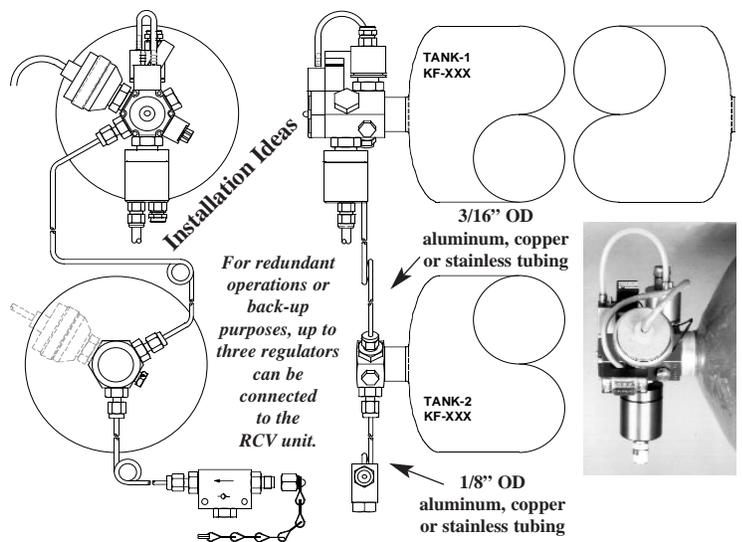


Remote controlled oxygen regulator system

remotely controlled electrically & pneumatically operated oxygen regulators featured in our best built-in aircraft oxygen systems

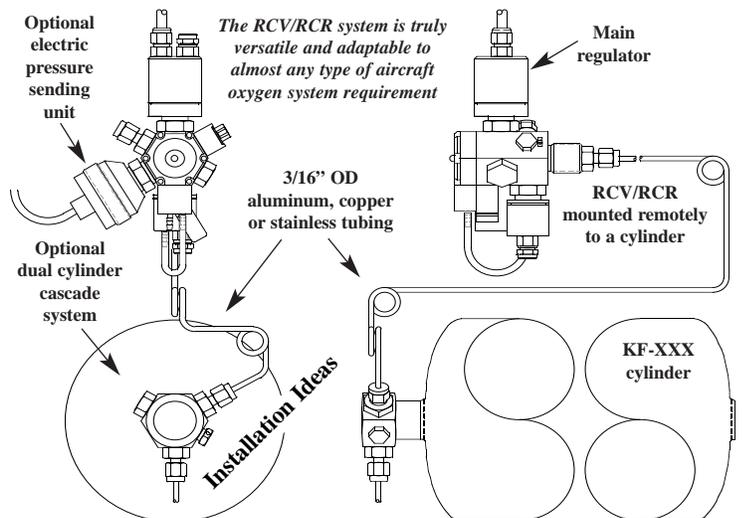
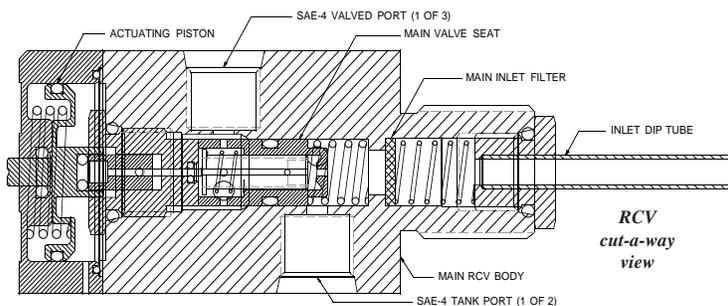
The **RCV/RCR** (Remote Controlled Valve / Remote Controlled Regulator) is a remotely controlled oxygen valve & regulator system that allows you the maximum amount of installation flexibility. The **RCR/RCV** directly mounts to a **KF** (Kevlar Fiber) series cylinder, or remotely to a cylinder or other supply via a short run of aluminum, copper or stainless steel tubing and through our low-profile HP manifold kit. The main high pressure valve can be remote actuated by electric current or pneumatic means. Optionally, it can be operated mechanically with a customer supplied control cable or an electric servo motor. Operation options are vast. The **RCV/RCR** is intended for use in aircraft oxygen systems and other related applications. The **RCV/RCR** does not comply to any TSO nor does it have any current STCs'. It has, however, been installed into a number of type certified aircraft via a 337. Our 337 information reports are available to interested parties as they become available to us.

