


B787 Program update - F205



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Agenda

Boeing 787 Fuel system background

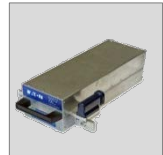
Fuel Valve Actuator PN 53-0037 to 53-0049

APU P/N 39-0005-1200

Fuel system - equipment

Fuel system equipment

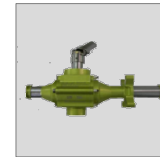
- 4 Boost Pumps & 4 - Housings
- 2 Override Pumps & - 2 Housings
- 1 APU Pump & 1 - Housing
- 2 Fuel Scavenge Jet Pumps
- 2 Water Scavenge Jet Pumps
- 7 Check Valves
- 1 Cross-feed Valve
- 2 Defuel Valves
- 2 Jettison Valves
- 2 Manifold Drain Valves
- 2 Bypass Valves
- 7 Pressure Switches
- 2 Refuel Adaptors
- 11 Remote Valves
- 18 Valve Actuators



NGS system - equipment

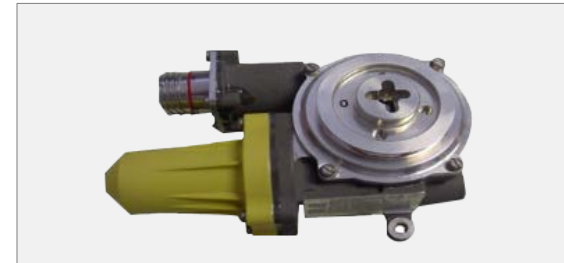
NGS system equipment

- 3 Remote valves
- 5 Check valves
- 3 Actuators
- 6 Drain valves
- 3 Vent float valves
- 2 Flame arresters
- 1 Cross prevention vent valve
- 10 Vent drain valves



Issue/Application

- **Platform:**
 - Boeing 787-8
- **Aircraft problem/impact:**
 - To meet compliance with 25.901(c)
- **Description of problem**
 - Original design, without diodes, only the destination position is signalled and to address in-service failures
- **Identify assembly/part number:**
 - Fuel Valve Actuator PN 53-0037 to -0049
- **Consequence(s)**
 - Modification of 6 locations on Aircraft



787 In-service issues – actuator upgrade

FAA mandated change - additional actuator position annunciation required

- Part number roll to 53-0049 incorporated at line 126
- In support of AD No. 2014-NM-068-AD
- 2 Phase implementation
 - Phase one eliminates need to inspect 3 actuator positions every 10 days
 - Phase two required for full compliance
- Existing on wing units being updated
- Seed units provided to operators



787 In-service issues – actuator C2 capacitor failure

P/N 53-0037/49 capacitor C2 located on motor circuit board

- Some incidents of C2 capacitor located in motor module cracking resulting in actuator failure
- SB 53-0037-28-02 issued to change motor module to one containing new capacitor (applies to line 126 and earlier)
- Positions - Main tank refuel (4), engine fuel shutoff (2) and APU fuel shutoff (1)
- Part plan
- Timing

Joint planning with Boeing



Issue/Application

- **Platform:**
 - Boeing 787-8
- **Aircraft problem/impact:**
 - Failure of APU pump
- **Description of problem**
 - CE2825801 APU DC Pump circuit breaker was found tripped and the pump was placed inoperative. Pump end cap detached.
- **Identify assembly/part number:**
 - APU P/N 39-0005-1200
- **Consequence(s)**
 - Potential modification to overcome issue



History

Some operators advised issues relating to the CE2825801 APU DC Pump circuit breaker tripping and the APU pump being inoperative

Pump end cap was also found detached

Investigations revealed damage to the MOV (Metal Oxide Varistor), and in some cases damaged capacitors



Next steps

Further extensive testing is being planned to analyze and advise potential design changes to the electronics circuit

Boeing advised the working parameters of an APU Pump during a flight cycle

Additional pump cycling tests to be run by Eaton, to gather data relating to any voltage surges and/or any transient current spikes

Analyze the Non-Compliance and understand if this has any immediate effects to the unit and/or aircraft



Questions/Comments



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