3D-3B / JT3D-7 engines power the aircraft. Maximum takeoff weight is 333,100 lb. with a maximum fuel load of approx. 190,000 lb. Maximum landing weight is 247,000 lb. Communications equipment includes UHF, HF and VHF radios. The aircraft is also equipped with a Traffic Collision Avoidance System (TCAS) to assist with aircraft separation during air to air refueling (AAR) operations.

3. **AAR Equipment.** There is one centerline Boom System operated by a Boom Operator (BO).

   a. **Description.** The KC-707 Boom System is comprised of a refueling boom, boom lighting system, Boom 3D Vision System, and Boom Operator (BO) station. The boom is maneuvered by 2 hydraulic control ruddervators and is flown at all time (before and after contact) by the BO. the signal system has an auto-disconnect envelope that is described below. The boom is located underneath the rear fuselage of the tanker aircraft, is 45 ft long when fully extended. The boom allows a fuel transfer up to 5000lb/min at 50 psig. Four AAR fuel pumps are controlled by the flight engineer (FE) in the cockpit. Fuel delivery pressure reduces to 20psi, 1100lbs prior to scheduled offload completion.

   b. **Basic Operation.** The boom is remotely controlled from the BO station in rear part of the aircraft. The BO uses a 3D view based on 2 cameras and a synchronizing device to allow proper view of the receiver receptacle. Reduced capabilities are available as a secondary screen a 2D vision possibility. Night refueling is performed using IR 3D vision with IR illuminators, also with backup vision options. IR illuminators are not compatible with NVG equipment.

   c. **Basic Operational Procedure.**

      (1) When ready to refuel, the boom is lowered from its stowed position and about 10 ft of the telescopic beam is extended by the BO.

      (2) When cleared to do so by the BO, the receiver moves from a stabilized (zero rate of closure) astern position to a steady boom contact position.
(3) Closure to contact will be slow and stable (approximately 1 foot per second) with the receiver stabilizing in the contact position.

(4) When this is achieved, the BO flies the boom to the receiver aircraft’s receptacle and extends the boom to make contact. Locking toggles in the receptacle operate to hold the boom nozzle in contact.

(5) The receiver then maintains its position within the boom operating envelope.

![WARNING]

The receiver will stabilize in the astern position and attain a **zero rate of closure**. If the receiver fails to attain a stabilized position, or it becomes apparent that a closure under run will occur, breakaway procedures will be initiated by the BO. Failure to do so could result in a mid-air collision.

![CAUTION]

Approaching boom limits at relatively high velocity can cause structural damage as a result of an inability to disconnect due to binding action of the boom nozzle.

(6) **Automatic Disconnect.** Provided the receiver remains within the envelope, contact is maintained; however, if the receiver approaches the envelope limits a disconnect will automatically occur.

**NOTE**

When the tankers AR system is in OVERRIDE mode the automatic disconnect limit switches are inactive, the boom operator must initiate disconnect before the receiver exceeds limits.

(7) **Boom Envelope.** The boom mechanical envelope is +/- 15 degrees azimut and 0 - 45 degrees elevation and 0-20 fit telescoping. The automatic disconnect switches will allow contact in a more center envelope (+/- 10 degrees azimot, 20-40 degrees elevation and 6-18 fit telescoping).
(8) **Normal Disconnect.** To initiate a disconnect, the KC-707 BO or receiver pilot will command the disconnect whilst the receiver remains stabilized in the contact position. Once the BO and/or receiver confirms a disconnect has been achieved; the receiver then moves to the astern position (only after positively approved by the BO).

(9) **Forced disconnect.** There are two types of forced disconnect, inadvertent, and controlled forced disconnect (coordinated).

(a) **Inadvertent Forced Disconnect.** An inadvertent forced disconnect is defined as any unplanned disconnect which is the result of one of the following:

(i) The receiver aircraft moves rapidly to the aft limit, causing mechanical tanker/receiver separation.

(ii) Boom pullout occurs at 40 degrees elevation or below.