All regulators and fittings connect to the **RCV** body by the SAE system. The **RCV** (Remote Controlled Valve) is the "main hex-body" valve device with 3 valved and 2 direct-to-tank SAE-4-M (7/16-20) straight thread o-ring type outlet ports. The **RCV** has a dual size inlet port with an SAE-4-F (female) fitting port centered *coaxially* just inside the SAE-8-M (3/4-16 male) cylinder and *hold-down* port. Unlike the NPT thread system, the SAE system allows items to be removed and replaced many times over without the worry of leakage or thread adulteration. Once an *appliance* such as a regulator has been mounted to any of the *valved* ports of the **RCV** it becomes an **RCR** (Remote Controlled Regulator). The **RCV/RCR** unit can be controlled (operated) remotely by pneumatic, electro-pneumatic or mechanical means. In addition, the **RCV/RCR** has a dual inlet port system so that it can either be directly mounted to a cylinder or be remotely interconnected by fittings and tubing to a cylinder.



The design of the **RCV/RCR** is relatively simple. It operates pneumatically by utilizing a very small amount of the pressurized oxygen supply through a small 'pilot regulator', to provide the necessary (normally static) pressure to open a high-pressure main valve inside the **RCV** body. An electro-pneumatic valve (operated remotely by 12 or 24 volts DC) controls the pressure to this valve by just 2 wires from the **RCV/RCR** unit to an electrical control such as a toggle switch. The electro-pneumatic valve and manifold can be removed and replaced by a pneumatic only manifold if pneumatic operation is desired. If so, only two small pneumatic lines are run from the **RCV/RCR** and pneumatic control device such as a toggle switch. Only low pressure oxygen is plumbed to the outlets. The **RCV/RCR** system contains all the high pressure oxygen at the cylinder.

The **RCV/RCR** system is a versatile multi-purpose remote controlled oxygen valve & regulator assembly. You can mix-n-match our high pressure manifold sets to meet those tight-fitting applications. Below is an application in which the **RCV/RCR** is remote mounted to the cylinder via tubing. The inlet of the **RCV** body is a *coaxial* type with an external SAE-8-M and an internal SAE-4-F thread gas inlet system to accommodate a vast number of installation, mounting and plumbing requirement options.



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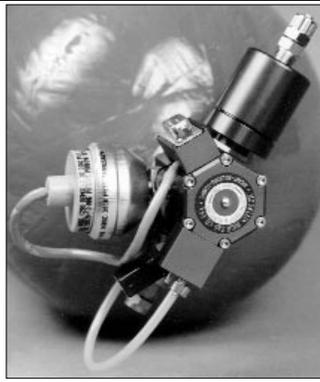


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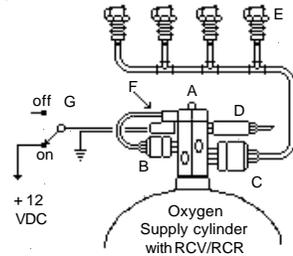


EPG-600a

The **RCV/RCR** mounted to a **KF-050** cylinder shown with the optional electric cylinder pressure sending unit for use with our electric pressure gauges to eliminate HP pneumatic capillary lines

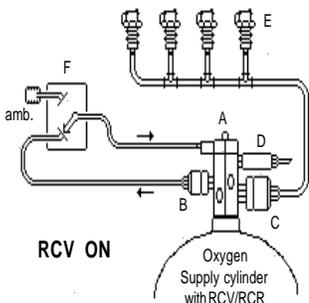


ELECTRO-PNEUMATIC: Remote electro-pneumatic (figure right) probably offers the most convenient method of operation. Applying current to a small built-in pilot-valve turns the **RCV** on. The electro-pneumatic valve can be ordered in two (2) voltage ratings, 12 VDC or 24 VDC. The 12 VDC valve requires about 850 ma to initially turn on the **RCV**. The sustain current thereafter will be about 1/2 of that. The 24 volt valve is about 1/4 this current. The screw-on pilot regulator, calibrated at 2 bars (30 psig.), is required and is directly plumbed to the actuating manifold. A small vent port releases a very small amount of gas as the electro-pneumatic valve is released to the off state. At the users option, a small 3.2 or 4mm. OD polyurethane tube may be connected to this port to provide an overboard vent. The amount of gas released by this vent port (during turn-off phase only) is about 10 cc. for the interface manifold.

