

“S” PRESSURE REGULATOR

SERVICE INFORMATION



The "S" Pressure Regulator assures uniform air pressure in secondary pneumatic circuits. This three-way, self-relieving valve is versatile in its application and method of mounting. A complete line of sizes, pressure ranges and manual adjusters is available. Mounting brackets are optional.



WARNING: INSTALLATION AND MOUNTING

The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

INSTALLATION! Do not attempt to install, operate or repair these devices without proper training in the technique of working on pneumatic or hydraulic systems and devices, unless under trained supervision.

Compressed air and hydraulic systems contain high levels of stored energy. Do not attempt to connect, disconnect or repair these products when a system is under pressure. Always exhaust or drain the pressure from a system before performing any service work. Failure to do so can result in serious personal injury.

MOUNTING! Devices should be mounted and positioned in such a manner that they cannot be accidentally operated.

INSTALLATION

Before installing the "S" Pressure Regulator, all air lines in the system should be blown clean to remove any moisture or harmful deposits. To further ensure long, trouble - free service, an efficient filter should be installed in the air line on the supply side of the regulator. If line lubrication is desired, lubricators are available. AVENTICS filters and lubricators are available.

Install the regulator directly in the line at any convenient location. It may be installed in any position but is virtually weatherproof when upright (adjustor on top).

All models may be bracket mounted (see "Mounting Kits") or supported by piping alone. Those models with a handwheel adjuster have a tapped bonnet for optional mounting in a panel or console. Bottom mounting is also possible by use of self-tapping screws (TAPTITE) or by tapping holes in the bottom of the regulator (see "Outline Dimensions").

Air gauges, optional with regulator, may be located on either side of the regulator to measure the delivery pressure of the regulator at all times. Gauge taps may be used as small, additional delivery lines if desired.

OPERATION

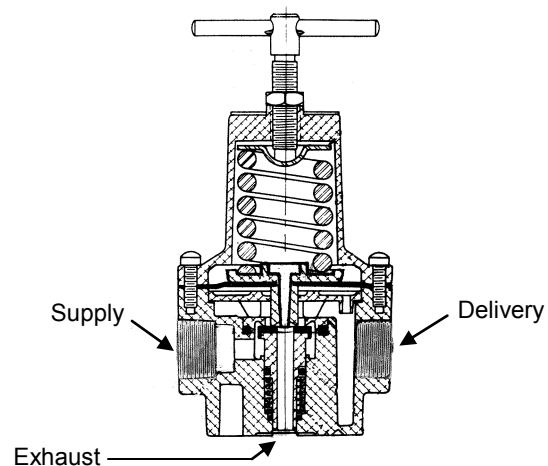
Maximum supply pressure of the "S" Pressure Regulator is 250 psi (17.2 bar) at a temperature range of -20°F to 160°F (-29°C to 71°C). Delivery pressure is determined by the pressure range of the control spring (6) and the manual adjustment made on this spring by the adjustor (1). See "Adjustment" for directions on setting delivery pressure.

When the regulator is set for zero delivery pressure, the control spring (60) attains free height. The supply valve spring (17) holds the plunger (15) against the supply valve seat (12) to prevent supply air from entering the delivery port.

When the control spring is compressed by the adjustor (see "Adjustment"), the plunger is forced away from the supply valve seat by the force of the control spring exerted on the diaphragm follower (7). Supply air flows freely to the delivery port, with the exhaust being closed.

When air pressure in the delivery line reaches the specified pressure, this pressure acts on the diaphragm (8) to overcome the force of the control spring. The diaphragm follower remains seated, and the supply valve spring forces the plunger again to seat against the supply valve seat. Supply air is then sealed off from the delivery port.

If pressure in the delivery line exceeds the setting on the control spring, the control spring is further compressed to move the diaphragm follower away from the plunger. Since the plunger is seated against the supply valve seat and cannot move up any farther, excess pressure in the delivery line is exhausted through the hollow plunger. As soon as the excess pressure is exhausted, the control spring forces the diaphragm follower back to seat on the upper surface of the plunger, closing the exhaust port.



Assembly View

ADJUSTMENT

No internal adjustments are required on the "S" Pressure Regulator. Delivery pressure can be externally adjusted to any setting within the pressure range of the control spring. Optional manual adjusters include a wrench adjuster, tee handle and hand-wheel.

Turn the adjuster clockwise to increase delivery pressure and counter-clockwise to decrease pressure. The air gauge on the side of the regulator registers delivery pressure.

All air pressure in a dead-end system can be relieved by turning the adjuster counter-clockwise until the air gauge registers zero.

