Operation Manual

for the

E D S

Electronic Oxygen Delivery System
Analog Computer Model A-1

NOTICE

The EDS model "A" operates with a standard aviator's nasal cannula for single person flight operations up to 17,999 ft. or a face mask for flight operations over 17,999 ft. and up to 30,000 ft. Both of these items are included with each EDS kit. Several EDS units can share a single cylinder and primary reducing regulator for multi-place operations. Pilots should refer to FAR 23.1447 to see if any restrictions apply for their use of cannula type breathing devices in the operation of their aircraft. Information and data in the field of flight physiology is constantly changing and updated. Therefore, Mountain High E&S Co. reserves the right to correct and enhance this manual and associated documentation at any time without notice.

BASIC SAFTY

Mountain High Oxygen systems are designed to contain and deliver pure oxygen for the purpose of supplemental breathing as needed for exposure to high altitudes. They are not intended for medical or underwater use. Pure oxygen is a highly oxidizing gas in nature and vigorously accelerates combustion. It can provide a catalyst for spontaneous combustion if not used properly and with caution. **DO NOT** use any type of oil or grease on any of the fittings, valves or cylinders. **DO NOT** use the system while smoking or near an open flame.

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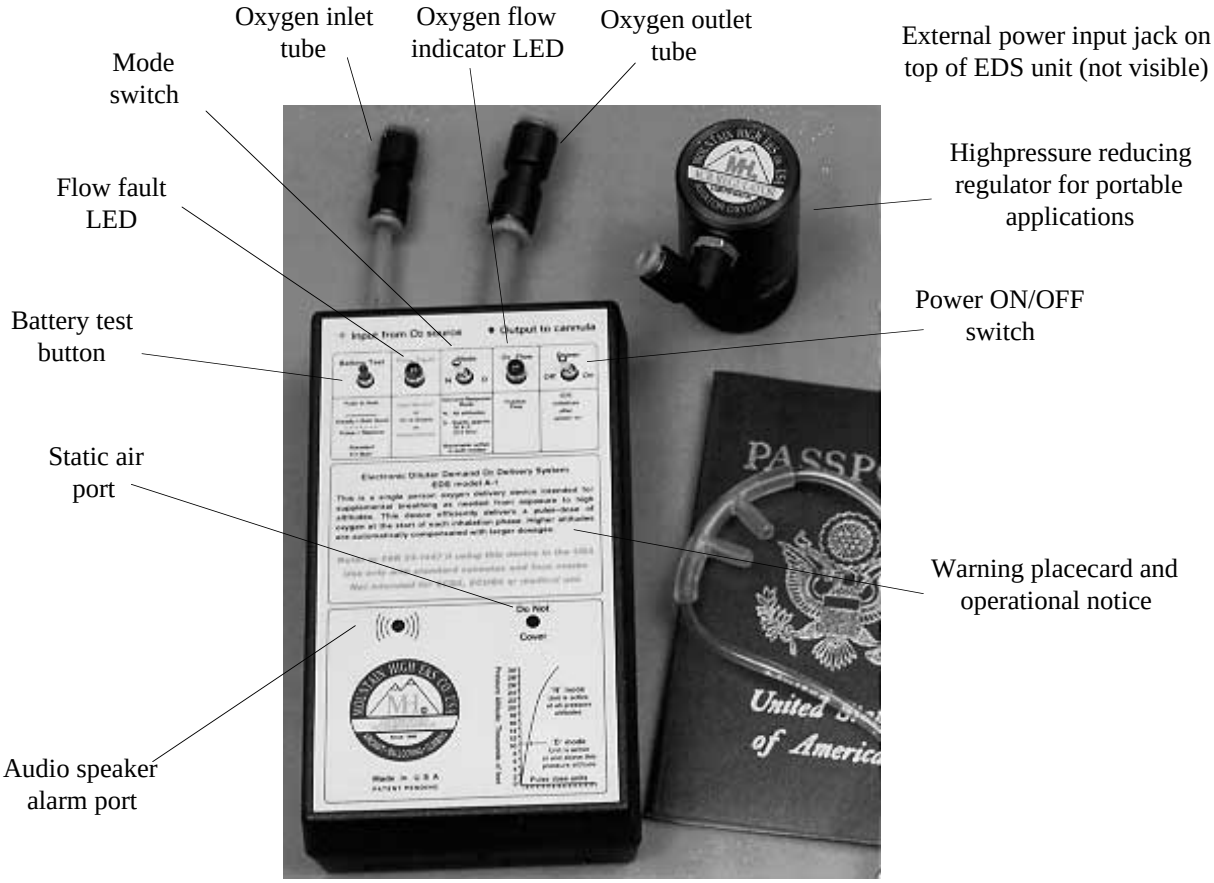
EDS front panel controls and indicators



The battery test button places a load on the battery in order to detect battery failures within the next few hours. Oxygen will flow during depression of the battery test button. The battery test button energizes the oxygen admission valve by bypassing the electronic circuits of the EDS unit serving as an emergency supply of oxygen.

The oxygen flow indicator LED will light for the duration the oxygen admission valve admits oxygen. Higher altitudes produce longer times.

The mode switch allows the user to operate the EDS unit in either "N" (night or now) or "D" (day or delayed) mode. The night/now mode allows the EDS unit to deliver oxygen immediately (now) on-demand throughout the full range of the pressure altitude curve. This is suitable for night-time flight operations. The day/delayed mode will arm the EDS unit to delay delivering oxygen until it is at a pressure altitude of **10,000 ft**. This is suitable for day-time fight operations.

