

Chapter 1

SUPERHEATER COIL

Part No. OP.7320

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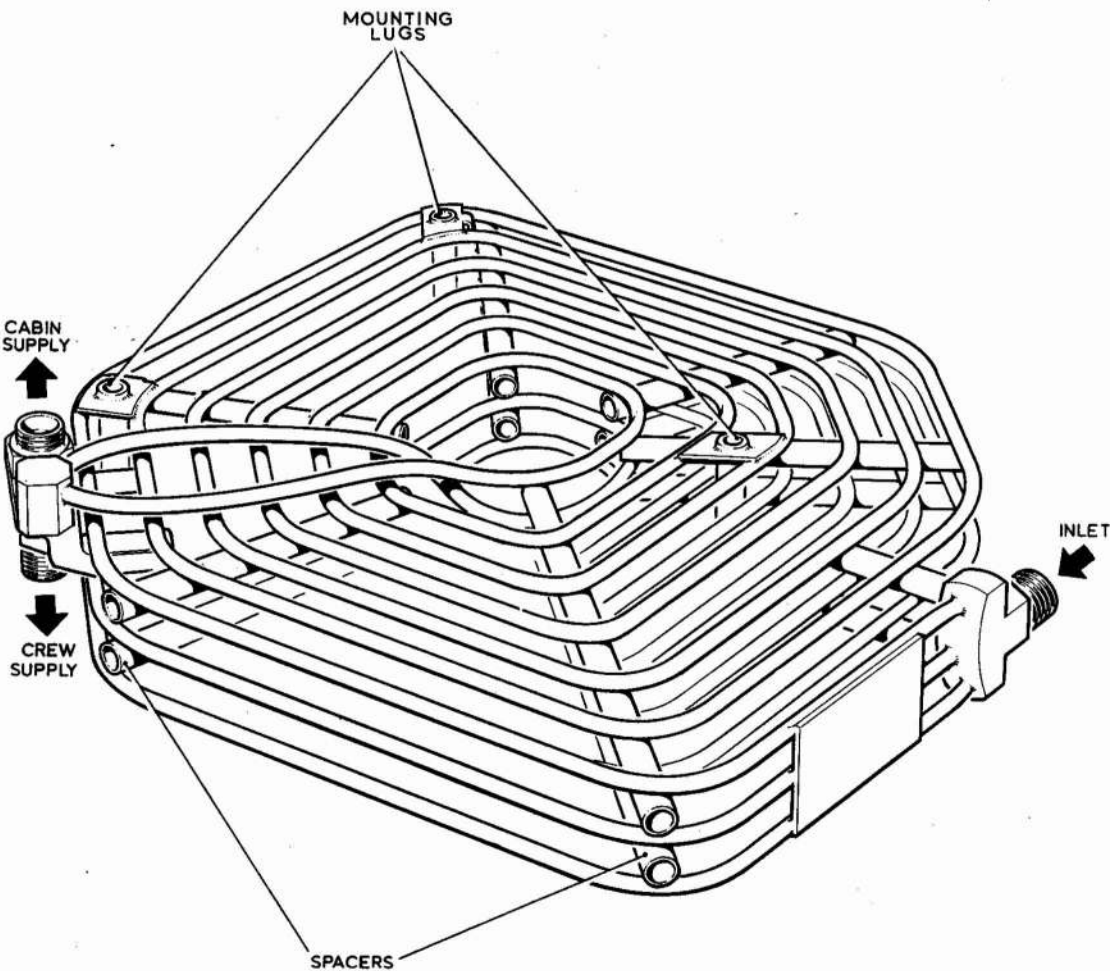


Fig. 1. Superheater coil (Part No. OP.7320)

RESTRICTED

Introduction

1. This superheater coil is employed in certain aircraft liquid oxygen systems. Its purpose is to enable gaseous oxygen to absorb heat from the surrounding cabin air, thus ensuring that the gas in the supply pipelines is at a comfortable breathing temperature.

DESCRIPTION

2. The unit is a welded structure consisting of three coils of light-alloy tubing, mounted in parallel, which are supported on spacers to ensure rigidity. Mounting lugs, suitably spaced and welded to the coils and spacers, provide attachment points for installation purposes. Protection caps are fitted to the pipe connections for storage and transit.

3. Two of the coils are coupled together and terminate in a pipe connection (0.60 in. dia. $\times$ 19 tpi Whit form, internal cone) which serves the flight crew. The other coil is coupled to a similar pipe connection and serves the cabin occupants.

INSTALLATION

4. Prior to installation, the unit must be purged using dry clean breathing oxygen, the protection

caps must then be replaced and not removed until immediately before connecting the unit in the system.

5. Information concerning the installation of the superheater coil will be found in the relevant aircraft air publication.

WARNING . . .

Many materials, particularly oil and grease, are subject to spontaneous combustion when exposed to undiluted oxygen under pressure. Precautions must, therefore, be taken to exclude oil, grease, dust and metal particles from the unit.

SERVICING

6. In order not to impair the heat transfer properties, the exterior of the coils must be kept clean. The coils should be cleaned with a cloth moistened in industrial methylated spirit (Ref. No. 34D/313), ensuring that the cleaning agent does not accumulate at the pipe connections.

7. Protection caps must be fitted to the pipe connections when the unit is disconnected from its installation.

Appendix 1
STANDARD SERVICEABILITY TESTS
for
SUPERHEATER COIL
(Part No. OP.7320)

Introduction

1. The tests described in this appendix should be applied before the coil is installed in aircraft, when the serviceability of the coil is in doubt and at the appropriate examination periods at Equipment Depots.

Test equipment

2. The following test equipment is required:—
- (1) Oxygen pressure gauge (Ref. No. 6C/263)
 - (2) Breathing oxygen test supply (100 lb/in²)
 - (3) Flowmeter (Ref. No. 6C/3160), 2 off.

Particulars of tests

3. The tests are to be applied under normal room temperature (+15°C) and pressure (29.92 in. Hg) conditions. The gas supply for the tests must be breathing oxygen.

4. Soap solution for leak testing must be prepared in accordance with the instructions contained in Part 1, Sect. 2, Chap. 1. Precautions must be taken to prevent the solution entering the coil, and all traces of soap solution and moisture must be removed when each test is completed.

TEST PROCEDURE**WARNING . . .**

Many materials, particularly oil and grease, are subject to spontaneous combustion when exposed to undiluted oxygen under pressure. Precautions must be taken, therefore, to exclude oil, grease, dust and metal particles from the unit and the test equipment.

Leak test

5. Blank the outlet connections and connect a breathing oxygen test supply of 100 lb/in² to the inlet connection, close the supply valve and observe the gauge reading. There should not be any fall in the pressure reading over a period of 2 minutes.

Flow test

6. There must be no undue resistance to flow. With a pressure of 3.0 lb/in² applied and maintained at the inlet connection, the flow from the dual pipe outlet must be not less than 80 litres/min, and the flow from the single pipe outlet not less than 40 litres/min.



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