MAINTENANCE

The "S" Pressure Regulator can be quickly serviced in the line without disconnecting piping. All parts are accessible by removing the bonnet (4). Normally, a three-way cock is located ahead of the filter and regulator. This cock should be closed to vent all pressure prior to servicing of the regulator.

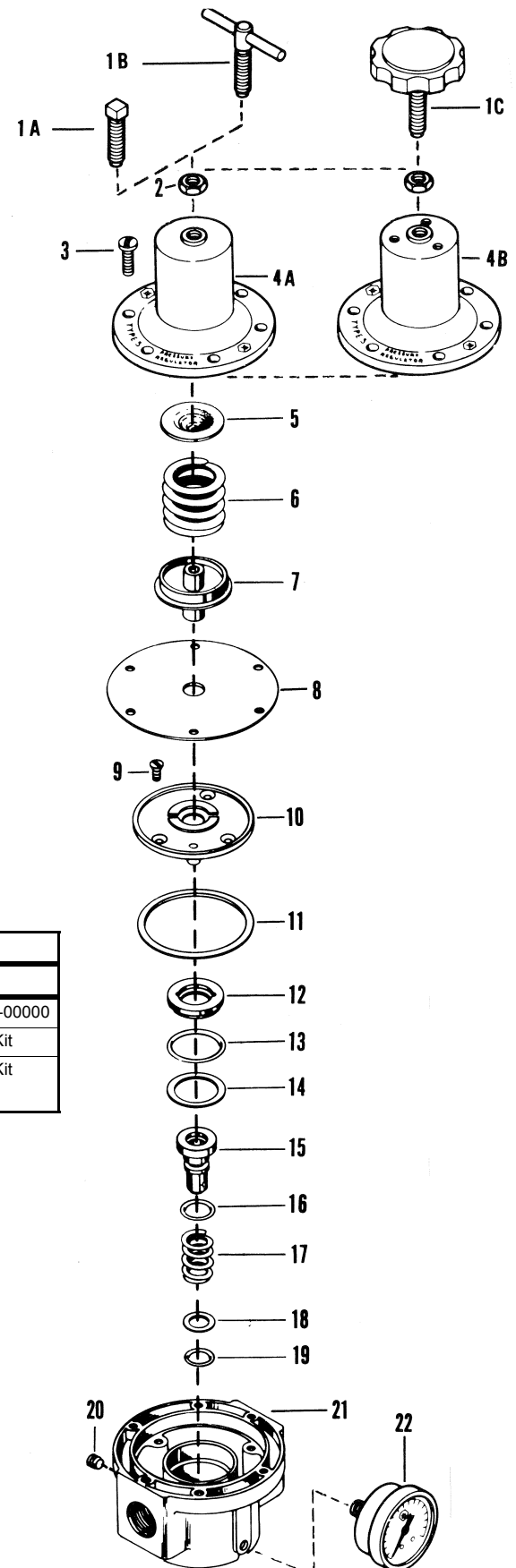
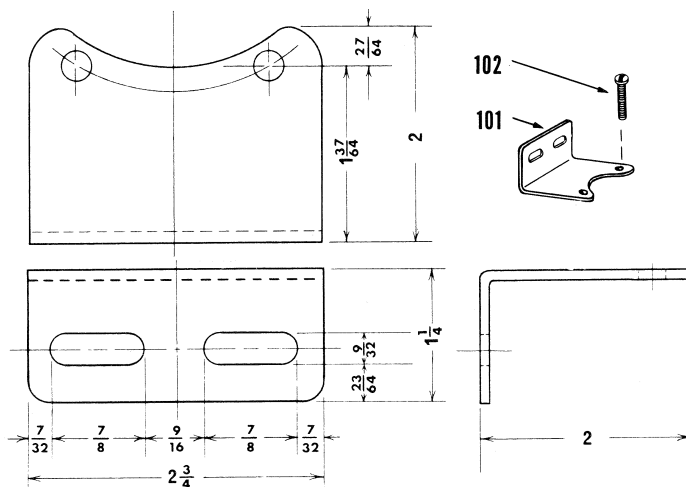
Periodically disassemble the regulator for cleaning, inspection and lubrication. Clean all metal parts with a nonflammable solvent, and wash all rubber parts with soap and water. Rinse thoroughly and blow dry with a low -pressure air jet. Replace those parts which are damaged or worn. Particular attention should be given to the diaphragm (8), supply valve seat (12), plunger (15), and all gaskets and "O" rings.

For important instructions on replacement of the bonnet (4) and diaphragm follower (7), refer to the footnote (†) under "Parts List." Reassemble the regulator, using the exploded and assembly views as reference. No special tools are required. As the assembly proceeds, lubricate all metal-to-metal surfaces with Number 107 Lubriplate and all rubber parts with Dow Corning Number 55 Pneumatic Grease.

