



Airworthiness Determination Form (ADF)

1. Project Information.

This form is intended to be filled out electronically and converted to .pdf format. The Word document should be pre coordinated by the signatories before the conversion. Signatures can be added to the .pdf document electronically.

1.1 Date: **Date of Recommendation**

1.2 Prepared By:

1.3 Platform:

1.4 Project Title:

1.5 Requirement:

Cite document driving the change (e.g., UON, ORD, CDD/CPD, AF1067, ECP, LOA, OFP/SW change list, or notification from ARCA of airworthiness impact due to Aerial Refueling coupling air system)

1.6 Modification Description *(Applicant should use as much space as needed):*

2. Airworthiness Impact Assessment.

This section not required if driving requirement in 1.5 is notification of airworthiness impact from ARCA, as defined in AWB-320, Aerial Refueling (AR).

2.1 Airworthiness impact questions (AWB-007):

A positive response is a good indicator of an Airworthiness impact but is not the final decision.

Yes/No

- Y/N 1) Does the approved certification basis (applicable criterion, standards and methods of compliance) need to be updated (*refer to Section 3.1*)?
- Y/N 2) Is re-accomplishment of verification activities required to show compliance to the certification basis?
- Y/N 3) Have any existing safety hazards been impacted or have new safety hazards been identified?
- Y/N 4) Are any safety-/flight-critical items, logic and/or functions impacted?
- Y/N 5) Is analysis/test/simulation/demonstration required to assess the change?
- Y/N 6) Is formal flight test required?
- Y/N 7) Does the operational usage change?
- Y/N 8) Does the flight envelope change?
- Y/N 9) Does the service life change?
- Y/N 10) Does this require a new Mission Design Series (MDS)?

2.2 Does this modification impact airworthiness?

The final impact assessment is a judgment made by the CE/DTA with DOE/DTA oversight.

Y/N

2.3 Does this modification potentially impact airworthiness of any coupling air system?

Use Attachment 2 of Airworthiness Bulletin 320, Aerial Refueling (AR), to assess potential airworthiness impact to coupling air systems.

If “Yes Impact” the CE must obtain ARCA signature in Section 5. In cases of uncertainty, contact ARCA for assistance.

Y/N

2.4 If there is a “No Impact” determination and a positive response to one of the above questions; provide rationale for decision below.

If “No Impact” to both 2.2 and 2.3, the CE must sign Section 5 which makes this form complete and no other signatures are required. This form must then be forwarded to the DOE for record.

If “Yes Impact” to 2.2, leave this area blank and continue with Section 3.

If “Yes Impact” to 2.3, the CE must obtain ARCA signature in Section 5.

3. Reportability Determination.

Reportability Determination is explained in AWB-007.

3.1 Modification Assessment Matrix:

Col. 2 – Identify MIL-HDBK-516C sections that will be impacted with modification.

Col. 3 – Provide brief description of change that affects criteria within MIL-HDBK-516C.

Col. 4 - Identify credible hazards for each section which will be rolled up into one AW Hazard Index (AWHI).

Col. 5 - Identify one AW Hazard Index (AWHI) associated with summation of hazards for section as defined in AWB-013.

Col. 6 - Identify the name of person making hazard recommendation, per Function.

Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
Impacted MIL-HDBK-516 Sections	Description of Impact to MIL-HDBK-516 Criteria	Summation of Credible Hazard(s) for Section	AWHI	Name Subject Matter Reviewer
4 - Systems Engineering 4.1 <input type="checkbox"/> Design criteria 4.2 <input type="checkbox"/> Tools and databases 4.3 <input type="checkbox"/> Materials selection 4.4 <input type="checkbox"/> Manufacturing and quality 4.5 <input type="checkbox"/> Op. & maint. manuals/TOs 4.6 <input type="checkbox"/> Configuration management				
5 - Structures 5.1 <input type="checkbox"/> Loads 5.2 <input type="checkbox"/> Structural dynamics 5.3 <input type="checkbox"/> Strength 5.4 <input type="checkbox"/> Damage tolerance and durability (fatigue) 5.5 <input type="checkbox"/> Mass properties 5.6 <input type="checkbox"/> Flight release 5.7 <input type="checkbox"/> Force Management				

Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
Impacted MIL-HDBK-516 Sections	Description of Impact to MIL-HDBK-516 Criteria	Summation of Credible Hazard(s) for Section	AWHI	Name Subject Matter Reviewer
6 - Flight Technology 6.1 <input type="checkbox"/> Flying qualities 6.2 <input type="checkbox"/> Vehicle control functions 6.3 <input type="checkbox"/> Air vehicle aerodynamics and performance				
7 - Propulsion 7.1 <input type="checkbox"/> Propulsion risk management 7.2 <input type="checkbox"/> Gas turbine engine applications 7.3 <input type="checkbox"/> Alternate propulsion systems				
8 - AV Subsystems 8.1 <input type="checkbox"/> Hydraulic/pneumatic systems 8.2 <input type="checkbox"/> Environmental control system 8.3 <input type="checkbox"/> Fuel system 8.4 <input type="checkbox"/> Fire and hazard protection 8.5 <input type="checkbox"/> Landing gear and deceleration systems 8.6 <input type="checkbox"/> Auxiliary/emergency power system(s) 8.7 <input type="checkbox"/> Aerial refueling 8.8 <input type="checkbox"/> Mechanisms 8.9 <input type="checkbox"/> External cargo hook systems (rotary wing) 8.10 <input type="checkbox"/> External rescue hoist (rotary wing) 8.11 <input type="checkbox"/> Fast rope insertion/extraction systems (FRIES) (rotary wing)				

Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
Impacted MIL-HDBK-516 Sections	Description of Impact to MIL-HDBK-516 Criteria	Summation of Credible Hazard(s) for Section	AWHI	Name Subject Matter Reviewer
9 - Crew Systems 9.1 <input type="checkbox"/> Escape and egress system 9.2 <input type="checkbox"/> Crew/control stations & a/c interiors 9.3 <input type="checkbox"/> Air vehicle lighting 9.4 <input type="checkbox"/> Human performance 9.5 <input type="checkbox"/> Life support systems 9.6 <input type="checkbox"/> Transparency integration 9.7 <input type="checkbox"/> Crash survivability 9.8 <input type="checkbox"/> Lavatories, galleys, and areas not continuously occupied				
10 - Diagnostic Systems 10.1 <input type="checkbox"/> Failure modes 10.2 <input type="checkbox"/> Operation				
11 - Avionics 11.1 <input type="checkbox"/> Avionics architecture 11.2 <input type="checkbox"/> Avionics subsystems 11.3 <input type="checkbox"/> Air vehicle avionics				
12 - Electrical Systems 12.1 <input type="checkbox"/> Electric power generation sys 12.2 <input type="checkbox"/> Electrical wiring/power distr.				
13 - EMI/EMC 13.1 <input type="checkbox"/> Component/subsystem E ³ qual 13.2 <input type="checkbox"/> System-level E ³ qual				
14 - System Safety 14.1 <input type="checkbox"/> System safety program 14.2 <input type="checkbox"/> Safety design requirements 14.3 <input type="checkbox"/> Software safety program				

Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
Impacted MIL-HDBK-516 Sections	Description of Impact to MIL-HDBK-516 Criteria	Summation of Credible Hazard(s) for Section	AWHI	Name Subject Matter Reviewer
15 – Computer Resources 15.1 <input type="checkbox"/> System processing architecture 15.2 <input type="checkbox"/> Design and functional integration 15.3 <input type="checkbox"/> Processing hardware/electronics 15.4 <input type="checkbox"/> Software development processes 15.5 <input type="checkbox"/> Software architecture/design 15.6 <input type="checkbox"/> Software qualification/install				
16 - Maintenance 16.1 <input type="checkbox"/> Maintenance manuals/checklists 16.2 <input type="checkbox"/> Inspection requirements				
17 - Armament/ Stores Integration 17.1 <input type="checkbox"/> Gun/rocket integration and interface 17.2 <input type="checkbox"/> Stores integration 17.3 <input type="checkbox"/> Laser integration 17.4 <input type="checkbox"/> Safety interlocks				
18 - Passenger Safety 18.1 <input type="checkbox"/> Survivability of passengers 18.2 <input type="checkbox"/> Fire resistance 18.3 <input type="checkbox"/> Physiology requirements of occupants				

Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
Impacted MIL-HDBK-516 Sections	Description of Impact to MIL-HDBK-516 Criteria	Summation of Credible Hazard(s) for Section	AWHI	Name Subject Matter Reviewer
20 – Air Transportability, Airdrop, Mission/Test Equipment and Cargo/Payload Safety 20.1 <input type="checkbox"/> Air transportability & airdrop 20.2 <input type="checkbox"/> Mission/test equipment operations and installation				

3.2 Based on the above assessment what is the overall risk hazard index for this mod?

The overall modification AWHI is typically the worst of all the sections, however, as several hazards are combined, the resultant overall AWHI could be more extreme due to the interaction between system/subsystem updates as described in AWB-007.

