
2nd STAGE DESCRIPTION

The second stage is a downstream demand valve using a silicone diaphragm housed in a polycarbonate body which features extra high impact resistance coupled with light weight. A silicone mouthpiece is fitted standard.

There are two models available.

The STANDARD model which features a screw on front diaphragm cover.

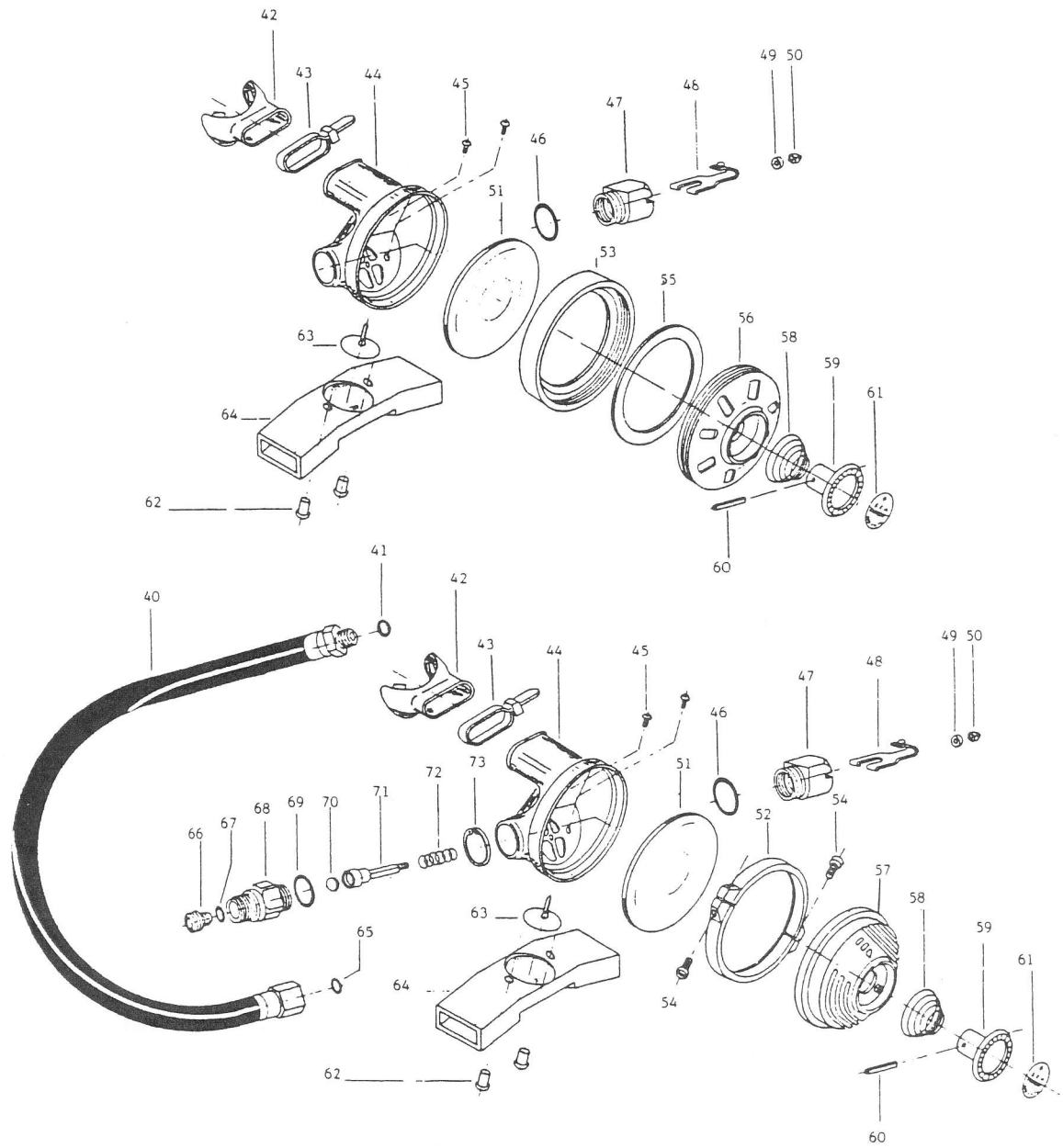
The COMPACT model which features a clamp on front diaphragm cover.

Octopus second stages are available in both models.