MOUNTING KITS

REF.	QTY.	DESCRIPTION	PART NUMBERS			
			S-2, S-3 & S-4		S-6, S-8	
		MOUNTING KIT, Complete	R431004140	*P -057412-00000	R431004142	*P -057413-00000
101	1	BRACKET	See Kit	See Kit	See Kit	See Kit
102	2	SCREW	See Kit	See Kit	See Kit	See Kit

* Old part numbers



Exploded View

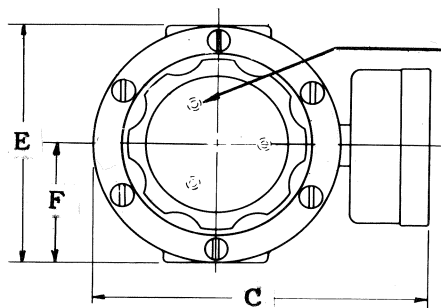
PARTS LIST
(In Order of Disassembly)

REF. QTY.		DESCRIPTION	S-2, S-3, S-4		S-6, S-8	
			New P/N	Old P/N	New P/N	Old P/N
1A	1	ADJUSTOR, Wrench	R431004941	P -059196-00000	R431004941	P -059196-00000
1B	1	ADJUSTOR, Tee Handle	R431003576	P -055094-00000	R431003576	P -055094-00000
1C	1	ADJUSTOR, Handwheel	R431003677	P -055185-00000	R431003677	P -055185-00000
2	1	NUT, Jam	R431002445	P -049903-00018	R431002445	P -49903-00018
3	6	SCREW	R431002264	P -049835-00040	R431002264	P -049835-00040
4A	1	BONNET, (for Wrench and Tee Handle Adjustors)	R431004165	P -057524-00005	R431004161	P -057522-00001
4B	1	BONNET, (for Handwheel Adjustor)	R431003679	P -055187-00001	R431003662	P -055157-00001
5	1	SEAT, Spring	R431003579	P -055096-00001	R431003660	P -055154-00000
6	1	SPRING, Control (0-50 psi)	R431003676	P -055173-00000	R431003732	P -055442-00000
6	1	SPRING, Control (0-150 psi)	R431003675	P -055172-00000	R431003731	P -055441-00000
6	1	SPRING, Control (0-200 psi)	R431003578	P -055095-00000		
7†	1	FOLLOWER, Diaphragm (exhaust valve seat)	R431004168	P -057525-00001	R431004163	P -057523-00002
8*	1	DIAPHRAGM	See Kit	See Kit	See Kit	See Kit
9	3	SCREW	R431001944	P -049648-00001	R431001944	P -049648-00001
10	1	BAFFLE	R431003572	P -055088-00004	R431003620	P -055116-00000
11*	1	GASKET, Large	See Kit	See Kit	See Kit	See Kit
12*	1	SEAT, Supply Valve	See Kit	See Kit	See Kit	See Kit
13*	1	RING, "O"	See Kit	See Kit	See Kit	See Kit
14*	1	GASKET, Small	See Kit	See Kit	See Kit	See Kit
15*	1	PLUNGER, Valve (supply and exhaust valve)	See Kit	See Kit	See Kit	See Kit
16*	1	RING, "O"	See Kit	See Kit	See Kit	See Kit
17	1	SPRING, Supply Valve	R431003686	P -055287-00000	R431000109	-820018-00000
18	1	WASHER	R431002158	P -049804-00017	R431002165	P -049804-00039
19*	1	Ring, "O"	See Kit	See Kit	See Kit	See Kit
20	2	Plug, Pipe	R431002133	P -049787-00000	R431002133	P -049787-00000
21	1	BODY, (S-2 Regulator, 1/4" Ports)	R431003563	P -055086-00005		
21	1	BODY, (S-3 Regulator, 3/8" Ports)	R431003561	P -55086-00003		
21	1	BODY, (S-4 Regulator, 1/2" Ports)	R431003562	P -055086-00004		
21	1	BODY, (S-6 Regulator, 3/4" Ports)			R431003612	P -055113-00002
21	1	BODY, (S-8 Regulators, 1" Ports)			R431003611	P -055113-00001
22	1	GAGE, (0-160 psi) - (see "Identity Schedule")	R432012176	P -049788-00000	R432012176	P -049788-00000
22	1	GAGE, (0-300 psi) - (see "Identity Schedule")	R432012177	P -049788-00001	R432012177	P -049788-00001
*Recommended spare parts to be retained in stock at all times. These parts may be ordered in kit form as follows: Part No. R431004051 (Old Part No. P -057377-00000) (S-2, S-3 and S-4 models) Part No. R431004154 (Old Part No. P -057430-00000) (S-6 and S-8 models)						

