Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE RECOMMENDED PRACTICE

ARP 171B

Issued 5-1-44
Revised 1-15-76

GLOSSARY OF TECHNICAL AND PHYSIOLOGICAL TERMS RELATED TO AEROSPACE OXYGEN SYSTEMS

ø a	Arterial symbol, used to designate source of blood gas, or other components of arterial blood, i.e., PaO_2, partial pressure of arterial oxygen tension; $PaCO_2$, arterial CO_2 tension, etc.
ø A	Alveolar symbol, used to designate alveolar gas tensions, i.e., $PACO_2$, alveolar CO_2 tension; PAO_2, alveolar oxygen tension, etc.
ABSOLUTE PRESSURE	See "Pressure, Absolute".
ø ACAPNIA	The complete absence of carbon dioxide (usually in the blood); term commonly used incorrectly for hypocapnia.
ACAPNIC	Suffering from acapnia.
ø ACIDOSIS, RESPIRATORY	Resulting from an increase of the carbonic acid of blood relative to the bicarbonate fraction with resultant decrease of pH; this occurs whenever elimination of carbon dioxide through pulmonary ventilation is impaired, as in respiratory obstruction, paralysis, pulmonary fibrosis, or other diffusion impairment.
ADAPTER	A mechanical means for connecting some part of one oxygen system to another different oxygen system.
ADIABATIC	Describes a process in which an energy change is accomplished on or by a fluid without heat transfer to or from the surroundings. See "Compression, Adiabatic".
AEROEMBOLISM	A condition wherein gases (mostly nitrogen) appear in the circulatory system and are transported in gaseous form. Related to relative decreases in the ambient pressure. These bubbles tend to lodge in smaller vessels impairing blood flow and tissue nutrition. Often coexistent with but not necessarily identical to bends.
ø AEROSOL	A fine suspension of liquid or solid particles (usually 0.3 to 8 μm) in an atmosphere of gas.
AIR, CABIN	(1) Air flowing into a cabin. (2) Air in the cabin proper - the condition of cabin air is normally determined at the point where the air leaves the cabin.

AIR CONTENT, ALVEOLAR, DRY	See "Gases, Respiratory".
AIR CONTENT, ATMOSPHERIC, DRY	See "Gases, Respiratory".
AIR CONTENT, EXPIRED, DRY	See "Gases, Respiratory".
AIR, BLEED	Air bled from the compressor of a gas turbine engine.
AIR, COOLING	A stream of air used as a heat sink.
AIR, RECIRCULATED	Air in enclosed spaces or equipment cooling systems which is recirculated by fans or blowers.
ø AIR, STANDARD SEA LEVEL	Air at 15°C (59°F) and at a dry pressure of 101.3 kPa (29.92 inches Hg) absolute.
AIR, REGENERATED	Air which has been regenerated by removing excess carbon dioxide, water vapor, odor, or other contaminants and, by adding oxygen, thereby making it suitable for respiration.
AIRWAY	(1) The path which air travels from the atmosphere to the alveoli or small air sacs in the lung. (2) Any of several devices used in securing or maintaining an unobstructed respiratory passage.
ALKALOSIS, RESPIRATORY	A decrease of the carbonic acid fraction of blood relative to the bicarbonate fraction with resultant increase in pH; this occurs as a result of excessive elimination of carbon dioxide, as in hyperventilation. Also called "Hypocapnia".
ALTITUDE, DENSITY	The altitude corresponding to a given density in a standard atmosphere.
ALTITUDE, EQUIVALENT OR CABIN	I.C.A.O. (International Civil Aviation Organization) standard altitude at which atmospheric pressure is equal to the cabin pressure.
ALTITUDE, PRESSURE	The altitude corresponding to a given pressure in I.C.A.O. standard atmosphere.
ALTITUDE, STANDARD	The altitude corresponding to the temperature and pressure as defined for an I.C.A.O. Day and as tabulated in NACA-TN-3182.
ALVEOLAR AIR	Air in the terminal lung sacs, or alveoli and alveolar ducts.
ø ALVEOLAR DUCT	A portion of the terminal air passages of the lung from which air sacs (alveoli) arise.
ø ALVEOLAR MEMBRANE	Thin layer of tissue which partitions the air in the alveoli from capillary blood, and through which gas exchange occurs between blood and alveolar air.

