G650 Oxygen System
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The oxygen system is about the storage of gaseous oxygen under high pressure and its delivery to crew and passengers as an alternate means of breathing in the event of:

1. Depressurization
2. Smoke/fumes

- Two (2) identical tanks plumbed together form a single system

- Two (2) portable, personal breathing devices are available to safeguard a crewmember in the event of an inflight fire, smoke or fume emergency
- The 

\[ \text{O}_2 \]

\[ \text{O}_2 \]

Tanks have a capacity of \( 123.4 \) \( \text{ft}^3 \) and are pressurized to \( 1800 \pm 50 \) psi

- Cylinder pressure regulators reduce system pressure to \( 55-80 \) psi prior to the supply line

\[ 1800 \text{ psi} \rightarrow \text{Regulator} \rightarrow 55-80 \text{ psi} \rightarrow \text{O}_2 \text{ Masks} \]

- Each cylinder has two (2) pressure relief ports - a high pressure and a low pressure

\[ \text{Overpressure/Overtemperature Port} = 2775 \text{ psig/225°F} \]

\[ \text{Underpressure Port} = 90 \text{ psig} \]

- The pressure relief ports are teed together and connected to the overboard discharge indicator on the right side of the aircraft

\[ \text{Overboard discharge indicator(·)} \]
- Oxygen tanks are located underneath the floor near the main entrance doorway.

- The O₂ tanks are serviced through a panel on the right side of the aircraft (maintenance function).

Oxygen filler valve

1800 psi @ 70°F

Aviators breathing oxygen
MIL-PRF-27210
- Overboard discharge indicator - Status

Checked during pre- and post-flight inspections

- Round = OK ✓
- Square = Discharged ✗
Oxygen Gauges

- Oxygen Service Panel - Direct reading gauges

- Cockpit Oxygen System Panel - DC-powered
Oxygen System Test

1. Oxygen supply pressure ✓
2. Oxygen shutoff control ON
3. Press and hold
   3A. >1 or 2 seconds blinker goes from
   (+) to (+)
   (no leak)
3B. Hissing stops
   Release both and hissing stops

System Test Panel (COP)

PASS Oxygen
TEST
PASS Oxygen ON

C PASSENGER OXYGEN ON C
Crew Oxygen Masks

- EROS MLD 20
- Three (3) crew oxygen mask/regulator assemblies
- Pilot and copilot: Full face/detachable goggles
- Observer (jump seat): Non-attachable goggles
- Provide crew low pressure oxygen
- Quick donning (≤ 5 seconds/one hand operation)
- Although the crew and passengers share a common oxygen system, the delivery methods are different.
Normal (N): diluted mixture of O₂ and cabin air

100%: on demand flow of 100% O₂

Emergency: pressurized flow of 100% O₂

- The masks are certified to a cabin altitude of 40,000’ and will automatically switch to positive pressure at 35,000’
Passenger Oxygen Masks

Provides cabin occupants oxygen until the airplane is able to descend to an altitude where ambient air is dense enough that supplemental oxygen is no longer required.

- The masks are certified to a cabin altitude of 40,000 feet.

- Emergency descent only. Will not provide sufficient oxygen above 34,000 feet.

- Passenger oxygen masks can be deployed either manually or automatically.

\[
\text{Cabin Altitude of } 14,750' \pm 250' \\
\text{Automatically: } \begin{cases} \\
\text{ALT SELECT} \\
\text{HIGH ALT} \end{cases} = 15,750' \pm 250'
\]
The number of passenger masks vary but will normally exceed the number of passenger seats by at least 10%.

Passenger Oxygen Masks

C Passenger Oxygen ON C

Passenger Oxygen

Off

Auto Man

Passenger Oxygen

Off

Auto Man

Pull on lanyard to remove pin
Therapeutic Oxygen

- Therapeutic oxygen is available through a receptacle in the cabin.
- Administering oxygen should be done in consultation with a doctor. Call MedAire or other provider.

Therapeutic Oxygen starts the flow of oxygen to the receptacle. This is announced via a CAS message.

Therapeutic oxygen plug in.
PROTECTIVE BREATHING EQUIPMENT (PBE)

- **ESSEX**

- A PBE is a self-contained, portable personal breathing device. It is designed to safeguard against the harmful effects of smoke/fumes by providing breathing oxygen while fighting a cabin fire.

- **Two (2) PBEs are installed, one (1) in the cockpit behind the pilot’s seat and one (1) in the aft lavatory.**

- Each PBE has two (2) oxygen cylinders that together hold 36 liters of aviator grade oxygen.
- PBEs provide a **15-minute supply of oxygen**
- PBE pre-flight **STATUS INDICATOR**

![Diagram showing status indicators with a checkmark and an X]

- PBE **SERVICE/End of Service light**

  Mounted slightly below eye level on the left inner side of the hood. Provides for the monitoring of oxygen activation, flow and end of oxygen supply.
Oxygen Requirements/Operations

Above **41,000`** one pilot must be on oxygen - FAR 91

Crew and passenger masks **not approved** for use above **40,000`** cabin altitude

Above **35,000`** one pilot must be on oxygen if the other pilot leaves the cockpit - FAR 91

Passenger masks **will not provide sufficient oxygen** above **34,000`**

Above **FL250** crew masks must be in the quick donning position which allows donning within five (5) seconds

Automatic deployment of passenger oxygen masks at **14,750` ± 250`** (**15,750` ± 250`** with **HIGH ALT**)

See AFM 01-35-10 to determine required oxygen quantity for departure
Questions, comments or errors?
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Thank you!