SFAR 88 MAINTENANCE TASKS

AIRWORTHINESS LIMITATION ITEMS (ALI)

INTERVAL PROPOSAL

PREPARED BY AIRLINES

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1. Background

During the All Model ISC SFAR88/EZAP Meeting, dated 31 Jul & 1-4 Aug 06, Boeing, operators, and regulatory agencies have discussed maintenance significant items (MSI) and enhanced zonal analysis program (EZAP). In the SFAR 88 ICA Fuels Working Group Meeting - 20&21 Apr 05 the SFAR 88 working group discussed airworthiness limitation items (ALI).

Operators, which have participated in the All Model ISC SFAR88/EZAP Meeting, dated 31 Jul & 1-4 Aug 06, have indicated that they see inconsistencies with interval within the three different processes. Operators do understand that the ALI process is a mandatory driven process and therefore ALI intervals could deviate from the two other processes, however, they have requested Boeing to line up all intervals within the same cycles.

Boeing has indicated to have no objection to revising these intervals to better fit operator's maintenance programs. And Boeing is willing to propose this revision to the FAA. To do so, Boeing needs input from operators to support the reason for revision. In verbal communications with FAA Seattle certification office, the FAA indicated they are willing to consider a revision if a good substantiation is provided.

2. Requested Operator Action

The attending operators of the All Model ISC SFAR88/EZAP Meeting, dated 31 Jul & 1-4 Aug 06, and the SFAR 88 ICA Fuels Working Group Meeting - 20&21 Apr 05, were requested to provide input, including substantiating data. In total 12 operators provided input; 7 US based Airlines, 3 European Airlines, and 2 Asian Pacific Airlines. These operators are representing a fleet[1] of:

572 B737-300/-400/-500 series airplanes
532 B737-600/-700/-800/-900 series airplanes
61 B747-100/-200/-300 series airplanes
213 B747-400 series airplanes
398 B757 series airplanes
218 B767 series airplanes
206 B777 series airplanes

3. Current Intervals

An overview of all SFAR 88 available maintenance tasks (AWL, MSI an EZAP)[2] are provided in Appendix A.

[1] Fleet statistics as of September 2006

[2] AWL = Airworthiness Limitation; MSI = Maintenance Significant Item; EZAP = Enhanced Zonal Analysis Procedure

4. Proposed Intervals

For those tasks the FAA intention is to perform them during a heavy maintenance visit (D-check), the operators propose to use the following intervals:

Aircraft Type	Tasks	Current Interval	Proposed Interval[3]
B737-300/-400/-500	AWL	10yr/36000FC	**12YR**
	MSI	12Yr	12Yr
	EZAP	12Yr/36000FC[4]	12Yr
B737-600/-700/-800/-900	AWL	10yr/36000FC	**12YR**
	MSI	12Yr	12Yr
	EZAP	12Yr/36000FC	12Yr
B747-100/-200/-300	AWL	12yr/36000FH	**12YR**
	MSI	2D	2D
	EZAP	2D[4]	2D
B747-400	AWL	12yr/36000FH	**16YR**
	MSI	2D	2D
	EZAP	2D	2D
B757	AWL	10yr/36000FC	**12YR**
	MSI	8C	8C
	EZAP	6C	**8C**
B767	AWL	12yr/36000FH	**12YR**
	MSI	8C	8C
	EZAP	6C	**8C**
B777	AWL	16000FC / 3000DY	**6000DY**
	MSI	4500DY	**6000DY**
	EZAP	24000FC / 4500DY	**6000DY**

In Appendix B a detailed overview is given with the operators proposed intervals per AWL task.

5. Utilization and Maintenance Interval

In the table below high average utilization and maintenance intervals is provided. These intervals are based on inputs[5] from the operators.

	Yearly utilization	A-check Interval	C-check Interval	D-check Interval
	FH / FC	FH / Cal* / FC	FH / Cal* / FC	FH / Cal* / FC
B737CL	2500 / 1800	550 / - / -	4000 / 18M / 4000	24000 / 96M / -
B737NG	3200 / 1800	675 / 3M / 400	6000 / 24M / 3300	- / 72M / -
B747CL	4800 / 1250	675 /	- / 18M / -	- / 72M / -
B747-400	5200 / 750	850 / - / -	- / 24M / -	- / 96M / -
B757	4000 / 2000	650/ - / -	6000 / 18M / 3000	24000 / 72M / 12000
B767	5000 / 1375	770 / - / 250	- / 18M / 3000	24000 / 72M / 12000
B777	5500 / 700	1200 / 75DY / 200	- / 750DY / -	- / 4500DY / -

*Calendar intervals

[3] Except for those tasks that have a significant lower interval, like the 1 yr tasks.

[4] Existing intervals in MPD

[5] These inputs are not provided within this document, because some operators consider this information as confidential.

6. Substantiation

Operators have submitted the following general points of concern:

1) *Minimizing the number of tank entries.*

   Operators want to perform all tank entry tasks in one maintenance visit. This will reduce the number of tank entries and the risk of damaging the fuel tank and its systems to a bare minimum.

   During many meetings with Boeing and that FAA, the FAA have always indicated that minimizing of the numbers of tank entries is one of the major points to reduce maintenance induced errors. Maintenance induced error (human factors), in respect to fuel tank ignition sources, is one of the major concerns of the FAA.

2) *Use the longest intervals possible.*

   This ensures that all operators can perform the tasks in their heavy maintenance visits (D-checks). Some AWLs currently have intervals lower than current heavy maintenance intervals used by some operators. These lower intervals will force operators to de-escalate their maintenance interval or to perform the tasks in a lighter maintenance visit prior to the heavy maintenance visit. With the result that fuel tank must be entered twice in a relative short period, with a higher risk of damage to the fuel tank or its systems. In addition, in case errors are found there will be no time to correct them in the planned ground time (most times lighter maintenance visits have a ground time of 5-7 days).

3) *Incorrect intervals*

   Operators have recognized that the year interval and the flight hour or flight cycle interval do not match. For instance on the 747-400 the average yearly utilization is above 5000 FH per year. With the 10-year and 36000FH interval for the AWLs this means: 36000FH/5000FH = 7.2 years or less. The operators understood that the FAA intention is to perform those tasks every 2D. With the current intervals this means that all operators will perform them every D-check.

   It should also be noted that the 747-400 D-check interval is 6 or 8 years (most operator use 8 years for the first D-check and subsequently 6 years. However, operators are in the process to escalate all D-checks to 8 years.

   On the 737-600/-700/-800/-900 and 747-400 fleets many operators already escalated the C-check to 24 months. Therefore, for the proposed interval for AWL tasks with an interval of 1 YR and 18 MO, the operators propose to use a 24 MO interval.

4) *The use of FH or FC*

   Operators do not understand why the B737/B757 airplanes are using FC and the B747/B767 airplanes are using FH for similar AWL tasks. When looking to the AWL tasks operator believe that these tasks are either FC or FH related. Therefore the operators propose to use only calendar time without FC or FH.

5) Using the same philosophies for all the models and treat them equally.

   Operators have noticed that not all models are treated the same. The newest models have the lowest intervals, like the B777 airplane models intervals are equal to only one heavy maintenance visit, while the B747CL airplane models intervals are set to meet two heavy maintenance visits. Therefore, the operators propose to use for the B777 airplane models an interval of 6000 days (equal two 8 years), which meets two heavy maintenance visits.

In Appendix C all original comments are listed from the operators. The operator responses / comments to the SFAR 88 ICA Fuels Working Group Meeting of 20 & 21 April 2005 are listed in Appendix D.

7. Request

Boeing is requested to review the operator comments and submit the comments to the FAA with the request to line up the AWL intervals as proposed in Appendix B.

APPENDIX A – Current Intervals

B737 -100/-200/-300/-400/-500 series airplanes:

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	10 Yrs/ 36000 FC
28-AWL-03	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pin 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	10 Yrs/ 36000 FC

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-030	FC	Functionally check (resistance measurement) the bonding between the overwing filler and the structure. (SFAR 88)	12 YR
28-35	FC	Functionally check (resistance measurement) the bonding resistance between the hydraulic line fitting at the fuel tank wall penetrations and the adjoining structure. (SFAR 88)	12YR
28-040	FC	Functionally check (resistance measurement) the bonding resistance between the sump drain valves and the adjoining structure. (SFAR 88) Airplane Note: The main tank sump drain valves only.	12 YR
28-008	FC	Inspect (detailed) the in-tank tubing and bonding straps for damaged or degraded bonding components. (SFAR 88)(existing EPAA MRB item 28-008 (Cat. 8) covers this task adequately)(new MRB item will also be added to Non-EPAA MRB to cover this task)	12 YR
28-003	D1	Functionally check (resistance measurement) the bonding resistance between the pressure relief valve and the structure. (SFAR 88)	12 YR
28-005	FC	Functionally check (resistance measurement) the bonding between the lower air vent stack and the door structure. (SFAR 88)	12 YR
28-045	FC	Functionally check (resistance measurement) the bonding of fueling shutoff valve solenoid to adjoining structure. (SFAR 88)	12 YR
28-050	FC	Functionally check (resistance measurement) the bonding between the fueling receptacle (manifold) and the structure.	12 YR
28-065	FC	Functionally check (resistance measurement) the bonding between the center/auxiliary tank boost pump motor housing and structure. (SFAR88)	12 YR
28-012	FC	Functionally check (resistance measurement) fuel pumps bond resistance to structure. (SFAR 88) **(existing MRB item 28-012 (Cat. 8) covers this task adequately)** (Non EPAA airplanes will have a similar task in the MPD)	6 YR
28-060	FC	Functionally check (resistance measurement) motor operated valve bond resistance to structure. (Perform task outside tank.) (SFAR 88)	12 YR
28-010	DI	Inspect (detailed) the fuel boost pump wires. (SFAR88)	30,000 FHR
28-016	FC	Functionally check (resistance measurement) the APU DC Fuel Pump motor bonding strap (If installed). (SFAR 88) **(existing MRB item 28-016 (Cat. 8) covers this task adequately)** (Non EPAA airplanes will have a similar task in the MPO)	6YR
28-055	FC	Functionally check (resistance measurement) the bonding resistance between the APU shutoff valve actuator and adjoining structure. (SFAR88)	12 YR
28-020	DI	Inspect (detailed) the in-tank FQIS wire harnesses support for damage and proper security. **(existing MRB item 28-020 (cat 8) will be revised with this task description.)**	12 YR
28-025	DI	Inspect (detailed) the in-tank FQIS components for chaffing, rubbing, or contact with structure and condition for security.	12 YR
28-070	FC	Functionally check (resistance measurement) out tank FQIS wire bundle lightning shield to ground termination.	12 YR

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Type**	**Description**	**Interval**
		NO NEW EZAP TASKS	

B737-600/-700/-800/-900 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	10 Yrs/ 36000 FC
28-AWL-03	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pin 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	10 Yrs/ 36000 FC
28-AWL-19	ALI	Functionally check the center tank Fuel Boost Pump Automatic Shutoff System per Boeing AMM 28-22-00.	1 YR
28-AWL-23	ALI	Verify continued functionality of the center tank fuel boost pump Power Failed On Protection System.	1 YR

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-11/ 28-201-00	FNC	Functionally check (resistance measurement) the bonding resistance between the hydraulic line fitting at fuel tank wall penetrations and adjoining the structure. (SFAR 88)	12 YR
28-11/28-202-00	FNC	Functionally check (resistance measurement) the bonding resistance between the sump drain valves and the adjoining structure. (SFAR 88) Airplane Note: The main tank sump drain valves only.	12 YR
28-13/ 28-204-00	FNC	Functionally check (resistance measurement) the bonding between the lower air vent stack and the door structure. (SFAR 88)	12 YR
28-13/ 28-205-00	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR 88)	12YR
28-21/ 28-207-00	FNC	Functionally check (resistance measurement) the bonding of the fueling shutoff valves actuator (solenoid) to the adjoining structure.(SF AR 88)	12YR
28-21/ 28-208-00	FNC	Functionally check (resistance measurement) the bonding between the fueling receptacle (manifold) and the structure.	12 YR
28-22/ 28-211-00	FNC	Functionally check (resistance measurement) the bonding between motor operated valve actuator and adjoining structure. (SFAR 88)	12 YR
28-25	FNC	Functionally check (resistance measurement) the bonding resistance between the APU shutoff valve actuator and adjoining structure. (SFAR88)	12 YR
28-41/ 28-170-00	DET	Inspect (detailed) the in-tank FQIS wire harnesses support for damage and proper security. (SFAR 88) **(Existing MRB item 28-170-00 (cat 8) will be revised with this task description.)**	10 YR
28-41/ 28-171-00	DET	Inspect (detailed) the in-tank FQIS components for chaffing, rubbing, or no contact with structure and condition for security. (SFAR 88) **(Existing MRB 28-170-00 covers this task adequately. For accountability and visibility purpose, this task is separated from existing 28-170-00 as stand alone task)**	10 YR
28-41/ 28-173-00	FNC	Functionally check (resistance measurement) out tank FQIS wire bundle lightning shield to ground termination. (SFAR 88)	12 YR

