

# European Aviation Safety Agency

## European Technical Standard Order

**Subject:** CREW MEMBER OXYGEN REGULATOR, DEMAND

### 1 — Applicability

This ETSO provides the requirements which Crew Member Oxygen Regulator, Demand that are designed and manufactured on or after the date of this ETSO must meet in order to be identified with the applicable ETSO marking.

### 2 — Procedures

#### 2.1 — General

Applicable procedures are detailed in CS-ETSO, Subpart A.

#### 2.2 — Specific

None.

### 3 — Technical Conditions

#### 3.1 — Basic

##### 3.1.1 — Minimum Performance Standard

Standards set forth in the SAE AS8027, Crew Member Oxygen Regulator, Demand, dated 1 June 2004, as modified by Appendix 1 to this ETSO.

Crew member oxygen regulators are separated into four types:

- Type I: Remote-mounted, panel or portable,
- Type II: Man-mounted, not mask-mounted,
- Type III: Mask-mounted, less valving, and
- Type IV: Mask-mounted, with integral valving.

The four types of oxygen regulators are further separated into five classes:

- Class A: Straight demand,
- Class B: Diluter demand,
- Class C: Straight demand, pressure breathing,
- Class D: Diluter demand, pressure breathing to 40 000 ft, and
- Class E: Diluter demand, pressure breathing to 45 000 ft.

##### 3.1.2 — Environmental Standard

Refer to SAE AS8027, paragraph 4.5

##### 3.1.3 — Computer Software

ETSO-C89a

None.

3.1.4 — Electronic Hardware Qualification

None.

3.2 — Specific

None.

3.2.1 — Failure Condition Classification

See CS-ETSO, Subpart A, paragraph 2.4.

**4 — Marking**

4.1 — General

Marking is detailed in CS-ETSO, Subpart A, paragraph 1.2.

4.2 — Specific

Type and class (refer to paragraph 3),

Maximum altitude (per AS8027, paragraph 1.2.3),

Inlet supply pressure range (per AS8027, paragraph 3.1.7).

**5 — Availability of Referenced Document**

See CS-ETSO, Subpart A, paragraph 3.

**APPENDIX 1**

**MPS FOR CREW MEMBER OXYGEN GENERATORS, DEMAND**

The applicable standard is SAE AS8027, Crew Member Oxygen Regulator, Demand, dated 1 June 2004. It shall be modified as follows:

<b>AS 8027 section:</b>	<b>Action:</b>
Paragraph 1.1, Scope	Shall be disregarded
Paragraph 3.1.1	To be revised: Materials of a type, grade and quality shall be used where experience and/or tests have shown their suitability for the purpose. Materials contaminating oxygen or materials that are adversely affected by continuous service with oxygen must not be used. Except for small parts like knobs, triggers, fasteners, seals, and electrical parts that do not contribute significantly to fire propagation, materials including packaging must comply with CS 25.853, Appendix F, Part 1 (a)(1)(iv).
Paragraph 3.1.2	To be revised: Filters have to be provided at oxygen inlet ports to prevent entrance of particles, which may be hazardous to the user or impair the function of the device. Filters must be equivalent to that of a 200 mesh screen.
Paragraph 3.1.3	To be revised: For Class B, D, and E devices (diluter demand) an air inlet port has to be provided. The port shall be designed to prevent entrance of particles, which may impair performance of the device. A 100 mesh screen or equivalent filter shall be used.
Paragraph 3.2.1.2	To be revised: Outlet Proof Pressure (Class A and B except Type IV)
Paragraph 3.2.1.3	To be revised: Outlet Proof Pressure (Class C, D and E except Type IV)
Paragraph 3.4, Applicability Matrix, Table 7	To be revised: 3.2.1.2 Outlet Proof Pressure (Except Type IV) 3.2.1.3 Outlet Proof Pressure (Except Type IV) 3.2.8 Relief Valve (Except Type IV)

**APPENDIX 1**

**MPS FOR CREW MEMBER OXYGEN GENERATORS, DEMAND (*continued*)**

<b>AS 8027 section:</b>	<b>Action:</b>
Paragraph 4.5.1	<p>To be revised:</p> <p>High-temperature exposure:</p> <p>The device shall be soaked for 12 hours at not less than 160° F (71.1 °C). Then the device shall be transferred to 70° F (21.1 °C), ambient temperature. Within 30 minutes of doing this, the device shall be tested to the requirements of paragraphs 4.4.3 through 4.4.9.</p>
Paragraph 4.5.2	<p>To be revised:</p> <p>Low temperature exposure:</p> <p>The device shall be soaked for 2 hours at not less than -65° F (-54°C). Then the device shall be transferred to 0° F (-17.8°C) for 2 hours to stabilise it. After this, the device shall be transferred to 70° F (21.1 °C), ambient temperature. Within 30 minutes of doing this, the device shall be tested to the requirements of paragraphs 4.4.3 through 4.4.9.</p>
Paragraph 5.1, Identification	To be disregarded.