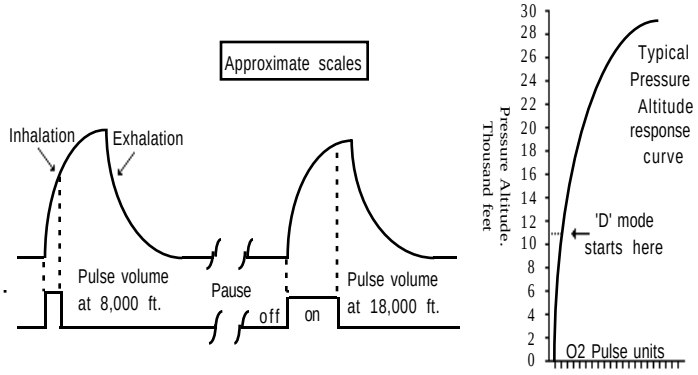
The power ON/OFF switch makes (connects) and breaks (disconnects) the EDS unit from the internal battery and external power jack. The external power jack breaks (disconnects) the internal battery from the EDS unit while the male power jack is inserted.

The flow fault LED will light red with the audio alarm to indicate that there is either no oxygen flow or the user has produced an overdemand. An overdemand may result if a breathing device other than the EDS cannula or face mask is being used that does not allow proper dilution of oxygen with air (may also light with initial power on of EDS unit).

The EDS unit has a static air port that needs to be exposed to ambient air. This can be the inside of an aircraft cockpit or outside air as in the case with ultralight aircraft or hanggliders. Do not cover this static port with an air tight material. Loose covering such as with the fabric holster is tolerated. If the static port is covered the EDS unit may false trigger.

The EDS (Electronic oxygn Delivery System) is a single person aviation oxygen delivery system designed to maximize the administration of oxygen in the most efficient way. The breathing cycle of a healthy, non-smoking person is such that about one-third is spent inhaling while two-thirds is exhaling and pausing. In addition, the lungs of most mammals are an organ of relative inefficiency compared to the other life-support organs. This is partly because only a fraction of inhaled air actually gets to the oxygen absorbing alveolar of the lungs. The rest is spent in the so-called dead-spaces, i.e. trachea, bronchus, and other areas where there are no alveolar allowing oxygen exchange. Therefore, you would benefit mostly from oxygen delivered at the very beginning of inhalation cycles as it leads deep into the most functional part of the lungs, allowing optimum oxygen absorption, thus, needing less. The EDS monitors micro-pressure changes from your breathing, delivering a precise pulse of oxygen at the instant each inhaling cycle is detected and not during exhalation, pausing or talking, etc.

The EDS "synchronous inhalation pulsing technique" is the most efficient way known by respiratory physiologists to saturate the blood to well over 94% while using as little as one-tenth the oxygen of constant flow systems. Actual field tests with powerless soaring flights have yielded savings of over ten times. The EDS utilizes these well known physiological facts (research data is available upon request) providing the smallest, lightest yet most efficient aviation oxygen system available. Precious oxygen is simply wasted with constant



The delivery pulse length is determined by a built-in, precision temperature-compensated barometer calibrated to measure density (pressure) altitude. Higher altitudes make longer pulses, automatically compensating with altitude and temperature changes. Longer pulses yield greater bolus volumes. There are no dials to observe nor knobs to turn as you climb or descend. For general aviation the EDS can be set to 'D' (Day or Delayed) mode where it will not respond to your breathing until it senses altitudes around 11,500 ft. (+-500 ft.) saving oxygen below altitudes where it is not needed during daylight flight operations. It can be set to 'N' (Night or Now) mode for night flying where it will respond through all altitudes. Adjustment, or zeroing, the built-in barometer for new barometric pressures or flying sites is not needed because the EDS responds directly to density altitude as do the physiological properties of your body. The EDS is a truly automatic on-demand oxygen delivery system.

The main objective of the EDS was to provide an improvement in oxygen conservation, allowing a smaller and lighter oxygen system, allowing existing cylinders to last longer or to allow smaller cylinders to last as long as larger ones. Other objectives were to have a system that provides a constant bolus volume at any respiration rate [that is in the norm] and make it truly automatic and self-compensating with varying altitudes. The EDS unit synchronizes itself to your respiration rate, responding to normal breathing and generally not to fluctuations caused by talking etc., therefore, saving oxygen for only every deliberate breath. The EDS delivers the full and accurately measured bolus for that pressure altitude regardless of the respiration rate.

The EDS is calibrated to deliver a 41 ml. bolus at a standard pressure altitude (spa) of 18,000 ft. This bolus volume is accurate at respiration rates up to 20/min. At a standard pressure altitude of 12,000 ft., the EDS delivers a bolus volume of 26 ml. calculated and tested to produce well over 90% SaO2. This is considering an average respiration rate of about 14 breaths per minute. This calibration is about 20% more than the 1.0 liter/min. per 10,000 ft. requirement detailed by the FAA.

Standard Pressure Altitude (spa.) is an asymptotic (never quite getting to zero) pressure lapse rate curve that starts at sea-level and lowers towards a partial pressure representing some very high altitude i.e. 100,000 ft. The spa. curve assumes that at sea-level the barometric pressure is 29.921 in. Hg. (14.70 psi.) with a temperature of 15.0° C (59° F). and the standard temperature lapse of 2.0° C per/1,000 ft. (304.8 meters). In the real world the temperature and pressure vary constantly at any given altitude and point in the atmosphere, thus producing weather. The reasons for the spa. term are that the performance and efficiency of the human body respond directly to variations in the spa. Therefore, the barometer in the EDS responds to both absolute pressure and temperature, as do the physiological properties of your body, to produce correct deliveries automatically at any (pressure) altitude.