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
	131/132	Center Section Wing Box	12 YR/ 36.000 FC
	531/631	Center Fuel Tank - Left and Right Wings	12 YR/ 36.000 FC
	532/632	Main Tank - Left and Right Wings	12 YR/ 36.000 FC
	533/633	Surge Tank - Left and Right Wings	12 YR/ 36.000 FC

B74 7 -100/-200/-300 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	10 Yrs/ 36000 FH
28-AWL-03	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pIn 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	10 Yrs/ 36000 FH
28-AWL-9	ALI	Functional check of the in board main tank fault current interrupter	18 MO
28-AWL-13	ALI	Fault Current Bonding check of Center Wing Tank Fueling Valve	10 Yrs/ 36000 FH

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-11-1 28-120	FNC	Functionally check (resistance measurement) the bonding between the overwing filler and the structure. (SFAR 88)	2D
28-11-4 28-125	FNC	Functionally check (resistance measurement) the bonding between the hydraulic tube spar penetration and the structure. (SFAR 88)	2D
28-13-1 28-130	DET	Detailed Visual Inspection of in-tank tubing and equipment static ground straps and clamps for condition, security and other degradation. (SFAR88)	2D
28-13-2 28-135	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR 88)	2D
28-21-3 28-140	FNC	Functionally check (resistance measurement) the bonding between the overfill float switch and the structure. (SFAR 88) Note: FNC accomplished in MSI28-21-3.	2D
28-15-2 28-150	FNC	Functionally check (resistance measurement) the electric scavenge pump fault current bond. (SFAR 88) (combined tasks 28-15-2 and 28-15-3) Note: Not applicable to aircraft with hydro-mechanical scavenge pumps.	2D
28-15-3 28-150	FNC	Functionally check (resistance measurement) the bonding between the electric scavenge pump and the structure.(SFAR88) (combined tasks28-15-2 and 28-15-3) Note: Not applicable to aircraft with hydro-mechanical scavenge pumps.	2D
28-21-2 28-160	FNC	Functionally check (resistance measurement) the bonding of the fuel shutoff valve(s) housing to the outside of the fuel tank. (SFAR88)	2D
28-21-3 28-165	FNC	Functionally check (resistance measurement) the surge tank float switch fault current bonding. (SFAR88)	2D
28-21-4 28-170	FNC	Functionally check (resistance measurement) the bonding between the fueling receptacle and the structure to ensure it is within in-service limits. (SFAR88)	2D
28-21-4 28-022	FNC	Functionally check (resistance measurement) the bonding between the fueling receptacle and the structure to ensure it is within in-service limits. (SFAR 88)	2D
28-22-7 28-205	FNC	Functionally check (resistance measurement) the bonding between the motor operated valve and structure to ensure it is within in-service limits.(SFAR 88)	2D
28-22-9 28-210	FNC	Functional Check (Resistance Measurement) of the Boost and override/jettison pump motor housing to the structure. (SFAR88) Note: Same task as MSI 28-22-5	2D
28-22-10 28-215	FNC	Functionally Check (Resistance Measurement) the bonding between the motor operated valve and structure. (SFAR 88) Note: Same task as MSI 28-22-6.	2D
28-25-2 28-225	FNC	Functionally check (resistance measurement) the APU DC Fuel Pump motor housing bonding strap(s) outside the fuel tank. (SFAR88)	2D
28-25-3 28-230	FNC	Functionally check (resistance measurement) the APU fuel shutoff valve housing bonding strap(s) outside the fuel tank. (SFAR88)	2D
28-31-2 28-245	FNC	Functional Check (Resistance Measurement) the jettison nozzle valve fault current bonds. (SFAR88)	2D
28-31-3 28-250	FNC	Functional Check (Resistance Measurement) the jettison transfer valve fault current bonds. (SFAR88)	2D
28-31-4 28-255	FNC	Functional Check (Resistance Measurement) the jettison nozzle bonding straps and the structure to ensure it is within in-service limits. (SFAR88)	2D
28-41-1	DET	Inspect (detailed) the in-tank FQIS wire harness support for damage and proper	2D

28-260		security. (SFAR88)	
28-41-2 28-115	DET	Inspect (detailed) the in-tank FQIS components for condition / security, chaffing, rubbing, and adequate separation from structure. (SFAR88) NOTE: 28-115 is an existing MRB Task that will be revised to reflect current findings. (SFAR88)	2D
28-41-3 28-265	FNC	Functionally check (resistance measurement) the Out of Tank FQIS Wire Bundle Lightning Shield to Ground Termination bond. (SFAR 88)	2D

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
	131/132	Center Section Wing Box (STA 1000 to STA 1241)	1D-2D
	541/641/ 542/642	Wing - Inboard Main Fuel Tank (No.2 Left, No.3, Right)	1D-2D
	543/643/ 546/646	Wing - Outboard Main Fuel Tank (No.1 Left, No.4, Right)	1D-2D
	553/653	Wing - Reserve Fuel Tank Front Spar to Rear Spar	1D-2D
	554/654	Dry Bay - Front Spar To Rear Spar WS1280 to WS 1485 (or reserve tanks no. 2 & no. 3 if installed)	1D-2D
	555/655	Surge Tank Front Spar to Rear Spar	1D-2D

B747-400 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01		Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	10 Yrs/ 36000 FH
28-AWL-03		1. Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2. Using Loop Resistance Tester pin 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	10 Yrs/ 36000 FH
28-AWL-10		Inspect the Fault Current Bond of the Center Wing Tank Fueling Valve	10 Yrs/ 36000 FH
28-AWL-17		Functional check of the Fault Current Detector for CWT and Inboard Main Tank Override/Jettison Pumps and HST Transfer Fuel Pumps	18 MO
28-AWL-13		Operational check of the Fuel Override/Jettison Pump, Fuel Boost Pump, and *A/C* Scavenge pump Ground Fault Interrupter (GFI)	1YR

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-11-1 / 28-011-01	FNC	Functionally check (resistance measurement) the bonding between the overwing filler and the structure. (SFAR 88)	2D
28-11-4/ 28-011-02	FNC	Functionally check (resistance measurement) the bonding between the hydraulic tube spar penetration and the structure. (SFAR 88)	2D
28-11-6/ 28-011-03	FNC	Functionally check (resistance measurement) the electric sump drain valve fault current bond for the HST and aux tank. (SFAR88)	2D
28-13-1/ 28-013-02	DET	Detailed Visual Inspection of in-tank tubing and equipment static ground straps and clamps for condition, security and other degradation. (SFAR88)	2D
28-13-2/ 28-013-03	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR 88)	2D
28-21-3 / 28-013-04	FNC	Functionally check (resistance measurement) the bonding between the overfill float switch and the structure. (SFAR 88) Note: FNC accomplished in MSI28-21-3.	2D
28-15-2/ 28-015-02	FNC	Functionally check (resistance measurement) the electric scavenge pump fault current bond. (SFAR 88) (combined tasks 28-15-2 and 28-15-3) Note: Not applicable to aircraft with hydro-mechanical scavenge pumps.	2D
28-15-3/ 28-015-02	FNC	Functionally check (resistance measurement) the bonding between the electric scavenge pump and the structure.(SFAR88) (combined tasks28-15-2 and 28-15-3) Note: Not applicable to aircraft with hydro-mechanical scavenge pumps.	2D
28-17-1/ 28-017-05	DET	Inspect (detailed) the in-tank tubing and component static bonding straps and clamps for condition, security and other degradation. (SFAR88) Note: Complete and active HS tanks. Note: Same task as MSI 28-13-1/28-013-02. **Supersedes MRB 28-017-03. Interval: 2D; FEC: 8.**	2D
28-17-2/ 28-017-06	FNC	Functionally check (resistance measurement) the HST Boost Pump motor housing bonding strap(s). (SFAR88) **Supersedes MRB 28-017-04. Interval: 1D; FEC: 8.** Note: Complete and active HS tanks.	2D
28-17-3/ 28-017-07	FNC	Functionally check (resistance measurement) the HST override solenoid valve bonding resistance. (SFAR88) Note: Complete and active HS tanks.	2D
28-17-4/ 28-017-08	FNC	Functionally check (resistance measurement) the HST isolation valve bonding resistance. (SFAR88) Note: Complete and active HS tanks.	2D
28-17-5/ 28-017-07	FNC	Functionally check (resistance measurement) the HST refuel valve bonding resistance. (SFAR88) **Supersedes the following MRB tasks:** **1) MRB 28-017-04 (Interval: 1D; FEC: 8)** **2) MRB 28-021-03 (Interval: 2D; FEC: 8)** Note: Complete and active HS tanks.	2D
28-21-2/	FNC	Functionally check (resistance measurement) the bonding of all fuel shutoff valve(s)	2D

28-021-07		housing bonding strap(s) outside of the fuel tank. (SFAR88) Note: Center winq tank fuelinq shutoff valve fault current bond task is alreadv accomplished by airworthiness limitation task 28-AWL-10. **Supersedes the following MRB tasks:** **1) MRB 28-021-02. Interval: 2D; FEC: 8.** **2) MRB 28-021-04. Interval: 2D; FEC: 8.** Applicability: aircraft with Auxiliary Fuel Tank.	
28-21-3	FNC	Functionally check (resistance measurement) the surge tank float switch fault current bonding. (SFAR88)	2D
28-21-4/ 28-021-08	FNC	Functionally check (resistance measurement) the bonding between the fueling receptacle and the structure to ensure it is within in-service limits. (SFAR88)	2D
28-22-6 / 28-022-19	FNC	Functionally check (resistance measurement) the bonding between the motor operated valve and structure to ensure it is within in-service limits. (SFAR 88)	2D
28-22-8 / 28-022-18	FNC	Functionally check (resistance measurement) the boost and override / jettison pump motor housing to the structure. (SFAR88) Note: Same task as MSI 28-22-5 **Supersedes MRB 28-022-12. Interval: 1 D; FEC: 8.**	2D
28-22-9 / 28-022-19	FNC	Functionally Check (Resistance Measurement) the bonding between the motor operated valve and structure. Note: Same task as MSI 28-22-6. (SFAR 88)	2D
28-25-2 / 28-025-04	FNC	Functionally check (resistance measurement) the APU DC Fuel Pump motor housing bonding strap(s) outside the fuel tank. (SFAR88) **Supersedes MRB 28-022-12. Interval: 10; FEC: 8**	2D
28-25-3 / 28-025-05	FNC	Functionally check (resistance measurement) the APU fuel shutoff valve housing bonding strap(s) outside the fuel tank. (SFAR88)	2D
28-31-2/ 28-031-05	FNC	Functionally Check (Resistance Measurement) the jettison nozzle valve fault current bonds. (SFAR88) **Supersedes MRB 28-022-12. Interval: 1D; FEC: 8.**	2D
28-31-3/ 28-031-06	FNC	Functionally Check (Resistance Measurement) the jettison transfer valve fault current bonds. (SFAR88) **Supersedes MRB 28-022-12. Interval: 1D; FEC: 8.**	2D
28-31-4/ 28-031-07	FNC	Functionally Check (Resistance Measurement) the jettison nozzle bonding straps and the structure to ensure it is within in-service limits. (SFAR88) **Supersedes MRB 28-022-12. Interval: 1D; FEC: 8.**	2D
28-41-1/ 28-041-04	DET	Inspect (detailed) the in-tank FQIS wire harness support for damage and proper security. (SFAR88) **Supersedes the following MRB tasks:** **1) MRB 28-041-01 (Interval: 2D; FEC: 8)** **2) MRB 28-041-02. (Interval: 2D; FEC: 8) Applicability: Aircraft with complete and active Horizontal Stabilizer Fuel Tank.** **3) MRB 28-041-03 (Interval: 2D; FEC: 8) Applicability: Aircraft with Auxiliary Fuel Tank.**	2D
28-41-2/ 28-041-05	DET	Inspect (detailed) the in-tank FQIS components for condition / security, chaffing, rubbing, and adequate separation from structure. (SFAR88) **Supersedes the following MRB tasks:** **1) MRB 28-041-01 (Interval: 2D; FEC: 8)** **2) MRB 28-041-02. (Interval: 2D; FEC: 8) Applicability: Aircraft with complete and active Horizontal Stabilizer Fuel Tank** **3) MRB 28-041-03 (Interval: 2D; FEC: 8) Applicability: Aircraft with Auxiliary Fuel Tank.**	2D
28-41-3/ 28-041-06	FNC	Functionally check (resistance measurement) the Out-of- Tank FQIS Wiring Bundle Lightning Shield to Ground Termination bond. (SFAR88)	2D
28-41-4 / 28-041-07	DET	Inspect (Detailed) the bonding straps for the Densitometer Hot Short Protector (HSP) located external to the center wing fuel tank and HST (if applicable). (SFAR88) Note: Tasks are applicable to airplane line numbers 1368 (center tank) /1382 (HST) and to all 747 airplanes incorporating Boeing SB 747-28A2266 (center tank) / SB 747-28A2267 (HST).	2D
28-41-4 /28-041-08	FNC	Functionally check (resistance measurement) the electrical bond between the Densitometer Hot Short Protector (HSP) fasteners and the airplane structure at the center wing tank and HST (if applicable). (SFAR88) Note: Tasks are applicable to airplane line numbers 1368 (center tank) /1382 (HST)	2D

		and to all 747 airplanes incorporating Boeing SB 747-28A2266 (center tank) / SB 747-28A2267 (HST).	

