

TRACK 5: RSAF INDIGENOUS PROJECTS

“ENHANCING DIAGNOSTICS FOR THE FIGHTERS’ ENVIRONMENTAL CONTROL SYSTEM (ECS)”

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ABSTRACT

Troubleshooting of the Fighter Aircraft ECS requires the analysis of several parameter data. Collection of data is therefore the first critical step towards troubleshooting of ECS defects.

Currently for the F-15SG, pressure gauges have to be connected to the existing pressure points, and instantaneous pressure readings will be recorded manually. In addition, due to the limited number of pressure points within the ECS, there is difficulty in identifying the exact defective components. In response, AeC/AELD and AeMF/807SQN had incorporated additional ECS test points on the F-15SG to improve the current ECS defect diagnostics capability. To improve the data collection process, an ECS test control panel which provides centralized ECS readings simultaneously was designed and fabricated.

As for the F-16C/D, AeC and AeMF/805SQN have been developing an on-board ECS data logging system. The ECS data logging system which will record various pressure, temperature and electrical signals of the F-16C/D ECS will enhance the current ECS troubleshooting procedure based on real-time recorded data. Currently, a prototype data logger system had been tested successfully with the F-16C/D aircraft as a proof-of-concept. Further design improvement and trials will be carried out henceforth.

Technical considerations and lessons learnt from both projects will be shared.

BIOGRAPHY OF SPEAKERS



Previously an OIC for the F-16C/D Aerosystems and Maintenance Flight, ME4 Jeremy Toh is currently a Staff Officer from Aerosystems Centre/AELD. He is primarily in charge of F-15SG technical issues related to hydraulics, pneumatics, fuel and ECS, and has been working closely with AeMF/807SQN to resolve several challenging technical issues. ME4 Jeremy Toh is also managing various self-initiated reliability and cost-saving projects such as the F-16C/D ECS data logger system and schedule extension of F-15SG 200-hourly Out-of-Phase servicing tasks. Graduated from the National University of Singapore with a Bachelor of Mechanical Engineering (First-Class Honours), ME4 Jeremy Toh is currently pursuing his Masters of Science (Mechanical Engineering) at NUS.



As the OIC for Aerosystem and Maintenance Flight (AeMF), ME4 Pang worked together with his OC on various innovation projects ranging from new diagnostics method to new tools and products that enhance work efficiency. Amongst the multiple innovative projects, four were awarded in Base Innovation Council and RSAF Innovation Council.