ALVEOLAR VENTILATION	That air which enters the alveoli. In principle, tidal volume minus the physiological dead space times the respiratory rate.
ø ALVEOLUS (plural ALVEOLI)	See Pulmonary Alveolus
ø AMBIENT	Surrounding, or prevailing, as "ambient temperature".
ø ANEMIA	A quantitative or qualitative deficiency of the blood. This may be a reduction in the total number of red blood cells, Hemoglobinemia, which is a reduction of the hemoglobin content within each cell, or both. The result is a decrease in the oxygen-carrying capacity of the blood. Anemia is marked by paleness of the skin and mucous membranes, loss of energy, heart palpitation and murmurs.
ø ANEROID	A sealed flexible chamber containing little or no air which causes it to expand when exposed to a reduced ambient pressure or contract when subjected to increased ambient pressure. See "Control, Barometric".
ø ANOXEMIA	A condition of absolute lack of oxygen, as opposed to hypoxemia or hypoxia which refers to deficiency or lowered oxygen content.
ANOXIA	Absence of oxygen; a condition incompatible with many forms of life. Failure of tissue either to receive or to utilize an adequate amount of oxygen; former term, now more properly "Hypoxia".
APNEA	See "Respiration, Types of".
ø ARRHYTHMIA	Absence of rhythm, applied especially to any variation from the normal rhythm of the heart beat.
ø ARTERIAL BLOOD	Usually refers to oxygenated (bright red) blood in the conducting and distributing arteries of the systemic circulation. (Blood in the pulmonary artery, by contrast, is dark (purplish) because of its low oxygen content prior to oxygenation in the lung capillary vascular bed.) The pulmonary artery conducts venous bleed from the superior and inferior vena cava vein through the right heart to the lung.
ø ARTERY	A vessel conducting blood from the heart. Conducting and distributing arteries are those which deliver oxygenated blood to all organs. The pulmonary artery conveys venous blood from the heart to the alveolar ducts and alveoli. Bronchial and tracheal arteries supply oxygenated arterial blood to the non respiratory conducting lung structures.

ø ASPHYXIA	Suffocation from lack of available or usable oxygen plus retention of carbon dioxide in vital tissues. The retention of carbon dioxide distinguishes asphyxia from hypoxia which is merely a diminished amount of oxygen supply. Cardiac muscle tolerates asphyxia poorly as compared to hypoxia.
ø ASPIRATION	(1) Removal of accumulated mucus and foreign bodies from airway by suction. (2) To draw by suction into the airway, vomitus, food, secretions or excretions. Results in aspiration pneumonitis. (3) The act of breathing or drawing in.
ASTHMA	Recurrent attacks of difficult breathing, with dyspnea (shortness of breath), cough, wheezing, and a sense of constriction of the chest.
ATELECTASIS	Partial or complete collapse, or imperfect expansion of the air sacs of the lungs; may include entire lobes or entire lung fields.
ATMOSPHERE	(1) A mixture of gases surrounding the earth. (2) A mixture of gases surrounding an object or a person. (3) In expressing pressure of compressed gases, 1 atmosphere is assumed to be 14.7 psia.
ø ATMOSPHERE, STANDARD	Atmosphere in which: (1) the air is a dry perfect gas; (2) the temperature at sea level is 15° Celsius (59° Fahrenheit); (3) the pressure at sea level is 101.3 kPa (29.92 inches Hg) (760 mm Hz); (4) the temperature gradient from sea level to the altitude at which the temperature is -56.5° C (-69.7° F) is -0.006499° C/meter (-0.003566° F per foot) and zero above that altitude; and (5) the density at sea level under the conditions described in subparagraphs (1) thru (4) is 1.225 kg/m^3 (0.002377 lb. sec. ^{2}/ft. ^{4}) (.002377 slugs per cu. ft.).
ATMOSPHERIC PRESSURE	See "Pressure, Atmospheric".
ATOMIZER	Device to reduce a liquid or solid to small droplets, in the form of a spray. See "Nebulizer".
ø A T P D	Ambient Temperature and Pressure, Dry.
A T P S	Ambient Temperature and Pressure, Saturated with water vapor.
AUTOMIX	A valve operated by barometric pressure which regulates the mixture of oxygen with ambient air to attain a percentage of oxygen according to altitude.
AVERAGE LUNG VOLUME	Average volume of gas in lung during respiration (residual volume plus expiratory reserve plus 1/2 tidal volume). See "Lung".

BAG, ECONOMIZER	A bag (connected to a mask) to which oxygen is admitted continuously at a fixed rate of flow, and which during expiration is isolated from the mask by a check valve so that oxygen delivered to the bag during expiration is available for the next inspiration, thereby reducing the peak demand on the oxygen system.
BAG, REBREATHER	A bag connected through an open passage to a mask, so that oxygen delivered to the bag at a continuous fixed rate of flow becomes mixed with a portion of the expired gas, thereby providing a large volume of oxygen-enriched gas for the next inspiration, thus reducing the peak demand on the oxygen system and reducing the oxygen consumption by rebreathing a portion of each expiration.
BAROMETRIC CONTROL	See "Control, Barometric".
BENDS	A condition of pain in the joints and deep or superficial tissues caused by the appearance of gas bubbles as a result of the relative decrease in ambient pressure. Identical with decompression sickness. Also see "Aeroembolism" and "Dysbarism".
ø BLINKER	A type of oxygen flow indicator having a shutter which opens and closes during breathing.
ø BOTTLE, OXYGEN	See "Cylinder, Oxygen".
ø BRADYCARDIA	Slowness of the heart manifested by a pulse rate usually less than 60 per minute. Also slowing of the heart rate below normal.
BRADYPNEA	See "Respiration, Types of".
BREATH	The air inhaled and exhaled during respiration.
BREATHING	The cyclic inflow and exit of air from the lungs through the air conducting components of the respiratory tract.
BRONCHI	The two primary divisions of the trachea, or windpipe. (Singular, bronchus.)
ø BRONCHIUM (plural BRONCHIA)	One of the subdivisions of a bronchus, smaller than the bronchus and larger than the bronchioles.
ø BRONCHIECTASIS	Abnormal and chronic dilatation and infection of bronchial tubes and terminal air sacs and passage. Marked by fetid breath and paroxysmal coughing with the expectoration of mucopurulent matter.
ø BRONCHIOLE	A minute, thin walled branch of a bronchus, especially one that terminates in one or more alveoli and alveolar ducts.