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
		NO NEW EZAP TASKS	
	131/132	Center Section Wing Box (STA 1000 to STA 1241)	1D-2D
	338/348	Horizontal Stabilizer - Center Section Torsion Box	1D-2D
	339/349	Horizontal Stabilizer - Front Spar to Rear Spar (STAB BL 43.5 to SS285)	1D-2D
	541/641 542/642	Wing - Inboard Main Fuel Tank (No.2 Left, No.3, Right)	1D-2D
	543/643 546/646	Wing - Outboard Main Fuel Tank (No.1 Left, No.4, Right)	1D-2D
	553/653	Wing - Reserve Fuel Tank Front Spar to Rear Spar	1D-2D
	554/654	Dry Bay - Front Spar To Rear Spar WS1280 to WS 1485 (or reserve tanks no. 2 & no. 3 if installed)	1D-2D
Z20-555-0 1	555	Detailed inspection of wiring inside Wing Surge Tank - Left	2D
Z20-655-01	655	Detailed inspection of wiring inside Wing Surge Tank - Right	2D

B757 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards between Station 900 and Station 1040 and left and right body buttock line 70.5.	10Yrs/ 36000 FC
28-AWL-03	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pin 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	10Yrs/ 36000 FC
28-AWL-14	ALI	Verify electrical bond from the valve body studs protruding through the rear spar to the adjacent structure is 0.012 ohms (12 milliohms) or less.	10Yrs/ 36000 FC
28-AWL-20	ALI	Functionally check the center tank Fuel Boost Pump Automatic Shutoff System per Boeing AMM 28-22-00.	1 YR
28-AWL-21	ALI	Operationally check the GFI of all AC Fuel Tank Boost Pumps per Boeing AMM 28-22-00	3 yr

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-11-1/ 28-014	FNC	Functionally check (resistance measurement) the bonding between the overwing filler and the structure. (SFAR 88)	8C
28-11-2/ 28-015	FNC	Functionally check (resistance measurement) the bonding between the hydraulic tube spar penetration and the structure. (SFAR 88)	8C
28-13-1/ 28-016	DET	Detailed Visual Inspection of in-tank tubing and equipment static ground straps and clamps for condition, security and other degradation. (SFAR 88)	8C
28-13-4/ 28-017	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR 88)	8C
28-13-2/ 28-018	FNC	Functionally check (resistance measure) the bonding resistance between the vent lower duct and vent *door* structure. (SFAR 88)	8C
28-21-2/28-020	FNC	Functionally check (resistance measurement) the bonding of the fuel shutoff valve(s) housing ground strap(s) outside of the fuel tank. (SFAR88)	8C
28-21-3/ 28-021	FNC	Functionally check (resistance measurement) the fuel presence sensor bond. (SFAR 88)	8C
28-21-4/ 28-022	FNC	Functionally check (resistance measurement) the bonding between the fueling receptacle and the structure to ensure it is within in-service limits. (SFAR 88)	8C
28-22-2/ 28-025	FNC	Functionally check (measure bonding resistance) the pump housing static bond to structure.	8C
28-22-3/ 28-026	FNC	Functional Check (Resistance Measurement) of the Boost and override pump *motor* housing ground strap(s) fault current bond. (SFAR 88)	8C
28-22-4/ 28-027	FNC	Functionally check (resistance measurement) the *boost* and override pump *motor* housing ground strap(s) lightning bond. (SFAR 88)	8C
28-25-2/ 28-029	FNC	Functionally check (resistance measurement) the APU DC Fuel Pump *motor* housing ground strap(s) outside the fuel tank. (SFAR 88)	8C
28-25-3/ 28-030	FNC	Functionally check (resistance measurement) the APU fuel shutoff valve housing ground strap(s) outside the fuel tank. (SFAR 88)	8C
28-26-3/ 28-031	FNC	Functional Check of the defueling valve ground strap(s) fault current bond. (SFAR 88)	8C
28-41-1/ 28-032	DET	Inspect (detailed) the FQIS wires for chaffing, rubbing, or contact with structure. (SFAR 88)	8C
28-41-2/ 28-033	DET	Inspect (detailed) the in-tank FQIS equipment (tank units, compensators, densitometers) for condition and security of clamps and contact with structure. (SFAR 88)	8C
28-41-3 / 28-034	FNC	Functionally check (resistance measurement) Out Tank Wiring bundle Lightning Shield to Ground Termination. (SFAR 88)	10 Yrs

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
20-133-01	133/134	Detailed inspection of exposed EWIS inside the Wing Center Section Tank. Left and Right	6C
20-531-01	531	Detailed inspection of exposed EWIS inside the Center Tank. Left Wing.	6C
20-541-01	541	Detailed inspection of exposed EWIS in main tank (WS 231.5 to 565.5) Left Wing.	6C
20-542-01	542	Detailed inspection of exposed EWIS in main tank - Left Wing.	6C
20-543-01	543	General Visual Inspection of exposed EWIS in the Surge Tank. Left Wing.	6C
20-631-01	631	Detailed inspection of exposed EWIS inside the Center Tank. Right Wing.	6C
20-641-01	641	Detailed inspection of exposed EWIS in main tank (WS 231.5 to 565.5) Right Wing.	6C
20-642-01	642	Detailed inspection of exposed EWIS in main tank - Right Wing.	6C
20-643-01	643	Stand alone GVI of exposed EWIS in the Surge Tank Right Wing.	6C

B767 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	12 Yrs/ 36000 HR
28-AWL-05	ALI	Functional check the lightning bond of the Hydraulic line fuel tank penetration.	6 Yrs/ 25000 HR
28-AWL 18	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pIn 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	12 Yrs/ 36000 HR
28-AWL-14	ALI	Verify electrical bond from the valve body studs protruding through the rear spar to the adjacent structure is 0.012 ohms (12 milliohms) or less.	12 Yrs/ 36000 HR
28-AWL-20	ALI	Functionally check the center tank Fuel Boost Pump Automatic Shutoff System per Boeing AMM 28-22-00.	1 YR
28-AWL-26	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pIn 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	12 Yrs/ 36000 HR

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-18	FNC	Functionally check (resistance measurement) the bonding between the overwing filler and the structure. (SFAR 88)	8C
28-19	FNC	Functionally check (resistance measurement) the bonding between the hydraulic tube spar penetration and the structure. (SFAR 88)	8C
28-20	DET	Detailed Visual Inspection of in-tank tubing and equipment static ground straps and clamps for condition, security and other degradation. (SFAR88)	8C
28-21	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR 88)	8C
28-22	FNC	Functionally chck (resistance measurement) the bonding between the fueling shutoff valves (MOV) and structure to ensure it is within service limits. (SFAR88)	8C
28-23	FNC	Functionally check (resistance measurement) the bonding between the left fueling adapters and right fueling adapter (if installed), structure to ensure it is within service limits. (SFAR88)	8C
28-24	DET	Inspect (detailed) the Left main tank forward/aft fuel boost pump wiring and wire sleeve, and inspect Left auxiliary tank override/jettison fuel pump wiring and wire sleeve. (SFAR88)	30,000 cycles or 60,000 Hr
28-25	DET	Inspect (detailed) the Right main tank forward/aft fuel boost pump wiring and wire sleeve, and inspect Right auxiliary tank override/jettison fuel pump wiring and wire sleeve. (SFAR88)	30,000 cycles or 60,000 Hr
28-26	FNC	Functionally check (resistance measurement) the bonding between the left main tank forward/aft fuel boost pump motor housing and structure, and the bonding between the left auxiliary tank override/jettison pump motor housing and structure to ensure it is within service limits. (SFAR88)	8C
28-27	FNC	Functionally check (resistance measurement) the bonding between the right main tank forward/aft fuel boost pump motor housing and structure, and the bonding between the right auxiliary tank override/jettison pump motor housing and structure to ensure it is within service limits. SFAR88)	8C
28-28	FNC	Functionally check (resistance measurement) the bonding between the engine fuel shutoff valve (MOV) and structure to ensure it is within service limits. (SFAR88)	8C
28-29	FNC	Functionally check (resistance measurement) the bonding between the crossfeed valve (MOV) and structure to ensure it is within service limits. (SFAR88)	8C
28-31	FNC	Functionally check (resistance measurement) the bonding between the APU fuel pump housing and structure to ensure it is within service limits. (SFAR88)	8C
28-32	FNC	Functionally check (resistance measurement) the bonding between the APU fuel shutoff valve (MOV) and structure to ensure it is within service limits. (SFAR88)	8C
28-33	FNC	Functionally check (resistance measurement) the bonding between the APU isolation valve (MOV) and structure to ensure it is within service limits. (If APU isolation valve is installed.) (SFAR88).	8C

28-34	FNC	Functionally check (resistance measurement) the bonding between the defueling valves (MOV) and structure to ensure it is within service limits. (SFAR88)	8C
28-35	FNC	Functionally check (resistance measurement) the bonding between the jettison nozzle valve (MOV) and structure to ensure it is within service limits. (SFAR88) Applicable to airplanes with jettison systems.	8C
28-36	FNC	Functionally check (resistance measurement) the bonding between the jettison transfer valve (MOV) and structure to ensure it is within service limits. (SFAR88) Applicable to airplanes with jettison systems.	8C
28-37	DET	Inspection (detailed) the in-tank FQIS wire harness support for damage and proper security. (SFAR 88)	8C
28-38	DET	Inspect (detailed) the in-tank FQIS components for condition / security, chaffing, rubbing, and adequate separation with the structure. (SFAR 88)	8C
28-39	DET	Inspect (Detailed) the Densitometer Hot Short Protector (HSP) bonding straps located external to the center wing fuel tank. (SFAR 88) Note. - Task applicable to airplane line numbers 938, 951 and on, and to all 767 airplanes incorporating Service Bulletin 767-28A0094.	8C
28-40	FNC	Functionally check (resistance measurement) the electrical bond between the Densitometer Hot Short Protector (HSP) fasteners and the airplane structure. (SFAR 88) Note. - Task applicable to airplane line numbers 938, 951 and on, and to all 767 airplanes incorporating Service Bulletin 767-28A009	8C
28-41	FNC	Functionally check (resistance measurement) the Out Tank FQIS Wiring Lightning Shield to Ground Termination bond. (SFAR 88)	8C

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
20-047		Detailed inspection (DI) of all exposed EWIS in the zone. NOTE:if auxiliary tanks exist. (SFAR 88)	4C
20-133-01		Detailed Inspection (DI) of exposed FQIS EWIS in the Center Auxiliary Fuel Tank - Left Wing. (SFAR 88).	6C
20-048		Detailed Inspection (01) of exposed EWIS in the Main Tank (inbd sect) - Left Wing. (SFAR 88)	6C
20-049		Detailed Inspection (01) of exposed EWIS in the main tank (outbd section) - Left Wing (SFAR 88)	6C
20-050		Detailed inspection (01) of exposed EWIS for level sensor in the surge tank - Left Wing. (SFAR 88)	6C

B777 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	16000FC 3000DY
28-AWL-05	ALI	Functional check the lightning bond of the Hydraulic line fuel tank penetration.	16000FC 3000DY