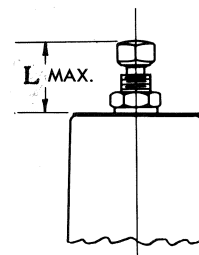
† The "S" Regulator formerly had a slotted bonnet (ref. 4) with mounting holes and a solid diaphragm follower. To ensure weatherproof operation, the bonnet on the current regulator is not slotted and does not have mounting holes. Consequently, a hollow diaphragm follower is used in the current regulator to keep the spring cavity at atmospheric pressure. The slotted bonnet must be used with the solid diaphragm follower. The hollow diaphragm follower may be used with either bonnet.

IDENTITY SCHEDULE

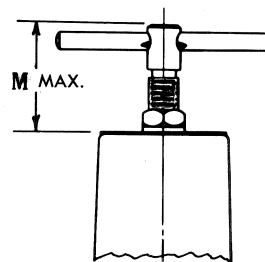
MODEL	PORT SIZE	PRESSURE RANGE (PSI)	COMPLETE PART NUMBERS											
			WRENCH ADJUSTOR				TEE HANDLE ADJUSTOR				HANDWHEEL ADJUSTOR			
			WITH GAUGE		WITHOUT GAUGE		WITH GAUGE		WITHOUT GAUGE		WITH GAUGE		WITHOUT GAUGE	
			New No.	Old No.	New No.	Old No.	New No.	Old No.	New No.	Old No.	New No.	Old No.	New No.	Old No.
S-2	1/4"	0-50	R431003871	P -055672-00001	R431003870	P -055672-00000	R431003877	P -055675-00001	R431003876	P 055675-00000	R431003885	P -055678-00001	R431003884	P -055678-00000
			Unknown	P -059195-00001	--	--	--	--	--	--	--	--	--	--
		0-150	--	--	R431000596	P -026173-00000	--	--	--	--	--	--	--	--
			R431003873	P -055673-00001	R431003872	P -055673-00000	R431003880	P -055676-00001	R431003879	P -055676-00000	R431003887	P -055679-00001	R431003886	P -055679-00000
		0-200	--	--	--	P -055673-00006	--	P -055676-00006	R431003881	P -055676-00006	--	--	--	P -055679-00006
S-3	3/8"	0-50	R431003875	P -055674-00001	R431003874	P -055674-00000	R431003883	P -055677-00001	R431003874	P -055674-00000	R431003889	P -055680-00001	R431003888	P -055680-00000
			Unknown	P -055674-00006	--	--	Unknown	P -055677-00006	--	--	--	--	--	--
		0-150	R431003643	P -055127-00001	R431003642	P -055127-00000	R431003649	P -055130-00001	R431003648	P -055130-00000	R431003655	P -055133-00001	R431003654	P -055133-00000
			--	--	--	P -055127-00006	--	--	--	P -055130-00006	--	--	--	--
		0-200	R431003645	P -055128-00001	R431003644	P -055128-00000	R431003651	P -055131-00001	R431003650	P -055131-00000	R431003657	P -055134-00001	R431003656	P -055134-00000
S-4	1/2"	0-50	--	--	--	P -055128-00006	--	--	--	P -055131-00006	--	--	--	--
			R431003647	P -055129-00001	R431003646	P -055129-00000	R431003653	P -055132-00001	R431003652	P -055132-00000	R431003659	P -055135-00001	R431003658	P -055135-00000
		0-150	--	--	--	P -055129-00006	--	--	--	P -055132-00006	--	--	--	--
			R431003622	P -055118-00000	R431003621	P -055118-00000	R431003628	P -055121-00001	R431003627	P -055121-00000	R431003636	P -055124-00001	R431003635	P -055124-00000
		0-200	--	--	--	P -055118-00006	--	--	--	P -055121-00006	R431003637	P -055124-00005	--	--
S-6	3/4"	0-50	R431005260	P -059831-00001	--	P -059831-00000	--	--	--	--	--	--	--	--
			R431003624	P -055119-00000	R431003623	P -055119-00000	R431003630	P -055122-00001	R431003629	P -055122-00000	R431003657	P -055134-00001	R431003656	P -055134-00000
		0-150	--	--	--	P -055119-00006	--	--	R431003631	P -055122-00006	--	--	--	--
			--	--	R431004893	P -059063-00000	--	--	--	--	--	--	--	--
		0-200	--	--	R431005260	P -059831-00001	--	--	--	--	--	--	--	--
S-8	1"	0-50	R431003922	P -055815-00001	--	P -055815-00001	--	--	--	--	--	--	--	--
			--	--	--	P -063501-00000	--	--	--	--	--	--	--	--
		0-150	--	--	--	P -064678-00000	--	--	--	--	--	--	--	--
			--	--	R431007026	P -067153-00000	--	--	--	--	--	--	--	--
		0-200	R431003626	P -055120-00001	R431003625	P -055120-00000	R431003633	P -055123-00001	R431003632	P -055123-00000	R431003641	P -055126-00001	R431003640	P -055126-00000
S-8	1"	0-50	--	--	--	P -55120-00006	--	--	R431003634	P -055123-00006	--	--	--	--
			R431003598	P -055106-00001	R431003597	P -055106-00000	R431003602	P -055108-00001	R431003601	P -055108-00000	--	--	R431003605	P -055110-00000
		0-150	--	--	--	P -055106-00005	--	--	--	--	--	--	--	--
			R431003600	P 055107-00001	R431003599	P -055107-00000	R431003604	P -055109-00001	R431003603	P -055109-00000	R431003607	P -055111-00001	R431003606	P -055111-00000
		0-200	R431003587	P -055100-00001	R431003586	P -055100-00000	Unknown	P -055102-00001	R431003590	P -055102-00000	--	--	--	--
S-8	1"	0-50	R431003589	P -055101-00001	R431003588	P -055101-00000	R431003592	P -055103-00001	R431003591	P -055103-00000	R431003596	P -055105-00001	R431003595	P -055105-00000
			--	--	--	P -055101-00006	--	--	--	--	--	--	--	--
		0-150	--	--	--	P -055101-00000	--	--	--	--	--	--	--	--
			--	--	--	P -055101-00000	--	--	--	--	--	--	--	--
		0-200	--	--	--	P -055101-00000	--	--	--	--	--	--	--	--



