



EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

Burner For Powerplant European status

Deletain Rémi
Powerplant Installation & Fuel Systems
EASA Certification Directorate

Serge Le Neve
Fire Safety Department
DGA Aeronautical Systems

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Burner For PWP - European status

- ISO 2685 Revision - Background
- End of 2008 launch of ISO 2685 revision
 - Review severity of gas burner vs fuel burner
 - Representativity of gas burner versus an engine fuel-fed fire
 - Informative vs formative status of Appendixes
 - Inconsistent application of vibrations by applicants
 - Clarification of fire resistance/fire proofness function intend of the part/component /structure to be performed.
 - Clarify relation between burner size vs specimen
 - Improve robustness of calibration to avoid test results variations



Burner For PWP - European status

➤ Status

- Preliminary cross-testing (Snecma / CEAT lab test) indicates room for variability in results despite same standard is followed
- ISO is a test standard and does not offer possibility to introduce certification fire requirements and compliance interpretation as an AMC.
- Electrical harness/connector suppliers are using “Benzen burner” : suspect size, temperature and heat flux of flame are not representative of engine fuel-fed fire



Burner For PWP - European status

➤ Standby

- Last group meeting end of 2010
- Dependent on progress on the fire test survey and associated comparative testing.



► 1st analysis of the Powerplant Fire Test Survey

(A full analysis will be done when all the labs reply to the survey)



- 8 responses received
- All the labs perform tests according to the FAA test methods and AC (AC20.135, AC33.17-1A, Handbook)
- 7 labs perform test according to the ISO 2685 standard :
 - 1 lab uses only a gas burner
 - 1 lab uses only an oil burner



► 1st analysis of the Powerplant Fire Test Survey

Main differences :

(the differences are not commented on or discussed here to avoid influencing the responses still expected)



Gas Burner :

- The labs don't use the same way to set / or check the air-flow and gas-flow
- All gas burners are homemade



Oil Burner :

- Various Brands of burners
- Various oils
- Various additional items used to enhance / stabilise the flame (discs, tabs, additional holes, ...)
- Various nozzles (brands and spray angles)



► 1st analysis of the Powerplant Fire Test Survey

Main differences :

(the differences are not commented on or discussed here to avoid influencing the responses still expected)



Settings and calibrations :

- Same type of thermocouples but various configurations (diameters , grounded or not, exposed junction (weld) or not, aspirated or not, ...)
- Heatflux calculation : various values are used for the exposed length of the tube
- Various heatflux calibration methods are used (water-cooled thermogage or heat transfer device)
- Additional descriptions / explanations and/or pictures would be appreciated for a better understanding (see questions : 28, 36 (homemade modifications and variations), 68 (calibration system and procedure), heat transfer device, ...)



▶ 1st analysis of the Powerplant Fire Test Survey

Main differences :

(the differences are not commented on or discussed here to avoid influencing the responses still expected)

Test configurations and environmental conditions :

- The test enclosures vary from 20m³ to 3000m³
- Test configuration (orientation of the burner) :
 - only horizontal position : 4 labs
 - only vertical position : 1 lab
 - both positions or multi-angles : 3 labs
- 1 lab only sometimes performs tests using multiple burners



Round Robin test results on 600mm x 600mm 2024 aluminium sheet (3mm)

Test results currently received from only 1 lab :

(The test results will be presented and discussed when all expected results will be received)

REQUEST :

➤ To be sure that all labs performed the tests under the same conditions (or to be able to analyse and compare the results if the conditions were different) please mention/confirm :

- the type of burner used (oil / gas),
- the calibration parameters (HF, T),
- the test standard used,
- the HF device used (Watercooled calorimeter or Heat transfer device),
- the distance from the burner to the head of the screw,
- ... all additional point which could have an effect on the test results...



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