

STANDARDS RELATED DOCUMENT

NATIONAL SRD – SWITZERLAND

MAY 2019

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AAR cell**

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| NATIONAL SRD - SWITZERLAND |
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1. **Introduction.**

Switzerland performs AAR only with F/A-18 C/D receivers, also called SF/A-18 in some publications.

2. **Tanker aircraft type.**

Switzerland has no tanker aircraft.

3. **National AAR clearance process.**

According "AAR-SRD-1_A GUIDE TO OBTAINING AAR CLEARANCES AND COMPATIBILITY ASSESSMENTS".

Armasuisse is responsible for the technical compatibility and receiver airworthiness.

Swiss Air Force is responsible for operational compatibility, crew training and currency and AAR agreement covering the legal/financial aspects.

4. **AAR POCs.**

a. **POC for NATIONAL SRD, clearances & AAR planning:**

Office: FDLK, AAR POC
Address: Bâtiment UeG
Base aérienne
CH-1530 Payerne
Email: aar.lw@vtg.admin.ch
Tel: +41 58 466 2093 (F/A-18 fighter wing Payerne POC and request the air-to-air refueling POC)

b. **POC for tanker/receiver technical compatibility assessment, receiver airworthiness & STAN/EVAL:**

Office: armasuisse, combat aircraft, Swiss F/A-18 program
Address: VBS
armasuisse
Combat aircraft
Swiss F/A-18 program manager
Kasernenstrasse 19
CH-3003 Bern
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Tel: +41 58 463 41 60

5. **National SRD last updated.**

Please check the date of this SRD and check it against the national SRD posted at the following website to ensure this is the most current national SRD:

<https://www.japcc.org/aar/#NationalSRD>

6. **Multinational simultaneous AAR and AT matrix structure and contents.**

According tanker national SRD.

7. **Simultaneous employment matrix for AAR platforms.**

According tanker national SRD.

8. **National reservations.**

None.

**ANNEX A TO NATIONAL SRD –SWITZERLAND
TANKER**

Tanker information.

Switzerland has no tanker.

APPENDIX B2 – ANNEX B TO NATIONAL SRD – SWITZERLAND

**SWISS RECEIVERS TO FOREIGN MILITARY AND NON
MILITARY TANKERS CLEARANCE AND TECHNICAL
COMPATIBILITY**

1. **Introduction.**

This matrix constitutes the Swiss receiver clearances / compatibilities on foreign military and non-military tankers. A compatibility listed in this table certifies that a technical compatibility has been assessed between both tanker/receiver and if a clearance is listed, it has been agreed between Switzerland, owner of the receiver, and the national/non-military owner of the tanker.

2. **Technical compatibility assessment.**

A TCA (technical compatibility assessment) listed as a X in the table below certifies that a technical compatibility assessment has been completed between the specified tanker of the specific nation and Swiss receivers.

Notes in the table also indicates which clearance category the TCA would support.

Only the technical compatibility has been assessed!

Other AAR pillars (especially the legal/financial) have to be covered in a specific exercise technical agreement.

3. **Clearances.**

A clearance listed as C1 / C2 / C3 in the table below certifies that the required assessments (technical, operational) have been performed for the respective category and that the necessary agreements are in place between the country owner of the tanker and the Swiss Air Force.

Figure B2-1 Swiss receivers/foreign military and non-military tankers clearance and technical compatibility matrix

| TANKER COUNTRY | TANKER AIRCRAFT / SYSTEM | F/A-18 C/D | NOTES |
|-----------------------|---------------------------------|-------------------|--------------|
| CANADA | CC130T | POD | 4) |
| FRANCE | KC-135R | BDA | C3 |
| | C-135 FR | BDA | C3 |
| | C-160 NG | POD | C3 |
| GERMANY | A-310 MRTT | HDU | C3 |
| ITALY | KC-767A | WARP | C3 |
| | | HDU | C3 |
| SWEDEN | C-130E (TP-84T) | POD | X |
| UNITED KINGDOM | VOYAGER KC2 / KC3 | WING PODS | X |
| | | FRU | 1) 2) 3) |
| USAF | KC-135R/T | BDA | C3 |
| | | MPRS | C3 |
| | KC-10A | CENTERLINE | C3 |
| | | WARP | C3 |

Key:

- X – Receiver has technical compatibility, no clearance with this equipment.
- Y – Receiver has clearance with this equipment, but not yet categorised.
- 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.