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-011-00	FNC	Functionally check (resistance measurement) the bonding between the hydraulic tube spar penetration and the structure.(SFAR-88)	4500 DY
28-021-10	DET	Inspect (detailed) the in-tank tubing and equipment static ground straps and clamps for condition, security and other degradation. (SFAR-88)	4500 DY
28-013-20	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR-88)	4500 DY
28-013-30	FNC	Functionally check (resistance measurement) the bonding between the Overfill float switch and the adjoining structure. (SFAR-88)	4500 DY
28-013-40	FNC	Functionally check (resistance measure) the bonding resistance between the vent scoop lower duct and vent door structure. (SFAR-88)	4500 DY
28-015-20	FNC	Functionally check (resistance measurement) the bonding between the scavenge jet pump and the adjoining structure.	4500 DY
28-021-20	FNC	Functionally check (resistance measurement) the bonding of the fuel shutoff valve(s) housing ground strap(s) outside the fuel tank. (SFAR-88)	4500 DY
28-021-30	FNC	Functionally check (resistance measurement) the bonding between the Fueling receptacle and the structure to ensure it is within in-service limits. (SFAR-88)	4500 DY
28-022-20	FNC	Inspect (detailed) pump wire conduit and equipment static bonding straps and clamps for condition, security and other degradation. (SFAR-88)	4500 DY
28-022-30	FNC	Functionally check (resistance measurement) the bonding between pump housing static bond to structure. (SFAR-88)	4500 DY
28-022-40	FNC	Functionally check (resistance measurement) bonding between boost, center tank override/jettison pumps and main tank jettison pumps' motor housing and structure. (SFAR-88)	4500 DY
28-022-50	FNC	Functionally check (resistance measurement) the bonding between motor operated valve and structure to ensure it is within service limits. (SFAR-88)	4500 DY
28-025-20	FNC	Functionally check (resistance measurement) the APU DC Fuel Pump motor housing ground strap(s) outside the fuel tank.	4500 DY
28-025-30	FNC	Functionally check (resistance measurement) the bonding between the APU fuel shutoff valve (MOV) and structure to ensure it is within service limits.	4500 DY
28-025-40	FNC	Functionally check (resistance measurement) the bonding between the APU isolation valve (MOV) and structure to ensure it is within service limits.	4500 DY
28-026-10	FNC	Functionally check (resistance measurement) the bonding between the defuel valve and structure to ensure it is within service limits. (SFAR-88)	4500 DY
28-031-20	FNC	Functional Check (resistance measurement) of the jettison nozzle valve fault current bonds.	4500 DY
28-031-30	FNC	Functional Check (resistance measurement) of the jettison transfer valve fault current bonds.	4500 DY
28-031-40	FNC	Functional Check (resistance measurement) of the jettison nozzle manifold bonding straps and the structure to ensure it is within in-service limits.	4500 DY
28-041-10	DET	Inspect (detailed) the in-tank FQIS wiring for damage or chafing and proper security. (SFAR-88)	4500 DY
28-041-20	DET	Inspect (detailed) the in-tank FQIS equipment (tank units, compensators, densitometers, & water detectors) for condition, security of clamps and adequate separation from structure. (SFAR-88)	4500 DY
28-11 0-00	FNC	Functionally check (resistance measurement) Out Tank wiring lightning shield to ground termination. (SFAR-88)	4500 DY

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
20-640-00-01	133, 134	Wing Center Section Fuel Tank (SFAR88)	24000FC 4500DY
20-856-01-01	531	Center Fuel Tank (Rib 1 to Rib 8) - Left Wing (SFAR88)	24000FC 4500DY
20-856-02-01	631	Center Fuel Tank (Rib 1 to Rib 8) - Right Wing (SFAR88)	24000FC 4500DY
20-858-01-01	533	Main Tank (Rib 8 to Rib 17) - Left Wing (SFAR88)	24000FC 4500DY
20-858-02-01	633	Main Tank (Rib 8 to Rib 17) - Right Wing (SFAR88)	24000FC 4500DY
20-860-01-01	541	Main Tank (Rib 17 to Rib 32) - Left Wing (SFAR 88)	24000FC 4500DY
20-860-02-01	641	Main Tank (Rib 17 to Rib 32) - Right Wing (SFAR 88)	24000FC 4500DY
20-862-01-01	542	Surge Tank (Rib 32 to Rib 34) - Left Wing (SFAR 88)	24000FC 4500DY
20-862-02-01	642	Surge Tank (Rib 32 to Rib 34) - Right Wing (SFAR 88)	24000FC 4500DY

APPENDIX B – Proposed Intervals

B737 -100/-200/-300/-400/-500 series airplanes:

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	**12 YR**
28-AWL-03	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pin 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	**12 YR**

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-030	FC	Functionally check (resistance measurement) the bonding between the overwing filler and the structure. (SFAR 88)	12 YR
28-35	FC	Functionally check (resistance measurement) the bonding resistance between the hydraulic line fitting at the fuel tank wall penetrations and the adjoining structure. (SFAR 88)	12YR
28-040	FC	Functionally check (resistance measurement) the bonding resistance between the sump drain valves and the adjoining structure. (SFAR 88) Airplane Note: The main tank sump drain valves only.	12 YR
28-008	FC	Inspect (detailed) the in-tank tubing and bonding straps for damaged or degraded bonding components. (SFAR 88)(existing EPAA MRB item 28-008 (Cat. 8) covers this task adequately)(new MRB item will also be added to Non-EPAA MRB to cover this task)	12 YR
28-003	D1	Functionally check (resistance measurement) the bonding resistance between the pressure relief valve and the structure. (SFAR 88)	12 YR
28-005	FC	Functionally check (resistance measurement) the bonding between the lower air vent stack and the door structure. (SFAR 88)	12 YR
28-045	FC	Functionally check (resistance measurement) the bonding of fueling shutoff valve solenoid to adjoining structure. (SFAR 88)	12 YR
28-050	FC	Functionally check (resistance measurement) the bonding between the fueling receptacle (manifold) and the structure.	12 YR
28-065	FC	Functionally check (resistance measurement) the bonding between the center/auxiliary tank boost pump motor housing and structure. (SFAR88)	12 YR
28-012	FC	Functionally check (resistance measurement) fuel pumps bond resistance to structure. (SFAR 88) **(existing MRB item 28-012 (Cat. 8) covers this task adequately)** (Non EPAA airplanes will have a similar task in the MPD)	**12 YR**
28-060	FC	Functionally check (resistance measurement) motor operated valve bond resistance to structure. (Perform task outside tank.) (SFAR 88)	12 YR
28-010	DI	Inspect (detailed) the fuel boost pump wires. (SFAR88)	30,000 FHR
28-016	FC	Functionally check (resistance measurement) the APU DC Fuel Pump motor bonding strap (If installed). (SFAR 88) **(existing MRB item 28-016 (Cat. 8) covers this task adequately)** (Non EPAA airplanes will have a similar task in the MPO)	**12 YR**
28-055	FC	Functionally check (resistance measurement) the bonding resistance between the APU shutoff valve actuator and adjoining structure. (SFAR88)	12 YR
28-020	DI	Inspect (detailed) the in-tank FQIS wire harnesses support for damage and proper security. **(existing MRB item 28-020 (cat 8) will be revised with this task description.)**	12 YR
28-025	DI	Inspect (detailed) the in-tank FQIS components for chaffing, rubbing, or contact with structure and condition for security.	12 YR
28-070	FC	Functionally check (resistance measurement) out tank FQIS wire bundle lightning shield to ground termination.	12 YR

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Type**	**Description**	**Interval**
		NO NEW EZAP TASKS	

B737-600/-700/-800/-900 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	**12 YR**
28-AWL-03	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pin 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	**12 YR**
28-AWL-19	ALI	Functionally check the center tank Fuel Boost Pump Automatic Shutoff System per Boeing AMM 28-22-00.	**24 MO**
28-AWL-23	ALI	Verify continued functionality of the center tank fuel boost pump Power Failed On Protection System.	**24 MO**

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-11/ 28-201-00	FNC	Functionally check (resistance measurement) the bonding resistance between the hydraulic line fitting at fuel tank wall penetrations and adjoining the structure. (SFAR 88)	12 YR
28-11/28- 202-00	FNC	Functionally check (resistance measurement) the bonding resistance between the sump drain valves and the adjoining structure. (SFAR 88) Airplane Note: The main tank sump drain valves only.	12 YR
28-13/ 28-204-00	FNC	Functionally check (resistance measurement) the bonding between the lower air vent stack and the door structure. (SFAR 88)	12 YR
28-13/ 28-205-00	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR 88)	12YR
28-21/ 28-207-00	FNC	Functionally check (resistance measurement) the bonding of the fueling shutoff valves actuator (solenoid) to the adjoining structure.(SF AR 88)	12YR
28-21/ 28-208-00	FNC	Functionally check (resistance measurement) the bonding between the fueling receptacle (manifold) and the structure.	12 YR
28-22/ 28-211-00	FNC	Functionally check (resistance measurement) the bonding between motor operated valve actuator and adjoining structure. (SFAR 88)	12 YR
28-25	FNC	Functionally check (resistance measurement) the bonding resistance between the APU shutoff valve actuator and adjoining structure. (SFAR88)	12 YR
28-41/ 28-170-00	DET	Inspect (detailed) the in-tank FQIS wire harnesses support for damage and proper security. (SFAR 88) **(Existing MRB item 28-170-00 (cat 8) will be revised with this task description.)**	**12 YR**
28-41/ 28-171-00	DET	Inspect (detailed) the in-tank FQIS components for chaffing, rubbing, or no contact with structure and condition for security. (SFAR 88) **(Existing MRB 28-170-00 covers this task adequately. For accountability and visibility purpose, this task is separated from existing 28-170-00 as stand alone task)**	**12 YR**
28-41/ 28-173-00	FNC	Functionally check (resistance measurement) out tank FQIS wire bundle lightning shield to ground termination. (SFAR 88)	12 YR

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
	131/132	Center Section Wing Box	**12 YR**
	531/631	Center Fuel Tank - Left and Right Wings	**12 YR**
	532/632	Main Tank - Left and Right Wings	**12 YR**
	533/633	Surge Tank - Left and Right Wings	**12 YR**

B74 7 -100/-200/-300 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	**12 YR**
28-AWL-03	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pIn 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	**12 YR**
28-AWL-9	ALI	Functional check of the in board main tank fault current interrupter	**24 MO**
28-AWL-13	ALI	Fault Current Bonding check of Center Wing Tank Fueling Valve	**12 YR**

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-11-1 28-120	FNC	Functionally check (resistance measurement) the bonding between the overwing filler and the structure. (SFAR 88)	2D
28-11-4 28-125	FNC	Functionally check (resistance measurement) the bonding between the hydraulic tube spar penetration and the structure. (SFAR 88)	2D
28-13-1 28-130	DET	Detailed Visual Inspection of in-tank tubing and equipment static ground straps and clamps for condition, security and other degradation. (SFAR88)	2D
28-13-2 28-135	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR 88)	2D
28-21-3 28-140	FNC	Functionally check (resistance measurement) the bonding between the overfill float switch and the structure. (SFAR 88) Note: FNC accomplished in MSI28-21-3.	2D
28-15-2 28-150	FNC	Functionally check (resistance measurement) the electric scavenge pump fault current bond. (SFAR 88) (combined tasks 28-15-2 and 28-15-3) Note: Not applicable to aircraft with hydro-mechanical scavenge pumps.	2D
28-15-3 28-150	FNC	Functionally check (resistance measurement) the bonding between the electric scavenge pump and the structure.(SFAR88) (combined tasks28-15-2 and 28-15-3) Note: Not applicable to aircraft with hydro-mechanical scavenge pumps.	2D
28-21-2 28-160	FNC	Functionally check (resistance measurement) the bonding of the fuel shutoff valve(s) housing to the outside of the fuel tank. (SFAR88)	2D
28-21-3 28-165	FNC	Functionally check (resistance measurement) the surge tank float switch fault current bonding. (SFAR88)	2D
28-21-4 28-170	FNC	Functionally check (resistance measurement) the bonding between the fueling receptacle and the structure to ensure it is within in-service limits. (SFAR88)	2D
28-21-4 28-022	FNC	Functionally check (resistance measurement) the bonding between the fueling receptacle and the structure to ensure it is within in-service limits. (SFAR 88)	2D
28-22-7 28-205	FNC	Functionally check (resistance measurement) the bonding between the motor operated valve and structure to ensure it is within in-service limits.(SFAR 88)	2D
28-22-9 28-210	FNC	Functional Check (Resistance Measurement) of the Boost and override/jettison pump motor housing to the structure. (SFAR88) Note: Same task as MSI 28-22-5	2D
28-22-10 28-215	FNC	Functionally Check (Resistance Measurement) the bonding between the motor operated valve and structure. (SFAR 88) Note: Same task as MSI 28-22-6.	2D
28-25-2 28-225	FNC	Functionally check (resistance measurement) the APU DC Fuel Pump motor housing bonding strap(s) outside the fuel tank. (SFAR88)	2D
28-25-3 28-230	FNC	Functionally check (resistance measurement) the APU fuel shutoff valve housing bonding strap(s) outside the fuel tank. (SFAR88)	2D
28-31-2 28-245	FNC	Functional Check (Resistance Measurement) the jettison nozzle valve fault current bonds. (SFAR88)	2D
28-31-3 28-250	FNC	Functional Check (Resistance Measurement) the jettison transfer valve fault current bonds. (SFAR88)	2D
28-31-4 28-255	FNC	Functional Check (Resistance Measurement) the jettison nozzle bonding straps and the structure to ensure it is within in-service limits. (SFAR88)	2D
28-41-1 28-260	DET	Inspect (detailed) the in-tank FQIS wire harness support for damage and proper security. (SFAR88)	2D