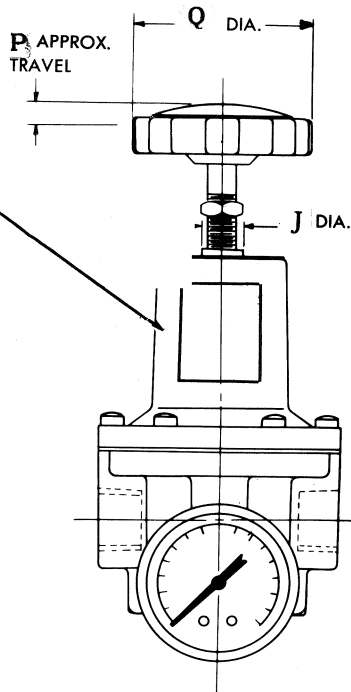
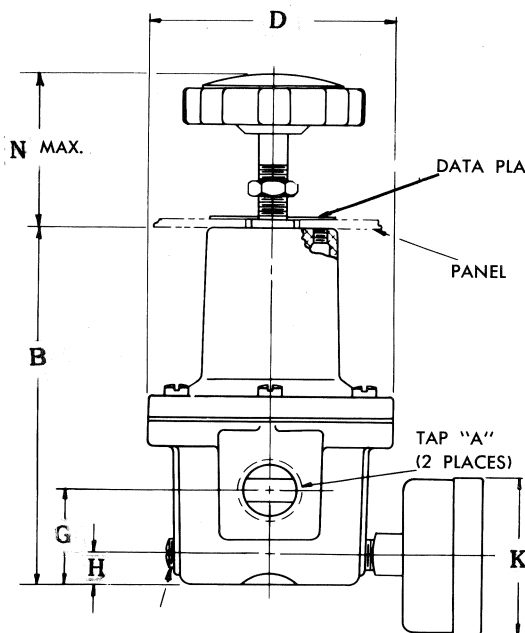
HANDWHEEL MODEL ONLY -
3 Holes (Equally spaced) for panel
mounting (see "Installation").



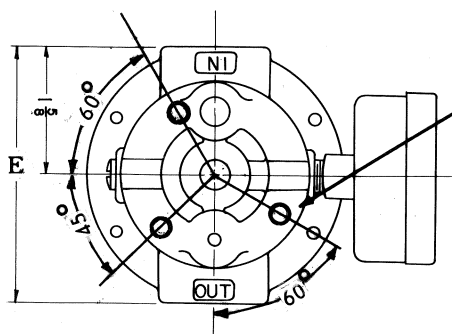
WRENCH ADJUSTOR
(All other dimensions same as
handwheel model)



TEE HANDLE ADJUSTOR
(All other dimensions same as
handwheel model)



GAUGE CONNECTION (DELIVERY)
1/8"-27 Dryseal NPTF (2 places) both holes
plugged when supplied less gage



S-2, S-3 & S-4 MODELS

3 holes - 7/16" deep, spaced as shown, on 1.875 dia. bolt circle
Use No. 8-32 TAPTITE screw.