ø BRONCHIOLITIS	Inflammation of the bronchioles, bronchopneumonia.
ø BRONCHITIS	Inflammation and edema of the bronchial tubes leading to airway obstruction deep in the lung.
ø BRONCHOCONSTRICTOR	A medicament or agent which narrows the air passages of the lungs.
ø BRONCHODILATOR	A medicament or agent which dilates the air passages of the lungs.
ø BRONCHOSPASM	Spasmodic narrowing of the lumen of a bronchus associated with edema of air passages and air trapping.
ø BTPD	Body Temperature (37° C or 98.6° F), Ambient Pressure, Dry.
ø BTPS	Body Temperature (37° C or 98.6° F), Ambient Pressure, Saturated with water vapor (pH_2O = 47 mm Hg = 6.3 kPa).
CABIN, NONPRESSURIZED	An airplane cabin which is not designed or equipped for pressurizing and which will, therefore, have a cabin pressure equal to that of the surrounding atmosphere.
CABIN, PRESSURIZED	An airplane cabin which is constructed, sealed, and equipped with an auxiliary system to maintain a pressure within the cabin greater than that of the surrounding atmosphere.
CANNULA, NASAL	A tube (or pair of tubes) designed to be inserted into one or both nostrils, for the administration of oxygen or other gases, or for sampling of respiratory gases.
ø CAPILLARY	A minute (6 to 8 microns (μm) diameter) thin-walled blood vessel, smallest of the blood-transport system. Capillaries constitute the interchange point between the circulatory system and the tissues, and connect the arterial system with the venous system.
CAPILLARY TUBE	(1) A small diameter tube inserted in a pneumatic or hydraulic system to produce a desired pressure drop. (2) A small diameter tube connecting a thermostatic or pilot valve with a bellows or diaphragm in a control device.
ø CARBON DIOXIDE (CO_2)	An odorless, colorless gas which neither burns nor supports combustion. It is one of the chief products of combustion of carbon-containing substances. It is a waste end product of the living metabolic processes in the body. It is excreted in exhaled air. It diffuses from the blood across the alveolar membrane into the respiratory air as a result of a gradient in partial pressures.

CARBON MONOXIDE (CO)	A colorless, odorless, toxic gas resulting from combustion of carbonaceous compounds in an insufficient supply of oxygen.
ø CHEMICAL OXYGEN GENERATOR	A device containing chemically combined oxygen which, when properly activated (generally by heating from an internal exothermic chemical reaction) will produce a supply of pure gaseous oxygen at a rate and in a quantity suitable for breathing.
CHEYNE-STOKES RESPIRATION	See "Respiration, Types of".
CLOSED CIRCUIT SYSTEM	See "Rebreather System".
COMPLEMENTAL AIR	See "Reserve, Inspiratory".
ø COMPLIANCE	A measure of the elastic properties of the lung, airway, thorax and other compliance-contributing components alone or together, in volume change per unit pressure change, usually liters per centimeter of water (L/cm H_2O) or, in SI units, cubic decimetres per 98 Pascals (dm^3/98 Pa).
COMPRESSION, ADIABATIC	Compression of a gas or mixture of gases without transmission of heat to or from it.
COMPRESSION, ISOTHERMAL	Compression of a gas or mixture of gases with subtraction of sufficient heat to maintain a constant temperature.
COMPRESSOR	A device in which work is done on a fluid (liquid or gas) to raise its total pressure.
COMPRESSOR, AXIAL	A compressor which inducts and delivers a fluid (liquid or gas) axially by one or more rotating elements, compressing the fluid.
COMPRESSOR, CABIN	A compressor which compresses and delivers air to a pressurized cabin.
COMPRESSOR, CENTRIFUGAL	A compressor which inducts a fluid (liquid or gas) axially, delivers it radially outward relative to the rotating impeller, and compresses the fluid.
ø CONCENTRATION	The amount of a given constituent present in a unit volume. May be expressed as a ratio, as a percentage, in parts per million or in milligrams per liter (mg/dm^3).
ø CONDITIONER	A device by which the inspired air, in passing through it, is warmed, purified, humidified, or medicated.