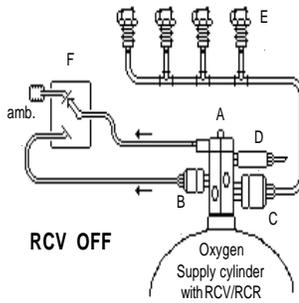


Electro-pneumatic operation.
A: RCV unit, **B:** Pilot reg., **C:** Main reg., **D:** optional electric cylinder pressure sending unit, **E:** oxygen check-valve outlets, **F:** electro-pneumatic 3-way on/off valve, **G:** electrical on/off control switch.

PNEUMATIC: The **RCV** (figures below) unit has a built-in pneumatic actuating piston that allows remote operation of the **RCV** by two basic pneumatic means. They are; 1: an external pressure supply of about 2 bars (30 psig.) being applied to the actuation port of the actuating manifold on the **RCV**, 2: the screw-on pilot regulator, calibrated to 2 bars (30 psig.), provides the actuating pressure in which a simple 3-way valve is plumbed and remotely mounted to operate the **RCV** unit. The pilot regulator taps a small amount of the oxygen supply for static pneumatic actuating needs. It is always active and does not allow gas to flow, except for a very small amount during the state changes from on to off and visa versa. Once the **RCV** has settled in the on or off state the pilot regulator automatically shuts off holding the interface tubing at the calibrated pressure. A small vent port releases a very small amount of gas as the electro-pneumatic valve is released to the off state. At the users option, a small 3.2 or 4mm. OD polyurethane tube may be connected to this port to provide an overboard vent. The amount of gas released by this vent port (during turn-off phase only) is about 10 cc. for the interface manifold. The actual volume vented during the turn-off phase will be a function of the size of the actuating pneumatic interconnecting tubing used for that installation. 2 to 4 mm. (1/16 to 1/8") Dia. recommended.

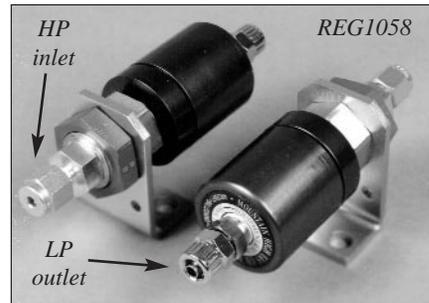
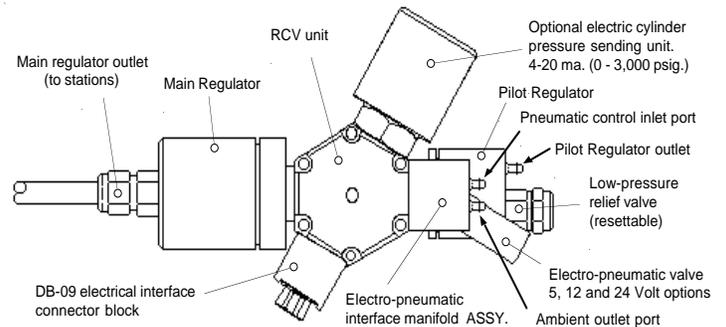
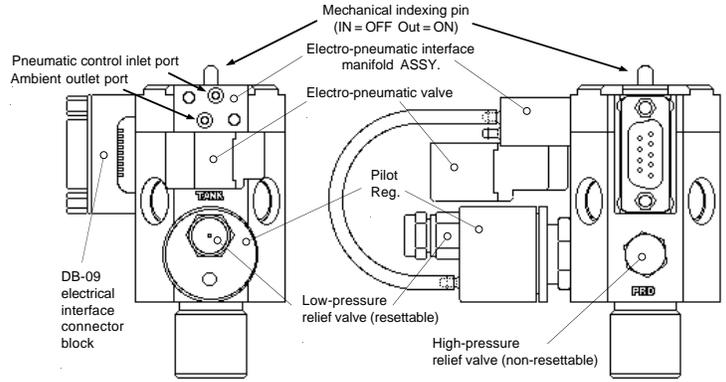