S-6 & S-8 MODELS (Not shown)

4 holes - 9/16" deep, spaced 40° to each side of vertical
centerline, on 2-1/8 dia. B.C.
Use No. 12-24 TAPTITE screw.

OUTLINE DIMENSIONS (INCHES)

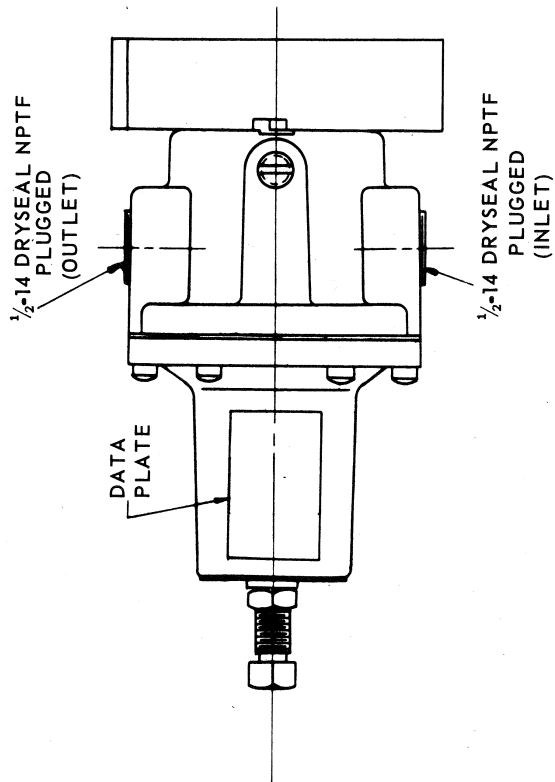
MODEL	TAP A (PORTS)	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
S-2	1/4														
S-3	3/8	4-15/16	4-1/2	3-1/4	3-1/4	1-5/8	1-11/32	15/32	9/16	2-5/32	1-9/32	1-9/16	2-3/16	3/8	2-3/8
S-4	1/2														
S-6	3/4	5-29/32	5-3/16	4-1/8	4-1/8	2-1/16	1-1/2	1-3/16	9/16	2-5/32	1-7/32	1-17/32	2-5/32	13/32	2-3/8
S-8	1														

S-4 PRESSURE REGULATOR
PARTS LIST
SCHEDULE

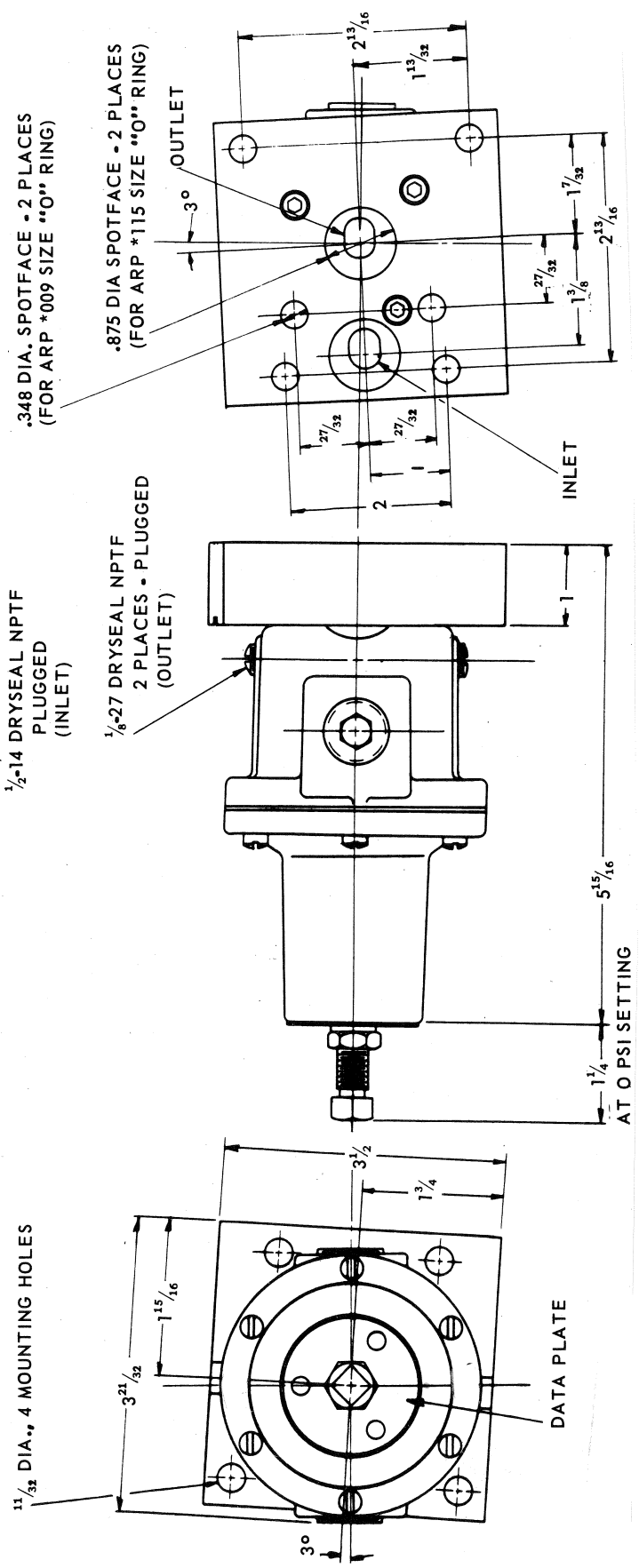
New Part No.	Old Part No	Delivery Setting	Remarks
R431003738	P -055462-00000	150 PSI	With Adapter
R431003739	P -055462-00001	250 PSI Inlet	Less Adapter
—	P -055462-00002	100 PSI	With Adapter
—	P -055462-00003	250 PSI Inlet	Less Adapter