The EDS has been designed with a tremendous amount of care and adjustability in calibration. Therefore, if you would like the "D" mode to commence operations at another altitude, your EDS unit can be recalibrated. The range is from 2,000 ft. to 13,000 ft. The EDS unit commences operation at a pressure altitude of 11,500 ft., the recommended starting point for sport and general aviation. The FAA requires commercial aviation pilots to start using oxygen at 10,000 ft. If you feel that you need more oxygen, you can press the battery test button to get a full flow of oxygen for the duration of the button being pressed. The EDS is a true on-demand system responding to each and every breath you demand, from 20/minute (once every 3 seconds) or as little as none. Therefore, the amount of oxygen savings will be a direct function of your demands. See EDS worst-case performance tables appendix for time data while using nasal cannula and face mask.

The EDS has been designed and tested to operate and saturate a persons blood with oxygen to levels well over 90% at pressure altitudes of 25,000 ft. while using the cannula.

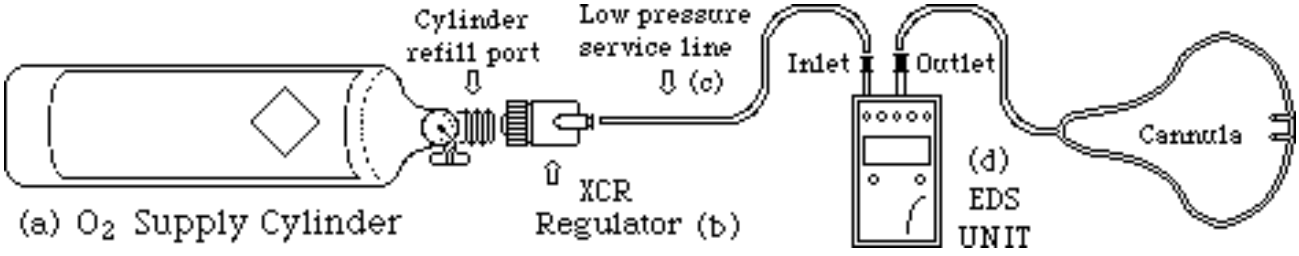
Basic EDS assembly & installation instructions

The EDS delivery package comes with the following equipment and should have the following equipment and parts. Please contact your dealer or Mountain High direct if there is any part of this kit damaged or missing.

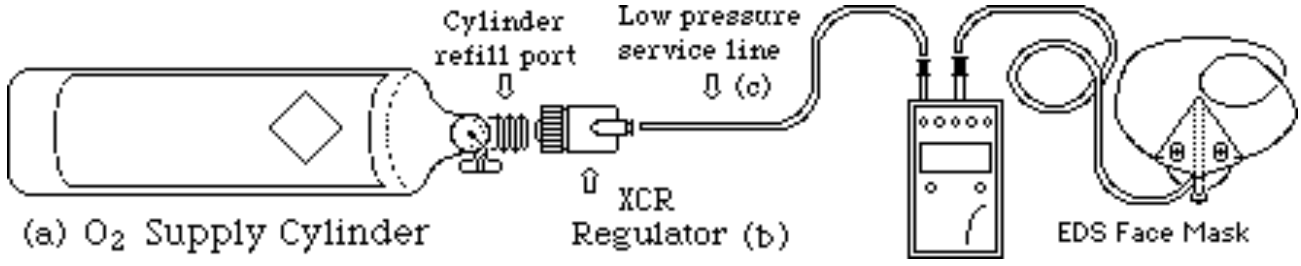
1 ea. EDS model "A" unit with 9. volt battery and switch protector plate
1 ea. EDS nasal cannula kit for flight operations up to 18,000 ft.
1 ea. EDS face mask for flight operations above 18,000 ft.
1 ea. XCR regulator kit with five (5') ft. 4mm. O.D. service line
1 ea. EDS 3M® Dual-Lock self adhesive mounting kit
1 ea. EDS Operation & Owners Manual

While not being used the EDS unit should be stored in a secure manner to ensure that dirt and debris do not enter and become lodged in the inlet and outlet tubes.

The EDS system consists of the following items; The main oxygen cylinder (a), the XCR primary reducing regulator (b), the 20 psig. low-pressure service line (c), the EDS unit (d) and the breathing cannula (e). The EDS must be used with the XCR regulator for correct operation and oxygen delivery over a wide range of cylinder pressures of 25 to 3,000 psig. (340 to 85,000 kPa.). Other oxygen cylinders can be used with the EDS system providing that the industry standard (CGA-540) service/refill fitting is used on the cylinder. The low pressure service line (c) is a high-quality polyurethane line that is kink-proof and flexible under varying temperatures. The cannula and service line connects to the EDS unit via "Quick-Connects" providing an air-tight fitting by hand. These fittings can be connected and unconnected by hand many times over.