RCV ON



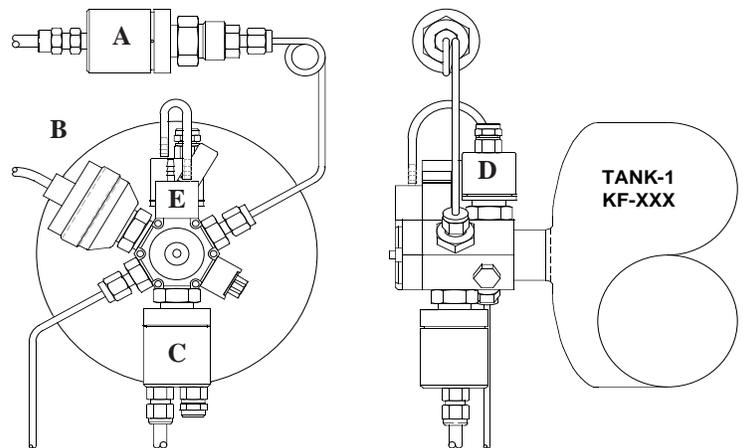
RCV OFF

Pneumatic operation. **A:** RCV unit, **B:** Pilot reg., **C:** Main reg., **D:** optional electric cylinder pressure sending unit, **E:** oxygen check-valve outlets, **F:** remote pneumatic 3-way on/off valve.



The in-line regulator has been connected external to the **RCV** unit to facilitate unique requirements and tight-fitting installations. It is connected to the **RCV** unit via tubing and Swagelok type compression fittings. Up to three regulators (of many types) can be connected to the three valved outlet ports on the **RCV** unit.

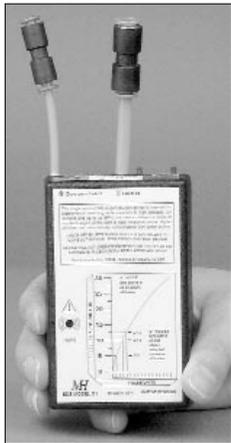
The in-line HP reducing regulators have found their way into many applications in aircraft oxygen systems.



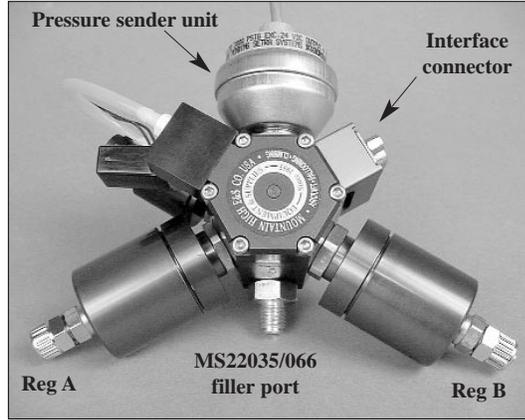
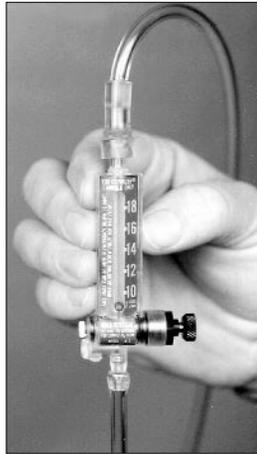
A: In-line regulator (serving as a second main reducing regulator). **B:** Electric cylinder pressure sending unit. **C:** main reducing regulator. **D:** Pilot regulator. **E:** electro-pneumatic valve & manifold assy.

