ADDENDUM

TECHNICAL MANUAL FOR SCUBAPRO REGULATORS

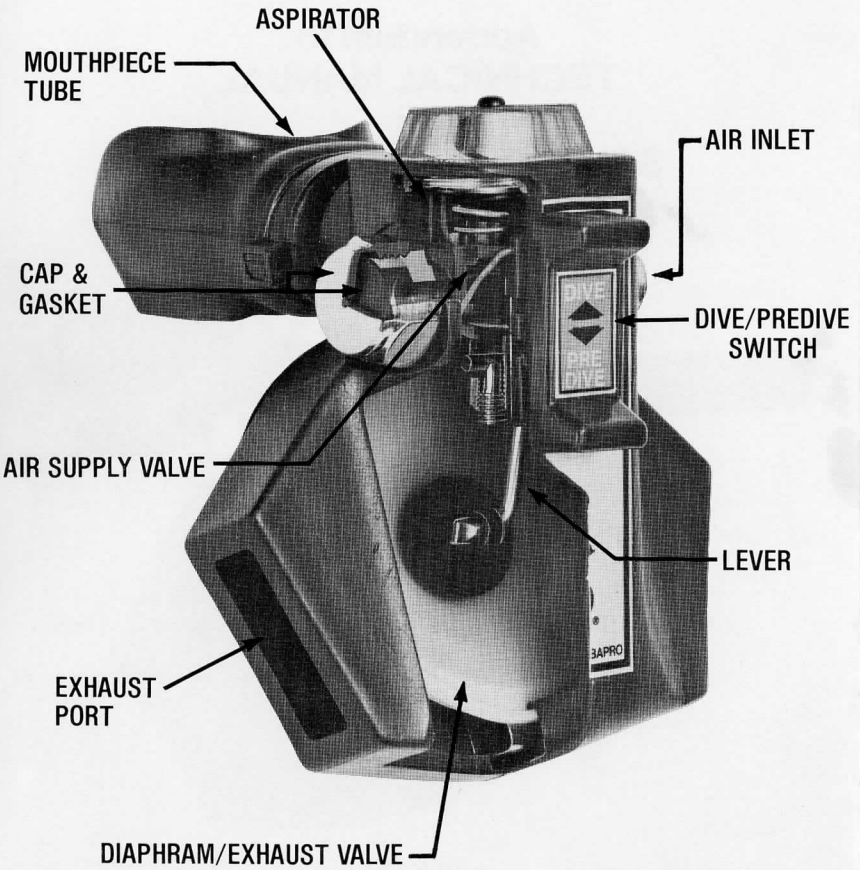


FIGURE 1

This **Addendum** to the **Technical Manual for SCUBAPRO Regulators** (Cat. 45-101-187) concerns the A.I.R. I Second Stage Regulator. Owners of the A.I.R. I Second Stage should familiarize themselves with both the Manual and this Addendum. Future publications of the Manual will incorporate this Addendum.

Air Supply Valve: The A.I.R. I Second Stage incorporates a coaxial flow through, downstream, demand valve. This coupled to a high ratio lever and a case design which locates the center of the diaphragm approx. 1-3/4" below the center of the mouth piece, provides a unique combination that results in an extremely low inhalation resistance. The extremely low inhalation resistance is maintained at an almost constant level regardless of depth. Inhalation suction by the diver causes the regulator diaphragm to be drawn inward. The resulting linkage lever movement opens the demand valve. The structural arrangement between the diaphragm and demand valves provides a feedback which forces the air supply valve to move in exact response to the diaphragm.

The demand valve acts as a safety relief valve if a first stage malfunction delivers pressures above 200 psi to the A.I.R. I Second Stage. The resultant pressurization of the control chamber opens the air supply valve, thereby relieving the excess pressure.

Aspirator: An aspirator port, directed toward the mouthpiece tube inside the regulator, generates a slight vacuum within the regulator case when air is flowing. As a result, the effort required to maintain air flow during inhalation is reduced. The aspirator is factory-set for normal sport diving conditions.

Exhaust Valve: The A.I.R. I Second Stage diaphragm doubles in function as an exhaust valve. This design minimizes moving parts and provides an exhaust valve which is significantly larger than the exhaust valves of conventional regulators. The size increase is advantageous because less effort is needed to open the valve during exhalation.