![CAUTION]

Following an inadvertent forced disconnect, AAR will be terminated except during fuel emergencies or when continuation of AAR is dictated by operational necessity.

(b) **Controlled Forced Disconnect.** A controlled forced disconnect is defined as an intentional coordinated disconnect occurring above 40 degrees elevation, or when other means of disconnect failed, accomplished by gradual aft movement of the receiver aircraft (approximately 1 foot per second) until the boom is fully extended, and ending with a controlled tension boom pullout. Coordination between the receiver pilot and boom operator is required to ensure as smooth disconnect as possible. Following a controlled forced disconnect, AAR may be continued with other receivers, provided the results of the following checks are satisfactory:

(i) Operational check of the boom for binding or uncontrollability.

(ii) Test of the tanker signal coil.
A controlled forced disconnect will be accomplished only as a last resort, after all other methods of disconnect have failed.

AAR for the receiver that required a controlled forced disconnect will be terminated except during fuel emergencies or when continuation of AAR is dictated by operational necessity. If the receiver requires further AAR, the following actions must be accomplished before attempting another contact:

- Visual inspection of the receiver receptacle area and AAR boom.
- Operational check of the boom for binding or uncontrollability.
- Test of the tanker signal coil.

(10) **AAR Boom Lighting.** Pilot Director Lights (PDL) provide positioning information to receiver pilots during boom type refueling. The PDLs are located on the bottom of the fuselage, aft of the main landing gear; they consist of 2 panels of lights. The left panel gives boom elevation information and the right panel gives boom telescoping information. All PDL lights are intensity adjustable by the BO. See Appendix A1, Figure 1. In addition to the PDL’s, some extra lightning aids are visible to assist RV with the tanker and maintain stabilized in position with the tanker see Appendix A1, Figure 1.

(11) **Basic Operation.** The lights are controlled by movement of the boom in elevation and by the in and out movement of the telescoping portion. These lights indicate the position of the boom in relation to the boom operating envelope and command the direction of receiver movement required to bring the boom to the ideal refueling position.

(a) **Receiver Actions**

(i) **Elevation.** At one end of the elevation panel is the illuminated letter U (for up); at the other end is the illuminated letter D (for down); see Appendix A1 figure 2 to this Chapter. Adjacent to the letters are red arrowheads. If a receiver is in contact with the boom near the upward elevation limit, the red arrowhead next to the D will be illuminated; this indicates a downward movement is
required. As the receiver moves down, the red light extinguishes and a green arrowhead illuminates, indicating the boom is approaching the ideal elevation. When the ideal elevation is reached, the green light extinguishes and 2 parallel green bars illuminate.

(ii) **Longitudinal Position.** Longitudinal position is verified using similar indications to those described above for the vertical position. The right-hand telescoping panel is similar in function, although the display is slightly different. The ends of the panel have the illuminated letters F and A (forward and aft); see Appendix A1 figure 2 to this Chapter. The position information and movement commands are given by illuminated horizontal bars with red leading into green, with the ideal position shown by 2 parallel green bars illuminating. Lights are not provided for azimuth positioning.

(12) **Failure of PDLs to Illuminate.**

(a) **PDLs Failure.** If the PDLs have failed or do not illuminate when a receiver makes contact, the receiver pilot will inform the boom operator if refueling will continue. If refueling is continued, verbal corrections from the boom operator may be requested.

(b) **PDLs Fail During Contact.** If the PDLs go out during contact, the receiver shall initiate a disconnect and return to the astern position. Subsequently, if refueling is continued, verbal corrections from the boom operator may be requested.

(c) **Flashing PDLs.** Flashing PDLs and the tanker lower strobe light on command a breakaway. Receivers will follow procedures in ATP 3.3.4.2.

(13) **Other lights and signals for receivers.**

(i) **Wing inner and outer lights.** To lights on each wing will supply lightning on the full wing of the tanker to provide artificial horizon for the receiver. Lights is intensity adjustable.

