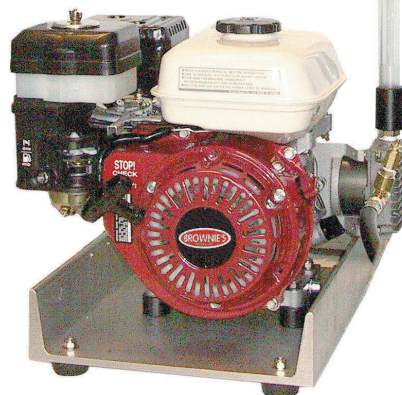




Owner's Manual Commercial Series

ADVENTURE IS ALWAYS ON THE LINE!



Use only unleaded fuel
containing no more than
10% ethanol.

3001 NW 25th Avenue, Suite 1, Pompano Beach, FL 33069 USA
954.462.5570 FAX 954.462.6115
www.BrownieDive.com

Table of Contents

When You Receive Compressor	4
Rules for Safe Operation	4
Specifications	4
Set Up	5
Starting the Unit	5
How to Adjust Drop Weight Cummerbelts	5
Cummerbelts and Egressor Packages	6
Starting the Unit	7
Using as a Deck Mount	7
Tips on Use of Equipment	7
Stopping Unit	7
Clean Up	7
Storage	7
Periodic Maintenance	8
Troubleshooting Guide	8
Emergency Maintenance	8
Usage of Compressors in the Bahamas Letter	9
Rebuild Instructions for AC1	10
Parts List and Exploded View for AC1	11
Rebuild Instructions for AC2	12
Parts List and Exploded View for AC2	13
Regulator Update Information	14
Technical Bulletin - Valves	15
Notes	16
Warranty	17

* Last page of manual is Warranty Registration.

CONGRATULATIONS ON YOUR PURCHASE OF A BROWNIE'S THIRD LUNG!!

You now have in your possession the finest, most reliable, surface supplied breathing air system available. The operation is designed with your safety and convenience in mind, and by carefully reading this brief Manual you can be assured of many hours of trouble-free enjoyment.

WHEN YOU RECEIVE YOUR NEW COMPRESSOR SYSTEM

1. Inspect the contents to be sure everything is included.
2. Contact your dealer within 5 days of receipt should your equipment be damaged or missing.
3. Read and understand the information in this owner's manual and the engine owner's manual before operating.

	C270X	C390X
Motor/Compressor on alum. base	Single head Compressor w/motor	Twin Head Compressor w/motor
10 ft heat transfer hose w/filter	1	1
Dry-top intake staff	1	1
QRS Y-Dividers	-	1
150 ft diver hoses	1	2
Brownie's adjustable hookah regs	1	2
Brownie's Drop Weight Cummerbelt	1	2
Brownie's mesh gear bag	1	1
Manual	1	1
Spare Parts	2 Male & 2 Female QRS, Oring & Filter Kit	2 Male & 2 Females QRS, Oring & Filter Kit

SPECIFICATIONS – C270

Air Displacement.....9 CFM (255 LPM)
Air Delivery.....4.3 CFM @ 100 PSI
.....(122 LPM @ 690 kPa)
Engine Idle Speed.....2000 +/- 150 RPM
Engine Run Speed.....3450 +/- 150 RPM
Recommended Oil.....See Engine Owner's Manual
Unit Dimensions L x W x H (in)...15.75 x 12.80 x 12.60
.....(cm)...40.00 x 32.50 x 32.00
Compressor Type.....Oil-less compressor,
.....PermaLube™ design

CFM = Cubic Feet per Minute
LPM = Liters per Minute
PSI = Pounds per Square Inch
KPa = kilopascals

SPECIFICATIONS – C390

Air Displacement.....18 CFM (510 LPM)
Air Delivery.....8.5 CFM @ 100 PSI
.....(240 LPM @ 690 kPa)
Engine Idle Speed.....2000 +/- 150 RPM
Engine Run Speed.....3450 +/- 150 RPM
Recommended Oil.....See Engine Owner's Manual
Unit Dimensions L x W x H (in)...15.75 x 12.80 x 12.60
.....(cm)...40.00 x 32.50 x 32.00
Compressor Type.....Oil-Less compressor,
.....PermaLube™ design

RULES FOR SAFE OPERATION

1. The compressor should be located in a dry, clean and well-ventilated area.
2. Inspect before using: hose, plug, and cord for signs of damage. Do not use if a deficiency is found. Contact Brownie's Third Lung for replacement parts. NEVER operate a damaged unit.
3. Do not tamper with pressure relief valve, as it has been factory set. Any readjustment of this valve could result in serious injury.
4. Do not lubricate this compressor. Applying oil to any part could result in polluted air not suitable for air breathing.
5. Compressed air should not be aimed at anyone because it can cause serious eye injury.
6. Compressor may not start if compressed air remains in the hose. Purge hose before starting.
7. All compressors generate heat even under normal operating conditions. To avoid serious burns, never touch the compressor during or immediately after operation.
8. Servicing should be preformed by an Authorized Service Center.

SETTING UP

GASOLINE POWERED UNITS ARE SHIPPED AND/OR DELIVERED WITH OIL AND GAS REMOVED from the engine. Refer to the Honda Engine Manual, which is enclosed, for filling and maintenance procedures **Note:** Use only unleaded fuel containing no more than 10% ethanol.

DO NOT POUR OIL INTO COMPRESSOR. THIS WILL CONTAMINATE THE COMPRESSOR AND RUIN IT FOR AIR BREATHING. BREATHING FROM A COMPRESSOR THAT HAS HAD OIL MISTAKENLY ADDED MAY RESULT IN SERIOUS INJURY.

DO NOT SPRAY CORROSION X OR ANY PETROLEUM BASED PRODUCT ON, IN, OR AROUND THE COMPRESSOR. The remote intake staff is designed to increase compressor life by making it difficult for water to intrude into the compressor. An additional benefit is that it further eliminates the possibility of exhaust fumes entering the breathing air. Even so, precautions must still be taken to ensure a totally pure air supply. Never operate the equipment in a toxic fume environment such as near running outboard engines, exposed chemicals or fuel spills. The unit is for **OUTDOOR USE ONLY** and should never be run in an enclosed area.