CONDITIONING, AIR	The simultaneous control of all, or at least the first three, of the following factors affecting both the physical and chemical conditions of the atmosphere within a structure: temperature; humidity; motion; distribution; pressure; dust; and bacteria.
ø CONFORMANCE	See "ELASTANCE".
ø CONTAINER	See "Cylinder, Oxygen".
CONTROL, BAROMETRIC	A method of control which depends on the barometric pressure of the atmosphere. See "Aneroid".
CONTROL, DIFFERENTIAL PRESSURE	A method of control which limits the maximum pressure differential between cabin pressure and atmospheric pressure and maintains this differential at all altitudes above those of the isobaric control. When operating, the differential control always overrides the isobaric control.
CONTROL, ISOBARIC	A method of control which maintains essentially constant cabin air pressure.
CONTROL, MANUAL	A control device regulated by hand.
COR PULMONALE	Dilation of the right side of the heart, secondary to an obstructing pulmonary disease, or to obstruction of the pulmonary artery.
CORONARY OCCLUSION	Shutting or closing off of one of the arteries of the heart. Common cause of "heart attack".
COSTAL BREATHING	See "Respiration, Types of".
COUPLING, AUTOMATIC OUTLET	An oxygen connection which when disconnected automatically closes a valve to prevent loss of oxygen, and reopens when reconnected.
CREWMEMBER	A person assigned to perform duty in an aircraft during flight time.
CRITICAL POINT	The critical point of a fluid is that point at which liquid and vapor have identical properties; critical temperature, critical pressure and critical volume are terms given to temperature, pressure and volume at the critical point. Above the critical temperature, gas cannot be liquefied by pressure alone. Critical pressure is saturation pressure corresponding to critical temperature.
ø CYANOSIS	A bluish-gray tinge in the color of mucous membranes and skin (usually first noticeable in the lips, ear lobes, and nail beds) associated with blood oxygen deficiency. Usually caused by the presence of excessive amounts (5 g or more per 100 cc blood) of reduced hemoglobin in the capillaries. Seldom recognized in subjects with less than 10 g hemoglobin per 100 ml blood.

CYANOTIC	Showing signs of cyanosis.
ø CYLINDER	Common name in aviation for a container of oxygen; may be portable or fixed to the aircraft; low or high pressure. Also called "bottle", "container"; terms "flask" and "tank" are improper and seldom used.
ø DEAD SPACE	Volume of gas in connecting passages of the lungs including throat, mouth and nasal airway in which no respiratory exchange takes place.
ø DEAD SPACE, ANATOMICAL	(Average value = about 100-150 cc in the 70 kg male and 70-90 cc in the 55 kg female during quiet breathing. Enlarges with deep breathing.)
DEAD SPACE, MECHANICAL	Space in breathing apparatus, outside the body of the subject, where the expired air is trapped and then reinhaled.
DEAD SPACE, PHYSIOLOGICAL	The anatomical dead space plus the volume of inspired gas ventilating alveoli which have no pulmonary capillary perfusion.
DECOMPRESSION	A reduction in barometric pressure.
DECOMPRESSION SICKNESS	See "Aeroembolism" and "Bends".
DEMAND SYSTEM	An oxygen system using demand regulators. See "Regulator, Demand".
ø DENSITY	The relationship between the volume of a substance and its weight.
ø DENSITY, MASS	The mass of any substance per unit volume. The standard mass density of dry air is 1.225 kg/m^3 (2.377 x 10^{-3} slugs/ft^3) at 15° C (59° F) and 101.3 kPa (760 mm Hg) (29.92 inches Hg) absolute Pressure.
DEW POINT	See "Temperature, Dew Point".
ø DIAPHRAGM	(1) The muscular sheet which separates the thorax from the abdomen. (2) A thin membrane which, in a pressure-reducing (or demand) regulator, separates the gas being controlled from ambient atmosphere.
DIAPHRAGMATIC BREATHING	Respiration produced solely by use of the diaphragm. See "Respiration, Types of".
DIFFUSION	Transfer of gases across the alveolar capillary membrane.
DILUTER	A device for mixing atmospheric air with oxygen. See "Automix".
DILUTER-DEMAND	See "Regulator, Diluter-Demand".

DISTAL	Extreme; at the greatest distance from a central point; peripheral.
DYSBARISM	A condition of the body resulting from the existence of a sufficient pressure differential between the total ambient barometric pressure and the total pressures of dissolved and free gases within the body tissues, fluids, and cavities to release free gas within body tissues. See "Bends"; "Aeroembolism"; "Decompression".
DYSPNEA	See "Respiration, Types of".
ECONOMIZER BAG	See "Bag, Economizer".
ø EDEMA, PULMONARY	An excessive accumulation of fluid in the pulmonary alveoli, ultimately spilling into the conducting air passages and interfering with gas exchange. It is caused by left heart failure and/or loss of oncotic pressure.
ø ELASTANCE	Reciprocal of compliance. Sometimes referred to as conformance.
ø EMBOLUS	Undissolved material, such as a clot, plug, fat globule, or gas bubble, carried by the blood from one vessel and forced into a smaller one so as to occlude or obstruct the circulation.
ø EMPHYSEMA	A pathological condition of the lung characterized by reduction or loss of elastic fibers, ruptured alveolar walls and decrease in the pulmonary bed, regardless of cause.
ø EQUILIBRIUM, MASS	A state of balance; a condition in which the materials taken into a body or system are balanced by corresponding excretions.
ø ESOPHAGUS	The portion of the digestive conducting canal between the hypopharynx and the stomach.
EUPNEA	See "Respiration, Types of".
EXHALATION	See "Expiration".
EXPIRATION	The expulsion of air from the lungs ordinarily due to relaxation of the diaphragm and thoracic muscles. However, expiration can also be forced with active muscular effort, and this is in fact used in pressure breathing when the expiration is the more active phase of respiration.