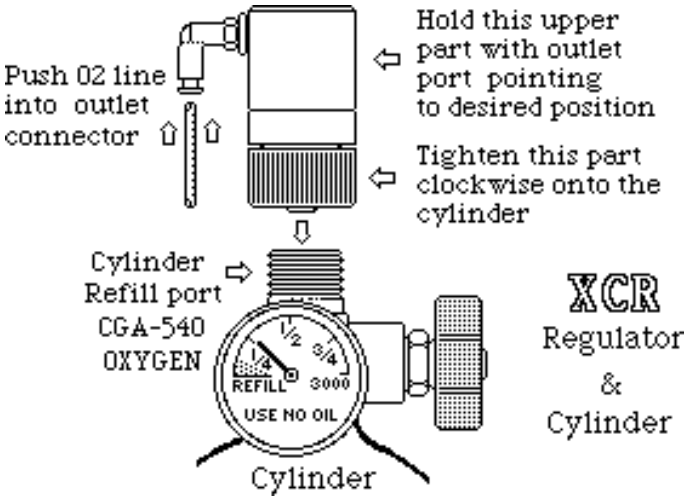


The EDS non-rebreather oxygen face mask is for use with the EDS unit to allow operations over 18,000 ft. for compliance with FAR 23.1447. The inlet connector on the face mask connects directly to the 6. mm. outlet "Quick-connect" of the EDS unit in place of the EDS type cannula (Fig 2). This mask is also intended to be used instead of the EDS type cannula in case of nasal congestion. For operations at and below 18,000 ft. the EDS cannula or EDS face mask can be used (fig 1). For operations over 18,000 ft use the EDS face mask (Fig 2). The EDS face mask admits slightly more oxygen per pulse than the EDS cannula to help compensate for the indirect initial inhalation induction of oxygen that is characteristic of face masks. The EDS face mask can be used with the A-4 flow regulator, but not with the A-3 flow regulator.

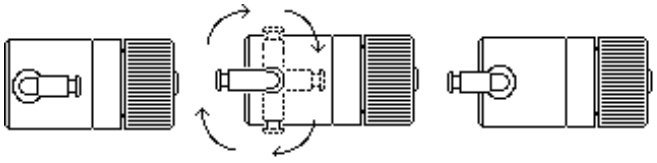


The EDS system parts

The polyurethane service line is 5/32" (4 mm) O.D. This gives you a lot of freedom to run it through a number of avenues. Although the line is resistant to kinks, abrasion and crushing, it is best to run it through a place where it will not see any abrasion or be pinched by sharp metal parts. If you are mounting this to a hanggliding harness be sure that the tube is not going to be crushed or pinched by the metal frame of your harness. Sewing a channel of webbing as an avenue, similar to how your parachute bridal is secured, can be a very good method.



The XCR regulator directly connects to a cylinder with a standard CGA-540 oxygen service fitting with a hand-tight fitting. Secure it to the cylinder as shown in the figure below. Hold the upper section of the regulator to where the outlet connector is facing in the desired direction while tightening, by hand only, the bottom hand grip clockwise to the cylinder. Connect the polyurethane service line to the outlet connector by pushing a "clean cut" end into the connector. It should go into the connector by about 1/8 to 1/4 inch. The line may leak at first, if so, remove and replace the line in the quick connect connector a few times to get a good seat. If this will not work, use a clean sharp knife to make a new end in the service line.

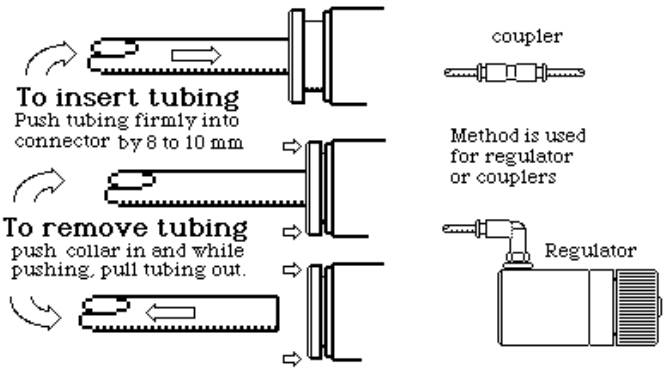


The quick-connector rotates to any direction desired

The XCR regulator is equipped with an elbow type quick-connect outlet connector that rotates around the regulator allowing the polyurethane service line to exit in any direction.

THE PROVIDED XCR or XCP TYPE REGULATOR MUST BE USED WITH THE EDS UNIT.

To remove the polyurethane service line you must push in the connector collar while you pull on the polyurethane line. Do not pull the polyurethane line without pushing in the collar. It will damage the connector. See figures below.



DO NOT ATTEMPT TO REMOVE REGULATOR FROM CYLINDER WHILE UNDER PRESSURE !

Doing so will destroy the O-ring on the regulator input nipple. The regulator grip-ring will be difficult to turn while under pressure reminding you that the system is under pressure.

To bleed pressure from the system follow these steps;

1: Turn off main cylinder valve where the XCR regulator is mounted.
2: (XCR) Bleed pressure off by allowing oxygen to exit via. the flowmeter.
3: (EDS) Bleed pressure off through the EDS by holding down the battery test button.
4: Or you can simply remove the 4 mm. service line from the XCR regulator.

Basic EDS Operating instructions

The EDS unit has been designed to respond to breathing that is normal and deliberate and generally not to fluctuations caused by talking etc. Therefore, users must make an effort to remember to breathe in through their nose while talking or holding their mouth open in order to get the required amount of oxygen. The EDS has a 3.0 second (+- 0.15) breathing envelope. This means that in order for the EDS to respond to each breath they must be at least 3.0 seconds apart or a maximum respiration rate of 20/minute. There is no limit to the minimum. The average inspiration breathing rate for a healthy person is about 12 to 14 times a minute. This would equate to an inhalation every 3.75 to 4.29 seconds. A standard type nasal cannula must be used with the EDS. Do not use any type of conserving cannula such as the Oxymizer® cannula, for it will interfere with the micro-pressure sensor. Damage to the micro-pressure sensor may result from use with other regulators. This will require the EDS unit to be sent back to Mt. High for nonwarranty repair.