2nd Stage

Sea Hornet Regulator

Spare Parts List



40	L.P. Hose	330030	52	Ring Clamp (Set)	340022	63	Exhaust Valve	340026
41	O-Ring	330025	53	Threaded Ring	340122	64	Exhaust Tee	340004
42	Silicone Mouth Piece	340006	54	Clamp Screw (Each)	340023	65	O-Ring	330023
43	Clamp	340007P	55	Nylon Washer	340118	66	Orifice	340001A
44	Housing	340010	56	Threaded Cover	340224	67	O-Ring	330023
45	Sealing Screw	340011	57	Cover (6 slots)	340223	68	Connector Sleeve	340001
46	O-Ring	330027	58	Spiral Spring	340108	69	O-Ring	340024
47	Valve Sleeve	340014	59	Purge Button	340119	70	L.P. Valve Seat	340002
48	S.S. Lever	340015	60	S.S.C. Pin	340127	71	L.P. Valve	340003
49	S.S. Washer	340016	61	Sticker	340126	72	Spring	340012
50	Locknut	340017	62	Fastener	340013	73	S.S. Circlip	340005
51	Diaphragm	340018						

2nd STAGE SETTINGS

Inhalation Effort Primary Reg. 1" water

Inhalation Effort Octopus Reg. 1-1.5" water

Approx. starting point 1 thread showing through nut. (Item 50.)

Once Inhalation effort has been set,
Adjust Lever height / sensitivity tuning
Adjustable Orifice (Item No.66)

PARTS TO BE REPLACED ANNUALLY

Diaphragm	Item No. 51	P/No.	340018
LP Valve Seat	Item No. 70	P/No.	340002

CAREFUL INSPECTION OF THE FOLLOWING PARTS
IS REQUIRED BEFORE REFITTING.

Mouthpiece	Item No. 42	P/No.	340006
Valve Sleeve O-ring	Item No. 46	P/No.	330027
Locknut (must lock)	Item No. 50	P/No.	340017
Exhaust Valve	Item No. 63	P/No.	340026
Orifice	Item No. 66	P/No.	340001A
LP Valve (Rust)	Item No. 71	P/No.	340003

Remaining Parts to be Visually Inspected Before Refitting.

SPECIAL NOTES

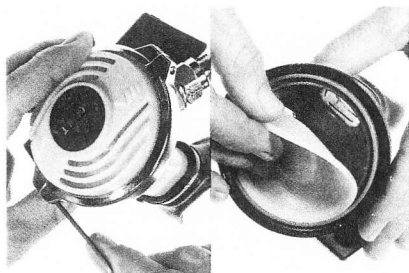
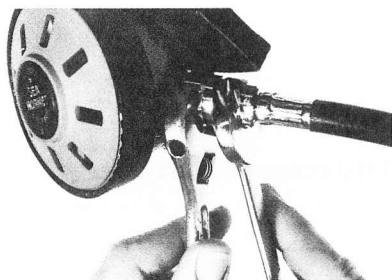
- # VALVE SLEEVE (Item No. 47) is DIFFERENT design and Part No. between the Primary and Octopus 2nd stages. (ON MODELS MANUFACTURED AFTER 1987)
- # Octopus and Primary now use SAME spring (Item No. 72 Yellow) (ON MODELS MANUFACTURED AFTER 1987)
- # Max. reliable performance is only gained if early 2nd stages are fitted with set - Orifice/LP Seat/Spring . DO NOT change only LP Seat (Item No. 70.) without matching the Orifice and Spring. (ON MODELS MANUFACTURED PRIOR TO 1988)

2nd STAGE DISASSEMBLY

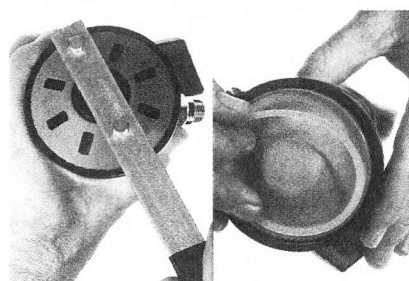
Remove 2nd stage from the LP hose.

- **IMPORTANT**

Ensure connector sleeve (68) is held with a spanner to prevent twisting and damage to the housing.



COMPACT MODEL



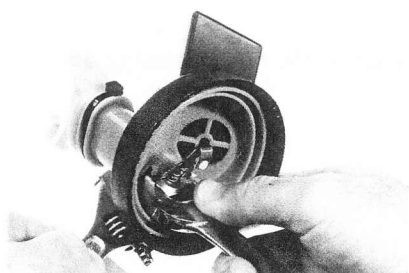
STANDARD MODEL

STEP 1

COMPACT MODEL Use a 3/32" allen key to remove clampscrews (54) remove clamps (52) and cover. Lift out and discard diaphragm (51).

