*** FOR COMPETITION USE ONLY per US EPA Regulations ***

Factory Pipe
Bill of Materials
Sea-Doo 580SP

Item#	Qty	Part Number	Part Description
-	1	COMASM0320	Sea-Doo Hardware kit (includes all but 13,18,19,20,24,27)
1	6	COMCLP0010	#06 SS hose clamp (3/8")
2	2	COMGAS0080	Sea-Doo cylinder/manifold gasket
3	2	COMFAS0023	8mm x 1.25 x 35mm Socket head SS
4	1	COMTUB0002	5/8" OD x 2" Long dowel pin
5	1	COMGAS0070	Sea-Doo manifold to headpipe gasket
6	1	COMGAS0005	4.8" OD x .25" Silicone o-ring
7	1	COMHOS0110	5" Silicone coupler (2 3/8")
8	2	COMCLP0030	#88 Hose clamp (5")
9	1	COMBRK0110	Sea-Doo stainless front mount
10	2	COMFAS0086	3/8" Flat washer w/ 1" OD SS
11	1	COMFAS0035	8mm x 1.25 Nylock nut SS
12	1	COMCLP0070	V-Band clamp
13	1	COMASM0154	650-720 Filter/solenoid assembly
14	1	COMFTG0065	2" x 2" x 3/8" Plastic AT@ (XI)
15	1	COMGAS0006	4.32" OD x .25" Silicone o-ring
16	1	COMMNT0050	#J11729-168 Lord Mount
17	1	COMFAS0205	Fiber washer w/1-1/2" OD
18	1	COMIGN0003	580/650/720Sea-Doo Rev Limiter
19	1	COMCST0300	720 Sea-Doo -Y- manifold
20	1	COMCST0310	Sea-Doo finished headpipe casting
21	1	COMFAS0095	3/8"-16 Nylock nut SS
22	1	COMHOS0061	3/8" x 21" Waterline
23	1	COMTOL0000	Modified 6mm allen wrench for Sea-Doo
24	1	COMCH58001	580 Sea-Doo chamber only
25	3	COMFAS0210	4" Plastic zip tie
26	1	COMCLP0025	# 40 SS hose clamp (2 2")
27	1	COMHOS0130	Elbow hose for mod Blaster
28	4	COMCLP0012	SS Hose Clamp (2")

< **CHECK CONTENTS AGAINST BILL OF MATERIALS. REPORT ANY SHORTAGES WHERE YOU PURCHASED YOUR FACTORY PIPE.**

< **READ ALL INSTRUCTIONS CAREFULLY BEFORE STARTING INSTALLATION.**

< **WATER INJECTION SET SCREWS ON TUNABLE HEADPIPES ARE PRE-ADJUSTED AND LUBRICATED. HOWEVER, YOU SHOULD DOUBLE CHECK ADJUSTMENTS PRIOR TO INSTALLATION AND RE-LUBRICATE THEM ON A REGULAR BASIS TO PREVENT BINDING IN HEADPIPE.**

Factory Pipe
Instructions
Sea-Doo 580SP

These carburetor adjustments/changes must be done prior to running the engine with the pipe installed. Failure to do so can and will result in serious engine damage. If you are not familiar with tuning carburetors, consult a qualified technician or call Factory pipe.

CARBURETOR ADJUSTMENTS

These carburetor recommendations are for 730 feet above sea level on a completely stock engine. All of our testing was performed on a stock engine with stock flame arrestors. No claims are made by Factory Pipe for the performance, reliability or function of this exhaust system on a modified (aftermarket flame arrestors, high compression cylinder head, altered ignition/timing, etc) engine. If you are running other modifications, call Factory Pipe for adjusted jetting suggestions. Carburetor adjustments WILL vary depending on engine modifications, fuel, altitude and other variables. PLEASE CONSULT A QUALIFIED TECHNICIAN IF YOU ARE NOT FAMILIAR WITH TUNING YOUR CARBURETOR(S). These carburetor adjustments MUST be done prior to running the engine with this exhaust system. The Rotax is a high performance engine and damage can and will occur if the carburetor(s) are not tuned properly. Factory Pipe does not recommend altering the stock cylinder compression, airbox or ignition timing of this engine with our exhaust system. Make sure you check the stock jets, some units have been found to be incorrect.

Main Jet : 152.5
Pilot Jet : 75
High speed screw : 0 turns out from closed
Low speed screw : 2 turns out from closed
Needle & Seat : 2.3
Spring : Stock

Remove the stock exhaust pipe and exhaust manifold. Do not remove the stock hoses or clamps from waterbox. Retain the following items: 5/16 90 degree barbed fitting from stock manifold (marked #16), rubber mount and bolt from the stock chamber body, four (4) of the stock exhaust manifold bolts and lock washers and two (2) of the stock headpipe bolts and lock washers. If you do not have these stock items they may be purchased through your local Sea-Doo dealer.