To test the EDS unit for readiness follow these steps:

If the EDS unit fails these simple tests, please be sure that you have a fresh battery installed, that your supply of oxygen is indeed connected and all tubes are connected correctly and not plugged, pinched or kinked. If you cannot remedy any dysfunctions please return the unit to Mt. High for a prompt repair or replacement.

1: Without an oxygen supply, but with a standard nasal cannula connected to the larger outlet tube (blue connector), turn on unit and let it initialize, about 8 to 10 seconds. It may or may not beep and show the red light for about 4 seconds.

2: The EDS should respond with the flow fault alarm each time you inhale through the cannula and while the mode switch is in position 'N'. Nothing should happen if you have the mode switch in the 'D' position and are below a pressure altitude of about 11,500 ft.

3: With the XCR regulator mounted to a cylinder with oxygen, connect the XCR regulator to the smaller inlet (red connector) via the 4 mm. service line and turn on the oxygen valve.

4: The EDS should respond with a short pulse of oxygen each time you inhale through the cannula while the mode switch is in position 'N'. Nothing should happen if you have the mode switch in the 'D' position and are below a pressure altitude of about 11,500 ft.

To test the battery installed in an EDS unit, follow these steps:

1: Turn on unit and let it initialize, about 8 to 10 seconds. It may or may not beep.

2: While holding down the battery test button observe the red light and beeper.

The battery test button places a load on the battery many times more than the EDS does in normal operation and should catch a battery that will fail in the next few hours of use. The EDS unit may still operate for a few hours even if the battery test has indicated low, but you may be taking an unnecessary risk of total failure at an inconvenient time. Be sure to use a well known brand alkaline type battery. Do not use carbon/zinc type batteries; they have a shorter life and fail in the cold.

A standard nine volt alkaline battery may last up to 40 hours. This will depend on the ambient temperature. The EDS has an audible/visual low battery indicator, giving plenty of time before exhaustion and the (No-Flow) alarm to signal that the oxygen supply is either off or has run out. The F-2 face mask kit can be optionally used as an emergency supply by-pass in the event of a total EDS system failure. See application notes later in this manual.

For health reasons, each person using the system should have their own nasal cannula and face mask. In addition, replacement of the nasal cannula should be done if it has become soiled or damaged in any way.

The flow fault alarm will respond to the following actions or reasons:

1: If you inhale on the system without a supply of oxygen

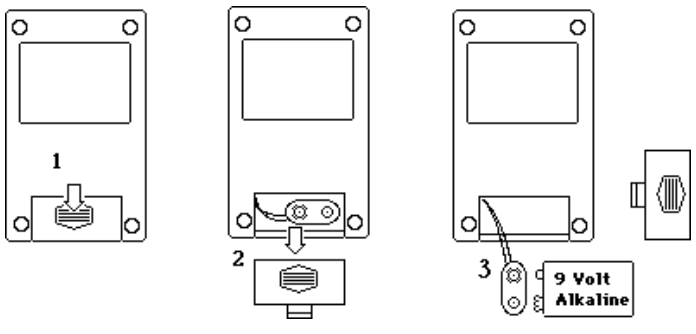
2: If you try to inhale from the system directly without adding ambient air (over demand) the EDS will not deliver a sufficient volume of air and oxygen.

3: If the battery powering the EDS unit is too low to operate the micro-valve.

The red & green lights on the EDS unit are complemented via the audio beeper. If you run out of oxygen while in flight the beeper will sound with each breath. At any time you could test the readiness of the EDS simply by pressing the battery test button during use. Observation of the lights are not actually required for operation. The EDS responds to pressure altitude and not MSL. or AGL. Therefore, while operating in "D" mode the unit will not commence operation precisely at the same pressure altitude on a day-by-day or location basis. This is because atmospheric pressure is constantly changing with time and distance. In addition, while operating a dual or multi-place EDS system in "D" mode you may notice that not all units will commence operation precisely at the same pressure altitude. They may differ by as much as 500 ft. This is well within calibration tolerance. If the EDS unit is to be operated in a pocket or pouch, it is possible that the unit will false-trigger. This is because a pocket or pouch may act as a flask causing differential pressures to occur between the unit and cannula or face mask. Make sure that the pocket or pouch is not sealed in a near air-tight fashion. If this can not be avoided you can tape a small plastic tube near the static port on the EDS unit and run it to the outside of the pocket or pouch to eliminate any possible differential pressures caused by confinements in a pocket or pouch. If false-triggering due to the flask effect cannot be corrected, the EDS unit should be operated uncovered mounted via the EDS holster harness kit.

To replace the battery:

Remove battery door by holding the unit with both hands and pressing in with thumbs at the point of the arrow while pushing door outwards (fig 1) This is best done if the unit is held with the battery door facing you and out. The EDS model "A" uses a standard 9 volt alkaline battery connector system. This is an aggressive type of battery connector requiring a bit more force to connect and disconnect to the battery. This is a superior type connector for equipment subjected to rough out-door treatment. Therefore, please take extra care in removing and replacing the battery. Use only alkaline type batteries with the EDS unit.