Case Design: The A.I.R. I Second Stage case is injection molded of a high-strength glass reinforced plastic, three components are ultrasonicly welded into the case to complete the case assembly, which is physically configured for the diver's comfort. The low and narrow profile will not interfere with gloved hands when the diver equalizes pressure by squeezing his nose. The diaphragm is located next to the diver's chin where it will not snag on underwater objects or be activated by water currents or surge. Also, the A.I.R. I Second Stage can rest comfortably on the diver's chin, thereby distributing its weight over two supporting points.

Performance Curves: The design features on the A.I.R. I Second Stage significantly reduce the amount of effort the diver must exert to breathe. The attached Performance Curves provide actual test data regarding inhalation and exhalation resistance during various modes and depths of operation. Comparing these curves with those of other regulators will show the significant performance improvement of the A.I.R. I Second Stage.

Dive/Pre-Dive Switch: A slide switch on the front of the regulator case is provided to decrease the response of the regulator when the regulator is not in the diver's mouth or when buddy breathing. Operation and use of this switch is described in detail in the section of this Addendum titled "Operation."

Regulator Storage Key: A regulator storage key is attached to the Safety Lanyard. Its purpose is to move the demand valve seat away from its orifice so the seat does not take a set during storage. The key should NOT be inserted during any rinsing of the regulator because that would allow water to pass into the low pressure hose.

INSTALLATION

The A.I.R. I Second Stage can be used with almost any first stage regulator available on today's market. In rare situations, a special adaptor may be needed to connect the hose of the A.I.R. I Second Stage to the first stage. Ideally, the output of the first stage should deliver air at 140 psi. Also, best performance will be obtained when the A.I.R. I Second Stage is "fine tuned" by an authorized technician to match the first stage. Scubapro recommends that the A.I.R. I Second Stage be used in conjunction with any one of the high-performance Scubapro Balanced "Flow-Through" Piston First Stages (Mark V, VI, VII and VIII).

The hose may be connected to either the right-hand or the left-hand port of the regulator. The unused port must, of course, be capped with the provided plug. Commercial or advanced divers requiring improved flow performance at depth can connect the A.I.R. I Second Stage to the first stage with two hoses, one over each shoulder. Maximum flow performance and safety can be achieved by attaching the A.I.R. I Second Stage to two independent first stages which, in turn, are mounted on separate high-pressure cylinders.

OPERATION

The A.I.R. I Second Stage is operated using the customary procedures associated with all second stage regulators. However, because of its extreme sensitivity, special care should be exercised when the regulator is pressurized before or after a dive. The regulator can "turn on" or "free flow" if jarred or struck sharply when out of the diver's mouth.

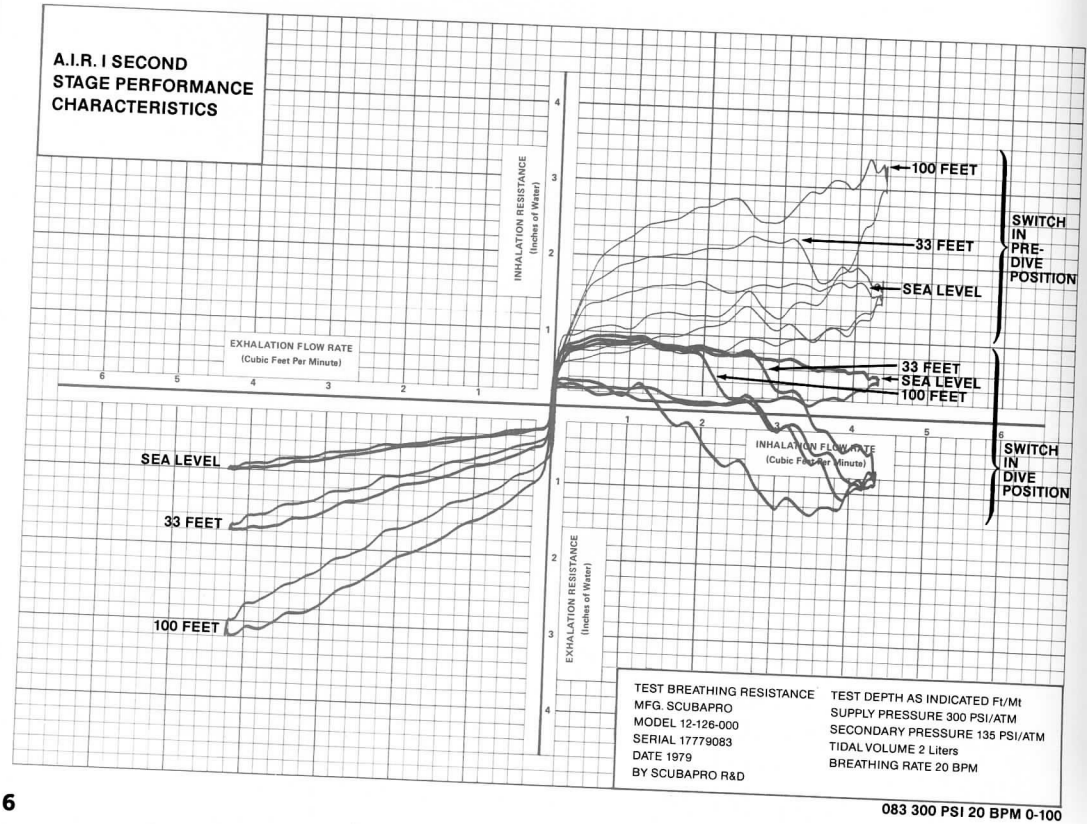
Free flow is prevented by placing a finger over the mouthpiece opening or by moving the slide switch to the PRE-DIVE position. The PRE-DIVE position should, therefore, be selected to prevent a wasteful loss of air during all water entries through the surf or from a boat, and while surface snorkeling. The PRE-DIVE position should always be used during buddy breathing exercises to eliminate the chance of free flow during transfer.