28-41-2 28-115	DET	Inspect (detailed) the in-tank FQIS components for condition / security, chaffing, rubbing, and adequate separation from structure. (SFAR88) NOTE: 28-115 is an existing MRB Task that will be revised to reflect current findings. (SFAR88)	2D
28-41-3 28-265	FNC	Functionally check (resistance measurement) the Out of Tank FQIS Wire Bundle Lightning Shield to Ground Termination bond. (SFAR 88)	2D

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
	131/132	Center Section Wing Box (STA 1000 to STA 1241)	1D-2D
	541/641/ 542/642	Wing - Inboard Main Fuel Tank (No.2 Left, No.3, Right)	1D-2D
	543/643/ 546/646	Wing - Outboard Main Fuel Tank (No.1 Left, No.4, Right)	1D-2D
	553/653	Wing - Reserve Fuel Tank Front Spar to Rear Spar	1D-2D
	554/654	Dry Bay - Front Spar To Rear Spar WS1280 to WS 1485 (or reserve tanks no. 2 & no. 3 if installed)	1D-2D
	555/655	Surge Tank Front Spar to Rear Spar	1D-2D

B747-400 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01		Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	**16 YR**
28-AWL-03		1. Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2. Using Loop Resistance Tester pin 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	**16 YR**
28-AWL-10		Inspect the Fault Current Bond of the Center Wing Tank Fueling Valve	**16 YR**
28-AWL-17		Functional check of the Fault Current Detector for CWT and Inboard Main Tank Override/Jettison Pumps and HST Transfer Fuel Pumps	**24 MO**
28-AWL-13		Operational check of the Fuel Override/Jettison Pump, Fuel Boost Pump, and *AIC* Scavenge pump Ground Fault Interrupter (GFI)	**24 MO**

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-11-1 / 28-011-01	FNC	Functionally check (resistance measurement) the bonding between the overwing filler and the structure. (SFAR 88)	2D
28-11-4/ 28-011-02	FNC	Functionally check (resistance measurement) the bonding between the hydraulic tube spar penetration and the structure. (SFAR 88)	2D
28-11-6/ 28-011-03	FNC	Functionally check (resistance measurement) the electric sump drain valve fault current bond for the HST and aux tank. (SFAR88)	2D
28-13-1/ 28-013-02	DET	Detailed Visual Inspection of in-tank tubing and equipment static ground straps and clamps for condition, security and other degradation. (SFAR88)	2D
28-13-2/ 28-013-03	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR 88)	2D
28-21-3 / 28-013-04	FNC	Functionally check (resistance measurement) the bonding between the overfill float switch and the structure. (SFAR 88) Note: FNC accomplished in MSI28-21-3.	2D
28-15-2/ 28-015-02	FNC	Functionally check (resistance measurement) the electric scavenge pump fault current bond. (SFAR 88) (combined tasks 28-15-2 and 28-15-3) Note: Not applicable to aircraft with hydro-mechanical scavenge pumps.	2D
28-15-3/ 28-015-02	FNC	Functionally check (resistance measurement) the bonding between the electric scavenge pump and the structure.(SFAR88) (combined tasks28-15-2 and 28-15-3) Note: Not applicable to aircraft with hydro-mechanical scavenge pumps.	2D
28-17-1/ 28-017-05	DET	Inspect (detailed) the in-tank tubing and component static bonding straps and clamps for condition, security and other degradation. (SFAR88) Note: Complete and active HS tanks. Note: Same task as MSI 28-13-1/28-013-02. **Supersedes MRB 28-017-03. Interval: 2D; FEC: 8.**	2D
28-17-2/ 28-017-06	FNC	Functionally check (resistance measurement) the HST Boost Pump motor housing bonding strap(s). (SFAR88) **Supersedes MRB 28-017-04. Interval: 1D; FEC: 8.** Note: Complete and active HS tanks.	2D
28-17-3/ 28-017-07	FNC	Functionally check (resistance measurement) the HST override solenoid valve bonding resistance. (SFAR88) Note: Complete and active HS tanks.	2D
28-17-4/ 28-017-08	FNC	Functionally check (resistance measurement) the HST isolation valve bonding resistance. (SFAR88) Note: Complete and active HS tanks.	2D
28-17-5/ 28-017-07	FNC	Functionally check (resistance measurement) the HST refuel valve bonding resistance. (SFAR88) **Supersedes the following MRB tasks:** **1) MRB 28-017-04 (Interval: 1D; FEC: 8)** **2) MRB 28-021-03 (Interval: 2D; FEC: 8)** Note: Complete and active HS tanks.	2D
28-21-2/ 28-021-07	FNC	Functionally check (resistance measurement) the bonding of all fuel shutoff valve(s) housing bonding strap(s) outside of the fuel tank. (SFAR88)	2D

		Note: Center winq tank fuelinq shutoff valve fault current bond task is alreadv accomplished by airworthiness limitation task 28-AWL-10. **Supersedes the following MRB tasks:** **1) MRB 28-021-02. Interval: 2D; FEC: 8.** **2) MRB 28-021-04. Interval: 2D; FEC: 8.** Applicability: aircraft with Auxiliary Fuel Tank.	
28-21-3	FNC	Functionally check (resistance measurement) the surge tank float switch fault current bonding. (SFAR88)	2D
28-21-4/ 28-021-08	FNC	Functionally check (resistance measurement) the bonding between the fueling receptacle and the structure to ensure it is within in-service limits. (SFAR88)	2D
28-22-6 / 28-022-19	FNC	Functionally check (resistance measurement) the bonding between the motor operated valve and structure to ensure it is within in-service limits. (SFAR 88)	2D
28-22-8 / 28-022-18	FNC	Functionally check (resistance measurement) the boost and override / jettison pump motor housing to the structure. (SFAR88) Note: Same task as MSI 28-22-5 **Supersedes MRB 28-022-12. Interval: 1 D; FEC: 8.**	2D
28-22-9 / 28-022-19	FNC	Functionally Check (Resistance Measurement) the bonding between the motor operated valve and structure. Note: Same task as MSI 28-22-6. (SFAR 88)	2D
28-25-2 / 28-025-04	FNC	Functionally check (resistance measurement) the APU DC Fuel Pump motor housing bonding strap(s) outside the fuel tank. (SFAR88) **Supersedes MRB 28-022-12. Interval: 10; FEC: 8**	2D
28-25-3 / 28-025-05	FNC	Functionally check (resistance measurement) the APU fuel shutoff valve housing bonding strap(s) outside the fuel tank. (SFAR88)	2D
28-31-2/ 28-031-05	FNC	Functionally Check (Resistance Measurement) the jettison nozzle valve fault current bonds. (SFAR88) **Supersedes MRB 28-022-12. Interval: 1D; FEC: 8.**	2D
28-31-3/ 28-031-06	FNC	Functionally Check (Resistance Measurement) the jettison transfer valve fault current bonds. (SFAR88) **Supersedes MRB 28-022-12. Interval: 1D; FEC: 8.**	2D
28-31-4/ 28-031-07	FNC	Functionally Check (Resistance Measurement) the jettison nozzle bonding straps and the structure to ensure it is within in-service limits. (SFAR88) **Supersedes MRB 28-022-12. Interval: 1D; FEC: 8.**	2D
28-41-1/ 28-041-04	DET	Inspect (detailed) the in-tank FQIS wire harness support for damage and proper security. (SFAR88) **Supersedes the following MRB tasks:** **1) MRB 28-041-01 (Interval: 2D; FEC: 8)** **2) MRB 28-041-02. (Interval: 2D; FEC: 8) Applicability: Aircraft with complete and active Horizontal Stabilizer Fuel Tank.** **3) MRB 28-041-03 (Interval: 2D; FEC: 8) Applicability: Aircraft with Auxiliary Fuel Tank.**	2D
28-41-2/ 28-041-05	DET	Inspect (detailed) the in-tank FQIS components for condition / security, chaffing, rubbing, and adequate separation from structure. (SFAR88) **Supersedes the following MRB tasks:** **1) MRB 28-041-01 (Interval: 2D; FEC: 8)** **2) MRB 28-041-02. (Interval: 2D; FEC: 8) Applicability: Aircraft with complete and active Horizontal Stabilizer Fuel Tank** **3) MRB 28-041-03 (Interval: 2D; FEC: 8) Applicability: Aircraft with Auxiliary Fuel Tank.**	2D
28-41-3/ 28-041-06	FNC	Functionally check (resistance measurement) the Out-of- Tank FQIS Wiring Bundle Lightning Shield to Ground Termination bond. (SFAR88)	2D
28-41-4 / 28-041-07	DET	Inspect (Detailed) the bonding straps for the Densitometer Hot Short Protector (HSP) located external to the center wing fuel tank and HST (if applicable). (SFAR88) Note: Tasks are applicable to airplane line numbers 1368 (center tank) /1382 (HST) and to all 747 airplanes incorporating Boeing SB 747-28A2266 (center tank) / SB 747-28A2267 (HST).	2D
28-41-4 /28-041-08	FNC	Functionally check (resistance measurement) the electrical bond between the Densitometer Hot Short Protector (HSP) fasteners and the airplane structure at the center wing tank and HST (if applicable). (SFAR88) Note: Tasks are applicable to airplane line numbers 1368 (center tank) /1382 (HST) and to all 747 airplanes incorporating Boeing SB 747-28A2266 (center tank) / SB	2D

		747-28A2267 (HST).	

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
		NO NEW EZAP TASKS	
	131/132	Center Section Wing Box (STA 1000 to STA 1241)	1D-2D
	338/348	Horizontal Stabilizer - Center Section Torsion Box	1D-2D
	339/349	Horizontal Stabilizer - Front Spar to Rear Spar (STAB BL 43.5 to SS285)	1D-2D
	541/641 542/642	Wing - Inboard Main Fuel Tank (No.2 Left, No.3, Right)	1D-2D
	543/643 546/646	Wing - Outboard Main Fuel Tank (No.1 Left, No.4, Right)	1D-2D
	553/653	Wing - Reserve Fuel Tank Front Spar to Rear Spar	1D-2D
	554/654	Dry Bay - Front Spar To Rear Spar WS1280 to WS 1485 (or reserve tanks no. 2 & no. 3 if installed)	1D-2D
Z20-555-0 1	555	Detailed inspection of wiring inside Wing Surge Tank - Left	2D
Z20-655-01	655	Detailed inspection of wiring inside Wing Surge Tank - Right	2D

B757 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards between Station 900 and Station 1040 and left and right body buttock line 70.5.	**12 YR**
28-AWL-03	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pin 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	**12 YR**
28-AWL-14	ALI	Verify electrical bond from the valve body studs protruding through the rear spar to the adjacent structure is 0.012 ohms (12 milliohms) or less.	**12 YR**
28-AWL-20	ALI	Functionally check the center tank Fuel Boost Pump Automatic Shutoff System per Boeing AMM 28-22-00.	**24 MO**
28-AWL-21	ALI	Operationally check the GFI of all AC Fuel Tank Boost Pumps per Boeing AMM 28-22-00	**48 MO**