Service, maintenance & care
of the EDS unit model A

With the exception of the electromechanical valve, mechanically operated switches and buttons, there are no parts or sensors inside the EDS that will age, cure or become out of tolerance in time and use. Therefore, EDS unit does not require any regular or periodical maintenance or calibration.

The electromechanical valve has a service life of well over 150 million pulsing cycles. The respiration sensor has a service life of well over 500 million pulsing cycles. At this time the valve and sensor *may* need replacing.

If the unit is used in an application where dirt and dust are present, the electromechanical valve may become clogged with debris that may cause the flow to decrease or not allow it to shut off completely. If this happens you can usually remedy the problem by back-flushing the valve. This is done by supplying a small amount of air or oxygen pressure into the large (6mm) outlet line while the electromechanical valve is held in the full open state.

To clear a clogged valve follow these steps:

1 Remove the 6mm blue union from the outlet side of the EDS unit.

2 Connect one end of the 4 mm tubing to the outlet of an XCR regulator connected to an oxygen cylinder with at least 50 psi of pressure and the other end into a 6mm to 4mm reducing union connected to the outlet of the EDS unit to be flushed (purged)

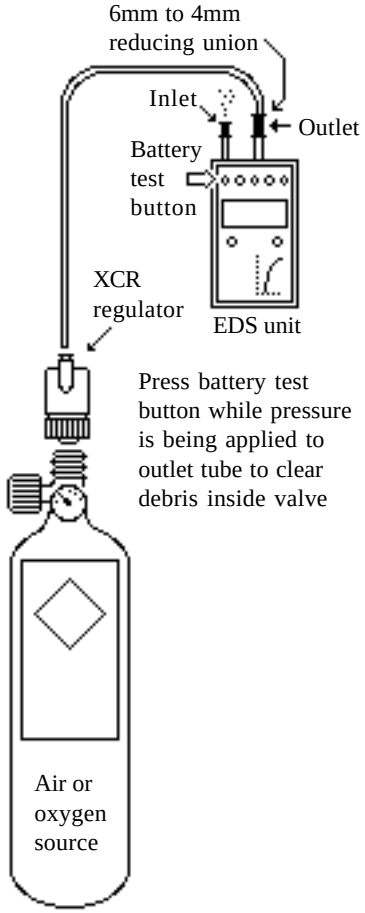
If a reducing union is not available, connection can be done by pressing (sliding) the 4mm tubing into the inside diameter of the 6mm outlet tube on the EDS unit.

3 With the EDS unit on and the battery test button depressed turn on the cylinder valve slowly to allow gas to flow backwards through the EDS unit for about 10 seconds. Then turn off the cylinder valve with the battery test button still depressed.

If the above steps do not correct the described problem, the EDS unit is not functioning correctly or if you would like it checked our for calibration you can send it to Mtn. high E&S co for diagnosis and repair.

While not being used the EDS unit should be stored in a secure manner to ensure that dirt and debris do not enter and become lodged in the inlet and outlet tubes.

The battery should be removed from the EDS unit if it is to be stored for an extended period of time.



CAUTION

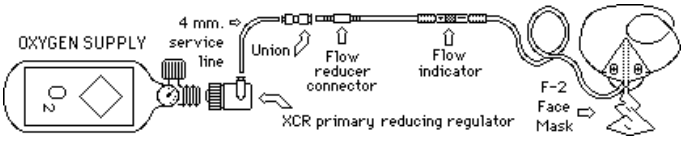
If the back-flush purging will not be done with an XCR regulator do not apply pressures over 35 psig into the outlet of the EDS without the battery test button being pressed, for this may cause the breathing sensor to rupture.

EDS APPLICATION NOTES

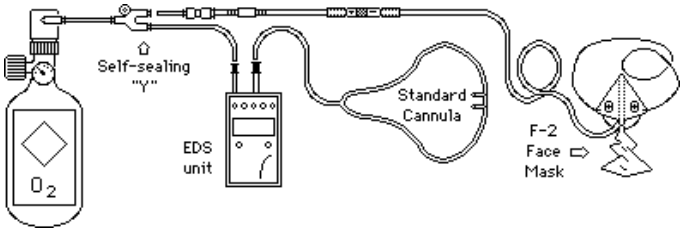
for various emergency oxygen back-up bypassing methods

The EDS has proven to be a very reliable oxygen delivery device used by many in various types of aviation and has no means inside itself to provide a by pass of oxygen in the event of a total failure. Therefore, here are a few oxygen bypassing methods implemented for that comforting peace of mind.

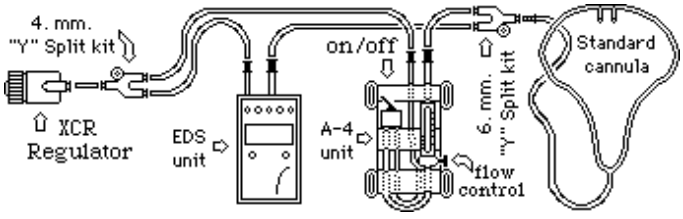
The most common emergency bypassing method, particularly for the EDS unit, is with the standard issue F-2 oxygen mask kit. The pilot simply unplugs the 4 mm. service line from the equipment to be bypassed and mates it to the union on the F-2 mask kit. The flow indicator shows positive oxygen flow for the duration of the cylinder's capacity. The on/off valve on the cylinder then controls the flow of oxygen.