STEP 1

Remove the dust cap from the socket located on top of the compressor; slip the clear PVC staff into the socket as far as it will go to create a watertight seal in the socket. The dust cap, tied to the socket, must **ALWAYS BE IN PLACE WHEN THE STAFF IS REMOVED**. If not, water can splash directly into the compressor head.

STEP 2

STARTING THE UNIT

1. Make sure to check the oil reservoir and gas tank before attempting to start the unit. Refer to your Honda engine manual for specifications. Care Kits are available for purchase, and include a handy funnel to help in the process of adding oil.
2. Put the fuel switch in the "ON" position.
3. Turn the kill switch to "ON." Grasp starter handle, and start engine as you would a lawn mower. .
4. If it is cold, it might be necessary to choke it. As it warms, return the choke to the open position.

STEP 3

Snap the 150-foot down line to the black heat hose. Unreel rather than uncoil the hose on the deck. Even with the QRS fittings it is best to eliminate as many coil loops as possible.

STEP 4

For one diver, snap the regulator directly to the 150-foot down line. For two, snap **one** QRS Y divider to the black heat hose. Then attach the two 150-foot diver's hose. For three divers, snap **two** QRS hose dividers to the black heat hose; then, snap the three regulators to the 150-foot hoses.



HOW TO ADJUST THE DROP WEIGHT CUMMERBELT:

1. Unclip the front buckle
2. Undo the Velcro underneath the buckle
3. Lay the belt flat open. Unzip the sleeve located on the back of the belt. You will see that there is a piece of elastic with the Velcro adjustments on both sides. The belt should be adjusted evenly on both sides so the front buckle is centered across the mid-section. Simply undo the Velcro and re-adjust them to fit the waist of the diver. (*For extremely small waist divers: You can switch the ends of the belt from opposite stainless steel loops to the loops that are next to each other. See Figure 2, bottom belt configuration will reduce belt size by approximately 3 inches.) Zip the sleeve back up.
4. Unclip the buckles that hold the drop weight pockets in place. Each pocket can hold up to 10 lbs. of weight. We recommend using soft lead shot weights rather than hard weights as they conform better to the shape of the pocket. See Figure 3. Undo the Velcro and distribute the weight evenly into each pocket, then re-Velcro.
5. Reinsert the pockets matching the bend in the pocket to the bend in the belt itself, and reconnect the buckles. See Figures 4 and 5.





Figure 2



Figure 3



Figure 4



Figure 5

HOW TO USE THE DROP WEIGHT CUMMERBELT WITH AN EGRESSOR PACKAGE:

1. Follow above steps 1-5.
2. Then unzip the sleeve that came with the Cumberbelt, and put aside. You will no longer need this sleeve unless there are times that you choose to dive without the Egressor scuba system.
3. Zip the new sleeve onto the belt with the Brownie's logo facing upright. See Figure 7.
4. Mount the regulator onto the tank and insert the cylinder with the valve pointing outward. There are two strips of Velcro that should be attached in a criss-cross fashion around the cylinders neck. See Figure 8.
5. Turn the system on.
6. The mouthpiece has a bungee necklace attached so the regulator may hang easily around the neck for quick retrieval in an out of air situation. See Figure 6.



Figure 6



Figure 7



Figure 8

STEP 5

STARTING THE UNIT

Serious burns may result from touching hot surfaces of the Honda Engine. Please read Honda Engine Owner's Manual.

1. Make sure the oil reservoir and gas tanks are full. Refer to your Honda Engine Manual.
2. Put the fuel switch in the "ON" position.
3. Turn the kill switch to "ON." Start the engine.
4. If it is cold, it might be necessary to choke it. As it warms, return the choke to the open position.

The pressure release valve on the compressor should evacuate a sporadic puff of air or a light continuous flow. Breathing on the regulators should stop the flow indicating that the air is being properly regulated. When everything has checked out, stop the engine and release the pressure in the lines by purging the regulators. You are now ready to launch.

STEP 6

USING AS A DECK MOUNT

When using a deck mount, position the unit so that the exhaust is pointing downwind and that there is plenty of circulating air available to cool the engine. Also make sure that the exhaust is not too close to the gunwale (gunnel) to prevent exhaust from bouncing back into the intake air. The unit's design is usually sufficient to prevent this but being aware of the situation will totally ensure the air quality.

SOME TIPS ON USE OF THE EQUIPMENT

Sudden bursts of energy might use up more air volume than the compressor can supply. This will result in restrictive breathing. If you encounter this, simply SLOW DOWN your breathing or refrain from exerting great amounts of energy until your respiration rate becomes normalized. Excitement, activity level, current flow, depth and experience level of divers will dictate your dive. Before using air tools or accessories, check manufacturer's maximum pressure rating. Maximum pressure rating must be above 135 PSIG.

STOPPING

1. Flip the engine switch to the "OFF" position.
2. Turn fuel valve to "OFF" position.
3. Drain excess gas as specified on page 5 in STORAGE section.

THE CLEAN UP AFTER YOUR DIVE DAY

1. After the engine has cooled down, and with the air intake assembly in place start up the engine.
2. Thoroughly spray down the entire unit with fresh water WITH THE ENGINE RUNNING.
3. Do not force water into the compressor air intake or into the engine air cleaner.
4. Fresh water can be safely sprayed over the rest of the unit, including into the pull cord housing of the engine, which is where salt laden air is drawn in for cooling purposes.
5. Wash the engine thoroughly including all the linkage. When you feel certain that you have completely washed off and out, all the corrosive matter, continue washing the rest of the system, including all the hoses, belts, tube and regulators. You may purge the regulator and wash it down ONLY while the unit is on and running, otherwise you may flood the regulator.
6. Blow-dry the engine and compressor off. The Care Kit comes with a handy blower.
7. Apply a very light coat of Corrosion X (supplied with Care Kit) to engine only. Do not spray on the compressor.
8. Turn off the gas feed switch and allow the engine to run until it shuts off. Unscrew the bolt underneath the carburetor to drain the gas. (Remember that you will need to have some sort of container to catch the fuel as it is draining.) After the gas has drained out replace the bolt and turn the on/off switch to the off position. This will keep the carburetor clean.
9. Add Stabil (supplied with Care Kit) to the gas if it is to be stored for more than a week (more information on storage in next section).