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-11-1/ 28-014	FNC	Functionally check (resistance measurement) the bonding between the overwing filler and the structure. (SFAR 88)	8C
28-11-2/ 28-015	FNC	Functionally check (resistance measurement) the bonding between the hydraulic tube spar penetration and the structure. (SFAR 88)	8C
28-13-1/ 28-016	DET	Detailed Visual Inspection of in-tank tubing and equipment static ground straps and clamps for condition, security and other degradation. (SFAR 88)	8C
28-13-4/ 28-017	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR 88)	8C
28-13-2/ 28-018	FNC	Functionally check (resistance measure) the bonding resistance between the vent lower duct and vent *door* structure. (SFAR 88)	8C
28-21-2/28-020	FNC	Functionally check (resistance measurement) the bonding of the fuel shutoff valve(s) housing ground strap(s) outside of the fuel tank. (SFAR88)	8C
28-21-3/ 28-021	FNC	Functionally check (resistance measurement) the fuel presence sensor bond. (SFAR 88)	8C
28-21-4/ 28-022	FNC	Functionally check (resistance measurement) the bonding between the fueling receptacle and the structure to ensure it is within in-service limits. (SFAR 88)	8C
28-22-2/ 28-025	FNC	Functionally check (measure bonding resistance) the pump housing static bond to structure.	8C
28-22-3/ 28-026	FNC	Functional Check (Resistance Measurement) of the Boost and override pump *motor* housing ground strap(s) fault current bond. (SFAR 88)	8C
28-22-4/ 28-027	FNC	Functionally check (resistance measurement) the *boost* and override pump *motor* housing ground strap(s) lightning bond. (SFAR 88)	8C
28-25-2/ 28-029	FNC	Functionally check (resistance measurement) the APU DC Fuel Pump *motor* housing ground strap(s) outside the fuel tank. (SFAR 88)	8C
28-25-3/ 28-030	FNC	Functionally check (resistance measurement) the APU fuel shutoff valve housing ground strap(s) outside the fuel tank. (SFAR 88)	8C
28-26-3/ 28-031	FNC	Functional Check of the defueling valve ground strap(s) fault current bond. (SFAR 88)	8C
28-41-1/ 28-032	DET	Inspect (detailed) the FQIS wires for chaffing, rubbing, or contact with structure. (SFAR 88)	8C
28-41-2/ 28-033	DET	Inspect (detailed) the in-tank FQIS equipment (tank units, compensators, densitometers) for condition and security of clamps and contact with structure. (SFAR 88)	8C
28-41-3 / 28-034	FNC	Functionally check (resistance measurement) Out Tank Wiring bundle Lightning Shield to Ground Termination. (SFAR 88)	**12 YR**

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
20-133-01	133/134	Detailed inspection of exposed EWIS inside the Wing Center Section Tank. Left and Right	**8C**
20-531-01	531	Detailed inspection of exposed EWIS inside the Center Tank. Left Wing.	**8C**
20-541-01	541	Detailed inspection of exposed EWIS in main tank (WS 231.5 to 565.5) Left Wing.	**8C**
20-542-01	542	Detailed inspection of exposed EWIS in main tank - Left Wing.	**8C**
20-543-01	543	General Visual Inspection of exposed EWIS in the Surge Tank. Left Wing.	**8C**
20-631-01	631	Detailed inspection of exposed EWIS inside the Center Tank. Right Wing.	**8C**
20-641-01	641	Detailed inspection of exposed EWIS in main tank (WS 231.5 to 565.5) Right Wing.	**8C**
20-642-01	642	Detailed inspection of exposed EWIS in main tank - Right Wing.	**8C**
20-643-01	643	Stand alone GVI of exposed EWIS in the Surge Tank Right Wing.	**8C**

B767 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	**12 YR**
28-AWL-05	ALI	Functional check the lightning bond of the Hydraulic line fuel tank penetration.	**6 YR**
28-AWL 18	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pIn 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	**12 YR**
28-AWL-14	ALI	Verify electrical bond from the valve body studs protruding through the rear spar to the adjacent structure is 0.012 ohms (12 milliohms) or less.	**12 YR**
28-AWL-20	ALI	Functionally check the center tank Fuel Boost Pump Automatic Shutoff System per Boeing AMM 28-22-00.	**24 MO**
28-AWL-26	ALI	1-Visual inspection of all connectors at the location being tested to ensure they are tight. This includes connector plugs and backshells. 2- Using Loop Resistance Tester pIn 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination.	**12 YR**

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-18	FNC	Functionally check (resistance measurement) the bonding between the overwing filler and the structure. (SFAR 88)	8C
28-19	FNC	Functionally check (resistance measurement) the bonding between the hydraulic tube spar penetration and the structure. (SFAR 88)	8C
28-20	DET	Detailed Visual Inspection of in-tank tubing and equipment static ground straps and clamps for condition, security and other degradation. (SFAR88)	8C
28-21	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR 88)	8C
28-22	FNC	Functionally chck (resistance measurement) the bonding between the fueling shutoff valves (MOV) and structure to ensure it is within service limits. (SFAR88)	8C
28-23	FNC	Functionally check (resistance measurement) the bonding between the left fueling adapters and right fueling adapter (if installed), structure to ensure it is within service limits. (SFAR88)	8C
28-24	DET	Inspect (detailed) the Left main tank forward/aft fuel boost pump wiring and wire sleeve, and inspect Left auxiliary tank override/jettison fuel pump wiring and wire sleeve. (SFAR88)	30,000 cycles or 60,000 Hr
28-25	DET	Inspect (detailed) the Right main tank forward/aft fuel boost pump wiring and wire sleeve, and inspect Right auxiliary tank override/jettison fuel pump wiring and wire sleeve. (SFAR88)	30,000 cycles or 60,000 Hr
28-26	FNC	Functionally check (resistance measurement) the bonding between the left main tank forward/aft fuel boost pump motor housing and structure, and the bonding between the left auxiliary tank override/jettison pump motor housing and structure to ensure it is within service limits. (SFAR88)	8C
28-27	FNC	Functionally check (resistance measurement) the bonding between the right main tank forward/aft fuel boost pump motor housing and structure, and the bonding between the right auxiliary tank override/jettison pump motor housing and structure to ensure it is within service limits. SFAR88)	8C
28-28	FNC	Functionally check (resistance measurement) the bonding between the engine fuel shutoff valve (MOV) and structure to ensure it is within service limits. (SFAR88)	8C
28-29	FNC	Functionally check (resistance measurement) the bonding between the crossfeed valve (MOV) and structure to ensure it is within service limits. (SFAR88)	8C
28-31	FNC	Functionally check (resistance measurement) the bonding between the APU fuel pump housing and structure to ensure it is within service limits. (SFAR88)	8C
28-32	FNC	Functionally check (resistance measurement) the bonding between the APU fuel shutoff valve (MOV) and structure to ensure it is within service limits. (SFAR88)	8C
28-33	FNC	Functionally check (resistance measurement) the bonding between the APU isolation valve (MOV) and structure to ensure it is within service limits. (If APU isolation valve is installed.) (SFAR88).	8C
28-34	FNC	Functionally check (resistance measurement) the bonding between the defueling	8C

		valves (MOV) and structure to ensure it is within service limits. (SFAR88)	
28-35	FNC	Functionally check (resistance measurement) the bonding between the jettison nozzle valve (MOV) and structure to ensure it is within service limits. (SFAR88) Applicable to airplanes with jettison systems.	8C
28-36	FNC	Functionally check (resistance measurement) the bonding between the jettison transfer valve (MOV) and structure to ensure it is within service limits. (SFAR88) Applicable to airplanes with jettison systems.	8C
28-37	DET	Inspection (detailed) the in-tank FQIS wire harness support for damage and proper security. (SFAR 88)	8C
28-38	DET	Inspect (detailed) the in-tank FQIS components for condition / security, chaffing, rubbing, and adequate separation with the structure. (SFAR 88)	8C
28-39	DET	Inspect (Detailed) the Densitometer Hot Short Protector (HSP) bonding straps located external to the center wing fuel tank. (SFAR 88) Note. - Task applicable to airplane line numbers 938, 951 and on, and to all 767 airplanes incorporating Service Bulletin 767-28A0094.	8C
28-40	FNC	Functionally check (resistance measurement) the electrical bond between the Densitometer Hot Short Protector (HSP) fasteners and the airplane structure. (SFAR 88) Note. - Task applicable to airplane line numbers 938, 951 and on, and to all 767 airplanes incorporating Service Bulletin 767-28A009	8C
28-41	FNC	Functionally check (resistance measurement) the Out Tank FQIS Wiring Lightning Shield to Ground Termination bond. (SFAR 88)	8C

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
20-047		Detailed inspection (DI) of all exposed EWIS in the zone. NOTE:if auxiliary tanks exist. (SFAR 88)	4C
20-133-01		Detailed Inspection (DI) of exposed FQIS EWIS in the Center Auxiliary Fuel Tank - Left Wing. (SFAR 88).	**8C**
20-048		Detailed Inspection (01) of exposed EWIS in the Main Tank (inbd sect) - Left Wing. (SFAR 88)	**8C**
20-049		Detailed Inspection (01) of exposed EWIS in the main tank (outbd section) - Left Wing (SFAR 88)	**8C**
20-050		Detailed inspection (01) of exposed EWIS for level sensor in the surge tank - Left Wing. (SFAR 88)	**8C**

B777 series airplanes

AIRWORTHINESS LIMITATION ITEMS			
Task #	**Type**	**Description**	**Interval**
28-AWL-01	ALI	Perform a detailed inspection of the wire bundles routed over the center fuel tank and under the main deck floor boards.	**4500 DY**
28-AWL-05	ALI	Functional check the lightning bond of the Hydraulic line fuel tank penetration.	**4500 DY**

MAINTENANCE SIGNIFICANT ITEMS			
Task #	**Type**	**Description**	**Interval**
28-011-00	FNC	Functionally check (resistance measurement) the bonding between the hydraulic tube spar penetration and the structure.(SFAR-88)	4500 DY
28-021-10	DET	Inspect (detailed) the in-tank tubing and equipment static ground straps and clamps for condition, security and other degradation. (SFAR-88)	4500 DY
28-013-20	FNC	Functionally check (resistance measurement) the bonding between the pressure relief valve and the structure. (SFAR-88)	4500 DY
28-013-30	FNC	Functionally check (resistance measurement) the bonding between the Overfill float switch and the adjoining structure. (SFAR-88)	4500 DY
28-013-40	FNC	Functionally check (resistance measure) the bonding resistance between the vent scoop lower duct and vent door structure. (SFAR-88)	4500 DY
28-015-20	FNC	Functionally check (resistance measurement) the bonding between the scavenge jet pump and the adjoining structure.	4500 DY
28-021-20	FNC	Functionally check (resistance measurement) the bonding of the fuel shutoff valve(s) housing ground strap(s) outside the fuel tank. (SFAR-88)	4500 DY
28-021-30	FNC	Functionally check (resistance measurement) the bonding between the Fueling receptacle and the structure to ensure it is within in-service limits. (SFAR-88)	4500 DY
28-022-20	FNC	Inspect (detailed) pump wire conduit and equipment static bonding straps and clamps for condition, security and other degradation. (SFAR-88)	4500 DY
28-022-30	FNC	Functionally check (resistance measurement) the bonding between pump housing static bond to structure. (SFAR-88)	4500 DY
28-022-40	FNC	Functionally check (resistance measurement) bonding between boost, center tank override/jettison pumps and main tank jettison pumps' motor housing and structure. (SFAR-88)	4500 DY
28-022-50	FNC	Functionally check (resistance measurement) the bonding between motor operated valve and structure to ensure it is within service limits. (SFAR-88)	4500 DY
28-025-20	FNC	Functionally check (resistance measurement) the APU DC Fuel Pump motor housing ground strap(s) outside the fuel tank.	4500 DY
28-025-30	FNC	Functionally check (resistance measurement) the bonding between the APU fuel shutoff valve (MOV) and structure to ensure it is within service limits.	4500 DY
28-025-40	FNC	Functionally check (resistance measurement) the bonding between the APU isolation valve (MOV) and structure to ensure it is within service limits.	4500 DY
28-026-10	FNC	Functionally check (resistance measurement) the bonding between the defuel valve and structure to ensure it is within service limits. (SFAR-88)	4500 DY
28-031-20	FNC	Functional Check (resistance measurement) of the jettison nozzle valve fault current bonds.	4500 DY
28-031-30	FNC	Functional Check (resistance measurement) of the jettison transfer valve fault current bonds.	4500 DY
28-031-40	FNC	Functional Check (resistance measurement) of the jettison nozzle manifold bonding straps and the structure to ensure it is within in-service limits.	4500 DY
28-041-10	DET	Inspect (detailed) the in-tank FQIS wiring for damage or chafing and proper security. (SFAR-88)	4500 DY
28-041-20	DET	Inspect (detailed) the in-tank FQIS equipment (tank units, compensators, densitometers, & water detectors) for condition, security of clamps and adequate separation from structure. (SFAR-88)	4500 DY
28-11 0-00	FNC	Functionally check (resistance measurement) Out Tank wiring lightning shield to ground termination. (SFAR-88)	4500 DY

ENHANCED ZONAL ANALYSIS PROCEDURE			
Task #	**Zone**	**Description**	**Interval**
20-640-00-01	133, 134	Wing Center Section Fuel Tank (SFAR88)	24000FC 4500DY
20-856-01-01	531	Center Fuel Tank (Rib 1 to Rib 8) - Left Wing (SFAR88)	24000FC 4500DY
20-856-02-01	631	Center Fuel Tank (Rib 1 to Rib 8) - Right Wing (SFAR88)	24000FC 4500DY
20-858-01-01	533	Main Tank (Rib 8 to Rib 17) - Left Wing (SFAR88)	24000FC 4500DY
20-858-02-01	633	Main Tank (Rib 8 to Rib 17) - Right Wing (SFAR88)	24000FC 4500DY
20-860-01-01	541	Main Tank (Rib 17 to Rib 32) - Left Wing (SFAR 88)	24000FC 4500DY
20-860-02-01	641	Main Tank (Rib 17 to Rib 32) - Right Wing (SFAR 88)	24000FC 4500DY
20-862-01-01	542	Surge Tank (Rib 32 to Rib 34) - Left Wing (SFAR 88)	24000FC 4500DY
20-862-02-01	642	Surge Tank (Rib 32 to Rib 34) - Right Wing (SFAR 88)	24000FC 4500DY

APPENDIX C – Original Comments/Inputs

Operator 1

The operator has one comment / concern regarding the 737 MSI's 28-170-00 and 28-171-00. They were set at an interval of 10 years because they were covered by existing MRB items set at 10 years. If through normal MRB processes these MRB items are escalated to 12 years, (Heavy C / D is moving from 5 to 6 years), what will initiate the escalation of these MSI items?