STEP 1

STANDARD MODEL Use special tool No. 3410 to remove threaded cover. Lift out nylon washer (55) lift out and discard the diaphragm (51).

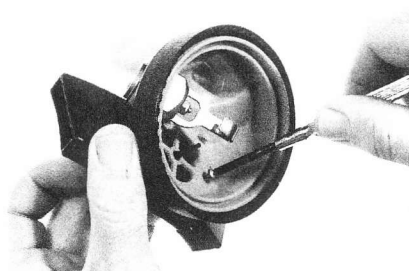


STEP 2

Use a 3/4" spanner to prevent twisting the valve sleeve (47) undo the connector sleeve. (68)

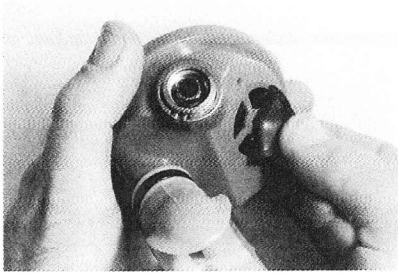
- **IMPORTANT**

Orifice (66) need not be removed unless damaged.



STEP 3

Remove exhaust tee by undoing 2 phillips screws. (45)

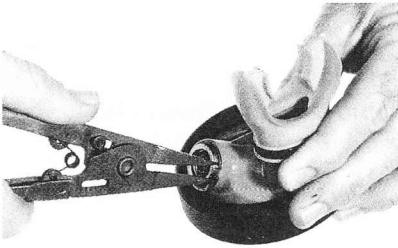


STEP 4

Hold the exhaust valve between thumb and forefinger and gently pull to remove.

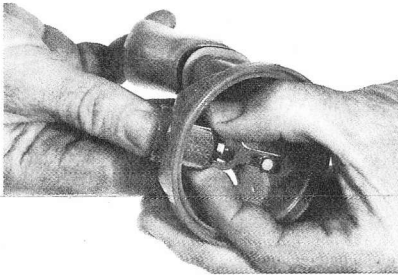
STEP 5

Inspect mouthpiece. This need only be removed if damaged or dirty.



STEP 6

Remove circlip. (73)



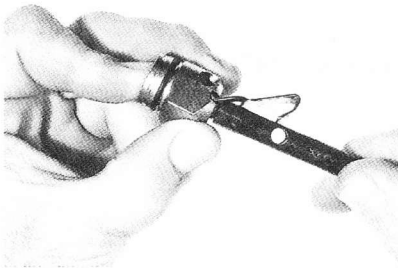
STEP 7

Push valve sleeve (47) from the housing. Inspect the 2nd stage housing (44) for cracks.

• IMPORTANT

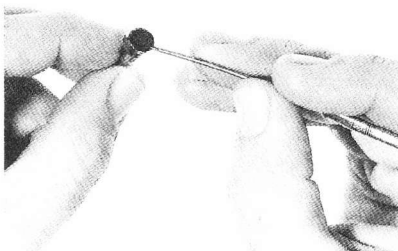
Pay particular attention to

- locating holes for exhaust tee screws
- exhaust valve spider
- valve sleeve port



STEP 8

Depress the LP valve (71) using your forefinger, undo the nut (50) using a 1/4" nut driver.



STEP 9

Remove LP valve seat (70) and discard.

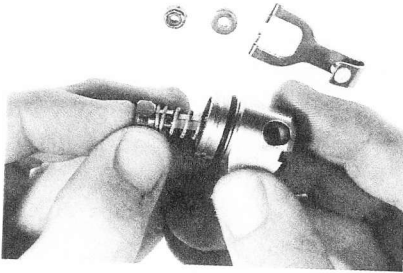
STEP 10

Clean as per cleaning procedures (Appendix A).
Inspect all parts including o-rings for defects.

2nd STAGE ASSEMBLY PROCEDURES

STEP 1

Insert a new LP valve seat (70) to the LP valve. (71)



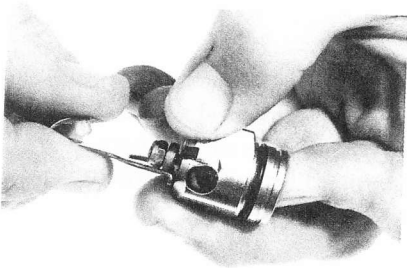
STEP 2

Assemble the spring (72) over the LP valve (71) and install in the valve sleeve. (47)



STEP 3

Compress the assembly with your forefinger and install washer (rounded side down) (49) and locknut (50) tighten the nut until finger tight.