EXPIRATORY RESERVE	See "Reserve, Expiratory".
ø EXPIRATORY RESISTANCE	The dynamic pressure differential required for a unit expiratory flow change.
EXTERNAL RESPIRATION	See "Respiration, Types of".
FIBRILLATION, VENTRICULAR	Heart condition in which the ventricular beat is rapid, irregular, and ineffective. The spontaneous contraction of individual muscle fibers (fibrils) leads to irregular and ineffective beats. Fibrillary twitching without propulsion of blood. If persistent, this is rapidly fatal.
FILTER	A device serving to remove solid particles from a flowing fluid by passing it through an element.
FILTER, AIR	A device for removing dust or other foreign particles from air.
FILTER, SINTERED	A filter made by sintering together minute globules of metal (or ceramic) forming tortuous passages through which gas can flow, but particulates cannot.
FIRE-RESISTANT	(1) With respect to sheet or structural members, the capacity to withstand heat at least as well as aluminum alloy in dimensions appropriate for the purpose for which they are used. (2) With respect to fluid-carrying lines, other flammable fluid system parts, wiring, air ducts, fittings and powerplant controls, the capacity to withstand heat at least as well as aluminum alloy, in dimensions appropriate for the purpose for which they are used, under the heat and other conditions likely to occur at the place concerned.
FITTING, TUBE	A self-contained detachable device including a fluid passage for attaching or connecting fluid-carrying lines.
FLAME-RESISTANT	Not susceptible to combustion to the point of propagating a flame, beyond safe limits, after the ignition source is removed.
FLAMMABLE	With respect to a fluid or gas, susceptible to igniting readily or to exploding.
FLASH-RESISTANT	Not susceptible to burning violently nor rapidly when ignited.
FLOW INDICATOR	A device for indicating that oxygen is flowing through a regulator, or to a mask. May be a float-type (piston or ball), a vane which is deflected by the flow of gas, a rotating vane-wheel type, a blinker, or a gauge showing pressure drop across an orifice.

FLOW, LAMINAR — Smooth flow of a gas, in which all the particles making up the gas move along lines parallel to the walls of the tube.

FLOW, STEADY — A continuous flow of constant quantity under the prevailing condition.

FLOW, TURBULENT — Irregular and disorderly flow of a gas, in which the particles making up the gas do not move along lines parallel to the walls of the tube.

ø FLOW, VOLUMETRIC — The volume rate of fluid flow at a specified temperature and pressure expressed in units of dm^3/min, (1pm), (ft^3/min).

FUNCTIONAL RESIDUAL CAPACITY — See "Lung Capacities".

ø GAGE, PRESSURE — An instrument which shows (typically by means of a pointer and dial) the pressure at a given point in a system. May be calibrated to allow either gage pressure or absolute pressure. Calibrated in mega Pascals (MPa), kilo Pascals (kPa), pounds per square inch (psi) or in atmospheres (1 atm = 101 kPa = 14.7 psia), except for very low pressures which are read in Pascals (Pa), millimeters of mercury (mm Hg) or inches of water (in. H_2O).

GAGE, QUANTITY — An instrument similar to a pressure gage, except that it is calibrated to read the quantity of gas or liquid remaining in the storage container.

GAS LAWS — Boyle's Law - At a constant temperature, the volume of a gas is inversely proportional to the pressure to which it is subjected.

Gay-Lussac's or Charles' Law - With constant pressure, the volume of a gas will vary directly with the temperature.

Dalton's Law - The pressure exerted by each gas in a gaseous mixture is independent of other gases in the mixture, and the total pressure of the mixture of gases is equal to the sum of the separate pressures which each gas would exert if it alone occupied the whole volume.

Henry's Law - The weight of a gas absorbed by a given liquid with which it does not combine chemically, is directly proportional to the pressure of the gas above the liquid.

Graham's Law - The rate of diffusion of a gas is directly proportional to the pressure and temperature and inversely proportional to the square root of the density (molecular weight) of the gas.

GASES, RESPIRATORY, COMPOSITION OF — See chart below. (These are average values.)