STORAGE

1. If you are going to be storing the unit for more than 2 months you will need to drain the gasoline completely in three different areas. Remember that you will need to have some sort of container to catch the fuel as it is draining.
2. To do this turn off the gas feed switch and allow the engine to run until it shuts off. Unscrew the big main bolt underneath the carburetor to drain the gas. After the gas has drained out replace the bolt and turn the on/off switch to the off position.
3. You will then need to drain all of the gasoline out of the fuel tank. Remove the small bolt located underneath the gas feed switch and drain the entire contents of the fuel tank.
4. Then use a flat head screwdriver to disconnect the gas line from the carburetor.
5. It is okay to store the unit with oil, but it must be drained before being shipped.

MAINTENANCE

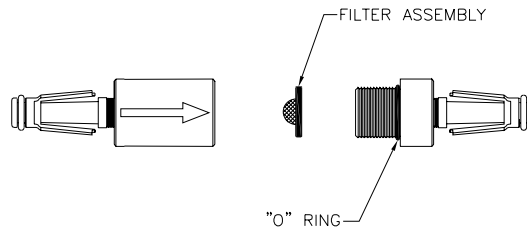
Much of the maintenance will be determined by such factors as frequency of usage, wind and sea conditions, and attention after the dive and storage conditions. Assuming you have followed the simple post dive procedures, periodic maintenance will be easy and inexpensive.

NOTE: Engine maintenance is covered in Engine Owner's Manual.

The inline filter between the black hose and the feeder hose needs to be inspected before every dive and cleaned when dirty. See the diagram below.

WARNING: Never clean air filter with a flammable liquid or solvent. Explosive vapors may accumulate in the air tank and cause an explosion, resulting in serious injury or death. Do not operate air compressor without air filter.

NOTE: Disconnect spark plug wire before servicing engine or compressors.



Occasionally other compressor maintenance is needed. It is best to call Brownie's service department to determine what parts are needed. Generally, all that is required is the cleaning off of mineral deposits from the valve plate and possibly some inexpensive parts replacement. Hard and frequent usage will require a scheduled inspection program to prevent breakdown. Your seasonal requirements and frequency of usage will dictate your maintenance schedule.

TROUBLESHOOTING GUIDE

CONDITION: Diver headache, nausea, dizziness.

POSSIBLE CAUSE: Boat engines running in vicinity of compressor. Exposed chemicals or fuel.

SOLUTION: Abort dive or move to a cleaner air environment.

POSSIBLE CAUSE: Exhaust is entering intake.

SOLUTION: Abort dive and inspect/repair equipment.

CONDITION: Insufficient air.

POSSIBLE CAUSE: Debris in inline filter.

SOLUTION: Replace or clean out as instructed on other page.

POSSIBLE CAUSE: Too many diver's for the depth attempted.

SOLUTION: Move to shallower water.

POSSIBLE CAUSE: Air leak in hose system.

SOLUTION: Check all fittings. Pouring water on the connections may help detect leaks.

POSSIBLE CAUSE: Compressor may require servicing.

SOLUTION: Have unit inspected and repaired by a qualified technician.

CONDITION: System "frozen". Inability to pull engine starter rope.

POSSIBLE CAUSE: Seized engine or compressor.

SOLUTION: Have unit inspected and repaired by a qualified technician.

CONDITION: Any strange noises or erratic behavior in system.

POSSIBLE CAUSE: Water intrusion, loss of lubrication in main bearing.

SOLUTION: Have unit inspected and repaired by a qualified technician.

EMERGENCY MAINTENANCE PROCEDURE

In the unlikely event that you accidentally submerge your unit, the situation can be saved if you ACT QUICKLY and DON'T PANIC.

1. Get it on board or ashore.
2. Do not attempt to run engine.
3. Open compressor heads and rinse with fresh water to prevent rusting.
4. Rinse the engine thoroughly.
5. Transport as soon as possible to a qualified technician

Read and understand the information in this owner's manual and the engine owner's manual before operating.



DEPARTMENT OF FISHERIES

Ministry of Agriculture, Fisheries
& Local Government

P. O. Box N-3028
Nassau, Bahamas
Fax: (242) 393-0238

MAF&LG/FIS/10

8 April 2003

Mr. Robert M. Carmichael
President/CEO
Brownie's Third Lung
940 Northwest 1st Street
Fort Lauderdale, FL33311
U.S.A.

Dear Mr. Carmichael,

Reference is made to your email of 26th March, 2003 that was addressed to the Bahamas' Ministry of Tourism relating to the usage of air compressors, hookah and scuba dive gear in the Bahamian exclusive economic zone.

Please be advised that current Bahamian laws do permit the possession and use of Scuba, hookah dive gear or air compressors for the purposes of recreational diving. However, the use of these apparatuses are strictly prohibited for the purposes of spearfishing or the collection of any marine resource while in Bahamian waters.

It is hoped that the above fulfills your request relating to the usage of the mentioned gear while in Bahamian waters.

Sincerely,

Edison Deleveaux
For/DIRECTOR OF FISHERIES

REBUILD KIT INSTRUCTIONS

Tools needed to perform this service:

Medium (6-8") Adjustable Wrench

1/8 Allen wrench

#2 Phillips screwdriver

#3 Phillips screwdriver

1/2" and 5/16" nut driver or socket wrench

11/16", 1/2" and 5/16" wrench

Rubber Hammer

Note: This procedure will deal with the disassembly of the compressor head and installation of the components contained in the compressor head rebuild kit.

You must have free access to exterior surfaces of the compressor assembly to perform this service. You will need to remove the motor/compressor assembly from the protective case to gain adequate access to perform this service.

Remove any straps from the pan that may inhibit the removal of motor/compressor assembly.

There are 4 bolts that hold the motor onto the pan or case. Locate and hold each of the 4 bolts at the base of the motor using a 1/2" wrench, and loosen the corresponding Nylock nuts on the underneath of the pan using a 1/2" socket wrench. Set bolts and nuts aside until reassembly.