Note:While the manifold is off. We highly recommend to inspect the pistons & cylinder bore with a mirror and flashlight for scuffing, heavy scratches and/or dark scars on the pistons or cylinders, if any of these are visible the pistons MUST be replaced and cylinders honed or bored to the next oversize before continuing with the pipe installation, Failure to do so can and will result in severe engine damage!

Carefully remove the electrical box from the snap mount. Open the box and install the supplied ECWI / Rev limiter module (item # 18) as per the supplied instructions.

Install the retained 5/16-90 degree barbed fitting on the Factory Pipe manifold . Replace the stock waterline back on this fitting and secure with a #6 hose clamp (item # 1). Locate the stock black 2" waterline coming from the right rear side of the cylinder head. Cut the waterline halfway between the cylinder head the stock flush kit. Install the 2" x 2" x 3/8" plastic AT@ (item # 14) in both ends of the cut waterline and secure with 2" hose clamps (item # 28). Install the 3/8" x 20" waterline (item # 22) on the remaining middle leg of the AT@ and secure with a #6 hose clamp. The remaining end of this waterline will connect to the stinger end of the chamber body later.

Use the modified 6mm hex key wrench (item # 23) to install the four center manifold bolts per the following instructions. Carefully clean all gasket material from the cylinders. Install the new manifold gaskets (item # 2) using two of the 8mm x 35mm hex socket bolts (item # 3) in the bottom two center holes. Thread these bolts in about a third of the way to match the slots in the Factory Pipe manifold. Slip two of the retained long manifold bolt/lock washers into the headpipe flange side bolt holes of the Factory Pipe manifold, then slip the V-band clamp (item #12) over the flange on the manifold .

Install the 5/8" locating pin (item # 4) into the 5/8" hole in headpipe flange, Install the headpipe gasket (item # 5) over locating pin and into headpipe flange. Make sure this pin is seated completely into the hole. Do not use a solid pin in this location as water flows through the hole. Align the locating pin on the headpipe with the hole in the manifold and install the headpipe onto the manifold. Push the headpipe and manifold together. There will be a 1/32" to 1/16" gap between the two flanges but no gasket should be showing. Tighten the V-band clamp with the stud pointing toward the cylinder head. Torque clamp to 7 ft.-lb.

Install the lord mount-168 (item # 16) into the 3/8-16 threaded hole on the rear of the Factory Pipe exhaust manifold. Do not use threadlock on lord mount studs. Put the fiber washer (item # 17) on the remaining end of the lord mount.

With the Factory Pipe logo facing up, slip the assembled manifold and headpipe onto the two bolts being careful of gaskets. Position gaskets and lightly tighten two bolts. Install the remaining two retained stock manifold bolts/lock washers in the two rear manifold holes. Install the two retained stock headpipe bolts/lock washers in the remaining top two center manifold holes. Torque manifold bolts to 17 ft.-lb. where access permits and match remaining bolts. Use medium strength threadlock on all manifold bolts.

Install the retained stock chamber body rubber mount into the Factory Pipe headpipe (item #20) mount. Then install the 1/4" x 14-1/4" red silicone o-ring (item # 6) into the groove of the headpipe coupler. Install the 5" blue silicone coupler (item # 7) over the headpipe coupler. Secure silicone coupler with a #88 hose clamp (item # 8). Slip the remaining #88 hose clamp over the silicone coupler and leave loose.

Warning: Do not use any type of oil lubricant on silicone couplers or waterlines. Use only water or dish soap if lubrication is required.

Remove three of the stock bolts from the left side of the mag cover (front of engine) and install the mag cover bracket (item # 9) re-using the three stock bolts. Torque to 4 ft-lb using threadlock. Install the retained stock 8mm x 40mm bolt through the rubber mount in headpipe and mag cover bracket. Secure back of bolt with 3/8" flat washer (item # 10) and 8mm nylock nut (item # 11). Tighten securely.

Attach the stock 2" waterline from the pump (leaving the stock AT@ installed) to the barbed fitting on the headpipe and secure with a 2" hose clamp. Now remove the stock AT@ and the attached 3/8" line. Slide a 2" hose clamp (item # 28) over each open end of the stock 2" line. Insert each end of the filter/solenoid assembly (item # 13) into the open ends of the 2" line (the filter is non-directional so it does not matter which way it goes). Rotate the filter/solenoid assembly so the 3/8" x 9" silicone hose is pointed towards the 3/8" fitting in the manifold and then secure the #6 clamps. Slide a #6 hose clamp (item # 1) over the open end of the 3/8" x 9" silicone hose and then attach it to the 3/8" fitting in the manifold and secure the clamp. Connect the ECWI solenoid black electrical plug to the ECWI module plug coming from the electrical box, zip tie the wires so that they do not rub on any metal parts.