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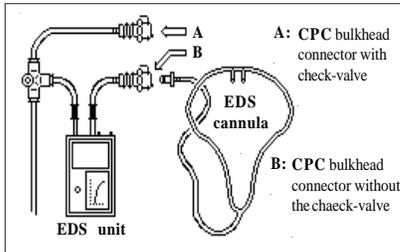
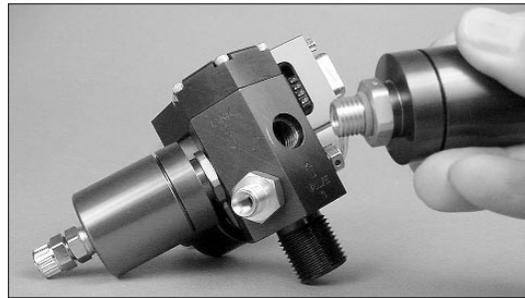
The main reducing regulator on the RCV/RCR are calibrated like our XCP, XCR and in-line regulators. This allows the freedom to use all our delivery devices as well as almost any others.



The RCV/RCR system uses the SAE fitting system so that changing the appliance configuration is simple and easy. You can have as many as three redundant-parallel regulators at the same time an RCV body.

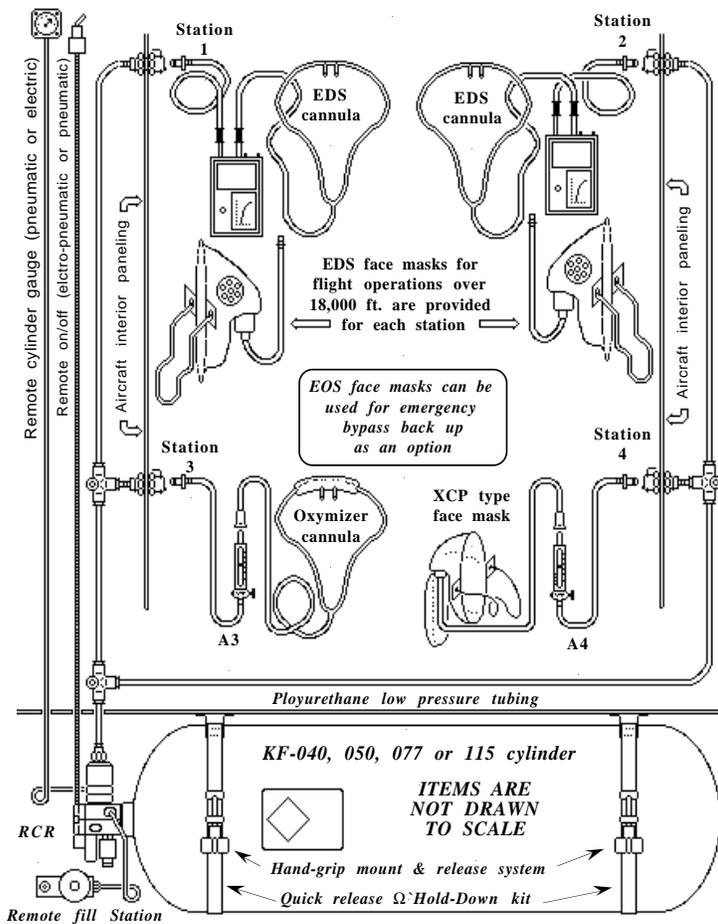
The RCV/RCR unit itself can be remote-mounted then plumbed to a cylinder. This is common in applications where the cylinder(s) are mounted in a tight-fitting area to maximize space. Also, because the KF series cylinders are so light, builders are mounting them farther aft in tight areas not possible before with heavier cylinders and unaccommodating regulators and hardware.