1. Using a 11/16" wrench, remove the black Heat Hose (item 23) from the compressor head.
2. Using a 5/16" socket, remove the screws (item 8), lock washers (item 9) and flat washers (item 10) from front cover (item 7). Remove cover.
3. Using 5/16" socket, remove the screws (item 17), lockwashers (item 9) and flat washers* (item 10, 4 sets) from the compressor head. Remove compressor head (item 15).
4. Separate compressor head (item 15) from valve plate assembly (item 12).
5. Pull out piston sleeve (item 11a).

Inspect rod and bearing assembly. The piston rod should pivot freely on the bearing. There should be no play perpendicular to the bearing.

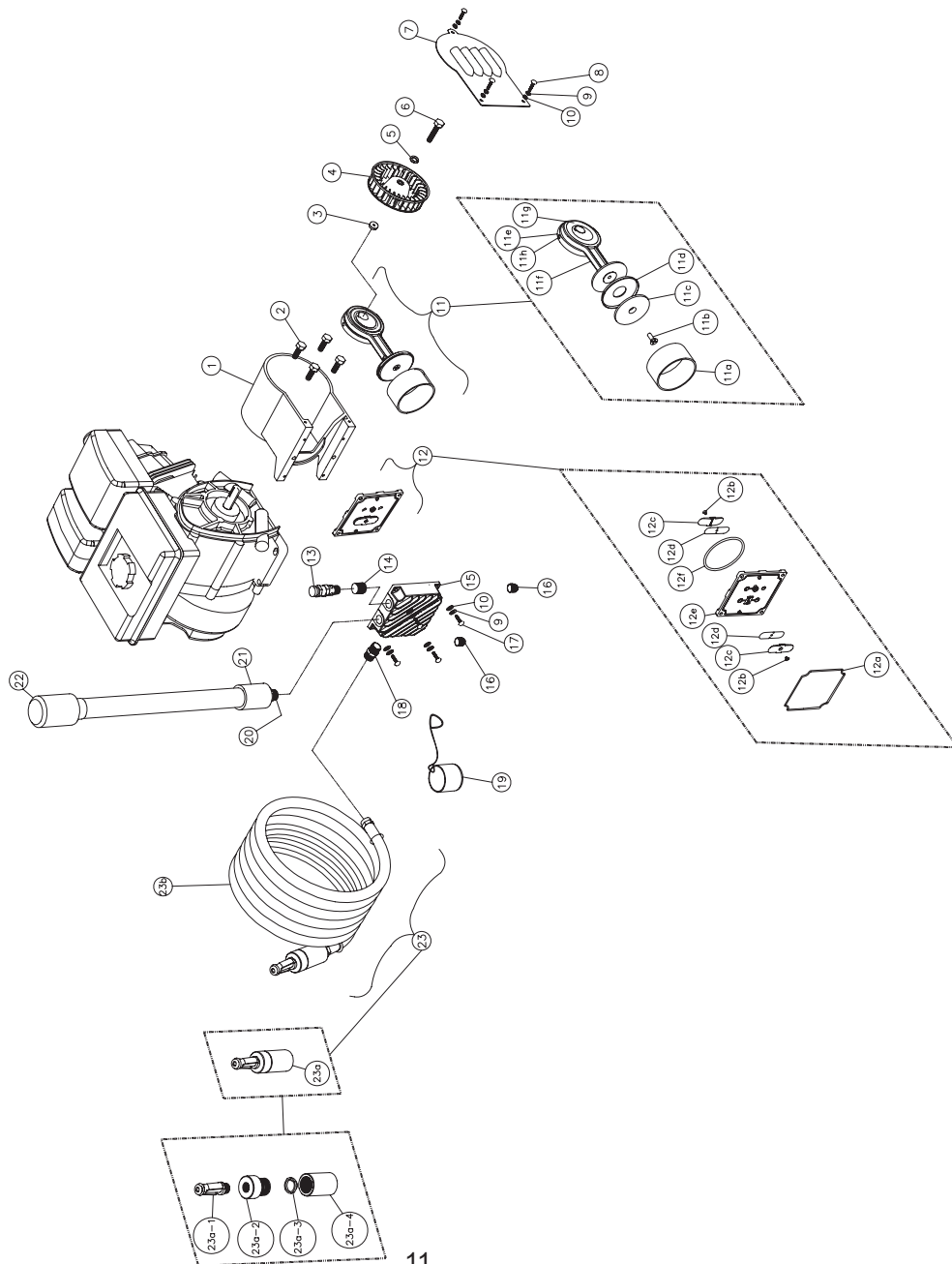
6. Using a #2 Phillips screwdriver, remove screws (items 12b), valve restraints (items 12c) and flapper valves (items 12d) from plate.
7. Using a #3 screwdriver, remove screw (item 11b) from center of piston head. Remove cap (item 11c) and cup (item 11d).
8. Install new piston sleeve (item 11a) over bare piston head onto piston rod.
9. Slowly pull engine start cord, or manually turn fan (item 4) to position piston at maximum extension.
10. Place piston cap (item 11c) into center of new piston cup (item 11d).
11. Install new retainer screw (item 11b) through cap (item 11c) and cup (item 11d), into threaded center of piston head. Start screwing retainer screw into piston head. With rubber hammer tap cup & cap into sleeve then tighten screw.
12. Install new flapper valves (items 12d) located under the valve restraints (items 12c) onto valve plate (item 12e), carefully matching valves with setting posts.
13. Install new o-ring (item 12f) and gasket (item 12a) making sure each is fully seated in its appropriate groove.
14. Hold completed valve plate assembly (item 12) gasket side up. Place head (item 15) onto valve plate assembly (item 12), lining up posts.
15. Place lockwashers (item 9) and flat washers (item 10) onto screws (item 17) and install into corner holes of the head assembly. Install two flat washers* (item 10) onto the screw threads protruding through the head assembly. (Washers will be between head assembly and housing.) Align screws with holes in housing and begin threading by hand. Tighten using 5/16" socket.

NOTE: For a Twin Head Compressor, repeat steps 3-15 to install a rebuild kit on the other head.

