CLAIMS

1. A device for the in-flight conditioning of equipment (6, 7, 8) of cryogenic circuits of an aircraft, characterized in that it comprises means for bleeding air from outside the aircraft, means for extracting nitrogen from this air using a nitrogen separator of the OBIGGS type (3) and means (4, 5) for distributing this nitrogen around said equipment.

2. The conditioning device as claimed in claim 1, for which the distribution means comprise pressure-boosting means.

3. The conditioning device as claimed in claim 1 or 2, comprising means for distributing the nitrogen around the various equipment items of cryogenic circuits using a circuit of pipework (4) equipped with calibrated orifices (5).

4. The conditioning device as claimed in claim 1, 2 or 3, comprising means (13) for encapsulating said equipment (6, 7, 8) to receive the conditioning nitrogen.

5. The conditioning device as claimed in any one of claims 1 to 4 suited to the distributing of conditioning nitrogen around the items of equipment of the cryogenic circuits at least during a phase of atmospheric flight of the aircraft.

6. The conditioning device as claimed in any one of the preceding claims, for which the bleed means are situated on a compressor stage (2) of a turbine engine (1) with which the aircraft is equipped.

7. The conditioning device as claimed in any one of claims 1 to 5, for which the bleed means directly draw in air from outside the aircraft.

8. The conditioning device as claimed in any one of the preceding claims, comprising drying means (9) in the circuit downstream of the separator.

9. The conditioning device as claimed in any one of the preceding claims, characterized in that it supplements a ground device external to the aircraft for circulating nitrogen or helium.

10. An aircraft comprising a rocket motor (100) using one or more cryogenic propellant(s), characterized in that it comprises a conditioning device as claimed in any one of the preceding claims.

11. The aircraft as claimed in claim 10, of the space-plane type, characterized in that it has dual propulsion: an aerobic turbine engine (1) and a rocket motor (100).

12. A method for conditioning equipment of cryogenic circuits of an aircraft, characterized in that it comprises a first step of conditioning equipment of cryogenic circuits of the aircraft on the ground using an external conditioning circuit connected to the aircraft, and a second step of in-flight conditioning of said equipment using a device as claimed in any one of claims 1 to 9.

CLAIMS

1. A device for the in-flight conditioning of equipment items (6, 7, 8) carrying cryogenic fluids of cryogenic circuits of an aircraft, characterized in that it comprises means for bleeding air from outside the aircraft, means for extracting nitrogen from this air using a nitrogen separator of the OBIGGS type (3) and means (4, 5) for distributing this nitrogen around the various equipments carrying cryogenic fluids of said cryogenic circuits.

2. The conditioning device as claimed in claim 1, for which the distribution means comprise pressure boosting means.

3. The conditioning device as claimed in claim 1 or 2, comprising means for distributing the nitrogen around the various equipment items of cryogenic circuits using a circuit of pipework (4) equipped with calibrated orifices (5).

4. The conditioning device as claimed in claim 1, 2 or 3, comprising means (13) for encapsulating said equipment (6, 7, 8) to receive the conditioning nitrogen.

5. The conditioning device as claimed in any one of claims 1 to 4 suited to the distributing of conditioning nitrogen around the items of equipment of the cryogenic circuits at least during a phase of atmospheric flight of the aircraft.

6. The conditioning device as claimed in any one of the preceding claims, for which the bleed means are situated on a compressor stage (2) of a turbine engine (1) with which the aircraft is equipped.

7. The conditioning device as claimed in any one of claims 1 to 5, for which the bleed means directly draw in air from outside the aircraft.

8. The conditioning device as claimed 5 in any one of the preceding claims, comprising drying means (9) in the circuit downstream of the separator.

9. The conditioning device as claimed in any one of the preceding claims, characterized in that it supplements a ground device external to the aircraft for circulating nitrogen or helium.

10. An aircraft comprising a rocket motor (100) using one or more cryogenic propellant(s), characterized in that it comprises a conditioning device as claimed in any one of the preceding claims.

11. The aircraft as claimed in claim 10, of the space plane type, characterized in that it has dual propulsion: an aerobic turbine engine (1) and the rocket motor (100).

12. A method for conditioning equipment of cryogenic circuits of an aircraft, characterized in that it comprises a first step of conditioning equipment of cryogenic circuits of the aircraft on the ground using an external conditioning circuit connected to the aircraft, and a second step of in-flight conditioning of said equipment using a device as claimed in any one of claims 1 to 9.