Install the 1/4" x 13" red silicone o-ring (item # 15) into the groove on the chamber body coupler. Install the large end of the gates hose (item # 27) to the stinger tube of the chamber body (item # 24) and loosely secure with the #40 hose clamp (item # 26). Remove the stock black hose and two clamps from the front of the waterbox. Slip one of the clamps over the gates hose on the chamber body.

Install the chamber body by sliding the remaining end of the gates hose onto the waterbox. Use water or windex if required. Do not secure clamps at this time. Align the hole in the chamber body bracket with the lord mount on exhaust manifold. Make sure fiber washer is between rubber mount and chamber bracket. Do not secure bracket at his time. Spray some water or glass cleaner on both silicone o-rings and the inside of the 5" blue silicone coupler. Install chamber body coupler into 5" blue silicone coupler on headpipe.

Note: when chamber body coupler and headpipe coupler are seated properly the 5" blue silicone coupler will touch the ring on both the headpipe and chamber flanges.

After chamber body flange is properly seated in headpipe secure the remaining #88 hose clamp on the 5" blue silicone coupler. Secure the chamber body bracket to the lord mount stud with 3/8" flat washer and 3/8-16 nylock nut (item # 10,21). Do not over tighten Lord mount or use threadlock. Secure both clamps on waterbox gates hose and re-attach stock waterbox strap.
Attach the remaining end of the 3/8" x 20" waterline from the AT@ to the water inlet tube on the stinger end of chamber body and secure with a #6 hose clamp.

IMPORTANT NOTES

1. You must run a resistor type spark plug to prevent interference with the Rev limiter/ECWI module.

2. You must run fuel with a minimum octane rating of 92 (premium pump fuel). Running a lower octane fuel can cause detonation and serious engine damage.

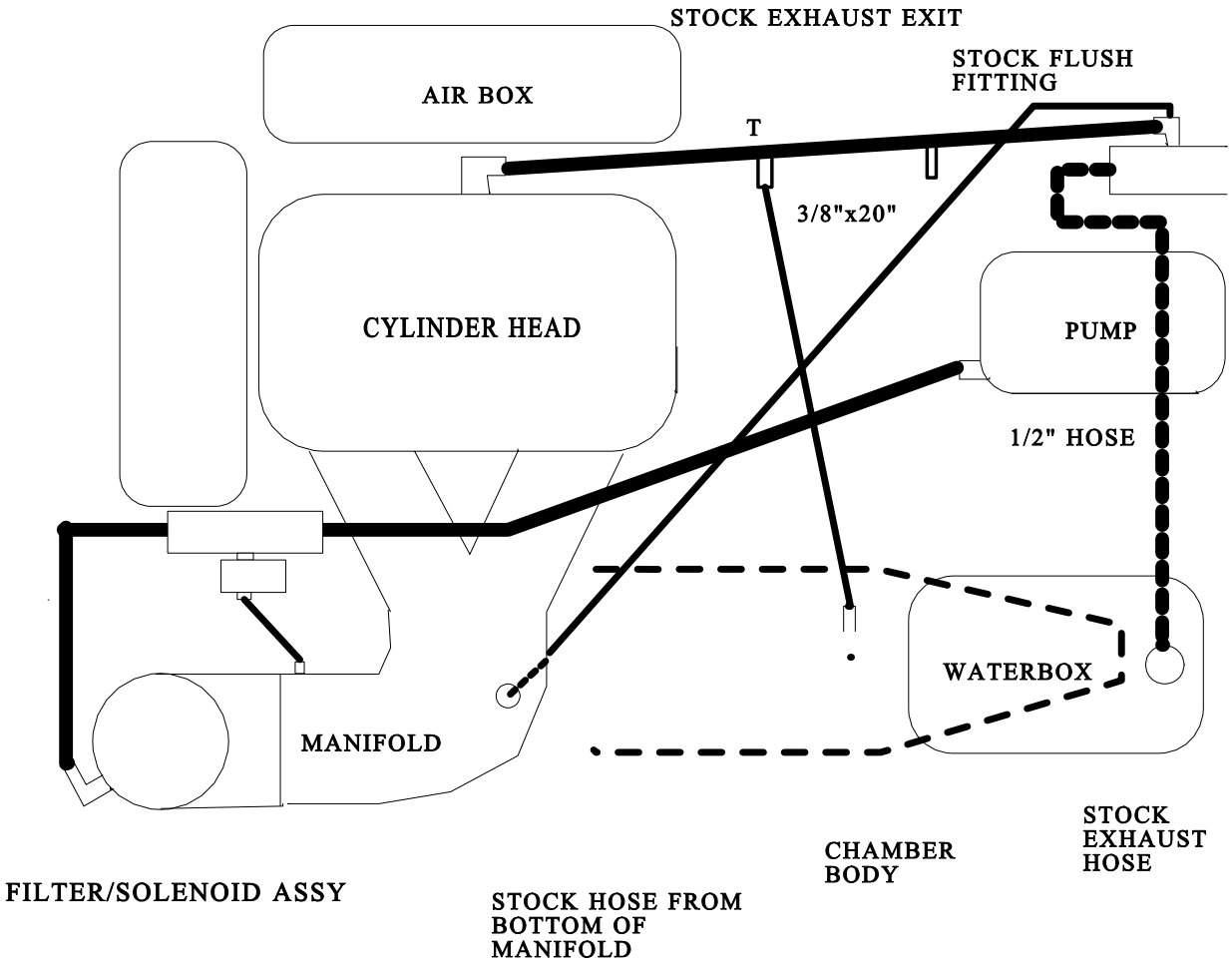
3. Always warm up the engine prior to full throttle/high speed operation.