Free flow of the A.I.R. I underwater can be stopped by either switching to the PRE-DIVE position and/or by turning the regulator to the position shown in Figure 2.

The A.I.R. I Second Stage can be completely cleared of water by exhaling through the mouthpiece. It can also be cleared by pressing the purge button with the thumb while the other fingers rest on the front of the regulator. Depressing the purge button on the surface does nothing to "test" the function of the regulator. Doing so manually overrides the demand system, and will most certainly cause the regulator to flow free, as there is no "signal" to tell the regulator to stop flowing unless it is in the diver's mouth, or a finger is placed over the mouthpiece. The regulator should be tested only by breathing, and, when doing so, the lips should provide an air tight seal on the mouthpiece during inhalation to prevent accidental free flow.

ATTENTION: THE SLIDE SWITCH SHOULD BE IN THE DIVE POSITION FOR SUBMERGED BREATHING. The dive position allows the regulator to respond quickly and smoothly to the slightest inhalation effort. The pre-dive position prevents the regulator from free flowing. THE PRE-DIVE POSITION *DOES NOT* ACT TO CONSERVE AIR. Increased breathing effort requires the extra use of respiratory muscles which, in turn, demands greater oxygen consumption and contributes to respiratory fatigue.

FIGURE 2



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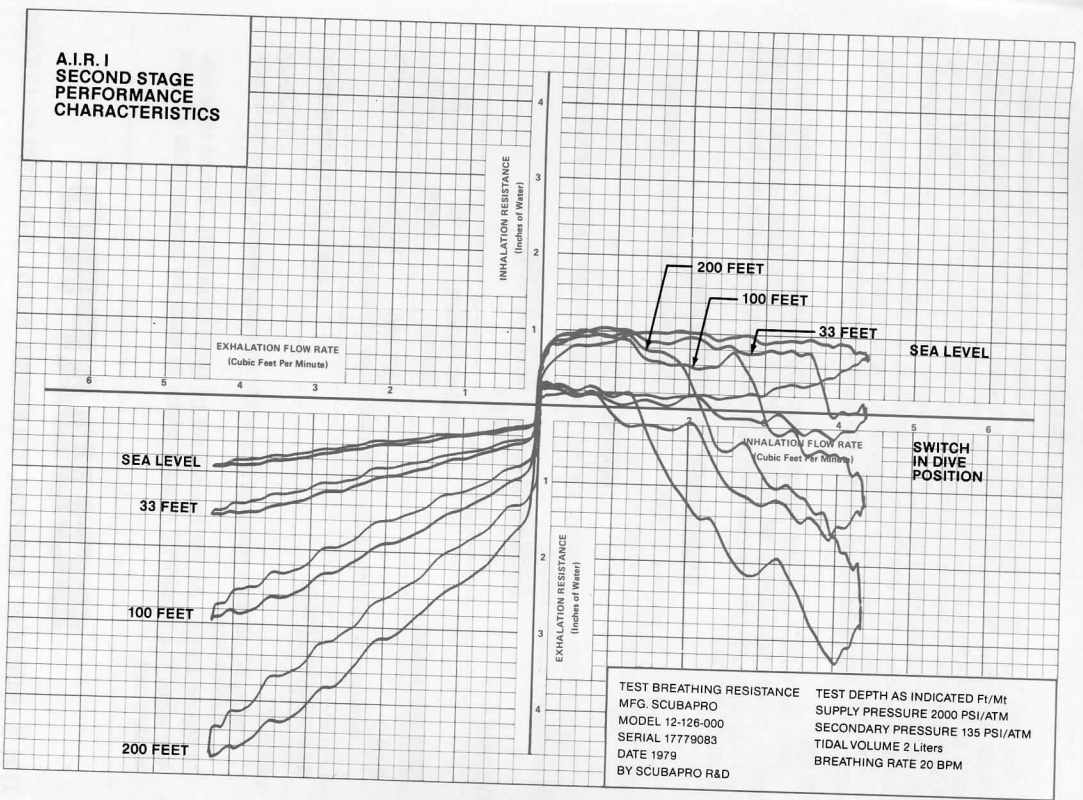