They believe the normal MRB escalation process may address this but they do not have 100% confidence that this won't hold back the escalation of the MRB because the MSI is at 10 years. When, in fact, the MSI was set at 10 years because the MRB was 10 years.

Operator 2

If Boeing proposes alternatives, they should be in a position to provide airlines with a justification as to how/why they have chosen the intervals.

747-400:
AWL intervals quoted in the spreadsheet are incorrect. 10 years/36000FH should read 12years /36000FH

1. 28-AWL-01, 28-AWL-03, 28-AWL-10: AWL's with 12 years/36000 FH should become 14 year calendar time only. This is because 747-400 ISC is considering 8 year first D check. 14 years will enable task to be accomplished at 2D check. In doing this, the original objective of aligning AWL's with existing access opportunities will be met. Discrepancies that are intended to be found via these tasks are calendar time and/or maintenance access related. FH has little significance on defect likelihood.
2. 28-AWL-17: 18 months should become 2 years to align with escalated C check. Due to the work involved in performing this test (unless the test requirement have changed), 18 months is going to add considerable cost.
The main issue being picked up with the FCD's would be an open circuit winding or wires in the pump that could be a source of arcing. It would also pick up a burnt pump connector which is why it is an AMOC to the pump resistance measurement. However, the new pumps that will be installed soon are also an AMOC to the resistance measurement and you do not have to do the FCD check. The GFI's (not yet installed) will also pick up most connector issues so I believe the connector issue can be discounted in this assessment. This only leaves an open/arcing possibility in the pump and the pump would need to be running dry for ignition to occur. The HST's will have auto shutoff installed and the CWT has procedural shutoff before running dry. The other pumps could only be uncovered in maintenance and there are procedures to ensure this does not happen. The scavenge pump may be more of an issue.
3. 28-AWL-13: 1 year should become 2 years to align with escalated C check.
The GFI's will pick up arcing in the conduits, pump connector's and pumps to ground. With the newer pumps installed, the resistance check will disappear so we will be reliant on mostly the GFI's to pick up a problem.
However, 1 year appears to be over the top. The resistance check was mandated at 5000 hours but we are saying just the new pumps alone is an AMOC. The pump arcing internally is a low risk as discussed above and I cannot see 1 year being reasonable. The other issue is the conduits but we inspect these every 60,000 hrs at present.

747 classic:
ALI intervals quoted in the spreadsheet are incorrect. 10 years/36000FH should read 12 years/36000FH

1. 28-AWL-01, 28-AWL-03, 28-AWL-13: ALI's with 12 years/36000 FH should become 12 year calendar time only (or 14 year if to be the same as for
747-400). This will align with 2D check. Discrepancies that are intended to be found via these tasks are calendar time and/or maintenance access related. FH has little significance on defect likelihood.

767:
1. 28-AWL-01, 28-AWL-18, 28-AWL-26: AWL's with 12 years/36000 FH should become 12 year calendar time only. This will align with 8C check.
Discrepancies that are intended to be found via these tasks are calendar time and/or maintenance access related. FH has little significance on defect likelihood.
2. 28-AWL-05: AWL with 6 years/25000 FH should become 6 year calendar time only. This will align with 4C check. Discrepancies that are intended to be found via these tasks are more likely to be calendar time and/or maintenance access related. FH has little significance on defect likelihood.
3. 28-AWL-20: AWL with 1 year interval should become 18 months calendar time. This will align with 1C check.

Operator 3

They want to relay a concern about the proposed intervals for the SFAR 88 Fuel System Airworthiness Limitation Items. The proposed intervals in the Section 9 ALI's are troublesome for long haul carriers. Most of the proposed ALI's carry 12 yr or 36,000 hr whichever comes first intervals.

They believe Operator 2, like they fly about 5000 FH per yr with the B747-400, which means accomplishment of the task at about 7 yrs instead of 12. If you have an opportunity, please find out if the 36,000 FH limitations was based on actual data, or just a number assigned as a worldwide FH fleet average from Boeing.

It would be preferable to drop the FH limitation, however, if that is not possible, a more realistic FH limitation should be considered. They have made their management aware of this issue, and they believe they will state their concerns during the NPRM comment period, but if other operators share their concerns early, possibly we can get the FAA to agree to move on these restrictive intervals.

Operator 4

1. 747-400 and 747 Classic airplanes.
AWL says 10 years interval. Those should be 12 years interval.

2. 747-400 airplane.
AWL says 36,000 flight hours or 12 years whichever comes first. The 36,000 Flight hours are same as 737 airplanes.
747-400 is used in a long haul route and we would like to adjust the flight hour interval for the usage.
My suggestion is C check interval in MRB is 7,500 flight hours in 18 months. Therefore the interval should be 60,000 flight hours (7,500x12yearx12month/18month) or longer.

3. 777 airplanes.
Their understanding in the last SAFR88 meeting is that all zonal tasks were escalated to 6,000 days or 32,000 flight cycles to meet with 777 heavy maintenance program and tank entry requirement. They would like to say that all the zonal requirement of 4,500 days or 24,000 flight cycle requirement should be 6,000 days or 32,000 flight cycles.
They also would like to extend all 4,500day MSIs to escalate to 6,000 day to meet with 777 heavy maintenance visit and tank entry requirement.

4. Please correct followings.
A. "28-AWL-13" > "28-AWL-21" in 747-400 program.
B. "28-AWL-05 Functional check the lightning bond of the Hydraulic line fuel tank penetration."
> "28-AWL-03 FQIS Wire - Using Loop Resistance Tester p/n 906-10246-2 or 906-10246-3 to measure and verify the resistance of the shield to ground termination." in 777 program

Operator 5

The attached file indicates the operator's current average utilization. As can be seen from the onset, the AWL 36000 FH limit is highly restrictive for a corresponding 12 YR calendar interval and will guarantee tank entry inconsistent with a D check interval. However, they also believe that should the ISC be able to escalate the 747-400 D check interval to 8 years, it will also be inevitable that tank entry outside of a D check will also be required, unless the AWL calendar interval is reduced to 8 years. They do not believe that the FAA will allow a 16 year AWL calendar interval and it will not be in the industry's interest to lower the 12 year AWL to 8 years.
So they believe that the 12 year AWL interval will be adequate as long as there is a corresponding increase in the flight hour interval. They believe a 12 year/ 60000 FH interval would suffice. Substantiation is to reduce tank entry without escalating the calendar interval.

APL	DATE IN SERVICE	AIRPLANE AGE (YR)	9/06 TAT	9/06 TAC	AVG FH/YR	AVG FC/YR
408	1-12-1998	7,75	33379	5137	4306,97	662,84
409	7-4-2000	6,42	26734	4119	4164,17	641,59
412	27-4-2000	6,50	27661	4243	4255,54	652,77
415	9-7-2002	4,15	18005	2910	4338,55	701,20
416	9-7-2002	4,15	20612	3298	4966,75	794,70
418	10-12-2002	3,75	15921	2476	4245,60	660,27
492	1-8-1998	8,10	33680	6732	4158,02	831,11
493	1-10-1998	7,92	31998	5124	4040,15	646,97
496	1-6-1999	7,25	31581	4601	4356,00	634,62
497	15-6-1999	7,15	31732	4768	4438,04	666,85
498	1-8-1999	7,10	31557	4717	4444,65	664,37
499	11-2-2000	6,58	27382	4516	4161,40	686,32
			FLEET AVE		**4322,99**	**674,58**

	MRB D CHECK INTERVAL (YR)	ALI CALENDAR INTERVAL (YR)	AWL FH	CALCULATED AWL FH INT	CALCULATED AWL FC INT
CURRENT	6/ 1D	12,00	36000	51875,85	8094,97
FUTURE?	8/ 1D	8,00		34583,90	5396,64
FUTURE?	16/ 2D	16,00		69167,79	10793,29

Operator 6

767
All but one SFAR 88 MSI's for the 767 have the interval 8C. This is 8 "system C". The system C has an interval of 6000 FH or 18 Months whichever occurs first.
The 767 has a second C interval which is the "structure C". The structure C, expressed as SC has an interval of 3000 Cycles or 18 Months whichever occurs first.
The S4C, 72 M or 12000 Cycles, is the HMV or D-Check.

Operators that have a utilization of over 4000 FH per year reach the System C prior to 18M.
Planning the SFAR 88 tasks at 8C for those operators it means that the tasks have to be performed every S4C or D-Check.

If the target is 2D then S8C would be the correct interval.

The same story is applicable for the zonal task 20-133-01, interval 4C. Operators with a high utilization are forced to perform this task in a C-Check. The other 6C tasks can be done in the S4C.

I do not understand the intervals for the AWL-tasks. 12 years equals 2D or S8C. The second parameter 36,000 H equals just over S4C or 1D. What is the target?
Looking at the interval figures I wonder whether Boeing takes the world fleet utilization figures into account.
Tank entries must be minimized to prevent maintenance induced damage.

General:

The determination of the AWL intervals raises serious doubts. As an example look at the intervals of 28-AWL-01 through the different aircraft models. How can be explained that the latest model the 777 has a more conservative interval of 16,000FC / 3000Days than the 707 and 727 with a 36,000FC / 10Y interval? Apparently no progress has been made in wiring design in 40 years.
Wiring deterioration is calendar time (aging insulation) and Flight Hour (vibration causing chafing etc.) driven. So intervals in these two parameters are expected.

747-400
Interval should align with the normal tank entry inspections at 2D, this to prevent additional tank access and risk of wiring damage. If tasks are not related to tank entry, but do align with other tasks, they should at least align with these tasks.

In case of the wiring above the tank 28-AWL-01: this would be 1D (range of D-check intervals is 5 to 8 years).
Keep in mind that Boeing is currently contemplating a D-check escalation from 6 to 8 years!

777
As all other tasks are brought to 4500 DAYS/16000 FC, we recommend to bring the AWL's to these intervals as well.

737PG/737NG
With the substantiation as for the 767 and 747-400 the intervals of AWLs of the 737PG and 737NG fleet should be corrected from 10YR to 12 YR

MD-11/DC-10/
No comments.

Please find below the operator utilization:

	Yearly utilization	A-check Interval	C-check Interval	D-check Interval
	FH / FC	FH / Cal* / FC	FH / Cal* / FC	FH / Cal* / FC
B737CL	2500 / 1800	550 / - / -	4000 / 18M / 4000	24000 / 96M / -
B737NG	3200 / 1800	675 / 3M / 400	6000 / 24M / 3300	4C
B747-400	6000 / 1000	850 / - / -	- / 24M / -	- / 96M / -
B767	5000 / 1375	770 / - / 250	- / 18M / 3000	- / 72M / 12000
B777	5500 / 700	1200 / 75DY / 200	- / 750DY / -	- / 4500DY / -

*Calendar intervals

Operator 7

They have a suggestion for the 757 fleet. Task 28-41-3 / 28-034 is proposed at 10 years it should have an interval of 12 year or 8C, this way it will get done in a hangar with sufficient time to correct if needed.