HAZARD CATEGORIZATION		SEVERITY*			
		CATASTROPHIC (1)	CRITICAL (2)	MARGINAL (3)	NEGLIGIBLE (4)
F R E Q U E N T Y	FREQUENT (A) = or > 100/100K fit hrs	1	3	7	13
	PROBABLE (B) 10-99/100K fit hrs	2	5	9	16
	OCCASIONAL (C) 1.0-9.9/100K fit hrs	4	6	11	18
	REMOTE (D) 0.01-0.99/100K fit hrs	8	10	14	19
	IMPROBABLE (E) = or < 0.01/100K fit hrs	12	15	17	20

*Severity is the worst credible consequence of a hazard in terms of degree of injury, property damage or effect on mission defined below:

- (1) **Catastrophic:** Class A (damage > \$2M / fatality / permanent total disability / loss of Aircraft)
- (2) **Critical:** Class B (\$500K < damage < \$2M / permanent partial disability / hospitalization of 5 or more personnel)
- (3) **Marginal:** Class C (\$50K < damage < \$500K / injury results in 1 or more lost workdays)
- (4) **Negligible:** All other injury/damage less than Class C

Overall Modification AWHI

Reportable AWHI 1-9

4. Airworthiness Plan.

Airworthiness Plan is explained in AWB-002 if plan is not available then explain why in Section 4.2.

4.1 Airworthiness Schedule.

- Certification Basis Submittal Date (*estimate*) **Cert Basis**

- Contract Award (M/S B, EMD) **Contract Award**

- Experimental Flight Release Basis (EFRB) Submittal (*estimate*) **EFRB**

- EFRB Compliance Submittal (*estimate*) **EFRB Submittal**

- First Flight Date for testing **First Flight**

- Is DT/OT combined? **Y/N**
 - If No, OTRR Date **OTRR**
 - If Yes, FRP Decision Date **FRP**

- Final Airworthiness Approval (Final Compliance) **Final Approval**
Should be no later than OTRR or FRP Date above

- IOC/RAA **IOC/RAA**
To establish the program completion date.

4.2 Describe the Airworthiness Approach.

- *What existing airworthiness certifications will be utilized (i.e. USAF MTC, FAA Cert, cert from other branch of US military)*
- *How will testing be conducted? Will Operational Testing and Developmental Testing be combined?*
- *Are there other important dates or events that will impact the airworthiness approval schedule?*
- *If Reportable, are there any special arrangements that need to be made for SMEs to review artifacts?*
- *Will cert basis be approved before Milestone B/EMD Contract Award? If not why?*
- *Identify if the certification basis and Experimental Flight Release Basis (EFRB) will be submitted for review with one TACC/MACC*
- *How will your program address other airworthiness related certifications (e.g. Aerial Refueling, SEEK EAGLE, NNMSB, etc.)?*

Airworthiness Approach (*Applicant should use as much space as needed to explain AW approach or if no plan at this time, explain why*):

5. Airworthiness Approvals.

5.1 Impact and Reportability Signature Block

This is my recommendation of the Impact Assessment and Reportability Determination. I also declare that the information provided herein is accurate and complete. This document will be attached to the program LCMP IAW AWB-002 and the [EN/EZ Project Tracker](#) will be completed for Reportable Modifications and delivered to USAF Airworthiness office a minimum of 30 days prior to Certification Basis submission.

	Office	Signature	Date
CE/DTA Y/N AW Impact Y/N Reportable			

5.2 Aerial Refueling Certification Agency (ARCA) Signature Block.

(Required if “Yes Impact” response to Section 2.3 or if MIL-HDBK-516 paragraph 8.7 was checked in Section 3.1. Send ADF to USAF.ARCA@us.af.mil)

	Office	Signature	Date
AR DTA Y/N Coupling/AR Impact			

5.3 Airworthiness Plan Signature Block.

I concur with the Airworthiness Plan presented herein and will ensure its implementation.

	Office	Signature	Date
SPM Or Delegate			

5.4 Technical Authority Signature Block.

I understand the modification described herein and concur with the assessments.

	Office	Signature	Date
DoE/DTA Y/N Reportable			
TAA Only if Reportable			

5.5 Additional comments, restrictions or delegations from signatories.