16. Using adjustable wrench, remove relief valve (item 13). Install new relief valve and tighten until snug.
17. Align front cover (item 7) with holes in housing. Install screws (item 8), lockwashers (item 9) and flat washers (item 10). Tighten using a 5/16" socket.
18. Place motor/compressor assembly in pan or dish. Secure with same bolts and nuts as disassembled. Replace any straps that were removed.

* If flat washers are present during disassembly, they must be replaced during reassembly. Current production models do not have flat washers located between compressor head and housing.

Single Head Direct Drive – F280, C270



NO.	PART NUMBER	DESCRIPTION	QTY
1	AC1-21	Housing Single	1
2	2HCGSS 5/16 P1	Screw Hex Head 1/15-24x1	4
3	280-FS	Spacer	1
4	638565	Fan Wheel Direct Drive Twin	1
5	WMLSS 5/16	Washer Lock SS 5/16 Med	1
6	WFESS 5/16-1.25	Washer Fender 5/16 1-1/4 ODSS	1
7	AC1-7 SS	Cover SS Vented	1
8	HMWSSS10C.3/8	Screw Trim HH MS SS 10-24 x 3/8	3
9	WMLSS10	Washer Lock 10/32 Med SS	5
10	AN960CTOL	Washer Flat #10 SS	5
11	AC2-BA0	Rod and Bearing Assembly	1
11a	AC-SLEEVE	Sleeve Aluminum w/ Hard coat	1
11b*	PNWSSS 1/AC.625	Screw Phil Fit 1/4 x 20 x 5/8	1
11c	AC-CAP	Cup Piston AC Units	1
11d*	AC-CUP	Cup Piston	1
11e	AC-2-6U	Eccentric	1
11f	AC-R0D	Rod	1
11g	6908ZZ	Bearing	1
11h	SSCPSS1/AC.375	Set Screw	1
12	1 AC-VPA	Valve Plate Assembly	1
12a	AC1-2-17	Gasket, Valve Head Special	1
12b*	PNWSSS6C.25	Screw Flat Head Special	2
12c	AC-AL-RESTRAINT	Restraint Aluminum	2
12d	AC-2-18	Valve Flapper	2
12e	AC1-2-13	Valve Plate AC Aluminum	1
12f*	AC-VPO	O-Ring	1
13	PR25-008	Pressure Relief Valve	1
14	110-64	Reducer 3/8 MIP to 1/4 FIP	1
15	AC-HEAD	Head	1
16	3/8 BP	Plug Brass 3/8	2
17	HMWSSS10C1	Bolt Trim HH CS SS 10-24x1	4
18	122-6	3/8 Nipple	1
19	AC2-DC	Dust Cap w/ Lanyard	1
20	28-224	Nipple Hex Brass 3/8 x1/2	1
21	ISS-280	Socket Intake Staff	1
22	DC-460	Drip Cap	1
23	HH0-QRS3/8	Heat Hose Assembly	1
23a	HH-D COMPLETE	Housing Heat Hose w/ Filter /QRS M	1
23b-1	QRS3/8M	Quick Release Swivel Male	1
23a-2	HH-101	Housing Heat Hose Top Male	1
23a-3	10373	Filter Washer w/ 304 SS	1
23a-4	HH-102	Housing Heat Hose Bottom Female	1
23b	HH10	10" Heat Hose 3/8	1

COMPRESSOR HEAD REBUILD KIT INCLUDES ITEMS MARKED WITH * or †

* BTL-DDRB1

† BTL-DDRB2

Note: One Rebuild Kit is Needed ForEach Compressor Head

REBUILD KIT INSTRUCTIONS

Tools needed to perform this service:

Medium (6-8") Adjustable Wrench

1/8 Allen wrench

#2 Phillips screwdriver

#3 Phillips screwdriver

1/2" and 5/16" nut driver or socket wrench

11/16", 1/2" and 5/16" wrench

Rubber Hammer

Note: This procedure will deal with the disassembly of the compressor head and installation of the components contained in the compressor head rebuild kit.

You must have free access to exterior surfaces of the compressor assembly to perform this service. You will need to remove the motor/compressor assembly from the protective case to gain adequate access to perform this service.

Remove any straps from the pan that may inhibit the removal of motor/compressor assembly.

There are 4 bolts that hold the motor onto the pan or case. Locate and hold each of the 4 bolts at the base of the motor using a 1/2" wrench, and loosen the corresponding Nylock nuts on the underneath of the pan using a 1/2" socket wrench. Set bolts and nuts aside until reassembly.

1. Using a 11/16" wrench, remove the black Heat Hose (item 23) from the compressor head.
2. Using a 5/16" socket, remove the screws (item 8), lock washers (item 9) and flat washers (item 10) from front cover (item 7). Remove cover.
3. Using 5/16" socket, remove the screws (item 17), lockwashers (item 9) and flat washers* (item 10, 4 sets) from the compressor head. Remove compressor head (item 15).
4. Separate compressor head (item 15) from valve plate assembly (item 12).
5. Pull out piston sleeve (item 11a).

