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Maintenance schedule for reheated Derwent VIII engines installed in meteor aircraft

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SUBJECT **Maintenance Schedule for Reheated Derwent VIII Engines Installed in Meteor Aircraft**

PREPARED BY **G.G. Levy and E.L. Smith**

ISSUED TO **Internal**

THIS MEMORANDUM IS ISSUED TO FURNISH INFORMATION IN ADVANCE OF A REPORT. IT IS PRELIMINARY IN CHARACTER, HAS NOT RECEIVED THE CAREFUL EDITING OF A REPORT, AND IS SUBJECT TO REVIEW.

1.0 INTRODUCTION

The following sections outline maintenance requirements for the reheat system installed in Meteor aircraft, VT 196, during flight trials. These instructions are in addition to the normal engine/airframe checks laid down in the relevant Meteor 4 and Derwent 8 handbooks.

2.0 REHEAT SYSTEM CHECKS

2.1 Between Flight Inspection

2.1.1 Check pilot's report.

2.1.2 Using a spot lamp, inspect reheat jet pipe, flame holder, exhaust unit bullet and turbine. Check tailpipe skin in vicinity of suspension brackets.

2.1.3 Operate reheat ignition and check that both plugs are sparking satisfactorily.

2.1.4 Examine intake duct and nacelle cowlings for signs of fuel leakage.

2.2 Daily Inspection

2.2.1 Carry out the checks detailed in Section 2.1.

2.2.2 With cowling panels removed, run the engine to check for fuel, oil and gas leaks.

Switch on reheat at 14,500 RPM and check maximum operating conditions (see Appendix I).

Check aircraft services to ensure that the hydraulic pump, air compressor, etc. are operating satisfactorily.

2.2.3 Check run-down time after closing the high pressure fuel cock.

2.2.4 Check turbine and tailpipe with spot lamp.

2.2.5 Check tailpipe securing bolts and clips where accessible.

N.B. Ground running should be kept to the minimum necessary to carry out these checks.

2.3 5-Hour Inspection

After each 5 hours of flying time, remove the reheat pipe and diffuser from the aircraft.

2.3.1 Inspect the flame holder assembly, diffuser, combustion duct, and insulating shroud for signs of burning, cracks, wrinkling and distortion.

2.3.2 Inspect exhaust cone assembly (in situ) and measure minimum turbine blade tip clearance.

2.3.3 Examine tail pipe suspension brackets.

2.3.4 Check igniter plugs.

2.3.5 Remove main reheat fuel nozzles for inspection.

2.3.6 Flow-check pilot fuel ring.

2.3.7 Remove and rig test the reheat shut-off and by-pass solenoid valves (on Engine Laboratory rig).

2.3.8 Examine all reheat fuel pipes and hoses for signs of leakage or fretting.

2.3.9 Examine main reheat fuel manifold (in situ).

2.4 25-hour Overhaul

Remove reheat tailpipe and engine from aircraft.