	INSPIRED		ALVEOLAR		EXPIRED	
	Vol. % Dry Gas	mm Hg (kPa) Variable	Vol. % Dry Gas	mm Hg (kPa) Saturated 37° C	Vol. % Dry Gas	mm Hg (kPa) Saturated 37° C
Water	--	5.7(±) (.8)	--	47 (6.3)	--	47 (6.3)
Nitrogen	79.02	596 (79.4)	80.4	573 (76.4)	79.2	565 (75.3)
Oxygen	20.95	158 (21.1)	14.0	100 (13.3)	16.3	116 (15.4)
Carbon Dioxide	0.03	0.3 (.04)	5.6	40 (5.3)	4.5	32 (4.3)
TOTAL	100.00	760.0 (101.3)	100.00	760 (101.3)	100.00	760 (101.3)

GASKET — The flexible sealing element in a stationary or static fluid seal.

HEMOGLOBIN — The iron-containing chemical compound in red blood cells which combines with oxygen, transporting it and giving it up as needed by body tissues.

HEMOGLOBIN, REDUCED — Hemoglobin from which oxygen has been removed.

HERING-BREUER REFLEX — Pulmonary nerve impulses which help to regulate the depth and rate of respiration. Also called pulmonary stretch reflex.

HOMEOSTASIS — The state of the body in equilibrium. The complex interaction of all systemic mechanisms whereby the body is kept in overall balance so that normal body function is carried out.

HUMIDITY, RELATIVE — The ratio of the partial pressure of water vapor in the air to the partial pressure which saturated water vapor would exert at the same air temperature.

HUMIDITY, SPECIFIC — (Humidity Ratio) The weight of water vapor in air expressed in pounds or grains of water vapor per pound of dry air.

HUNTING — A term applied to the undesirable oscillation of a control device resulting in a poor degree of control. For example, a pressure reducing regulator which, instead of maintaining a constant output pressure, fluctuates cyclicly from above to below the desired pressure.

HYPERCAPNIA — Excess carbon dioxide in the blood and body fluids, usually causing increased respiration. Also called "hypercarbia".

HYPERPNEA — See "Respiration, Types of".

HYPERTENSION	High arterial blood pressure.
HYPERVENTILATION	A state in which there is an increased amount of air entering the pulmonary alveoli, resulting in reduction of the carbondioxide tension. Typically caused by breathing faster or deeper than normal.
HYPOCAPNIA	Subnormal concentration of carbon dioxide in the blood, usually the result of hyperventilation. Also called "hypocarbia"; often incorrectly called "acapnia".
HYPOPNEA	See "Respiration, Types of".
HYPOTENSION	Low arterial blood pressure.
HYPOVENTILATION	See "Respiration, Types of".
HYPOXEMIA	Oxygen deficiency in the blood. (Seldom used; superseded by "Hypoxia".)
HYPOXIA	Oxygen want or deficiency; any state wherein a physiologically inadequate amount of oxygen is available to, or utilized by, tissue, without respect to cause or degree. (See "Anoxia".)
INDICATOR, OXYGEN FLOW	A device which gives a visual signal when oxygen flows. See "Flow Indicator".
INHALATOR	A device from which gaseous oxygen is inhaled with or without medicaments, for therapeutic purposes.
INLET, AIR	Openings or valves through which air is admitted to dilute the oxygen (as in a diluter-demand regulator or constant-flow mask).
INSPIRATION	Inhalation; the drawing-in of a breath by the expansion of the chest cavity, caused by contraction of the diaphragm and thoracic muscles.
INSPIRATORY RESERVE	See "Reserve, Inspiratory".
INSPIRATORY RESISTANCE	The pressure differential between the lungs and the ambient atmosphere. Also called "draft" or "suction". Usually expressed in inches of water or millimeters of mercury. Increasing respiratory resistance decreases the minute volume and the maximum instantaneous rate of flow, while the relative time of inspiration increases.
INTERNAL RESPIRATION	See "Respiration, Types of".
INTERSTITIAL	Between cells.

INTRAPLEURAL PRESSURE — See "Pressure, Intrapleural".

INTRAPULMONARY PRESSURE — See "Pressure, Intrapulmonary".

ISCHEMIA — Decreased blood flow through an area of tissue, body part, or organ.

ISCHEMIC HYPOXIA — Tissue hypoxia as a result of inadequate blood flow; such as in the brain. This can occur even in the presence of adequate ventilation and alveolar oxygen tension.

LAMINAR FLOW — See "Flow, Laminar".

LARYNX — Upper part of the trachea, containing the vocal cords.

LOBECTOMY — Removal of a lobe of an organ or gland (usually refers to the removal of a lobe of the lung).

LUMEN — The space in the interior of a tubular structure.

LUNG — The organ of respiration in which the venous blood receives oxygen from, and gives off carbon dioxide to, the air drawn through the trachea and bronchi into the alveoli.

LUNG CAPACITIES AND VOLUMES

CAPACITIES:

TLC - Total Lung Capacity is the volume of gas contained in the lung at the end of a maximal inspiration.

VC - Vital Capacity is the maximal volume of gas that can be expired from the lungs following a maximal inspiration.

TVC - Timed Vital Capacity is a measure of the rate of emptying the lungs by forceful exhalation.

IC - Inspiratory Capacity is the maximal volume of gas that can be inspired following a normal expiration.