(ii) **Telescope end (nozzle) and boom end lights.** blue LED light on the end of boom section and green LED light on the nozzle are supplied to give proper visual with the boom at night. Lights are operated automatically when boom is lowered and it is not intensity adjustable and the BO can't turn it off.
(iii) **Boom beta lights.** The lower side of the boom is equipped with a set of 5-7 beta light in order to make the boom axial visible during night AR. Those light are **not** intensity adjustable and they are based on star light absorbing.

4. **Refueling Heights and Speeds**
   
a. **AAR RV Speed.** The standard KC-707 tanker orbit speed is 270 KIAS or 0.78M, whichever is lower.
   
   (1) The tanker will normally adjust to AAR speed when rolled out towards the RVCP.
   
   (2) In the case of the A-10, fly orbit at 220 KIAS or the tanker’s charted holding speed, whichever is the higher, and plan to roll out ½ NM in front of the receiver.

b. **Boom AAR envelope.** Boom AAR height band is 3000’ ft AGL up to 30,000 ft; speed range is 280 to 320 KIAS with fighters jets receivers and 210-250 with C130 receivers.

5. **Maximum Transferable Fuel.** The maximum fuel load is approximately 87,361 kg (192,000 lb.). Transferable fuel is dependent on sortie duration, cargo/personnel on board and takeoff conditions. A representative offload of 45,361 kg (100,000 lb.) is available for a 4 hr. flight, assuming a fuel burn rate of 6,804 kg/hr. (15,000 lb./hr.) and allowing for the tanker the sufficient fuel reserves needed.

6. **Fuel Transfer Rate.** Fuel transfer rate is normally around 3000lb/min and can get up to 5000lb/min for C130 receivers or close to empty fighters.

7. **Regulated Fuel Pressure.** Pressure is regulated to 50 psig.

8. **Fuel Types Available for AAR:**
   
a. Primary/usual type of fuel is JET A1 (no additives).
   
   
c. All alternate fuels are possible based on availability in the base deploying from and

9. **Lighting.** This section should detail the AAR equipment signal lights, night floodlighting and electroluminescent markings

10. **RV aids.**
   
a. The aircraft has the following radio, navigation and RV aids:
(1)  VHF, UHF, HF radios.

(2)  VOR, DME, ADF and TACAN.

(3)  A/A TACAN, TCAS

11. **Fuel Load** (at ISA)
    a. A max fuel load of approximately 168,000 lb. can be expected at ISA with a 10,000’ runway, 1,500’ MSL pressure altitude and with typical aircraft configuration.

12. **Fuel Load** (at ISA+10)
    a. A max fuel load of approximately 164,000 lb. can be expected at ISA with a 10,000’ runway, 1,500’ MSL pressure altitude and with typical aircraft configuration.

13. **Average Fuel Burn Rate.**
    a. 18,000 lb. per hour for planning purposes.

14. **Nominal Average Reserve.**
    a. Total of 22,200 lb are the tanker reserves and are not to be planned for AAR.

15. **Dimensions.** See appendix A1 in this annex.

16. **Receiver Clearances.** Please see Figures B1-1 and B2-1 for receiver and tanker clearances and compatibility.
APPENDIX A1 - ANNEX A TO NATIONAL SRD – ISRAEL
KC-707 "ORYX" ANNEX

FIGURE 1-diamantion diagram
FIGURE 2 - AR EXTERIOR LIGHT SYSTEM
FIGURE 3 - PDL envelop
FIGURE 4-electro-optic system envelop
FIGURE 5- CORRECT ASTERN

FIGURE 6- WRONG ASTERN
LIST OF EFFECTIVE PAGES TO ANNEX A – NATIONAL SRD Country

<table>
<thead>
<tr>
<th>PAGE NUMBERS</th>
<th>EFFECTIVE PAGES</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
ANNEX B TO NATIONAL SRD - ISRAEL

RECEIVER DATA/CLEARANCE -

1. **Introduction.** This annex provides technical compatibility, clearances and important data essential for safe Boom/Receptacle operations with Israeli Air Force (IAF) tankers.