2.4.1 Carry out the 5-hour inspection detailed in section 2.3 and in addition:--

2.4.2 Dismantle and inspect engine combustion chambers.

2.4.3 Inspect turbine rotor and stator blades for cracks and bowing.

2.4.4 Remove and strip the Rotol accessory gearbox.

2.4.5 Pressure test main reheat fuel manifold.

APPENDIX I

OPERATING LIMITATIONS

DERWENT 8 Engine with N.A.E. Reheat System

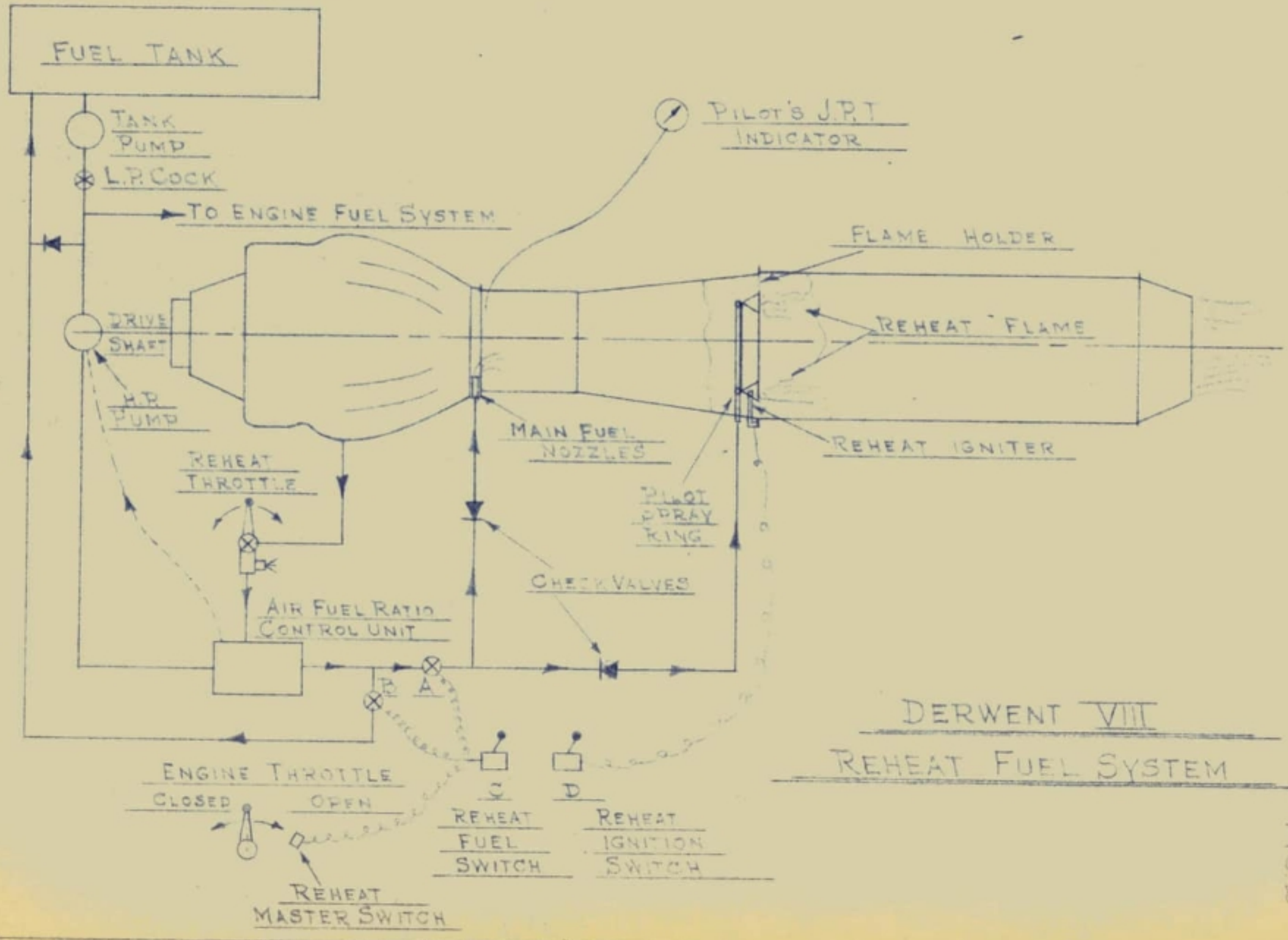
	RPM	J.P.T.
Take-off and Combat (with reheat)	14,500	670 ± 5°C
Take-off and combat (no reheat)	14,700	640°C
Max. Continuous (no reheat)	14,100	560°C
Idling	3,500 ± 200	450°C

Fuel:- Aviation Kerosene to Specification D.Eng.R.D.2482

Oil:- Specification DEF2001 (U.S. Spec. MIL-O-6081)

Rotol Accessory Gearbox

Oil:- D.Eng.R.D. 2479/1 (with additive)



DERWENT VIII

REHEAT FUEL SYSTEM

FIG 11