FRC - Functional Residual Capacity is the volume of gas remaining in the lungs following a normal expiration, average normal value of 2400 ml.; often increases with age.

VOLUMES:

TV - Tidal Volume, or the depth of breathing, is the volume of gas inspired or expired during each respiratory cycle.

IRV - Inspiratory Reserve Volume is the maximal volume that can be inspired following a normal inspiration (end-inspiratory position).

ERV - Expiratory Reserve Volume is the maximal volume of gas that can be expired following a normal expiration (end-expiratory position).

	RV - Residual Volume is the volume of gas remaining in the lungs at the end of a maximal expiration.
	(Also see "Reserve" and "Residual" items.)
MANOMETER	An instrument for measuring the pressure of liquids and gases by the height to which this pressure will raise a fluid.
ø MASK	A protective covering applied over the face to provide adequate respiratory gas to the wearer and, in some cases, to prevent inhalation of the gases in the atmosphere surrounding the wearer. (1) Fullface - Covers not only nose and mouth, but entire face including forehead, chin, and cheeks. (2) Oronasal - Covers nose and mouth; some types also cover chin. (3) Nasal - Covers nose only.
MEDIASTINUM	The median dividing wall of the thoracic cavity, covered by the mediastinal pleura and containing all the thoracic viscera and structures except the lungs.
MINUTE VOLUME OF RESPIRATION	Volume of inspired air per minute.
MOUTHBIT	See "Mouthpiece".
ø MOUTHPIECE	A device designed to be held in the mouth by the teeth and/or lips through which gases may be respired.
MYOCARDIUM	Heart muscle.
ø NEBULIZER	Type of atomizer which either produces a uniform fine mist of medicament for inhalation, or removes the larger droplets, usually by baffling, permitting only a mist of uniform droplet size (usually 3-5 microns (μm) to emerge. See "Atomizer".
NEGATIVE MASK PRESSURE	See "Pressure".
ø NITROGEN	A colorless, odorless gas, incapable of sustaining higher forms of life or combustion. A non-metallic element existing free in the atmosphere of which it constitutes about 77% by weight. Also available in liquid form which vaporizes into gaseous nitrogen at -195.6° C (-320° F).
ø NTPD	Normal temperature (21° C, 70° F), normal Pressure (760 mm Hg, 14.7 psi, 101 kPa), Dry.

ø ONCOTIC PRESSURE	The osmotic pressure of the blood protein formed elements, i.e., red and white blood cells, or the lymph colloids and electrolytes in the vascular system.
ORIFICE	An opening, intended for the passage of a fluid, having a fixed diameter and flow coefficient and which may be calibrated to pass a desired volumetric flow at the anticipated pressure differential.
ø OXIMETER	A device for photoelectrically measuring the oxygen saturation by determining the ratio of reduced hemoglobin to oxyhemoglobin in the arterial or venous blood.
ø OXYGEN	A colorless, tasteless, odorless gas, constituting one-fifth of the atmosphere; it supports combustion and is essential to life. It combines with most elements, and is carried in the blood by hemoglobin and solution (PaO_2) from the lungs to the tissues. Also available in liquid form which vaporizes into gaseous oxygen at -182° C (-295° F).
OXYGEN DISSOCIATION CURVE	A graph which indicates the amount of oxygen which will be taken up by the hemoglobin at different oxygen tensions. This varies with pH, carbon dioxide tension, and body temperature.
OXYGEN METER	A device for measuring either the fraction of oxygen or the partial pressure of oxygen in air or in a mixture of oxygen with other gases.
OXYGEN SATURATION OF THE BLOOD	Fraction of total hemoglobin which is in the form of oxyhemoglobin (equal to the amount of bound oxygen divided by the maximum amount of oxygen which can be bound by the hemoglobin).
ø OXYGEN SYSTEM, HIGH PRESSURE	A system for delivering oxygen where the supply is contained in one or more bottles or cylinders at 1800 pounds per square inch (12 MPa) or higher pressure.
ø OXYGEN SYSTEM, LOW PRESSURE	A system for delivering oxygen where the supply is contained in one or more bottles or cylinders at 450 pounds per square inch (3 MPa) maximum pressure.
OXYGENATION	The saturation of a substance with oxygen, either by chemical combination, chelation, or by mixture.
ø OXYHEMOGLOBIN	A hemoglobin molecule to which oxygen is attached or chelated.

