G650 OXYGEN SYSTEM
G650 Oxygen System

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 tanks have a capacity of 123.4 ft³ and are pressurized to 1800 ± 50 psi.

- Cylinder pressure regulators reduce system pressure to 55-80 psi prior to the supply line.

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

  - Overpressure/Overtemperature Port: 2775 psig/225°F
  - Underpressure Port: 90 psig

- The pressure relief ports are teed together and connected to the overboard discharge indicator on the right side of the aircraft.
- Oxygen tanks are located underneath the floor near the main entrance doorway.

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

- Oxygen filler valve

- 1800 psi at 70°F

- Aviators breathing oxygen

- MIL-PRF-27210
- Overboard discharge indicator - status

Checked during pre- and post-flight inspections

○ = ok  ✓
■ = discharged  ✗
Oxygen Gauges

- Oxygen Service Panel - Direct reading gauges

Crew O₂

PAX O₂

O₂ Service Panel

- Cockpit Oxygen System Panel - DC-powered

Oxygen System

Crew

PAX

O₂

O₂
1. Oxygen supply pressure ✓
2. Oxygen shutoff control ON
3. Press and hold
   3a. >1 or 2 seconds, blinker goes from + to + (no leak)
4. While holding "Press To Test"
   Push emergency button. Hissing resumes.
   Release both and hissing stops

System Test Panel (COP)
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.

![Diagram of oxygen system]

Delivery Method:
- Normal (N)
- Crew → 100%
- Emergency
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'

[Diagram of oxygen system with labeled parts: goggles, regulator, inflatable harness, crew oxygen masks, (face outboard)]
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**

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

- Passenger oxygen masks can be deployed either manually or automatically

Automatically:

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

Passenger Oxygen Masks

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.

- Starts the flow of oxygen to the receptacle. This is announced via a CAS message.
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

![Status Indicator Diagram]

- 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 24,000'.

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...please send me an email: ivan@code7700.com

Thank you!