

FOR COMPETITION USE ONLY per US EPA regulations

Factory Pipe
Bill of Materials
Sea-Doo 785XP/GTX 1995/98 - SPX 97/98 Spec II

<u>Item#</u>	<u>Qty</u>	<u>Part #</u>	<u>Part Description</u>
1	1	COMCST0360	785 Spec II manifold
2	1	COMCST0380	785 Spec II headpipe (includes items 2-6)
3	1	COMFTG0045	1/4" NPT x 2" 90 Degree fitting
4	1	COMFTG0015	1/8" NPT x 1/4" Fitting with sprayer
5	1	COMFTG0025	1/8" NPT x 3/8" Fitting with sprayer
6	2	COMFTG0090	1/8" NPT Pipe plug
7	1	COMCH78501	785 Sea-Doo chamber only
-	1	COMASM0401	785 Spec II hardware kit, all years (items 8-15,17-22)
8	1	COMGAS0120	Spec II hp to man gasket
9	3	COMFAS0260	10mm x 1.5 x 30mm SS socket head bolt
10	6	COMFAS0041	(.615" OD) 10mm Lock washer slim
11	1	COMHOS0180	1/4" x 41" Waterline
12	1	COMHOS0150	5-1/2" Silicone coupler (3")
13	2	COMCLP0080	#600 High torque SS clamp (5-1/2")
14	1	COMBRK0140	800 Headpipe support bracket
15	1	COMHOS00696	2" x 17" Waterline
16	1	COMIGN0010	95 Spec I & II Sea-Doo rev limiter
or	1	COMIGN0009	96 Spec I & II Sea-Doo rev limiter
or	1	COMIGN0011	97/98 Spec I & II Sea-Doo rev limiter
17	6	COMFAS0210	4" Plastic zip tie
18	3	COMCLP0012	SS hose clamp (2")
19	1	COMFAS0211	15" Zip tie
20	1	COMFTG00045	1/8" NPT pipe nipple with 5mm
21	1	COMTOL0001	8mm Ball hex L key wrench
22	3	COMCLP0010	#06 SS hose clamp (3/8")
23	1	COMASM0151	800 Sea-Doo filter solenoid assy

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

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

Factory Pipe
Instructions

Sea-Doo 785XP/GTX 1996/98 - SPX 97/98 Spec II

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.

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 aftermarket flame arrestor and choke plates installed. 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 ignition timing of this engine with our exhaust system. **Make sure you follow the ECWI/Rev limiter module instructions very carefully so that you don=t accidentally change your IGNITION TIMING!!!**

Note: Make sure you check the stock jets, some units have been found to be incorrect.

Main jet : 150 on front (Mag) carb, 152.5 on the rear (PTO) carb

Pilot jet : 70 (stock)

High speed screw : 1 turn out from closed on front (Mag)carb, 1-1/4 turns out on rear (PTO)carb

Low speed screw : 1-1/4 turns out from closed

Needle & Seat : 1.5 (stock)

Spring : 65 gram (stock)

Disconnect the battery before starting installation. Make sure fuel tank is not more than 2 full before you continue. Disconnect the three rubber straps on the fuel/oil tank and slightly loosen the clamp on top of the oil tank (just enough so that the oil filler hose can rotate on the tank). Lift the front of the fuel tank and pull it forward by the fuel filler hose (it is not necessary to remove the fuel filler hose from the tank, it will bend temporarily while the chamber is being installed). Rotate the pipe side of the oil tank forward. Remove the stock exhaust headpipe, manifold, tailcone, headpipe support bracket and the long black 1/4 line off the regulator. Do not remove the stock 2" hose or clamps from waterbox. **Retain the following items:** two rubber mounts and one bolt from the stock chamber body, three of the stock exhaust headpipe to manifold bolts and four lock washers, six of the 10mm manifold bolts and two lock washers, the three stock bolts from the headpipe support bracket, the #18 brass fitting from the stock exhaust manifold, the stock manifold to cylinder gasket (if it is in good shape), and the two #06 hose clamps from the

stock head to headpipe hose. If you do not have these items they may be purchased through your local Sea-Doo dealer.

Carefully remove the electrical box from the snap mount and unplug all connectors including the connector on the front engine magneto cover. Open the box and install the supplied Micro Touch rev limiter /ECWI module (item #16) **per the supplied instructions**. Before you close the electrical box you will need to route the wires that would go to the ECWI solenoid through one of the waterproof fittings. Locate the fitting on the front of the electrical box cover with two wires in the grommet. Loosen the plastic cap and pull the grommet out. On the back side of the grommet you will see two extra holes that do not go all the way through. Take a razor blade and slice through the grommet parallel to each of the two holes, this will allow the ECWI wires to be pushed into the holes then routed through the plastic cap. When the grommet is tightened it will seal around the wires, resecure the cap. Do not reinstall the electrical box at this time.

Cut the zip tie holding the oil line to the bottom left side hull clip, then using the 15" zip tie (item #19) attach the oil line to the front motor mount tower. Slide the aluminum chamber body (item #7) down along the side of the fuel/oil tanks with the large coupler end pointing upward. When the stinger (small) end of the chamber reaches the engine you will need to rotate the coupler end of the pipe slightly towards the carbs so that the rear chamber mount slides down the side of the cylinders above the two fittings. Install one of the retained stock rubber chamber body mounts into the rear chamber mount. Slip the stinger end of the chamber into the stock hose on the waterbox (do not tighten the clamp at this time). **Note: The waterbox may have to be pushed rearward 2"**.