   **NOTE**

   IT IS THE RESPONSIBILITY OF NATIONS PERFORMING AAR WITH IAF TO INFORM THE IAF OF ANY EVOLUTION OF THEIR RECEIVER AIRCRAFT WHICH MAY CHANGE THE AAR CAPABILITY (ADDITION OF ANTENNA, MODIFICATION OF FUEL SYSTEM AND/OR PROBE, PARTICULARITIES OF NEW TANKS, MODIFICATION OF FLIGHT CONTROLS LAW, ETC).

2. **AAR Request:**

   a. Please send through Military Attaché to :Air Force Headquarters, Attention Director of International trainings and ops.

   b. A formal request for an AAR Clearance could be tanker or receiver initiated. The following information is the minimum required to be sent by the requesting agency. The requesting nation/organization should make its request to the agency identified in the other nation/organization’s SRD to ATP 3.3.4.2. The below information is an example of, but not limited to, what should be included in the formal request.

      (1) AAR Clearance Category sought. (CAT1, CAT2, CAT3).

      (2) Details of AAR MoU or AAR Implementing Arrangements between Nations.

      (3) Estimated magnitude of support. Location and timeline of support required.

      (4) Operational Mission Requirements, including preferred AAR envelope.

      (5) Type of refueling system involved. (hose/ drogue, boom/receptacle, BDA or all three).

      (6) Type and mark of all aircraft requiring AAR. (Can be model IE F-16D, receiver flagged nation).

      (7) Availability of Standardized Technical Data Sheet (STDS) and POC for technical compatibility assessments.
(8) Data on all receiver aircraft emitters (i.e. peak power, average power, gain and frequency band data for all receiver RF emitters). These are required for inadvertent HIRF and HERP effects on tanker systems and personnel.

(9) Flight test results/reports and POC.

(10) POC and authority for operational evaluation concerning training, currency and AAR operations.

(11) Authority for direct contact with receiver and tanker aircraft manufacturers, AR system manufacturers, OEM or others. (including limitations on data exchange)

(12) POC of receiver and tanker aircraft and AAR system manufacturers, OEM or others.

(13) Previous AAR clearances between the designated receiver and other tankers.

(14) Fuel type required.

3. **IAF Tankers and Foreign Military Receivers AAR Clearances.** Confirmation that an AAR compatibility assessment has been conducted and found to be satisfactory is published by the appropriate tanker AAR authority and incorporated into Appendix B1 to this Annex. Additional clearances subject to compatibility tests can be obtained from IAF AAR POC (see address above).

4. Nations, agencies or operational planning groups seeking access to AAR clearance certificates can contact the IAF AAR Tanker/Receiver Clearances POC:


6. Office Tel: +972 8 6823637, Office Email: itai465@iaf.gov.il
   
   Private Tel: +972542120126, Private Email: stroul@gmail.com

7. **AAR Certification.** IAF assesses the technical and operational compatibility of the tanker-receiver pair using the process identified in ATP-3342-SRD-1 *Guide to obtaining Air-to-Air Refueling Clearances and Compatibility Certification* dated Feb 2016. If flight testing is required, the Aircraft Research and Development Unit (ARDU) will develop test plans and conduct flight testing. The relevant Chief Engineer in the System Project Office assesses and recommends technical compatibility for the pairing using the relevant information from the Technical Compatibility Assessments and flight test reports from tanker - receiver testing. The Officer Commanding the relevant Wing
assesses and recommends operational compatibility for the pairing. The Air Force's senior operational commander (and delegated Operational Airworthiness Authority) approves the AAR Certificate for the tanker receiver pair which lists the relevant envelope and limitations of AAR operations. The IAF SRD will contain updates to envelope and limitations, and pre-briefing is required to cover any temporary limitations that apply to AAR operations. Further information is available through IAF National POCs.
1. **Information.** The following boards are to be read with additional information.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>AIRCRAFT</th>
<th>KC707 BOOM</th>
<th>KC130HI PODS</th>
</tr>
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<tbody>
<tr>
<td>GREECE</td>
<td>F16 A/B</td>
<td>C3</td>
<td></td>
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<tr>
<td>USA</td>
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<td>C3</td>
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<td>USA</td>
<td>F15 A/B/C/D</td>
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<td>USA</td>
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<tr>
<td>JORDAN</td>
<td>F16 A/B</td>
<td>C3</td>
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</tr>
</tbody>
</table>