Refer to Publication B6-107.01 for exploded view and service information.

Ref.	Description	New No.	Old No.
1	BODY	R431003729	P -055437-00003
2*	RING, 1/2" O.D. "O"	See Kit	See Kit
3	WASHER, 19/32" O.D.	R431002158	P -049804-00017
4*	SPRING, Supply Valve	See Kit	See Kit
5*	RING, 5/8" O.D. "O"	See Kit	See Kit
6*	PLUNGER, Valve	See Kit	See Kit
7*	RING, 1-5/16" O.D. "O"	See Kit	See Kit
8	SEAT, Supply Valve	R431003573	P -055091-00004
9	BAFFLE	R431003572	P -055088-00004
10	SCREW, (3 req'd)	R431001944	P -049648-00001
11*	DIAPHRAGM	See Kit	See Kit
12	FOLLOWER, Diaphragm	R431004168	P -057525-00001
13*	SPRING, Control	See Kit	See Kit
14*	GASKET, Small	See Kit	See Kit
15	SEAT, Spring	R431003579	P -055096-00001
16*	GASKET, Large	See Kit	See Kit
17	BONNET	R431004166	P -057524-00006
18	SCREW, #10-24 (6 req'd)	R431002264	P -049835-00040
19	NUT, 3/8"-24	R431002444	P -049903-00017
20	PLUG, 1/8" Pipe (2 req'd)	R431002133	P -049787-00000
23	SCREW, Wrench Adjustor	R431004941	P -059196-00000
26*	RING, 9/16" O.D. "O" (2 req'd) (Not Shown)	See Kit	See Kit
27	PLUG, 1/2" Pipe (2 req'd) (Not shown)	R432027755	P -049909-00015
28	ADAPTER (Not shown)	R431003737	P -055461-00000
29	WASHER, Lock (3 req'd) (Not shown)	R431002408	P -049898-00000
30	SCREW, #10-24 (3 req'd) (Not shown)	R431002295	P -049856-00013
* Recommended spare parts to be retained in stock at all times Repair Kit R431006572 (Old Part No. P -065209-00000)			



1 1/32 DIA., 4 MOUNTING HOLES



(INCHES)

NOTICE TO PRODUCT USERS

1. WARNING: FLUID MEDIA

AVENTICS pneumatic devices are designed and tested for use with filtered, clean, dry, chemical free air at pressures and temperatures within the specified limits of the device. For use with media other than air or for human life support systems, AVENTICS must be consulted. Hydraulic cylinders are designed for operation with filtered, clean, petroleum based hydraulic fluid; operation using fire-resistant or other special types of fluids may require special packing and seals. Consult the factory.

2. WARNING: MATERIAL COMPATIBILITY

Damage to product seals or other parts caused by the use of noncompatible lubricants, oil additives or synthetic lubricants in the air system compressor or line lubrication devices voids AVENTICS warranty and can result in product failure or other malfunction. See lubrication recommendations below.

AIR LINE LUBRICANTS! In service higher than 18 cycles per minute or with continuous flow of air through the device, an air line lubricator is recommended.* (Do not use line lubrication with vacuum products.) However, the lubricator must be maintained since the oil will wash out the grease, and lack of lubrication will greatly shorten the life expectancy. The oils used in the lubricator must be compatible with the elastomers in the device. The elastomers are normally BUNA-N, NEOPRENE, VITON, SILICONE and HYTREL. AVENTICS recommends the use of only petroleum based oils without synthetic additives, and with an aniline point between 180° F and 210° F.