Notes:

- 1) Day only.
- 2) VMC only.
- 3) Technical compatibility would cover a CAT3 clearance.
- 4) Expired CAT1.

**APPENDIX B5 – ANNEX B TO NATIONAL SRD – SWITZERLAND
RECEIVER SPECIFIC AAR INFORMATION**

1. Swiss F/A-18 C/D receiver (also called SF/A-18).

1.1 AAR procedures.

According ATP-3.3.4.2.

1.2 Receiver aircrew AAR currency.

Aircrew shall have at least 1 contact in the last 6 months to be AAR current.

1.3 Fuel types.

Primary fuels:

- **F-34 = standard fuel**
- F-40
- F-44
- F-24

Alternate fuels, should be minimized, limited to maximum 10 hours flight time:

- F-35 / Jet A-1



CAUTION

If fuel other than F-34 is transferred: tanker shall inform Swiss receiver of the fuel type transferred for maintenance records.

1.4 Maximum fuel onload rate.

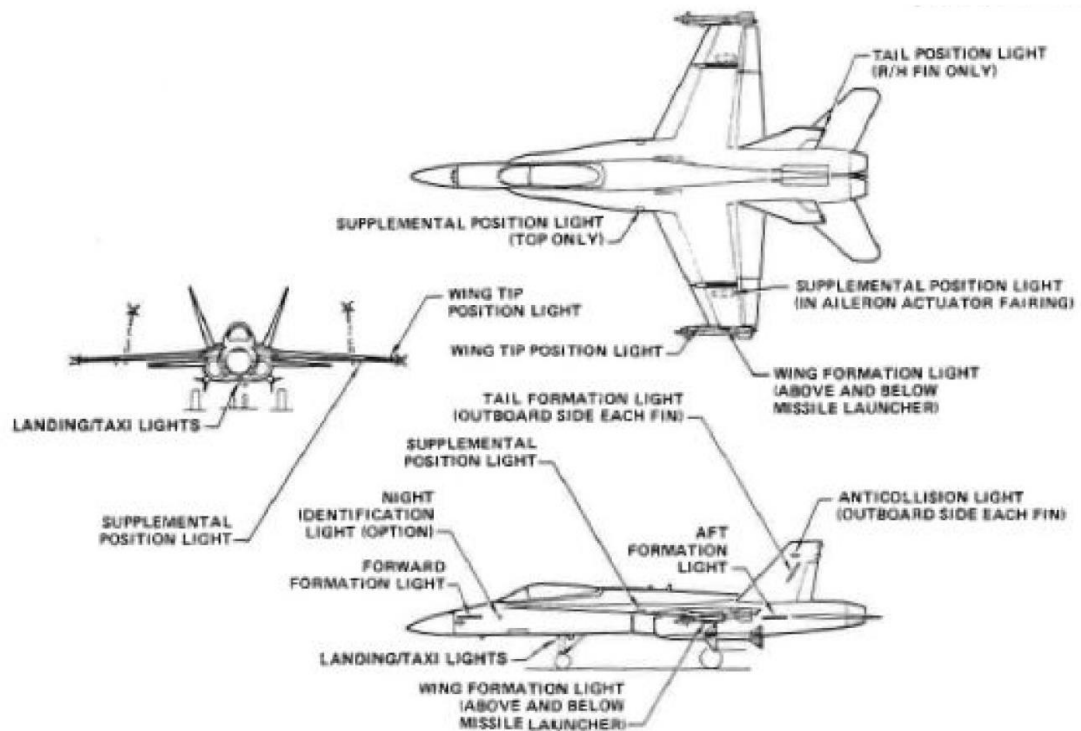
400 GPM at 55 PSIG.