Operator 8

Experience shows them that more damage is introduced by tank entry than is discovered by it. They know they must look but let them minimize the entries to every other Heavy Visit (8C for 757 and 767) to minimize introduced damage.

Operator 9

The operator said that intervals of AWL requirements should be met with current MRB or planned future heavy maintenance interval. If MRB does not define the heavy maintenance intervals, please use the common intervals that the most operators use. (Operators already commented. Intervals of large airplanes D maintenance is 3000 days (≒8 years) (777) and is or will be 8 years (747-400).) Many airlines's D check interval for 777 is 3000 days or 8 years. Please check Boeing "Airline Maintenance Inspection Intervals D6-26100" So, 2D requirement should be 6000 days. Tank entry out of D maintenance would be a huge job. In the last SFAR meeting, I believe airlines agree the point. Please re-consider the point and extend all the 4500 days requirements to 6000 days.

APPENDIX D – SFAR 88 ICA Fuels Working Group Meeting – 20&21 Apr 05

Operator Responses

Operator Action:

Airrlines will review the ALI Matrix (Inspections Only) that is posted on the Fuels Working Group SFAR 88 Web site, and advise of any concerns regarding the proposed inspection intervals as related to existing scheduled maintenance checks. It would be helpful if airlines identified their C and D check (or equivalent) intervals as it is our intent to align the tasks with a multiple C or D check.

Operator A response:

747-100/200/SR C check: 13 month/1200cycle D check: 5Y
747-400 C check: 7500 hour/18 month D check:6Y/25000 hour
767 C check: 6000hr/22 month D check:5Y
777 C check: 750day/4000cycle, D check 5Y

The operator requests that longest interval be applied to ALIs.

Operator B response:

We have reviewed the ALI intervals with our existing maintenance programs, and suggest the following changes:

737-300/500
1) 28-AWL-01, Boeing proposes 10 years, 36,000FC whichever comes first.
We request 12 years to mate with 4 year heavy maintenance visit.
2) 28-AWL-03 for Goodrich IFQT installation is not applicable to our
fleet (Smiths TSUs were used instead).
3) 28-AWL-17 Boeing proposes 30,000 hrs. We agree.

747-400
1) 28-AWL-01, Boeing proposes 12 years, 36,000hrs whichever comes first.
We agree with 12 years, but request 60,000 hrs to mate with 2D.
2) 28-AWL-03, Boeing proposes 12 years, 36,000hrs whichever comes first.
We agree with 12 years, but request 60,000 hrs to mate with 2D.
3) 28-AWL-08, Boeing proposes 12 years, 36,000hrs whichever comes first.
We agree with 12 years, but request 60,000 hrs to mate with 2D.
4) 28-AWL-15, Boeing proposes 12 years, 36,000hrs whichever comes first.
We agree with 12 years, but request 60,000 hrs to mate with 2D.
5) 28-AWL-01, Boeing proposes 18 mos. We agree (mates with 1C).

757-200
1) 28-AWL-01, Boeing proposes 10 years, 36,000FC whichever comes first.

We agree with FC, but request 12 years to mate with 2D.
2) 28-AWL-03, Boeing proposes 10 years, 36,000FC whichever comes first.
We agee with FC, but request 12 years to mate with 2D.
3) 28-AWL-14, Boeing proposes 10 years, 36,000FC whichever comes first.
We agree with FC, but request 12 years to mate with 2D.

767-300
1) 28-AWL-01, Boeing proposes 12 years, 36,000hrs whichever comes first. We agree with 12 years, but request 60,000 hrs to mate with 2D.
2) 28-AWL-03, Boeing proposes 12 years, 36,000hrs whichever comes first. We agree with 12 years, but request 60,000 hrs to mate with 2D.
3) 28-AWL-07, Boeing proposes 6 years, 25,000 hrs whichever comes first. We agree with 6 years, but request 30,000 hrs to mate with 2D.
4) 28-AWL-09, Boeing proposes 12 years, 36,000hrs whichever comes first. We agree with 12 years, but request 60,000 hrs to mate with 2D.

777-200
1) 28-AWL-01, Boeing proposes an interval of 16,000 FC or 3,000 DY whichever comes first. We request 3,700 DY to mate with HMV2 (heavy maintenance visit-2).
2) 28-AWL-03, Boeing proposes an interval of 16,000 FC or 3,000 DY whichever comes first. We request 3,700 DY to mate with HMV2 (heavy maintenance visit-2).
3) 28-AWL-07, Boeing proposes an interval of 25,000 hrs, 6 yrs. We agree.

Operator C response:

Maintenance Intervals – B747-400 Fleet
D-Check – Currently 6 Years -> In Proposal: First D-Check 8 Years
Subsequently 6 Years.

C-Check – Currently 18 Months -> In Proposal: Escalating to 24 Months

A-Checks – Currently at 750 Hours and Multiples thereof.

Average Annual Usage
5000 Hours and 500 Cycles

We have reviewed the AWL list distributed by Boeing and have the following comments:

1. Any interval that has been determined by Boeing or obtained from the data that is deemed effective for the Task at hand should represent the maximum interval allowable. Please don't reduce any interval in an attempt to pre-package tasks at perceived existing Heavy Maintenance Visits. Should operators wish to extend a task interval in the future this will be impossible without re-consulting the AWL's. If the maximum interval is known then the tasks can be slotted into the best available maintenance visit.

2. All Task intervals should be stated in the appropriate interval only. If the appropriate interval is calendar, cycles, hours (or combination of) based on the failure mode being addressed then refer to them in this interval, I.E. one or the other. All references to years and hours puts additional requirements on the time scales and operators will have to monitor the time limits simultaneously.

3. Some of these AWL's duplicate inspections already in the MPD, would these supersede these or add to them?

4. We would like information on what training package will be offered for Licensed and Workshop engineers, prior to implementation of these instructions.

5. It is vital that the airlines know when/what/how they can deviate from an AWL. The requested procedure and guidance material must clearly state this.

6. We are very concerned about the lack of information within the document itself. There are a lot of items that are TBA and Task = CDCCL. Are the operators going to get a chance to comment on the final draft of this document before it is officially released?

Operator D response:

Maintenance Input Intervals (B737/B757/B767).

B737	3C Check	Every 12,800 Flying hours/12,800 cycles/72 months.
	4C Check	Every 16,000 Flying Hours/16,000 cycles/96 Months.
	6C Check	Every 24,000 Flying Hours/24,000 cycles/144 Months.
B757	Inter Check 4	Every 24,000 Flying Hours/12,000 Landings/6 Years.
B767	Inter Check 4	Every 24,000 Flying Hours/12,000 Landings/72 Months

Average Annual Usage - AAU (Figure taken Jan 2005)

B737 2500 Hours

B757 2500 Hours

B767 Shorthaul 3000 Hours

Longhaul 4500 Hours

Comments on AWL lists:

1. Extend all AWL's to the greatest interval possible, at least 6 years.

2. Training and awareness of AWL's is a major issue for the airlines. Can any training be aligned with the Aging Airplane programmes (ASTRAC)

3. Have Boeing looked at aligning these tasks with items already in the MPD (i.e. CPCP programmes)

4. All SB's and AD's issued [and being issued] for SFAR 88 should highlight any affected AWL's and if so show compliance to them as we carry out the modification.

5. Standardise all intervals for the shorthaul fleets. Refrain from quoting cycles.

Maintenance Input Intervals (B747-400/B777).

B747-400 D Check Every 6 years

B777 Major checks every 3000 Days / 16,000 Cycles / 48,000 hours.

Average Annual Usage - AAU (Figure taken Jan 2005)

B747-400 4443 Hours

B777 4340 Hours

Please be aware that these hours are due to a reduced longhaul flying programme because of the unforeseen effects to the industry, eg SAR's, Sept 11th etc. We would ultimately envisage AAU to be 5000 Hours per year.

On review of these documents the following comments have been made:

1. The interval assigned to each task should represent the maximum interval that the data (or Boeing) has determined is effective for the task. Do not reduce interval in an attempt to pre-package tasks at perceived existing HMV. A maximum interval may allow operators to escalate check intervals at a future data without having to re-address these new AMLs

2. Refrain from using 'hours' as the defined period. All intervals should be calendar years, remove the 36,000 hour statements, however each task should be expressed in the most appropriate interval calendar, cycles, hours (or combination of) based on the failure mode being addressed

3. Why is the B777 not at the same standard as the B747-400 – is this aircraft less safe ? We would like to see 12 year intervals as well. If failure mode/effect supports 12 years for the 777 use it, don't pre-package.

4. 28-AWL-07, the summary document states different figures. Why is this different when related to the front spar instruction ?

5. Some of these AWL's duplicate inspections already in the MPD, would these supersede these or add to them ?

6. B747-400 28-AWL-10, CDCCL item states that TWO bonding straps should be installed on the Override/jettison pumps. This is related to the Crane pump and not for the operators that have moved towards the FR-HiTemp pumps as they only have one bond jumper installed.

7. We would like a comprehensive training package for our Licensed and Workshop engineers, prior to implementation of these instructions.

8. It is vital that the airlines know when/what/how they can deviate from an AWL. The requested procedure and guidance material must clearly state this.

Operator E response:

Maintenance checks intervals proposed on ALI Matrix.

a - For B737-500, our D checks intervals are the same as the interval proposed in the matrix for items 28-AWL-01 and 28-AWL-03. No comment.

b - For B747, our D check interval is 80 months. An interval of 12 years and 36,000 flight hours is proposed for some items in the matrix, so we would prefer for these items an interval of at least 160 months, to allow a 2 D interval. Our B747 C checks interval is 18 months. For items 28-AWL-10 and 28-AWL-22 an interval of 20 months would allow a C check eventual postponement.

c - For B777, our interval for structural checks is 5 years, 5000 cycles. An interval of 4000 days for items 28-AWL-01, 28-AWL-03, 28-AWL-07 would permit a 2 D interval.

Operator F response:

See attached table.

Airplane Model	737-3/4/5	737NG	747CL	747-400	767	777	DC-10	MD-11
External Wires over Center Fuel Tank	28-AWL-01 10 Years/36,000 Flight Cycles (whichever is 1st)	28-AWL-01 10 Years/36,000 Flight Cycles (whichever is 1st)	28-AWL-01 12 Years/36,000 Flight Hours (whichever is 1st)	28-AWL-01 12 Years/ 36,000 Flight Hours (whichever is 1st)	28-AWL-01 12 Years/36,000 Flight Hours (whichever is 1st)	28-AWL-01 3000 Days/ 16,000 Flight Cycles (whichever is 1st)		
FQIS Out Tank Wiring Lightning Shield	28-AWL-03 10 Years/36,000 Flight Cycles (whichever is 1st)	28-AWL-03 10 Years/36,000 Flight Cycles (whichever is 1st)	28-AWL-03 12 Years/36,000 Flight Hours (whichever is 1st)	28-AWL-03 12 Years / 36,000 Flight Hours (whichever is 1st)	28-AWL-03 12 Years / 36,000 Flight Hours (whichever is 1st)	28-AWL-03 3000 Days/ 16,000 Flight Cycles (whichever is 1st)		
Hydraulic Line Fuel Tank Penetration					28-AWL-07 6 Years / 25,000 Flight Hours (whichever is 1st)	28-AWL-07 3000 Days/ 16,000 Flight Cycles (whichever is 1st)		
Center Tank Fueling Valve Fault Current			28-AWL-14 12 Years / 36,000 Flight Hours (whichever is 1st)	28-AWL-15 12 Years / 36,000 Flight Hours (whichever is 1st)				
Fuel Pump Fault Current Detector			28-AWL-10 18 Months	28-AWL-22 18 Months				
Fuel Level Sensing System Out Tank Wiring Lightning Shield				28-AWL-08 12 Years / 36,000 Flight Hours (whichever is 1st)	28-AWL-09 12 Years / 36,000 Flight Hours (whichever is 1st)			
Comment on proposed interval.	Proposed interval acceptable.		For 12 Years items: Delete the flight hour limit or if second limit is required use Cycles as is being done with 737 and 777 (similar as 777, 16000 C) or if reasons exists to use flight hours, consider limit increase to 50000 H. Note: A/C entering first D-check at will have approx 46000 H. For "C" items: Increase interval to 24 M		For 12 years items: Delete the flight hour limit or if second limit is required use Cycles as is being done with 737 and 777 (similar as 777, 16000 C) or if reasons exists to use flight hours, consider limit increase to 50000 H. For 6 years item: Consider increase to same limits as 12 years items.	Proposed interval acceptable	"D" check: 60 M interval	"D" check: 72M interval (30.000 H) "C" check: 8000 H interval.