Key:  
X - Receiver is has technical compatibility, no clearance, with this equipment.  
C1 – Receiver has Category 1 Clearance with this equipment.  
C2 – Receiver has Category 2 Clearance with this equipment  
C3 – Receiver has Category 3 Clearance with this equipment
APPENDIX B2 – ANNEX B TO NATIONAL SRD – ISRAEL

COUNTRY RECEIVERS TO FOREIGN MILITARY AND NON MILITARY TANKERS CLEARANCE AND TECHNICAL COMPATIBILITY

1. **Introduction.** This matrix constitutes the country receiver clearances on Foreign Military and Non-Military Tankers. A clearance listed in this table approves a technical compatibility has been reviewed between both Tanker/Receiver and if a clearance is listed, it has been agreed between the COUNTRY owner of the receiver and the National/Non Military owner of the Tanker.

<table>
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<tr>
<th>UPDATE DATE OCT 17</th>
<th>AIRCRAFT</th>
<th>F16 C/D/I</th>
<th>F15 C/D/I</th>
<th>C130 H/J</th>
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<tr>
<td>USA</td>
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<td>C3</td>
<td>C3</td>
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<td>BOOM</td>
<td>C3</td>
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Key:  
- **X** - Receiver is has technical compatibility, no clearance, with this equipment  
- **C1** – Receiver has Category 1 Clearance with this equipment  
- **C2** – Receiver has Category 2 Clearance with this equipment  
- **C3** – Receiver has Category 3 Clearance with this equipment
AAR Mission Planning and Inflight Data. The following boards are to be read with additional information listed in Appendix B5 to this Annex. This Appendix publishes AAR planning data for all receiver aircraft with an AAR technical compatibility assessment has been conducted and a letter issued permitting operations with the TANKER A. Dependent upon the fuel transfer mechanism in use, (POD, or Boom) the appropriate tanker/receiver data are contained in the following figures:

a. Figure B3-1 AAR Mission Planning Data (TANKER A/POD).
b. Figure B3-2 AAR Mission Planning Data (TANKER A/Boom).
Figure B3-2 AAR Mission Planning Data (KC-707 A/BOOM).

<table>
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<tr>
<th>TYPE RCVR</th>
<th>BUDDY CRUISE IAS / MACH</th>
<th>OPTIMUM AAR ALT/IAS/MACH</th>
<th>RCVR RV SPEED IAS</th>
<th>OVERRUN IAS/MACH</th>
<th>PPM/# PUMPS</th>
<th>RENDEZVOUS</th>
<th>A/A TAC</th>
<th>RV VIS SINGLE / MULTI</th>
<th>BOOM INTERPHONE</th>
<th>BOOM TRIM SETTING</th>
<th>FLOOD LIGHT SETTING</th>
<th>REVERSE A/R CAPABLE</th>
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<td></td>
<td>10 – 10</td>
<td>20 – 36</td>
<td>06 – 18</td>
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</table>

1 RECEVIER AAR airspeed optimum envelope is FL150 – FL200 in 300 KIAS. Adjust A/R MACH airspeed by FL change.

2 RECEVIER AAR airspeed optimum envelope is FL003 – FL010 in 220 KIAS. Adjust A/R MACH airspeed by FL change.

3 Available, but not during AR.

4 Receptacle light should be OFF.
1. WARNINGS, CAUTIONS and NOTES. The following WARNINGS, CAUTIONS and NOTES are common to all receiver aircraft and must be read in conjunction with the receiver-specific information published in the appropriate paragraph Appendix B5 to this Annex.

**WARNING**

- HF radio, including data link transmissions shall not be made within ½ NM of IAF KC-707 / KC130 tankers.

- Tanker airspeed and altitude adjustments must be made smoothly and cautiously while the receiver is in or near the contact position. Any airspeed or altitude required by the tanker should be accomplished after the receiver is stabilised in the contact position.