1.5 RV aids.

The Swiss F/A-18 has following radio, navigation and RV aids:

- VHF, UHF, HQI, HQII
- Tacan, VOR/DME, INS, GPS
- AI radar, Link16, A/A Tacan, transponder-interrogator

1.6 Lighting.



1.7 F/A-18 AAR flight envelope limitations.

- Refueling probe extension/retraction: airspeed below 300 KCAS.
- Refueling probe extended: airspeed below 400 KCAS.
- Night refueling including night vision goggles (NVG) is currently not a requirement of the SAF and is therefore not part of armasuisse TCA's.
- **Recommended AAR airspeed is 275 kts or below.**



CAUTION

Tanking at 300 kts is possible but not recommended due to increased bow wave effect.

- **If not limited by tanker the following practical AAR envelope is covered:**

| Altitude | Speed |
|-------------------|-----------------|
| Harddeck to FL400 | 175 to 300 KCAS |

- **German A310 MRTT tanker specific limitations:**

| Altitude | Speed | Envelope |
|----------------|-------------------------|------------------|
| FL200 to FL300 | 230 to 300 KCAS | Core envelope |
| FL300 to FL350 | 250 to 300 KCAS or M0.8 | Caution envelope |

- **Italian KC-767A tanker specific limitations:**

| Altitude | Speed | Envelope |
|----------------|-------------------------|------------------|
| FL100 to FL180 | 220 to 320 KCAS | Core envelope |
| FL180 to FL300 | 240 to 300 KCAS | Core envelope |
| FL180 to FL330 | 220 to 240 KCAS | Caution envelope |
| FL300 to FL330 | 240 to 300 KCAS | Caution envelope |
| FL180 to FL330 | 300 to 320 KCAS or M0.8 | Caution envelope |

No parallel usage of WARP and HDU possible!

- **USAF KC-10A tanker specific limitations:**

| Altitude | Speed | System |
|----------------|-------------------------|------------|
| FL100 to FL350 | 200 - 275 KIAS or M0.8 | Centerline |
| FL100 to FL320 | 230 - 300 KIAS or M0.86 | WARP |

Closure rates 1-3 ft/sec.

- **USAF KC-135R/T tanker specific limitations:**

| Altitude | Speed | System |
|----------------|-------------------------|--------|
| FL100 to FL285 | 200 - 275 KIAS or M0.8 | BDA |
| FL100 to FL350 | 220 - 300 KIAS or M0.86 | MPRS |

Closure rates 1-2 ft/sec.

- **Swedish C-130E (TP-84T) tanker specific limitations:**

| Altitude | Speed |
|----------------|-----------------|
| FL050 to FL250 | 220 to 250 KCAS |

Maximum closure rate 4 kts.

• **UK Voyager KC2 / KC3 tanker specific limitations, wings PODS only:**

| Altitude | Speed |
|----------------|-----------------|
| FL150 to FL300 | 275 to 300 KCAS |

- Closure rates 1-3 kts.
- Wing pods only.
- VMC day only (IMC tanking is prohibited, NVG formation or refueling is prohibited).
- The maximum AOB is 30°.
- AAR engagement during tanker bank angle changes is prohibited.
- No single engine refueling.
- The Voyager LAIRCM system is to be switched into STBY or OFF during AAR.
- Voyager HF radios are to be switched OFF during AAR.
- Use SRD-UK Annex A for further reference describing the Voyager Tanker.
- **Recommended AAR speed and altitude: 275KCAS and FL200.**



CAUTION

Tanking in turbulence is not recommended due to hose and drogue vertical and lateral oscillations which can significantly increase pilot workload. Missed drogue engagements are likely and can result in damage to pitot static and AOA probes, radome, windscreen, etc. Test results indicate that drogue oscillations up to three drogue diameters vertically and up to one drogue diameter laterally can develop even in very light turbulence. The effect is pronounced at higher speeds.

Notes:

- Wake surveys revealed a tendency for the receiver aircraft to roll towards the tanker which requires pilot compensation. A significant lateral trim change away from the tanker is required to maintain wings level.
- Tanker wing dihedral can create a false horizon. A slow rate of lateral closure towards the tanker may develop due to alignment with the tanker wing. Lateral control inputs and subsequent pilot workload may increase.

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