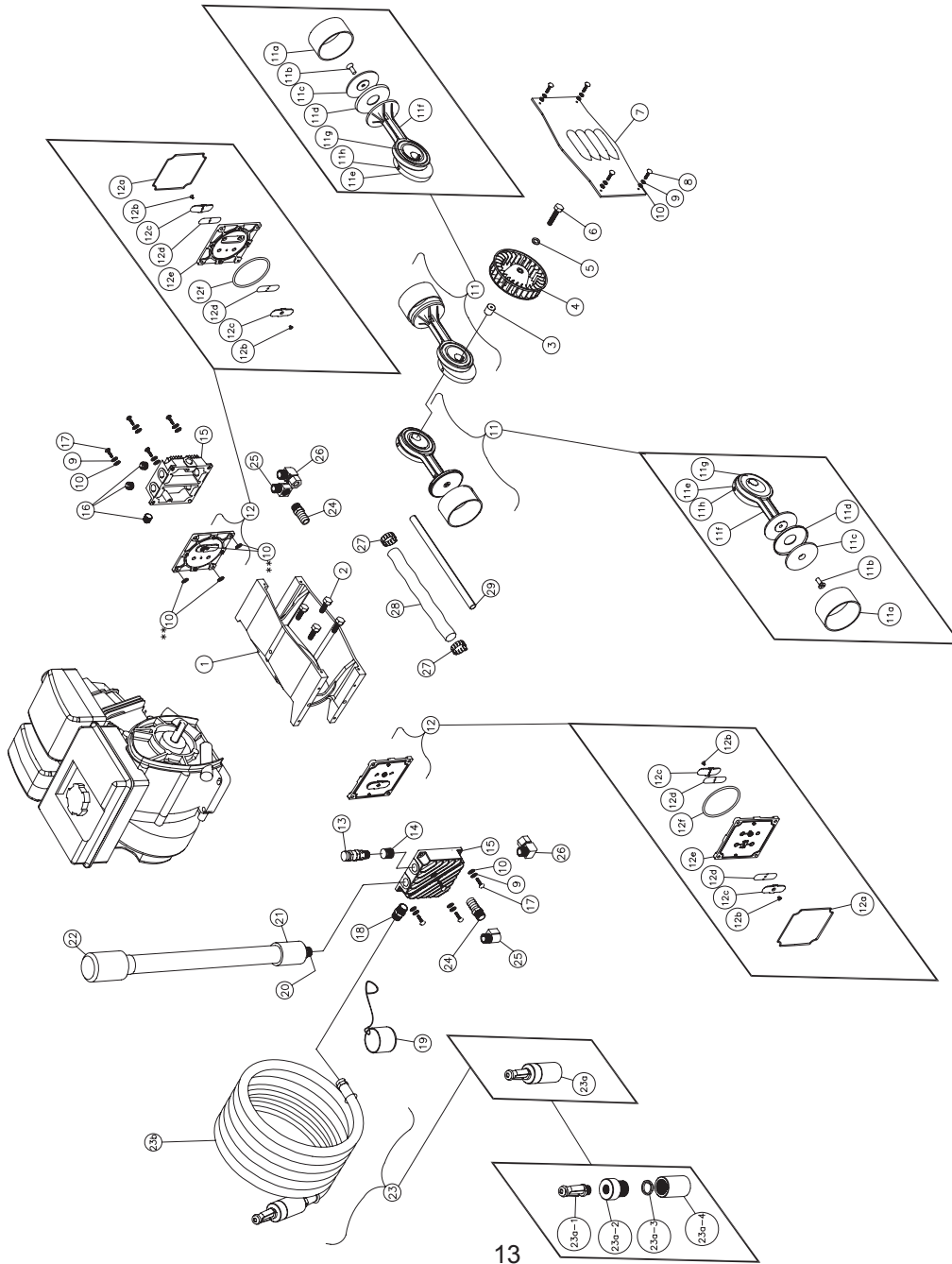
Inspect rod and bearing assembly. The piston rod should pivot freely on the bearing. There should be no play perpendicular to the bearing.

6. Using a #2 Phillips screwdriver, remove screws (items 12b), valve restraints (items 12c) and flapper valves (items 12d) from plate.
7. Using a #3 screwdriver, remove screw (item 11b) from center of piston head. Remove cap (item 11c) and cup (item 11d).
8. Install new piston sleeve (item 11a) over bare piston head onto piston rod.
9. Slowly pull engine start cord, or manually turn fan (item 4) to position piston at maximum extension.
10. Place piston cap (item 11c) into center of new piston cup (item 11d).
11. Install new retainer screw (item 11b) through cap (item 11c) and cup (item 11d), into threaded center of piston head. Start screwing retainer screw into piston head. With rubber hammer tap cup & cap into sleeve then tighten screw.
12. Install new flapper valves (items 12d) located under the valve restraints (items 12c) onto valve plate (item 12e), carefully matching valves with setting posts.
13. Install new o-ring (item 12f) and gasket (item 12a) making sure each is fully seated in its appropriate groove.
14. Hold completed valve plate assembly (item 12) gasket side up. Place head (item 15) onto valve plate assembly (item 12), lining up posts.
15. Place lockwashers (item 9) and flat washers (item 10) onto screws (item 17) and install into corner holes of the head assembly. Install two flat washers* (item 10) onto the screw threads protruding through the head assembly. (Washers will be between head assembly and housing.) Align screws with holes in housing and begin threading by hand. Tighten using 5/16" socket.

NOTE: For a Twin Head Compressor, repeat steps 3-15 to install a rebuild kit on the other head.

16. Using adjustable wrench, remove relief valve (item 13). Install new relief valve and tighten until snug.
17. Align front cover (item 7) with holes in housing. Install screws (item 8), lockwashers (item 9) and flat washers (item 10). Tighten using a 5/16" socket.
18. Place motor/compressor assembly in pan or dish. Secure with same bolts and nuts as disassembled. Replace any straps that were removed.

* If flat washers are present during disassembly, they must be replaced during reassembly. Current production models do not have flat washers located between compressor head and housing.