STEP 4

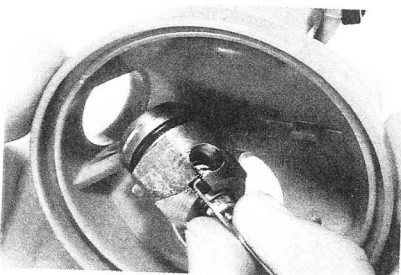
Compress valve assembly (71) until sufficient clearance is obtained to install the lever (48) between the valve sleeve (47) and washer. (49)

• IMPORTANT

- Extreme care needs to be taken to ensure lever is installed correctly.
- Nylon anti-friction pad on lever must face the diaphragm.
- Large bore hole in valve sleeve (47) faces towards mouthpiece.

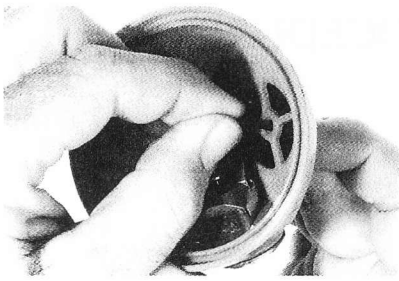
STEP 5

Tighten the locknut until 1 thread is exposed, this gives a starting point for turning.



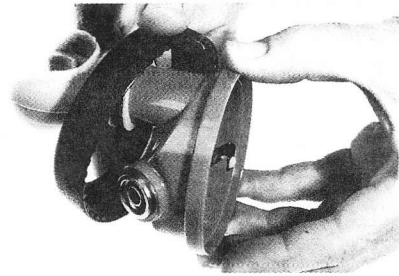
STEP 6

Install the valve sleeve (47) into the housing and fit circlip. (73)



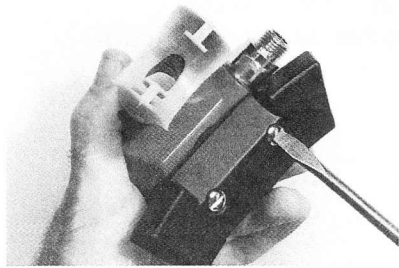
STEP 7

Install the exhaust valve. (63)



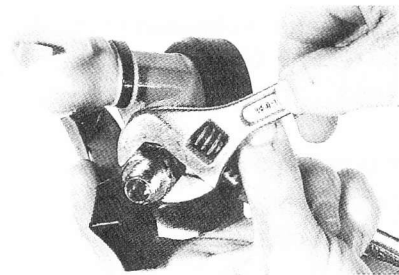
STEP 8

On the STANDARD model install the threaded ring. (53)



STEP 9

Install exhaust tee. (64)

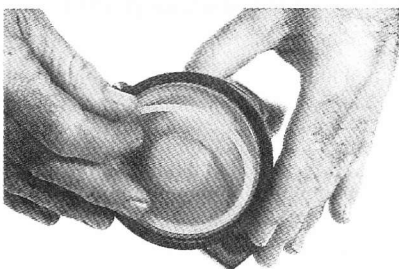


STEP 10

Fit connector sleeve (68) and tighten firmly using spanners as shown. If orifice (66) has been removed, replace o-ring (67), install the orifice, turn clockwise until engaged with the seat and the demand lever (48) starts to drop.

STEP 11

Install a new diaphragm (51) metal wear plate towards lever.



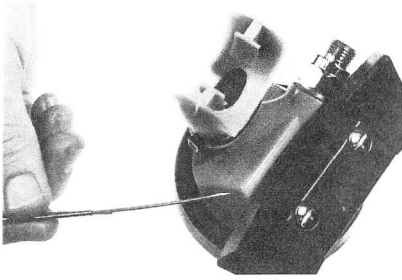
STEP 12

On the STANDARD model install nylon washer (55). NO nylon washer is used on the COMPACT model.

STEP 13

Fit the front cover. Threaded cover ring (56) on the standard model and clamps (52) on the compact model.

SETTING THE 2nd STAGE



STEP 14

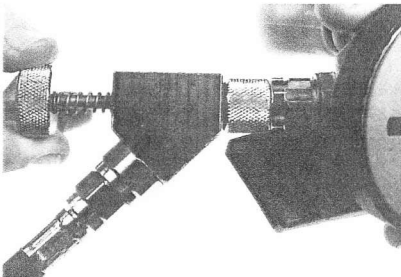
Ensure orifice (66) is seated against the valve seat (70) with intermediate pressure connected the second stage is immersed in a bath of water, mouthpiece up, to the position indicated. (approx. 1" from the diaphragm). At this point the 2nd stage should be starting to freeflow. This is the inhalation effort, it is adjusted by turning the locknut (50) clockwise to increase the effort, counterclockwise to decrease effort.