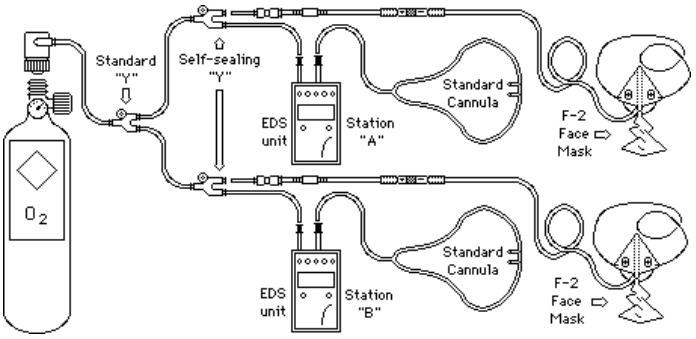
The second most common method uses a self-sealing "Y" with the F-2 mask where the pilot would simply connect the 4 mm. inlet tube of the F-2 to the "Y" for emergency service. This provides the best and easiest to use back-up system for single pilot applications. In addition, an option for adding a delivery device for a future passenger is provided.



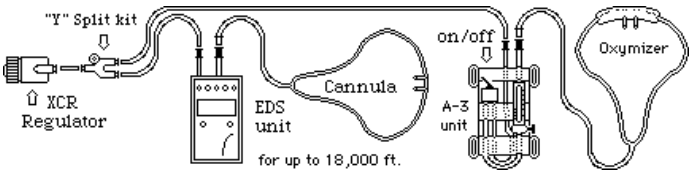
The third most common emergency bypassing method is with the A-4 flowmeter/regulator control unit that couples the outlets of the EDS unit and the A-4 unit together into one standard cannula. This allows the pilot to simply throw an on/off switch to bypass the EDS unit, then having the ability to adjust the flowmeter for the altitude to economize on oxygen usage.



This figure (below) shows the most popular back-up bypass arrangement for the dual EDS systems. The second set of "Y" split kit connecting the EDS units and the F-2 mask kits are the self-sealing type. The auxiliary opening will stay sealed until the 4 mm. inlet tubing of the F-2 mask kit is plugged in for emergency service.



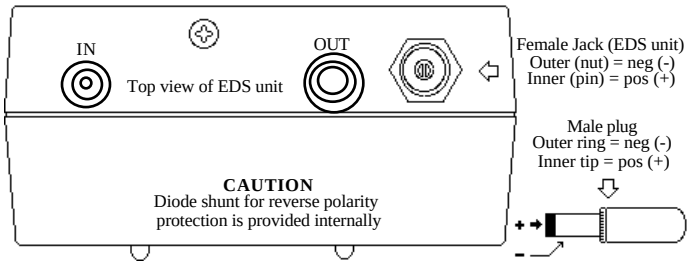
Because many pilots fly with passengers only part of the time, the A-3 flowmeter/regulator and an Oxymizer® cannula can be used for the passenger instead of a second EDS unit. This of course will use more oxygen than each using an EDS, but will prove acceptable as it is less expensive and can be up-graded to an EDS in the future.



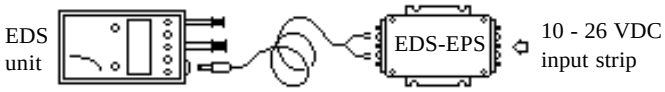
Oxymizer is a trade mark of Chad Theruputics, inc.

Providing External Power to the EDS unit

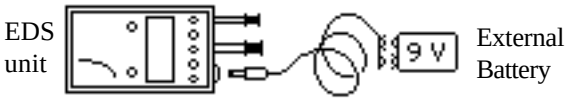
The EDS unit has a power jack for use with an external power source. The EDS-EPS (External Power Supply) unit (purchased separately) was specifically designed to provide the necessary voltage regulation, filtering and protection from aircraft power, see figures below. If the EDS unit will be operating in very cold temperatures where battery failure may be likely, a battery connector can be wired up to use an external 9 volt battery placed somewhere warmer. It can also be used as an emergency backup, electronically replacing the internal battery with the external battery that is plugged in the external jack.



The EDS-EPS (External Power Supply) input jack and plug.

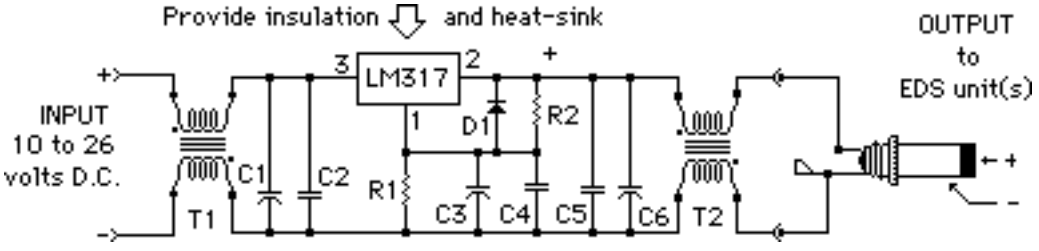


The EDS-EPS with internal noise and glitch filter unit can operate up to six EDS units.



If you wish to provide a voltage source other than a 9 volt battery it must be a clean and steady voltage between 7.0 and 10.0 volts DC with no more that 50 mv. P. P. of ripple or noise from 0.025 Hz to 2.5 KHz. The schematic and parts list below is that of the EDS-EPS unit and can be used as a design example. The LM317 precision programmable voltage regulator must be electrically insulated yet firmly mounted to a metal surface for an adequate heat-sink to dissipate heat from about 750 mw. of the electrical equivalence of heat.