- In the case of a large receiver excessive closure rate may cause the tanker to descend into the path of the receiver. The tanker pilot must be prepared to disconnect the autopilot to prevent altitude deviations.

- The BO must be constantly aware of the receiver’s position and rate of movement. The receiver’s rate of movement toward an envelope limit will determine the need to initiate a disconnect. If the movement is toward the inner limit, BOs will exercise sound judgement in initiating a disconnect or breakaway prior to the receiver exceeding the limit or underrunning the tanker.

**CAUTION**

- Emergency separations may cause the receiver to drop low and out of view of the image. This could result in the BO being unable to maintain visual contact. The BO should be prepared to call
“blind” and request a “well clear” call from the receiver prior to terminating the separation.

- When AR with IAF fighter receivers, avoid excessive retraction rates to prevent pulling the receiver forward if a disconnect is not obtained.

- Contact will not be attempted until the fighter type receiver has stabilised 2 to 3 feet from the contact position.

- When AR with IAF fighter receivers, to minimize nozzle cocking when making contact with the receiver, the boom nozzle should be inserted directly into the receptacle without the aid of the slipway. Using the slipway may cause the nozzle to cock, preventing contact.

- Due to limitations of the visual system. Exercise caution to avoid striking any antenna in the vicinity of the AAR receptacle.

- Any attempt to affect a contact during loss of any AAR lighting that results in less than desired illumination will be at the discretion of the BO.

**NOTE**

- *Night is defined as the period of time when the boom nozzle and/or the receiver is not clearly visible without the aid of the IR illuminators.*
# APPENDIX B5 – ANNEX B TO NATIONAL SRD – ISRAEL

## RECEIVER SPECIFIC AAR INFORMATION

Information. Read this Appendix in conjunction with Appendix B4 – Common Warnings, Cautions and notes and Appendix B1 – Israel Tankers/Foreign Military Receivers Clearance and Technical Compatibility.

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1.1 F16 RECIVER APPENDIX

F-16 C/D/I

IMPORTANT: Read in conjunction with Appendix B4 – Common Warnings, Cautions and Notes and Figure B3-2 AAR Mission Planning Data.

1. General Information

1.1. The F-16 receptacle is located 27 feet from the nose on aircraft centerline, 6.5 feet aft of the canopy.

1.2. The F-16D/I model (two-seater) receptacle is slightly closer to the canopy.

1.3. There is a 2-inch high antenna on the upper fuselage centerline, 3 feet forward of the receptacle.

1.3. There is a 1-inch high round black antenna on the upper fuselage centerline, 3 feet aft of the receptacle.

1.7. On F-16C/D/I models, the area forward and aft of the receptacle is reduced.

1.8. Lighting for the receptacle is of fixed intensity.

1.9. The floodlight on the upper fuselage, which illuminates the AAR markings around the receptacle, can be varied in intensity.

1.10. On F16 I models the receivers may be equipped with conformal fuel tanks (CFTs); receivers with CFTs will be refueled using standard F-16 procedures with the following exceptions:

1.11. High altitude AR should be carried with extreme caution due to severe yew effects on those heights.
1.2 F15 RECIVER APPENDIX

F-15 C/D/I

IMPORTANT: Read in conjunction with Appendix B4 – Common Warnings, Cautions and Notes and Figure B3-2 AAR Mission Planning Data.

1. General Information
   1.1. The receptacle on the F-15 has a fold down door which forms a small slipway. It is located 30 feet from the nose and 3 feet left of centerline in the aircraft wing root area.
   1.2. Lights for the slipway are in the receptacle and on the aft portion of the canopy which illuminates the area around the receptacle.