After the chamber is in place, the oil tank can be rotated back and the fuel tank can be pushed back in place. Reinstall the rubber straps on fuel and oil tank and tighten the hose clamp that was loosened on the oil tank. Reinstall the electrical box and reattach all electrical connectors, route the ECWI wires and connector along the side towards the rear of the boat in the wire harness clips. This end will be connected later.

Note: Do not use any type of oil lubricant on silicone couplers or waterlines. Use only water or Windex if required for installation.

Install the 5-1/2" blue silicone coupler (item #12) over the chamber body coupler. Secure with a #600 hose clamp (item #13) and slip the remaining #600 hose clamp over the silicone coupler and leave loose. Install the retained stock 8mm x 40mm hex socket bolt through the rubber mount on the rear of the chamber body into the threaded hole on the rear engine case. Do not tighten at this time.

Note: Now would be a good time to change the jets in the carburetors and set the high speed screws.

Look at the fuel line clamps on the carburetors, if any of the squeeze tabs are pointed up you will need to rotate them to the side or down so that they will clear the manifold (we also suggest using side cutters to squeeze them tighter). Install the retained #18 1/8" NPT x 1/4" fitting in the top hole and install the retained long 10mm hex socket bolts and the six small OD lock washers (item #10) into the Factory Pipe manifold (item #1). Use two of the 10mm x 30mm hex socket bolts (item #9) with two of the retained lock washers in the two center holes. Apply medium strength Loctite to all of the threads then slip the retained or new manifold gasket over the bolts and install the manifold onto the cylinders. Note: tight clearances between manifold and carb fuel lines require care to avoid pinching or cutting of lines during bolt installation. Torque to 30 ft.-lb. where accessible. Hint: use a large box end wrench on the (L) end of the 8mm hex key wrench (item #21) to tighten the inside manifold bolts.

Reinstall the flame arrestor brace bolts with thread sealant even if your flame arrestors don't require the brace. (Some of these holes go into the water jacket).

Install the 2" x 17" (item #15) waterline on the 2" barbed fitting on the Factory Pipe headpipe (item #2) and secure with one of the retained hose clamps. If you are running this system on a completely stock 96XP, install the 1/4" x 41" waterline (item #11) on the bottom 1/4" sprayer fitting and secure with a small zip tie (item #17). The other end of the hose will be attached later.

Spray some water or glass cleaner on the inside of the 5-1/2" blue silicone coupler and on the coupler end of the headpipe. Slip the headpipe into the hull and into the silicone coupler already attached to the chamber. You may need to use a small screwdriver to lift the hose over the end of the headpipe coupler. Once the headpipe is seated on the hose, align the headpipe flange with the manifold and slip the gasket (item #8) between them. Install the three retained stock bolts and lock washers and the last supplied 10mm x 30mm bolt (item #9). Use medium strength Loctite and torque to 30 ft.-lbs.

Note: when chamber body coupler and headpipe coupler are seated properly the 5-1/2" blue silicone coupler ends will touch the ring on both the headpipe and chamber couplers.

After properly seated, secure the remaining #600 hose clamp (item #13) on the 5-1/2" blue silicone coupler. Secure the hose clamp on the stinger end of the chamber body and torque the rear chamber mount bolt to 18 ft.-lb. Attach the remaining end of the 2"x17" waterline to the fitting on the front of the cylinder head and secure with the remaining retained hose clamp.

Install the second retained stock rubber mount into the headpipe support bracket (item #14) then install on engine/headpipe with the retained stock bolts. Use medium strength Loctite and torque to 18 ft.-lb.

Remove the lower stock black 1/4" hose from the stock 2" x 1/4" tee. Using a small screwdriver, pop apart the two hose clamps on the 2" inlet line on the stock 2" x 2" x 1/4" AT@. Remove the

AT@ and install the Spec II filter-solenoid assembly (item #23) in place with the solenoid pointing towards the right (starboard) side, re-secure with 2" hose clamps (item #18). Remove the regulator from the waterbox, and install the 1/8" NPT pipe nipple with 5mm ID thread (item #20) in place of the stock nipple. This nipple will allow for future addition of jets to regulate water flow in modified engines, if needed. Reinstall the regulator.

Attach the remaining end of the stock black 1/4" line (still attached to the bottom nipple of the regulator) to the 1/4" brass barb on the filter, secure with a zip tie. Attach the remaining end of the 3/8" x 24" silicone hose (attached to the filter solenoid assembly) to the 3/8" barbed fitting on the headpipe flange, secure with #6 hose clamp (item #22). This hose must not be replaced with standard waterline.

Route the 1/4" x 41" waterline along the length of the 3/8" silicone hose and attach the remaining end of the waterline to the upper nipple on the pressure regulator. Secure the waterline with zip ties to the regulator and at two places between the 3/8" silicone hose and the 1/4" waterline. Connect the solenoid connector to the ECWI module connector that was run along the stock wire harness clips.

Double check all hose connections and bolts. Start engine and watch for any exhaust or fuel leaks.

PIPE TUNING

On a stock XP/SPX we suggest using the sprayer on the cylinder head (rear) side of the headpipe, plug the front headpipe hole with the 1/8" pipe plug. Limited race or engines with slightly higher compression, larger carburetors, a smaller pitched impeller or all of the above may find better performance using the front headpipe sprayer.

To tune your pipe for best performance, adjust the red center cap on the regulator on top of the waterbox with a screwdriver. We suggest turning the regulator all the way in (clockwise) then out 2 to 1 turn. Turning the adjuster clockwise will spray more water into the pipe and counterclockwise will spray less water. Our testing has shown this system performs best with more water.

IMPORTANT NOTES

1. You must run a resistor type spark plug to prevent interference with the Micro Touch 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.

WATER ROUTING