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MAINTENANCE

The A.I.R. I Second Stage does not require special maintenance. Rinse the regulator thoroughly after every dive by flushing clean fresh water through the mouthpiece and out the exhaust ports. Afterward, purge and shake dry. THE REGULATOR SHOULD BE PRESSURIZED WHEN RINSING. Do no depress the purge button or otherwise deflect the diaphragm if the regulator is not pressurized during rinsing. This precaution, which applies to any scuba regulator, prevents contaminants from entering and possibly fouling the valves and air hose.

Annually, or more frequently if the regulator is used on a daily basis, the regulator should be returned to a SCUBAPRO Dealer for performance evaluation and servicing.

Storage:

Store the A.I.R. I in a cool, dry, and clean place with the hoses not kinked and the regulator storage key inserted and turned to lock in the purge button. Adequate storage is provided by a protection container such as the SCUBAPRO Instrument and Regulator Bag (Cat. No. 53-719-000).

ADJUSTMENTS AND REPAIRS

Only trained technicians at authorized Scubapro Dealers should make adjustments or conduct repairs on the A.I.R. I Second Stage.

WARRANTY

The conditions of the regulator warranty are detailed in Table I and on the last pages of the **Scubapro Technical Manual**.

SCUBAPRO A.I.R. I REGULATORS

SYSTEMS — TABLE I

Name and Features	Regulator Numbers System	1st Stage	2nd Stage
A.I.R. I	12-126-000	10-105-001	11-126-001
balanced, swivel connections, A.I.R. I 2nd Stage, lifetime warranty			
A.I.R. I SECOND STAGE		**2 YEAR LIMITED WARRANTY**	
A.I.R. I*			11-126-000
balanced, inhalation resistance dive switch, extra-large exhaust, right or left-handed, standard hose			

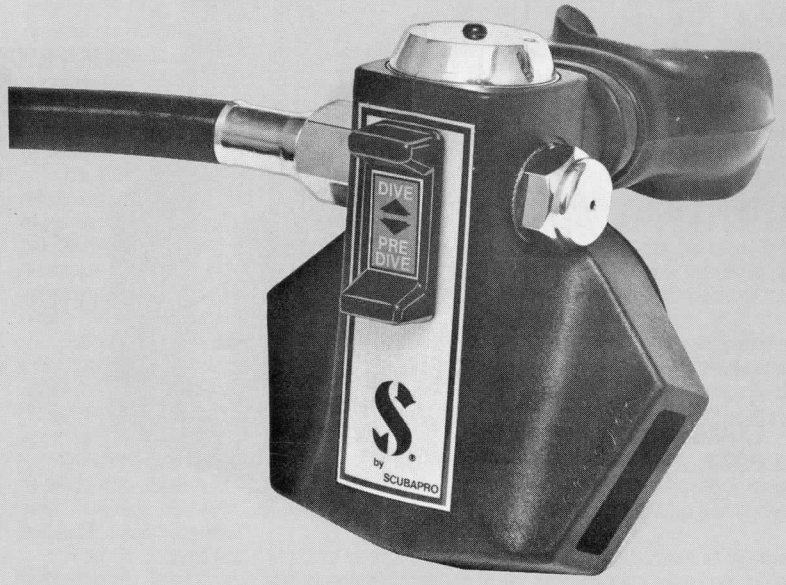
*A lifetime warranty and warranty card will be issued on an A.I.R. I second stage regulator added to a SCUBAPRO regulator system on which the consumer holds a lifetime warranty card.

SCUBAPRO®

3105 E. HARCOURT COMPTON, CALIFORNIA 90221 2500 3/80 45-126-001

A.I.R. I
AIR INHALATION REGULATOR SECOND STAGE

Addendum to TECHNICAL MANUAL for SCUBAPRO REGULATORS (Cat. 45-101-187)



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