

# Critical Systems

**AMP Reference:** IAL/777/T Revision 00 Initial

## A. CRITICAL SYSTEMS LIST

The practice of performing maintenance on any critical multiple system may present opportunities for error. Maintenance of all multiple critical airplane systems at the same time or by the same individual or team presents the potential for similar errors being introduced onto multiple systems. This risk of error can be offset through staggered maintenance, varying maintenance personnel, developing specific processes for critical system maintenance and educating maintenance personnel about critical systems.

As a result of the improvement in fleet reliability due to ETOPS programs, Boeing recommends that all operators consider instituting a policy of avoiding maintenance on similar or dual systems using the same personnel during a single maintenance visit. By doing so, operators eliminate the potential that improper maintenance will occur on similar or backup systems. Fleet experience has shown that this policy will improve airplane reliability.

System maintenance requirements should be purposely designed to avoid working on critical redundant systems during a single maintenance visit. Additional processes or instructions such as checklists, cross checking work performed, using tooling provided by the airframe manufacturers and engine companies or additional functional tests should be developed for those occasions when such maintenance cannot be avoided during maintenance visits.

Boeing has long advocated that operators stagger scheduled maintenance on multiple critical systems such as engines. Boeing has emphasized such recommendations through Service Letters such as 777-SL-05-001-A. This service letter specifically discusses engines, however, other critical systems exist. The following critical systems have scheduled maintenance requirements and are included in this appendix for consideration in the separation of tasks to address multiple system error potential.

- Air conditioning
- Electrical power
- Fire protection
- Fuel
- Hydraulics
- Ice and Rain
- Navigation
- Pneumatics
- Auxiliary Power
- Engines

This appendix lists all scheduled maintenance requirements for the above critical systems that specifically require the mechanic to physically break into multiple critical systems (e.g. borescopes or filter changes on both engines). This list is intended to raise operator awareness at the maintenance planning level of critical system maintenance involving multiple similar systems. It provides all recommended scheduled maintenance requirements that are applicable to critical systems. This appendix may be used as an initial baseline list for an operator to create it's own complete listing reflective of their specific maintenance processes.

## B. PAGE FORMAT EXPLANATION

### 1. MPD ITEM NUMBER

Unique numeric identifier for each task .

### 2. ENGINE APPLICABILITY

Applicable Engine (ENG) Model:

- GE90 = 75B, 76B, 85B, 90B, 94B
- GE100 = GE90-110, GE90-115B
- PW4000 = PW4074, PW4077, PW4084, PW4090
- TRENT 800/892 = 875-17, 877-17, 884-17, 892-17, 89213-17, 895
- NOTE = Engine Applicability Note

### 3. TASK DESCRIPTION

Description of the task to be performed.

MPD Item #	Engine Applicability	Task Description
72-060-01	GE100 GE90	Inspect (Detailed) COMBUSTOR DOME, LINER AND 1ST. STAGE NOZZLE LEADING EDGE (WITH BORESCOPE) on left engine.
72-060-02	GE100 GE90	Inspect (Detailed) COMBUSTOR DOME, LINER AND 1ST. STAGE NOZZLE LEADING EDGE (WITH BORESCOPE) on right engine.
72-065-01	GE100 GE90	Inspect (Detailed) HIGH PRESSURE TURBINE 1ST. & 2ND. STAGE BLADES AND STAGE 2 NOZZLE (WITH BORESCOPE) on left engine.
72-065-02	GE100 GE90	Inspect (Detailed) HIGH PRESSURE TURBINE 1ST. & 2ND. STAGE BLADES AND STAGE 2 NOZZLE (WITH BORESCOPE) on right engine.
79-010-01	GE100 GE90	Inspect (Detailed) OIL SYSTEM SCAVENGE SCREENS on left engine.
79-010-02	GE100 GE90	Inspect (Detailed) OIL SYSTEM SCAVENGE SCREENS on right engine.
80-005-01	GE100 GE90	Inspect (Detailed) STARTER CHIP DETECTOR for contamination on left engine.
80-005-02	GE100 GE90	Inspect (Detailed) STARTER CHIP DETECTOR for contamination on right engine.
72-206-01 72-207-01	PW4000	Inspect (Detailed) 1ST. & 2ND. STAGE BLADES on High Pressure Turbine (WITH BORESCOPE) on left engine.
72-206-02 72-207-02	PW4000	Inspect (Detailed) 1ST. & 2ND. STAGE BLADES on High Pressure Turbine (WITH BORESCOPE) on right engine.
72-211-01 72-212-01	PW4000	Inspect (Detailed) INNER AND OUTER COMBUSTION CHAMBER ASSEMBLIES AND 1ST. STAGE HPT VANES (WITH BORESCOPE) on left engine.
72-211-02 72-212-02	PW4000	Inspect (Detailed) INNER AND OUTER COMBUSTION CHAMBER ASSEMBLIES AND 1ST. STAGE HPT VANES (WITH BORESCOPE) on right engine.
72-270-01	PW4000	Inspect (Detailed) ENGINE MASTER CHIP DETECTOR for contamination on left engine.
72-270-02	PW4000	Inspect (Detailed) ENGINE MASTER CHIP DETECTOR for contamination on right engine.
73-210-01	PW4000	Discard FUEL PUMP FILTER ELEMENT on left engine.
73-210-02	PW4000	Discard FUEL PUMP FILTER ELEMENT on right engine.
72-375-01	TRENT 800/892	Inspect (Detailed) ENGINE MASTER CHIP DETECTOR on left engine.
72-375-02	TRENT 800/892	Inspect (Detailed) ENGINE MASTER CHIP DETECTOR on right engine.
72-410-01	TRENT 800/892	Inspect (Detailed) COMBUSTOR LINER (WITH BORESCOPE) on left engine.

MPD Item #	Engine Applicability	Task Description
72-410-02	TRENT 800/892	Inspect (Detailed) COMBUSTOR LINER (WITH BORESCOPE) on right engine.
72-415-01	TRENT 800/892	Inspect (Detailed) HIGH PRESSURE TURBINE BLADES (WITH BORESCOPE) on left engine.
72-415-02	TRENT 800/892	Inspect (Detailed) HIGH PRESSURE TURBINE BLADES (WITH BORESCOPE) on right engine.
72-445-01	TRENT 800/892	Inspect (Detailed) HIGH PRESSURE TURBINE NOZZLE GUIDE VANES (WITH BORESCOPE) on left engine.
72-445-02	TRENT 800/892	Inspect (Detailed) HIGH PRESSURE TURBINE NOZZLE GUIDE VANES (WITH BORESCOPE) on right engine.
73-350-01	TRENT 800/892	Discard low pressure FUEL FILTER ELEMENT on left engine.
73-350-02	TRENT 800/892	Discard low pressure FUEL FILTER ELEMENT on right engine.
79-385-01	TRENT 800/892	Restore (Clean) PRESSURE OIL FILTER on left engine.
79-385-02	TRENT 800/892	Restore (Clean) PRESSURE OIL FILTER on right engine.
79-390-01	TRENT 800/892	Discard SCAVENGE OIL FILTER on left engine.
79-390-02	TRENT 800/892	Discard SCAVENGE OIL FILTER on right engine.