COMPRESSOR LUBRICANTS! All compressors (with the exception of special "oil free" units) pass oil mist or vapor from the internal crankcase lubricating system through to the compressed air. Since even small amounts of non-compatible lubricants can cause severe seal deterioration (which could result in component and system failure) special care should be taken in selecting compatible compressor lubricants.

3. WARNING: INSTALLATION AND MOUNTING

The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

INSTALLATION ! Do not attempt to install, operate or repair these devices without proper training in the technique of working on pneumatic or hydraulic systems and devices, unless under trained supervision. Compressed air and hydraulic systems contain high levels of stored energy. Do not attempt to connect,

disconnect or repair these products when a system is under pressure. Always exhaust or drain the pressure from a system before performing any service work. Failure to do so can result in serious personal injury.

MOUNTING! Devices should be mounted and positioned in such a manner that they cannot be accidentally operated.

4. WARNING: APPLICATION AND USE OF PRODUCTS

The possibility does exist for any device or accessory to fail to operate properly through misuse, wear or malfunction. The user must consider these possibilities and should provide appropriate safe guards in the application or system design to prevent personal injury or property damage in the event of a malfunction.

5. WARNING: CONVERSION, MAINTENANCE AND REPAIR

When a device is disassembled for conversion to a different configuration, maintenance or repair, the device must be tested for leakage and proper operation after being reassembled and prior to installation.

MAINTENANCE AND REPAIR! Maintenance periods should be scheduled in accordance with frequency of use and working conditions. All AVENTICS products should provide a minimum of 1,000,000 cycles of maintenance free service when used and lubricated as recommended. However, these products should be visually inspected for defects and given an "in system" operating performance and leakage test once a year. Where devices require a major repair as a result of the one million cycles, one year, or routine inspection, the device must be disassembled, cleaned, inspected, parts replaced as required, rebuilt and tested for leakage and proper operation prior to installation. See individual catalogs for specific cycle life estimates.

6. PRODUCT CHANGES

Product changes including specifications, features, designs and availability are subject to change at any time without notice. For critical dimensions or specifications, contact factory.

*Many AVENTICS pneumatic valves and cylinders can operate with or without air line lubrication; see individual sales catalogs for details.

LIMITATIONS OF WARRANTIES & REMEDIES

AVENTICS warrants its products sold by it to be free from defects in material and workmanship to the following:

For twelve months after shipment AVENTICS will repair or replace (F.O.B. our works), at its option, any equipment which under normal conditions of use and service proves to be defective in material or workmanship at no charge to the purchaser. No charge will be made for labor with respect to defects covered by this Warranty, provided that the work is done by AVENTICS or any of its authorized service facilities. However, this Warranty does not cover expenses incurred in the removal and reinstallation of any product, nor any downtime incurred, whether or not proved defective.

All repairs and replacement parts provided under this Warranty policy will assume the identity, for warranty purposes, of the part replaced, and the warranty on such replacement parts will expire when the warranty on the original part would have expired. Claims must be submitted within thirty days of the failure or be subject to rejection.

This Warranty is not transferable beyond the first using purchaser. Specifically, excluded from this Warranty are failures caused by misuse, neglect, abuse, improper operation or filtration, extreme temperatures, or unauthorized service or parts. This Warranty also excludes the use of lubricants, fluids or air line additives that are not compatible with seals or diaphragms used in the products. This Warranty sets out the purchaser's exclusive remedies with respect to products covered by it, whether for negligence or otherwise. Neither, AVENTICS nor any of its affiliates will be liable for consequential or incidental damages or other losses or expenses incurred by reason of the use or sale of such products. Our liability (except as to title) arising out of the sale, use or operation of any product or parts, whether on warranty, contract or negligence (including claims for consequential or incidental damage) shall not in any event exceed the cost of replacing the defective products and, upon expiration of the warranted period as herein provided, all such liability is terminated. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHETHER FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. No attempt to alter, amend or extend this Warranty shall be effective unless authorized in writing by an officer of AVENTICS Corporation.

AVENTICS reserves the right to discontinue manufacture of any product, or change product materials, design or specifications without notice.

AVENTICS Corporation

1953 Mercer Road
Lexington, KY 40511
www.aventics.com/us
info.us@aventics.com

**AVENTICS Incorporated**

3426 Mainway Drive
Burlington, Ontario CANADA L7M 1A8
www.aventics.com/ca
info.ca@aventics.com