NO.	PART NUMBER	DESCRIPTION	QTY
1	AC2-V2	Housing Twin Version 2	1
2	HHCSSS 5/16 P1	Screw Hex Head 1/15-24x1	4
3	390-FS	Spacer	1
4	638565	Fan Wheel Direct Drive Twin	1
5	WMLSS 5/16	Washer Lock SS 5/16 Med	1
6	WFESS 5/16-1.25	Washer Fender 5/16 1-1/4 ODSS	1
7	AC2-7N SS	Face Plate Twin Ventilated	1
8	HMMSSS10C.3/8	Screw Trim HH MS SS 10-24 x 3/8	4
9	WMLSS10	Washer Lock 10/32 Med SS	12
10	AN960C10L	Washer Flat #10 SS	12
11	AC2-BA0	Rod and Bearing Assembly	2
11a	AC-SLEEVE	Sleeve Aluminum w/ Hard coat	2
11b	PFMSSS 1/4C.625	Screw Phil Fit 1/4 x 20 x 5/8	2
11c	AC-CAP	Cap Piston AC Units	2
11d	AC-CUP	Cup Piston	2
11e	AC-2-6U	Eccentric	2
11f	AC-ROD	Rod	2
11g	6908ZZ	Bearing	2
11h	SSCPSS1/4C.375	Set Screw	2
12	AC-VPA	Valve Plate Assembly	2
12a	AC1-2-17	Gasket, Valve Head Special	2
12b	PFMSSS6C.25	Screw Flat Head Special	4
12c	AC-AL-RESTRAINT	Restraint Aluminum	4
12d	AC-2-18	Valve Flapper	4
12e	AC-VPA	Valve Plate AC Aluminum	2
12f	AC-→PQ0	O-Ring	2
13	PR25-008	Pressure Relief Valve	1
14	110-64	Reducer 3/8 MIP to 1/4 FIP	1
15	AC-HEAD	Head	2
16	3/8 BP	Plug Brass 3/8	3
17	HMMSSS10C1	Bolt Trim HH CS SS 10-24x1	8
18	122-6	3/8 Nipple	1
19	AC2-DC	Dust Cap w/ Lanyard	1
20	28-224	Nipple Hex Brass 3/8 x1/2	1
21	ISS-280	Socket Intake Staff	1
22	DC-460	Drip Cap	1
23	HH10-QRS3/8	Heat Hose Assembly	1
23a	HH-D COMPLETE	Housing Heat Hose w/ Filter /QRS M	1
23a-1	QRS3/8M	Quick Release Swivel Male	1
23a-2	HH-101	Housing Heat Hose Top Male	1
23a-3	10373	Filter Washer w/ .304 SS	1
23a-4	HH-102	Housing Heat Hose Bottom Female	1
23b	HH10	10" Heat Hose 3/8	1
24	102-1006	Barb Hose 5/8 x 3/8Brass MNPT	2
25	28-158	Elbow ST 3/8 90° Barstock Brass	2
26	0069-0806	Elbow Brass 1/2 Tube x 3/8 MNP	2
27	620-010	Clamp SS SM	2
28	K7130-10-100	Polywire 5/8 x 100	1
29	XT-390	Crossover Tube 1/2" x 10-5/8"	1

COMPRESSOR HEAD REBUILD KIT INCLUDES ITEMS MARKED WITH * or †

* BTL-DDRB1

† BTL-DDRB2

Note: One Rebuild Kit is Needed For Each Compressor Head

** NOT ON ALL UNITS

** IF PRESENT RETAIN WASHERS AND REINSTALL DURING ASSEMBLY



Congratulations!

You are among the first to receive the newly redesigned Brownie's hookah regulators.

We've changed the placement of the hose to follow a more natural path. (See pictures below.) While scuba hoses are typically routed from the top of the tank around the diver's shoulder, hookah regulator hoses are attached to the divers' waist. By moving the hose to the bottom of the regulator, the hose can lay cleanly next to the diver's body creating a more efficient, streamlined profile in the water; reducing the chance of snagging the hose on objects nearby.

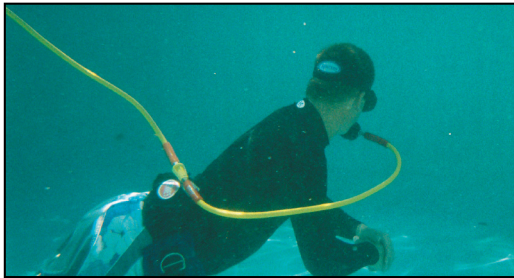
There is a substantial reduction in sideways torque placed on the second stage from the hose. A reduction in torque = a reduction in jaw effort to grip the regulator. The bottom hose position and integrated swivel provides unobstructed range of motion. Regulator recovery remains unchanged. There is no need to re-learn a technique due to a change in design.

Additional features:

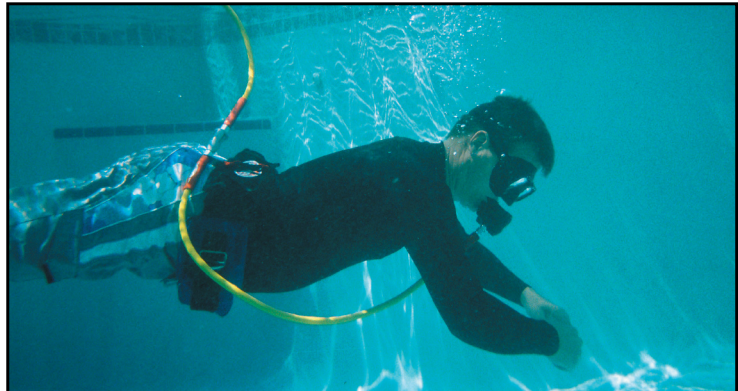
- Proven performance of traditional demand regulator mechanism.
- Compact size, small internal volume for easy clearing
- Light-weight, impact-resistant composite materials
- Full exhaust tee to direct bubbles away from your line of vision
- Extended mouthpiece requires less clamping effort; reducing jaw fatigue. Can be trimmed to fit smaller mouths.

We are confident you will find our new Brownie's hookah regulator more comfortable than ever before. You can see all the Brownie's products at www.browniedive.com.

OLD



NEW



OLD



NEW



TECHNICAL BULLETIN 050622

Changes to Valve Plate Assemblies for AC1 and AC2 Direct Drive compressor assemblies.

AC1 assemblies on F280, E150, C270, B230X-BOAT and previous single head, direct drive models.

AC2 assemblies on F390, E250, C390, CTD390, B340X-BOAT and previous dual head, direct drive models.