CARBURETOR ADJUSTMENTS

These carburetor recommendations are for 730 feet above sea level on a completely stock engine. All of our testing was performed on a stock engine with K&N flame arrestors. No claims are made by Factory Pipe for the performance, reliability or function of this exhaust system on a modified engine. Carburetor adjustments will vary depending on engine modifications, fuel, altitude and other variables. PLEASE CONSULT A QUALIFIED TECHNICIAN IF YOU ARE NOT FAMILIAR WITH TUNING YOUR CARBURETOR(S). These carburetor adjustments MUST be done prior to running the engine with this exhaust system. The Rotax is a high performance engine and damage can and will occur if the carburetor(s) are not tuned properly. Factory Pipe does not recommend altering the stock cylinder compression or ignition timing of this engine with our exhaust system.

Main jet : 152.5
Pilot Jet : 75
High speed screw : 0 turns out from closed
Low speed screw : 2 turns out from closed
Needle & Seat : 2.3
Spring : Stock

SEA-DOO 580SP WATER ROUTING



Factory Pipe
Performance Exhaust 101

The purpose of an Aexpansion chamber@ is to return to the exhaust port a negative sound wave then a positive sound wave at precisely the right time. This is made all the harder by many impeller/nozzle combinations, engine configurations, riding conditions and rider preferences.

Traditionally, if you wanted low RPM torque and high RPM horsepower, it required several pipes. A few of our competitors cast rings into their pipes to achieve pipe tuning by Acut and try.@ In 1992 Factory Pipe introduced the first truly tunable pipe using our variable water injection system. This system allows you to modify where and how much water injects into the exhaust by the turn of a set screw. Where our competition had you change the length of the pipe, the Factory Pipe allows you to vary the exhaust gas temperature which in turn changes the sonic wave speed within the pipe. **Changing the sonic wave speed within the pipe has the same tuning affect as changing the length of the pipe.**

Tuning Your Exhaust System

Note: There is only one (1) water injection screw on the Sea-Doo ECWI system located on the headpipe (There is no adjustment on the ECWI solenoid) Most Factory Pipe systems have our exclusive Atunable@ headpipe which allows you to custom tune the pipe to your riding style. The following page gives a general overview of how this system works and how each adjustment will affect the performance of your watercraft.

Double check all hoses, bolts and clamps from your installation. For the first Aon-water@ test of your new Factory Pipe we recommend 3/8 of a turn out from closed. This setting will be more water than is required but will provide a good starting point to test the pipe.

Ride the watercraft for several minutes above 5800 RPM while varying the throttle position. (The ECWI system injects water from 2500 to 5600 RPM which will cool the pipe and give a false reading) Open the engine cover as quick as possible after the ride and check the pipe temperature by splashing water on the chamber body directly after the headpipe coupler. **The water <u>should</u> lightly sizzle for the first few inches on the chamber body.**

If the water **<u>does not</u>** sizzle, close the adjustment screw 1/8 turn and retest. If the water **<u>sizzles rapidly,</u>** open the screw 1/4 turn and retest.

This set up will provide the best top end performance of your watercraft. With the pipe adjusted as stated above. Opening the adjustment screw another 1/4 turn will cool the exhaust in the chamber and provide better bottom end performance at the expense of some top-end. This would be an ideal setting for running slalom or a tight buoy course.

NEVER CLOSE THE SCREW COMPLETELY AS TO PREVENT DAMAGE TO THE PIPE.