B.Sc

Oxygen system

mechanical separated oxygen

- material- molecule sieve
- oxygen purifier
- very economical -
- can replace other system

oxygen system & components

@ gaseous oxygen system

- 400 psi
- yellow color (military)
- one time used
- Not passenger civilian are
- taken all in aircraft
- @ 1800 - 2400 psi tank

- DGCA approval
- material aluminum
- yellow mark

- hydrostatic test 1/3
- the working pressure.

- 3000 psi for every five years

dated of test sho
stamped on both

→ Service life - 20 yrs
or after they have
filled 4380 times
↑
which will come first

BMT cylinder
life 15 yrs
or 10000 fills

→ oxygen cylinder must
be stamped
approval details
date of manufacture
date of hydrostatic
test
→ for light weight
gas cylinder some more
material

→ the pressure
reducing valve
to reduce pressure
B.P - 400 psi

also pressure relief valve

→ on Hot day thermal discharge needed.

to release oxygen in cabin to avoid accident.

Regulator

two types

~~low demand — small~~

1) continuous flow regulator

2) demand type

· in this oxygen flow when user to person she is inhaling or exhaling

→ simple & economical

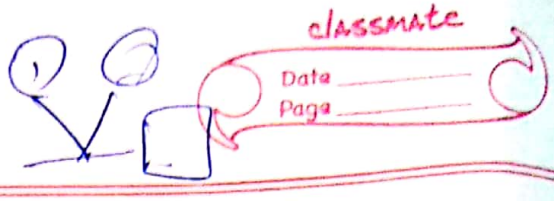
→ used in emergency such that drop mask.

two type

1) manual

2) automatic

1) manual continuous flo



consist of two gauge & one knob

- one gauge show output pressure
- one gauge show pressure in line

→ a) Automatic control flow regulator

→ control by barometer or out atmosphere

→ control pressure with altitude.

(2) demand type flow regulator

~~only~~ operator used inhaling or only allow flow on inhalation

→ more accurate flow

→ used by crew

Diluter Demand Regulator

→ used by mostly commercial aircraft

→ There is pressure reducer at inlet

→ demand shut off close the flow in mask until wearer inhale & decrease the press in side the mask so press demand diaphragm open and provide oxy.

→ low altitude some cabin air is mixed instead in oxygen but at high alt 32000ft a pure oxygen provided with help barometer bellow.

→ mca any position wear pure 100% Oxygen then they can press the Normal to pure i.e. button on the mask

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there are three
button or switch

Normal mode
100% pure
emergency mode
-> this mode can

oxygen flow continue
only.

- pressure demand
Regulator
40000 ft

at high altitude
lung cannot expand
that need to
pressure or regulate

so oxygen pressure
is required

mask

→ used to deliver the oxygen from cylinder

→ continuous flow mask

→ demand type

1) Continuous flow mask

→ simple bag type

→ demand type mask

→ meter proper amount of oxygen

→ fit tightly

→ full face mask and nasal mask

Typical Installed Continuous oxygen System.

Single engine aircraft

— continuous flow

→ pression cabin
not [illegible] [illegible]
oxygen

② Liquid oxygen
system (LOX)

→ only military

→ not readily
avail.

→ one liter of oxygen
provide 860 liter
gas oxygen

→ stored in spheres
Carbon

→ after ozone 70%

→ used coil to
convert flow to gas
state

3) chemical oxygen
/ solid

) also called oxygen
candle

→ low value from stock

→ less complicated

→ save 1/3 space

→ candle made
sodium chlorate

→ long shelf life

→ use occasionally or
or standby back

oxygen System Servicing

→ leak testing

→ ~~foam~~
foam ir
spread over bottle

→ bubble if
leakage

→ filter check
or proper foam

→ scale such

→ if necessary
replace

② ~~filling the oxygen system~~

pressurizing the
oxygen system

- done after high pressure bottle are used.
- it require pursing after done.
- all safety precaution has to take

(2) filling the oxygen

- first it cost which
- can carry 8Y cylinder
- on one opposite face Nitrogen tank having
- one tank 250 bar pressure for charging hydraulic accumulator
- it connected to flexible manifold for charging it has shut off valve

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→ before filling must check stamp & Hydro Stati. test.

→ oxygen done should not be empty because air can go inside

→ water vapor shows remain to reduces corrosion/rust

→ Cylinder empty mean 50-100 kr

max 2000 psi

→ filling pressure it depend on ambient pr

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* filling Liquid oxy
- can carry 20 to 100 lit
- while filling must wear clothing & eye protection

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inspection of mask & Hoses

- Disposable mask used for passenger
- permanent mask used for crew.

- should wash with luke warm detergent allow them to dry room temp.
- alcohol is is used to sanitize them

prevention of fire or explosion while filling & delivering

- No smoking
- or open flames
- Cot should be earthed
- that person should avoid smoking for 15 min after completion of fuelling
- Absolute clean
- large tank should not placed cart.
- ponts upright

→ away from ice & snow sun

→ protection cover

→ dirt grease oil

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