ø P	Symbol for physiological partial pressure. PaO_2, $PaCO_2$, etc. = partial pressure of arterial oxygen, carbondioxide, etc.
PARTIAL PRESSURE	See "Pressure, Partial".
ø PERFUSION	The act of pouring over or through, especially the passage of a fluid through the vessels of a specific organ or body part.
PERICARDIUM	The membranous sac covering the heart.
PERMEABILITY	The capacity of a membrane to allow another substance to pass through it.
pH	Symbol denoting hydrogen ion concentration. A solution with pH 7.00 is neutral; one with a pH of more than 7.00 is alkaline; and one with a pH lower than 7.00 is acid. Normal blood pH is 7.35 to 7.44. Mean value = 7.38 at 37° C (98.6° F).
ø PHARYNX	The area between the cavities of the mouth and nose and the larynx and esophagus. The upper portion is usually termed the "nasopharynx"; the lower portion, the "oropharynx" or the "hypopharynx".
PHYSIOLOGY	The science which treats of the functions of the living organisms and their parts.
PIPESTEM	A type of mouthpiece. See "Mouthpiece".
PLEURA	A membrane enveloping the lungs and covering the inside of the thorax. There is a pleura for each lung.
PLEURAL CAVITY	The potential space included between the parietal and visceral layers of the pleura; it is not an actual space unless opened.
PNEUMONECTOMY	Operative removal of an entire lung from either the right or left thorax.
PNEUMONIA	Inflammation of the lung.
ø PNEUMOTHORAX	Abnormal presence of air or other gas in the pleural cavity sometimes leading to rapid death if unrecognized. The gas may be introduced in an "artificial pneumothorax" to collapse a lung to promote healing of tubercular lesions (obsolete), or the gas may enter through an external wound penetrating the thoracic wall, or through rupture of an alveolus or cavity of the lung or of an air sac or bronchiole.
POSITIVE MASK PRESSURE	See "Pressure".

PRESSURE

Normally used as a modifier to designate a portion of a system or unit which is normally exposed to system pressure. The term "pressure" is considered to mean gage pressure, as defined below, except where otherwise specified:

Pressure, Absolute - The total pressure above a vacuum of true zero pressure. Absolute pressure is atmospheric pressure plus the gage pressure.

Pressure, Burst - The test pressure which a component or system must withstand without rupture.

Pressure Drop - The reduction in fluid pressure due to flow. When applied to a fluid control unit, pressure drop is measured between given ports of the unit at a given flow and does not include the loss of fittings which are installed in ports. (Normally, the value applicable to a complete flow pattern at rated flow, unless otherwise stated.)

Pressure, Gage - Pressure as related to ambient atmospheric pressure.

Pressure, Minimum Operation - That pressure below which a mechanism may not operate (as in a pilot-operated valve which requires a certain minimum pressure for operation).

Pressure, Negative - Pressure lower than atmospheric.

Pressure, Output - In a pressure control device, such as a pressure reducer, the pressure which will be produced at the outlet port.

Pressure, Positive - Pressure greater than atmospheric.

Pressure, Proof - The pressure which a component must withstand as a production inspection test without damage, normally related to rated pressure.

Pressure, Rated - The nominal maximum input or operating pressure.

Pressure, Reseat - In a valve which closes itself against pressure, as in a check valve or relief valve, that pressure at which the valve will close itself so that flow rate recedes to a certain specified leakage.

Pressure, Service - Same as "Pressure, Rated".

Pressure, Surge - The maximum magnitude of a transient pressure rise.

ø PRESSURE, ATMOSPHERIC	At sea level, 760 mm Hg (millimeters of mercury), 14.7 psi (pounds force per square inch, one (1) atmosphere, or 101 kPa (kiloPascals).
ø PRESSURE CONTROLLED RESPIRATOR	Pressure limit controls the cycling rate of the respirator.
PRESSURE DIFFERENTIAL, STATIC	The difference between the static pressures at two points in a fluid system.
PRESSURE DIFFERENTIAL, TOTAL	The difference between the total pressures at two points in a fluid stream.
PRESSURE DROP, TOTAL NONRECOVERABLE	The loss of total pressure between two points in a fluid stream. (Equal to the total pressure differential.)
PRESSURE, INTRAPLEURAL	Pressure between the layers of the pleura, normally below atmospheric.
PRESSURE, INTRAPULMONARY	Pressure of the air within the lungs, normally below atmospheric on inspiration, above atmospheric on expiration.
PRESSURE, PARTIAL	The pressure exerted by one gas in a mixture of gases; equal to the fraction or percentage of one gas times the total pressure.
PRESSURE REDUCER	See "Regulator, Oxygen Pressure".
PRESSURE RISE, DYNAMIC	The maximum static pressure increase developed by the momentum of a fluid stream when its velocity is reduced to zero.
PRESSURE, SAFETY	See "Safety Pressure".
PRESSURE, STATIC	The pressure that would be measured by a probe having zero velocity relative to the fluid. Pressure measurement taken by the probe normal to the direction of motion of the fluid closely approximates this pressure.
PRESSURE, TOTAL	The sum of the static pressure and the dynamic pressure in a fluid system.
PRESSURIZING, CABIN	Increasing the pressure in a compartment above that of ambient pressure and controlling the pressure in said compartment.
PULMONARY AIR	Air in the lungs. See "Alveolar Air".
ø PULMONARY ALVEOLUS (Plural ALVEOLI)	An air sac of the lung formed by terminal dilatation of a bronchiole. The point, together with alveolar ducts, at which blood gases exchange with alveolar gases.
PULMONARY VENTILATION	Movement of air into and out of the lungs. See "Minute Volume".