The front cover and diaphragm must be removed to make each adjustment.

- **IMPORTANT**

Orifice (66) is NOT used to adjust inhalation effort, this is used to set the lever height to the diaphragm.

Primary 2nd STG Inhalation Effort 1" Water
Octopus 2nd STG Inhalation Effort..... 1"- 1.5" Water



STEP 15

Using an inline orifice adjusting tool. The lever height must be set while under the influence of intermediate pressure. With the pressure on and using and adjusting tool turn the orifice (66) 'out' (counterclockwise) until freeflowing occurs, then turn the orifice 'in' (clockwise) until the freeflowing stops and the desired sensitivity is reached.

- **IMPORTANT**

There is no need to remove orifice (66) at every service. Damage to the seal face can be caused by careless removal, if removal is necessary ensure a soft probe is used.

If leakage occurs refer to the trouble shooting chart.

TROUBLE SHOOTING CHART.

PROBLEM	POSSIBLE CAUSE	ACTION
FREE FLOW	a) 1st stage high pressure leak b) Purge button jammed c) Demand lever set too high d) LP seat damaged e) LP orifice damaged f) LP orifice o-ring leaking g) Corrosion or Salt Deposit on LP Valve Stem	a) Service 1st stage b) Clean c) Adjust lever d) Replace seat e) Replace orifice f) Replace o-ring g) Clean or replace valve
WEAK PURGE	a) Filter clogged b) Demand lever set too low c) Lever bent d) Intermediate press to low	a) Replace filter b) Adjust lever c) Replace lever d) Adjust 1st stage
HARD TO BREATHE	a) Filter clogged b) Corrosion or salt deposit on LP valve stem c) Demand lever set too low d) Lever bent e) Intermediate press too low f) 2nd stage spring tension high	a) Replace filter b) Clean or replace LP valve c) Adjust lever d) Replace lever e) Adjust 1st stage f) Adjust 2nd stage
BREATHES WET	a) Mouthpiece <ul style="list-style-type: none"> * Torn * Loose * Incorrect size b) Exhaust Valve <ul style="list-style-type: none"> * Torn * Perished * Not seating * Incorrect type c) Diaphragm <ul style="list-style-type: none"> * Torn * Perished * Incorrectly seated or assembled * Incorrect type d) Housing (Body) <ul style="list-style-type: none"> * Cracked e) Valve Sleeve <ul style="list-style-type: none"> * Damaged o-ring 	a) Replace mouthbit and/or tie. b) Replace and/or clean valve c) Replace and/or reassemble d) Replace e) Replace

APPENDIX A

CLEANING PROCEDURE for SEA HORNET PARTS

All rubber and polymer parts which do not require replacement and pass a visual inspection should be cleaned in a solution of warm water and a mild detergent. (Household dishwashing detergent is acceptable).

A soft bristle brush should be used to remove stubborn stains and marks, taking care not to scratch the parts.

- **IMPORTANT**

Rubber and polymer parts MUST NOT be exposed to solvents or caustic cleaning solution of any description

After disassembly all metal parts should be given a preliminary inspection. After passing this inspection all parts which do not require replacement should be cleaned in an acid solution using the following procedure:-

METHOD 1

with an Ultrasonic Cleaner.

- Remove all loose salt build up and/or corrosion.
- Immerse the parts in the ultrasonic cleaning solution.
- A cleaning time of 2 to 10 minutes will be sufficient. Cleaning time will be determined by the type of cleaning solution used.
- On completion of ultrasonic cleaning , parts should be removed and rinsed thoroughly with clean fresh water. (Warm to hot water will aid with drying).
- Parts should then be blown dry with filtered low pressure air.

METHOD 2

without an Ultrasonic Cleaner.

- Remove all loose salt build up and/or corrosion.
- Immerse the parts in an acid solution.
- Cleaning time of 5 to 15 minutes will be sufficient. During the cleaning time gently agitate the parts periodically. (Cleaning time will be determined by the type of acid solution used).
- On completion of cleaning, parts should be removed and rinsed thoroughly with clean fresh water. (Warm to hot water will aid with drying).
- Parts should then be blown dry with filtered low pressure air.