

RaincoO₂ !

The purchase of an Oxygen System should not be taken lightly. It is an investment which pays off with life or death, particularly at higher altitudes. RAINCO, exclusive ZEP AERO distributor to the soaring pilot, is the only company providing you with a complete spectrum of equipment, from the smallest fitting to the most sophisticated regulator or mask. ZEP AERO, FAA Station No. 4073, is the world's largest supplier of commercial, airline and military Oxygen systems, components and portables. ZEP's complete manufacturing and overhaul facilities for regulators, masks, cylinders and associated parts turn out thousands of systems annually for companies like Beechcraft and Cessna. And by dealing with RAINCO you receive some important benefits — we don't sell just a few parts like masks, or cylinders or regulators... the fast moving, high profit items. We have **everything** you might need for your system right on our shelves unless it might be a rubber hose or other item which is subject to aging — then we place an order especially for you, and you get fresh equipment and speedy delivery; and you know your order was

filled from top quality, fast moving stocks and not from a dusty surplus bin!

There are many other advantages in dealing with RAINCO — A full line of standard and light-weight cylinders (brand new, not overhauled surplus), regulators rebuilt using only original factory parts, diaphragms and gaskets (not low-cost substitutes), and, most important, every system and component given a complete final check by RAINCO. When we ship your order we know it will function perfectly — that all the parts will fit — that you'll be another one of our happy customers!

And, don't forget, RAINCO is here to serve you with engineering advice and information — just drop us a line and we'll give you any help you might need with your problems, whether they be oxygen, instrumentation or communication. As we represent virtually every manufacturer of interest to the sailplane pilot, we can supply the equipment most suited to your particular sailplane and tailor it to your flying requirements and pocket-book. And, of course, RAINCO stands back of everything we sell — unconditionally!

WHICH SYSTEM DO YOU NEED?

A continuous flow regulator, either automatic or manually adjusted, will provide adequate oxygen supply to altitudes of 30,000 ft. These regulators use the small, comfortable, light-weight plastic or silicone rubber masks with rebreather bag attached and, because of the rebreathing feature, use less oxygen at low altitudes than the demand systems (see flow chart for comparison). The A8A regulator has long been the standard continuous flow unit for soaring use—it is low in cost, light weight and because of its small size may be mounted directly on the panel if desired. A dial reads the cylinder pressure and also shows the flow (calibrated in thousands of feet) being received. The flow adjustment is manual and must be reset when changing altitudes. If desired, dual outlets are available for two-place installations.

The demand regulator uses more oxygen at low altitudes than the continuous flow system and requires the use of a relatively heavy, uncomfortable (and expensive) mask and mask hoses. However, it will provide adequate supply up to about 38,000 ft. if no mask leaks are present. The demand system is not generally used in soaring because the pressure breathing demand system is available at about the same cost and will permit flight at higher altitudes.

The pressure breathing demand system will support the pilot at altitudes up to the point where pressurization becomes mandatory for

survival. This system uses a tight-fitting rubber mask and large diameter hoses and a proper mask fit is very important, particularly when flying in excess of 38,000 ft. A "blinker" is mounted in view of the pilot, and indicates the proper functioning of the system, as it blinks with each breath when oxygen is being properly supplied. The A14A regulator is standard for this application in soaring circles as it is inexpensive, light in weight and easily adjusted in flight for the various altitude ranges being flown. A gage is usually mounted at the regulator inlet to indicate cylinder pressure, and the blinker can also be mounted directly on the regulator if desired, thereby making a complete and tidy installation. Other regulators such as the MB-2, MD-1 and MD-2 can also be used, but they are expensive, large, heavy and difficult to mount. The overhaul costs are also very high, and these units are therefore little used in soaring applications.

All sailplane installations consist of high pressure systems because low pressure systems require more cylinders, and therefore the weight is approximately 36% more than equivalent capacity high pressure systems. The space required for a low pressure system is approximately 34% more than that of a high pressure system, and the cost for material and installation is some 50% more than that of a high pressure system of the same duration.

OXYGEN CONSUMPTION CHART

Altitude	(cu. ft./hour per person)		
	Cont. Flow	Diluter Position	Pressure Breathing Demand 100% Oxygen
8,000	3.0	—	—
10,000	3.4	8.35	14.1
15,000	4.3	6.34	11.8
20,000	5.2	4.50	9.44
25,000	6.1	—	8.00
30,000	6.9	—	6.75
35,000	—	—	4.87
40,000	—	—	4.87

Above figures are averages based on pressure altitudes. Actual consumption will depend upon ambient temperature and accuracy of setting altitude. Ample reserve should always be allowed.