Part ref	**Part description**
C1, C6	10.0 ufd/15 VDC Tant.
C2, C4, C5	0.1 ufd/50 mono.
R1	1.275 K Ohm 1%
R2	220 Ohm 1%
D1	1N4001
T1, T2	MH-T250 (supplied by Mtn. High E&S Co.)
VR1	LM317 precision programmable voltage regulator.



General Specifications

This is a list of specification parameters for the EDS model "A" with calibration schedule "D". These specifications are operational and performance standards (or limits) against which the EDS was tested or calculated. Specifications are subject to change without notice.

Operating Voltage & Current @ 25° C. @ 25% RH. (measured from mean, in "D" & "N" mode)
Min: 6.75 VDC @ 2.55 ma. idle (2.95 ma. mean with typ operation)
Nom: 8.00 VDC @ 3.75 ma. idle (4.15 ma. mean with typ operation)
Max: 15.0 VDC @ 5.10 ma. idle (5.65 ma. mean with typ operation)

Reverse voltage protection
Diode shunt (3 amp max @ 750 mv., no internal fuse or overvoltage regulator is provided)

Battery test fault voltage point (measured from mean)
Nom: 6.25 VDC @ 25° C. @ 25% RH @ 140 ma. during battery test

Battery Life (measured from mean, assuming fresh alkaline battery operating under typical operating conditions)
Nom: 40 Hrs @ 25° C. @ 25% RH

Valve life: 200 million cycles Min. @ 25 psig. @ 25° C.

Operating Temperature and Humidity (assumes nominal operating voltage)
Min: 0% RH @ -55° C to +80° C.
Nom: 25% RH @ +25° C.
Max: 100% RH @ +50° C. near condensing

Vibration
Random vibration 5 to 500 Hz, 15 minutes per axis @ 2.5 g. (rms) sin wave

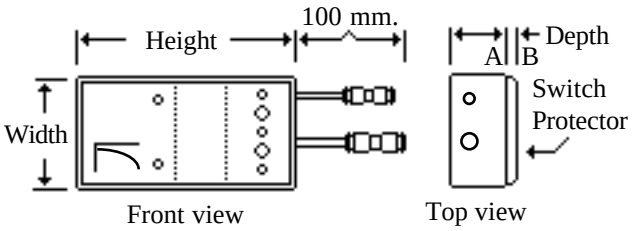
Operating pressure range (pressure altitude)
Min: 3.4 psia. @ 25° C. (appx 30,000 ft.)
Max: 20.0 psia. @ 25° C. (appx. -1,000 ft.)
Responsive: 13.70 to 2.70 psia. @ 25° C. (Operational responsive pressure curve range)

Accuracy (sum of pressure hysterisis and linearity through full span)
+- 2.5% @ 13.70 to 4.7 psia. @ 25° C.
+- 2.5% temperature effect (from 0° C. to 50° C. @ 25% RH) on accuracy and offset

Repeatability (for absolute pressure hysterisis and linearity)
+- 2.5% through full span of 13.70 to 4.7 psia. @ 25° C. @ 25% RH

"D" mode accuracy and hysterisis (measured from mean, with standard calibration)
Acc: +- 0.250 psia. (+- 500 ft.) @ 25° C. @ 25% RH.
Hys: +- 0.550 psia. (+- 1,400 ft.) @ 25° C. @ 25% RH.

Physical characteristics (EDS unit only)
Width: 3.250" (82.55 mm.)
Height: 5.650" (143.51 mm.)
Depth A: 1.525" (38.73 mm.) main body.
Depth B: 1.900" (48.26 mm.) with switch protector and 3M® Dual Lock
Weight: 14.0 Oz. (0.374 kg.) Full Dress with battery



Typical operating characteristic is 15 Resp/min. for a duration of one hour @ 15,000 ft. @ 25° C. @ 25% RH.

External voltage must have less than 50 mv. p.p ripple from 0.025 Hz. to 2.5 KHz.

* *

Limited Lifetime Warranty & Customer Assistance

Mountain High Equipment & Supply Co. warrants your EDS system against defects from materials and workmanship for long as you own the EDS unit or system. The word “defects” as used in this warranty, is defined as imperfections which may impair the utility of the system or compromise in the users safety. The conditions are simple; should any part of the system become defective, ship the EDS system or unit to us and we will replace your EDS unit or system free of charge (you pay only shipping). This warrantee is not valid if Mountain High Equipment & Supply Co. has determined that the system or any of its components have been damaged from being used improperly, dropped, submerged in fluids, dismantled or used in an abusive and unsafe manner. If the EDS unit or system is damaged from abuse, but salvageable, it may still be repaired by Mt. High E&S Co. at a nominal charge. Before this warrantee can be valid Mountain High Equipment & Supply Co. must have your owners guarantee & registration form properly filled out and in our files. Mountain High Equipment & Supply Co. is not liable for any property or personal damage caused by the possible misuse of the system or cylinder. Cylinder and system pressure and ambient conditions must be considered when refilling cylinder and using the system. Improper use could possibly cause cylinder failure and lead to possible property damage and personal injury. If you have any difficulty in assembling or using your EDS system, or find any parts missing, please call for customer assistance at the number below this warranty.

* *

MH ***Aviation Oxygen Management Systems***
625 SE Salmon Ave, Redmond, OR. 97756
Tel: 541-923-4100 Fax: 541-923-4141

Please fill out the owners warranty & registration form below and mail to the above address

- -

EDS Owner Warranty & Registration form

Date of purchase:____

Where purchased:____

Name:____

Purchaser or owner signature :________________________________

Address:____

City:____

State:__________________________ Zip:____________________

Country:____

Telephone:____