2. AAR Procedures

   CAUTION

(ALL) DO NOT ATTEMPT CONTACT IF THE FORWARD AAR DOOR IS VIBRATING. CONTACT WITH THE BOOM MAY CAUSE LOSS OF THE AAR DOOR.
(ALL) TO ASSURE SUCCESSFUL CONTACT, PRECISE POSITIONING OF THE BOOM STRAIGHT INTO THE RECEPTACLE IS REQUIRED. THE NOZZLE TIP MAY HANG-UP ON A GAP IN THE FORWARD END OF THE RECEPTACLE SLIPWAY. THE TIP MAY ALSO HANG-UP ON THE RECEPTACLE FORWARD ROLLERS IF ATTEMPTING CONTACT FROM EITHER SIDE OF THE SLIPWAY.

NOTE

(ALL) DURING NIGHT AAR, EXERCISE EXTREME CARE DUE TO REDUCED DEPTH PERCEPTION AND LACK OF VISUAL CUES ON THE F-15E DARKER PAINT SCHEME.
1.3 C130 RECIVER APPENDIX

**C-130H (AAR Receiver)**

**IMPORTANT:** Read in conjunction with Appendix B4 – Common Warnings, Cautions and Notes and Figure B3-2 AAR Mission Planning Data.

AAR Data IAF C-130H (Receiver)

Fig.1: IAF C-130H general view; UARRSI Receptacle marked by red arrow

IAF C-130H on IAF B707 tanker (KC-135 Boom). Left (fig. 2) and right (fig. 3) display different tail number C-130H a/c. Distance lead in stripe markings are present but not visible in B707 tanker IR video still frames shown. HF wire antennas (2) marked red (fig. 2)
1. **General Information**

1.1. The IAF C-130H are equipped with a UARRSI receptacle located 12.5 feet AFT of the nose and 6.0 feet behind center window on fuselage centerline.

1.2. Receptacle door is of a drop type, prior to AAR door is dropped down and becomes boom slipway (scuff plate) - see fig. 5.

1.3. Two wire HF antennas are installed between protruding fixtures approx. 4 feet aft of the receptacle and top of the vertical stabilizer (see fig. 2).

1.4. Distance lead-in stripes (3) are located in front of the receptacle at 1-foot intervals (see fig. 4). IAF C-130H are painted in a three color camouflage scheme. Area around distance lead-in stripes is painted dark brown to facilitate visual identification of the stripes.

1.5. Variable intensity slipway lights and aerial refueling lights are available (see fig. 5 and 6).

1.6. Standard constant intensity C-130 leading edge lighting is available in both regular and NVG modes (see fig. 6).

1.7. Interphone communications are provided between receiver cockpit and tanker boom operator station via the boom after connection is established (boom latched).

**Fig. 4:** White distance lead-in stripes and aerial refueling area lights
Fig. 5: C-130H receptacle unit, shown with door down (ready for AAR)

Fig. 6: AAR relevant lights
2. AAR Procedures

CAUTION

Boom nozzle position shall be monitored closely prior to contact and following disconnect as receptacle to propeller line distance is only 15.5 feet.

2.1. C-130H aircraft AAR envelope is 190 to 220 KIAS at 0 to 20,000 feet MSL. High receiver weights may restrict maximum AAR altitude. Optimal AAR speed and altitude for planning purposes is 200 KIAS at 5,000-8,000 feet MSL.

2.2. During night time AAR all external lights (navigation, formation, anti-collision) are extinguished after tanker passes over receiver. Any combination of AR lights (Slipway, Leading Edge / NVG Leading Edge, AR lights, formation lights) can be set to on upon request from tanker or by prior coordination between tanker and receiver crews.

2.3. With boom locked into receptacle (connection established), bank angle is limited to 10°. With aircraft in astern position and no connection, bank angle is limited to 20°.

CAUTION

In case of a complete hydraulic failure in the UARRSI receptacle, latching will not be available. Stiff Boom Operation is permissible for otherwise non recoverable fuel emergency situations only. During Stiff Boom Operations, the boom operator shall maintain constant positive boom pressure onto receptacle. Minimal amount of fuel will be transferred to ensure safe landing.

2.4. In case of AAR to full receiver tanks, receiver C-130H crew will alert the boom operator shortly prior to expected fuel fill valves closure. This allows tanker crew to reduce fuel pressure and eliminate any fuel pressure back surges in the boom.
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