The RCV/RCR is very configurable

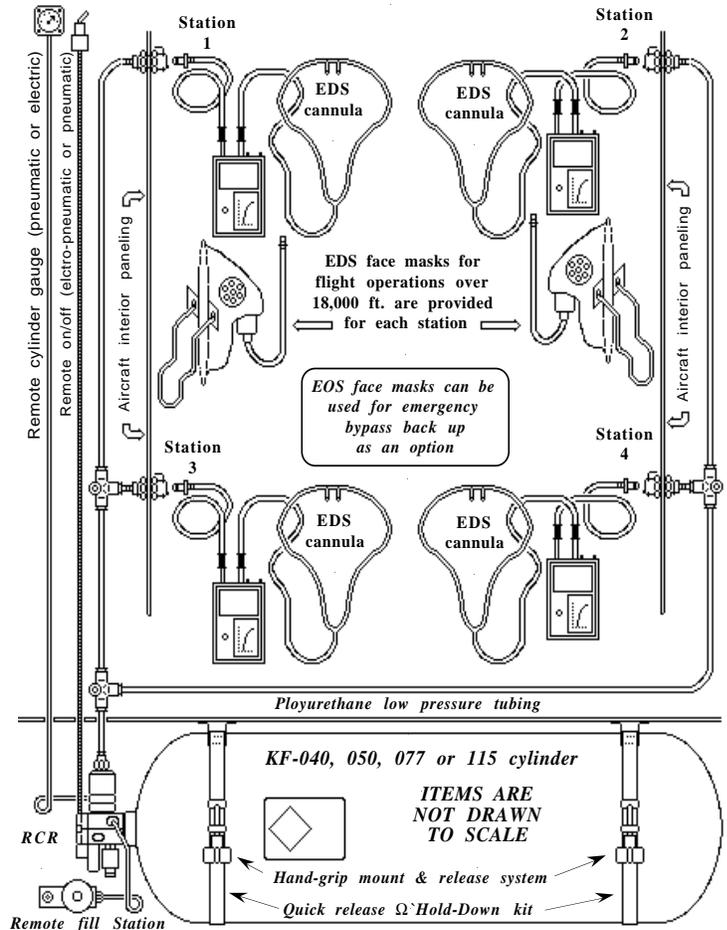


The EDS units can be built-in behind the paneling with the plumbing for a customized out-of-the-way installation or carried about and simply plugged in one of the outlets as shown below.

2 place (EDS) RCR type oxygen system with 2 place A3 & A4 stations



4 place (EDS) RCR type oxygen system

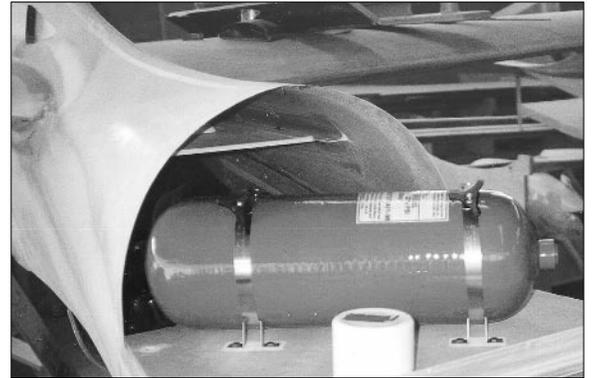


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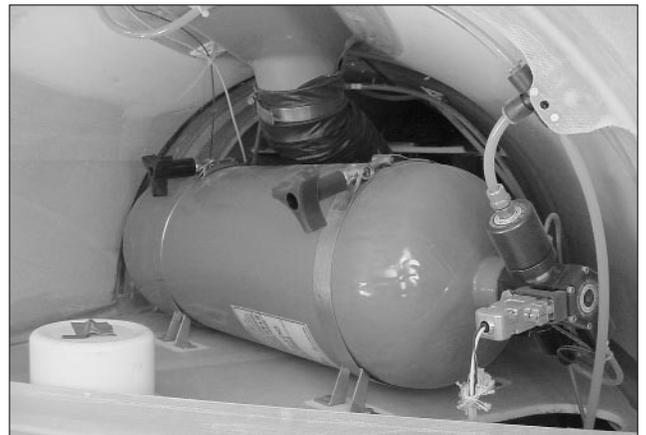
This Lancair ES has the oxygen system as shown on page 28 (bottom left) with the RCV/RCR. It is set up for 4-persons with two (2) EDS units for the front seats and two (2) flowmeters for those occasional rear seat passengers.



The KF series cylinders are light so you can think about using all that space aft the rear seats that otherwise will go unused.



The remote-fill station with gauge mounted next to the external electrical connector behind a flush-fitting access door



The KF-077 with the RCV/RCR fits nicely into the rear just behind the seats. The CMK-Ω kit allows the cylinder to be periodically removed for service & testing



Oxygen outlet fittings mounted in a panel that will be placed just below the center console