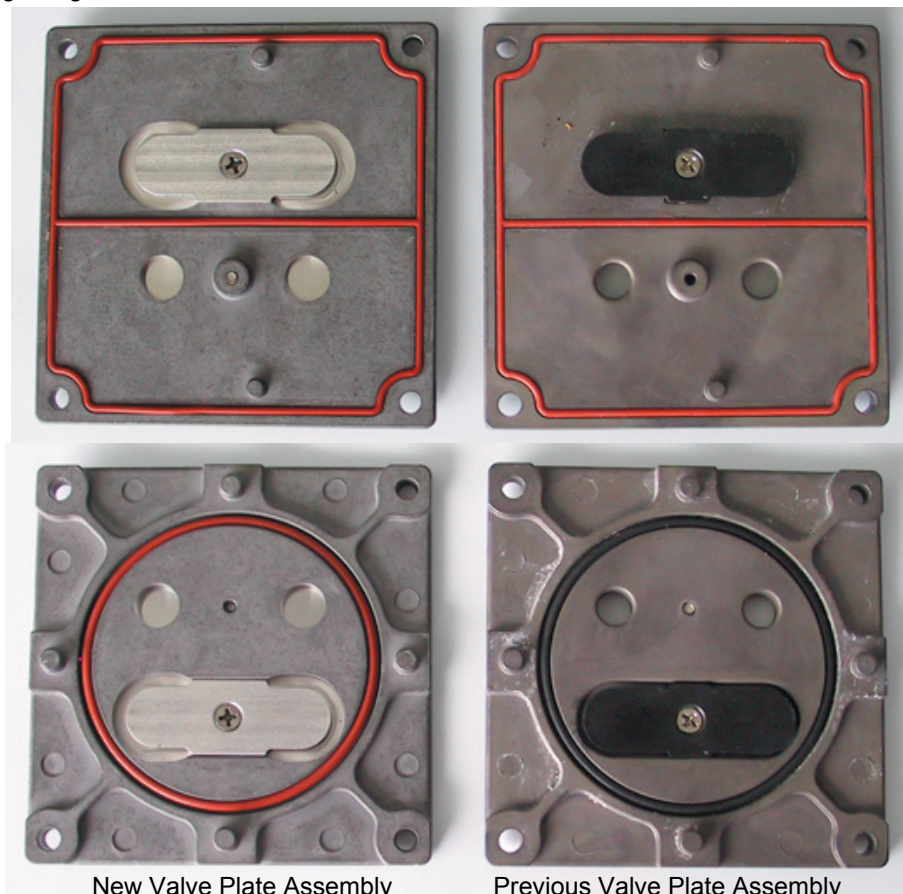
The following changes have been made to **Valve Plate Assemblies** for Brownie's Third Lung direct-drive compressor assemblies produced since June, 2005, beginning with serial number 12039.

1. Increased diameter of 4 port holes
2. Removed material around the outflow side of the port hole
3. Valve restraint material is now aluminum, changed from high temperature plastic
4. Changed flapper valve design (see below)

These changes are designed to increase airflow and provide greater service life of the valve components.

The new flapper valves and restraints are NOT backward compatible with the previous valve plate design. Compressors requiring service to replace flapper valves and/or restraints will be required to also replace the valve plate to accommodate the new parts.

For your convenience, we have produced a single part number for a preassembled valve plate assembly (including the valve plate, flapper valves, valve restraints, screws, round o-ring, square o-ring), AC-VPA, \$55.00 each.



New Valve Plate Assembly

Previous Valve Plate Assembly

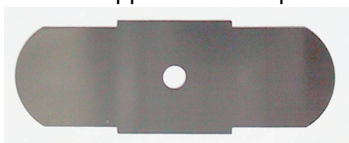
Revisions to Rebuild Kits

Brownie's will now offer 2 versions of compressor head rebuild kits. One kit is required per compressor head.

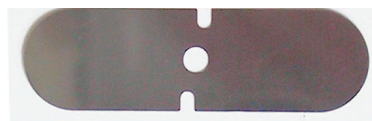
BTL-DDRB1 includes cylinder sleeve, piston cup, cap screw, 2 "new design" flapper valves, 2 restraint screws, round o-ring, square o-ring
(\$65.00 FT)
This set is one of multiple components included in Care Kits CK-280, CK-280R, CK-390, CK390R as of June 15, 2005.

BTL-DDRB2 includes cylinder sleeve, piston cup, AC-VPA valve plate assembly
(\$104.00 FT)
This set should be sold to all customers with system serial numbers prior to 10239. After installation of this kit, the customer can continue future services with the BTL-DDRB1.

New flapper valve shape



Previous flapper valve shape



WARRANTY

Brownie's Third Lung products are warranted to be free of defects in materials and workmanship for a period of one year from the date of retail purchase. A copy of retail purchase receipt, showing model and serial numbers is required to verify warranty eligibility. This warranty is limited and subject to the restrictions listed below.

Brownie's will repair, replace or refund valid warranty claims, at our discretion. Brownie's shall not be liable for any special, incidental or consequential damages beyond the wholesale purchase price.

Please fill out and return enclosed Warranty Registration Form along with a copy of dated retail purchase receipt to register your warranty.

What is not covered

Inspection, service and/or labor charges will be paid by the retail consumer.

Some parts are subject to wear, even under normal or minimal use. All components should be inspected for wear on a regular basis. Replacement of worn items constitutes normal maintenance and is the responsibility of the owner.

This warranty does not cover damage resulting from the introduction of water, gas, oil or other contaminants, normal wear, improper use, improper maintenance, neglect of care, alteration, or unauthorized repair.

All repairs made, not covered under the terms of this warranty, will be made at the owner's expense.

RETURN GOODS POLICY AND INSTRUCTIONS

To return merchandise to Brownie's for service or credit:

1. Call our sales department to obtain a RMA number,
2. Pack authorized items in sturdy container.

NOTE: Always COMPLETELY drain all gas and oil from engines before packing. All gas-powered motors must be sealed in a durable plastic bag inside the shipping carton.

3. Boldly print the RMA number on the package exterior.
4. Include: a note detailing the situation, a copy of original purchase receipt showing model number, serial number, date and place of purchase.
5. Ship package, freight prepaid, to our factory location in Ft. Lauderdale, FL.

Unauthorized returns, returns shipped freight collect and returns missing RMA numbers may be refused or subject to additional inspection/processing fees.

Items returned for credit must be in new condition (at our discretion) and will be subject to a 15% restocking fee (30% for custom orders.)

ENGINE WARRANTY AND REPAIRS

Engine adjustments, repairs, and warranty service are to be handled through your engine manufacturer's authorized service centers. They are listed in your telephone phone book's Yellow Pages under "Engines, gasoline."

NOTES:



www.BrownieDive.com

3001 NW 25th Avenue
Pompano Beach, FL 33069

PHONE: 954.462.5570 FAX: 954.462.6115

www.browniedive.com info@browniedive.com